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90054674

008589

Appendices

Appendix A-1
First Phase Pre-Design Investigation Laboratory Reports

November 29, 2018 Service Request No:E1801012

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for: C1887-0501

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 08, 2018
For your reference, these analyses have been assigned our service request number **E1801012.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Integral Consulting	**Service Request No.:**	E1801012
Project:	C1887-0501	**Date Received:**	11/08/18
Sample Matrix:	Soil/Wipe		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Twenty-two samples were received for analysis at ALS Environmental in Houston on 11/08/18.

The samples were received at 4.0°C and 4.4 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blanks EQ1800463-01, EQ1800467-01, EQ1800468-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

MS/MSD

EQ1800463, EQ1800467, EQ1800468: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

Y flags – Labeled Standards

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

Dilutions

The sample had elevated levels of target analytes and required a dilution. The undiluted and diluted results were combined into one Total TEQ summary report for each sample. This reports a 'Total' result that includes the most appropriate concentration found for the associated target analyte.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801012-001	SL0053	11/5/2018	1340
E1801012-002	SL0054	11/5/2018	1344
E1801012-003	SL0055	11/5/2018	1351
E1801012-004	SL0056	11/5/2018	1357
E1801012-005	SL0057	11/5/2018	1402
E1801012-006	SL0058	11/5/2018	1407
E1801012-007	SL0059	11/5/2018	1450
E1801012-008	SL0060	11/5/2018	1455
E1801012-009	SL0061	11/5/2018	1500
E1801012-010	SL0062	11/5/2018	1505
E1801012-011	SL0063	11/5/2018	1510
E1801012-012	SL0064	11/5/2018	1515
E1801012-013	SL0066	11/6/2018	0900
E1801012-014	SL0067	11/6/2018	0905
E1801012-015	SL0068	11/6/2018	0910
E1801012-016	SL0069	11/6/2018	0915
E1801012-017	SL0070	11/6/2018	0920
E1801012-018	SL0071	11/6/2018	0925
E1801012-019	SL0065	11/5/2018	1520
E1801012-020	SL0072	11/6/2018	0930
E1801012-021	FW0002	11/5/2018	0820
E1801012-022	FW0003	11/6/2018	1600

Service Request Summary

Folder #: **E1801012**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: JGUIN
Date Received: 11/08/18
Internal Due Date: 11/28/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

22	8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
20	-N/A N/A
13	4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
3	40 mL-Glass Vial VOA w/ Valve CLEAR Teflon Liner Unpreserved
3	40 mL-Glass Vial VOA CLEAR Tef/Silicone Septa Unpreserved
2	16 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
2	125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved

Location: EHRMS-WIC 2B, SMO, K-RENTAL-19, In Lab, E-Disposed

Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801012-006	SL0058	Sediment	11/05/18 1407	**IV**	**IV**
E1801012-012	SL0064	Sediment	11/05/18 1515	**IV**	**IV**
E1801012-018	SL0071	Sediment	11/06/18 0925	**IV**	**IV**
E1801012-019	SL0065	Sediment	11/05/18 1520	**IV**	**IV**
E1801012-020	SL0072	Sediment	11/06/18 0930	**IV**	**IV**
E1801012-021	FW0002	Wipe	11/05/18 0820	**IV**	
E1801012-022	FW0003	Wipe	11/06/18 1600	**IV**	

Service Request Summary

Folder #: **E1801012**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: JGUIN
Date Received: 11/08/18
Internal Due Date: 11/28/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

22	8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
20	-N/A N/A
13	4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
3	40 mL-Glass Vial VOA w/ Valve CLEAR Teflon Liner Unpreserved
3	40 mL-Glass Vial VOA CLEAR Tef/Silicone Septa Unpreserved
2	16 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
2	125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved

Location: EHRMS-WIC 2B, SMO, K-RENTAL-19, In Lab, E-Disposed

Pressure Gas:

Superset Summary

Service Request: E1801012 **SuperSet Reference:** 18-0000488941 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P518971	P518965	P518927	E1801012-006
P518830	P518826	P518927	E1801012-006.R01
P518972	P518965	P518927	E1801012-012
P518831	P518826	P518927	E1801012-012.R01
P518973	P518965	P518927	E1801012-018
P518832	P518826	P518927	E1801012-018.R01
P518974	P518965	P518927	E1801012-019
P518833	P518826	P518927	E1801012-019.R01
P518874	P518865	P518868	E1801012-020.R01
P518927	P518924	P518927	EQ1800463-01
P518850	P518837	P518927	EQ1800463-02
P518851	P518837	P518927	EQ1800463-03
P518868	P518865	P518868	EQ1800468-01
P518877	P518865	P518868	EQ1800468-02
P518878	P518865	P518868	EQ1800468-03

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P615680	P615674	P518868	E1801012-020
P615719	P615714	P615718	E1801012-021
P615720	P615714	P615718	E1801012-022
P615718	P615714	P615718	EQ1800467-01
P615727	P615714	P615718	EQ1800467-02
P615728	P615714	P615718	EQ1800467-03

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1801012 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date: 11/16/18	Analyst: Gc	Samples: 006, 012, 018, 019

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/19/18	LKL	006, 012, 018, 019

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E180102 — DB-5MSUI — SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/21/18	JC	020

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/21/18	LG	020

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801012 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/26/18	LKL	006DL, 012DL, 018DL, 019DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/26/18	LG	006DL, 012DL, 018DL, 019DL

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E18 01012 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/26/18	JC	020DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/27/18	LKL	020DL

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E180102 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/28/18	LKL	021, 022

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/28/18	LG	021, 022

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

E1801012 5

Integral Consulting, Inc.
San Jacinto Waste Pits

CHAIN OF CUSTODY FORM

Project: C1887 - 0501

Samplers: Stephen Sherman, Stefan Wodzicki, Sarah Kissel, Casey Janisch

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C *	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0053	0193	11/5/18	1340	Soil										X	
SL0054	0194		1344											X	
SL0055	0195		1351											X	
SL0056	0196		1357											X	
SL0057	0197		1402											X	
SL0058	0203		1407		X										
SL0059	0198		1450											X	
SL0060	0199		1455											X	
SL0061	0200		1500											X	
SL0062	0201		1505											X	
SL0063	0202		1510											X	
SL0064	0220	V	1515		X	X	X	X	X*	X		X			221, 222, 223, 224, 225, 226, 227
SL0066	0211	11/6/18	0900											X	
SL0067	0212		0905											X	
SL0068	0213		0910											X	
SL0069	0216		0915											X	
SL0070	0215		0920											X	
SL0071	0214	V	0925		X										
SL0065	0386	11/5/18	1520	V	X	X	X	X	X*	X	X	X			0387, 0388, 0389, 0390, 0391, 0392, 0393
SL0072	0061	11/6/18	0930												

Analysis Turn Time: Normal Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Relinquished by: Stephen Sherman (signature) **Date/Time:** 11/7/18 1000 **Received by:** (signature) **Date/Time:** 11-7-18 1000

Relinquished by: (signature) **Date/Time:** 11-7-18 1830 **Received by:** (signature) **Date/Time:**

Matrix Code:	
GW - Groundwater	
SL - Soil	SW - Surface water
SD -Sediment	Other:

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

*Termcore sample date & time: 11/6/18 07:35 for SL0064 tag #223; 11/6/18 0730 for SL0065 tag # 0389

Received: 11/8/18

CHAIN OF CUSTODY FORM

integral consulting inc.

Project: C1887 - 0501

Samplers: See Page 1

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

ANALYSES REQUESTED

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
FW0002	0458	11/5/18	0820	Paper	X										
FW0003	0466	11/6/18	1600	" "	X										

11/6/18

Analysis Turn Time: Normal Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Relinquished by: (signature) **Date/Time:** 11/7/18 1000 **Received by:** (signature) **Date/Time:** 11-7-18 1000

Relinquished by: (signature) **Date/Time:** 11-7-18 1130 **Received by:** (signature) **Date/Time:**

Matrix Code:	
GW - Groundwater	SL - Soil
SW - Surface water	SD -Sediment
Other:	

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

Received: 11/8/18

Cooler Receipt Form

ALS Environmental

Project Chemist _____

Client/Project Integral Thermometer ID SM04

Date/Time Received: 11/7/18 Initials: ____ Date/Time Logged in: 11/8/18 Initials AL

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ○ Courier ○ ~~Client~~

2. Samples received in: ○ ~~Cooler~~ ○ Box ○ Envelope ○ Other _____

3. Were custody seals on coolers? ○ ~~Yes~~ ○ No
   Were they intact? ○ ~~Yes~~ ○ No ○ N/A
   Were they signed and dated? ○ ~~Yes~~ ○ No ○ N/A
   If yes, how many and where? 2 seals

4. Packing Material: ○ Inserts ○ Baggies ○ ~~Bubble Wrap~~ ○ Gel Packs ○ ~~Wet Ice~~ ○ Sleeves ○ Other _____

5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling: _____

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
N/A		11/7/18		JG	4.0/4.4	☐
N/A		11/7/18		JG	4.4/4.7	☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ○ ~~Yes~~ ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ○ ~~Yes~~ ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ○ ~~Yes~~ ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ○ ~~Yes~~ ○ No
10. Did sample labels and tags agree with custody documents? ○ ~~Yes~~ ○ No

Notes, Discrepancies, & Resolutions:

Service request Label: E1801012 5
Integral Consulting, Inc.
San Jacinto Waste Pits

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 326161 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/12/18 08:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801012-006	SL0058	.01	1613B/Dioxins Furans			Sediment	10.363g	Brown Mud + Rocks
2	E1801012-012	SL0064	.01	1613B/Dioxins Furans			Sediment	10.208g	Brown Mud + Rocks
3	E1801012-018	SL0071	.01	1613B/Dioxins Furans			Sediment	10.315g	Brown Mud + Rocks
4	E1801012-019	SL0065	.01	1613B/Dioxins Furans			Sediment	10.800g	Brown Mud + Rocks
5	E1801018-001	SL0500	.01	1613B/Dioxins Furans			Sediment	10.420g	Brown Mud
6	E1801018-002	SL0501	.01	1613B/Dioxins Furans			Sediment	10.800g	Brown Mud
7	E1801018-003	SL0502	.01	1613B/Dioxins Furans			Sediment	10.933g	Thick Brown Mud
8	E1801018-004	SL0503	.01	1613B/Dioxins Furans			Sediment	10.422g	Thick Brown Mud
9	E1801018-005	SL0504	.01	1613B/Dioxins Furans			Sediment	10.407g	Thick Brown Mud
10	E1801018-006	SL0505	.01	1613B/Dioxins Furans			Sediment	10.475g	Thick Brown Mud
11	E1801018-007	SL0506	.01	1613B/Dioxins Furans			Sediment	10.401g	Thick Brown Mud
12	E1801018-008	SL0507	.01	1613B/Dioxins Furans			Sediment	10.518g	Thick Brown Mud
13	E1801018-009	SL0508	.01	1613B/Dioxins Furans			Sediment	10.525g	Thick Brown Mud
14	E1801020-006	SL0045	.02	1613B/Dioxins Furans			Sediment	10.956g	Thick Brown Mud
15	E1801020-012	SL0052	.02	1613B/Dioxins Furans			Sediment	10.596g	Thick Brown Mud
16	E1801020-018	SL0022	.02	1613B/Dioxins Furans			Sediment	10.125g	Thick Brown Mud + Rocks
17	E1801020-034	SL0011	.02	1613B/Dioxins Furans			Sediment	10.180g	Black Mud + Grass
18	E1801020-045	SL0033	.02	1613B/Dioxins Furans			Sediment	10.447g	Thick Brown Mud + Rocks
19	E1801020-051	SL0034	.02	1613B/Dioxins Furans			Sediment	10.086g	Thick Brown Mud + Rocks
20	E1801020-052	SL0046	.02	1613B/Dioxins Furans			Sediment	10.797g	Thick Brown Mud + Rocks
21	EQ1800463-01	MB		1613B/Dioxins Furans			Solid	10.041g	
22	EQ1800463-02	LCS		1613B/Dioxins Furans			Solid	10.233g	
23	EQ1800463-03	DLCS		1613B/Dioxins Furans			Solid	10.229g	

Spiking Solutions

Name: 8290/1613B Cleanup Working Standard Inventory ID 194514 Logbook Ref: 194514 tw 10/29/18 8ng/ml Expires On: 04/27/2019

E1801012-006	100.00µL	E1801012-006.R	100.00µL	E1801012-012	100.00µL	E1801012-012.R	100.00µL	E1801012-018	100.00µL	E1801012-018.R	100.00µL
E1801012-019	100.00µL	E1801012-019.R	100.00µL	E1801018-001	100.00µL	E1801018-002	100.00µL	E1801018-003	100.00µL	E1801018-004	100.00µL
E1801018-005	100.00µL	E1801018-006	100.00µL	E1801018-007	100.00µL	E1801018-008	100.00µL	E1801018-009	100.00µL	E1801020-006	100.00µL
E1801020-012	100.00µL	E1801020-018	100.00µL	E1801020-034	100.00µL	E1801020-045	100.00µL	E1801020-051	100.00µL	E1801020-052	100.00µL
EQ1800463-01	100.00µL	EQ1800463-02	100.00µL	EQ1800463-03	100.00µL						

Name: 1613B Matrix Working Standard Inventory ID 194569 Logbook Ref: 194569 AL 10/31/18 2-20 ng/mL Expires On: 04/29/2019

EQ1800463-02	100.00µL	EQ1800463-03	100.00µL

Preparation Information Benchsheet

Prep Run#: 326161 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/12/18 08:00 AM

Name:	1613B Labeled Working Standard	Inventory ID	194840	Logbook Ref:	194839 JG 11/12/18 2-4ngml	Expires On:	01/31/2019

E1801012-006	1,000.00µL	E1801012-006.R	1,000.00µL	E1801012-012	1,000.00µL	E1801012-012.R	1,000.00µL
E1801012-018	1,000.00µL	E1801012-018.R	1,000.00µL	E1801012-019	1,000.00µL	E1801012-019.R	1,000.00µL
E1801018-001	1,000.00µL	E1801018-002	1,000.00µL	E1801018-003	1,000.00µL	E1801018-004	1,000.00µL
E1801018-005	1,000.00µL	E1801018-006	1,000.00µL	E1801018-007	1,000.00µL	E1801018-008	1,000.00µL
E1801018-009	1,000.00µL	E1801020-006	1,000.00µL	E1801020-012	1,000.00µL	E1801020-018	1,000.00µL
E1801020-034	1,000.00µL	E1801020-045	1,000.00µL	E1801020-051	1,000.00µL	E1801020-052	1,000.00µL
EQ1800463-01	1,000.00µL	EQ1800463-02	1,000.00µL	EQ1800463-03	1,000.00µL		

Preparation Materials

Carbon, High Purity	TW 11/09/18 CARBON (194871)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	AL 8/20/18 (192604)
Hexanes 95%	JG 10/25/18 (194470)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL 9/5/18 (192924)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	tw 10/31/18 toluene (194570)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/12/18 08:00	Started:	11/14/18 10:00	Started:	11/14/18 13:00	Started:	11/15/18 12:00
Finished:	11/13/18 07:30	Finished:	11/14/18 11:00	Finished:	11/14/18 16:00	Finished:	11/15/18 15:00
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

Prep Run#: 326304 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/13/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801012-020	SL0072	.01	1613B/Dioxins Furans			Sediment	10.139g	Brown Mud
2	E1801035-006	SL0084	.01	1613B/Dioxins Furans			Sediment	10.002g	Brown Mud
3	E1801038-001	SL0519	.01	1613B/Dioxins Furans			Sediment	10.361g	Brown Dirt
4	E1801038-002	SL0520	.01	1613B/Dioxins Furans			Sediment	10.833g	Brown Dirt
5	E1801038-003	SL0521	.01	1613B/Dioxins Furans			Sediment	10.412g	Brown Mud
6	E1801038-004	SL0522	.01	1613B/Dioxins Furans			Sediment	10.107g	Brown Mud
7	E1801038-005	SL0523	.01	1613B/Dioxins Furans			Sediment	10.614g	Brown Mud + Water
8	E1801038-006	SL0524	.01	1613B/Dioxins Furans			Sediment	10.369g	Brown Mud
9	E1801038-007	SL0525	.01	1613B/Dioxins Furans			Sediment	10.736g	Brown Mud
10	E1801038-008	SL0526	.01	1613B/Dioxins Furans			Sediment	10.385g	Brown Dirt
11	E1801038-009	SL0527	.01	1613B/Dioxins Furans			Sediment	10.723g	Brown Dirt
12	E1801038-010	SL0528	.01	1613B/Dioxins Furans			Sediment	10.215g	Brown Mud
13	E1801038-011	SL0529	.01	1613B/Dioxins Furans			Sediment	10.338g	Brown Mud
14	E1801038-012	SL0530	.01	1613B/Dioxins Furans			Sediment	10.493g	Brown Mud
15	E1801038-013	SL0531	.01	1613B/Dioxins Furans			Sediment	10.619g	Brown Mud
16	E1801038-014	SL0532	.01	1613B/Dioxins Furans			Sediment	10.482g	Brown Mud
17	E1801038-015	SL0533	.01	1613B/Dioxins Furans			Sediment	10.269g	Brown Mud
18	E1801038-016	SL0534	.01	1613B/Dioxins Furans			Sediment	10.797g	Moist Brown Sand
19	E1801038-017	SL0535	.01	1613B/Dioxins Furans			Sediment	10.716g	Brown Mud
20	EQ1800468-01	MB		1613B/Dioxins Furans			Solid	10.243g	
21	EQ1800468-02	LCS		1613B/Dioxins Furans			Solid	10.296g	
22	EQ1800468-03	DLCS		1613B/Dioxins Furans			Solid	10.187g	

Spiking Solutions

Name: 8290/1613B Cleanup Working Standard Inventory ID 194514 Logbook Ref: 194514 tw 10/29/18 8ng/ml Expires On: 04/27/2019

E1801012-020	100.00µL	E1801035-006	100.00µL	E1801038-001	100.00µL	E1801038-002	100.00µL	E1801038-003	100.00µL	E1801038-004	100.00µL
E1801038-005	100.00µL	E1801038-006	100.00µL	E1801038-007	100.00µL	E1801038-008	100.00µL	E1801038-009	100.00µL	E1801038-010	100.00µL
E1801038-011	100.00µL	E1801038-012	100.00µL	E1801038-013	100.00µL	E1801038-014	100.00µL	E1801038-015	100.00µL	E1801038-016	100.00µL
E1801038-017	100.00µL	EQ1800468-01	100.00µL	EQ1800468-02	100.00µL	EQ1800468-03	100.00µL				

Name: 1613B Matrix Working Standard Inventory ID 194569 Logbook Ref: 194569 AL 10/31/18 2-20 ng/mL Expires On: 04/29/2019

EQ1800468-02	100.00µL	EQ1800468-03	100.00µL

Preparation Information Benchsheet

Prep Run#: 326304 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/13/18 11:00 AM

Name:	1613B Labeled Working Standard	Inventory ID	194839	Logbook Ref:	194839 JG 11/12/18 2-4ngml	Expires On:	01/31/2019

E1801012-020	1,000.00µL	E1801035-006	1,000.00µL	E1801038-001	1,000.00µL	E1801038-002	1,000.00µL	E1801038-003	1,000.00µL	E1801038-004	1,000.00µL
E1801038-005	1,000.00µL	E1801038-006	1,000.00µL	E1801038-007	1,000.00µL	E1801038-008	1,000.00µL	E1801038-009	1,000.00µL	E1801038-010	1,000.00µL
E1801038-011	1,000.00µL	E1801038-012	1,000.00µL	E1801038-013	1,000.00µL	E1801038-014	1,000.00µL	E1801038-015	1,000.00µL	E1801038-016	1,000.00µL
E1801038-017	1,000.00µL	EQ1800468-01	1,000.00µL	EQ1800468-02	1,000.00µL	EQ1800468-03	1,000.00µL				

Preparation Materials

Carbon, High Purity	TW 11/09/18 CARBON (194871)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	AL 8/20/18 (192604)
Hexanes 95%	AL 10/11/18 (194006)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL 9/5/18 (192924)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	tw 10/31/18 toluene (194570)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/13/18 11:00	Started:	11/15/18 08:00	Started:	11/15/18 10:00	Started:	11/16/18 08:00
Finished:	11/14/18 07:30	Finished:	11/15/18 09:00	Finished:	11/15/18 13:00	Finished:	11/16/18 11:00
By:	ALOPEZ	By:	JGUIN	By:	JGUIN	By:	JGUIN
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

E1801012 25 of 916

008616

Preparation Information Benchsheet

Prep Run#: 326300 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 11/14/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801012-021	FW0002	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
2	E1801012-022	FW0003	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
3	E1801020-053	FW0001	.03	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
4	E1801020-054	FB0001	.02	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
5	E1801036-001	183384-D/F Wipe of Lab Report	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
6	E1801036-002	183391-D/F Wipe of Green Binder Papers	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
7	E1801036-003	183392-D/F Wipe of History Brook	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
8	E1801038-023	FW0050	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
9	E1801039-039	FW0005	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
10	E1801039-040	FW0006	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
11	E1801039-041	FW0004	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
12	EQ1800467-01	MB		1613B/Dioxins Furans			Wipes	0.5000Sample	
13	EQ1800467-02	LCS		1613B/Dioxins Furans			Wipes	0.5000Sample	
14	EQ1800467-03	DLCS		1613B/Dioxins Furans			Wipes	0.5000Sample	

Spiking Solutions

Name: 1613B Labeled Working Standard Inventory ID 194889 Logbook Ref: 194889 AL 11/13/18 2-4 ng/mL Expires On: 01/31/2019

E1801039-040 1,000.00µL E1801039-041 1,000.00µL

Name: 1613B Labeled Working Standard Inventory ID 194903 Logbook Ref: 194903 JG 11/14/18 2-4ngml Expires On: 01/31/2019

E1801012-021 1,000.00µL E1801012-022 1,000.00µL E1801020-053 1,000.00µL E1801020-054 1,000.00µL E1801036-001 1,000.00µL E1801036-002 1,000.00µL
E1801036-003 1,000.00µL E1801038-023 1,000.00µL E1801039-039 1,000.00µL E1801039-040 1,000.00µL E1801039-041 1,000.00µL EQ1800467-01 1,000.00µL
EQ1800467-02 1,000.00µL EQ1800467-03 1,000.00µL

Name: 1613B Matrix Working Standard Inventory ID 194946 Logbook Ref: 194946 AL 11/14/18 2-20 ng/mL Expires On: 05/13/2019

EQ1800467-02 100.00µL EQ1800467-03 100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195006 Logbook Ref: tw 11/1/18 8ng/ml 195006 Expires On: 04/27/2019

E1801012-021 100.00µL E1801012-022 100.00µL E1801020-053 100.00µL E1801020-054 100.00µL E1801036-001 100.00µL E1801036-002 100.00µL
E1801036-003 100.00µL E1801038-023 100.00µL E1801039-039 100.00µL E1801039-040 100.00µL E1801039-041 100.00µL EQ1800467-01 100.00µL
EQ1800467-02 100.00µL EQ1800467-03 100.00µL

Preparation Information Benchsheet

Prep Run#: 326300 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 11/14/18 11:00 AM

Preparation Materials

Carbon, High Purity	TW 11/09/18 CARBON (194871)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Chloride Reagent Grade NaCl	AL 8/20/18 (192602)
Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)
Silica Gel	AL 10/11/18 (194005)	sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	10/31/18 tw toluene (194571)

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/14/18 11:00	Started:	11/20/18 11:00	Started:	11/21/18 13:30	Started:	11/26/18 13:00
Finished:	11/15/18 07:30	Finished:	11/20/18 12:00	Finished:	11/21/18 16:30	Finished:	11/26/18 14:45
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 14:07
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0058	**Units:**	ng/Kg
Lab Code:	E1801012-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 15:58
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.363g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518971	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	4670		52.0	75.9	0.79	1.001	100
1,2,3,7,8-PeCDD	63.6		0.707	3.79	1.37	1.001	1
1,2,3,4,7,8-HxCDD	6.15		0.889	3.79	1.11	1.000	1
1,2,3,6,7,8-HxCDD	38.5		0.967	3.79	1.22	1.000	1
1,2,3,7,8,9-HxCDD	14.6		0.908	3.79	1.29	1.008	1
1,2,3,4,6,7,8-HpCDD	1260		0.293	3.79	1.04	1.000	1
OCDD	7000		16.0	759	0.94	1.000	100
2,3,7,8-TCDF	15600		21.3	75.9	0.75	1.001	100
1,2,3,7,8-PeCDF	616		1.41	3.79	1.54	1.001	1
2,3,4,7,8-PeCDF	544		1.43	3.79	1.54	1.000	1
1,2,3,4,7,8-HxCDF	1070		1.22	3.79	1.22	1.000	1
1,2,3,6,7,8-HxCDF	278	**P**	1.24	3.79	1.25	1.000	1
1,2,3,7,8,9-HxCDF	80.1		1.39	3.79	1.25	1.001	1
2,3,4,6,7,8-HxCDF	64.2		1.24	3.79	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	465		2.44	3.79	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	127		2.90	3.79	1.02	1.000	1
OCDF	1700		0.250	7.59	0.88	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 14:07
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0058	**Units:**	ng/Kg
Lab Code:	E1801012-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 15:58
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.363g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518971	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	6860		0.902	0.902	0.85		1
Total Penta-Dioxins	106		0.707	3.79	1.64		1
Total Hexa-Dioxins	363		0.922	3.79	1.26		1
Total Hepta-Dioxins	2940		0.293	3.79	1.05		1
Total Tetra-Furans	34200		0.600	0.759	0.80		1
Total Penta-Furans	1680		1.42	3.79	1.44		1
Total Hexa-Furans	1820		1.27	3.79	1.21		1
Total Hepta-Furans	974		2.65	3.79	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 14:07
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0058	**Units:**	Percent
Lab Code:	E1801012-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 17:36
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.363g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518830	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1200.494	60		25-164	0.80	1.027
13C-1,2,3,7,8-PeCDD	2000	1359.516	68		25-181	1.59	1.232
13C-1,2,3,4,7,8-HxCDD	2000	1026.095	51		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1091.138	55		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1311.213	66		23-140	1.04	1.071
13C-OCDD	4000	2263.955	57		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1110.184	56		24-169	0.81	0.988
13C-1,2,3,7,8-PeCDF	2000	1260.266	63		24-185	1.61	1.181
13C-2,3,4,7,8-PeCDF	2000	1253.309	63		21-178	1.59	1.221
13C-1,2,3,4,7,8-HxCDF	2000	895.650	45		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	955.673	48		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1079.771	54		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	967.003	48		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	998.187	50		28-143	0.43	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1159.430	58		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	680.561	85		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 14:07
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0058	**Units:**	ng/Kg
Lab Code:	E1801012-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**4670**	52.0	75.9	100	1	4670
1,2,3,7,8-PeCDD	**63.6**	0.707	3.79	1	1	63.6
1,2,3,4,7,8-HxCDD	**6.15**	0.889	3.79	1	0.1	0.615
1,2,3,6,7,8-HxCDD	**38.5**	0.967	3.79	1	0.1	3.85
1,2,3,7,8,9-HxCDD	**14.6**	0.908	3.79	1	0.1	1.46
1,2,3,4,6,7,8-HpCDD	**1260**	0.293	3.79	1	0.01	12.6
OCDD	**7000**	16.0	759	100	0.0003	2.10
2,3,7,8-TCDF	**15600**	21.3	75.9	100	0.1	1560
1,2,3,7,8-PeCDF	**616**	1.41	3.79	1	0.03	18.5
2,3,4,7,8-PeCDF	**544**	1.43	3.79	1	0.3	163
1,2,3,4,7,8-HxCDF	**1070**	1.22	3.79	1	0.1	107
1,2,3,6,7,8-HxCDF	**278**	1.24	3.79	1	0.1	27.8
1,2,3,7,8,9-HxCDF	**80.1**	1.39	3.79	1	0.1	8.01
2,3,4,6,7,8-HxCDF	**64.2**	1.24	3.79	1	0.1	6.42
1,2,3,4,6,7,8-HpCDF	**465**	2.44	3.79	1	0.01	4.65
1,2,3,4,7,8,9-HpCDF	**127**	2.90	3.79	1	0.01	1.27
OCDF	**1700**	0.250	7.59	1	0.0003	0.510
		Total TEQ				6650

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 14:07
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0058	**Units:**	Percent
Lab Code:	E1801012-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	6.423g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	63.6		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0064	**Units:**	ng/Kg
Lab Code:	E1801012-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 16:47
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.208g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518972	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	5540		22.2	32.6	0.79	1.001	50
1,2,3,7,8-PeCDD	31.8		0.367	3.26	1.58	1.001	1
1,2,3,4,7,8-HxCDD	0.758	**JK**	0.434	3.26	1.83	1.000	1
1,2,3,6,7,8-HxCDD	6.65	**K**	0.487	3.26	1.47	1.000	1
1,2,3,7,8,9-HxCDD	3.11	**J**	0.451	3.26	1.22	1.007	1
1,2,3,4,6,7,8-HpCDD	253		0.796	3.26	1.02	1.000	1
OCDD	1860		10.2	326	0.84	1.000	50
2,3,7,8-TCDF	17400		11.9	32.6	0.76	1.001	50
1,2,3,7,8-PeCDF	412		0.850	3.26	1.54	1.001	1
2,3,4,7,8-PeCDF	353		0.880	3.26	1.54	1.001	1
1,2,3,4,7,8-HxCDF	700		0.795	3.26	1.23	1.000	1
1,2,3,6,7,8-HxCDF	177		0.773	3.26	1.24	1.000	1
1,2,3,7,8,9-HxCDF	52.9		0.867	3.26	1.28	1.001	1
2,3,4,6,7,8-HxCDF	34.2		0.794	3.26	1.33	1.000	1
1,2,3,4,6,7,8-HpCDF	240		0.745	3.26	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	73.3		0.835	3.26	1.02	1.000	1
OCDF	1130		0.263	6.51	0.87	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0064	**Units:**	ng/Kg
Lab Code:	E1801012-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 16:47
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.208g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518972	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	3510		0.497	0.651	0.80		1
Total Penta-Dioxins	48.7		0.367	3.26	1.57		1
Total Hexa-Dioxins	62.4		0.458	3.26	1.35		1
Total Hepta-Dioxins	526		0.796	3.26	1.06		1
Total Tetra-Furans	18400		0.529	0.651	0.76		1
Total Penta-Furans	1180		0.864	3.26	1.52		1
Total Hexa-Furans	1060		0.806	3.26	1.08		1
Total Hepta-Furans	437		0.786	3.26	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0064	**Units:**	Percent
Lab Code:	E1801012-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 18:24
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.208g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518831	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1190.970	60		25-164	0.80	1.027
13C-1,2,3,7,8-PeCDD	2000	1369.678	68		25-181	1.57	1.233
13C-1,2,3,4,7,8-HxCDD	2000	1052.600	53		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1077.911	54		28-130	1.30	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1324.809	66		23-140	1.08	1.071
13C-OCDD	4000	2183.805	55		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	1078.080	54		24-169	0.78	0.988
13C-1,2,3,7,8-PeCDF	2000	1289.532	64		24-185	1.58	1.182
13C-2,3,4,7,8-PeCDF	2000	1275.521	64		21-178	1.60	1.221
13C-1,2,3,4,7,8-HxCDF	2000	902.150	45		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	958.391	48		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1113.692	56		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	978.785	49		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	974.725	49		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1182.485	59		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	612.124	77		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0064	**Units:**	ng/Kg
Lab Code:	E1801012-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**5540**	22.2	32.6	50	1	5540
1,2,3,7,8-PeCDD	**31.8**	0.367	3.26	1	1	31.8
1,2,3,4,7,8-HxCDD	**0.758**	0.434	3.26	1	0.1	0.0758
1,2,3,6,7,8-HxCDD	**6.65**	0.487	3.26	1	0.1	0.665
1,2,3,7,8,9-HxCDD	**3.11**	0.451	3.26	1	0.1	0.311
1,2,3,4,6,7,8-HpCDD	**253**	0.796	3.26	1	0.01	2.53
OCDD	**1860**	10.2	326	50	0.0003	0.558
2,3,7,8-TCDF	**17400**	11.9	32.6	50	0.1	1740
1,2,3,7,8-PeCDF	**412**	0.850	3.26	1	0.03	12.4
2,3,4,7,8-PeCDF	**353**	0.880	3.26	1	0.3	106
1,2,3,4,7,8-HxCDF	**700**	0.795	3.26	1	0.1	70.0
1,2,3,6,7,8-HxCDF	**177**	0.773	3.26	1	0.1	17.7
1,2,3,7,8,9-HxCDF	**52.9**	0.867	3.26	1	0.1	5.29
2,3,4,6,7,8-HxCDF	**34.2**	0.794	3.26	1	0.1	3.42
1,2,3,4,6,7,8-HpCDF	**240**	0.745	3.26	1	0.01	2.40
1,2,3,4,7,8,9-HpCDF	**73.3**	0.835	3.26	1	0.01	0.733
OCDF	**1130**	0.263	6.51	1	0.0003	0.339
		Total TEQ				7530

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0064	**Units:**	Percent
Lab Code:	E1801012-012	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	5.877g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	75.2		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 09:25
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0071	**Units:**	ng/Kg
Lab Code:	E1801012-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 17:35
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.315g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518973	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	6060		29.6	32.6	0.78	1.001	50
1,2,3,7,8-PeCDD	36.1		0.289	3.26	1.66	1.001	1
1,2,3,4,7,8-HxCDD	1.01	**JK**	0.262	3.26	1.01	1.000	1
1,2,3,6,7,8-HxCDD	5.40		0.291	3.26	1.15	1.000	1
1,2,3,7,8,9-HxCDD	2.15	**JK**	0.270	3.26	0.98	1.007	1
1,2,3,4,6,7,8-HpCDD	129		0.773	3.26	1.05	1.000	1
OCDD	2320		0.444	6.52	0.90	1.000	1
2,3,7,8-TCDF	22300		17.9	32.6	0.75	1.001	50
1,2,3,7,8-PeCDF	275		1.15	3.26	1.52	1.000	1
2,3,4,7,8-PeCDF	240		1.25	3.26	1.53	1.001	1
1,2,3,4,7,8-HxCDF	483		0.453	3.26	1.23	1.000	1
1,2,3,6,7,8-HxCDF	119		0.446	3.26	1.16	1.000	1
1,2,3,7,8,9-HxCDF	34.5		0.490	3.26	1.24	1.001	1
2,3,4,6,7,8-HxCDF	21.0		0.464	3.26	1.27	1.000	1
1,2,3,4,6,7,8-HpCDF	153		0.865	3.26	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	45.9		0.896	3.26	1.09	1.000	1
OCDF	1090		0.376	6.52	0.86	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 09:25
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0071	**Units:**	ng/Kg
Lab Code:	E1801012-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 17:35
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.315g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518973	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	4060		0.573	0.652	0.79		1
Total Penta-Dioxins	46.0		0.289	3.26	1.45		1
Total Hexa-Dioxins	49.4		0.275	3.26	1.24		1
Total Hepta-Dioxins	297		0.773	3.26	1.06		1
Total Tetra-Furans	19300		0.486	0.652	0.74		1
Total Penta-Furans	783		1.20	3.26	1.39		1
Total Hexa-Furans	725		0.463	3.26	1.17		1
Total Hepta-Furans	282		0.876	3.26	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 09:25
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0071	**Units:**	Percent
Lab Code:	E1801012-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 19:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.315g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518832	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1211.539	61		25-164	0.79	1.027
13C-1,2,3,7,8-PeCDD	2000	1425.335	71		25-181	1.59	1.234
13C-1,2,3,4,7,8-HxCDD	2000	1027.007	51		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1030.089	52		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1154.010	58		23-140	1.08	1.071
13C-OCDD	4000	1645.851	41		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1025.675	51		24-169	0.79	0.988
13C-1,2,3,7,8-PeCDF	2000	1335.861	67		24-185	1.57	1.183
13C-2,3,4,7,8-PeCDF	2000	1245.318	62		21-178	1.60	1.222
13C-1,2,3,4,7,8-HxCDF	2000	874.179	44		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	898.130	45		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1089.596	54		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	945.758	47		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	839.193	42		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1107.435	55		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	647.224	81		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 09:25
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0071	**Units:**	ng/Kg
Lab Code:	E1801012-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**6060**	29.6	32.6	50	1	6060
1,2,3,7,8-PeCDD	**36.1**	0.289	3.26	1	1	36.1
1,2,3,4,7,8-HxCDD	**1.01**	0.262	3.26	1	0.1	0.101
1,2,3,6,7,8-HxCDD	**5.40**	0.291	3.26	1	0.1	0.540
1,2,3,7,8,9-HxCDD	**2.15**	0.270	3.26	1	0.1	0.215
1,2,3,4,6,7,8-HpCDD	**129**	0.773	3.26	1	0.01	1.29
OCDD	**2320**	0.444	6.52	1	0.0003	0.696
2,3,7,8-TCDF	**22300**	17.9	32.6	50	0.1	2230
1,2,3,7,8-PeCDF	**275**	1.15	3.26	1	0.03	8.25
2,3,4,7,8-PeCDF	**240**	1.25	3.26	1	0.3	72.0
1,2,3,4,7,8-HxCDF	**483**	0.453	3.26	1	0.1	48.3
1,2,3,6,7,8-HxCDF	**119**	0.446	3.26	1	0.1	11.9
1,2,3,7,8,9-HxCDF	**34.5**	0.490	3.26	1	0.1	3.45
2,3,4,6,7,8-HxCDF	**21.0**	0.464	3.26	1	0.1	2.10
1,2,3,4,6,7,8-HpCDF	**153**	0.865	3.26	1	0.01	1.53
1,2,3,4,7,8,9-HpCDF	**45.9**	0.896	3.26	1	0.01	0.459
OCDF	**1090**	0.376	6.52	1	0.0003	0.327
		Total TEQ				8480

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 09:25
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0071	**Units:**	Percent
Lab Code:	E1801012-018	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	7.196g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	74.4		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0065	**Units:**	ng/Kg
Lab Code:	E1801012-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 18:24
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.800g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518974	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	5050		19.5	31.1	0.77	1.001	50
1,2,3,7,8-PeCDD	39.3		0.236	3.11	1.61	1.001	1
1,2,3,4,7,8-HxCDD	1.66	**J**	0.392	3.11	1.26	1.000	1
1,2,3,6,7,8-HxCDD	9.49		0.436	3.11	1.25	1.000	1
1,2,3,7,8,9-HxCDD	4.11		0.405	3.11	1.24	1.008	1
1,2,3,4,6,7,8-HpCDD	325		1.13	3.11	1.03	1.000	1
OCDD	14900		8.39	311	0.89	1.000	50
2,3,7,8-TCDF	16900		9.94	31.1	0.75	1.001	50
1,2,3,7,8-PeCDF	451		1.13	3.11	1.54	1.001	1
2,3,4,7,8-PeCDF	400		1.18	3.11	1.55	1.001	1
1,2,3,4,7,8-HxCDF	759		0.749	3.11	1.23	1.000	1
1,2,3,6,7,8-HxCDF	189		0.727	3.11	1.22	1.000	1
1,2,3,7,8,9-HxCDF	57.2		0.754	3.11	1.19	1.001	1
2,3,4,6,7,8-HxCDF	34.7		0.747	3.11	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	234		0.579	3.11	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	76.9		0.642	3.11	1.02	1.000	1
OCDF	1260		0.183	6.21	0.87	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0065	**Units:**	ng/Kg
Lab Code:	E1801012-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 18:24
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.800g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518974	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	4540		0.562	0.621	0.83		1
Total Penta-Dioxins	59.1		0.236	3.11	1.65		1
Total Hexa-Dioxins	90.8		0.411	3.11	1.22		1
Total Hepta-Dioxins	687		1.13	3.11	1.05		1
Total Tetra-Furans	23400		0.543	0.621	0.83		1
Total Penta-Furans	1330		1.16	3.11	1.40		1
Total Hexa-Furans	1150		0.744	3.11	1.18		1
Total Hepta-Furans	462		0.608	3.11	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0065	**Units:**	Percent
Lab Code:	E1801012-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/15/18 20:02
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.800g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518833	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518826

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1252.818	63		25-164	0.79	1.026
13C-1,2,3,7,8-PeCDD	2000	1429.663	71		25-181	1.57	1.232
13C-1,2,3,4,7,8-HxCDD	2000	1115.713	56		32-141	1.28	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1131.278	57		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1355.030	68		23-140	1.05	1.071
13C-OCDD	4000	2164.617	54		17-157	0.91	1.142
13C-2,3,7,8-TCDF	2000	1143.111	57		24-169	0.80	0.988
13C-1,2,3,7,8-PeCDF	2000	1353.319	68		24-185	1.62	1.181
13C-2,3,4,7,8-PeCDF	2000	1332.249	67		21-178	1.60	1.221
13C-1,2,3,4,7,8-HxCDF	2000	949.633	47		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1016.112	51		26-123	0.53	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1204.700	60		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1048.611	52		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1009.466	50		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1197.015	60		26-138	0.44	1.082
37Cl-2,3,7,8-TCDD	800	711.650	89		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0065	**Units:**	ng/Kg
Lab Code:	E1801012-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**5050**	19.5	31.1	50	1	5050
1,2,3,7,8-PeCDD	**39.3**	0.236	3.11	1	1	39.3
1,2,3,4,7,8-HxCDD	**1.66**	0.392	3.11	1	0.1	0.166
1,2,3,6,7,8-HxCDD	**9.49**	0.436	3.11	1	0.1	0.949
1,2,3,7,8,9-HxCDD	**4.11**	0.405	3.11	1	0.1	0.411
1,2,3,4,6,7,8-HpCDD	**325**	1.13	3.11	1	0.01	3.25
OCDD	**14900**	8.39	311	50	0.0003	4.47
2,3,7,8-TCDF	**16900**	9.94	31.1	50	0.1	1690
1,2,3,7,8-PeCDF	**451**	1.13	3.11	1	0.03	13.5
2,3,4,7,8-PeCDF	**400**	1.18	3.11	1	0.3	120
1,2,3,4,7,8-HxCDF	**759**	0.749	3.11	1	0.1	75.9
1,2,3,6,7,8-HxCDF	**189**	0.727	3.11	1	0.1	18.9
1,2,3,7,8,9-HxCDF	**57.2**	0.754	3.11	1	0.1	5.72
2,3,4,6,7,8-HxCDF	**34.7**	0.747	3.11	1	0.1	3.47
1,2,3,4,6,7,8-HpCDF	**234**	0.579	3.11	1	0.01	2.34
1,2,3,4,7,8,9-HpCDF	**76.9**	0.642	3.11	1	0.01	0.769
OCDF	**1260**	0.183	6.21	1	0.0003	0.378
		Total TEQ				7030

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 15:20
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0065	**Units:**	Percent
Lab Code:	E1801012-019	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	5.973g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	74.5		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 09:30
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0072	**Units:**	ng/Kg
Lab Code:	E1801012-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 22:19
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.139g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615680	**Blank File Name:**	P518868
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615674

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	4790		26.9	65.1	0.80	1.001	100
1,2,3,7,8-PeCDD	45.8		0.187	3.25	1.58	1.001	1
1,2,3,4,7,8-HxCDD	1.28	**J**	0.244	3.25	1.20	1.000	1
1,2,3,6,7,8-HxCDD	5.94		0.265	3.25	1.09	1.000	1
1,2,3,7,8,9-HxCDD	2.80	**J**	0.248	3.25	1.39	1.008	1
1,2,3,4,6,7,8-HpCDD	170		0.586	3.25	1.03	1.000	1
OCDD	3040		0.327	6.51	0.90	1.000	1
2,3,7,8-TCDF	14400		20.9	65.1	0.79	1.001	100
1,2,3,7,8-PeCDF	353		1.86	3.25	1.52	1.001	1
2,3,4,7,8-PeCDF	305		1.98	3.25	1.53	1.001	1
1,2,3,4,7,8-HxCDF	576		0.517	3.25	1.19	1.000	1
1,2,3,6,7,8-HxCDF	141		0.509	3.25	1.18	1.000	1
1,2,3,7,8,9-HxCDF	39.6		0.621	3.25	1.13	1.001	1
2,3,4,6,7,8-HxCDF	24.9		0.554	3.25	1.28	1.000	1
1,2,3,4,6,7,8-HpCDF	174		0.562	3.25	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	58.6		0.777	3.25	0.98	1.000	1
OCDF	1090		0.335	6.51	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 09:30
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0072	**Units:**	ng/Kg
Lab Code:	E1801012-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 22:19
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.139g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615680	**Blank File Name:**	P518868
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615674

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	5040		0.473	0.651	0.75		1
Total Penta-Dioxins	58.8		0.187	3.25	1.32		1
Total Hexa-Dioxins	67.9		0.252	3.25	1.25		1
Total Hepta-Dioxins	391		0.586	3.25	1.03		1
Total Tetra-Furans	24600		0.325	0.651	0.74		1
Total Penta-Furans	1010		1.92	3.25	1.57		1
Total Hexa-Furans	866		0.548	3.25	1.21		1
Total Hepta-Furans	324		0.657	3.25	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 09:30
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0072	**Units:**	Percent
Lab Code:	E1801012-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 08:24
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.139g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518874	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1172.077	59		25-164	0.80	1.027
13C-1,2,3,7,8-PeCDD	2000	1349.533	67		25-181	1.61	1.233
13C-1,2,3,4,7,8-HxCDD	2000	1147.172	57		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1144.990	57		28-130	1.24	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1074.432	54		23-140	1.07	1.071
13C-OCDD	4000	1074.066	27		17-157	0.88	1.142
13C-2,3,7,8-TCDF	2000	1052.981	53		24-169	0.80	0.988
13C-1,2,3,7,8-PeCDF	2000	1299.188	65		24-185	1.59	1.181
13C-2,3,4,7,8-PeCDF	2000	1262.249	63		21-178	1.60	1.221
13C-1,2,3,4,7,8-HxCDF	2000	1039.954	52		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1082.066	54		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1136.491	57		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1074.720	54		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	907.044	45		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	913.764	46		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	626.590	78		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 09:30
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0072	**Units:**	ng/Kg
Lab Code:	E1801012-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**4790**	26.9	65.1	100	1	4790
1,2,3,7,8-PeCDD	**45.8**	0.187	3.25	1	1	45.8
1,2,3,4,7,8-HxCDD	**1.28**	0.244	3.25	1	0.1	0.128
1,2,3,6,7,8-HxCDD	**5.94**	0.265	3.25	1	0.1	0.594
1,2,3,7,8,9-HxCDD	**2.80**	0.248	3.25	1	0.1	0.280
1,2,3,4,6,7,8-HpCDD	**170**	0.586	3.25	1	0.01	1.70
OCDD	**3040**	0.327	6.51	1	0.0003	0.912
2,3,7,8-TCDF	**14400**	20.9	65.1	100	0.1	1440
1,2,3,7,8-PeCDF	**353**	1.86	3.25	1	0.03	10.6
2,3,4,7,8-PeCDF	**305**	1.98	3.25	1	0.3	91.5
1,2,3,4,7,8-HxCDF	**576**	0.517	3.25	1	0.1	57.6
1,2,3,6,7,8-HxCDF	**141**	0.509	3.25	1	0.1	14.1
1,2,3,7,8,9-HxCDF	**39.6**	0.621	3.25	1	0.1	3.96
2,3,4,6,7,8-HxCDF	**24.9**	0.554	3.25	1	0.1	2.49
1,2,3,4,6,7,8-HpCDF	**174**	0.562	3.25	1	0.01	1.74
1,2,3,4,7,8,9-HpCDF	**58.6**	0.777	3.25	1	0.01	0.586
OCDF	**1090**	0.335	6.51	1	0.0003	0.327
		Total TEQ				6460

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 09:30
Sample Matrix:	Sediment	**Date Received:**	11/08/18 09:15
Sample Name:	SL0072	**Units:**	Percent
Lab Code:	E1801012-020	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	6.204g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	75.8		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 08:20
Sample Matrix:	Wipe	**Date Received:**	11/08/18 09:16
Sample Name:	FW0002	**Units:**	pg
Lab Code:	E1801012-021	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 14:18
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615719	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	12.5	12.5			1
1,2,3,7,8-PeCDD	ND	U	5.97	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	2.28	50.0			1
1,2,3,6,7,8-HxCDD	6.72**BJ**		2.55	50.0	1.27	1.001	1
1,2,3,7,8,9-HxCDD	ND	U	2.24	50.0			1
1,2,3,4,6,7,8-HpCDD	28.1**J**		1.39	50.0	1.07	1.000	1
OCDD	436		2.78	100	0.96	1.000	1
2,3,7,8-TCDF	ND	U	9.32	10.0			1
1,2,3,7,8-PeCDF	ND	U	6.00	50.0			1
2,3,4,7,8-PeCDF	ND	U	6.43	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	4.70	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	4.72	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	4.90	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	4.73	50.0			1
1,2,3,4,6,7,8-HpCDF	15.5**JK**		6.91	50.0	1.37	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	8.45	50.0			1
OCDF	134**B**		4.89	100	0.91	1.006	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 08:20
Sample Matrix:	Wipe	**Date Received:**	11/08/18 09:16
Sample Name:	FW0002	**Units:**	pg
Lab Code:	E1801012-021	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 14:18
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615719	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	12.5	12.5			1
Total Penta-Dioxins	ND	U	5.97	50.0			1
Total Hexa-Dioxins	6.72**J**		2.35	50.0	1.27		1
Total Hepta-Dioxins	28.1**J**		1.39	50.0	1.07		1
Total Tetra-Furans	ND	U	9.32	10.0			1
Total Penta-Furans	ND	U	6.20	50.0			1
Total Hexa-Furans	ND	U	4.76	50.0			1
Total Hepta-Furans	ND	U	7.64	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 08:20
Sample Matrix:	Wipe	**Date Received:**	11/08/18 09:16
Sample Name:	FW0002	**Units:**	Percent
Lab Code:	E1801012-021	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 14:18
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615719	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	601.299	60		25-164	0.82	1.019
13C-1,2,3,7,8-PeCDD	1000	821.725	82		25-181	1.54	1.168
13C-1,2,3,4,7,8-HxCDD	1000	914.035	91		32-141	1.32	0.992
13C-1,2,3,6,7,8-HxCDD	1000	837.695	84		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	1000	1141.996	114		23-140	1.05	1.067
13C-OCDD	2000	1597.641	80		17-157	0.90	1.148
13C-2,3,7,8-TCDF	1000	528.348	53		24-169	0.82	0.995
13C-1,2,3,7,8-PeCDF	1000	756.603	76		24-185	1.56	1.129
13C-2,3,4,7,8-PeCDF	1000	743.119	74		21-178	1.59	1.159
13C-1,2,3,4,7,8-HxCDF	1000	752.476	75		26-152	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	1000	708.597	71		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	1000	819.019	82		29-147	0.54	1.008
13C-2,3,4,6,7,8-HxCDF	1000	757.999	76		28-136	0.54	0.988
13C-1,2,3,4,6,7,8-HpCDF	1000	850.962	85		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	1000	911.181	91		26-138	0.44	1.081
37Cl-2,3,7,8-TCDD	800	314.552	39		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/05/18 08:20
Sample Matrix:	Wipe	**Date Received:**	11/08/18 09:16
Sample Name:	FW0002	**Units:**	pg
Lab Code:	E1801012-021	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	12.5	12.5	1	1	6.25
1,2,3,7,8-PeCDD	ND	5.97	50.0	1	1	2.99
1,2,3,4,7,8-HxCDD	ND	2.28	50.0	1	0.1	0.114
1,2,3,6,7,8-HxCDD	**6.72**	2.55	50.0	1	0.1	0.672
1,2,3,7,8,9-HxCDD	ND	2.24	50.0	1	0.1	0.112
1,2,3,4,6,7,8-HpCDD	**28.1**	1.39	50.0	1	0.01	0.281
OCDD	**436**	2.78	100	1	0.0003	0.131
2,3,7,8-TCDF	ND	9.32	10.0	1	0.1	0.466
1,2,3,7,8-PeCDF	ND	6.00	50.0	1	0.03	0.0900
2,3,4,7,8-PeCDF	ND	6.43	50.0	1	0.3	0.965
1,2,3,4,7,8-HxCDF	ND	4.70	50.0	1	0.1	0.235
1,2,3,6,7,8-HxCDF	ND	4.72	50.0	1	0.1	0.236
1,2,3,7,8,9-HxCDF	ND	4.90	50.0	1	0.1	0.245
2,3,4,6,7,8-HxCDF	ND	4.73	50.0	1	0.1	0.237
1,2,3,4,6,7,8-HpCDF	**15.5**	6.91	50.0	1	0.01	0.155
1,2,3,4,7,8,9-HpCDF	ND	8.45	50.0	1	0.01	0.0423
OCDF	**134**	4.89	100	1	0.0003	0.0402
		Total TEQ				13.3

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 16:00
Sample Matrix:	Wipe	**Date Received:**	11/08/18 09:16
Sample Name:	FW0003	**Units:**	pg
Lab Code:	E1801012-022	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 15:07
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615720	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	5.78	10.0			1
1,2,3,7,8-PeCDD	ND	U	2.26	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.04	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.13	50.0			1
1,2,3,7,8,9-HxCDD	1.46**BJ**		1.01	50.0	1.29	1.006	1
1,2,3,4,6,7,8-HpCDD	2.87**BJ**		1.16	50.0	1.09	1.000	1
OCDD	40.7**BJ**		3.01	100	0.81	1.001	1
2,3,7,8-TCDF	ND	U	4.41	10.0			1
1,2,3,7,8-PeCDF	ND	U	2.52	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.58	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	3.39	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	3.51	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	3.79	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	3.40	50.0			1
1,2,3,4,6,7,8-HpCDF	7.72**J**		3.27	50.0	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	4.19	50.0			1
OCDF	100**B**		2.65	100	0.92	1.006	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 16:00
Sample Matrix:	Wipe	**Date Received:**	11/08/18 09:16
Sample Name:	FW0003	**Units:**	pg
Lab Code:	E1801012-022	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 15:07
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615720	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	5.78	10.0			1
Total Penta-Dioxins	ND	U	2.26	50.0			1
Total Hexa-Dioxins	1.46**J**		1.06	50.0	1.29		1
Total Hepta-Dioxins	2.87**J**		1.16	50.0	1.09		1
Total Tetra-Furans	ND	U	4.41	10.0			1
Total Penta-Furans	ND	U	2.55	50.0			1
Total Hexa-Furans	ND	U	3.52	50.0			1
Total Hepta-Furans	7.72**J**		3.70	50.0	0.99		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 16:00
Sample Matrix:	Wipe	**Date Received:**	11/08/18 09:16
Sample Name:	FW0003	**Units:**	Percent
Lab Code:	E1801012-022	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 15:07
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615720	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	550.072	55		25-164	0.79	1.019
13C-1,2,3,7,8-PeCDD	1000	726.143	73		25-181	1.53	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1051.875	105		32-141	1.30	0.992
13C-1,2,3,6,7,8-HxCDD	1000	969.664	97		28-130	1.21	0.993
13C-1,2,3,4,6,7,8-HpCDD	1000	1132.973	113		23-140	1.03	1.067
13C-OCDD	2000	1539.803	77		17-157	0.92	1.147
13C-2,3,7,8-TCDF	1000	511.866	51		24-169	0.78	0.994
13C-1,2,3,7,8-PeCDF	1000	673.256	67		24-185	1.58	1.129
13C-2,3,4,7,8-PeCDF	1000	675.756	68		21-178	1.62	1.159
13C-1,2,3,4,7,8-HxCDF	1000	948.380	95		26-152	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	1000	888.044	89		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	1000	957.300	96		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	1000	951.961	95		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	1000	844.751	84		28-143	0.46	1.041
13C-1,2,3,4,7,8,9-HpCDF	1000	878.875	88		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	230.035	29	**Y**	35-197	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	11/06/18 16:00
Sample Matrix:	Wipe	**Date Received:**	11/08/18 09:16
Sample Name:	FW0003	**Units:**	pg
Lab Code:	E1801012-022	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	5.78	10.0	1	1	2.89
1,2,3,7,8-PeCDD	ND	2.26	50.0	1	1	1.13
1,2,3,4,7,8-HxCDD	ND	1.04	50.0	1	0.1	0.0520
1,2,3,6,7,8-HxCDD	ND	1.13	50.0	1	0.1	0.0565
1,2,3,7,8,9-HxCDD	**1.46**	1.01	50.0	1	0.1	0.146
1,2,3,4,6,7,8-HpCDD	**2.87**	1.16	50.0	1	0.01	0.0287
OCDD	**40.7**	3.01	100	1	0.0003	0.0122
2,3,7,8-TCDF	ND	4.41	10.0	1	0.1	0.221
1,2,3,7,8-PeCDF	ND	2.52	50.0	1	0.03	0.0378
2,3,4,7,8-PeCDF	ND	2.58	50.0	1	0.3	0.387
1,2,3,4,7,8-HxCDF	ND	3.39	50.0	1	0.1	0.170
1,2,3,6,7,8-HxCDF	ND	3.51	50.0	1	0.1	0.176
1,2,3,7,8,9-HxCDF	ND	3.79	50.0	1	0.1	0.190
2,3,4,6,7,8-HxCDF	ND	3.40	50.0	1	0.1	0.170
1,2,3,4,6,7,8-HpCDF	**7.72**	3.27	50.0	1	0.01	0.0772
1,2,3,4,7,8,9-HpCDF	ND	4.19	50.0	1	0.01	0.0210
OCDF	**100**	2.65	100	1	0.0003	0.0300
		Total TEQ				5.80

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800463-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/19/18 23:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.041g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518927	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518924

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.131	0.498			1
1,2,3,7,8-PeCDD	ND	U	0.0321	2.49			1
1,2,3,4,7,8-HxCDD	0.0405**JK**		0.0202	2.49	1.77	1.000	1
1,2,3,6,7,8-HxCDD	0.0470**J**		0.0224	2.49	1.43	1.000	1
1,2,3,7,8,9-HxCDD	0.0563**JK**		0.0209	2.49	1.59	1.007	1
1,2,3,4,6,7,8-HpCDD	0.0714**JK**		0.0139	2.49	0.63	1.000	1
OCDD	0.673**J**		0.0430	4.98	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.0599	0.498			1
1,2,3,7,8-PeCDF	0.0739**JK**		0.0410	2.49	1.79	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.0426	2.49			1
1,2,3,4,7,8-HxCDF	0.0408**JK**		0.0244	2.49	0.59	1.000	1
1,2,3,6,7,8-HxCDF	0.0406**JK**		0.0231	2.49	0.87	1.001	1
1,2,3,7,8,9-HxCDF	0.0697**J**		0.0278	2.49	1.33	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0232	2.49			1
1,2,3,4,6,7,8-HpCDF	0.0647**JK**		0.0154	2.49	1.50	1.000	1
1,2,3,4,7,8,9-HpCDF	0.0349**JK**		0.0190	2.49	0.33	1.000	1
OCDF	0.216**JK**		0.0396	4.98	1.04	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800463-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/19/18 23:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.041g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518927	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518924

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.131	0.498			1
Total Penta-Dioxins	ND	U	0.0321	2.49			1
Total Hexa-Dioxins	ND	U	0.0212	2.49			1
Total Hepta-Dioxins	0.138**J**		0.0139	2.49	1.03		1
Total Tetra-Furans	ND	U	0.0599	0.498			1
Total Penta-Furans	ND	U	0.0418	2.49			1
Total Hexa-Furans	0.0697**J**		0.0244	2.49	1.33		1
Total Hepta-Furans	ND	U	0.0170	2.49			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800463-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/19/18 23:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.041g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518927	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518924

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	985.569	49		25-164	0.78	1.029
13C-1,2,3,7,8-PeCDD	2000	1285.986	64		25-181	1.60	1.239
13C-1,2,3,4,7,8-HxCDD	2000	1144.187	57		32-141	1.35	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1151.653	58		28-130	1.20	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1360.632	68		23-140	1.06	1.071
13C-OCDD	4000	2130.455	53		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	792.633	40		24-169	0.77	0.988
13C-1,2,3,7,8-PeCDF	2000	1146.109	57		24-185	1.56	1.186
13C-2,3,4,7,8-PeCDF	2000	1088.446	54		21-178	1.58	1.226
13C-1,2,3,4,7,8-HxCDF	2000	903.149	45		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	971.370	49		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1033.004	52		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1015.051	51		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	995.827	50		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1099.973	55		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	454.281	57		35-197	NA	1.030

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800467-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 13:29
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615718	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	4.27	10.0			1
1,2,3,7,8-PeCDD	ND	U	1.85	50.0			1
1,2,3,4,7,8-HxCDD	1.14**JK**		0.810	50.0	0.69	1.000	1
1,2,3,6,7,8-HxCDD	1.59**JK**		0.922	50.0	0.84	1.000	1
1,2,3,7,8,9-HxCDD	1.99**J**		0.804	50.0	1.12	1.006	1
1,2,3,4,6,7,8-HpCDD	2.20**JK**		1.17	50.0	1.44	1.001	1
OCDD	28.8**JK**		2.97	100	1.07	1.000	1
2,3,7,8-TCDF	ND	U	2.60	10.0			1
1,2,3,7,8-PeCDF	ND	U	1.97	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.07	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	3.60	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	3.61	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	4.01	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	3.70	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	5.41	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	6.02	50.0			1
OCDF	22.7**J**		3.47	100	0.80	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800467-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 13:29
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615718	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	4.27	10.0			1
Total Penta-Dioxins	ND	U	1.85	50.0			1
Total Hexa-Dioxins	1.99**J**		0.842	50.0	1.12		1
Total Hepta-Dioxins	ND	U	1.17	50.0			1
Total Tetra-Furans	ND	U	2.60	10.0			1
Total Penta-Furans	ND	U	2.02	50.0			1
Total Hexa-Furans	ND	U	3.72	50.0			1
Total Hepta-Furans	ND	U	5.70	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800467-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 13:29
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615718	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	949.516	95		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	1000	958.356	96		25-181	1.56	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1122.846	112		32-141	1.26	0.992
13C-1,2,3,6,7,8-HxCDD	1000	1028.676	103		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	1000	1081.689	108		23-140	1.06	1.067
13C-OCDD	2000	1240.779	62		17-157	0.89	1.148
13C-2,3,7,8-TCDF	1000	867.537	87		24-169	0.78	0.995
13C-1,2,3,7,8-PeCDF	1000	934.266	93		24-185	1.59	1.129
13C-2,3,4,7,8-PeCDF	1000	896.332	90		21-178	1.61	1.159
13C-1,2,3,4,7,8-HxCDF	1000	970.380	97		26-152	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	1000	928.302	93		26-123	0.55	0.975
13C-1,2,3,7,8,9-HxCDF	1000	973.549	97		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	1000	981.780	98		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	1000	789.790	79		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	1000	899.253	90		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	362.236	45		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800468-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 03:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.243g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518868	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.733	0.733			1
1,2,3,7,8-PeCDD	ND	U	0.0867	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0425	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0463	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0435	2.44			1
1,2,3,4,6,7,8-HpCDD	0.0706**JK**		0.0494	2.44	0.61	1.000	1
OCDD	1.47**JK**		0.0881	4.88	1.03	1.000	1
2,3,7,8-TCDF	ND	U	0.463	0.488			1
1,2,3,7,8-PeCDF	ND	U	0.138	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.120	2.44			1
1,2,3,4,7,8-HxCDF	0.0676**J**		0.0369	2.44	1.23	1.001	1
1,2,3,6,7,8-HxCDF	0.0350**JK**		0.0335	2.44	1.80	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0391	2.44			1
2,3,4,6,7,8-HxCDF	ND	U	0.0330	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0399	2.44			1
1,2,3,4,7,8,9-HpCDF	0.0586**JK**		0.0488	2.44	2.08	1.000	1
OCDF	0.219**JK**		0.0748	4.88	0.67	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800468-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 03:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.243g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518868	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.733	0.733			1
Total Penta-Dioxins	ND	U	0.0867	2.44			1
Total Hexa-Dioxins	ND	U	0.0442	2.44			1
Total Hepta-Dioxins	ND	U	0.0494	2.44			1
Total Tetra-Furans	ND	U	0.463	0.488			1
Total Penta-Furans	ND	U	0.128	2.44			1
Total Hexa-Furans	0.0676**J**		0.0354	2.44	1.23		1
Total Hepta-Furans	ND	U	0.0440	2.44			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800468-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 03:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.243g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518868	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	427.547	21	**Y**	25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	993.400	50		25-181	1.59	1.236
13C-1,2,3,4,7,8-HxCDD	2000	944.792	47		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1037.857	52		28-130	1.30	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1435.419	72		23-140	1.07	1.071
13C-OCDD	4000	2499.879	62		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	372.876	19	**Y**	24-169	0.78	0.988
13C-1,2,3,7,8-PeCDF	2000	798.413	40		24-185	1.61	1.184
13C-2,3,4,7,8-PeCDF	2000	887.787	44		21-178	1.58	1.224
13C-1,2,3,4,7,8-HxCDF	2000	777.068	39		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	883.102	44		26-123	0.53	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1001.221	50		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	958.825	48		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1064.814	53		28-143	0.45	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	1188.606	59		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	193.289	24	**Y**	35-197	NA	1.030

Accuracy & Precision

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ALS Group USA, Corp.
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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Analyzed:**	11/16/18
Sample Matrix:	Sediment	**Date Extracted:**	11/12/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	616035

	Lab Control Sample EQ1800463-02			Duplicate Lab Control Sample EQ1800463-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	77.1	97.7	79	78.1	97.8	80	70-140	1	50
1,2,3,4,7,8-HxCDD	91.6	97.7	94	92.9	97.8	95	70-164	1	50
1,2,3,6,7,8-HxCDD	100	97.7	103	96.6	97.8	99	76-134	4	50
1,2,3,7,8,9-HxCDD	96.2	97.7	98	98.5	97.8	101	64-162	2	50
1,2,3,7,8-PeCDD	98.1	97.7	100	101	97.8	103	70-142	3	50
2,3,7,8-TCDD	19.7	19.5	101	18.0	19.6	92	67-158	9	50
OCDD	184	195	94	192	196	98	78-144	4	50
1,2,3,4,6,7,8-HpCDF	92.7	97.7	95	95.4	97.8	98	82-122	3	50
1,2,3,4,7,8,9-HpCDF	98.5	97.7	101	95.3	97.8	98	78-138	3	50
1,2,3,4,7,8-HxCDF	93.6	97.7	96	95.4	97.8	98	72-134	2	50
1,2,3,6,7,8-HxCDF	99.2	97.7	101	97.0	97.8	99	84-130	2	50
1,2,3,7,8,9-HxCDF	93.2	97.7	95	96.3	97.8	98	78-130	3	50
1,2,3,7,8-PeCDF	90.7	97.7	93	92.2	97.8	94	80-134	2	50
2,3,4,6,7,8-HxCDF	95.7	97.7	98	93.3	97.8	95	70-156	3	50
2,3,4,7,8-PeCDF	101	97.7	103	98.8	97.8	101	68-160	2	50
2,3,7,8-TCDF	19.6	19.5	100	19.0	19.6	97	75-158	3	50
OCDF	215	195	110	206	196	105	63-170	4	50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800463-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 10:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.233g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518850	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.7		0.445	0.489	0.83	1.001	1
1,2,3,7,8-PeCDD	98.1		0.112	2.44	1.61	1.001	1
1,2,3,4,7,8-HxCDD	91.6		0.0947	2.44	1.24	1.000	1
1,2,3,6,7,8-HxCDD	100		0.104	2.44	1.24	1.000	1
1,2,3,7,8,9-HxCDD	96.2		0.0968	2.44	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	77.1		0.0499	2.44	1.03	1.000	1
OCDD	184		0.0748	4.89	0.89	1.000	1
2,3,7,8-TCDF	19.6		0.246	0.489	0.73	1.001	1
1,2,3,7,8-PeCDF	90.7		0.128	2.44	1.56	1.000	1
2,3,4,7,8-PeCDF	101		0.129	2.44	1.51	1.001	1
1,2,3,4,7,8-HxCDF	93.6		0.0319	2.44	1.20	1.000	1
1,2,3,6,7,8-HxCDF	99.2		0.0308	2.44	1.21	1.000	1
1,2,3,7,8,9-HxCDF	93.2		0.0376	2.44	1.21	1.000	1
2,3,4,6,7,8-HxCDF	95.7		0.0299	2.44	1.17	1.000	1
1,2,3,4,6,7,8-HpCDF	92.7		0.271	2.44	0.98	1.000	1
1,2,3,4,7,8,9-HpCDF	98.5		0.336	2.44	1.03	1.000	1
OCDF	215		0.106	4.89	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800463-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 10:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.233g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518850	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.7		0.445	0.489	0.83		1
Total Penta-Dioxins	98.9		0.112	2.44	1.61		1
Total Hexa-Dioxins	288		0.0983	2.44	1.24		1
Total Hepta-Dioxins	77.1		0.0499	2.44	1.03		1
Total Tetra-Furans	19.9		0.246	0.489	0.83		1
Total Penta-Furans	192		0.129	2.44	1.56		1
Total Hexa-Furans	382		0.0324	2.44	1.20		1
Total Hepta-Furans	192		0.301	2.44	0.98		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800463-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 10:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.233g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518850	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	728.937	36		25-164	0.78	1.028
13C-1,2,3,7,8-PeCDD	2000	1032.441	52		25-181	1.61	1.236
13C-1,2,3,4,7,8-HxCDD	2000	877.367	44		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	863.569	43		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1174.034	59		23-140	1.03	1.071
13C-OCDD	4000	1845.168	46		17-157	0.92	1.142
13C-2,3,7,8-TCDF	2000	686.215	34		24-169	0.78	0.988
13C-1,2,3,7,8-PeCDF	2000	961.145	48		24-185	1.58	1.184
13C-2,3,4,7,8-PeCDF	2000	961.653	48		21-178	1.55	1.223
13C-1,2,3,4,7,8-HxCDF	2000	729.204	36		26-152	0.53	0.968
13C-1,2,3,6,7,8-HxCDF	2000	787.502	39		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	2000	846.481	42		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	853.876	43		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	908.164	45		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	996.136	50		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	321.890	40		35-197	NA	1.029

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800463-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 10:52
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.229g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518851	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.0		0.355	0.489	0.77	1.001	1
1,2,3,7,8-PeCDD	101		0.102	2.44	1.58	1.001	1
1,2,3,4,7,8-HxCDD	92.9		0.0444	2.44	1.30	1.000	1
1,2,3,6,7,8-HxCDD	96.6		0.0498	2.44	1.30	1.000	1
1,2,3,7,8,9-HxCDD	98.5		0.0461	2.44	1.30	1.007	1
1,2,3,4,6,7,8-HpCDD	78.1		0.0584	2.44	1.02	1.000	1
OCDD	192		0.0628	4.89	0.89	1.000	1
2,3,7,8-TCDF	19.0		0.279	0.489	0.71	1.001	1
1,2,3,7,8-PeCDF	92.2		0.130	2.44	1.55	1.001	1
2,3,4,7,8-PeCDF	98.8		0.130	2.44	1.52	1.000	1
1,2,3,4,7,8-HxCDF	95.4		0.0369	2.44	1.22	1.000	1
1,2,3,6,7,8-HxCDF	97.0		0.0375	2.44	1.22	1.001	1
1,2,3,7,8,9-HxCDF	96.3		0.0460	2.44	1.20	1.000	1
2,3,4,6,7,8-HxCDF	93.3		0.0380	2.44	1.23	1.000	1
1,2,3,4,6,7,8-HpCDF	95.4		0.235	2.44	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	95.3		0.282	2.44	1.02	1.000	1
OCDF	206		0.0965	4.89	0.92	1.004	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800463-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 10:52
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.229g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518851	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.0		0.355	0.489	0.77		1
Total Penta-Dioxins	101		0.102	2.44	1.58		1
Total Hexa-Dioxins	288		0.0468	2.44	1.30		1
Total Hepta-Dioxins	78.1		0.0584	2.44	1.02		1
Total Tetra-Furans	19.2		0.279	0.489	0.71		1
Total Penta-Furans	191		0.130	2.44	1.55		1
Total Hexa-Furans	382		0.0394	2.44	1.22		1
Total Hepta-Furans	191		0.257	2.44	0.99		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800463-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 10:52
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.229g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518851	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	745.491	37		25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1141.413	57		25-181	1.59	1.235
13C-1,2,3,4,7,8-HxCDD	2000	972.529	49		32-141	1.37	0.991
13C-1,2,3,6,7,8-HxCDD	2000	988.828	49		28-130	1.22	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1296.560	65		23-140	1.08	1.071
13C-OCDD	4000	2220.172	56		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	688.734	34		24-169	0.80	0.988
13C-1,2,3,7,8-PeCDF	2000	1028.246	51		24-185	1.60	1.183
13C-2,3,4,7,8-PeCDF	2000	1056.331	53		21-178	1.62	1.223
13C-1,2,3,4,7,8-HxCDF	2000	837.374	42		26-152	0.53	0.968
13C-1,2,3,6,7,8-HxCDF	2000	909.834	45		26-123	0.53	0.971
13C-1,2,3,7,8,9-HxCDF	2000	935.131	47		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	909.410	45		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	970.378	49		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1128.309	56		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	333.496	42		35-197	NA	1.028

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Analyzed:**	11/27/18
Sample Matrix:	Wipe	**Date Extracted:**	11/14/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	pg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	616654

	Lab Control Sample EQ1800467-02			Duplicate Lab Control Sample EQ1800467-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	1400	2000	70	1450	2000	73	70-140	4	50
1,2,3,4,7,8-HxCDD	1720	2000	86	1740	2000	87	70-164	<1	50
1,2,3,6,7,8-HxCDD	1840	2000	92	1920	2000	96	76-134	4	50
1,2,3,7,8,9-HxCDD	1730	2000	86	1910	2000	95	64-162	10	50
1,2,3,7,8-PeCDD	1860	2000	93	1910	2000	96	70-142	3	50
2,3,7,8-TCDD	374	400	94	359	400	90	67-158	4	50
OCDD	3430	4000	86	3570	4000	89	78-144	4	50
1,2,3,4,6,7,8-HpCDF	1670	2000	84	1750	2000	87	82-122	4	50
1,2,3,4,7,8,9-HpCDF	1660	2000	83	1690	2000	84	78-138	2	50
1,2,3,4,7,8-HxCDF	1630	2000	81	1720	2000	86	72-134	6	50
1,2,3,6,7,8-HxCDF	1690	2000	84	1750	2000	87	84-130	3	50
1,2,3,7,8,9-HxCDF	1640	2000	82	1730	2000	87	78-130	5	50
1,2,3,7,8-PeCDF	1600	2000	80	1660	2000	83	80-134	4	50
2,3,4,6,7,8-HxCDF	1690	2000	84	1740	2000	87	70-156	3	50
2,3,4,7,8-PeCDF	1720	2000	86	1800	2000	90	68-160	4	50
2,3,7,8-TCDF	361	400	90	359	400	90	75-158	<1	50
OCDF	3470	4000	87	3780	4000	94	63-170	9	50

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:53
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615727	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	374		4.86	10.0	0.81	1.001	1
1,2,3,7,8-PeCDD	1860		1.72	50.0	1.58	1.000	1
1,2,3,4,7,8-HxCDD	1720		0.840	50.0	1.23	1.000	1
1,2,3,6,7,8-HxCDD	1840		0.946	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDD	1730		0.830	50.0	1.24	1.007	1
1,2,3,4,6,7,8-HpCDD	1400		1.08	50.0	1.06	1.000	1
OCDD	3430		3.05	100	0.90	1.000	1
2,3,7,8-TCDF	361		3.01	10.0	0.76	1.001	1
1,2,3,7,8-PeCDF	1600		2.11	50.0	1.56	1.001	1
2,3,4,7,8-PeCDF	1720		2.09	50.0	1.55	1.000	1
1,2,3,4,7,8-HxCDF	1630		1.78	50.0	1.24	1.000	1
1,2,3,6,7,8-HxCDF	1690		1.82	50.0	1.24	1.000	1
1,2,3,7,8,9-HxCDF	1640		2.05	50.0	1.22	1.000	1
2,3,4,6,7,8-HxCDF	1690		1.82	50.0	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	1670		3.07	50.0	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	1660		3.96	50.0	1.06	1.000	1
OCDF	3470		3.08	100	0.91	1.006	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:53
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615727	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	374		4.86	10.0	0.81		1
Total Penta-Dioxins	1870		1.72	50.0	1.58		1
Total Hexa-Dioxins	5290		0.870	50.0	1.23		1
Total Hepta-Dioxins	1400		1.08	50.0	1.06		1
Total Tetra-Furans	370		3.01	10.0	0.80		1
Total Penta-Furans	3360		2.10	50.0	1.59		1
Total Hexa-Furans	6640		1.86	50.0	1.24		1
Total Hepta-Furans	3330		3.49	50.0	1.03		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800467-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:53
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615727	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	660.335	66		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	1000	920.408	92		25-181	1.56	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1054.347	105		32-141	1.34	0.992
13C-1,2,3,6,7,8-HxCDD	1000	980.692	98		28-130	1.21	0.993
13C-1,2,3,4,6,7,8-HpCDD	1000	1158.013	116		23-140	1.04	1.067
13C-OCDD	2000	1607.740	80		17-157	0.91	1.147
13C-2,3,7,8-TCDF	1000	610.393	61		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	1000	835.498	84		24-185	1.60	1.129
13C-2,3,4,7,8-PeCDF	1000	848.533	85		21-178	1.60	1.159
13C-1,2,3,4,7,8-HxCDF	1000	925.804	93		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	1000	866.870	87		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	1000	936.187	94		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	1000	916.446	92		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	1000	846.066	85		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	1000	877.956	88		26-138	0.46	1.081
37Cl-2,3,7,8-TCDD	800	259.109	32	**Y**	35-197	NA	1.019

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 21:43
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615728	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	359		5.02	10.0	0.75	1.001	1
1,2,3,7,8-PeCDD	1910		3.05	50.0	1.53	1.000	1
1,2,3,4,7,8-HxCDD	1740		1.59	50.0	1.29	1.000	1
1,2,3,6,7,8-HxCDD	1920		1.85	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDD	1910		1.59	50.0	1.26	1.007	1
1,2,3,4,6,7,8-HpCDD	1450		1.43	50.0	1.04	1.000	1
OCDD	3570		1.97	100	0.89	1.000	1
2,3,7,8-TCDF	359		3.37	10.0	0.79	1.001	1
1,2,3,7,8-PeCDF	1660		3.07	50.0	1.59	1.000	1
2,3,4,7,8-PeCDF	1800		3.27	50.0	1.57	1.000	1
1,2,3,4,7,8-HxCDF	1720		1.16	50.0	1.26	1.000	1
1,2,3,6,7,8-HxCDF	1750		1.18	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDF	1730		1.22	50.0	1.23	1.000	1
2,3,4,6,7,8-HxCDF	1740		1.10	50.0	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	1750		2.93	50.0	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	1690		3.55	50.0	1.02	1.000	1
OCDF	3780		2.74	100	0.88	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 21:43
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615728	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	359		5.02	10.0	0.75		1
Total Penta-Dioxins	1910		3.05	50.0	1.53		1
Total Hexa-Dioxins	5560		1.67	50.0	1.29		1
Total Hepta-Dioxins	1450		1.43	50.0	1.04		1
Total Tetra-Furans	359		3.37	10.0	0.79		1
Total Penta-Furans	3480		3.17	50.0	1.59		1
Total Hexa-Furans	6950		1.16	50.0	1.17		1
Total Hepta-Furans	3440		3.23	50.0	1.03		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800467-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 21:43
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615728	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	548.649	55		25-164	0.80	1.019
13C-1,2,3,7,8-PeCDD	1000	691.869	69		25-181	1.55	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1005.111	101		32-141	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	1000	918.899	92		28-130	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	1000	1220.514	122		23-140	1.06	1.068
13C-OCDD	2000	1766.243	88		17-157	0.91	1.148
13C-2,3,7,8-TCDF	1000	497.659	50		24-169	0.80	0.994
13C-1,2,3,7,8-PeCDF	1000	659.461	66		24-185	1.58	1.129
13C-2,3,4,7,8-PeCDF	1000	652.101	65		21-178	1.60	1.159
13C-1,2,3,4,7,8-HxCDF	1000	839.434	84		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	1000	816.265	82		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	1000	924.236	92		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	1000	923.073	92		28-136	0.51	0.989
13C-1,2,3,4,6,7,8-HpCDF	1000	889.156	89		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	1000	958.622	96		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	222.895	28	**Y**	35-197	NA	1.019

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Analyzed:**	11/17/18
Sample Matrix:	Sediment	**Date Extracted:**	11/13/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	616215

	Lab Control Sample EQ1800468-02			Duplicate Lab Control Sample EQ1800468-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	77.8	97.1	80	79.7	98.2	81	70-140	2	50
1,2,3,4,7,8-HxCDD	89.9	97.1	93	95.5	98.2	97	70-164	6	50
1,2,3,6,7,8-HxCDD	98.0	97.1	101	96.7	98.2	99	76-134	1	50
1,2,3,7,8,9-HxCDD	96.4	97.1	99	101	98.2	103	64-162	5	50
1,2,3,7,8-PeCDD	99.9	97.1	103	104	98.2	106	70-142	4	50
2,3,7,8-TCDD	19.7	19.4	101	20.0	19.6	102	67-158	1	50
OCDD	201	194	104	197	196	100	78-144	2	50
1,2,3,4,6,7,8-HpCDF	92.4	97.1	95	94.8	98.2	97	82-122	3	50
1,2,3,4,7,8,9-HpCDF	96.8	97.1	100	96.6	98.2	98	78-138	<1	50
1,2,3,4,7,8-HxCDF	98.2	97.1	101	97.8	98.2	100	72-134	<1	50
1,2,3,6,7,8-HxCDF	97.8	97.1	101	97.1	98.2	99	84-130	<1	50
1,2,3,7,8,9-HxCDF	90.8	97.1	94	93.6	98.2	95	78-130	3	50
1,2,3,7,8-PeCDF	90.6	97.1	93	95.3	98.2	97	80-134	5	50
2,3,4,6,7,8-HxCDF	95.0	97.1	98	95.0	98.2	97	70-156	<1	50
2,3,4,7,8-PeCDF	101	97.1	104	101	98.2	102	68-160	<1	50
2,3,7,8-TCDF	20.7	19.4	107	22.4	19.6	114	75-158	8	50
OCDF	390	194	201 *	205	196	104	63-170	62 *	50

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800468-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 10:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.296g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518877	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.7		0.238	0.486	0.76	1.001	1
1,2,3,7,8-PeCDD	99.9		0.0701	2.43	1.61	1.001	1
1,2,3,4,7,8-HxCDD	89.9		0.0280	2.43	1.23	1.000	1
1,2,3,6,7,8-HxCDD	98.0		0.0301	2.43	1.27	1.000	1
1,2,3,7,8,9-HxCDD	96.4		0.0283	2.43	1.21	1.007	1
1,2,3,4,6,7,8-HpCDD	77.8		0.0376	2.43	1.05	1.000	1
OCDD	201		0.358	4.86	0.91	1.000	1
2,3,7,8-TCDF	20.7		0.166	0.486	0.71	1.001	1
1,2,3,7,8-PeCDF	90.6		0.118	2.43	1.50	1.001	1
2,3,4,7,8-PeCDF	101		0.114	2.43	1.49	1.001	1
1,2,3,4,7,8-HxCDF	98.2		0.0175	2.43	1.24	1.000	1
1,2,3,6,7,8-HxCDF	97.8		0.0162	2.43	1.23	1.001	1
1,2,3,7,8,9-HxCDF	90.8		0.0225	2.43	1.23	1.000	1
2,3,4,6,7,8-HxCDF	95.0		0.0173	2.43	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	92.4		0.380	2.43	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	96.8		0.537	2.43	1.00	1.000	1
OCDF	390		0.523	4.86	0.90	1.004	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800468-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 10:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.296g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518877	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.8		0.238	0.486	0.76		1
Total Penta-Dioxins	100		0.0701	2.43	1.61		1
Total Hexa-Dioxins	284		0.0288	2.43	1.23		1
Total Hepta-Dioxins	77.8		0.0376	2.43	1.05		1
Total Tetra-Furans	20.8		0.166	0.486	0.71		1
Total Penta-Furans	192		0.116	2.43	1.50		1
Total Hexa-Furans	382		0.0181	2.43	1.24		1
Total Hepta-Furans	189		0.449	2.43	1.00		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800468-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 10:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.296g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518877	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	838.229	42		25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1195.940	60		25-181	1.59	1.235
13C-1,2,3,4,7,8-HxCDD	2000	1022.259	51		32-141	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	999.442	50		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1039.778	52		23-140	1.11	1.071
13C-OCDD	4000	554.862	14	**Y**	17-157	0.82	1.143
13C-2,3,7,8-TCDF	2000	800.715	40		24-169	0.77	0.988
13C-1,2,3,7,8-PeCDF	2000	1076.229	54		24-185	1.57	1.183
13C-2,3,4,7,8-PeCDF	2000	1103.259	55		21-178	1.59	1.223
13C-1,2,3,4,7,8-HxCDF	2000	854.388	43		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	973.527	49		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	913.983	46		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	951.399	48		28-136	0.50	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	859.478	43		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	856.885	43		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	385.065	48		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800468-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 11:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.187g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518878	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	20.0		0.562	0.562	0.69	1.001	1
1,2,3,7,8-PeCDD	104		0.0647	2.45	1.54	1.001	1
1,2,3,4,7,8-HxCDD	95.5		0.0610	2.45	1.29	1.000	1
1,2,3,6,7,8-HxCDD	96.7		0.0690	2.45	1.29	1.000	1
1,2,3,7,8,9-HxCDD	101		0.0636	2.45	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	79.7		0.0393	2.45	1.06	1.001	1
OCDD	197		0.121	4.91	0.89	1.000	1
2,3,7,8-TCDF	22.4		0.341	0.491	0.79	1.001	1
1,2,3,7,8-PeCDF	95.3		0.212	2.45	1.57	1.001	1
2,3,4,7,8-PeCDF	101		0.191	2.45	1.52	1.001	1
1,2,3,4,7,8-HxCDF	97.8		0.0495	2.45	1.19	1.000	1
1,2,3,6,7,8-HxCDF	97.1		0.0486	2.45	1.19	1.000	1
1,2,3,7,8,9-HxCDF	93.6		0.0593	2.45	1.22	1.000	1
2,3,4,6,7,8-HxCDF	95.0		0.0491	2.45	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	94.8		0.307	2.45	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	96.6		0.403	2.45	1.02	1.000	1
OCDF	205		0.178	4.91	0.85	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800468-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 11:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.187g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518878	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	20.0		0.562	0.562	0.69		1
Total Penta-Dioxins	104		0.0647	2.45	1.54		1
Total Hexa-Dioxins	294		0.0645	2.45	1.29		1
Total Hepta-Dioxins	79.7		0.0393	2.45	1.06		1
Total Tetra-Furans	24.5		0.341	0.491	0.68		1
Total Penta-Furans	196		0.201	2.45	1.58		1
Total Hexa-Furans	384		0.0515	2.45	1.19		1
Total Hepta-Furans	191		0.351	2.45	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801012
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800468-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 11:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.187g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518878	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	485.529	24	**Y**	25-164	0.84	1.028
13C-1,2,3,7,8-PeCDD	2000	980.520	49		25-181	1.63	1.236
13C-1,2,3,4,7,8-HxCDD	2000	964.358	48		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	991.673	50		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1067.597	53		23-140	1.05	1.071
13C-OCDD	4000	1246.123	31		17-157	0.91	1.142
13C-2,3,7,8-TCDF	2000	437.582	22	**Y**	24-169	0.79	0.989
13C-1,2,3,7,8-PeCDF	2000	817.307	41		24-185	1.62	1.184
13C-2,3,4,7,8-PeCDF	2000	899.773	45		21-178	1.62	1.223
13C-1,2,3,4,7,8-HxCDF	2000	850.723	43		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	897.829	45		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1003.134	50		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	937.242	47		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	849.514	42		28-143	0.43	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	906.801	45		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	211.061	26	**Y**	35-197	NA	1.029

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0058

Run #13 Filename P518830 Samp: 1 Inj: 1 Acquired: 15-NOV-18 17:36:23
Processed: 16-NOV-18 14:10:45 Sample ID: E1801012-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:38	1.126e+06	1.430e+06	0.79	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:38	6.392e+04	4.142e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:38	5.256e+04	3.415e+04	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:31	8.601e+04	7.058e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:38	2.578e+04	2.057e+04	1.25	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:10	5.283e+03	4.346e+03	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:58	6.631e+03	5.323e+03	1.25	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	3.394e+04	3.354e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	8.526e+03	8.387e+03	1.02	yes	no	1.258
10	Unk	OCDF	40:52	7.885e+04	9.010e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:38	2.991e+05	3.792e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:57	4.235e+03	3.102e+03	1.37	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:19	3.552e+02	3.192e+02	1.11	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:24	2.526e+03	2.074e+03	1.22	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:39	9.677e+02	7.487e+02	1.29	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	8.245e+04	7.952e+04	1.04	yes	no	1.025
17	Unk	OCDD	40:43	8.793e+05	9.851e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:36	2.073e+04	2.568e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:37	3.159e+04	1.963e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:38	3.098e+04	1.944e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:30	1.257e+04	2.475e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:37	1.543e+04	2.969e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:09	1.422e+04	2.680e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:56	1.347e+04	2.611e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:15	9.778e+03	2.278e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:35	9.671e+03	2.243e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:37	1.358e+04	1.706e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:56	2.249e+04	1.413e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:18	1.807e+04	1.396e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.968e+04	1.528e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:10	1.939e+04	1.857e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	40:42	2.104e+04	2.348e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:55	2.440e+04	3.084e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:38	3.780e+04	2.972e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:38	1.906e+04				no	1.014

$$\text{OCDD} = \frac{(8.793e+05 + 9.851e+05) \times 4000\ \text{pg} \times 1}{(2.104e+04 + 2.348e+04) \times 10.363\ \text{g} \times 63.6 / 100 \times 1.118} = 22733.14\ \text{ng/kg}$$

LM 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0058

Run #13 Filename P518830 Samp: 1 Inj: 1 Acquired: 15-NOV-18 17:36:23
Processed: 16-NOV-18 14:10:45 LAB. ID: E1801012-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.57e+08	1.82e+03	8.7e+04	1.99e+08	3.25e+03	6.1e+04
2	1,2,3,7,8-PeCDF	1.09e+07	1.39e+04	7.8e+02	7.10e+06	2.50e+03	2.8e+03
3	2,3,4,7,8-PeCDF	7.69e+06	1.39e+04	5.6e+02	5.03e+06	2.50e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	1.72e+07	7.93e+03	2.2e+03	1.41e+07	6.75e+03	2.1e+03
5	1,2,3,6,7,8-HxCDF	4.41e+06	7.93e+03	5.6e+02	3.50e+06	6.75e+03	5.2e+02
6	2,3,4,6,7,8-HxCDF	1.07e+06	7.93e+03	1.4e+02	8.70e+05	6.75e+03	1.3e+02
7	1,2,3,7,8,9-HxCDF	1.25e+06	7.93e+03	1.6e+02	1.02e+06	6.75e+03	1.5e+02
8	1,2,3,4,6,7,8-HpCDF	6.49e+06	1.11e+04	5.9e+02	6.36e+06	1.57e+04	4.1e+02
9	1,2,3,4,7,8,9-HpCDF	1.53e+06	1.11e+04	1.4e+02	1.52e+06	1.57e+04	9.7e+01
10	OCDF	1.23e+07	4.20e+02	2.9e+04	1.43e+07	1.20e+03	1.2e+04
11	2,3,7,8-TCDD	4.83e+07	4.08e+03	1.2e+04	6.13e+07	2.26e+03	2.7e+04
12	1,2,3,7,8-PeCDD	7.05e+05	2.24e+03	3.1e+02	4.21e+05	3.58e+03	1.2e+02
13	1,2,3,4,7,8-HxCDD	7.87e+04	4.02e+03	2.0e+01	6.49e+04	4.40e+03	1.5e+01
14	1,2,3,6,7,8-HxCDD	4.98e+05	4.02e+03	1.2e+02	4.07e+05	4.40e+03	9.3e+01
15	1,2,3,7,8,9-HxCDD	1.81e+05	4.02e+03	4.5e+01	1.47e+05	4.40e+03	3.3e+01
16	1,2,3,4,6,7,8-HpCDD	1.54e+07	7.44e+02	2.1e+04	1.48e+07	2.01e+03	7.4e+03
17	OCDD	1.44e+08	3.48e+02	4.1e+05	1.61e+08	1.17e+03	1.4e+05
18	13C-2,3,7,8-TCDF	3.02e+06	1.05e+04	2.9e+02	3.76e+06	1.32e+04	2.8e+02
19	13C-1,2,3,7,8-PeCDF	5.34e+06	7.71e+03	6.9e+02	3.36e+06	6.31e+03	5.3e+02
20	13C-2,3,4,7,8-PeCDF	5.53e+06	7.71e+03	7.2e+02	3.49e+06	6.31e+03	5.5e+02
21	13C-1,2,3,4,7,8-HxCDF	2.60e+06	2.93e+03	8.9e+02	5.05e+06	3.33e+03	1.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.72e+06	2.93e+03	9.3e+02	5.30e+06	3.33e+03	1.6e+03
23	13C-2,3,4,6,7,8-HxCDF	2.77e+06	2.93e+03	9.5e+02	5.33e+06	3.33e+03	1.6e+03
24	13C-1,2,3,7,8,9-HxCDF	2.39e+06	2.93e+03	8.2e+02	4.57e+06	3.33e+03	1.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.86e+06	2.61e+03	7.1e+02	4.27e+06	1.20e+04	3.6e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.69e+06	2.61e+03	6.5e+02	3.84e+06	1.20e+04	3.2e+02
27	13C-2,3,7,8-TCDD	2.20e+06	5.70e+03	3.9e+02	2.70e+06	2.30e+03	1.2e+03
28	13C-1,2,3,7,8-PeCDD	4.02e+06	1.81e+03	2.2e+03	2.50e+06	1.38e+03	1.8e+03
29	13C-1,2,3,4,7,8-HxCDD	3.90e+06	1.56e+03	2.5e+03	2.99e+06	7.24e+02	4.1e+03
30	13C-1,2,3,6,7,8-HxCDD	3.58e+06	1.56e+03	2.3e+03	2.76e+06	7.24e+02	3.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.56e+06	1.58e+03	2.3e+03	3.38e+06	5.40e+02	6.3e+03
32	13C-OCDD	3.43e+06	9.44e+02	3.6e+03	3.78e+06	6.56e+02	5.8e+03
33	13C-1,2,3,4-TCDD	3.54e+06	5.70e+03	6.2e+02	4.49e+06	2.30e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	6.72e+06	1.56e+03	4.3e+03	5.35e+06	7.24e+02	7.4e+03
35	37Cl-2,3,7,8-TCDD	3.10e+06	2.51e+03	1.2e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0058

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P518830 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 17:36:23 Processed: 16-NOV-18 14:10:45

Mass: 303.9020 305.8990 Tot Response: 4.92e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	21:37	1.43e+03	1.80e+03	0.80	yes	3.23e+03		n	n
2	22:31	9.97e+03	1.38e+04	0.72	yes	2.37e+04		n	n
3	22:47	5.54e+04	7.26e+04	0.76	yes	1.28e+05		n	n
4	23:08	1.66e+04	2.32e+04	0.72	yes	3.98e+04		n	n
5	23:16	1.78e+03	2.70e+03	0.66	yes	4.48e+03		n	n
6	23:24	4.56e+04	6.02e+04	0.76	yes	1.06e+05		n	n
7	23:46	9.50e+03	1.25e+04	0.76	yes	2.20e+04		n	n
8	24:01	3.24e+04	4.23e+04	0.77	yes	7.47e+04		n	n
9	24:08	5.70e+04	7.37e+04	0.77	yes	1.31e+05		n	n
10	24:37	5.02e+05	6.43e+05	0.78	yes	1.15e+06		n	n
11	24:55	2.44e+04	3.27e+04	0.74	yes	5.71e+04		n	n
12	25:25	1.01e+04	1.28e+04	0.79	yes	2.29e+04		y	y
13	25:32	7.47e+04	1.01e+05	0.74	yes	1.75e+05		y	y
14	25:38	1.13e+06	1.43e+06	0.79	yes	2.56e+06	2,3,7,8-TCDF	y	y
15	26:05	8.49e+04	1.10e+05	0.77	yes	1.95e+05		n	y
16	26:21	1.35e+04	1.75e+04	0.77	yes	3.10e+04		n	n
17	27:53	8.94e+04	1.15e+05	0.77	yes	2.05e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0058

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P518830 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 17:36:23 Processed: 16-NOV-18 14:10:45

Mass: 319.8970 321.8940 Tot Response: 7.52e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:06	2.67e+02	3.16e+02	0.85	yes	5.83e+02		y	y
2	24:44	8.34e+02	1.05e+03	0.80	yes	1.88e+03		y	y
3	25:15	7.17e+02	8.26e+02	0.87	yes	1.54e+03		y	y
4	26:18	3.99e+03	5.12e+03	0.78	yes	9.11e+03		n	n
5	26:38	2.99e+05	3.79e+05	0.79	yes	6.78e+05	2,3,7,8-TCDD	n	n
6	27:00	2.73e+04	3.33e+04	0.82	yes	6.06e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0058

Entry: 38 Totals Name: Total Penta-Furans1

Run: 13 File: P518830 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 17:36:23 Processed: 16-NOV-18 14:10:45

Mass: 339.8600 341.8570 Tot Response: 1.02e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:54	6.21e+03	3.92e+03 1.59	yes	1.01e+04		n	n
2	28:30	2.73e+01	1.65e+01 1.65	yes	4.38e+01		n	n

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Peak List Summary

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SL0058

Entry: 39 Totals Name: Total Penta-Furans2

Run: 13 File: P518830 Sample:1 Injection:1 Function:2

Acquired: 15-NOV-18 17:36:23 Processed: 16-NOV-18 14:10:45

Mass: 339.8600 341.8570 Tot Response: 2.67e+05 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:27	1.19e+03	8.27e+02	1.44	yes	2.01e+03		n	n
2	29:36	3.15e+04	2.05e+04	1.54	yes	5.20e+04		n	n
3	30:12	2.35e+03	1.41e+03	1.67	yes	3.76e+03		n	n
4	30:17	1.01e+03	7.24e+02	1.40	yes	1.74e+03		n	n
5	30:26	6.24e+03	4.12e+03	1.51	yes	1.04e+04		n	n
6	30:38	6.39e+04	4.14e+04	1.54	yes	1.05e+05	1,2,3,7,8-PeCDF	n	n
7	31:32	6.56e+02	4.30e+02	1.53	yes	1.09e+03		n	n
8	31:38	5.26e+04	3.41e+04	1.54	yes	8.67e+04	2,3,4,7,8-PeCDF	n	n
9	32:36	2.60e+03	1.74e+03	1.49	yes	4.34e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0058

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P518830 Sample:1 Injection:1 Function:2

Acquired: 15-NOV-18 17:36:23 Processed: 16-NOV-18 14:10:45

Mass: 355.8550 357.8520 Tot Response: 1.22e+04 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:10	9.84e+02	5.99e+02	1.64	yes	1.58e+03		n	n
2	30:40	6.69e+02	4.67e+02	1.43	yes	1.14e+03		n	n
3	30:50	5.81e+02	3.89e+02	1.49	yes	9.71e+02		n	n
4	30:57	2.71e+02	1.75e+02	1.55	yes	4.46e+02		n	n
5	31:10	4.30e+02	2.55e+02	1.69	yes	6.85e+02		n	n
6	31:57	4.24e+03	3.10e+03	1.37	yes	7.34e+03	1,2,3,7,8-PeCDD	n	n
7	32:29	1.78e+01	1.17e+01	1.53	yes	2.95e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0058

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P518830 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 17:36:23 Processed: 16-NOV-18 14:10:45

Mass: 373.8210 375.8180 Tot Response: 2.74e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:21	1.96e+03	1.62e+03	1.21	yes	3.58e+03		n	n
2	33:31	1.30e+04	1.05e+04	1.23	yes	2.35e+04		n	n
3	34:04	1.21e+04	1.00e+04	1.21	yes	2.21e+04		n	n
4	34:25	3.75e+02	3.09e+02	1.21	yes	6.84e+02		n	n
5	34:31	8.60e+04	7.06e+04	1.22	yes	1.57e+05	1,2,3,4,7,8-HxCDF	n	n
6	34:38	2.58e+04	2.06e+04	1.25	yes	4.64e+04	1,2,3,6,7,8-HxCDF	n	n
7	35:10	5.28e+03	4.35e+03	1.22	yes	9.63e+03	2,3,4,6,7,8-HxCDF	n	n
8	35:58	6.63e+03	5.32e+03	1.25	yes	1.20e+04	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0058

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P518830 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 17:36:23 Processed: 16-NOV-18 14:10:45

Mass: 389.8160 391.8130 Tot Response: 4.21e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:54	8.08e+03	6.42e+03	1.26	yes	1.45e+04		n	n
2	34:27	9.04e+02	7.05e+02	1.28	yes	1.61e+03		n	n
3	34:42	8.75e+03	7.01e+03	1.25	yes	1.58e+04		n	n
4	34:48	1.56e+03	1.28e+03	1.22	yes	2.83e+03		n	n
5	35:19	3.55e+02	3.19e+02	1.11	yes	6.74e+02	1,2,3,4,7,8-HxCDD	n	n
6	35:24	2.53e+03	2.07e+03	1.22	yes	4.60e+03	1,2,3,6,7,8-HxCDD	n	n
7	35:35	2.34e+02	1.72e+02	1.36	yes	4.06e+02		n	n
8	35:39	9.68e+02	7.49e+02	1.29	yes	1.72e+03	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0058

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P518830 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 17:36:23 Processed: 16-NOV-18 14:10:45

Mass: 407.7820 409.7790 Tot Response: 1.38e+05 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:16	3.39e+04	3.35e+04	1.01	yes	6.75e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	37:32	6.39e+02	6.37e+02	1.00	yes	1.28e+03		n	n
3	37:40	2.63e+04	2.55e+04	1.03	yes	5.18e+04		n	n
4	38:36	8.53e+03	8.39e+03	1.02	yes	1.69e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0058

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P518830 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 17:36:23 Processed: 16-NOV-18 14:10:45

Mass: 423.7770 425.7740 Tot Response: 3.77e+05 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:31	1.10e+05	1.05e+05	1.05	yes	2.15e+05		n	n
2	38:10	8.25e+04	7.95e+04	1.04	yes	1.62e+05	1,2,3,4,6,7,8-HpCDD	n	n

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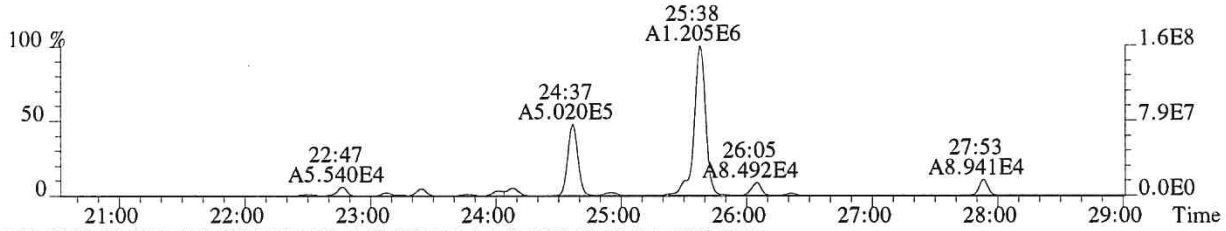
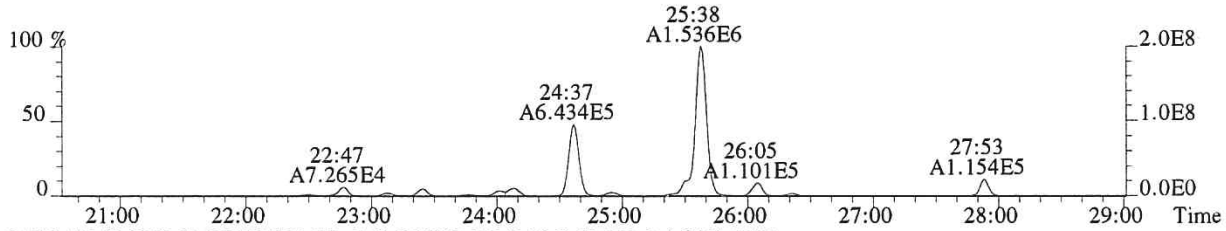
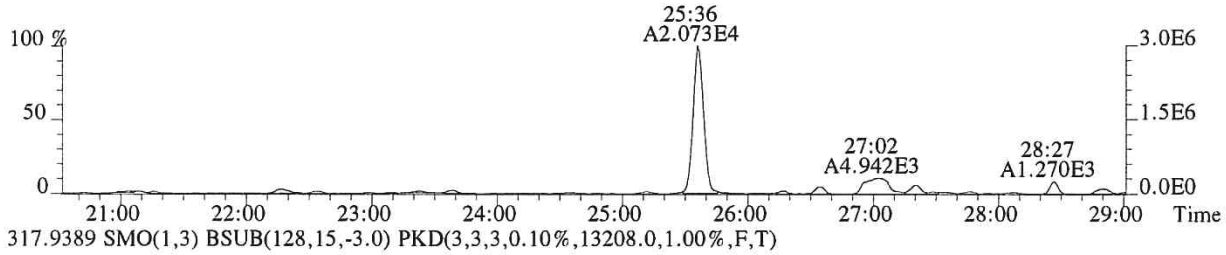
File:P518830 #1-602 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



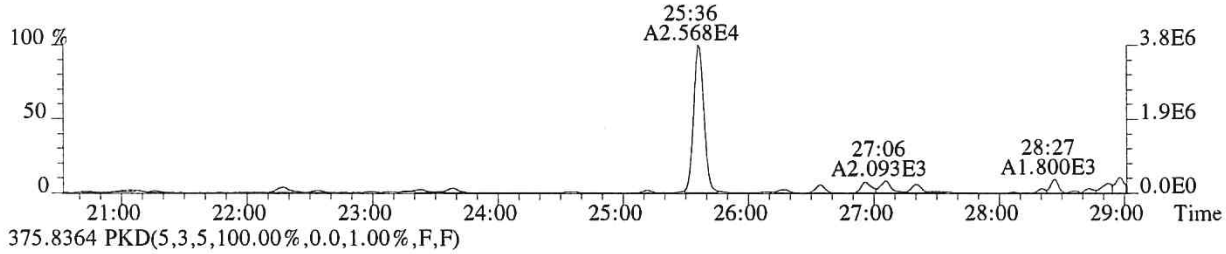
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3248.0,1.00%,F,T)



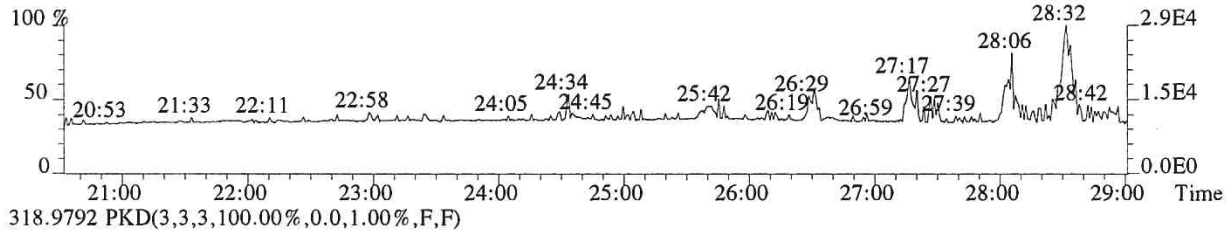
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10512.0,1.00%,F,T)



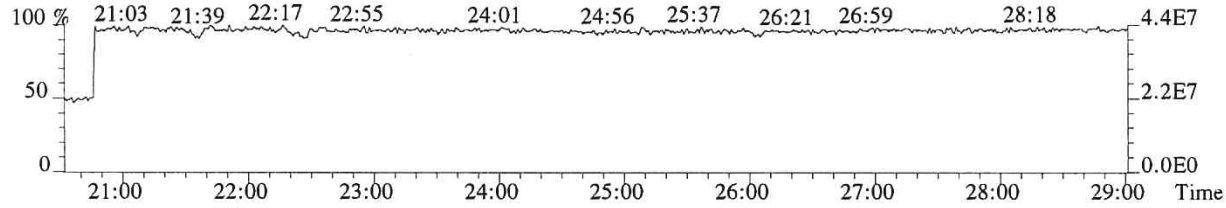
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13208.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

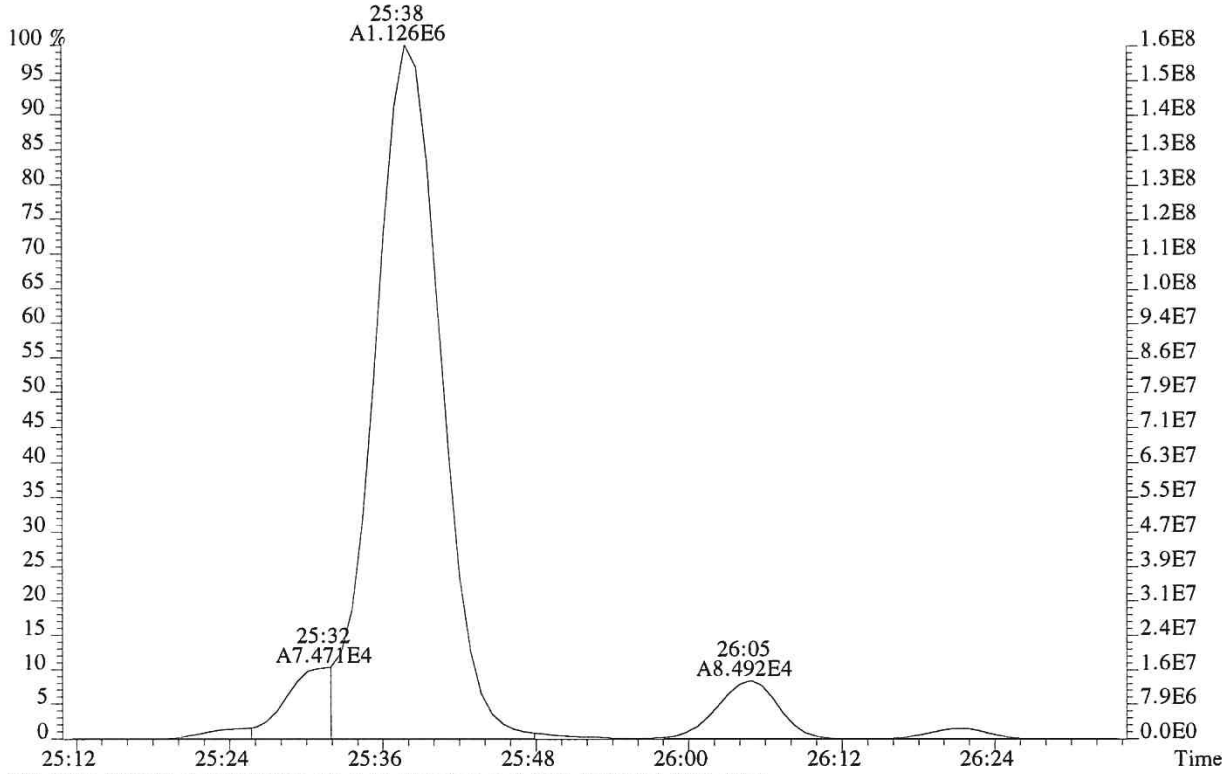


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

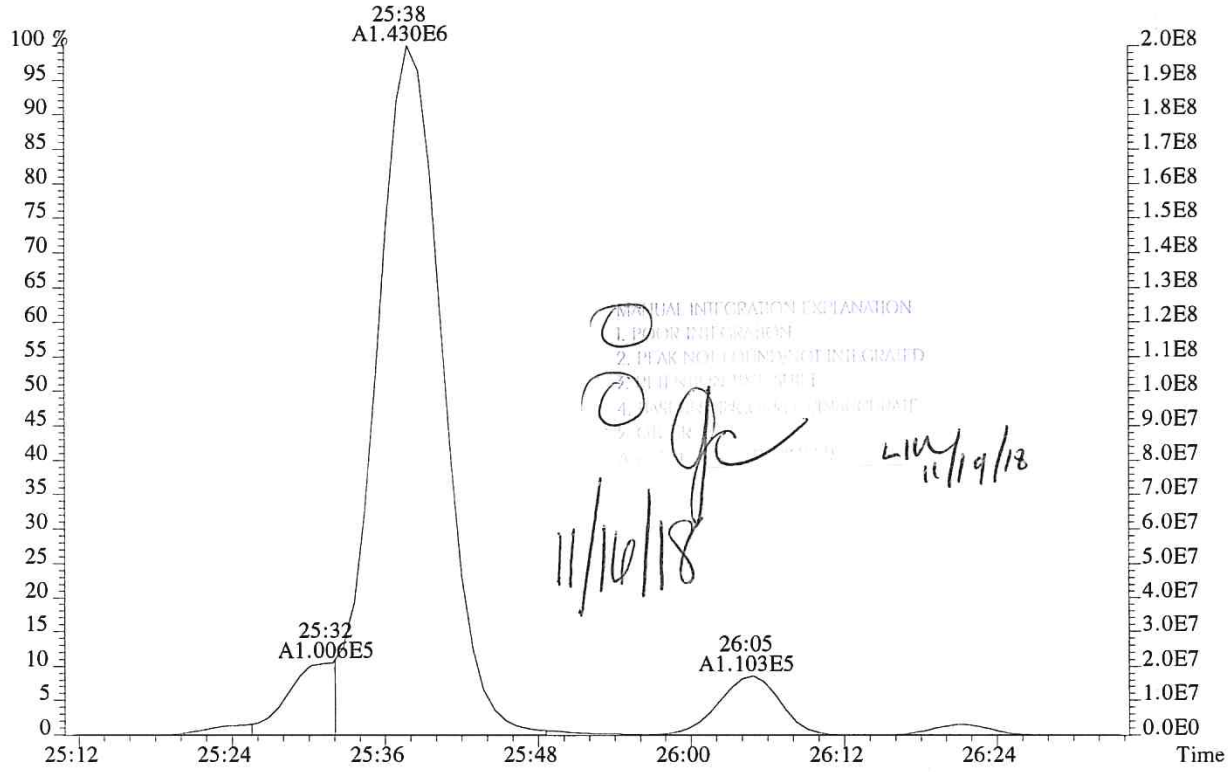


008696

File:P518830 #1-602 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3248.0,1.00%,F,T)

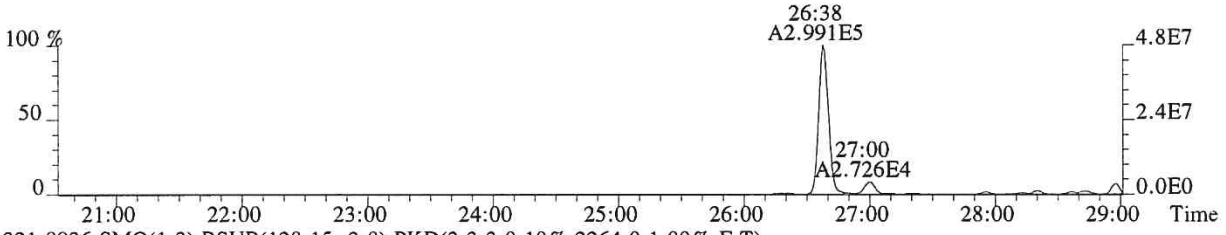


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. PEAK NOT FOUND/NOT INTEGRATED
4. [illegible]
5. [illegible]

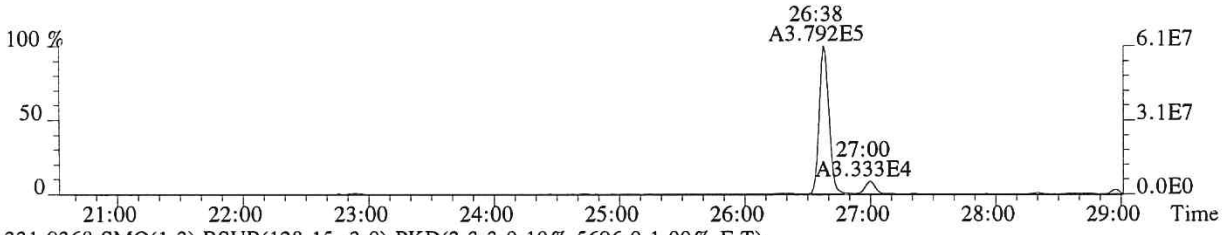
11/16/18

LIU 11/19/18

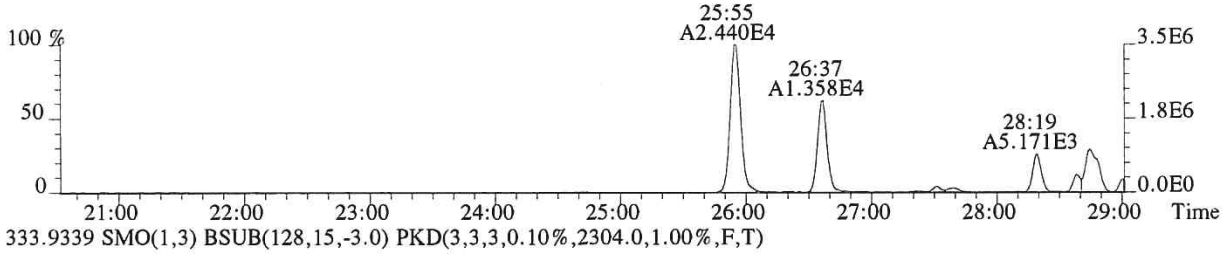
File:P518830 #1-602 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4076.0,1.00%,F,T)



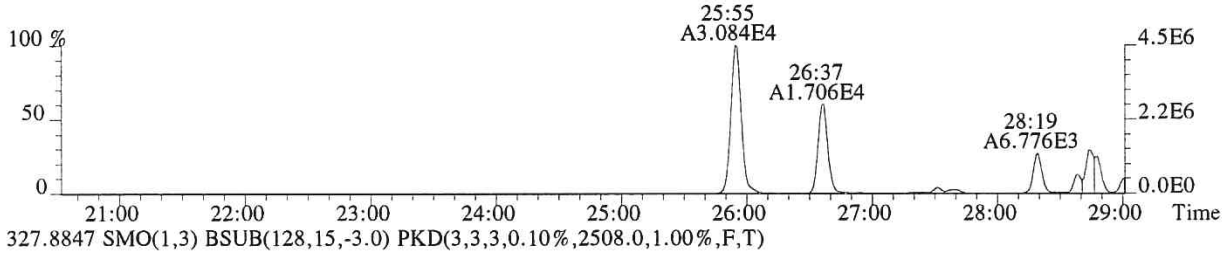
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2264.0,1.00%,F,T)



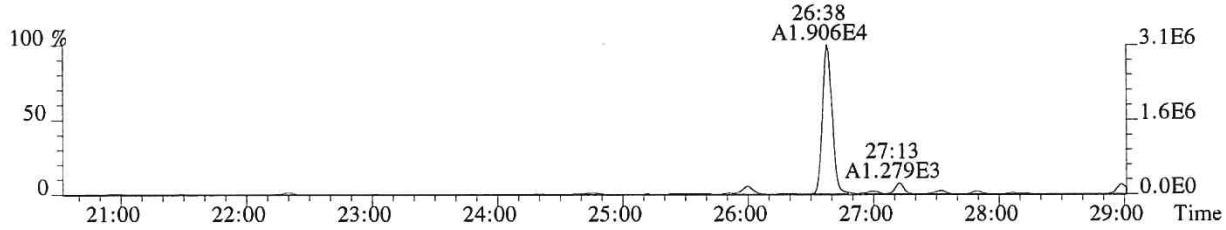
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5696.0,1.00%,F,T)



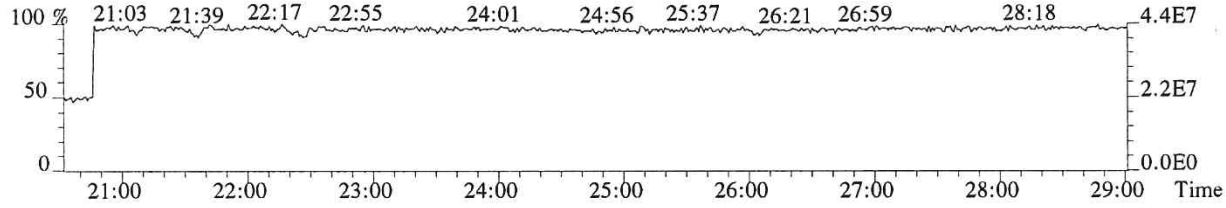
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2508.0,1.00%,F,T)

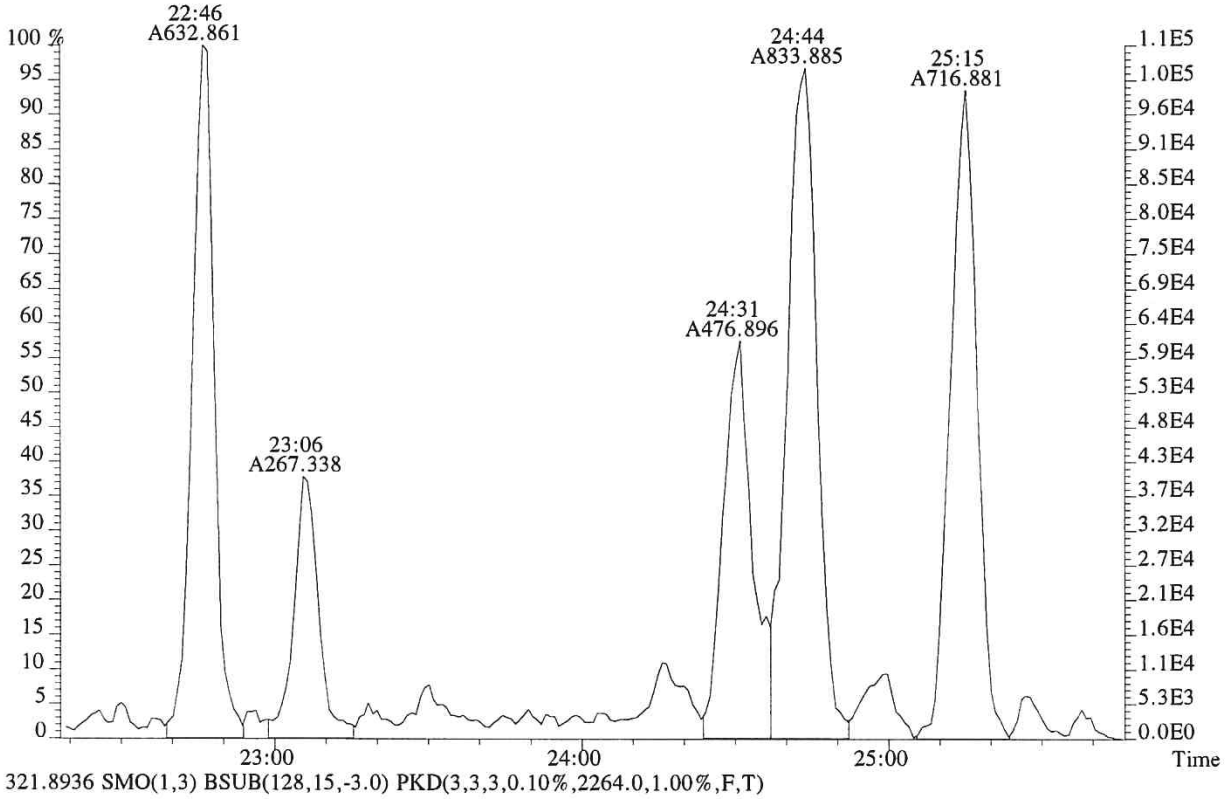


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

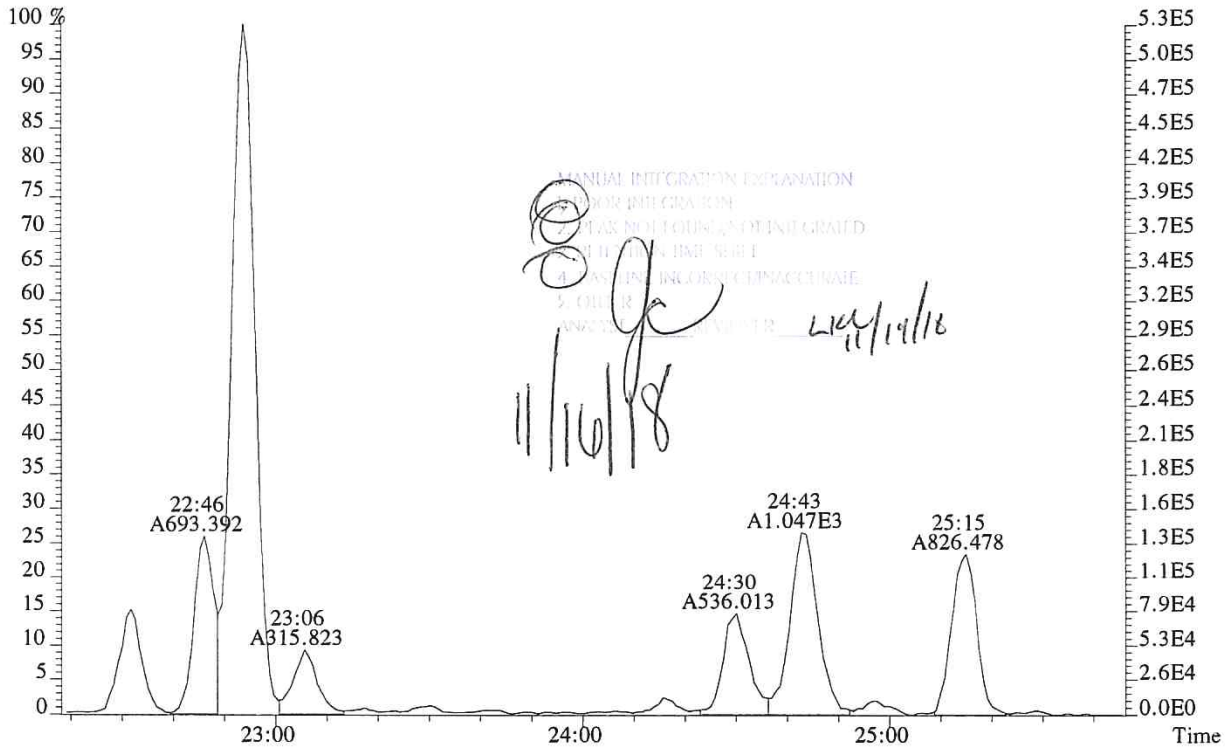


008698

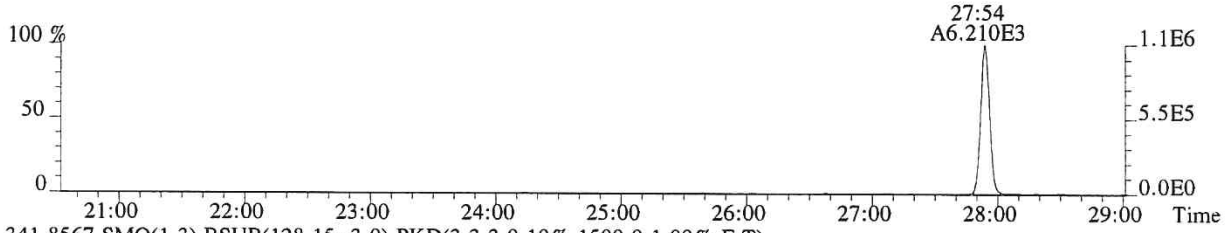
File:P518830 #1-602 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4076.0,1.00%,F,T)



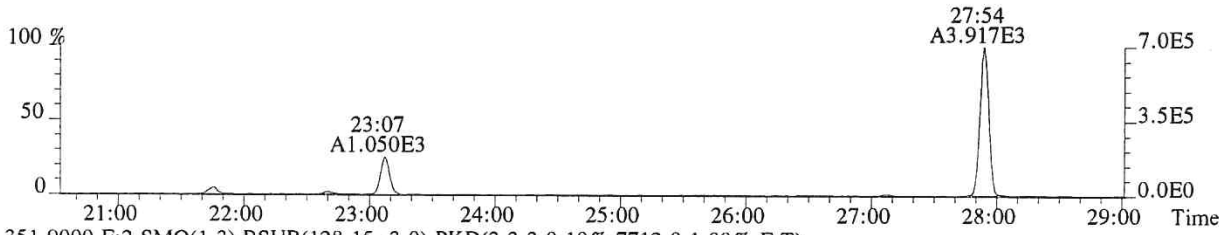
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2264.0,1.00%,F,T)



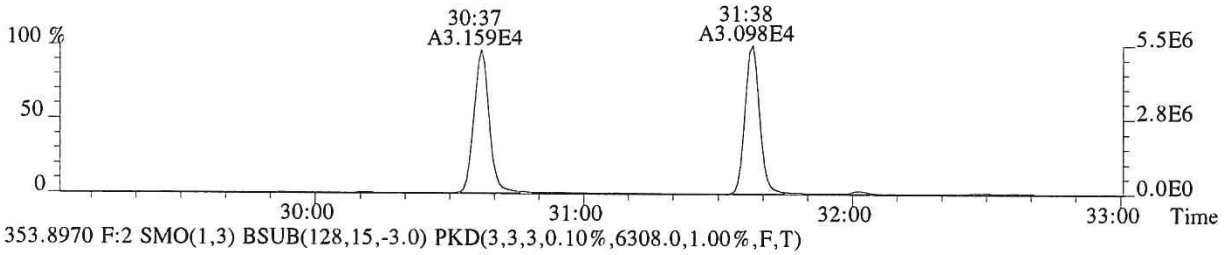
File:P518830 #1-602 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



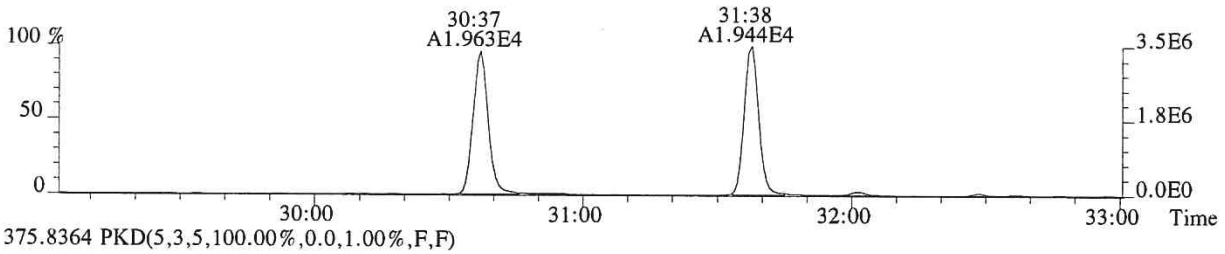
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)



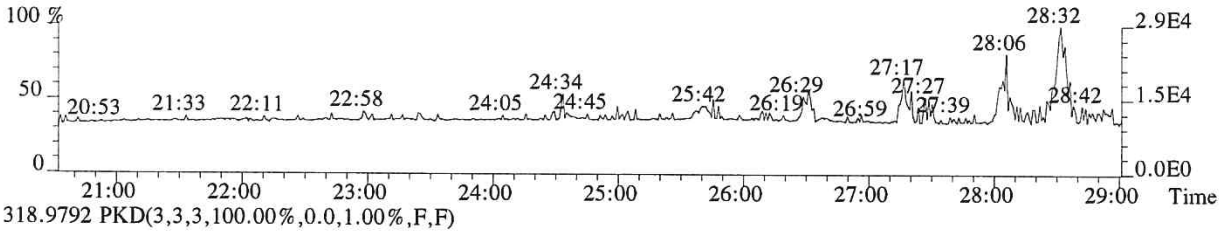
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7712.0,1.00%,F,T)



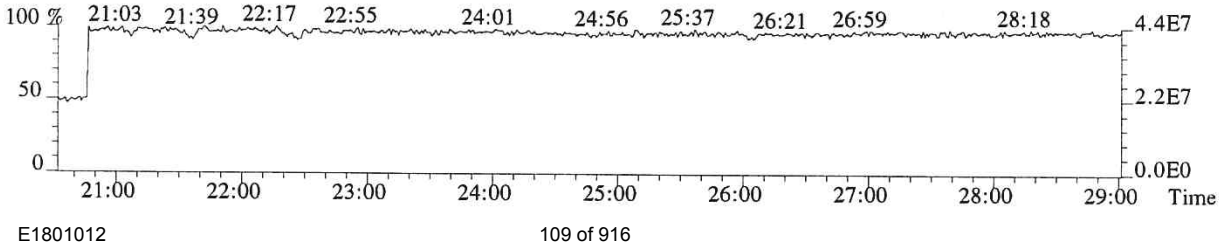
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6308.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

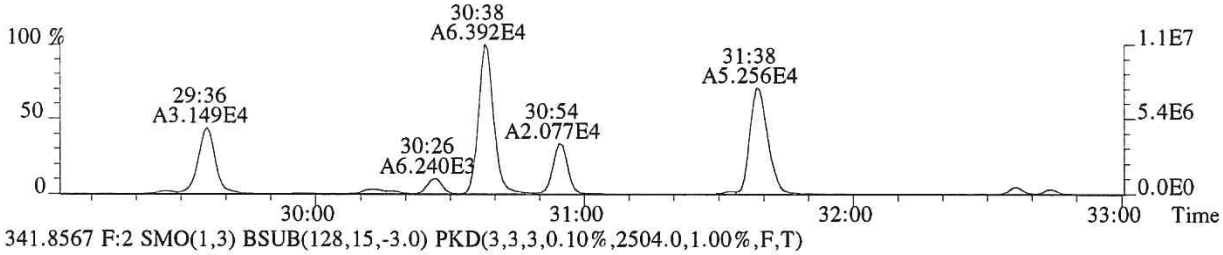


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

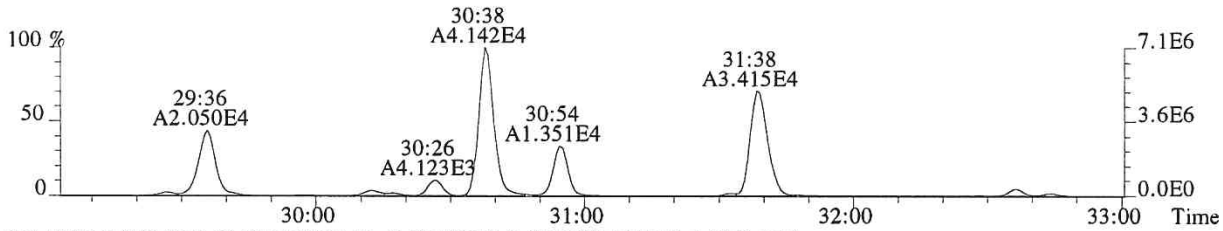


File:P518830 #1-357 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006

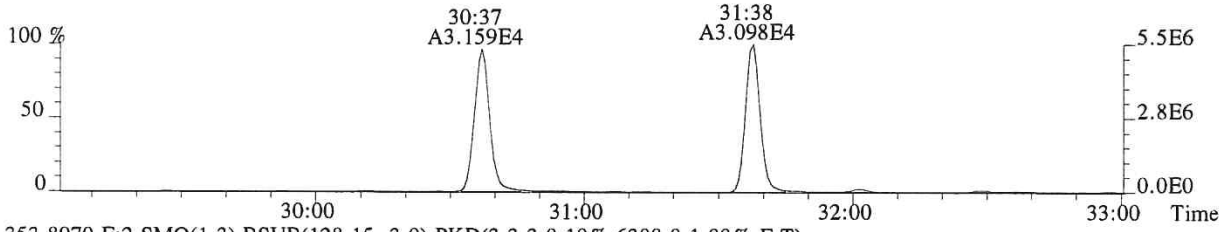
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13852.0,1.00%,F,T)



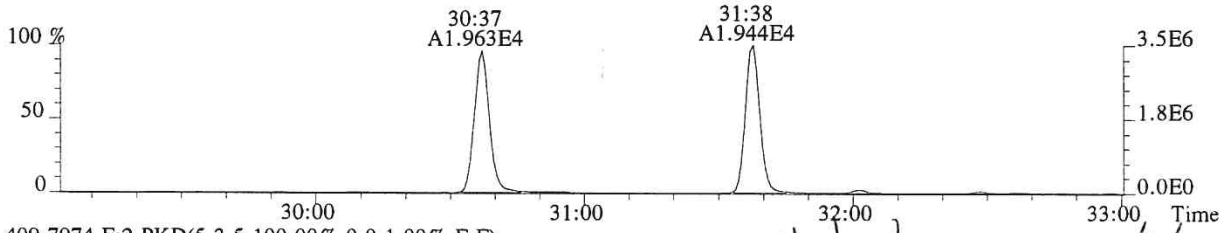
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2504.0,1.00%,F,T)



351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7712.0,1.00%,F,T)

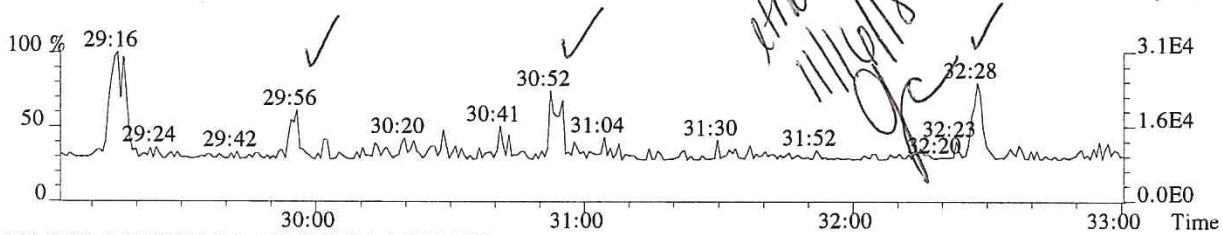


353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6308.0,1.00%,F,T)

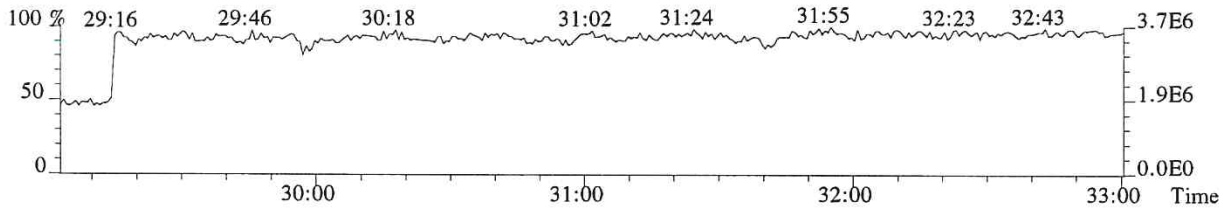


409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

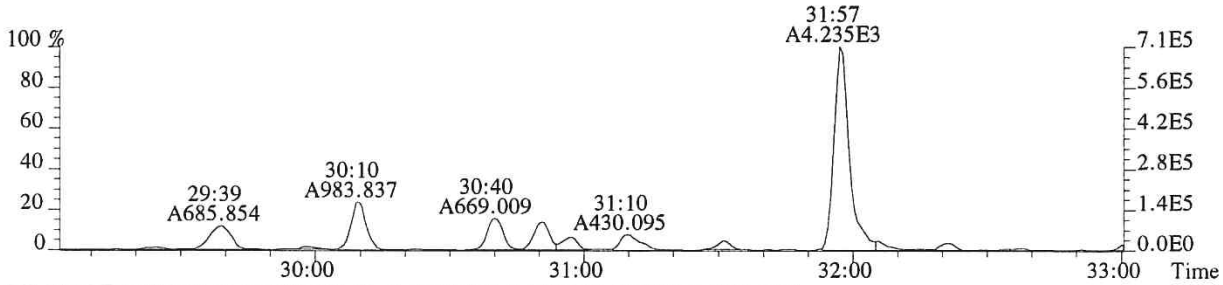
LLL 11/19/18



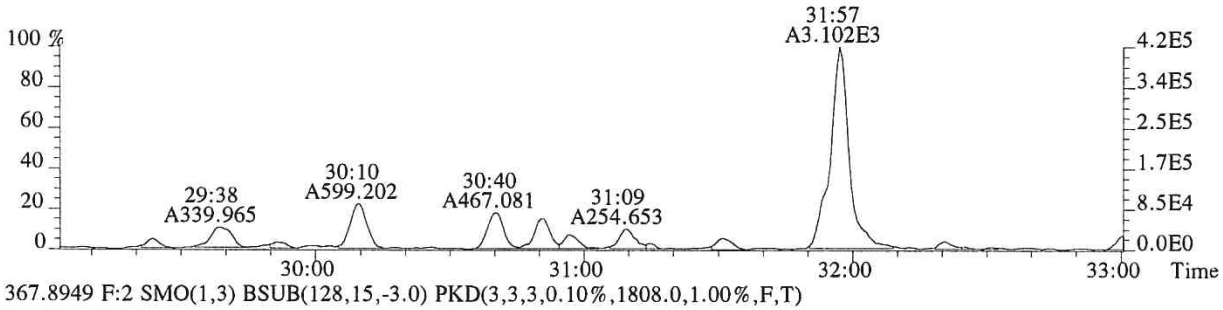
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



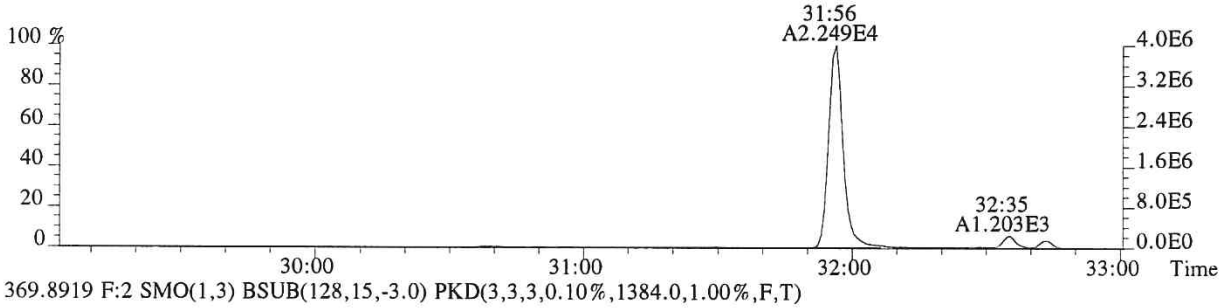
File:P518830 #1-357 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2244.0,1.00%,F,T)



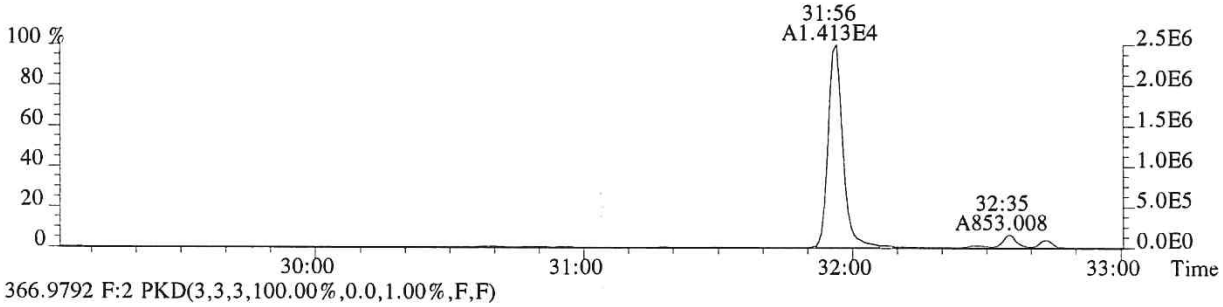
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3576.0,1.00%,F,T)



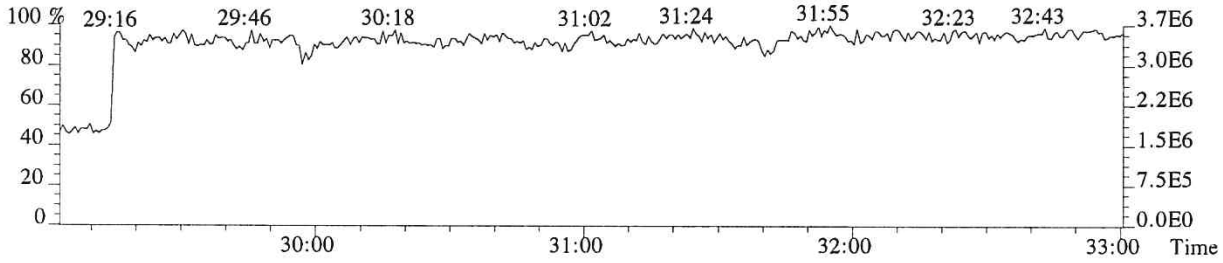
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1808.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1384.0,1.00%,F,T)

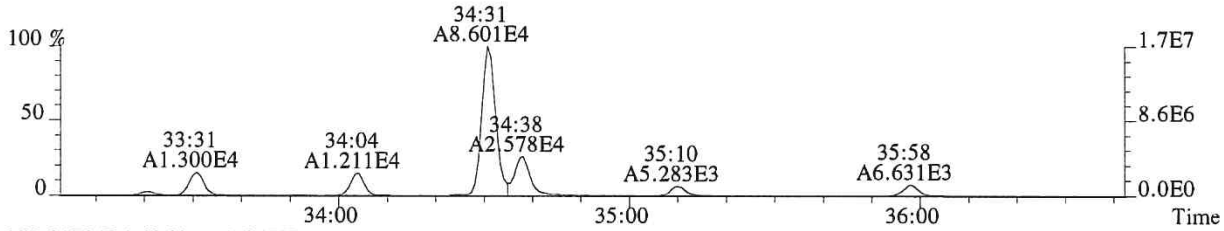


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

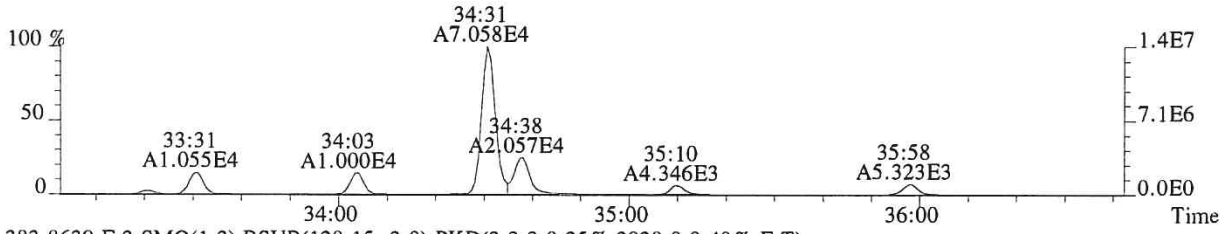


File:P518830 #1-330 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006

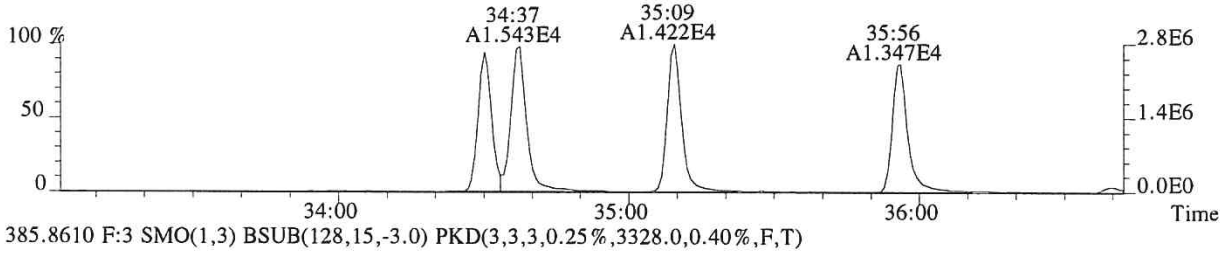
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7932.0,0.40%,F,T)



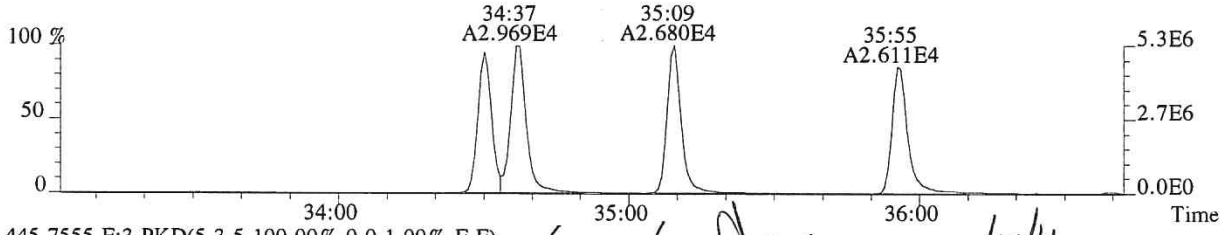
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6748.0,0.40%,F,T)



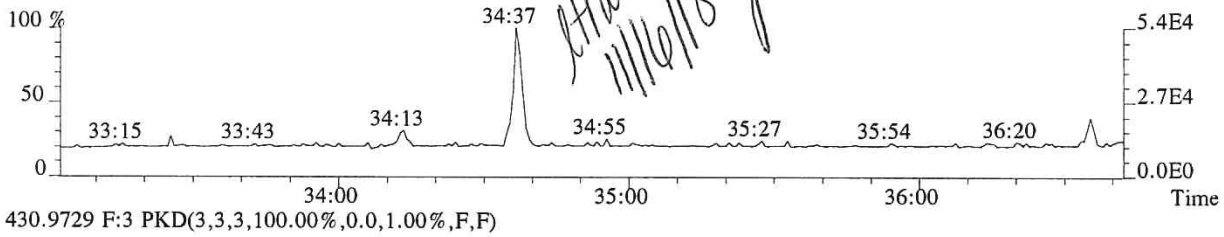
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



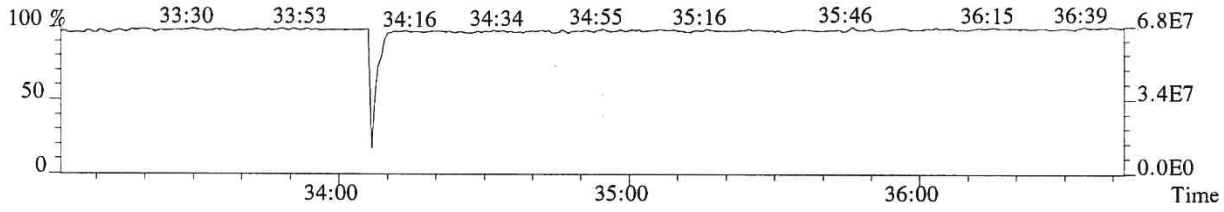
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3328.0,0.40%,F,T)



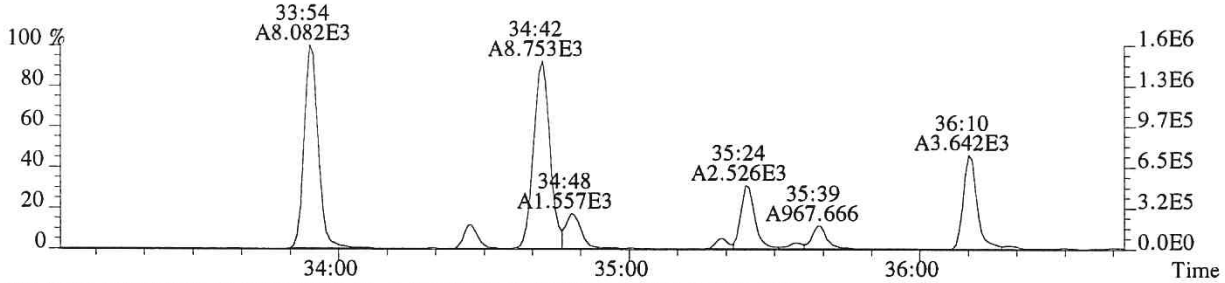
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



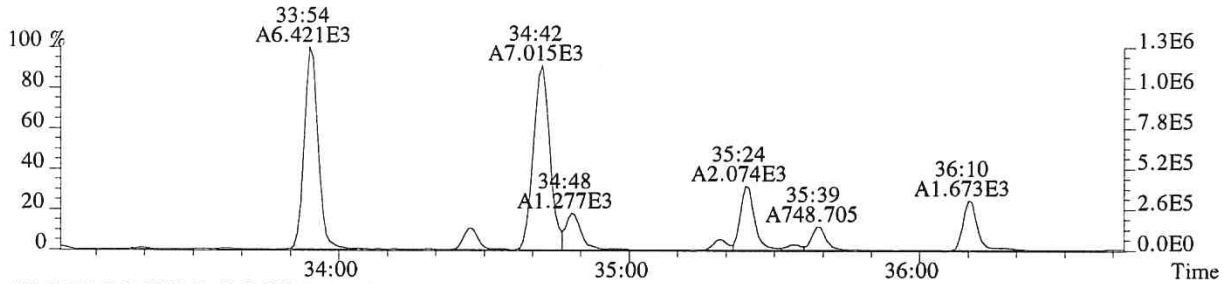
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



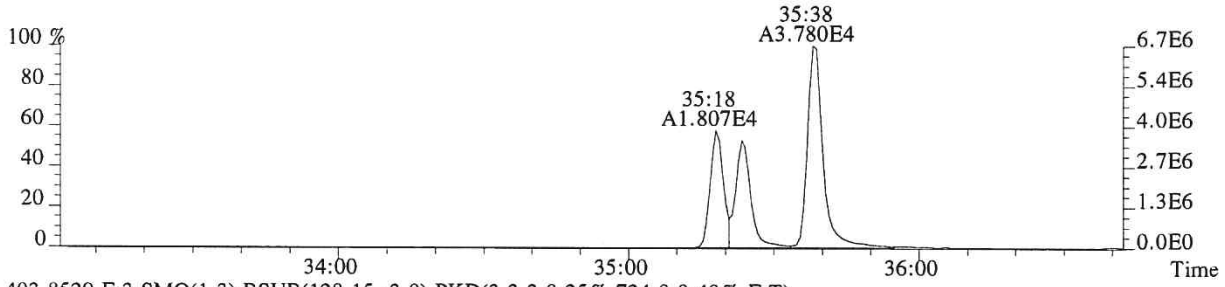
File:P518830 #1-330 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4016.0,0.40%,F,T)



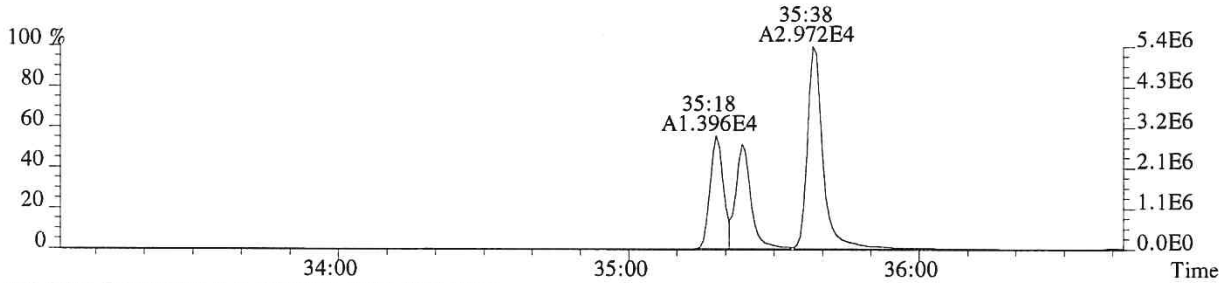
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4400.0,0.40%,F,T)



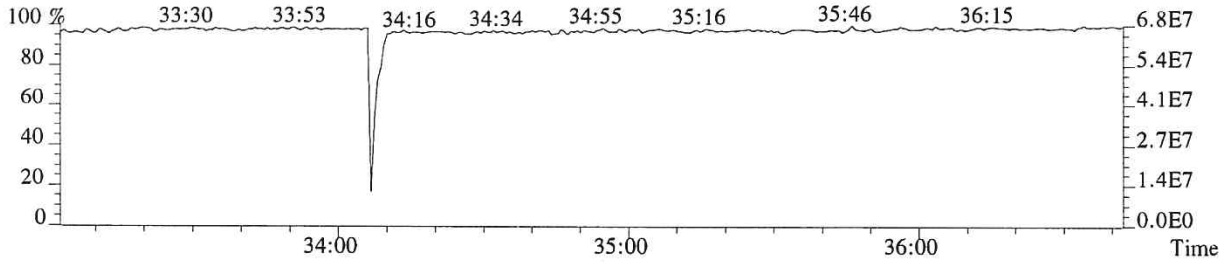
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.40%,F,T)



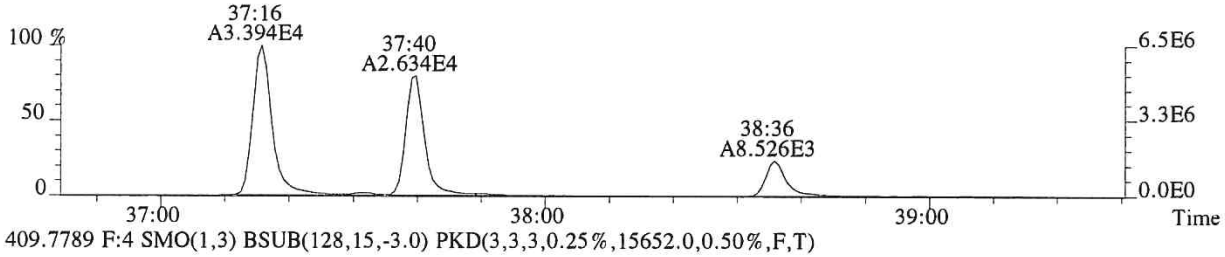
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



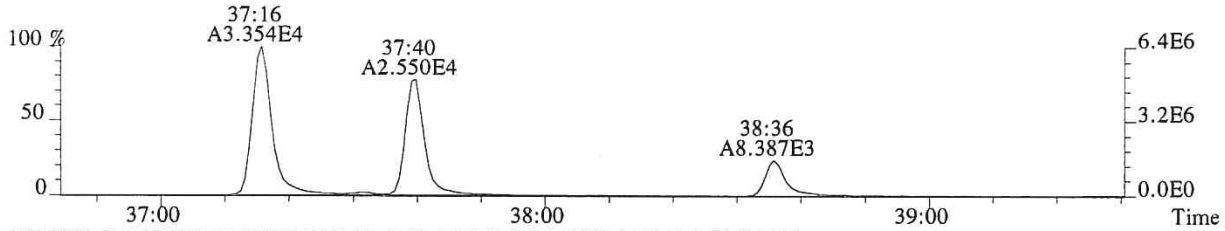
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



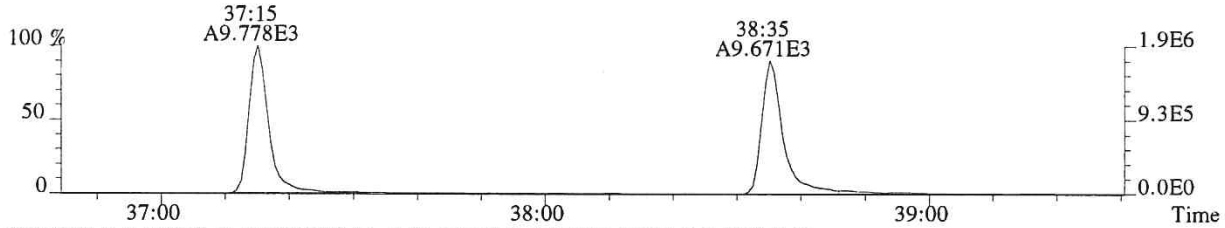
File:P518830 #1-250 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11084.0,0.50%,F,T)



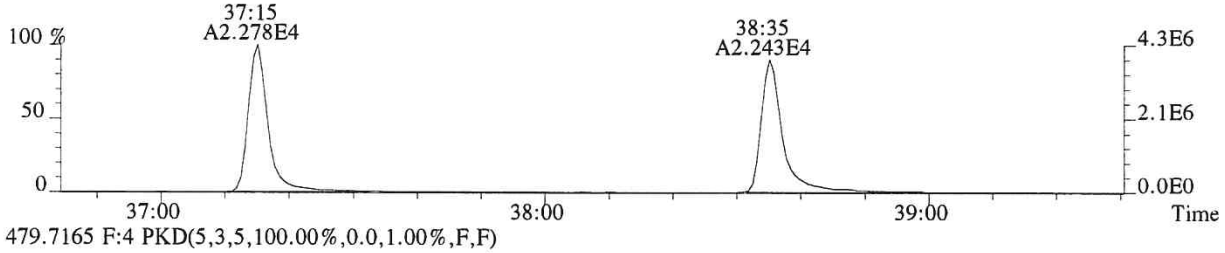
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,15652.0,0.50%,F,T)



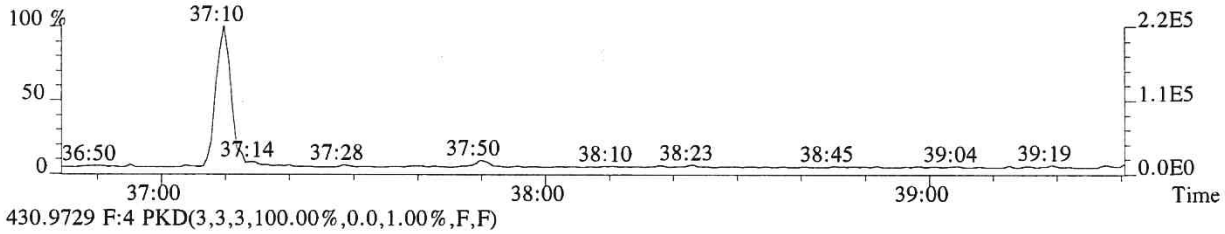
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2612.0,0.50%,F,T)



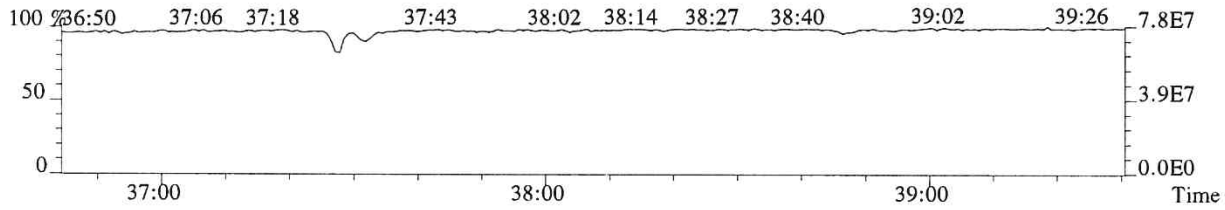
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12004.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

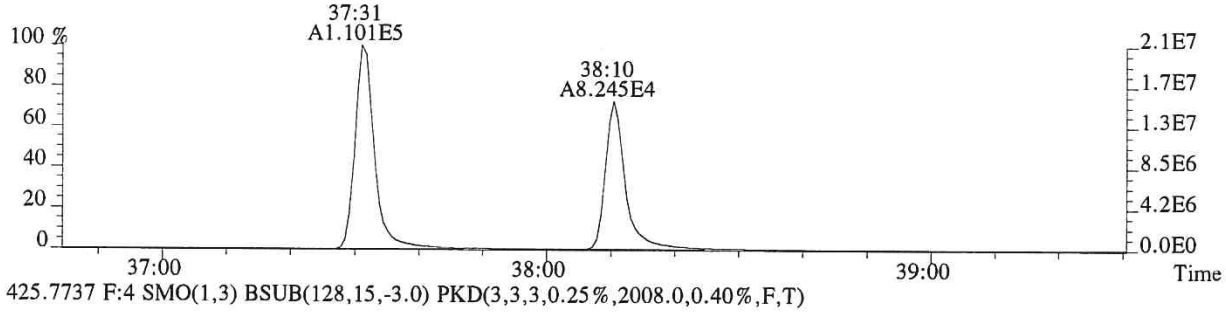


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

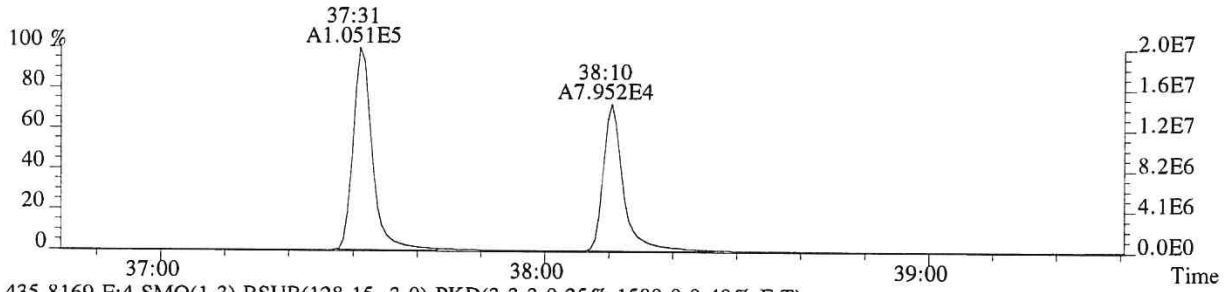


008705

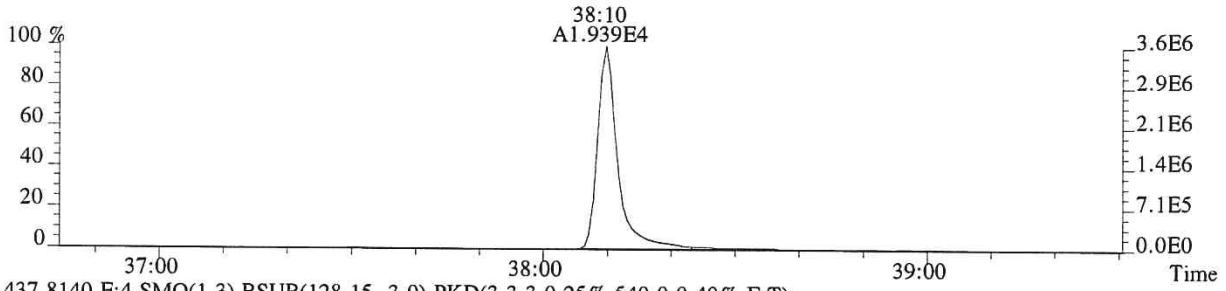
File:P518830 #1-250 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



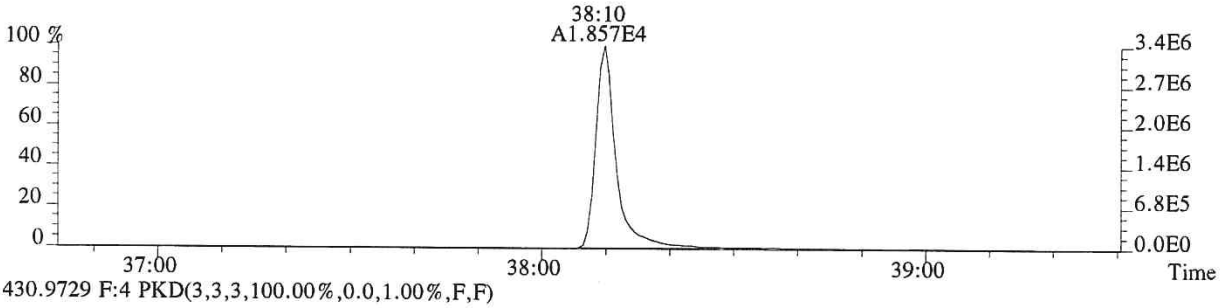
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2008.0,0.40%,F,T)



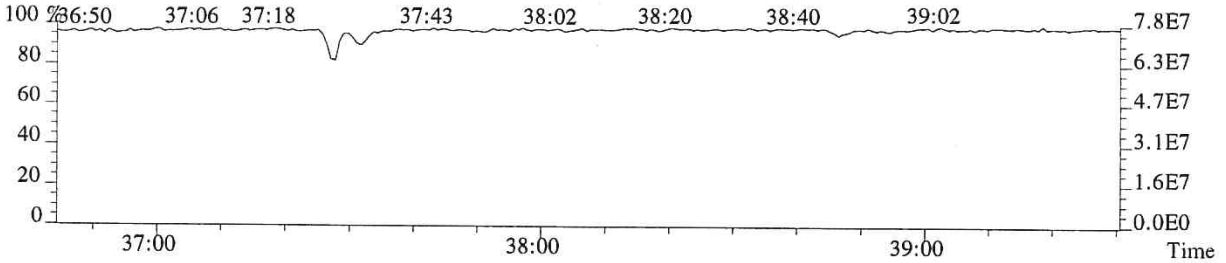
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1580.0,0.40%,F,T)



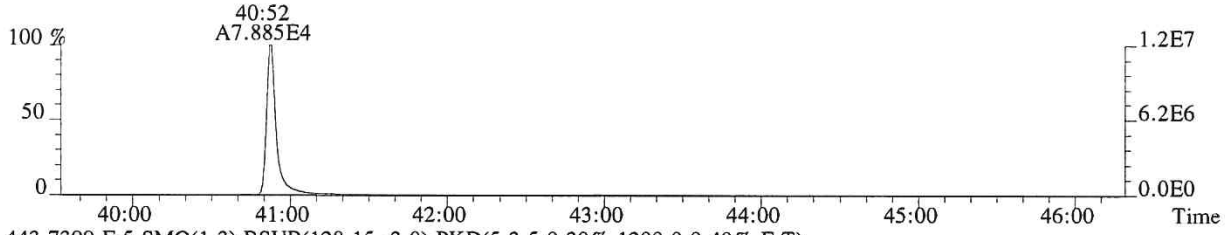
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



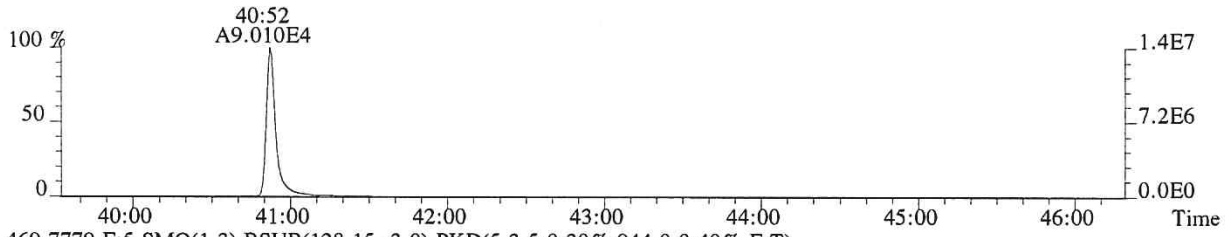
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



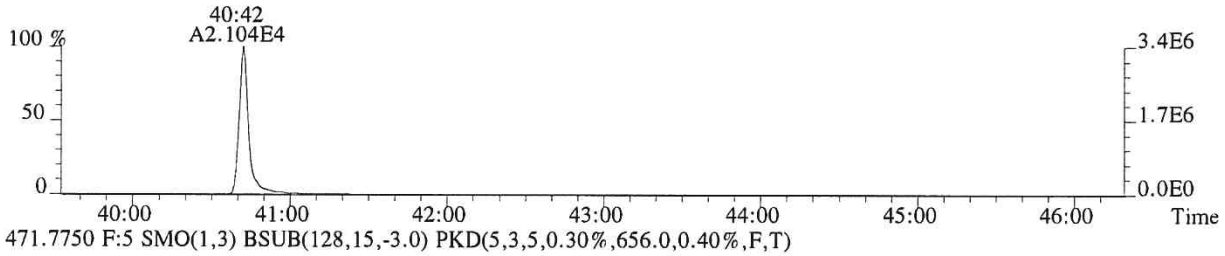
File:P518830 #1-610 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



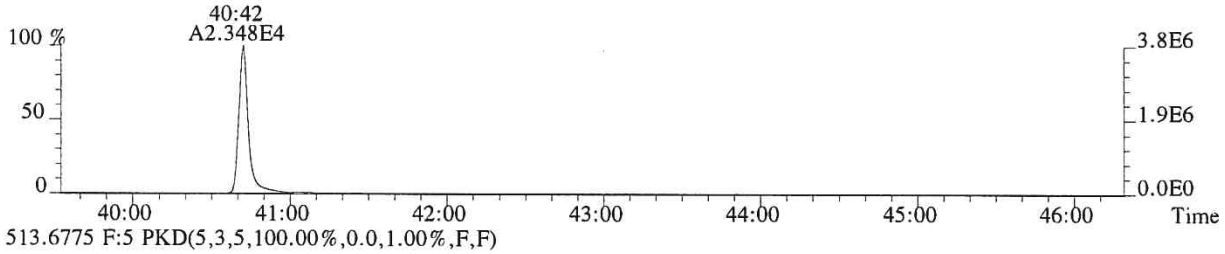
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1200.0,0.40%,F,T)



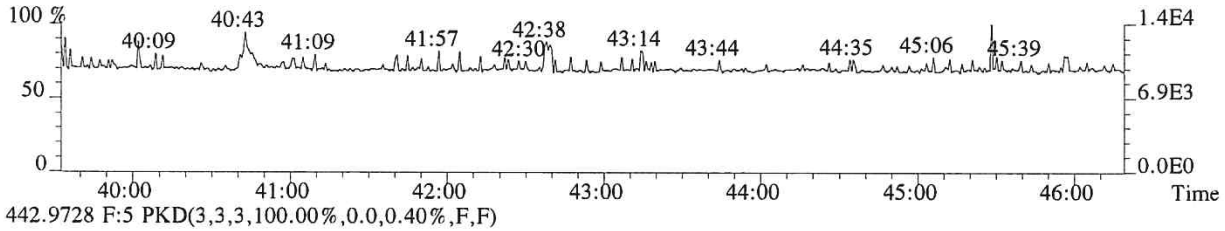
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,944.0,0.40%,F,T)



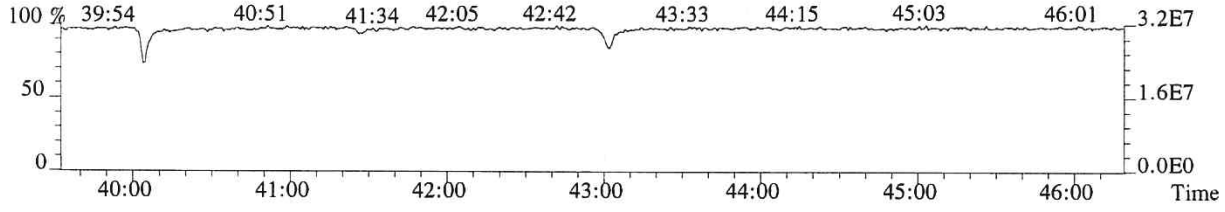
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

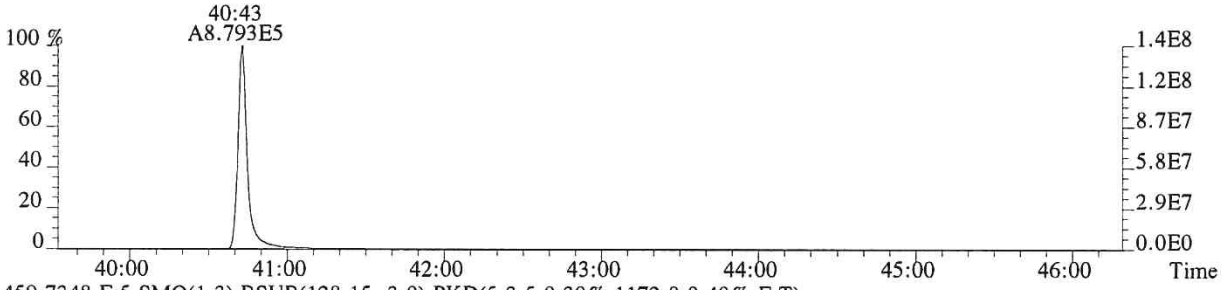


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

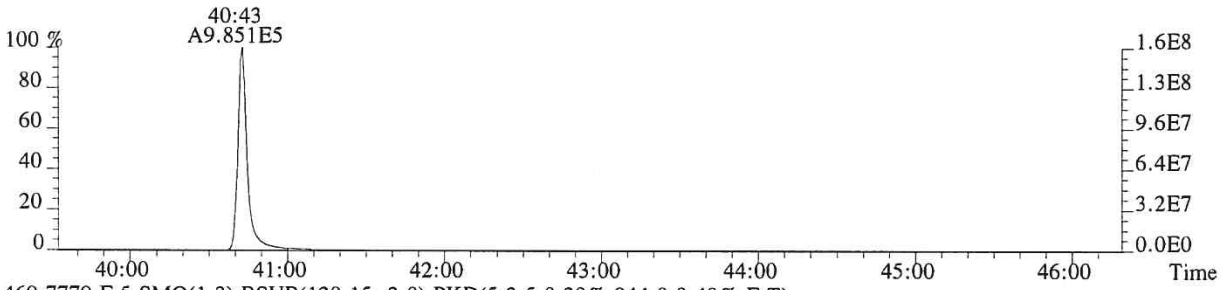


008707

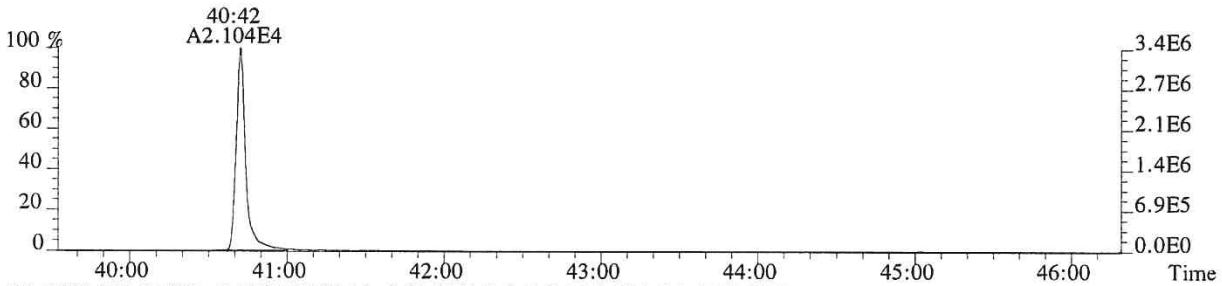
File:P518830 #1-610 Acq:15-NOV-2018 17:36:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



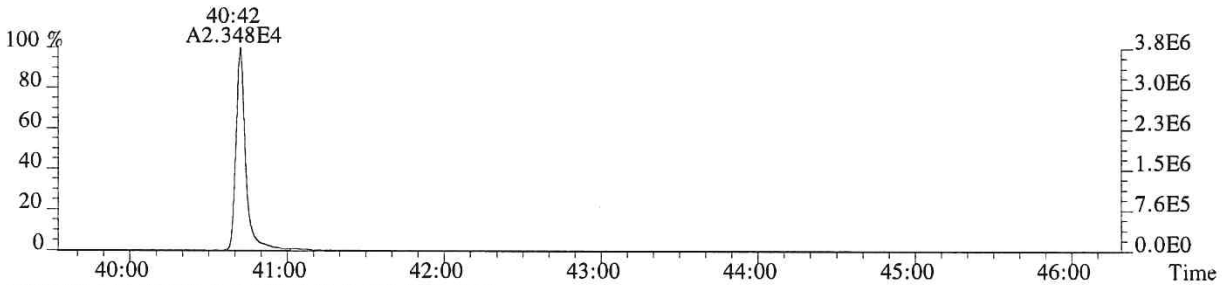
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



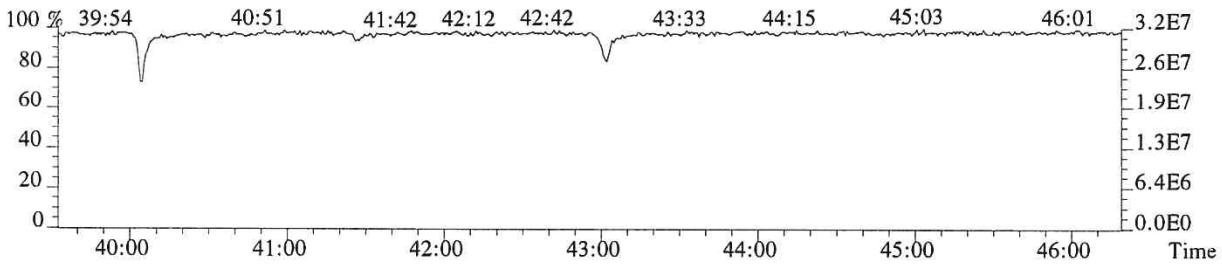
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,944.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0058

Run #13 Filename P518971 Samp: 1 Inj: 1 Acquired: 21-NOV-18 15:58:41
Processed: 26-NOV-18 13:50:46 Sample ID: E1801012-006DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	6.441e+03	8.589e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:42	4.315e+02	2.798e+02	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:36	3.354e+02	2.520e+02	1.33	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:14	5.521e+02	4.671e+02	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:21	1.423e+02	1.210e+02	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	3.089e+01	2.863e+01	1.08	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.787e+01	6.109e+01	0.46	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	1.548e+02	1.744e+02	0.89	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:16	3.622e+01	4.356e+01	0.83	no	no	1.258
10	Unk	OCDF	42:51	4.735e+02	4.628e+02	1.02	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:23	1.643e+03	2.087e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	1.473e+02	1.677e+02	0.88	no	no	1.025
17	Unk	OCDD	42:39	2.345e+03	2.497e+03	0.94	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:35	2.437e+04	3.091e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	3.841e+04	2.435e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:35	3.729e+04	2.361e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	1.532e+04	2.996e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:20	1.944e+04	3.737e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	2.040e+04	3.946e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	1.559e+04	3.005e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	1.589e+04	3.597e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	1.519e+04	3.392e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	1.653e+04	2.070e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	2.942e+04	1.834e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	2.159e+04	1.698e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	2.345e+04	1.871e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	2.145e+04	2.051e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:38	3.074e+04	3.510e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:49	1.927e+04	2.452e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	2.706e+04	2.113e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.035e+02				no	1.014

$$\text{OCDD} = \frac{(2.345e+03 + 2.497e+03) \times 4000\ \text{pg} \times 100}{(3.074e+04 + 3.510e+04) \times 10.363\text{g} \times 636 / 100 \times 1.118} = 7128.8998\ \text{ng/kg}$$

LG 11/27/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0058

Run #13 Filename P518971 Samp: 1 Inj: 1 Acquired: 21-NOV-18 15:58:41
Processed: 26-NOV-18 13:50:46 LAB. ID: E1801012-006DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.10e+06	6.16e+02	1.8e+03	1.45e+06	8.88e+02	1.6e+03
2	1,2,3,7,8-PeCDF	8.37e+04	1.00e+03	8.4e+01	4.99e+04	1.22e+03	4.1e+01
3	2,3,4,7,8-PeCDF	5.20e+04	1.00e+03	5.2e+01	3.92e+04	1.22e+03	3.2e+01
4	1,2,3,4,7,8-HxCDF	1.01e+05	9.88e+02	1.0e+02	9.51e+04	4.92e+02	1.9e+02
5	1,2,3,6,7,8-HxCDF	2.90e+04	9.88e+02	2.9e+01	2.09e+04	4.92e+02	4.2e+01
6	2,3,4,6,7,8-HxCDF	6.33e+03	9.88e+02	6.4e+00	5.92e+03	4.92e+02	1.2e+01
7	1,2,3,7,8,9-HxCDF	4.83e+03	9.88e+02	4.9e+00	1.28e+04	4.92e+02	2.6e+01
8	1,2,3,4,6,7,8-HpCDF	3.08e+04	3.60e+02	8.5e+01	2.87e+04	3.12e+02	9.2e+01
9	1,2,3,4,7,8,9-HpCDF	7.49e+03	3.60e+02	2.1e+01	9.24e+03	3.12e+02	3.0e+01
10	OCDF	6.81e+04	2.52e+02	2.7e+02	7.02e+04	5.84e+02	1.2e+02
11	2,3,7,8-TCDD	3.14e+05	2.34e+03	1.3e+02	3.99e+05	7.92e+02	5.0e+02
12	1,2,3,7,8-PeCDD	*	8.20e+02	*	*	1.84e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.04e+02	*	*	5.44e+02	*
14	1,2,3,6,7,8-HxCDD	*	6.04e+02	*	*	5.44e+02	*
15	1,2,3,7,8,9-HxCDD	*	6.04e+02	*	*	5.44e+02	*
16	1,2,3,4,6,7,8-HpCDD	2.69e+04	3.76e+02	7.1e+01	3.47e+04	2.84e+02	1.2e+02
17	OCDD	3.36e+05	2.80e+02	1.2e+03	3.69e+05	3.40e+02	1.1e+03
18	13C-2,3,7,8-TCDF	4.48e+06	6.67e+03	6.7e+02	5.63e+06	4.29e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	6.82e+06	6.44e+02	1.1e+04	4.25e+06	4.44e+02	9.6e+03
20	13C-2,3,4,7,8-PeCDF	6.76e+06	6.44e+02	1.1e+04	4.25e+06	4.44e+02	9.6e+03
21	13C-1,2,3,4,7,8-HxCDF	3.03e+06	7.16e+02	4.2e+03	5.94e+06	8.76e+02	6.8e+03
22	13C-1,2,3,6,7,8-HxCDF	3.63e+06	7.16e+02	5.1e+03	7.18e+06	8.76e+02	8.2e+03
23	13C-2,3,4,6,7,8-HxCDF	3.89e+06	7.16e+02	5.4e+03	7.45e+06	8.76e+02	8.5e+03
24	13C-1,2,3,7,8,9-HxCDF	2.79e+06	7.16e+02	3.9e+03	5.44e+06	8.76e+02	6.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.99e+06	3.58e+03	8.4e+02	6.80e+06	6.51e+03	1.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.54e+06	3.58e+03	7.1e+02	5.70e+06	6.51e+03	8.8e+02
27	13C-2,3,7,8-TCDD	3.08e+06	5.39e+03	5.7e+02	3.92e+06	2.07e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	5.36e+06	7.80e+02	6.9e+03	3.29e+06	7.44e+02	4.4e+03
29	13C-1,2,3,4,7,8-HxCDD	4.44e+06	1.54e+03	2.9e+03	3.45e+06	7.64e+02	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	4.46e+06	1.54e+03	2.9e+03	3.59e+06	7.64e+02	4.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.67e+06	4.28e+02	8.6e+03	3.58e+06	5.12e+02	7.0e+03
32	13C-OCDD	4.35e+06	7.76e+02	5.6e+03	4.88e+06	2.44e+02	2.0e+04
33	13C-1,2,3,4-TCDD	3.77e+06	5.39e+03	7.0e+02	4.78e+06	2.07e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	4.86e+06	1.54e+03	3.2e+03	3.85e+06	7.64e+02	5.0e+03
35	37Cl-2,3,7,8-TCDD	4.06e+04	1.22e+03	3.3e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.340e{+}03 + 7.920e{+}02) \times 2000}{(3.078e{+}06 + 3.921e{+}06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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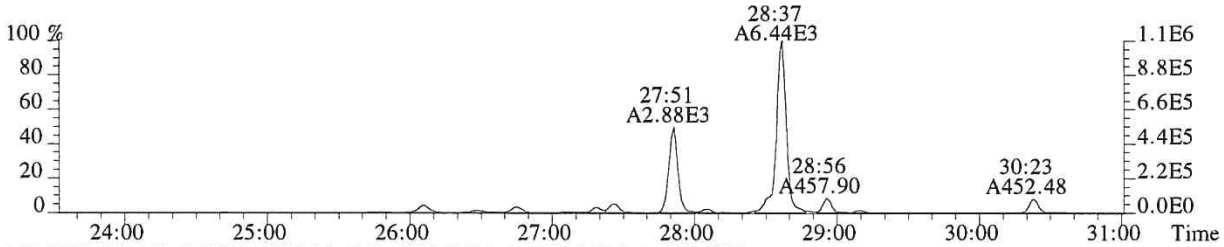
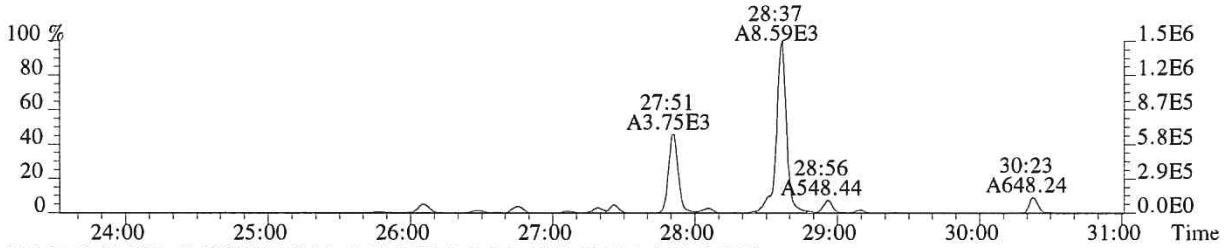
File:P518971 #1-531 Acq:21-NOV-2018 15:58:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006DL

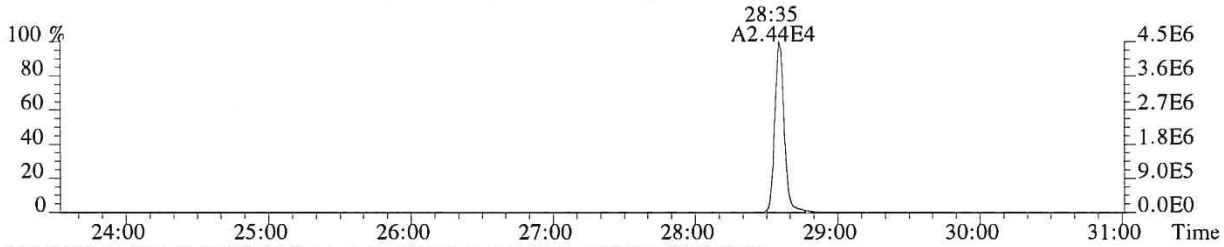
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



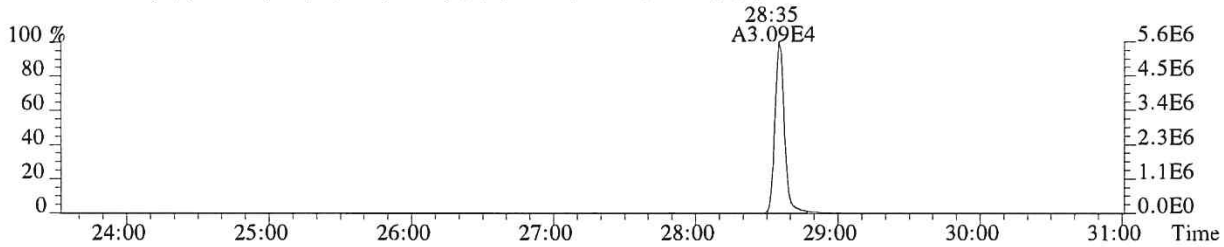
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



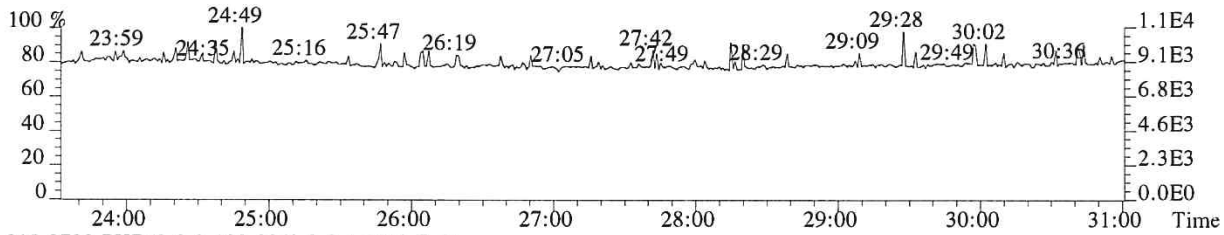
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6668.0,1.00%,F,T)



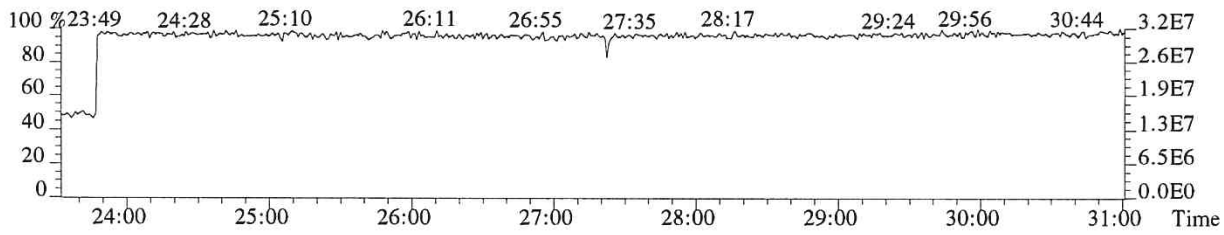
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4288.0,1.00%,F,T)



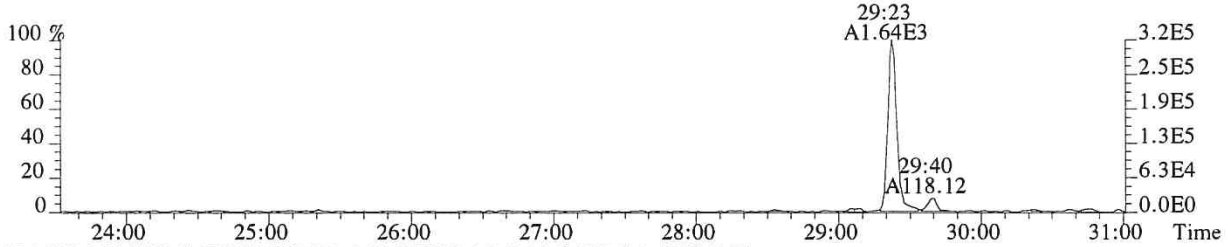
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



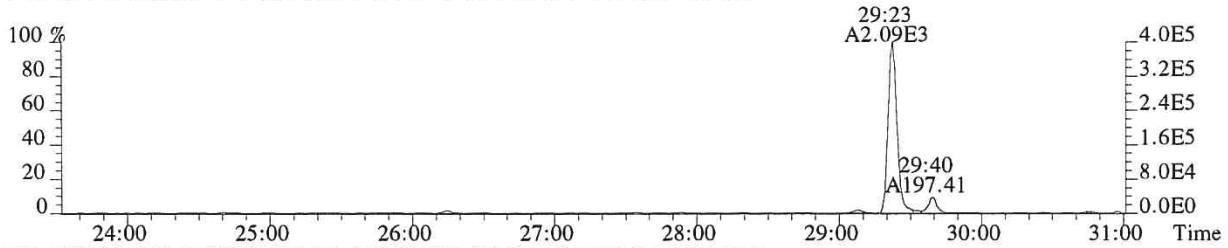
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



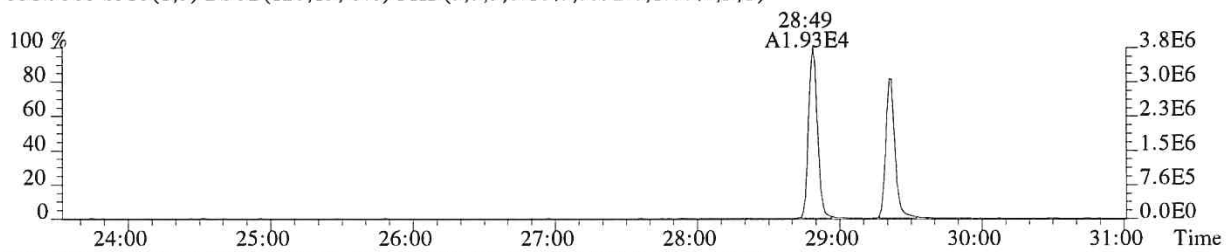
File:P518971 #1-531 Acq:21-NOV-2018 15:58:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2340.0,1.00%,F,T)



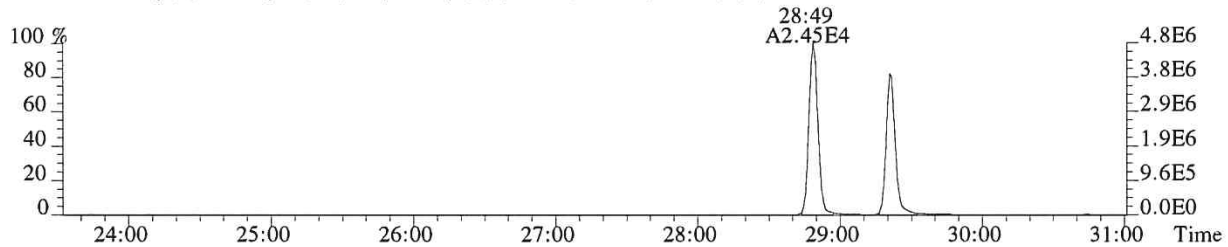
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



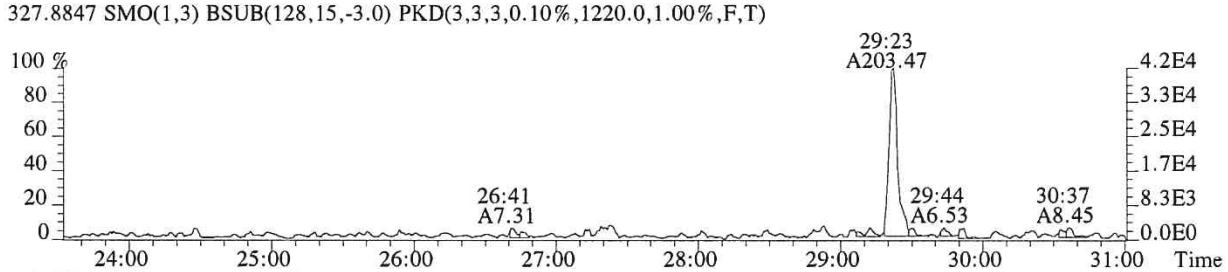
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5392.0,1.00%,F,T)



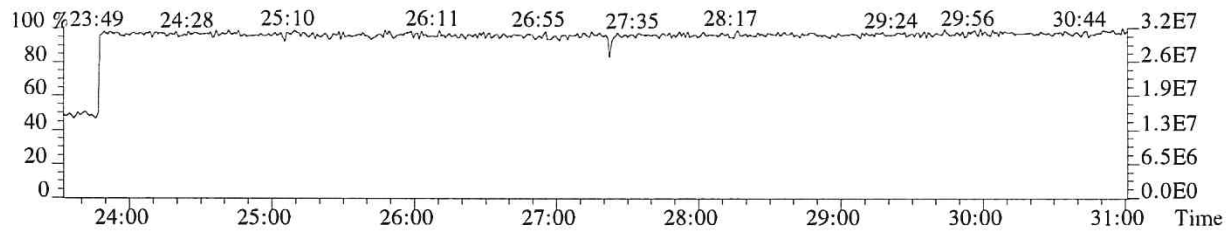
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2068.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)

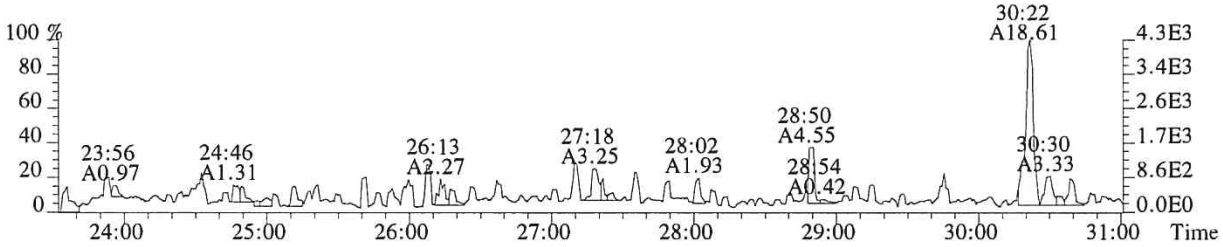


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

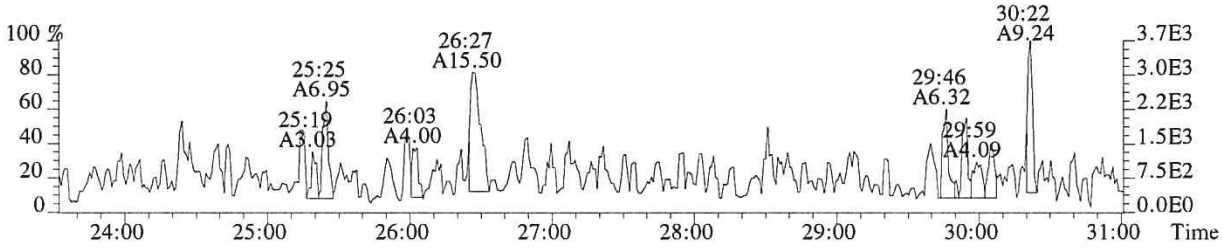


008712

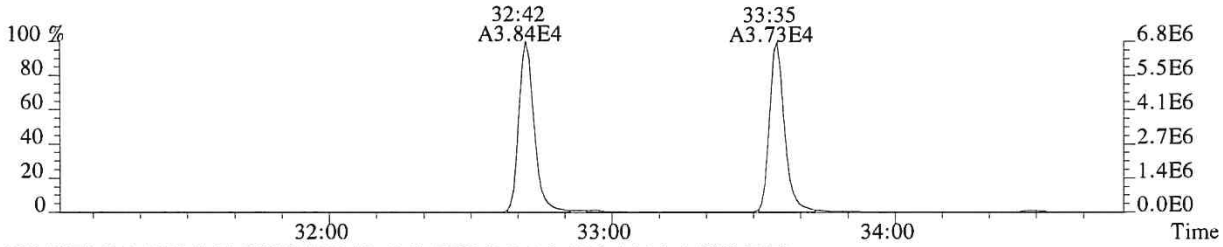
File:P518971 #1-531 Acq:21-NOV-2018 15:58:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



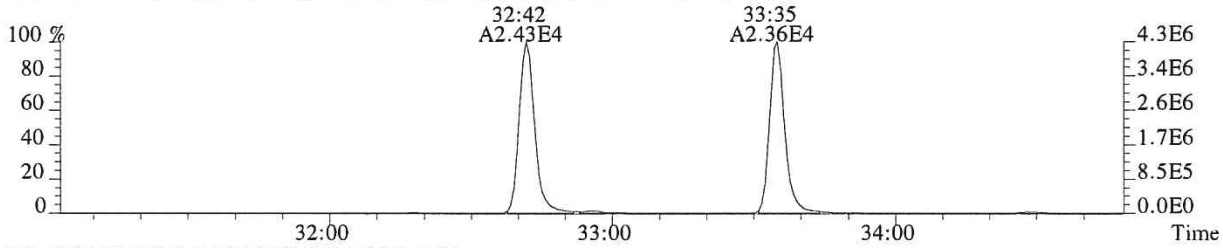
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



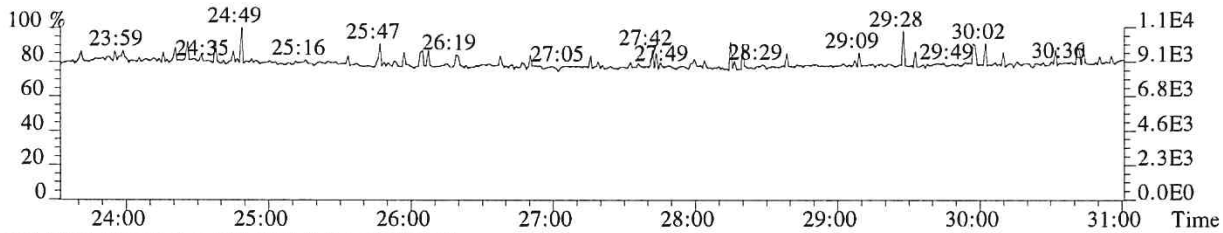
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



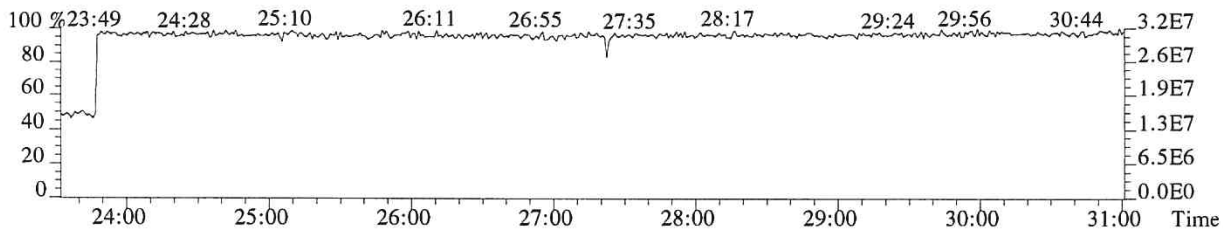
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

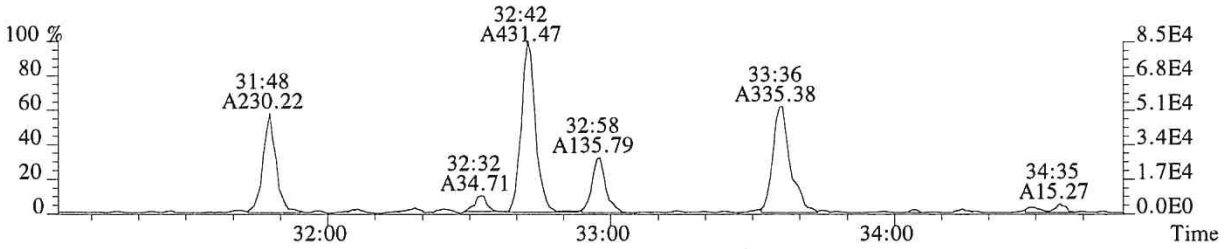


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

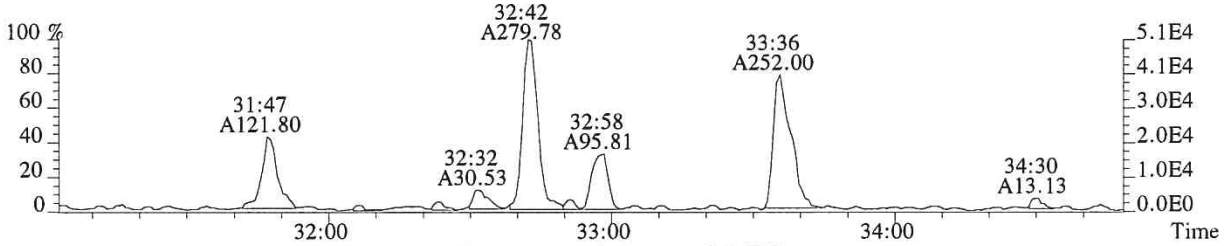


008713

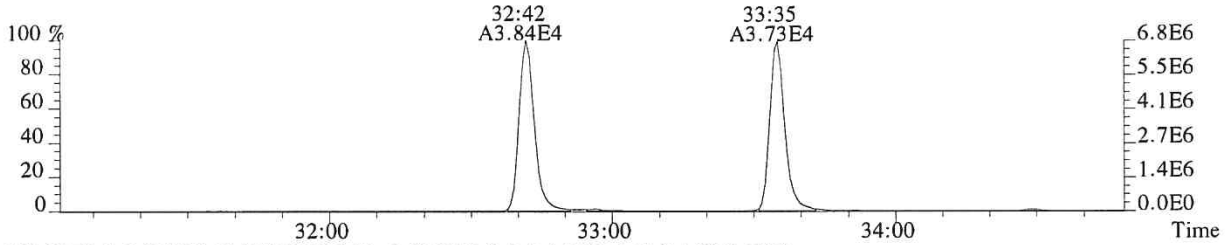
File:P518971 #1-339 Acq:21-NOV-2018 15:58:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



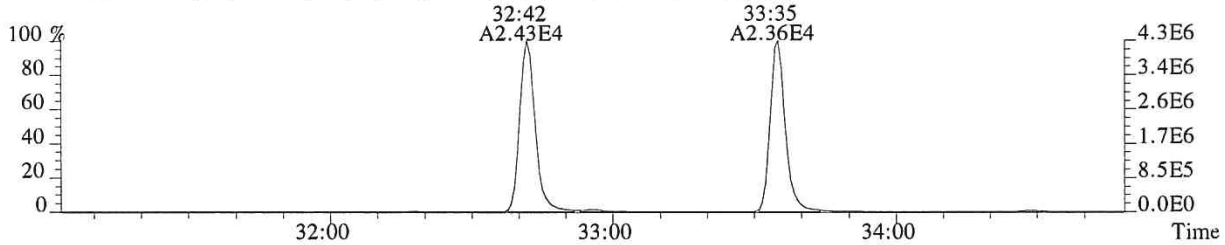
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



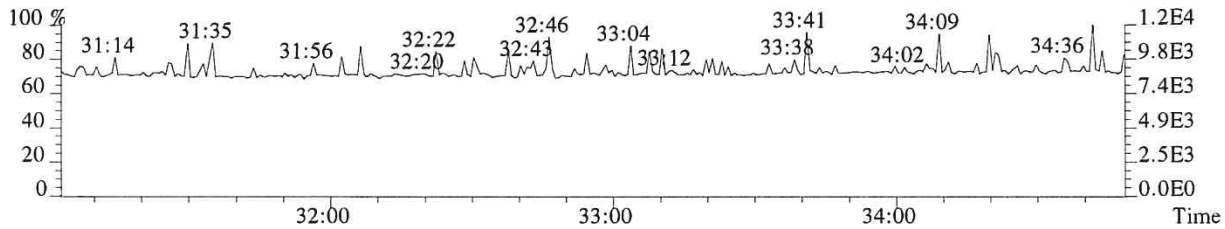
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



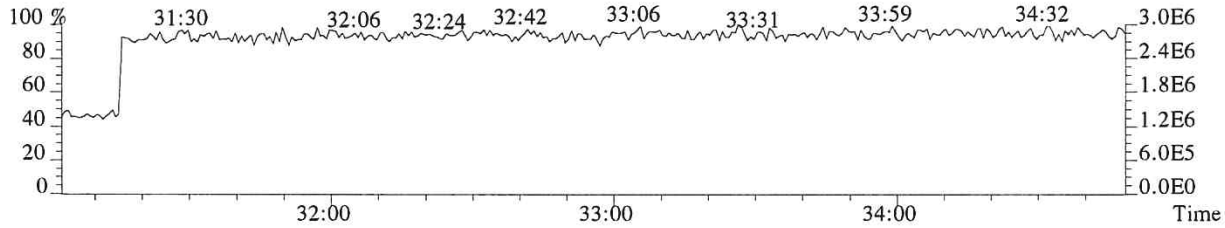
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



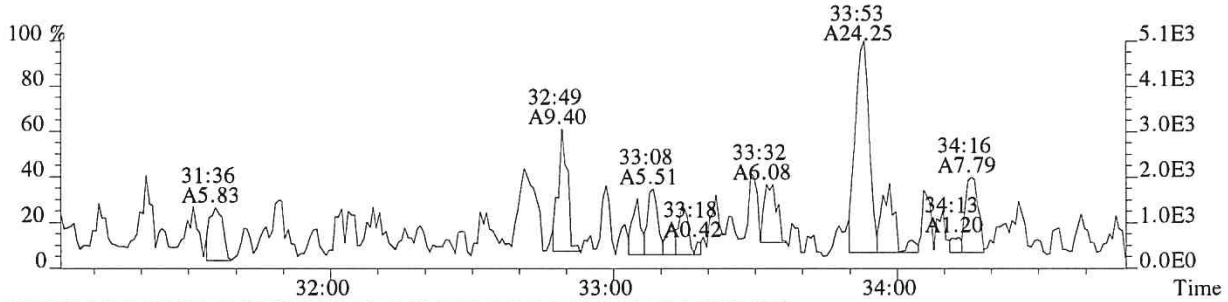
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



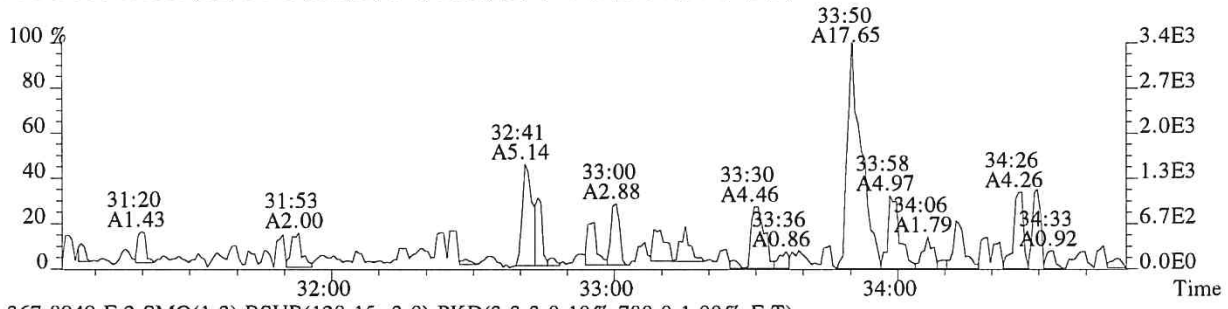
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



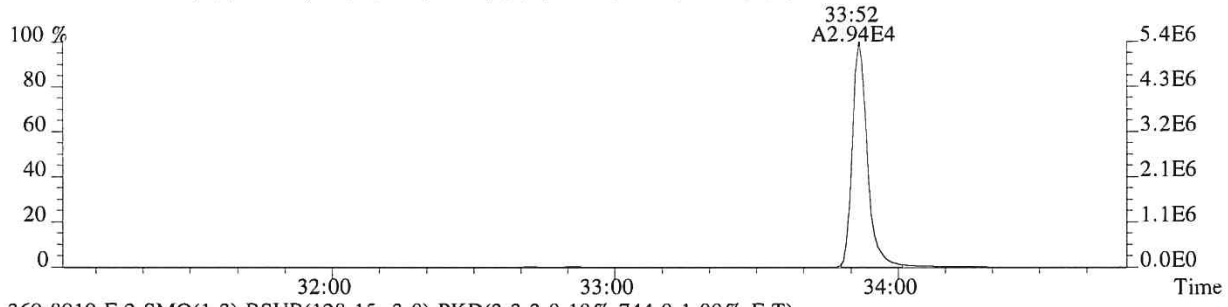
File:P518971 #1-339 Acq:21-NOV-2018 15:58:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



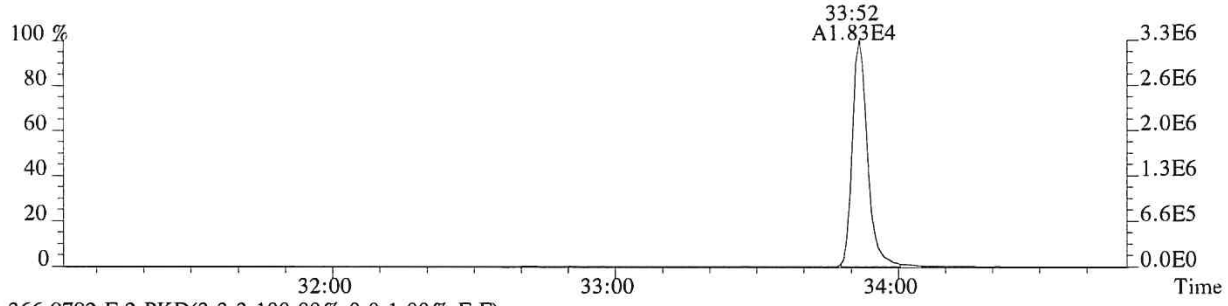
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



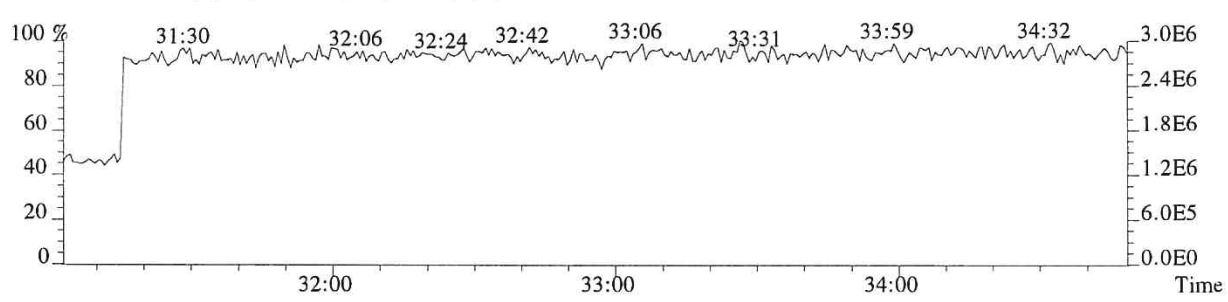
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)

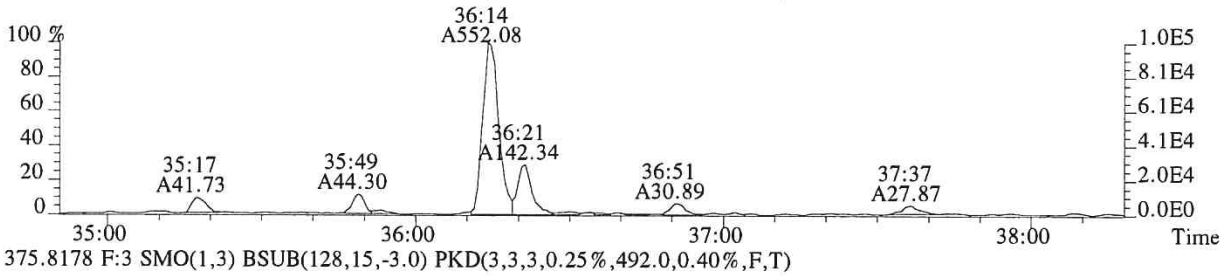


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

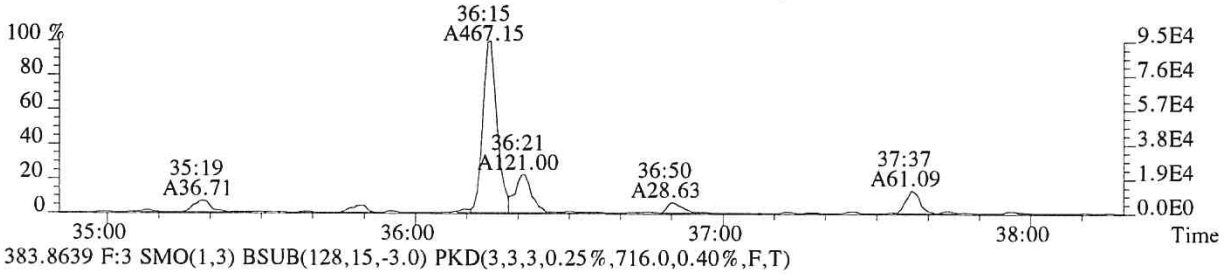


File:P518971 #1-312 Acq:21-NOV-2018 15:58:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006DL

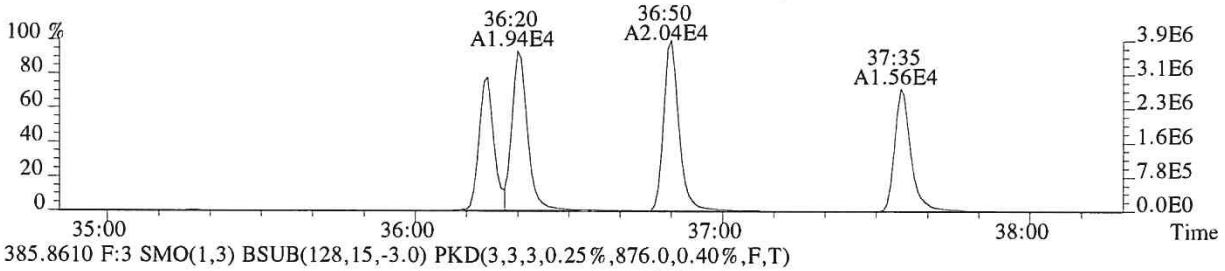
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



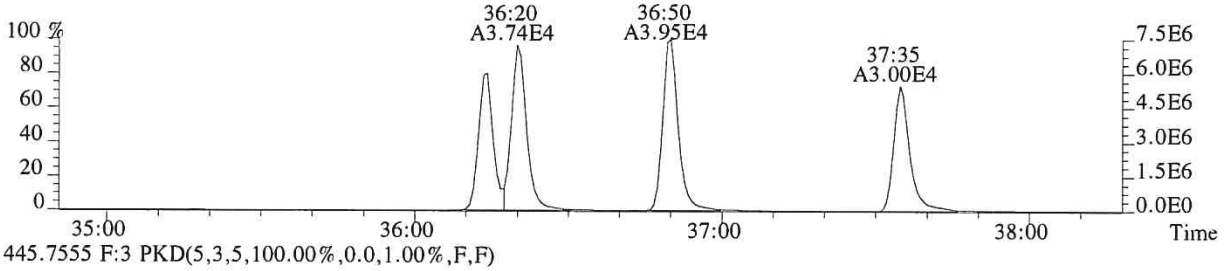
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



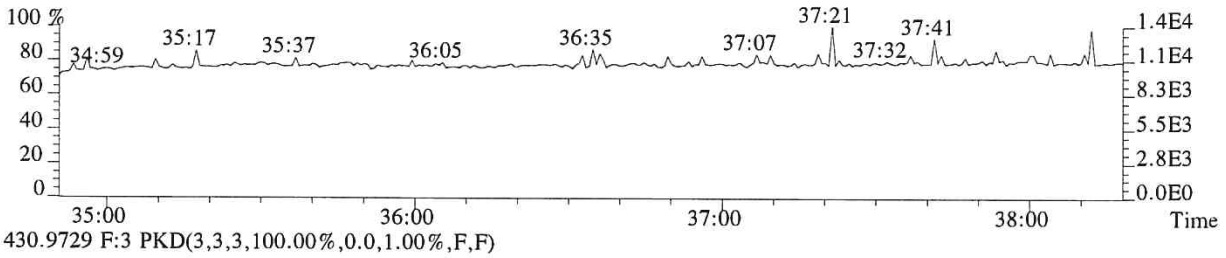
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



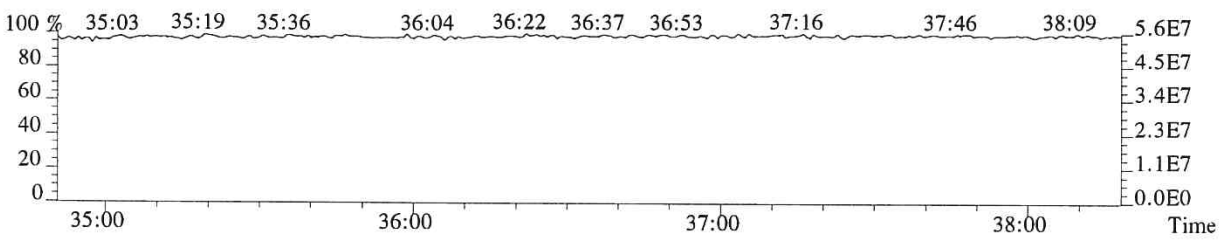
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



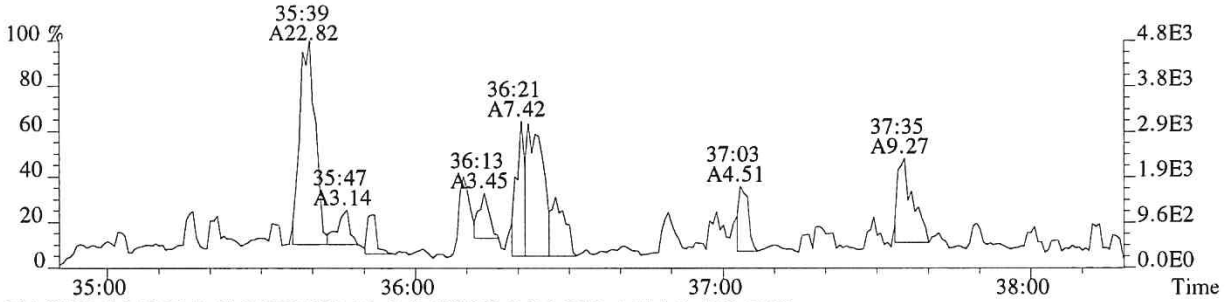
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



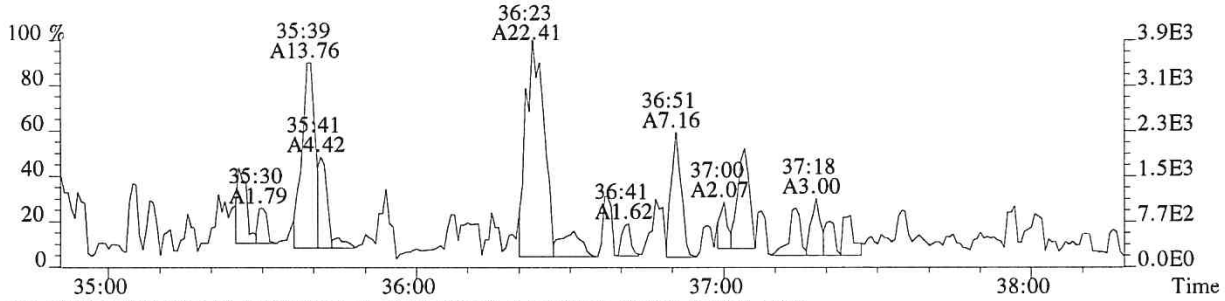
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



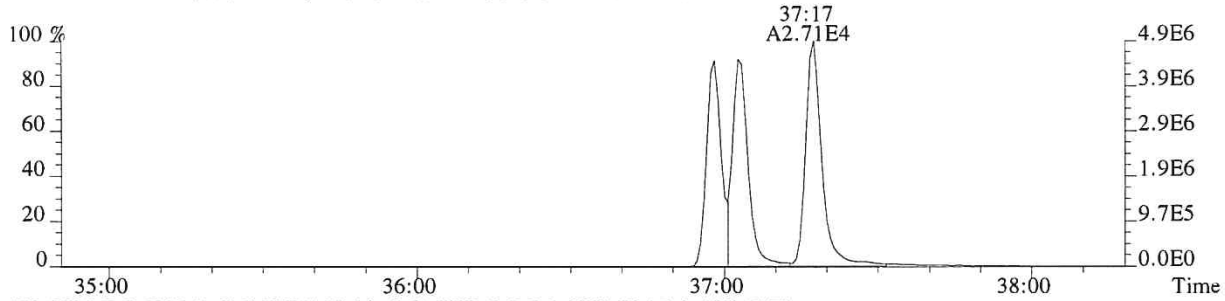
File:P518971 #1-312 Acq:21-NOV-2018 15:58:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



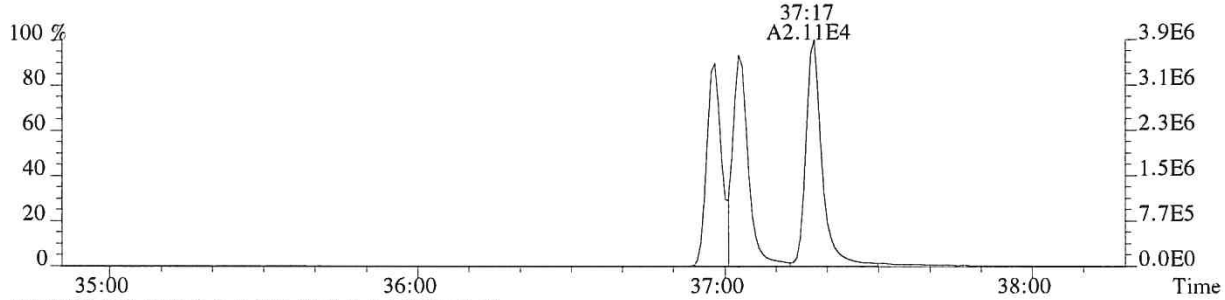
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



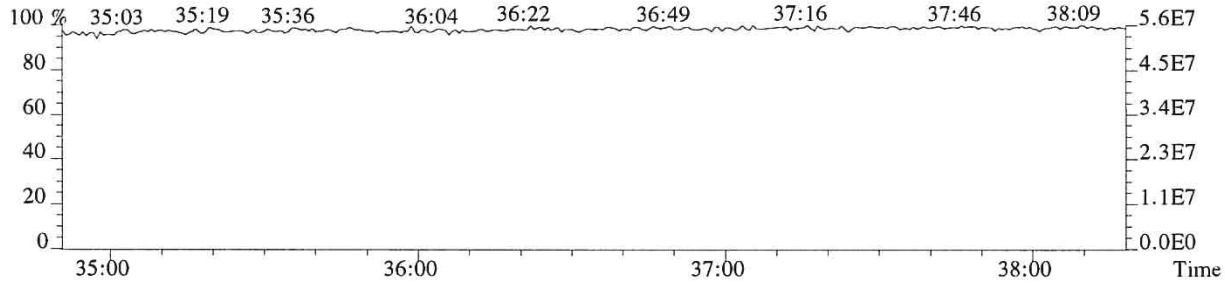
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1540.0,0.40%,F,T)



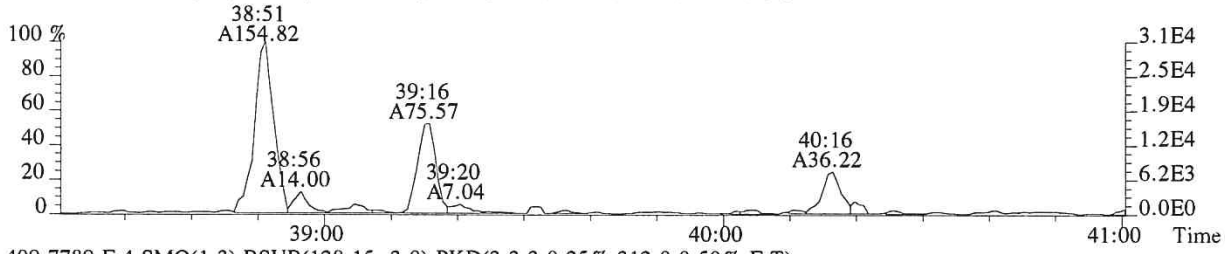
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



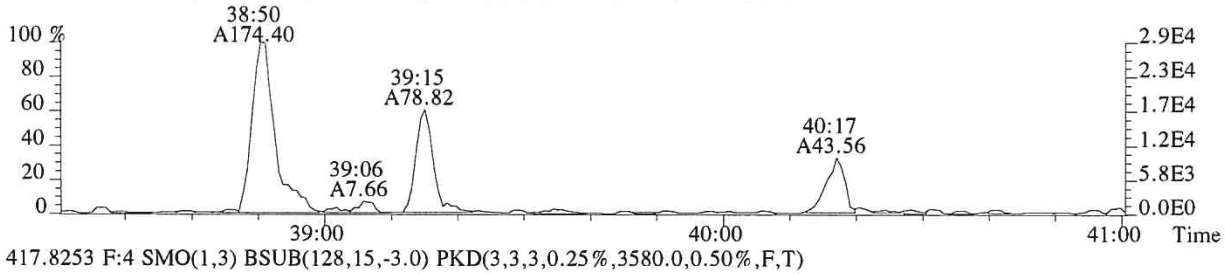
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



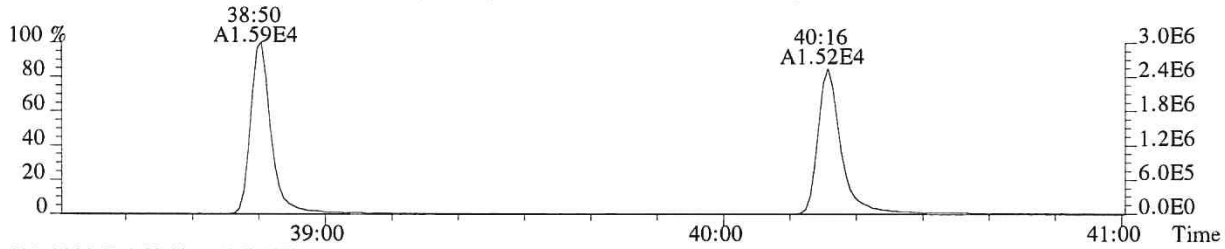
File:P518971 #1-241 Acq:21-NOV-2018 15:58:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.50%,F,T)



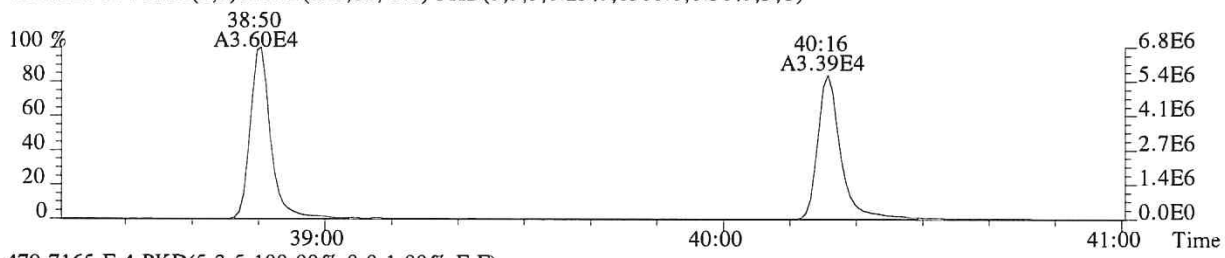
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.50%,F,T)



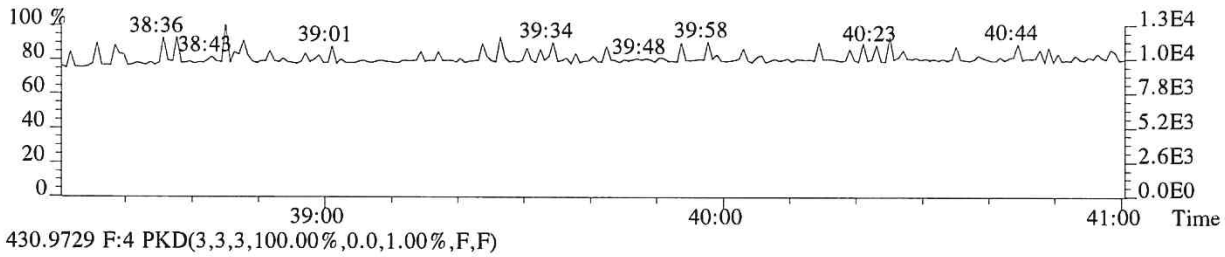
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3580.0,0.50%,F,T)



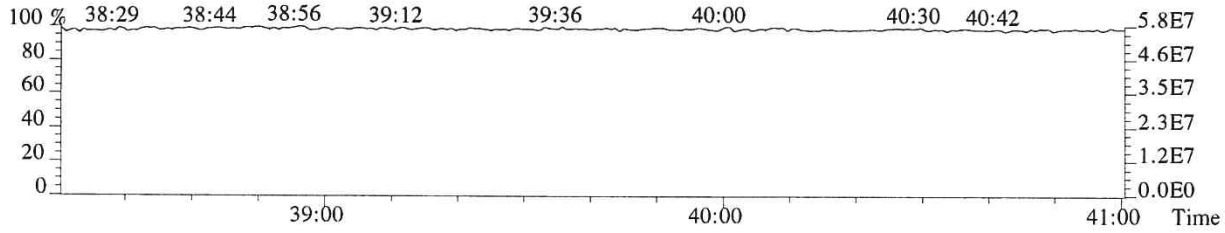
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6508.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

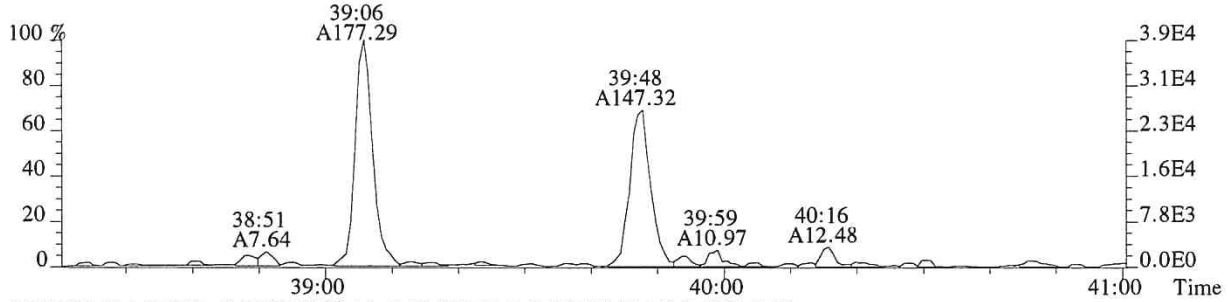


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

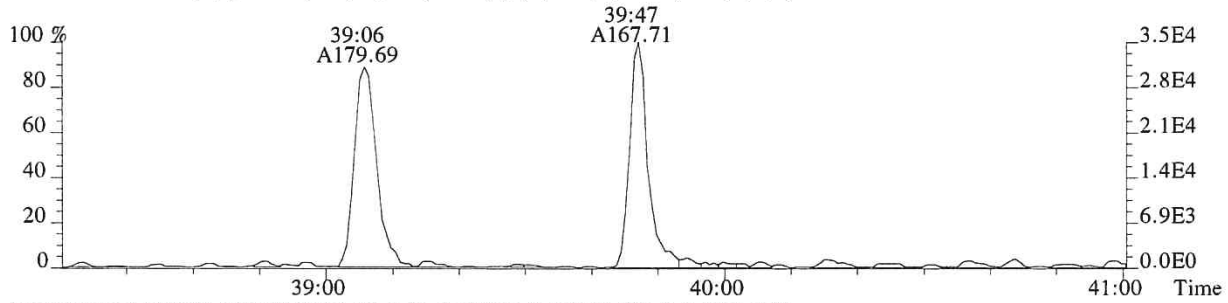


008718

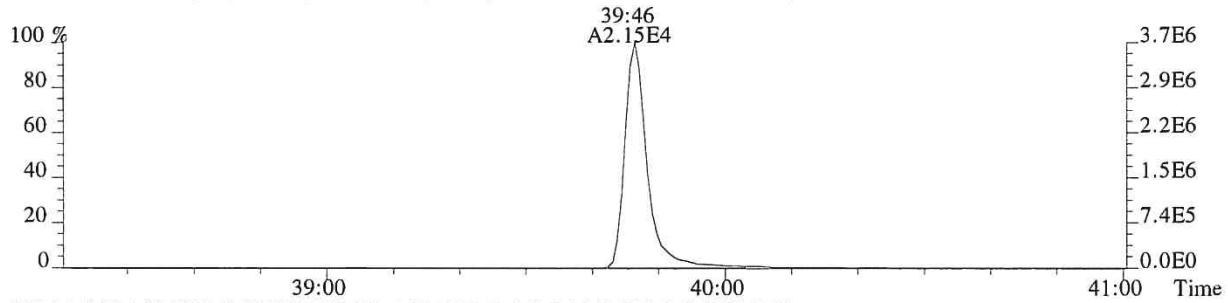
File:P518971 #1-241 Acq:21-NOV-2018 15:58:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



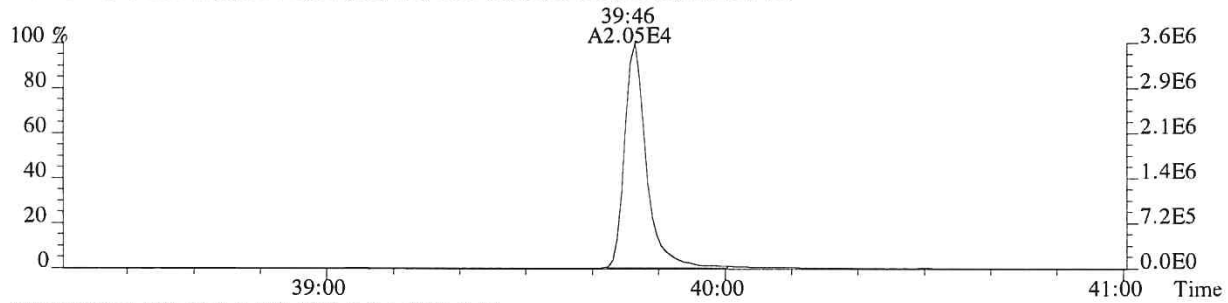
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



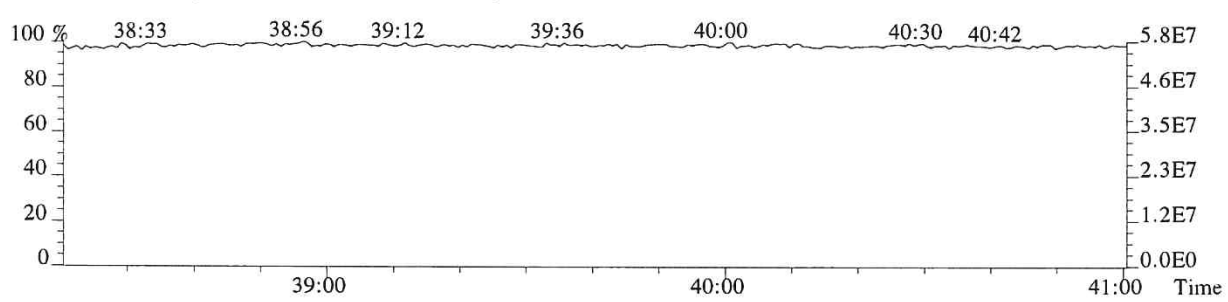
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)

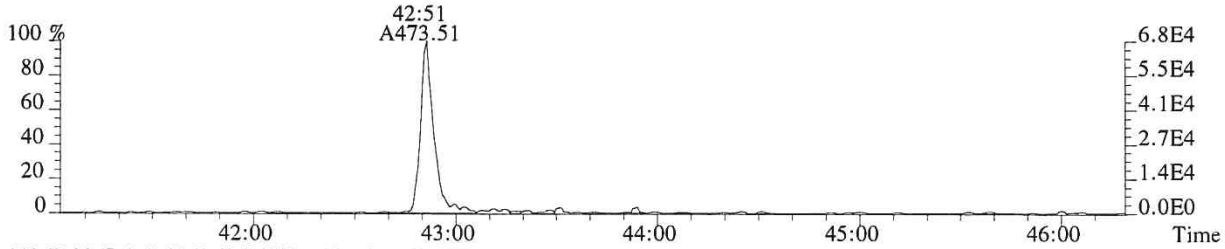


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

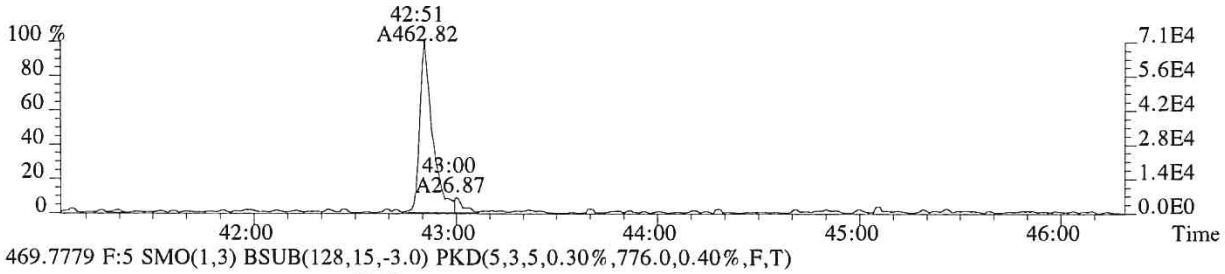


File:P518971 #1-475 Acq:21-NOV-2018 15:58:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006DL

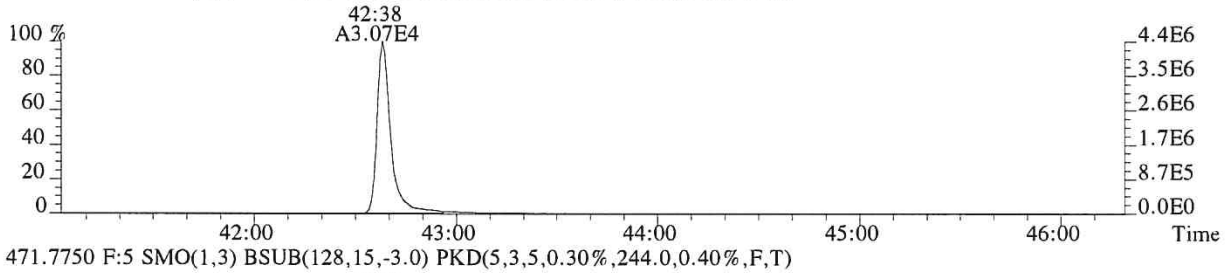
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



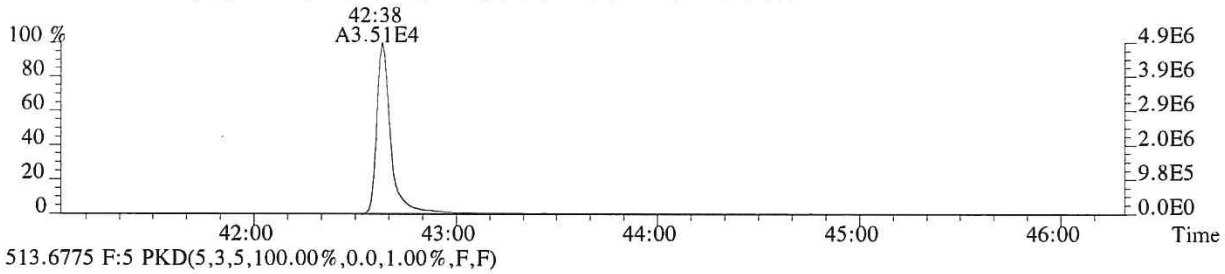
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



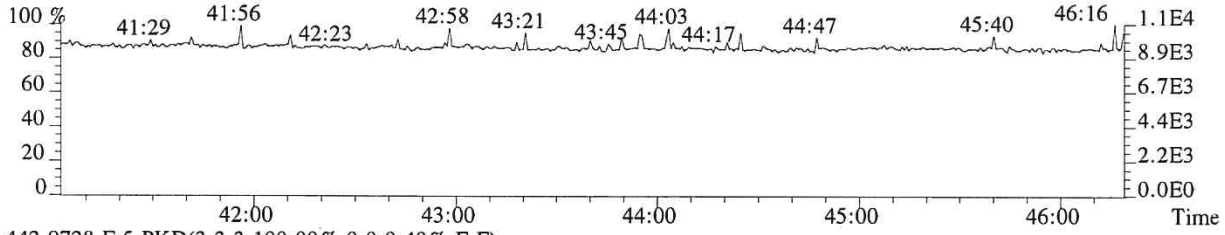
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



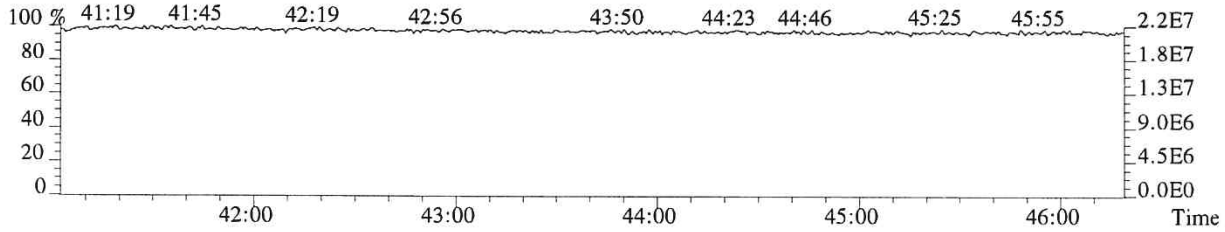
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



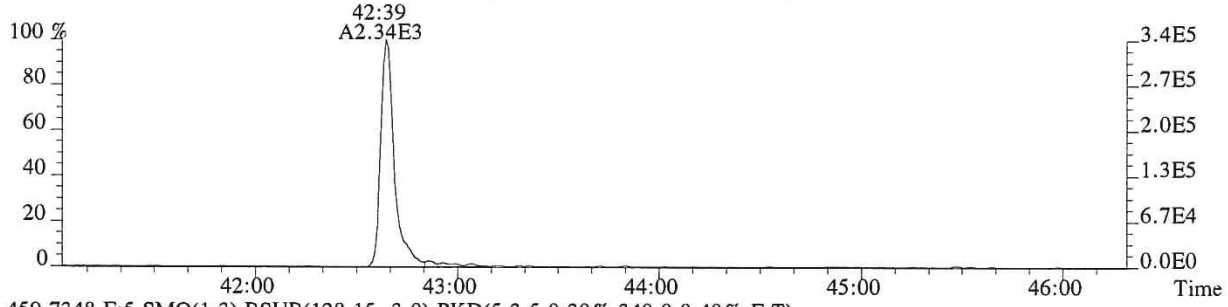
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



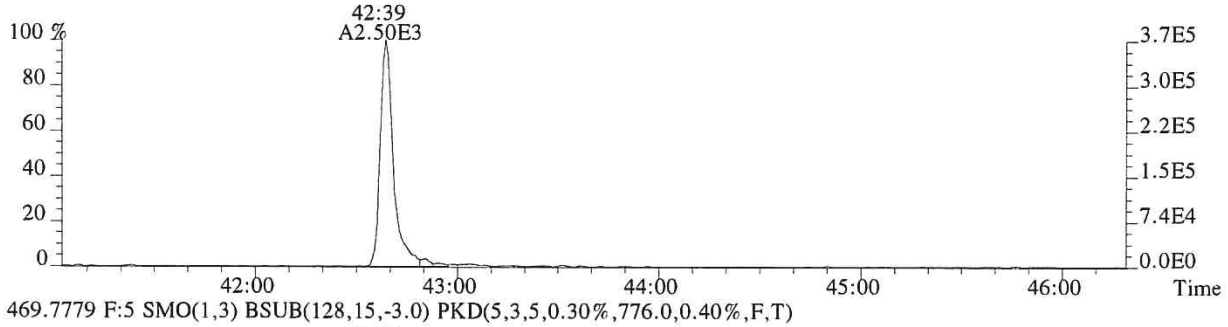
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



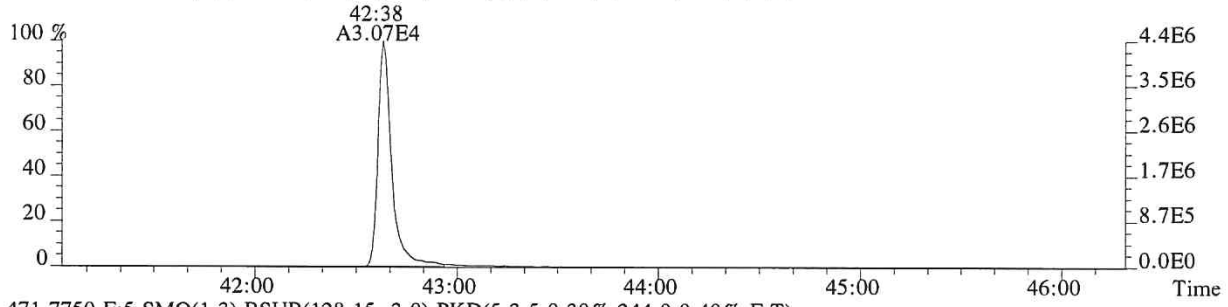
File:P518971 #1-475 Acq:21-NOV-2018 15:58:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-006DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



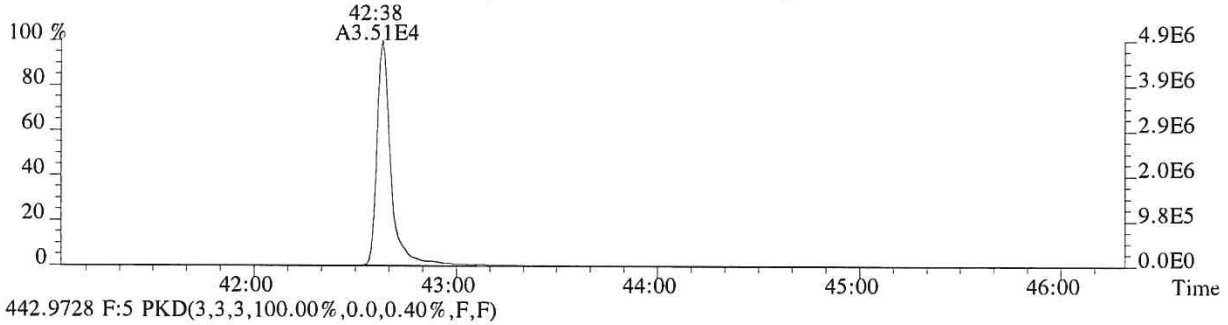
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



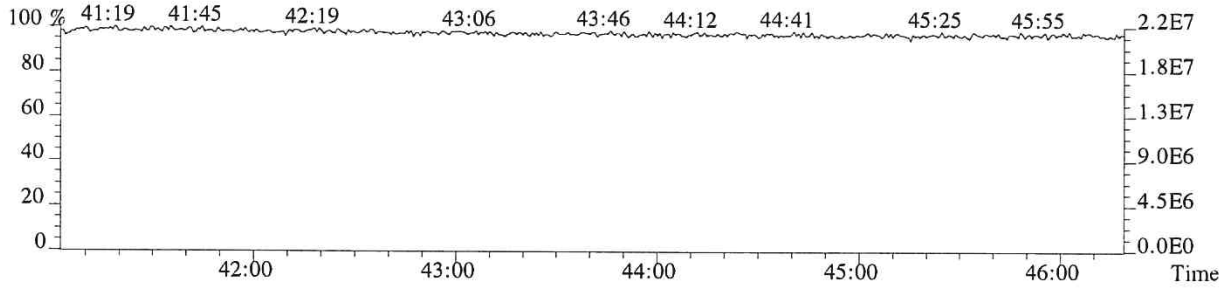
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



008721

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0064

Run #14 Filename P518831 Samp: 1 Inj: 1 Acquired: 15-NOV-18 18:24:59
Processed: 16-NOV-18 14:10:45 Sample ID: E1801012-012

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:36	6.523e+05	8.362e+05	0.78	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:37	4.861e+04	3.152e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:38	3.868e+04	2.507e+04	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:30	6.554e+04	5.342e+04	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	1.891e+04	1.522e+04	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	3.424e+03	2.567e+03	1.33	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:57	5.274e+03	4.118e+03	1.28	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	1.959e+04	1.962e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	5.794e+03	5.669e+03	1.02	yes	no	1.258
10	Unk	OCDF	40:51	5.835e+04	6.721e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:37	1.692e+05	2.140e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	2.518e+03	1.594e+03	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	8.009e+01	4.384e+01	1.83	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	5.938e+02	4.045e+02	1.47	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	2.326e+02	1.904e+02	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	1.900e+04	1.871e+04	1.02	yes	no	1.025
17	Unk	OCDD	40:42	2.914e+05	3.267e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:35	1.893e+04	2.413e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:36	3.065e+04	1.942e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	3.019e+04	1.884e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.274e+04	2.446e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:36	1.513e+04	2.966e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:09	1.404e+04	2.706e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.365e+04	2.675e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	9.642e+03	2.183e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	9.946e+03	2.246e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:35	1.289e+04	1.615e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:55	2.152e+04	1.373e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.826e+04	1.426e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.932e+04	1.486e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.970e+04	1.827e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	40:42	2.009e+04	2.241e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:53	2.379e+04	2.899e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.685e+04	2.998e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:37	1.638e+04				no	1.014

$$\text{OCDD} = \frac{(2.914e+05 + 3.267e+05) \times 4000\ \text{pg} \times 1}{(2.009e+04 + 2.241e+04) \times 10.20\ \text{g} \times 75.2 / 100 \times 1.118} = 6778\ \text{ng/Kg}$$

LM 11/26/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0064

Run #14 Filename P518831 Samp: 1 Inj: 1 Acquired: 15-NOV-18 18:24:59
Processed: 16-NOV-18 14:10:45 LAB. ID: E1801012-012

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.27e+07	1.74e+03	5.3e+04	1.18e+08	2.96e+03	4.0e+04
2	1,2,3,7,8-PeCDF	8.14e+06	4.99e+03	1.6e+03	5.26e+06	6.33e+03	8.3e+02
3	2,3,4,7,8-PeCDF	5.82e+06	4.99e+03	1.2e+03	3.73e+06	6.33e+03	5.9e+02
4	1,2,3,4,7,8-HxCDF	1.31e+07	6.96e+03	1.9e+03	1.07e+07	4.03e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	3.21e+06	6.96e+03	4.6e+02	2.63e+06	4.03e+03	6.5e+02
6	2,3,4,6,7,8-HxCDF	6.81e+05	6.96e+03	9.8e+01	5.22e+05	4.03e+03	1.3e+02
7	1,2,3,7,8,9-HxCDF	1.01e+06	6.96e+03	1.5e+02	8.15e+05	4.03e+03	2.0e+02
8	1,2,3,4,6,7,8-HpCDF	3.85e+06	1.80e+03	2.1e+03	3.84e+06	7.66e+03	5.0e+02
9	1,2,3,4,7,8,9-HpCDF	1.08e+06	1.80e+03	6.0e+02	1.03e+06	7.66e+03	1.3e+02
10	OCDF	8.90e+06	5.52e+02	1.6e+04	1.06e+07	1.28e+03	8.3e+03
11	2,3,7,8-TCDD	2.69e+07	1.91e+03	1.4e+04	3.42e+07	1.94e+03	1.8e+04
12	1,2,3,7,8-PeCDD	4.15e+05	1.57e+03	2.6e+02	2.61e+05	1.77e+03	1.5e+02
13	1,2,3,4,7,8-HxCDD	1.85e+04	1.58e+03	1.2e+01	1.17e+04	3.32e+03	3.5e+00
14	1,2,3,6,7,8-HxCDD	1.17e+05	1.58e+03	7.4e+01	8.38e+04	3.32e+03	2.5e+01
15	1,2,3,7,8,9-HxCDD	4.55e+04	1.58e+03	2.9e+01	3.46e+04	3.32e+03	1.0e+01
16	1,2,3,4,6,7,8-HpCDD	3.50e+06	6.93e+03	5.0e+02	3.42e+06	1.85e+03	1.9e+03
17	OCDD	4.51e+07	3.92e+02	1.1e+05	5.06e+07	7.24e+02	7.0e+04
18	13C-2,3,7,8-TCDF	2.70e+06	9.08e+03	3.0e+02	3.44e+06	7.64e+03	4.5e+02
19	13C-1,2,3,7,8-PeCDF	5.24e+06	7.26e+03	7.2e+02	3.31e+06	6.43e+03	5.1e+02
20	13C-2,3,4,7,8-PeCDF	5.37e+06	7.26e+03	7.4e+02	3.34e+06	6.43e+03	5.2e+02
21	13C-1,2,3,4,7,8-HxCDF	2.57e+06	1.71e+03	1.5e+03	4.98e+06	2.21e+03	2.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.78e+06	1.71e+03	1.6e+03	5.44e+06	2.21e+03	2.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.78e+06	1.71e+03	1.6e+03	5.31e+06	2.21e+03	2.4e+03
24	13C-1,2,3,7,8,9-HxCDF	2.42e+06	1.71e+03	1.4e+03	4.77e+06	2.21e+03	2.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.90e+06	2.92e+03	6.5e+02	4.18e+06	4.23e+03	9.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.80e+06	2.92e+03	6.2e+02	4.04e+06	4.23e+03	9.5e+02
27	13C-2,3,7,8-TCDD	2.06e+06	7.12e+03	2.9e+02	2.57e+06	4.10e+03	6.3e+02
28	13C-1,2,3,7,8-PeCDD	3.76e+06	1.32e+03	2.9e+03	2.40e+06	1.36e+03	1.8e+03
29	13C-1,2,3,4,7,8-HxCDD	3.97e+06	1.57e+03	2.5e+03	3.10e+06	1.13e+03	2.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.54e+06	1.57e+03	2.3e+03	2.76e+06	1.13e+03	2.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.62e+06	9.92e+02	3.6e+03	3.37e+06	8.12e+02	4.2e+03
32	13C-OCDD	3.13e+06	9.24e+02	3.4e+03	3.51e+06	6.08e+02	5.8e+03
33	13C-1,2,3,4-TCDD	3.58e+06	7.12e+03	5.0e+02	4.40e+06	4.10e+03	1.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.81e+06	1.57e+03	4.3e+03	5.43e+06	1.13e+03	4.8e+03
35	37Cl-2,3,7,8-TCDD	2.59e+06	1.70e+03	1.5e+03			

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Peak List Summary

CLIENT ID.
SL0064

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P518831 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 18:24:59 Processed: 16-NOV-18 14:10:45

Mass: 303.9020 305.8990 Tot Response: 2.86e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:28	5.94e+03	7.84e+03	0.76	yes	1.38e+04		n	n
2	22:44	3.27e+04	4.24e+04	0.77	yes	7.51e+04		n	n
3	23:06	9.78e+03	1.31e+04	0.75	yes	2.28e+04		n	n
4	23:14	1.01e+03	1.45e+03	0.69	yes	2.46e+03		n	n
5	23:23	2.65e+04	3.50e+04	0.76	yes	6.15e+04		n	n
6	23:45	5.36e+03	7.16e+03	0.75	yes	1.25e+04		n	n
7	24:00	1.83e+04	2.39e+04	0.77	yes	4.22e+04		n	n
8	24:06	3.30e+04	4.28e+04	0.77	yes	7.58e+04		n	n
9	24:35	2.96e+05	3.80e+05	0.78	yes	6.75e+05		n	n
10	24:54	1.38e+04	1.85e+04	0.75	yes	3.23e+04		n	n
11	25:23	5.76e+03	7.41e+03	0.78	yes	1.32e+04		y	y
12	25:29	4.30e+04	5.25e+04	0.82	yes	9.55e+04		y	y
13	25:36	6.52e+05	8.36e+05	0.78	yes	1.49e+06	2,3,7,8-TCDF	y	y
14	26:02	4.88e+04	6.31e+04	0.77	yes	1.12e+05		n	n
15	26:19	7.45e+03	9.64e+03	0.77	yes	1.71e+04		n	n
16	27:51	5.22e+04	6.69e+04	0.78	yes	1.19e+05		n	n

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Peak List Summary

CLIENT ID.
SL0064

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P518831 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 18:24:59 Processed: 16-NOV-18 14:10:45

Mass: 319.8970 321.8940 Tot Response: 4.24e+05 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:18	2.34e+03	2.93e+03	0.80	yes	5.27e+03		n	n
2	26:37	1.69e+05	2.14e+05	0.79	yes	3.83e+05	2,3,7,8-TCDD	n	n
3	26:59	1.62e+04	1.95e+04	0.83	yes	3.57e+04		n	n

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CLIENT ID.
SL0064

Entry: 38 Totals Name: Total Penta-Furans1

Run: 14 File: P518831 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 18:24:59 Processed: 16-NOV-18 14:10:45

Mass: 339.8600 341.8570 Tot Response: 2.43e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:52	1.49e+03	9.45e+02 1.58	yes	2.43e+03		n	n

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SL0064

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P518831 Sample:1 Injection:1 Function:2

Acquired: 15-NOV-18 18:24:59 Processed: 16-NOV-18 14:10:45

Mass: 339.8600 341.8570 Tot Response: 2.20e+05 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:34	2.18e+04	1.43e+04	1.52	yes	3.61e+04		n	n
2	30:11	8.43e+02	6.07e+02	1.39	yes	1.45e+03		n	n
3	30:16	7.30e+02	4.69e+02	1.56	yes	1.20e+03		n	n
4	30:25	4.58e+03	3.13e+03	1.47	yes	7.71e+03		n	n
5	30:37	4.86e+04	3.15e+04	1.54	yes	8.01e+04	1,2,3,7,8-PeCDF	n	n
6	30:54	1.60e+04	1.05e+04	1.52	yes	2.65e+04		n	n
7	31:38	3.87e+04	2.51e+04	1.54	yes	6.38e+04	2,3,4,7,8-PeCDF	n	n
8	32:36	1.88e+03	1.26e+03	1.50	yes	3.14e+03		n	n

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Peak List Summary

CLIENT ID.
SL0064

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P518831 Sample:1 Injection:1 Function:2

Acquired: 15-NOV-18 18:24:59 Processed: 16-NOV-18 14:10:45

Mass: 355.8550 357.8520 Tot Response: 6.30e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:38	3.18e+02	2.02e+02	1.57	yes	5.20e+02		n	n
2	30:08	2.12e+02	1.44e+02	1.48	yes	3.56e+02		n	n
3	30:39	3.76e+02	2.50e+02	1.50	yes	6.26e+02		n	n
4	30:49	1.60e+02	1.06e+02	1.51	yes	2.66e+02		n	n
5	30:56	1.50e+02	1.03e+02	1.45	yes	2.53e+02		n	n
6	31:09	9.01e+01	5.22e+01	1.73	yes	1.42e+02		y	n
7	31:56	2.52e+03	1.59e+03	1.58	yes	4.11e+03	1,2,3,7,8-PeCDD	n	n
8	32:16	1.64e+01	9.46e+00	1.73	yes	2.59e+01		n	n

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Peak List Summary

CLIENT ID.
SL0064

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P518831 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 18:24:59 Processed: 16-NOV-18 14:10:45

Mass: 373.8210 375.8180 Tot Response: 1.86e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:19	6.01e+02	5.57e+02	1.08	yes	1.16e+03		n	n
2	33:29	5.25e+03	4.32e+03	1.21	yes	9.57e+03		n	n
3	34:03	3.40e+03	2.99e+03	1.13	yes	6.39e+03		n	n
4	34:30	6.55e+04	5.34e+04	1.23	yes	1.19e+05	1,2,3,4,7,8-HxCDF	n	n
5	34:37	1.89e+04	1.52e+04	1.24	yes	3.41e+04	1,2,3,6,7,8-HxCDF	n	n
6	35:09	3.42e+03	2.57e+03	1.33	yes	5.99e+03	2,3,4,6,7,8-HxCDF	n	n
7	35:57	5.27e+03	4.12e+03	1.28	yes	9.39e+03	1,2,3,7,8,9-HxCDF	n	n

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Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P518831 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 18:24:59 Processed: 16-NOV-18 14:10:45

Mass: 389.8160 391.8130 Tot Response: 8.37e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	2.49e+03	1.85e+03	1.35	yes	4.34e+03		n	n
2	34:26	2.59e+02	2.21e+02	1.17	yes	4.79e+02		n	n
3	34:41	1.82e+03	1.31e+03	1.38	yes	3.13e+03		n	n
4	35:38	2.33e+02	1.90e+02	1.22	yes	4.23e+02	1,2,3,7,8,9-HxCDD	n	n

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Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P518831 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 18:24:59 Processed: 16-NOV-18 14:10:45

Mass: 407.7820 409.7790 Tot Response: 7.04e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:15	1.96e+04	1.96e+04	1.00	yes	3.92e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	37:38	9.96e+03	9.79e+03	1.02	yes	1.97e+04		n	n
3	38:35	5.79e+03	5.67e+03	1.02	yes	1.15e+04	1,2,3,4,7,8,9-HpCDF	n	n

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SL0064

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P518831 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 18:24:59 Processed: 16-NOV-18 14:10:45

Mass: 423.7770 425.7740 Tot Response: 7.86e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	2.11e+04	1.98e+04 1.06	yes	4.09e+04		n	n
2	38:10	1.90e+04	1.87e+04 1.02	yes	3.77e+04	1,2,3,4,6,7,8-HpCDD	n	n

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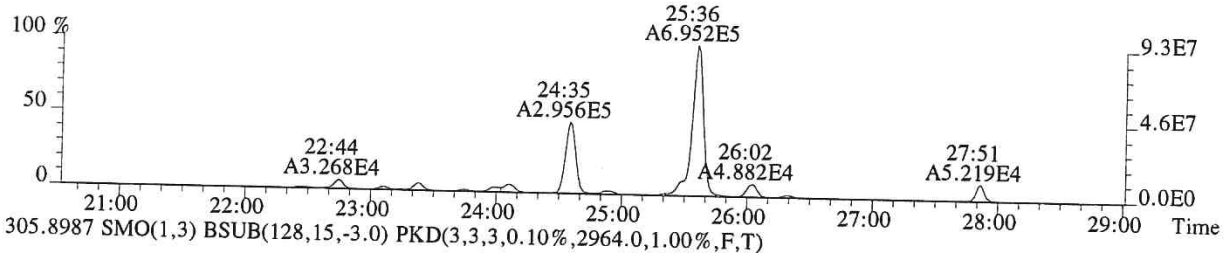
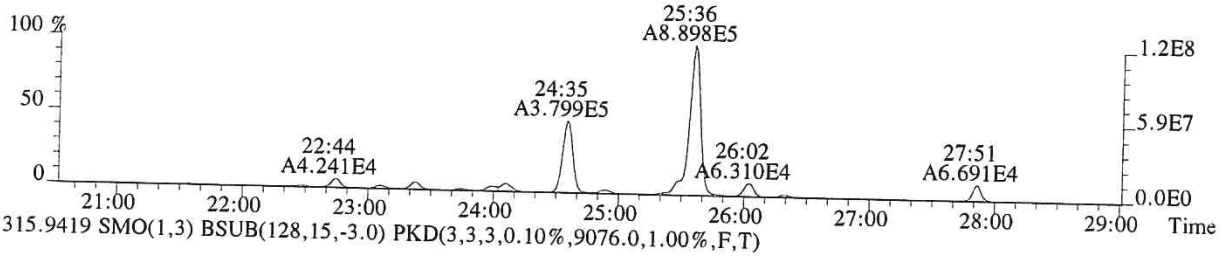
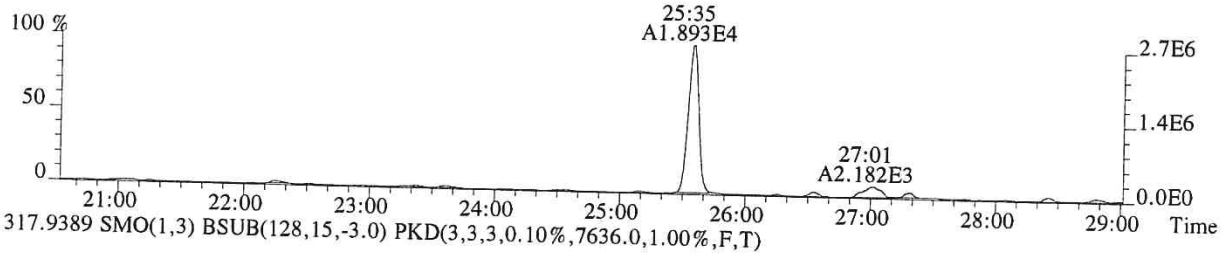
File:P518831 #1-602 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



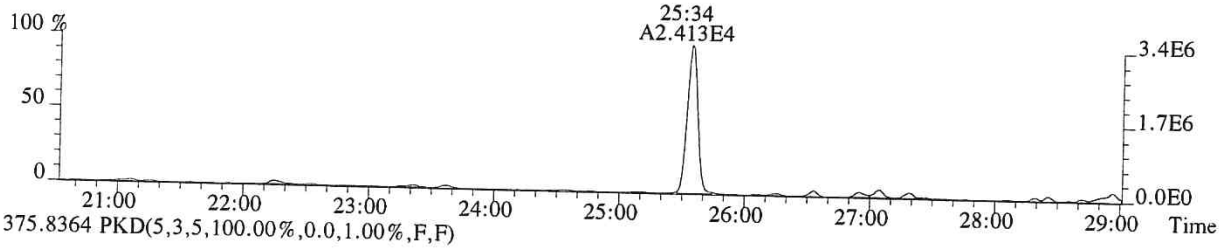
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



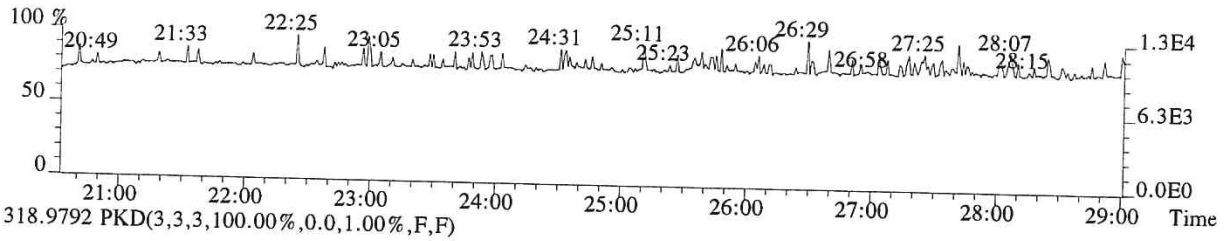
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9076.0,1.00%,F,T)



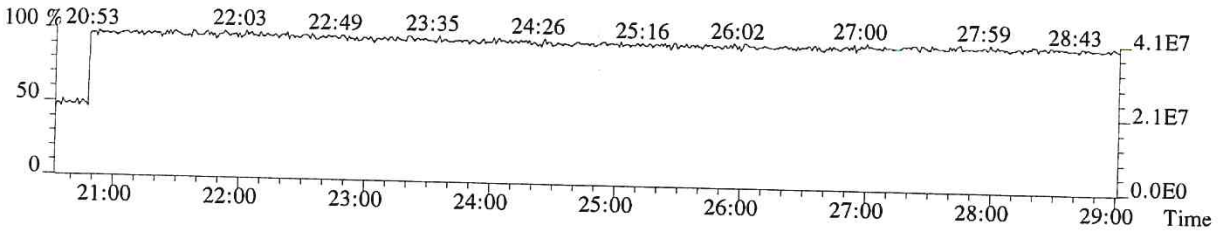
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7636.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

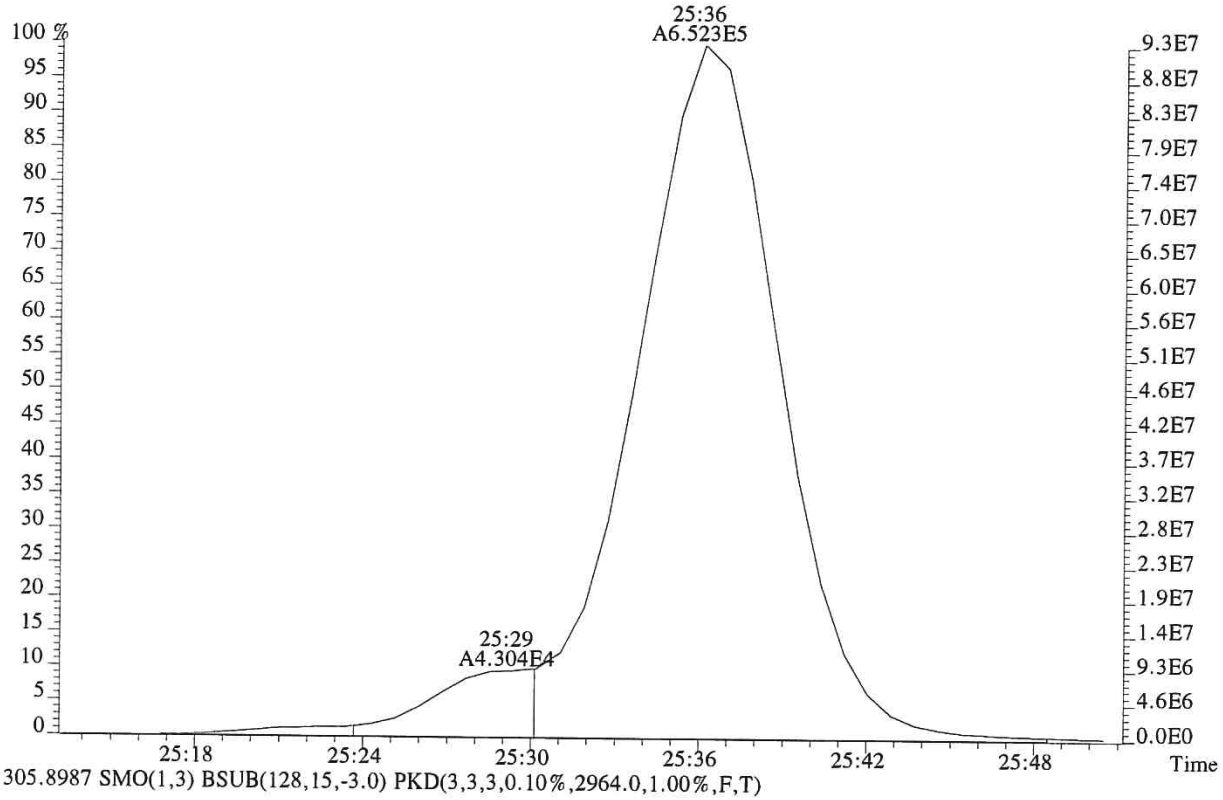


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

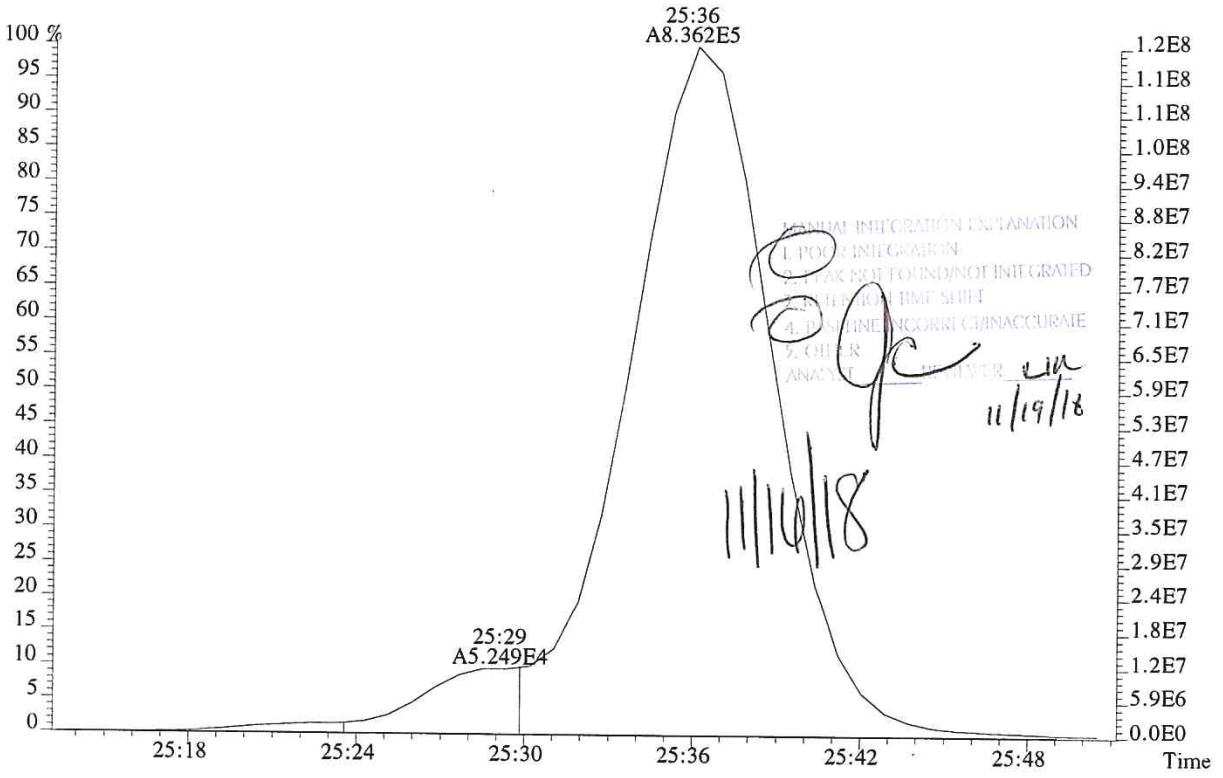


008733

File:P518831 #1-602 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)

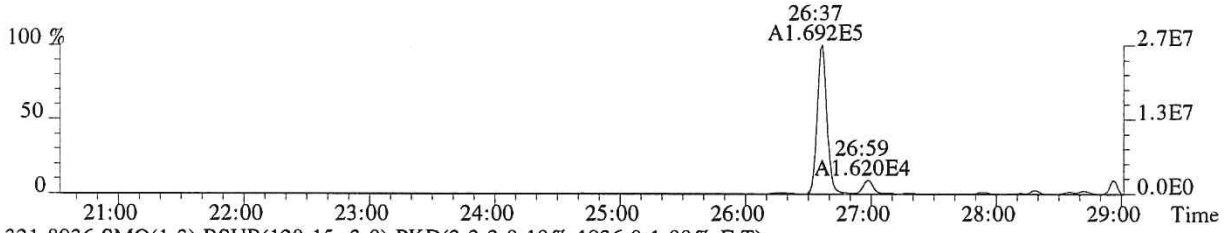


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER

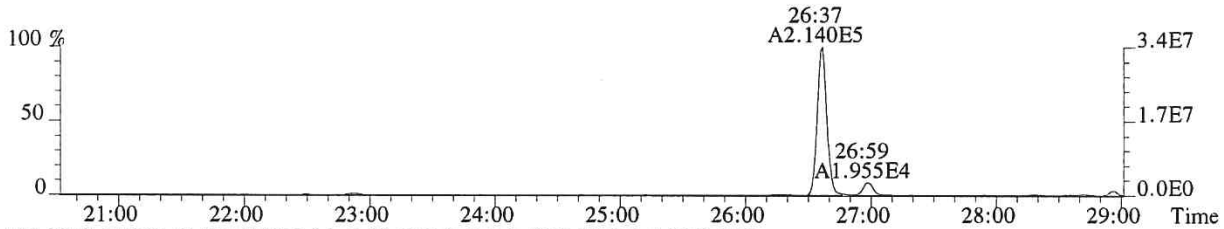
11/19/18

11/14/18

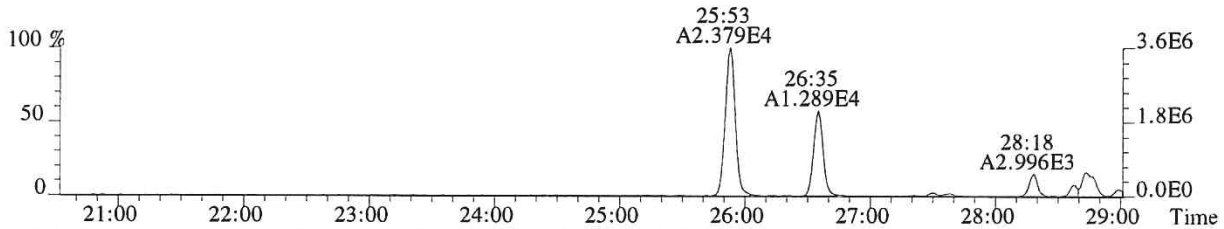
File:P518831 #1-602 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



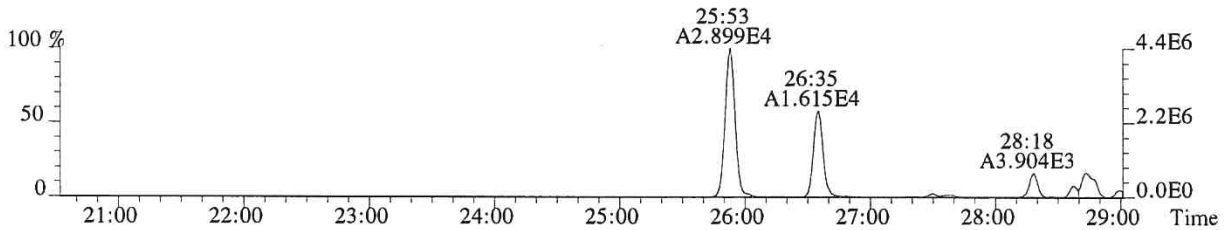
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1936.0,1.00%,F,T)



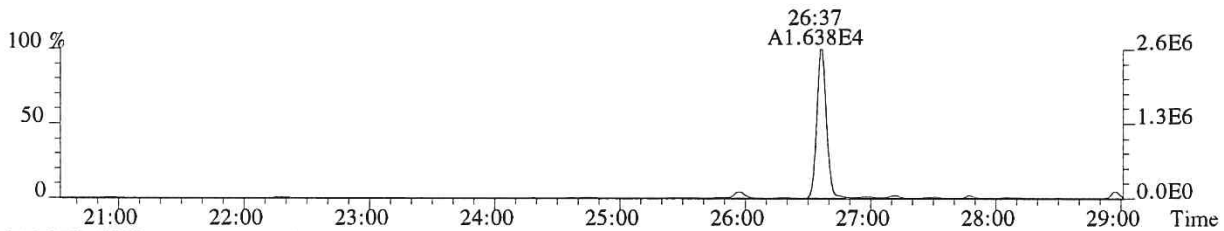
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7120.0,1.00%,F,T)



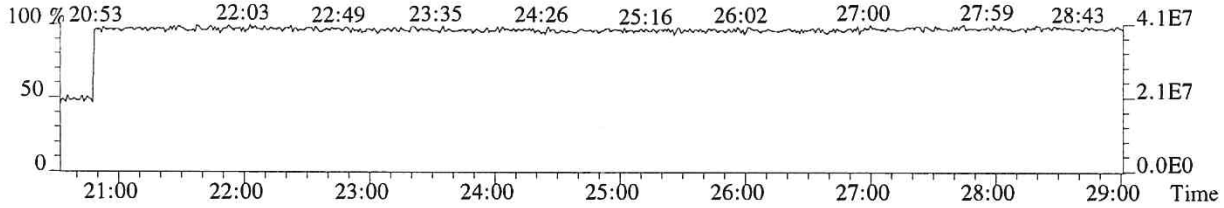
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4096.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1696.0,1.00%,F,T)

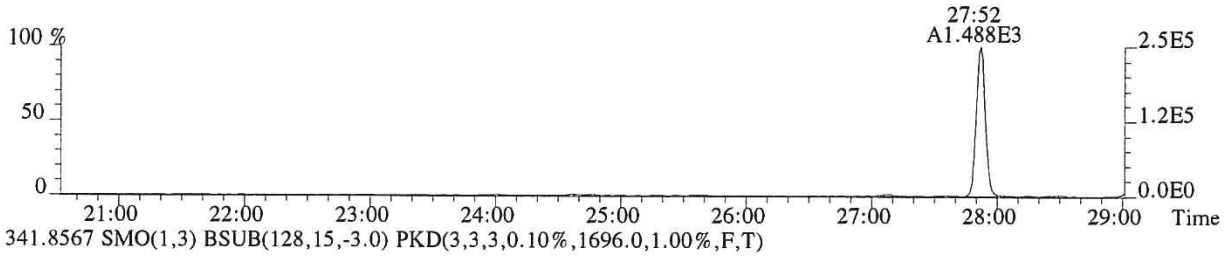


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

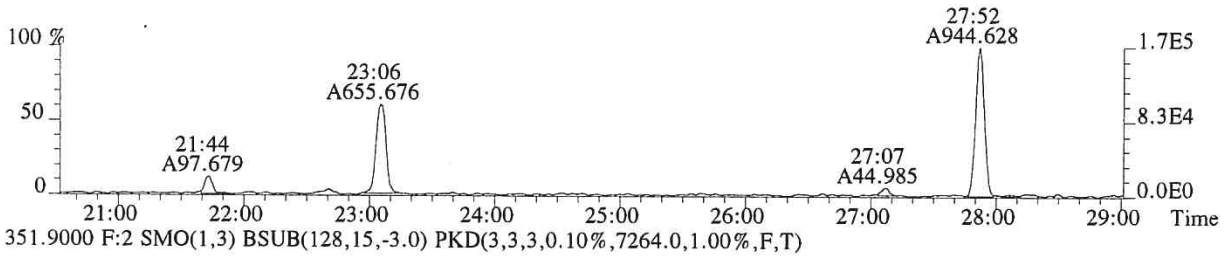


008735

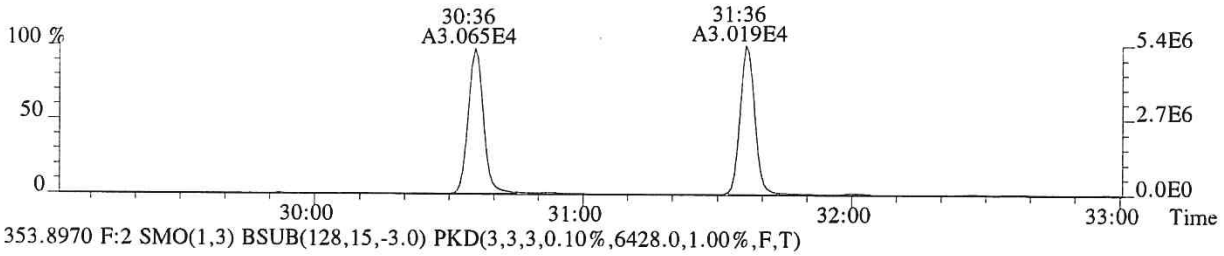
File:P518831 #1-602 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



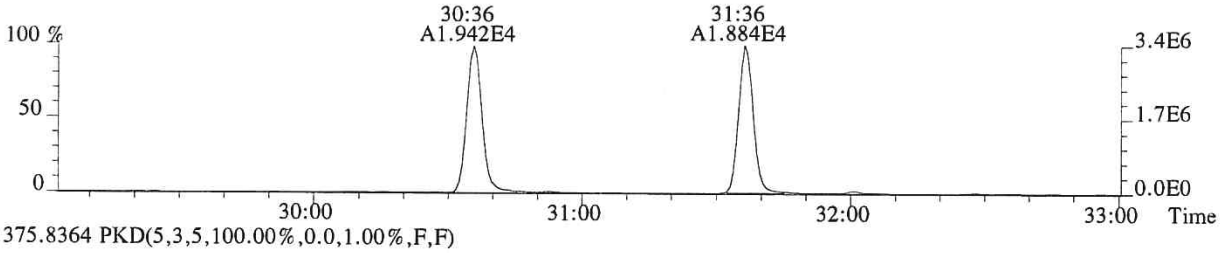
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1696.0,1.00%,F,T)



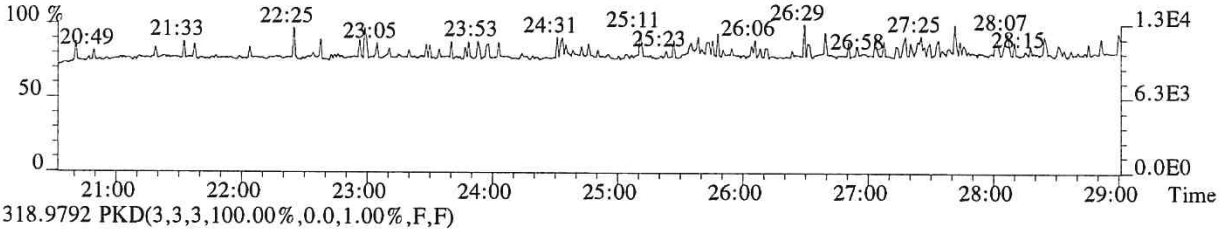
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7264.0,1.00%,F,T)



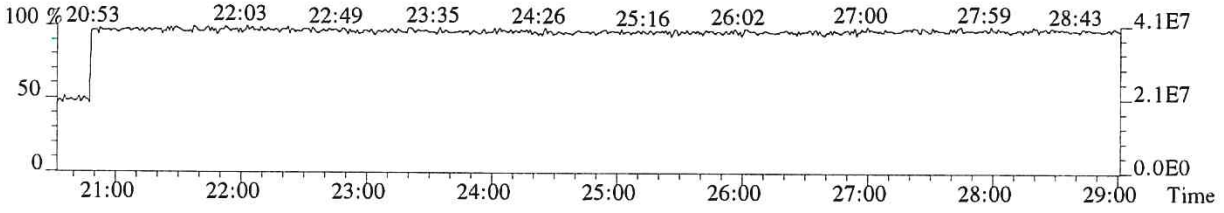
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

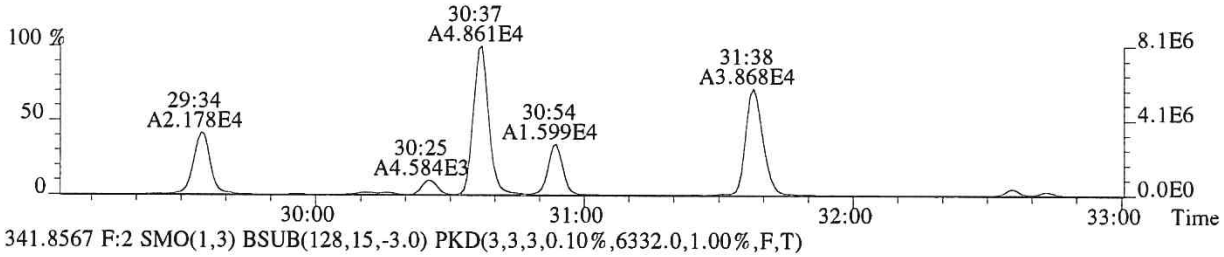


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

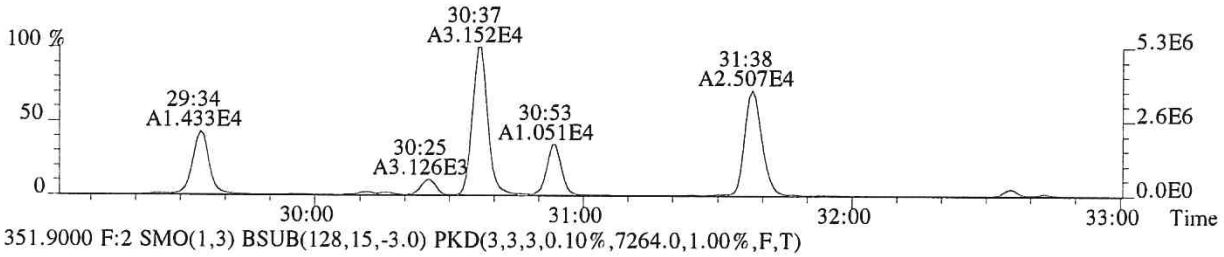


008736

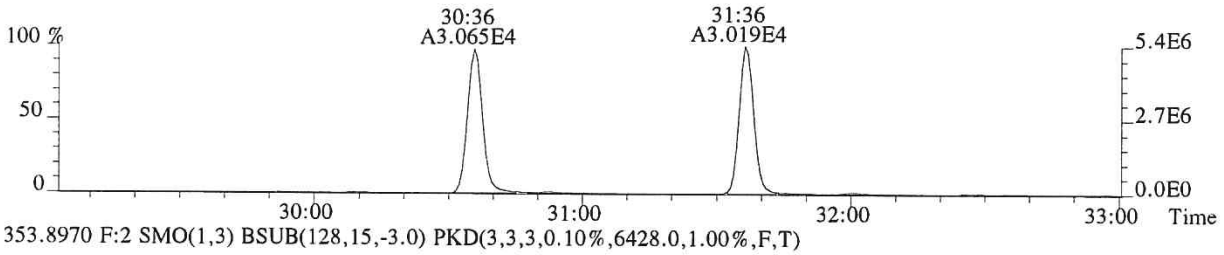
File:P518831 #1-357 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4988.0,1.00%,F,T)



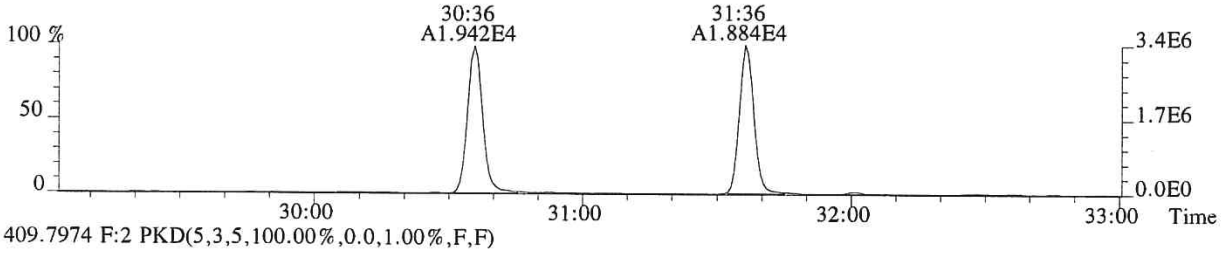
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6332.0,1.00%,F,T)



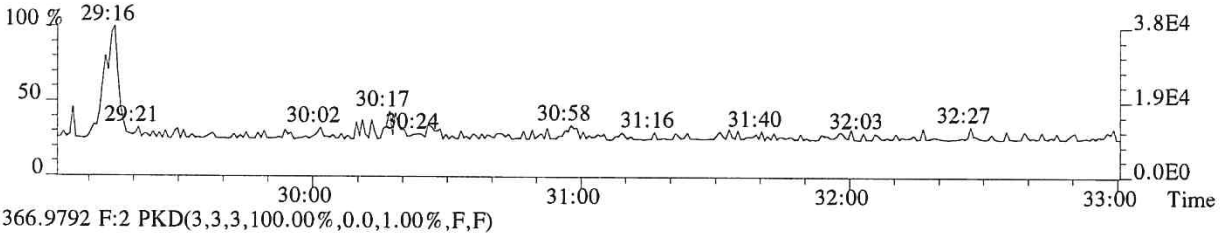
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7264.0,1.00%,F,T)



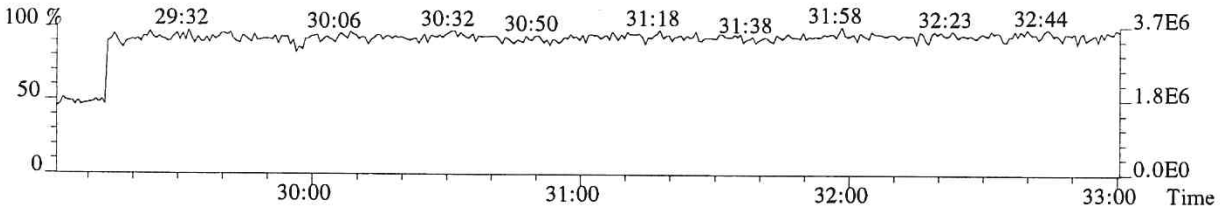
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



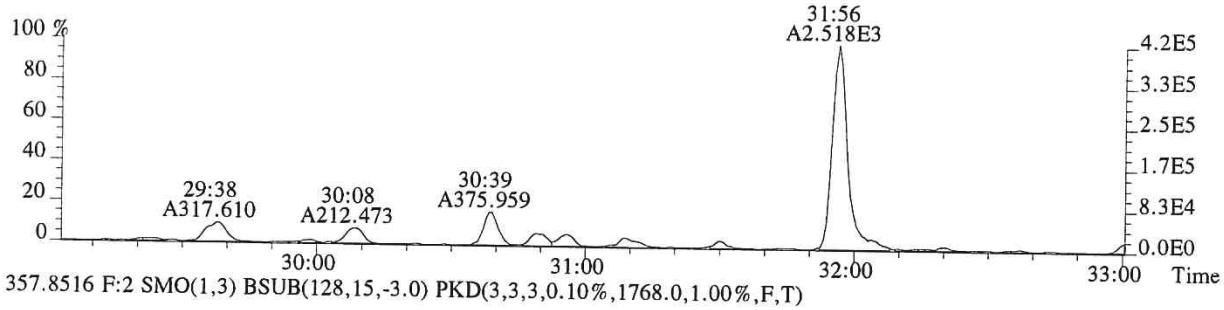
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



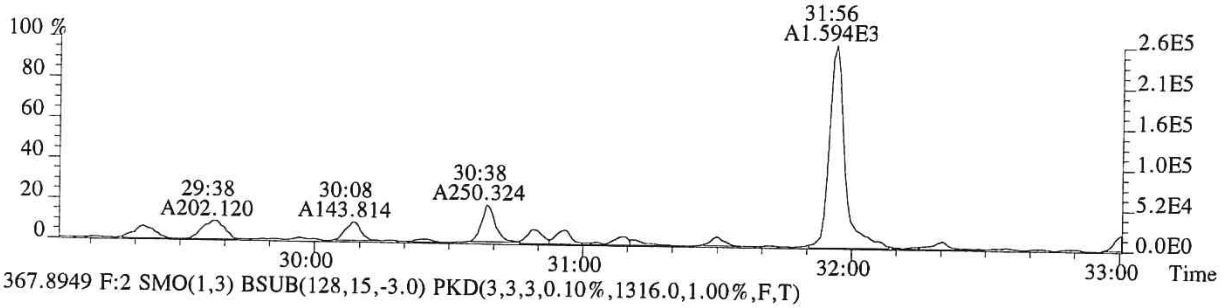
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



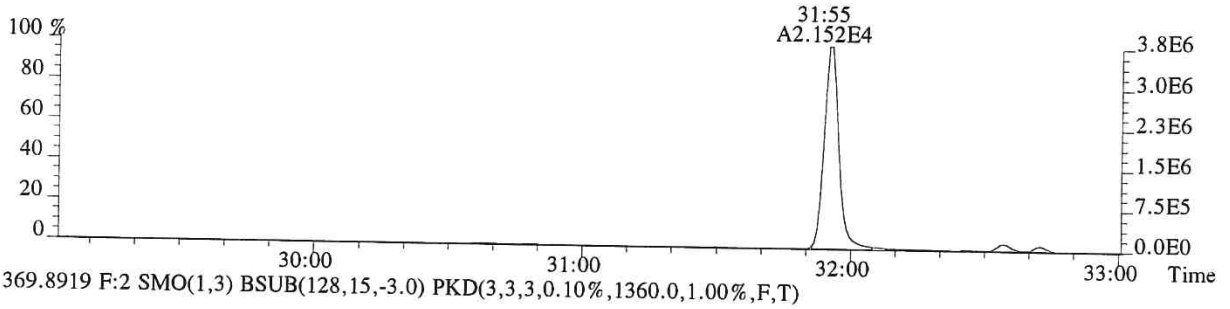
File:P518831 #1-357 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



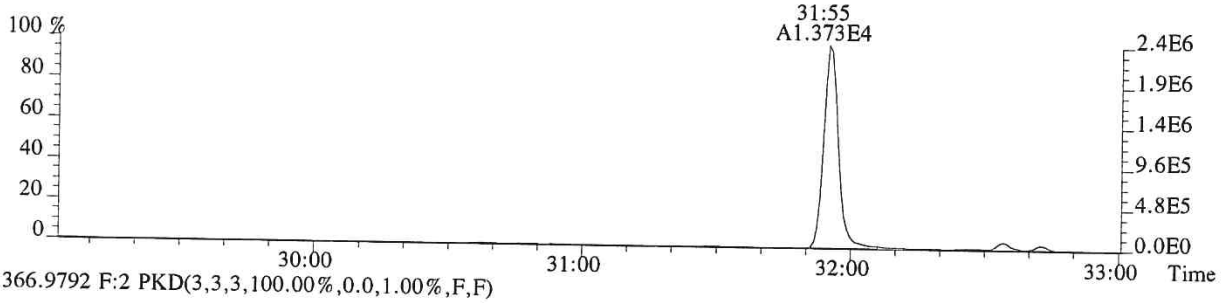
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



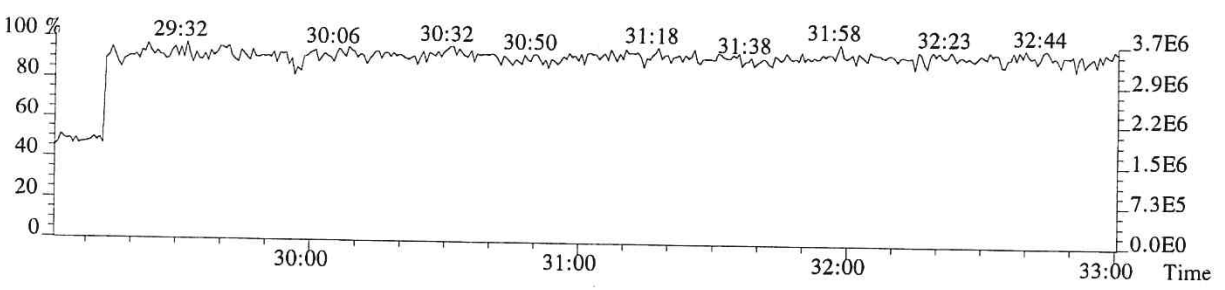
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



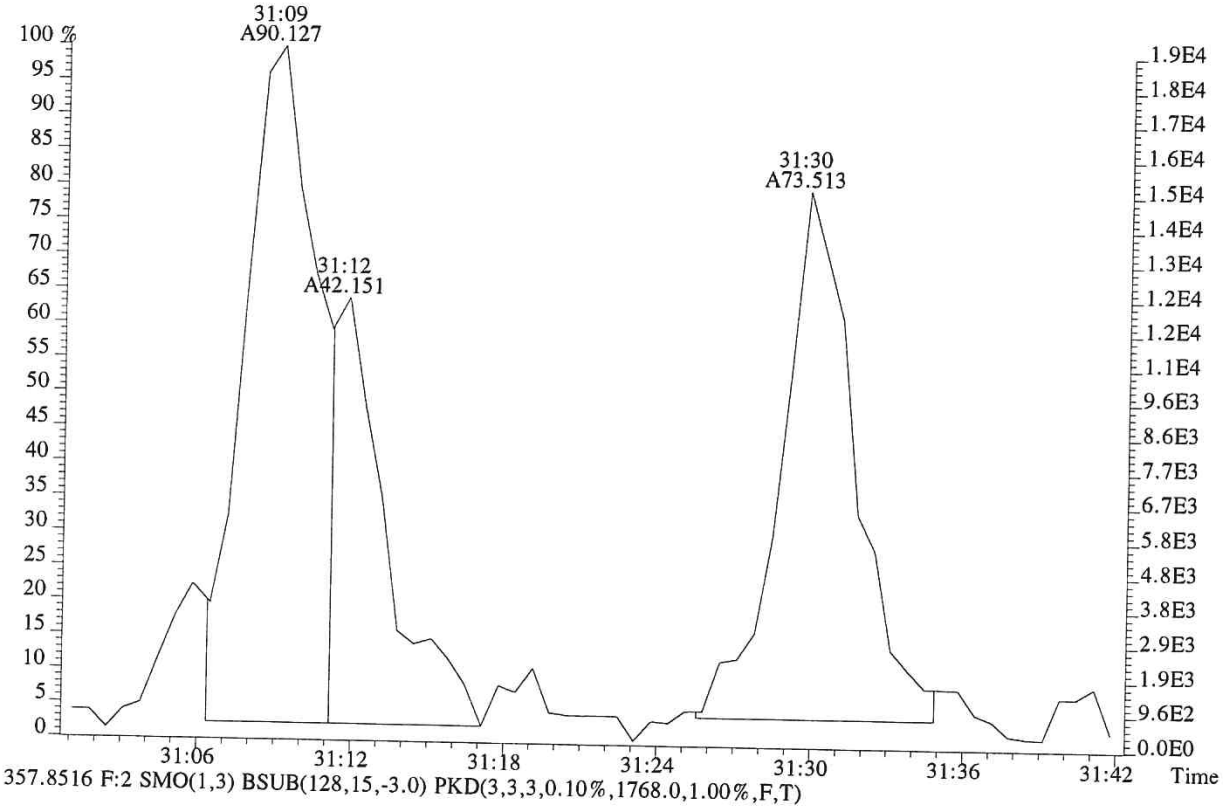
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)



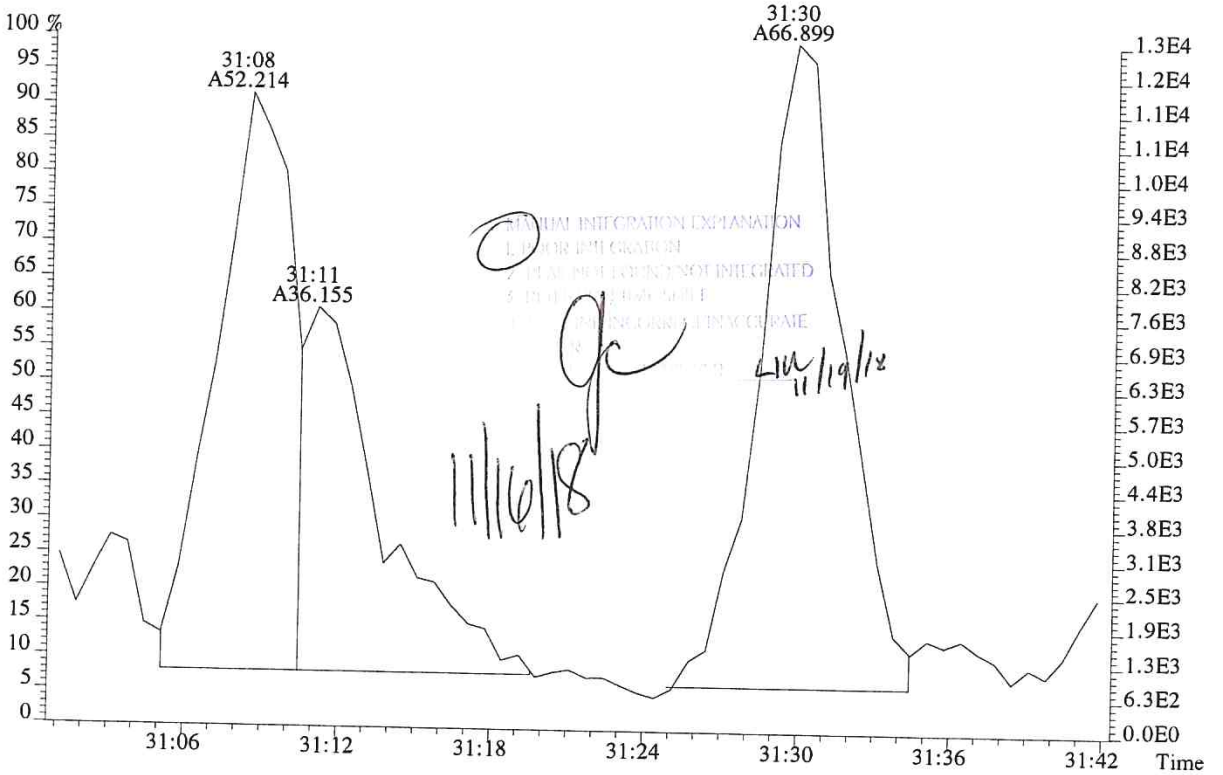
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



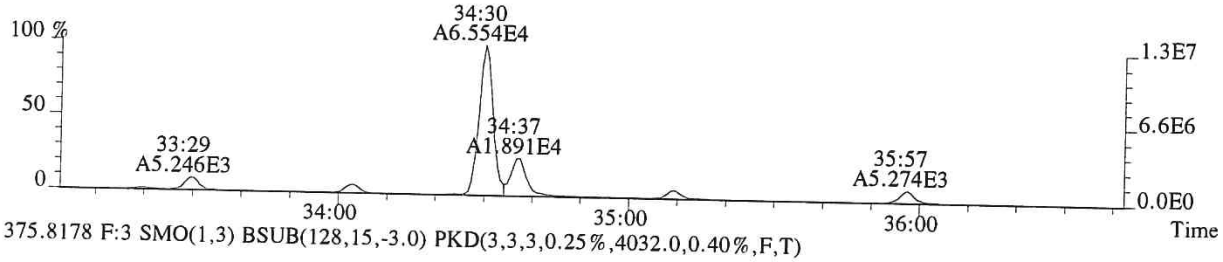
File:P518831 #1-357 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



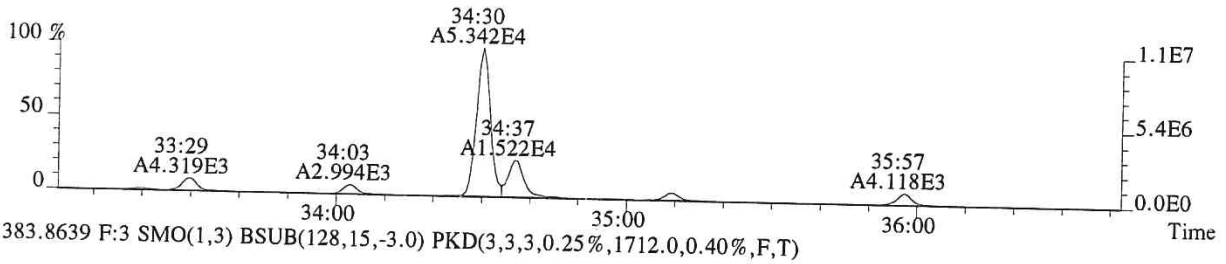
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



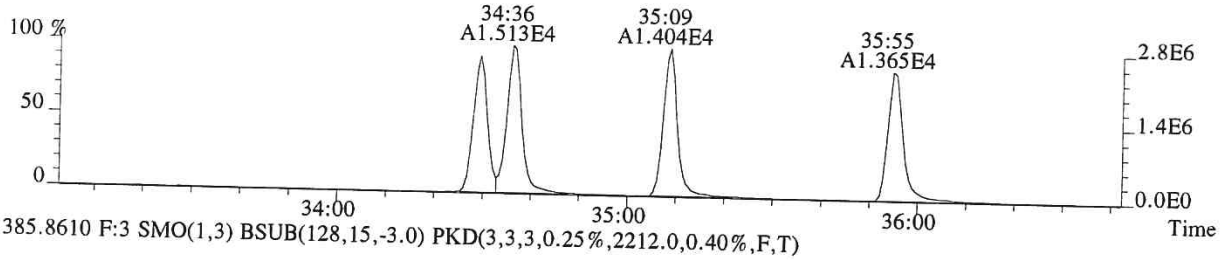
File:P518831 #1-330 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6960.0,0.40%,F,T)



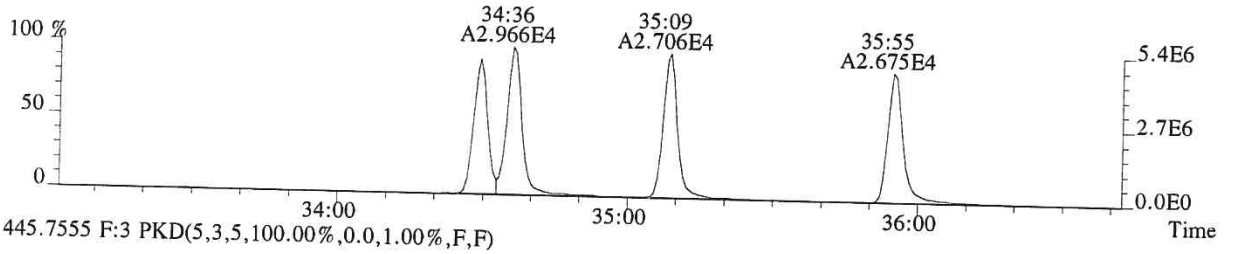
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4032.0,0.40%,F,T)



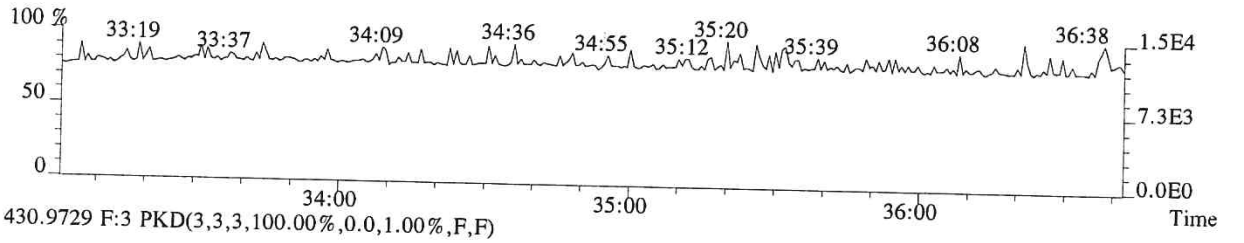
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)



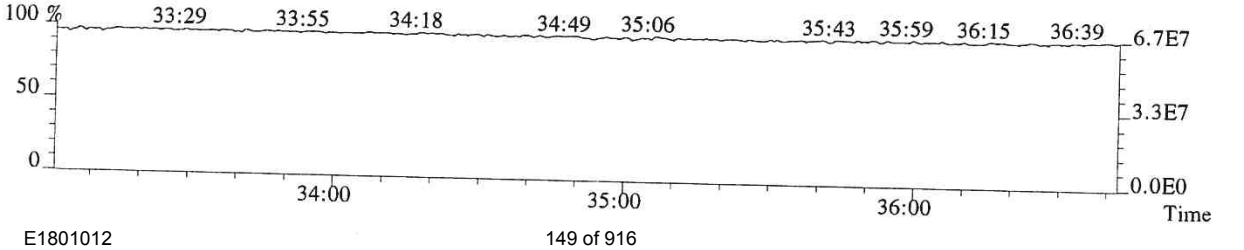
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2212.0,0.40%,F,T)



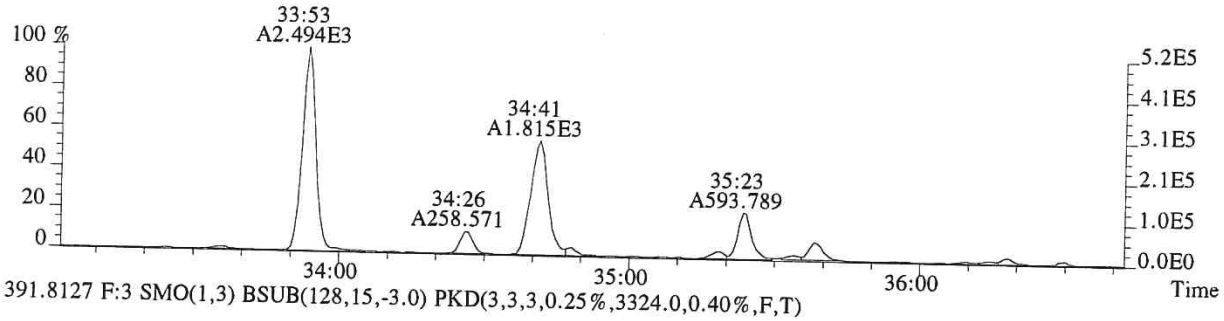
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



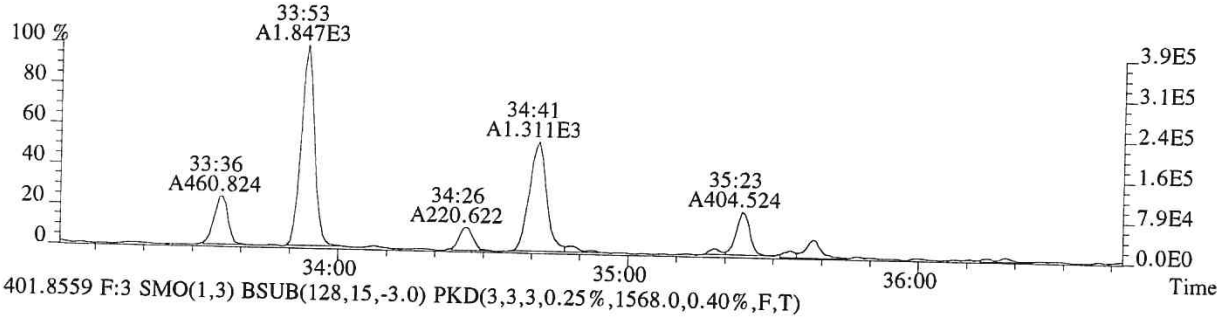
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



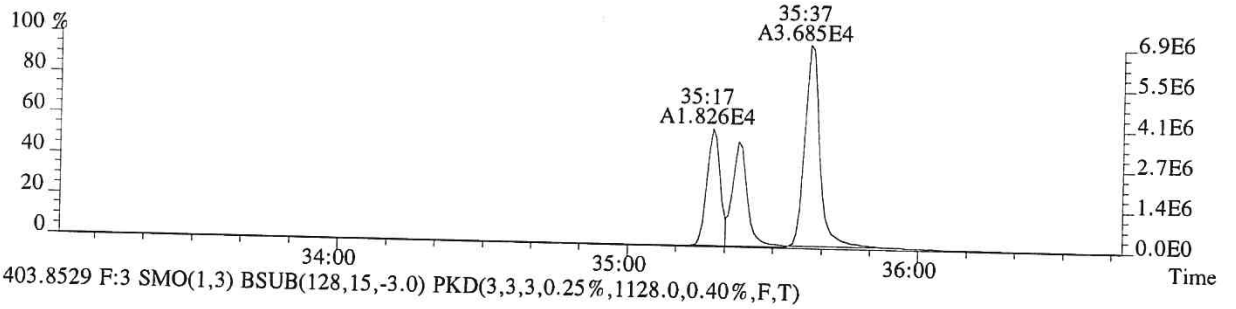
File:P518831 #1-330 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)



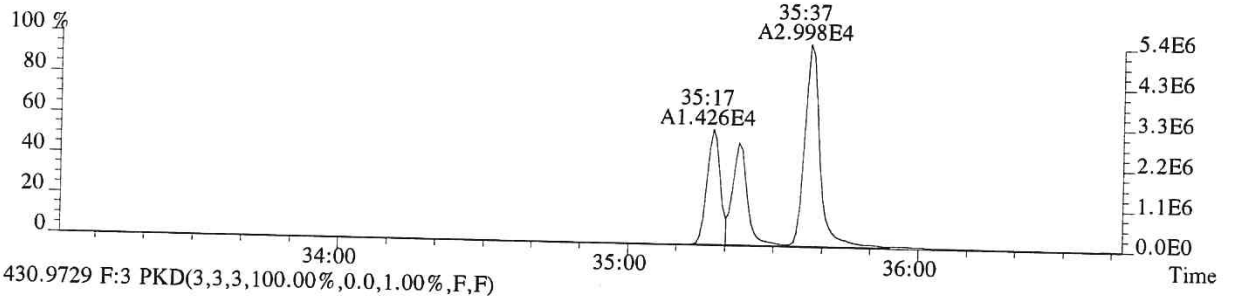
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3324.0,0.40%,F,T)



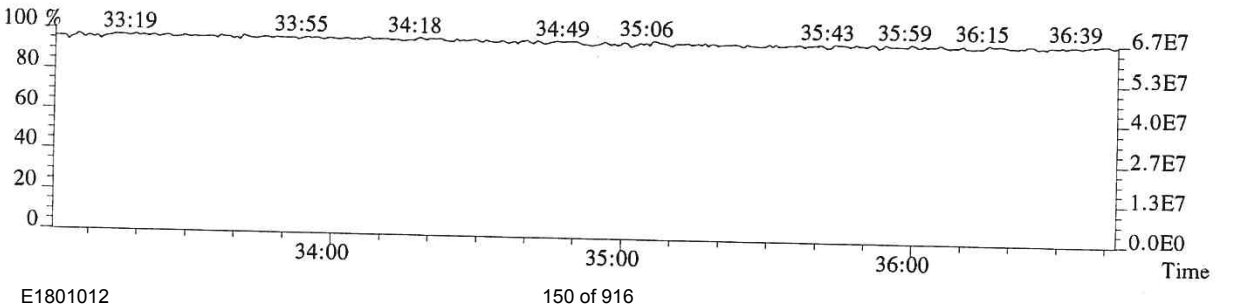
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



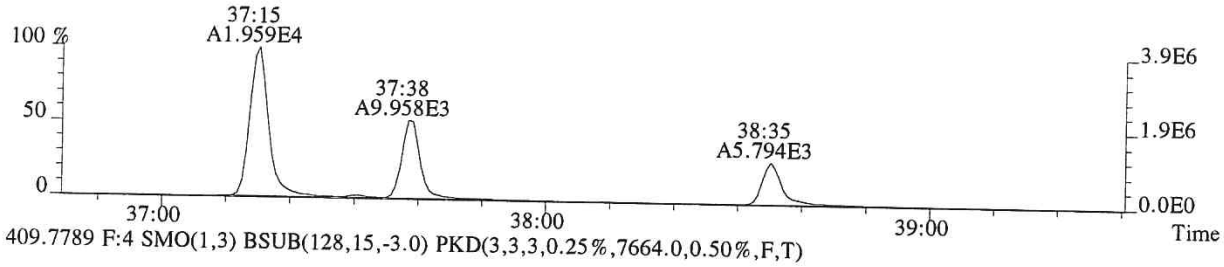
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.40%,F,T)



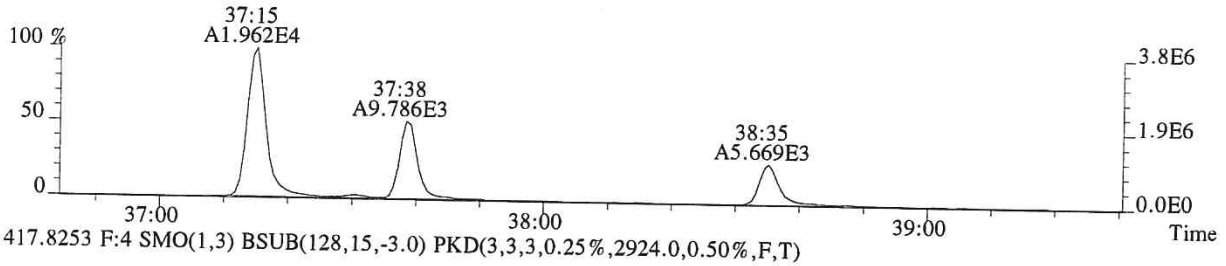
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



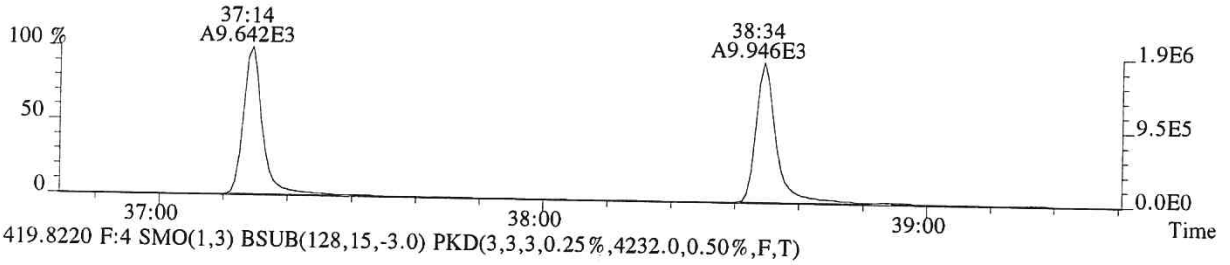
File:P518831 #1-250 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.50%,F,T)



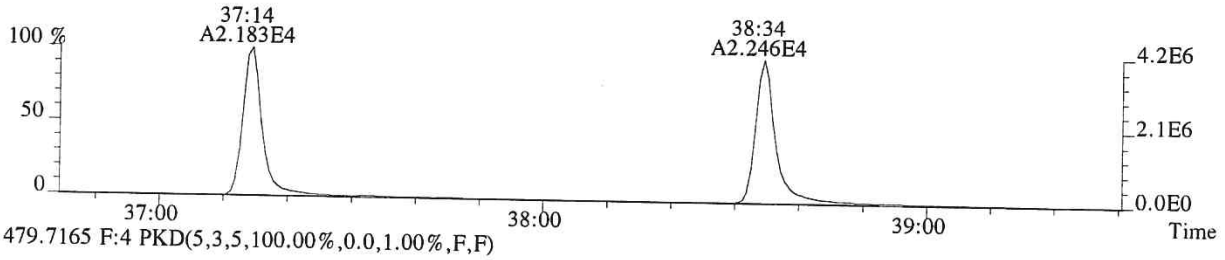
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7664.0,0.50%,F,T)



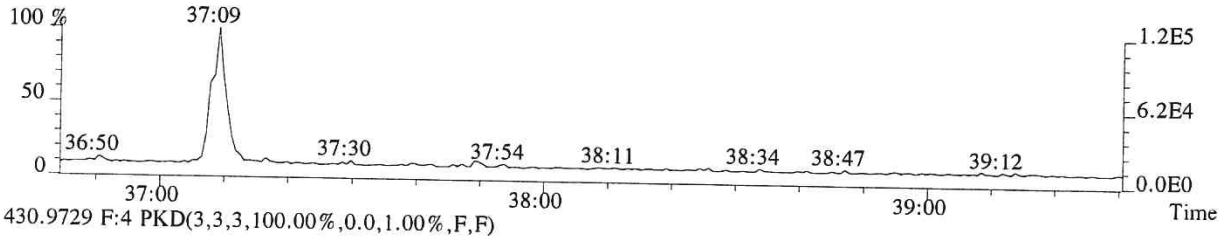
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.50%,F,T)



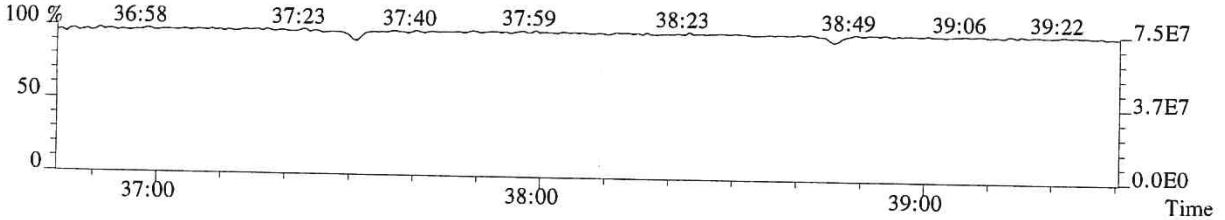
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4232.0,0.50%,F,T)



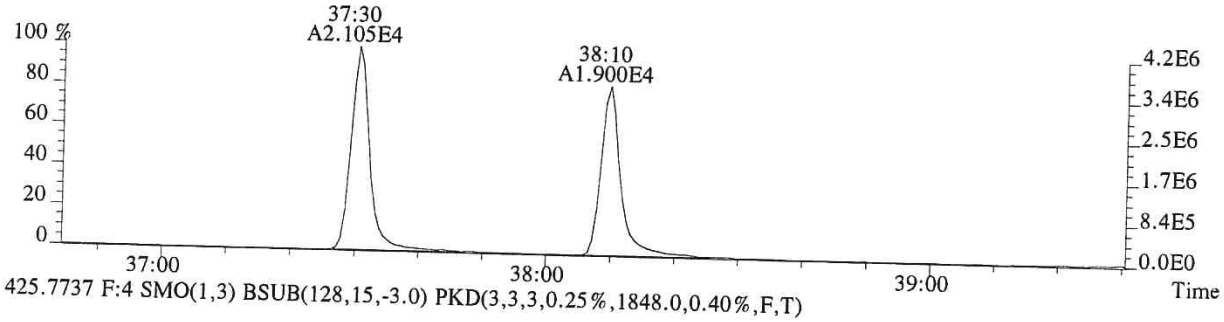
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



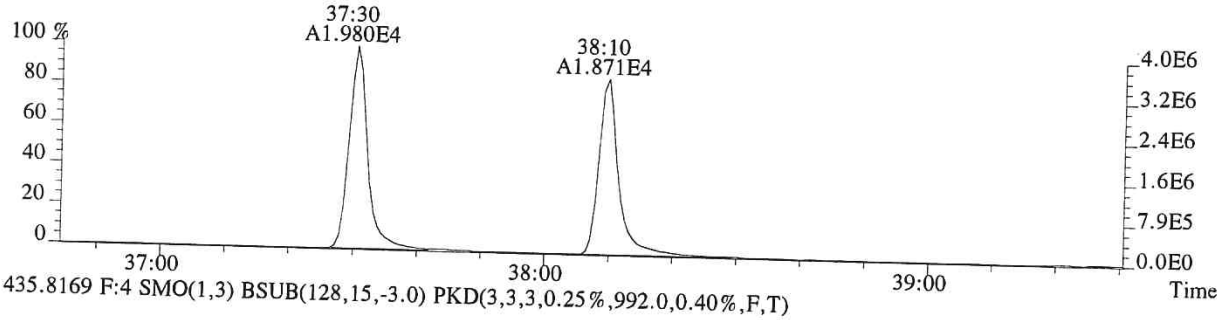
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



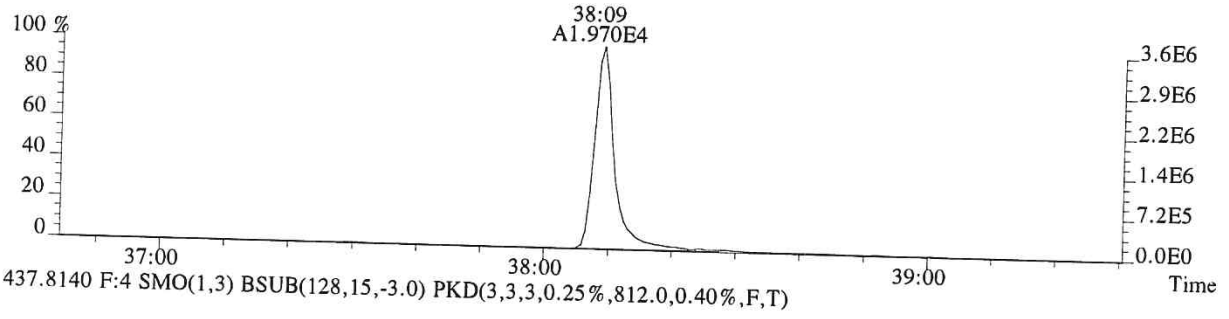
File:P518831 #1-250 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6932.0,0.40%,F,T)



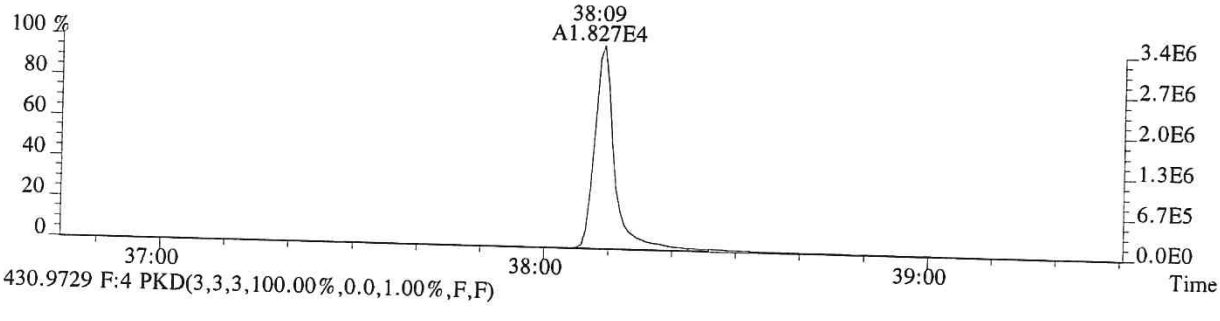
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



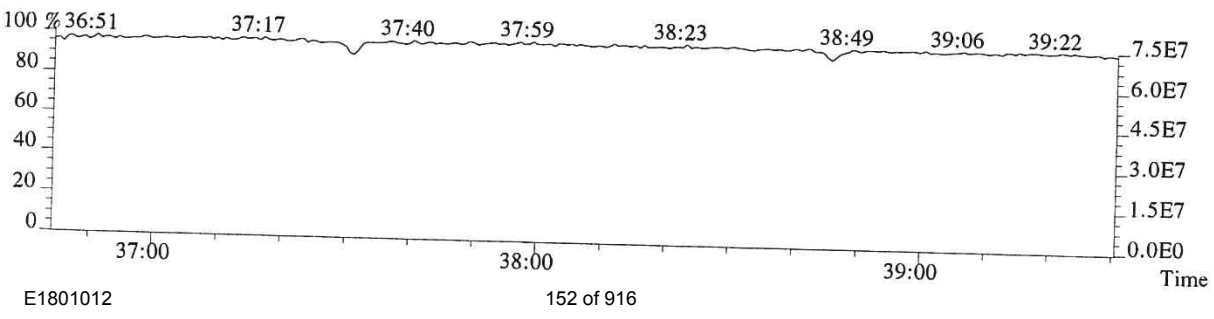
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



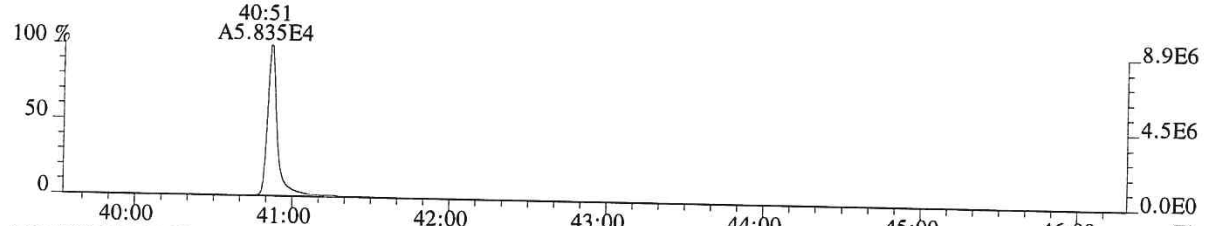
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



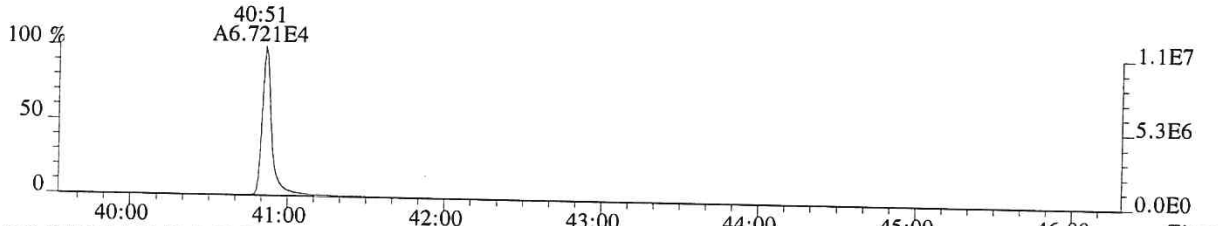
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



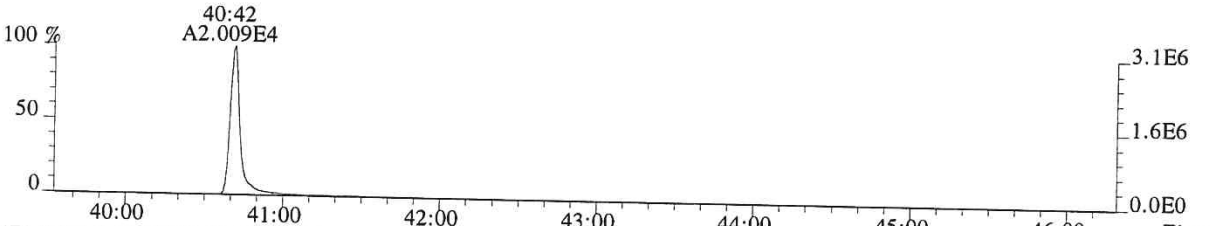
File:P518831 #1-610 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



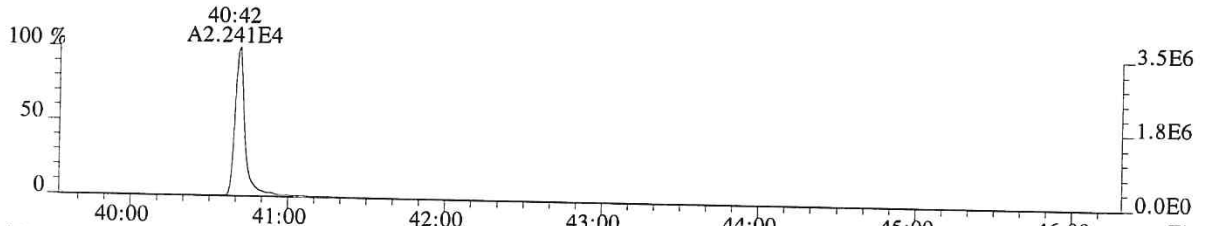
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



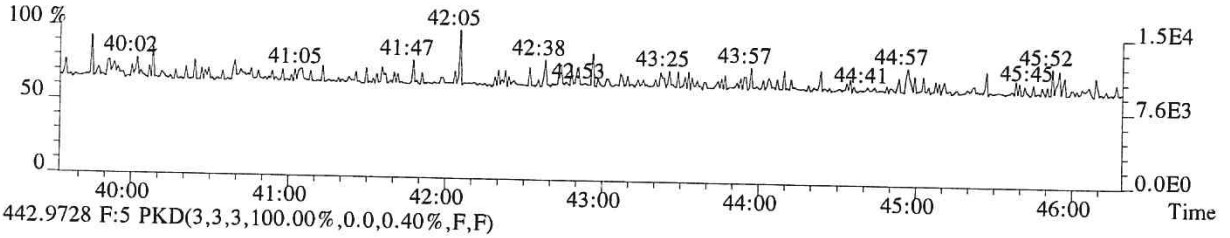
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,924.0,0.40%,F,T)



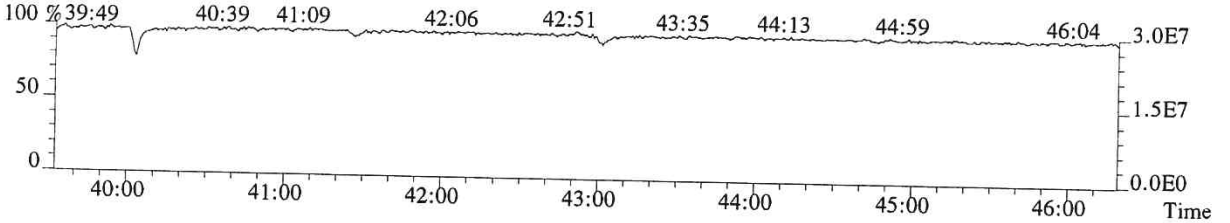
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

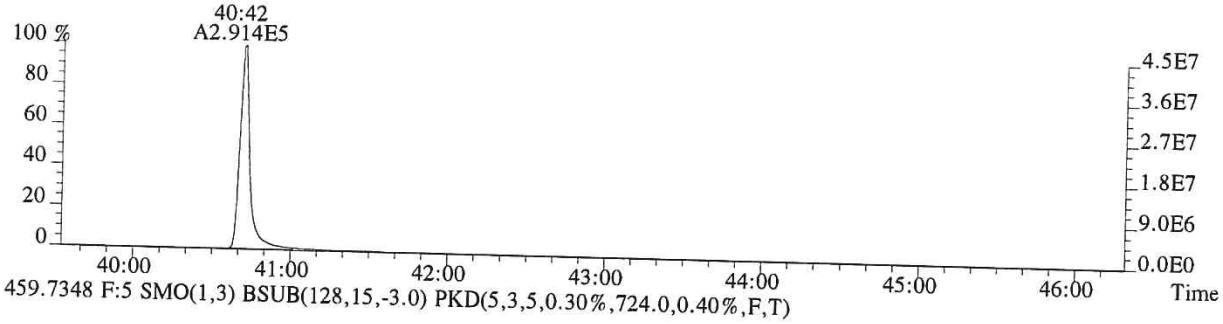


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

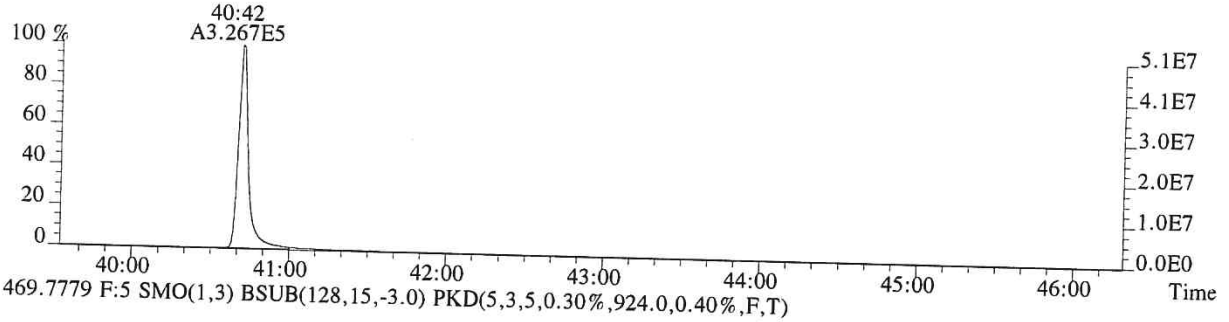


008744

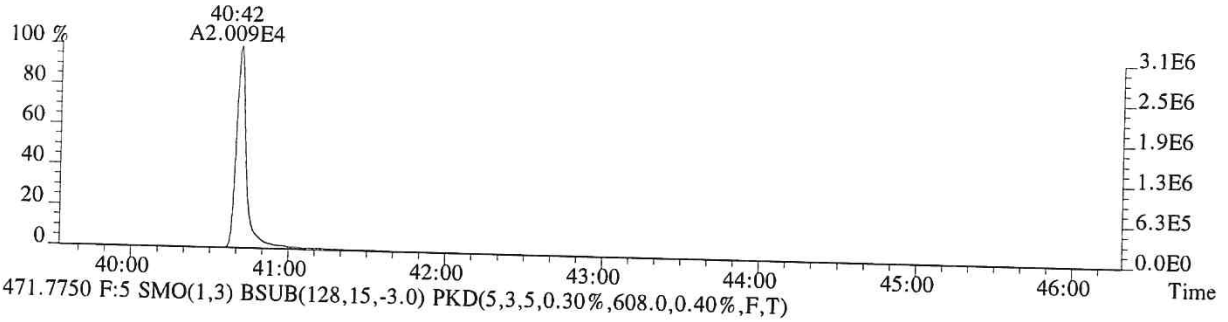
File:P518831 #1-610 Acq:15-NOV-2018 18:24:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-012
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



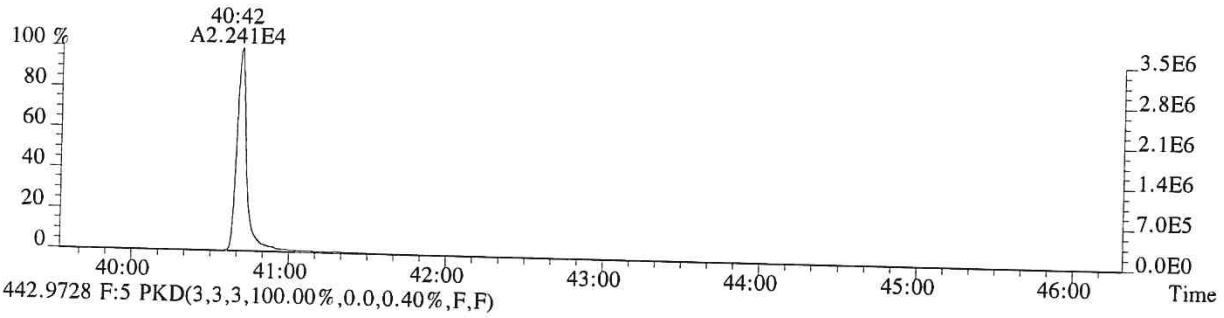
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



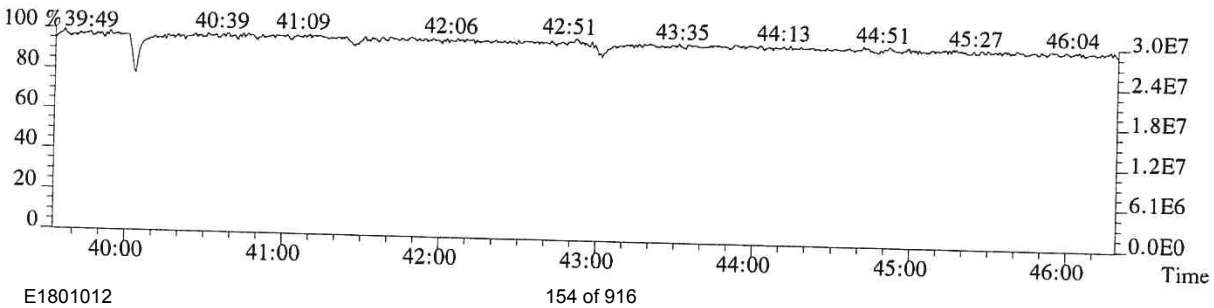
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,924.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0064

Run #14 Filename P518972 Samp: 1 Inj: 1 Acquired: 21-NOV-18 16:47:22
Processed: 26-NOV-18 13:52:10 Sample ID: E1801012-012DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	1.616e+04	2.124e+04	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:43	6.664e+02	4.226e+02	1.58	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:36	4.995e+02	3.713e+02	1.35	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	8.271e+02	7.005e+02	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:21	2.522e+02	2.236e+02	1.13	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	3.796e+01	3.702e+01	1.03	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	8.081e+01	7.716e+01	1.05	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	1.894e+02	2.255e+02	0.84	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:16	7.258e+01	5.372e+01	1.35	no	no	1.258
10	Unk	OCDF	42:51	7.191e+02	8.332e+02	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:23	4.511e+03	5.737e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:53	5.126e+01	4.279e+01	1.20	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	9.671e+00	1.690e+00	5.72	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	1.424e+02	1.649e+02	0.86	no	no	1.025
17	Unk	OCDD	42:39	1.285e+03	1.532e+03	0.84	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:36	2.432e+04	3.068e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	3.798e+04	2.403e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:35	3.662e+04	2.313e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	1.466e+04	2.884e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.886e+04	3.699e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	1.980e+04	3.810e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	1.469e+04	2.875e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	1.557e+04	3.545e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	1.494e+04	3.405e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	1.617e+04	2.083e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	2.899e+04	1.810e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	2.014e+04	1.580e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	2.356e+04	1.836e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	2.149e+04	2.004e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:38	3.041e+04	3.388e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:49	2.004e+04	2.537e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	2.761e+04	2.201e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	4.069e+02				no	1.014

$$\text{OCDD} = \frac{(1.285e+03 + 1.532e+03) \times 4000 \text{ pg} \times 50}{(3.041e+04 + 3.388e+04) \times 10.288 \text{ g} \times 75.2/100 \times 1.118} = 1856.526 \text{ ng/kg}$$

LG 11/27/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0064

Run #14 Filename P518972 Samp: 1 Inj: 1 Acquired: 21-NOV-18 16:47:22
Processed: 26-NOV-18 13:52:10 LAB. ID: E1801012-012DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.88e+06	8.00e+02	3.6e+03	3.74e+06	1.10e+03	3.4e+03
2	1,2,3,7,8-PeCDF	1.16e+05	3.52e+02	3.3e+02	7.68e+04	7.04e+02	1.1e+02
3	2,3,4,7,8-PeCDF	6.89e+04	3.52e+02	2.0e+02	5.16e+04	7.04e+02	7.3e+01
4	1,2,3,4,7,8-HxCDF	1.74e+05	7.48e+02	2.3e+02	1.45e+05	5.40e+02	2.7e+02
5	1,2,3,6,7,8-HxCDF	4.82e+04	7.48e+02	6.5e+01	3.59e+04	5.40e+02	6.6e+01
6	2,3,4,6,7,8-HxCDF	8.11e+03	7.48e+02	1.1e+01	6.40e+03	5.40e+02	1.2e+01
7	1,2,3,7,8,9-HxCDF	1.25e+04	7.48e+02	1.7e+01	1.53e+04	5.40e+02	2.8e+01
8	1,2,3,4,6,7,8-HpCDF	3.75e+04	4.80e+02	7.8e+01	4.19e+04	4.44e+02	9.4e+01
9	1,2,3,4,7,8,9-HpCDF	1.64e+04	4.80e+02	3.4e+01	9.42e+03	4.44e+02	2.1e+01
10	OCDF	1.02e+05	2.68e+02	3.8e+02	1.14e+05	7.76e+02	1.5e+02
11	2,3,7,8-TCDD	8.58e+05	1.92e+03	4.5e+02	1.07e+06	1.26e+03	8.5e+02
12	1,2,3,7,8-PeCDD	1.01e+04	8.80e+02	1.1e+01	9.72e+03	2.08e+02	4.7e+01
13	1,2,3,4,7,8-HxCDD	*	3.92e+02	*	*	2.28e+02	*
14	1,2,3,6,7,8-HxCDD	1.64e+03	3.92e+02	4.2e+00	5.54e+02	2.28e+02	2.4e+00
15	1,2,3,7,8,9-HxCDD	*	3.92e+02	*	*	2.28e+02	*
16	1,2,3,4,6,7,8-HpCDD	2.45e+04	7.00e+02	3.5e+01	2.78e+04	3.68e+02	7.5e+01
17	OCDD	1.78e+05	1.96e+02	9.1e+02	2.17e+05	6.60e+02	3.3e+02
18	13C-2,3,7,8-TCDF	4.53e+06	8.96e+03	5.1e+02	5.68e+06	5.68e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	6.62e+06	6.96e+02	9.5e+03	4.21e+06	5.60e+02	7.5e+03
20	13C-2,3,4,7,8-PeCDF	6.90e+06	6.96e+02	9.9e+03	4.31e+06	5.60e+02	7.7e+03
21	13C-1,2,3,4,7,8-HxCDF	3.03e+06	6.68e+02	4.5e+03	5.92e+06	1.14e+03	5.2e+03
22	13C-1,2,3,6,7,8-HxCDF	3.61e+06	6.68e+02	5.4e+03	6.94e+06	1.14e+03	6.1e+03
23	13C-2,3,4,6,7,8-HxCDF	3.81e+06	6.68e+02	5.7e+03	7.48e+06	1.14e+03	6.5e+03
24	13C-1,2,3,7,8,9-HxCDF	2.68e+06	6.68e+02	4.0e+03	5.16e+06	1.14e+03	4.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.00e+06	1.93e+03	1.6e+03	6.66e+06	8.70e+03	7.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.53e+06	1.93e+03	1.3e+03	5.68e+06	8.70e+03	6.5e+02
27	13C-2,3,7,8-TCDD	3.12e+06	5.09e+03	6.1e+02	4.02e+06	1.87e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	5.18e+06	1.03e+03	5.0e+03	3.27e+06	8.32e+02	3.9e+03
29	13C-1,2,3,4,7,8-HxCDD	4.27e+06	1.26e+03	3.4e+03	3.40e+06	4.84e+02	7.0e+03
30	13C-1,2,3,6,7,8-HxCDD	4.36e+06	1.26e+03	3.5e+03	3.42e+06	4.84e+02	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.69e+06	7.12e+02	5.2e+03	3.47e+06	3.60e+02	9.6e+03
32	13C-OCDD	4.21e+06	4.32e+02	9.7e+03	4.73e+06	1.64e+02	2.9e+04
33	13C-1,2,3,4-TCDD	3.83e+06	5.09e+03	7.5e+02	4.84e+06	1.87e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	5.01e+06	1.26e+03	4.0e+03	3.97e+06	4.84e+02	8.2e+03
35	37Cl-2,3,7,8-TCDD	7.51e+04	9.12e+02	8.2e+01			

---Sample Calculation---

$$D/L\ TCDD = \frac{2.5 \times (1.920e+03 + 1.256e+03) \times 2000}{(3.117e+06 + 4.017e+06) \times (\quad) \times 1.085} =$$

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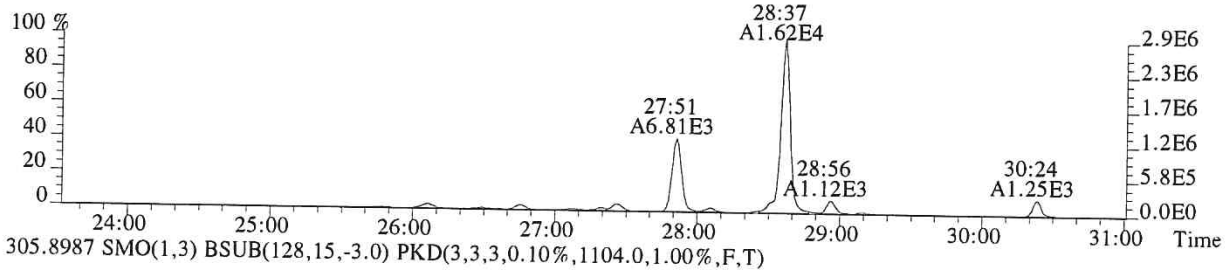
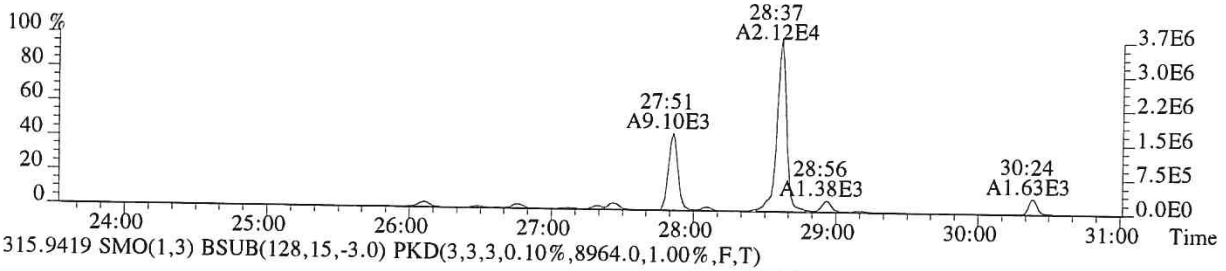
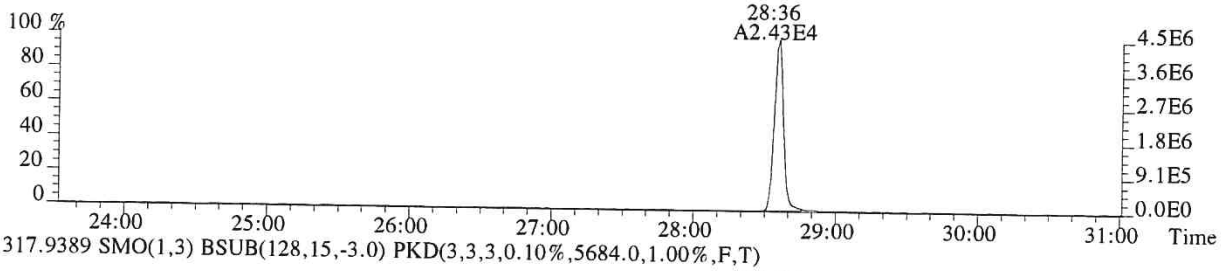
File:P518972 #1-531 Acq:21-NOV-2018 16:47:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-0012DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



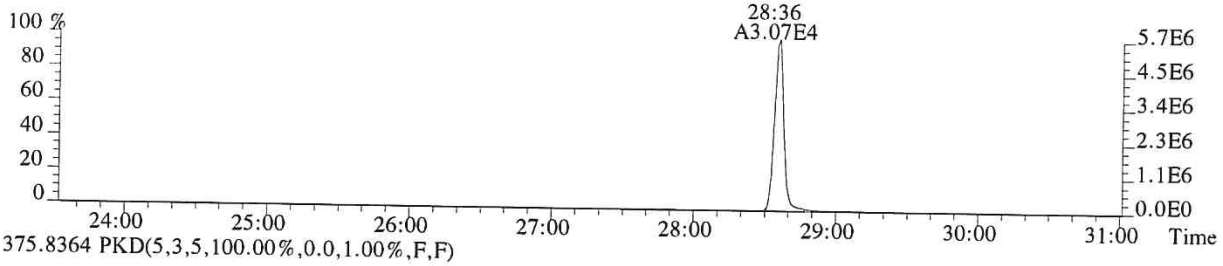
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



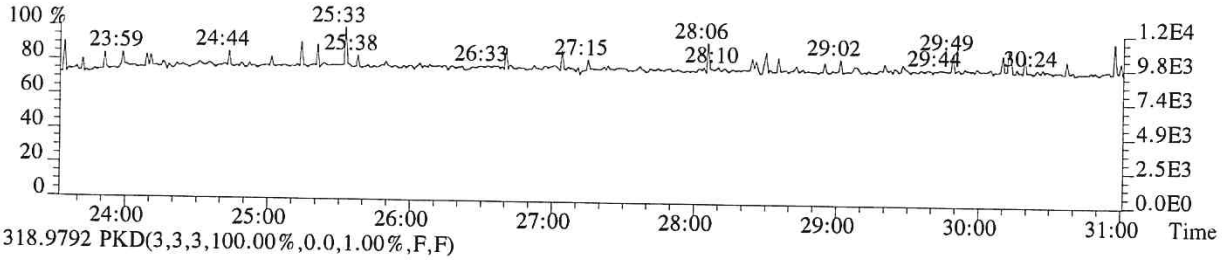
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8964.0,1.00%,F,T)



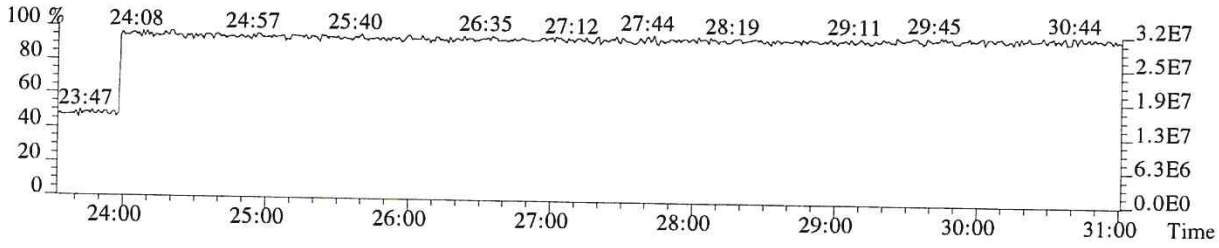
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5684.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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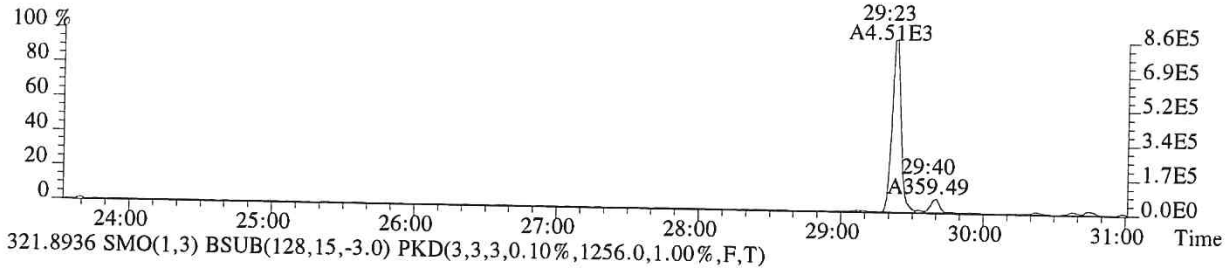
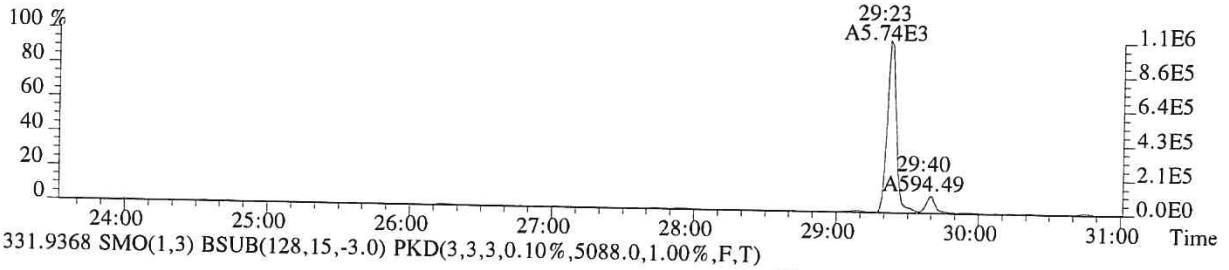
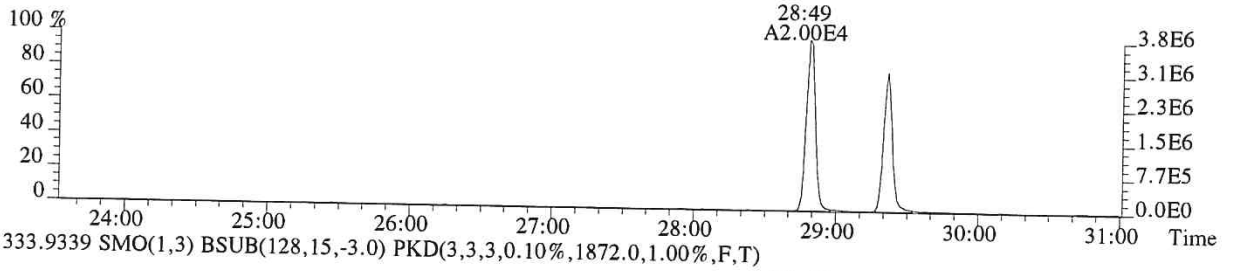
File:P518972 #1-531 Acq:21-NOV-2018 16:47:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-0012DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1920.0,1.00%,F,T)



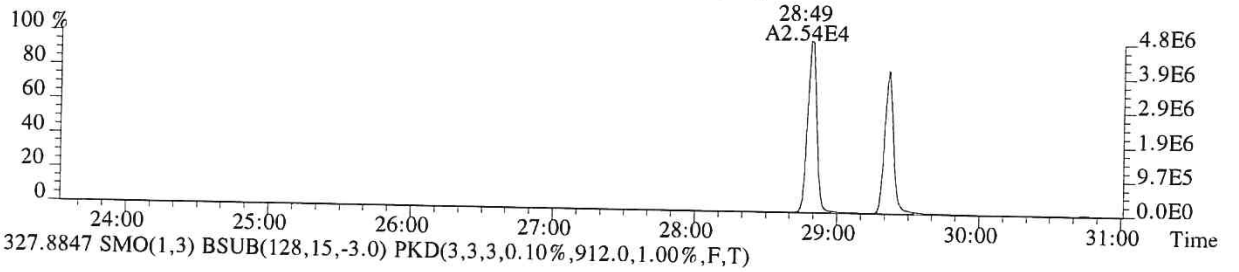
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



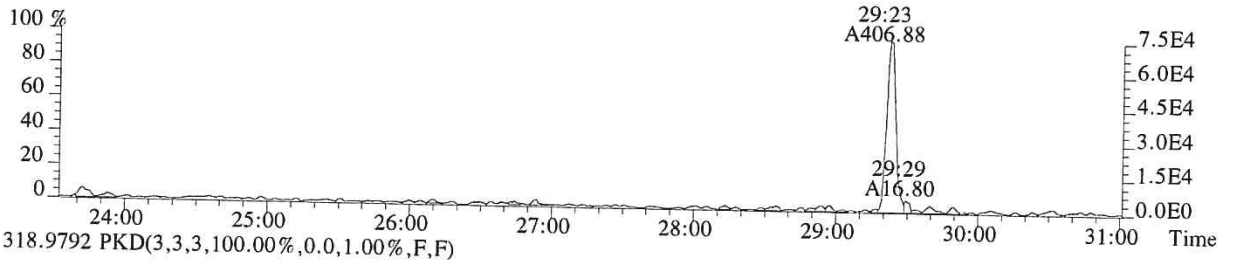
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5088.0,1.00%,F,T)



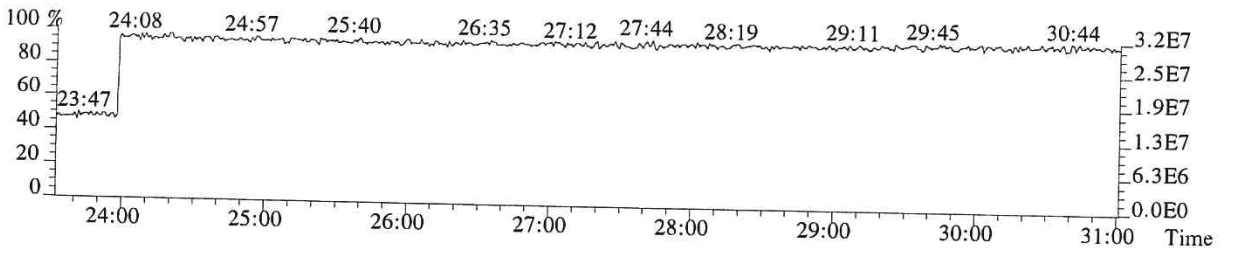
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)

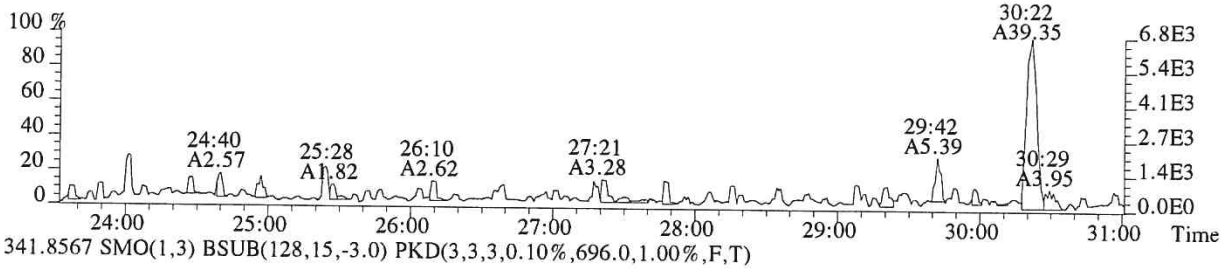


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

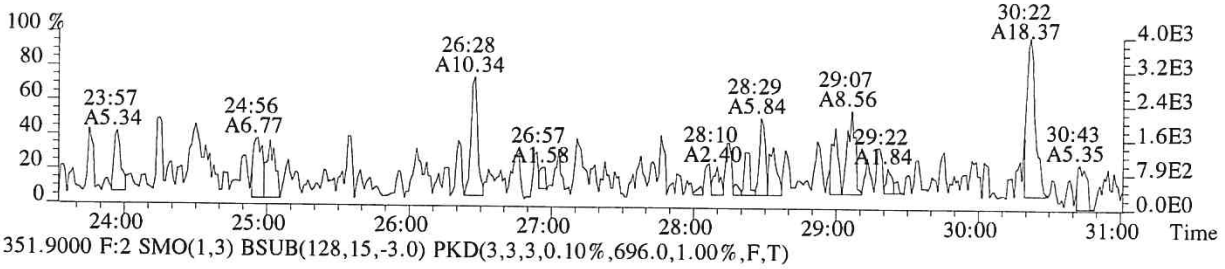


008749

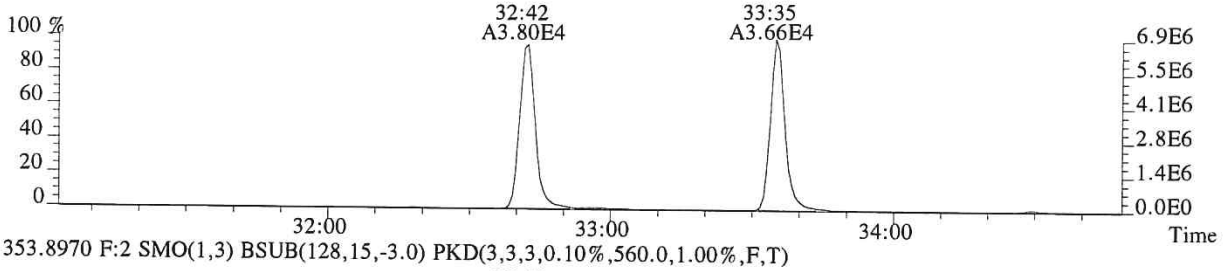
File:P518972 #1-531 Acq:21-NOV-2018 16:47:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-0012DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



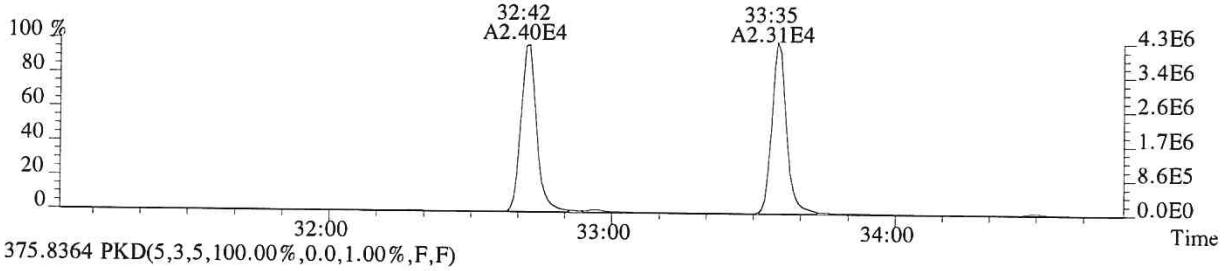
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



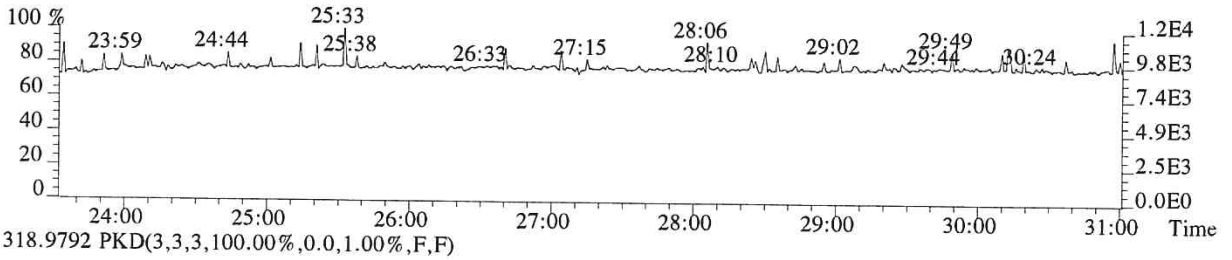
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



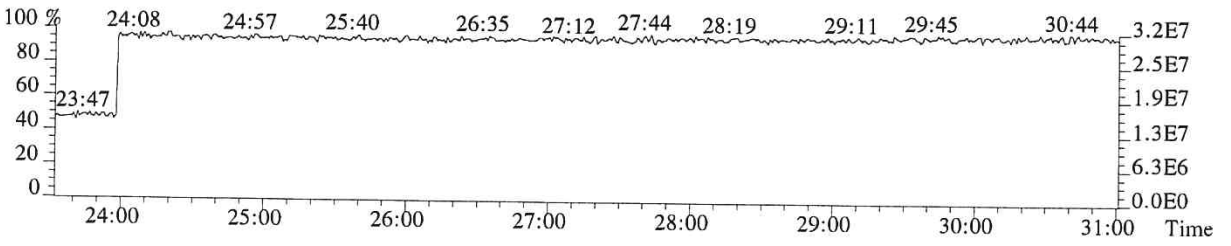
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



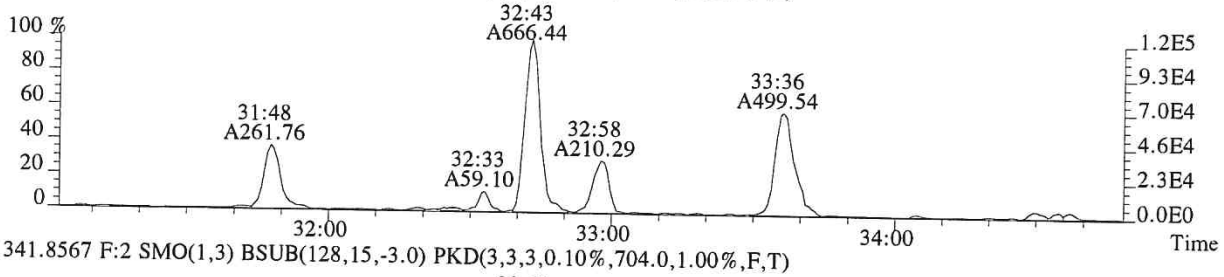
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



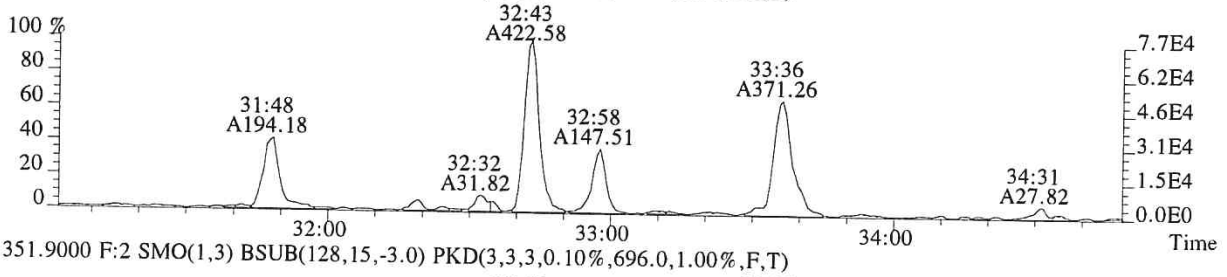
008750

File:P518972 #1-339 Acq:21-NOV-2018 16:47:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-0012DL

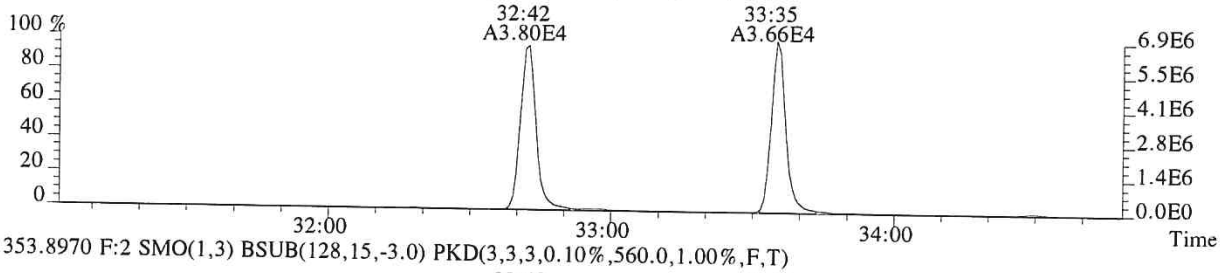
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



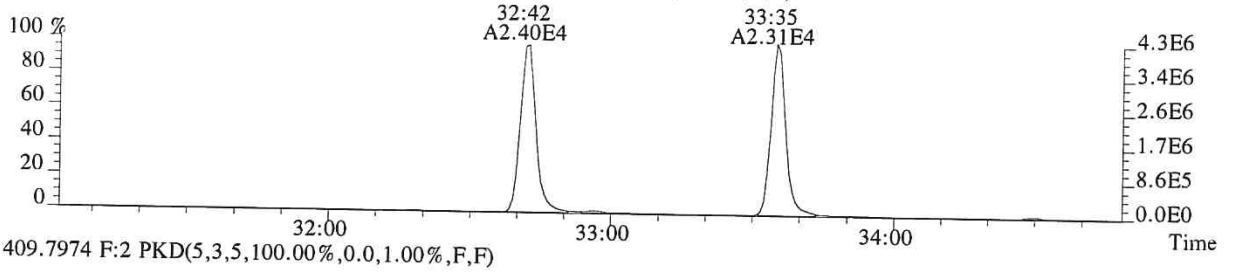
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



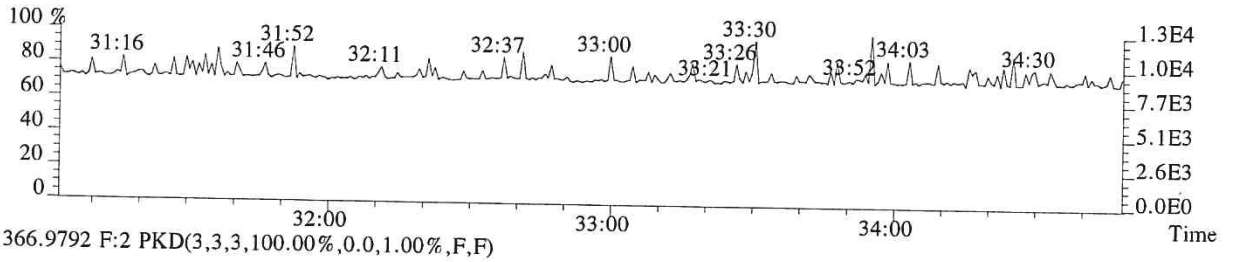
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



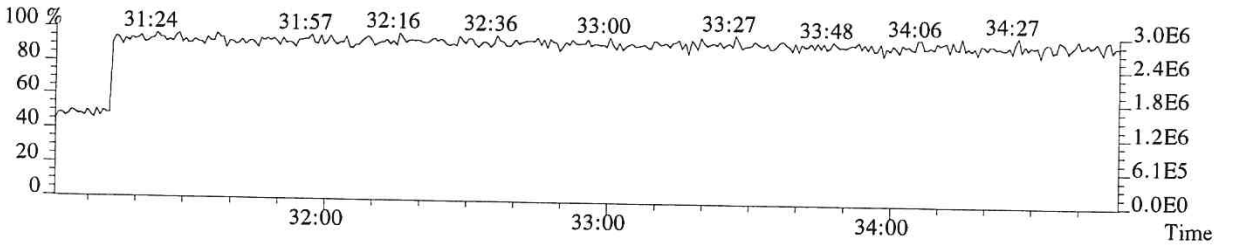
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



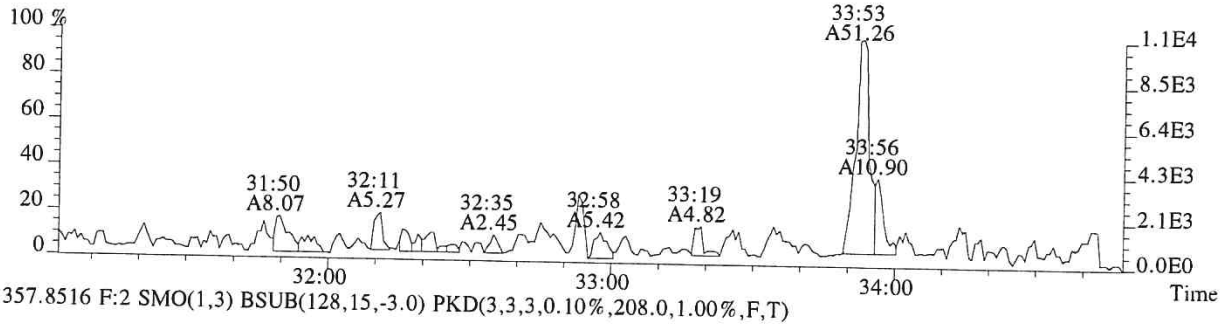
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



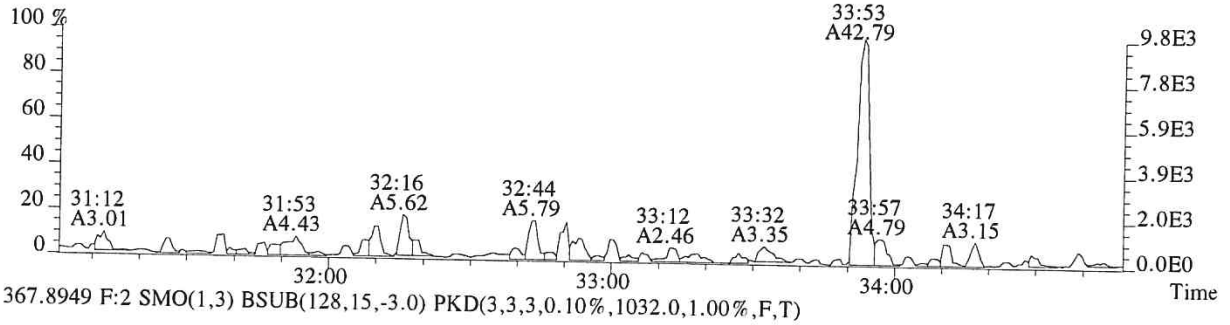
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



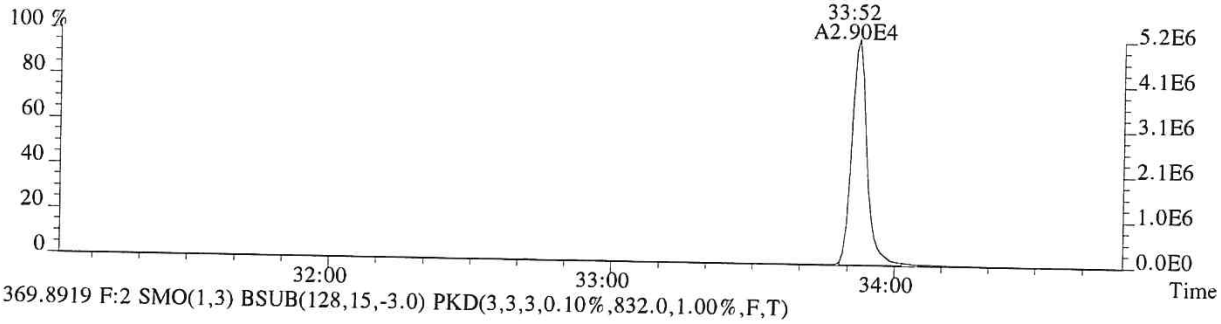
File:P518972 #1-339 Acq:21-NOV-2018 16:47:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-0012DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



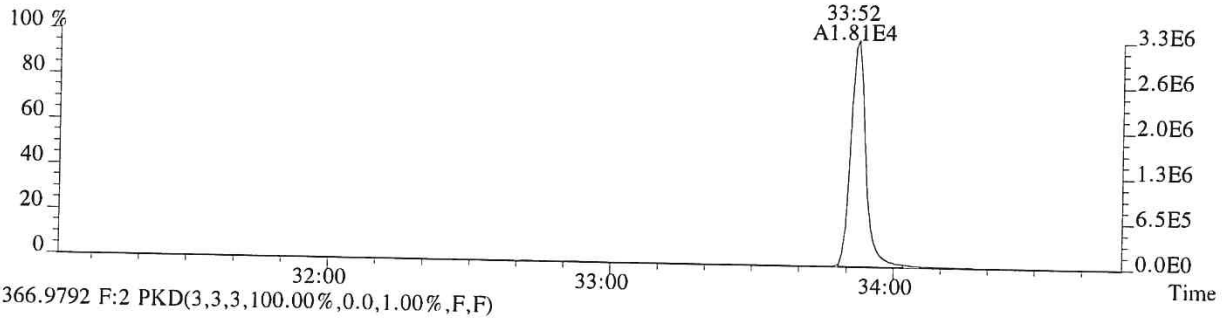
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



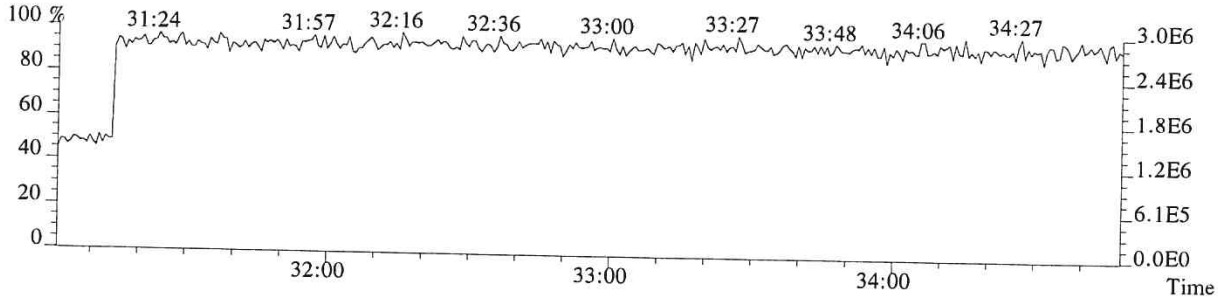
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)

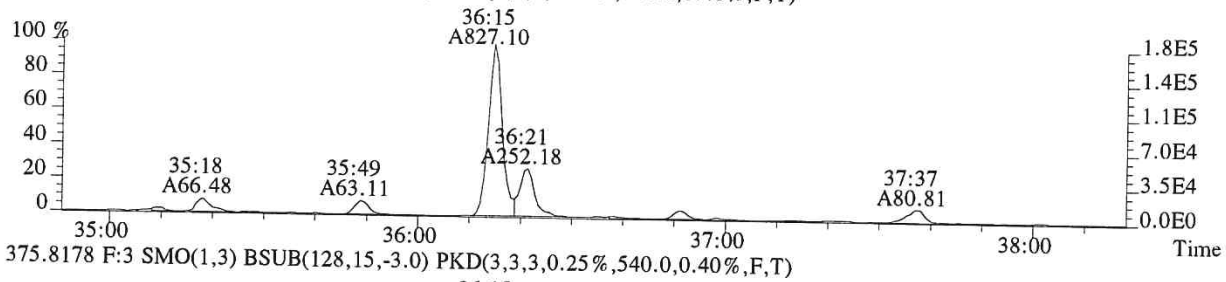


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

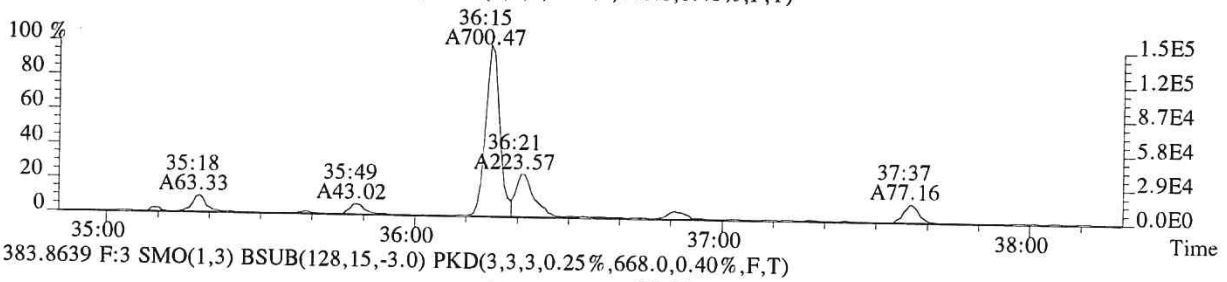


File:P518972 #1-312 Acq:21-NOV-2018 16:47:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-0012DL

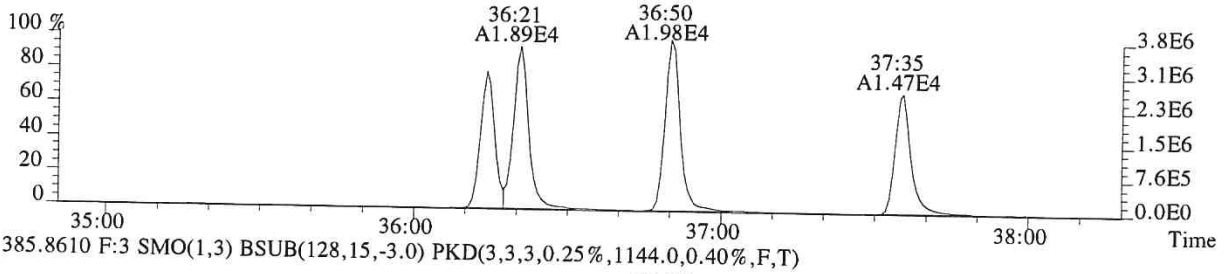
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



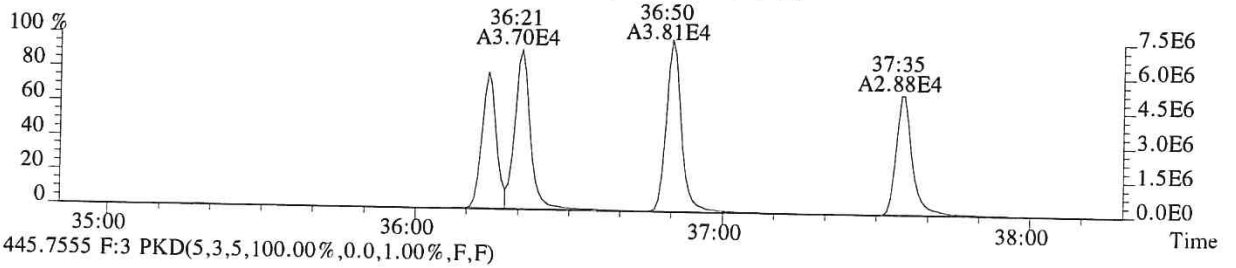
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



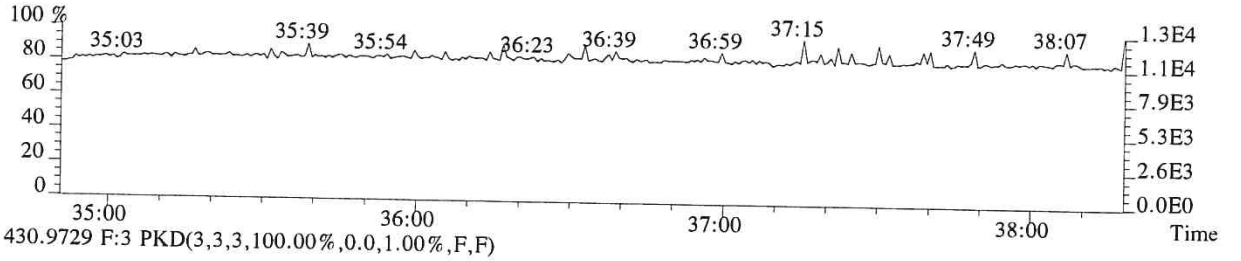
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



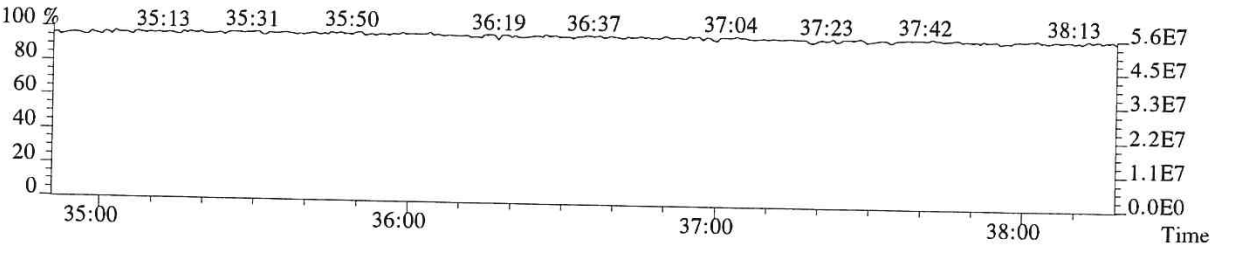
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

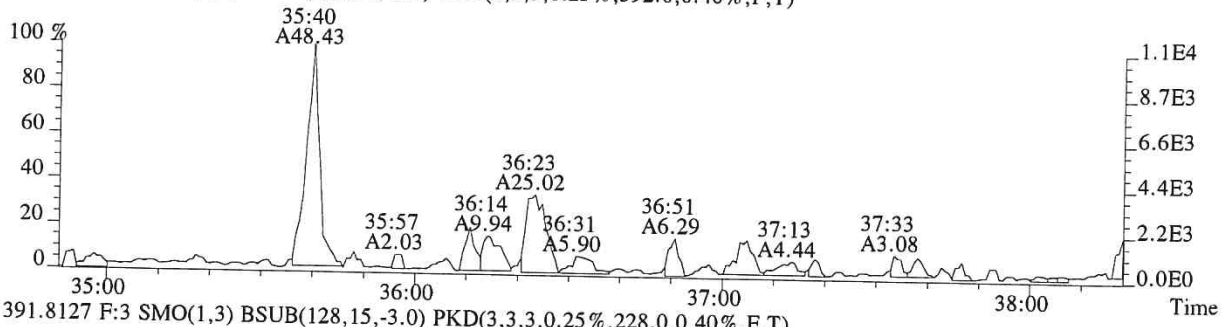


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

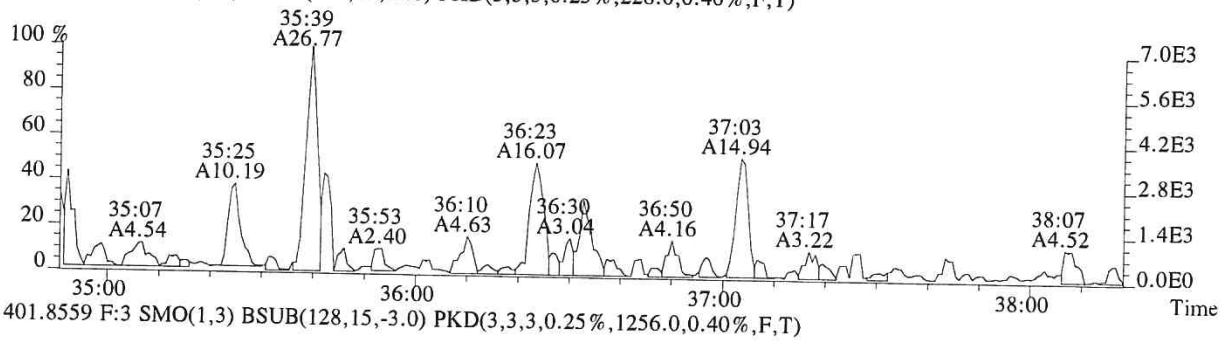


008753

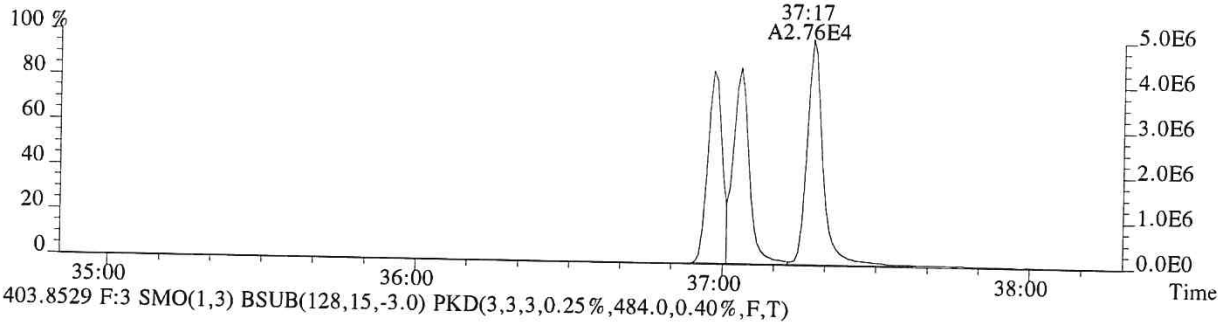
File:P518972 #1-312 Acq:21-NOV-2018 16:47:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-0012DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



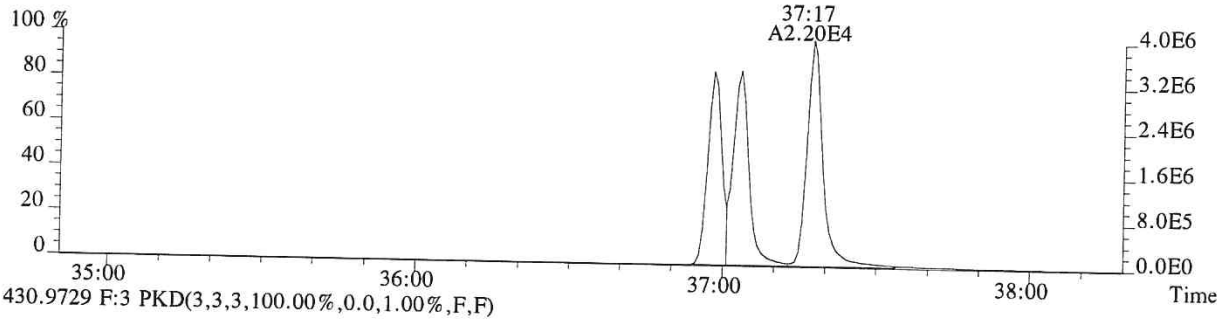
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



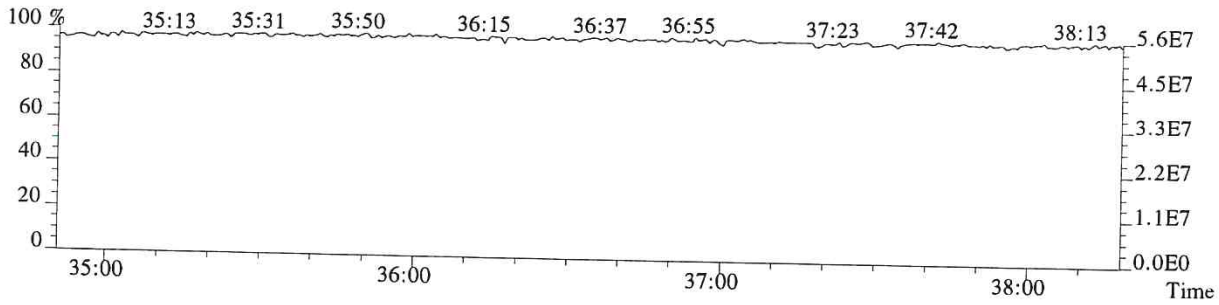
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)

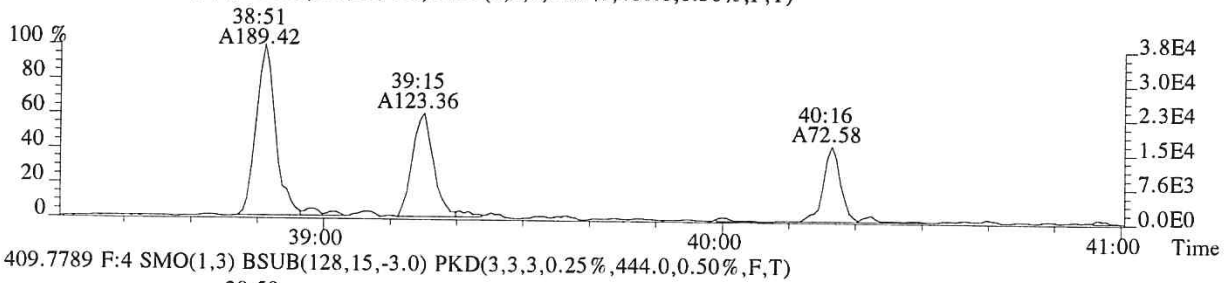


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

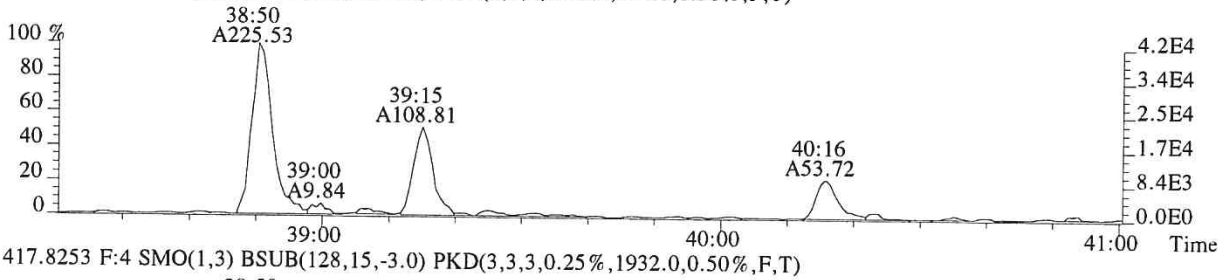


File:P518972 #1-241 Acq:21-NOV-2018 16:47:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-0012DL

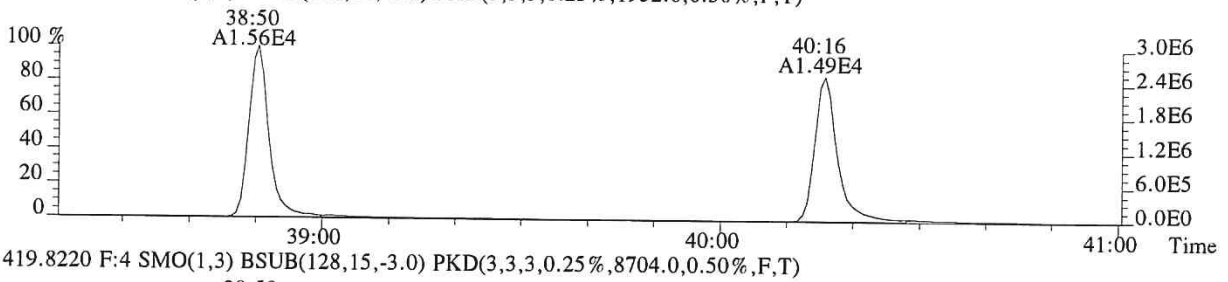
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.50%,F,T)



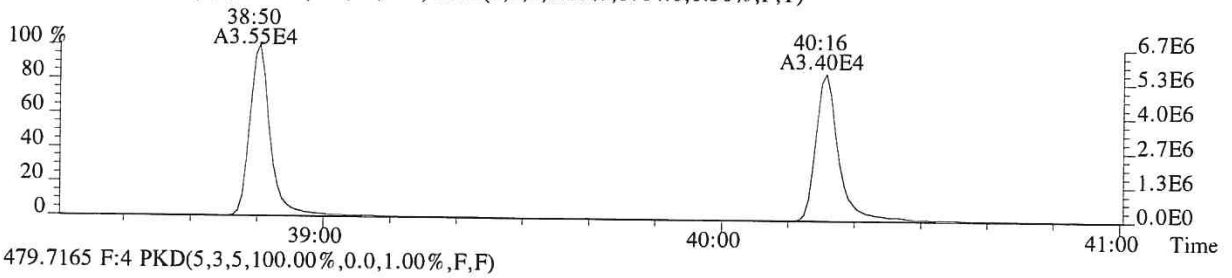
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.50%,F,T)



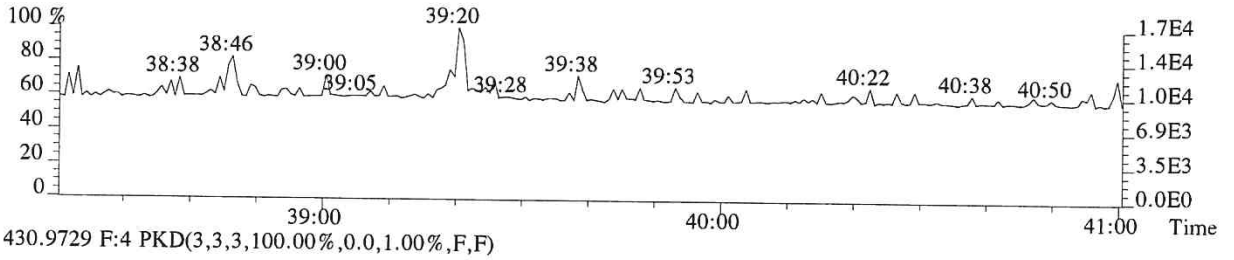
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1932.0,0.50%,F,T)



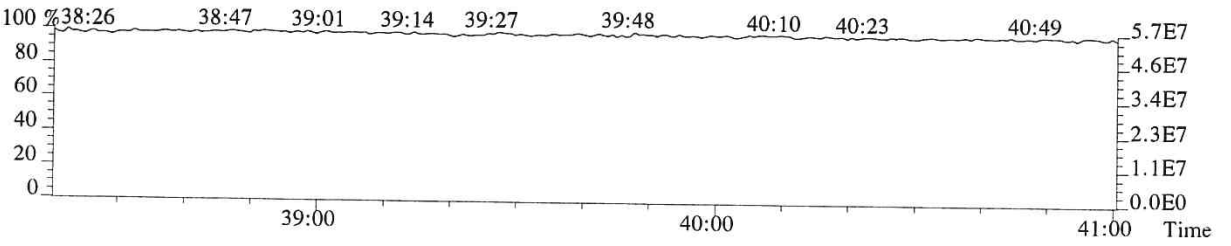
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8704.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

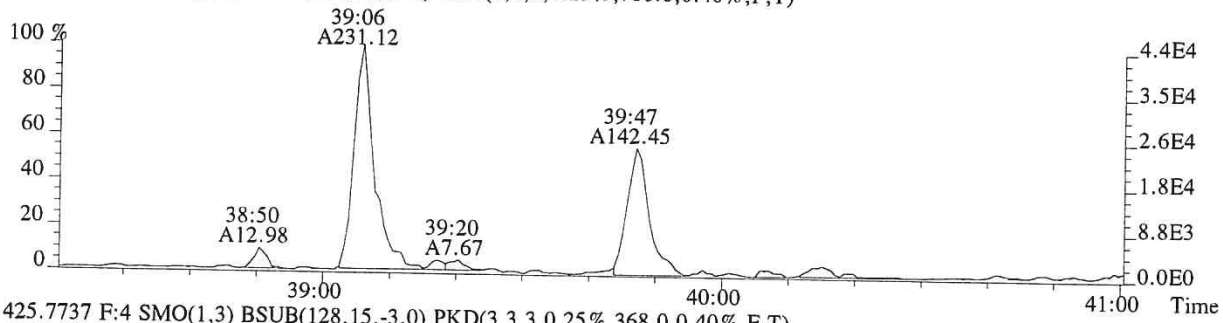


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

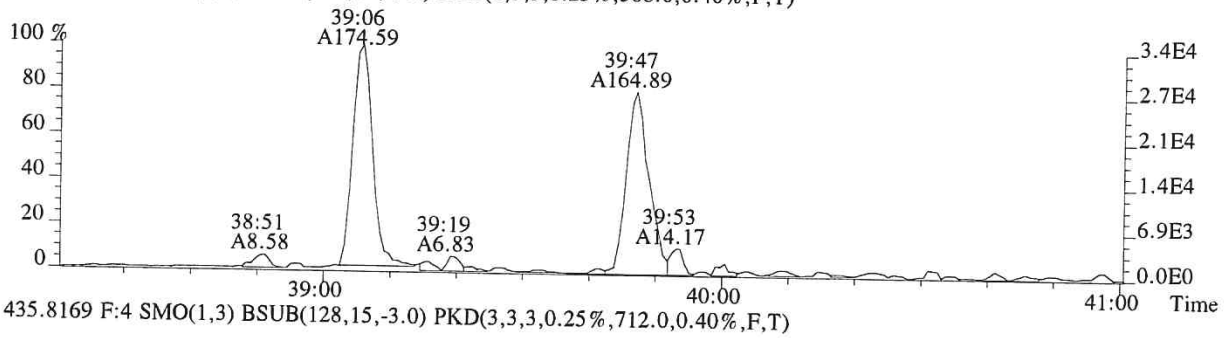


008755

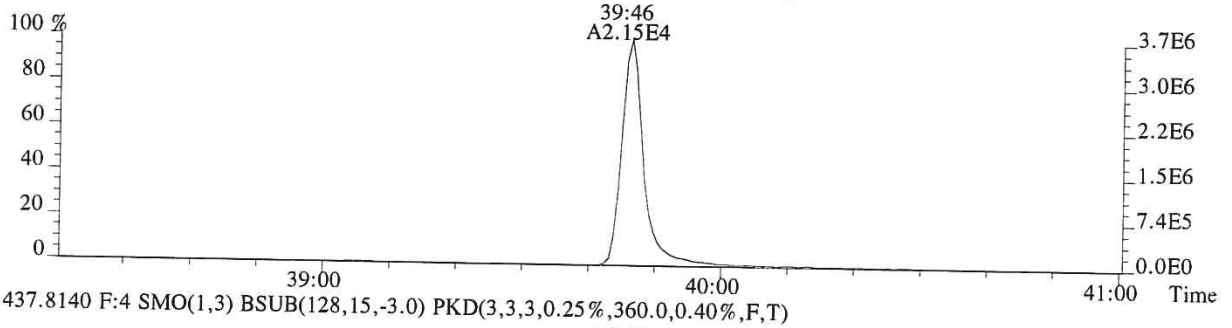
File:P518972 #1-241 Acq:21-NOV-2018 16:47:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-0012DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



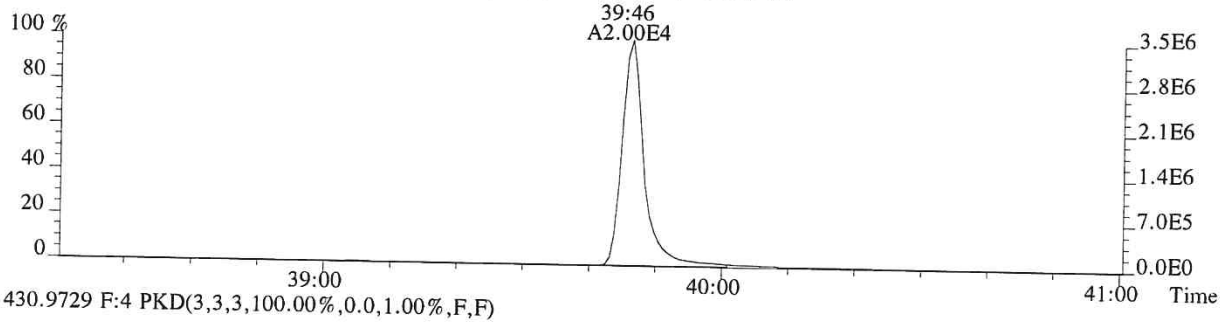
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



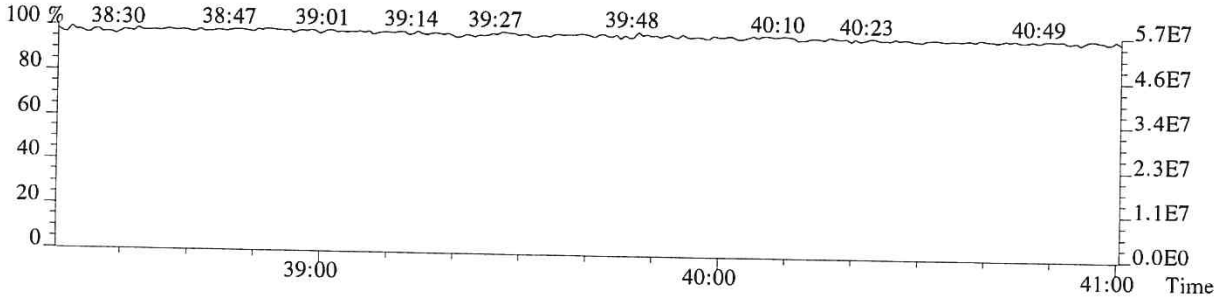
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)

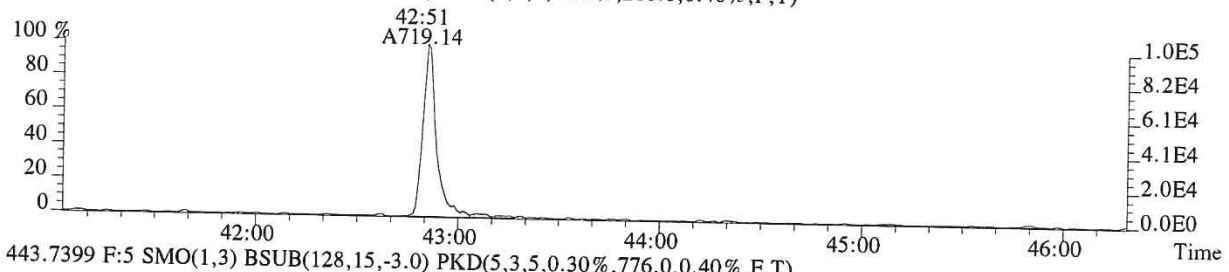


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

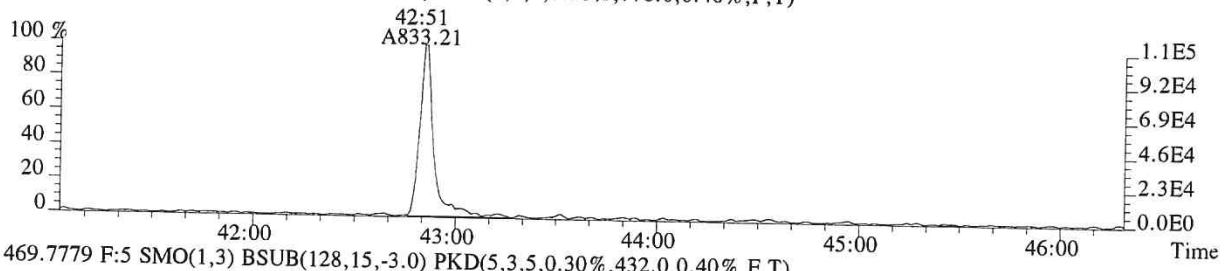


File:P518972 #1-475 Acq:21-NOV-2018 16:47:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-0012DL

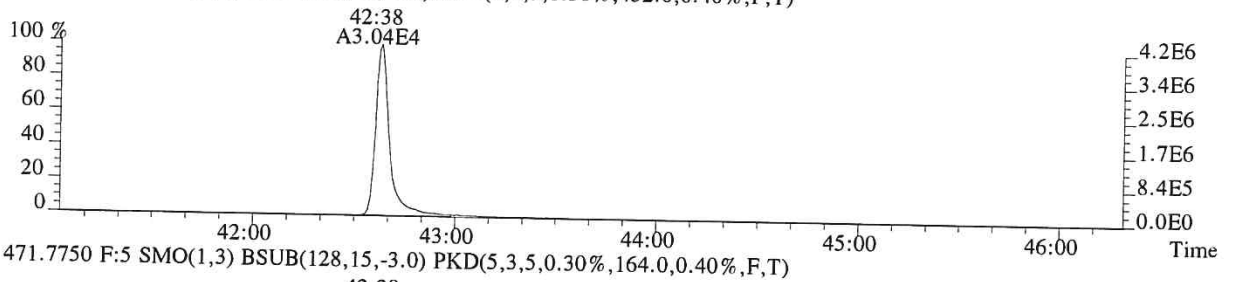
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



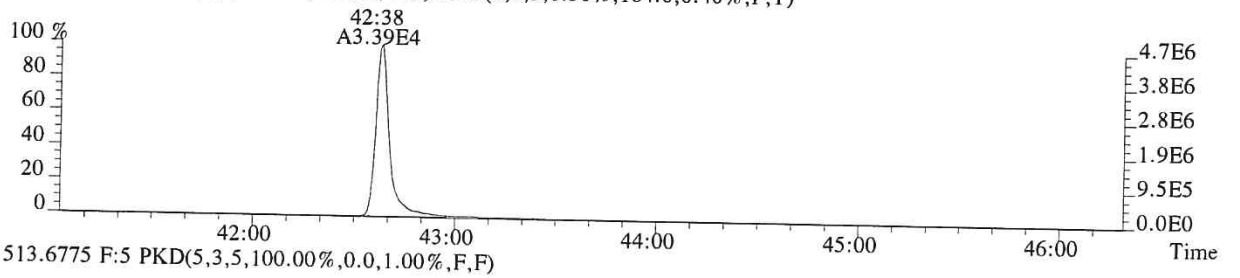
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



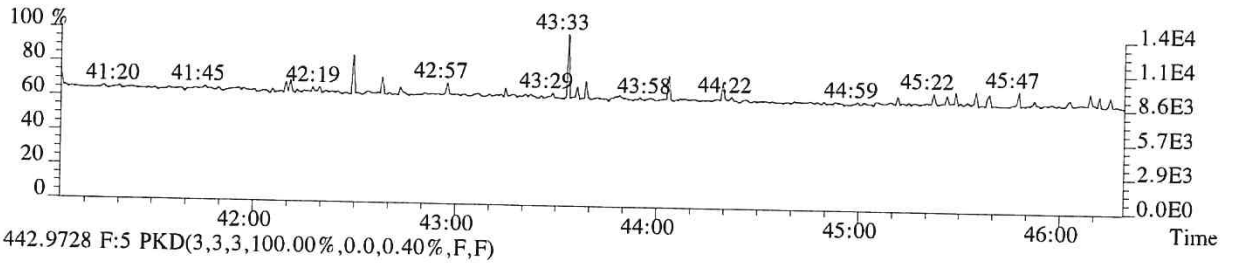
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



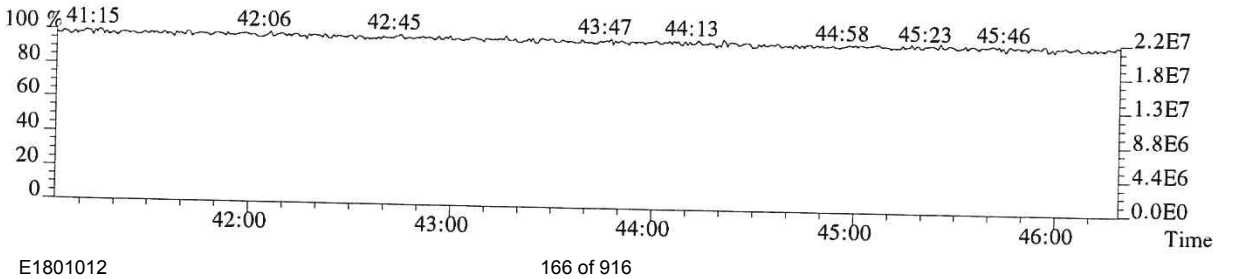
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

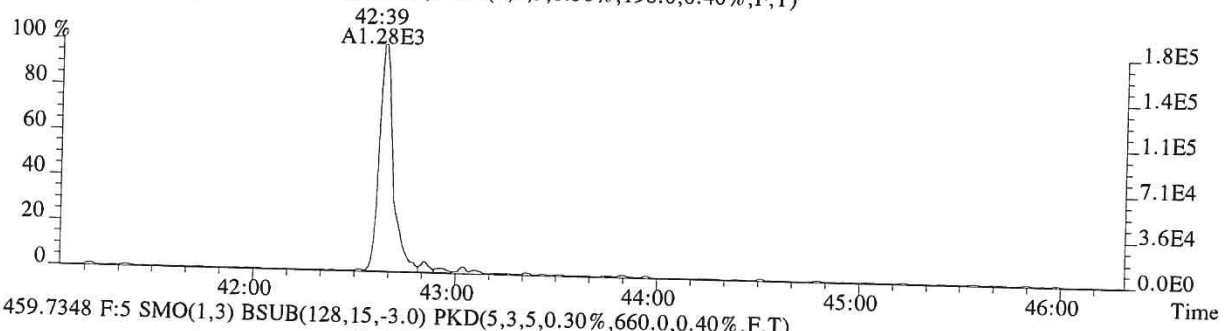


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

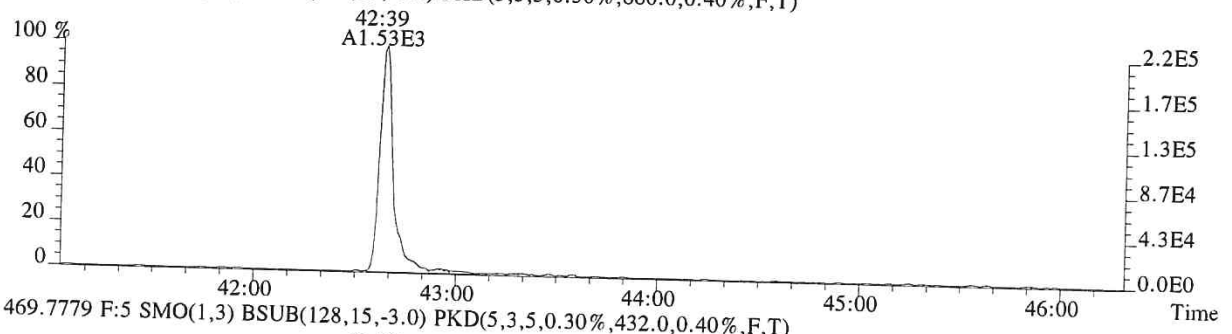


File:P518972 #1-475 Acq:21-NOV-2018 16:47:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-0012DL

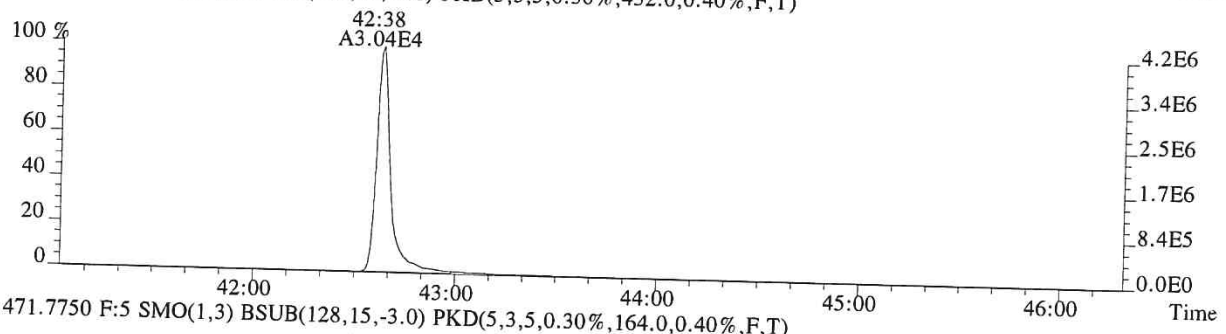
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



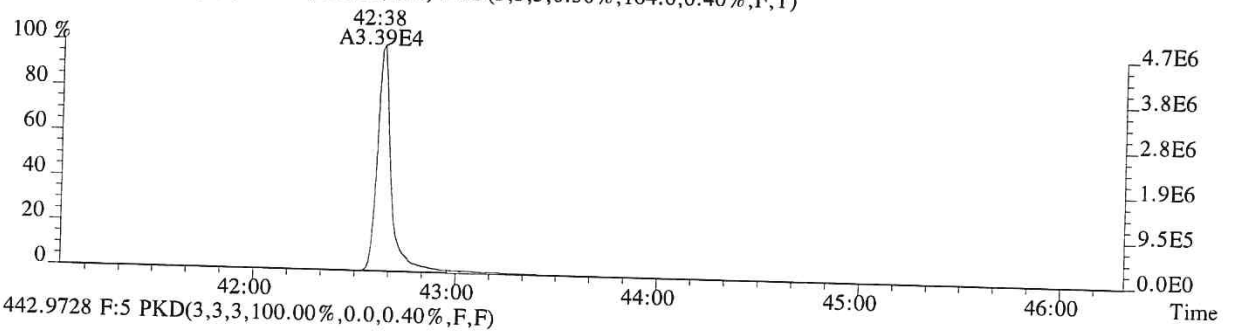
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



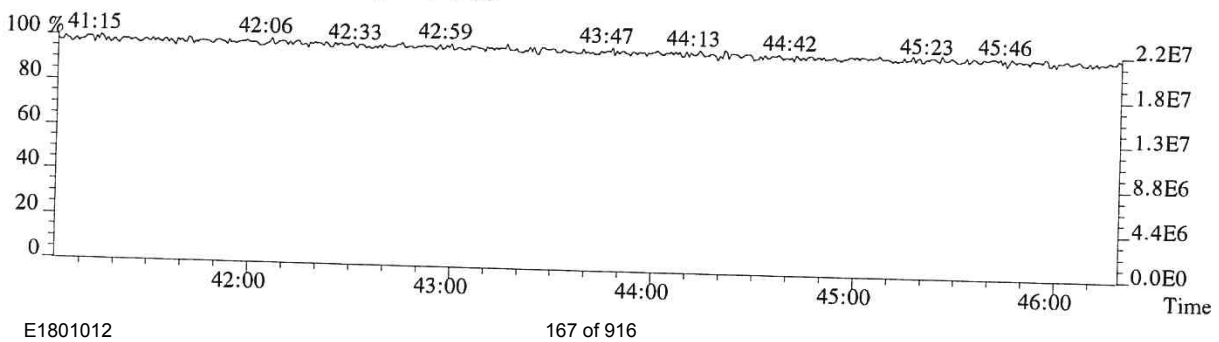
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0071

Run #15 Filename P518832 Samp: 1 Inj: 1 Acquired: 15-NOV-18 19:13:37
Processed: 16-NOV-18 14:10:46 Sample ID: E1801012-018

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:35	5.903e+05	7.604e+05	0.78	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:36	2.893e+04	1.903e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:38	2.209e+04	1.448e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:30	3.962e+04	3.224e+04	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	1.042e+04	8.982e+03	1.16	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.800e+03	1.414e+03	1.27	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:57	2.989e+03	2.418e+03	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	9.775e+03	9.660e+03	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	3.164e+03	2.907e+03	1.09	yes	no	1.258
10	Unk	OCDF	40:51	3.792e+04	4.410e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:36	1.731e+05	2.186e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	2.624e+03	1.584e+03	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	6.404e+01	6.313e+01	1.01	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	3.390e+02	2.958e+02	1.15	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	1.411e+02	1.438e+02	0.98	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	7.776e+03	7.396e+03	1.05	yes	no	1.025
17	Unk	OCDD	40:42	6.805e+04	7.599e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:34	1.565e+04	1.979e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:36	2.743e+04	1.745e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	2.549e+04	1.594e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.112e+04	2.144e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:36	1.295e+04	2.497e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:09	1.223e+04	2.365e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.207e+04	2.365e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	7.575e+03	1.690e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.420e+03	1.900e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:34	1.126e+04	1.430e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:55	1.946e+04	1.228e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.613e+04	1.253e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.643e+04	1.308e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.549e+04	1.438e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	40:41	1.368e+04	1.525e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:52	2.030e+04	2.538e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.407e+04	2.630e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:36	1.499e+04				no	1.014

$$\text{OCDD} = \frac{(6.805e{+}04 + 7.599e{+}04) \times 4000\ \text{pg} \times 1}{(1.368e{+}04 + 1.525e{+}04) \times 10.315\ \text{g} \times 74.4/100 \times 1.118} = 2321\ \text{ng/kg}$$

LM 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0071

Run #15 Filename P518832 Samp: 1 Inj: 1 Acquired: 15-NOV-18 19:13:37
Processed: 16-NOV-18 14:10:46 LAB. ID: E1801012-018

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.31e+07	1.04e+03	8.0e+04	1.07e+08	2.63e+03	4.1e+04
2	1,2,3,7,8-PeCDF	5.00e+06	8.75e+03	5.7e+02	3.28e+06	5.14e+03	6.4e+02
3	2,3,4,7,8-PeCDF	3.44e+06	8.75e+03	3.9e+02	2.25e+06	5.14e+03	4.4e+02
4	1,2,3,4,7,8-HxCDF	8.35e+06	2.49e+03	3.3e+03	6.69e+06	3.17e+03	2.1e+03
5	1,2,3,6,7,8-HxCDF	1.92e+06	2.49e+03	7.7e+02	1.66e+06	3.17e+03	5.2e+02
6	2,3,4,6,7,8-HxCDF	3.73e+05	2.49e+03	1.5e+02	3.02e+05	3.17e+03	9.5e+01
7	1,2,3,7,8,9-HxCDF	5.47e+05	2.49e+03	2.2e+02	4.35e+05	3.17e+03	1.4e+02
8	1,2,3,4,6,7,8-HpCDF	2.00e+06	4.67e+03	4.3e+02	1.91e+06	4.22e+03	4.5e+02
9	1,2,3,4,7,8,9-HpCDF	5.82e+05	4.67e+03	1.2e+02	5.65e+05	4.22e+03	1.3e+02
10	OCDF	6.30e+06	6.72e+02	9.4e+03	7.34e+06	1.18e+03	6.2e+03
11	2,3,7,8-TCDD	2.82e+07	3.05e+03	9.2e+03	3.56e+07	9.80e+02	3.6e+04
12	1,2,3,7,8-PeCDD	4.22e+05	9.56e+02	4.4e+02	2.64e+05	1.46e+03	1.8e+02
13	1,2,3,4,7,8-HxCDD	1.40e+04	1.35e+03	1.0e+01	1.22e+04	1.26e+03	9.7e+00
14	1,2,3,6,7,8-HxCDD	7.13e+04	1.35e+03	5.3e+01	5.84e+04	1.26e+03	4.6e+01
15	1,2,3,7,8,9-HxCDD	2.93e+04	1.35e+03	2.2e+01	2.94e+04	1.26e+03	2.3e+01
16	1,2,3,4,6,7,8-HpCDD	1.51e+06	4.62e+03	3.3e+02	1.44e+06	2.39e+03	6.0e+02
17	OCDD	1.11e+07	9.72e+02	1.1e+04	1.24e+07	8.32e+02	1.5e+04
18	13C-2,3,7,8-TCDF	2.32e+06	8.32e+03	2.8e+02	2.88e+06	7.23e+03	4.0e+02
19	13C-1,2,3,7,8-PeCDF	4.79e+06	6.25e+03	7.7e+02	2.98e+06	5.42e+03	5.5e+02
20	13C-2,3,4,7,8-PeCDF	4.68e+06	6.25e+03	7.5e+02	2.89e+06	5.42e+03	5.3e+02
21	13C-1,2,3,4,7,8-HxCDF	2.33e+06	1.86e+03	1.2e+03	4.51e+06	2.59e+03	1.7e+03
22	13C-1,2,3,6,7,8-HxCDF	2.50e+06	1.86e+03	1.3e+03	4.85e+06	2.59e+03	1.9e+03
23	13C-2,3,4,6,7,8-HxCDF	2.45e+06	1.86e+03	1.3e+03	4.69e+06	2.59e+03	1.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.21e+06	1.86e+03	1.2e+03	4.36e+06	2.59e+03	1.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.52e+06	2.72e+03	5.6e+02	3.42e+06	3.56e+03	9.6e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.58e+06	2.72e+03	5.8e+02	3.53e+06	3.56e+03	9.9e+02
27	13C-2,3,7,8-TCDD	1.86e+06	6.32e+03	2.9e+02	2.35e+06	2.82e+03	8.3e+02
28	13C-1,2,3,7,8-PeCDD	3.46e+06	1.26e+03	2.8e+03	2.22e+06	1.64e+03	1.4e+03
29	13C-1,2,3,4,7,8-HxCDD	3.51e+06	1.07e+03	3.3e+03	2.74e+06	1.29e+03	2.1e+03
30	13C-1,2,3,6,7,8-HxCDD	3.12e+06	1.07e+03	2.9e+03	2.50e+06	1.29e+03	1.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.96e+06	6.88e+02	4.3e+03	2.78e+06	6.36e+02	4.4e+03
32	13C-OCDD	2.24e+06	9.84e+02	2.3e+03	2.48e+06	9.44e+02	2.6e+03
33	13C-1,2,3,4-TCDD	3.13e+06	6.32e+03	5.0e+02	3.81e+06	2.82e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	6.56e+06	1.07e+03	6.1e+03	5.14e+06	1.29e+03	4.0e+03
35	37Cl-2,3,7,8-TCDD	2.44e+06	1.45e+03	1.7e+03			

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Peak List Summary

CLIENT ID.
SL0071

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P518832 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 19:13:37 Processed: 16-NOV-18 14:10:46

Mass: 303.9020 305.8990 Tot Response: 2.47e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:28	3.91e+03	5.26e+03	0.74	yes	9.16e+03		n	n
2	22:44	2.00e+04	2.61e+04	0.77	yes	4.61e+04		n	n
3	23:06	5.85e+03	7.91e+03	0.74	yes	1.38e+04		n	n
4	23:13	7.63e+02	9.30e+02	0.82	yes	1.69e+03		n	n
5	23:22	1.71e+04	2.24e+04	0.76	yes	3.94e+04		n	n
6	23:45	5.14e+03	6.78e+03	0.76	yes	1.19e+04		n	n
7	24:06	2.86e+04	3.59e+04	0.80	yes	6.45e+04		n	n
8	24:35	2.64e+05	3.43e+05	0.77	yes	6.07e+05		n	n
9	24:53	1.11e+04	1.43e+04	0.77	yes	2.54e+04		n	n
10	25:23	4.94e+03	6.55e+03	0.75	yes	1.15e+04		y	y
11	25:29	2.78e+04	3.67e+04	0.76	yes	6.45e+04		y	y
12	25:35	5.90e+05	7.60e+05	0.78	yes	1.35e+06	2,3,7,8-TCDF	y	y
13	26:02	4.22e+04	5.51e+04	0.77	yes	9.74e+04		n	n
14	26:19	5.31e+03	7.06e+03	0.75	yes	1.24e+04		n	n
15	27:51	5.14e+04	6.52e+04	0.79	yes	1.17e+05		n	n

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Peak List Summary

CLIENT ID.
SL0071

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P518832 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 19:13:37 Processed: 16-NOV-18 14:10:46

Mass: 319.8970 321.8940 Tot Response: 4.32e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:17	2.19e+03	2.78e+03	0.79	yes	4.98e+03		n	n
2	26:36	1.73e+05	2.19e+05	0.79	yes	3.92e+05	2,3,7,8-TCDD	n	n
3	26:58	1.54e+04	1.99e+04	0.77	yes	3.52e+04		n	n

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Peak List Summary

CLIENT ID.
SL0071

Entry: 38 Totals Name: Total Penta-Furans1

Run: 15 File: P518832 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 19:13:37 Processed: 16-NOV-18 14:10:46

Mass: 339.8600 341.8570 Tot Response: 1.62e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:51	1.03e+03	5.94e+02	1.73	yes	1.62e+03	n	n

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Peak List Summary

CLIENT ID.
SL0071

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P518832 Sample:1 Injection:1 Function:2

Acquired: 15-NOV-18 19:13:37 Processed: 16-NOV-18 14:10:46

Mass: 339.8600 341.8570 Tot Response: 1.27e+05 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:25	2.87e+02	2.06e+02	1.39	yes	4.93e+02		n	n
2	29:34	1.21e+04	7.81e+03	1.55	yes	1.99e+04		n	n
3	30:12	5.84e+02	3.55e+02	1.65	yes	9.39e+02		n	n
4	30:16	4.81e+02	3.52e+02	1.37	yes	8.33e+02		n	n
5	30:25	2.64e+03	1.75e+03	1.51	yes	4.38e+03		n	n
6	30:36	2.89e+04	1.90e+04	1.52	yes	4.80e+04	1,2,3,7,8-PeCDF	n	n
7	30:53	8.05e+03	5.39e+03	1.49	yes	1.34e+04		n	n
8	31:38	2.21e+04	1.45e+04	1.53	yes	3.66e+04	2,3,4,7,8-PeCDF	n	n
9	32:36	1.21e+03	8.40e+02	1.44	yes	2.05e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0071

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P518832 Sample:1 Injection:1 Function:2

Acquired: 15-NOV-18 19:13:37 Processed: 16-NOV-18 14:10:46

Mass: 355.8550 357.8520 Tot Response: 5.36e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:36	2.17e+02	1.49e+02 1.45	yes	3.67e+02		n	n
2	30:08	1.89e+02	1.22e+02 1.55	yes	3.10e+02		n	n
3	30:39	1.77e+02	9.99e+01 1.77	yes	2.77e+02		n	n
4	30:55	5.75e+01	3.89e+01 1.48	yes	9.64e+01		n	n
5	31:30	6.21e+01	4.15e+01 1.50	yes	1.04e+02		n	n
6	31:56	2.62e+03	1.58e+03 1.66	yes	4.21e+03	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
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Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P518832 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 19:13:37 Processed: 16-NOV-18 14:10:46

Mass: 373.8210 375.8180 Tot Response: 1.10e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:19	4.09e+02	3.51e+02	1.17	yes	7.60e+02		n	n
2	33:29	3.23e+03	2.61e+03	1.24	yes	5.84e+03		n	n
3	34:03	2.20e+03	1.68e+03	1.31	yes	3.88e+03		n	n
4	34:30	3.96e+04	3.22e+04	1.23	yes	7.19e+04	1,2,3,4,7,8-HxCDF	n	n
5	34:37	1.04e+04	8.98e+03	1.16	yes	1.94e+04	1,2,3,6,7,8-HxCDF	n	n
6	35:09	1.80e+03	1.41e+03	1.27	yes	3.21e+03	2,3,4,6,7,8-HxCDF	n	n
7	35:57	2.99e+03	2.42e+03	1.24	yes	5.41e+03	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0071

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P518832 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 19:13:37 Processed: 16-NOV-18 14:10:46

Mass: 389.8160 391.8130 Tot Response: 5.77e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	1.73e+03	1.24	yes	3.11e+03		n	n
2	34:41	1.05e+03	1.24	yes	1.90e+03		n	n
3	34:47	7.05e+01	1.42	yes	1.20e+02		n	n
4	35:23	3.39e+02	1.15	yes	6.35e+02	1,2,3,6,7,8-HxCDD	n	n

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Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P518832 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 19:13:37 Processed: 16-NOV-18 14:10:46

Mass: 407.7820 409.7790 Tot Response: 3.63e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:15	9.77e+03	9.66e+03 1.01	yes	1.94e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	37:31	2.08e+02	2.04e+02 1.02	yes	4.12e+02		n	n
3	37:38	5.22e+03	5.18e+03 1.01	yes	1.04e+04		n	n
4	38:35	3.16e+03	2.91e+03 1.09	yes	6.07e+03	1,2,3,4,7,8,9-HpCDF	n	n

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SL0071

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P518832 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 19:13:37 Processed: 16-NOV-18 14:10:46

Mass: 423.7770 425.7740 Tot Response: 3.49e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	1.02e+04	9.59e+03 1.06	yes	1.98e+04		n	n
2	38:10	7.78e+03	7.40e+03 1.05	yes	1.52e+04	1,2,3,4,6,7,8-HpCDD	n	n

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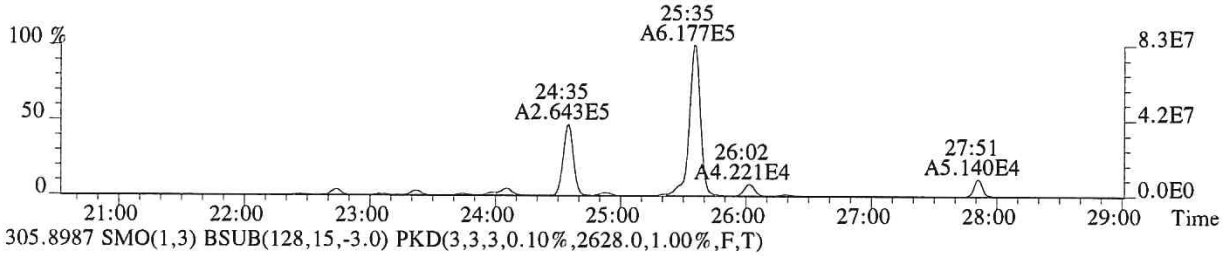
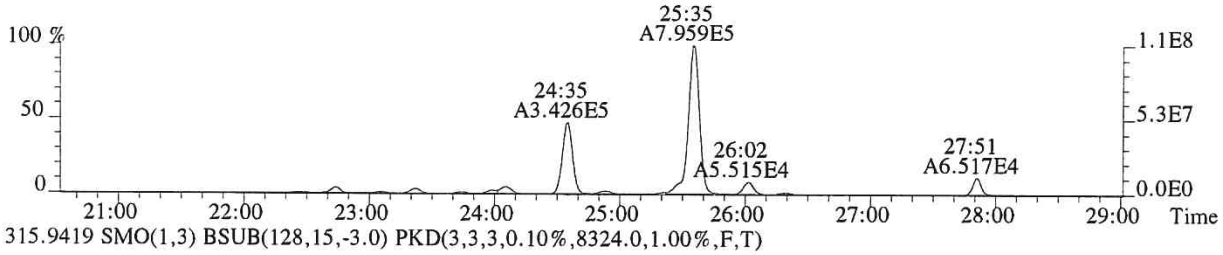
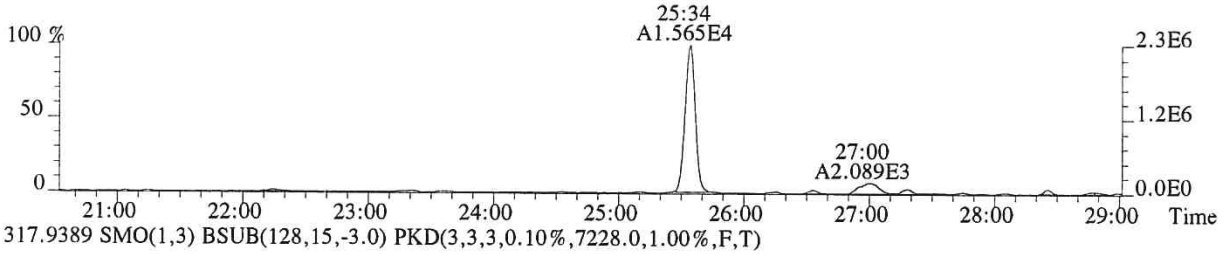
File:P518832 #1-602 Acq:15-NOV-2018 19:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



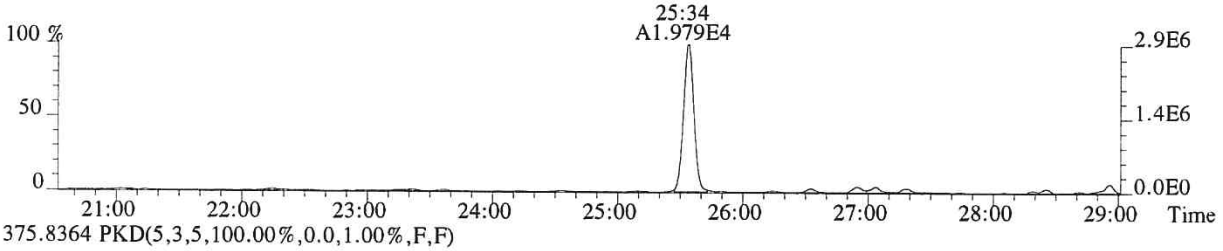
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2628.0,1.00%,F,T)



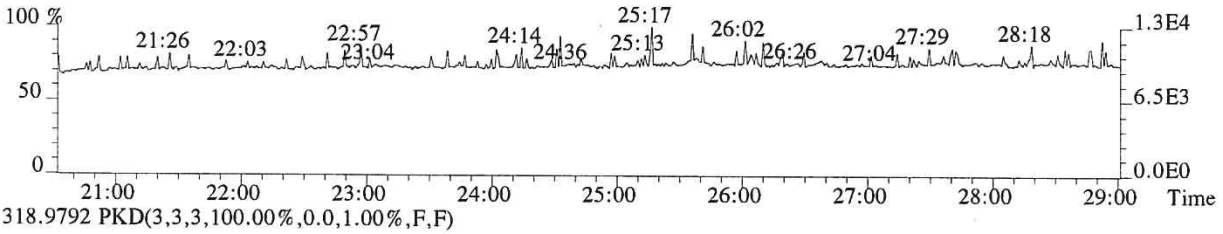
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8324.0,1.00%,F,T)



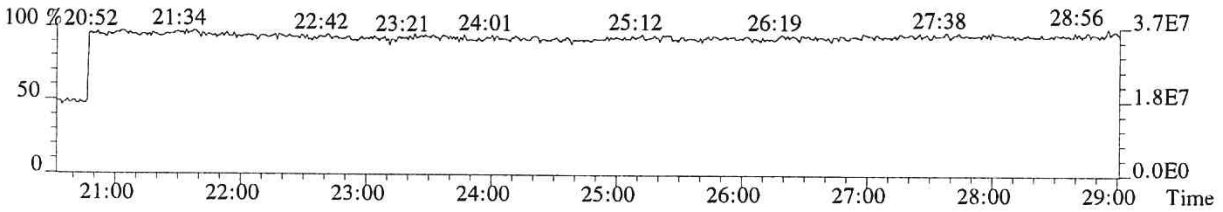
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7228.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

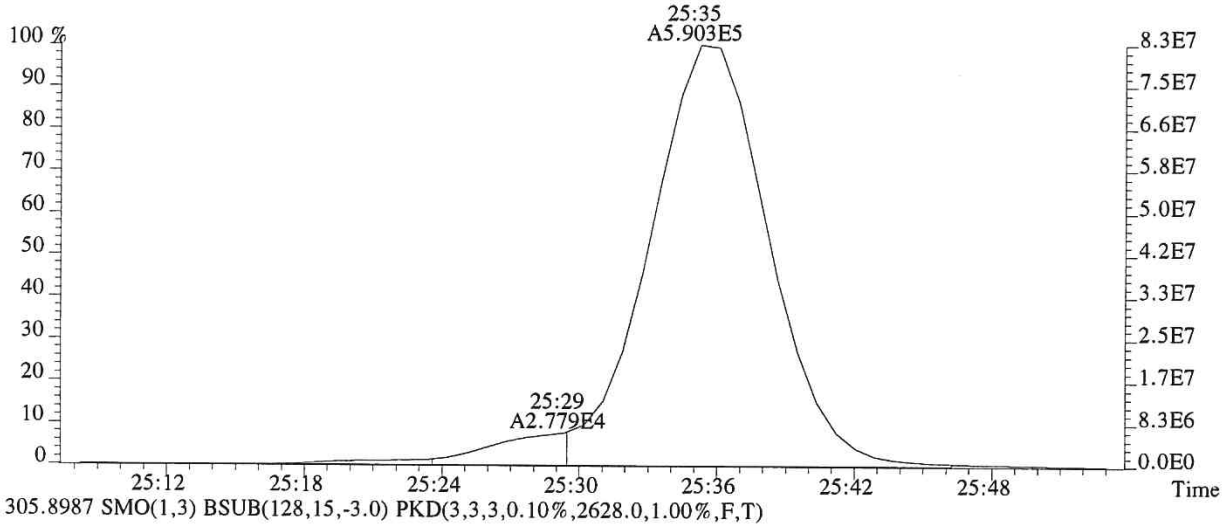


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

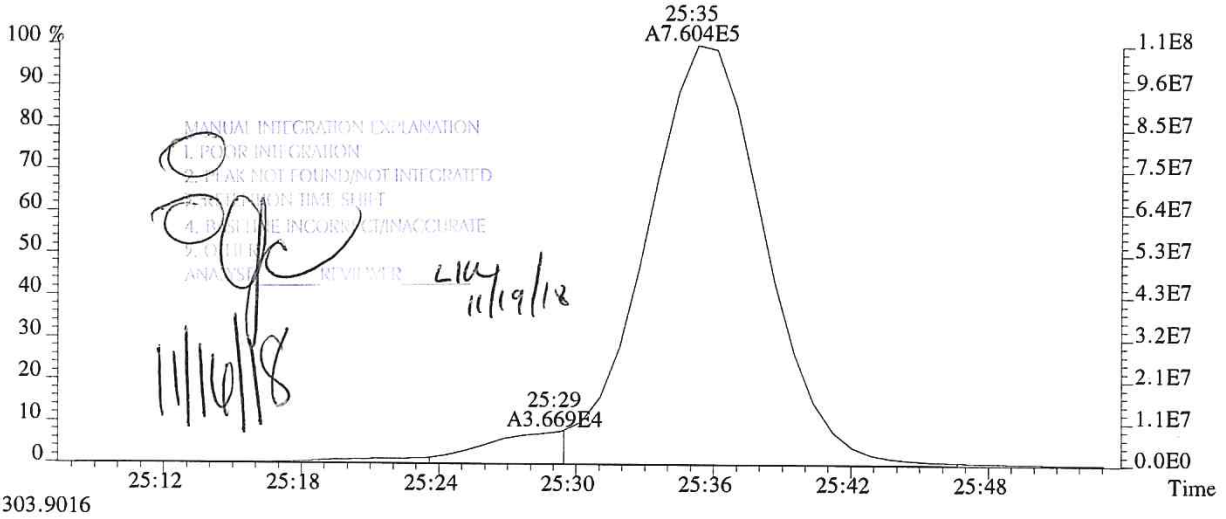


008770

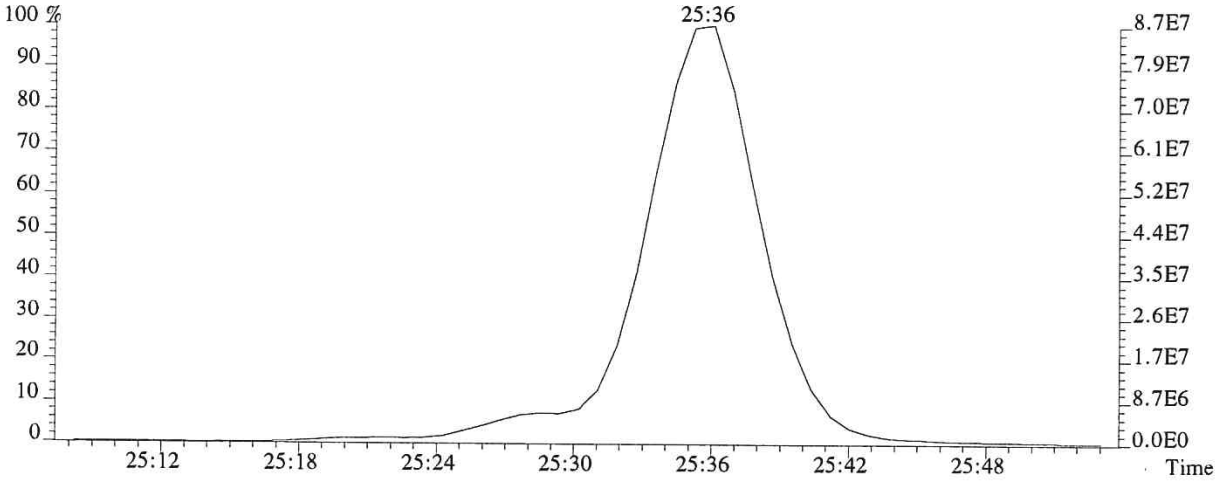
File:P518832 #1-602 Acq:15-NOV-2018 19:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



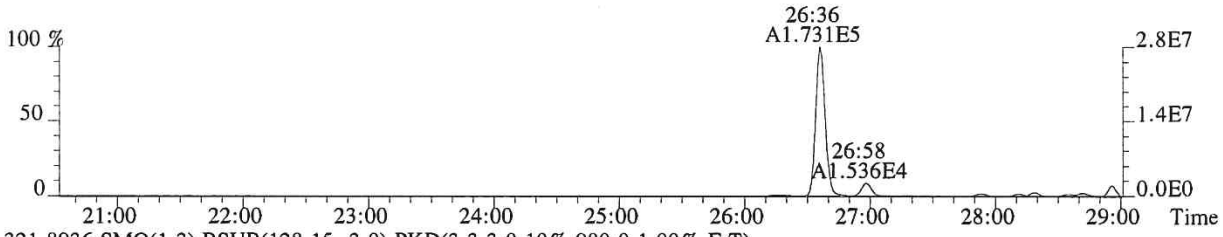
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2628.0,1.00%,F,T)



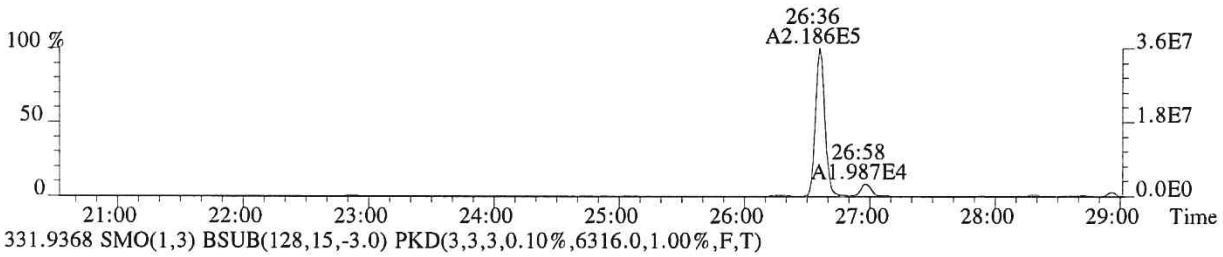
303.9016



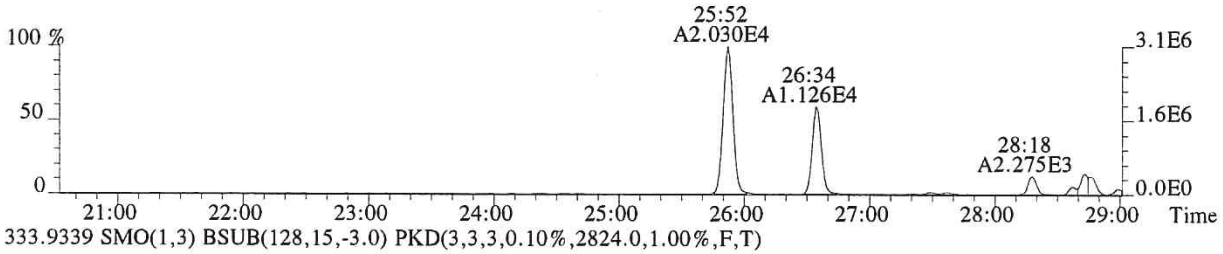
File:P518832 #1-602 Acq:15-NOV-2018 19:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3052.0,1.00%,F,T)



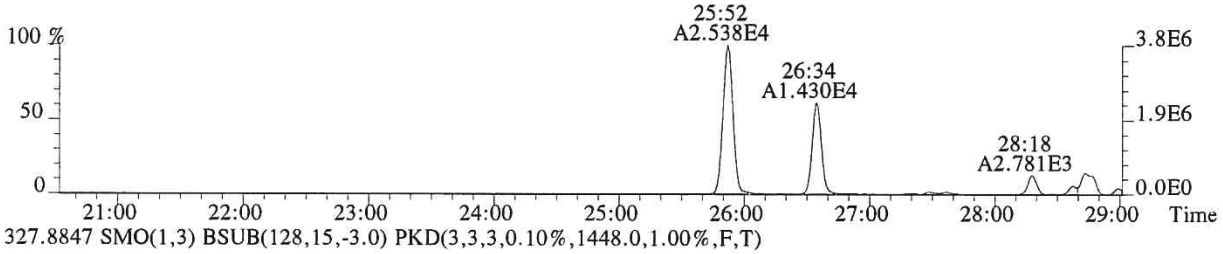
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



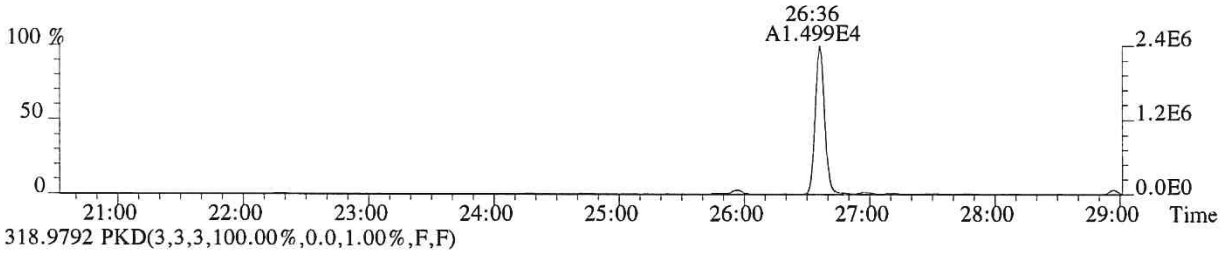
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6316.0,1.00%,F,T)



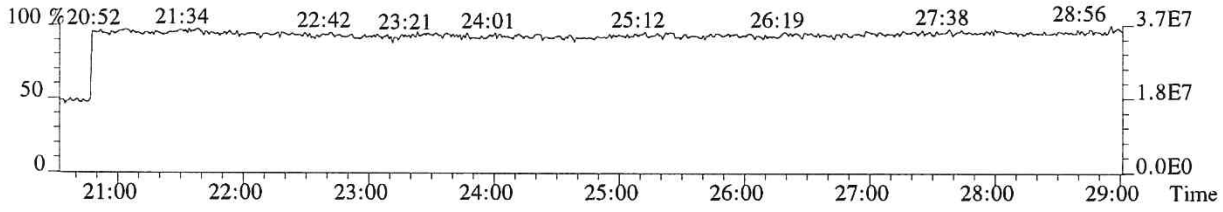
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2824.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)

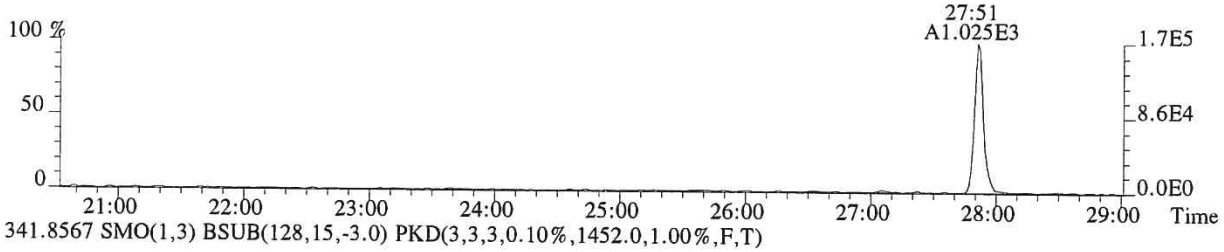


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

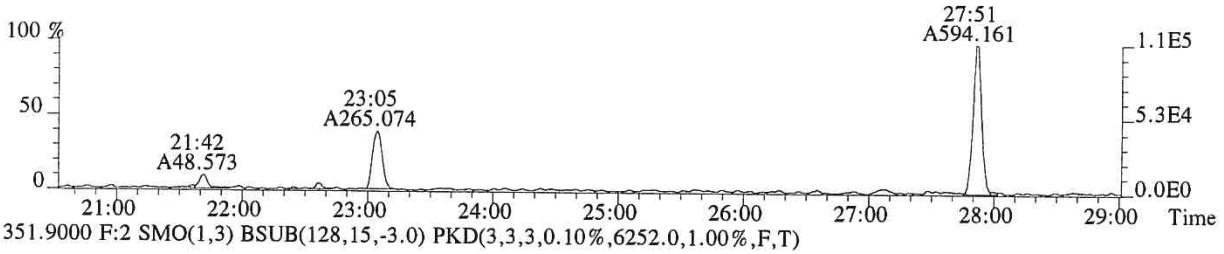


008772

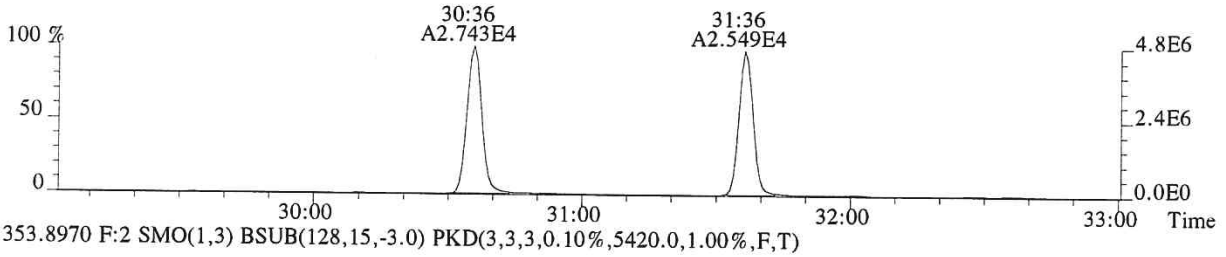
File:P518832 #1-602 Acq:15-NOV-2018 19:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



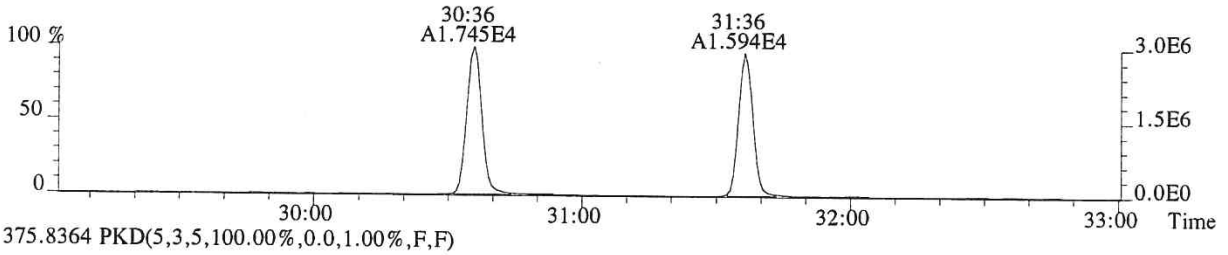
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



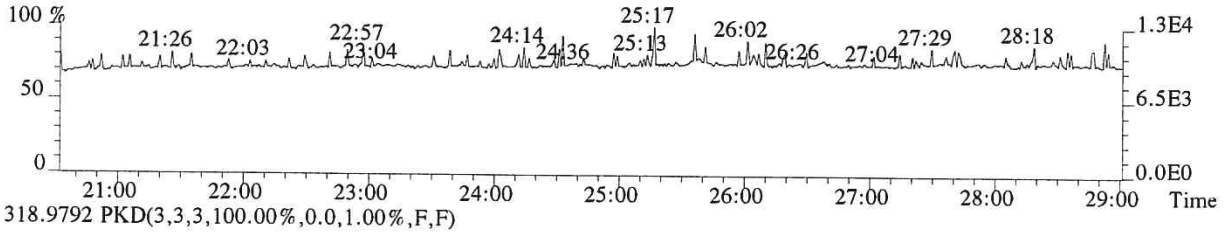
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6252.0,1.00%,F,T)



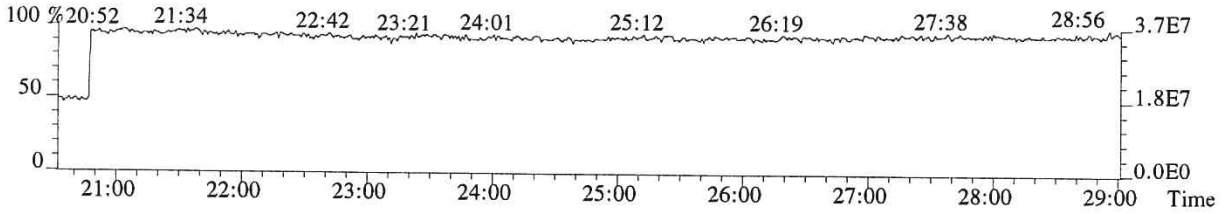
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5420.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



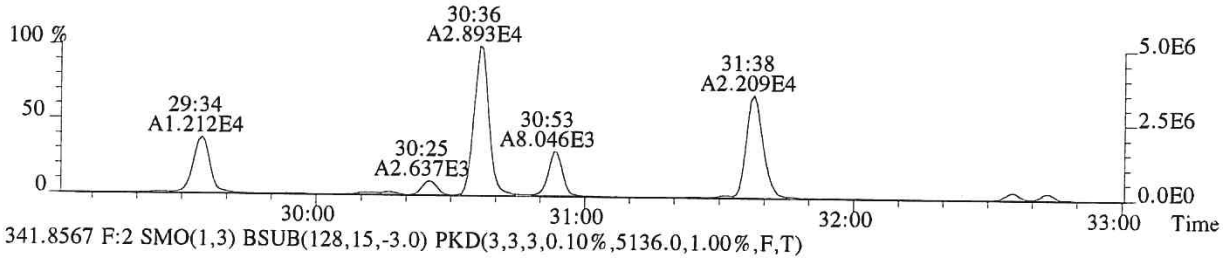
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



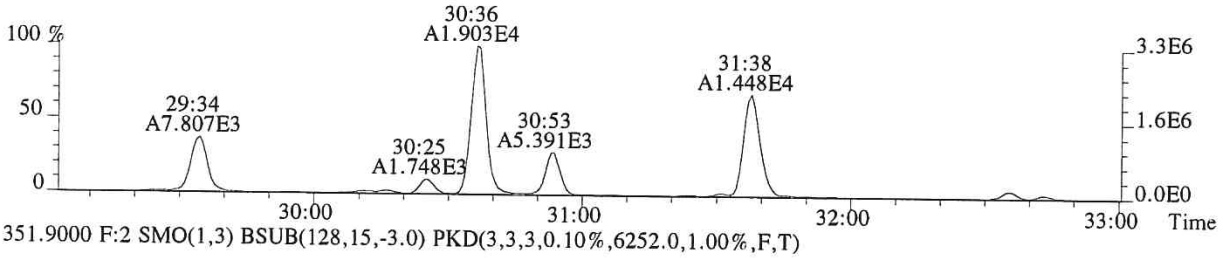
008773

File:P518832 #1-357 Acq:15-NOV-2018 19:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018

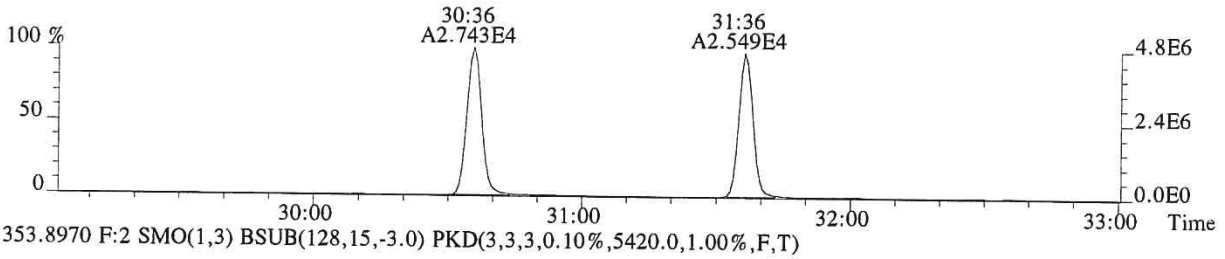
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8748.0,1.00%,F,T)



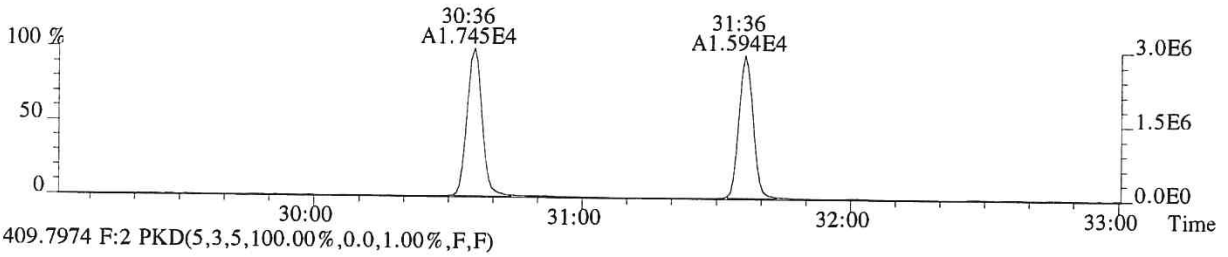
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5136.0,1.00%,F,T)



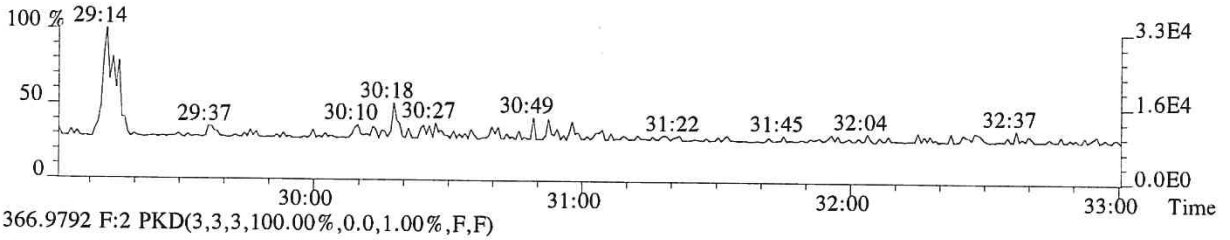
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6252.0,1.00%,F,T)



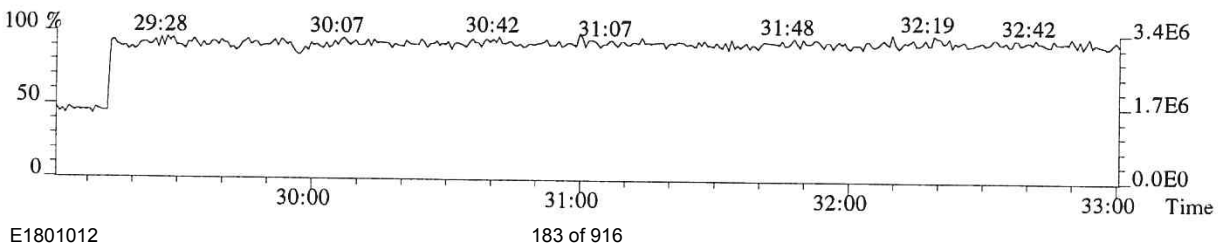
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5420.0,1.00%,F,T)



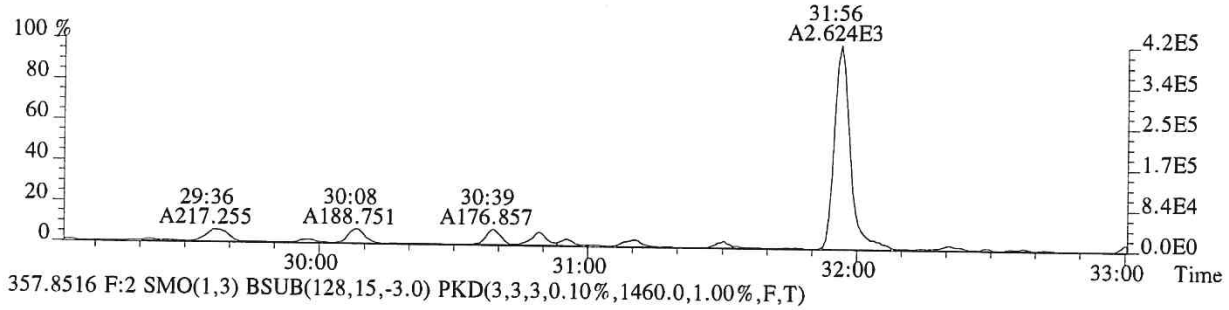
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



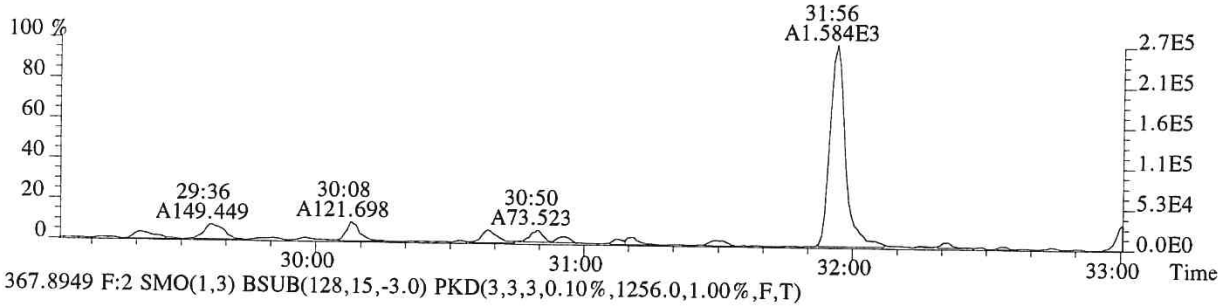
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



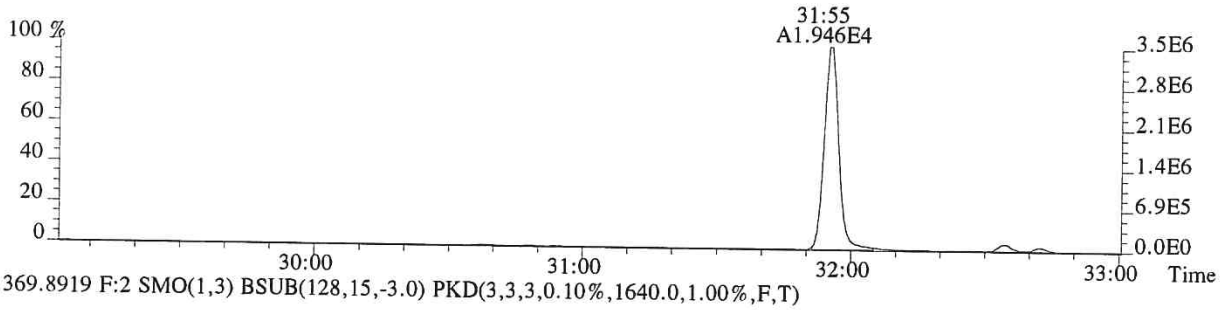
File:P518832 #1-357 Acq:15-NOV-2018 19:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



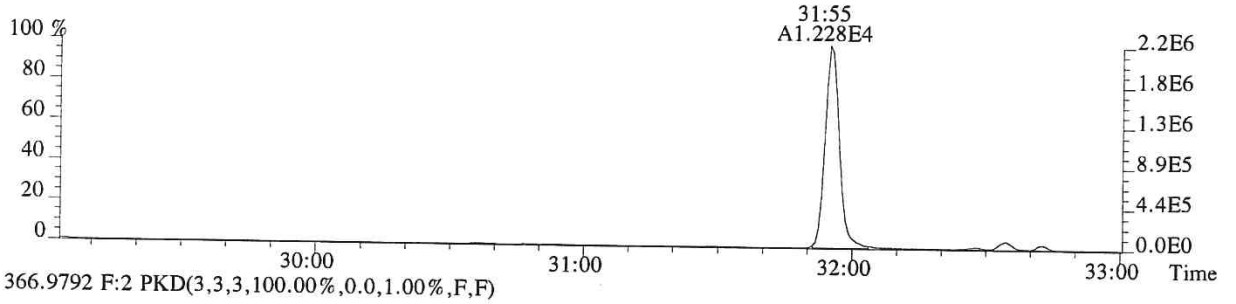
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



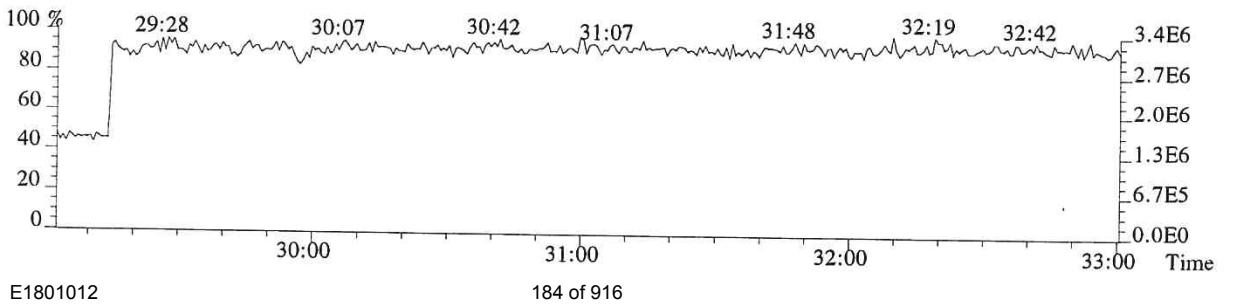
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1640.0,1.00%,F,T)

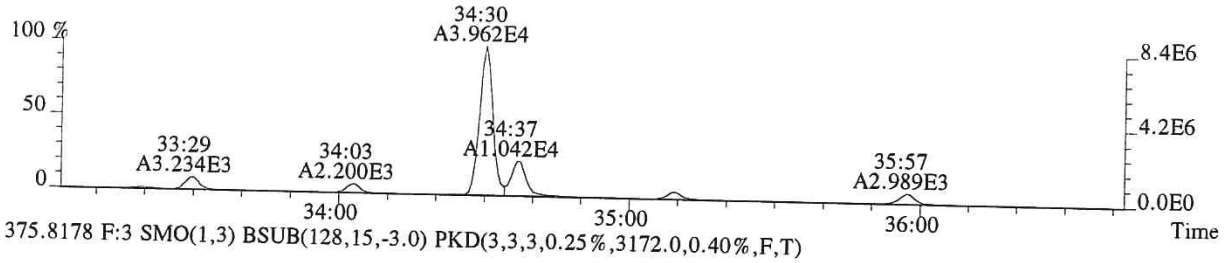


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

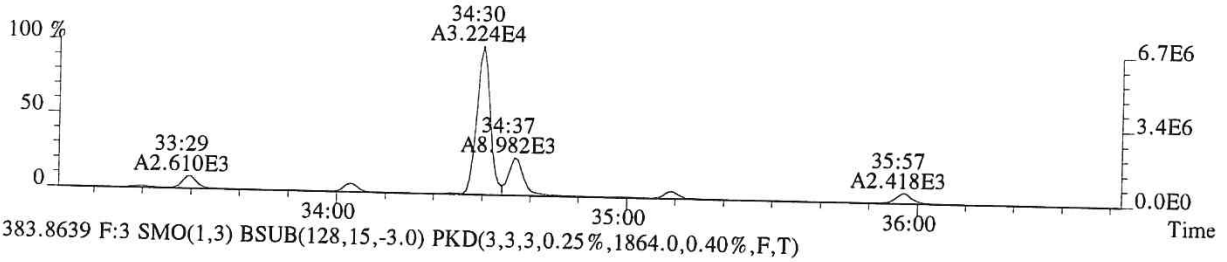


008775

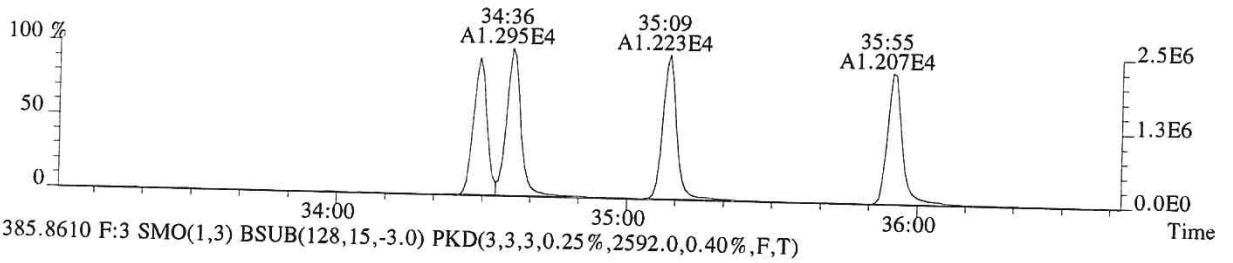
File:P518832 #1-330 Acq:15-NOV-2018 19:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2492.0,0.40%,F,T)



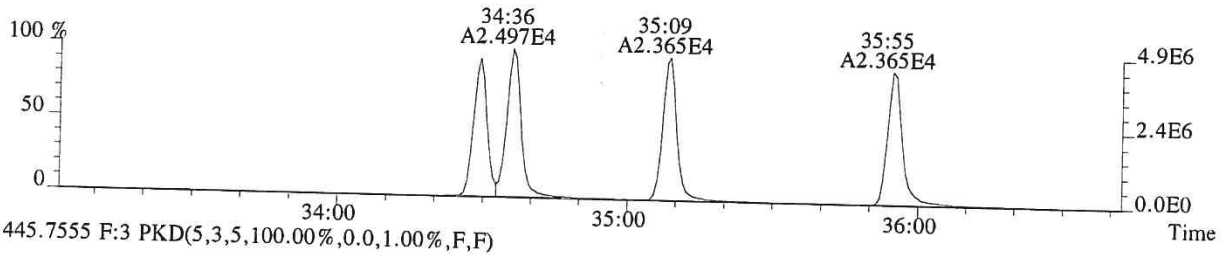
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3172.0,0.40%,F,T)



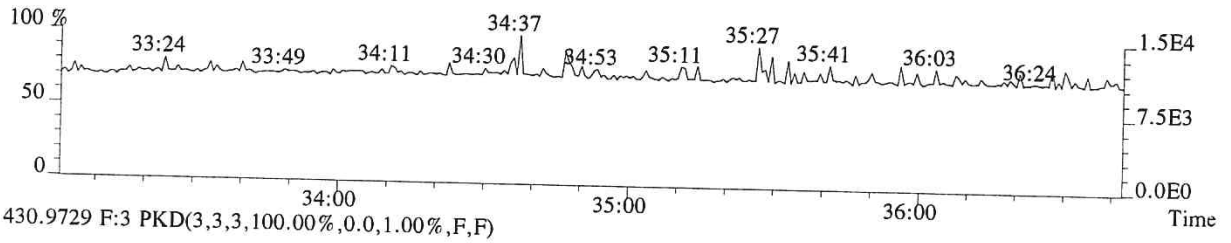
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1864.0,0.40%,F,T)



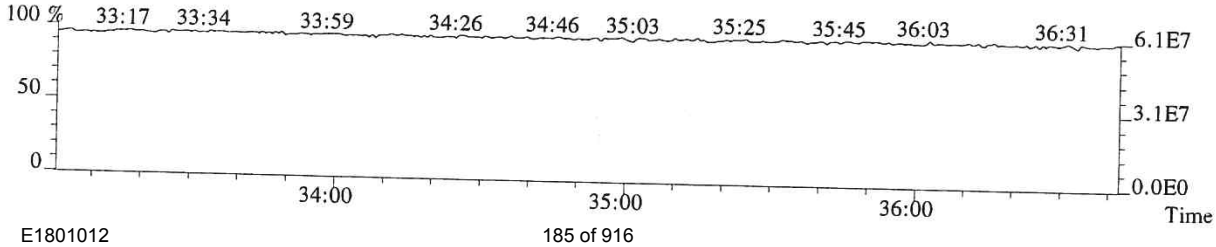
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2592.0,0.40%,F,T)



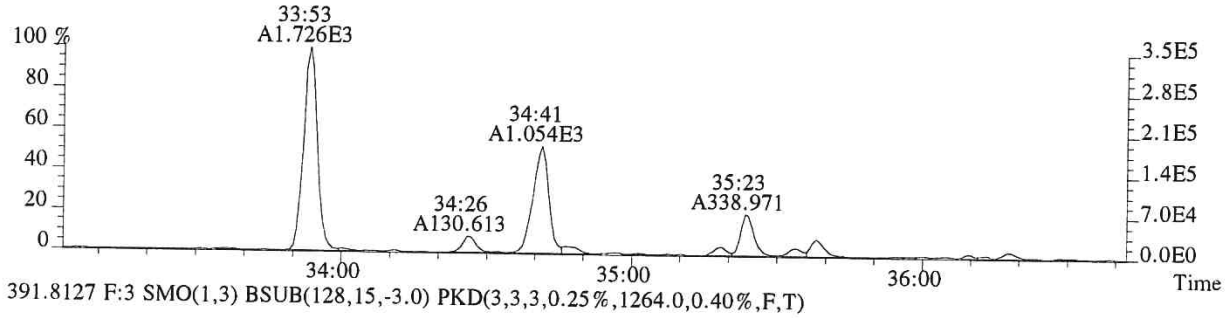
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



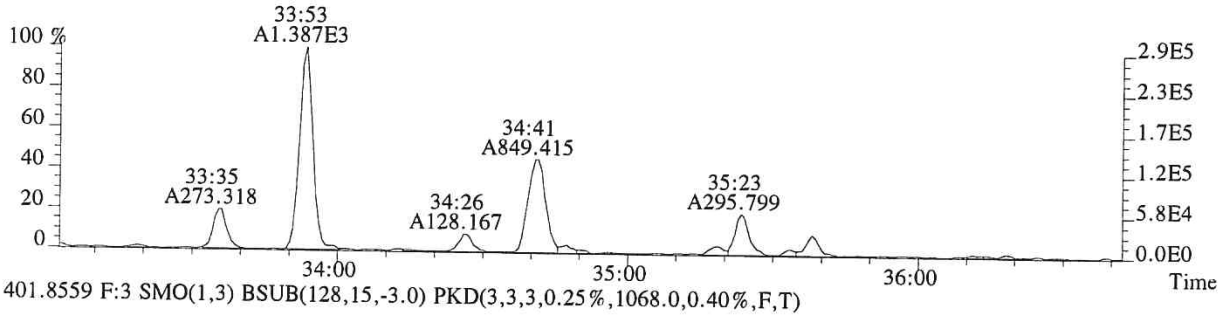
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



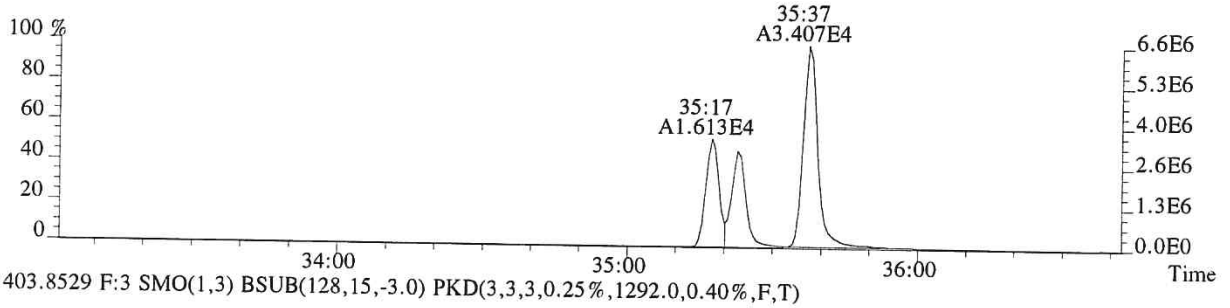
File:P518832 #1-330 Acq:15-NOV-2018 19:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1352.0,0.40%,F,T)



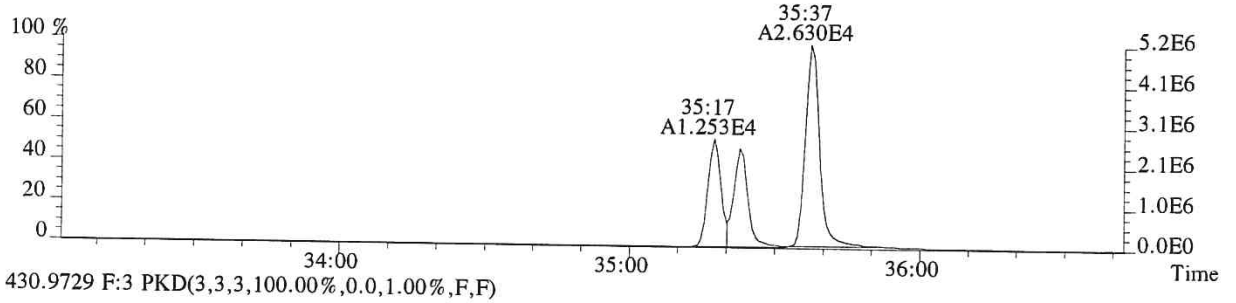
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.40%,F,T)



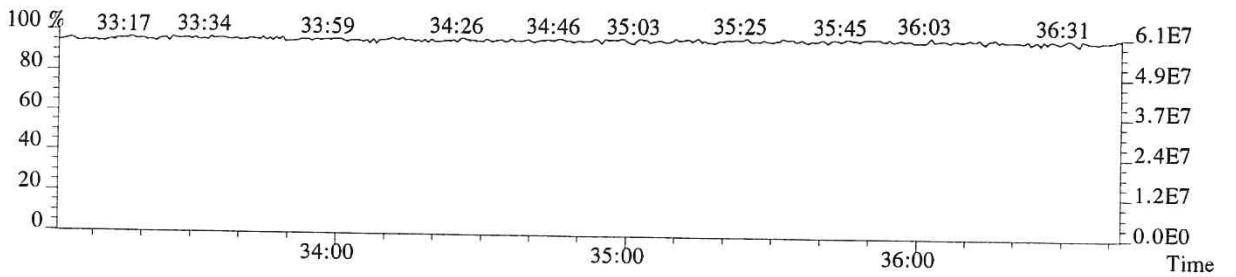
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)



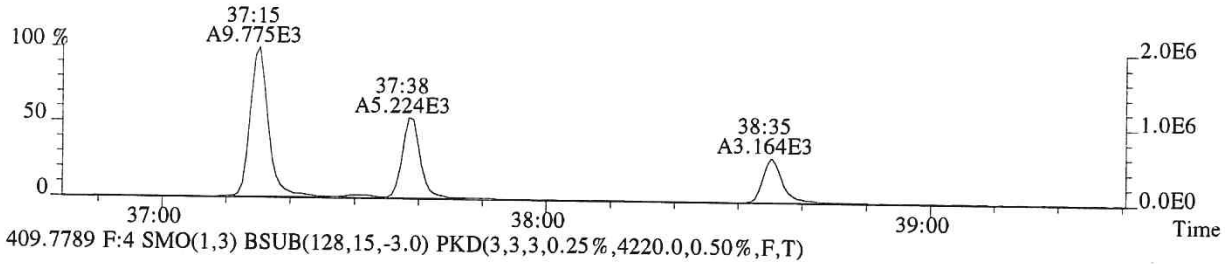
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



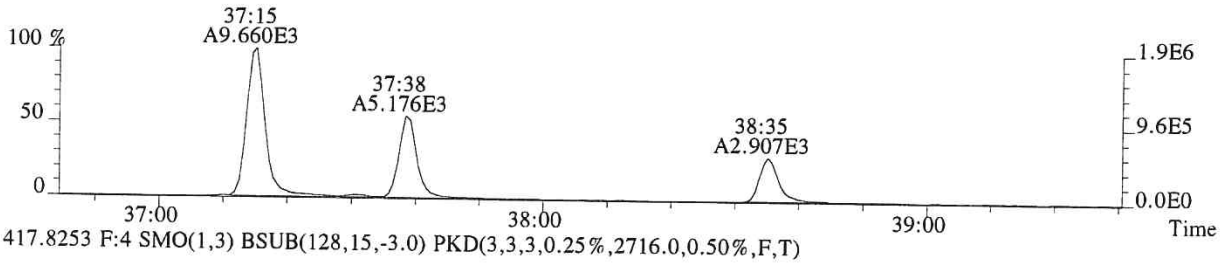
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



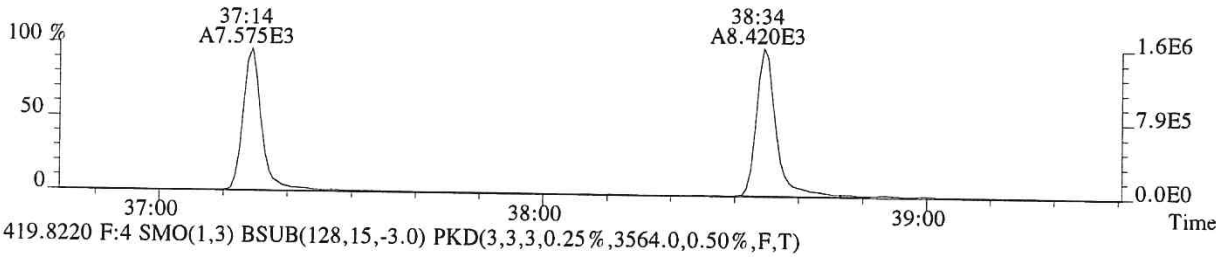
File:P518832 #1-250 Acq:15-NOV-2018 19:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4668.0,0.50%,F,T)



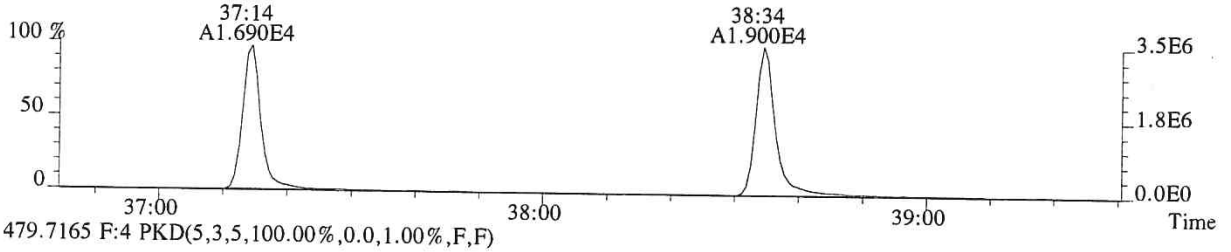
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4220.0,0.50%,F,T)



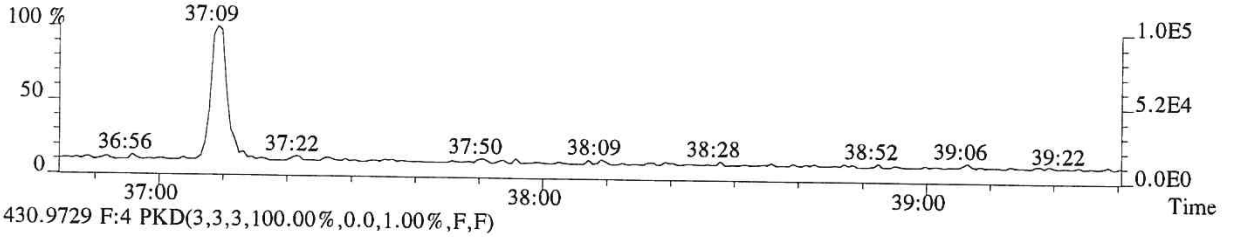
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2716.0,0.50%,F,T)



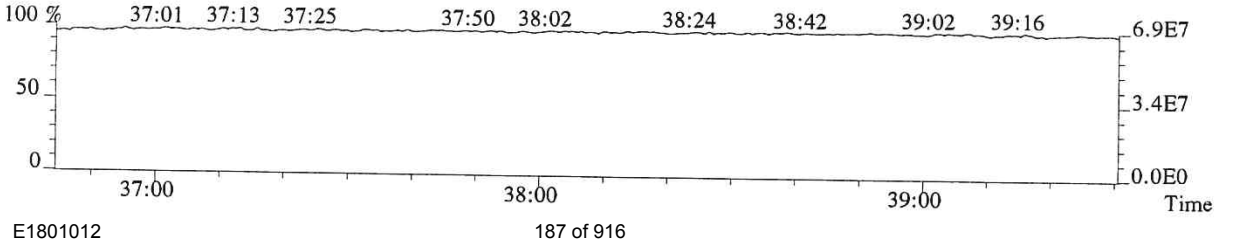
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3564.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

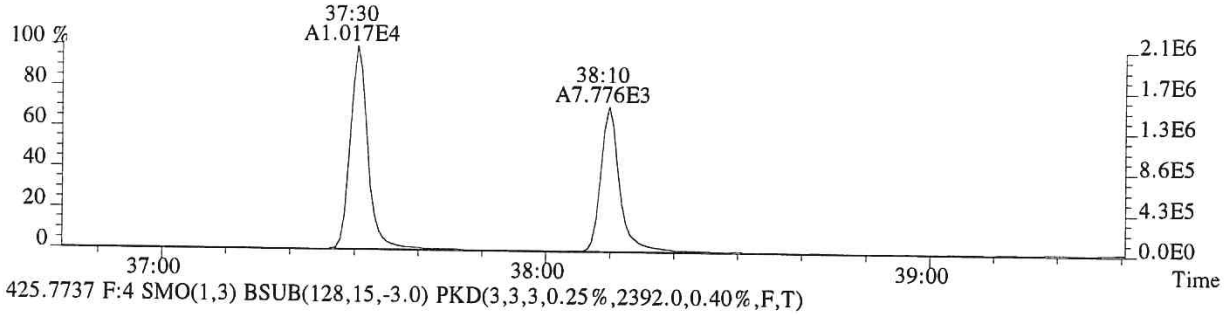


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

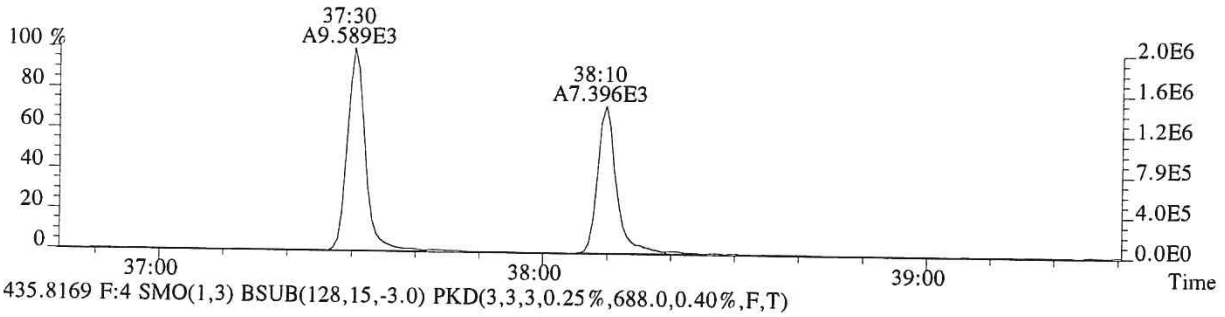


008778

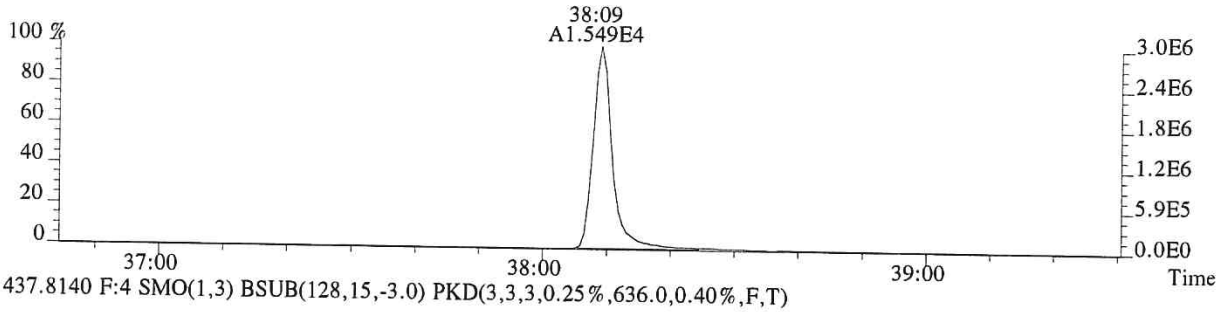
File:P518832 #1-250 Acq:15-NOV-2018 19:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4616.0,0.40%,F,T)



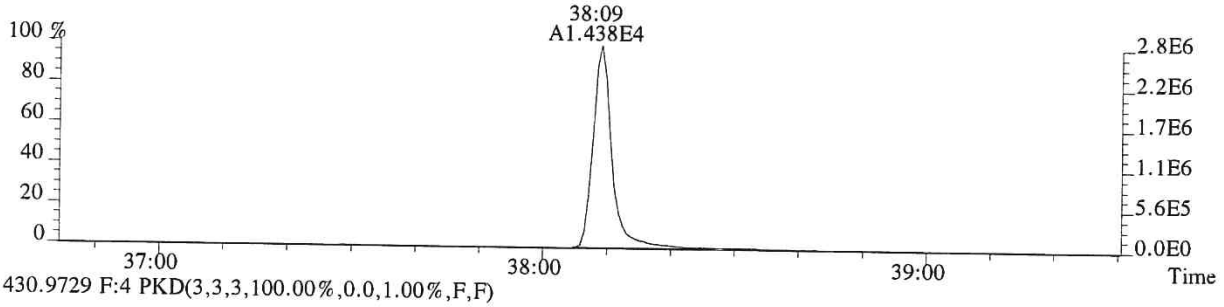
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2392.0,0.40%,F,T)



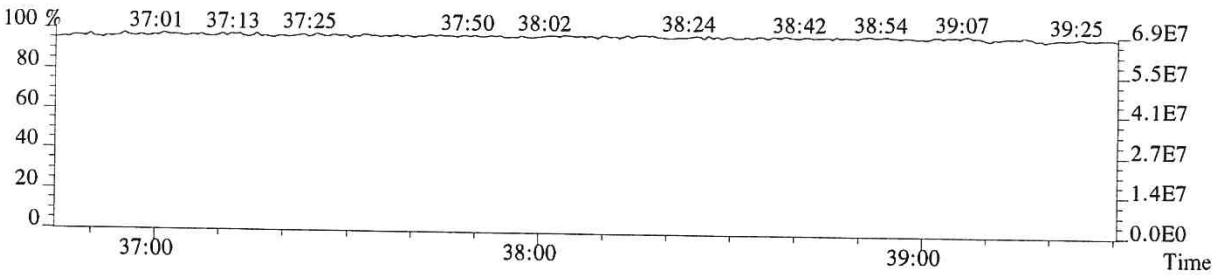
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



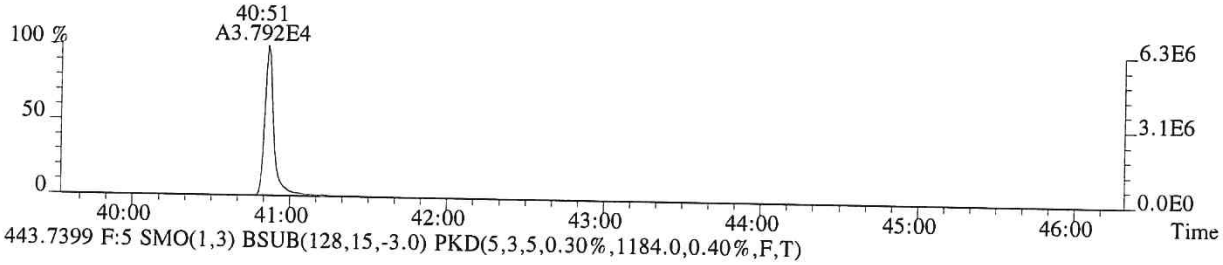
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



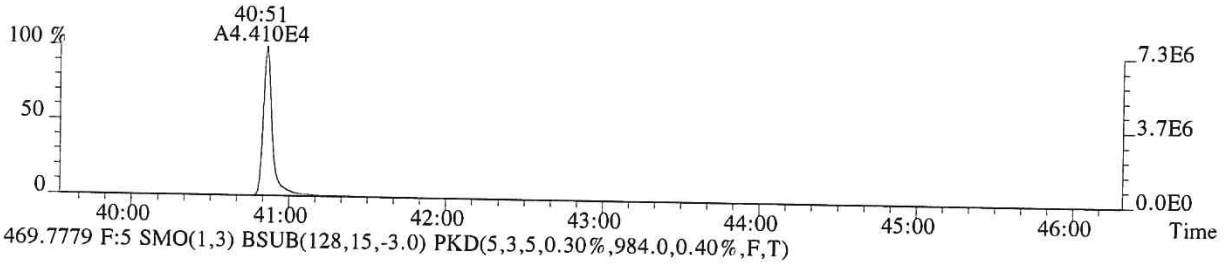
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



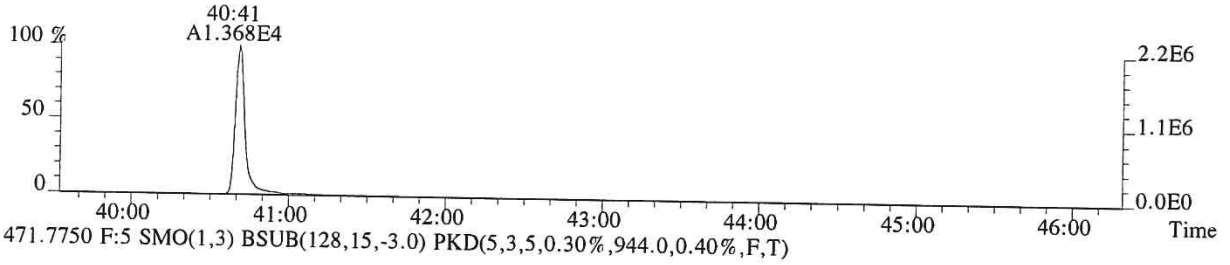
File:P518832 #1-610 Acq:15-NOV-2018 19:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



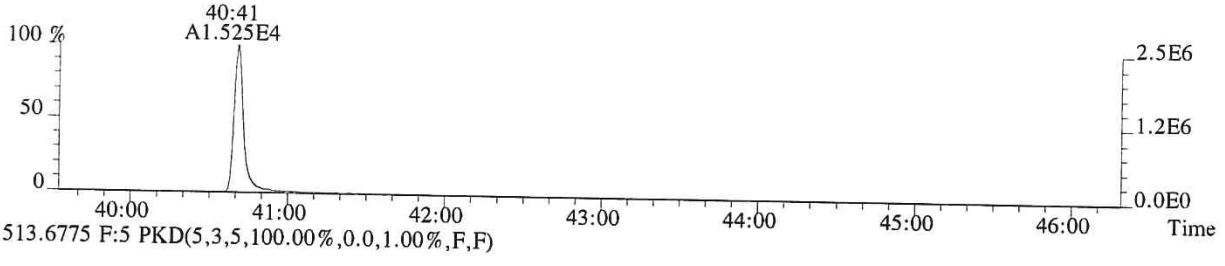
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1184.0,0.40%,F,T)



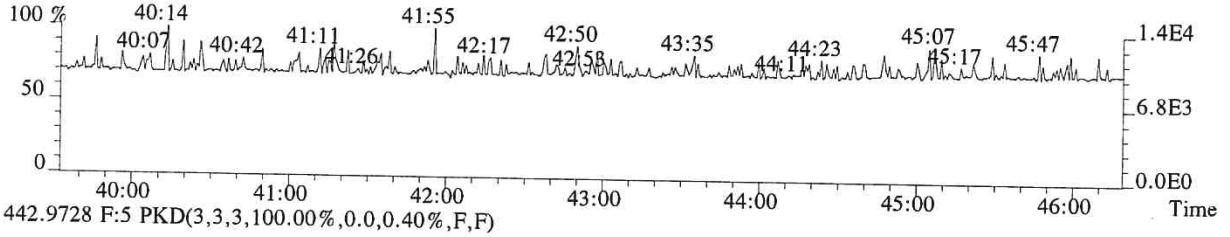
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,984.0,0.40%,F,T)



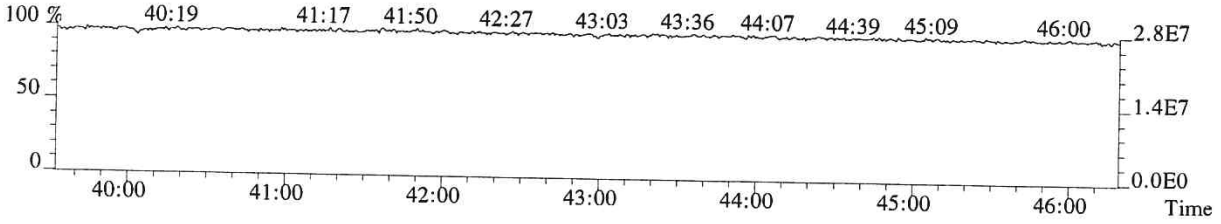
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,944.0,0.40%,F,T)



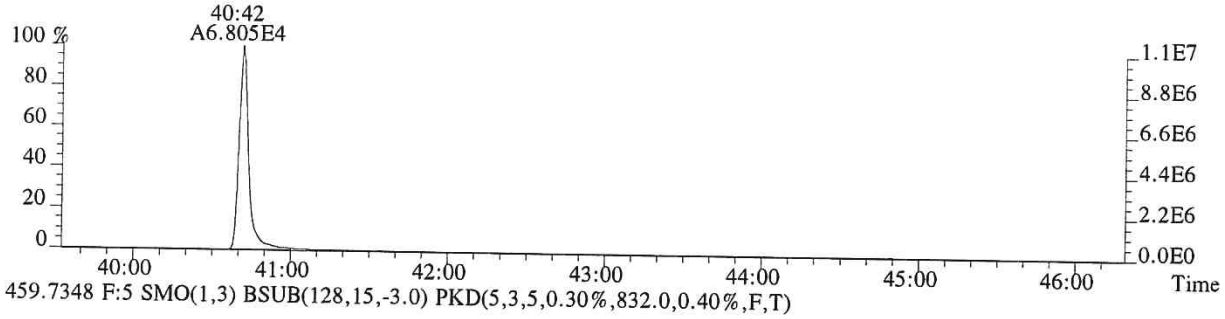
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



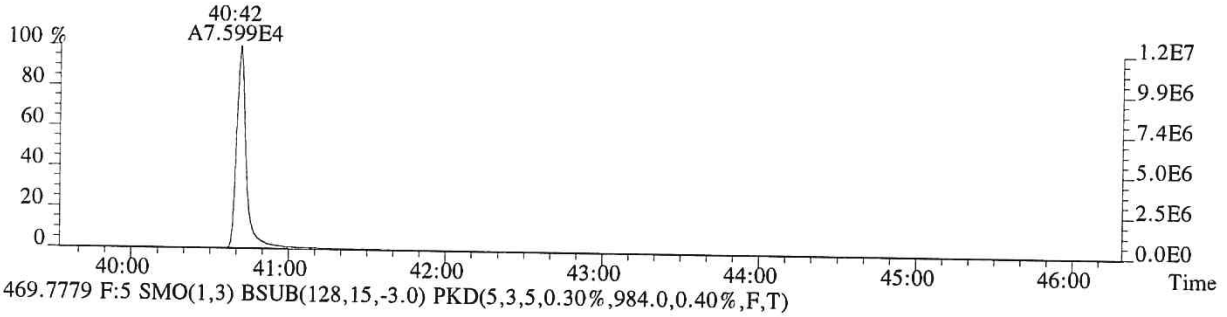
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



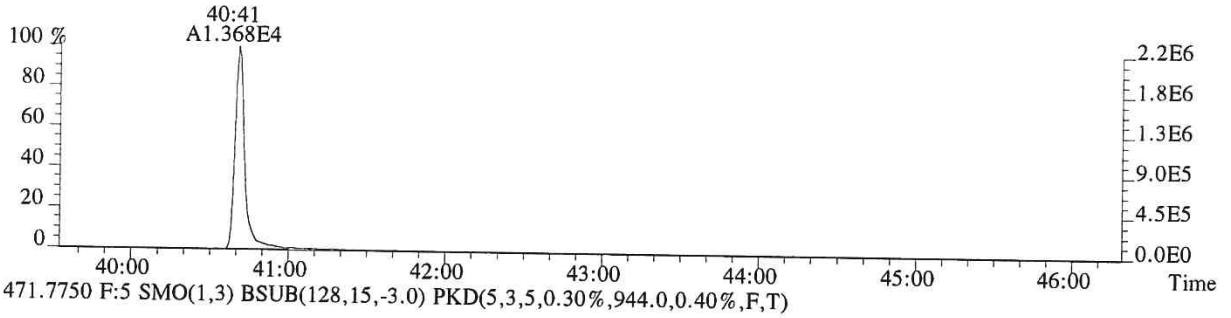
File:P518832 #1-610 Acq:15-NOV-2018 19:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,972.0,0.40%,F,T)



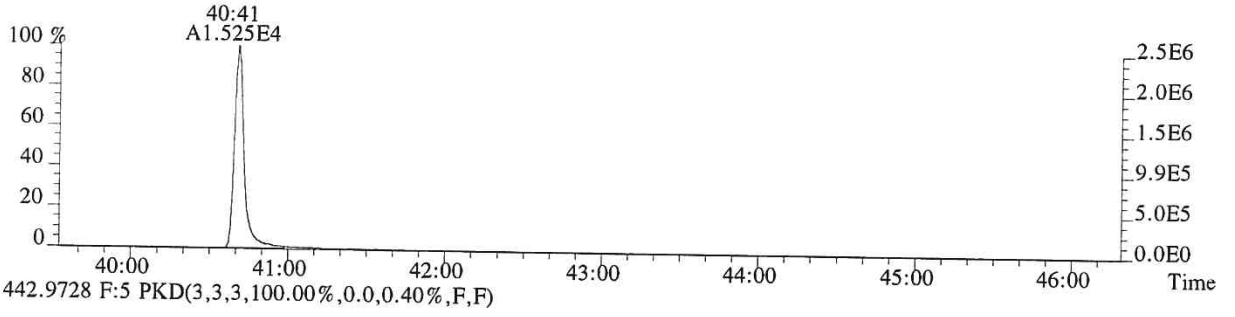
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,832.0,0.40%,F,T)



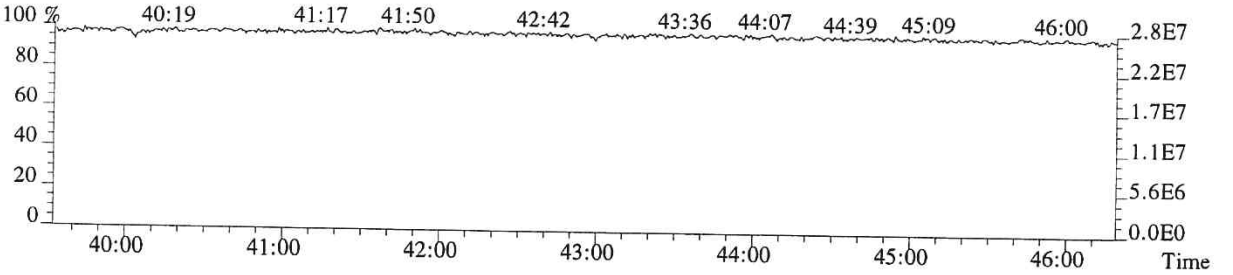
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,984.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,944.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0071

Run #15 Filename P518973 Samp: 1 Inj: 1 Acquired: 21-NOV-18 17:35:58
Processed: 26-NOV-18 13:53:39 Sample ID: E1801012-018DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	1.257e+04	1.677e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:43	6.822e+02	4.815e+02	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:36	5.888e+02	4.389e+02	1.34	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	1.031e+03	9.029e+02	1.14	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:21	2.903e+02	2.386e+02	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	8.257e+01	4.842e+01	1.71	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	8.139e+01	6.813e+01	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	3.025e+02	2.878e+02	1.05	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:17	9.253e+01	8.478e+01	1.09	yes	no	1.258
10	Unk	OCDF	42:51	1.018e+03	1.130e+03	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:23	3.273e+03	4.210e+03	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:53	4.558e+01	2.319e+01	1.97	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.550e+01	5.087e+00	3.05	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.195e+01	5.365e+00	2.23	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	3.519e+02	3.516e+02	1.00	yes	no	1.025
17	Unk	OCDD	42:39	5.707e+03	6.483e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:36	1.581e+04	1.998e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	2.658e+04	1.713e+04	1.55	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:35	2.588e+04	1.667e+04	1.55	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	1.128e+04	2.166e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.496e+04	2.835e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	1.488e+04	2.904e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	1.158e+04	2.224e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	1.254e+04	2.798e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	1.255e+04	2.810e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	1.076e+04	1.353e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	2.027e+04	1.294e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	1.543e+04	1.215e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.843e+04	1.453e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	1.732e+04	1.621e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:39	2.604e+04	2.942e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:50	1.336e+04	1.670e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	2.081e+04	1.653e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	3.193e+02				no	1.014

$$OCDD = \frac{(5.707e+03 + 6.483e+03) \times 4000\ pg \times 50}{(2.604e+04 + 2.942e+04) \times 10.315\ g \times 74.4\ 100 \times 1.118} = 12496.434\ ng/kg$$

LG 11/27/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0071

Run #15 Filename P518973 Samp: 1 Inj: 1 Acquired: 21-NOV-18 17:35:58
Processed: 26-NOV-18 13:53:39 LAB. ID: E1801012-018DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.16e+06	5.04e+02	4.3e+03	2.82e+06	1.22e+03	2.3e+03
2	1,2,3,7,8-PeCDF	1.20e+05	4.88e+02	2.5e+02	8.76e+04	1.99e+03	4.4e+01
3	2,3,4,7,8-PeCDF	9.23e+04	4.88e+02	1.9e+02	6.44e+04	1.99e+03	3.2e+01
4	1,2,3,4,7,8-HxCDF	1.97e+05	1.09e+03	1.8e+02	1.83e+05	6.88e+02	2.7e+02
5	1,2,3,6,7,8-HxCDF	4.96e+04	1.09e+03	4.5e+01	4.33e+04	6.88e+02	6.3e+01
6	2,3,4,6,7,8-HxCDF	1.45e+04	1.09e+03	1.3e+01	1.05e+04	6.88e+02	1.5e+01
7	1,2,3,7,8,9-HxCDF	1.59e+04	1.09e+03	1.5e+01	1.18e+04	6.88e+02	1.7e+01
8	1,2,3,4,6,7,8-HpCDF	5.63e+04	3.68e+02	1.5e+02	6.26e+04	6.16e+02	1.0e+02
9	1,2,3,4,7,8,9-HpCDF	1.41e+04	3.68e+02	3.8e+01	1.42e+04	6.16e+02	2.3e+01
10	OCDF	1.46e+05	3.64e+02	4.0e+02	1.78e+05	7.24e+02	2.5e+02
11	2,3,7,8-TCDD	6.03e+05	2.00e+03	3.0e+02	7.75e+05	7.88e+02	9.8e+02
12	1,2,3,7,8-PeCDD	7.50e+03	5.84e+02	1.3e+01	4.93e+03	2.36e+02	2.1e+01
13	1,2,3,4,7,8-HxCDD	*	4.16e+02	*	*	2.00e+02	*
14	1,2,3,6,7,8-HxCDD	3.75e+03	4.16e+02	9.0e+00	1.16e+03	2.00e+02	5.8e+00
15	1,2,3,7,8,9-HxCDD	2.70e+03	4.16e+02	6.5e+00	1.27e+03	2.00e+02	6.3e+00
16	1,2,3,4,6,7,8-HpCDD	5.82e+04	5.16e+02	1.1e+02	6.08e+04	5.24e+02	1.2e+02
17	OCDD	7.86e+05	2.96e+02	2.7e+03	8.90e+05	5.04e+02	1.8e+03
18	13C-2,3,7,8-TCDF	2.87e+06	5.49e+03	5.2e+02	3.68e+06	3.75e+03	9.8e+02
19	13C-1,2,3,7,8-PeCDF	4.62e+06	4.16e+02	1.1e+04	2.96e+06	7.80e+02	3.8e+03
20	13C-2,3,4,7,8-PeCDF	4.62e+06	4.16e+02	1.1e+04	3.00e+06	7.80e+02	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	2.33e+06	5.36e+02	4.3e+03	4.44e+06	6.56e+02	6.8e+03
22	13C-1,2,3,6,7,8-HxCDF	2.76e+06	5.36e+02	5.2e+03	5.32e+06	6.56e+02	8.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.82e+06	5.36e+02	5.3e+03	5.62e+06	6.56e+02	8.6e+03
24	13C-1,2,3,7,8,9-HxCDF	2.07e+06	5.36e+02	3.9e+03	3.95e+06	6.56e+02	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.40e+06	2.05e+03	1.2e+03	5.35e+06	1.05e+03	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.01e+06	2.05e+03	9.8e+02	4.56e+06	1.05e+03	4.3e+03
27	13C-2,3,7,8-TCDD	2.05e+06	5.02e+03	4.1e+02	2.56e+06	1.80e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	3.59e+06	4.48e+02	8.0e+03	2.27e+06	7.04e+02	3.2e+03
29	13C-1,2,3,4,7,8-HxCDD	3.22e+06	1.03e+03	3.1e+03	2.54e+06	4.16e+02	6.1e+03
30	13C-1,2,3,6,7,8-HxCDD	3.35e+06	1.03e+03	3.2e+03	2.67e+06	4.16e+02	6.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.89e+06	7.20e+02	4.0e+03	2.73e+06	4.12e+02	6.6e+03
32	13C-OCDD	3.52e+06	4.36e+02	8.1e+03	3.95e+06	3.68e+02	1.1e+04
33	13C-1,2,3,4-TCDD	2.58e+06	5.02e+03	5.1e+02	3.25e+06	1.80e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	3.63e+06	1.03e+03	3.5e+03	2.91e+06	4.16e+02	7.0e+03
35	37Cl-2,3,7,8-TCDD	5.78e+04	1.11e+03	5.2e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.996e{+}03 + 7.880e{+}02) \times 2000}{(2.052e{+}06 + 2.558e{+}06) \times (\quad) \times 1.085} =$$

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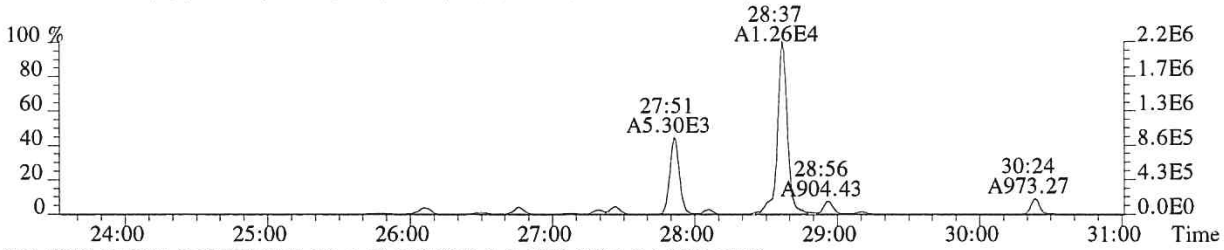
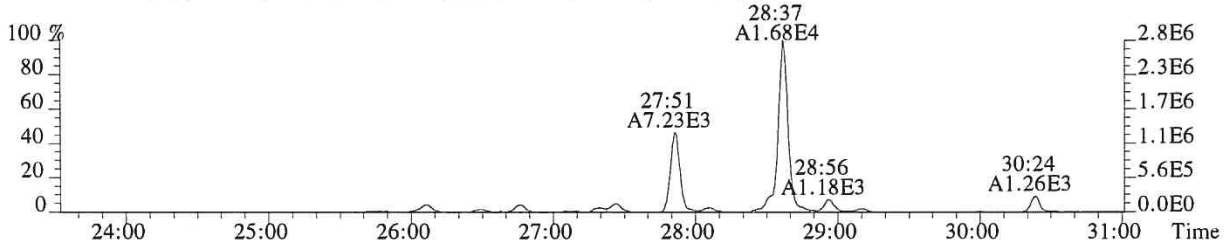
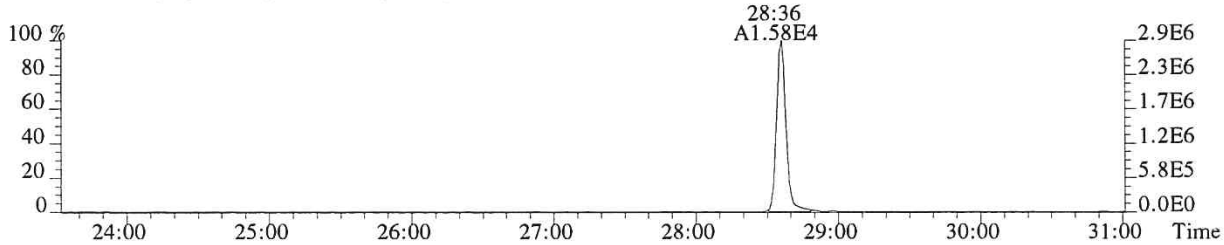
File:P518973 #1-531 Acq:21-NOV-2018 17:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



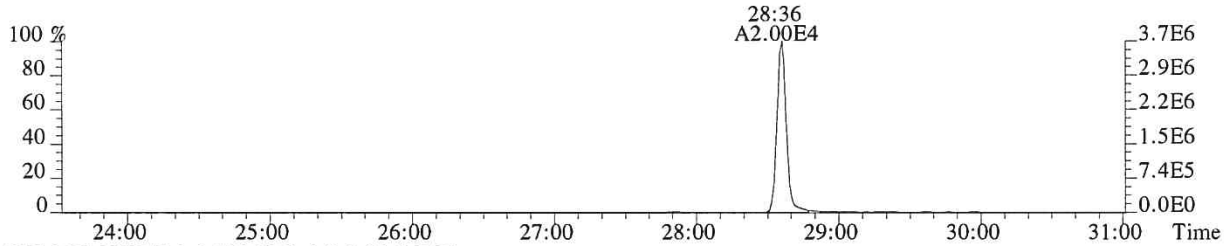
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



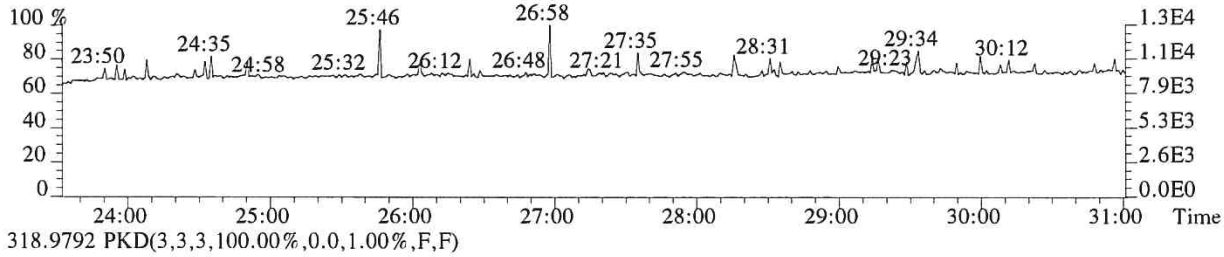
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5492.0,1.00%,F,T)



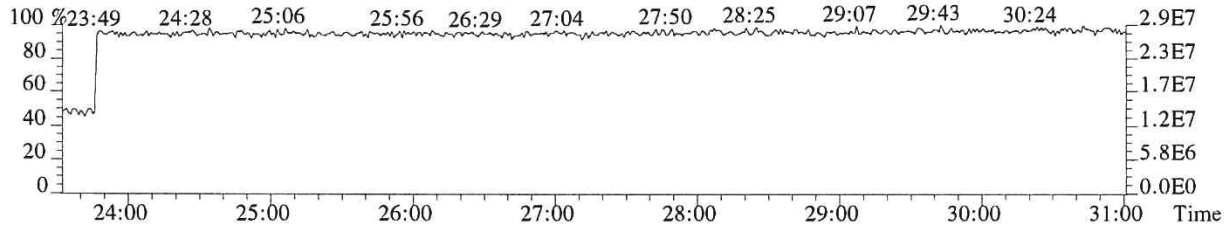
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3748.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

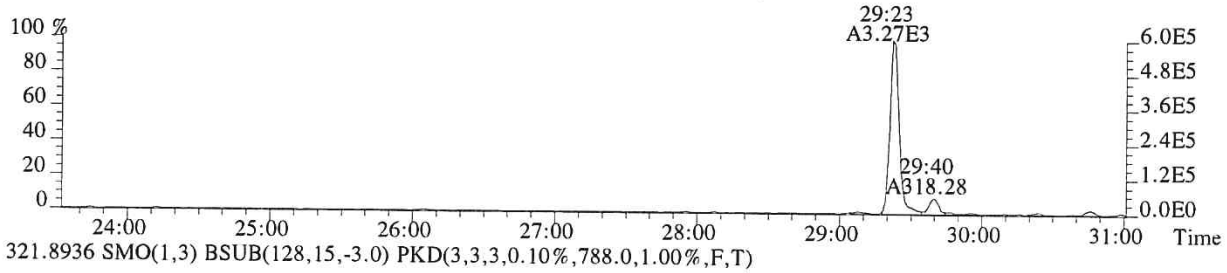


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

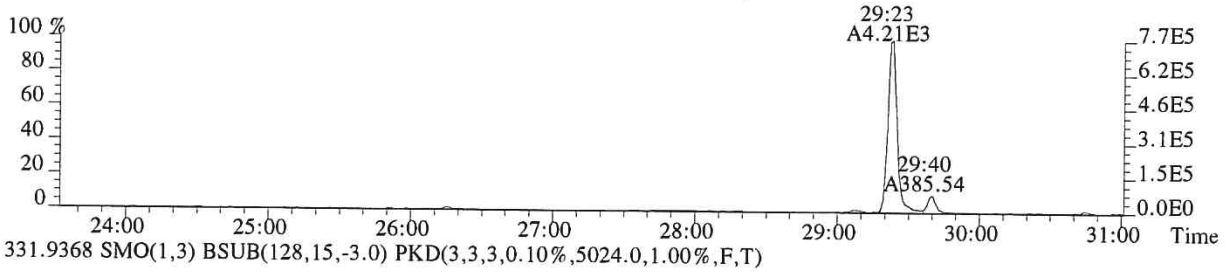


008784

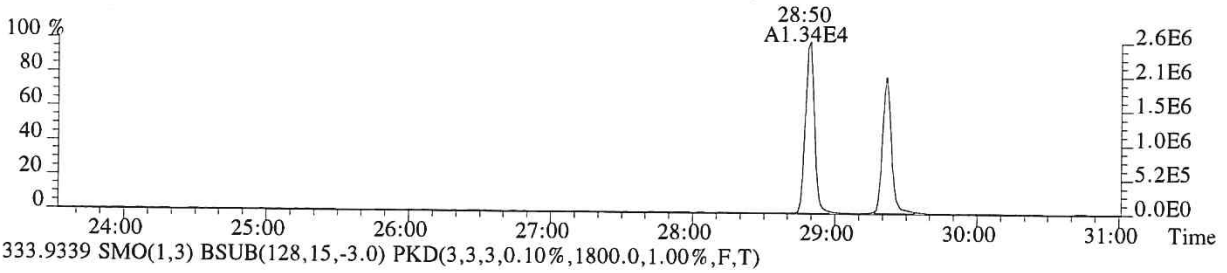
File:P518973 #1-531 Acq:21-NOV-2018 17:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



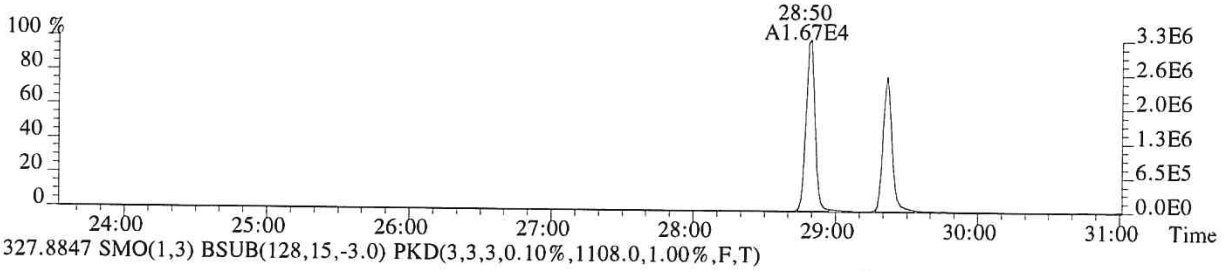
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



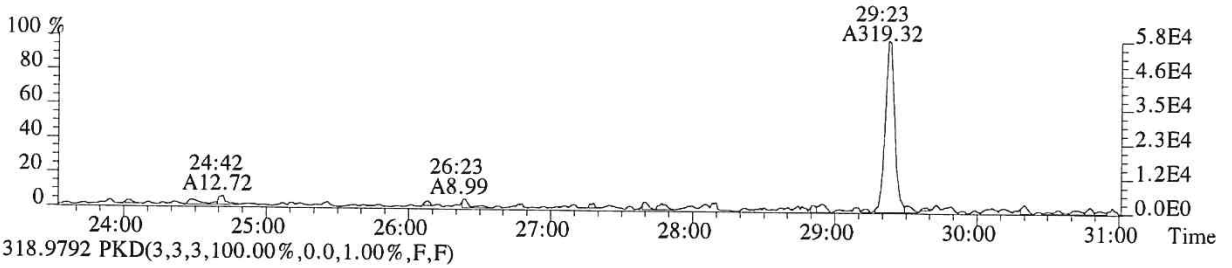
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5024.0,1.00%,F,T)



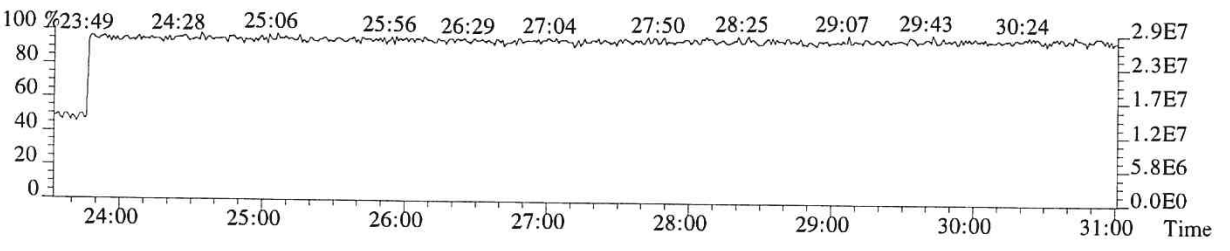
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)

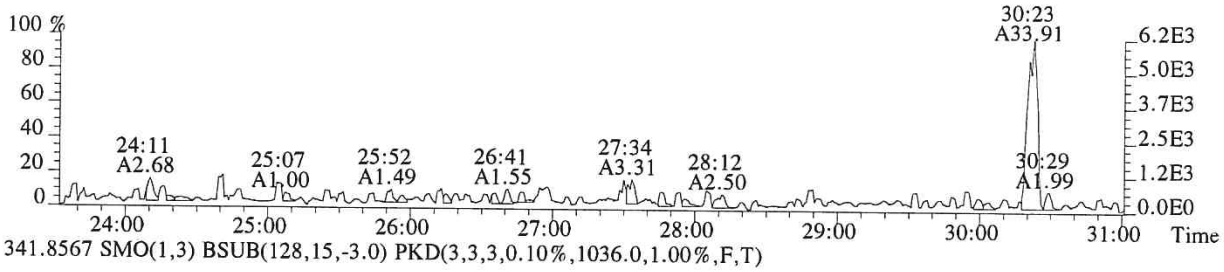


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

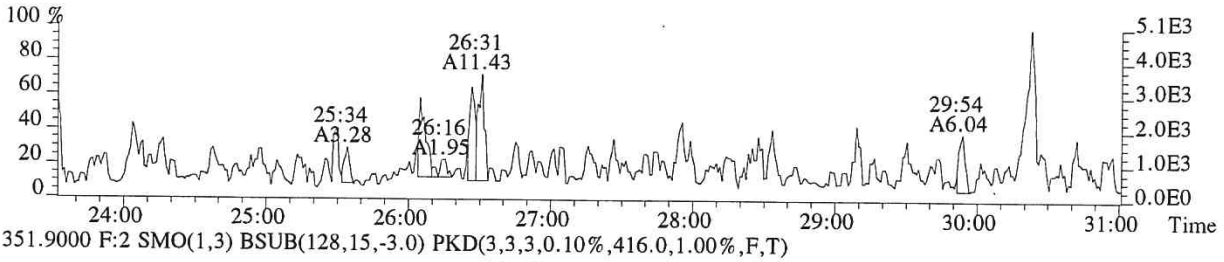


008785

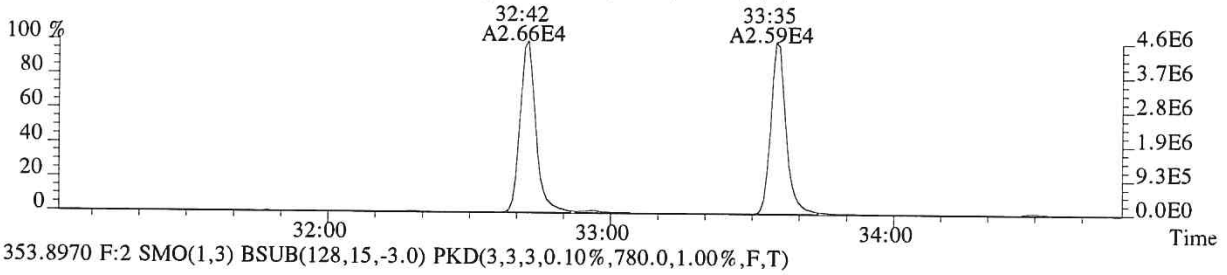
File:P518973 #1-531 Acq:21-NOV-2018 17:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



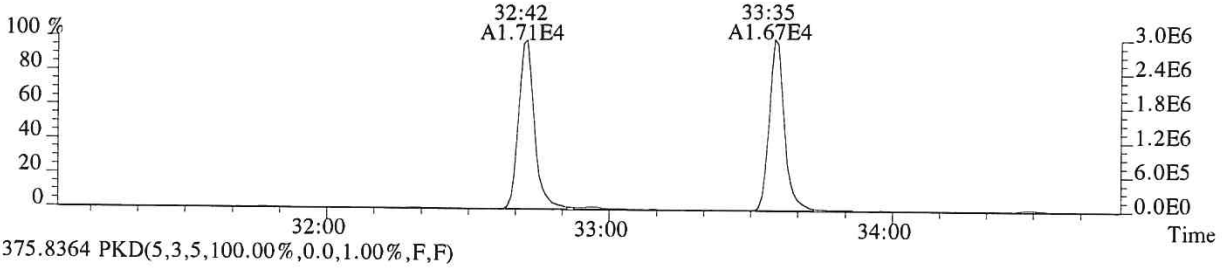
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



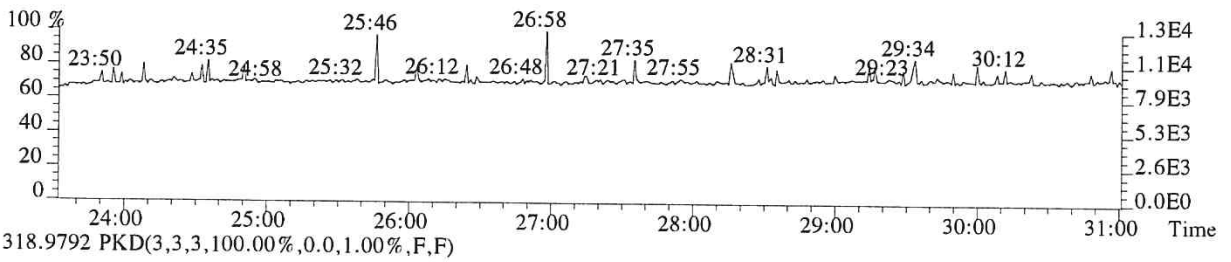
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



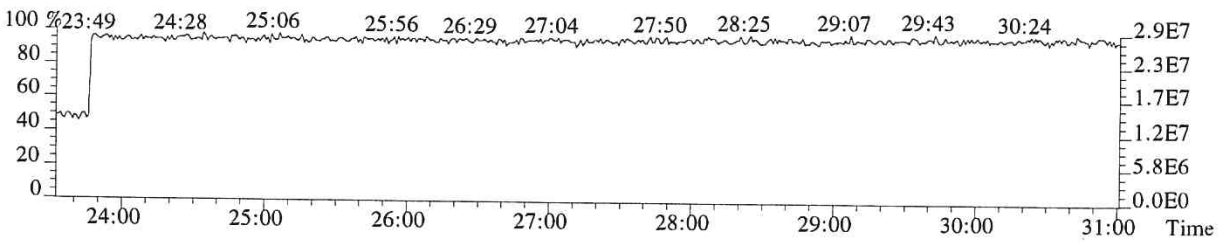
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

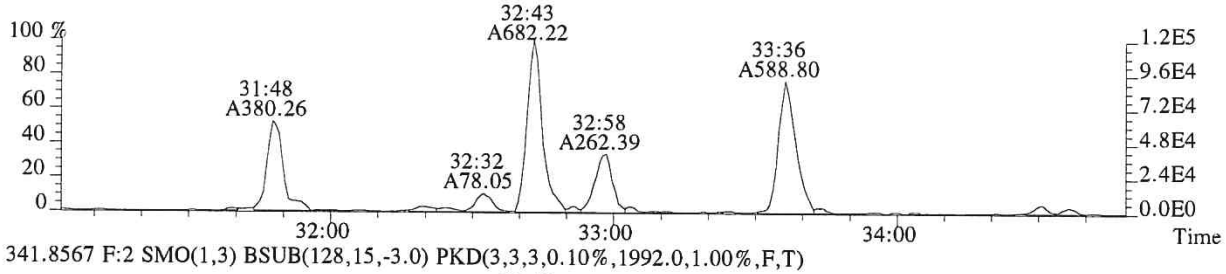


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

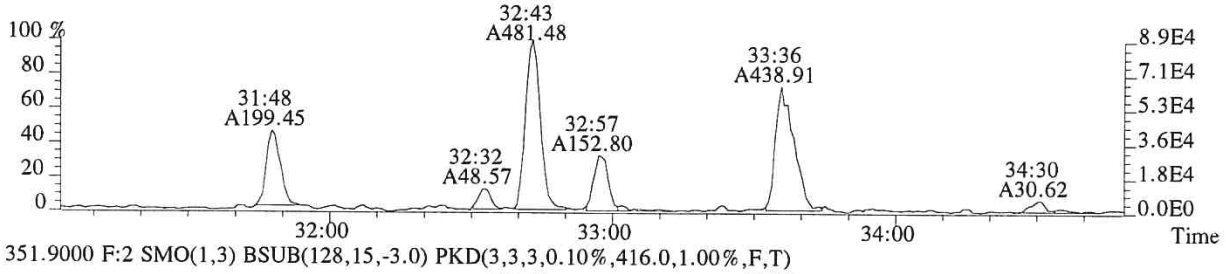


008786

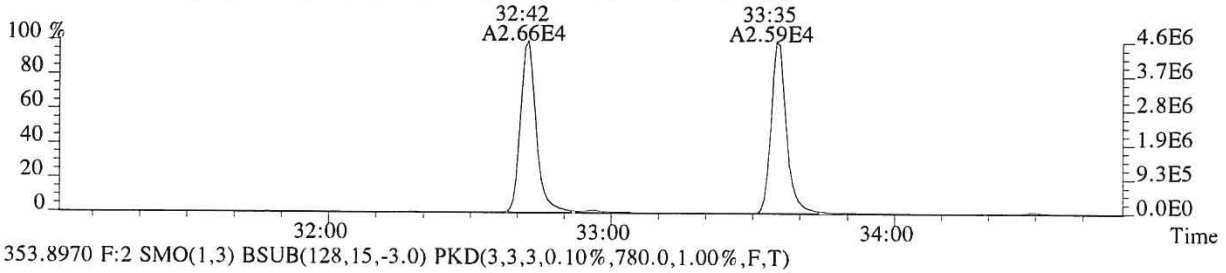
File:P518973 #1-339 Acq:21-NOV-2018 17:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



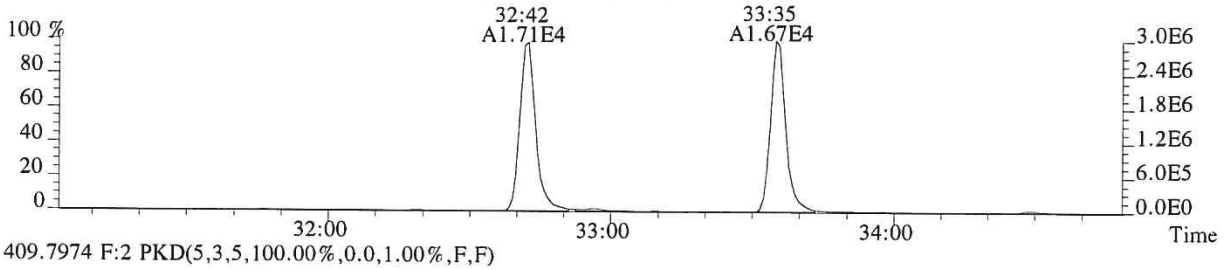
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1992.0,1.00%,F,T)



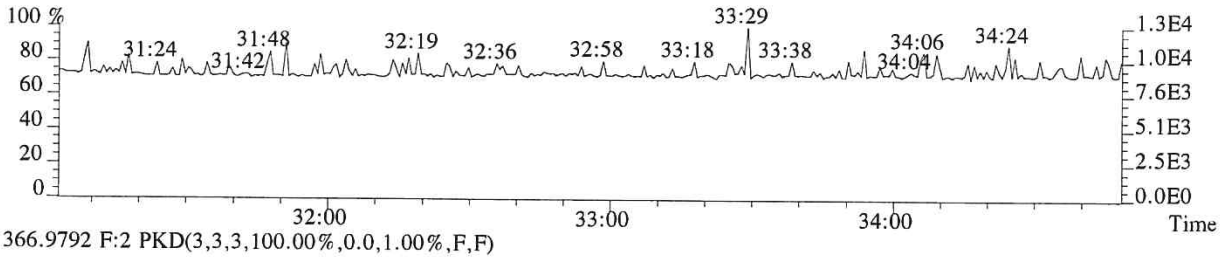
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



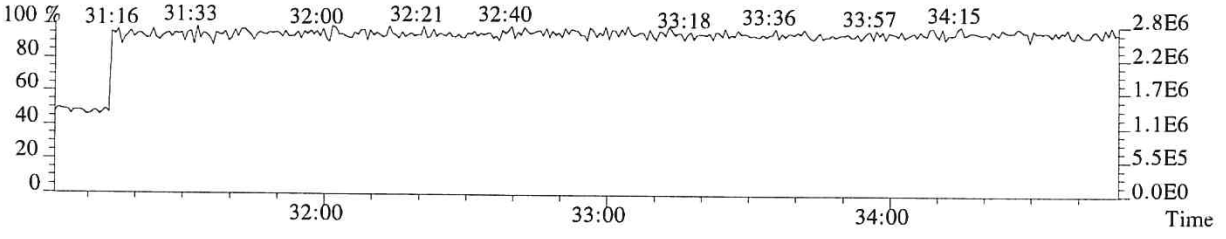
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



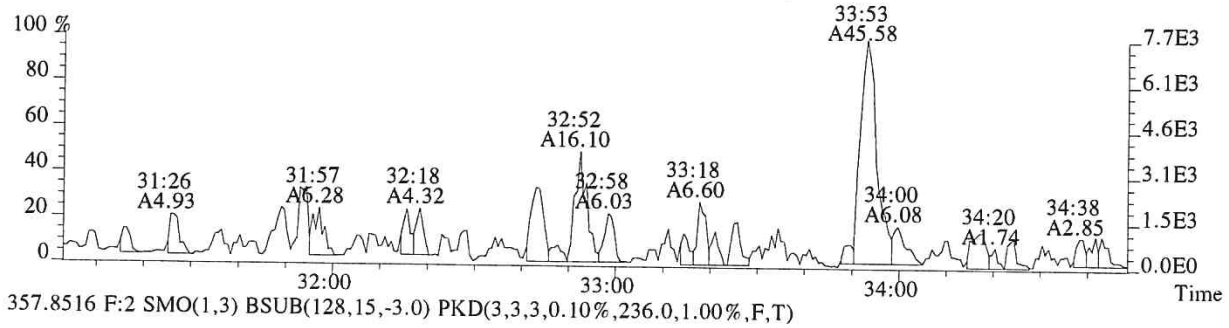
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



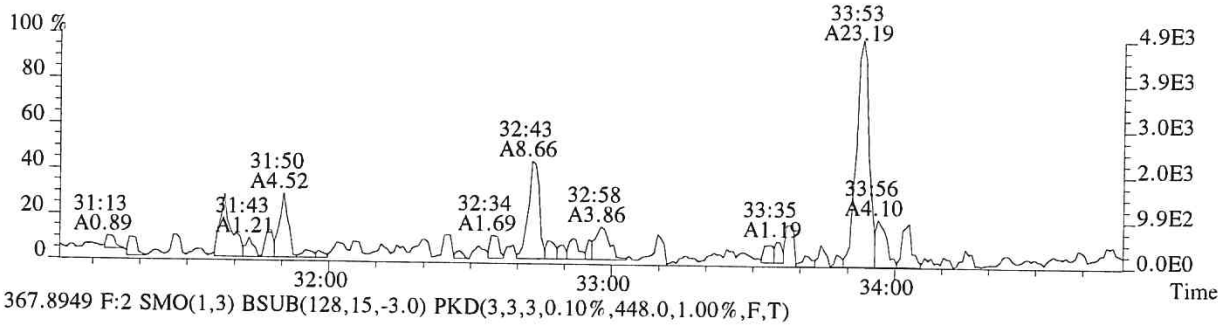
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



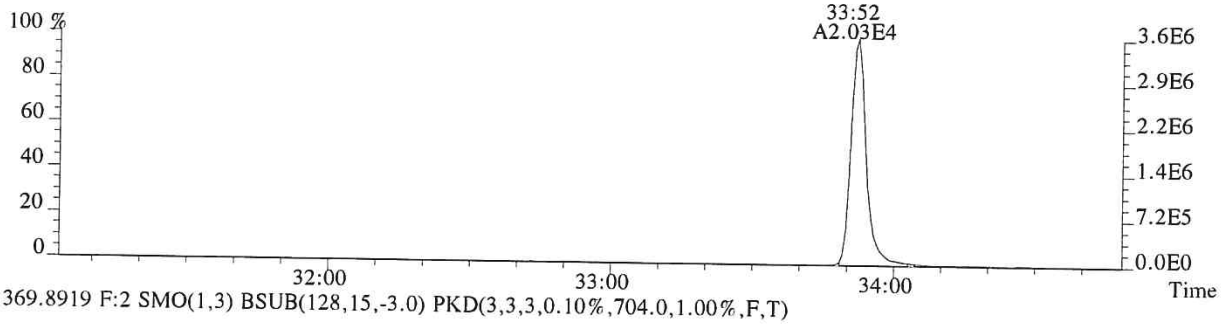
File:P518973 #1-339 Acq:21-NOV-2018 17:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



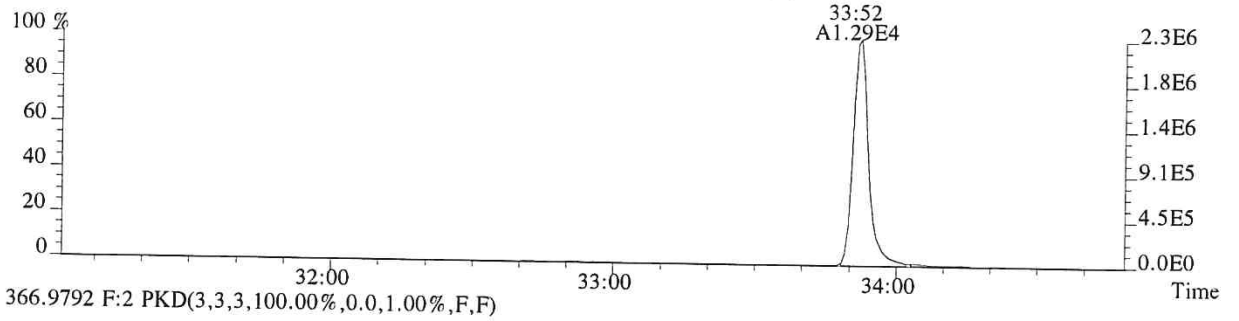
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



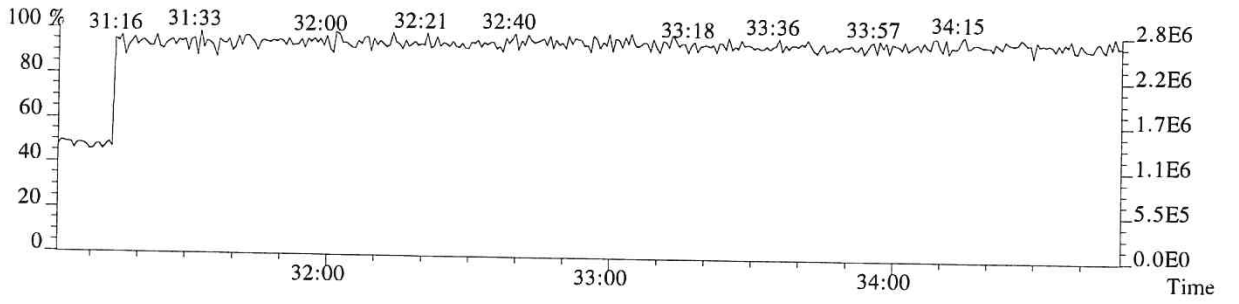
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



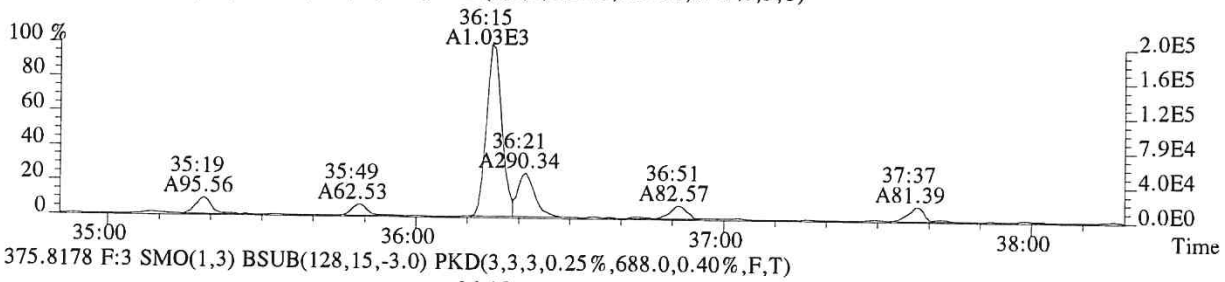
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



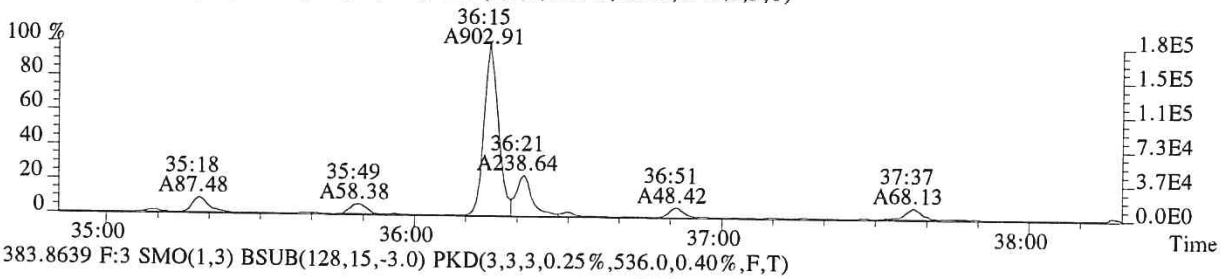
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



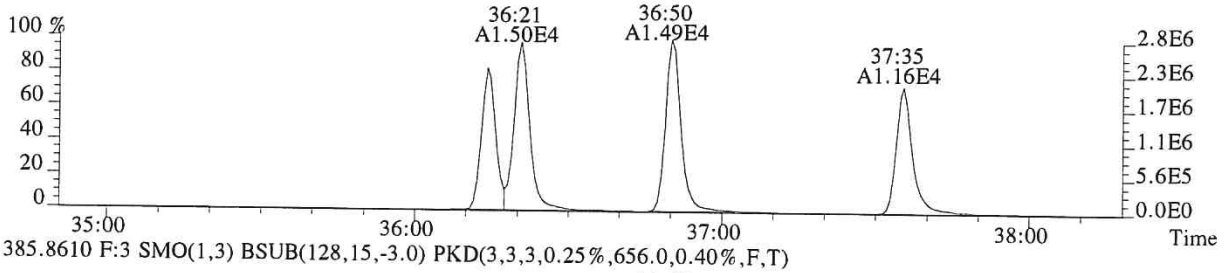
File:P518973 #1-312 Acq:21-NOV-2018 17:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1092.0,0.40%,F,T)



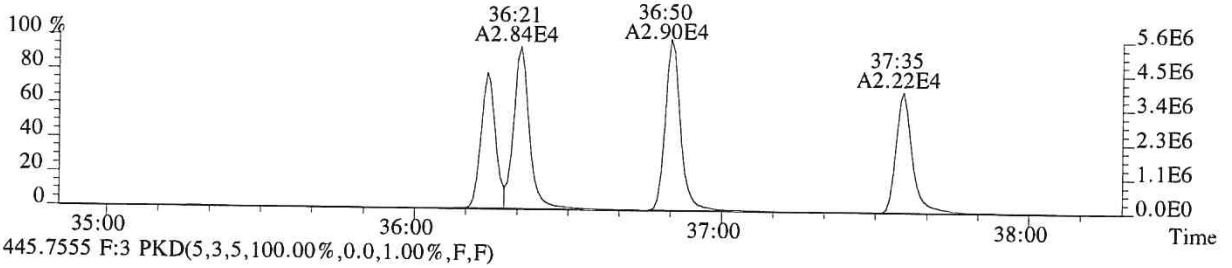
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



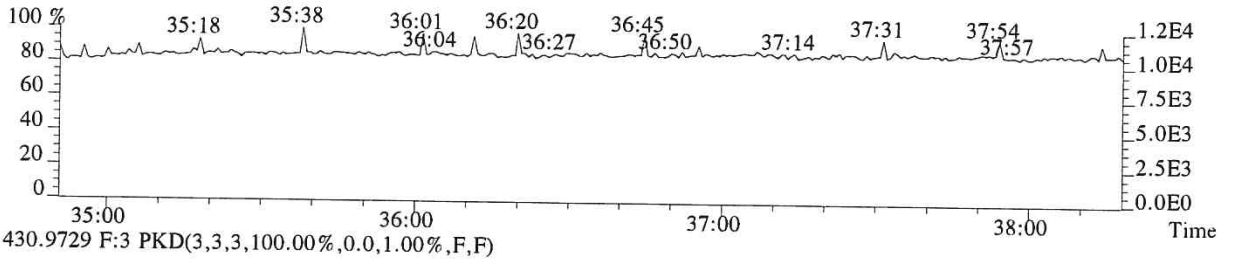
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



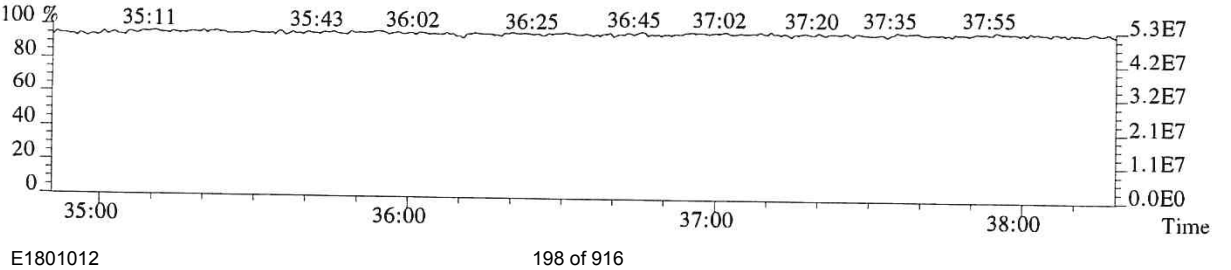
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



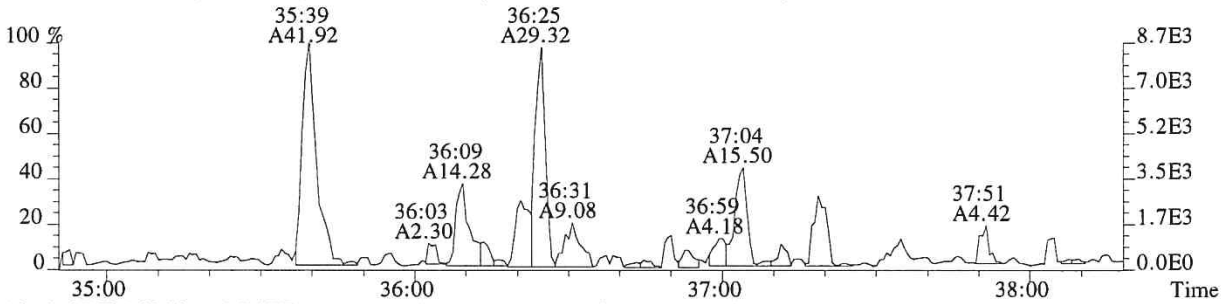
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



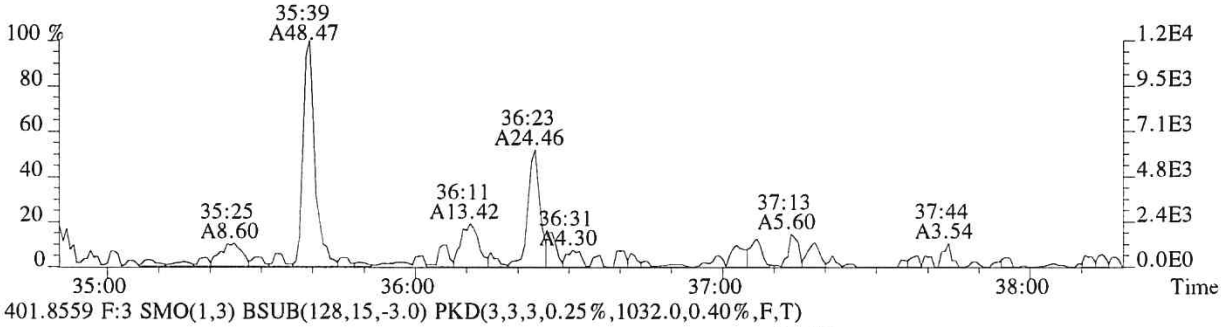
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



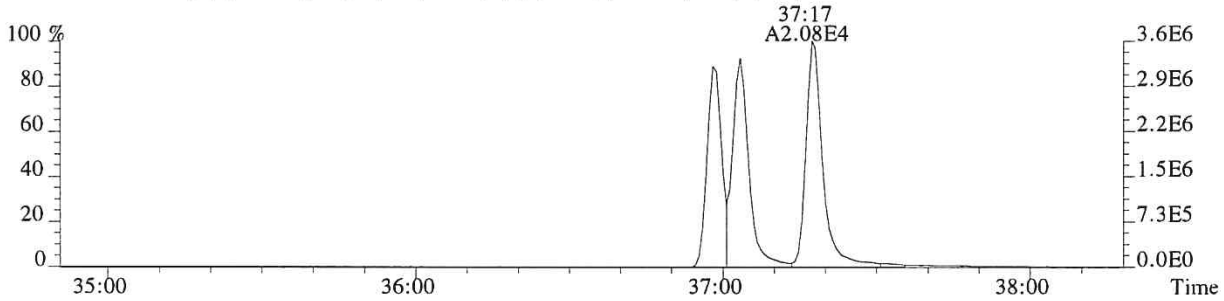
File:P518973 #1-312 Acq:21-NOV-2018 17:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



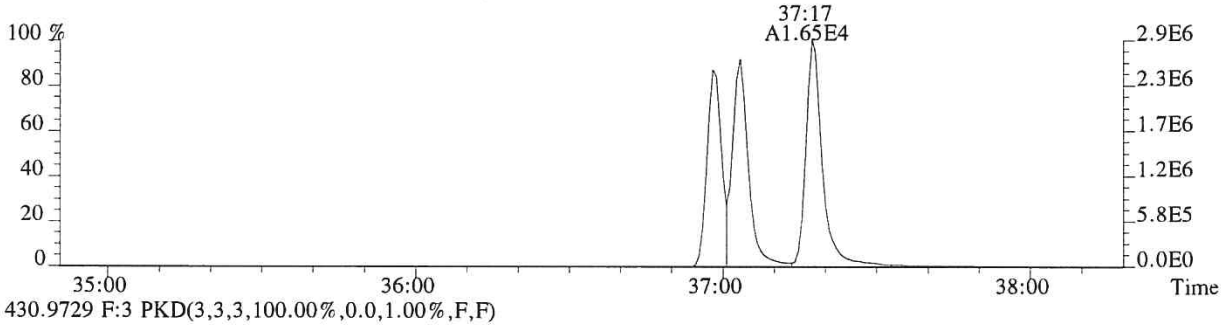
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



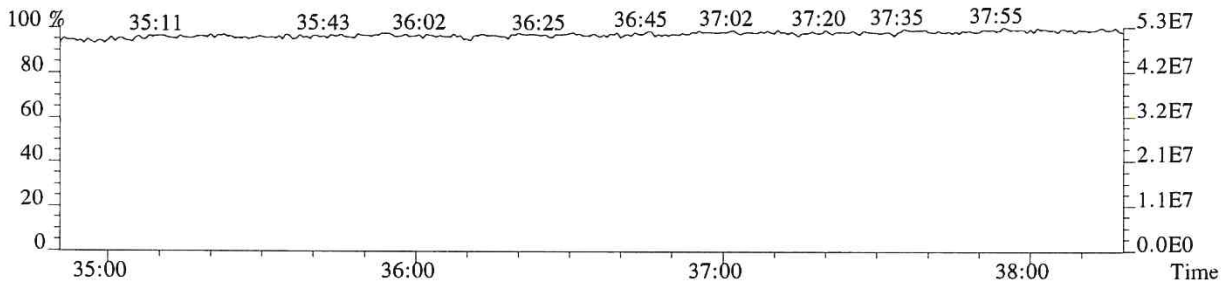
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)

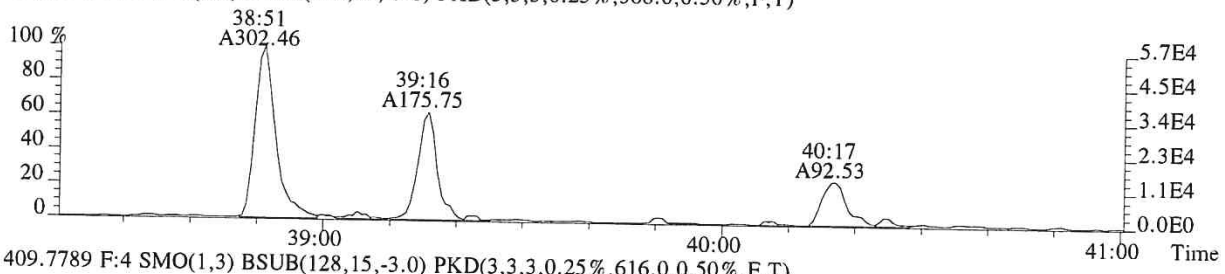


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

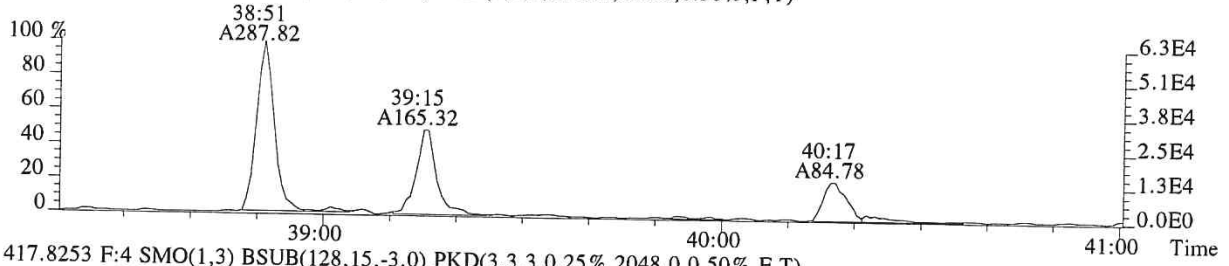


File:P518973 #1-241 Acq:21-NOV-2018 17:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018DL

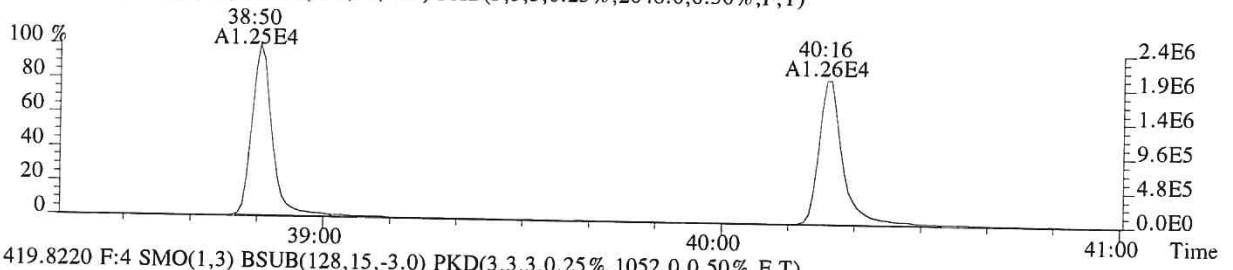
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.50%,F,T)



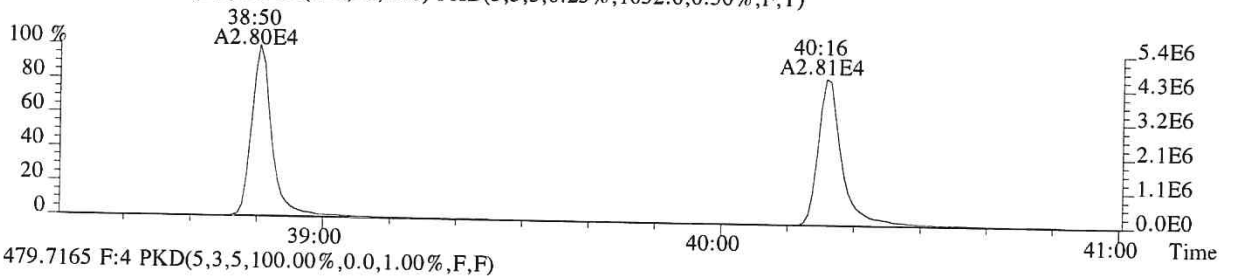
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.50%,F,T)



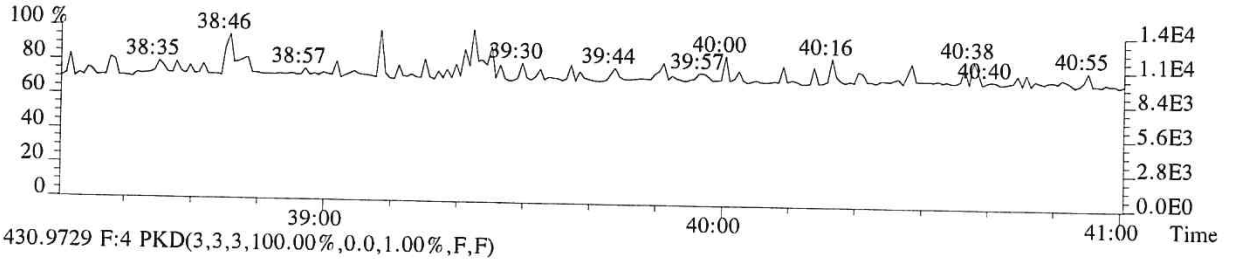
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2048.0,0.50%,F,T)



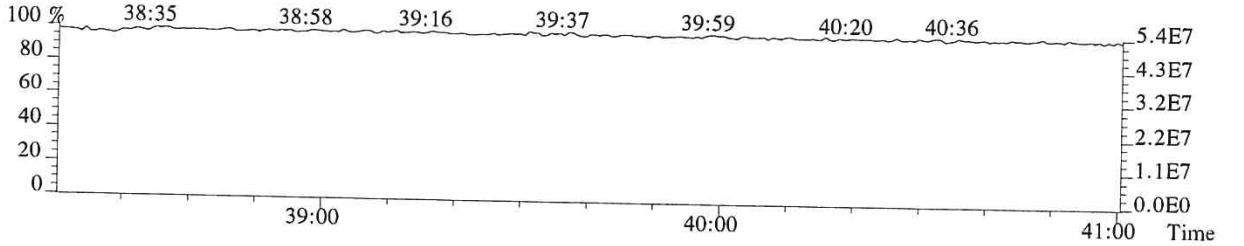
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.50%,F,T)



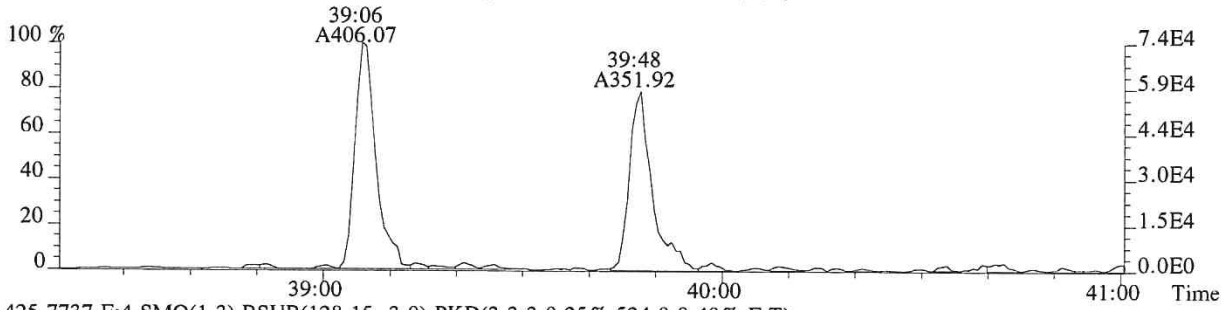
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



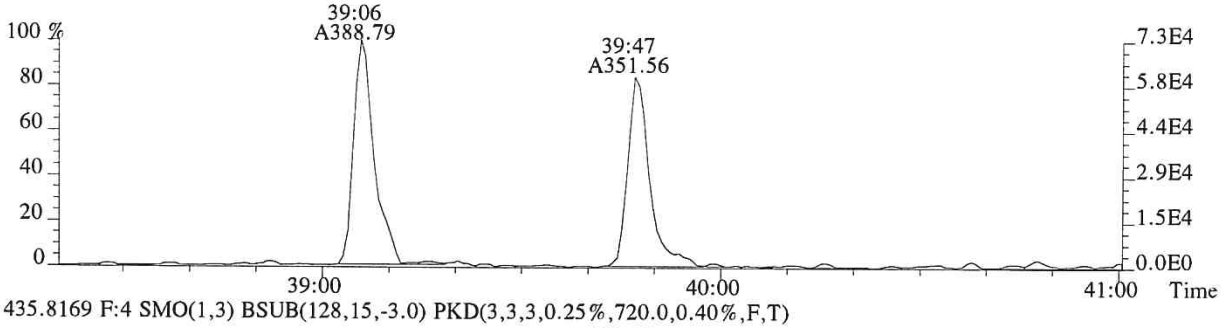
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



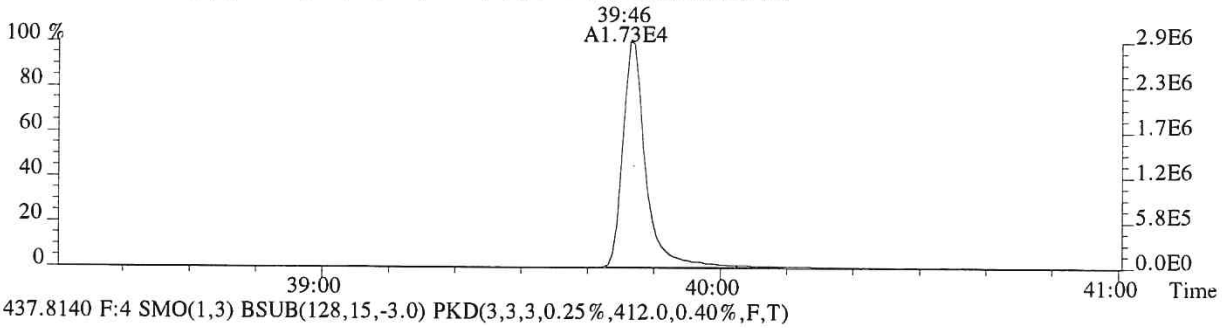
File:P518973 #1-241 Acq:21-NOV-2018 17:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



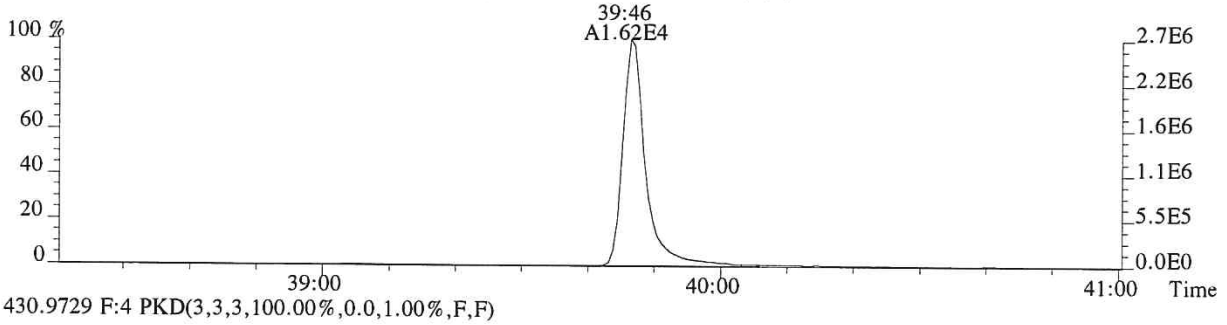
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



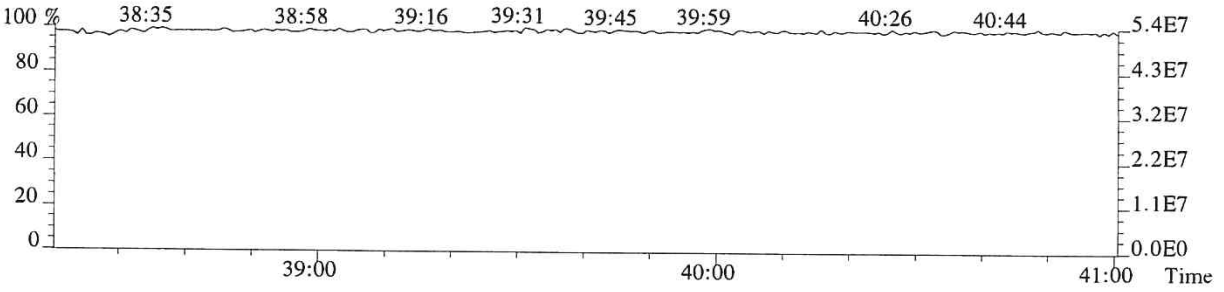
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)

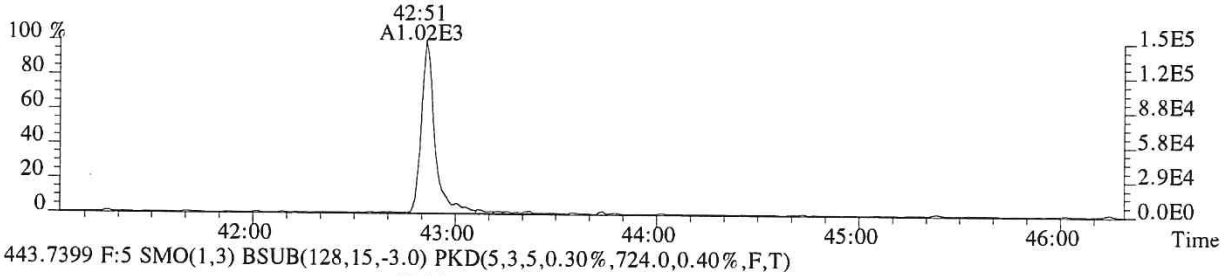


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

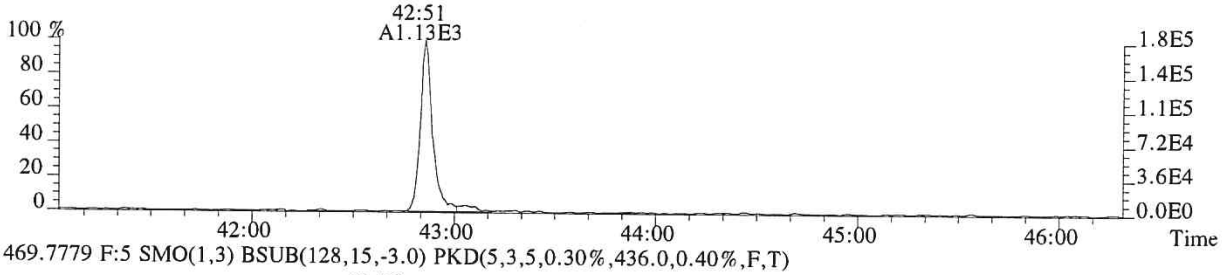


File:P518973 #1-475 Acq:21-NOV-2018 17:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018DL

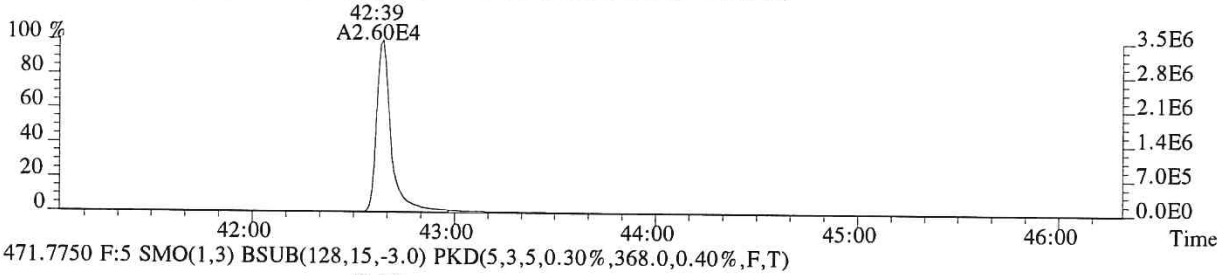
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



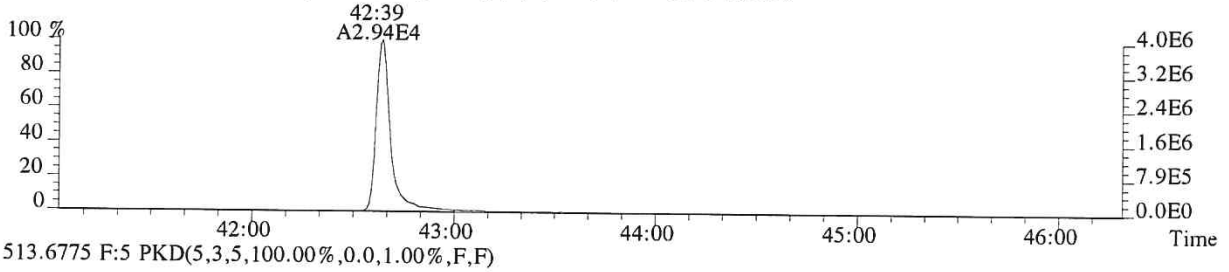
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



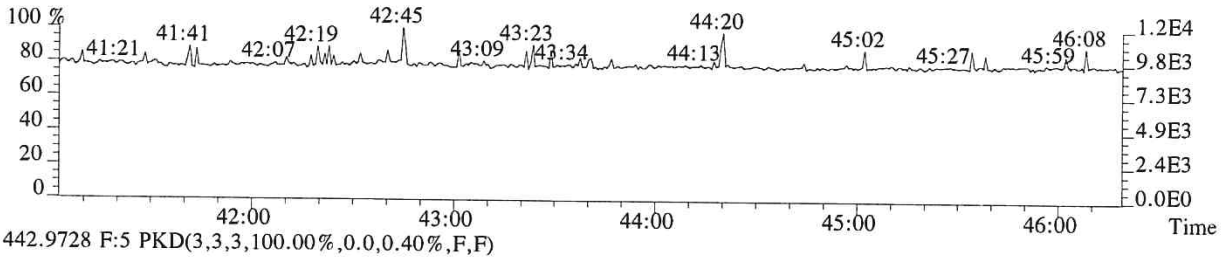
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



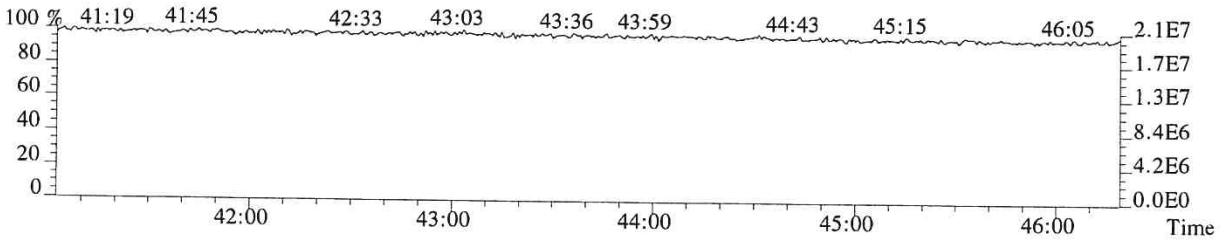
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



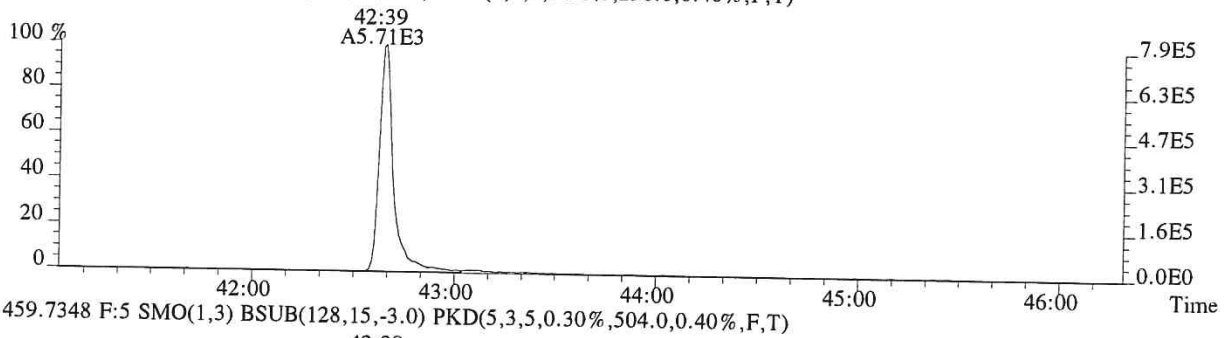
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



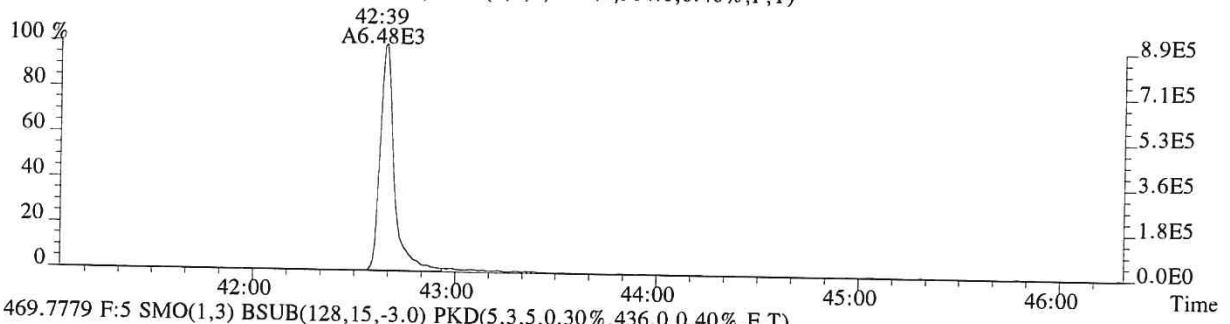
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



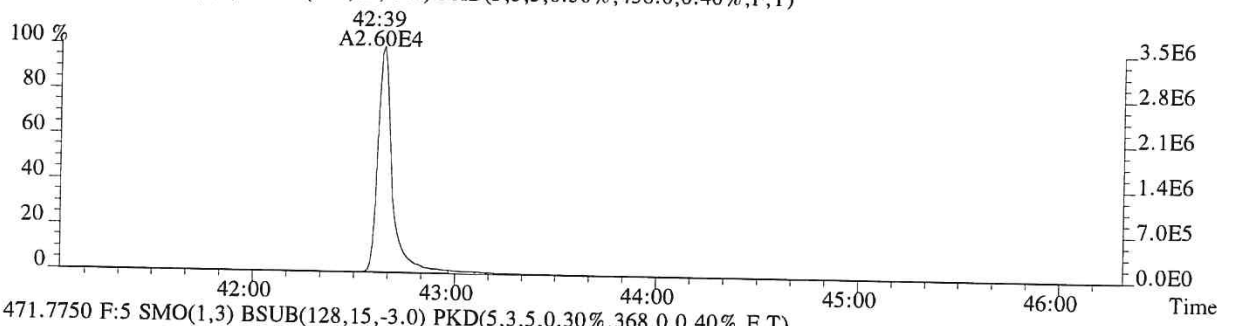
File:P518973 #1-475 Acq:21-NOV-2018 17:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-018DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



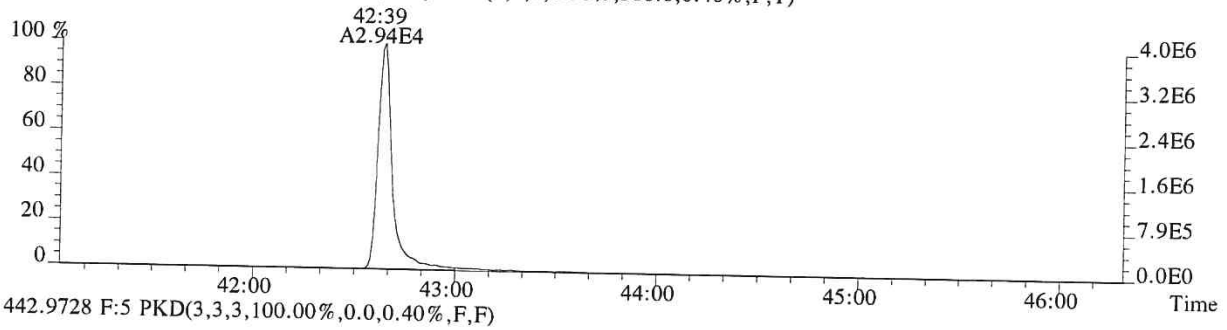
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



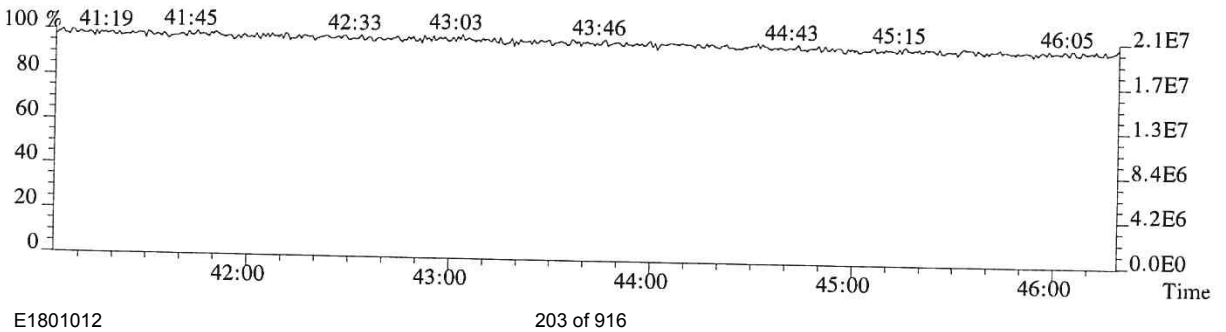
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0065

Run #16 Filename P518833 Samp: 1 Inj: 1 Acquired: 15-NOV-18 20:02:15
Processed: 16-NOV-18 14:10:47 Sample ID: E1801012-019

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:38	9.530e+05	1.217e+06	0.78	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:38	5.975e+04	3.890e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:39	4.905e+04	3.160e+04	1.55	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:31	7.803e+04	6.340e+04	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	2.219e+04	1.814e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:10	3.701e+03	3.083e+03	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:58	6.207e+03	5.232e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	2.069e+04	2.061e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	6.393e+03	6.298e+03	1.02	yes	no	1.258
10	Unk	OCDF	40:52	6.705e+04	7.745e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:38	2.474e+05	3.136e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:57	3.507e+03	2.180e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:19	1.325e+02	1.048e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:24	7.859e+02	6.274e+02	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:39	3.399e+02	2.751e+02	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	2.624e+04	2.550e+04	1.03	yes	no	1.025
17	Unk	OCDD	40:43	3.977e+05	4.430e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:36	2.073e+04	2.589e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:37	3.320e+04	2.045e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:38	3.219e+04	2.010e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:30	1.307e+04	2.586e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:37	1.627e+04	3.094e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:09	1.508e+04	2.869e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:56	1.472e+04	2.873e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	9.982e+03	2.242e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:35	9.911e+03	2.270e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:36	1.372e+04	1.747e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:56	2.298e+04	1.459e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:18	1.926e+04	1.501e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.985e+04	1.581e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:10	1.973e+04	1.887e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	40:42	1.996e+04	2.191e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:55	2.379e+04	3.010e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:39	3.660e+04	2.983e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:38	1.944e+04				no	1.014

$$\text{OCDD} = \frac{(3.977e+05 + 4.430e+05) \times 4000\ \text{pg} \times 1}{(1.996e+04 + 2.191e+04) \times 10.0\ \text{g} \times 74.5 / 100 \times 1.118} = 8929.45\ \text{ng/kg}$$

LLW 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0065

Run #16 Filename P518833 Samp: 1 Inj: 1 Acquired: 15-NOV-18 20:02:15
Processed: 16-NOV-18 14:10:47 LAB. ID: E1801012-019

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.33e+08	2.40e+03	5.5e+04	1.69e+08	3.14e+03	5.4e+04
2	1,2,3,7,8-PeCDF	1.04e+07	1.36e+04	7.6e+02	6.79e+06	3.26e+03	2.1e+03
3	2,3,4,7,8-PeCDF	7.28e+06	1.36e+04	5.3e+02	4.67e+06	3.26e+03	1.4e+03
4	1,2,3,4,7,8-HxCDF	1.59e+07	5.33e+03	3.0e+03	1.30e+07	6.16e+03	2.1e+03
5	1,2,3,6,7,8-HxCDF	3.96e+06	5.33e+03	7.4e+02	3.26e+06	6.16e+03	5.3e+02
6	2,3,4,6,7,8-HxCDF	7.68e+05	5.33e+03	1.4e+02	6.30e+05	6.16e+03	1.0e+02
7	1,2,3,7,8,9-HxCDF	1.25e+06	5.33e+03	2.3e+02	1.02e+06	6.16e+03	1.7e+02
8	1,2,3,4,6,7,8-HpCDF	4.09e+06	4.70e+03	8.7e+02	4.13e+06	3.24e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	1.22e+06	4.70e+03	2.6e+02	1.22e+06	3.24e+03	3.8e+02
10	OCDF	1.08e+07	2.72e+02	4.0e+04	1.24e+07	1.08e+03	1.1e+04
11	2,3,7,8-TCDD	4.04e+07	3.19e+03	1.3e+04	5.11e+07	1.79e+03	2.9e+04
12	1,2,3,7,8-PeCDD	5.76e+05	1.59e+03	3.6e+02	3.54e+05	8.20e+02	4.3e+02
13	1,2,3,4,7,8-HxCDD	2.45e+04	1.18e+03	2.1e+01	2.47e+04	3.73e+03	6.6e+00
14	1,2,3,6,7,8-HxCDD	1.56e+05	1.18e+03	1.3e+02	1.25e+05	3.73e+03	3.4e+01
15	1,2,3,7,8,9-HxCDD	6.11e+04	1.18e+03	5.2e+01	5.41e+04	3.73e+03	1.4e+01
16	1,2,3,4,6,7,8-HpCDD	4.82e+06	1.63e+03	3.0e+03	4.67e+06	1.14e+04	4.1e+02
17	OCDD	6.42e+07	5.32e+02	1.2e+05	7.13e+07	1.37e+03	5.2e+04
18	13C-2,3,7,8-TCDF	2.97e+06	1.21e+04	2.5e+02	3.75e+06	8.53e+03	4.4e+02
19	13C-1,2,3,7,8-PeCDF	5.66e+06	5.68e+03	1.0e+03	3.49e+06	7.61e+03	4.6e+02
20	13C-2,3,4,7,8-PeCDF	5.70e+06	5.68e+03	1.0e+03	3.55e+06	7.61e+03	4.7e+02
21	13C-1,2,3,4,7,8-HxCDF	2.67e+06	2.52e+03	1.1e+03	5.33e+06	2.43e+03	2.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.97e+06	2.52e+03	1.2e+03	5.78e+06	2.43e+03	2.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.94e+06	2.52e+03	1.2e+03	5.66e+06	2.43e+03	2.3e+03
24	13C-1,2,3,7,8,9-HxCDF	2.81e+06	2.52e+03	1.1e+03	5.43e+06	2.43e+03	2.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.92e+06	3.76e+03	5.1e+02	4.40e+06	1.74e+03	2.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.86e+06	3.76e+03	5.0e+02	4.21e+06	1.74e+03	2.4e+03
27	13C-2,3,7,8-TCDD	2.25e+06	5.24e+03	4.3e+02	2.81e+06	3.22e+03	8.7e+02
28	13C-1,2,3,7,8-PeCDD	4.06e+06	1.00e+03	4.1e+03	2.58e+06	9.96e+02	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	4.20e+06	1.11e+03	3.8e+03	3.27e+06	1.09e+03	3.0e+03
30	13C-1,2,3,6,7,8-HxCDD	3.75e+06	1.11e+03	3.4e+03	2.98e+06	1.09e+03	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.59e+06	1.52e+03	2.4e+03	3.39e+06	6.96e+02	4.9e+03
32	13C-OCDD	3.21e+06	6.16e+02	5.2e+03	3.55e+06	4.36e+02	8.1e+03
33	13C-1,2,3,4-TCDD	3.60e+06	5.24e+03	6.9e+02	4.48e+06	3.22e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	6.85e+06	1.11e+03	6.2e+03	5.40e+06	1.09e+03	5.0e+03
35	37Cl-2,3,7,8-TCDD	3.17e+06	2.21e+03	1.4e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0065

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P518833 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 20:02:15 Processed: 16-NOV-18 14:10:47

Mass: 303.9020 305.8990 Tot Response: 4.14e+06 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	21:36	1.19e+03	1.43e+03	0.83	yes	2.62e+03		n	n
2	22:30	8.41e+03	1.10e+04	0.76	yes	1.94e+04		n	n
3	22:46	4.60e+04	6.00e+04	0.77	yes	1.06e+05		n	n
4	23:07	1.37e+04	1.83e+04	0.75	yes	3.20e+04		n	n
5	23:15	1.53e+03	2.11e+03	0.73	yes	3.64e+03		n	n
6	23:24	3.75e+04	4.86e+04	0.77	yes	8.61e+04		n	n
7	23:46	8.68e+03	1.13e+04	0.77	yes	2.00e+04		n	n
8	24:01	2.36e+04	3.16e+04	0.75	yes	5.52e+04		n	n
9	24:08	5.00e+04	6.52e+04	0.77	yes	1.15e+05		n	n
10	24:37	4.25e+05	5.46e+05	0.78	yes	9.72e+05		n	n
11	24:55	1.96e+04	2.55e+04	0.77	yes	4.52e+04		n	n
12	25:24	7.42e+03	9.89e+03	0.75	yes	1.73e+04		y	y
13	25:30	5.65e+04	7.34e+04	0.77	yes	1.30e+05		y	y
14	25:38	9.53e+05	1.22e+06	0.78	yes	2.17e+06	2,3,7,8-TCDF	y	y
15	26:04	7.14e+04	9.18e+04	0.78	yes	1.63e+05		n	n
16	26:21	1.11e+04	1.40e+04	0.79	yes	2.51e+04		n	n
17	27:53	7.58e+04	9.76e+04	0.78	yes	1.73e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0065

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P518833 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 20:02:15 Processed: 16-NOV-18 14:10:47

Mass: 319.8970 321.8940 Tot Response: 6.19e+05 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:19	3.52e+03	4.26e+03	0.83	yes	7.78e+03		n	n
2	26:38	2.47e+05	3.14e+05	0.79	yes	5.61e+05	2,3,7,8-TCDD	n	n
3	27:00	2.23e+04	2.76e+04	0.81	yes	4.99e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0065

Entry: 38 Totals Name: Total Penta-Furans1

Run: 16 File: P518833 Sample:1 Injection:1 Function:1

Acquired: 15-NOV-18 20:02:15 Processed: 16-NOV-18 14:10:47

Mass: 339.8600 341.8570 Tot Response: 3.71e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:54	2.30e+03	1.41e+03 1.62	yes	3.71e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0065

Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P518833 Sample:1 Injection:1 Function:2

Acquired: 15-NOV-18 20:02:15 Processed: 16-NOV-18 14:10:47

Mass: 339.8600 341.8570 Tot Response: 2.76e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:27	6.02e+02	4.29e+02	1.40	yes	1.03e+03		n	n
2	29:36	2.68e+04	1.76e+04	1.52	yes	4.44e+04		n	n
3	29:58	2.13e+02	1.41e+02	1.51	yes	3.54e+02		n	n
4	30:12	1.28e+03	7.61e+02	1.69	yes	2.04e+03		n	n
5	30:17	9.94e+02	7.09e+02	1.40	yes	1.70e+03		n	n
6	30:26	5.96e+03	3.86e+03	1.55	yes	9.83e+03		n	n
7	30:38	5.98e+04	3.89e+04	1.54	yes	9.87e+04	1,2,3,7,8-PeCDF	n	n
8	30:54	1.97e+04	1.27e+04	1.55	yes	3.24e+04		n	n
9	31:32	5.94e+02	4.23e+02	1.40	yes	1.02e+03		n	n
10	31:39	4.91e+04	3.16e+04	1.55	yes	8.07e+04	2,3,4,7,8-PeCDF	n	n
11	32:37	2.53e+03	1.58e+03	1.60	yes	4.11e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0065

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P518833 Sample:1 Injection:1 Function:2

Acquired: 15-NOV-18 20:02:15 Processed: 16-NOV-18 14:10:47

Mass: 355.8550 357.8520 Tot Response: 8.54e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:39	4.93e+02	2.99e+02	1.65	yes	7.93e+02		n	n
2	30:10	2.57e+02	1.66e+02	1.55	yes	4.23e+02		n	n
3	30:40	6.37e+02	4.31e+02	1.48	yes	1.07e+03		n	n
4	30:50	2.74e+02	1.73e+02	1.59	yes	4.47e+02		n	n
5	31:57	3.51e+03	2.18e+03	1.61	yes	5.69e+03	1,2,3,7,8-PeCDD	n	n
6	32:22	7.66e+01	4.74e+01	1.62	yes	1.24e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0065

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P518833 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 20:02:15 Processed: 16-NOV-18 14:10:47

Mass: 373.8210 375.8180 Tot Response: 2.22e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:21	8.53e+02	7.25e+02	1.18	yes	1.58e+03		n	n
2	33:31	6.49e+03	5.40e+03	1.20	yes	1.19e+04		n	n
3	34:03	4.81e+03	3.90e+03	1.24	yes	8.71e+03		n	n
4	34:31	7.80e+04	6.34e+04	1.23	yes	1.41e+05	1,2,3,4,7,8-HxCDF	n	n
5	34:37	2.22e+04	1.81e+04	1.22	yes	4.03e+04	1,2,3,6,7,8-HxCDF	n	n
6	35:10	3.70e+03	3.08e+03	1.20	yes	6.78e+03	2,3,4,6,7,8-HxCDF	n	n
7	35:58	6.21e+03	5.23e+03	1.19	yes	1.14e+04	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0065

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P518833 Sample:1 Injection:1 Function:3

Acquired: 15-NOV-18 20:02:15 Processed: 16-NOV-18 14:10:47

Mass: 389.8160 391.8130 Tot Response: 1.34e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:54	3.08e+03	2.53e+03	1.22	yes	5.61e+03		n	n
2	34:27	5.72e+02	4.64e+02	1.23	yes	1.04e+03		n	n
3	34:42	2.39e+03	1.92e+03	1.24	yes	4.31e+03		n	n
4	35:19	1.33e+02	1.05e+02	1.26	yes	2.37e+02	1,2,3,4,7,8-HxCDD	n	n
5	35:24	7.86e+02	6.27e+02	1.25	yes	1.41e+03	1,2,3,6,7,8-HxCDD	n	n
6	35:35	8.87e+01	7.71e+01	1.15	yes	1.66e+02		n	n
7	35:39	3.40e+02	2.75e+02	1.24	yes	6.15e+02	1,2,3,7,8,9-HxCDD	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0065

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P518833 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 20:02:15 Processed: 16-NOV-18 14:10:47

Mass: 407.7820 409.7790 Tot Response: 7.98e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:15	2.07e+04	2.06e+04	1.00	yes	4.13e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	37:31	3.57e+02	3.33e+02	1.07	yes	6.90e+02		n	n
3	37:39	1.26e+04	1.25e+04	1.01	yes	2.51e+04		n	n
4	38:36	6.39e+03	6.30e+03	1.02	yes	1.27e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0065

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P518833 Sample:1 Injection:1 Function:4

Acquired: 15-NOV-18 20:02:15 Processed: 16-NOV-18 14:10:47

Mass: 423.7770 425.7740 Tot Response: 1.09e+05 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:31	2.95e+04	2.81e+04	1.05	yes	5.76e+04		n	n
2	38:10	2.62e+04	2.55e+04	1.03	yes	5.17e+04	1,2,3,4,6,7,8-HpCDD	n	n

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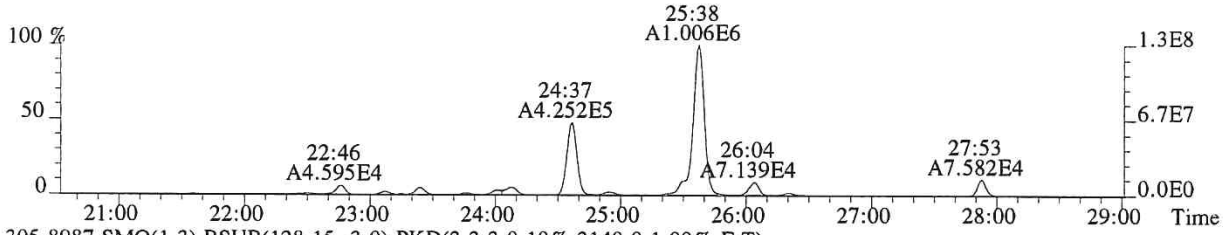
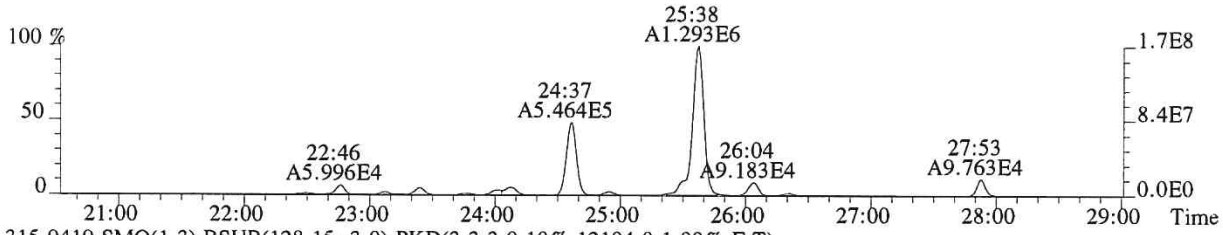
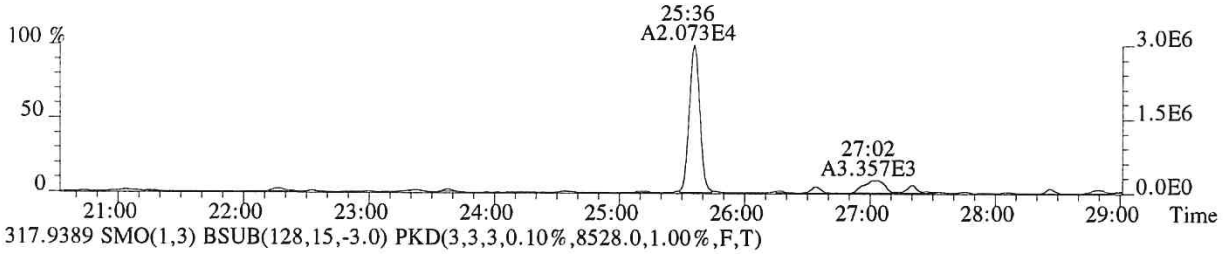
File:P518833 #1-602 Acq:15-NOV-2018 20:02:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



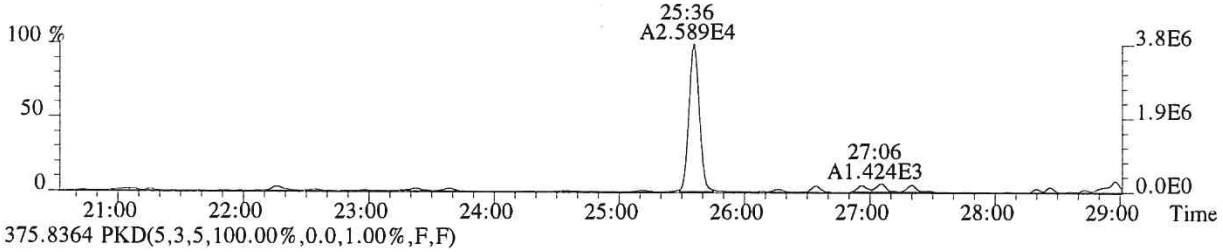
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3140.0,1.00%,F,T)



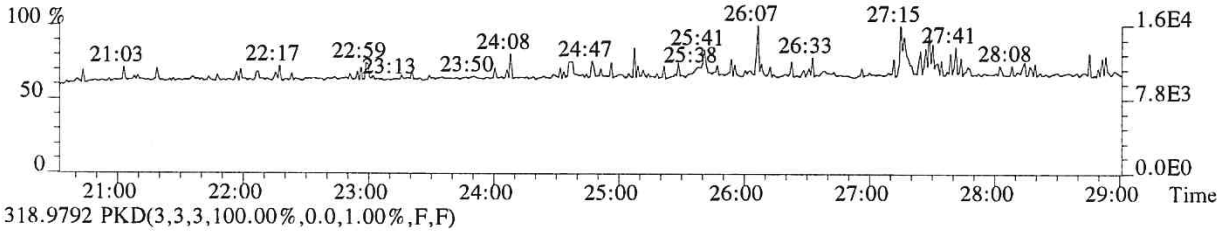
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12104.0,1.00%,F,T)



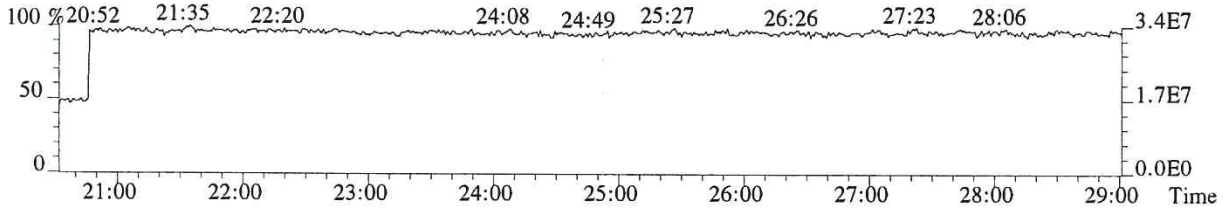
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8528.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

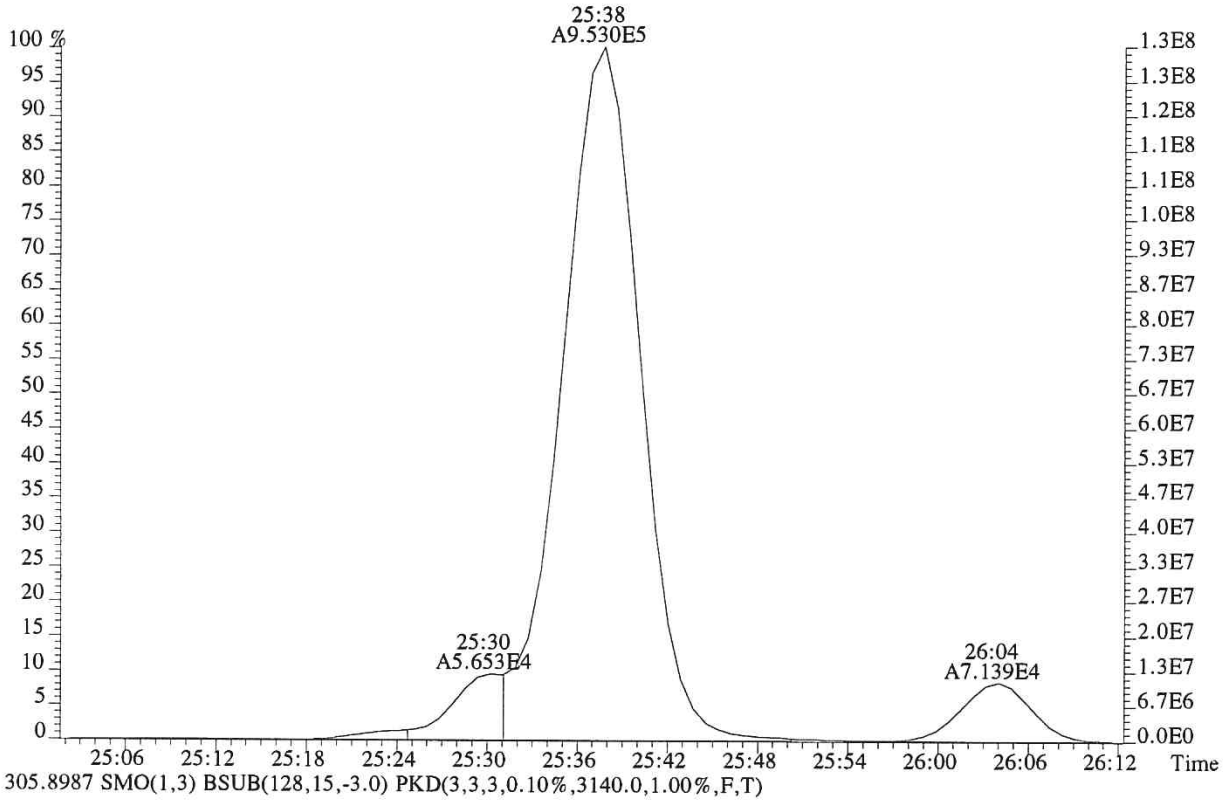


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

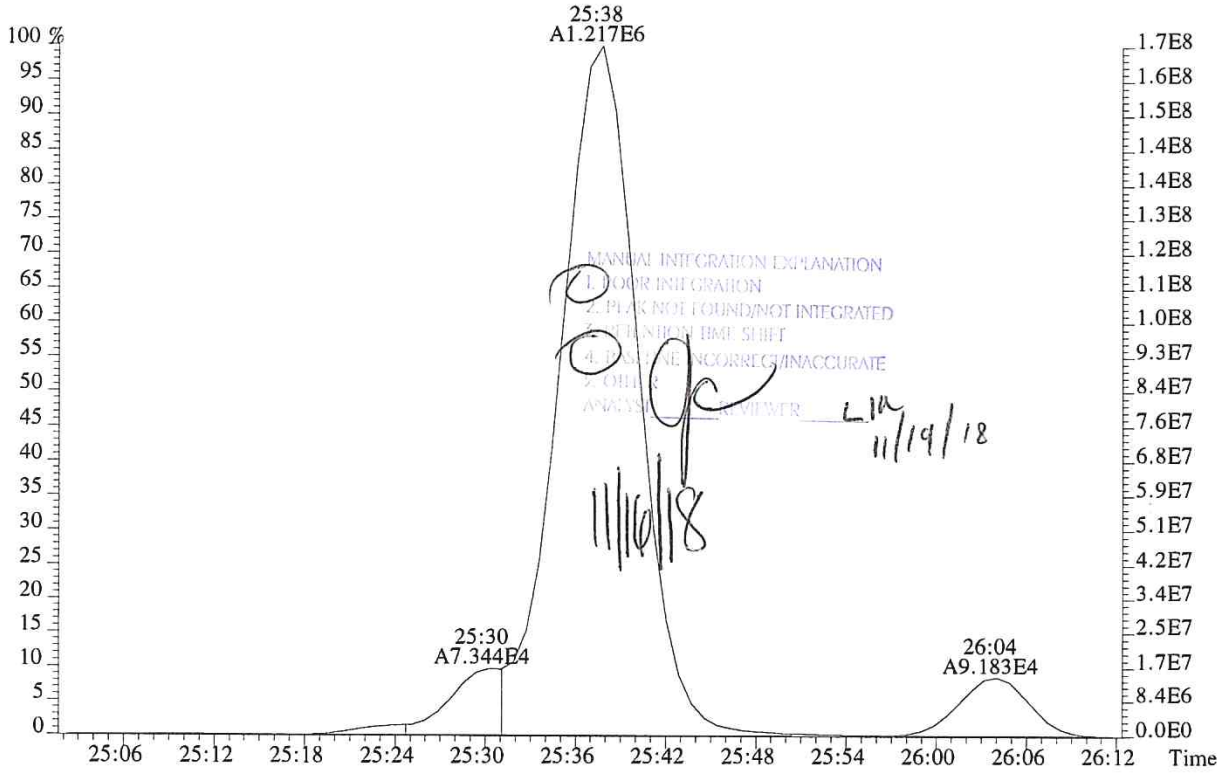


008806

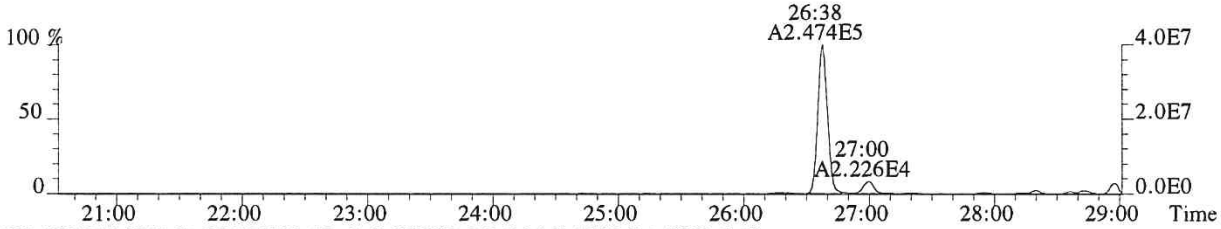
File:P518833 #1-602 Acq:15-NOV-2018 20:02:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



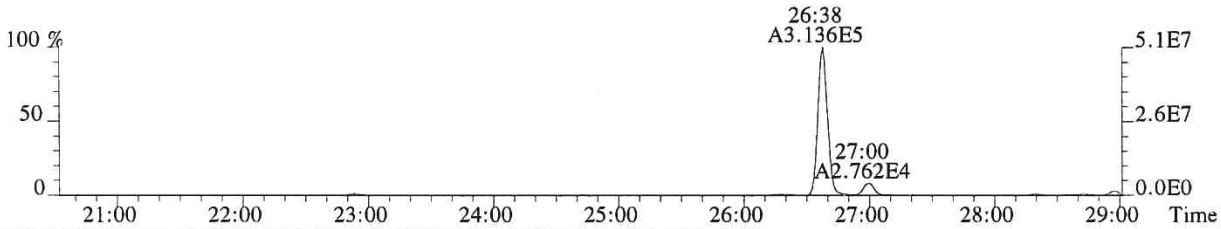
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3140.0,1.00%,F,T)



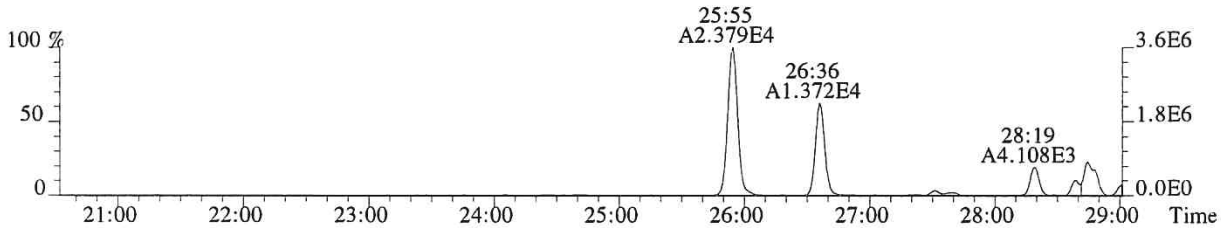
File:P518833 #1-602 Acq:15-NOV-2018 20:02:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3192.0,1.00%,F,T)



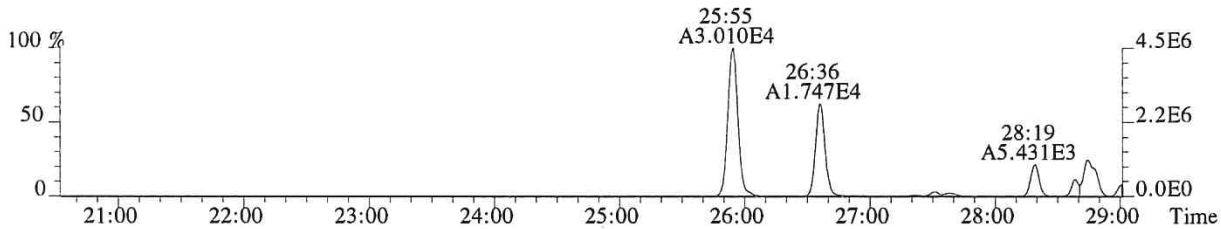
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1792.0,1.00%,F,T)



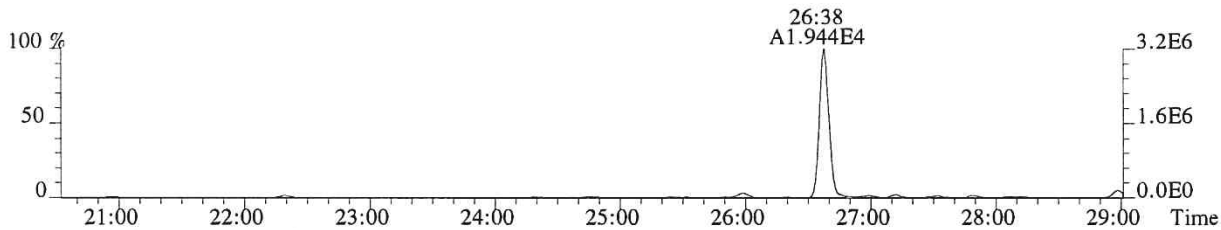
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5244.0,1.00%,F,T)



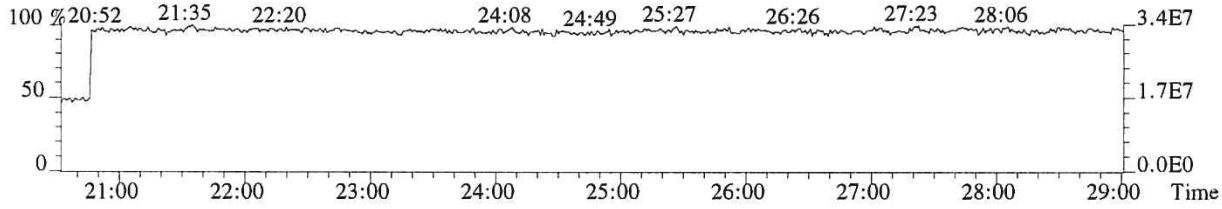
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2212.0,1.00%,F,T)

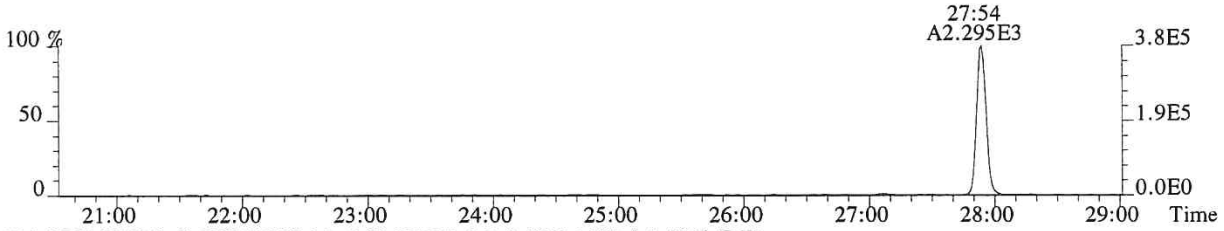


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

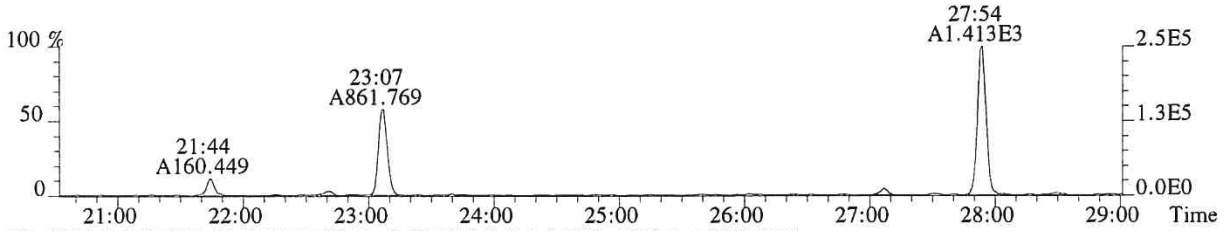


008808

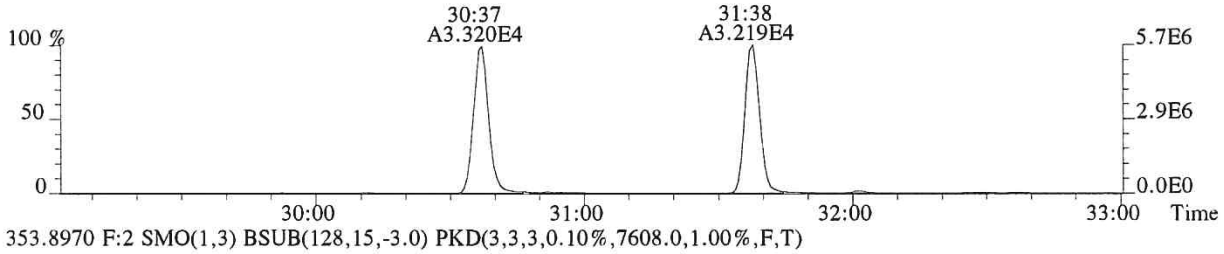
File:P518833 #1-602 Acq:15-NOV-2018 20:02:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



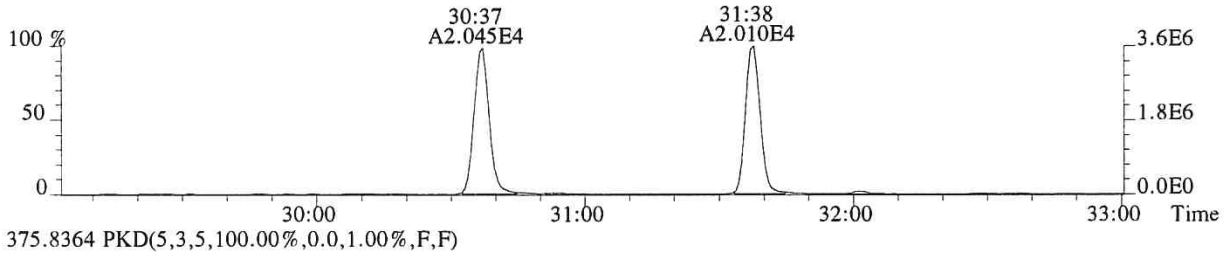
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



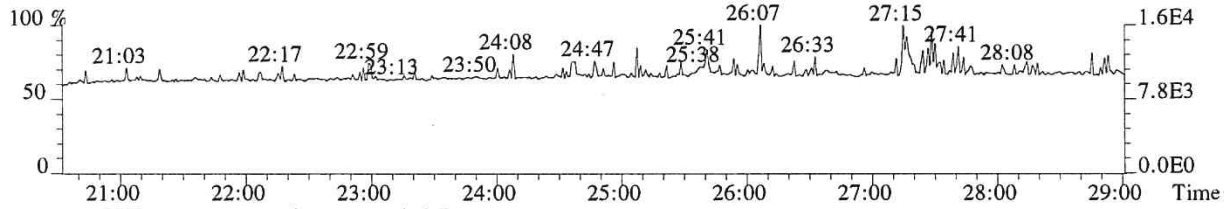
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5680.0,1.00%,F,T)



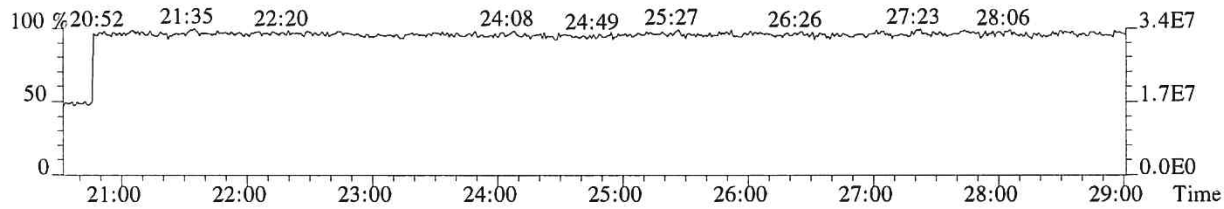
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7608.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

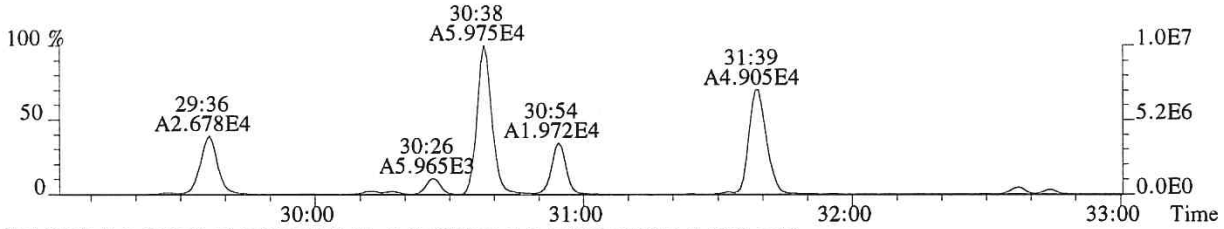


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

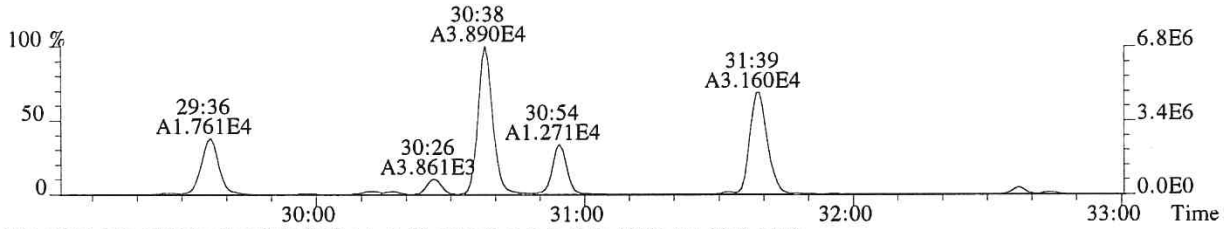


008809

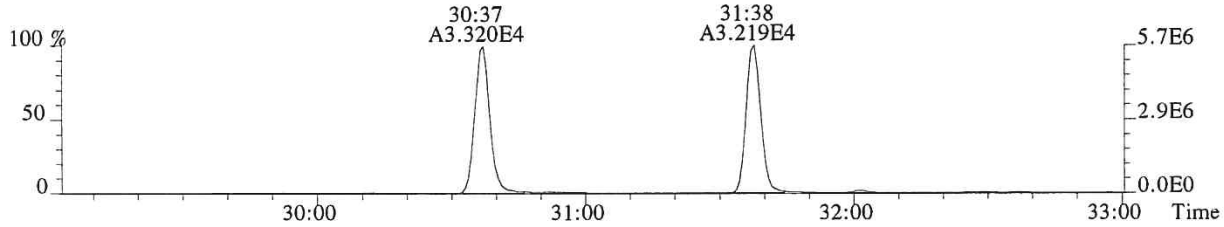
File:P518833 #1-357 Acq:15-NOV-2018 20:02:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13636.0,1.00%,F,T)



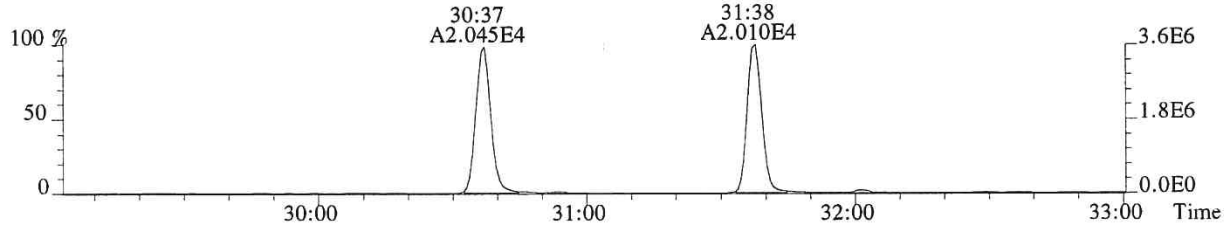
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3260.0,1.00%,F,T)



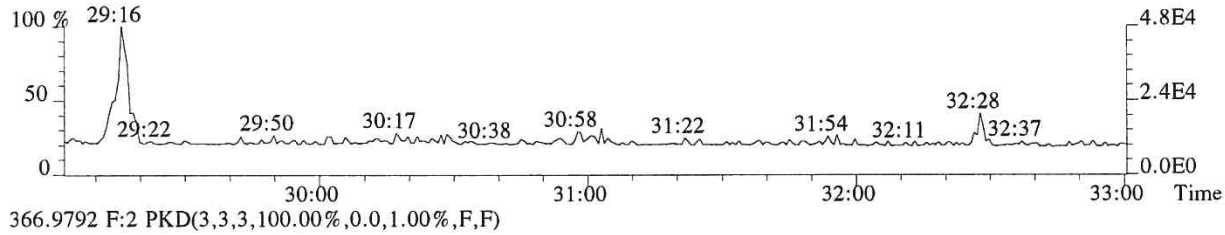
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5680.0,1.00%,F,T)



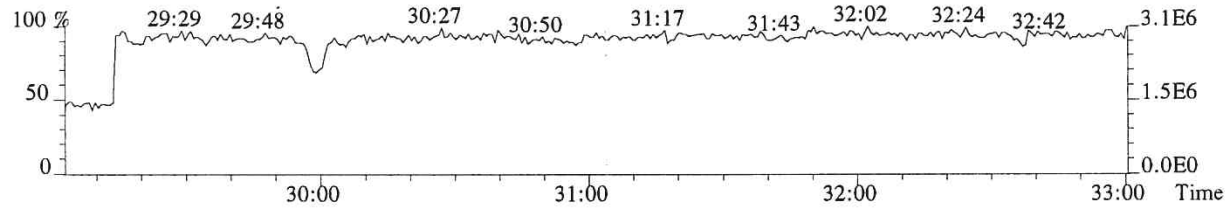
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7608.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

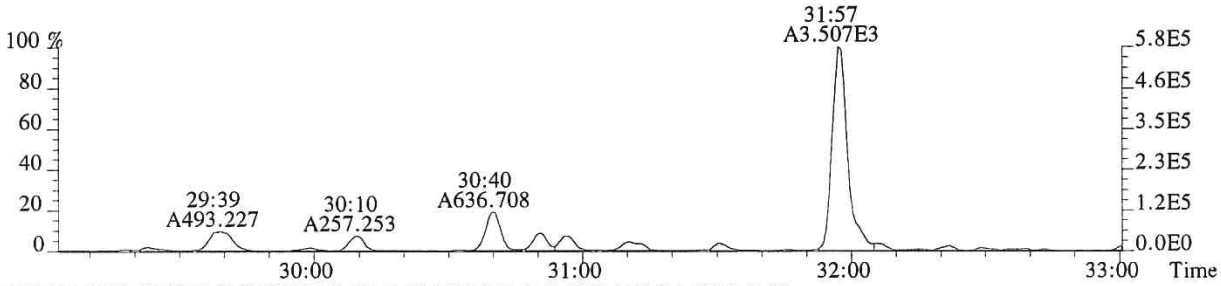


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

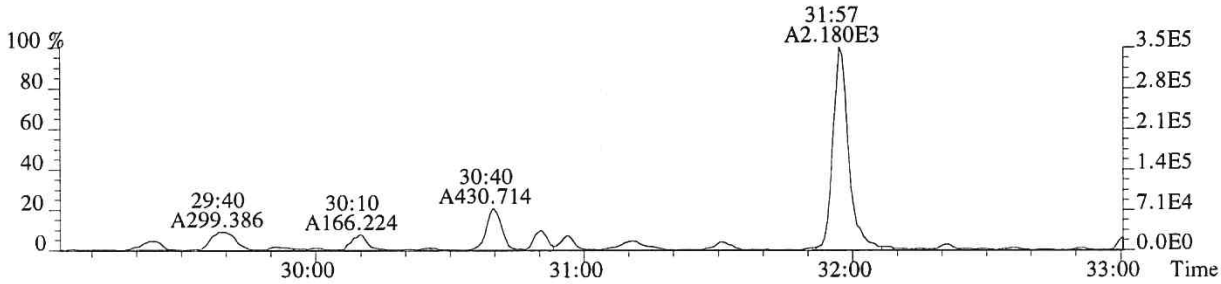


008810

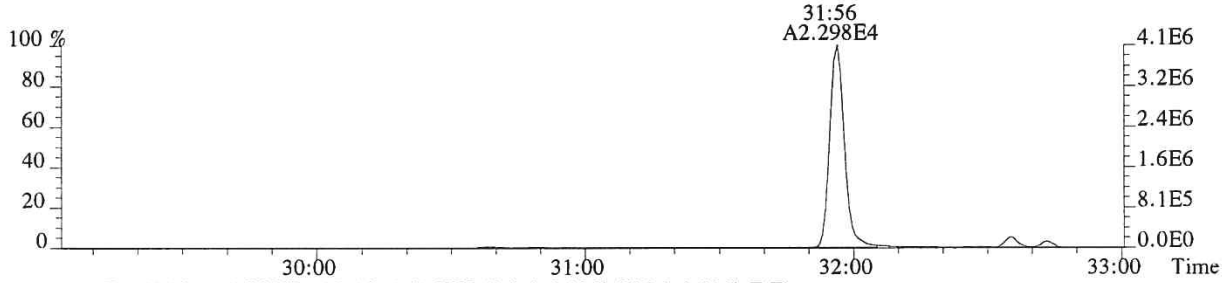
File:P518833 #1-357 Acq:15-NOV-2018 20:02:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



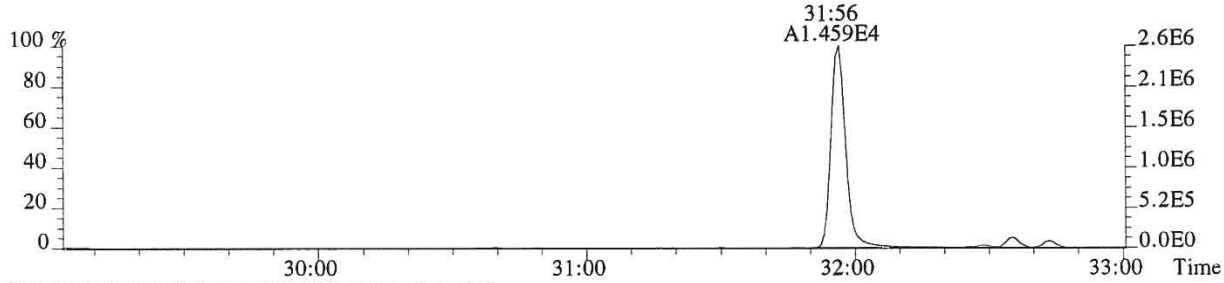
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



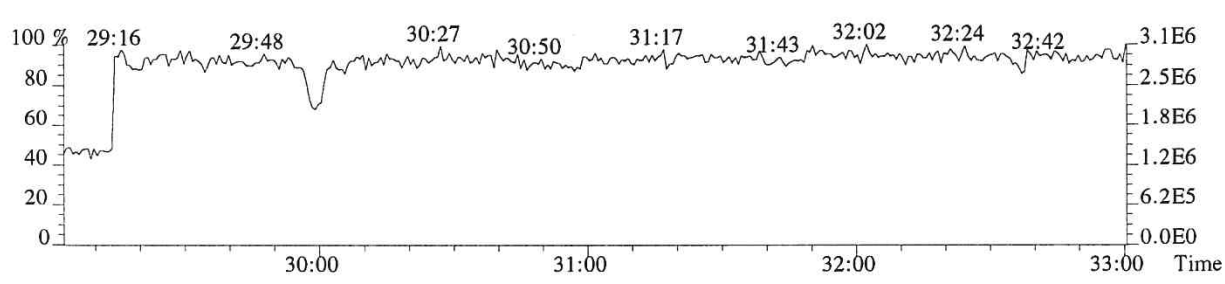
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



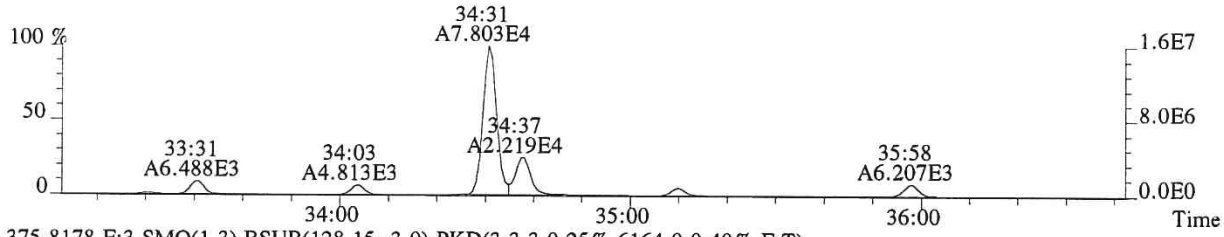
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



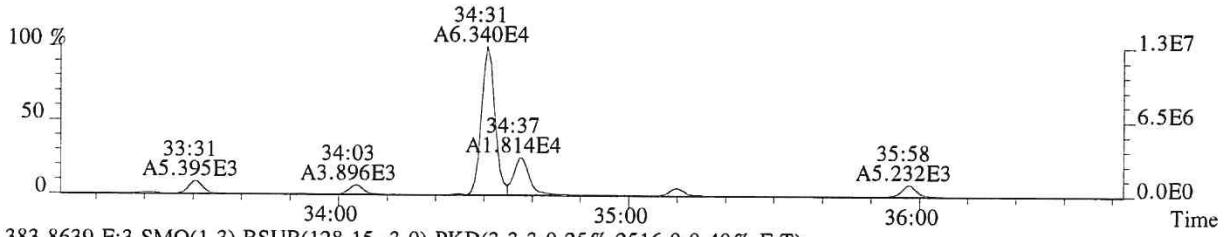
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



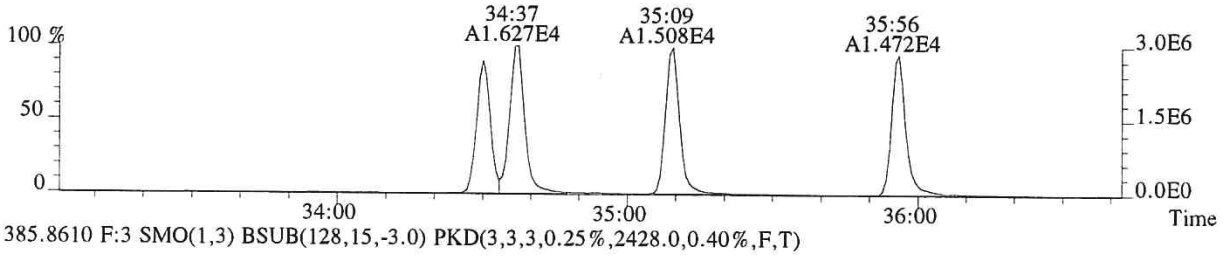
File:P518833 #1-330 Acq:15-NOV-2018 20:02:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5328.0,0.40%,F,T)



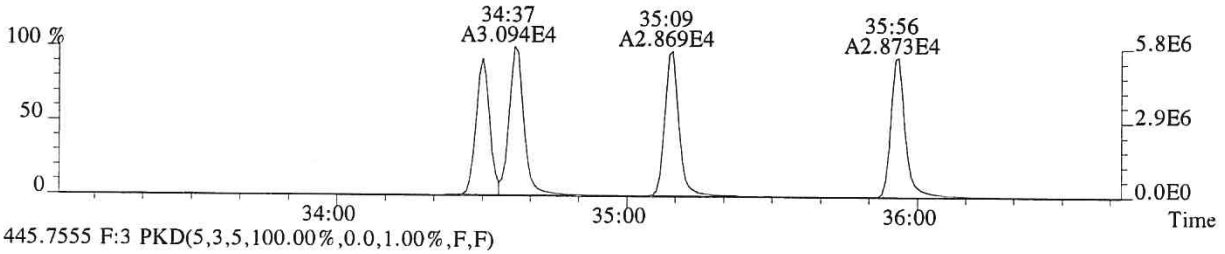
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6164.0,0.40%,F,T)



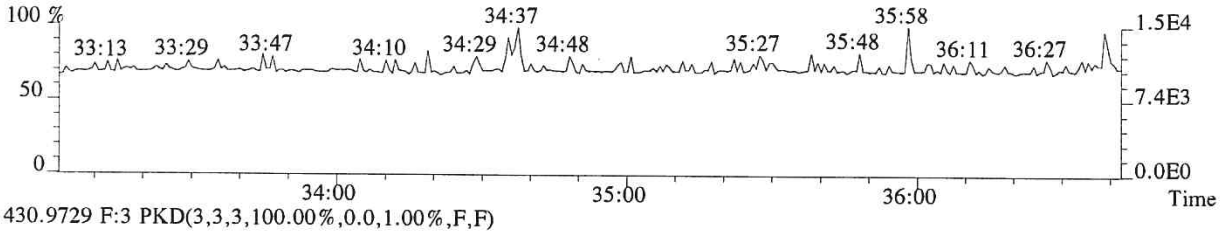
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2516.0,0.40%,F,T)



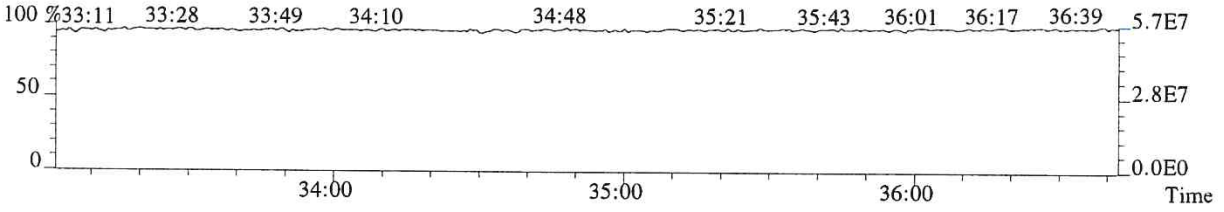
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2428.0,0.40%,F,T)



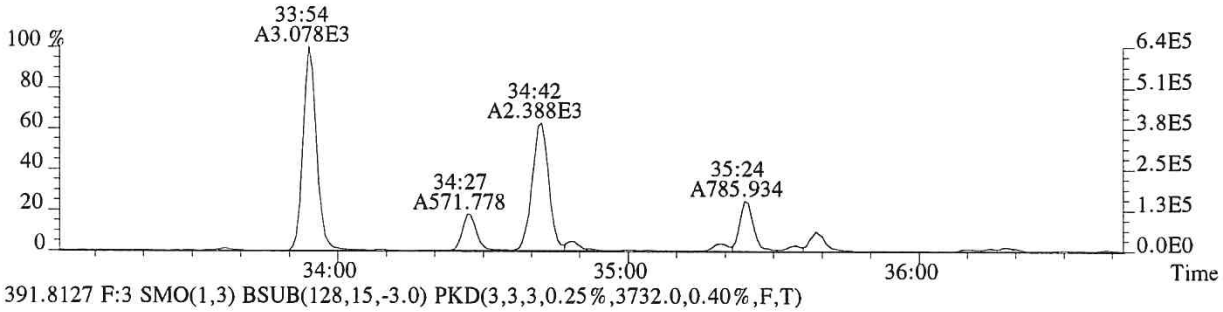
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



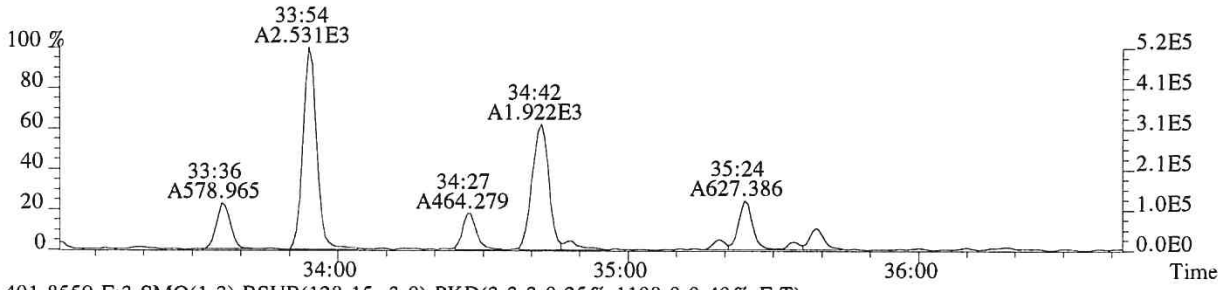
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



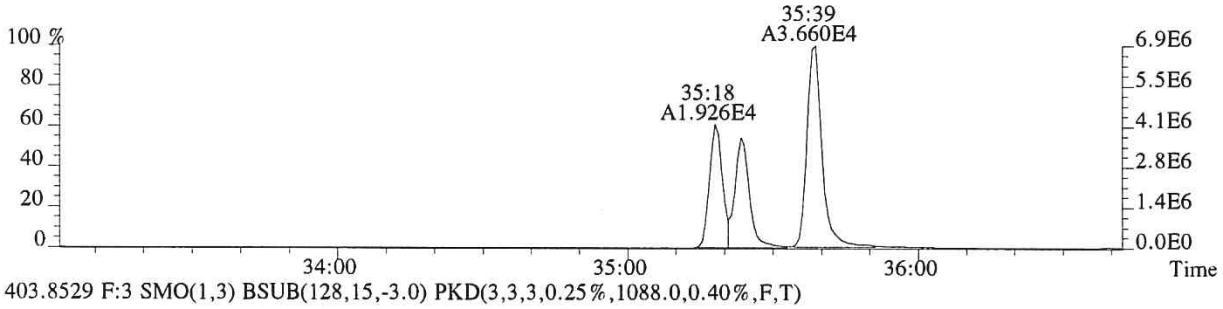
File:P518833 #1-330 Acq:15-NOV-2018 20:02:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.40%,F,T)



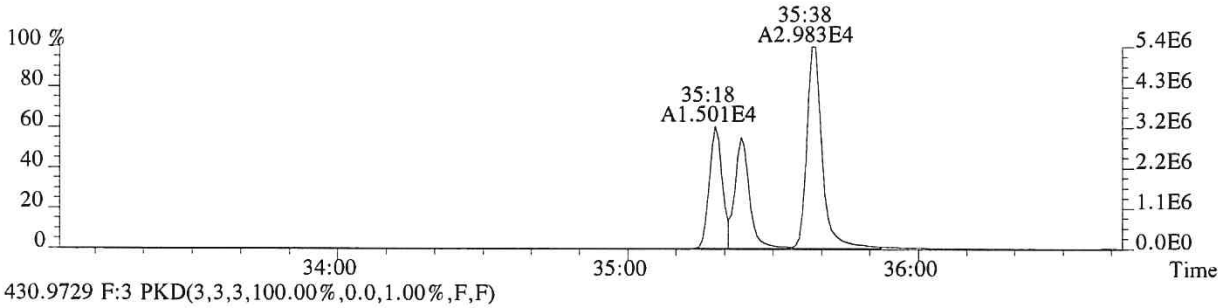
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3732.0,0.40%,F,T)



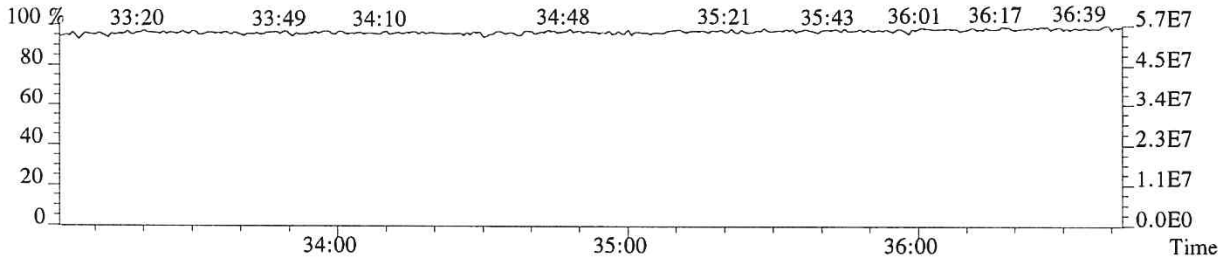
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



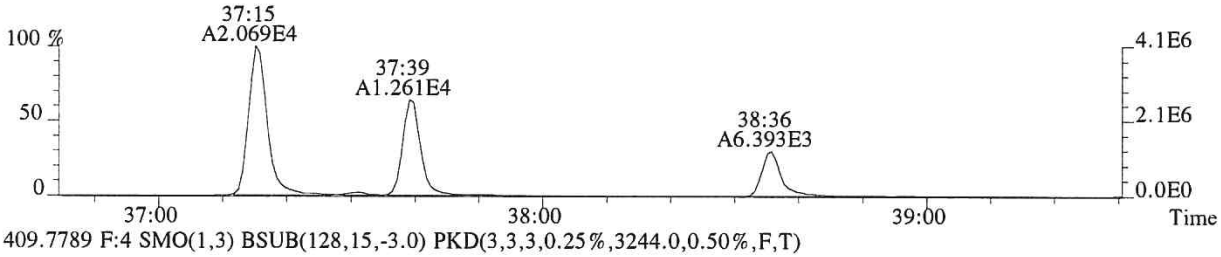
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1088.0,0.40%,F,T)



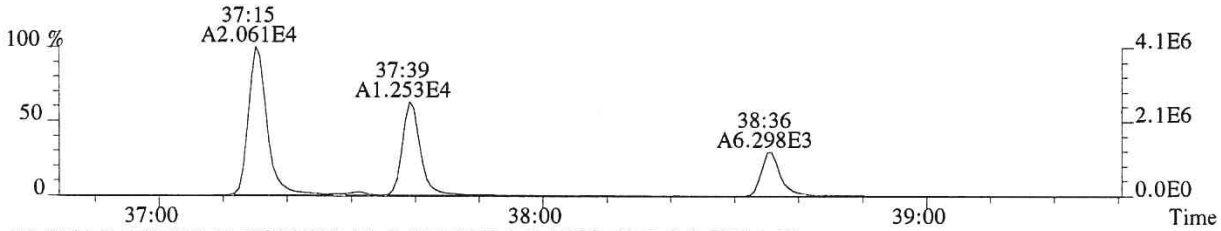
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



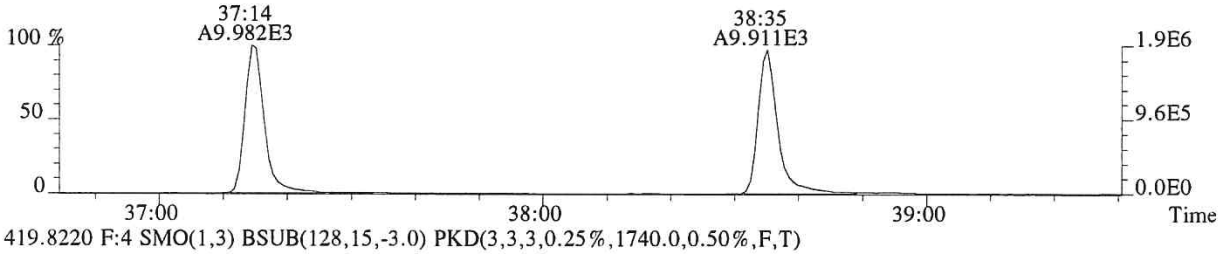
File:P518833 #1-250 Acq:15-NOV-2018 20:02:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4696.0,0.50%,F,T)



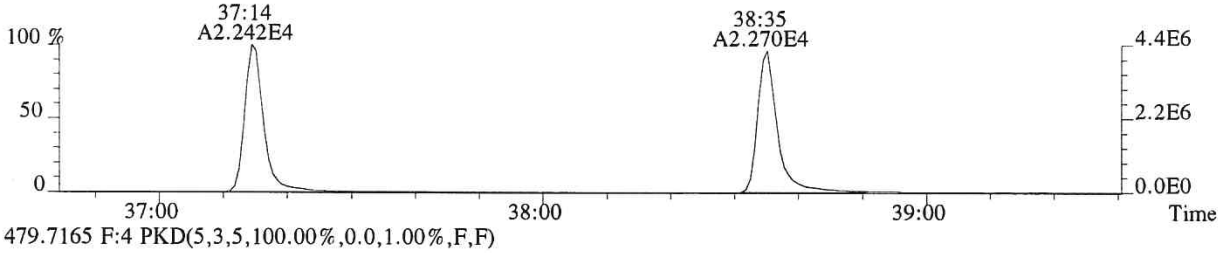
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3244.0,0.50%,F,T)



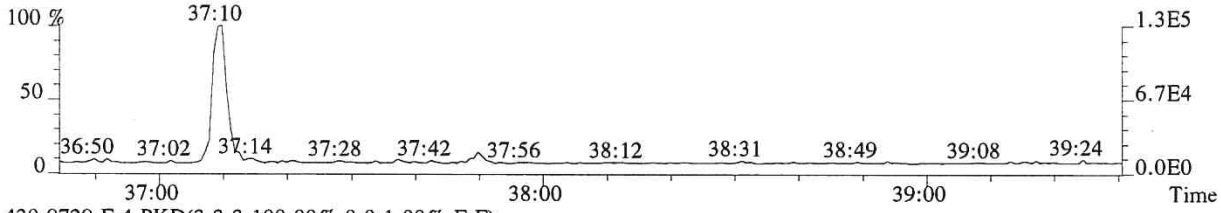
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3764.0,0.50%,F,T)



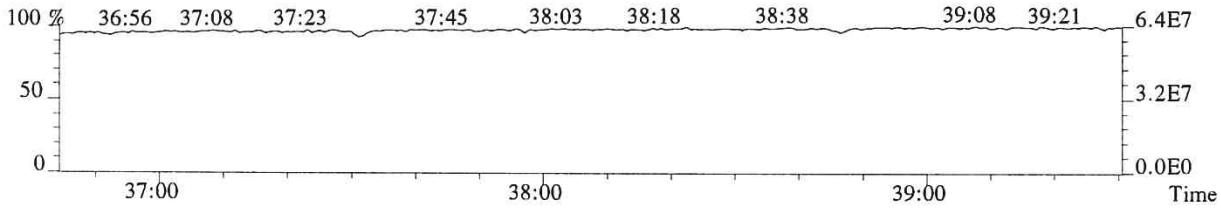
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.50%,F,T)



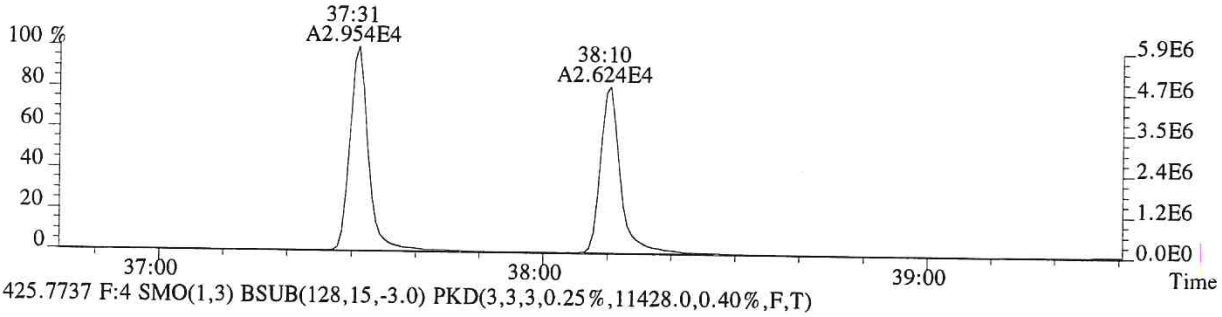
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



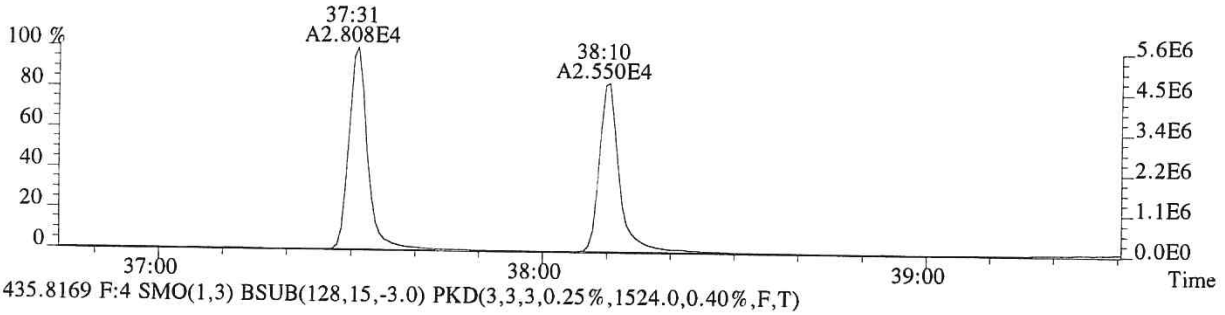
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



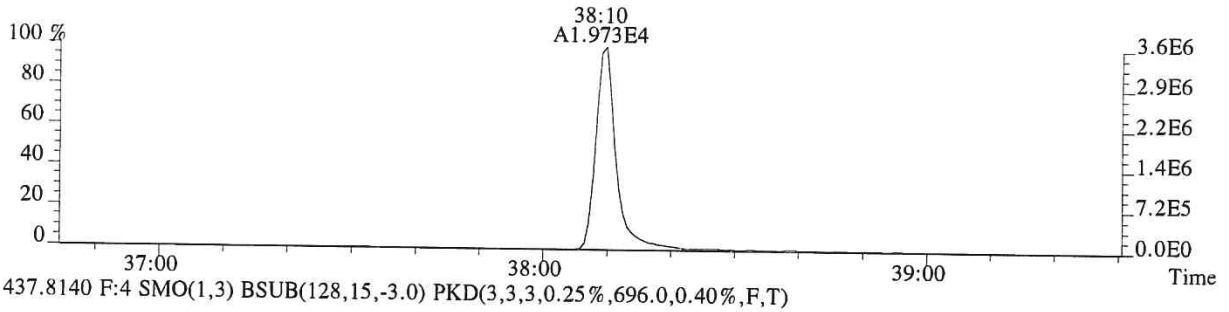
File:P518833 #1-250 Acq:15-NOV-2018 20:02:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



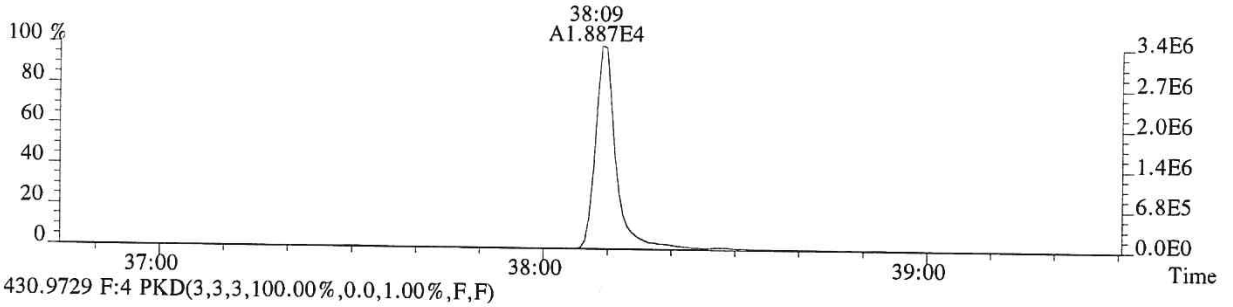
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11428.0,0.40%,F,T)



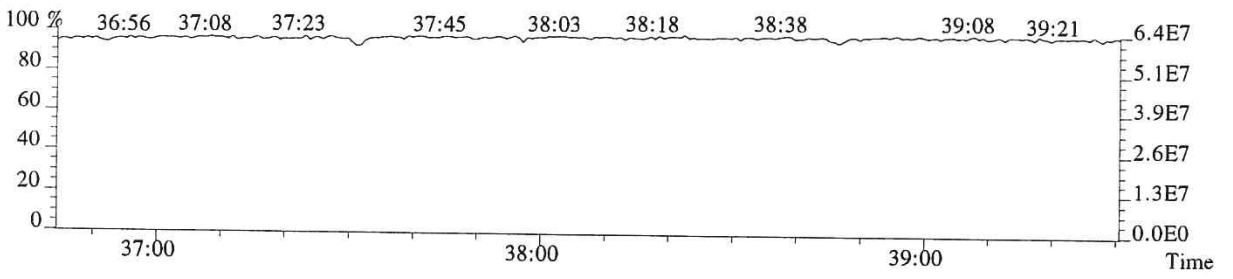
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1524.0,0.40%,F,T)



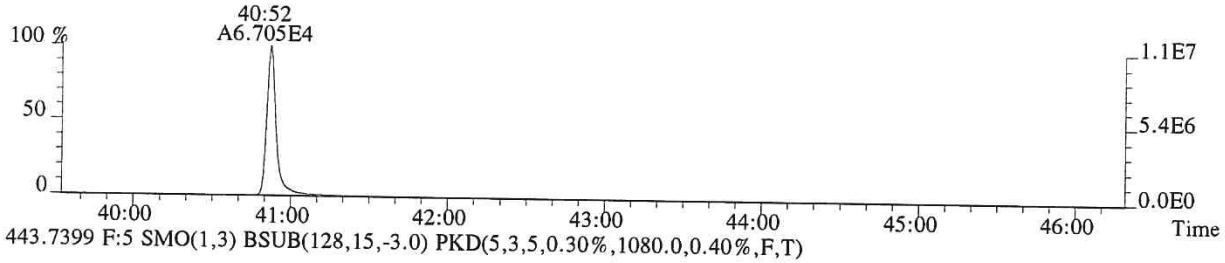
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



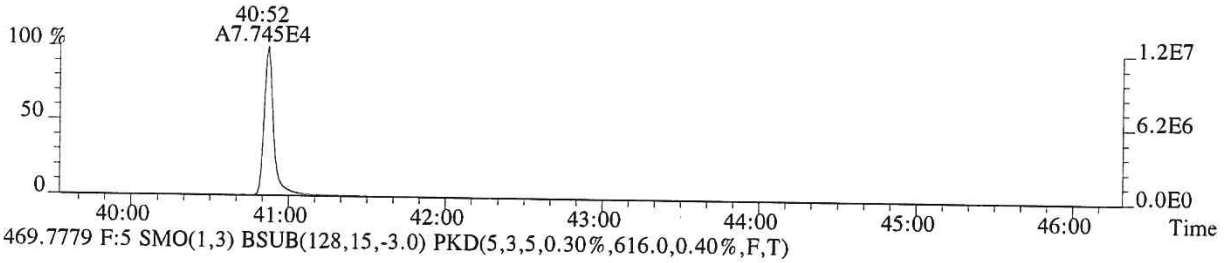
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



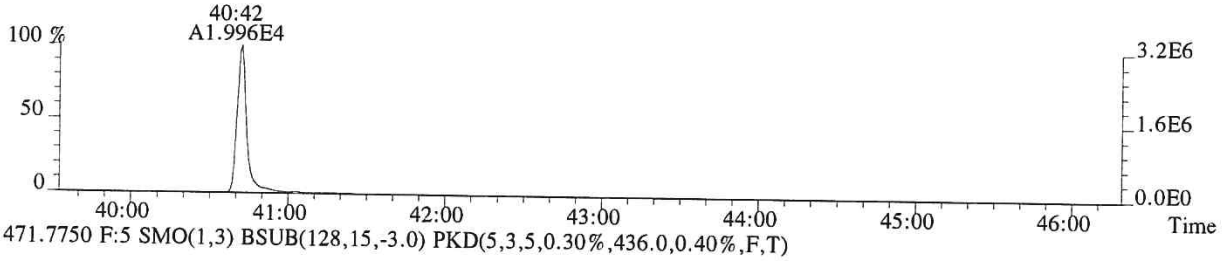
File:P518833 #1-610 Acq:15-NOV-2018 20:02:15 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801012-019
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



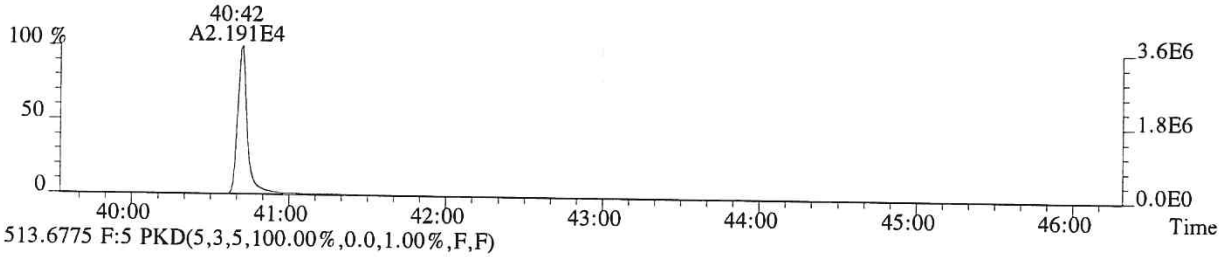
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1080.0,0.40%,F,T)



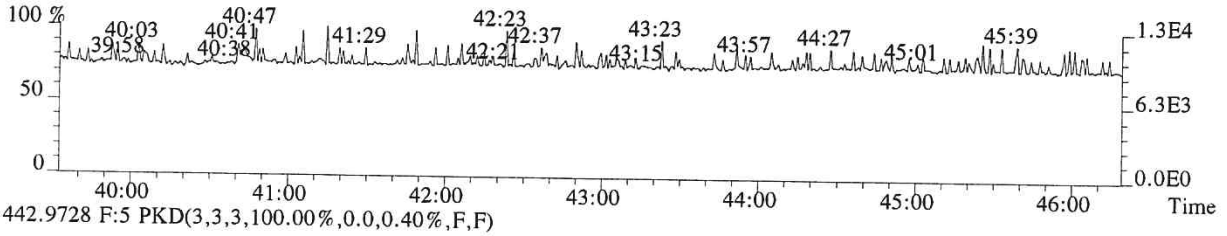
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



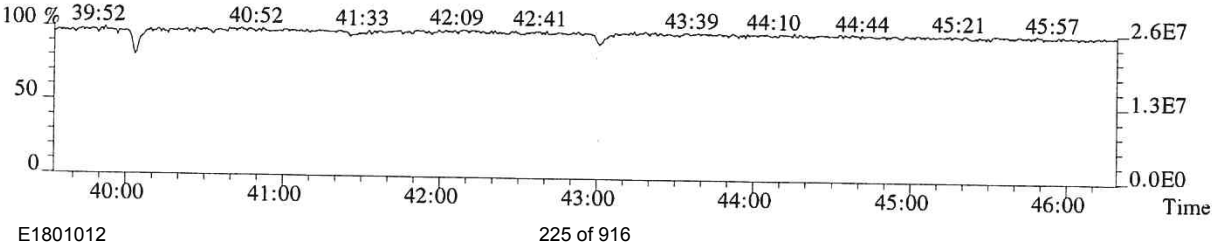
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



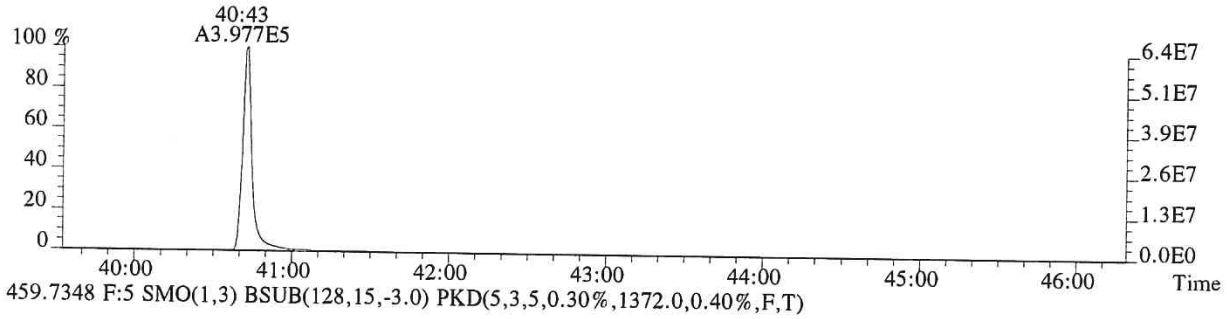
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



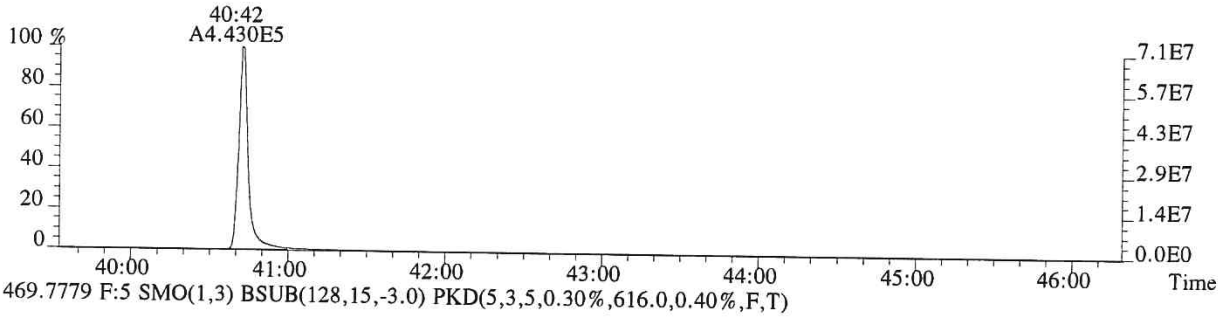
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



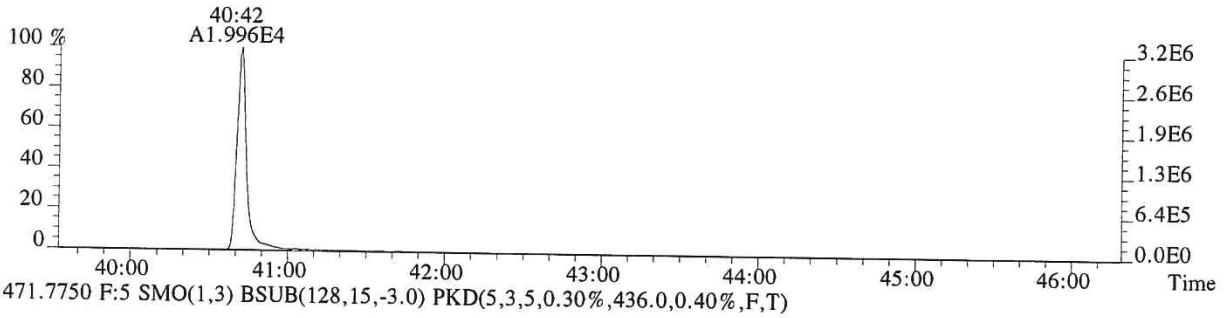
File:P518833 #1-610 Acq:15-NOV-2018 20:02:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



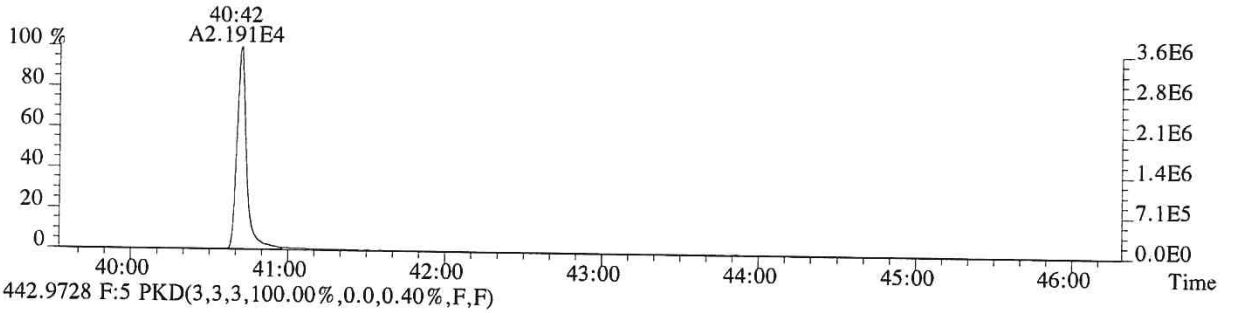
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1372.0,0.40%,F,T)



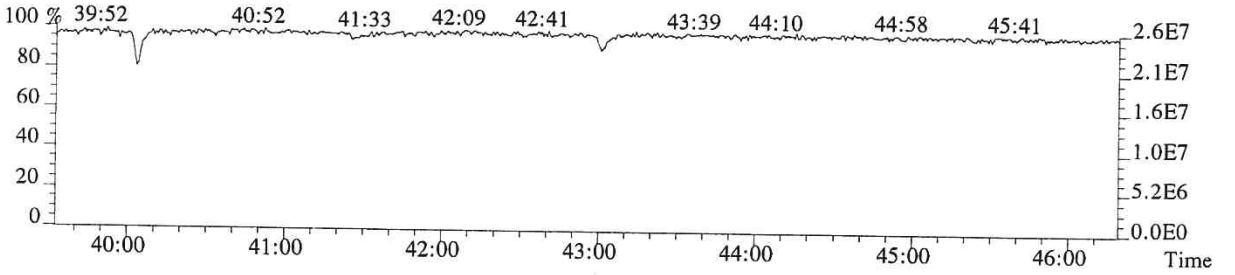
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



008817

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0065

Run #16 Filename P518974 Samp: 1 Inj: 1 Acquired: 21-NOV-18 18:24:39
Processed: 26-NOV-18 13:54:37 Sample ID: E1801012-019DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	1.607e+04	2.153e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:43	8.011e+02	5.182e+02	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:36	6.141e+02	4.380e+02	1.40	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	1.072e+03	9.212e+02	1.16	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:21	2.883e+02	2.671e+02	1.08	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	6.220e+01	7.169e+01	0.87	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:38	7.852e+01	7.414e+01	1.06	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	4.343e+02	3.848e+02	1.13	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:17	1.302e+02	1.228e+02	1.06	yes	no	1.258
10	Unk	OCDF	42:52	9.886e+02	1.065e+03	0.93	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:23	4.180e+03	5.405e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:54	5.139e+01	5.613e+01	0.92	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.102e+01	3.848e+01	1.07	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	9.729e+02	9.666e+02	1.01	yes	no	1.025
17	Unk	OCDD	42:39	1.057e+04	1.191e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:36	2.270e+04	2.894e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	3.549e+04	2.238e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:36	3.433e+04	2.162e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.376e+04	2.644e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.858e+04	3.539e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	1.885e+04	3.660e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	1.416e+04	2.822e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	1.476e+04	3.297e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	1.456e+04	3.276e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	1.527e+04	1.924e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	2.657e+04	1.670e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.831e+04	1.444e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	2.303e+04	1.765e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	2.015e+04	1.902e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:39	2.939e+04	3.275e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:50	1.847e+04	2.312e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	2.552e+04	1.985e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.643e+02				no	1.014

$$OCDD = \frac{(1.057e+04 + 1.191e+04) \times 4000\ pg \times 50}{(2.939e+04 + 3.275e+04) \times 10.8\ g \times 74.5 / 100 \times 1.118} = 14894.9641\ ng/kg$$

LG 11/27/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0065

Run #16 Filename P518974 Samp: 1 Inj: 1 Acquired: 21-NOV-18 18:24:39
Processed: 26-NOV-18 13:54:37 LAB. ID: E1801012-019DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.70e+06	4.32e+02	6.3e+03	3.70e+06	1.22e+03	3.0e+03
2	1,2,3,7,8-PeCDF	1.37e+05	1.26e+03	1.1e+02	9.22e+04	7.52e+02	1.2e+02
3	2,3,4,7,8-PeCDF	8.83e+04	1.26e+03	7.0e+01	6.12e+04	7.52e+02	8.1e+01
4	1,2,3,4,7,8-HxCDF	2.03e+05	8.84e+02	2.3e+02	1.80e+05	4.36e+02	4.1e+02
5	1,2,3,6,7,8-HxCDF	5.15e+04	8.84e+02	5.8e+01	4.24e+04	4.36e+02	9.7e+01
6	2,3,4,6,7,8-HxCDF	1.21e+04	8.84e+02	1.4e+01	1.07e+04	4.36e+02	2.5e+01
7	1,2,3,7,8,9-HxCDF	1.22e+04	8.84e+02	1.4e+01	1.38e+04	4.36e+02	3.2e+01
8	1,2,3,4,6,7,8-HpCDF	8.27e+04	4.20e+02	2.0e+02	6.96e+04	3.52e+02	2.0e+02
9	1,2,3,4,7,8,9-HpCDF	2.07e+04	4.20e+02	4.9e+01	1.83e+04	3.52e+02	5.2e+01
10	OCDF	1.40e+05	2.80e+02	5.0e+02	1.57e+05	7.24e+02	2.2e+02
11	2,3,7,8-TCDD	7.85e+05	1.86e+03	4.2e+02	1.02e+06	9.48e+02	1.1e+03
12	1,2,3,7,8-PeCDD	1.04e+04	5.00e+02	2.1e+01	6.92e+03	2.48e+02	2.8e+01
13	1,2,3,4,7,8-HxCDD	*	3.60e+02	*	*	5.48e+02	*
14	1,2,3,6,7,8-HxCDD	9.33e+03	3.60e+02	2.6e+01	8.00e+03	5.48e+02	1.5e+01
15	1,2,3,7,8,9-HxCDD	*	3.60e+02	*	*	5.48e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.79e+05	1.24e+03	1.4e+02	1.46e+05	7.64e+02	1.9e+02
17	OCDD	1.51e+06	3.88e+02	3.9e+03	1.65e+06	3.08e+02	5.4e+03
18	13C-2,3,7,8-TCDF	4.24e+06	5.44e+03	7.8e+02	5.35e+06	2.86e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	6.34e+06	2.84e+02	2.2e+04	3.95e+06	4.88e+02	8.1e+03
20	13C-2,3,4,7,8-PeCDF	6.31e+06	2.84e+02	2.2e+04	3.89e+06	4.88e+02	8.0e+03
21	13C-1,2,3,4,7,8-HxCDF	2.74e+06	3.08e+02	8.9e+03	5.26e+06	4.04e+02	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	3.42e+06	3.08e+02	1.1e+04	6.44e+06	4.04e+02	1.6e+04
23	13C-2,3,4,6,7,8-HxCDF	3.53e+06	3.08e+02	1.1e+04	6.79e+06	4.04e+02	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	2.44e+06	3.08e+02	7.9e+03	4.89e+06	4.04e+02	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.69e+06	3.60e+03	7.5e+02	6.07e+06	4.71e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.35e+06	3.60e+03	6.5e+02	5.19e+06	4.71e+03	1.1e+03
27	13C-2,3,7,8-TCDD	2.90e+06	4.50e+03	6.4e+02	3.64e+06	1.28e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	4.84e+06	4.00e+02	1.2e+04	3.01e+06	3.96e+02	7.6e+03
29	13C-1,2,3,4,7,8-HxCDD	3.95e+06	8.04e+02	4.9e+03	3.05e+06	4.32e+02	7.1e+03
30	13C-1,2,3,6,7,8-HxCDD	4.10e+06	8.04e+02	5.1e+03	3.12e+06	4.32e+02	7.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.36e+06	5.32e+02	6.3e+03	3.15e+06	5.04e+02	6.3e+03
32	13C-OCDD	4.06e+06	3.00e+02	1.4e+04	4.44e+06	4.28e+02	1.0e+04
33	13C-1,2,3,4-TCDD	3.61e+06	4.50e+03	8.0e+02	4.47e+06	1.28e+03	3.5e+03
34	13C-1,2,3,7,8,9-HxCDD	4.41e+06	8.04e+02	5.5e+03	3.36e+06	4.32e+02	7.8e+03
35	37Cl-2,3,7,8-TCDD	4.68e+04	1.03e+03	4.5e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.856e{+}03 + 9.480e{+}02) \times 2000}{(2.897e{+}06 + 3.645e{+}06) \times (\quad) \times 1.085} =$$

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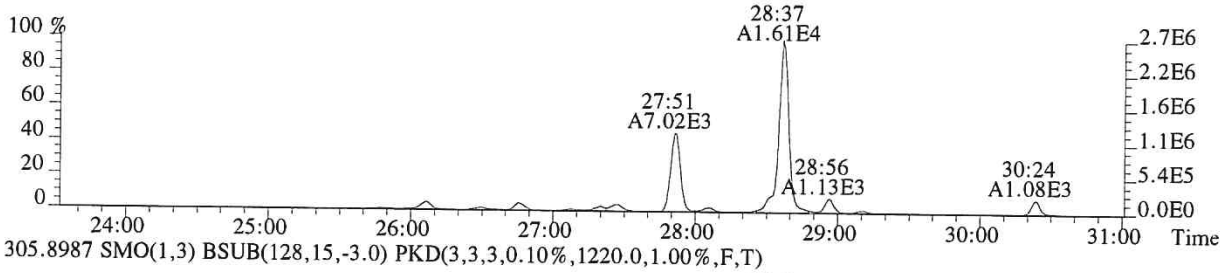
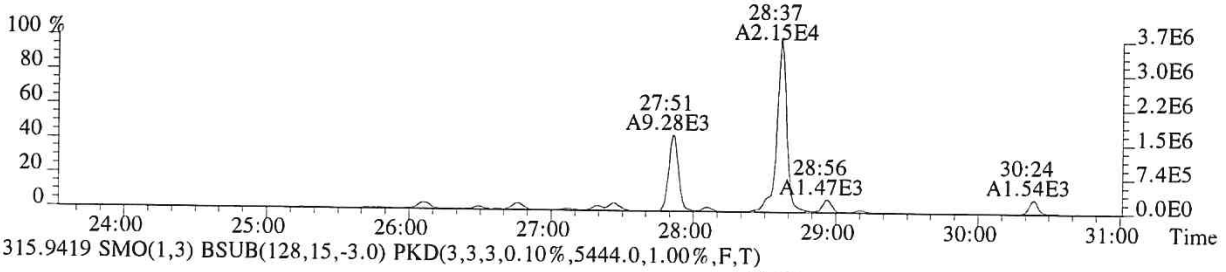
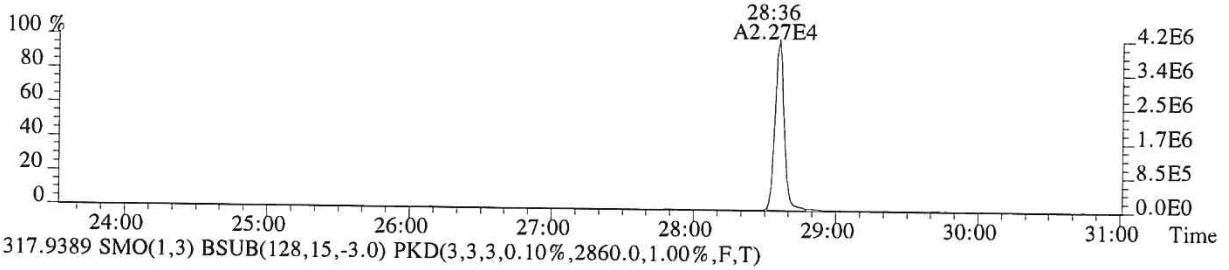
File:P518974 #1-531 Acq:21-NOV-2018 18:24:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



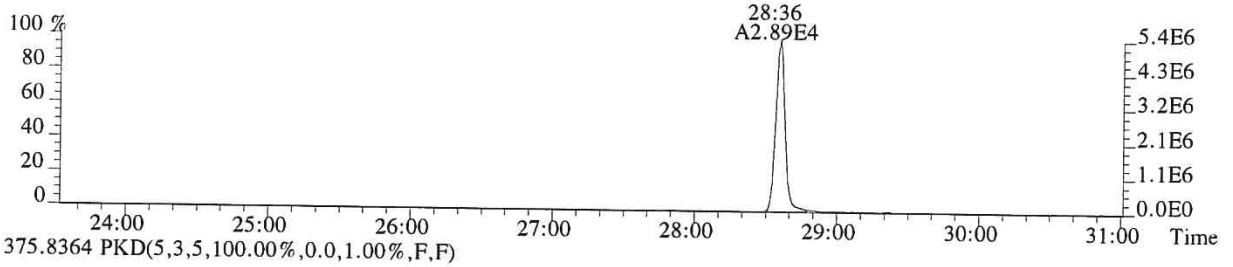
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



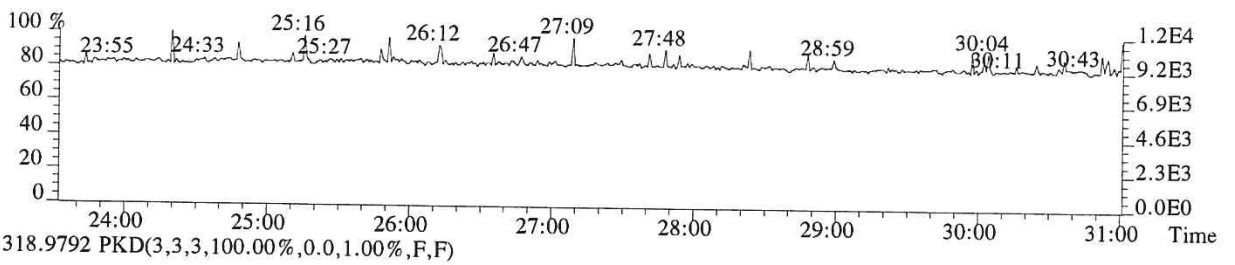
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5444.0,1.00%,F,T)



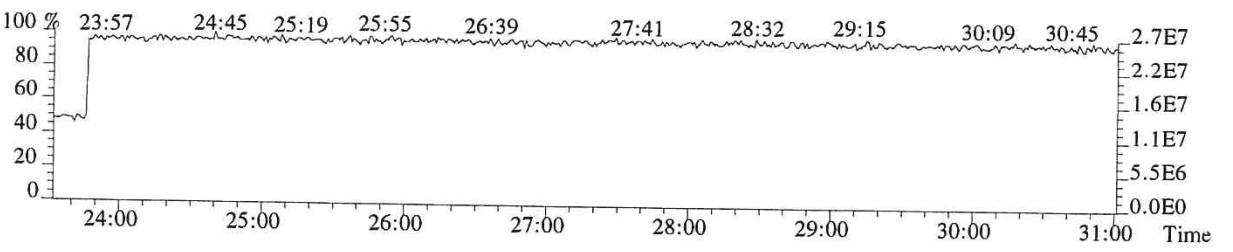
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

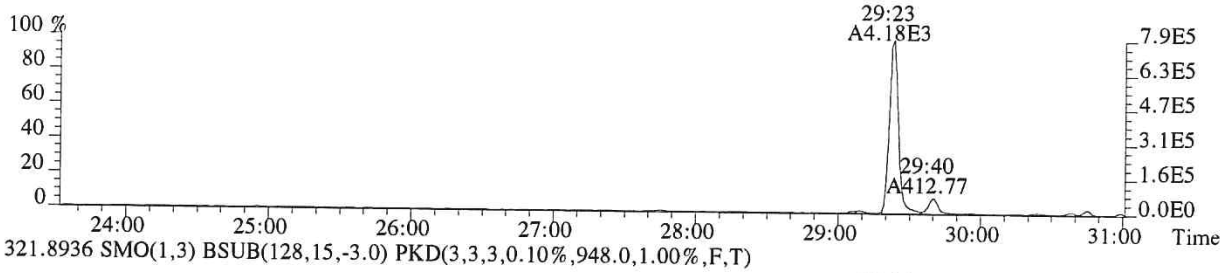


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

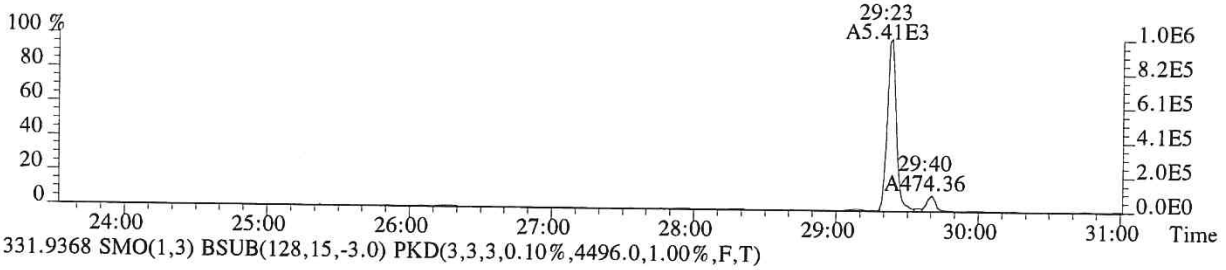


008820

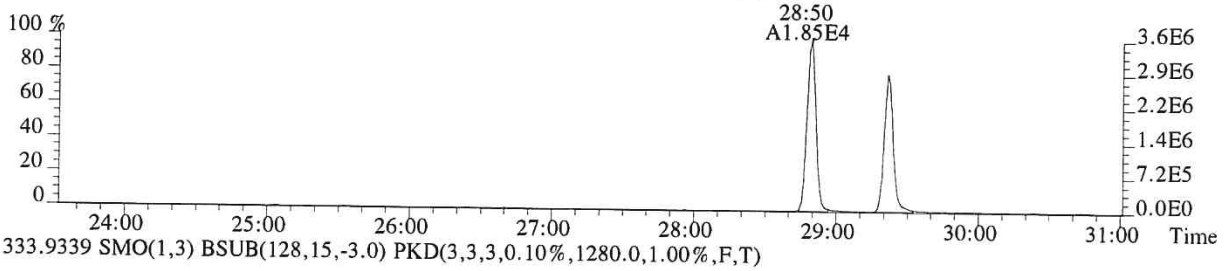
File:P518974 #1-531 Acq:21-NOV-2018 18:24:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1856.0,1.00%,F,T)



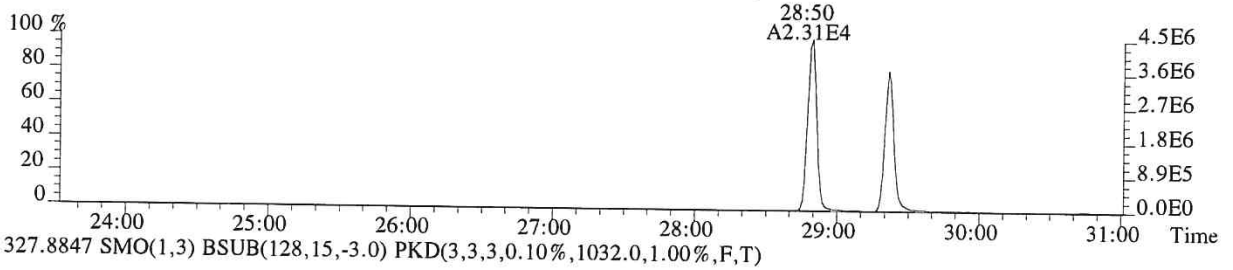
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



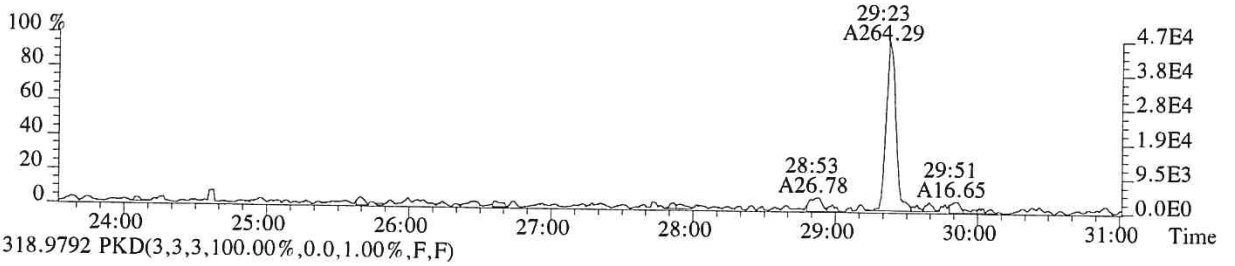
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4496.0,1.00%,F,T)



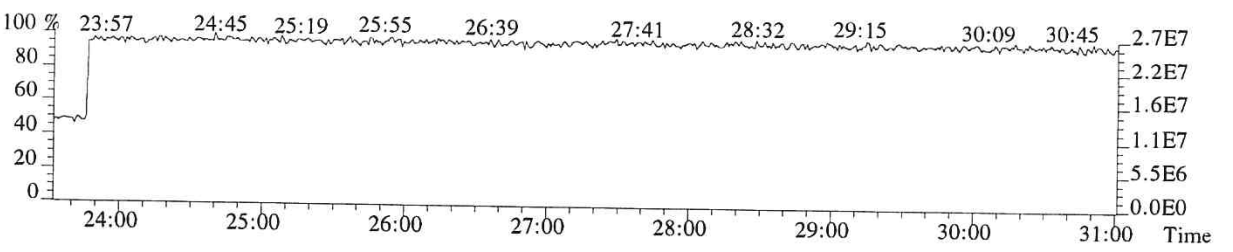
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)

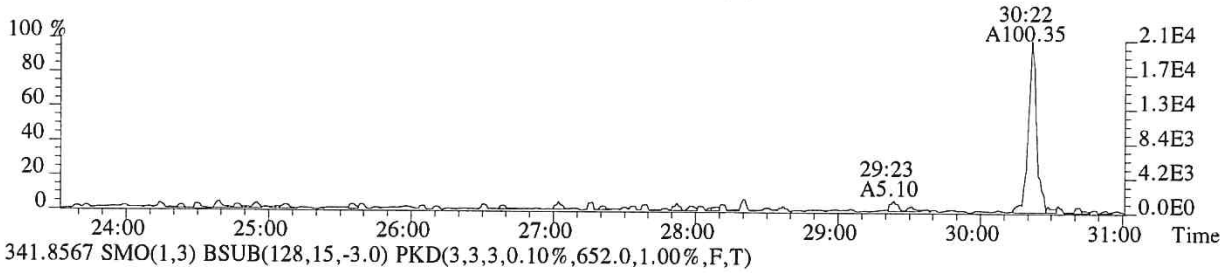


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

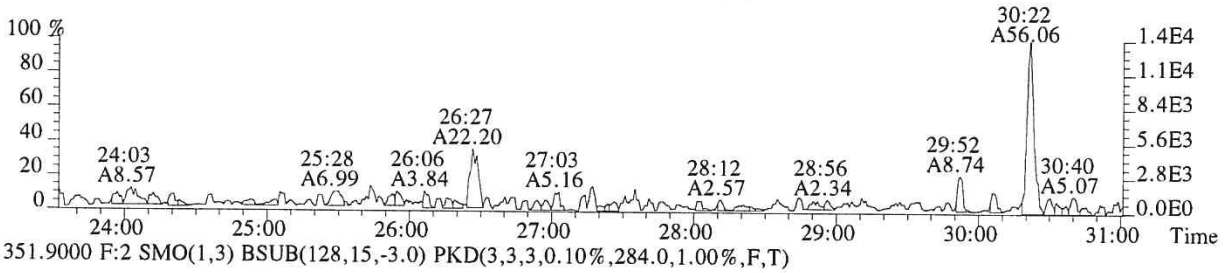


008821

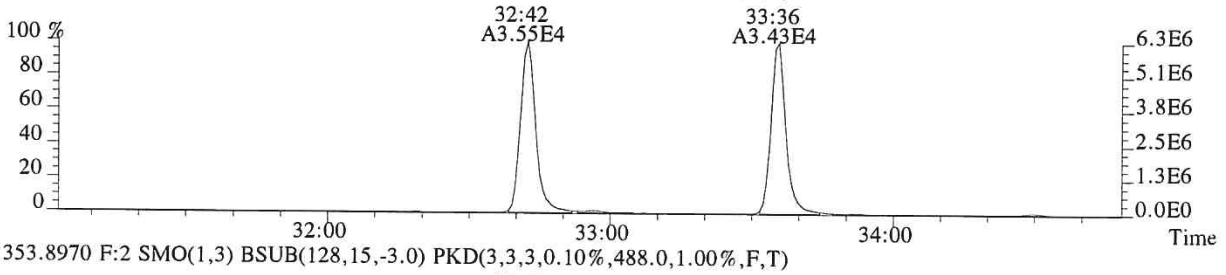
File:P518974 #1-531 Acq:21-NOV-2018 18:24:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



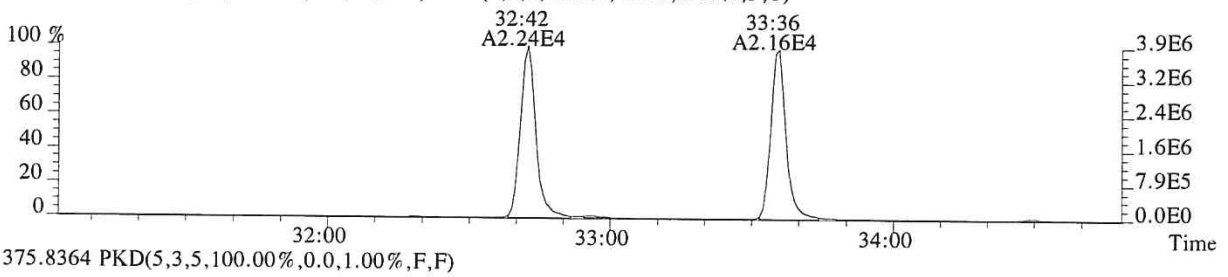
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



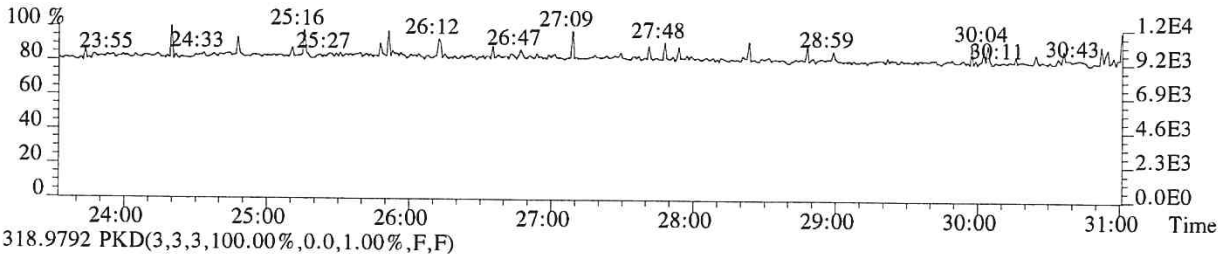
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



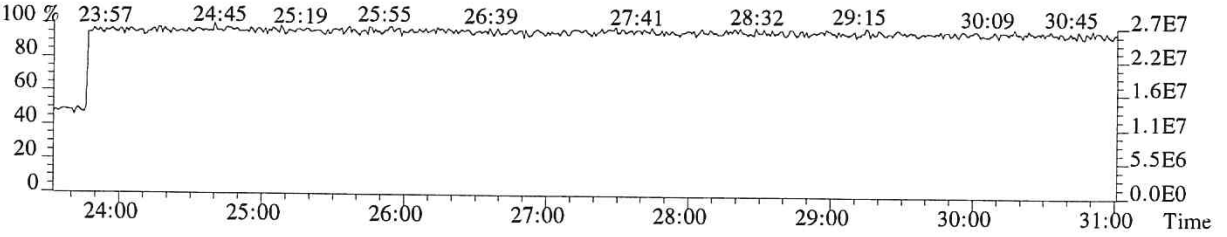
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

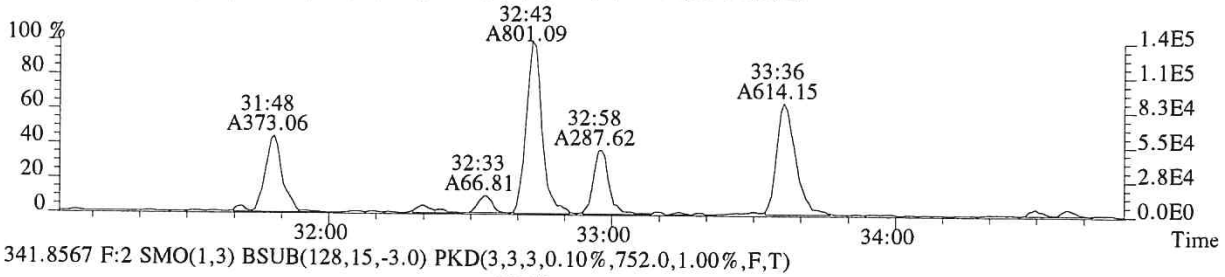


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

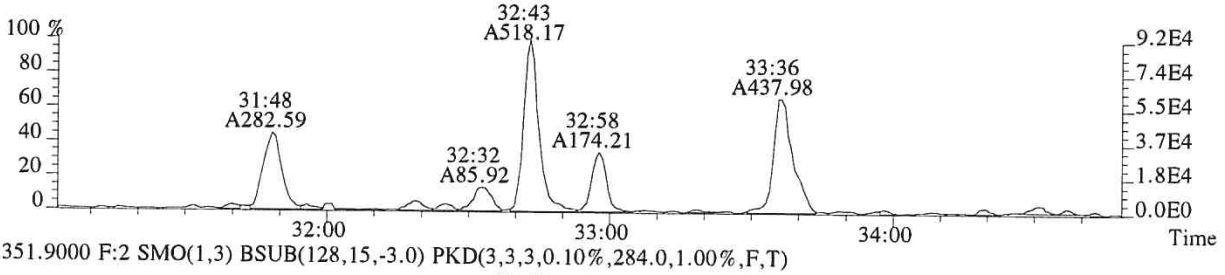


008822

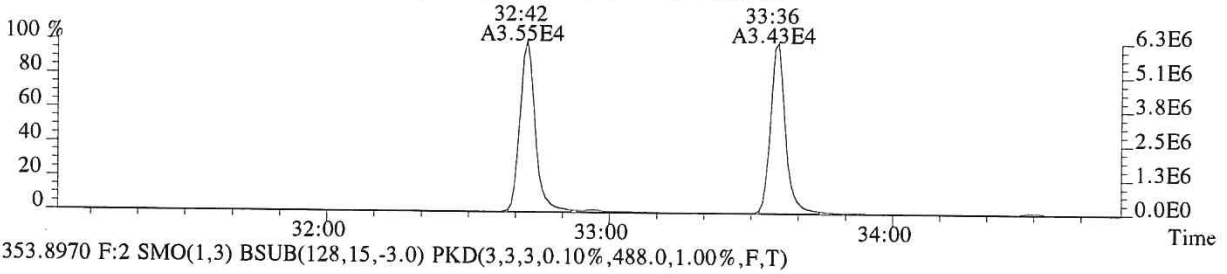
File:P518974 #1-339 Acq:21-NOV-2018 18:24:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



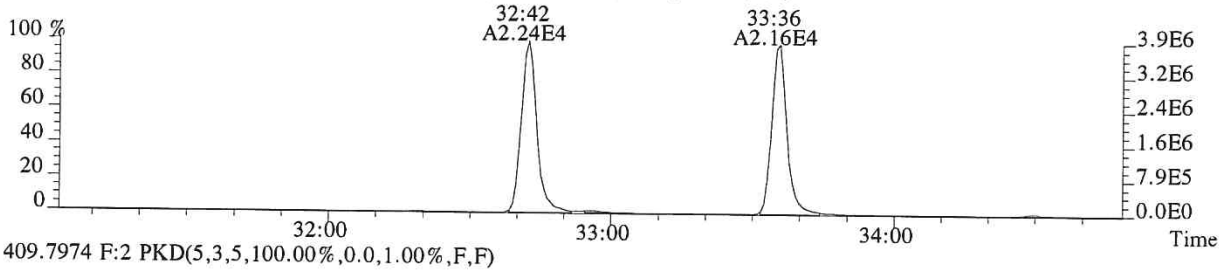
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



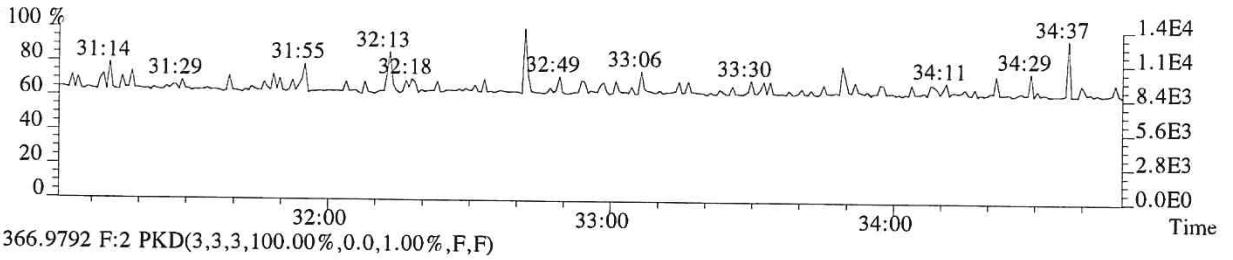
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



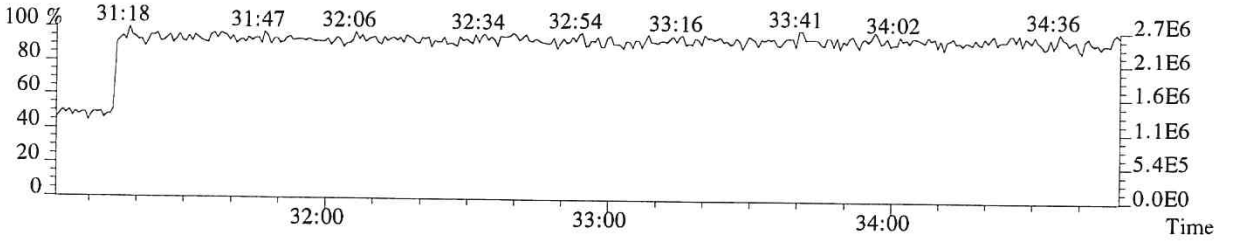
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



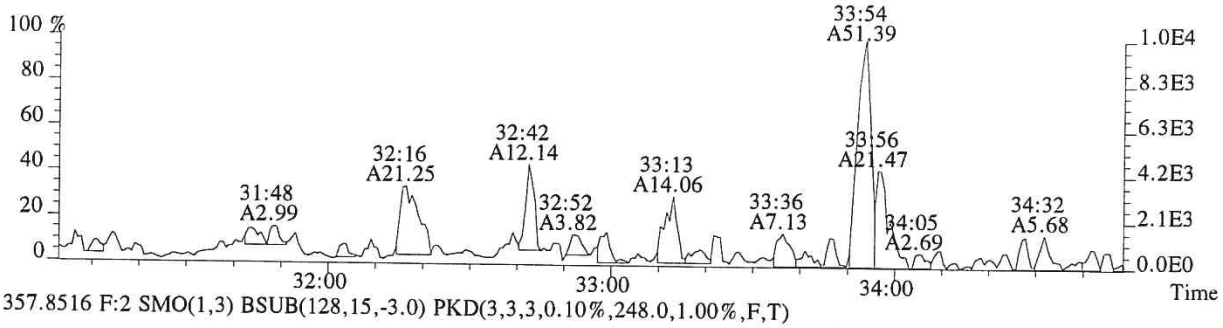
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



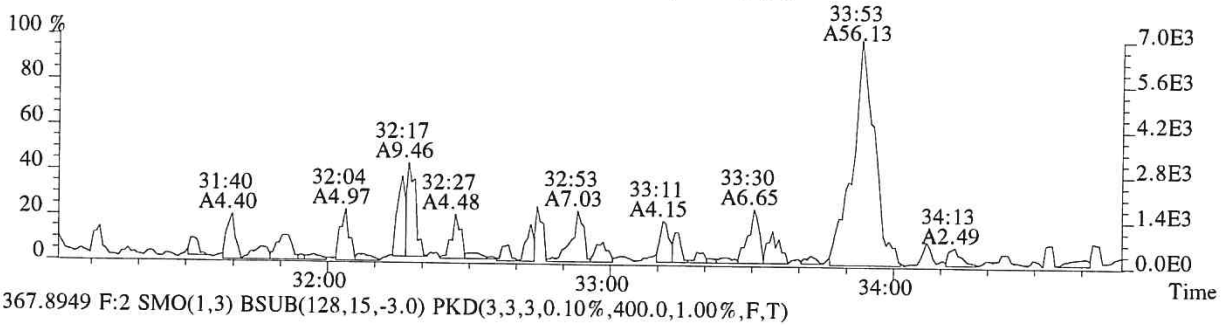
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



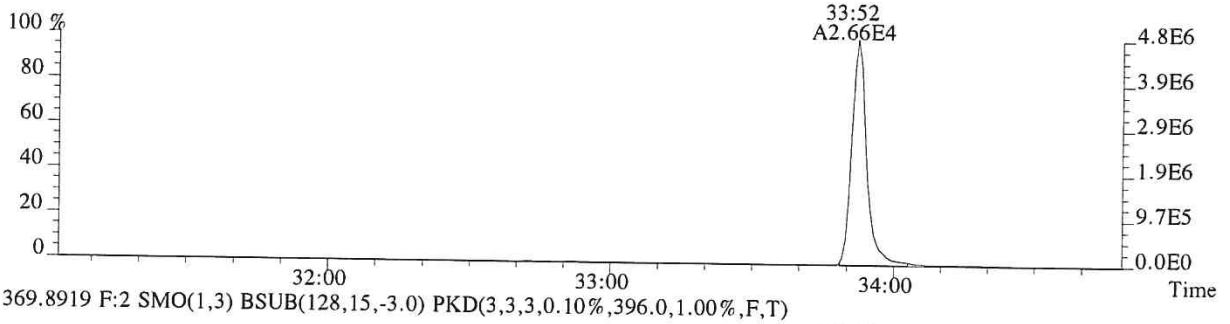
File:P518974 #1-339 Acq:21-NOV-2018 18:24:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



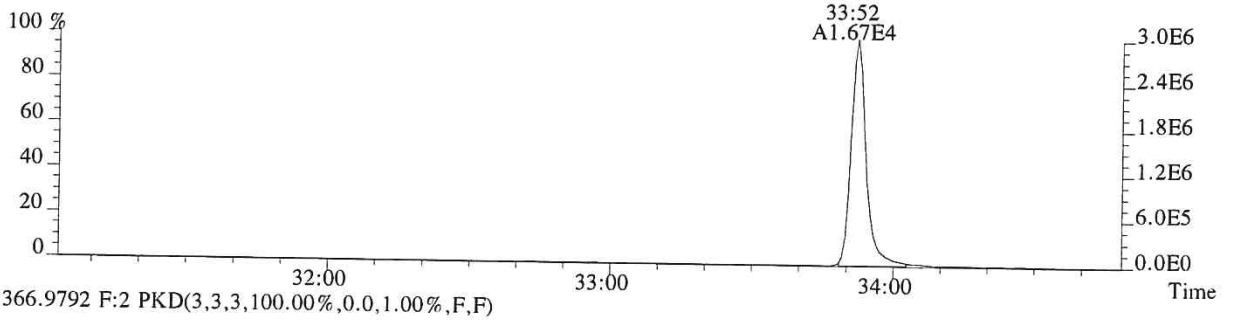
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



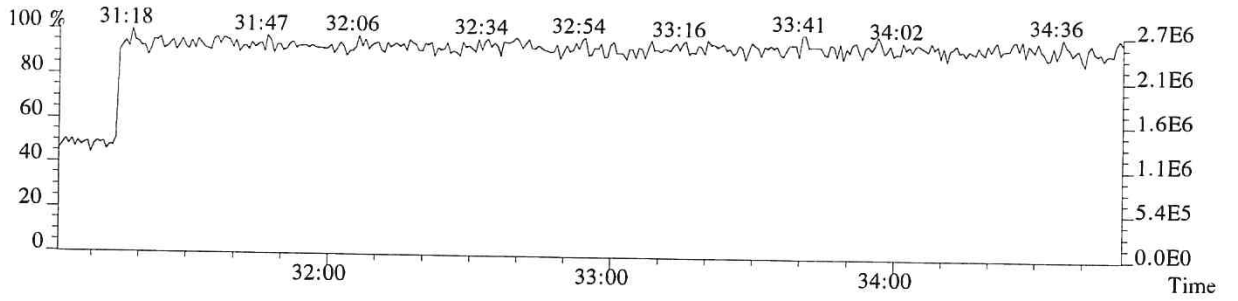
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



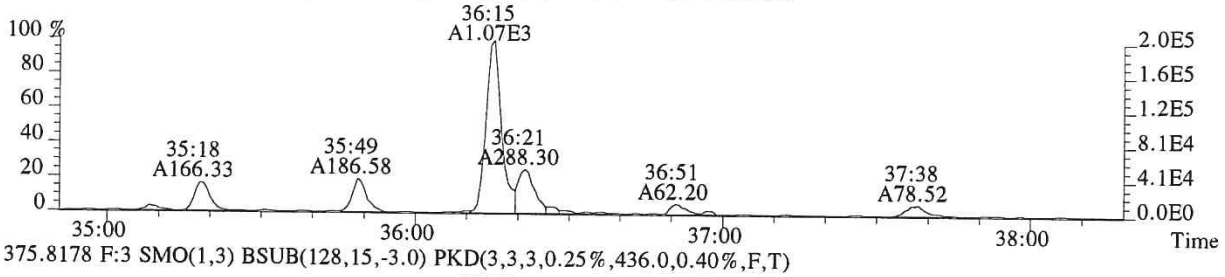
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



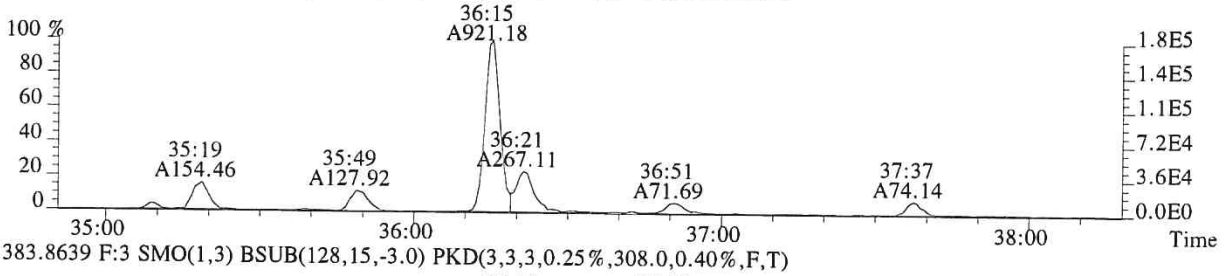
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



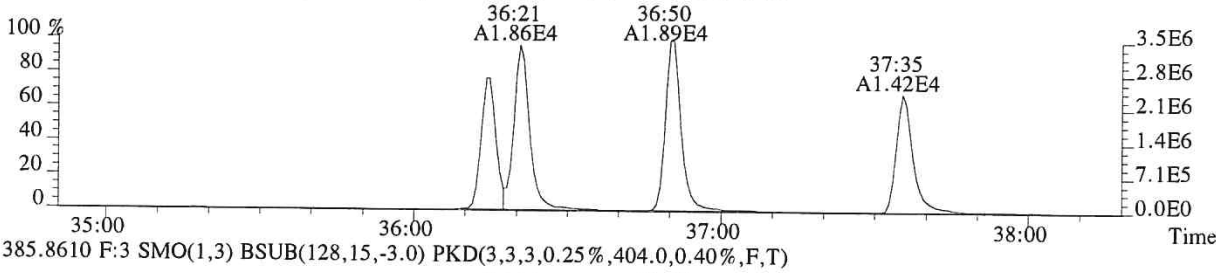
File:P518974 #1-312 Acq:21-NOV-2018 18:24:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



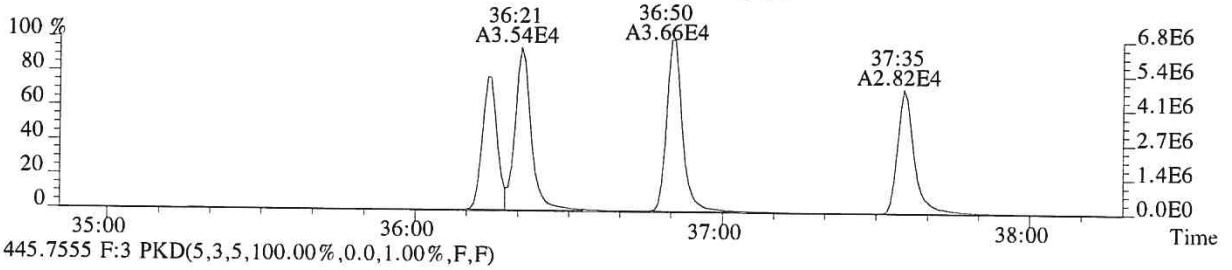
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



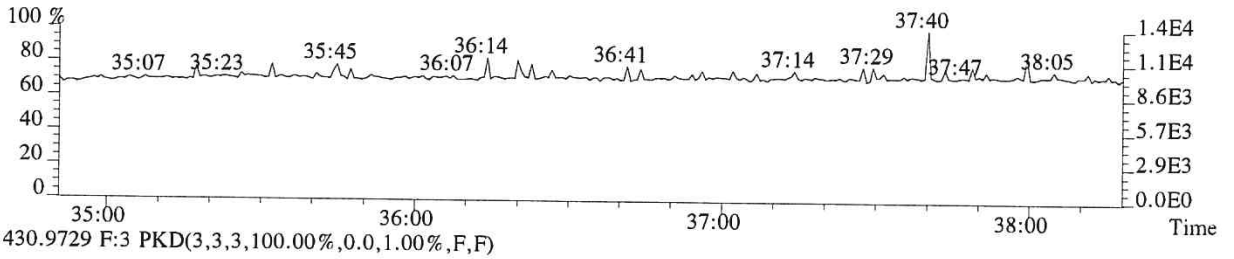
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



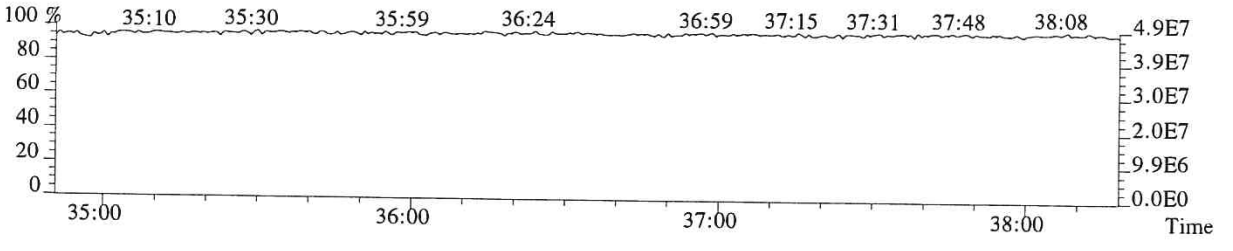
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

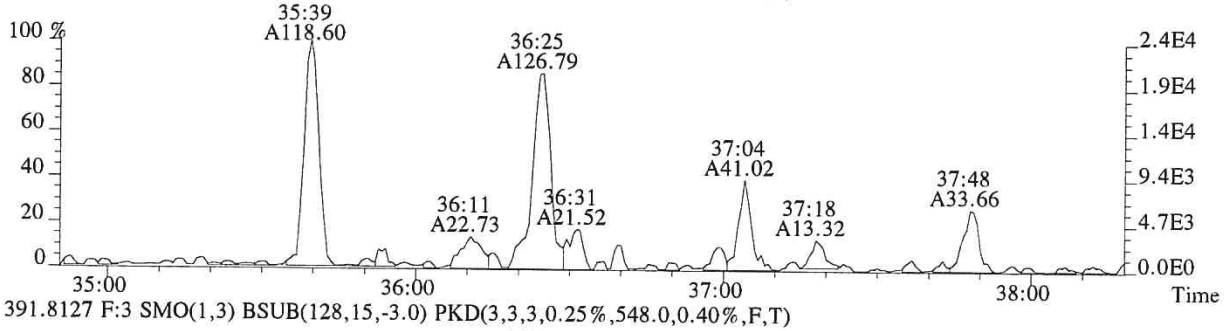


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

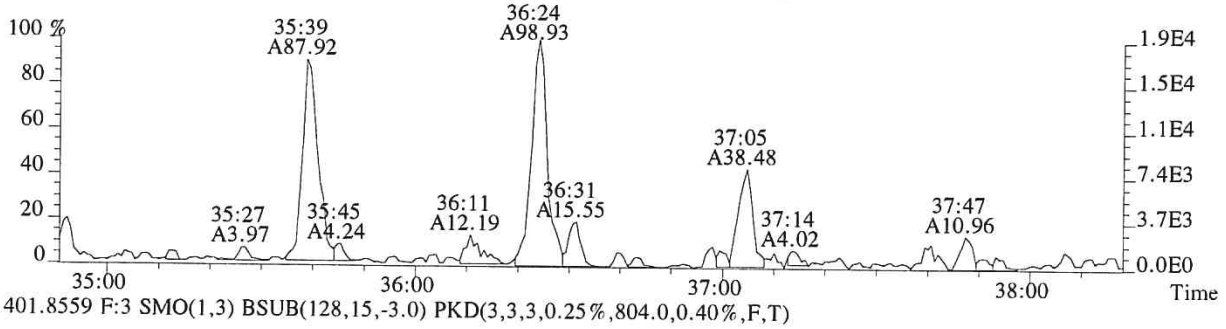


008825

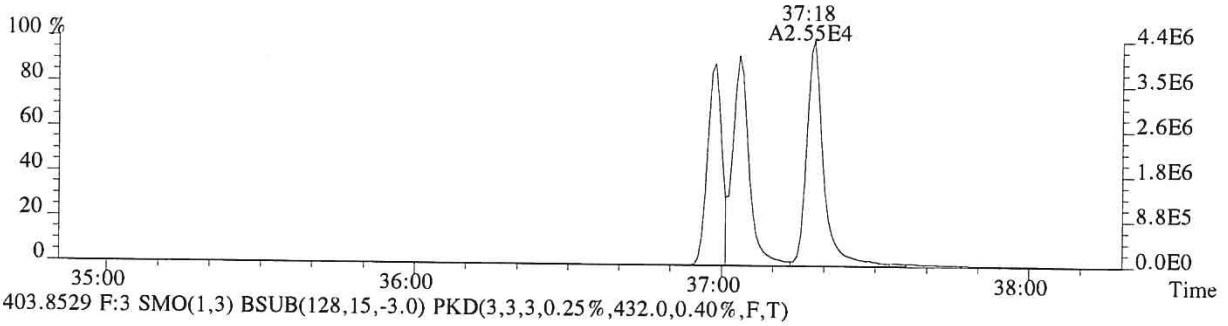
File:P518974 #1-312 Acq:21-NOV-2018 18:24:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



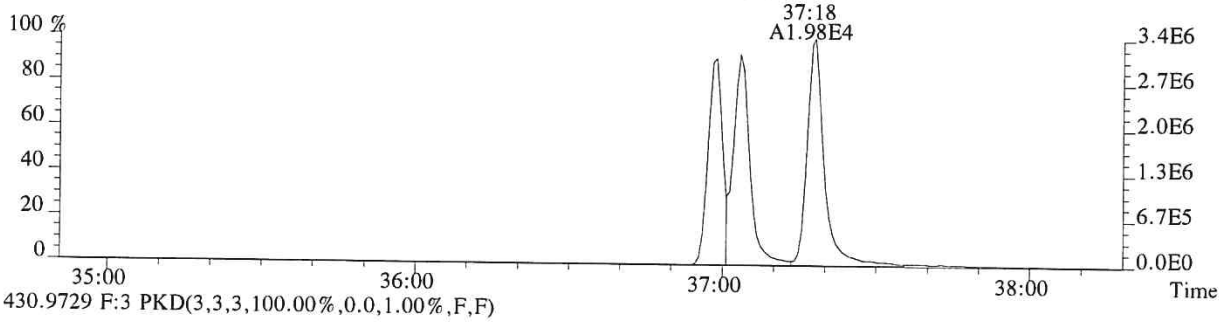
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



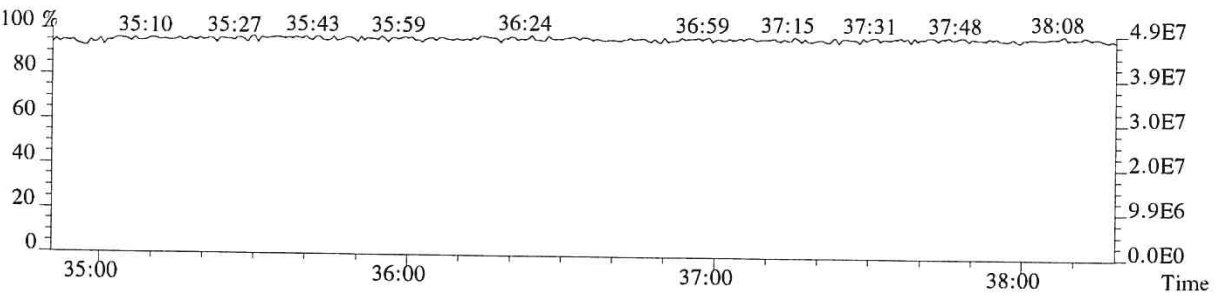
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)

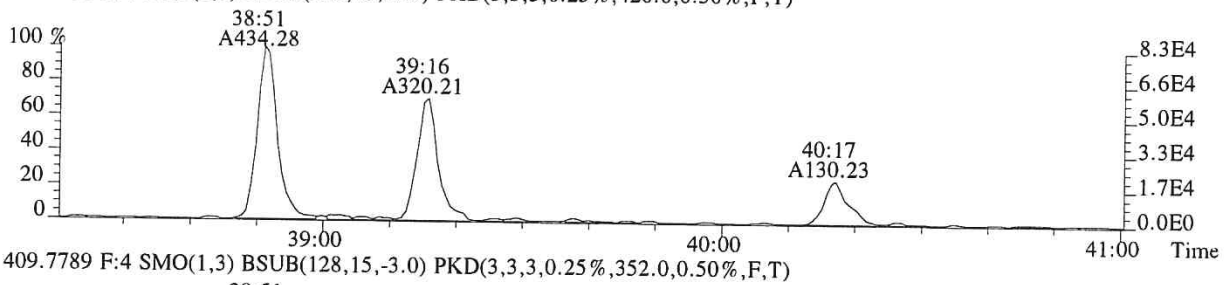


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

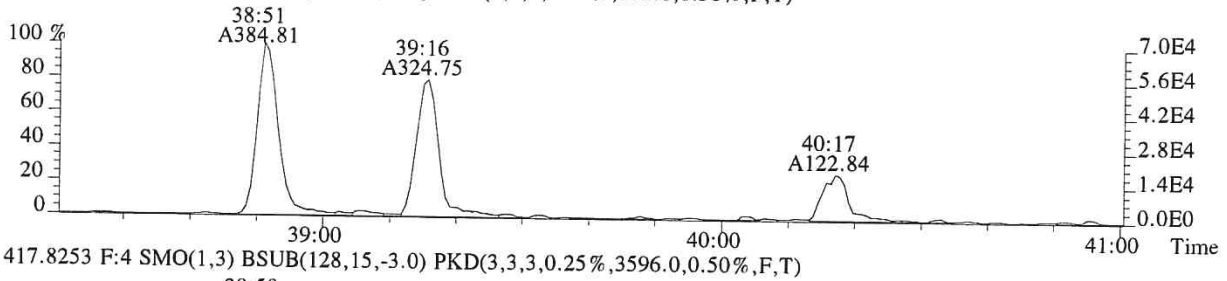


File:P518974 #1-241 Acq:21-NOV-2018 18:24:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019DL

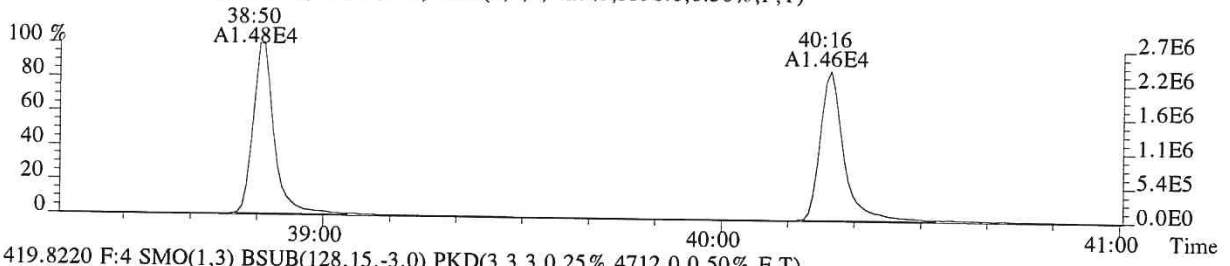
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.50%,F,T)



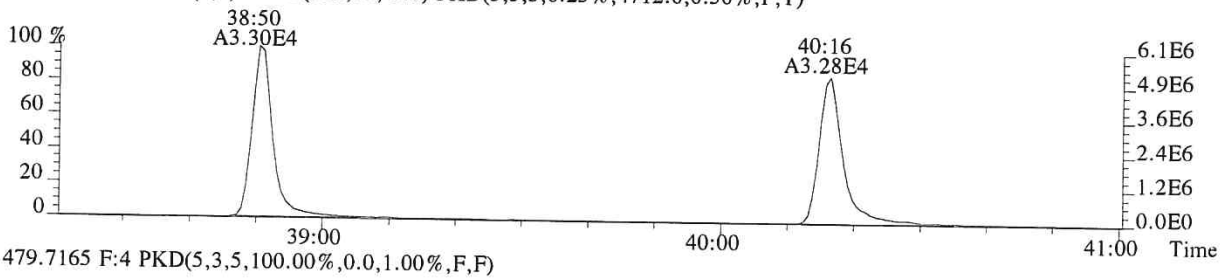
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.50%,F,T)



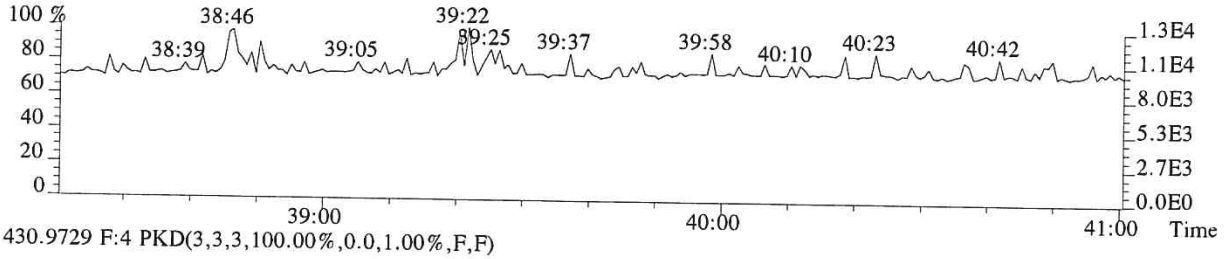
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3596.0,0.50%,F,T)



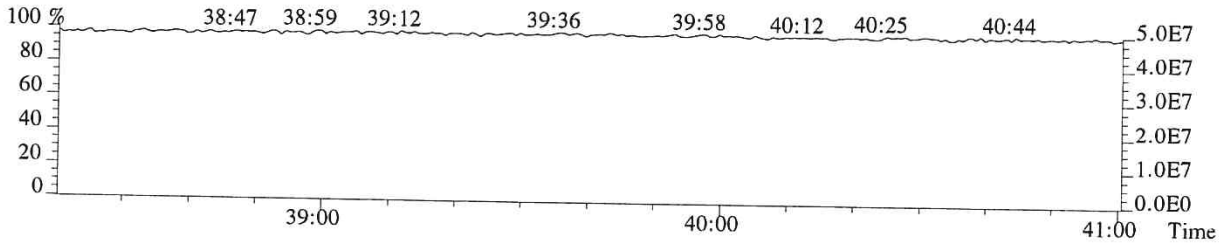
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4712.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

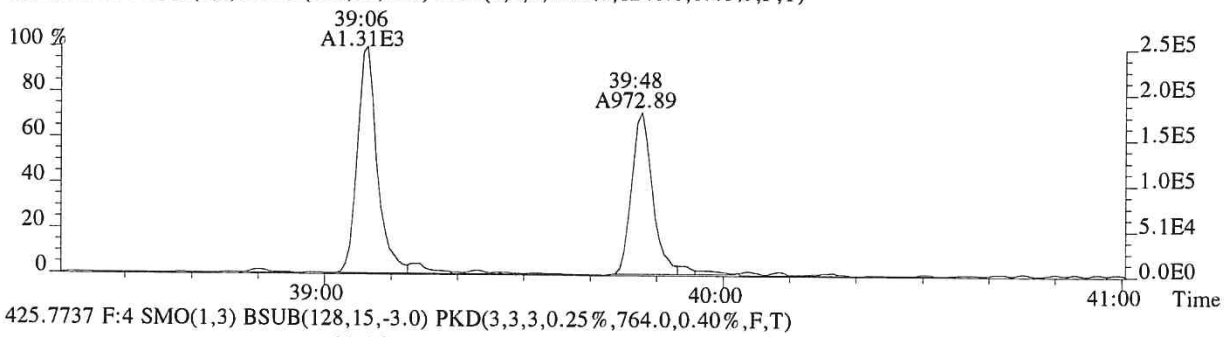


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

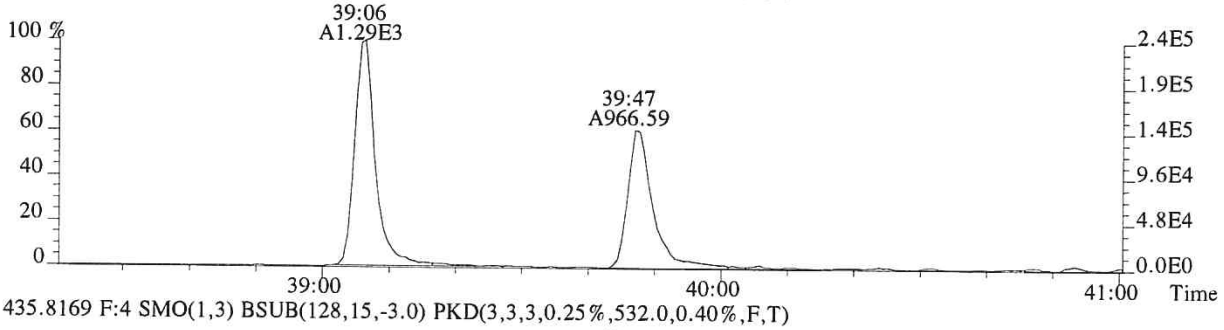


008827

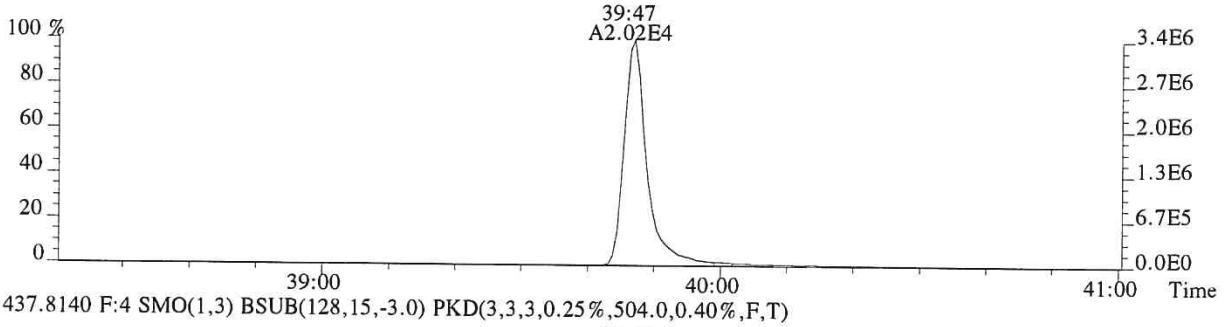
File:P518974 #1-241 Acq:21-NOV-2018 18:24:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.40%,F,T)



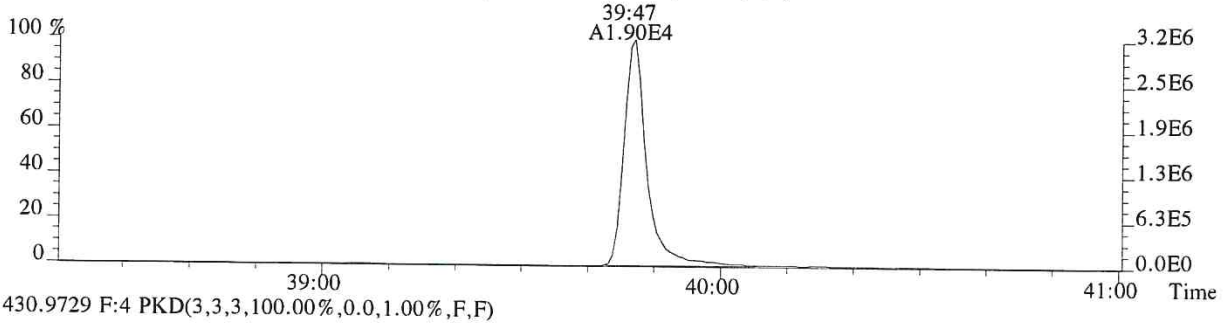
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



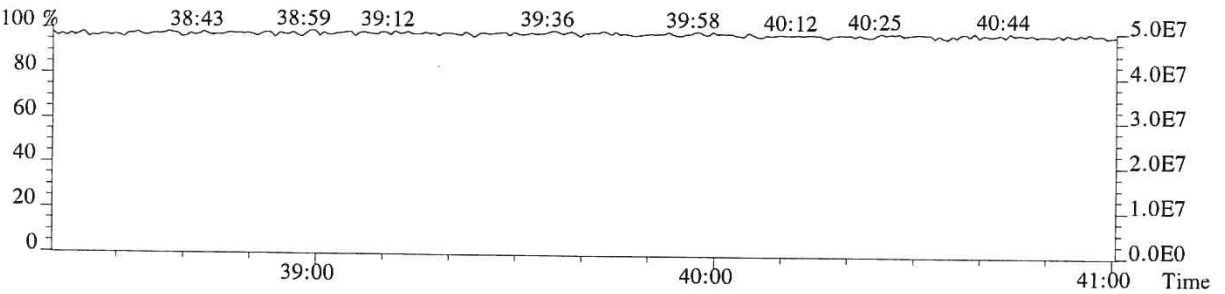
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



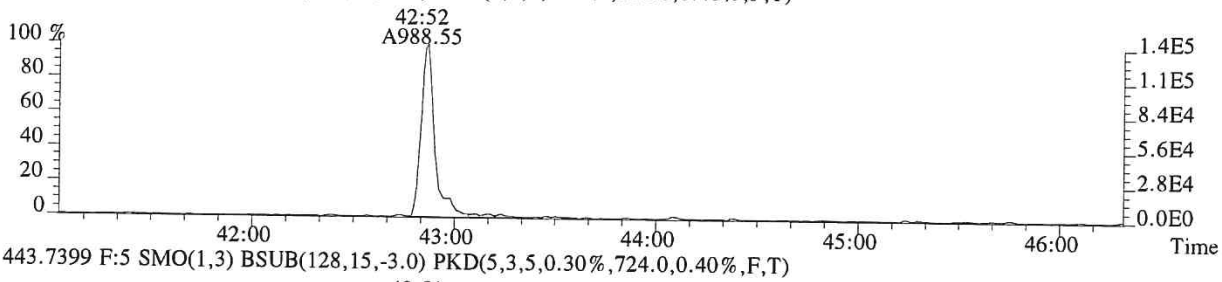
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



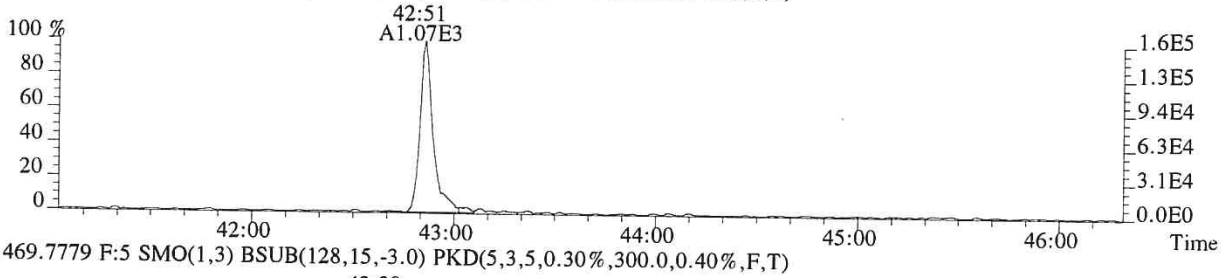
008828

File:P518974 #1-475 Acq:21-NOV-2018 18:24:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019DL

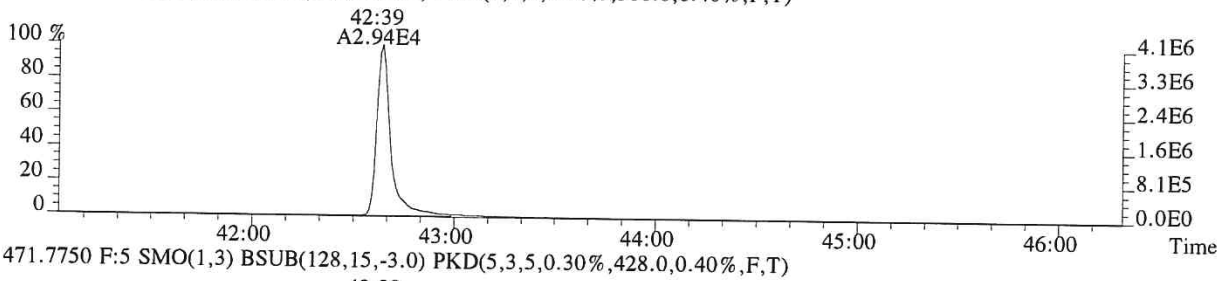
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



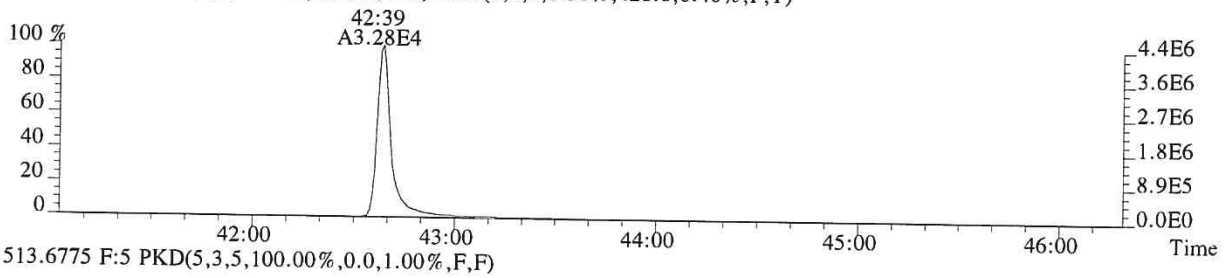
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



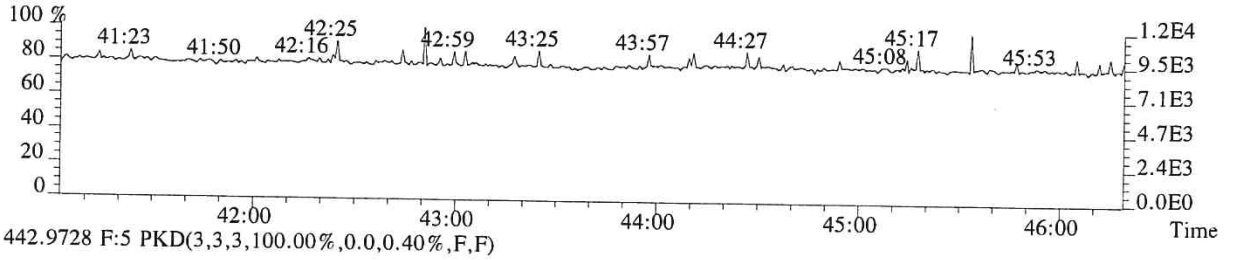
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



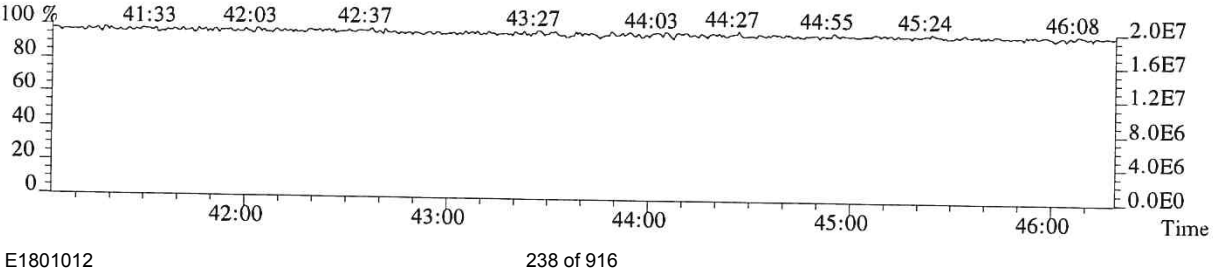
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

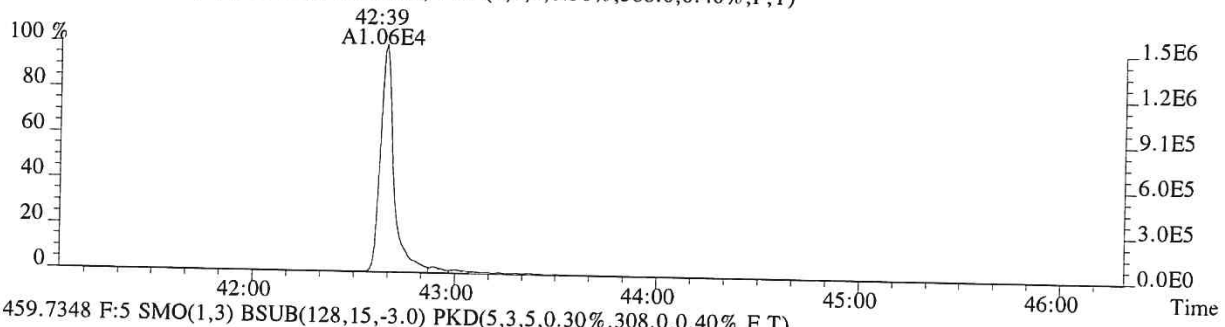


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

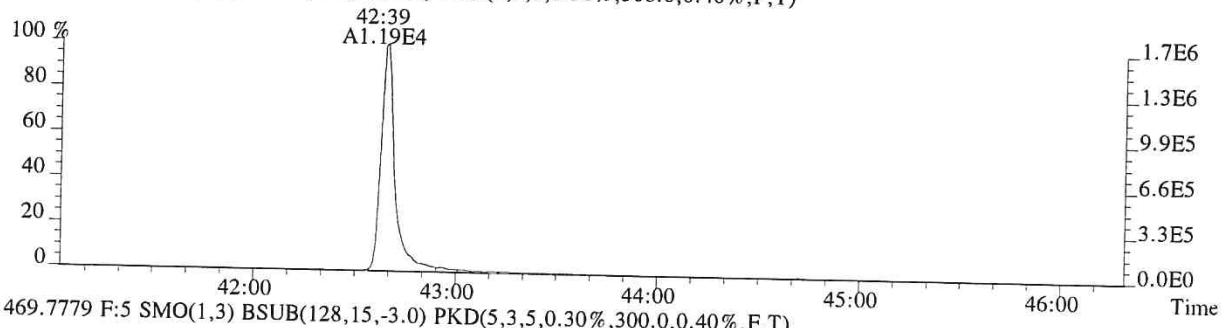


008829

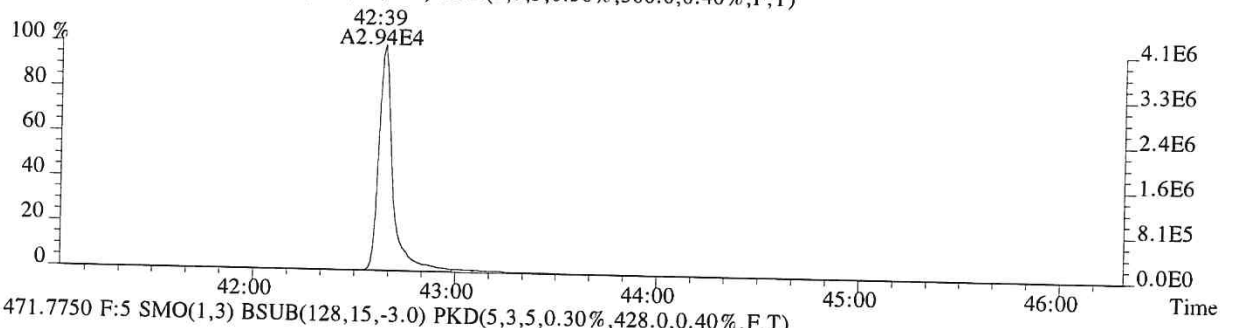
File:P518974 #1-475 Acq:21-NOV-2018 18:24:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-019DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



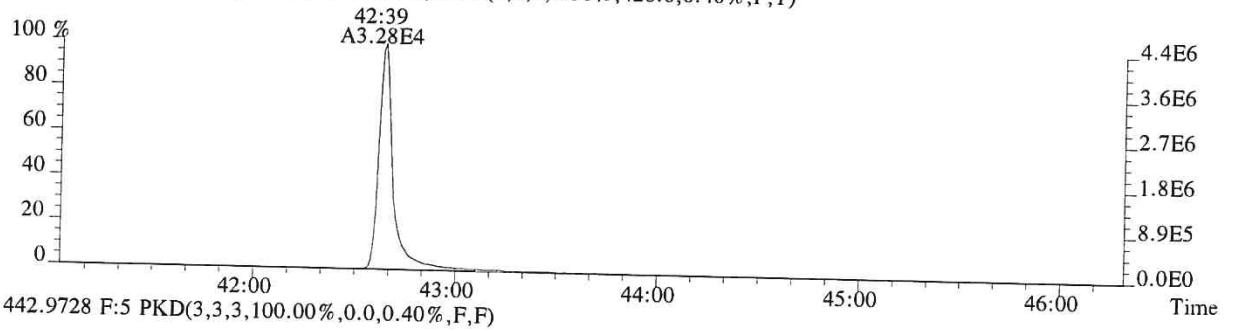
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



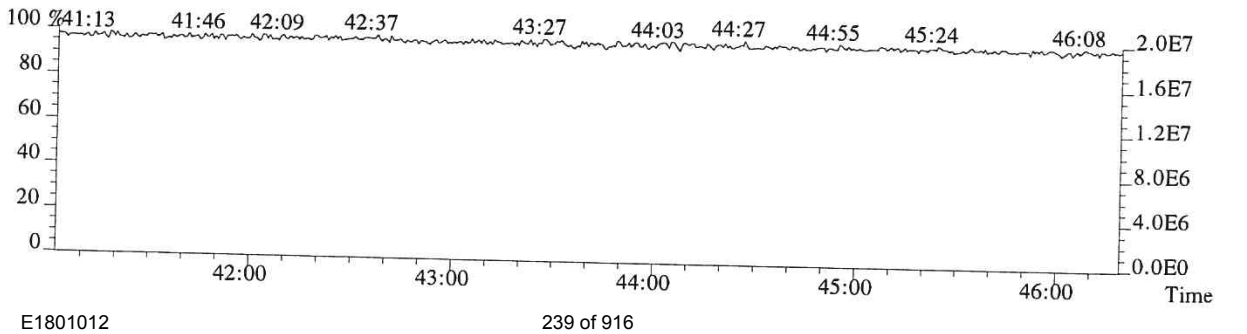
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0072

Run #16 Filename P518874 Samp: 1 Inj: 1 Acquired: 17-NOV-18 08:24:42
Processed: 21-NOV-18 09:19:33 Sample ID: E1801012-020

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:37	9.400e+05	1.207e+06	0.78	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:38	4.559e+04	2.992e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:38	3.593e+04	2.354e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:31	5.405e+04	4.531e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	1.468e+04	1.241e+04	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:10	2.364e+03	1.851e+03	1.28	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:58	3.353e+03	2.966e+03	1.13	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	1.173e+04	1.160e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	3.091e+03	3.150e+03	0.98	yes	no	1.258
10	Unk	OCDF	40:53	2.436e+04	2.795e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:37	2.613e+05	3.295e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:57	3.909e+03	2.470e+03	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:19	8.677e+01	7.229e+01	1.20	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:24	3.955e+02	3.619e+02	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:39	2.104e+02	1.511e+02	1.39	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	9.195e+03	8.900e+03	1.03	yes	no	1.025
17	Unk	OCDD	40:43	5.688e+04	6.330e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:35	2.037e+04	2.548e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:36	3.377e+04	2.123e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:37	3.252e+04	2.038e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:30	1.284e+04	2.491e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:37	1.523e+04	2.928e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:09	1.347e+04	2.625e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.230e+04	2.399e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:15	7.860e+03	1.792e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:36	6.787e+03	1.525e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:36	1.383e+04	1.732e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:56	2.334e+04	1.452e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:18	1.754e+04	1.366e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.770e+04	1.426e+04	1.24	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:10	1.400e+04	1.310e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:42	8.603e+03	9.794e+03	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:54	2.542e+04	3.212e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:38	3.294e+04	2.588e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:37	1.828e+04				no	1.014

$$\text{OCDD} = \frac{(5.688e+04 + 6.330e+04) \times 4000\ \text{pg} \times 1}{(8.603e+03 + 9.794e+03) \times 10.139\ \text{g} \times 75.8/100 \times 1.118} = 3044.1585\ \text{ng/kg}$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0072

Run #16 Filename P518874 Samp: 1 Inj: 1 Acquired: 17-NOV-18 08:24:42
Processed: 21-NOV-18 09:19:33 LAB. ID: E1801012-020

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.31e+08	1.46e+03	8.9e+04	1.67e+08	1.63e+03	1.0e+05
2	1,2,3,7,8-PeCDF	7.98e+06	9.51e+03	8.4e+02	5.17e+06	1.86e+04	2.8e+02
3	2,3,4,7,8-PeCDF	5.48e+06	9.51e+03	5.8e+02	3.63e+06	1.86e+04	2.0e+02
4	1,2,3,4,7,8-HxCDF	1.12e+07	4.12e+03	2.7e+03	9.36e+06	3.44e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	2.71e+06	4.12e+03	6.6e+02	2.30e+06	3.44e+03	6.7e+02
6	2,3,4,6,7,8-HxCDF	4.93e+05	4.12e+03	1.2e+02	4.03e+05	3.44e+03	1.2e+02
7	1,2,3,7,8,9-HxCDF	6.19e+05	4.12e+03	1.5e+02	5.45e+05	3.44e+03	1.6e+02
8	1,2,3,4,6,7,8-HpCDF	2.47e+06	3.64e+03	6.8e+02	2.43e+06	2.50e+03	9.7e+02
9	1,2,3,4,7,8,9-HpCDF	5.90e+05	3.64e+03	1.6e+02	6.08e+05	2.50e+03	2.4e+02
10	OCDF	4.02e+06	3.44e+02	1.2e+04	4.61e+06	7.20e+02	6.4e+03
11	2,3,7,8-TCDD	4.26e+07	2.23e+03	1.9e+04	5.40e+07	1.78e+03	3.0e+04
12	1,2,3,7,8-PeCDD	6.46e+05	9.00e+02	7.2e+02	4.11e+05	9.96e+02	4.1e+02
13	1,2,3,4,7,8-HxCDD	2.27e+04	1.68e+03	1.4e+01	1.75e+04	9.80e+02	1.8e+01
14	1,2,3,6,7,8-HxCDD	7.79e+04	1.68e+03	4.6e+01	7.69e+04	9.80e+02	7.9e+01
15	1,2,3,7,8,9-HxCDD	3.98e+04	1.68e+03	2.4e+01	2.85e+04	9.80e+02	2.9e+01
16	1,2,3,4,6,7,8-HpCDD	1.78e+06	3.10e+03	5.8e+02	1.71e+06	1.77e+03	9.7e+02
17	OCDD	9.22e+06	2.96e+02	3.1e+04	1.04e+07	5.60e+02	1.9e+04
18	13C-2,3,7,8-TCDF	2.91e+06	4.52e+03	6.4e+02	3.62e+06	3.62e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	5.90e+06	4.96e+03	1.2e+03	3.79e+06	7.22e+03	5.3e+02
20	13C-2,3,4,7,8-PeCDF	5.96e+06	4.96e+03	1.2e+03	3.67e+06	7.22e+03	5.1e+02
21	13C-1,2,3,4,7,8-HxCDF	2.72e+06	1.60e+03	1.7e+03	5.24e+06	2.30e+03	2.3e+03
22	13C-1,2,3,6,7,8-HxCDF	2.90e+06	1.60e+03	1.8e+03	5.72e+06	2.30e+03	2.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.73e+06	1.60e+03	1.7e+03	5.23e+06	2.30e+03	2.3e+03
24	13C-1,2,3,7,8,9-HxCDF	2.35e+06	1.60e+03	1.5e+03	4.54e+06	2.30e+03	2.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.58e+06	4.55e+03	3.5e+02	3.68e+06	4.16e+03	8.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.26e+06	4.55e+03	2.8e+02	2.80e+06	4.16e+03	6.7e+02
27	13C-2,3,7,8-TCDD	2.27e+06	3.31e+03	6.9e+02	2.79e+06	1.82e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	4.22e+06	3.08e+02	1.4e+04	2.67e+06	1.04e+03	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	3.86e+06	9.88e+02	3.9e+03	2.97e+06	5.84e+02	5.1e+03
30	13C-1,2,3,6,7,8-HxCDD	3.42e+06	9.88e+02	3.5e+03	2.86e+06	5.84e+02	4.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.72e+06	5.80e+02	4.7e+03	2.54e+06	2.32e+02	1.1e+04
32	13C-OCDD	1.42e+06	2.20e+02	6.4e+03	1.62e+06	3.08e+02	5.3e+03
33	13C-1,2,3,4-TCDD	3.77e+06	3.31e+03	1.1e+03	4.73e+06	1.82e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	6.53e+06	9.88e+02	6.6e+03	5.11e+06	5.84e+02	8.8e+03
35	37Cl-2,3,7,8-TCDD	2.99e+06	1.45e+03	2.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0072

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P518874 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 08:24:42 Processed: 21-NOV-18 09:19:33

Mass: 303.9020 305.8990 Tot Response: 4.08e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:28	7.56e+03	1.02e+04	0.74	yes	1.77e+04		n	n
2	22:45	4.24e+04	5.65e+04	0.75	yes	9.89e+04		n	n
3	23:06	1.24e+04	1.71e+04	0.73	yes	2.94e+04		n	n
4	23:14	1.52e+03	2.00e+03	0.76	yes	3.52e+03		n	n
5	23:23	3.65e+04	4.79e+04	0.76	yes	8.45e+04		n	n
6	23:45	8.48e+03	1.08e+04	0.78	yes	1.93e+04		n	n
7	24:00	2.30e+04	3.03e+04	0.76	yes	5.33e+04		n	n
8	24:06	4.67e+04	6.09e+04	0.77	yes	1.08e+05		n	n
9	24:36	4.22e+05	5.46e+05	0.77	yes	9.67e+05		n	n
10	24:54	1.98e+04	2.62e+04	0.76	yes	4.60e+04		n	n
11	25:29	5.92e+04	7.71e+04	0.77	yes	1.36e+05		y	y
12	25:37	9.40e+05	1.21e+06	0.78	yes	2.15e+06	2,3,7,8-TCDF	y	y
13	26:03	7.08e+04	9.14e+04	0.77	yes	1.62e+05		n	n
14	26:21	1.08e+04	1.43e+04	0.75	yes	2.50e+04		n	n
15	27:52	7.80e+04	1.02e+05	0.77	yes	1.80e+05		n	n

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Peak List Summary

CLIENT ID.
SL0072

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P518874 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 08:24:42 Processed: 21-NOV-18 09:19:33

Mass: 319.8970 321.8940 Tot Response: 6.55e+05 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:18	3.41e+03	4.53e+03	0.75	yes	7.94e+03		n	n
2	26:37	2.61e+05	3.30e+05	0.79	yes	5.91e+05	2,3,7,8-TCDD	n	n
3	26:59	2.55e+04	3.04e+04	0.84	yes	5.59e+04		n	n

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Peak List Summary

CLIENT ID.
SL0072

Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P518874 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 08:24:42 Processed: 21-NOV-18 09:19:33

Mass: 339.8600 341.8570 Tot Response: 2.06e+05 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:35	2.10e+04	1.57	yes	3.45e+04		n	n
2	30:12	8.72e+02	1.65	yes	1.40e+03		n	n
3	30:17	9.18e+02	1.48	yes	1.54e+03		n	n
4	30:26	4.56e+03	1.58	yes	7.45e+03		n	n
5	30:38	4.56e+04	1.52	yes	7.55e+04	1,2,3,7,8-PeCDF	n	n
6	30:54	1.37e+04	1.57	yes	2.25e+04		n	n
7	31:32	5.62e+02	1.65	yes	9.03e+02		n	n
8	31:38	3.59e+04	1.53	yes	5.95e+04	2,3,4,7,8-PeCDF	n	n
9	32:36	1.92e+03	1.60	yes	3.13e+03		n	n

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Peak List Summary

CLIENT ID.
SL0072

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P518874 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 08:24:42 Processed: 21-NOV-18 09:19:33

Mass: 355.8550 357.8520 Tot Response: 8.19e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:10	2.83e+02	2.14e+02	1.32	yes	4.97e+02		n	n
2	30:17	5.21e+00	3.37e+00	1.54	yes	8.58e+00		n	n
3	30:40	2.72e+02	1.75e+02	1.56	yes	4.47e+02		n	n
4	30:50	2.53e+02	1.75e+02	1.45	yes	4.27e+02		n	n
5	30:56	1.28e+02	8.78e+01	1.45	yes	2.15e+02		n	n
6	31:30	1.03e+02	7.04e+01	1.47	yes	1.74e+02		n	n
7	31:57	3.91e+03	2.47e+03	1.58	yes	6.38e+03	1,2,3,7,8-PeCDD	n	n
8	32:16	2.50e+01	1.60e+01	1.57	yes	4.10e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0072

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P518874 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 08:24:42 Processed: 21-NOV-18 09:19:33

Mass: 373.8210 375.8180 Tot Response: 1.52e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:20	6.27e+02	5.18e+02	1.21	yes	1.14e+03		n	n
2	33:31	4.68e+03	3.91e+03	1.20	yes	8.59e+03		n	n
3	34:03	2.74e+03	2.31e+03	1.19	yes	5.05e+03		n	n
4	34:31	5.40e+04	4.53e+04	1.19	yes	9.94e+04	1,2,3,4,7,8-HxCDF	n	n
5	34:37	1.47e+04	1.24e+04	1.18	yes	2.71e+04	1,2,3,6,7,8-HxCDF	n	n
6	35:10	2.36e+03	1.85e+03	1.28	yes	4.22e+03	2,3,4,6,7,8-HxCDF	n	n
7	35:58	3.35e+03	2.97e+03	1.13	yes	6.32e+03	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0072

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P518874 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 08:24:42 Processed: 21-NOV-18 09:19:33

Mass: 389.8160 391.8130 Tot Response: 8.62e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:54	2.41e+03	1.93e+03	1.25	yes	4.34e+03		n	n
2	34:27	2.11e+02	1.51e+02	1.39	yes	3.61e+02		n	n
3	34:42	1.52e+03	1.13e+03	1.35	yes	2.65e+03		n	n
4	35:19	8.68e+01	7.23e+01	1.20	yes	1.59e+02	1,2,3,4,7,8-HxCDD	n	n
5	35:24	3.95e+02	3.62e+02	1.09	yes	7.57e+02	1,2,3,6,7,8-HxCDD	n	n
6	35:39	2.10e+02	1.51e+02	1.39	yes	3.61e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0072

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P518874 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 08:24:42 Processed: 21-NOV-18 09:19:33

Mass: 407.7820 409.7790 Tot Response: 4.05e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:16	1.17e+04	1.16e+04	1.01	yes	2.33e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	37:32	1.86e+02	2.07e+02	0.90	yes	3.92e+02		n	n
3	37:40	5.27e+03	5.26e+03	1.00	yes	1.05e+04		n	n
4	38:36	3.09e+03	3.15e+03	0.98	yes	6.24e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0072

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P518874 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 08:24:42 Processed: 21-NOV-18 09:19:33

Mass: 423.7770 425.7740 Tot Response: 4.17e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:31	1.20e+04	1.16e+04	1.03	yes	2.36e+04		n	n
2	38:10	9.19e+03	8.90e+03	1.03	yes	1.81e+04	1,2,3,4,6,7,8-HpCDD	n	n

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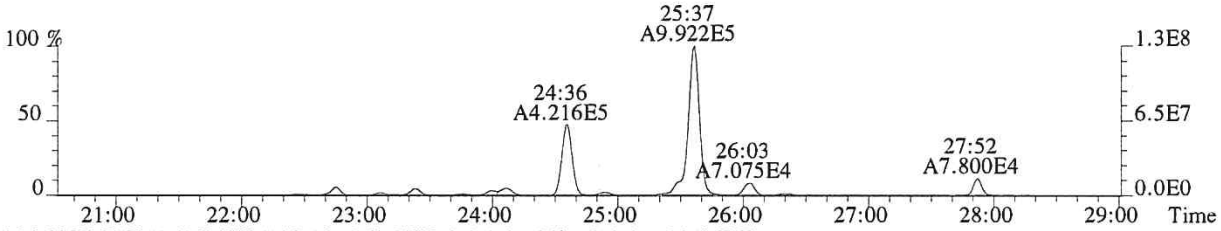
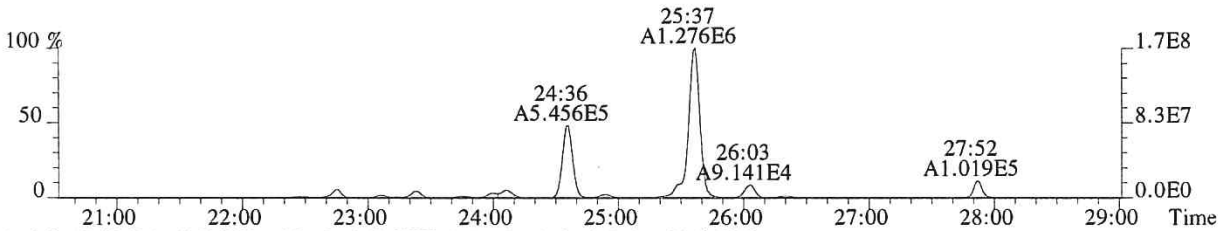
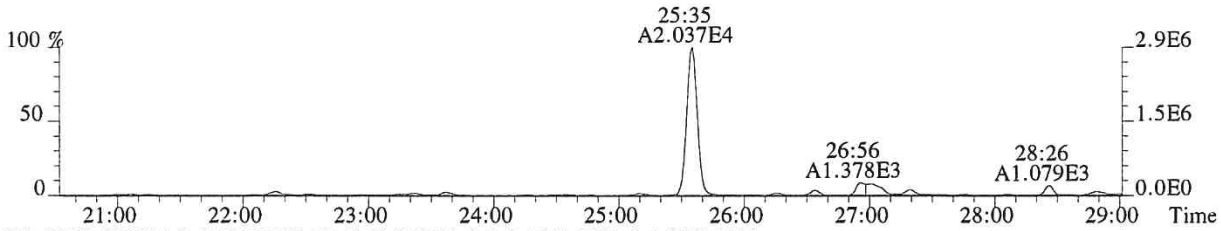
File:P518874 #1-602 Acq:17-NOV-2018 08:24:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



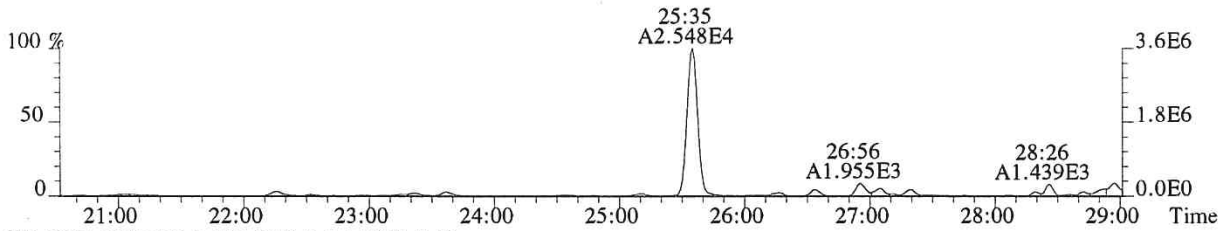
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



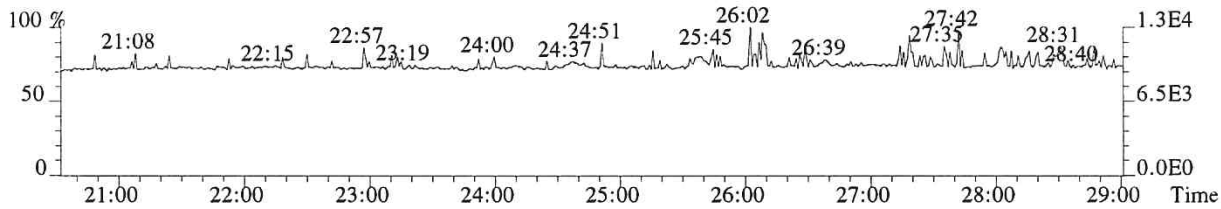
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4520.0,1.00%,F,T)



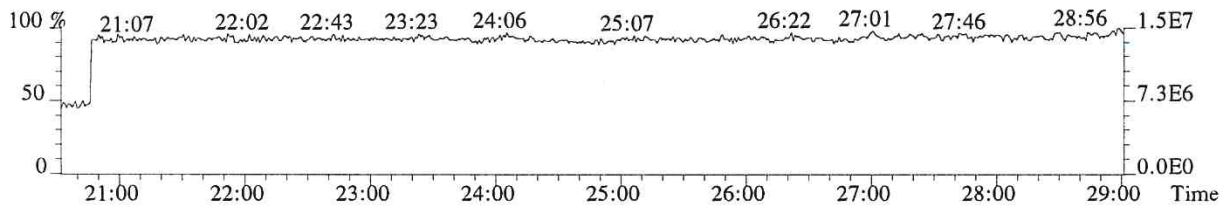
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3624.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

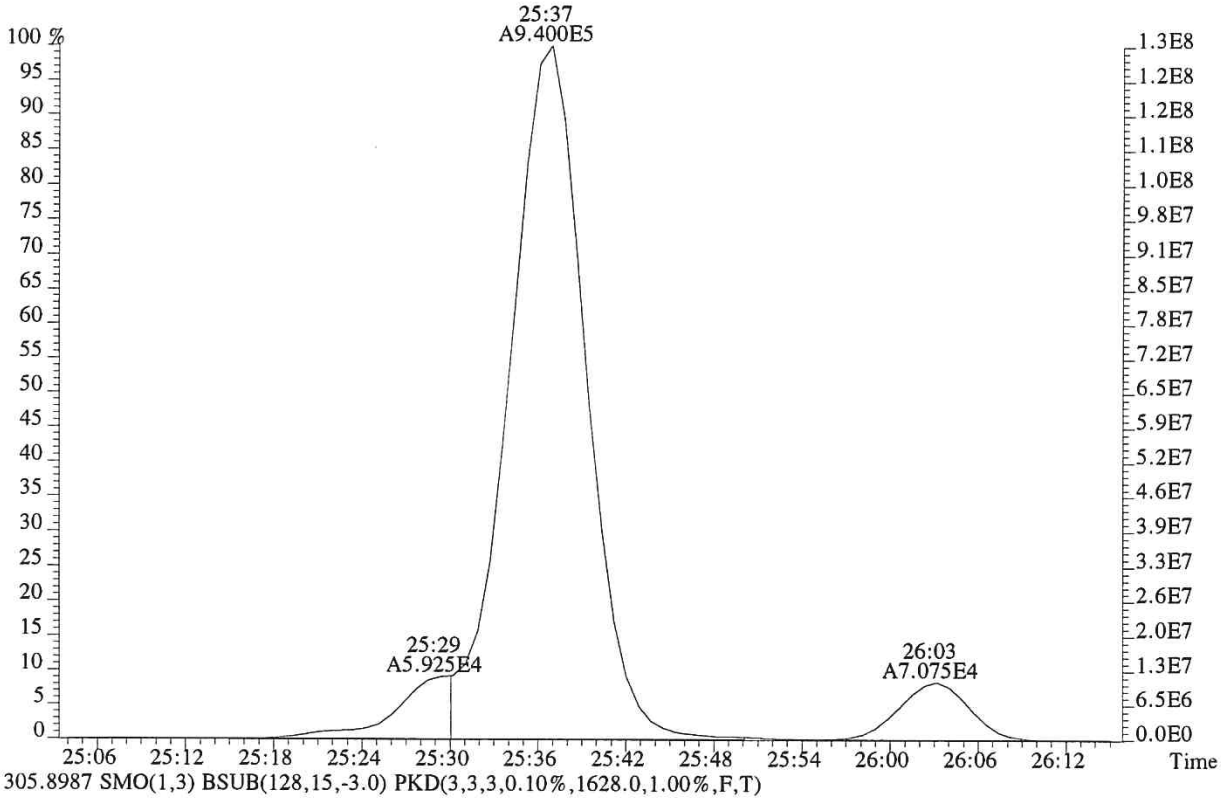


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

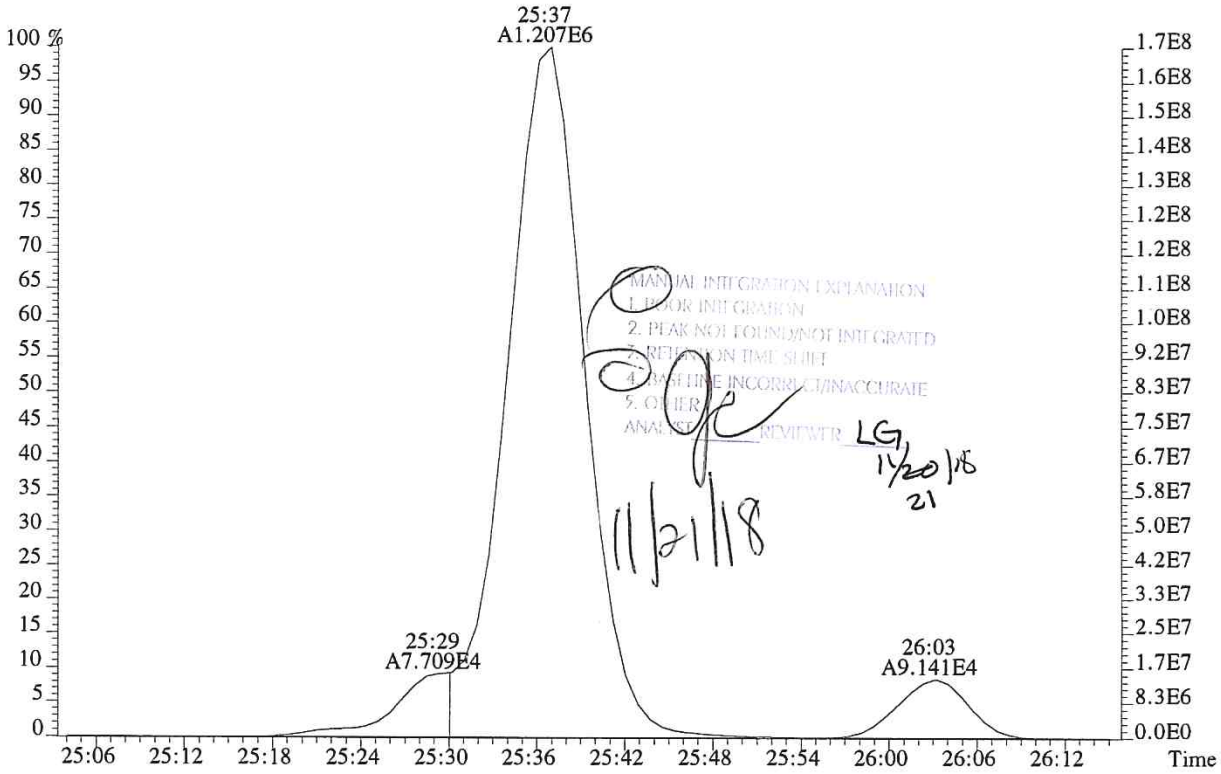


008841

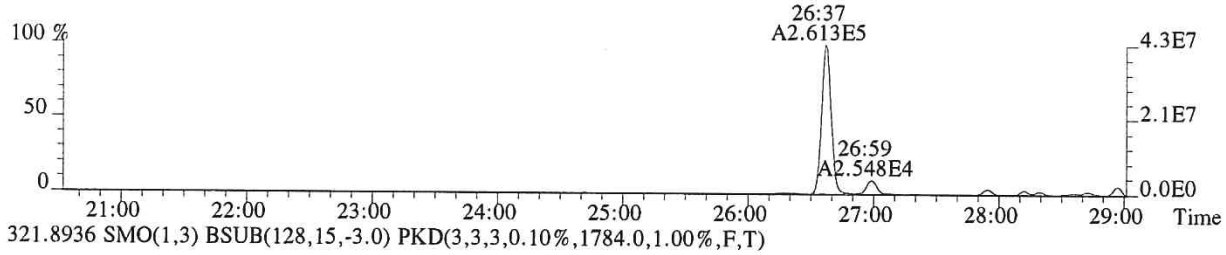
File:P518874 #1-602 Acq:17-NOV-2018 08:24:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



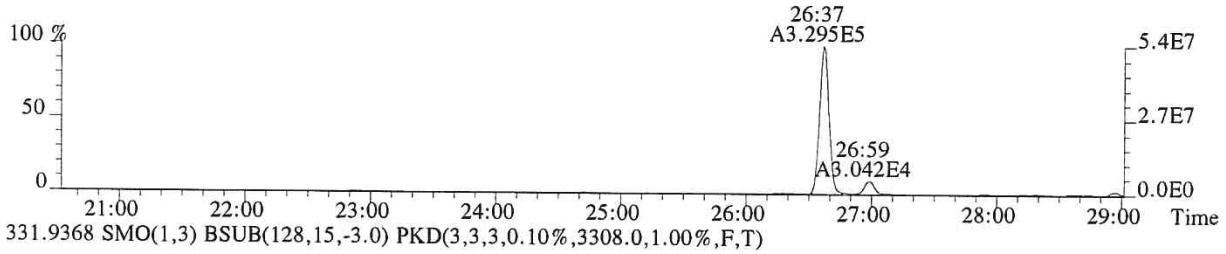
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



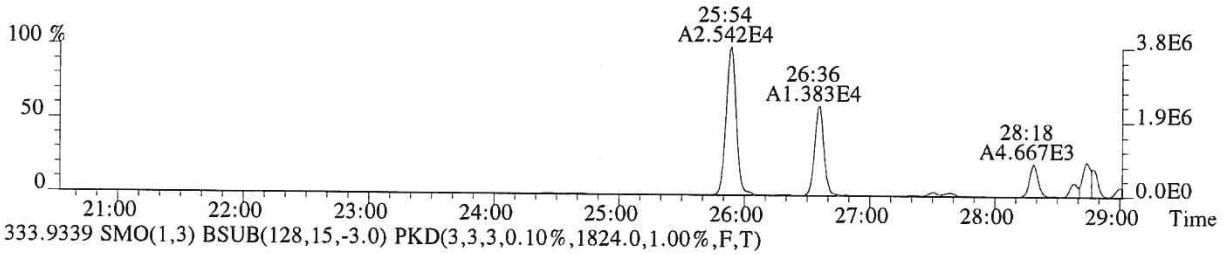
File:P518874 #1-602 Acq:17-NOV-2018 08:24:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2232.0,1.00%,F,T)



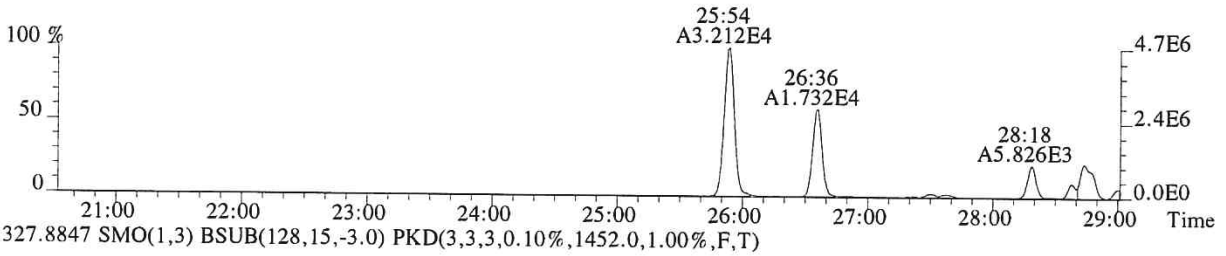
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



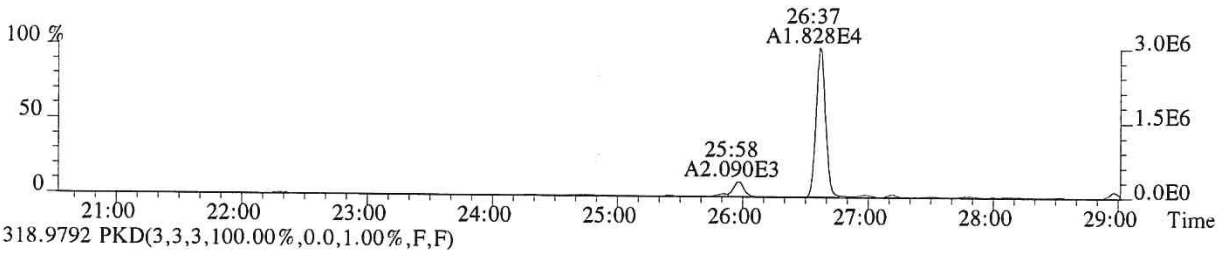
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3308.0,1.00%,F,T)



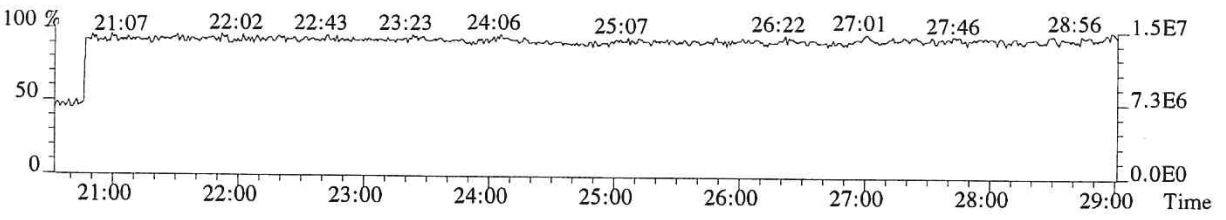
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1824.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)

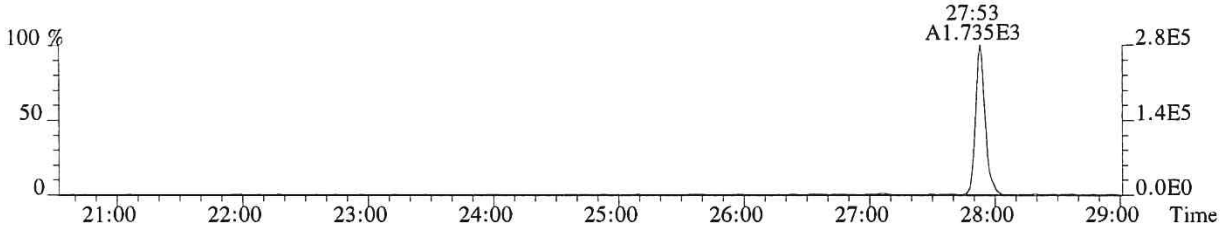


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

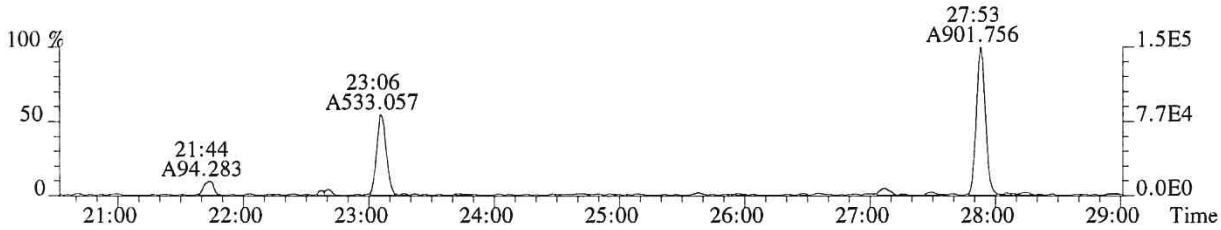


008843

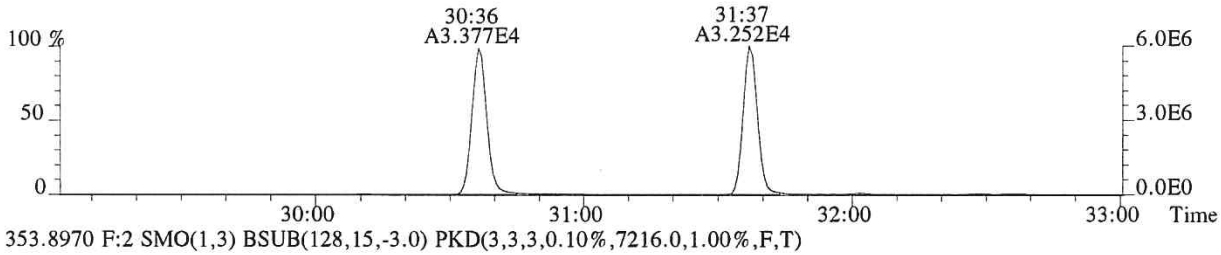
File:P518874 #1-602 Acq:17-NOV-2018 08:24:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



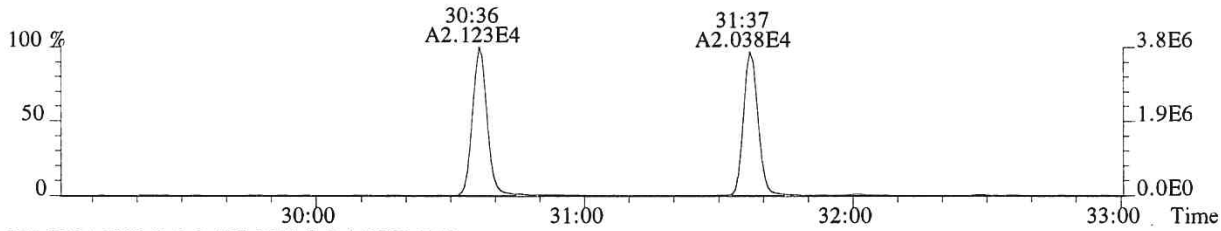
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



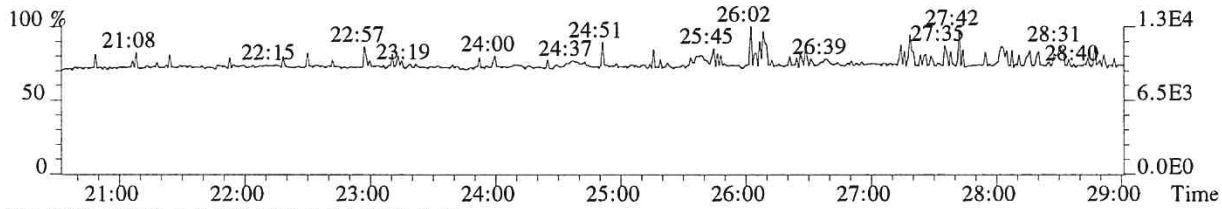
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4964.0,1.00%,F,T)



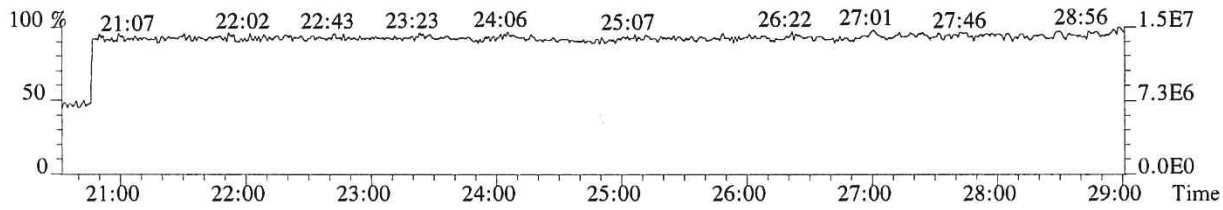
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7216.0,1.00%,F,T)



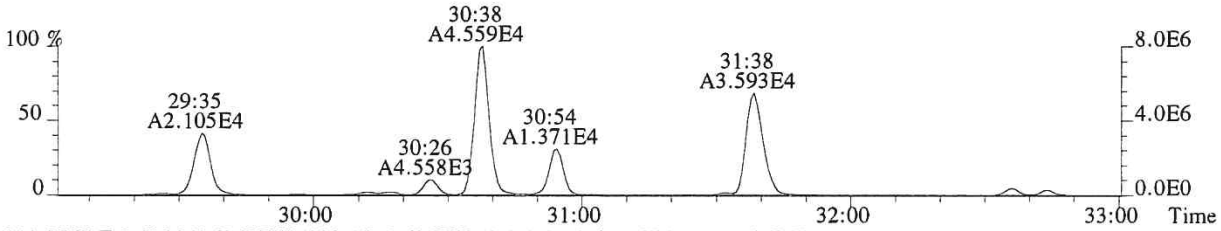
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



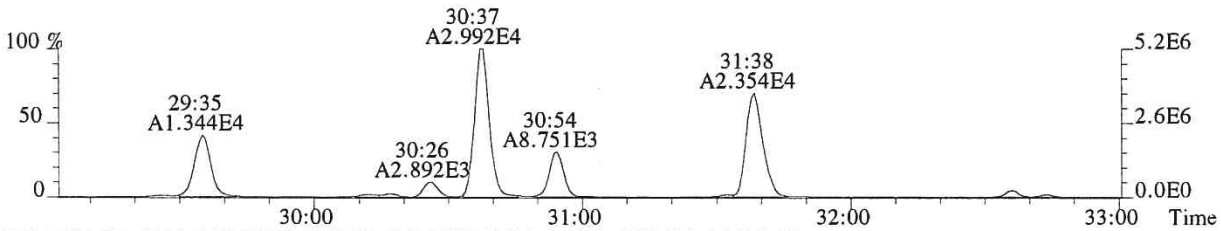
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



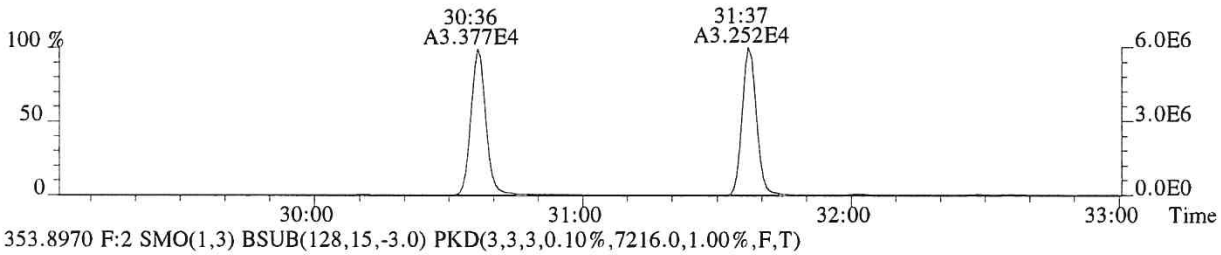
File:P518874 #1-357 Acq:17-NOV-2018 08:24:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9512.0,1.00%,F,T)



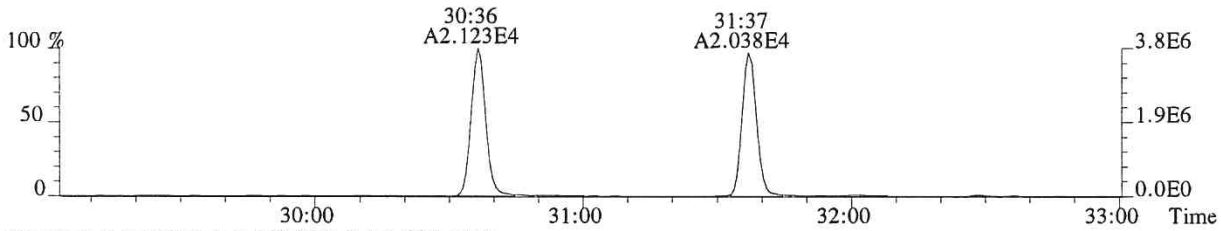
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18576.0,1.00%,F,T)



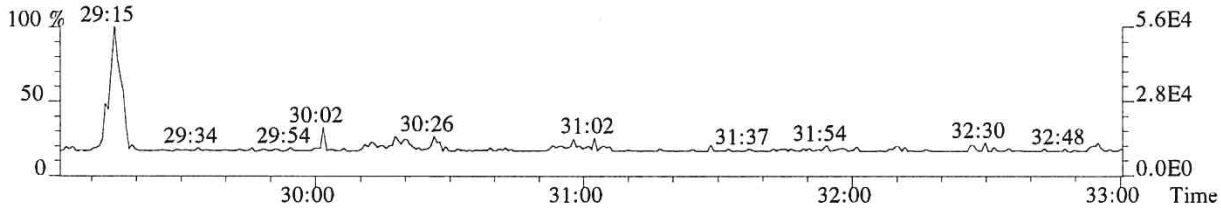
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4964.0,1.00%,F,T)



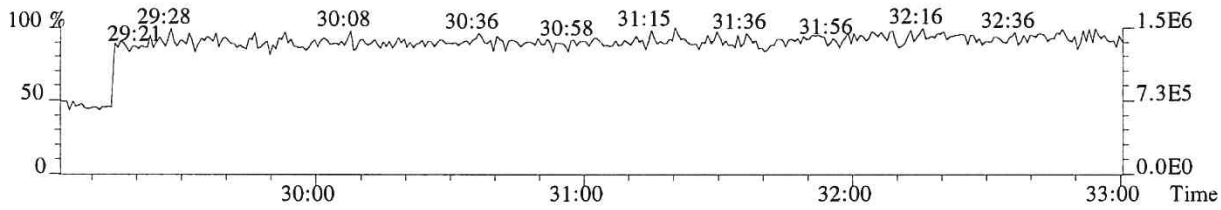
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7216.0,1.00%,F,T)



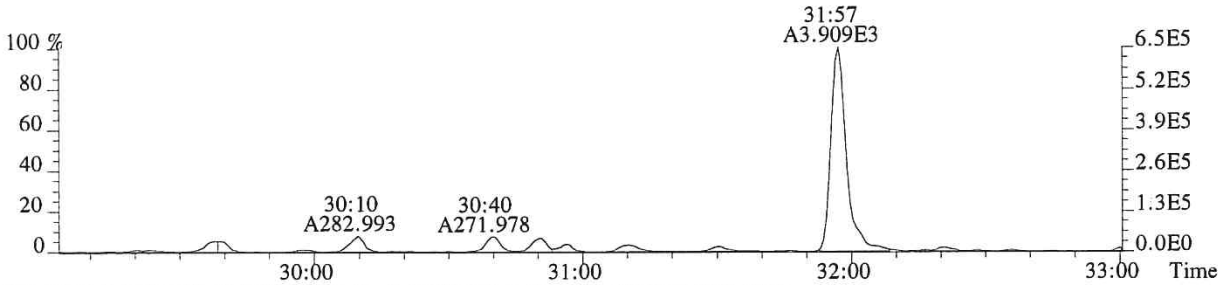
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



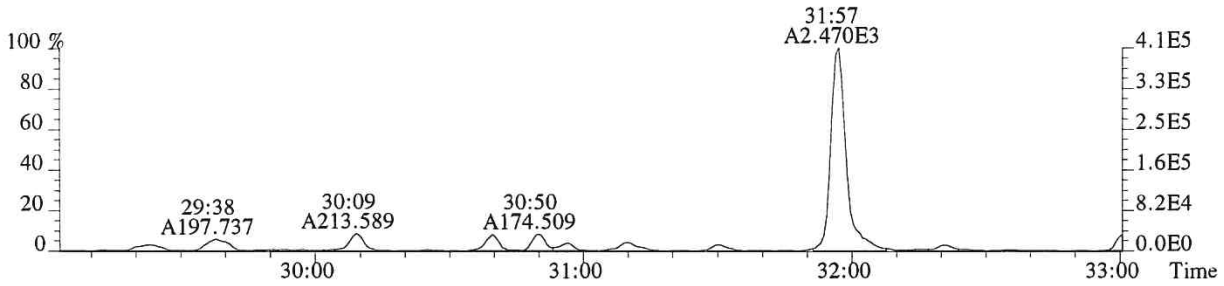
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



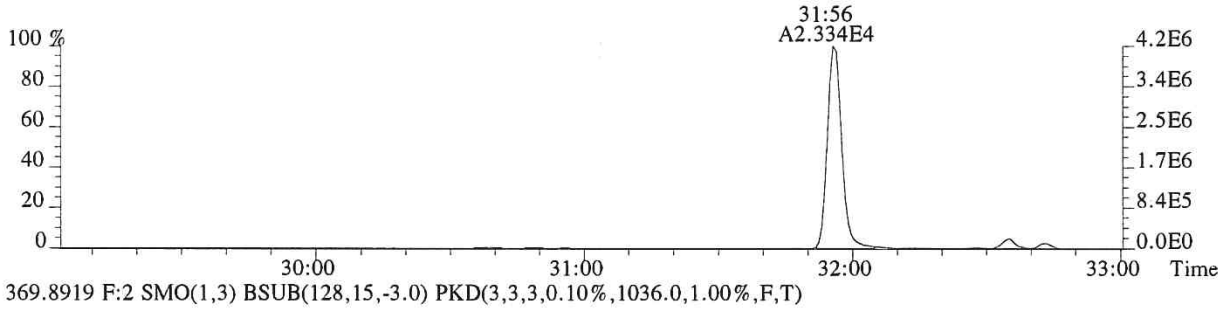
File:P518874 #1-357 Acq:17-NOV-2018 08:24:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



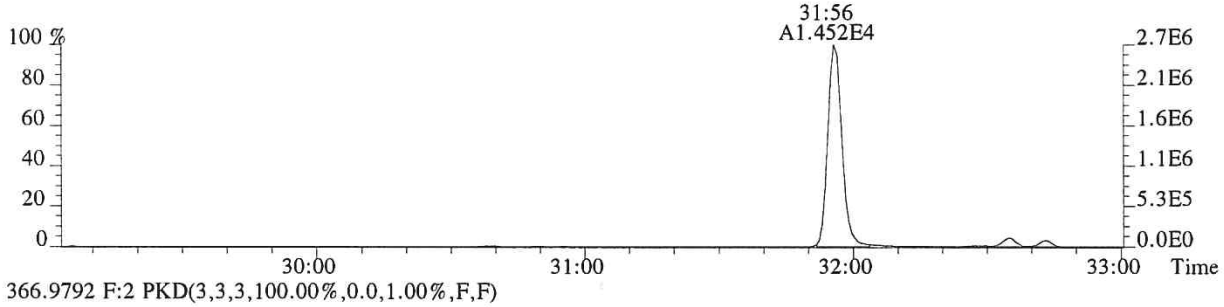
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



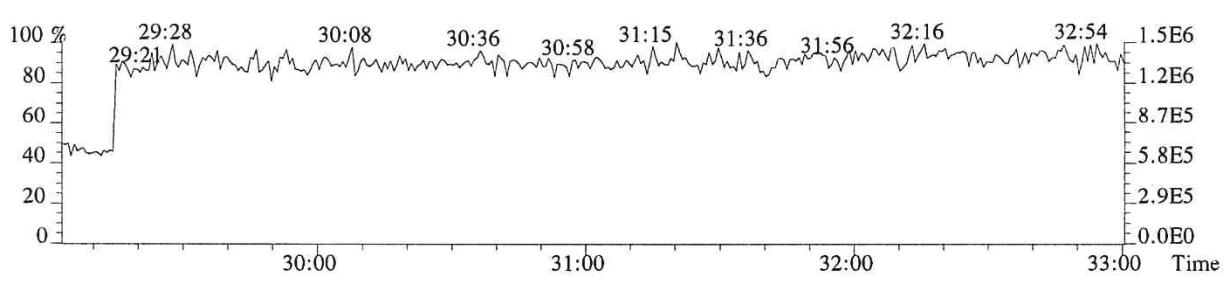
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

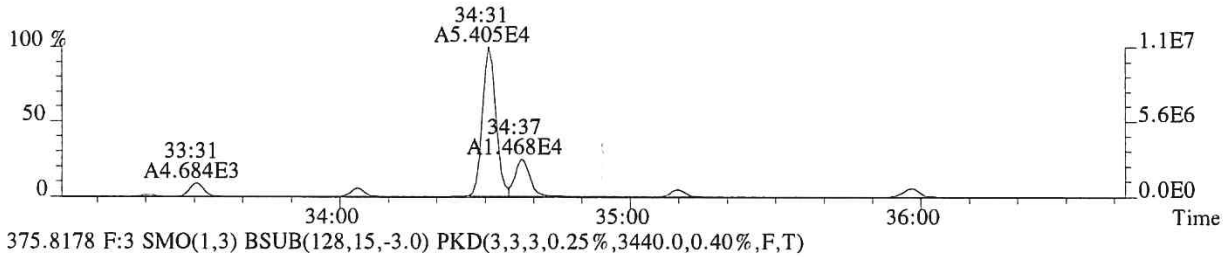


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

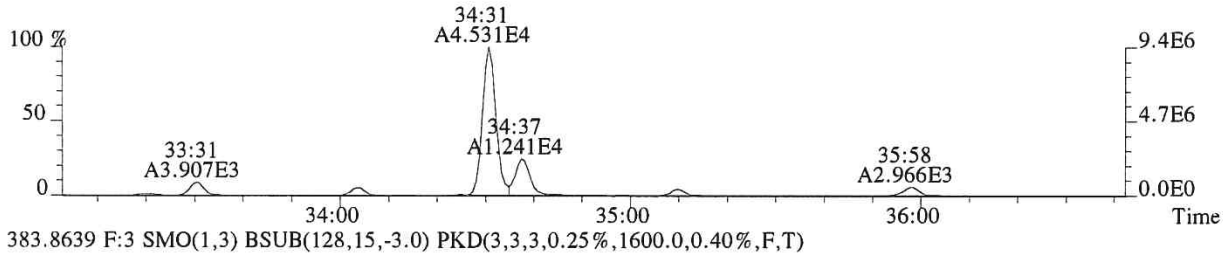


008846

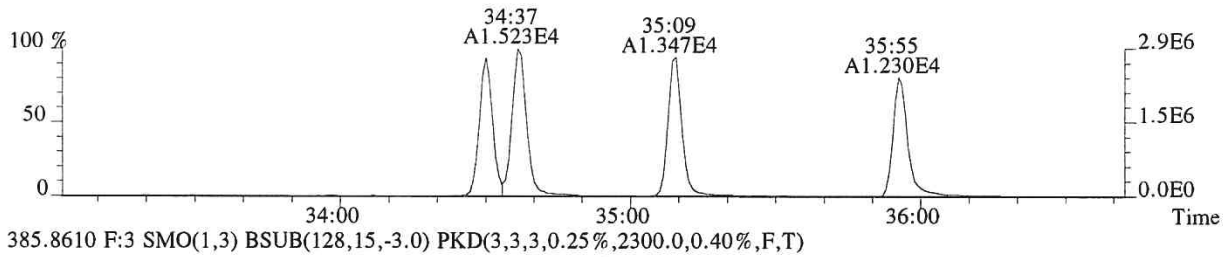
File:P518874 #1-330 Acq:17-NOV-2018 08:24:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4120.0,0.40%,F,T)



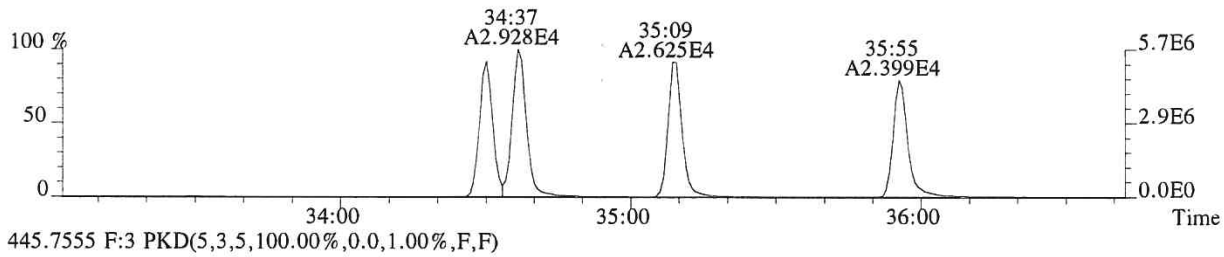
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3440.0,0.40%,F,T)



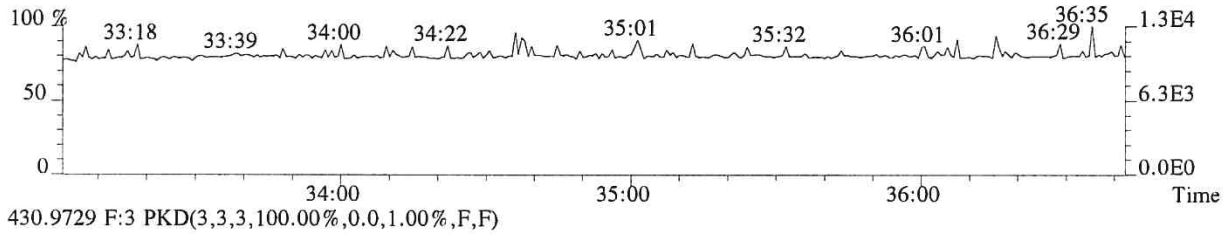
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



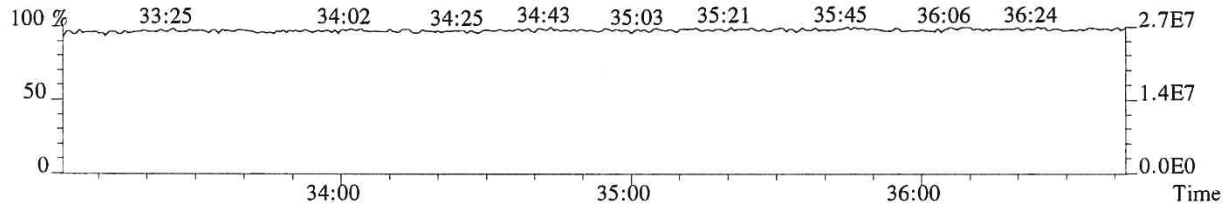
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.40%,F,T)



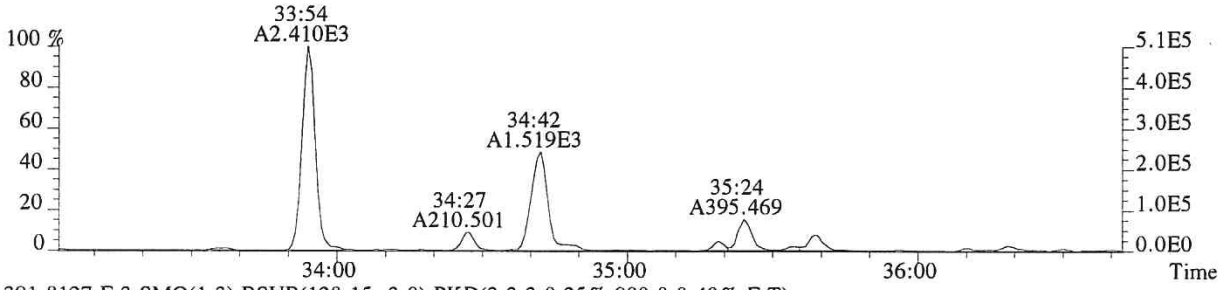
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



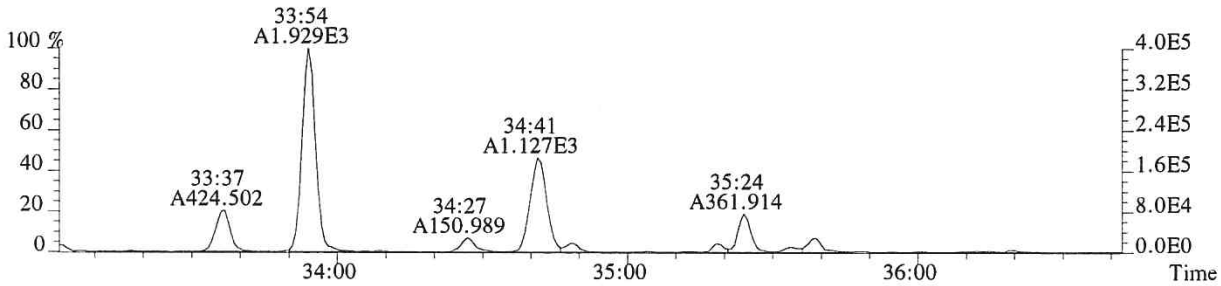
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



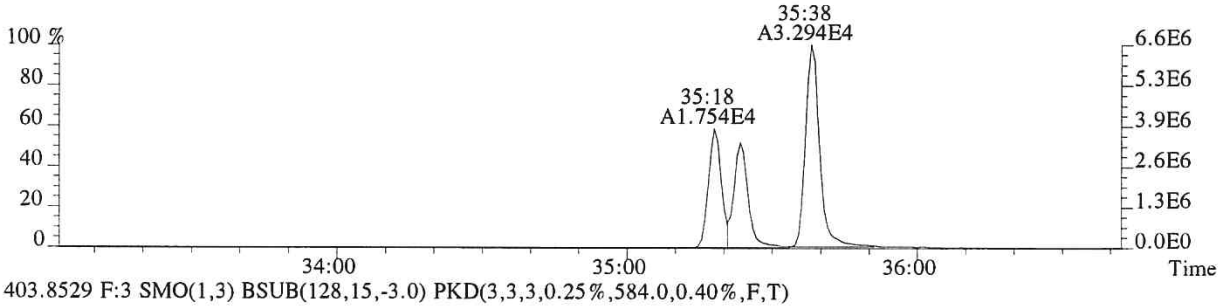
File:P518874 #1-330 Acq:17-NOV-2018 08:24:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



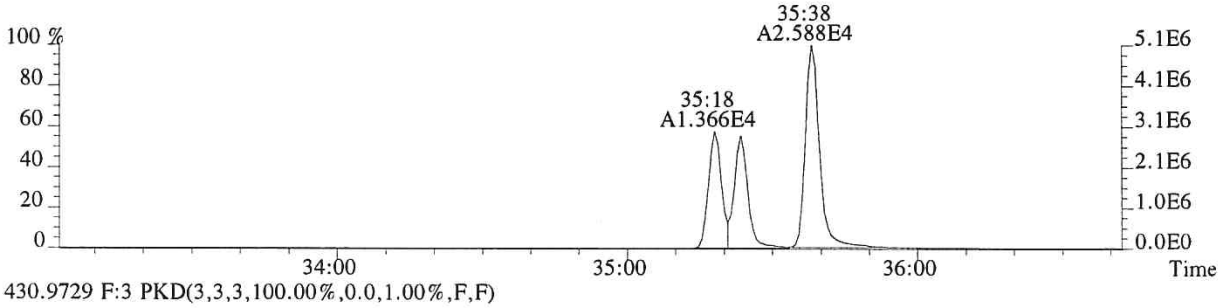
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



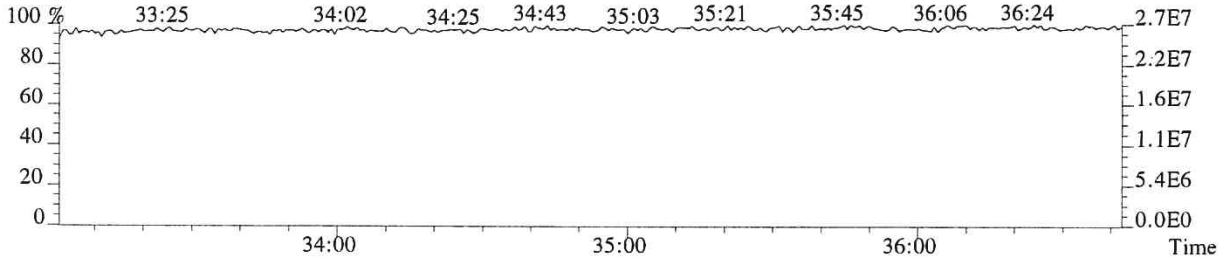
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)

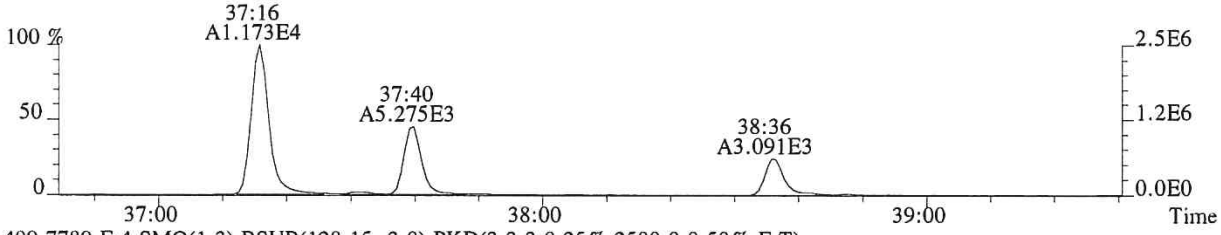


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

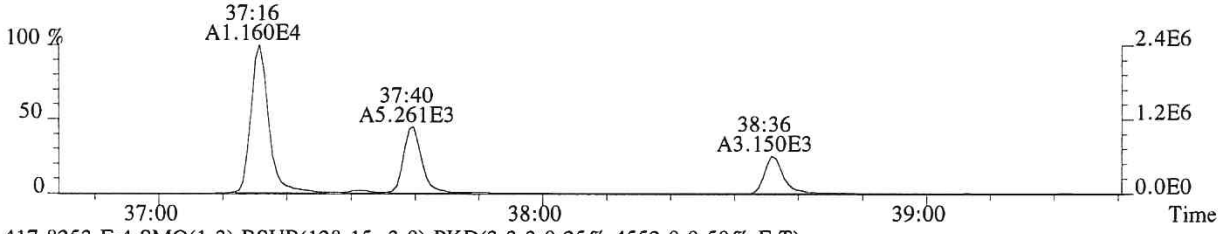


008848

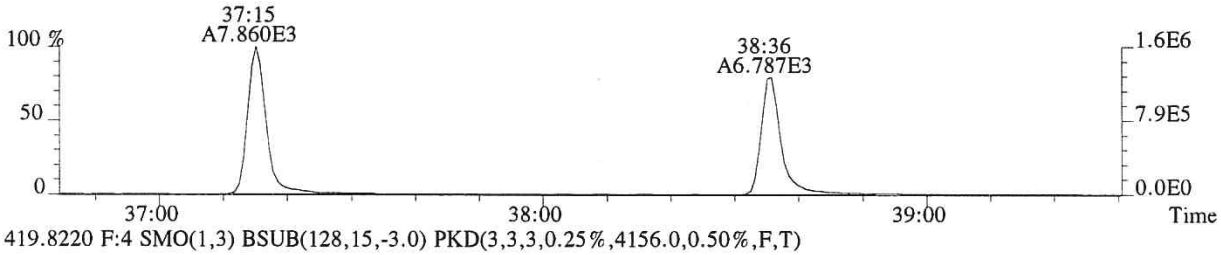
File:P518874 #1-250 Acq:17-NOV-2018 08:24:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3636.0,0.50%,F,T)



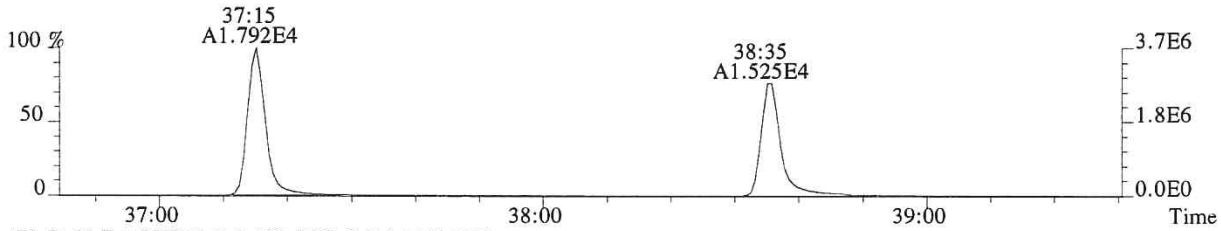
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2500.0,0.50%,F,T)



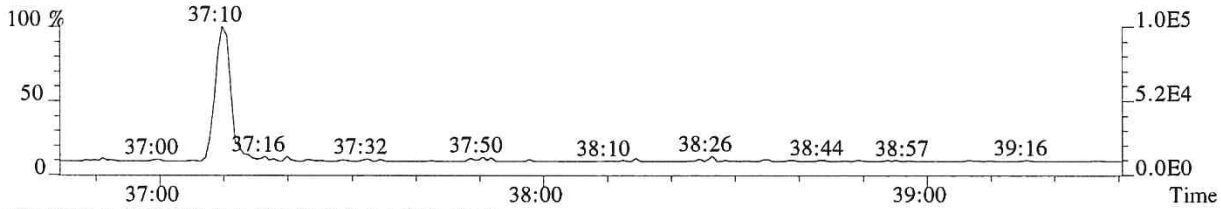
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4552.0,0.50%,F,T)



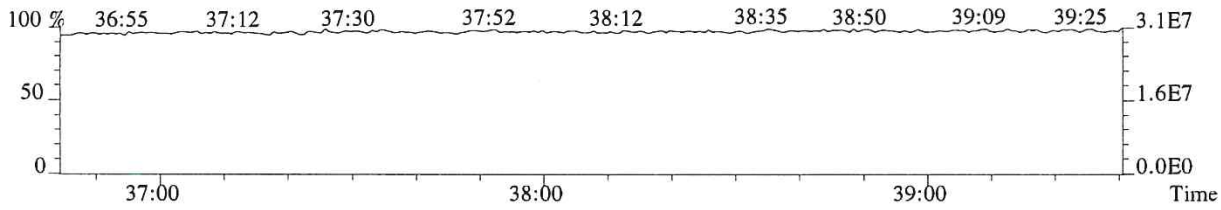
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

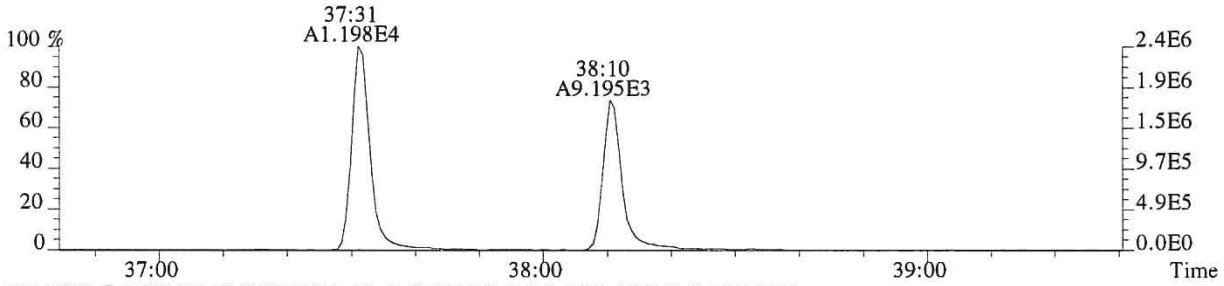


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

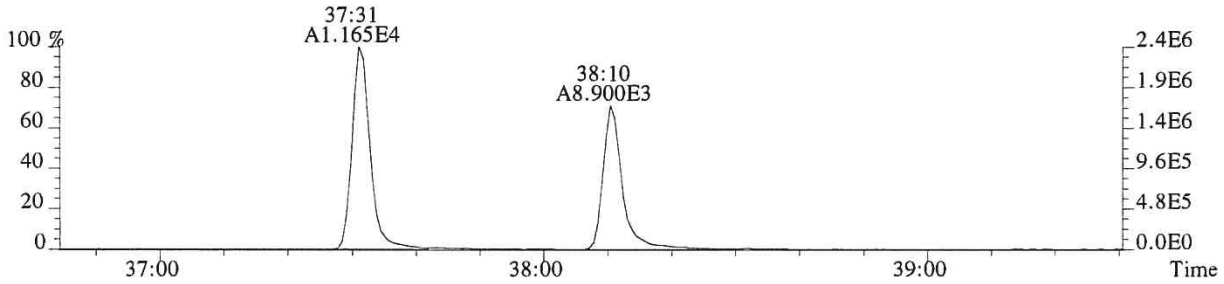


008849

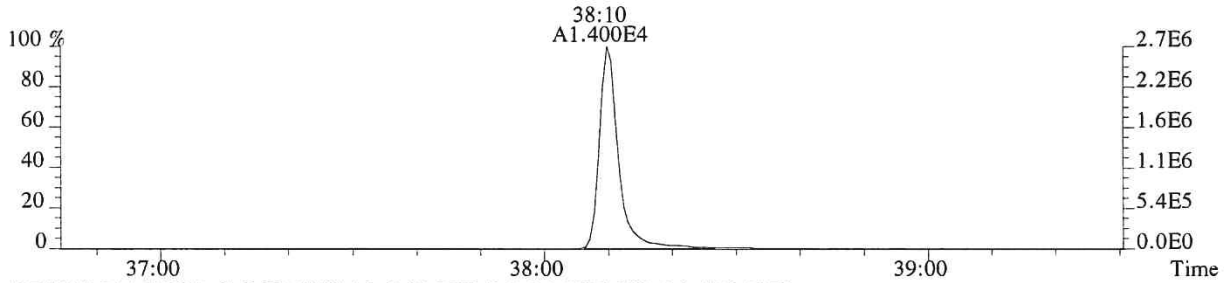
File:P518874 #1-250 Acq:17-NOV-2018 08:24:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3100.0,0.40%,F,T)



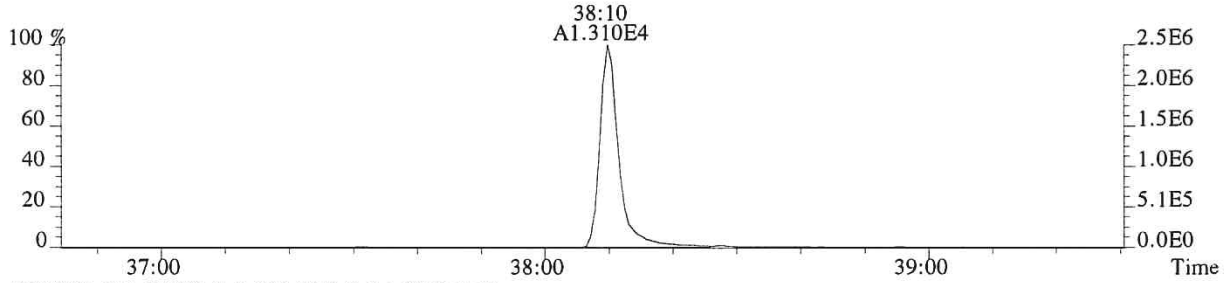
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1768.0,0.40%,F,T)



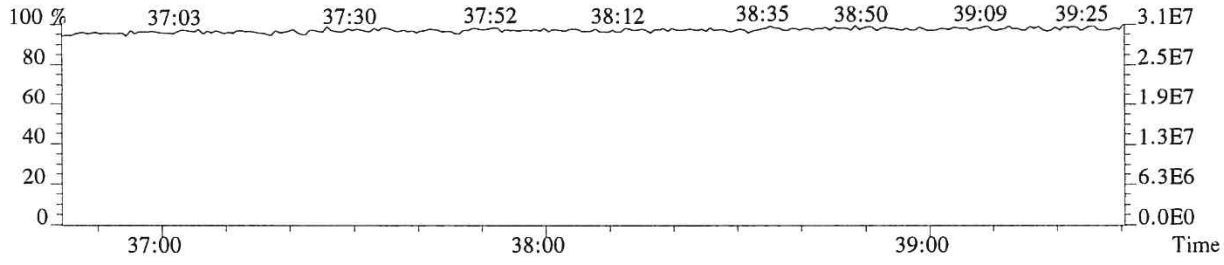
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



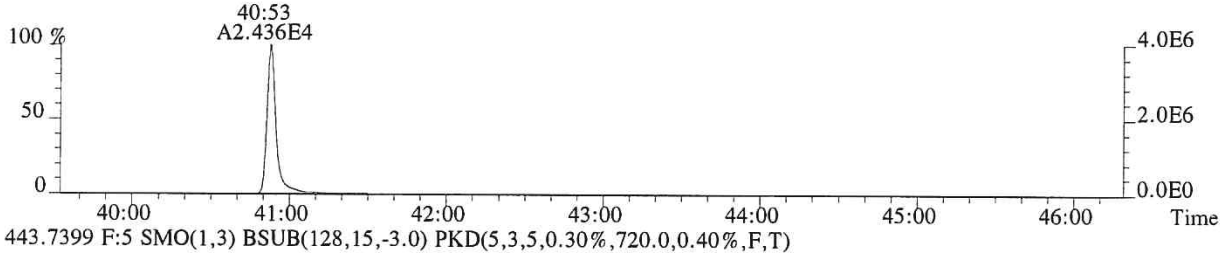
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



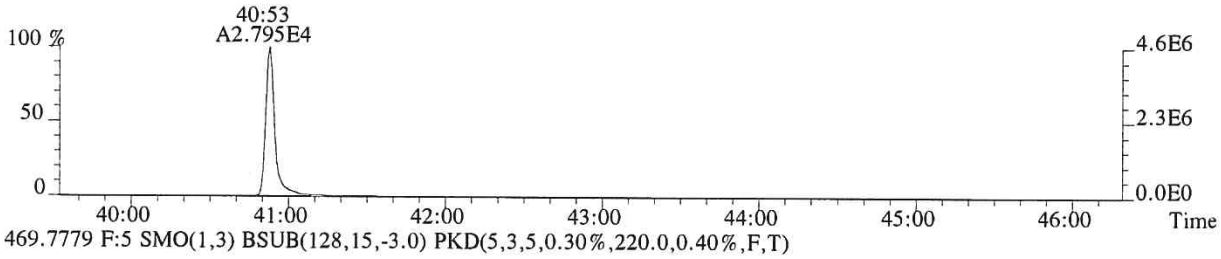
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



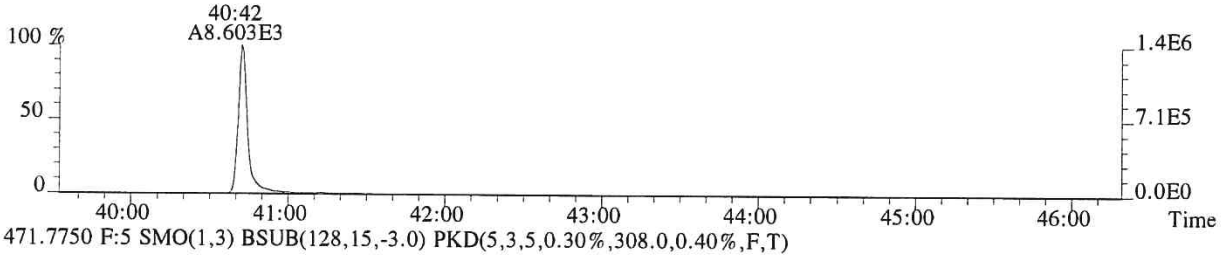
File:P518874 #1-610 Acq:17-NOV-2018 08:24:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



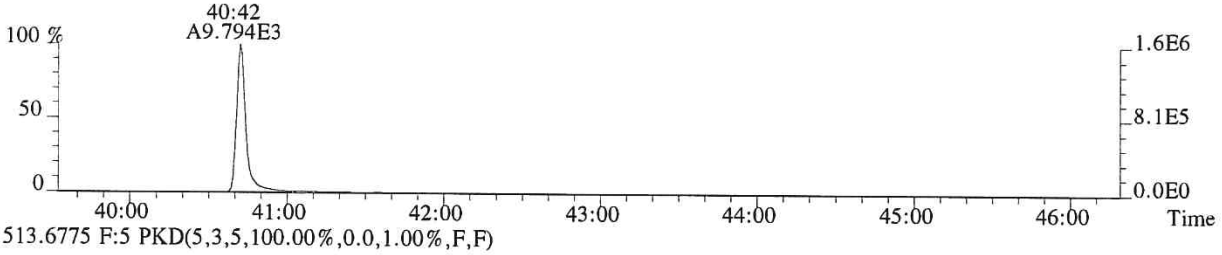
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,720.0,0.40%,F,T)



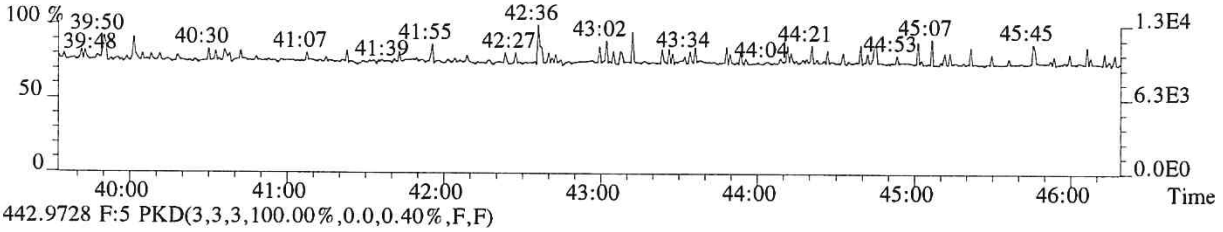
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



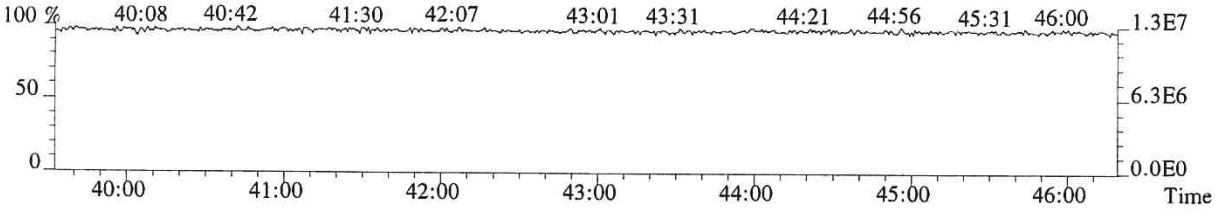
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



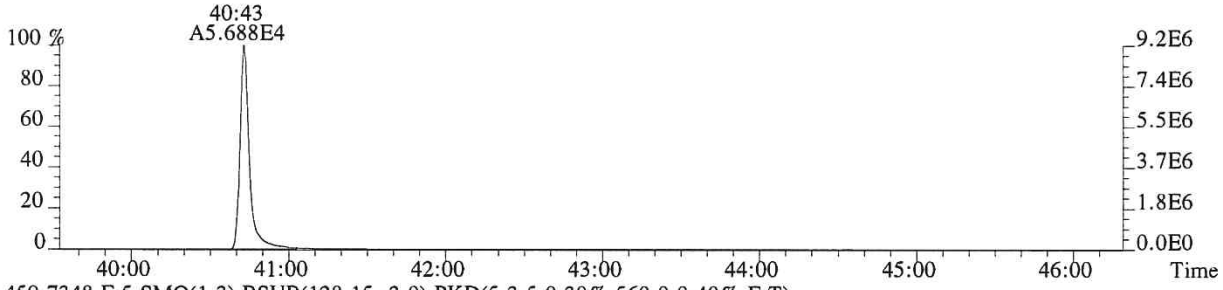
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



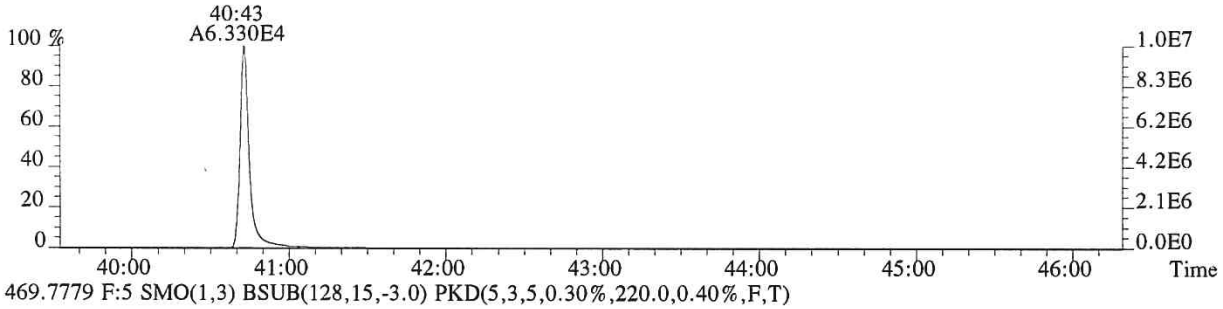
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



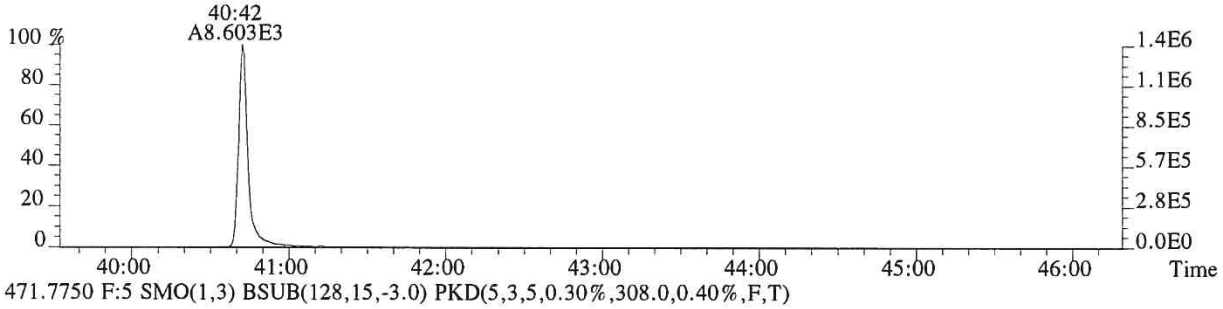
File:P518874 #1-610 Acq:17-NOV-2018 08:24:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



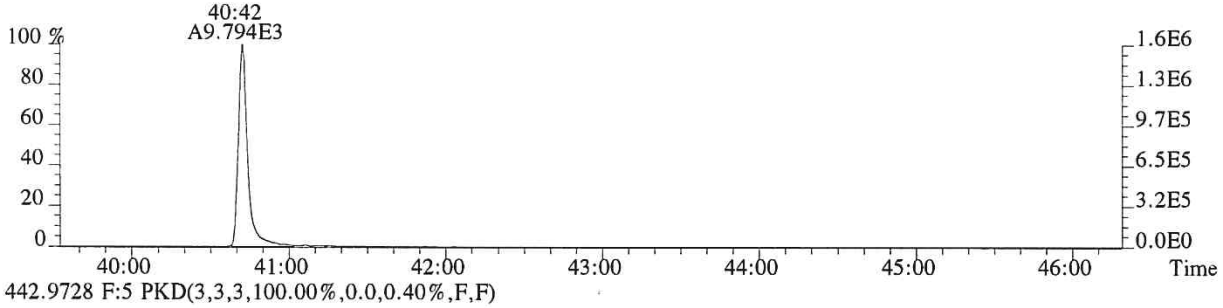
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



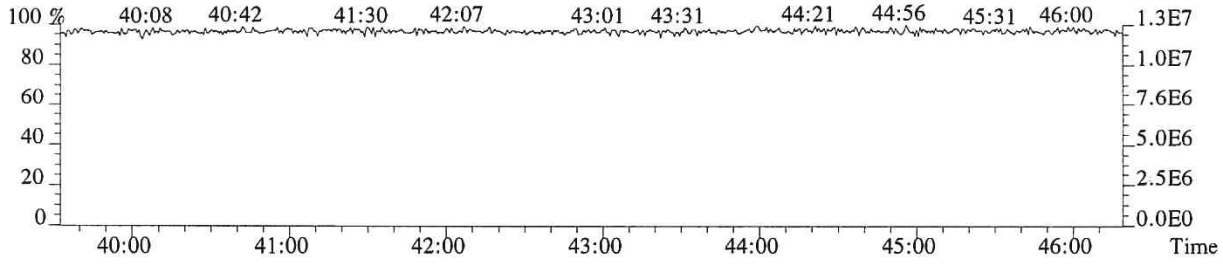
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0072

Run #13 Filename P615680 Samp: 1 Inj: 1 Acquired: 21-NOV-18 22:19:48
Processed: 26-NOV-18 15:05:32 Sample ID: E1801012-020DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:26	1.118e+04	1.413e+04	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:20	4.722e+02	3.150e+02	1.50	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:12	4.165e+02	2.787e+02	1.49	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:46	6.823e+02	5.473e+02	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:53	2.056e+02	1.343e+02	1.53	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:23	5.155e+01	3.706e+01	1.39	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:09	8.115e+01	4.548e+01	1.78	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:22	1.887e+02	2.161e+02	0.87	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:54	5.445e+01	5.837e+01	0.93	yes	no	1.463
10	Unk	OCDF	43:39	4.532e+02	4.671e+02	0.97	yes	no	1.571
11	Unk	2,3,7,8-TCDD	30:08	2.957e+03	3.700e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:28	5.530e+01	2.498e+01	2.21	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:22	1.587e+02	1.448e+02	1.10	yes	no	1.112
17	Unk	OCDD	43:24	1.184e+03	1.400e+03	0.85	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:25	3.531e+04	4.466e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:19	5.414e+04	3.433e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:12	5.328e+04	3.340e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:45	2.296e+04	4.367e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	2.703e+04	5.167e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:22	2.948e+04	5.639e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:07	2.410e+04	4.544e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:22	2.302e+04	4.980e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:53	2.237e+04	5.000e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	30:07	2.536e+04	3.306e+04	0.77	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:27	4.099e+04	2.662e+04	1.54	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:29	2.995e+04	2.349e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:34	3.124e+04	2.448e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:21	2.975e+04	2.837e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	43:24	2.924e+04	3.219e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:34	2.770e+04	3.523e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:48	3.750e+04	2.899e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:08	2.435e+02				no	1.086

$$\text{OCDD} = \frac{(1.184e+03 + 1.400e+03) \times 4000\ \text{pg} \times 100}{(2.924e+04 + 3.219e+04) \times 10.139\ \text{g} \times 75\text{-}8 / 100 \times 1.157 \times 0.27} = 7008\ \text{ng/kg}$$

LHW 4/27/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0072

Run #13 Filename P615680 Samp: 1 Inj: 1 Acquired: 21-NOV-18 22:19:48
Processed: 26-NOV-18 15:05:32 LAB. ID: E1801012-020DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.09e+06	3.68e+02	5.7e+03	2.74e+06	2.69e+03	1.0e+03
2	1,2,3,7,8-PeCDF	9.50e+04	1.29e+03	7.4e+01	5.96e+04	3.16e+03	1.9e+01
3	2,3,4,7,8-PeCDF	6.91e+04	1.29e+03	5.4e+01	4.88e+04	3.16e+03	1.5e+01
4	1,2,3,4,7,8-HxCDF	1.52e+05	5.72e+02	2.7e+02	1.23e+05	3.36e+02	3.7e+02
5	1,2,3,6,7,8-HxCDF	4.01e+04	5.72e+02	7.0e+01	3.14e+04	3.36e+02	9.3e+01
6	2,3,4,6,7,8-HxCDF	1.05e+04	5.72e+02	1.8e+01	9.46e+03	3.36e+02	2.8e+01
7	1,2,3,7,8,9-HxCDF	1.64e+04	5.72e+02	2.9e+01	9.84e+03	3.36e+02	2.9e+01
8	1,2,3,4,6,7,8-HpCDF	4.30e+04	5.60e+02	7.7e+01	4.34e+04	4.48e+02	9.7e+01
9	1,2,3,4,7,8,9-HpCDF	9.69e+03	5.60e+02	1.7e+01	1.17e+04	4.48e+02	2.6e+01
10	OCDF	7.77e+04	6.68e+02	1.2e+02	7.32e+04	6.04e+02	1.2e+02
11	2,3,7,8-TCDD	6.21e+05	1.93e+03	3.2e+02	7.88e+05	1.27e+03	6.2e+02
12	1,2,3,7,8-PeCDD	9.90e+03	2.14e+03	4.6e+00	5.79e+03	8.84e+02	6.5e+00
13	1,2,3,4,7,8-HxCDD	*	1.28e+03	*	*	1.45e+03	*
14	1,2,3,6,7,8-HxCDD	*	1.28e+03	*	*	1.45e+03	*
15	1,2,3,7,8,9-HxCDD	*	1.28e+03	*	*	1.45e+03	*
16	1,2,3,4,6,7,8-HpCDD	3.00e+04	9.88e+02	3.0e+01	3.38e+04	9.36e+02	3.6e+01
17	OCDD	1.78e+05	4.96e+02	3.6e+02	2.28e+05	7.60e+02	3.0e+02
18	13C-2,3,7,8-TCDF	7.35e+06	9.07e+03	8.1e+02	9.24e+06	4.24e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	1.12e+07	9.80e+02	1.1e+04	6.99e+06	1.90e+03	3.7e+03
20	13C-2,3,4,7,8-PeCDF	1.11e+07	9.80e+02	1.1e+04	6.80e+06	1.90e+03	3.6e+03
21	13C-1,2,3,4,7,8-HxCDF	5.13e+06	1.03e+03	5.0e+03	9.90e+06	1.56e+03	6.3e+03
22	13C-1,2,3,6,7,8-HxCDF	6.10e+06	1.03e+03	5.9e+03	1.18e+07	1.56e+03	7.5e+03
23	13C-2,3,4,6,7,8-HxCDF	6.49e+06	1.03e+03	6.3e+03	1.25e+07	1.56e+03	8.0e+03
24	13C-1,2,3,7,8,9-HxCDF	5.11e+06	1.03e+03	5.0e+03	9.88e+06	1.56e+03	6.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.03e+06	4.00e+03	1.3e+03	1.09e+07	2.22e+03	4.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.34e+06	4.00e+03	1.1e+03	9.66e+06	2.22e+03	4.4e+03
27	13C-2,3,7,8-TCDD	5.46e+06	8.42e+03	6.5e+02	6.98e+06	4.21e+03	1.7e+03
28	13C-1,2,3,7,8-PeCDD	8.64e+06	1.68e+03	5.2e+03	5.53e+06	1.78e+03	3.1e+03
29	13C-1,2,3,4,7,8-HxCDD	6.99e+06	4.72e+03	1.5e+03	5.33e+06	1.83e+03	2.9e+03
30	13C-1,2,3,6,7,8-HxCDD	6.78e+06	4.72e+03	1.4e+03	5.43e+06	1.83e+03	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.97e+06	4.80e+02	1.2e+04	5.68e+06	1.03e+03	5.5e+03
32	13C-OCDD	4.61e+06	4.84e+02	9.5e+03	5.10e+06	3.80e+02	1.3e+04
33	13C-1,2,3,4-TCDD	5.67e+06	8.42e+03	6.7e+02	7.27e+06	4.21e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	8.28e+06	4.72e+03	1.8e+03	6.50e+06	1.83e+03	3.6e+03
35	37Cl-2,3,7,8-TCDD	4.96e+04	1.70e+03	2.9e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.932e{+}03 + 1.268e{+}03) \times 2000}{(5.464e{+}06 + 6.977e{+}06) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
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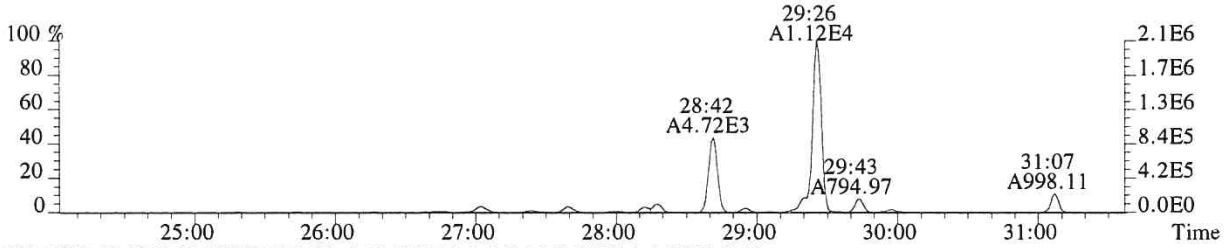
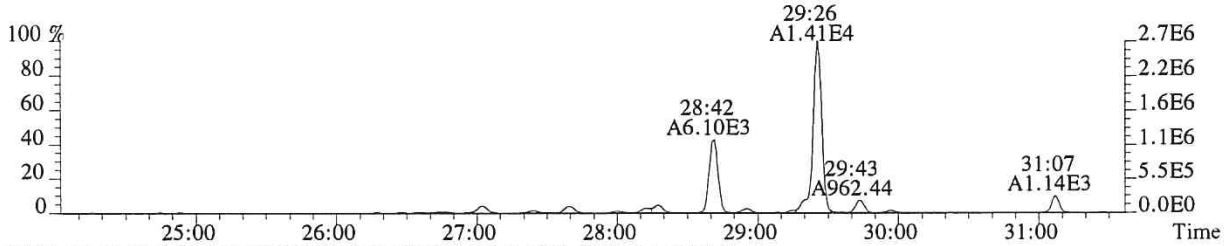
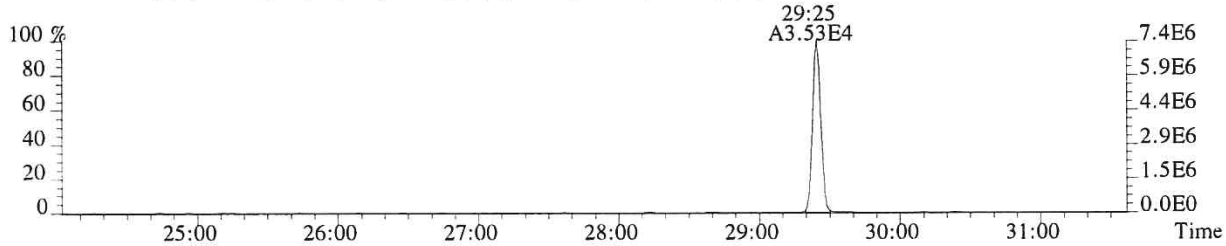
File:P615680 #1-538 Acq:21-NOV-2018 22:19:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



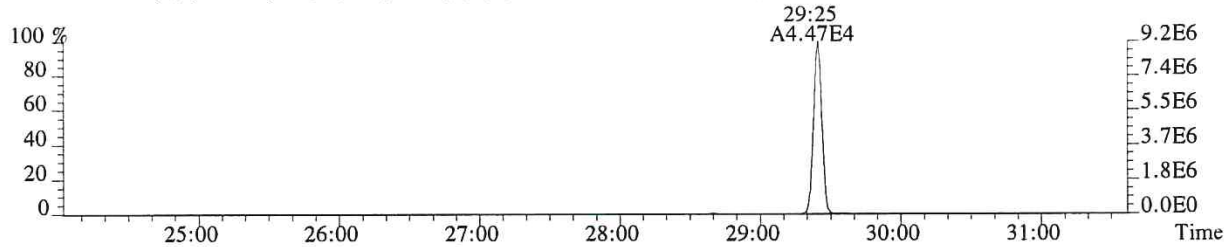
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2688.0,1.00%,F,T)



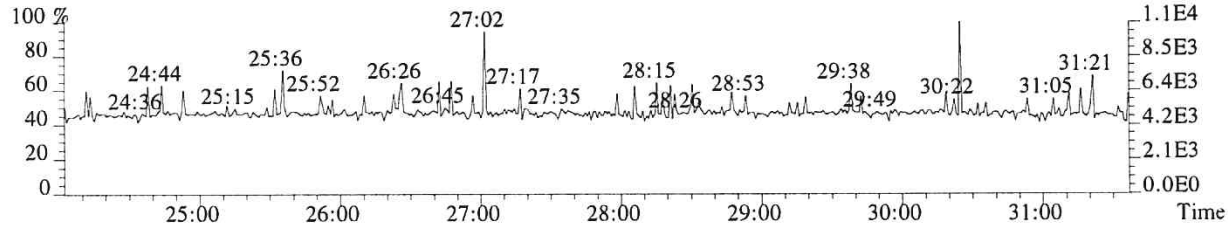
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9072.0,1.00%,F,T)



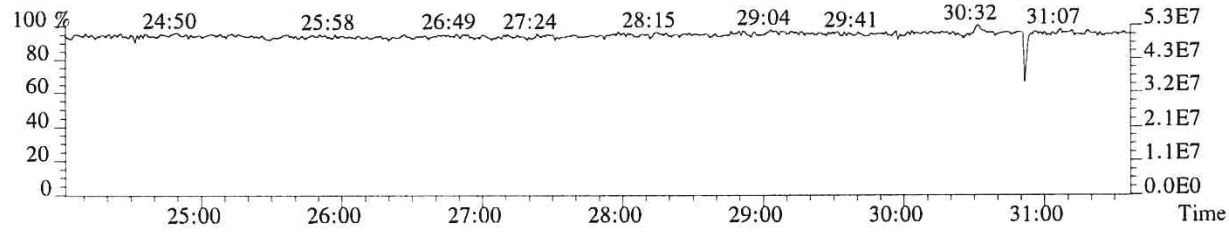
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



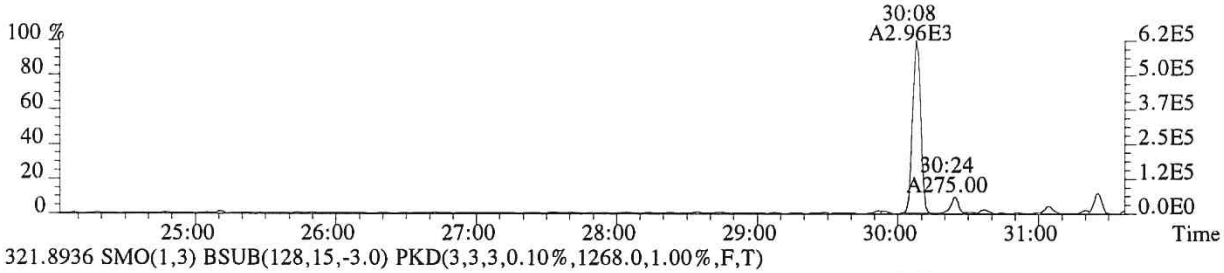
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



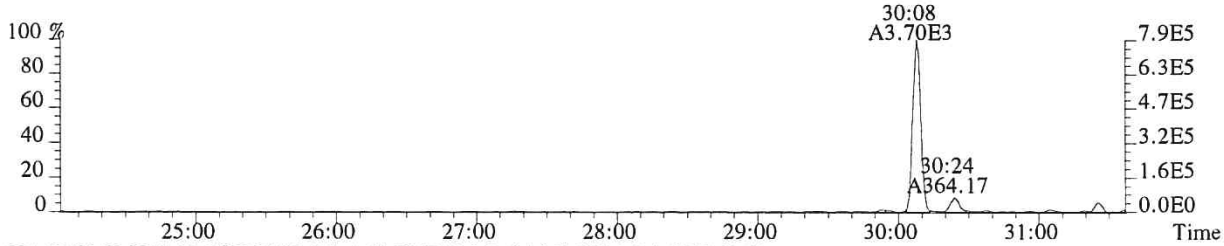
008855

File:P615680 #1-538 Acq:21-NOV-2018 22:19:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020DL

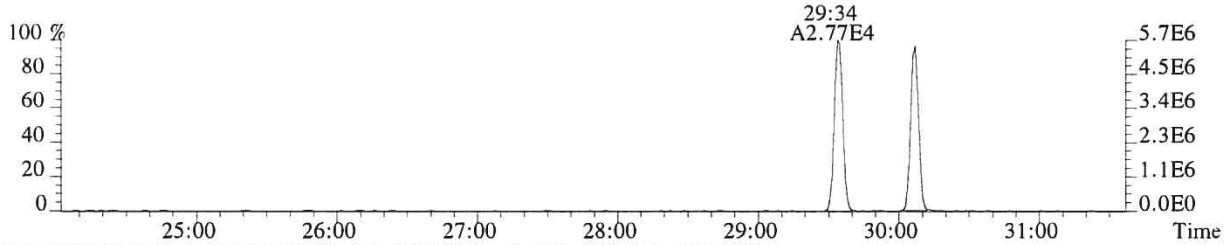
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1932.0,1.00%,F,T)



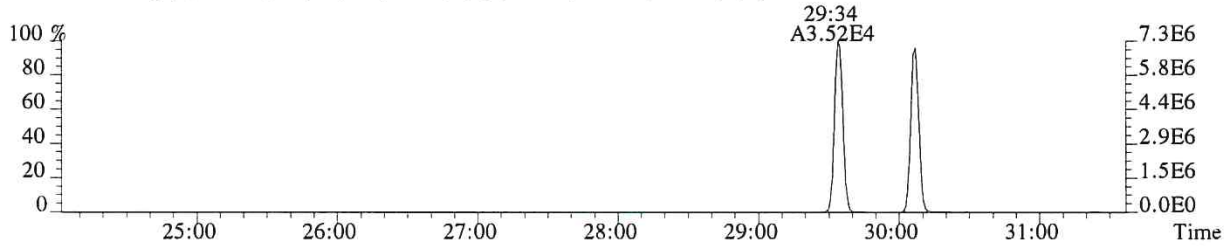
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



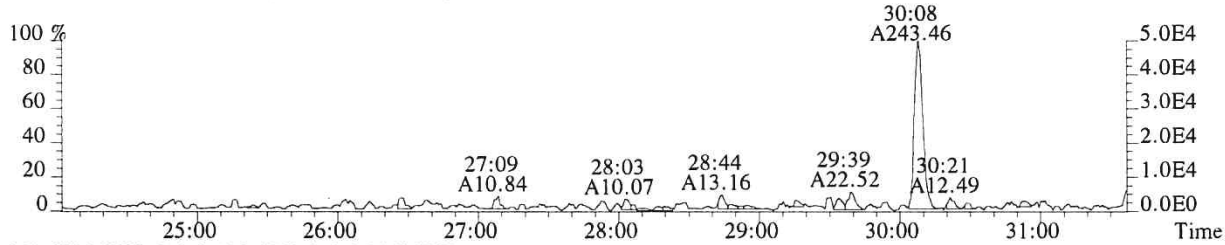
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8416.0,1.00%,F,T)



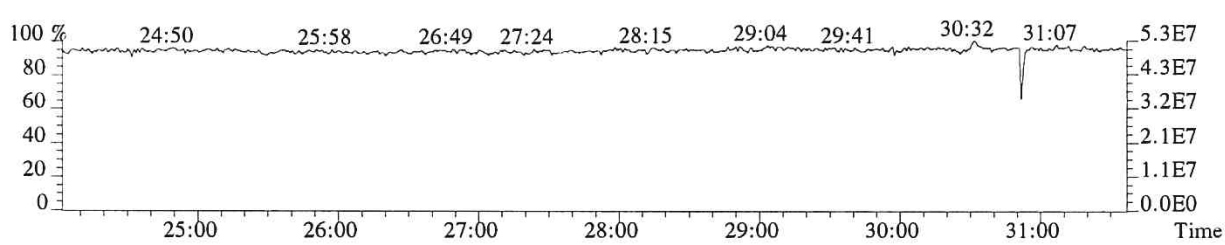
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4208.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1696.0,1.00%,F,T)

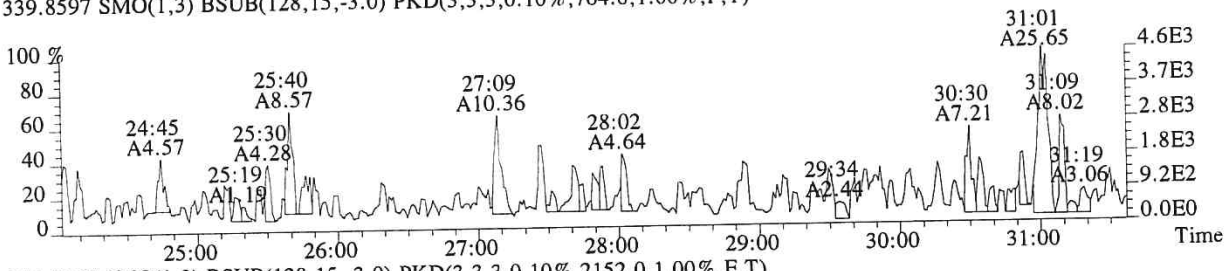


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

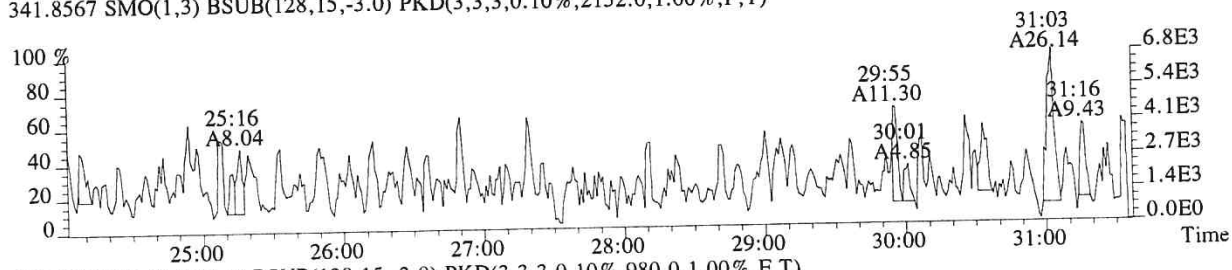


008856

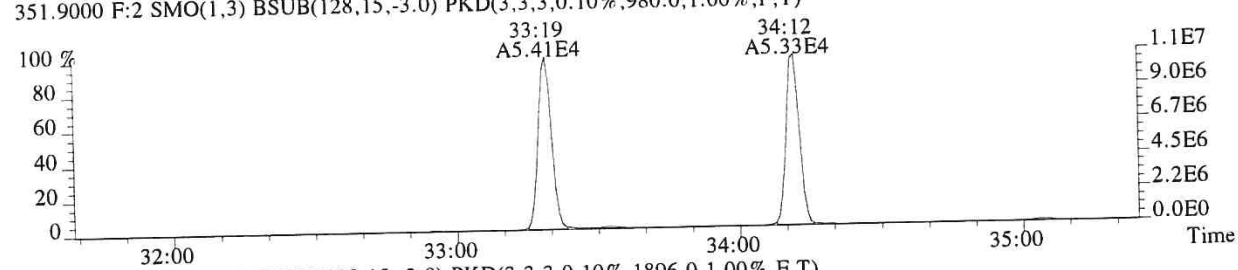
File:P615680 #1-538 Acq:21-NOV-2018 22:19:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



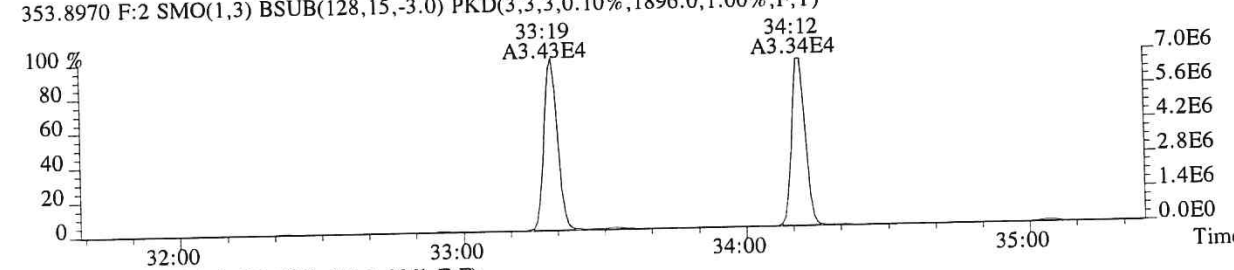
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2152.0,1.00%,F,T)



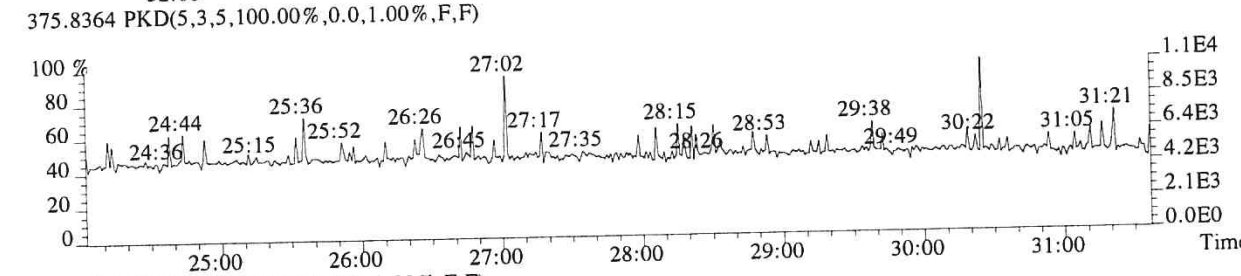
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



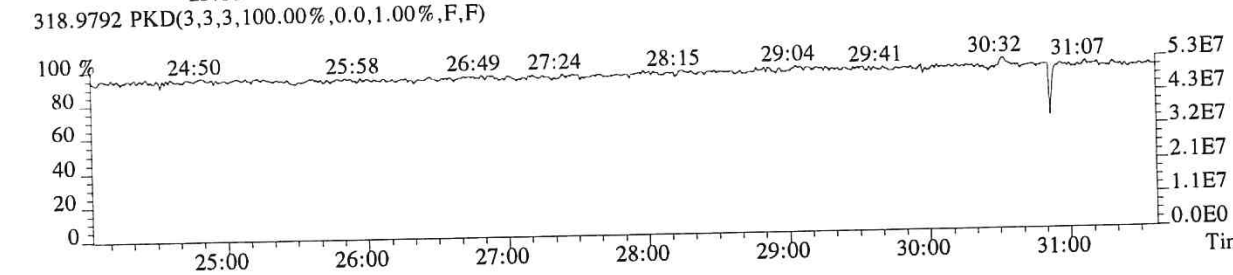
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



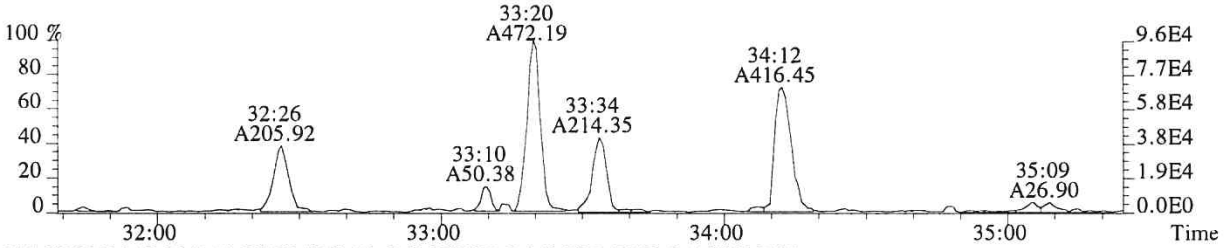
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



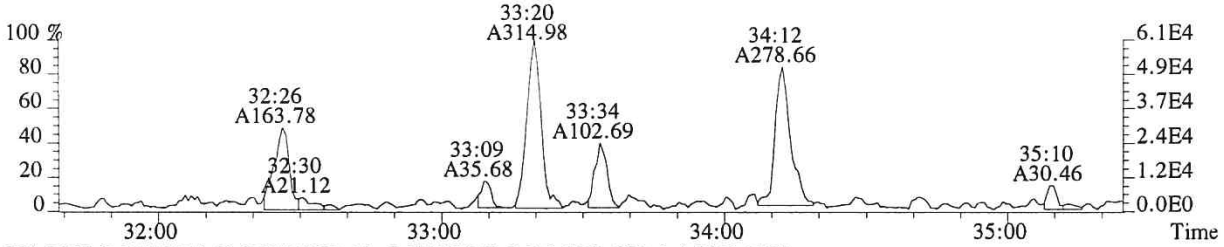
008857

File:P615680 #1-339 Acq:21-NOV-2018 22:19:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020DL

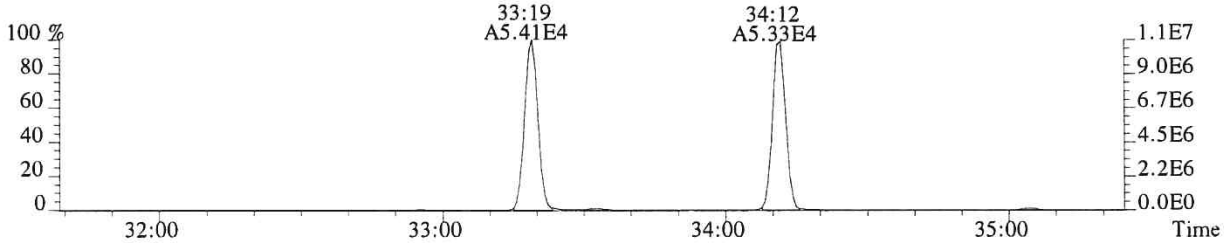
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



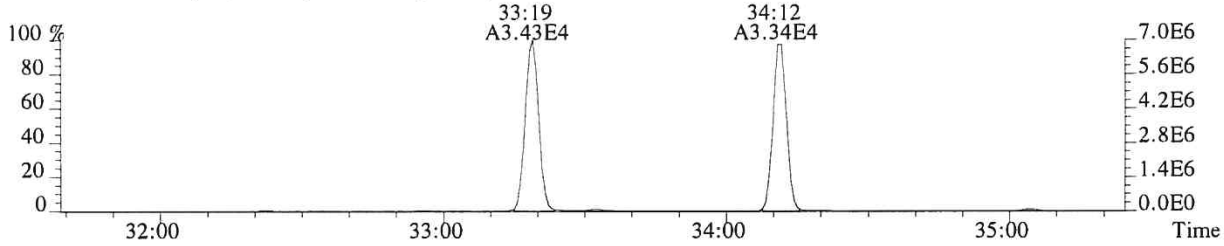
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3160.0,1.00%,F,T)



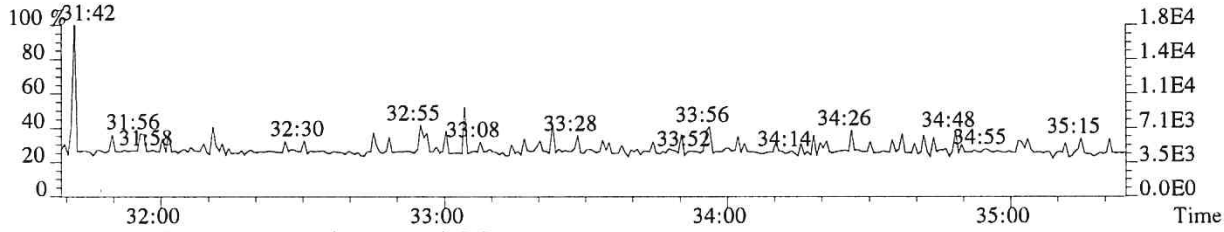
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



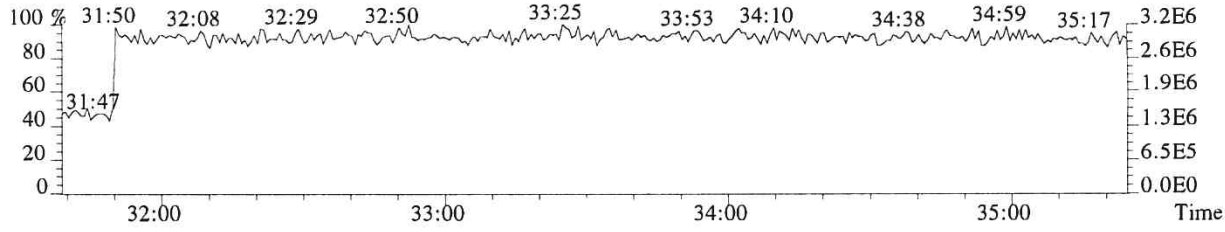
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

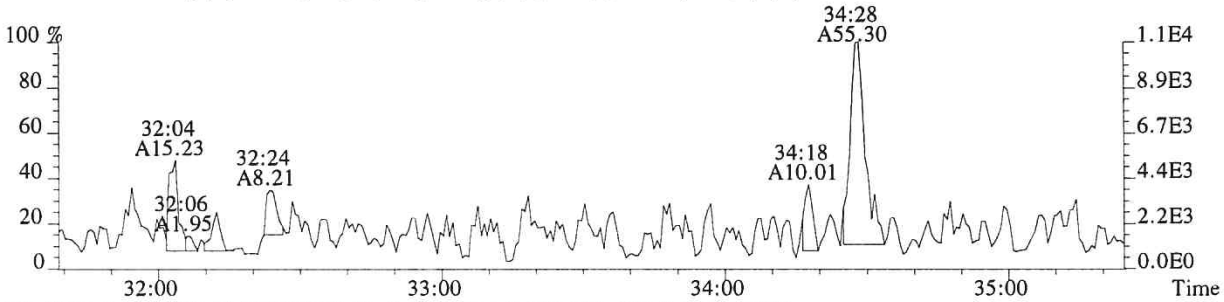


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

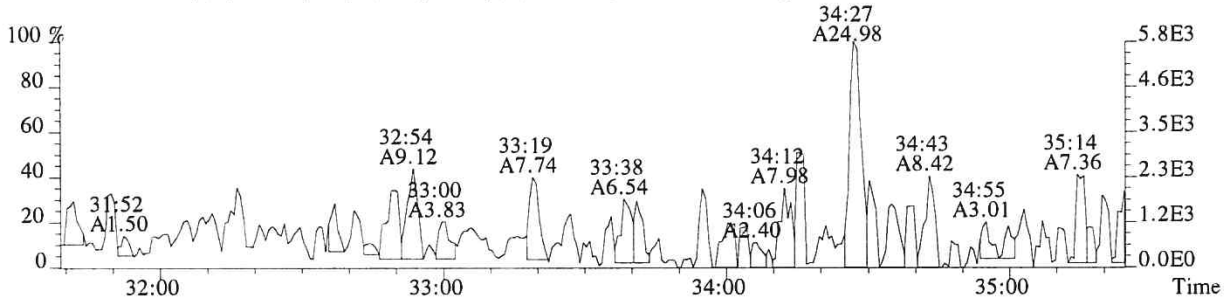


008858

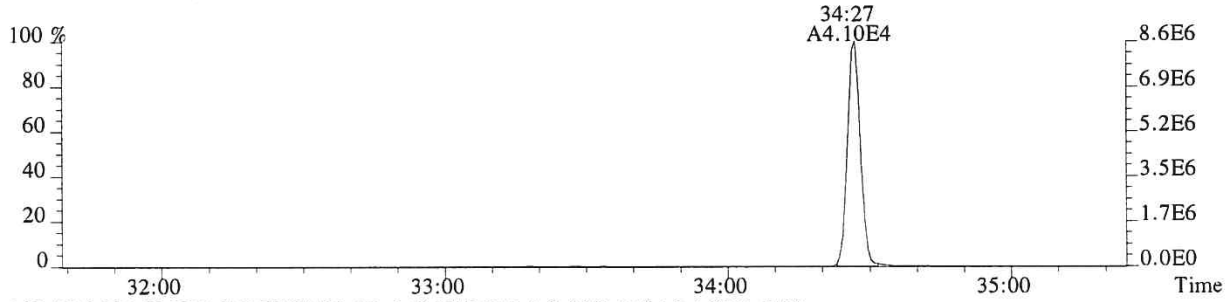
File:P615680 #1-339 Acq:21-NOV-2018 22:19:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



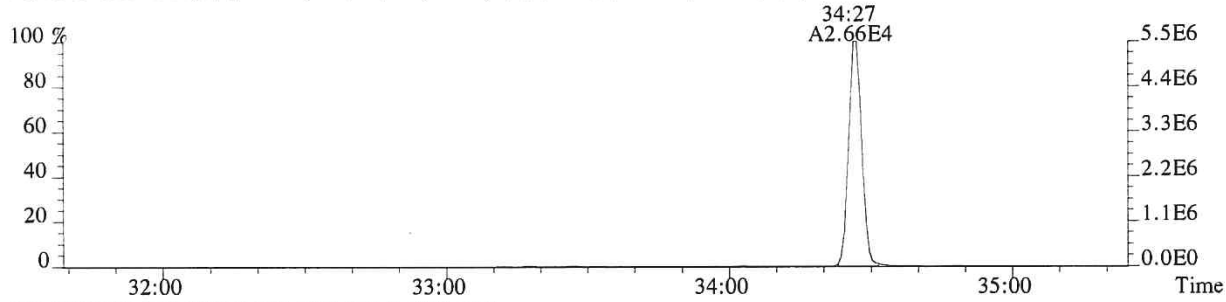
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



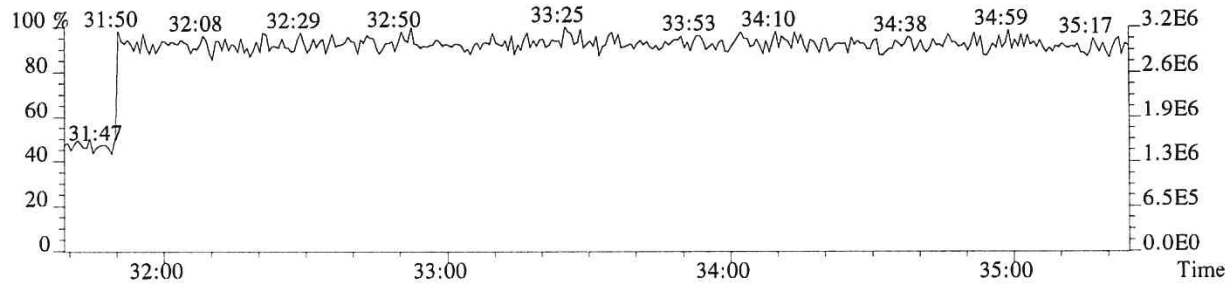
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)

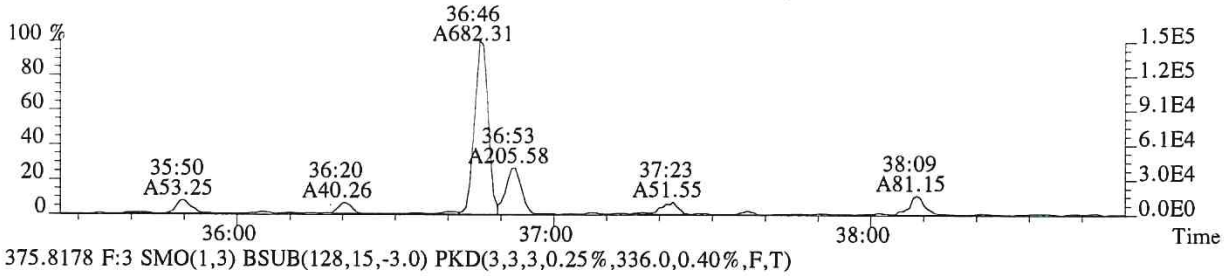


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

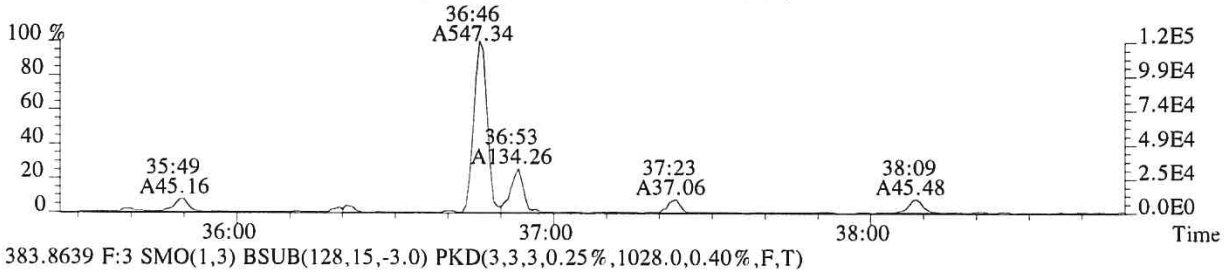


File:P615680 #1-303 Acq:21-NOV-2018 22:19:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020DL

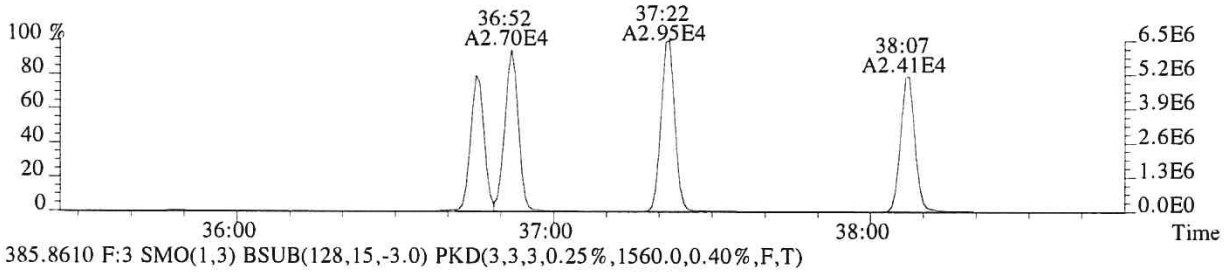
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



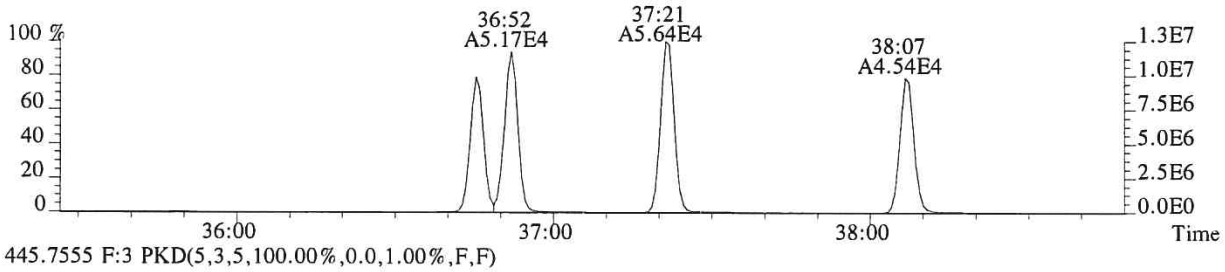
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



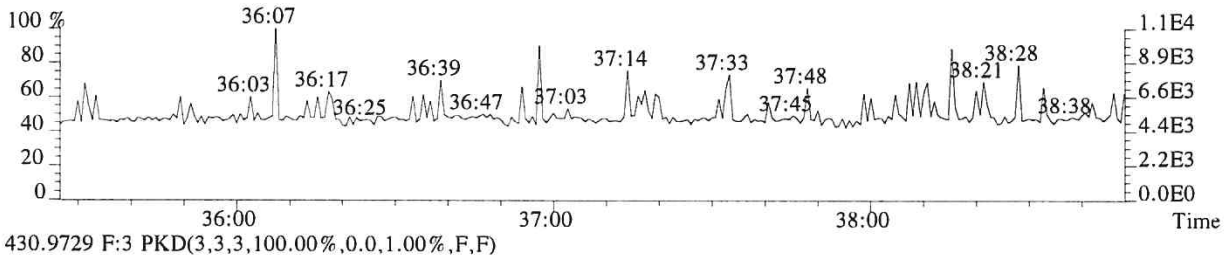
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1028.0,0.40%,F,T)



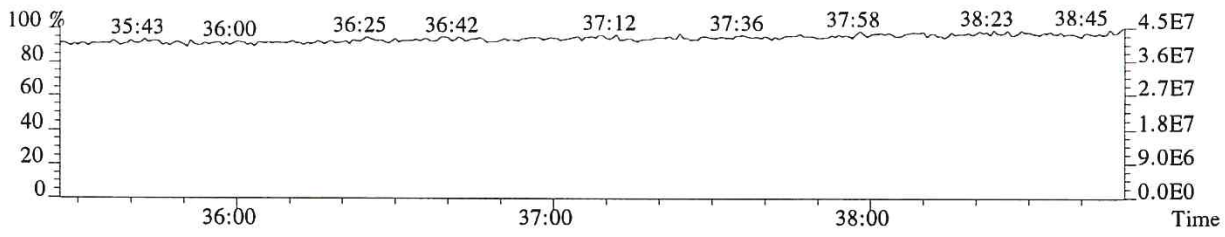
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1560.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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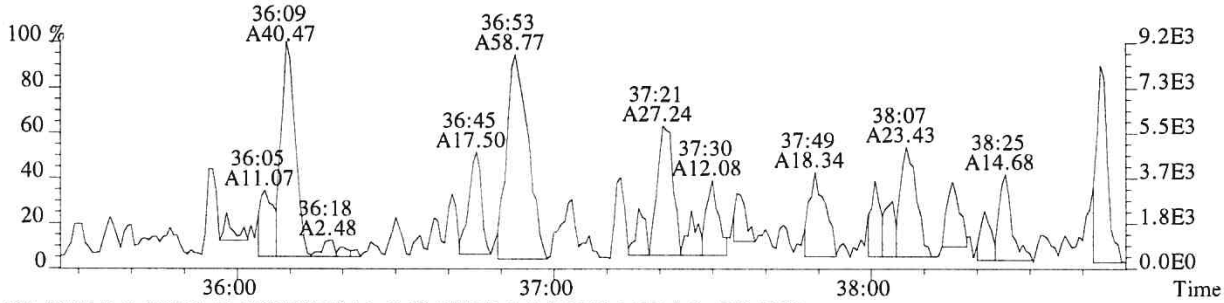
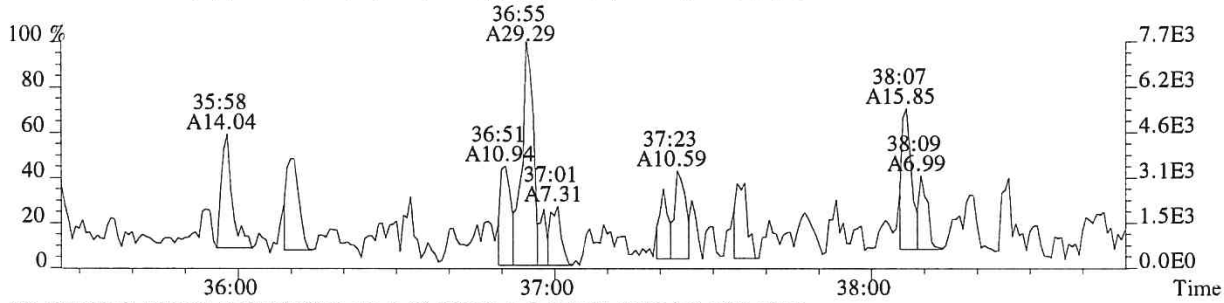
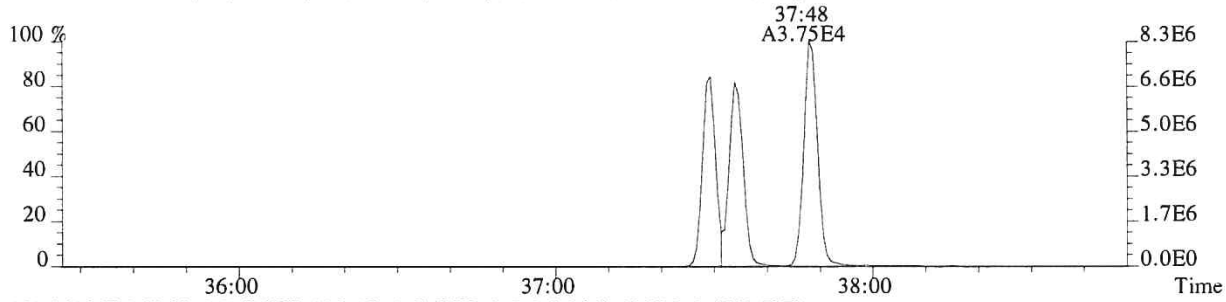
File:P615680 #1-303 Acq:21-NOV-2018 22:19:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1276.0,0.40%,F,T)



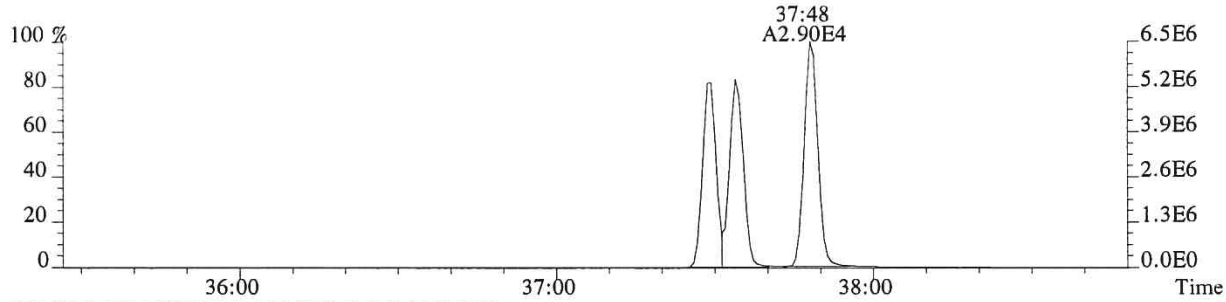
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1452.0,0.40%,F,T)



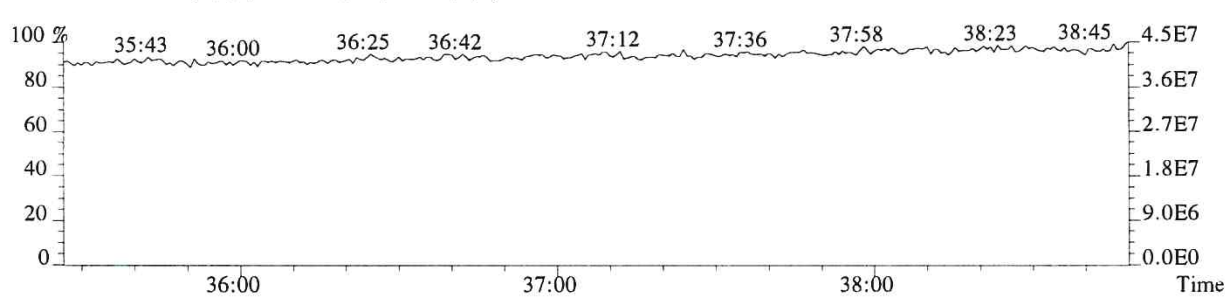
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4716.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1832.0,0.40%,F,T)

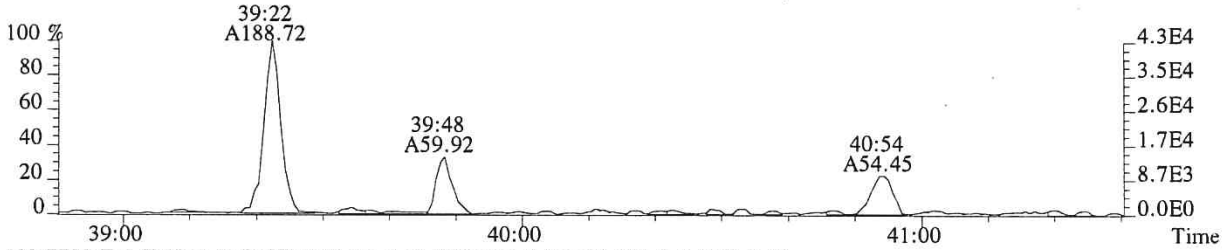


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

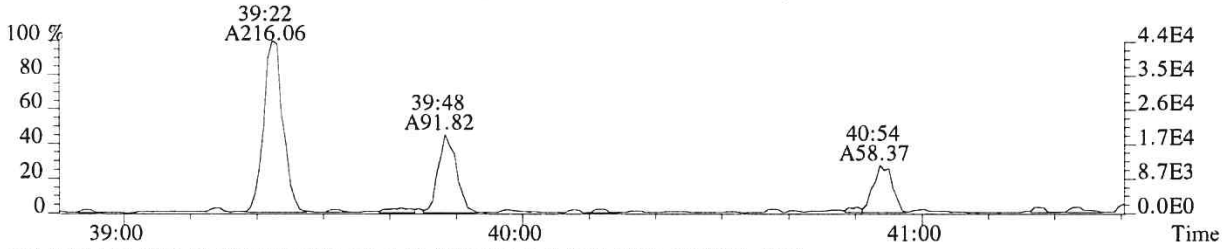


File:P615680 #1-241 Acq:21-NOV-2018 22:19:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020DL

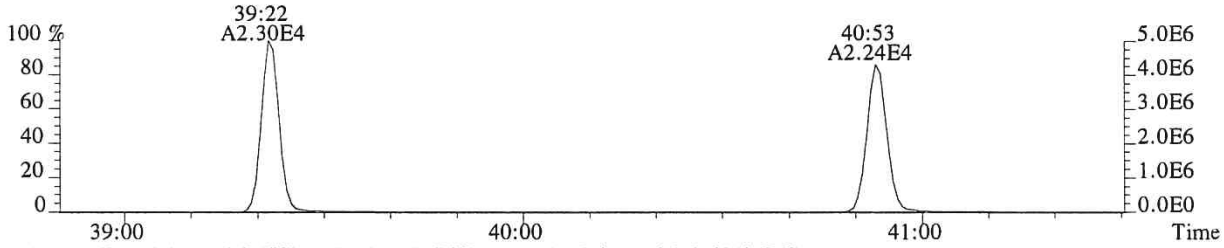
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.50%,F,T)



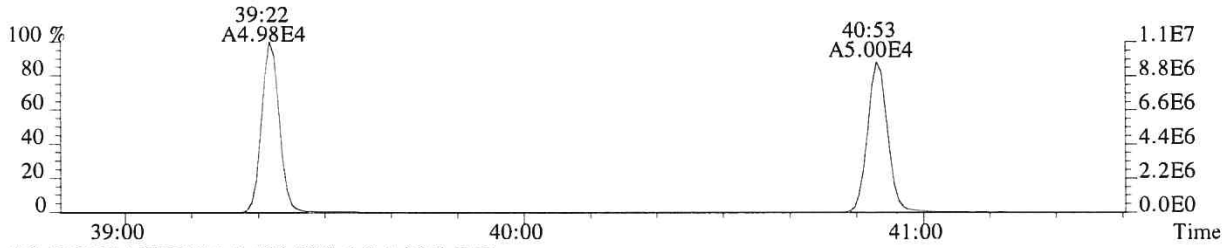
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.50%,F,T)



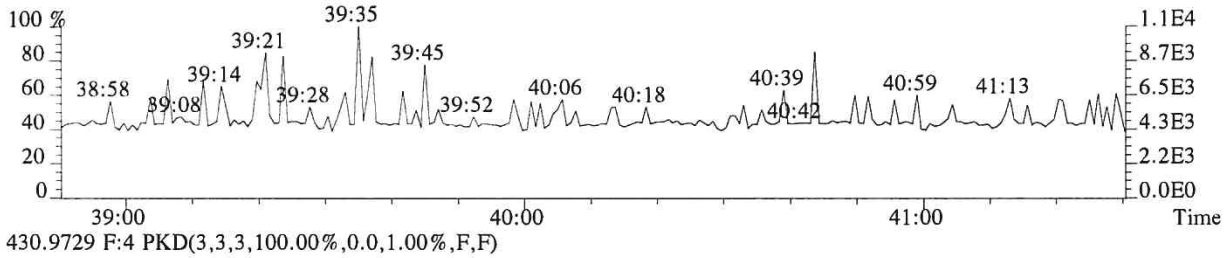
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4004.0,0.50%,F,T)



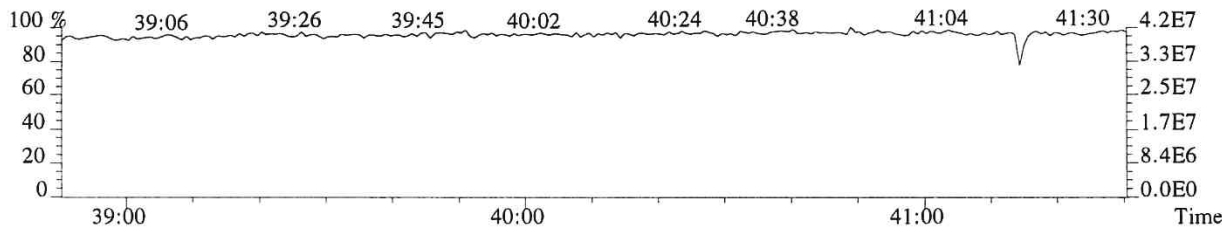
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



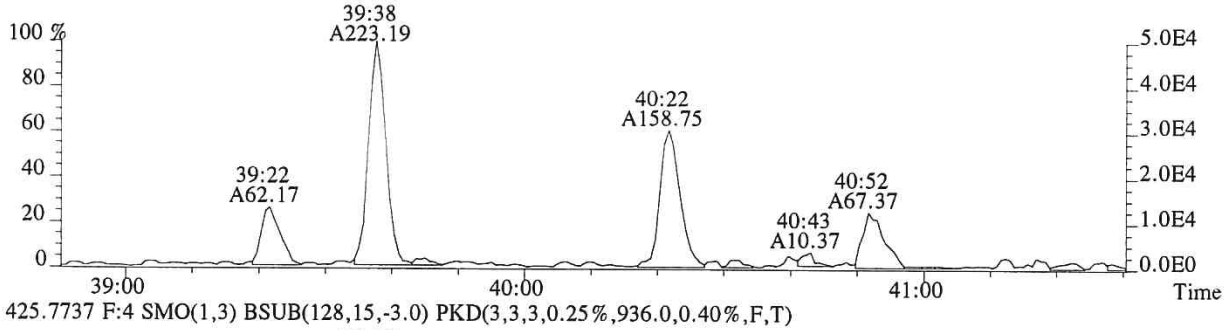
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



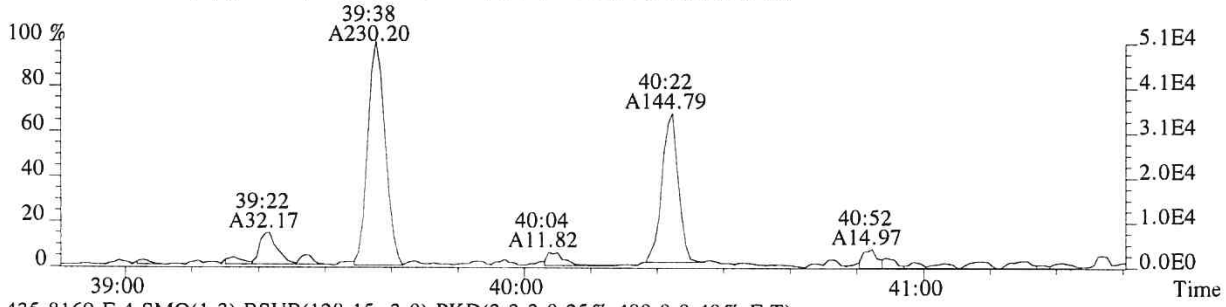
008862

File:P615680 #1-241 Acq:21-NOV-2018 22:19:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020DL

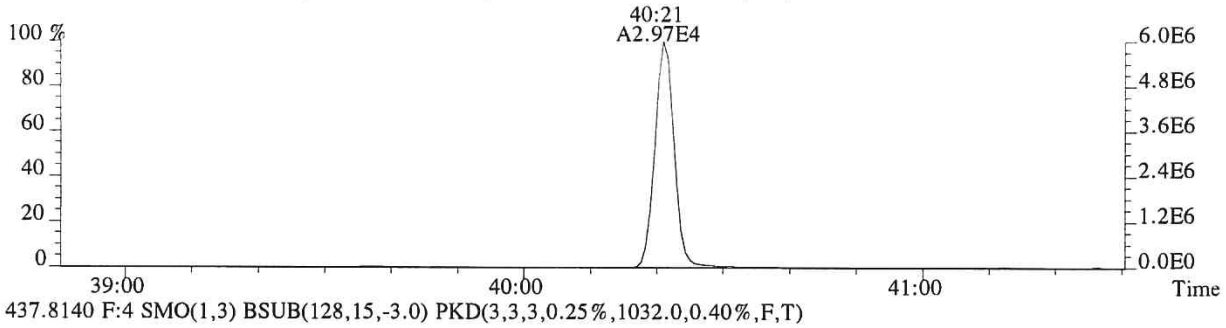
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



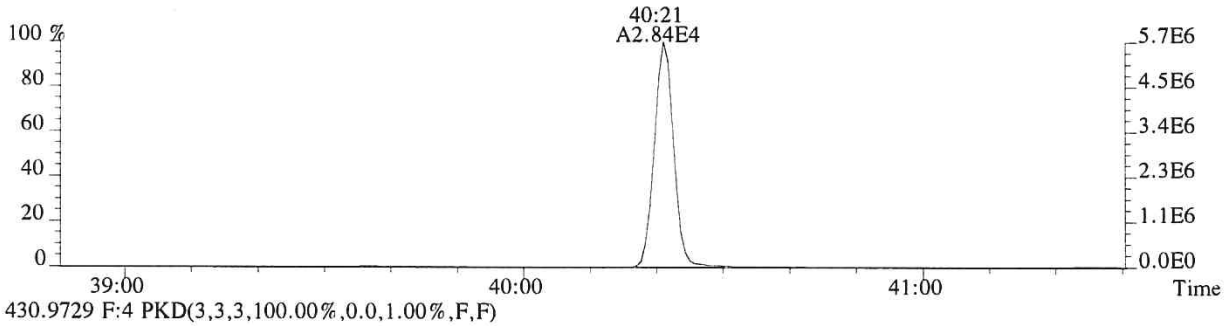
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



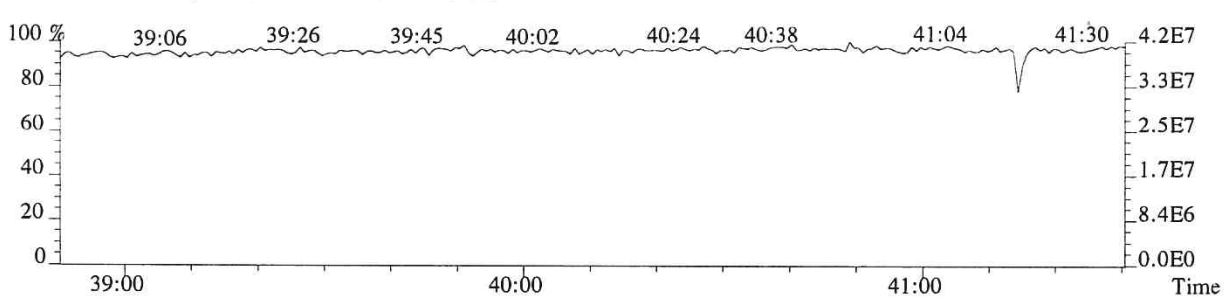
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



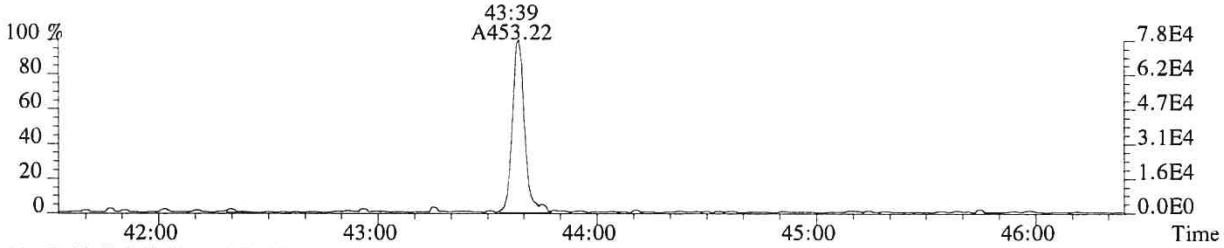
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



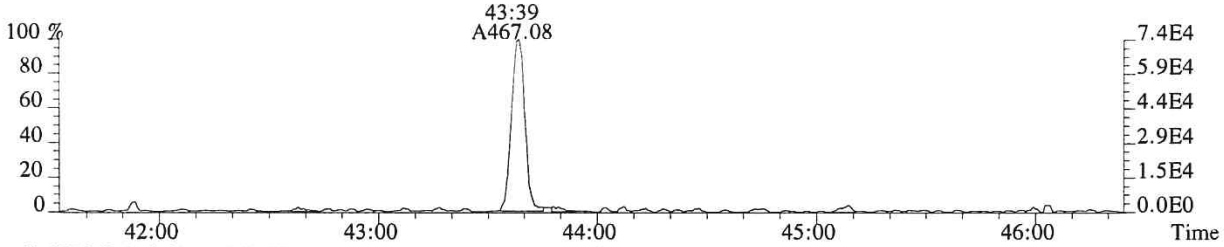
008863

File:P615680 #1-438 Acq:21-NOV-2018 22:19:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020DL

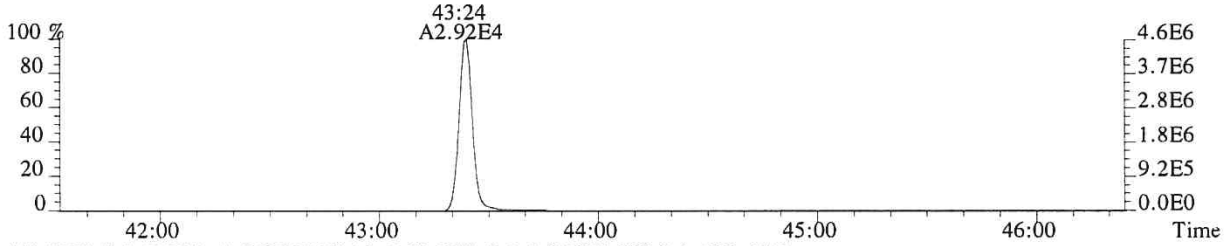
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



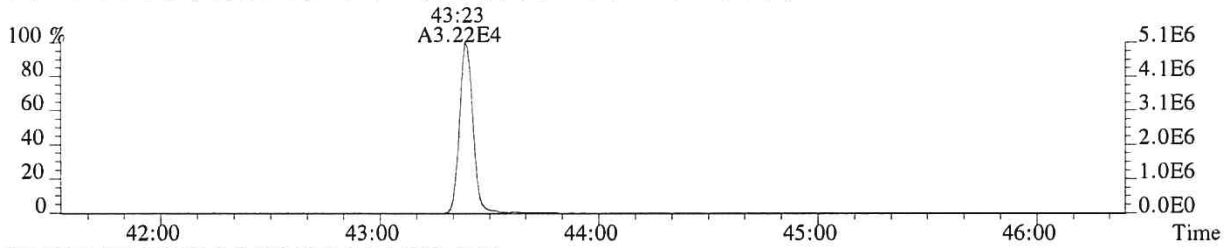
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



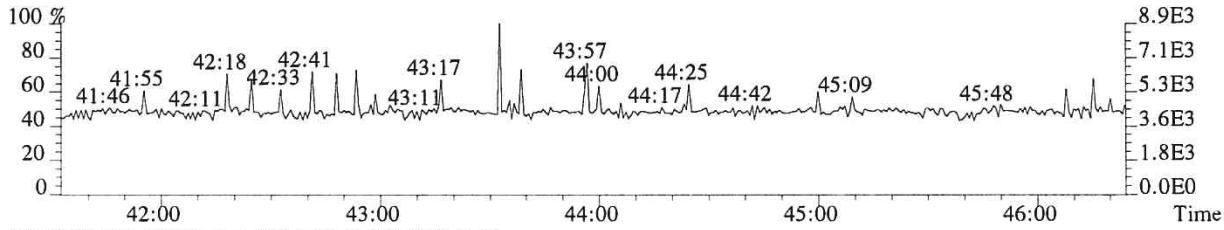
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,484.0,0.40%,F,T)



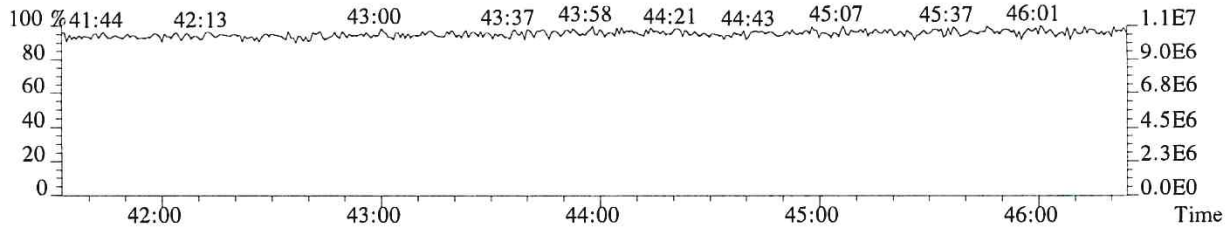
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

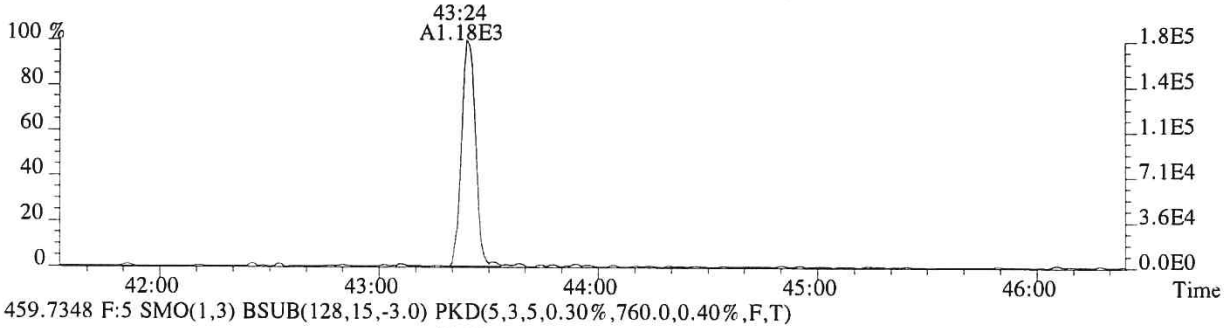


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

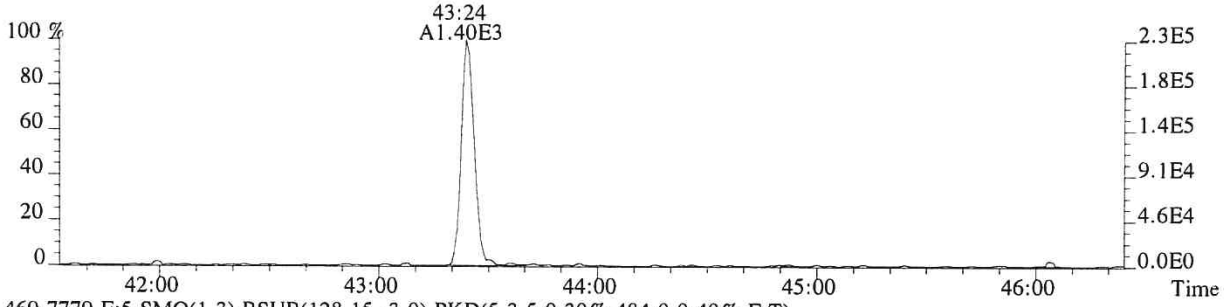


008864

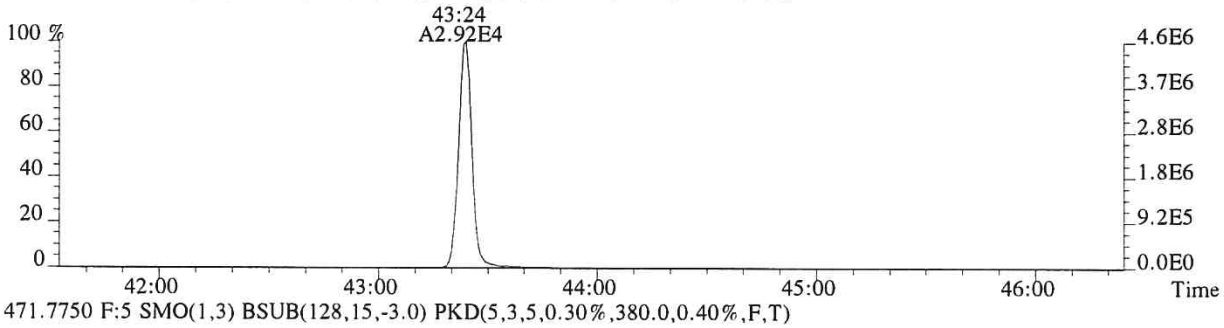
File:P615680 #1-438 Acq:21-NOV-2018 22:19:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-020DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,496.0,0.40%,F,T)



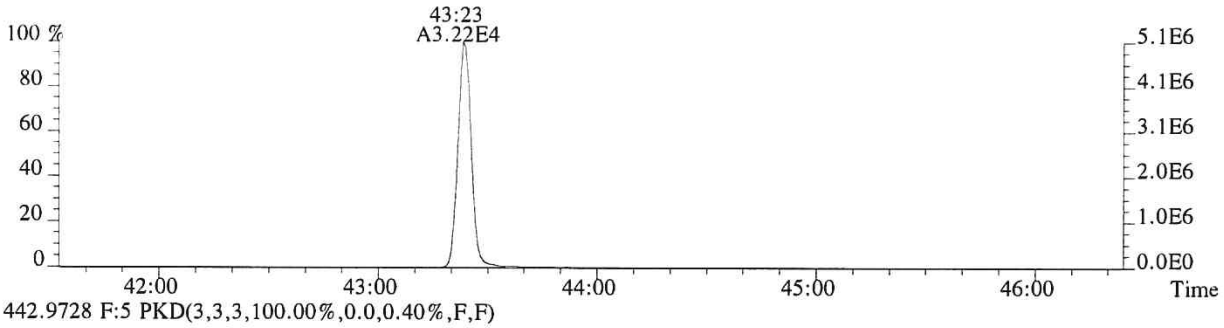
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



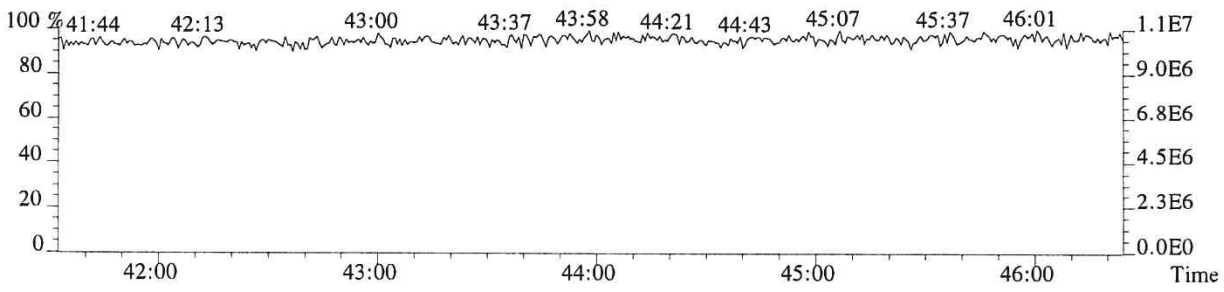
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,484.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



008865

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
FW0002

Run #11 Filename P615719 Samp: 1 Inj: 1 Acquired: 27-NOV-18 14:18:43
Processed: 28-NOV-18 10:18:56 Sample ID: E1801012-021

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	1.219e+02	8.892e+01	1.37	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	43:31	4.591e+02	5.072e+02	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:29	2.640e+01	2.073e+01	1.27	yes	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	1.386e+02	1.295e+02	1.07	yes	no	1.112
17	Unk	OCDD	43:17	1.142e+03	1.184e+03	0.96	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:14	8.358e+03	1.022e+04	0.82	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	1.827e+04	1.169e+04	1.56	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:03	1.778e+04	1.119e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	1.065e+04	1.990e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	1.151e+04	2.162e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	1.158e+04	2.158e+04	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	1.131e+04	2.113e+04	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	9.602e+03	2.105e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	8.827e+03	2.009e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	6.589e+03	8.072e+03	0.82	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	1.390e+04	9.041e+03	1.54	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	1.642e+04	1.247e+04	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:27	1.487e+04	1.161e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	1.753e+04	1.675e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	43:16	1.743e+04	1.942e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	2.212e+04	2.751e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	3.907e+04	3.094e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:58	8.479e+03				no	1.086

$$\text{OCDD} = \frac{(1.142e+03 + 1.184e+03) \times 4000\ \text{pg} \times 1 \times \frac{2}{5}}{(1.743e+04 + 1.942e+04) \times .5\ \text{g} \times / 100 \times 1.157} = 436.443\ \text{pg}$$

LG 11/28/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW0002

Run #11 Filename P615719 Samp: 1 Inj: 1 Acquired: 27-NOV-18 14:18:43
Processed: 28-NOV-18 10:18:56 LAB. ID: E1801012-021

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.50e+03	*	*	2.23e+03	*
2	1,2,3,7,8-PeCDF	*	1.55e+03	*	*	2.73e+03	*
3	2,3,4,7,8-PeCDF	*	1.55e+03	*	*	2.73e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.96e+03	*	*	2.53e+03	*
5	1,2,3,6,7,8-HxCDF	*	1.96e+03	*	*	2.53e+03	*
6	2,3,4,6,7,8-HxCDF	*	1.96e+03	*	*	2.53e+03	*
7	1,2,3,7,8,9-HxCDF	*	1.96e+03	*	*	2.53e+03	*
8	1,2,3,4,6,7,8-HpCDF	2.32e+04	3.91e+03	5.9e+00	1.82e+04	2.92e+03	6.2e+00
9	1,2,3,4,7,8,9-HpCDF	*	3.91e+03	*	*	2.92e+03	*
10	OCDF	7.74e+04	9.48e+02	8.2e+01	7.69e+04	1.30e+03	5.9e+01
11	2,3,7,8-TCDD	*	2.20e+03	*	*	1.89e+03	*
12	1,2,3,7,8-PeCDD	*	1.77e+03	*	*	9.12e+02	*
13	1,2,3,4,7,8-HxCDD	*	4.92e+02	*	*	1.10e+03	*
14	1,2,3,6,7,8-HxCDD	6.30e+03	4.92e+02	1.3e+01	4.68e+03	1.10e+03	4.2e+00
15	1,2,3,7,8,9-HxCDD	*	4.92e+02	*	*	1.10e+03	*
16	1,2,3,4,6,7,8-HpCDD	2.66e+04	7.32e+02	3.6e+01	2.89e+04	3.32e+02	8.7e+01
17	OCDD	1.87e+05	6.00e+02	3.1e+02	1.91e+05	3.44e+02	5.5e+02
18	13C-2,3,7,8-TCDF	1.66e+06	1.20e+04	1.4e+02	2.02e+06	5.60e+03	3.6e+02
19	13C-1,2,3,7,8-PeCDF	3.74e+06	8.52e+02	4.4e+03	2.41e+06	1.59e+03	1.5e+03
20	13C-2,3,4,7,8-PeCDF	3.70e+06	8.52e+02	4.3e+03	2.32e+06	1.59e+03	1.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.36e+06	1.00e+03	2.4e+03	4.34e+06	2.00e+03	2.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.54e+06	1.00e+03	2.5e+03	4.79e+06	2.00e+03	2.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.56e+06	1.00e+03	2.5e+03	4.83e+06	2.00e+03	2.4e+03
24	13C-1,2,3,7,8,9-HxCDF	2.41e+06	1.00e+03	2.4e+03	4.55e+06	2.00e+03	2.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.04e+06	2.53e+03	8.1e+02	4.41e+06	2.47e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.66e+06	2.53e+03	6.6e+02	3.88e+06	2.47e+03	1.6e+03
27	13C-2,3,7,8-TCDD	1.39e+06	1.83e+04	7.6e+01	1.73e+06	6.13e+03	2.8e+02
28	13C-1,2,3,7,8-PeCDD	2.94e+06	1.26e+03	2.3e+03	1.89e+06	8.88e+02	2.1e+03
29	13C-1,2,3,4,7,8-HxCDD	3.77e+06	3.68e+03	1.0e+03	2.77e+06	9.24e+02	3.0e+03
30	13C-1,2,3,6,7,8-HxCDD	3.30e+06	3.68e+03	9.0e+02	2.60e+06	9.24e+02	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.52e+06	6.12e+02	5.7e+03	3.33e+06	1.05e+03	3.2e+03
32	13C-OCDD	2.77e+06	5.28e+02	5.3e+03	3.07e+06	6.04e+02	5.1e+03
33	13C-1,2,3,4-TCDD	4.50e+06	1.83e+04	2.5e+02	5.60e+06	6.13e+03	9.1e+02
34	13C-1,2,3,7,8,9-HxCDD	8.64e+06	3.68e+03	2.3e+03	6.71e+06	9.24e+02	7.3e+03
35	37Cl-2,3,7,8-TCDD	1.80e+06	1.76e+03	1.0e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.204e{+}03 + 1.892e{+}03) \times 2000}{(1.394e{+}06 + 1.730e{+}06) \times (\quad) \times 1.049} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0002

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P615719 Sample:1 Injection:1 Function:3

Acquired: 27-NOV-18 14:18:43 Processed: 28-NOV-18 10:18:56

Mass: 389.8160 391.8130 Tot Response: 4.71e+01 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:29	2.64e+01	2.07e+01 1.27	yes	4.71e+01	1,2,3,6,7,8-HxCDD	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0002

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P615719 Sample:1 Injection:1 Function:4

Acquired: 27-NOV-18 14:18:43 Processed: 28-NOV-18 10:18:56

Mass: 423.7770 425.7740 Tot Response: 2.68e+02 RRF: 1.112

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	40:15	1.39e+02	1.30e+02 1.07	yes	2.68e+02	1,2,3,4,6,7,8-HpCDD	n	n

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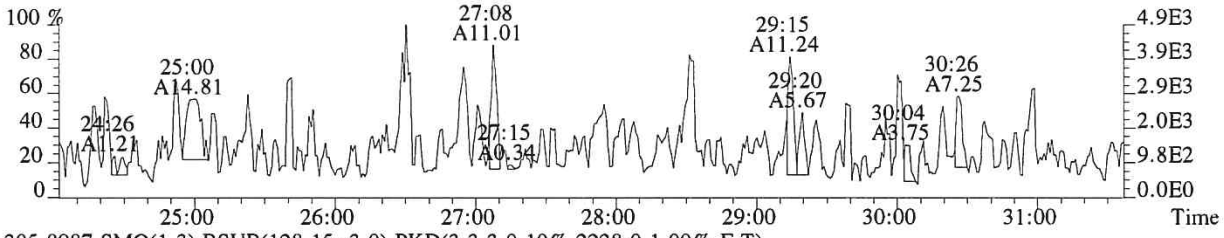
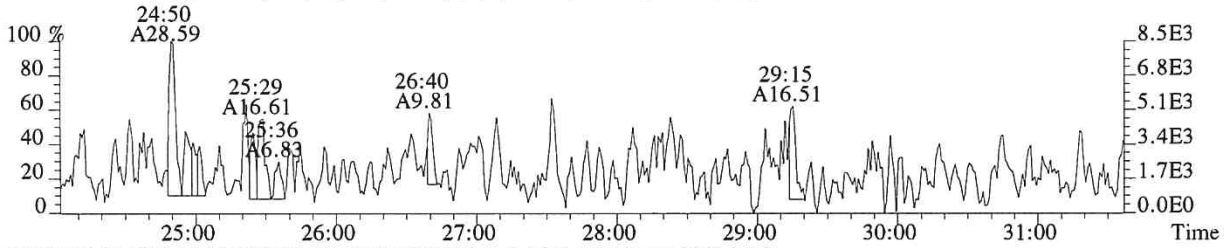
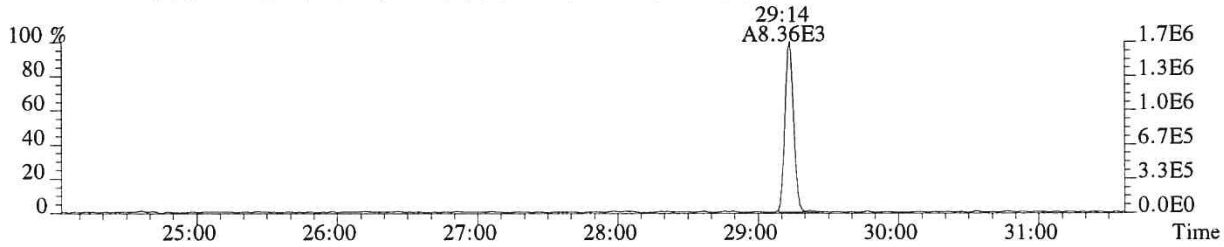
File:P615719 #1-538 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



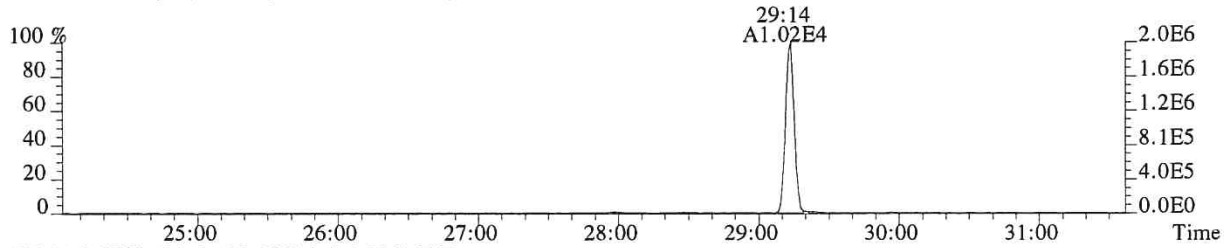
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



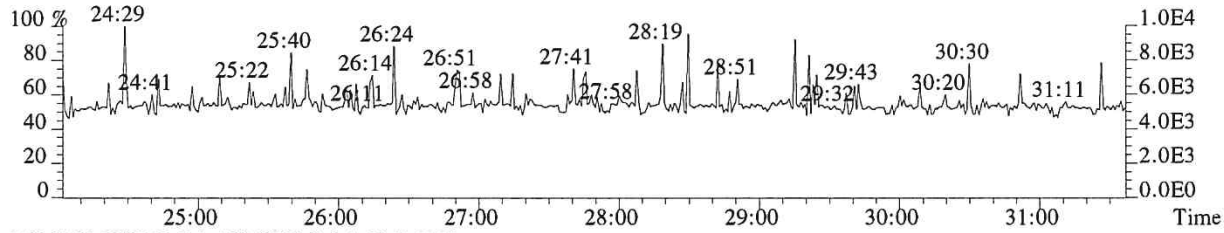
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11952.0,1.00%,F,T)



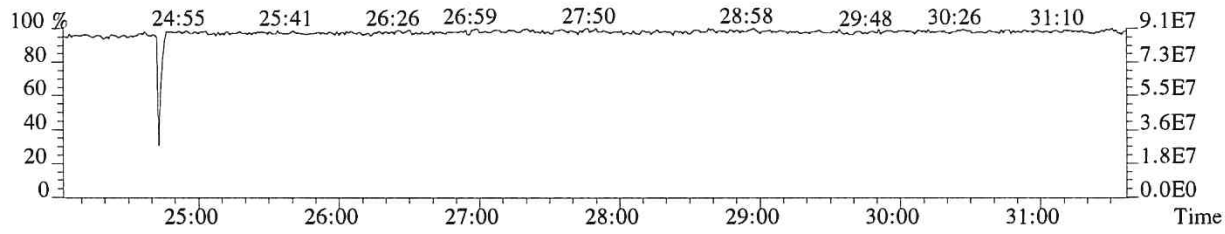
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5604.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

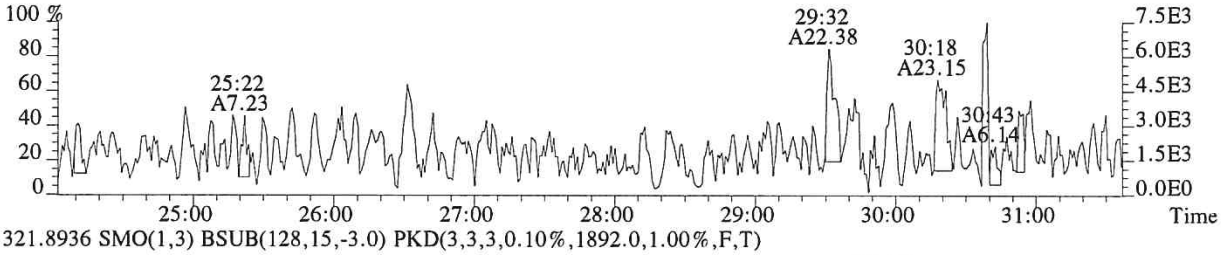


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

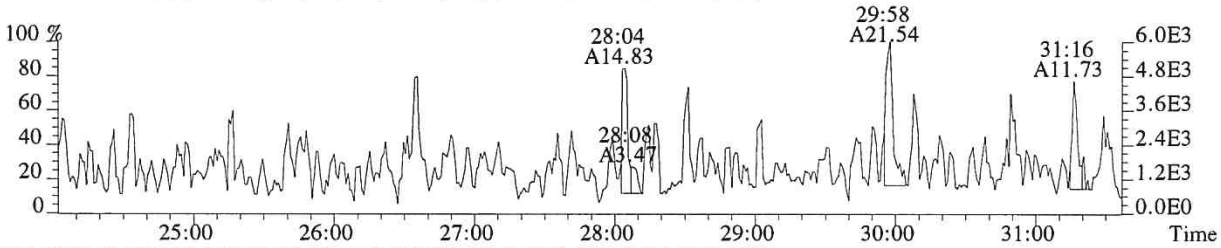


008870

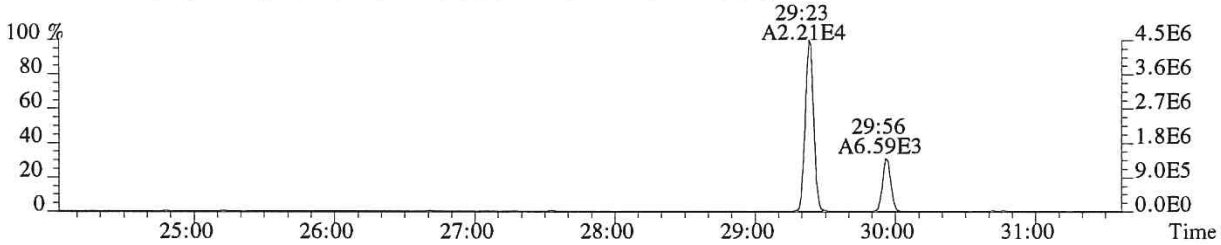
File:P615719 #1-538 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



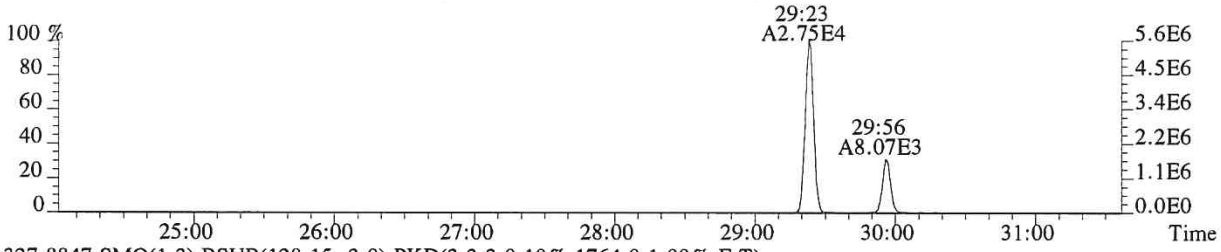
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



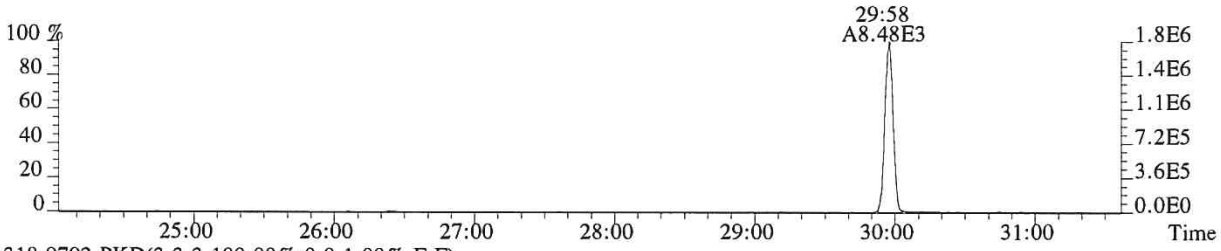
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18288.0,1.00%,F,T)



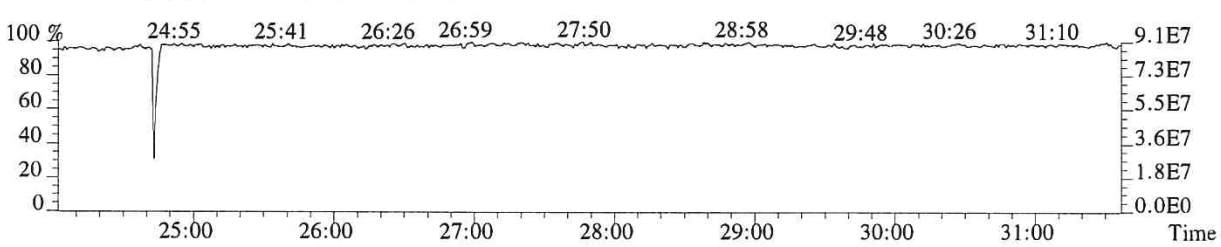
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6128.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)

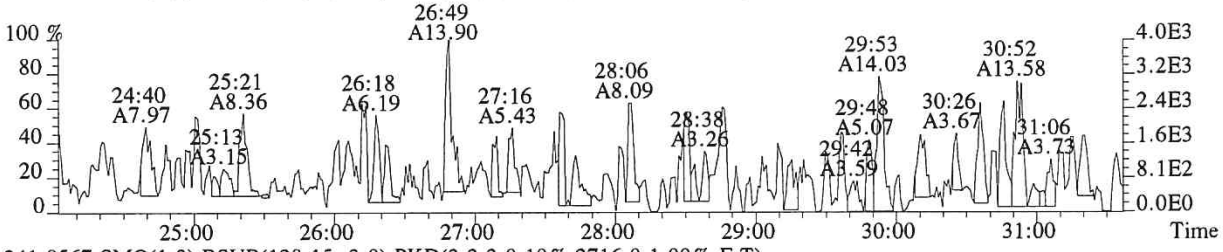


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

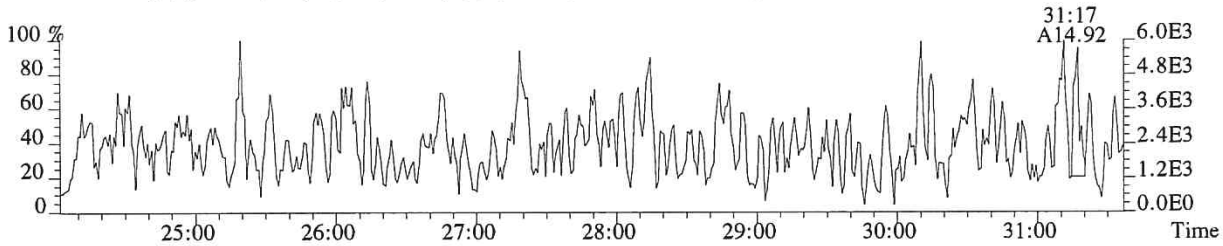


008871

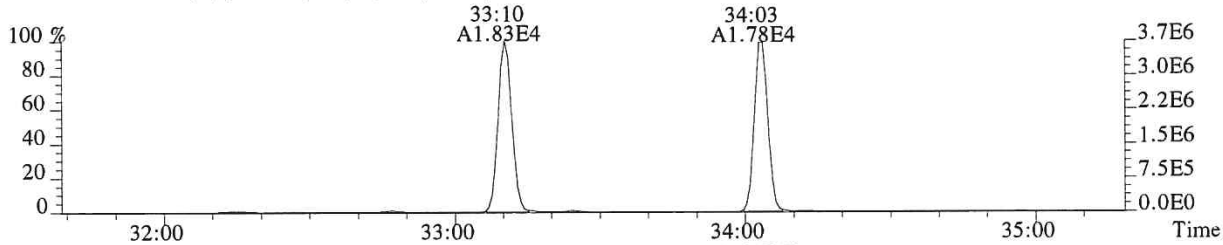
File:P615719 #1-538 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



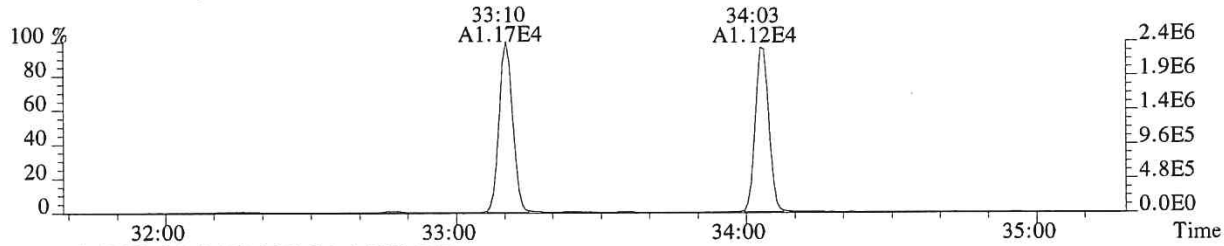
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2716.0,1.00%,F,T)



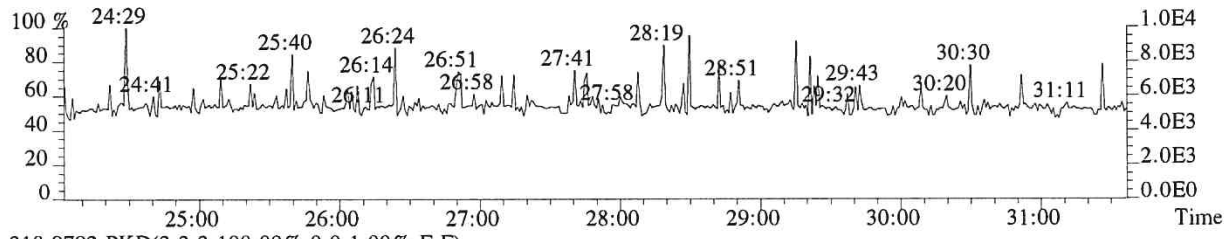
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



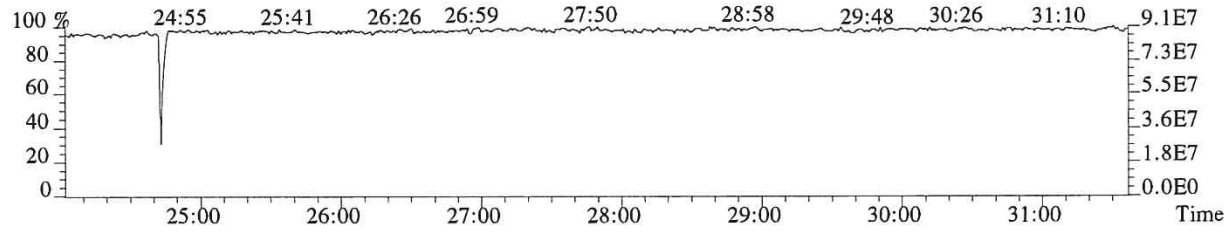
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

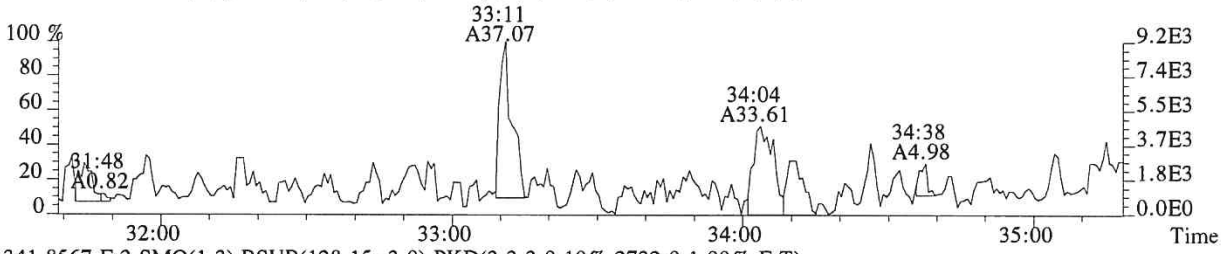


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

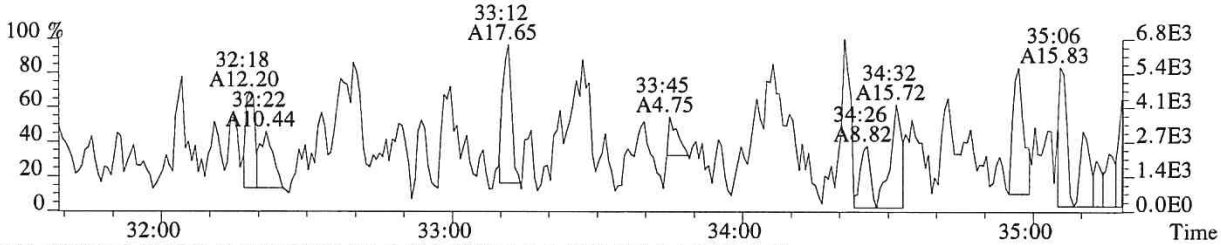


008872

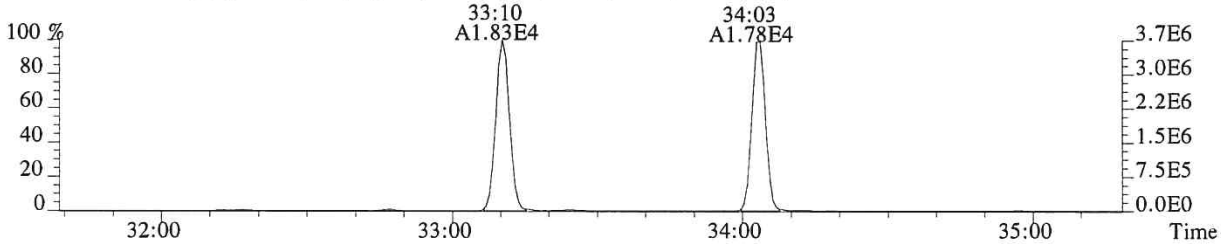
File:P615719 #1-330 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1548.0,1.00%,F,T)



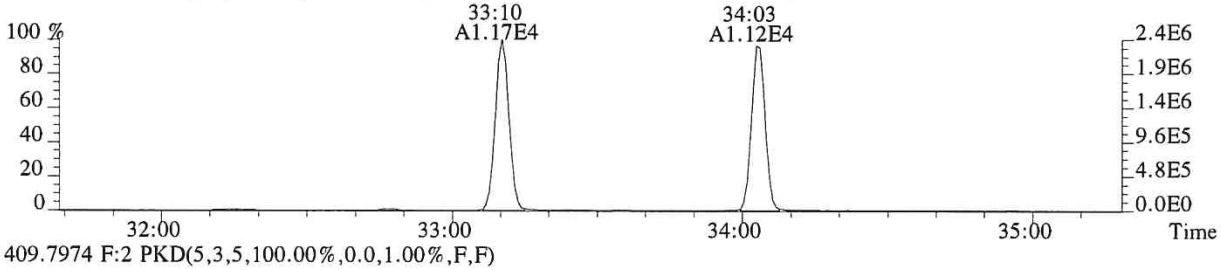
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2732.0,1.00%,F,T)



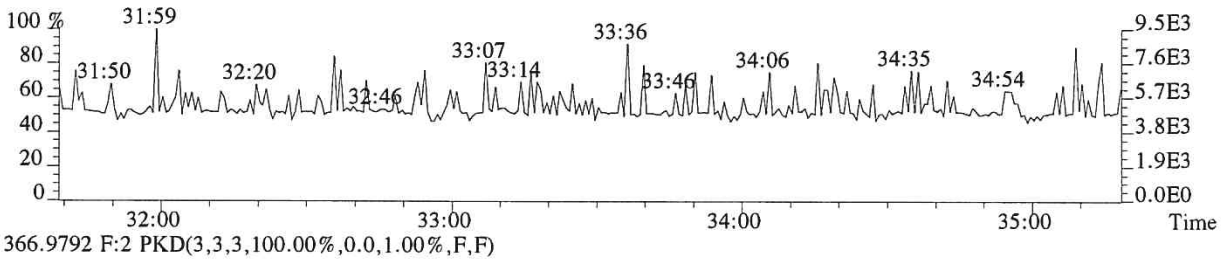
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



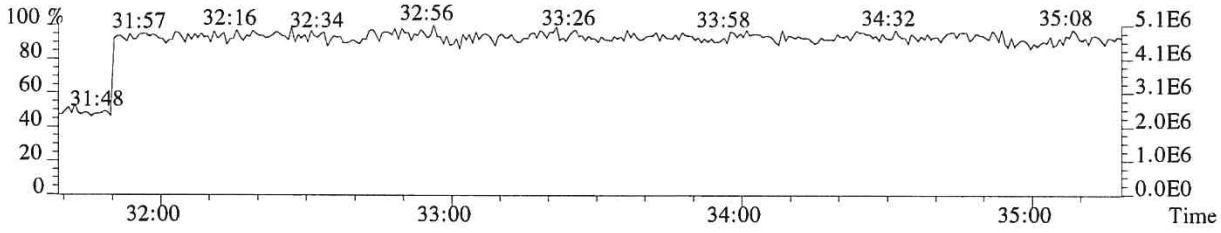
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

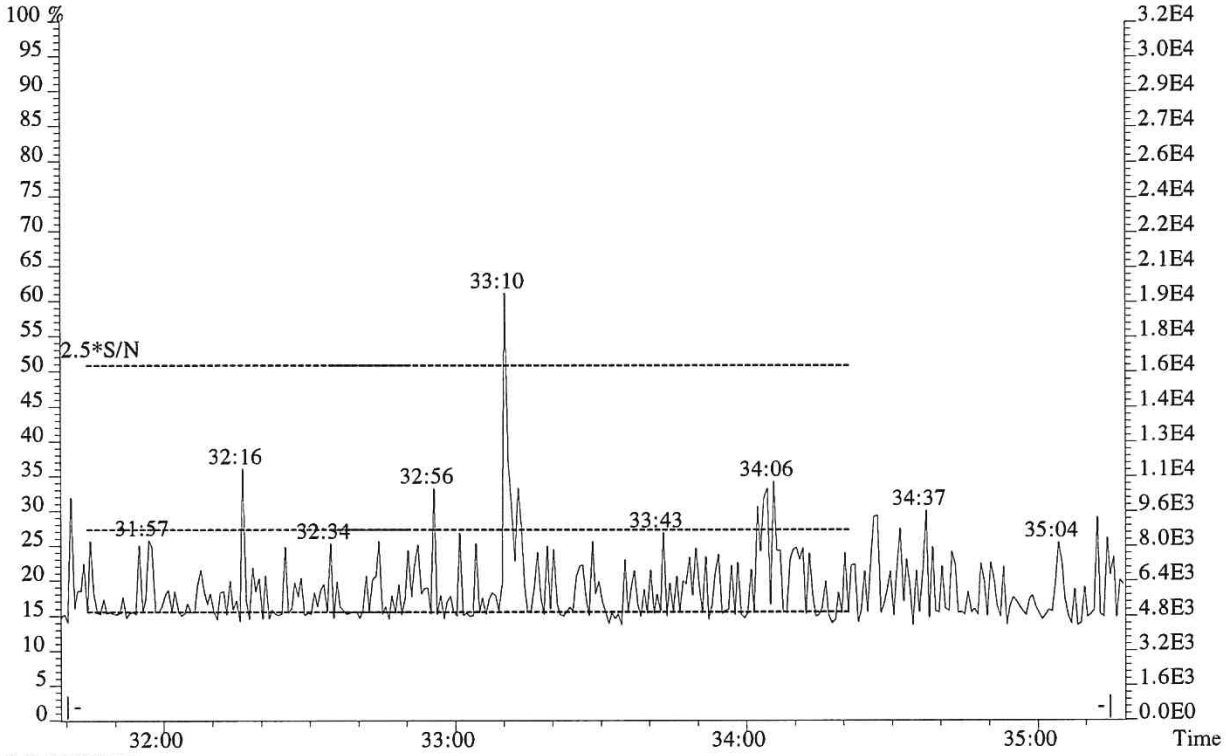


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

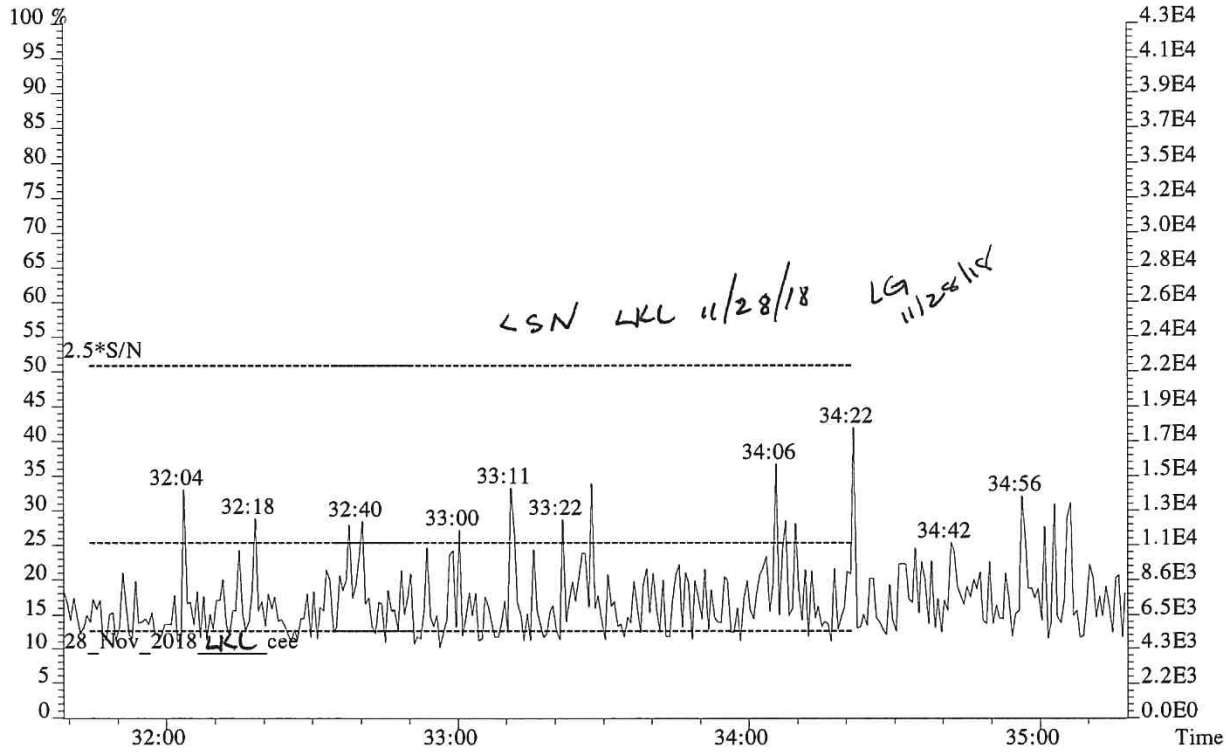


008873

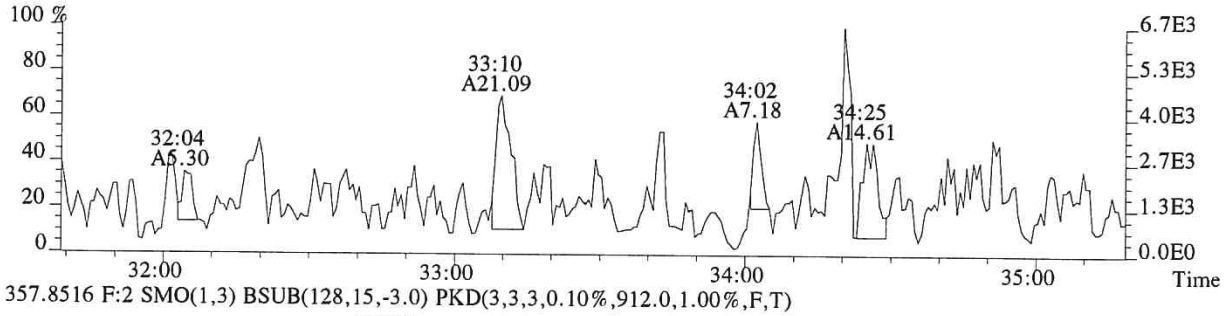
File:P615719 #1-330 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021
339.8597 F:2



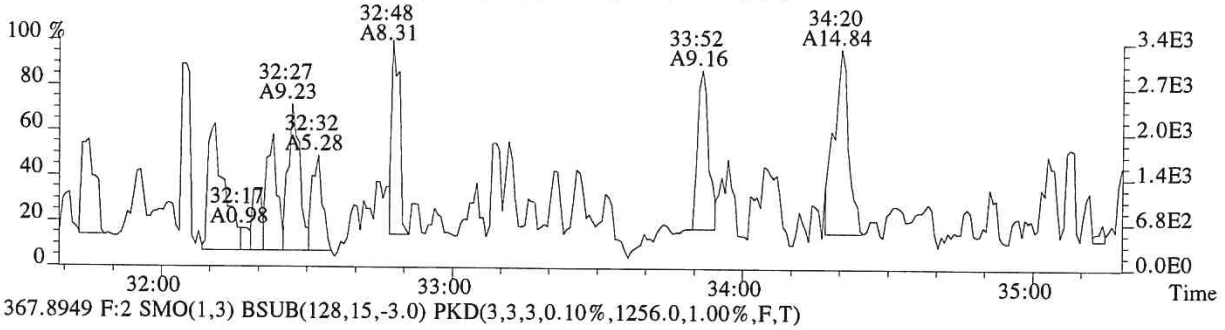
341.8567 F:2



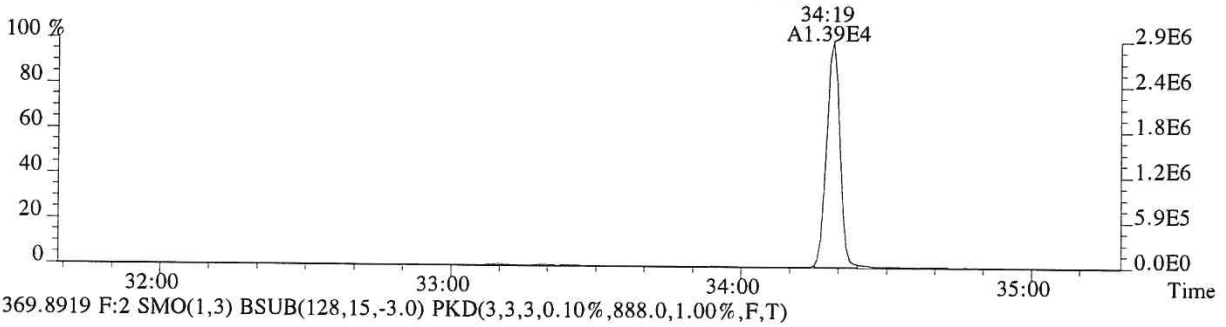
File:P615719 #1-330 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



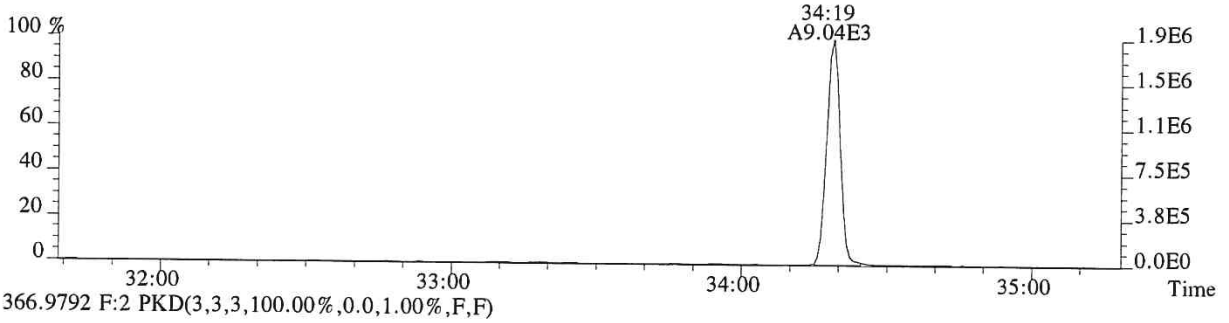
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



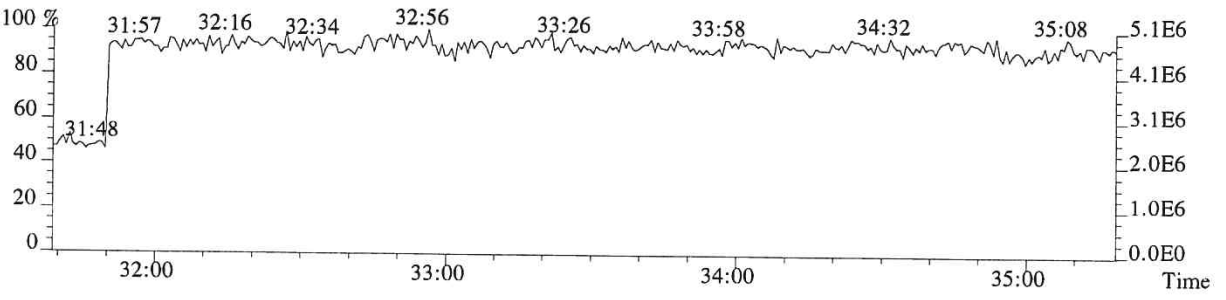
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)

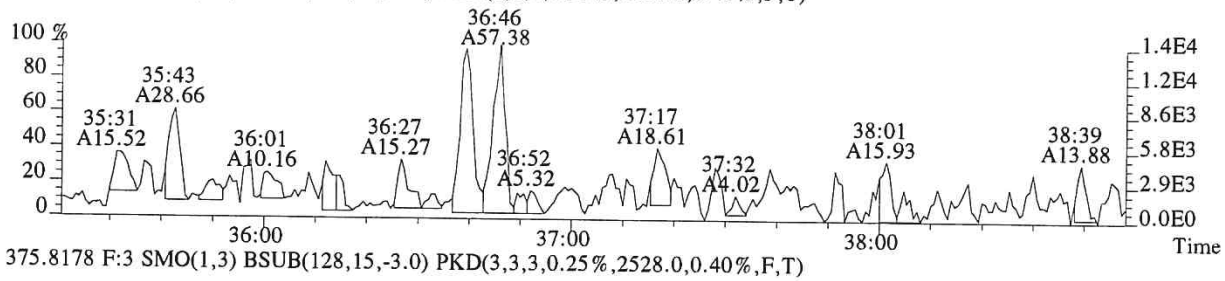


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

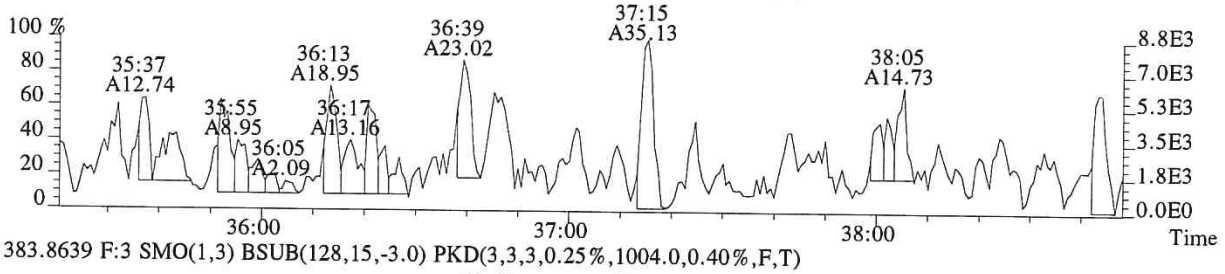


File:P615719 #1-312 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021

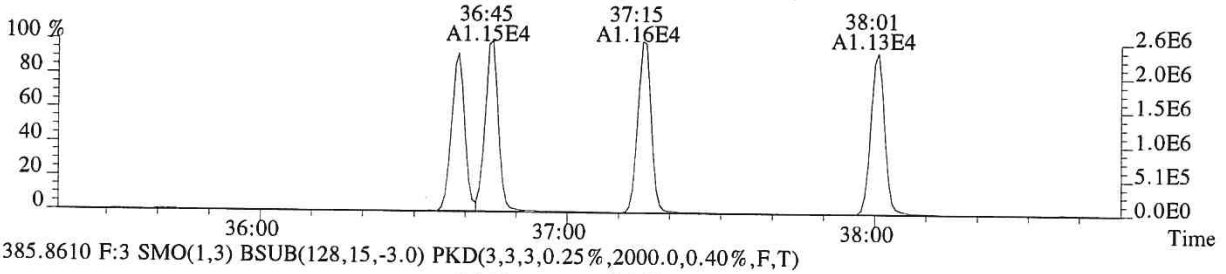
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1960.0,0.40%,F,T)



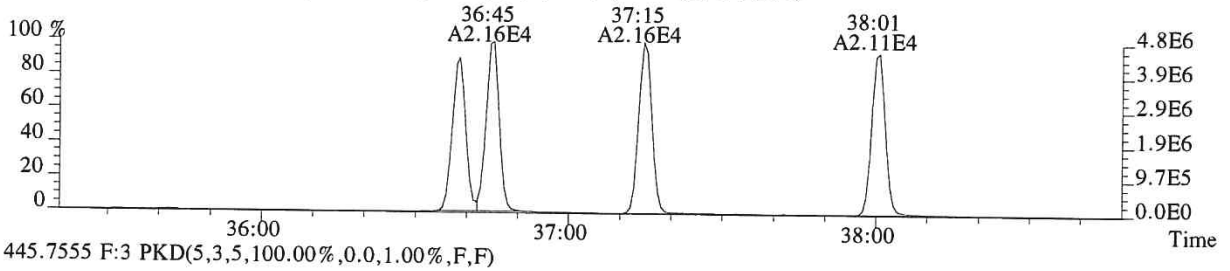
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2528.0,0.40%,F,T)



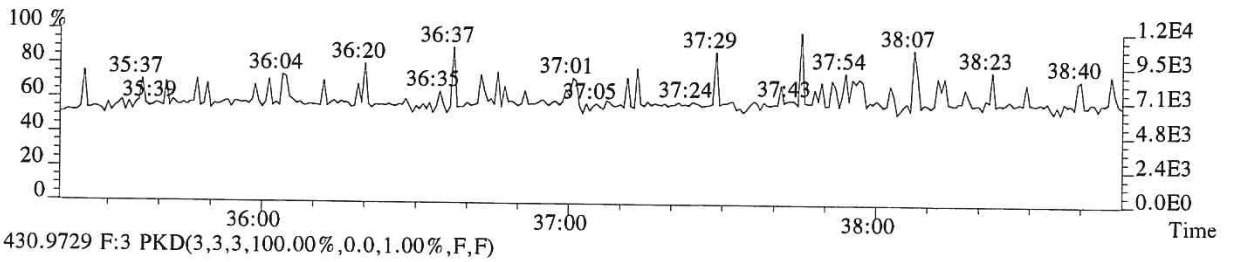
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



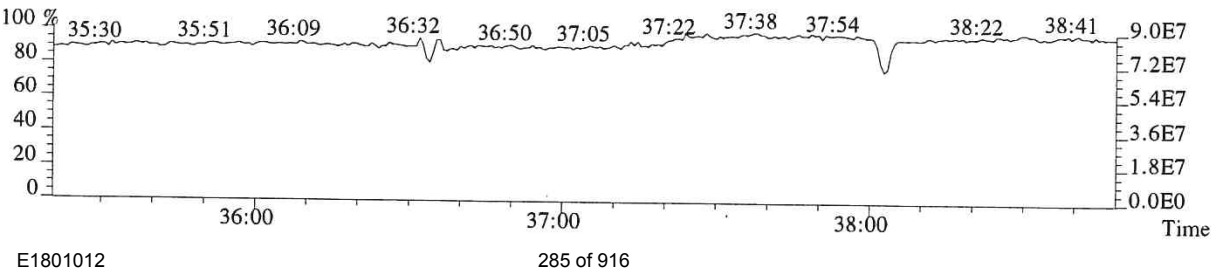
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2000.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

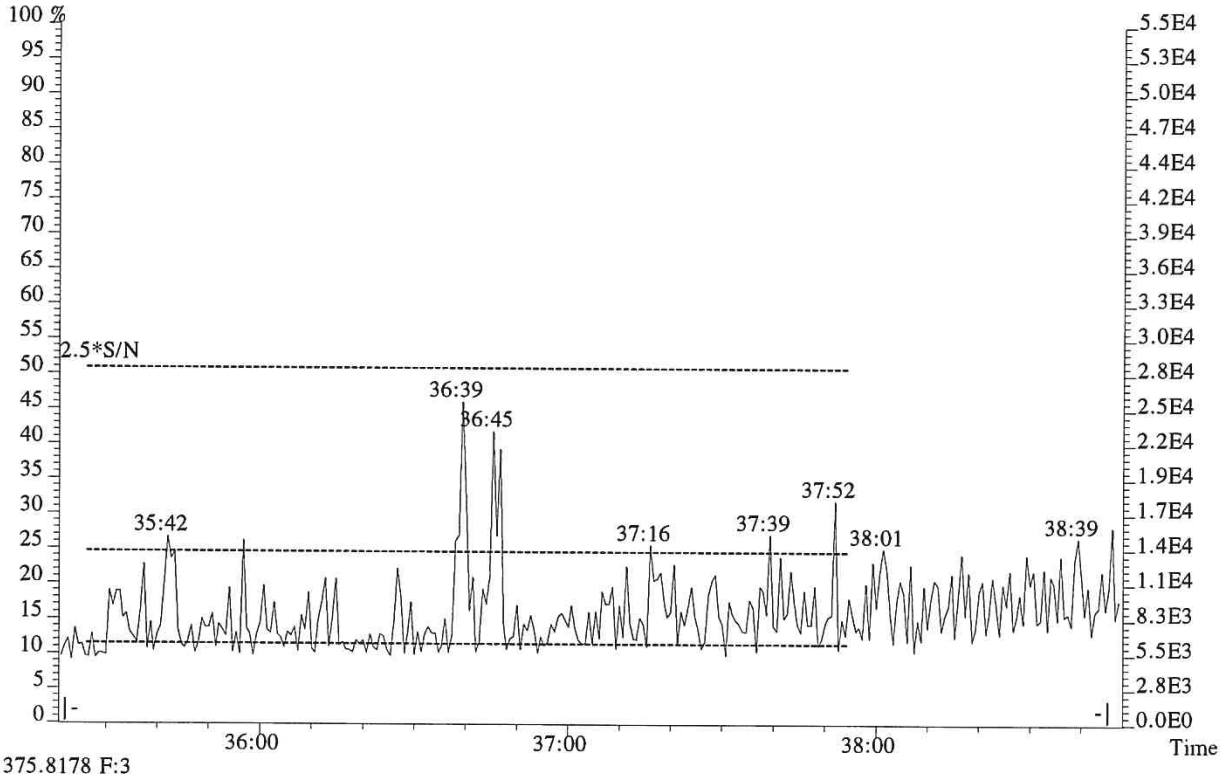


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

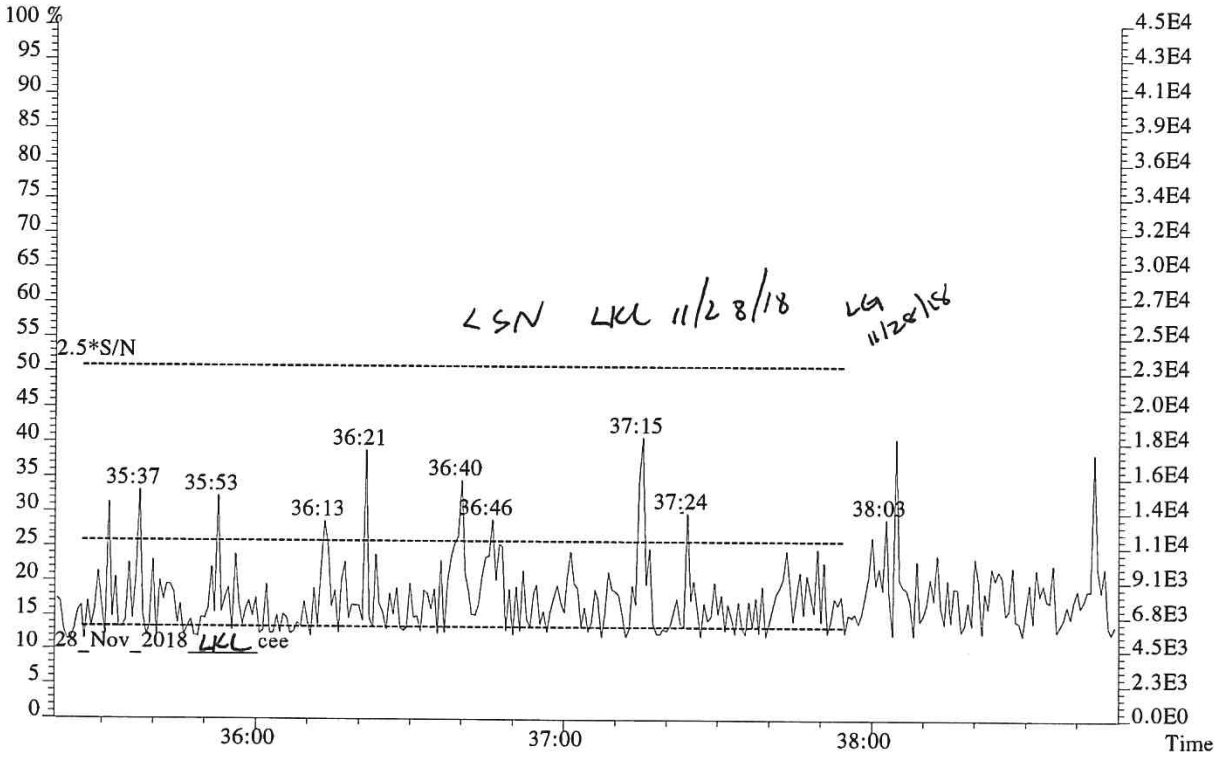


008876

File:P615719 #1-312 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021
373.8208 F:3

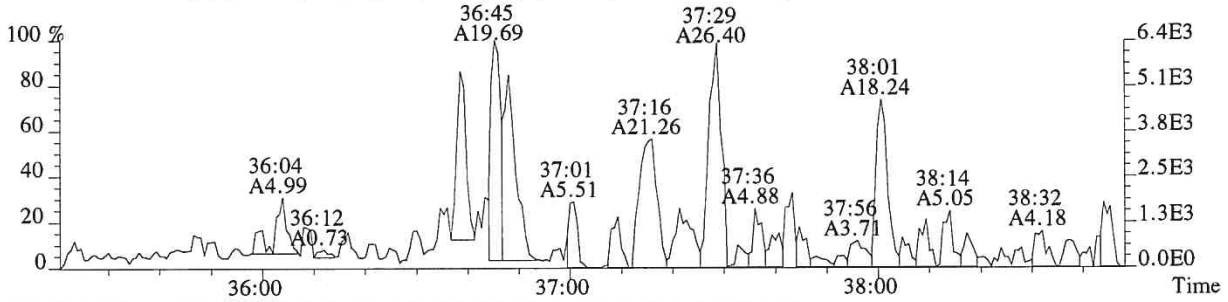


375.8178 F:3

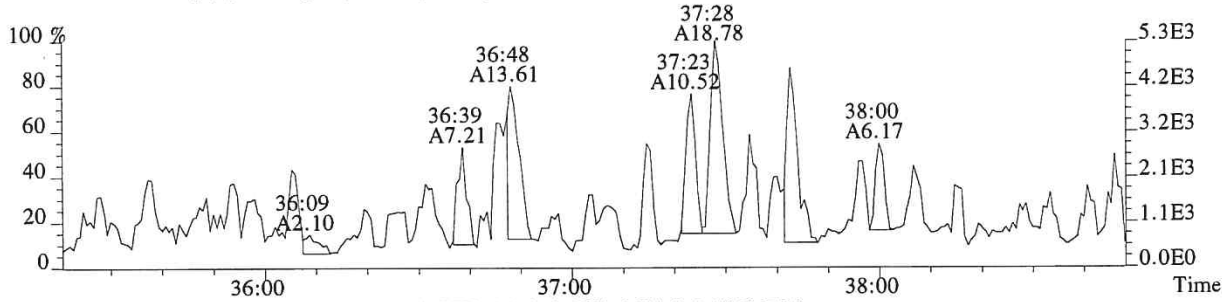


008877

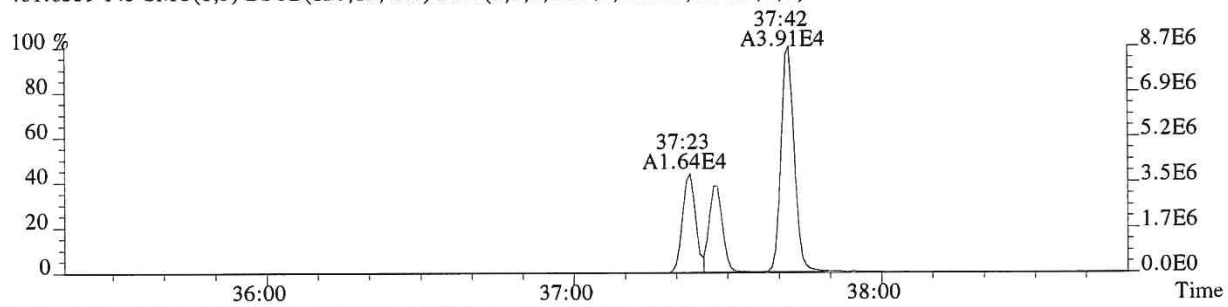
File:P615719 #1-312 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



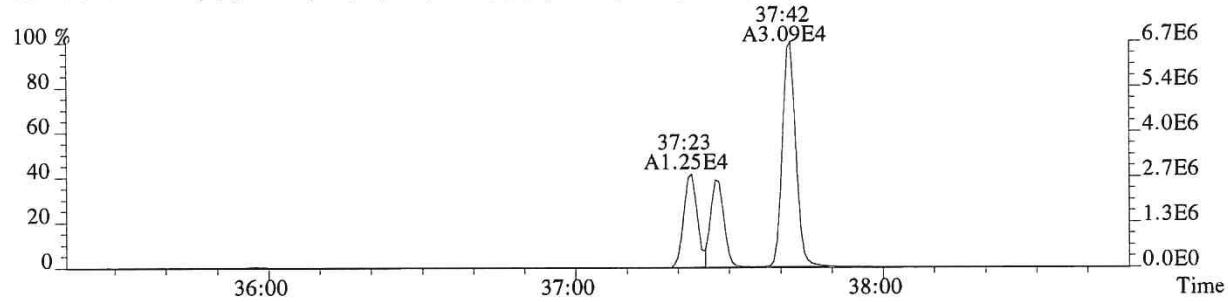
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



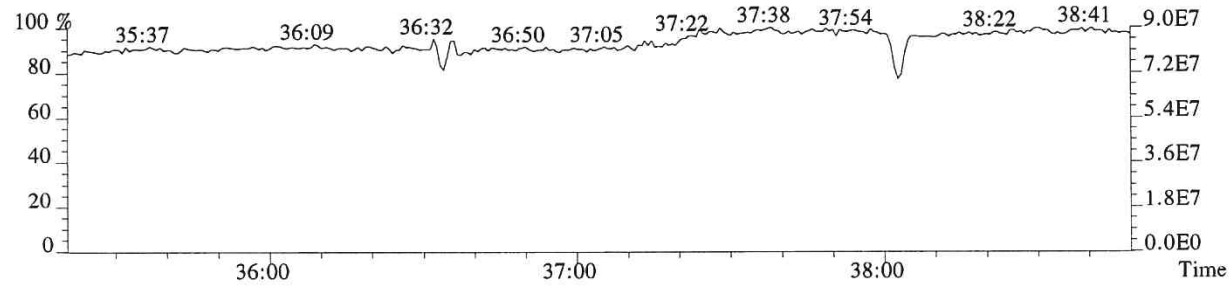
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3684.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)

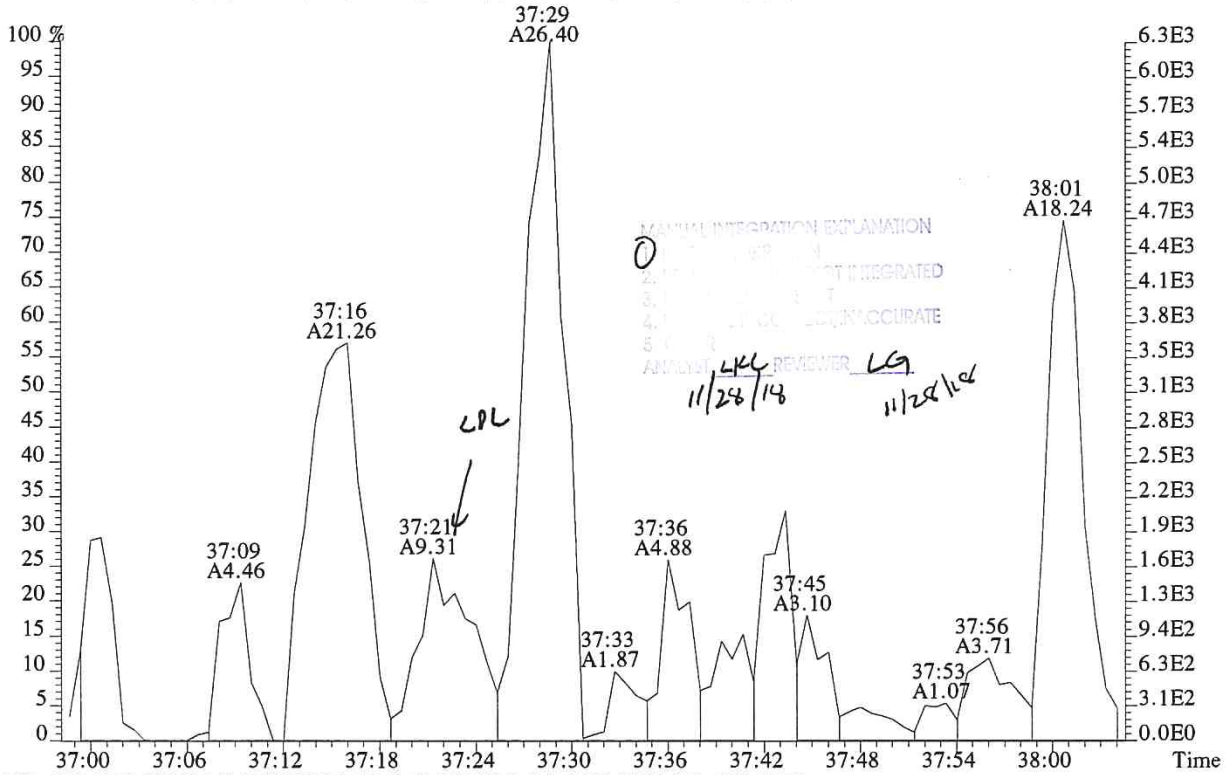


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

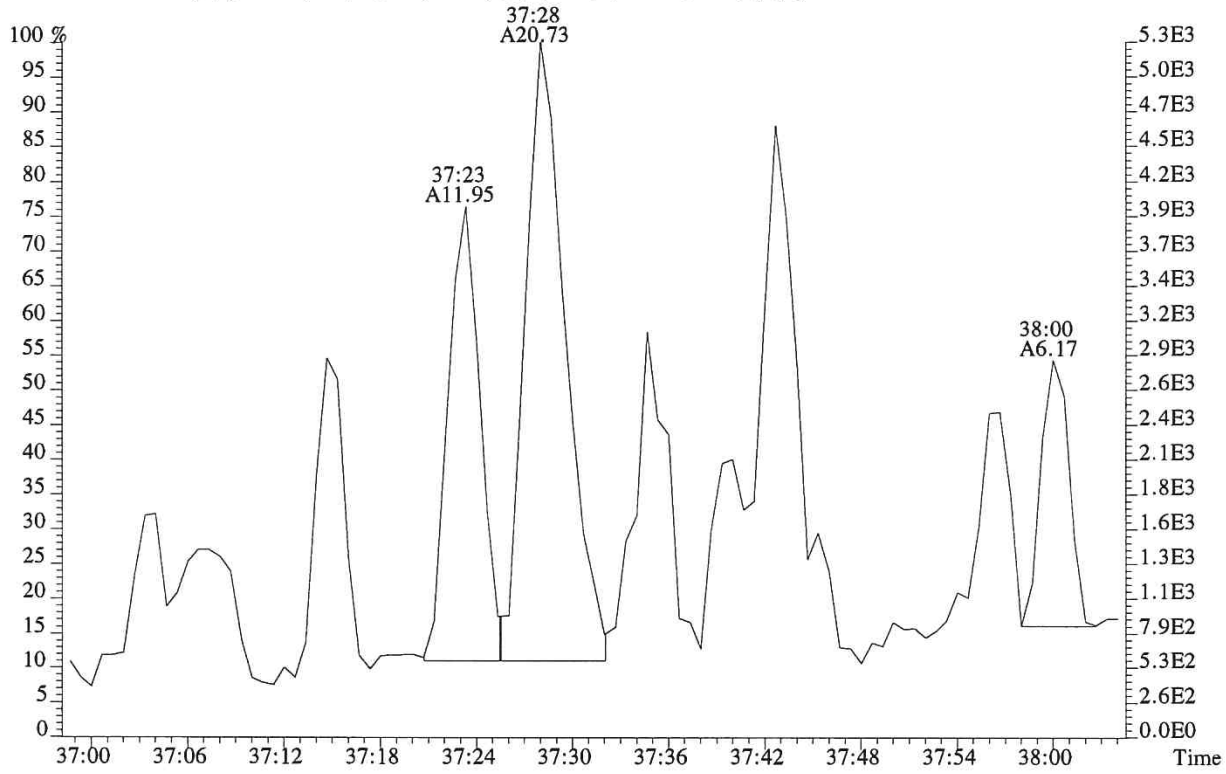


008878

File:P615719 #1-312 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)

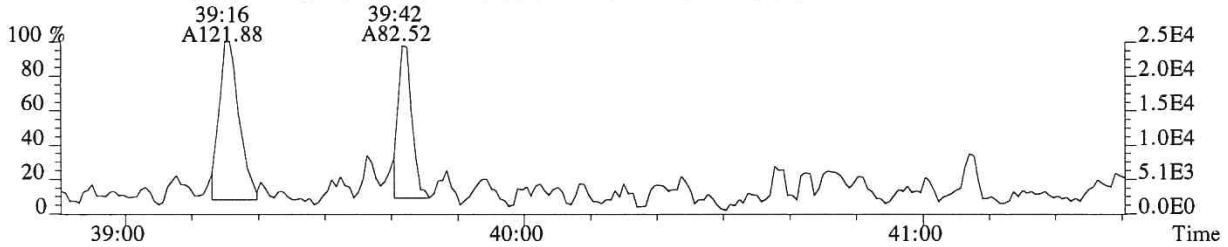


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)

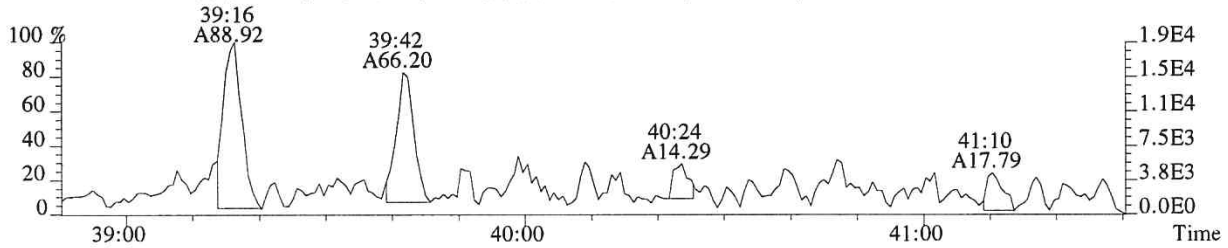


File:P615719 #1-241 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021

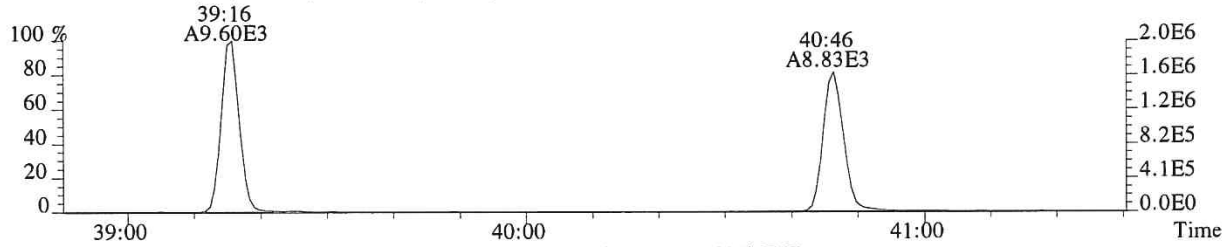
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3908.0,0.50%,F,T)



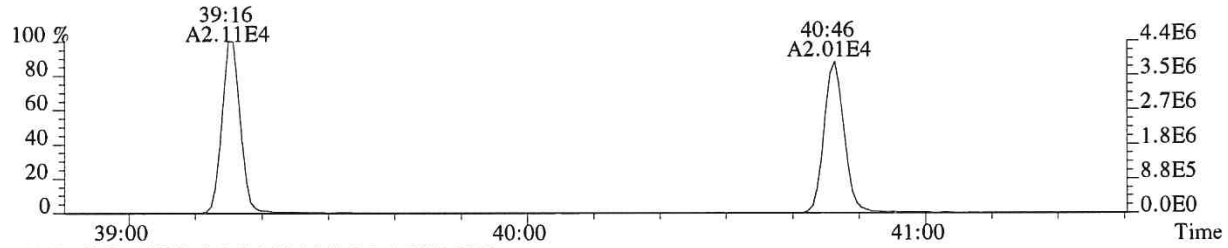
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.50%,F,T)



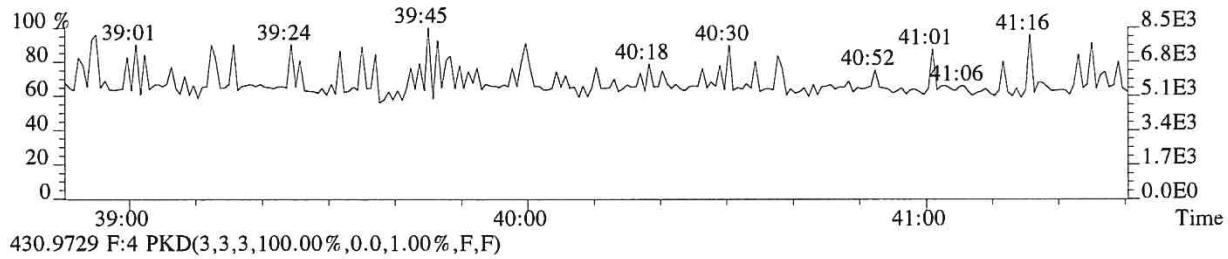
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2528.0,0.50%,F,T)



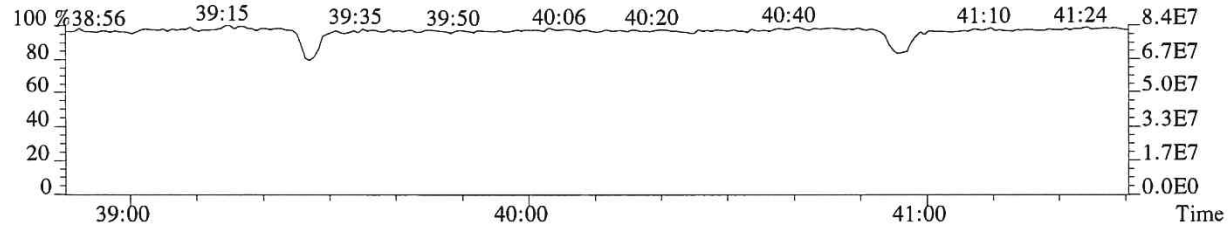
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2468.0,0.50%,F,T)



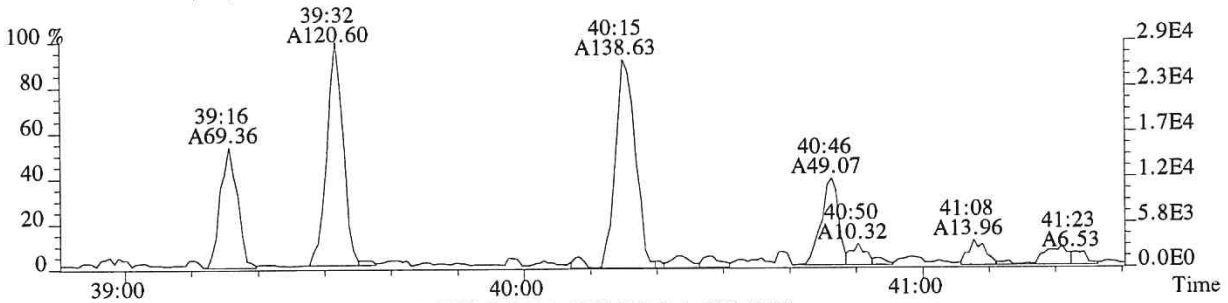
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



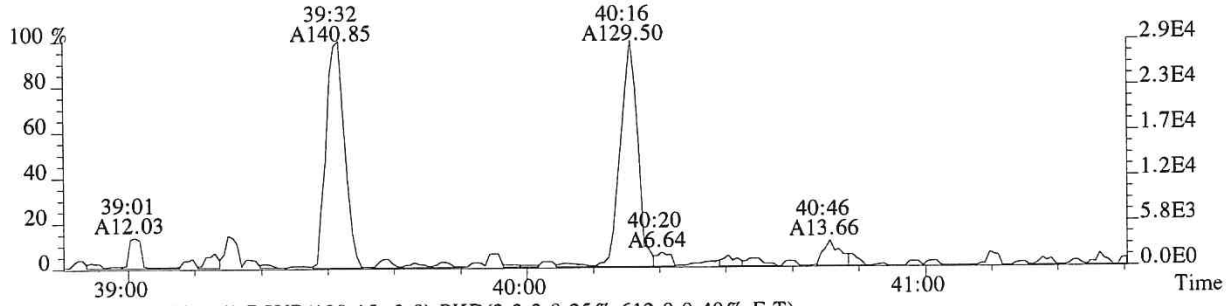
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



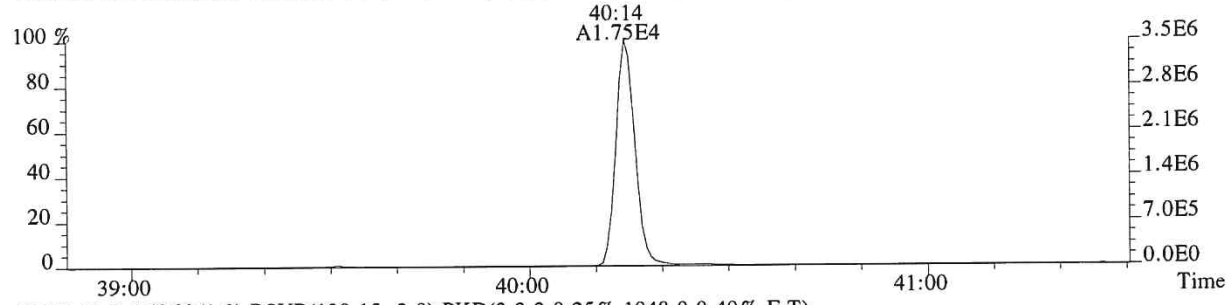
File:P615719 #1-241 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801012-021
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



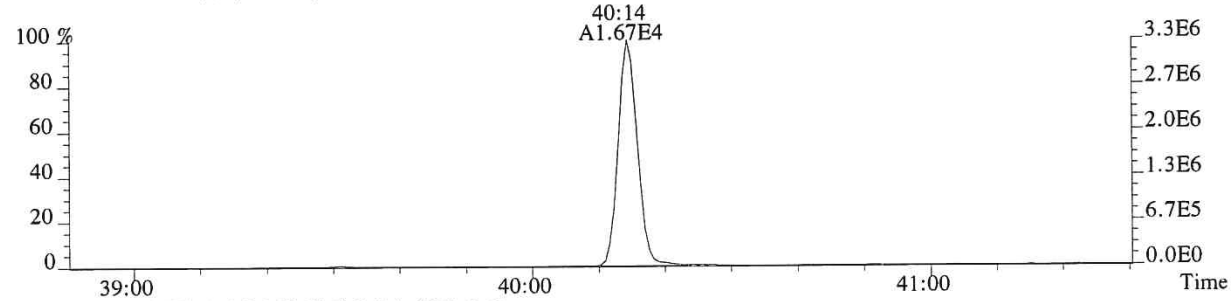
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



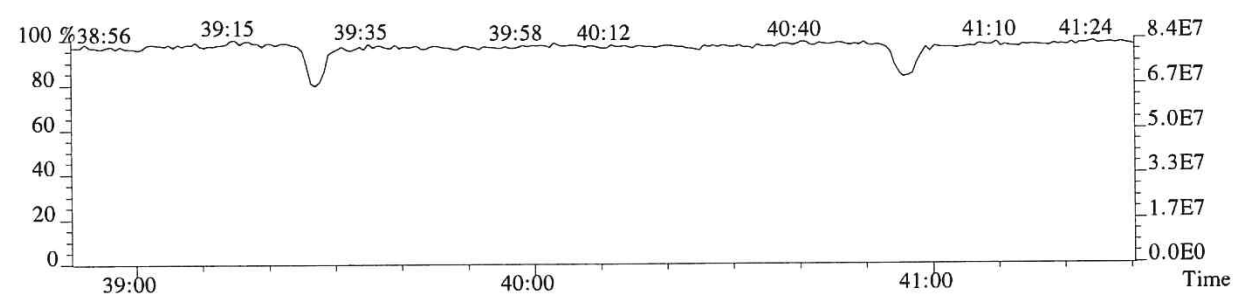
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)

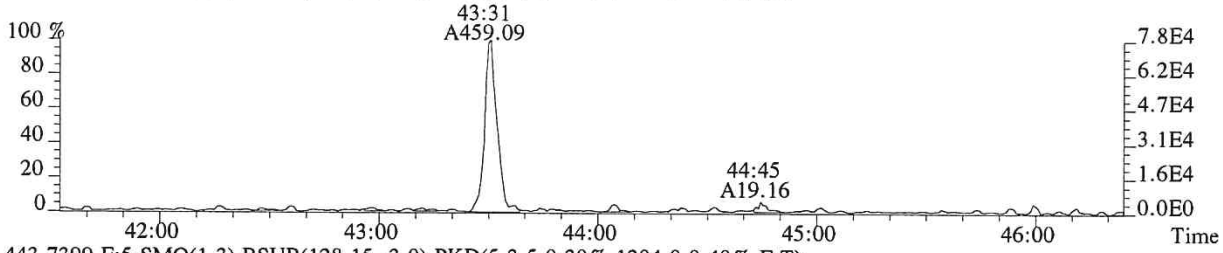


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

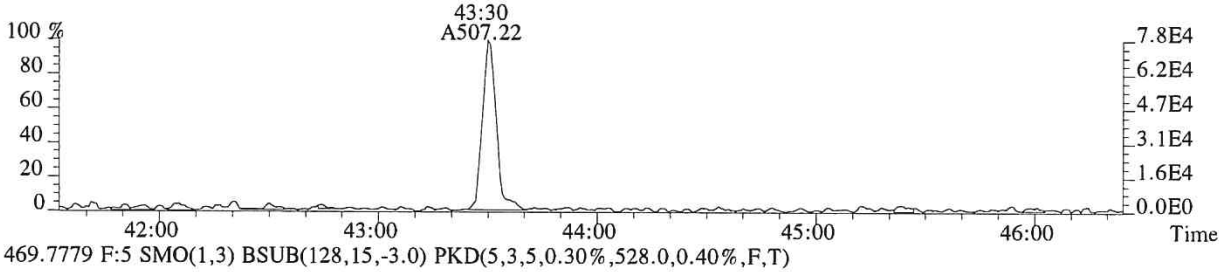


File:P615719 #1-438 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021

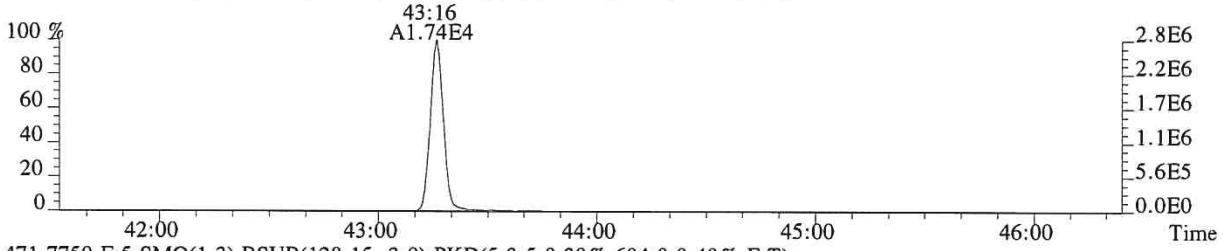
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,948.0,0.40%,F,T)



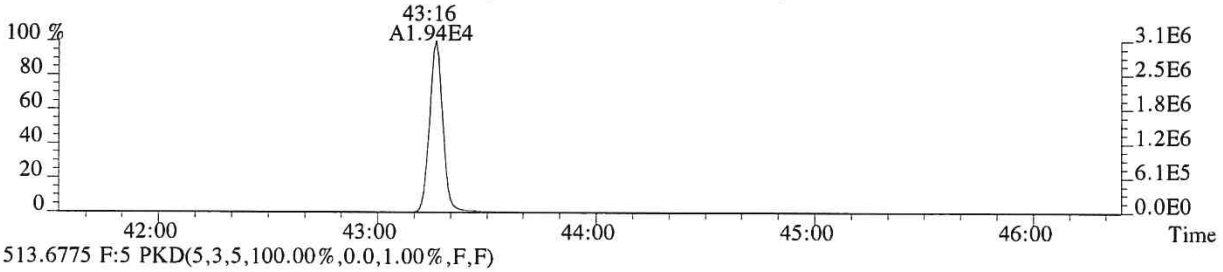
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1304.0,0.40%,F,T)



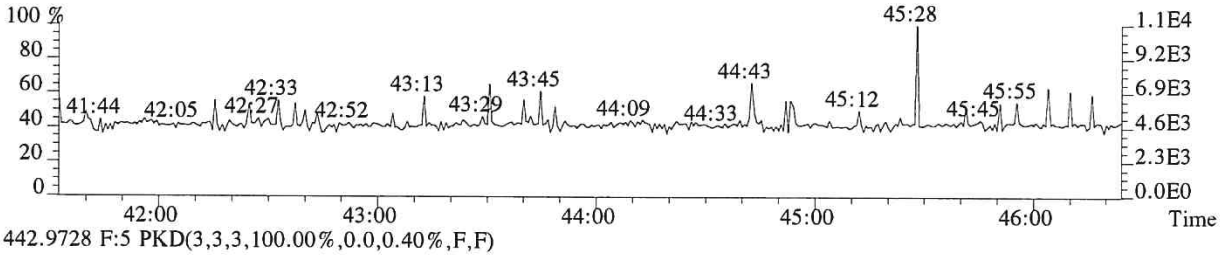
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



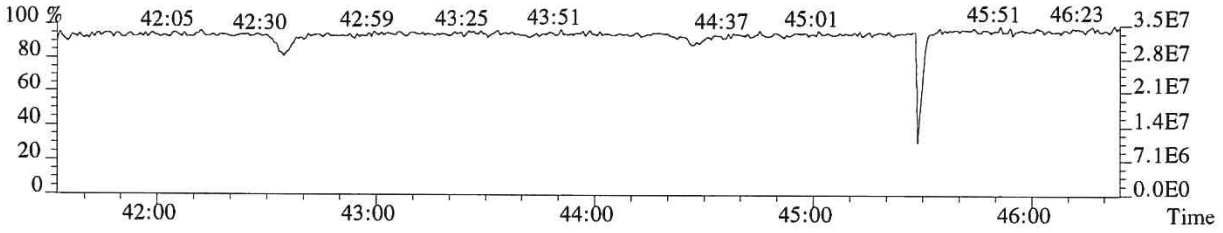
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

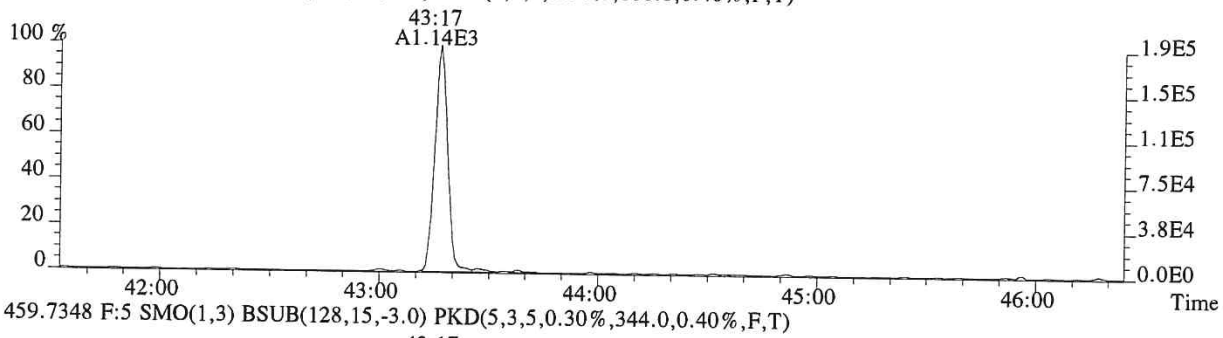


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

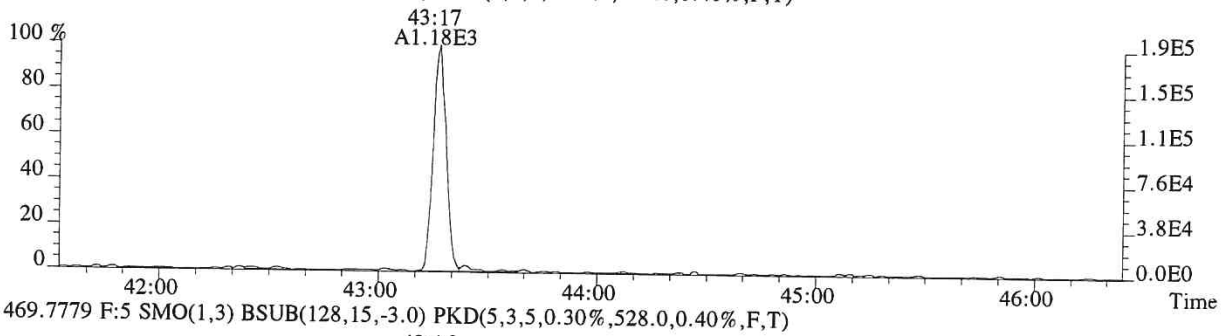


008882

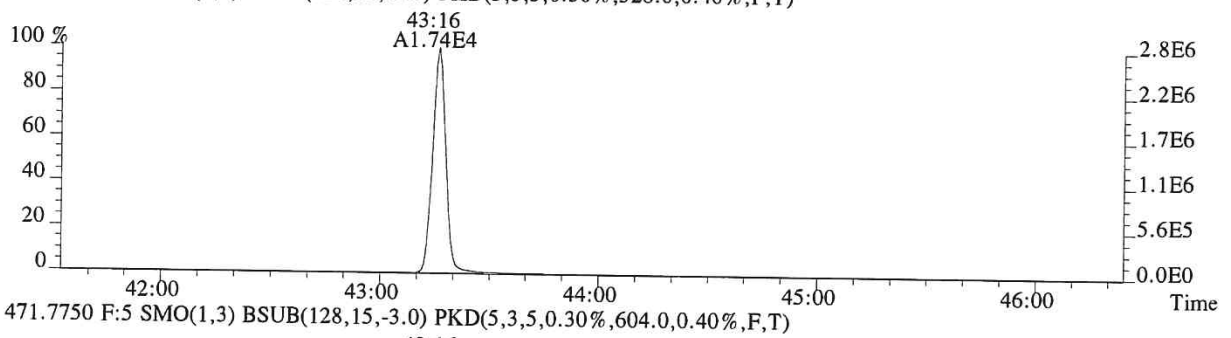
File:P615719 #1-438 Acq:27-NOV-2018 14:18:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-021
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,600.0,0.40%,F,T)



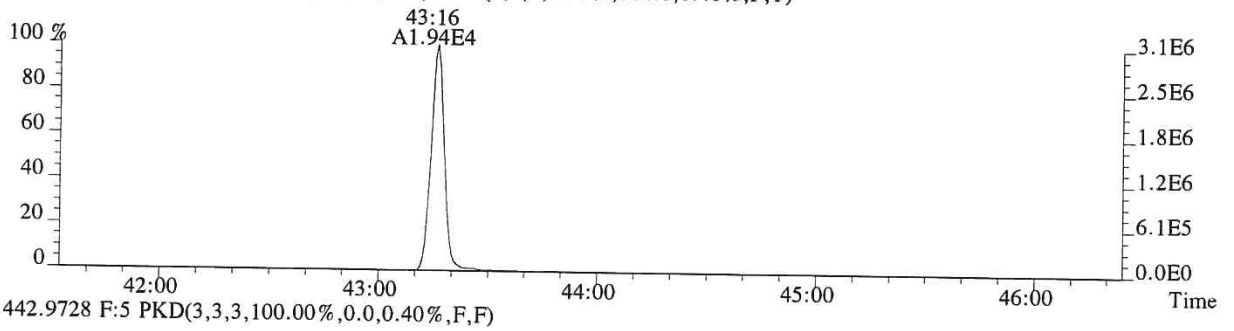
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



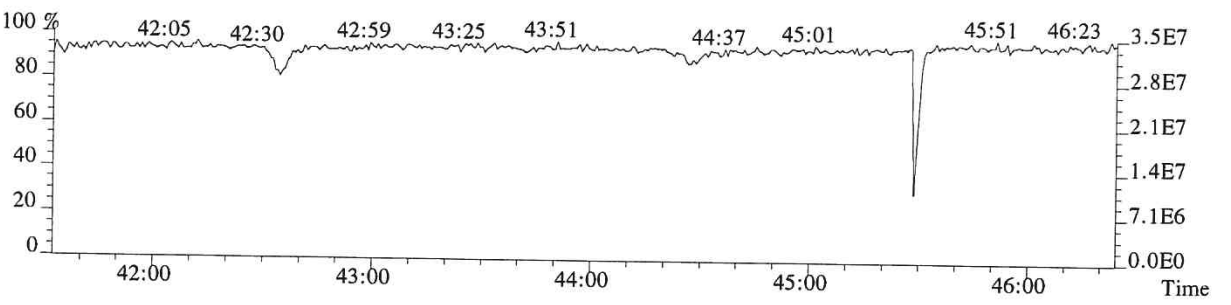
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



008883

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
FW0003

Run #12 Filename P615720 Samp: 1 Inj: 1 Acquired: 27-NOV-18 15:07:45
Processed: 28-NOV-18 10:20:05 Sample ID: E1801012-022

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	7.426e+01	7.534e+01	0.99	yes	yes	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	43:30	5.602e+02	6.121e+02	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:40	1.259e+01	9.759e+00	1.29	yes	yes	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	2.366e+01	2.176e+01	1.09	yes	no	1.112
17	Unk	OCDD	43:17	1.564e+02	1.933e+02	0.81	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:13	2.092e+04	2.667e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	4.321e+04	2.728e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:03	4.304e+04	2.660e+04	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	2.221e+04	4.220e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	2.369e+04	4.575e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	2.395e+04	4.572e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	2.196e+04	4.146e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:15	1.600e+04	3.491e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	1.448e+04	3.218e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	1.570e+04	1.977e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	3.240e+04	2.119e+04	1.53	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	3.139e+04	2.422e+04	1.30	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:27	2.808e+04	2.320e+04	1.21	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	2.890e+04	2.798e+04	1.03	yes	no	0.857
32	IS	13C-OCDD	43:15	2.842e+04	3.098e+04	0.92	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	5.741e+04	7.382e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	6.520e+04	5.191e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:57	1.640e+04				no	1.086

$$\text{OCDD} = \frac{(1.564e{+}02 + 1.933e{+}02) \times 4000\ \text{pg} \times 1}{(2.842e{+}04 + 3.098e{+}04) \times .5\ \text{g} \times / 100 \times 1.157} = 40.7067\ \text{pg}$$

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LG 11/28/18

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW0003

Run #12 Filename P615720 Samp: 1 Inj: 1 Acquired: 27-NOV-18 15:07:45
Processed: 28-NOV-18 10:20:05 LAB. ID: E1801012-022

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.04e+03	*	*	3.53e+03	*
2	1,2,3,7,8-PeCDF	*	1.23e+03	*	*	2.90e+03	*
3	2,3,4,7,8-PeCDF	*	1.23e+03	*	*	2.90e+03	*
4	1,2,3,4,7,8-HxCDF	*	4.01e+03	*	*	2.85e+03	*
5	1,2,3,6,7,8-HxCDF	*	4.01e+03	*	*	2.85e+03	*
6	2,3,4,6,7,8-HxCDF	*	4.01e+03	*	*	2.85e+03	*
7	1,2,3,7,8,9-HxCDF	*	4.01e+03	*	*	2.85e+03	*
8	1,2,3,4,6,7,8-HpCDF	1.41e+04	3.21e+03	4.4e+00	1.88e+04	2.22e+03	8.5e+00
9	1,2,3,4,7,8,9-HpCDF	*	3.21e+03	*	*	2.22e+03	*
10	OCDF	8.91e+04	4.28e+02	2.1e+02	1.02e+05	1.51e+03	6.8e+01
11	2,3,7,8-TCDD	*	2.76e+03	*	*	1.81e+03	*
12	1,2,3,7,8-PeCDD	*	1.93e+03	*	*	4.08e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.76e+02	*	*	6.96e+02	*
14	1,2,3,6,7,8-HxCDD	*	6.76e+02	*	*	6.96e+02	*
15	1,2,3,7,8,9-HxCDD	3.28e+03	6.76e+02	4.8e+00	2.21e+03	6.96e+02	3.2e+00
16	1,2,3,4,6,7,8-HpCDD	5.46e+03	6.72e+02	8.1e+00	6.79e+03	8.24e+02	8.2e+00
17	OCDD	2.53e+04	4.80e+02	5.3e+01	3.12e+04	1.14e+03	2.7e+01
18	13C-2,3,7,8-TCDF	4.17e+06	9.94e+03	4.2e+02	5.38e+06	6.31e+03	8.5e+02
19	13C-1,2,3,7,8-PeCDF	8.72e+06	8.40e+02	1.0e+04	5.45e+06	1.85e+03	3.0e+03
20	13C-2,3,4,7,8-PeCDF	8.93e+06	8.40e+02	1.1e+04	5.55e+06	1.85e+03	3.0e+03
21	13C-1,2,3,4,7,8-HxCDF	4.95e+06	1.04e+03	4.8e+03	9.31e+06	1.72e+03	5.4e+03
22	13C-1,2,3,6,7,8-HxCDF	5.13e+06	1.04e+03	5.0e+03	9.95e+06	1.72e+03	5.8e+03
23	13C-2,3,4,6,7,8-HxCDF	5.39e+06	1.04e+03	5.2e+03	1.03e+07	1.72e+03	6.0e+03
24	13C-1,2,3,7,8,9-HxCDF	4.71e+06	1.04e+03	4.5e+03	9.09e+06	1.72e+03	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.43e+06	2.10e+03	1.6e+03	7.42e+06	2.43e+03	3.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.75e+06	2.10e+03	1.3e+03	6.08e+06	2.43e+03	2.5e+03
27	13C-2,3,7,8-TCDD	3.32e+06	1.53e+04	2.2e+02	4.18e+06	5.56e+03	7.5e+02
28	13C-1,2,3,7,8-PeCDD	6.68e+06	1.41e+03	4.7e+03	4.42e+06	1.19e+03	3.7e+03
29	13C-1,2,3,4,7,8-HxCDD	6.86e+06	2.28e+03	3.0e+03	5.46e+06	1.02e+03	5.4e+03
30	13C-1,2,3,6,7,8-HxCDD	6.36e+06	2.28e+03	2.8e+03	5.07e+06	1.02e+03	5.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.87e+06	4.64e+02	1.3e+04	5.74e+06	6.12e+02	9.4e+03
32	13C-OCDD	4.47e+06	6.48e+02	6.9e+03	4.81e+06	4.76e+02	1.0e+04
33	13C-1,2,3,4-TCDD	1.18e+07	1.53e+04	7.7e+02	1.52e+07	5.56e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.43e+07	2.28e+03	6.3e+03	1.13e+07	1.02e+03	1.1e+04
35	37Cl-2,3,7,8-TCDD	3.52e+06	1.98e+03	1.8e+03			

---Sample Calculation---

$$D/L\ TCDD = \frac{2.5 \times (2.760e{+}03 + 1.808e{+}03) \times 2000}{(3.322e{+}06 + 4.182e{+}06) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
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Office:(281)530-5656. Fax:(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0003

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P615720 Sample:1 Injection:1 Function:3

Acquired: 27-NOV-18 15:07:45 Processed: 28-NOV-18 10:20:05

Mass: 389.8160 391.8130 Tot Response: 2.23e+01 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:40	1.26e+01	9.76e+00 1.29	yes	2.23e+01	1,2,3,7,8,9-HxCDD	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0003

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P615720 Sample:1 Injection:1 Function:4

Acquired: 27-NOV-18 15:07:45 Processed: 28-NOV-18 10:20:05

Mass: 407.7820 409.7790 Tot Response: 1.50e+02 RRF: 1.495

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:16	7.43e+01	7.53e+01 0.99	yes	1.50e+02	1,2,3,4,6,7,8-HpCDF	y	y

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Peak List Summary

CLIENT ID.
FW0003

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P615720 Sample:1 Injection:1 Function:4

Acquired: 27-NOV-18 15:07:45 Processed: 28-NOV-18 10:20:05

Mass: 423.7770 425.7740 Tot Response: 4.54e+01 RRF: 1.112

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	40:15	2.37e+01	2.18e+01 1.09	yes	4.54e+01	1,2,3,4,6,7,8-HpCDD	n	n

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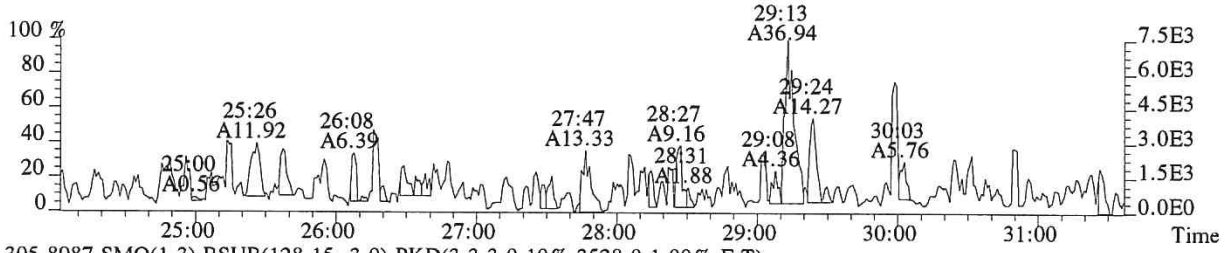
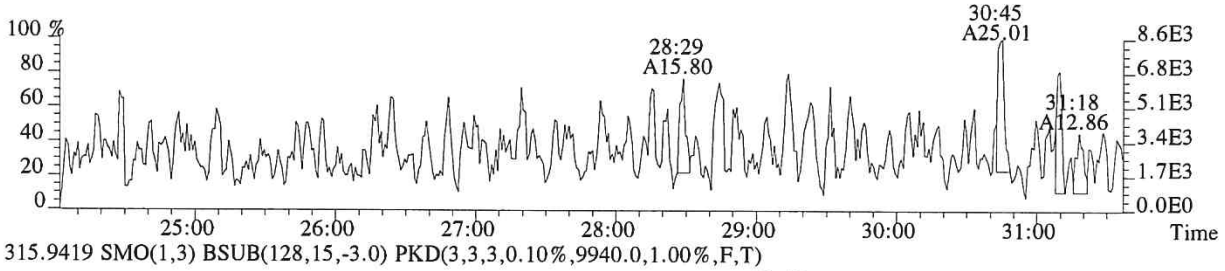
File:P615720 #1-538 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022

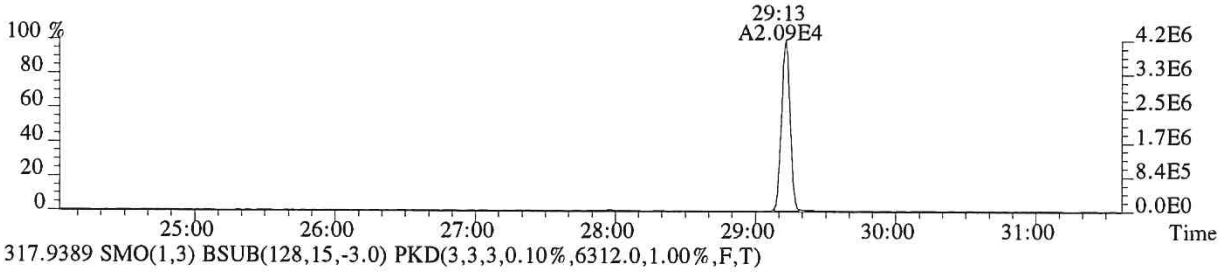
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



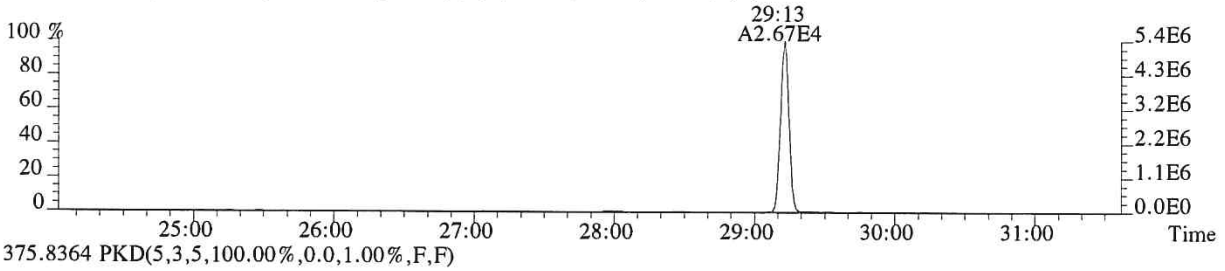
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3528.0,1.00%,F,T)



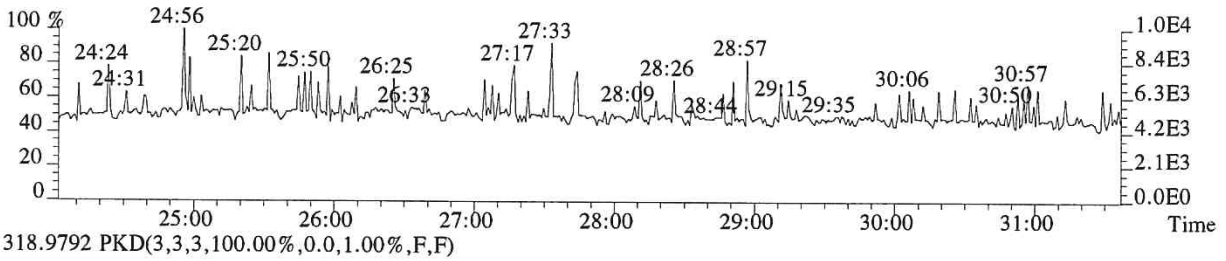
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9940.0,1.00%,F,T)



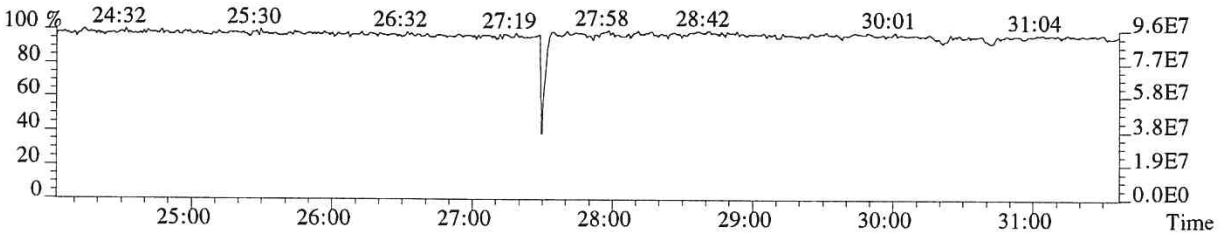
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6312.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

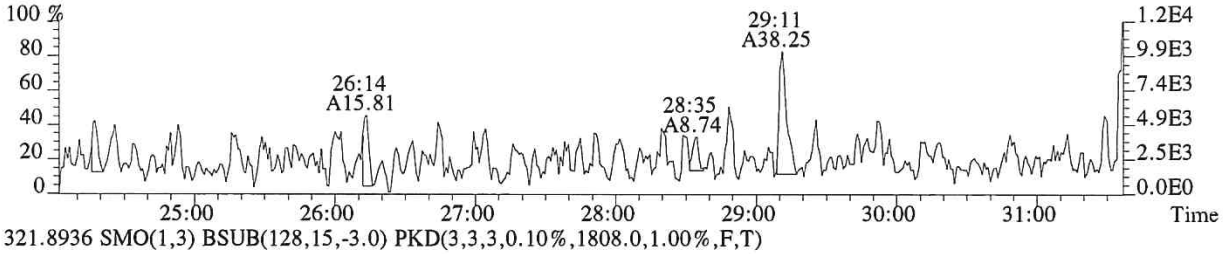


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

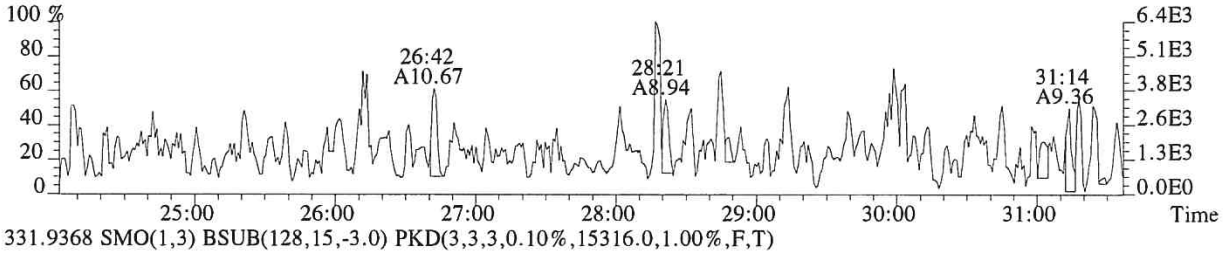


008889

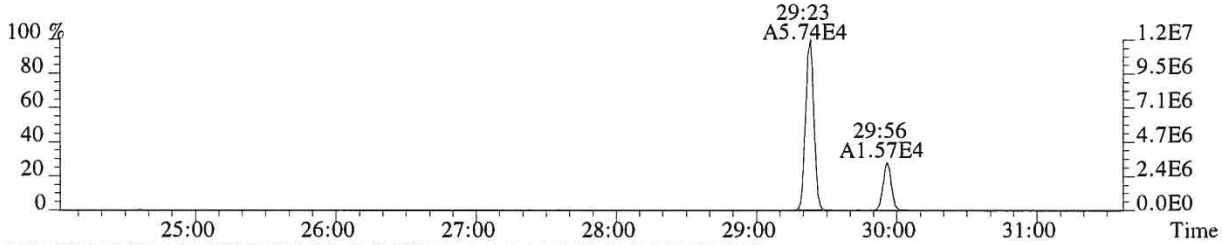
File:P615720 #1-538 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



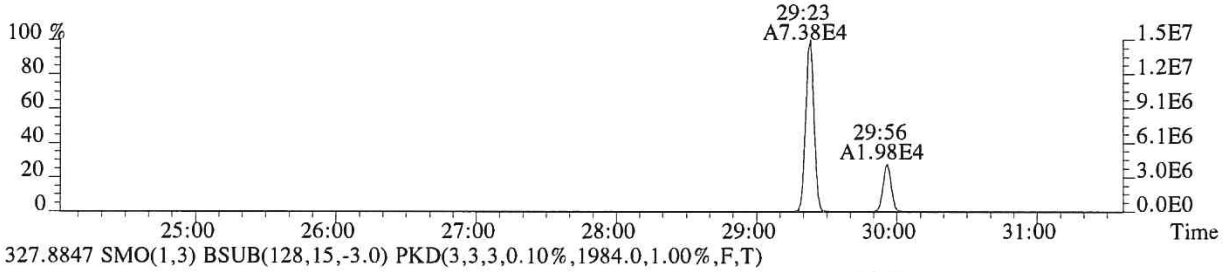
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1808.0,1.00%,F,T)



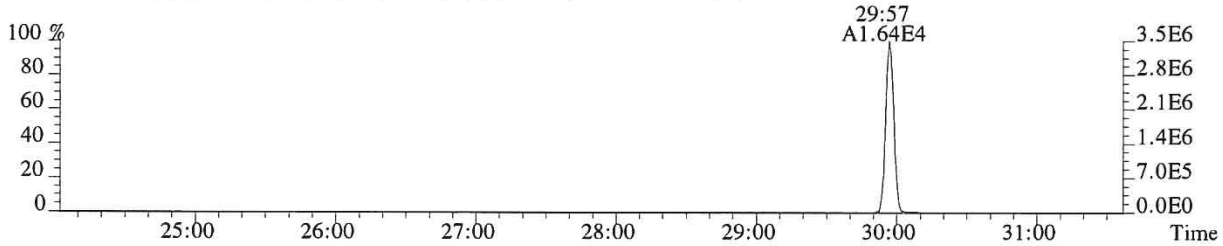
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15316.0,1.00%,F,T)



333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5564.0,1.00%,F,T)



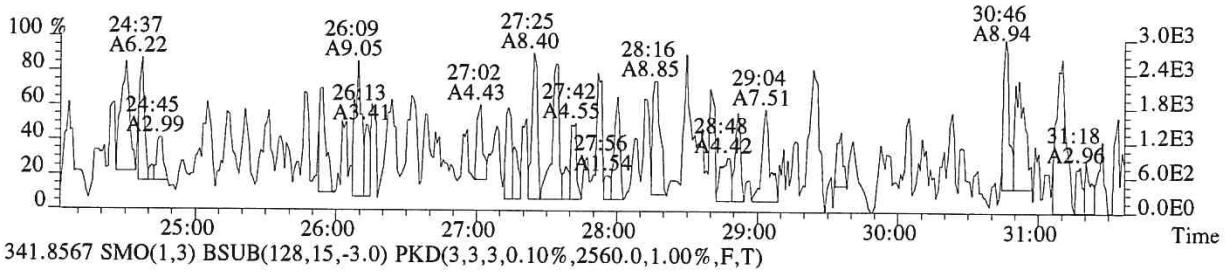
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



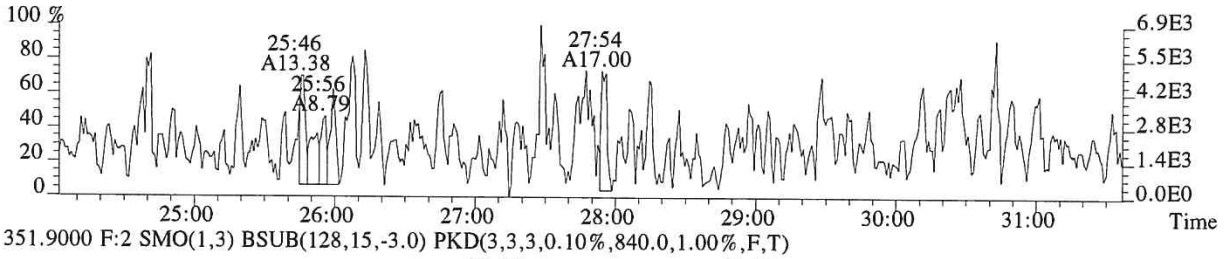
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



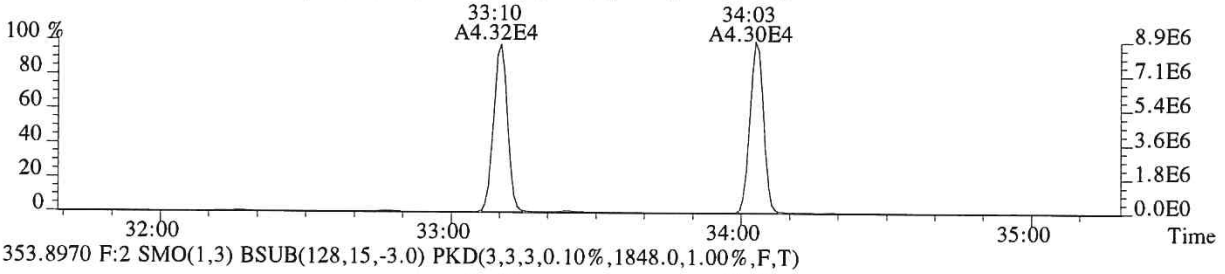
File:P615720 #1-538 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



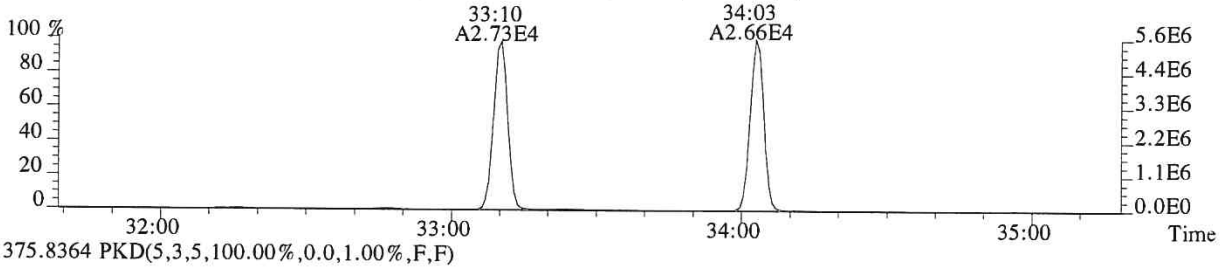
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



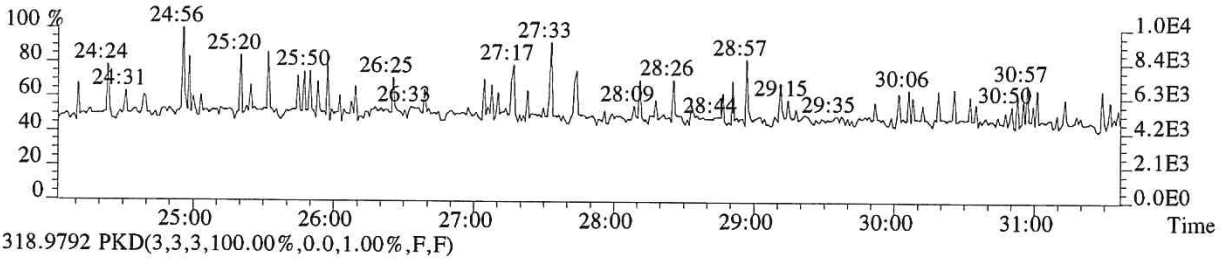
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



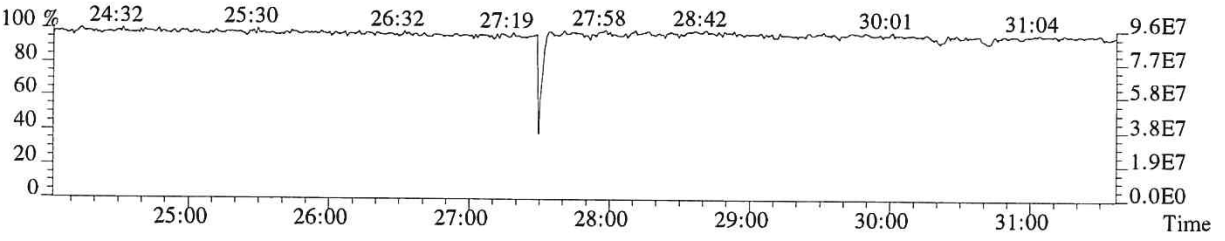
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1848.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

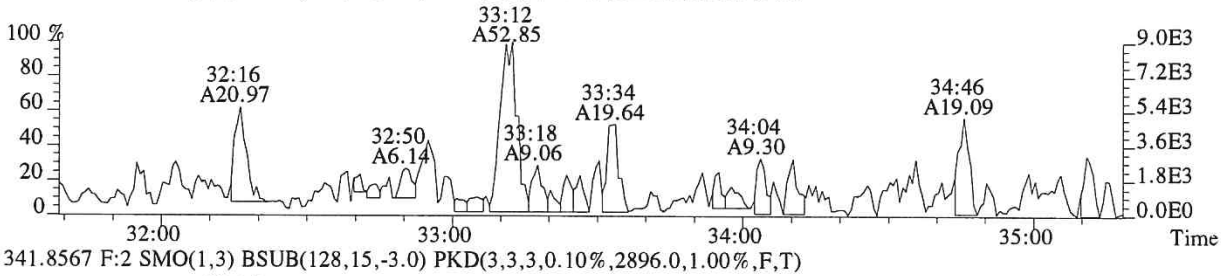


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

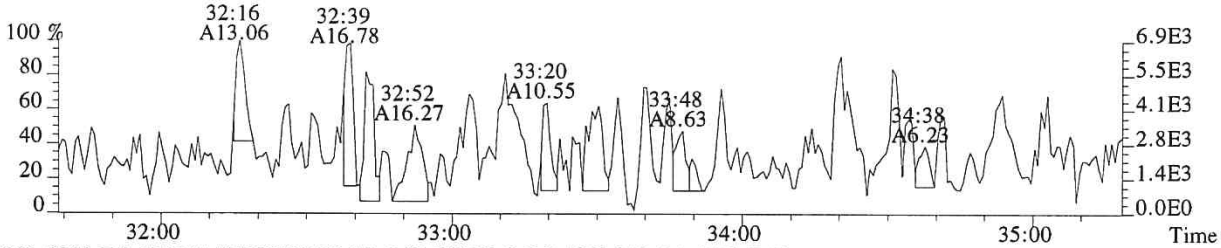


File:P615720 #1-330 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022

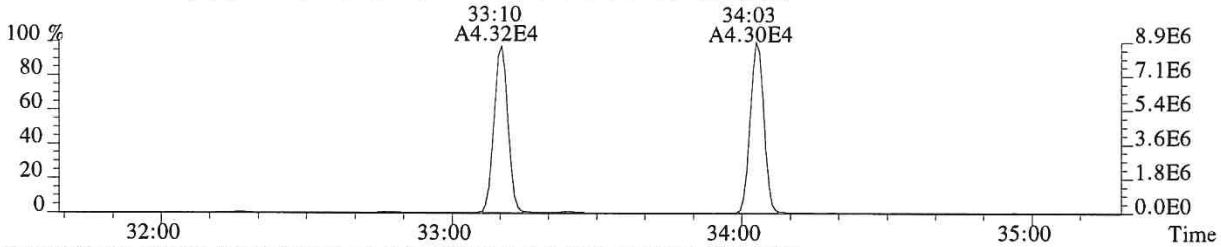
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



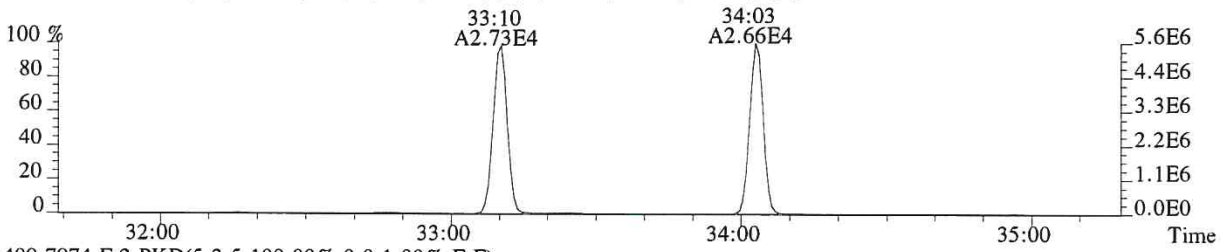
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2896.0,1.00%,F,T)



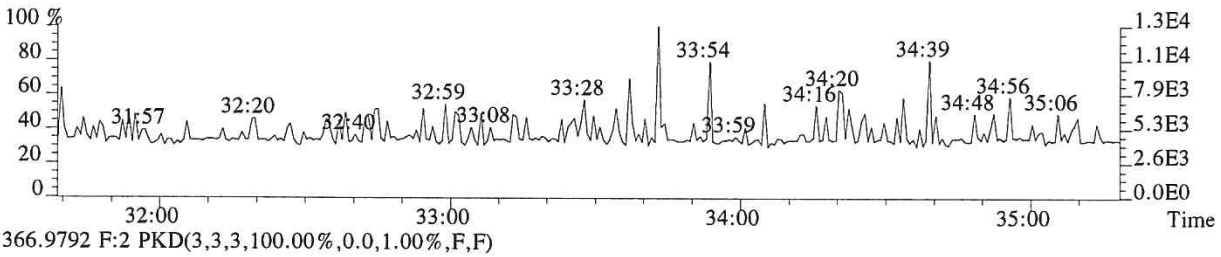
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



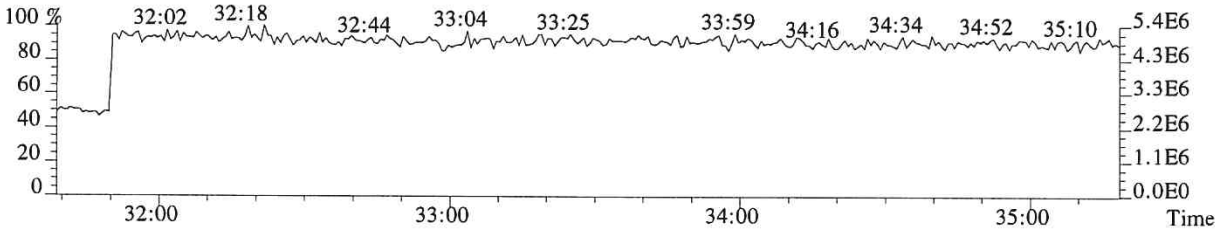
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1848.0,1.00%,F,T)



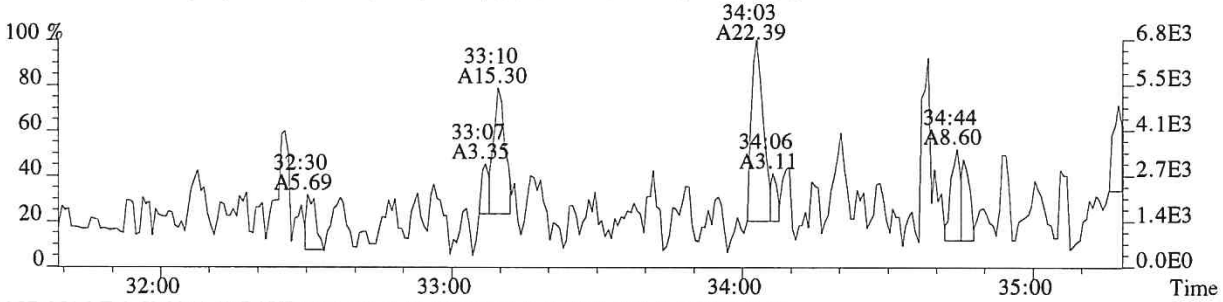
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



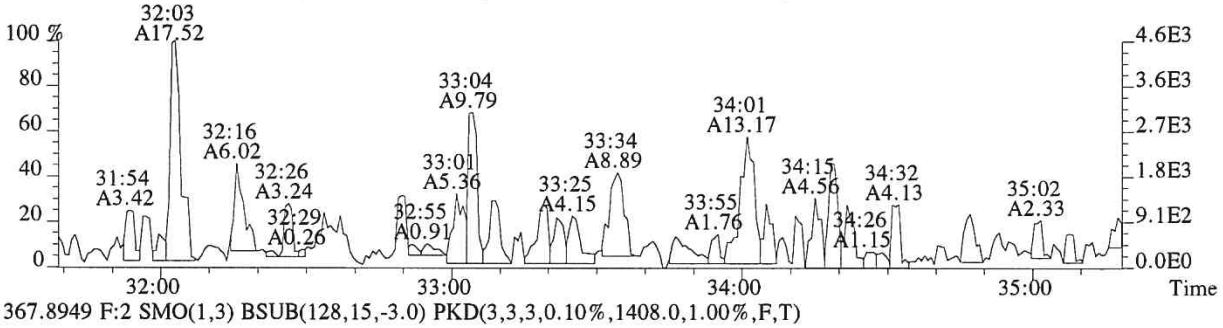
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



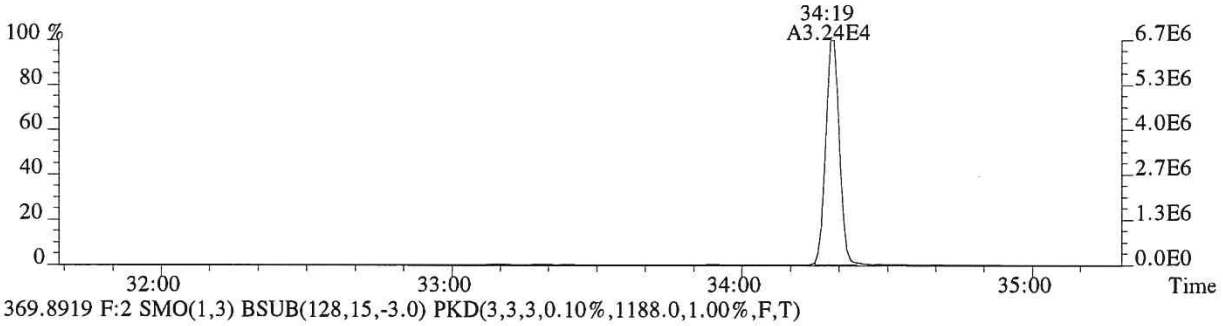
File:P615720 #1-330 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1928.0,1.00%,F,T)



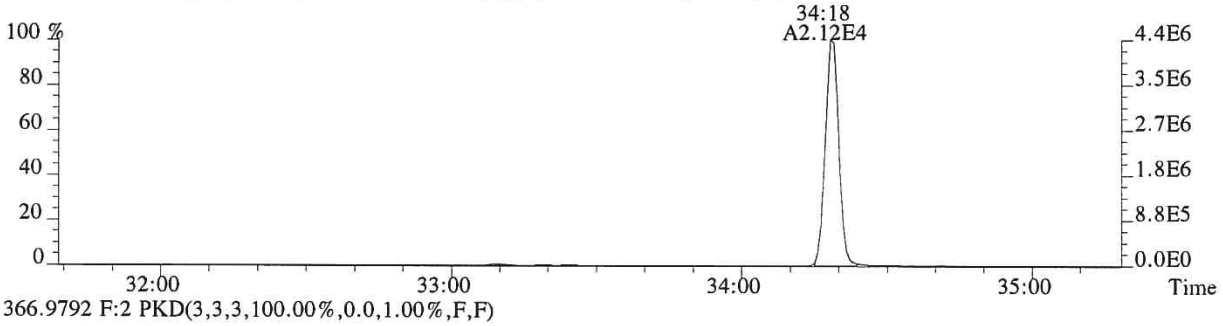
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



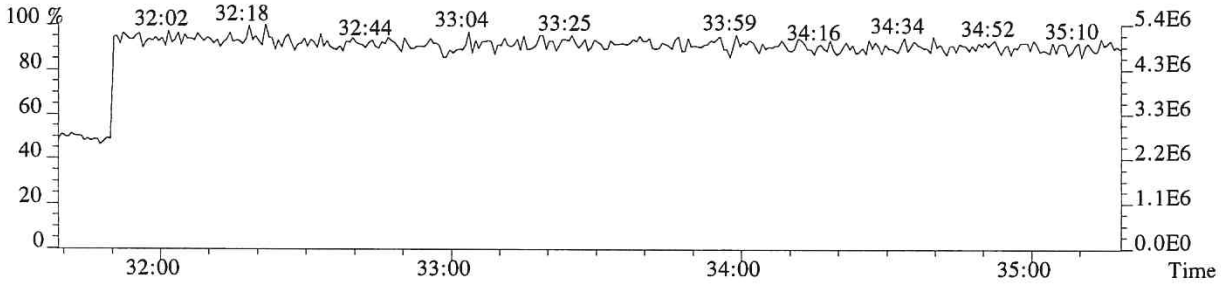
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



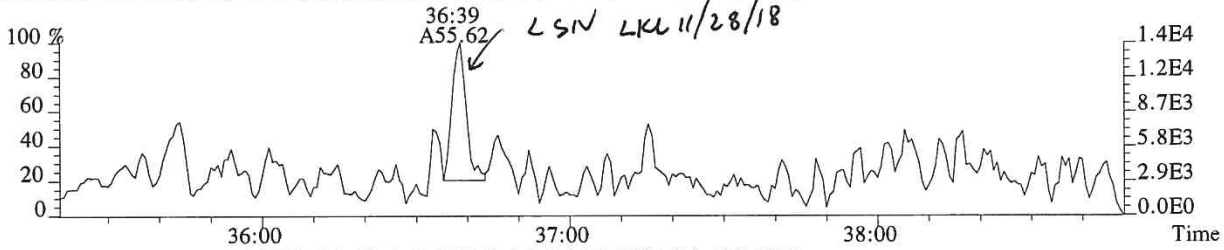
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



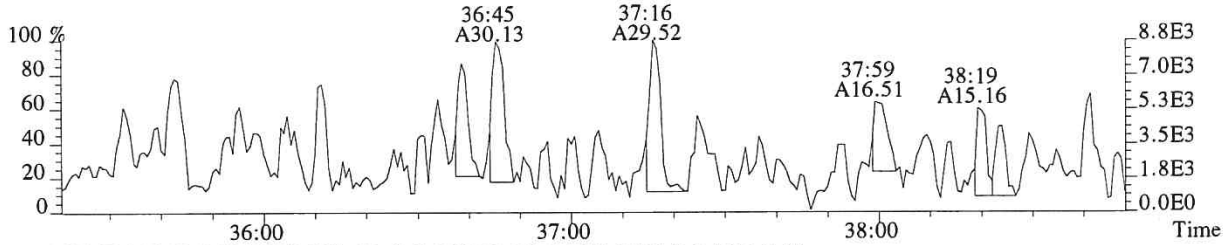
008893

File:P615720 #1-312 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022

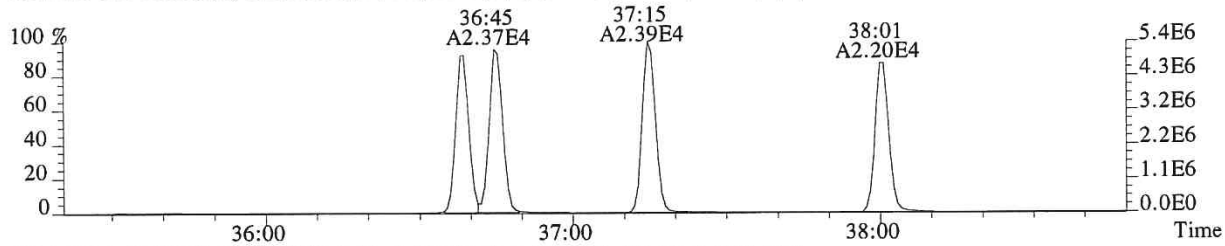
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4012.0,0.40%,F,T)



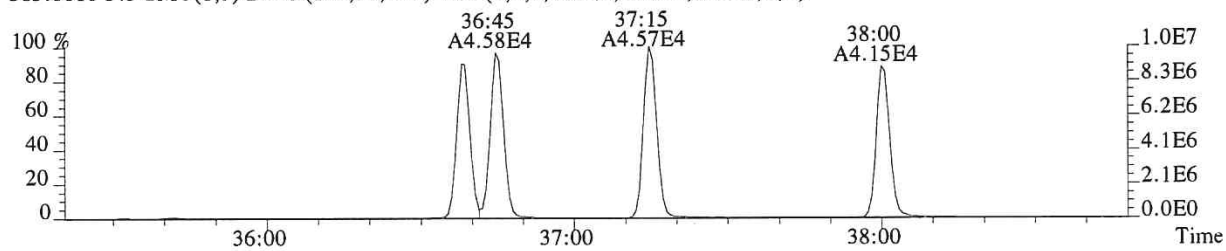
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2852.0,0.40%,F,T)



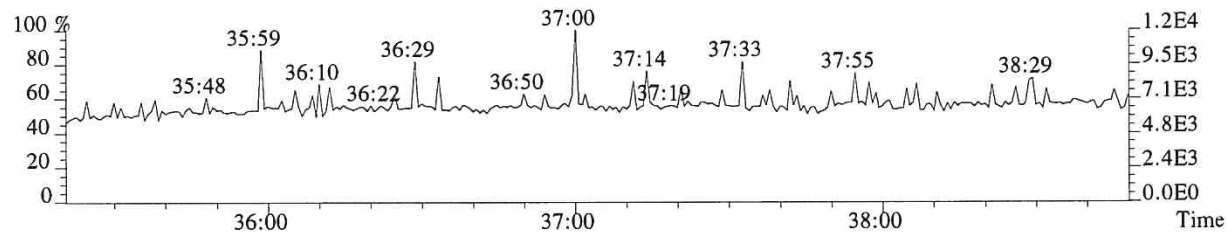
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)



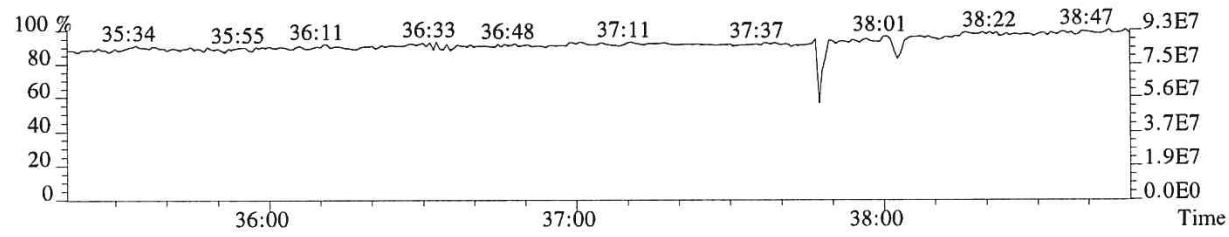
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1716.0,0.40%,F,T)



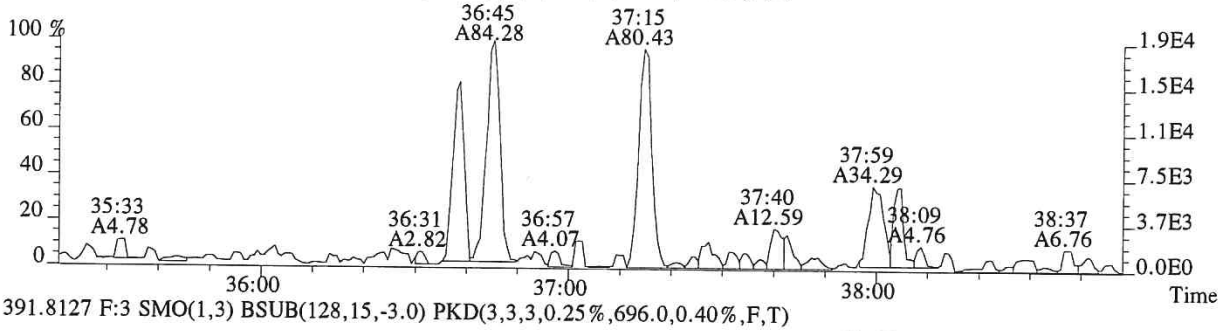
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



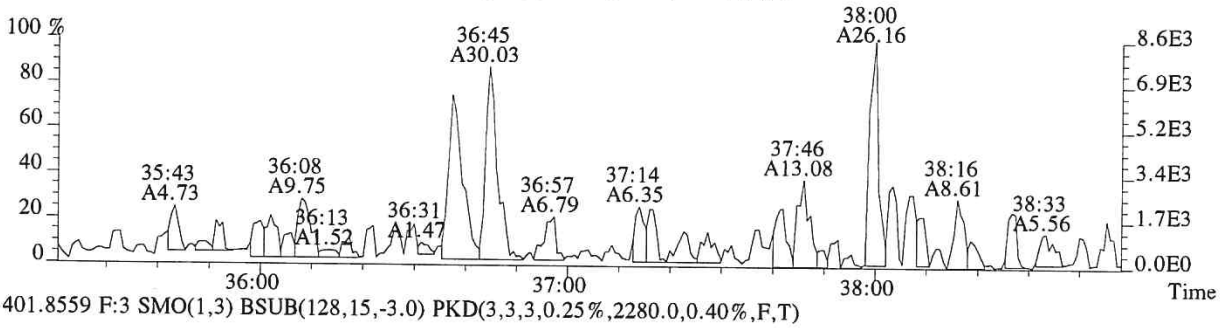
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



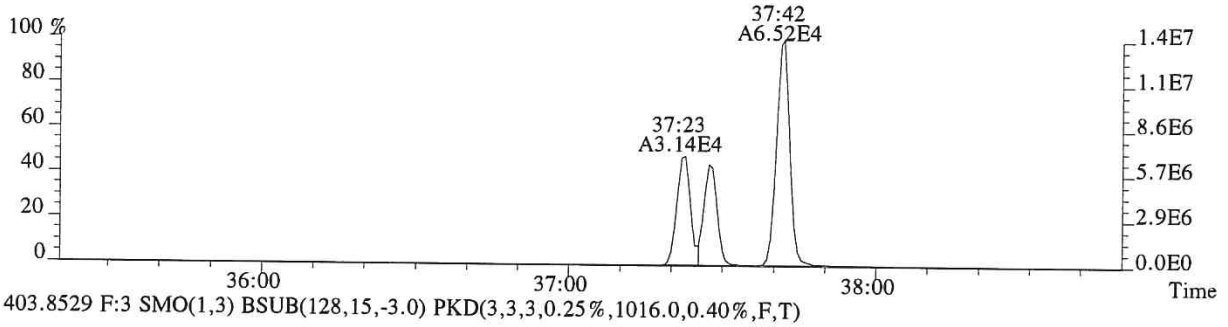
File:P615720 #1-312 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



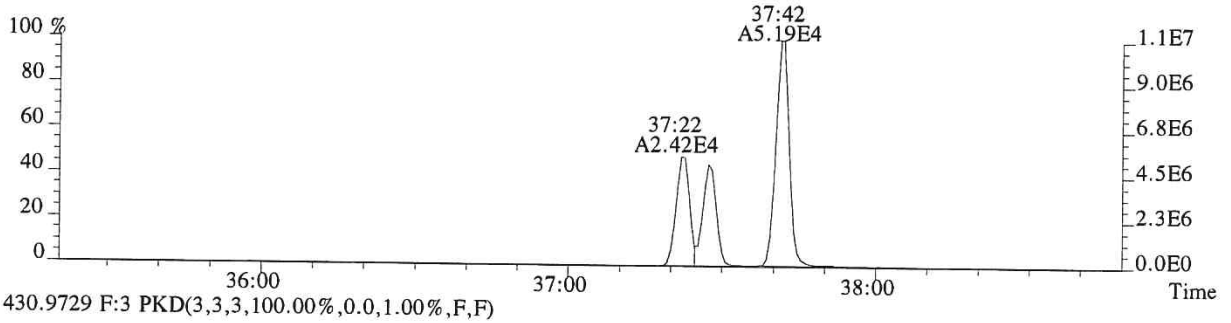
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



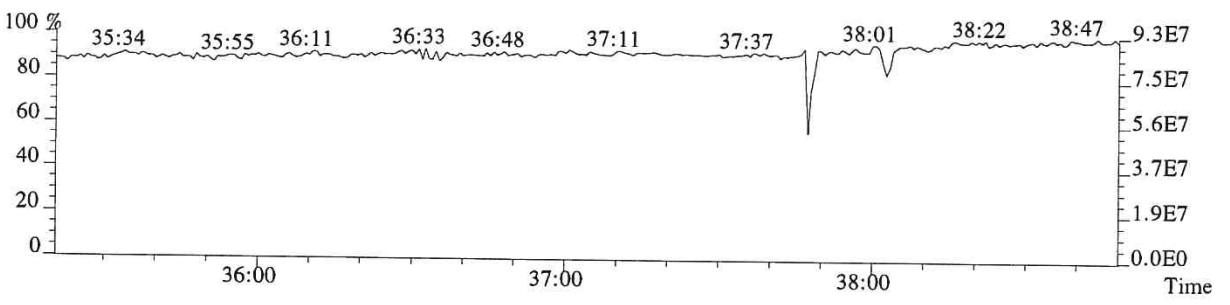
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)

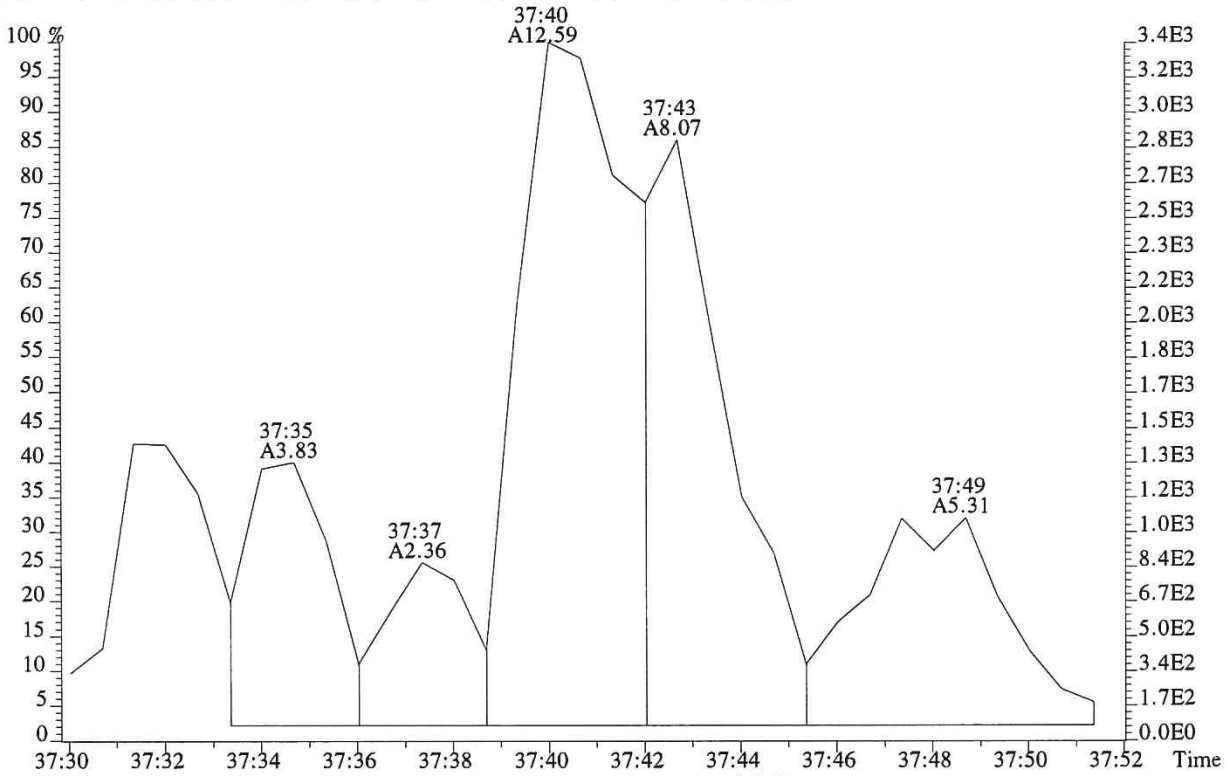


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

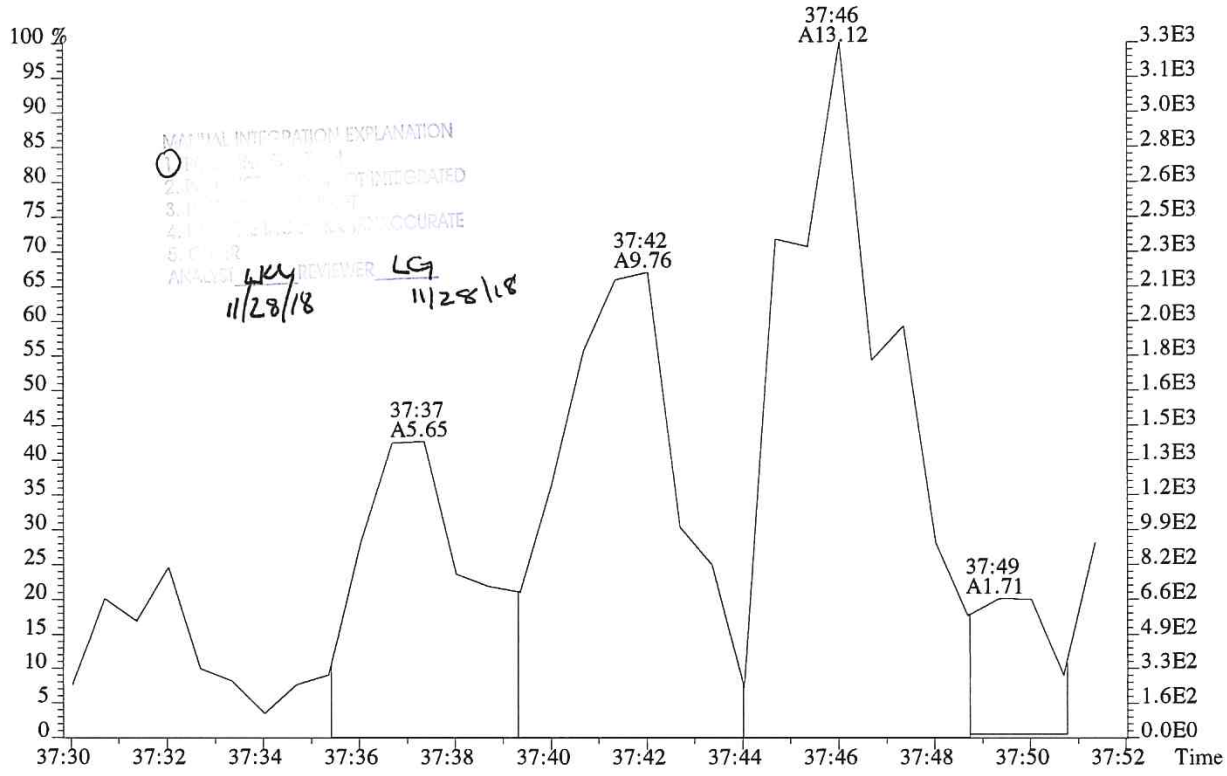


008895

File:P615720 #1-312 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)

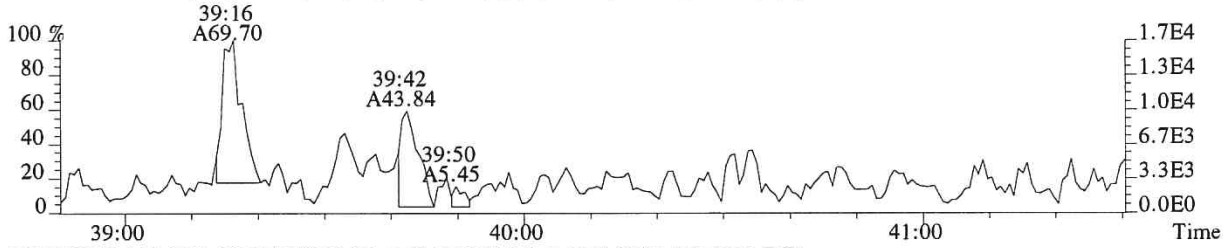


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)

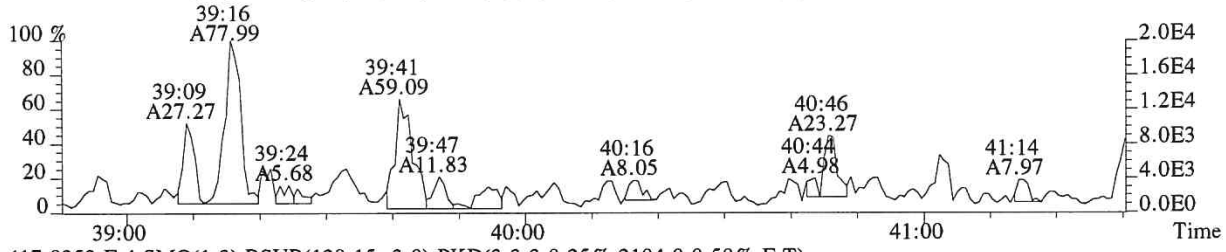


MANUAL INTEGRATION EXPLANATION
INTEGRATED
INCORRECT
INACCURATE
REVIEWER LG
11/28/18
11/28/18

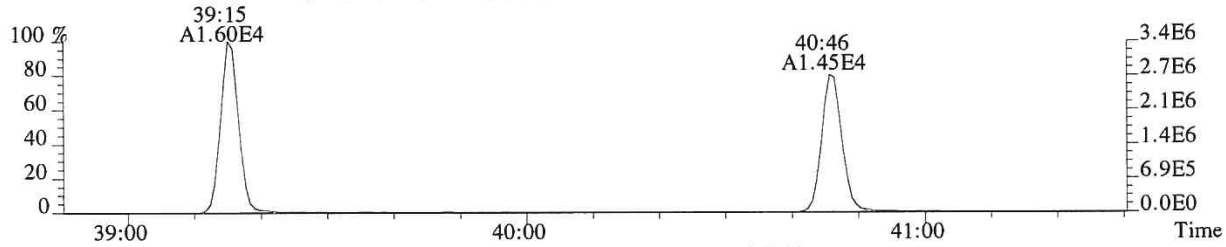
File:P615720 #1-241 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3208.0,0.50%,F,T)



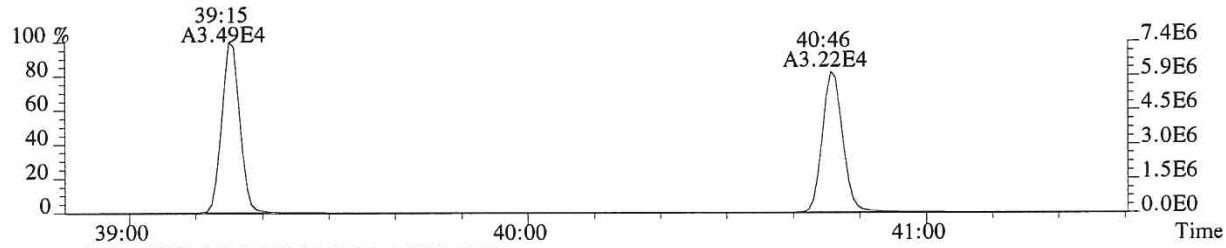
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.50%,F,T)



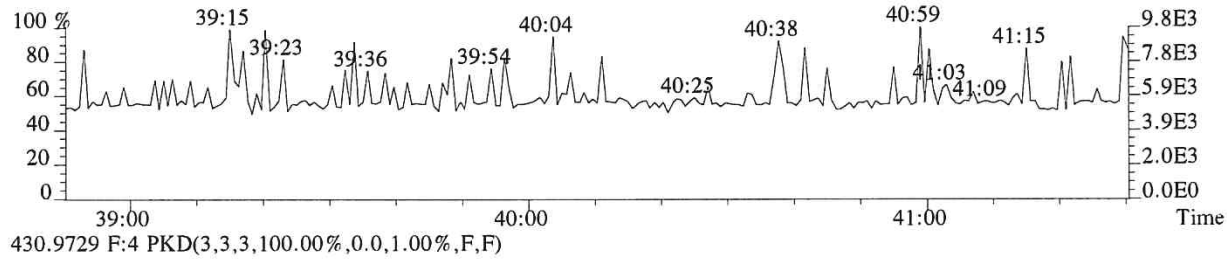
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.50%,F,T)



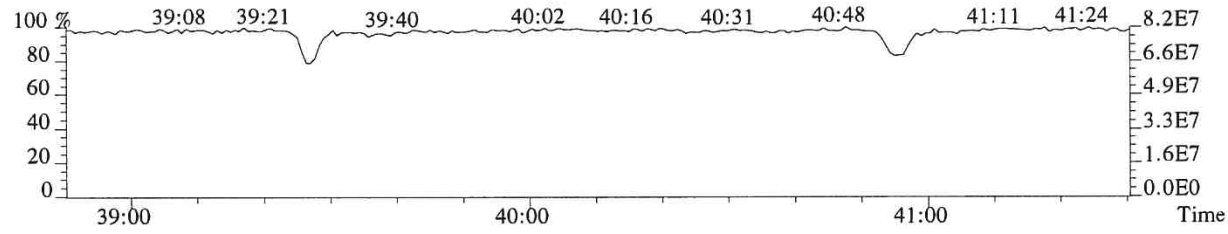
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.50%,F,T)



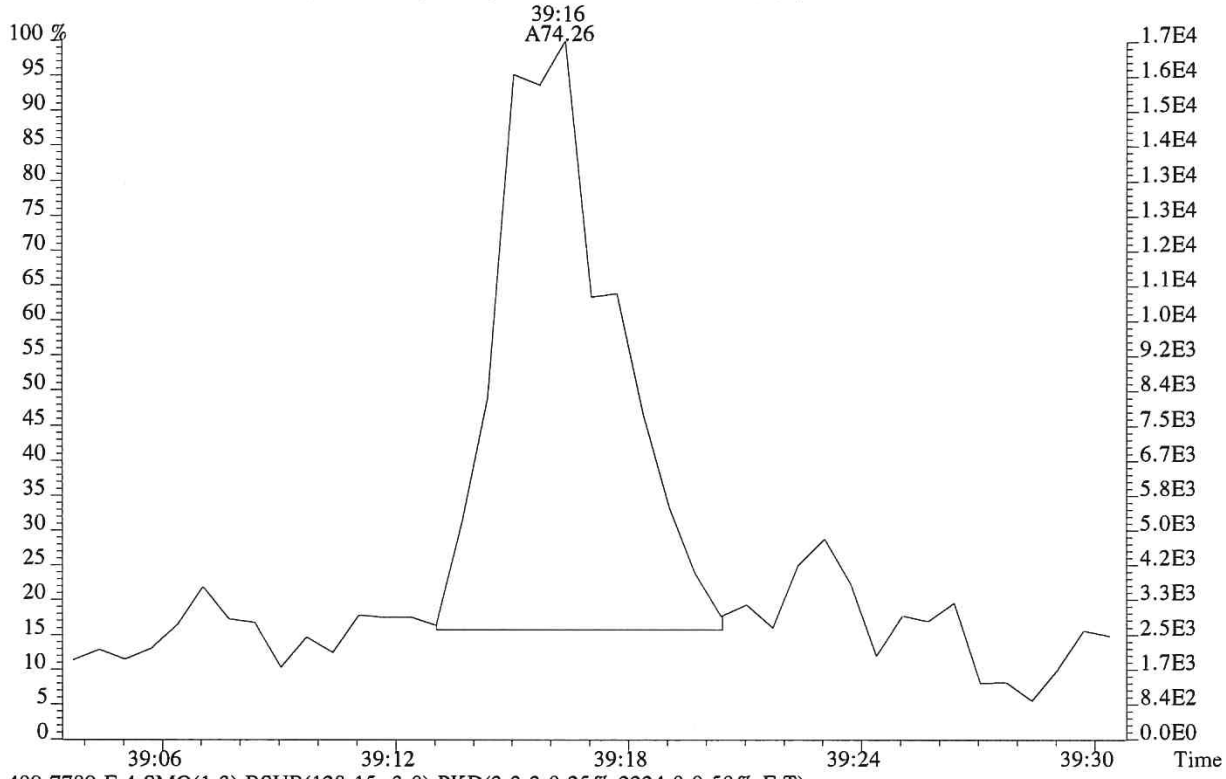
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



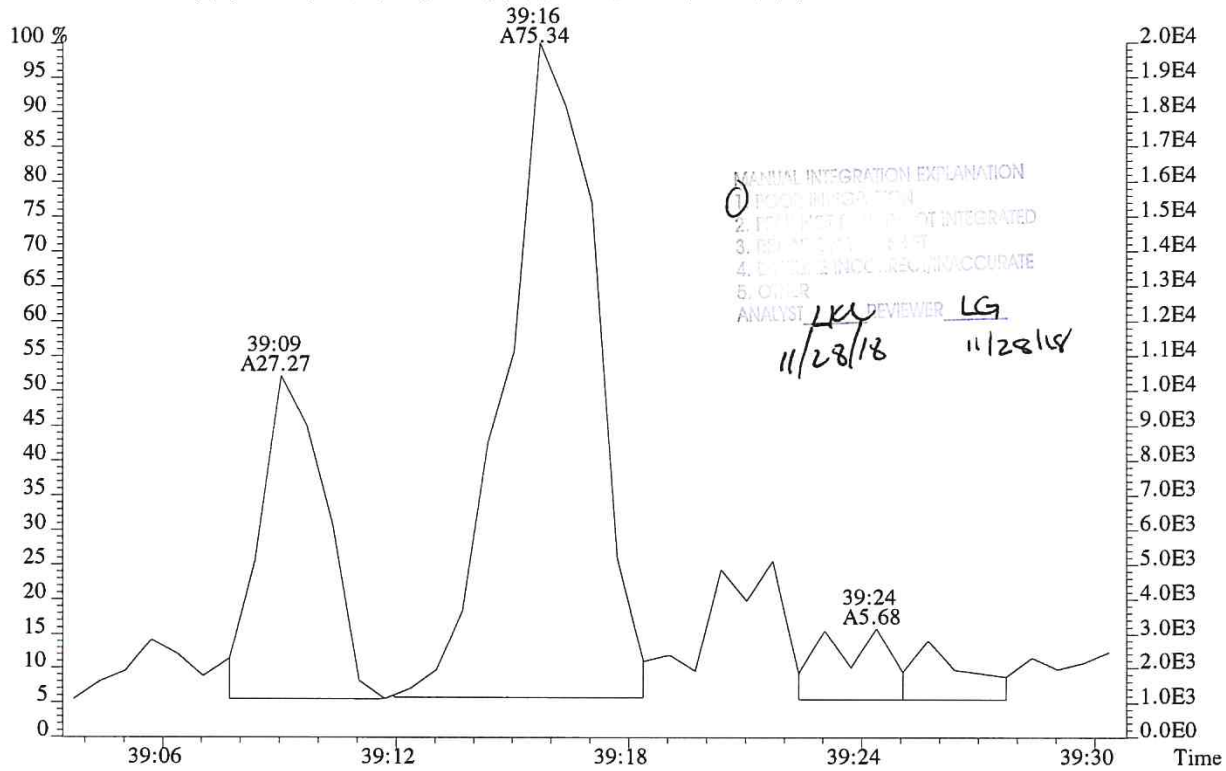
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615720 #1-241 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3208.0,0.50%,F,T)

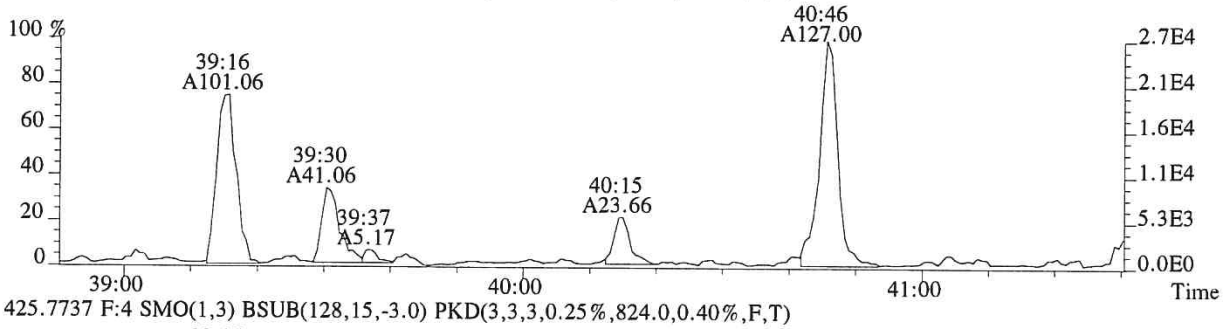


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.50%,F,T)

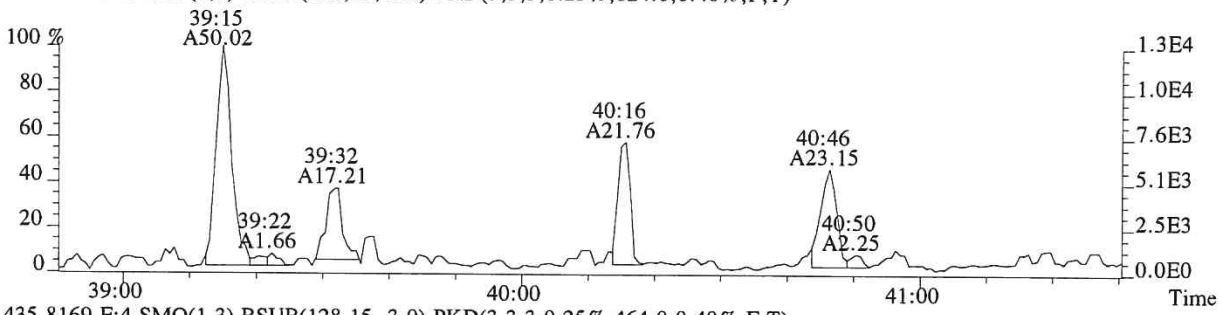


MANUAL INTEGRATION EXPLANATION
0
4. INCORRECT/INACCURATE
5. OTHER
ANALYST LKY 11/28/18 REVIEWER LG 11/28/18

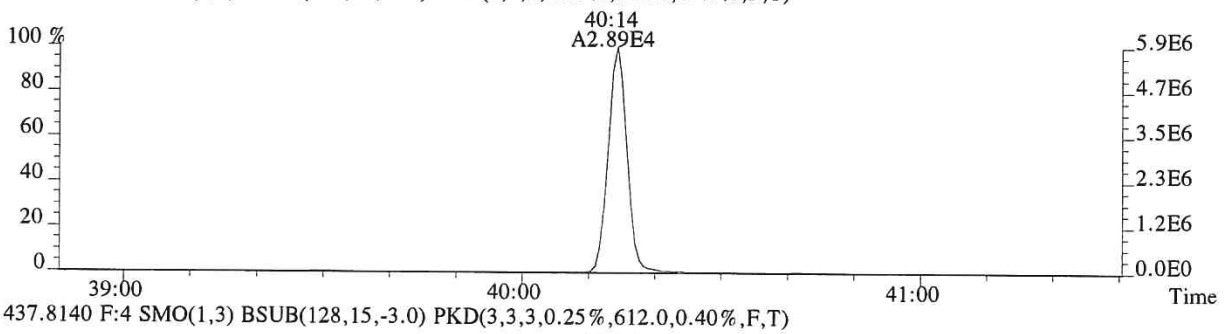
File:P615720 #1-241 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



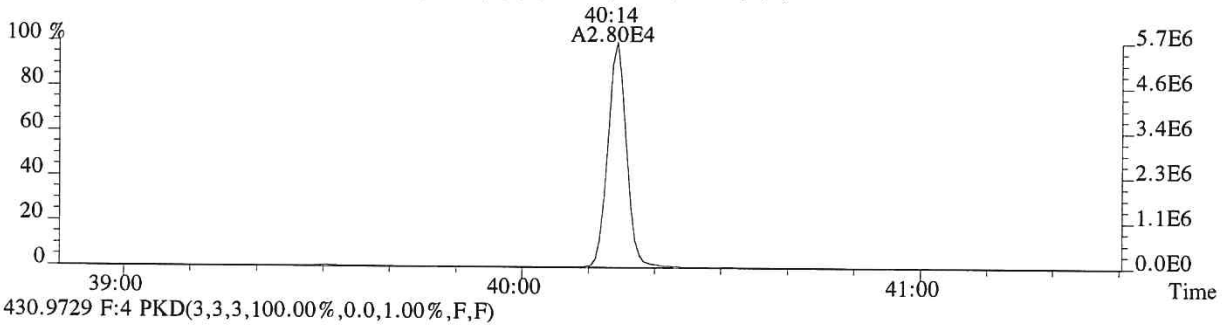
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



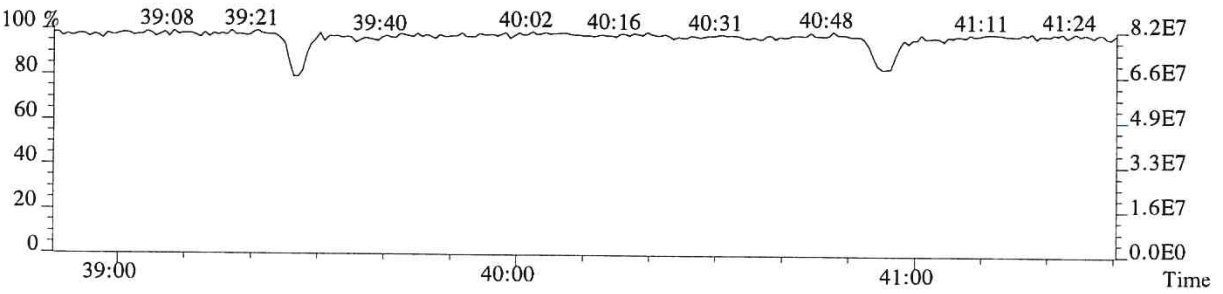
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



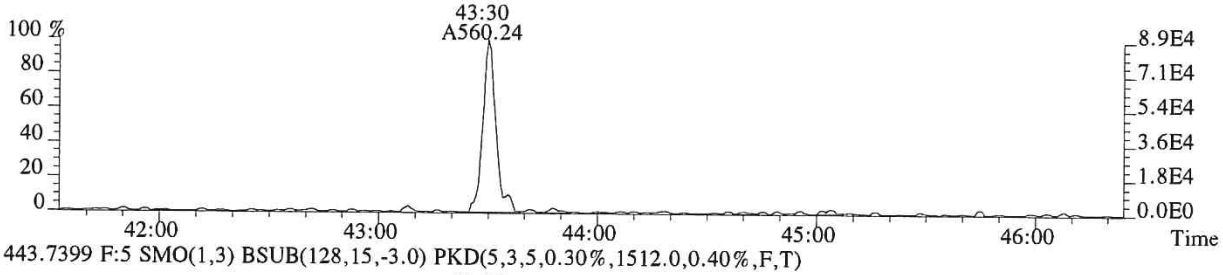
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



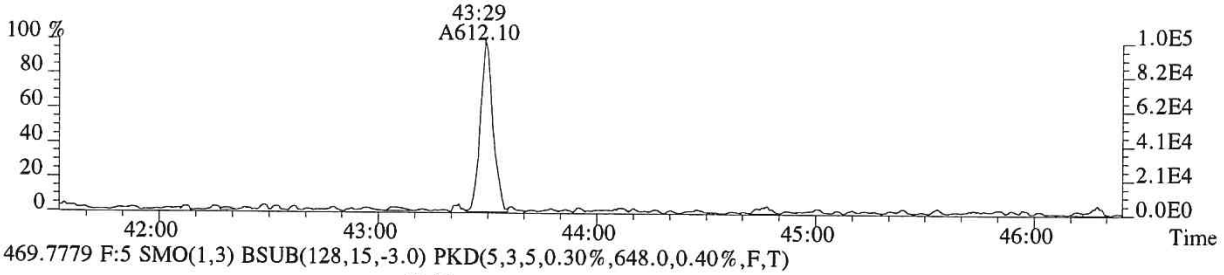
008899

File:P615720 #1-438 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022

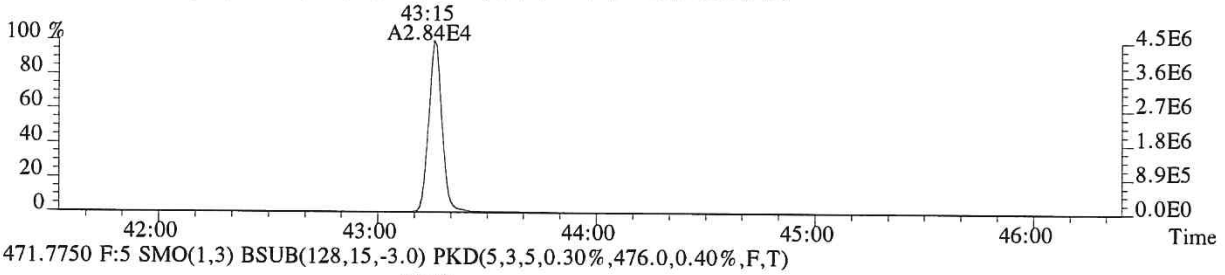
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



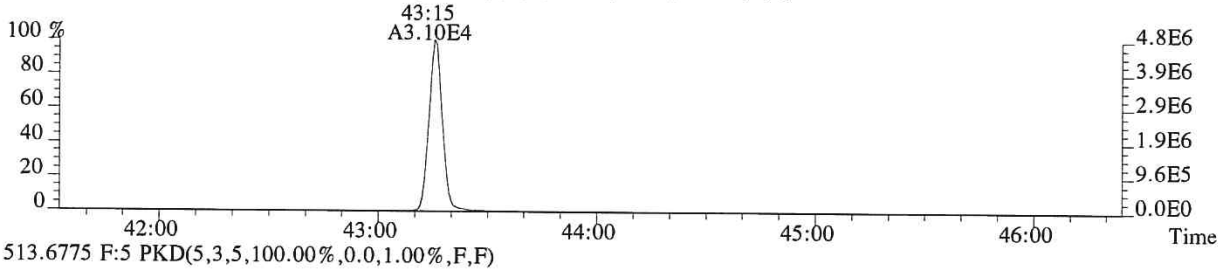
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1512.0,0.40%,F,T)



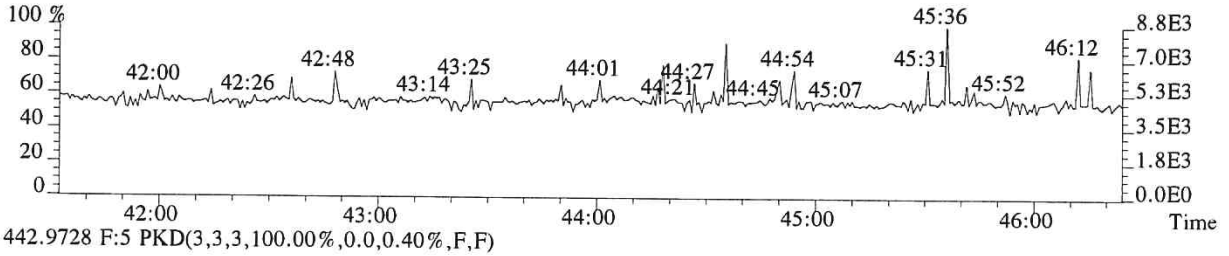
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



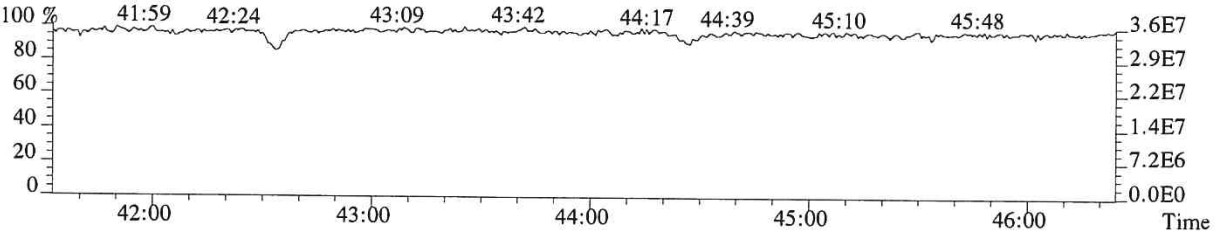
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,476.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

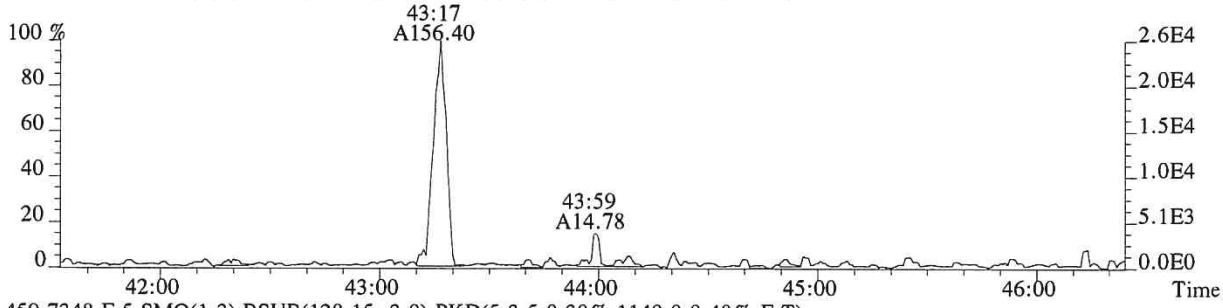


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

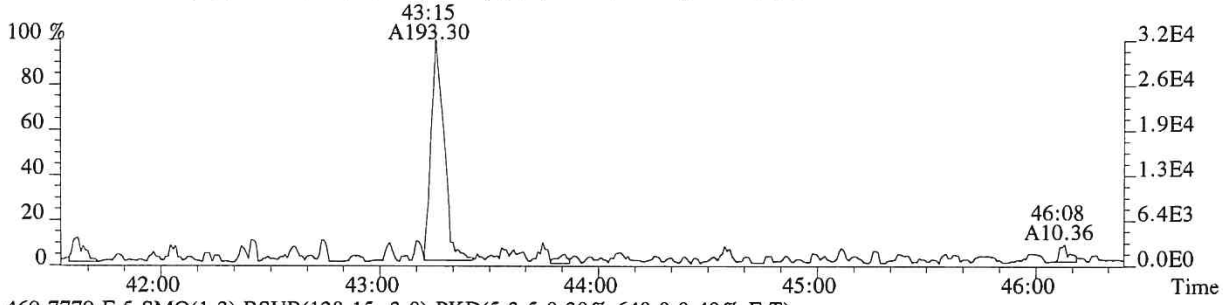


File:P615720 #1-438 Acq:27-NOV-2018 15:07:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801012-022

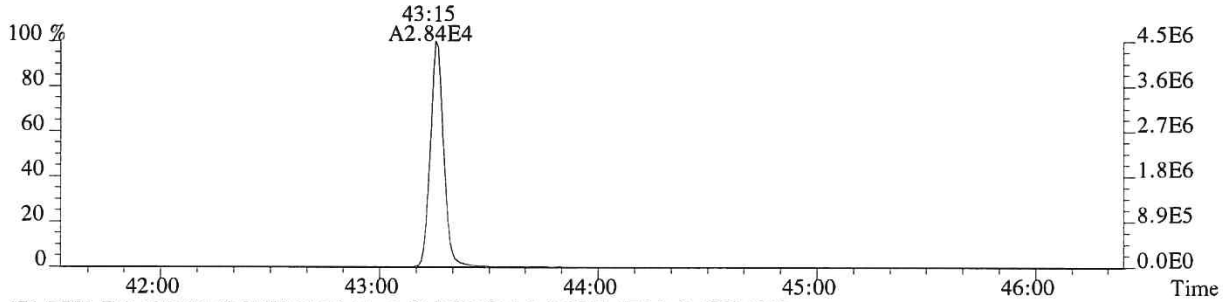
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,480.0,0.40%,F,T)



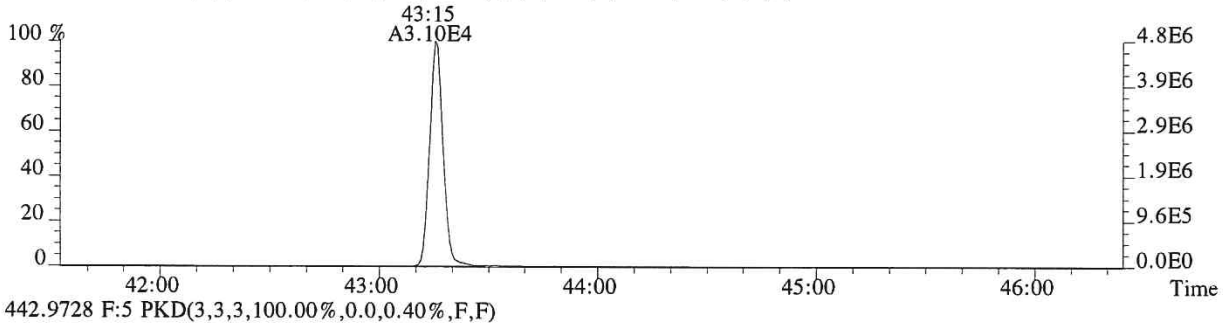
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1140.0,0.40%,F,T)



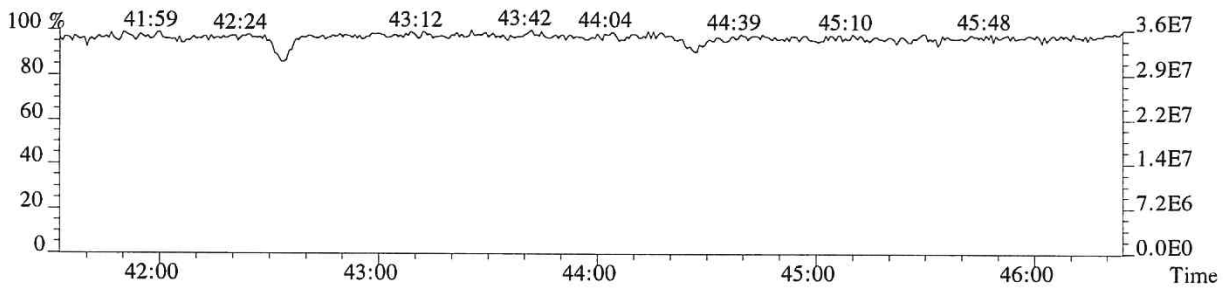
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,476.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P518927 Samp: 1 Inj: 1 Acquired: 19-NOV-18 23:03:59
Processed: 20-NOV-18 10:35:22 Sample ID: EQ1800463-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:30	3.296e+01	1.839e+01	1.79	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:25	1.317e+01	2.229e+01	0.59	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:33	1.506e+01	1.728e+01	0.87	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:51	2.239e+01	1.685e+01	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:11	2.721e+01	1.809e+01	1.50	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:32	8.853e+00	2.723e+01	0.33	no	no	1.258
10	Unk	OCDF	40:47	4.389e+01	4.225e+01	1.04	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:14	1.540e+01	8.725e+00	1.77	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:19	1.495e+01	1.045e+01	1.43	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:33	2.004e+01	1.260e+01	1.59	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:06	1.908e+01	3.028e+01	0.63	no	no	1.025
17	Unk	OCDD	40:37	9.648e+01	1.083e+02	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:23	3.864e+04	5.015e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:28	7.606e+04	4.877e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:30	7.196e+04	4.541e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:25	3.311e+04	6.428e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:31	4.057e+04	7.814e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:04	3.812e+04	7.333e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:51	3.322e+04	6.479e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:10	2.618e+04	5.790e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:31	2.406e+04	5.477e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:25	2.958e+04	3.782e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:50	5.708e+04	3.575e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:13	5.311e+04	3.933e+04	1.35	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:18	5.202e+04	4.347e+04	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:05	5.247e+04	4.949e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	40:37	5.105e+04	5.737e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:41	6.582e+04	8.224e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:33	9.772e+04	7.704e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:27	3.409e+04				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P518927 Samp: 1 Inj: 1 Acquired: 19-NOV-18 23:03:59
Processed: 20-NOV-18 10:35:22 LAB. ID: EQ1800463-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.20e+02	*	*	8.60e+02	*
2	1,2,3,7,8-PeCDF	7.83e+03	7.52e+02	1.0e+01	4.91e+03	8.92e+02	5.5e+00
3	2,3,4,7,8-PeCDF	*	7.52e+02	*	*	8.92e+02	*
4	1,2,3,4,7,8-HxCDF	3.26e+03	3.92e+02	8.3e+00	4.21e+03	7.40e+02	5.7e+00
5	1,2,3,6,7,8-HxCDF	3.13e+03	3.92e+02	8.0e+00	3.12e+03	7.40e+02	4.2e+00
6	2,3,4,6,7,8-HxCDF	*	3.92e+02	*	*	7.40e+02	*
7	1,2,3,7,8,9-HxCDF	5.01e+03	3.92e+02	1.3e+01	3.90e+03	7.40e+02	5.3e+00
8	1,2,3,4,6,7,8-HpCDF	4.21e+03	3.36e+02	1.3e+01	4.61e+03	3.76e+02	1.2e+01
9	1,2,3,4,7,8,9-HpCDF	1.70e+03	3.36e+02	5.1e+00	6.92e+03	3.76e+02	1.8e+01
10	OCDF	8.54e+03	1.40e+02	6.1e+01	7.41e+03	8.36e+02	8.9e+00
11	2,3,7,8-TCDD	*	1.95e+03	*	*	8.16e+02	*
12	1,2,3,7,8-PeCDD	*	8.00e+02	*	*	1.44e+02	*
13	1,2,3,4,7,8-HxCDD	2.84e+03	3.44e+02	8.3e+00	2.30e+03	4.84e+02	4.7e+00
14	1,2,3,6,7,8-HxCDD	4.35e+03	3.44e+02	1.3e+01	2.12e+03	4.84e+02	4.4e+00
15	1,2,3,7,8,9-HxCDD	5.31e+03	3.44e+02	1.5e+01	2.70e+03	4.84e+02	5.6e+00
16	1,2,3,4,6,7,8-HpCDD	3.78e+03	2.64e+02	1.4e+01	5.45e+03	2.84e+02	1.9e+01
17	OCDD	1.54e+04	3.04e+02	5.1e+01	1.66e+04	5.68e+02	2.9e+01
18	13C-2,3,7,8-TCDF	4.96e+06	5.25e+03	9.4e+02	6.29e+06	2.42e+03	2.6e+03
19	13C-1,2,3,7,8-PeCDF	1.19e+07	1.11e+03	1.1e+04	7.74e+06	1.09e+03	7.1e+03
20	13C-2,3,4,7,8-PeCDF	1.23e+07	1.11e+03	1.1e+04	7.71e+06	1.09e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	6.63e+06	8.52e+02	7.8e+03	1.26e+07	1.40e+03	9.0e+03
22	13C-1,2,3,6,7,8-HxCDF	7.41e+06	8.52e+02	8.7e+03	1.44e+07	1.40e+03	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	7.55e+06	8.52e+02	8.9e+03	1.43e+07	1.40e+03	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	6.02e+06	8.52e+02	7.1e+03	1.16e+07	1.40e+03	8.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.32e+06	5.17e+03	1.0e+03	1.17e+07	5.43e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.59e+06	5.17e+03	8.9e+02	1.02e+07	5.43e+03	1.9e+03
27	13C-2,3,7,8-TCDD	4.32e+06	5.87e+03	7.4e+02	5.34e+06	2.17e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	9.40e+06	5.20e+02	1.8e+04	5.86e+06	7.80e+02	7.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.10e+07	1.39e+03	7.9e+03	8.55e+06	3.24e+02	2.6e+04
30	13C-1,2,3,6,7,8-HxCDD	9.80e+06	1.39e+03	7.1e+03	7.93e+06	3.24e+02	2.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	9.85e+06	5.24e+02	1.9e+04	9.35e+06	7.64e+02	1.2e+04
32	13C-OCDD	8.54e+06	1.64e+02	5.2e+04	9.47e+06	3.60e+02	2.6e+04
33	13C-1,2,3,4-TCDD	9.33e+06	5.87e+03	1.6e+03	1.17e+07	2.17e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.72e+07	1.39e+03	1.2e+04	1.37e+07	3.24e+02	4.2e+04
35	37Cl-2,3,7,8-TCDD	4.86e+06	1.36e+03	3.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.948e{+}03 + 8.160e{+}02) \times 2000}{(4.321e{+}06 + 5.338e{+}06) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P518927 Sample:1 Injection:1 Function:3

Acquired: 19-NOV-18 23:03:59 Processed: 20-NOV-18 10:35:22

Mass: 373.8210 375.8180 Tot Response: 3.92e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:51	2.24e+01	1.68e+01 1.33	yes	3.92e+01	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P518927 Sample:1 Injection:1 Function:4

Acquired: 19-NOV-18 23:03:59 Processed: 20-NOV-18 10:35:22

Mass: 423.7770 425.7740 Tot Response: 7.23e+01 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:27	3.66e+01	3.57e+01 1.03	yes	7.23e+01		n	n

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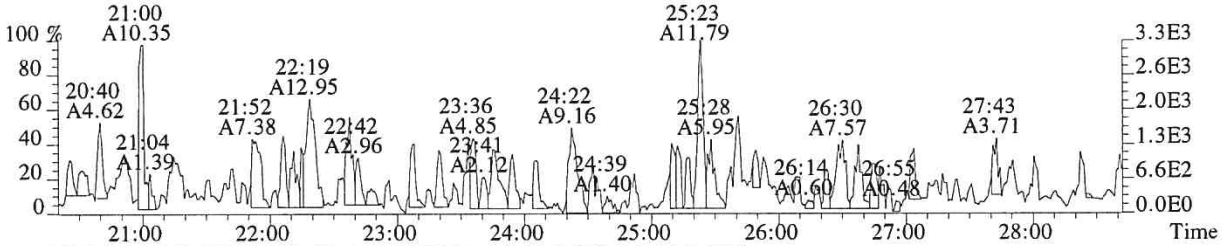
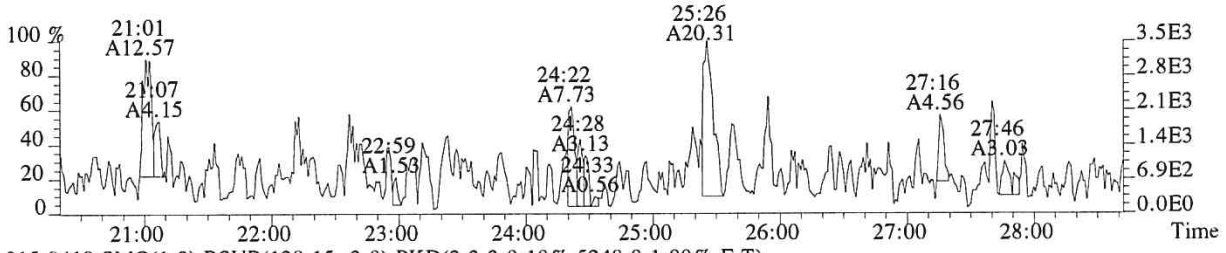
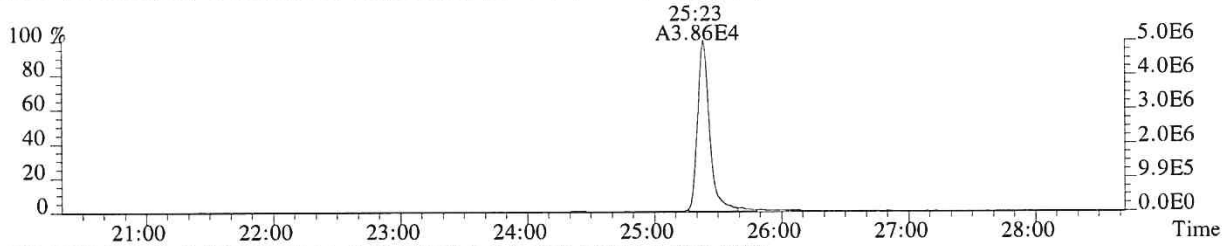
File:P518927 #1-594 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



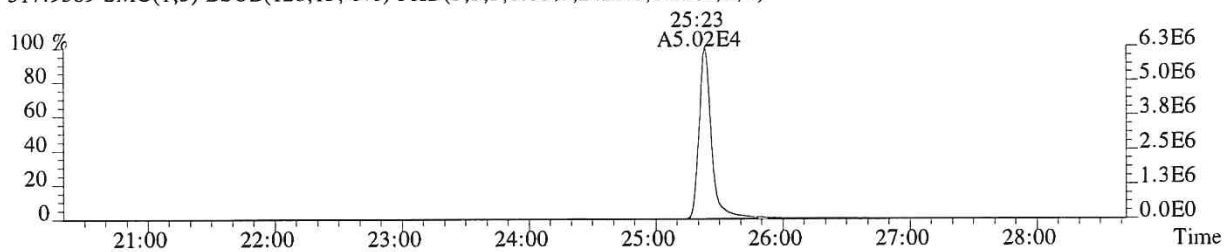
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



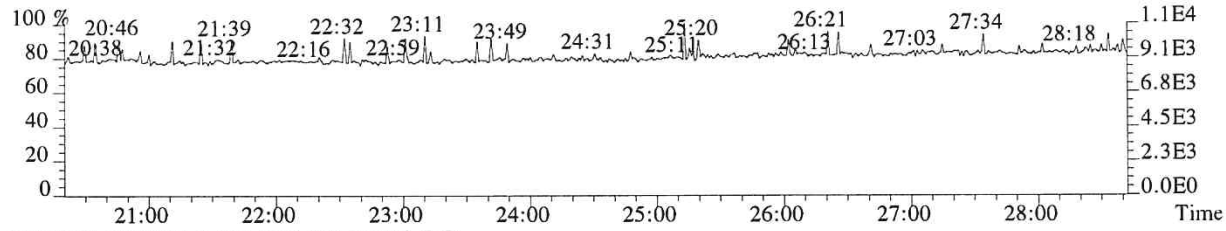
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5248.0,1.00%,F,T)



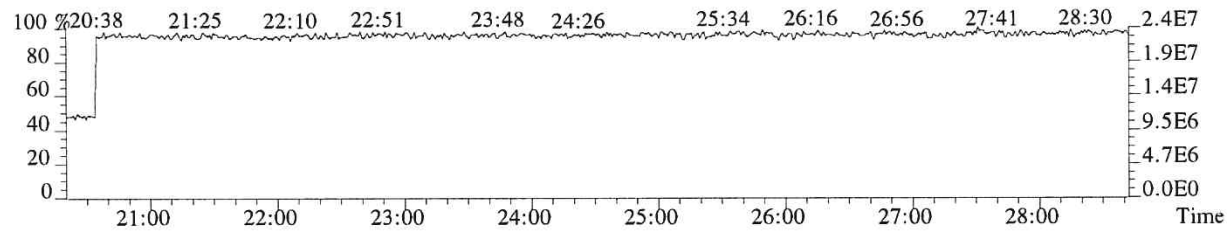
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2420.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

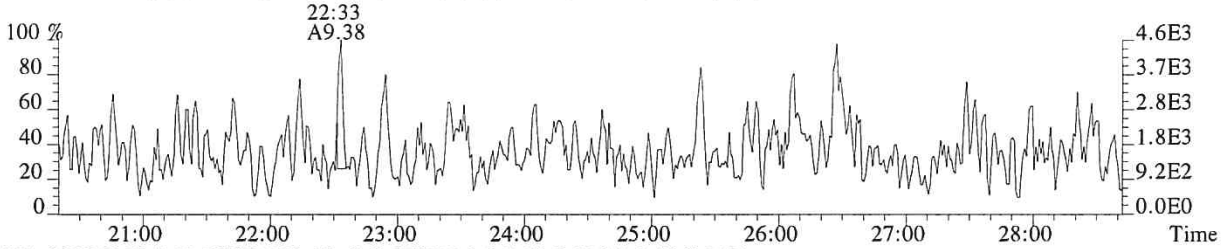


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

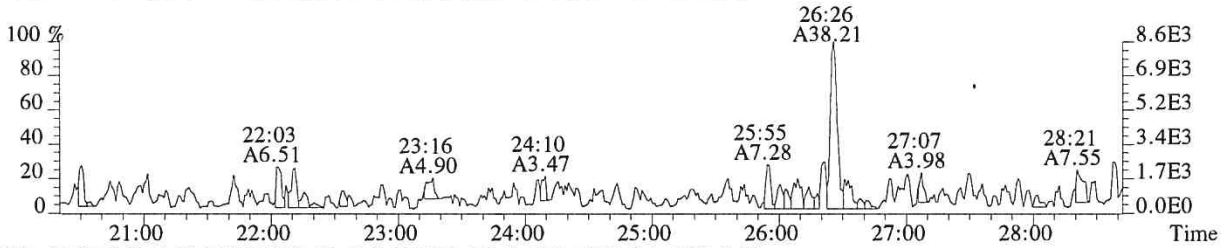


008906

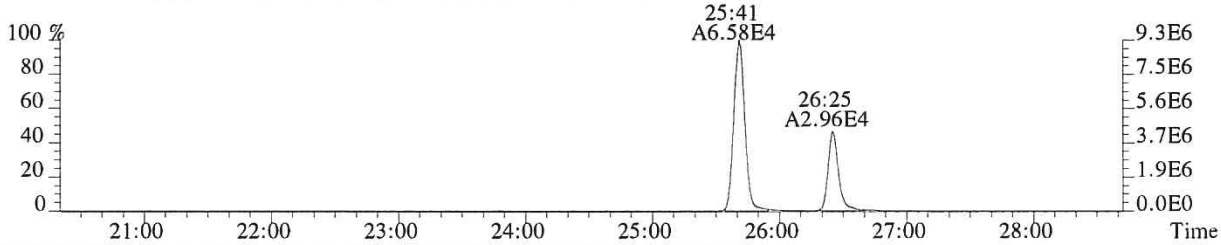
File:P518927 #1-594 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



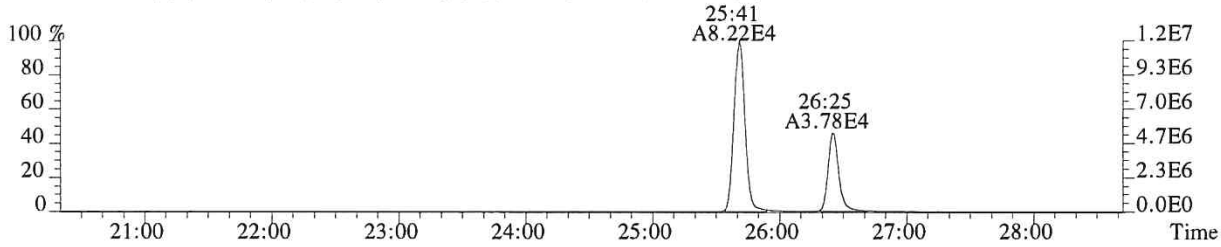
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



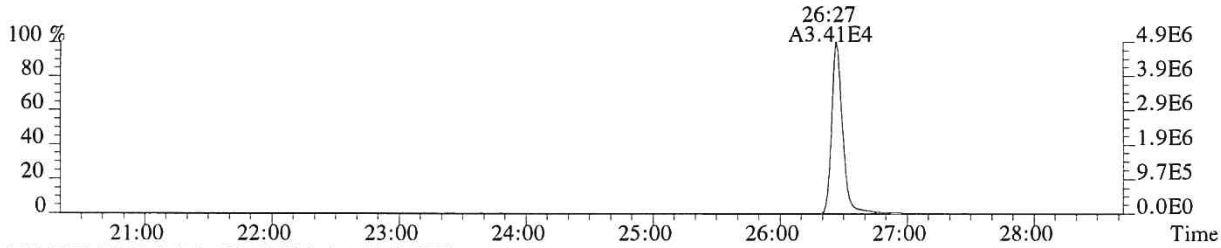
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5868.0,1.00%,F,T)



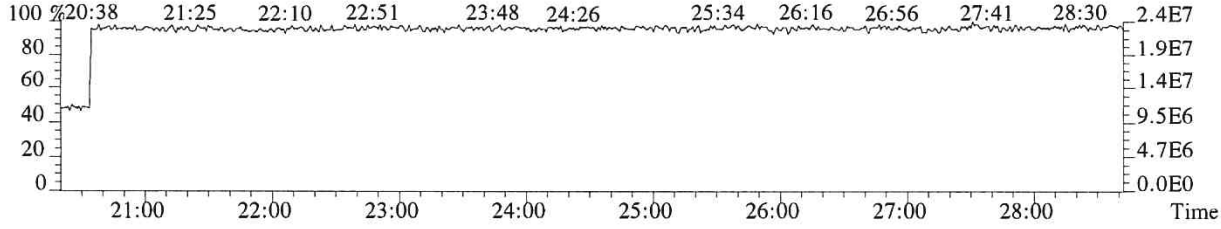
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)

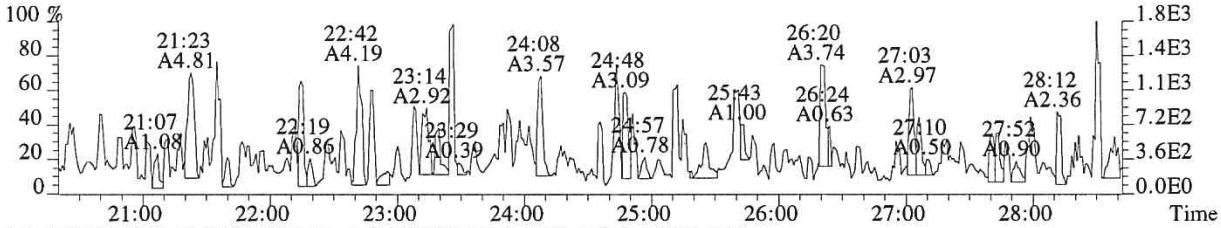


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

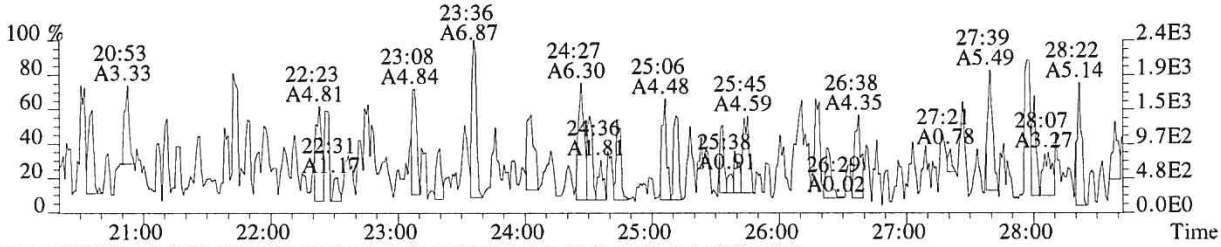


008907

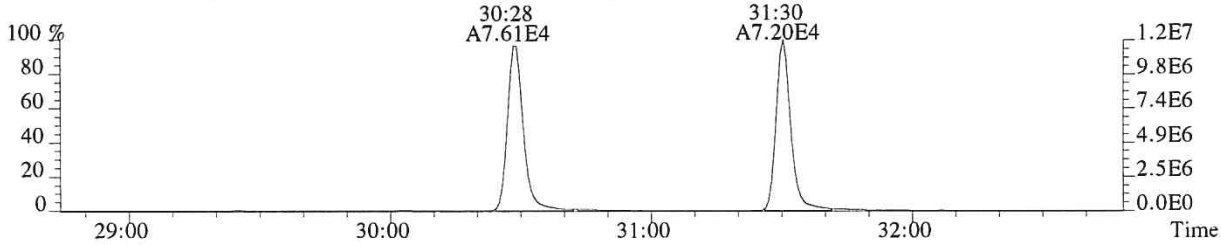
File:P518927 #1-594 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



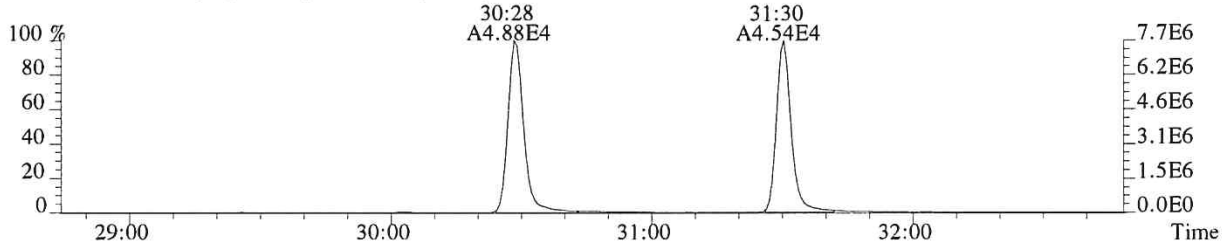
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



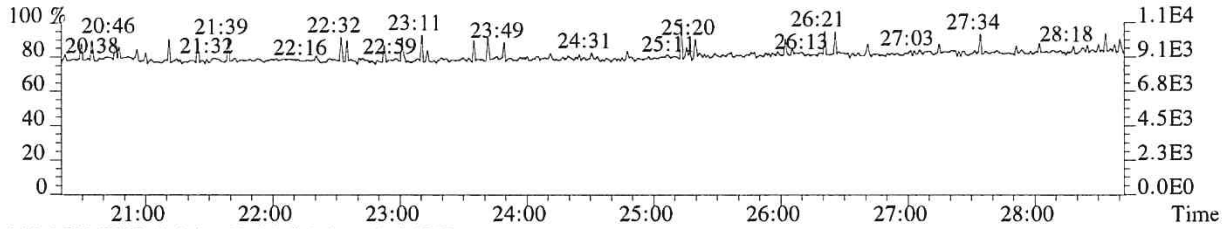
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



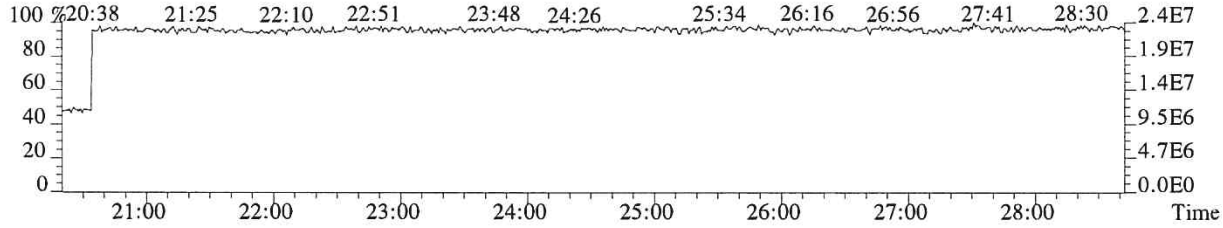
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

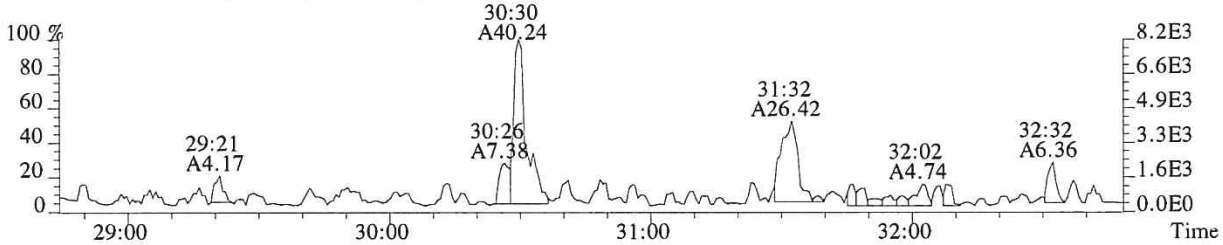


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

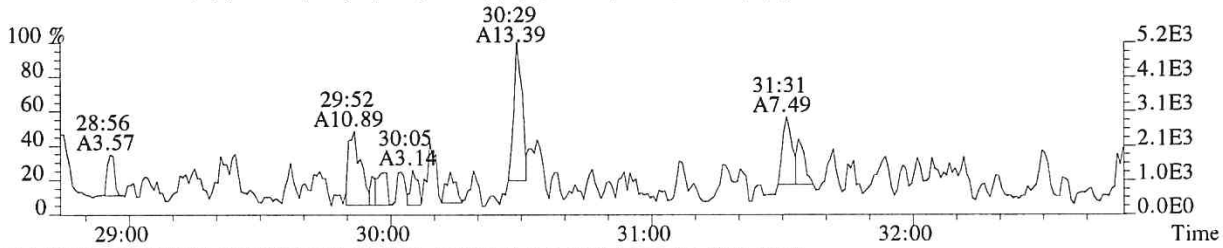


008908

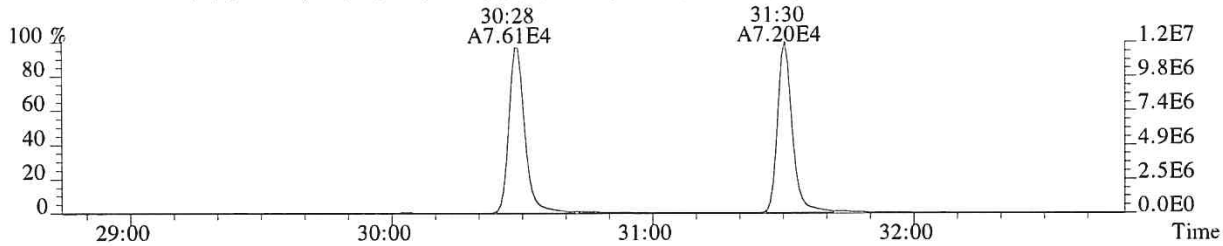
File:P518927 #1-367 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



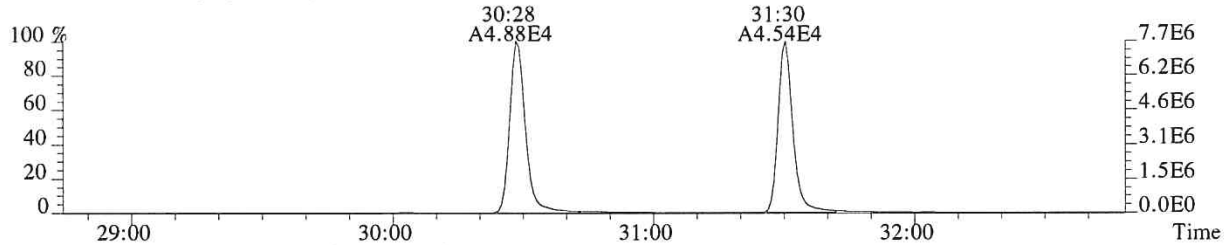
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



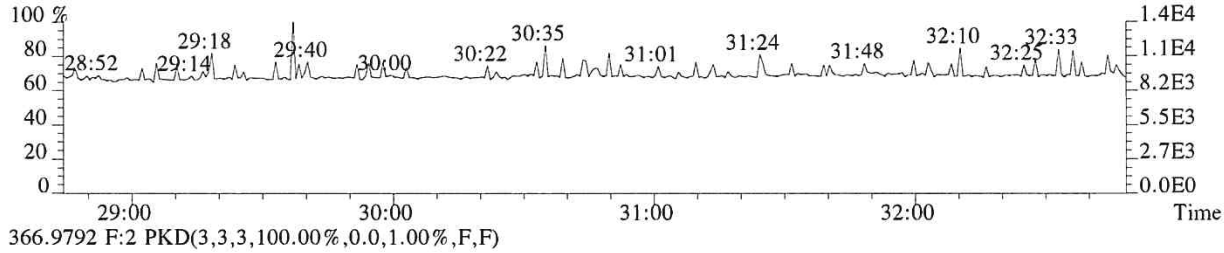
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



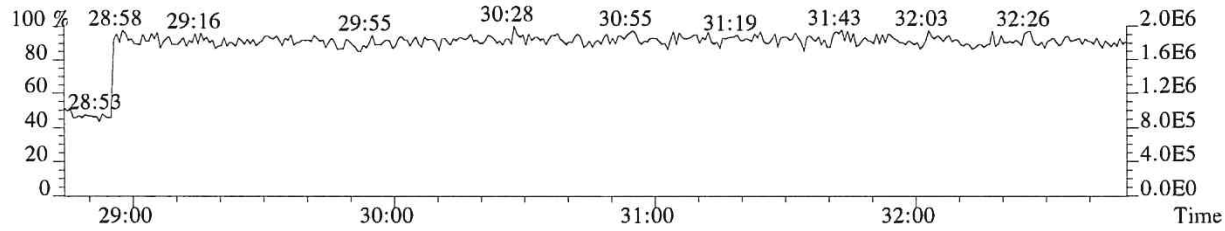
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

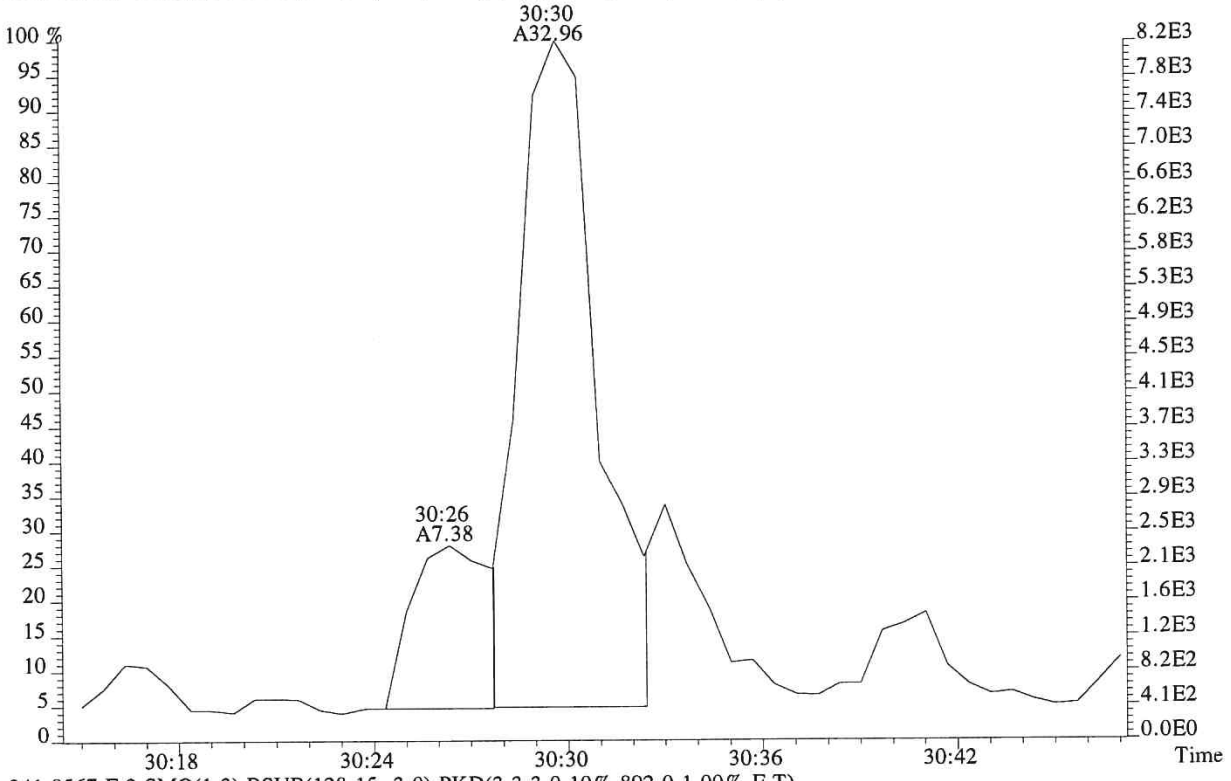


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

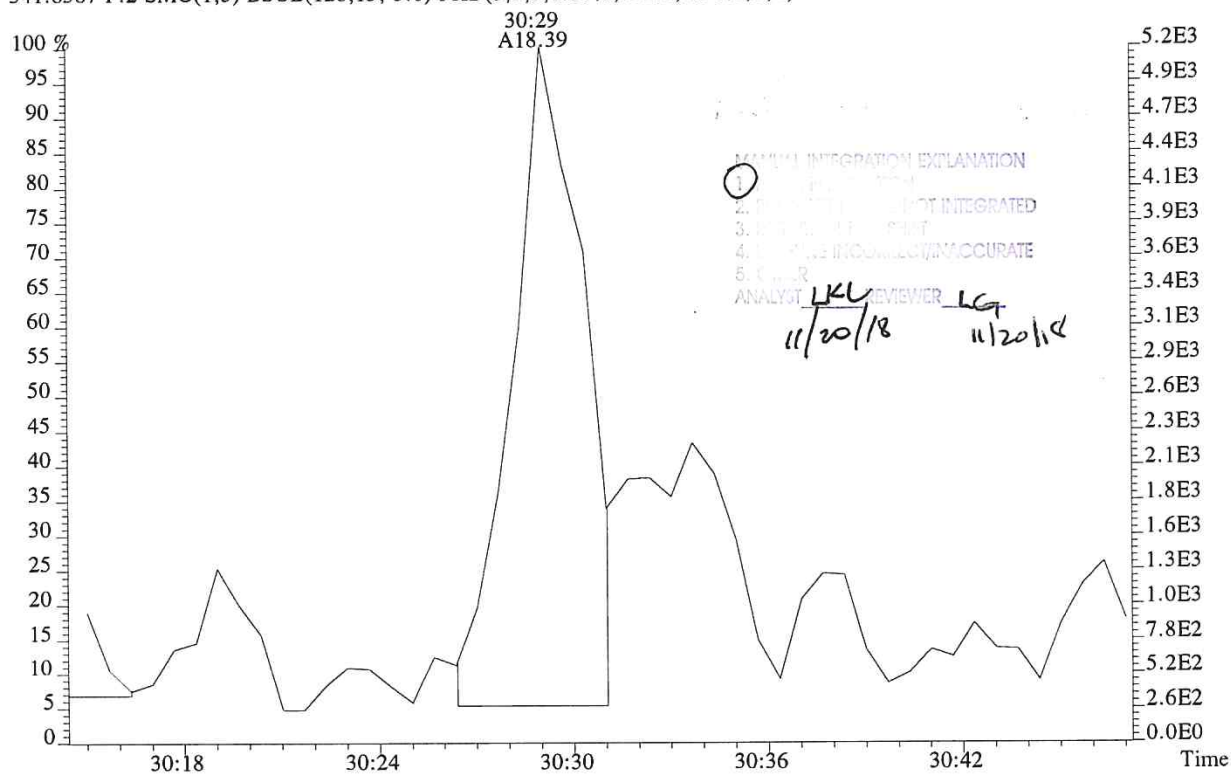


008909

File:P518927 #1-367 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)

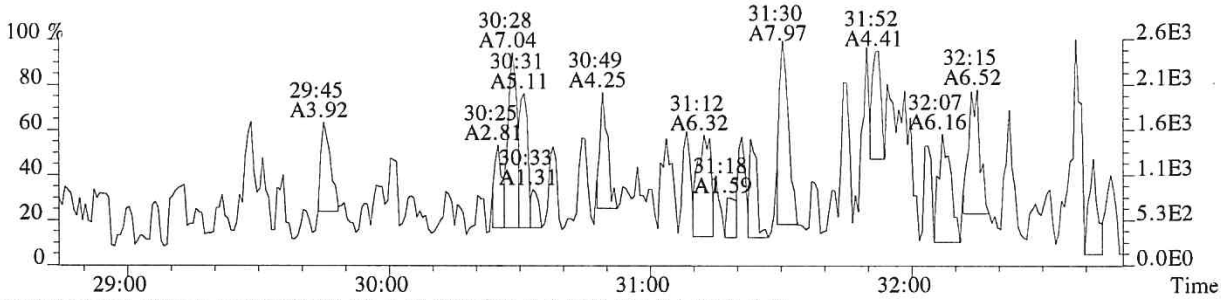


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)

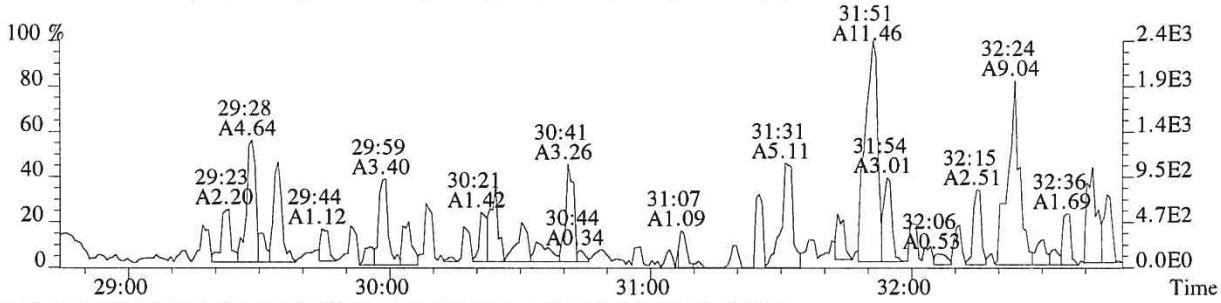


MANUAL INTEGRATION EXPLANATION
1
2. [illegible] NOT INTEGRATED
3. [illegible]
4. [illegible] INCONSISTENT/INACCURATE
5. [illegible]R
ANALYST LKL REVIEWER LG
11/20/18 11/20/18

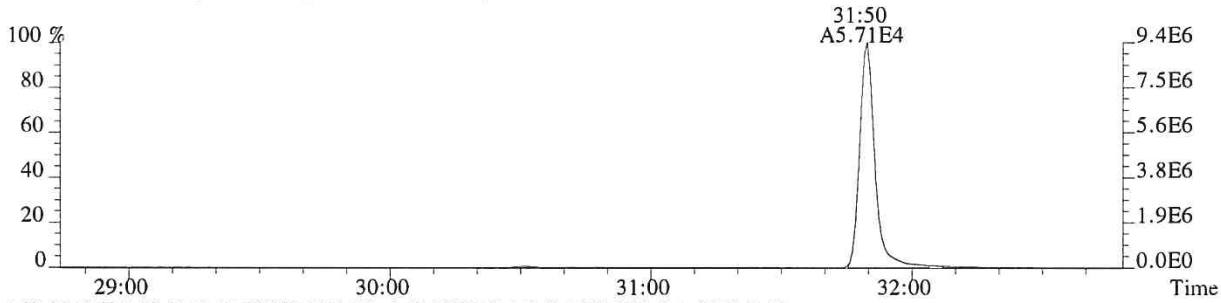
File:P518927 #1-367 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



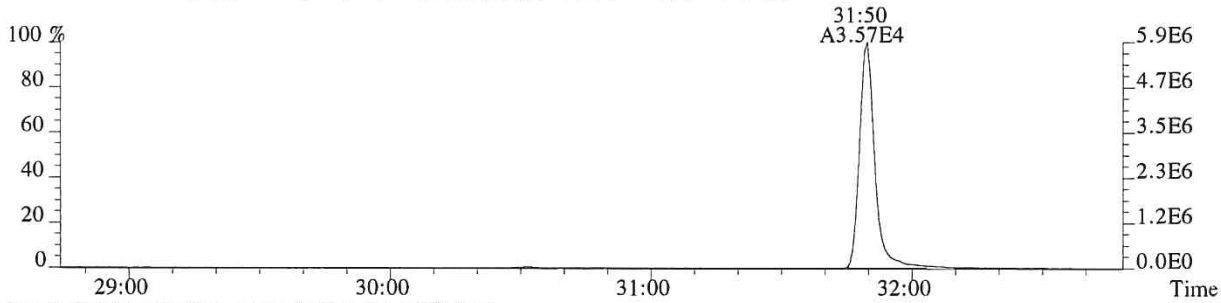
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



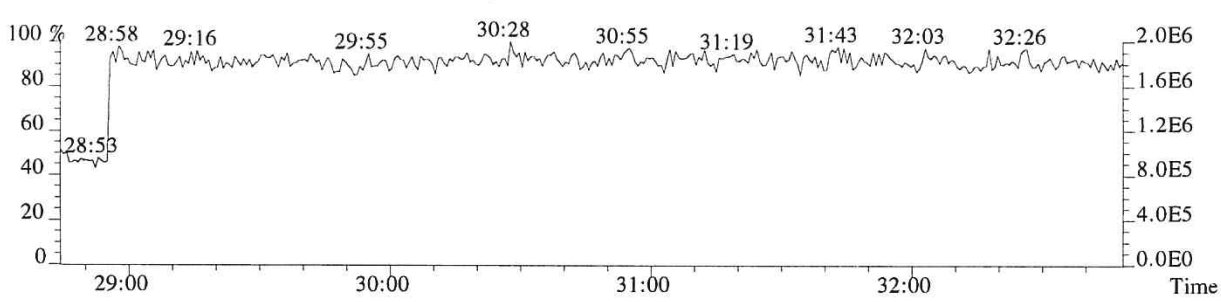
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



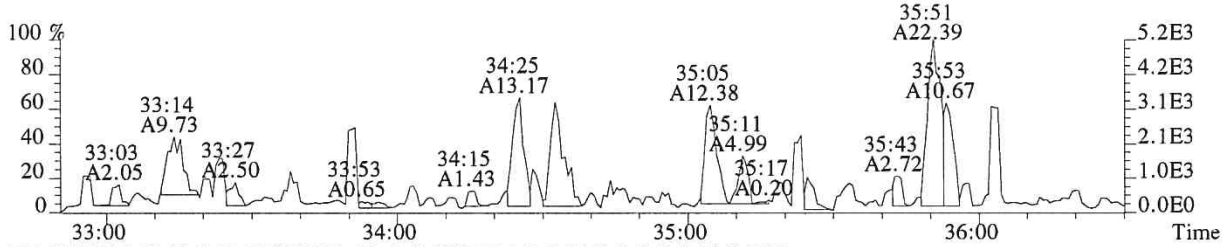
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



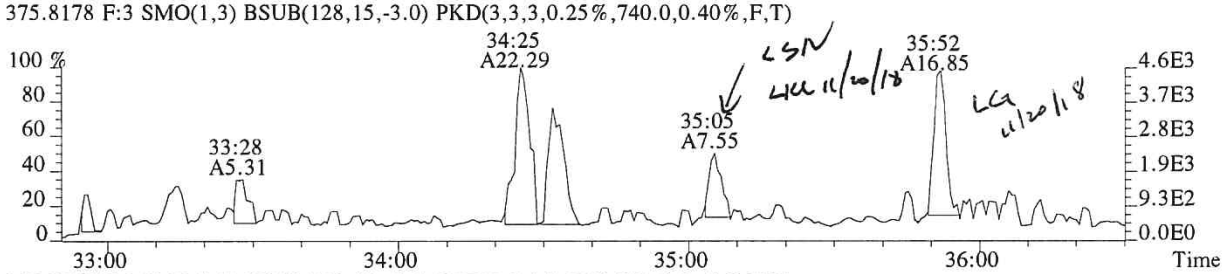
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



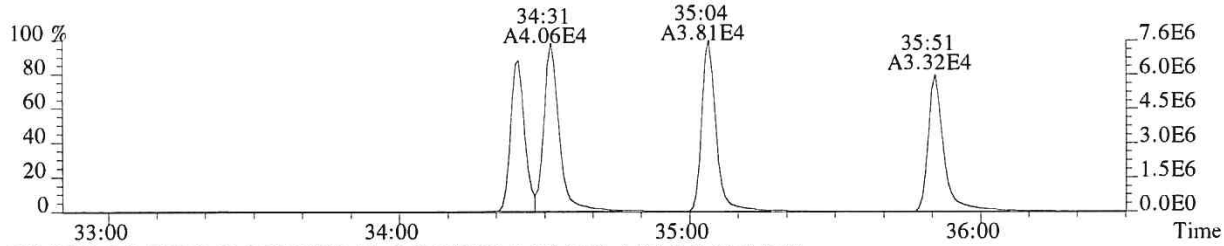
File:P518927 #1-330 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



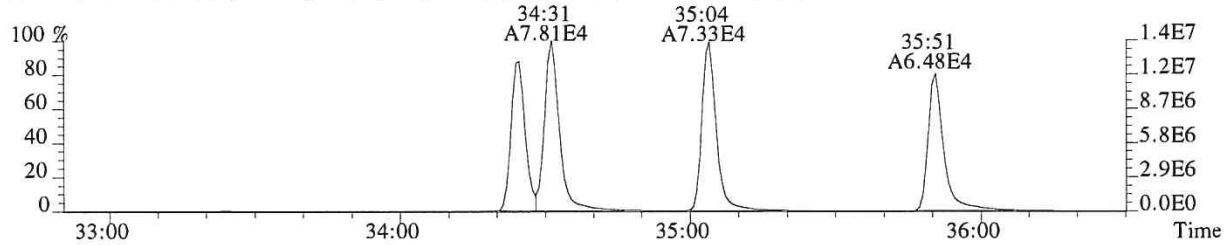
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



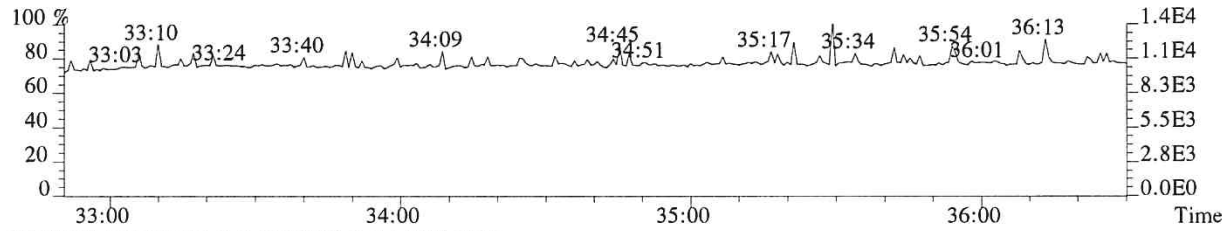
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



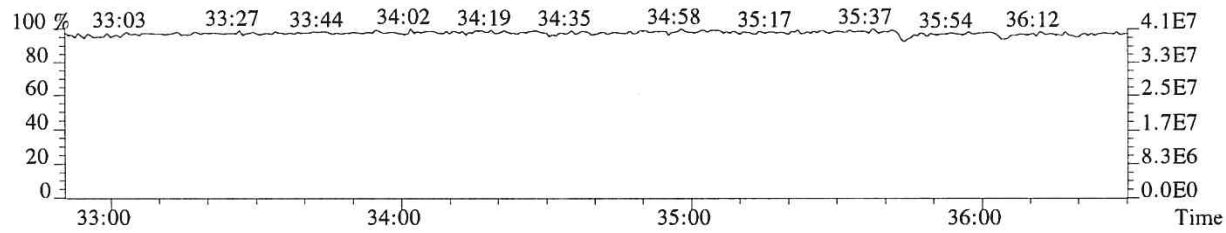
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

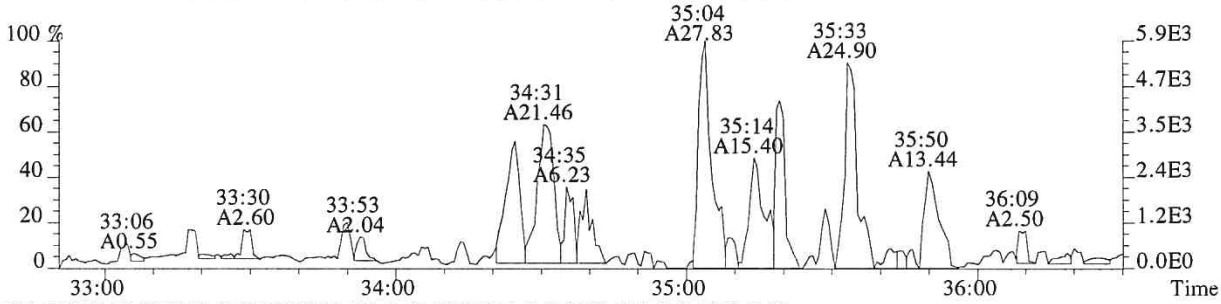


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

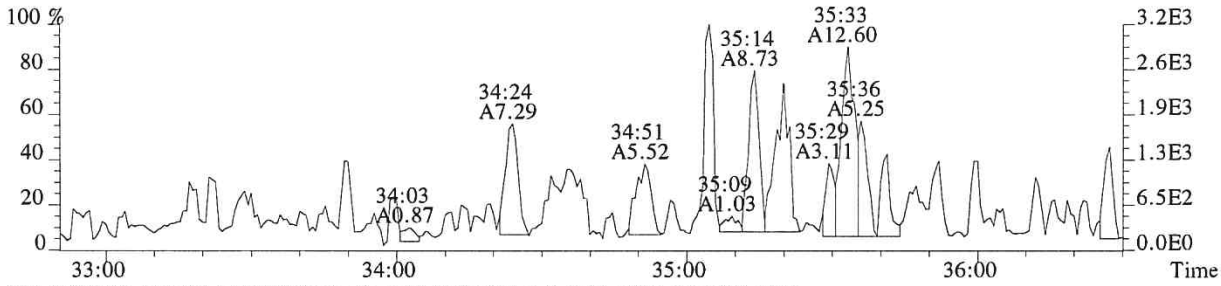


008912

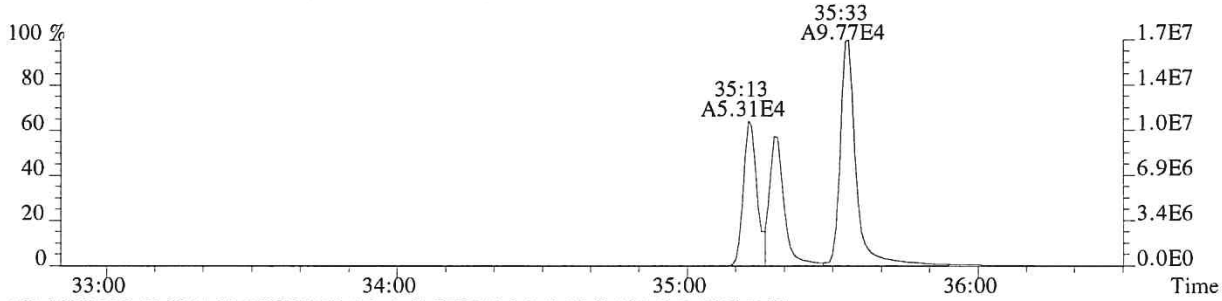
File:P518927 #1-330 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



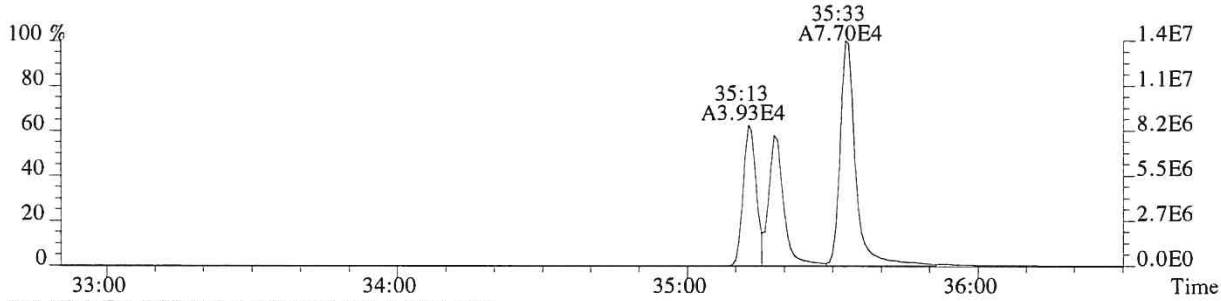
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



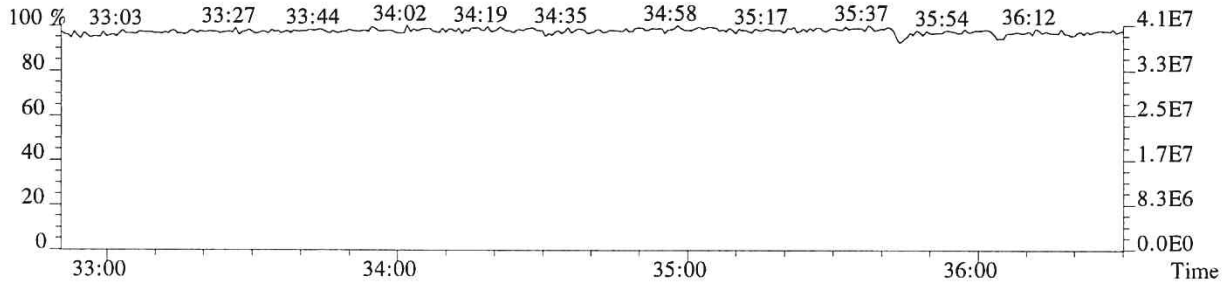
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1388.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)

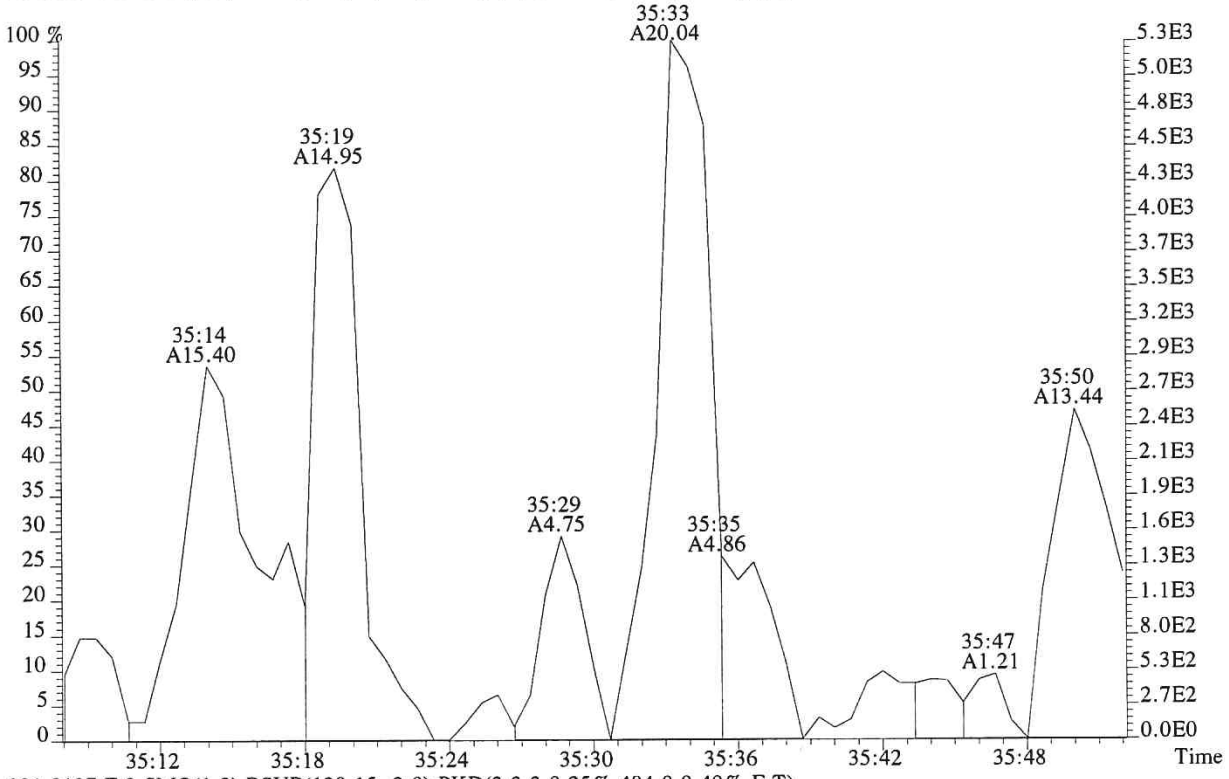


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

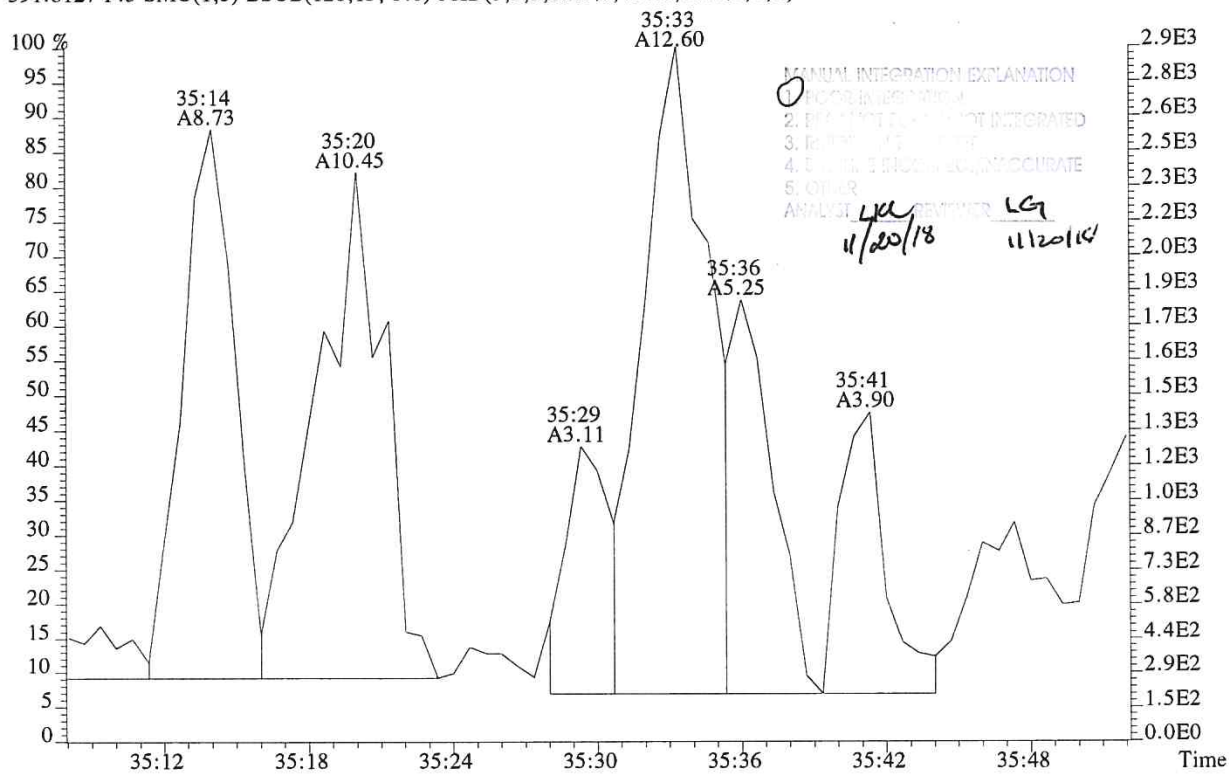


008913

File:P518927 #1-330 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)

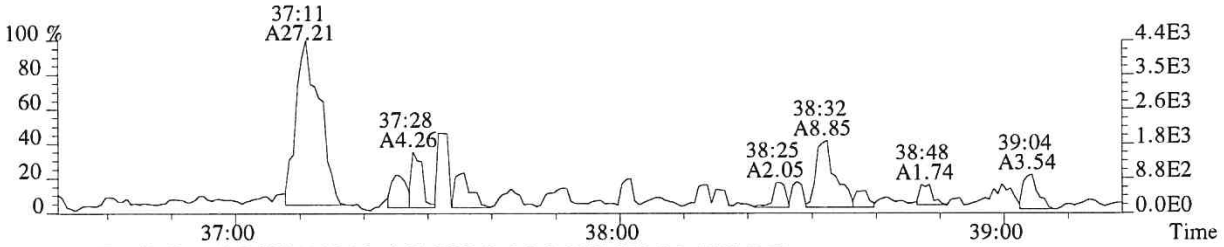


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)

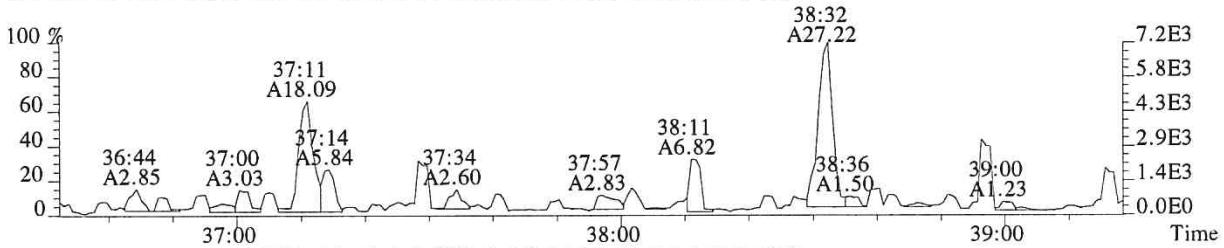


File:P518927 #1-250 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01

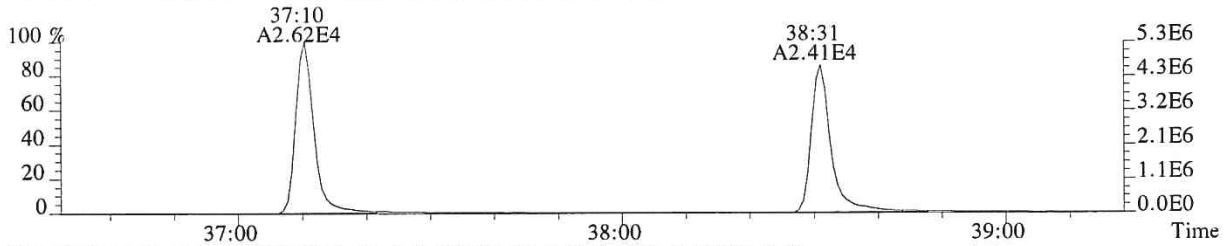
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.50%,F,T)



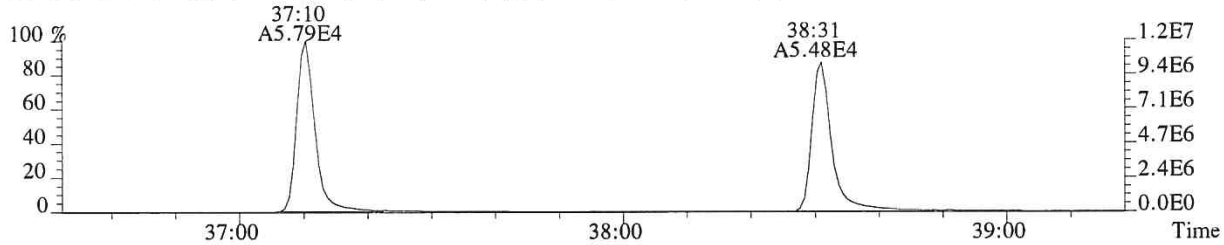
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.50%,F,T)



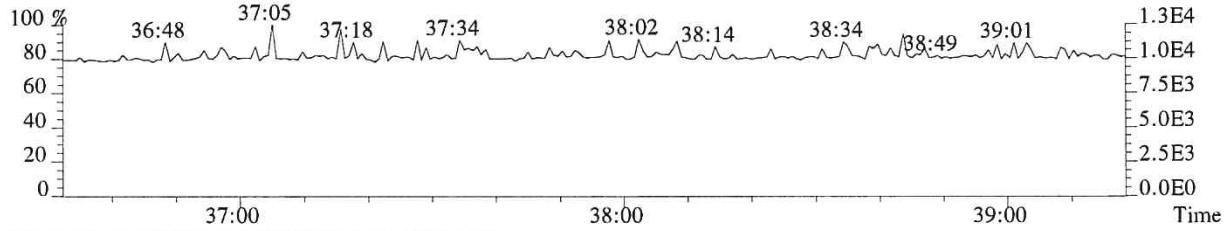
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5172.0,0.50%,F,T)



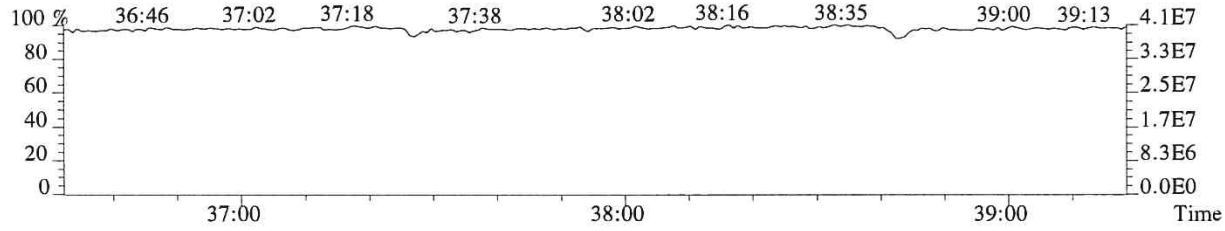
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5432.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

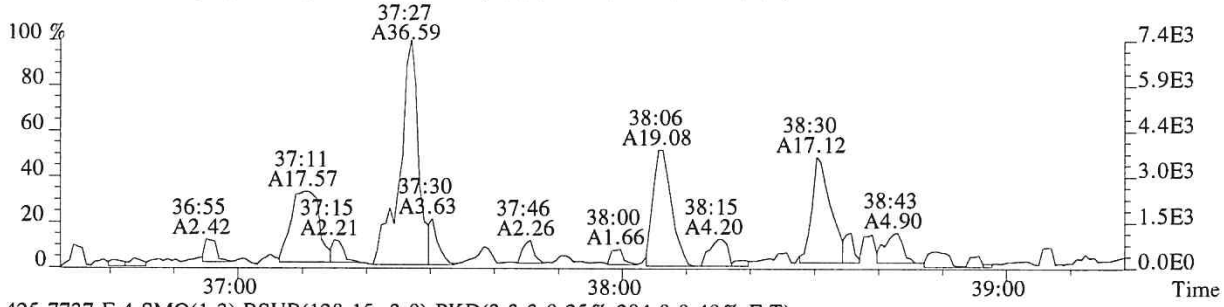


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

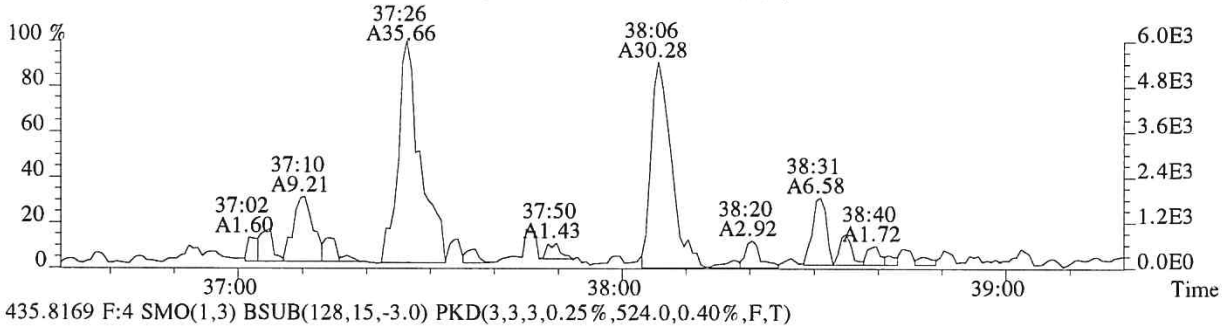


008915

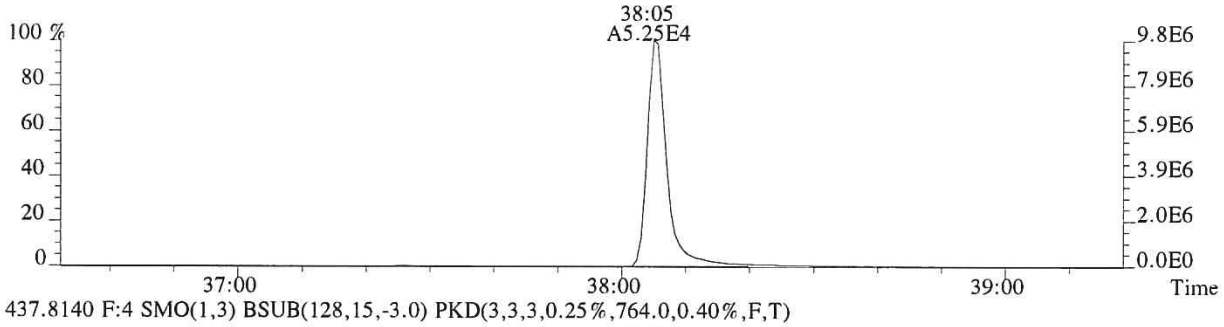
File:P518927 #1-250 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



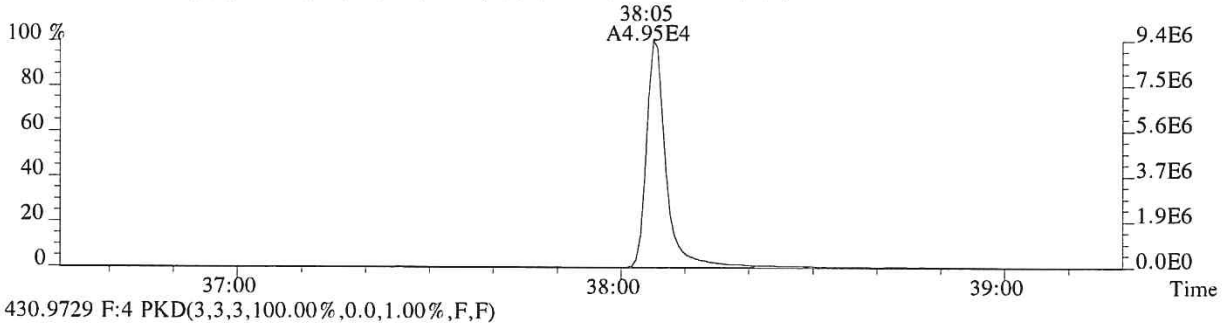
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



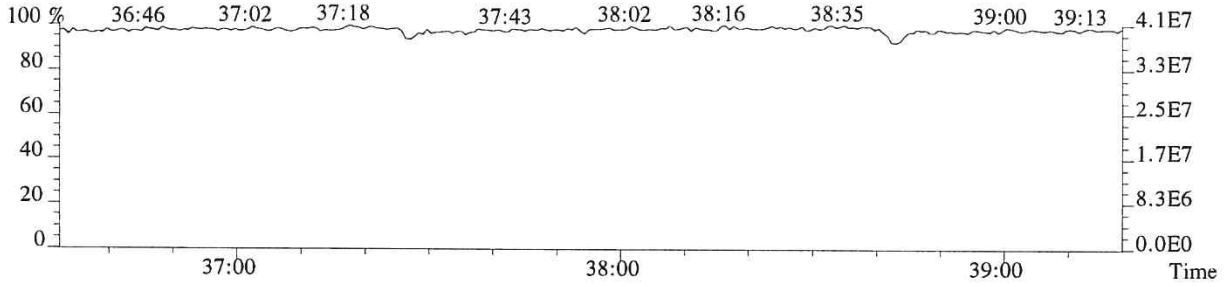
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)

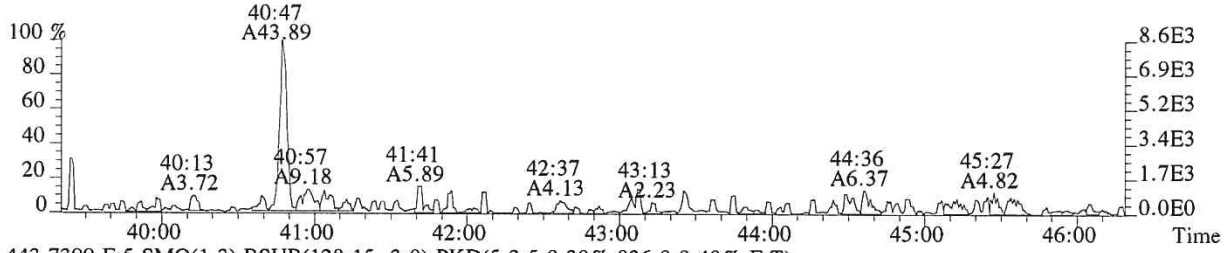


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

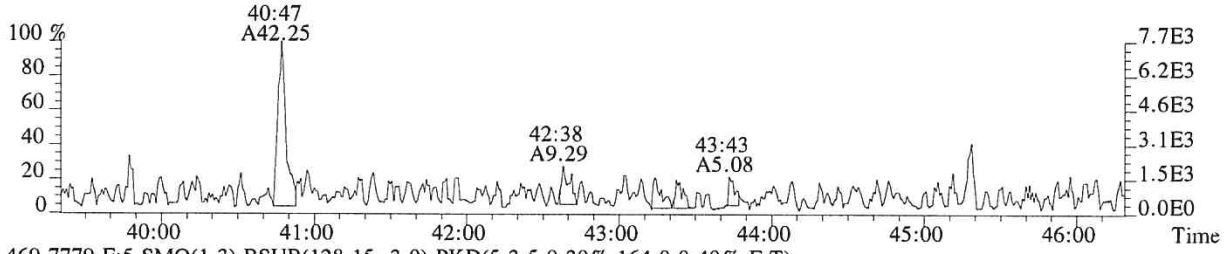


File:P518927 #1-628 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01

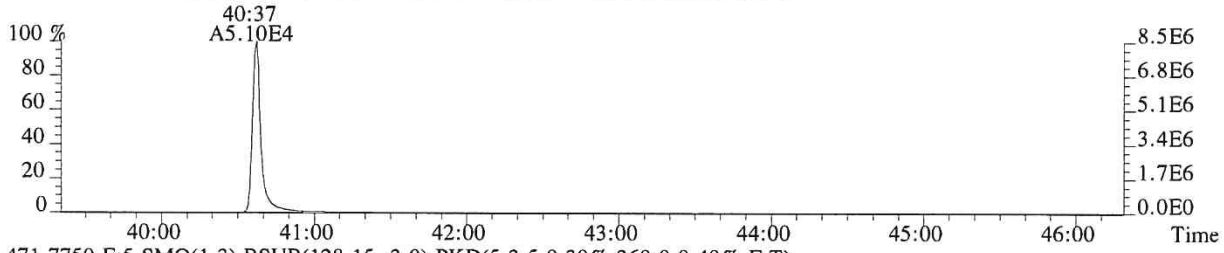
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



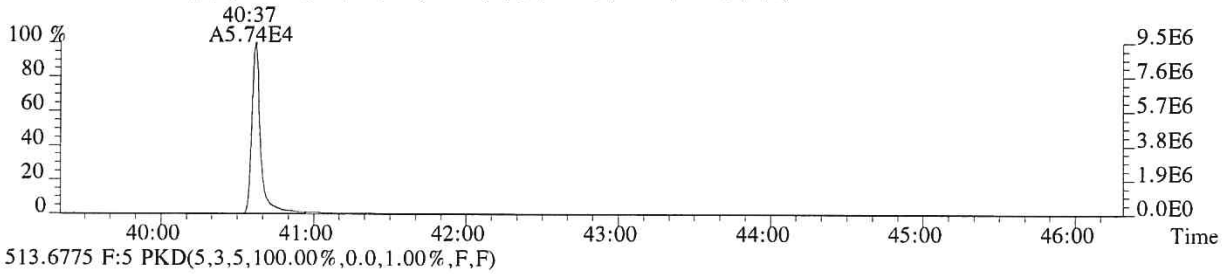
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



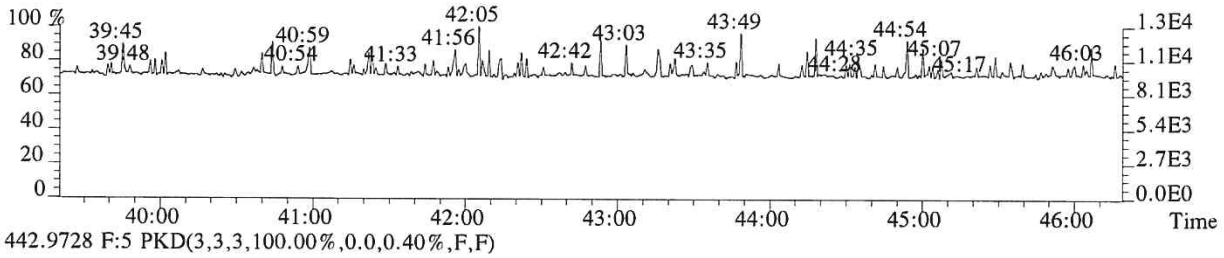
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



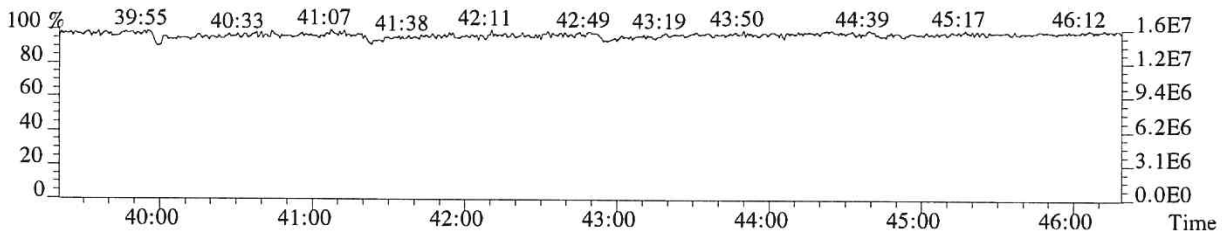
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

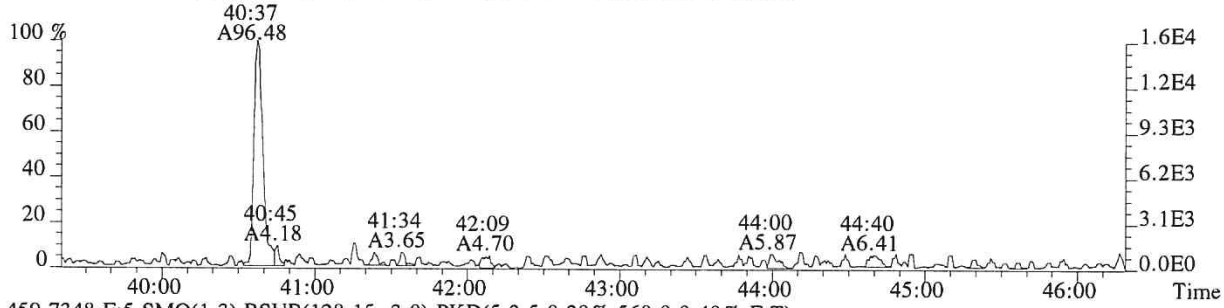


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

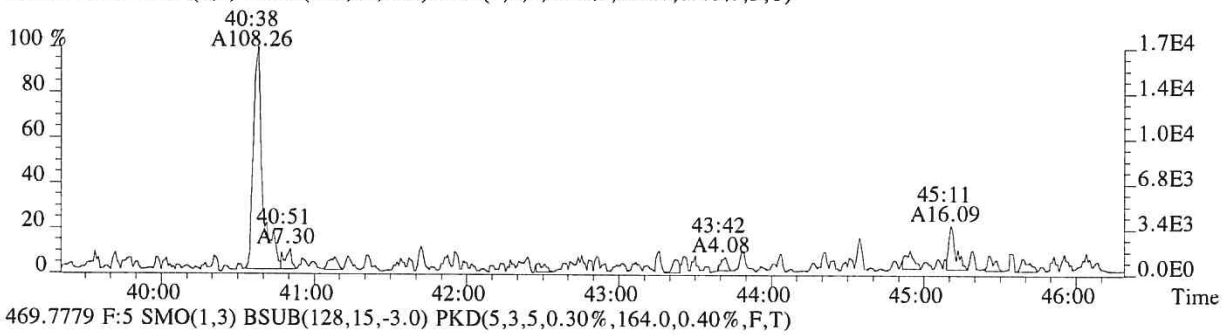


008917

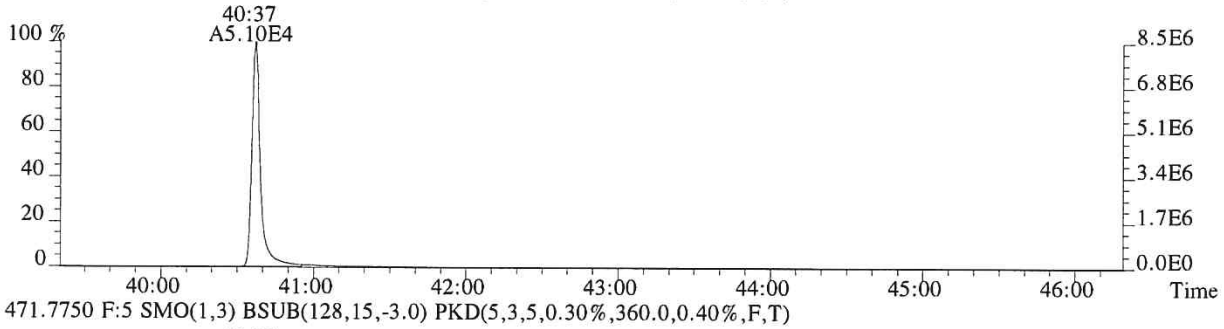
File:P518927 #1-628 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



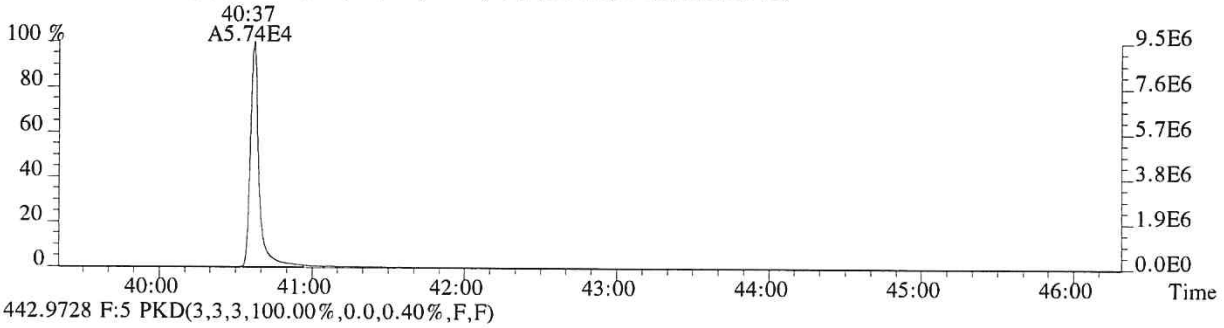
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



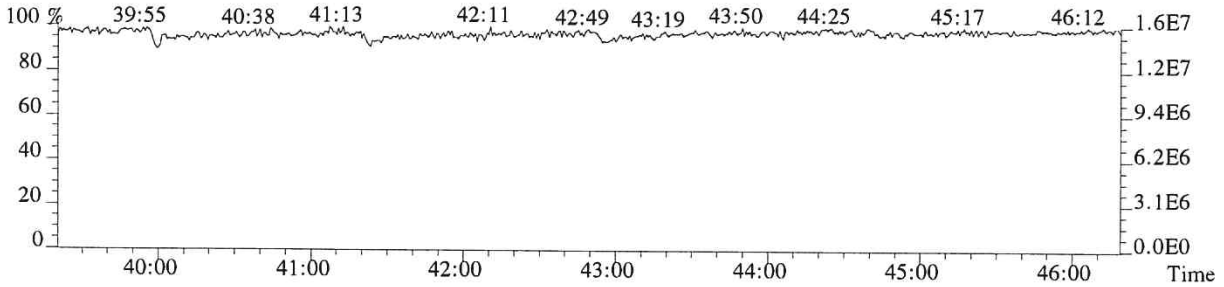
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P518850 Samp: 1 Inj: 1 Acquired: 16-NOV-18 10:03:50
Processed: 19-NOV-18 09:11:57 Sample ID: EQ1800463-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	9.227e+02	1.262e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:34	9.030e+03	5.782e+03	1.56	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	9.275e+03	6.135e+03	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	8.039e+03	6.684e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	9.878e+03	8.133e+03	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:08	9.018e+03	7.715e+03	1.17	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	7.871e+03	6.519e+03	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	7.992e+03	8.144e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	7.550e+03	7.309e+03	1.03	yes	no	1.258
10	Unk	OCDF	40:51	1.074e+04	1.229e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	7.409e+02	8.974e+02	0.83	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	6.639e+03	4.131e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	6.281e+03	5.050e+03	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	6.945e+03	5.601e+03	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	6.868e+03	5.384e+03	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	5.926e+03	5.749e+03	1.03	yes	no	1.025
17	Unk	OCDD	40:41	7.679e+03	8.584e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:31	1.015e+04	1.300e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	1.930e+04	1.223e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	1.897e+04	1.227e+04	1.55	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	8.935e+03	1.689e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.071e+04	2.090e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.049e+04	2.030e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	9.076e+03	1.730e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:13	7.722e+03	1.746e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	7.287e+03	1.616e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	6.584e+03	8.429e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.386e+04	8.587e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.292e+04	1.036e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.316e+04	1.035e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.466e+04	1.423e+04	1.03	yes	no	0.858
32	IS	13C-OCDD	40:40	1.479e+04	1.605e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	1.987e+04	2.472e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.209e+04	2.531e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	7.276e+03				no	1.014

$$\text{OCDD} = \frac{(7.679\text{e+}03 + 8.584\text{e+}03) \times 4000\ \text{pg} \times 1}{(1.479\text{e+}04 + 1.605\text{e+}04) \times \text{g} \times / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P518850 Samp: 1 Inj: 1 Acquired: 16-NOV-18 10:03:50
Processed: 19-NOV-18 09:11:57 LAB. ID: EQ1800463-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.23e+05	4.12e+02	3.0e+02	1.66e+05	9.88e+02	1.7e+02
2	1,2,3,7,8-PeCDF	1.43e+06	2.36e+02	6.1e+03	9.12e+05	1.09e+03	8.4e+02
3	2,3,4,7,8-PeCDF	1.57e+06	2.36e+02	6.6e+03	1.03e+06	1.09e+03	9.4e+02
4	1,2,3,4,7,8-HxCDF	1.67e+06	1.76e+02	9.5e+03	1.39e+06	2.28e+02	6.1e+03
5	1,2,3,6,7,8-HxCDF	1.69e+06	1.76e+02	9.6e+03	1.44e+06	2.28e+02	6.3e+03
6	2,3,4,6,7,8-HxCDF	1.74e+06	1.76e+02	9.9e+03	1.48e+06	2.28e+02	6.5e+03
7	1,2,3,7,8,9-HxCDF	1.39e+06	1.76e+02	7.9e+03	1.14e+06	2.28e+02	5.0e+03
8	1,2,3,4,6,7,8-HpCDF	1.61e+06	1.08e+03	1.5e+03	1.58e+06	2.58e+03	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	1.35e+06	1.08e+03	1.2e+03	1.31e+06	2.58e+03	5.1e+02
10	OCDF	1.72e+06	2.08e+02	8.3e+03	1.88e+06	4.88e+02	3.9e+03
11	2,3,7,8-TCDD	1.13e+05	1.68e+03	6.7e+01	1.30e+05	5.16e+02	2.5e+02
12	1,2,3,7,8-PeCDD	1.13e+06	5.44e+02	2.1e+03	6.96e+05	2.80e+02	2.5e+03
13	1,2,3,4,7,8-HxCDD	1.31e+06	4.24e+02	3.1e+03	1.01e+06	5.36e+02	1.9e+03
14	1,2,3,6,7,8-HxCDD	1.29e+06	4.24e+02	3.0e+03	1.03e+06	5.36e+02	1.9e+03
15	1,2,3,7,8,9-HxCDD	1.20e+06	4.24e+02	2.8e+03	9.78e+05	5.36e+02	1.8e+03
16	1,2,3,4,6,7,8-HpCDD	1.13e+06	2.40e+02	4.7e+03	1.06e+06	3.20e+02	3.3e+03
17	OCDD	1.22e+06	2.08e+02	5.9e+03	1.32e+06	2.00e+02	6.6e+03
18	13C-2,3,7,8-TCDF	1.29e+06	4.00e+03	3.2e+02	1.65e+06	2.32e+03	7.1e+02
19	13C-1,2,3,7,8-PeCDF	3.11e+06	3.60e+02	8.6e+03	1.92e+06	4.40e+02	4.4e+03
20	13C-2,3,4,7,8-PeCDF	3.17e+06	3.60e+02	8.8e+03	2.06e+06	4.40e+02	4.7e+03
21	13C-1,2,3,4,7,8-HxCDF	1.75e+06	6.40e+02	2.7e+03	3.48e+06	8.16e+02	4.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.96e+06	6.40e+02	3.1e+03	3.70e+06	8.16e+02	4.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.02e+06	6.40e+02	3.2e+03	3.92e+06	8.16e+02	4.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.57e+06	6.40e+02	2.4e+03	3.02e+06	8.16e+02	3.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.50e+06	2.10e+03	7.2e+02	3.35e+06	4.30e+03	7.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.30e+06	2.10e+03	6.2e+02	2.92e+06	4.30e+03	6.8e+02
27	13C-2,3,7,8-TCDD	9.92e+05	4.91e+03	2.0e+02	1.22e+06	1.66e+03	7.4e+02
28	13C-1,2,3,7,8-PeCDD	2.28e+06	2.04e+02	1.1e+04	1.45e+06	3.52e+02	4.1e+03
29	13C-1,2,3,4,7,8-HxCDD	2.65e+06	1.04e+03	2.6e+03	2.10e+06	8.08e+02	2.6e+03
30	13C-1,2,3,6,7,8-HxCDD	2.43e+06	1.04e+03	2.3e+03	1.93e+06	8.08e+02	2.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.74e+06	2.16e+02	1.3e+04	2.60e+06	2.16e+02	1.2e+04
32	13C-OCDD	2.25e+06	2.32e+02	9.7e+03	2.50e+06	2.44e+02	1.0e+04
33	13C-1,2,3,4-TCDD	2.88e+06	4.91e+03	5.9e+02	3.60e+06	1.66e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.74e+06	1.04e+03	5.5e+03	4.46e+06	8.08e+02	5.5e+03
35	37Cl-2,3,7,8-TCDD	1.04e+06	5.92e+02	1.8e+03			

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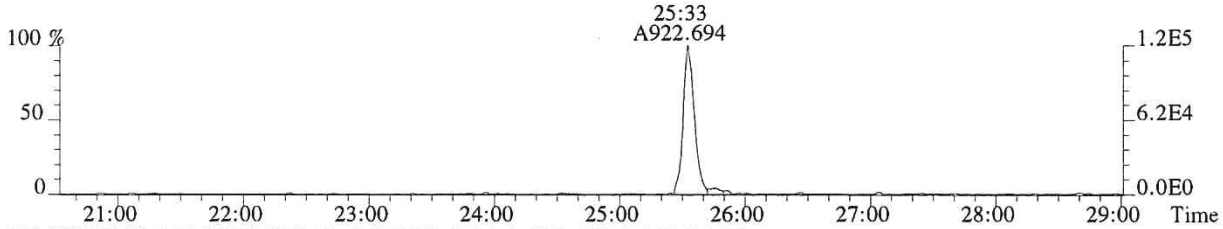
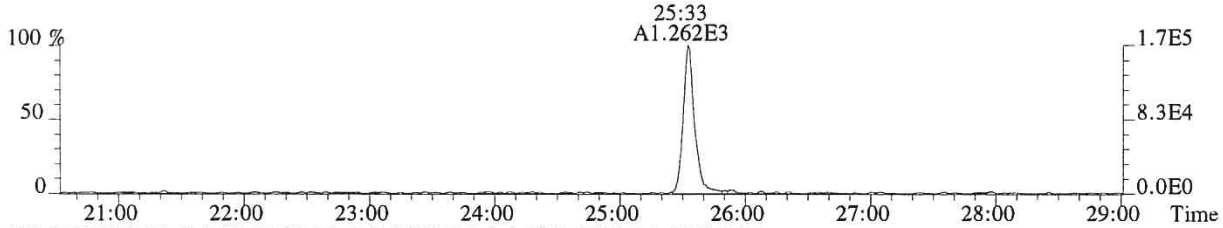
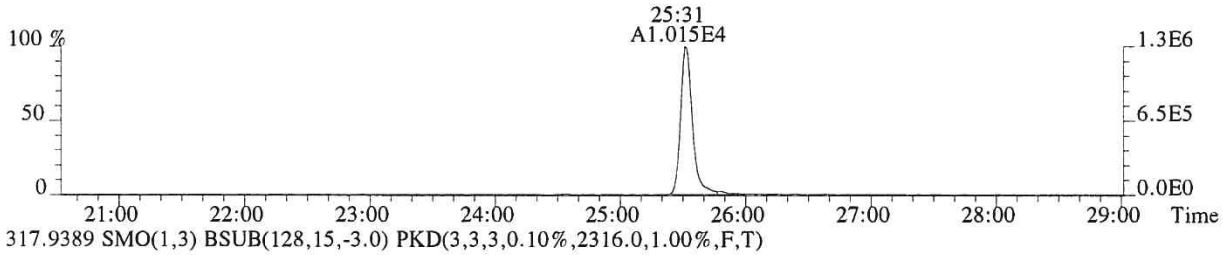
File:P518850 #1-602 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



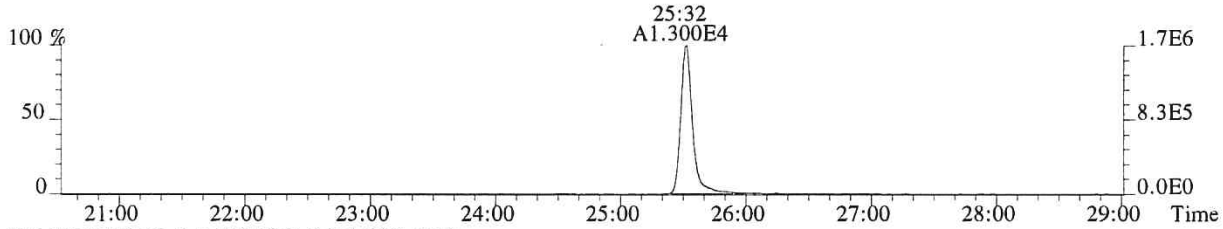
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



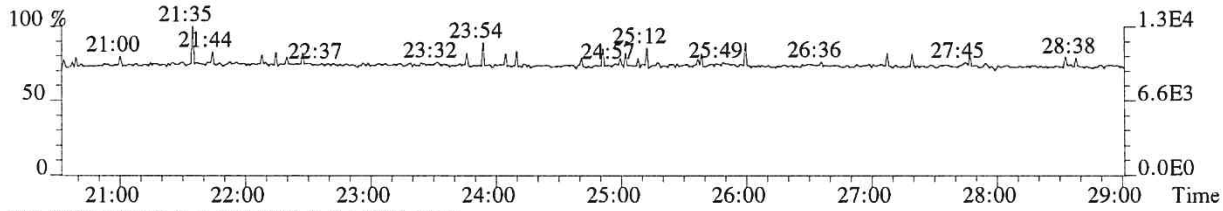
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3996.0,1.00%,F,T)



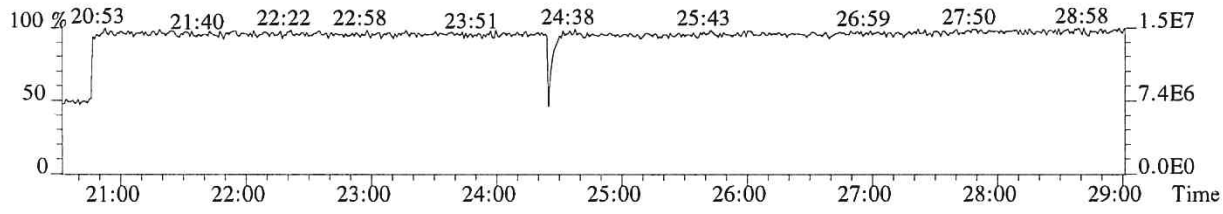
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



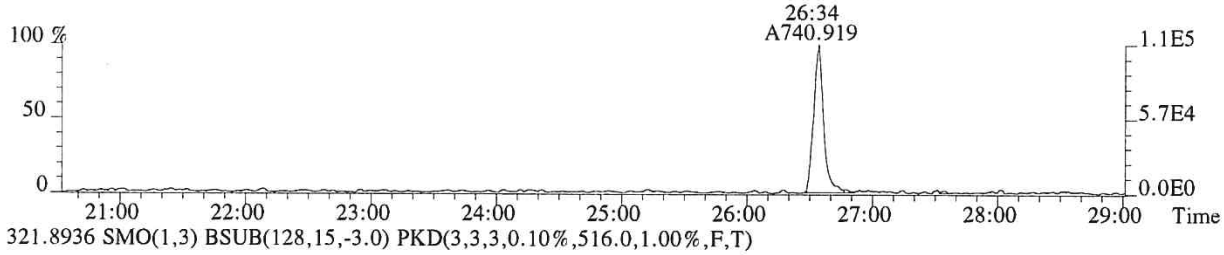
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



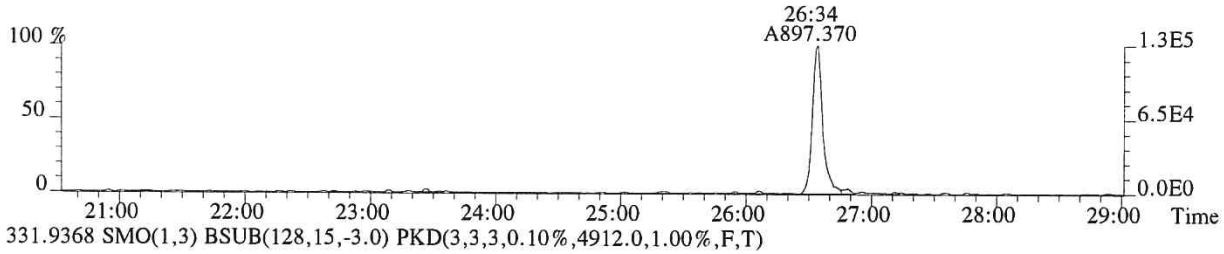
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



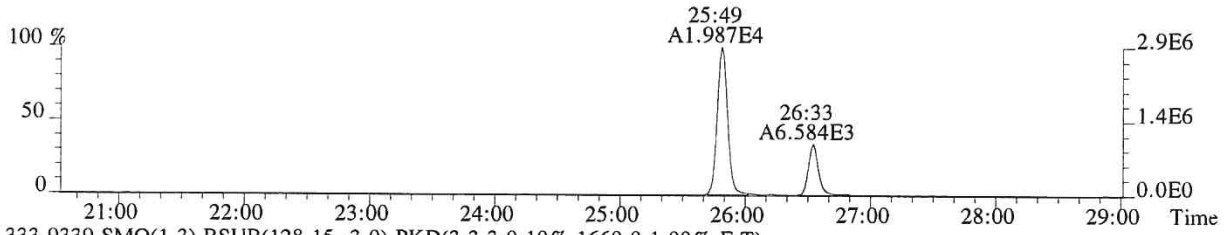
File:P518850 #1-602 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



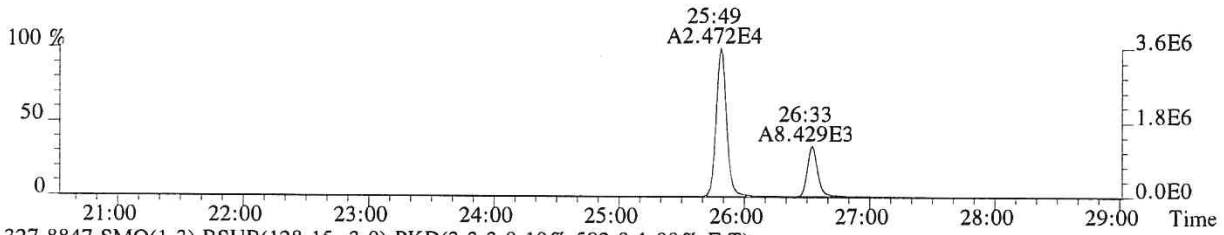
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



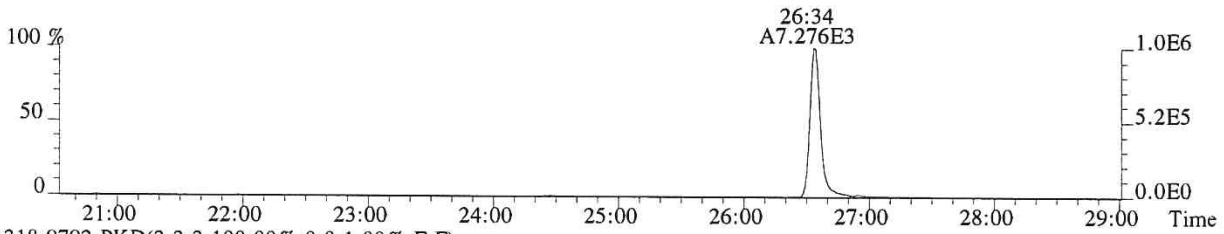
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4912.0,1.00%,F,T)



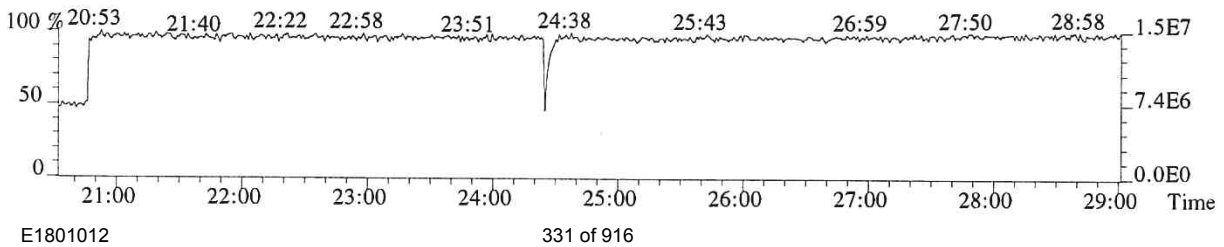
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1660.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)

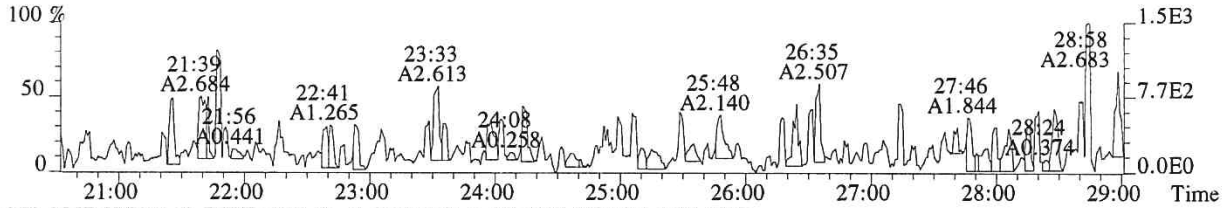


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

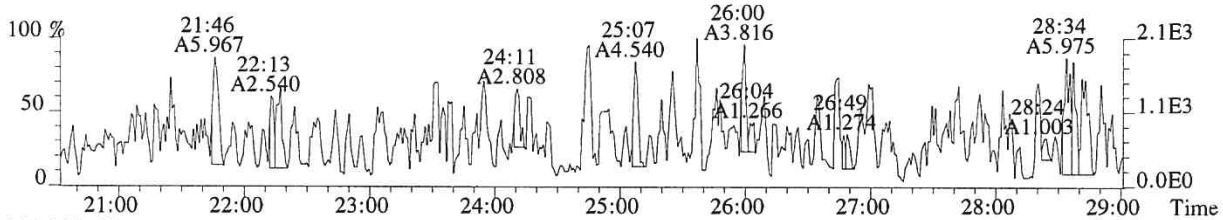


008922

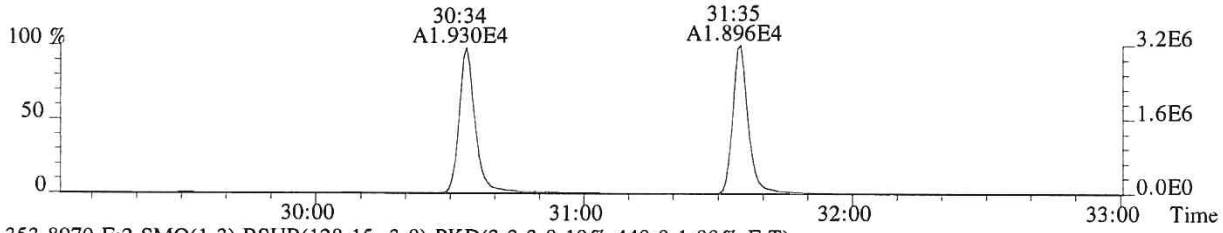
File:P518850 #1-602 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



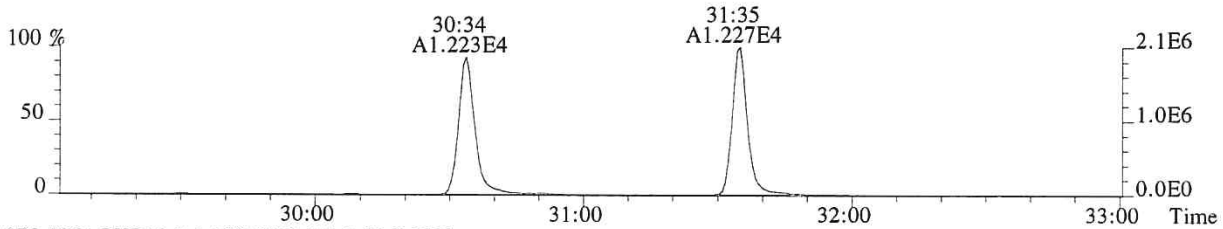
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



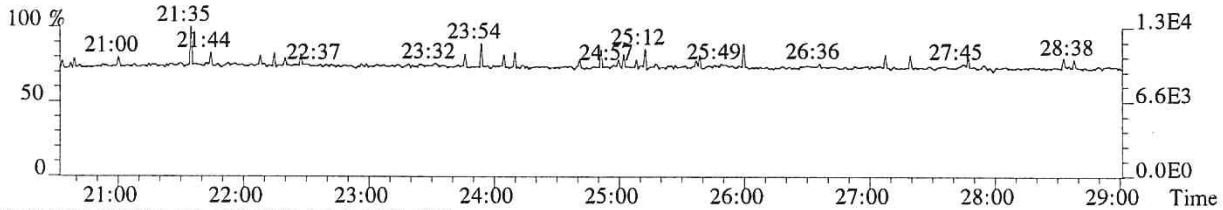
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



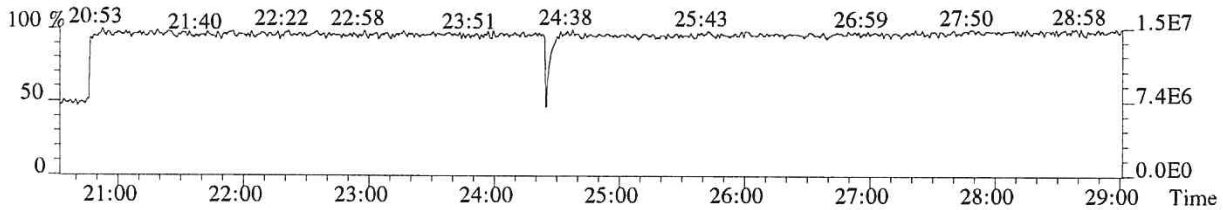
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

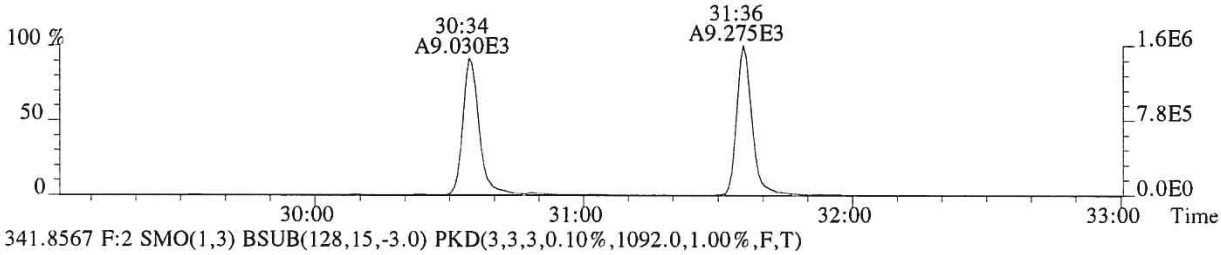


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

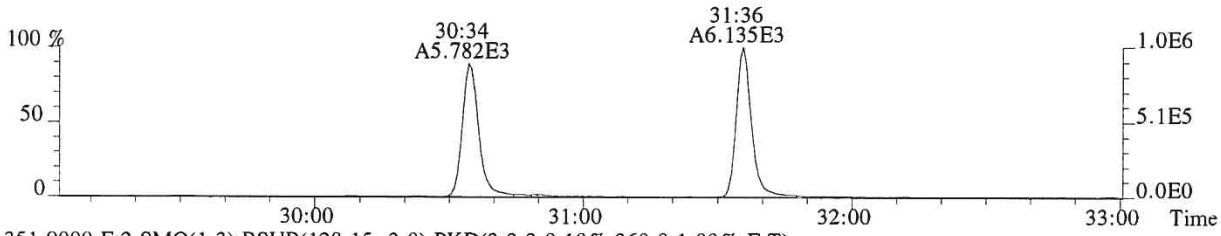


008923

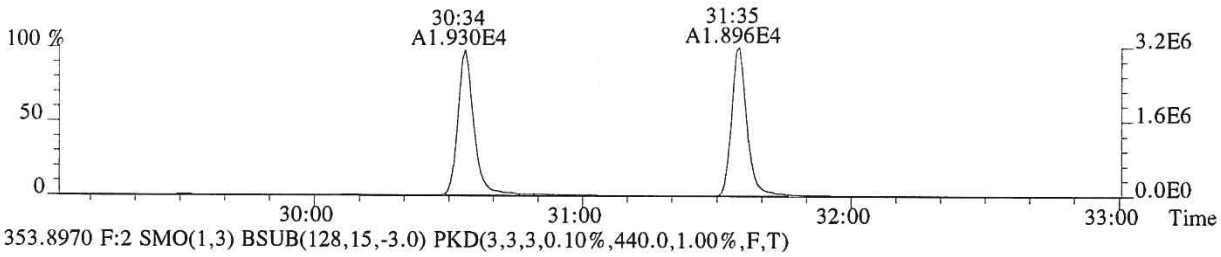
File:P518850 #1-357 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



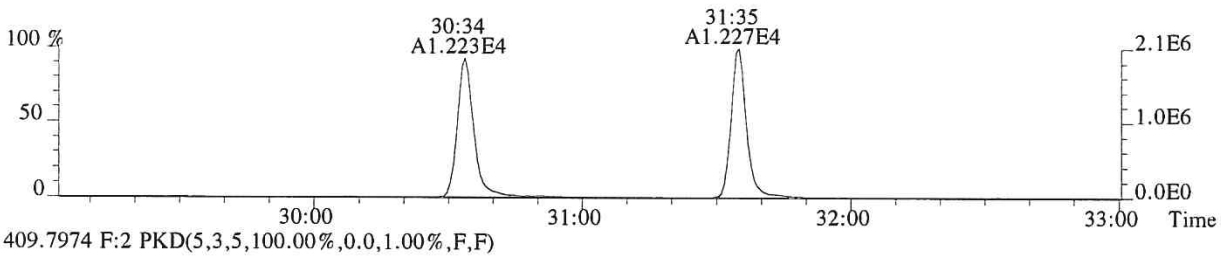
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



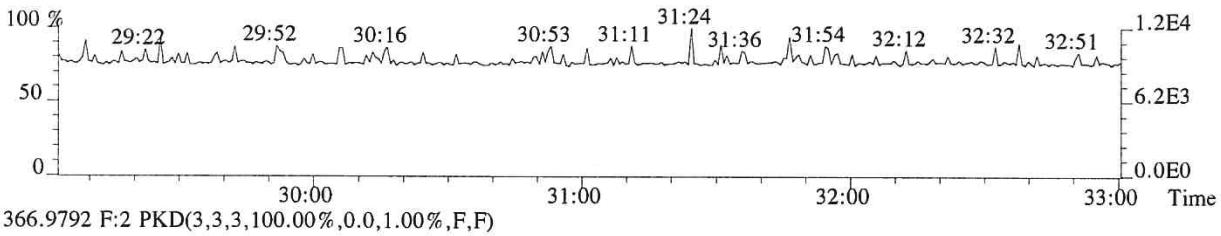
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



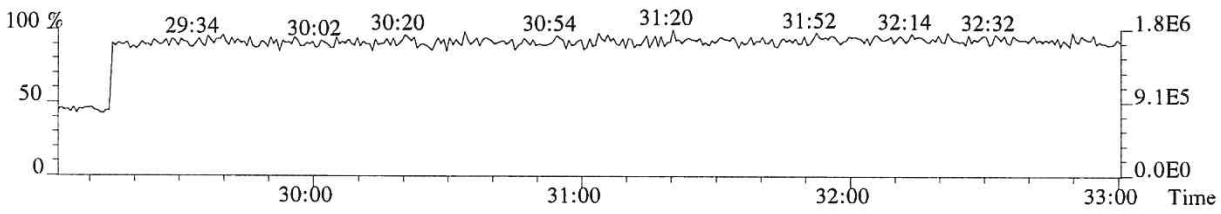
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

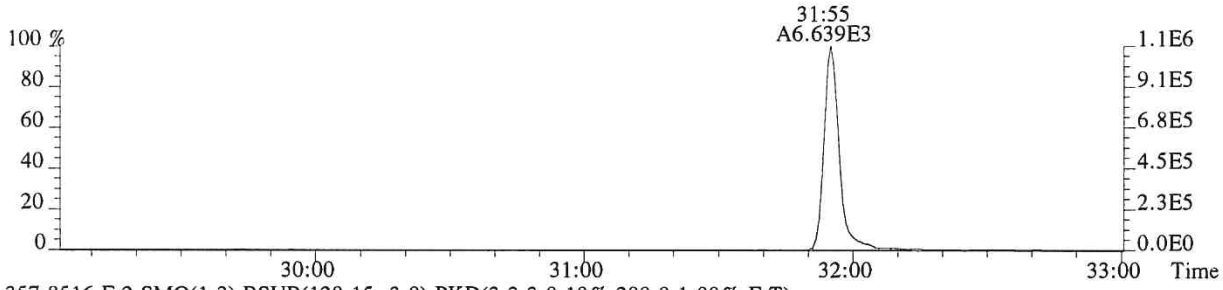


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

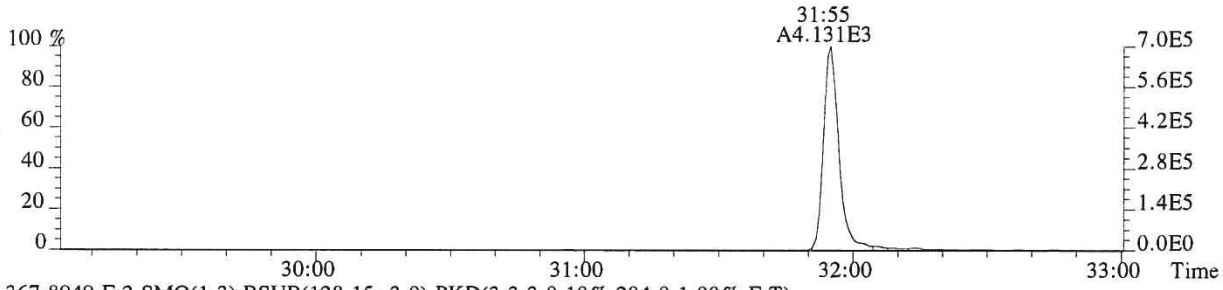


008924

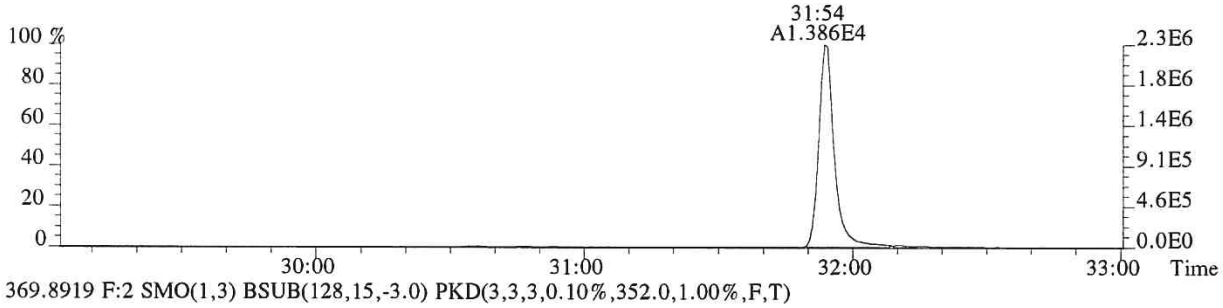
File:P518850 #1-357 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



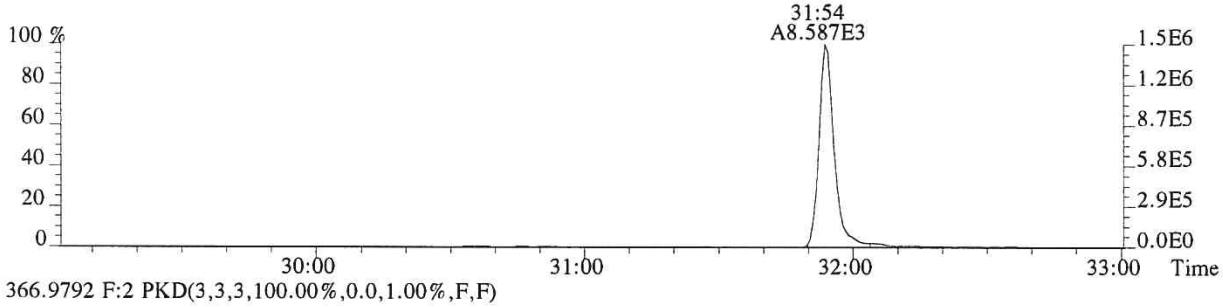
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



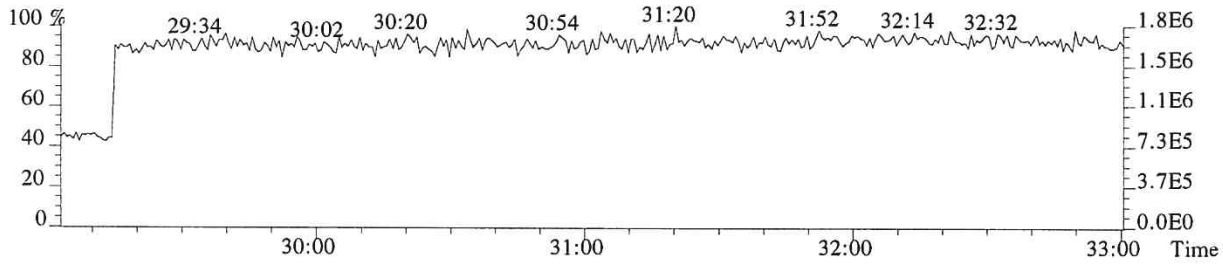
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)

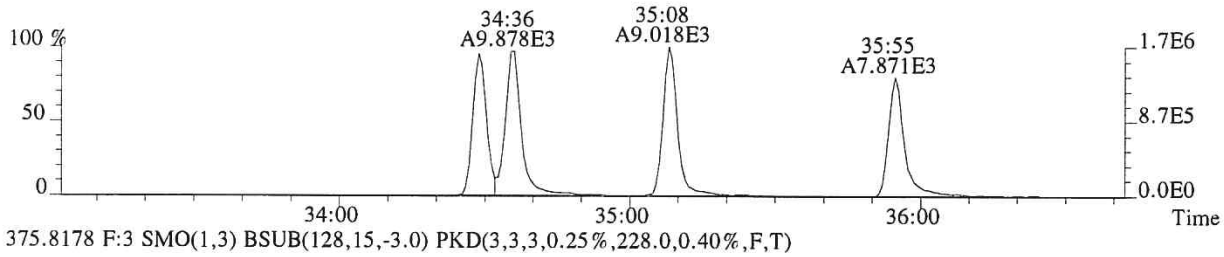


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

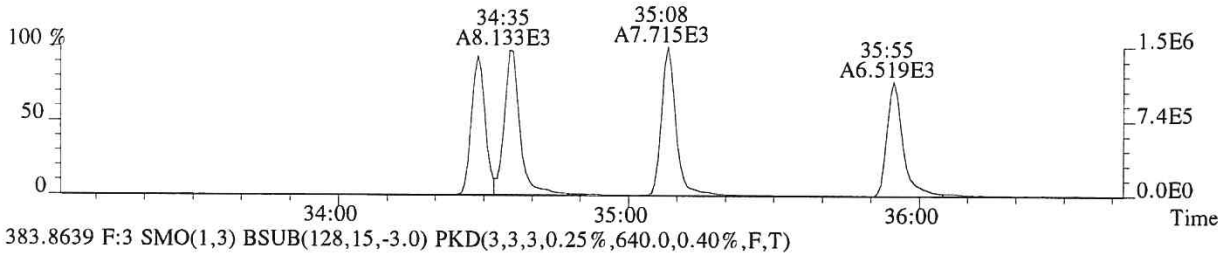


008925

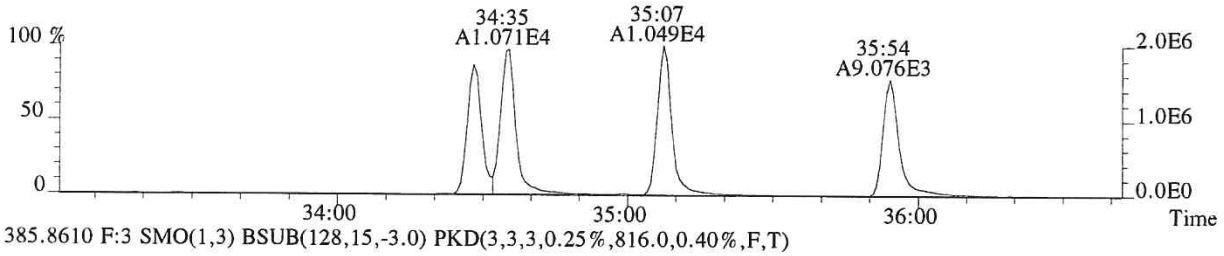
File:P518850 #1-330 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.40%,F,T)



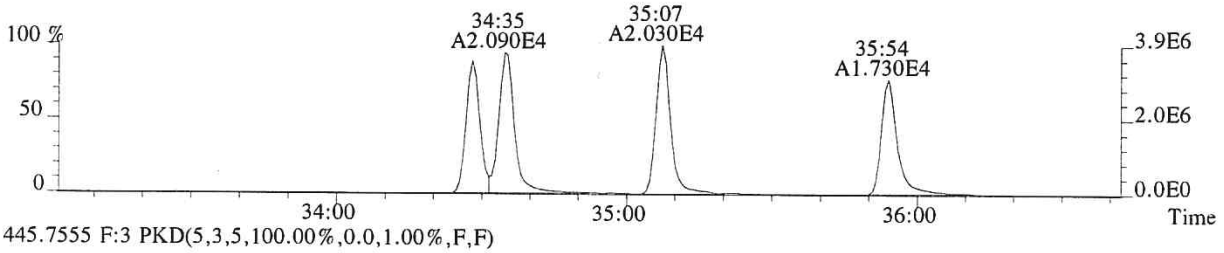
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



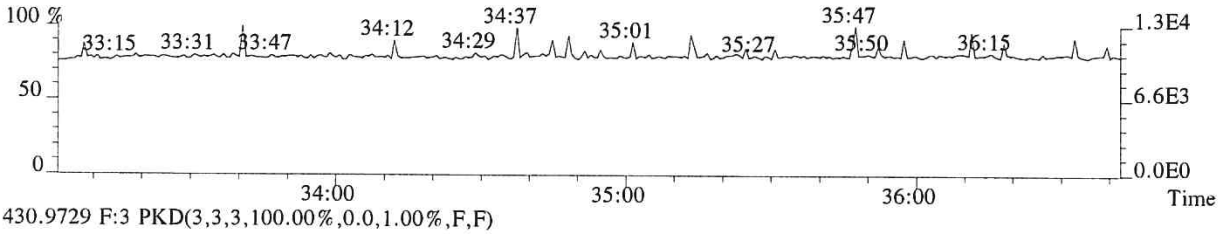
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



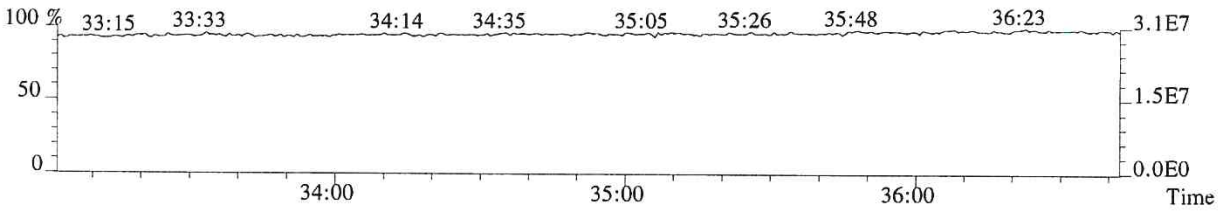
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

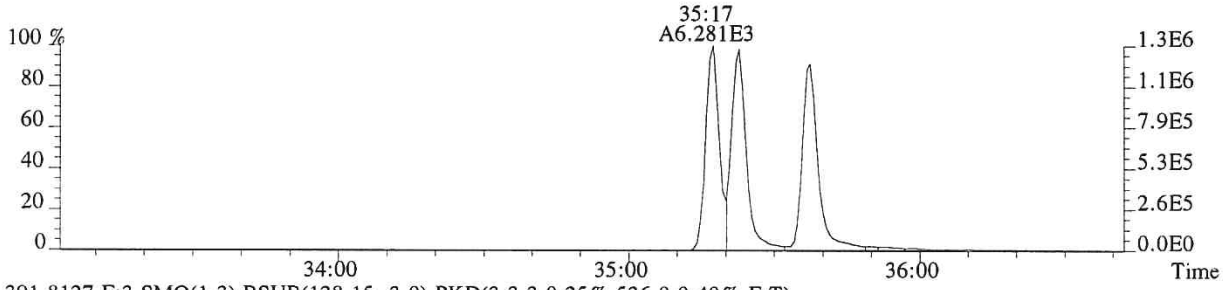


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

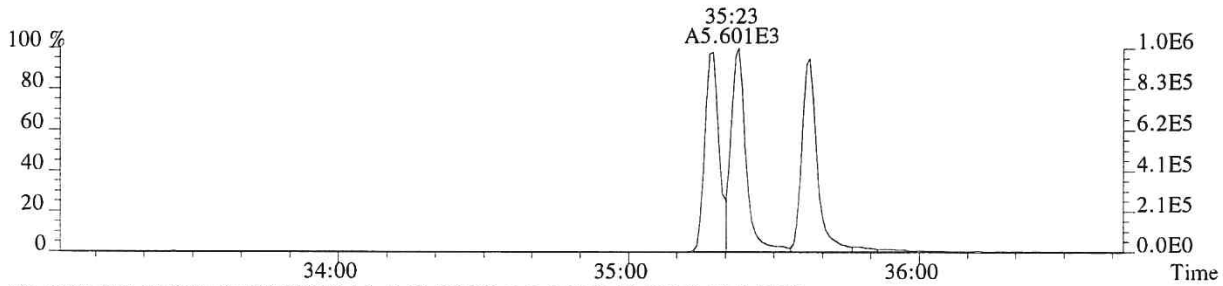


008926

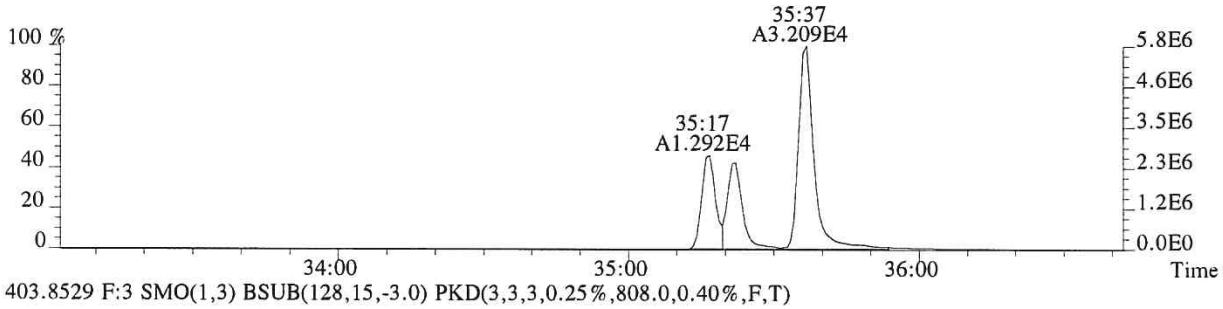
File:P518850 #1-330 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



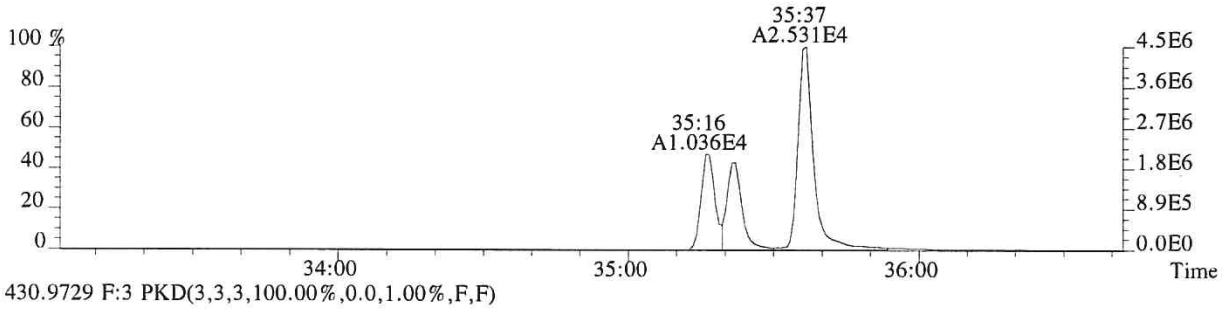
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



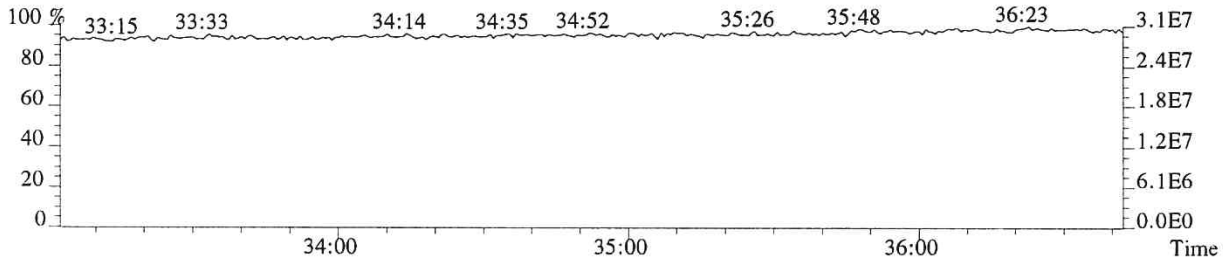
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)

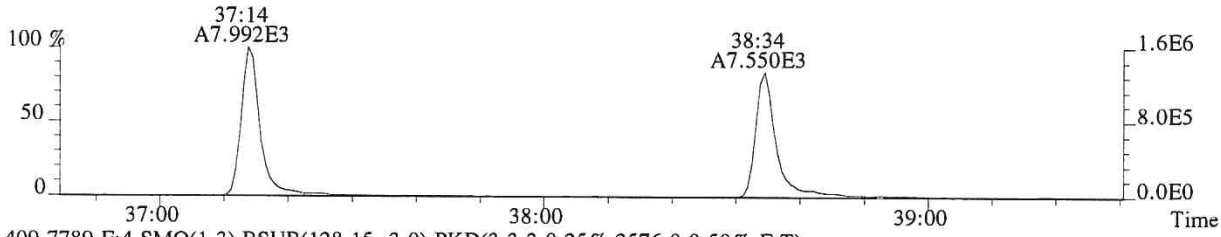


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

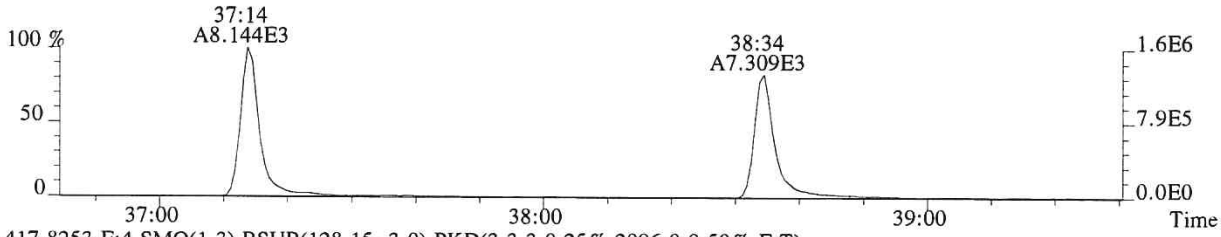


008927

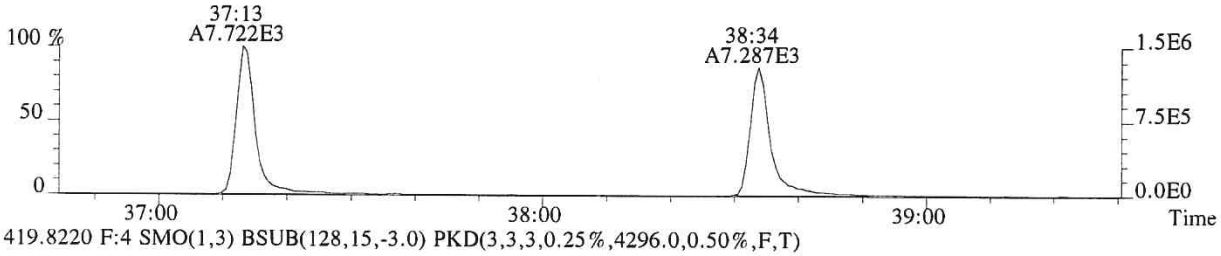
File:P518850 #1-250 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.50%,F,T)



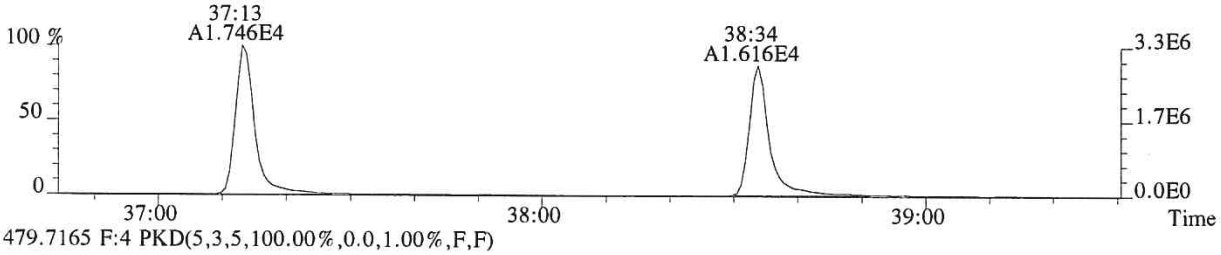
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2576.0,0.50%,F,T)



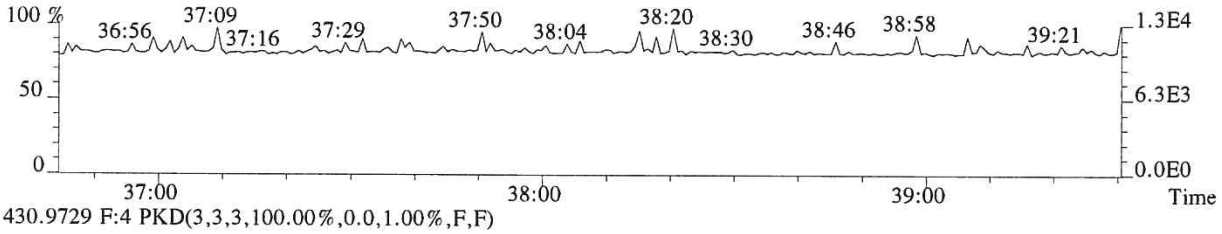
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2096.0,0.50%,F,T)



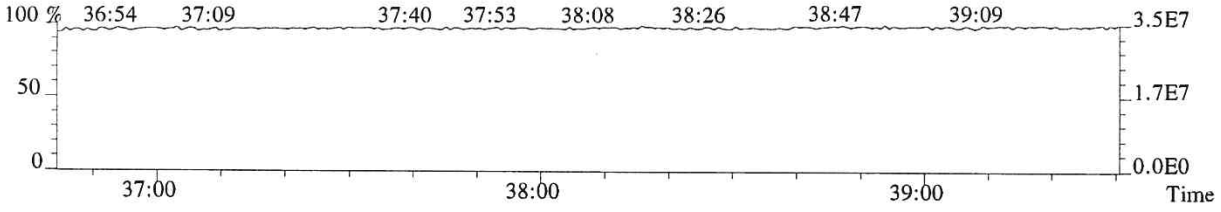
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4296.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

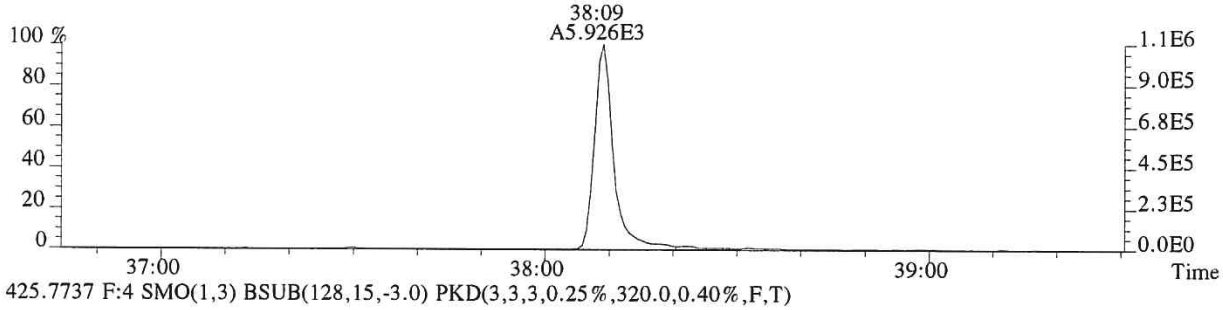


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

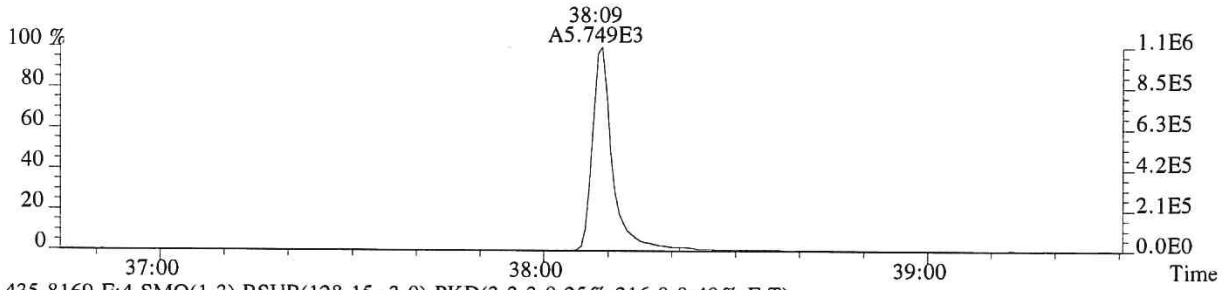


008928

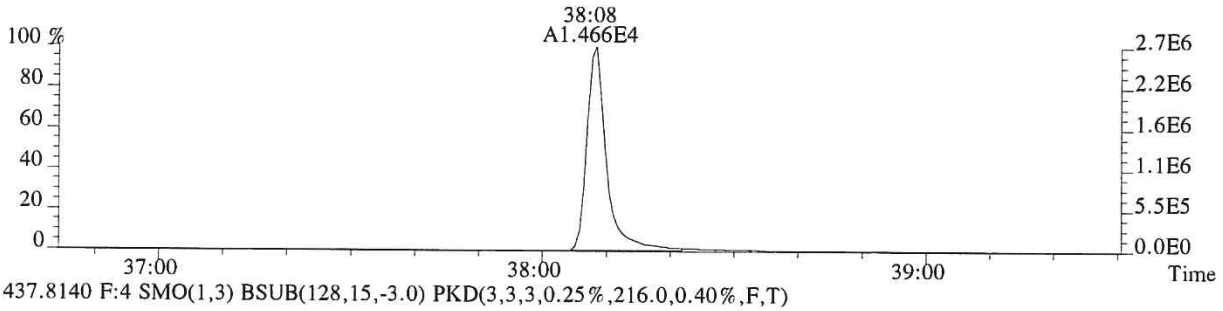
File:P518850 #1-250 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



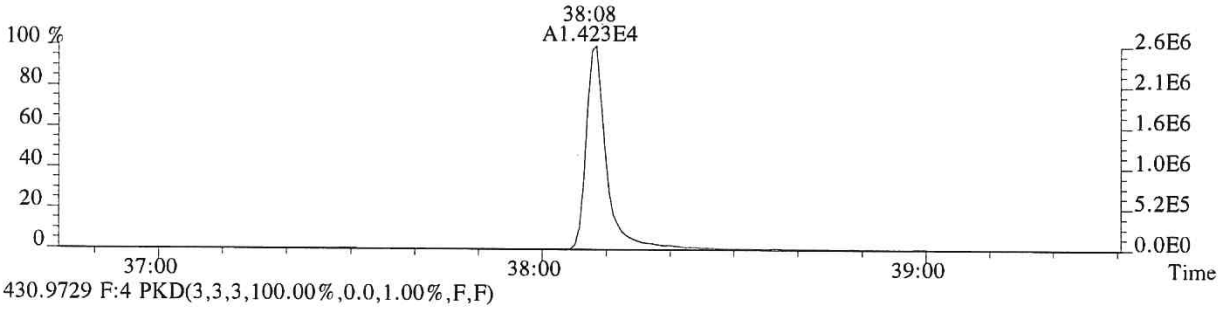
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



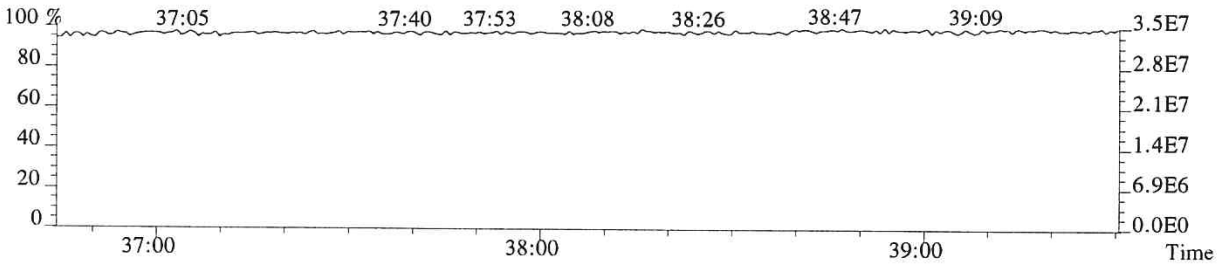
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



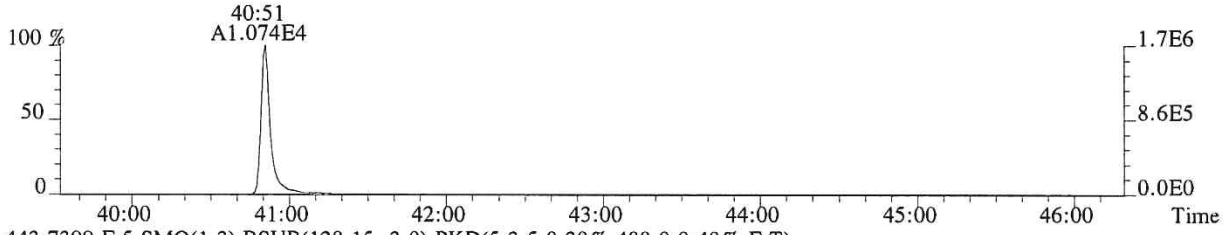
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



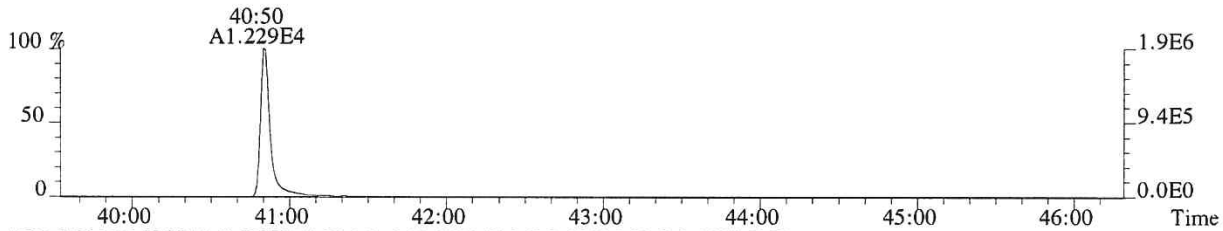
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



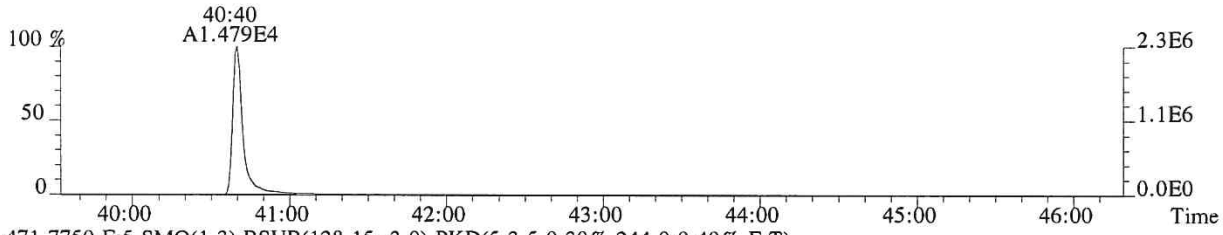
File:P518850 #1-610 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



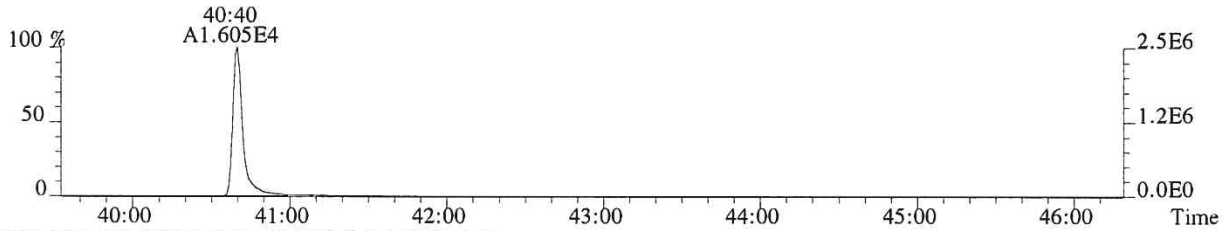
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



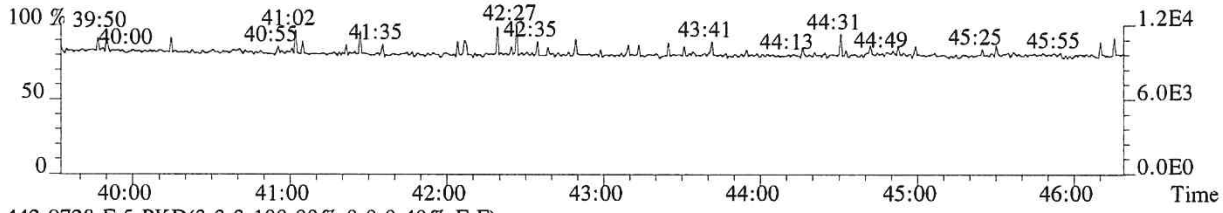
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



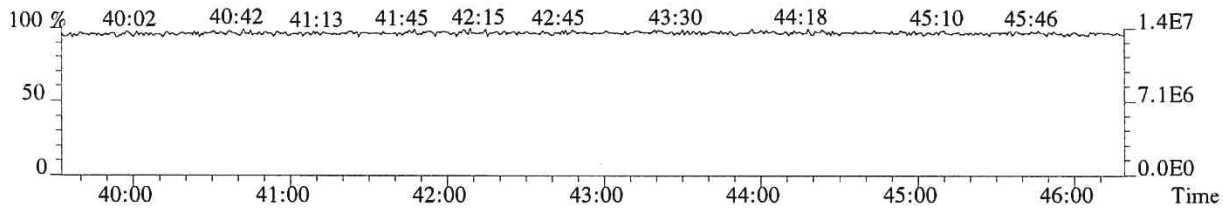
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

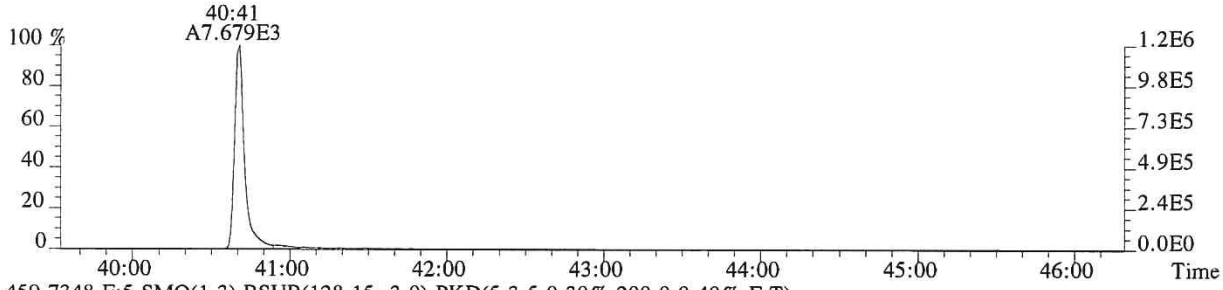


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

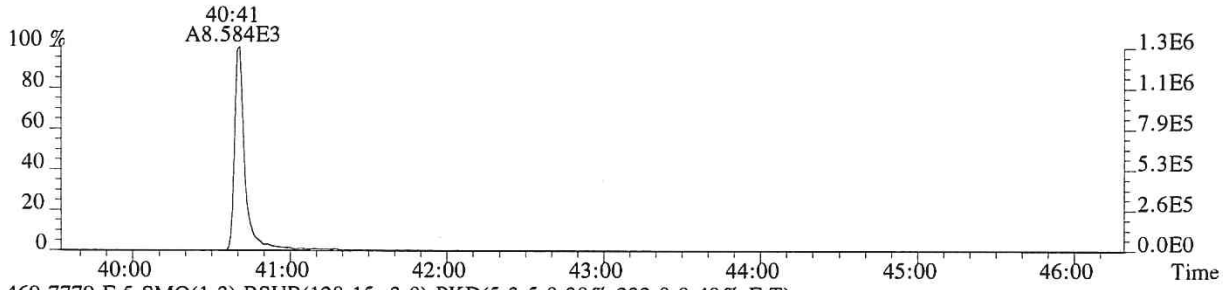


008930

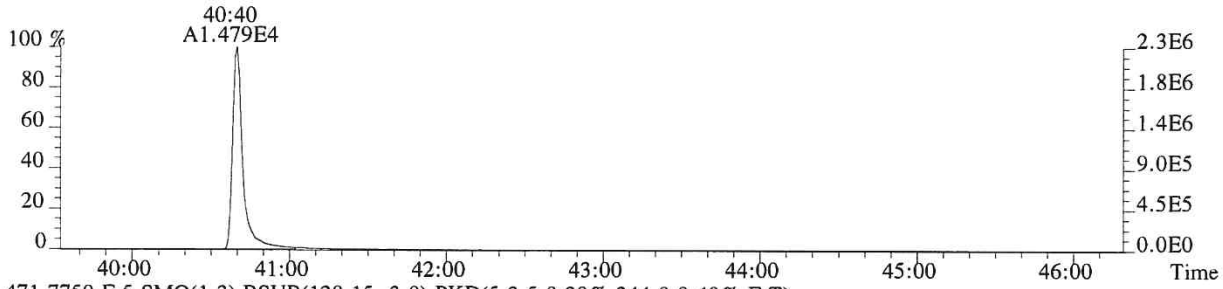
File:P518850 #1-610 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



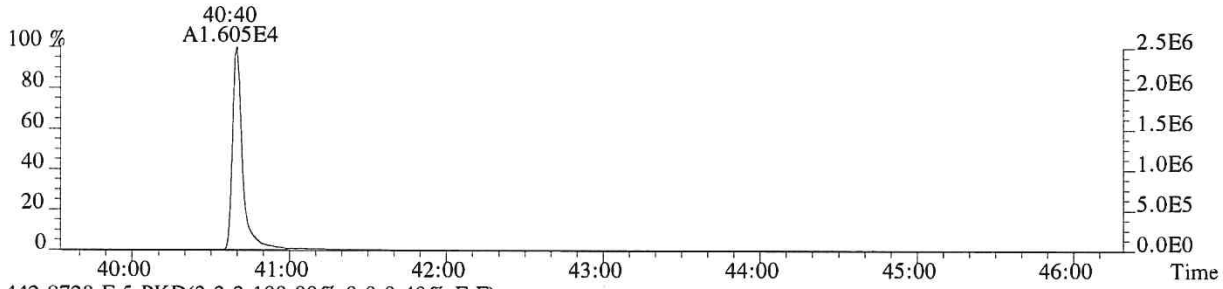
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



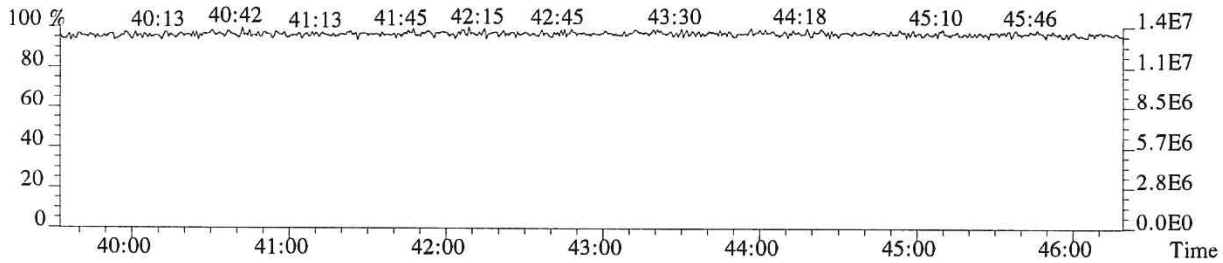
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P518851 Samp: 1 Inj: 1 Acquired: 16-NOV-18 10:52:30
Processed: 19-NOV-18 09:11:58 Sample ID: EQ1800463-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	9.187e+02	1.286e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.014e+04	6.531e+03	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	1.037e+04	6.841e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	9.773e+03	8.018e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	1.156e+04	9.449e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	9.885e+03	8.059e+03	1.23	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	9.248e+03	7.708e+03	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	9.116e+03	9.217e+03	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	8.513e+03	8.309e+03	1.02	yes	no	1.258
10	Unk	OCDF	40:51	1.316e+04	1.428e+04	0.92	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	6.876e+02	8.988e+02	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	7.742e+03	4.900e+03	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	7.433e+03	5.721e+03	1.30	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.075e+03	6.191e+03	1.30	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	8.246e+03	6.340e+03	1.30	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	6.811e+03	6.681e+03	1.02	yes	no	1.025
17	Unk	OCDD	40:42	9.927e+03	1.116e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.072e+04	1.335e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.147e+04	1.346e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	2.199e+04	1.354e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.057e+04	2.007e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.308e+04	2.465e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.138e+04	2.251e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.038e+04	1.973e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	8.541e+03	1.926e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.485e+03	1.895e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	7.057e+03	8.845e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.578e+04	9.922e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.541e+04	1.125e+04	1.37	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.529e+04	1.254e+04	1.22	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.710e+04	1.587e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	40:42	1.814e+04	2.020e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	2.040e+04	2.578e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.405e+04	2.525e+04	1.35	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	7.807e+03				no	1.014

$$\text{OCDD} = \frac{(9.927e+03 + 1.116e+04) \times 4000\ \text{pg} \times 1}{(1.814e+04 + 2.020e+04) \times \text{g} \times / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P518851 Samp: 1 Inj: 1 Acquired: 16-NOV-18 10:52:30
Processed: 19-NOV-18 09:11:58 LAB. ID: EQ1800463-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.14e+05	4.28e+02	2.7e+02	1.71e+05	1.29e+03	1.3e+02
2	1,2,3,7,8-PeCDF	1.67e+06	6.44e+02	2.6e+03	1.08e+06	8.72e+02	1.2e+03
3	2,3,4,7,8-PeCDF	1.82e+06	6.44e+02	2.8e+03	1.20e+06	8.72e+02	1.4e+03
4	1,2,3,4,7,8-HxCDF	2.02e+06	2.60e+02	7.8e+03	1.66e+06	3.16e+02	5.3e+03
5	1,2,3,6,7,8-HxCDF	2.08e+06	2.60e+02	8.0e+03	1.64e+06	3.16e+02	5.2e+03
6	2,3,4,6,7,8-HxCDF	1.97e+06	2.60e+02	7.6e+03	1.60e+06	3.16e+02	5.1e+03
7	1,2,3,7,8,9-HxCDF	1.64e+06	2.60e+02	6.3e+03	1.33e+06	3.16e+02	4.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.76e+06	1.00e+03	1.7e+03	1.74e+06	2.54e+03	6.9e+02
9	1,2,3,4,7,8,9-HpCDF	1.56e+06	1.00e+03	1.6e+03	1.51e+06	2.54e+03	5.9e+02
10	OCDF	2.00e+06	1.56e+02	1.3e+04	2.22e+06	6.44e+02	3.4e+03
11	2,3,7,8-TCDD	1.07e+05	1.32e+03	8.1e+01	1.41e+05	5.32e+02	2.7e+02
12	1,2,3,7,8-PeCDD	1.24e+06	6.76e+02	1.8e+03	8.16e+05	1.84e+02	4.4e+03
13	1,2,3,4,7,8-HxCDD	1.50e+06	2.52e+02	6.0e+03	1.15e+06	2.80e+02	4.1e+03
14	1,2,3,6,7,8-HxCDD	1.52e+06	2.52e+02	6.0e+03	1.17e+06	2.80e+02	4.2e+03
15	1,2,3,7,8,9-HxCDD	1.44e+06	2.52e+02	5.7e+03	1.15e+06	2.80e+02	4.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.28e+06	2.44e+02	5.2e+03	1.23e+06	4.96e+02	2.5e+03
17	OCDD	1.54e+06	1.92e+02	8.0e+03	1.74e+06	2.36e+02	7.4e+03
18	13C-2,3,7,8-TCDF	1.41e+06	3.14e+03	4.5e+02	1.77e+06	1.17e+03	1.5e+03
19	13C-1,2,3,7,8-PeCDF	3.46e+06	1.48e+02	2.3e+04	2.17e+06	4.20e+02	5.2e+03
20	13C-2,3,4,7,8-PeCDF	3.71e+06	1.48e+02	2.5e+04	2.27e+06	4.20e+02	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	2.20e+06	9.20e+02	2.4e+03	4.20e+06	2.56e+02	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	2.28e+06	9.20e+02	2.5e+03	4.42e+06	2.56e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	2.25e+06	9.20e+02	2.4e+03	4.39e+06	2.56e+02	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	1.85e+06	9.20e+02	2.0e+03	3.47e+06	2.56e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.69e+06	2.20e+03	7.6e+02	3.75e+06	3.33e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.52e+06	2.20e+03	6.9e+02	3.35e+06	3.33e+03	1.0e+03
27	13C-2,3,7,8-TCDD	1.05e+06	3.10e+03	3.4e+02	1.29e+06	1.89e+03	6.8e+02
28	13C-1,2,3,7,8-PeCDD	2.62e+06	3.24e+02	8.1e+03	1.68e+06	2.88e+02	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	3.15e+06	1.06e+03	3.0e+03	2.45e+06	3.32e+02	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.78e+06	1.06e+03	2.6e+03	2.24e+06	3.32e+02	6.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.12e+06	1.64e+02	1.9e+04	2.90e+06	2.32e+02	1.3e+04
32	13C-OCDD	2.78e+06	4.88e+02	5.7e+03	3.16e+06	2.16e+02	1.5e+04
33	13C-1,2,3,4-TCDD	3.01e+06	3.10e+03	9.7e+02	3.78e+06	1.89e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	5.90e+06	1.06e+03	5.6e+03	4.51e+06	3.32e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	1.13e+06	1.04e+03	1.1e+03			

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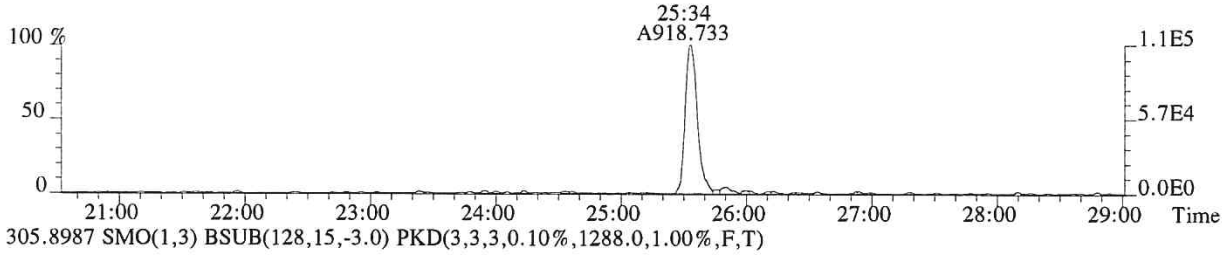
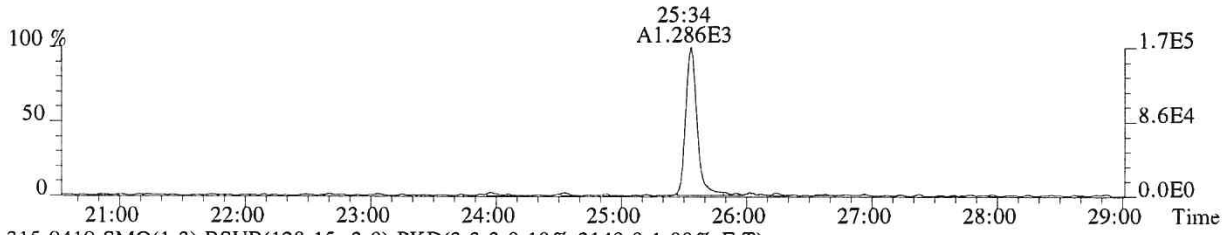
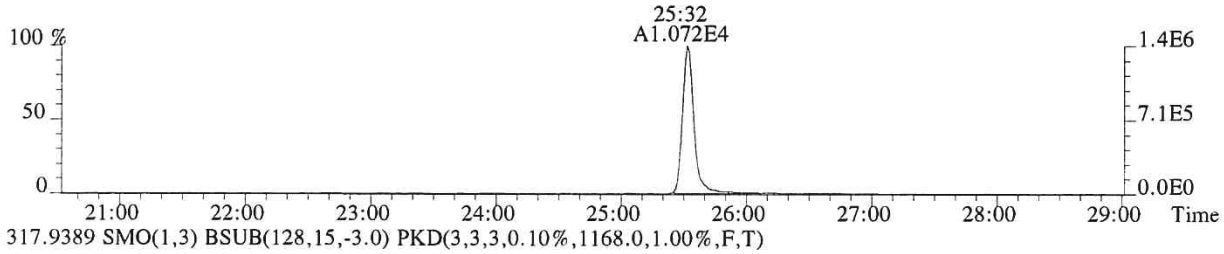
File:P518851 #1-602 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



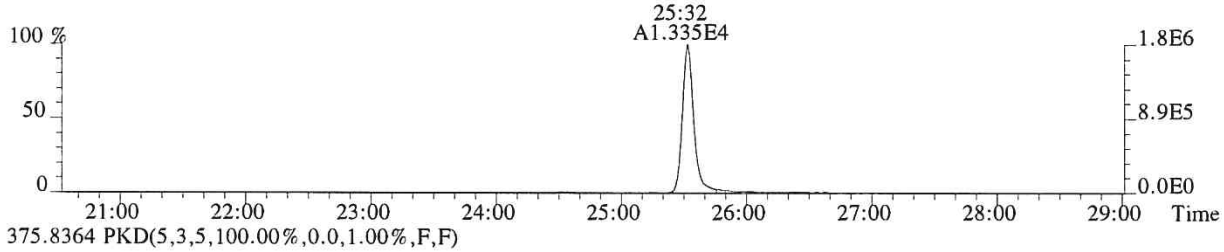
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



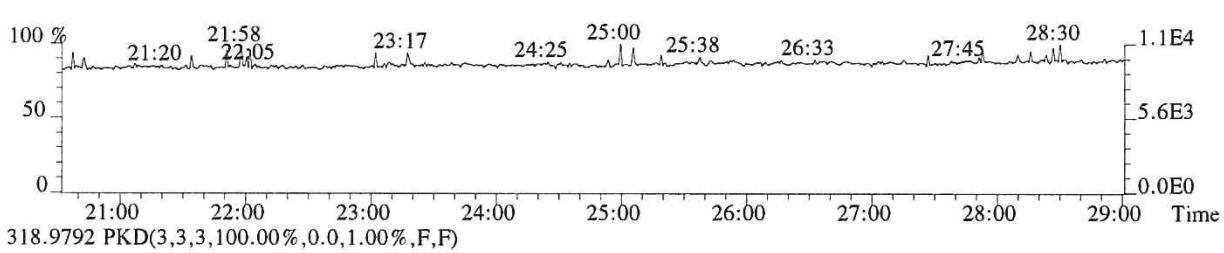
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3140.0,1.00%,F,T)



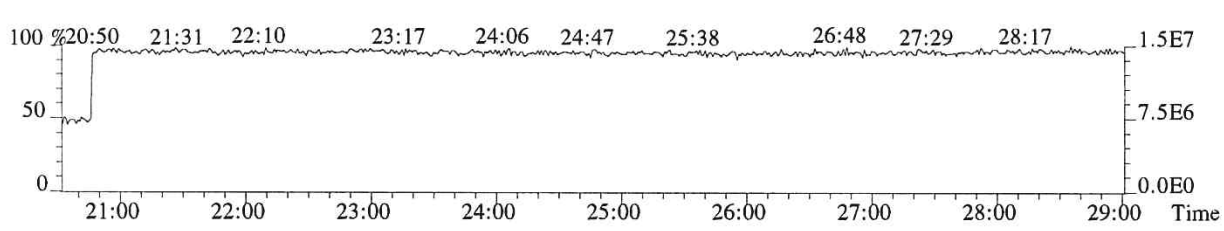
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



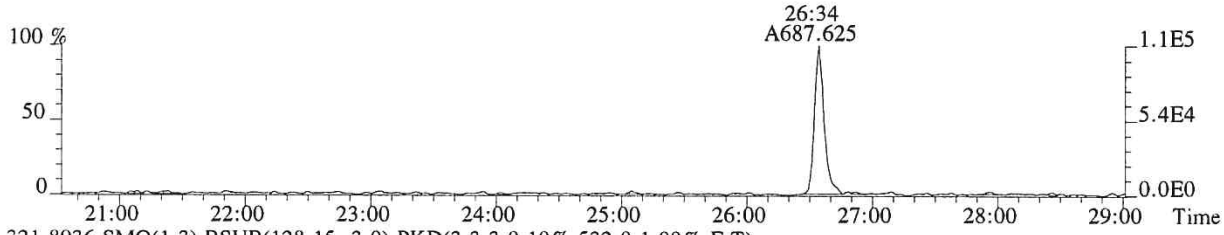
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



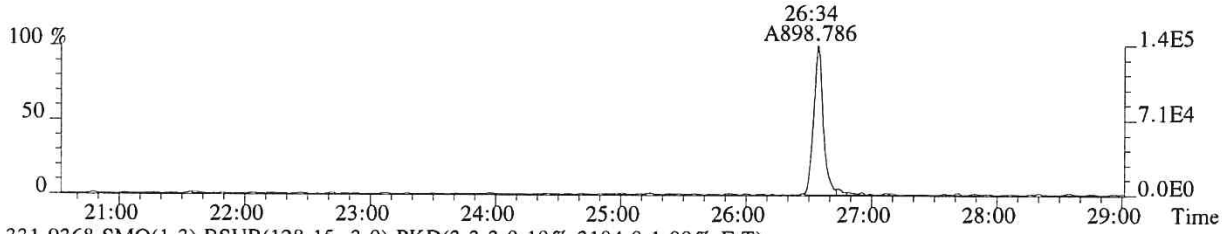
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



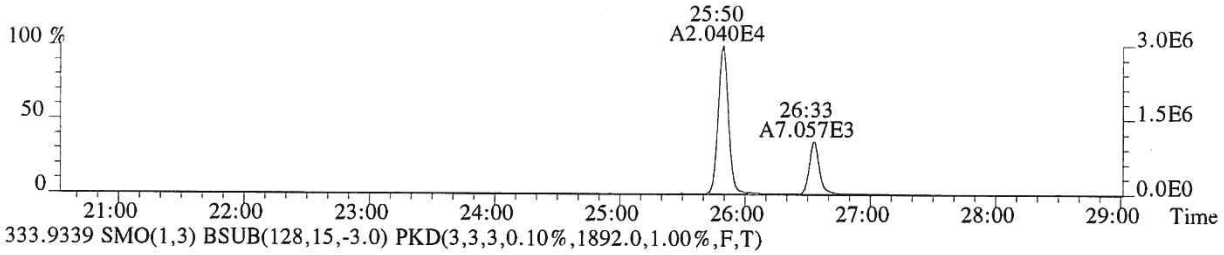
File:P518851 #1-602 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



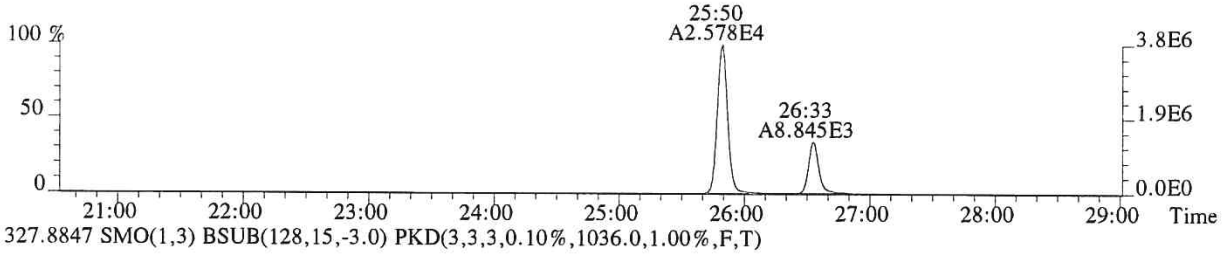
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



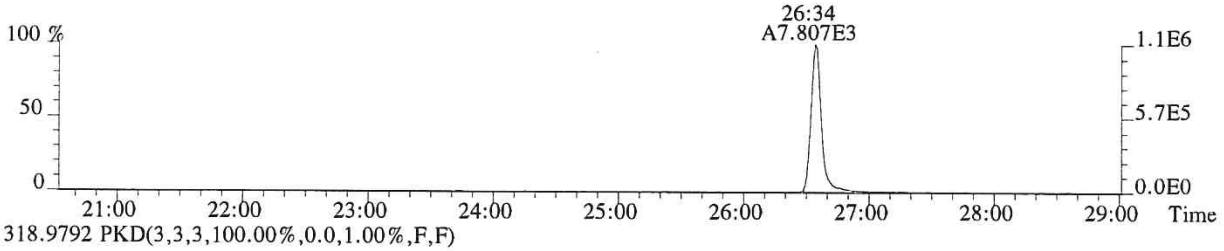
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3104.0,1.00%,F,T)



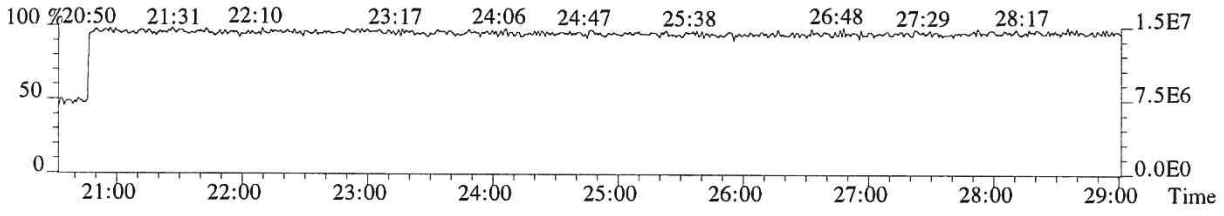
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



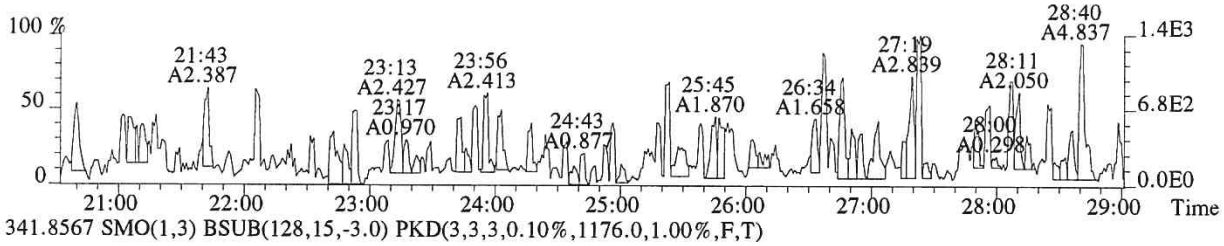
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



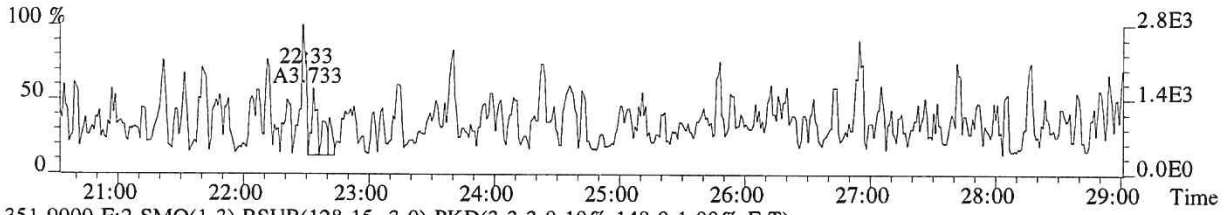
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



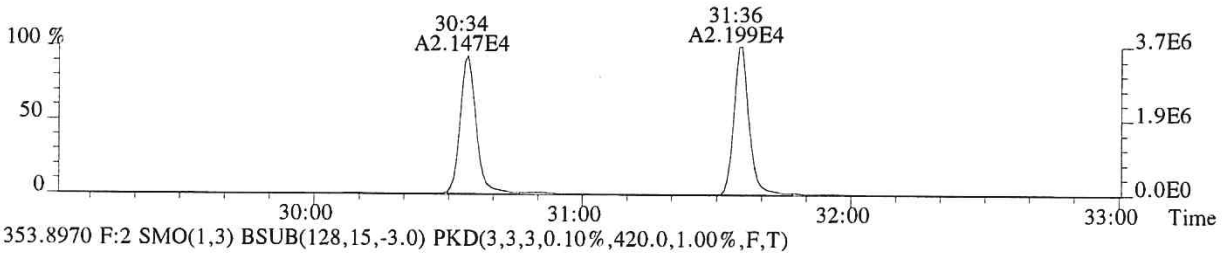
File:P518851 #1-602 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



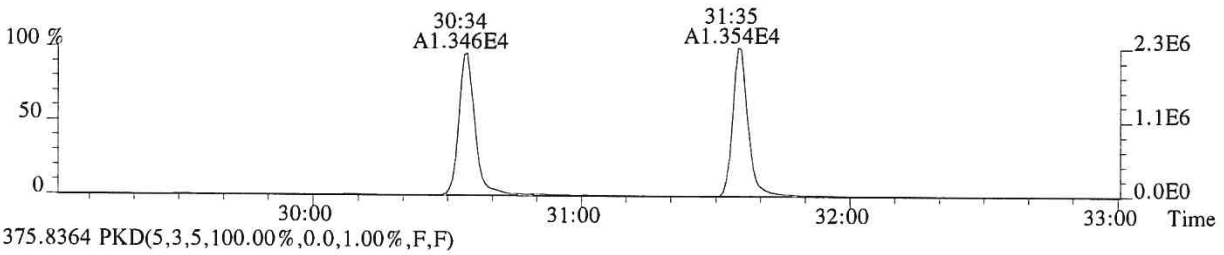
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



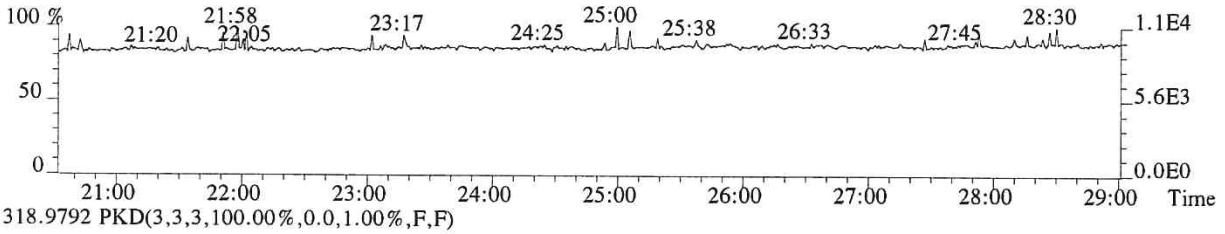
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)



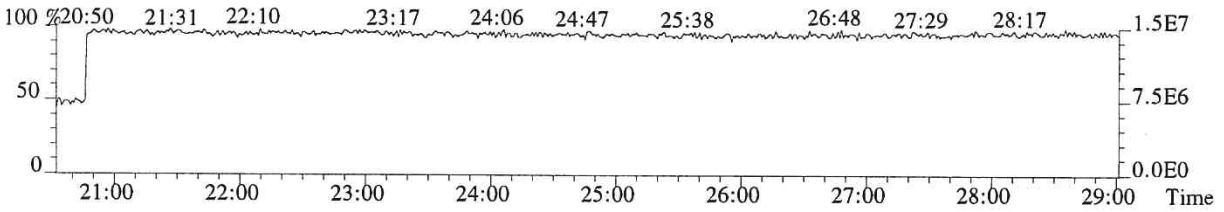
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

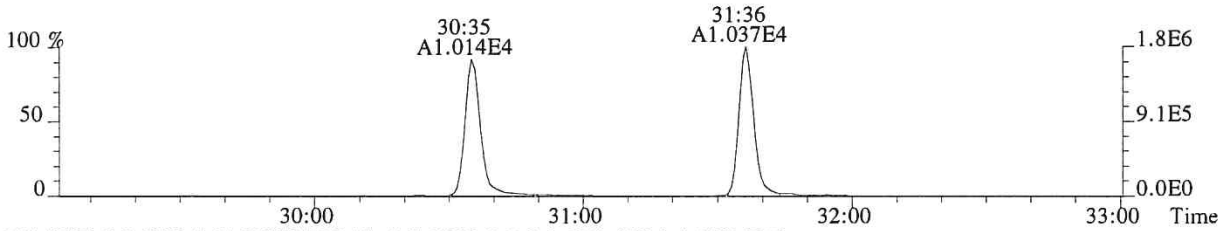


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

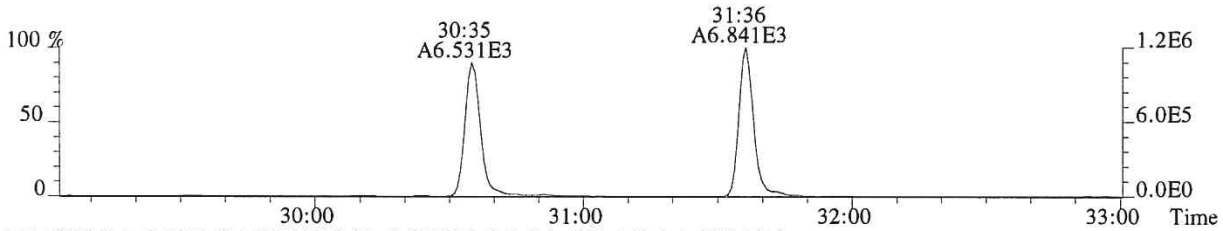


008936

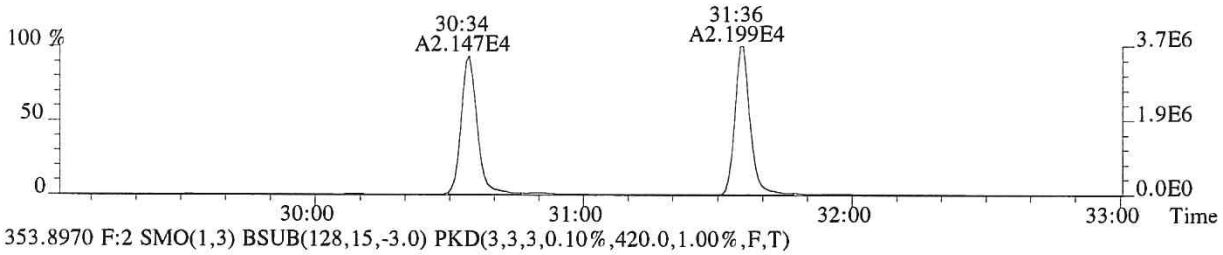
File:P518851 #1-357 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



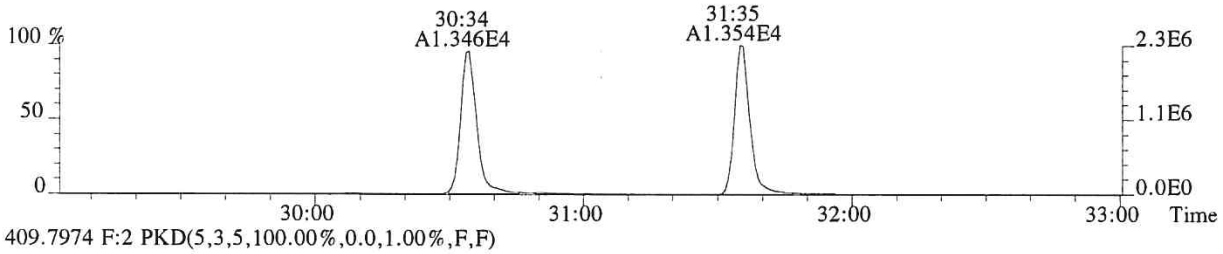
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



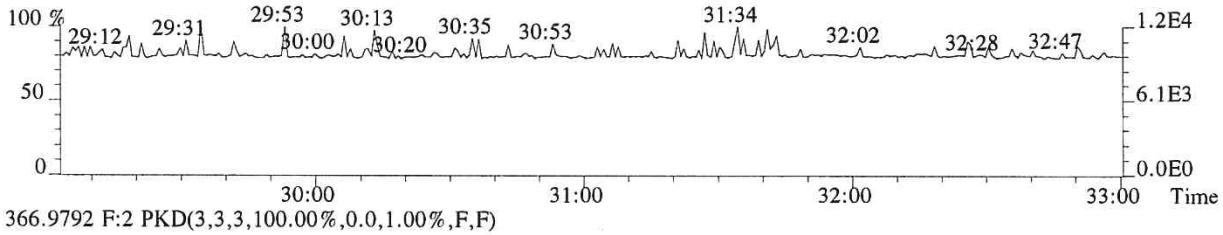
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)



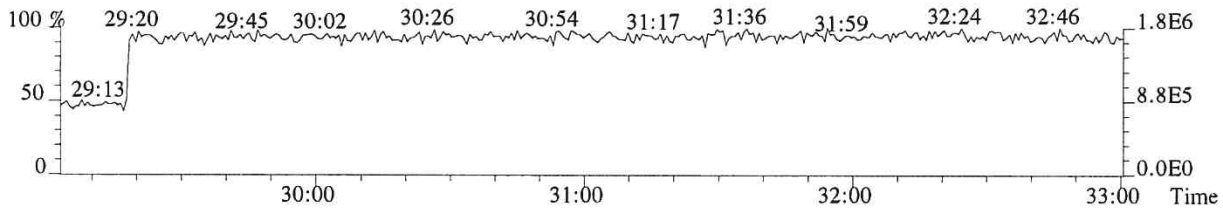
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

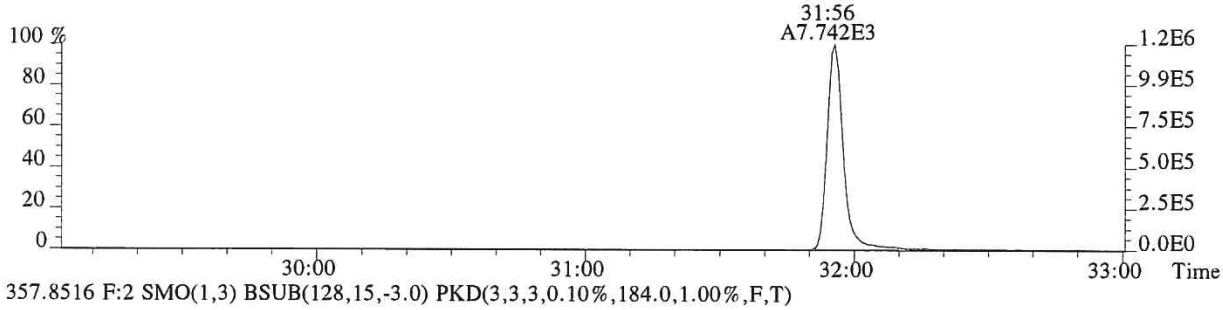


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

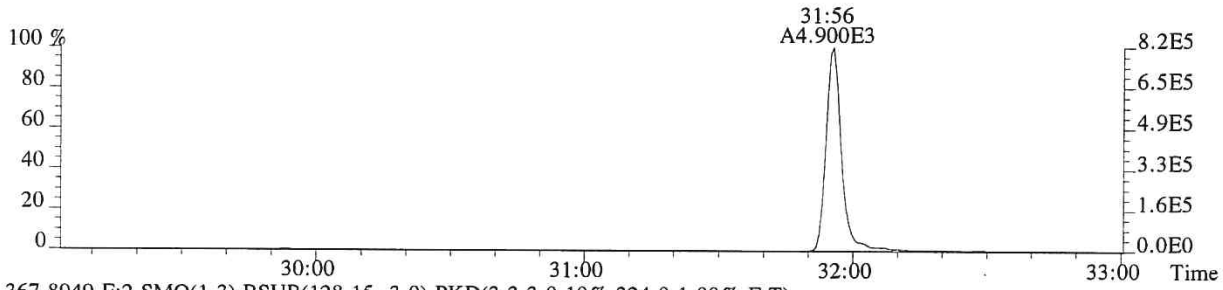


008937

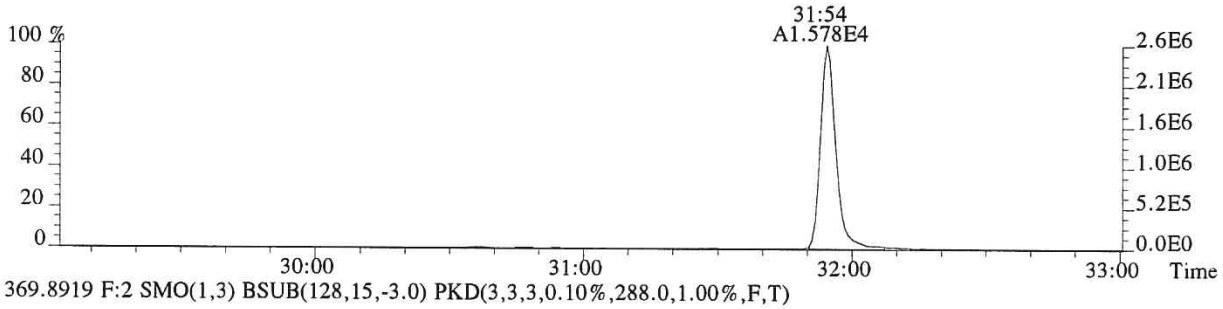
File:P518851 #1-357 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



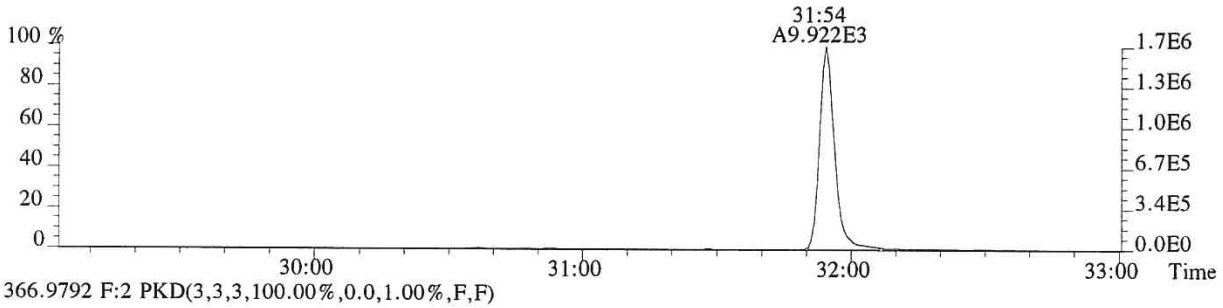
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



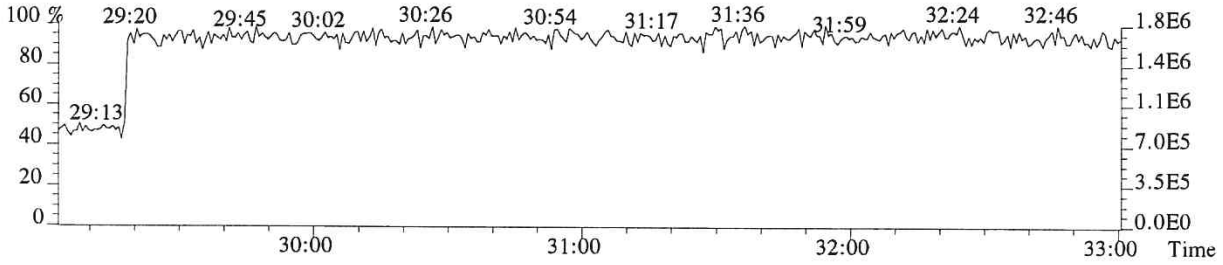
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)

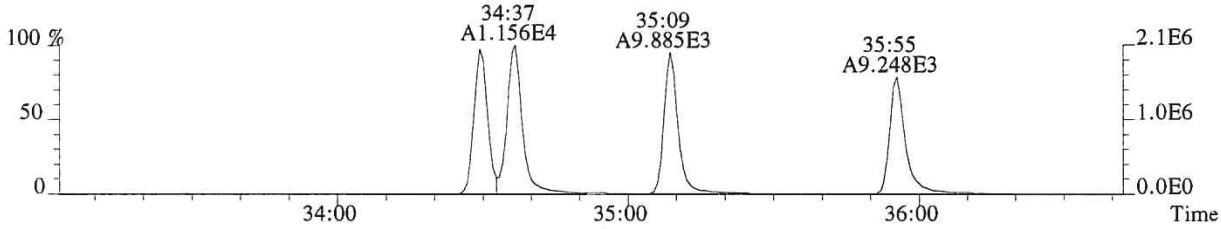


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

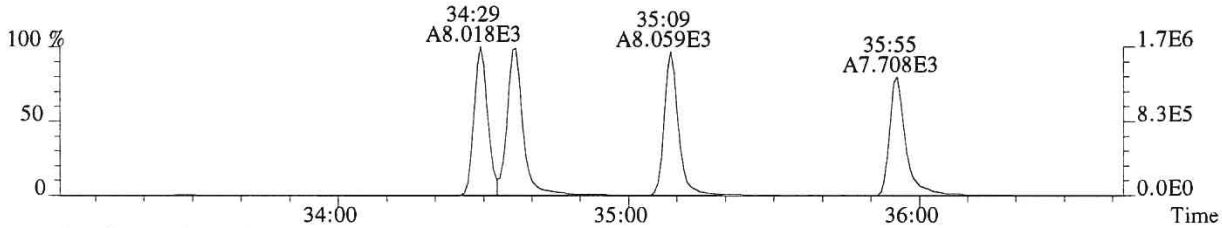


008938

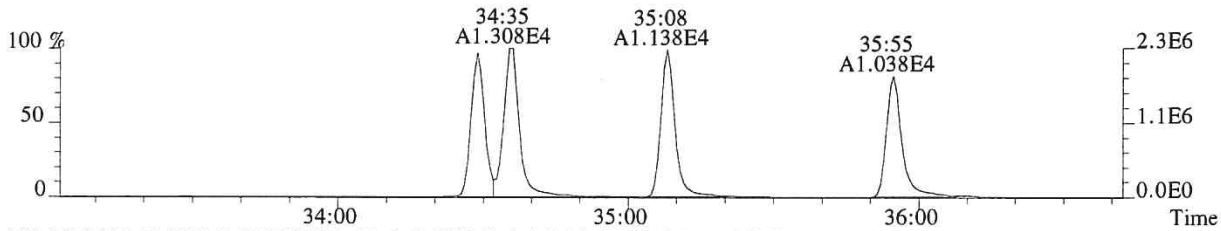
File:P518851 #1-330 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



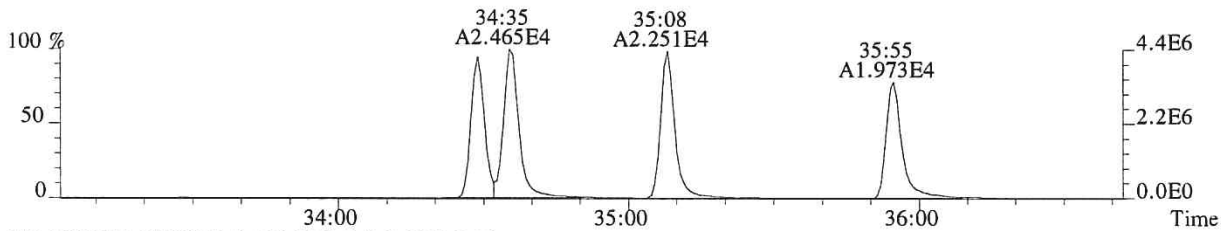
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



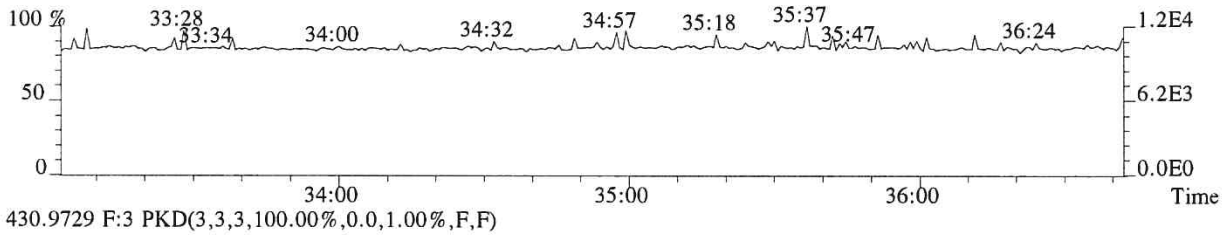
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



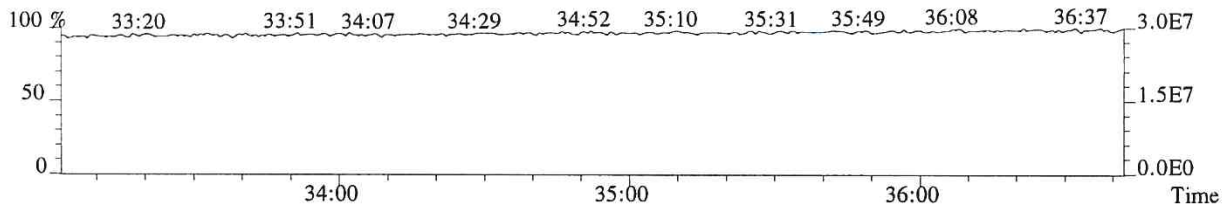
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

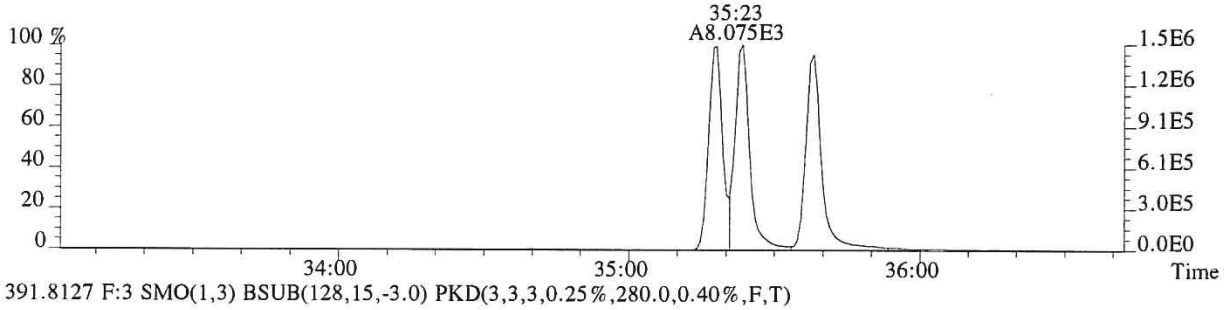


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

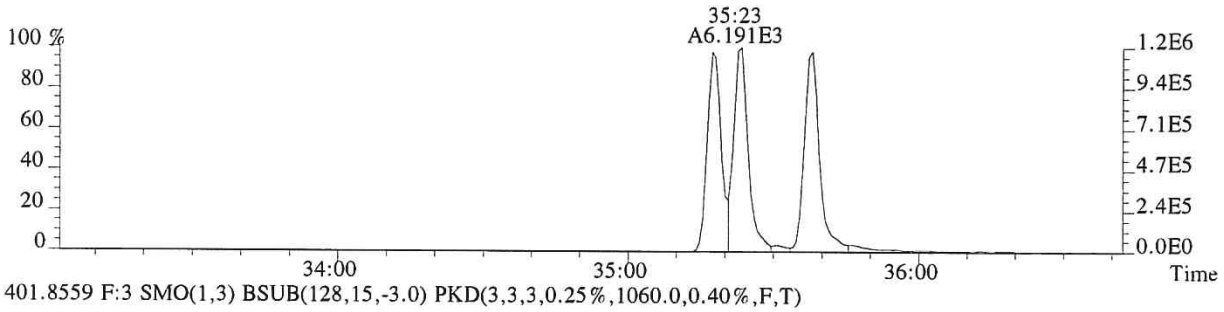


008939

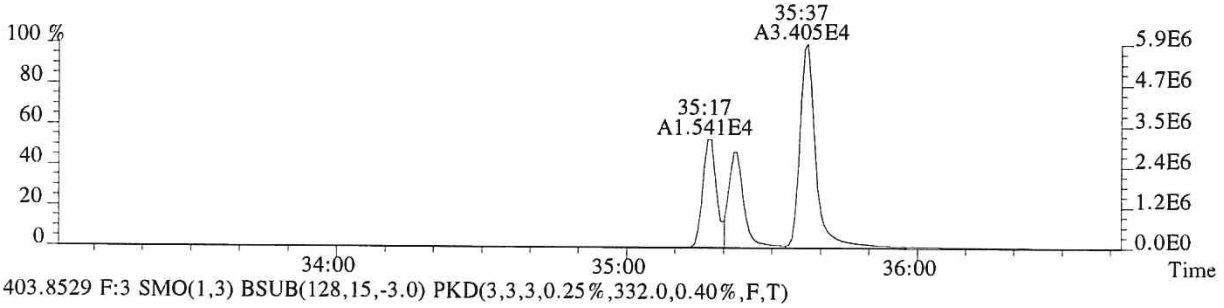
File:P518851 #1-330 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



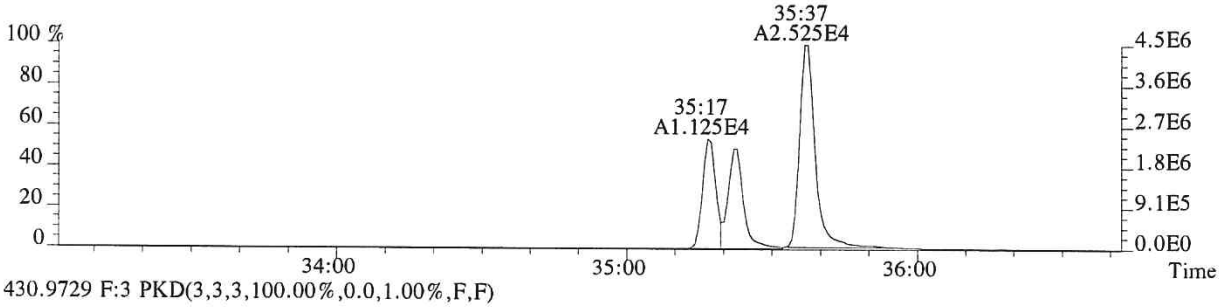
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



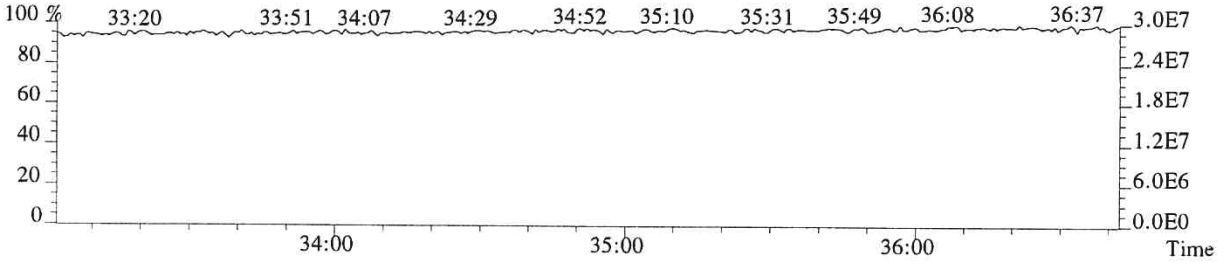
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



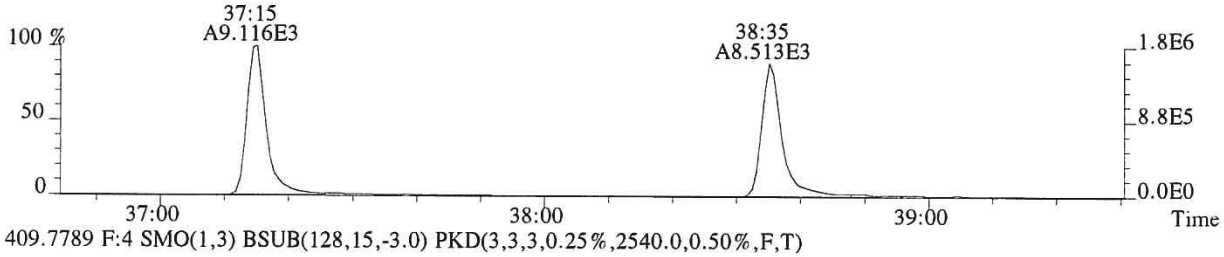
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



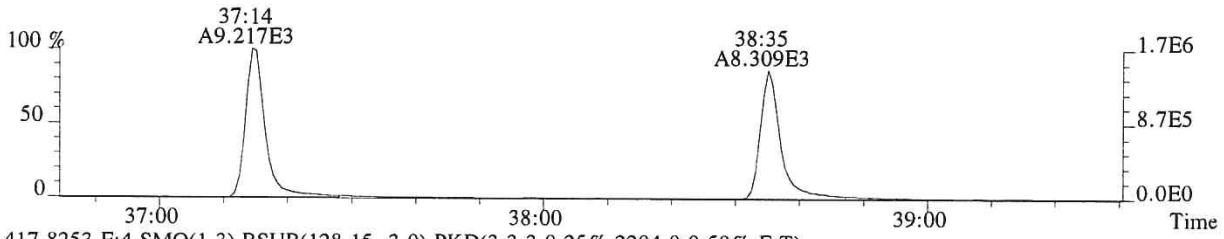
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



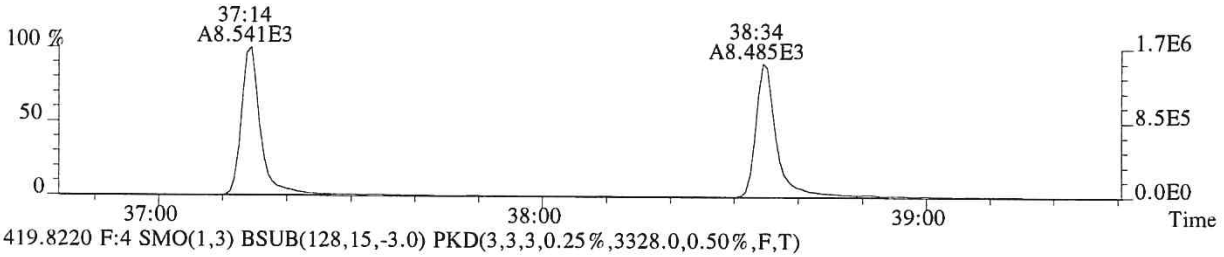
File:P518851 #1-250 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.50%,F,T)



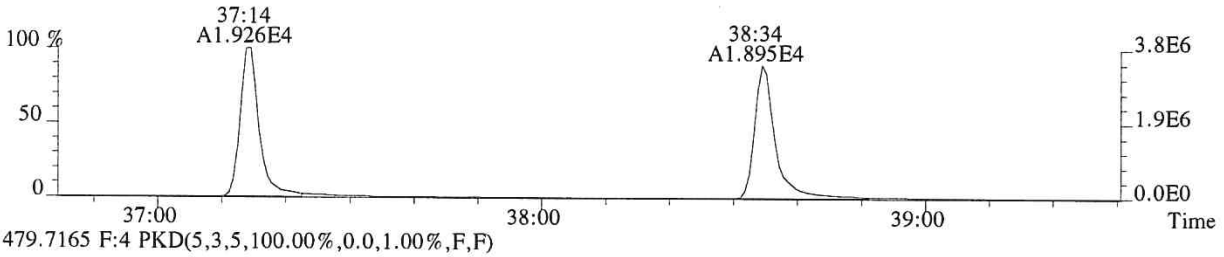
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2540.0,0.50%,F,T)



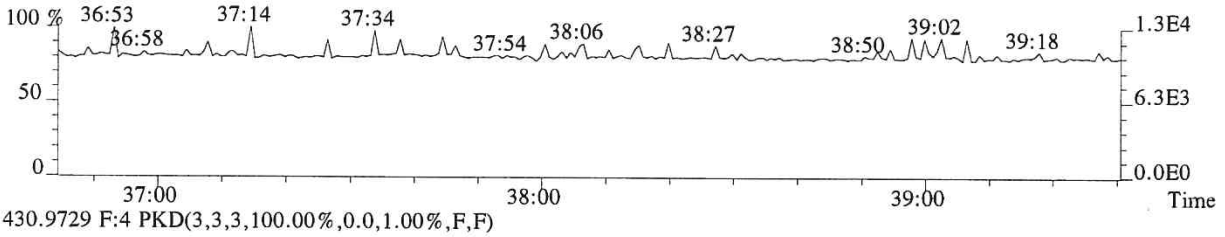
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2204.0,0.50%,F,T)



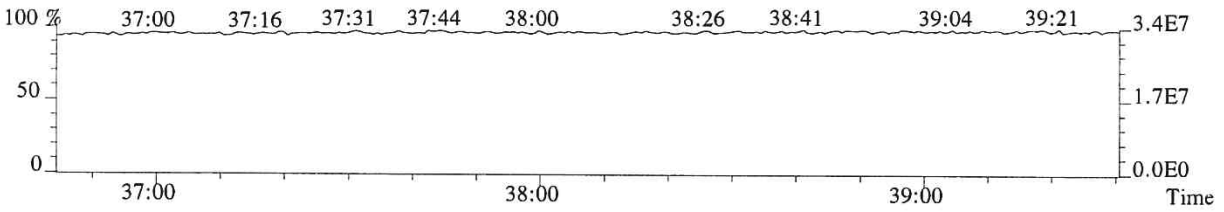
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3328.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

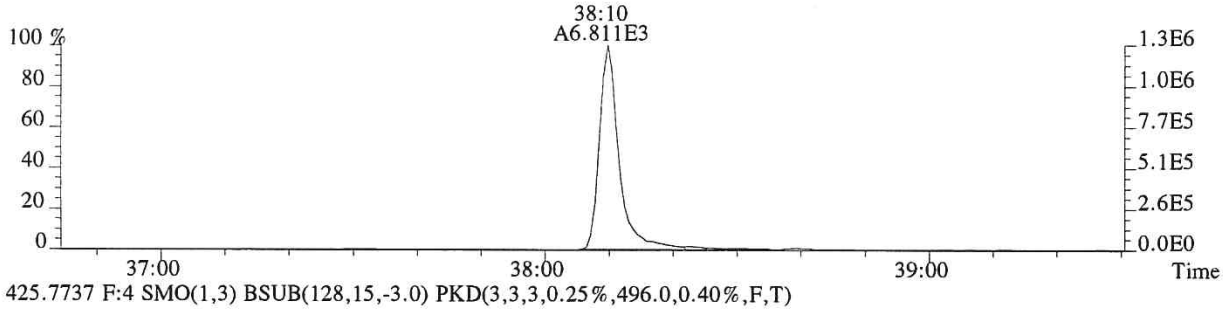


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

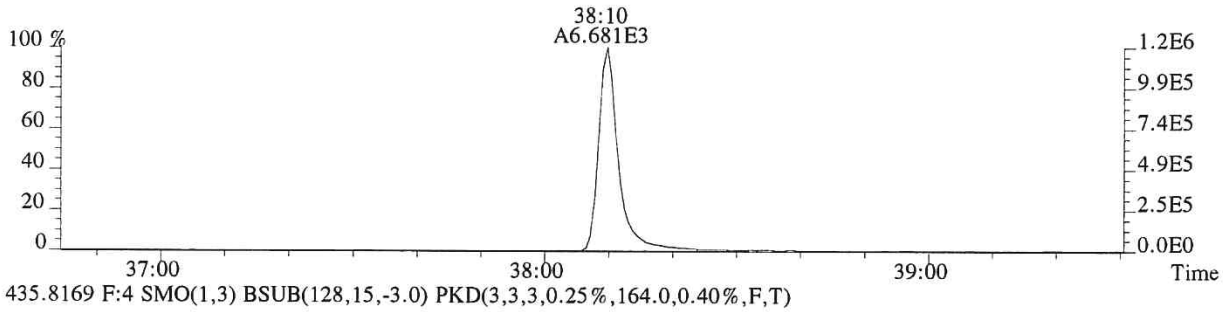


008941

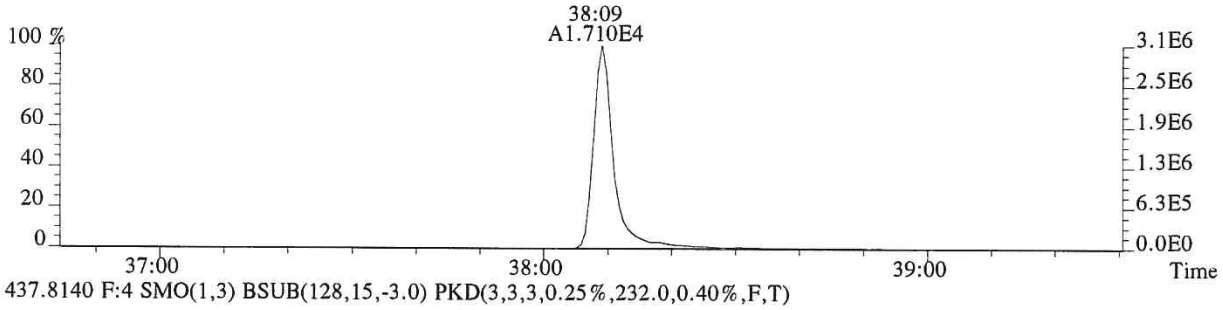
File:P518851 #1-250 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



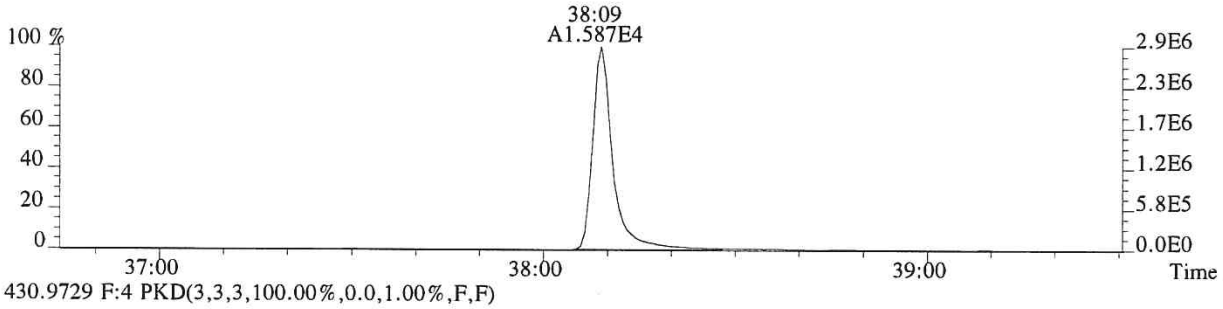
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



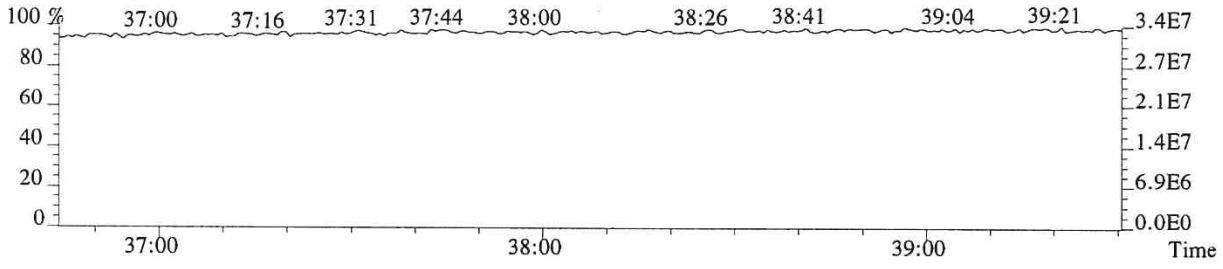
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)

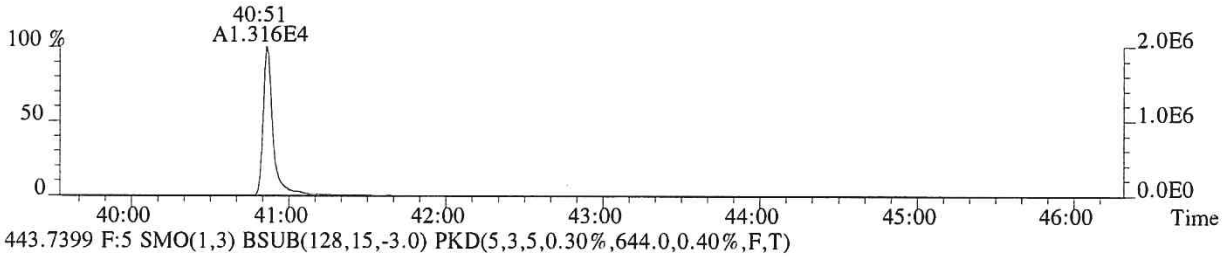


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

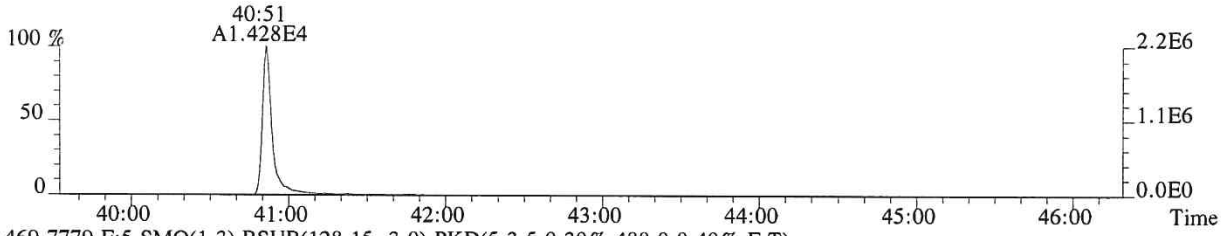


008942

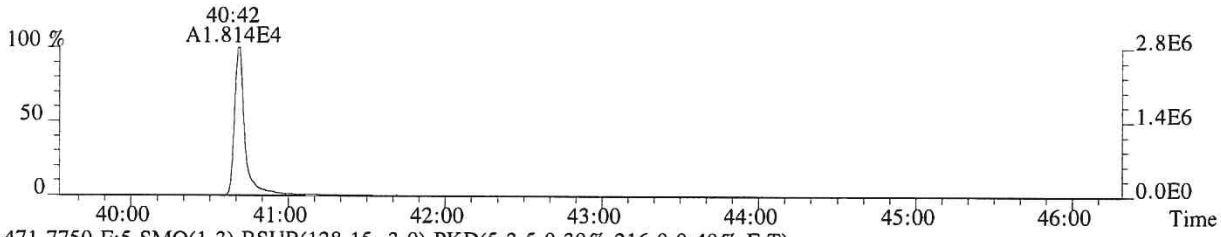
File:P518851 #1-610 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



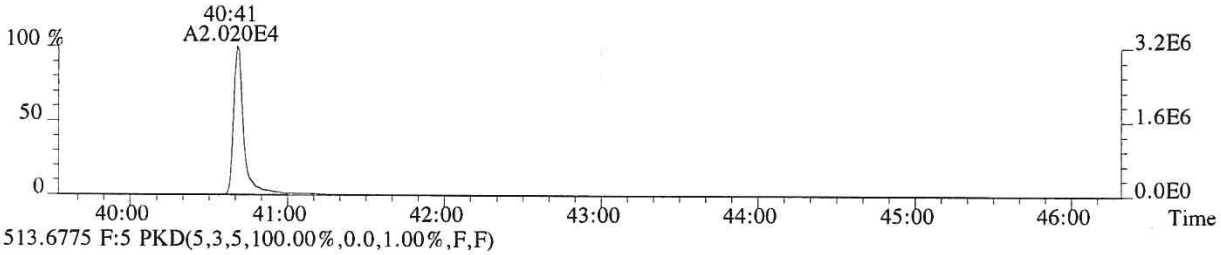
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



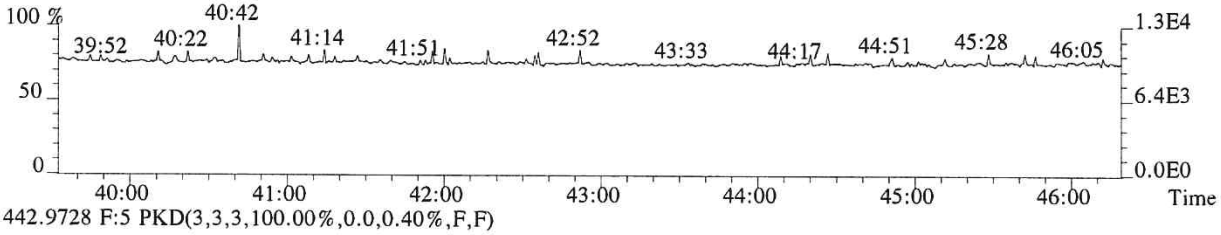
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



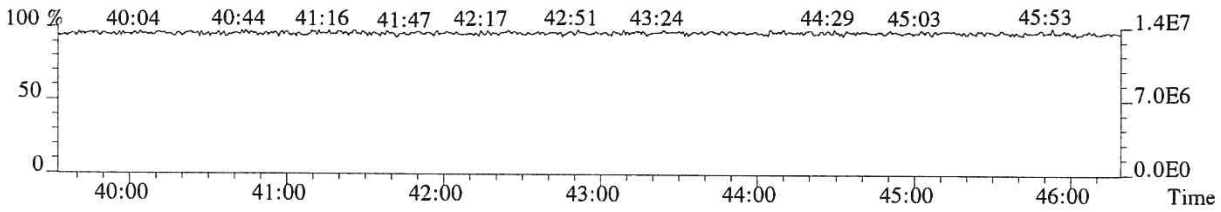
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

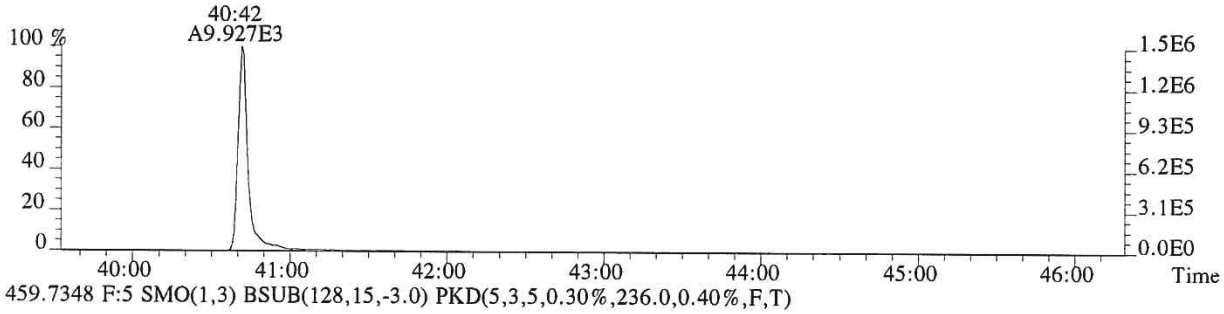


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

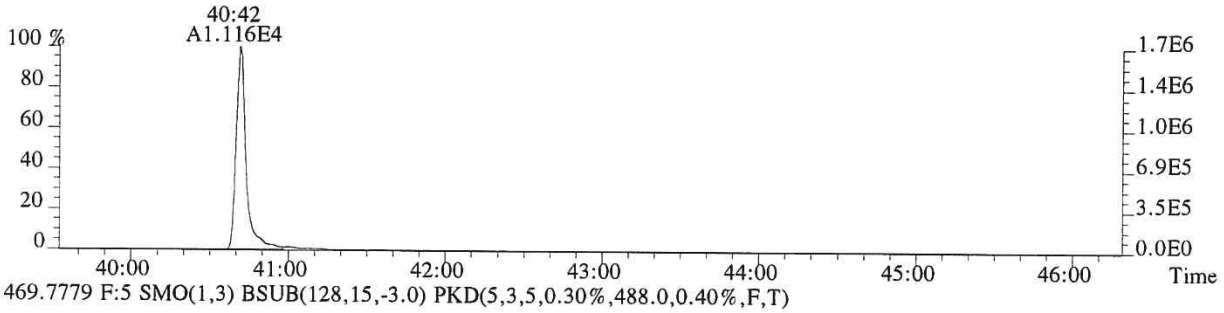


008943

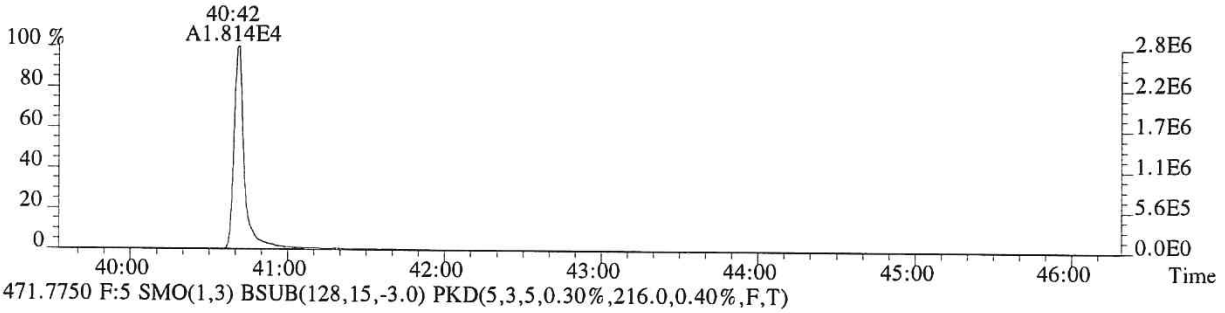
File:P518851 #1-610 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



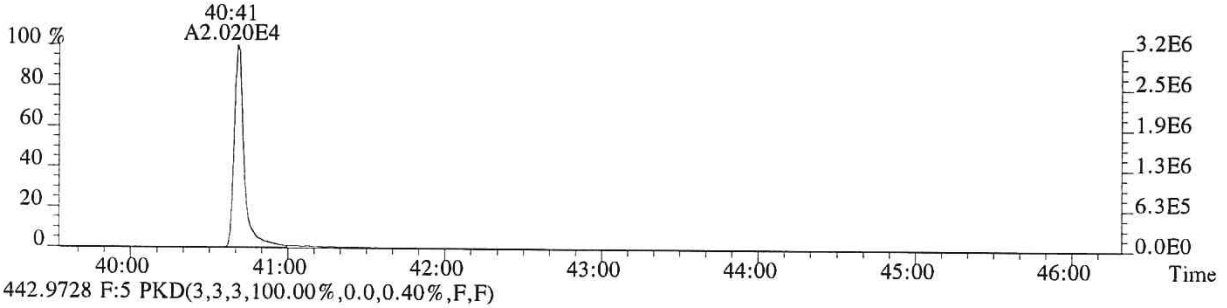
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



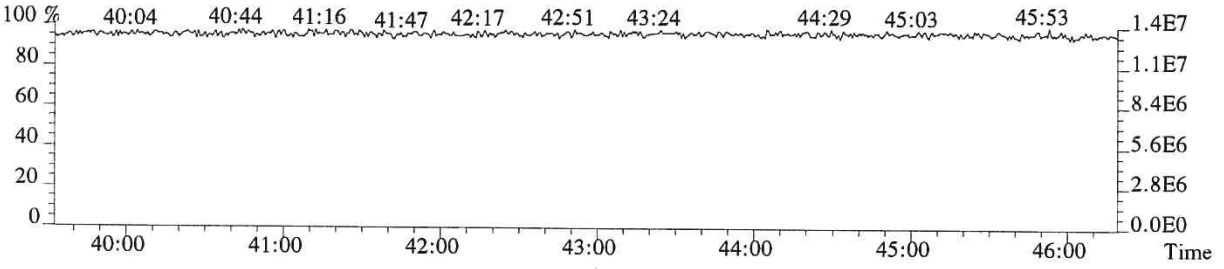
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P615718 Samp: 1 Inj: 1 Acquired: 27-NOV-18 13:29:29
Processed: 28-NOV-18 10:17:27 Sample ID: EQ1800467-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	43:30	9.705e+01	1.207e+02	0.80	yes	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	1.025e+01	1.475e+01	0.69	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:29	1.291e+01	1.539e+01	0.84	no	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:41	1.746e+01	1.565e+01	1.12	yes	yes	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	2.393e+01	1.664e+01	1.44	no	no	1.112
17	Unk	OCDD	43:17	1.149e+02	1.077e+02	1.07	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:14	3.244e+04	4.150e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	5.504e+04	3.464e+04	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:04	5.225e+04	3.244e+04	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	2.328e+04	4.400e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	2.617e+04	4.795e+04	0.55	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	2.538e+04	4.798e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	2.258e+04	4.327e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	1.515e+04	3.344e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	1.504e+04	3.371e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	2.451e+04	3.161e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	3.954e+04	2.530e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	3.374e+04	2.687e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:28	3.117e+04	2.438e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	2.852e+04	2.692e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	43:16	2.308e+04	2.579e+04	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	5.342e+04	6.689e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	6.632e+04	5.325e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:58	2.367e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P615718 Samp: 1 Inj: 1 Acquired: 27-NOV-18 13:29:29
Processed: 28-NOV-18 10:17:27 LAB. ID: EQ1800467-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.10e+03	*	*	3.04e+03	*
2	1,2,3,7,8-PeCDF	*	1.32e+03	*	*	2.82e+03	*
3	2,3,4,7,8-PeCDF	*	1.32e+03	*	*	2.82e+03	*
4	1,2,3,4,7,8-HxCDF	*	3.98e+03	*	*	3.79e+03	*
5	1,2,3,6,7,8-HxCDF	*	3.98e+03	*	*	3.79e+03	*
6	2,3,4,6,7,8-HxCDF	*	3.98e+03	*	*	3.79e+03	*
7	1,2,3,7,8,9-HxCDF	*	3.98e+03	*	*	3.79e+03	*
8	1,2,3,4,6,7,8-HpCDF	*	4.51e+03	*	*	4.14e+03	*
9	1,2,3,4,7,8,9-HpCDF	*	4.51e+03	*	*	4.14e+03	*
10	OCDF	1.19e+04	6.24e+02	1.9e+01	1.87e+04	1.50e+03	1.2e+01
11	2,3,7,8-TCDD	*	3.26e+03	*	*	2.15e+03	*
12	1,2,3,7,8-PeCDD	*	1.47e+03	*	*	9.20e+02	*
13	1,2,3,4,7,8-HxCDD	2.34e+03	5.76e+02	4.1e+00	4.15e+03	6.52e+02	6.4e+00
14	1,2,3,6,7,8-HxCDD	3.94e+03	5.76e+02	6.8e+00	2.80e+03	6.52e+02	4.3e+00
15	1,2,3,7,8,9-HxCDD	5.24e+03	5.76e+02	9.1e+00	3.61e+03	6.52e+02	5.5e+00
16	1,2,3,4,6,7,8-HpCDD	5.06e+03	9.00e+02	5.6e+00	3.65e+03	5.52e+02	6.6e+00
17	OCDD	1.87e+04	4.44e+02	4.2e+01	1.66e+04	8.96e+02	1.9e+01
18	13C-2,3,7,8-TCDF	6.51e+06	1.18e+04	5.5e+02	8.17e+06	6.07e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	1.11e+07	2.14e+03	5.2e+03	7.08e+06	4.52e+02	1.6e+04
20	13C-2,3,4,7,8-PeCDF	1.12e+07	2.14e+03	5.2e+03	6.94e+06	4.52e+02	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	5.27e+06	1.44e+03	3.7e+03	9.96e+06	1.12e+03	8.9e+03
22	13C-1,2,3,6,7,8-HxCDF	5.84e+06	1.44e+03	4.1e+03	1.08e+07	1.12e+03	9.7e+03
23	13C-2,3,4,6,7,8-HxCDF	5.69e+06	1.44e+03	4.0e+03	1.06e+07	1.12e+03	9.5e+03
24	13C-1,2,3,7,8,9-HxCDF	5.08e+06	1.44e+03	3.5e+03	9.63e+06	1.12e+03	8.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.26e+06	2.70e+03	1.2e+03	7.20e+06	1.69e+03	4.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.01e+06	2.70e+03	1.1e+03	6.80e+06	1.69e+03	4.0e+03
27	13C-2,3,7,8-TCDD	5.27e+06	1.78e+04	3.0e+02	6.76e+06	4.41e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	8.48e+06	1.56e+03	5.4e+03	5.43e+06	1.43e+03	3.8e+03
29	13C-1,2,3,4,7,8-HxCDD	7.85e+06	2.93e+03	2.7e+03	6.23e+06	1.53e+03	4.1e+03
30	13C-1,2,3,6,7,8-HxCDD	7.03e+06	2.93e+03	2.4e+03	5.50e+06	1.53e+03	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.72e+06	1.08e+03	5.3e+03	5.43e+06	1.12e+03	4.9e+03
32	13C-OCDD	3.72e+06	6.52e+02	5.7e+03	4.06e+06	5.88e+02	6.9e+03
33	13C-1,2,3,4-TCDD	1.11e+07	1.78e+04	6.2e+02	1.39e+07	4.41e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.49e+07	2.93e+03	5.1e+03	1.19e+07	1.53e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	4.99e+06	1.06e+03	4.7e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.256e{+}03 + 2.152e{+}03) \times 2000}{(5.272e{+}06 + 6.761e{+}06) \times (\quad) \times 1.049} =$$

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Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P615718 Sample:1 Injection:1 Function:3

Acquired: 27-NOV-18 13:29:29 Processed: 28-NOV-18 10:17:27

Mass: 389.8160 391.8130 Tot Response: 3.31e+01 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:41	1.75e+01	1.56e+01 1.12	yes	3.31e+01	1,2,3,7,8,9-HxCDD	y	y

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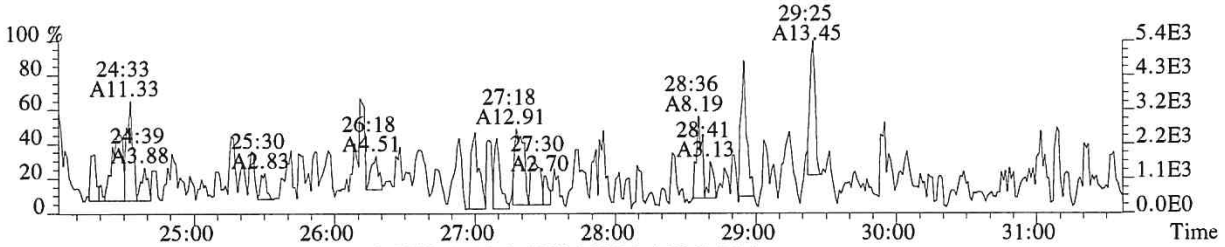
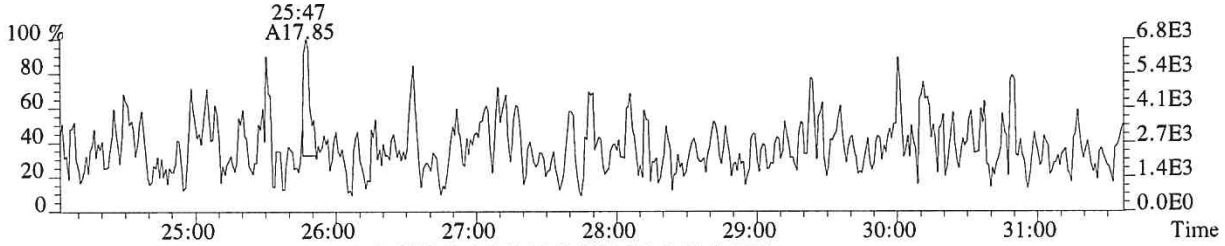
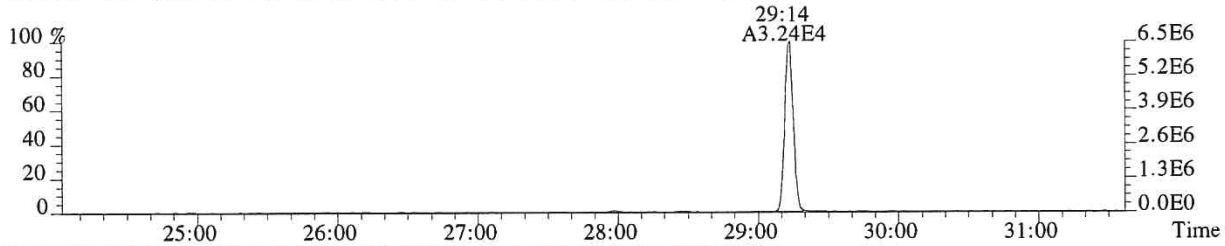
File:P615718 #1-538 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



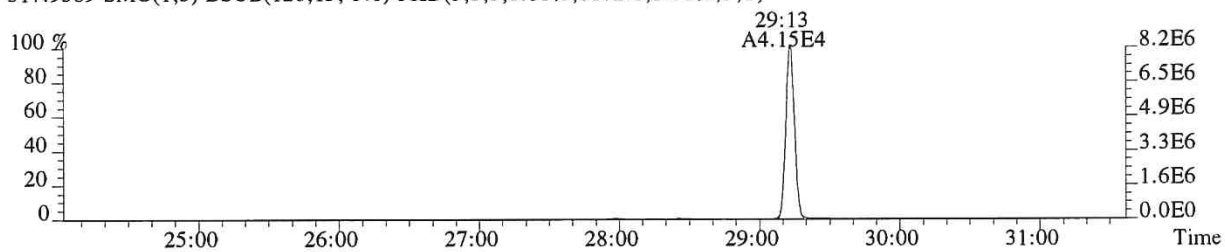
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3036.0,1.00%,F,T)



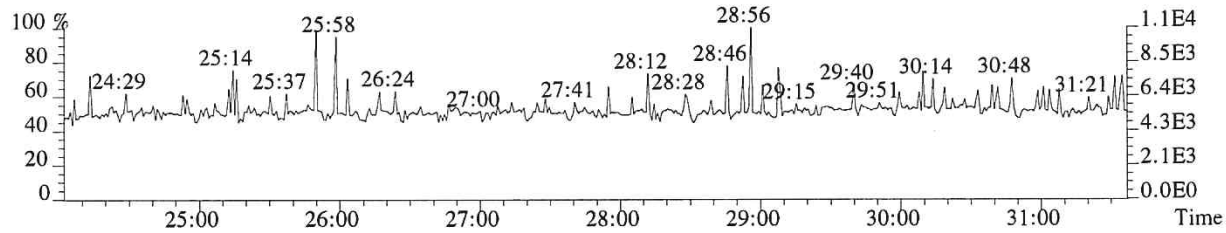
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11816.0,1.00%,F,T)



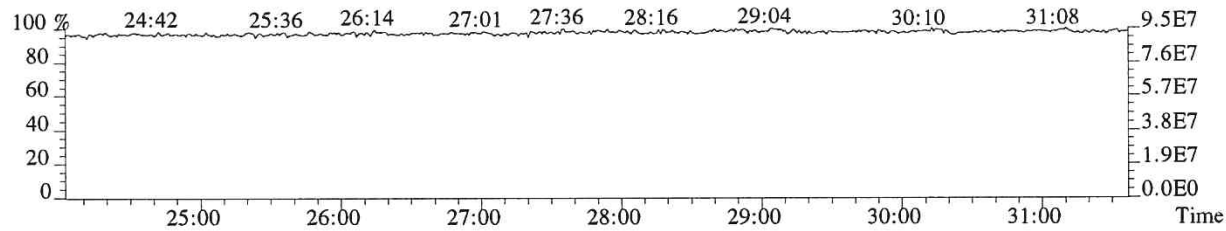
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6072.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

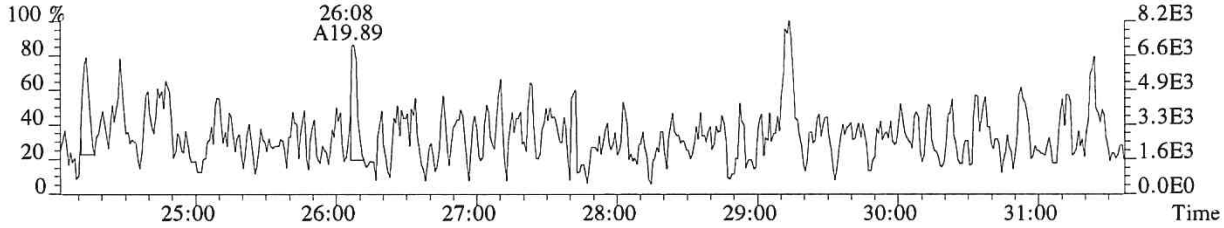


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

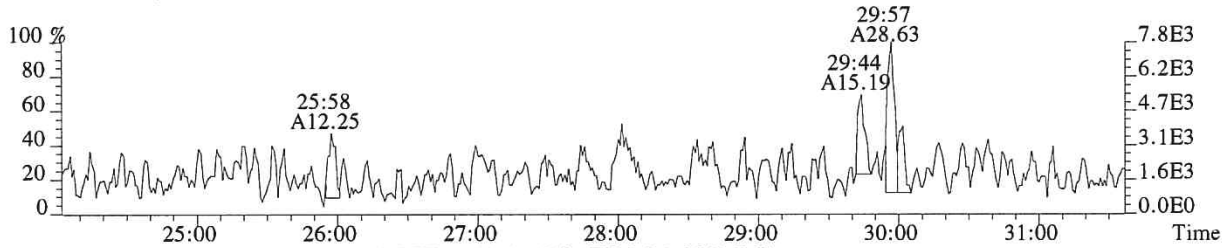


008948

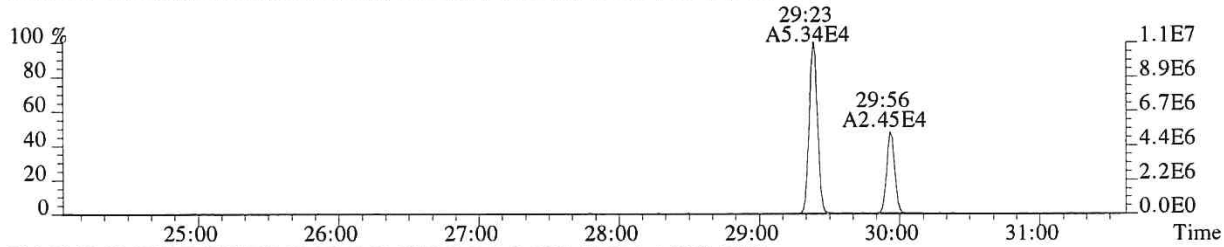
File:P615718 #1-538 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



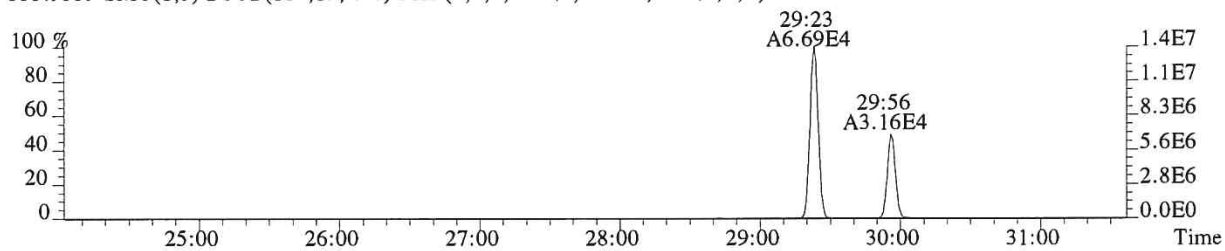
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2152.0,1.00%,F,T)



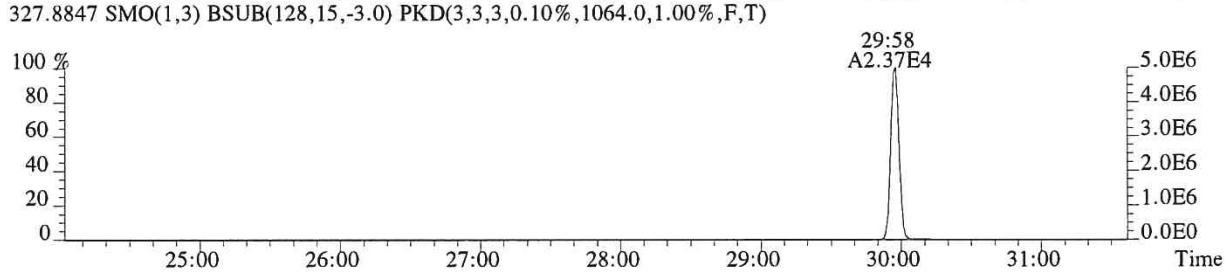
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17780.0,1.00%,F,T)



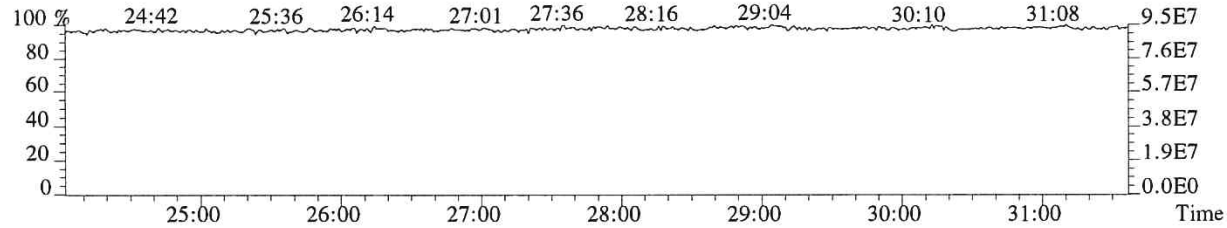
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)

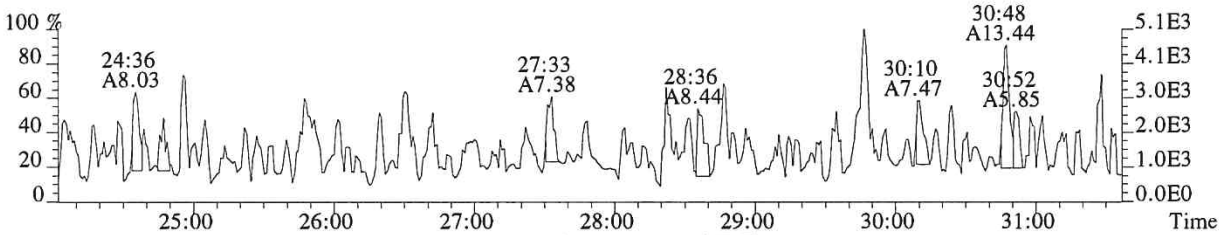


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

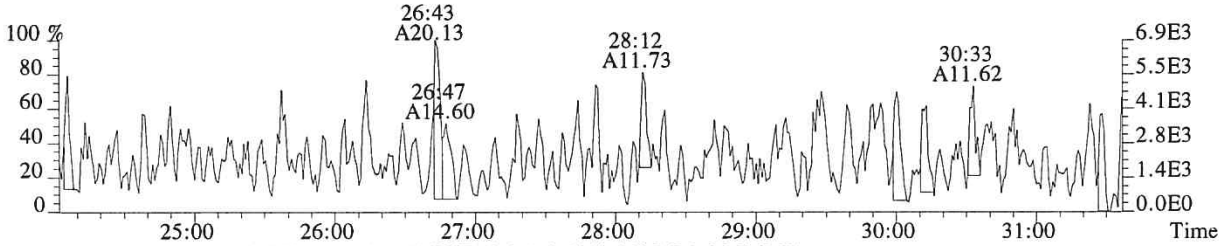


008949

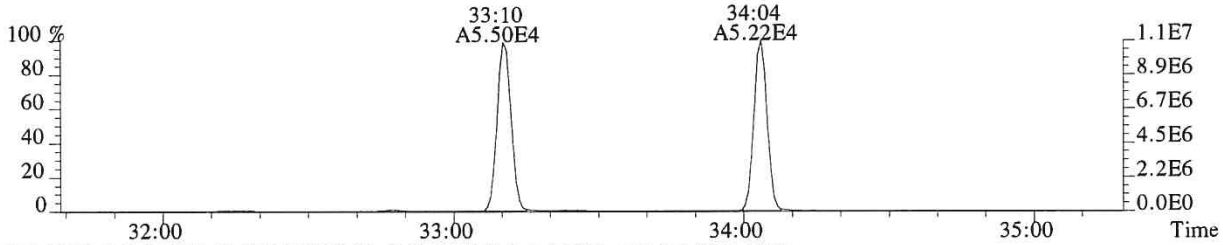
File:P615718 #1-538 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



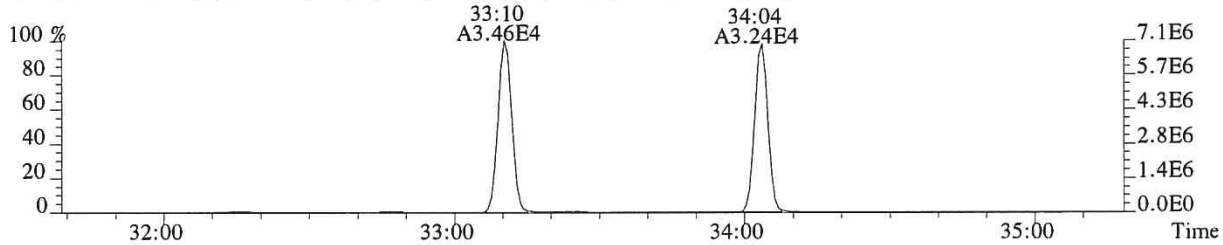
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2484.0,1.00%,F,T)



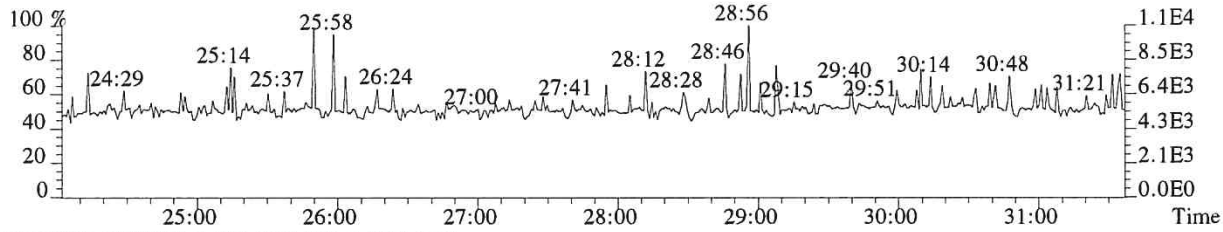
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



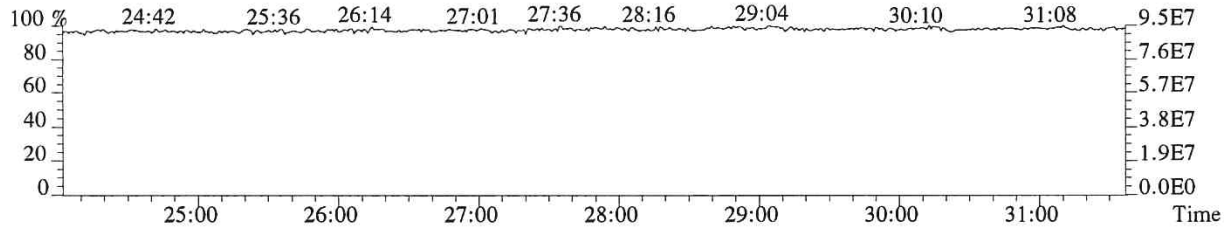
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



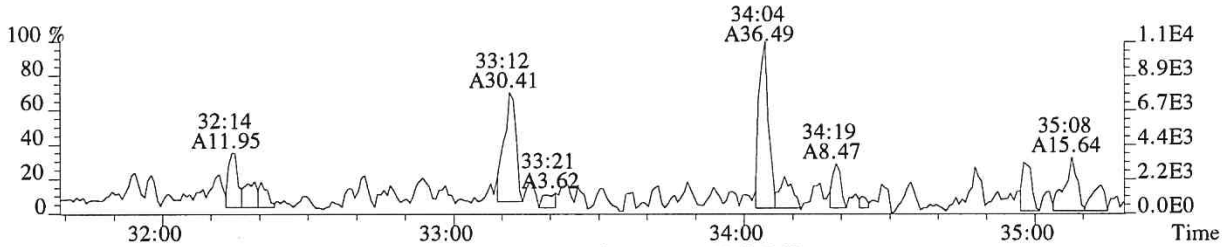
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



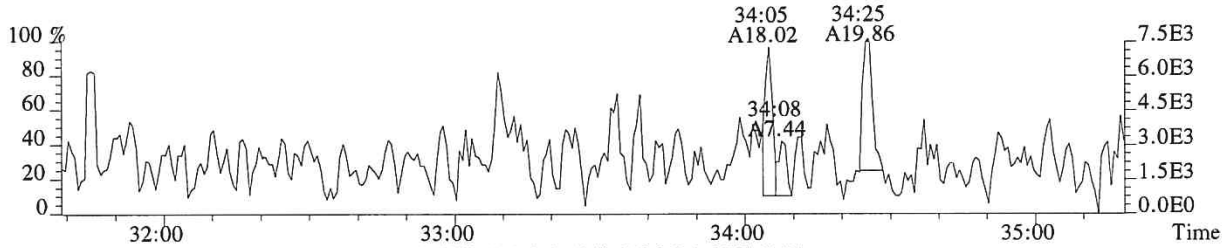
008950

File:P615718 #1-330 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

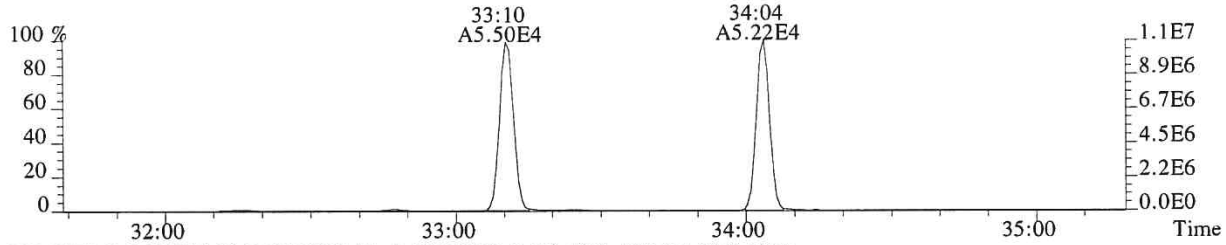
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



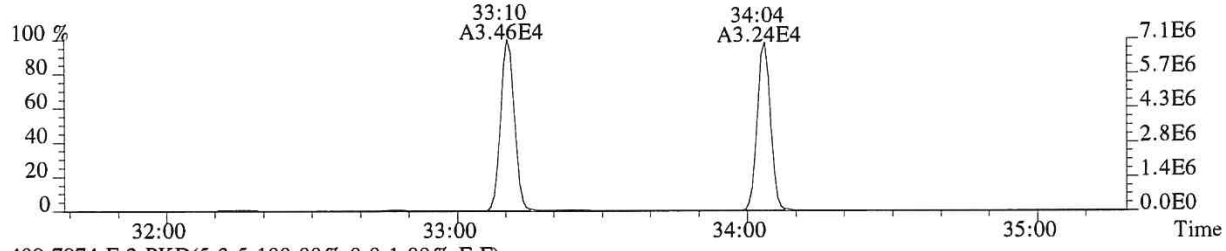
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



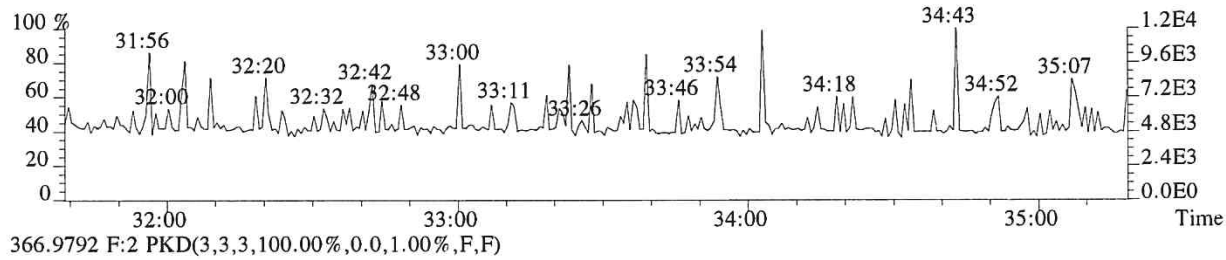
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



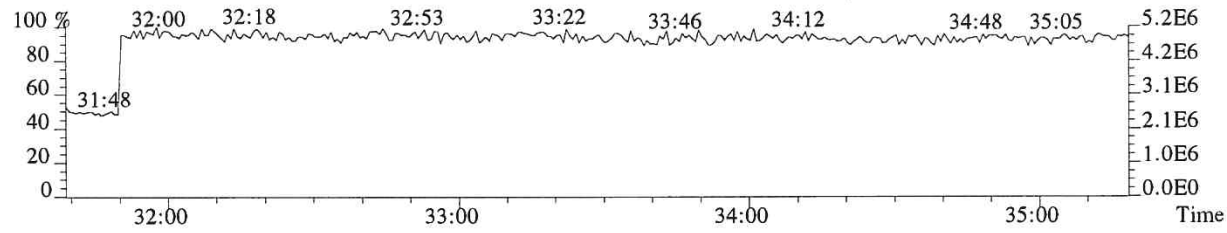
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

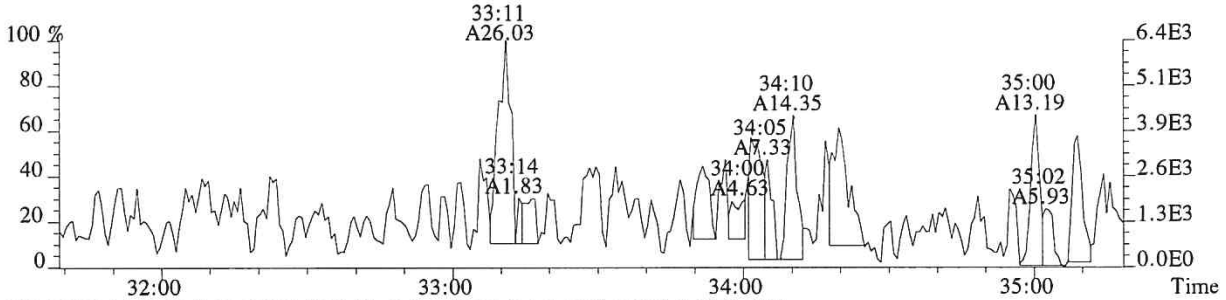


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

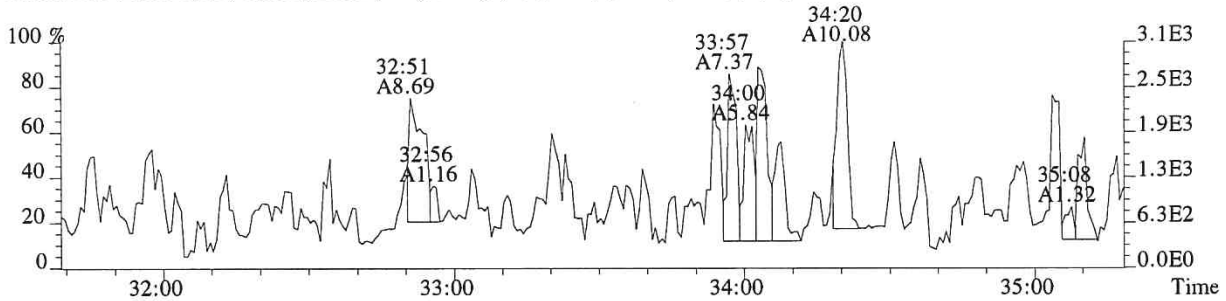


008951

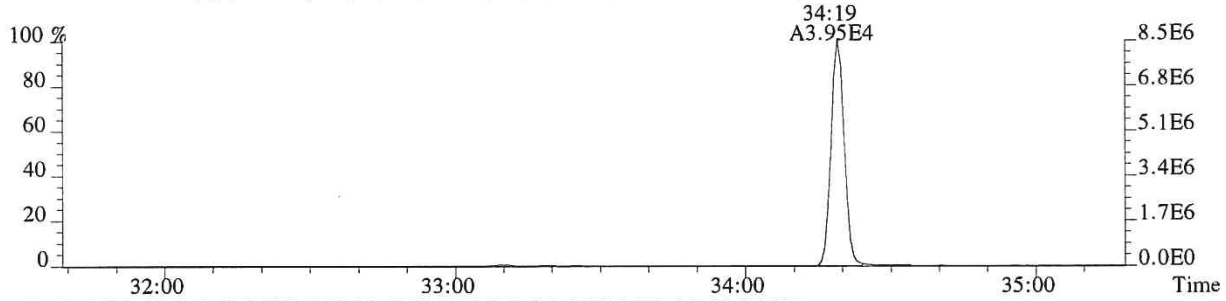
File:P615718 #1-330 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



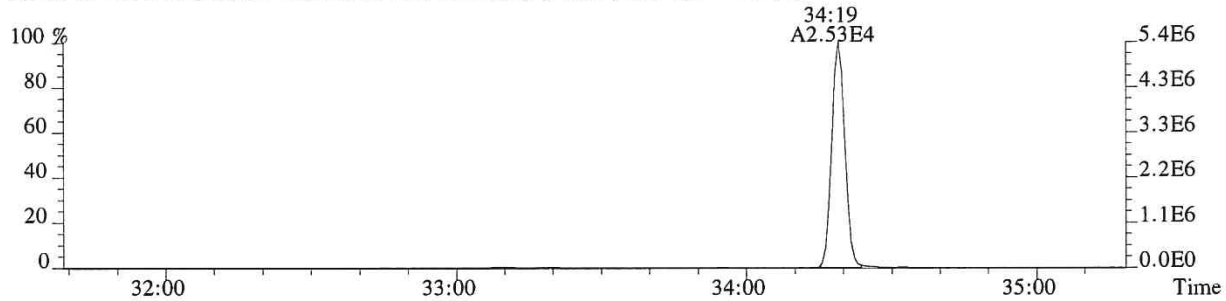
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



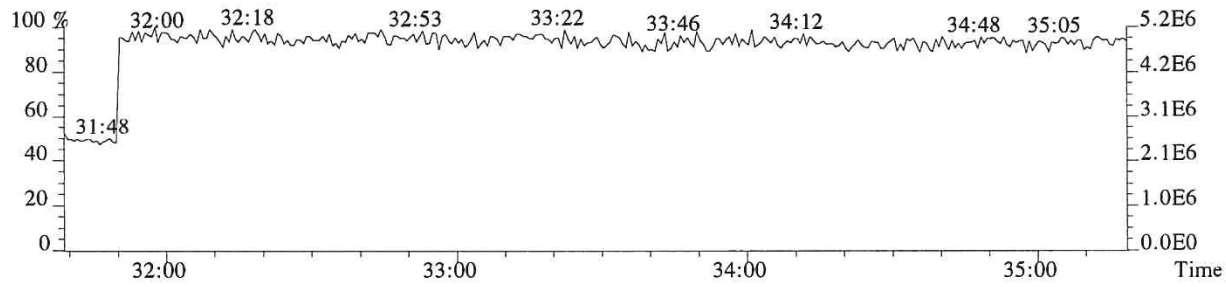
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



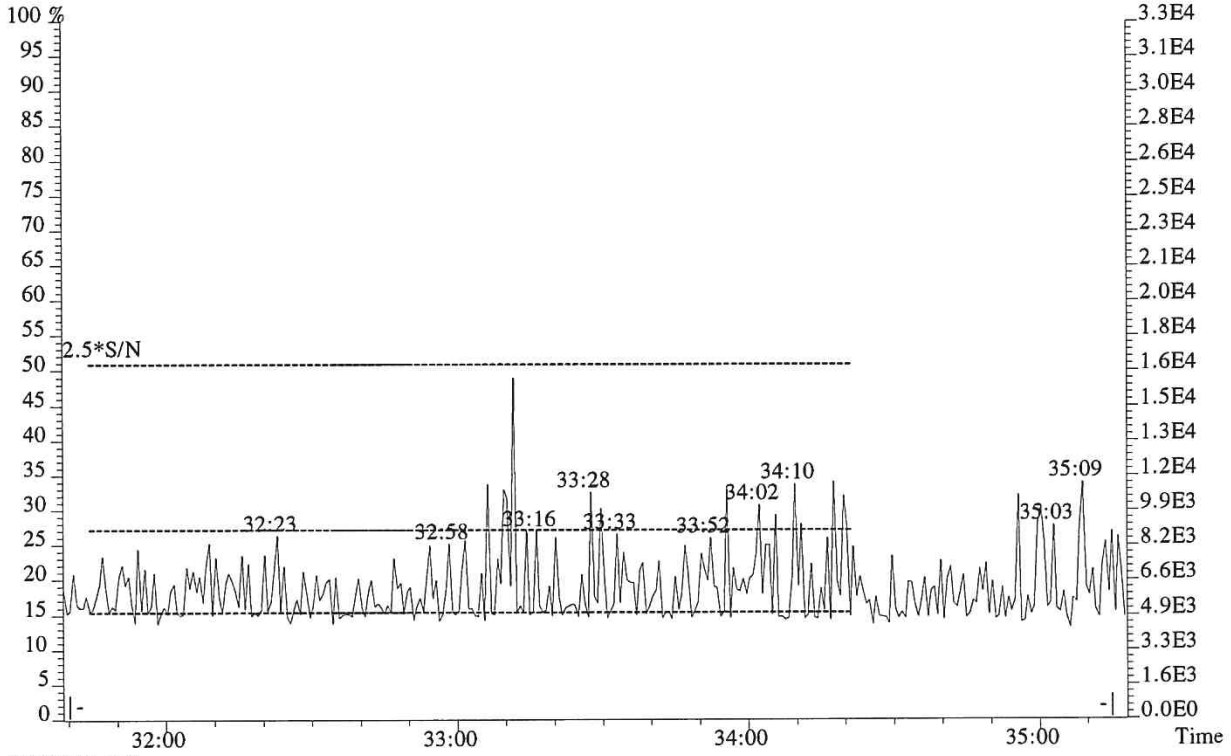
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



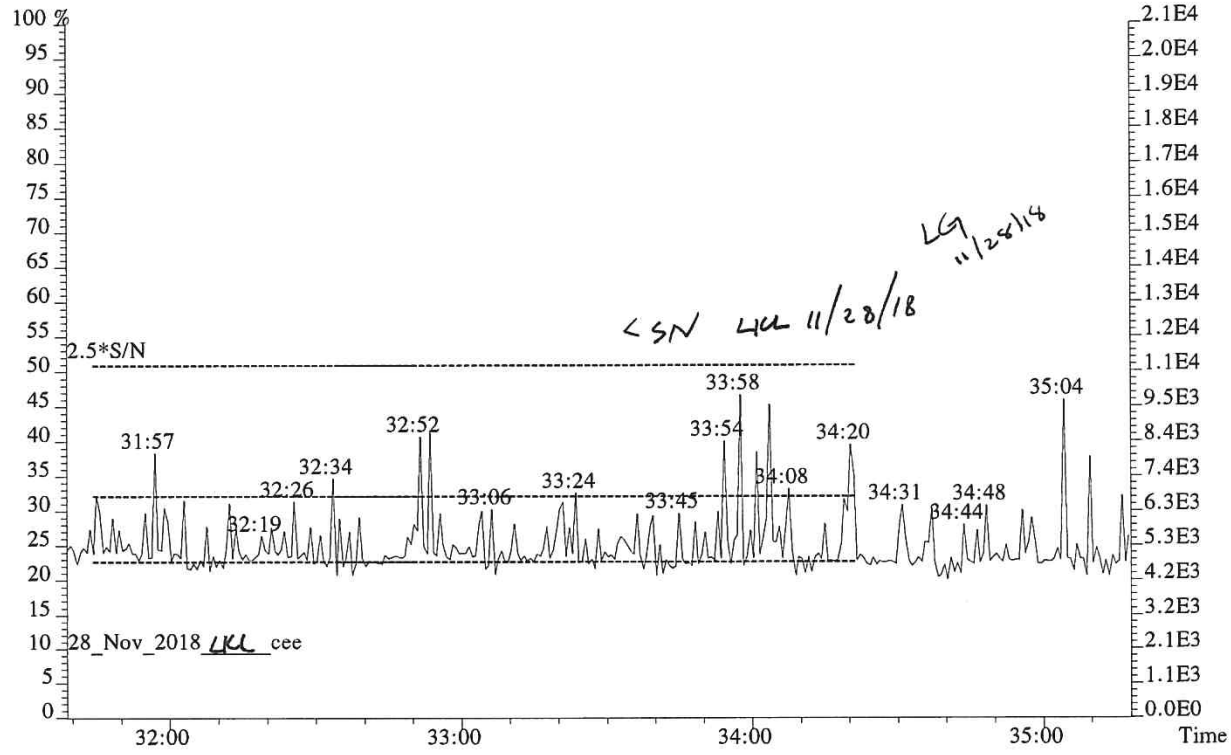
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615718 #1-330 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2



357.8516 F:2

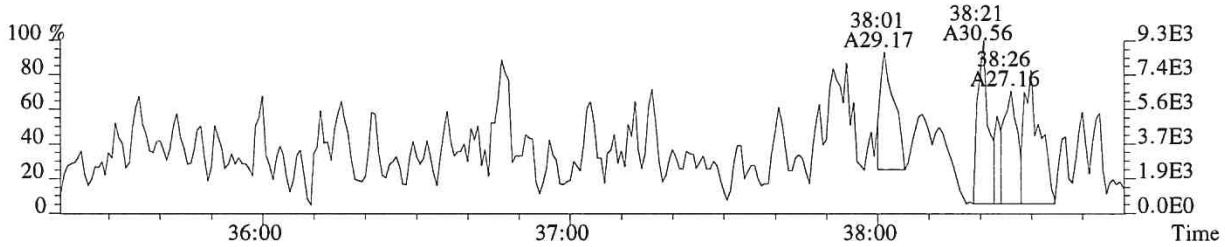


< SN LKL 11/28/18

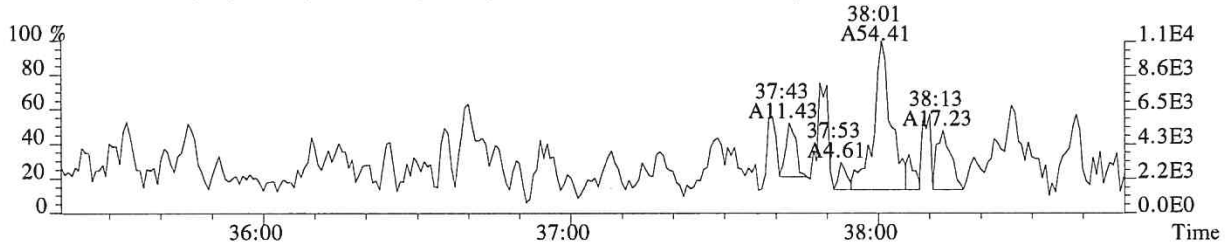
LG 11/28/18

File:P615718 #1-312 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

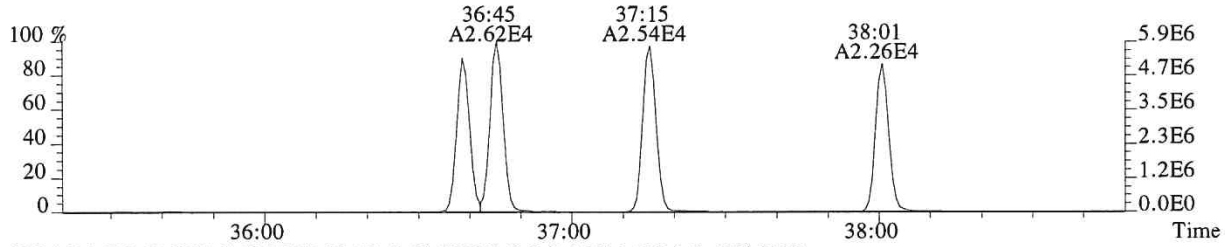
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3984.0,0.40%,F,T)



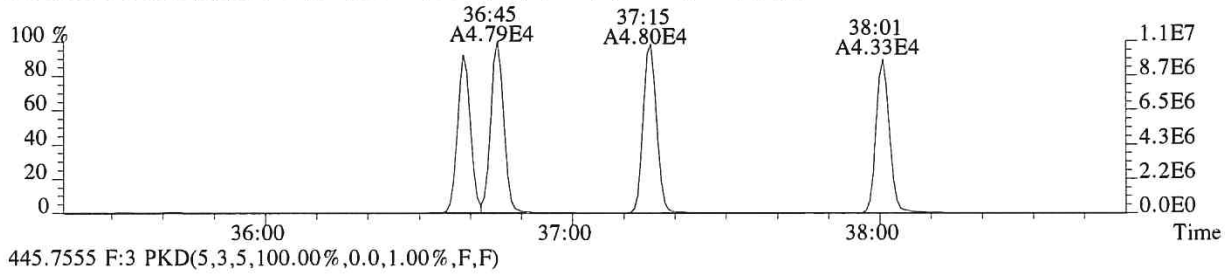
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3792.0,0.40%,F,T)



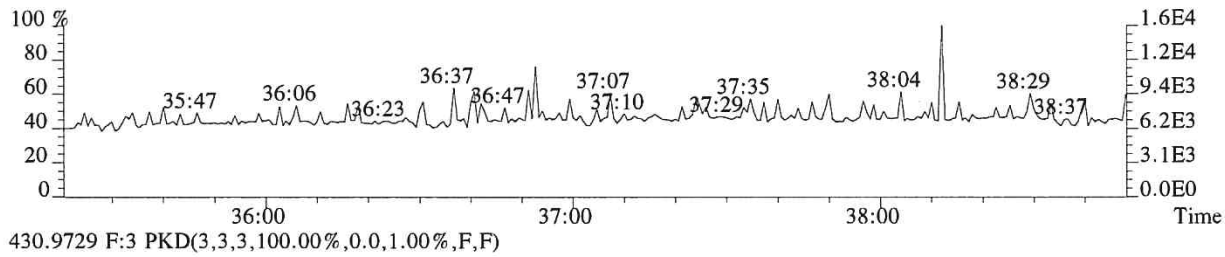
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.40%,F,T)



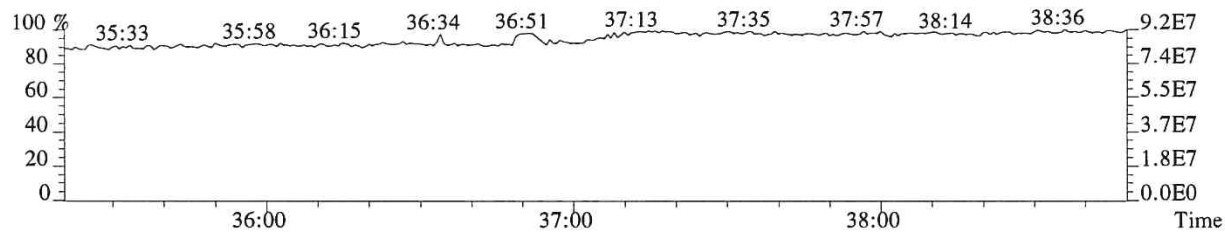
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



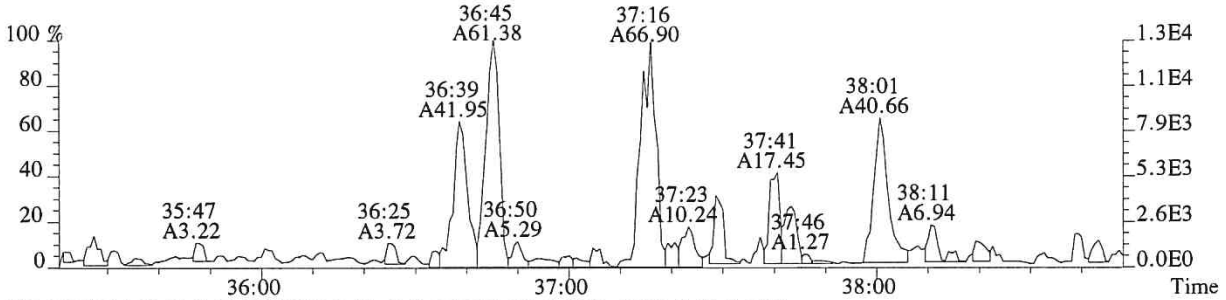
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



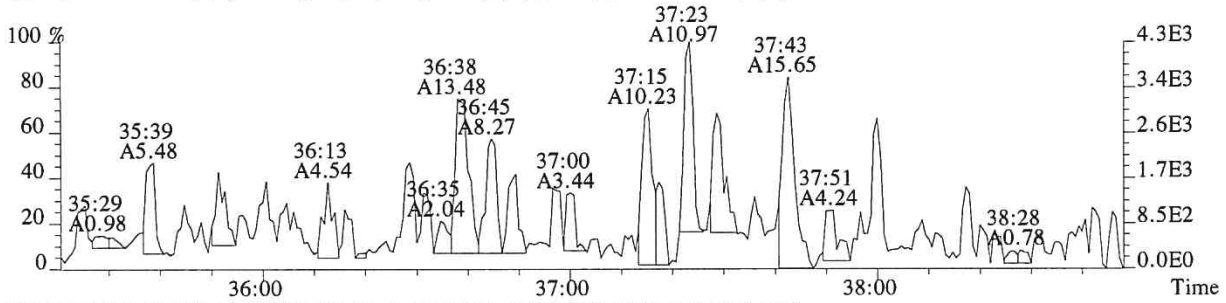
008954

File:P615718 #1-312 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

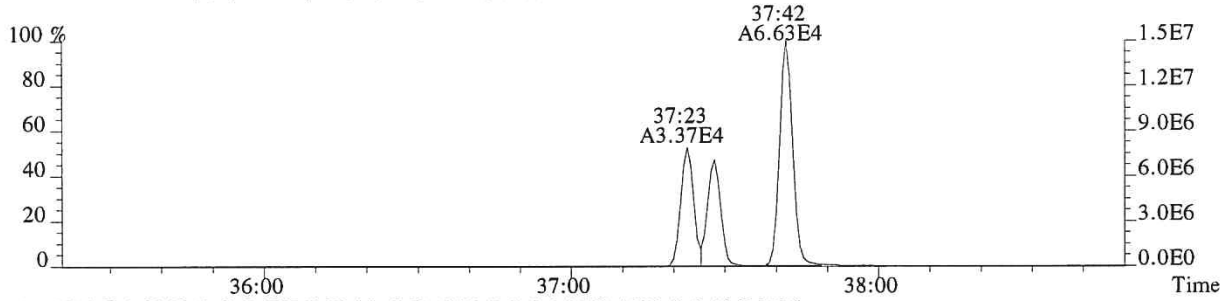
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



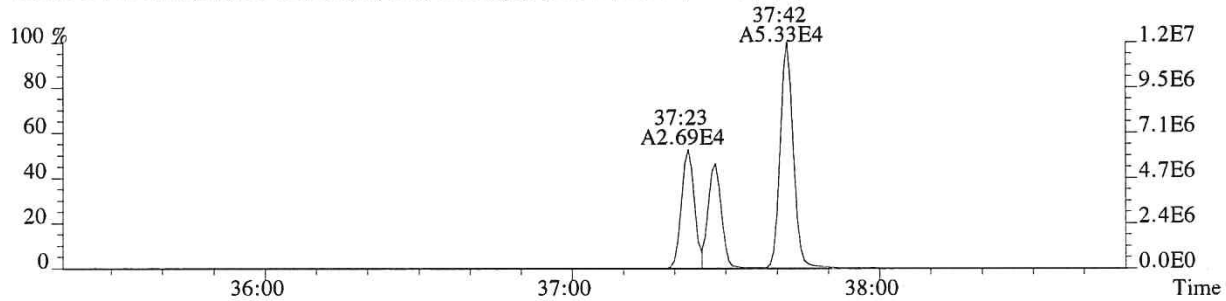
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



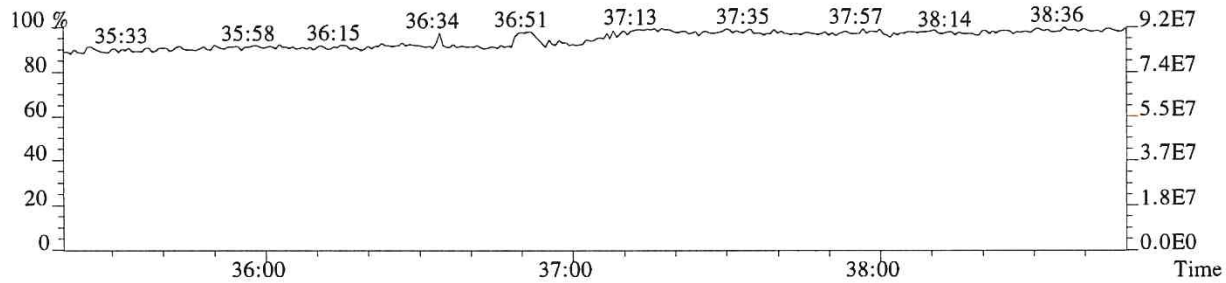
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)

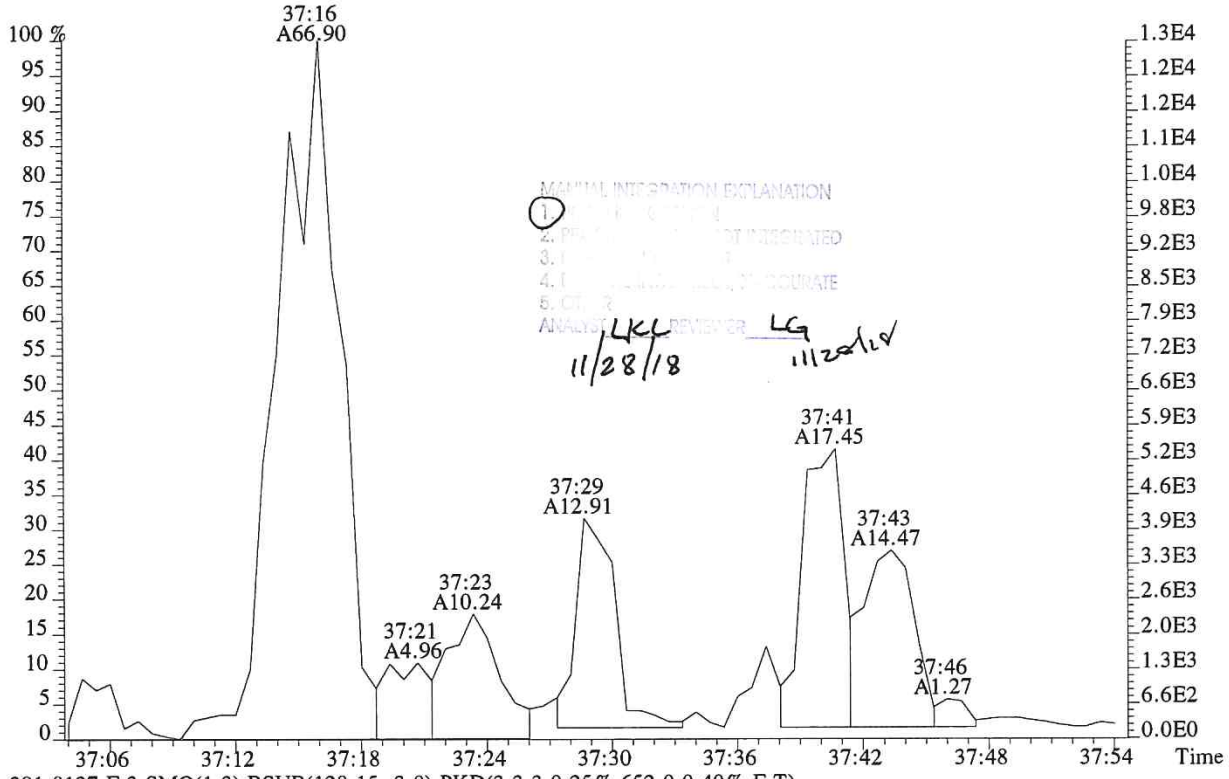


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

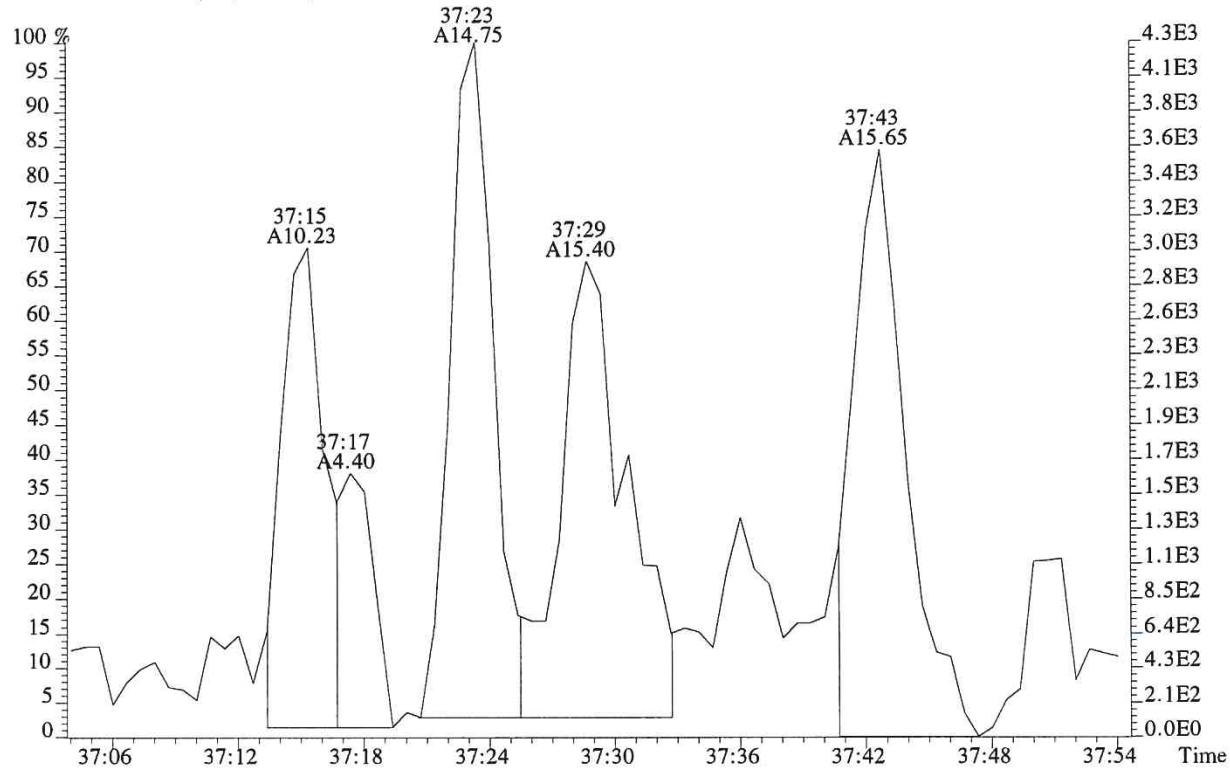


008955

File:P615718 #1-312 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)

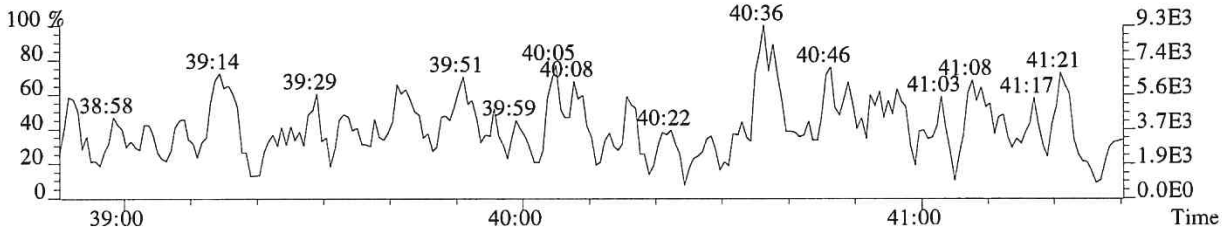


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)

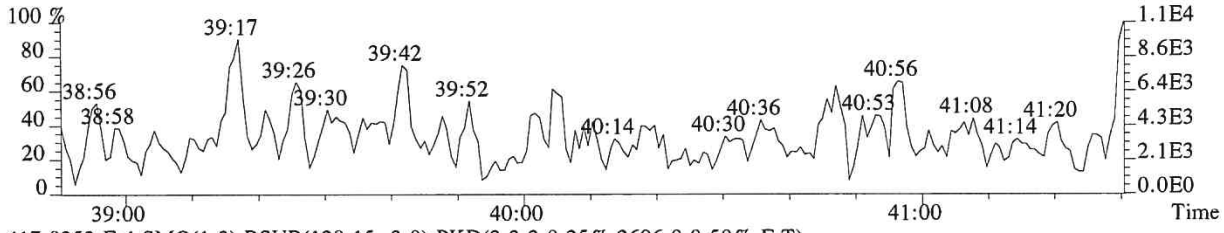


008956

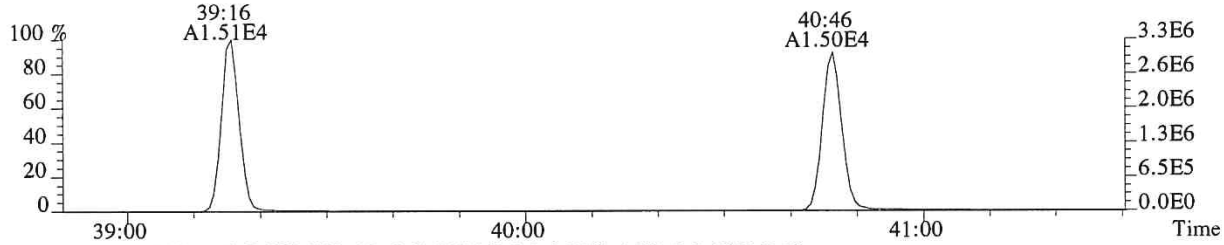
File:P615718 #1-241 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4512.0,0.50%,F,T)



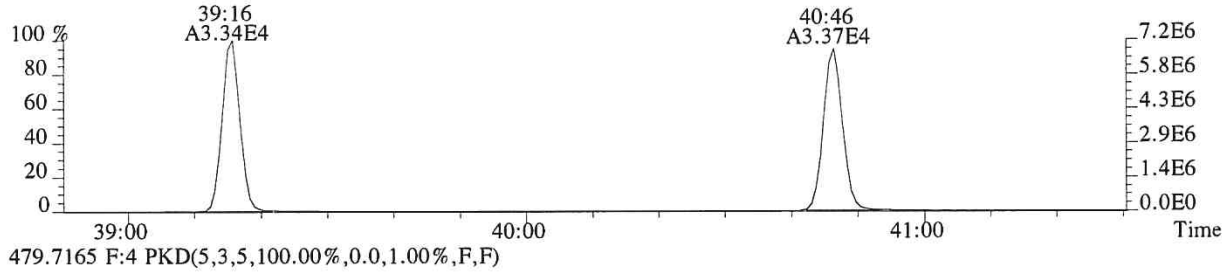
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4144.0,0.50%,F,T)



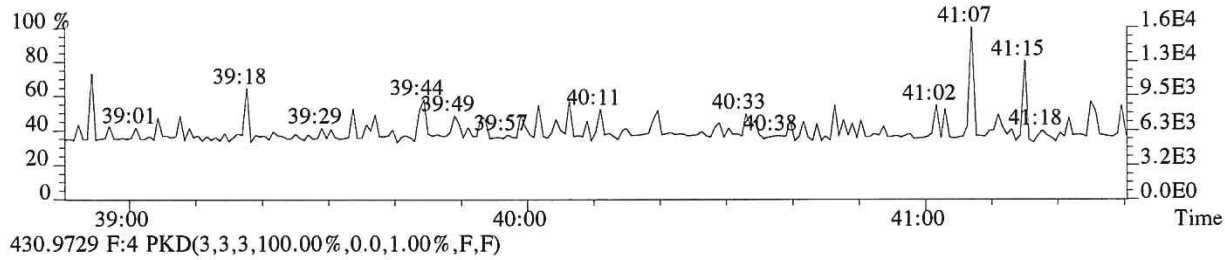
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2696.0,0.50%,F,T)



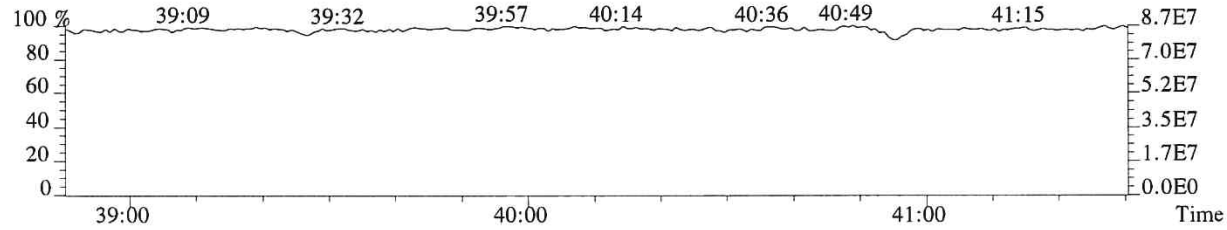
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1692.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

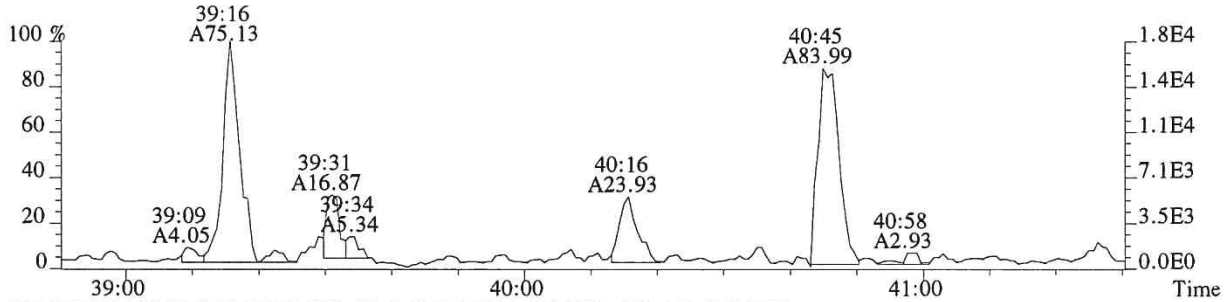


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

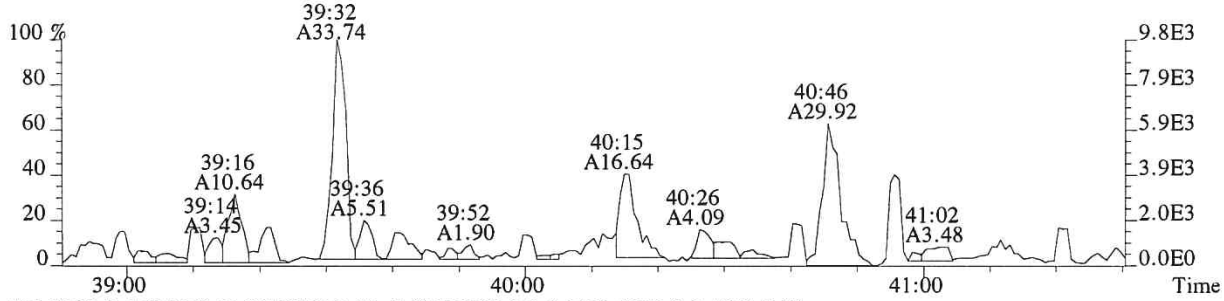


008957

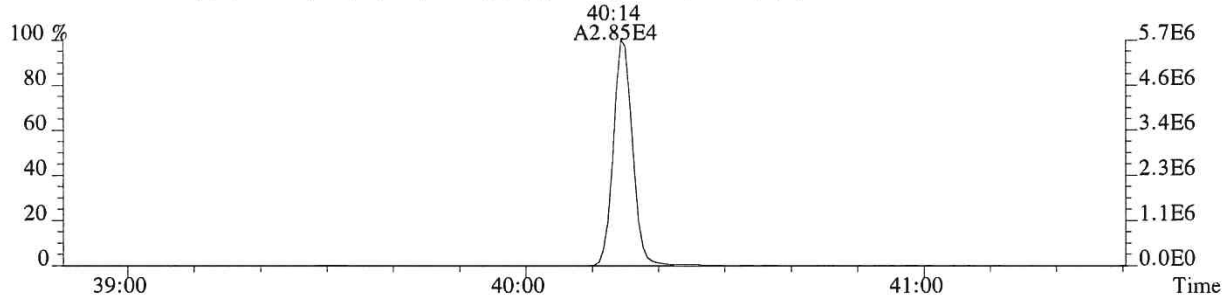
File:P615718 #1-241 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



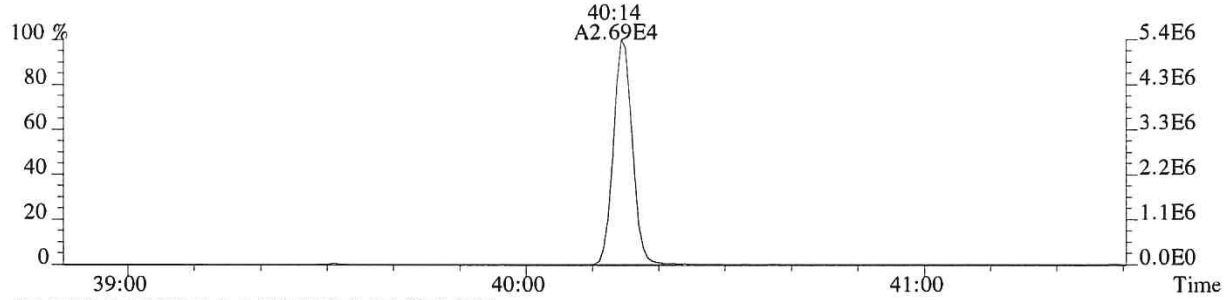
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



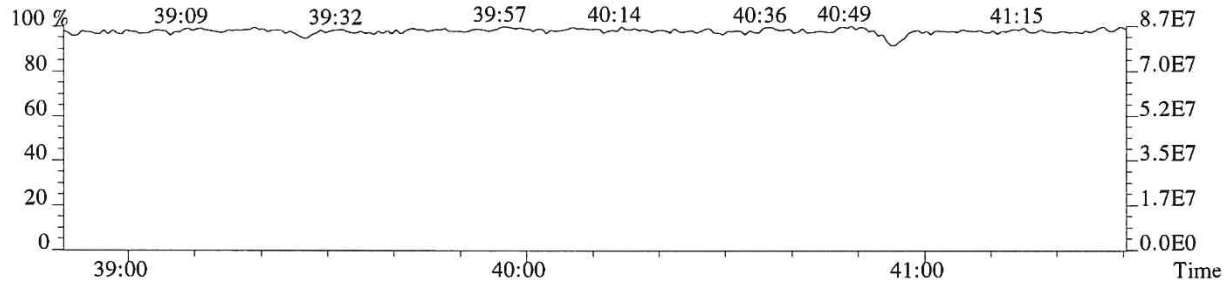
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



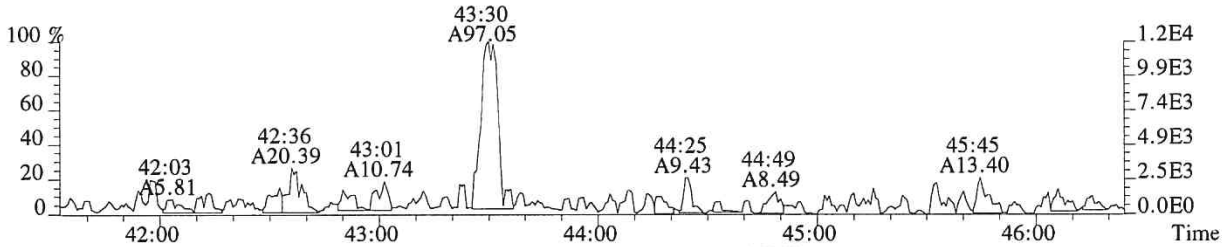
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



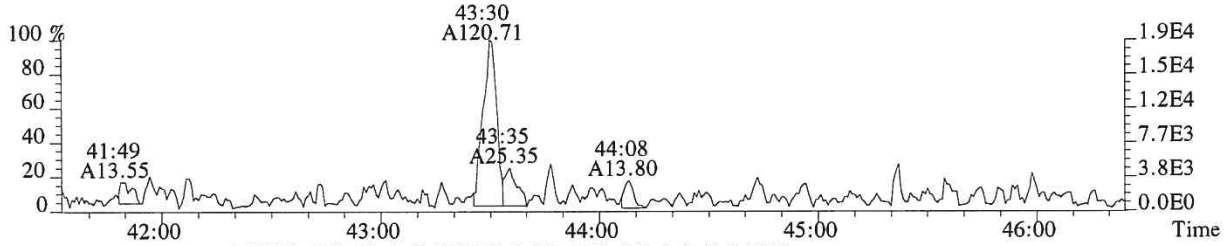
008958

File:P615718 #1-438 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

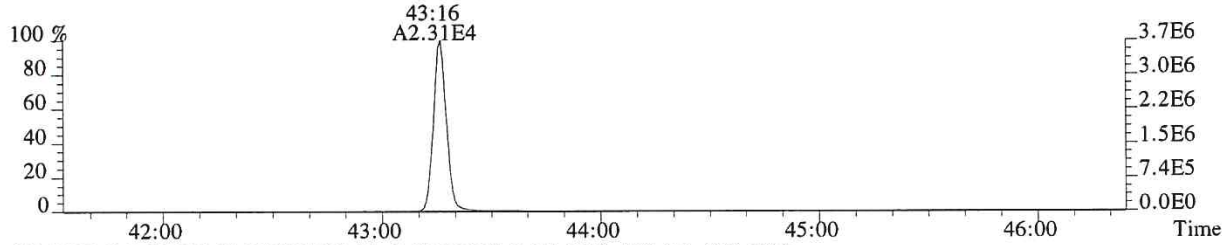
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



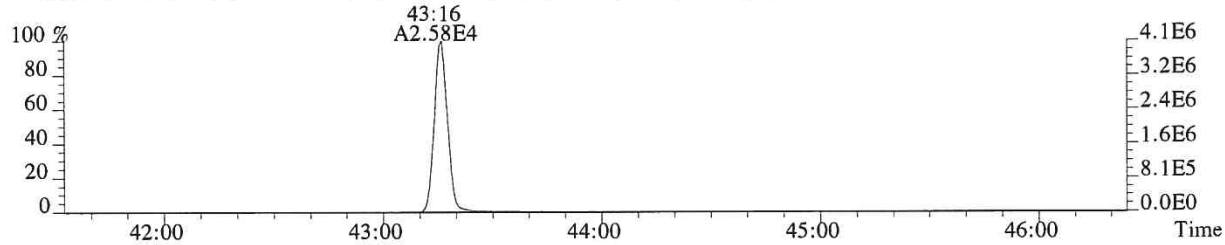
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



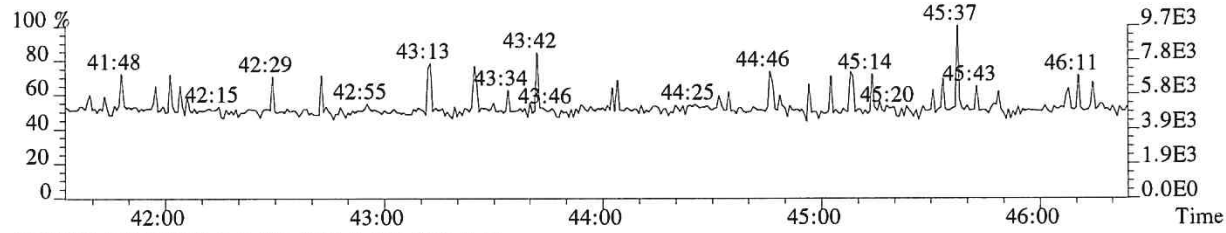
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



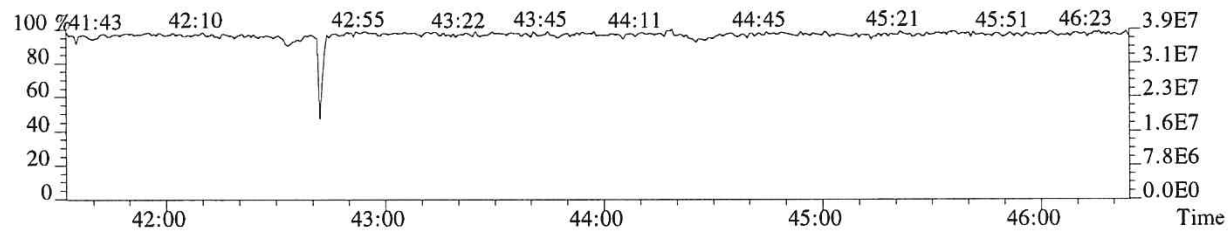
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



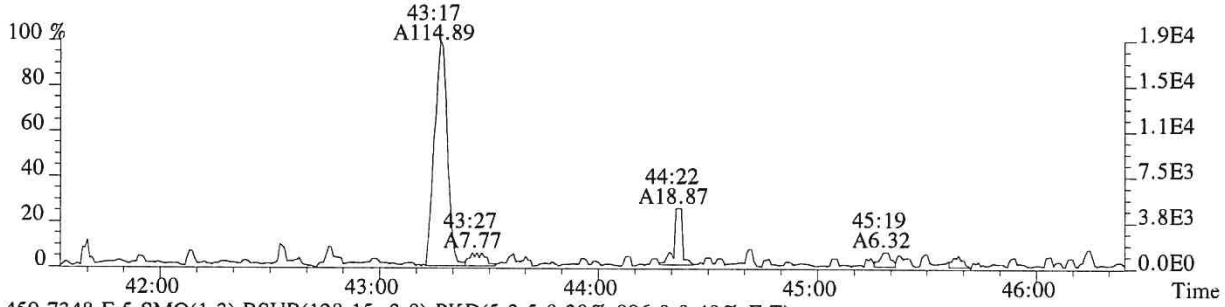
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



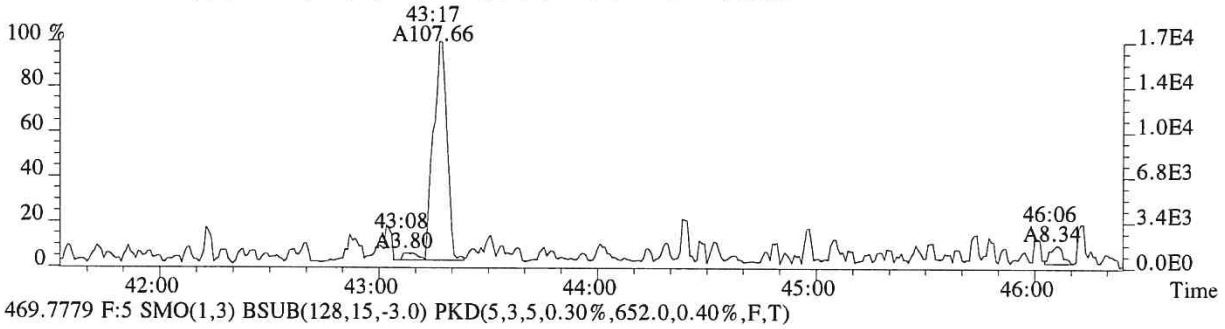
008959

File:P615718 #1-438 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

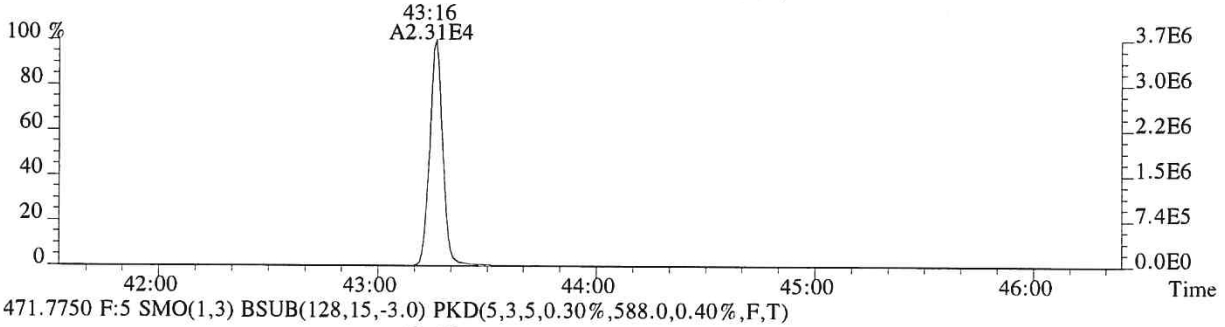
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



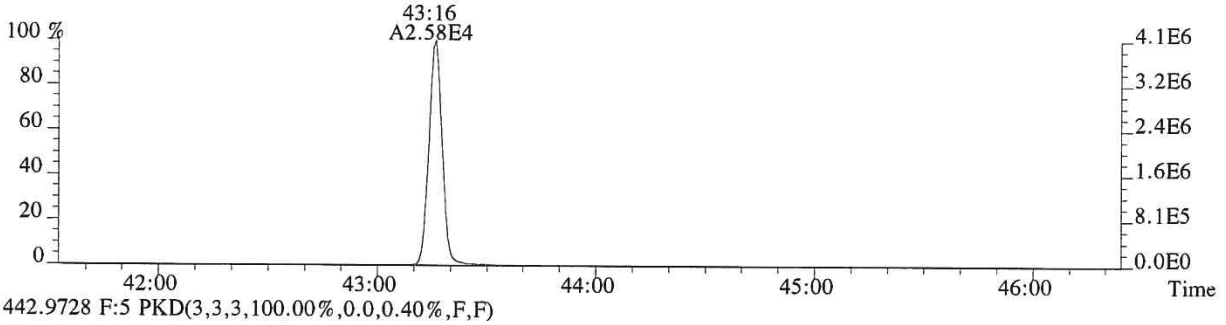
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,896.0,0.40%,F,T)



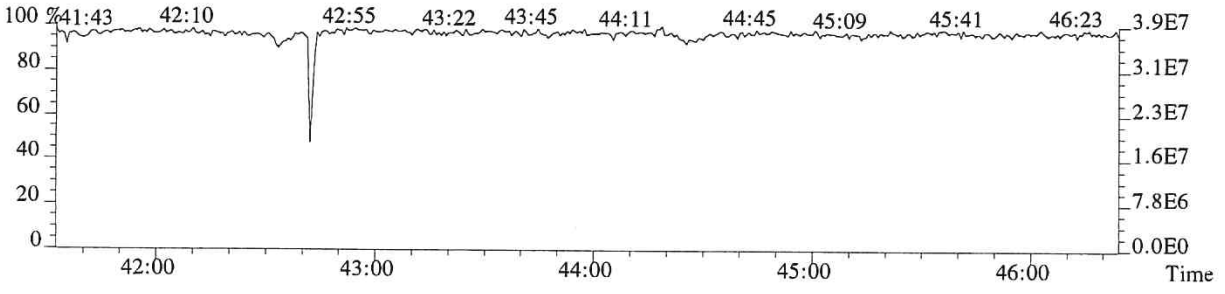
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



008960

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #19 Filename P615727 Samp: 1 Inj: 1 Acquired: 27-NOV-18 20:53:53
Processed: 28-NOV-18 10:27:14 Sample ID: EQ1800467-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:14	2.839e+03	3.728e+03	0.76	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:11	2.929e+04	1.872e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:04	2.995e+04	1.934e+04	1.55	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	2.949e+04	2.370e+04	1.24	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:45	3.003e+04	2.429e+04	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:15	2.929e+04	2.401e+04	1.22	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:01	2.697e+04	2.217e+04	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	2.416e+04	2.352e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	2.136e+04	2.014e+04	1.06	yes	no	1.463
10	Unk	OCDF	43:30	2.959e+04	3.246e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	29:57	2.217e+03	2.743e+03	0.81	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:20	2.134e+04	1.350e+04	1.58	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	2.084e+04	1.698e+04	1.23	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:28	2.063e+04	1.648e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:43	2.160e+04	1.746e+04	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	1.706e+04	1.612e+04	1.06	yes	no	1.112
17	Unk	OCDD	43:16	2.146e+04	2.375e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:13	2.965e+04	3.765e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	6.391e+04	3.983e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:03	6.376e+04	3.995e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	3.145e+04	6.095e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	3.421e+04	6.542e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	3.413e+04	6.444e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	3.108e+04	6.007e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:15	2.331e+04	5.162e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	2.170e+04	4.680e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	2.216e+04	2.833e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	4.907e+04	3.149e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	4.694e+04	3.498e+04	1.34	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:27	4.172e+04	3.451e+04	1.21	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	4.358e+04	4.186e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	43:15	4.346e+04	4.768e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	6.840e+04	8.723e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	9.620e+04	7.591e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:57	2.190e+04				no	1.086

ALS ENVIRONMENTAL
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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #19 Filename P615727 Samp: 1 Inj: 1 Acquired: 27-NOV-18 20:53:53
Processed: 28-NOV-18 10:27:14 LAB. ID: EQ1800467-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.73e+05	1.22e+03	4.7e+02	7.32e+05	3.20e+03	2.3e+02
2	1,2,3,7,8-PeCDF	5.93e+06	1.92e+03	3.1e+03	3.78e+06	3.14e+03	1.2e+03
3	2,3,4,7,8-PeCDF	6.10e+06	1.92e+03	3.2e+03	3.94e+06	3.14e+03	1.3e+03
4	1,2,3,4,7,8-HxCDF	6.49e+06	2.08e+03	3.1e+03	5.14e+06	3.02e+03	1.7e+03
5	1,2,3,6,7,8-HxCDF	6.33e+06	2.08e+03	3.0e+03	5.23e+06	3.02e+03	1.7e+03
6	2,3,4,6,7,8-HxCDF	6.42e+06	2.08e+03	3.1e+03	5.24e+06	3.02e+03	1.7e+03
7	1,2,3,7,8,9-HxCDF	5.69e+06	2.08e+03	2.7e+03	4.58e+06	3.02e+03	1.5e+03
8	1,2,3,4,6,7,8-HpCDF	5.10e+06	4.58e+03	1.1e+03	5.03e+06	2.89e+03	1.7e+03
9	1,2,3,4,7,8,9-HpCDF	4.01e+06	4.58e+03	8.7e+02	3.80e+06	2.89e+03	1.3e+03
10	OCDF	4.56e+06	1.08e+03	4.2e+03	5.02e+06	2.34e+03	2.1e+03
11	2,3,7,8-TCDD	4.80e+05	3.94e+03	1.2e+02	5.75e+05	1.60e+03	3.6e+02
12	1,2,3,7,8-PeCDD	4.46e+06	2.00e+03	2.2e+03	2.85e+06	6.80e+02	4.2e+03
13	1,2,3,4,7,8-HxCDD	4.60e+06	9.08e+02	5.1e+03	3.66e+06	7.56e+02	4.8e+03
14	1,2,3,6,7,8-HxCDD	4.53e+06	9.08e+02	5.0e+03	3.64e+06	7.56e+02	4.8e+03
15	1,2,3,7,8,9-HxCDD	4.65e+06	9.08e+02	5.1e+03	3.76e+06	7.56e+02	5.0e+03
16	1,2,3,4,6,7,8-HpCDD	3.36e+06	1.16e+03	2.9e+03	3.23e+06	8.72e+02	3.7e+03
17	OCDD	3.26e+06	7.36e+02	4.4e+03	3.61e+06	1.76e+03	2.0e+03
18	13C-2,3,7,8-TCDF	5.88e+06	1.30e+04	4.5e+02	7.66e+06	6.90e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	1.28e+07	1.00e+03	1.3e+04	7.94e+06	1.58e+03	5.0e+03
20	13C-2,3,4,7,8-PeCDF	1.34e+07	1.00e+03	1.3e+04	8.48e+06	1.58e+03	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	6.89e+06	2.20e+03	3.1e+03	1.32e+07	2.00e+03	6.6e+03
22	13C-1,2,3,6,7,8-HxCDF	7.42e+06	2.20e+03	3.4e+03	1.42e+07	2.00e+03	7.1e+03
23	13C-2,3,4,6,7,8-HxCDF	7.56e+06	2.20e+03	3.4e+03	1.43e+07	2.00e+03	7.2e+03
24	13C-1,2,3,7,8,9-HxCDF	6.44e+06	2.20e+03	2.9e+03	1.25e+07	2.00e+03	6.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.93e+06	2.46e+03	2.0e+03	1.10e+07	3.38e+03	3.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.11e+06	2.46e+03	1.7e+03	8.74e+06	3.38e+03	2.6e+03
27	13C-2,3,7,8-TCDD	4.74e+06	1.38e+04	3.4e+02	6.07e+06	5.33e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	1.02e+07	1.83e+03	5.6e+03	6.51e+06	2.04e+03	3.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.04e+07	3.97e+03	2.6e+03	7.98e+06	1.58e+03	5.0e+03
30	13C-1,2,3,6,7,8-HxCDD	9.21e+06	3.97e+03	2.3e+03	7.36e+06	1.58e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.64e+06	1.35e+03	6.4e+03	8.32e+06	8.48e+02	9.8e+03
32	13C-OCDD	6.68e+06	5.80e+02	1.2e+04	7.45e+06	7.68e+02	9.7e+03
33	13C-1,2,3,4-TCDD	1.41e+07	1.38e+04	1.0e+03	1.80e+07	5.33e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	2.07e+07	3.97e+03	5.2e+03	1.63e+07	1.58e+03	1.0e+04
35	37Cl-2,3,7,8-TCDD	4.63e+06	2.23e+03	2.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.936e{+}03 + 1.600e{+}03) \times 2000}{(4.745e{+}06 + 6.071e{+}06) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
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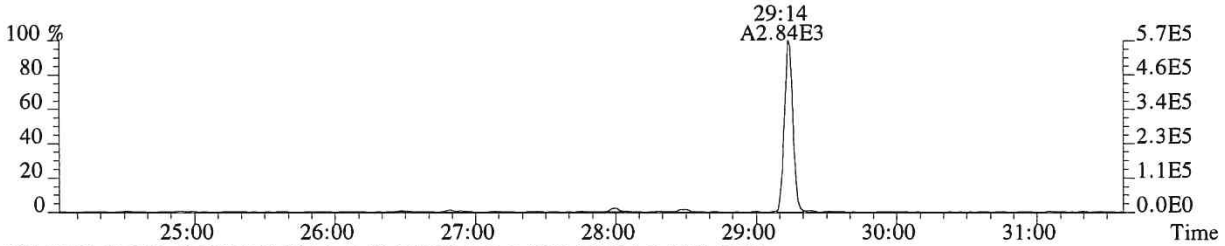
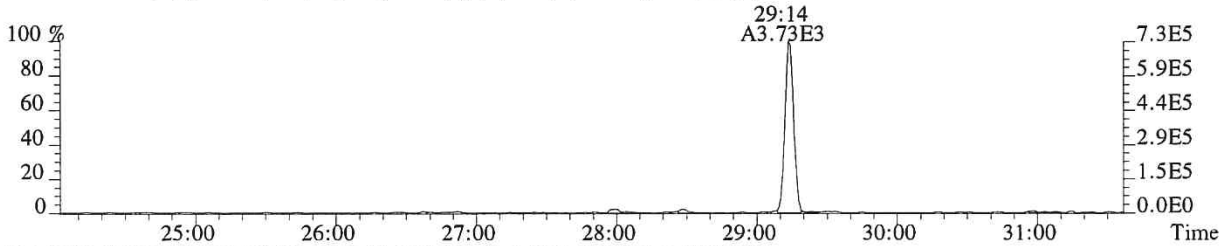
File:P615727 #1-538 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

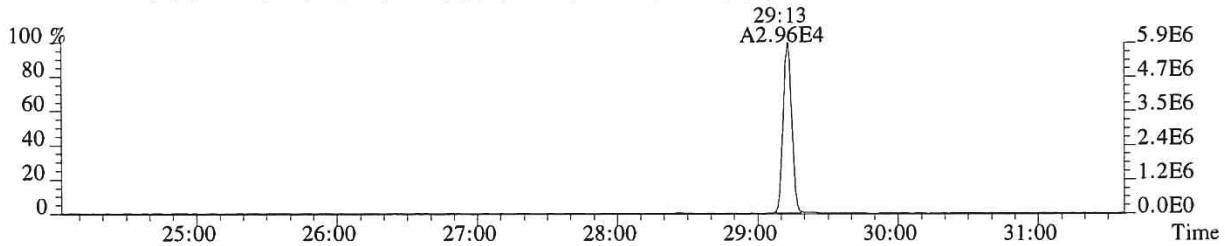
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



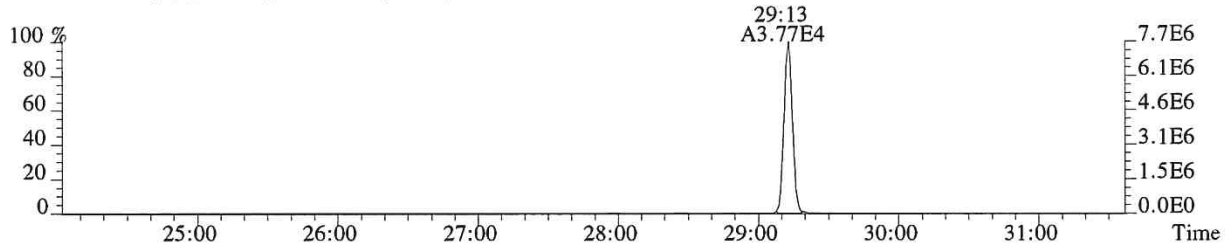
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3196.0,1.00%,F,T)



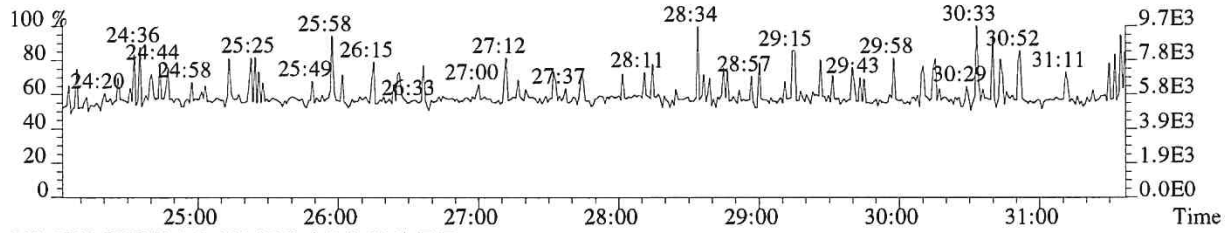
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13040.0,1.00%,F,T)



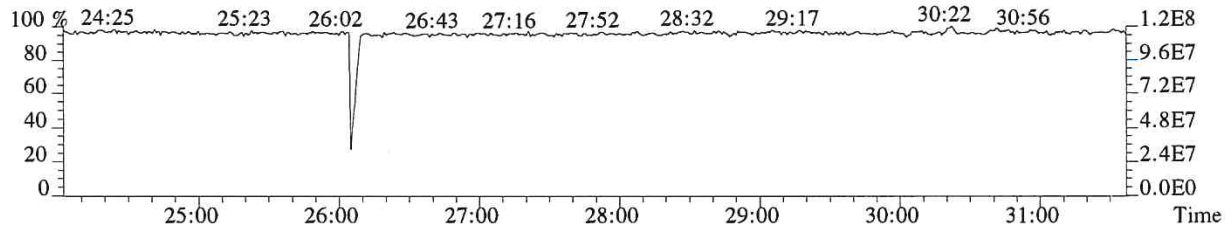
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6900.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

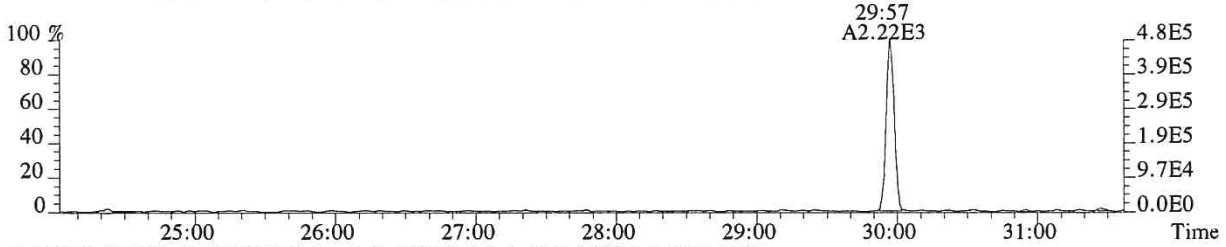


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

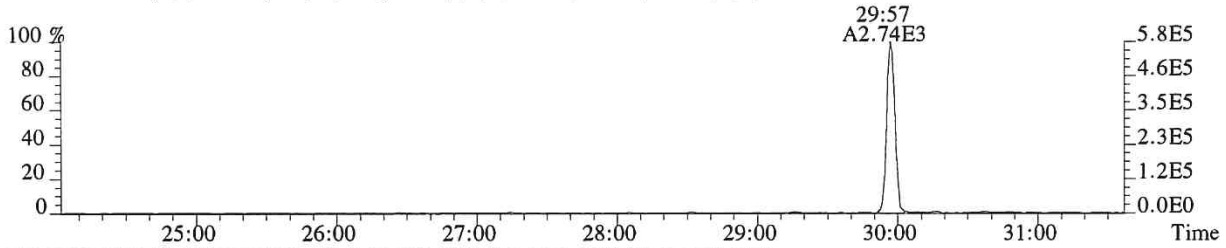


008963

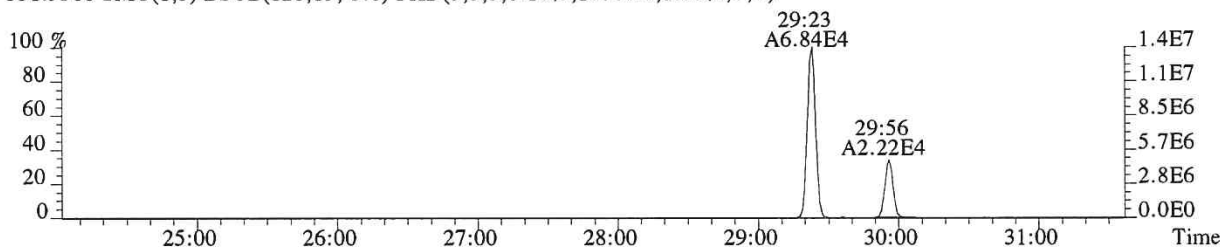
File:P615727 #1-538 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



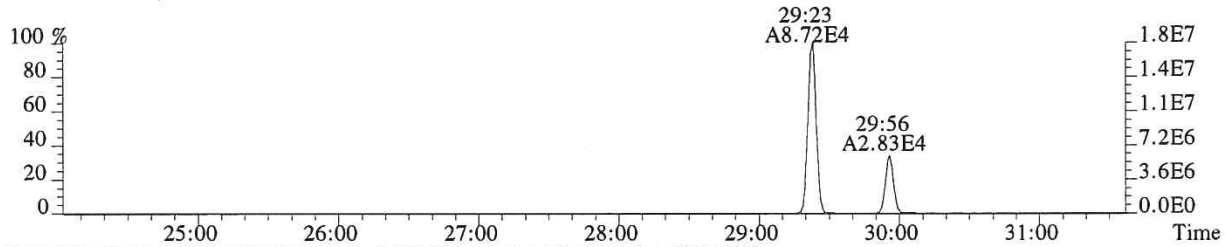
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



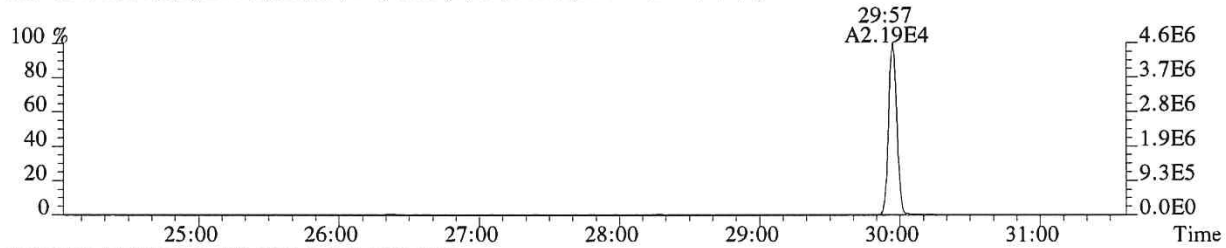
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13780.0,1.00%,F,T)



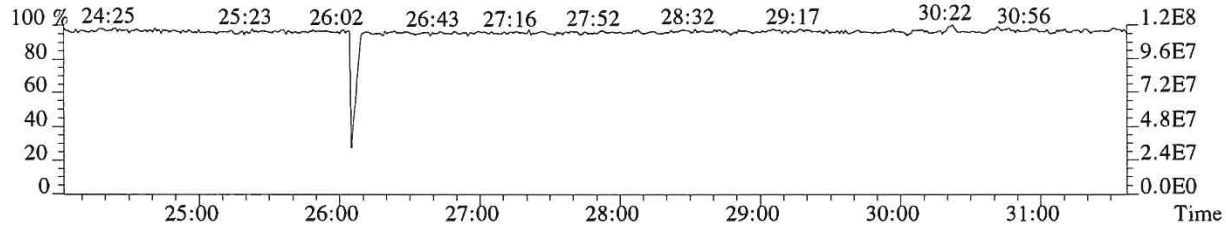
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5332.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2232.0,1.00%,F,T)

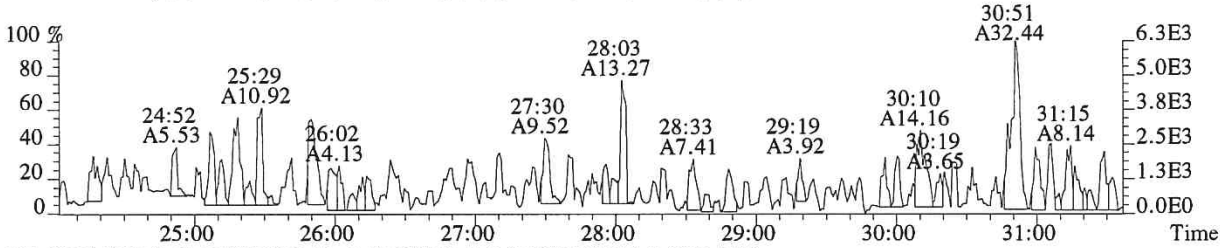


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

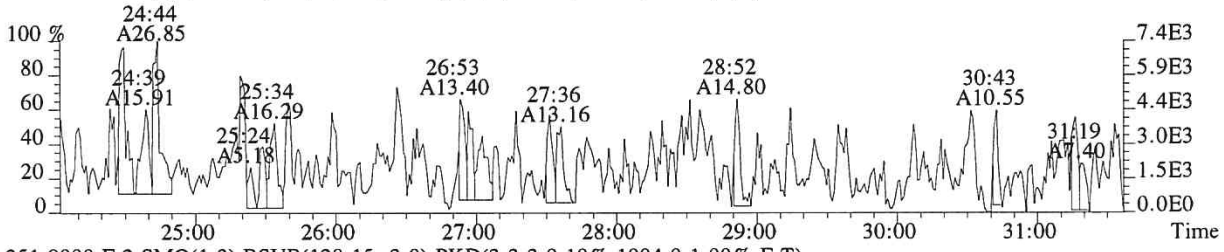


008964

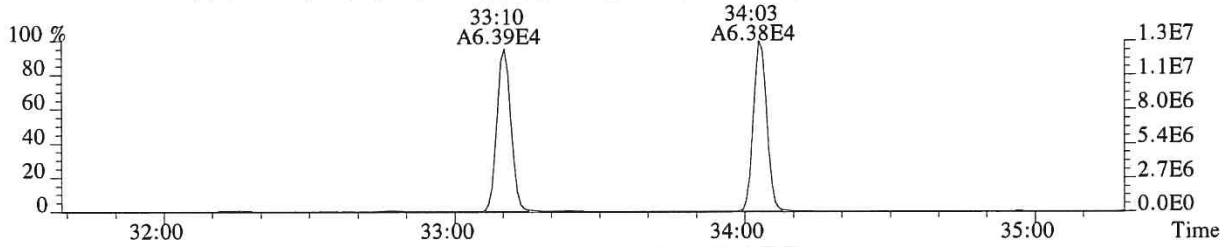
File:P615727 #1-538 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



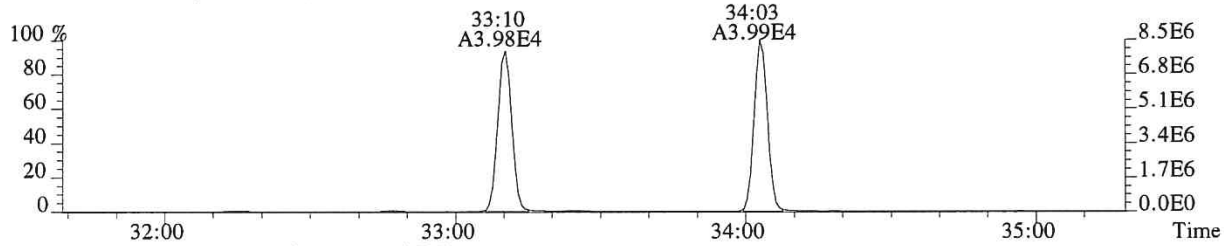
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2332.0,1.00%,F,T)



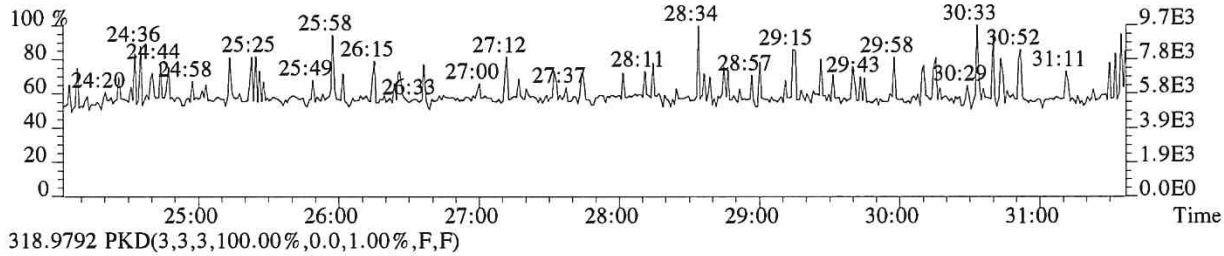
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



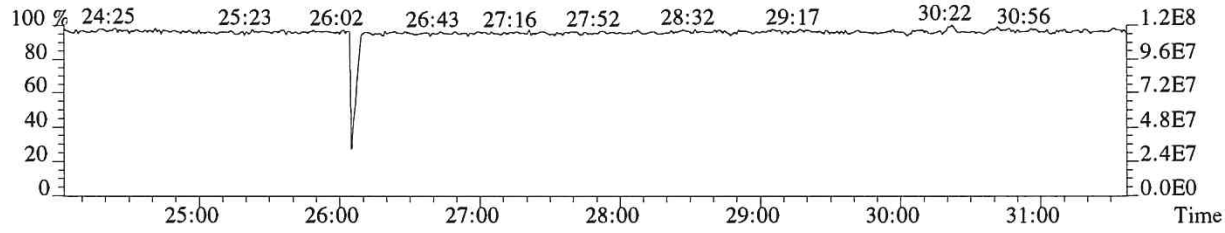
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

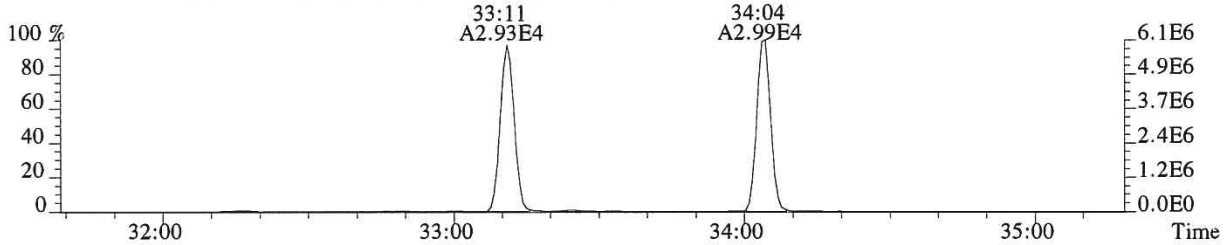


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

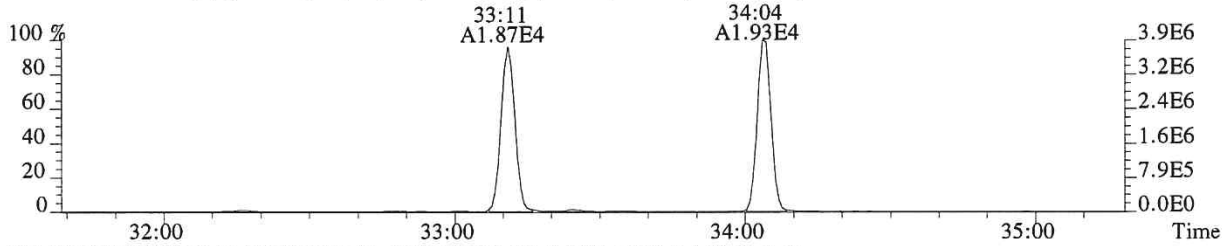


008965

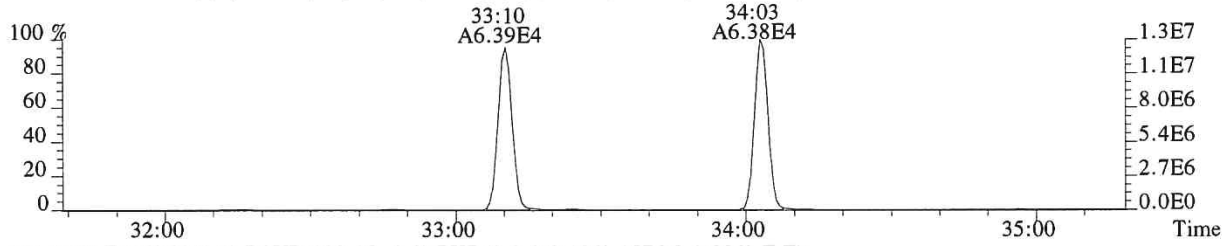
File:P615727 #1-330 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



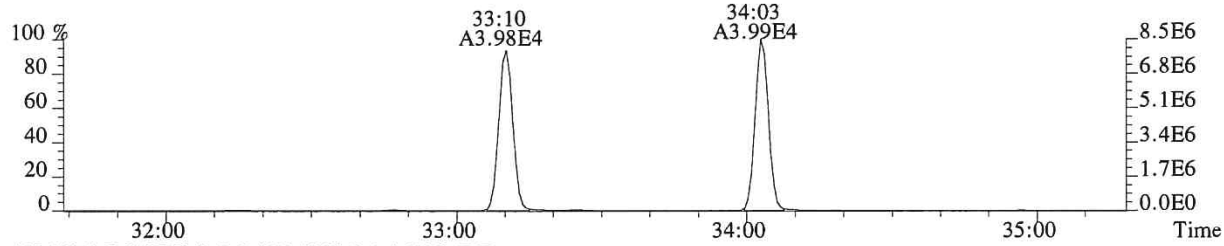
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3140.0,1.00%,F,T)



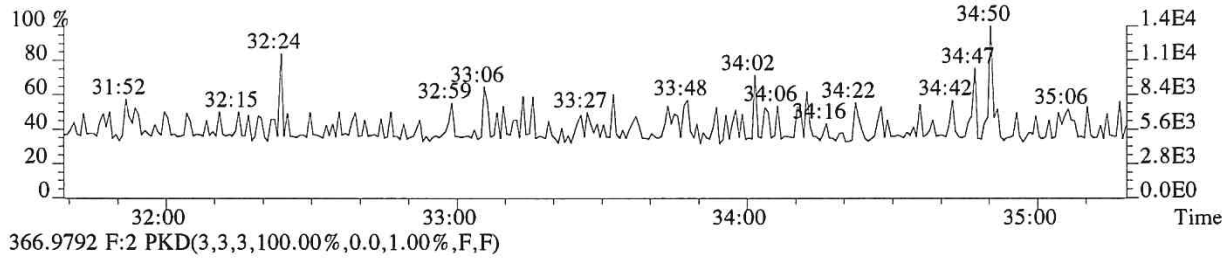
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



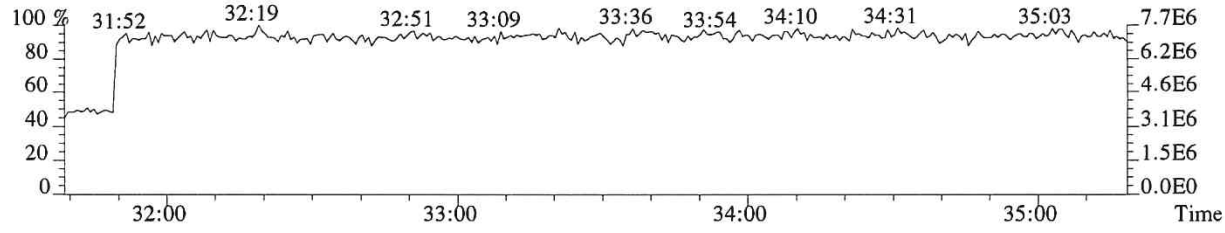
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

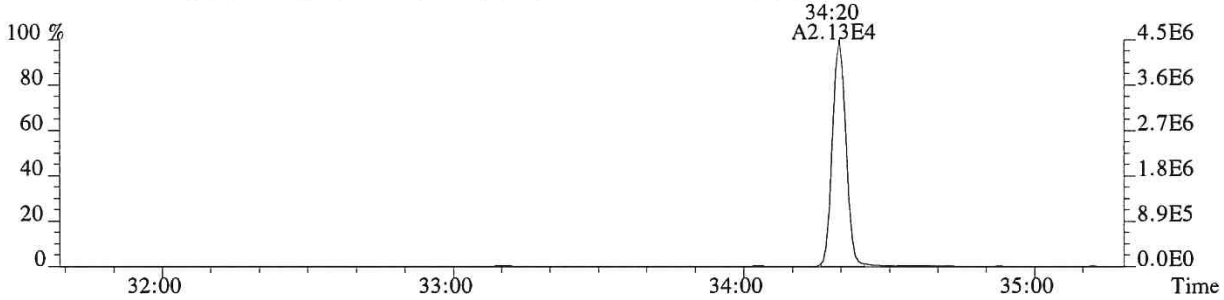


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

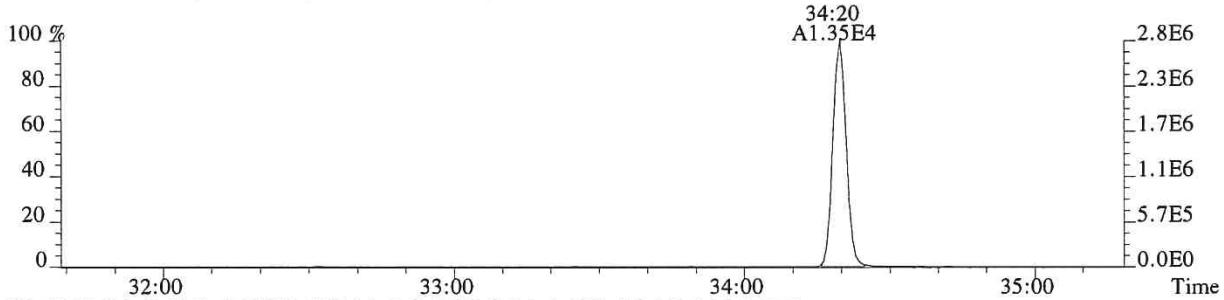


008966

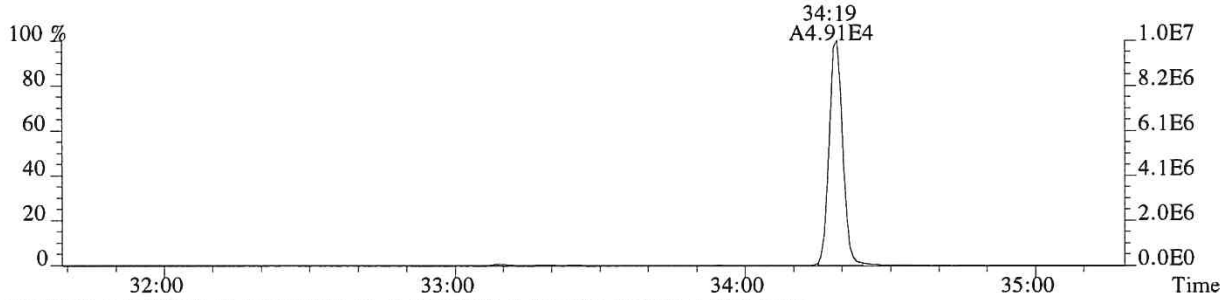
File:P615727 #1-330 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



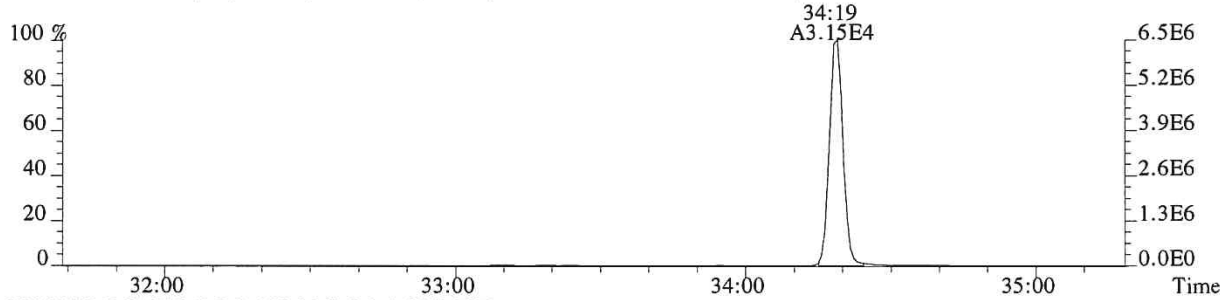
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



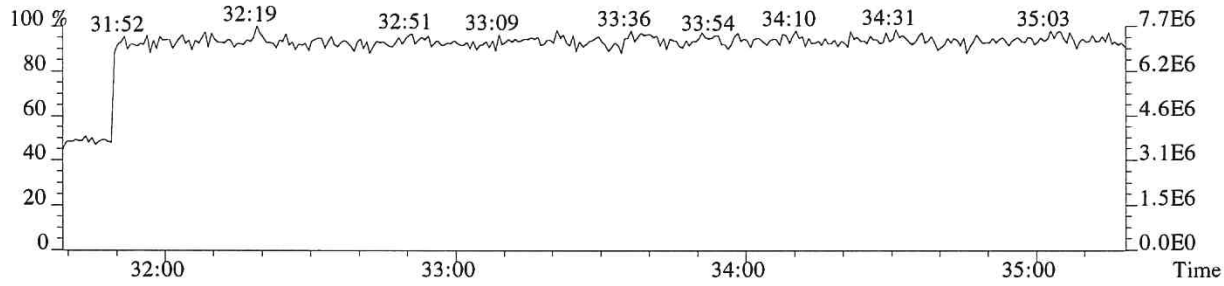
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)

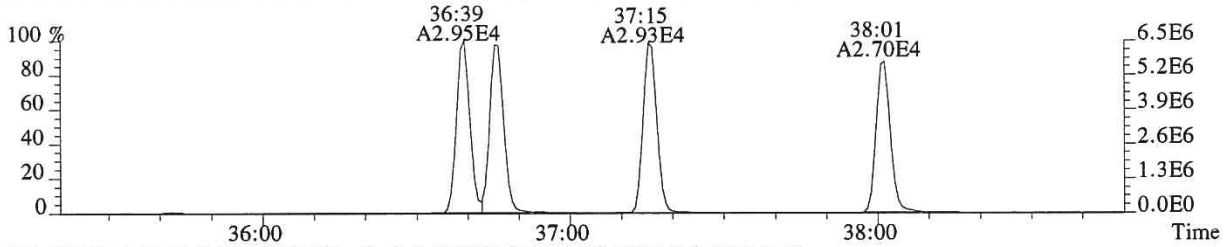


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

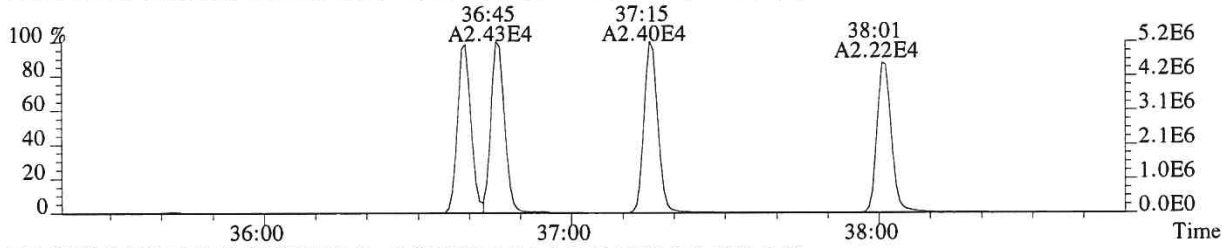


File:P615727 #1-312 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

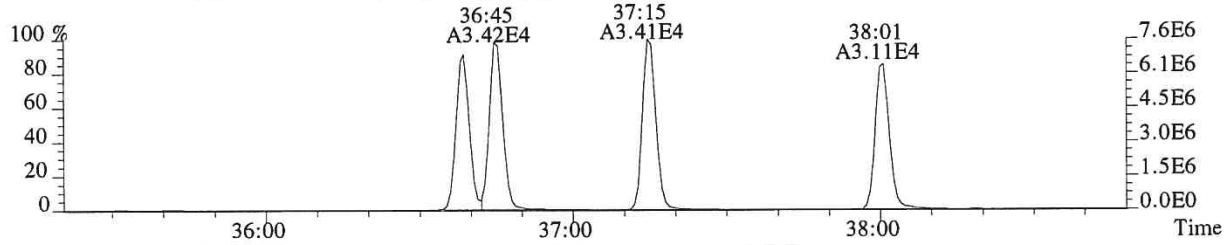
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



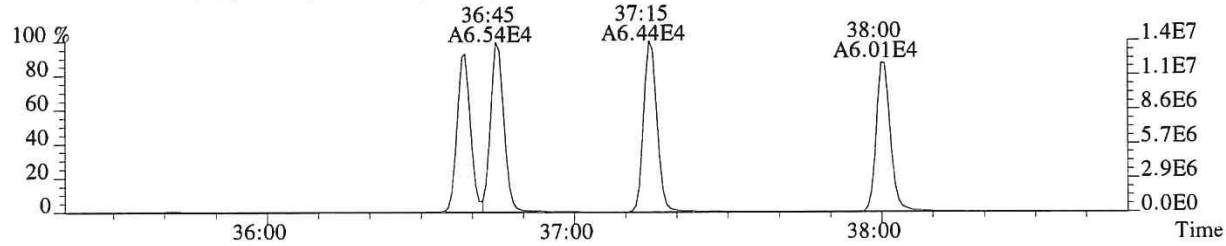
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3016.0,0.40%,F,T)



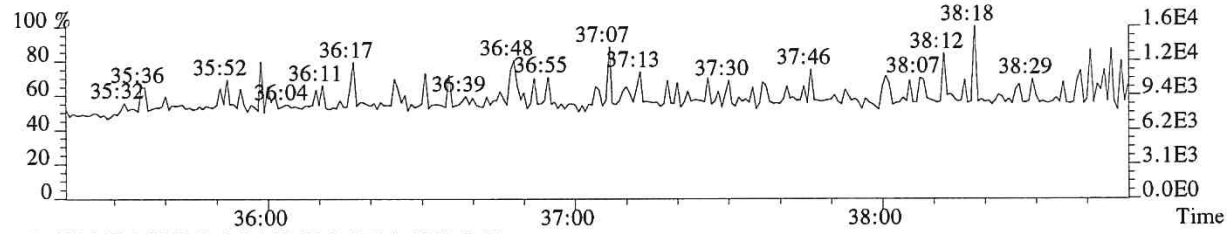
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2200.0,0.40%,F,T)



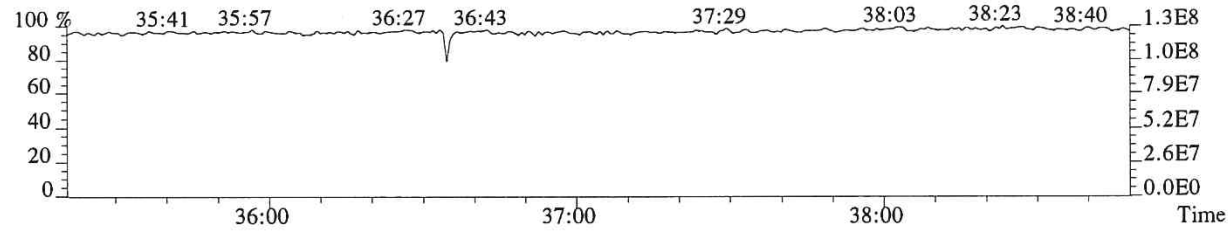
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



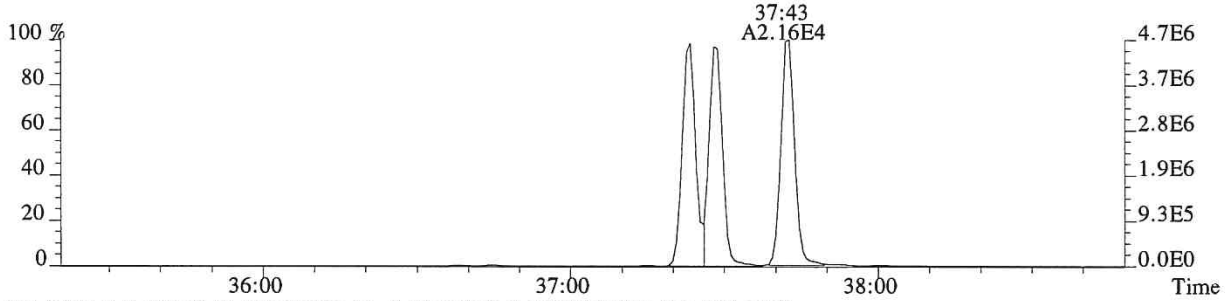
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



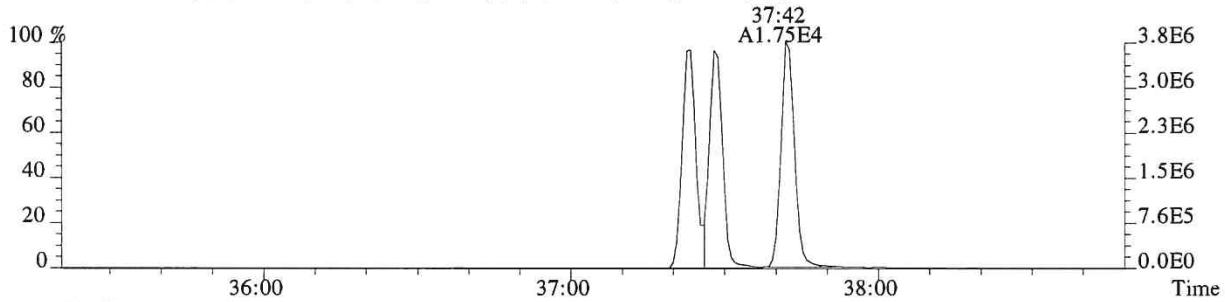
008968

File:P615727 #1-312 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

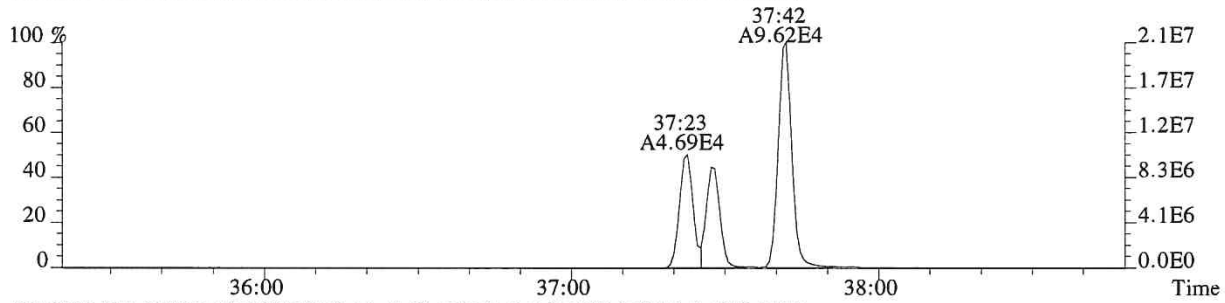
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



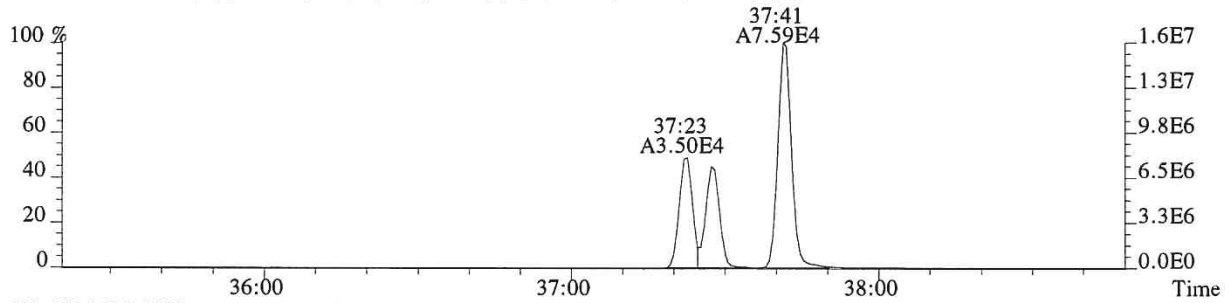
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



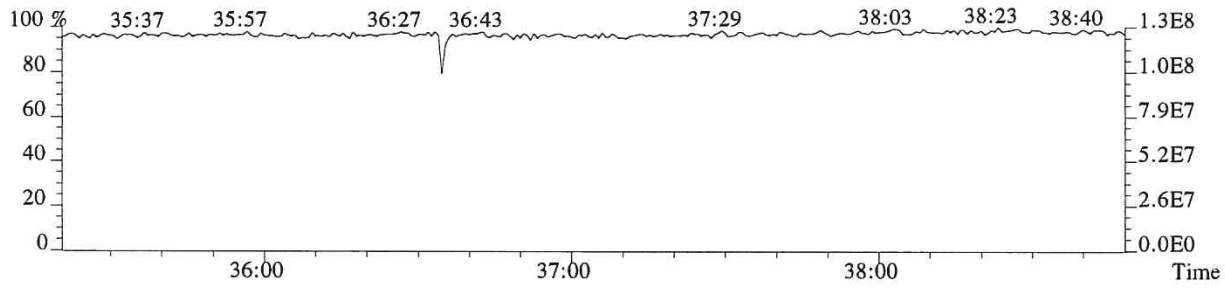
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3972.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)

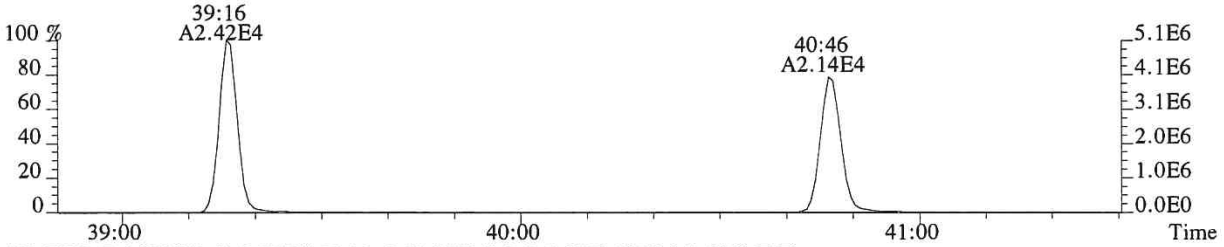


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

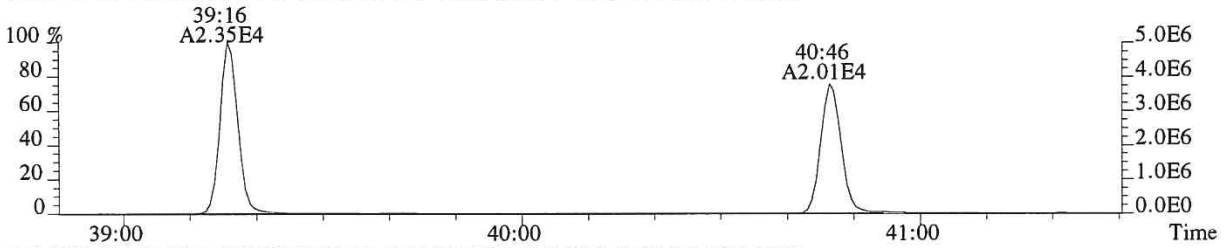


File:P615727 #1-241 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

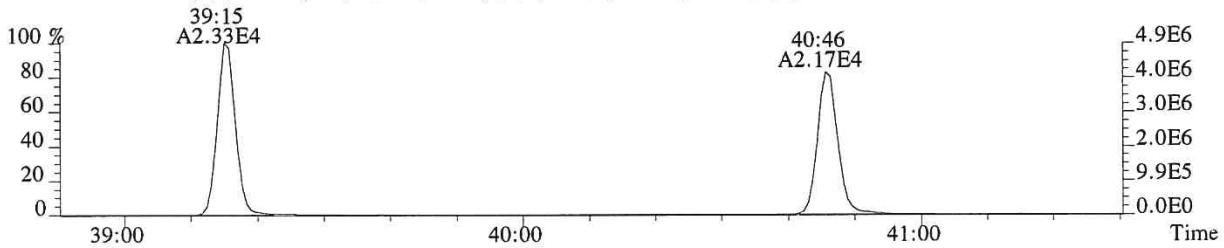
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4584.0,0.50%,F,T)



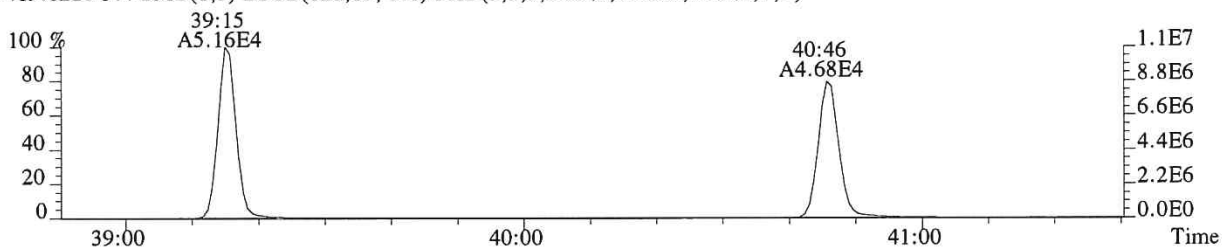
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.50%,F,T)



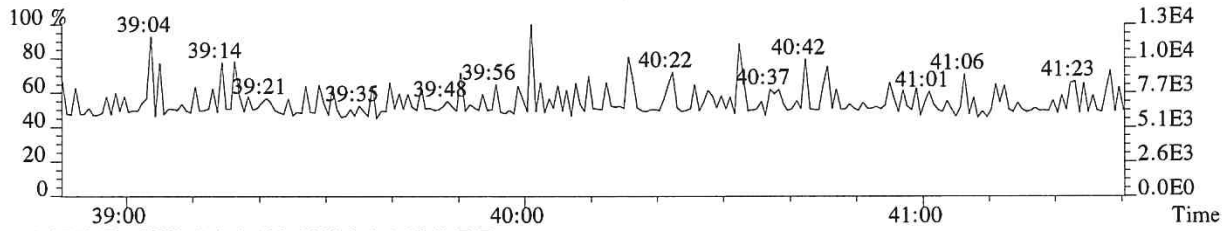
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.50%,F,T)



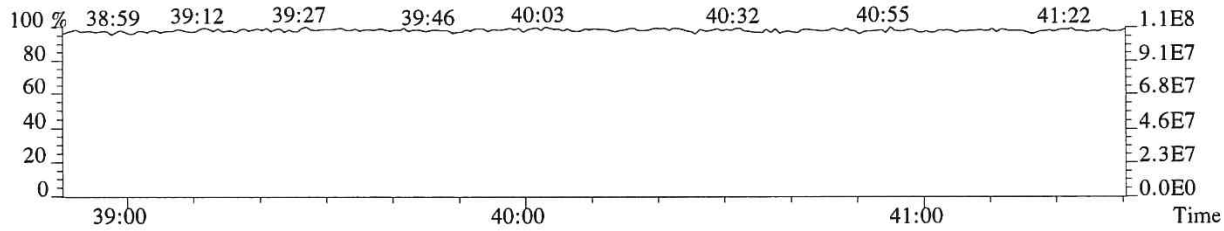
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3376.0,0.50%,F,T)



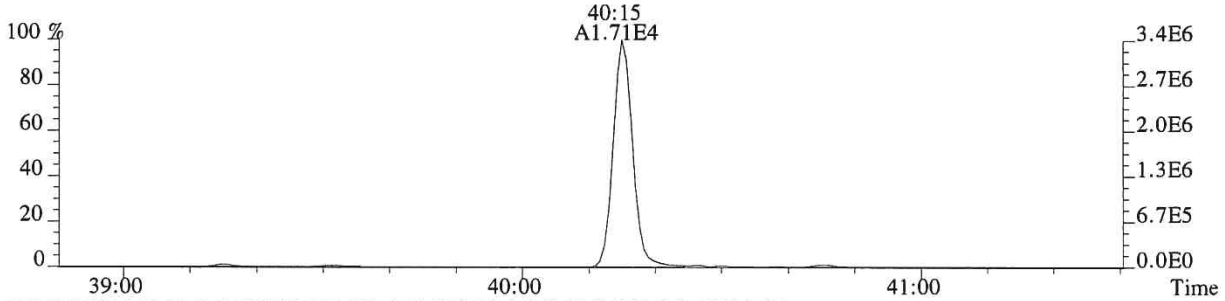
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



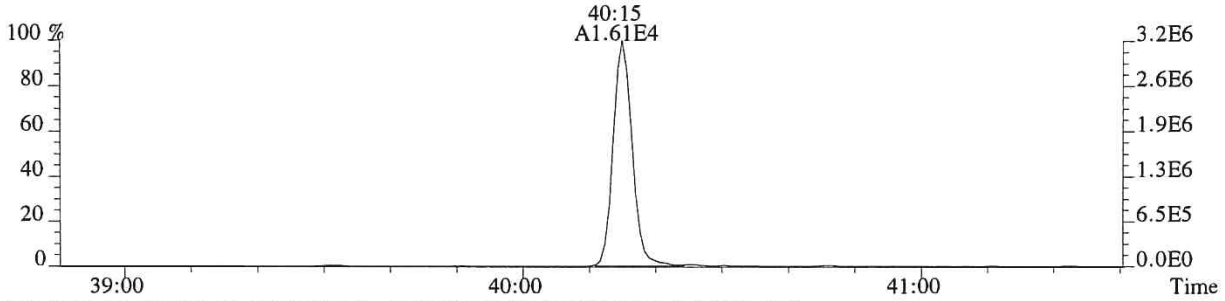
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



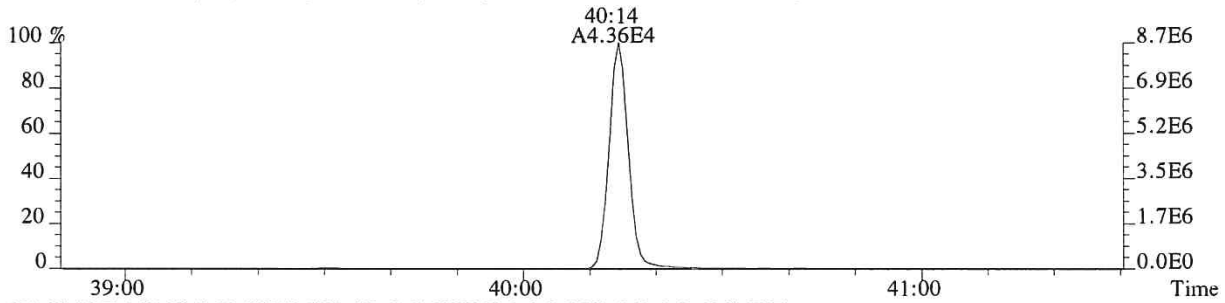
File:P615727 #1-241 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



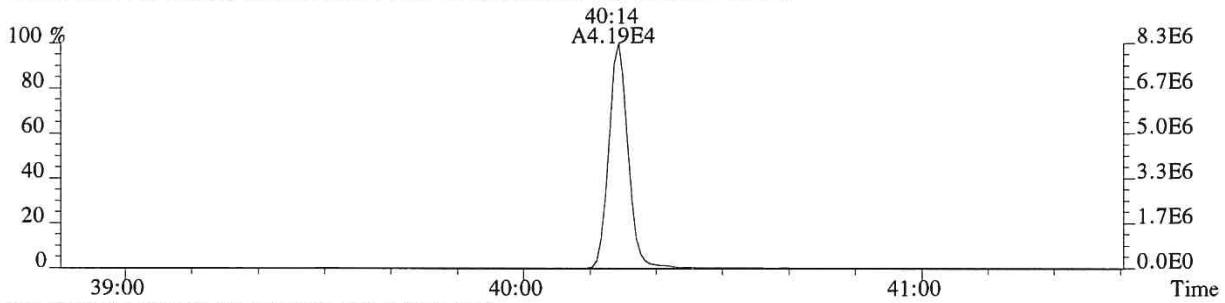
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



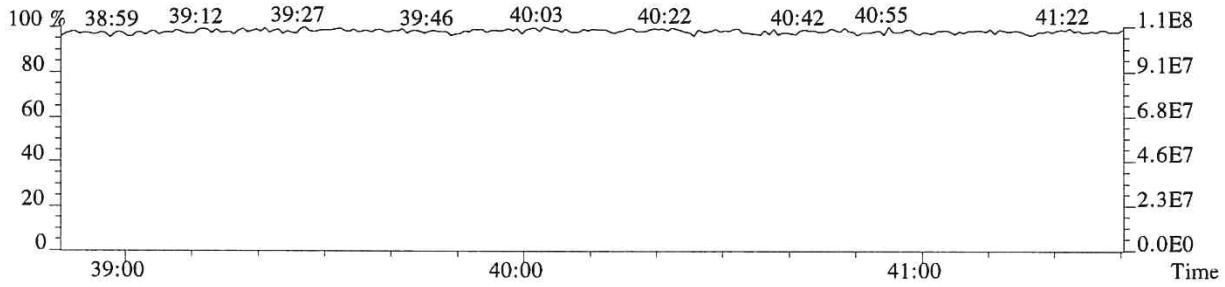
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1352.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)

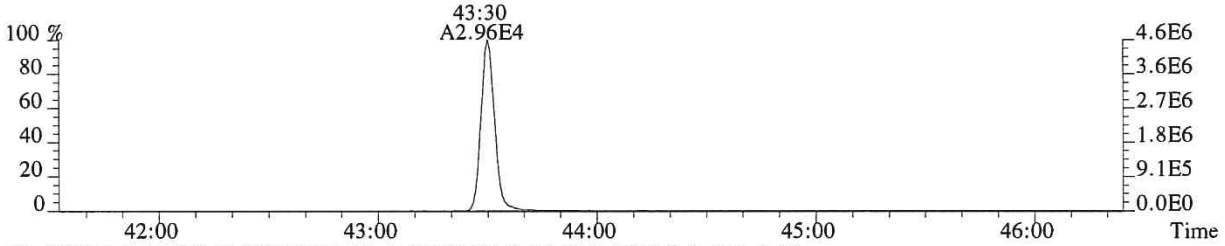


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

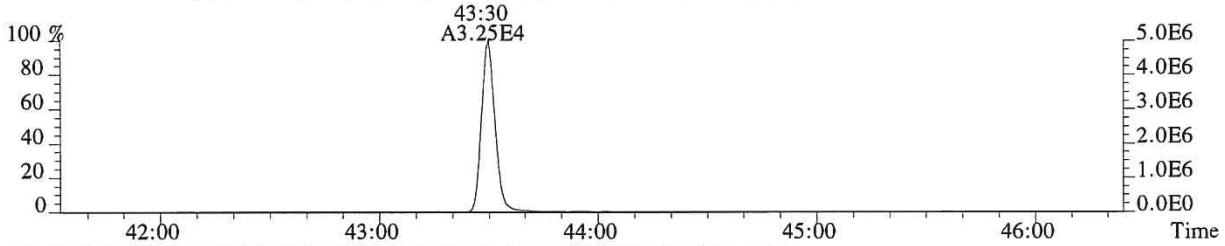


File:P615727 #1-438 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

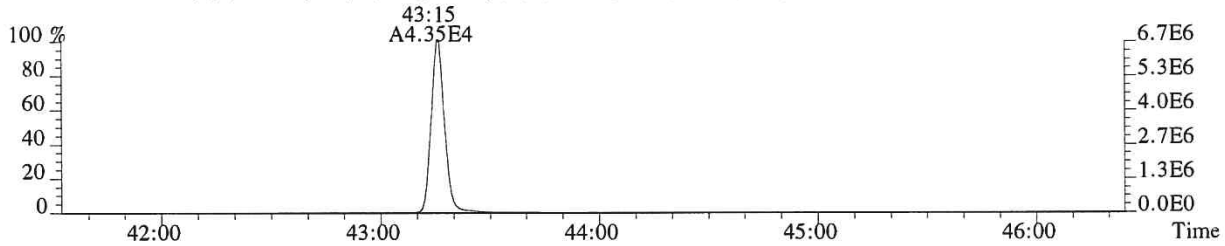
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1080.0,0.40%,F,T)



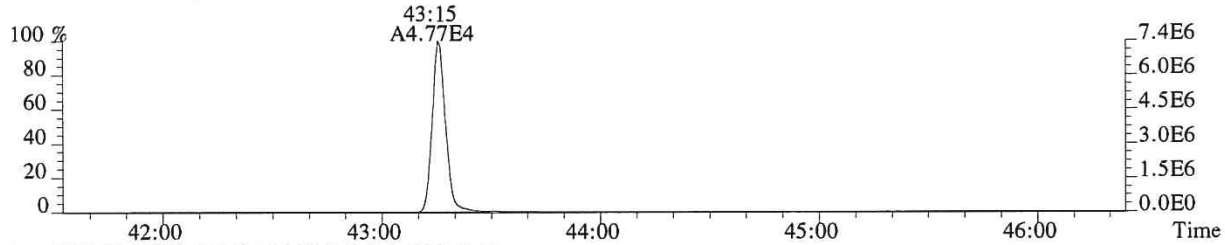
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2344.0,0.40%,F,T)



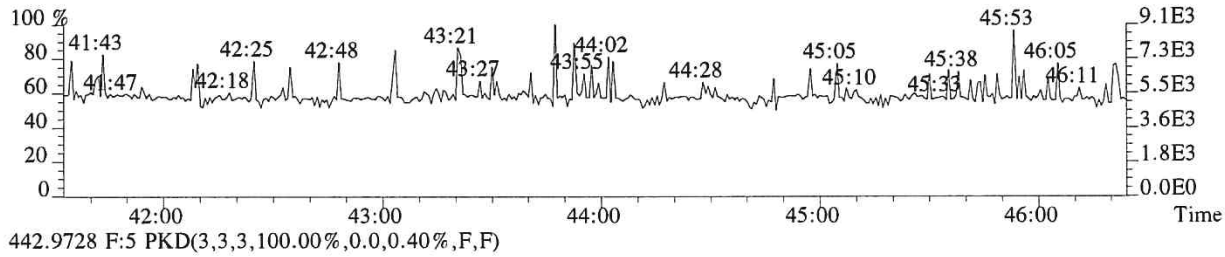
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



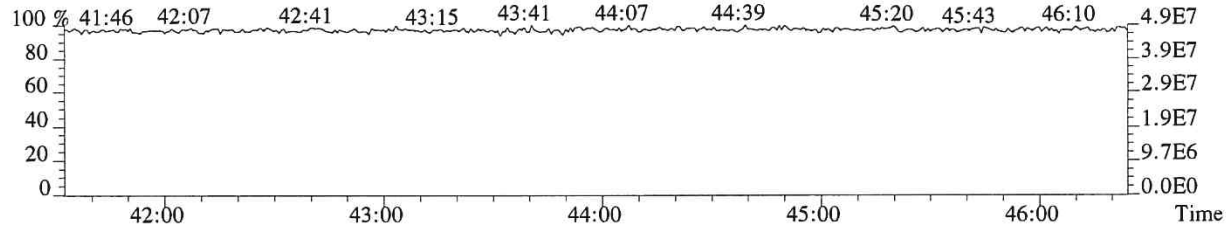
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



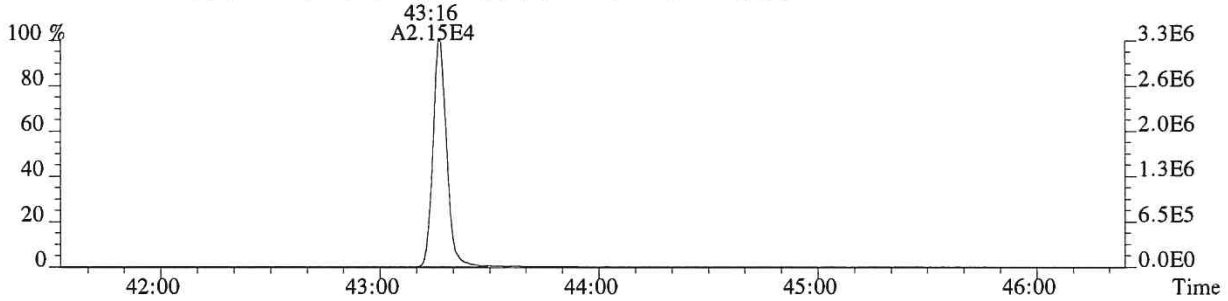
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



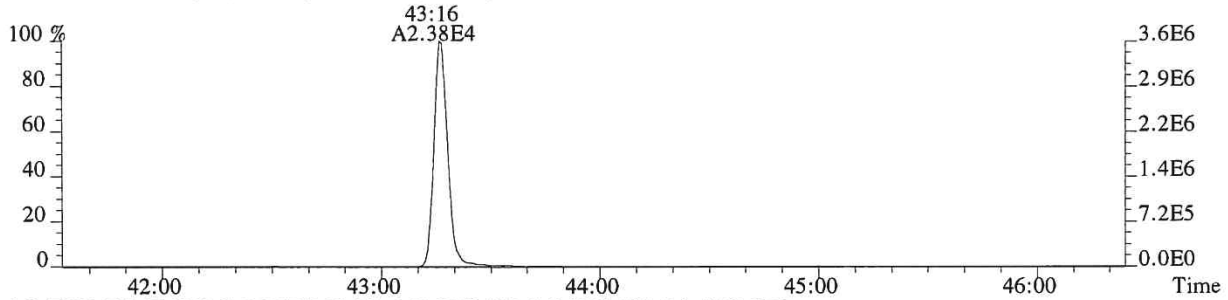
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



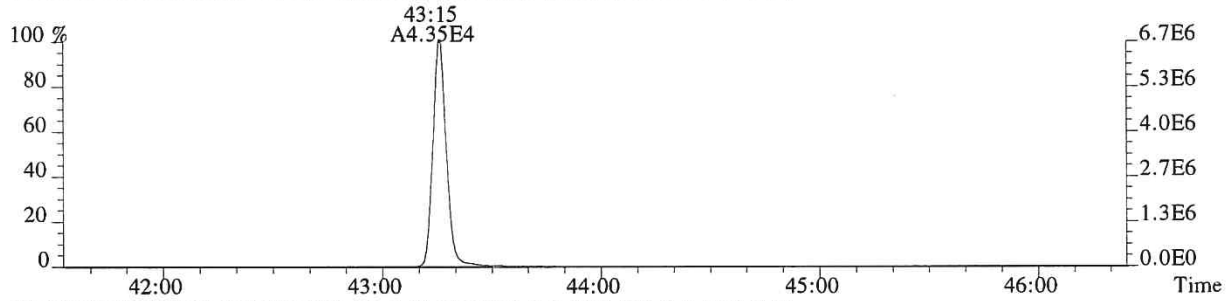
File:P615727 #1-438 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



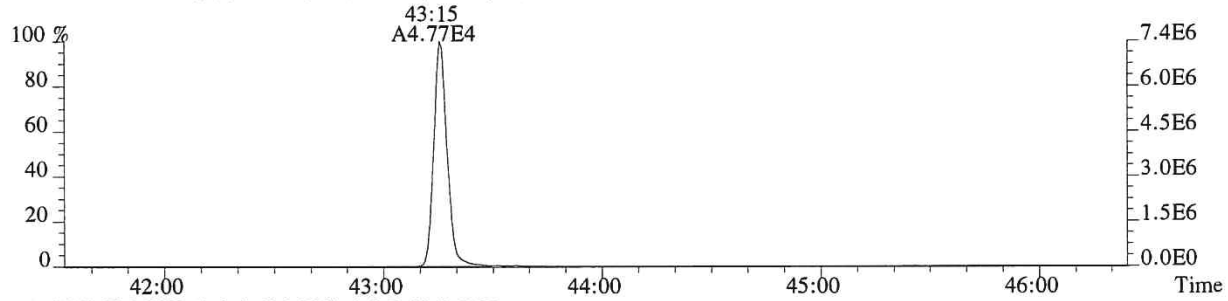
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1764.0,0.40%,F,T)



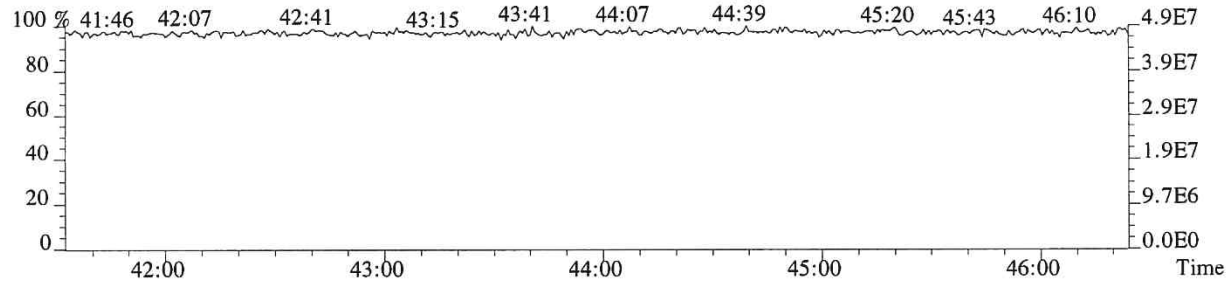
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



008973

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #20 Filename P615728 Samp: 1 Inj: 1 Acquired: 27-NOV-18 21:43:01
Processed: 28-NOV-18 10:28:01 Sample ID: EQ1800467-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:14	2.241e+03	2.853e+03	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:10	2.312e+04	1.452e+04	1.59	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:04	2.313e+04	1.472e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	2.398e+04	1.910e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:45	2.479e+04	1.987e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:15	2.583e+04	2.075e+04	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:01	2.380e+04	1.933e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:15	2.245e+04	2.175e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	1.963e+04	1.929e+04	1.02	yes	no	1.463
10	Unk	OCDF	43:29	2.922e+04	3.339e+04	0.88	yes	no	1.571
11	Unk	2,3,7,8-TCDD	29:57	1.617e+03	2.157e+03	0.75	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:19	1.557e+04	1.015e+04	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	1.724e+04	1.338e+04	1.29	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:28	1.700e+04	1.357e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:42	1.921e+04	1.520e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:14	1.566e+04	1.506e+04	1.04	yes	no	1.112
17	Unk	OCDD	43:15	2.053e+04	2.304e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:12	2.326e+04	2.922e+04	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	4.801e+04	3.031e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:03	4.693e+04	2.930e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:38	2.412e+04	4.653e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	2.734e+04	5.176e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	2.843e+04	5.528e+04	0.51	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:00	2.601e+04	4.986e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:14	2.061e+04	4.579e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:45	1.968e+04	4.339e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:55	1.778e+04	2.234e+04	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:18	3.518e+04	2.274e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:22	3.702e+04	2.883e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:27	3.411e+04	2.611e+04	1.31	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	3.899e+04	3.694e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	43:15	4.012e+04	4.431e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:22	6.603e+04	8.282e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:41	8.059e+04	6.453e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:56	1.802e+04				no	1.086

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #20 Filename P615728 Samp: 1 Inj: 1 Acquired: 27-NOV-18 21:43:01
Processed: 28-NOV-18 10:28:01 LAB. ID: EQ1800467-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.46e+05	1.36e+03	3.3e+02	5.76e+05	2.39e+03	2.4e+02
2	1,2,3,7,8-PeCDF	4.68e+06	1.18e+03	4.0e+03	2.94e+06	4.42e+03	6.6e+02
3	2,3,4,7,8-PeCDF	4.85e+06	1.18e+03	4.1e+03	3.08e+06	4.42e+03	7.0e+02
4	1,2,3,4,7,8-HxCDF	5.37e+06	1.10e+03	4.9e+03	4.25e+06	1.48e+03	2.9e+03
5	1,2,3,6,7,8-HxCDF	5.34e+06	1.10e+03	4.8e+03	4.26e+06	1.48e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	5.57e+06	1.10e+03	5.0e+03	4.47e+06	1.48e+03	3.0e+03
7	1,2,3,7,8,9-HxCDF	5.02e+06	1.10e+03	4.5e+03	4.12e+06	1.48e+03	2.8e+03
8	1,2,3,4,6,7,8-HpCDF	4.67e+06	3.65e+03	1.3e+03	4.52e+06	2.52e+03	1.8e+03
9	1,2,3,4,7,8,9-HpCDF	3.64e+06	3.65e+03	1.0e+03	3.63e+06	2.52e+03	1.4e+03
10	OCDF	4.48e+06	8.72e+02	5.1e+03	5.13e+06	1.95e+03	2.6e+03
11	2,3,7,8-TCDD	3.37e+05	2.49e+03	1.4e+02	4.39e+05	1.98e+03	2.2e+02
12	1,2,3,7,8-PeCDD	3.29e+06	2.30e+03	1.4e+03	2.15e+06	1.17e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	3.89e+06	1.20e+03	3.2e+03	3.03e+06	1.36e+03	2.2e+03
14	1,2,3,6,7,8-HxCDD	3.69e+06	1.20e+03	3.1e+03	2.93e+06	1.36e+03	2.2e+03
15	1,2,3,7,8,9-HxCDD	4.15e+06	1.20e+03	3.4e+03	3.19e+06	1.36e+03	2.4e+03
16	1,2,3,4,6,7,8-HpCDD	3.08e+06	1.47e+03	2.1e+03	2.97e+06	9.08e+02	3.3e+03
17	OCDD	3.14e+06	6.52e+02	4.8e+03	3.58e+06	8.36e+02	4.3e+03
18	13C-2,3,7,8-TCDF	4.54e+06	1.28e+04	3.5e+02	5.72e+06	6.21e+03	9.2e+02
19	13C-1,2,3,7,8-PeCDF	9.67e+06	9.96e+02	9.7e+03	6.08e+06	1.79e+03	3.4e+03
20	13C-2,3,4,7,8-PeCDF	9.59e+06	9.96e+02	9.6e+03	5.91e+06	1.79e+03	3.3e+03
21	13C-1,2,3,4,7,8-HxCDF	5.33e+06	1.44e+03	3.7e+03	1.04e+07	2.61e+03	4.0e+03
22	13C-1,2,3,6,7,8-HxCDF	5.82e+06	1.44e+03	4.0e+03	1.12e+07	2.61e+03	4.3e+03
23	13C-2,3,4,6,7,8-HxCDF	6.28e+06	1.44e+03	4.4e+03	1.19e+07	2.61e+03	4.6e+03
24	13C-1,2,3,7,8,9-HxCDF	5.58e+06	1.44e+03	3.9e+03	1.05e+07	2.61e+03	4.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.23e+06	2.14e+03	2.0e+03	9.60e+06	3.43e+03	2.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.66e+06	2.14e+03	1.7e+03	8.21e+06	3.43e+03	2.4e+03
27	13C-2,3,7,8-TCDD	3.73e+06	1.48e+04	2.5e+02	4.74e+06	5.73e+03	8.3e+02
28	13C-1,2,3,7,8-PeCDD	7.46e+06	2.04e+03	3.7e+03	4.78e+06	1.83e+03	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	8.51e+06	4.12e+03	2.1e+03	6.51e+06	1.86e+03	3.5e+03
30	13C-1,2,3,6,7,8-HxCDD	7.31e+06	4.12e+03	1.8e+03	5.73e+06	1.86e+03	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.57e+06	2.04e+03	3.7e+03	7.32e+06	4.28e+02	1.7e+04
32	13C-OCDD	6.11e+06	8.40e+02	7.3e+03	6.95e+06	6.92e+02	1.0e+04
33	13C-1,2,3,4-TCDD	1.38e+07	1.48e+04	9.4e+02	1.73e+07	5.73e+03	3.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.76e+07	4.12e+03	4.3e+03	1.39e+07	1.86e+03	7.5e+03
35	37Cl-2,3,7,8-TCDD	3.72e+06	1.96e+03	1.9e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.492e{+}03 + 1.980e{+}03) \times 2000}{(3.726e{+}06 + 4.740e{+}06) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
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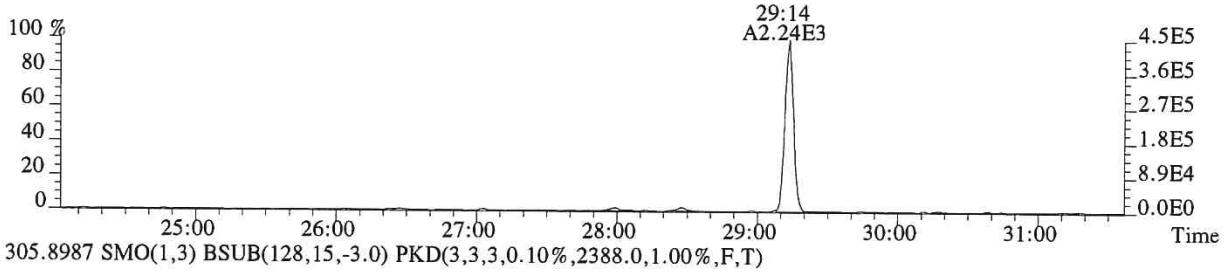
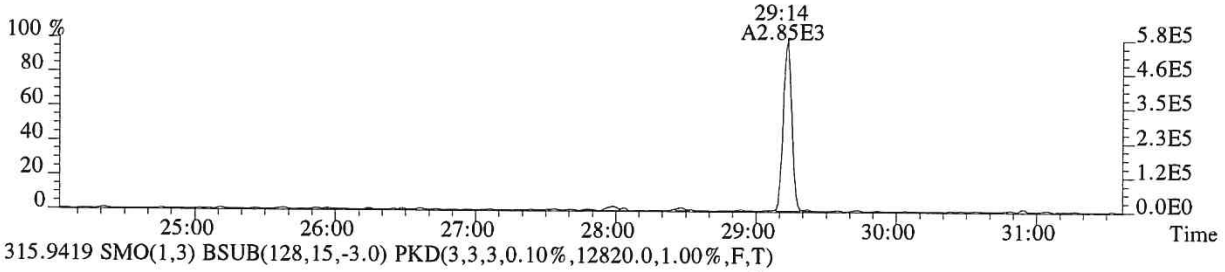
File:P615728 #1-538 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

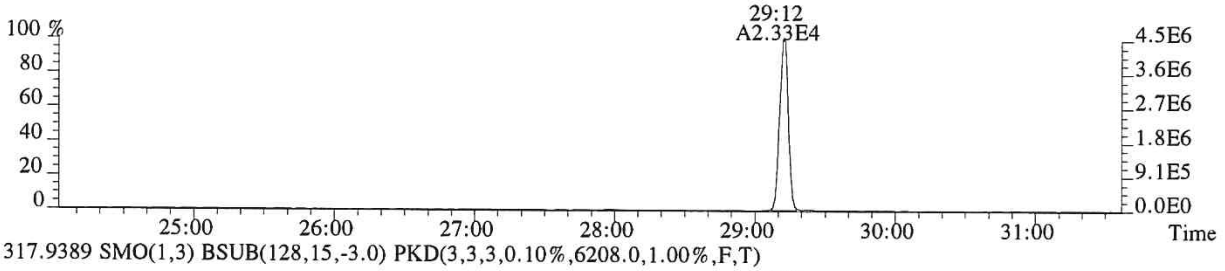
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



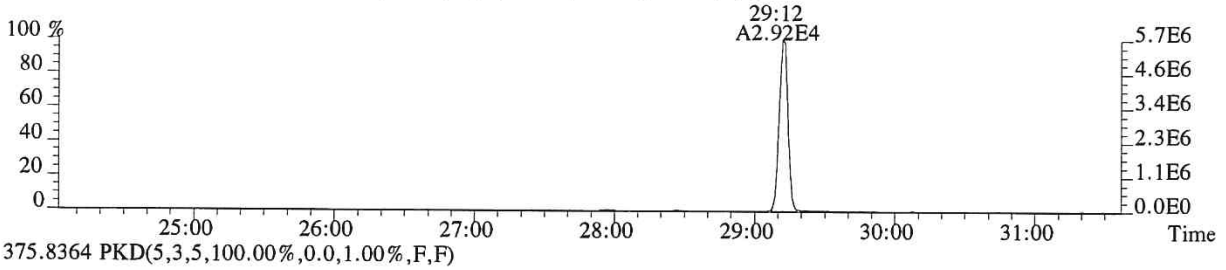
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



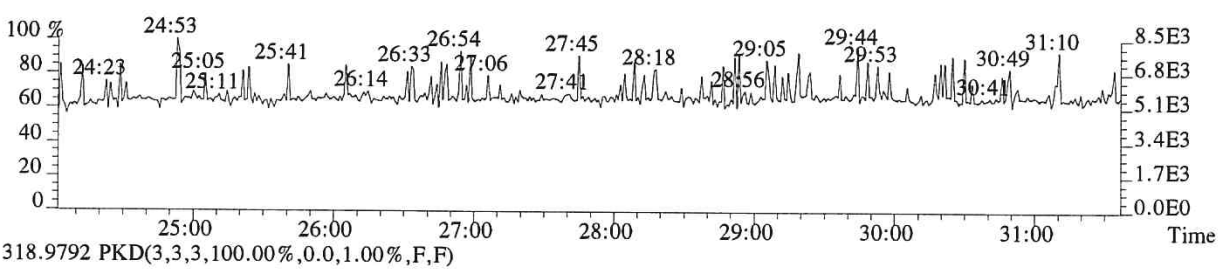
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12820.0,1.00%,F,T)



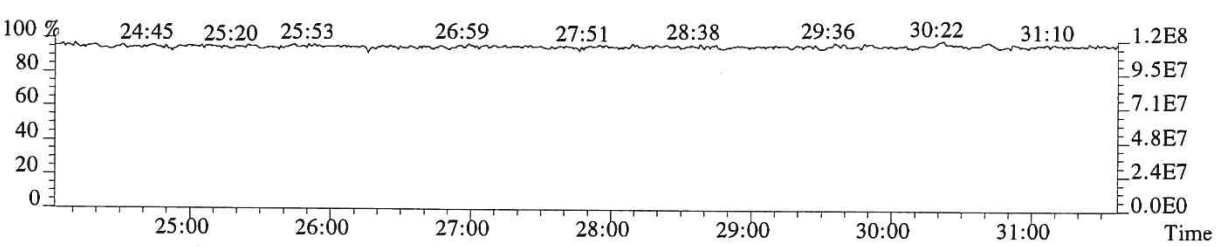
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6208.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



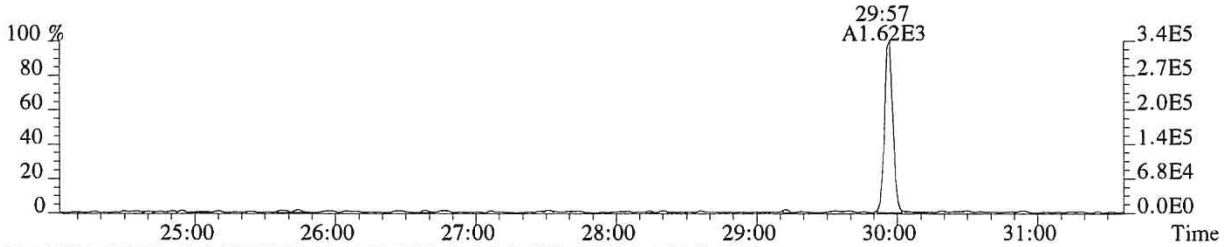
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



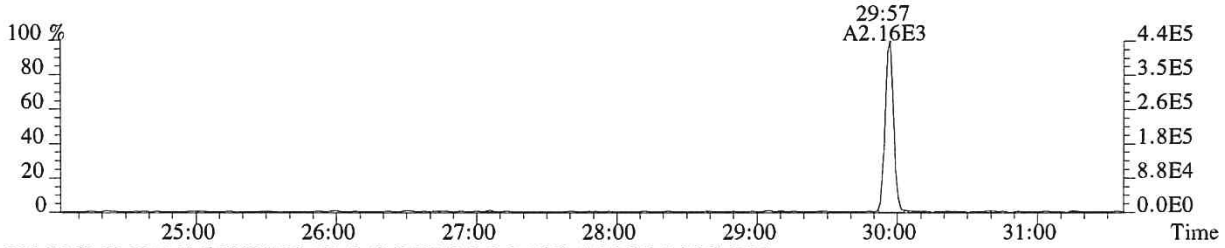
008976

File:P615728 #1-538 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

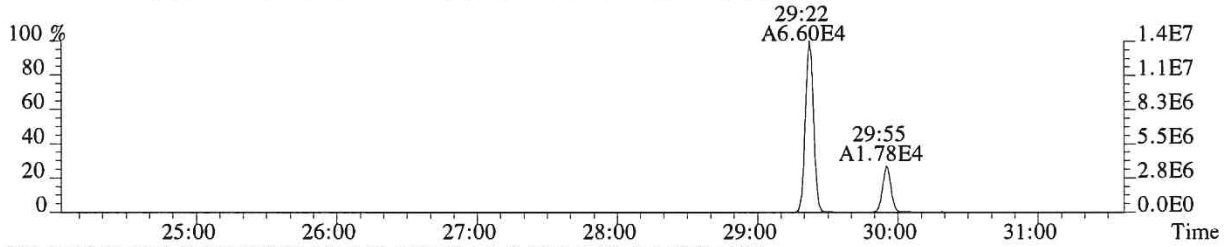
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2492.0,1.00%,F,T)



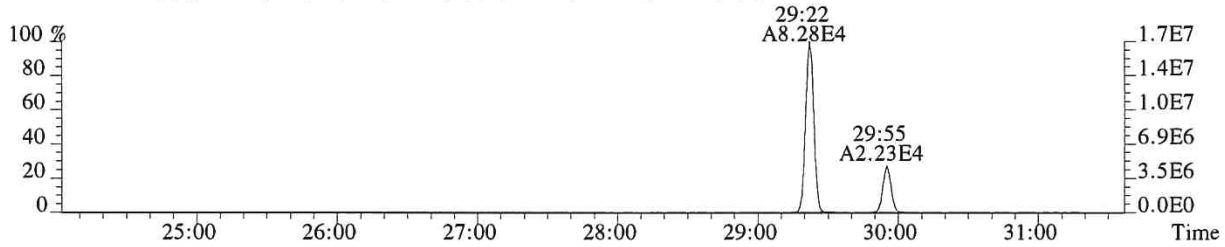
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



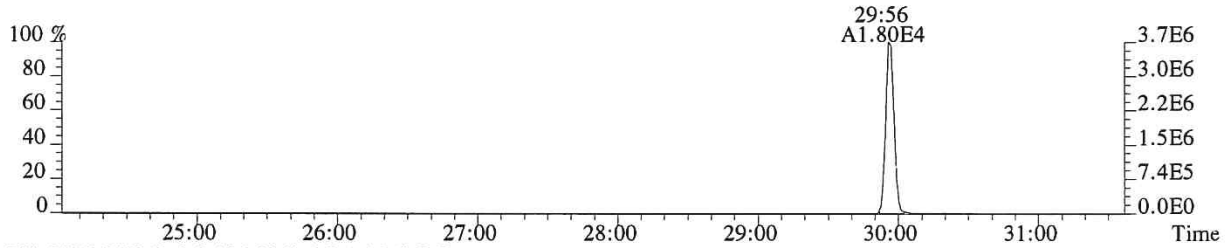
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14796.0,1.00%,F,T)



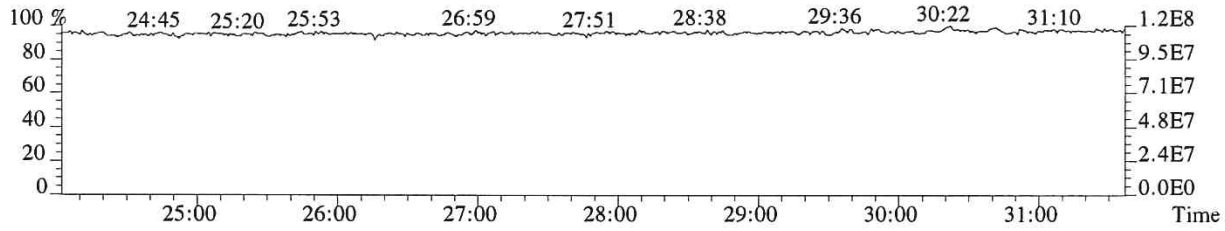
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5732.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1960.0,1.00%,F,T)

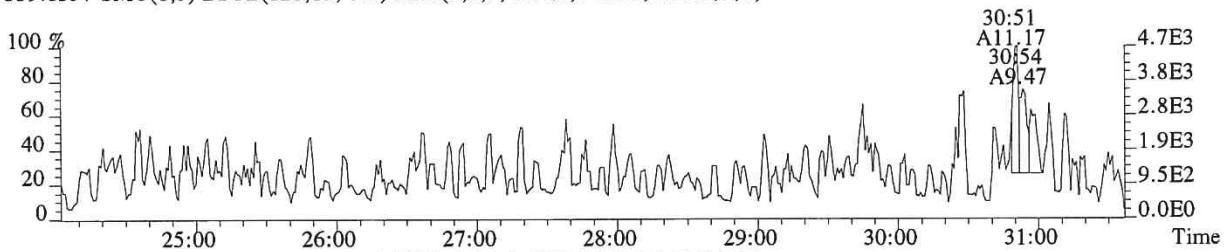


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

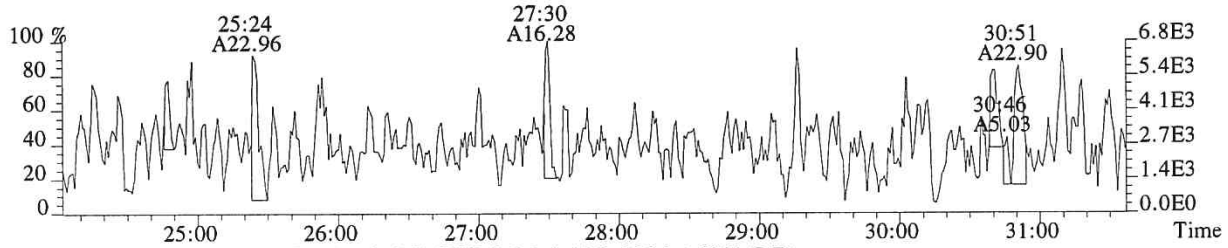


008977

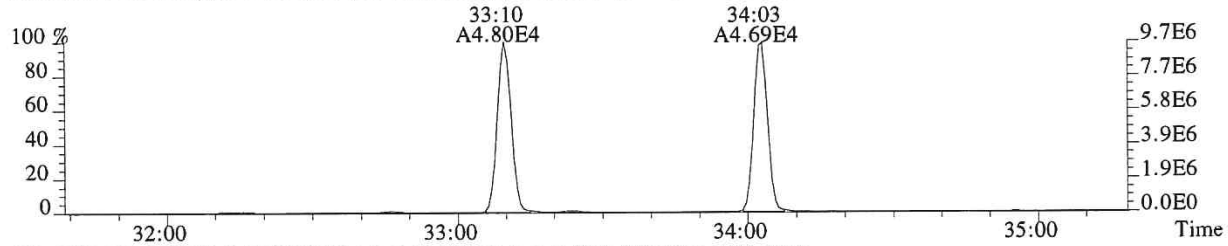
File:P615728 #1-538 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



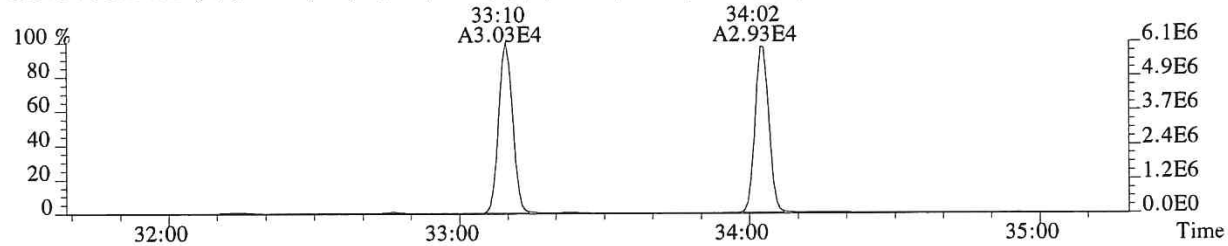
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3316.0,1.00%,F,T)



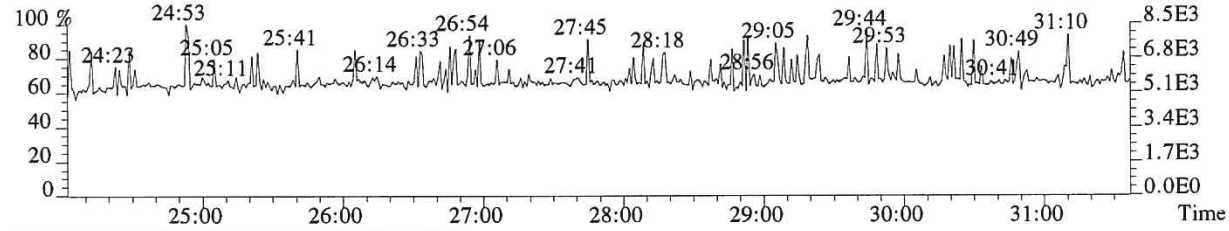
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



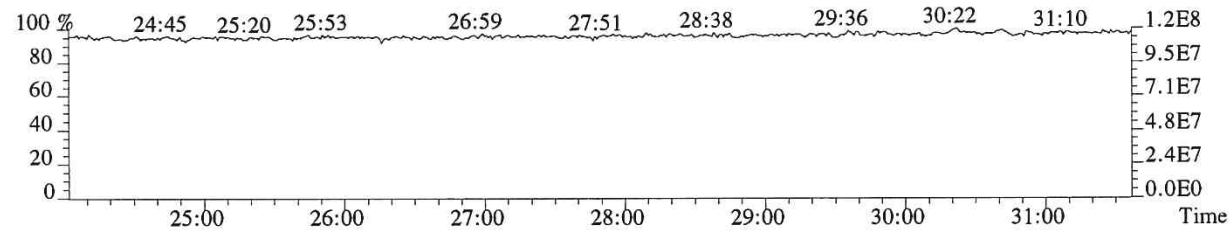
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



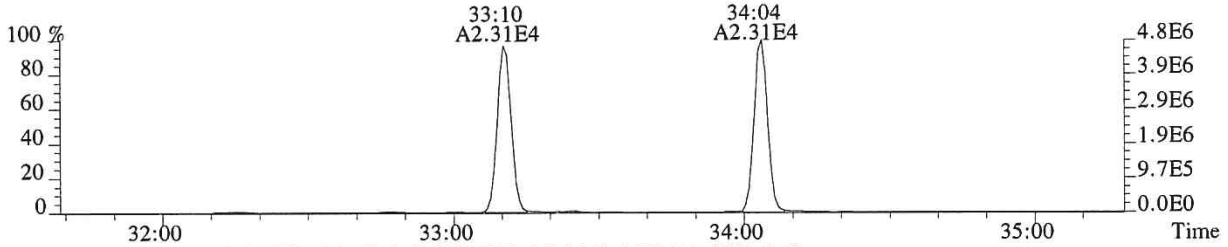
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



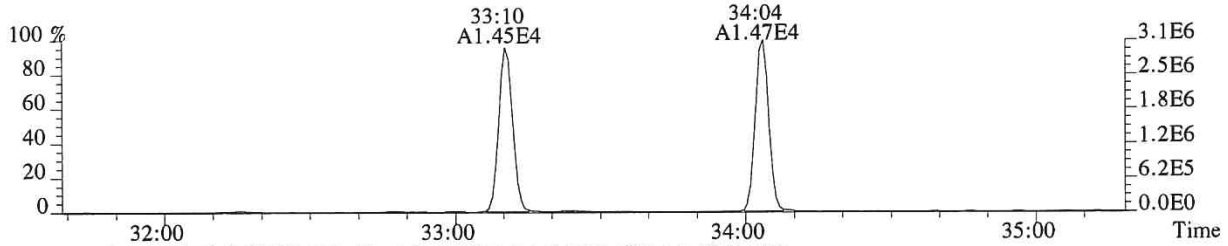
008978

File:P615728 #1-330 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

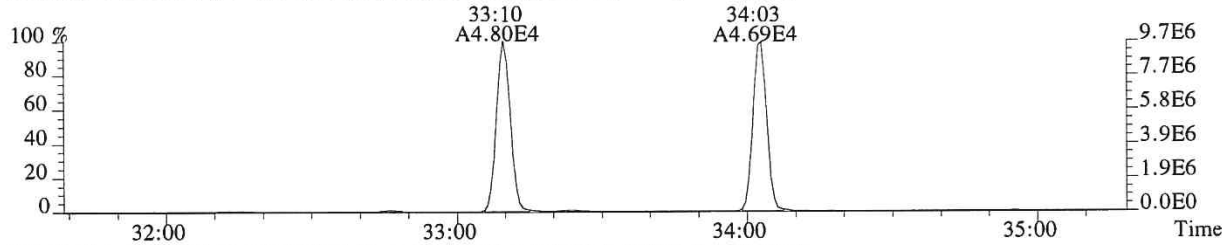
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



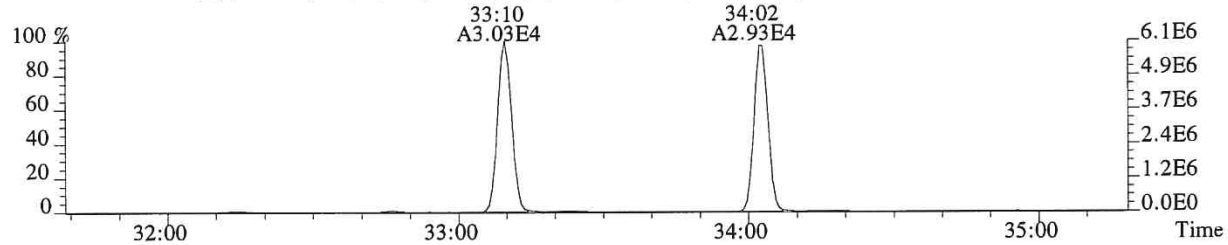
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4420.0,1.00%,F,T)



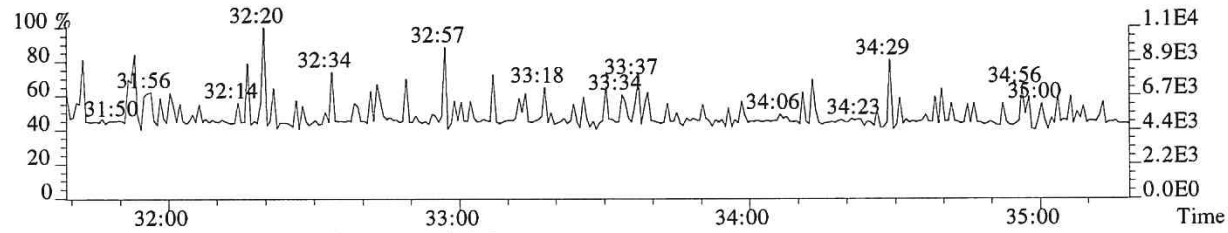
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



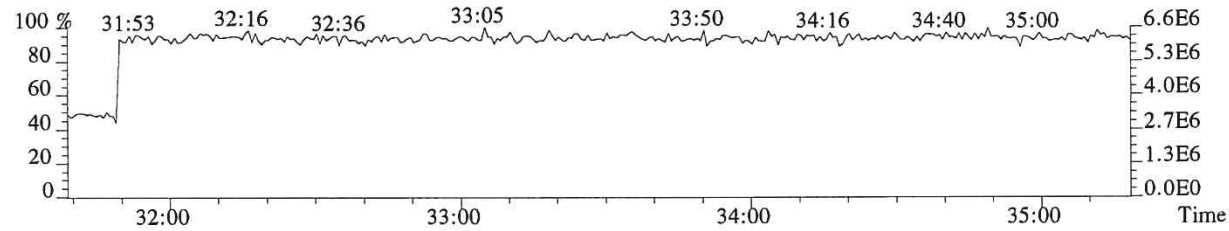
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

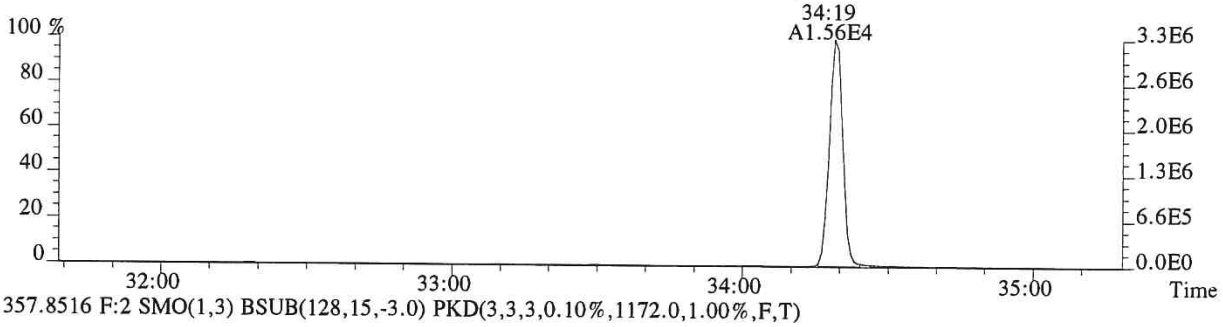


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

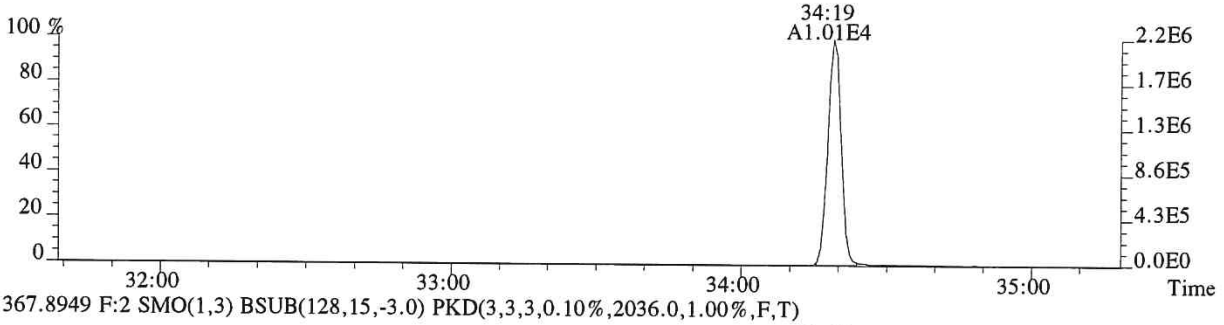


008979

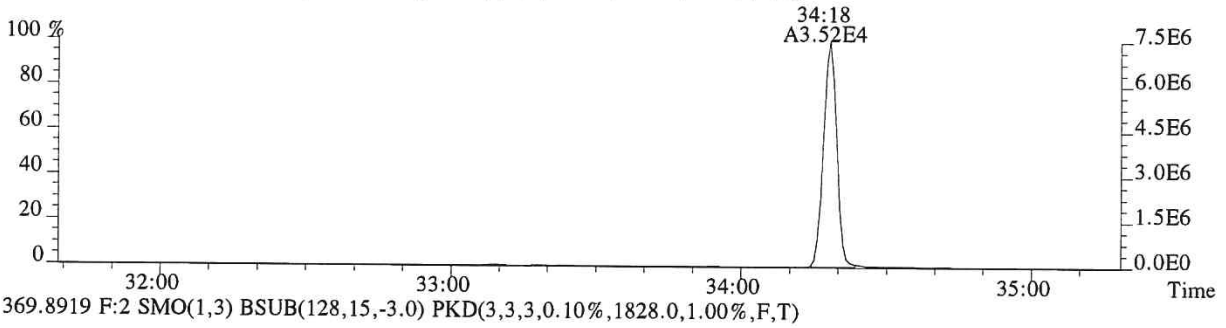
File:P615728 #1-330 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)



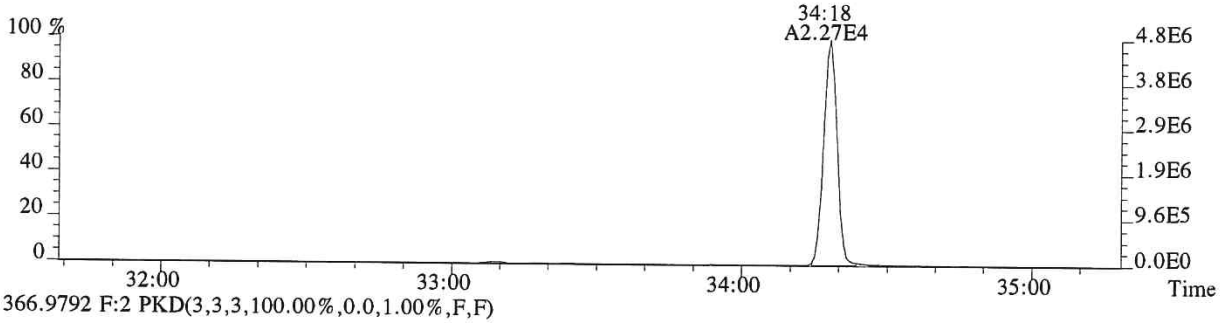
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



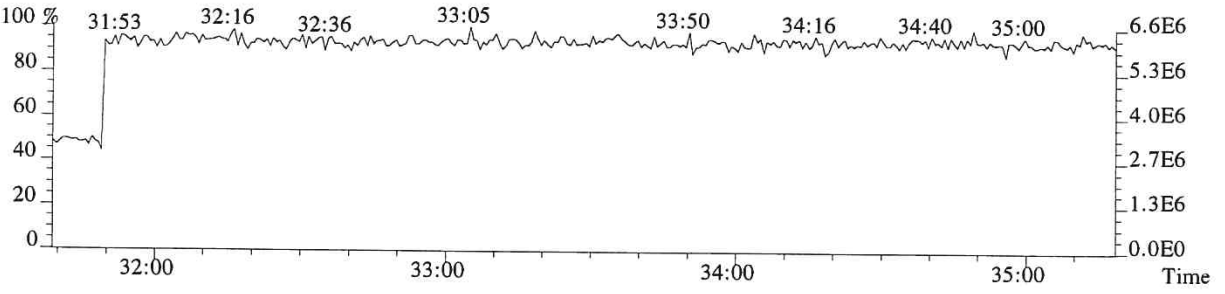
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



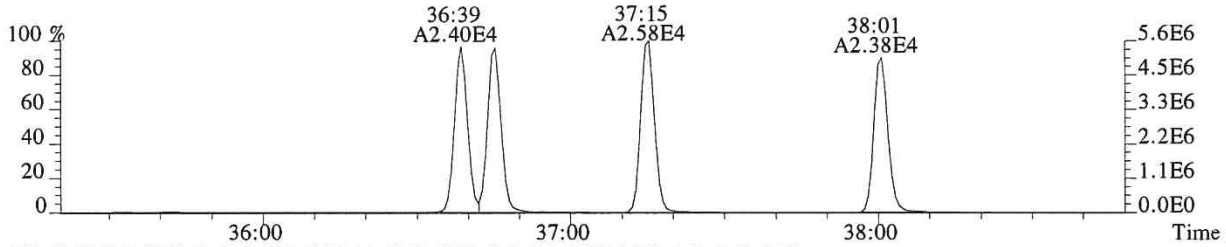
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



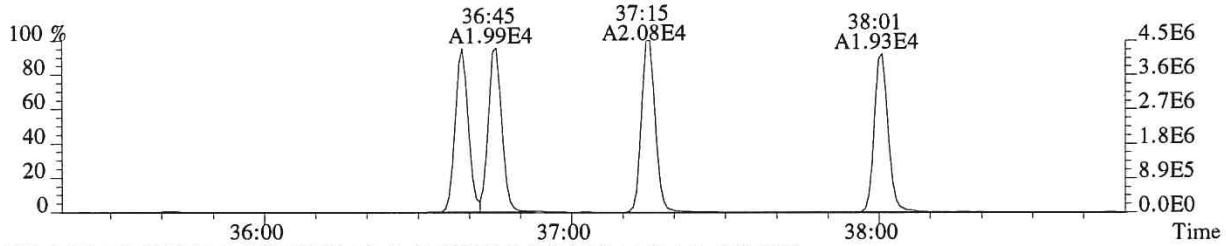
008980

File:P615728 #1-312 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

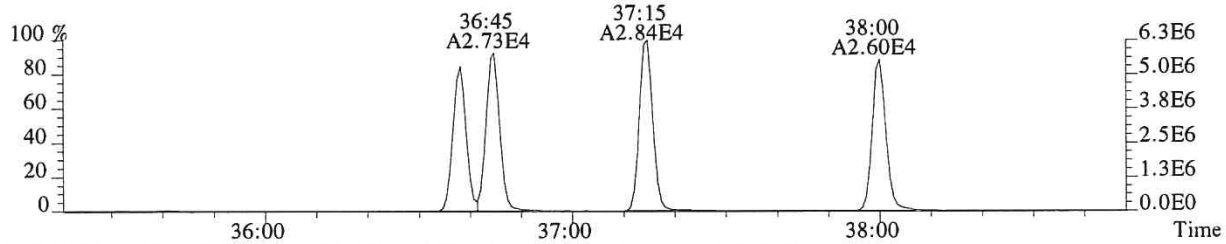
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



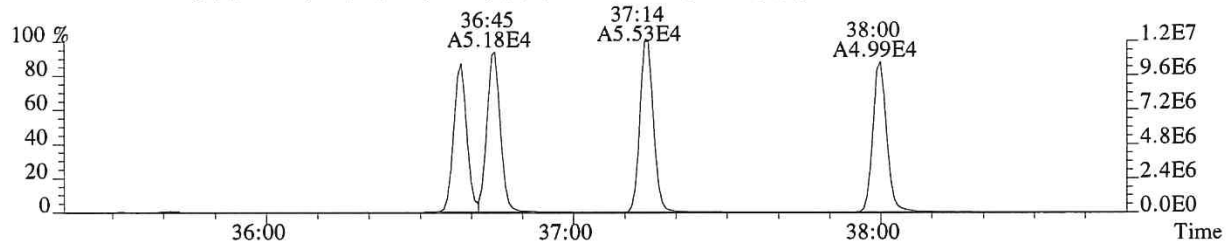
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1480.0,0.40%,F,T)



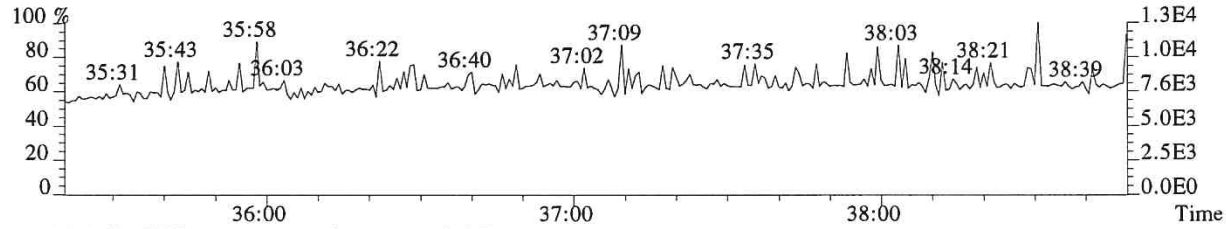
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



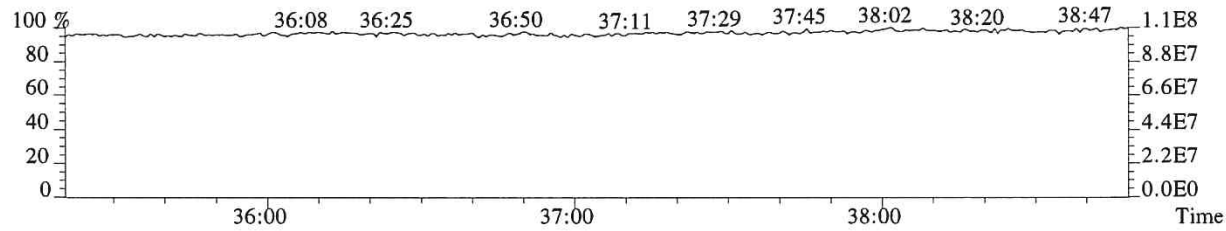
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2608.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



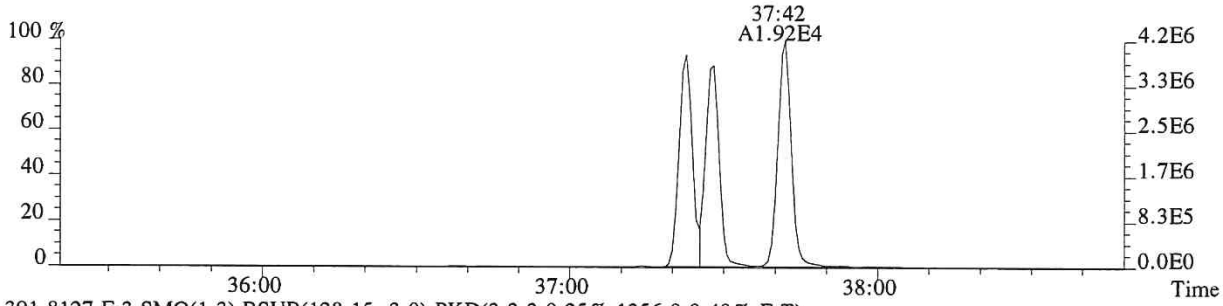
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



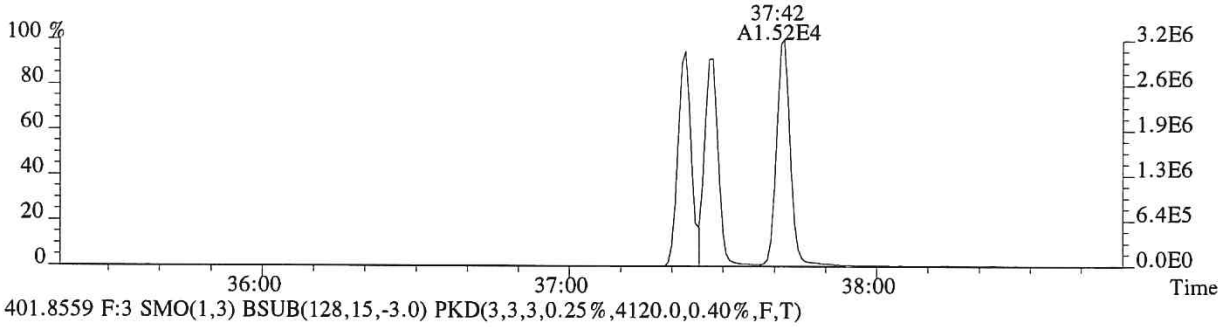
008981

File:P615728 #1-312 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

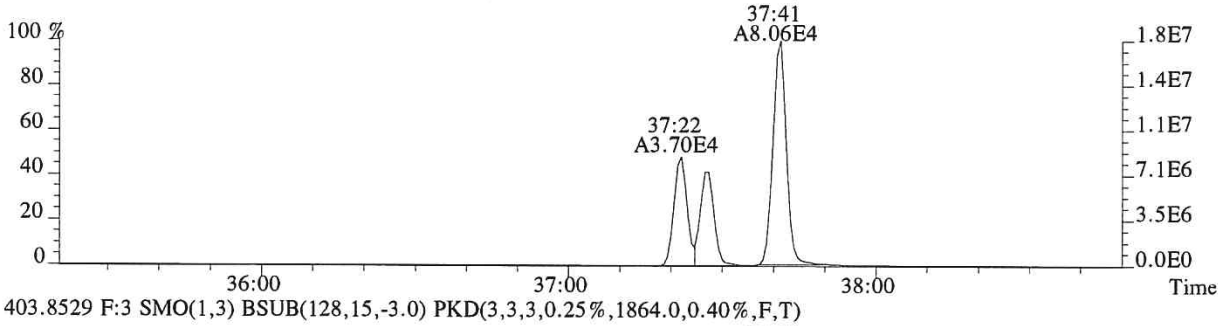
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



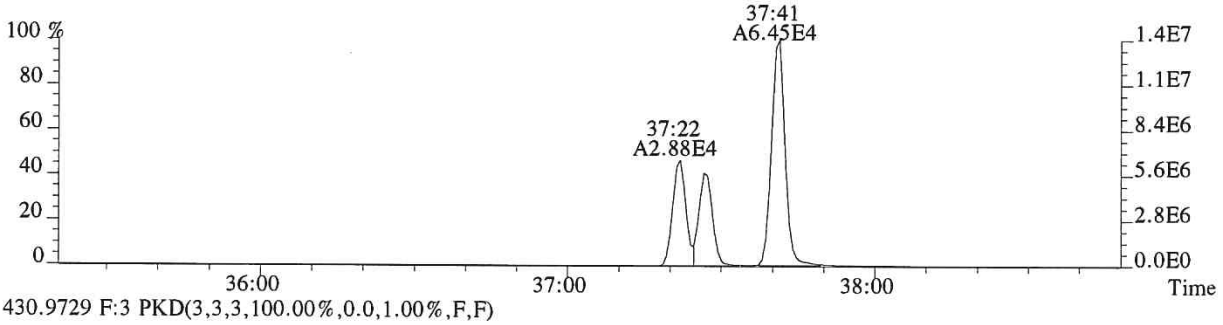
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1356.0,0.40%,F,T)



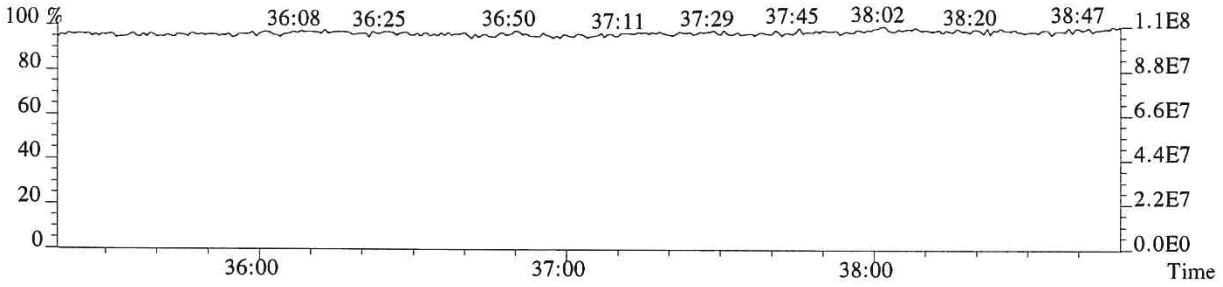
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4120.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1864.0,0.40%,F,T)



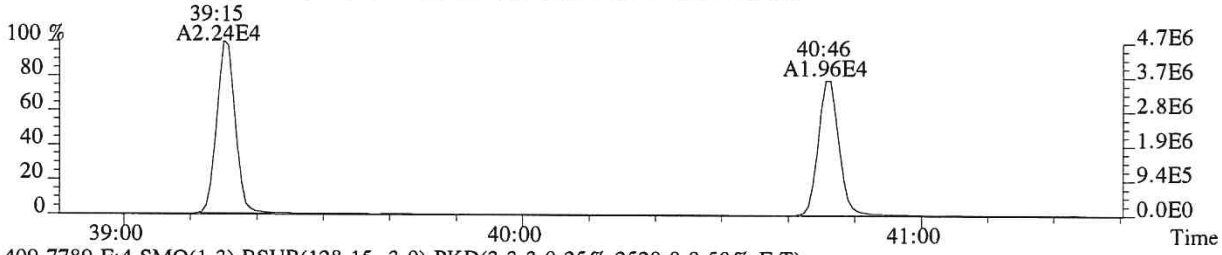
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



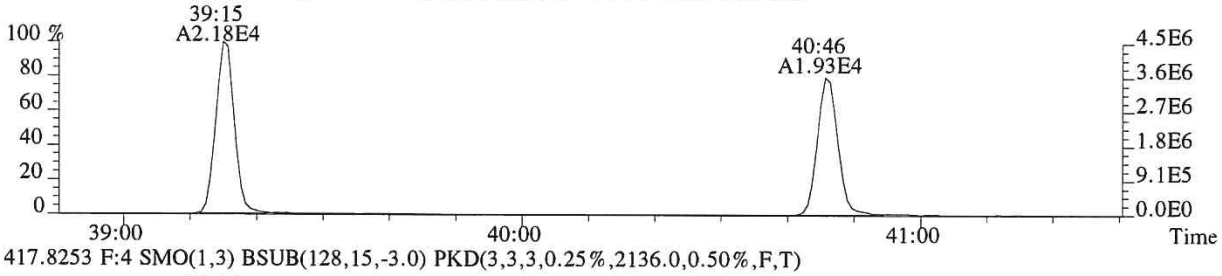
008982

File:P615728 #1-241 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

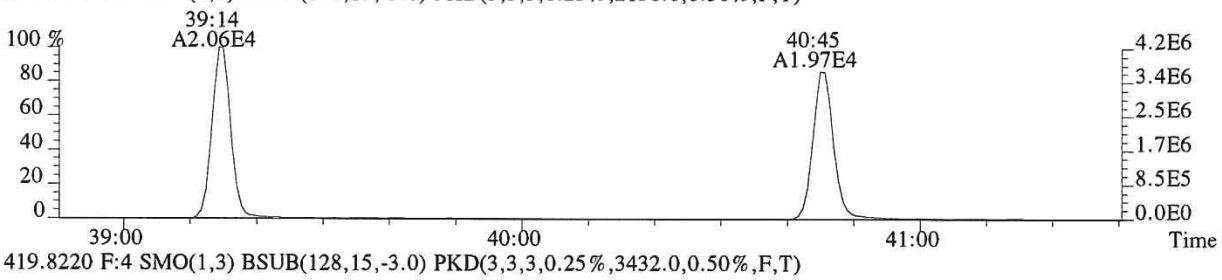
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3652.0,0.50%,F,T)



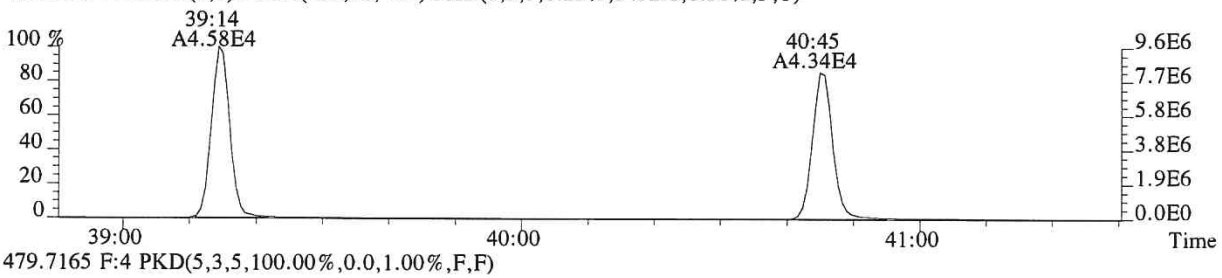
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2520.0,0.50%,F,T)



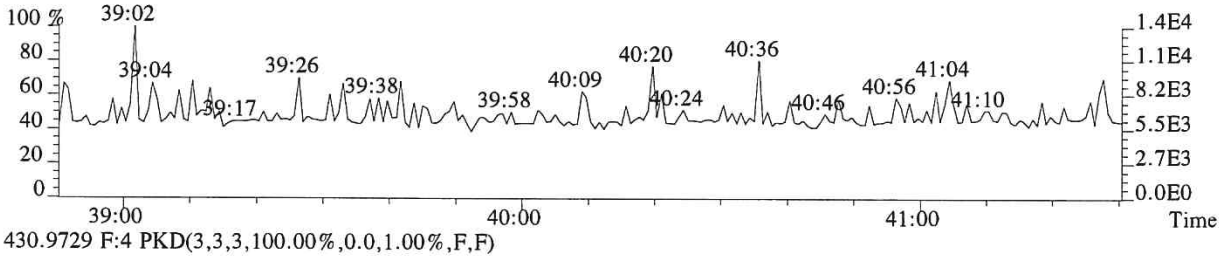
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2136.0,0.50%,F,T)



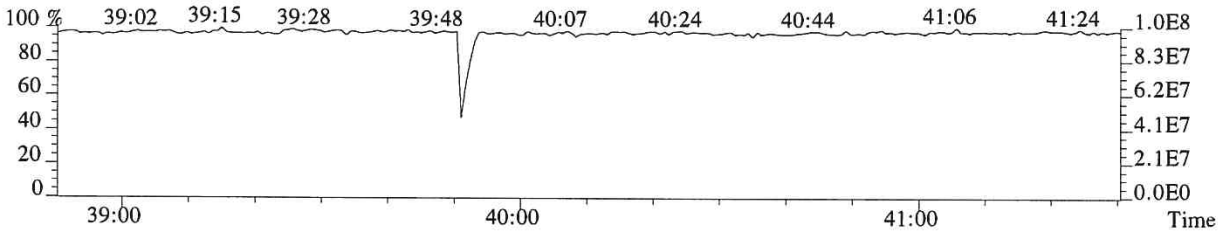
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3432.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

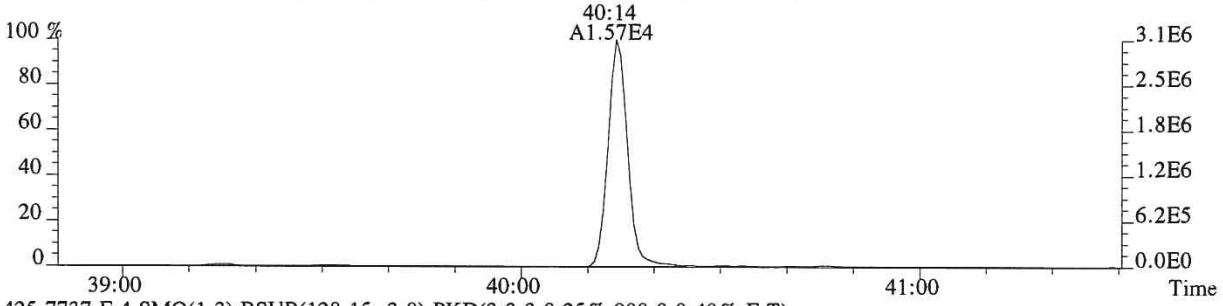


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

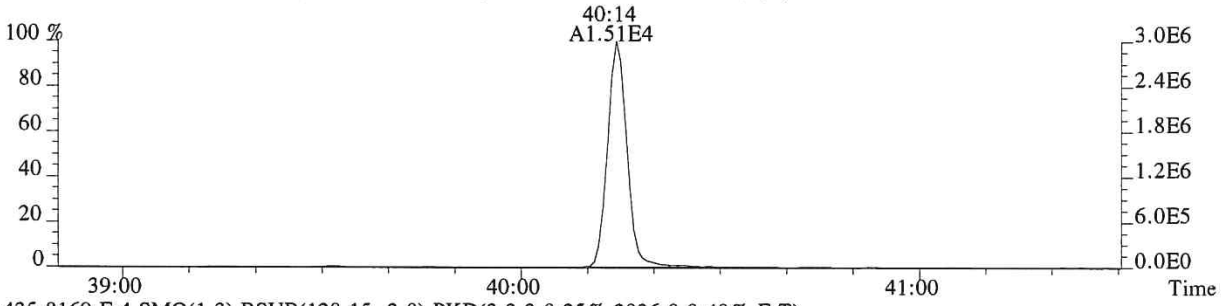


008983

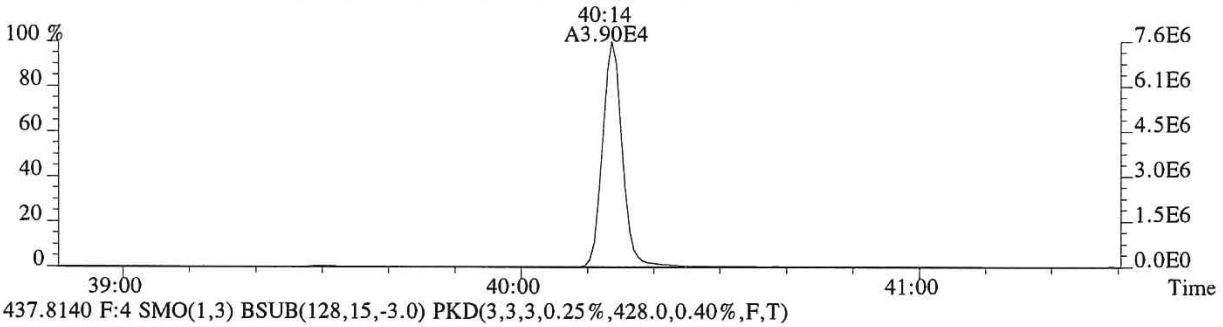
File:P615728 #1-241 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1468.0,0.40%,F,T)



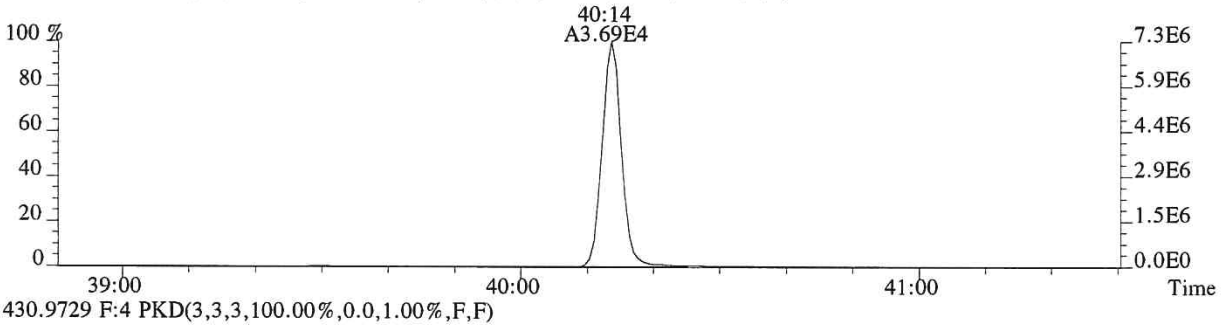
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



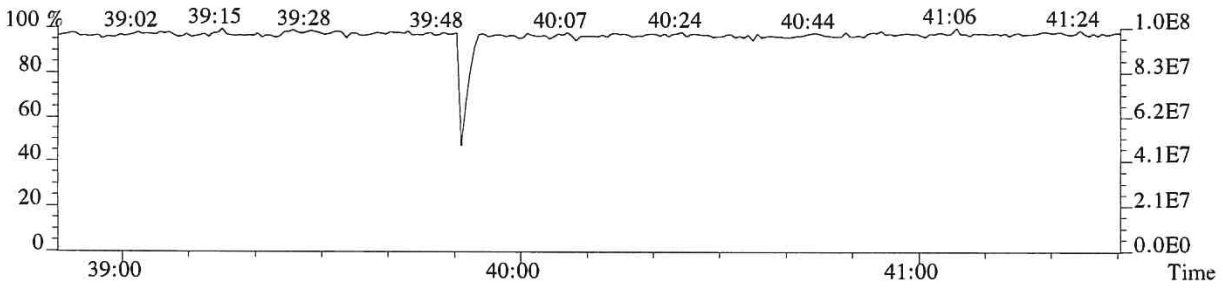
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2036.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)

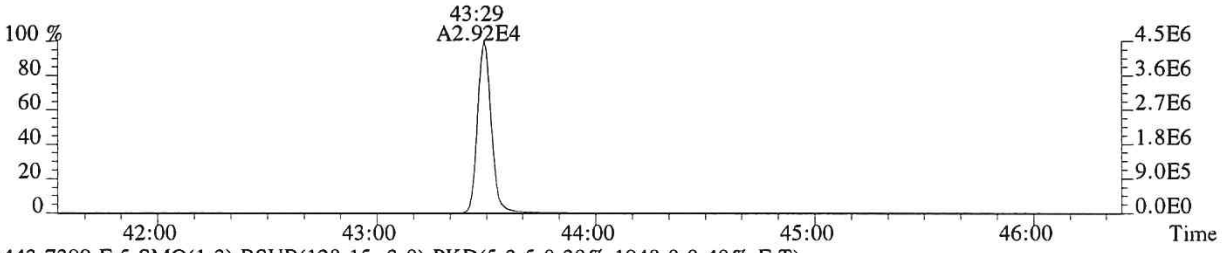


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

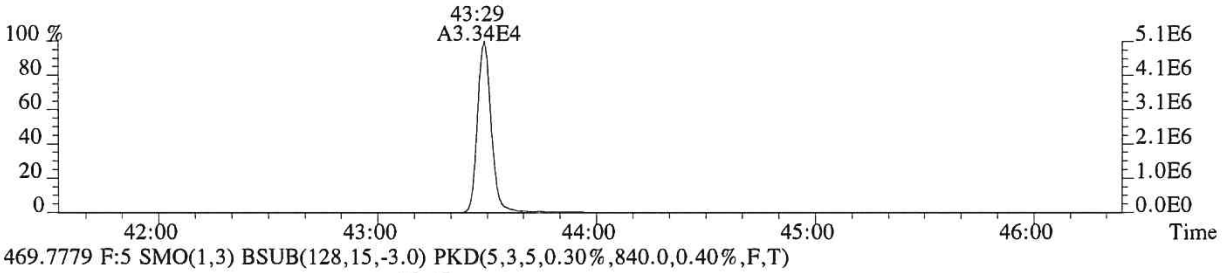


File:P615728 #1-438 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

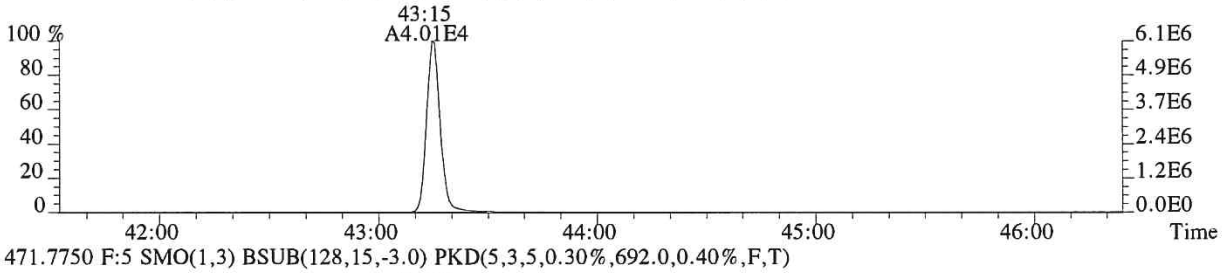
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



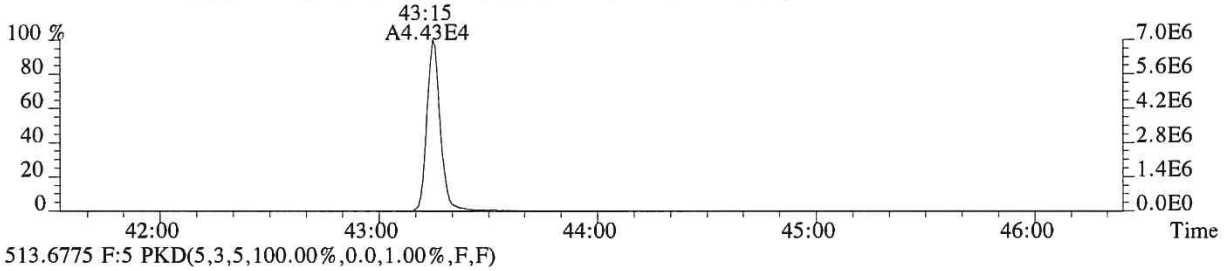
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1948.0,0.40%,F,T)



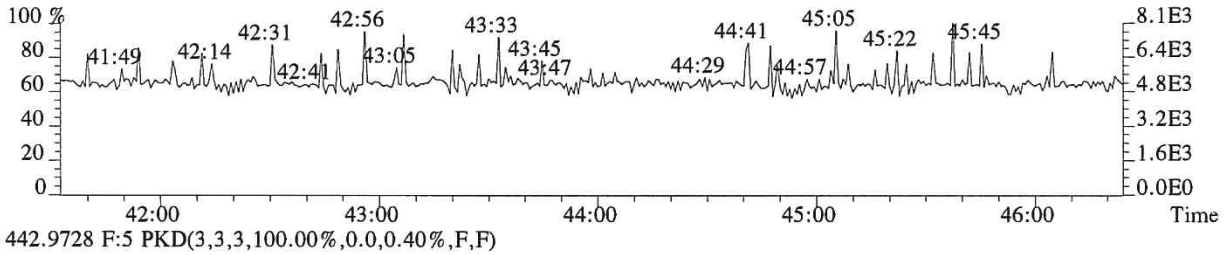
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



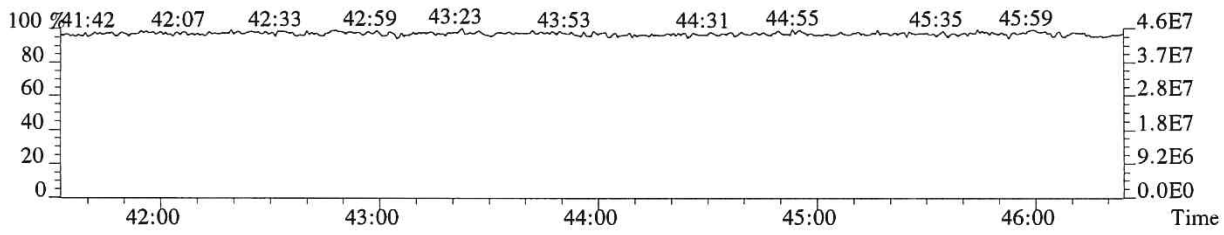
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

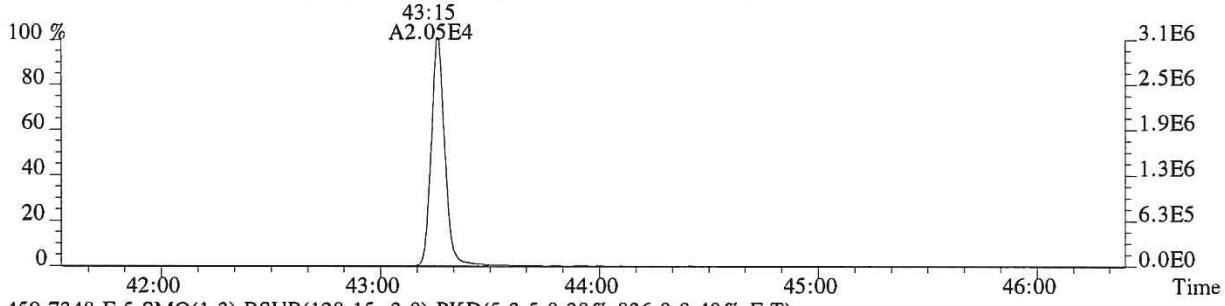


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

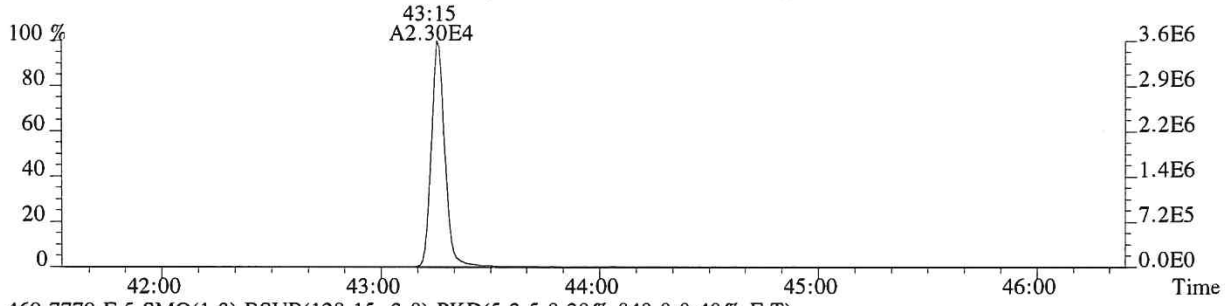


008985

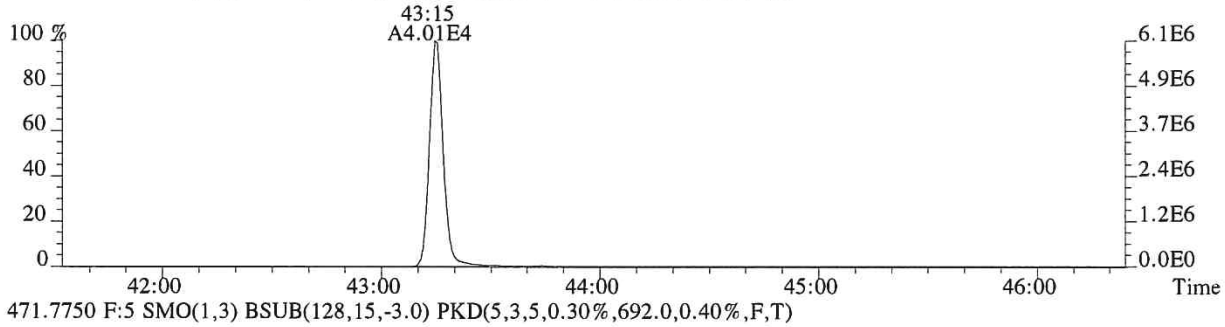
File:P615728 #1-438 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



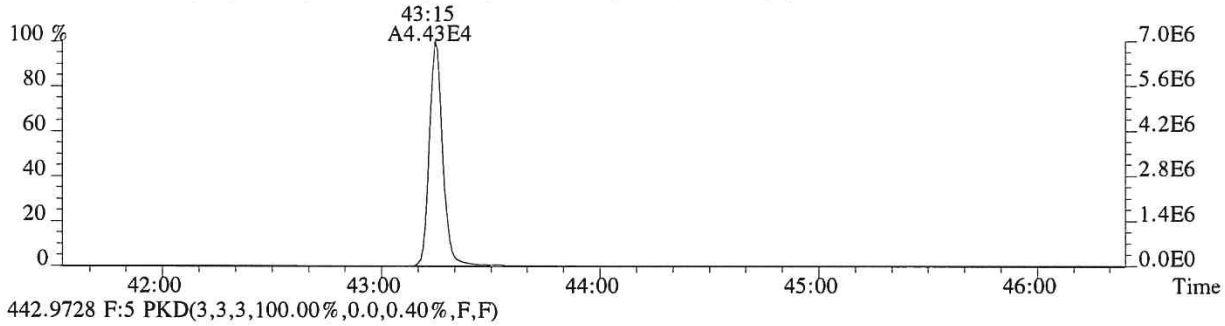
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



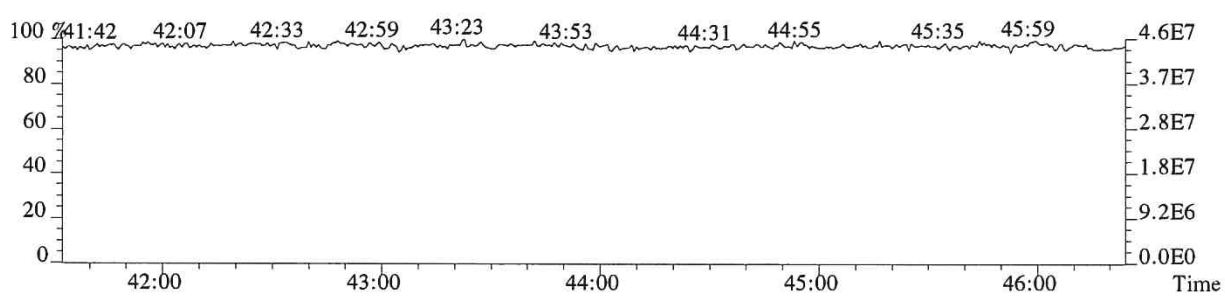
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



008986

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P518868 Samp: 1 Inj: 1 Acquired: 17-NOV-18 03:32:53
Processed: 21-NOV-18 09:19:28 Sample ID: EQ1800468-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:30	6.283e+00	5.113e+00	1.23	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	5.752e+00	3.203e+00	1.80	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	1.080e+01	5.199e+00	2.08	no	yes	1.258
10	Unk	OCDF	40:51	1.505e+01	2.233e+01	0.67	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:08	6.711e+00	1.094e+01	0.61	no	yes	1.025
17	Unk	OCDD	40:42	9.653e+01	9.362e+01	1.03	no	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:30	5.586e+03	7.169e+03	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:33	1.637e+04	1.018e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:34	1.790e+04	1.133e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	9.492e+03	1.818e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.238e+04	2.326e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.171e+04	2.305e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.082e+04	2.055e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	9.210e+03	2.048e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.717e+03	1.941e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	3.964e+03	4.965e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.346e+04	8.441e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:16	1.411e+04	1.110e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:21	1.605e+04	1.237e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.836e+04	1.715e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:41	1.995e+04	2.206e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:48	1.989e+04	2.532e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:36	3.185e+04	2.585e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	4.430e+03				no	1.014

$$\text{OCDD} = \frac{(9.653e+01 + 9.362e+01) \times 4000\ \text{pg} \times 1}{(1.995e+04 + 2.206e+04) \times \text{g} \times / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P518868 Samp: 1 Inj: 1 Acquired: 17-NOV-18 03:32:53
Processed: 21-NOV-18 09:19:28 LAB. ID: EQ1800468-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	3.00e+02	*	*	1.12e+03	*
2	1,2,3,7,8-PeCDF	*	2.88e+02	*	*	8.92e+02	*
3	2,3,4,7,8-PeCDF	*	2.88e+02	*	*	8.92e+02	*
4	1,2,3,4,7,8-HxCDF	1.13e+03	2.24e+02	5.0e+00	1.32e+03	2.72e+02	4.9e+00
5	1,2,3,6,7,8-HxCDF	1.31e+03	2.24e+02	5.8e+00	9.24e+02	2.72e+02	3.4e+00
6	2,3,4,6,7,8-HxCDF	*	2.24e+02	*	*	2.72e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.24e+02	*	*	2.72e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	2.84e+02	*	*	3.32e+02	*
9	1,2,3,4,7,8,9-HpCDF	2.15e+03	2.84e+02	7.6e+00	1.21e+03	3.32e+02	3.6e+00
10	OCDF	2.06e+03	2.12e+02	9.7e+00	5.42e+03	4.48e+02	1.2e+01
11	2,3,7,8-TCDD	*	1.48e+03	*	*	6.64e+02	*
12	1,2,3,7,8-PeCDD	*	3.16e+02	*	*	3.00e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.84e+02	*	*	3.00e+02	*
14	1,2,3,6,7,8-HxCDD	*	1.84e+02	*	*	3.00e+02	*
15	1,2,3,7,8,9-HxCDD	*	1.84e+02	*	*	3.00e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.95e+03	3.24e+02	6.0e+00	2.03e+03	3.52e+02	5.8e+00
17	OCDD	1.33e+04	2.28e+02	5.9e+01	1.43e+04	4.12e+02	3.5e+01
18	13C-2,3,7,8-TCDF	6.86e+05	3.64e+03	1.9e+02	9.05e+05	2.20e+03	4.1e+02
19	13C-1,2,3,7,8-PeCDF	2.58e+06	2.00e+02	1.3e+04	1.56e+06	3.88e+02	4.0e+03
20	13C-2,3,4,7,8-PeCDF	3.06e+06	2.00e+02	1.5e+04	1.94e+06	3.88e+02	5.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.88e+06	7.32e+02	2.6e+03	3.64e+06	5.88e+02	6.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.23e+06	7.32e+02	3.0e+03	4.19e+06	5.88e+02	7.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.23e+06	7.32e+02	3.0e+03	4.36e+06	5.88e+02	7.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.86e+06	7.32e+02	2.5e+03	3.55e+06	5.88e+02	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.74e+06	1.48e+03	1.2e+03	3.83e+06	2.89e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.51e+06	1.48e+03	1.0e+03	3.39e+06	2.89e+03	1.2e+03
27	13C-2,3,7,8-TCDD	5.90e+05	4.67e+03	1.3e+02	7.16e+05	1.69e+03	4.2e+02
28	13C-1,2,3,7,8-PeCDD	2.20e+06	4.92e+02	4.5e+03	1.40e+06	1.06e+03	1.3e+03
29	13C-1,2,3,4,7,8-HxCDD	2.98e+06	1.21e+03	2.5e+03	2.35e+06	5.88e+02	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.74e+06	1.21e+03	2.3e+03	2.15e+06	5.88e+02	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.38e+06	5.28e+02	6.4e+03	3.14e+06	3.92e+02	8.0e+03
32	13C-OCDD	2.99e+06	5.28e+02	5.7e+03	3.33e+06	2.28e+02	1.5e+04
33	13C-1,2,3,4-TCDD	2.95e+06	4.67e+03	6.3e+02	3.67e+06	1.69e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.64e+06	1.21e+03	4.7e+03	4.42e+06	5.88e+02	7.5e+03
35	37Cl-2,3,7,8-TCDD	6.18e+05	8.44e+02	7.3e+02			

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Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P518868 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 03:32:53 Processed: 21-NOV-18 09:19:28

Mass: 373.8210 375.8180 Tot Response: 1.14e+01 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:30	6.28e+00	5.11e+00	1.23	yes	1.14e+01	1,2,3,4,7,8-HxCDF	y	n

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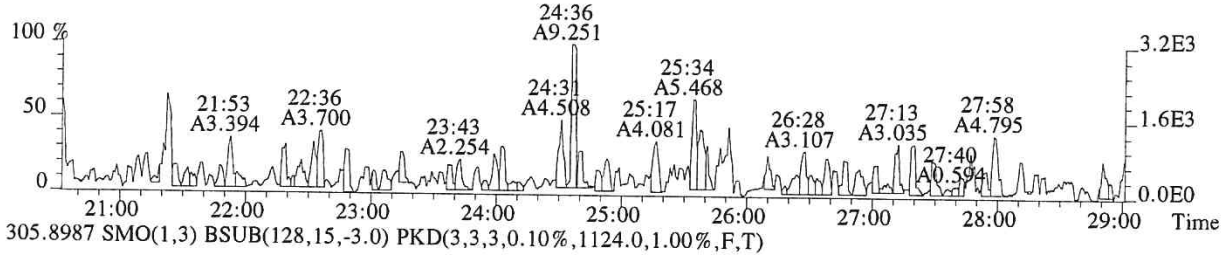
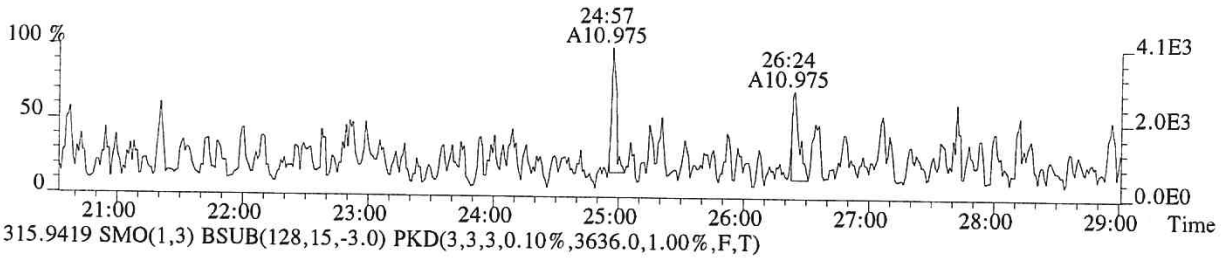
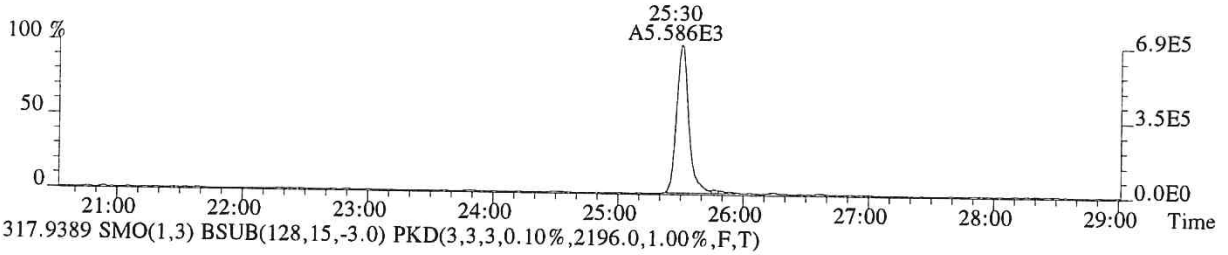
File:P518868 #1-602 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



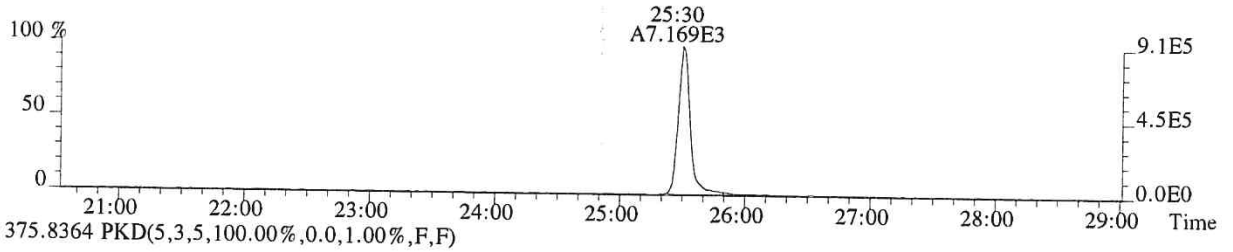
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



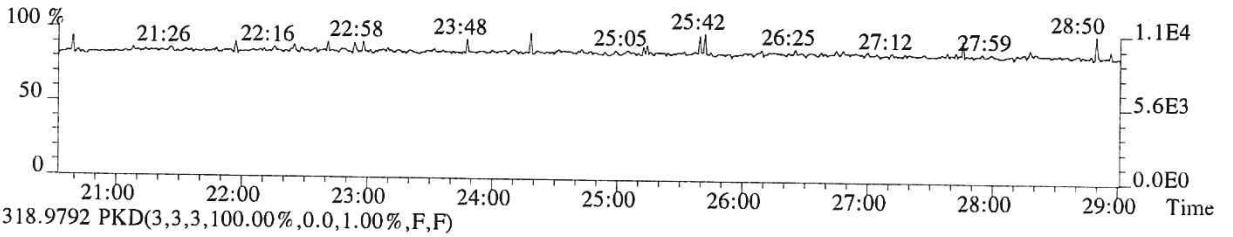
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3636.0,1.00%,F,T)



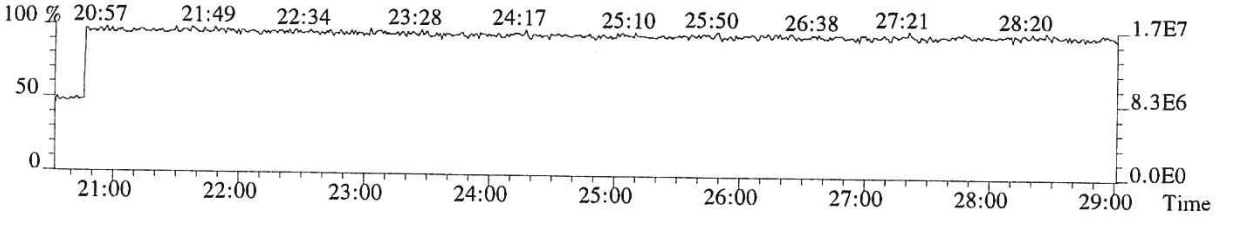
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2196.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

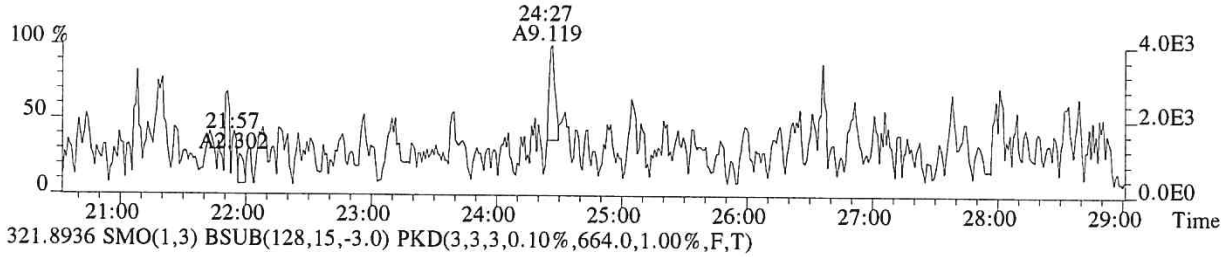


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

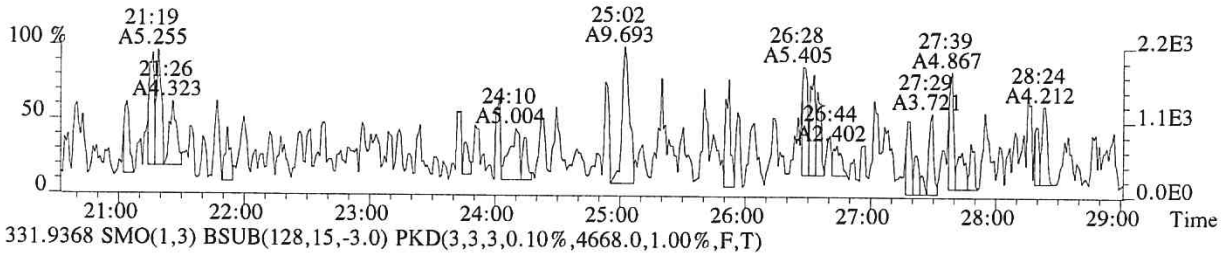


008990

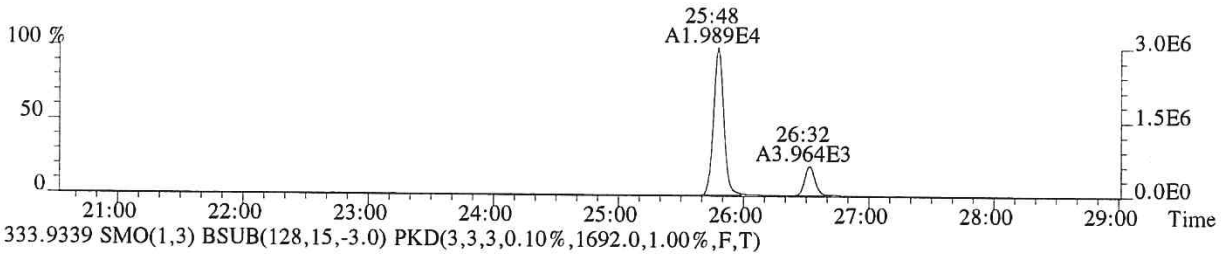
File:P518868 #1-602 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



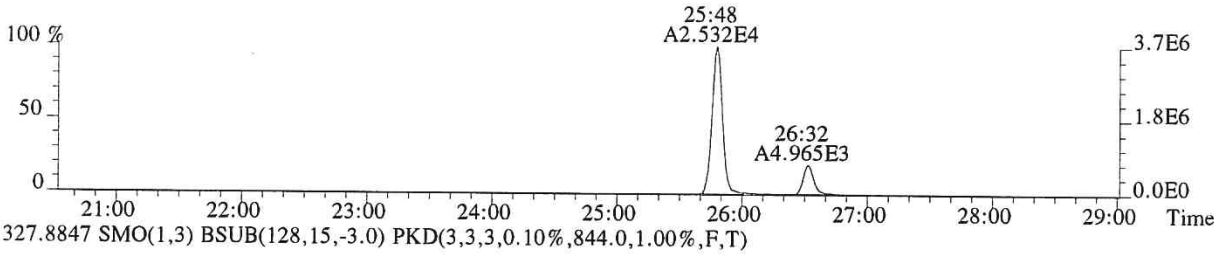
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



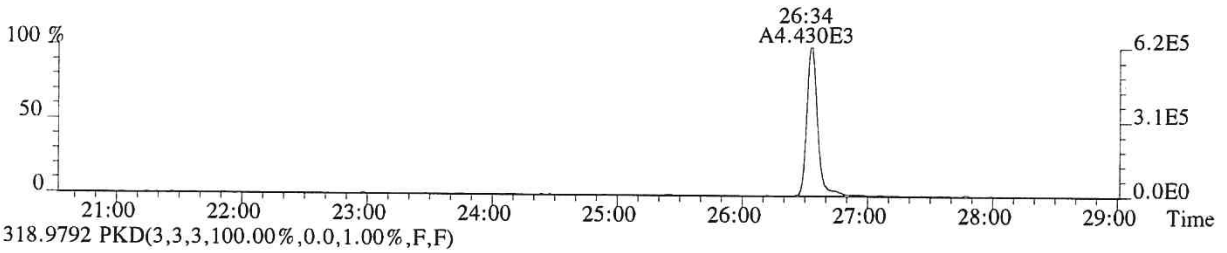
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4668.0,1.00%,F,T)



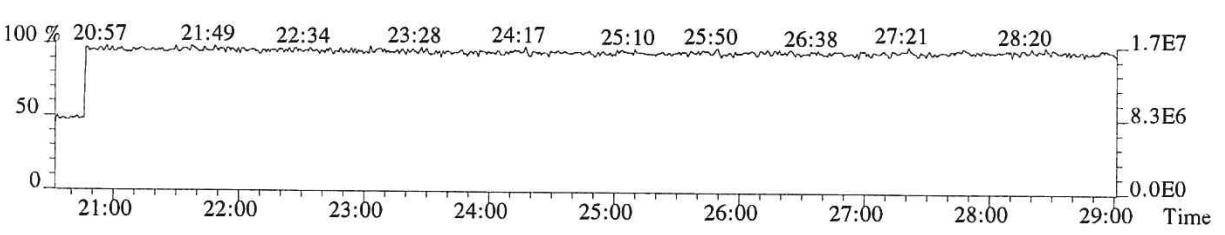
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)

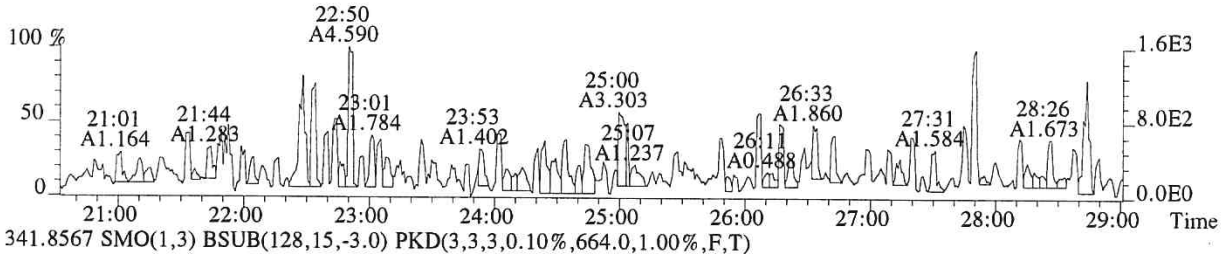


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

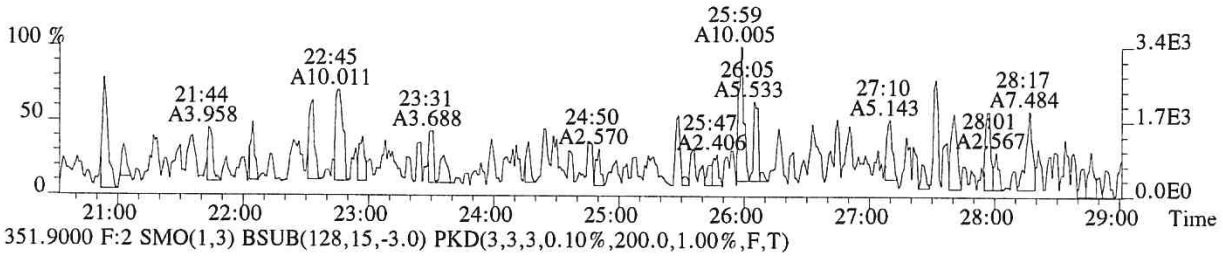


008991

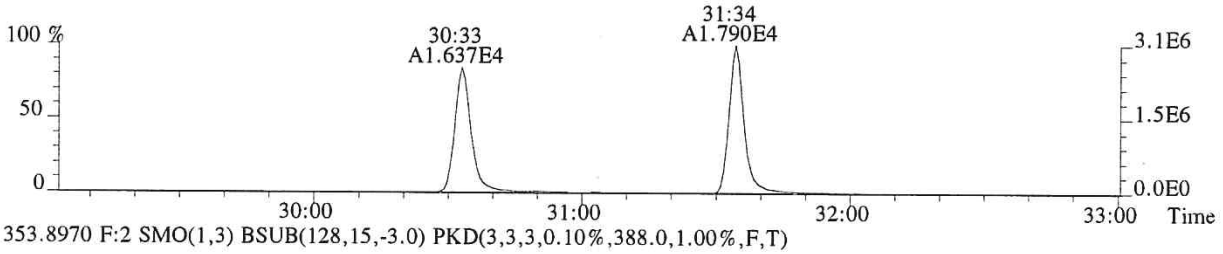
File:P518868 #1-602 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



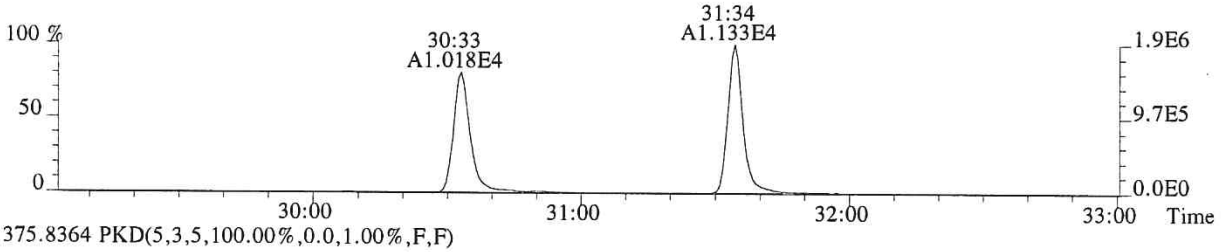
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



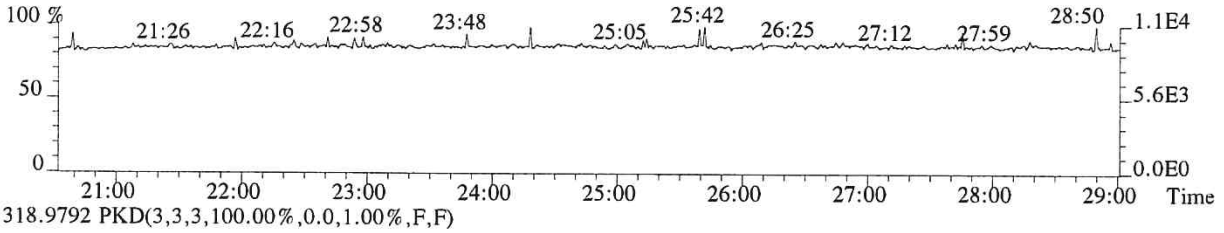
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



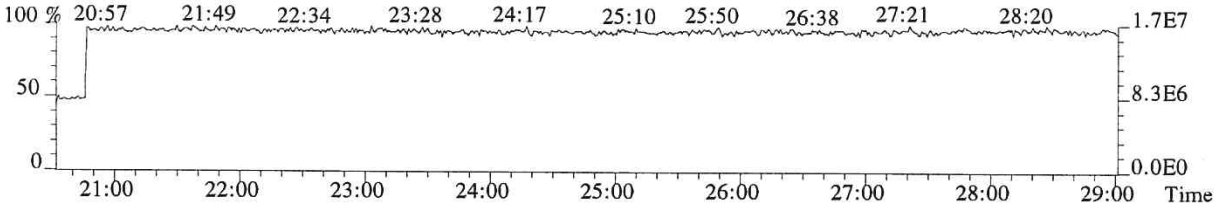
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

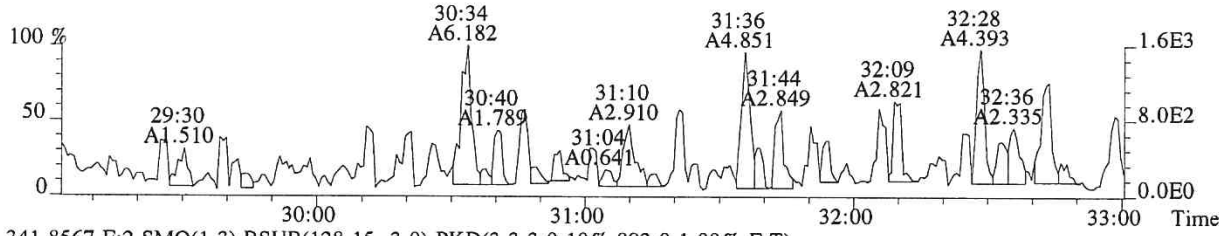


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

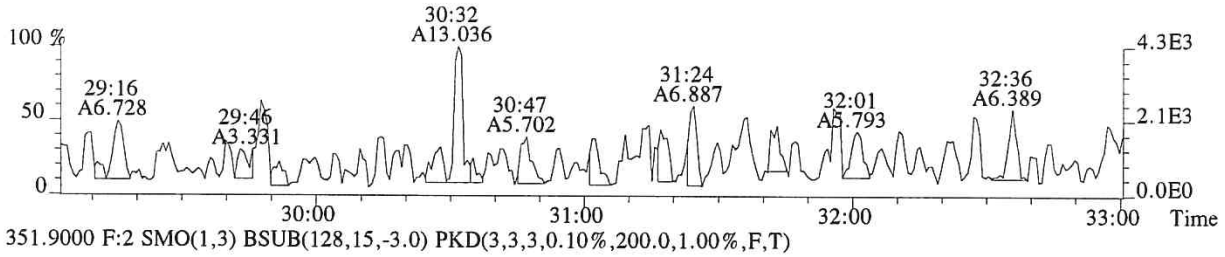


008992

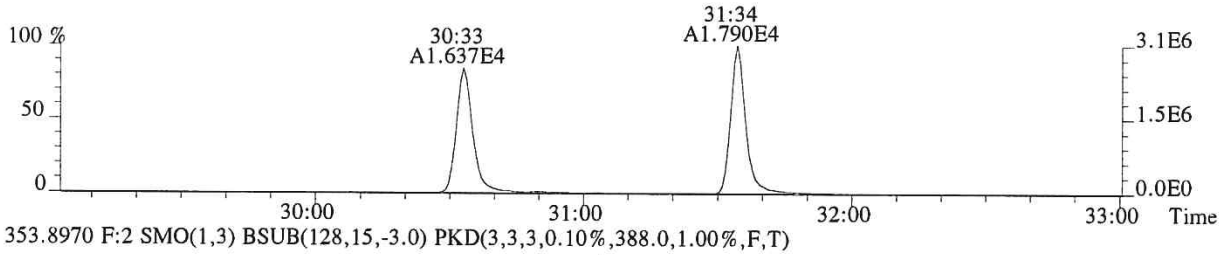
File:P518868 #1-357 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



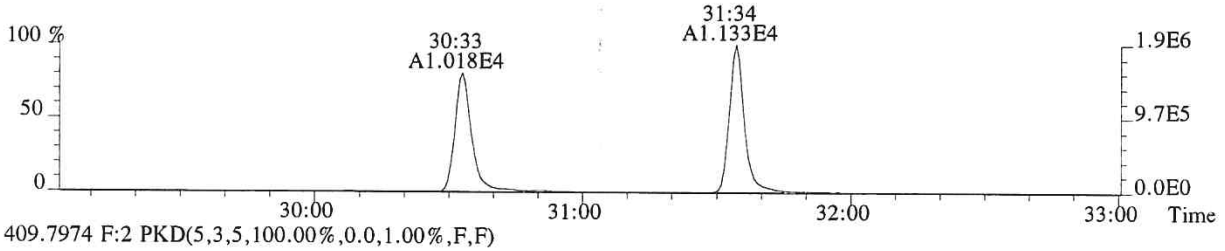
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



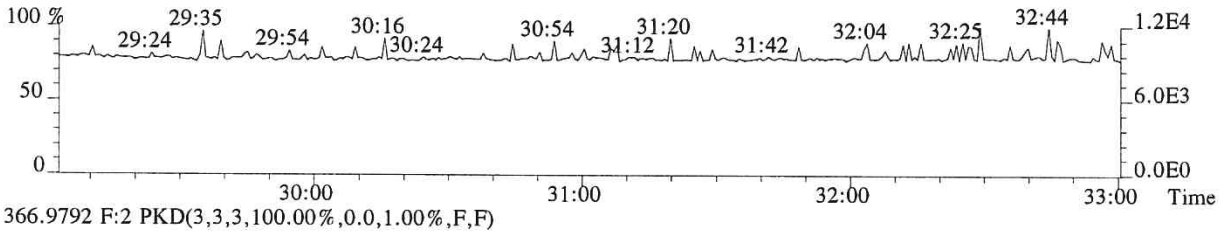
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



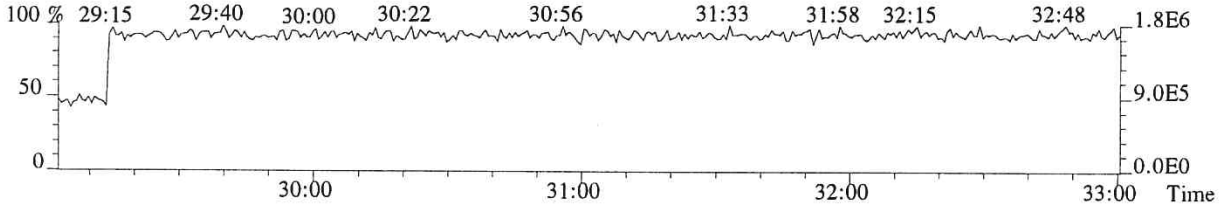
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

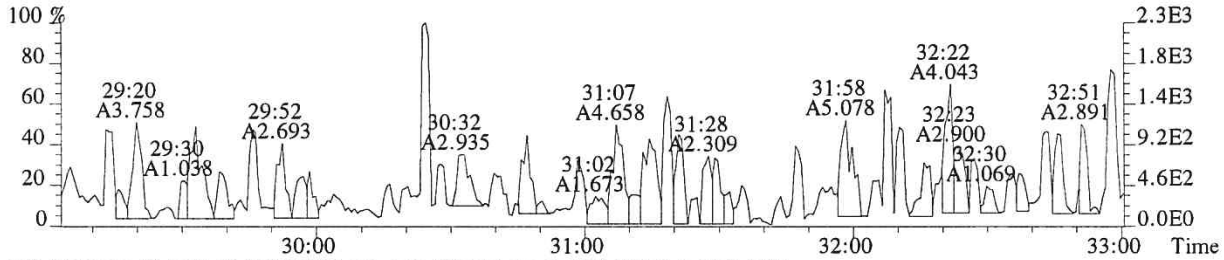


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

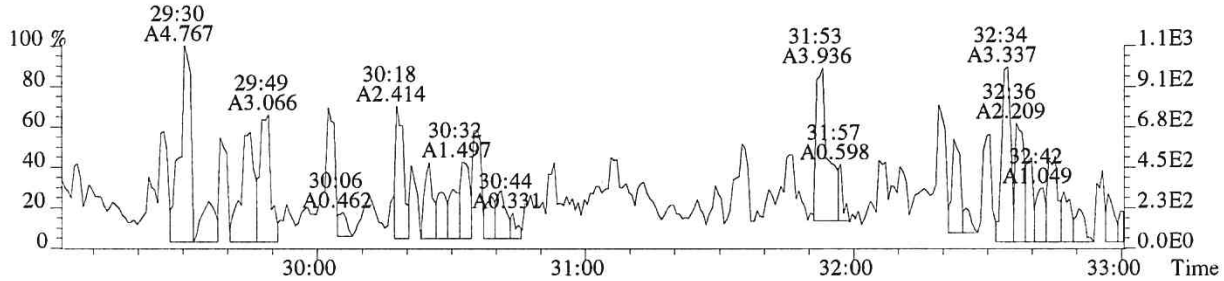


008993

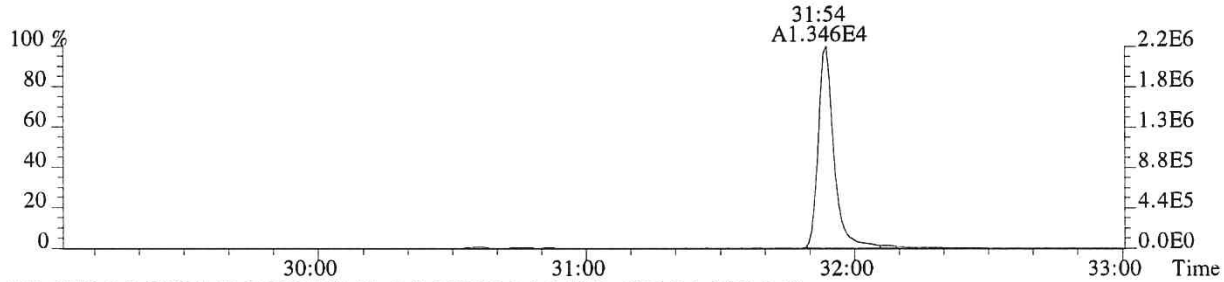
File:P518868 #1-357 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



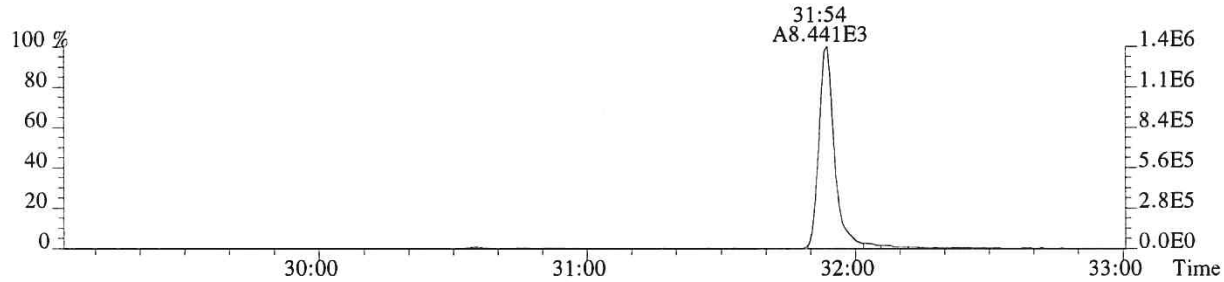
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



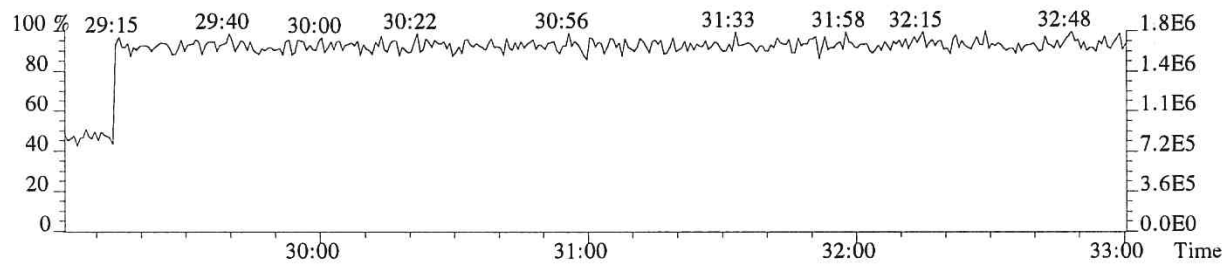
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)

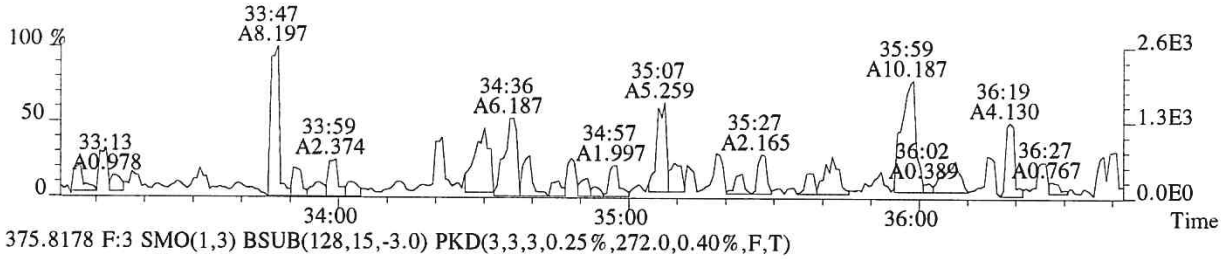


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

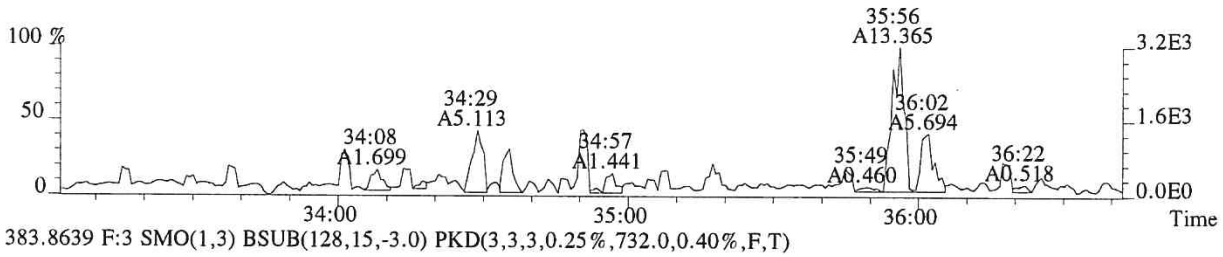


008994

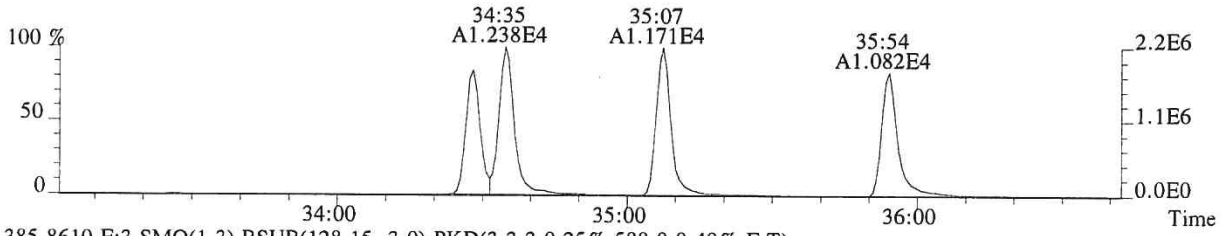
File:P518868 #1-330 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



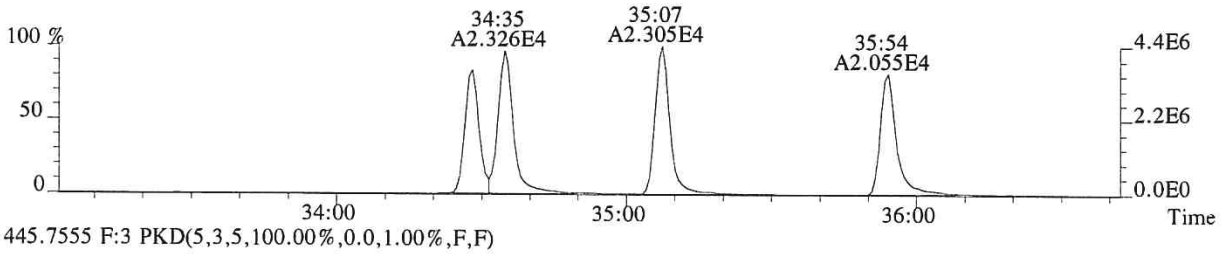
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



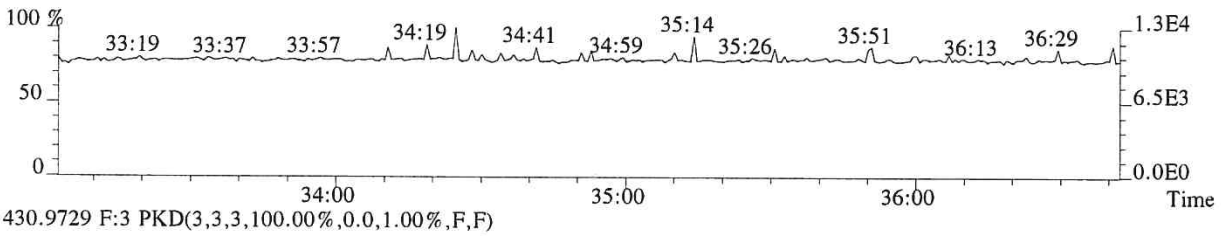
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



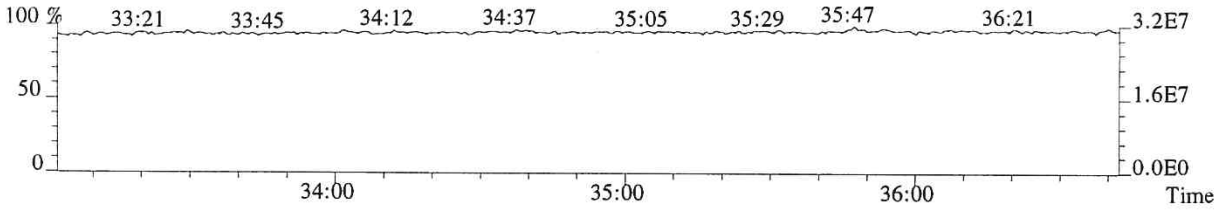
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



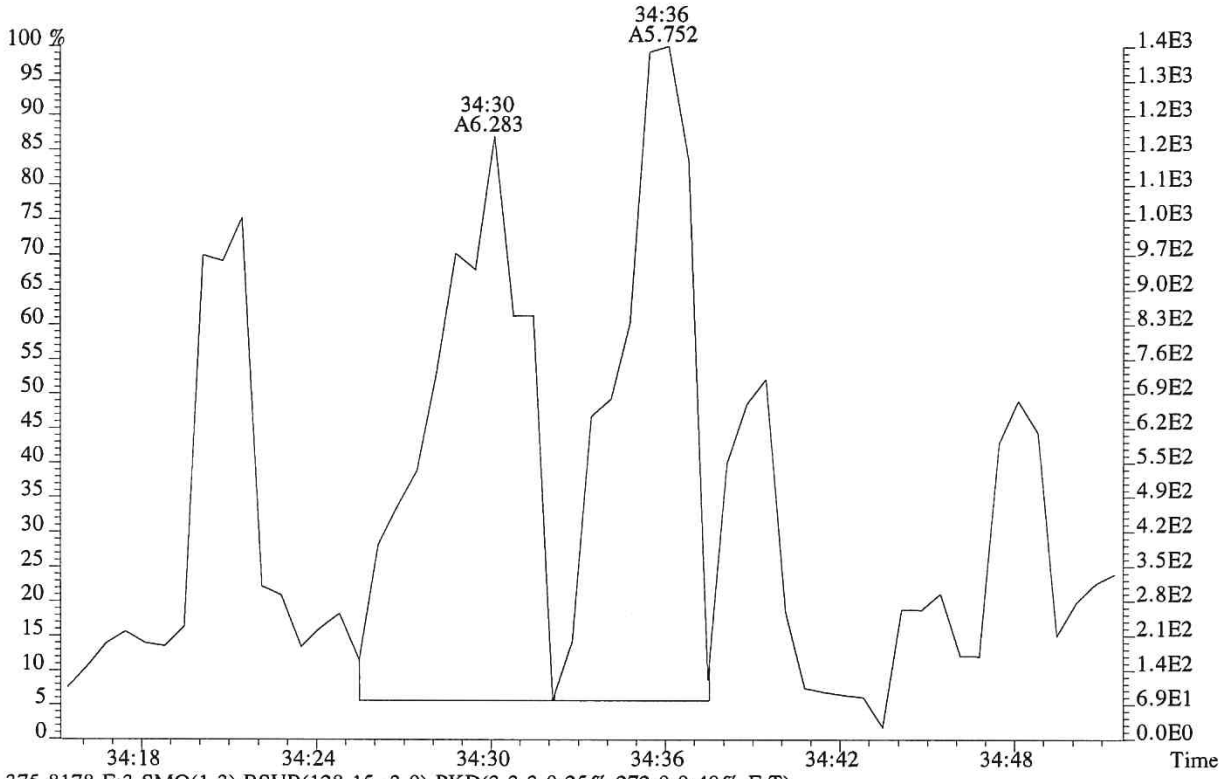
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



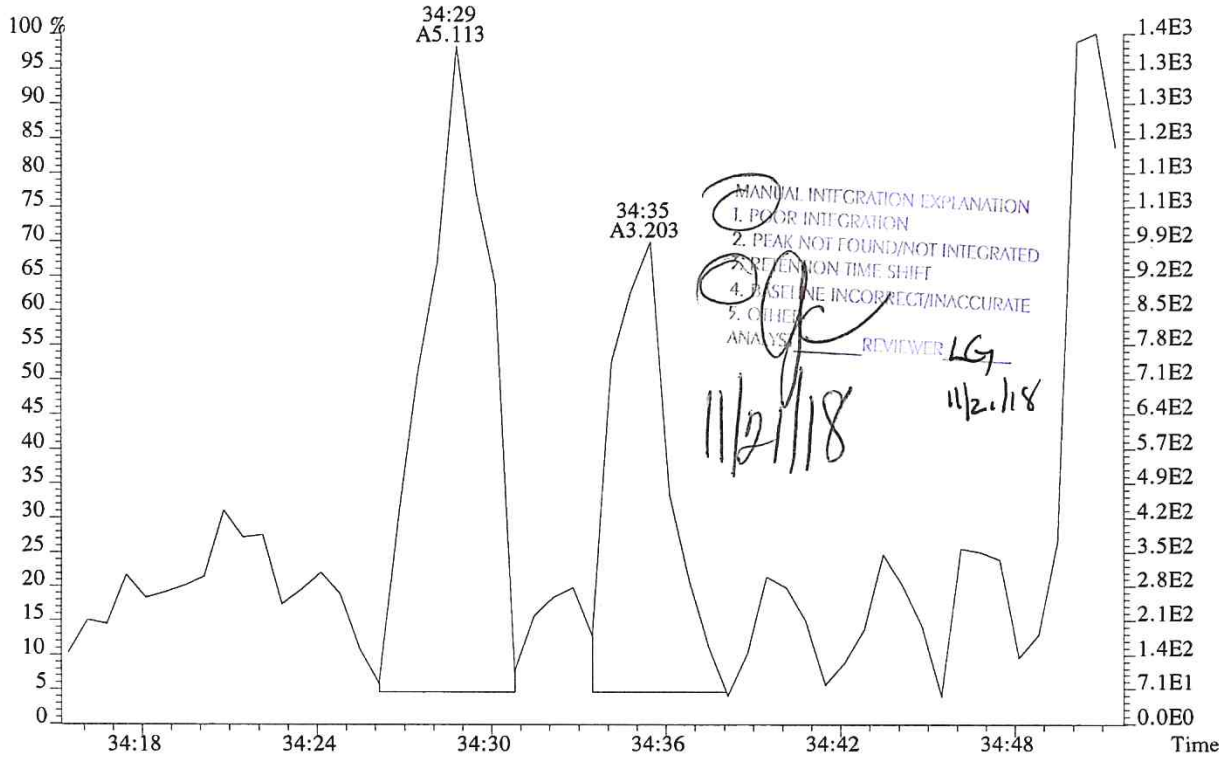
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



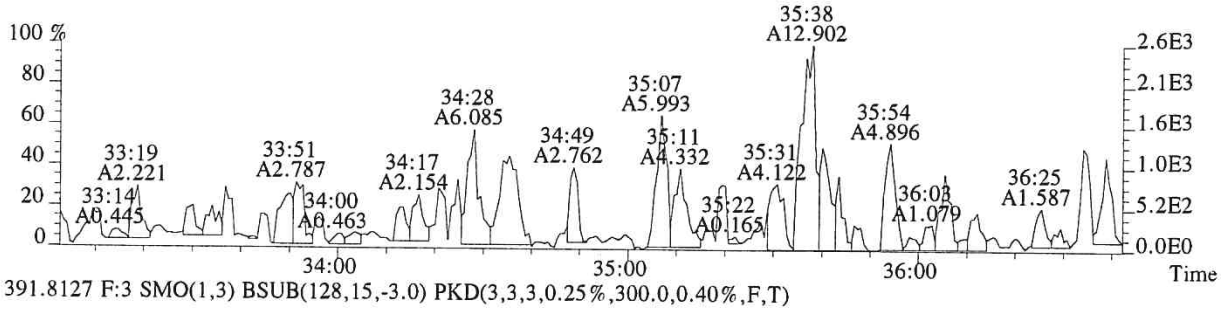
File:P518868 #1-330 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



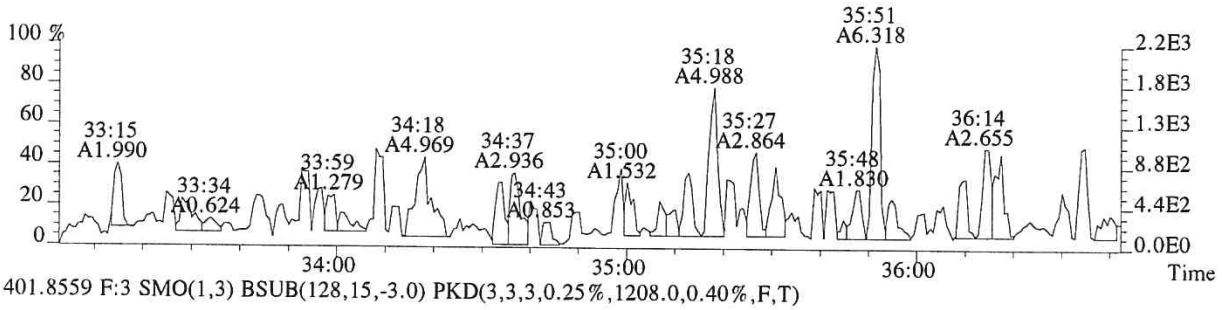
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



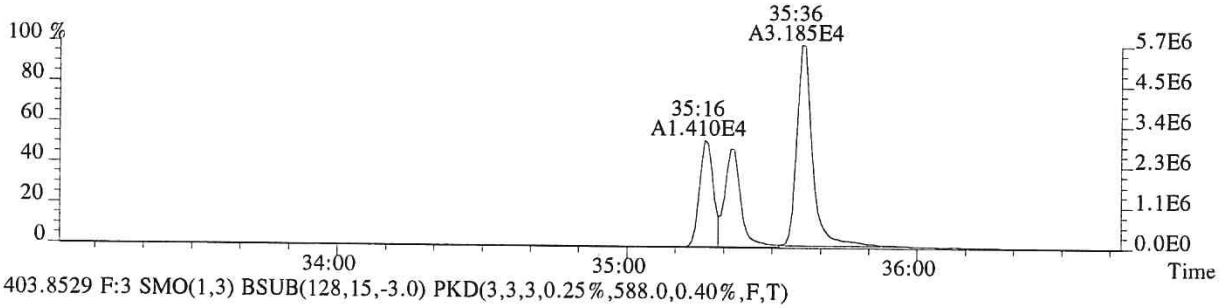
File:P518868 #1-330 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



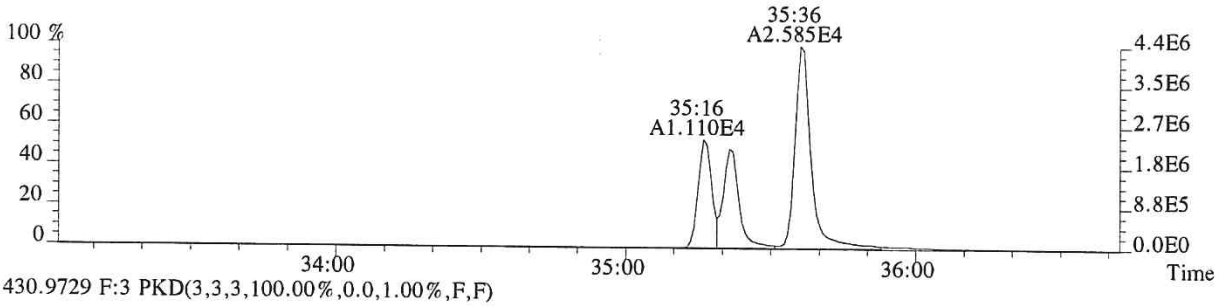
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



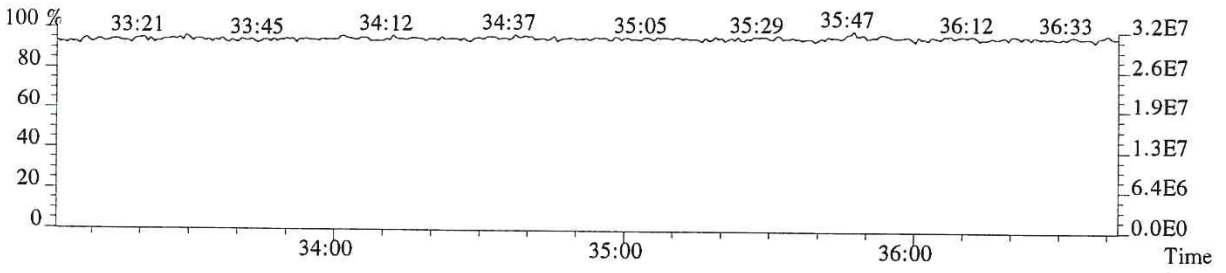
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.40%,F,T)



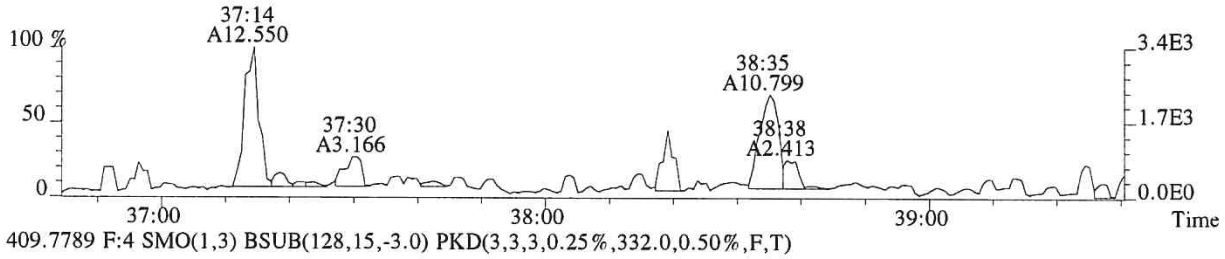
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



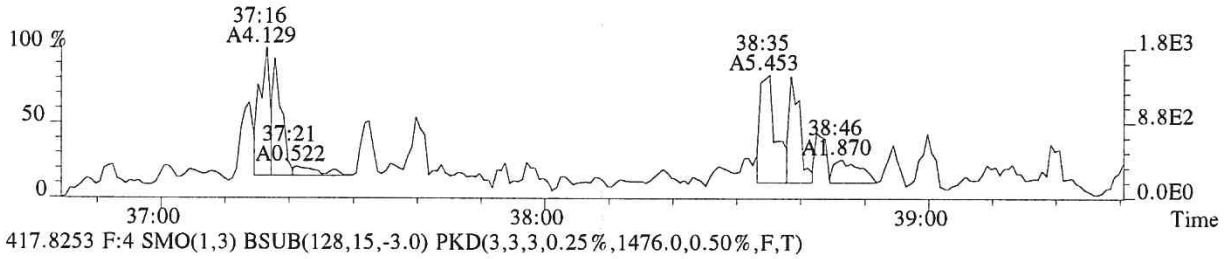
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



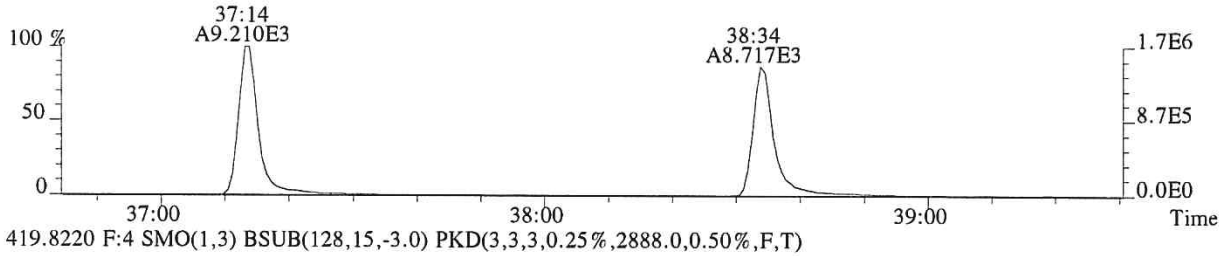
File:P518868 #1-250 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.50%,F,T)



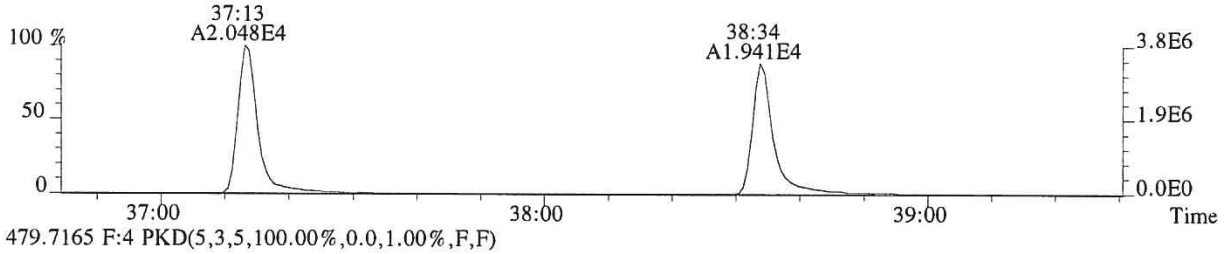
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)



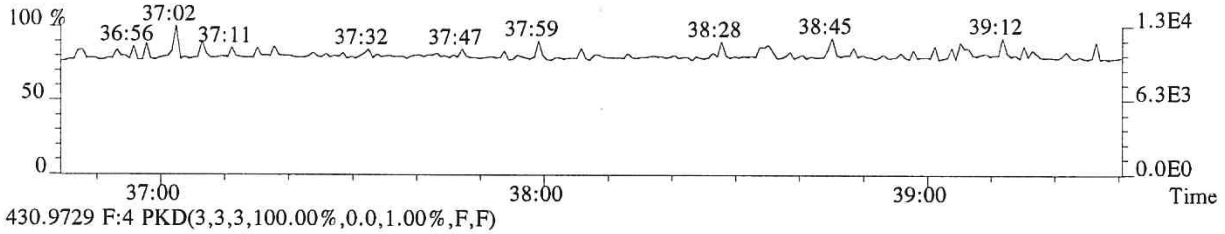
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1476.0,0.50%,F,T)



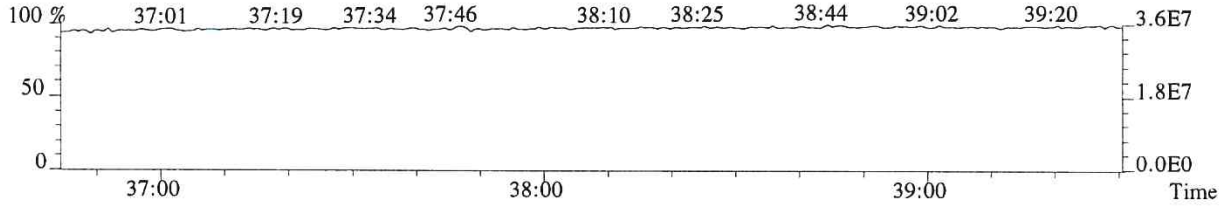
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

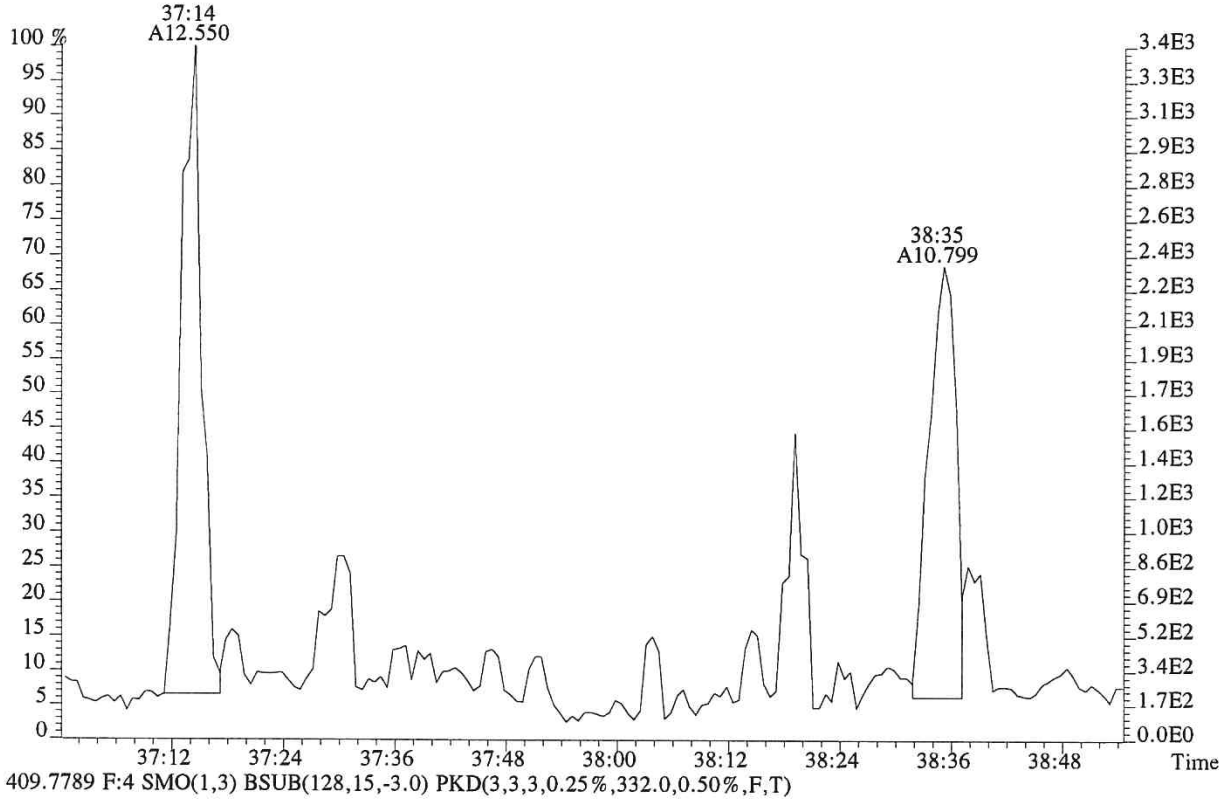


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

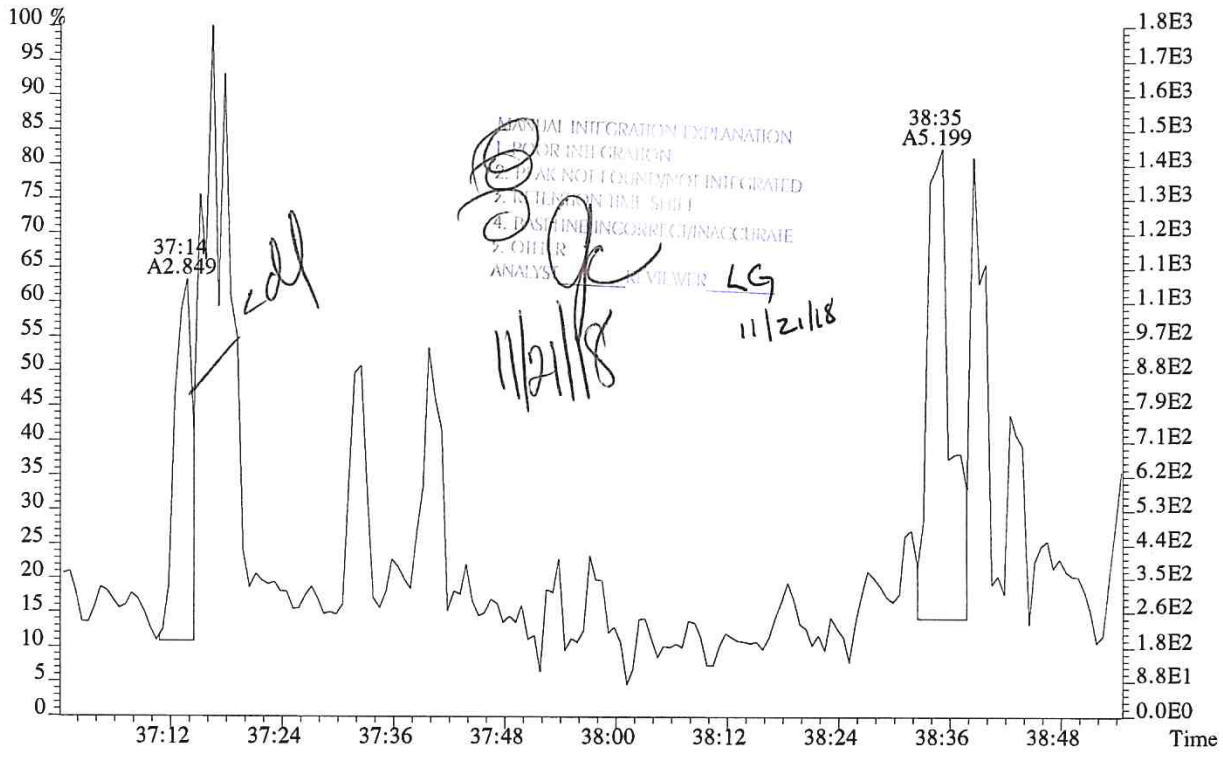


008998

File:P518868 #1-250 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.50%,F,T)

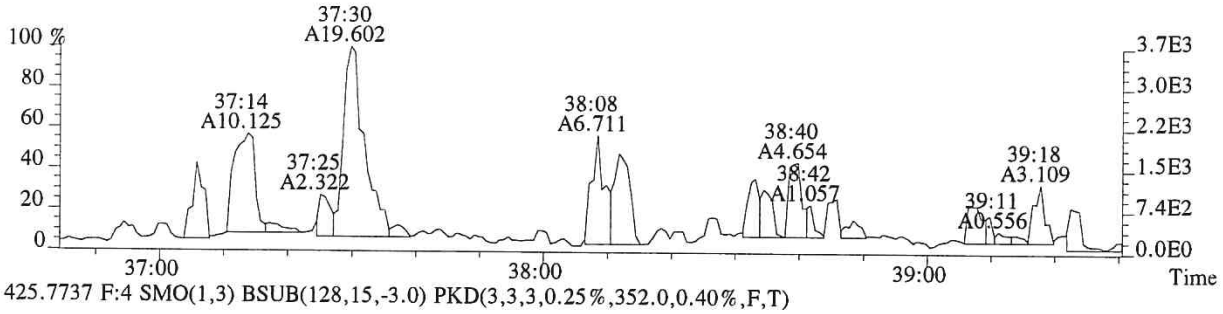


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)

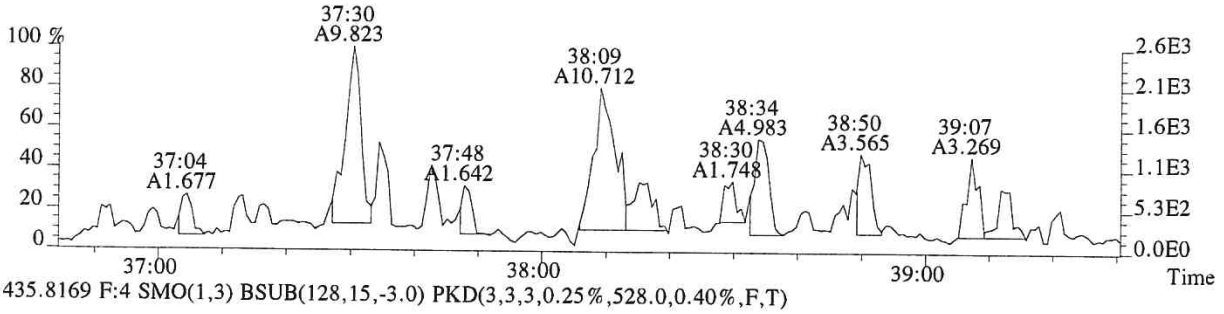


MANUAL INTEGRATION EXPLANATION
1. FOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LG
11/21/18
11/21/18

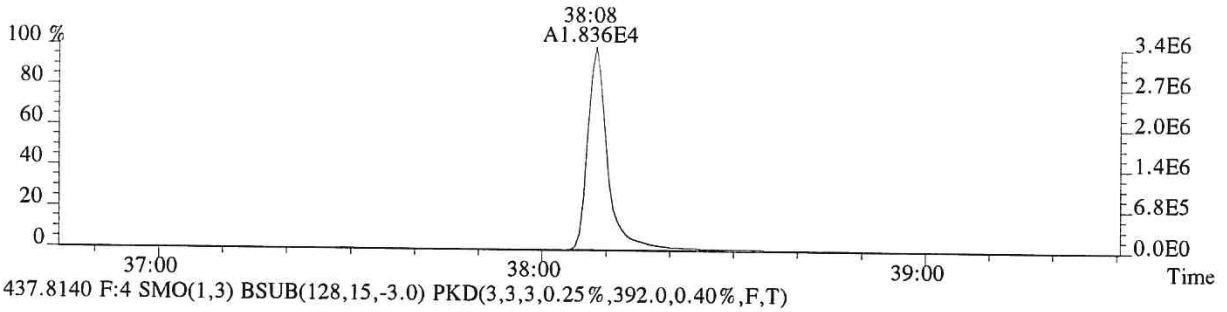
File:P518868 #1-250 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



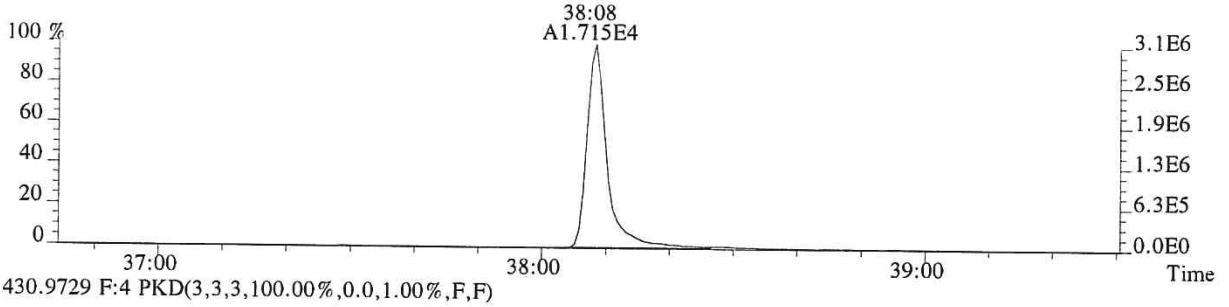
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



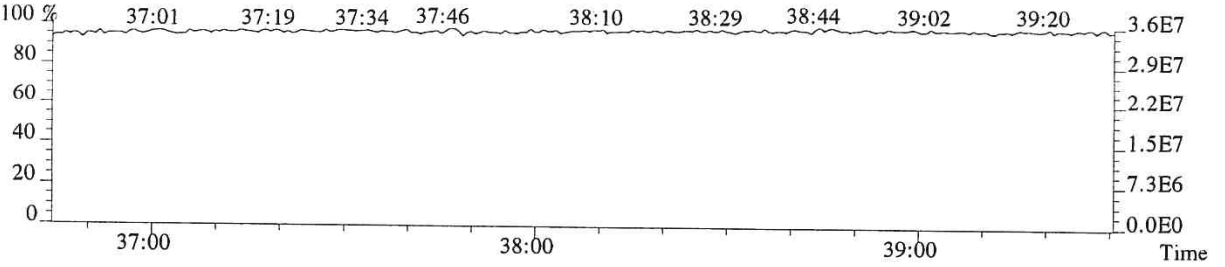
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)

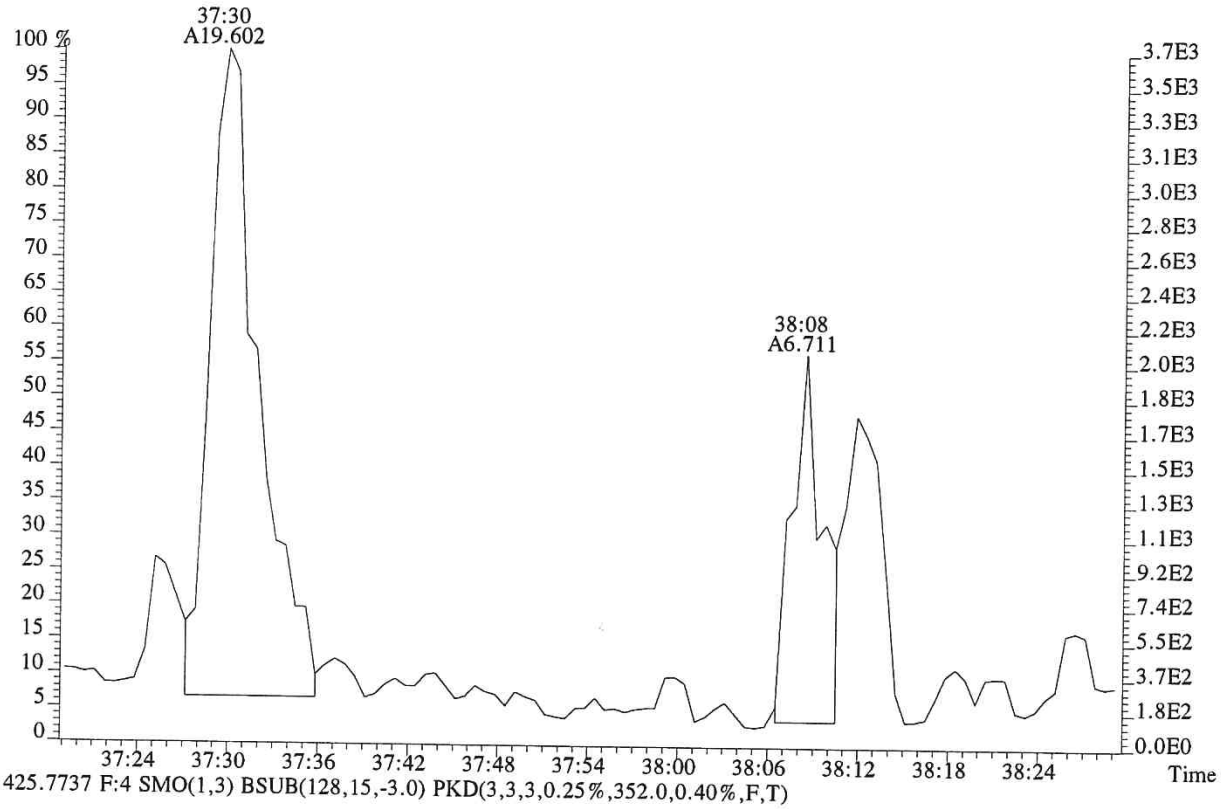


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

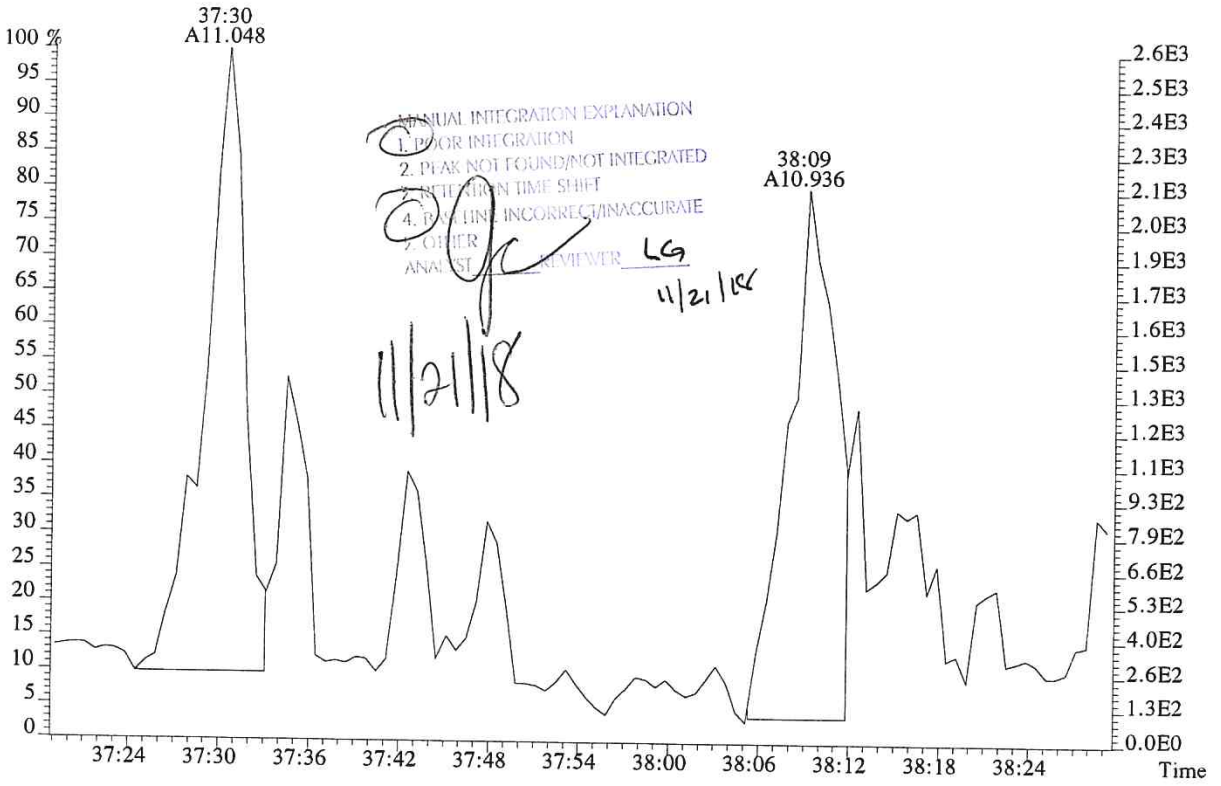


009000

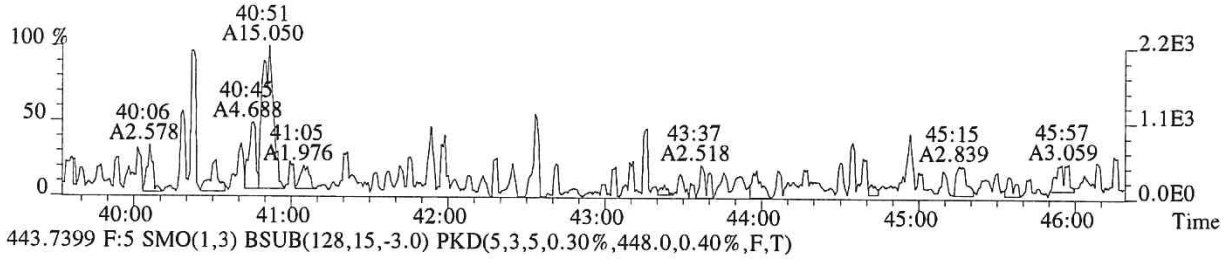
File:P518868 #1-250 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



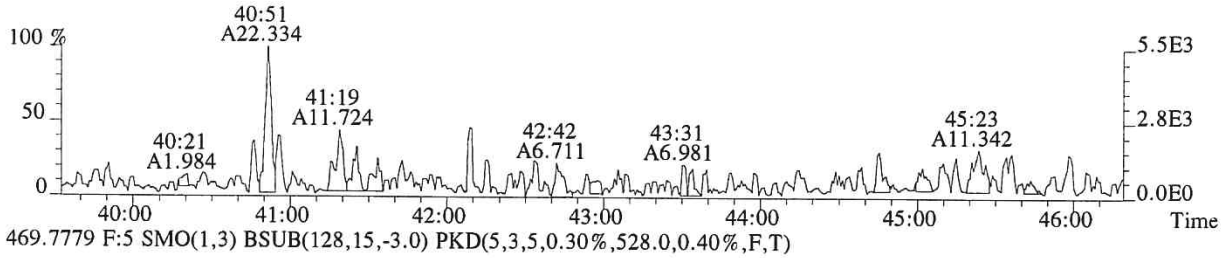
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



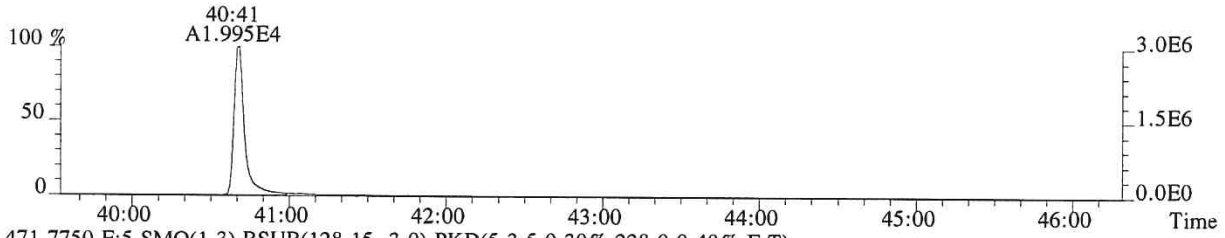
File:P518868 #1-610 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



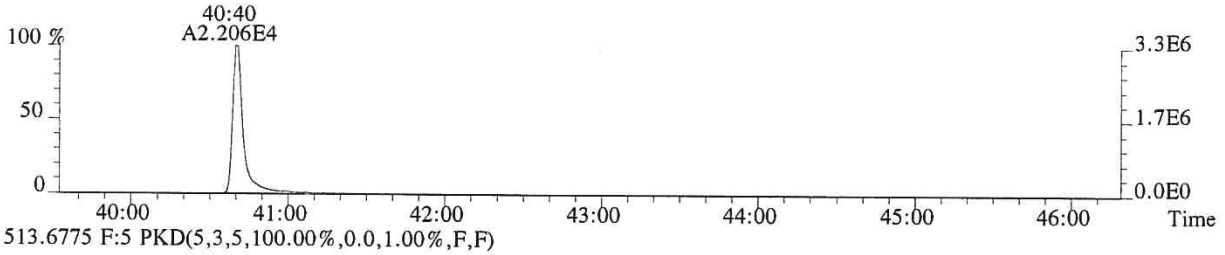
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



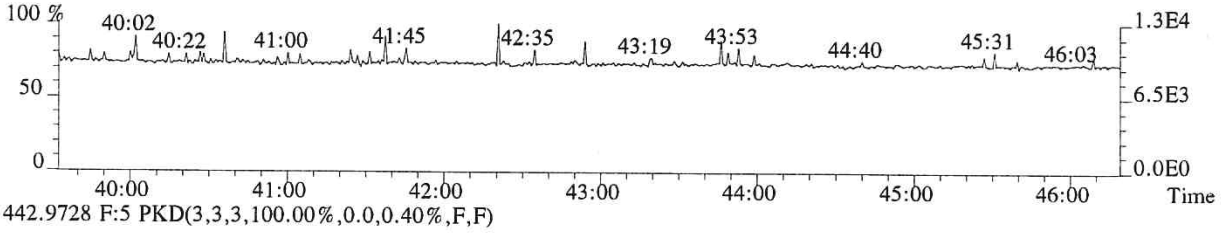
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



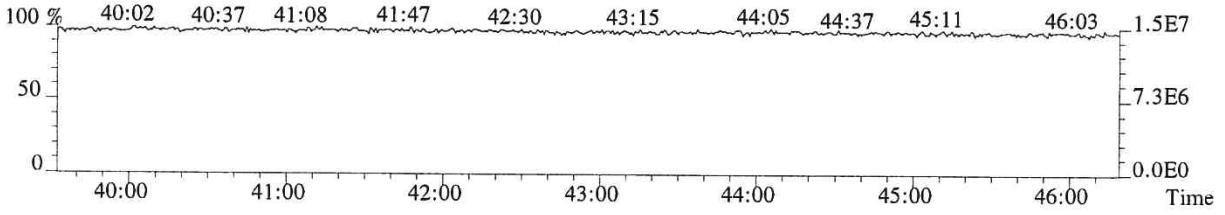
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

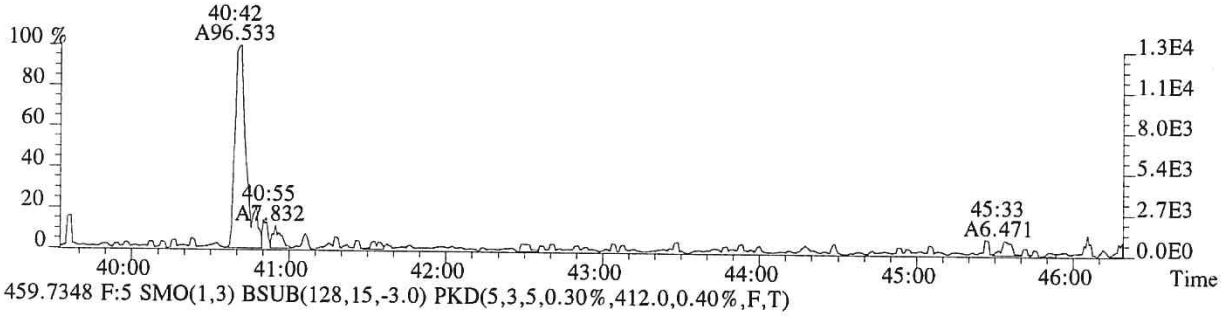


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

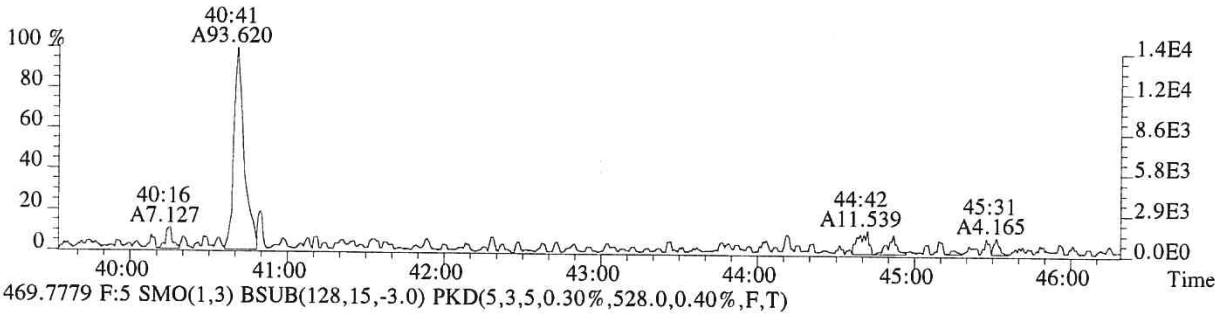


009002

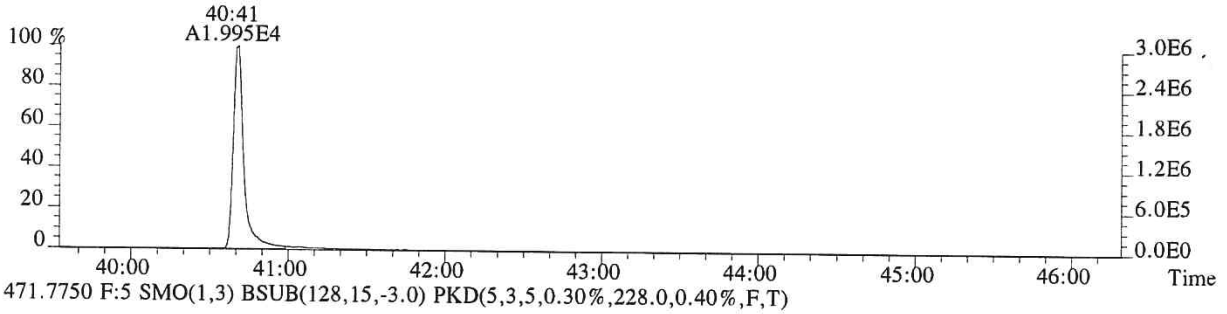
File:P518868 #1-610 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



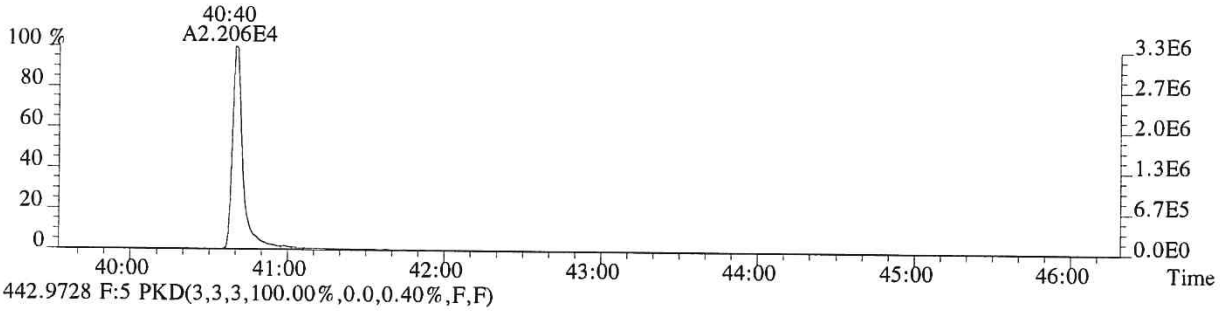
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



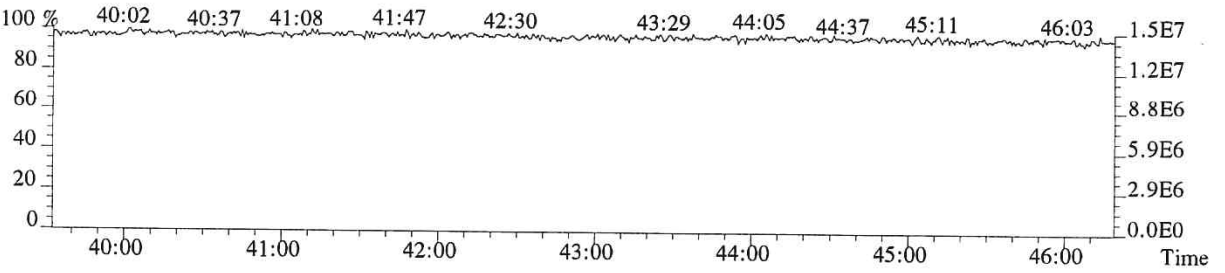
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #19 Filename P518877 Samp: 1 Inj: 1 Acquired: 17-NOV-18 10:50:36
Processed: 21-NOV-18 09:19:36 Sample ID: EQ1800468-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	1.261e+03	1.780e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.121e+04	7.480e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	1.193e+04	8.027e+03	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	1.054e+04	8.511e+03	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	1.273e+04	1.039e+04	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.062e+04	8.881e+03	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	8.802e+03	7.144e+03	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	8.025e+03	8.001e+03	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	6.628e+03	6.603e+03	1.00	yes	no	1.258
10	Unk	OCDF	40:52	6.257e+03	6.976e+03	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	9.199e+02	1.212e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	8.849e+03	5.501e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	7.526e+03	6.122e+03	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.342e+03	6.580e+03	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	8.214e+03	6.788e+03	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	5.626e+03	5.359e+03	1.05	yes	no	1.025
17	Unk	OCDD	40:43	2.679e+03	2.937e+03	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.323e+04	1.708e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.419e+04	1.541e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.467e+04	1.552e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.069e+04	2.099e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.393e+04	2.697e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.196e+04	2.395e+04	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.021e+04	1.960e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	7.725e+03	1.722e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	6.540e+03	1.457e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	8.607e+03	1.076e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.789e+04	1.128e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.573e+04	1.266e+04	1.24	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.587e+04	1.261e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.410e+04	1.268e+04	1.11	yes	no	0.858
32	IS	13C-OCDD	40:43	4.387e+03	5.320e+03	0.82	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	2.214e+04	2.788e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.389e+04	2.618e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	9.764e+03				no	1.014

$$\text{OCDD} = \frac{(2.679e+03 + 2.937e+03) \times 4000\ \text{pg} \times 1}{(4.387e+03 + 5.320e+03) \times \text{g} \times / 100 \times 1.118}$$

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #19 Filename P518877 Samp: 1 Inj: 1 Acquired: 17-NOV-18 10:50:36
Processed: 21-NOV-18 09:19:36 LAB. ID: EQ1800468-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.65e+05	2.08e+02	7.9e+02	2.37e+05	1.08e+03	2.2e+02
2	1,2,3,7,8-PeCDF	1.83e+06	3.88e+02	4.7e+03	1.24e+06	1.18e+03	1.0e+03
3	2,3,4,7,8-PeCDF	2.07e+06	3.88e+02	5.3e+03	1.41e+06	1.18e+03	1.2e+03
4	1,2,3,4,7,8-HxCDF	2.09e+06	1.32e+02	1.6e+04	1.77e+06	1.48e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	2.35e+06	1.32e+02	1.8e+04	1.90e+06	1.48e+02	1.3e+04
6	2,3,4,6,7,8-HxCDF	2.13e+06	1.32e+02	1.6e+04	1.74e+06	1.48e+02	1.2e+04
7	1,2,3,7,8,9-HxCDF	1.55e+06	1.32e+02	1.2e+04	1.26e+06	1.48e+02	8.5e+03
8	1,2,3,4,6,7,8-HpCDF	1.59e+06	2.49e+03	6.4e+02	1.53e+06	2.74e+03	5.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.10e+06	2.49e+03	4.4e+02	1.16e+06	2.74e+03	4.2e+02
10	OCDF	9.83e+05	1.84e+02	5.3e+03	1.10e+06	6.12e+02	1.8e+03
11	2,3,7,8-TCDD	1.39e+05	1.13e+03	1.2e+02	1.71e+05	4.00e+02	4.3e+02
12	1,2,3,7,8-PeCDD	1.52e+06	5.00e+02	3.0e+03	9.42e+05	2.04e+02	4.6e+03
13	1,2,3,4,7,8-HxCDD	1.57e+06	1.84e+02	8.5e+03	1.22e+06	1.64e+02	7.4e+03
14	1,2,3,6,7,8-HxCDD	1.62e+06	1.84e+02	8.8e+03	1.26e+06	1.64e+02	7.7e+03
15	1,2,3,7,8,9-HxCDD	1.46e+06	1.84e+02	7.9e+03	1.17e+06	1.64e+02	7.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.05e+06	2.00e+02	5.2e+03	1.01e+06	2.00e+02	5.0e+03
17	OCDD	3.56e+05	2.64e+02	1.3e+03	3.86e+05	1.84e+02	2.1e+03
18	13C-2,3,7,8-TCDF	1.74e+06	3.09e+03	5.6e+02	2.27e+06	1.05e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	3.95e+06	3.28e+02	1.2e+04	2.48e+06	7.72e+02	3.2e+03
20	13C-2,3,4,7,8-PeCDF	4.31e+06	3.28e+02	1.3e+04	2.68e+06	7.72e+02	3.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.20e+06	3.44e+02	6.4e+03	4.29e+06	3.80e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.56e+06	3.44e+02	7.4e+03	4.94e+06	3.80e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.35e+06	3.44e+02	6.8e+03	4.71e+06	3.80e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.80e+06	3.44e+02	5.2e+03	3.49e+06	3.80e+02	9.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.55e+06	1.84e+03	8.4e+02	3.36e+06	2.08e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.17e+06	1.84e+03	6.3e+02	2.58e+06	2.08e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.27e+06	4.36e+03	2.9e+02	1.61e+06	1.76e+03	9.2e+02
28	13C-1,2,3,7,8-PeCDD	3.12e+06	6.40e+02	4.9e+03	1.96e+06	4.84e+02	4.1e+03
29	13C-1,2,3,4,7,8-HxCDD	3.25e+06	1.14e+03	2.9e+03	2.56e+06	4.60e+02	5.6e+03
30	13C-1,2,3,6,7,8-HxCDD	3.00e+06	1.14e+03	2.6e+03	2.40e+06	4.60e+02	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.62e+06	2.40e+02	1.1e+04	2.40e+06	4.80e+02	5.0e+03
32	13C-OCDD	4.73e+05	3.88e+02	1.2e+03	6.17e+05	1.76e+02	3.5e+03
33	13C-1,2,3,4-TCDD	3.26e+06	4.36e+03	7.5e+02	4.08e+06	1.76e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	6.09e+06	1.14e+03	5.4e+03	4.71e+06	4.60e+02	1.0e+04
35	37Cl-2,3,7,8-TCDD	1.42e+06	1.10e+03	1.3e+03			

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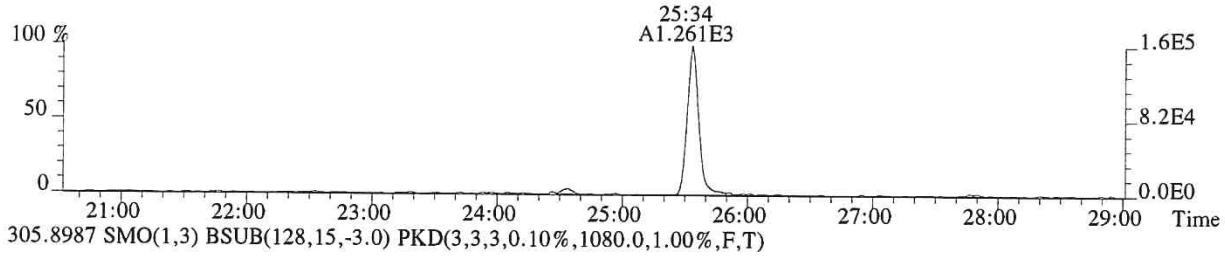
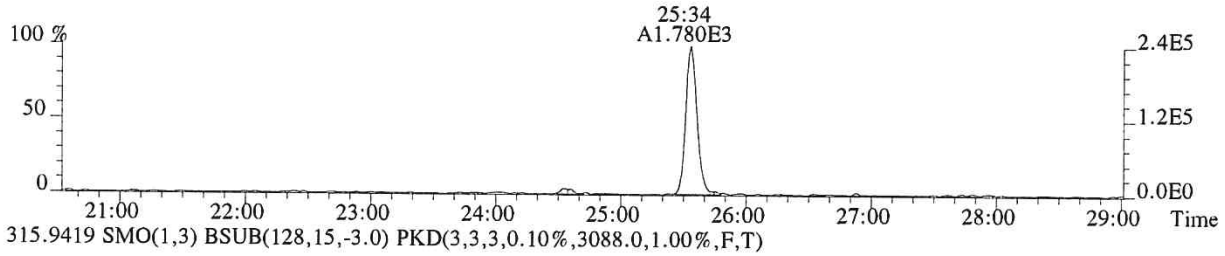
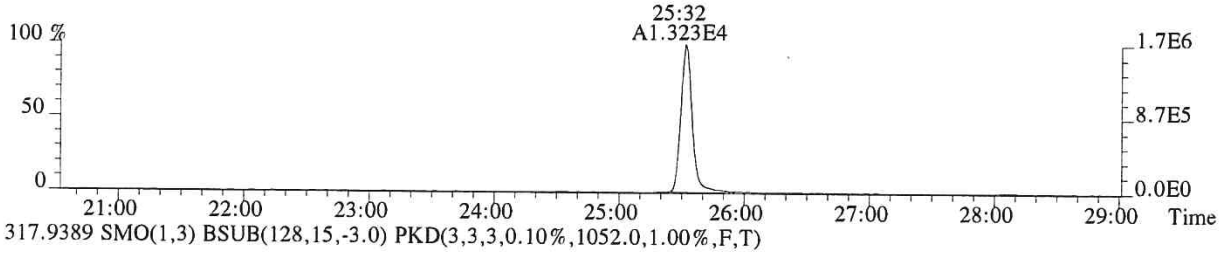
File:P518877 #1-602 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



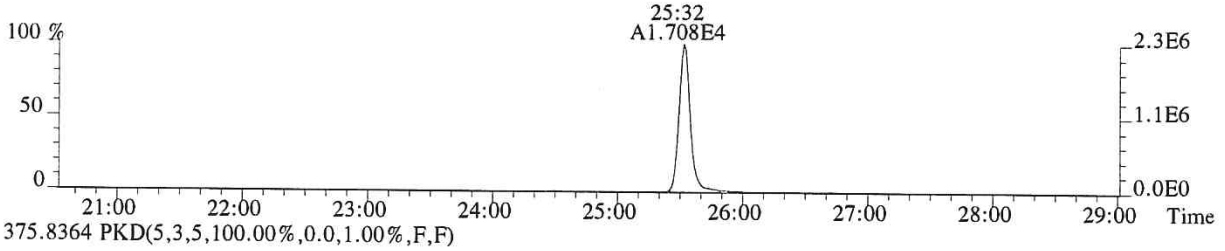
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



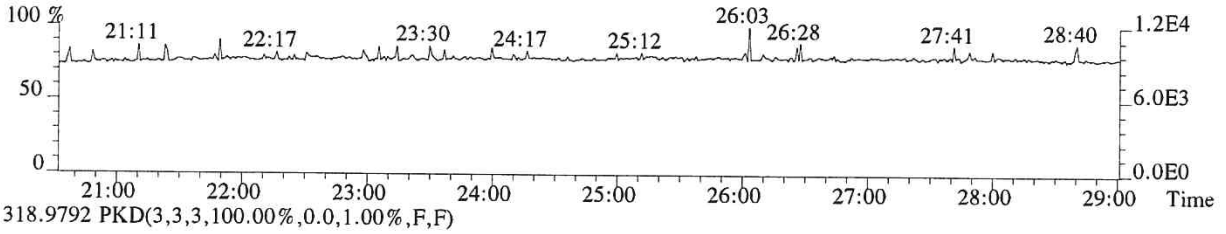
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3088.0,1.00%,F,T)



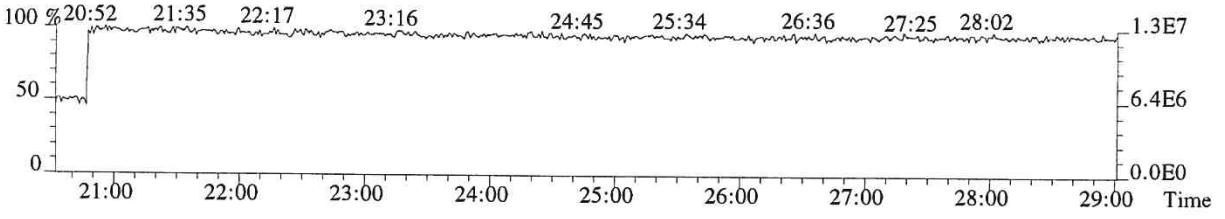
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

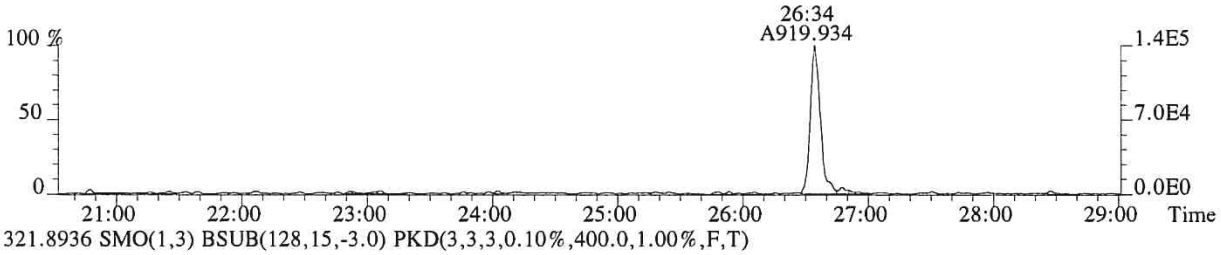


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

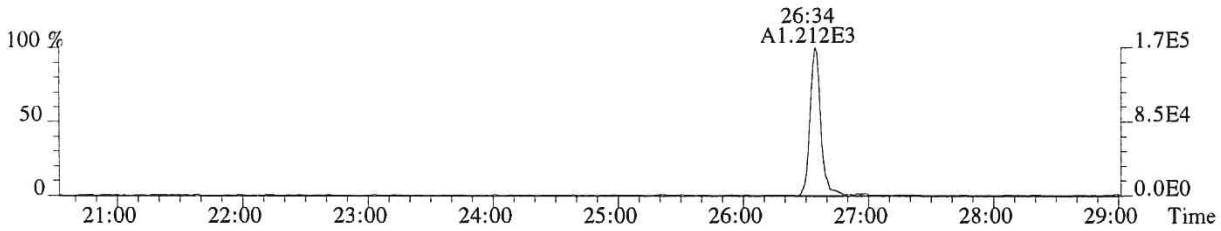


009006

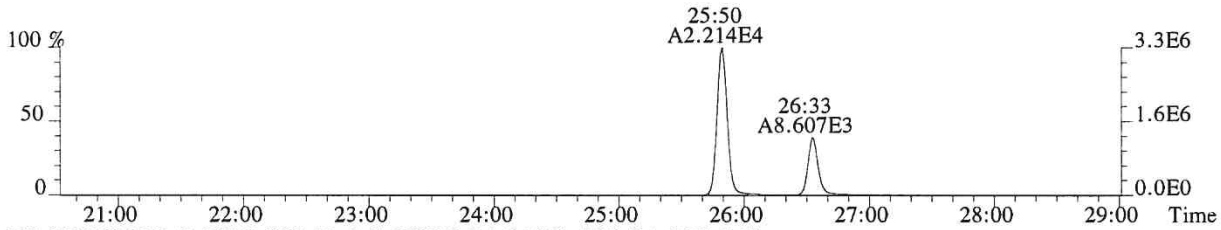
File:P518877 #1-602 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



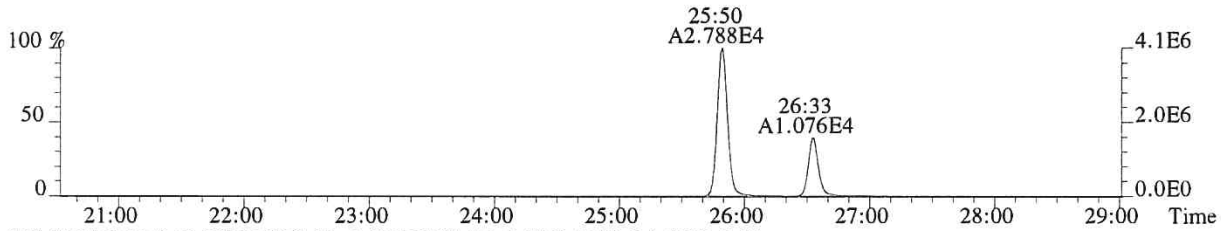
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



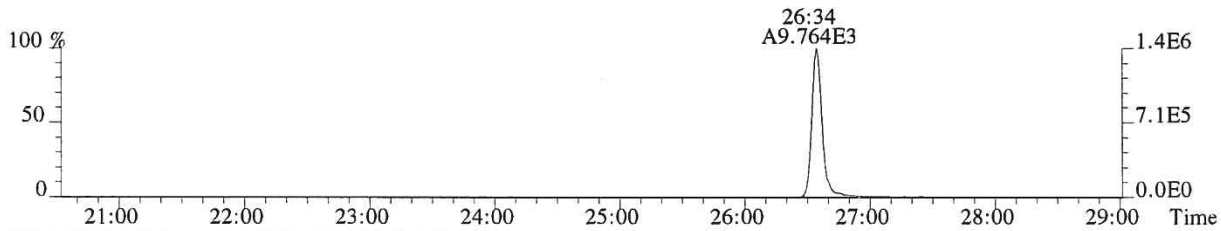
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4360.0,1.00%,F,T)



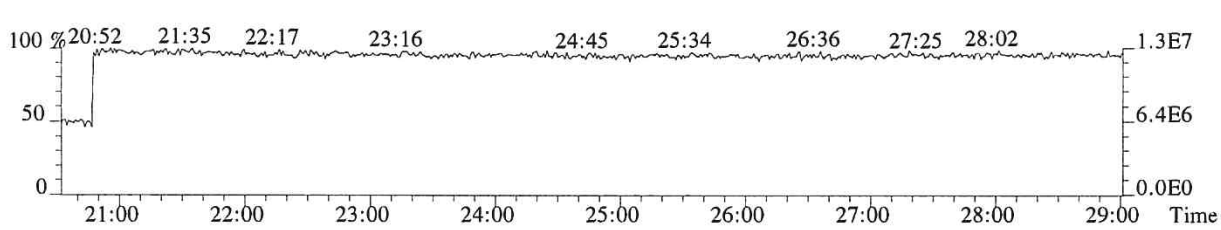
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)

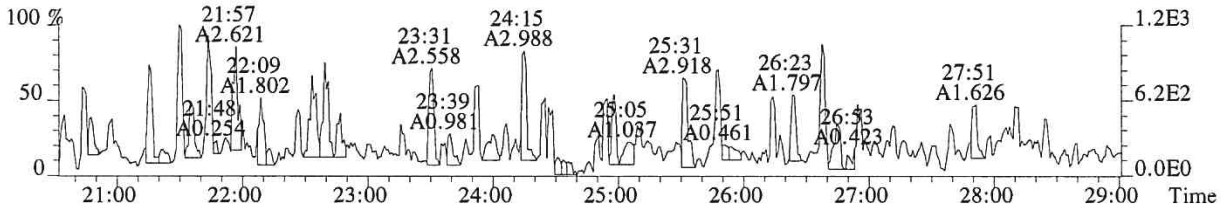


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

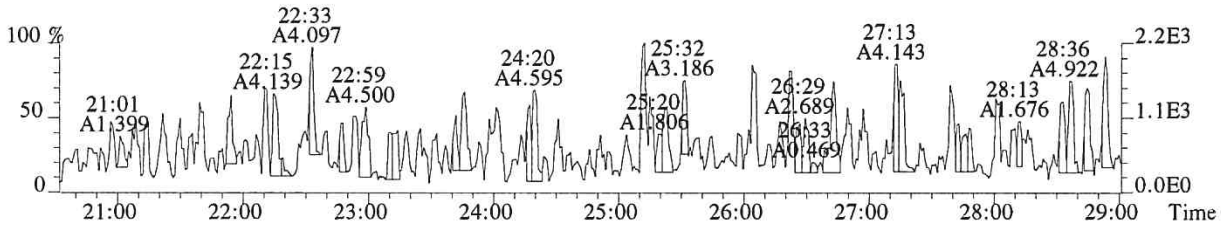


009007

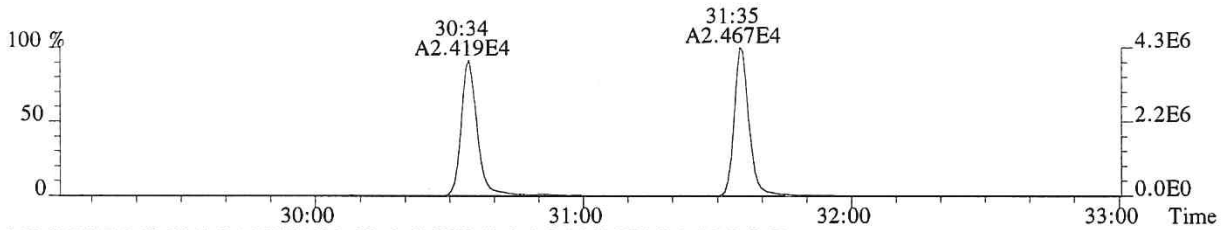
File:P518877 #1-602 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



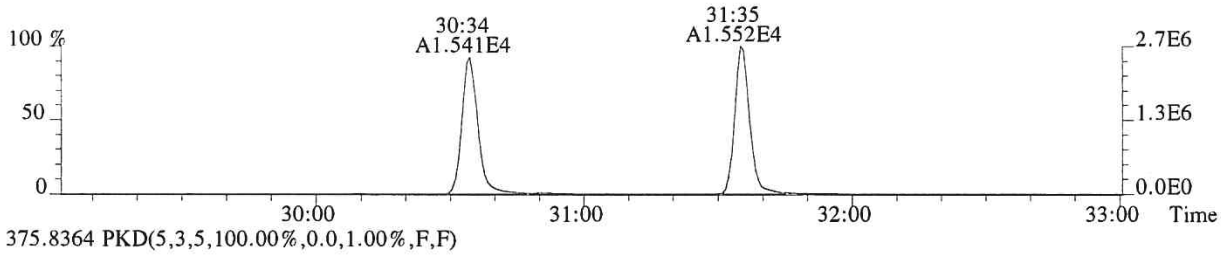
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



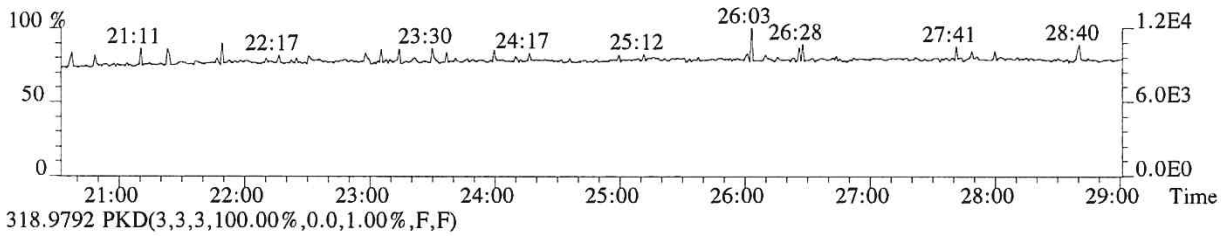
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



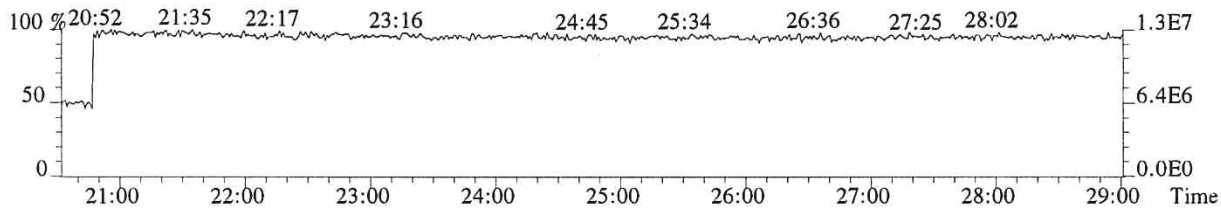
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

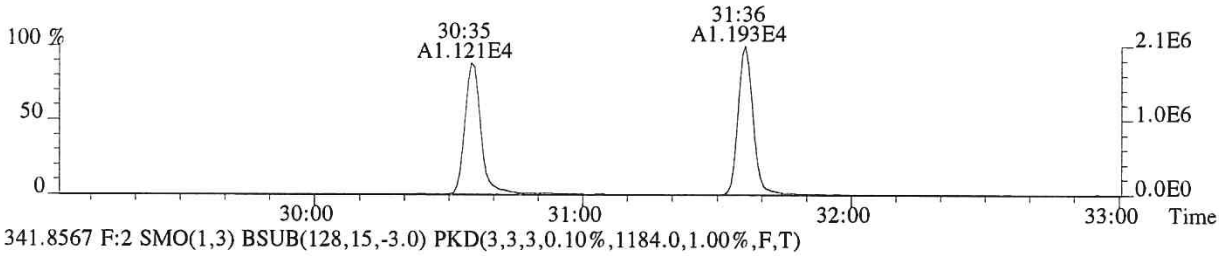


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

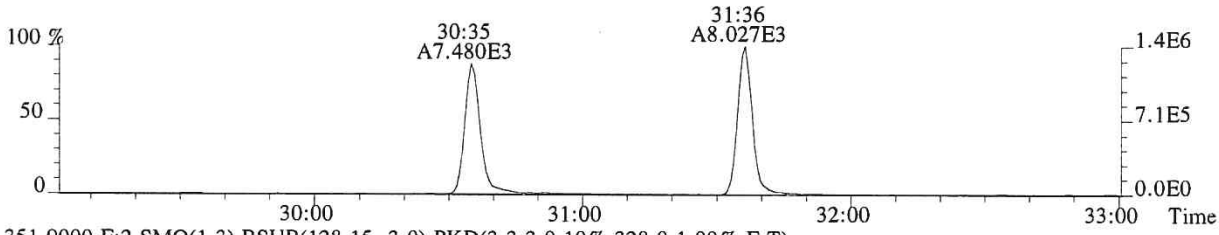


009008

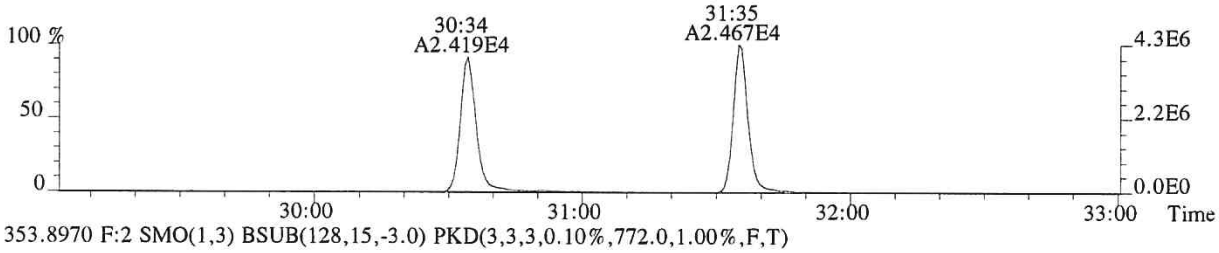
File:P518877 #1-357 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



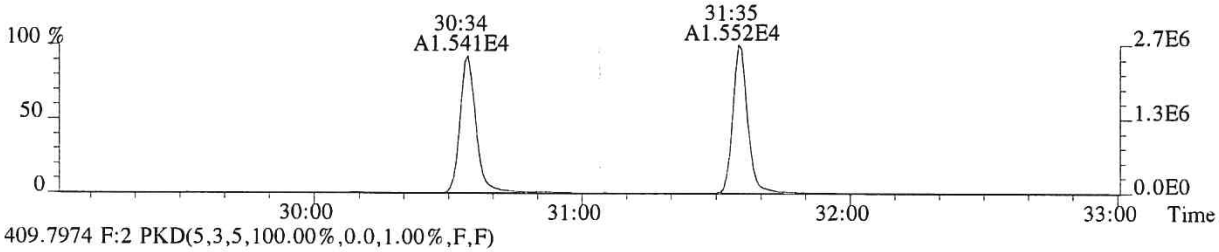
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



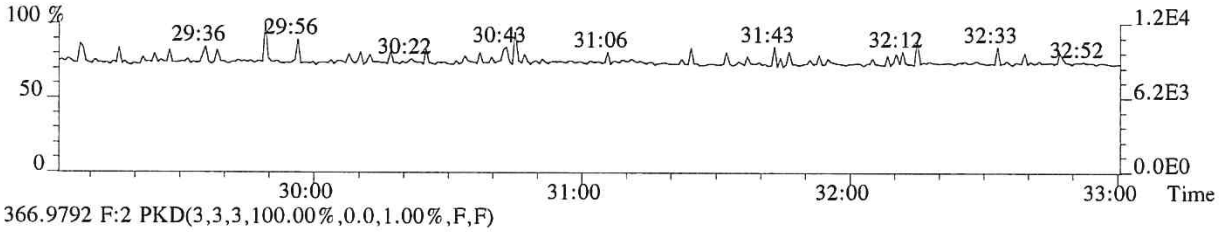
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



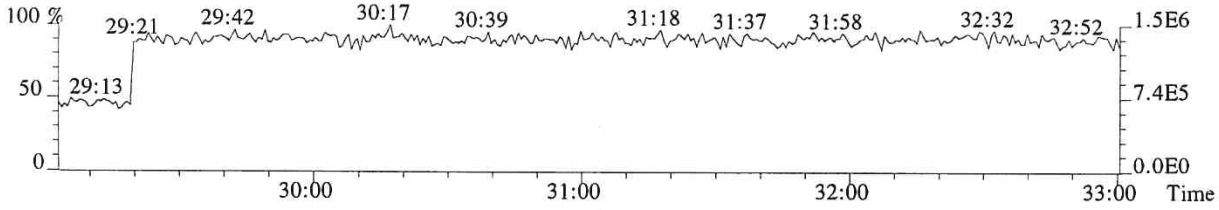
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

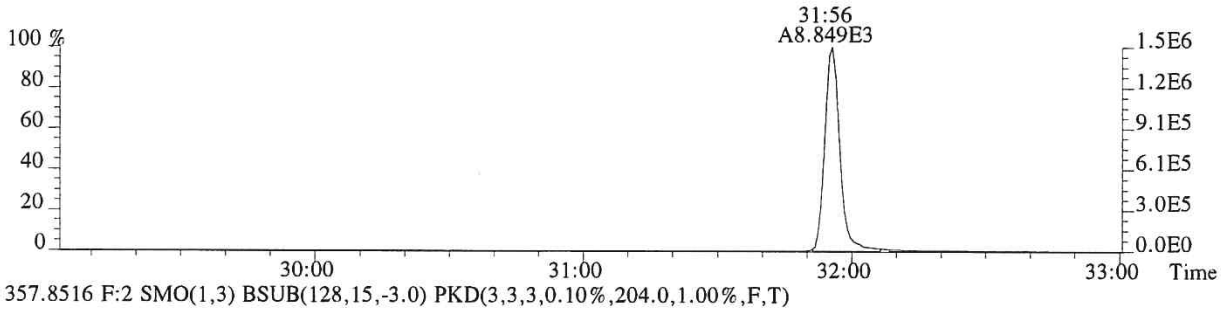


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

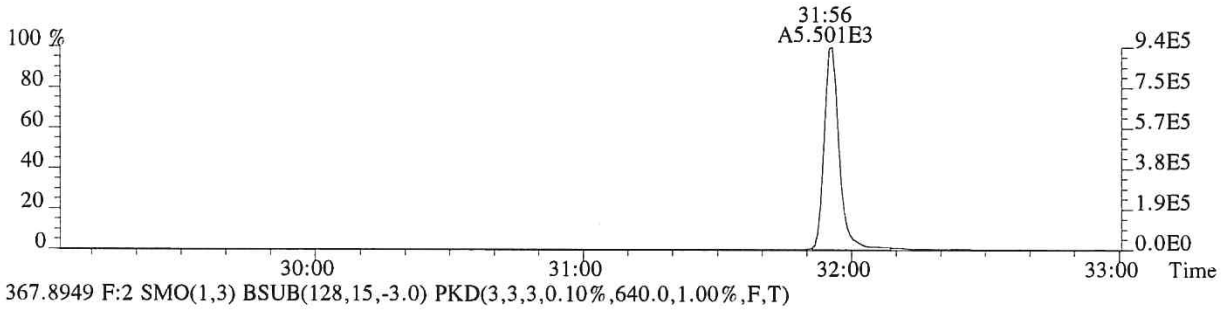


009009

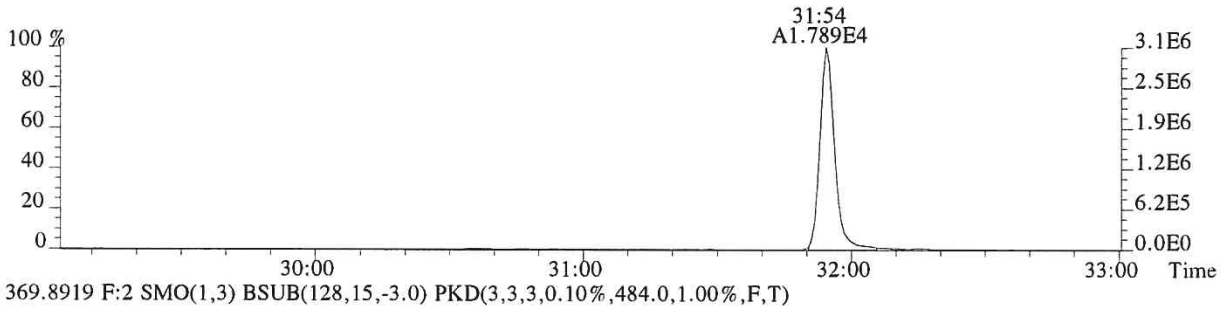
File:P518877 #1-357 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



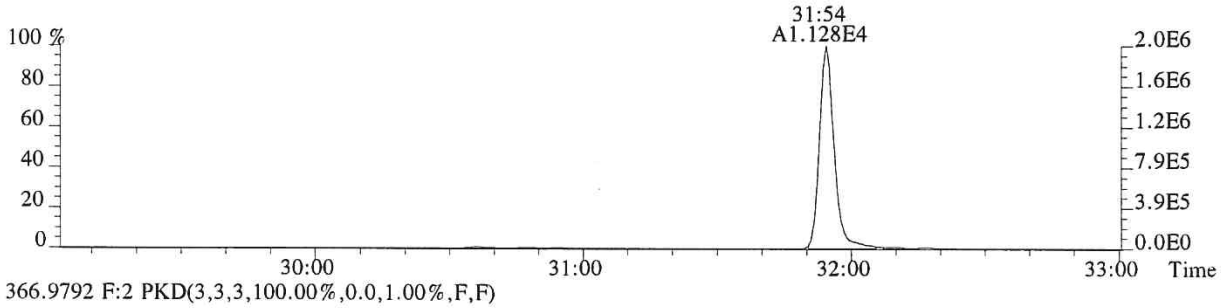
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



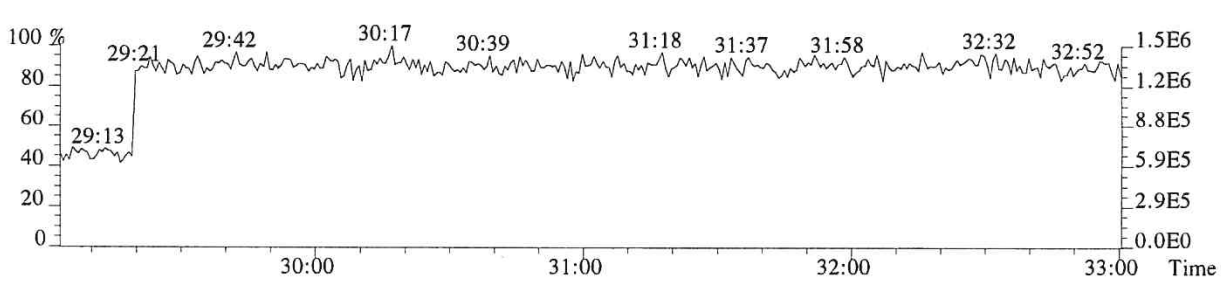
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



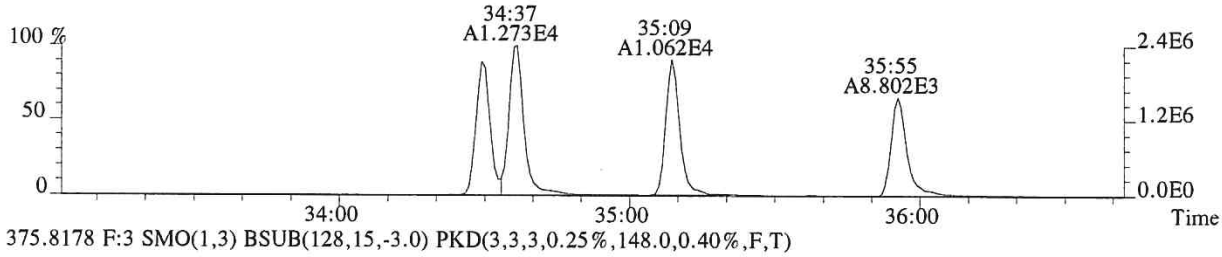
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



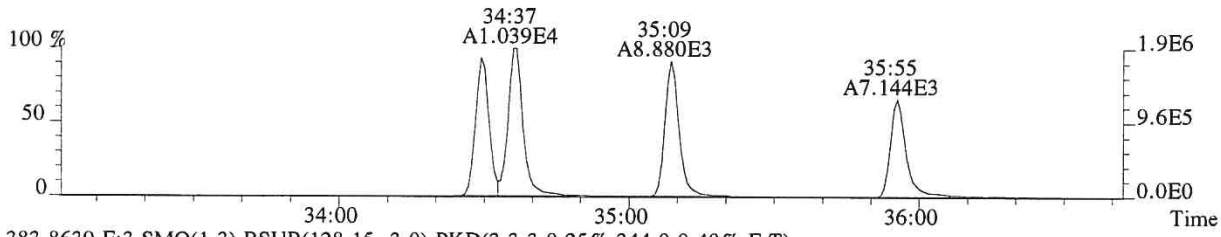
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



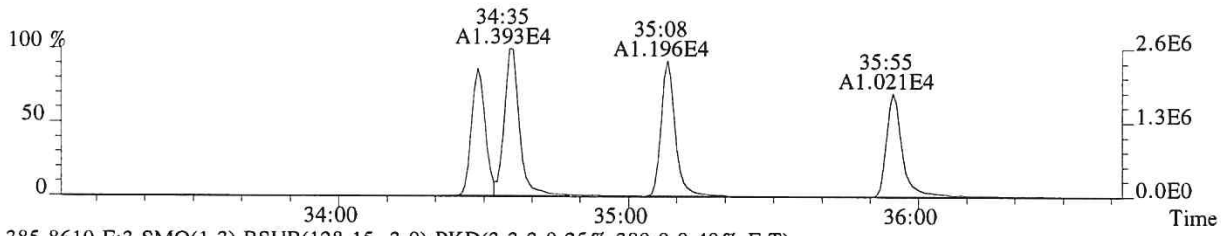
File:P518877 #1-330 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,132.0,0.40%,F,T)



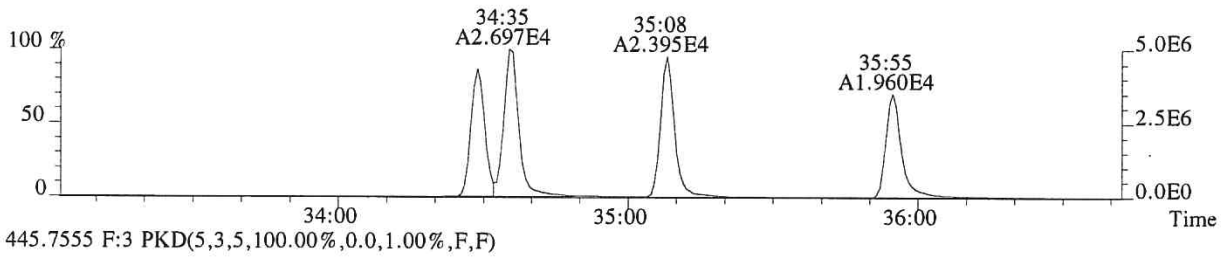
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,148.0,0.40%,F,T)



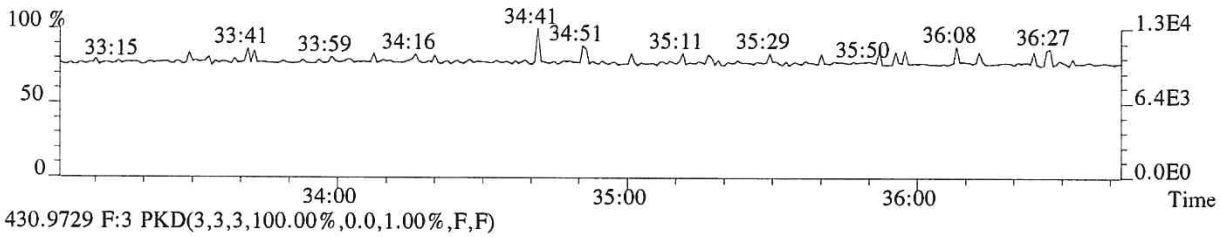
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



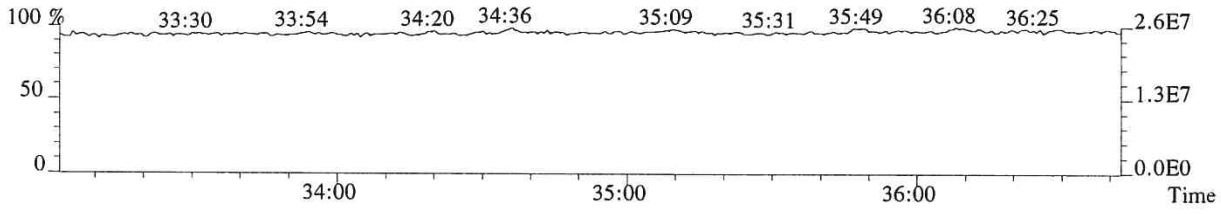
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



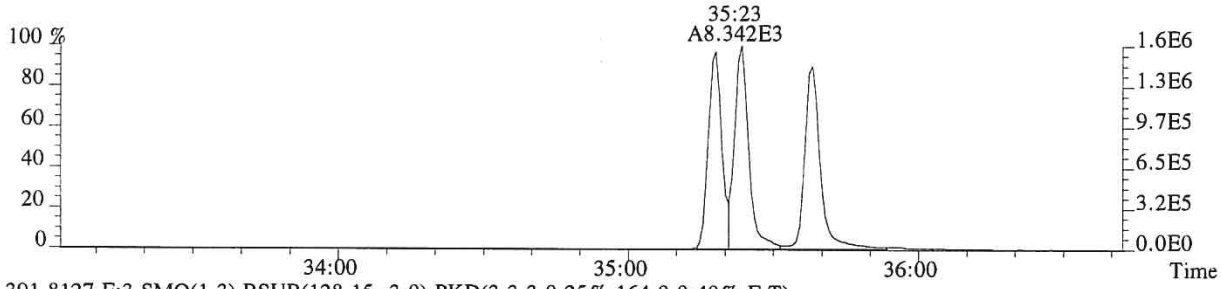
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



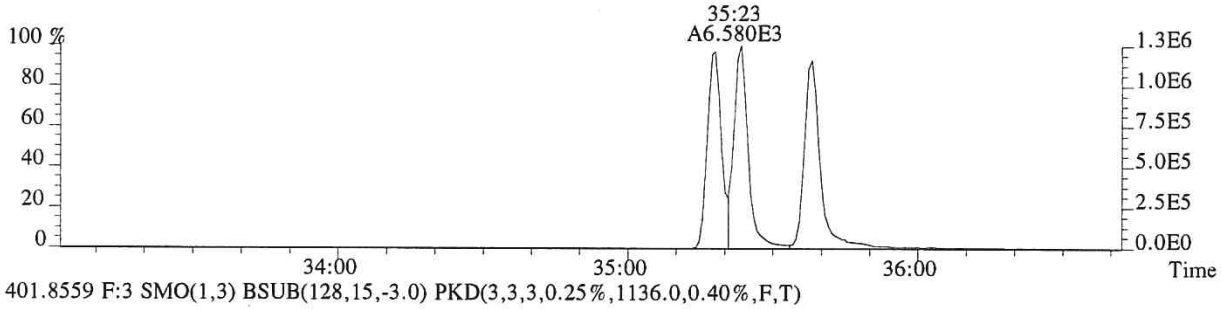
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



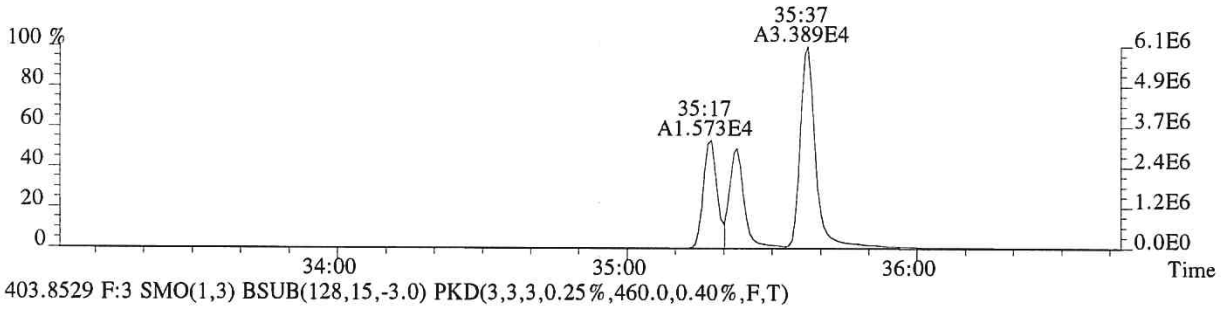
File:P518877 #1-330 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



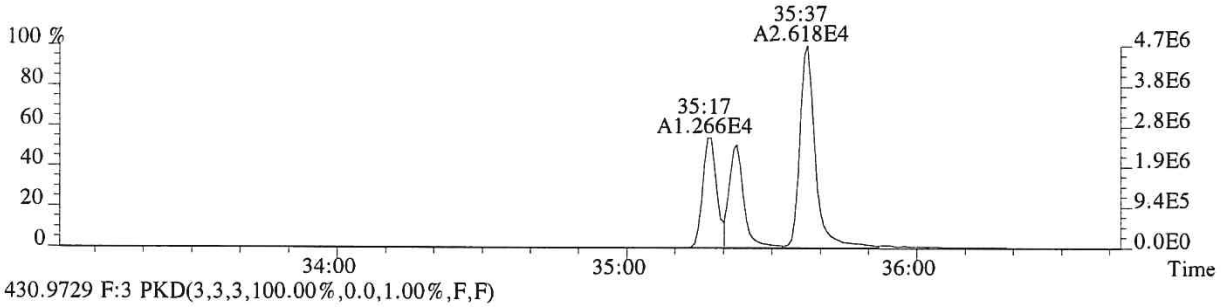
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



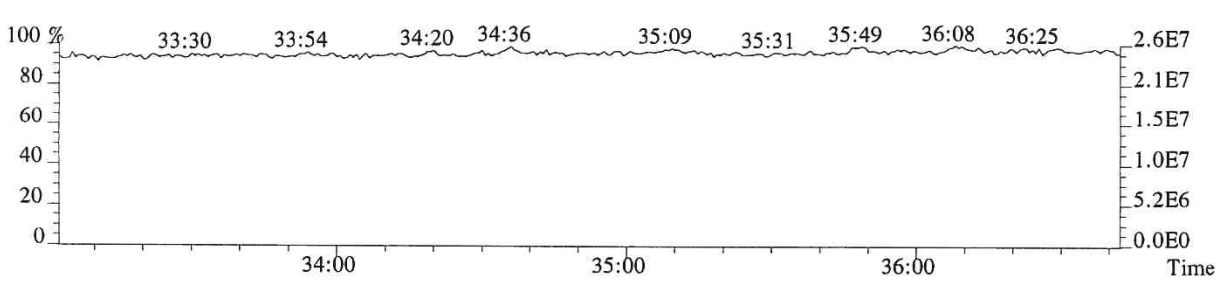
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



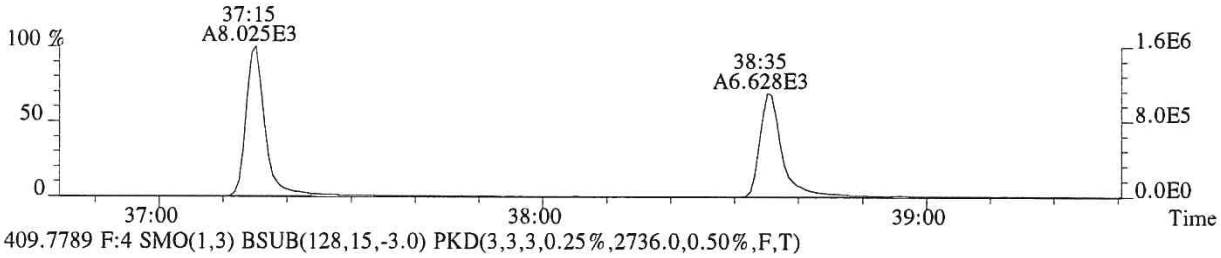
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



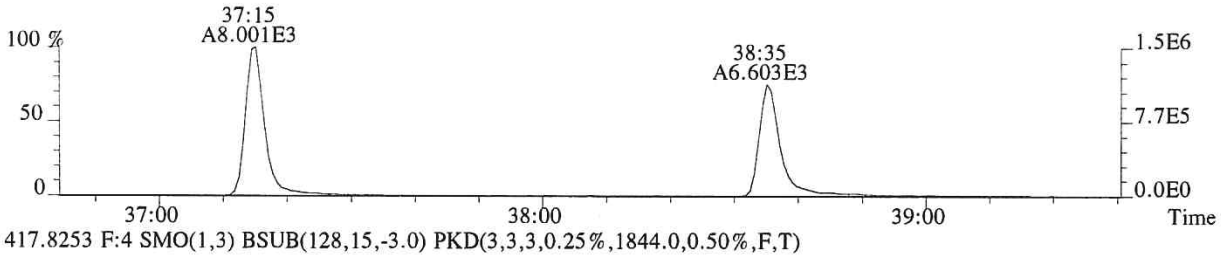
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



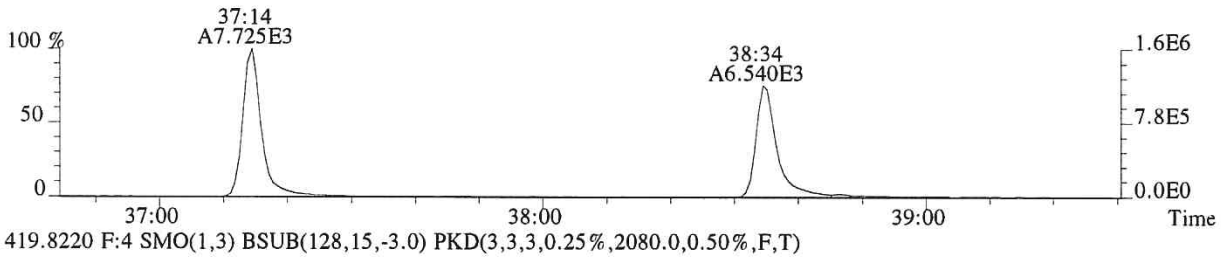
File:P518877 #1-250 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2492.0,0.50%,F,T)



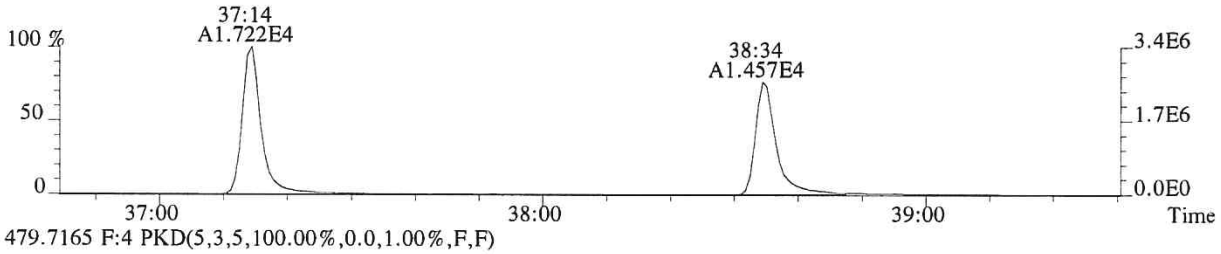
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2736.0,0.50%,F,T)



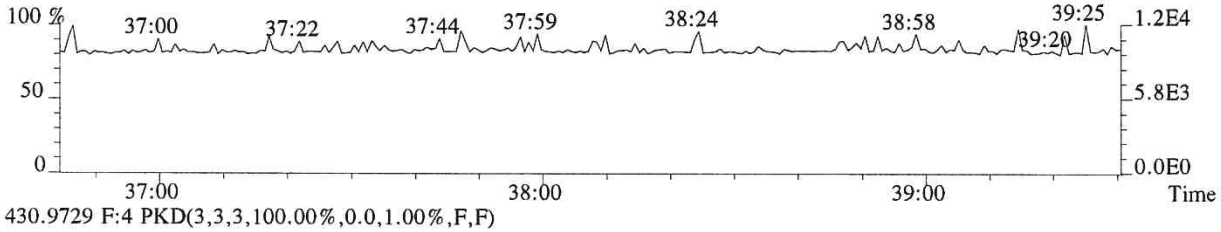
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.50%,F,T)



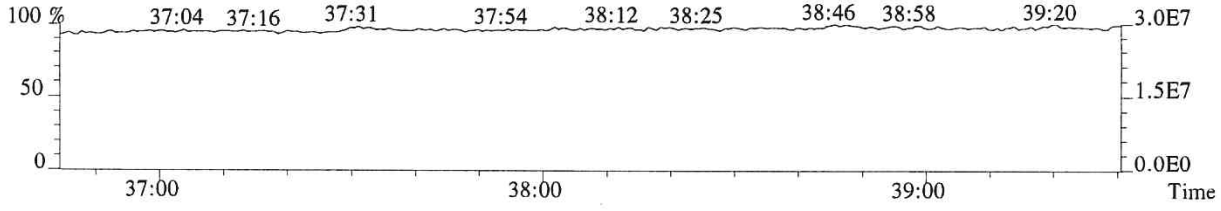
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.50%,F,T)



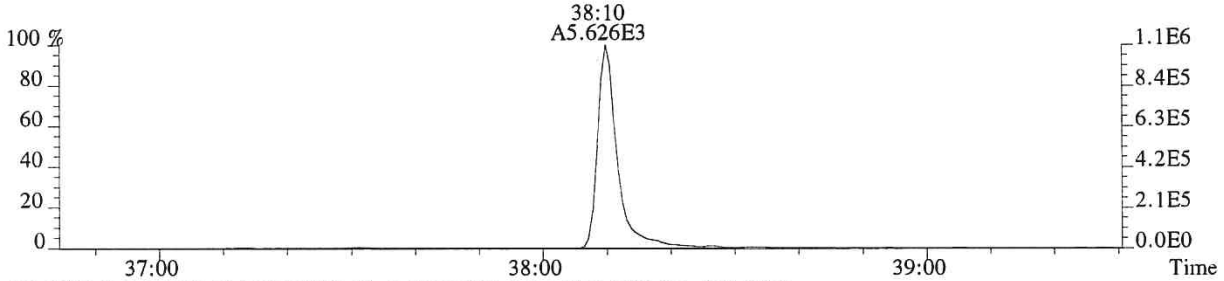
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



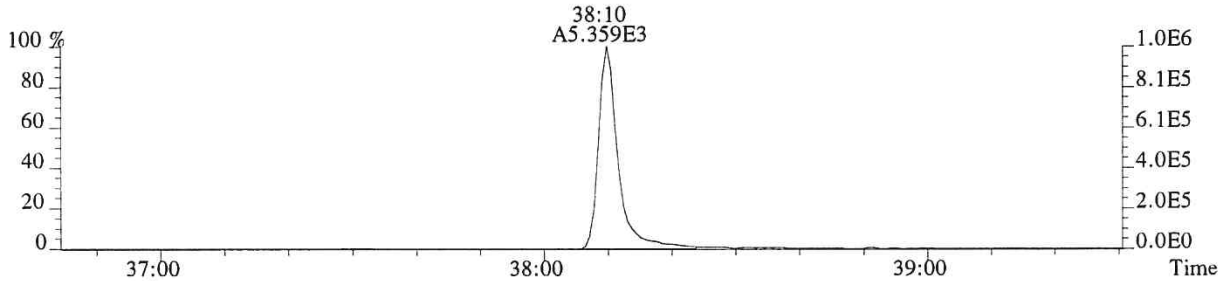
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



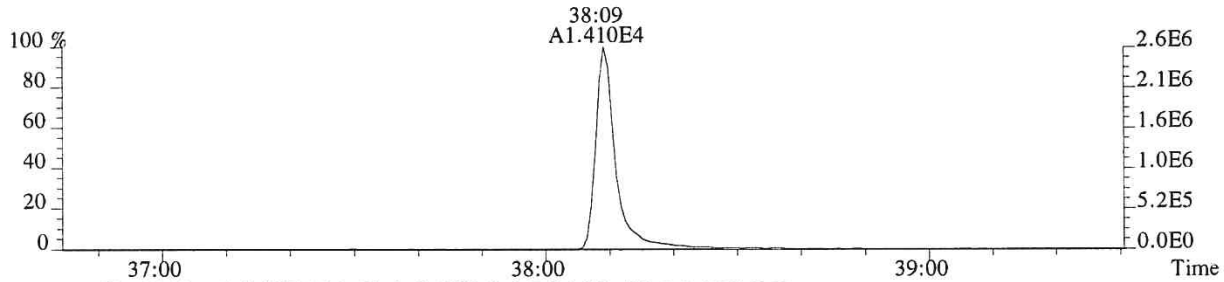
File:P518877 #1-250 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



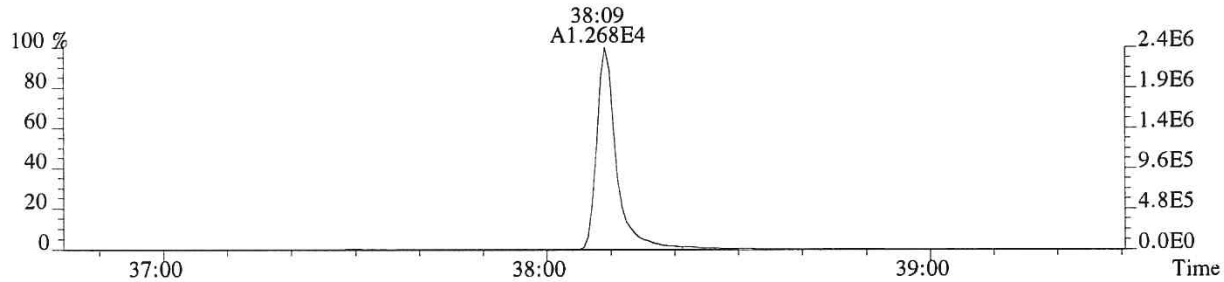
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



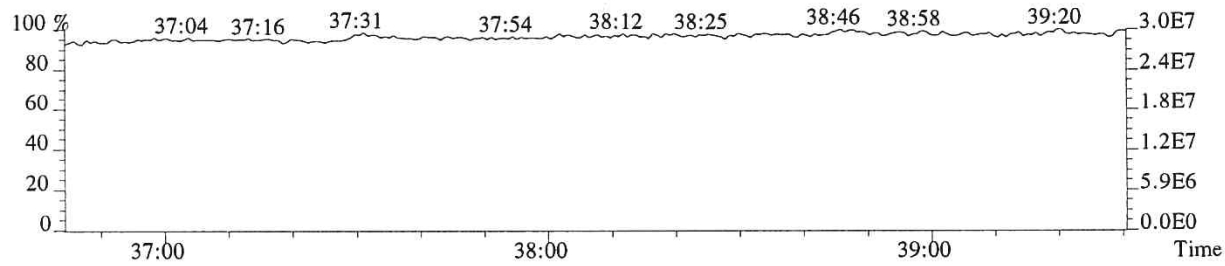
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



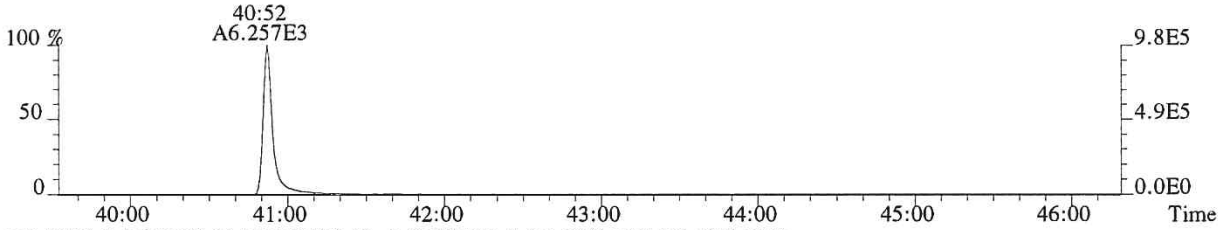
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



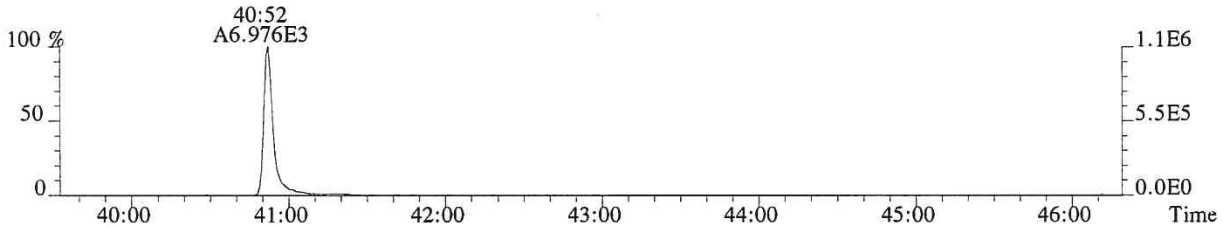
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



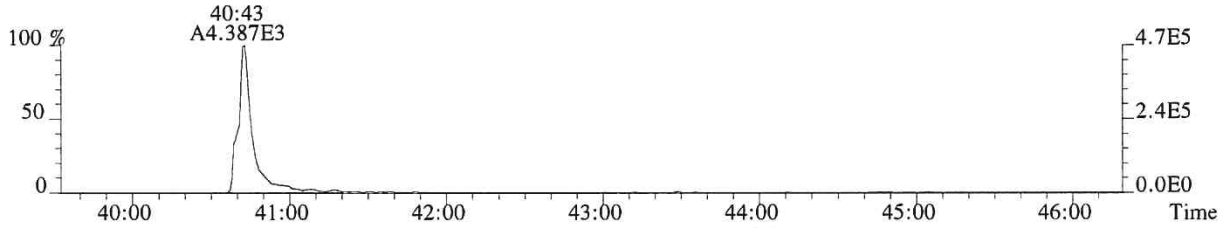
File:P518877 #1-610 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



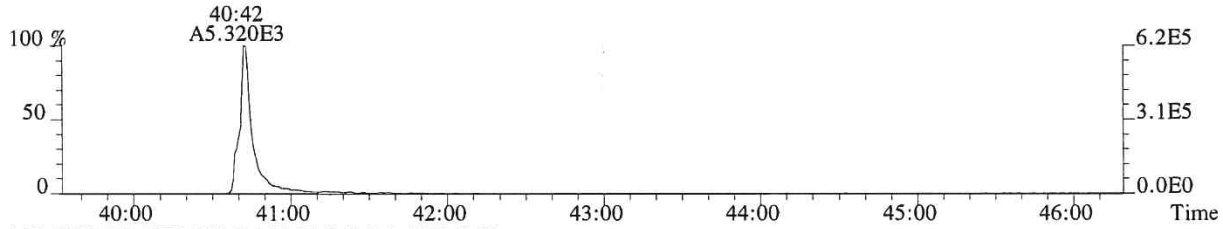
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



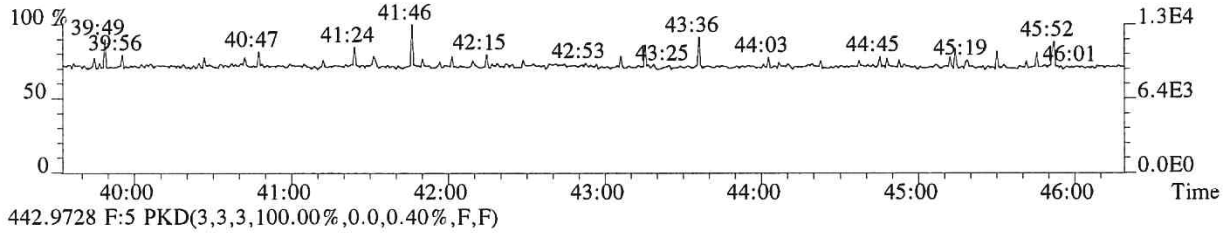
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



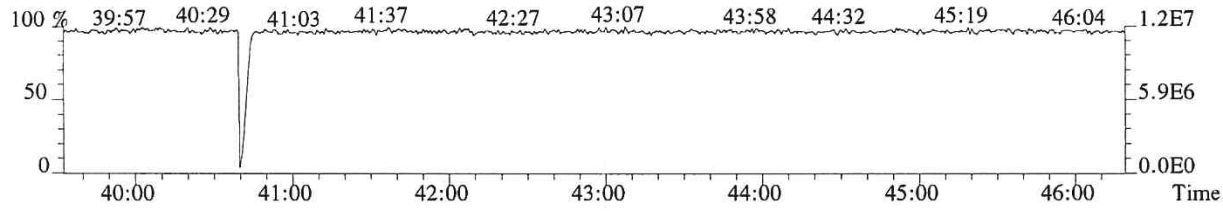
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

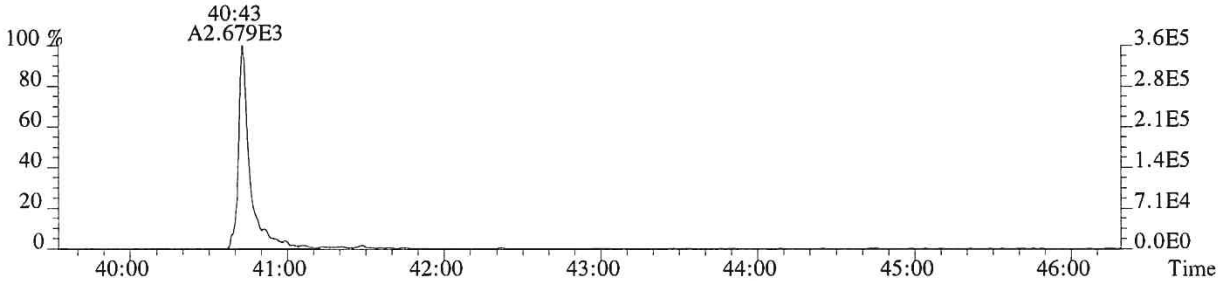


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

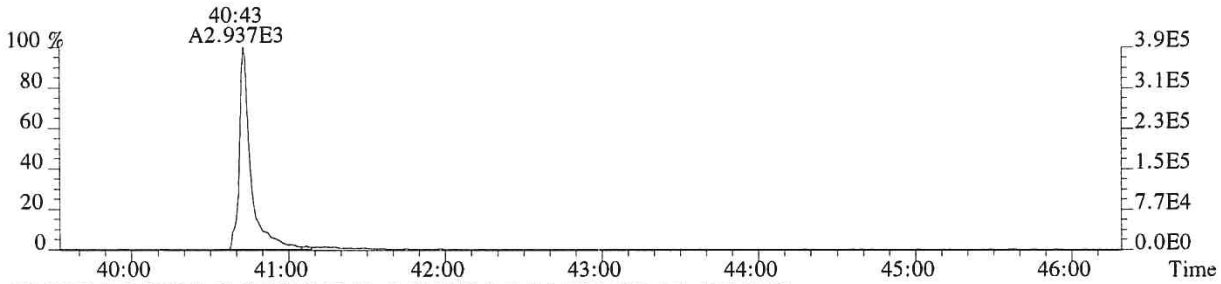


009015

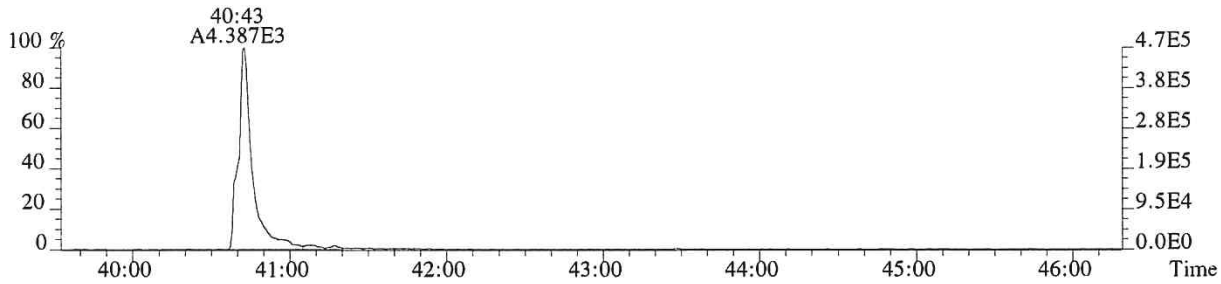
File:P518877 #1-610 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



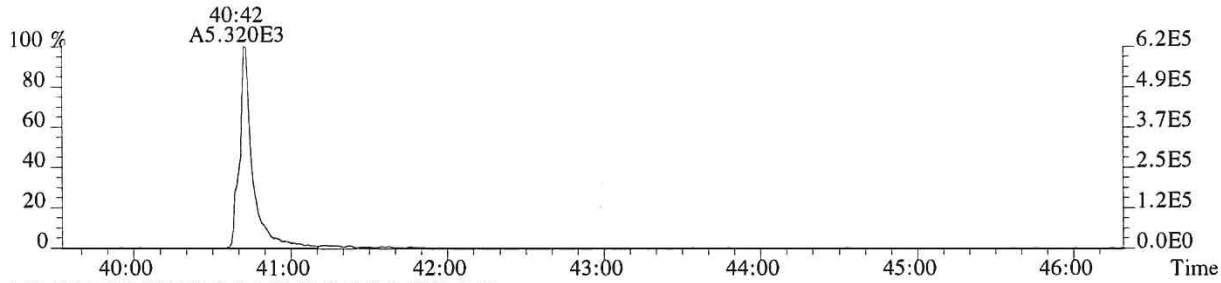
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



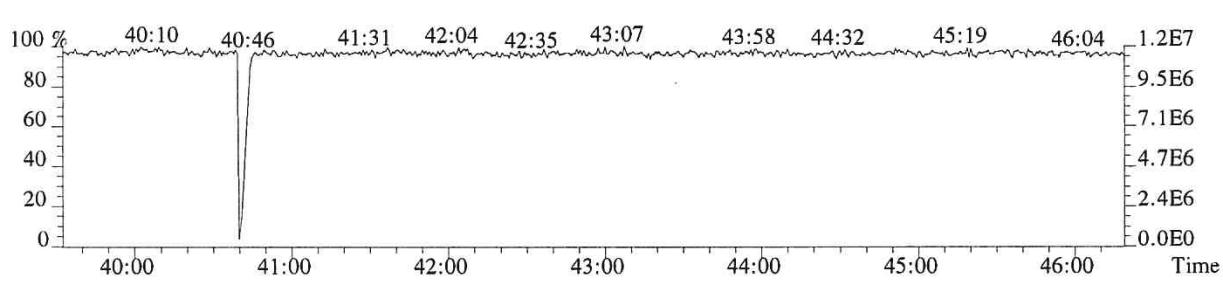
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
DLCS

Run #20 Filename P518878 Samp: 1 Inj: 1 Acquired: 17-NOV-18 11:39:16
Processed: 21-NOV-18 09:19:36 Sample ID: EQ1800468-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	7.823e+02	9.874e+02	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	8.993e+03	5.723e+03	1.57	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	9.664e+03	6.345e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	9.482e+03	7.948e+03	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	1.062e+04	8.906e+03	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	9.688e+03	8.021e+03	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	9.122e+03	7.499e+03	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	7.564e+03	7.423e+03	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	6.497e+03	6.389e+03	1.02	yes	no	1.258
10	Unk	OCDF	40:51	6.617e+03	7.801e+03	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:35	5.026e+02	7.286e+02	0.69	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	7.286e+03	4.727e+03	1.54	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	7.095e+03	5.514e+03	1.29	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	7.580e+03	5.895e+03	1.29	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	7.900e+03	6.199e+03	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	5.478e+03	5.184e+03	1.06	yes	no	1.025
17	Unk	OCDD	40:42	5.373e+03	6.023e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	7.276e+03	9.204e+03	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	1.849e+04	1.144e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.015e+04	1.247e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	9.973e+03	1.942e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.204e+04	2.312e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.140e+04	2.157e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.035e+04	2.014e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	6.941e+03	1.604e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	6.317e+03	1.450e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	5.095e+03	6.069e+03	0.84	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.474e+04	9.060e+03	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.397e+04	1.099e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.483e+04	1.151e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.311e+04	1.252e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	40:41	9.688e+03	1.063e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	2.195e+04	2.783e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.128e+04	2.471e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	5.326e+03				no	1.014

$$\text{OCDD} = \frac{(5.373e+03 + 6.023e+03) \times 4000\ \text{pg} \times 1}{(9.688e+03 + 1.063e+04) \times \text{g} \times / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #20 Filename P518878 Samp: 1 Inj: 1 Acquired: 17-NOV-18 11:39:16
Processed: 21-NOV-18 09:19:36 LAB. ID: EQ1800468-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+05	7.16e+02	1.4e+02	1.32e+05	6.76e+02	2.0e+02
2	1,2,3,7,8-PeCDF	1.47e+06	7.04e+02	2.1e+03	9.19e+05	1.42e+03	6.5e+02
3	2,3,4,7,8-PeCDF	1.68e+06	7.04e+02	2.4e+03	1.12e+06	1.42e+03	7.9e+02
4	1,2,3,4,7,8-HxCDF	1.98e+06	4.04e+02	4.9e+03	1.64e+06	3.24e+02	5.1e+03
5	1,2,3,6,7,8-HxCDF	2.01e+06	4.04e+02	5.0e+03	1.65e+06	3.24e+02	5.1e+03
6	2,3,4,6,7,8-HxCDF	1.93e+06	4.04e+02	4.8e+03	1.60e+06	3.24e+02	4.9e+03
7	1,2,3,7,8,9-HxCDF	1.55e+06	4.04e+02	3.8e+03	1.30e+06	3.24e+02	4.0e+03
8	1,2,3,4,6,7,8-HpCDF	1.51e+06	2.62e+03	5.8e+02	1.48e+06	1.28e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.15e+06	2.62e+03	4.4e+02	1.16e+06	1.28e+03	9.1e+02
10	OCDF	1.04e+06	4.44e+02	2.3e+03	1.21e+06	3.40e+02	3.6e+03
11	2,3,7,8-TCDD	7.59e+04	1.56e+03	4.9e+01	1.07e+05	4.56e+02	2.3e+02
12	1,2,3,7,8-PeCDD	1.26e+06	2.92e+02	4.3e+03	7.94e+05	2.16e+02	3.7e+03
13	1,2,3,4,7,8-HxCDD	1.47e+06	3.00e+02	4.9e+03	1.16e+06	4.00e+02	2.9e+03
14	1,2,3,6,7,8-HxCDD	1.45e+06	3.00e+02	4.8e+03	1.14e+06	4.00e+02	2.8e+03
15	1,2,3,7,8,9-HxCDD	1.44e+06	3.00e+02	4.8e+03	1.14e+06	4.00e+02	2.9e+03
16	1,2,3,4,6,7,8-HpCDD	9.75e+05	1.04e+02	9.4e+03	9.52e+05	2.88e+02	3.3e+03
17	OCDD	8.62e+05	2.36e+02	3.7e+03	9.29e+05	2.04e+02	4.6e+03
18	13C-2,3,7,8-TCDF	9.26e+05	3.75e+03	2.5e+02	1.20e+06	1.66e+03	7.3e+02
19	13C-1,2,3,7,8-PeCDF	3.01e+06	2.24e+02	1.3e+04	1.86e+06	2.40e+02	7.7e+03
20	13C-2,3,4,7,8-PeCDF	3.50e+06	2.24e+02	1.6e+04	2.18e+06	2.40e+02	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.04e+06	7.40e+02	2.8e+03	4.03e+06	4.32e+02	9.3e+03
22	13C-1,2,3,6,7,8-HxCDF	2.23e+06	7.40e+02	3.0e+03	4.31e+06	4.32e+02	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	2.24e+06	7.40e+02	3.0e+03	4.30e+06	4.32e+02	9.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.80e+06	7.40e+02	2.4e+03	3.44e+06	4.32e+02	8.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.37e+06	3.16e+03	4.3e+02	3.25e+06	8.88e+02	3.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.15e+06	3.16e+03	3.6e+02	2.61e+06	8.88e+02	2.9e+03
27	13C-2,3,7,8-TCDD	7.37e+05	3.84e+03	1.9e+02	8.85e+05	1.76e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	2.49e+06	3.48e+02	7.2e+03	1.52e+06	2.88e+02	5.3e+03
29	13C-1,2,3,4,7,8-HxCDD	3.01e+06	1.14e+03	2.6e+03	2.39e+06	2.92e+02	8.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+06	1.14e+03	2.3e+03	2.12e+06	2.92e+02	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.43e+06	2.84e+02	8.6e+03	2.33e+06	3.44e+02	6.8e+03
32	13C-OCDD	1.51e+06	2.48e+02	6.1e+03	1.68e+06	2.16e+02	7.8e+03
33	13C-1,2,3,4-TCDD	3.17e+06	3.84e+03	8.3e+02	4.01e+06	1.76e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	5.95e+06	1.14e+03	5.2e+03	4.71e+06	2.92e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	7.45e+05	8.24e+02	9.0e+02			

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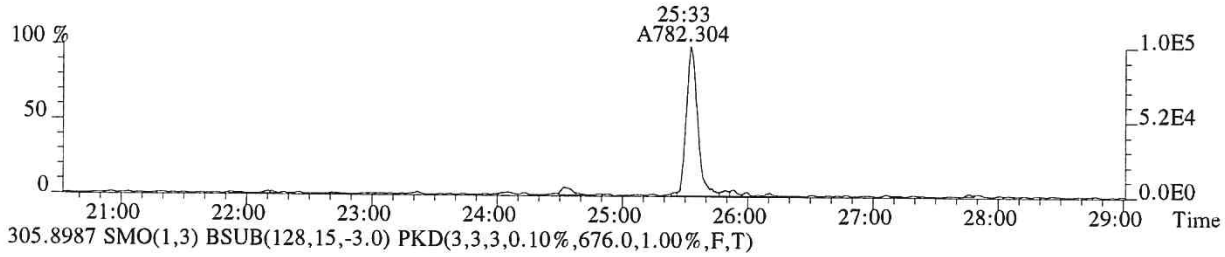
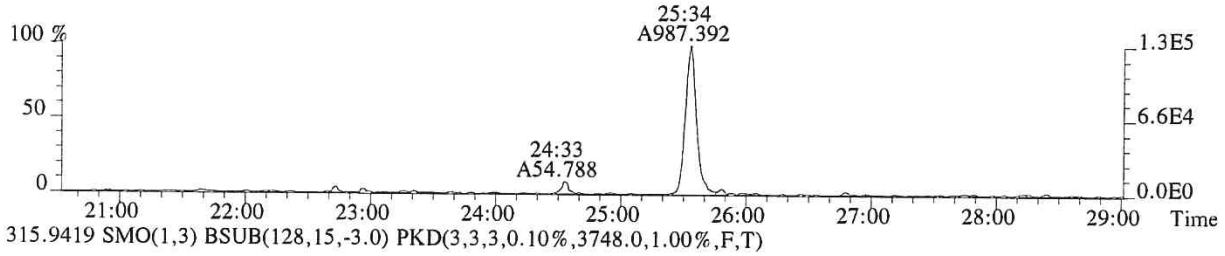
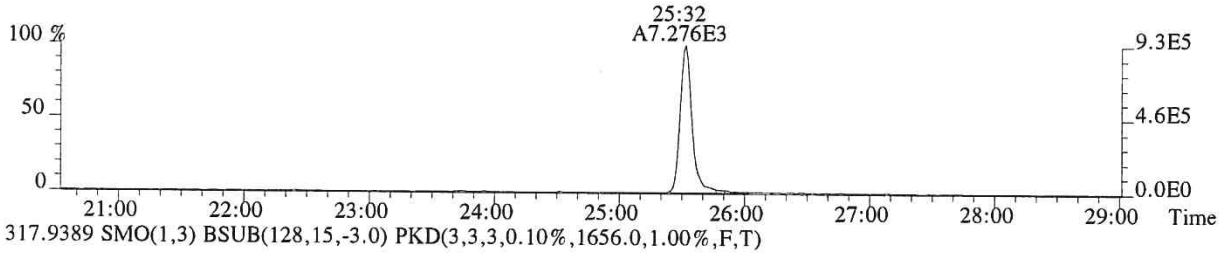
File:P518878 #1-602 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



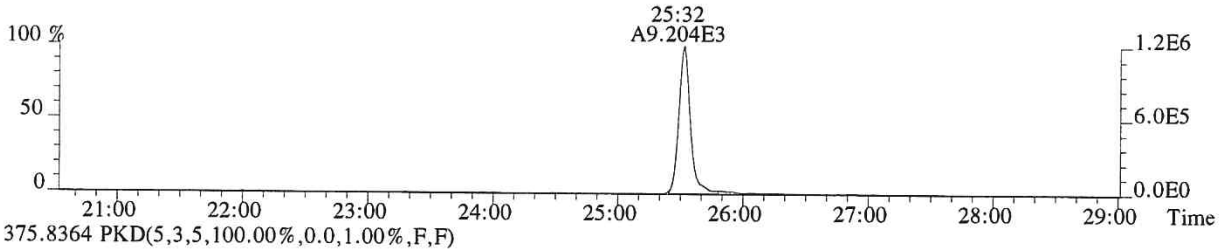
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



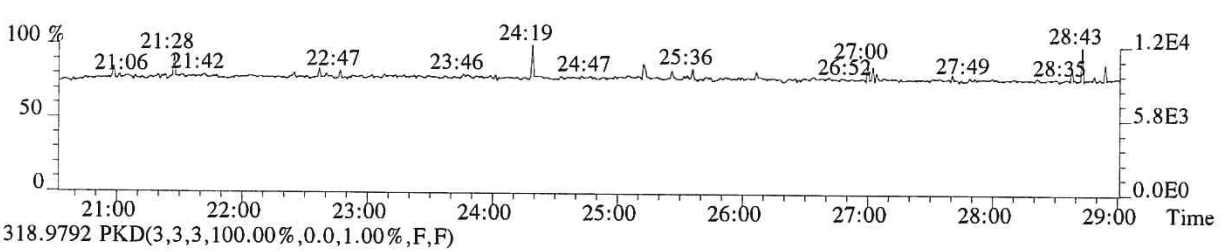
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3748.0,1.00%,F,T)



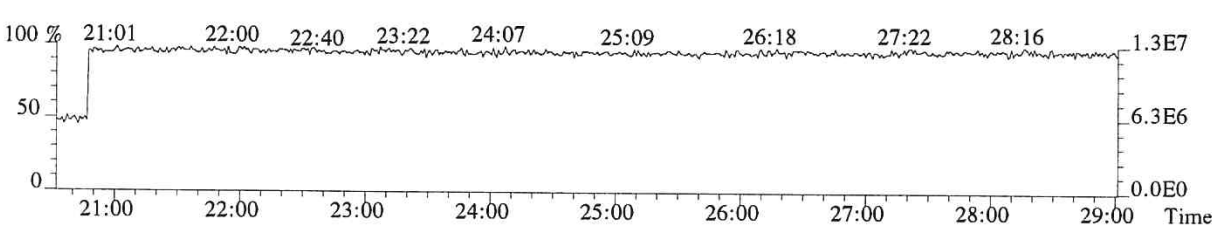
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



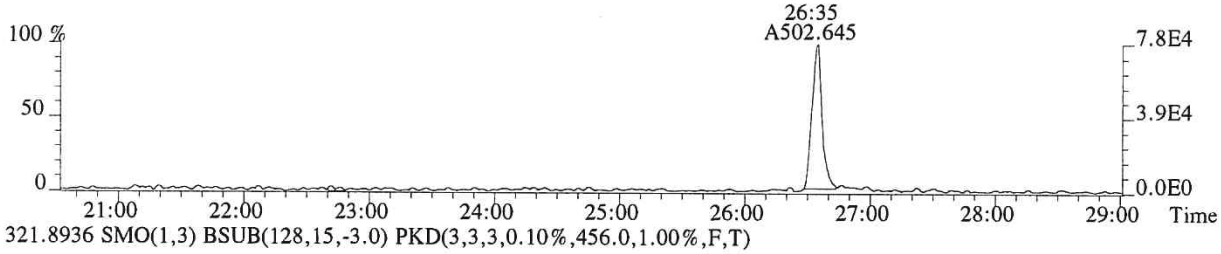
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



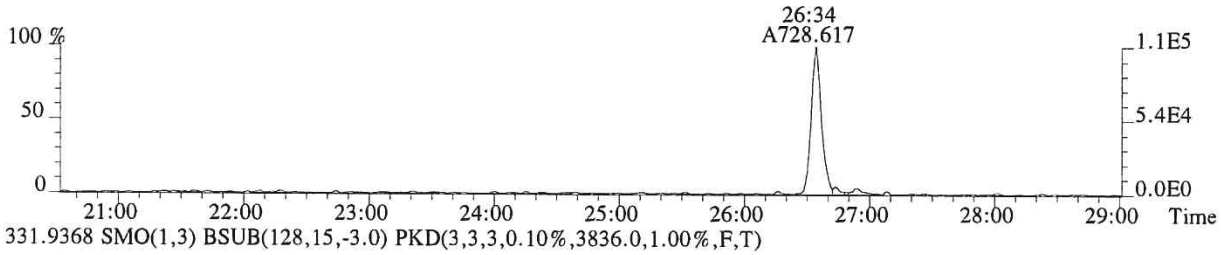
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



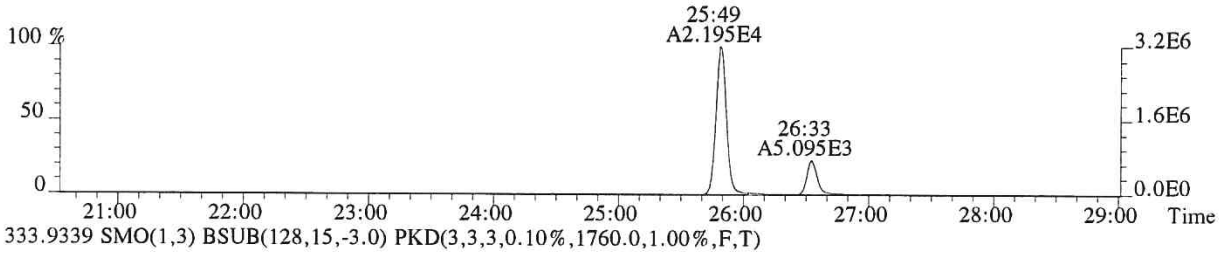
File:P518878 #1-602 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



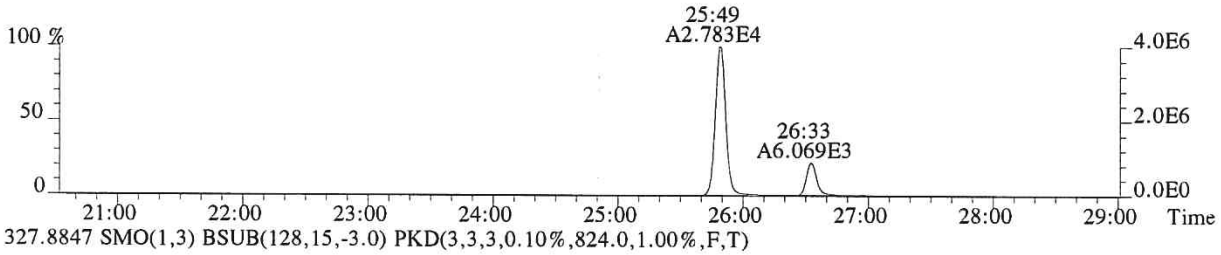
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



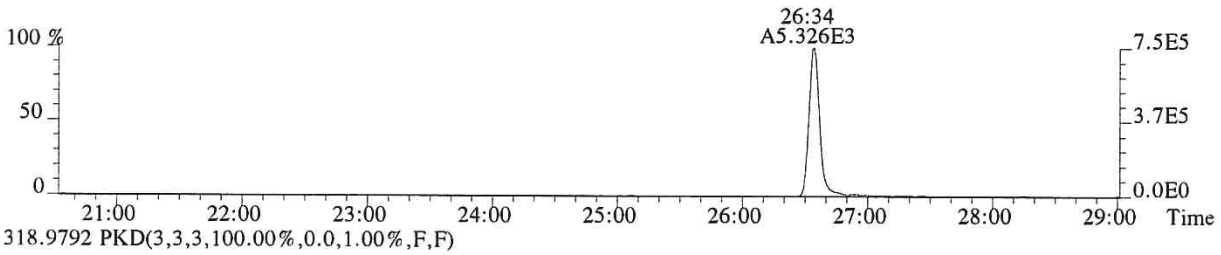
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3836.0,1.00%,F,T)



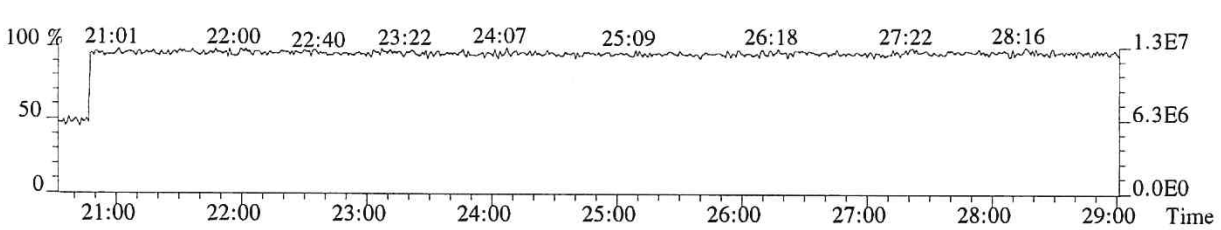
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)

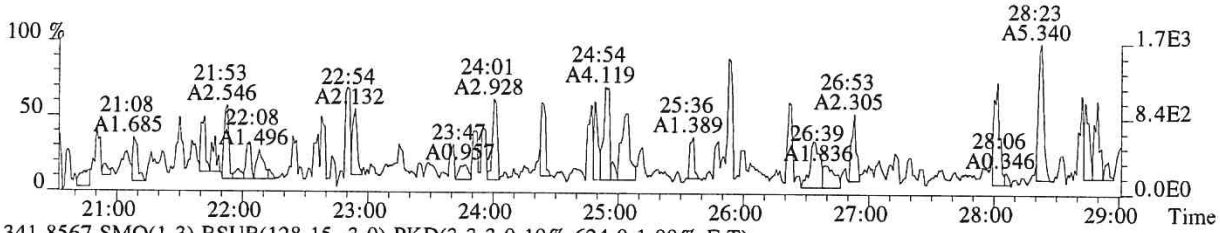


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

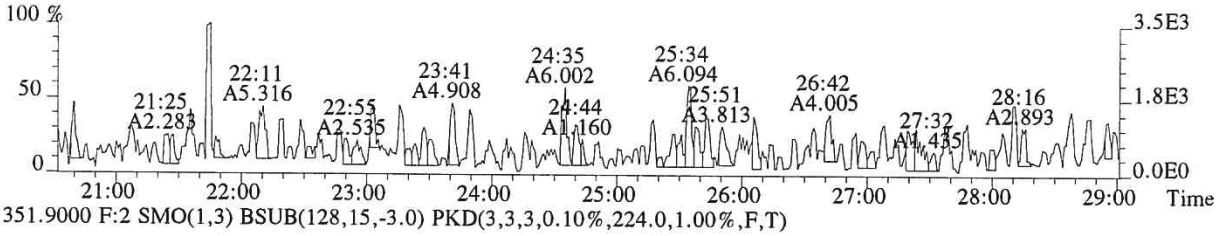


009020

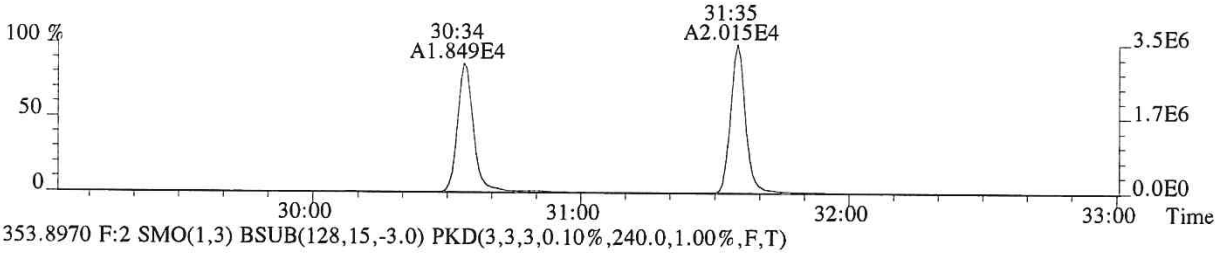
File:P518878 #1-602 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



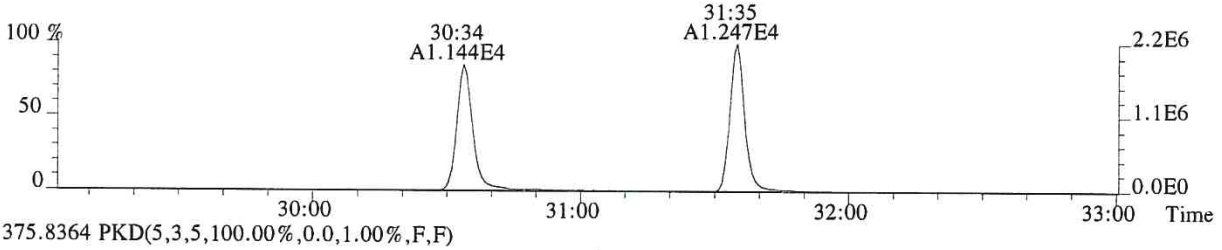
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



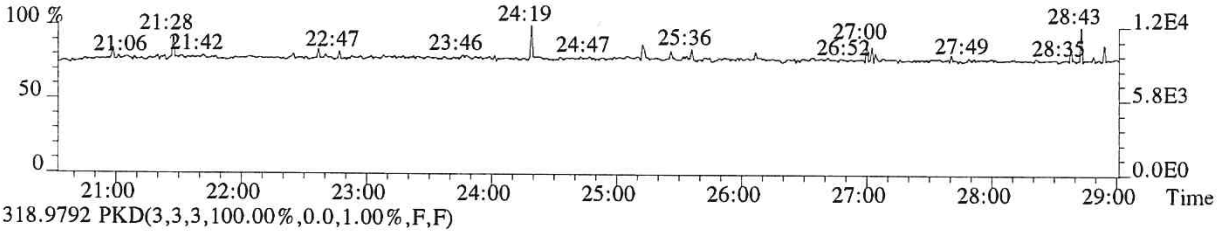
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



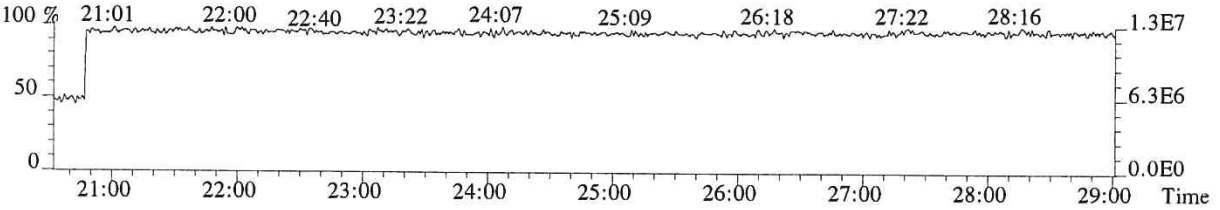
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

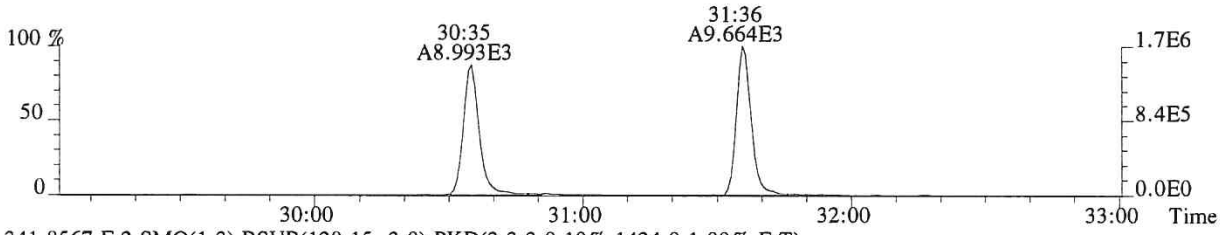


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

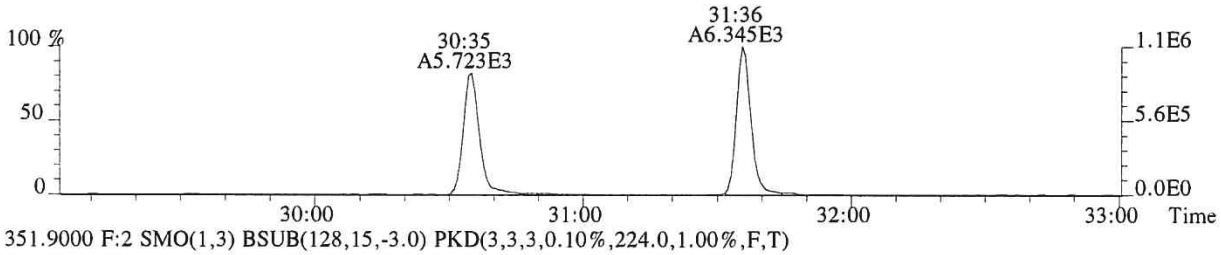


009021

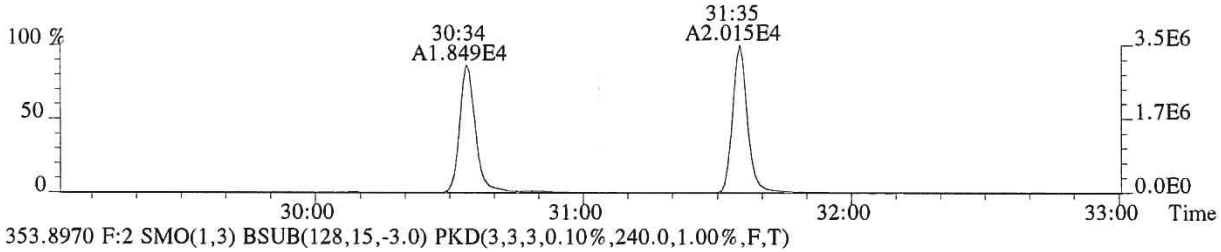
File:P518878 #1-357 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



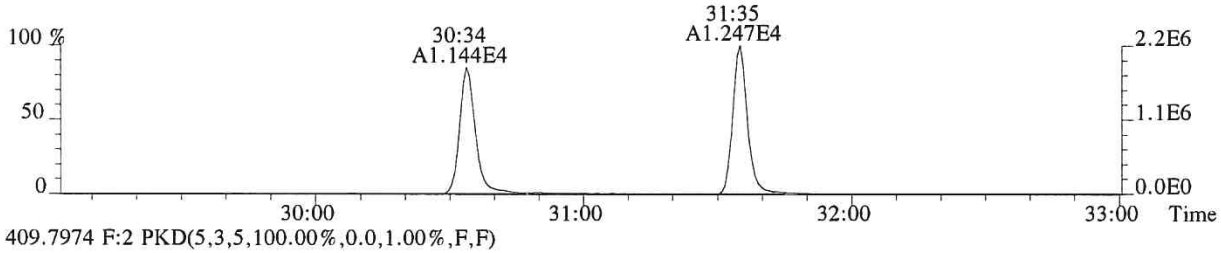
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



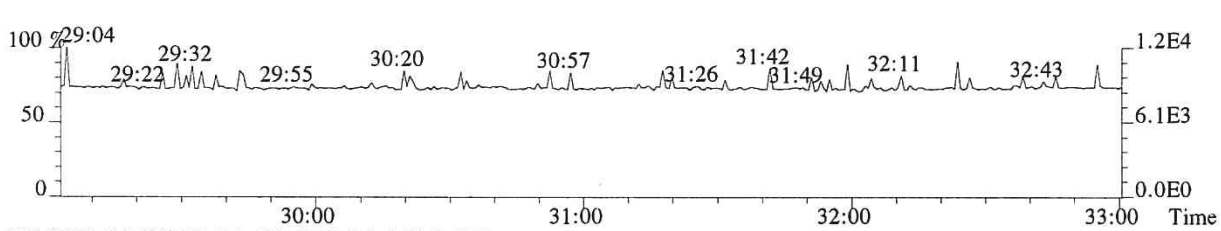
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



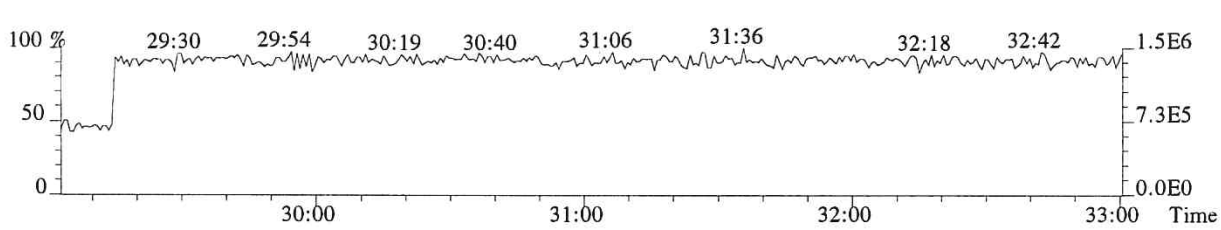
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

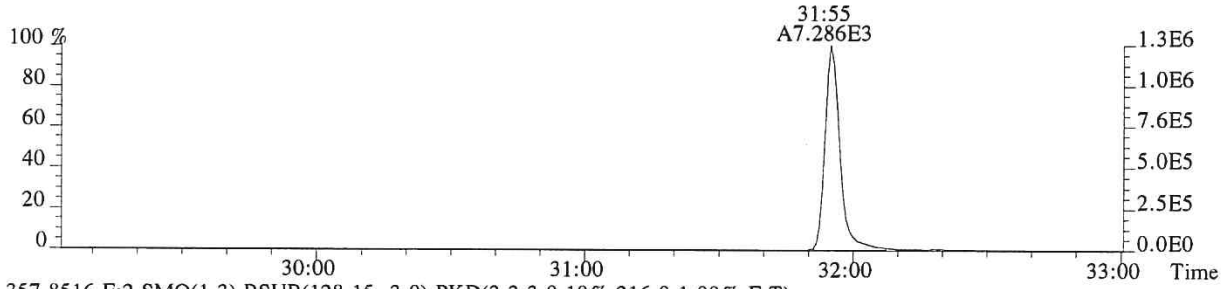


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

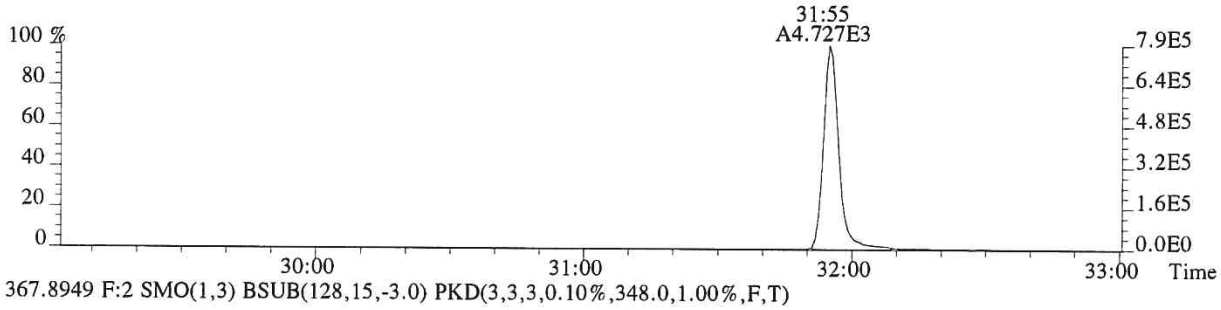


009022

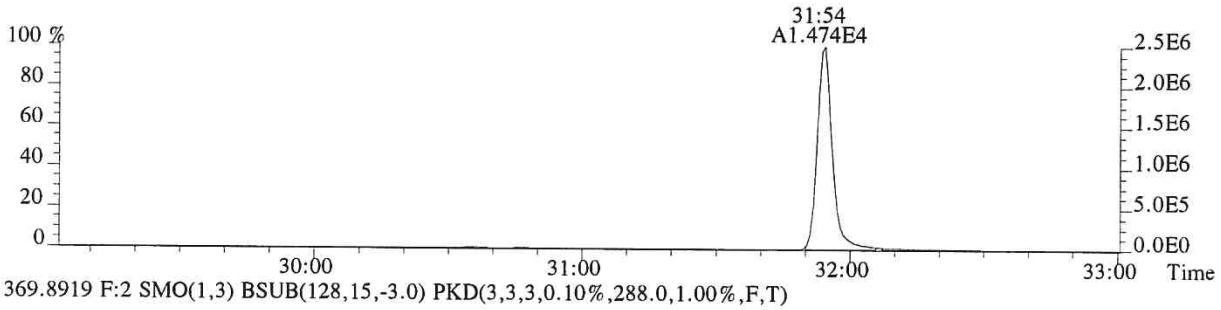
File:P518878 #1-357 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



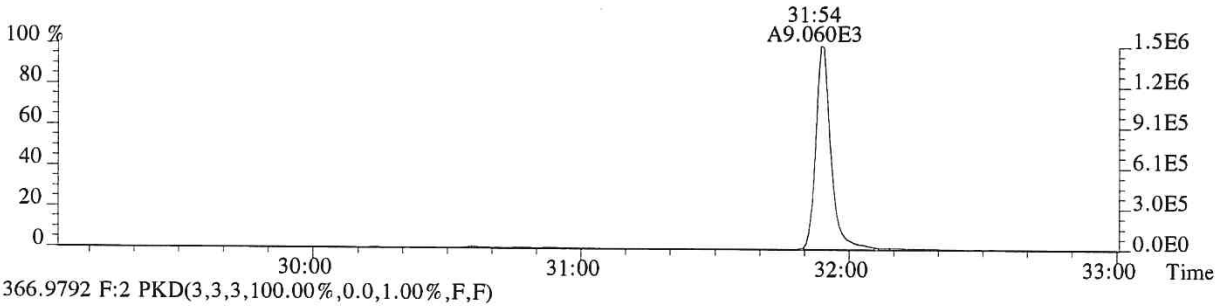
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



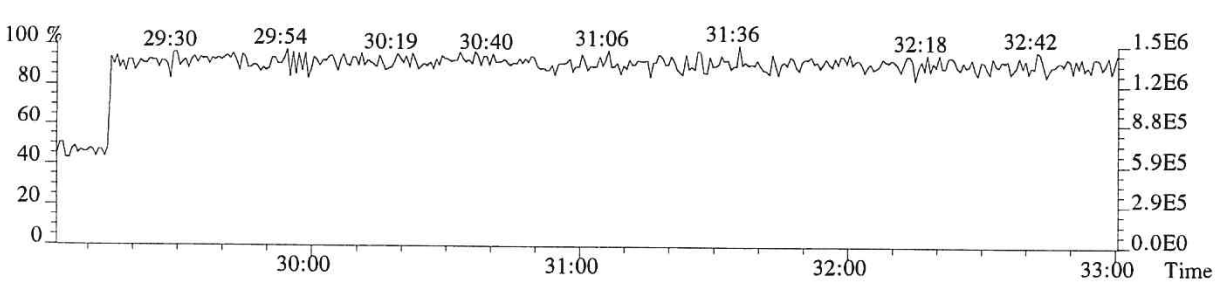
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)

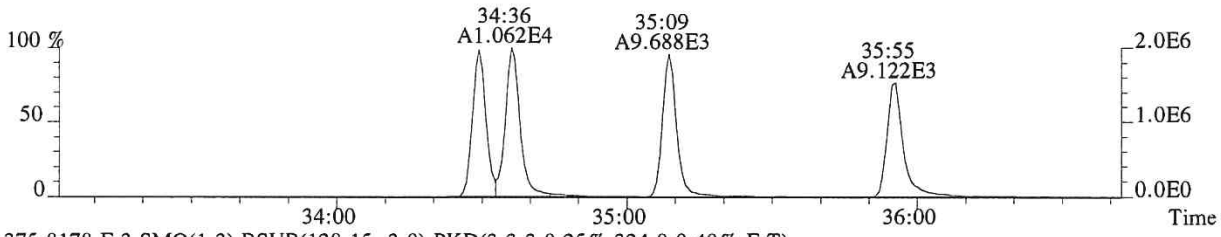


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

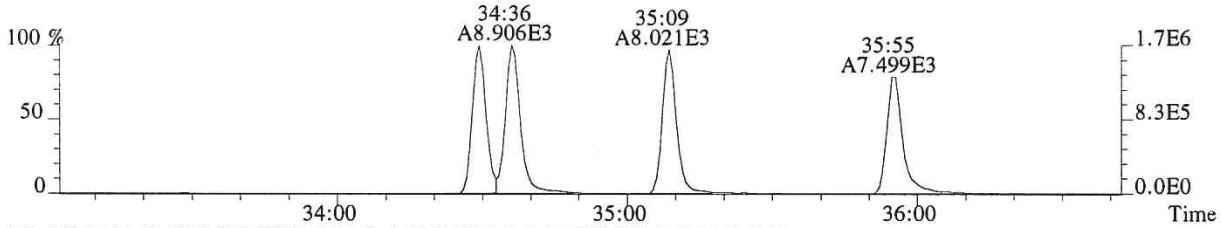


009023

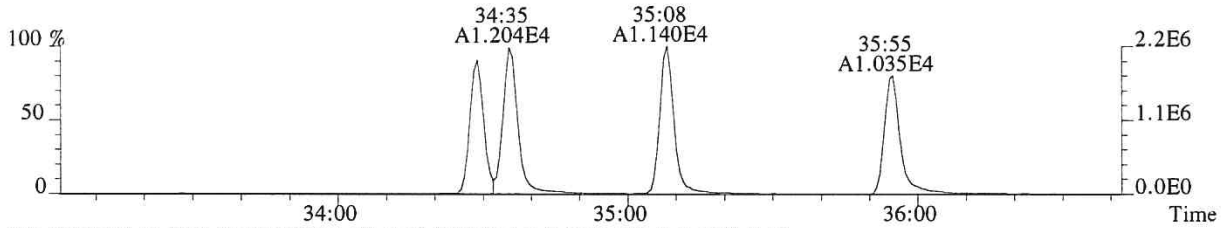
File:P518878 #1-330 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



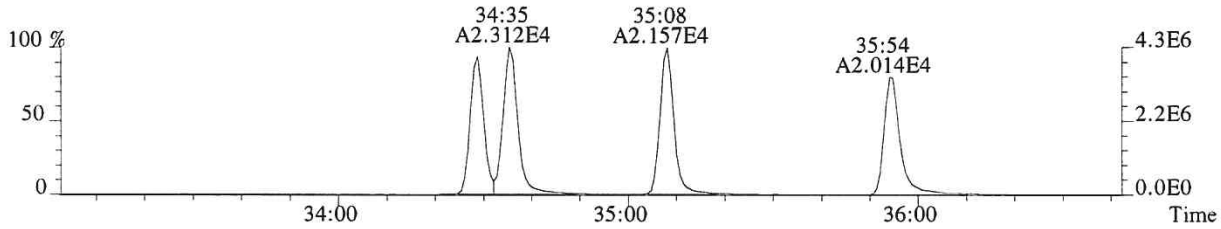
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



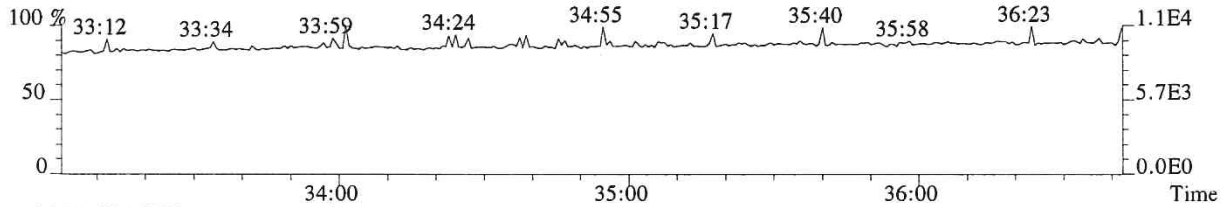
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



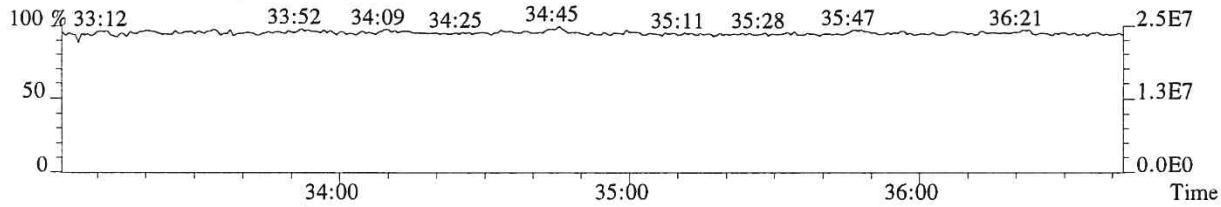
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

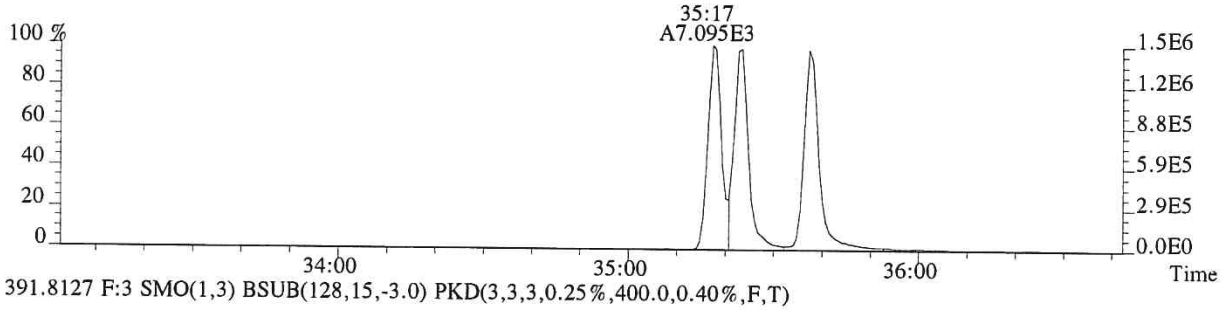


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

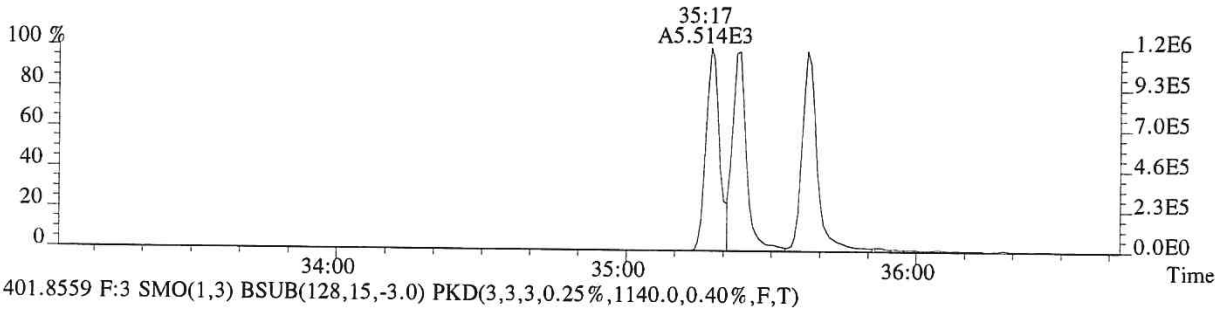


009024

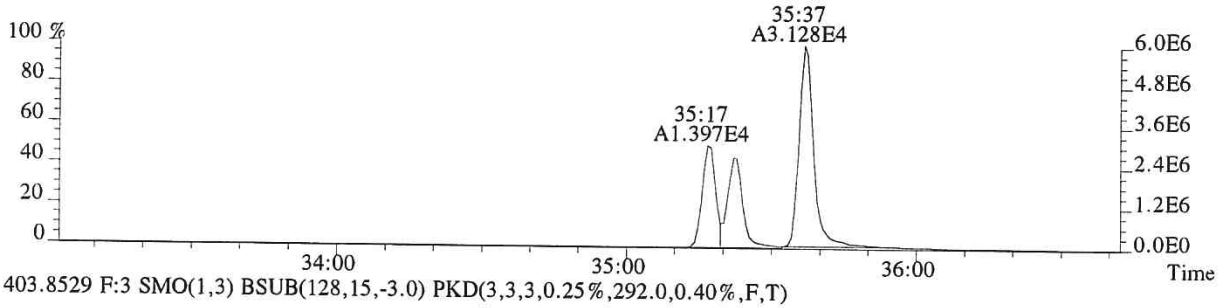
File:P518878 #1-330 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



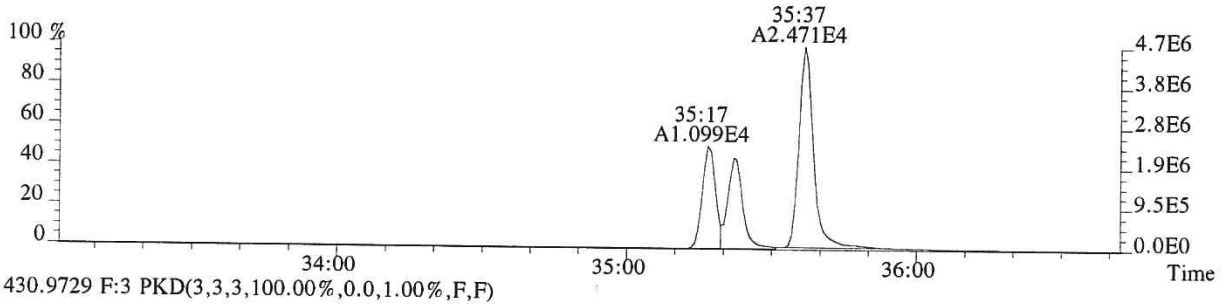
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



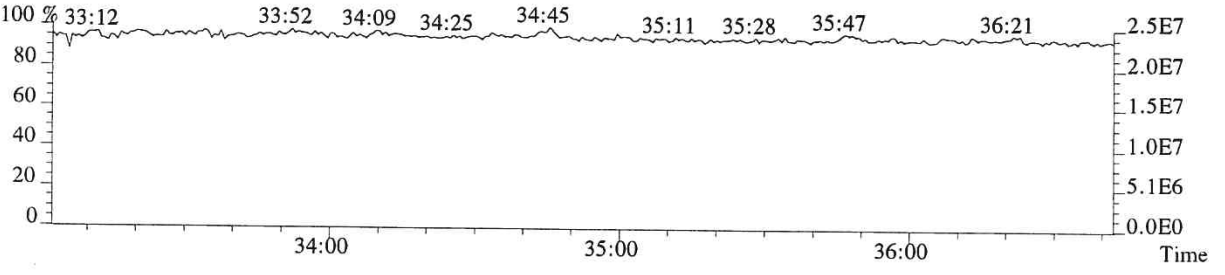
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



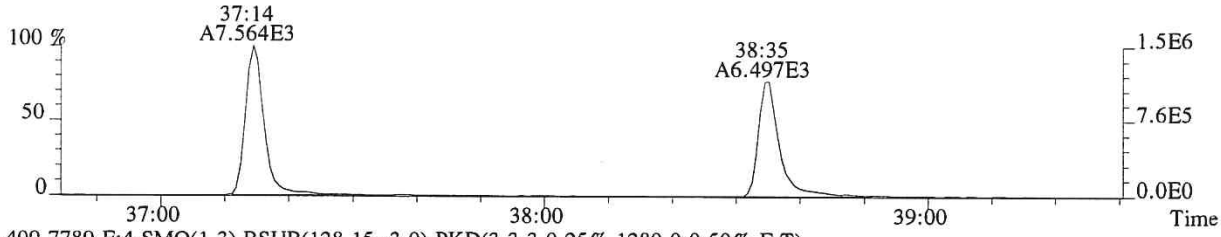
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



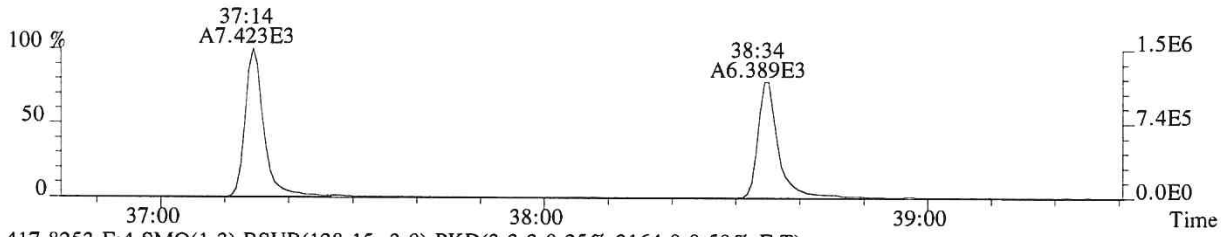
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



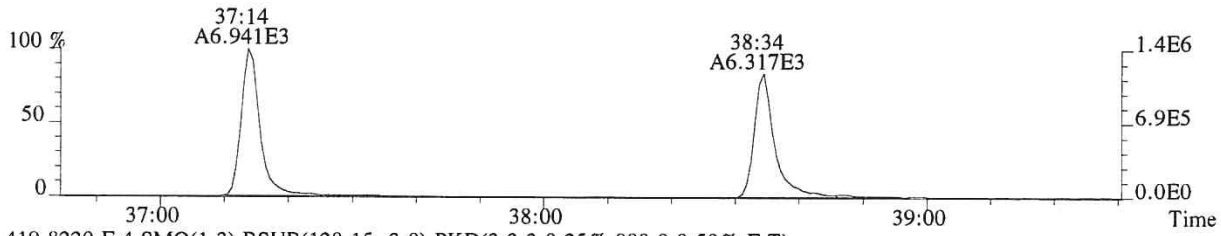
File:P518878 #1-250 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2616.0,0.50%,F,T)



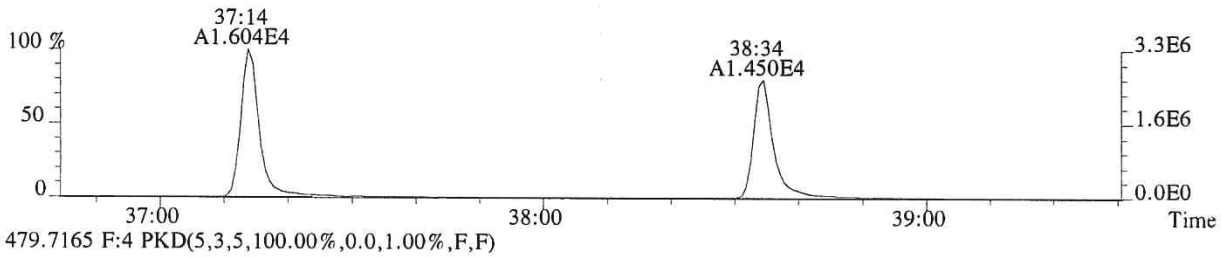
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.50%,F,T)



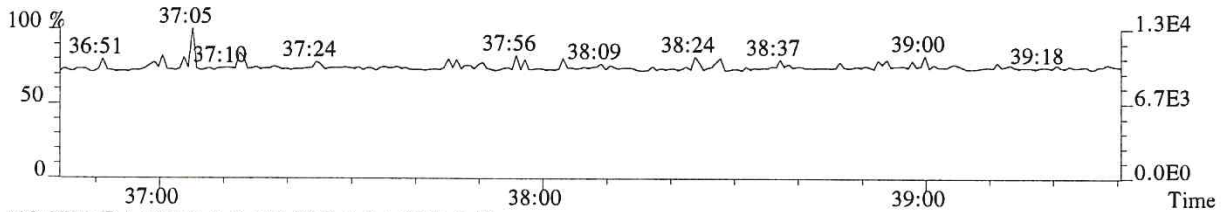
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3164.0,0.50%,F,T)



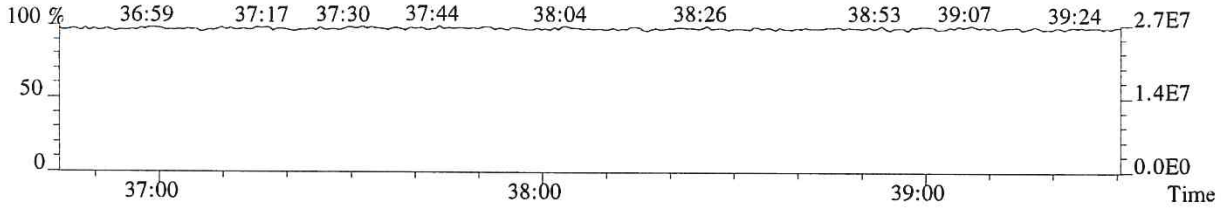
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

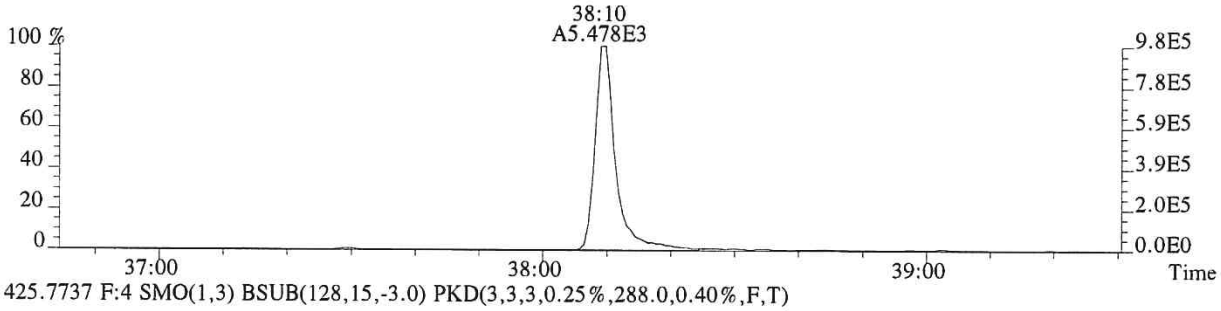


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

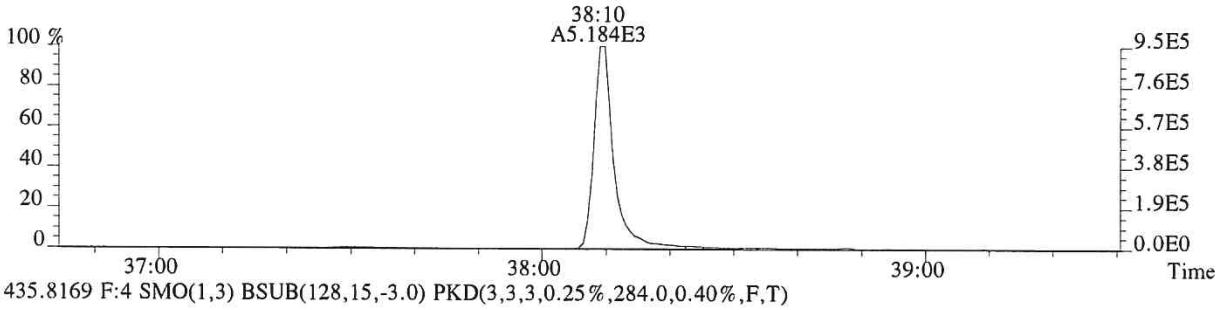


009026

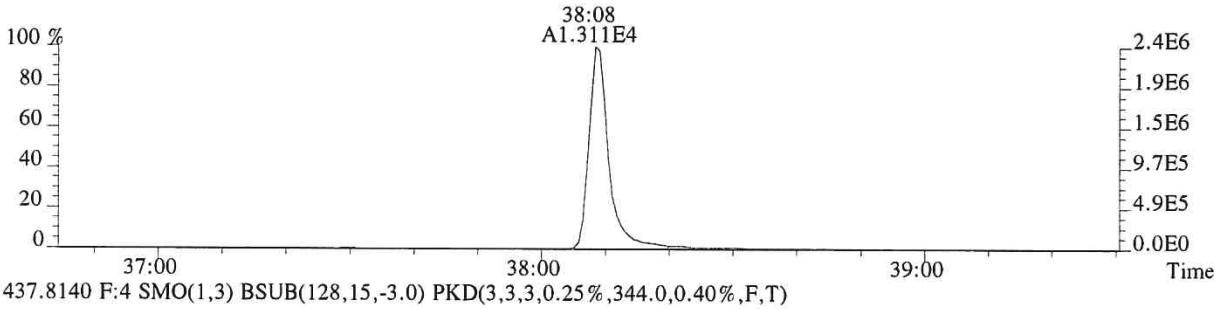
File:P518878 #1-250 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,104.0,0.40%,F,T)



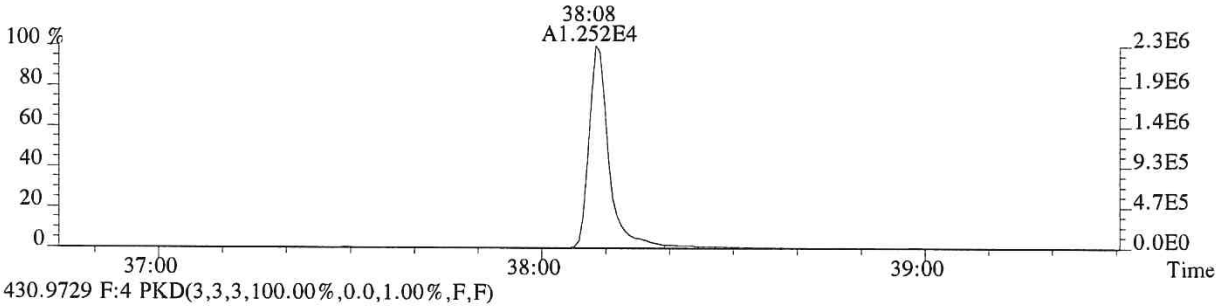
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



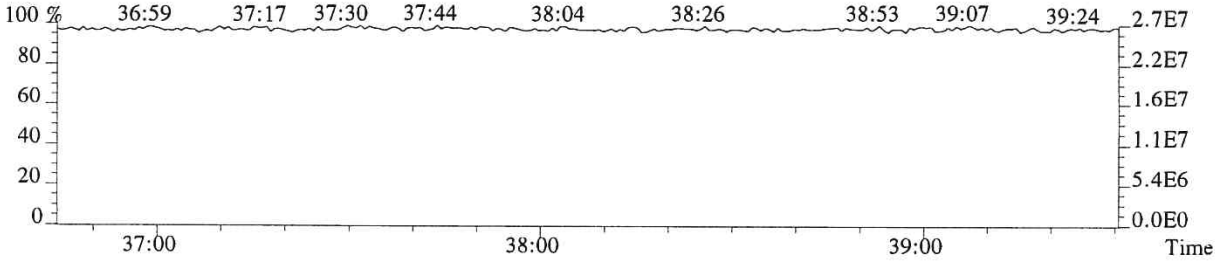
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



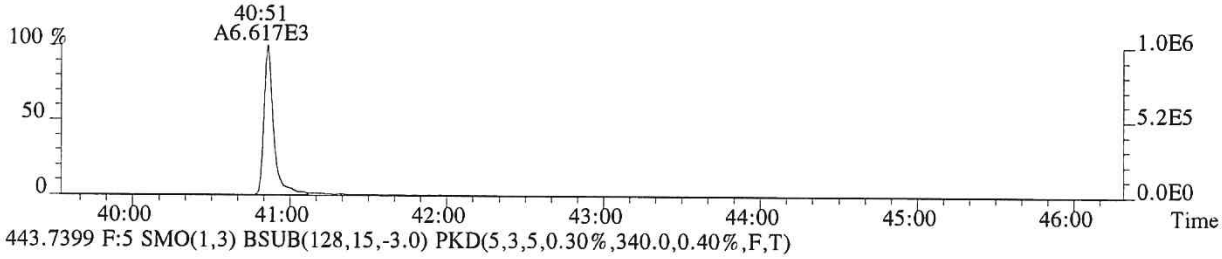
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



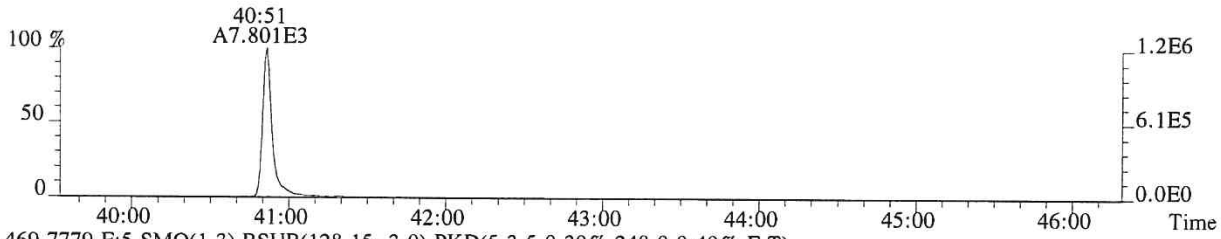
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



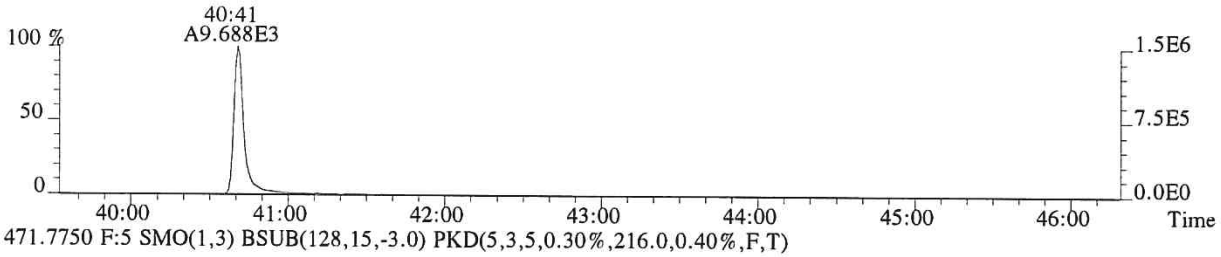
File:P518878 #1-610 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



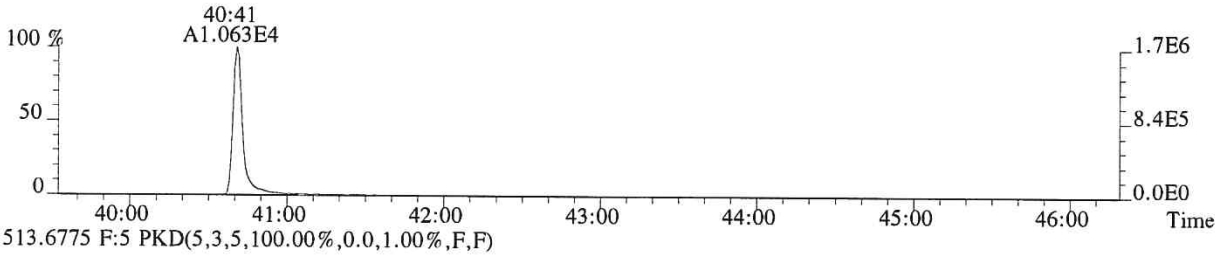
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



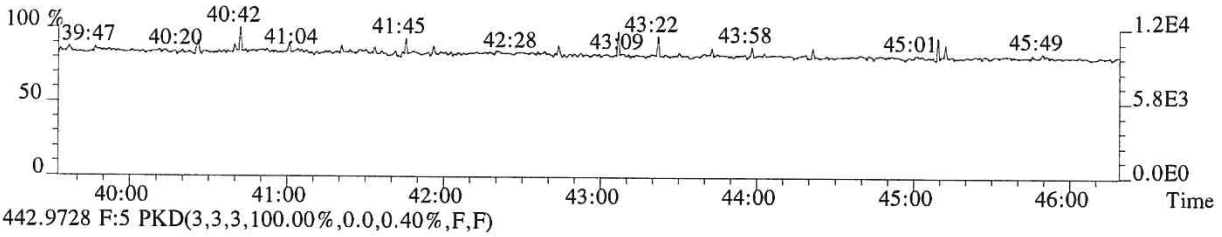
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



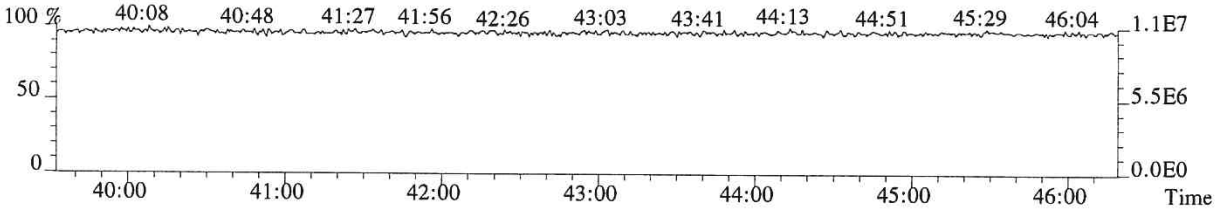
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

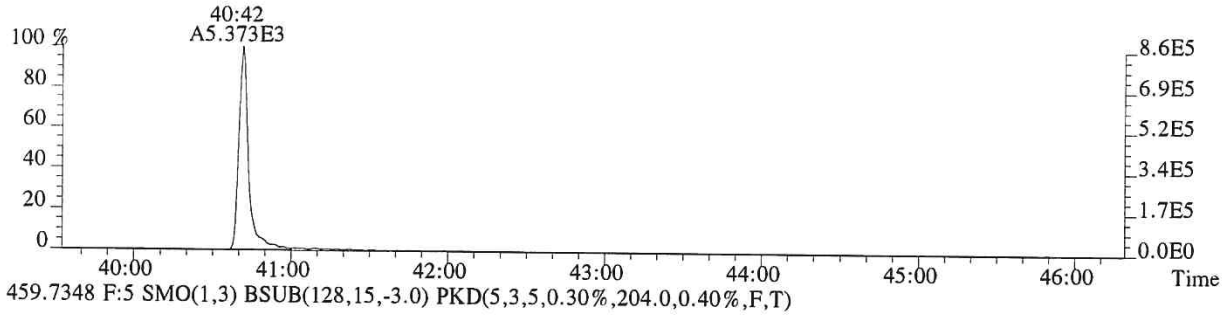


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

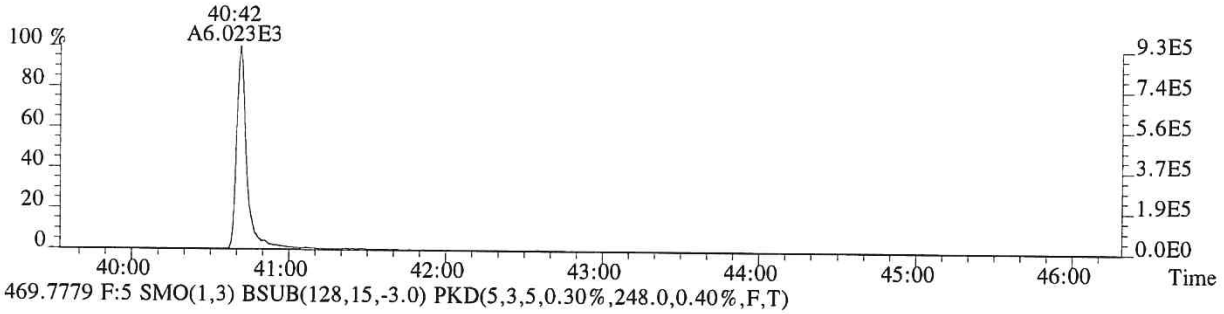


009028

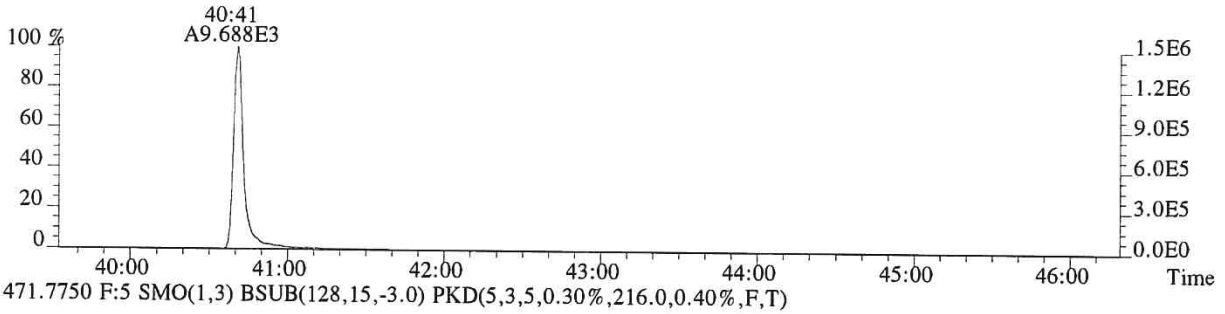
File:P518878 #1-610 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



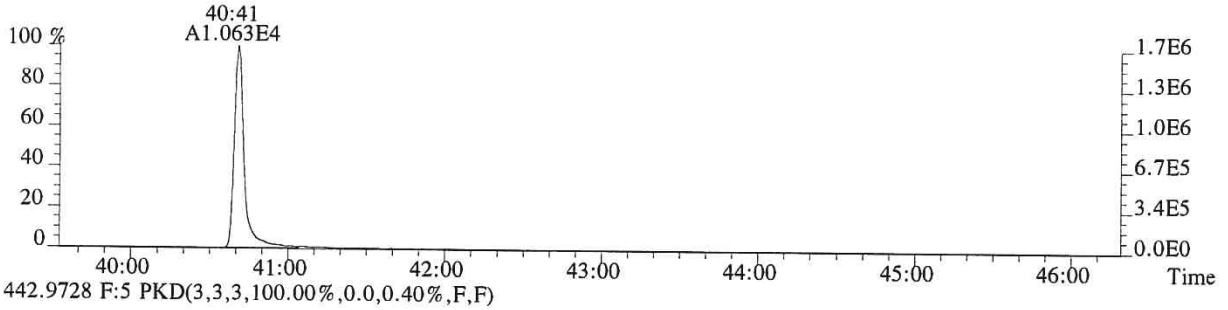
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



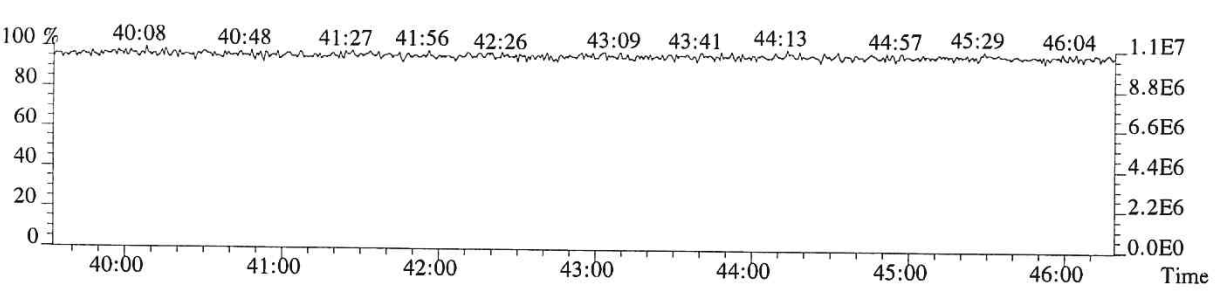
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009029

Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: PJ18826

Date: 11/5/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P518824	15-NOV-18	12:04:32
194503	DO NOT USE	P518825	15-NOV-18	12:59:54
194503	CS3	P518826	15-NOV-18	14:12:08
METHOD BLANK	EQ1800447-01	P518827	15-NOV-18	15:11:19
376137-138	E1801008-014	P518828	15-NOV-18	15:59:07
376095-096	E1801008-015	P518829	15-NOV-18	16:47:42
SL0058	E1801012-006	P518830	15-NOV-18	17:36:23
SL0064	E1801012-012	P518831	15-NOV-18	18:24:59
SL0071	E1801012-018	P518832	15-NOV-18	19:13:37
SL0065	E1801012-019	P518833	15-NOV-18	20:02:15
SL0500	E1801018-001	P518834	15-NOV-18	20:50:53
SL0501	E1801018-002	P518835	15-NOV-18	21:39:31
SL0502	E1801018-003	P518836	15-NOV-18	22:28:11

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181115A.SPL
Last Modified: Friday, November 16, 2018 09:50:18 Central Standard Time
Printed: Friday, November 16, 2018 09:50:29 Central Standard Time

1613

Opus4: P518826res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/15/18	12:04	P518824	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	LKL	HRMS check 11:59
2		12:59	P518825	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		NOT USE
3		14:12	P518826	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		15:11	P518827	MB	EQ1800447-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P518828	E1801008-014	E1801008-014	EPA1613_ALS	Dioxin_ALS	Tray1:5		need reinjection
6		16:47	P518829	E1801008-015	E1801008-015	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:36	P518830	E1801012-006	E1801012-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:24	P518831	E1801012-012	E1801012-012	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:13	P518832	E1801012-018	E1801012-018	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P518833	E1801012-019	E1801012-019	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		20:50	P518834	E1801018-001	E1801018-001	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:39	P518835	E1801018-002	E1801018-002	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		22:28	P518836	E1801018-003	E1801018-003	EPA1613_ALS	Dioxin_ALS	Tray1:13		HRMS check 23:25
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
16			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
17			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17		
18			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18		
19			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19		
20			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20		
21			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21		
22			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22		
23			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23		
24			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24		
25			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25		
26			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:26		
27			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:27	---	---
28	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:28	---	---
29	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:29	---	---
30	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:30	---	---
31	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:31	---	---
32	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:32	---	---
33	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:33	---	---
34	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:34	---	---
35	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:35	---	---
36	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:36	---	---
37	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:37	---	---
38	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:38	---	---
39	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:39	---	---

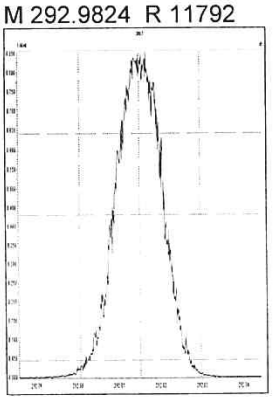
gc 11/16/18

E - 016

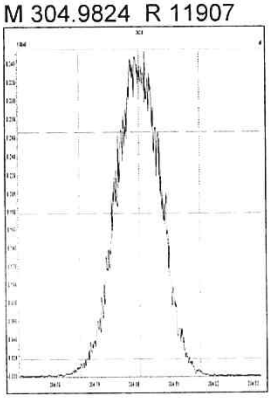
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, November 15, 2018 11:59:36 Central Standard Time

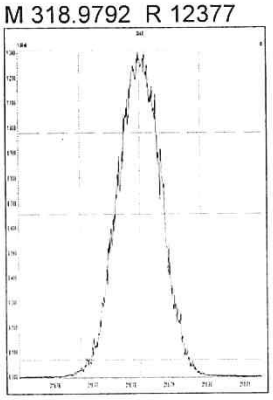
M 292.9824 R 11792



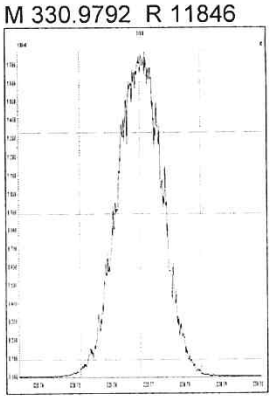
M 304.9824 R 11907



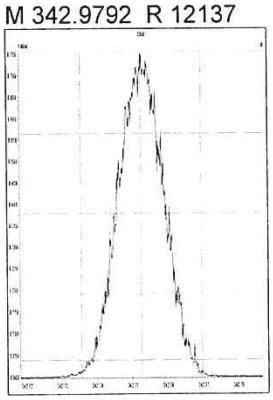
M 318.9792 R 12377



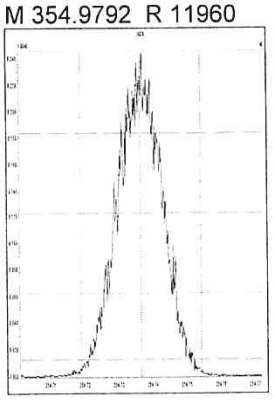
M 330.9792 R 11846



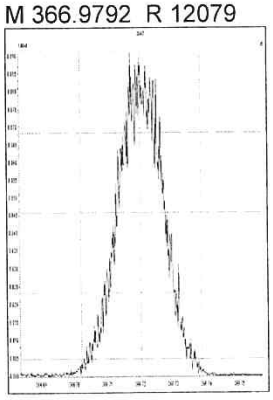
M 342.9792 R 12137



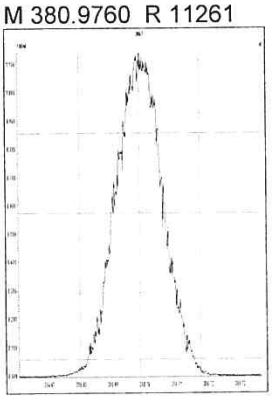
M 354.9792 R 11960



M 366.9792 R 12079



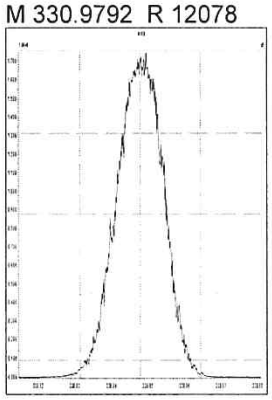
M 380.9760 R 11261



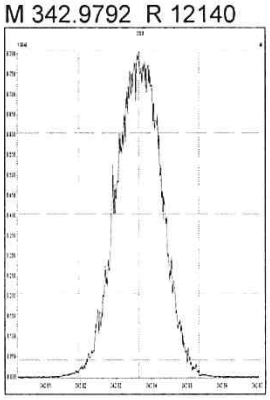
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, November 15, 2018 12:00:45 Central Standard Time

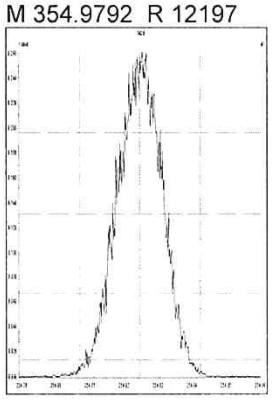
M 330.9792 R 12078



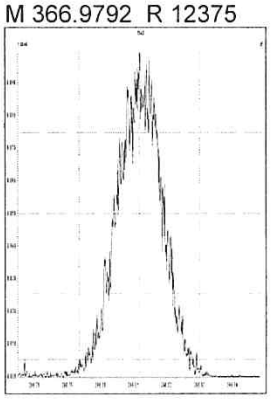
M 342.9792 R 12140



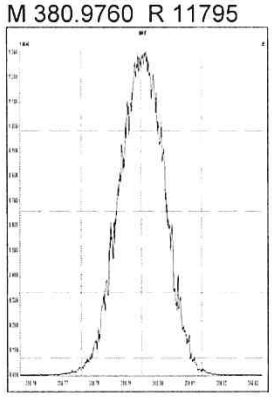
M 354.9792 R 12197



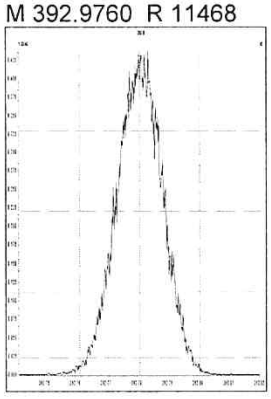
M 366.9792 R 12375



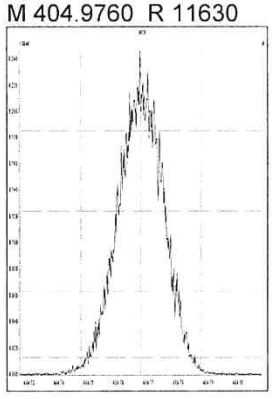
M 380.9760 R 11795



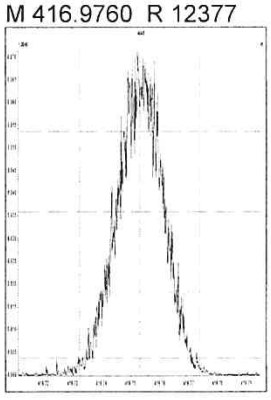
M 392.9760 R 11468



M 404.9760 R 11630



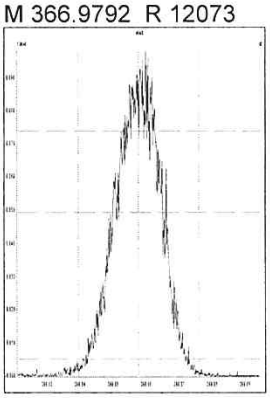
M 416.9760 R 12377



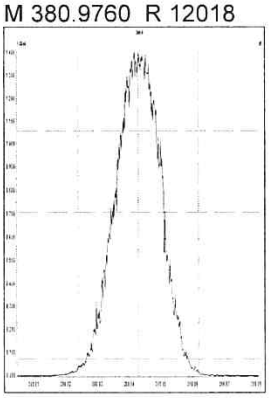
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, November 15, 2018 12:01:50 Central Standard Time

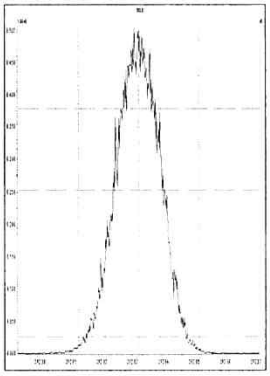
M 366.9792 R 12073



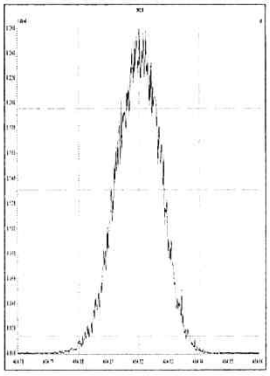
M 380.9760 R 12018



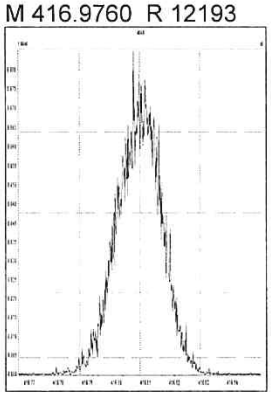
M 392.9760 R 12197



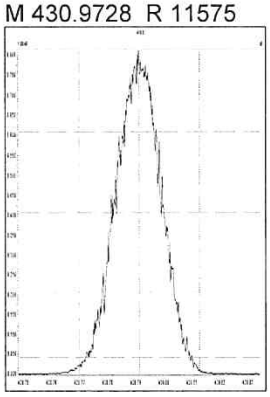
M 404.9760 R 12136



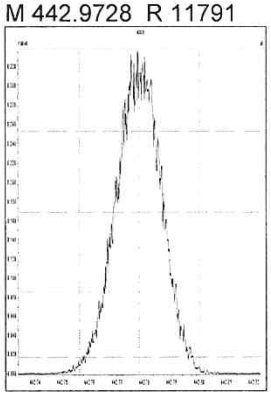
M 416.9760 R 12193



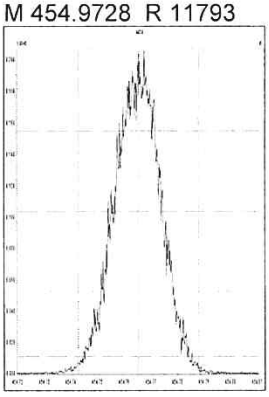
M 430.9728 R 11575



M 442.9728 R 11791



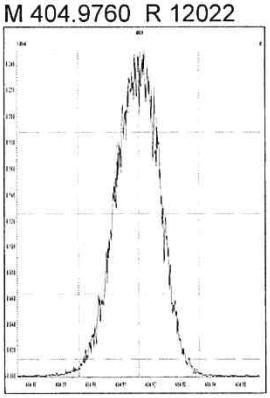
M 454.9728 R 11793



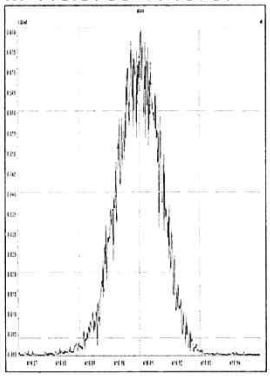
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, November 15, 2018 12:02:48 Central Standard Time

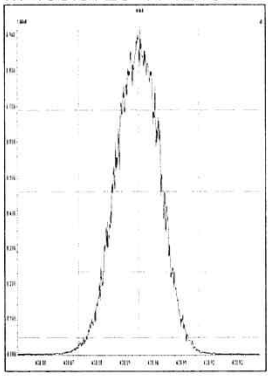
M 404.9760 R 12022



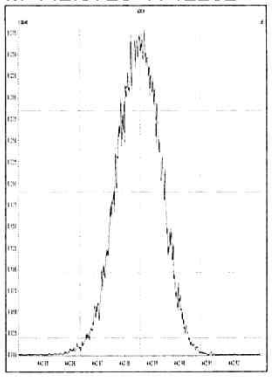
M 416.9760 R 13737



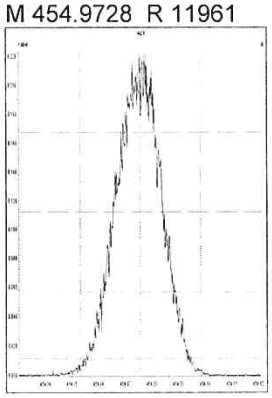
M 430.9728 R 12194



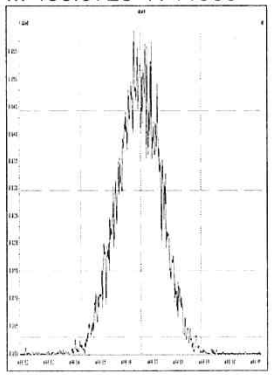
M 442.9728 R 12252



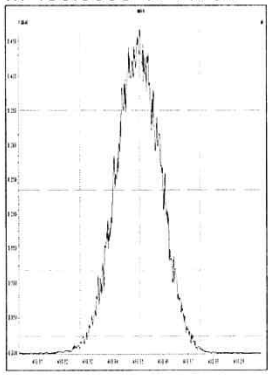
M 454.9728 R 11961



M 466.9728 R 11903



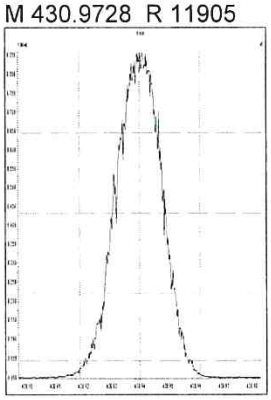
M 480.9696 R 11734



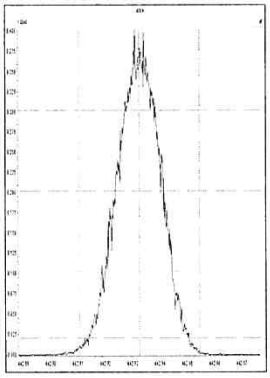
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, November 15, 2018 12:03:55 Central Standard Time

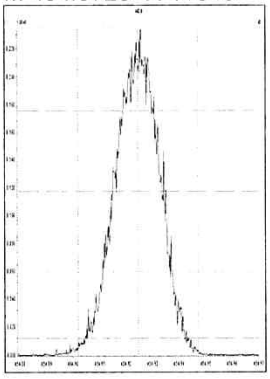
M 430.9728 R 11905



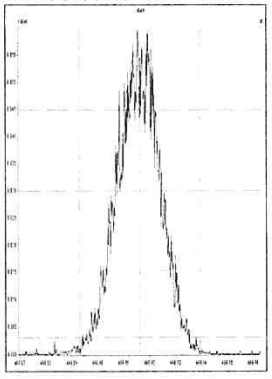
M 442.9728 R 12018



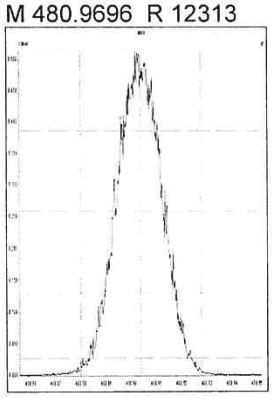
M 454.9728 R 11849



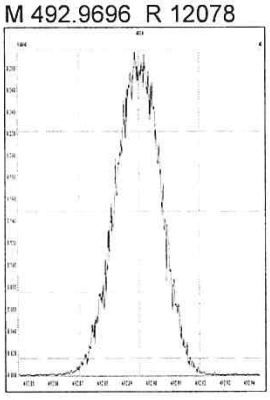
M 466.9728 R 12376



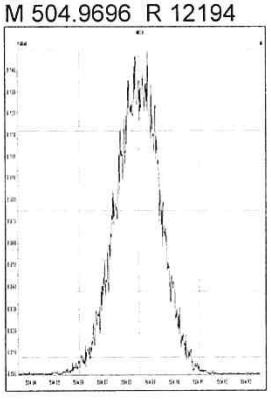
M 480.9696 R 12313



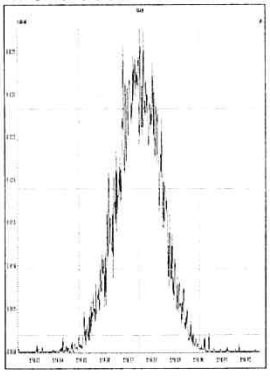
M 492.9696 R 12078



M 504.9696 R 12194



M 516.9697 R 12381



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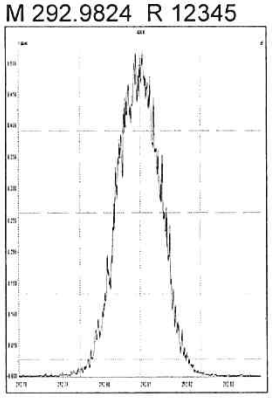
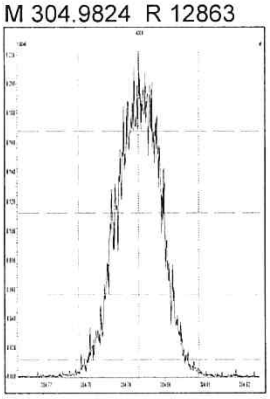
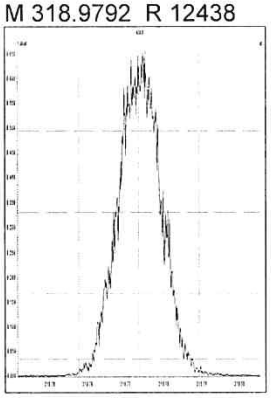
M 292.9824 R 12345



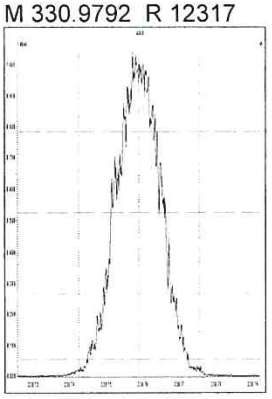
M 304.9824 R 12863



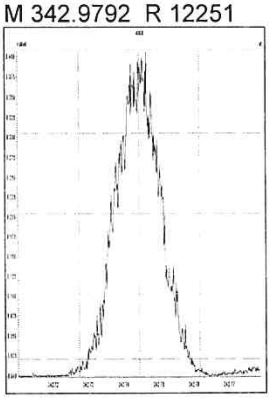
M 318.9792 R 12438



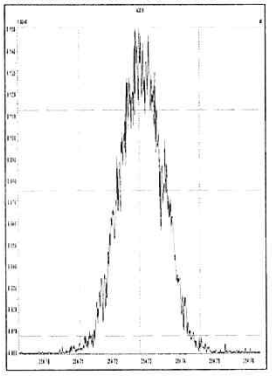
M 330.9792 R 12317



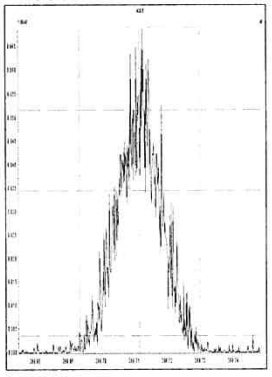
M 342.9792 R 12251



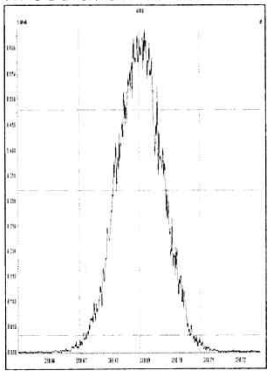
M 354.9792 R 12594



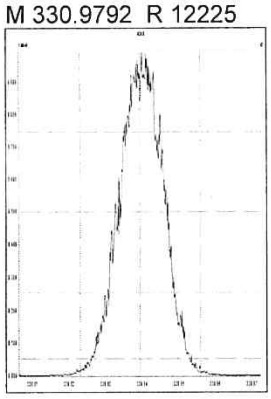
M 366.9792 R 13264



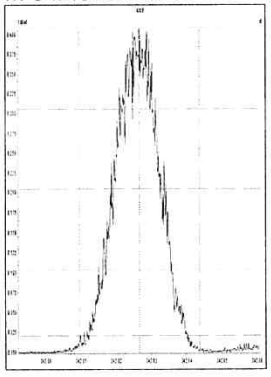
M 380.9760 R 11709



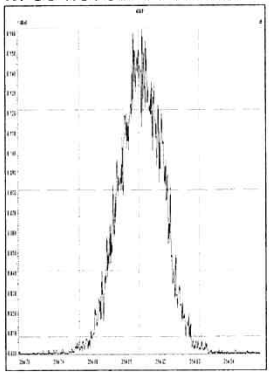
M 330.9792 R 12225



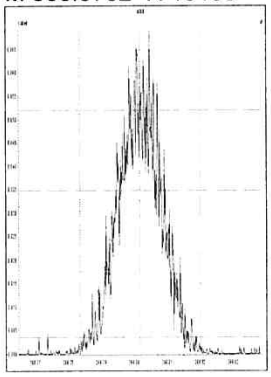
M 342.9792 R 12440



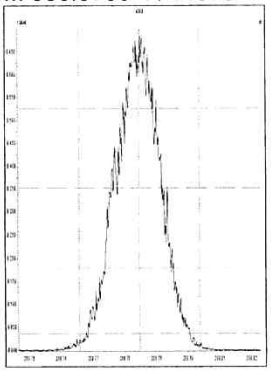
M 354.9792 R 12230



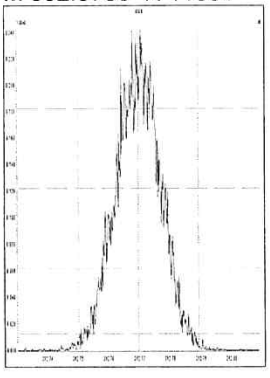
M 366.9792 R 13163



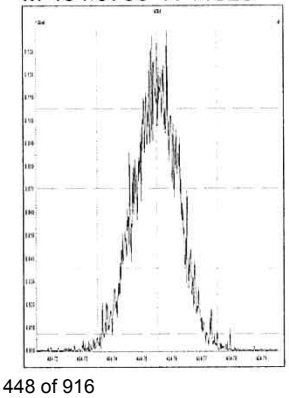
M 380.9760 R 11876



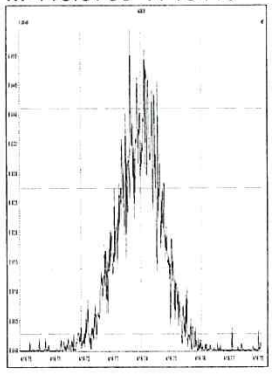
M 392.9760 R 11881



M 404.9760 R 11628



M 416.9760 R 13415



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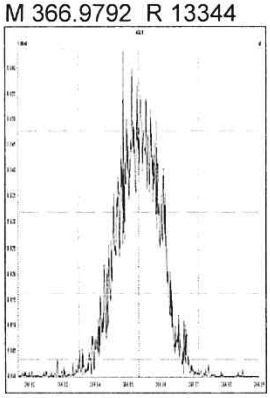
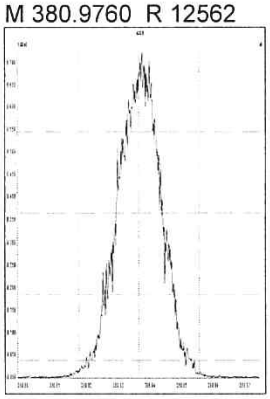
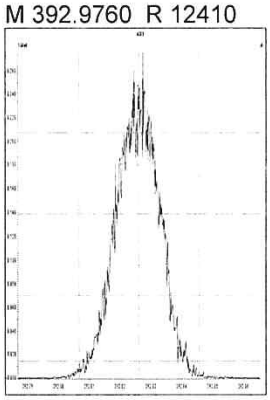


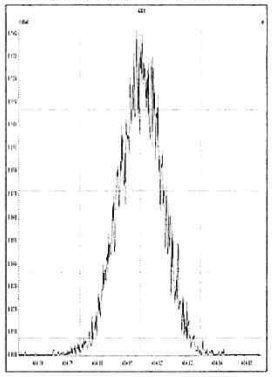
M 380.9760 R 12562



M 392.9760 R 12410



M 404.9760 R 12919



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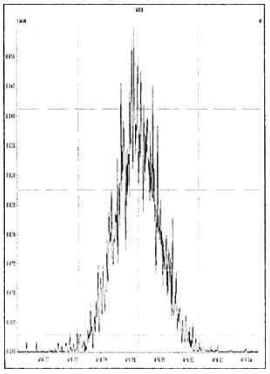

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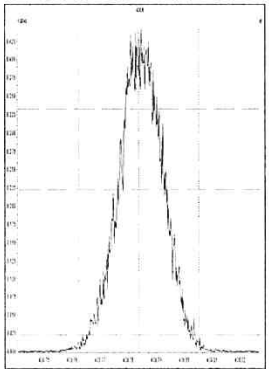

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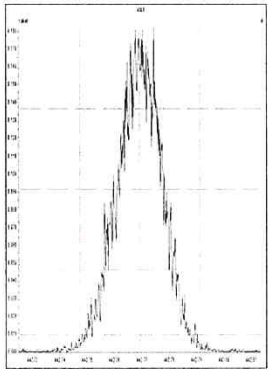

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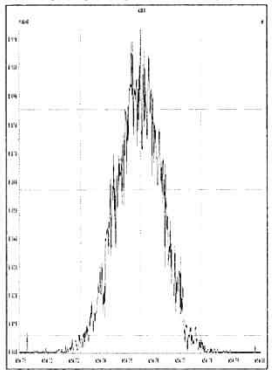

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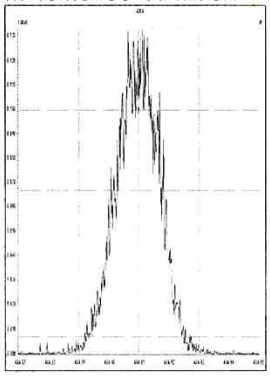

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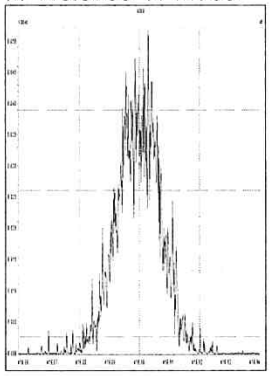

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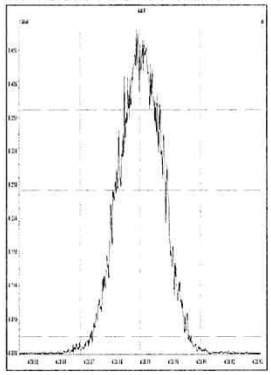
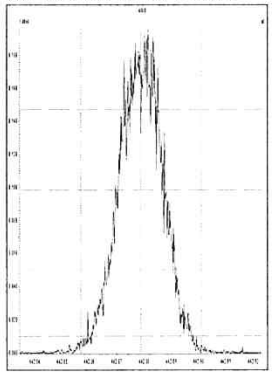
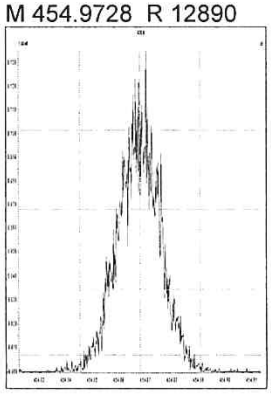


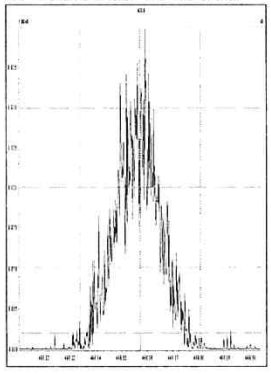
M 442.9728 R 12081



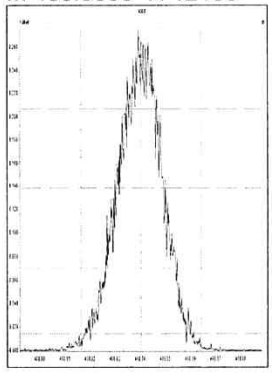
M 454.9728 R 12890



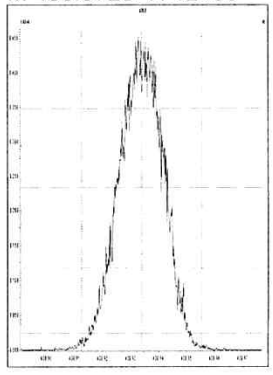
M 466.9728 R 13880



M 480.9696 R 12100



M 430.9728 R 12469



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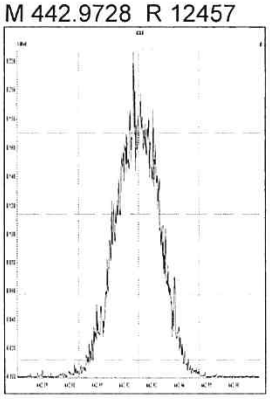

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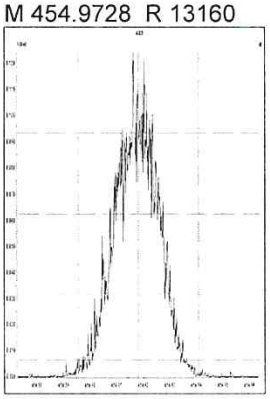

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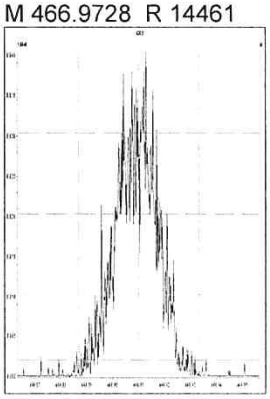

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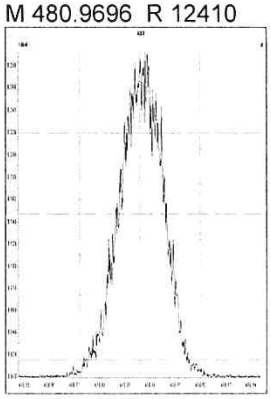

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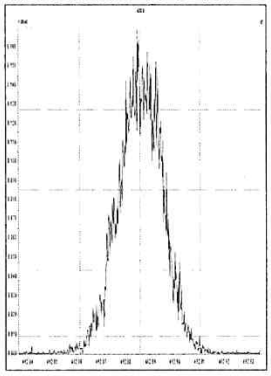

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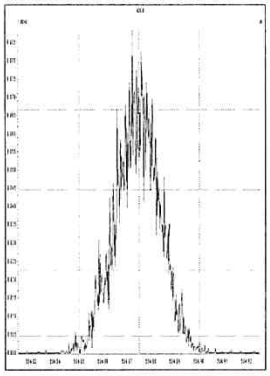

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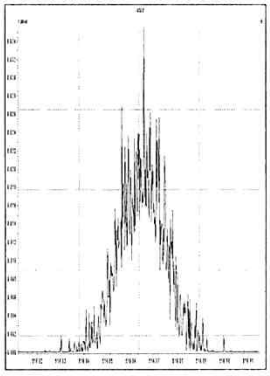


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

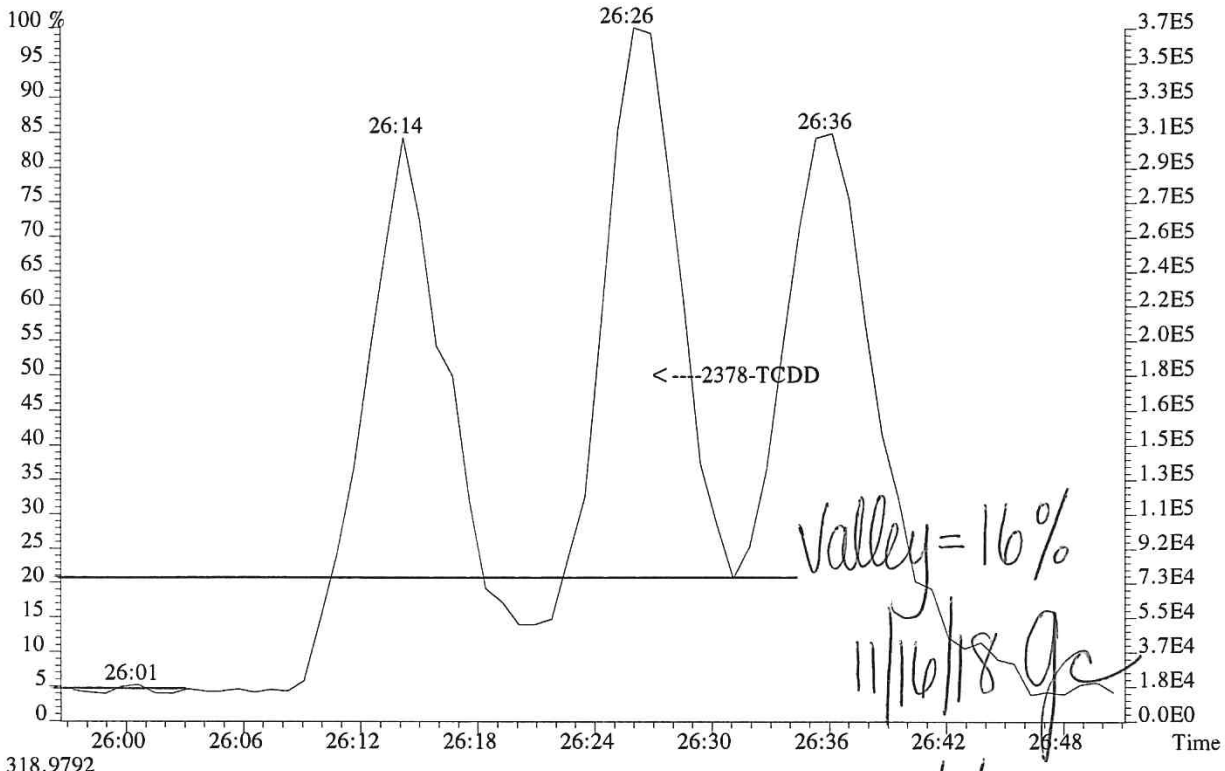
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P518824
Date Analyzed: 15-NOV-2018
Time Analyzed: 12:04:32

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:08	27:51
TCDD	22:43	27:40
PeCDF	27:49	32:35
PeCDD	29:36	32:20
HxCDF	33:19	35:57
HxCDD	33:53	35:33
HpCDF	37:15	38:35
HpCDD	37:30	38:10

% Valley 2378-TCDD: 16 %

File:P518824 #1-602 Acq:15-NOV-2018 12:04:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LKL 11/19/18



009043

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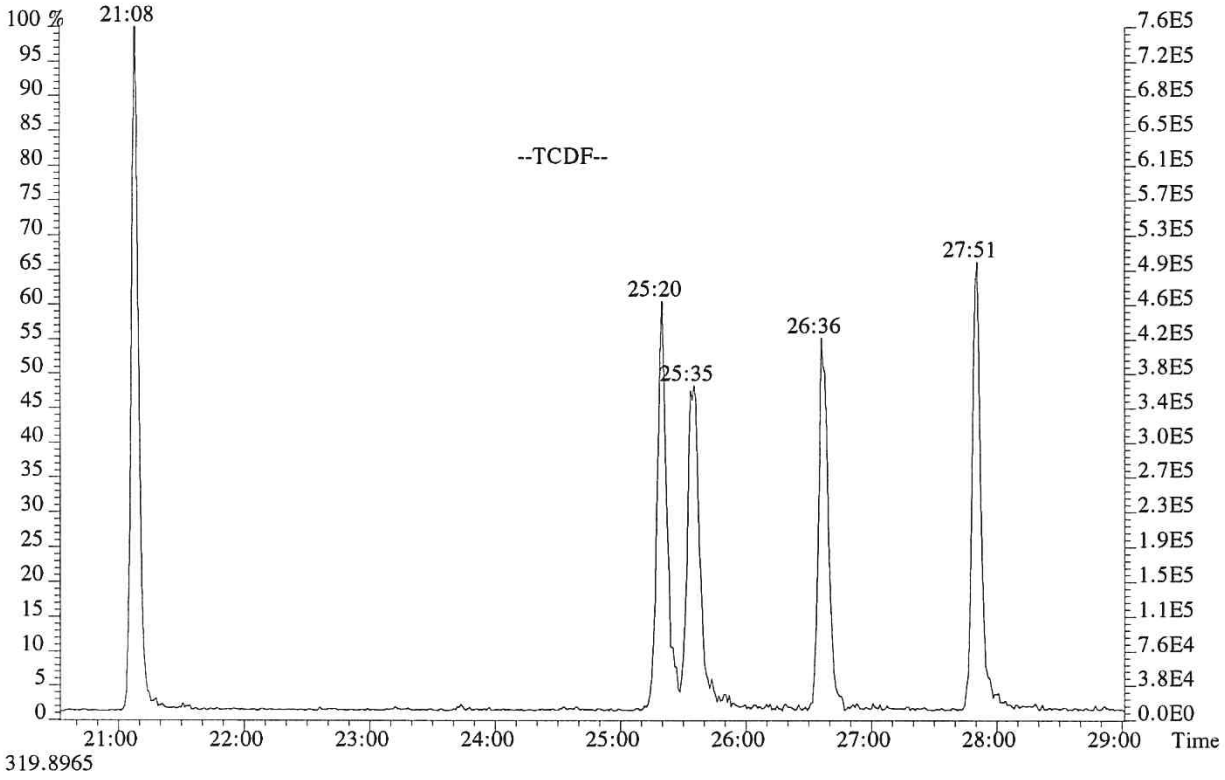
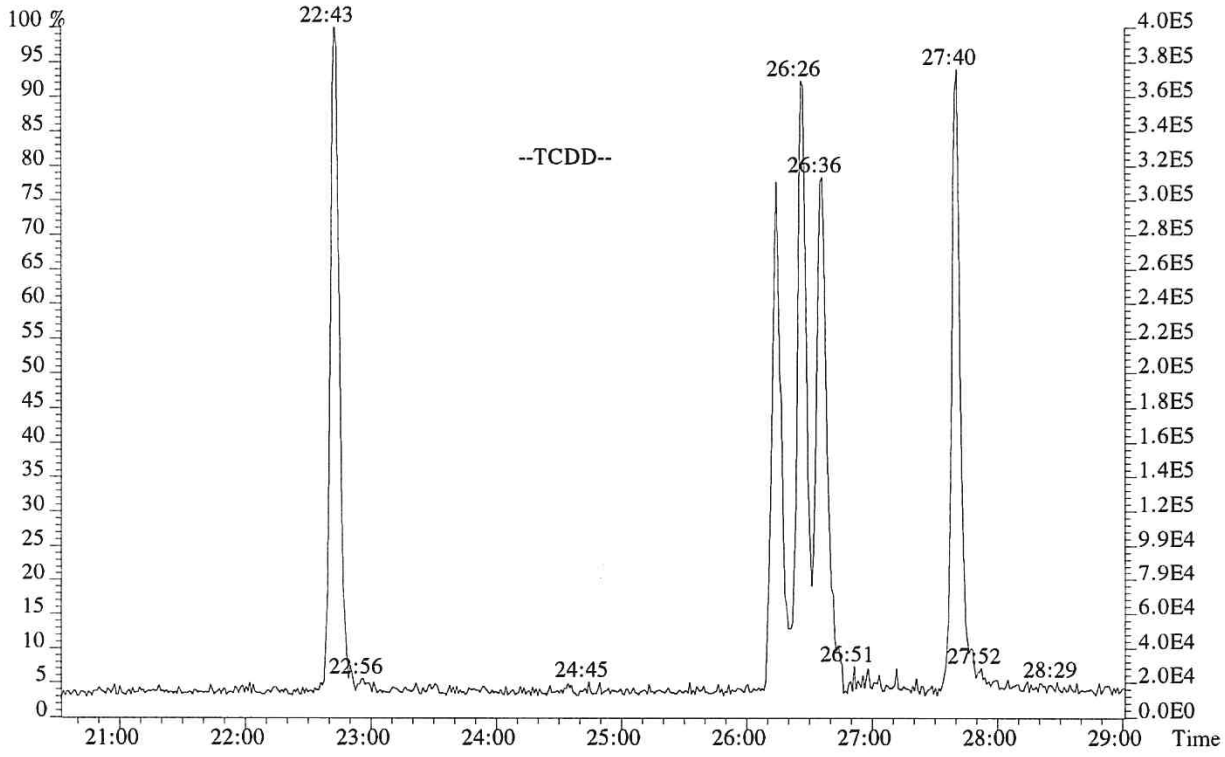


319.8965



009044

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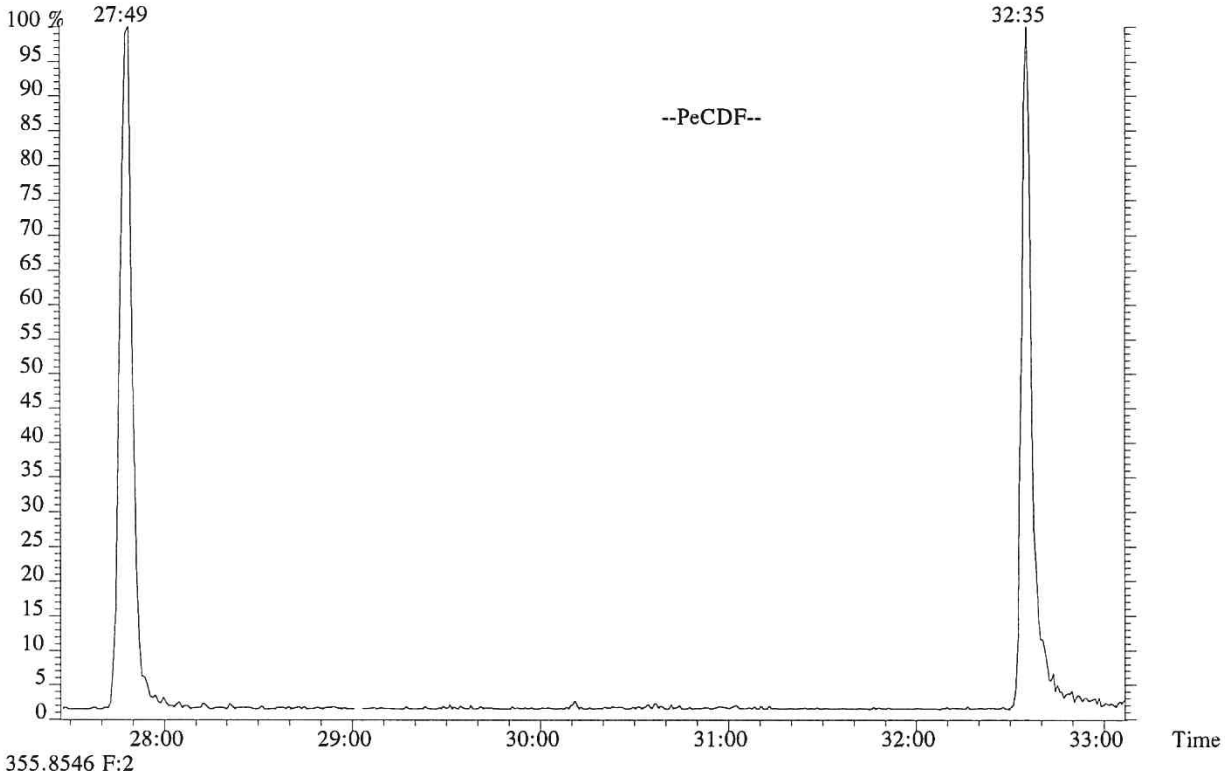
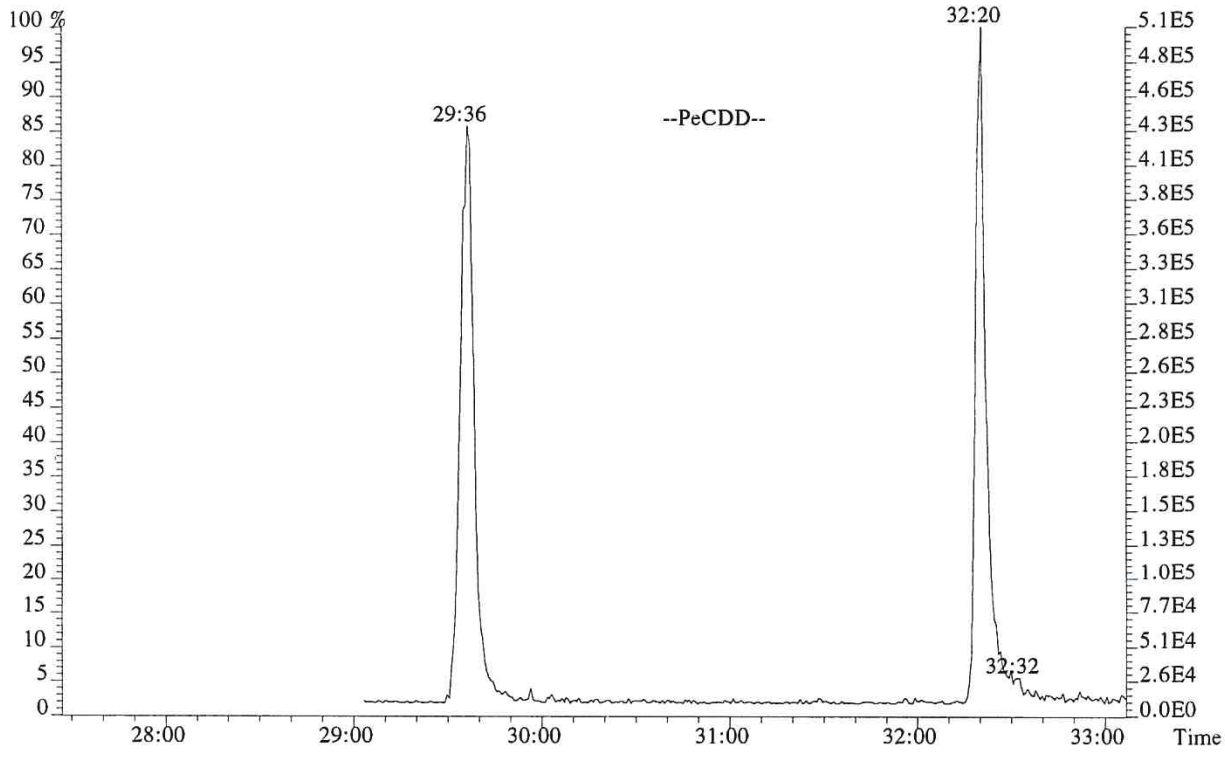


355.8546 F:2



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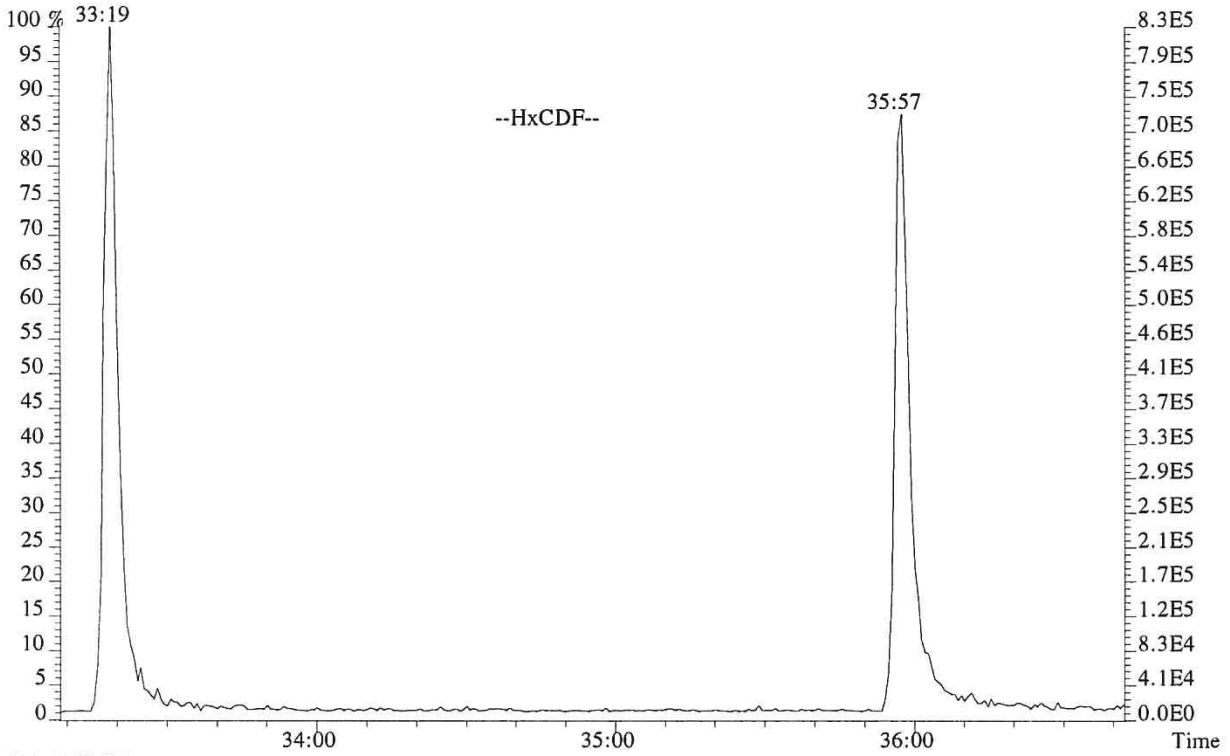
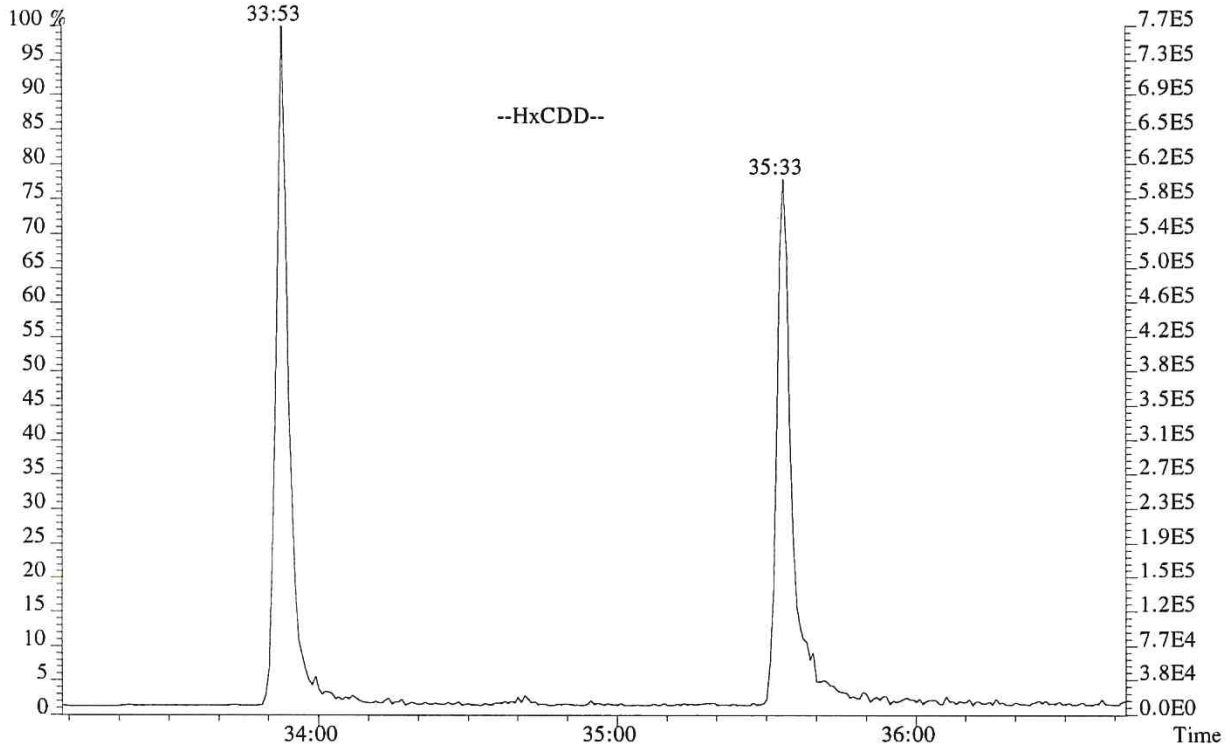
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



009046

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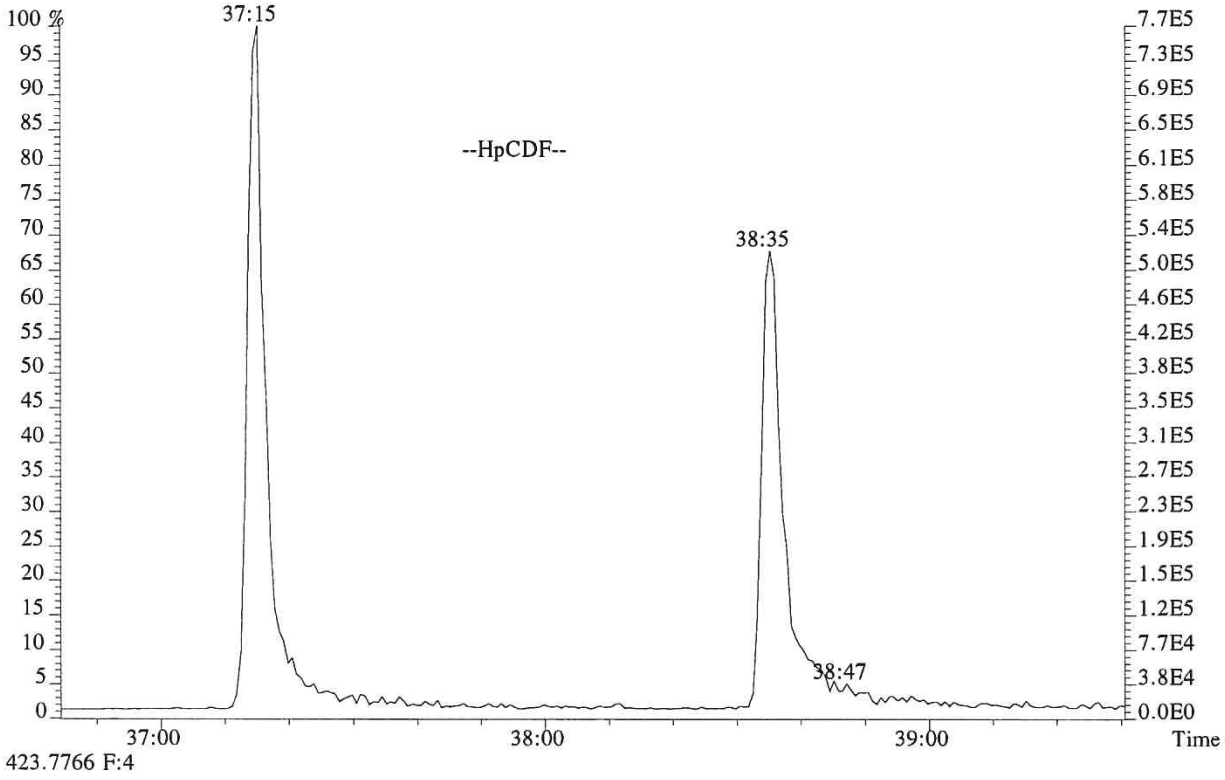
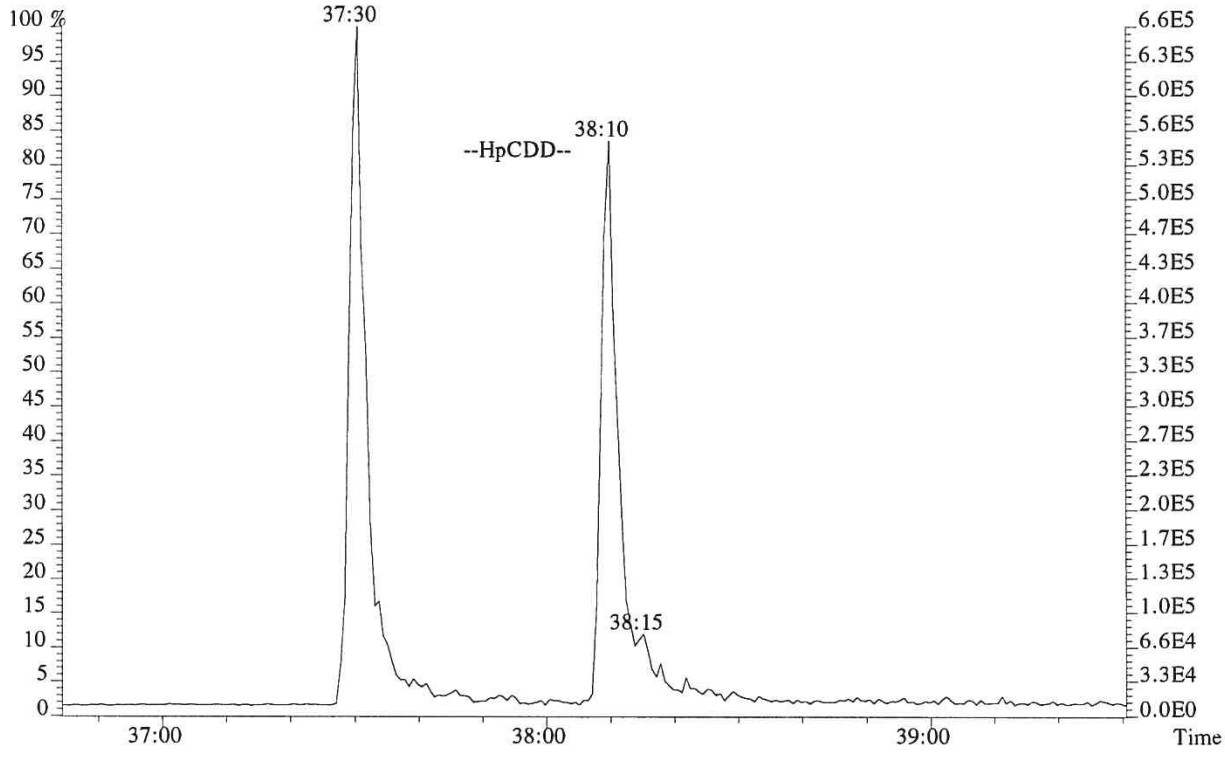
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518826 Analysis Date: 15-NOV-18 Time: 14:12:08

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.3	7.8 - 12.9	-7.0
1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	50	39 - 65	1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	50	39 - 64	-1.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	51	39 - 64	1.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	53	41 - 61	6.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	49	43 - 58	-2.4
OCDD	M+2/M+4	0.88	0.76-1.02	101	79 - 126	0.7
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	9.8	8.4 - 12.0	-1.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	50	41 - 60	0.3
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	3.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	51	44 - 57	2.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	49	45 - 56	-2.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	44 - 57	1.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	49	45 - 55	-1.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	49	43 - 58	-2.7
OCDF	M+2/M+4	0.87	0.76-1.02	99	63 - 159	-1.2

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518826 Analysis Date: 15-NOV-18 Time: 14:12:08

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	96	82 - 121	-3.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	101	62 - 160	1.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	87	85 - 117	-13.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	108	85 - 118	8.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	113	72 - 138	13.2
13C-OCDD	M+2/M+4	0.93	0.76-1.02	310	96 - 415	55.0
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	89	71 - 140	-11.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	101	76 - 130	1.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	101	77 - 130	1.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	79	76 - 131	-20.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	99	70 - 143	-0.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	92	74 - 135	-8.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	73 - 137	-5.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.42	0.37-0.51	111	77 - 129	11.2
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-3.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #9 Filename P518826 Samp: 1 Inj: 1 Acquired: 15-NOV-18 14:12:08
Processed: 16-NOV-18 14:10:41 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	1.526e+03	2.149e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.362e+04	8.648e+03	1.57	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	1.266e+04	8.304e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	1.030e+04	8.411e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	1.380e+04	1.097e+04	1.26	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.126e+04	9.389e+03	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	9.469e+03	7.880e+03	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	1.087e+04	1.054e+04	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	8.819e+03	8.522e+03	1.03	yes	no	1.258
10	Unk	OCDF	40:51	1.754e+04	2.008e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:35	1.148e+03	1.490e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	8.625e+03	5.403e+03	1.60	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	7.091e+03	5.753e+03	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	9.432e+03	7.392e+03	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	8.895e+03	7.188e+03	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	7.854e+03	7.214e+03	1.09	yes	no	1.025
17	Unk	OCDD	40:41	1.479e+04	1.677e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:33	1.753e+04	2.215e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.714e+04	1.670e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	2.651e+04	1.688e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.022e+04	2.008e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.493e+04	2.827e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.278e+04	2.402e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.057e+04	2.041e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	9.940e+03	2.224e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.440e+03	1.989e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:34	1.144e+04	1.470e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.767e+04	1.138e+04	1.55	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.392e+04	1.106e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.784e+04	1.401e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.559e+04	1.456e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:40	2.696e+04	2.910e+04	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:51	1.299e+04	1.646e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	1.757e+04	1.348e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:35	2.878e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #9 Filename P518826 Samp: 1 Inj: 1 Acquired: 15-NOV-18 14:12:08
Processed: 16-NOV-18 14:10:41 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.93e+05	9.80e+02	2.0e+02	2.87e+05	2.76e+03	1.0e+02
2	1,2,3,7,8-PeCDF	2.00e+06	7.08e+02	2.8e+03	1.26e+06	2.64e+03	4.8e+02
3	2,3,4,7,8-PeCDF	2.01e+06	7.08e+02	2.8e+03	1.32e+06	2.64e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	2.05e+06	8.72e+02	2.4e+03	1.67e+06	1.07e+03	1.6e+03
5	1,2,3,6,7,8-HxCDF	2.15e+06	8.72e+02	2.5e+03	1.80e+06	1.07e+03	1.7e+03
6	2,3,4,6,7,8-HxCDF	2.00e+06	8.72e+02	2.3e+03	1.62e+06	1.07e+03	1.5e+03
7	1,2,3,7,8,9-HxCDF	1.54e+06	8.72e+02	1.8e+03	1.27e+06	1.07e+03	1.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.94e+06	4.54e+03	4.3e+02	1.84e+06	3.20e+03	5.7e+02
9	1,2,3,4,7,8,9-HpCDF	1.43e+06	4.54e+03	3.1e+02	1.41e+06	3.20e+03	4.4e+02
10	OCDF	2.59e+06	3.28e+02	7.9e+03	2.94e+06	7.00e+02	4.2e+03
11	2,3,7,8-TCDD	1.77e+05	3.75e+03	4.7e+01	1.97e+05	1.52e+03	1.3e+02
12	1,2,3,7,8-PeCDD	1.35e+06	1.30e+03	1.0e+03	8.64e+05	2.76e+02	3.1e+03
13	1,2,3,4,7,8-HxCDD	1.51e+06	9.48e+02	1.6e+03	1.18e+06	6.56e+02	1.8e+03
14	1,2,3,6,7,8-HxCDD	1.52e+06	9.48e+02	1.6e+03	1.24e+06	6.56e+02	1.9e+03
15	1,2,3,7,8,9-HxCDD	1.40e+06	9.48e+02	1.5e+03	1.10e+06	6.56e+02	1.7e+03
16	1,2,3,4,6,7,8-HpCDD	1.27e+06	6.32e+02	2.0e+03	1.28e+06	8.20e+02	1.6e+03
17	OCDD	2.13e+06	2.36e+02	9.0e+03	2.47e+06	4.36e+02	5.7e+03
18	13C-2,3,7,8-TCDF	2.31e+06	1.12e+04	2.1e+02	2.86e+06	9.94e+03	2.9e+02
19	13C-1,2,3,7,8-PeCDF	4.03e+06	7.52e+02	5.4e+03	2.45e+06	1.01e+03	2.4e+03
20	13C-2,3,4,7,8-PeCDF	4.12e+06	7.52e+02	5.5e+03	2.60e+06	1.01e+03	2.6e+03
21	13C-1,2,3,4,7,8-HxCDF	1.96e+06	1.30e+03	1.5e+03	3.85e+06	1.10e+03	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.40e+06	1.30e+03	1.8e+03	4.49e+06	1.10e+03	4.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.18e+06	1.30e+03	1.7e+03	4.16e+06	1.10e+03	3.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.69e+06	1.30e+03	1.3e+03	3.18e+06	1.10e+03	2.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.77e+06	7.80e+02	2.3e+03	3.87e+06	8.79e+03	4.4e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.40e+06	7.80e+02	1.8e+03	3.05e+06	8.79e+03	3.5e+02
27	13C-2,3,7,8-TCDD	1.66e+06	7.50e+03	2.2e+02	1.99e+06	3.44e+03	5.8e+02
28	13C-1,2,3,7,8-PeCDD	2.65e+06	1.30e+03	2.0e+03	1.74e+06	1.82e+03	9.6e+02
29	13C-1,2,3,4,7,8-HxCDD	2.90e+06	1.61e+03	1.8e+03	2.33e+06	1.16e+03	2.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.92e+06	1.61e+03	1.8e+03	2.30e+06	1.16e+03	2.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.59e+06	1.22e+03	2.1e+03	2.43e+06	6.20e+02	3.9e+03
32	13C-OCDD	3.74e+06	8.24e+02	4.5e+03	4.15e+06	5.56e+02	7.5e+03
33	13C-1,2,3,4-TCDD	1.89e+06	7.50e+03	2.5e+02	2.32e+06	3.44e+03	6.7e+02
34	13C-1,2,3,7,8,9-HxCDD	2.70e+06	1.61e+03	1.7e+03	2.20e+06	1.16e+03	1.9e+03
35	37Cl-2,3,7,8-TCDD	4.02e+05	2.02e+03	2.0e+02			

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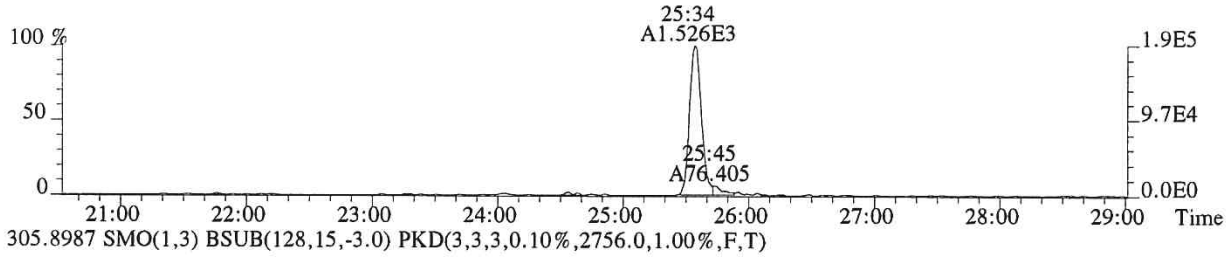
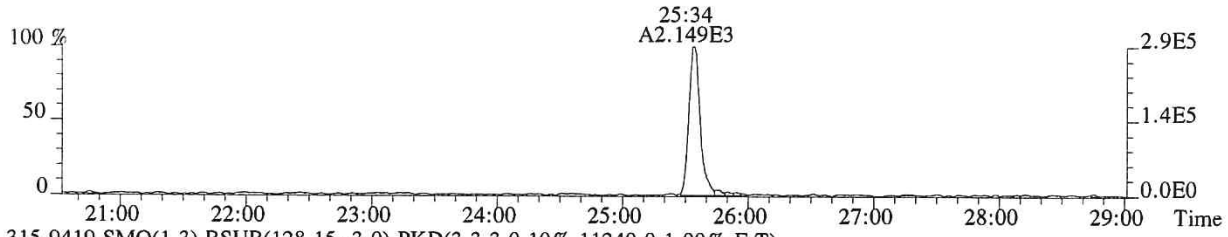
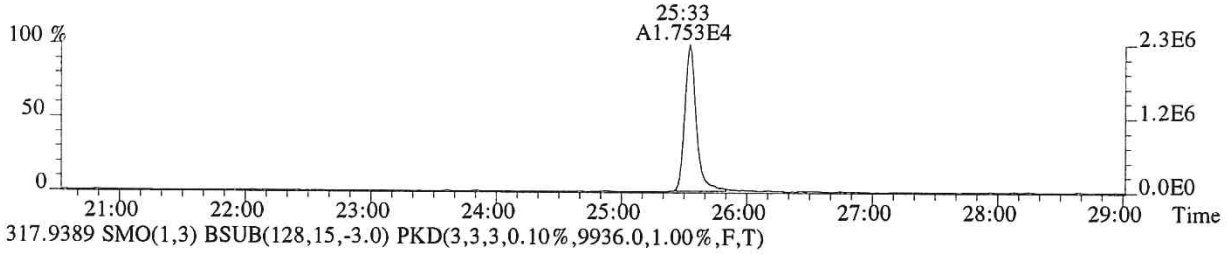
File:P518826 #1-602 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



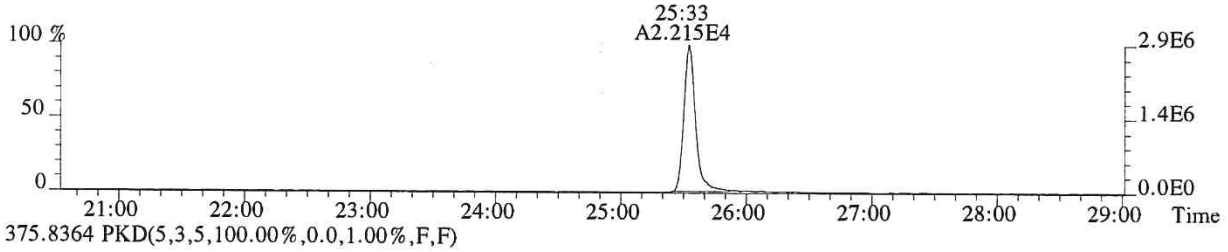
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2756.0,1.00%,F,T)



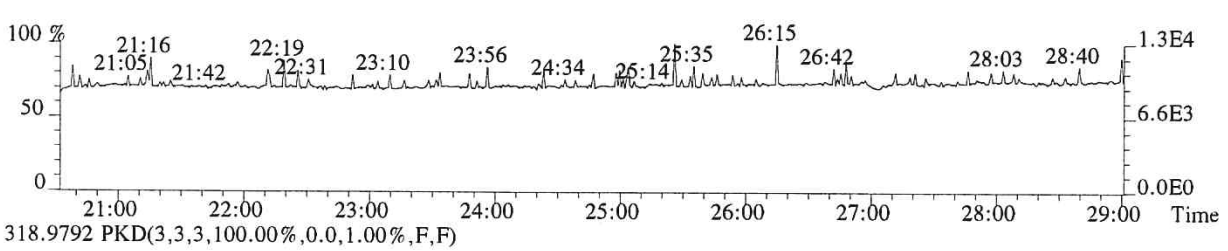
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11240.0,1.00%,F,T)



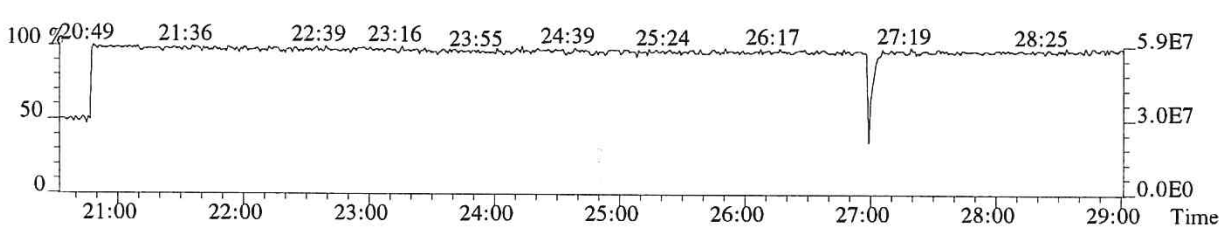
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9936.0,1.00%,F,T)



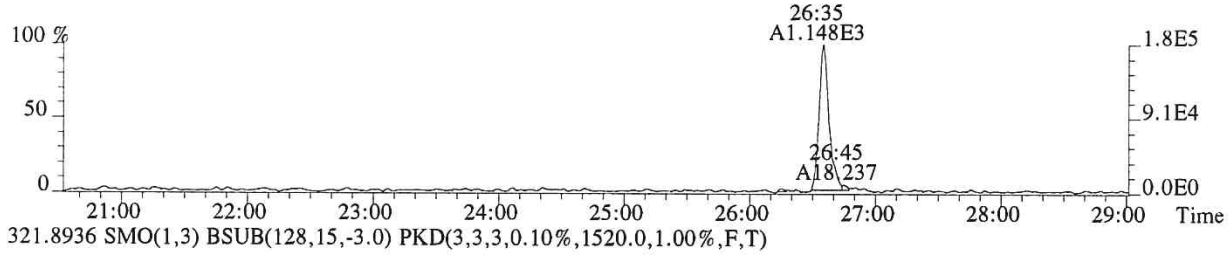
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



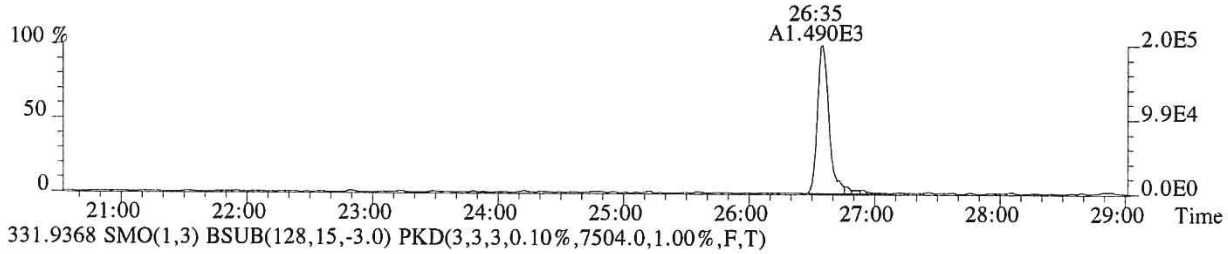
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



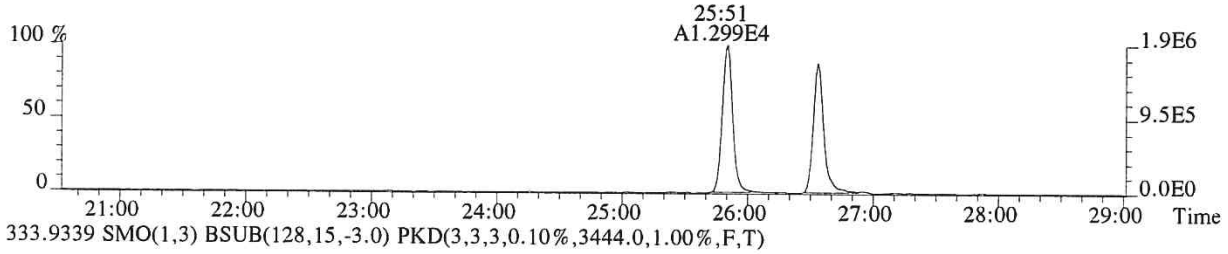
File:P518826 #1-602 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3748.0,1.00%,F,T)



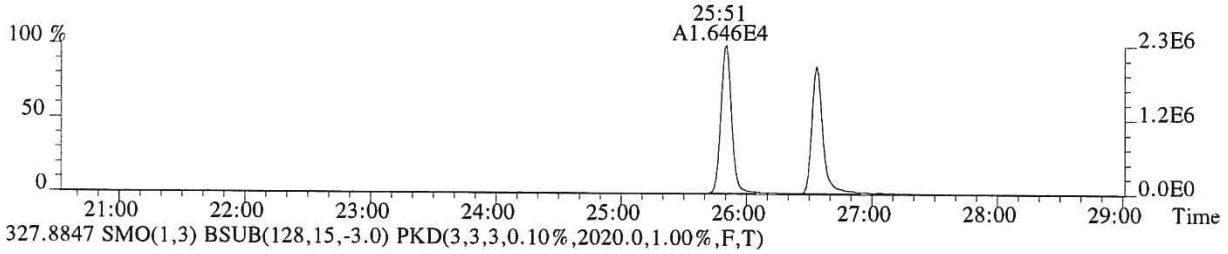
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



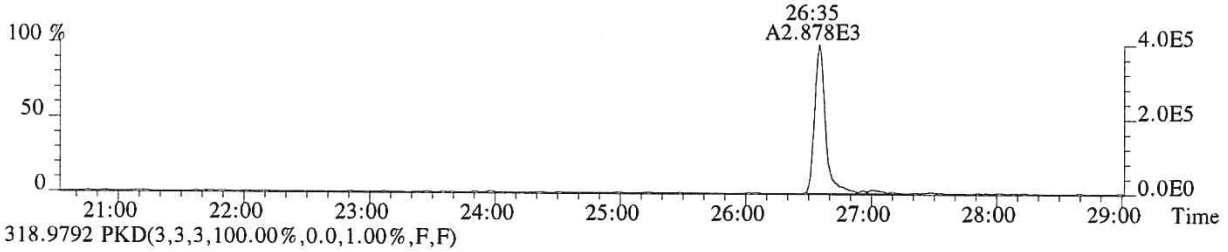
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7504.0,1.00%,F,T)



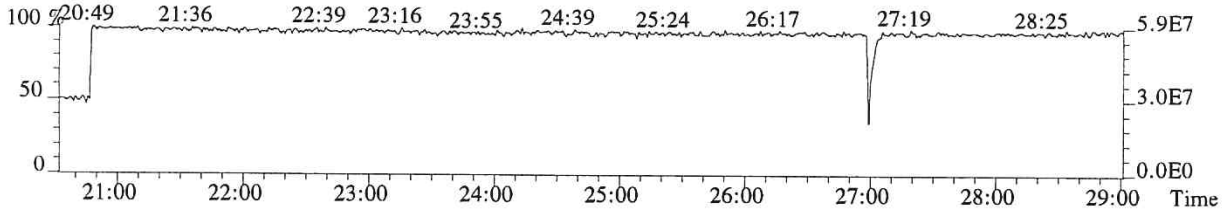
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3444.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2020.0,1.00%,F,T)

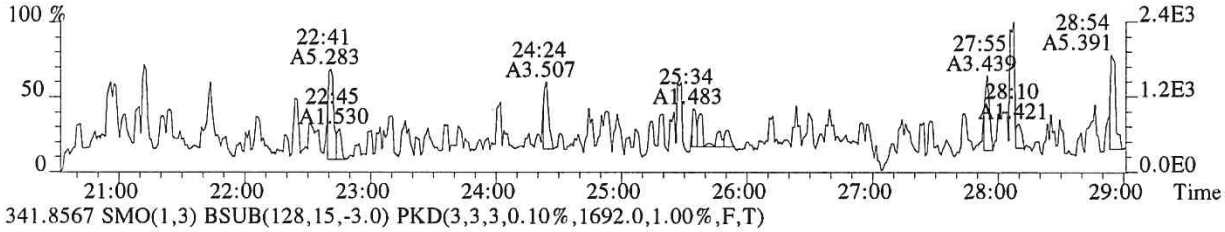


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

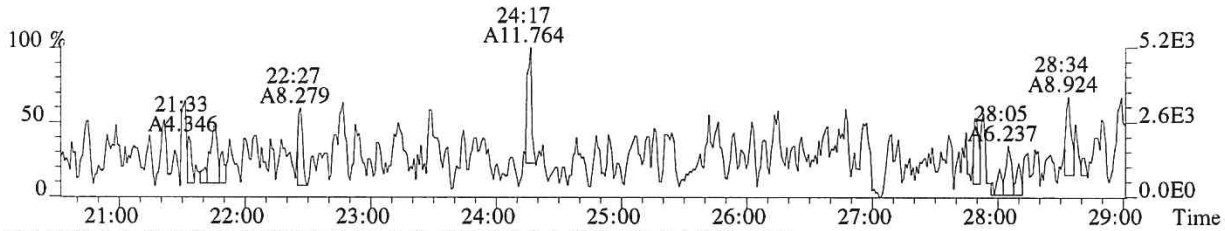


009053

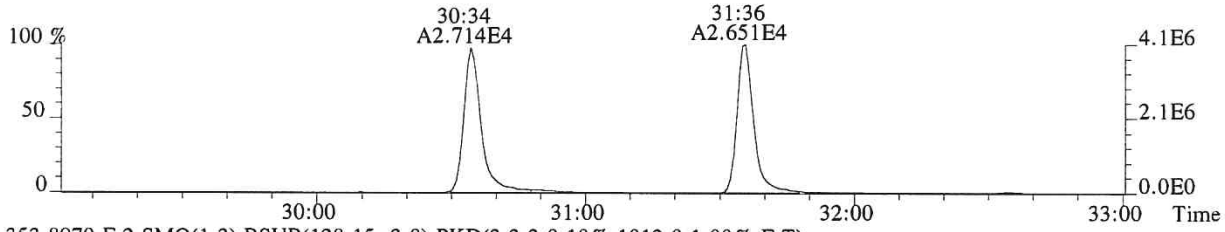
File:P518826 #1-602 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



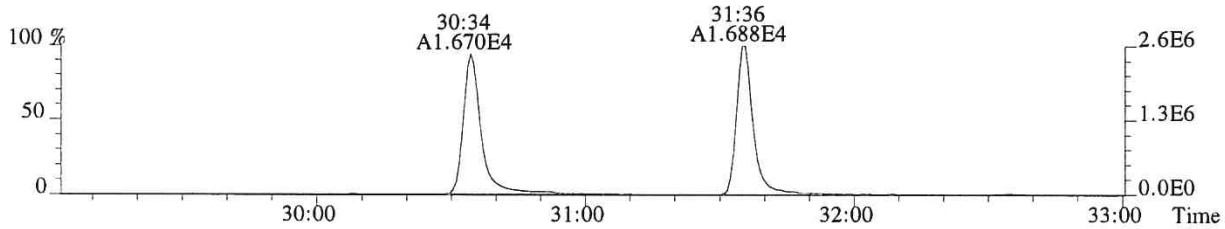
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



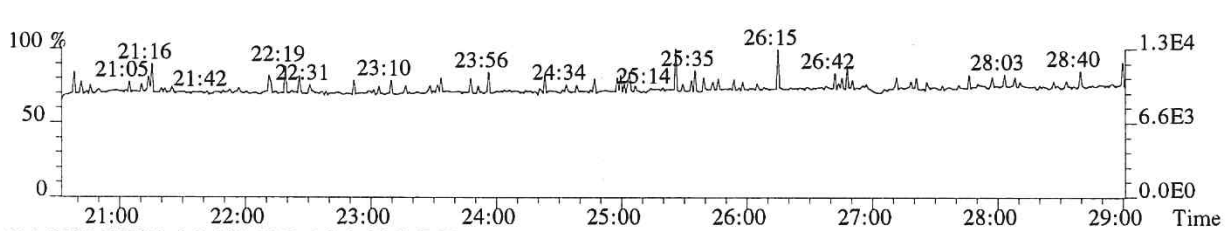
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



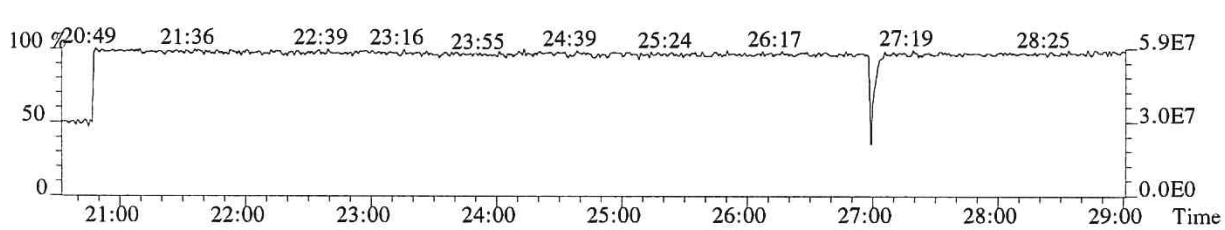
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

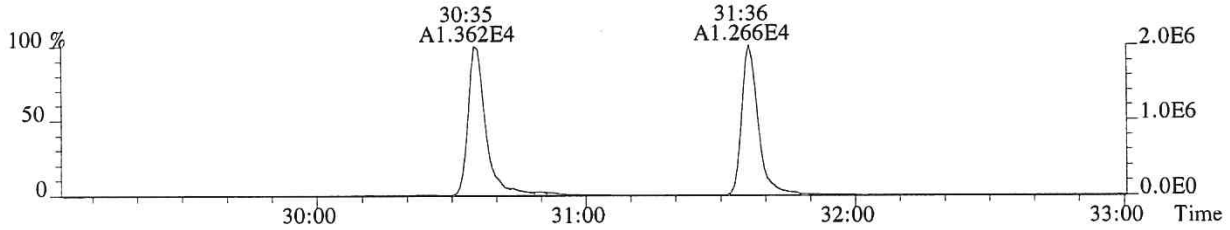


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

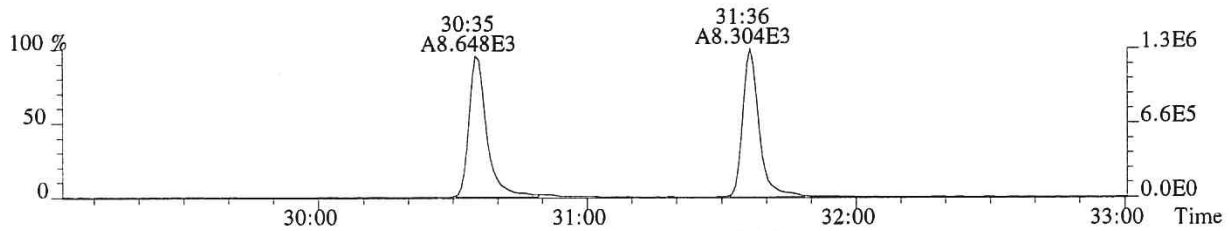


009054

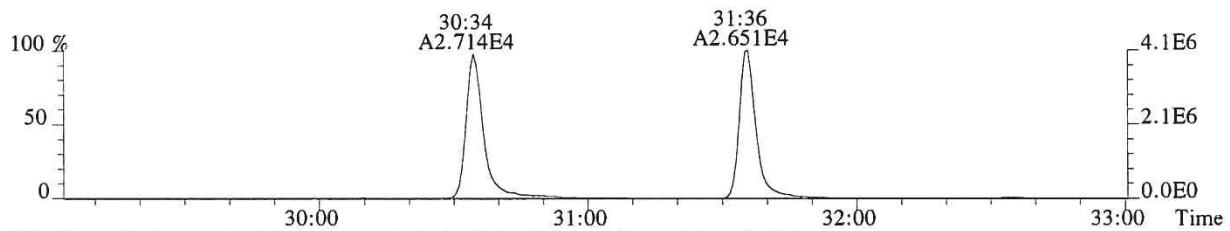
File:P518826 #1-357 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



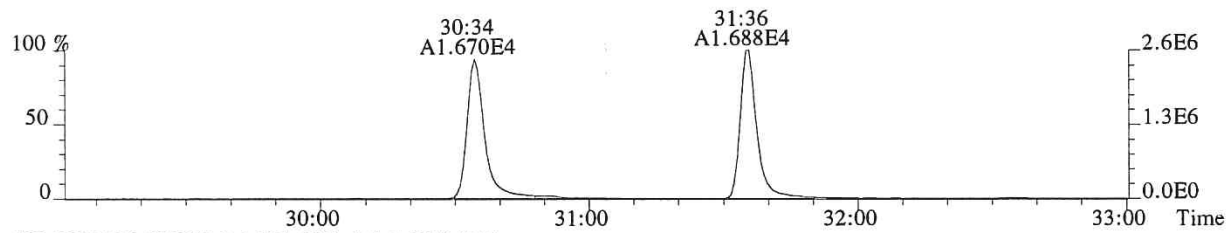
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2644.0,1.00%,F,T)



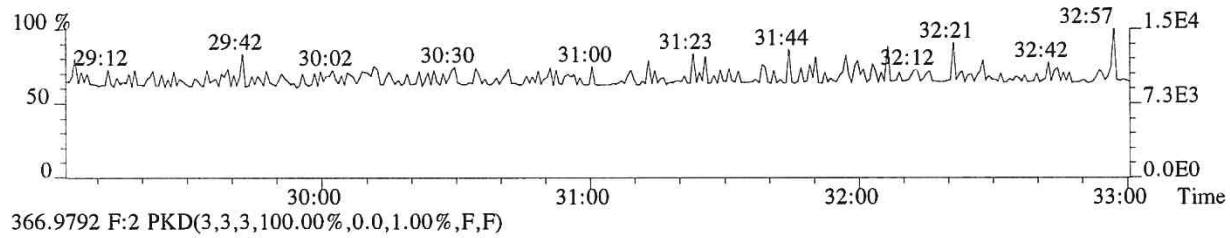
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



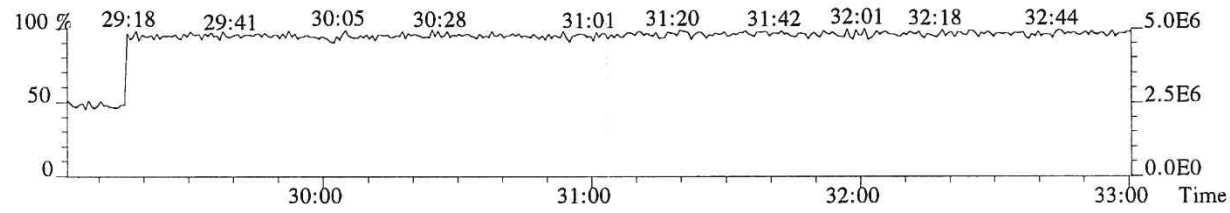
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

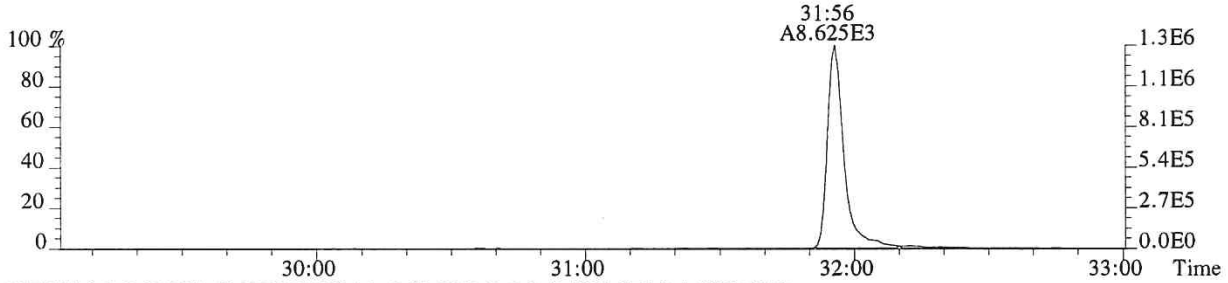


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

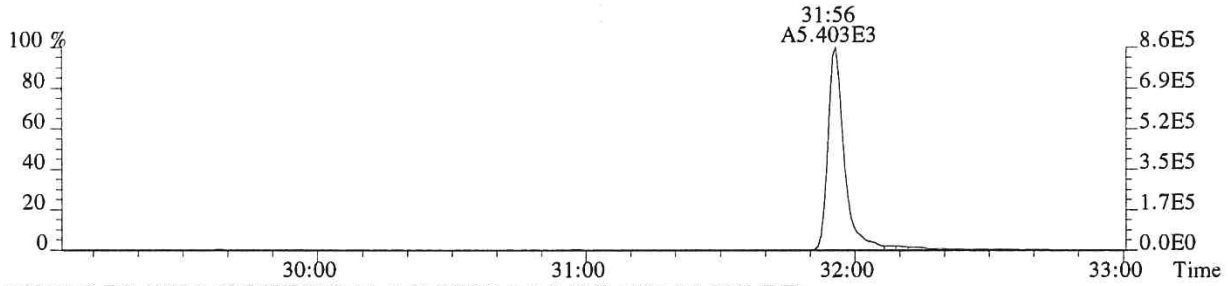


009055

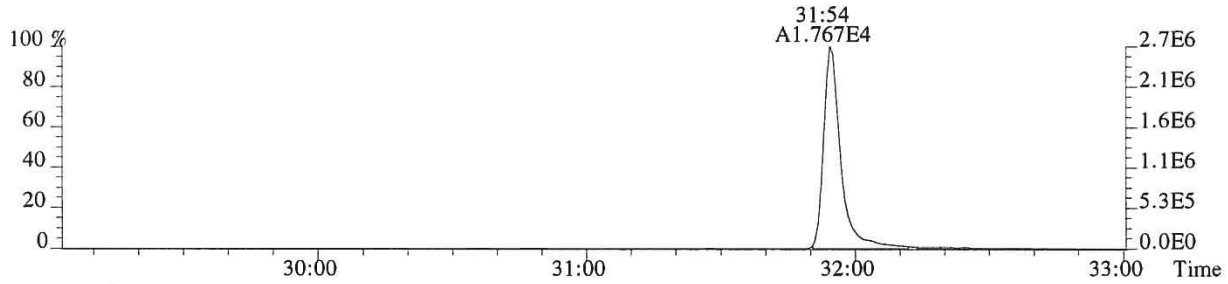
File:P518826 #1-357 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



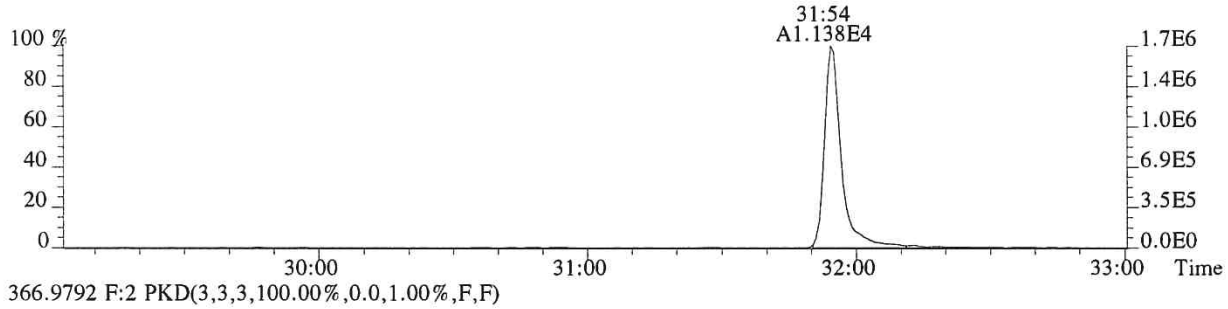
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



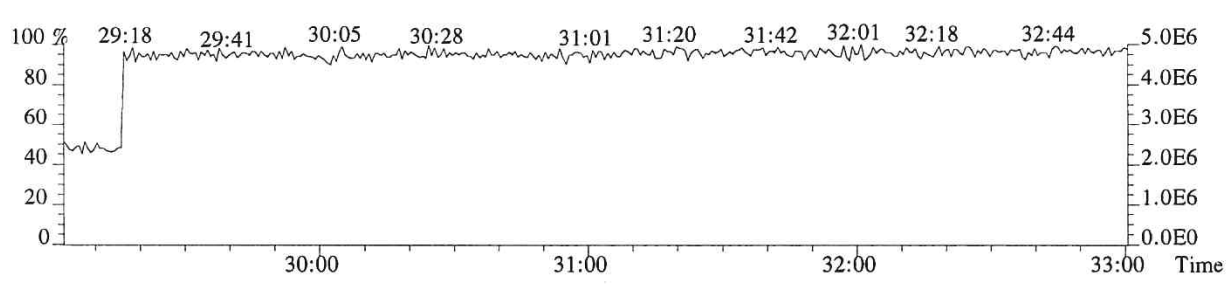
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)

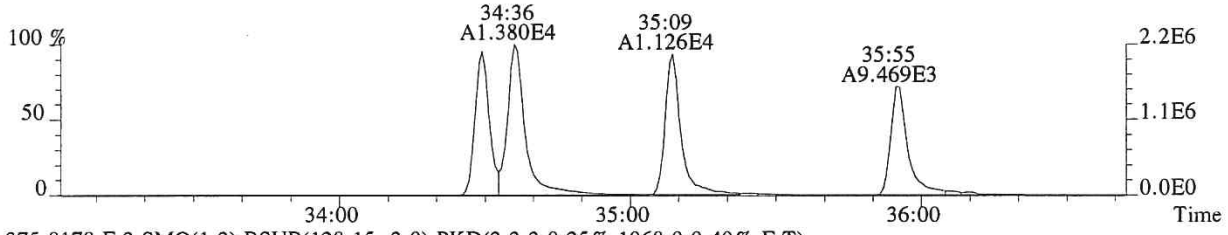


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

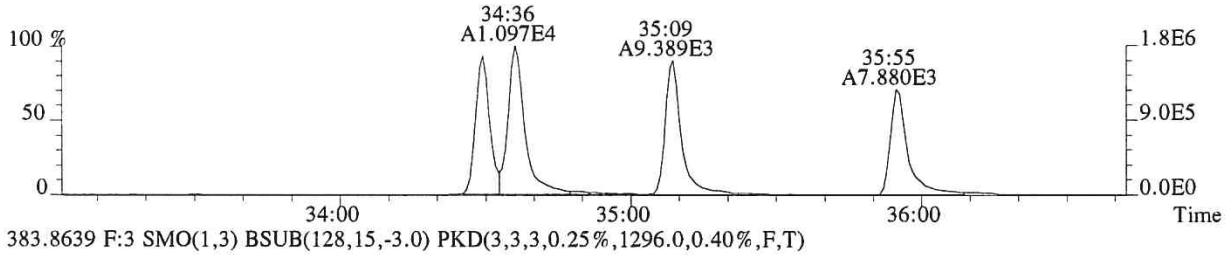


009056

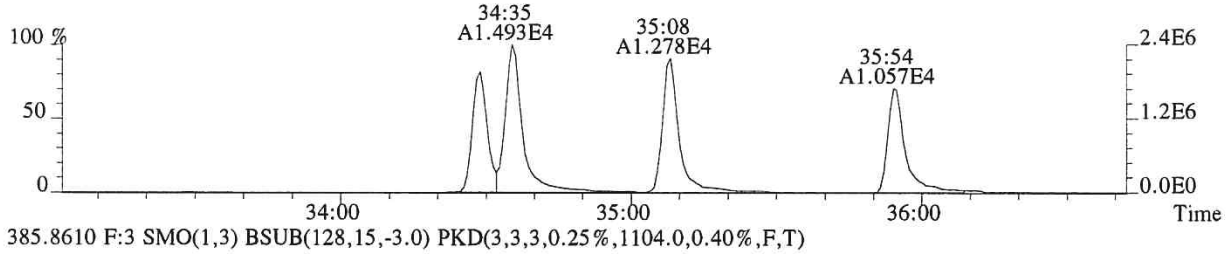
File:P518826 #1-330 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



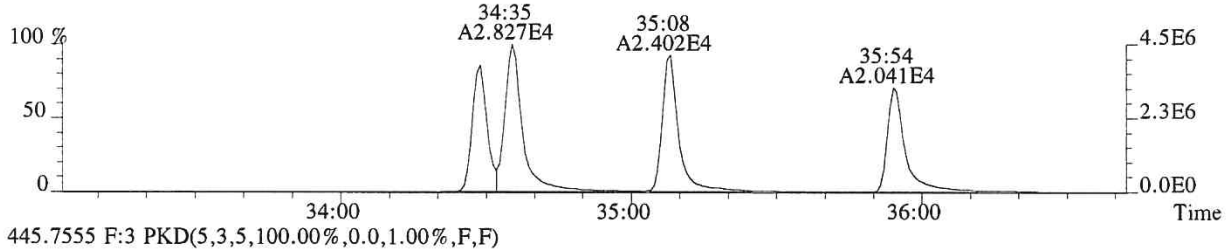
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)



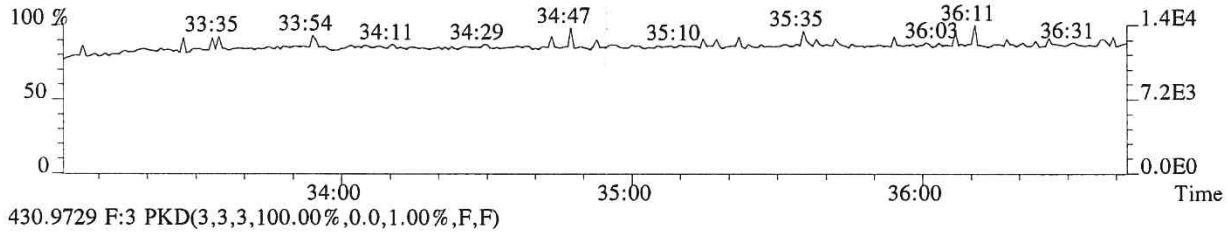
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



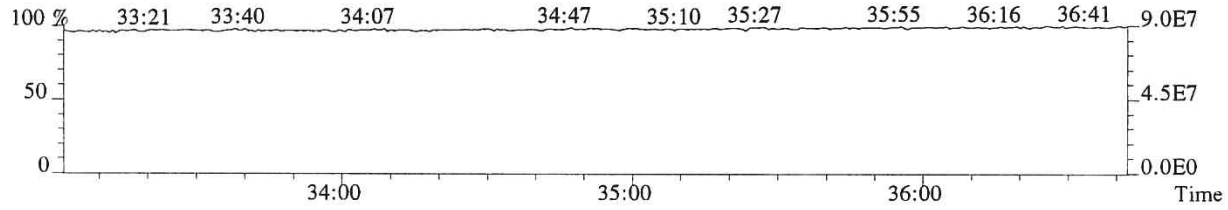
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

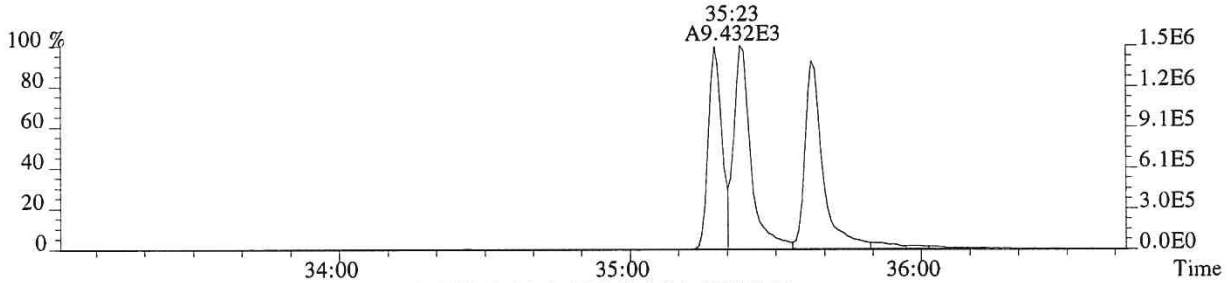


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

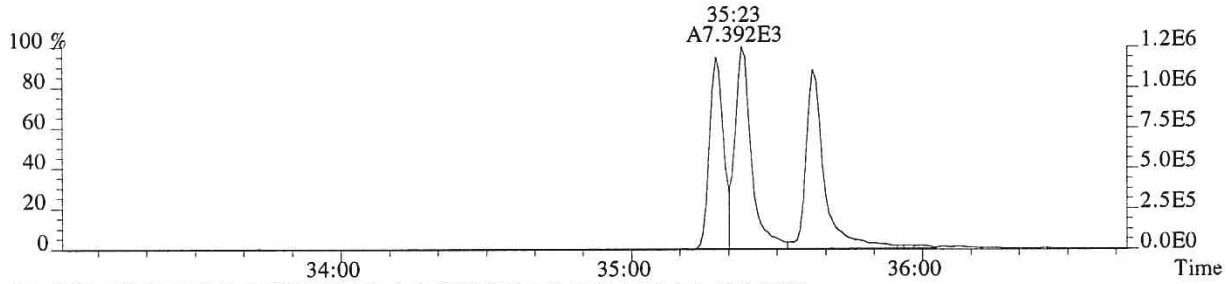


009057

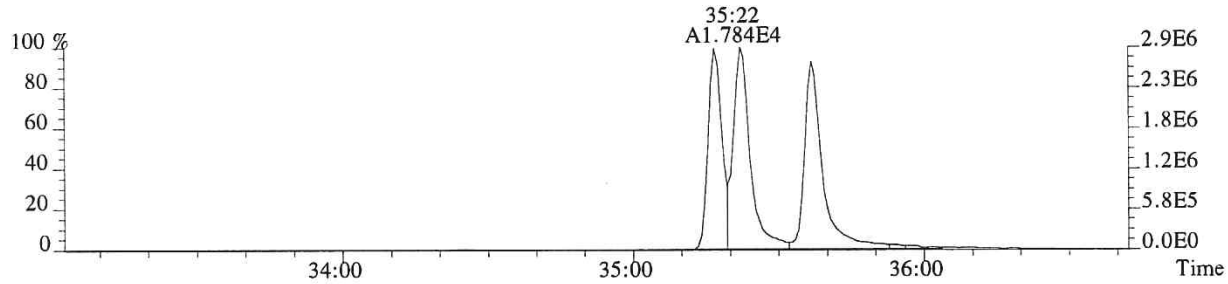
File:P518826 #1-330 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



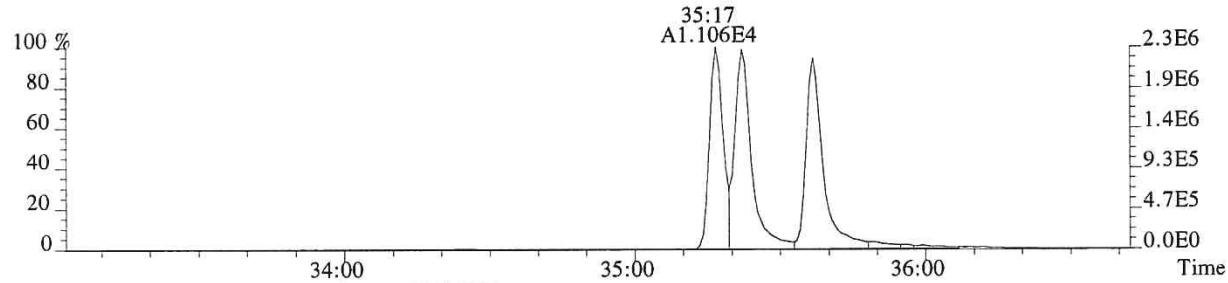
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



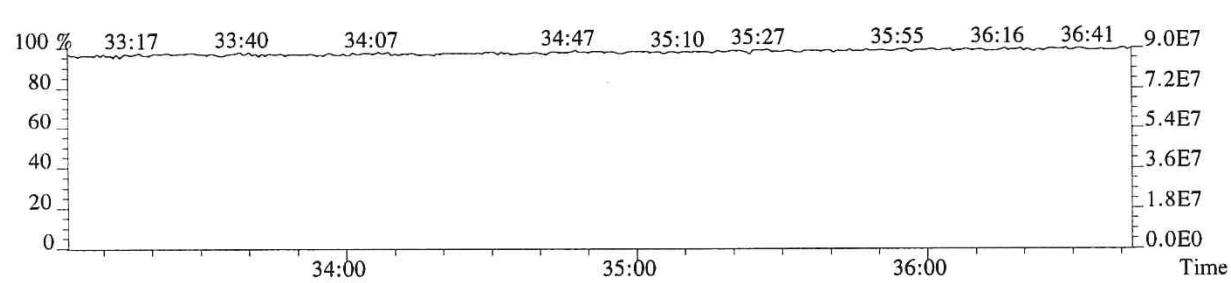
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1612.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)

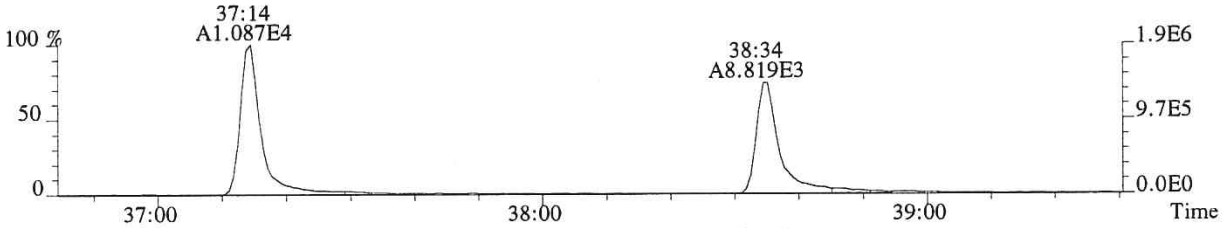


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

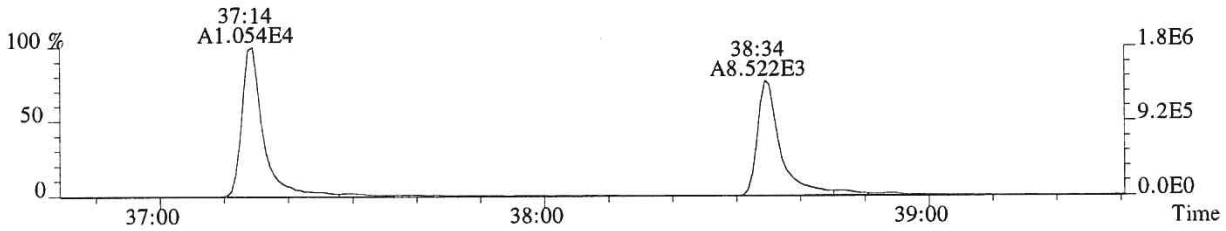


009058

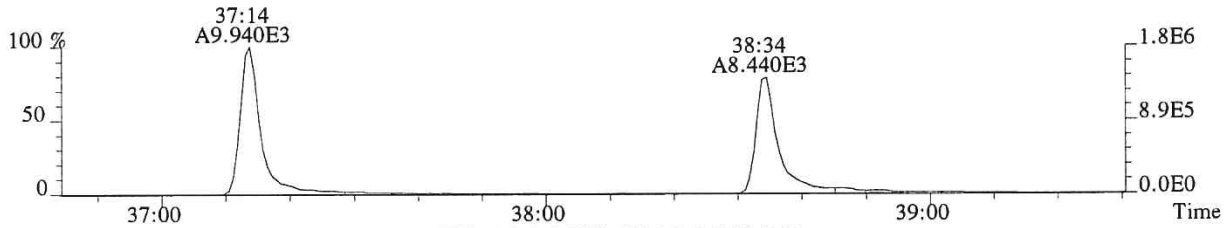
File:P518826 #1-250 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4540.0,0.50%,F,T)



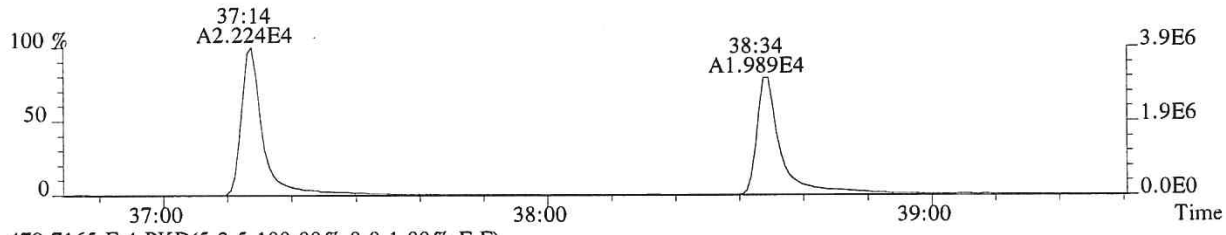
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3204.0,0.50%,F,T)



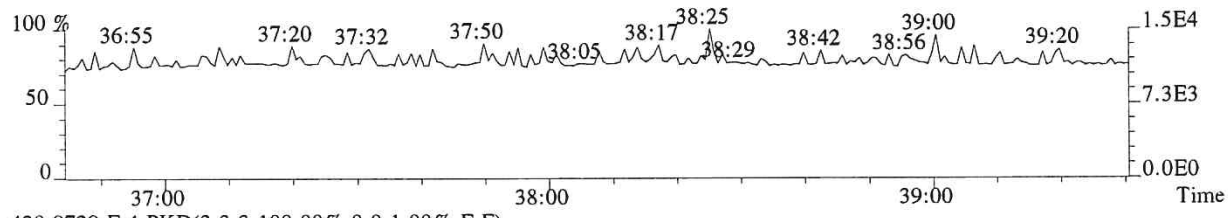
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.50%,F,T)



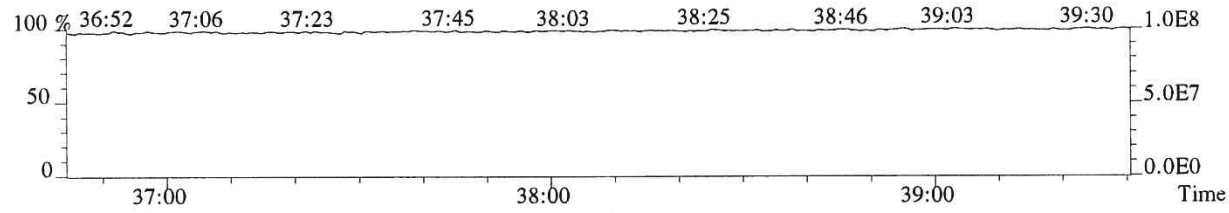
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8792.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

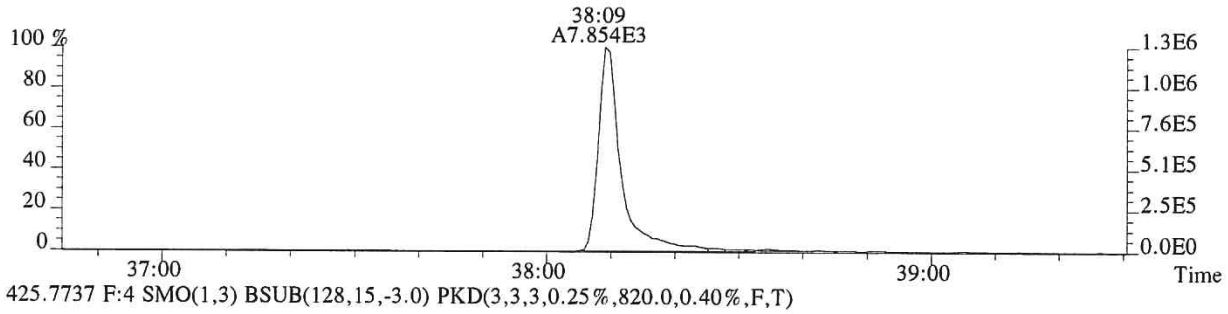


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

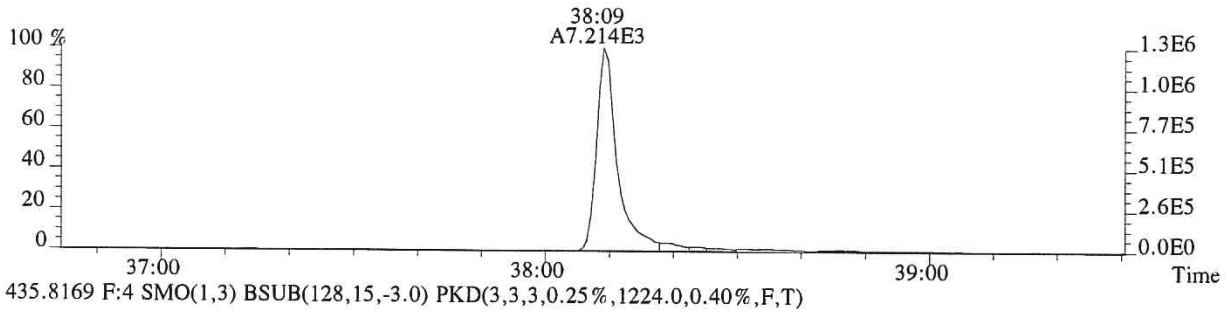


009059

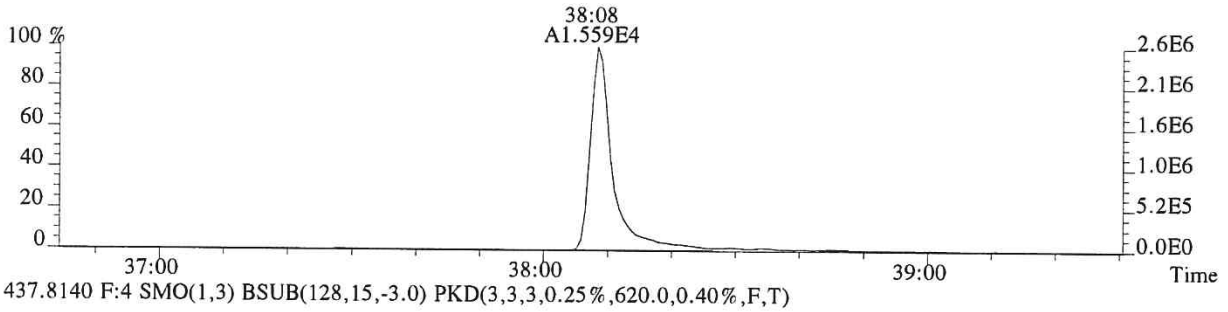
File:P518826 #1-250 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



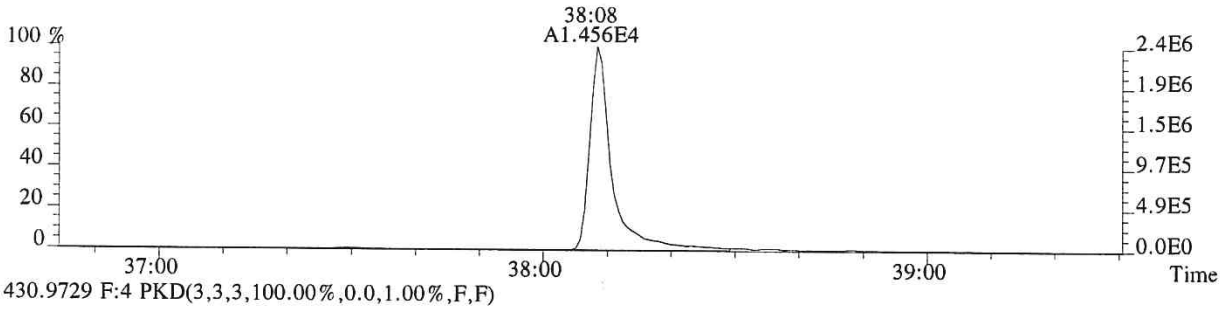
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



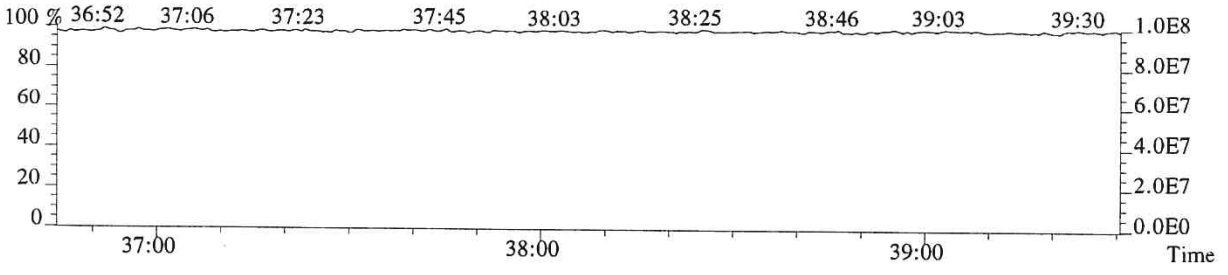
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)

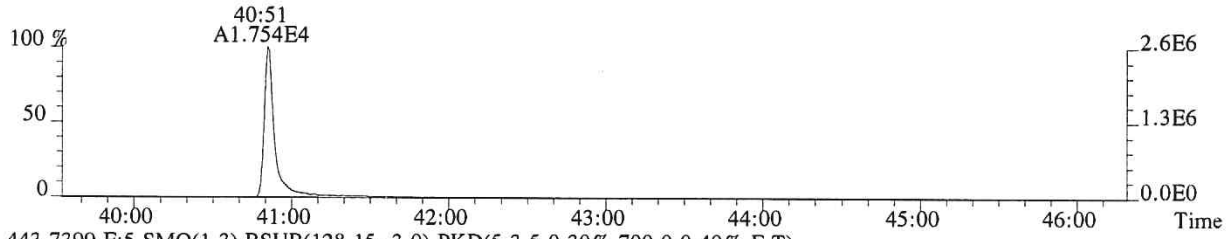


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

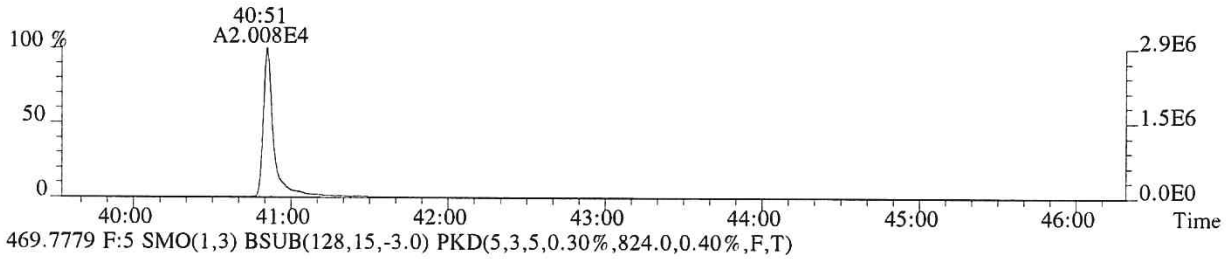


009060

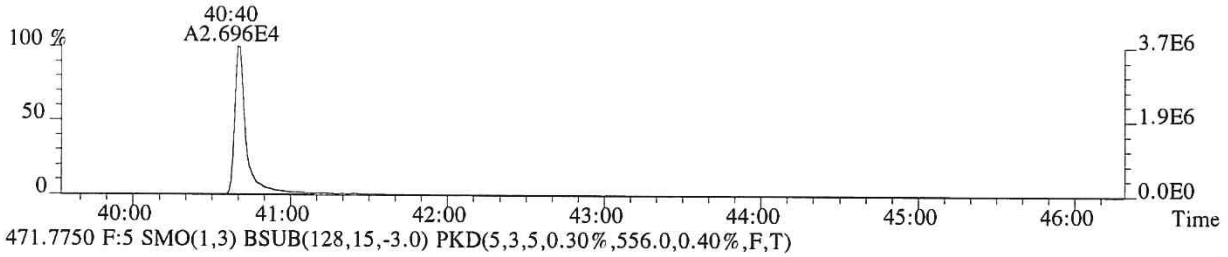
File:P518826 #1-610 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



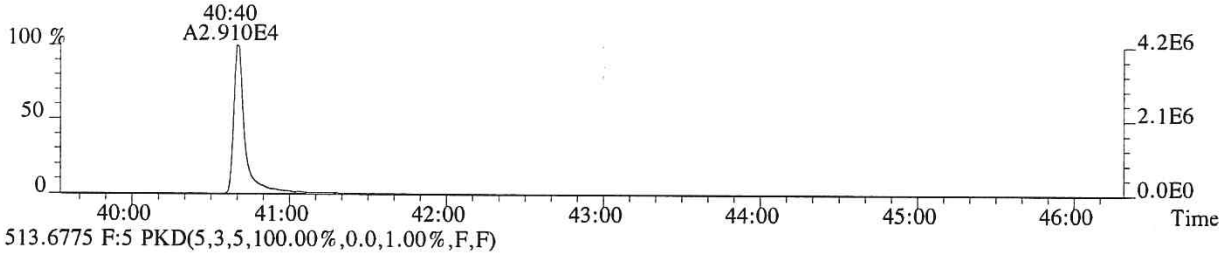
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



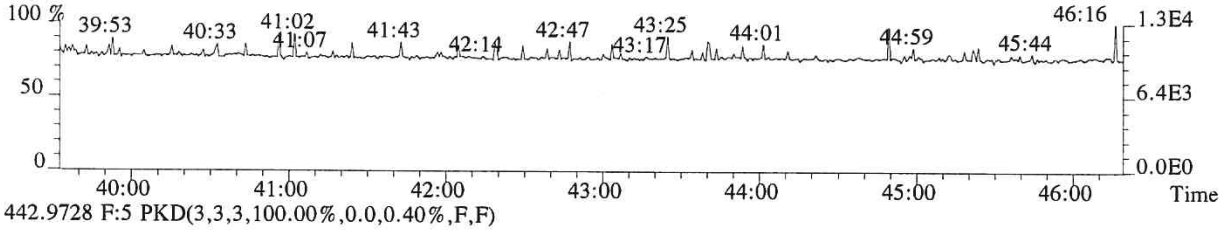
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



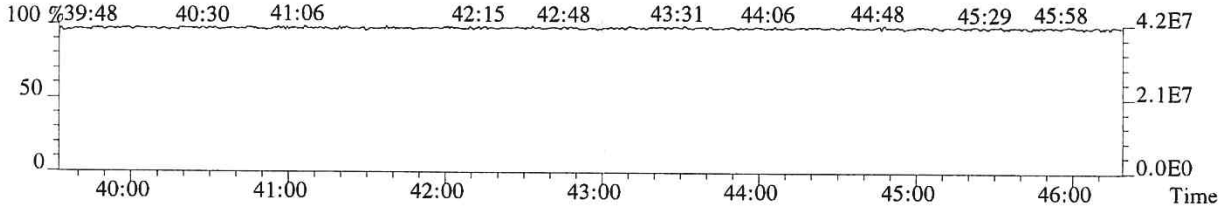
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

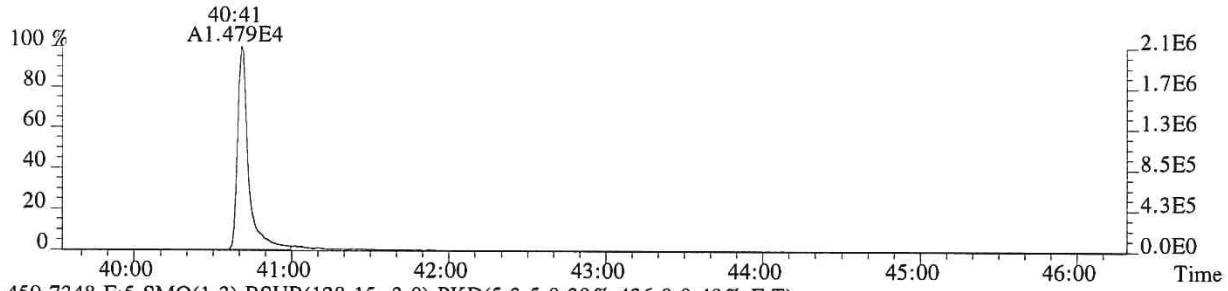


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

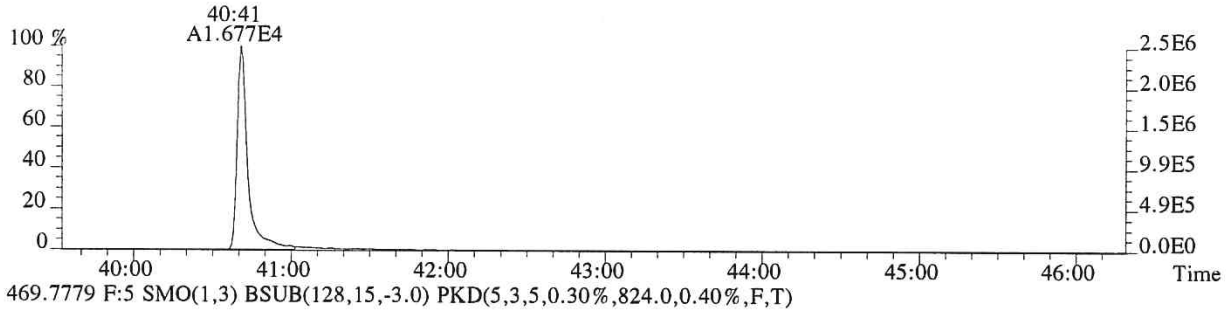


009061

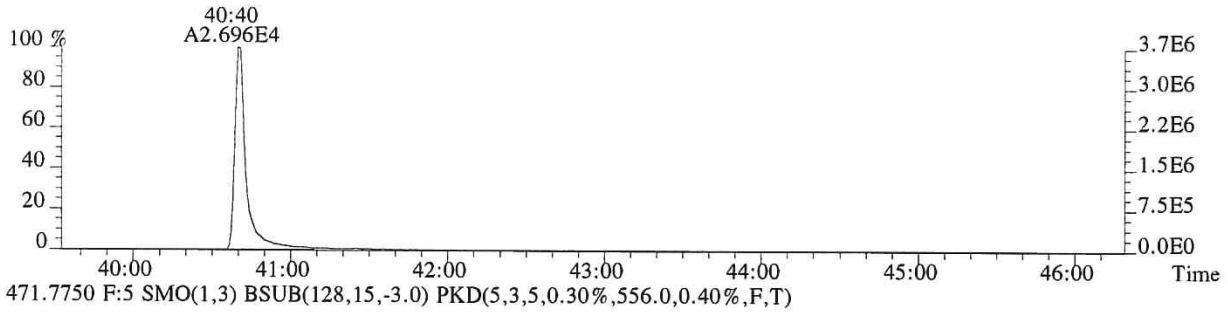
File:P518826 #1-610 Acq:15-NOV-2018 14:12:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



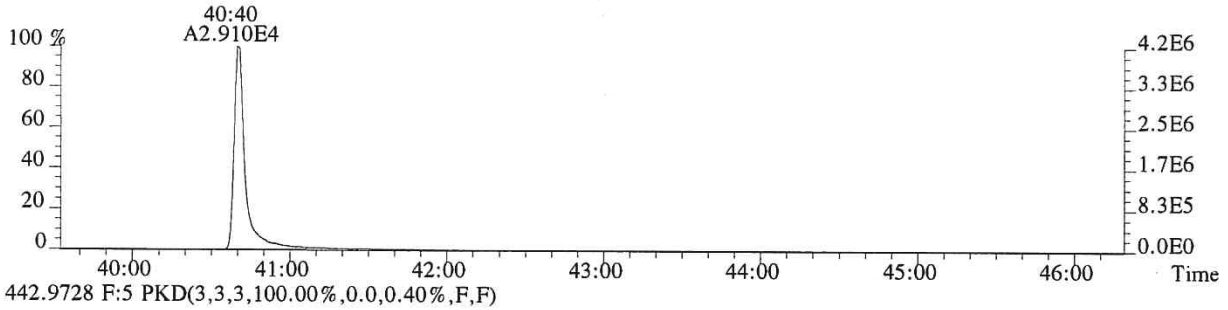
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



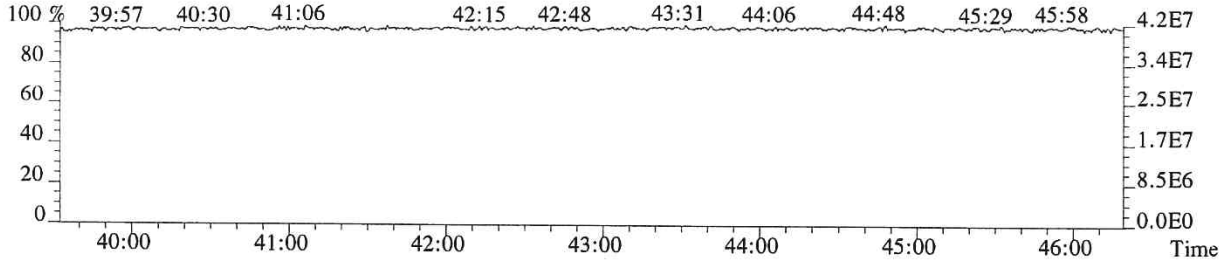
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009062

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P518837

Date: 11/15/18-11/16/18 Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LG

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DO NOT USE	CS3	P518837	15-NOV-18	23:25:04
194503	DO NOT USE	P518838	16-NOV-18	00:21:03
192977	WINDOW DEFINE	P518839	16-NOV-18	01:08:50
METHOD BLANK	EQ1800461-01	P518840	16-NOV-18	01:57:29
METHOD BLANK	EQ1800463-01	P518841	16-NOV-18	02:46:07
SL0503	E1801018-004	P518842	16-NOV-18	03:34:44
SL0504	E1801018-005	P518843	16-NOV-18	04:23:22
SL0505	E1801018-006	P518844	16-NOV-18	05:12:00
SL0506	E1801018-007	P518845	16-NOV-18	06:00:38
SL0507	E1801018-008	P518846	16-NOV-18	06:49:17
SL0508	E1801018-009	P518847	16-NOV-18	07:37:55
SL0045	E1801020-006	P518848	16-NOV-18	08:26:33
SL0052	E1801020-012	P518849	16-NOV-18	09:15:12
LCS	EQ1800463-02	P518850	16-NOV-18	10:03:50
DLCS	EQ1800463-03	P518851	16-NOV-18	10:52:30

E1801012

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181115B.SPL
Last Modified: Friday, November 16, 2018 09:51:03 Central Standard Time
Printed: Friday, November 16, 2018 09:51:19 Central Standard Time

1613 Page Position (1, 1)

Opus 4: P518837res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/15/18	23:25	P518837	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LKL	HRMS check 23:25
2	11/16/18	00:21	P518838	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		NOT USE
3		01:08	P518839	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
4		01:57	P518840	MB	EQ1800461-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		02:46	P518841	MB	EQ1800463-01	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		03:34	P518842	E1801018-004	E1801018-004	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		04:23	P518843	E1801018-005	E1801018-005	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		05:12	P518844	E1801018-006	E1801018-006	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		06:00	P518845	E1801018-007	E1801018-007	EPA1613_ALS	Dioxin_ALS	Tray1:9		meets reinjection
10		06:49	P518846	E1801018-008	E1801018-008	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		07:37	P518847	E1801018-009	E1801018-009	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		08:26	P518848	E1801020-006	E1801020-006	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		09:15	P518849	E1801020-012	E1801020-012	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		10:03	P518850	LCS	EQ1800463-02	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15		10:52	P518851	DLCS	EQ1800463-03	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:49
16			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
17			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17		
18			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18		
19			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19		
20			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20		
21			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21		
22			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22		
23			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23		
24			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24		
25			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25		
26			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:26		
27			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:27	---	---
28	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:28	---	---
29	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:29	---	---
30	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:30	---	---
31	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:31	---	---
32	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:32	---	---
33	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:33	---	---
34	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:34	---	---
35	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:35	---	---
36	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:36	---	---
37	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:37	---	---
38	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:38	---	---
39	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:39	---	---

QC 11/20/18

017

Printed: Thursday, November 15, 2018 23:25:02 Central Standard Time

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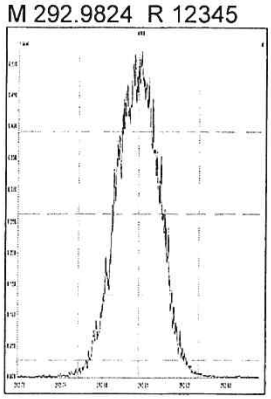

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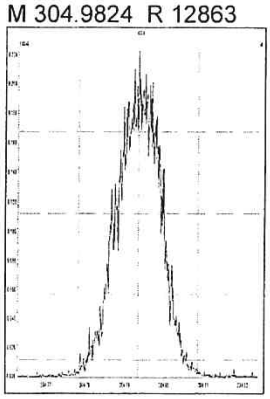

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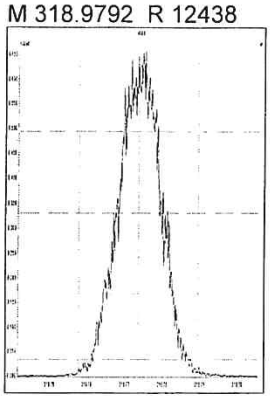

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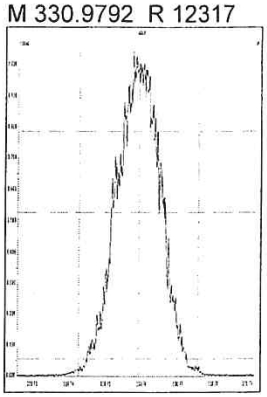

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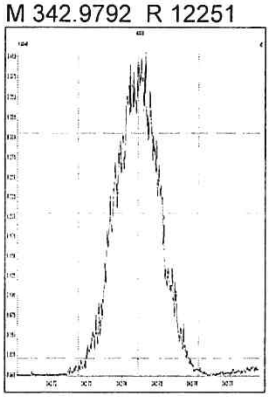

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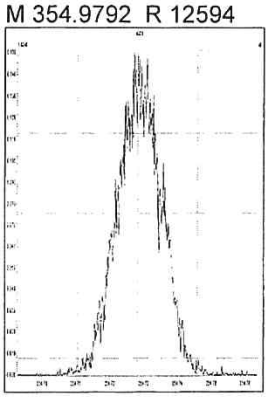

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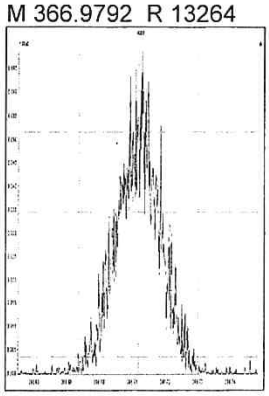

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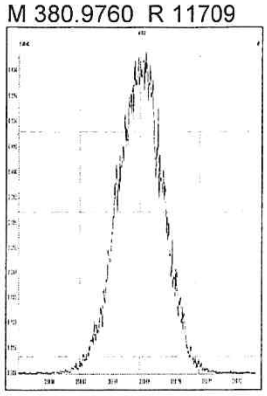

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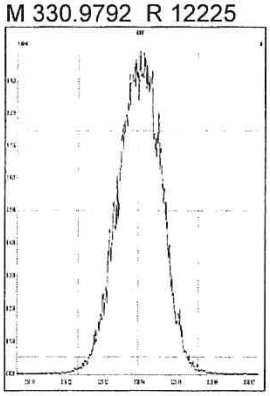

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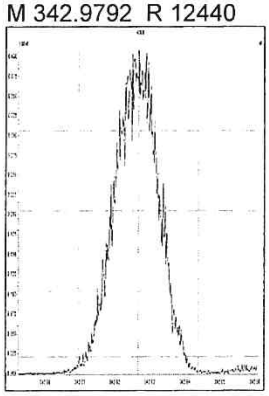

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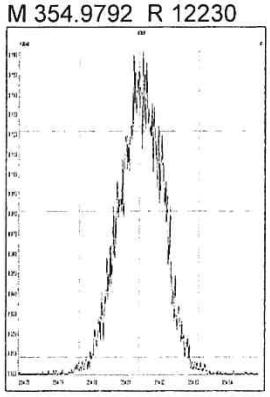

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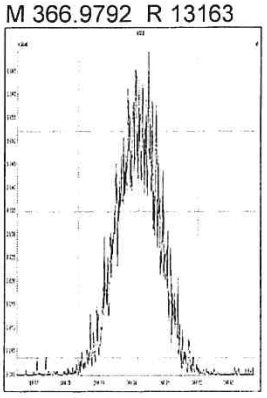

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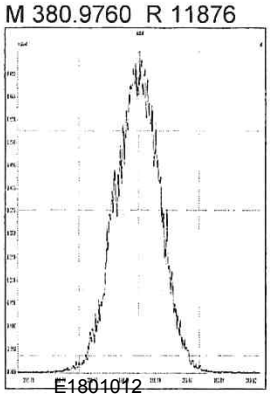

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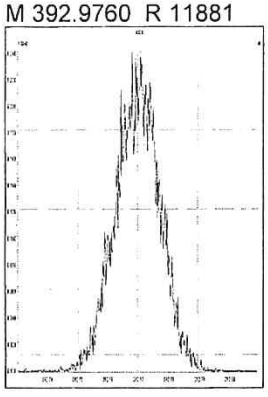

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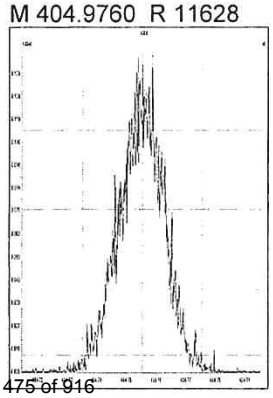

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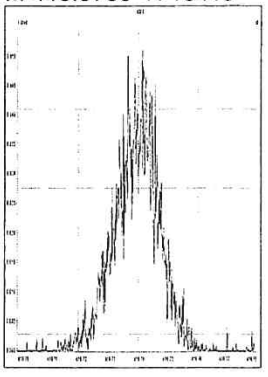

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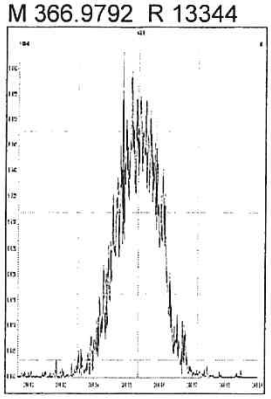

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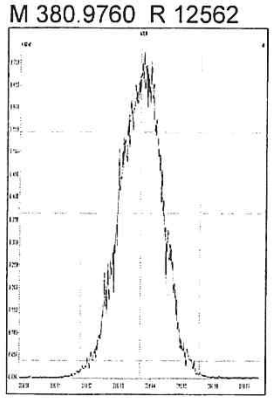

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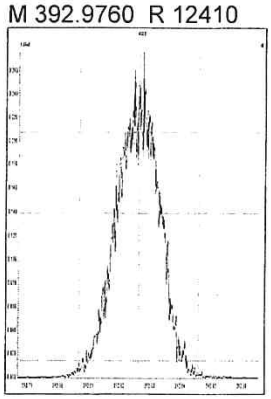

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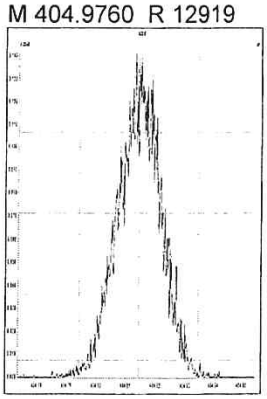

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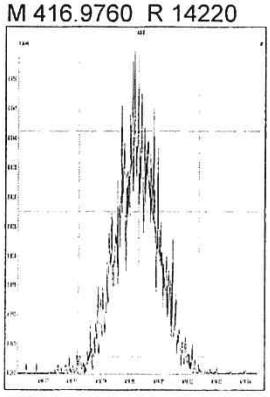

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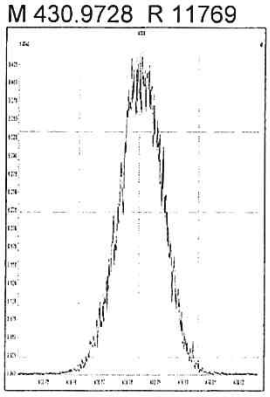

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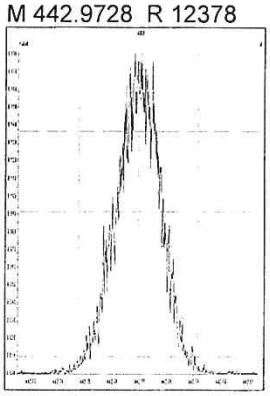

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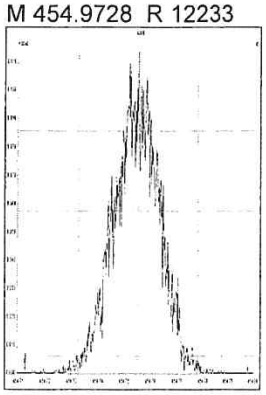

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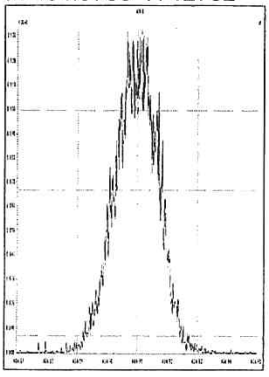

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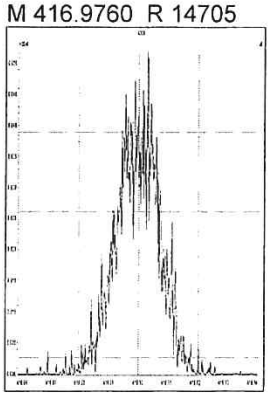

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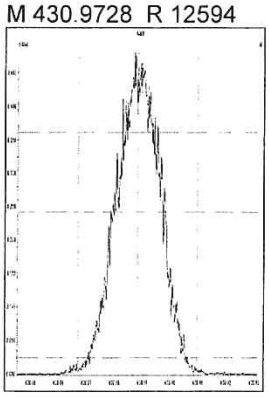

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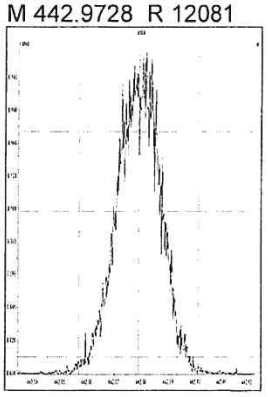

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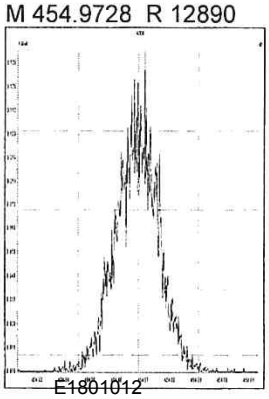

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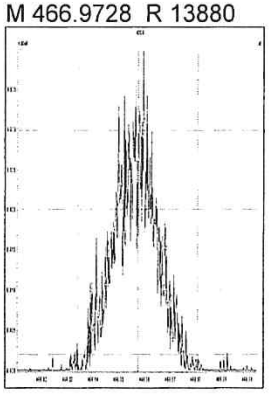

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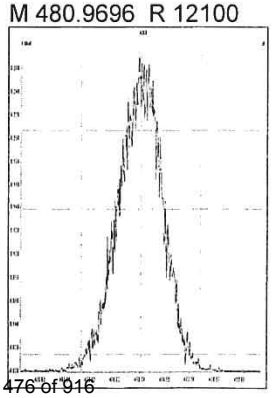

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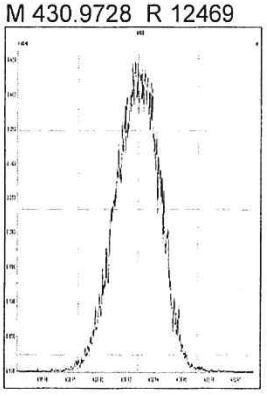

Printed: Thursday, November 15, 2018 23:25:02 Central Standard Time

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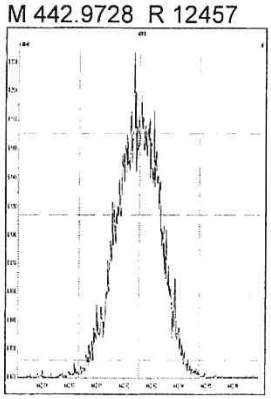

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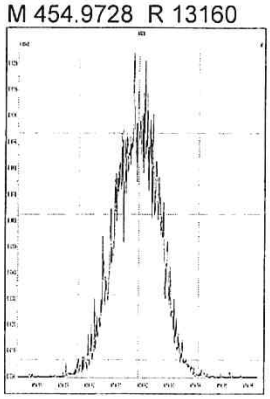

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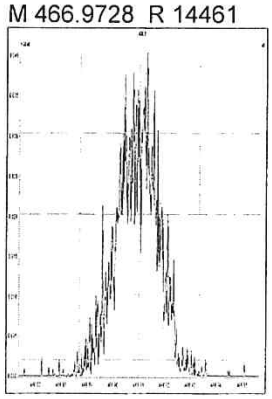

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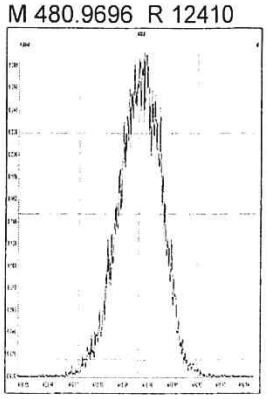

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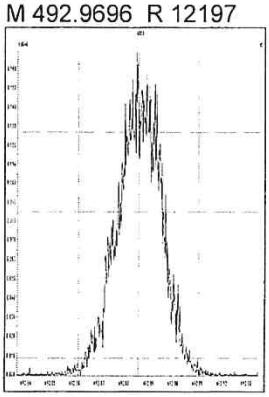

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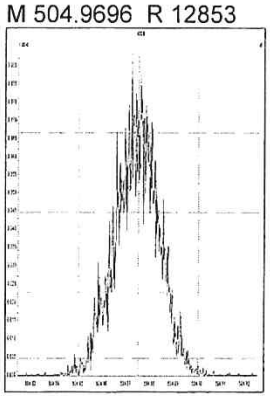

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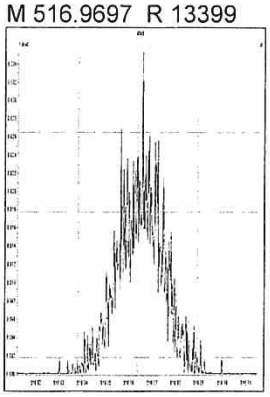

Printed: Friday, November 16, 2018 11:49:19 Central Standard Time

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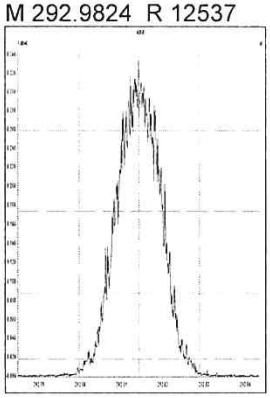

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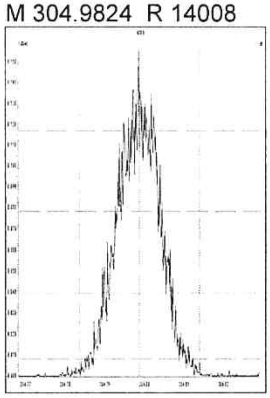

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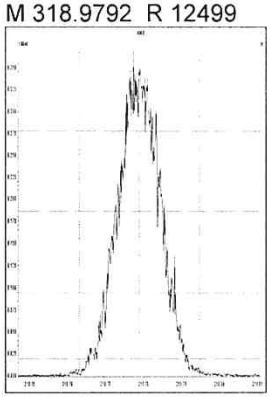

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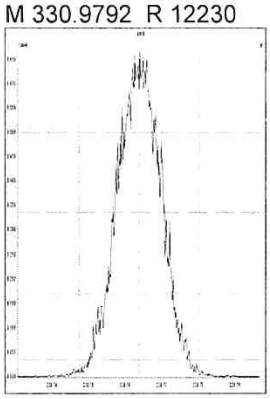

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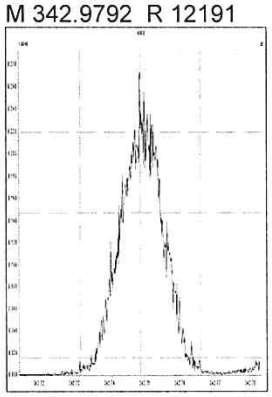

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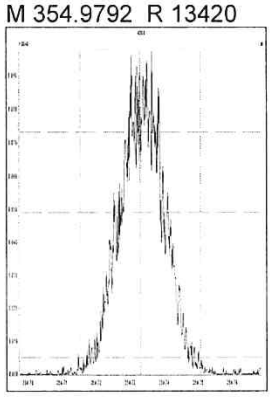

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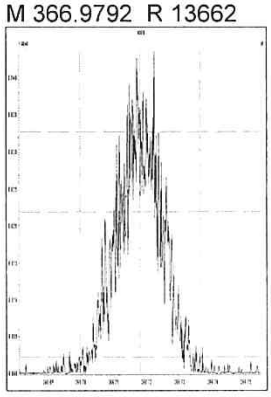

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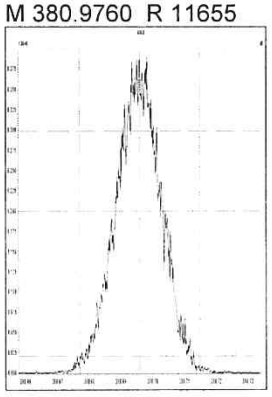

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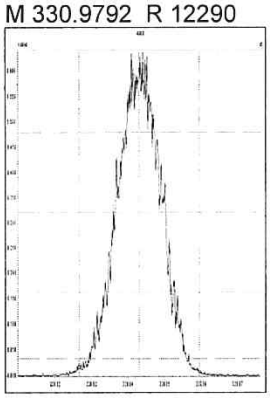

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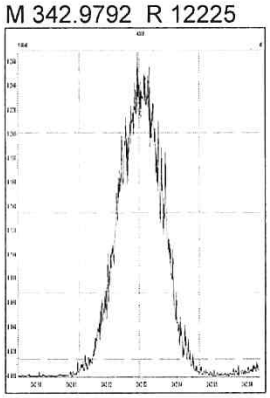

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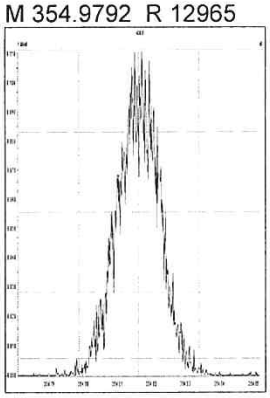

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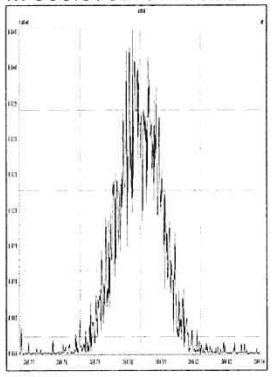

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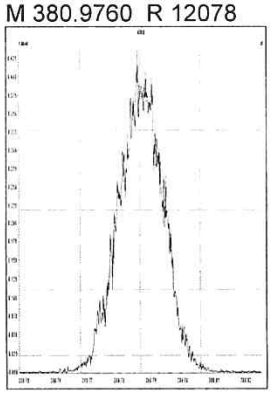

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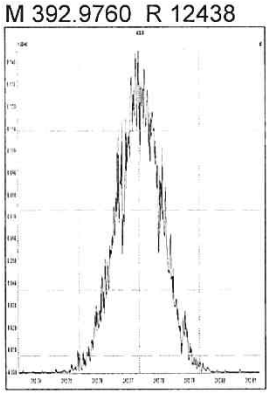

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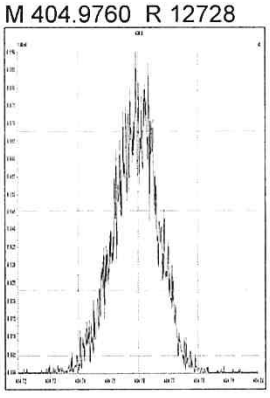

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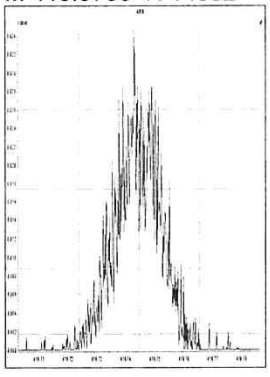

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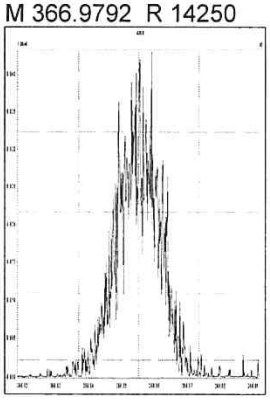

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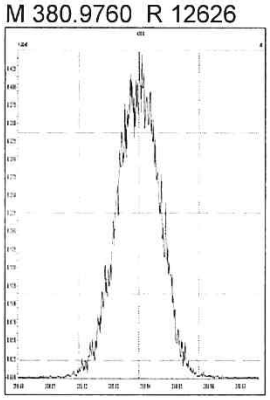

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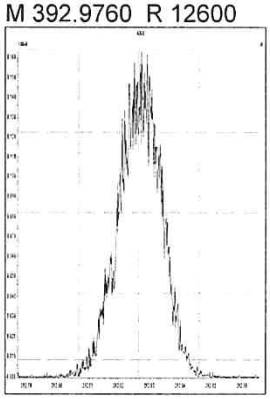

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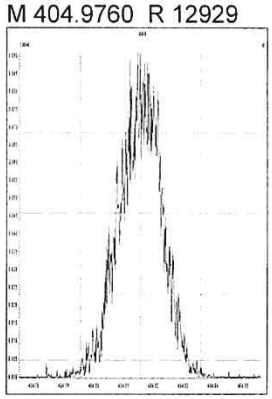

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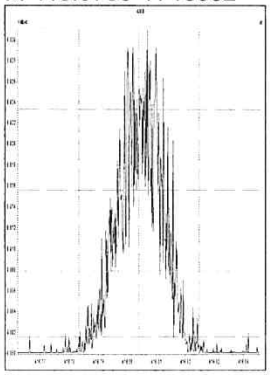

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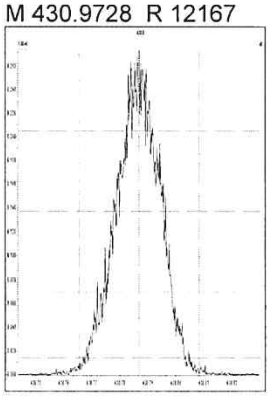

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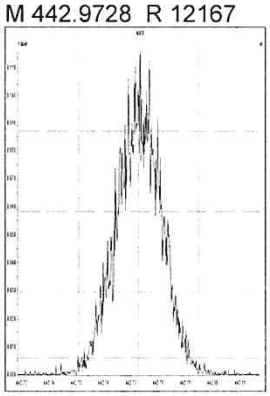

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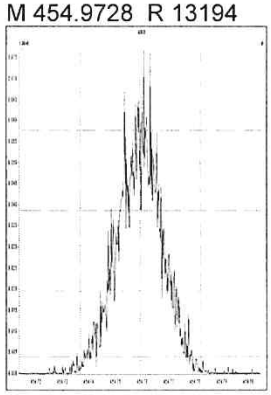

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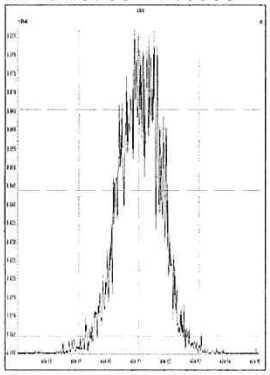

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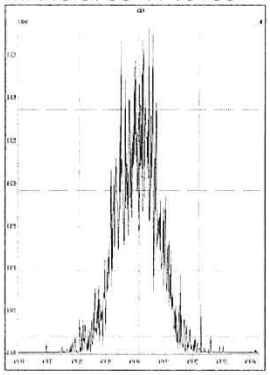

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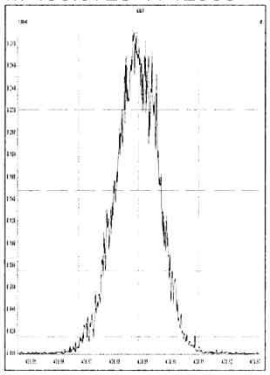

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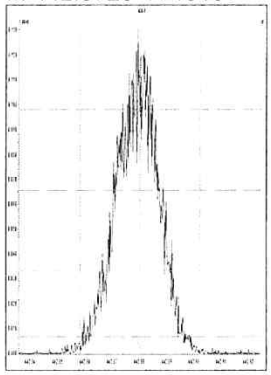

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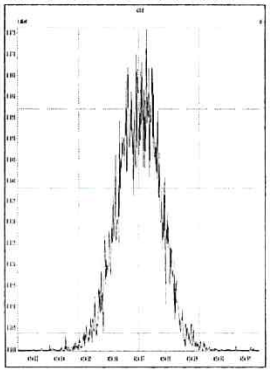

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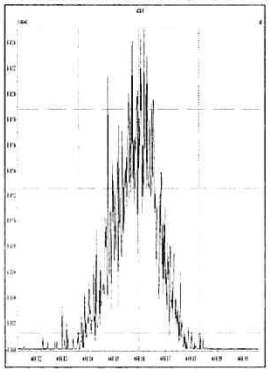

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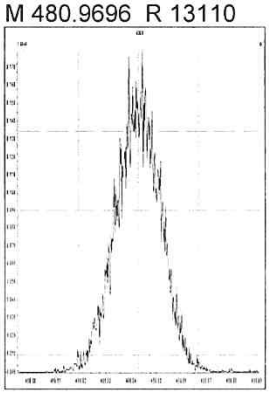

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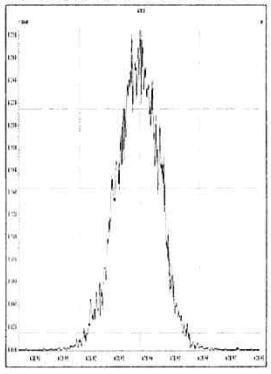

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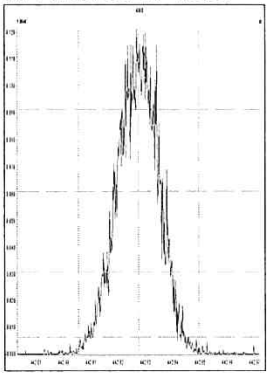

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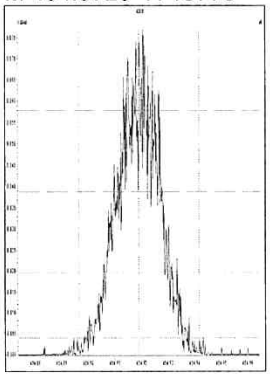

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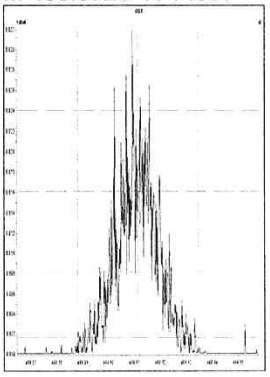

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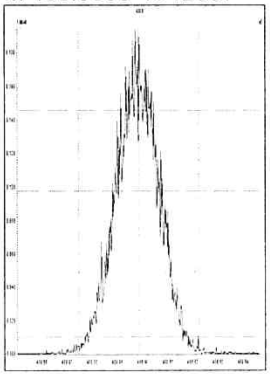

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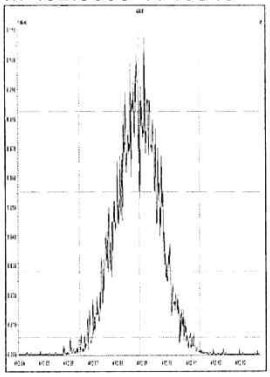

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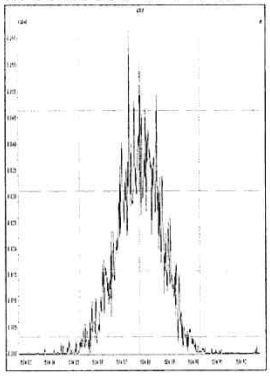

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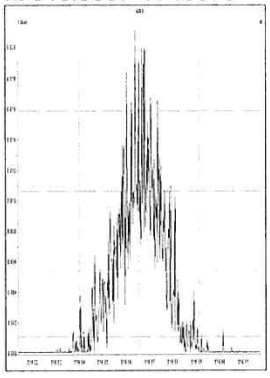

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P518839
Date Analyzed: 16-NOV-2018
Time Analyzed: 01:08:50

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:08	27:50
TCDD	22:42	27:40
PeCDF	27:47	32:35
PeCDD	29:36	32:20
HxCDF	33:19	35:57
HxCDD	33:53	35:33
HpCDF	37:15	38:35
HpCDD	37:30	38:10

% Valley 2378-TCDD: 18 %

File:P518839 #1-602 Acq:16-NOV-2018 01:08:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
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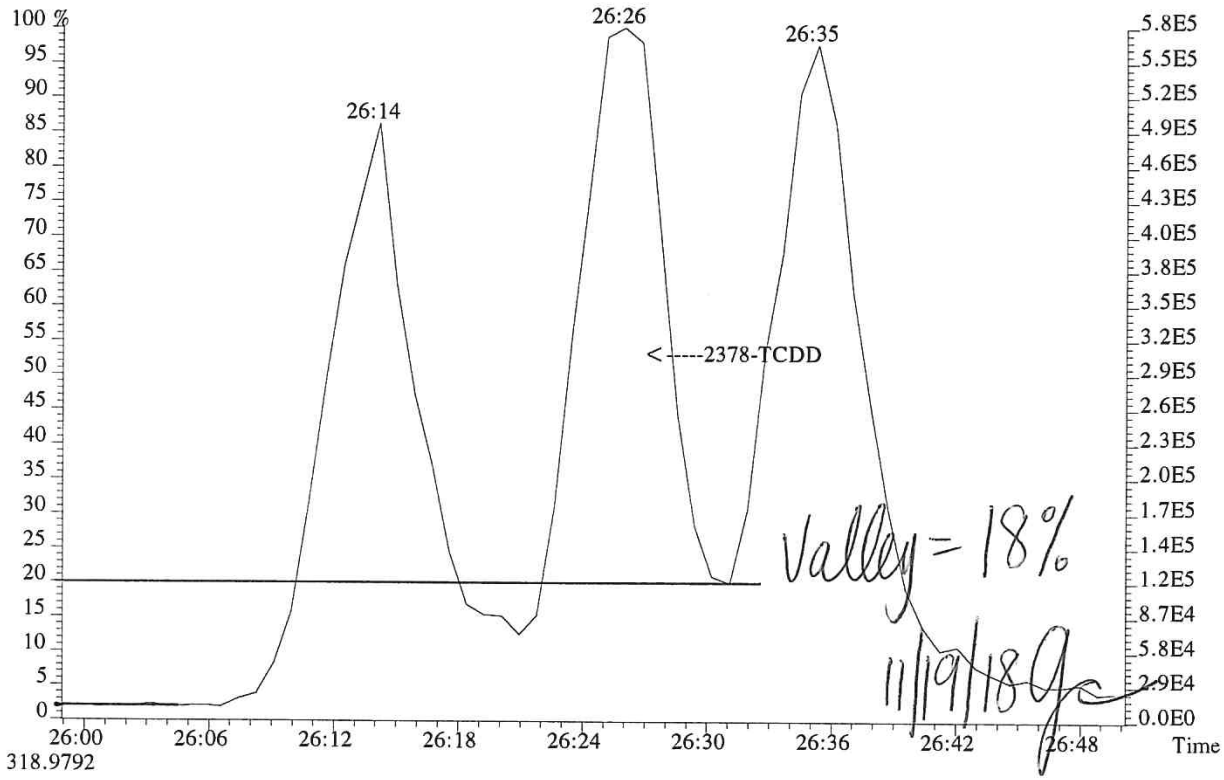

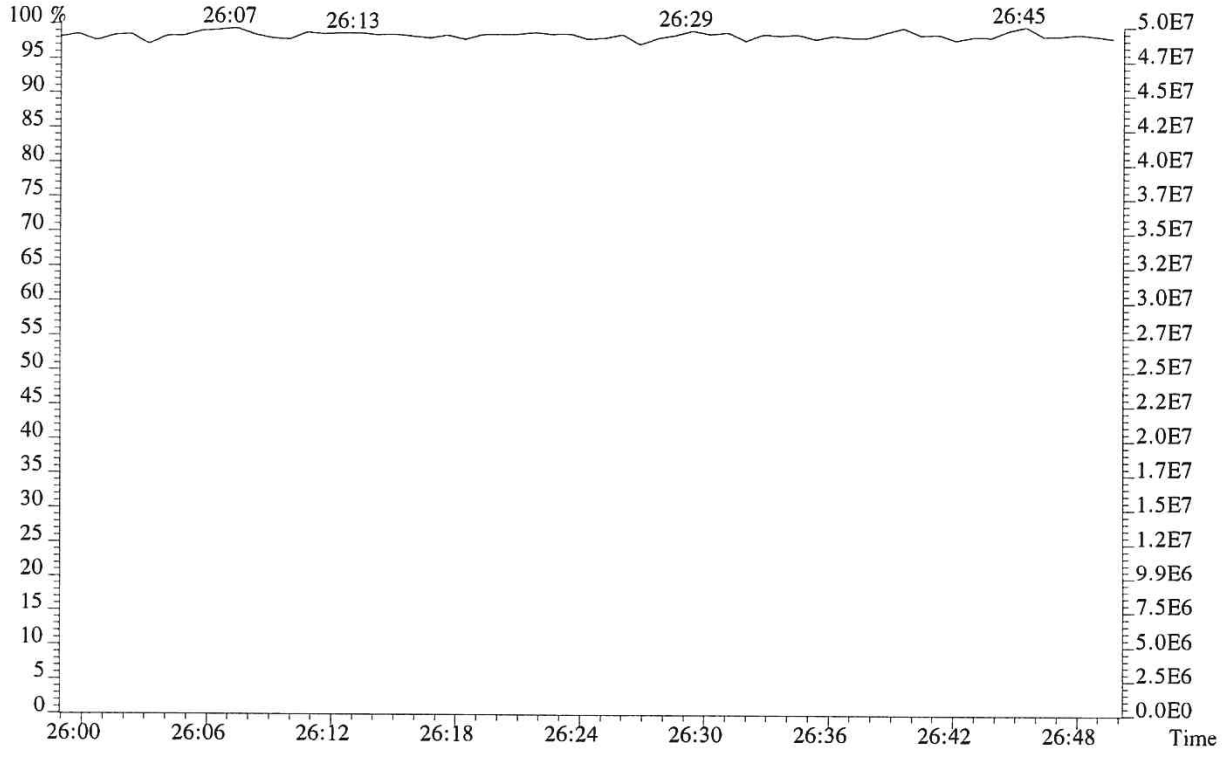

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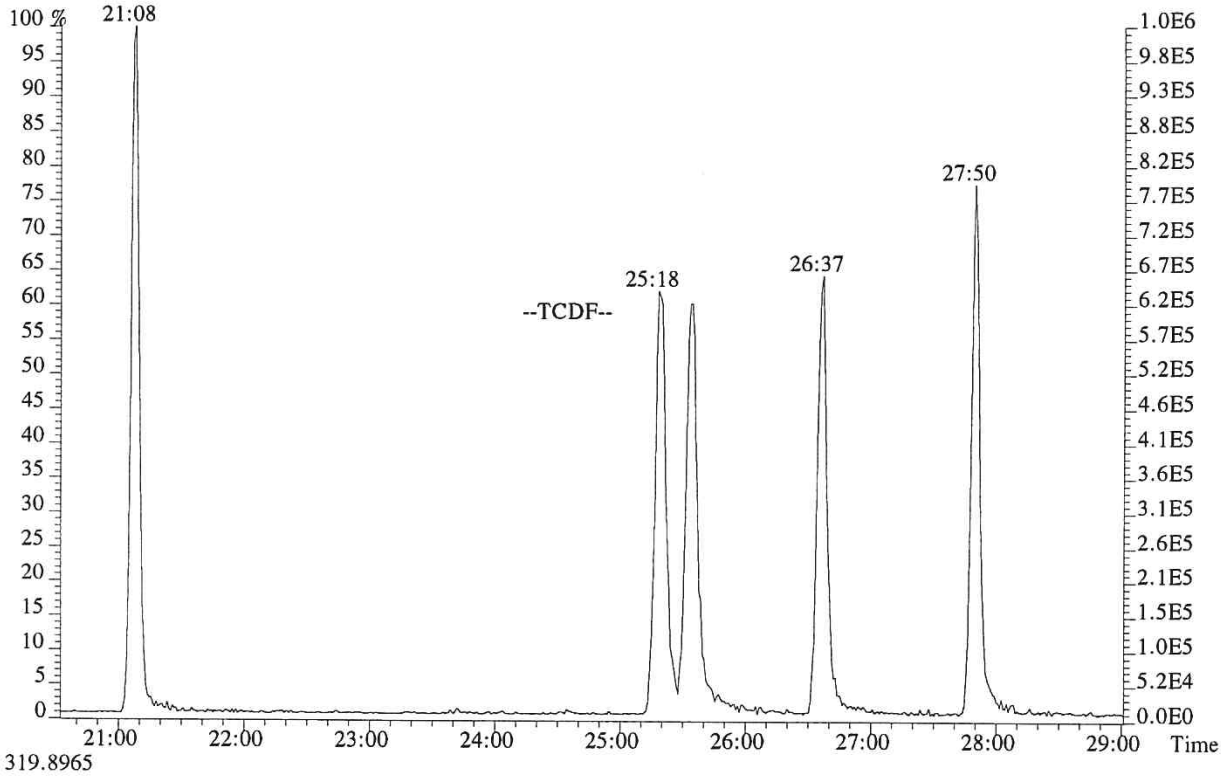

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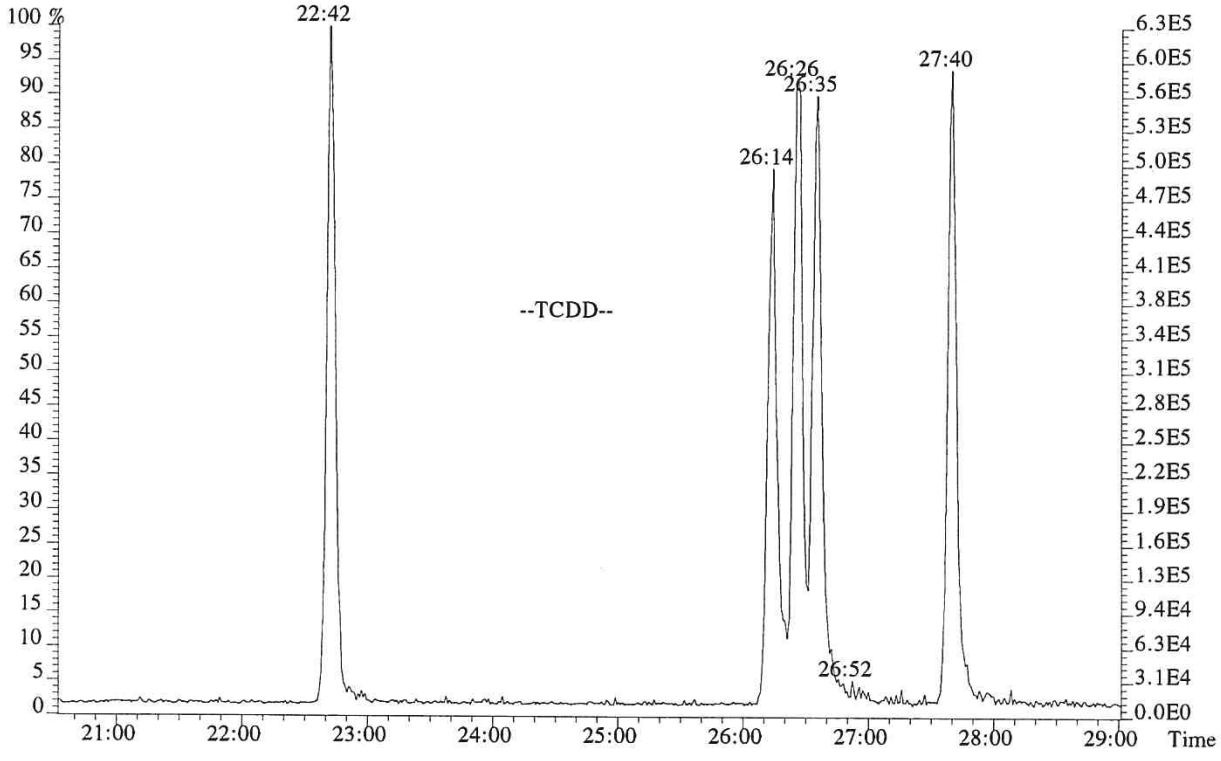

009074

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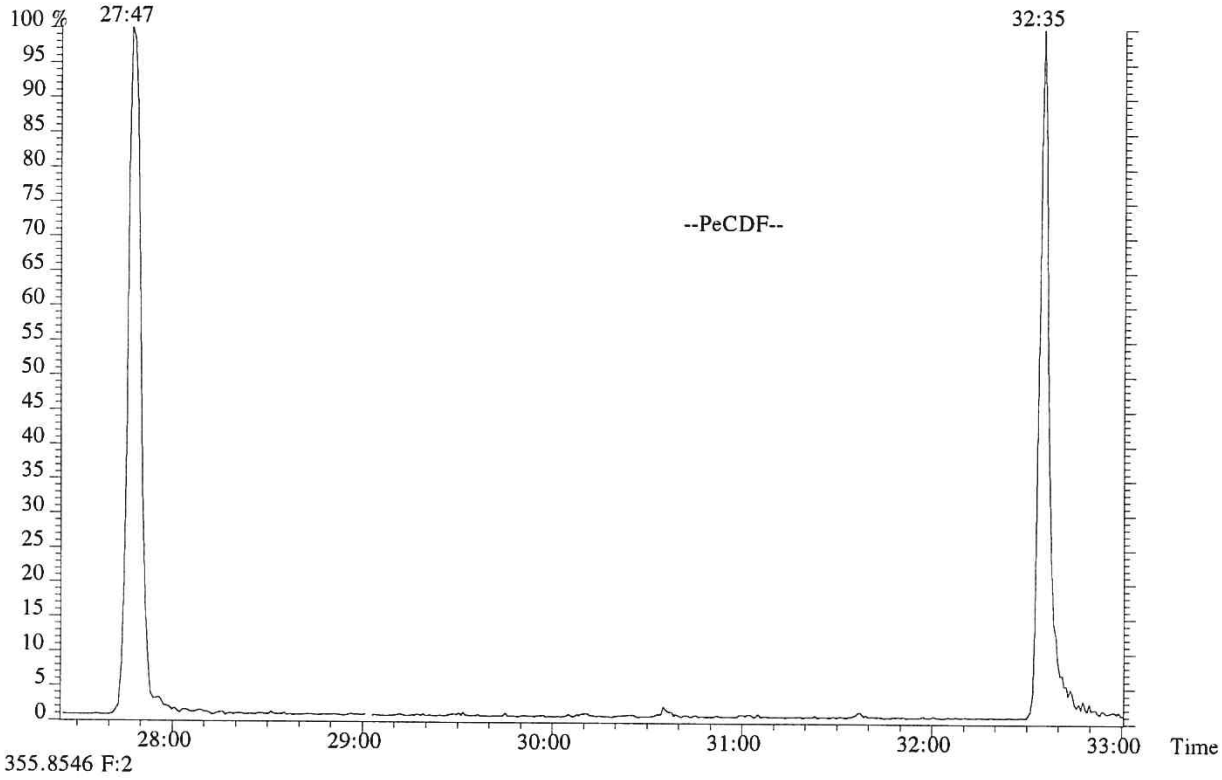

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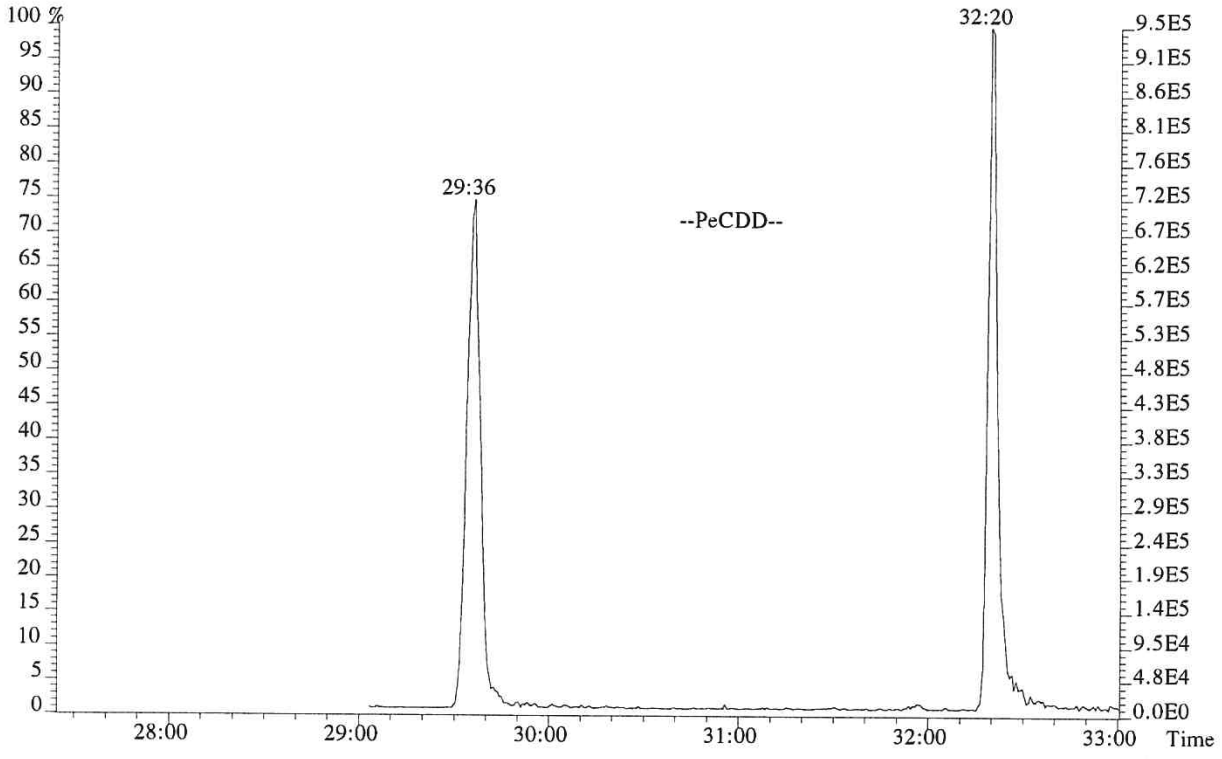

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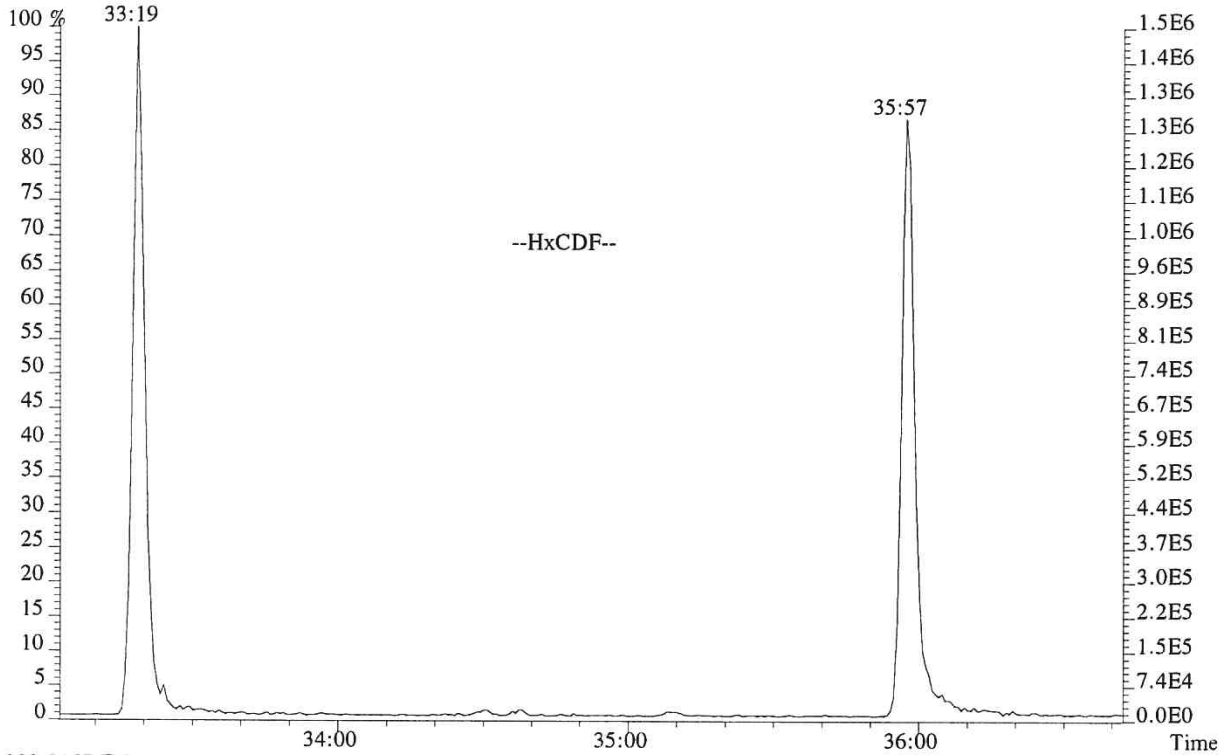
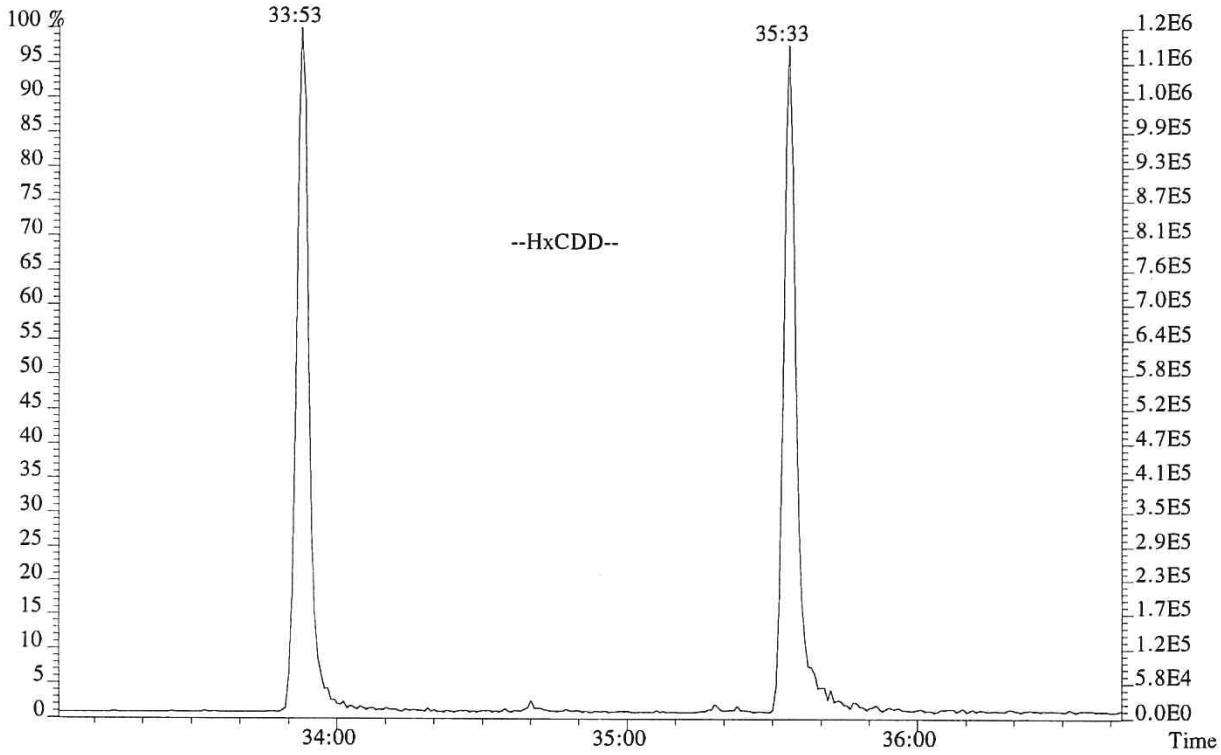
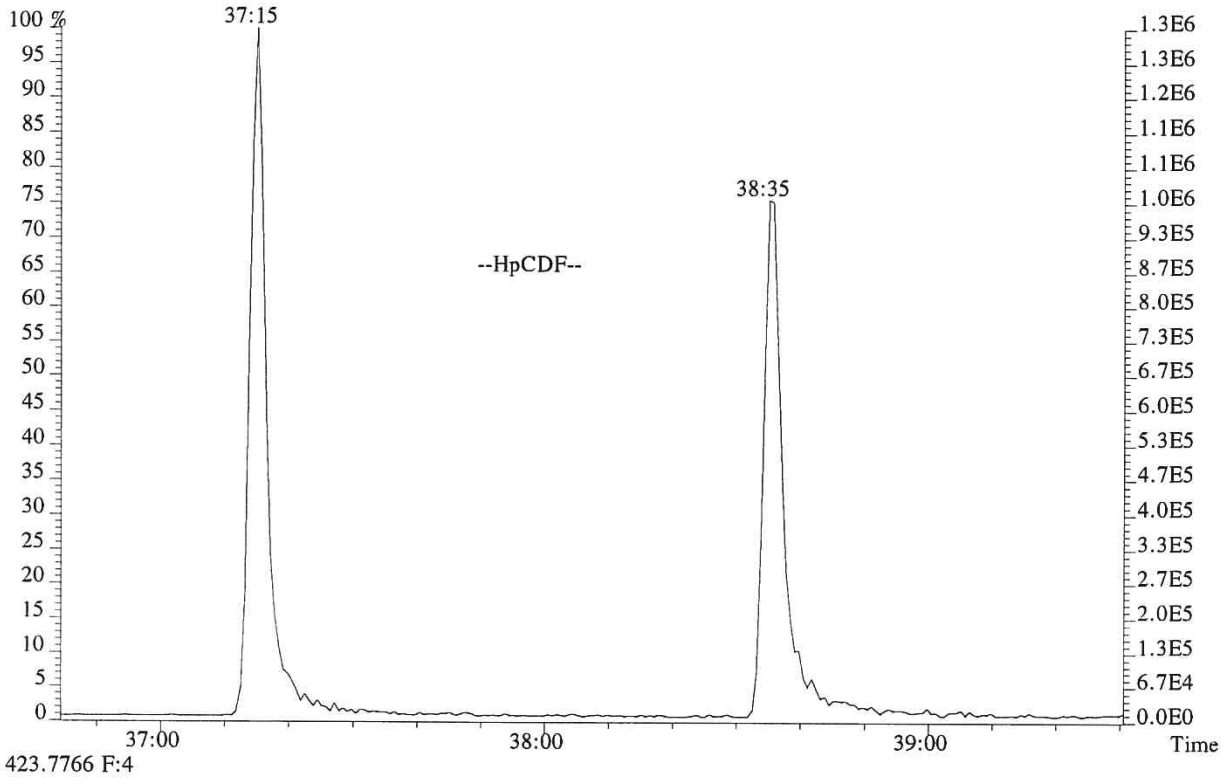


389.8157 F:3

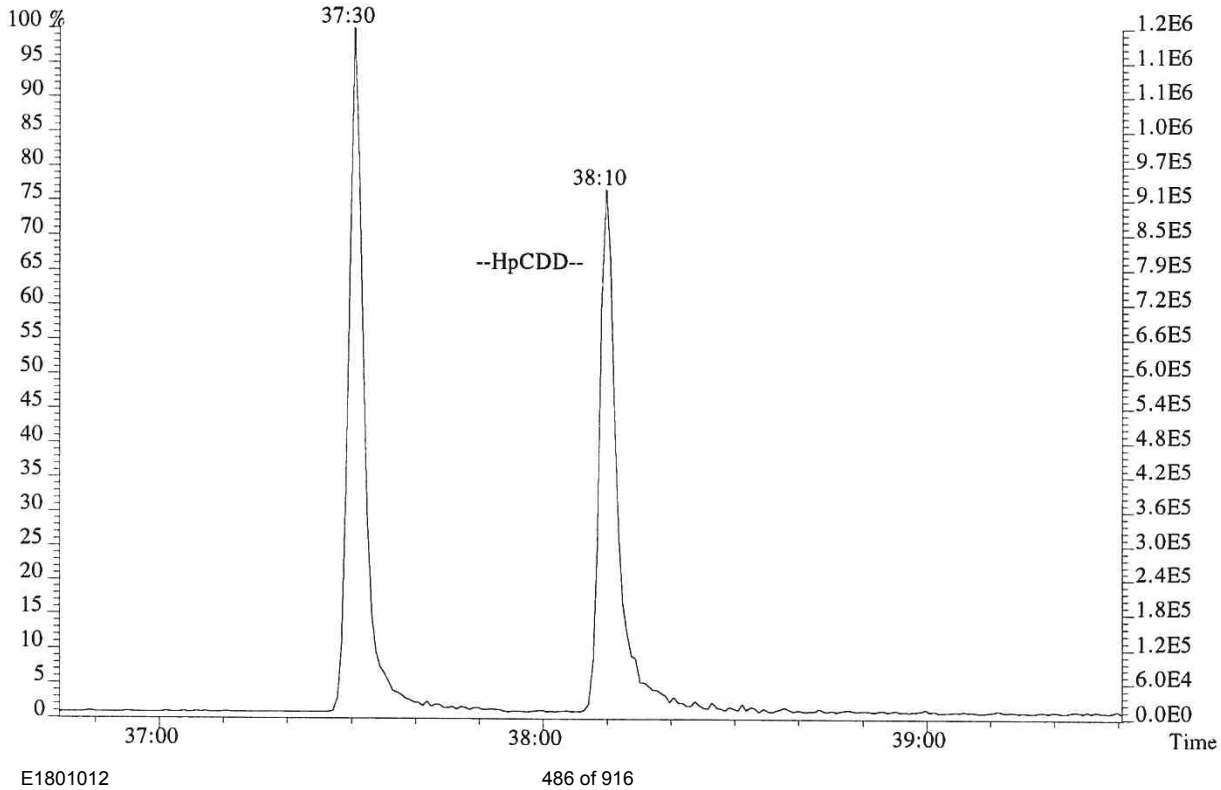


009076

File:P518839 #1-250 Acq:16-NOV-2018 01:08:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518837 Analysis Date: 15-NOV-18 Time: 23:25:04

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	9.5	7.8 - 12.9	-4.9
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	50	39 - 65	-0.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	50	39 - 64	0.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	51	39 - 64	1.4
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	55	41 - 61	10.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	0.7
OCDD	M+2/M+4	0.87	0.76-1.02	102	79 - 126	1.7
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.9	8.4 - 12.0	-1.2
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	51	41 - 60	1.2
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	50	41 - 61	0.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	45 - 56	1.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	0.8
1,2,3,7,8,9-HxCDF	M+2/M+4	1.21	1.05-1.43	50	45 - 56	-0.9
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	44 - 57	1.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	50	45 - 55	0.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	51	43 - 58	1.7
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	-0.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518837 Analysis Date: 15-NOV-18 Time: 23:25:04

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	105	82 - 121	4.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	113	62 - 160	13.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	87	85 - 117	-12.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	99	85 - 118	-1.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	112	72 - 138	12.4
13C-OCDD	M+2/M+4	0.91	0.76-1.02	286	96 - 415	43.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	96	71 - 140	-4.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.63	1.32-1.78	108	76 - 130	8.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	112	77 - 130	11.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	81	76 - 131	-19.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	91	70 - 143	-9.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	95	74 - 135	-5.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	93	73 - 137	-7.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	103	78 - 129	2.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	113	77 - 129	12.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.3	7.8 - 12.7	2.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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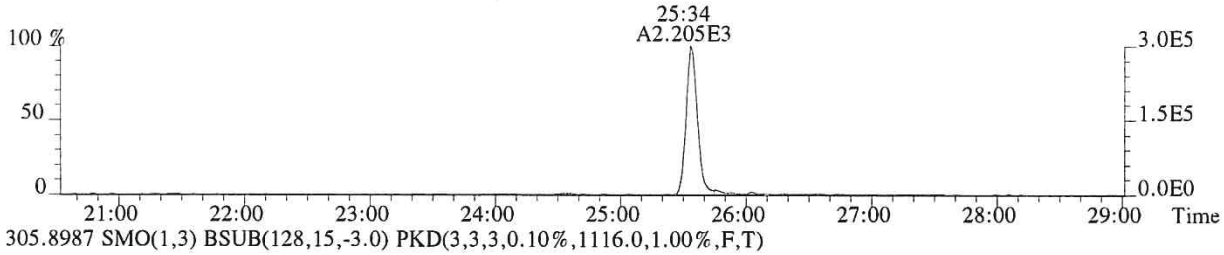
File:P518837 #1-602 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



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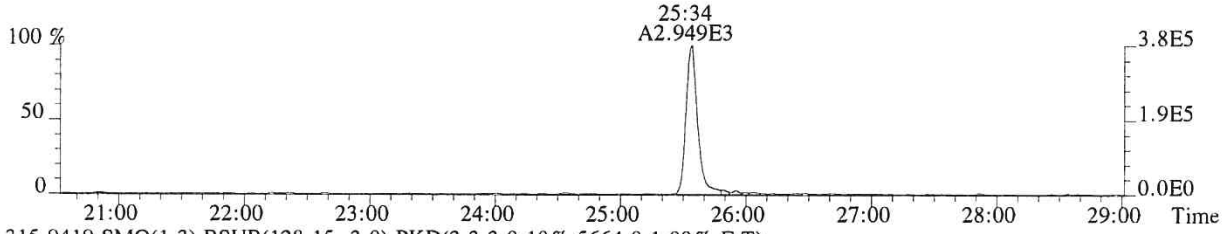
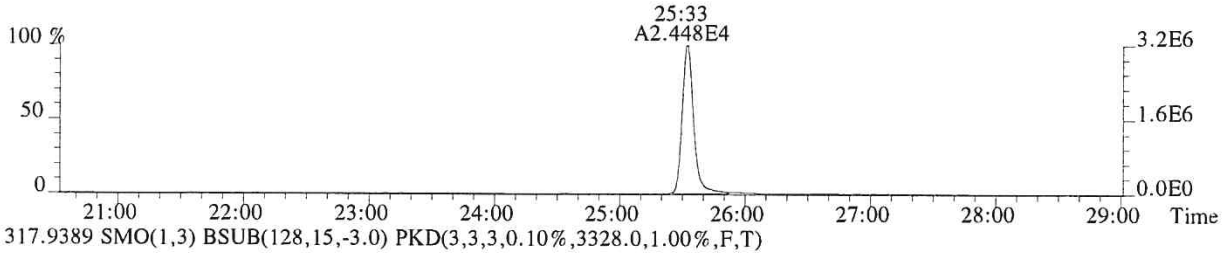


315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5664.0,1.00%,F,T)



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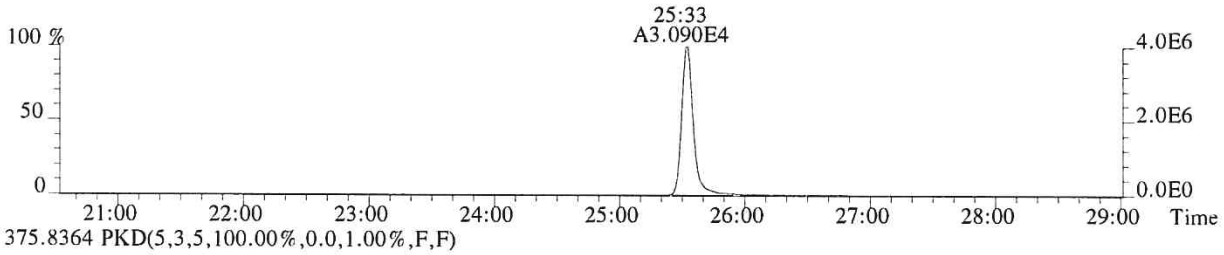
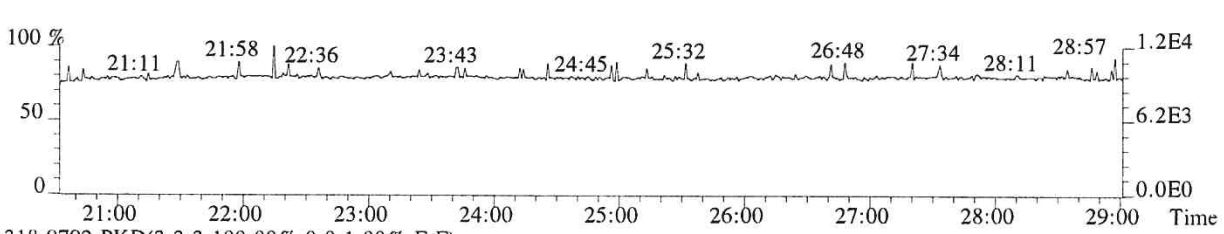
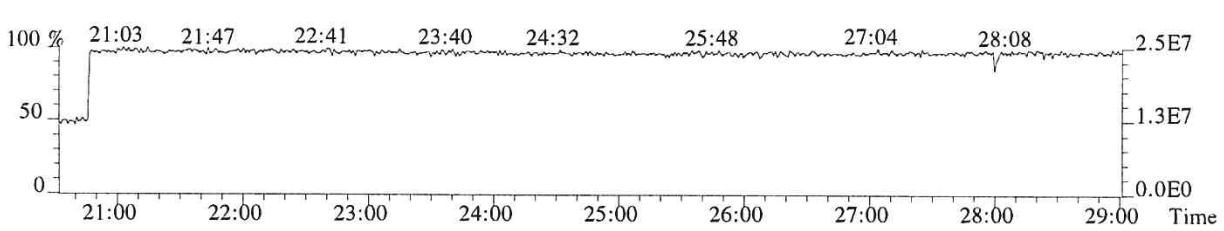


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

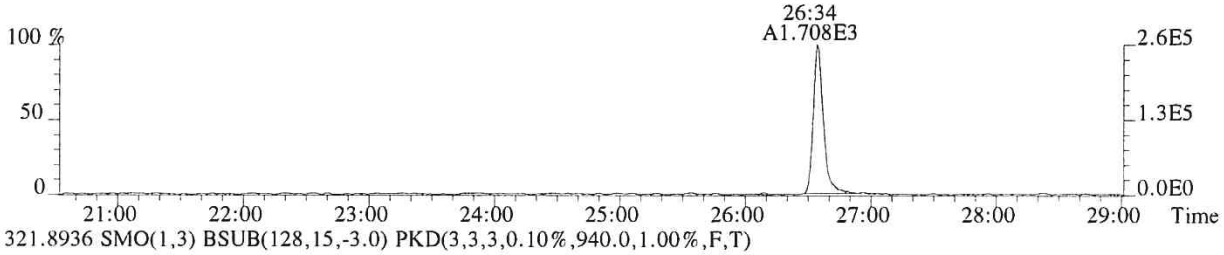


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

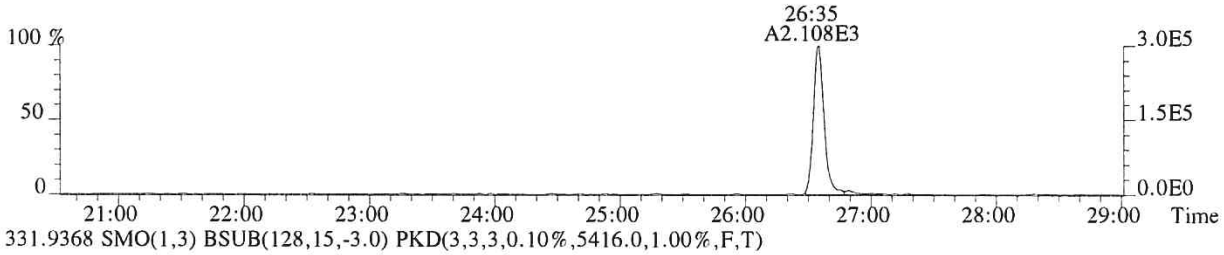


009082

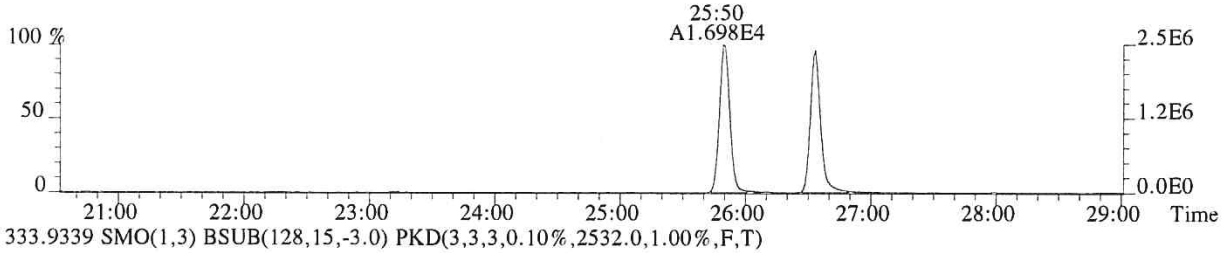
File:P518837 #1-602 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



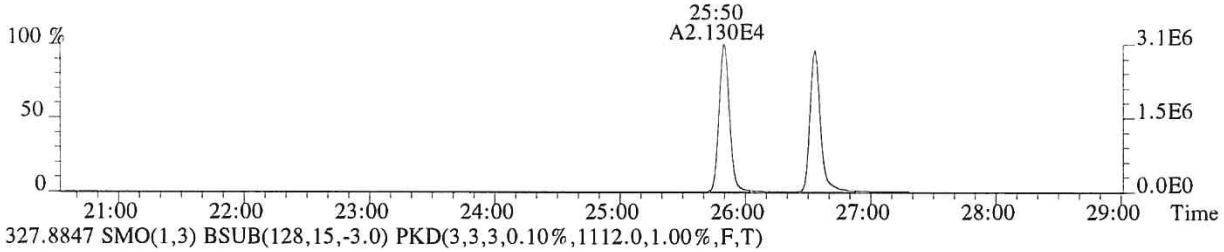
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



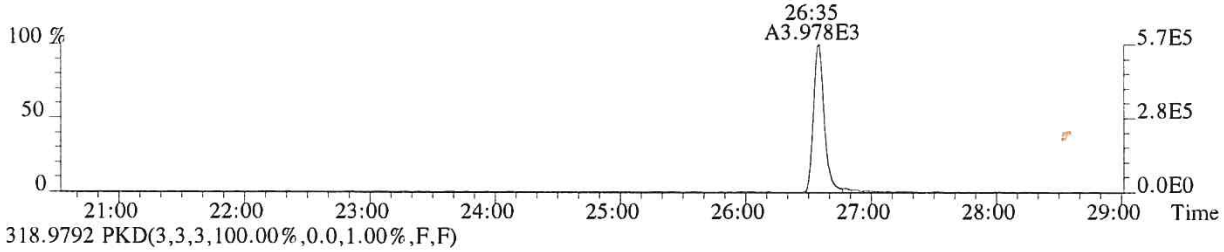
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5416.0,1.00%,F,T)



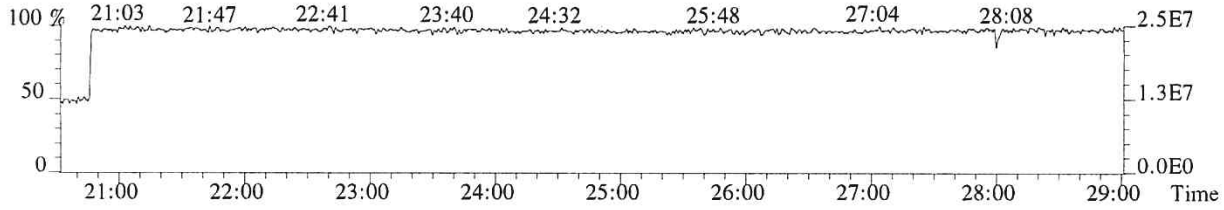
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2532.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)

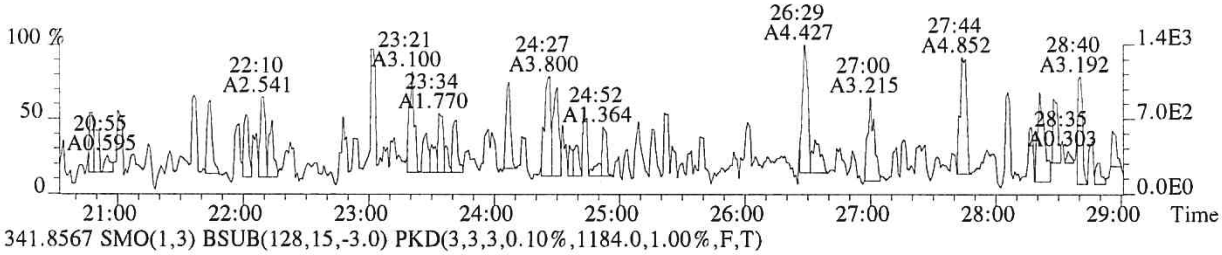


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

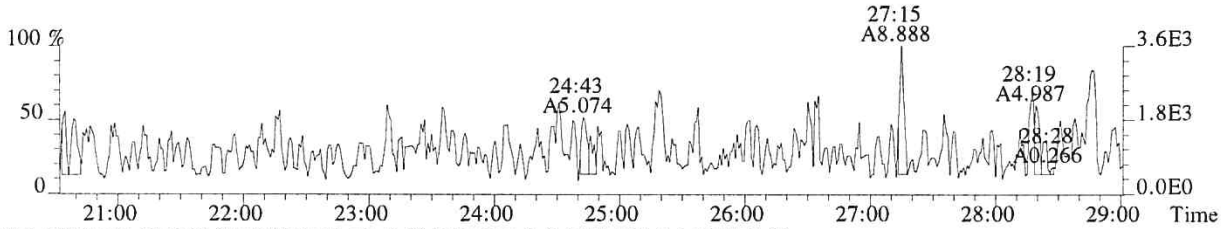


009083

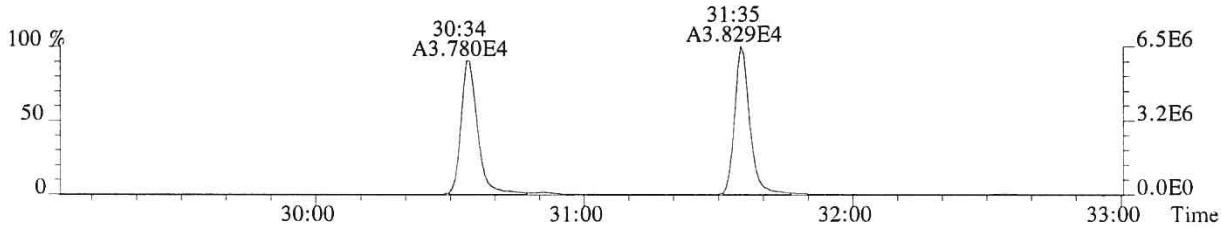
File:P518837 #1-602 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



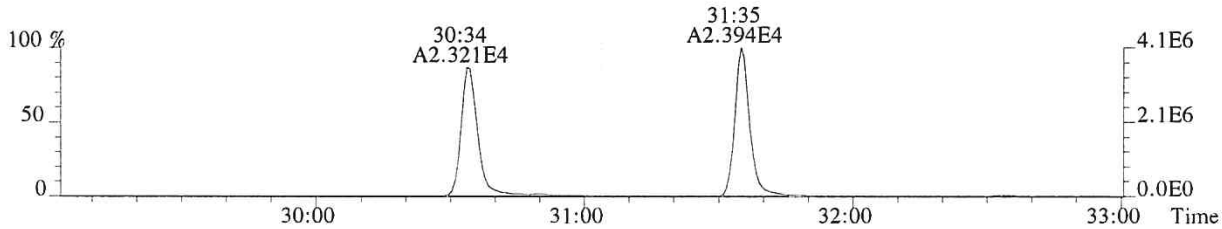
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



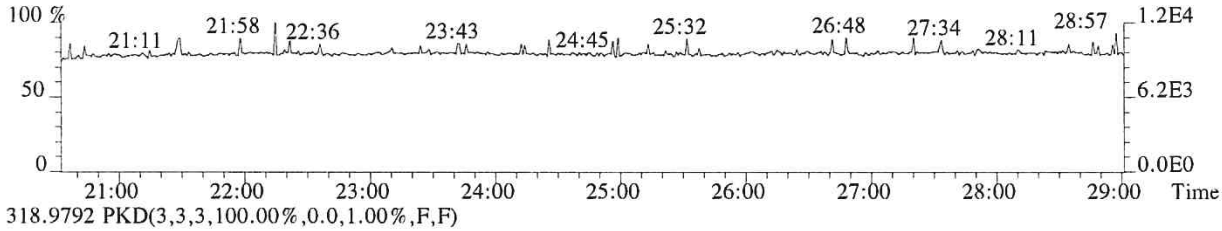
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



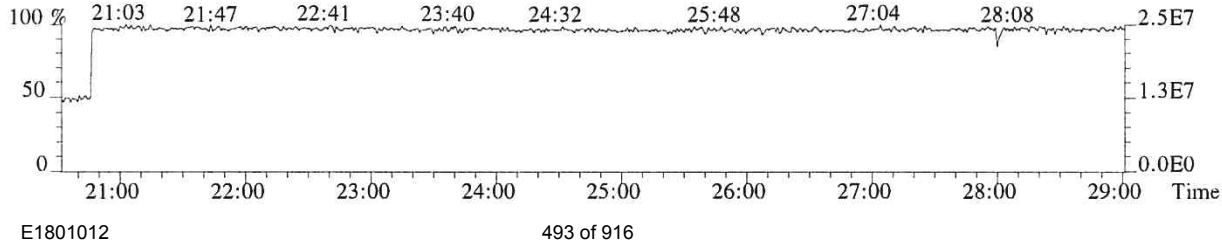
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

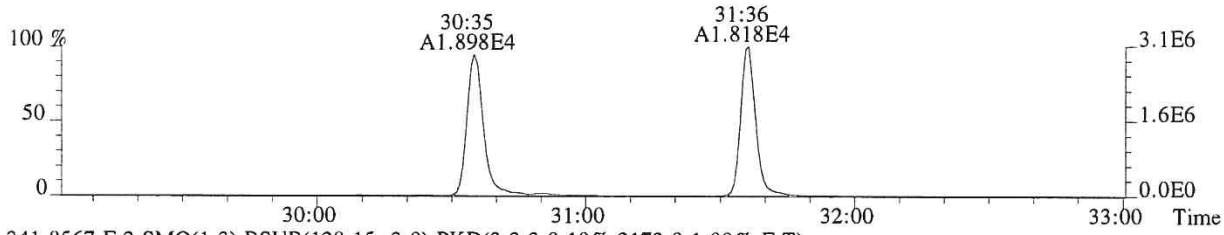


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

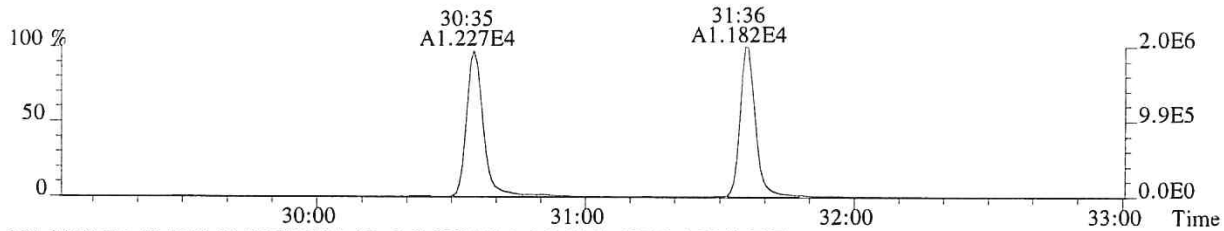


009084

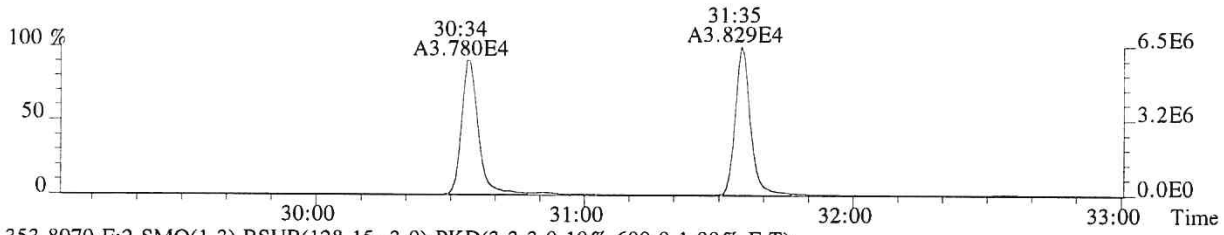
File:P518837 #1-357 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



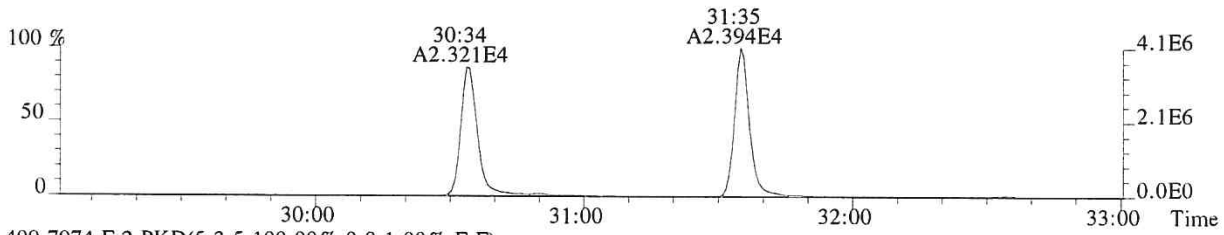
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2172.0,1.00%,F,T)



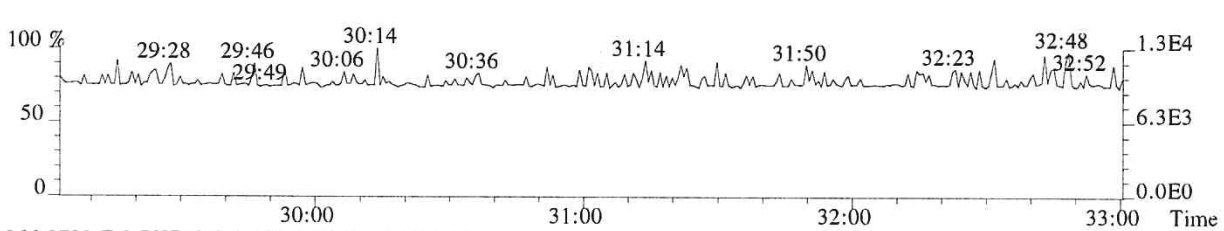
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



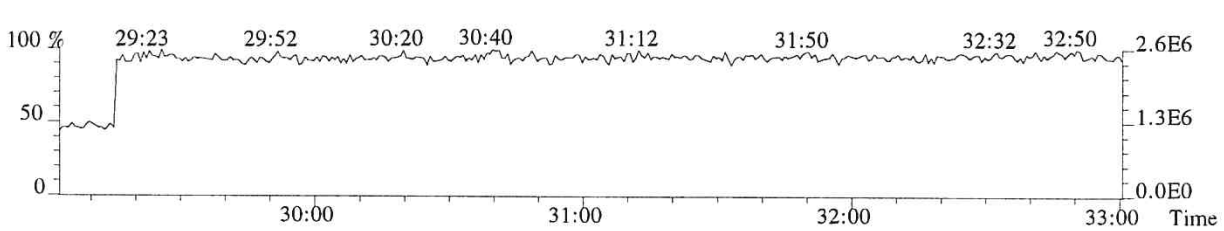
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

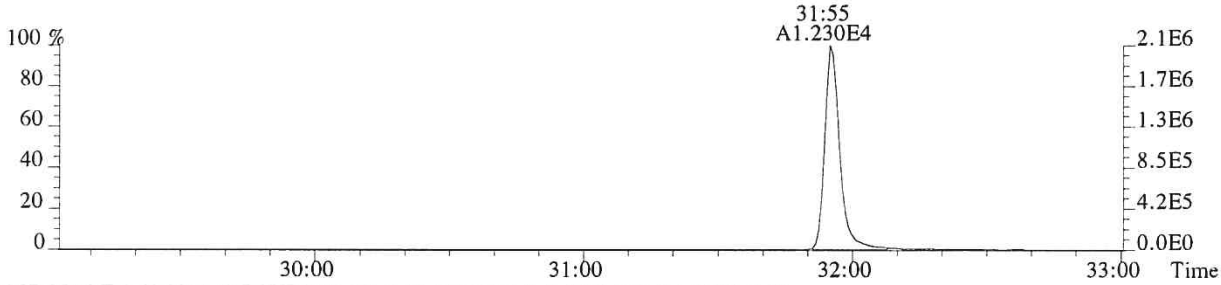


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

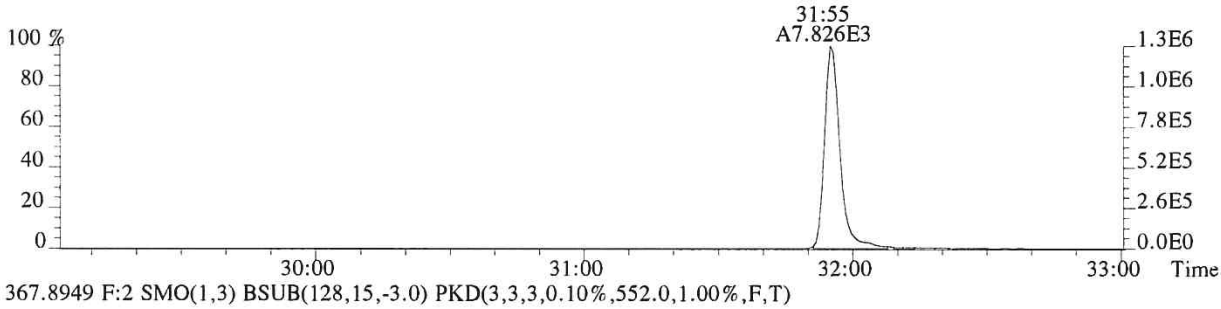


009085

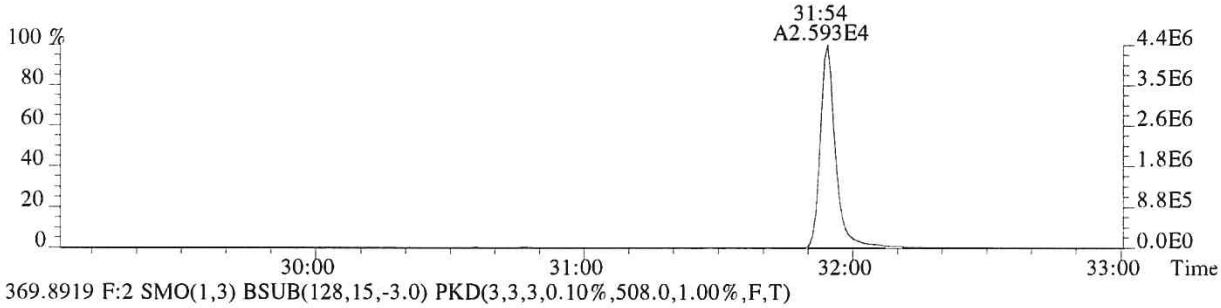
File:P518837 #1-357 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



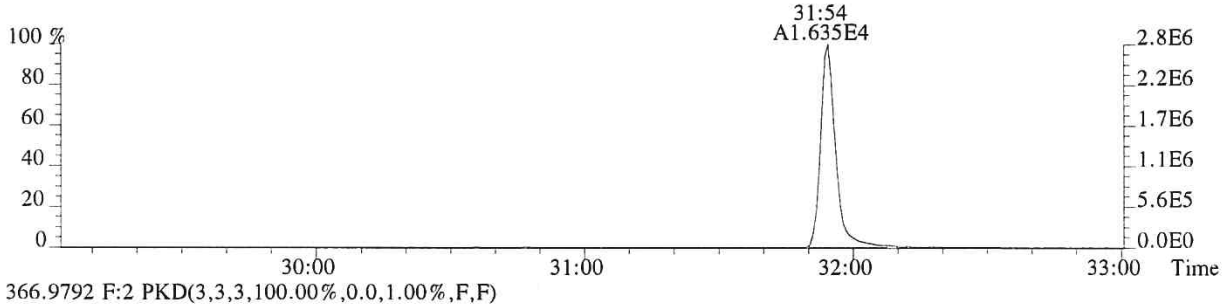
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



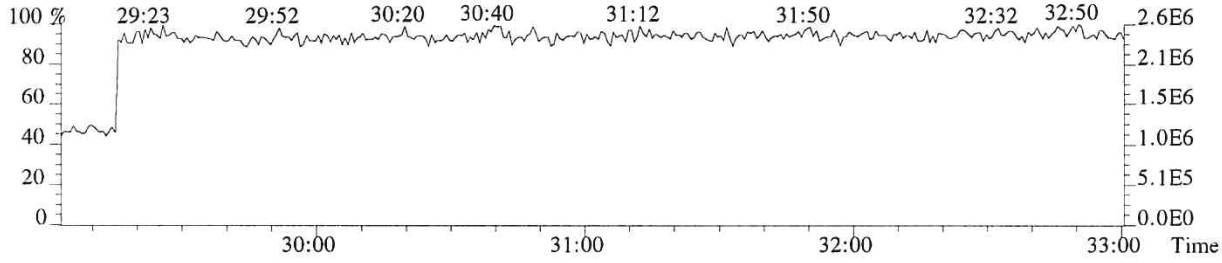
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



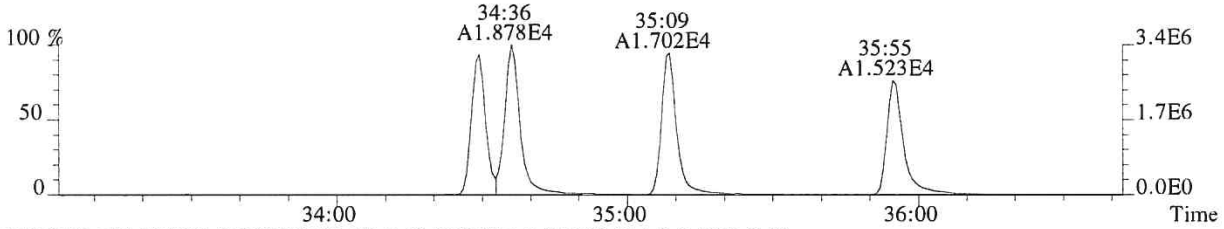
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



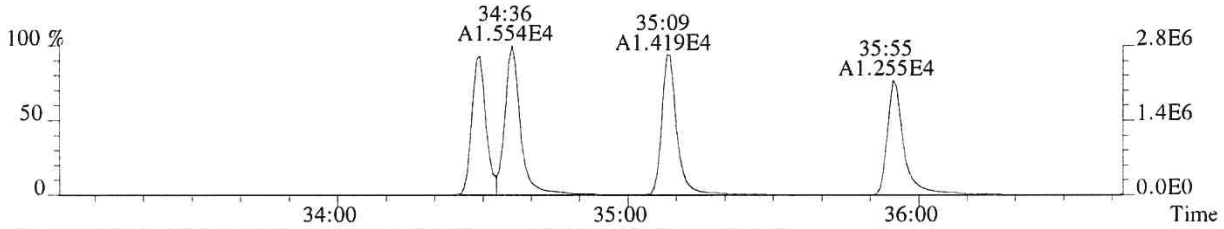
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



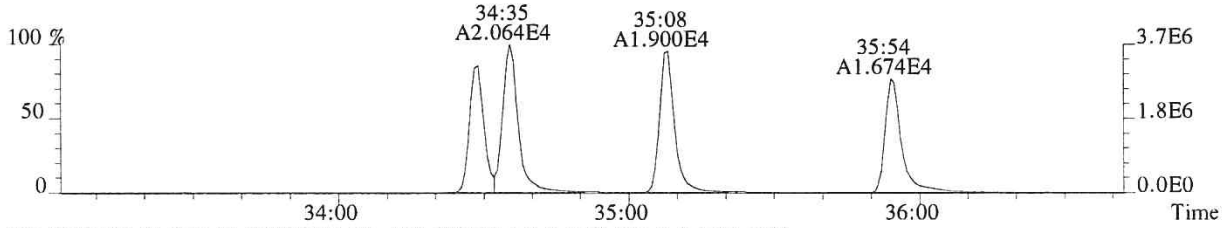
File:P518837 #1-330 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



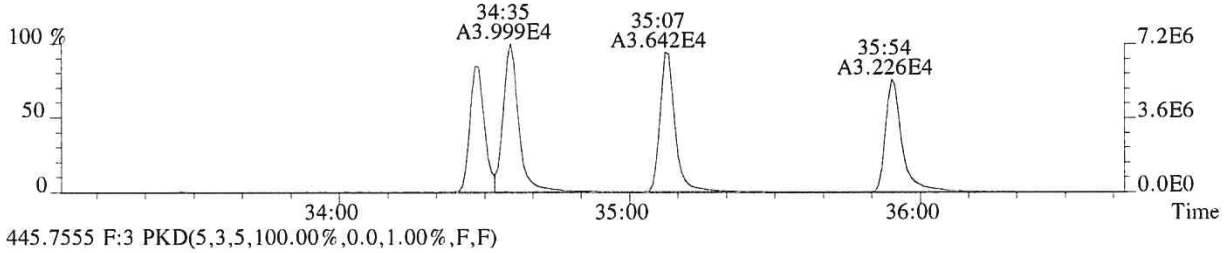
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



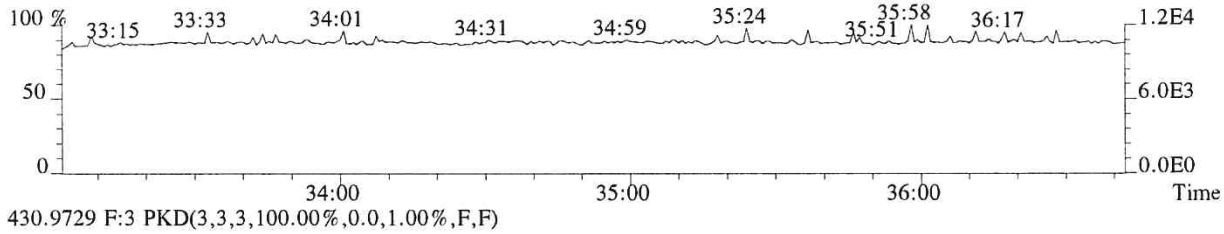
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



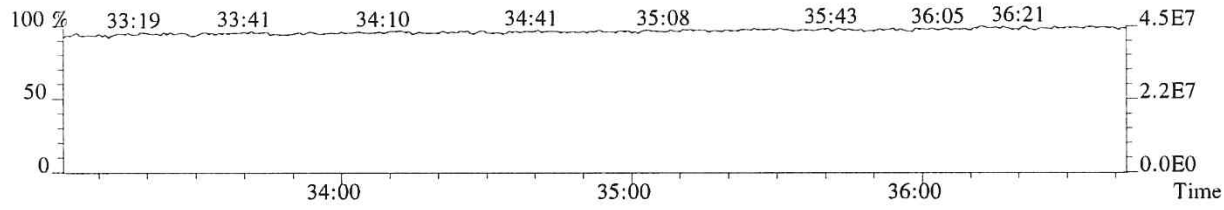
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



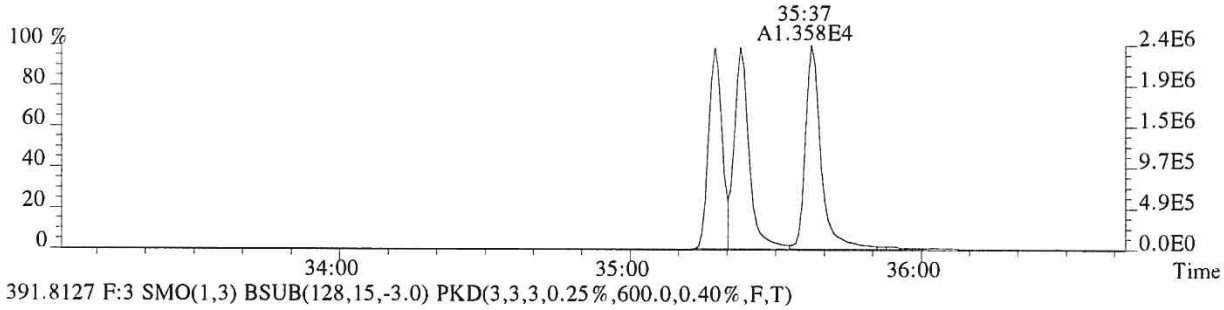
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



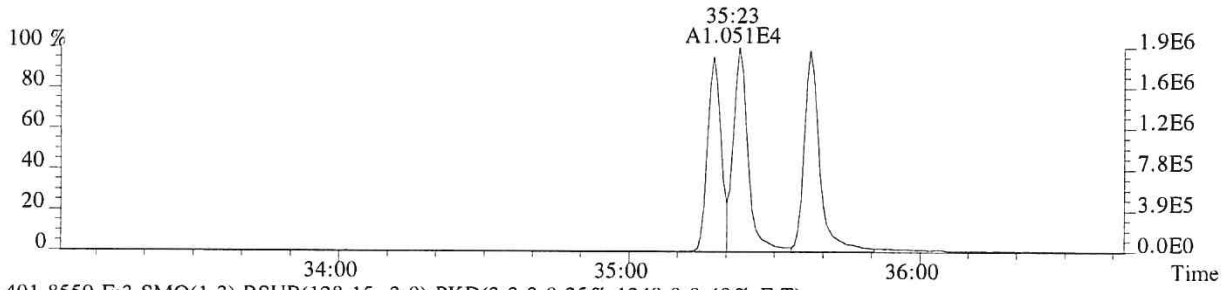
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



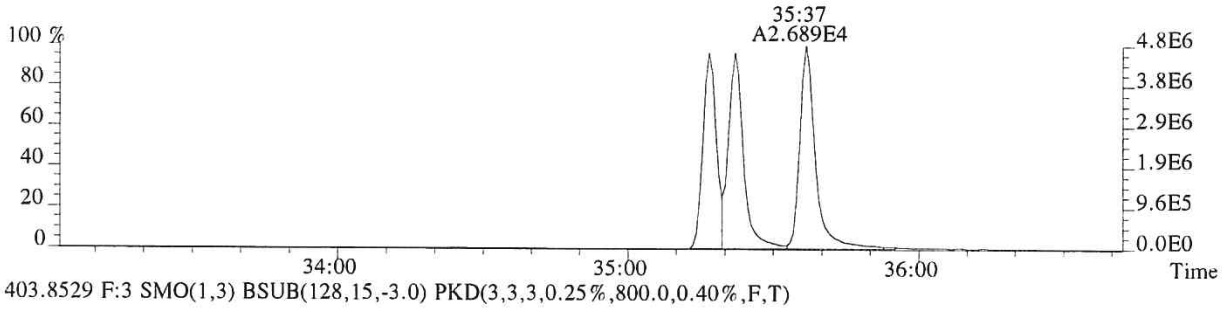
File:P518837 #1-330 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



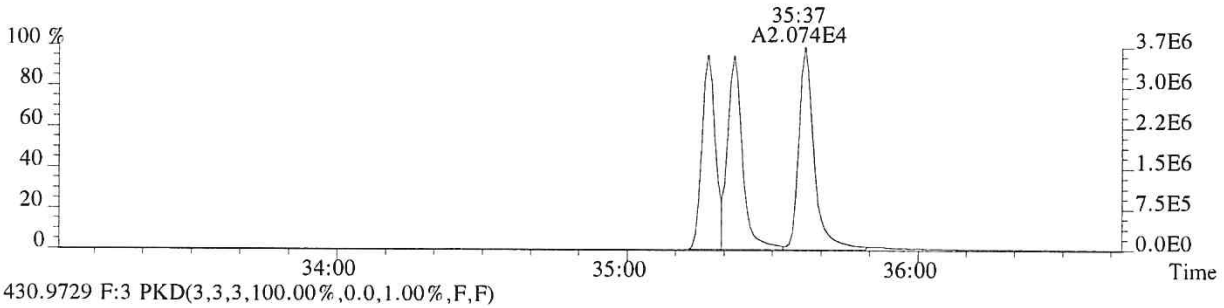
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



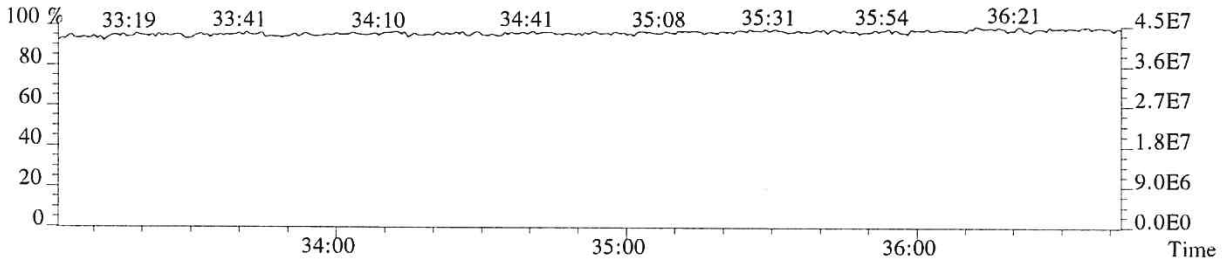
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.40%,F,T)



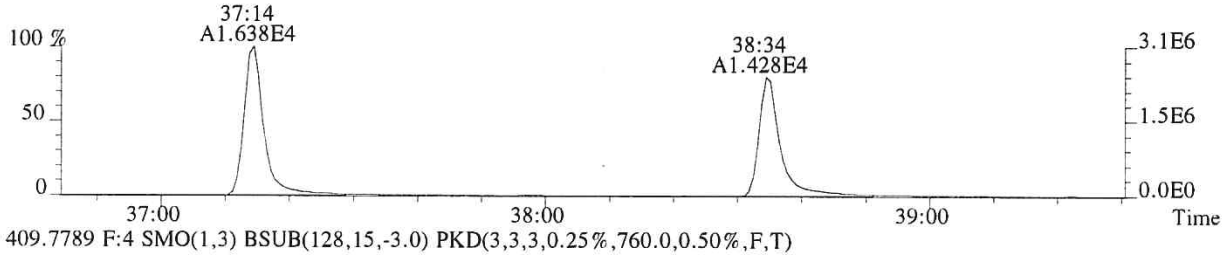
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



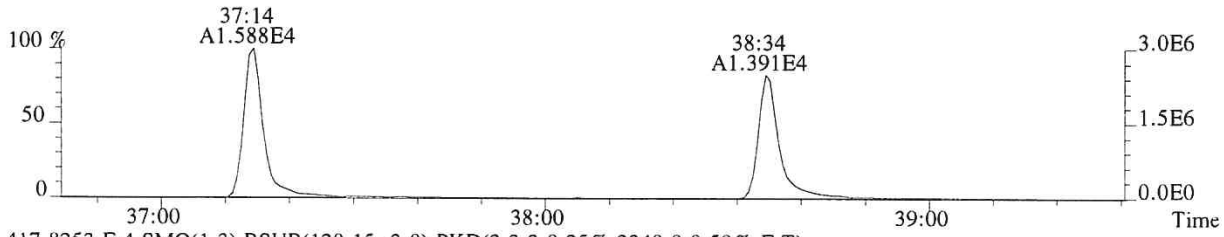
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



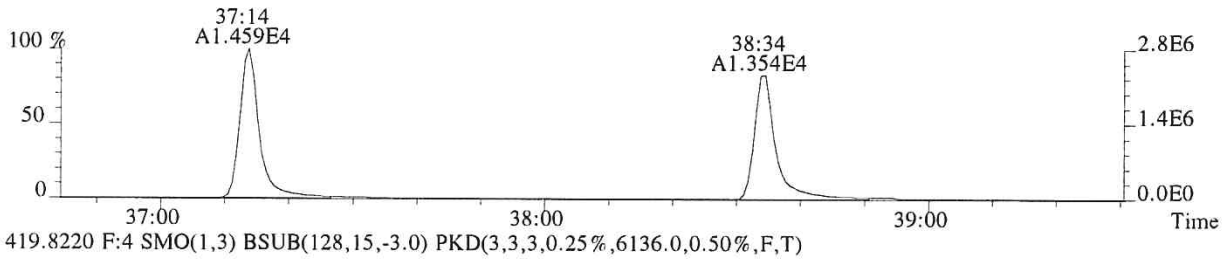
File:P518837 #1-250 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.50%,F,T)



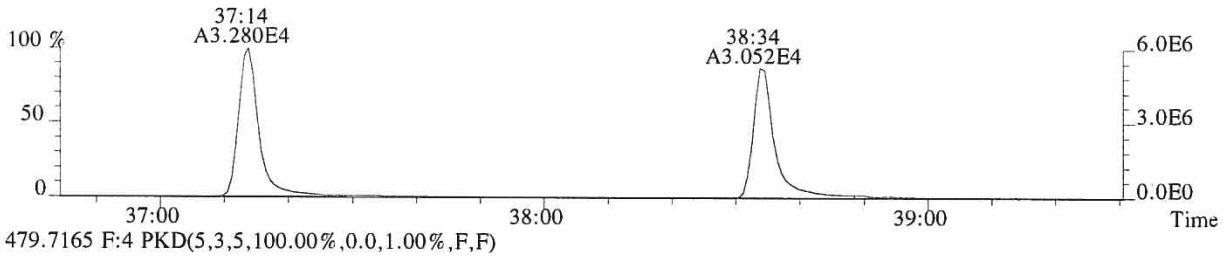
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.50%,F,T)



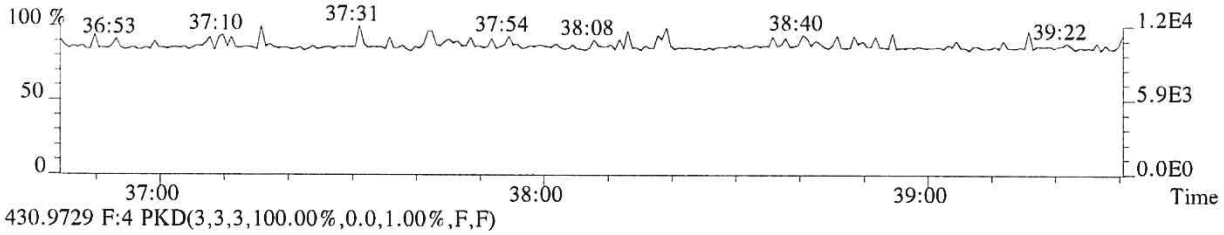
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2340.0,0.50%,F,T)



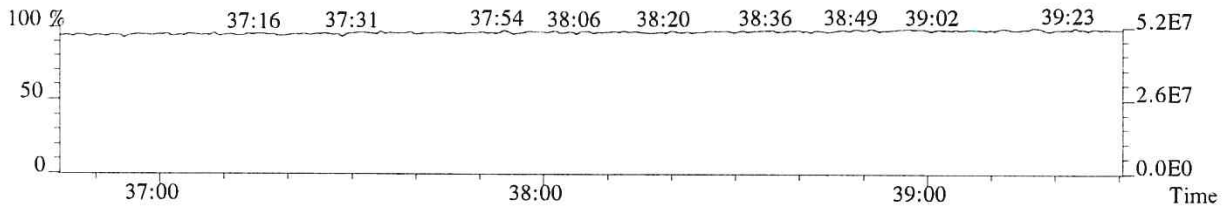
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6136.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

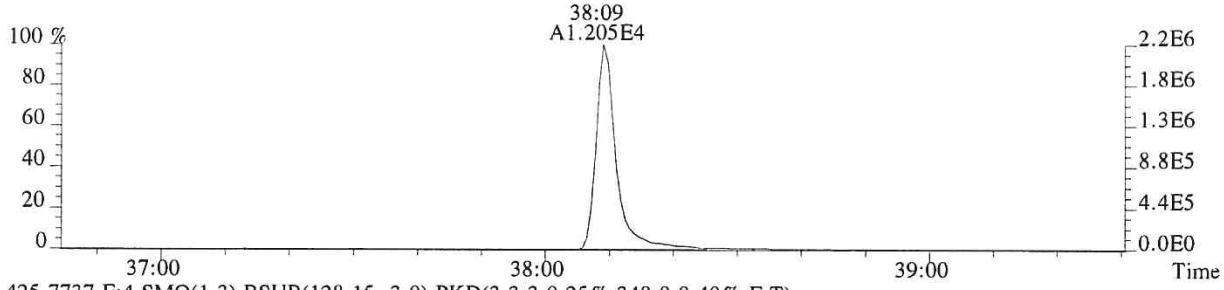


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

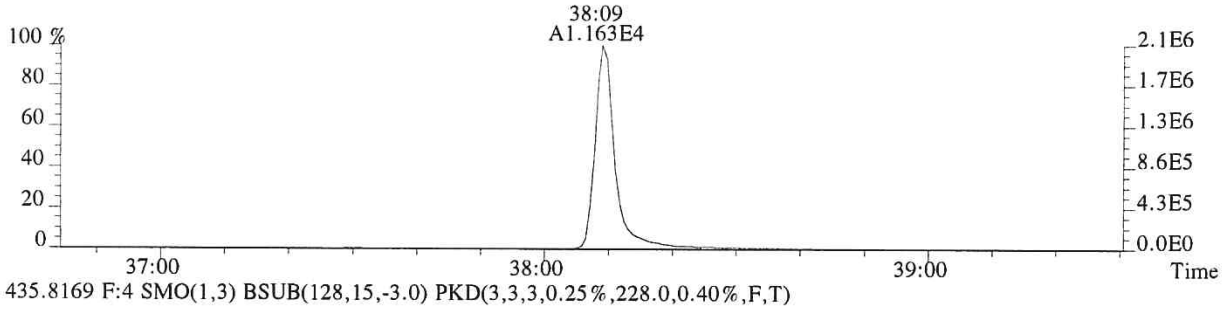


009089

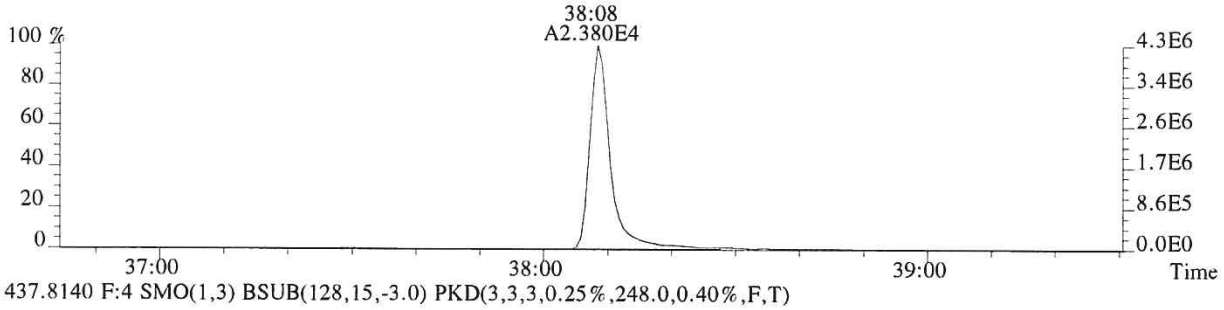
File:P518837 #1-250 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



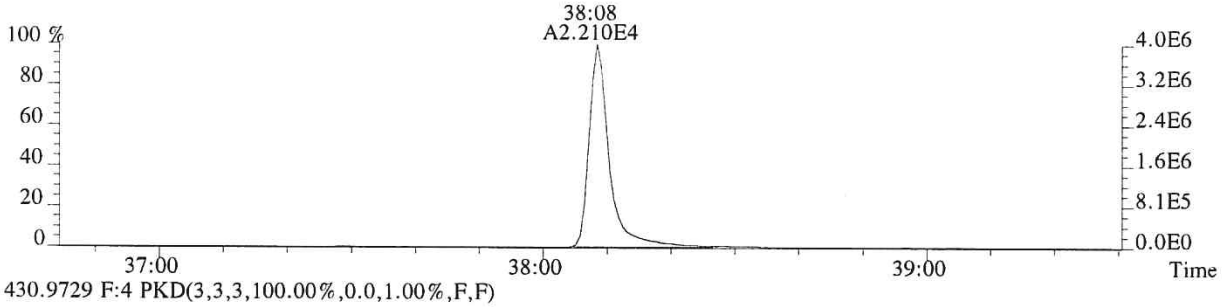
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



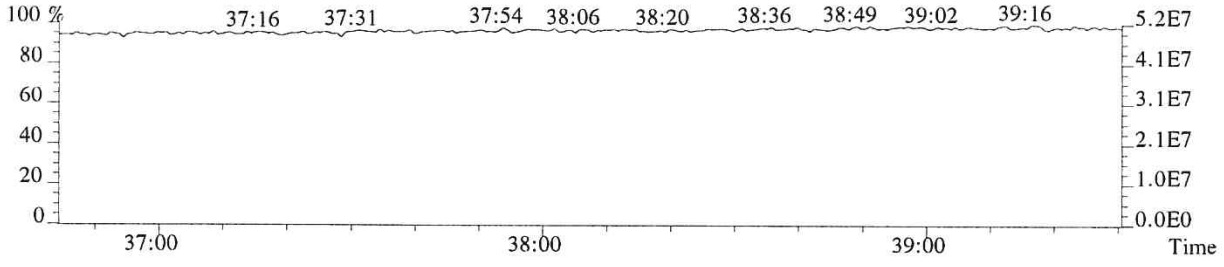
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)

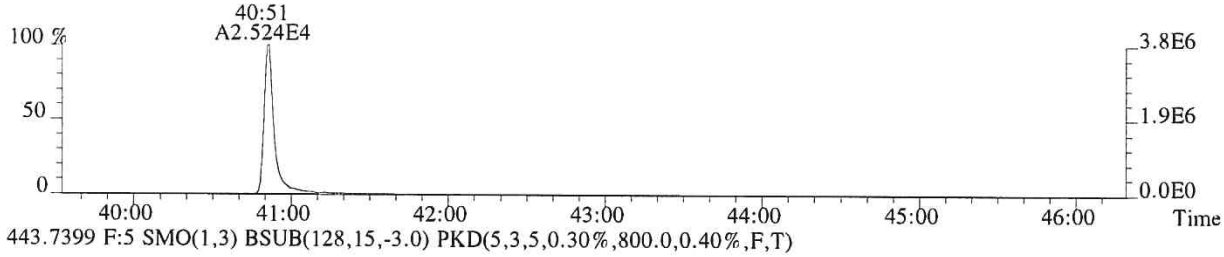


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

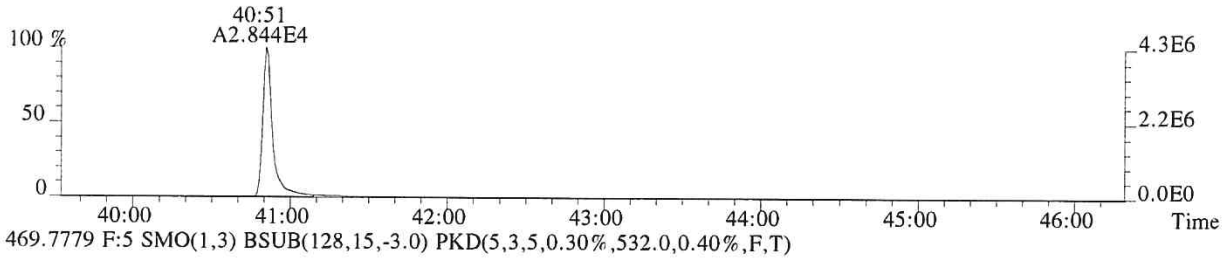


009090

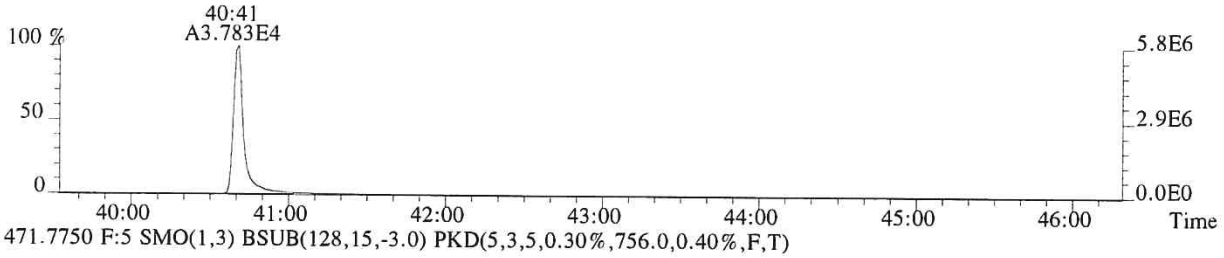
File:P518837 #1-610 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



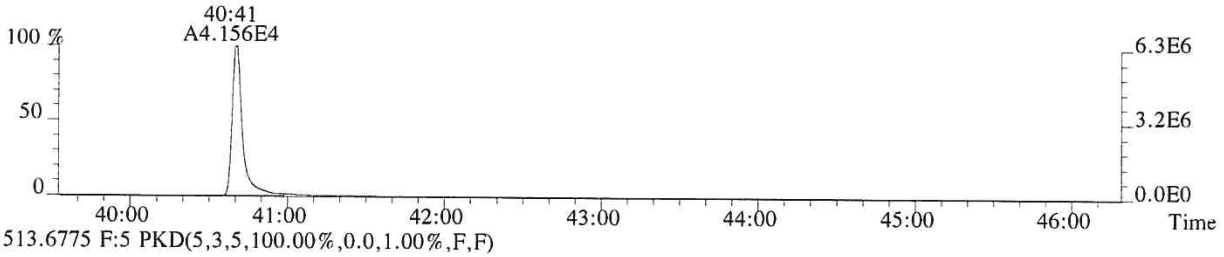
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



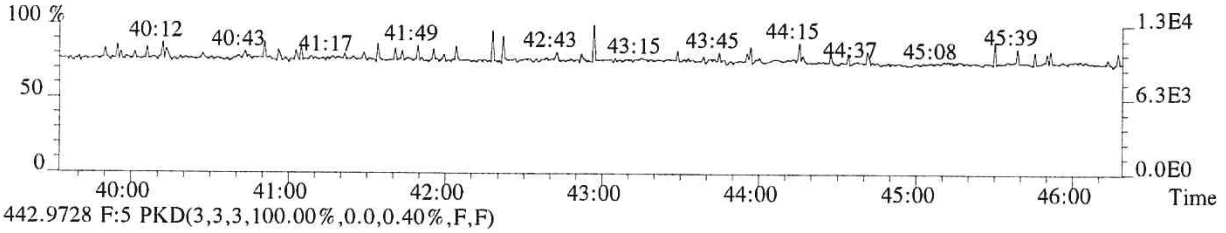
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



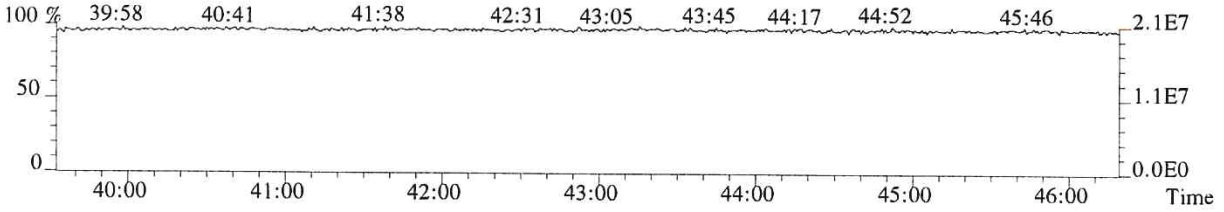
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

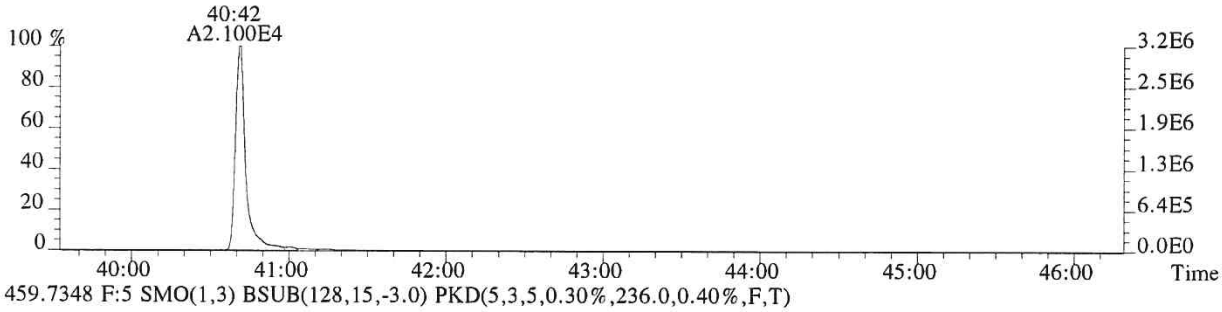


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

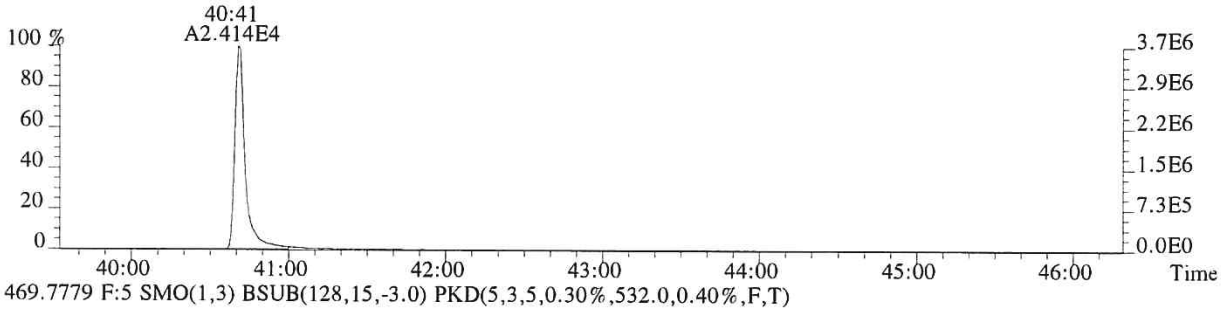


009091

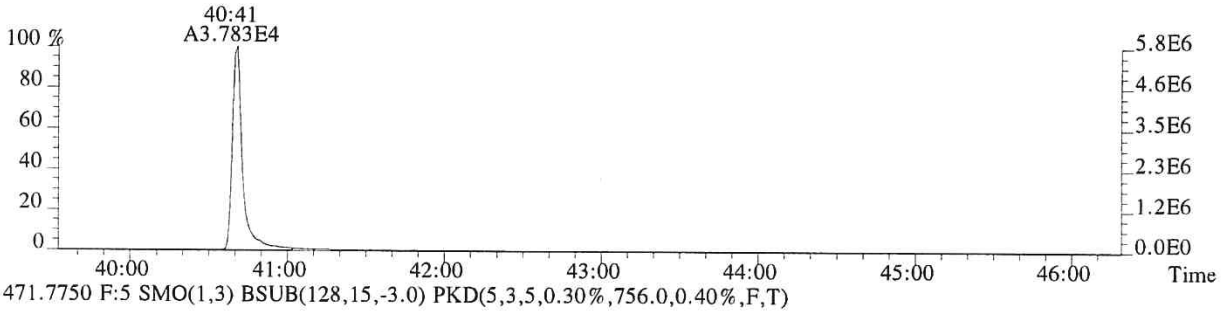
File:P518837 #1-610 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



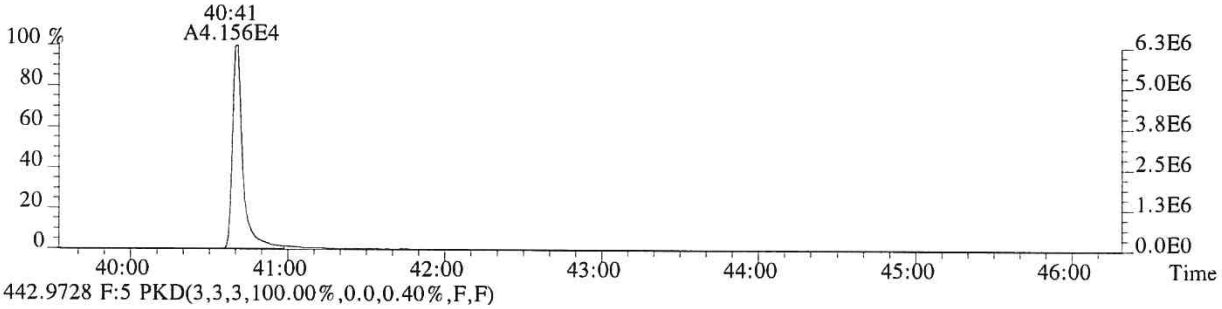
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



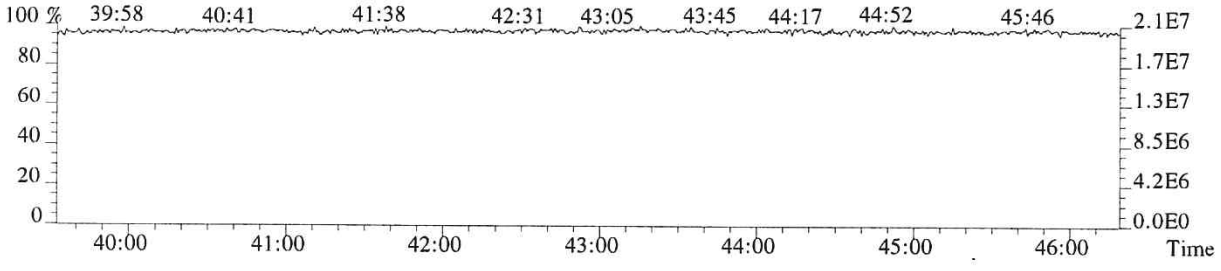
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P5188105

Date: 11/7/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: QC

Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P518865	17-NOV-18	01:07:48
192977	WINDOW DEFINE	P518866	17-NOV-18	01:55:35
METHOD BLANK	EQ1800457-01	P518867	17-NOV-18	02:44:15
METHOD BLANK	EQ1800468-01	P518868	17-NOV-18	03:32:53
SL0022	E1801020-018	P518869	17-NOV-18	04:21:31
SL0011	E1801020-034	P518870	17-NOV-18	05:10:10
SL0033	E1801020-045	P518871	17-NOV-18	05:58:47
SL0034	E1801020-051	P518872	17-NOV-18	06:47:25
SL0046	E1801020-052	P518873	17-NOV-18	07:36:04
SL0072	E1801012-020	P518874	17-NOV-18	08:24:42
SL0084	E1801035-006	P518875	17-NOV-18	09:13:20
SL0519	E1801038-001	P518876	17-NOV-18	10:01:58
LCS	EQ1800468-02	P518877	17-NOV-18	10:50:36
DLCS	EQ1800468-03	P518878	17-NOV-18	11:39:16

E1801012

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181116B.SPL
Last Modified: Monday, November 19, 2018 07:44:12 Central Standard Time
Printed: Monday, November 19, 2018 07:44:15 Central Standard Time

Page Position (1, 1)

OPUS 4: P518865res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst LG for WKL	Comments
1	4/17/18	01:07	P518865	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMScheck 01:07
2		01:55	P518866	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		02:44	P518867	MB	EQ1800457-01	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		03:33	P518868	MB	EQ1800468-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		04:21	P518869	E1801020-018	E1801020-018	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		05:10	P518870	E1801020-034	E1801020-034	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		05:58	P518871	E1801020-045	E1801020-045	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		06:47	P518872	E1801020-051	E1801020-051	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		07:36	P518873	E1801020-052	E1801020-052	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		08:24	P518874	E1801012-020	E1801012-020	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		09:13	P518875	E1801035-006	E1801035-006	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		10:01	P518876	E1801038-001	E1801038-001	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		10:50	P518877	LCS	EQ1800468-02	EPA1613_ALS	Dioxin_ALS	Tray1:2		
14		11:39	P518878	DLCS	EQ1800468-03	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15		12:36	P518879	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMScheck 12:36
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---

LG 11/21/18

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

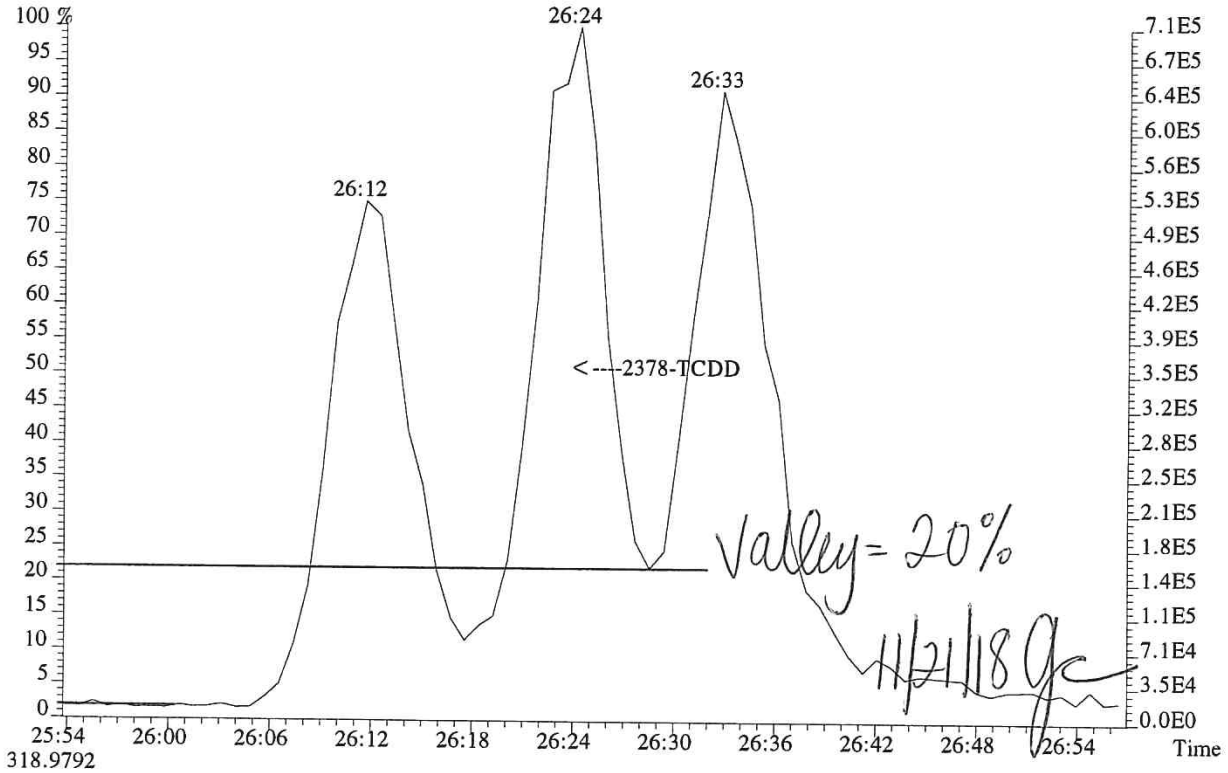
Case No.: _____ SDG No.:
ID: 0.25 (mm)

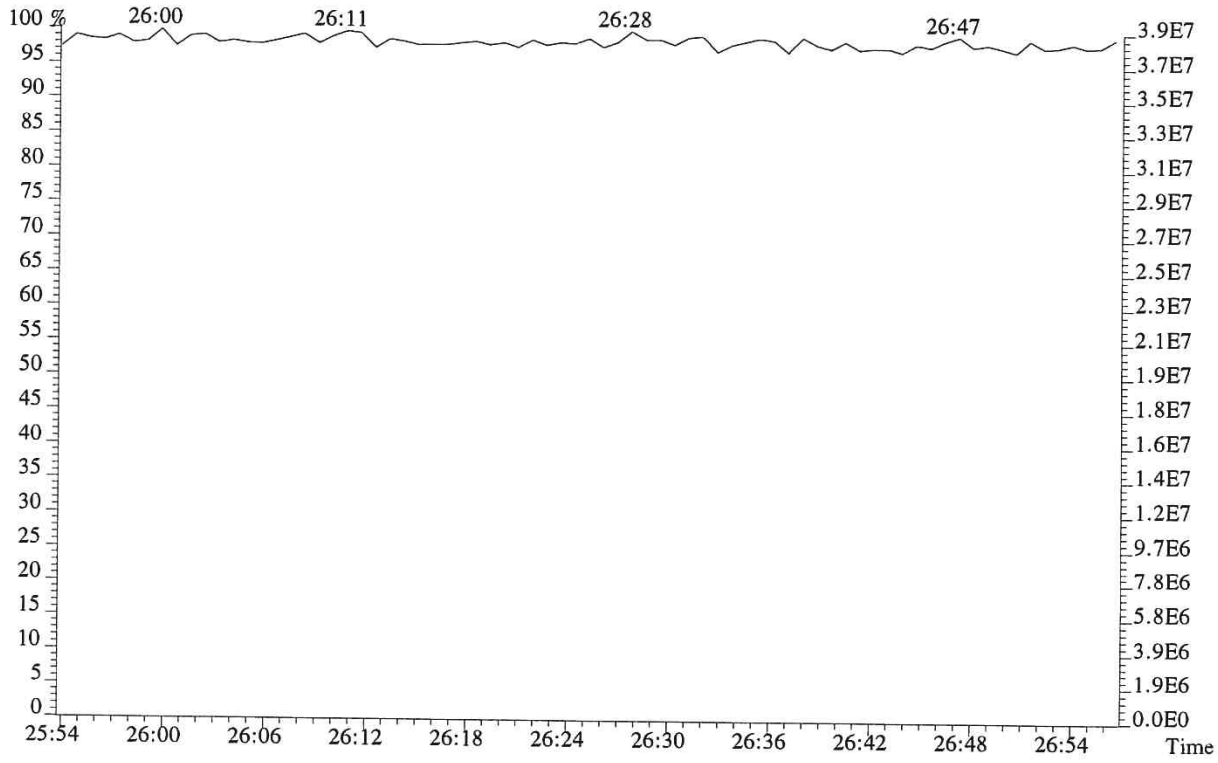
Lab File ID: P518866
Date Analyzed: 17-NOV-2018
Time Analyzed: 01:55:35

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:06	27:48
TCDD	22:40	27:38
PeCDF	27:46	32:34
PeCDD	29:35	32:18
HxCDF	33:17	35:57
HxCDD	33:51	35:32
HpCDF	37:14	38:34
HpCDD	37:30	38:08

% Valley 2378-TCDD: 20 %

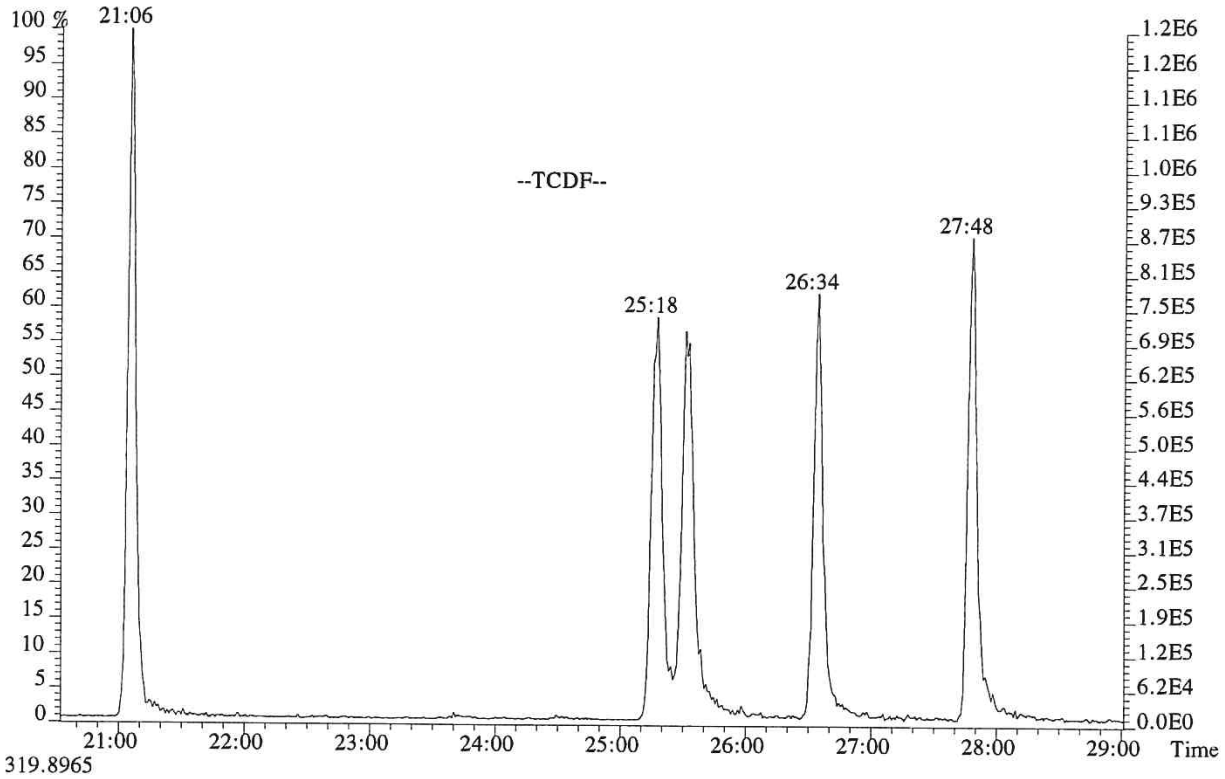
File:P518866 #1-602 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965

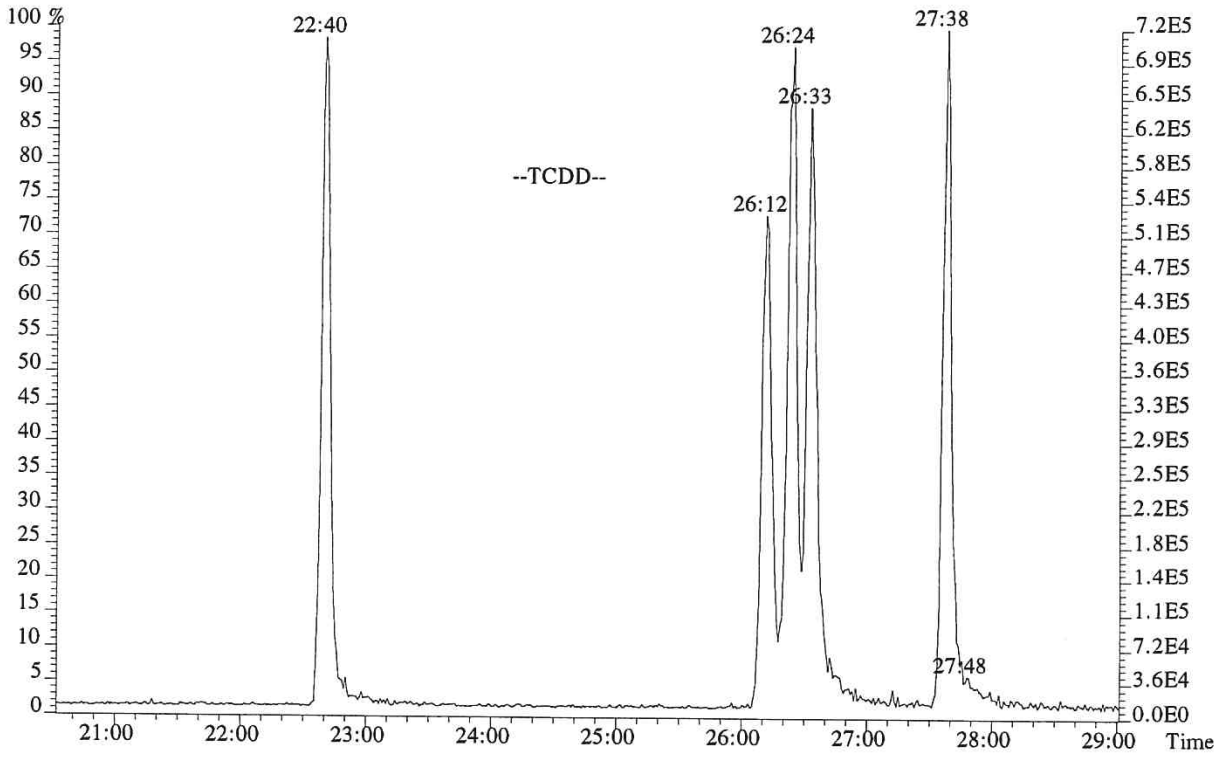




009097

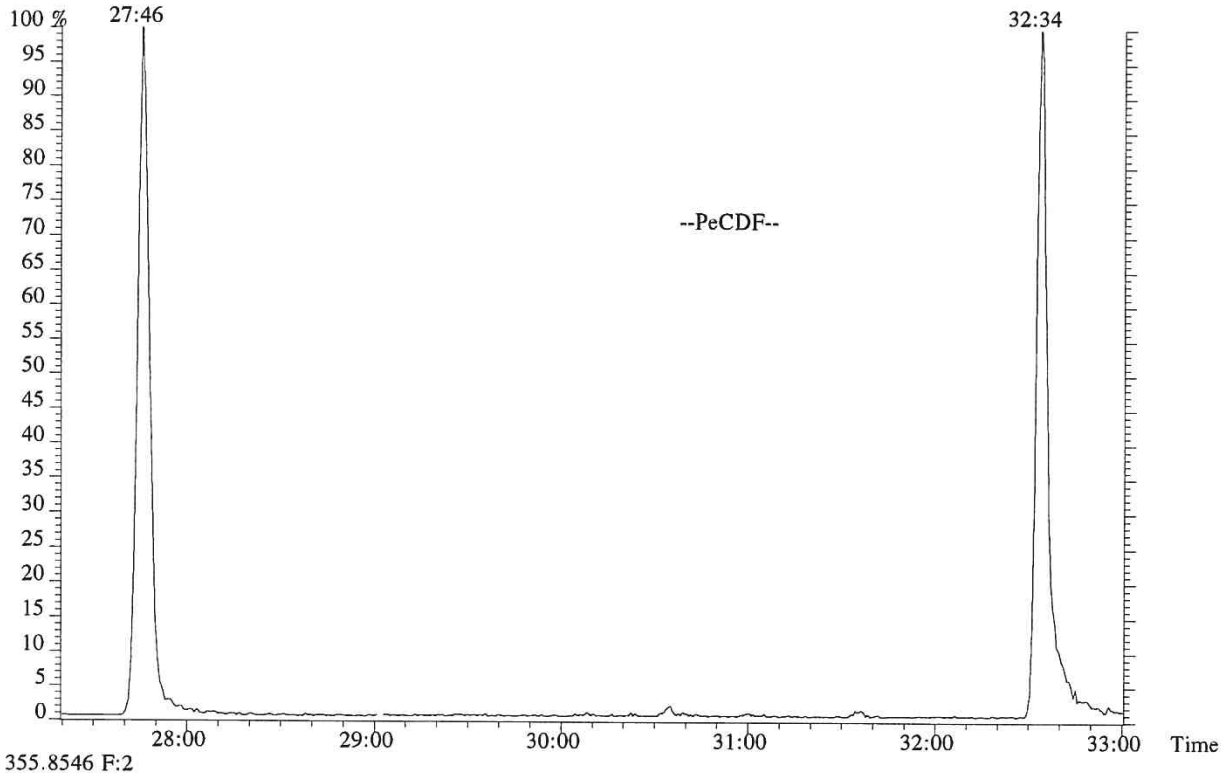
File:P518866 #1-602 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
303.9016



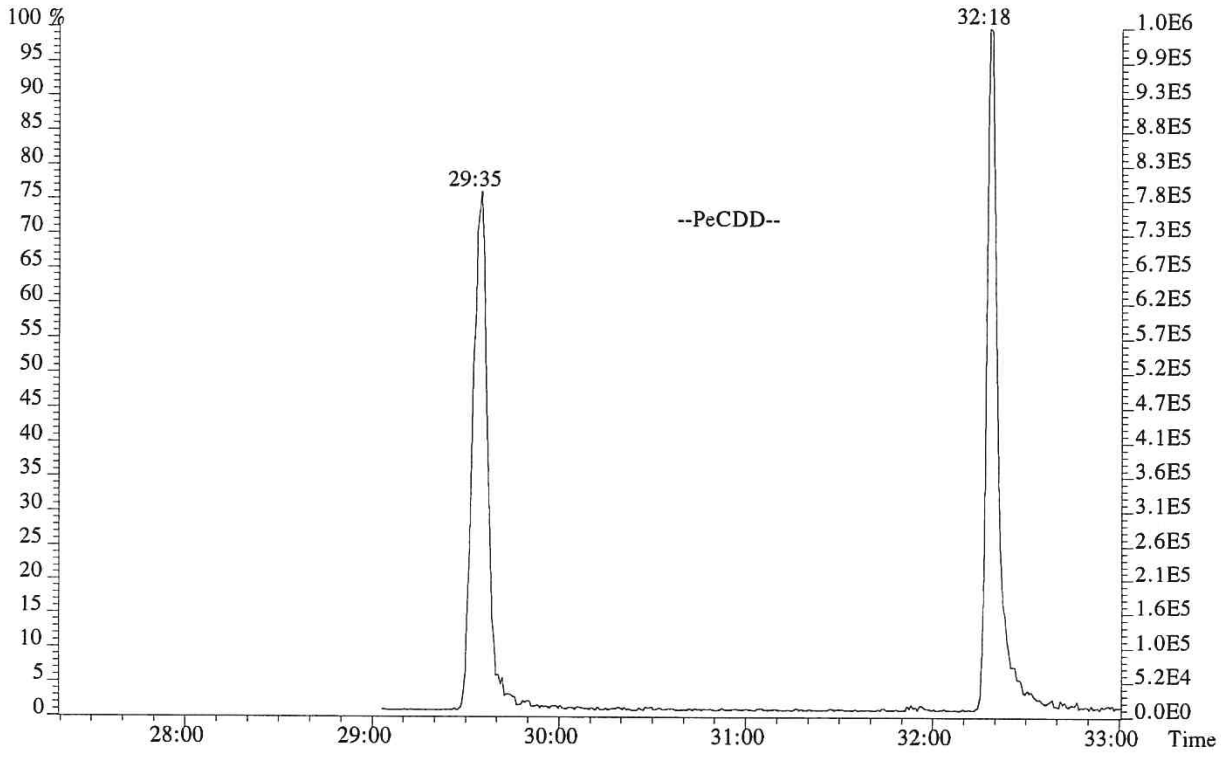


009098

File:P518866 #1-602 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2

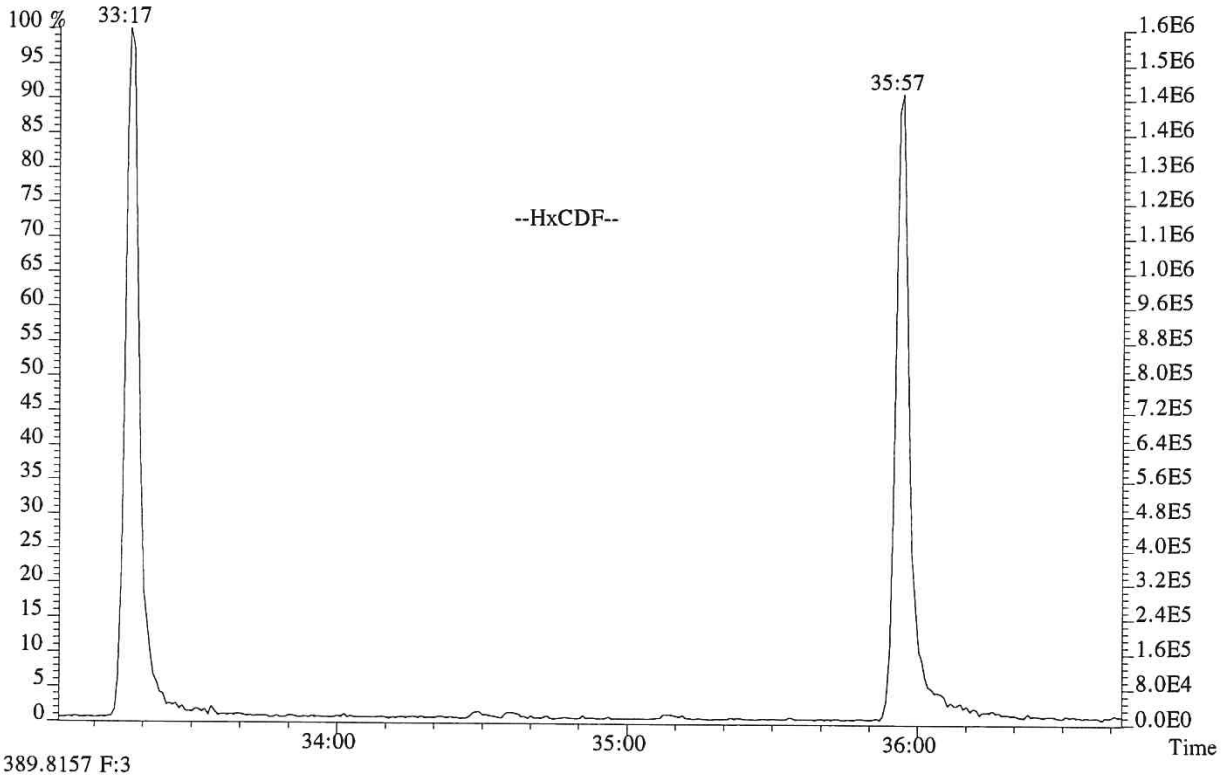


355.8546 F:2

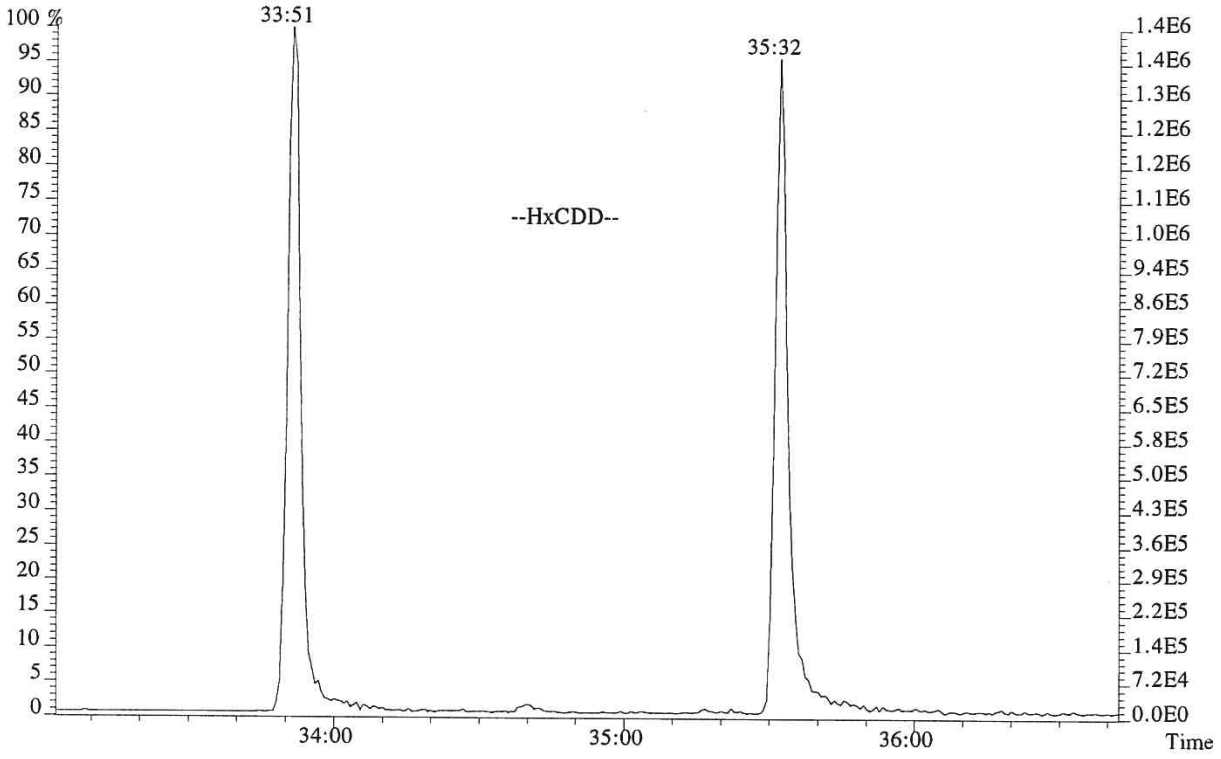


009099

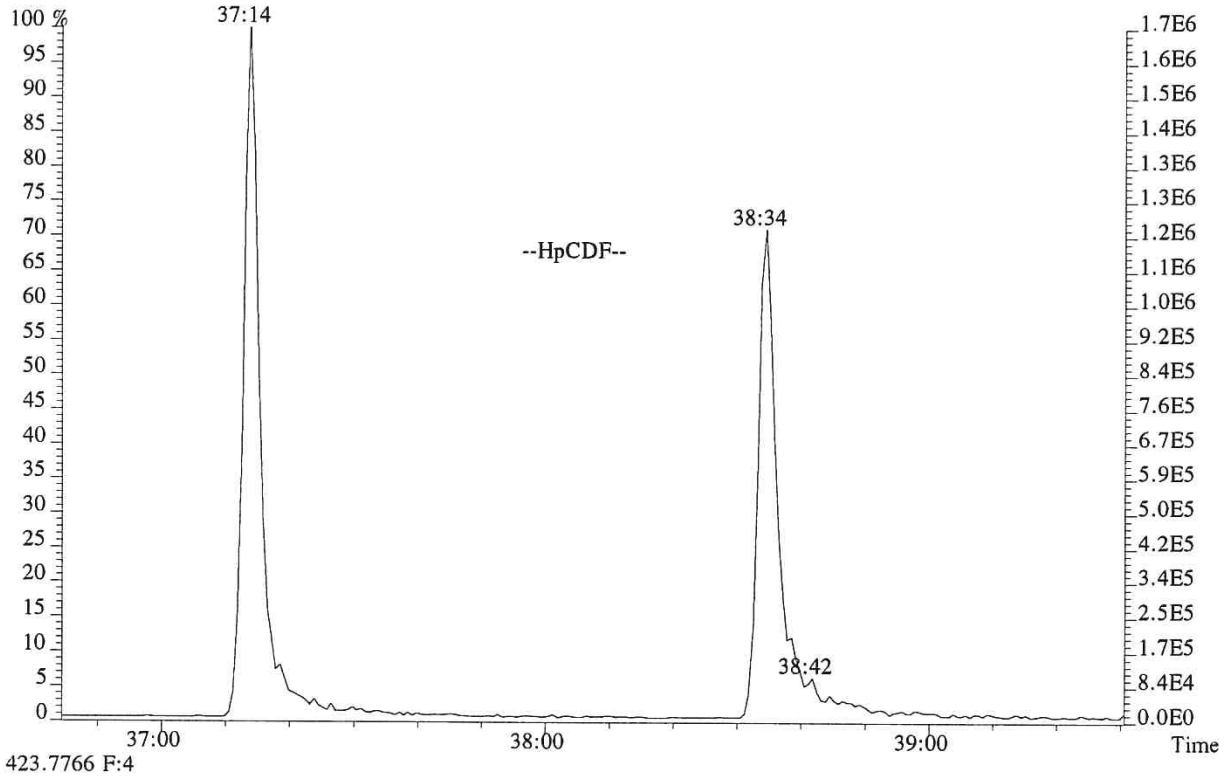
File:P518866 #1-330 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3



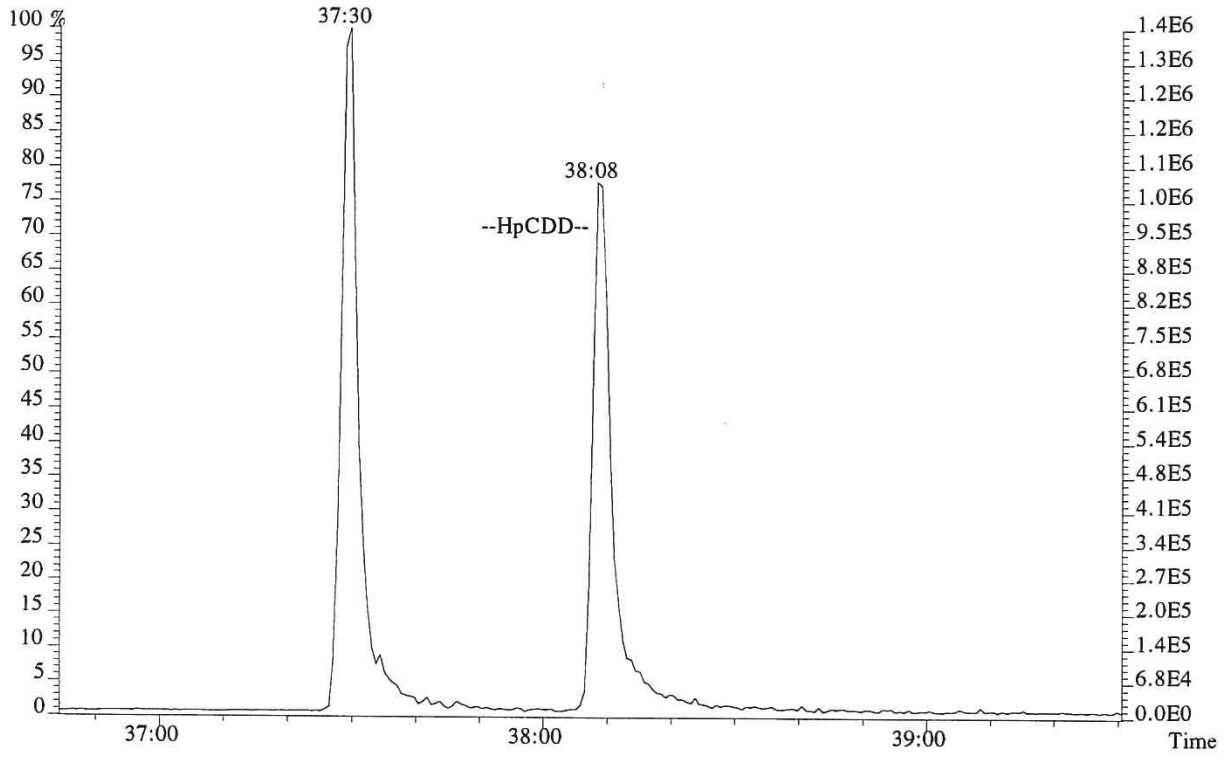
389.8157 F:3



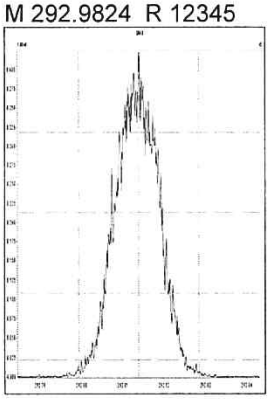
File:P518866 #1-250 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



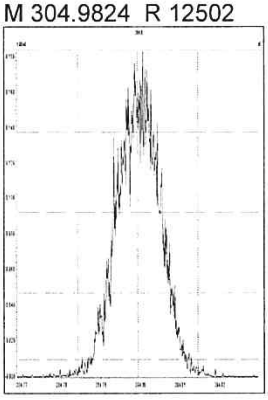
423.7766 F:4



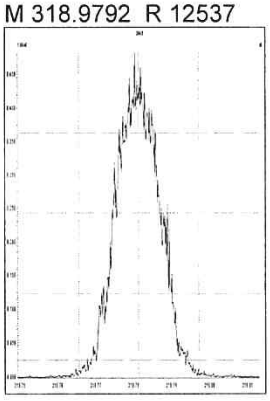
M 292.9824 R 12345



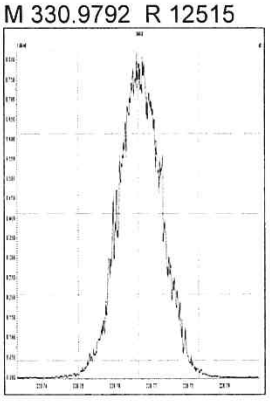
M 304.9824 R 12502



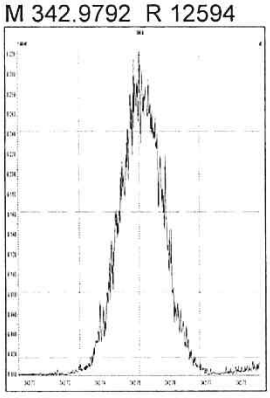
M 318.9792 R 12537



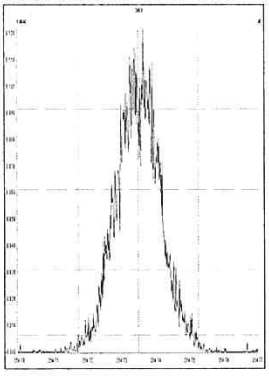
M 330.9792 R 12515



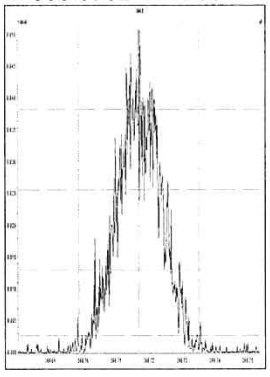
M 342.9792 R 12594



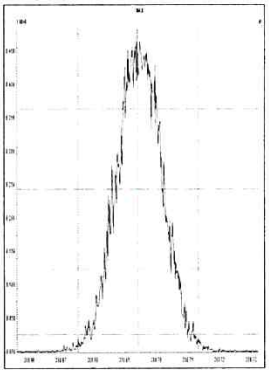
M 354.9792 R 12705



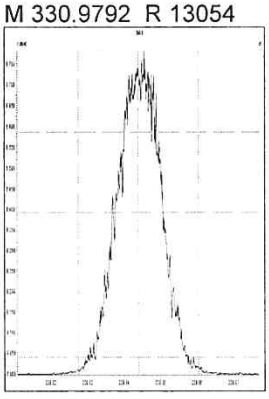
M 366.9792 R 12954



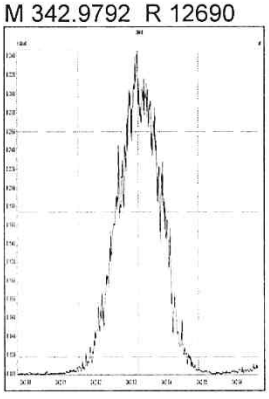
M 380.9760 R 12410



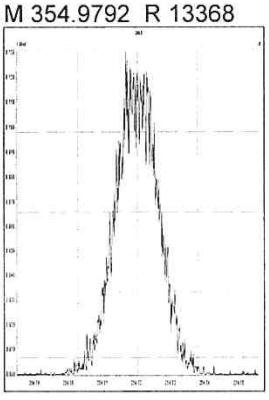
M 330.9792 R 13054



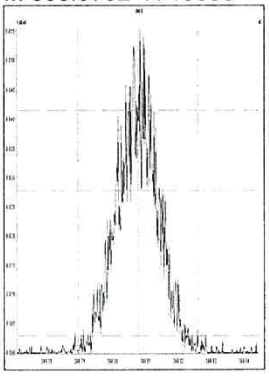
M 342.9792 R 12690



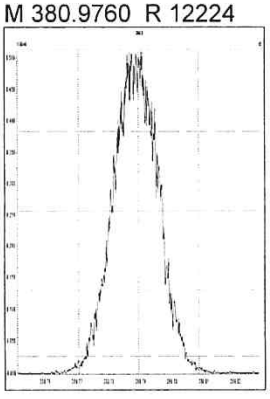
M 354.9792 R 13368



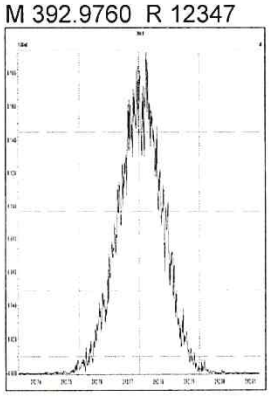
M 366.9792 R 13065



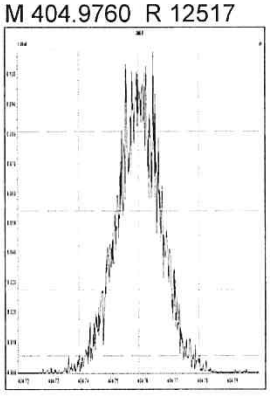
M 380.9760 R 12224



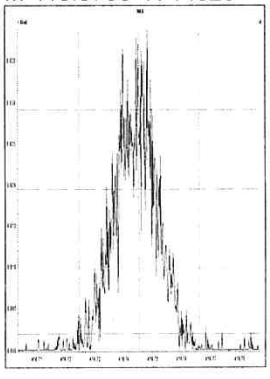
M 392.9760 R 12347



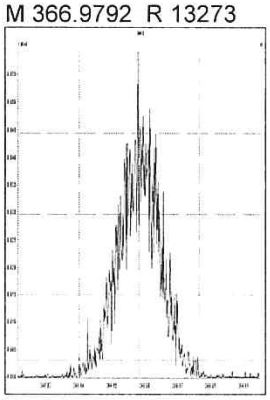
M 404.9760 R 12517



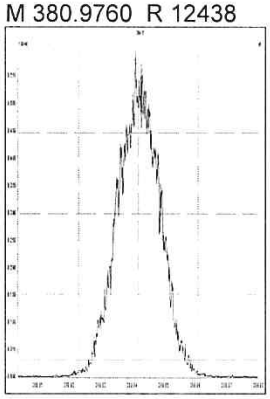
M 416.9760 R 14323



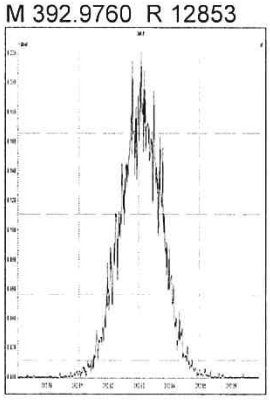
M 366.9792 R 13273



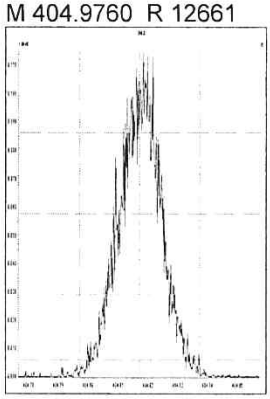
M 380.9760 R 12438



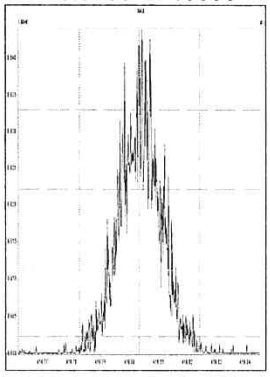
M 392.9760 R 12853



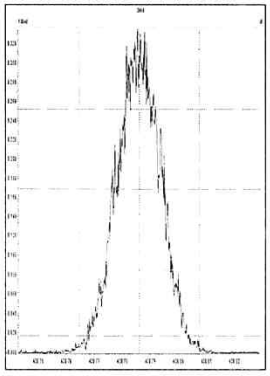
M 404.9760 R 12661



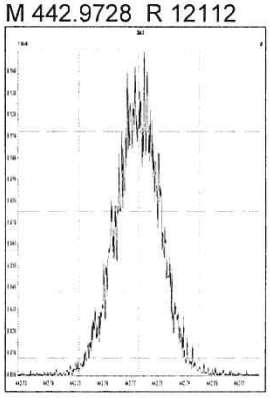
M 416.9760 R 13505



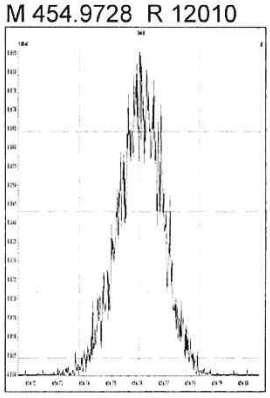
M 430.9728 R 11990



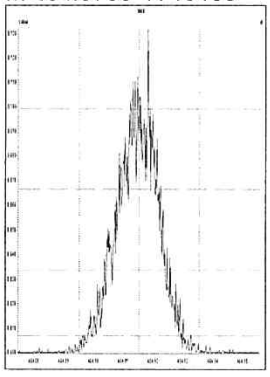
M 442.9728 R 12112



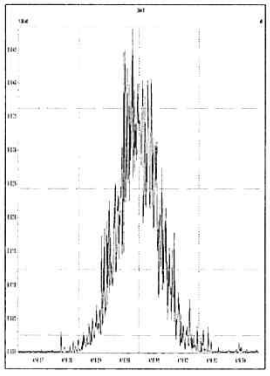
M 454.9728 R 12010



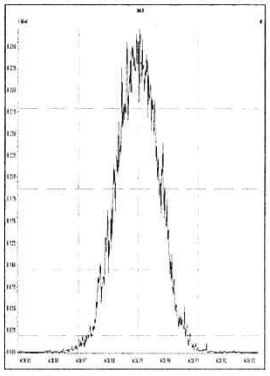
M 404.9760 R 13138



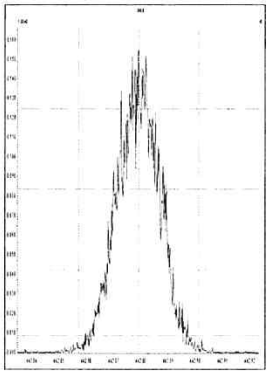
M 416.9760 R 14408



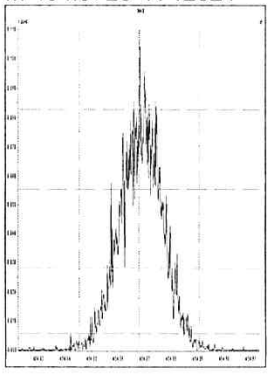
M 430.9728 R 12567



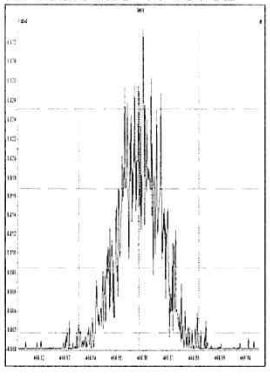
M 442.9728 R 13227



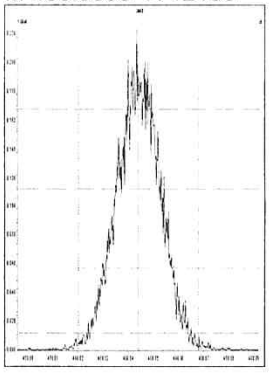
M 454.9728 R 12821



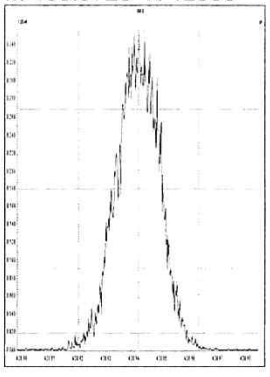
M 466.9728 R 15732



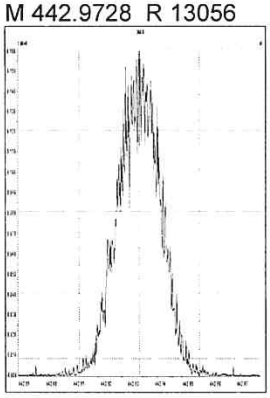
M 480.9696 R 12136



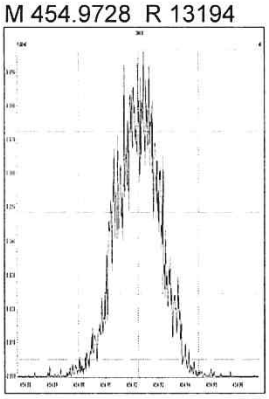
M 430.9728 R 12956



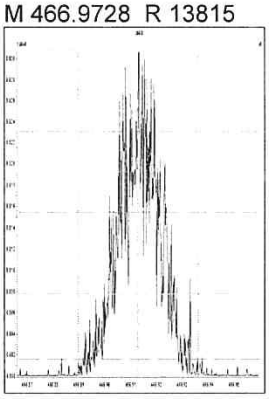
M 442.9728 R 13056



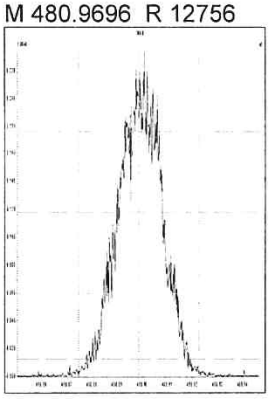
M 454.9728 R 13194



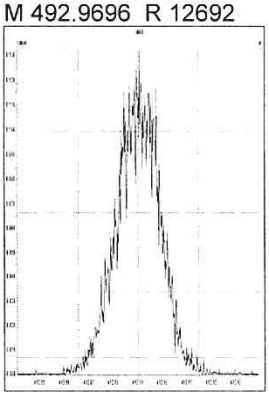
M 466.9728 R 13815



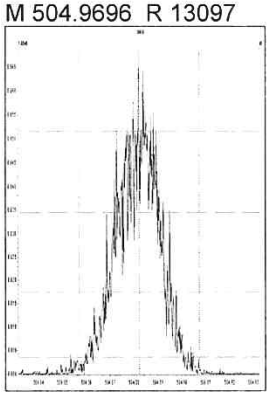
M 480.9696 R 12756



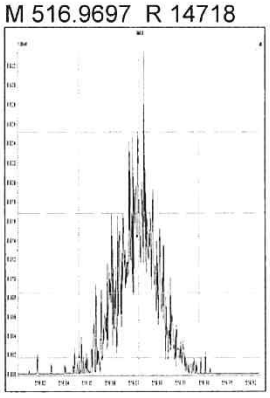
M 492.9696 R 12692



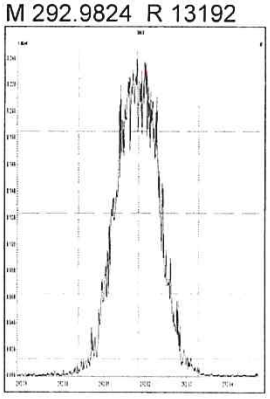
M 504.9696 R 13097



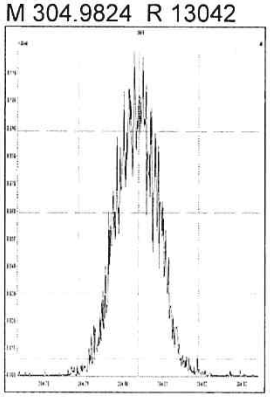
M 516.9697 R 14718



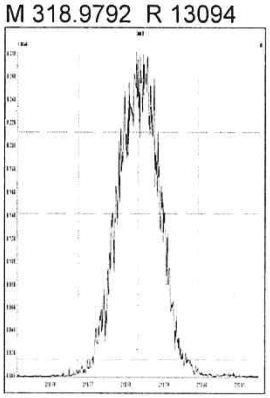
M 292.9824 R 13192



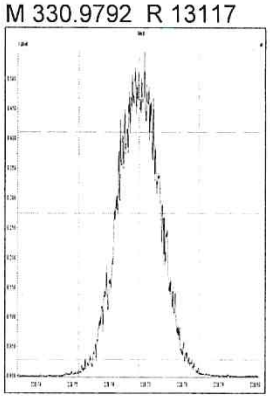
M 304.9824 R 13042



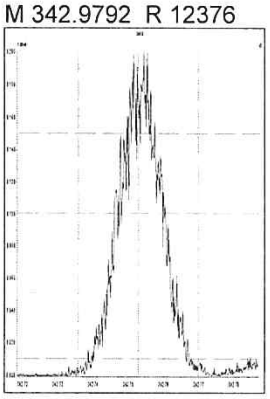
M 318.9792 R 13094



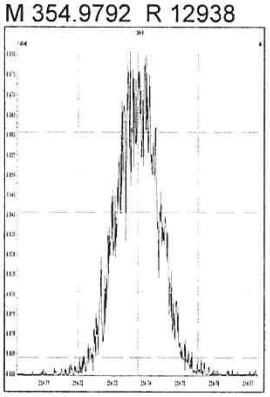
M 330.9792 R 13117



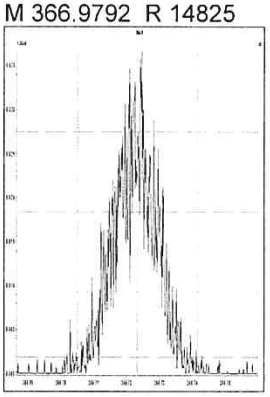
M 342.9792 R 12376



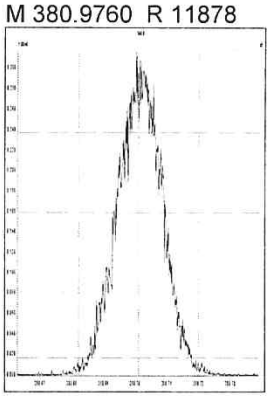
M 354.9792 R 12938



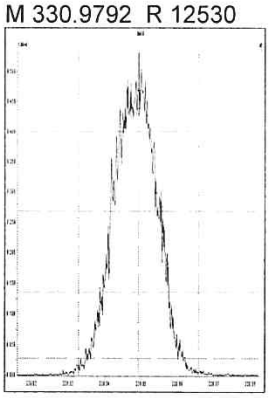
M 366.9792 R 14825



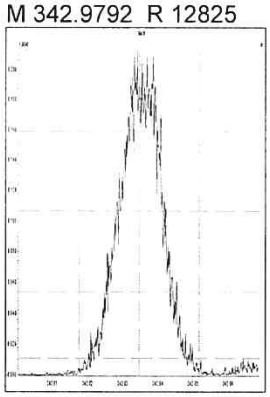
M 380.9760 R 11878



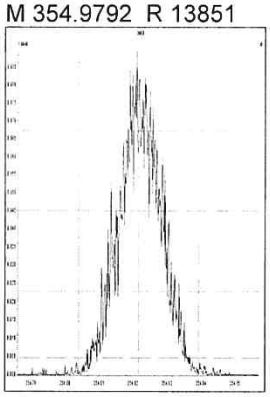
M 330.9792 R 12530



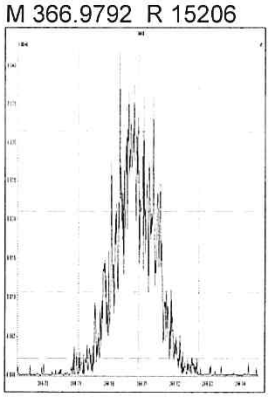
M 342.9792 R 12825



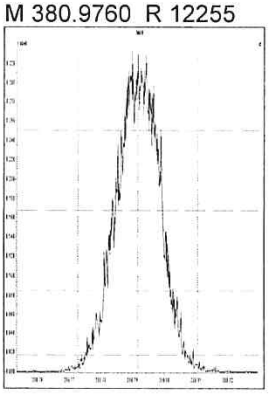
M 354.9792 R 13851



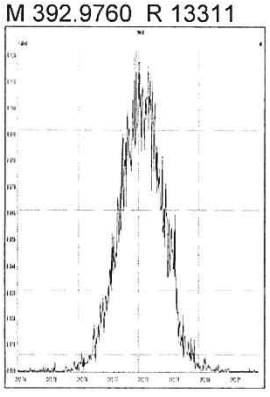
M 366.9792 R 15206



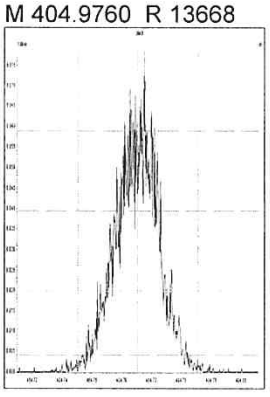
M 380.9760 R 12255



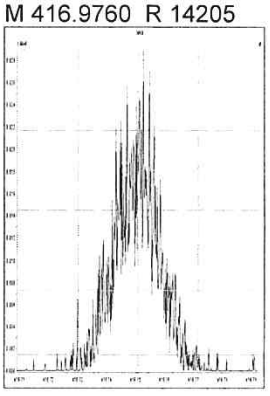
M 392.9760 R 13311



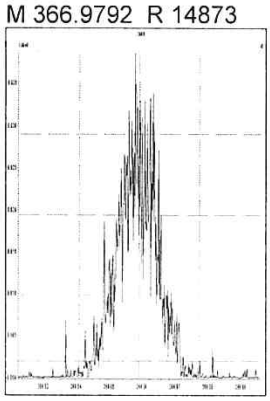
M 404.9760 R 13668



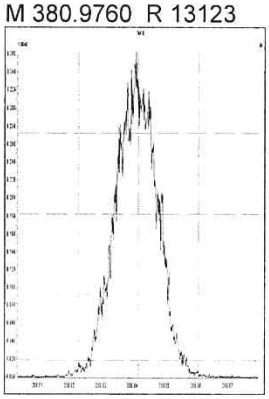
M 416.9760 R 14205



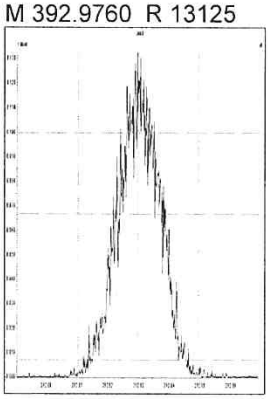
M 366.9792 R 14873



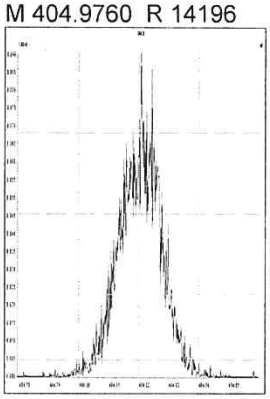
M 380.9760 R 13123



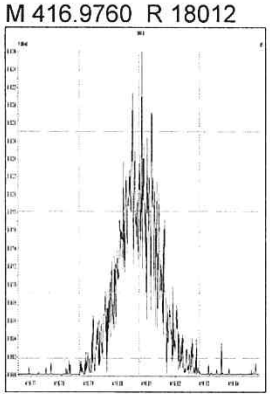
M 392.9760 R 13125



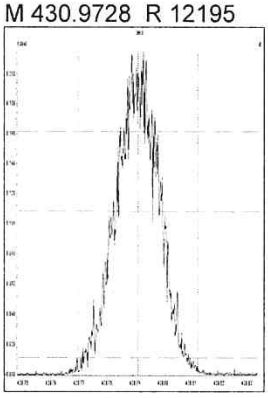
M 404.9760 R 14196



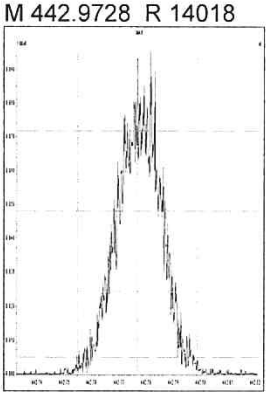
M 416.9760 R 18012



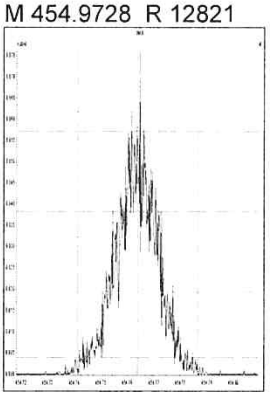
M 430.9728 R 12195



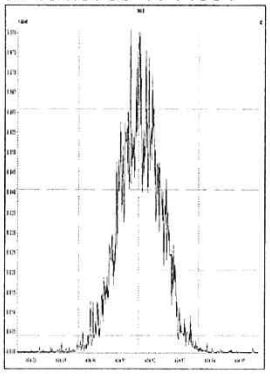
M 442.9728 R 14018



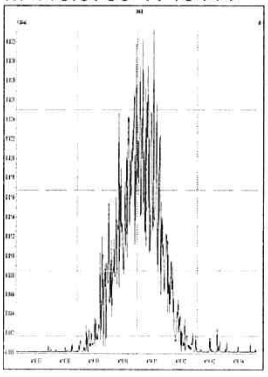
M 454.9728 R 12821



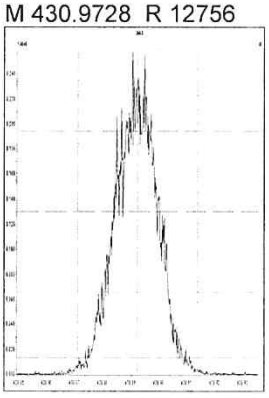
M 404.9760 R 14631



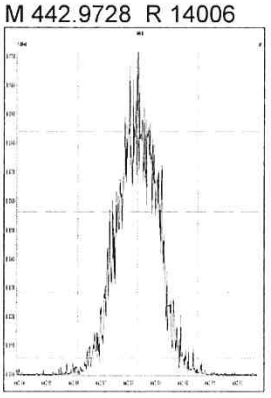
M 416.9760 R 16444



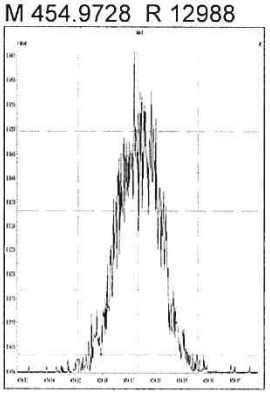
M 430.9728 R 12756



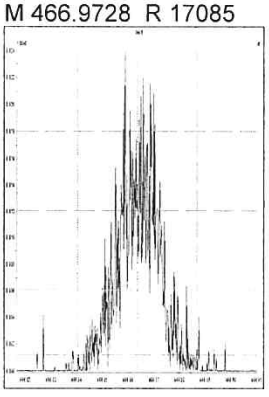
M 442.9728 R 14006



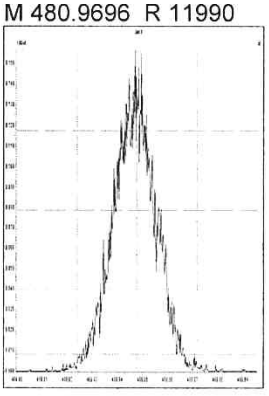
M 454.9728 R 12988



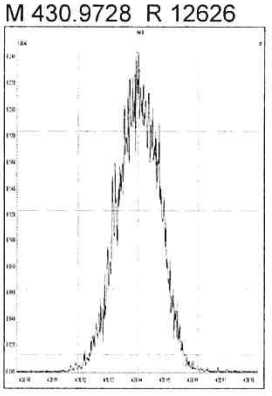
M 466.9728 R 17085



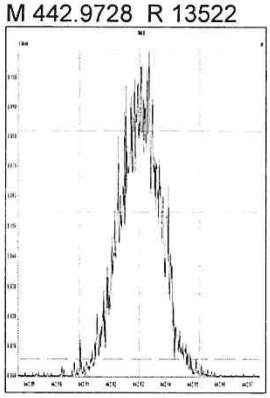
M 480.9696 R 11990



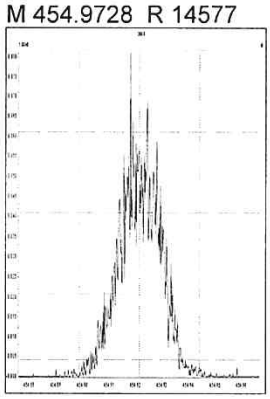
M 430.9728 R 12626



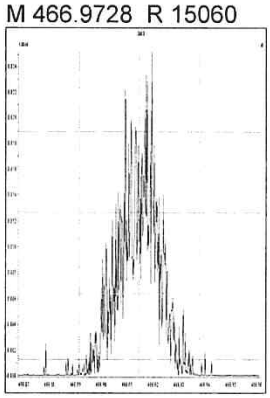
M 442.9728 R 13522



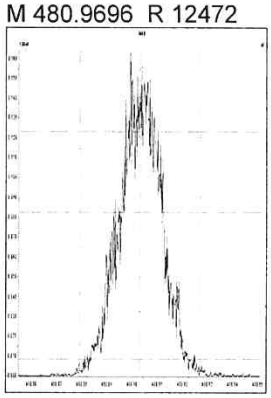
M 454.9728 R 14577



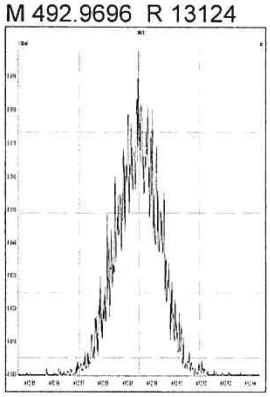
M 466.9728 R 15060



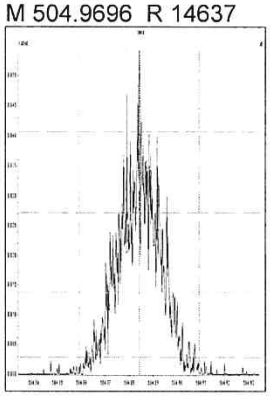
M 480.9696 R 12472



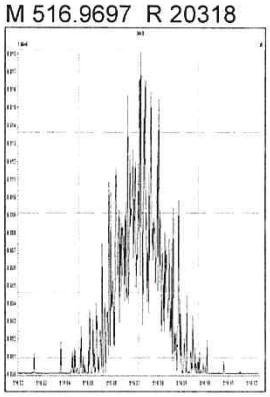
M 492.9696 R 13124



M 504.9696 R 14637



M 516.9697 R 20318



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518865 Analysis Date: 17-NOV-18 Time: 01:07:48

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	9.5	7.8 - 12.9	-5.4
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	51	39 - 65	1.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	1.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	52	39 - 64	3.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	53	41 - 61	5.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	51	43 - 58	1.2
OCDD	M+2/M+4	0.88	0.76-1.02	101	79 - 126	1.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	10.1	8.4 - 12.0	1.3
1,2,3,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	50	41 - 60	0.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 61	-2.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	2.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.19	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	51	45 - 55	1.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.4
OCDF	M+2/M+4	0.90	0.76-1.02	101	63 - 159	0.7

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518865 Analysis Date: 17-NOV-18 Time: 01:07:48

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	92	82 - 121	-7.6
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	117	62 - 160	17.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	86	85 - 117	-13.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	98	85 - 118	-2.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	120	72 - 138	20.4
13C-OCDD	M+2/M+4	0.88	0.76-1.02	338	96 - 415	68.8
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	81	71 - 140	-18.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	110	76 - 130	9.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	114	77 - 130	14.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	78	76 - 131	-22.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	89	70 - 143	-11.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.50	0.43-0.59	90	74 - 135	-9.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	90	73 - 137	-10.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	109	78 - 129	9.4
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	123	77 - 129	22.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.1	7.8 - 12.7	-8.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518865 Samp: 1 Inj: 1 Acquired: 17-NOV-18 01:07:48
Processed: 21-NOV-18 09:19:26 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	1.058e+03	1.395e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.035e+04	6.889e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	9.827e+03	6.465e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	9.727e+03	7.981e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	1.212e+04	9.936e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.067e+04	8.730e+03	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	9.476e+03	7.955e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	1.128e+04	1.104e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	1.012e+04	9.667e+03	1.05	yes	no	1.258
10	Unk	OCDF	40:51	1.961e+04	2.183e+04	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	8.230e+02	1.011e+03	0.81	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	7.059e+03	4.549e+03	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	7.247e+03	5.748e+03	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.642e+03	6.763e+03	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	8.205e+03	6.703e+03	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	8.491e+03	8.003e+03	1.06	yes	no	1.025
17	Unk	OCDD	40:41	1.604e+04	1.828e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.122e+04	1.449e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.092e+04	1.288e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.131e+04	1.357e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.003e+04	1.945e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.291e+04	2.543e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.179e+04	2.287e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.014e+04	2.012e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	1.014e+04	2.243e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	9.382e+03	2.166e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	7.775e+03	1.008e+04	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.459e+04	9.324e+03	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.389e+04	1.069e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.602e+04	1.256e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.650e+04	1.531e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	40:41	2.839e+04	3.220e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	9.224e+03	1.171e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	1.746e+04	1.335e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	1.941e+03				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518865 Samp: 1 Inj: 1 Acquired: 17-NOV-18 01:07:48
Processed: 21-NOV-18 09:19:26 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.29e+05	2.84e+02	4.5e+02	1.72e+05	7.12e+02	2.4e+02
2	1,2,3,7,8-PeCDF	1.50e+06	5.92e+02	2.5e+03	9.78e+05	1.23e+03	7.9e+02
3	2,3,4,7,8-PeCDF	1.54e+06	5.92e+02	2.6e+03	1.04e+06	1.23e+03	8.4e+02
4	1,2,3,4,7,8-HxCDF	1.92e+06	2.64e+02	7.3e+03	1.56e+06	3.96e+02	3.9e+03
5	1,2,3,6,7,8-HxCDF	2.19e+06	2.64e+02	8.3e+03	1.73e+06	3.96e+02	4.4e+03
6	2,3,4,6,7,8-HxCDF	1.90e+06	2.64e+02	7.2e+03	1.57e+06	3.96e+02	4.0e+03
7	1,2,3,7,8,9-HxCDF	1.59e+06	2.64e+02	6.0e+03	1.25e+06	3.96e+02	3.2e+03
8	1,2,3,4,6,7,8-HpCDF	2.16e+06	1.13e+03	1.9e+03	2.07e+06	2.58e+03	8.0e+02
9	1,2,3,4,7,8,9-HpCDF	1.74e+06	1.13e+03	1.5e+03	1.74e+06	2.58e+03	6.7e+02
10	OCDF	2.99e+06	2.44e+02	1.2e+04	3.38e+06	2.76e+02	1.2e+04
11	2,3,7,8-TCDD	1.10e+05	1.70e+03	6.5e+01	1.28e+05	7.56e+02	1.7e+02
12	1,2,3,7,8-PeCDD	1.09e+06	9.64e+02	1.1e+03	7.07e+05	4.16e+02	1.7e+03
13	1,2,3,4,7,8-HxCDD	1.52e+06	5.60e+02	2.7e+03	1.22e+06	4.96e+02	2.5e+03
14	1,2,3,6,7,8-HxCDD	1.52e+06	5.60e+02	2.7e+03	1.18e+06	4.96e+02	2.4e+03
15	1,2,3,7,8,9-HxCDD	1.47e+06	5.60e+02	2.6e+03	1.16e+06	4.96e+02	2.3e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+06	3.72e+02	4.3e+03	1.50e+06	5.12e+02	2.9e+03
17	OCDD	2.51e+06	2.92e+02	8.6e+03	2.91e+06	2.16e+02	1.3e+04
18	13C-2,3,7,8-TCDF	1.33e+06	4.16e+03	3.2e+02	1.68e+06	2.32e+03	7.3e+02
19	13C-1,2,3,7,8-PeCDF	3.07e+06	2.24e+02	1.4e+04	1.95e+06	3.80e+02	5.1e+03
20	13C-2,3,4,7,8-PeCDF	3.49e+06	2.24e+02	1.6e+04	2.17e+06	3.80e+02	5.7e+03
21	13C-1,2,3,4,7,8-HxCDF	1.94e+06	5.92e+02	3.3e+03	3.73e+06	1.05e+03	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.29e+06	5.92e+02	3.9e+03	4.41e+06	1.05e+03	4.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.09e+06	5.92e+02	3.5e+03	4.16e+06	1.05e+03	4.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.67e+06	5.92e+02	2.8e+03	3.35e+06	1.05e+03	3.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.97e+06	3.72e+03	5.3e+02	4.36e+06	1.27e+03	3.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.64e+06	3.72e+03	4.4e+02	3.73e+06	1.27e+03	2.9e+03
27	13C-2,3,7,8-TCDD	1.01e+06	4.52e+03	2.2e+02	1.27e+06	2.09e+03	6.1e+02
28	13C-1,2,3,7,8-PeCDD	2.32e+06	5.12e+02	4.5e+03	1.45e+06	6.28e+02	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	2.86e+06	1.30e+03	2.2e+03	2.24e+06	8.12e+02	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.81e+06	1.30e+03	2.2e+03	2.20e+06	8.12e+02	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.03e+06	3.32e+02	9.1e+03	2.84e+06	2.20e+02	1.3e+04
32	13C-OCDD	4.40e+06	6.88e+02	6.4e+03	5.01e+06	2.72e+02	1.8e+04
33	13C-1,2,3,4-TCDD	1.27e+06	4.52e+03	2.8e+02	1.61e+06	2.09e+03	7.7e+02
34	13C-1,2,3,7,8,9-HxCDD	2.91e+06	1.30e+03	2.2e+03	2.37e+06	8.12e+02	2.9e+03
35	37Cl-2,3,7,8-TCDD	2.53e+05	1.16e+03	2.2e+02			

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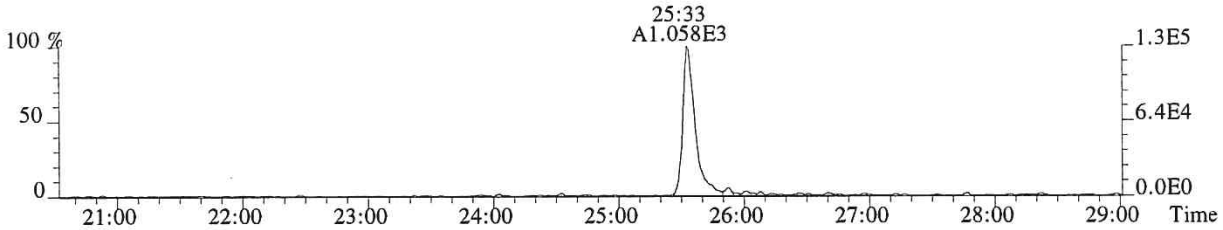
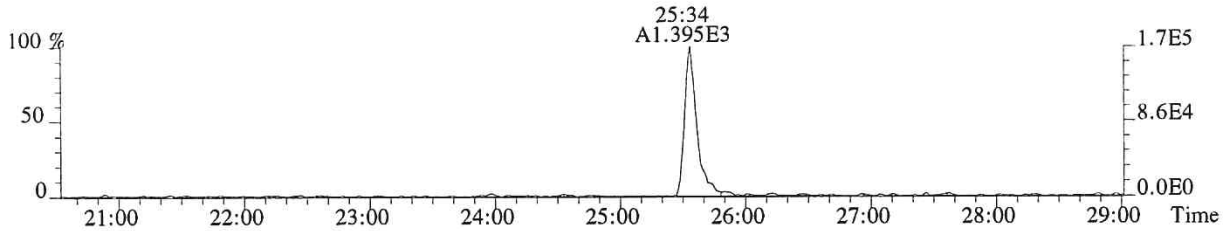
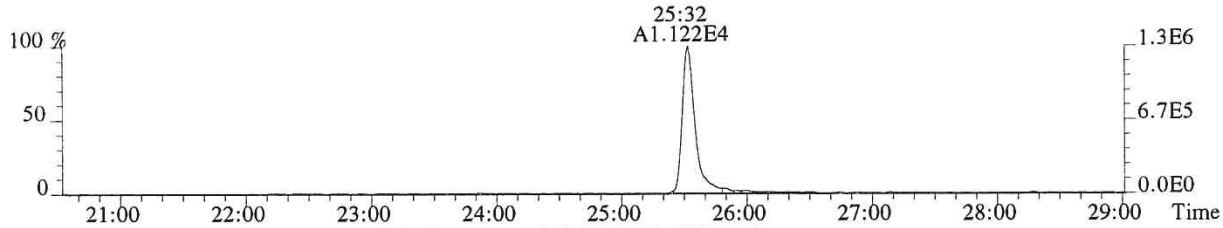
File:P518865 #1-602 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



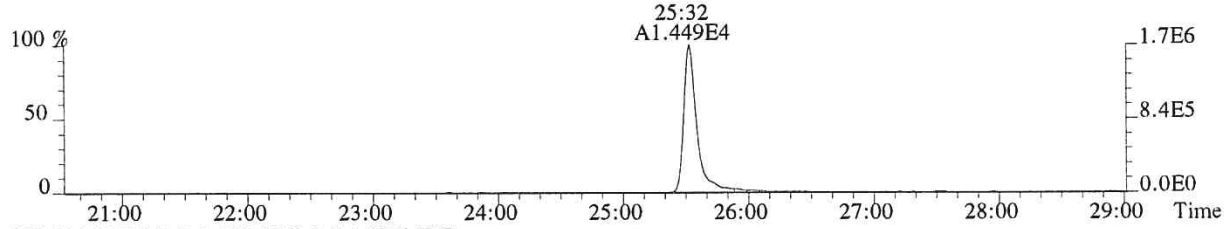
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



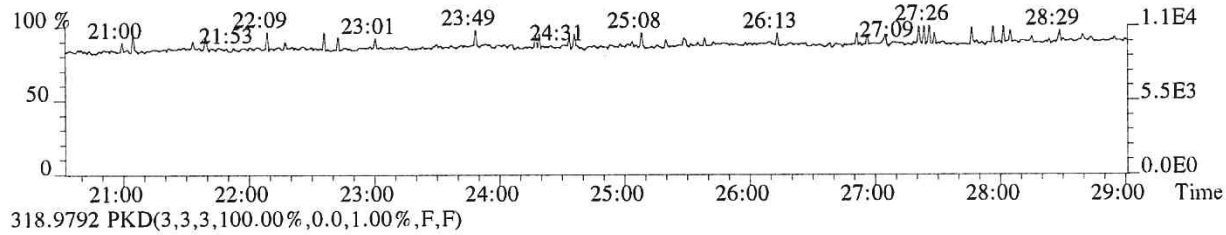
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4164.0,1.00%,F,T)



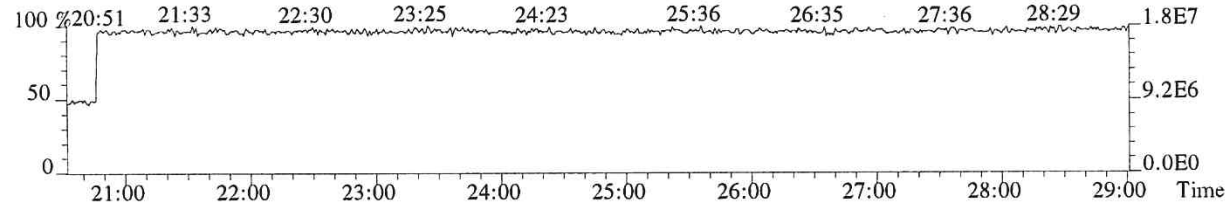
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

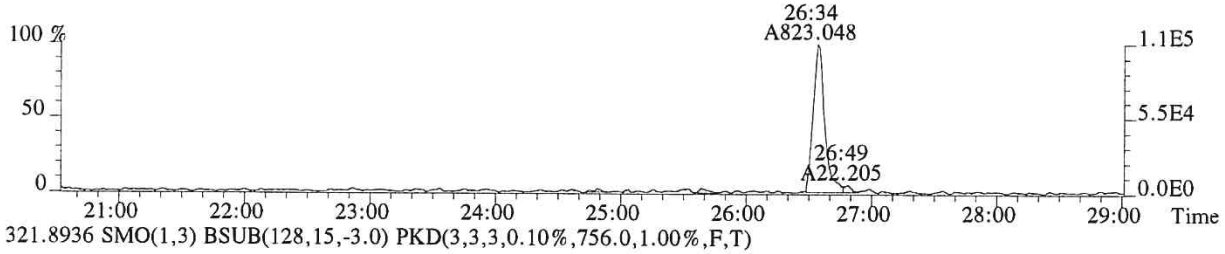


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

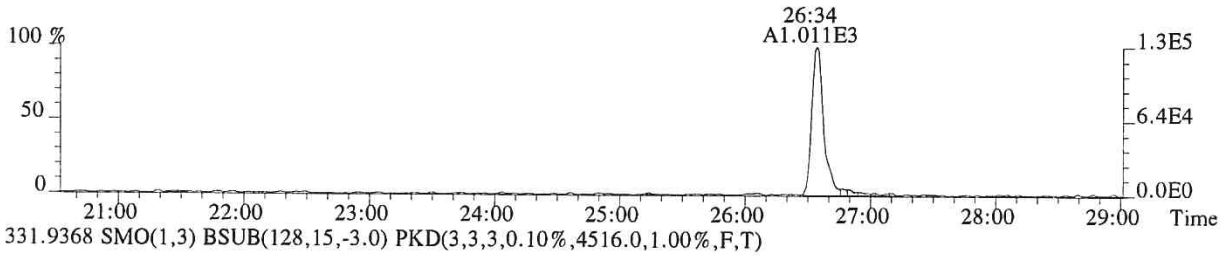


009112

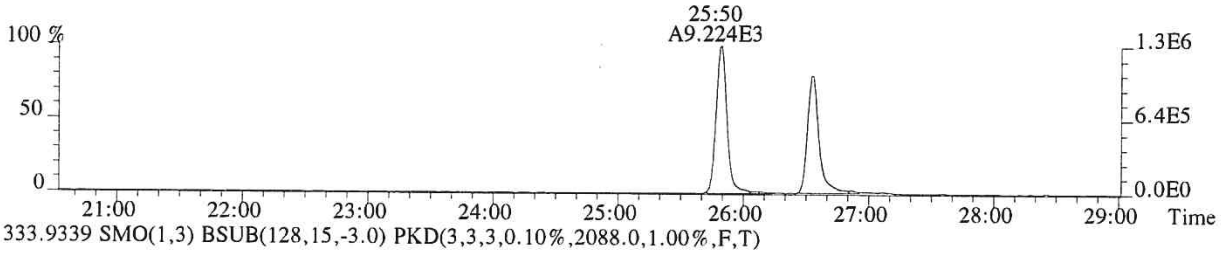
File:P518865 #1-602 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1696.0,1.00%,F,T)



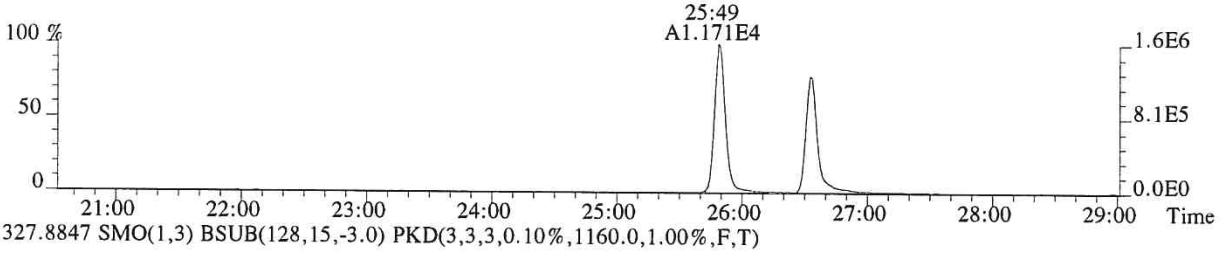
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



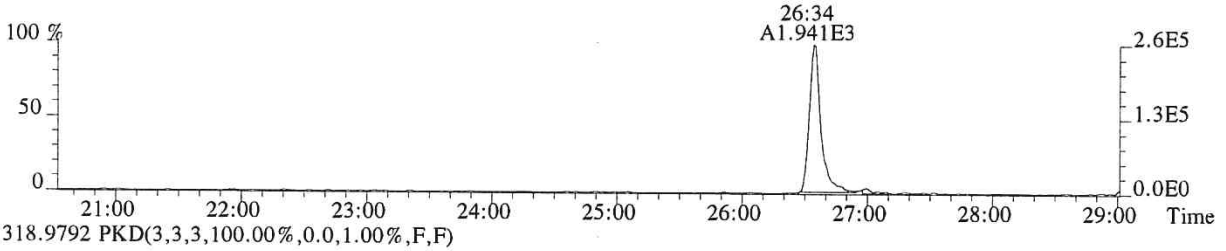
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



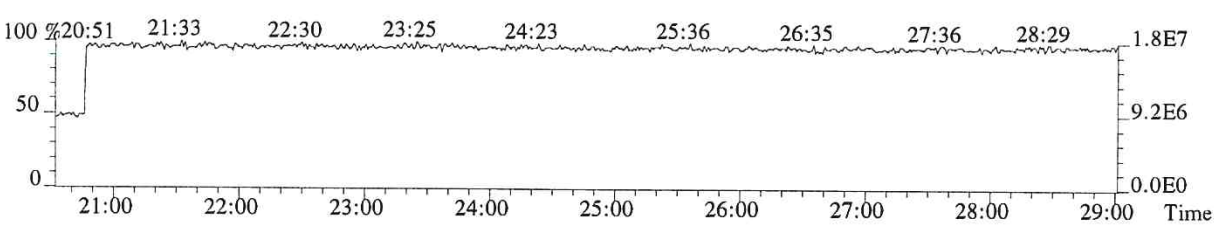
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2088.0,1.00%,F,T)



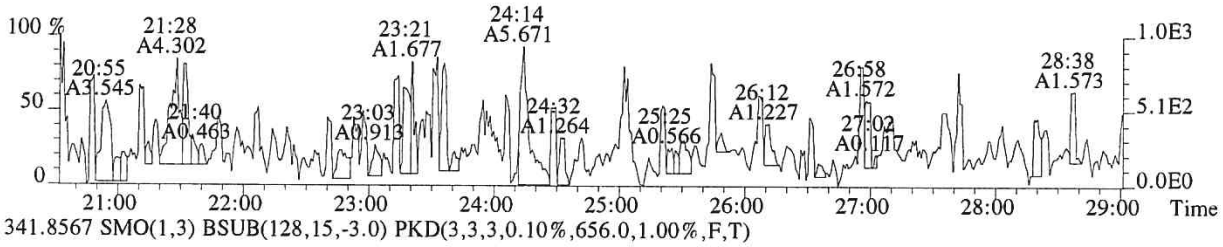
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



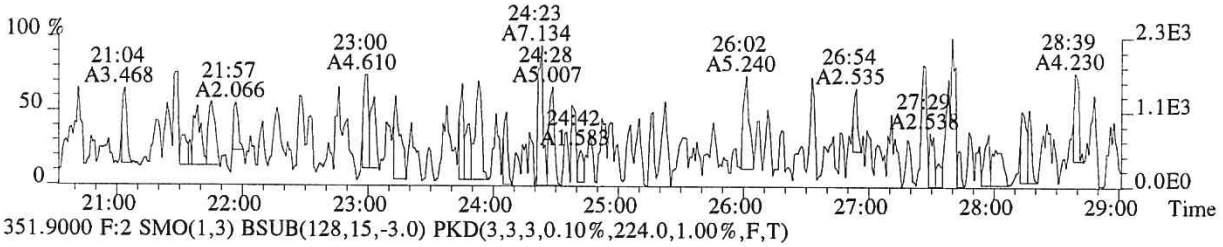
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



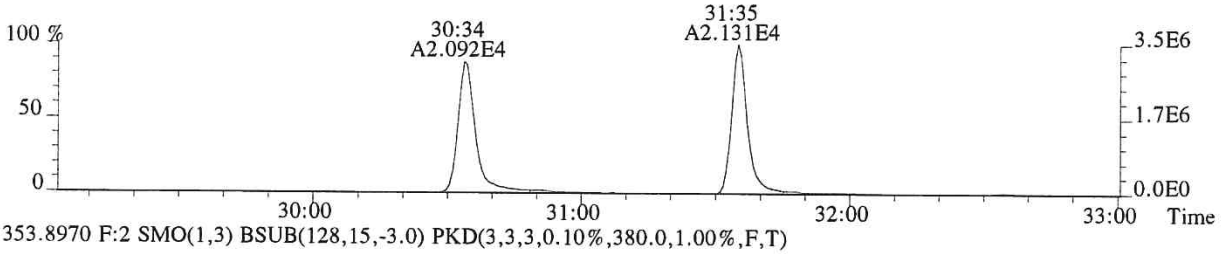
File:P518865 #1-602 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



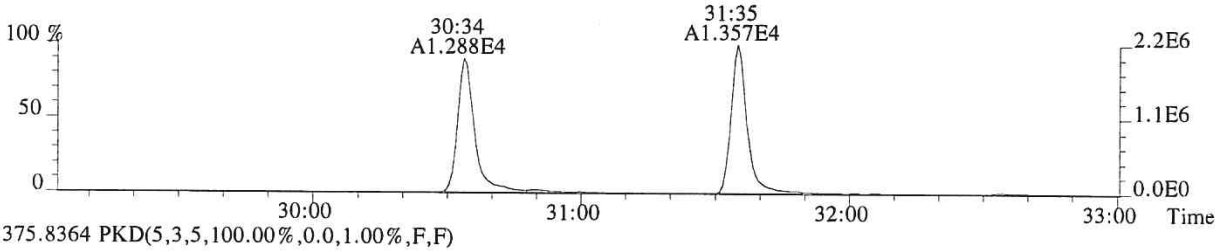
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



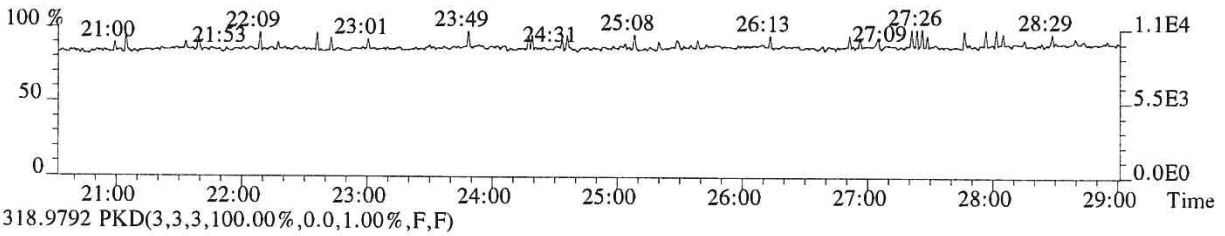
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



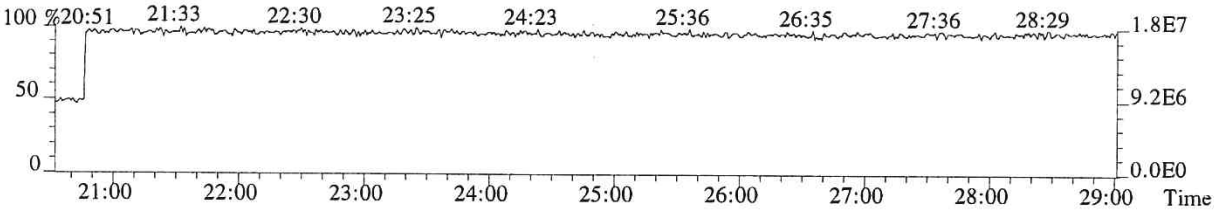
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

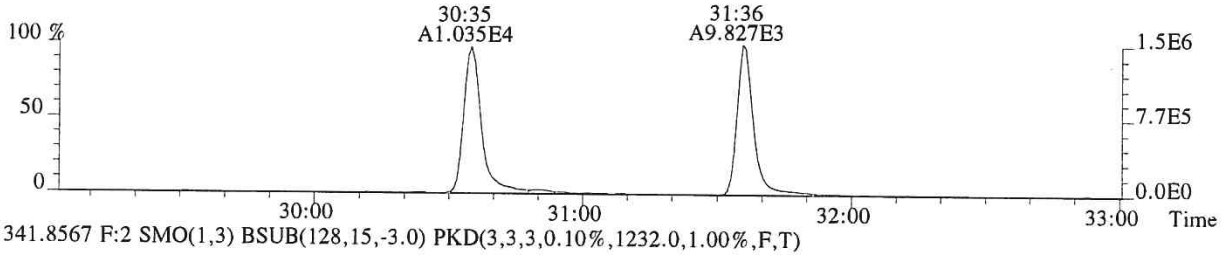


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

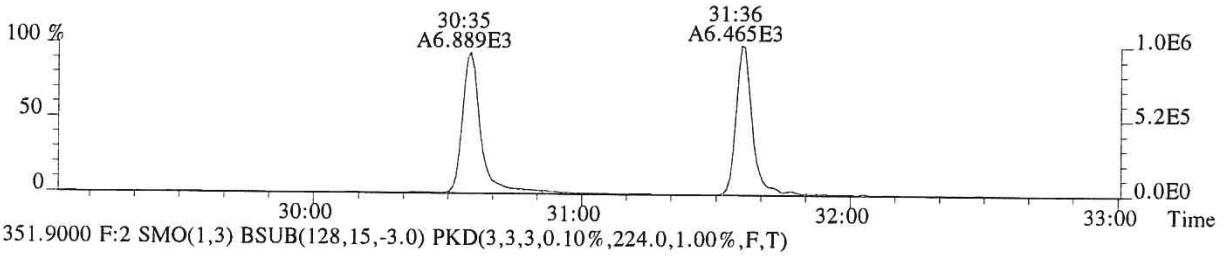


009114

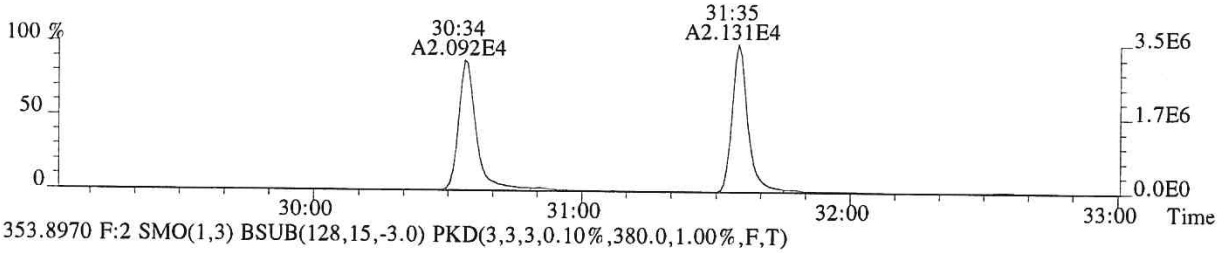
File:P518865 #1-357 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



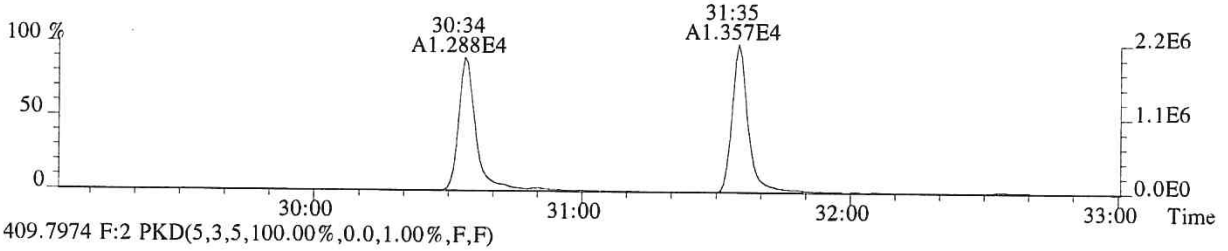
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



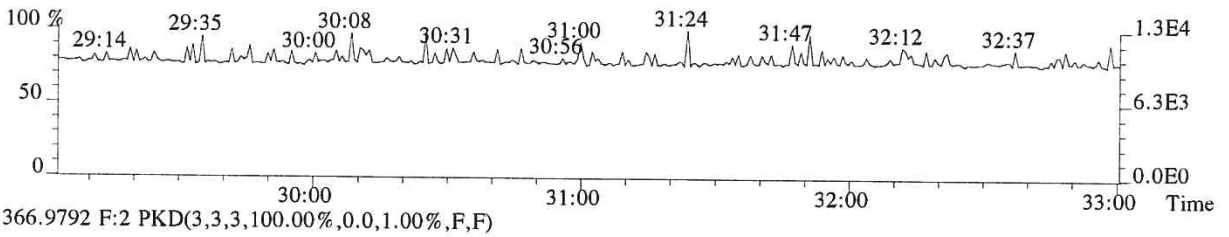
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



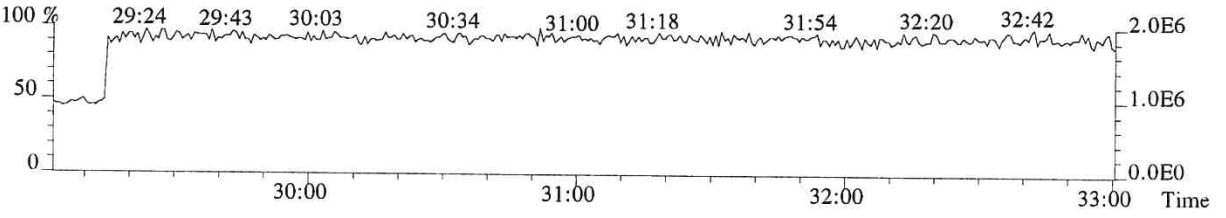
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

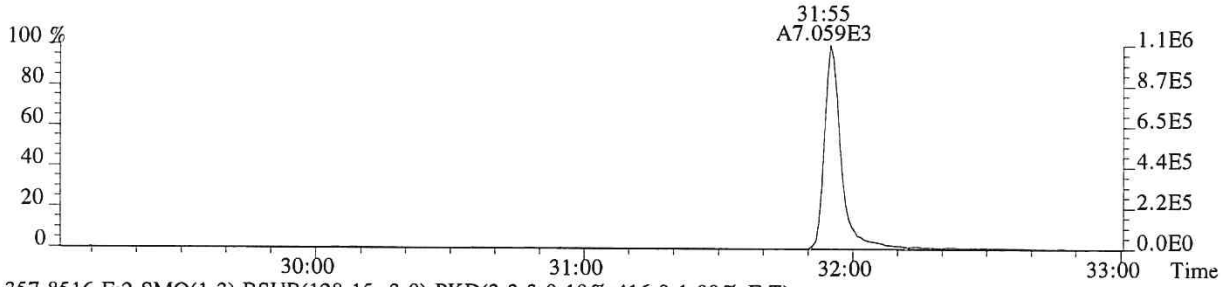


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

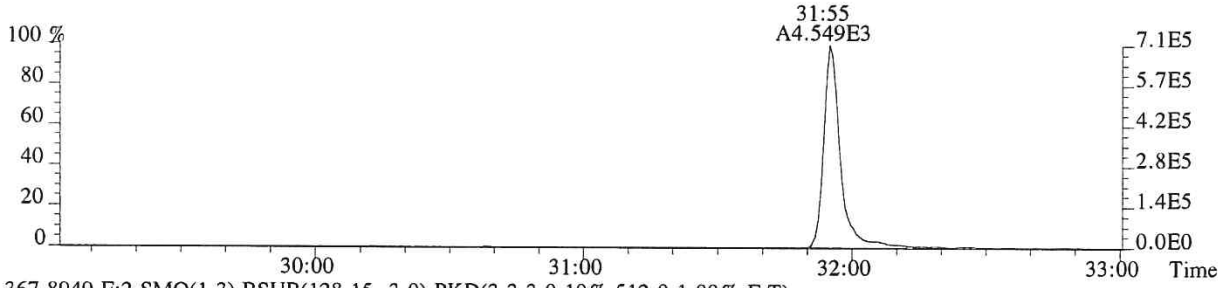


009115

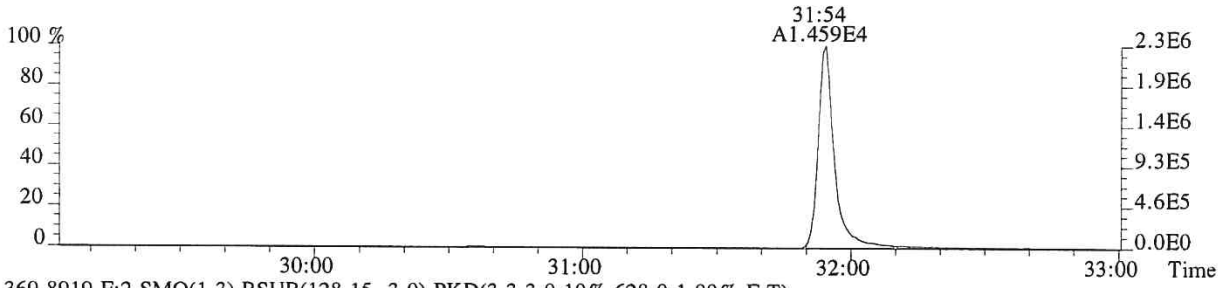
File:P518865 #1-357 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



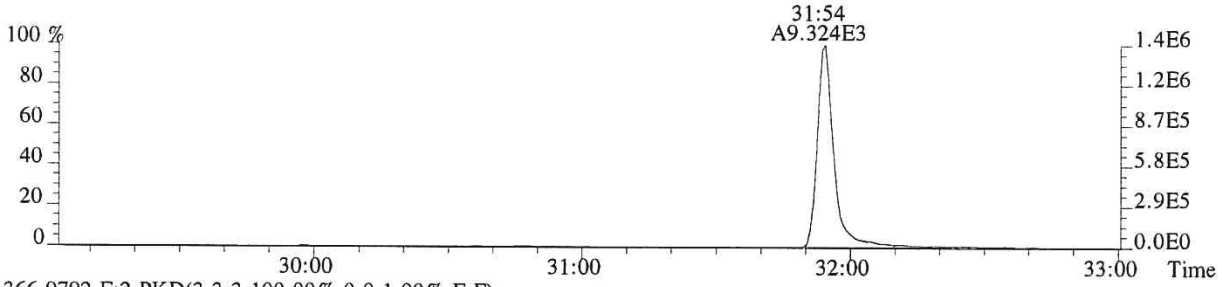
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



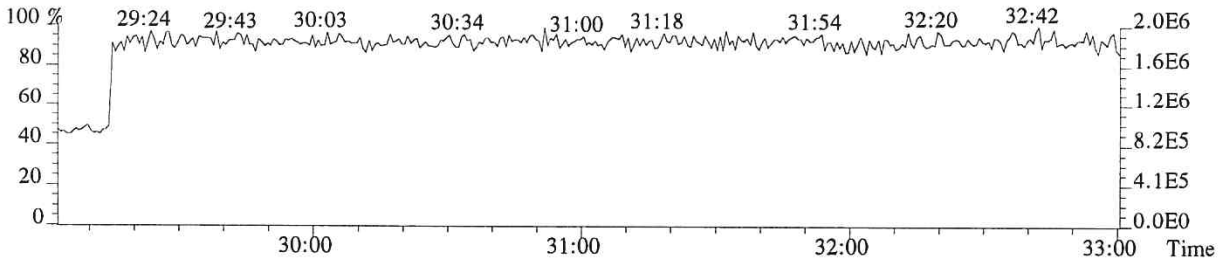
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



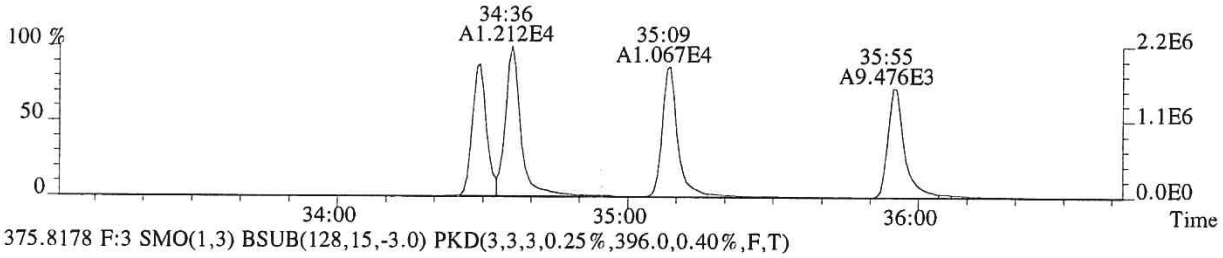
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



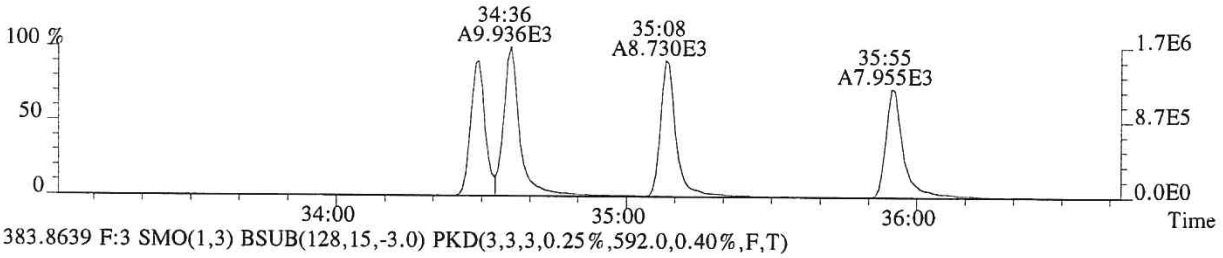
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



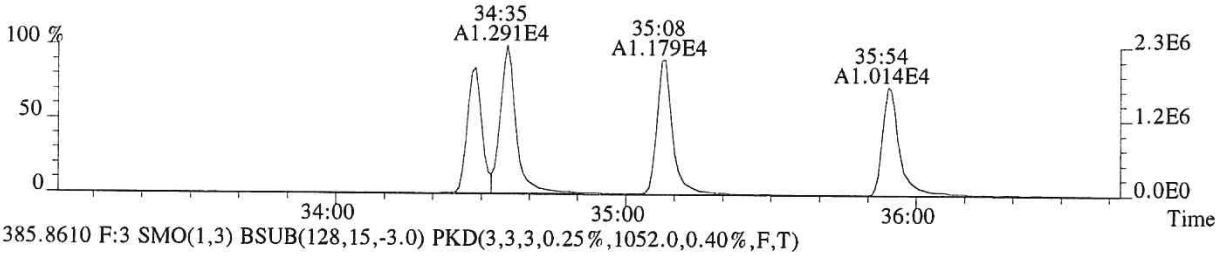
File:P518865 #1-330 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



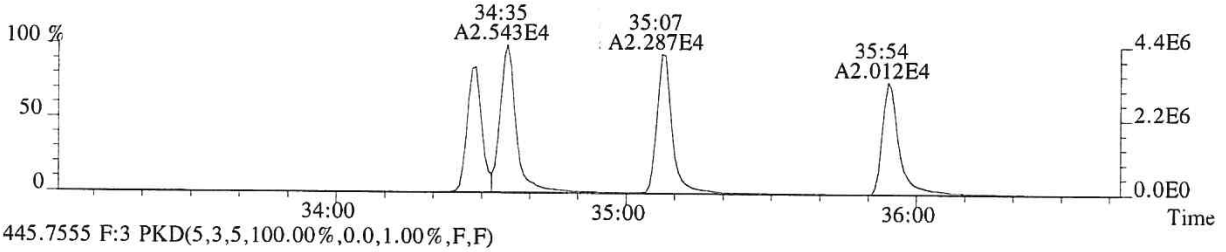
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



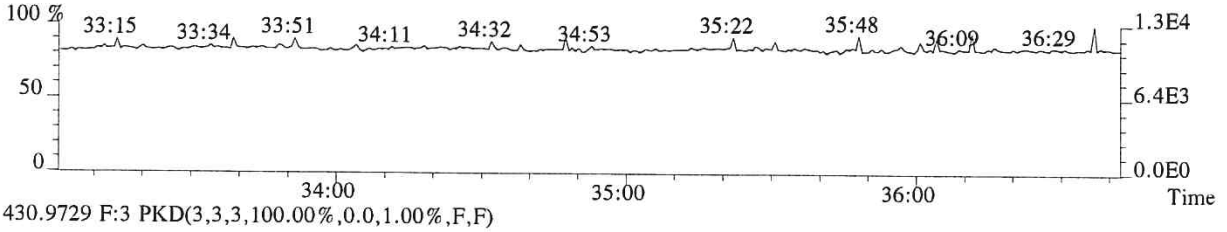
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



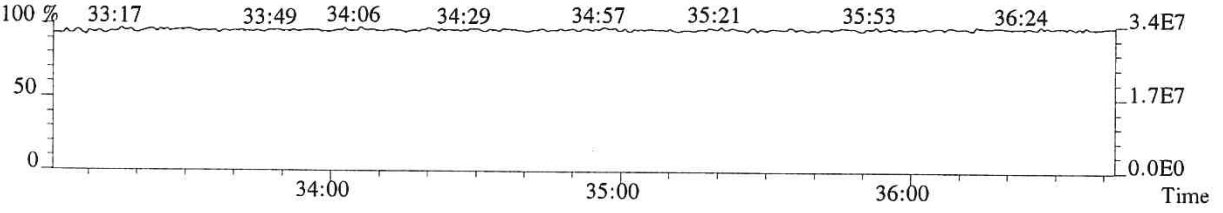
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

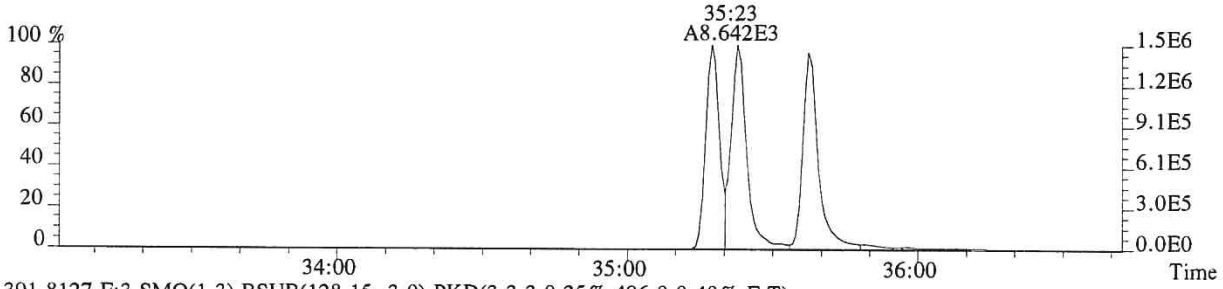


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

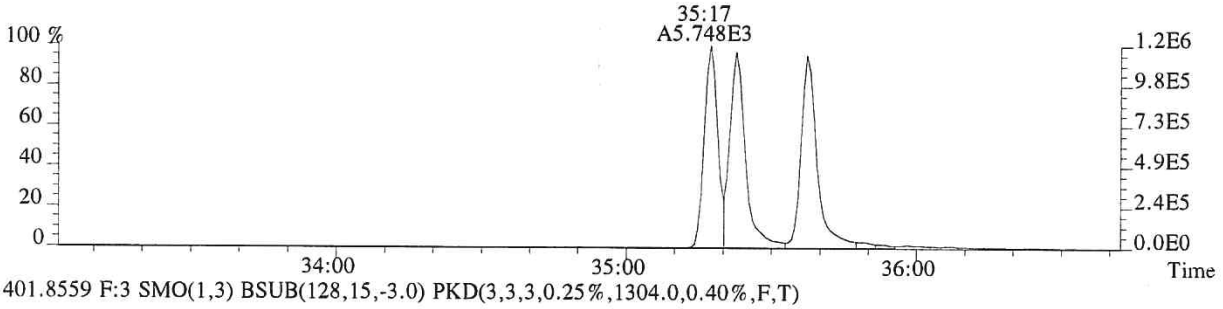


009117

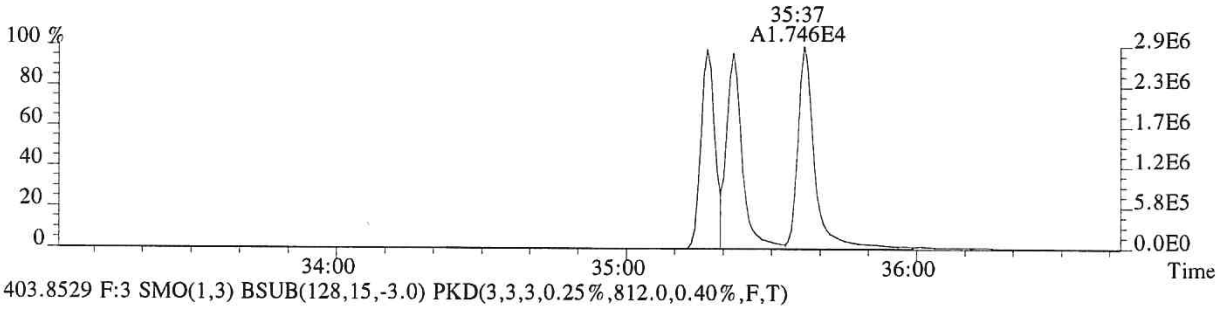
File:P518865 #1-330 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



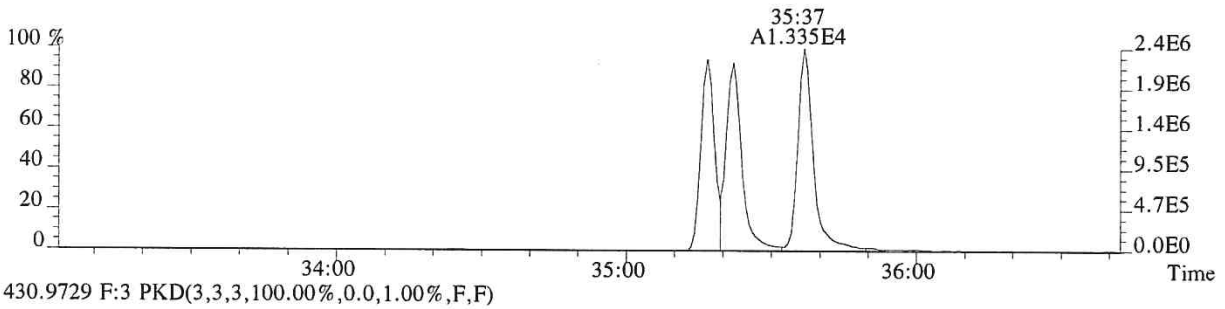
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



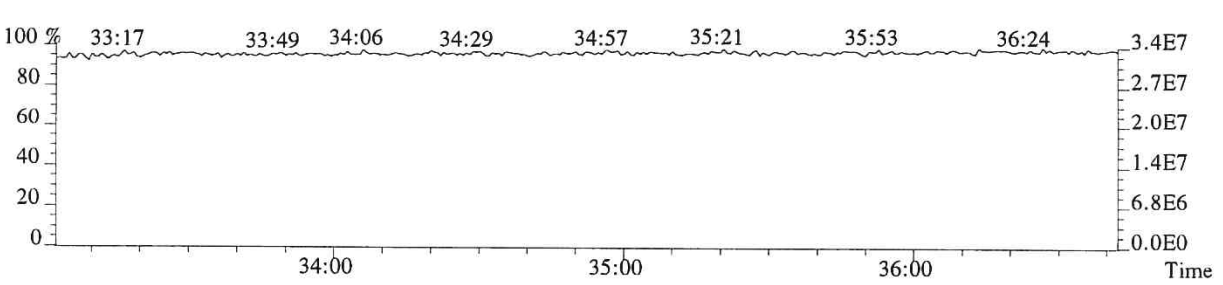
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1304.0,0.40%,F,T)



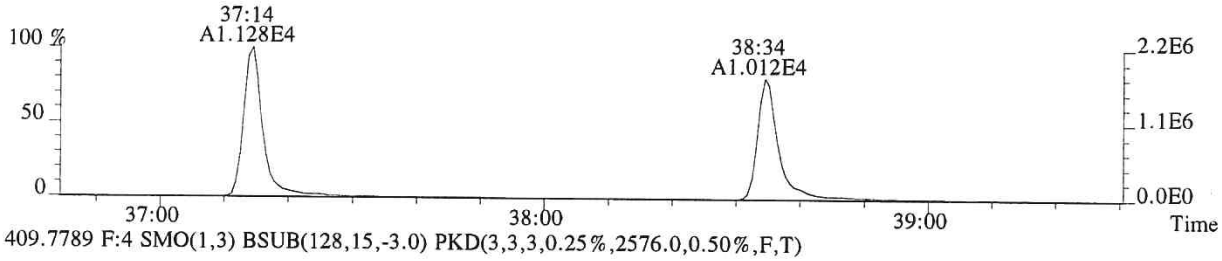
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



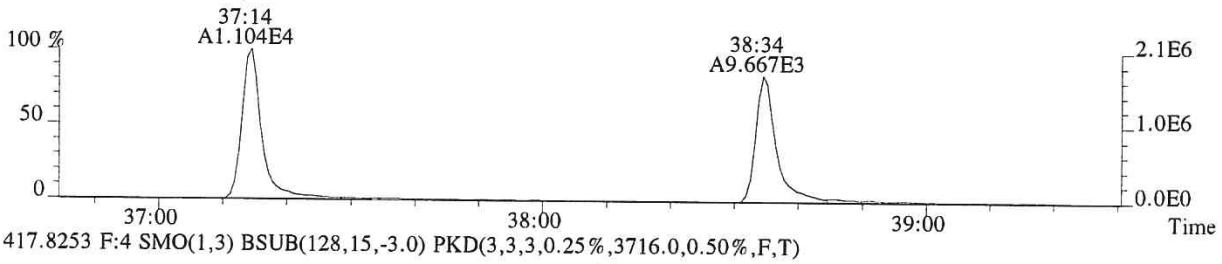
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



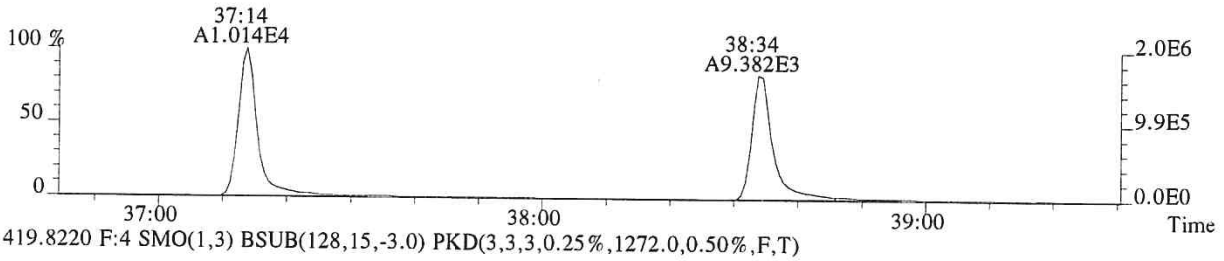
File:P518865 #1-250 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.50%,F,T)



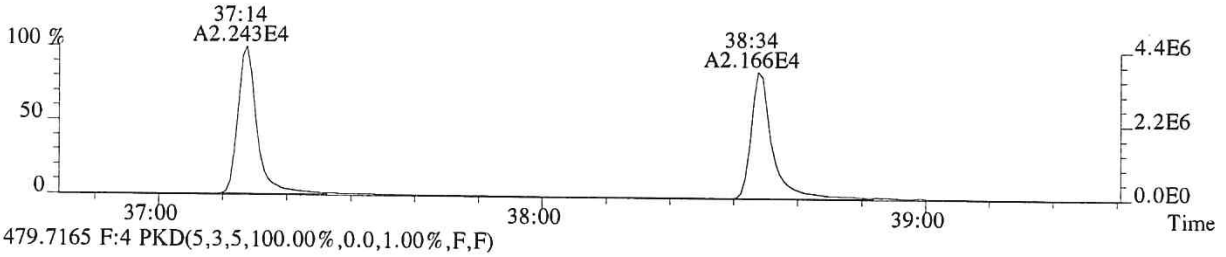
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2576.0,0.50%,F,T)



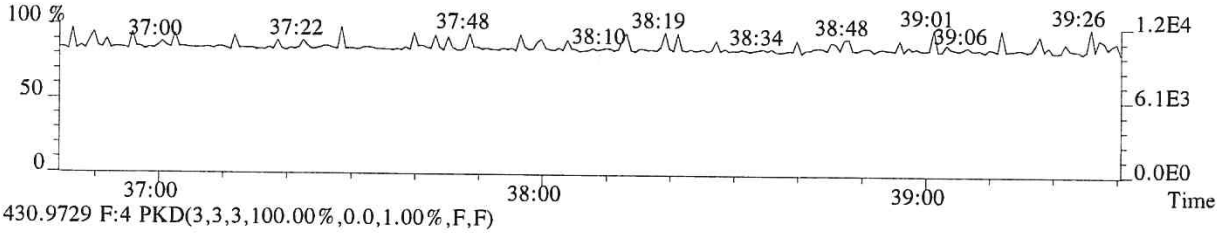
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3716.0,0.50%,F,T)



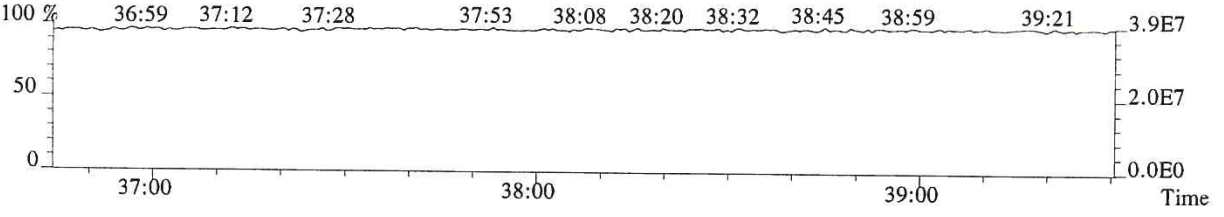
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.50%,F,T)



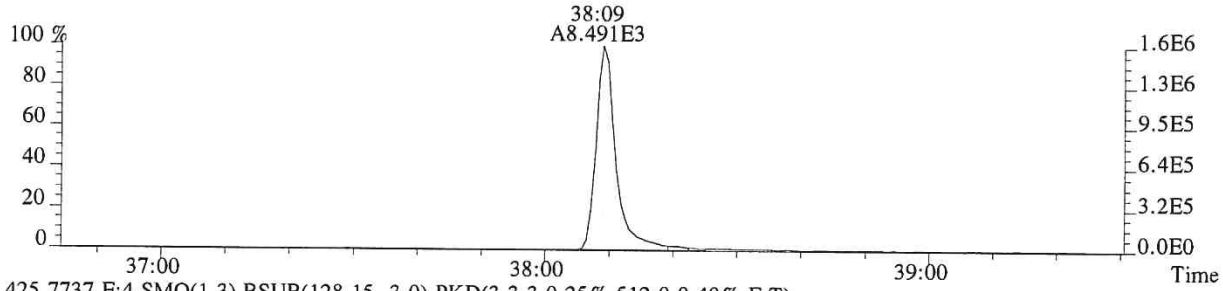
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



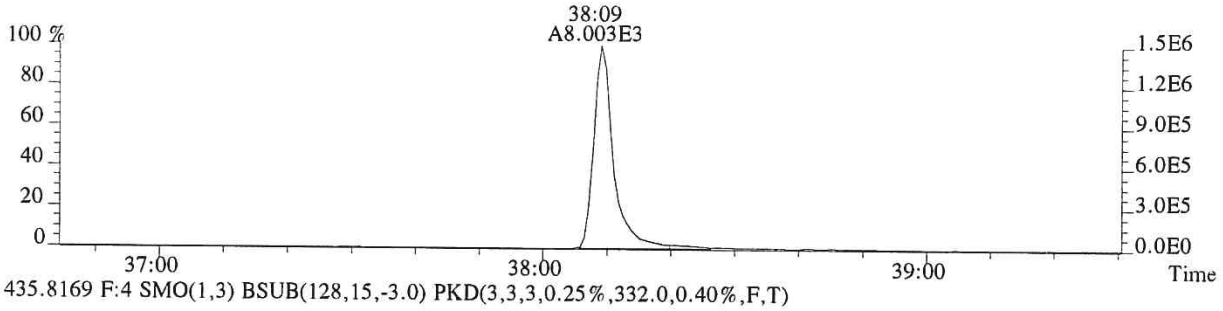
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



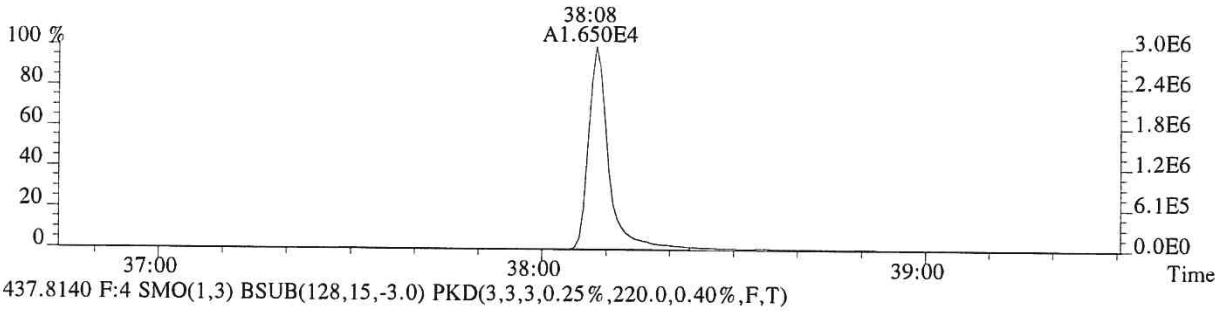
File:P518865 #1-250 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



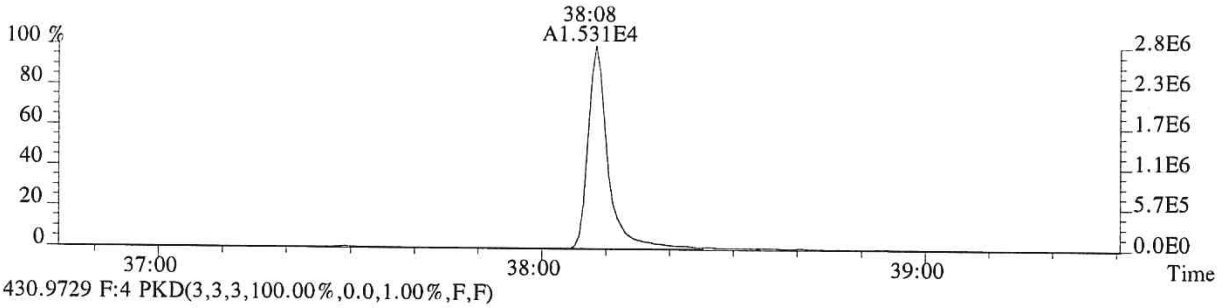
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



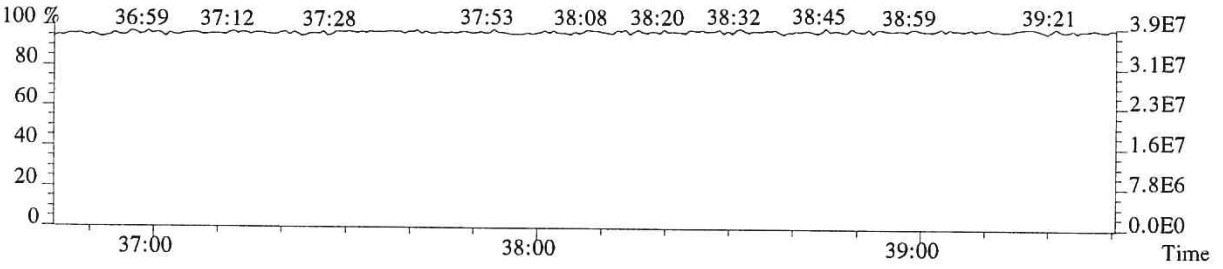
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



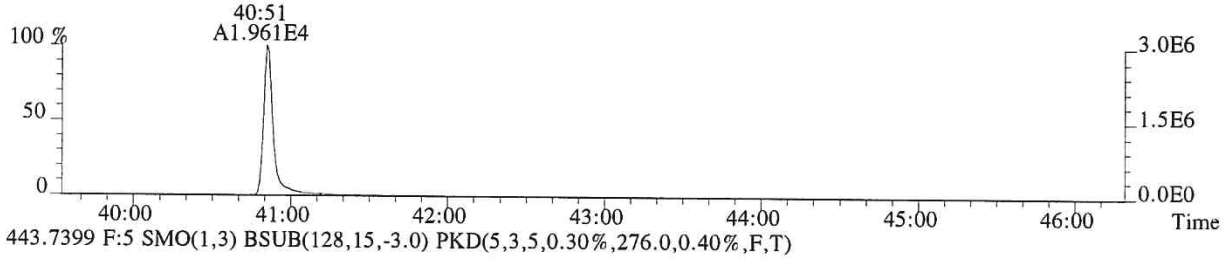
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



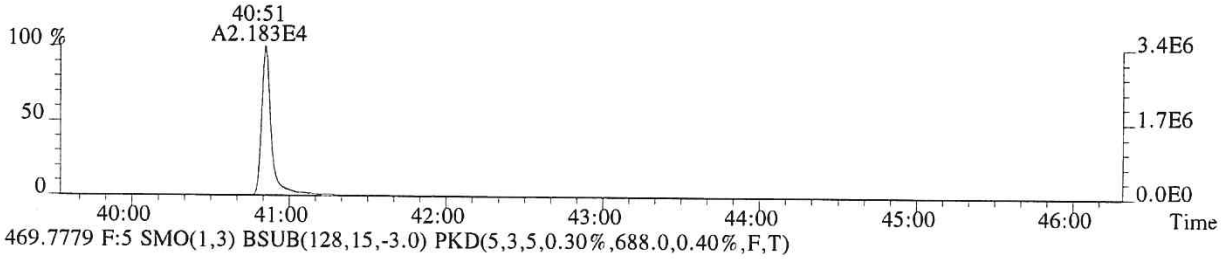
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



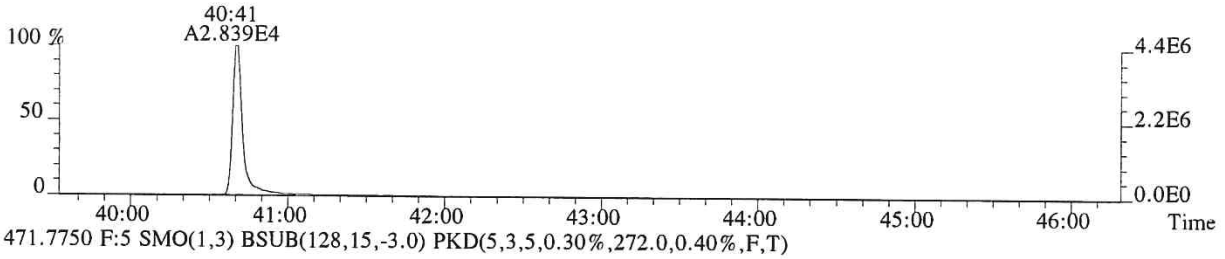
File:P518865 #1-610 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



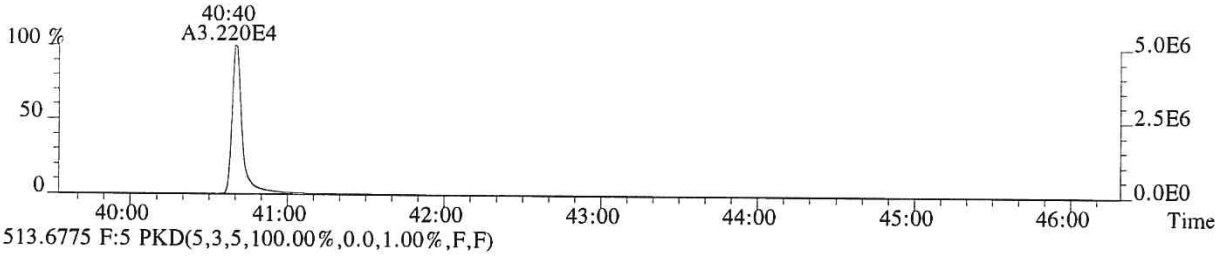
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



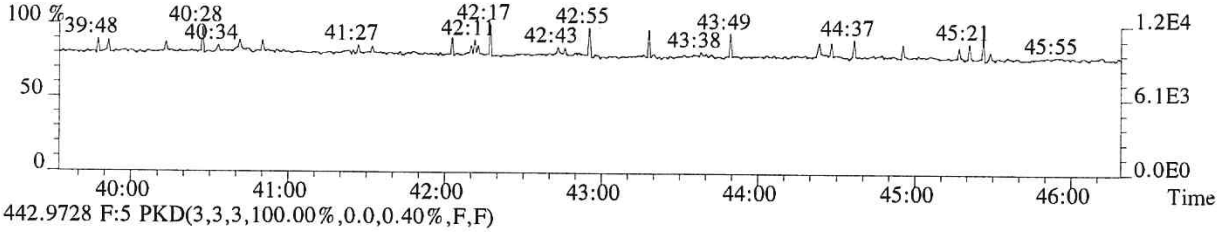
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



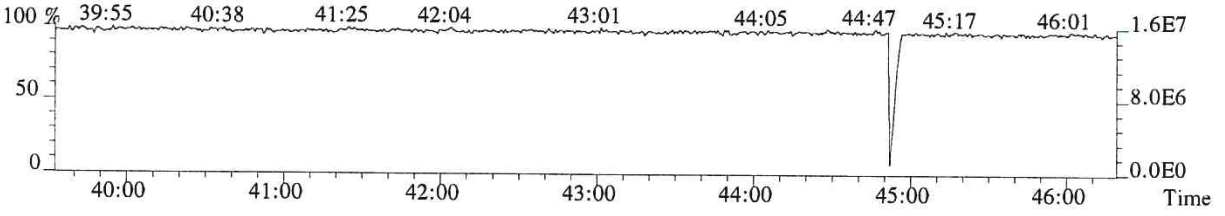
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



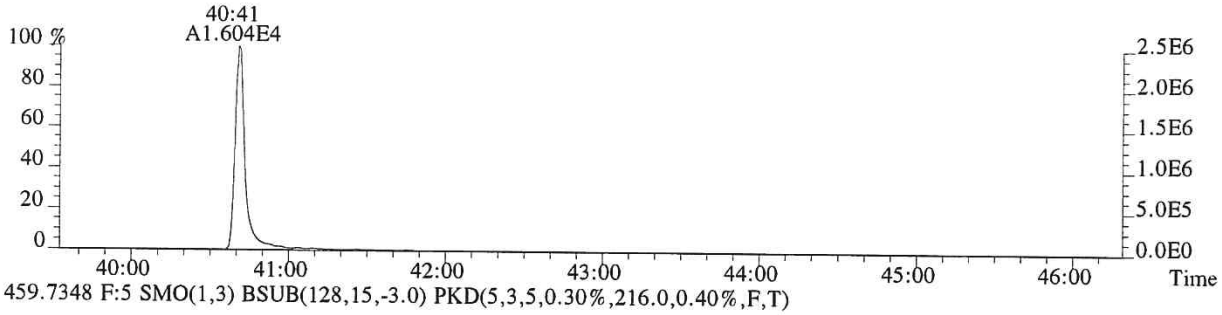
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



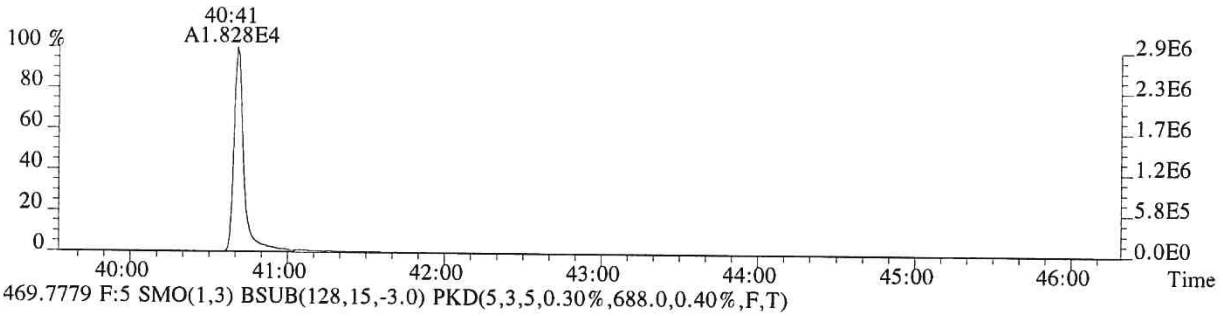
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



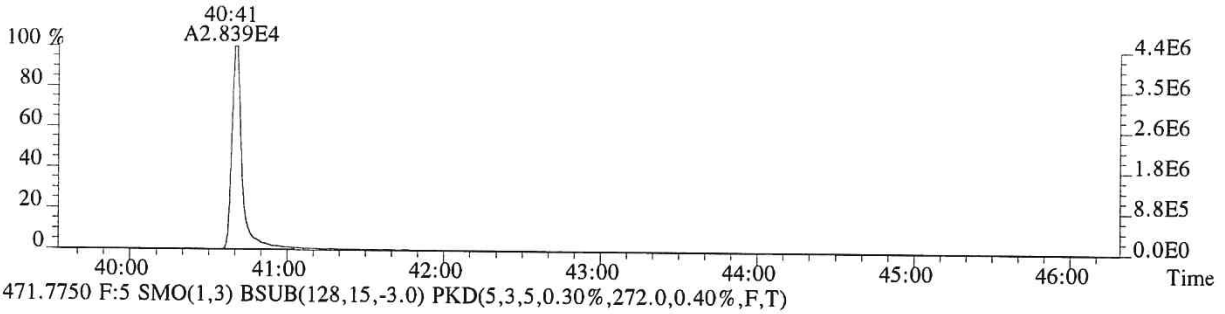
File:P518865 #1-610 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



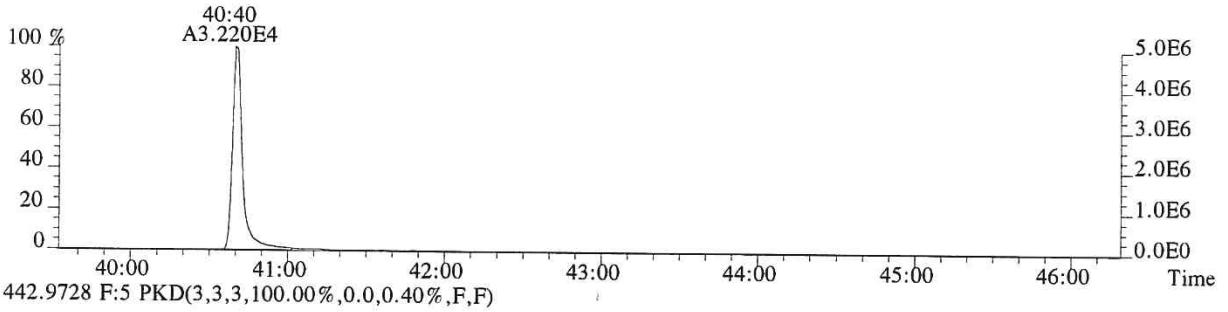
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



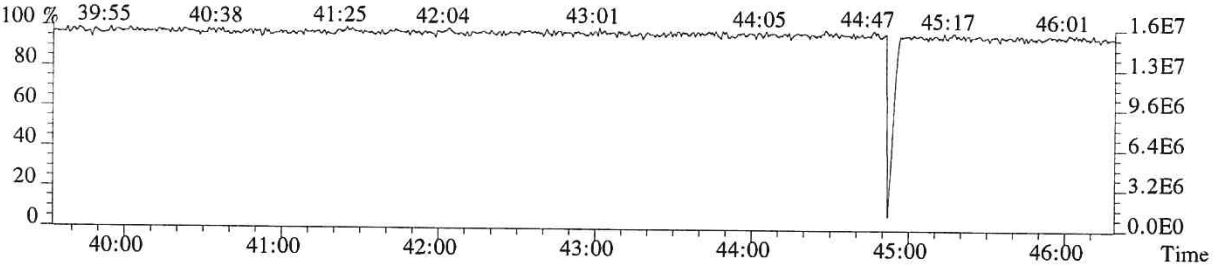
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P518924 - P518937

Date: 11/19 - 11/20/18

Circle one: (Beginning) / (Ending)

Method: (1613) / 1613E / (8290) / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: LKL

Second QC: LG

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P518925	19-NOV-18	21:27:33
194503	CS3	P518924	19-NOV-18	20:31:34
194503	CS3	P518937	20-NOV-18	07:28:54
METHOD BLANK	EQ1800461-01	P518926	19-NOV-18	22:15:21
METHOD BLANK	EQ1800463-01	P518927	19-NOV-18	23:03:59
376137-138	E1801008-014	P518928	19-NOV-18	23:52:36
376095-096	E1801008-015	P518929	20-NOV-18	00:41:12
1810-23037-006	E1800992-002	P518930	20-NOV-18	01:29:50
MSTP 77523-S	E1800993-001	P518931	20-NOV-18	02:18:27
9 DF	E1801007-009	P518932	20-NOV-18	03:07:04
13 DF	E1801007-012	P518933	20-NOV-18	03:55:41
14 DF	E1801007-013	P518934	20-NOV-18	04:44:19
15 DF	E1801007-014	P518935	20-NOV-18	05:32:57

E1801012

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181119B.SPL
Last Modified: Tuesday, November 20, 2018 08:28:16 Central Standard Time
Printed: Tuesday, November 20, 2018 08:28:18 Central Standard Time

Page Position (1, 1)

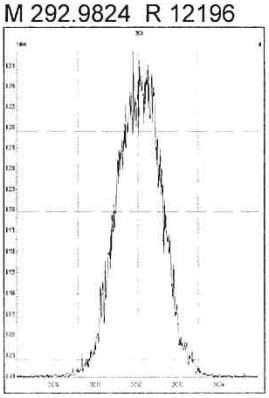
OPUS 5 NET: P518924 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/19/18	20:31	P518924	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMS check 21:27
2		21:27	P518925	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		22:15	P518926	MB	EQ1800461-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		23:03	P518927	MB	EQ1800463-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		23:52	P518928	E1801008-014	E1801008-014	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6	11/20/18	00:41	P518929	E1801008-015	E1801008-015	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		01:29	P518930	E1800992-002	E1800992-002	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		02:18	P518931	E1800993-001	E1800993-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		03:07	P518932	E1801007-009	E1801007-009	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		03:55	P518933	E1801007-012	E1801007-012	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		04:44	P518934	E1801007-013	E1801007-013	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		05:32	P518935	E1801007-014	E1801007-014	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		06:30	P518936	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:13		not used
14		07:28	P518937	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 07:18
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

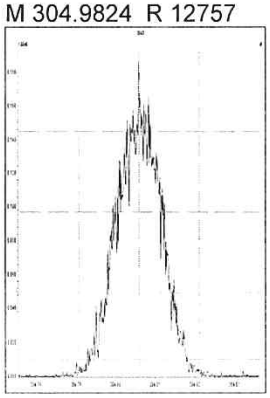
LKL 11/20/18

Printed: Monday, November 19, 2018 21:27:31 Central Standard Time

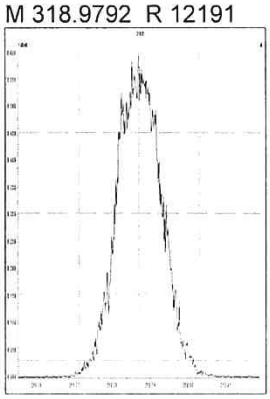
M 292.9824_R 12196



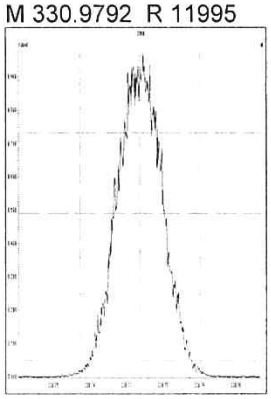
M 304.9824_R 12757



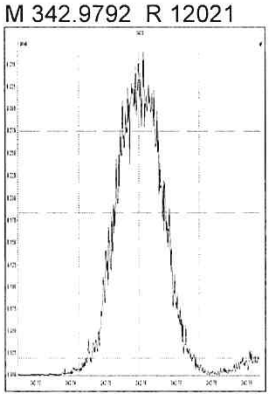
M 318.9792_R 12191



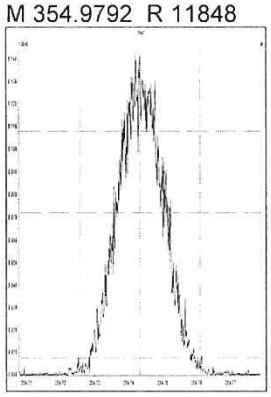
M 330.9792_R 11995



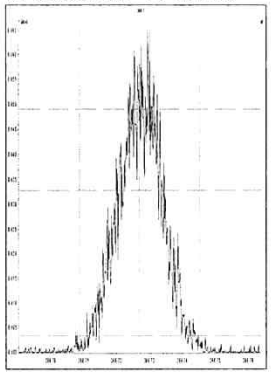
M 342.9792_R 12021



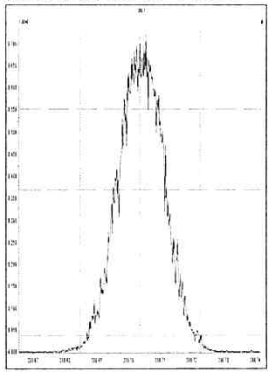
M 354.9792_R 11848



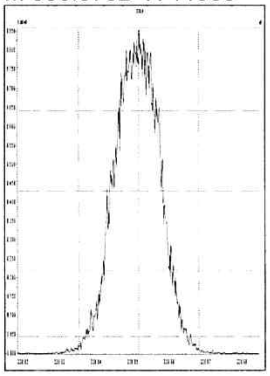
M 366.9792_R 13440



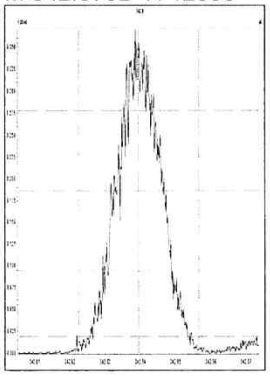
M 380.9760_R 11188



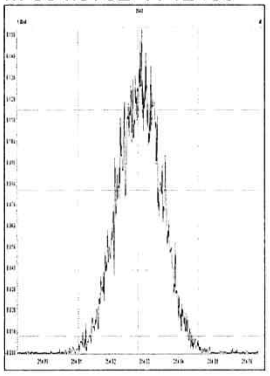
M 330.9792_R 11966



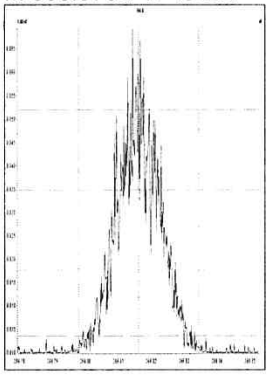
M 342.9792_R 12535



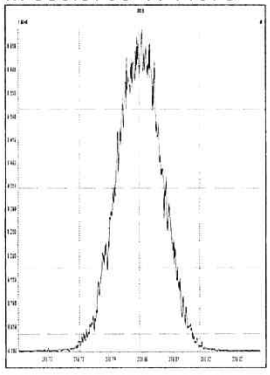
M 354.9792_R 12406



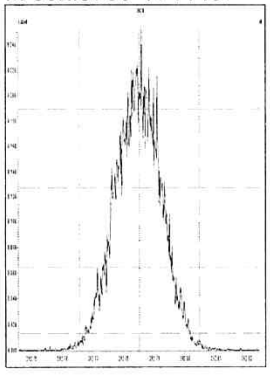
M 366.9792_R 13262



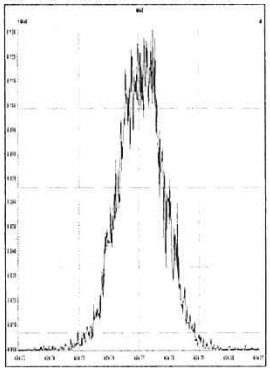
M 380.9760_R 11573



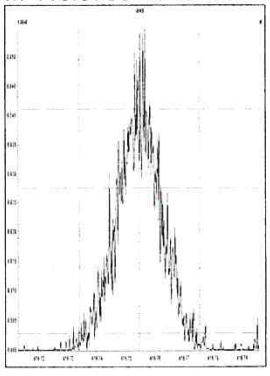
M 392.9760_R 11467



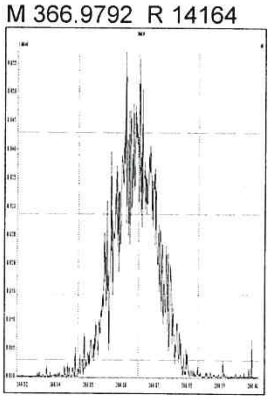
M 404.9760_R 11876



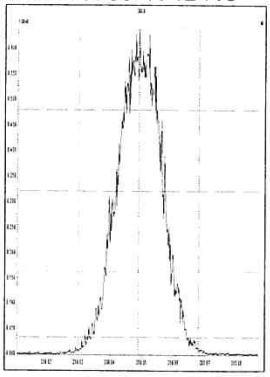
M 416.9760_R 13196



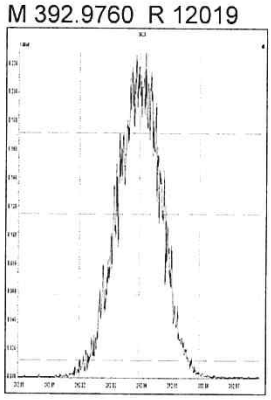
M 366.9792 R 14164



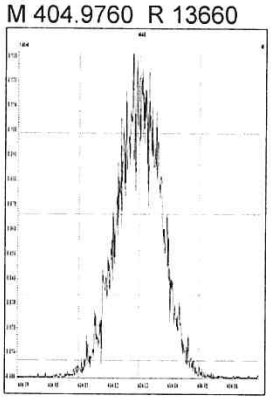
M 380.9760 R 12410



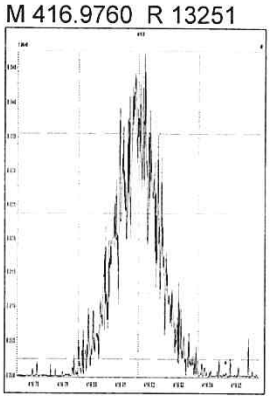
M 392.9760 R 12019



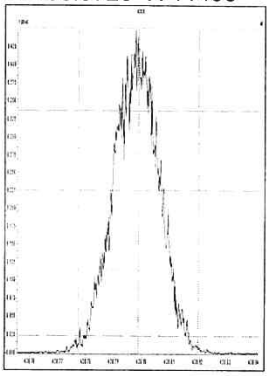
M 404.9760 R 13660



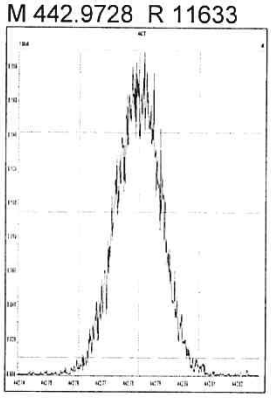
M 416.9760 R 13251



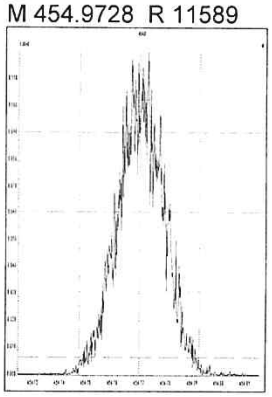
M 430.9728 R 11495



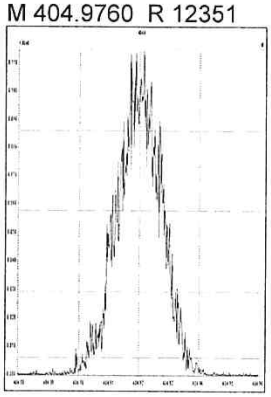
M 442.9728 R 11633



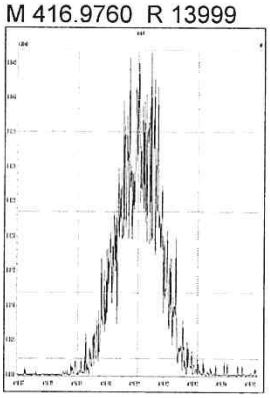
M 454.9728 R 11589



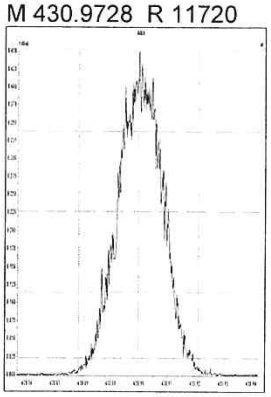
M 404.9760 R 12351



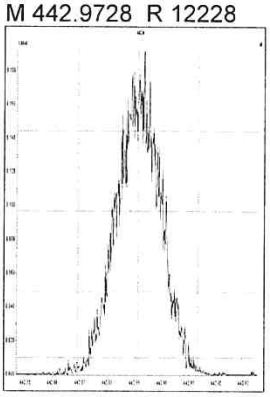
M 416.9760 R 13999



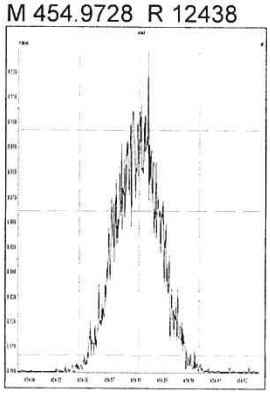
M 430.9728 R 11720



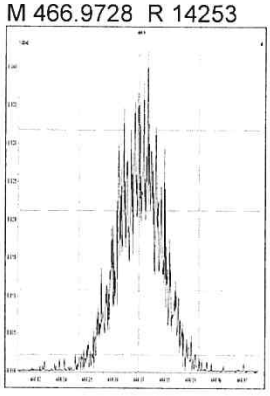
M 442.9728 R 12228



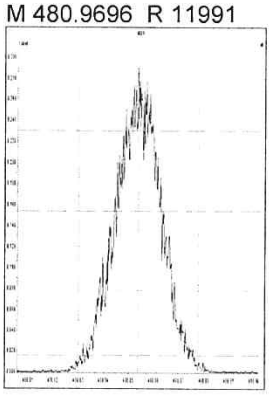
M 454.9728 R 12438



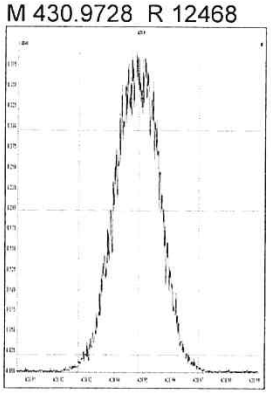
M 466.9728 R 14253



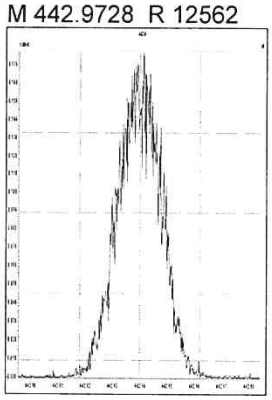
M 480.9696 R 11991



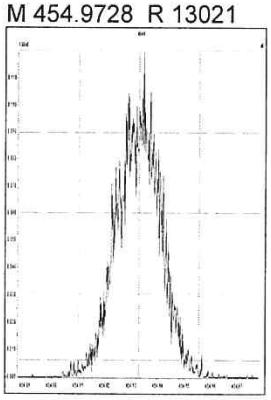
M 430.9728 R 12468



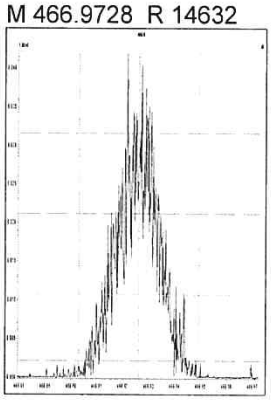
M 442.9728 R 12562



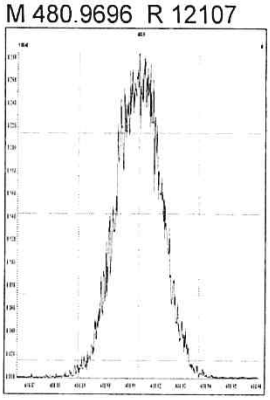
M 454.9728 R 13021



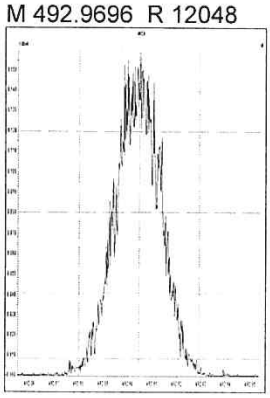
M 466.9728 R 14632



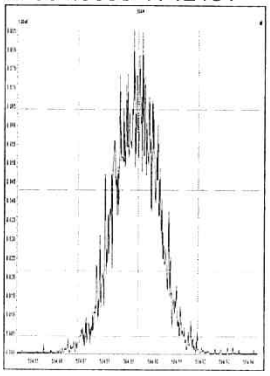
M 480.9696 R 12107



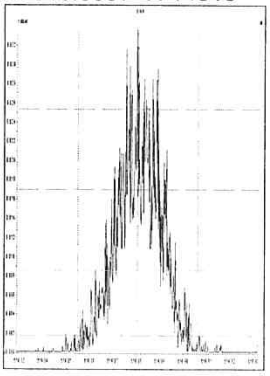
M 492.9696 R 12048



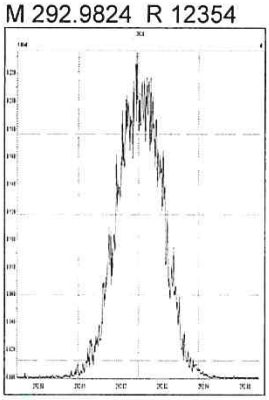
M 504.9696 R 12181



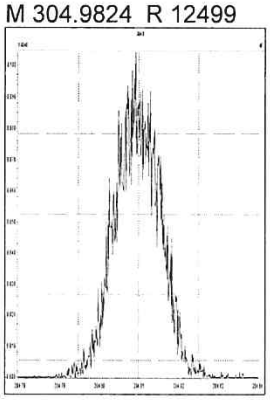
M 516.9697 R 14010



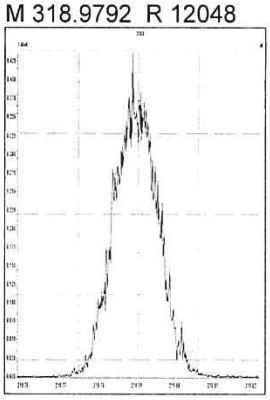
M 292.9824 R 12354



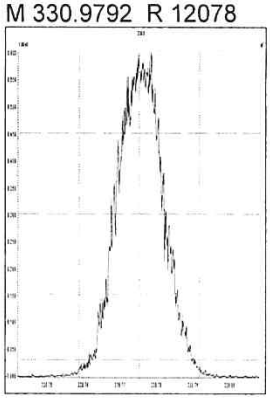
M 304.9824 R 12499



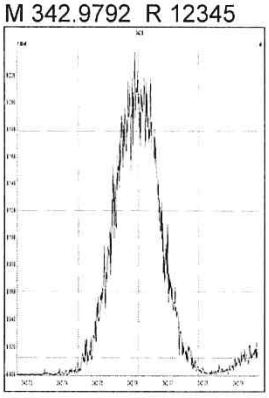
M 318.9792 R 12048



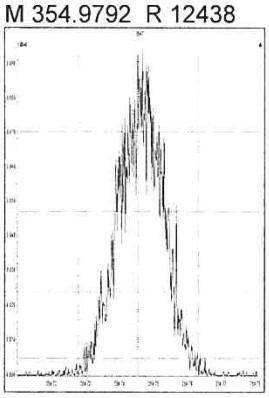
M 330.9792 R 12078



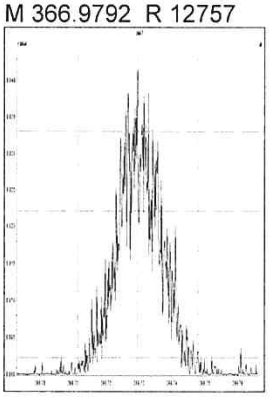
M 342.9792 R 12345



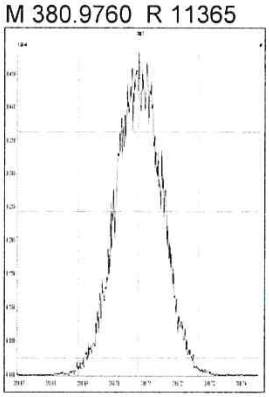
M 354.9792 R 12438



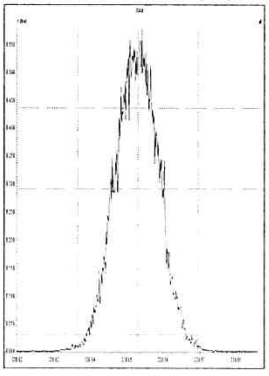
M 366.9792 R 12757



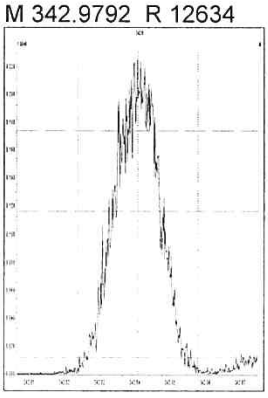
M 380.9760 R 11365



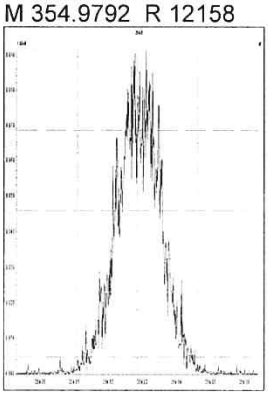
M 330.9792 R 12319



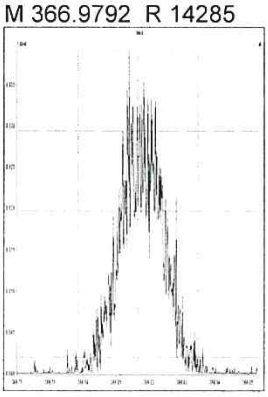
M 342.9792 R 12634



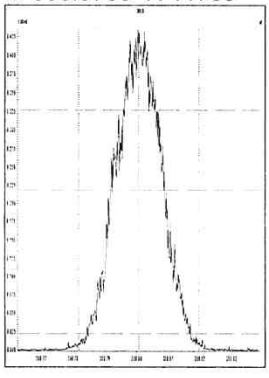
M 354.9792 R 12158



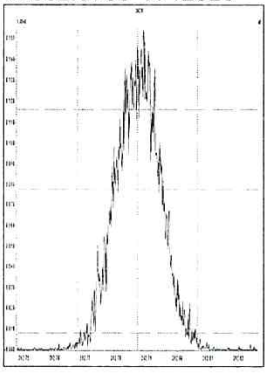
M 366.9792 R 14285



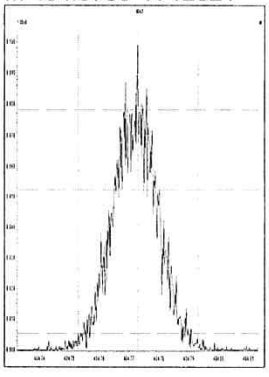
M 380.9760 R 11709



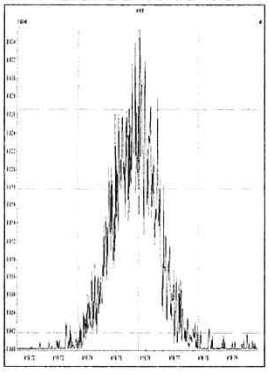
M 392.9760 R 12325



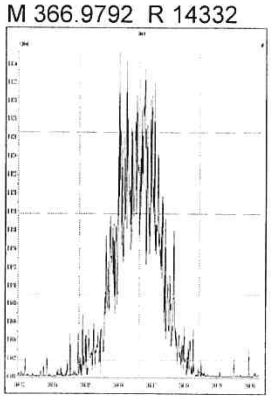
M 404.9760 R 12821



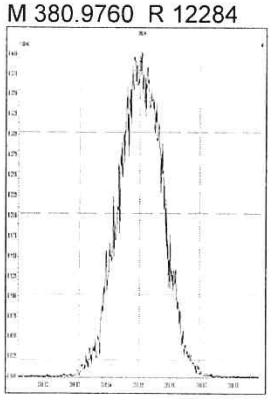
M 416.9760 R 13479



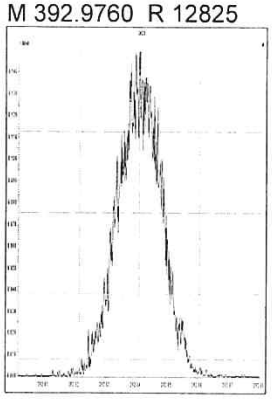
M 366.9792 R 14332



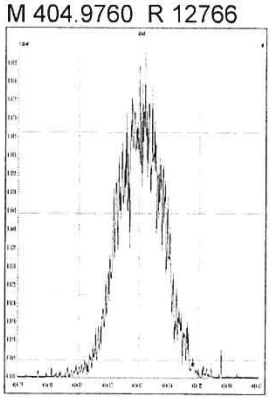
M 380.9760 R 12284



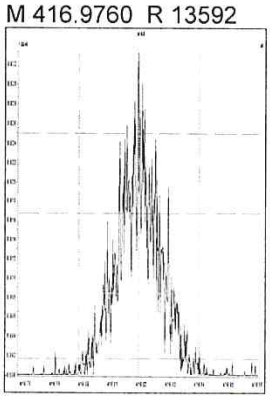
M 392.9760 R 12825



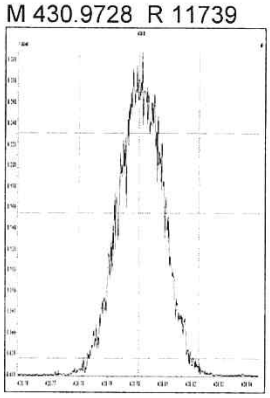
M 404.9760 R 12766



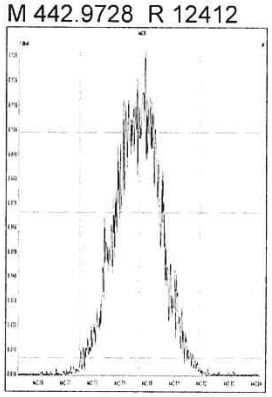
M 416.9760 R 13592



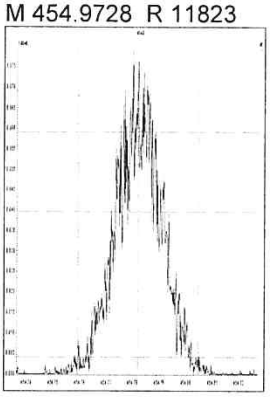
M 430.9728 R 11739



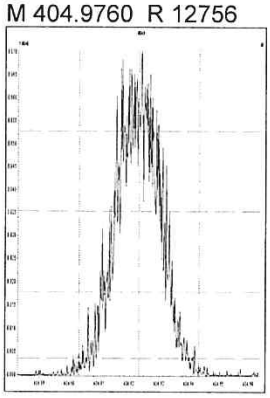
M 442.9728 R 12412



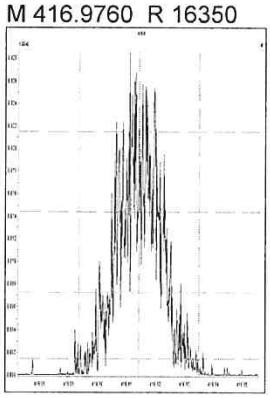
M 454.9728 R 11823



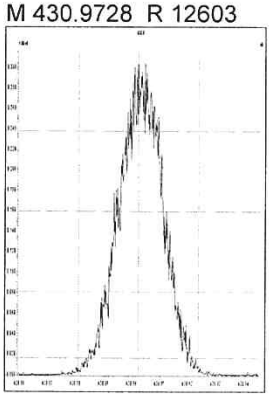
M 404.9760 R 12756



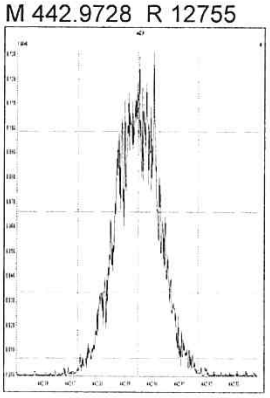
M 416.9760 R 16350



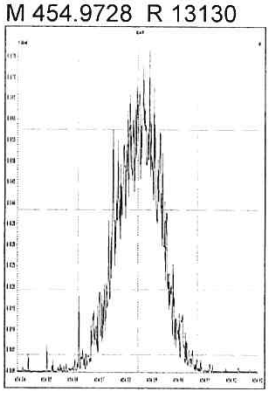
M 430.9728 R 12603



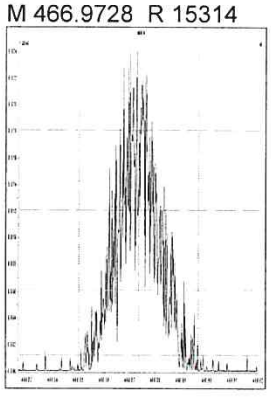
M 442.9728 R 12755



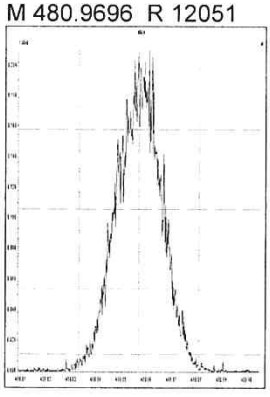
M 454.9728 R 13130



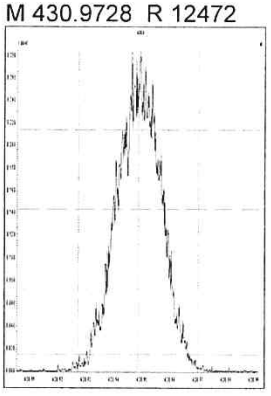
M 466.9728 R 15314



M 480.9696 R 12051

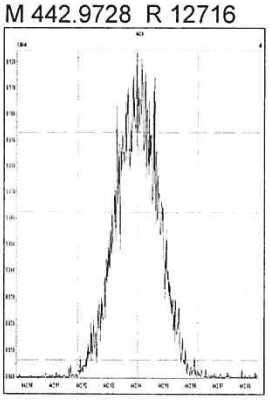


M 430.9728 R 12472

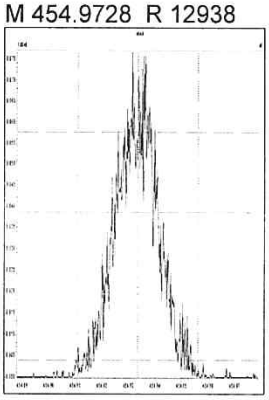


Printed: Tuesday, November 20, 2018 07:18:21 Central Standard Time

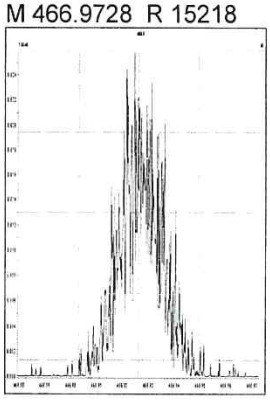
M 442.9728 R 12716



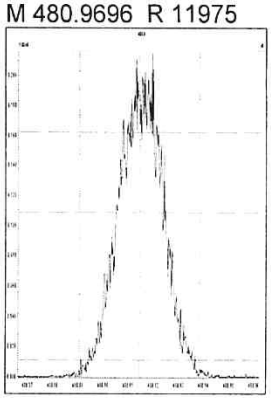
M 454.9728 R 12938



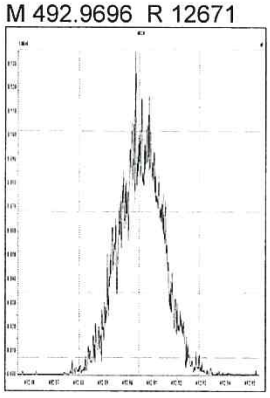
M 466.9728 R 15218



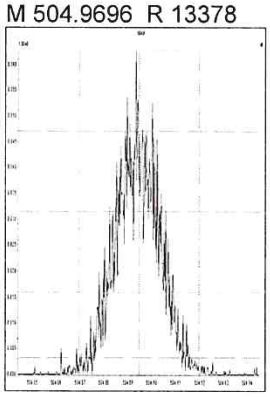
M 480.9696 R 11975



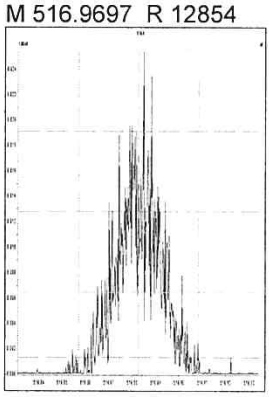
M 492.9696 R 12671



M 504.9696 R 13378



M 516.9697 R 12854



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

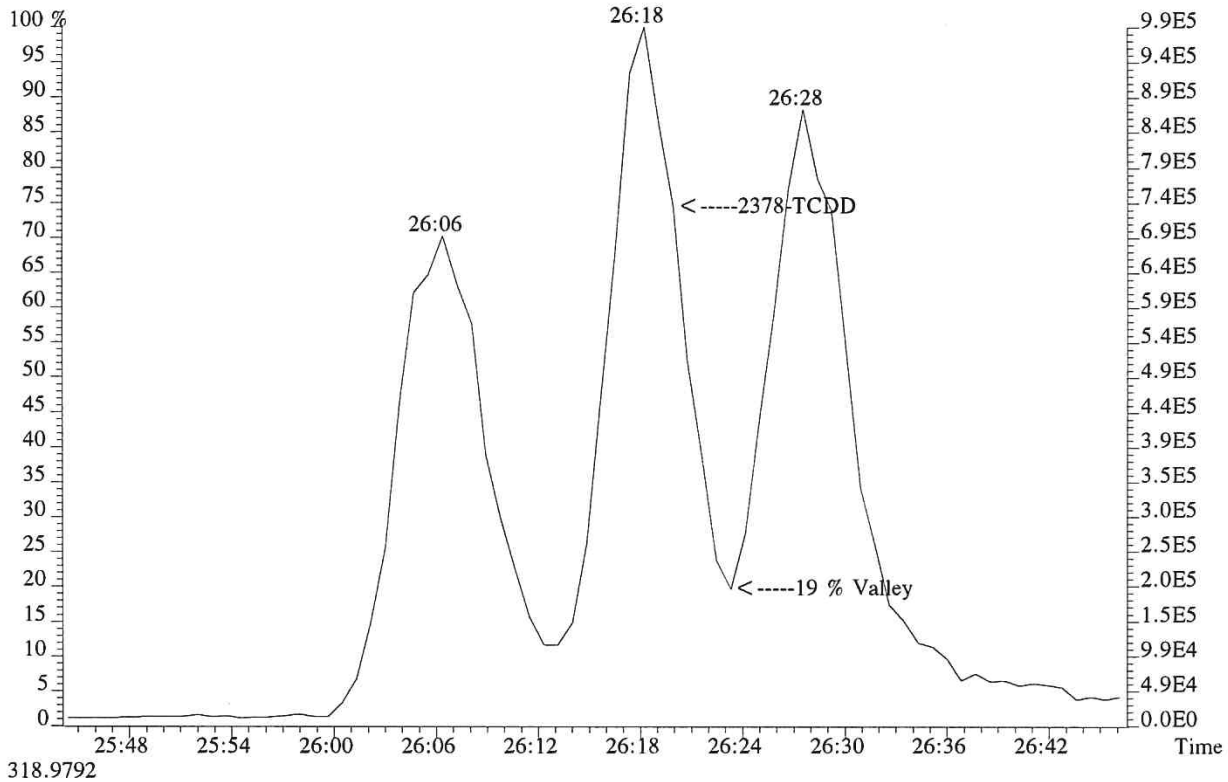
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P518925
Date Analyzed: 19-NOV-18
Time Analyzed: 21:27:33

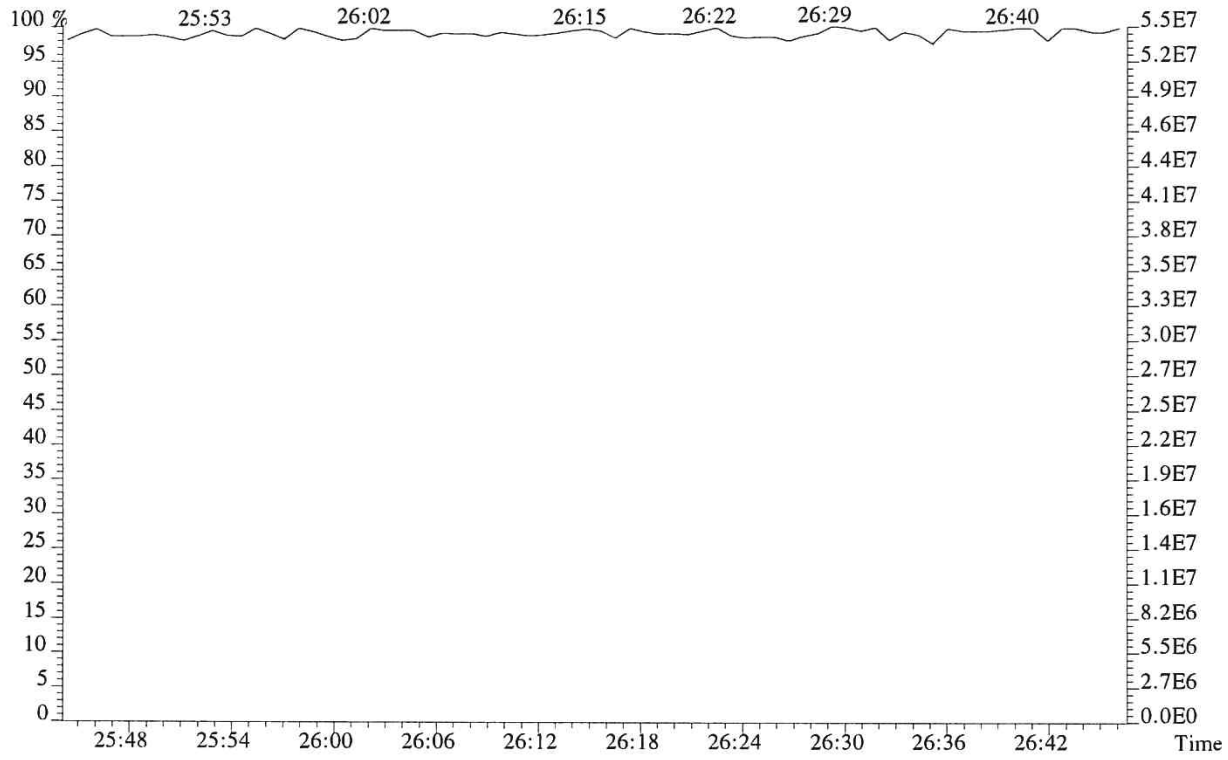
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:01	27:44
TCDD	22:36	27:33
PeCDF	27:41	32:30
PeCDD	29:31	32:16
HxCDF	33:15	35:53
HxCDD	33:49	35:29
HpCDF	37:11	38:32
HpCDD	37:27	38:06

% Valley 2378-TCDD: 19 %

File:P518925 #1-594 Acq:19-NOV-2018 21:27:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792



009133

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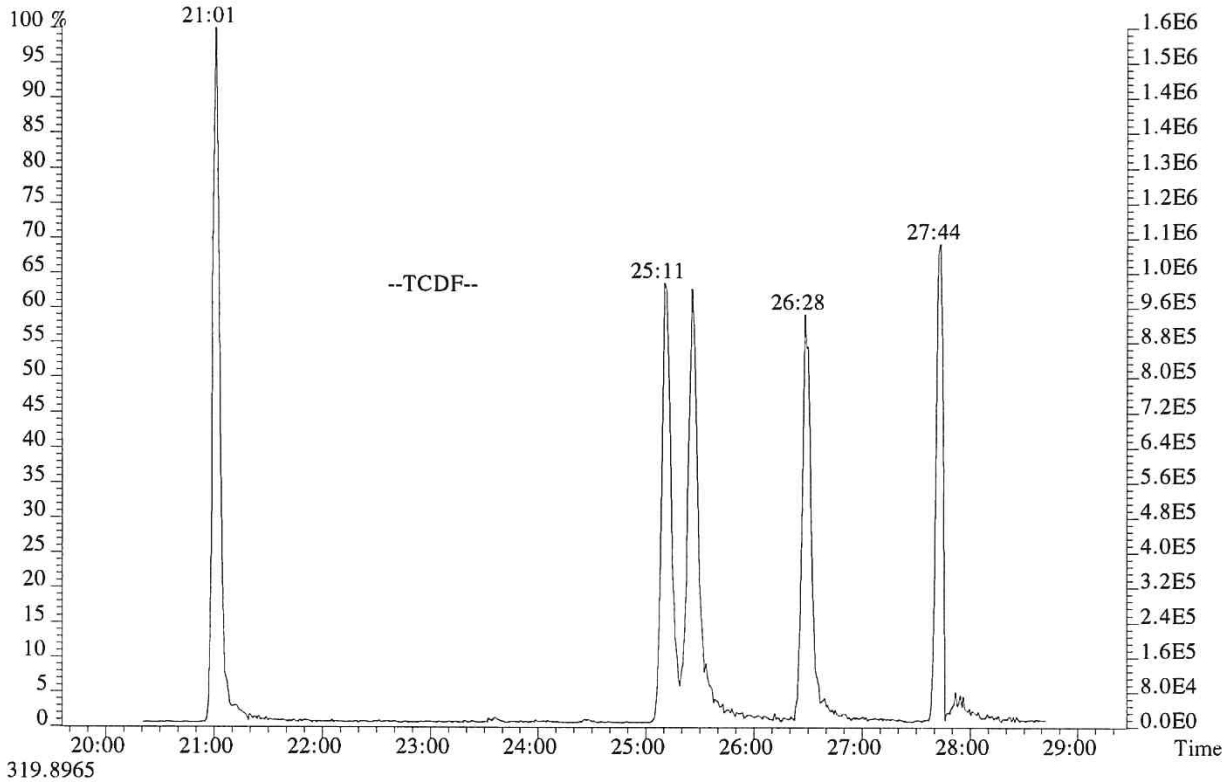
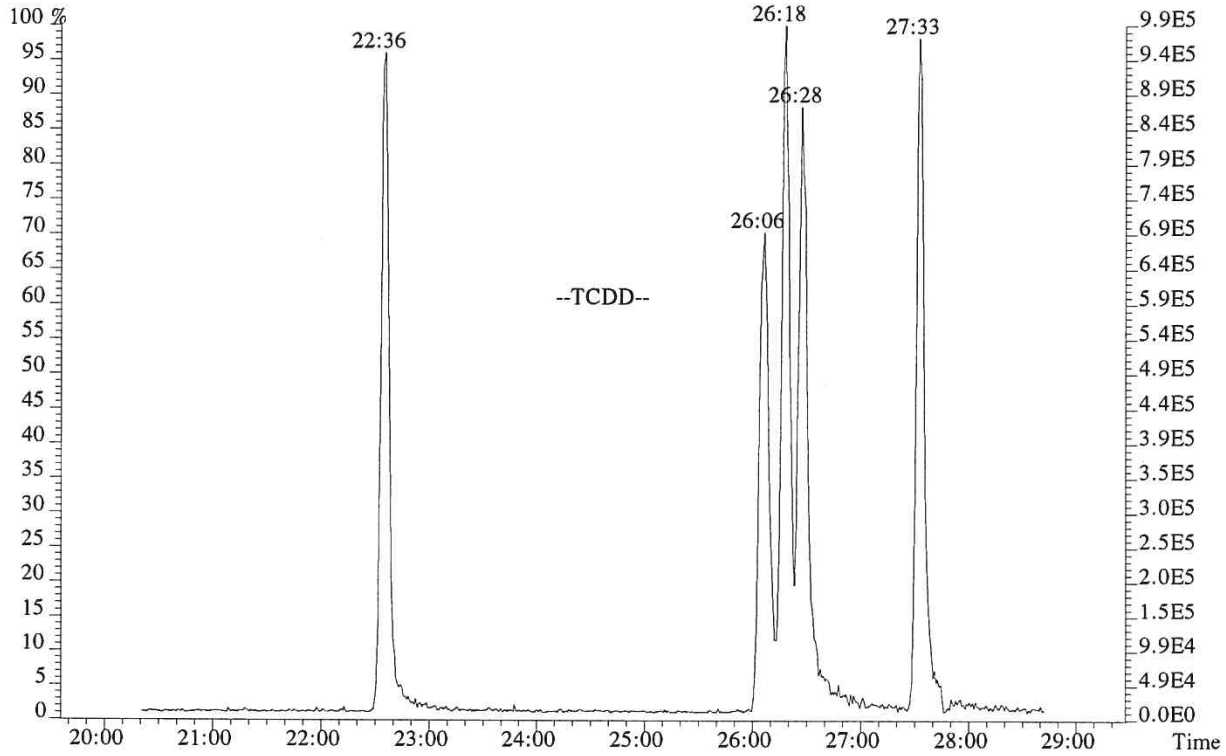
Sample#1 Exp:192977
303.9016

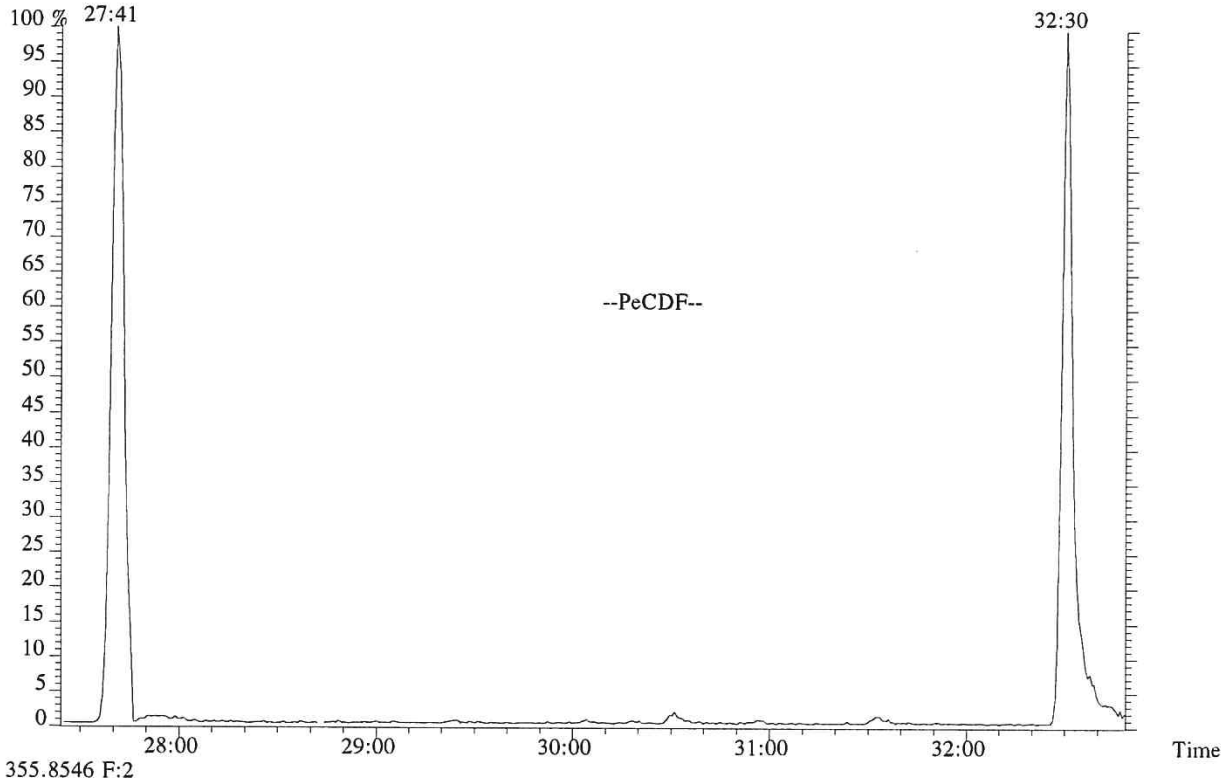


319.8965

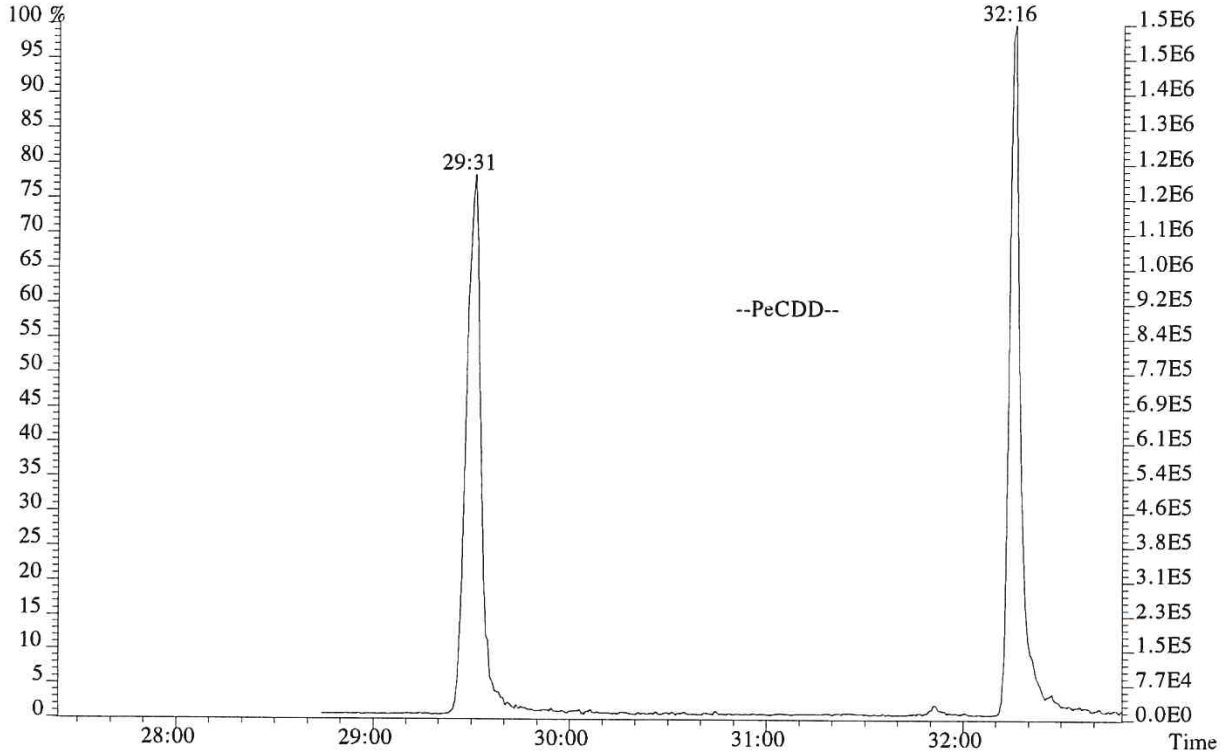


009134

File:P518925 #1-594 Acq:19-NOV-2018 21:27:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2

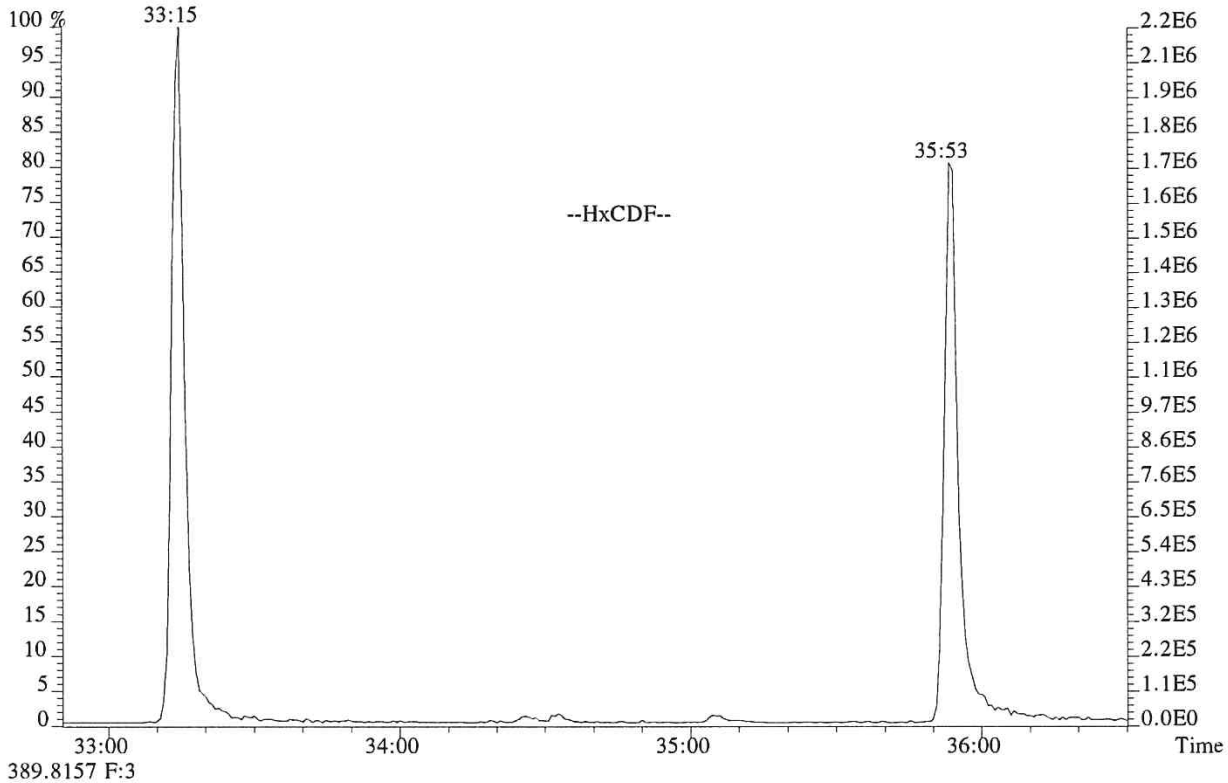


355.8546 F:2

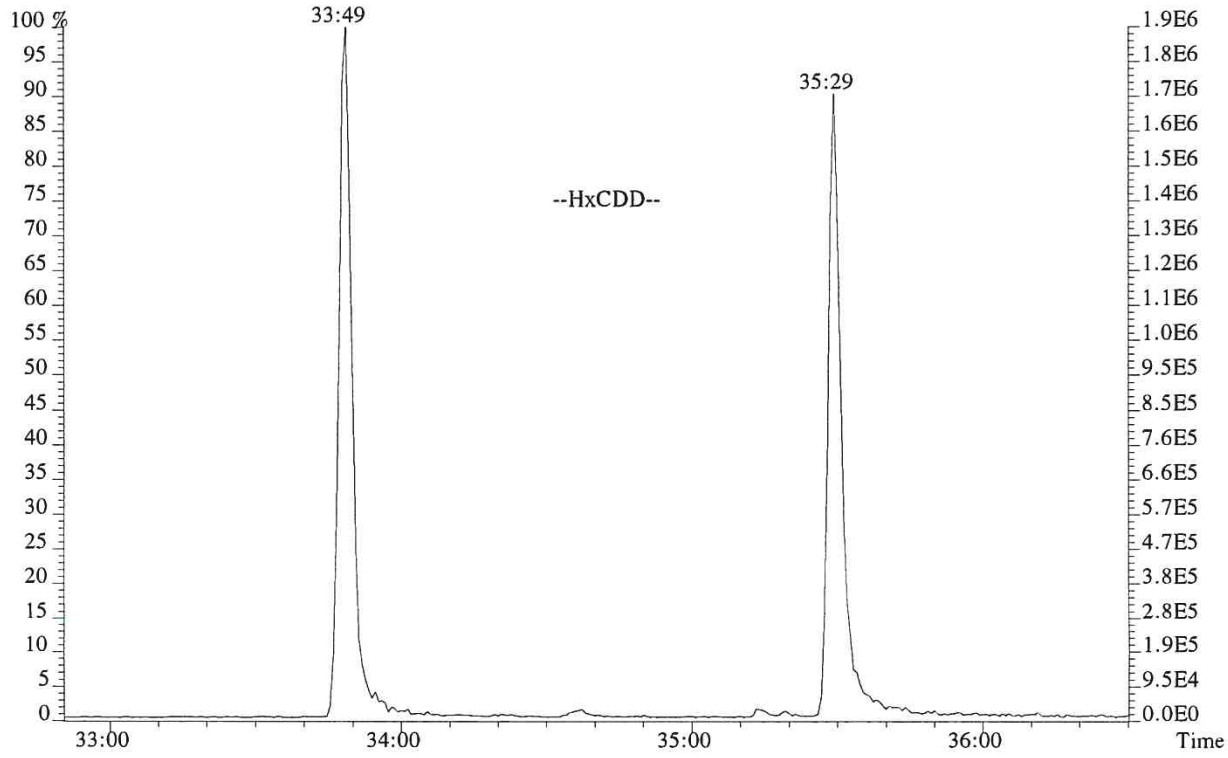


009135

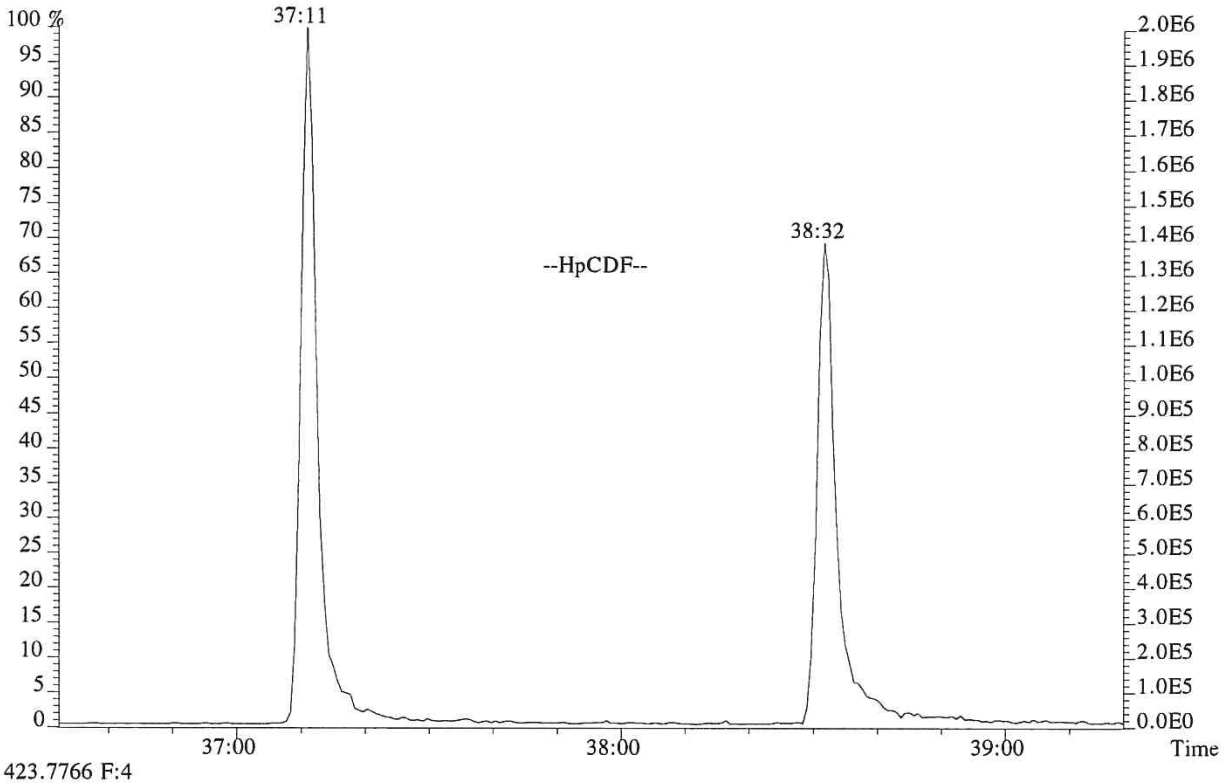
File:P518925 #1-594 Acq:19-NOV-2018 21:27:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3



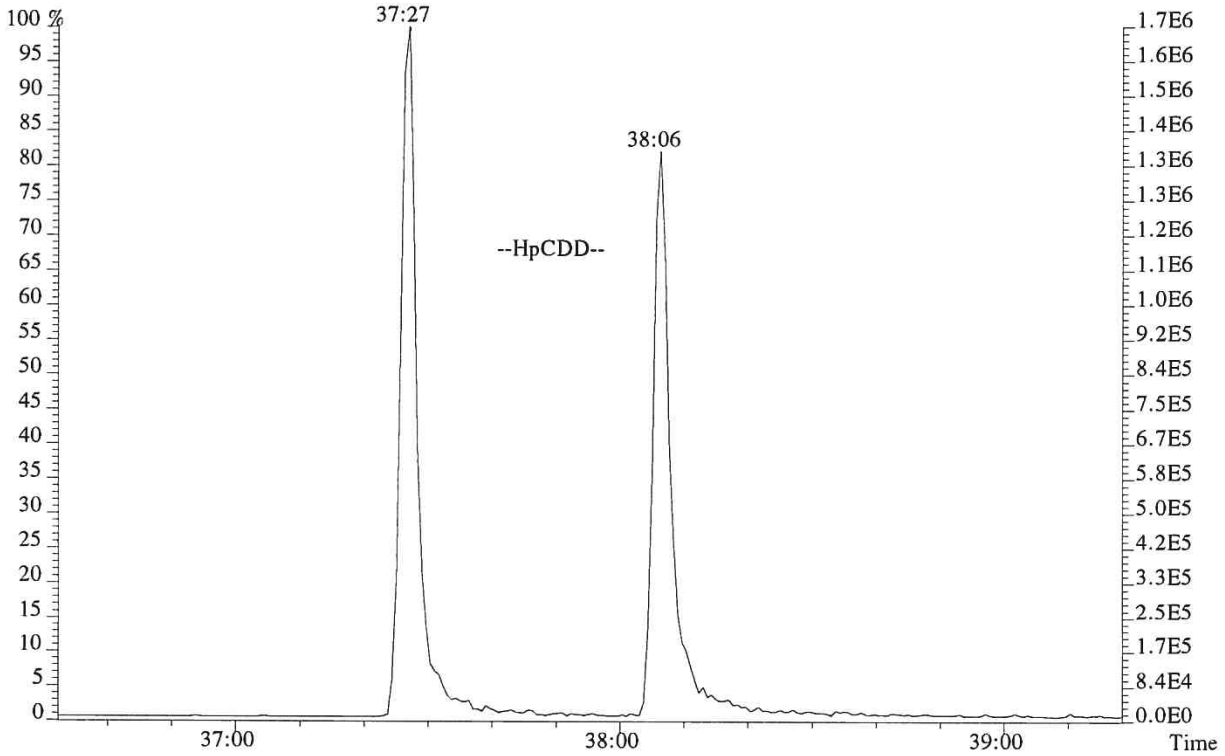
389.8157 F:3



File:P518925 #1-594 Acq:19-NOV-2018 21:27:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518924 Analysis Date: 19-NOV-18 Time: 20:31:34

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.2	7.8 - 12.9	-8.4
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	49	39 - 65	-2.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.4
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	53	41 - 61	5.1
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.01	0.88-1.20	49	43 - 58	-1.3
OCDD	M+2/M+4	0.89	0.76-1.02	100	79 - 126	0.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.6	8.4 - 12.0	-4.1
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	49	41 - 60	-1.5
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 61	-1.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	0.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	49	45 - 56	-2.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	50	45 - 55	0.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	50	43 - 58	-0.3
OCDF	M+2/M+4	0.89	0.76-1.02	95	63 - 159	-5.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518924 Analysis Date: 19-NOV-18 Time: 20:31:34

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	103	82 - 121	3.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	109	62 - 160	9.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	90	85 - 117	-9.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	99	85 - 118	-1.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	101	72 - 138	1.3
13C-OCDD	M+2/M+4	0.88	0.76-1.02	236	96 - 415	18.1
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	89	71 - 140	-11.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	99	76 - 130	-1.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	101	77 - 130	0.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	79	76 - 131	-20.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	87	70 - 143	-13.3
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	87	74 - 135	-13.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	90	73 - 137	-9.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	92	78 - 129	-8.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	95	77 - 129	-5.4
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.0	7.8 - 12.7	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518924 Samp: 1 Inj: 1 Acquired: 19-NOV-18 20:31:34
Processed: 20-NOV-18 10:30:23 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:26	1.015e+04	1.339e+04	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:30	8.557e+04	5.503e+04	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:32	8.074e+04	5.297e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:26	6.895e+04	5.729e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:33	8.078e+04	6.644e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:05	7.403e+04	6.075e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:52	6.280e+04	5.062e+04	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:11	6.485e+04	6.448e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:32	5.322e+04	5.160e+04	1.03	yes	no	1.258
10	Unk	OCDF	40:48	9.027e+04	1.010e+05	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:28	8.166e+03	1.026e+04	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:51	5.843e+04	3.763e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:14	5.141e+04	4.085e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:19	5.804e+04	4.597e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:34	5.981e+04	4.716e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:06	4.760e+04	4.699e+04	1.01	yes	no	1.025
17	Unk	OCDD	40:38	7.836e+04	8.783e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:24	1.144e+05	1.463e+05	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:30	1.725e+05	1.094e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:31	1.735e+05	1.105e+05	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:25	7.245e+04	1.389e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:32	8.940e+04	1.720e+05	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:05	8.365e+04	1.603e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:51	6.921e+04	1.338e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:11	5.965e+04	1.318e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:31	5.144e+04	1.158e+05	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:27	8.265e+04	1.027e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:50	1.259e+05	8.047e+04	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:13	1.006e+05	7.960e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:19	1.131e+05	8.935e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:06	9.685e+04	9.027e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:37	1.388e+05	1.576e+05	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:43	8.543e+04	1.085e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:33	1.199e+05	9.557e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:28	1.959e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518924 Samp: 1 Inj: 1 Acquired: 19-NOV-18 20:31:34
Processed: 20-NOV-18 10:30:23 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.31e+06	5.56e+02	2.4e+03	1.75e+06	1.38e+03	1.3e+03
2	1,2,3,7,8-PeCDF	1.36e+07	9.08e+02	1.5e+04	8.69e+06	1.27e+03	6.9e+03
3	2,3,4,7,8-PeCDF	1.37e+07	9.08e+02	1.5e+04	9.09e+06	1.27e+03	7.2e+03
4	1,2,3,4,7,8-HxCDF	1.41e+07	4.12e+02	3.4e+04	1.16e+07	6.88e+02	1.7e+04
5	1,2,3,6,7,8-HxCDF	1.51e+07	4.12e+02	3.7e+04	1.25e+07	6.88e+02	1.8e+04
6	2,3,4,6,7,8-HxCDF	1.44e+07	4.12e+02	3.5e+04	1.20e+07	6.88e+02	1.7e+04
7	1,2,3,7,8,9-HxCDF	1.13e+07	4.12e+02	2.7e+04	9.07e+06	6.88e+02	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	1.29e+07	7.76e+03	1.7e+03	1.27e+07	5.21e+03	2.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.00e+07	7.76e+03	1.3e+03	9.84e+06	5.21e+03	1.9e+03
10	OCDF	1.51e+07	5.20e+02	2.9e+04	1.69e+07	6.88e+02	2.5e+04
11	2,3,7,8-TCDD	1.15e+06	1.91e+03	6.0e+02	1.48e+06	1.28e+03	1.2e+03
12	1,2,3,7,8-PeCDD	9.93e+06	6.40e+02	1.6e+04	6.44e+06	3.28e+02	2.0e+04
13	1,2,3,4,7,8-HxCDD	1.11e+07	3.84e+02	2.9e+04	8.94e+06	4.52e+02	2.0e+04
14	1,2,3,6,7,8-HxCDD	1.06e+07	3.84e+02	2.8e+04	8.56e+06	4.52e+02	1.9e+04
15	1,2,3,7,8,9-HxCDD	1.09e+07	3.84e+02	2.8e+04	8.83e+06	4.52e+02	2.0e+04
16	1,2,3,4,6,7,8-HpCDD	9.53e+06	3.68e+02	2.6e+04	9.38e+06	4.32e+02	2.2e+04
17	OCDD	1.31e+07	1.40e+02	9.4e+04	1.47e+07	1.96e+02	7.5e+04
18	13C-2,3,7,8-TCDF	1.43e+07	4.98e+03	2.9e+03	1.82e+07	3.11e+03	5.8e+03
19	13C-1,2,3,7,8-PeCDF	2.69e+07	8.12e+02	3.3e+04	1.70e+07	1.51e+03	1.1e+04
20	13C-2,3,4,7,8-PeCDF	2.98e+07	8.12e+02	3.7e+04	1.91e+07	1.51e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	1.44e+07	7.68e+02	1.9e+04	2.75e+07	1.57e+03	1.8e+04
22	13C-1,2,3,6,7,8-HxCDF	1.68e+07	7.68e+02	2.2e+04	3.21e+07	1.57e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	1.65e+07	7.68e+02	2.1e+04	3.11e+07	1.57e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.24e+07	7.68e+02	1.6e+04	2.37e+07	1.57e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.18e+07	7.43e+03	1.6e+03	2.59e+07	1.10e+04	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	9.66e+06	7.43e+03	1.3e+03	2.16e+07	1.10e+04	2.0e+03
27	13C-2,3,7,8-TCDD	1.17e+07	5.06e+03	2.3e+03	1.45e+07	2.58e+03	5.6e+03
28	13C-1,2,3,7,8-PeCDD	2.13e+07	8.68e+02	2.5e+04	1.35e+07	5.48e+02	2.5e+04
29	13C-1,2,3,4,7,8-HxCDD	2.17e+07	9.84e+02	2.2e+04	1.72e+07	7.00e+02	2.5e+04
30	13C-1,2,3,6,7,8-HxCDD	2.09e+07	9.84e+02	2.1e+04	1.67e+07	7.00e+02	2.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.90e+07	1.06e+03	1.8e+04	1.79e+07	5.28e+02	3.4e+04
32	13C-OCDD	2.36e+07	6.20e+02	3.8e+04	2.64e+07	3.40e+02	7.8e+04
33	13C-1,2,3,4-TCDD	1.18e+07	5.06e+03	2.3e+03	1.49e+07	2.58e+03	5.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.19e+07	9.84e+02	2.2e+04	1.75e+07	7.00e+02	2.5e+04
35	37Cl-2,3,7,8-TCDD	2.75e+06	1.50e+03	1.8e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.912e{+}03 + 1.280e{+}03) \times 100}{(1.167e{+}07 + 1.454e{+}07) \times (\quad) \times 1.085} =$$

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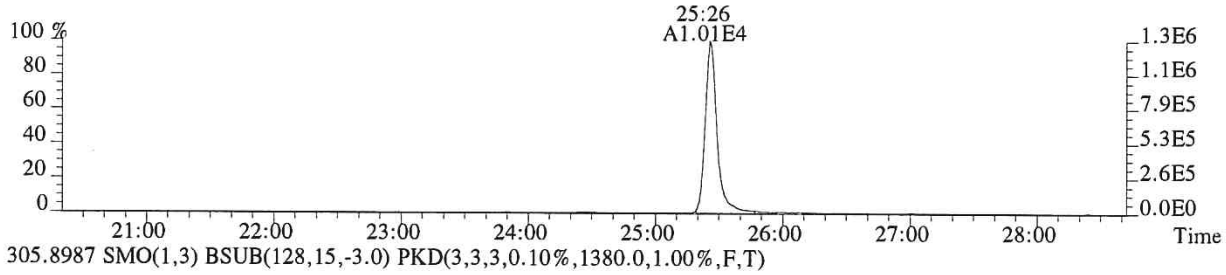
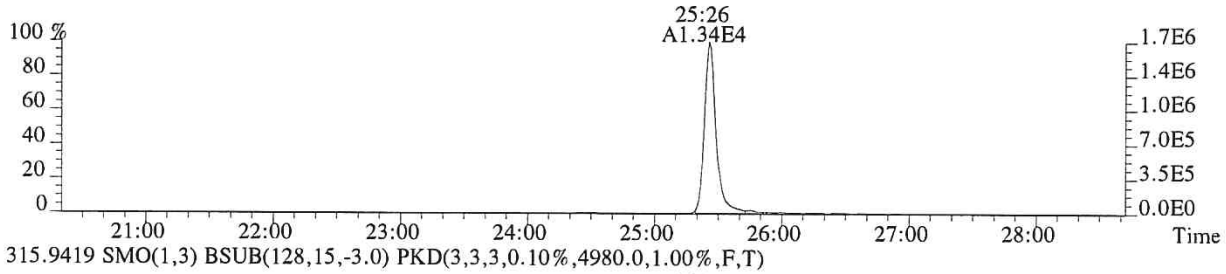
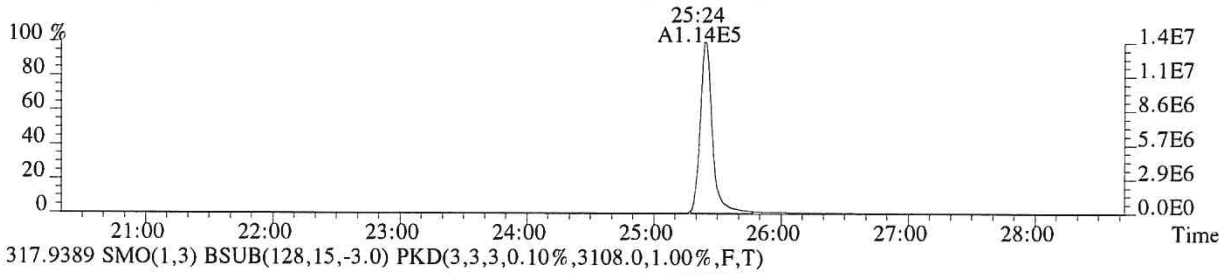
File:P518924 #1-594 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



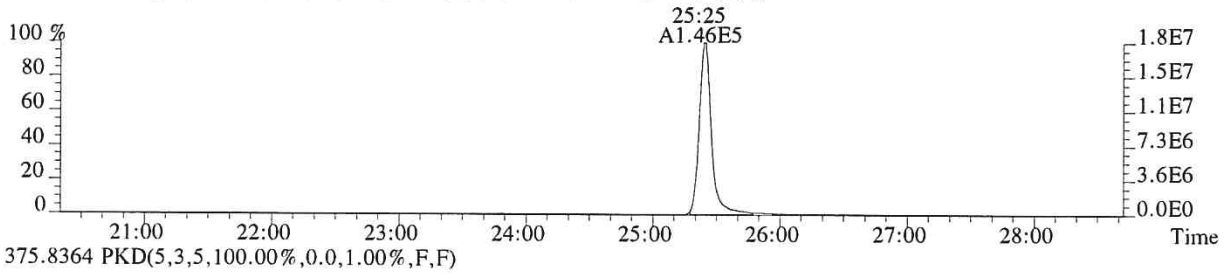
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



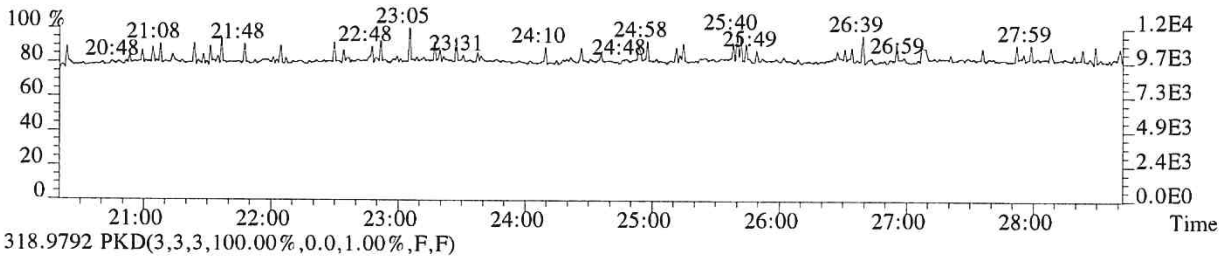
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4980.0,1.00%,F,T)



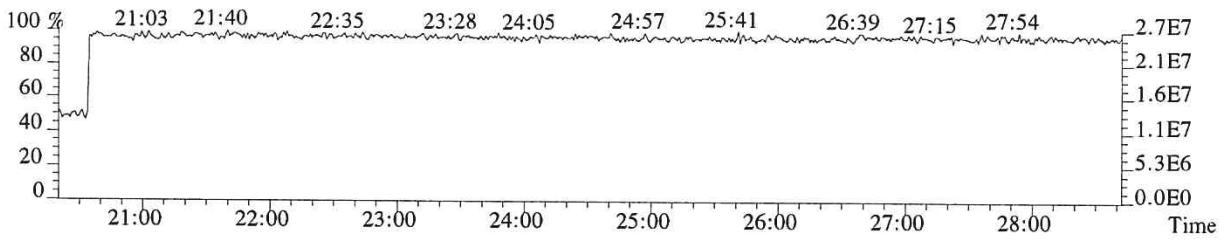
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3108.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



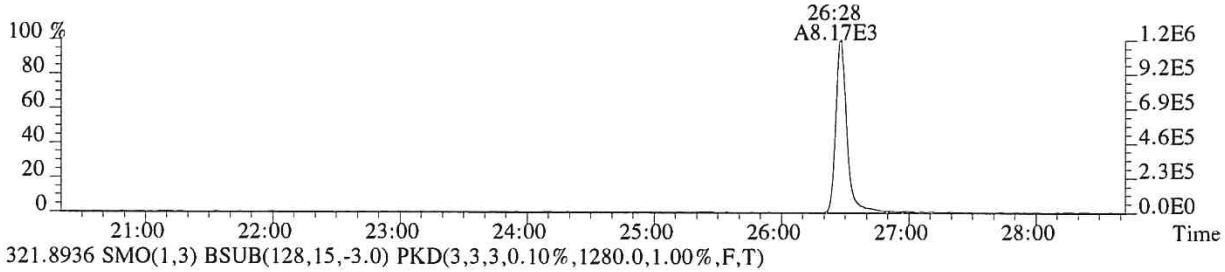
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



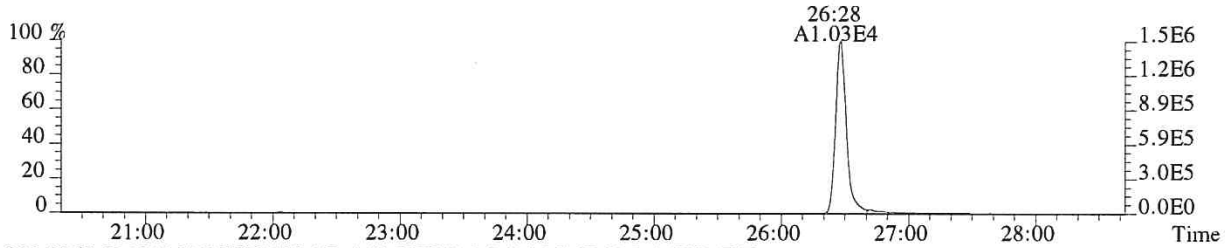
009142

File:P518924 #1-594 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

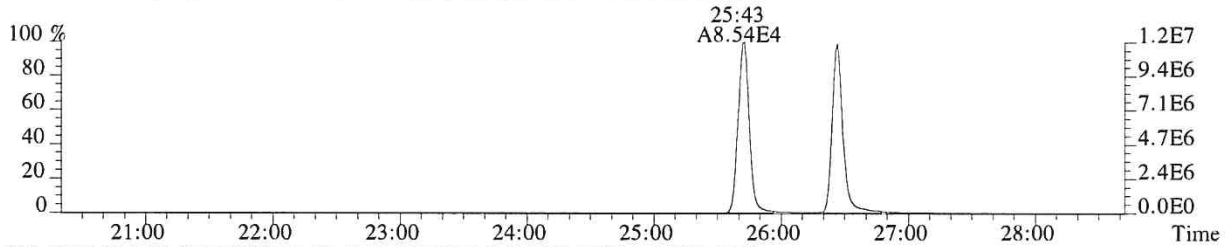
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



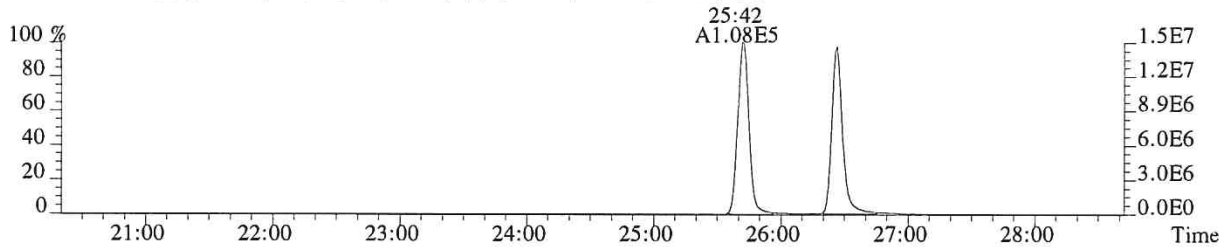
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



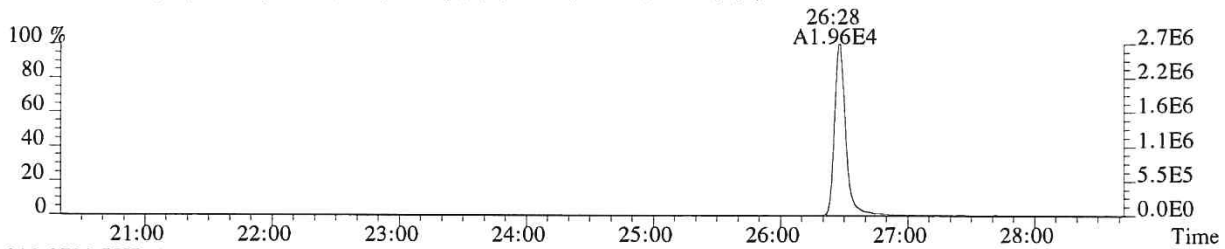
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5060.0,1.00%,F,T)



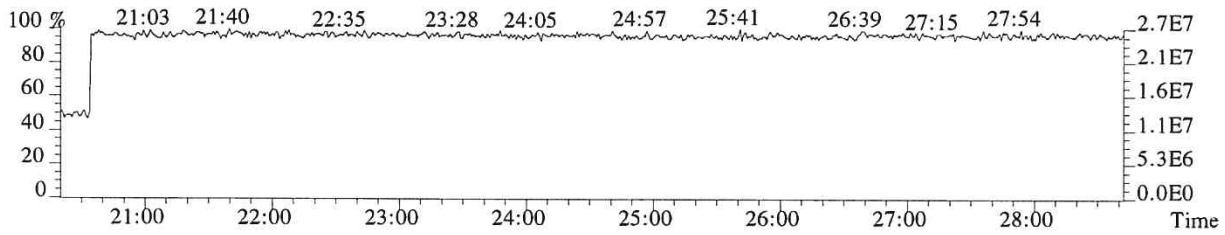
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)

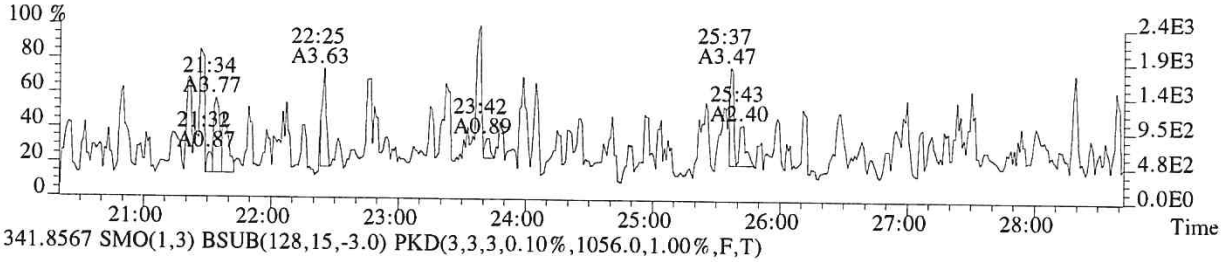


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

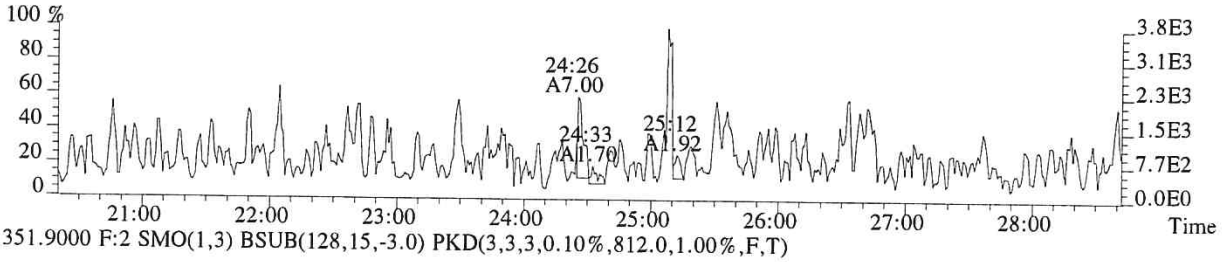


009143

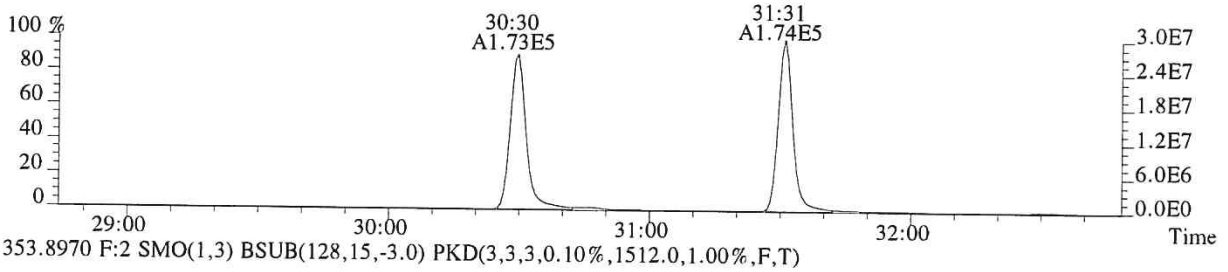
File:P518924 #1-594 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



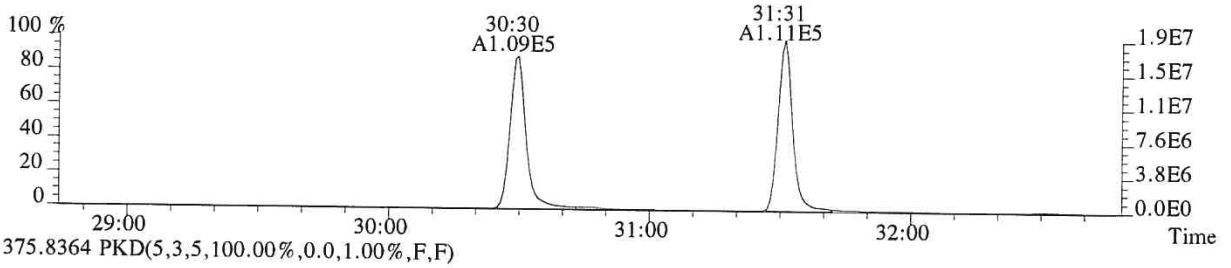
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



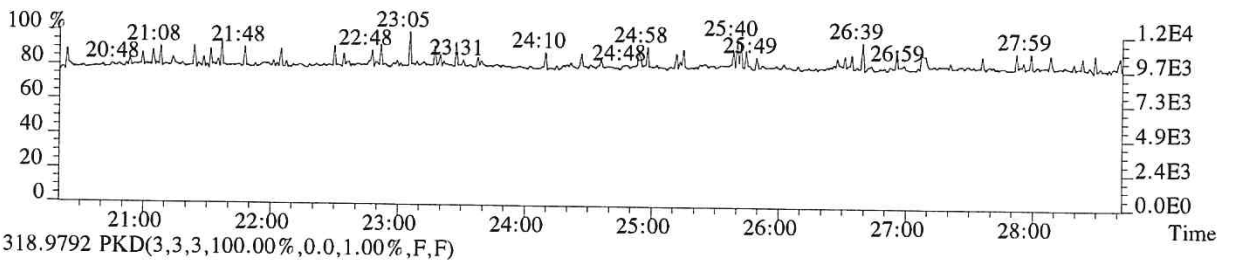
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



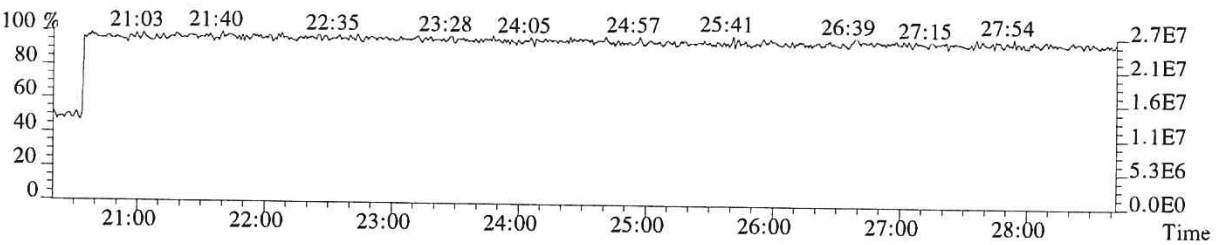
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

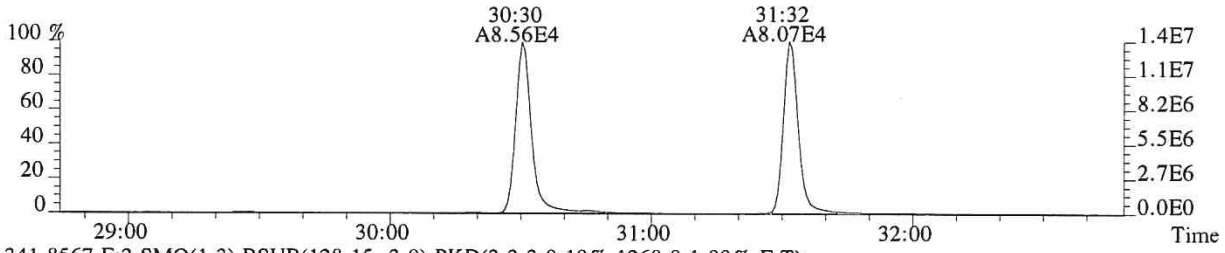


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

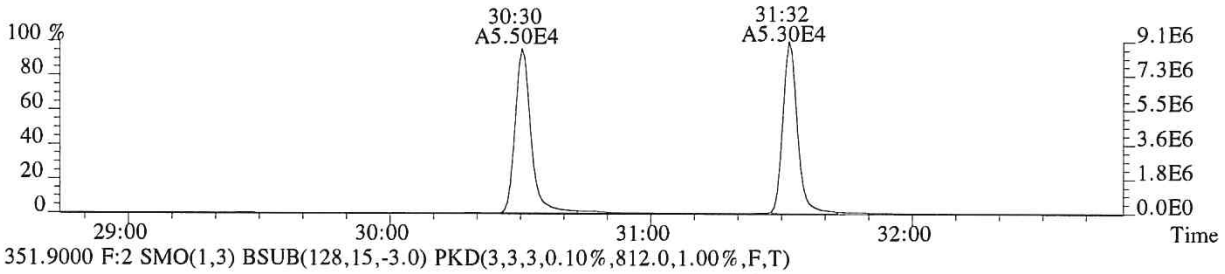


File:P518924 #1-367 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

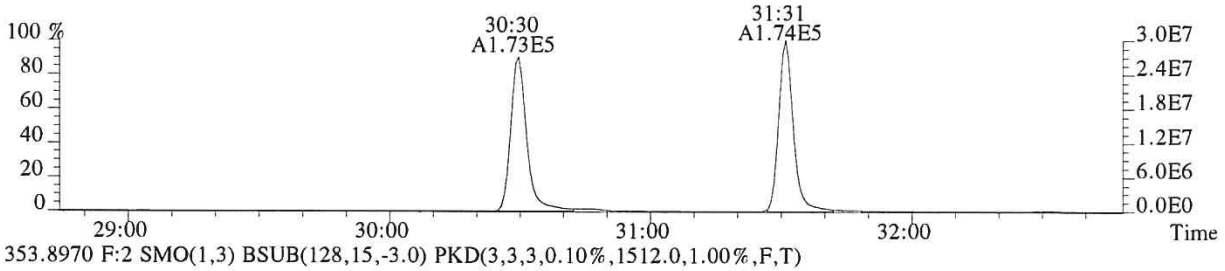
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



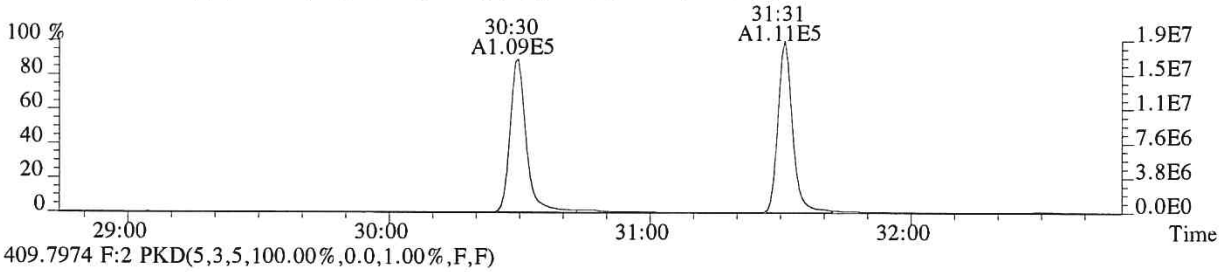
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



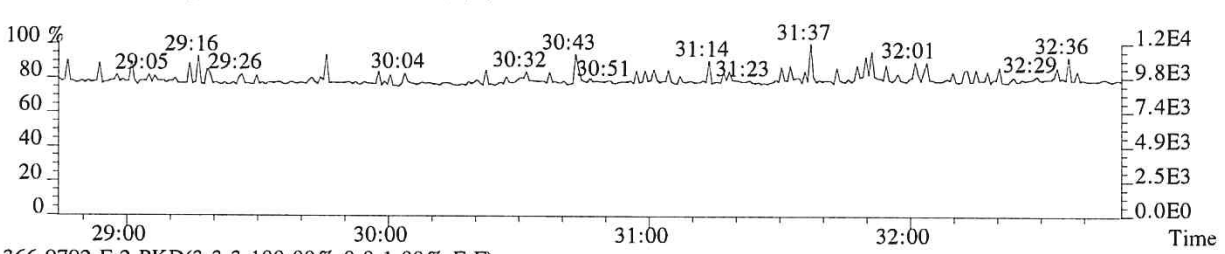
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



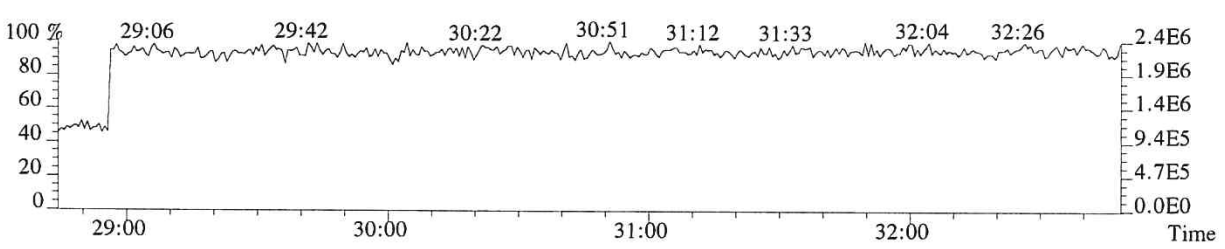
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

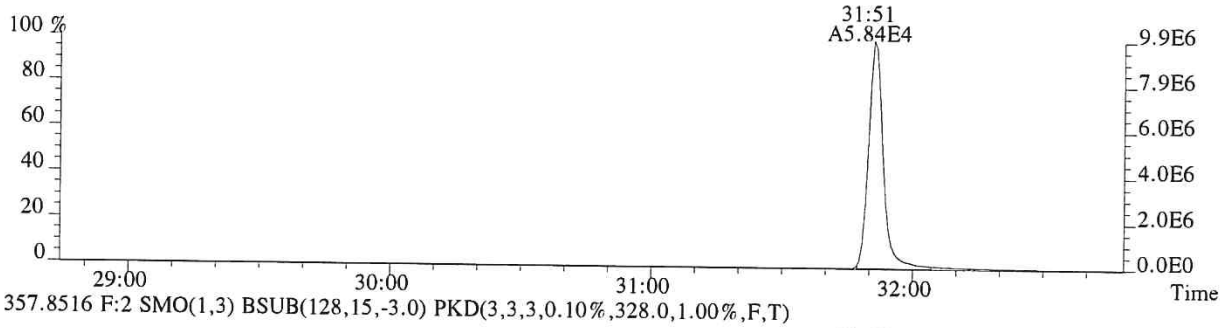


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

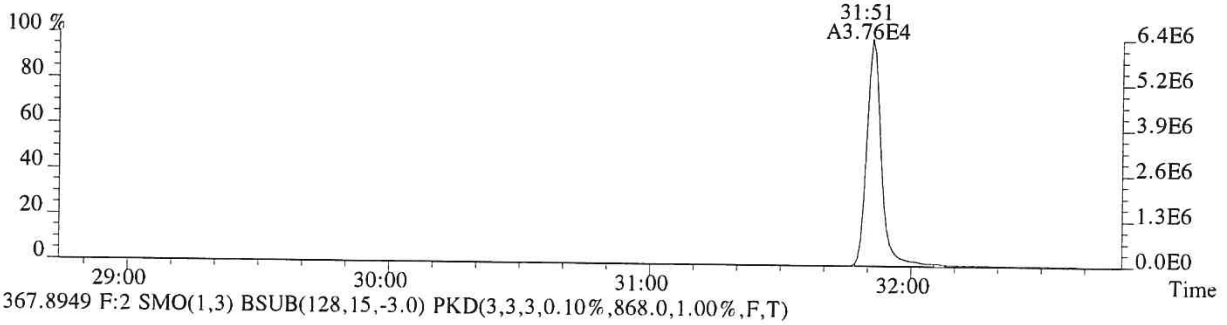


009145

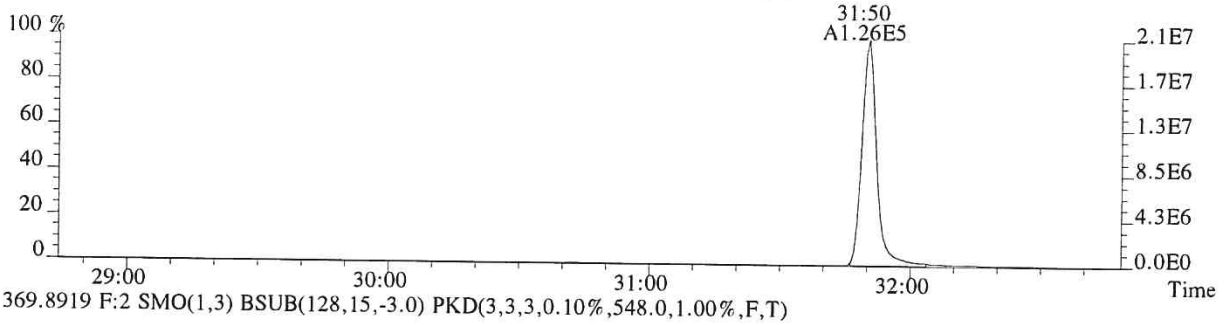
File:P518924 #1-367 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



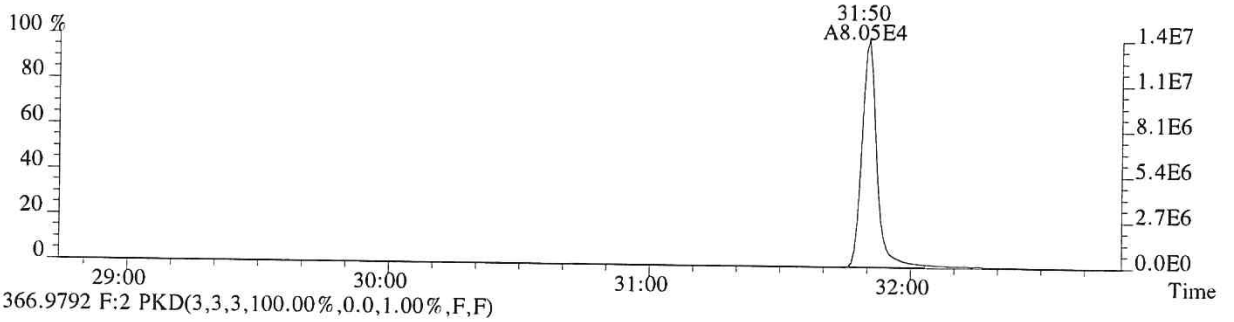
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



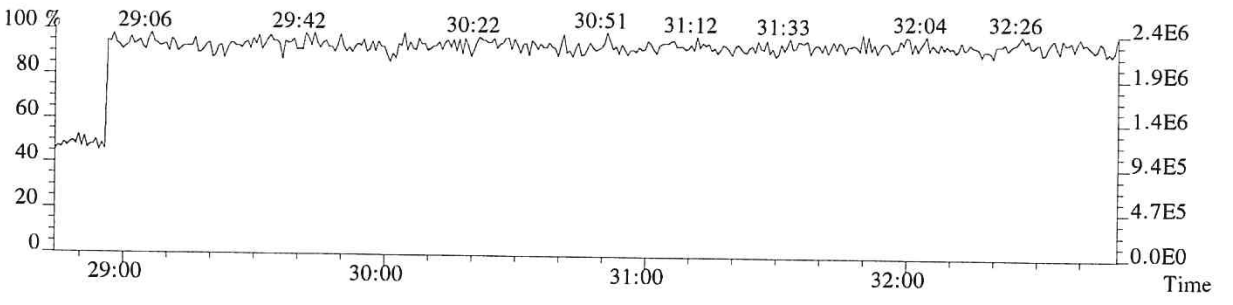
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



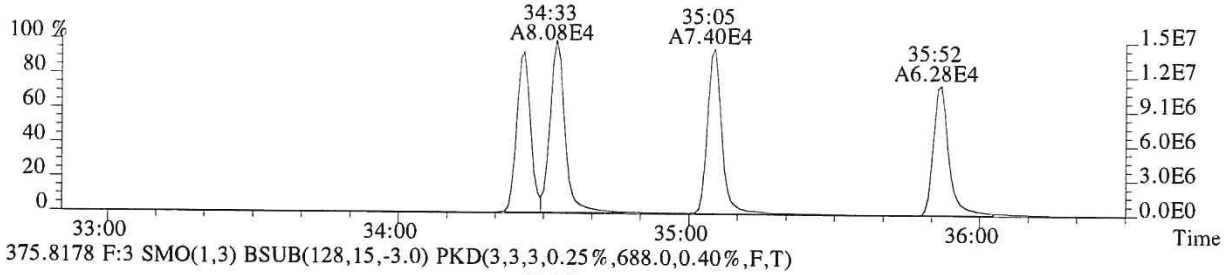
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



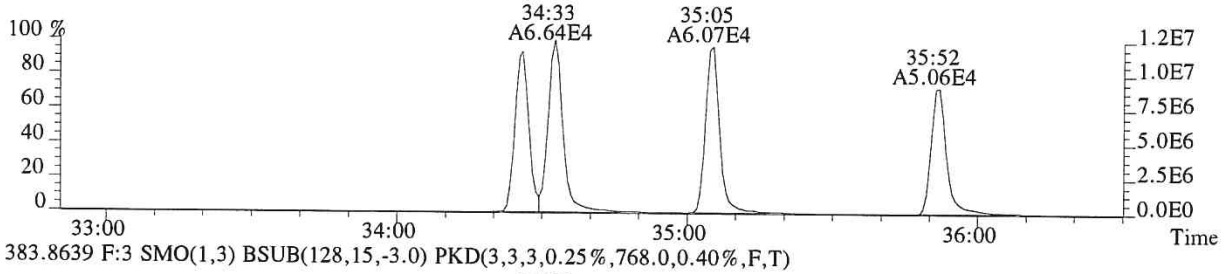
009146

File:P518924 #1-330 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

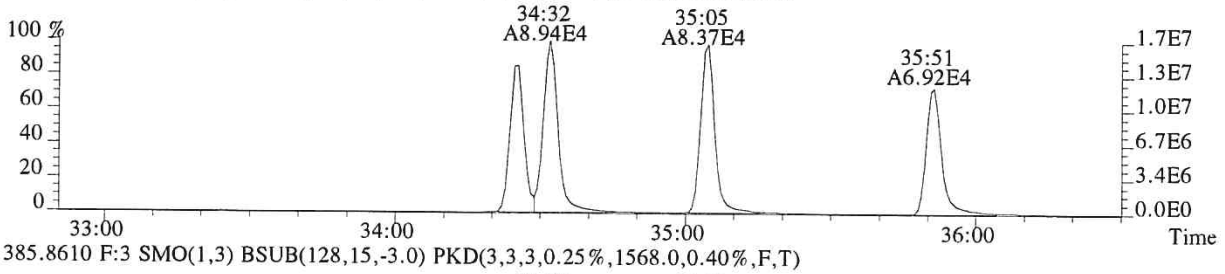
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



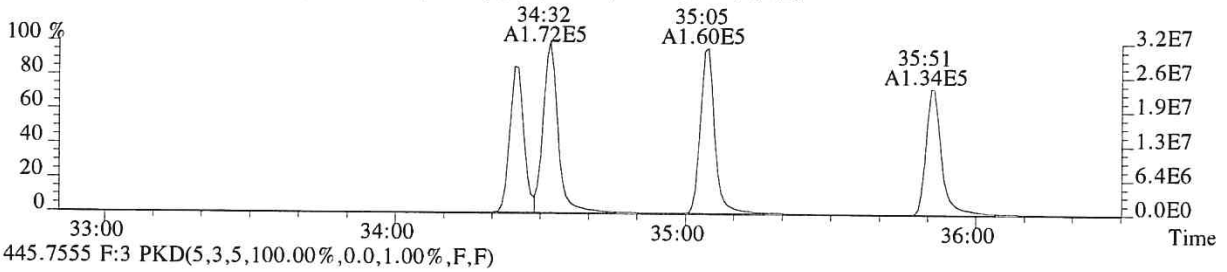
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



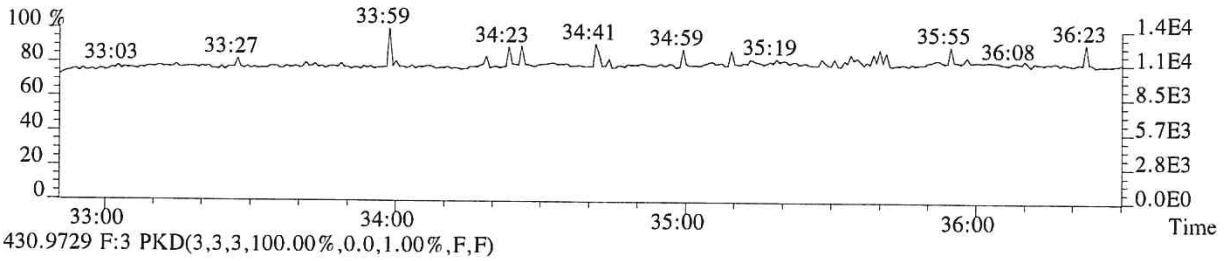
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)



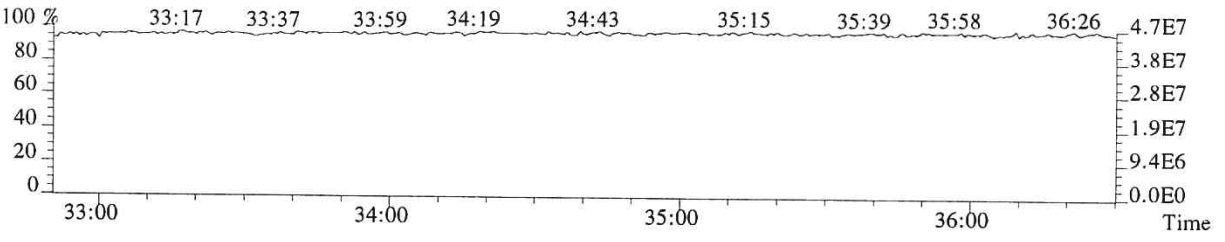
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



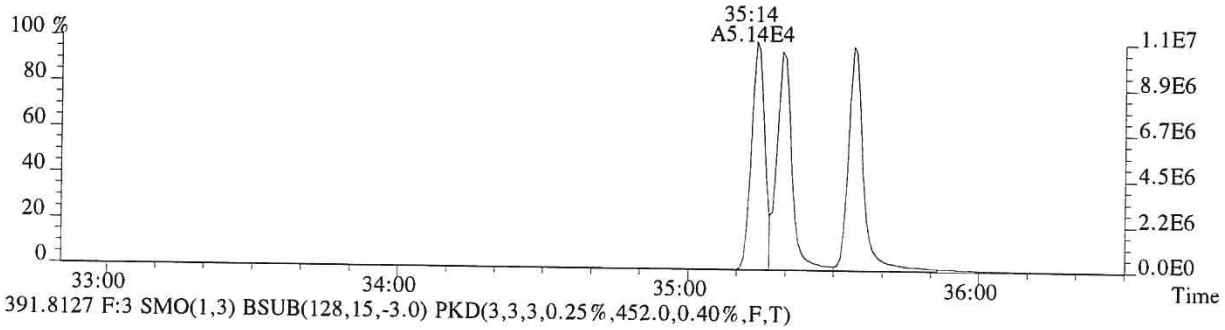
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



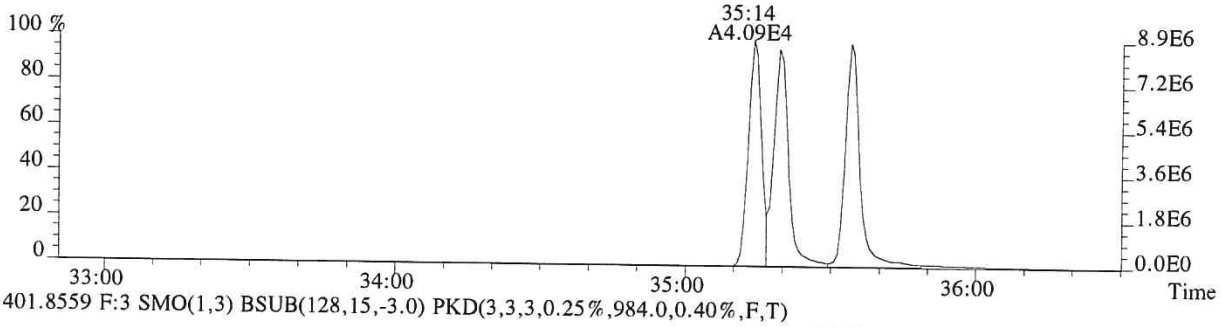
009147

File:P518924 #1-330 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

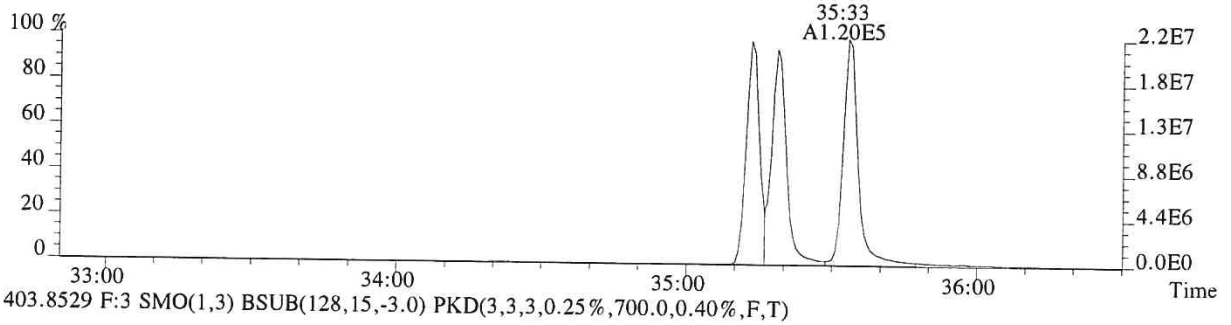
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



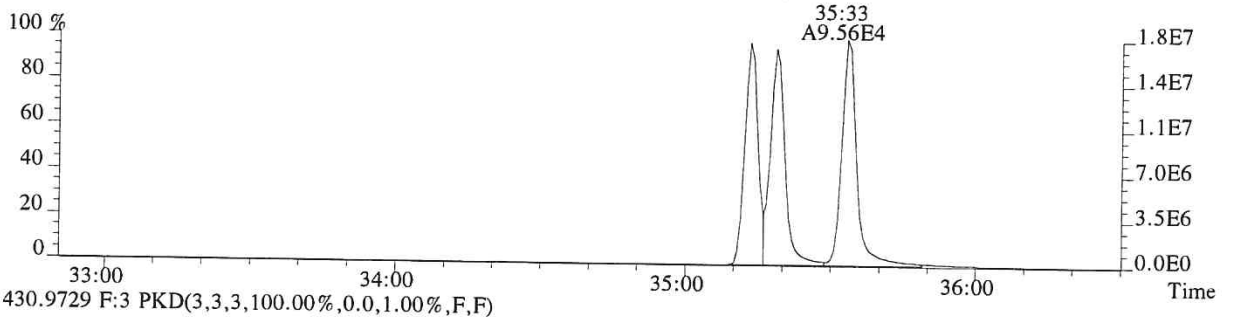
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



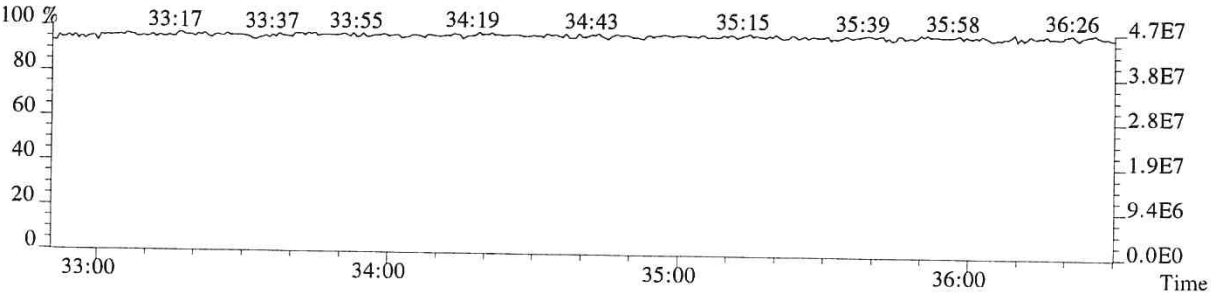
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

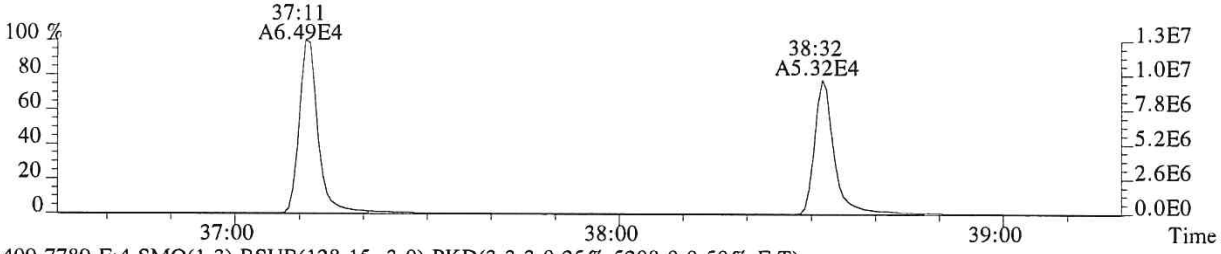


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

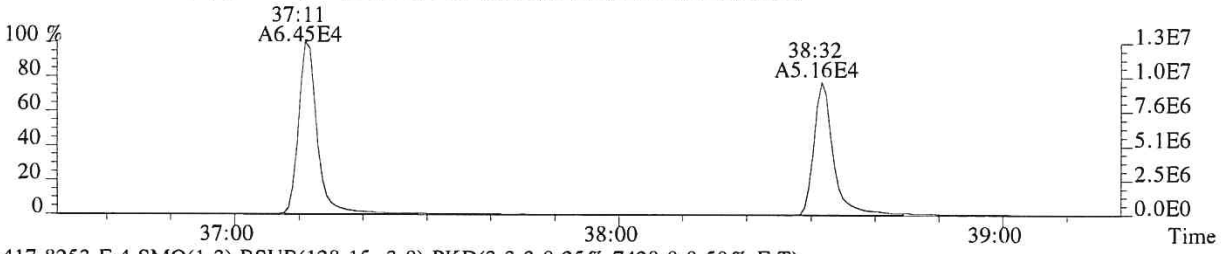


File:P518924 #1-250 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

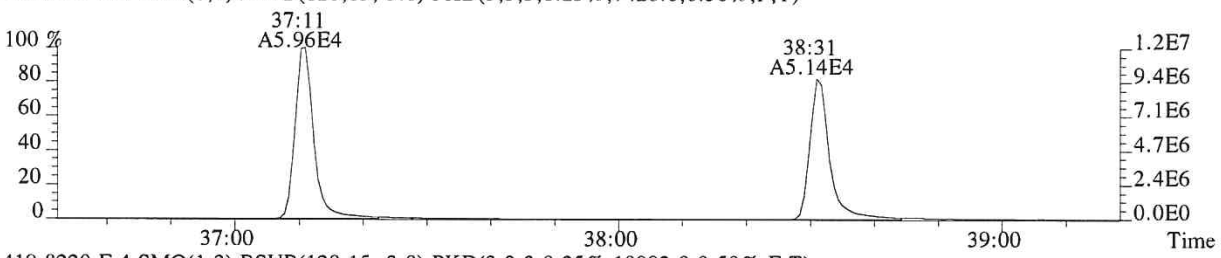
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7756.0,0.50%,F,T)



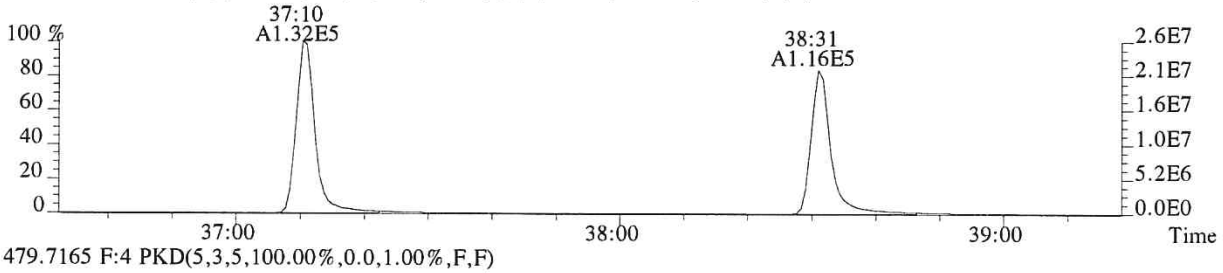
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5208.0,0.50%,F,T)



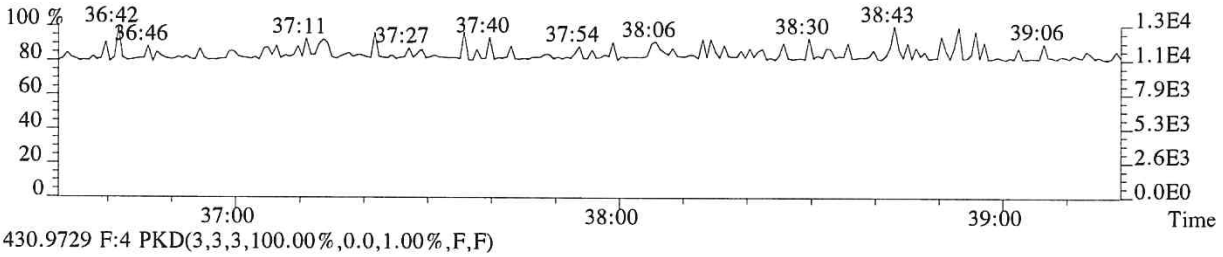
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7428.0,0.50%,F,T)



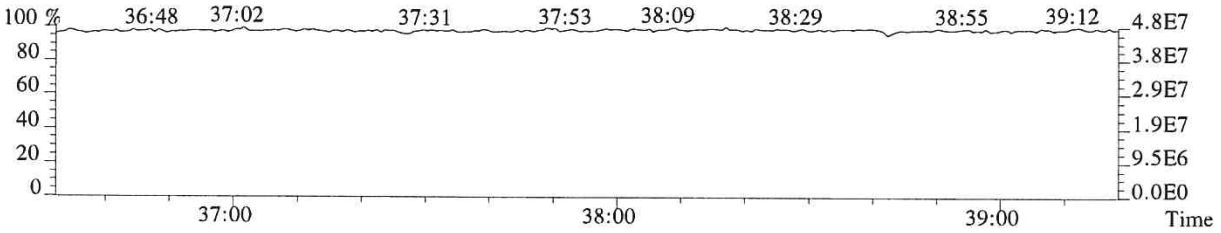
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10992.0,0.50%,F,T)



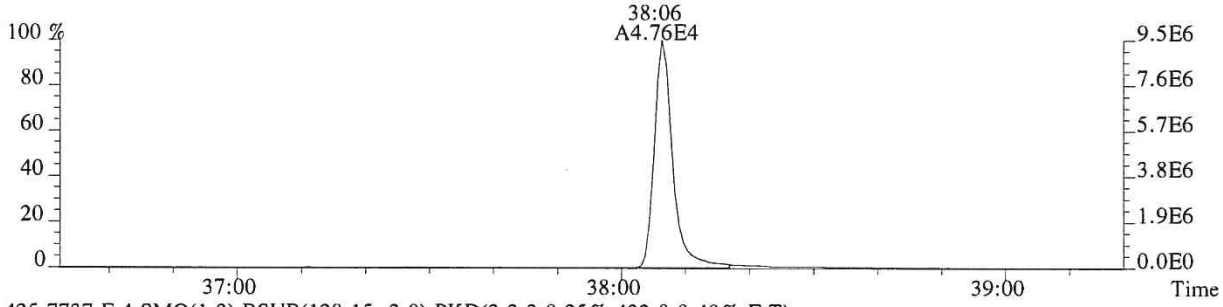
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



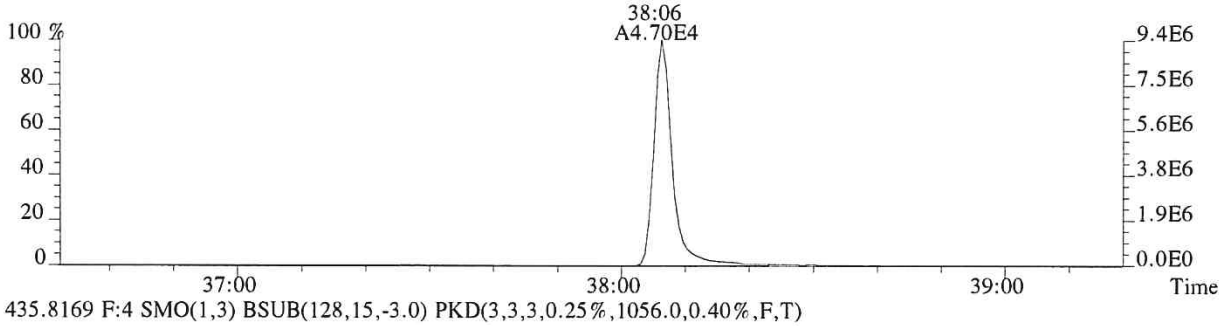
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



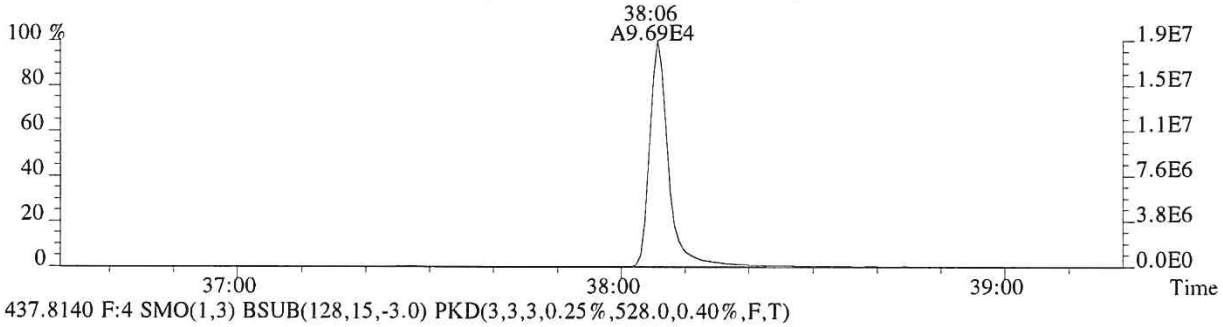
File:P518924 #1-250 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



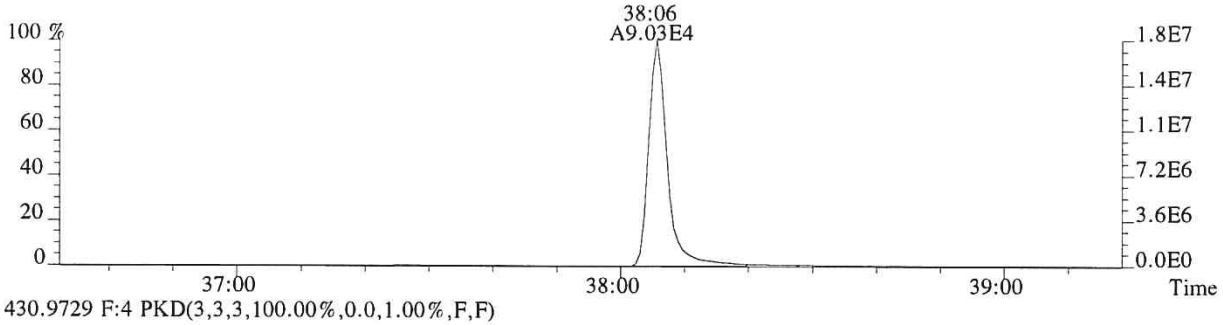
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



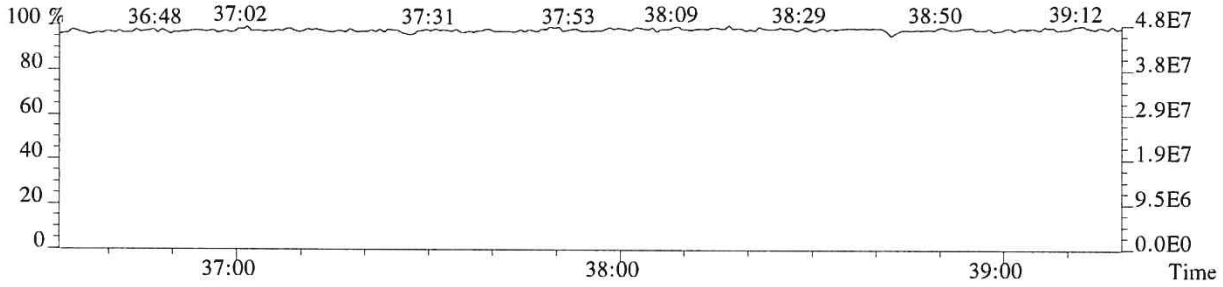
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)

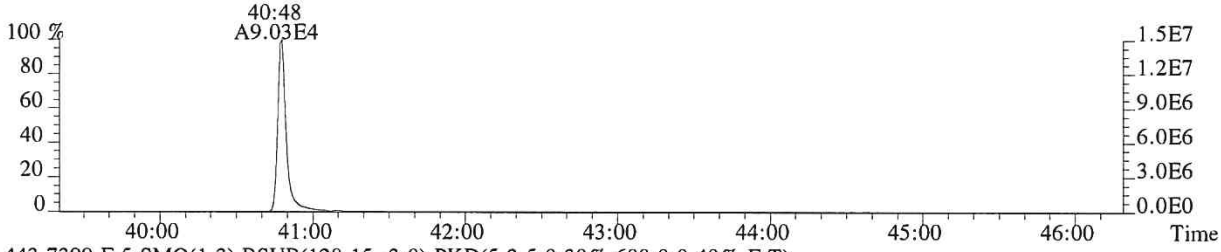


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

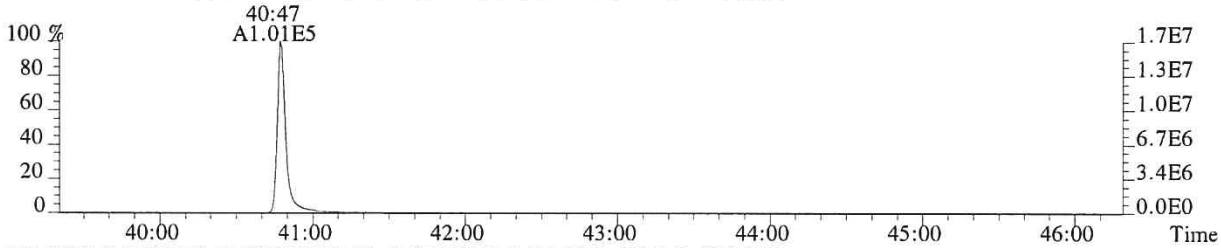


File:P518924 #1-628 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

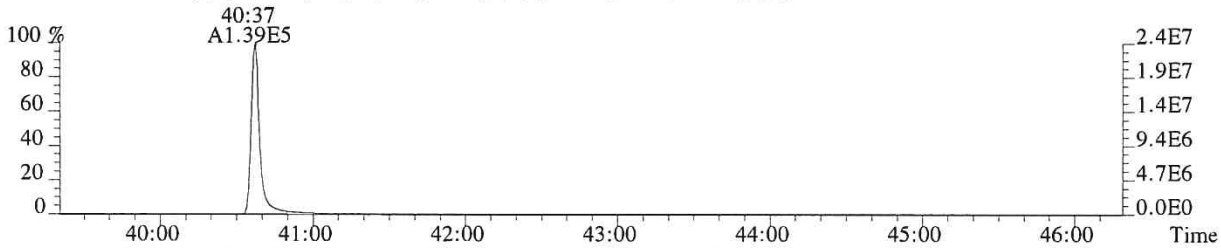
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



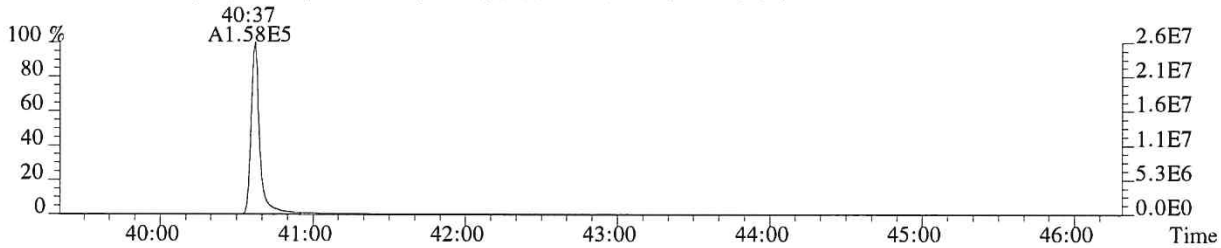
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



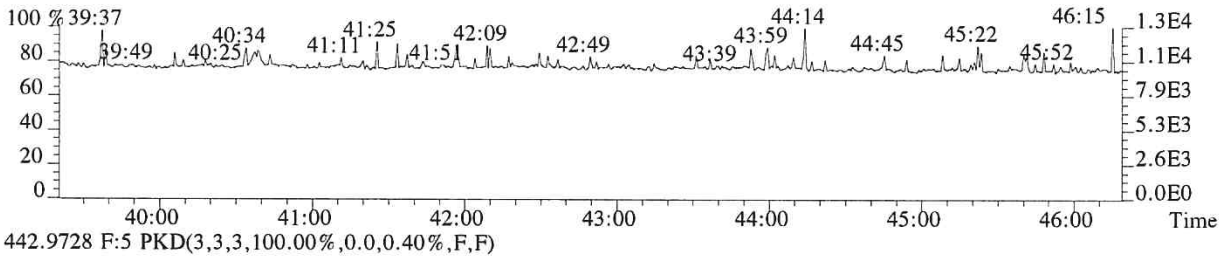
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



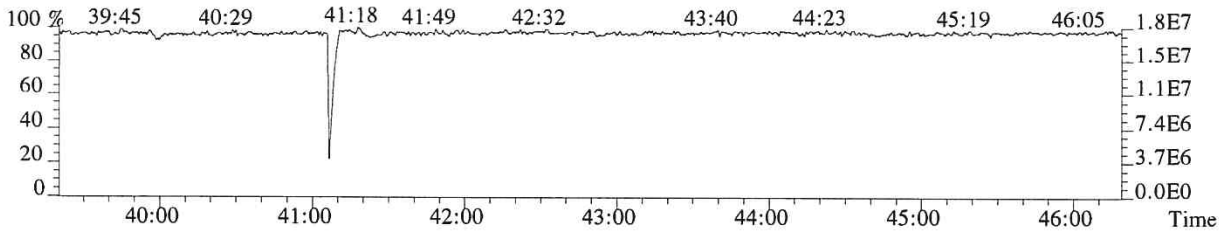
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

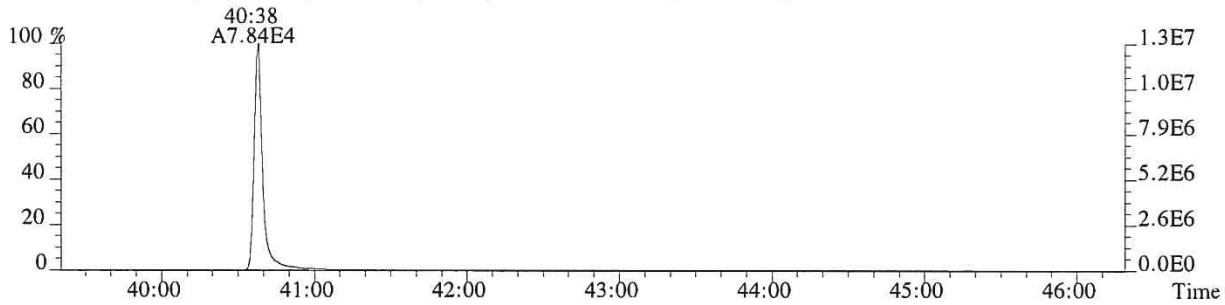


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

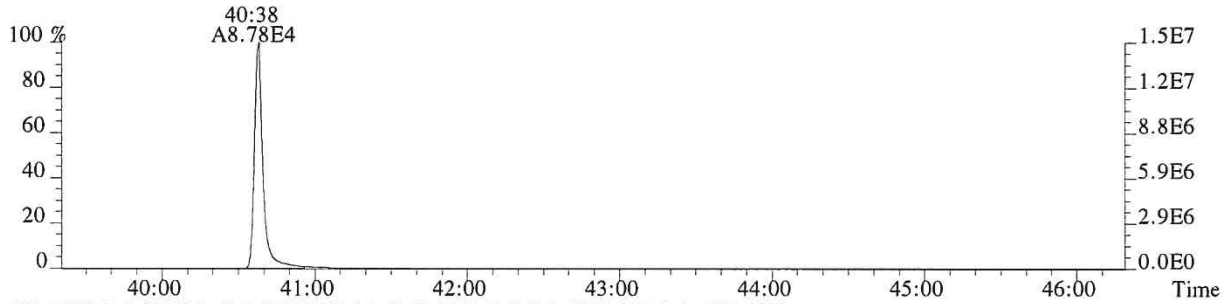


009151

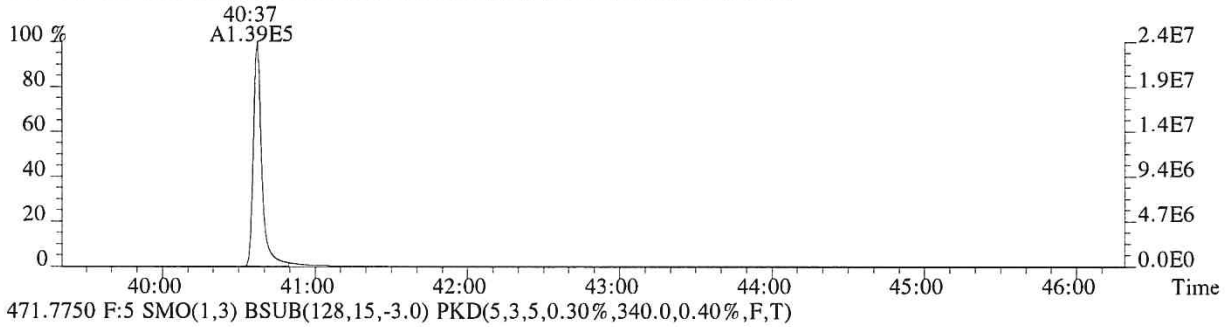
File:P518924 #1-628 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



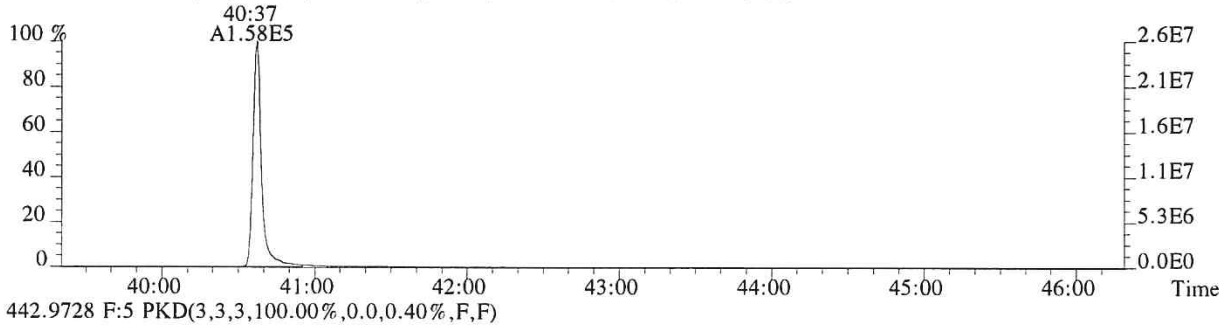
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



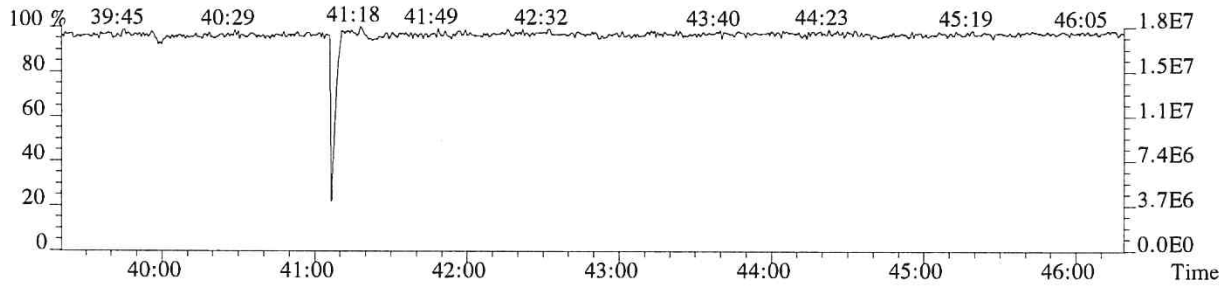
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518937 Analysis Date: 20-NOV-18 Time: 07:28:54

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.0	7.8 - 12.9	-10.0
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	48	39 - 65	-3.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	49	39 - 64	-2.5
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	53	41 - 61	5.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	49	43 - 58	-1.7
OCDD	M+2/M+4	0.89	0.76-1.02	98	79 - 126	-1.8
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.1	8.4 - 12.0	-9.1
1,2,3,7,8-PeCDF	M+2/M+4	1.49	1.32-1.78	49	41 - 60	-3.0
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	48	41 - 61	-3.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	-0.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	49	44 - 57	-1.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	49	45 - 56	-2.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	49	44 - 57	-2.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.4
OCDF	M+2/M+4	0.89	0.76-1.02	93	63 - 159	-7.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518937 Analysis Date: 20-NOV-18 Time: 07:28:54

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	100	82 - 121	0.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	113	62 - 160	12.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	89	85 - 117	-10.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	96	85 - 118	-3.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	100	72 - 138	0.1
13C-OCDD	M+2/M+4	0.90	0.76-1.02	244	96 - 415	22.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	86	71 - 140	-14.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	101	76 - 130	0.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	104	77 - 130	3.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	74	76 - 131	-26.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	84	70 - 143	-15.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	85	74 - 135	-15.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	85	73 - 137	-14.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	90	78 - 129	-10.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	93	77 - 129	-7.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.6	7.8 - 12.7	-4.3

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #8 Filename P518937 Samp: 1 Inj: 1 Acquired: 20-NOV-18 07:28:54
Processed: 20-NOV-18 10:32:47 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:25	3.791e+03	5.056e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:30	3.462e+04	2.326e+04	1.49	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:32	3.331e+04	2.210e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:25	2.816e+04	2.339e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:32	3.399e+04	2.803e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:05	3.005e+04	2.541e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:51	2.668e+04	2.217e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:11	2.807e+04	2.800e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:32	2.313e+04	2.223e+04	1.04	yes	no	1.258
10	Unk	OCDF	40:47	4.034e+04	4.531e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:28	3.189e+03	4.015e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:51	2.463e+04	1.564e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:14	2.193e+04	1.787e+04	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:19	2.464e+04	1.969e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:34	2.588e+04	2.074e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:06	2.127e+04	1.992e+04	1.07	yes	no	1.025
17	Unk	OCDD	40:37	3.508e+04	3.935e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:24	4.567e+04	5.773e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:29	7.227e+04	4.555e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:30	7.321e+04	4.699e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:25	2.944e+04	5.755e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:31	3.837e+04	7.428e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:04	3.501e+04	6.733e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:51	2.972e+04	5.776e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:10	2.557e+04	5.735e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:31	2.244e+04	4.999e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:26	3.236e+04	4.139e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:50	5.368e+04	3.393e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:13	4.420e+04	3.445e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:19	4.879e+04	3.831e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:06	4.221e+04	3.962e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:37	6.424e+04	7.135e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:42	3.527e+04	4.434e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:33	5.344e+04	4.187e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:28	7.724e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #8 Filename P518937 Samp: 1 Inj: 1 Acquired: 20-NOV-18 07:28:54
Processed: 20-NOV-18 10:32:47 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.63e+05	7.16e+02	6.5e+02	6.52e+05	1.74e+03	3.7e+02
2	1,2,3,7,8-PeCDF	5.29e+06	5.16e+02	1.0e+04	3.40e+06	1.37e+03	2.5e+03
3	2,3,4,7,8-PeCDF	5.49e+06	5.16e+02	1.1e+04	3.66e+06	1.37e+03	2.7e+03
4	1,2,3,4,7,8-HxCDF	5.81e+06	1.25e+03	4.6e+03	4.81e+06	5.40e+02	8.9e+03
5	1,2,3,6,7,8-HxCDF	5.95e+06	1.25e+03	4.8e+03	5.00e+06	5.40e+02	9.3e+03
6	2,3,4,6,7,8-HxCDF	5.84e+06	1.25e+03	4.7e+03	4.86e+06	5.40e+02	9.0e+03
7	1,2,3,7,8,9-HxCDF	4.63e+06	1.25e+03	3.7e+03	3.83e+06	5.40e+02	7.1e+03
8	1,2,3,4,6,7,8-HpCDF	5.61e+06	3.68e+03	1.5e+03	5.56e+06	6.00e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.21e+06	3.68e+03	1.1e+03	4.09e+06	6.00e+03	6.8e+02
10	OCDF	6.67e+06	2.28e+02	2.9e+04	7.33e+06	9.12e+02	8.0e+03
11	2,3,7,8-TCDD	4.30e+05	2.57e+03	1.7e+02	5.33e+05	1.05e+03	5.1e+02
12	1,2,3,7,8-PeCDD	4.04e+06	8.40e+02	4.8e+03	2.53e+06	3.36e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	4.65e+06	6.36e+02	7.3e+03	3.75e+06	9.72e+02	3.9e+03
14	1,2,3,6,7,8-HxCDD	4.63e+06	6.36e+02	7.3e+03	3.73e+06	9.72e+02	3.8e+03
15	1,2,3,7,8,9-HxCDD	4.63e+06	6.36e+02	7.3e+03	3.67e+06	9.72e+02	3.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.04e+06	3.16e+02	1.3e+04	3.79e+06	7.60e+02	5.0e+03
17	OCDD	5.87e+06	2.12e+02	2.8e+04	6.59e+06	4.92e+02	1.3e+04
18	13C-2,3,7,8-TCDF	5.62e+06	1.15e+04	4.9e+02	7.12e+06	8.57e+03	8.3e+02
19	13C-1,2,3,7,8-PeCDF	1.09e+07	8.80e+02	1.2e+04	6.87e+06	7.88e+02	8.7e+03
20	13C-2,3,4,7,8-PeCDF	1.18e+07	8.80e+02	1.3e+04	7.68e+06	7.88e+02	9.8e+03
21	13C-1,2,3,4,7,8-HxCDF	6.01e+06	1.46e+03	4.1e+03	1.17e+07	1.73e+03	6.8e+03
22	13C-1,2,3,6,7,8-HxCDF	6.89e+06	1.46e+03	4.7e+03	1.34e+07	1.73e+03	7.7e+03
23	13C-2,3,4,6,7,8-HxCDF	6.75e+06	1.46e+03	4.6e+03	1.29e+07	1.73e+03	7.5e+03
24	13C-1,2,3,7,8,9-HxCDF	5.24e+06	1.46e+03	3.6e+03	1.01e+07	1.73e+03	5.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.01e+06	2.78e+03	1.8e+03	1.13e+07	7.22e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.04e+06	2.78e+03	1.5e+03	9.10e+06	7.22e+03	1.3e+03
27	13C-2,3,7,8-TCDD	4.40e+06	6.95e+03	6.3e+02	5.56e+06	2.68e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	8.65e+06	1.49e+03	5.8e+03	5.45e+06	1.40e+03	3.9e+03
29	13C-1,2,3,4,7,8-HxCDD	9.23e+06	1.28e+03	7.2e+03	7.18e+06	9.60e+02	7.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.02e+06	1.28e+03	7.1e+03	7.13e+06	9.60e+02	7.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.08e+06	8.40e+02	9.6e+03	7.53e+06	7.32e+02	1.0e+04
32	13C-OCDD	1.05e+07	7.92e+02	1.3e+04	1.17e+07	5.28e+02	2.2e+04
33	13C-1,2,3,4-TCDD	4.90e+06	6.95e+03	7.0e+02	6.15e+06	2.68e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	9.38e+06	1.28e+03	7.3e+03	7.41e+06	9.60e+02	7.7e+03
35	37Cl-2,3,7,8-TCDD	1.05e+06	1.83e+03	5.7e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.572e{+}03 + 1.048e{+}03) \times 100}{(4.398e{+}06 + 5.556e{+}06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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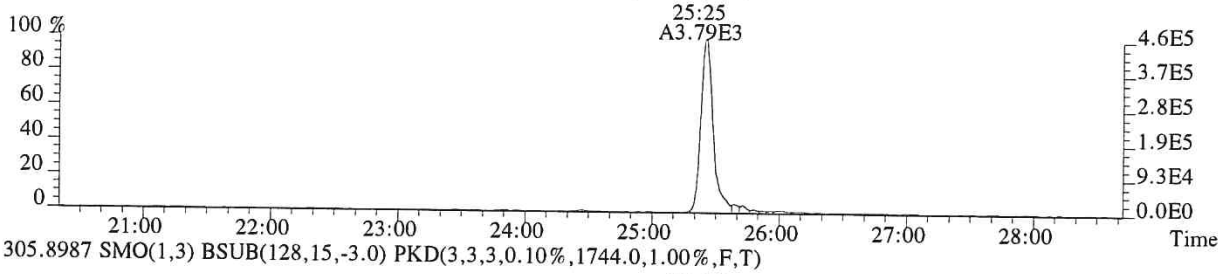
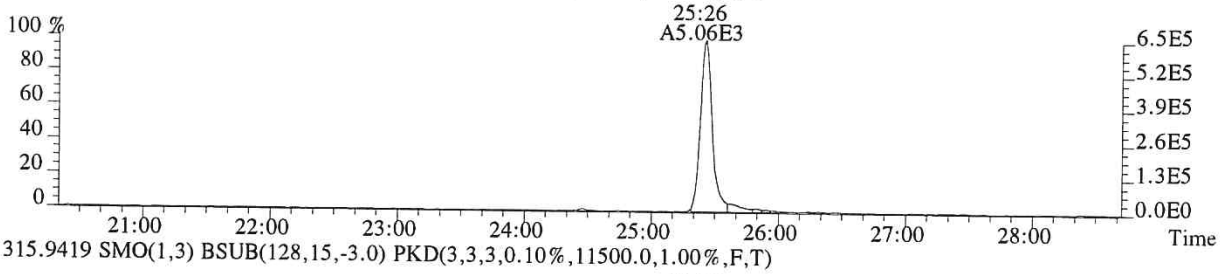
File:P518937 #1-594 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

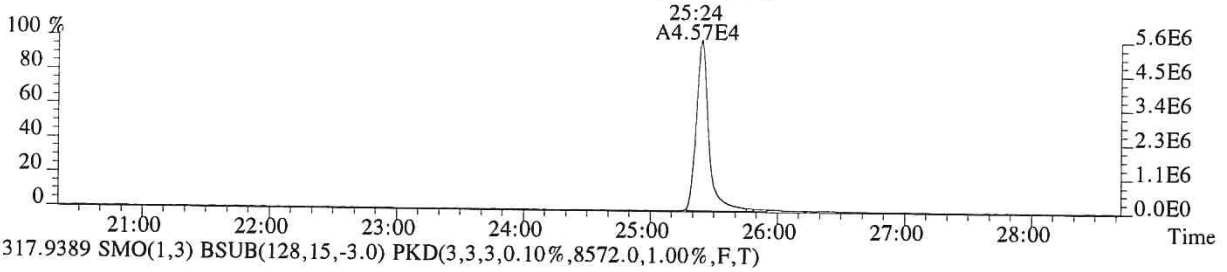
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



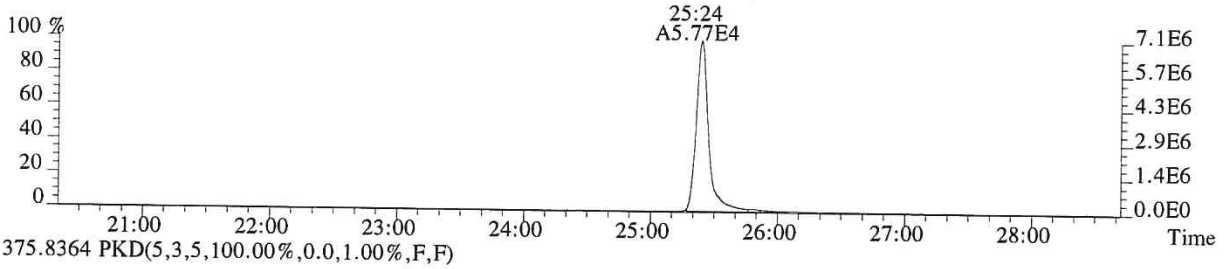
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



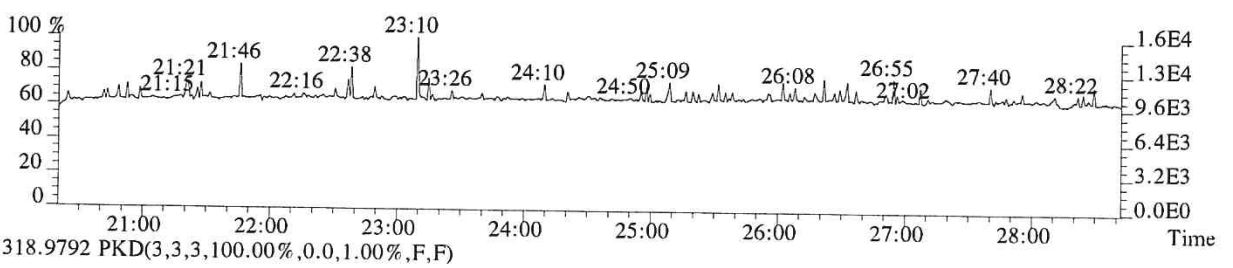
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11500.0,1.00%,F,T)



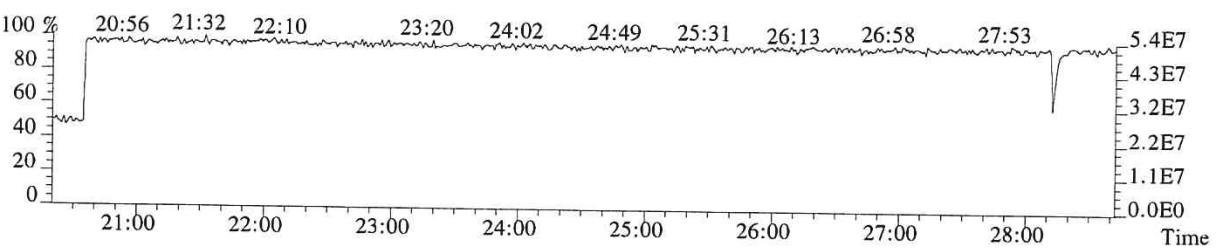
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8572.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



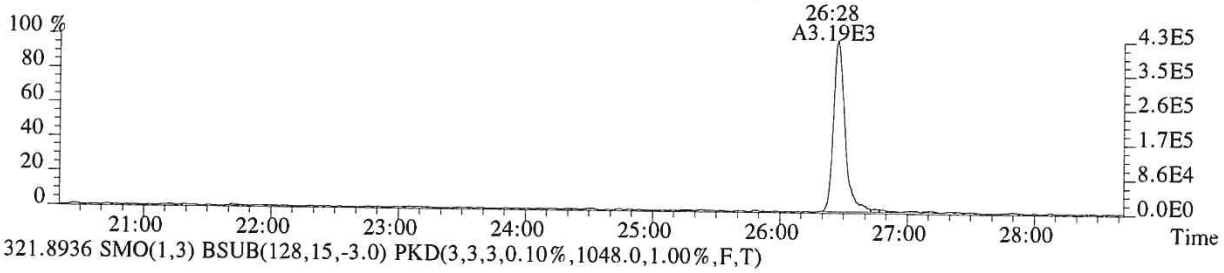
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



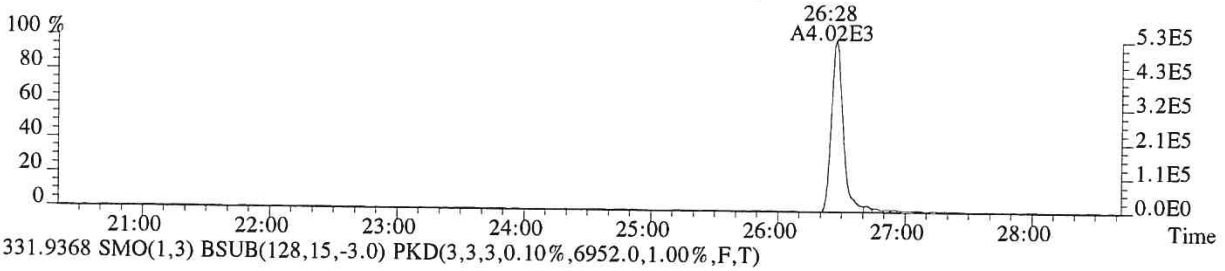
009157

File:P518937 #1-594 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

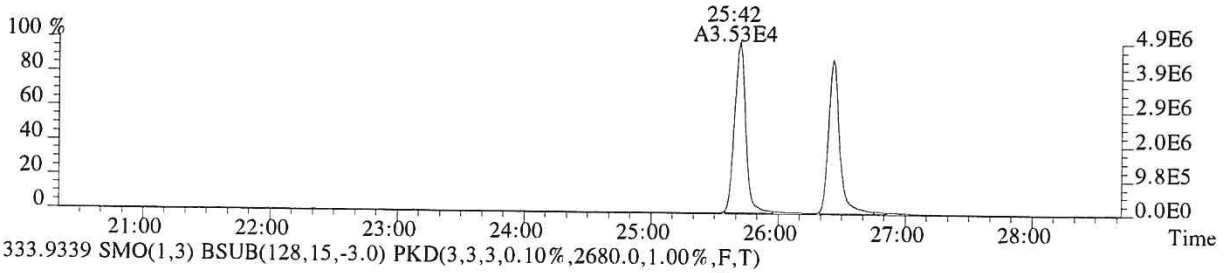
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2572.0,1.00%,F,T)



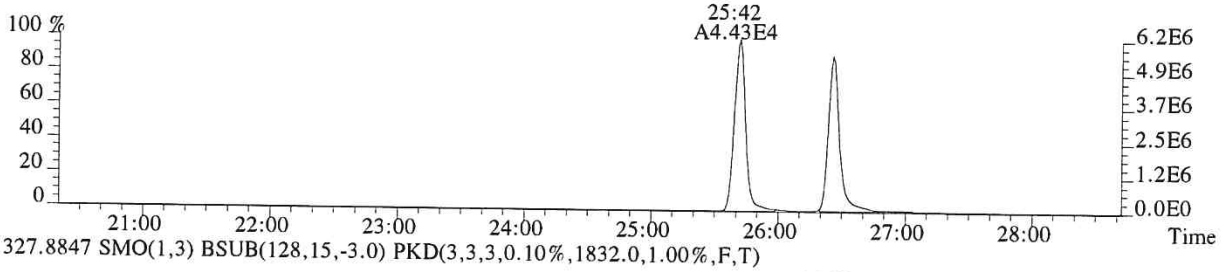
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



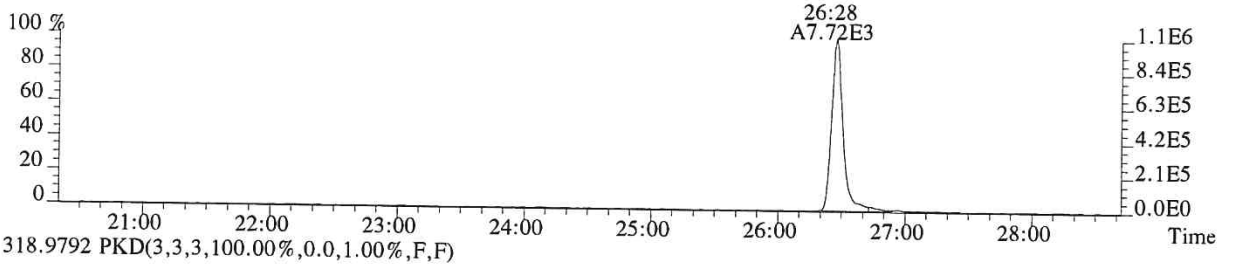
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6952.0,1.00%,F,T)



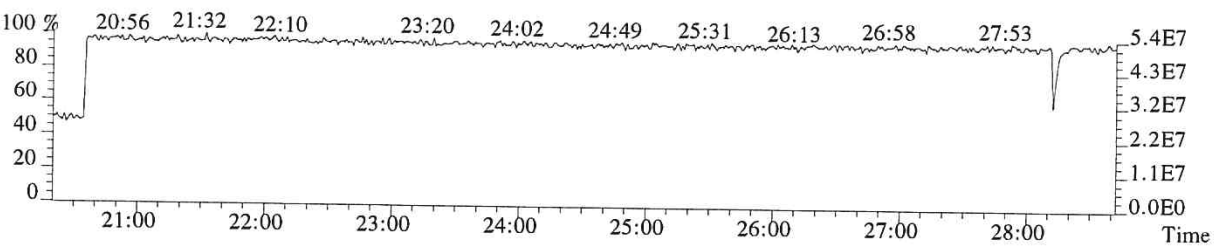
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2680.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)

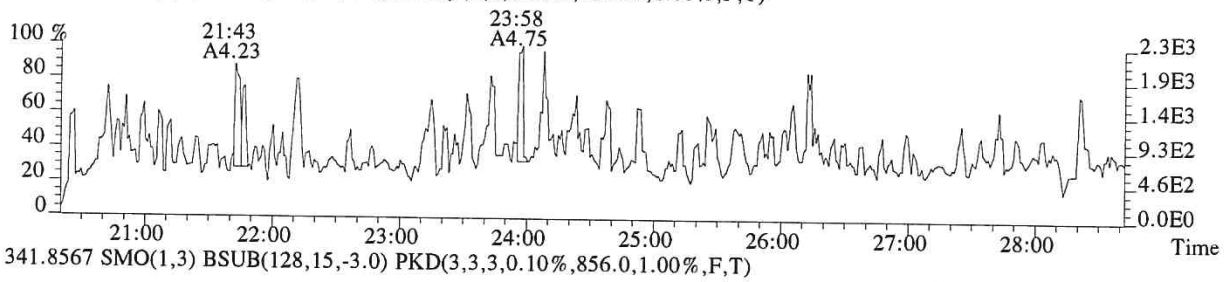


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

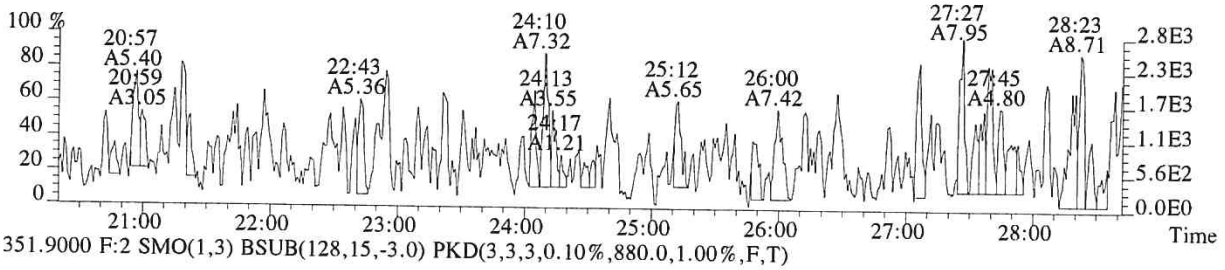


009158

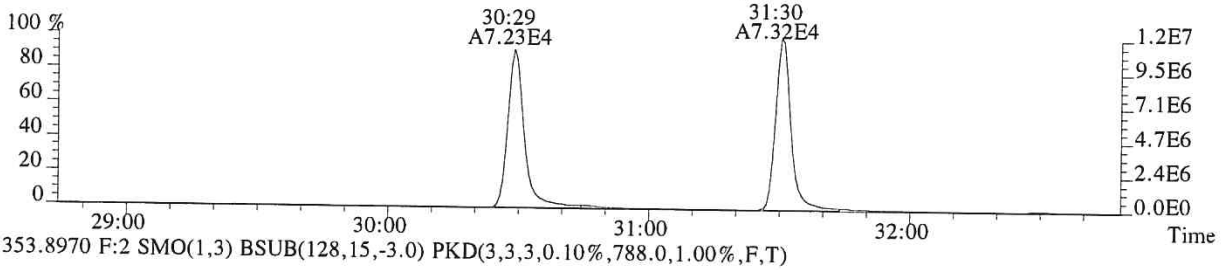
File:P518937 #1-594 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



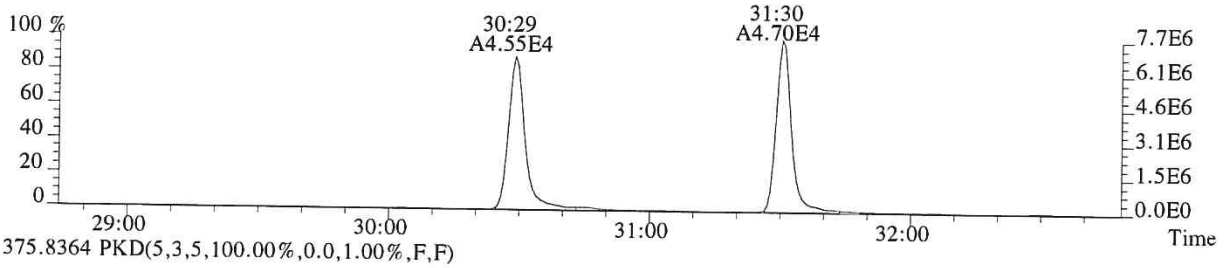
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



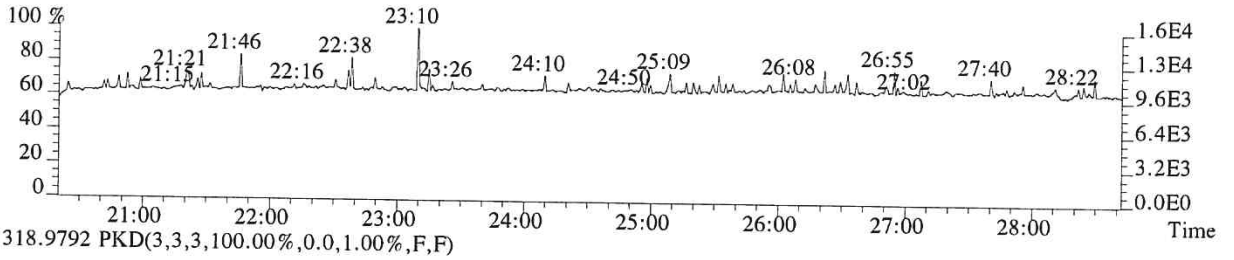
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



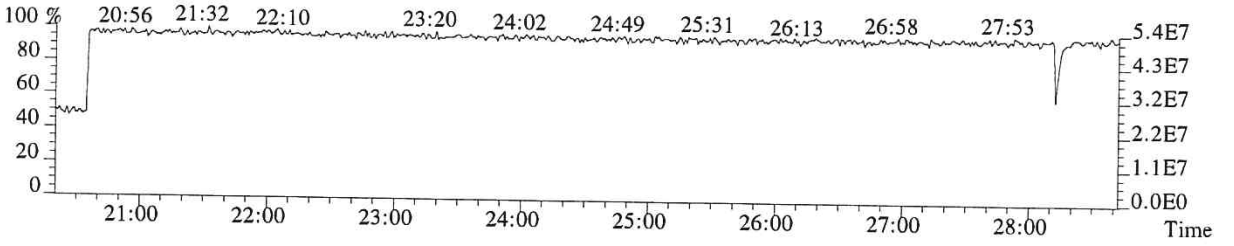
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

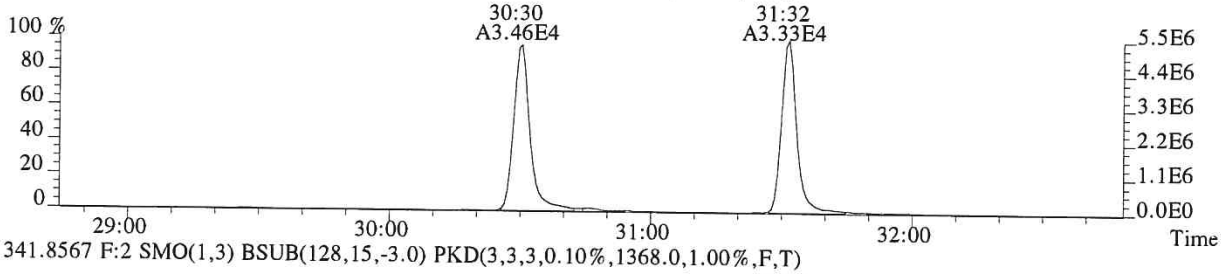


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

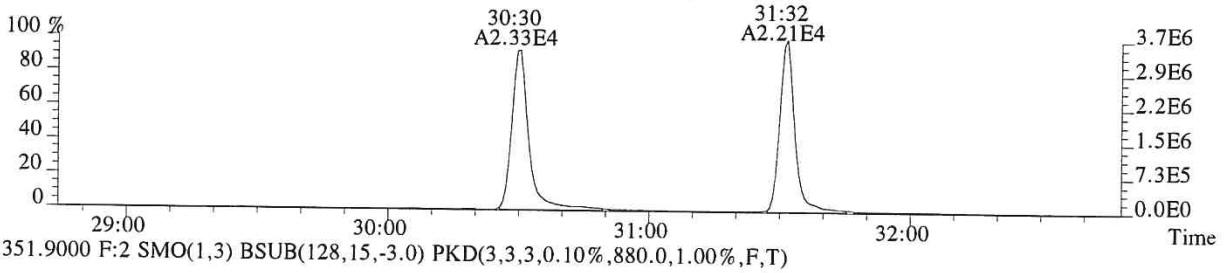


File:P518937 #1-367 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

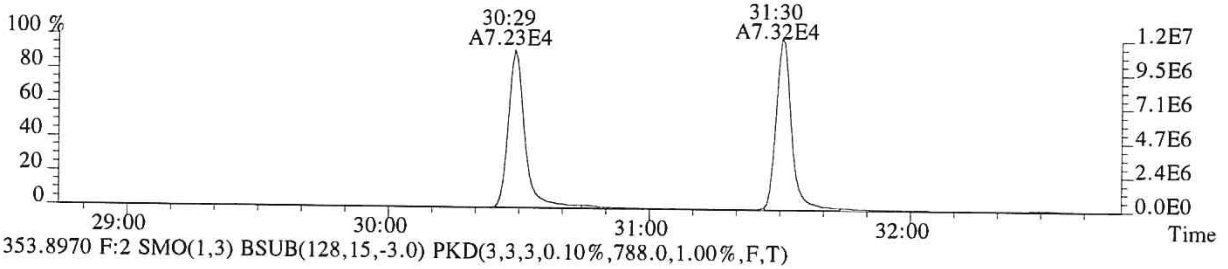
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



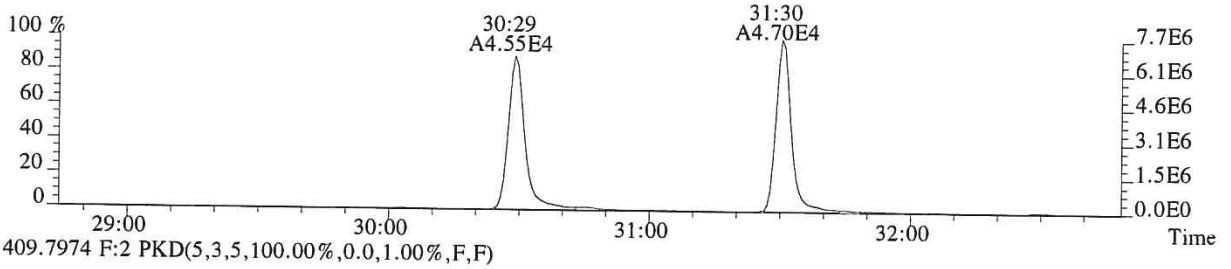
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



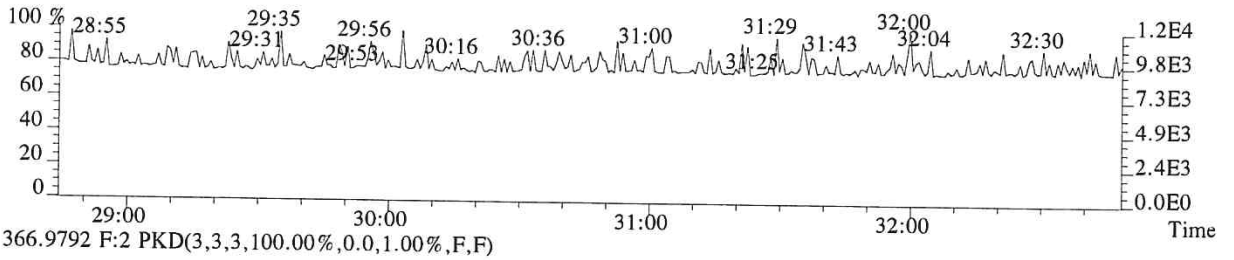
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



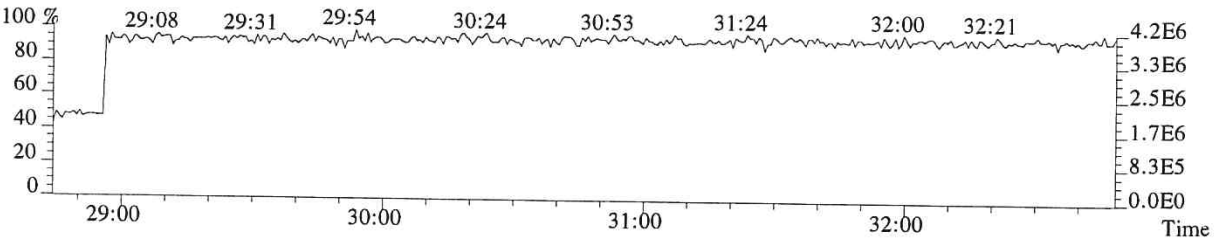
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

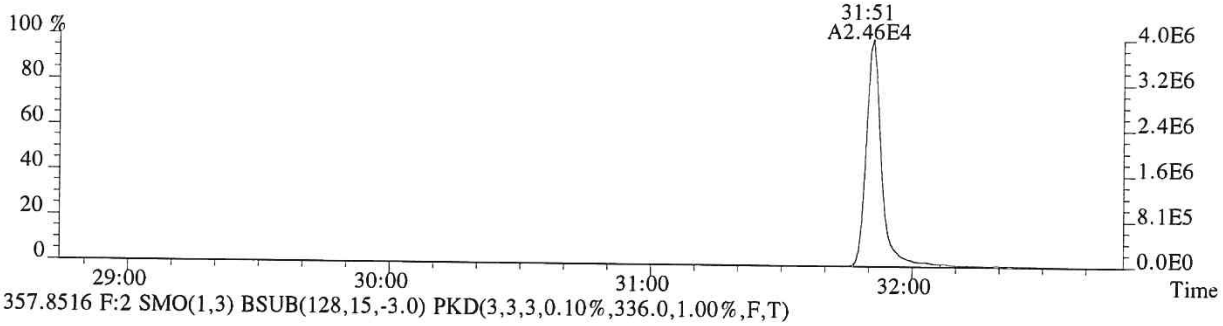


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

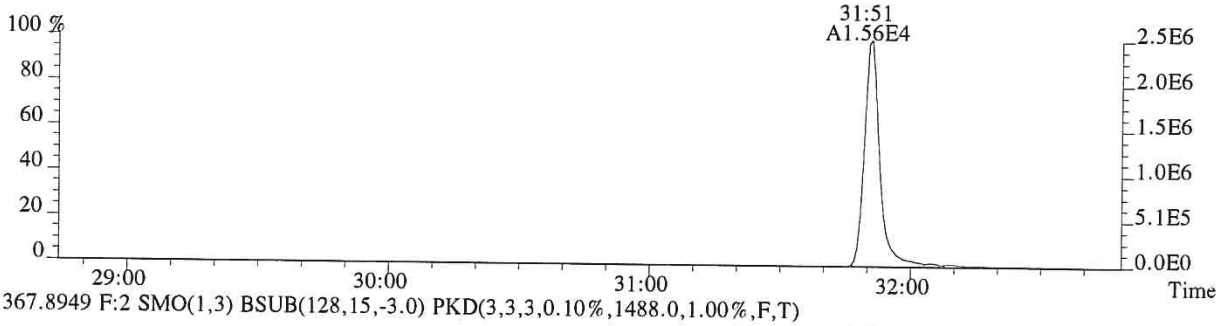


009160

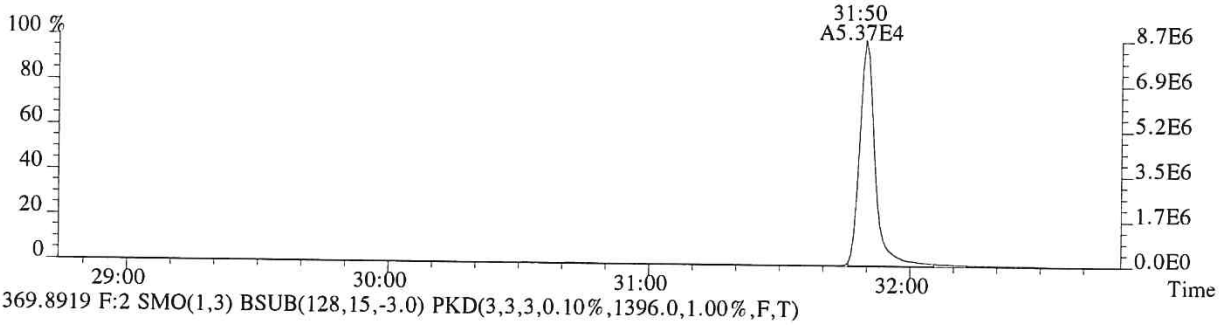
File:P518937 #1-367 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



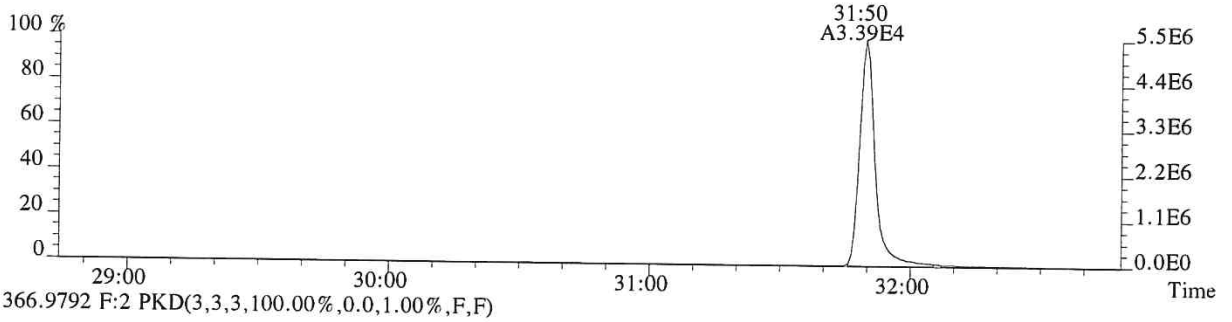
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



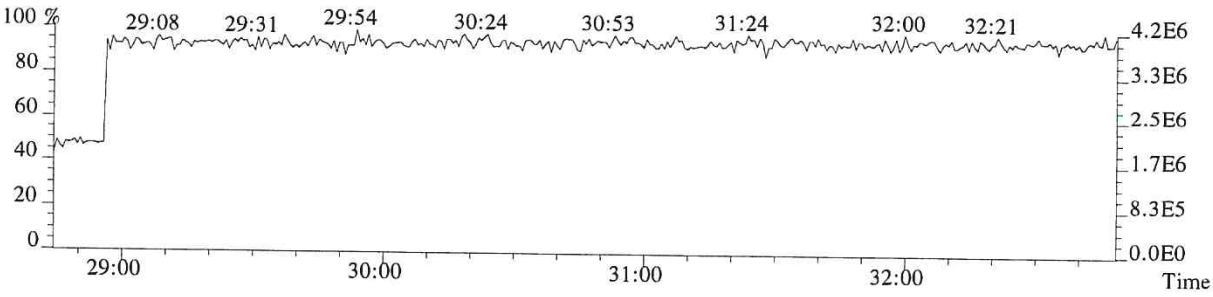
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)

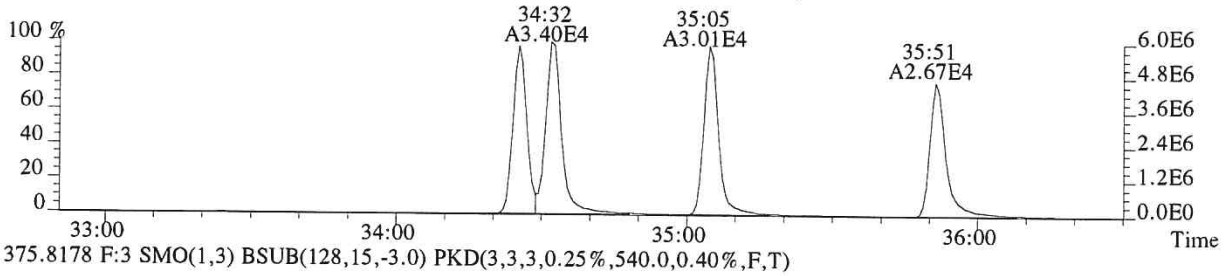


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

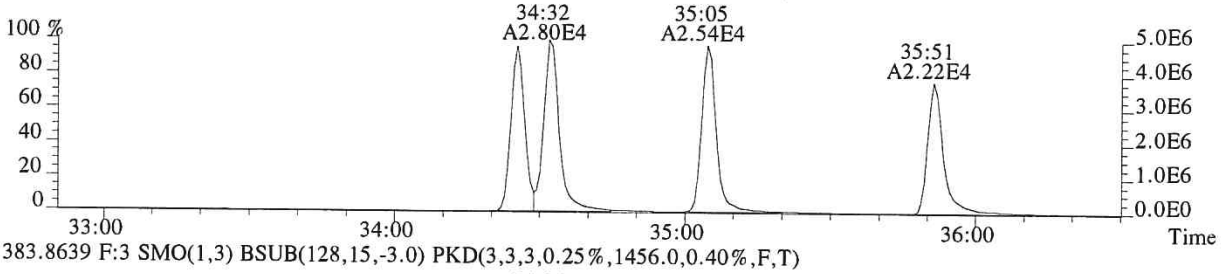


File:P518937 #1-330 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

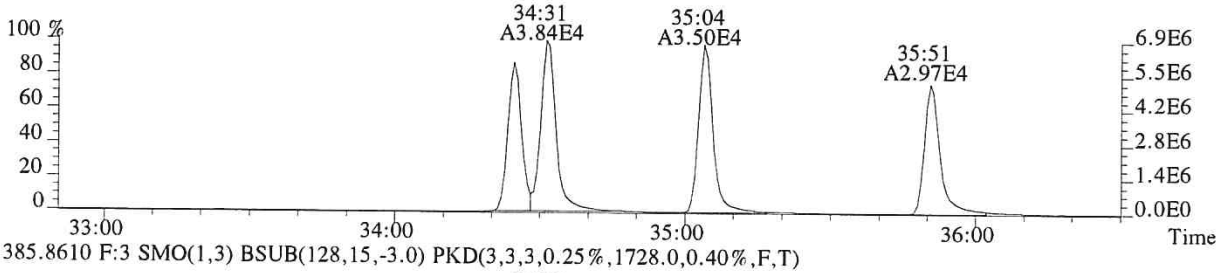
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



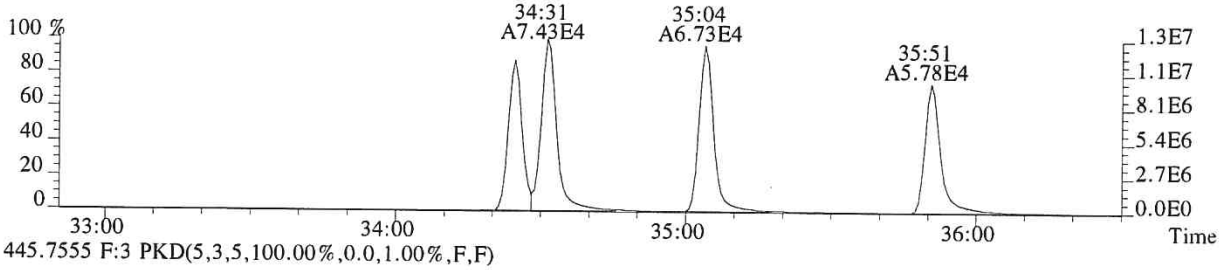
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



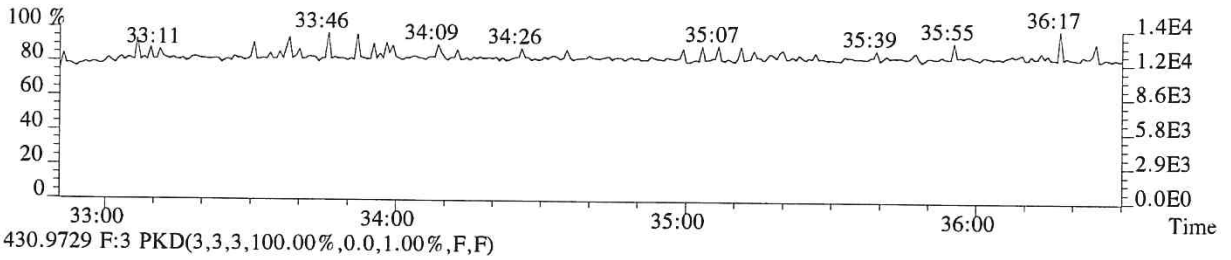
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)



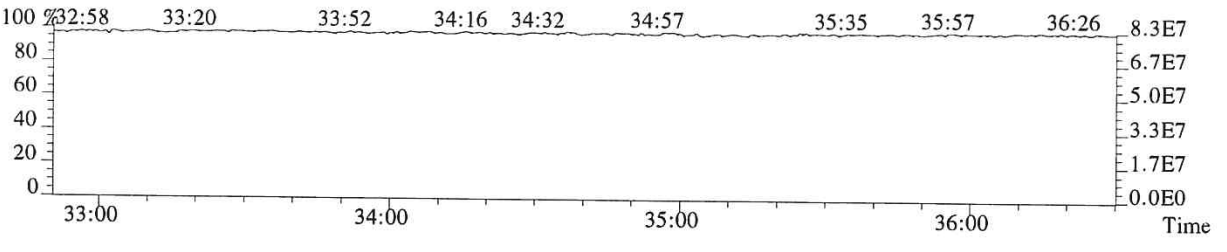
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1728.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

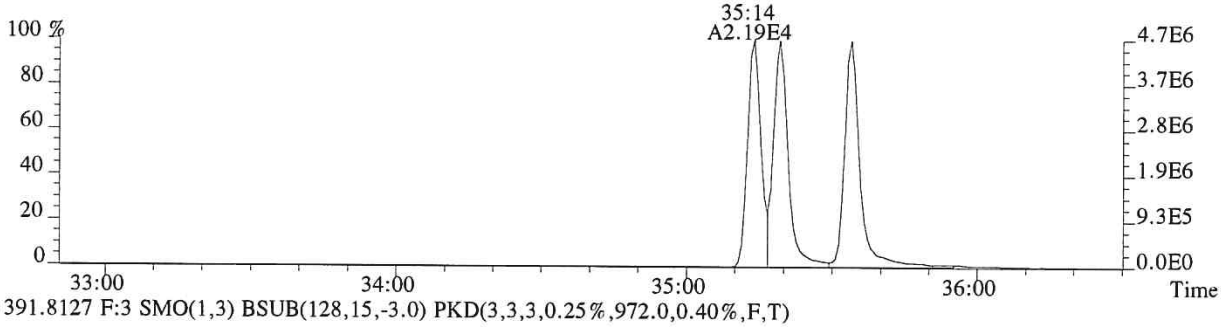


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

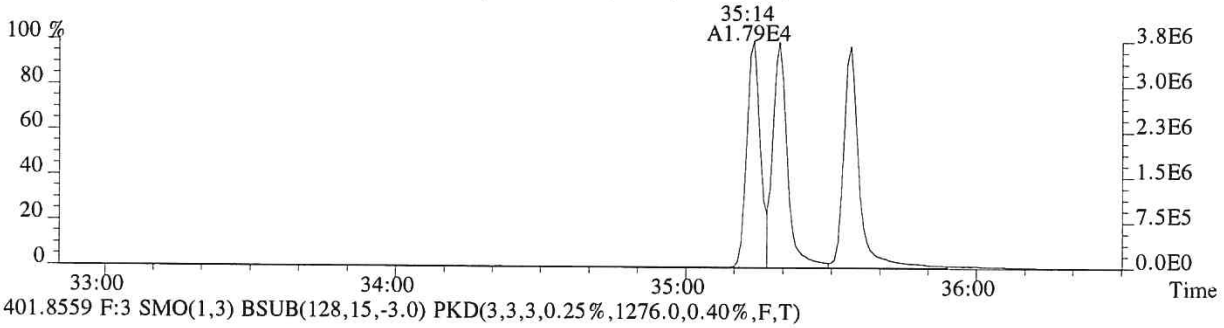


009162

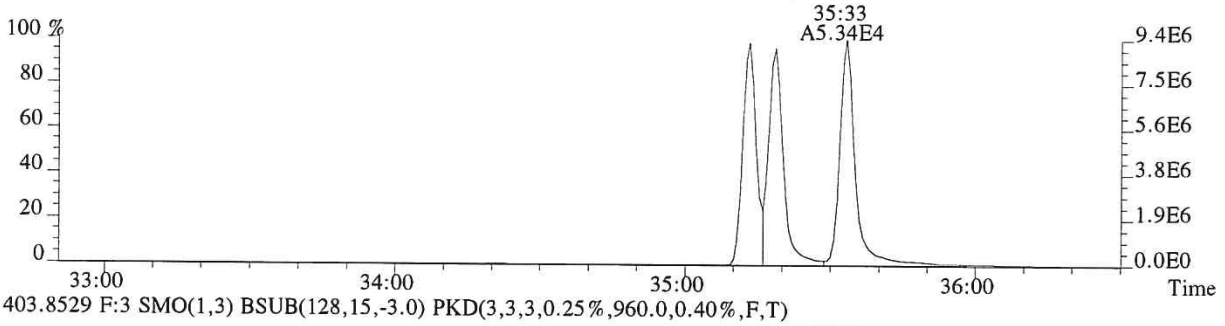
File:P518937 #1-330 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



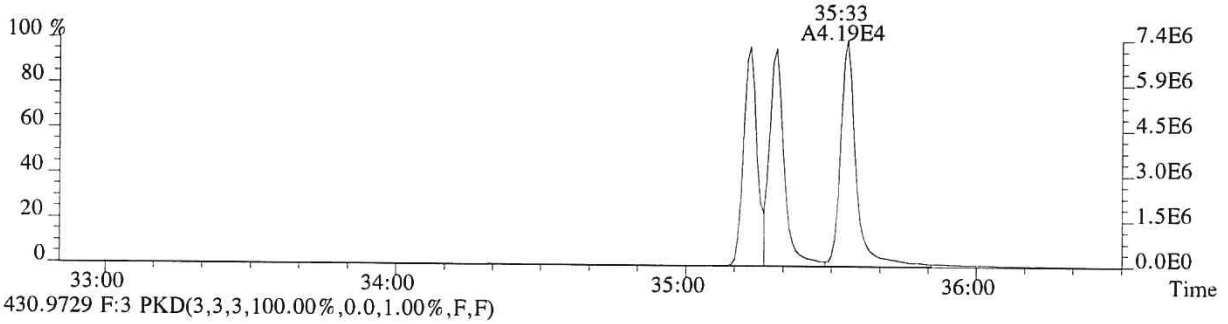
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



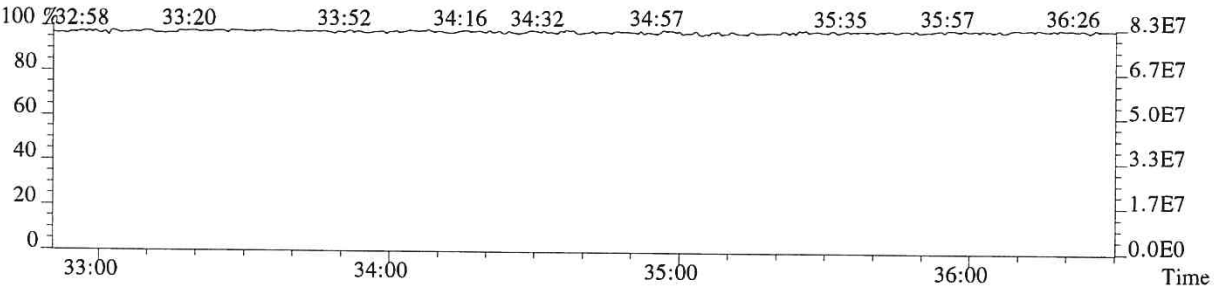
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1276.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)

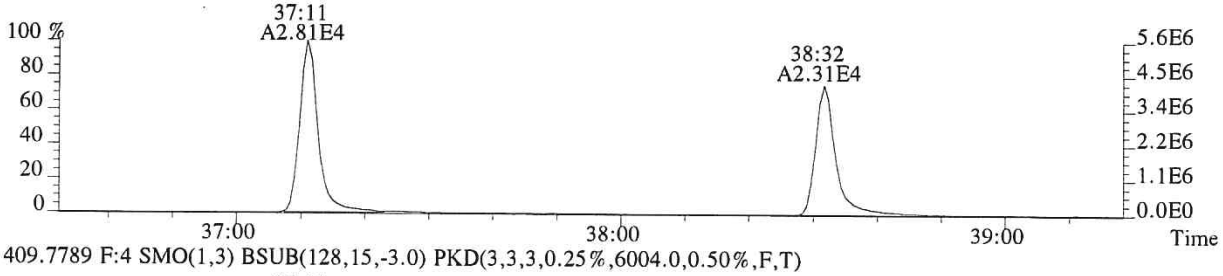


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

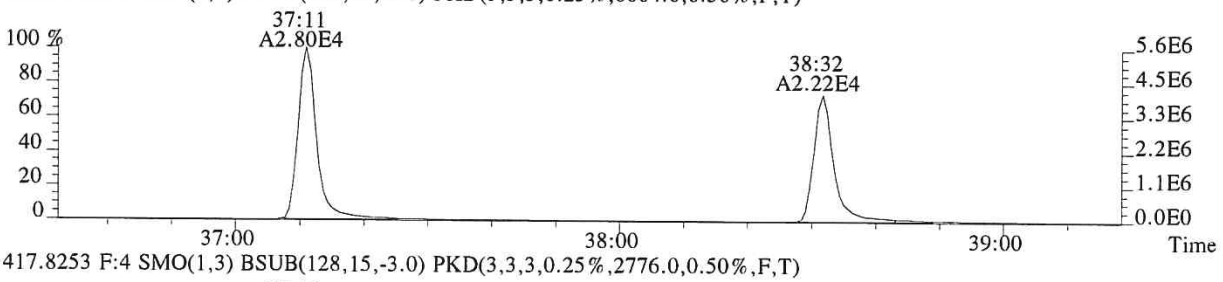


File:P518937 #1-250 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

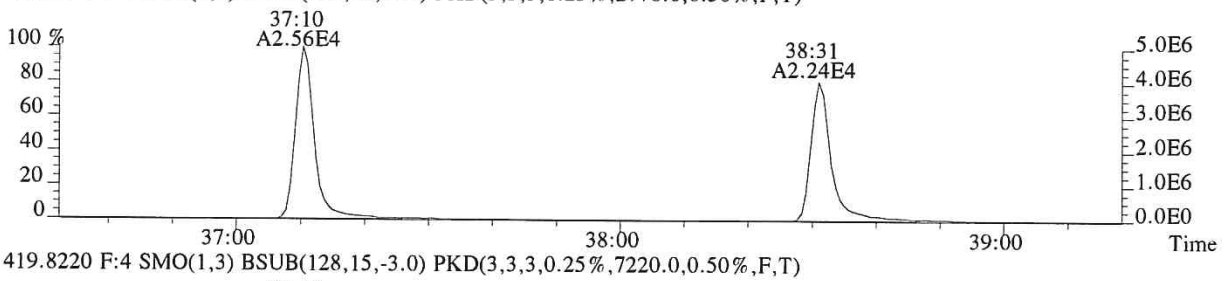
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3684.0,0.50%,F,T)



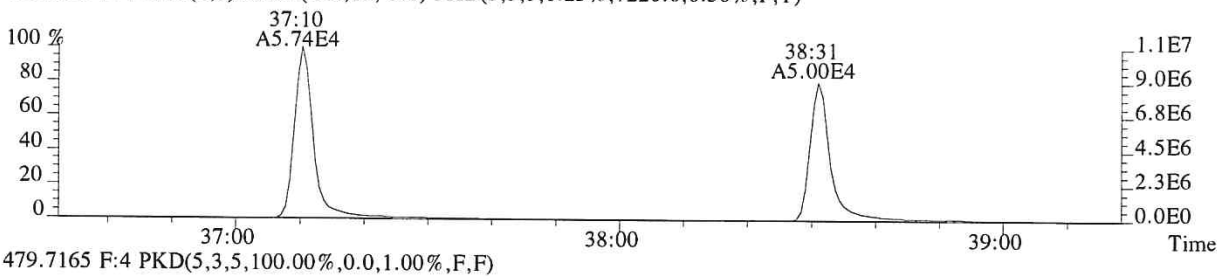
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6004.0,0.50%,F,T)



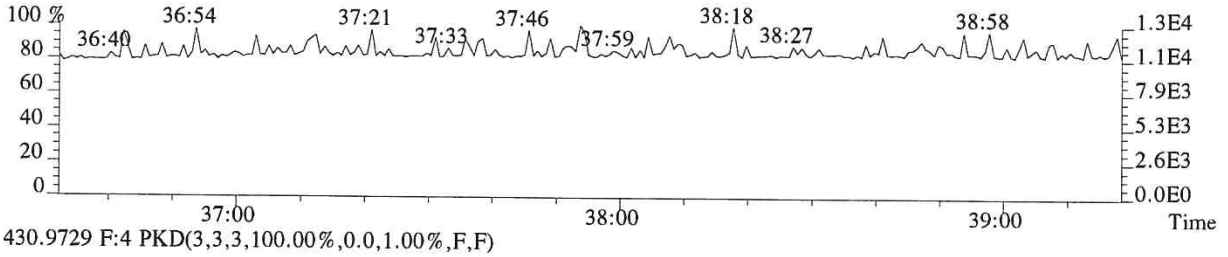
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2776.0,0.50%,F,T)



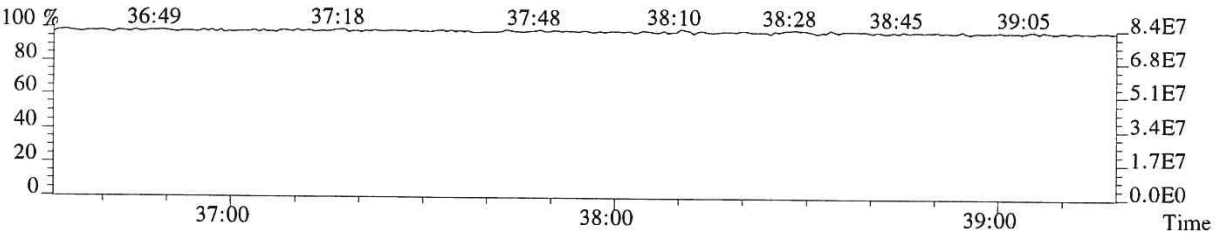
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7220.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

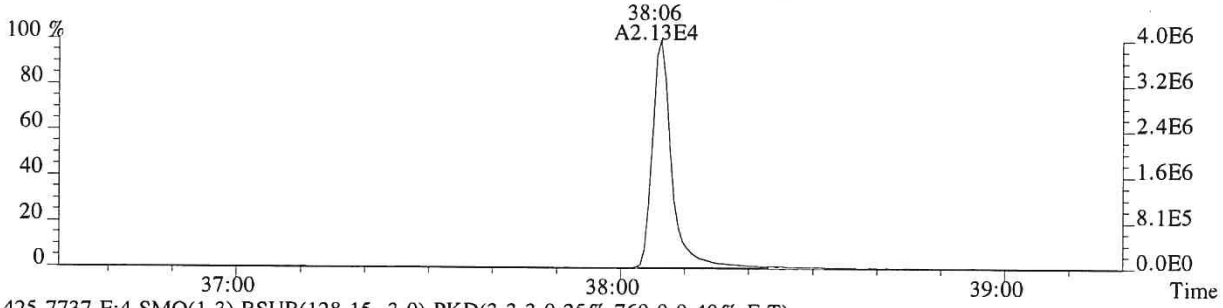


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

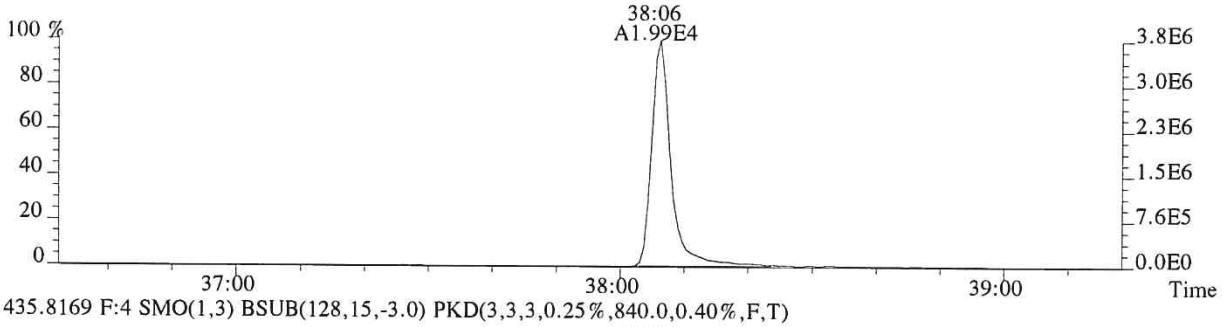


009164

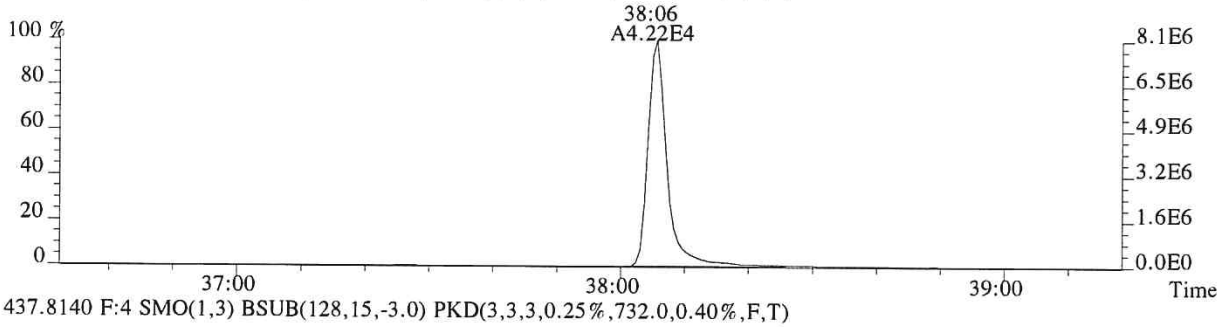
File:P518937 #1-250 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



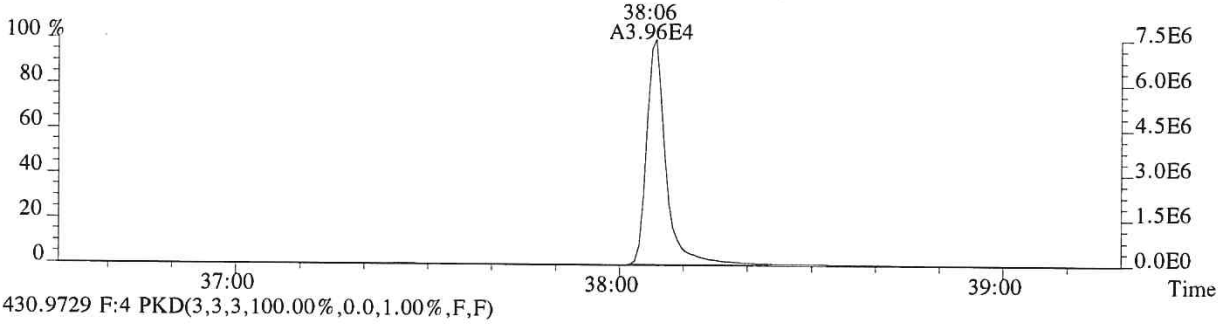
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



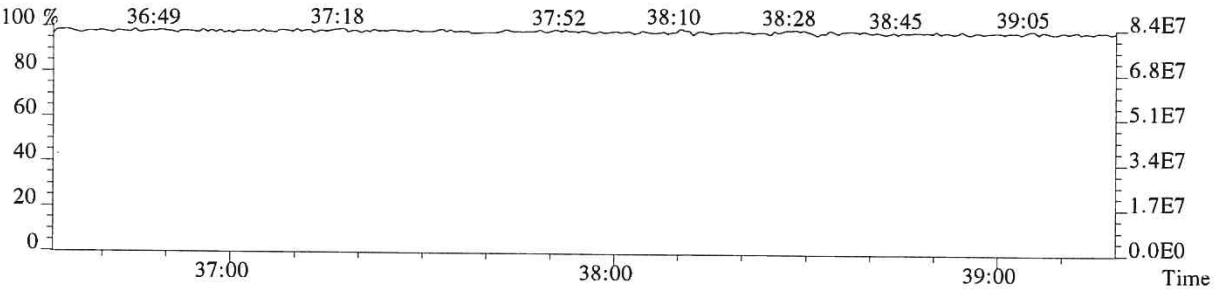
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



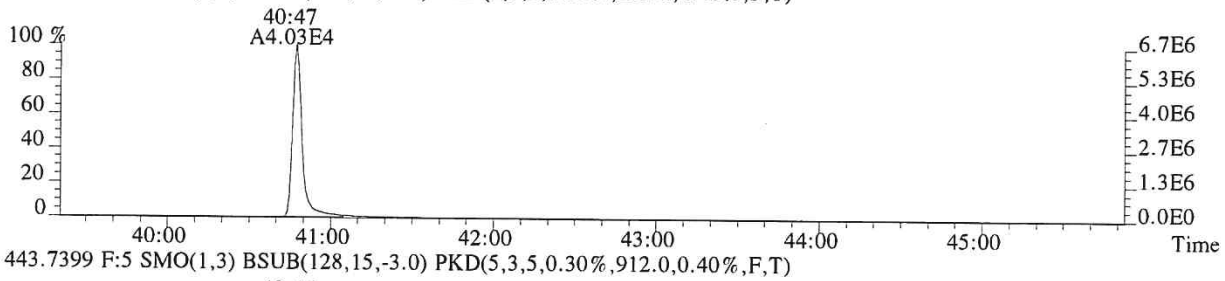
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



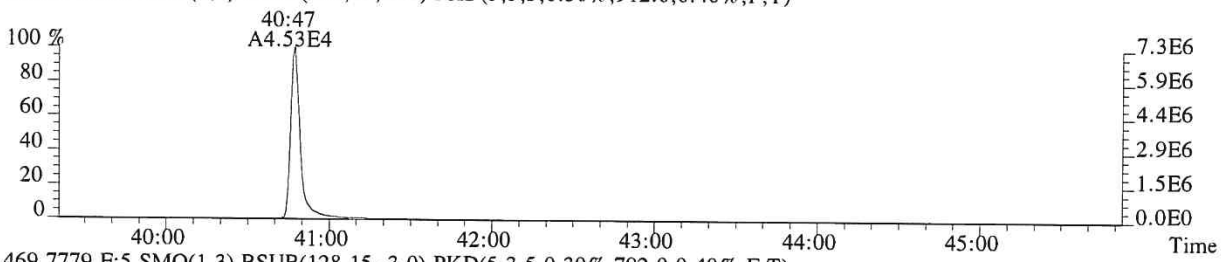
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



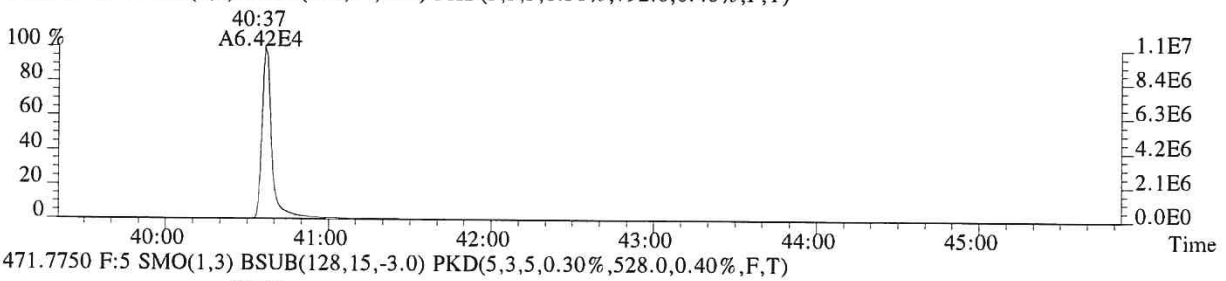
File:P518937 #1-588 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



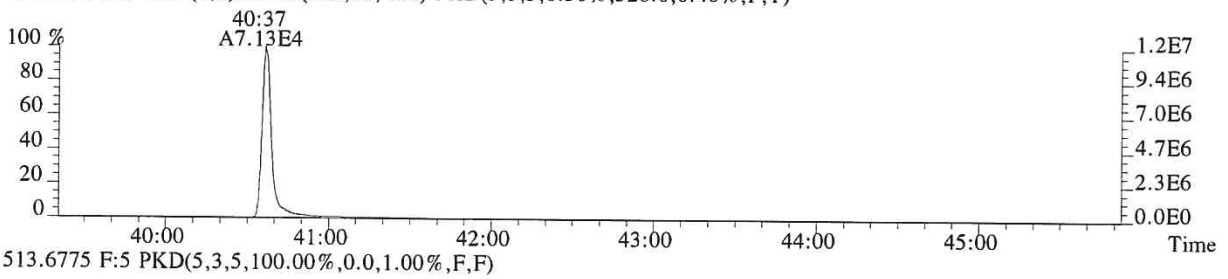
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



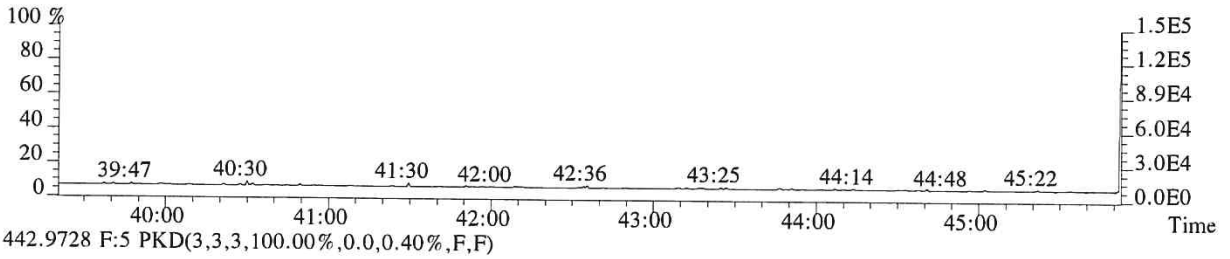
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,792.0,0.40%,F,T)



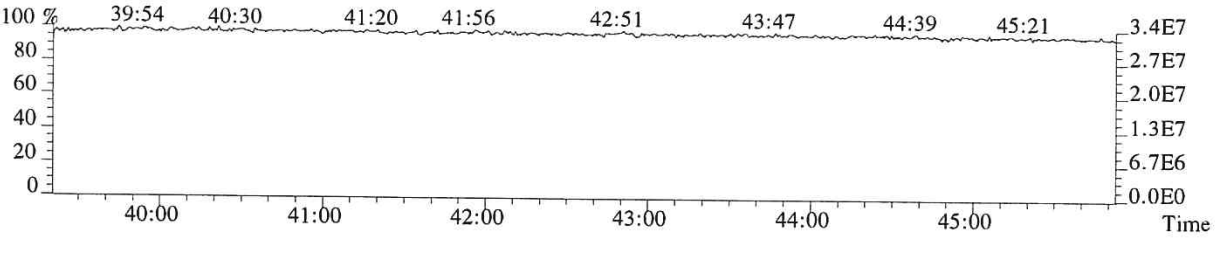
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



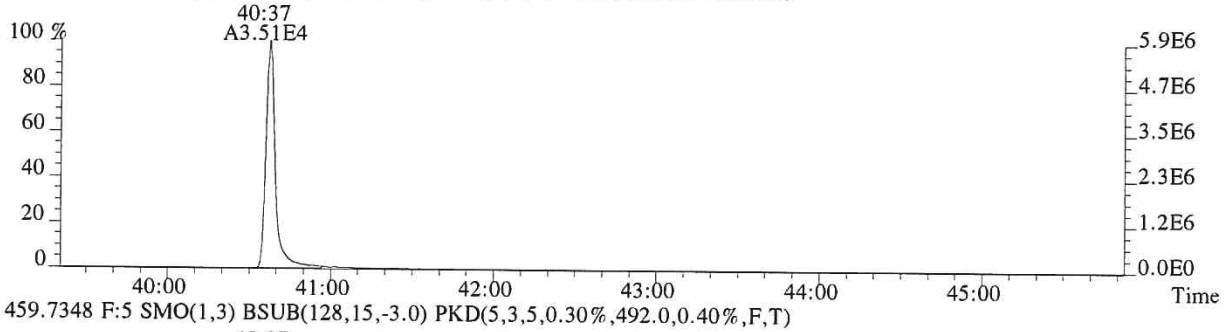
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



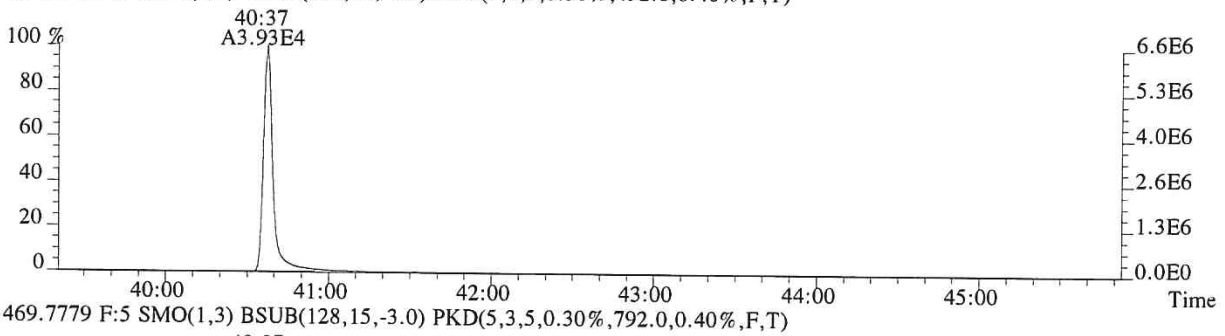
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



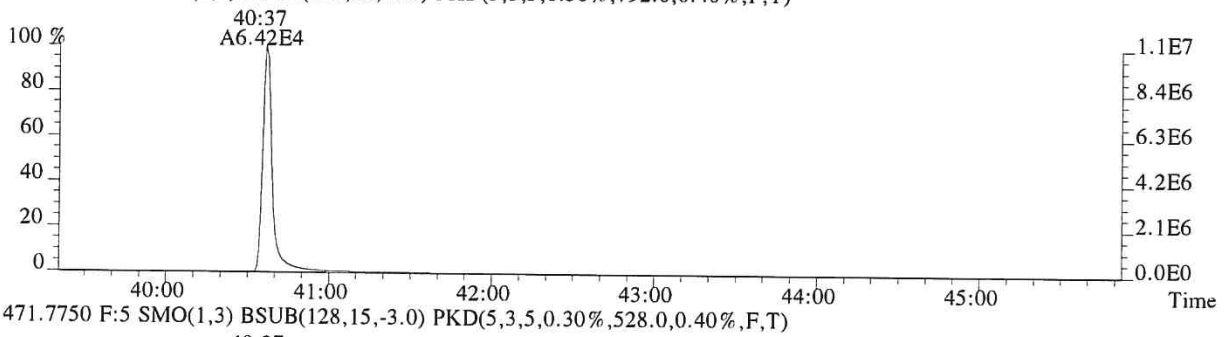
File:P518937 #1-588 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



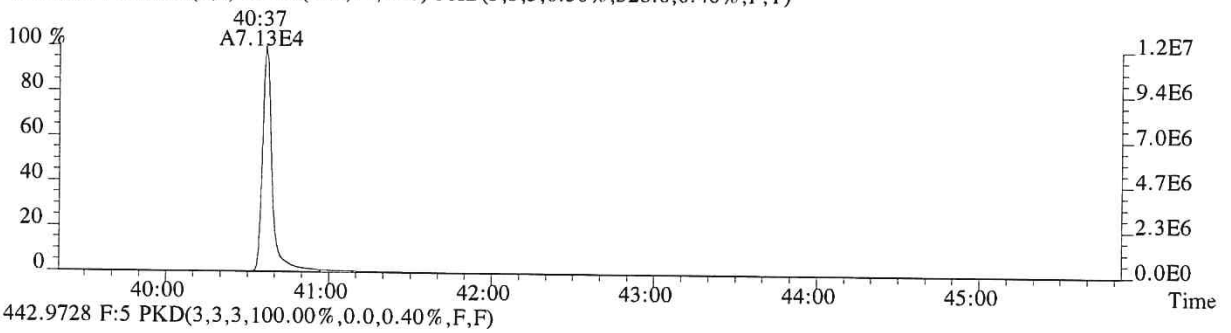
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



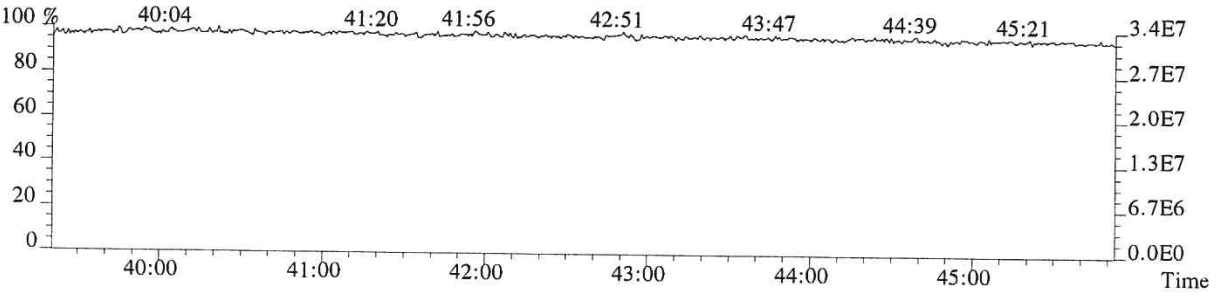
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,792.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P578965

Date: 11/21/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P518964	21-NOV-18	10:03:43
194503	CS3	P518965	21-NOV-18	10:51:31
METHOD BLANK	EQ1800458-01	P518966	21-NOV-18	11:56:15
METHOD BLANK	EQ1800464-01	P518967	21-NOV-18	12:44:03
SL0533	E1801038-015	P518968	21-NOV-18	13:32:44
SL0534	E1801038-016	P518969	21-NOV-18	14:21:20
SL0535	E1801038-017	P518970	21-NOV-18	15:10:37
SL0058	E1801012-006DL	P518971	21-NOV-18	15:58:41
SL0064	E1801012-012DL	P518972	21-NOV-18	16:47:22
SL0071	E1801012-018DL	P518973	21-NOV-18	17:35:58
SL0065	E1801012-019DL	P518974	21-NOV-18	18:24:39
SL0022	E1801020-018DL	P518975	21-NOV-18	19:13:19
SL0011	E1801020-034DL	P518976	21-NOV-18	20:02:00
SL0033	E1801020-045DL	P518977	21-NOV-18	20:50:38
SL0034	E1801020-051DL	P518978	21-NOV-18	21:39:14

E1801012

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181121.SPL
Last Modified: Monday, November 26, 2018 06:47:13 Central Standard Time
Printed: Monday, November 26, 2018 06:47:15 Central Standard Time

Page Position (1, 1)

OPUS 5 NET: P518965 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/21/18	09:14	P518963	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	LKL	Method
2		10:03	P518964	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMS check 09:11
3		10:51	P518965	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		11:56	P518966	MB	EQ1800458-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:44	P518967	MB	EQ1800464-01	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:32	P518968	E1801038-015	E1801038-015	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:21	P518969	E1801038-016	E1801038-016	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:10	P518970	E1801038-017	E1801038-017	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		15:58	P518971	E1801012-006DL	E1801012-006DL	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:47	P518972	E1801012-0012DL	E1801012-0012DL	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		17:35	P518973	E1801012-018DL	E1801012-018DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:24	P518974	E1801012-019DL	E1801012-019DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		19:13	P518975	E1801020-018DL	E1801020-018DL	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:02	P518976	E1801020-034DL	E1801020-034DL	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		20:50	P518977	E1801020-045DL	E1801020-045DL	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		21:39	P518978	E1801020-051DL	E1801020-051DL	EPA1613_ALS	Dioxin_ALS	Tray1:16		HRMS check 22:36
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

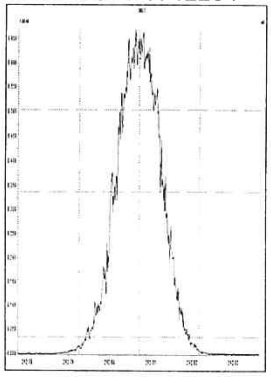
LKL 11/26/18

009170

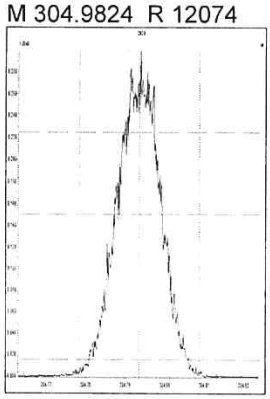
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:11:41 Central Standard Time

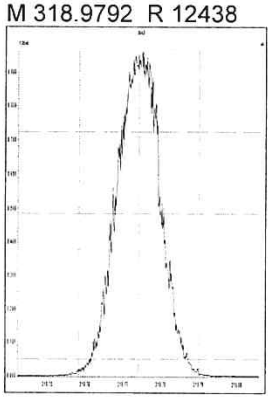
M 292.9824 R 12254



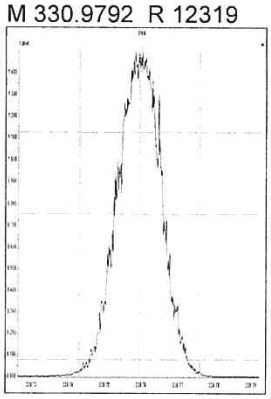
M 304.9824 R 12074



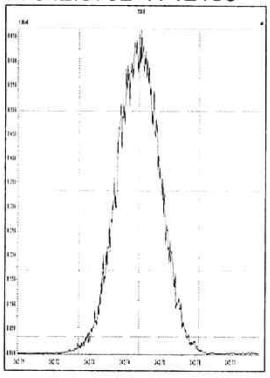
M 318.9792 R 12438



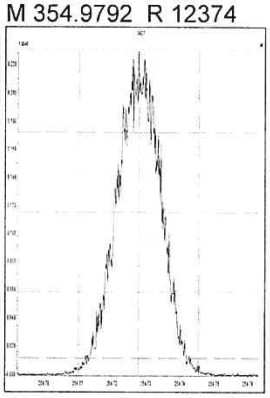
M 330.9792 R 12319



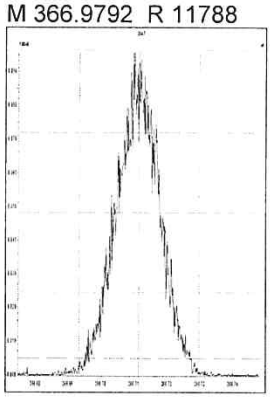
M 342.9792 R 12196



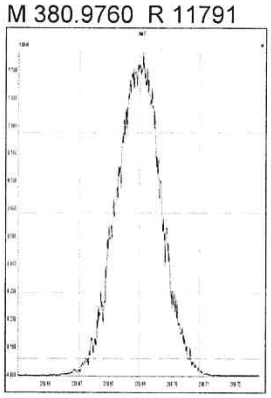
M 354.9792 R 12374



M 366.9792 R 11788



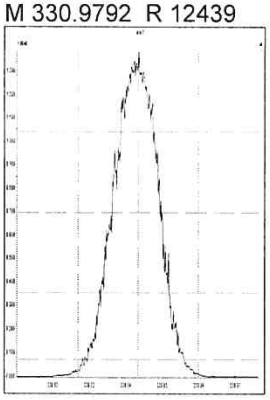
M 380.9760 R 11791



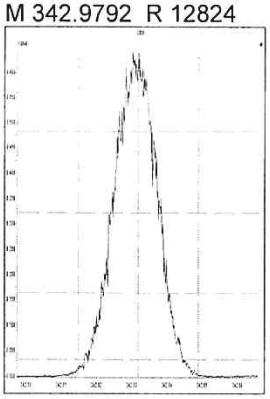
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:12:16 Central Standard Time

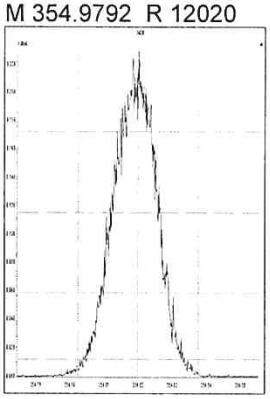
M 330.9792 R 12439



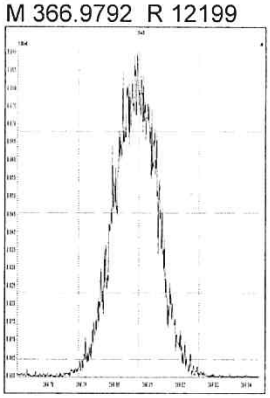
M 342.9792 R 12824



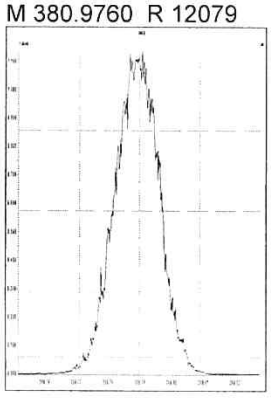
M 354.9792 R 12020



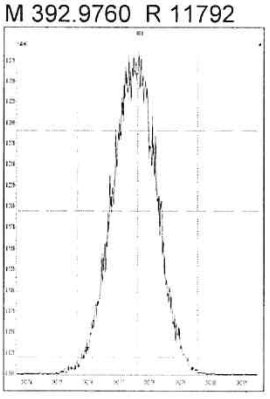
M 366.9792 R 12199



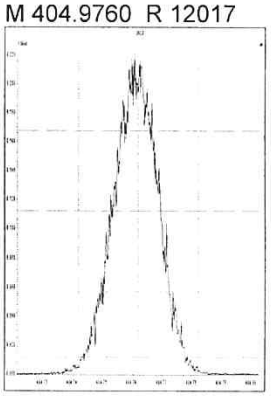
M 380.9760 R 12079



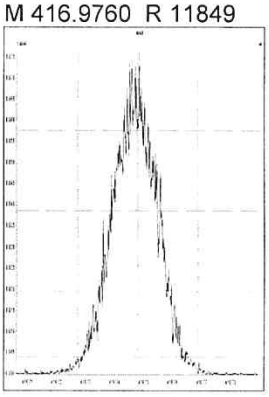
M 392.9760 R 11792



M 404.9760 R 12017



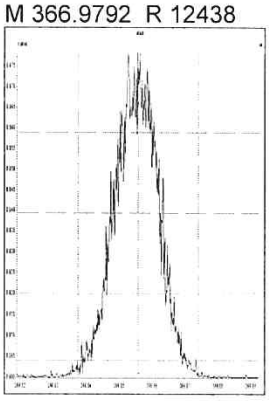
M 416.9760 R 11849



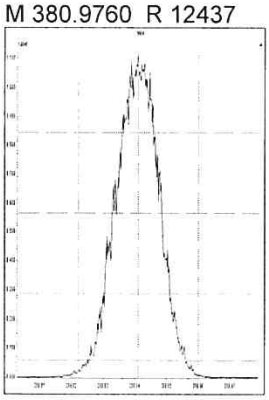
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:12:43 Central Standard Time

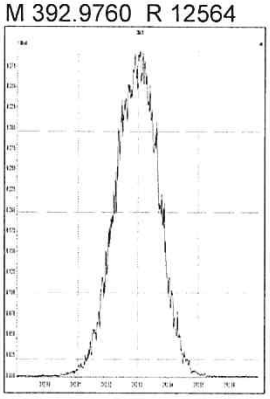
M 366.9792 R 12438



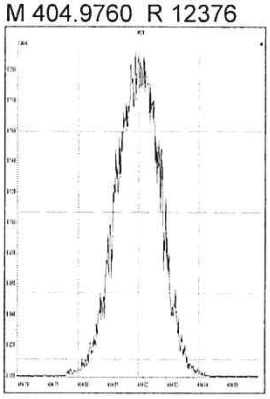
M 380.9760 R 12437



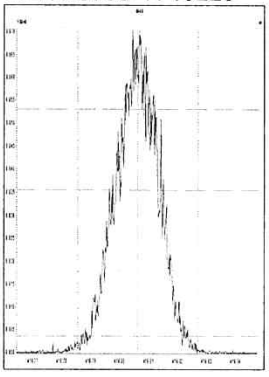
M 392.9760 R 12564



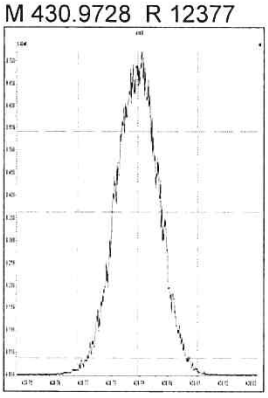
M 404.9760 R 12376



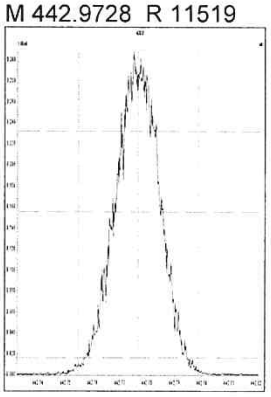
M 416.9760 R 13225



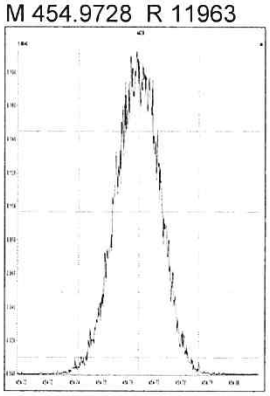
M 430.9728 R 12377



M 442.9728 R 11519



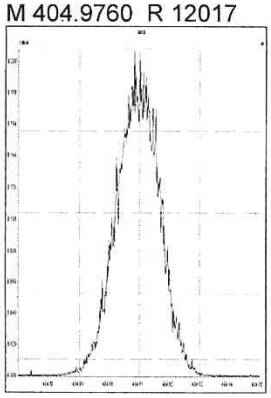
M 454.9728 R 11963



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:13:26 Central Standard Time

M 404.9760 R 12017



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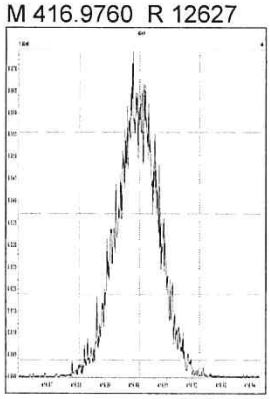
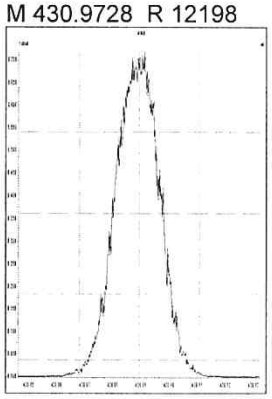


M 430.9728 R 12198



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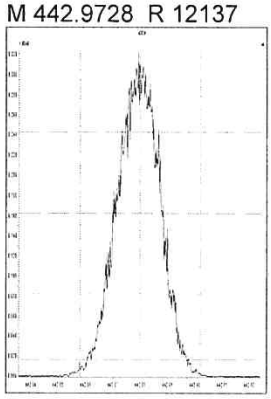
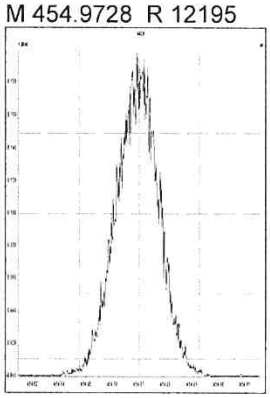


M 454.9728 R 12195



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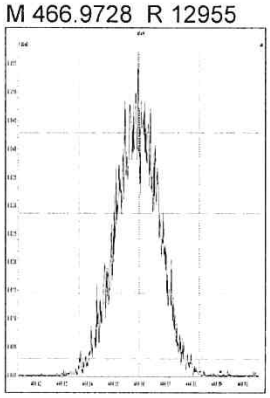
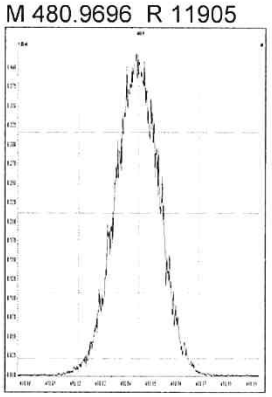


M 480.9696 R 11905



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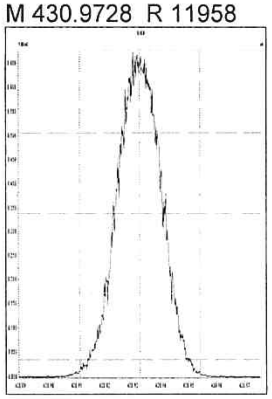

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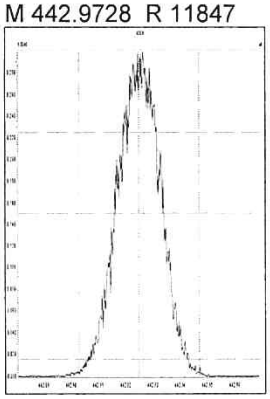

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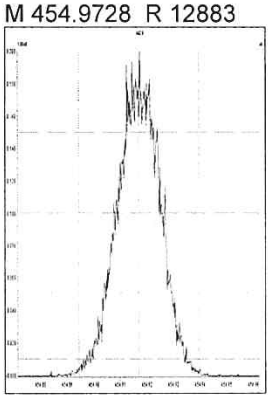

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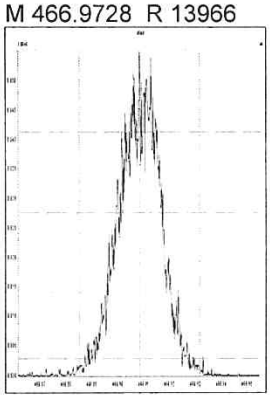

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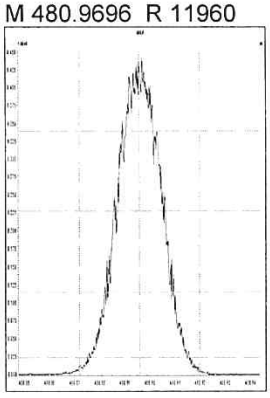

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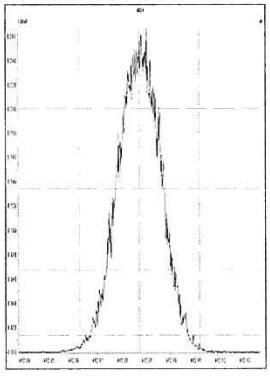

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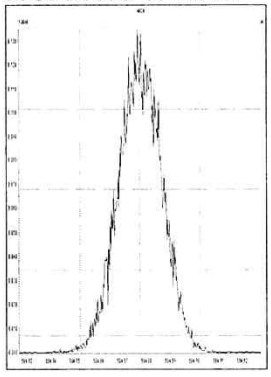

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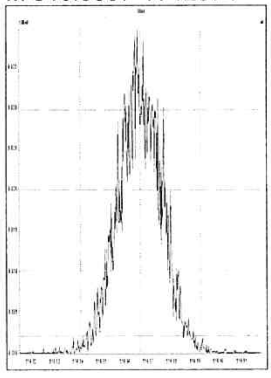

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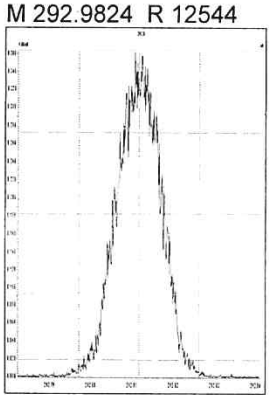

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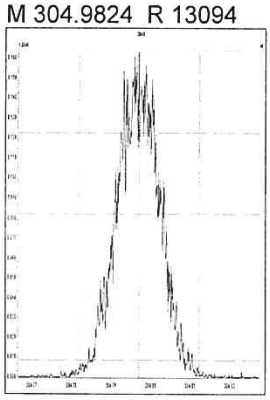

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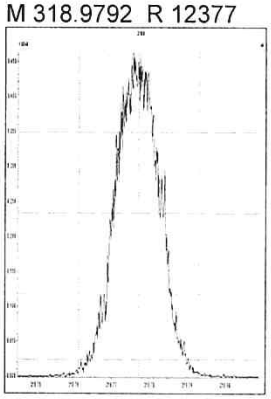

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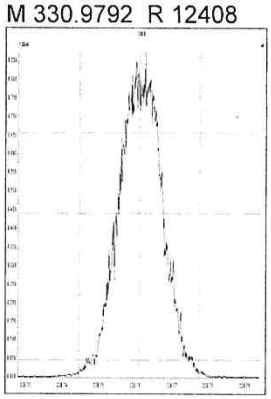

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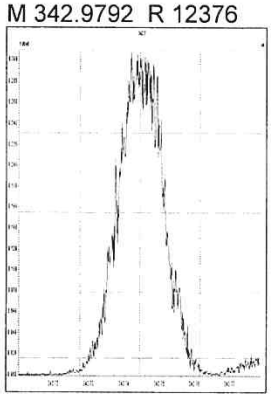

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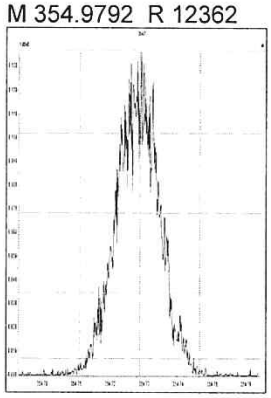

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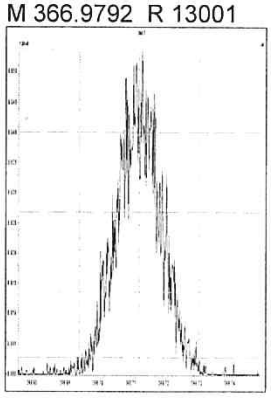

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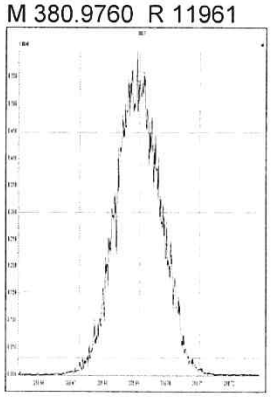

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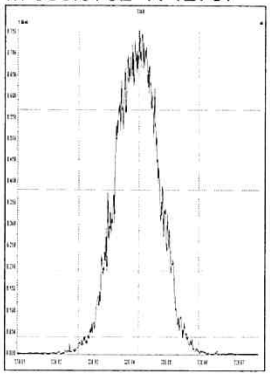

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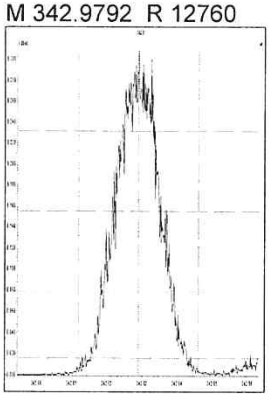

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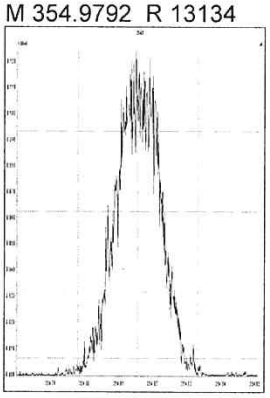

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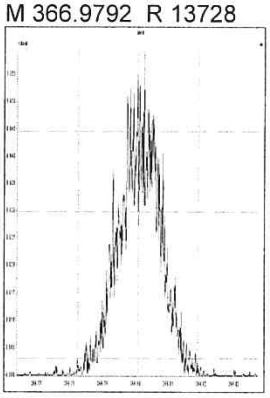

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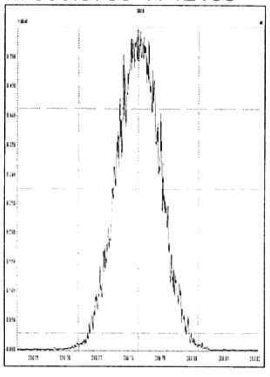

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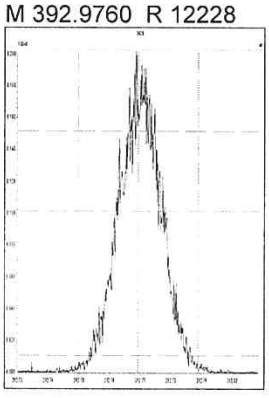

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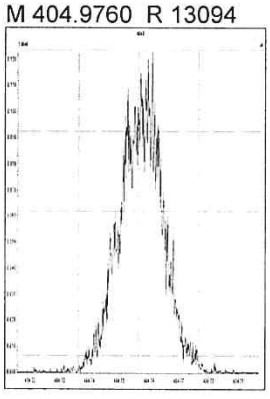

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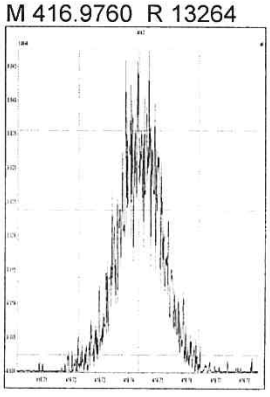

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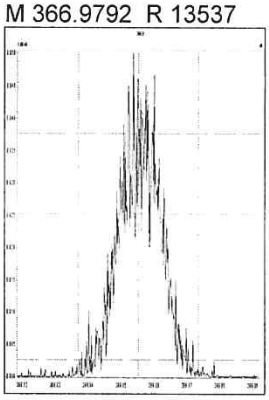

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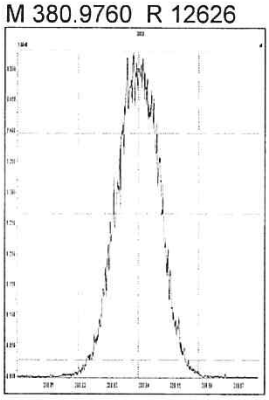

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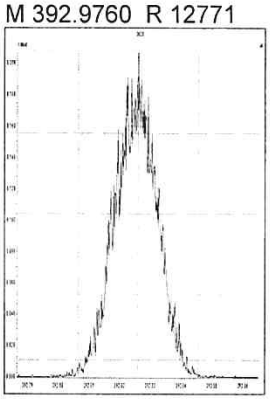

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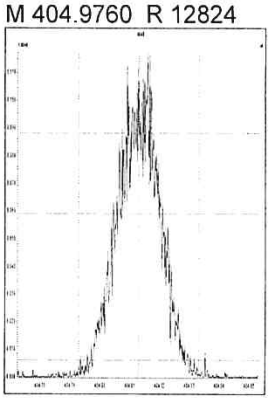

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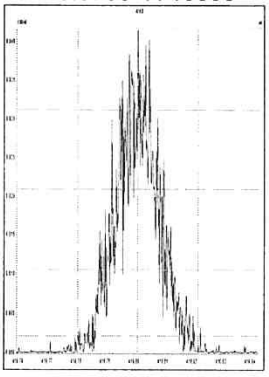

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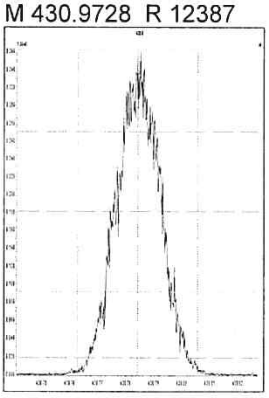

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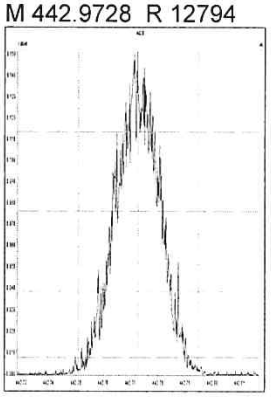

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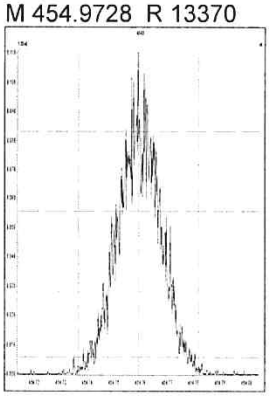

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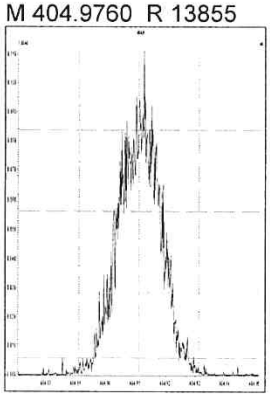

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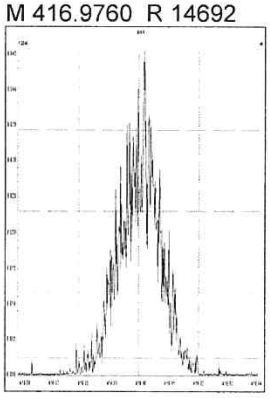

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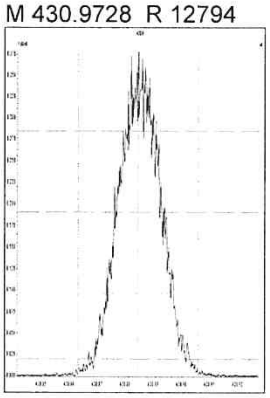

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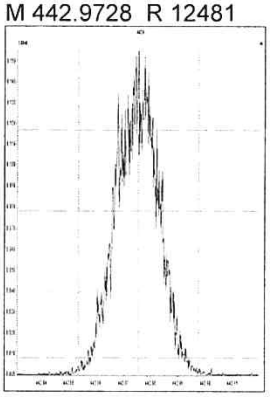

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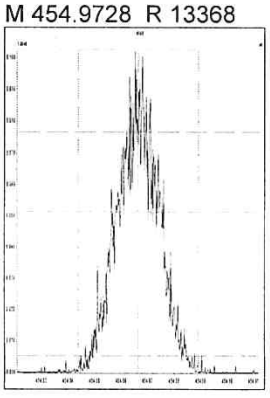

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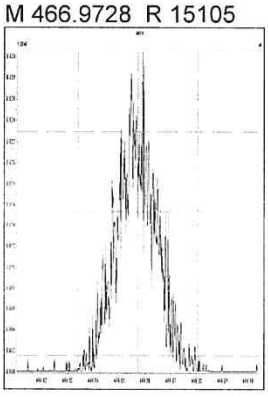

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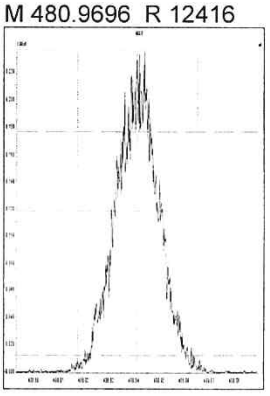

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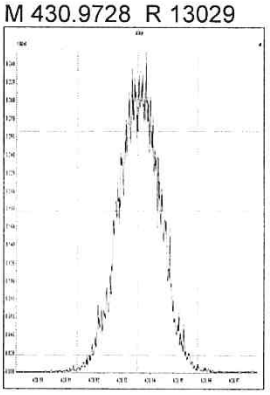

Printed: Wednesday, November 21, 2018 22:36:05 Central Standard Time

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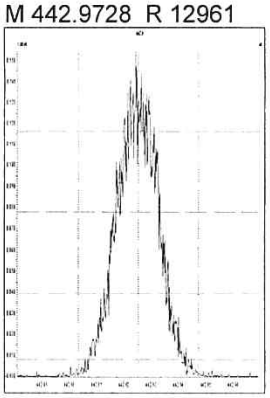

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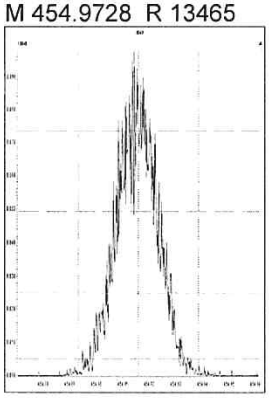

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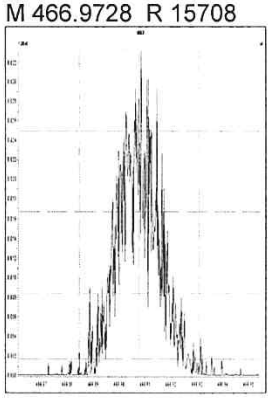

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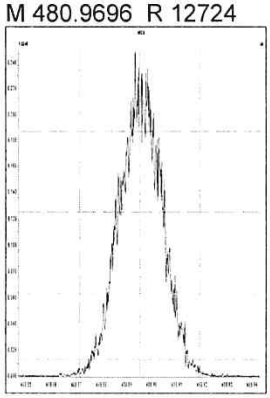

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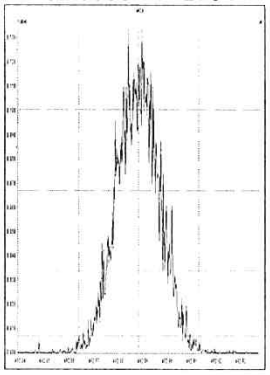

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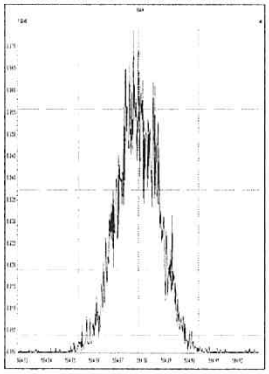

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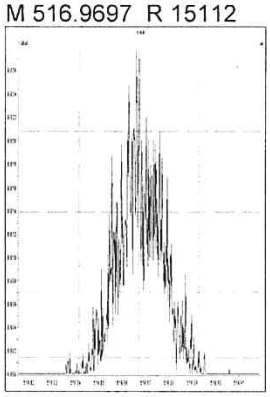


WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

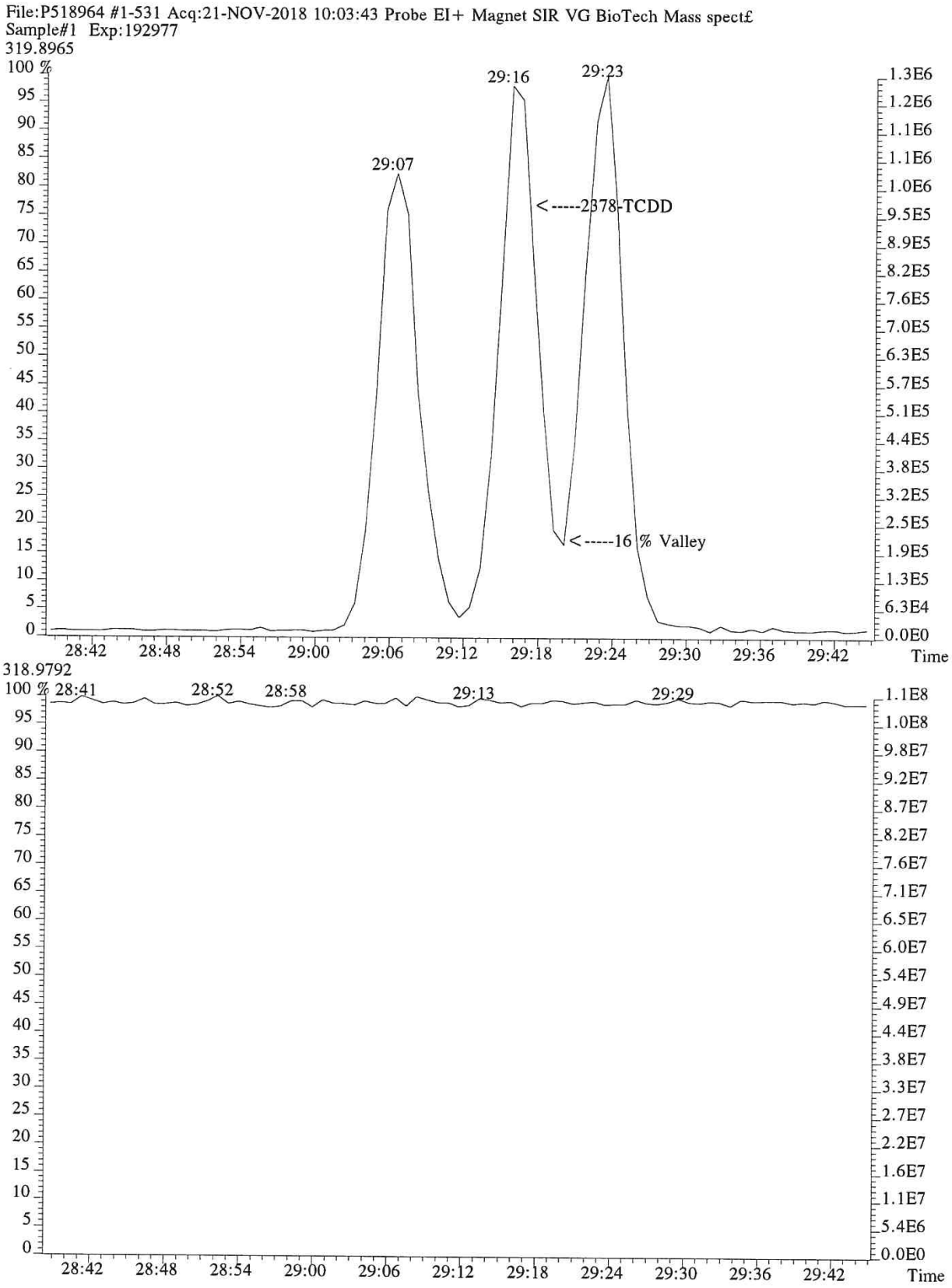
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P518964
Date Analyzed: 21-NOV-18
Time Analyzed: 10:03:43

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:14	30:24
TCDD	26:06	30:14
PeCDF	30:20	34:30
PeCDD	31:50	34:15
HxCDF	35:09	37:37
HxCDD	35:39	37:13
HpCDF	38:51	40:16
HpCDD	39:06	39:47

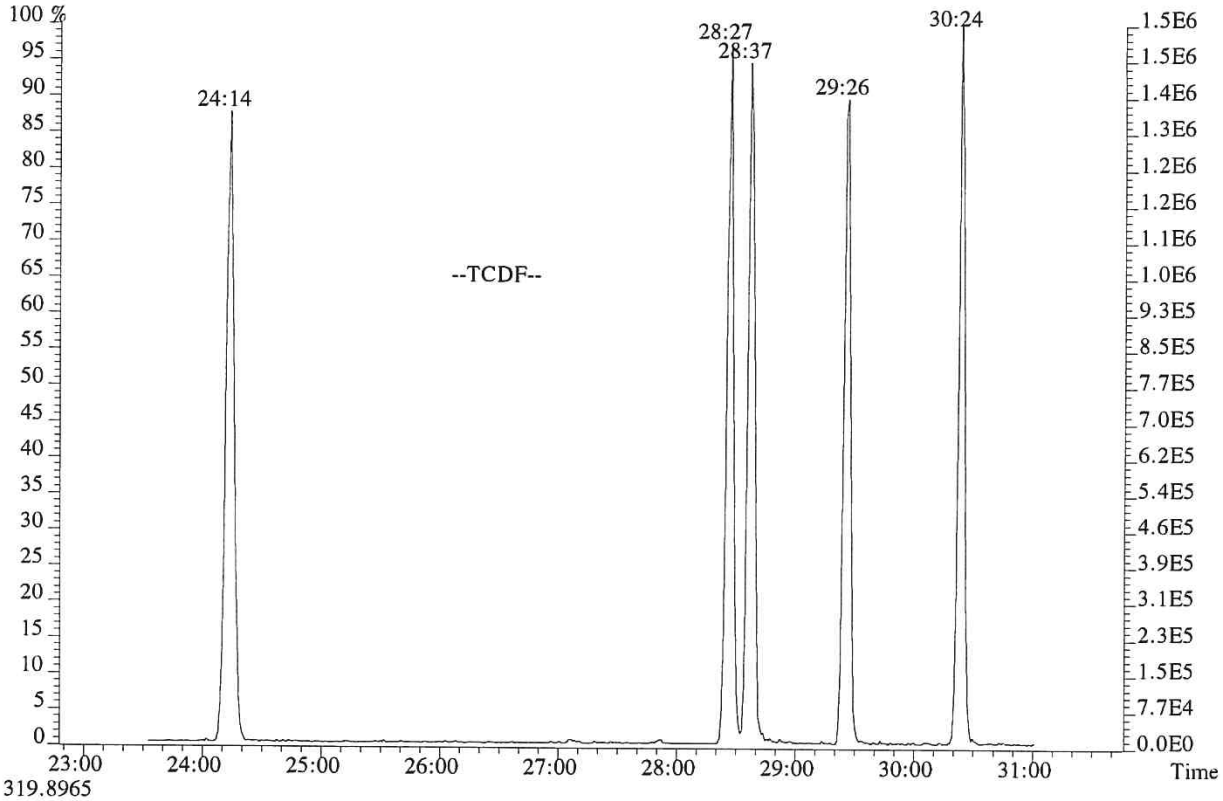
% Valley 2378-TCDD: 16 %


File:P518964 #1-531 Acq:21-NOV-2018 10:03:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
29:16
29:23
29:07
<-----2378-TCDD
<-----16 % Valley
Time
318.9792
28:41
28:52
28:58
29:13
29:29
Time

009180

File:P518964 #1-531 Acq:21-NOV-2018 10:03:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977

303.9016



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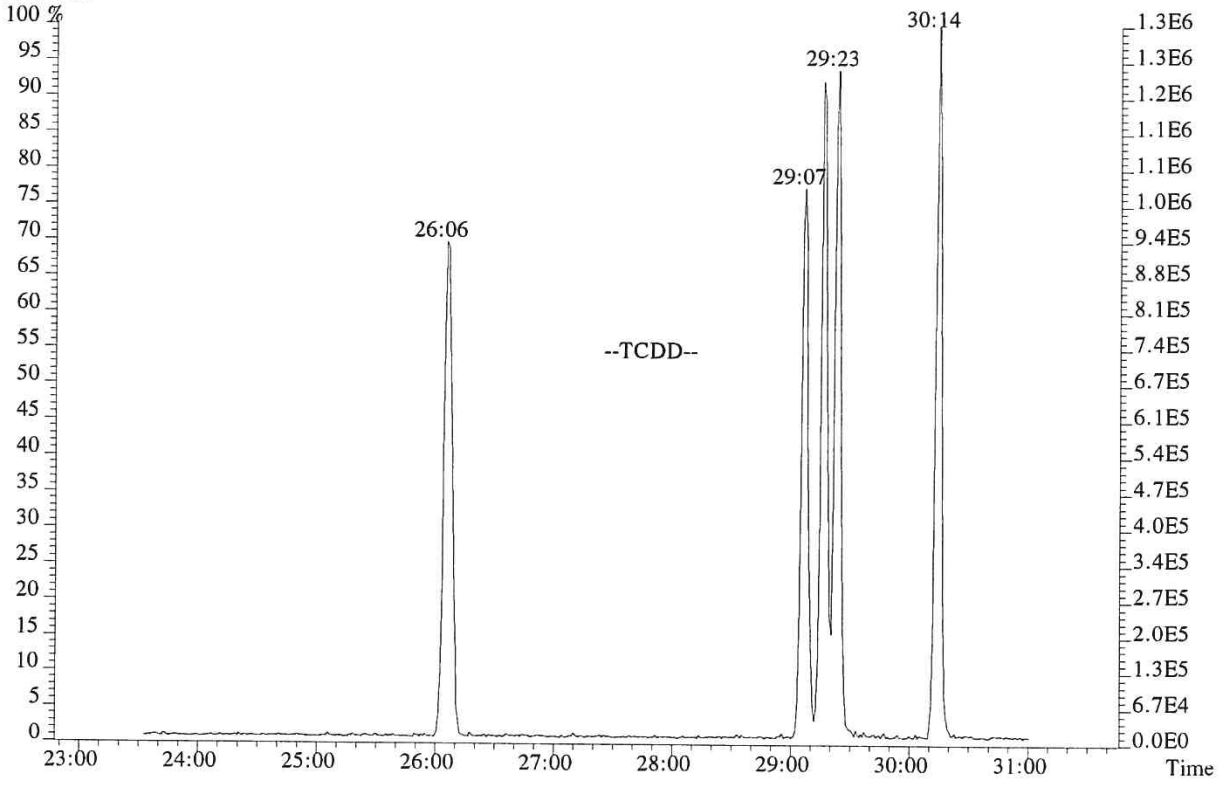

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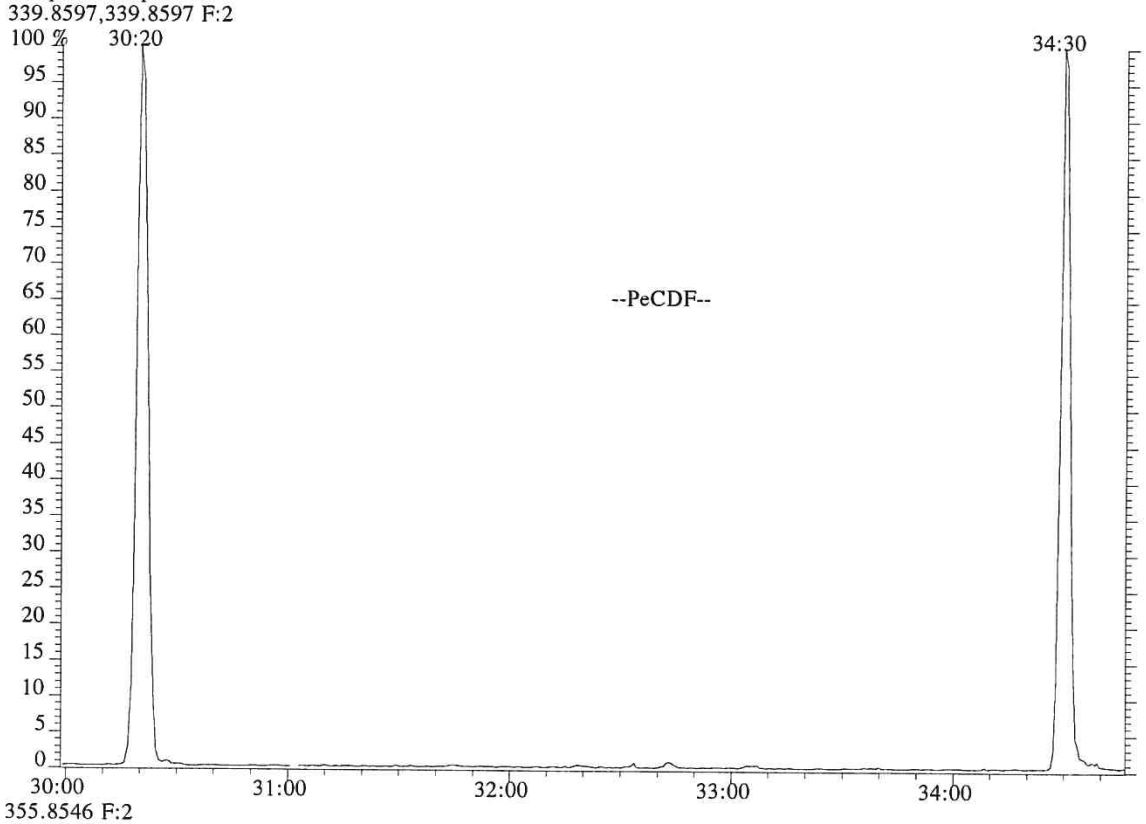
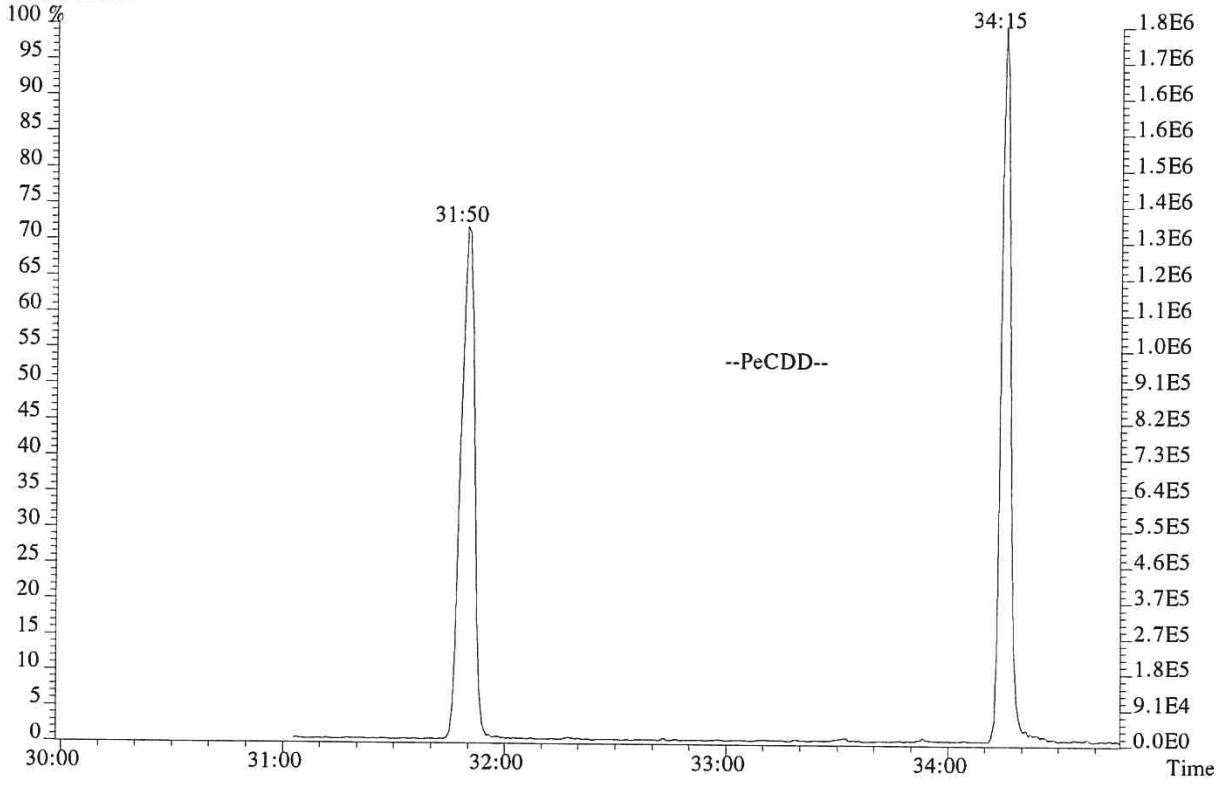
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



009182

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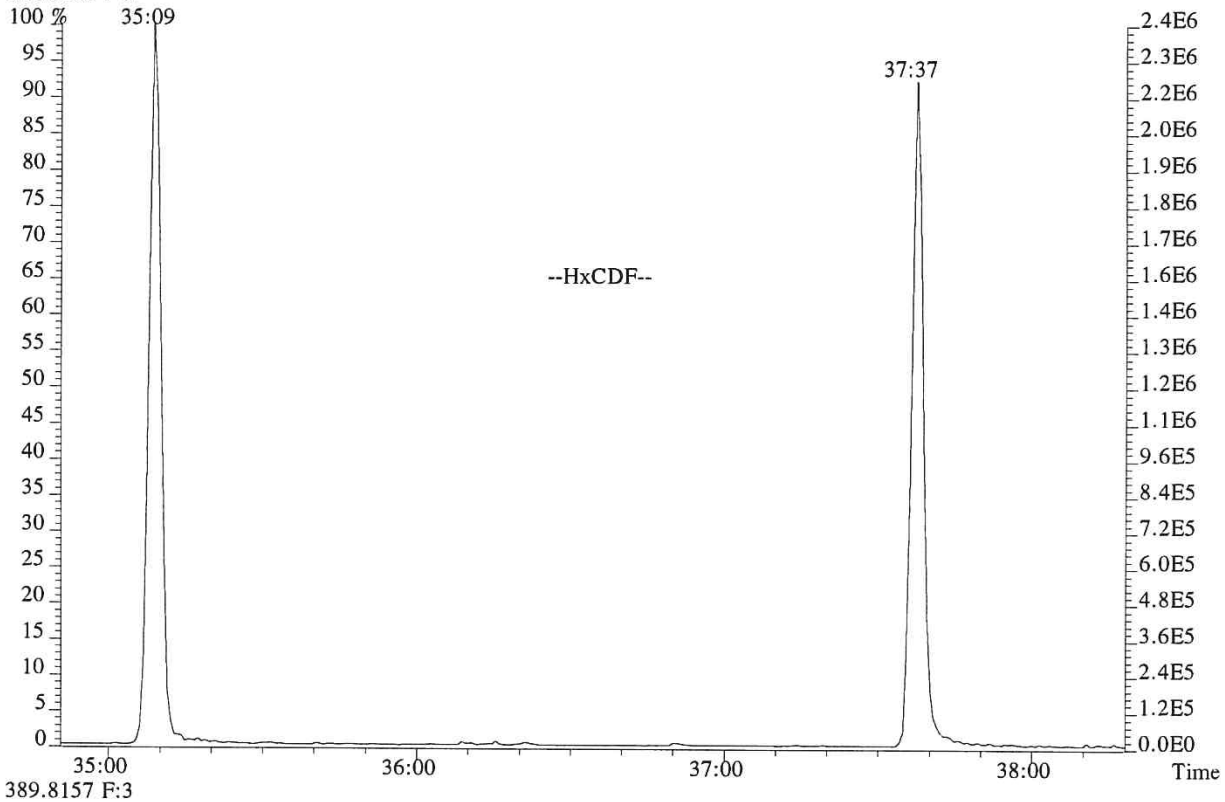
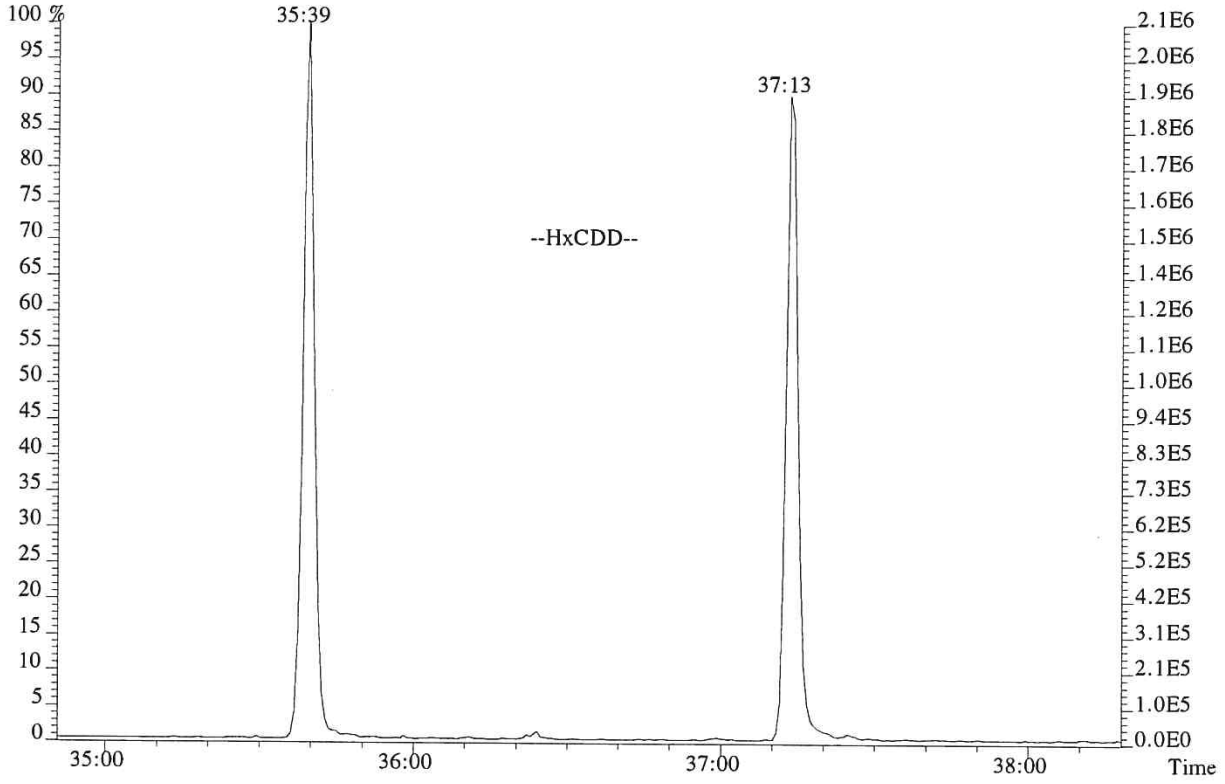
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



009183

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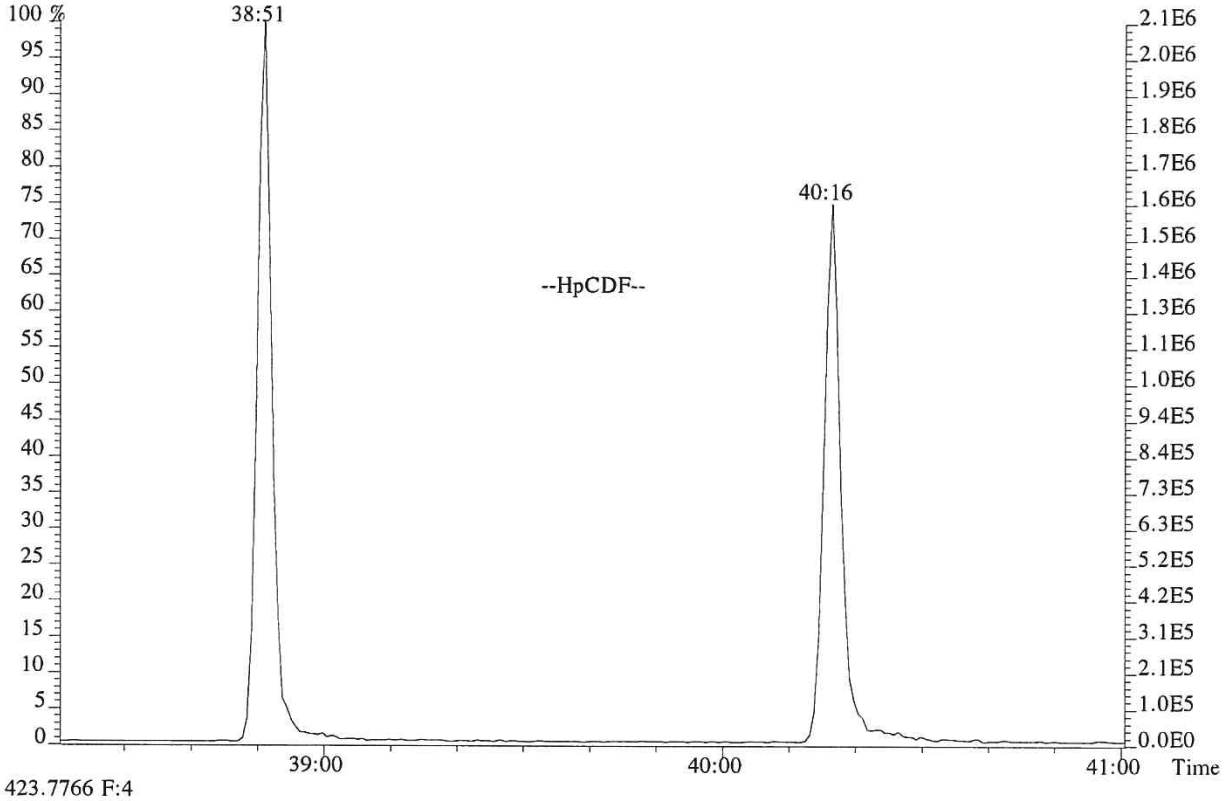
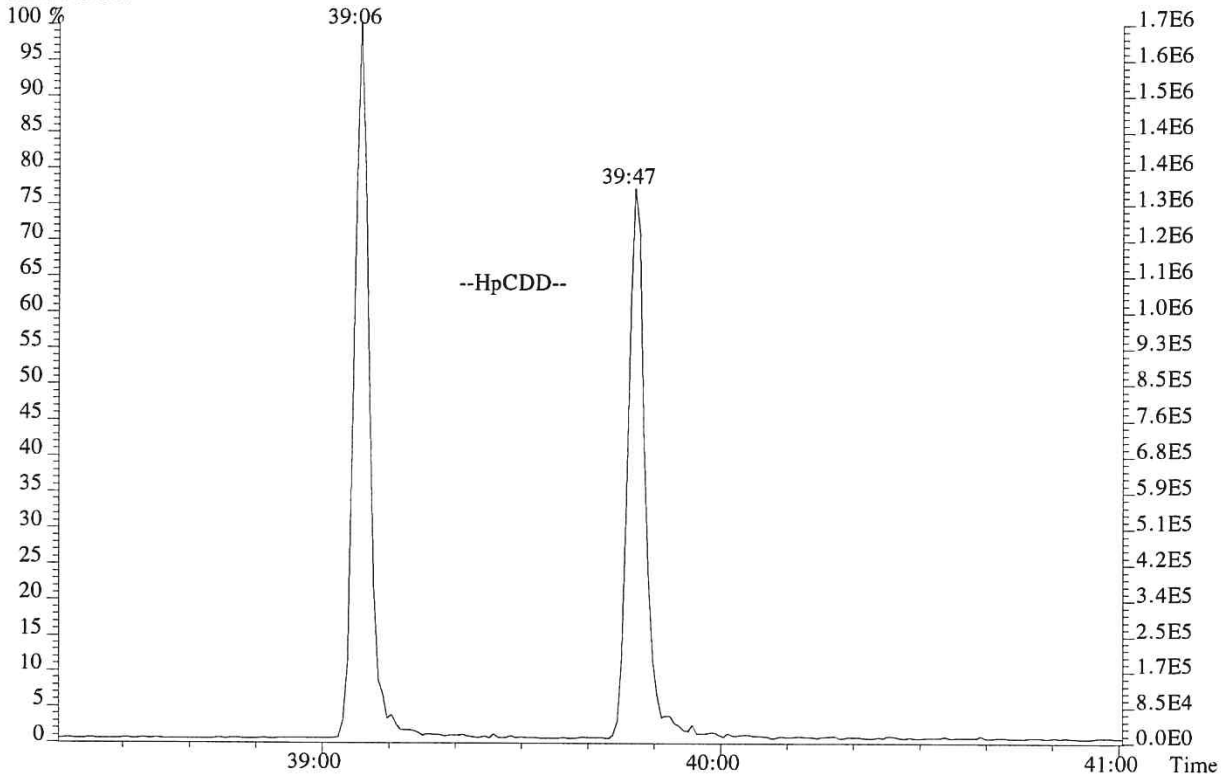
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



009184

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518965 Analysis Date: 21-NOV-18 Time: 10:51:31

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.0	7.8 - 12.9	-9.8
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	49	39 - 64	-1.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-1.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	51	41 - 61	1.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	50	43 - 58	0.7
OCDD	M+2/M+4	0.87	0.76-1.02	100	79 - 126	-0.3
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.5	8.4 - 12.0	-5.0
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	49	41 - 60	-1.7
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	49	41 - 61	-2.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	49	45 - 56	-1.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	-0.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	49	45 - 55	-1.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	-0.1
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-3.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518965 Analysis Date: 21-NOV-18 Time: 10:51:31

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	105	82 - 121	4.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	113	62 - 160	12.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	97	85 - 117	-2.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	97	85 - 118	-3.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	4.7
13C-OCDD	M+2/M+4	0.90	0.76-1.02	255	96 - 415	27.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	91	71 - 140	-9.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	102	76 - 130	2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	104	77 - 130	4.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	84	76 - 131	-15.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	85	70 - 143	-14.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	95	74 - 135	-5.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	92	73 - 137	-8.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	96	78 - 129	-4.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	103	77 - 129	3.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.0	7.8 - 12.7	0.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518965 Samp: 1 Inj: 1 Acquired: 21-NOV-18 10:51:31
Processed: 26-NOV-18 13:37:01 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	4.225e+03	5.461e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:43	3.595e+04	2.299e+04	1.56	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:36	3.390e+04	2.180e+04	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	3.012e+04	2.463e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:21	3.216e+04	2.684e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	3.064e+04	2.503e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	2.770e+04	2.301e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	2.738e+04	2.677e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:16	2.355e+04	2.328e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:51	4.015e+04	4.575e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:23	3.291e+03	4.163e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:53	2.474e+04	1.574e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.283e+04	1.776e+04	1.29	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	2.310e+04	1.818e+04	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	2.410e+04	1.893e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	2.111e+04	1.958e+04	1.08	yes	no	1.025
17	Unk	OCDD	42:39	3.381e+04	3.892e+04	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:36	4.787e+04	6.040e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	7.264e+04	4.580e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:35	7.344e+04	4.599e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	3.161e+04	5.974e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.562e+04	6.910e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	3.426e+04	6.677e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	3.074e+04	5.947e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	2.500e+04	5.646e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	2.308e+04	5.146e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	3.355e+04	4.257e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	5.306e+04	3.364e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	4.402e+04	3.508e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	4.531e+04	3.520e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	4.057e+04	3.829e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:38	6.199e+04	6.851e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:50	3.512e+04	4.370e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	4.948e+04	3.835e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	8.007e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518965 Samp: 1 Inj: 1 Acquired: 21-NOV-18 10:51:31
Processed: 26-NOV-18 13:37:01 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.24e+05	8.64e+02	9.5e+02	1.08e+06	7.64e+02	1.4e+03
2	1,2,3,7,8-PeCDF	6.90e+06	1.80e+02	3.8e+04	4.42e+06	6.92e+02	6.4e+03
3	2,3,4,7,8-PeCDF	6.55e+06	1.80e+02	3.6e+04	4.24e+06	6.92e+02	6.1e+03
4	1,2,3,4,7,8-HxCDF	6.55e+06	8.88e+02	7.4e+03	5.42e+06	6.08e+02	8.9e+03
5	1,2,3,6,7,8-HxCDF	6.79e+06	8.88e+02	7.6e+03	5.48e+06	6.08e+02	9.0e+03
6	2,3,4,6,7,8-HxCDF	6.68e+06	8.88e+02	7.5e+03	5.34e+06	6.08e+02	8.8e+03
7	1,2,3,7,8,9-HxCDF	5.62e+06	8.88e+02	6.3e+03	4.55e+06	6.08e+02	7.5e+03
8	1,2,3,4,6,7,8-HpCDF	5.90e+06	1.09e+03	5.4e+03	5.66e+06	1.97e+03	2.9e+03
9	1,2,3,4,7,8,9-HpCDF	4.46e+06	1.09e+03	4.1e+03	4.43e+06	1.97e+03	2.3e+03
10	OCDF	6.29e+06	2.44e+02	2.6e+04	7.19e+06	1.04e+03	6.9e+03
11	2,3,7,8-TCDD	6.46e+05	2.44e+03	2.6e+02	8.33e+05	1.32e+03	6.3e+02
12	1,2,3,7,8-PeCDD	4.96e+06	8.60e+02	5.8e+03	3.15e+06	2.04e+02	1.5e+04
13	1,2,3,4,7,8-HxCDD	5.11e+06	5.72e+02	8.9e+03	4.02e+06	4.60e+02	8.7e+03
14	1,2,3,6,7,8-HxCDD	4.86e+06	5.72e+02	8.5e+03	3.82e+06	4.60e+02	8.3e+03
15	1,2,3,7,8,9-HxCDD	5.07e+06	5.72e+02	8.9e+03	3.97e+06	4.60e+02	8.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.11e+06	5.52e+02	7.5e+03	3.83e+06	3.24e+02	1.2e+04
17	OCDD	5.45e+06	1.64e+02	3.3e+04	6.35e+06	3.56e+02	1.8e+04
18	13C-2,3,7,8-TCDF	9.35e+06	9.62e+03	9.7e+02	1.18e+07	6.70e+03	1.8e+03
19	13C-1,2,3,7,8-PeCDF	1.36e+07	4.32e+02	3.2e+04	8.52e+06	3.40e+02	2.5e+04
20	13C-2,3,4,7,8-PeCDF	1.44e+07	4.32e+02	3.3e+04	9.14e+06	3.40e+02	2.7e+04
21	13C-1,2,3,4,7,8-HxCDF	6.87e+06	9.56e+02	7.2e+03	1.30e+07	9.48e+02	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	7.40e+06	9.56e+02	7.7e+03	1.42e+07	9.48e+02	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	7.34e+06	9.56e+02	7.7e+03	1.42e+07	9.48e+02	1.5e+04
24	13C-1,2,3,7,8,9-HxCDF	6.29e+06	9.56e+02	6.6e+03	1.19e+07	9.48e+02	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.27e+06	3.15e+03	1.7e+03	1.19e+07	4.87e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.31e+06	3.15e+03	1.4e+03	9.63e+06	4.87e+03	2.0e+03
27	13C-2,3,7,8-TCDD	6.94e+06	7.18e+03	9.7e+02	8.72e+06	2.20e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	1.04e+07	1.20e+03	8.6e+03	6.55e+06	1.12e+03	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	9.75e+06	6.00e+02	1.6e+04	7.83e+06	3.96e+02	2.0e+04
30	13C-1,2,3,6,7,8-HxCDD	9.37e+06	6.00e+02	1.6e+04	7.32e+06	3.96e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.99e+06	6.08e+02	1.3e+04	7.59e+06	2.92e+02	2.6e+04
32	13C-OCDD	1.01e+07	5.64e+02	1.8e+04	1.11e+07	2.72e+02	4.1e+04
33	13C-1,2,3,4-TCDD	6.85e+06	7.18e+03	9.5e+02	8.47e+06	2.20e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	6.00e+02	1.7e+04	8.01e+06	3.96e+02	2.0e+04
35	37Cl-2,3,7,8-TCDD	1.63e+06	1.60e+03	1.0e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.440e{+}03 + 1.324e{+}03) \times 100}{(6.938e{+}06 + 8.717e{+}06) \times (\quad) \times 1.085}$$

ALS ENVIRONMENTAL
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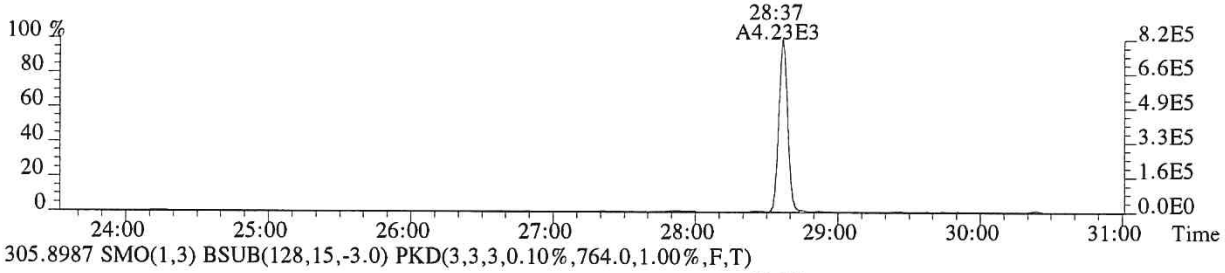
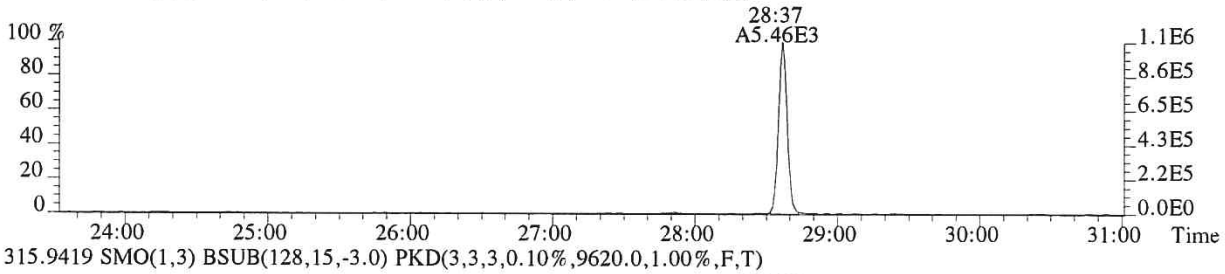
Office:(281)530-5656. Fax:(281)530-5887

File:P518965 #1-531 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

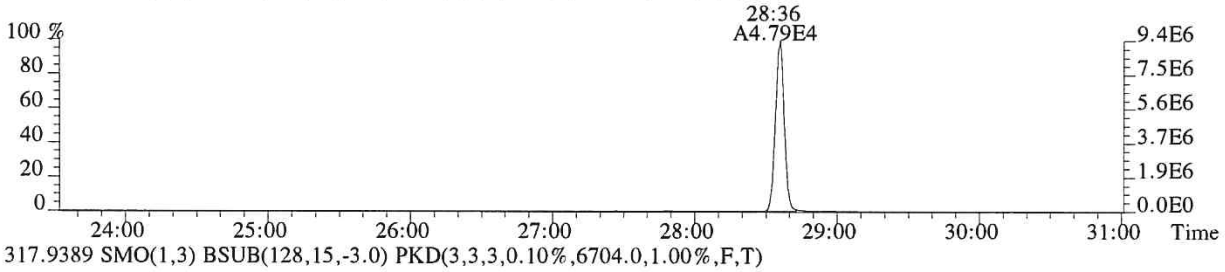
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



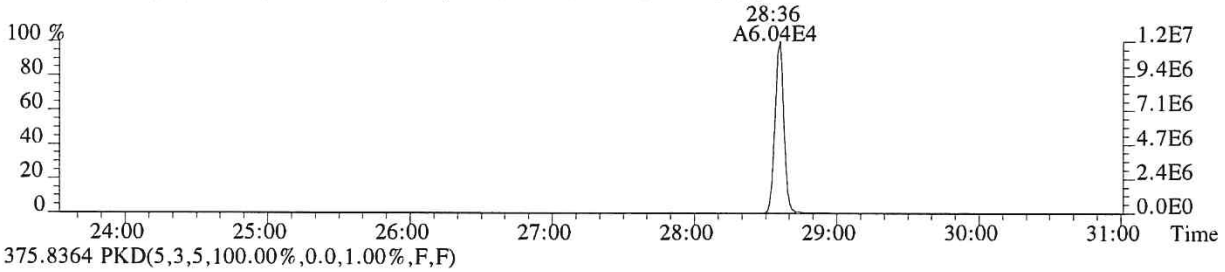
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



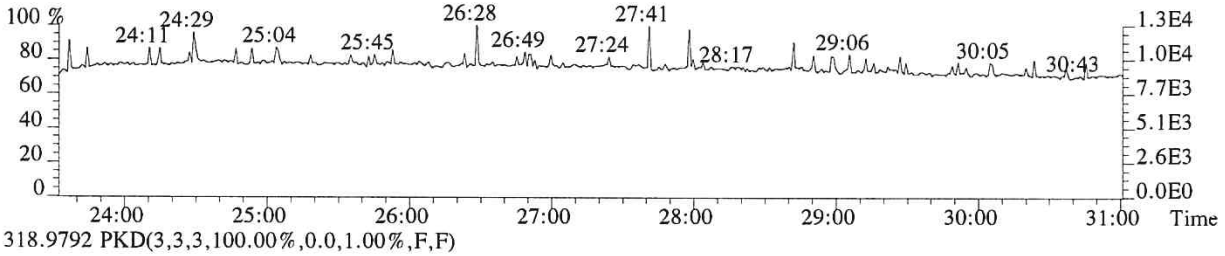
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9620.0,1.00%,F,T)



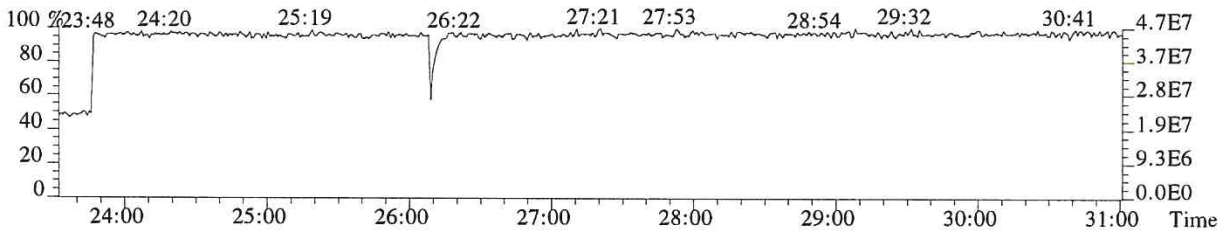
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6704.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

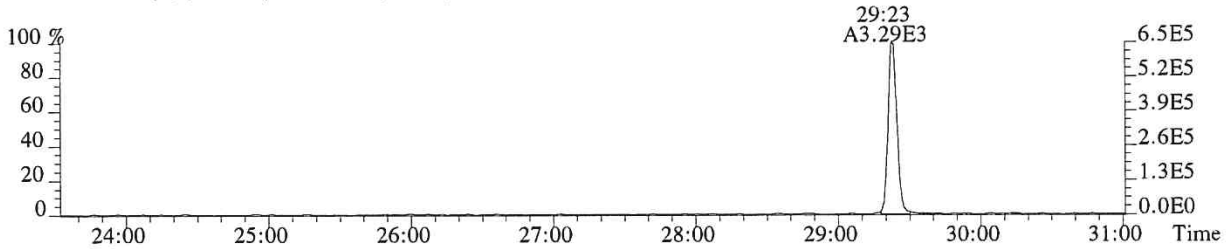


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

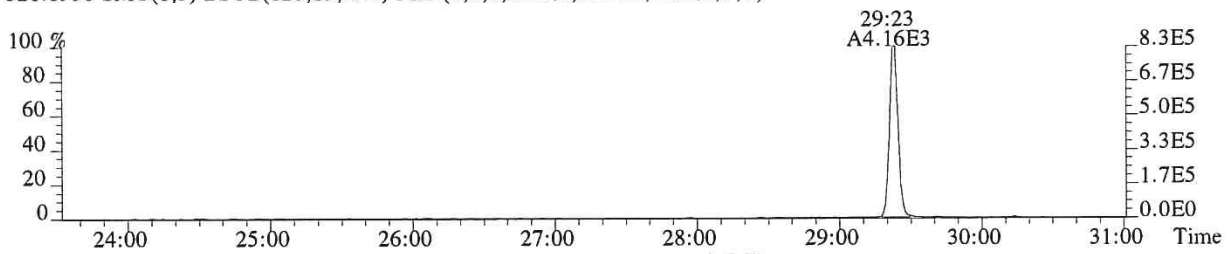


009189

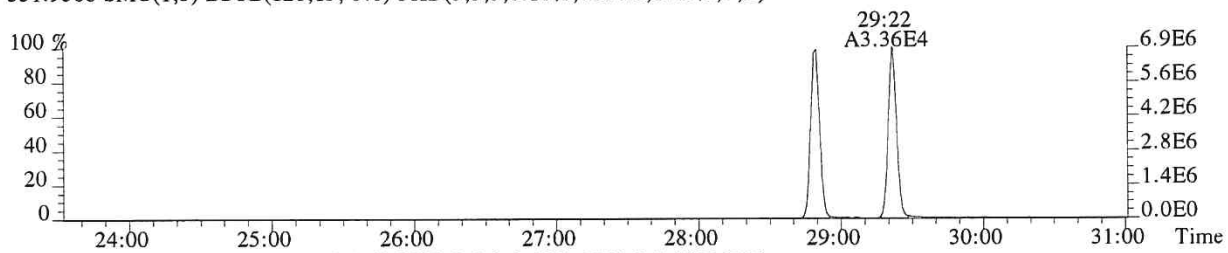
File:P518965 #1-531 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2440.0,1.00%,F,T)



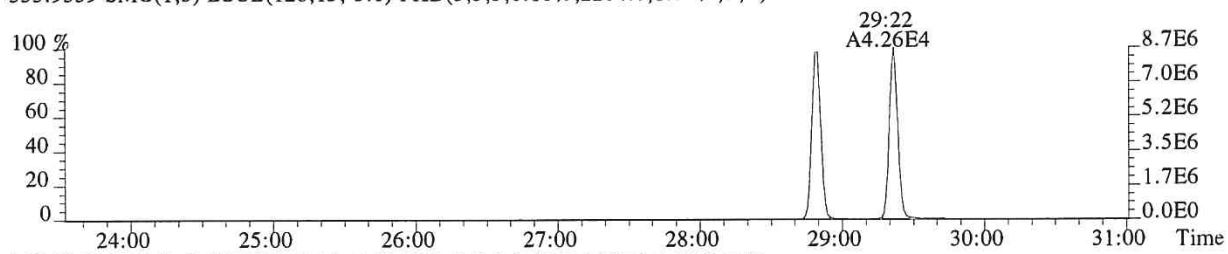
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



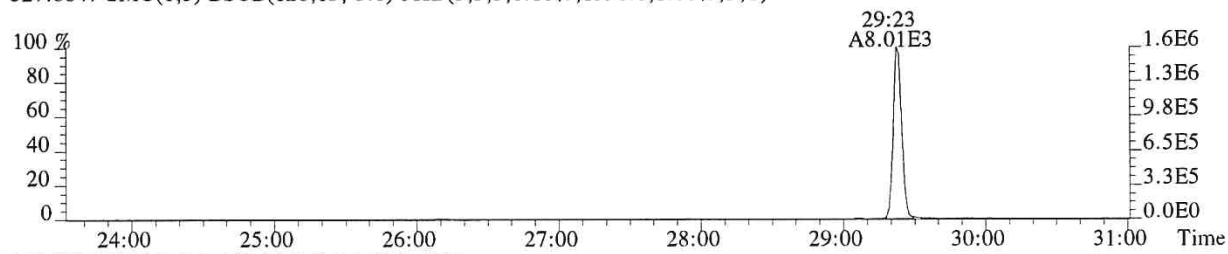
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7184.0,1.00%,F,T)



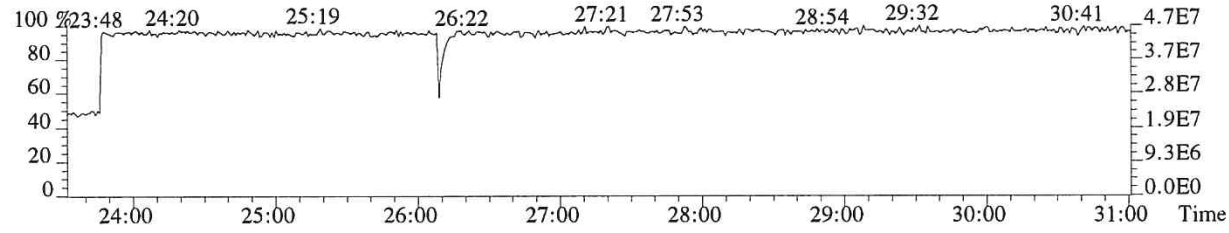
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1596.0,1.00%,F,T)

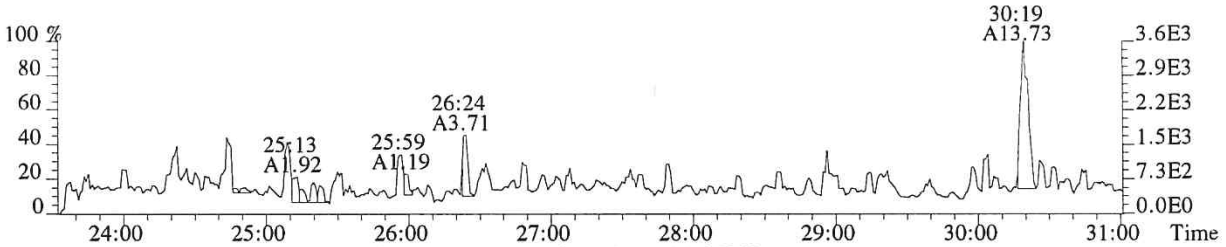


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

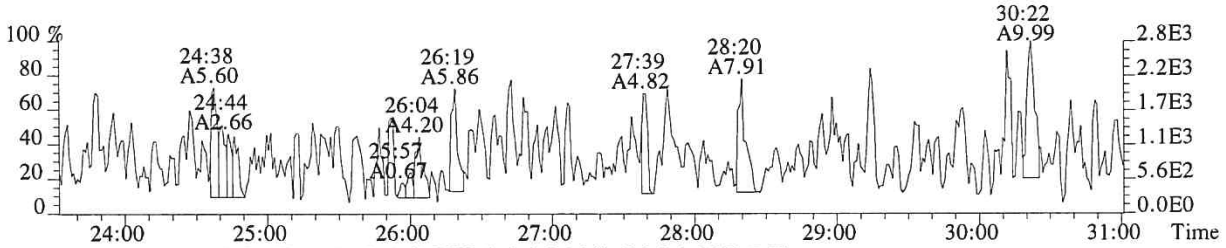


009190

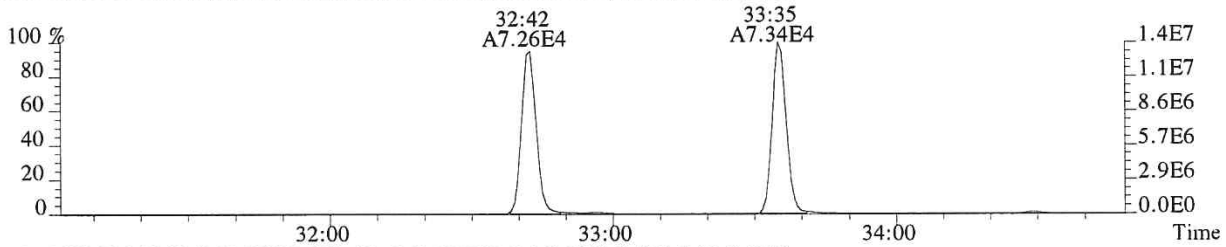
File:P518965 #1-531 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



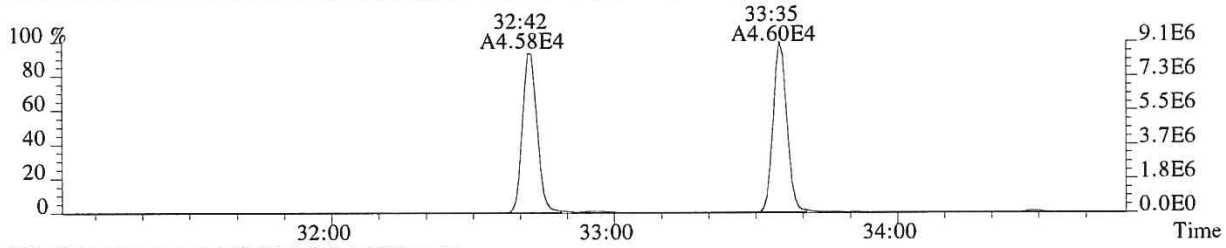
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



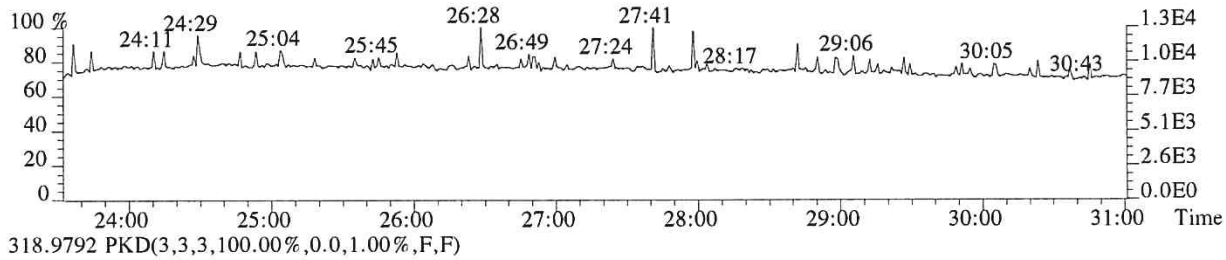
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



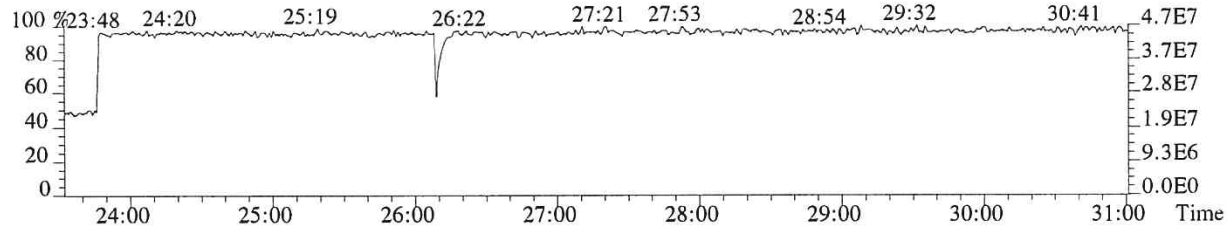
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



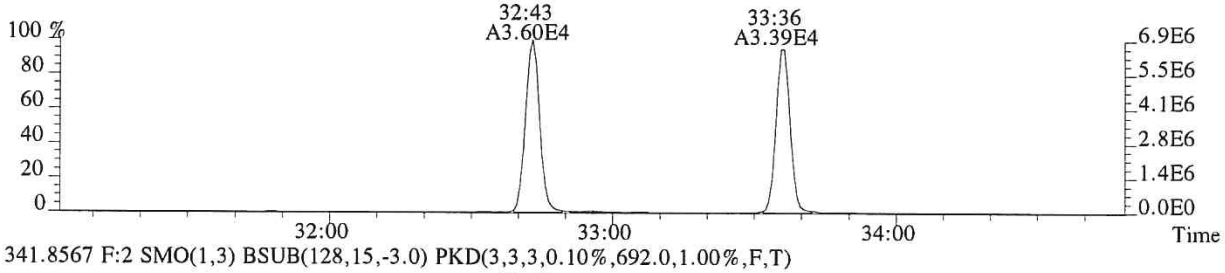
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



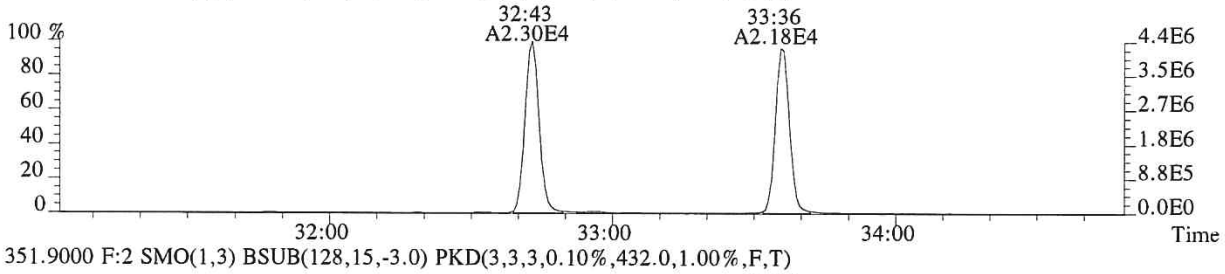
009191

File:P518965 #1-339 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

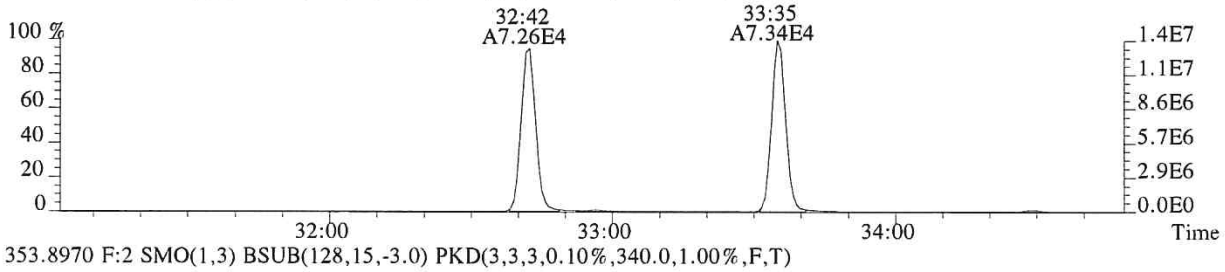
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



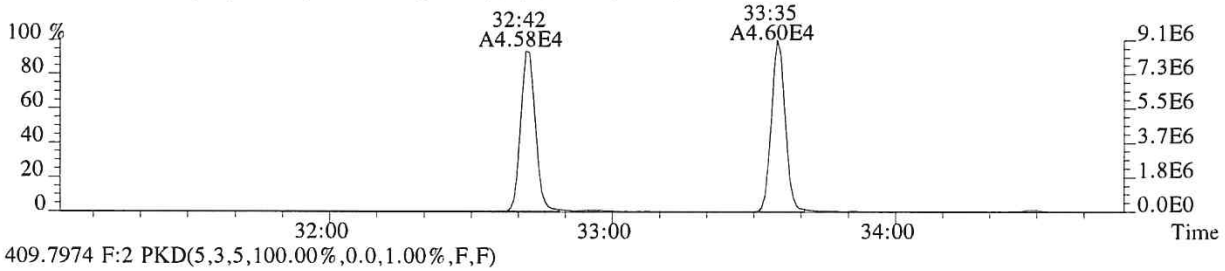
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



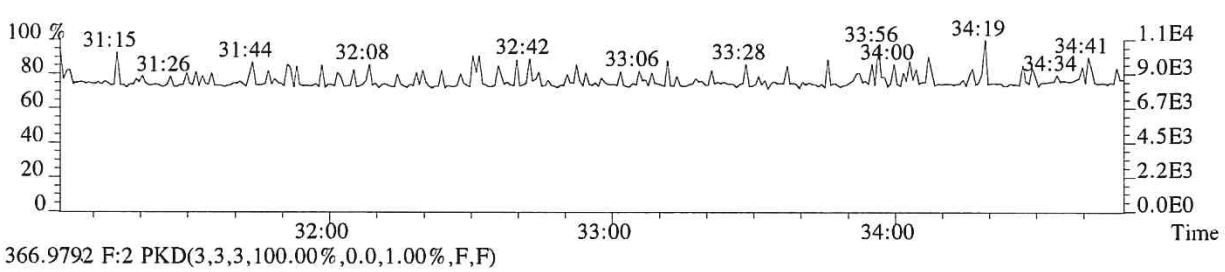
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



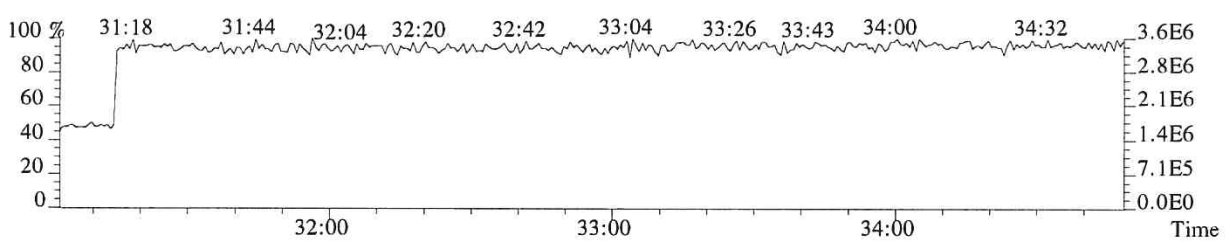
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

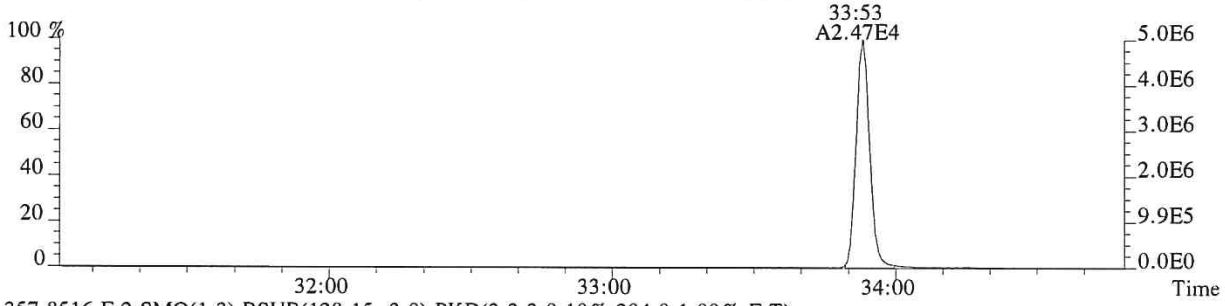


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

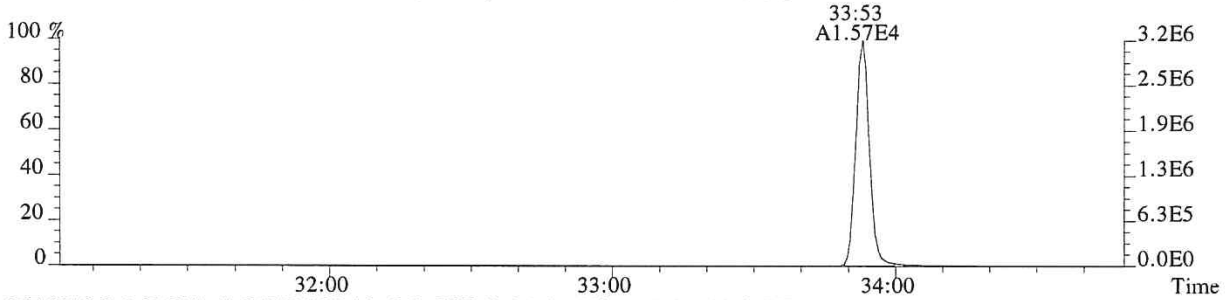


009192

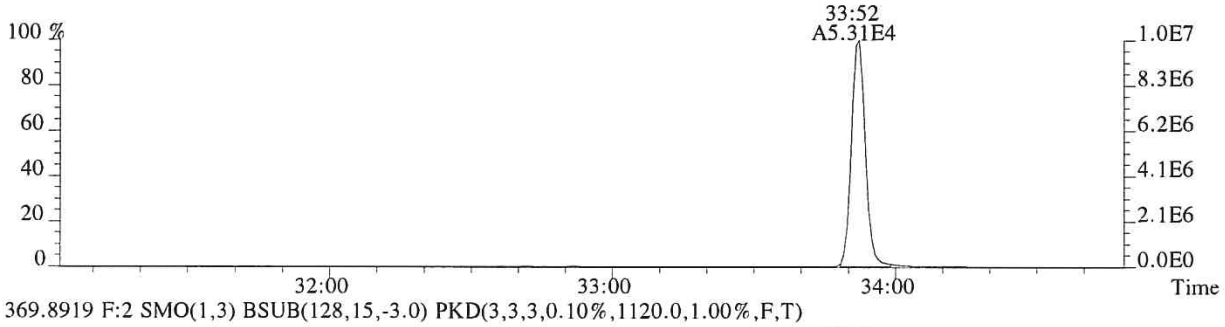
File:P518965 #1-339 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



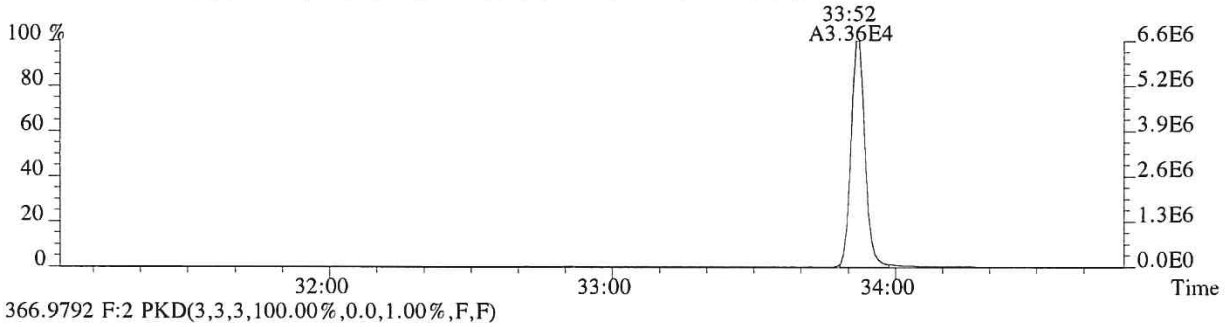
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



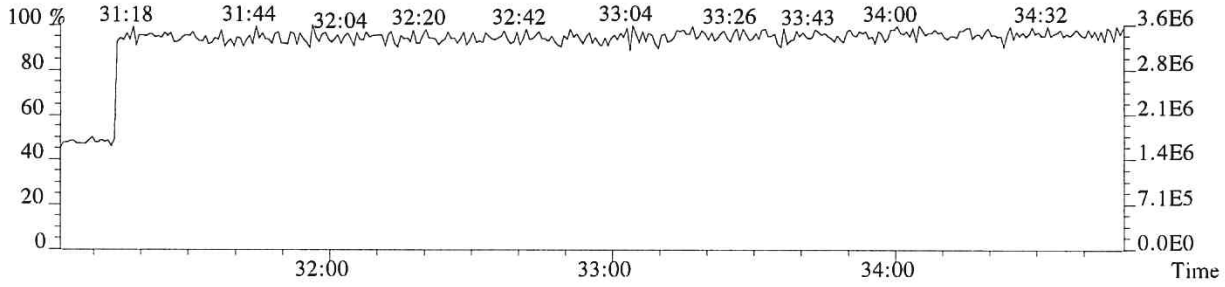
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)

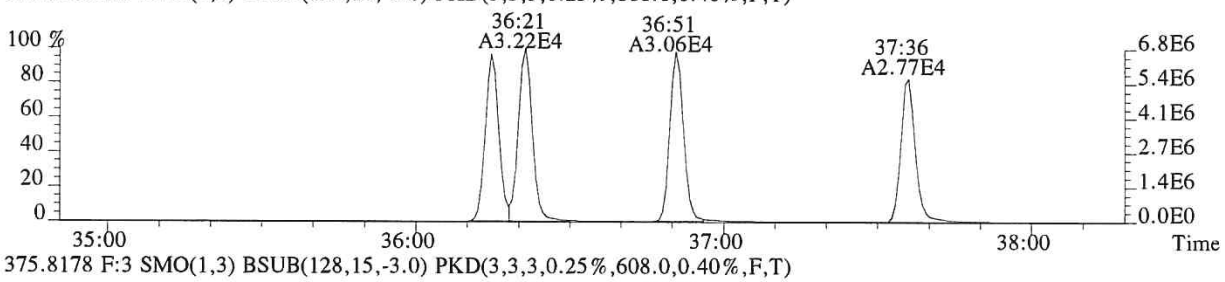


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

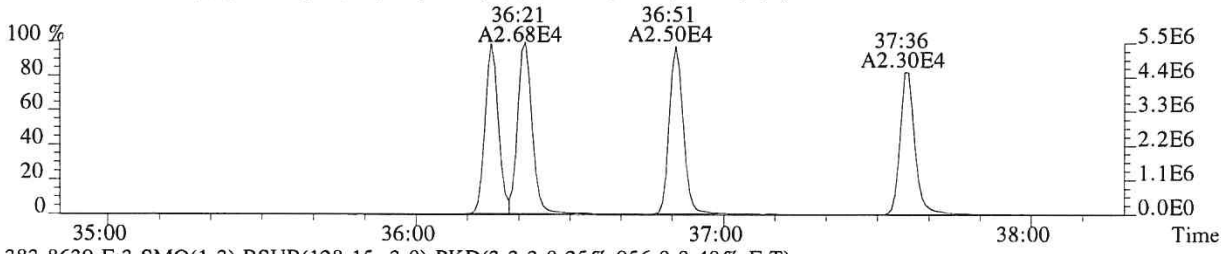


File:P518965 #1-312 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

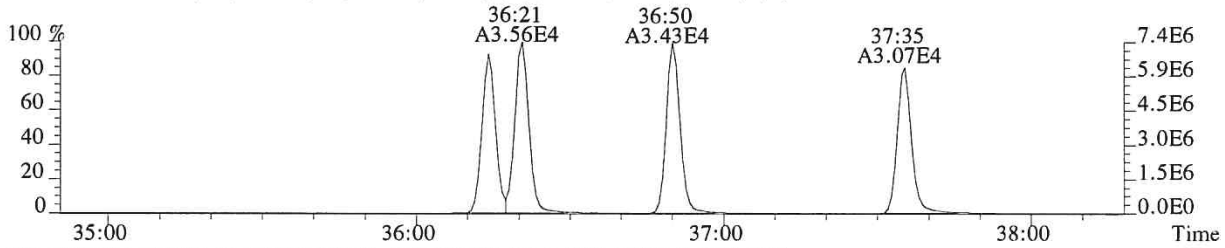
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



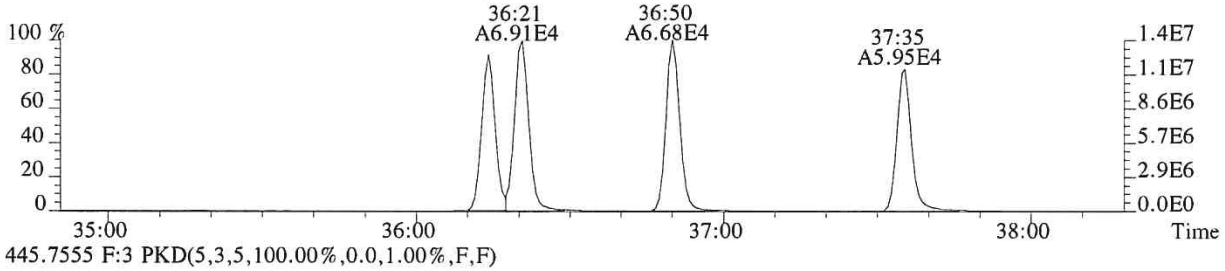
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



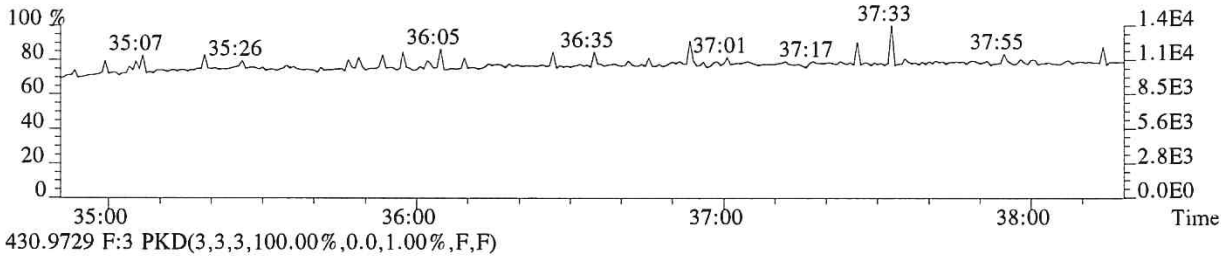
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



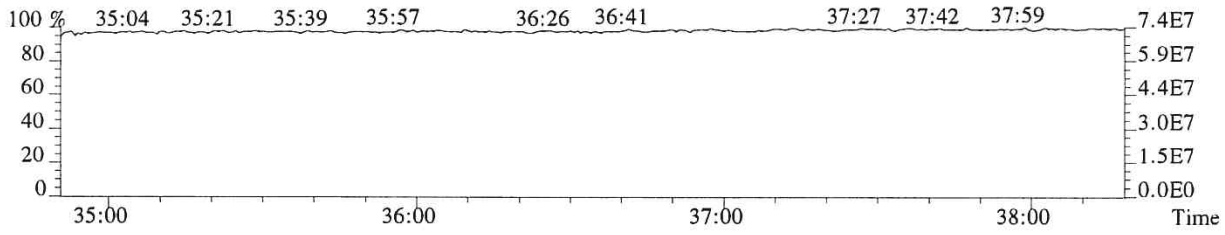
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

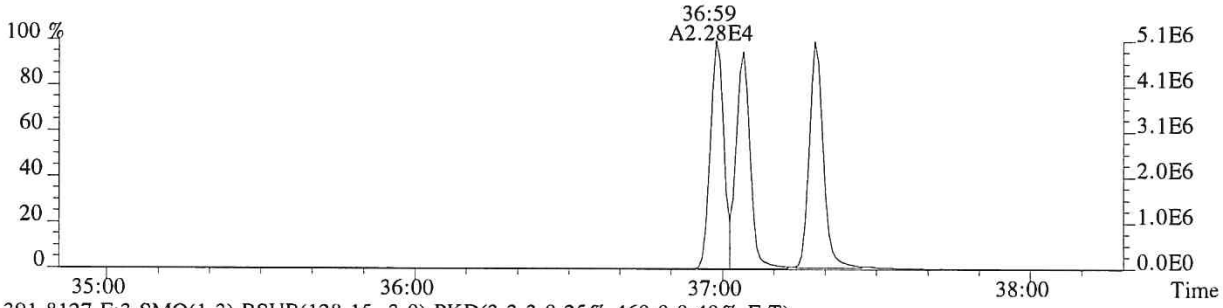


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

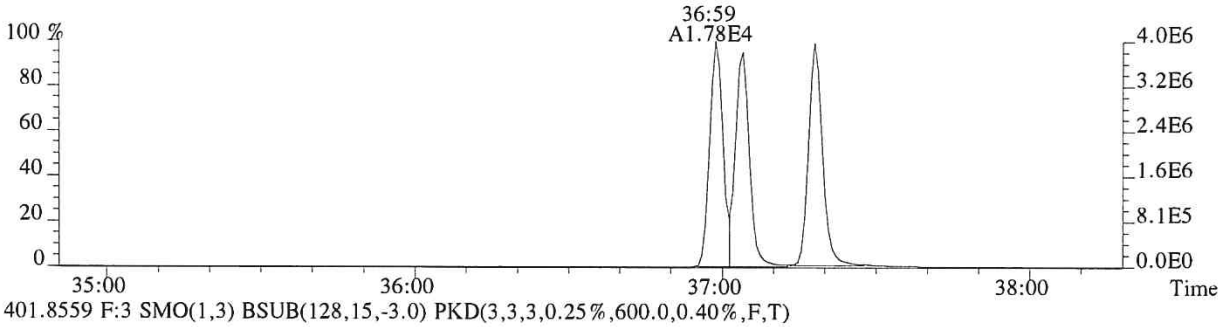


009194

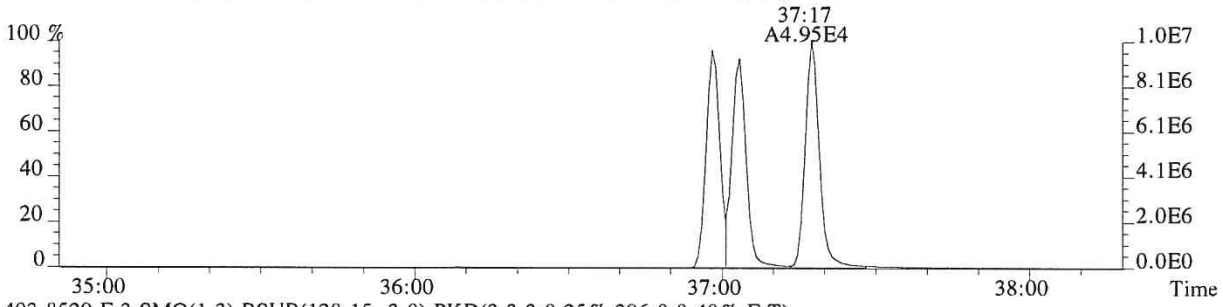
File:P518965 #1-312 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



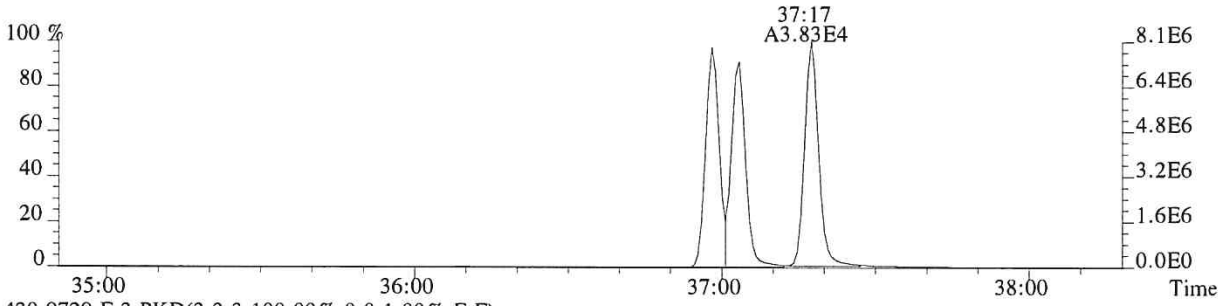
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



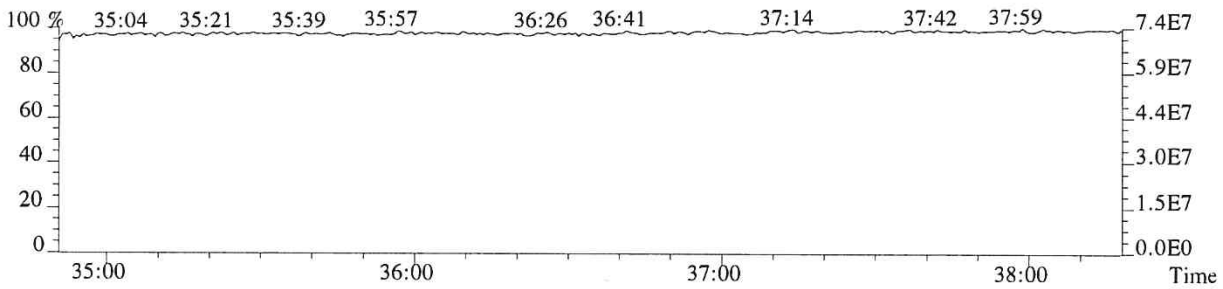
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)

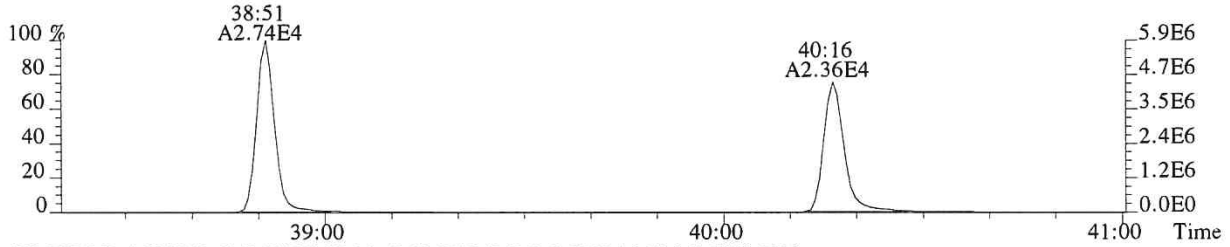


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

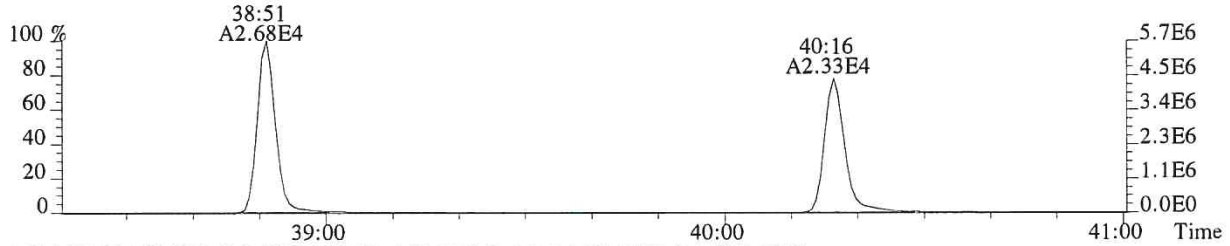


File:P518965 #1-241 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

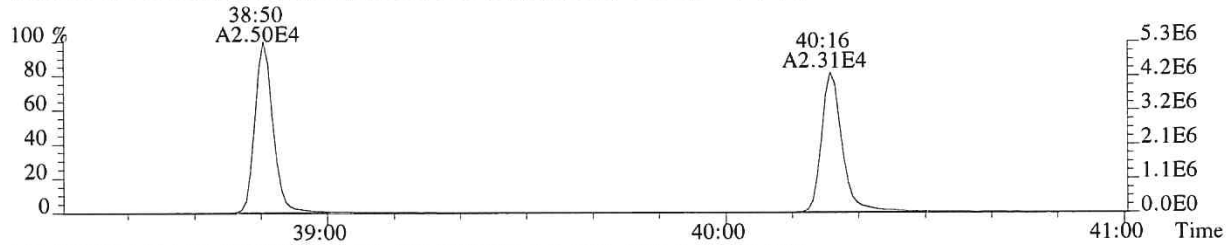
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1088.0,0.50%,F,T)



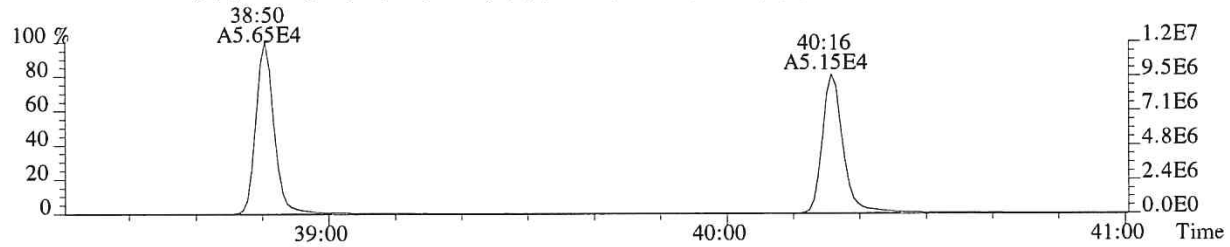
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



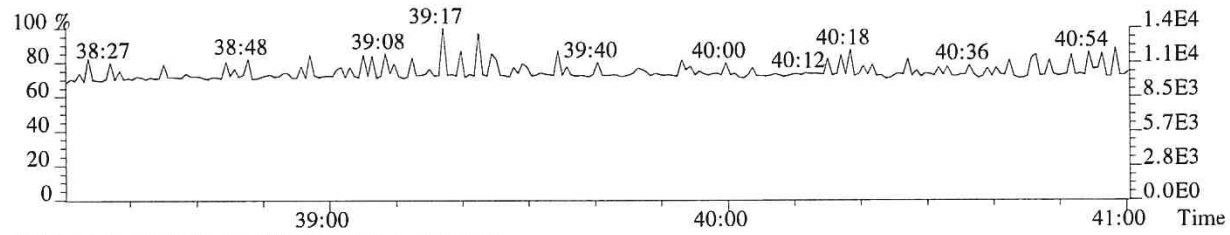
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3152.0,0.50%,F,T)



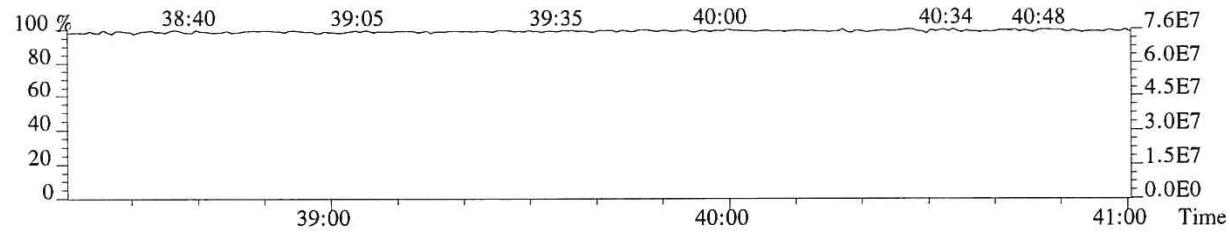
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4868.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

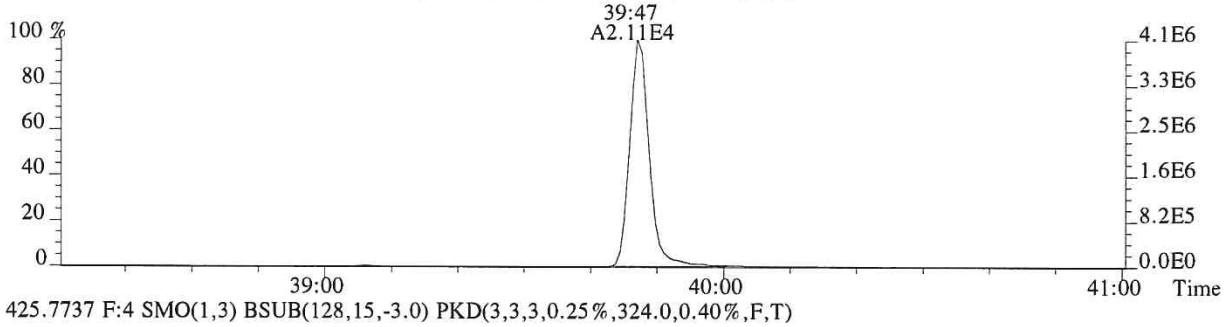


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

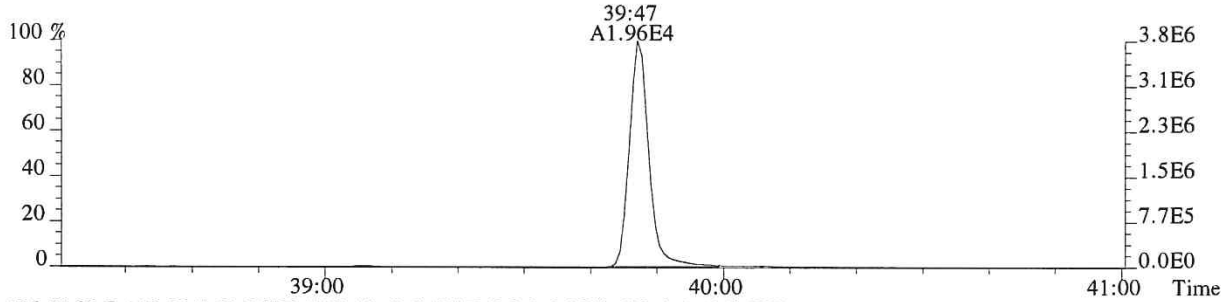


009196

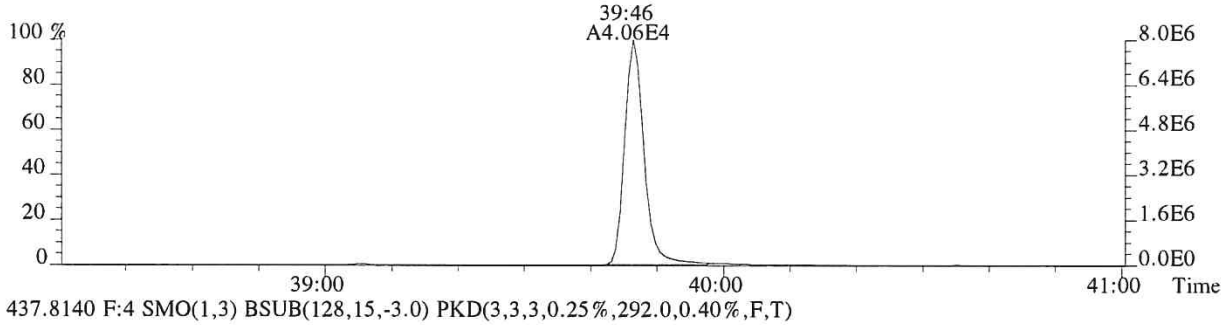
File:P518965 #1-241 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



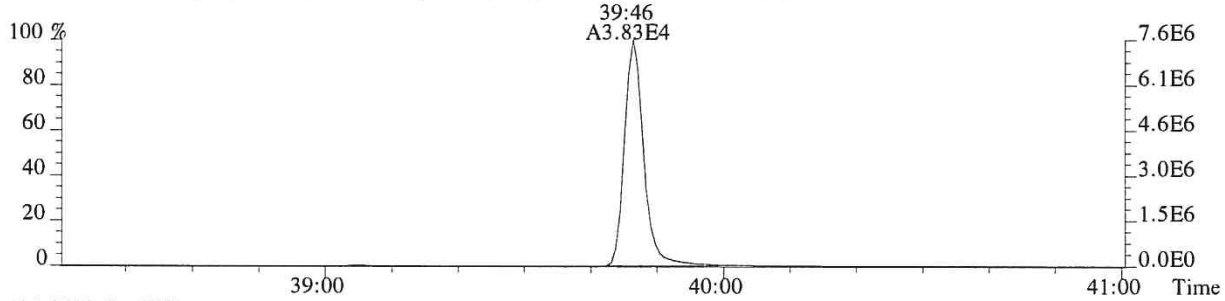
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



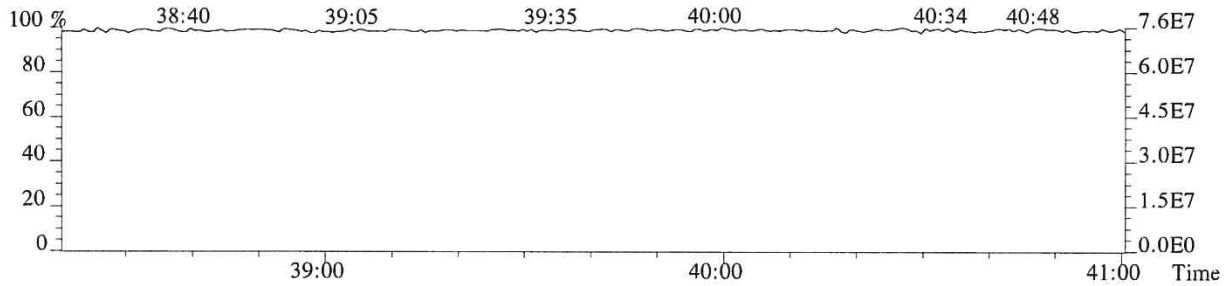
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)

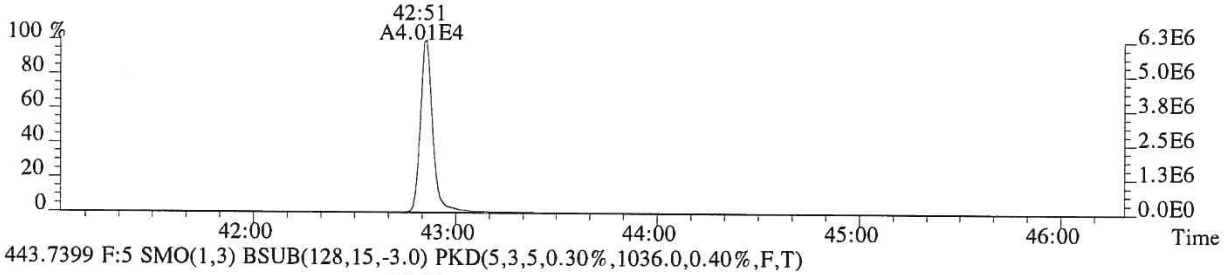


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

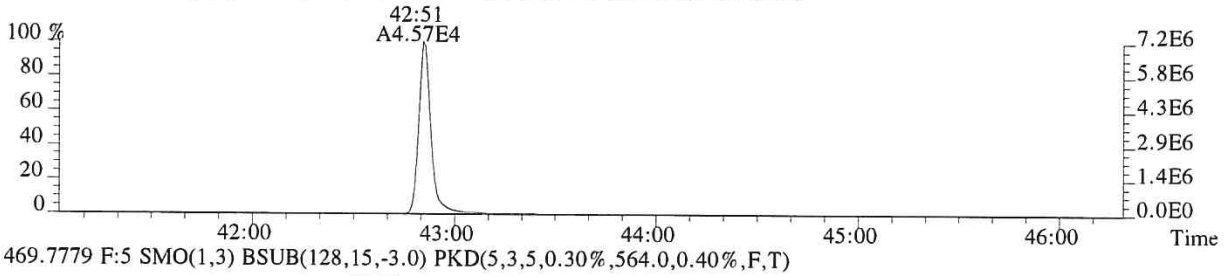


File:P518965 #1-475 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

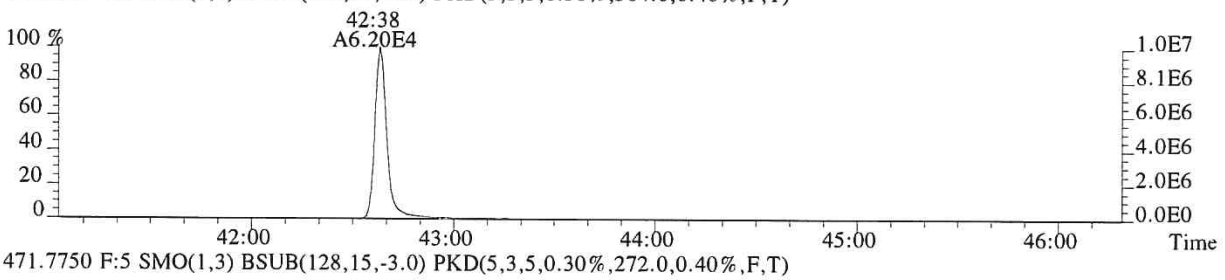
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



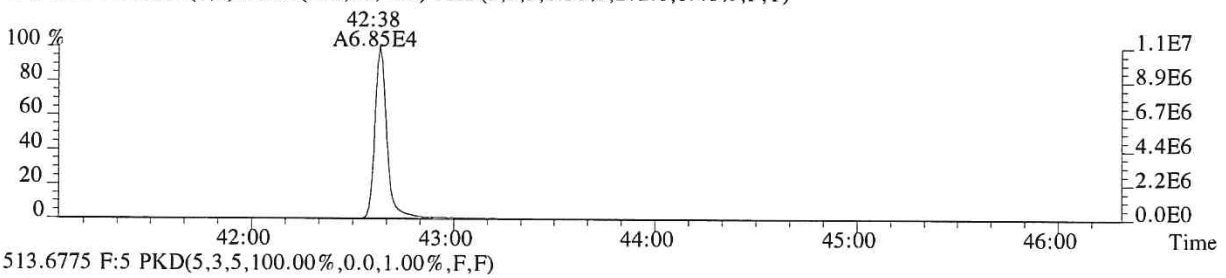
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1036.0,0.40%,F,T)



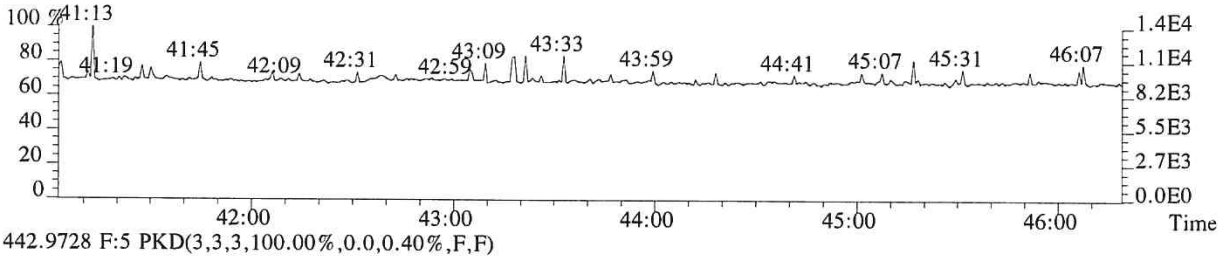
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



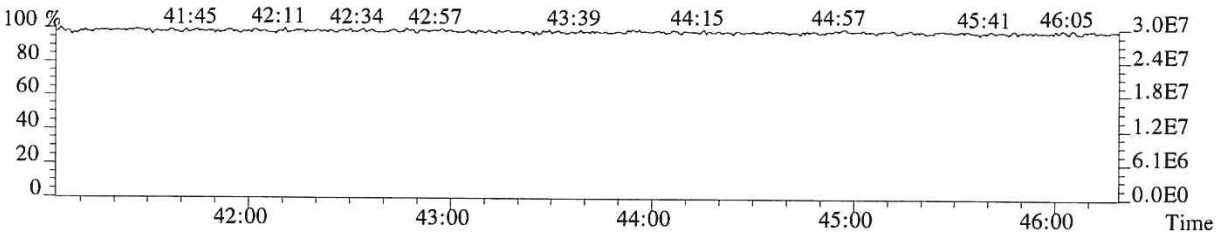
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



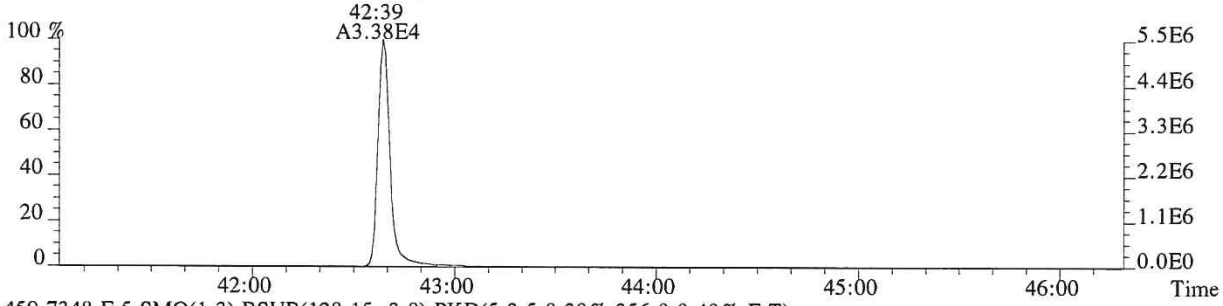
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



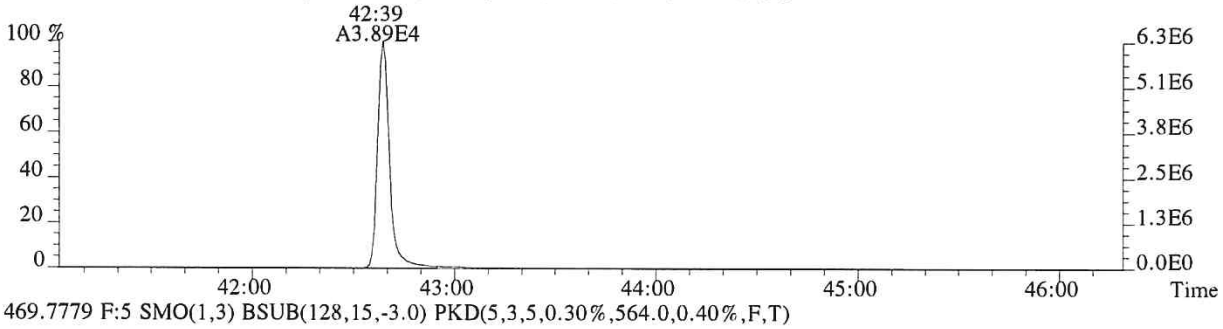
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



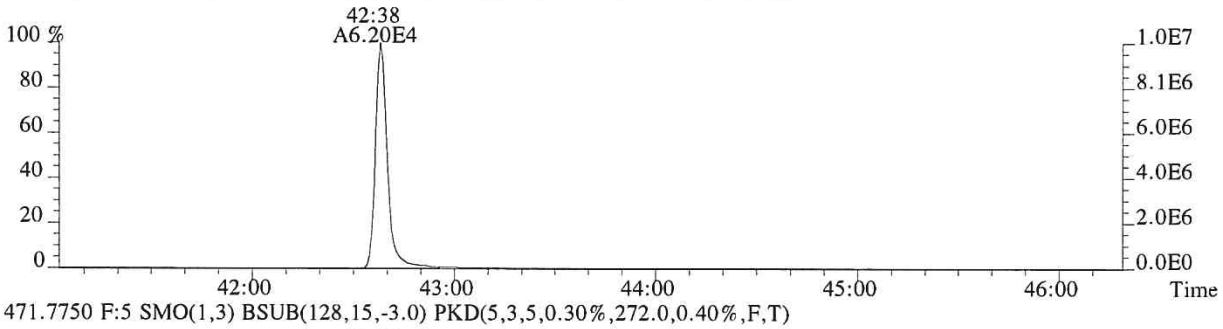
File:P518965 #1-475 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



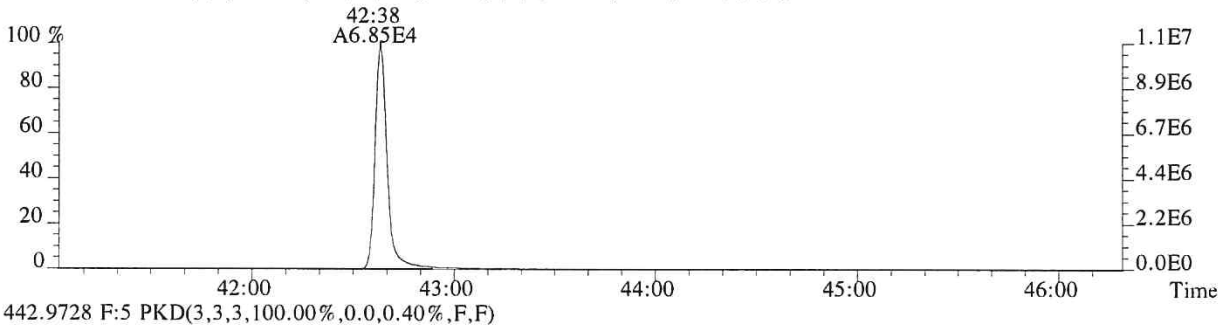
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



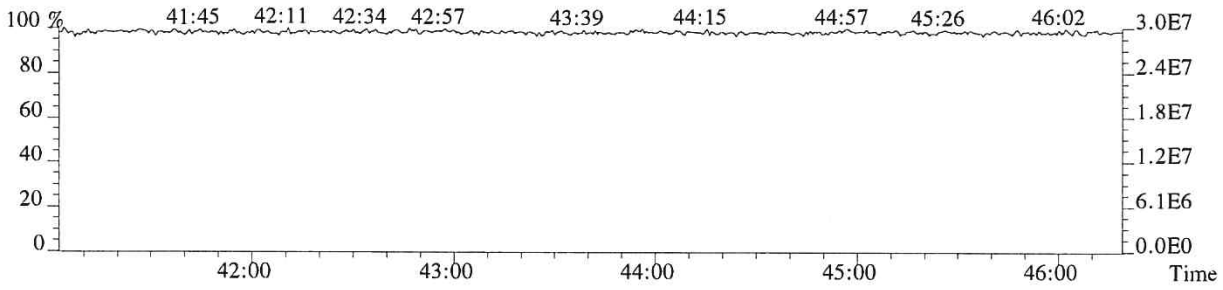
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P615674 - P615685

Date: 11/21/18 - 11/22/18

Circle one: Beginning / Ending

Method: (1613) / 1613E / (8290) / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	NA	NA
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DBC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: ALS-TX Case No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID:E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P615675	21-NOV-18	18:14:18
194503	CS3	P615674	21-NOV-18	17:25:15
194503	CS3	P615685	22-NOV-18	02:25:25
METHOD BLANK	EQ1800468-01	P615676	21-NOV-18	19:03:23
2348627001	E1801024-001	P615677	21-NOV-18	19:52:28
2348627002	E1801024-002	P615678	21-NOV-18	20:41:39
2348627003	E1801024-003	P615679	21-NOV-18	21:30:44
SL0072	E1801012-020DL	P615680	21-NOV-18	22:19:48
SL0084	E1801035-006DL	P615681	21-NOV-18	23:09:00
PRI5-002-SW-01	E1801003-001DL	P615682	21-NOV-18	23:58:05
PRI5-002-SW-01	E1801003-001	P615683	22-NOV-18	00:47:09

E1801012

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181121B.SPL
Last Modified: Monday, November 26, 2018 06:38:15 Central Standard Time
Printed: Monday, November 26, 2018 06:38:17 Central Standard Time

Page Position (1, 1)

OPUS-T: P615674 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/21/18	17:25	P615674	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	ithischeck16:32
2		18:14	P615675	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		19:03	P615676	EQ1800468-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		19:52	P615677	E1801024-001	E1801024-001	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		20:41	P615678	E1801024-002	E1801024-002	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		21:30	P615679	E1801024-003	E1801024-003	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		22:19	P615680	E1801012-020DL	E1801012-020DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		23:09	P615681	E1801035-006DL	E1801035-006DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		23:58	P615682	E1801003-001DL	E1801003-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10	11/22/18	00:47	P615683	E1801003-001	E1801003-001	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		-	P615684	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		02:25	P615685	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:12		ithischeck 04:19
13		03:22	P615686	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:13		not used
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

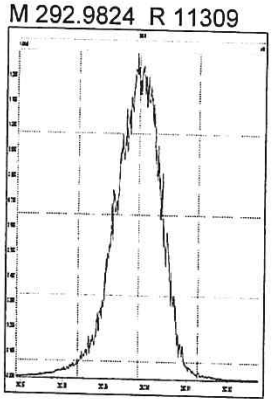
JC 11/26/18

611 of 916

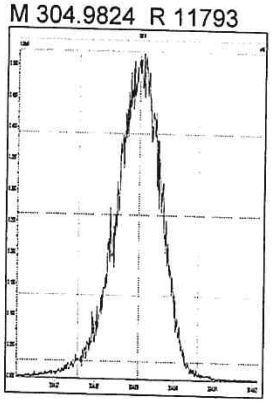
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 16:32:21 Central Standard Time

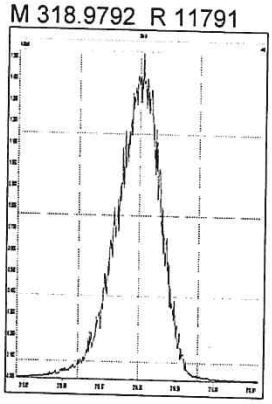
M 292.9824 R 11309



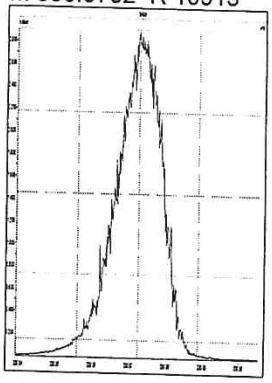
M 304.9824 R 11793



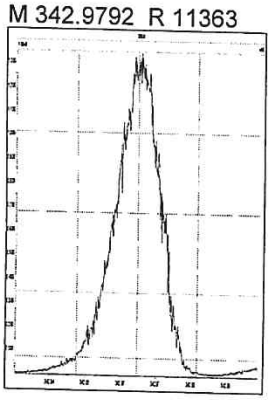
M 318.9792 R 11791



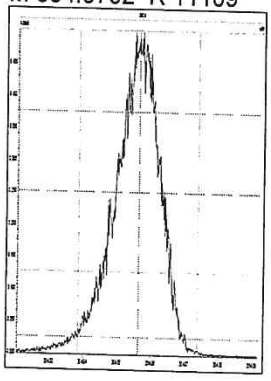
M 330.9792 R 10913



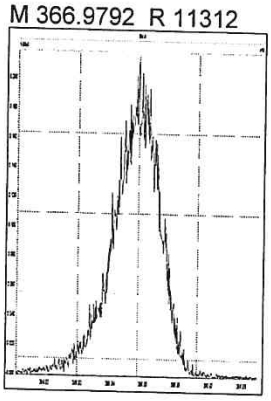
M 342.9792 R 11363



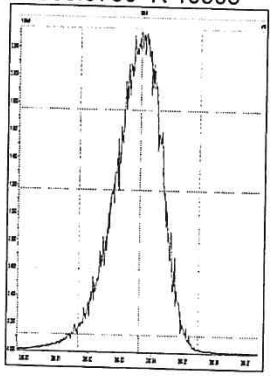
M 354.9792 R 11109



M 366.9792 R 11312



M 380.9760 R 10503

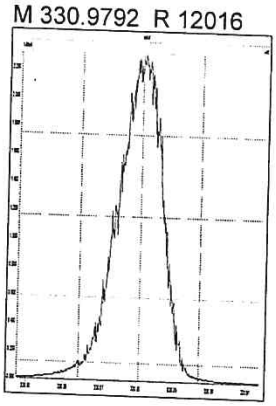


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

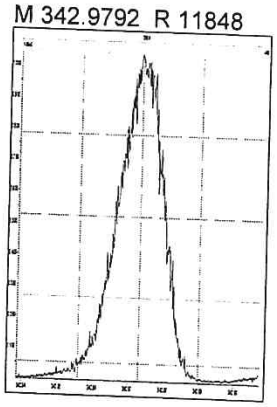
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 16:33:00 Central Standard Time

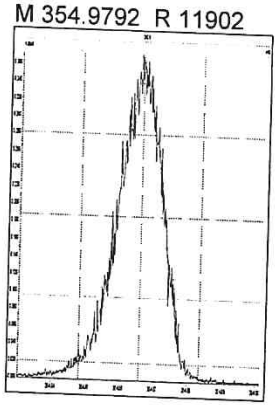
M 330.9792 R 12016



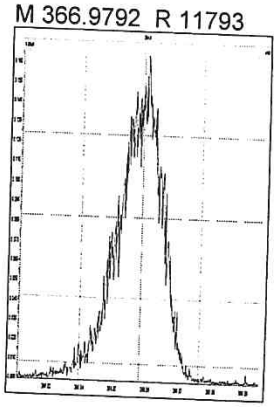
M 342.9792 R 11848



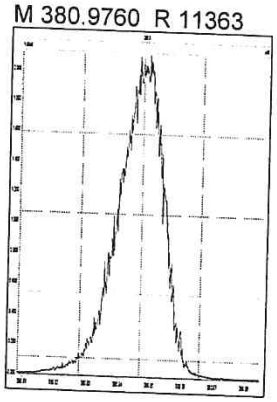
M 354.9792 R 11902



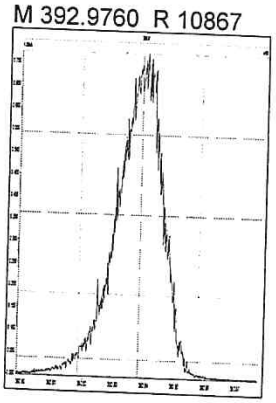
M 366.9792 R 11793



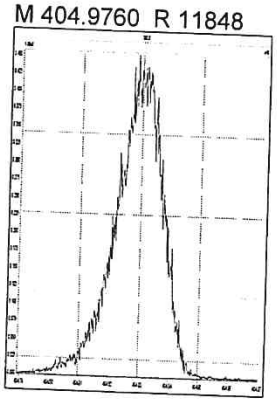
M 380.9760 R 11363



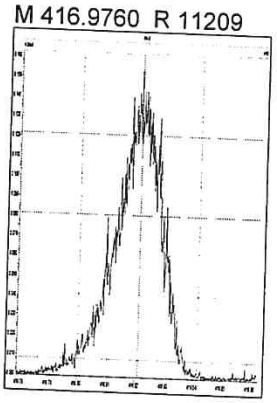
M 392.9760 R 10867



M 404.9760 R 11848



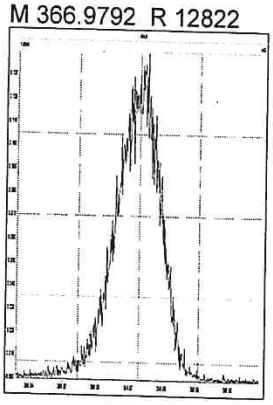
M 416.9760 R 11209



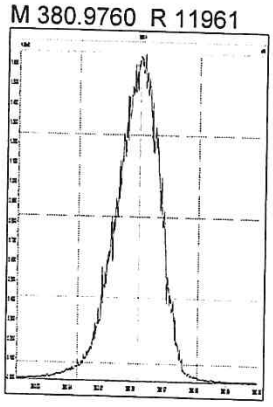
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 16:33:27 Central Standard Time

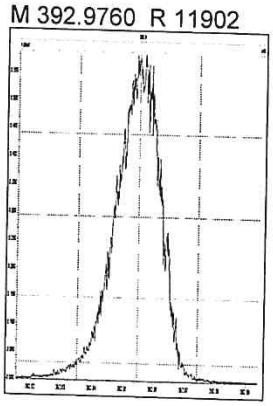
M 366.9792 R 12822



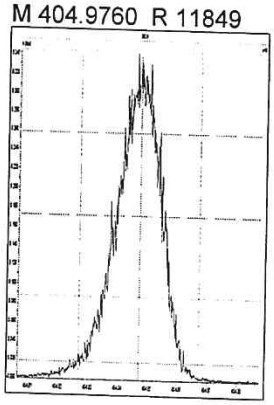
M 380.9760 R 11961



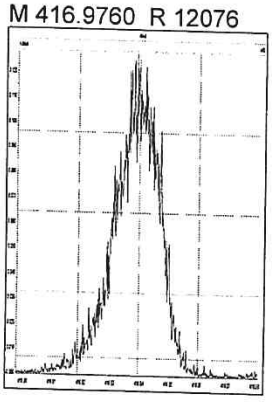
M 392.9760 R 11902



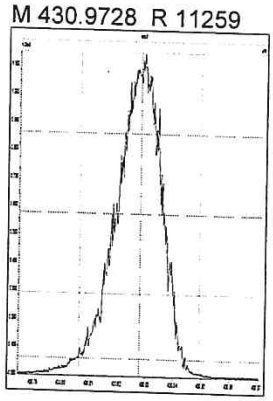
M 404.9760 R 11849



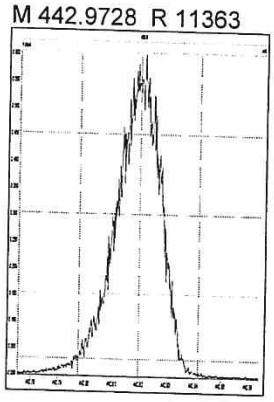
M 416.9760 R 12076



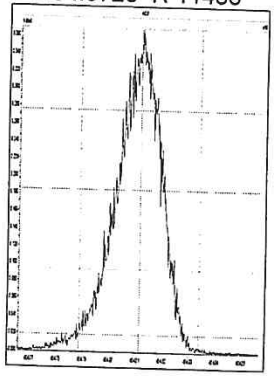
M 430.9728 R 11259



M 442.9728 R 11363



M 454.9728 R 11466



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

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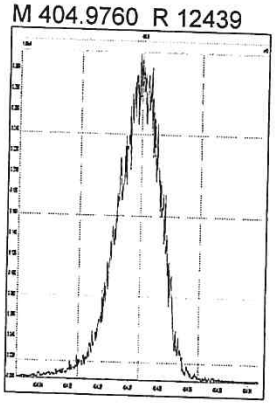
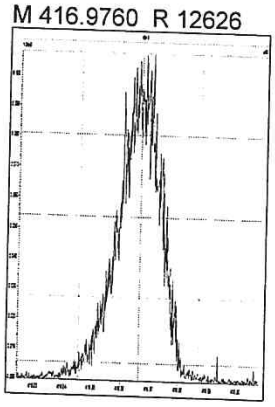
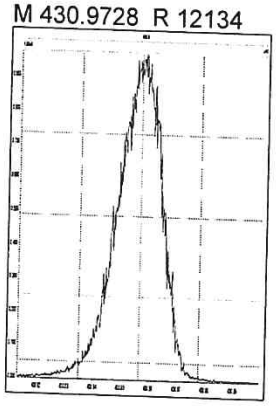
M 404.9760 R 12439



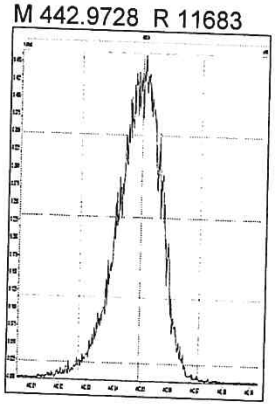
M 416.9760 R 12626



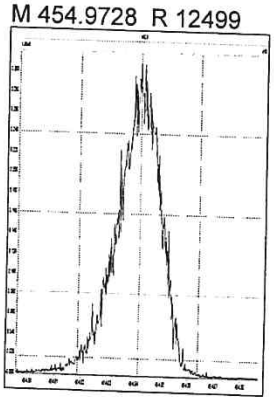
M 430.9728 R 12134



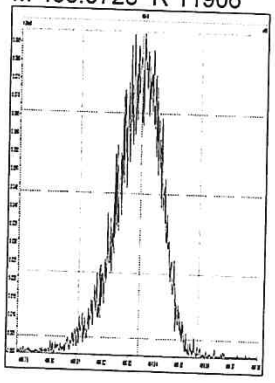
M 442.9728 R 11683



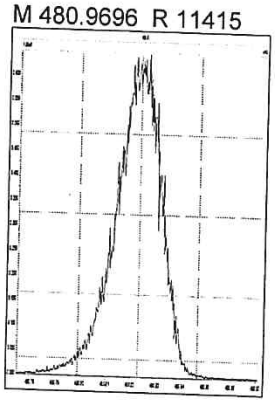
M 454.9728 R 12499



M 466.9728 R 11906



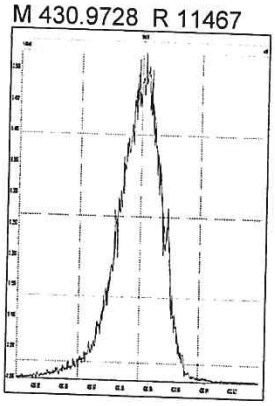
M 480.9696 R 11415



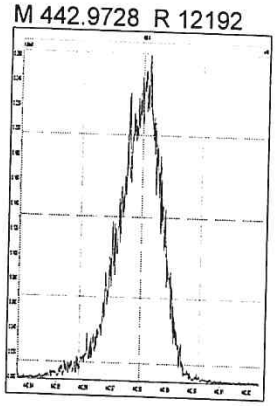
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 16:34:41 Central Standard Time

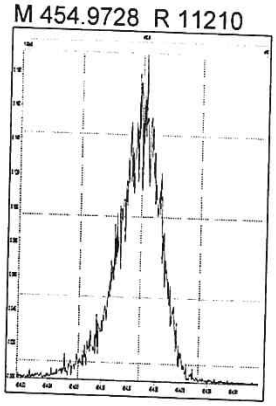
M 430.9728 R 11467



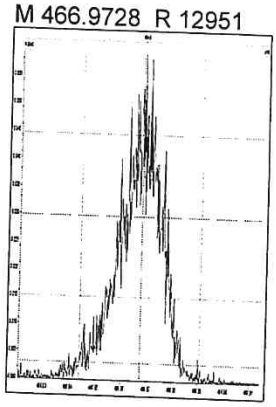
M 442.9728 R 12192



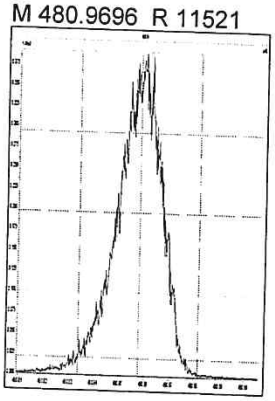
M 454.9728 R 11210



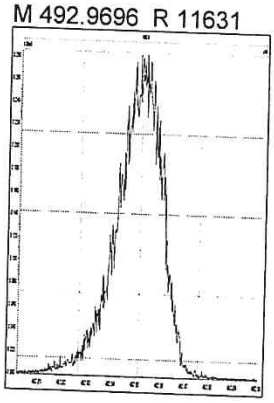
M 466.9728 R 12951



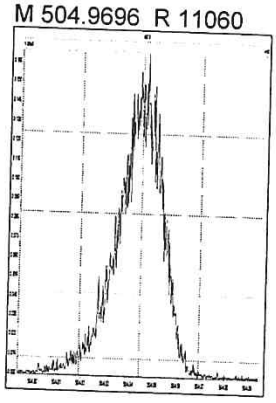
M 480.9696 R 11521



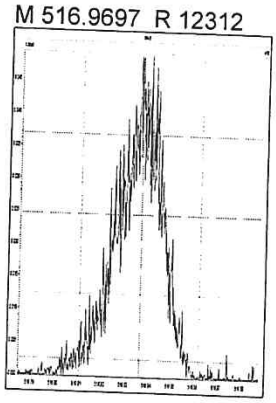
M 492.9696 R 11631



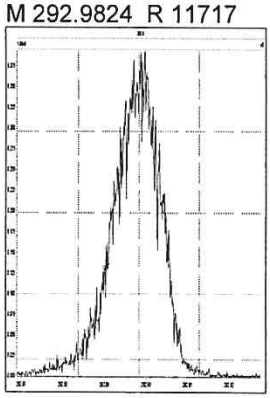
M 504.9696 R 11060



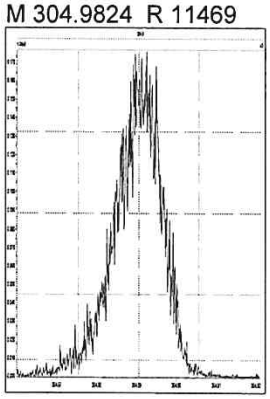
M 516.9697 R 12312



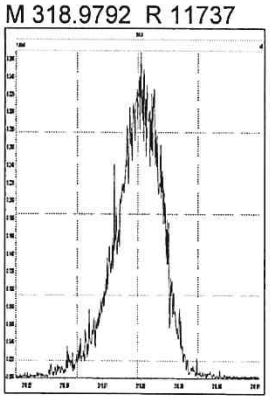
M 292.9824 R 11717



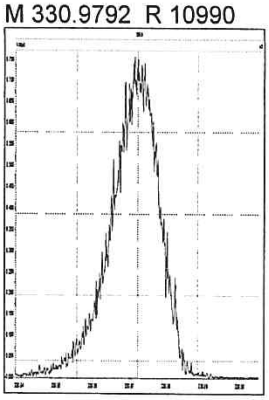
M 304.9824 R 11469



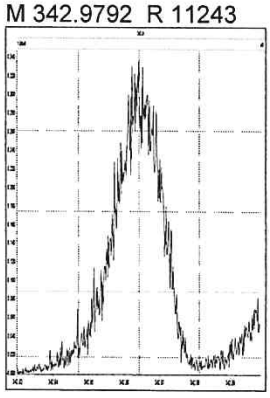
M 318.9792 R 11737



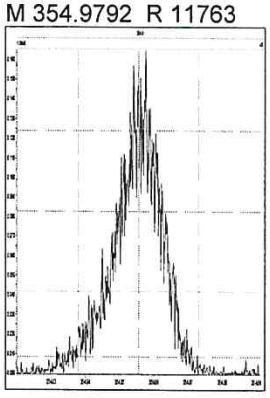
M 330.9792 R 10990



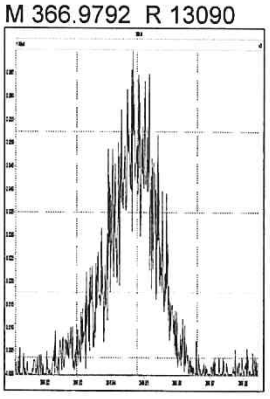
M 342.9792 R 11243



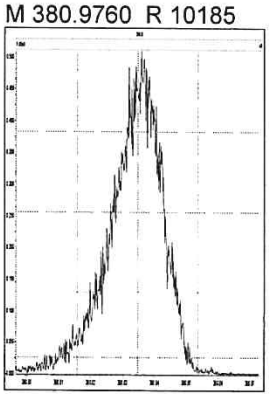
M 354.9792 R 11763



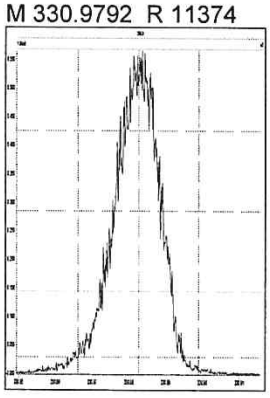
M 366.9792 R 13090



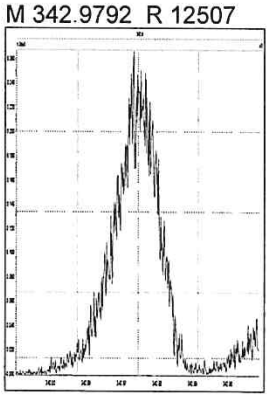
M 380.9760 R 10185



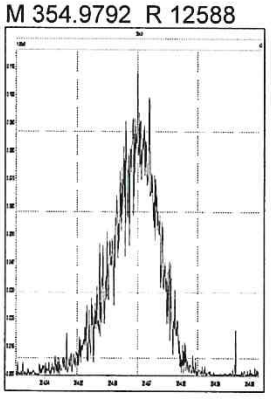
M 330.9792 R 11374



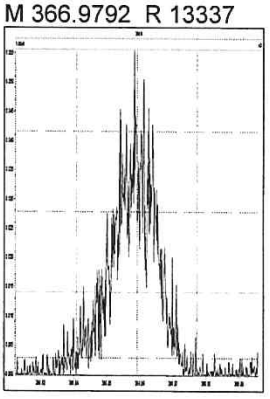
M 342.9792 R 12507



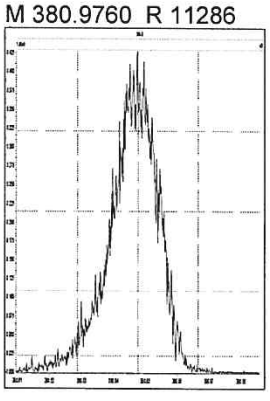
M 354.9792 R 12588



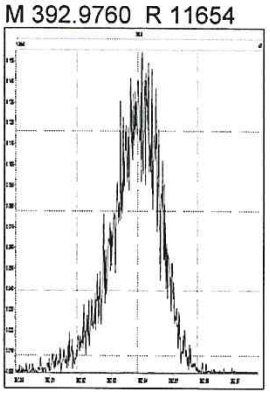
M 366.9792 R 13337



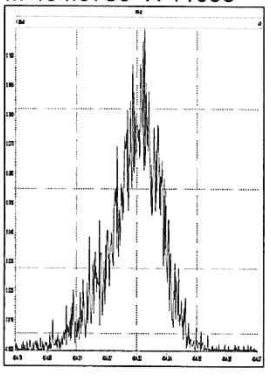
M 380.9760 R 11286



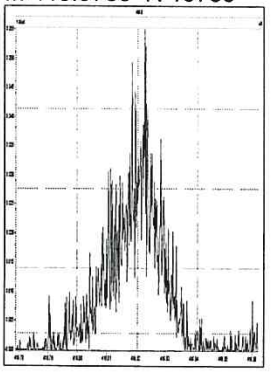
M 392.9760 R 11654



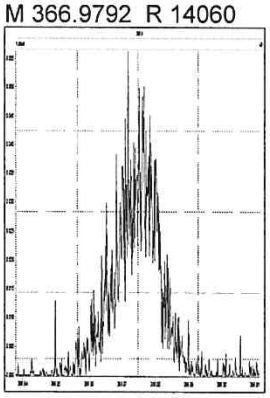
M 404.9760 R 11063



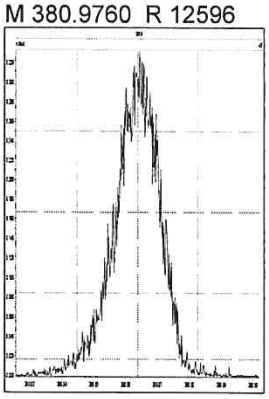
M 416.9760 R 15735



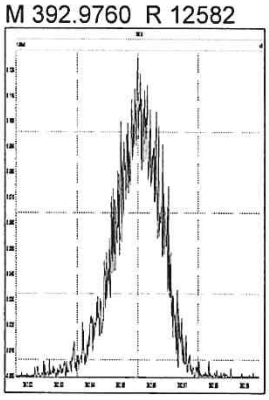
M 366.9792 R 14060



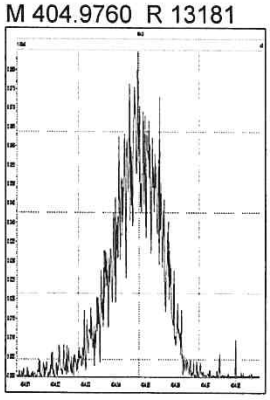
M 380.9760 R 12596



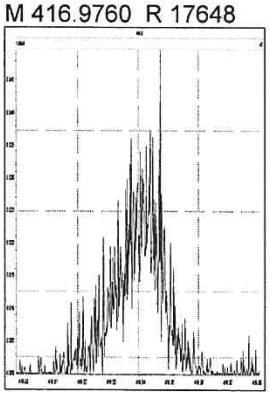
M 392.9760 R 12582



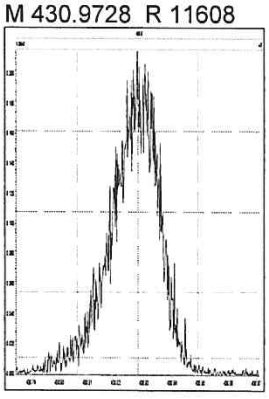
M 404.9760 R 13181



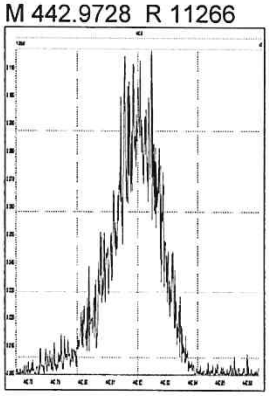
M 416.9760 R 17648



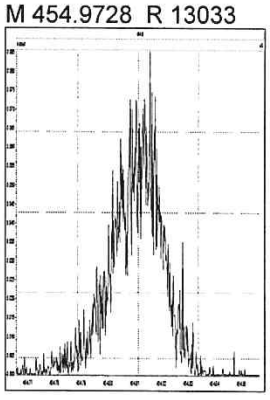
M 430.9728 R 11608



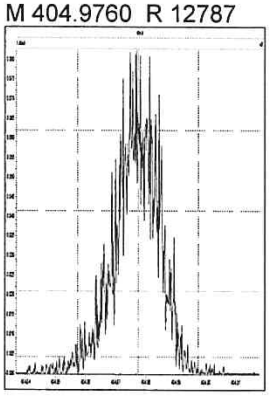
M 442.9728 R 11266



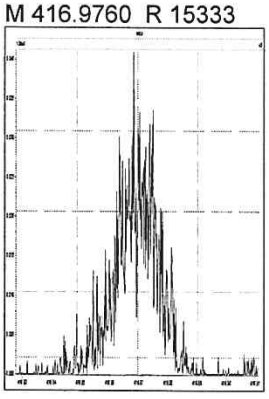
M 454.9728 R 13033



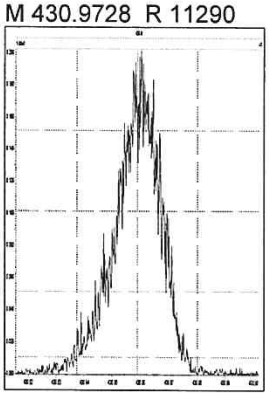
M 404.9760 R 12787



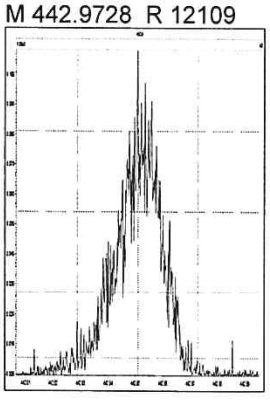
M 416.9760 R 15333



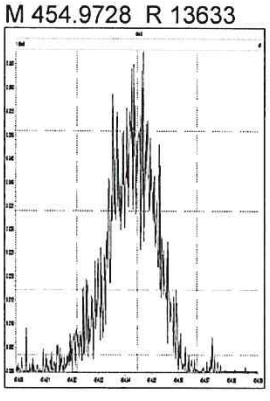
M 430.9728 R 11290



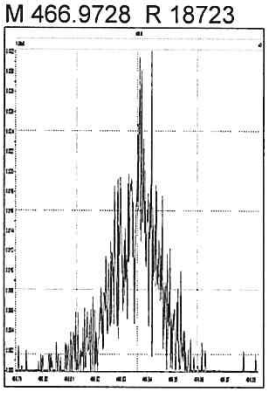
M 442.9728 R 12109



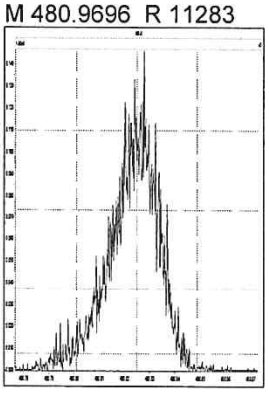
M 454.9728 R 13633



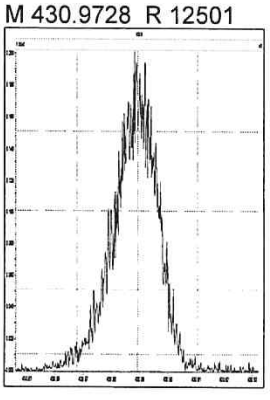
M 466.9728 R 18723



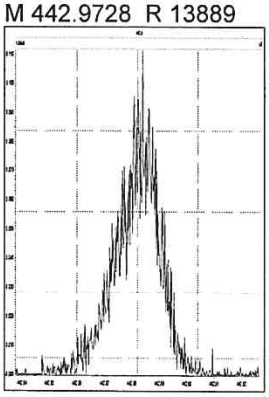
M 480.9696 R 11283



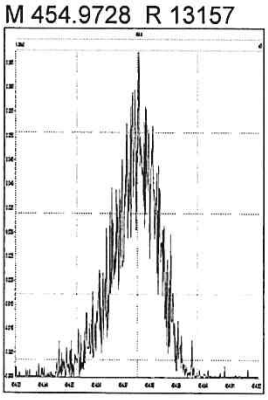
M 430.9728 R 12501



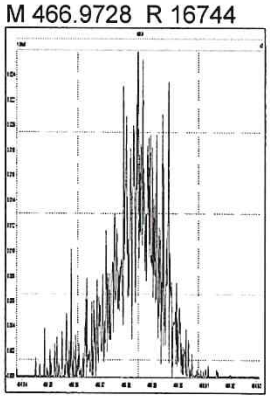
M 442.9728 R 13889



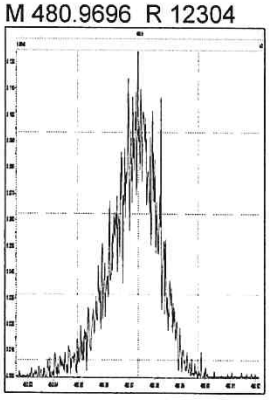
M 454.9728 R 13157



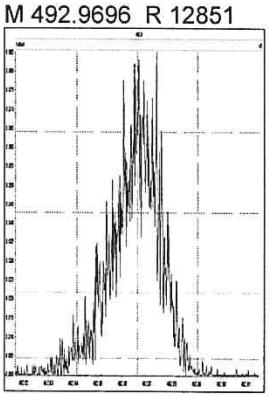
M 466.9728 R 16744



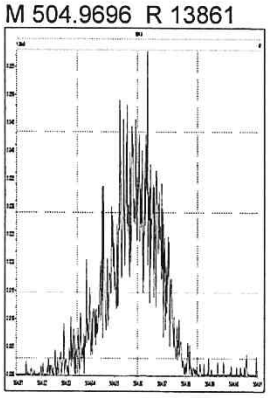
M 480.9696 R 12304



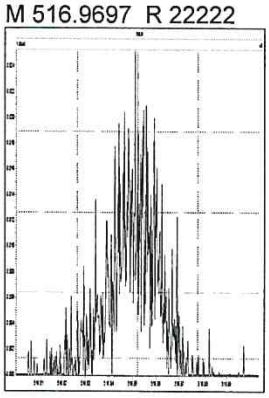
M 492.9696 R 12851



M 504.9696 R 13861



M 516.9697 R 22222



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

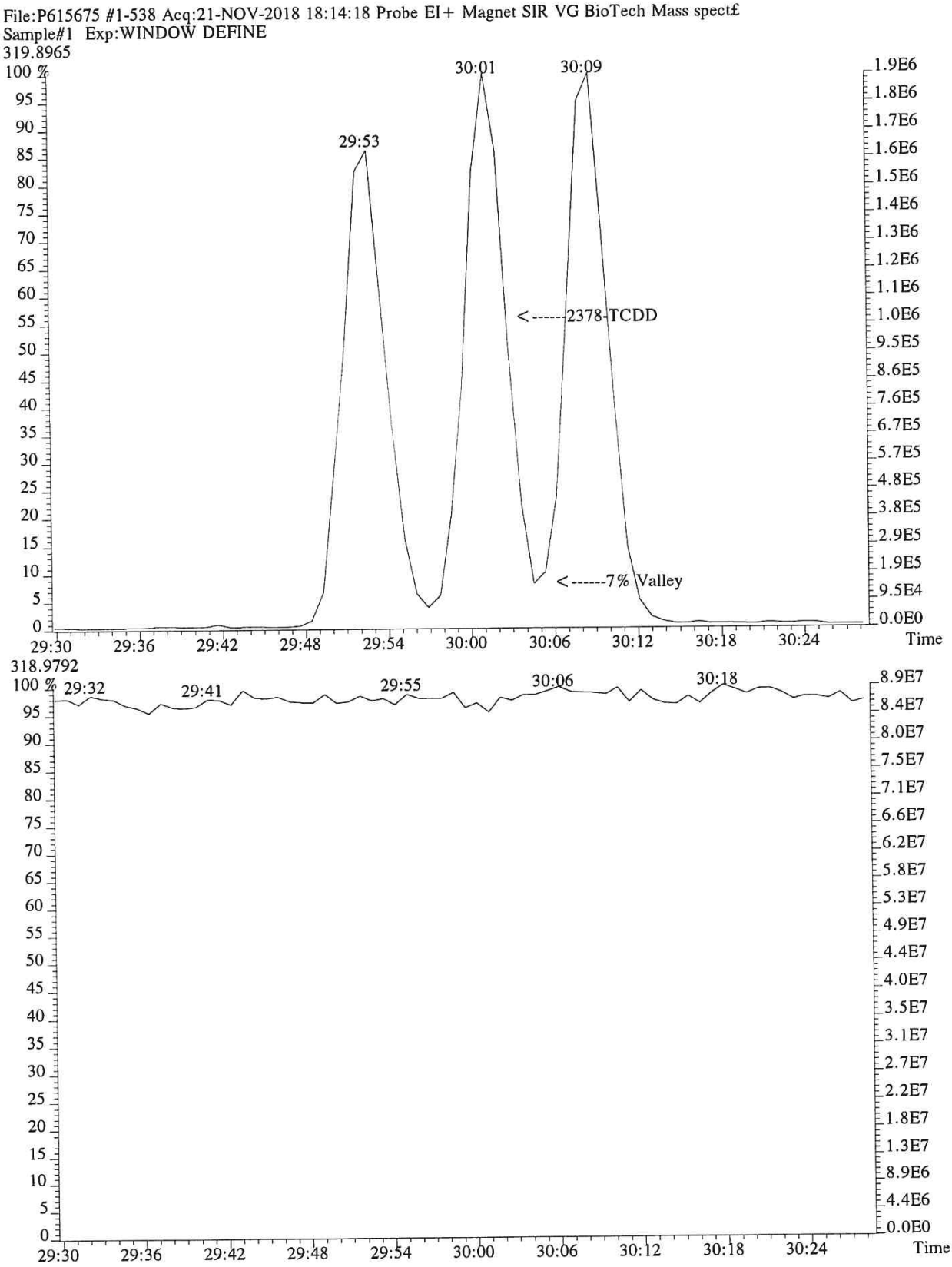
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P615675
Date Analyzed: 21-NOV-18
Time Analyzed: 18:14:18

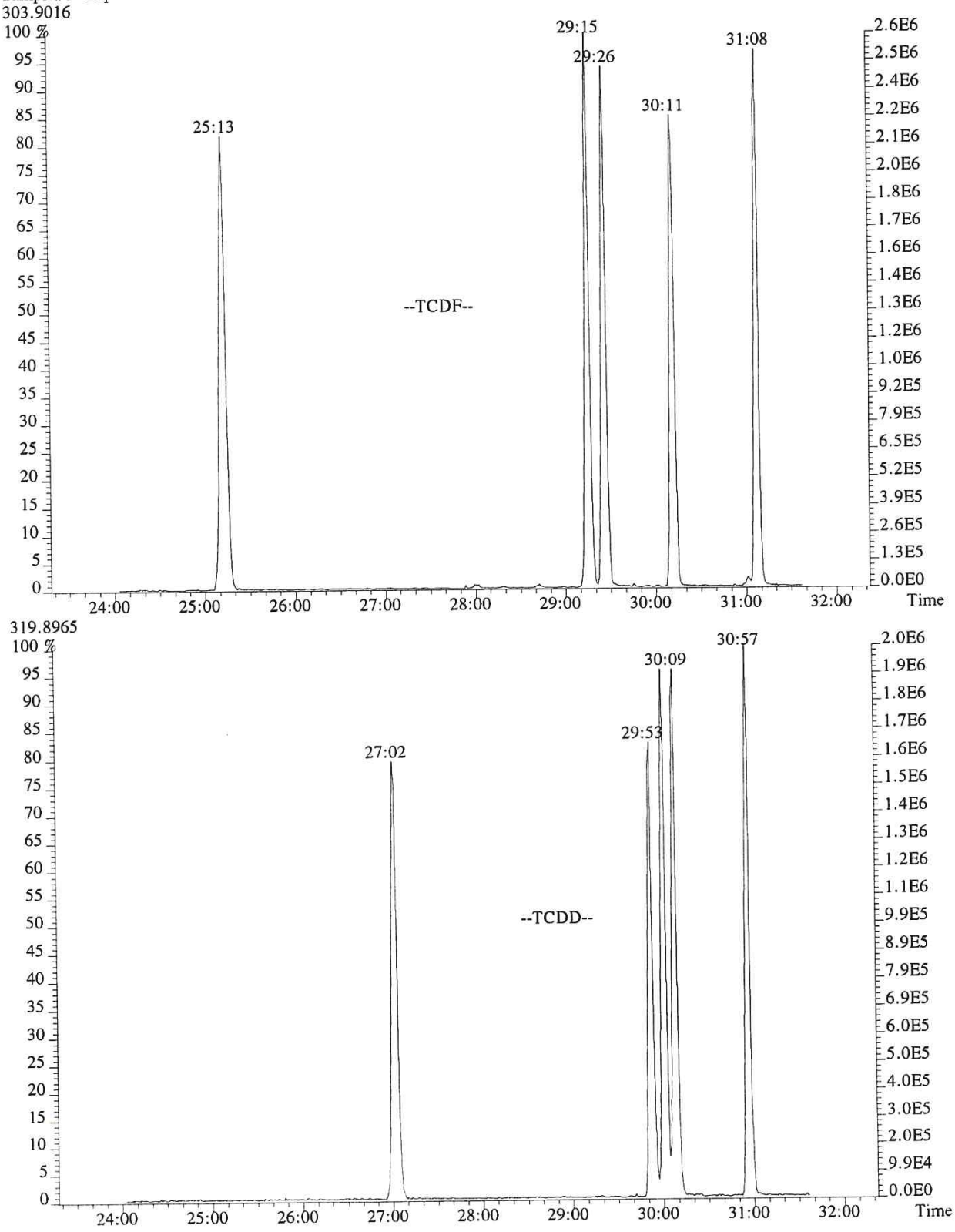
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	25:13	31:08
TCDD	27:02	30:57
PeCDF	31:01	35:05
PeCDD	32:27	34:50
HxCDF	35:41	38:10
HxCDD	36:11	37:45
HpCDF	39:23	40:54
HpCDD	39:38	40:22

% Valley 2378-TCDD: 7 %


File:P615675 #1-538 Acq:21-NOV-2018 18:14:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965
100 %
30:01
30:09
29:53
<------2378-TCDD
<------7% Valley
Time
318.9792
100 %
29:32
29:41
29:55
30:06
30:18
Time

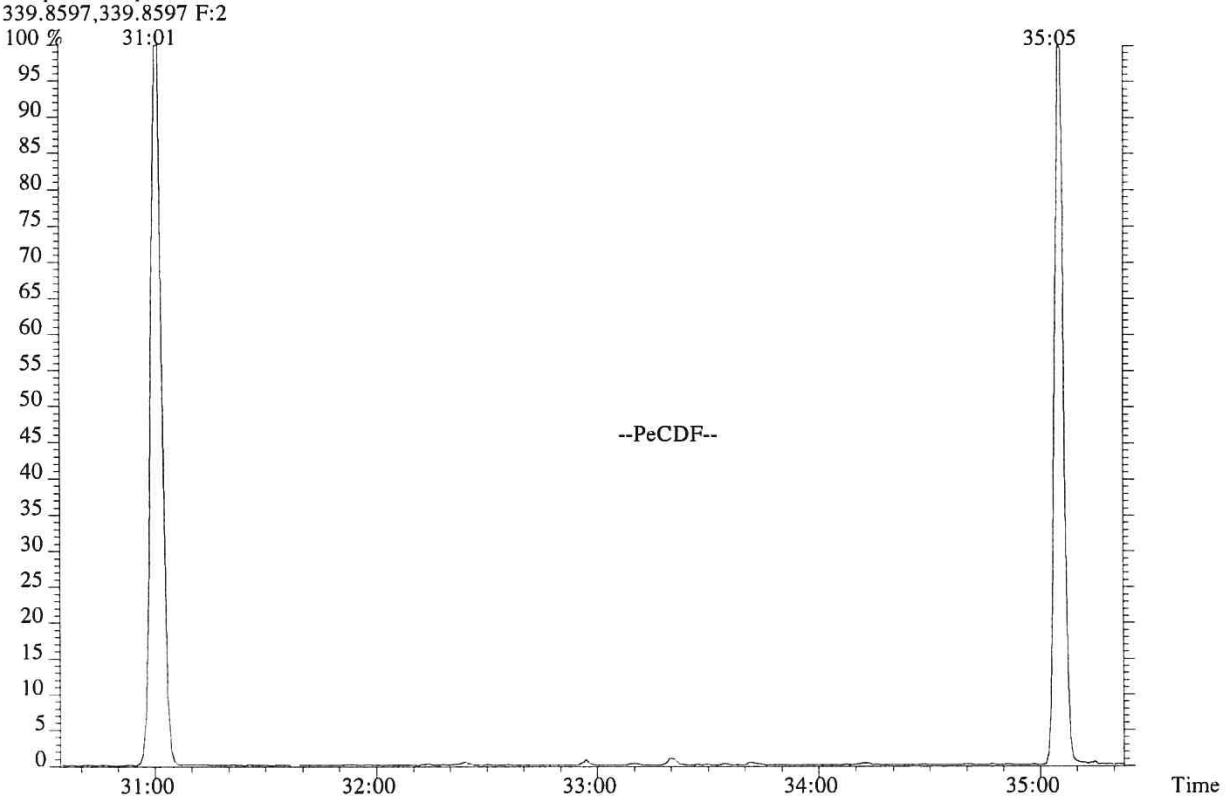
009212

File:P615675 #1-538 Acq:21-NOV-2018 18:14:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

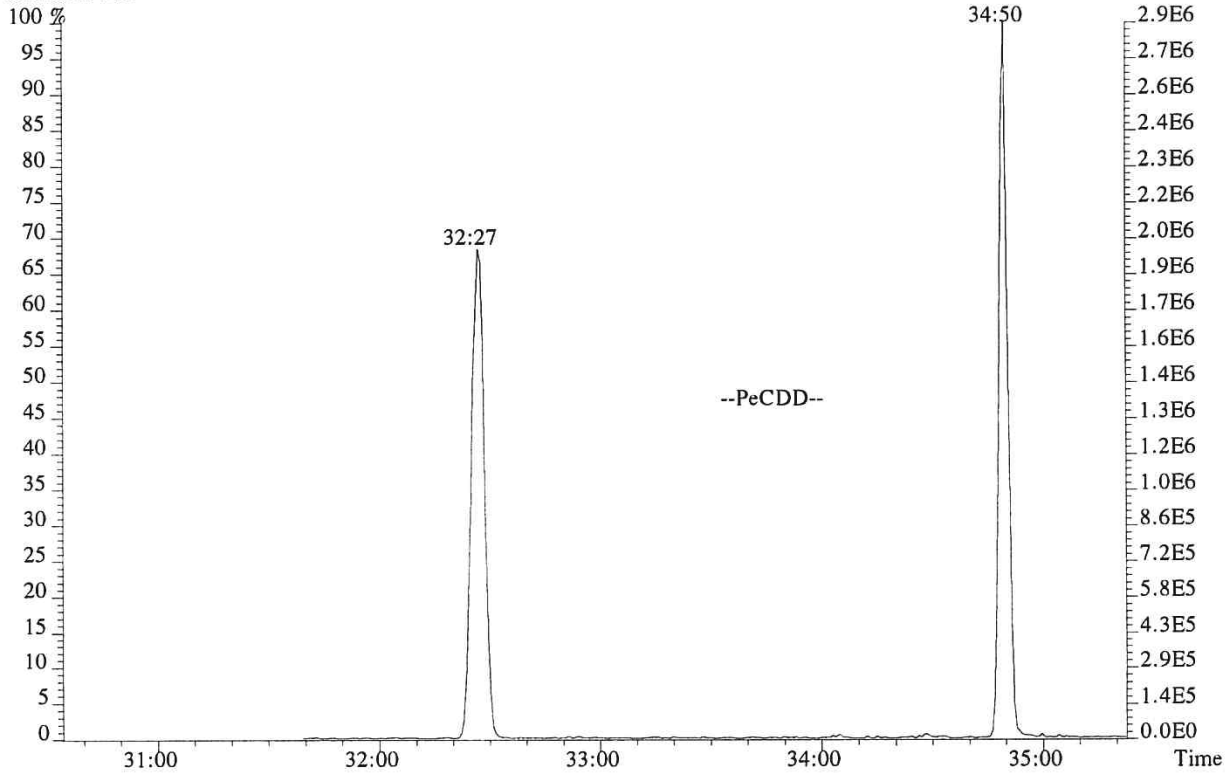


009213

File:P615675 #1-538 Acq:21-NOV-2018 18:14:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

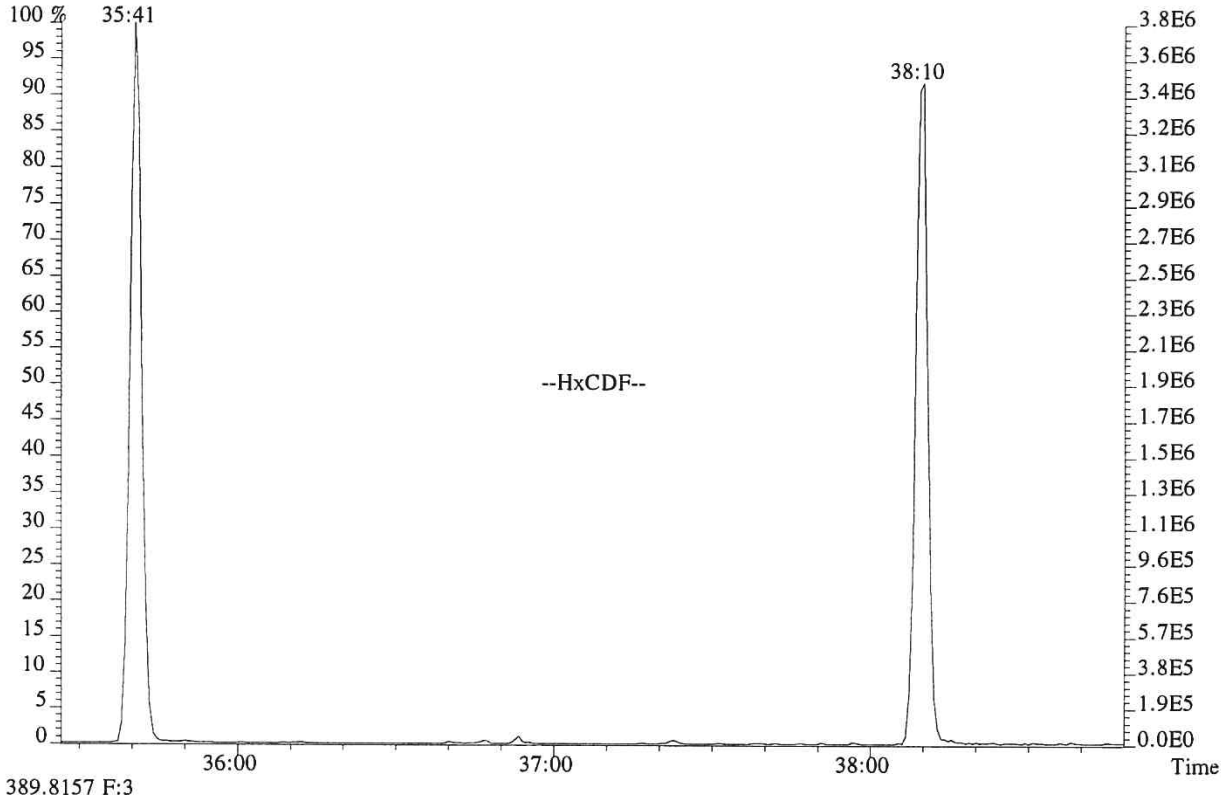


355.8546 F:2

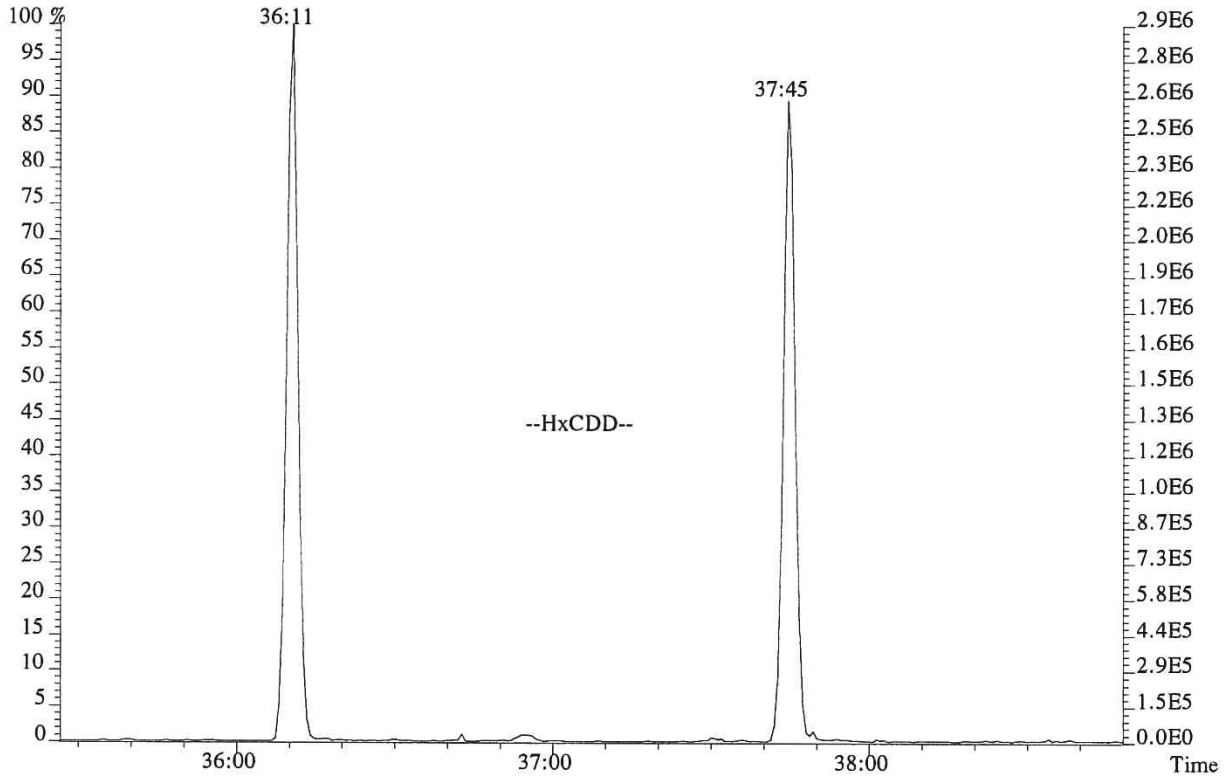


009214

File:P615675 #1-303 Acq:21-NOV-2018 18:14:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

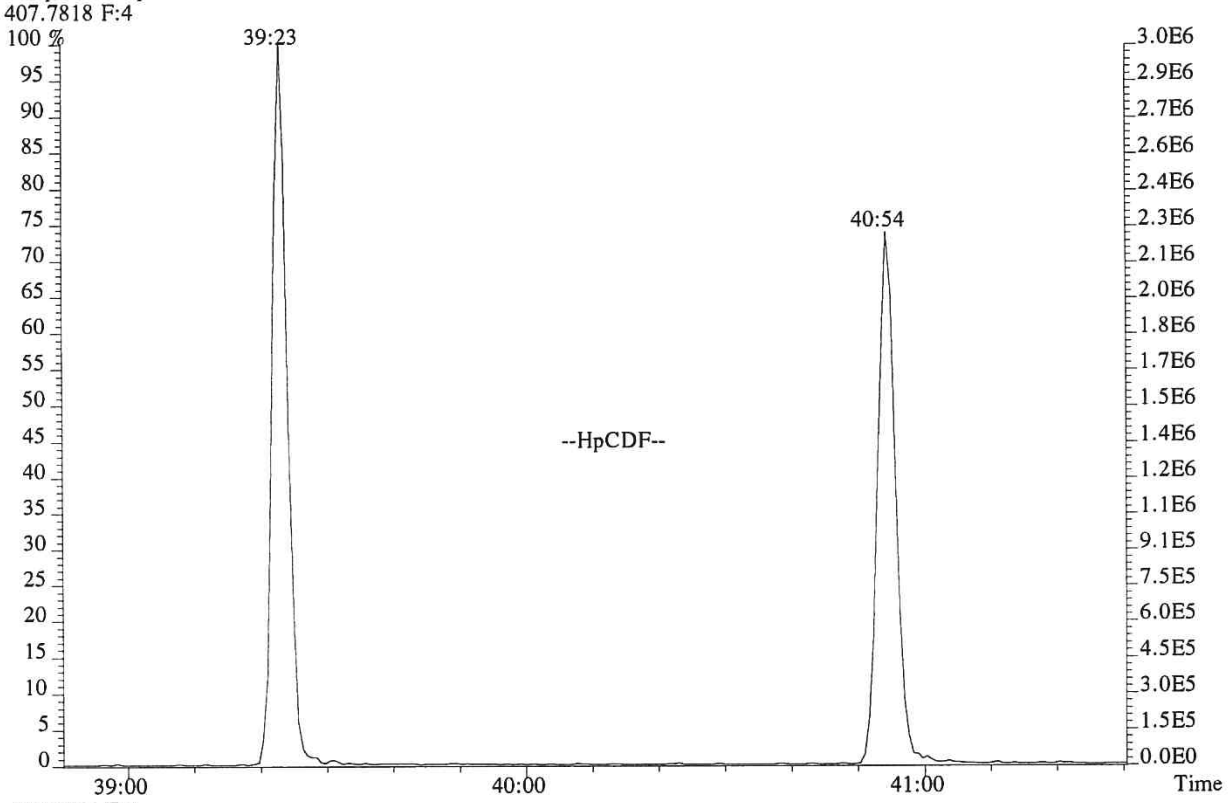


389.8157 F:3

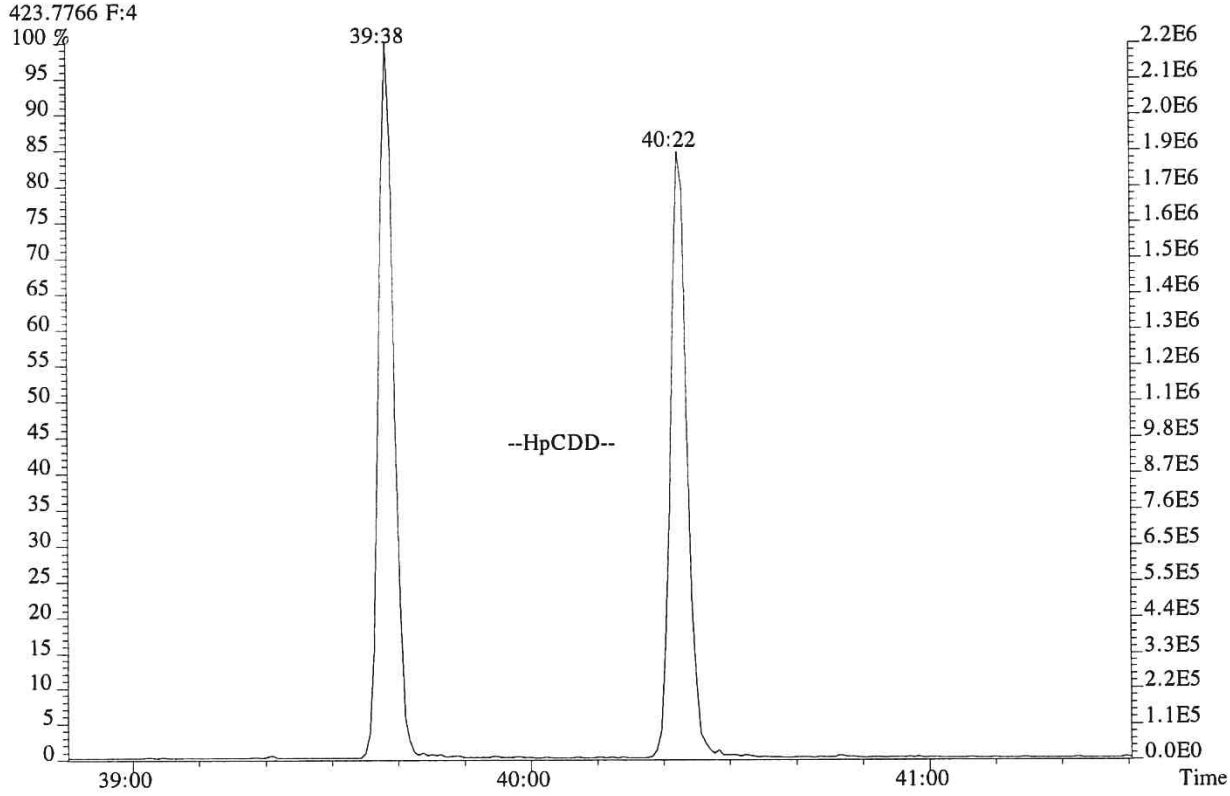


009215

File:P615675 #1-241 Acq:21-NOV-2018 18:14:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID : DB-5MSUI

VER Data Filename: P615674 Analysis Date: 21-NOV-18 Time: 17:25:15

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.87	0.65-0.89	9.3	7.8 - 12.9	-7.4
1,2,3,7,8-PeCDD	M+2/M+4	1.53	1.32-1.78	51	39 - 65	1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-1.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	50	41 - 61	-1.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.01	0.88-1.20	47	43 - 58	-6.9
OCDD	M+2/M+4	0.87	0.76-1.02	99	79 - 126	-1.3
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	9.5	8.4 - 12.0	-5.1
1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	46	41 - 60	-8.7
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	46	41 - 61	-7.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	45 - 56	-7.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	45	44 - 57	-9.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	47	45 - 56	-6.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	45	44 - 57	-9.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.08	0.88-1.20	46	45 - 55	-7.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	45	43 - 58	-9.3
OCDF	M+2/M+4	0.90	0.76-1.02	85	63 - 159	-15.2

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID : DB-5MSUI

VER Data Filename: P615674 Analysis Date: 21-NOV-18 Time: 17:25:15

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	103	82 - 121	3.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.53	1.32-1.78	94	62 - 160	-6.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	101	85 - 117	1.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.21	1.05-1.43	98	85 - 118	-2.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	101	72 - 138	1.4
13C-OCDD	M+2/M+4	0.90	0.76-1.02	188	96 - 415	-6.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	91	71 - 140	-9.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	89	76 - 130	-11.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	89	77 - 130	-11.1
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.55	0.43-0.59	92	76 - 131	-7.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.55	0.43-0.59	89	70 - 143	-11.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	93	74 - 135	-7.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	92	73 - 137	-7.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	87	78 - 129	-13.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	89	77 - 129	-10.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.9	7.8 - 12.7	-0.8

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P615674 Samp: 1 Inj: 1 Acquired: 21-NOV-18 17:25:15
Processed: 26-NOV-18 14:21:59 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:27	1.798e+03	2.265e+03	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:21	1.414e+04	8.895e+03	1.59	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:13	1.334e+04	8.571e+03	1.56	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:47	1.244e+04	1.004e+04	1.24	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:53	1.233e+04	9.956e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:23	1.183e+04	9.673e+03	1.22	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:09	1.157e+04	9.227e+03	1.25	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:23	1.056e+04	9.811e+03	1.08	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:54	8.823e+03	8.479e+03	1.04	yes	no	1.463
10	Unk	OCDF	43:39	1.258e+04	1.399e+04	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	30:09	1.413e+03	1.621e+03	0.87	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:29	9.200e+03	6.030e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:31	8.598e+03	6.931e+03	1.24	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:36	8.274e+03	6.550e+03	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:50	9.028e+03	7.413e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:23	7.303e+03	7.214e+03	1.01	yes	no	1.112
17	Unk	OCDD	43:25	1.061e+04	1.219e+04	0.87	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:26	1.747e+04	2.216e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:20	2.649e+04	1.714e+04	1.55	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:12	2.644e+04	1.658e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:47	1.219e+04	2.228e+04	0.55	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:53	1.352e+04	2.477e+04	0.55	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:23	1.278e+04	2.442e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:08	1.165e+04	2.217e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:22	8.993e+03	1.987e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:54	8.194e+03	1.788e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	30:08	1.371e+04	1.751e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:28	1.961e+04	1.285e+04	1.53	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:30	1.653e+04	1.298e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:35	1.561e+04	1.288e+04	1.21	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:22	1.446e+04	1.358e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	43:24	1.887e+04	2.103e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:36	1.347e+04	1.735e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:49	1.795e+04	1.431e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:09	3.321e+03				no	1.086

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P615674 Samp: 1 Inj: 1 Acquired: 21-NOV-18 17:25:15
Processed: 26-NOV-18 14:21:59 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.74e+05	6.88e+02	5.4e+02	4.66e+05	1.00e+03	4.7e+02
2	1,2,3,7,8-PeCDF	2.81e+06	6.00e+02	4.7e+03	1.78e+06	9.40e+02	1.9e+03
3	2,3,4,7,8-PeCDF	2.83e+06	6.00e+02	4.7e+03	1.83e+06	9.40e+02	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.77e+06	4.32e+02	6.4e+03	2.21e+06	4.64e+02	4.8e+03
5	1,2,3,6,7,8-HxCDF	2.76e+06	4.32e+02	6.4e+03	2.19e+06	4.64e+02	4.7e+03
6	2,3,4,6,7,8-HxCDF	2.65e+06	4.32e+02	6.1e+03	2.17e+06	4.64e+02	4.7e+03
7	1,2,3,7,8,9-HxCDF	2.54e+06	4.32e+02	5.9e+03	2.02e+06	4.64e+02	4.3e+03
8	1,2,3,4,6,7,8-HpCDF	2.29e+06	1.03e+03	2.2e+03	2.10e+06	1.24e+03	1.7e+03
9	1,2,3,4,7,8,9-HpCDF	1.70e+06	1.03e+03	1.6e+03	1.62e+06	1.24e+03	1.3e+03
10	OCDF	2.01e+06	4.04e+02	5.0e+03	2.26e+06	1.35e+03	1.7e+03
11	2,3,7,8-TCDD	3.05e+05	2.61e+03	1.2e+02	3.38e+05	7.68e+02	4.4e+02
12	1,2,3,7,8-PeCDD	1.95e+06	4.00e+02	4.9e+03	1.28e+06	4.08e+02	3.1e+03
13	1,2,3,4,7,8-HxCDD	1.96e+06	2.64e+02	7.4e+03	1.57e+06	3.28e+02	4.8e+03
14	1,2,3,6,7,8-HxCDD	1.87e+06	2.64e+02	7.1e+03	1.48e+06	3.28e+02	4.5e+03
15	1,2,3,7,8,9-HxCDD	1.99e+06	2.64e+02	7.6e+03	1.63e+06	3.28e+02	5.0e+03
16	1,2,3,4,6,7,8-HpCDD	1.49e+06	3.60e+02	4.1e+03	1.47e+06	4.80e+02	3.1e+03
17	OCDD	1.74e+06	5.60e+02	3.1e+03	1.98e+06	6.16e+02	3.2e+03
18	13C-2,3,7,8-TCDF	3.55e+06	7.42e+03	4.8e+02	4.58e+06	5.20e+03	8.8e+02
19	13C-1,2,3,7,8-PeCDF	5.39e+06	4.36e+02	1.2e+04	3.52e+06	8.96e+02	3.9e+03
20	13C-2,3,4,7,8-PeCDF	5.60e+06	4.36e+02	1.3e+04	3.53e+06	8.96e+02	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	2.66e+06	7.72e+02	3.4e+03	4.89e+06	9.12e+02	5.4e+03
22	13C-1,2,3,6,7,8-HxCDF	3.00e+06	7.72e+02	3.9e+03	5.48e+06	9.12e+02	6.0e+03
23	13C-2,3,4,6,7,8-HxCDF	2.93e+06	7.72e+02	3.8e+03	5.39e+06	9.12e+02	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	2.55e+06	7.72e+02	3.3e+03	4.82e+06	9.12e+02	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.89e+06	1.54e+03	1.2e+03	4.13e+06	1.96e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.60e+06	1.54e+03	1.0e+03	3.48e+06	1.96e+03	1.8e+03
27	13C-2,3,7,8-TCDD	2.99e+06	1.16e+04	2.6e+02	3.73e+06	2.03e+03	1.8e+03
28	13C-1,2,3,7,8-PeCDD	4.27e+06	6.48e+02	6.6e+03	2.76e+06	1.58e+03	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	3.74e+06	5.16e+02	7.2e+03	2.94e+06	2.76e+02	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	3.52e+06	5.16e+02	6.8e+03	2.87e+06	2.76e+02	1.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.88e+06	6.16e+02	4.7e+03	2.77e+06	2.88e+02	9.6e+03
32	13C-OCDD	3.06e+06	5.96e+02	5.1e+03	3.43e+06	4.16e+02	8.2e+03
33	13C-1,2,3,4-TCDD	2.75e+06	1.16e+04	2.4e+02	3.53e+06	2.03e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	3.94e+06	5.16e+02	7.6e+03	3.14e+06	2.76e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	7.18e+05	8.20e+02	8.8e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.612e{+}03 + 7.680e{+}02) \times 100}{(2.988e{+}06 + 3.726e{+}06) \times (\quad) \times 1.049} =$$

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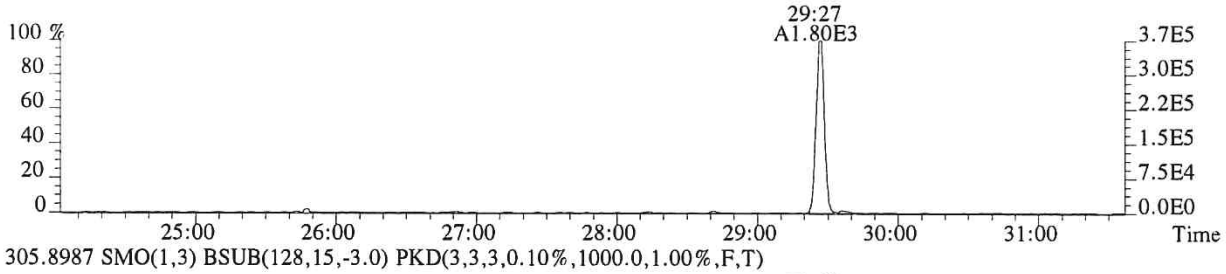
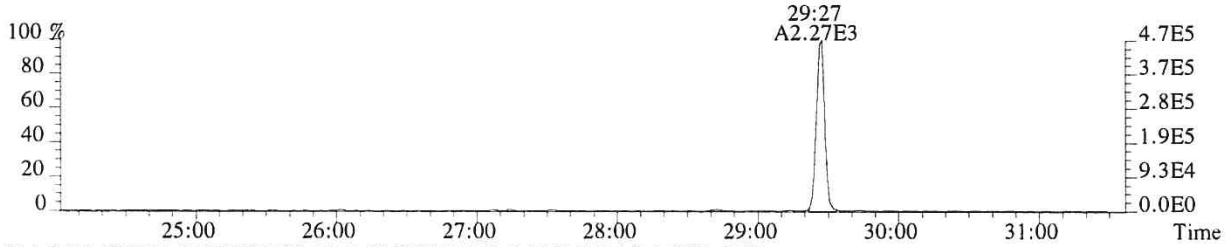
File:P615674 #1-538 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

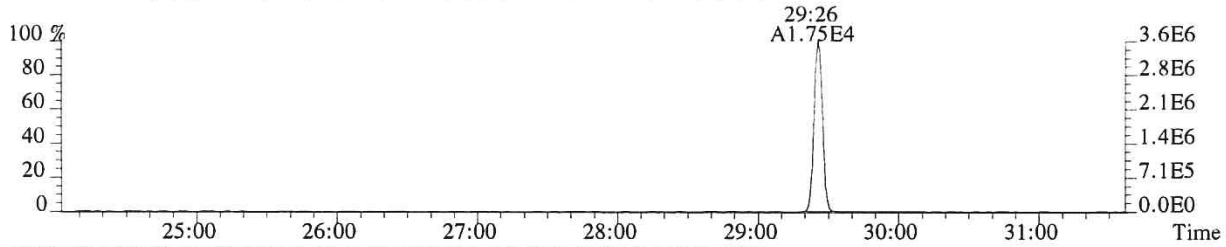
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



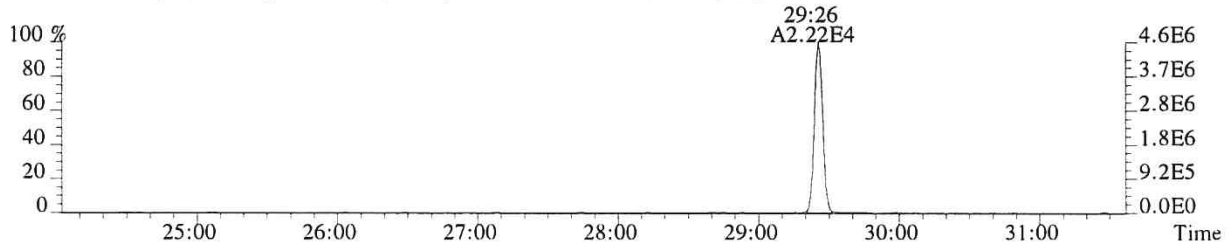
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



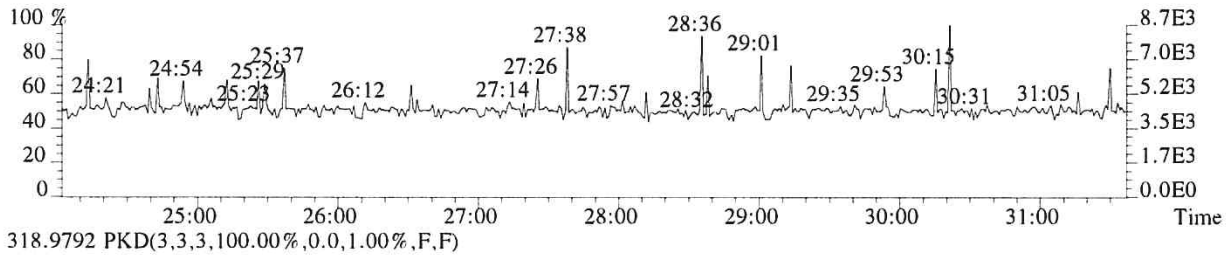
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7424.0,1.00%,F,T)



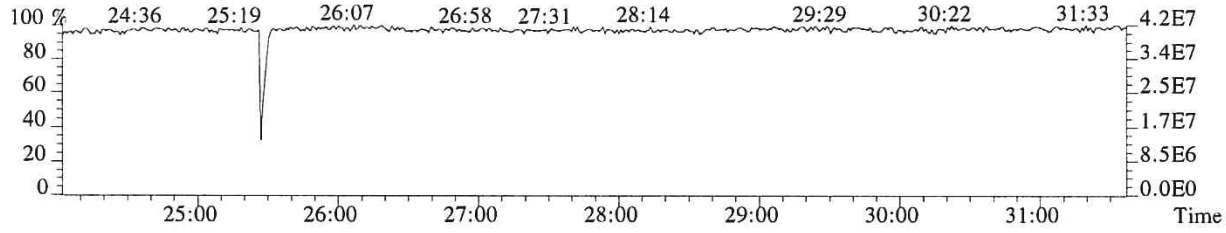
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5196.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



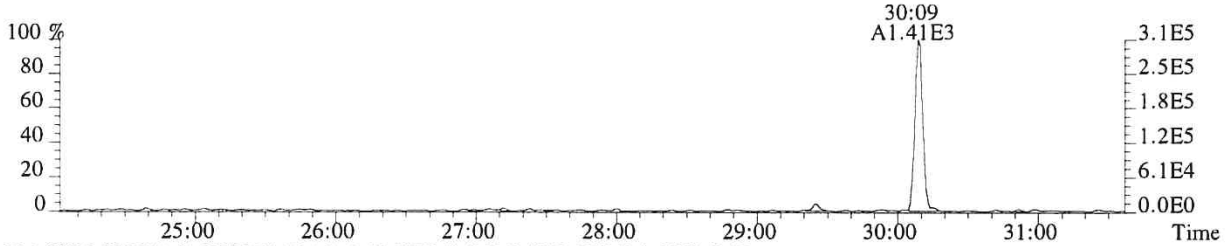
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



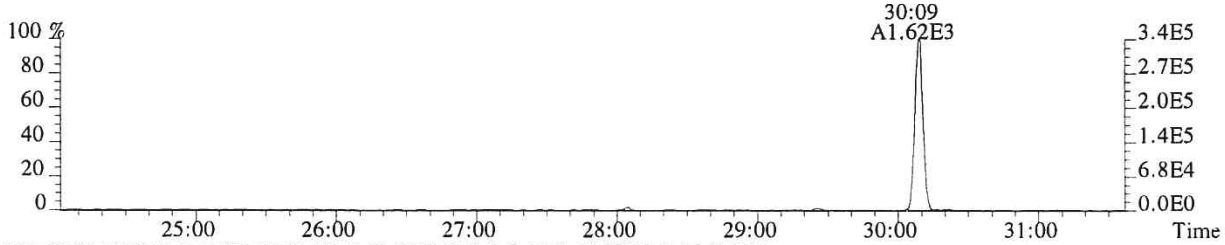
009221

File:P615674 #1-538 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

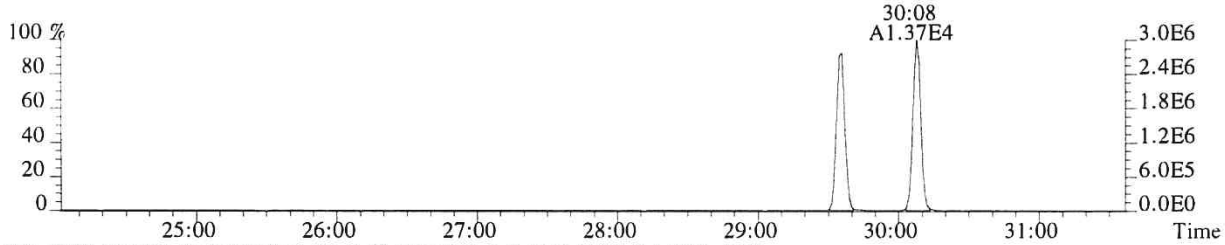
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2612.0,1.00%,F,T)



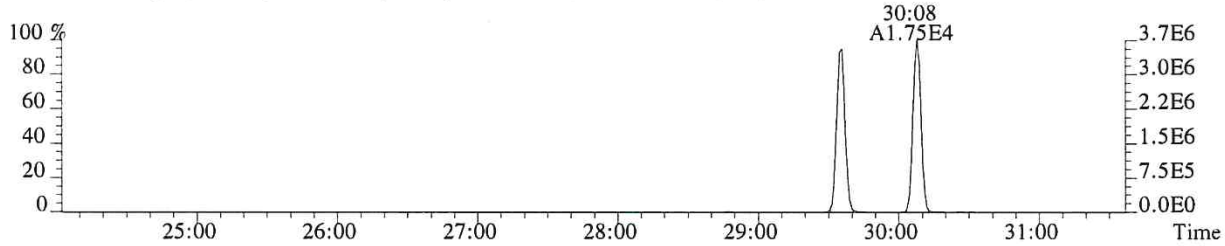
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



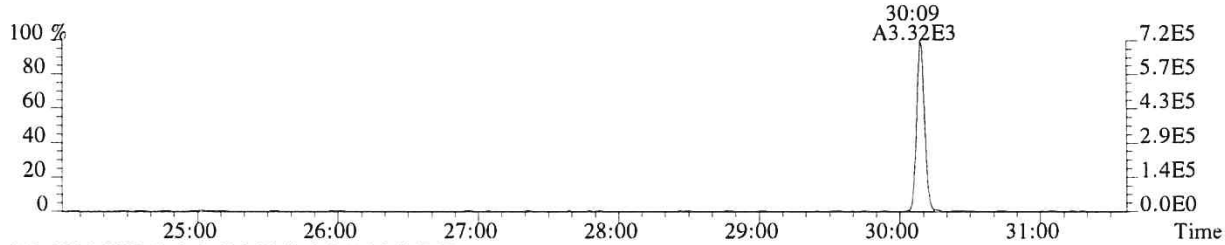
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11608.0,1.00%,F,T)



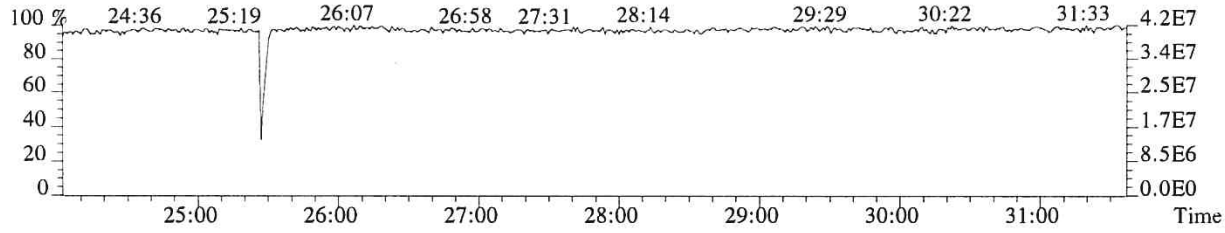
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)

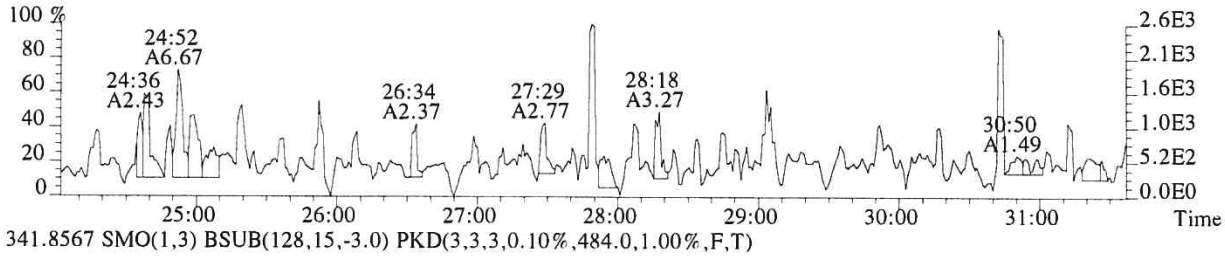


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

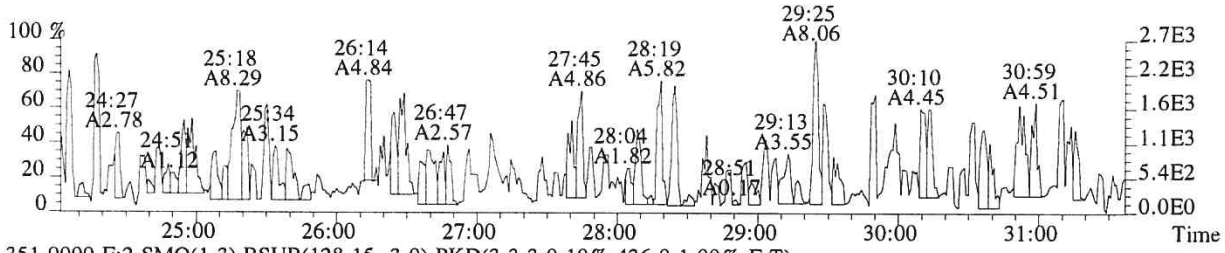


009222

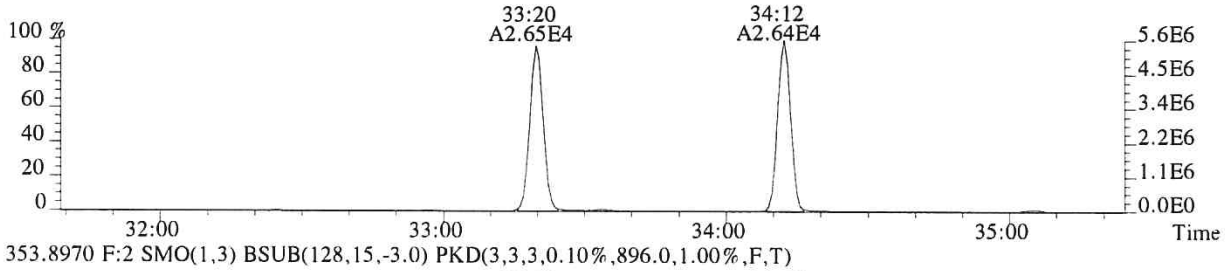
File:P615674 #1-538 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



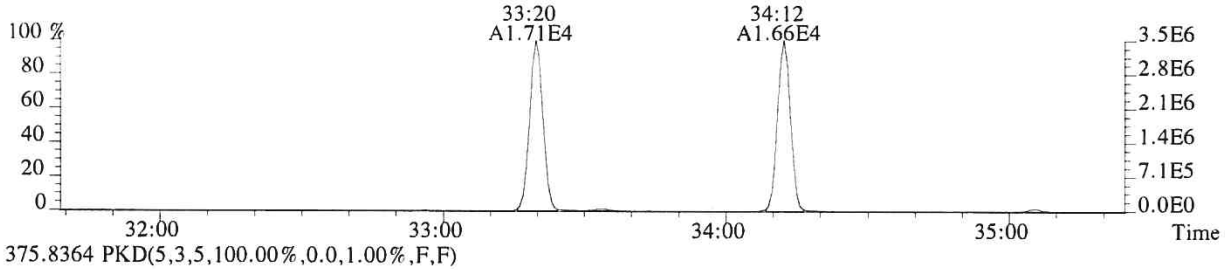
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



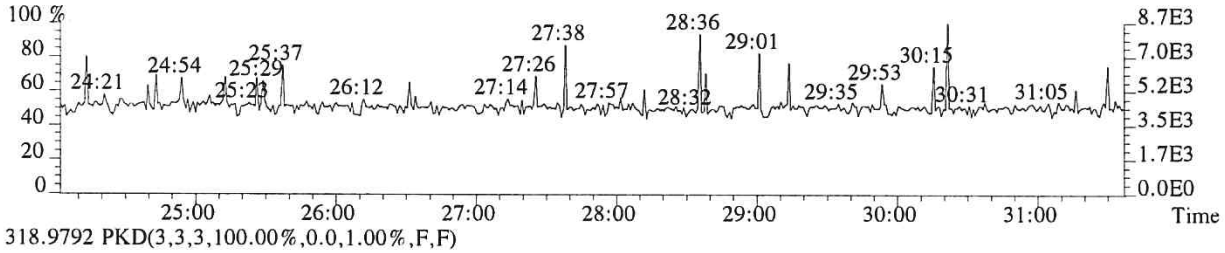
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



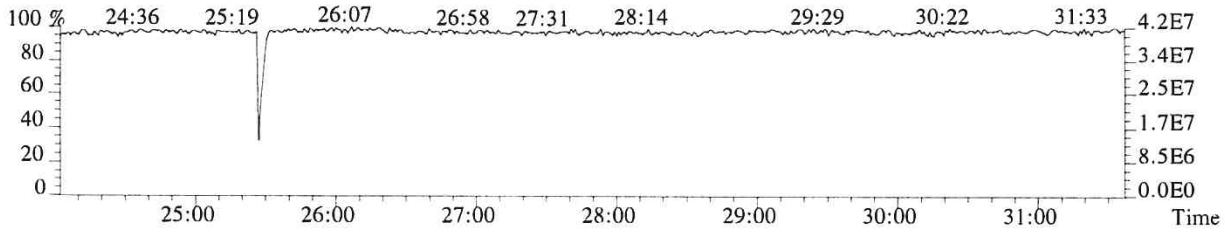
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



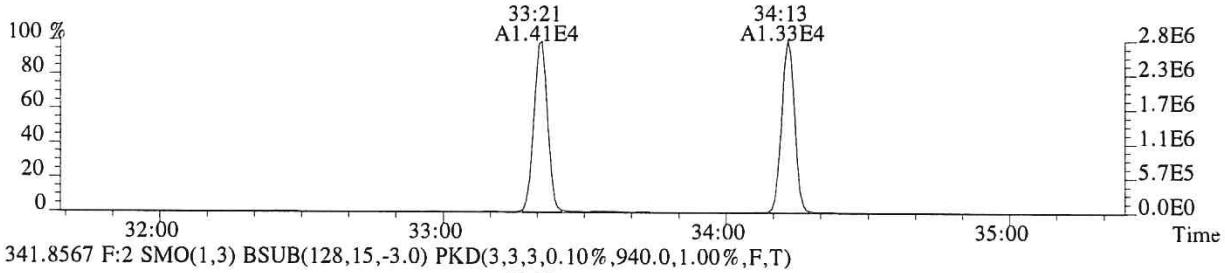
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



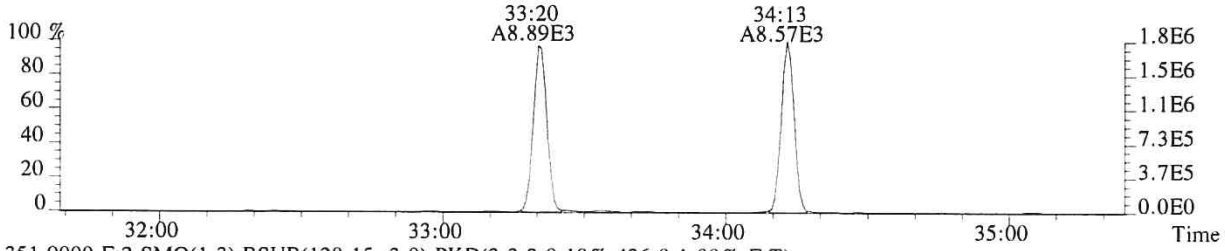
009223

File:P615674 #1-339 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

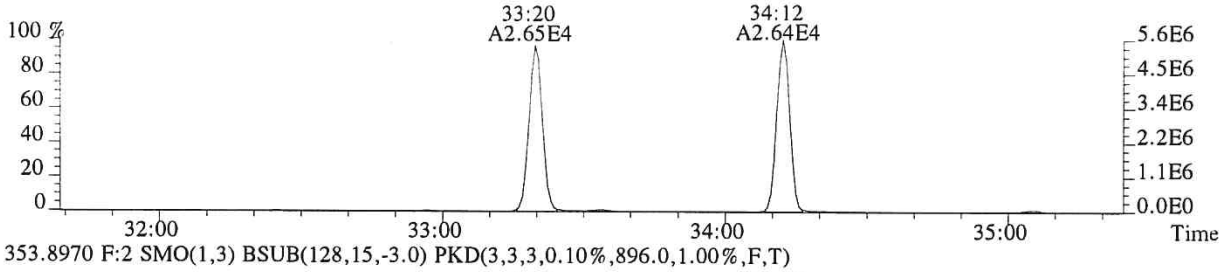
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



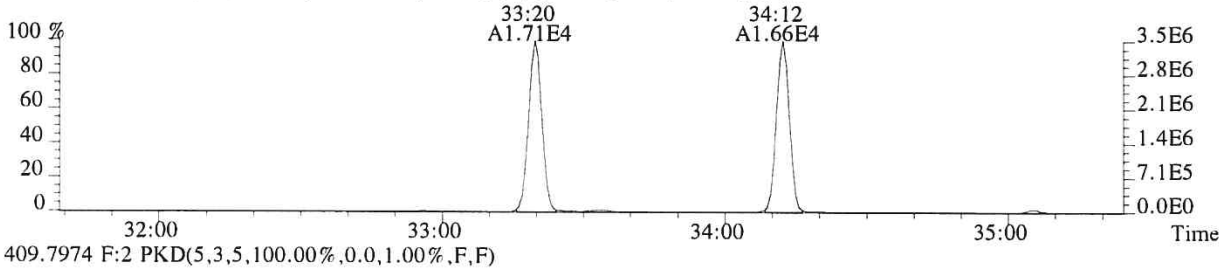
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



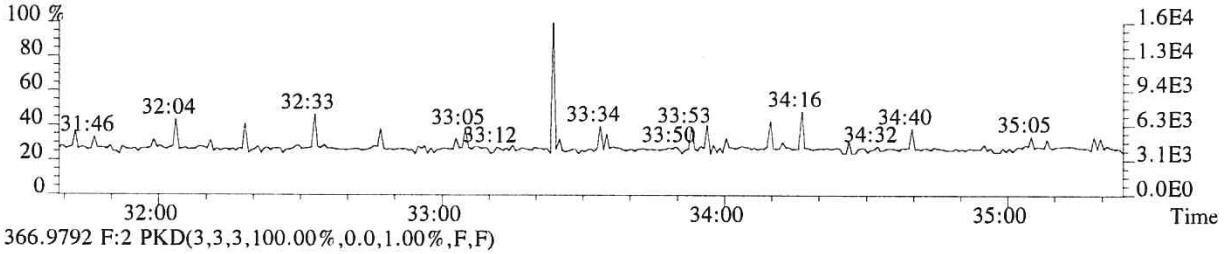
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



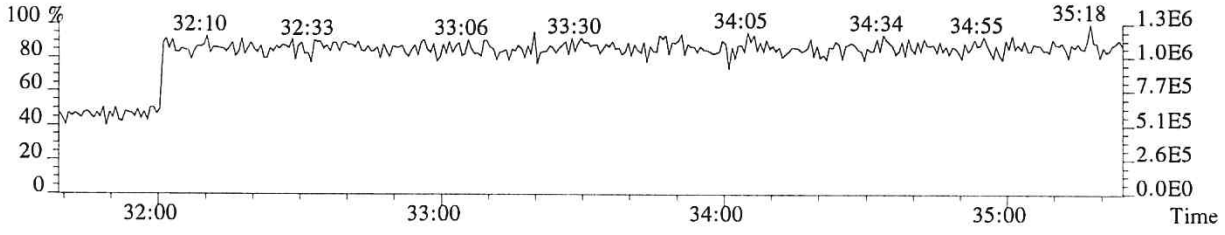
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



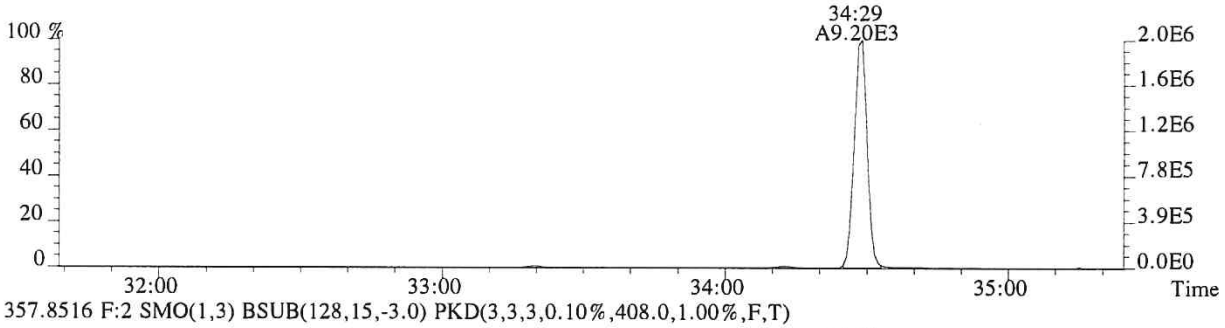
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



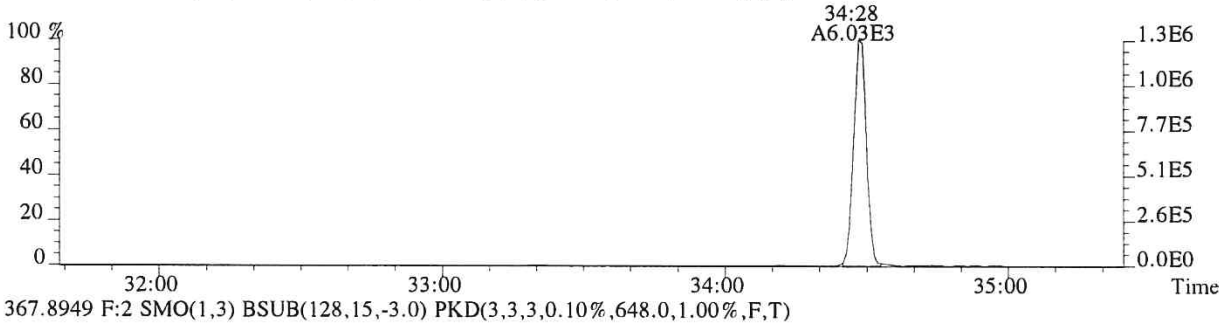
009224

File:P615674 #1-339 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

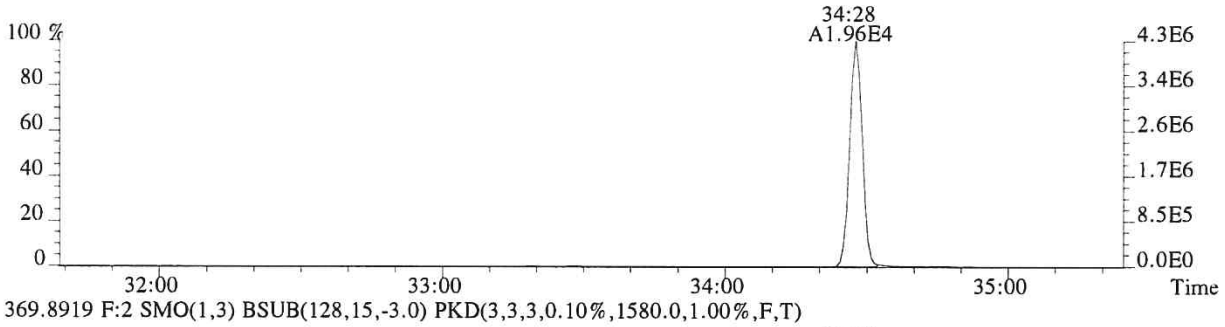
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



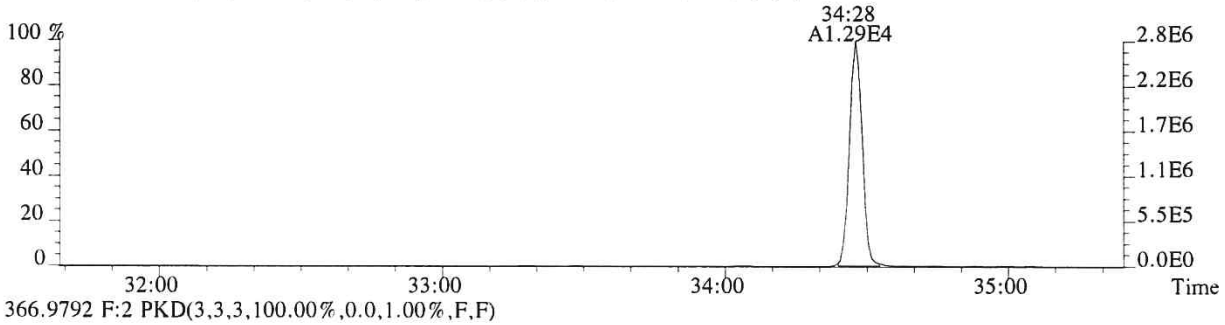
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



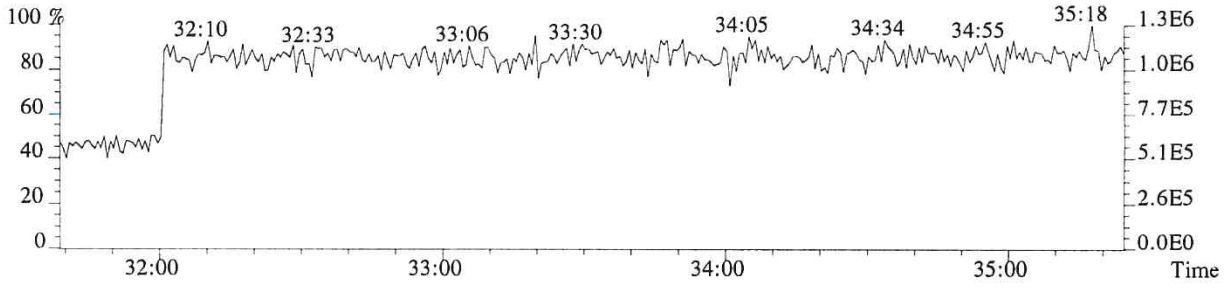
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)

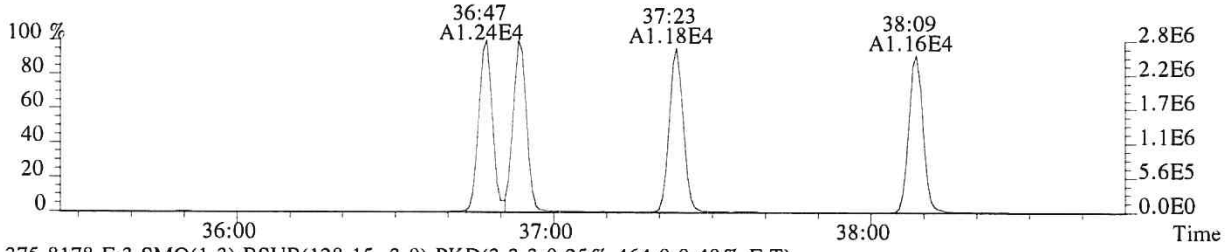


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

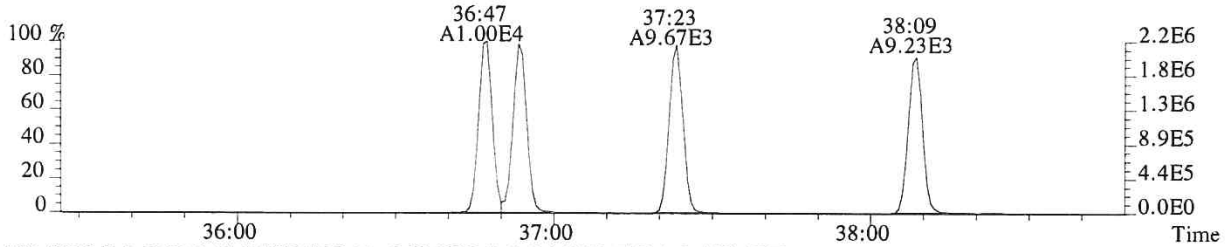


File:P615674 #1-303 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

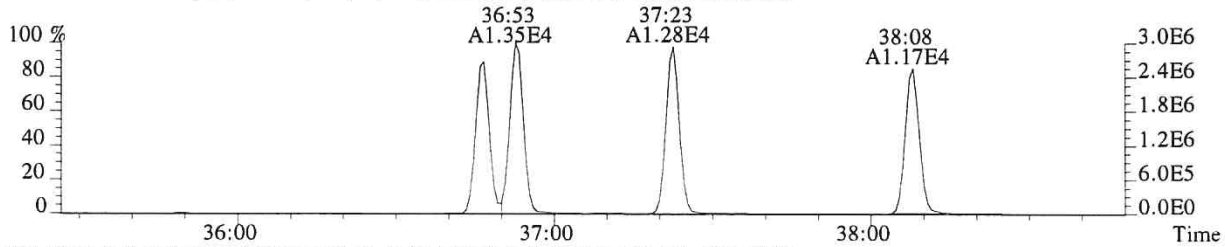
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



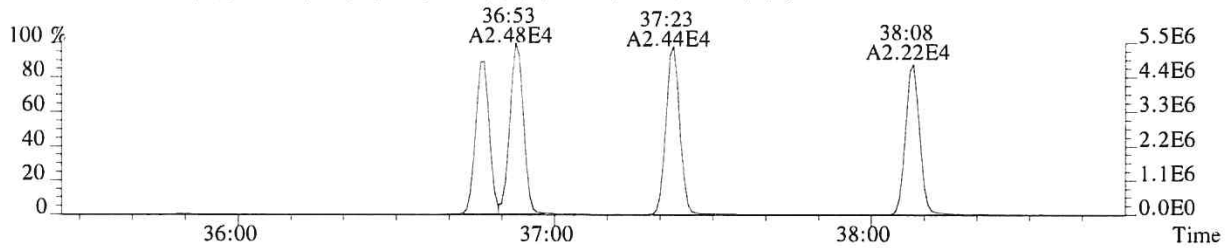
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



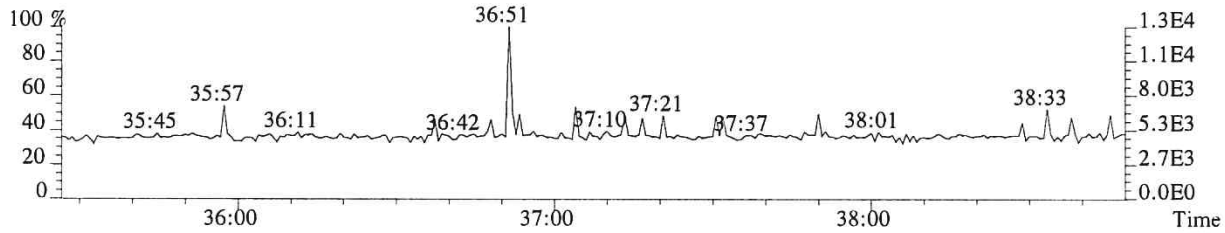
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



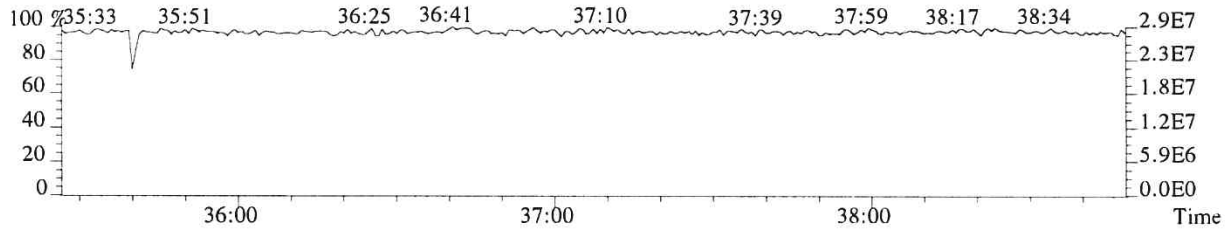
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

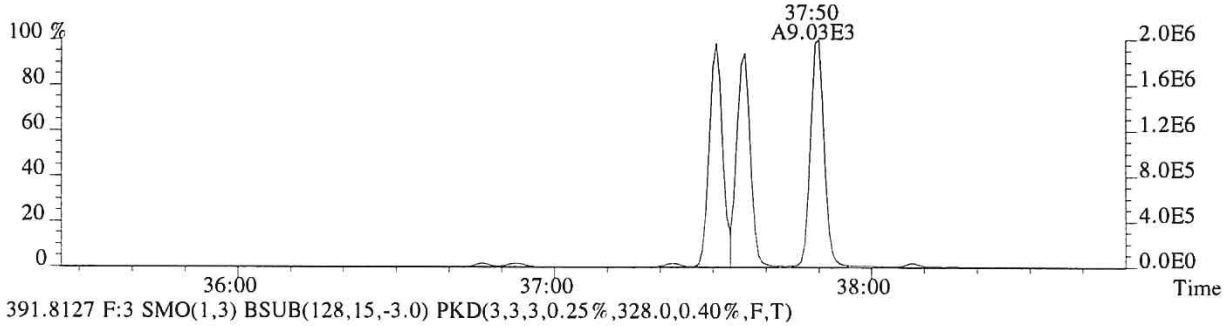


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

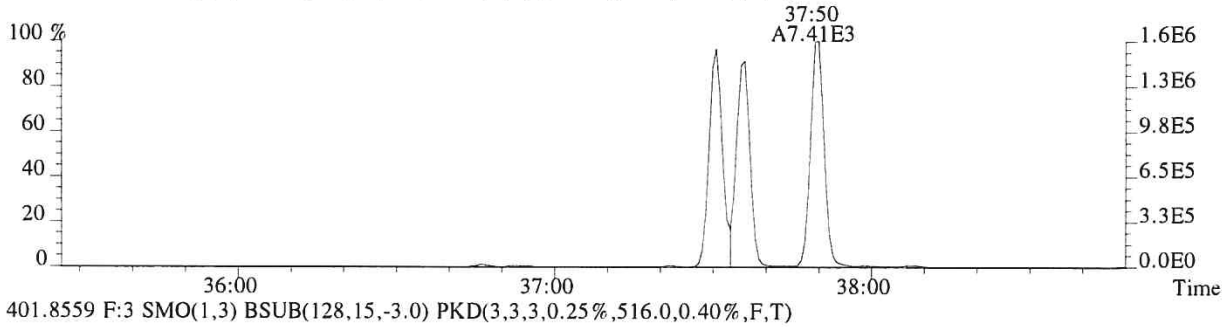


009226

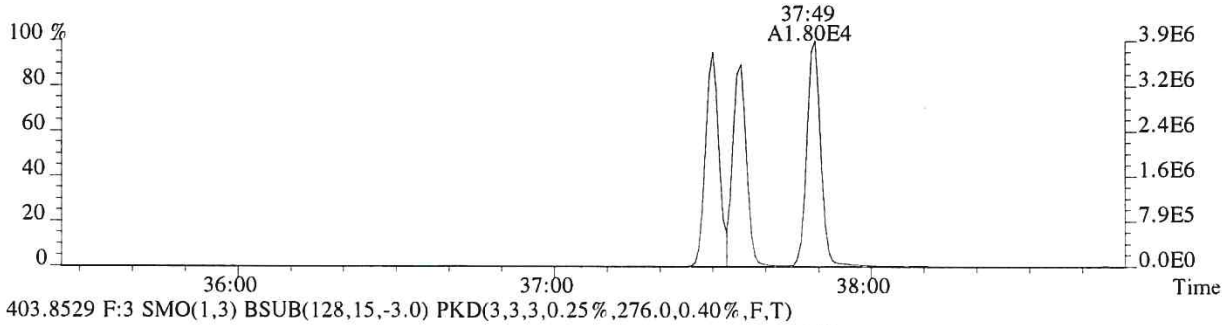
File:P615674 #1-303 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



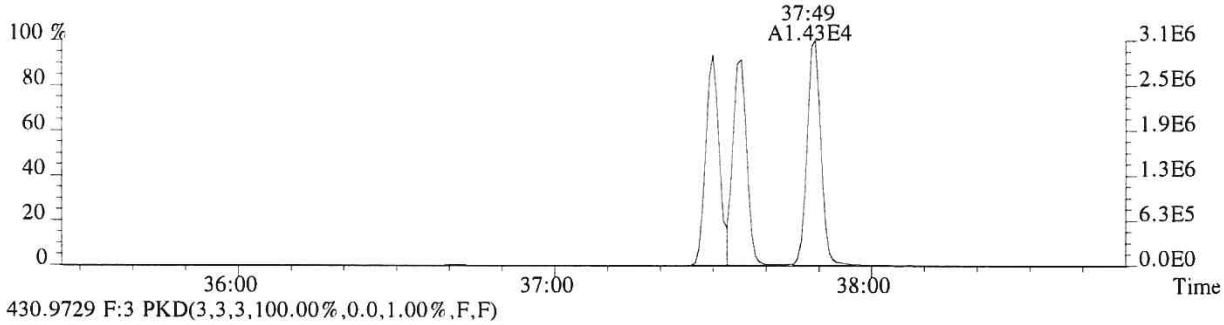
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



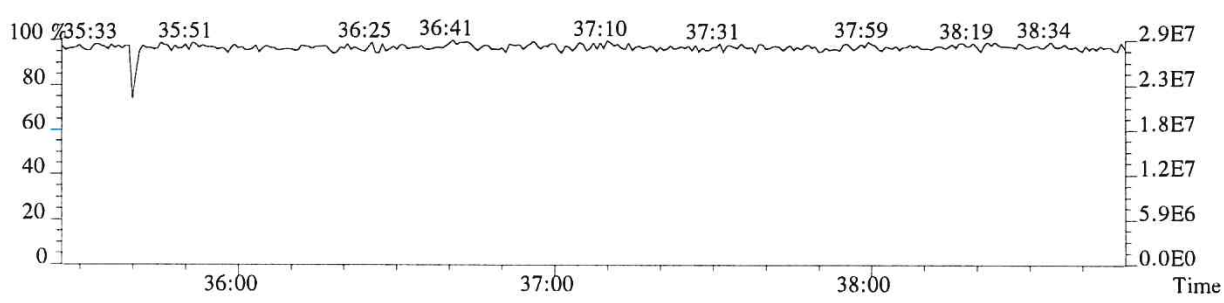
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)

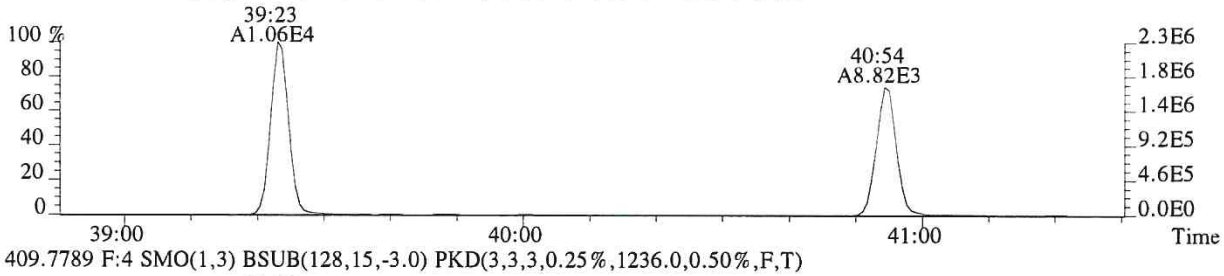


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

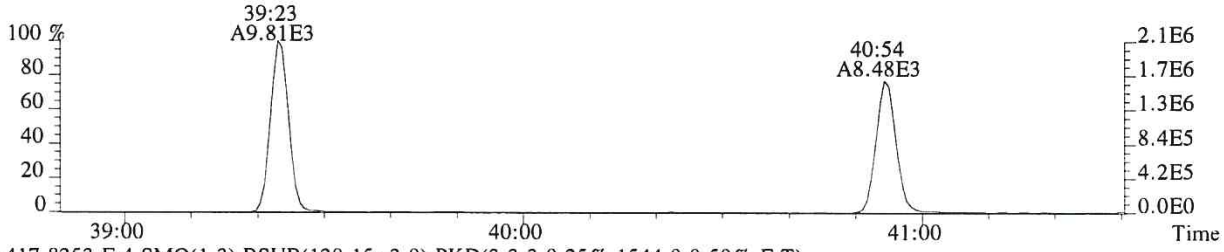


File:P615674 #1-241 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

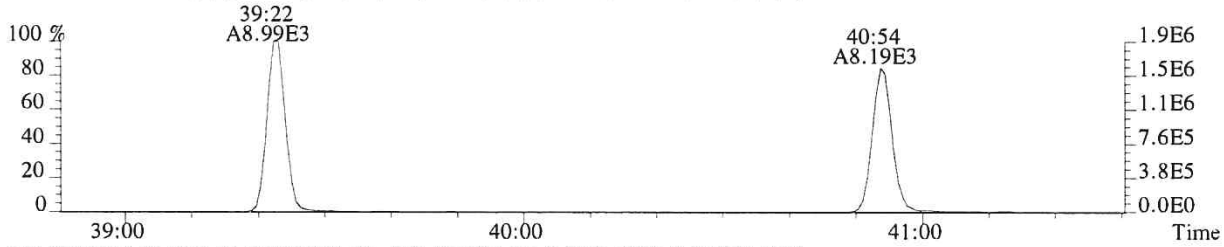
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1028.0,0.50%,F,T)



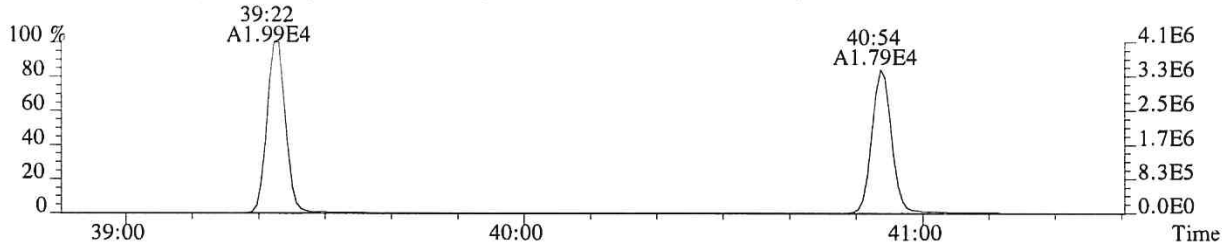
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.50%,F,T)



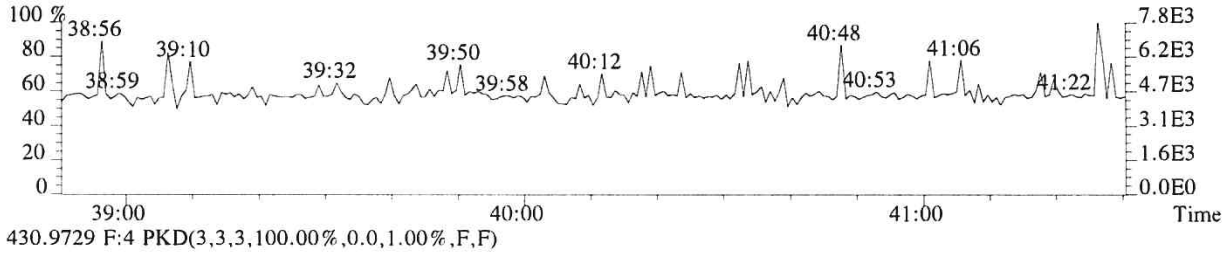
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.50%,F,T)



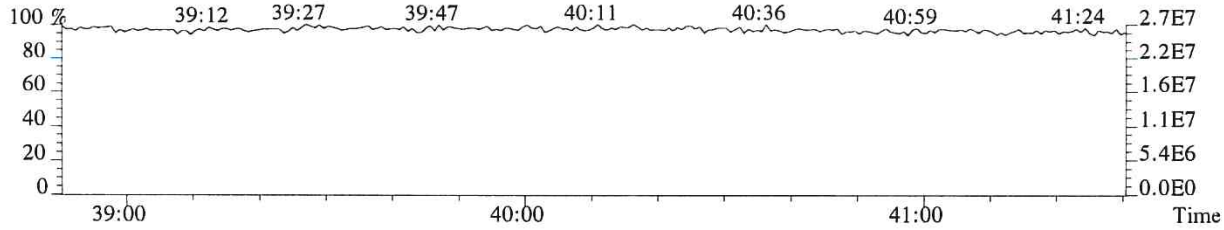
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1960.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

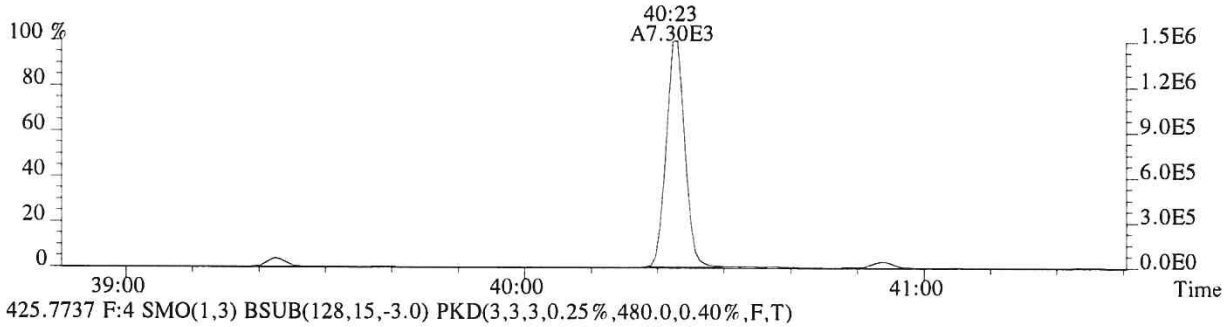


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

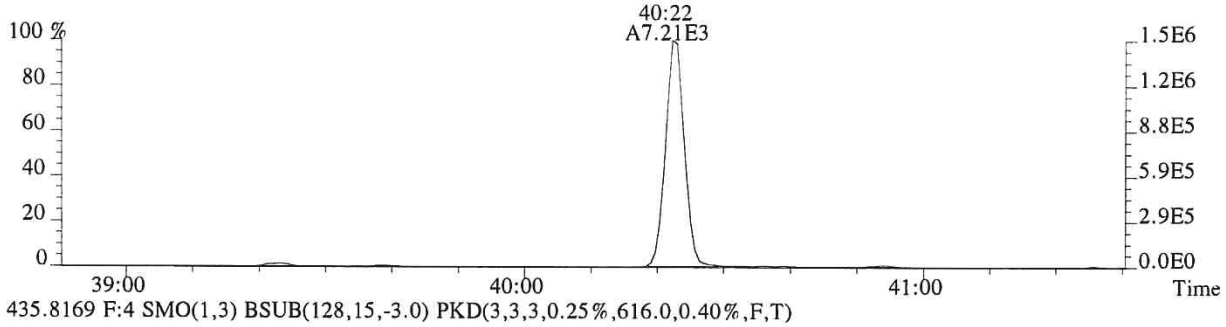


009228

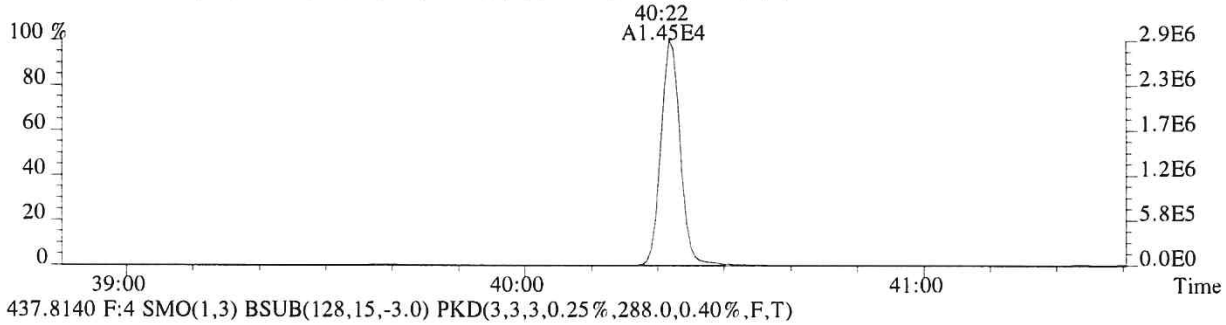
File:P615674 #1-241 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



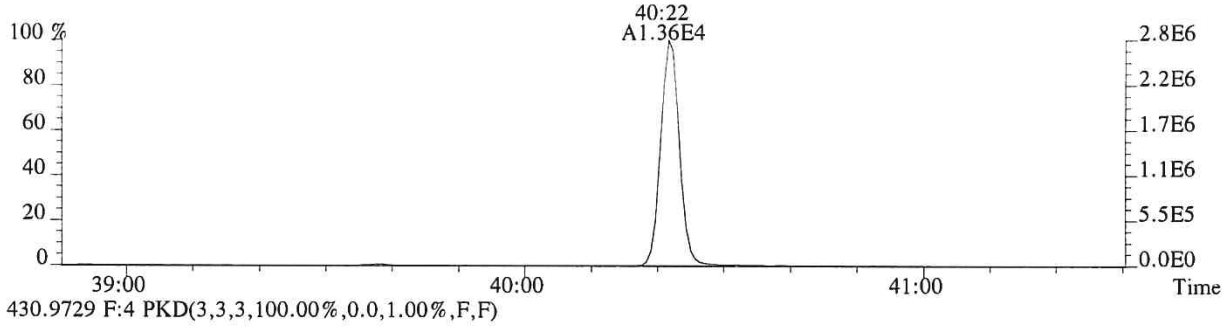
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



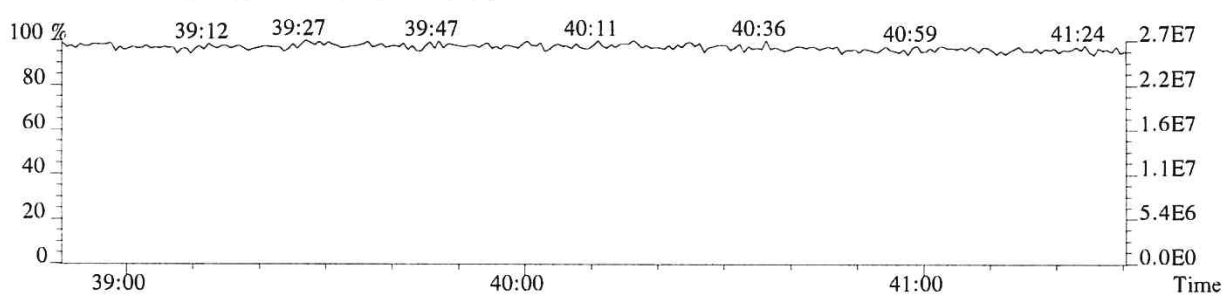
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)

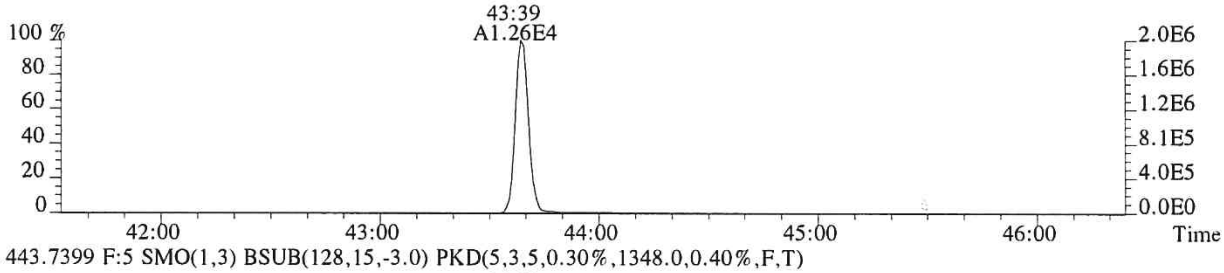


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

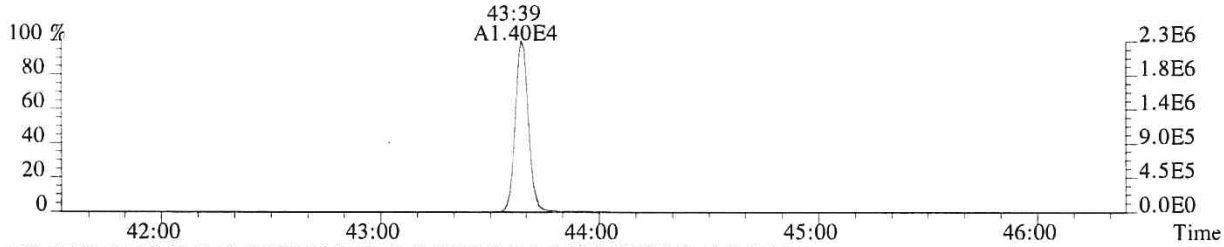


File:P615674 #1-438 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

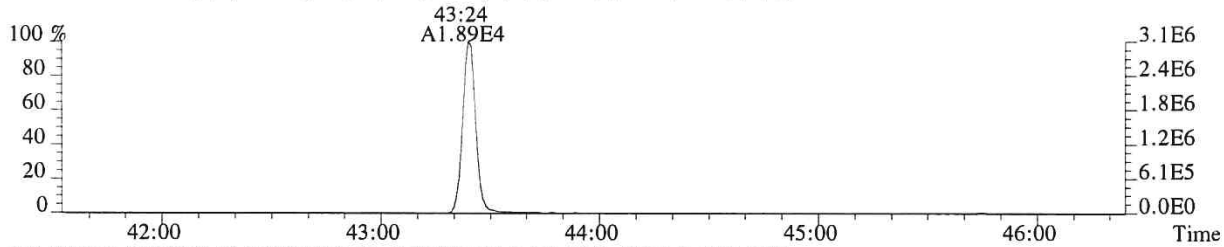
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



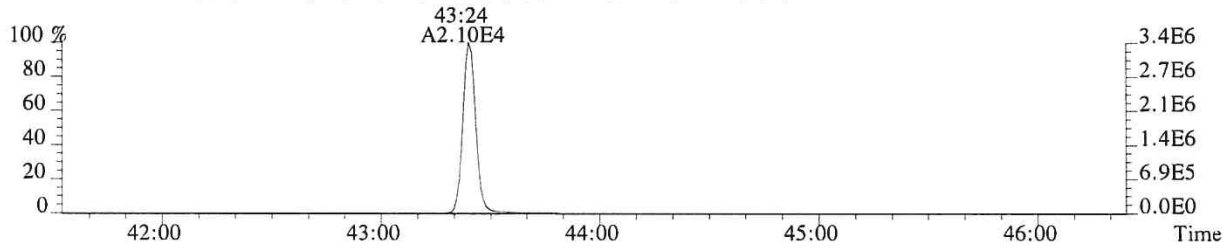
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1348.0,0.40%,F,T)



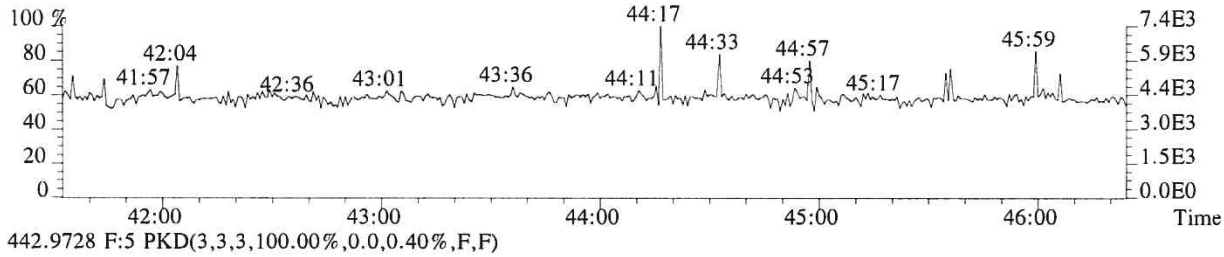
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



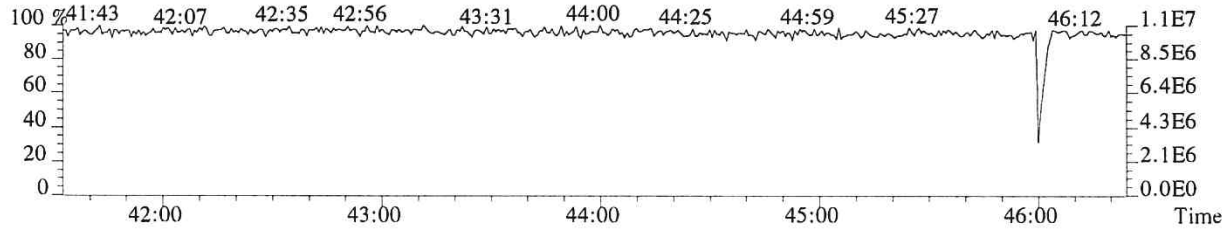
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



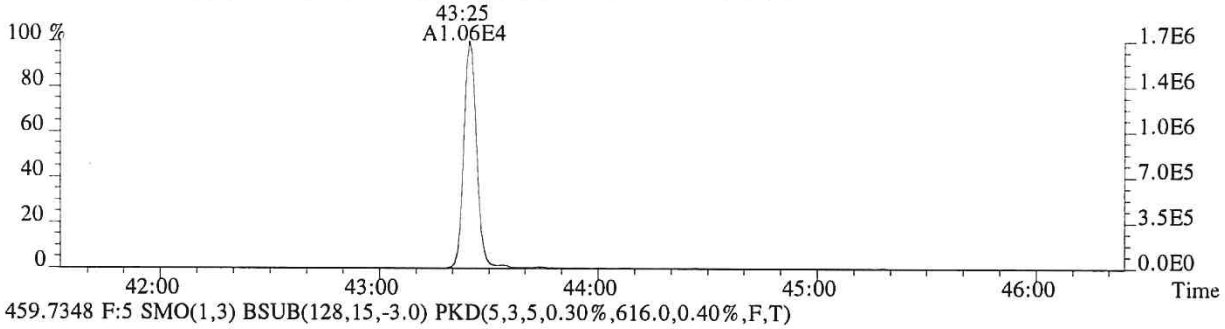
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



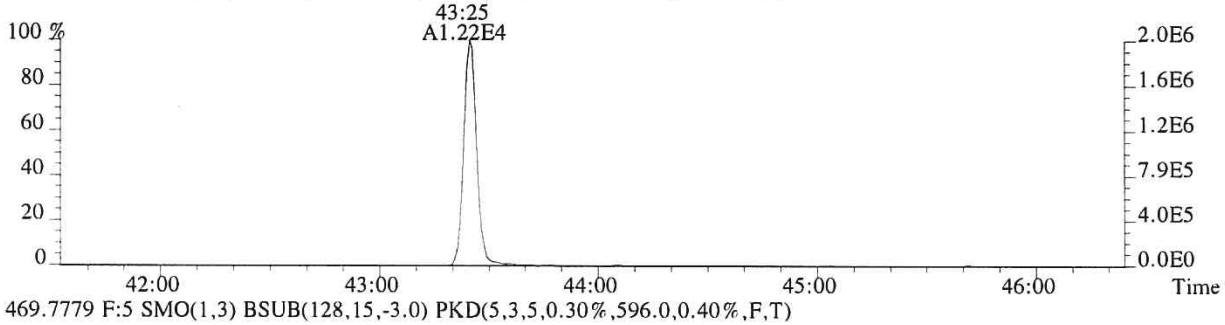
009230

File:P615674 #1-438 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

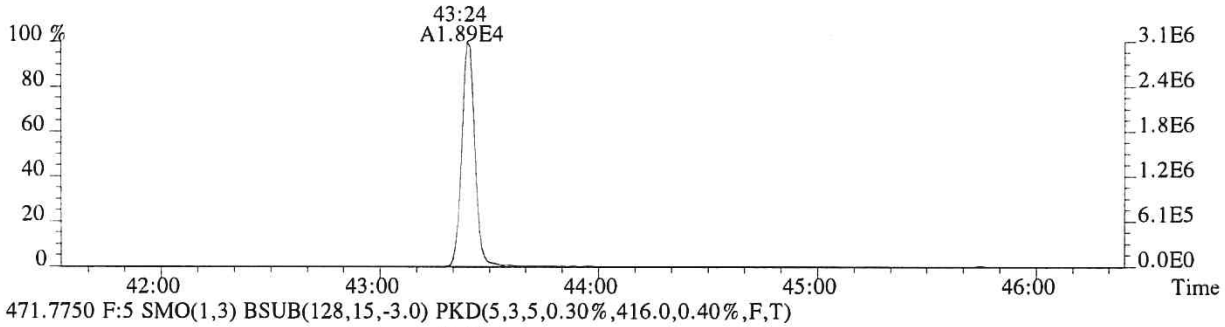
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



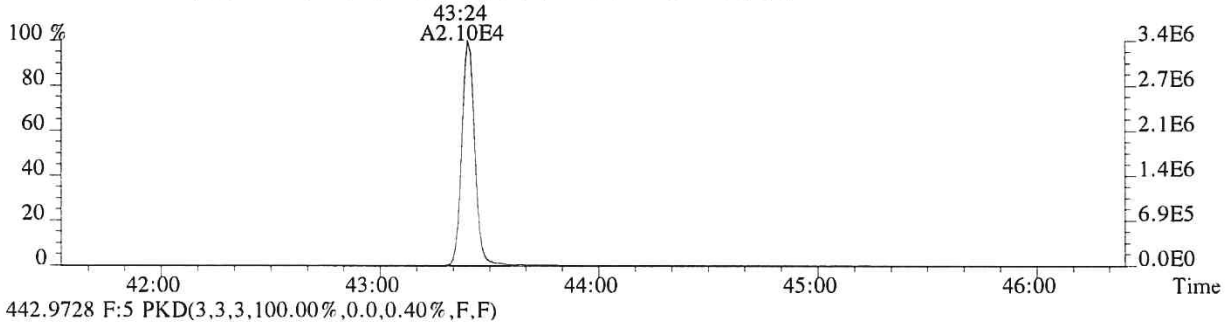
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



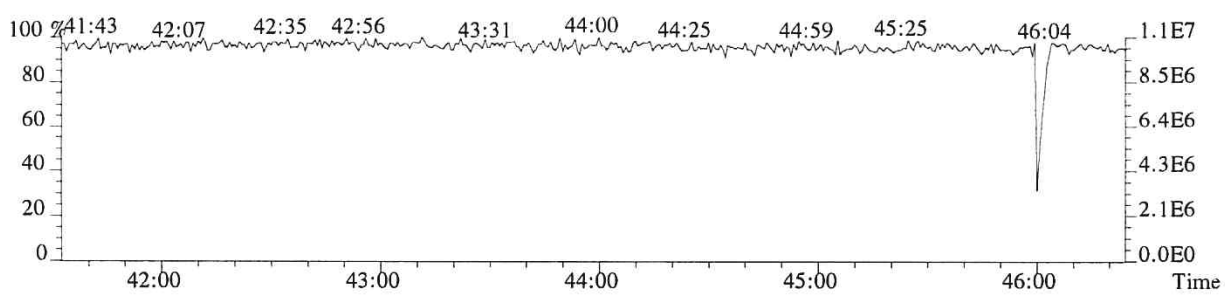
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009231

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID : DB-5MSUI

VER Data Filename: P615685 Analysis Date: 22-NOV-18 Time: 02:25:25

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.2	7.8 - 12.9	-8.0
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	-1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	48	39 - 64	-4.5
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-1.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	51	41 - 61	2.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.02	0.88-1.20	46	43 - 58	-7.0
OCDD	M+2/M+4	0.90	0.76-1.02	95	79 - 126	-4.6
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.1	8.4 - 12.0	-8.9
1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	45	41 - 60	-10.3
2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	45	41 - 61	-10.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	44	45 - 56	-11.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	44	44 - 57	-11.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	45	45 - 56	-9.9
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	45	44 - 57	-10.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.06	0.88-1.20	45	45 - 55	-9.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	45	43 - 58	-10.4
OCDF	M+2/M+4	0.91	0.76-1.02	89	63 - 159	-11.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

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1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID : DB-5MSUI

VER Data Filename: P615685 Analysis Date: 22-NOV-18 Time: 02:25:25

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	103	82 - 121	2.8
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	94	62 - 160	-5.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	96	85 - 117	-3.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	97	85 - 118	-3.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	207	96 - 415	3.4
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	95	71 - 140	-4.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	93	76 - 130	-6.7
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	96	77 - 130	-4.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	76 - 131	-5.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	91	70 - 143	-9.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	93	73 - 137	-6.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	95	78 - 129	-5.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	99	77 - 129	-1.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.6	7.8 - 12.7	-4.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #8 Filename P615685 Samp: 1 Inj: 1 Acquired: 22-NOV-18 02:25:25
Processed: 26-NOV-18 14:25:11 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:26	6.417e+03	8.207e+03	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:20	5.210e+04	3.283e+04	1.59	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:13	5.016e+04	3.192e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:47	4.831e+04	3.849e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:53	4.843e+04	3.937e+04	1.23	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:23	4.731e+04	3.778e+04	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:08	4.695e+04	3.776e+04	1.24	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:23	4.391e+04	4.161e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:54	3.796e+04	3.635e+04	1.04	yes	no	1.463
10	Unk	OCDF	43:39	5.724e+04	6.323e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	30:09	4.758e+03	5.977e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:28	3.268e+04	2.102e+04	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:30	3.130e+04	2.502e+04	1.25	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:35	3.208e+04	2.574e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:49	3.594e+04	2.915e+04	1.23	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:22	2.980e+04	2.921e+04	1.02	yes	no	1.112
17	Unk	OCDD	43:25	4.499e+04	5.012e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:26	6.507e+04	8.337e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:20	1.006e+05	6.318e+04	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:12	1.018e+05	6.426e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	4.761e+04	9.130e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:53	5.299e+04	1.001e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:22	5.090e+04	9.674e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:07	4.940e+04	9.373e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:22	3.874e+04	8.469e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:54	3.558e+04	7.780e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	30:07	4.867e+04	6.250e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:27	7.107e+04	4.569e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:29	6.159e+04	4.849e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:35	6.140e+04	4.937e+04	1.24	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:22	5.837e+04	5.575e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	43:25	8.184e+04	9.051e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:35	4.870e+04	6.134e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:49	7.037e+04	5.612e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:09	1.145e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #8 Filename P615685 Samp: 1 Inj: 1 Acquired: 22-NOV-18 02:25:25
Processed: 26-NOV-18 14:25:11 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.32e+06	1.34e+03	9.9e+02	1.73e+06	1.68e+03	1.0e+03
2	1,2,3,7,8-PeCDF	1.09e+07	1.38e+03	7.9e+03	6.89e+06	1.33e+04	5.2e+02
3	2,3,4,7,8-PeCDF	1.06e+07	1.38e+03	7.7e+03	6.69e+06	1.33e+04	5.0e+02
4	1,2,3,4,7,8-HxCDF	1.10e+07	4.93e+03	2.2e+03	8.83e+06	2.89e+04	3.1e+02
5	1,2,3,6,7,8-HxCDF	1.09e+07	4.93e+03	2.2e+03	8.96e+06	2.89e+04	3.1e+02
6	2,3,4,6,7,8-HxCDF	1.05e+07	4.93e+03	2.1e+03	8.36e+06	2.89e+04	2.9e+02
7	1,2,3,7,8,9-HxCDF	1.05e+07	4.93e+03	2.1e+03	8.45e+06	2.89e+04	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	9.56e+06	1.22e+04	7.8e+02	9.02e+06	1.03e+04	8.7e+02
9	1,2,3,4,7,8,9-HpCDF	7.31e+06	1.22e+04	6.0e+02	7.07e+06	1.03e+04	6.8e+02
10	OCDF	8.94e+06	1.27e+03	7.0e+03	1.00e+07	1.41e+03	7.1e+03
11	2,3,7,8-TCDD	1.01e+06	1.36e+03	7.4e+02	1.27e+06	1.11e+03	1.1e+03
12	1,2,3,7,8-PeCDD	6.99e+06	1.41e+03	5.0e+03	4.54e+06	1.73e+03	2.6e+03
13	1,2,3,4,7,8-HxCDD	7.26e+06	1.36e+03	5.3e+03	5.85e+06	2.41e+03	2.4e+03
14	1,2,3,6,7,8-HxCDD	7.10e+06	1.36e+03	5.2e+03	5.71e+06	2.41e+03	2.4e+03
15	1,2,3,7,8,9-HxCDD	8.04e+06	1.36e+03	5.9e+03	6.55e+06	2.41e+03	2.7e+03
16	1,2,3,4,6,7,8-HpCDD	6.05e+06	1.56e+03	3.9e+03	5.87e+06	1.42e+03	4.1e+03
17	OCDD	7.25e+06	3.03e+03	2.4e+03	8.11e+06	2.08e+03	3.9e+03
18	13C-2,3,7,8-TCDF	1.34e+07	5.34e+03	2.5e+03	1.71e+07	3.98e+03	4.3e+03
19	13C-1,2,3,7,8-PeCDF	2.07e+07	2.69e+03	7.7e+03	1.29e+07	1.72e+03	7.5e+03
20	13C-2,3,4,7,8-PeCDF	2.13e+07	2.69e+03	7.9e+03	1.37e+07	1.72e+03	8.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.10e+07	1.72e+03	6.4e+03	2.11e+07	3.68e+03	5.7e+03
22	13C-1,2,3,6,7,8-HxCDF	1.22e+07	1.72e+03	7.1e+03	2.30e+07	3.68e+03	6.2e+03
23	13C-2,3,4,6,7,8-HxCDF	1.13e+07	1.72e+03	6.5e+03	2.16e+07	3.68e+03	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.11e+07	1.72e+03	6.4e+03	2.10e+07	3.68e+03	5.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.39e+06	1.67e+03	5.0e+03	1.84e+07	6.69e+03	2.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.93e+06	1.67e+03	4.1e+03	1.51e+07	6.69e+03	2.3e+03
27	13C-2,3,7,8-TCDD	1.03e+07	5.04e+03	2.0e+03	1.32e+07	3.02e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	1.50e+07	1.12e+03	1.3e+04	9.66e+06	1.57e+03	6.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.42e+07	2.82e+03	5.0e+03	1.13e+07	2.17e+03	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.37e+07	2.82e+03	4.8e+03	1.11e+07	2.17e+03	5.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.18e+07	3.29e+03	3.6e+03	1.15e+07	5.52e+03	2.1e+03
32	13C-OCDD	1.32e+07	4.27e+03	3.1e+03	1.47e+07	8.80e+03	1.7e+03
33	13C-1,2,3,4-TCDD	1.02e+07	5.04e+03	2.0e+03	1.30e+07	3.02e+03	4.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.58e+07	2.82e+03	5.6e+03	1.29e+07	2.17e+03	5.9e+03
35	37Cl-2,3,7,8-TCDD	2.48e+06	7.28e+02	3.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.356e{+}03 + 1.108e{+}03) \times 100}{(1.025e{+}07 + 1.324e{+}07) \times (\quad) \times 1.049} =$$

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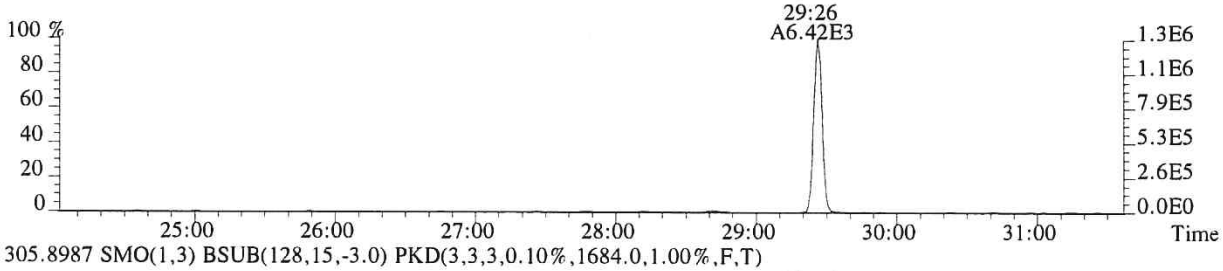
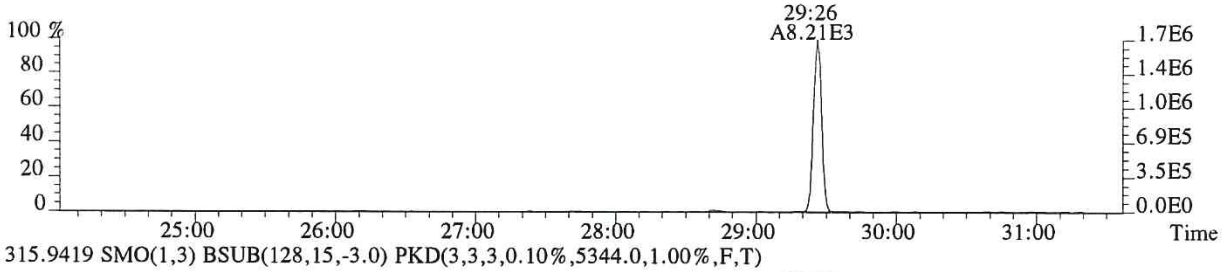
File:P615685 #1-538 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

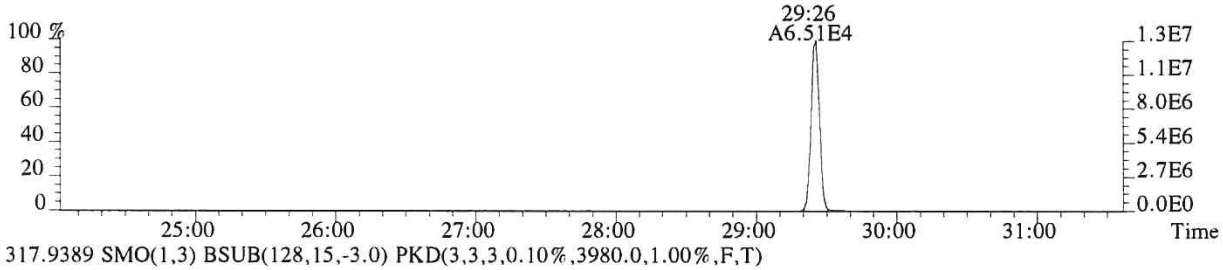
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



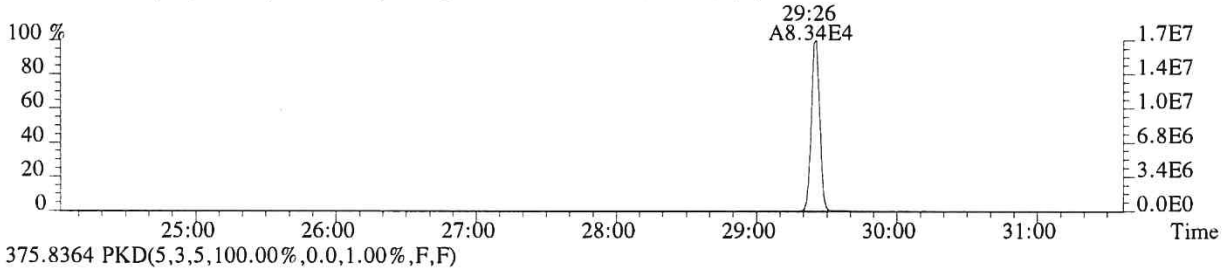
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



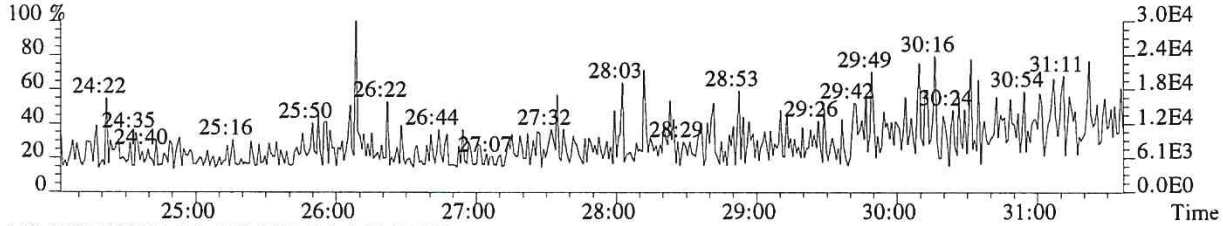
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5344.0,1.00%,F,T)



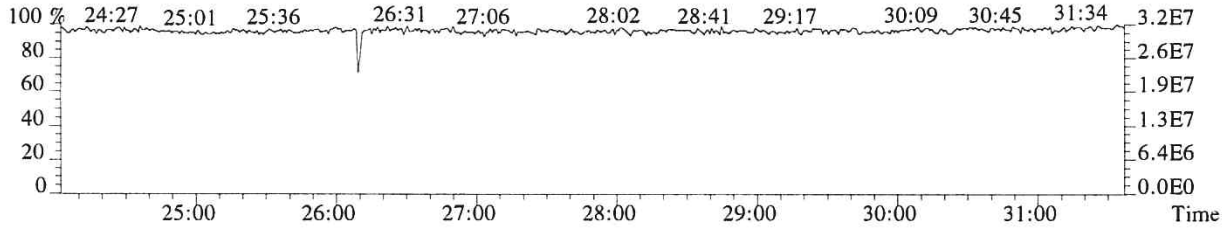
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3980.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



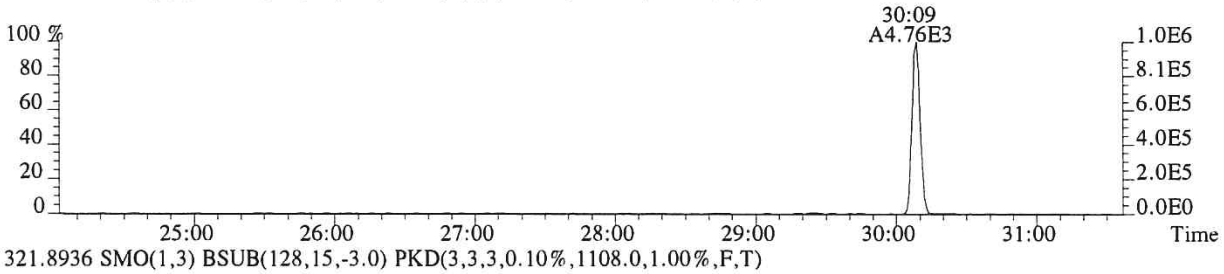
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



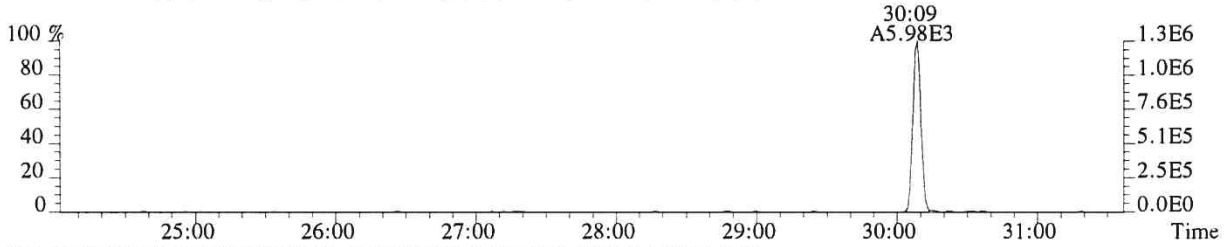
009236

File:P615685 #1-538 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

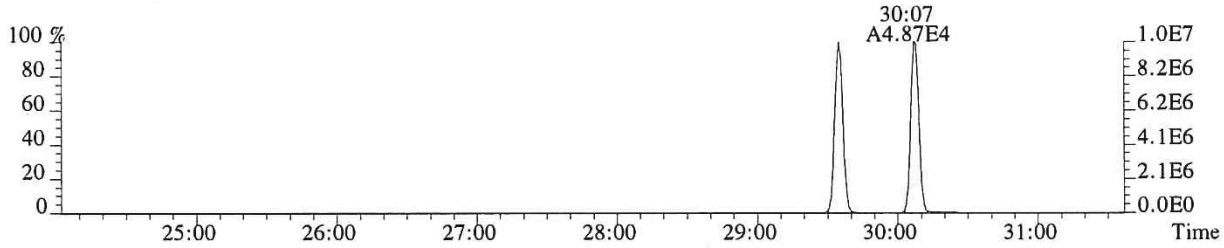
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



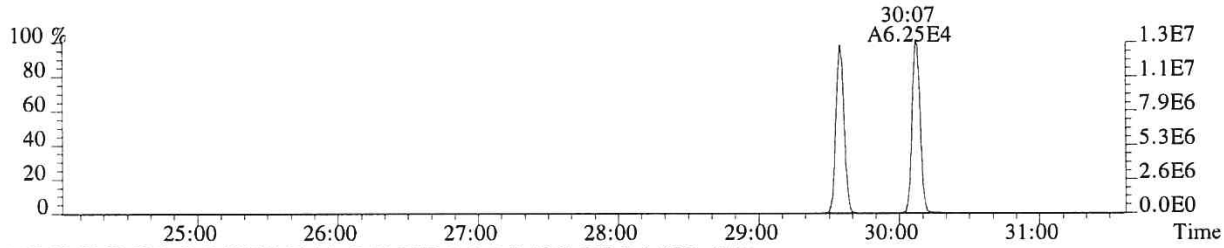
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



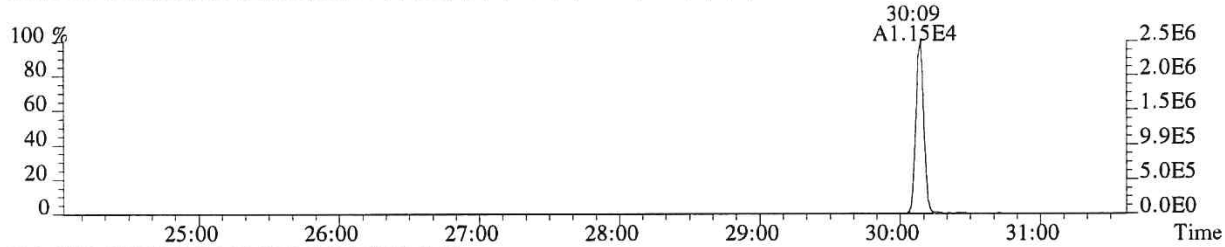
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5044.0,1.00%,F,T)



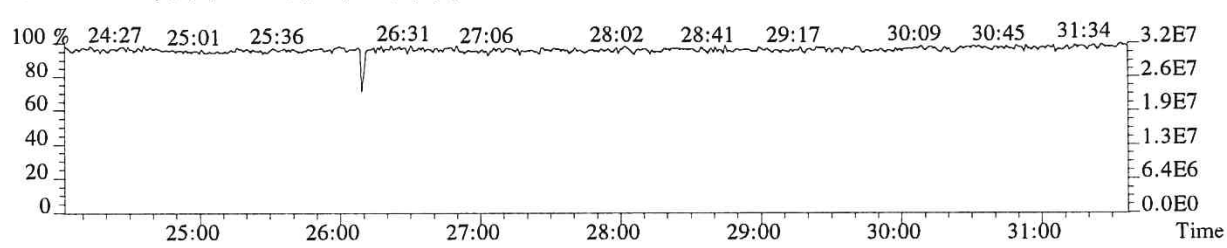
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3020.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)

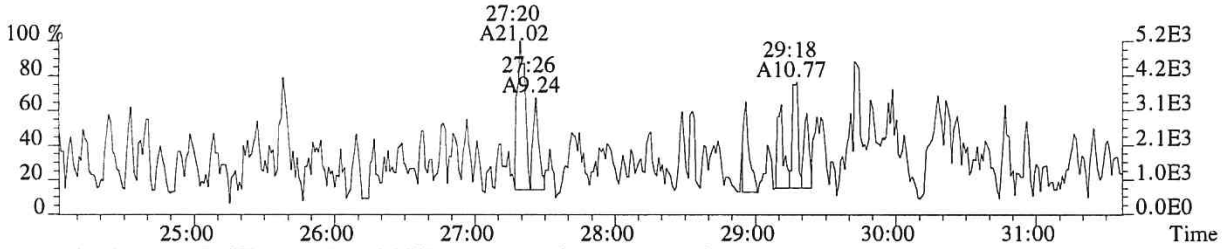


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

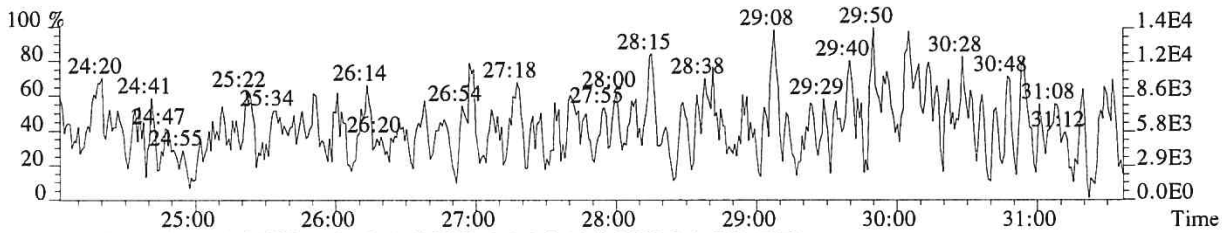


009237

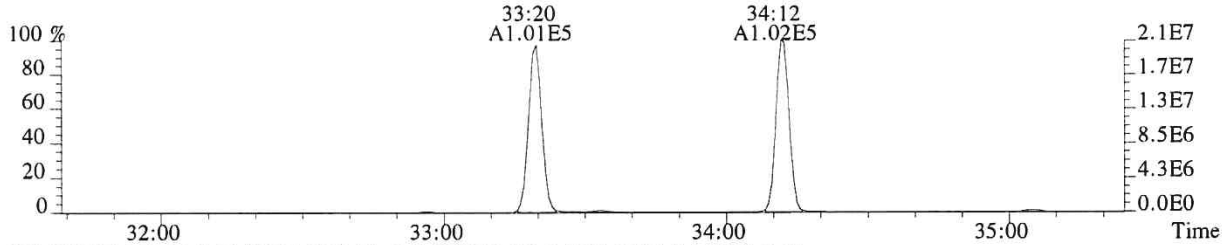
File:P615685 #1-538 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



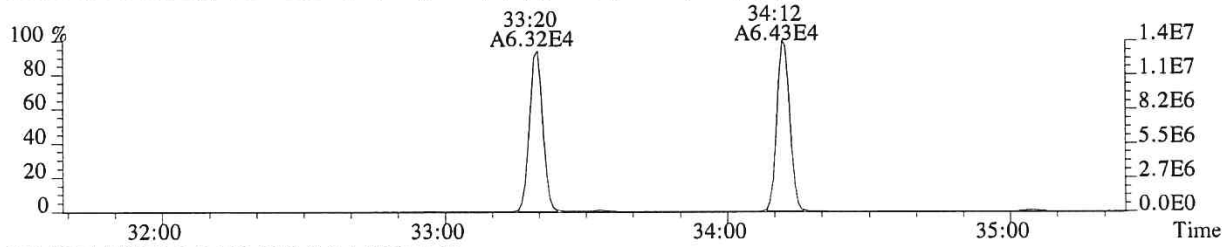
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7360.0,1.00%,F,T)



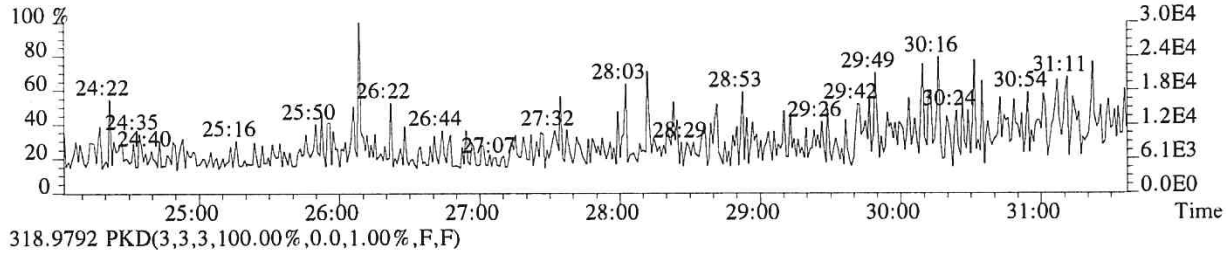
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2688.0,1.00%,F,T)



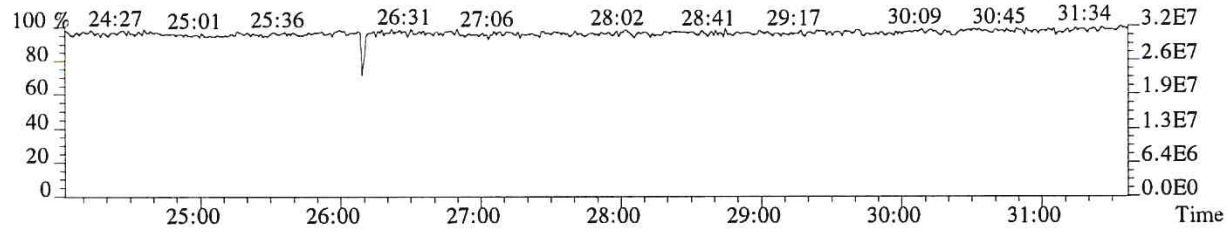
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1716.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



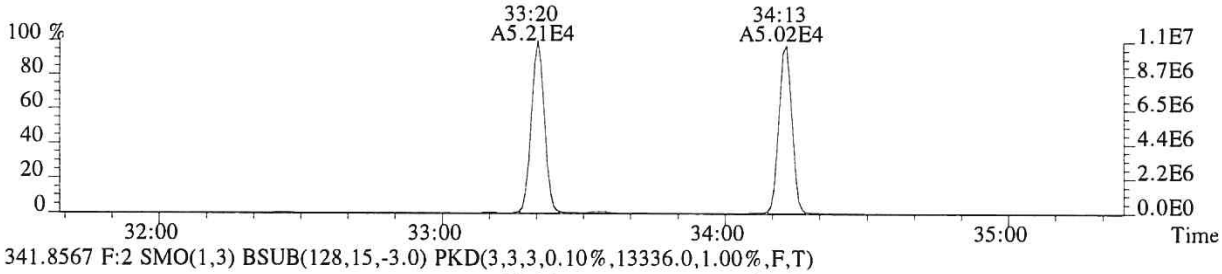
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



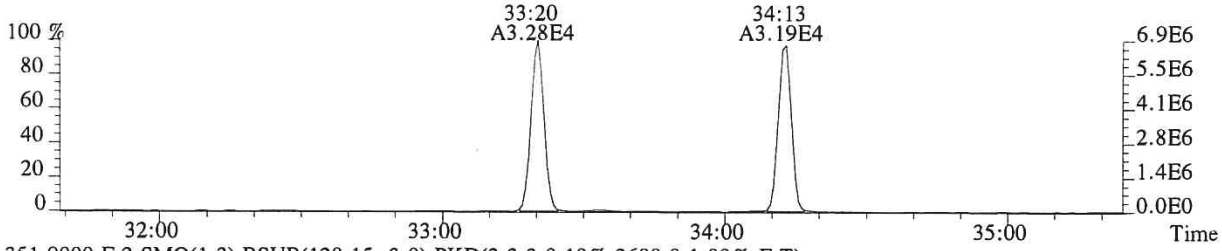
009238

File:P615685 #1-339 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

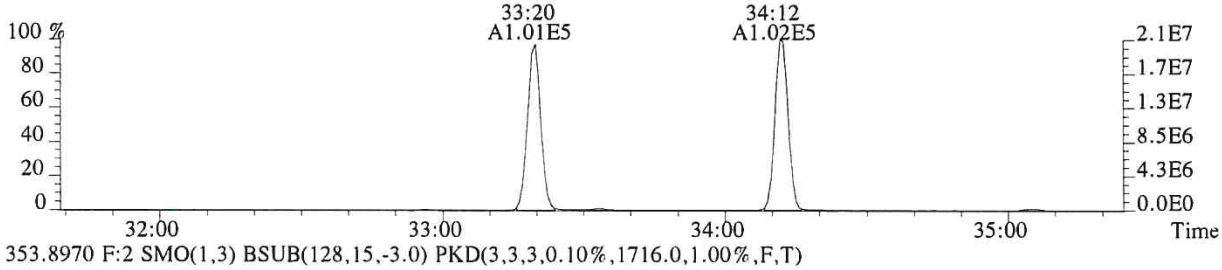
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



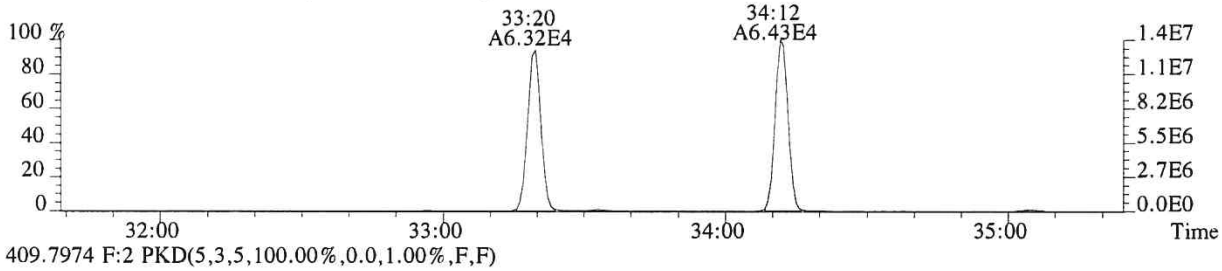
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13336.0,1.00%,F,T)



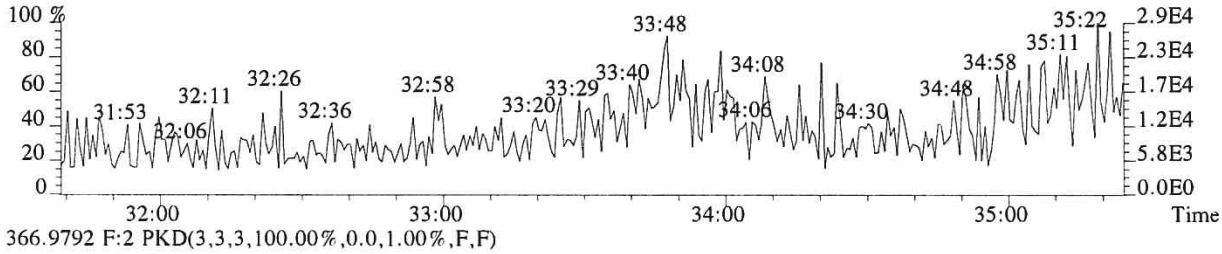
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2688.0,1.00%,F,T)



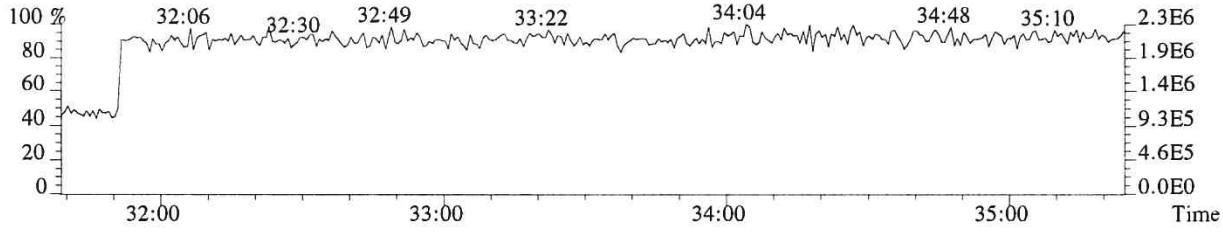
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1716.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

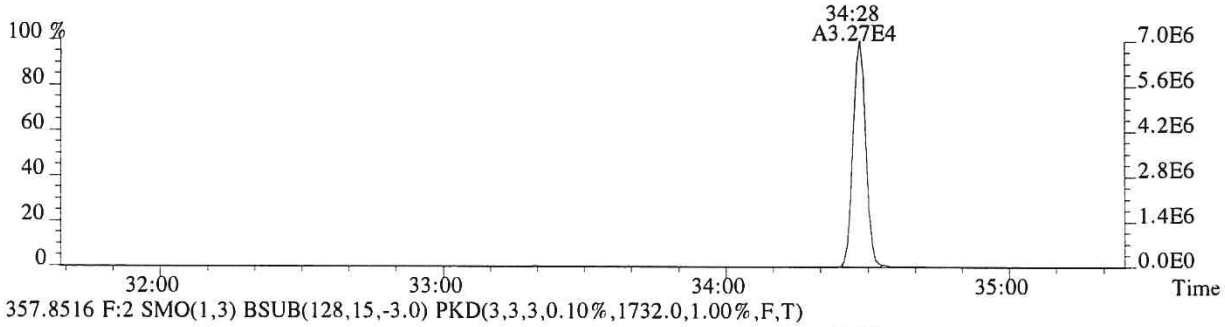


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

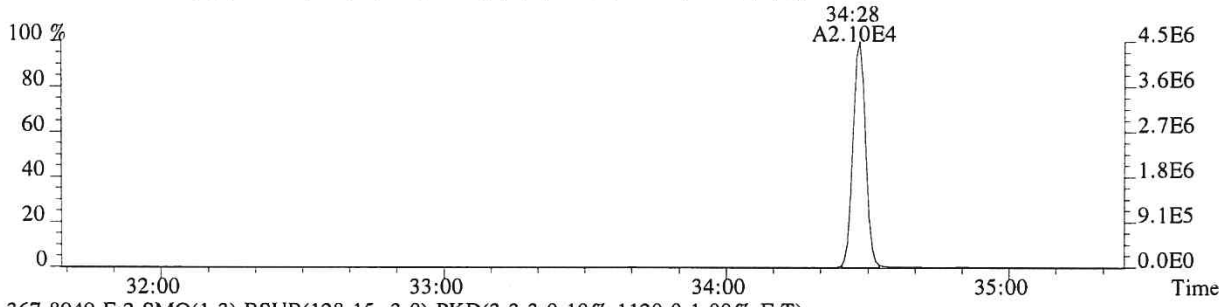


009239

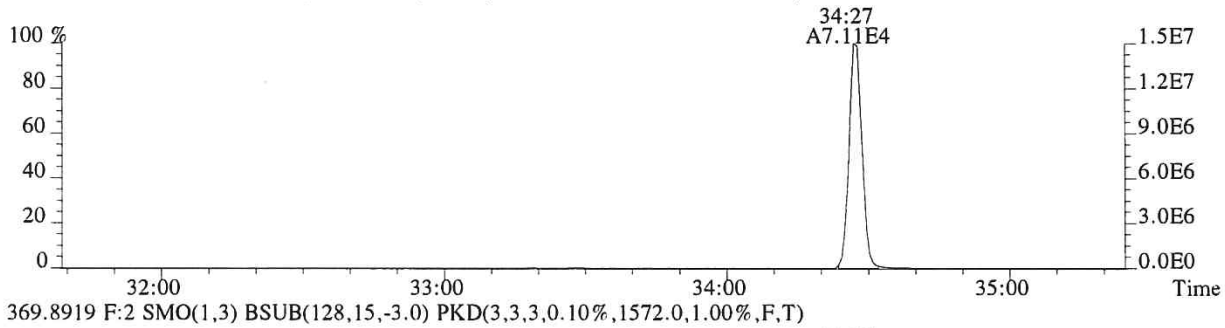
File:P615685 #1-339 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



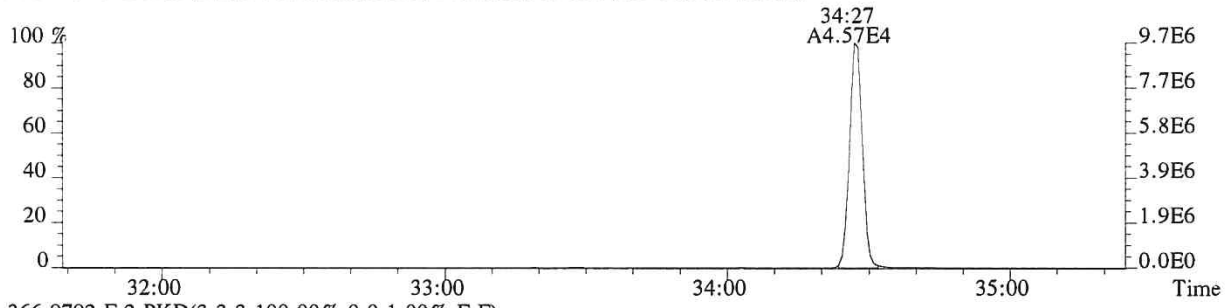
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1732.0,1.00%,F,T)



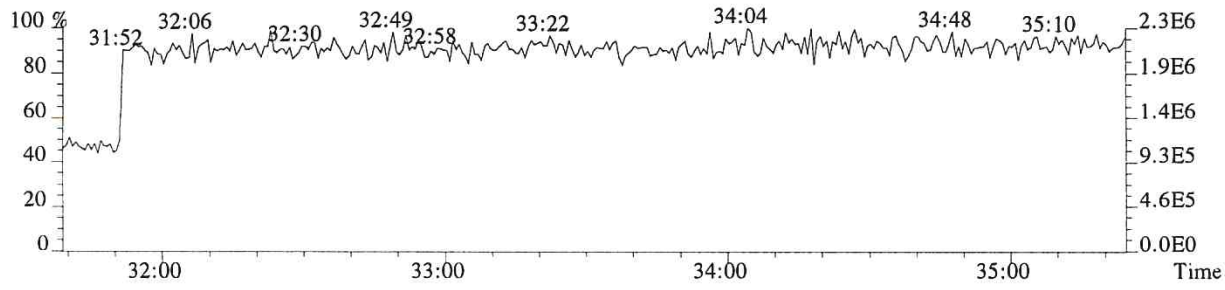
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1572.0,1.00%,F,T)



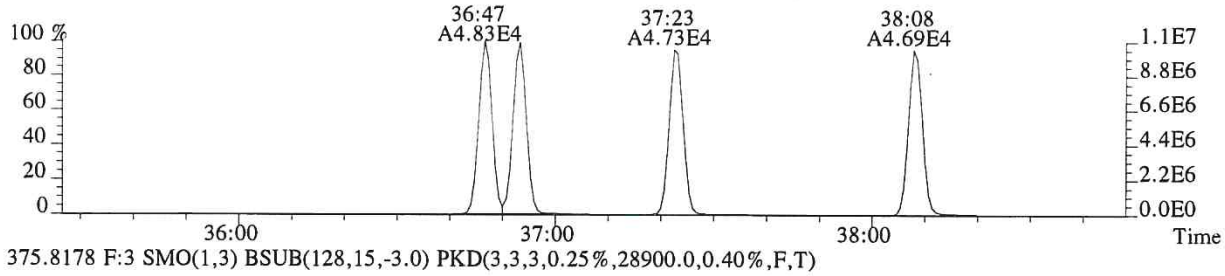
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



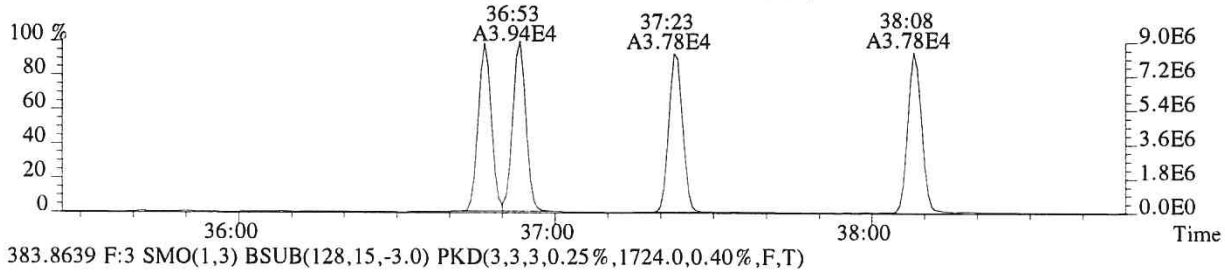
009240

File:P615685 #1-303 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

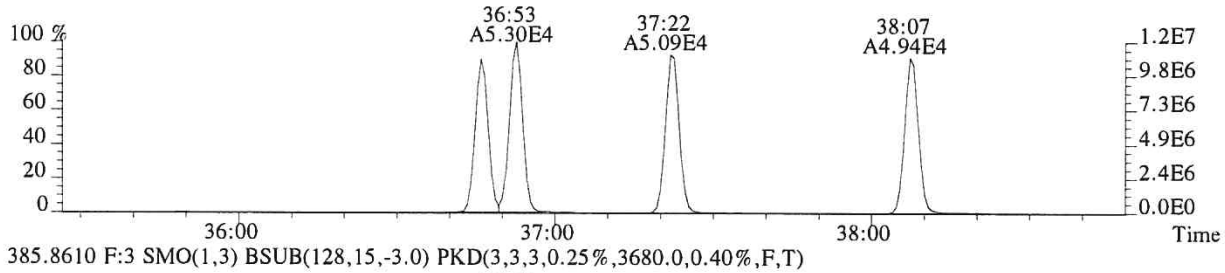
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4932.0,0.40%,F,T)



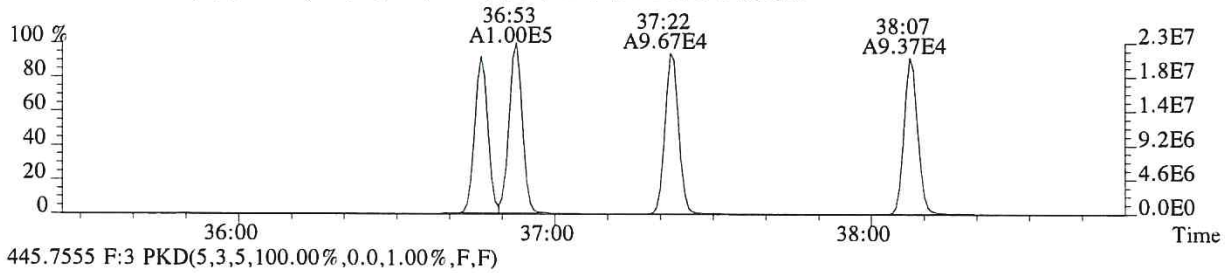
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,28900.0,0.40%,F,T)



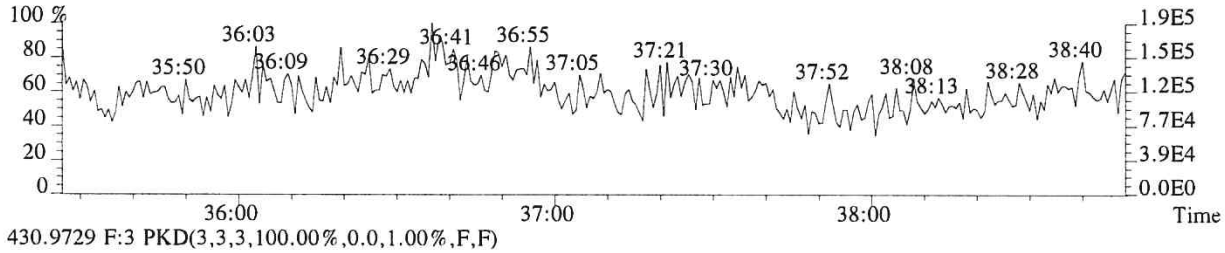
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1724.0,0.40%,F,T)



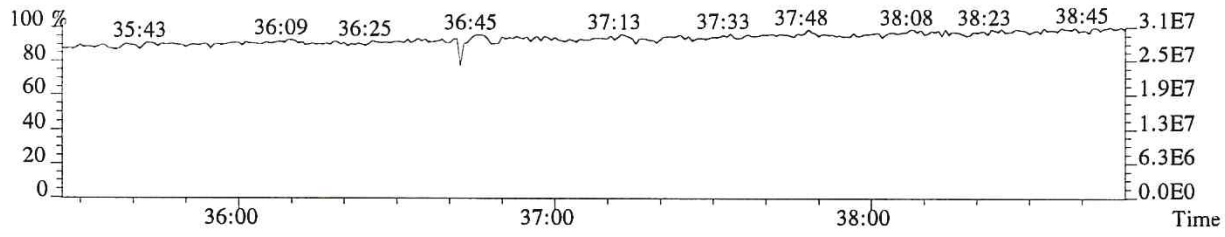
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3680.0,0.40%,F,T)



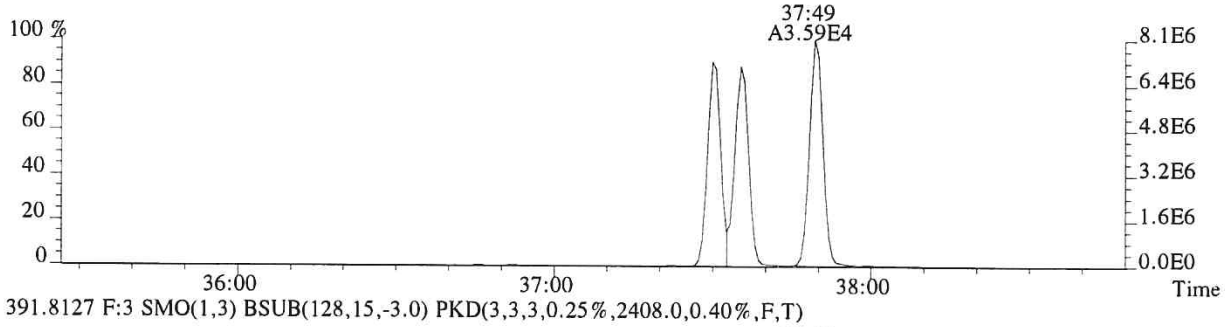
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



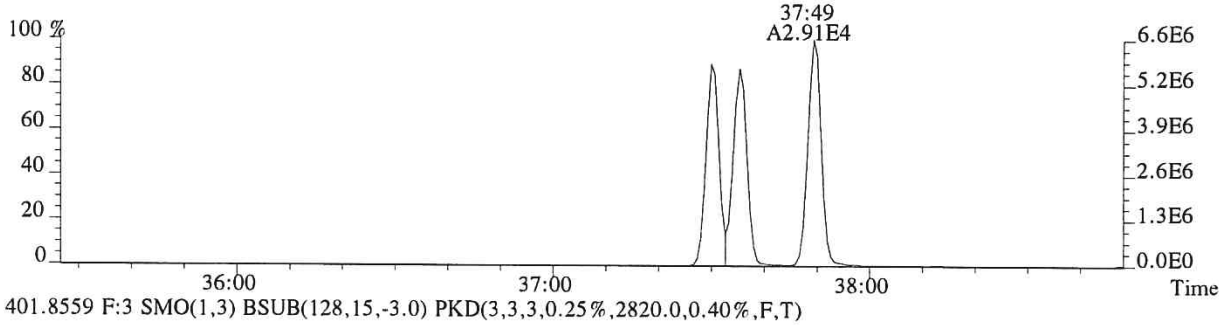
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



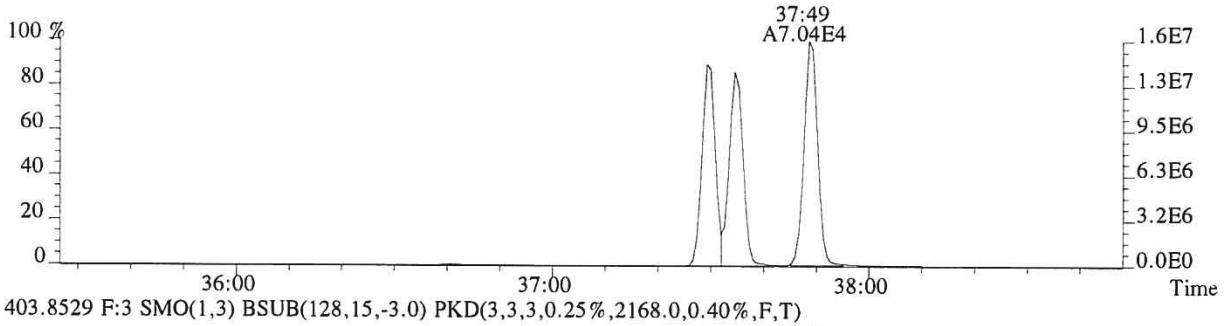
File:P615685 #1-303 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1360.0,0.40%,F,T)



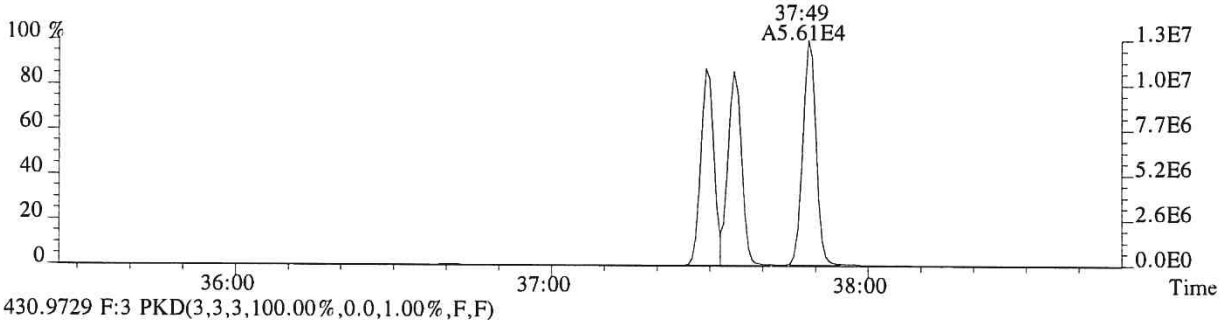
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2408.0,0.40%,F,T)



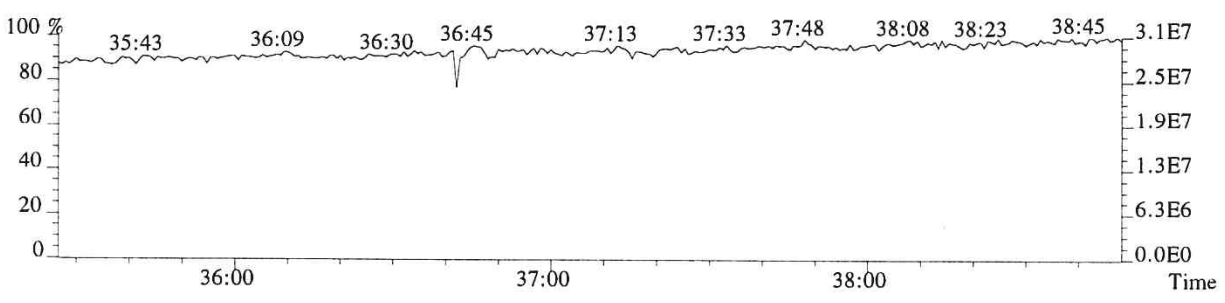
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2820.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2168.0,0.40%,F,T)



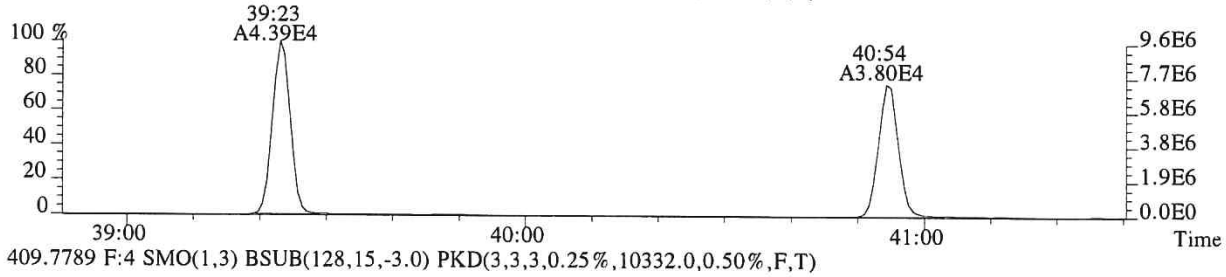
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



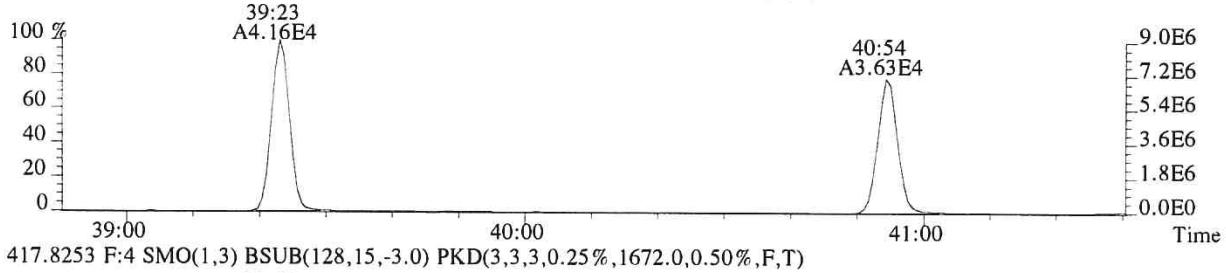
009242

File:P615685 #1-241 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

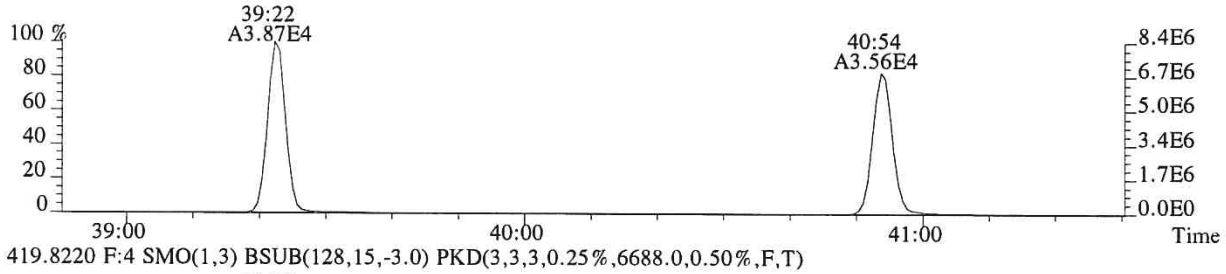
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12248.0,0.50%,F,T)



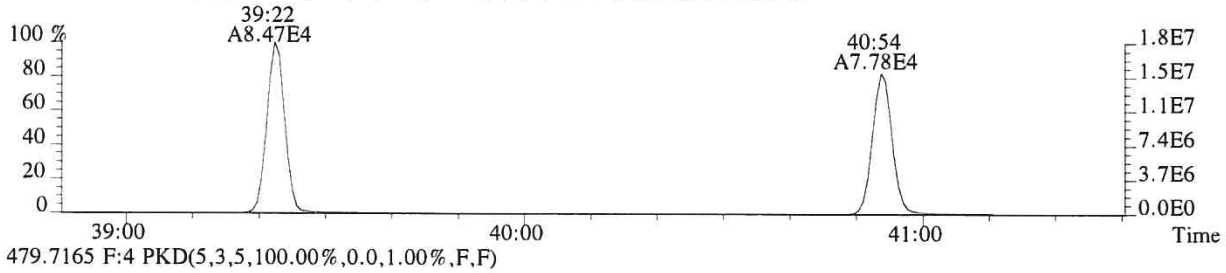
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10332.0,0.50%,F,T)



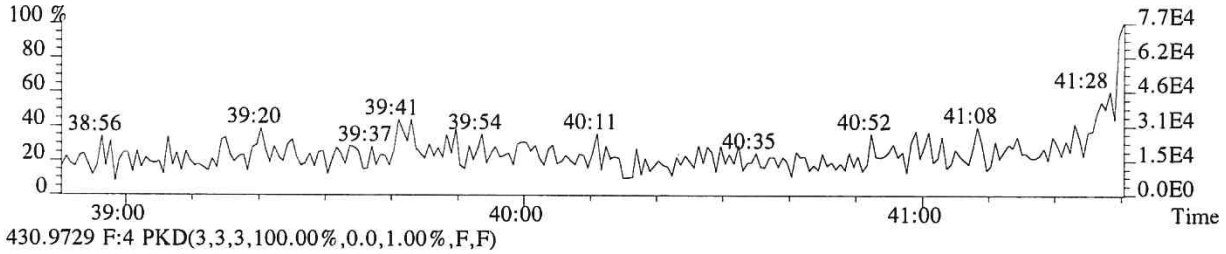
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1672.0,0.50%,F,T)



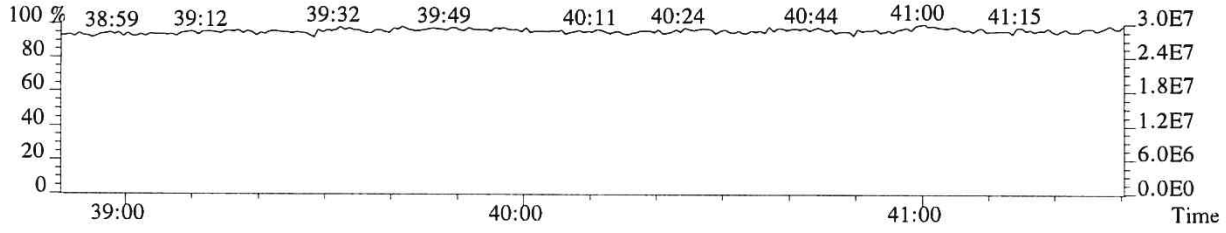
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6688.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

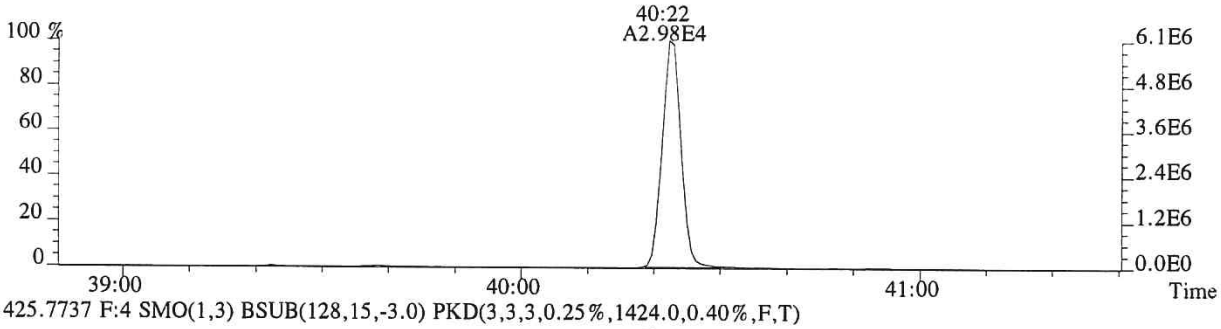


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

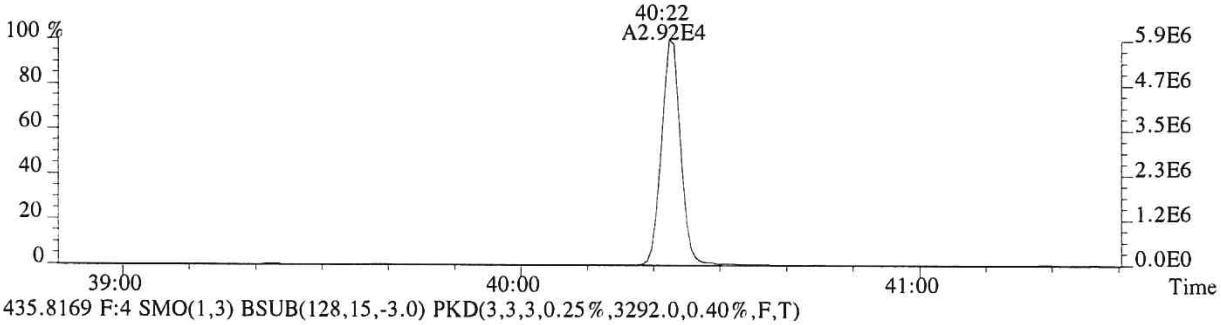


009243

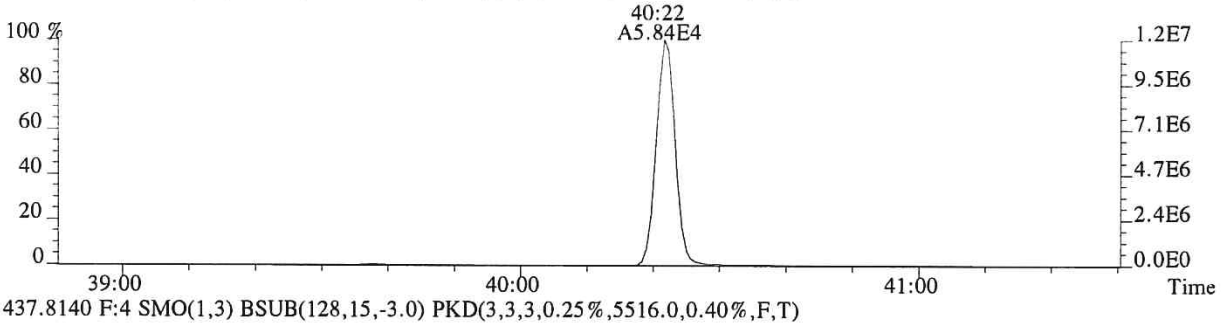
File:P615685 #1-241 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1560.0,0.40%,F,T)



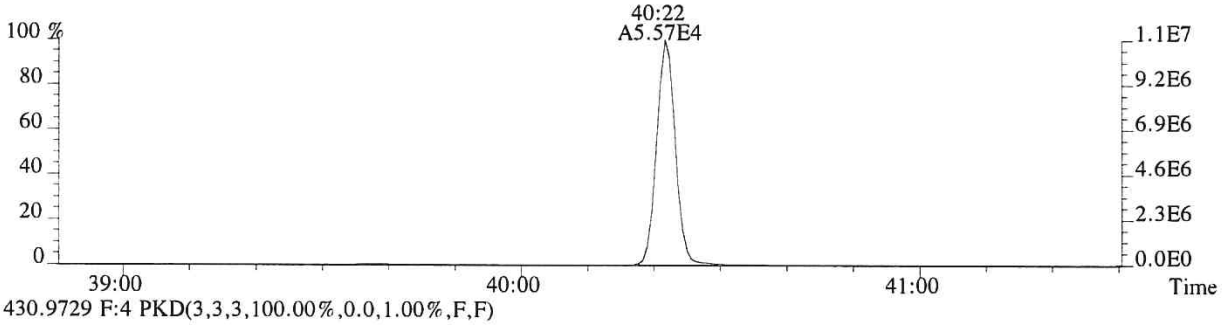
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



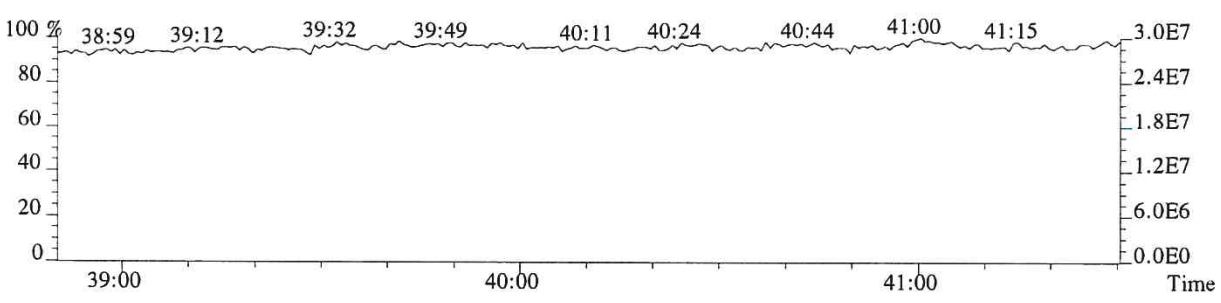
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3292.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5516.0,0.40%,F,T)



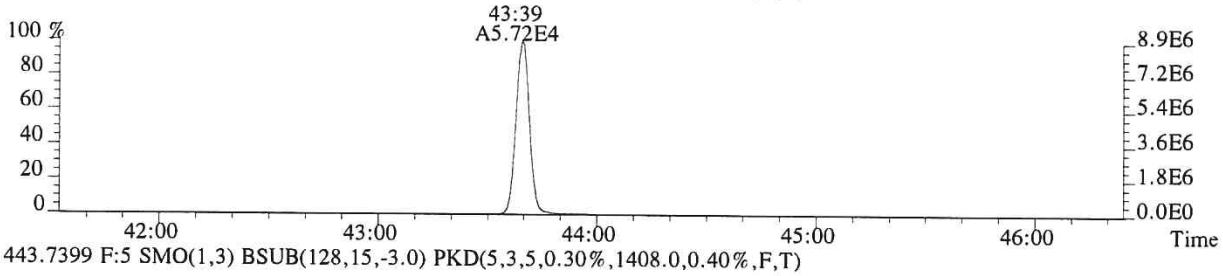
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



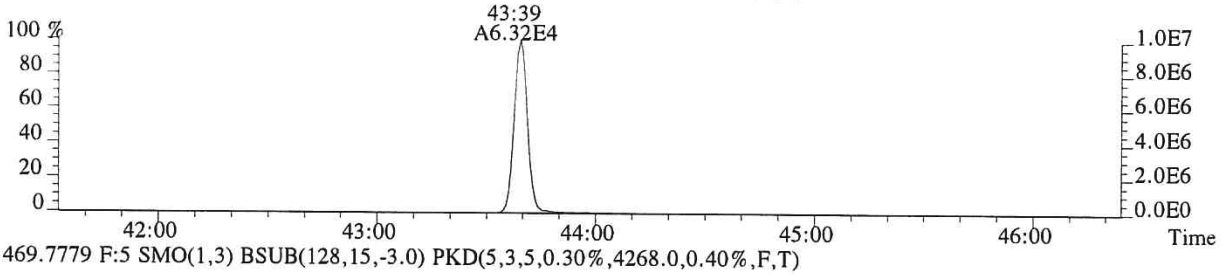
009244

File:P615685 #1-438 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

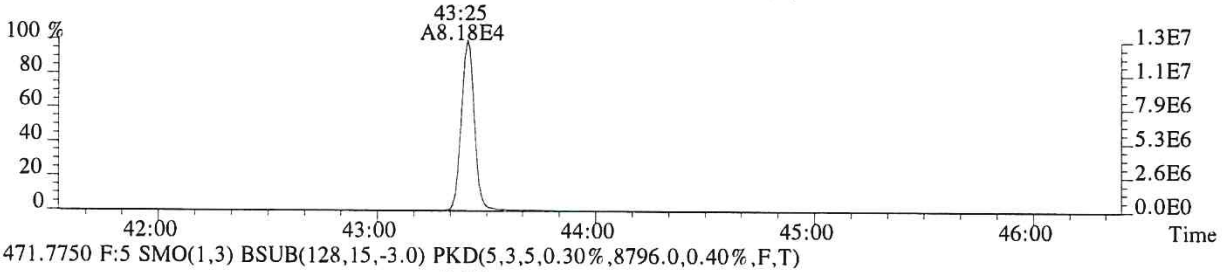
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1272.0,0.40%,F,T)



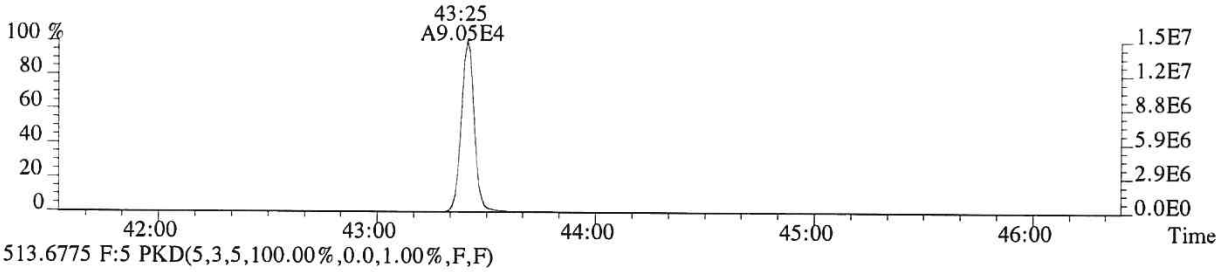
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1408.0,0.40%,F,T)



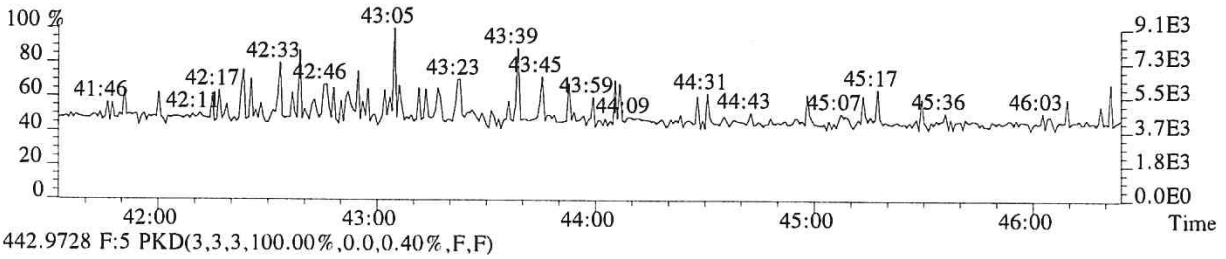
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4268.0,0.40%,F,T)



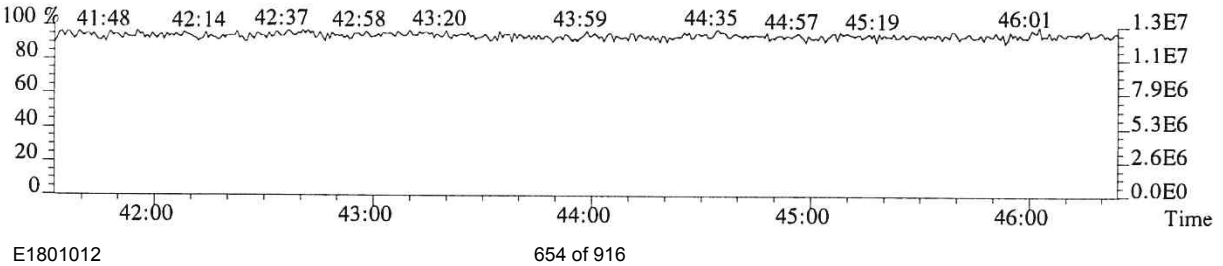
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8796.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

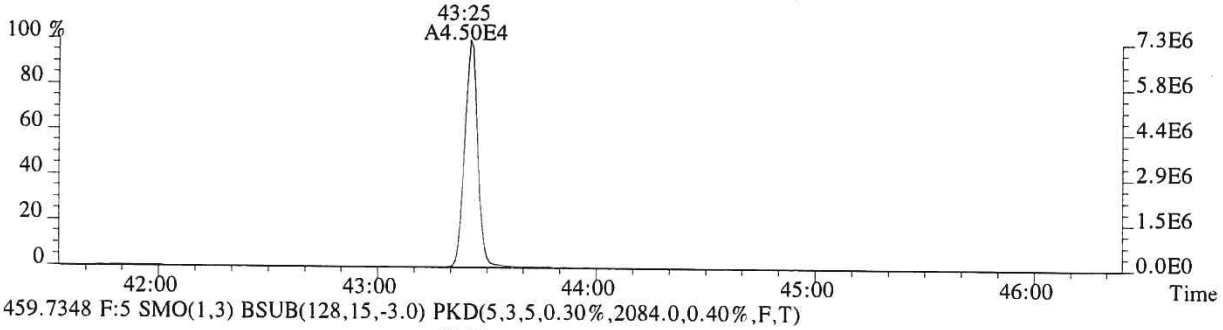


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

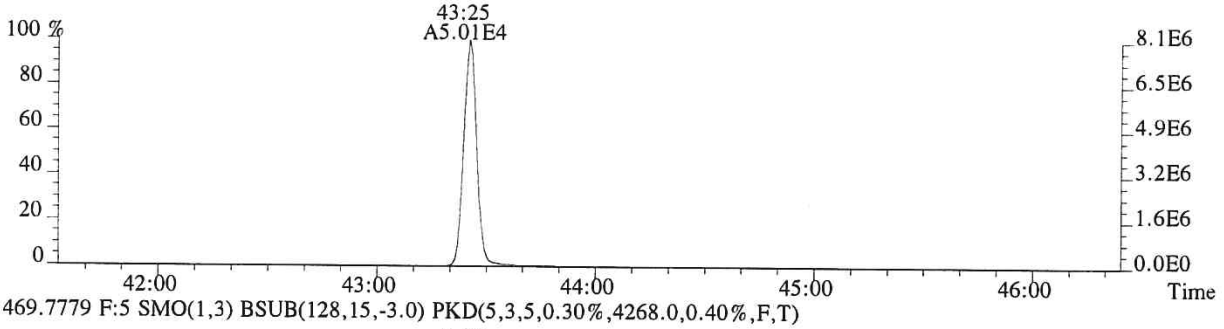


File:P615685 #1-438 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

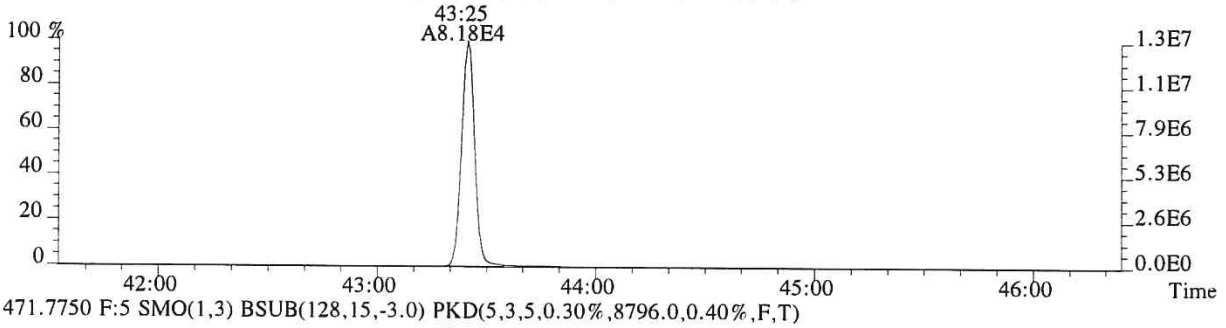
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3032.0,0.40%,F,T)



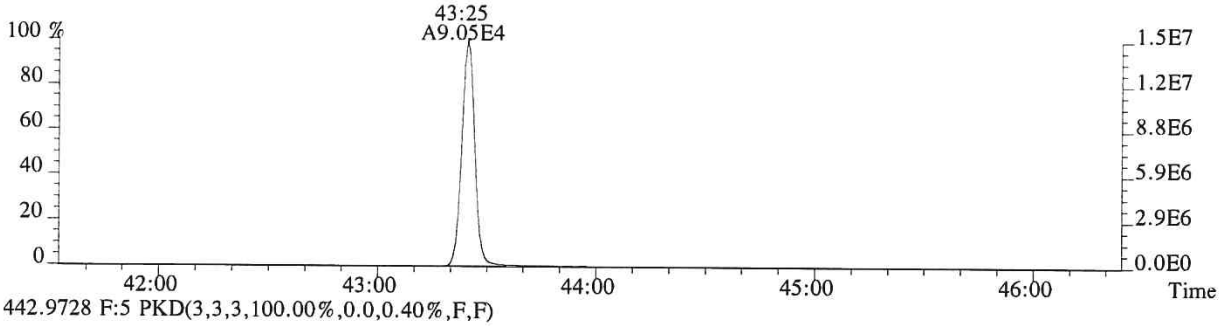
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2084.0,0.40%,F,T)



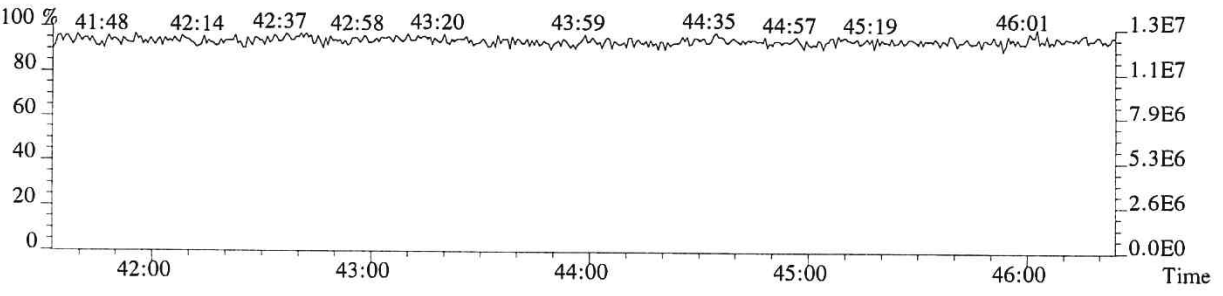
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4268.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8796.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009246

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P615714

Date: 11/27/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: LG

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P615715	27-NOV-18	11:03:06
194503	CS3	P615714	27-NOV-18	10:04:16
METHOD BLANK	EQ1800466-01	P615716	27-NOV-18	11:51:24
METHOD BLANK	EQ1800474-01	P615717	27-NOV-18	12:40:25
METHOD BLANK	EQ1800467-01	P615718	27-NOV-18	13:29:29
FW0002	E1801012-021	P615719	27-NOV-18	14:18:43
FW0003	E1801012-022	P615720	27-NOV-18	15:07:45
FW0001	E1801020-053	P615721	27-NOV-18	15:59:49
FB001	E1801020-054	P615722	27-NOV-18	16:48:08
183384-D/F WIPE OF	E1801036-001	P615723	27-NOV-18	17:37:19
183391-D/F WIPE OF	E1801036-002	P615724	27-NOV-18	18:26:25
183392-D/F WIPE OF	E1801036-003	P615725	27-NOV-18	19:15:37
FW0050	E1801038-023	P615726	27-NOV-18	20:04:50
LCS	EQ1800467-02	P615727	27-NOV-18	20:53:53
DLCS	EQ1800467-03	P615728	27-NOV-18	21:43:01

E1801012

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181127A.SPL
Last Modified: Wednesday, November 28, 2018 10:35:01 Central Standard Time
Printed: Wednesday, November 28, 2018 10:35:03 Central Standard Time

Page Position (1, 1)

OPUS5NET: P615714 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/27/18	10:04	P615714	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LKL	HRMScheck 10:59
2		11:03	P615715	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		11:51	P615716	EQ1800466-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		12:40	P615717	EQ1800474-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		13:29	P615718	EQ1800467-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		14:18	P615719	E1801012-021	E1801012-021	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		15:07	P615720	E1801012-022	E1801012-022	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:59	P615721	E1801020-053	E1801020-053	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		16:48	P615722	E1801020-054	E1801020-054	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		17:37	P615723	E1801036-001	E1801036-001	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		18:26	P615724	E1801036-002	E1801036-002	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		19:15	P615725	E1801036-003	E1801036-003	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		20:04	P615726	E1801038-023	E1801038-023	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:53	P615727	EQ1800467-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		21:43	P615728	EQ1800467-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		22:40	P615729	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMScheck 22:40
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

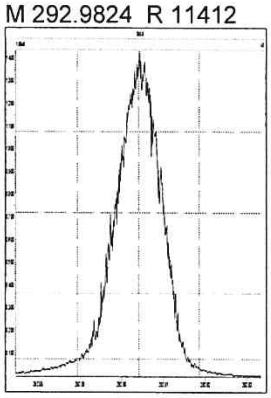
LKL 11/28/18

009249

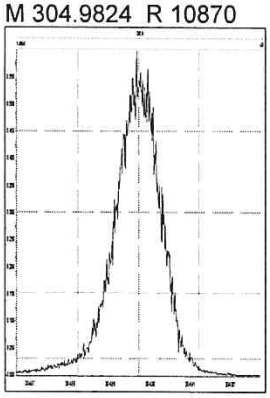
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 10:59:40 Central Standard Time

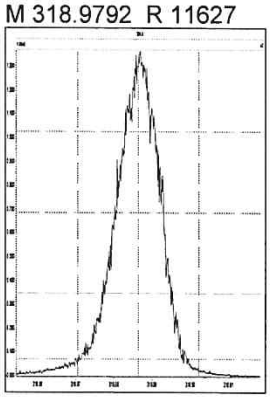
M 292.9824 R 11412



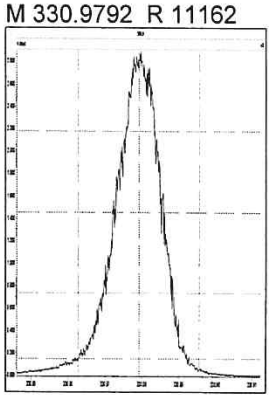
M 304.9824 R 10870



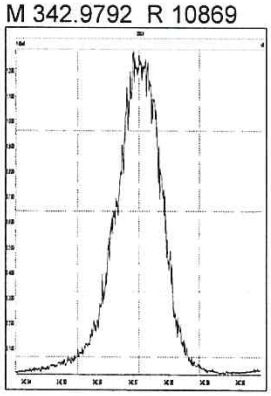
M 318.9792 R 11627



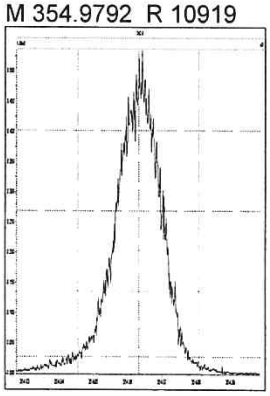
M 330.9792 R 11162



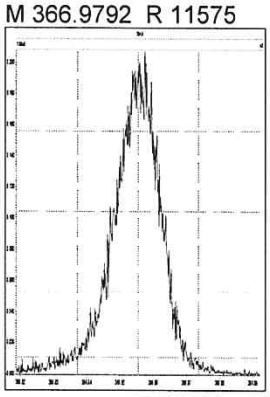
M 342.9792 R 10869



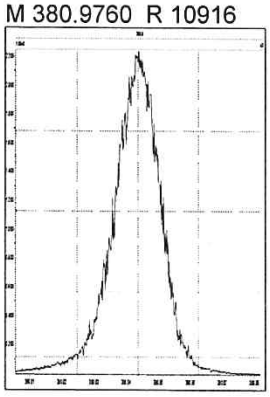
M 354.9792 R 10919



M 366.9792 R 11575



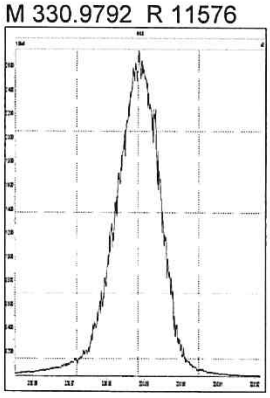
M 380.9760 R 10916



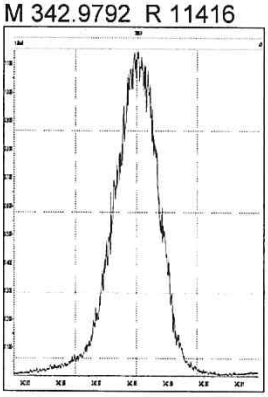
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:00:33 Central Standard Time

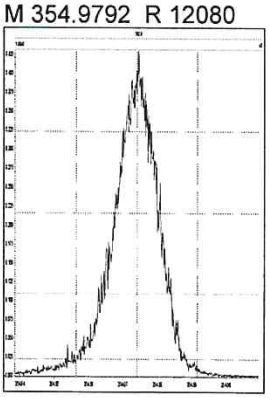
M 330.9792 R 11576



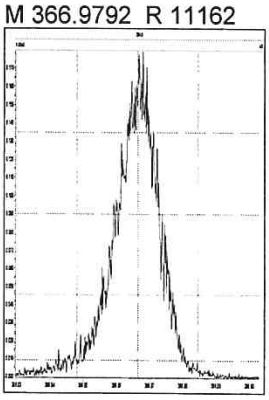
M 342.9792 R 11416



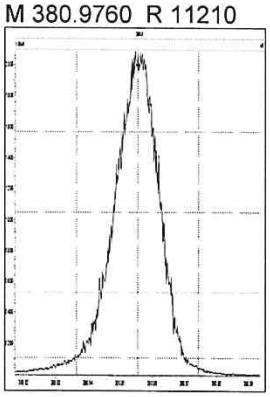
M 354.9792 R 12080



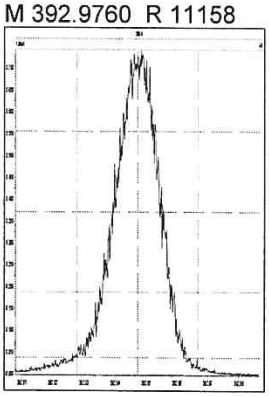
M 366.9792 R 11162



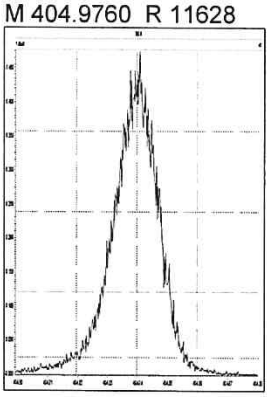
M 380.9760 R 11210



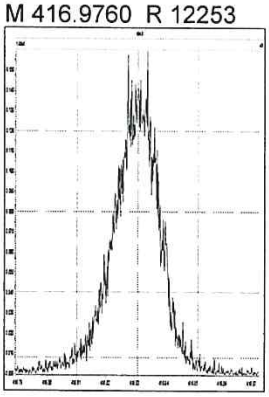
M 392.9760 R 11158



M 404.9760 R 11628



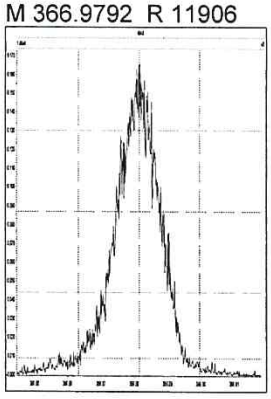
M 416.9760 R 12253



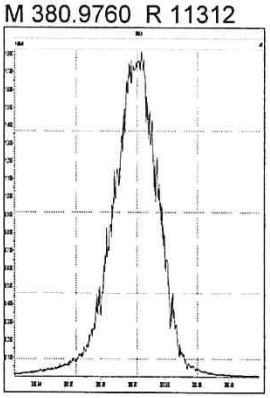
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:01:08 Central Standard Time

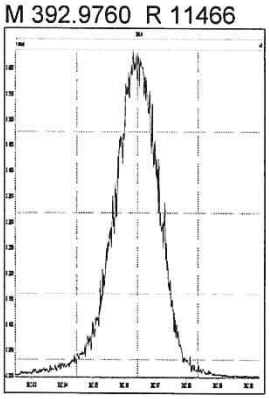
M 366.9792 R 11906



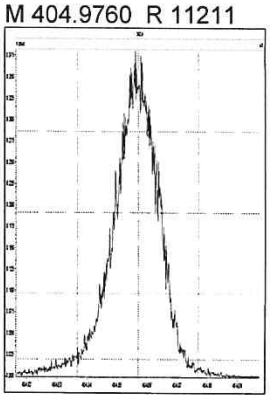
M 380.9760 R 11312



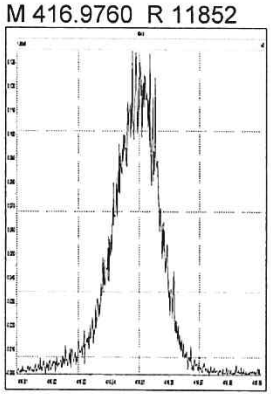
M 392.9760 R 11466



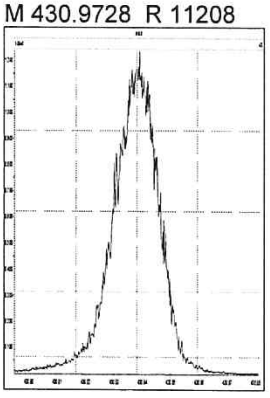
M 404.9760 R 11211



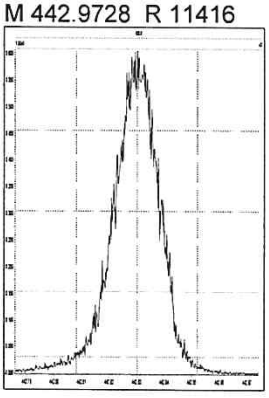
M 416.9760 R 11852



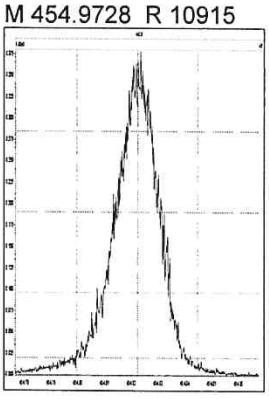
M 430.9728 R 11208



M 442.9728 R 11416



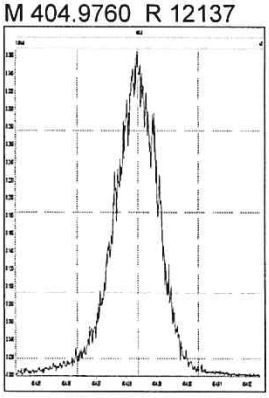
M 454.9728 R 10915



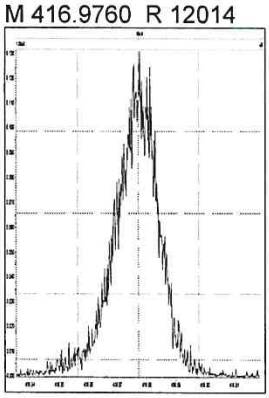
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:01:36 Central Standard Time

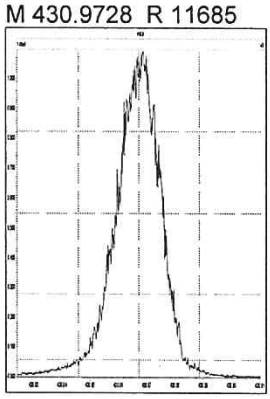
M 404.9760 R 12137



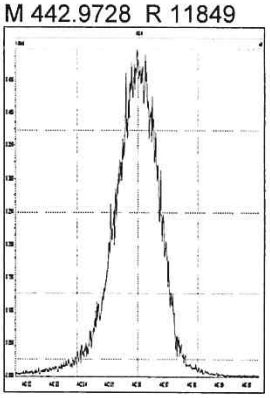
M 416.9760 R 12014



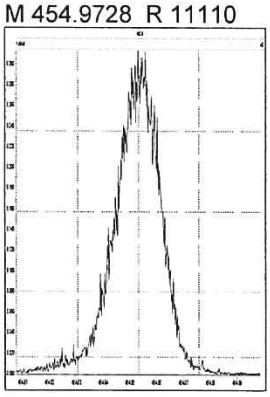
M 430.9728 R 11685



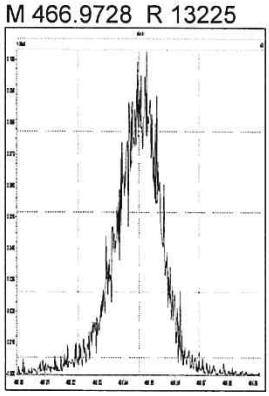
M 442.9728 R 11849



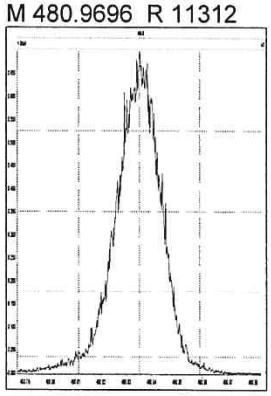
M 454.9728 R 11110



M 466.9728 R 13225



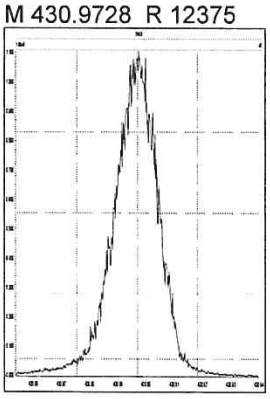
M 480.9696 R 11312



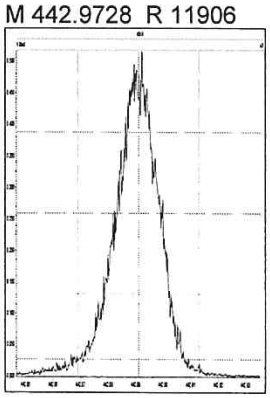
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:02:11 Central Standard Time

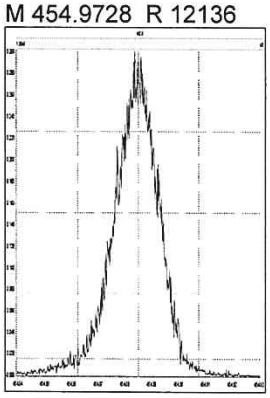
M 430.9728 R 12375



M 442.9728 R 11906



M 454.9728 R 12136



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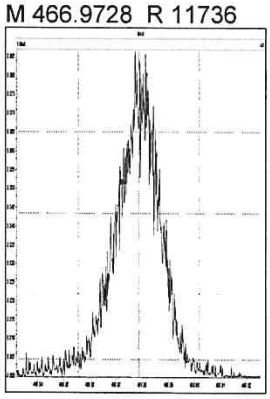

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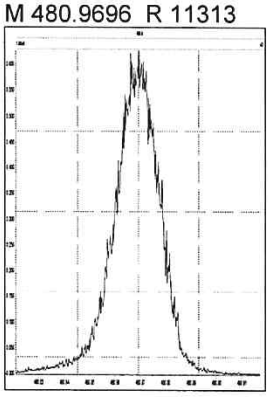

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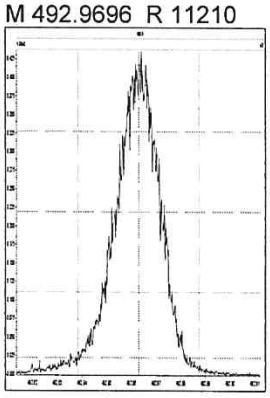

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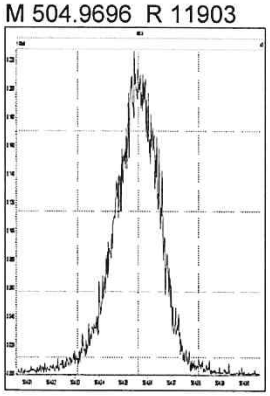

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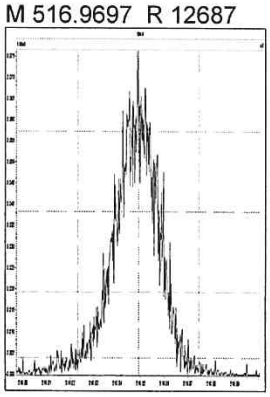

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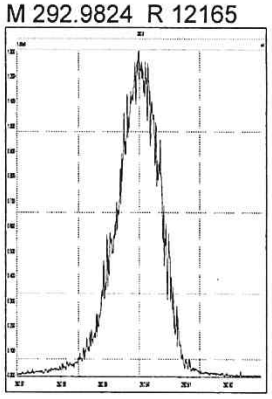

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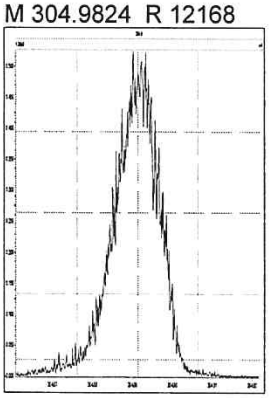

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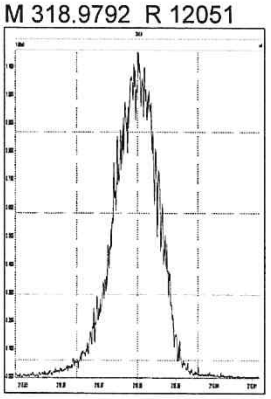

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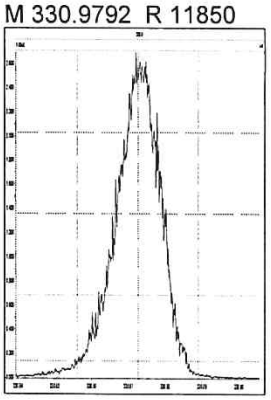

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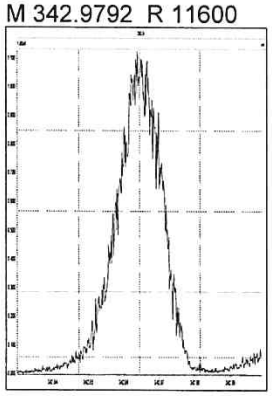

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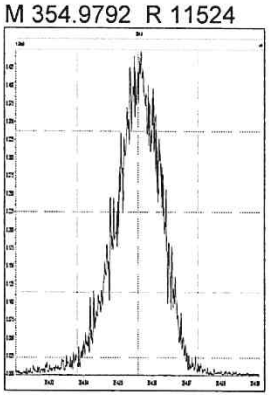

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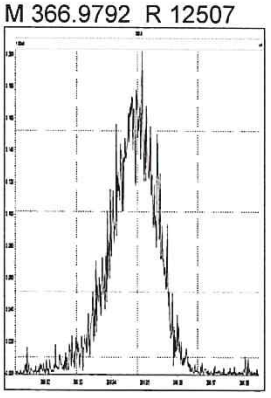

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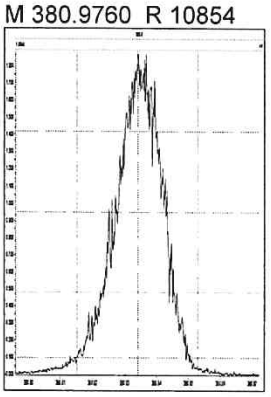

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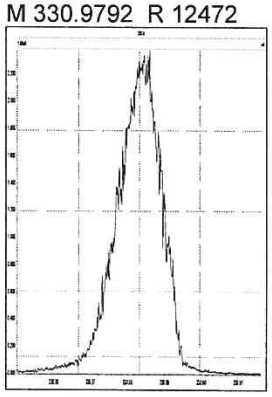

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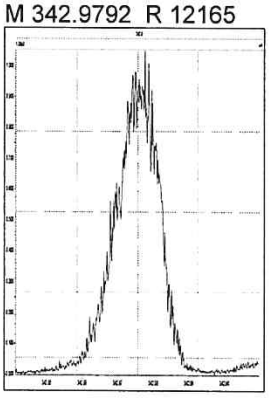

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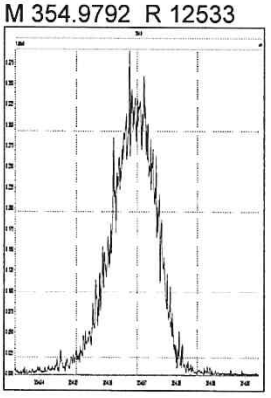

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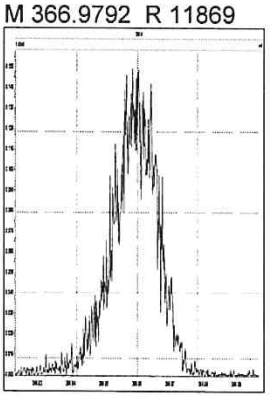

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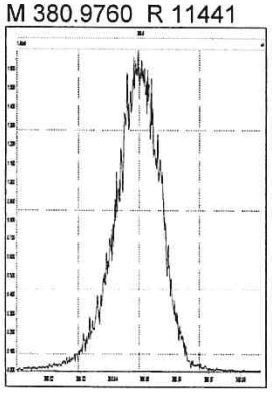

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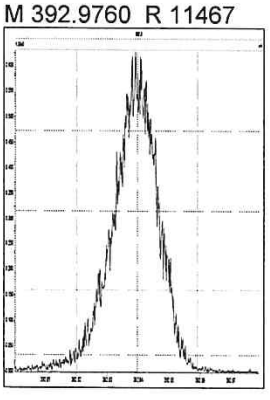

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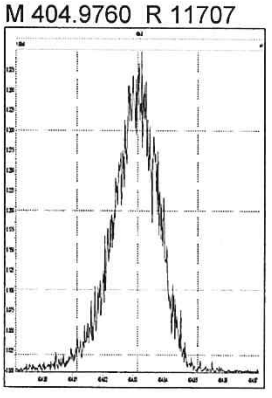

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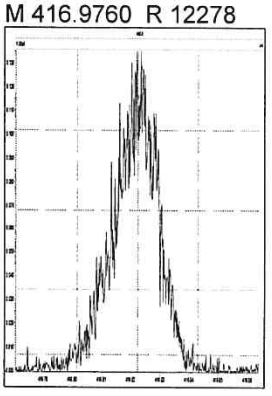

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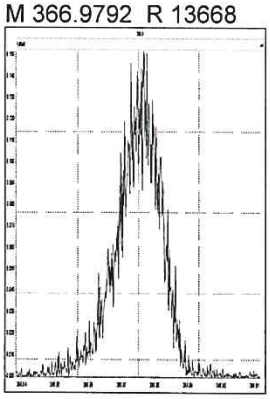

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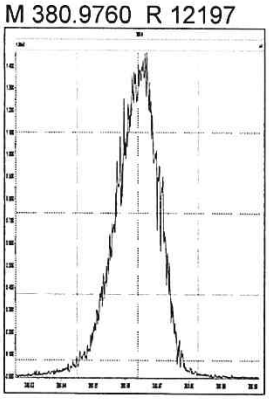

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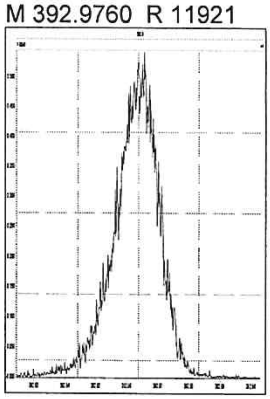

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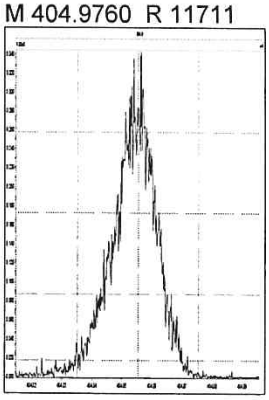

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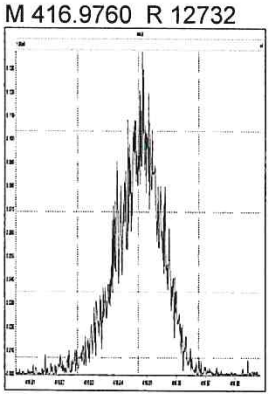
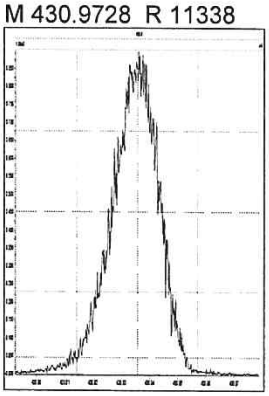


M 430.9728 R 11338



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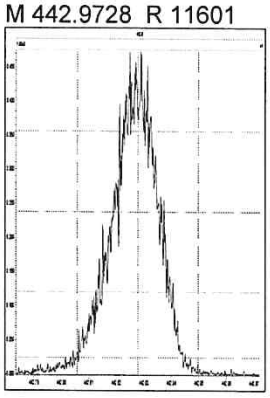

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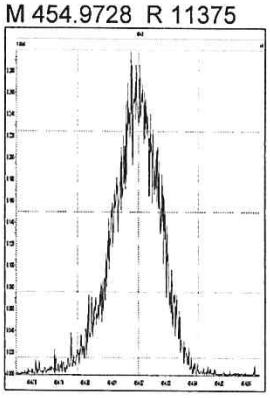

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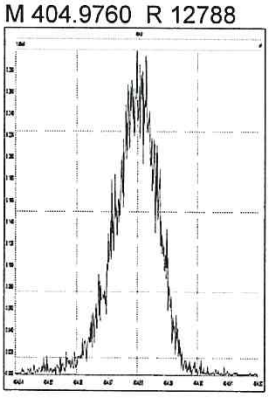

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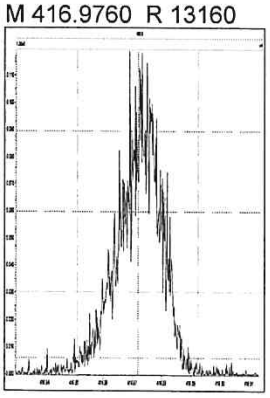

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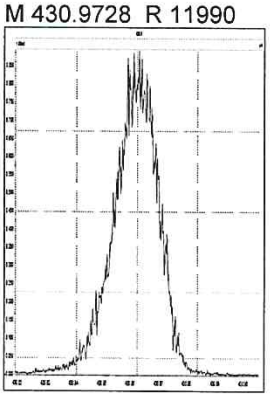

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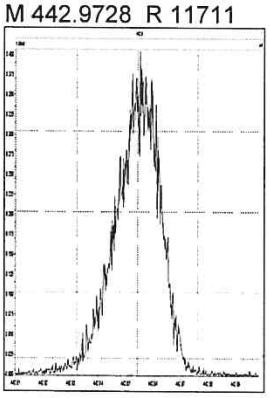

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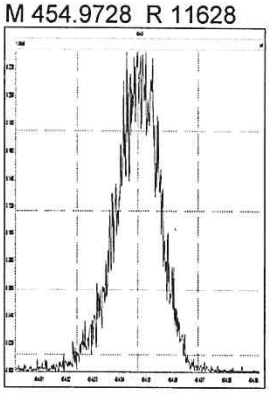

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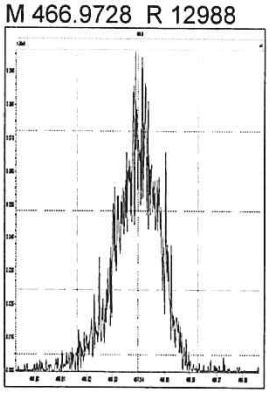

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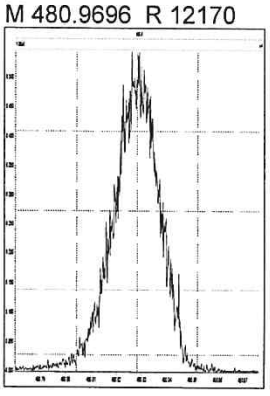

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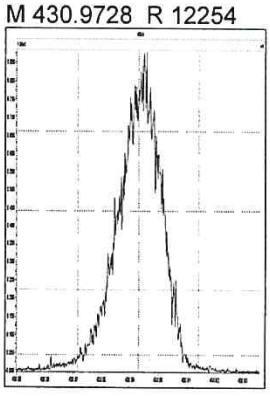

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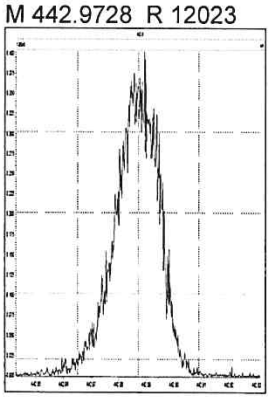

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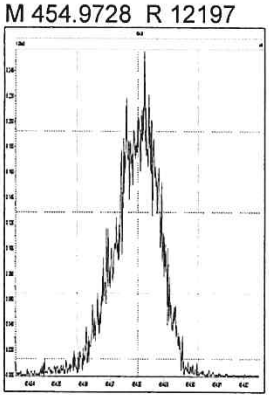

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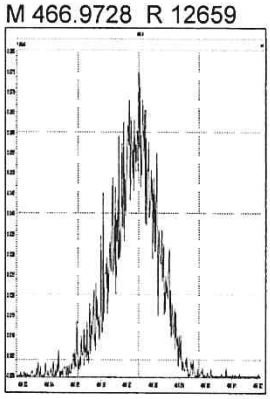

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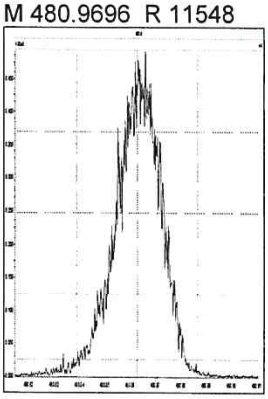

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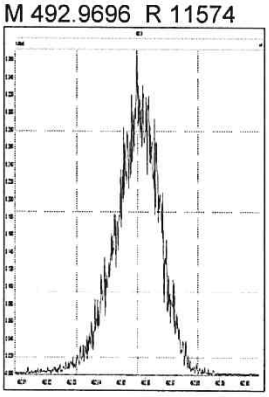

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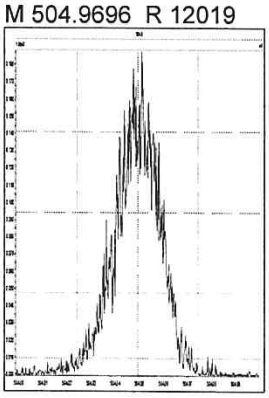
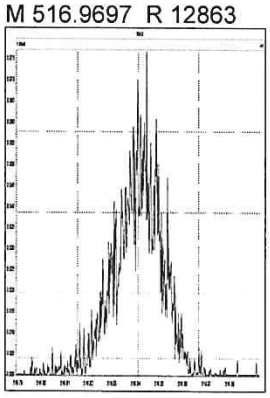


M 516.9697 R 12863



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

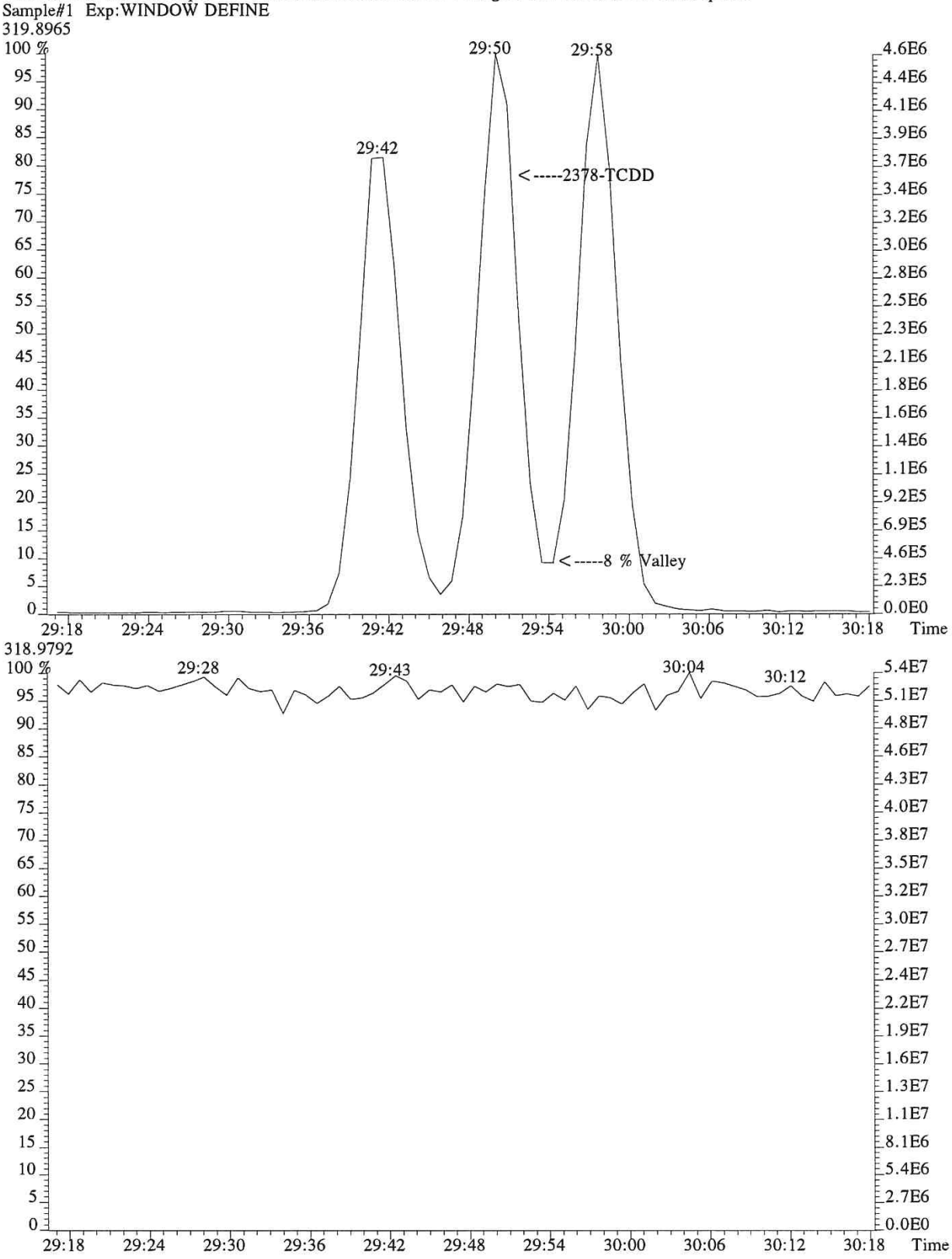
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P615715
Date Analyzed: 27-NOV-18
Time Analyzed: 11:03:06

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:57	30:58
TCDD	26:47	30:47
PeCDF	30:51	34:58
PeCDD	32:18	34:42
HxCDF	35:33	38:03
HxCDD	36:03	37:38
HpCDF	39:16	40:47
HpCDD	39:31	40:15

% Valley 2378-TCDD: 8 %

File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
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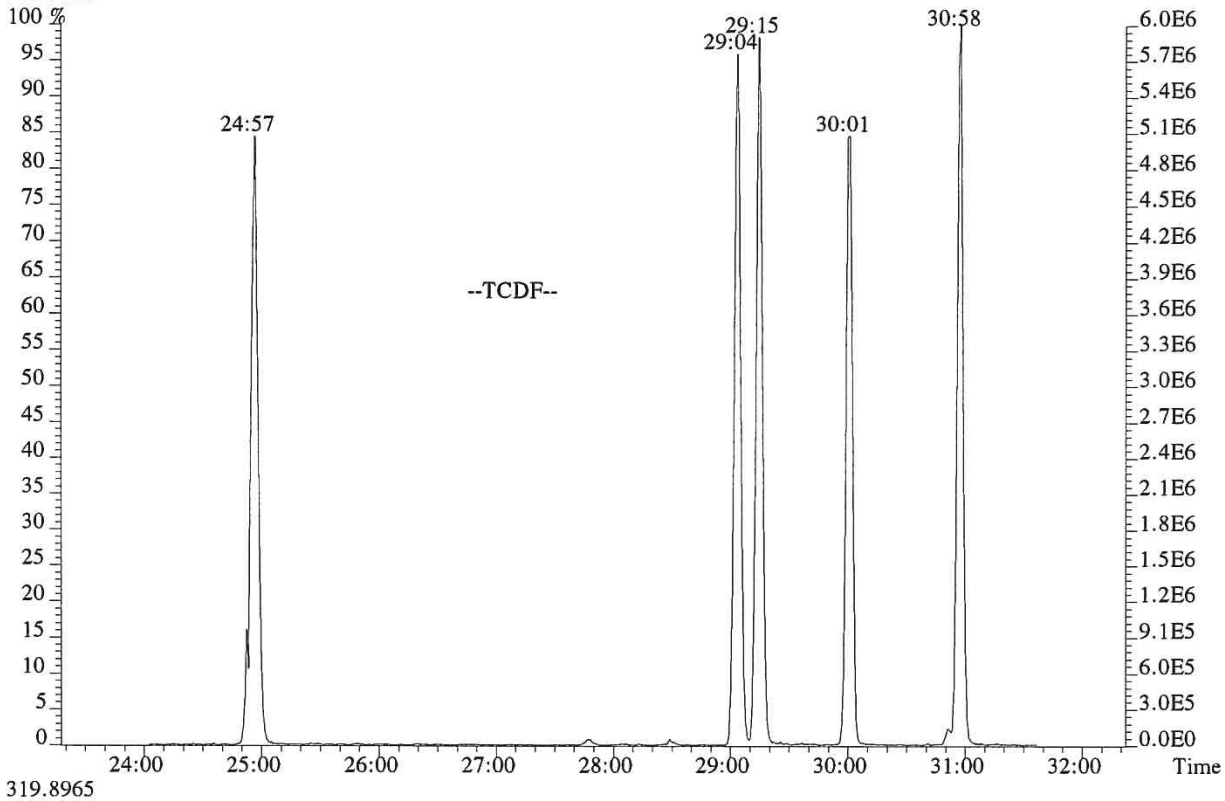
303.9016



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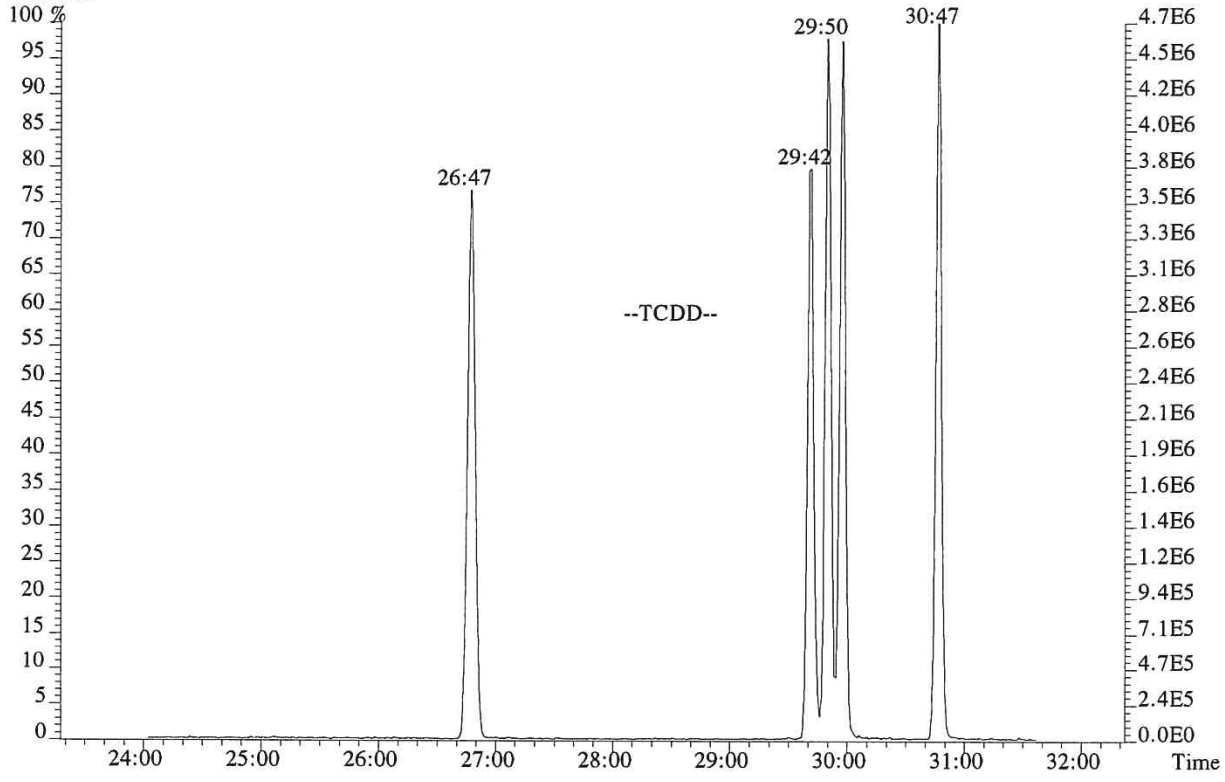

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File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
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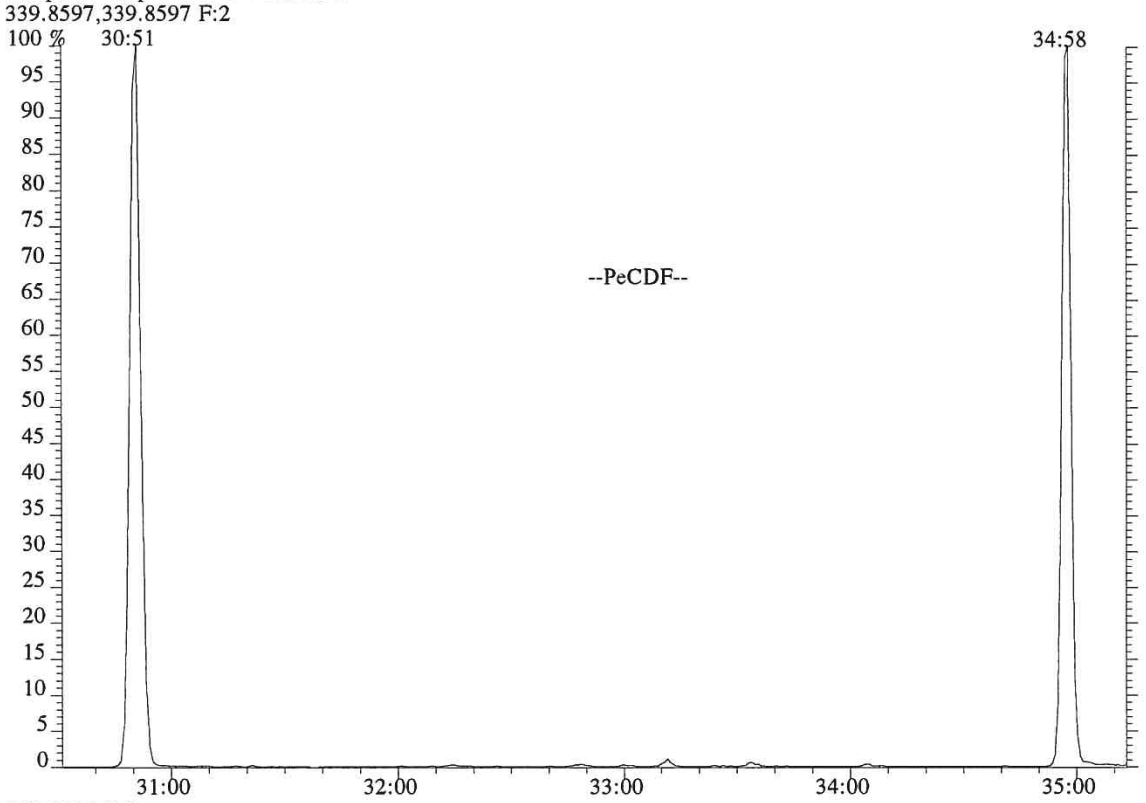
339.8597,339.8597 F:2



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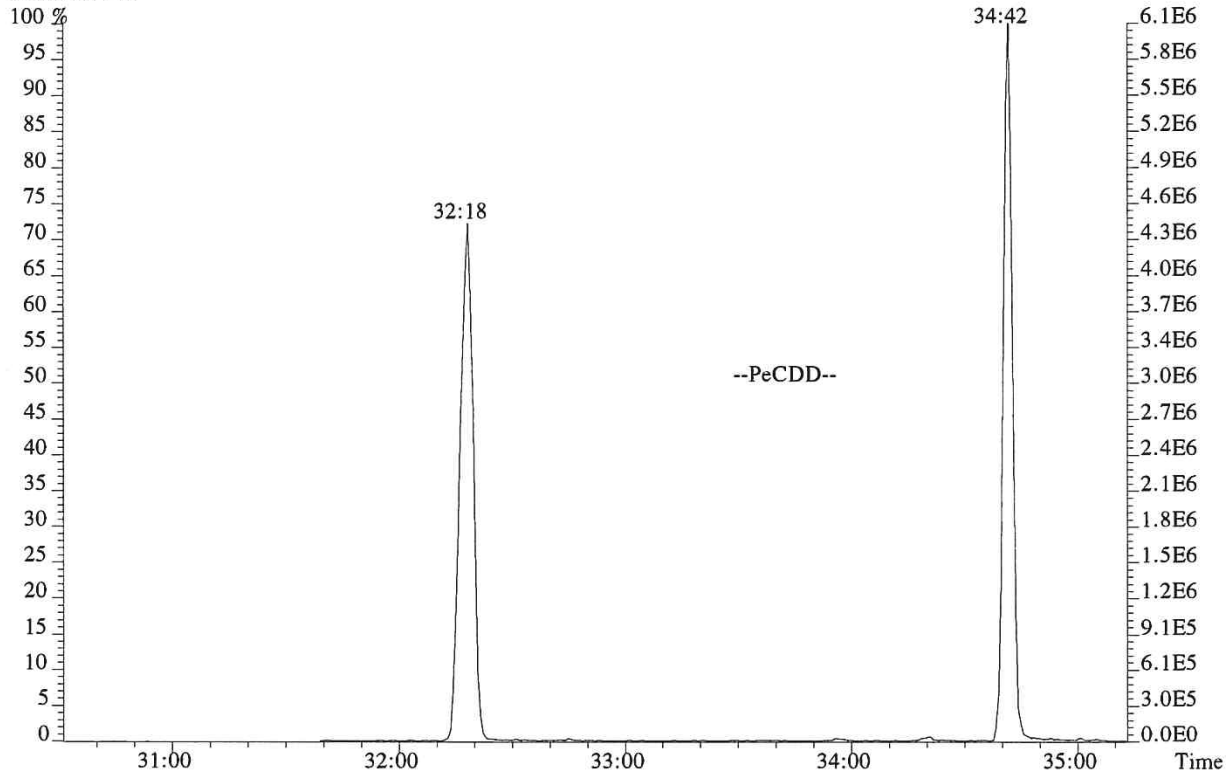

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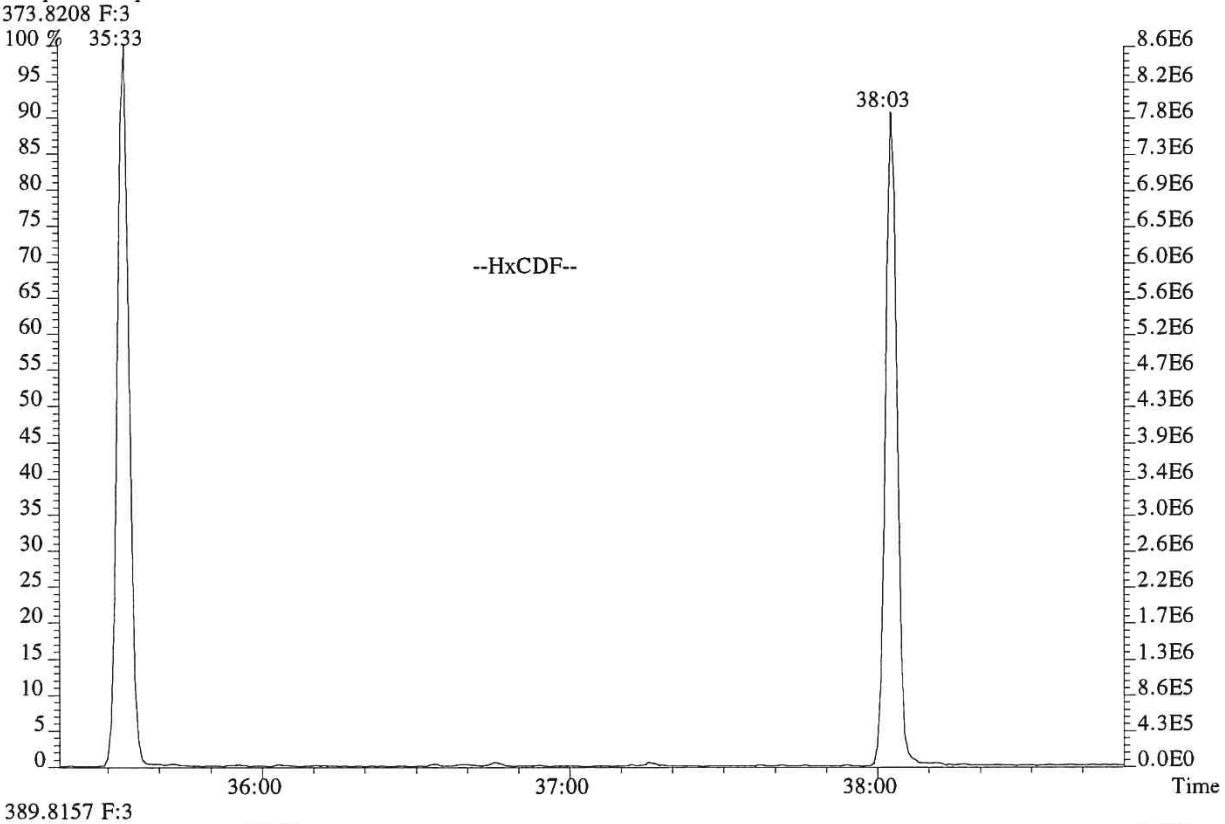
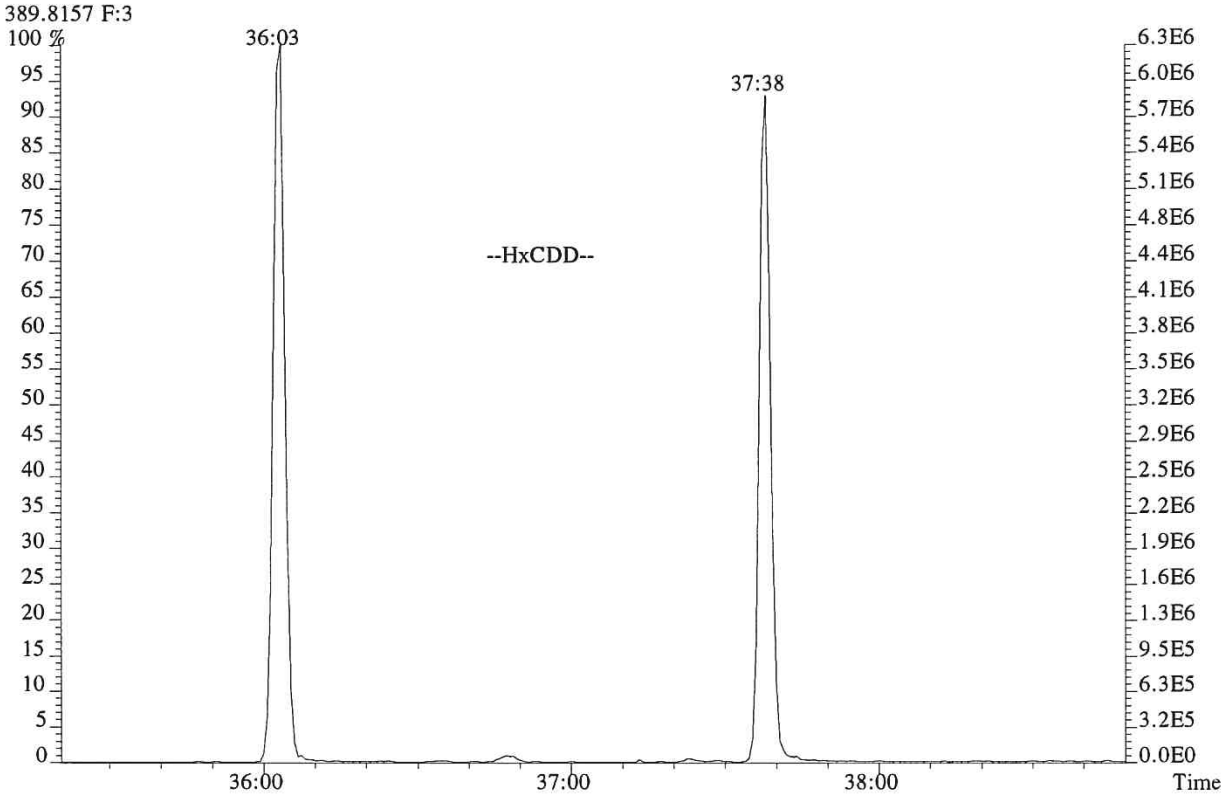
Sample#1 Exp:WINDOW DEFINE





009262

File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
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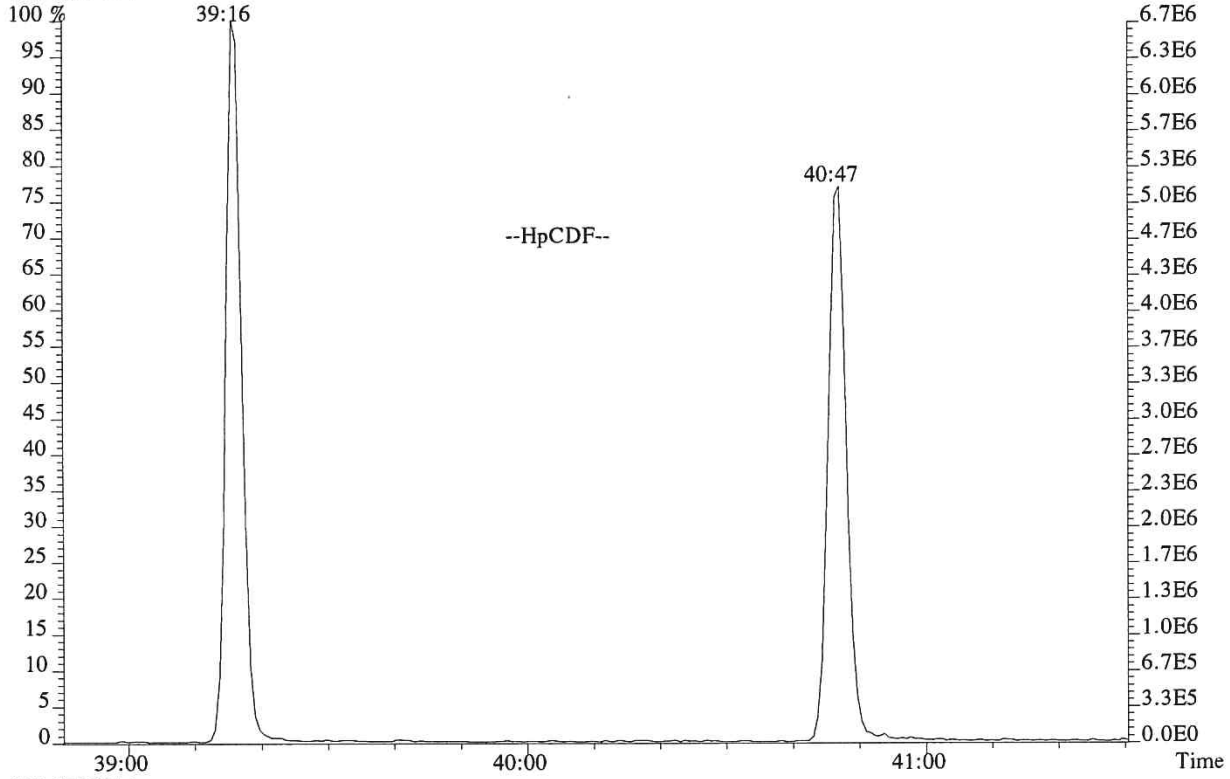
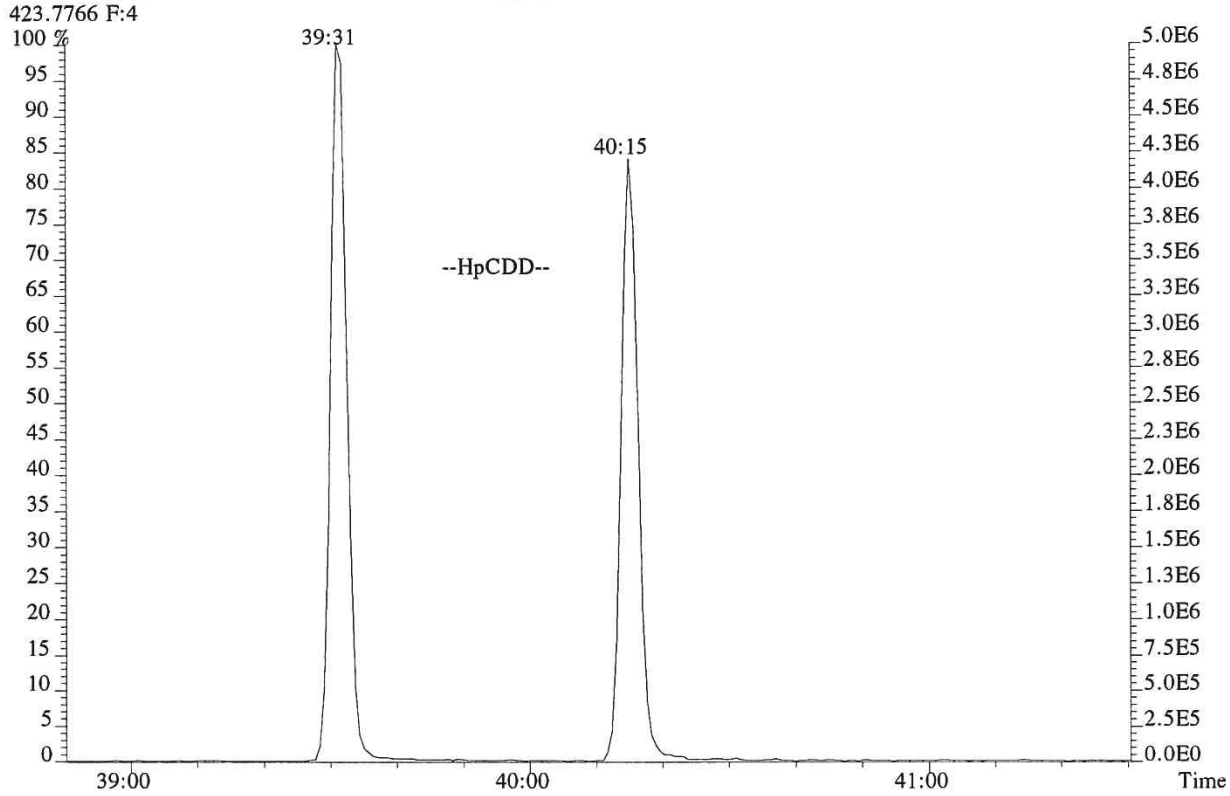
407.7818 F:4



423.7766 F:4



009263

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615714 Analysis Date: 27-NOV-18 Time: 10:04:16

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.4	7.8 - 12.9	-6.2
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	49	39 - 65	-1.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-2.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	47	43 - 58	-6.8
OCDD	M+2/M+4	0.89	0.76-1.02	95	79 - 126	-4.9
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.1	8.4 - 12.0	-9.2
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	46	41 - 60	-7.5
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	46	41 - 61	-8.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	45	45 - 56	-10.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-7.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	46	45 - 56	-7.6
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-8.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	45	45 - 55	-9.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	45	43 - 58	-10.9
OCDF	M+2/M+4	0.91	0.76-1.02	85	63 - 159	-15.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615714 Analysis Date: 27-NOV-18 Time: 10:04:16

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	103	82 - 121	3.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.53	1.32-1.78	92	62 - 160	-7.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	103	85 - 117	2.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	98	85 - 118	-2.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	107	72 - 138	7.3
13C-OCDD	M+2/M+4	0.91	0.76-1.02	222	96 - 415	10.9
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	94	71 - 140	-5.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	90	76 - 130	-9.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	91	77 - 130	-9.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	97	76 - 131	-2.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	93	70 - 143	-7.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	95	74 - 135	-5.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	98	73 - 137	-2.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	96	78 - 129	-3.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	97	77 - 129	-3.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.7	7.8 - 12.7	-3.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P615714 Samp: 1 Inj: 1 Acquired: 27-NOV-18 10:04:16
Processed: 28-NOV-18 10:13:20 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:15	1.940e+04	2.505e+04	0.77	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:12	1.591e+05	1.013e+05	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:04	1.498e+05	9.482e+04	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	1.303e+05	1.046e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:46	1.347e+05	1.084e+05	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:16	1.299e+05	1.046e+05	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:01	1.171e+05	9.560e+04	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	1.133e+05	1.097e+05	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:47	9.515e+04	9.243e+04	1.03	yes	no	1.463
10	Unk	OCDF	43:30	1.516e+05	1.674e+05	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	29:58	1.500e+04	1.868e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:20	9.766e+04	6.288e+04	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	8.865e+04	7.065e+04	1.25	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:29	8.430e+04	6.698e+04	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:43	9.215e+04	7.325e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	8.006e+04	7.591e+04	1.05	yes	no	1.112
17	Unk	OCDD	43:17	1.241e+05	1.389e+05	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:14	1.991e+05	2.537e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	2.981e+05	1.889e+05	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:04	2.965e+05	1.872e+05	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	1.276e+05	2.411e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	1.414e+05	2.648e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	1.387e+05	2.602e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	1.209e+05	2.298e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	1.008e+05	2.232e+05	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	8.959e+04	1.982e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	1.506e+05	1.916e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	2.126e+05	1.388e+05	1.53	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	1.702e+05	1.336e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:28	1.618e+05	1.271e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	1.543e+05	1.467e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	43:16	2.277e+05	2.503e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	1.493e+05	1.890e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	1.823e+05	1.449e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:58	3.548e+04				no	1.086

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P615714 Samp: 1 Inj: 1 Acquired: 27-NOV-18 10:04:16
Processed: 28-NOV-18 10:13:20 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.97e+06	1.68e+03	2.4e+03	5.13e+06	2.93e+03	1.8e+03
2	1,2,3,7,8-PeCDF	3.18e+07	1.23e+03	2.6e+04	2.01e+07	4.35e+03	4.6e+03
3	2,3,4,7,8-PeCDF	3.24e+07	1.23e+03	2.6e+04	2.05e+07	4.35e+03	4.7e+03
4	1,2,3,4,7,8-HxCDF	2.97e+07	5.67e+03	5.2e+03	2.38e+07	3.38e+03	7.1e+03
5	1,2,3,6,7,8-HxCDF	3.01e+07	5.67e+03	5.3e+03	2.42e+07	3.38e+03	7.2e+03
6	2,3,4,6,7,8-HxCDF	2.92e+07	5.67e+03	5.2e+03	2.33e+07	3.38e+03	6.9e+03
7	1,2,3,7,8,9-HxCDF	2.57e+07	5.67e+03	4.5e+03	2.06e+07	3.38e+03	6.1e+03
8	1,2,3,4,6,7,8-HpCDF	2.43e+07	9.67e+03	2.5e+03	2.38e+07	6.98e+03	3.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.86e+07	9.67e+03	1.9e+03	1.77e+07	6.98e+03	2.5e+03
10	OCDF	2.43e+07	1.32e+03	1.8e+04	2.71e+07	2.55e+03	1.1e+04
11	2,3,7,8-TCDD	3.20e+06	3.18e+03	1.0e+03	3.97e+06	1.90e+03	2.1e+03
12	1,2,3,7,8-PeCDD	2.02e+07	1.78e+03	1.1e+04	1.32e+07	7.76e+02	1.7e+04
13	1,2,3,4,7,8-HxCDD	2.01e+07	2.02e+03	1.0e+04	1.59e+07	6.80e+02	2.3e+04
14	1,2,3,6,7,8-HxCDD	1.92e+07	2.02e+03	9.5e+03	1.51e+07	6.80e+02	2.2e+04
15	1,2,3,7,8,9-HxCDD	2.09e+07	2.02e+03	1.0e+04	1.66e+07	6.80e+02	2.4e+04
16	1,2,3,4,6,7,8-HpCDD	1.64e+07	2.62e+03	6.3e+03	1.56e+07	1.80e+03	8.7e+03
17	OCDD	2.02e+07	3.84e+02	5.3e+04	2.25e+07	9.76e+02	2.3e+04
18	13C-2,3,7,8-TCDF	4.03e+07	1.28e+04	3.1e+03	5.06e+07	9.08e+03	5.6e+03
19	13C-1,2,3,7,8-PeCDF	6.01e+07	1.80e+03	3.3e+04	3.84e+07	2.20e+03	1.7e+04
20	13C-2,3,4,7,8-PeCDF	6.34e+07	1.80e+03	3.5e+04	3.98e+07	2.20e+03	1.8e+04
21	13C-1,2,3,4,7,8-HxCDF	2.89e+07	1.82e+03	1.6e+04	5.48e+07	2.92e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	3.14e+07	1.82e+03	1.7e+04	5.86e+07	2.92e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	3.13e+07	1.82e+03	1.7e+04	5.78e+07	2.92e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	2.67e+07	1.82e+03	1.5e+04	5.07e+07	2.92e+03	1.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.15e+07	3.80e+03	5.7e+03	4.81e+07	1.04e+04	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.73e+07	3.80e+03	4.6e+03	3.76e+07	1.04e+04	3.6e+03
27	13C-2,3,7,8-TCDD	3.15e+07	1.98e+04	1.6e+03	4.02e+07	7.29e+03	5.5e+03
28	13C-1,2,3,7,8-PeCDD	4.54e+07	2.14e+03	2.1e+04	2.96e+07	2.84e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.81e+07	3.04e+03	1.3e+04	2.99e+07	1.55e+03	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	3.67e+07	3.04e+03	1.2e+04	2.85e+07	1.55e+03	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.16e+07	2.06e+03	1.5e+04	2.99e+07	2.33e+03	1.3e+04
32	13C-OCDD	3.65e+07	4.56e+02	8.0e+04	4.00e+07	4.44e+02	9.0e+04
33	13C-1,2,3,4-TCDD	3.09e+07	1.98e+04	1.6e+03	3.92e+07	7.29e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	4.17e+07	3.04e+03	1.4e+04	3.28e+07	1.55e+03	2.1e+04
35	37Cl-2,3,7,8-TCDD	7.60e+06	1.66e+03	4.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.180e{+}03 + 1.896e{+}03) \times 100}{(3.149e{+}07 + 4.025e{+}07) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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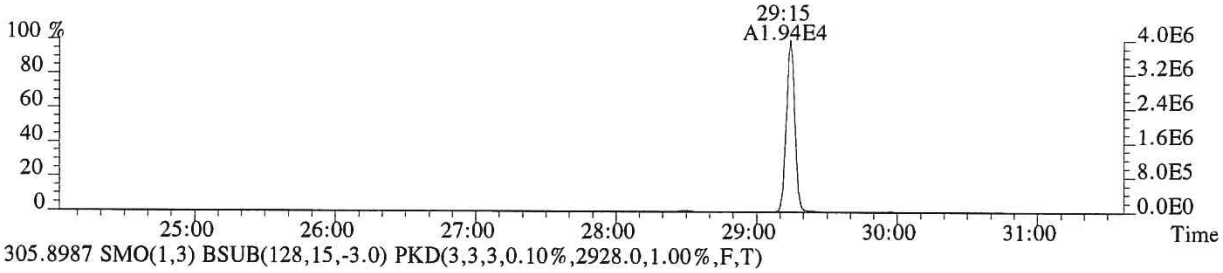
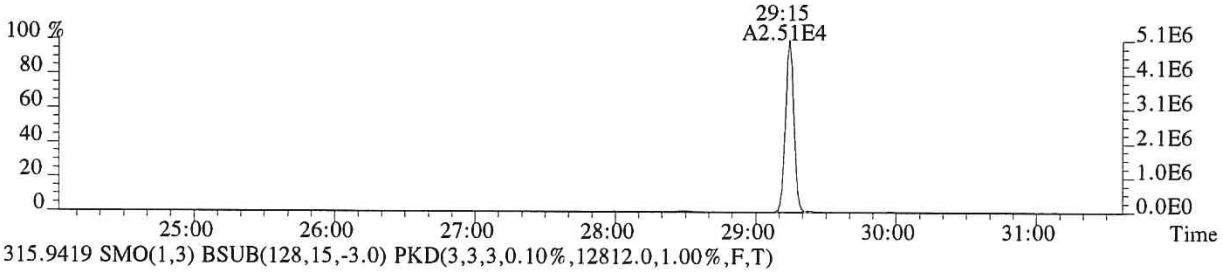
Office:(281)530-5656. Fax:(281)530-5887

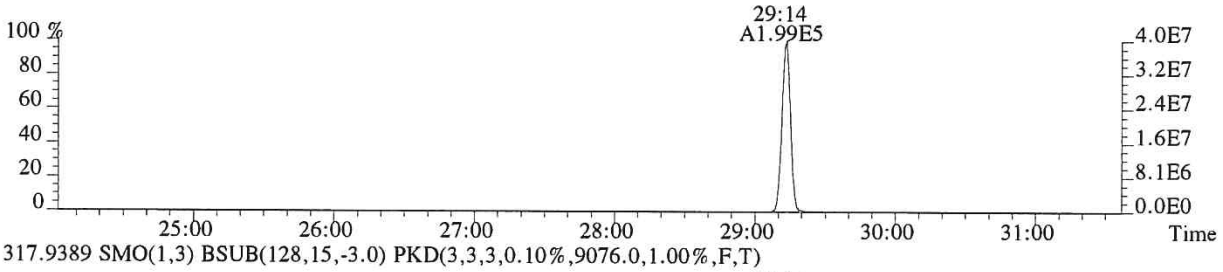
File:P615714 #1-538 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



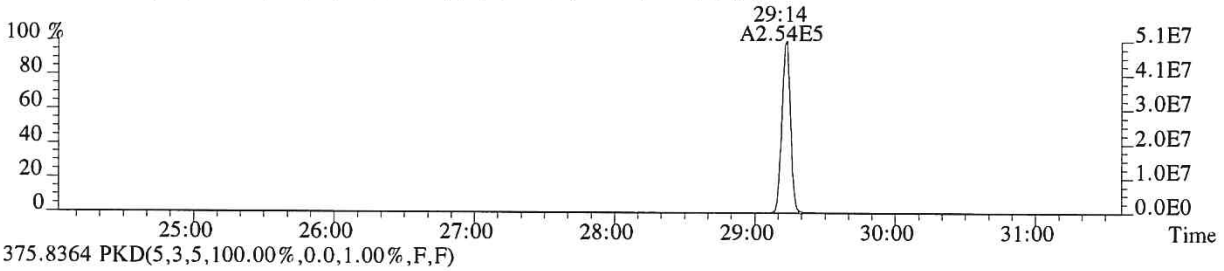
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2928.0,1.00%,F,T)



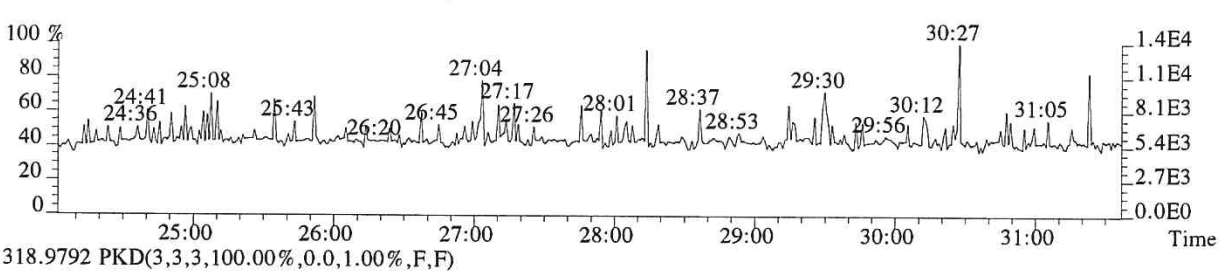
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12812.0,1.00%,F,T)



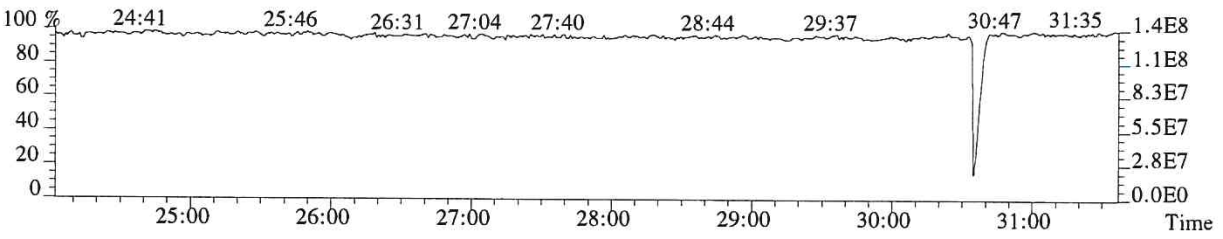
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9076.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

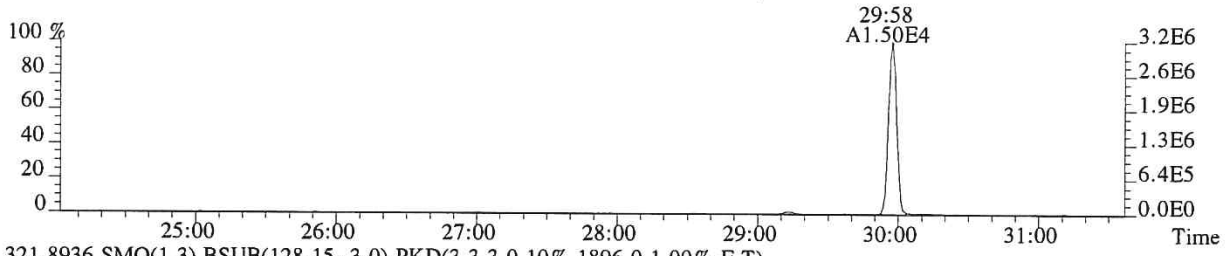


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

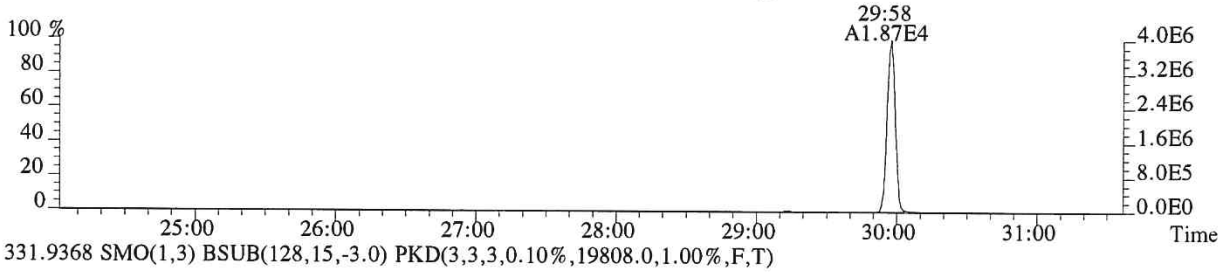


009268

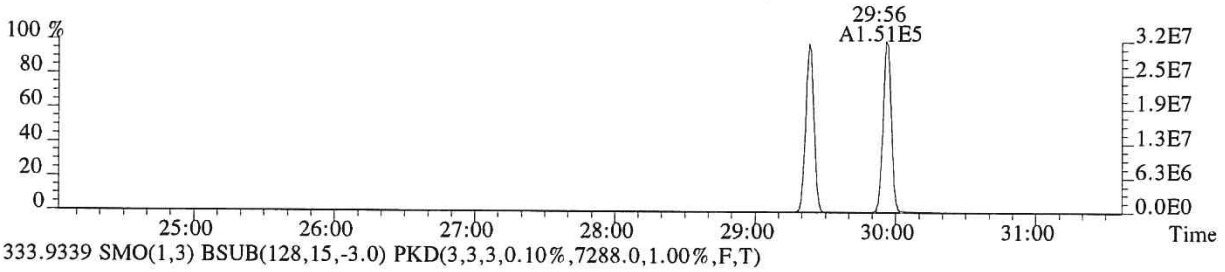
File:P615714 #1-538 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3180.0,1.00%,F,T)



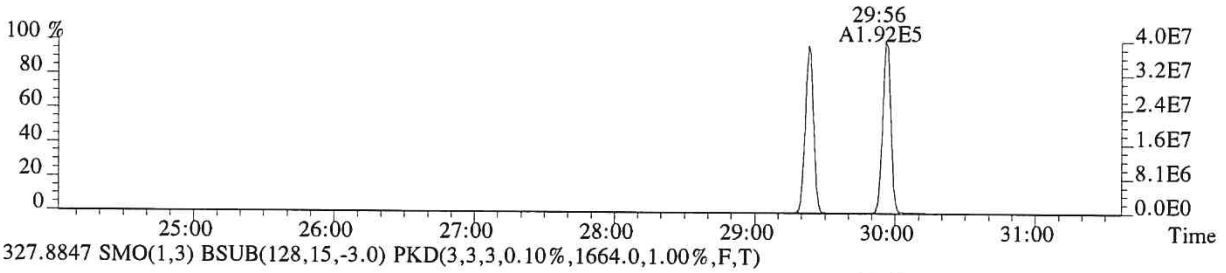
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



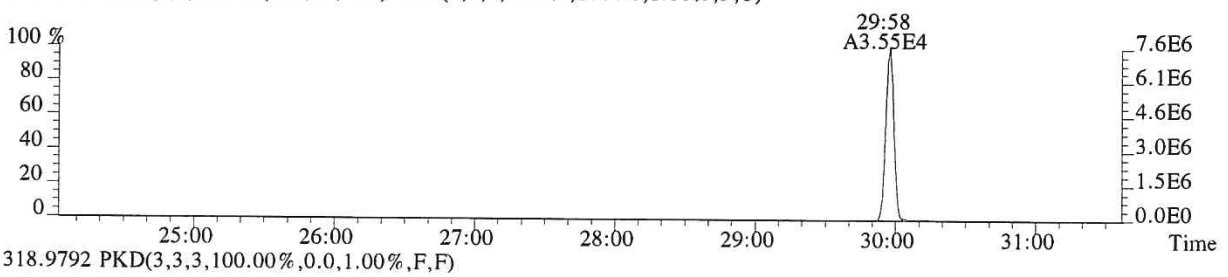
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19808.0,1.00%,F,T)



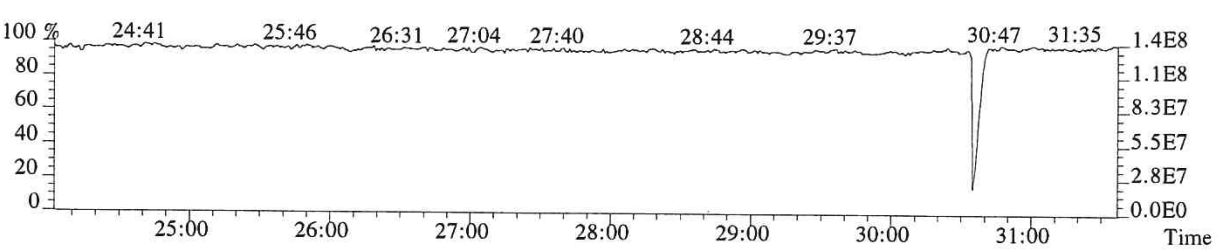
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7288.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)

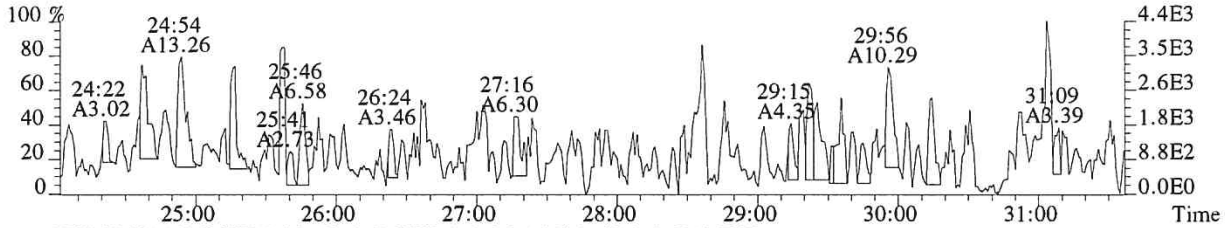


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

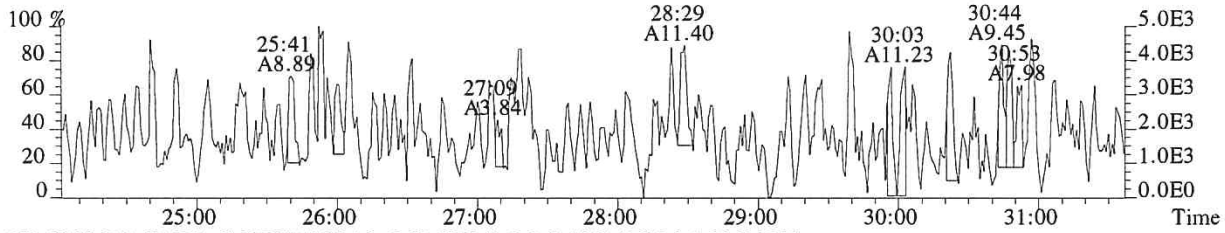


009269

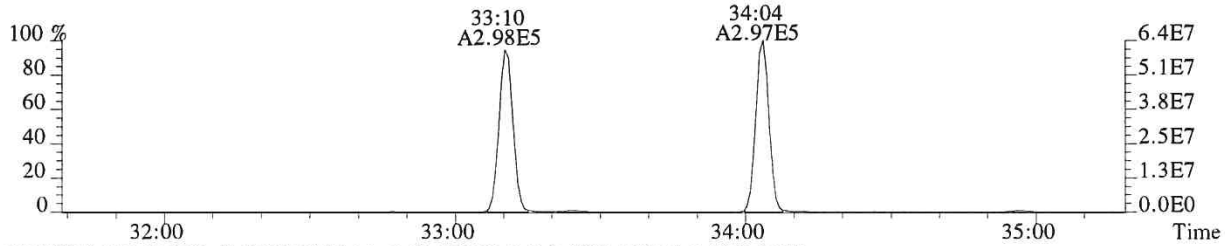
File:P615714 #1-538 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



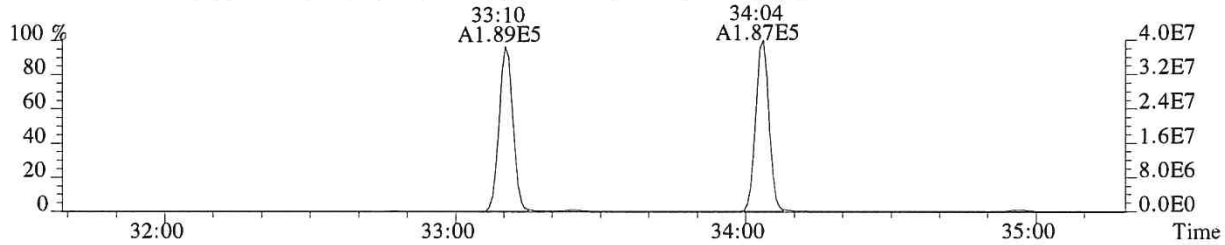
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



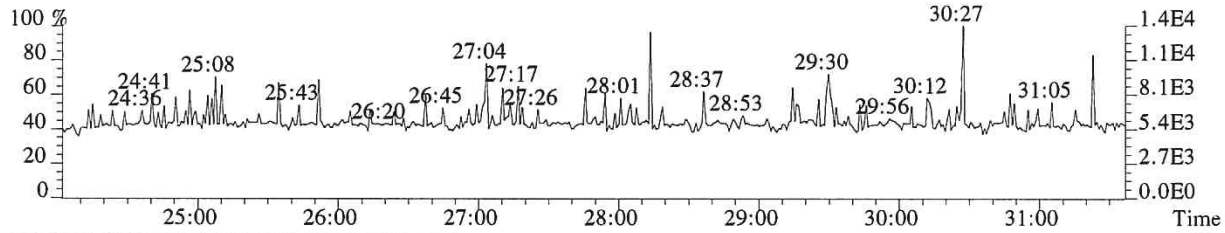
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



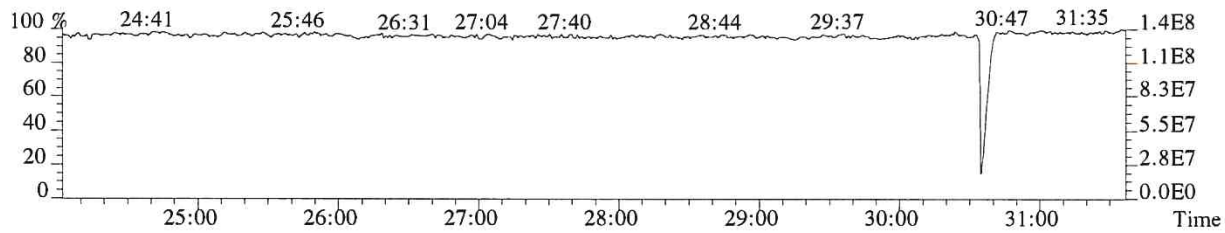
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



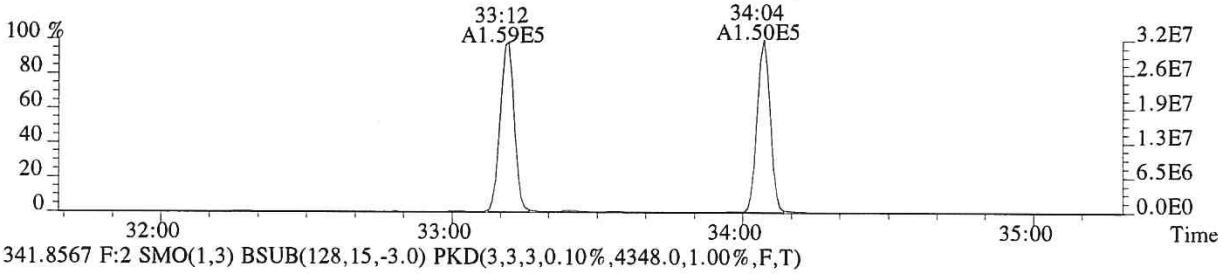
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



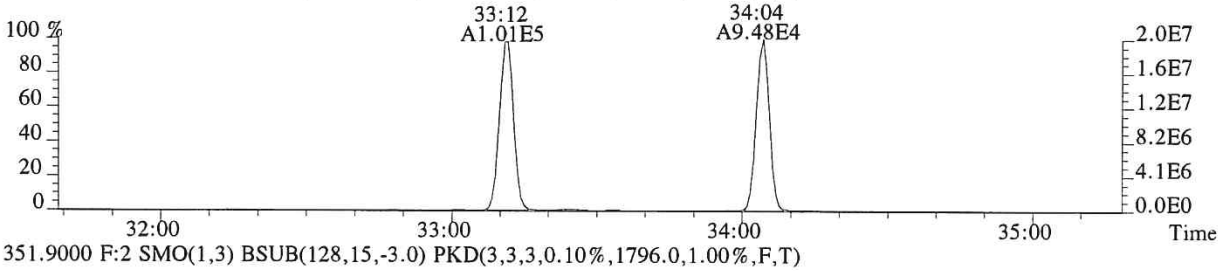
009270

File:P615714 #1-330 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

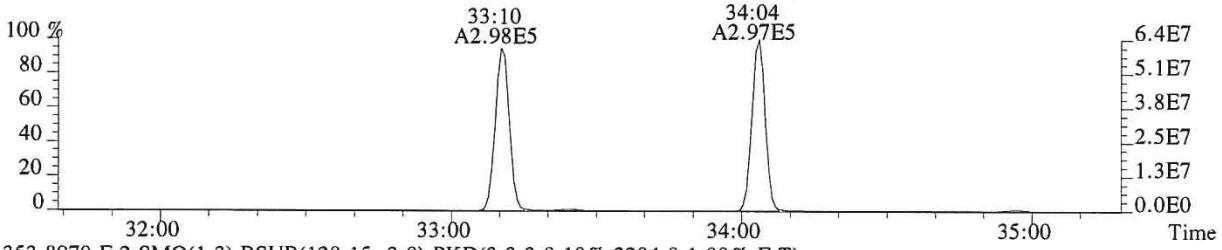
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



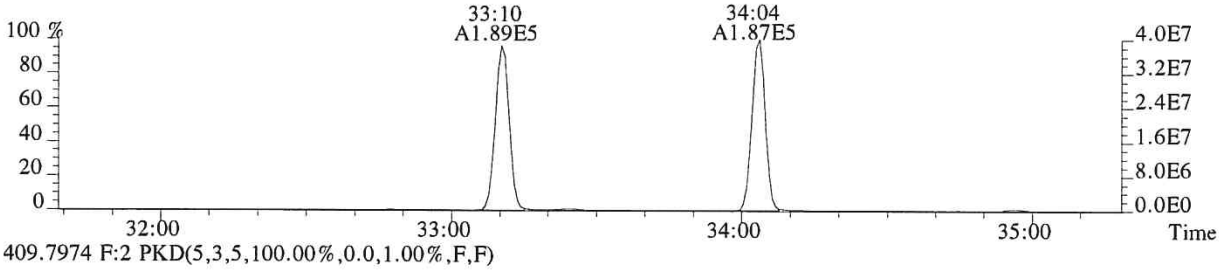
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



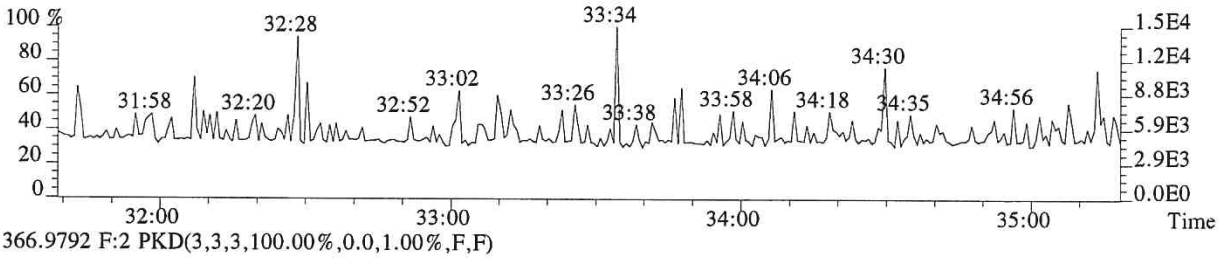
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



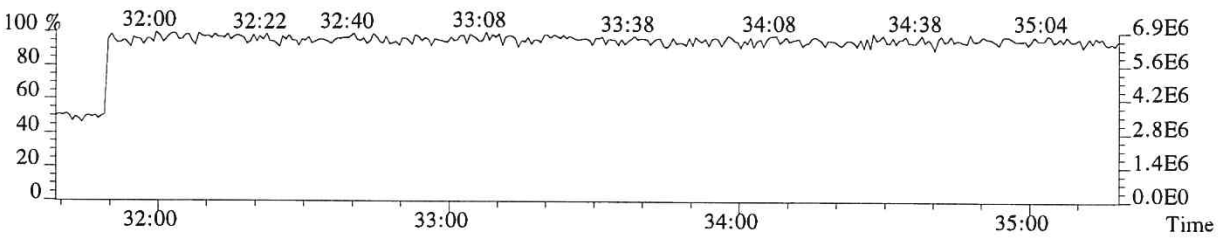
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



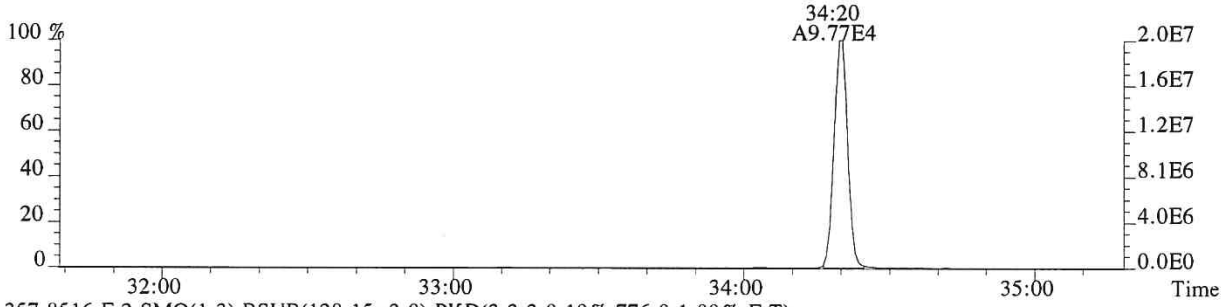
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



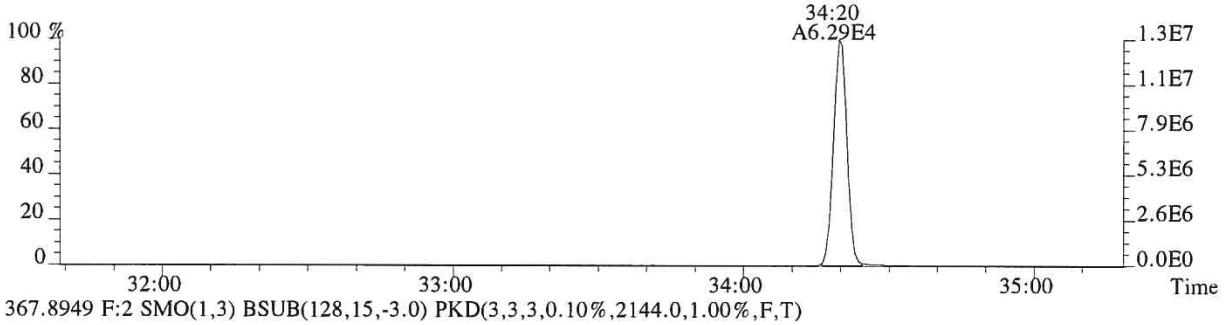
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



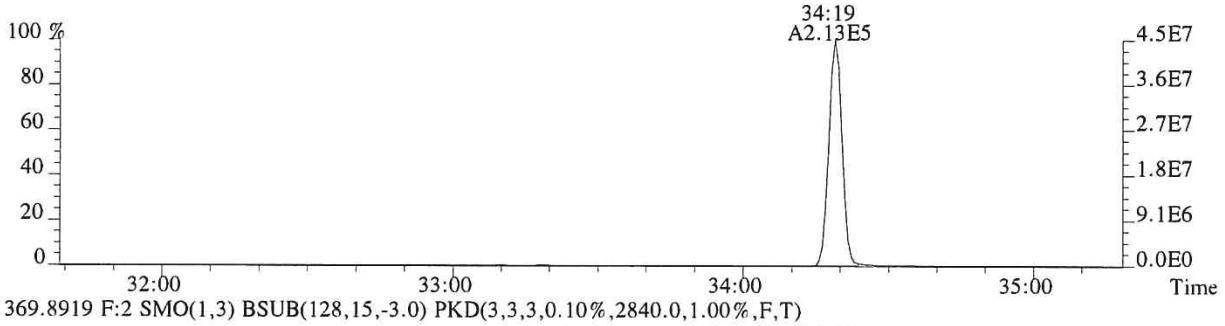
File:P615714 #1-330 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



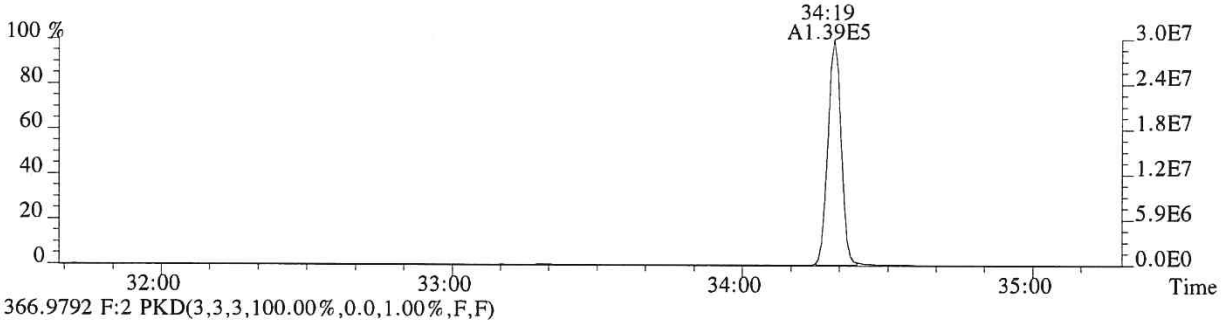
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



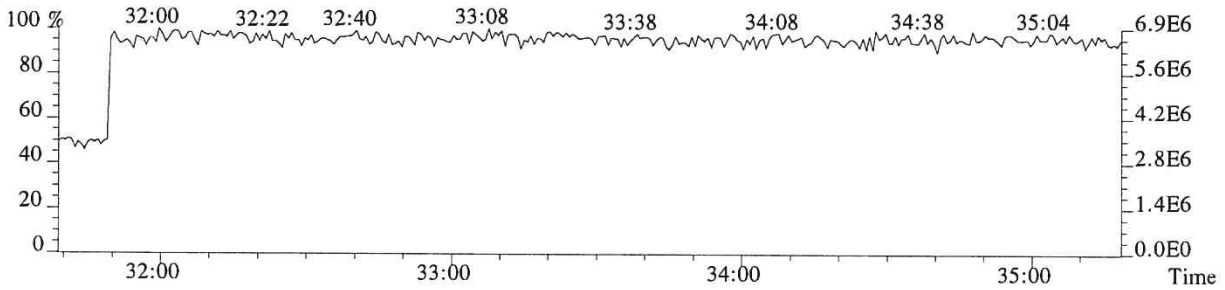
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2840.0,1.00%,F,T)

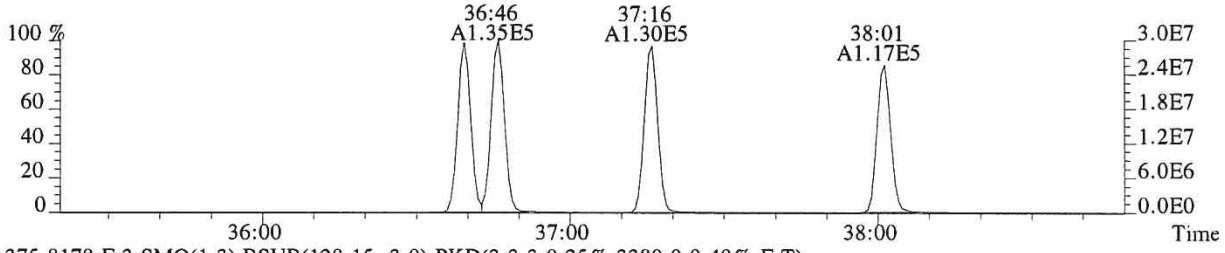


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

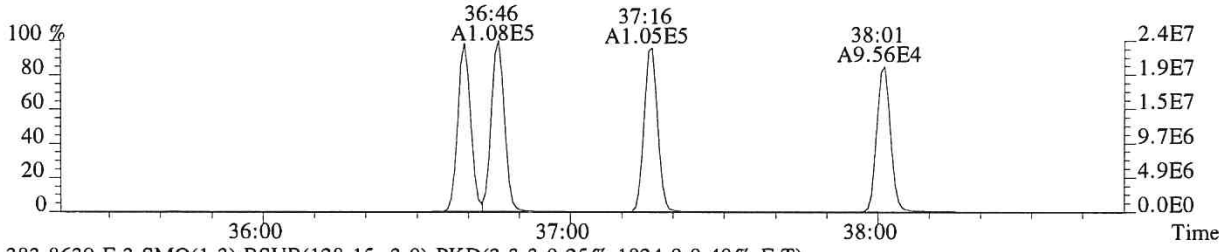


File:P615714 #1-312 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

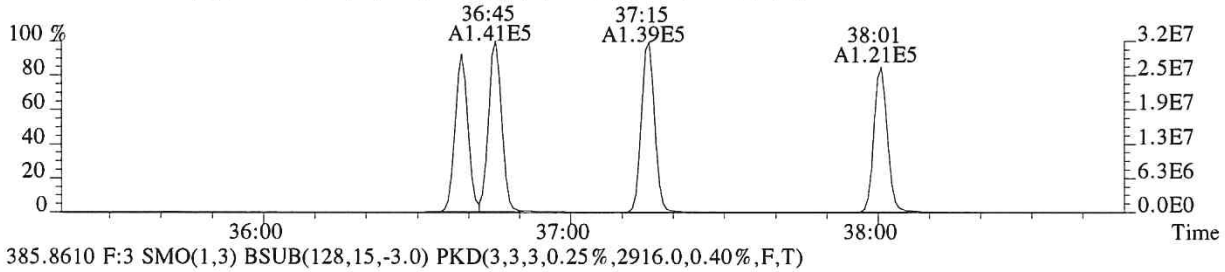
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5668.0,0.40%,F,T)



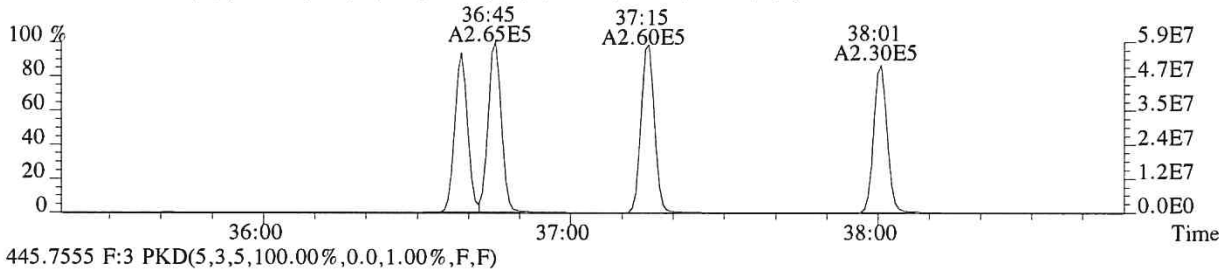
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3380.0,0.40%,F,T)



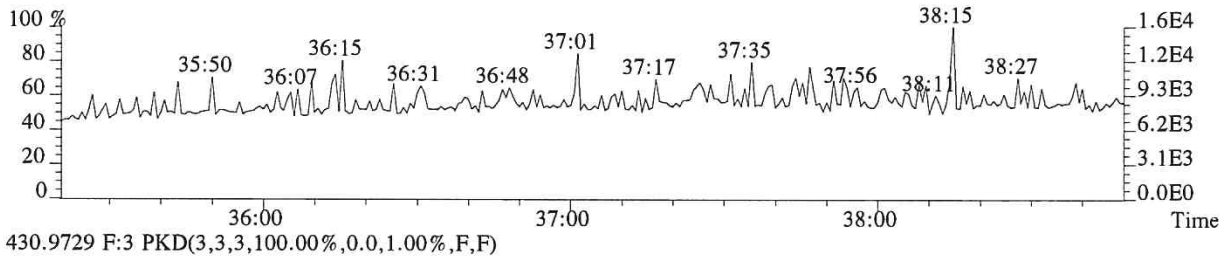
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1824.0,0.40%,F,T)



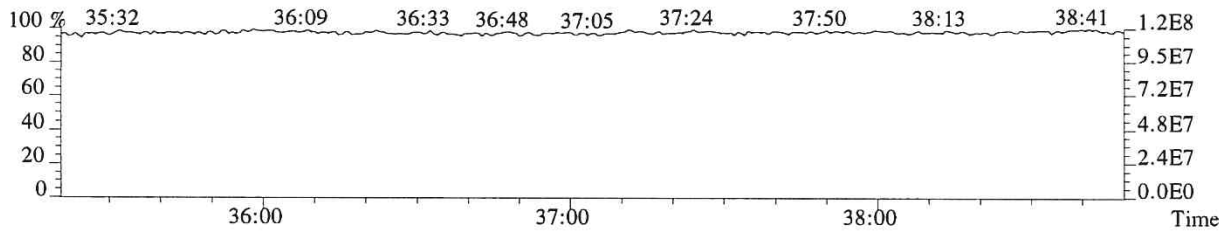
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2916.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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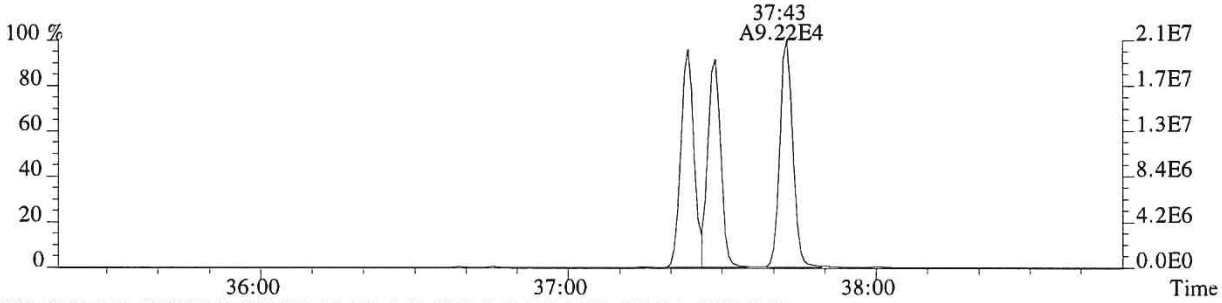
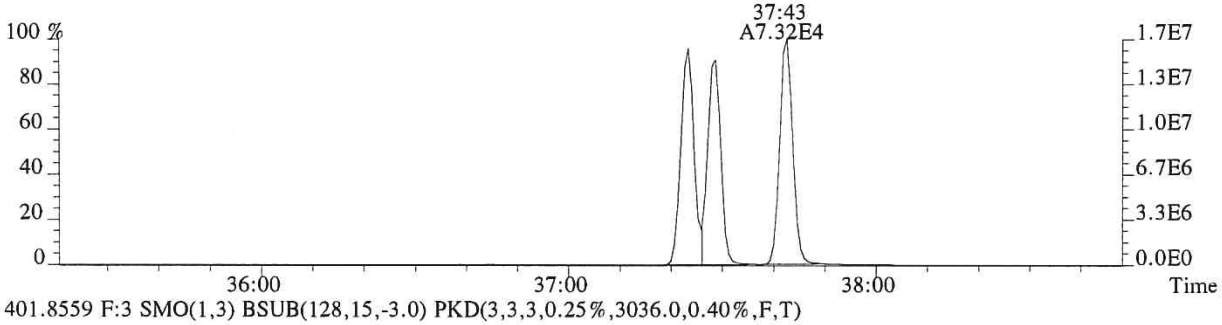
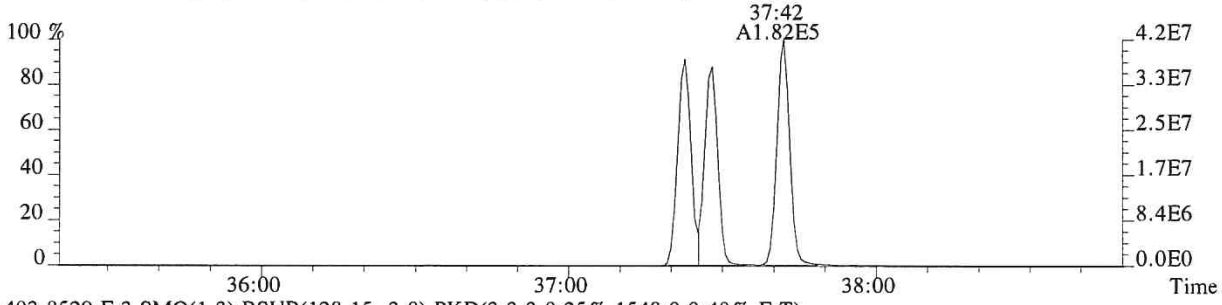
File:P615714 #1-312 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2016.0,0.40%,F,T)



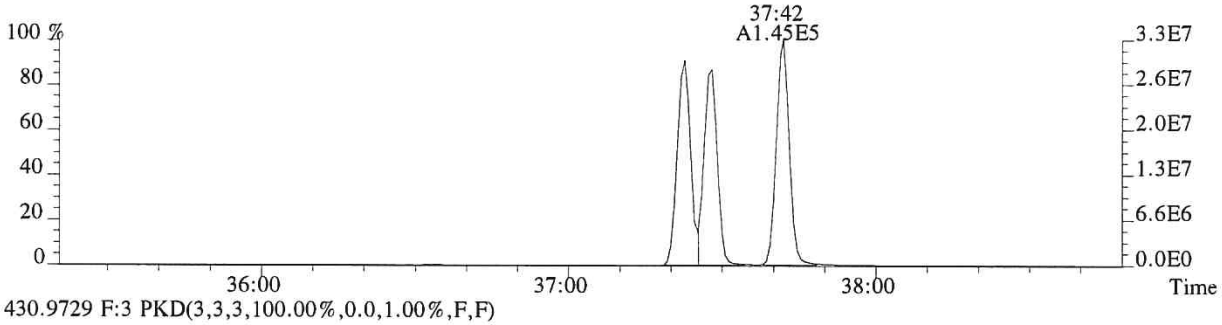
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



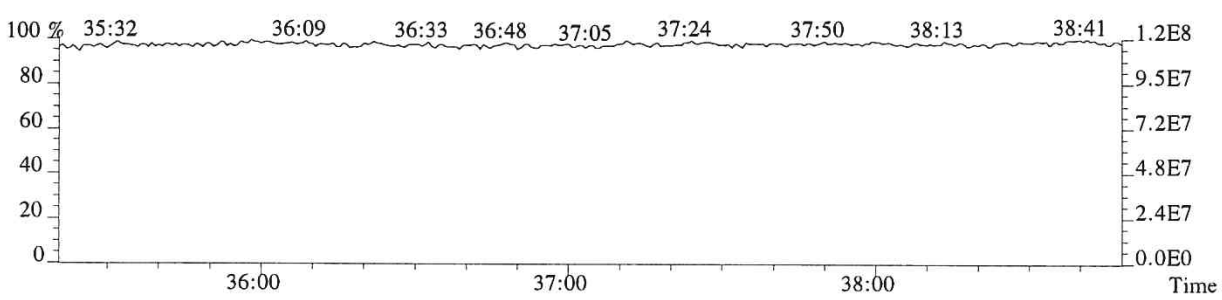
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)

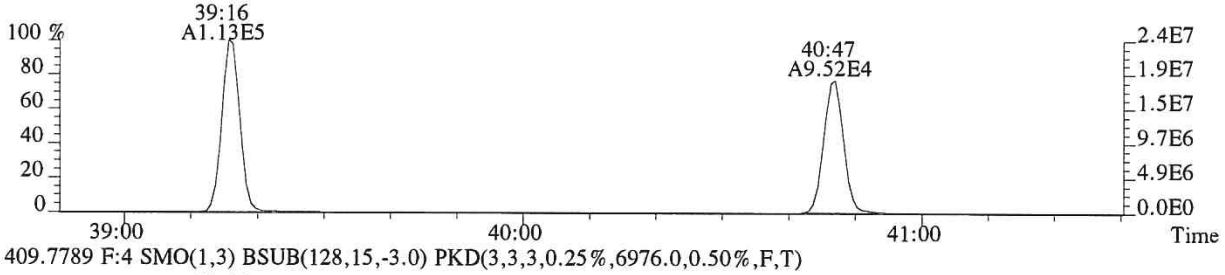


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

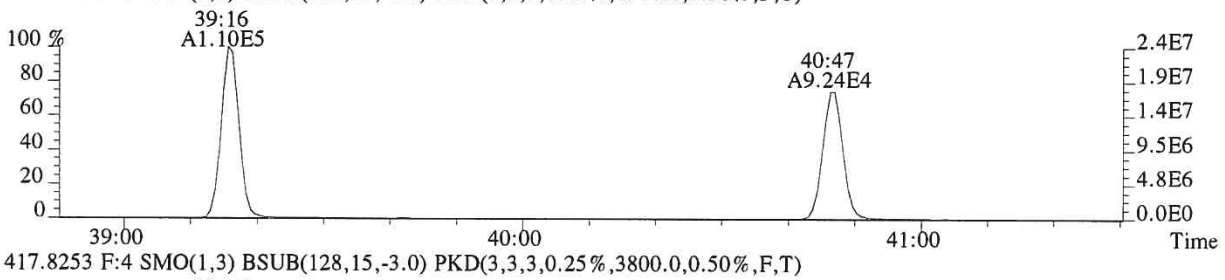


File:P615714 #1-241 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

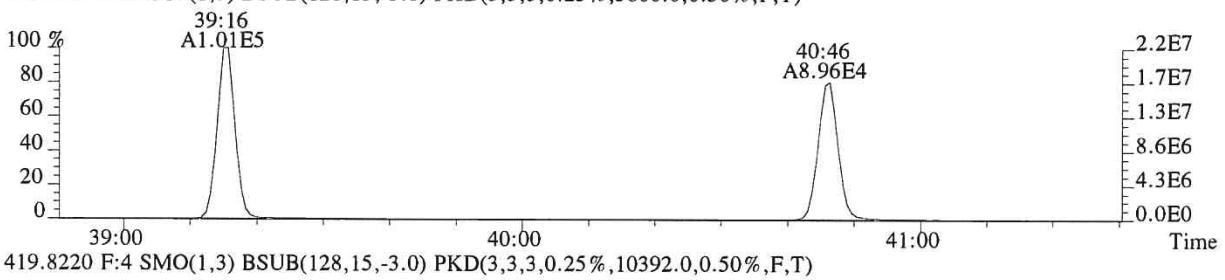
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9668.0,0.50%,F,T)



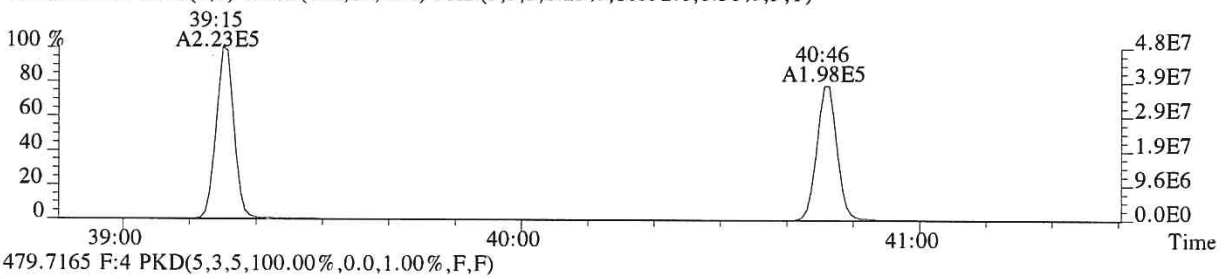
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6976.0,0.50%,F,T)



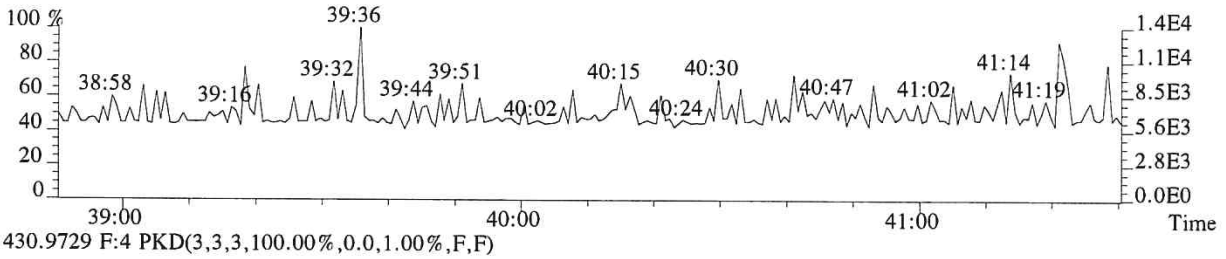
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3800.0,0.50%,F,T)



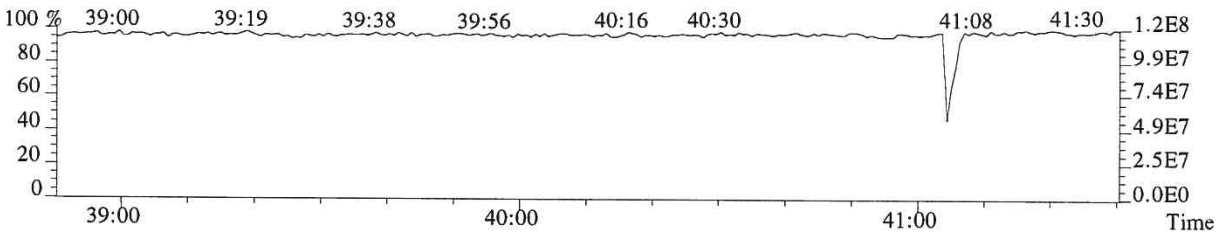
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10392.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

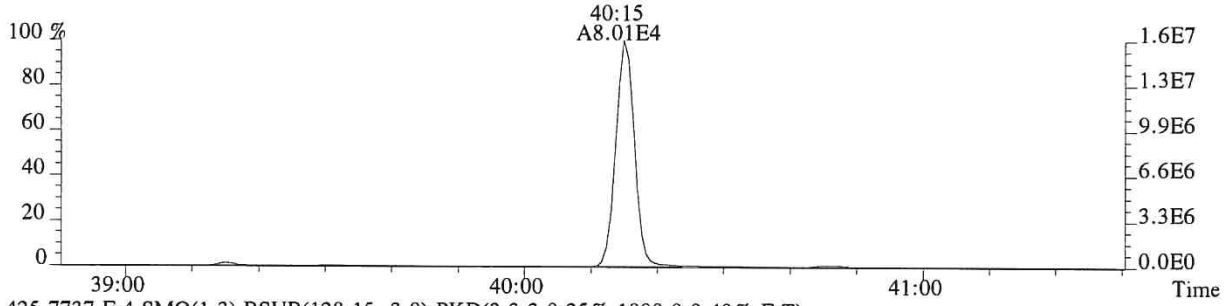


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

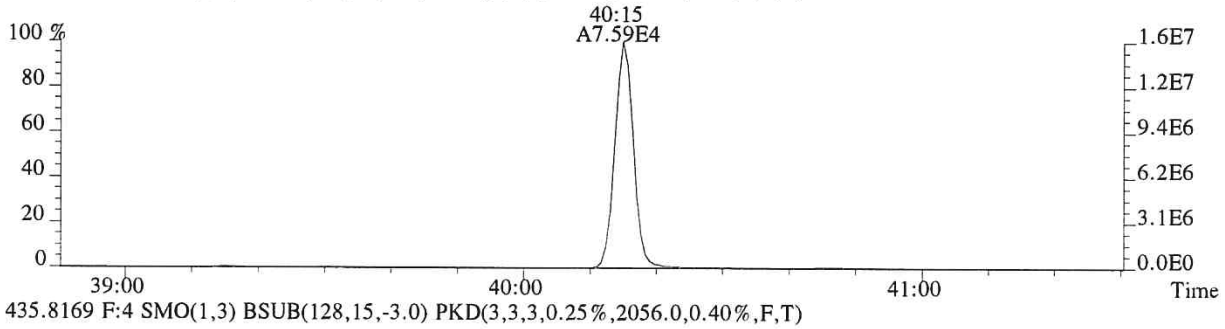


File:P615714 #1-241 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

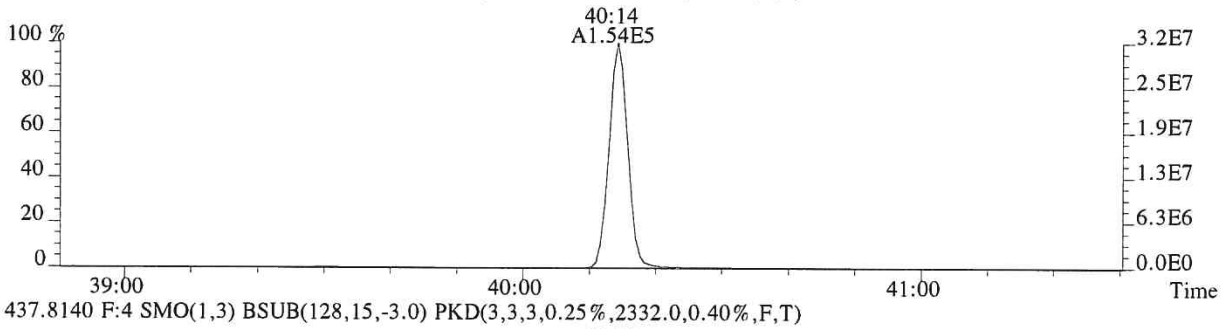
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2620.0,0.40%,F,T)



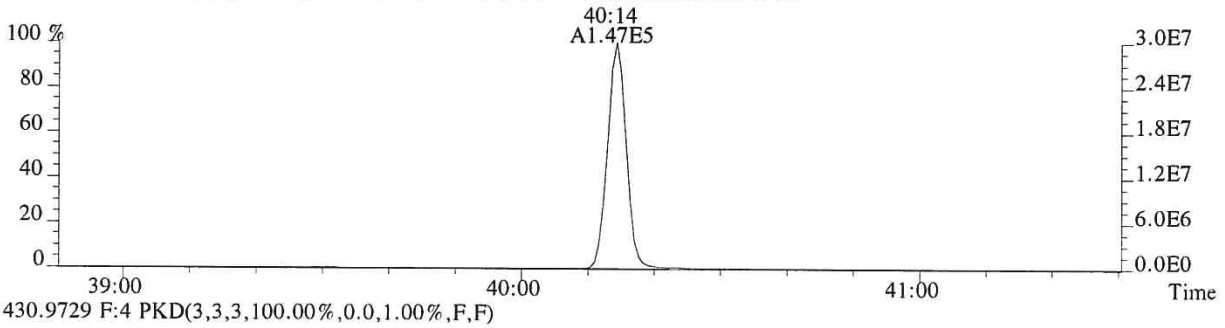
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1800.0,0.40%,F,T)



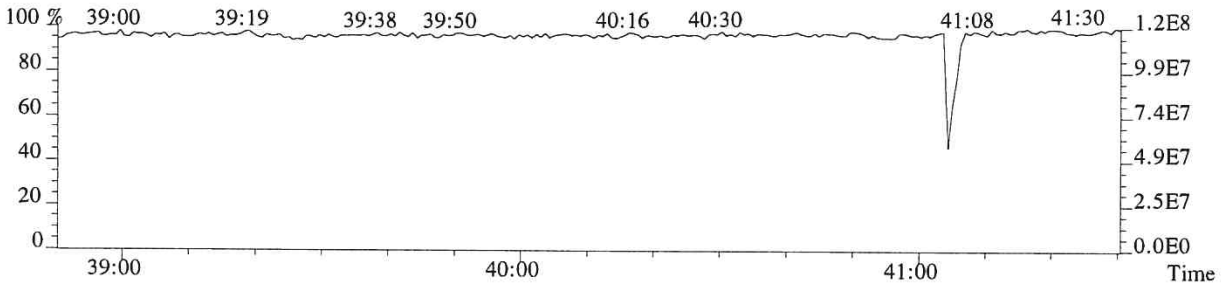
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2056.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.40%,F,T)

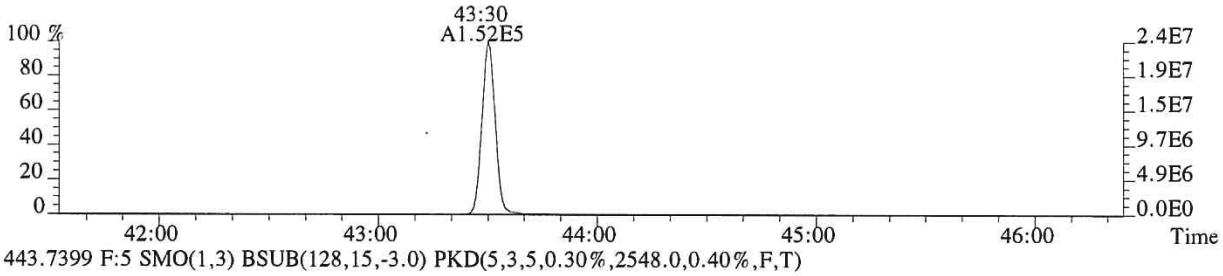


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

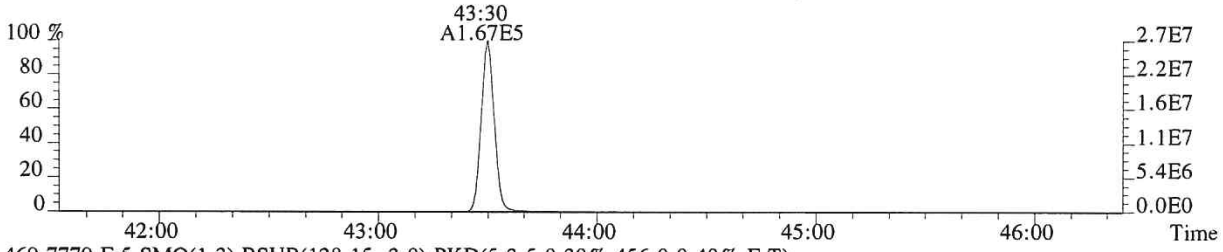


File:P615714 #1-438 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

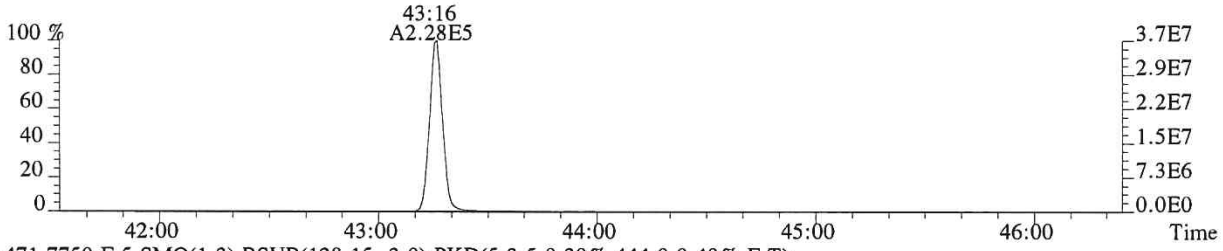
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1324.0,0.40%,F,T)



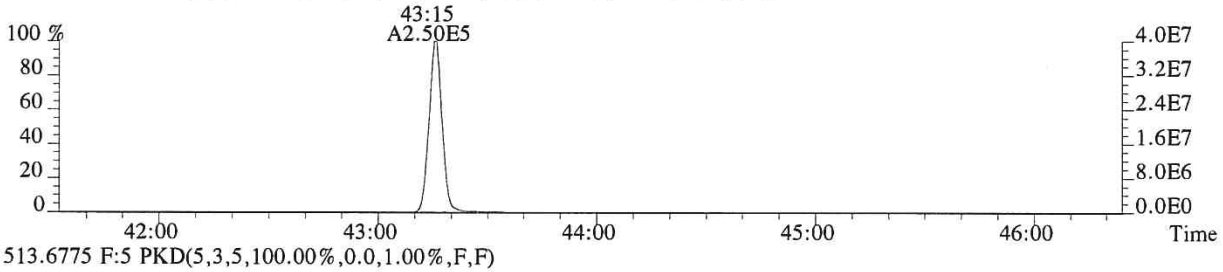
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2548.0,0.40%,F,T)



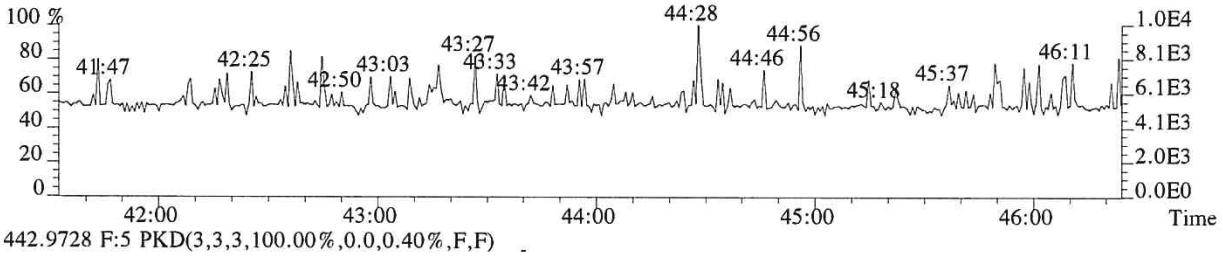
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



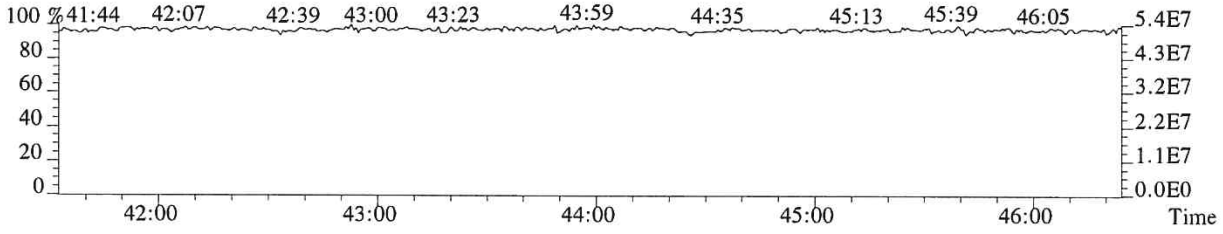
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



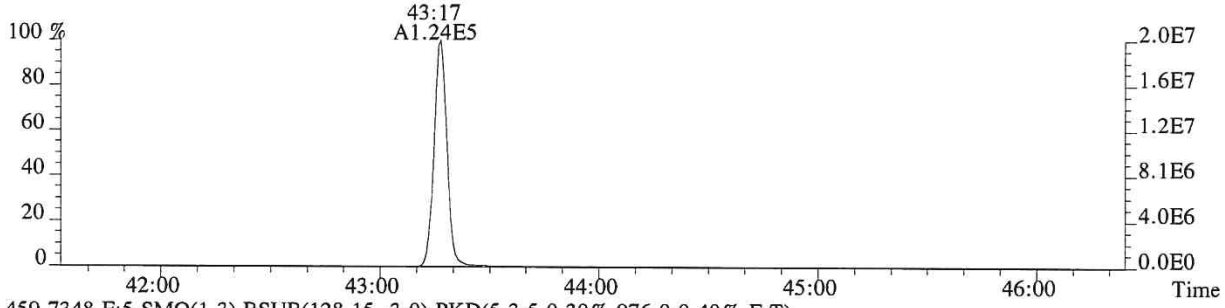
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



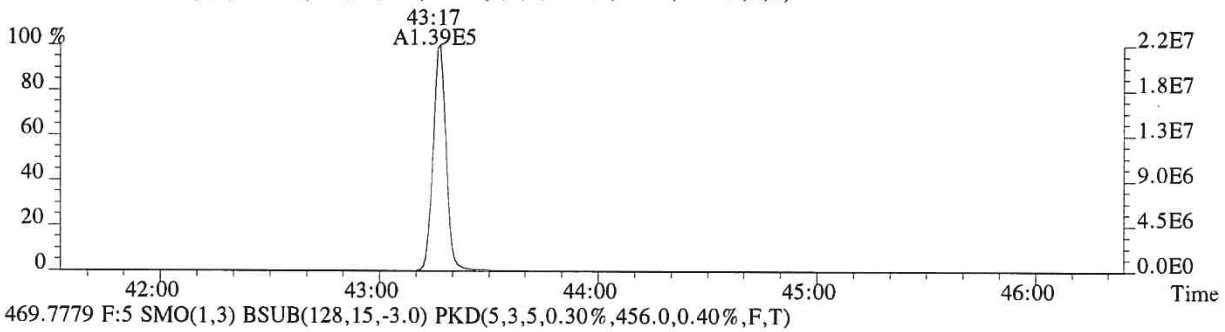
009277

File:P615714 #1-438 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

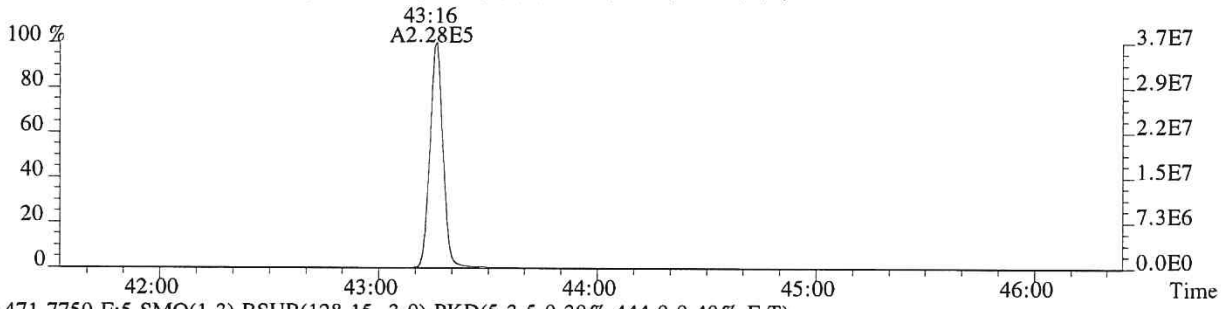
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



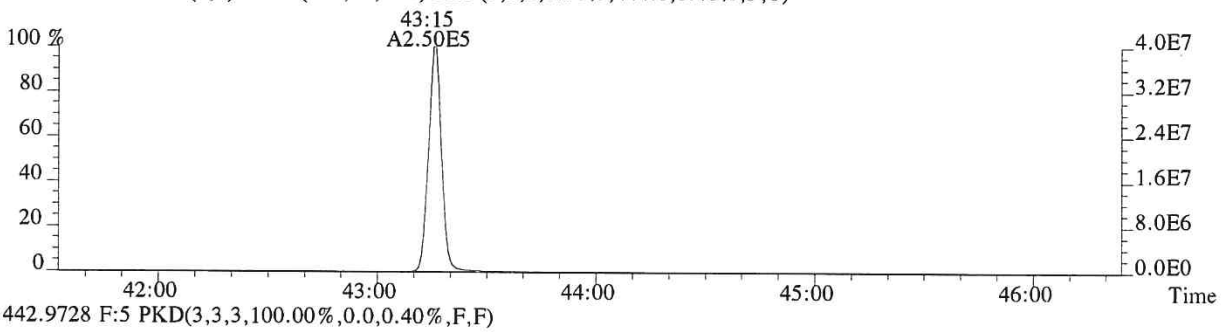
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,976.0,0.40%,F,T)



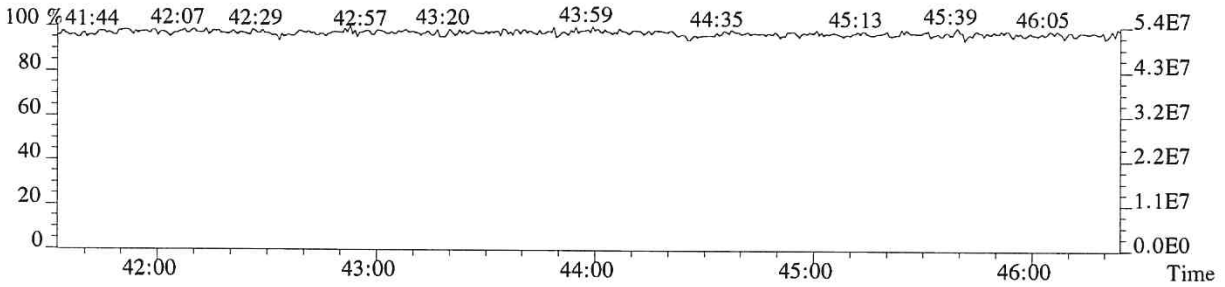
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009278

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Leung
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

E1801012

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:39	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	YY	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ YD 1/25/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	—	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			—	—	—	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			—	—	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	—	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	—	—	—	EPA1613_ALS	Dioxin_ALS	Tray1:16	—	—
17	---	—	—	—	—	EPA1613_ALS	Dioxin_ALS	Tray1:17	—	---
18	---	---	—	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	—	—
19	—	—	---	—	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	—
20	---	---	—	—	—	EPA1613_ALS	Dioxin_ALS	Tray1:20	—	---
21	---	---	—	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	—	—
22	---	---	—	—	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	—
23	—	—	---	—	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	—
24	—	—	—	—	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	—	—
25	---	---	—	---	—	EPA1613_ALS	Dioxin_ALS	Tray1:25	—	—

gc 01/25/18

* gc 01/25/18

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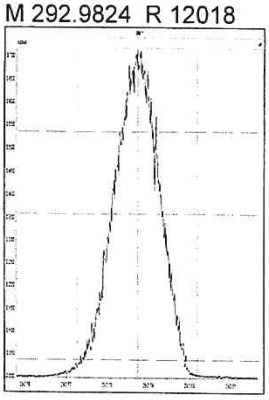
Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

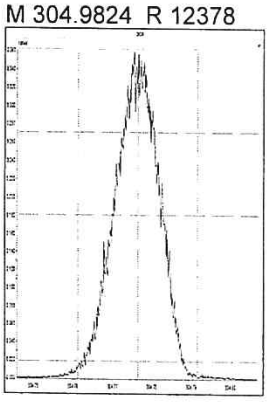
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

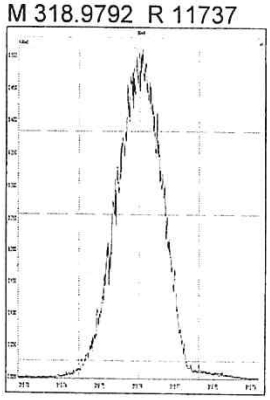
M 292.9824 R 12018



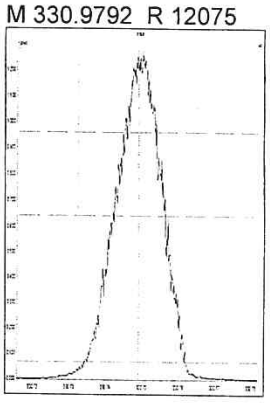
M 304.9824 R 12378



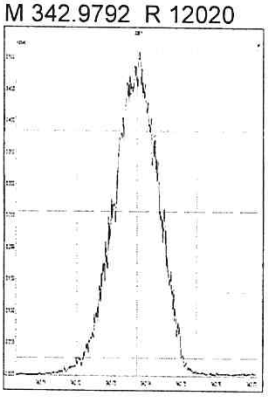
M 318.9792 R 11737



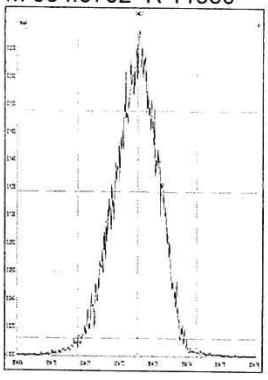
M 330.9792 R 12075



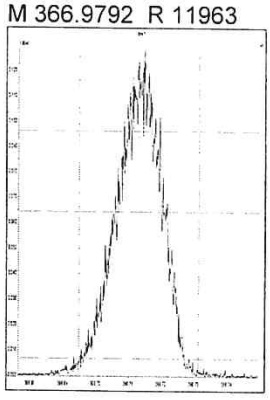
M 342.9792 R 12020



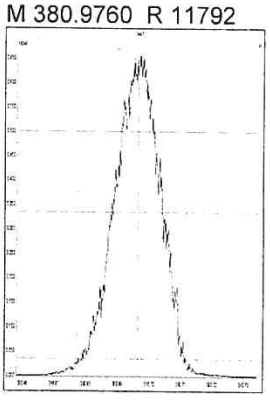
M 354.9792 R 11680



M 366.9792 R 11963



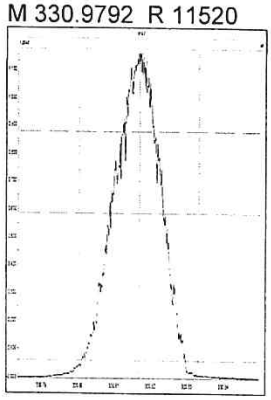
M 380.9760 R 11792



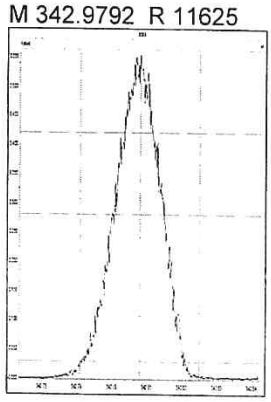
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

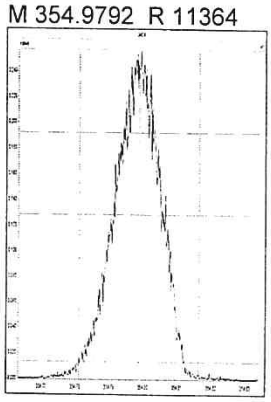
M 330.9792 R 11520



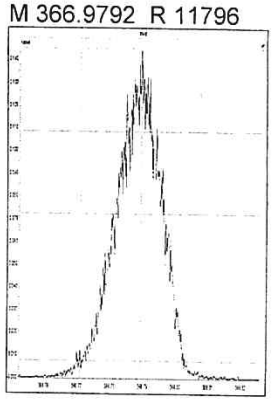
M 342.9792 R 11625



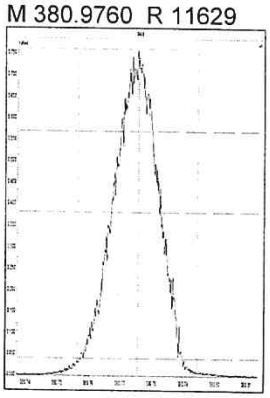
M 354.9792 R 11364



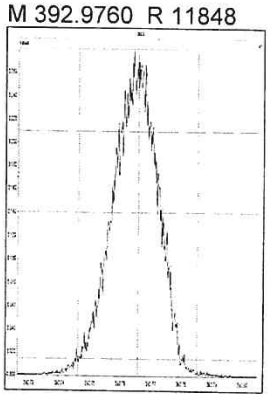
M 366.9792 R 11796



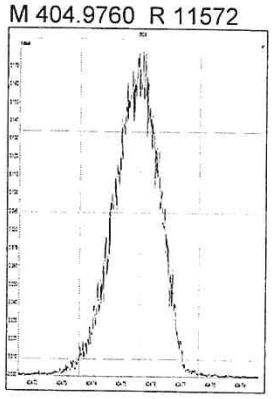
M 380.9760 R 11629



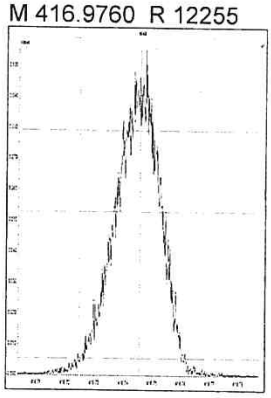
M 392.9760 R 11848



M 404.9760 R 11572



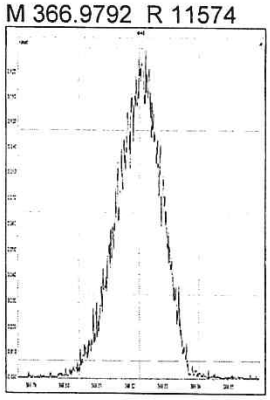
M 416.9760 R 12255



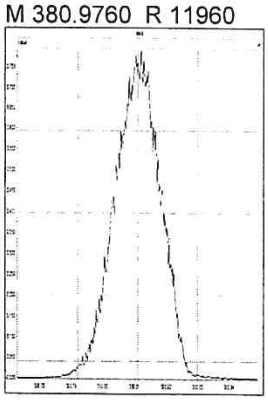
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

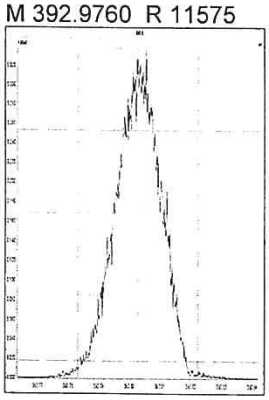
M 366.9792 R 11574



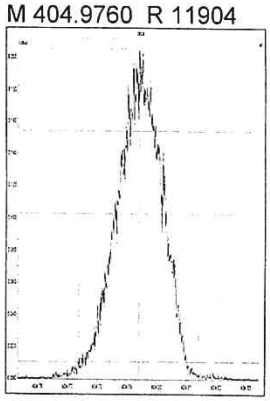
M 380.9760 R 11960



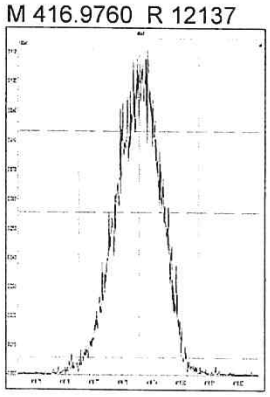
M 392.9760 R 11575



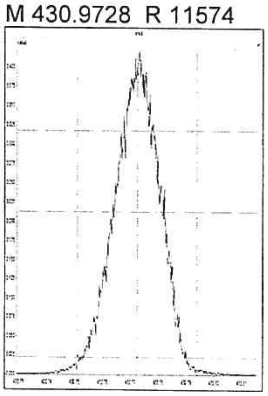
M 404.9760 R 11904



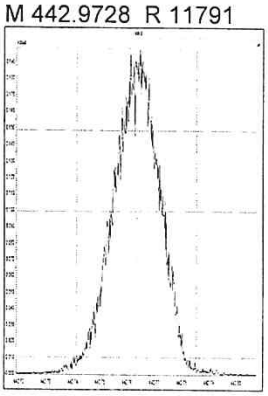
M 416.9760 R 12137



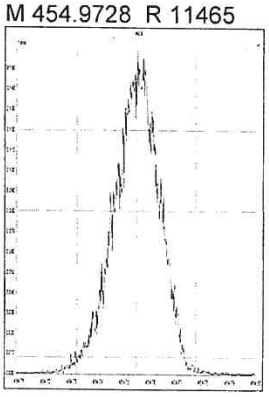
M 430.9728 R 11574



M 442.9728 R 11791



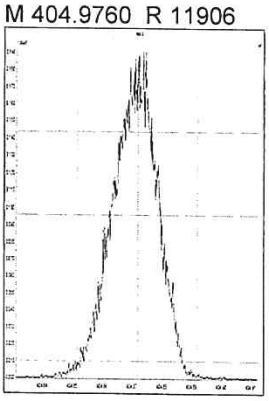
M 454.9728 R 11465



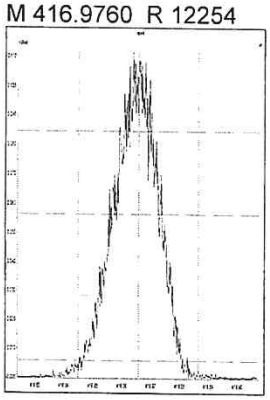
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

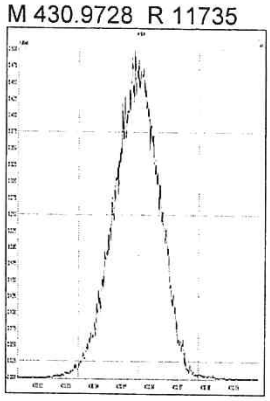
M 404.9760 R 11906



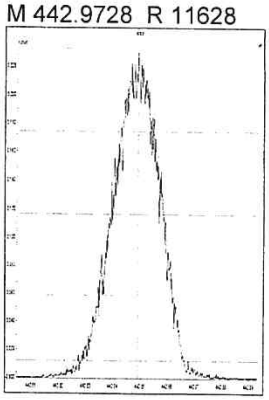
M 416.9760 R 12254



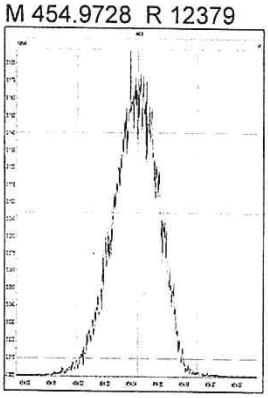
M 430.9728 R 11735



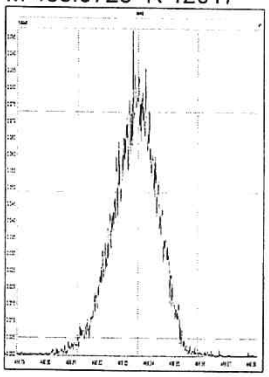
M 442.9728 R 11628



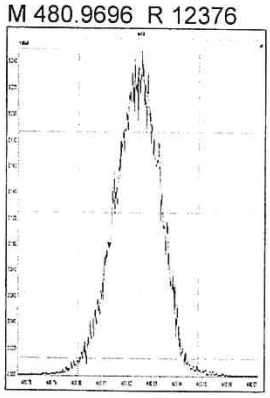
M 454.9728 R 12379



M 466.9728 R 12017



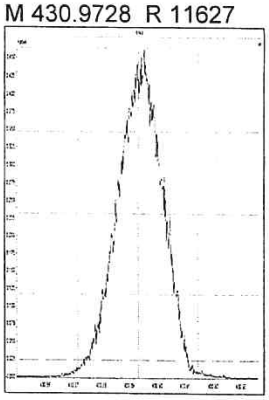
M 480.9696 R 12376



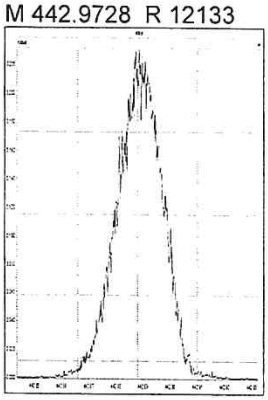
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

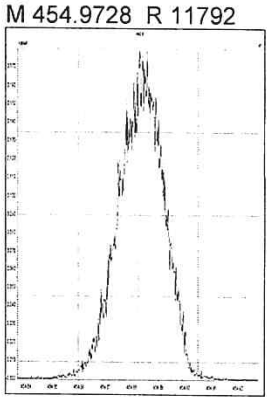
M 430.9728 R 11627



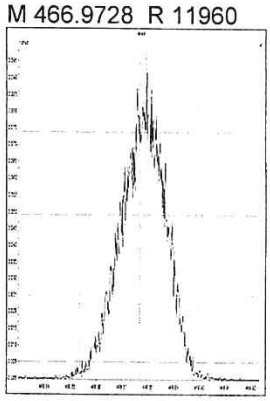
M 442.9728 R 12133



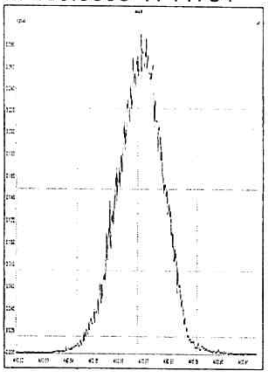
M 454.9728 R 11792



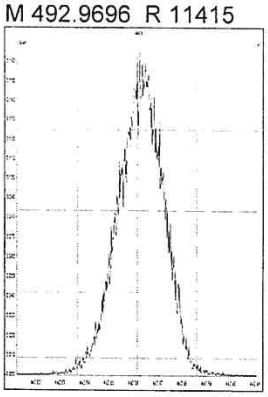
M 466.9728 R 11960



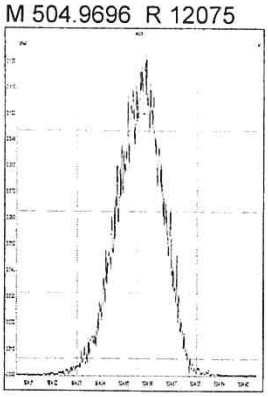
M 480.9696 R 11734



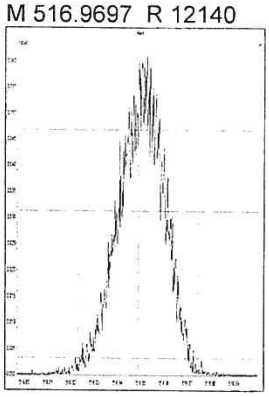
M 492.9696 R 11415



M 504.9696 R 12075



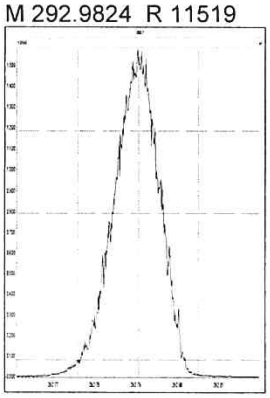
M 516.9697 R 12140



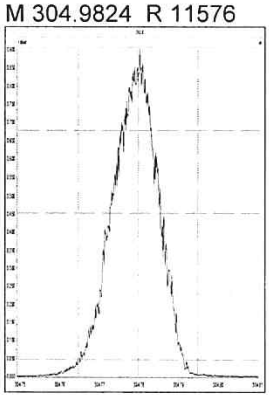
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

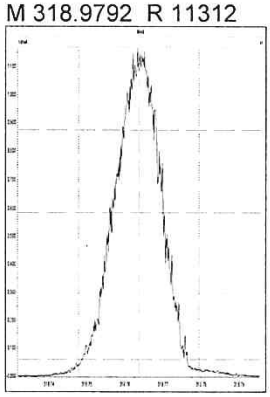
M 292.9824 R 11519



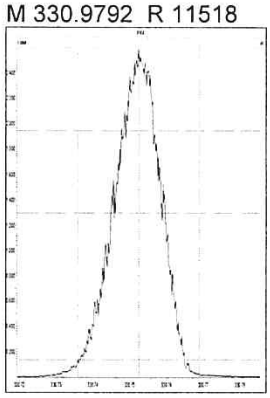
M 304.9824 R 11576



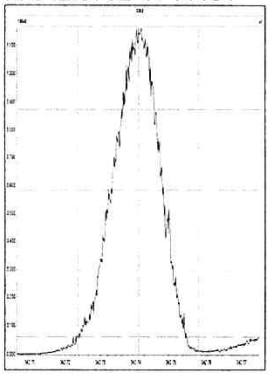
M 318.9792 R 11312



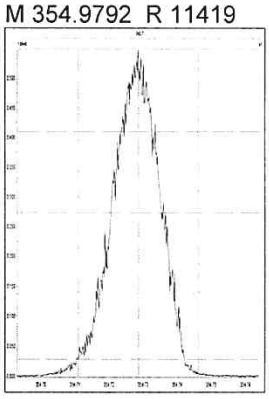
M 330.9792 R 11518



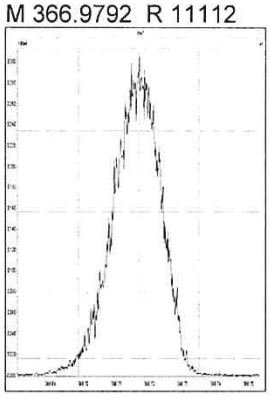
M 342.9792 R 11161



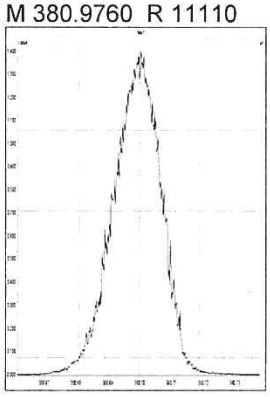
M 354.9792 R 11419



M 366.9792 R 11112



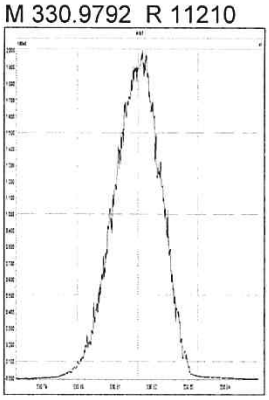
M 380.9760 R 11110



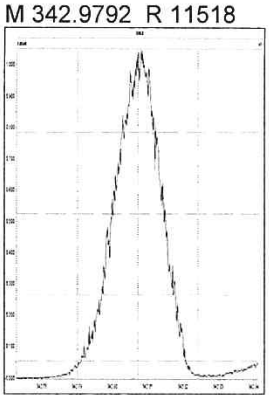
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

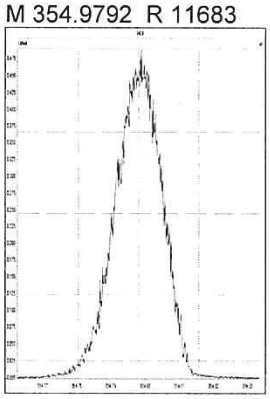
M 330.9792 R 11210



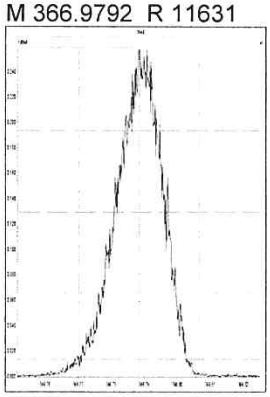
M 342.9792 R 11518



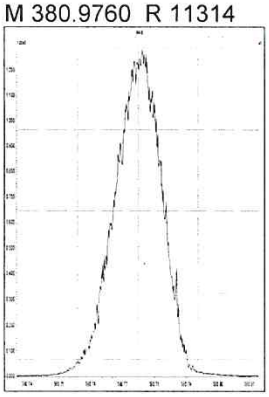
M 354.9792 R 11683



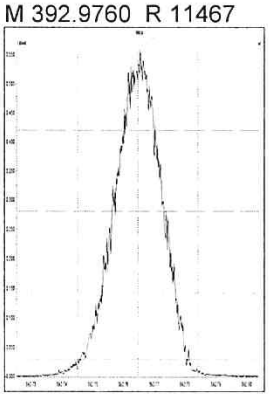
M 366.9792 R 11631



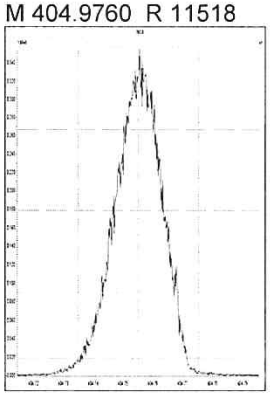
M 380.9760 R 11314



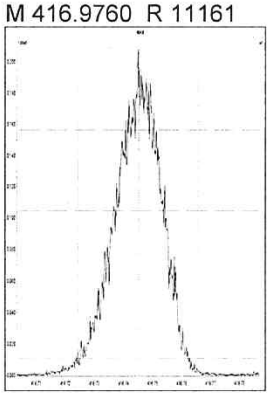
M 392.9760 R 11467



M 404.9760 R 11518



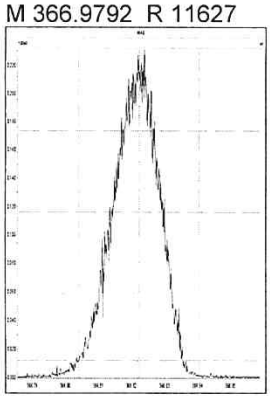
M 416.9760 R 11161



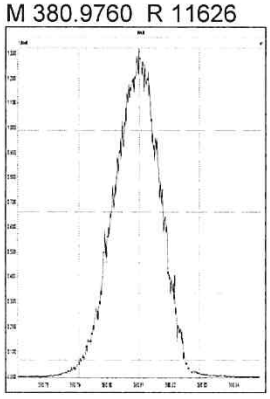
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

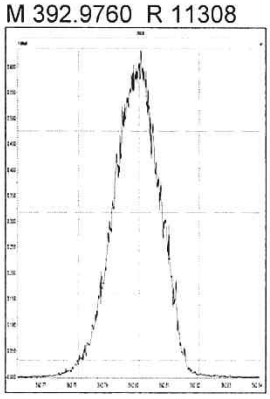
M 366.9792 R 11627



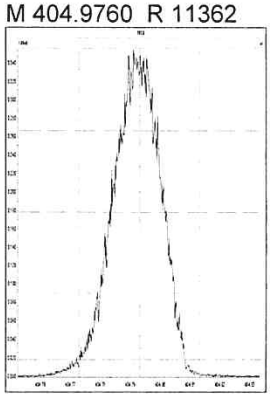
M 380.9760 R 11626



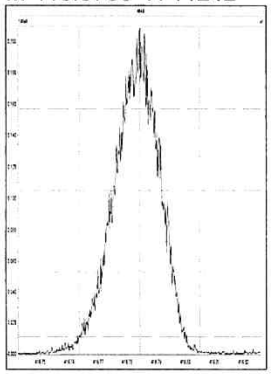
M 392.9760 R 11308



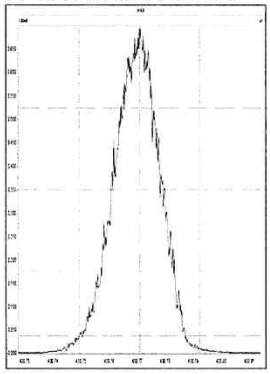
M 404.9760 R 11362



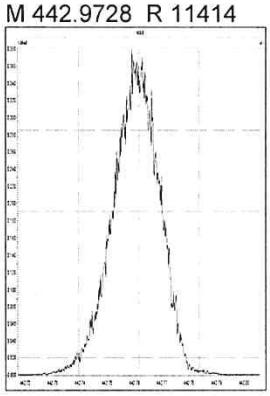
M 416.9760 R 11212



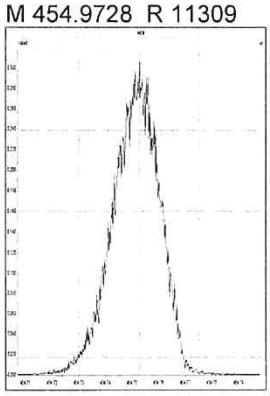
M 430.9728 R 11363



M 442.9728 R 11414



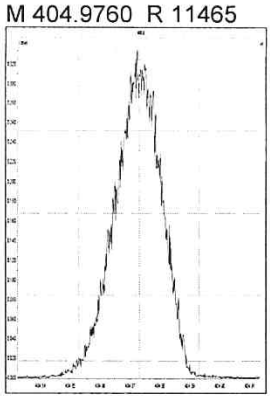
M 454.9728 R 11309



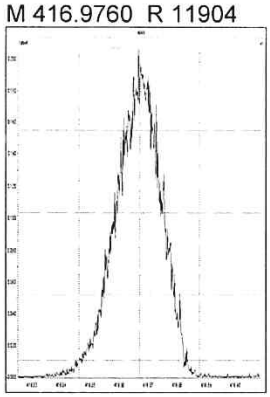
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

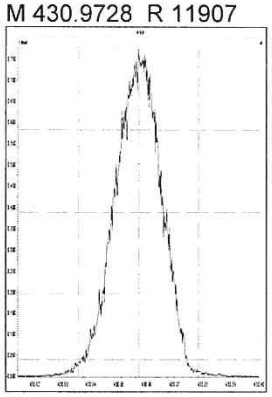
M 404.9760 R 11465



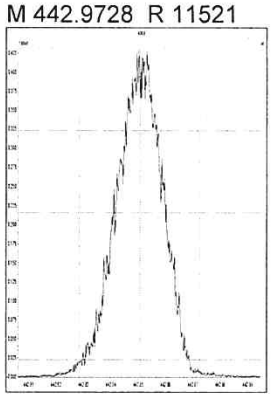
M 416.9760 R 11904



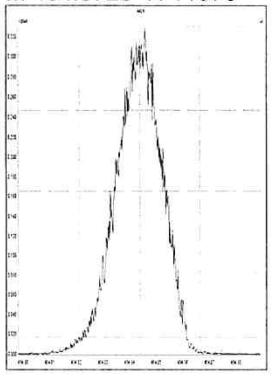
M 430.9728 R 11907



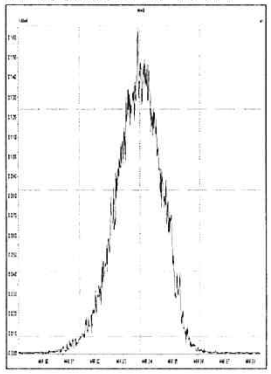
M 442.9728 R 11521



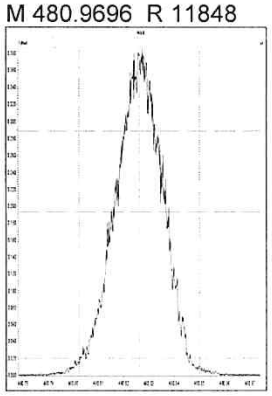
M 454.9728 R 11573



M 466.9728 R 11417



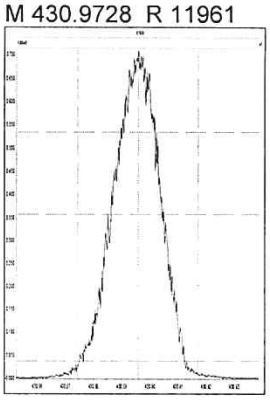
M 480.9696 R 11848



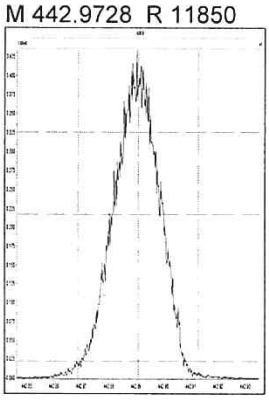
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

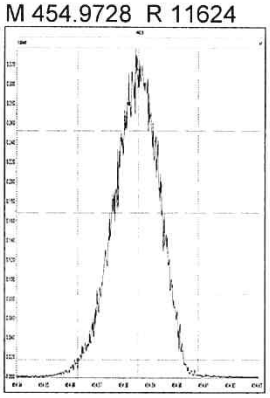
M 430.9728 R 11961



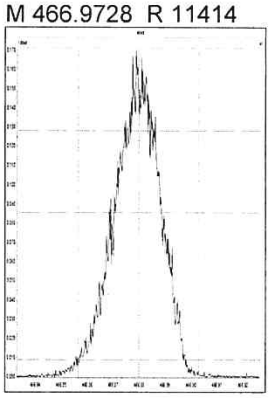
M 442.9728 R 11850



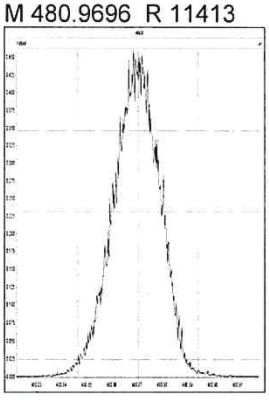
M 454.9728 R 11624



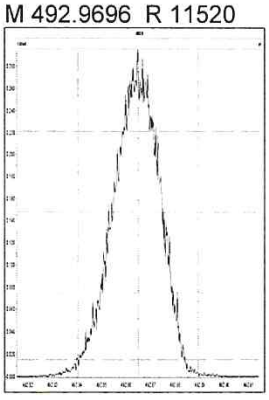
M 466.9728 R 11414



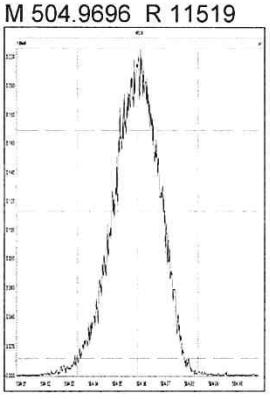
M 480.9696 R 11413



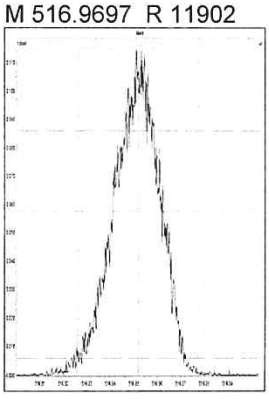
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

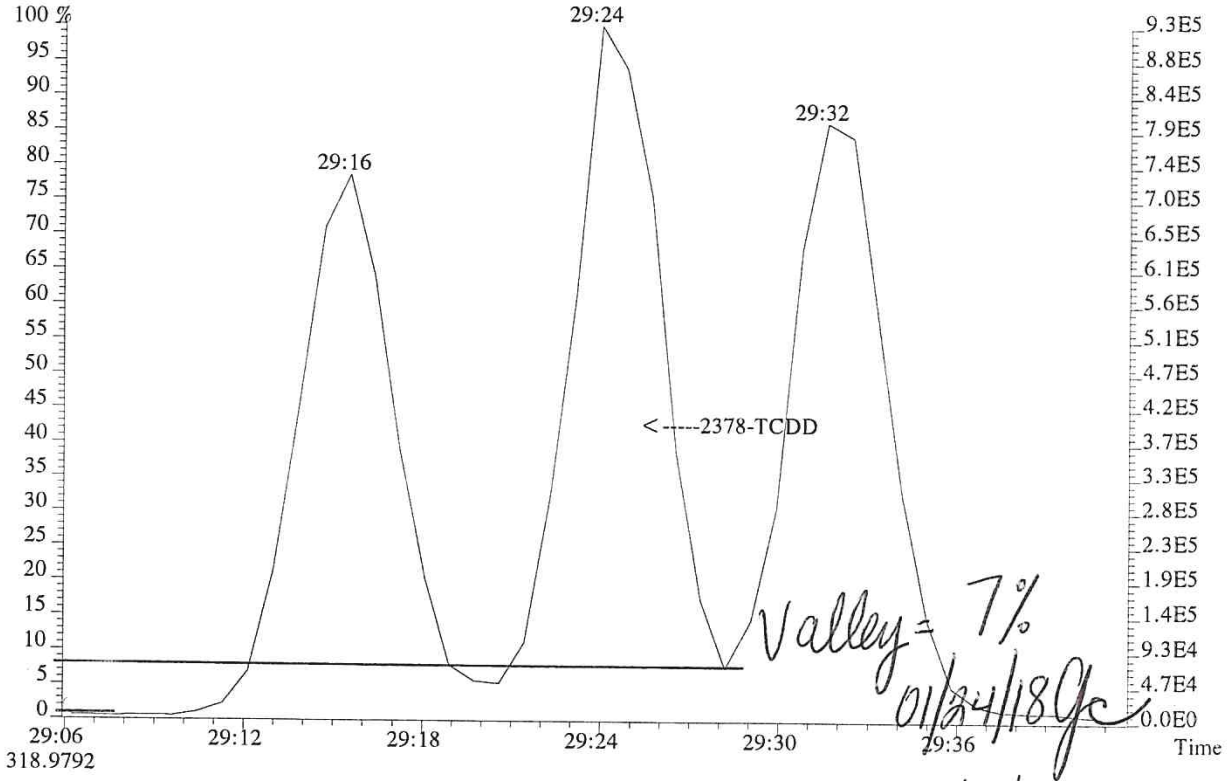
Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

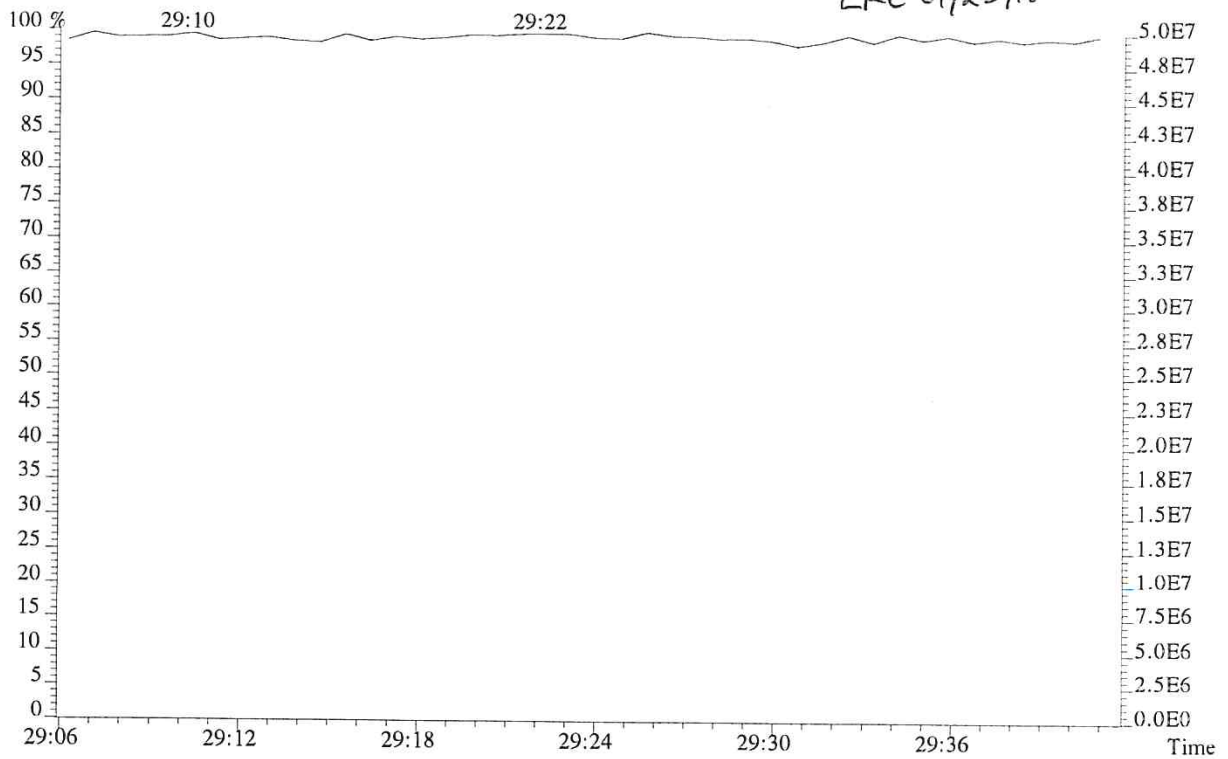
% Valley 2378-TCDD: 7 %

009294

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965

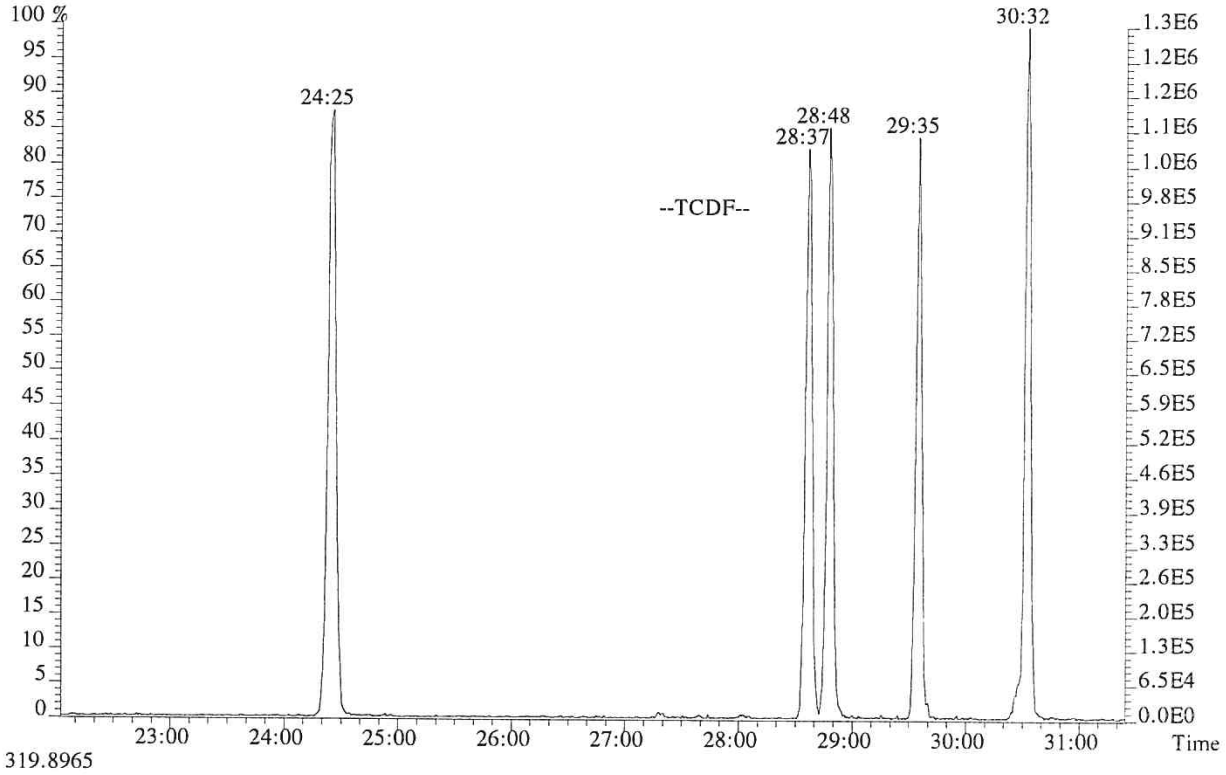


LKL 01/25/18

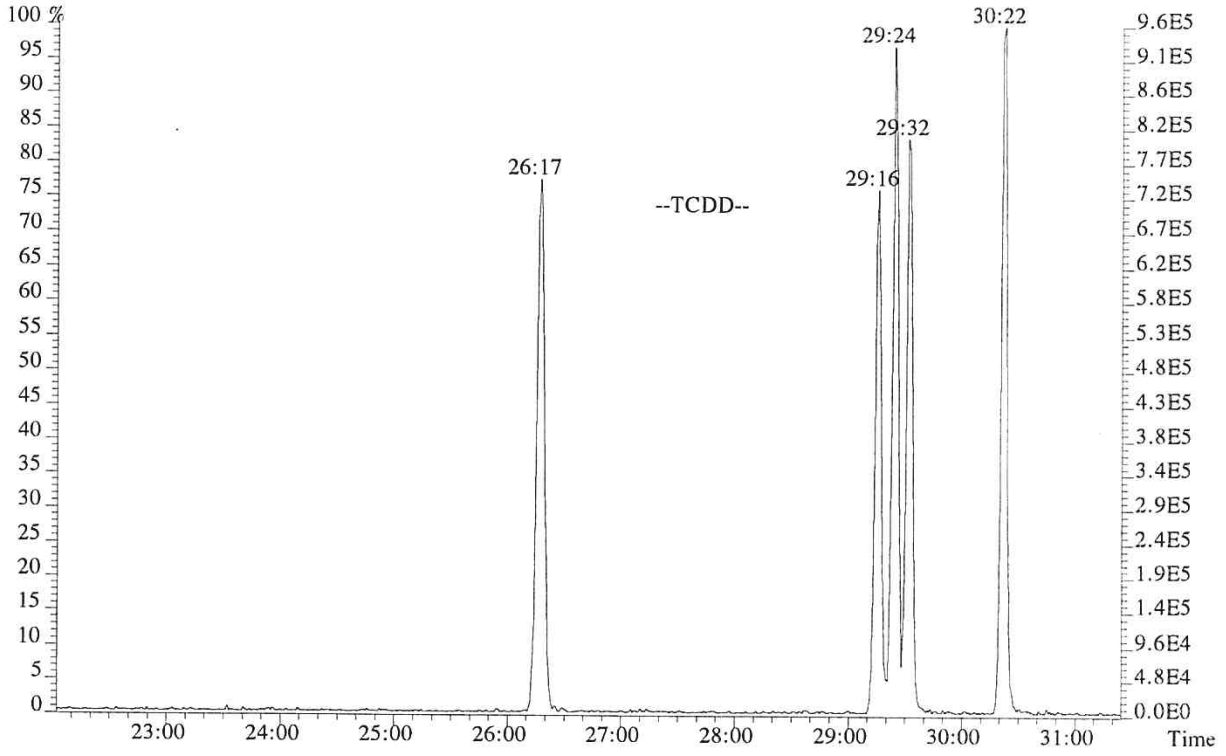


009295

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
303.9016

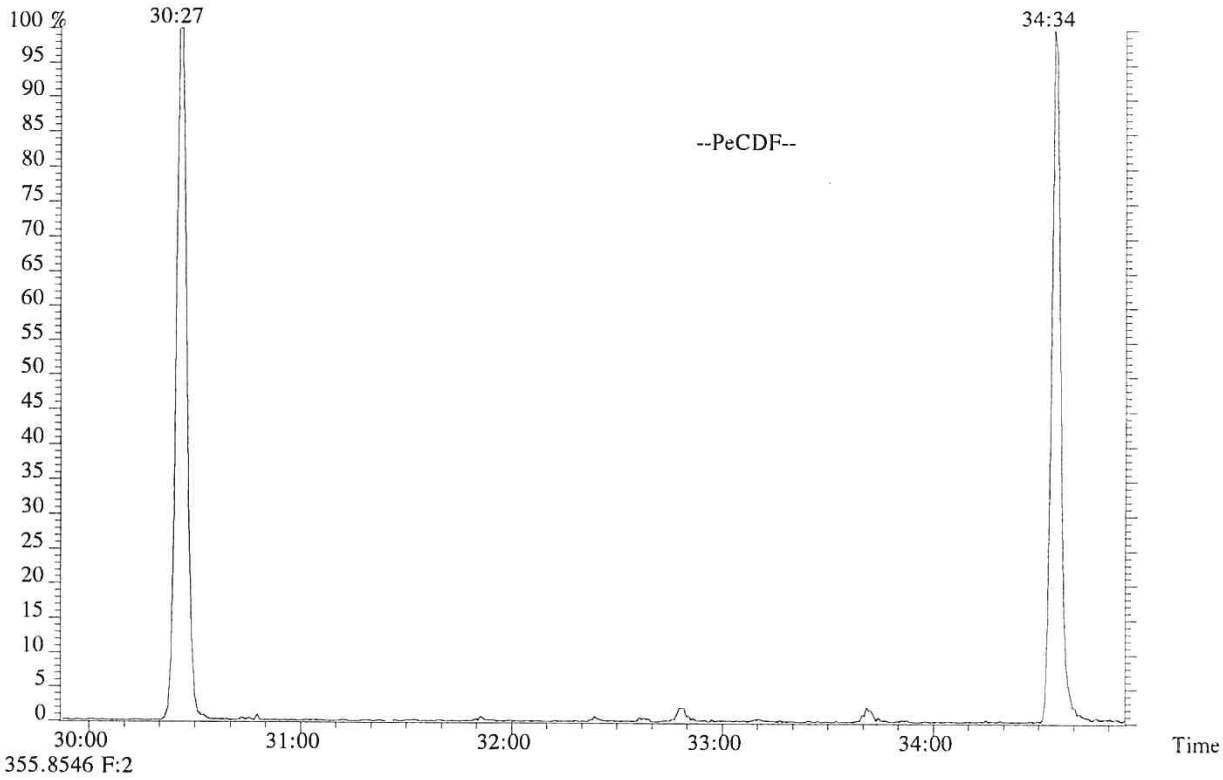


319.8965

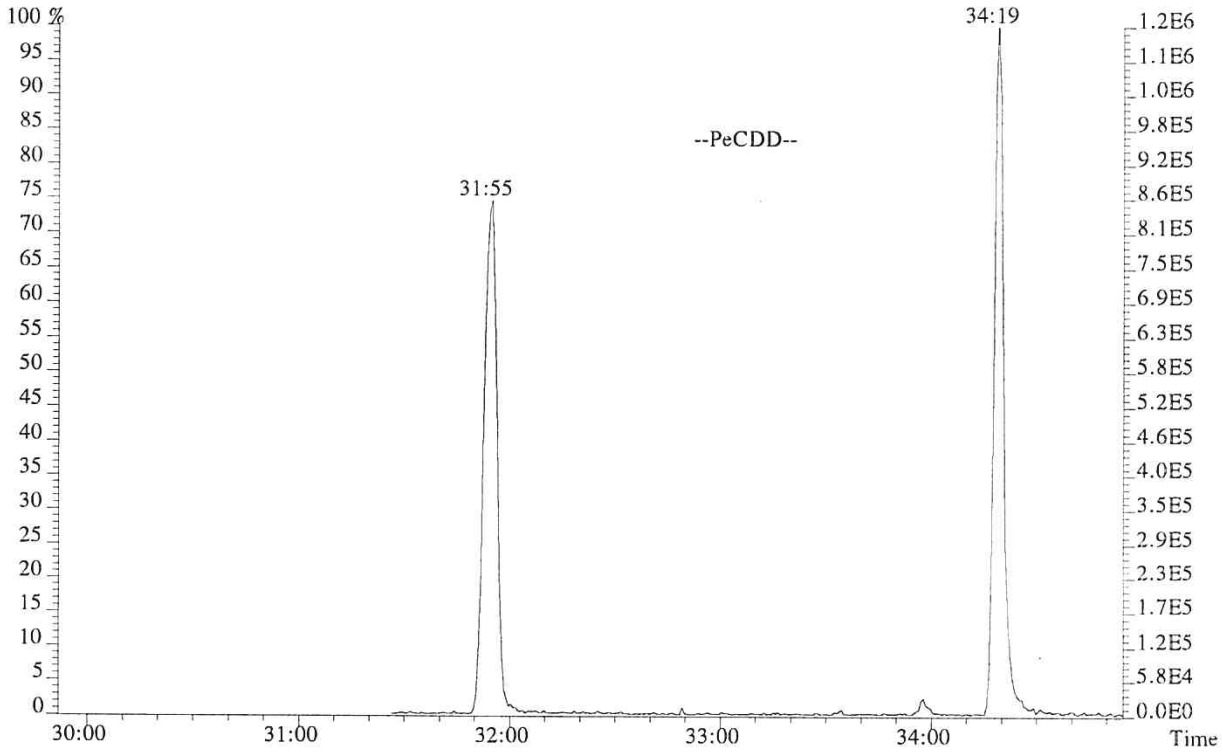


009296

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2



355.8546 F:2



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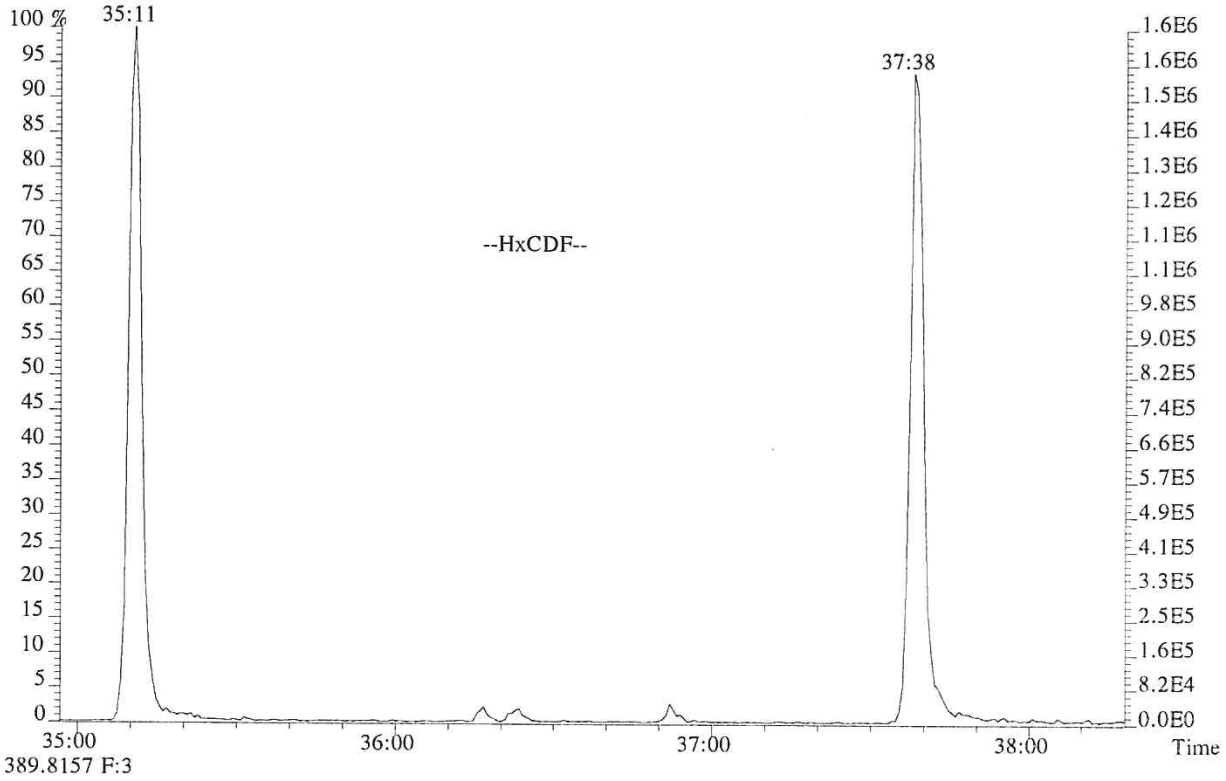
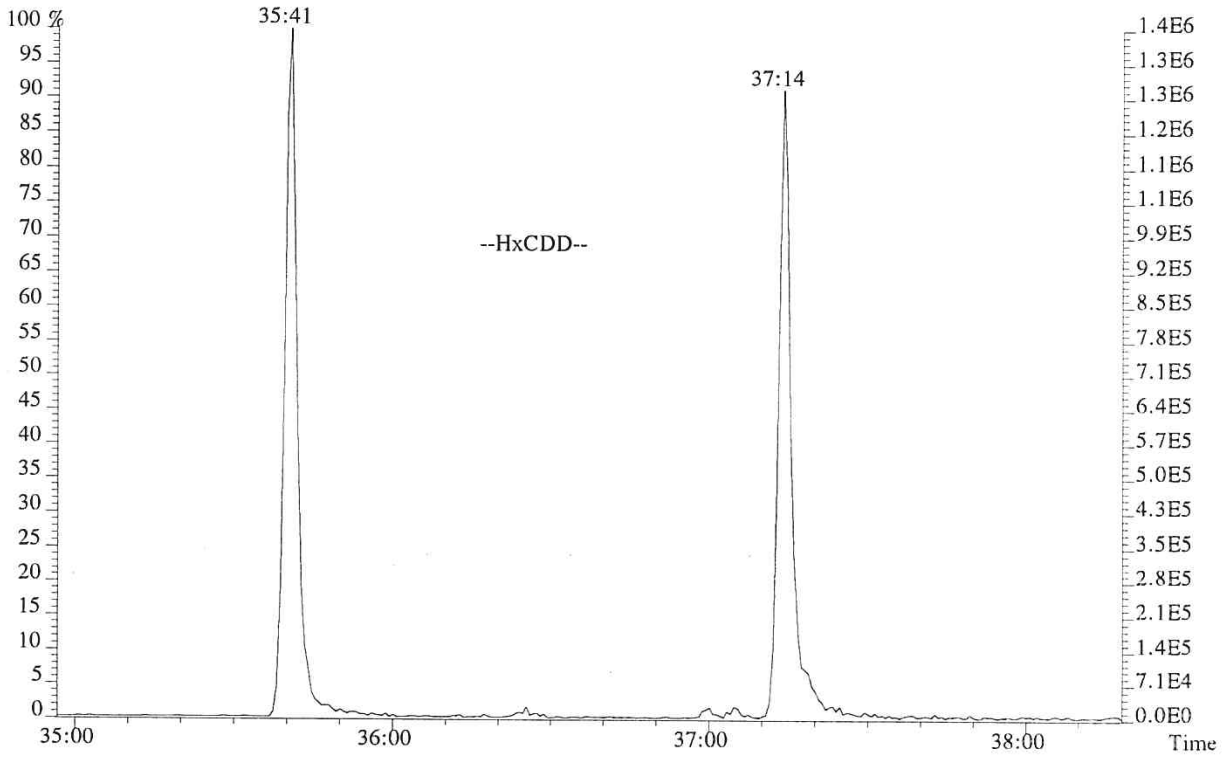
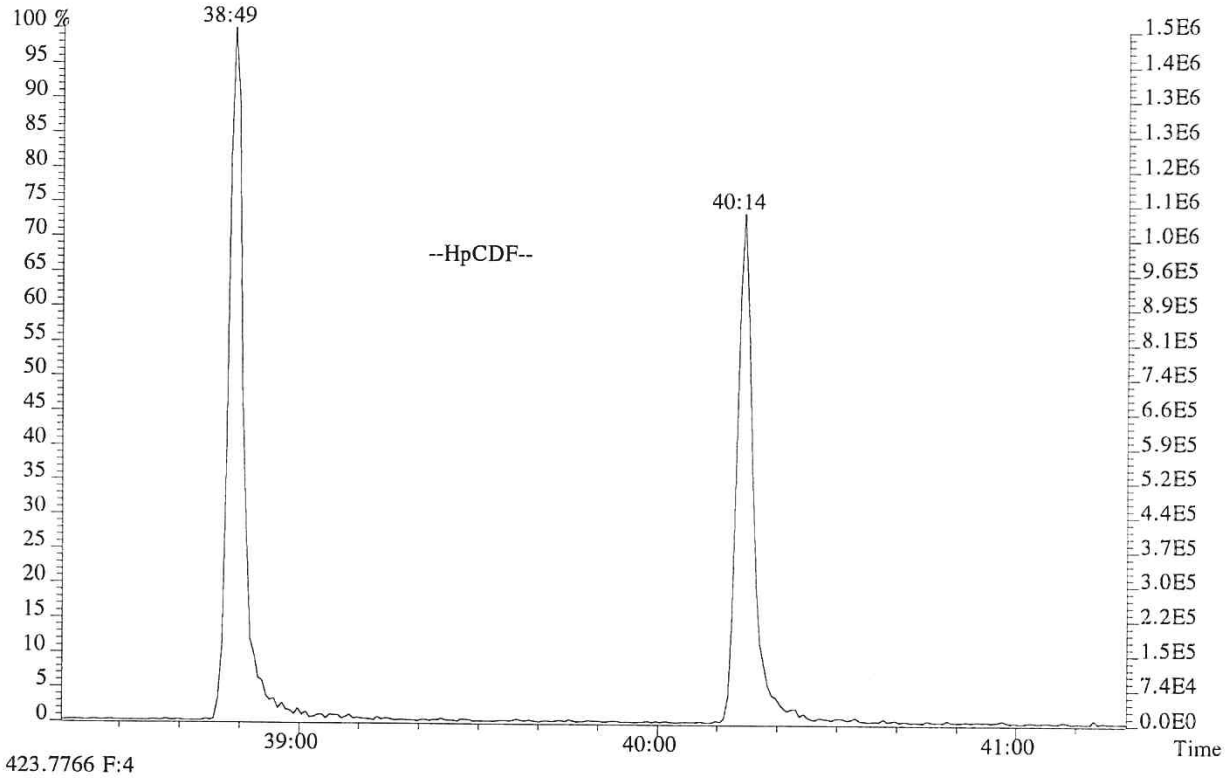
Sample#1 Exp:183360
373.8208 F:3



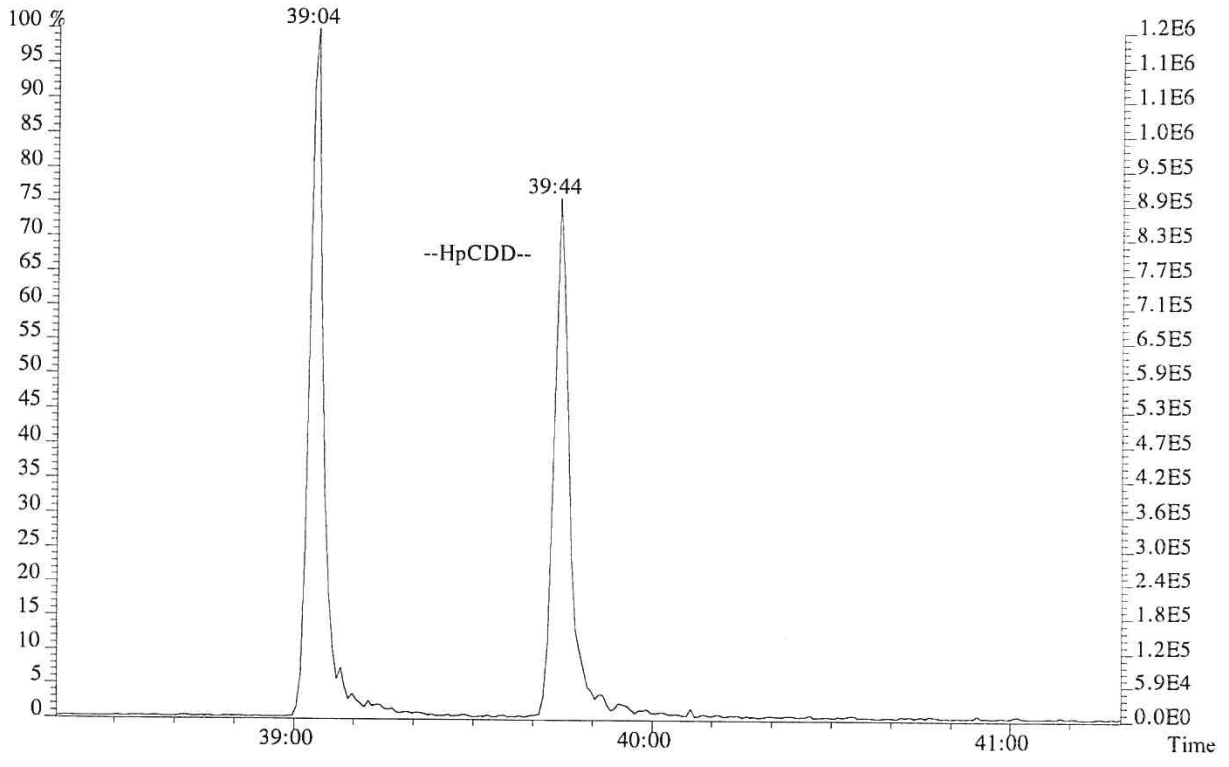
389.8157 F:3



File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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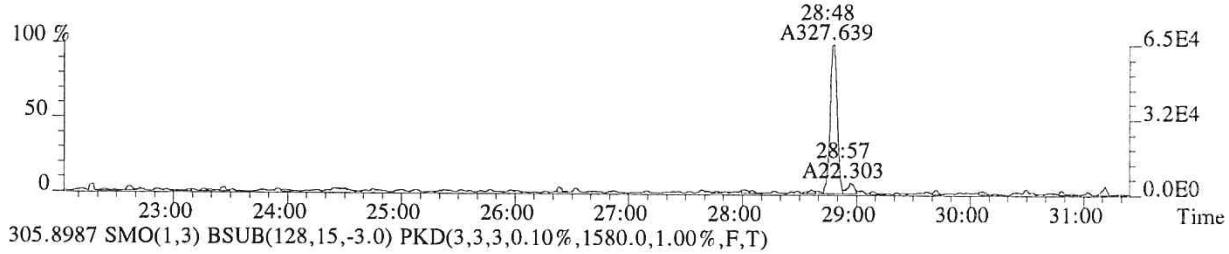
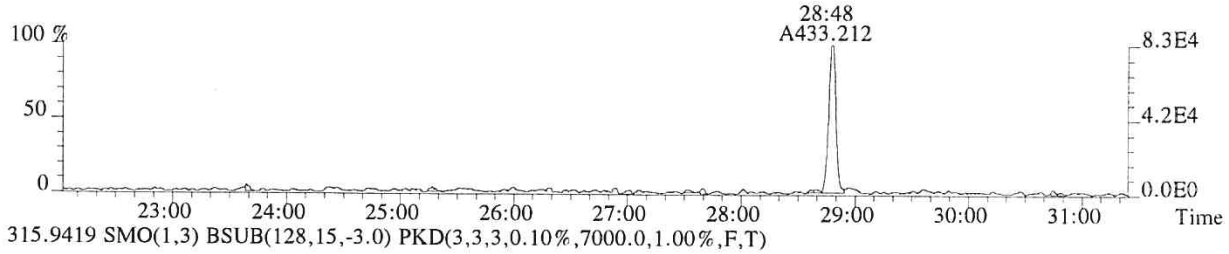
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

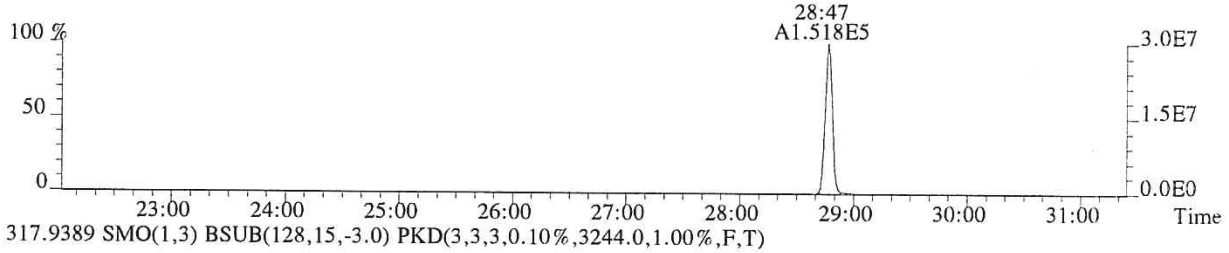
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



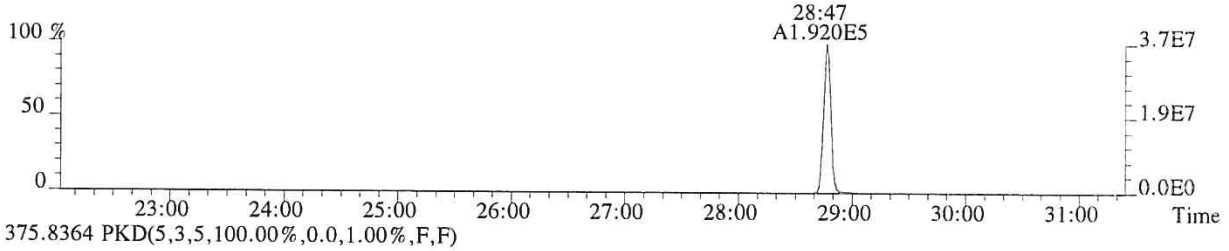
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



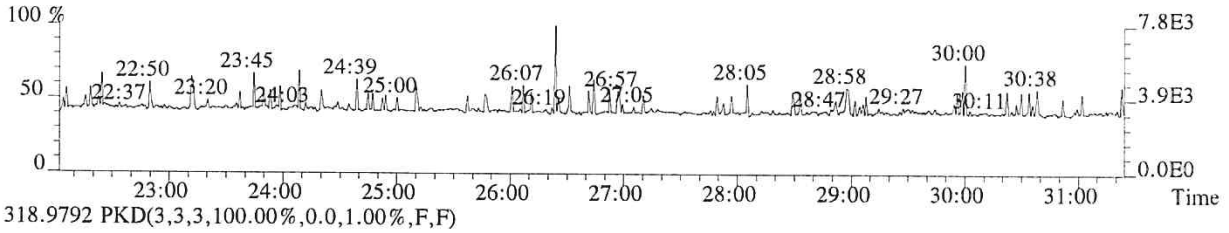
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



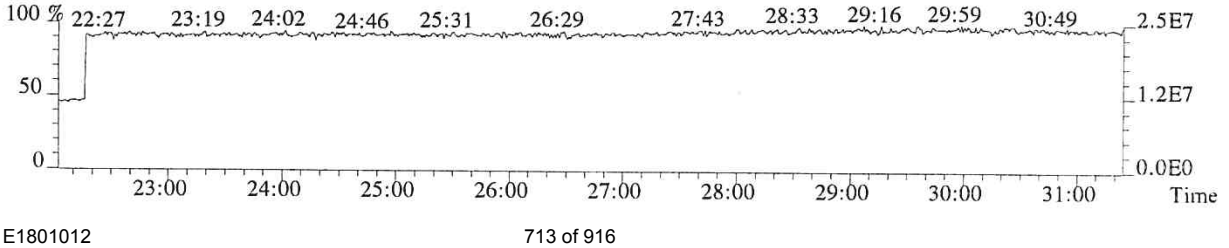
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

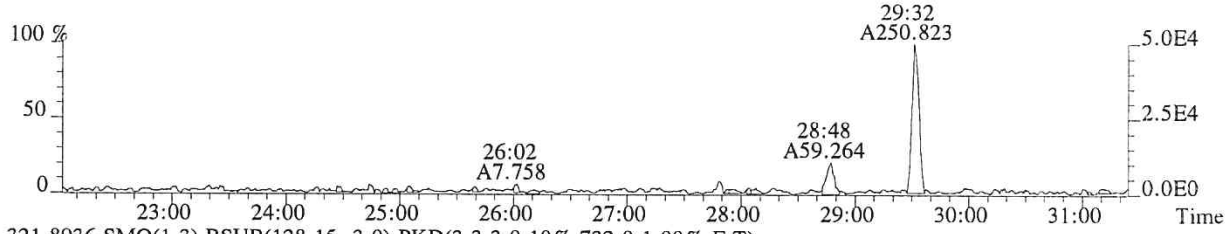


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

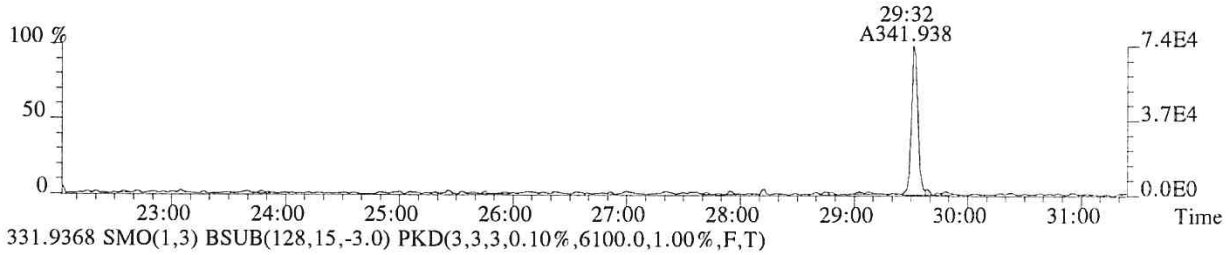


009304

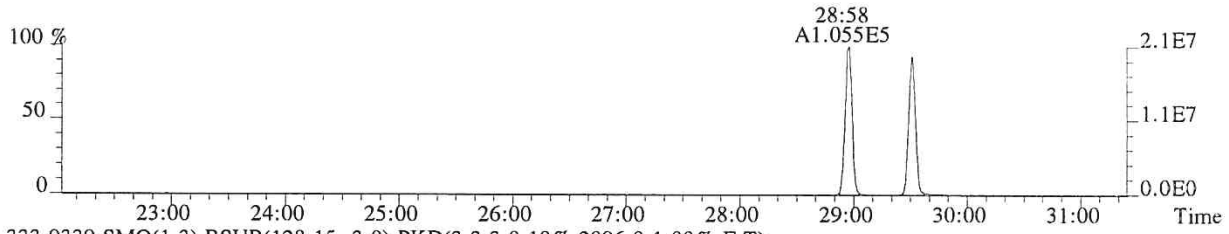
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



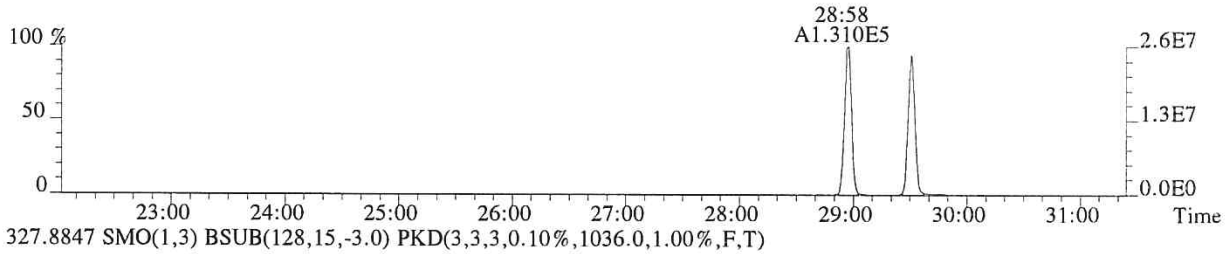
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



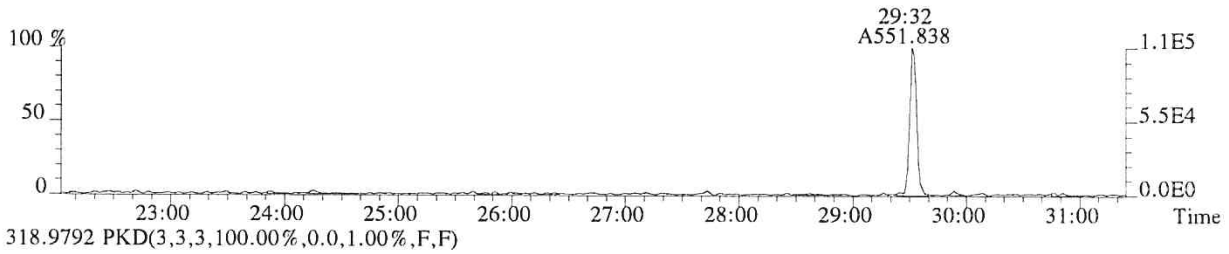
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



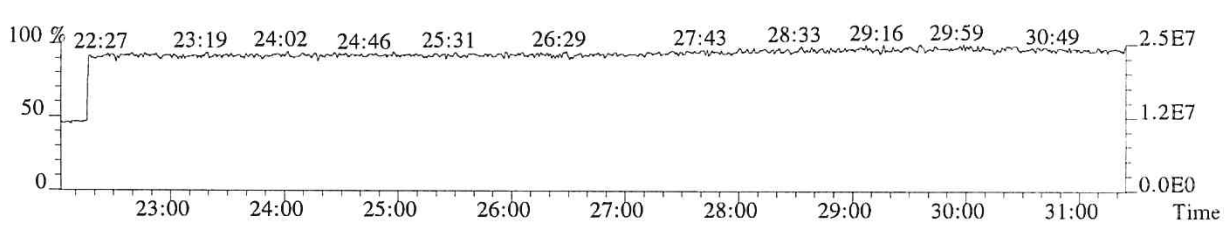
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

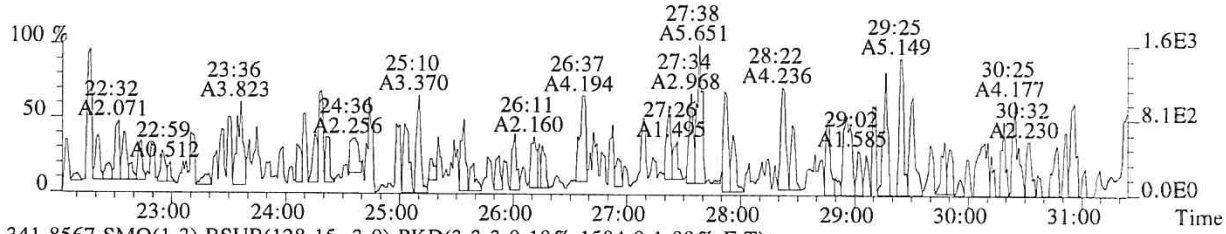


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

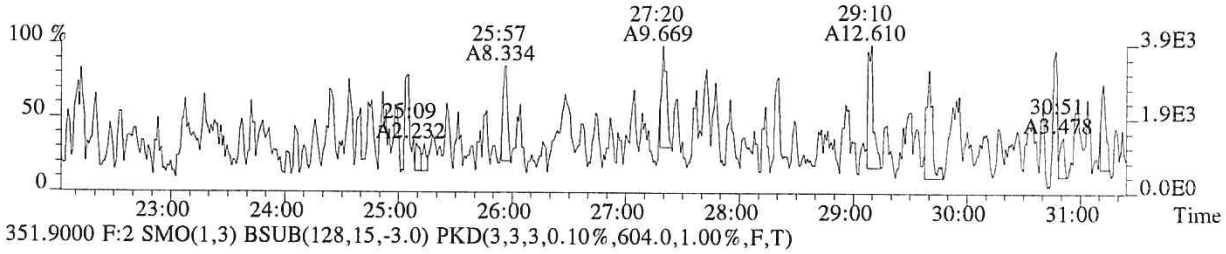


009305

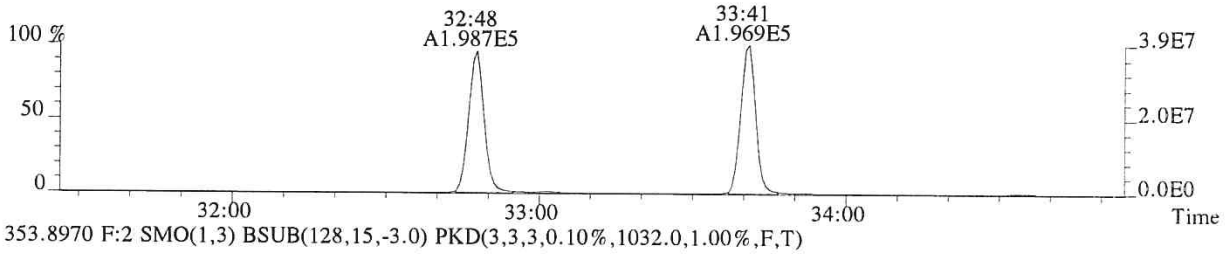
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



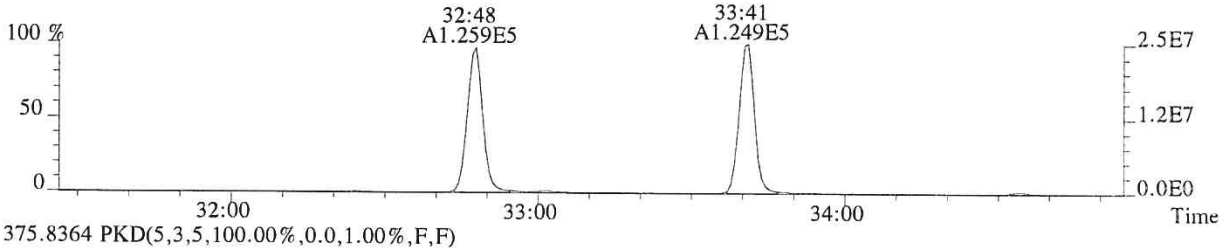
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



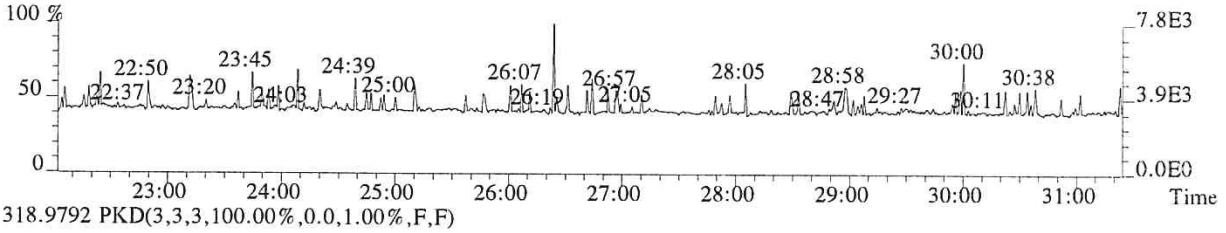
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



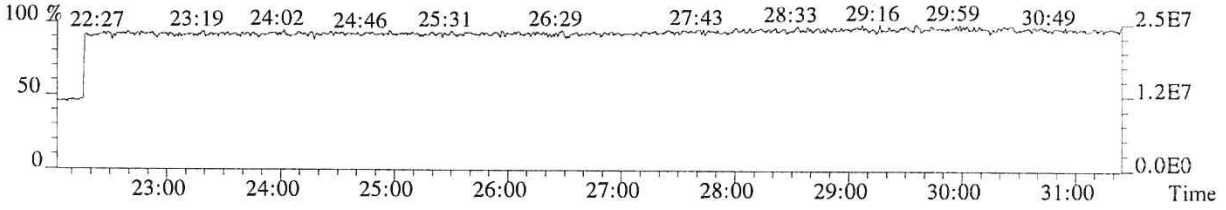
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

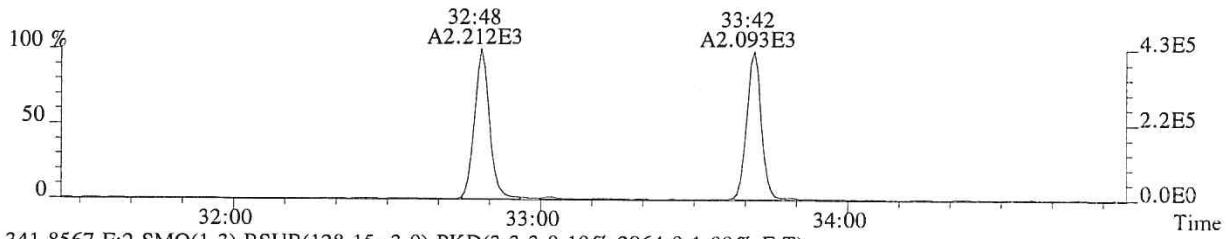


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

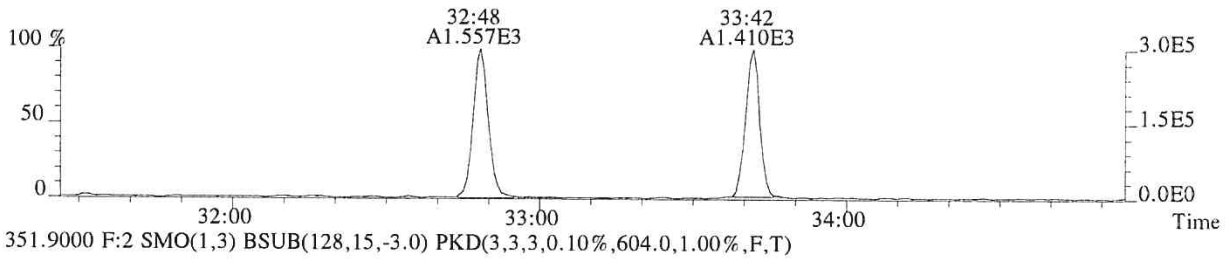


009306

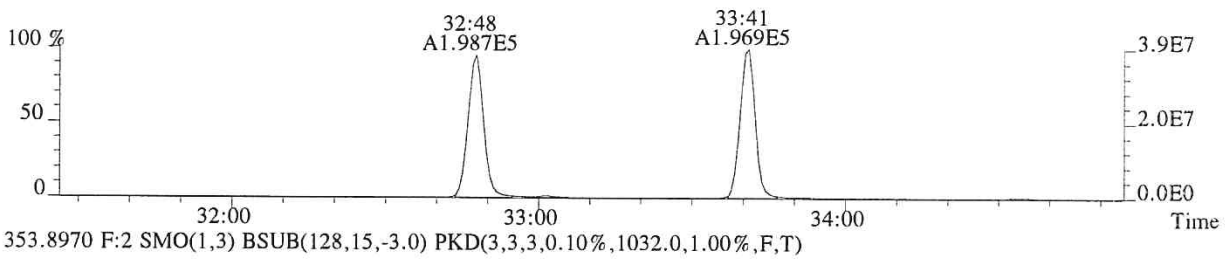
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



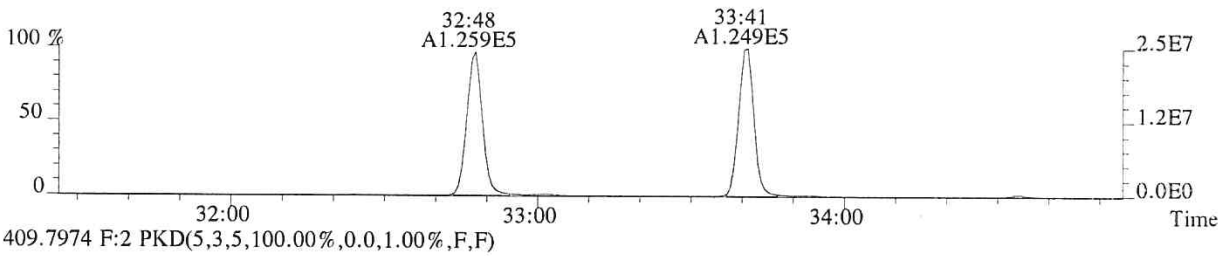
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



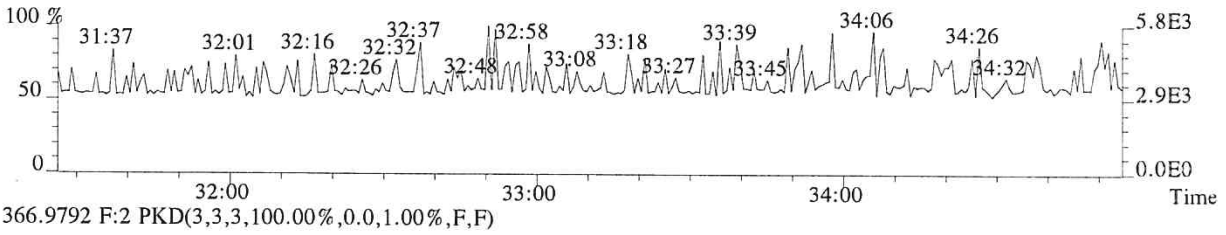
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



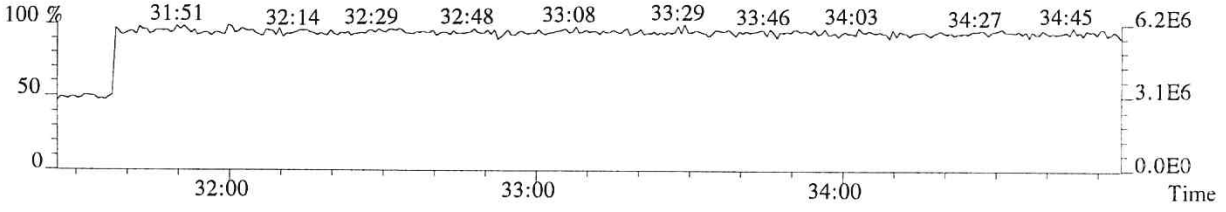
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

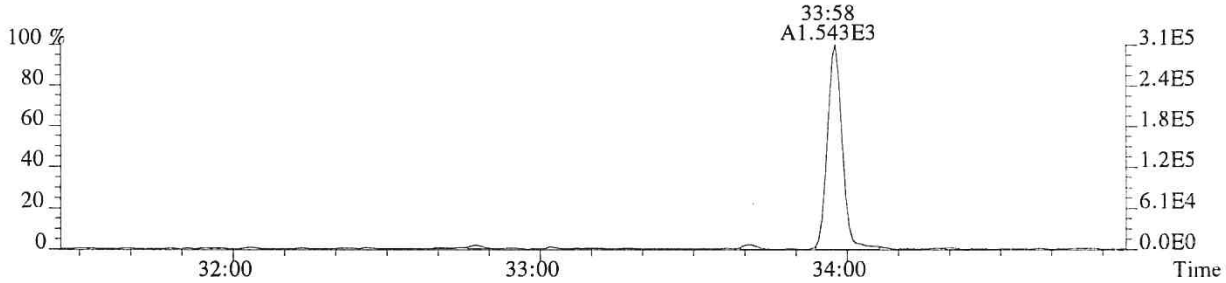


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

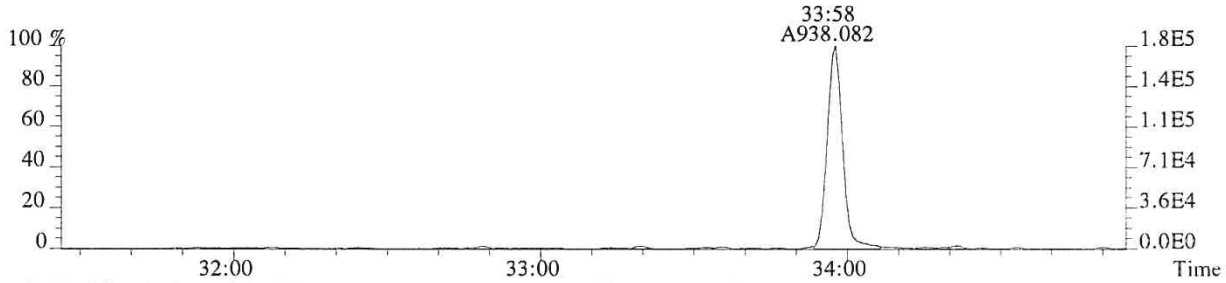


009307

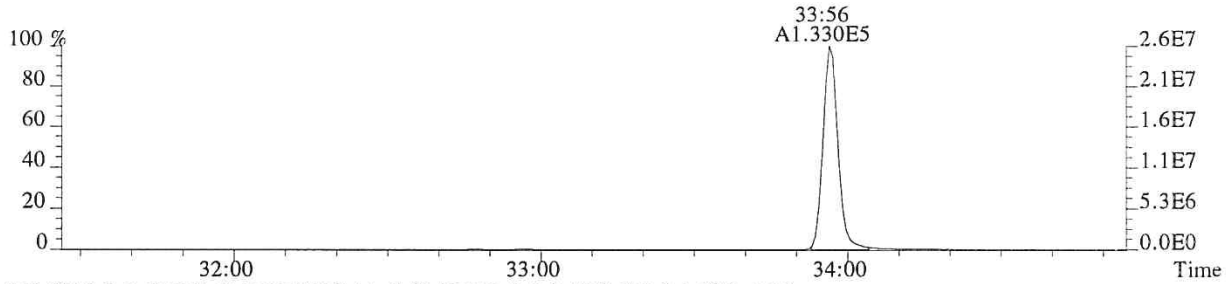
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



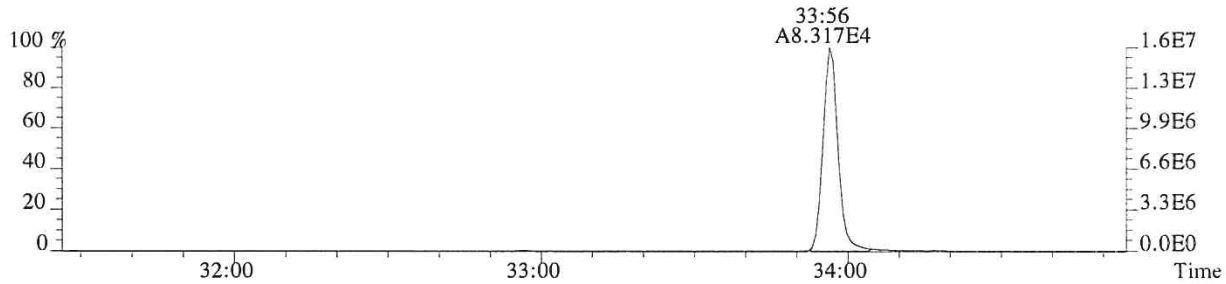
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



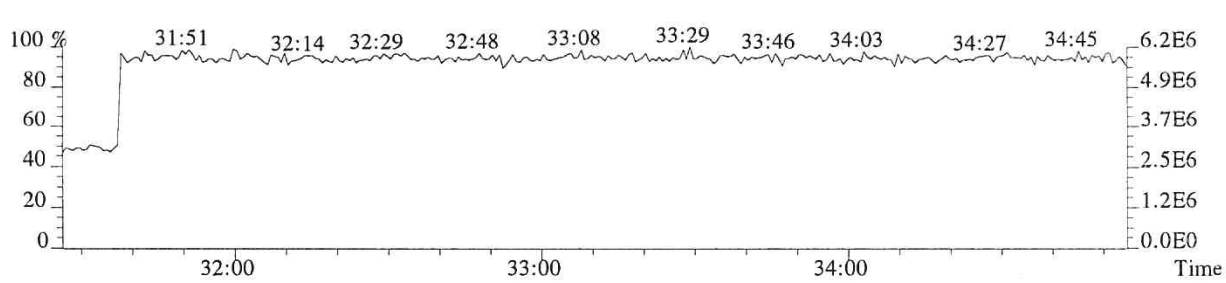
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)

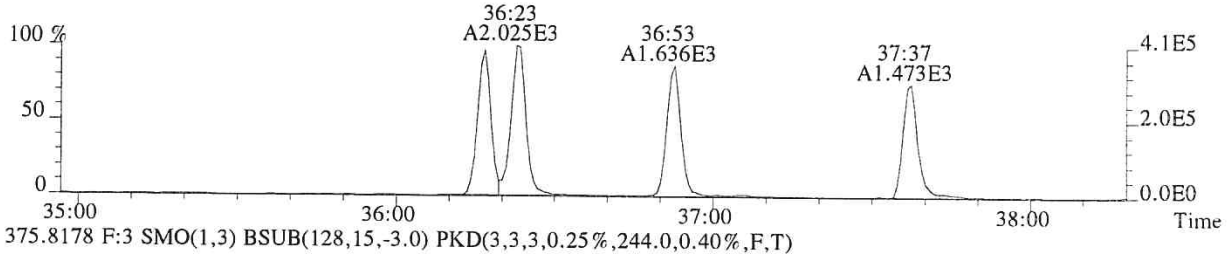


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

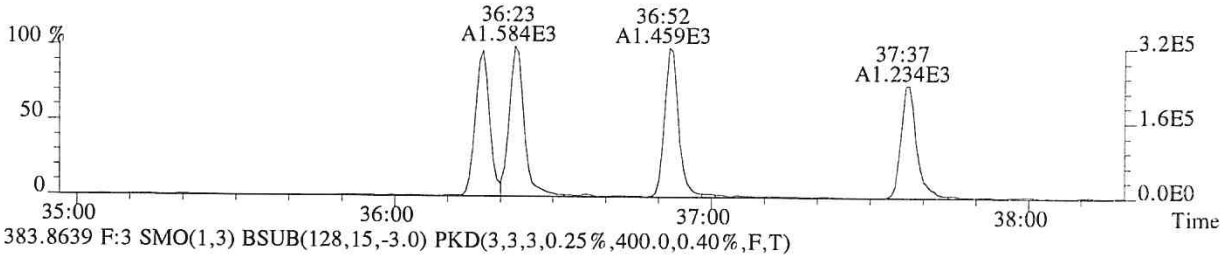


009308

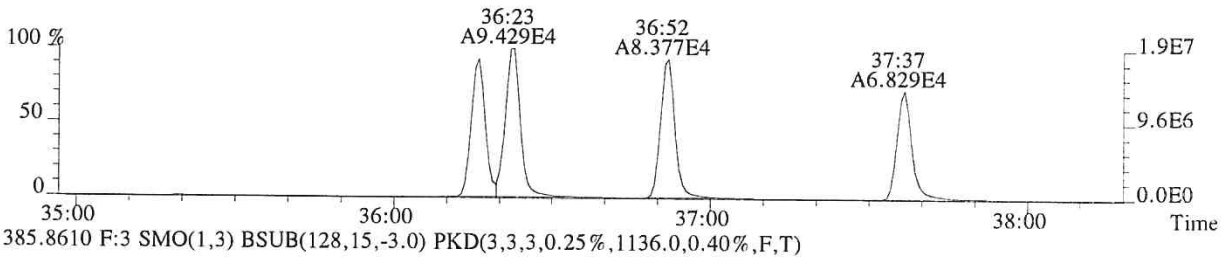
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



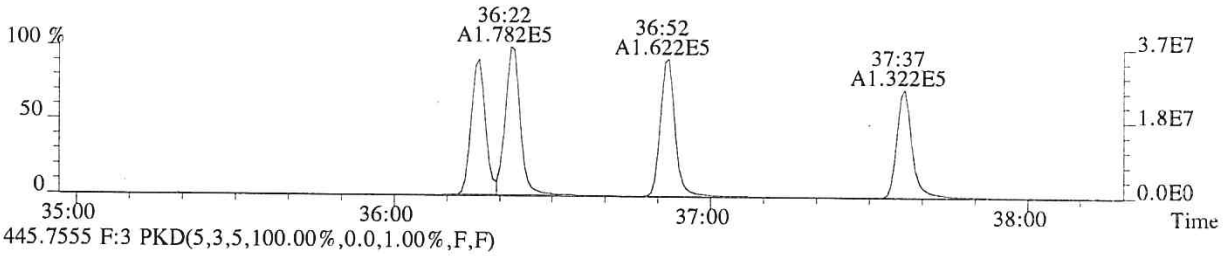
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



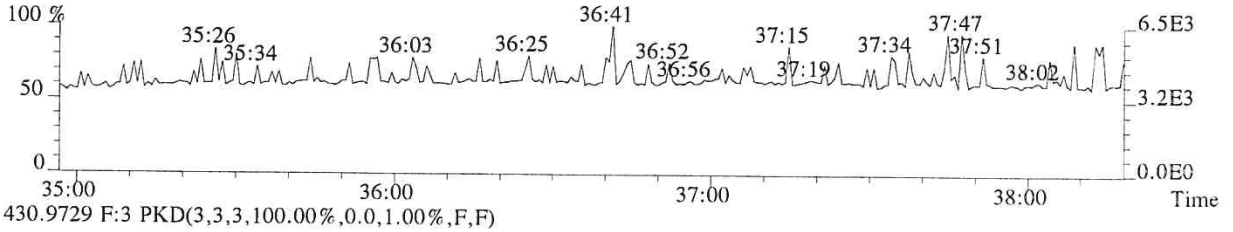
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



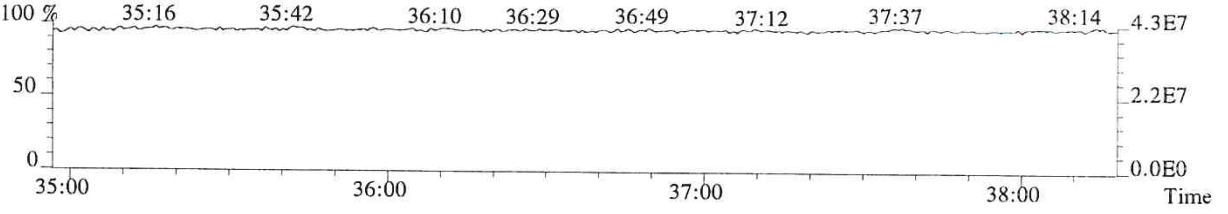
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

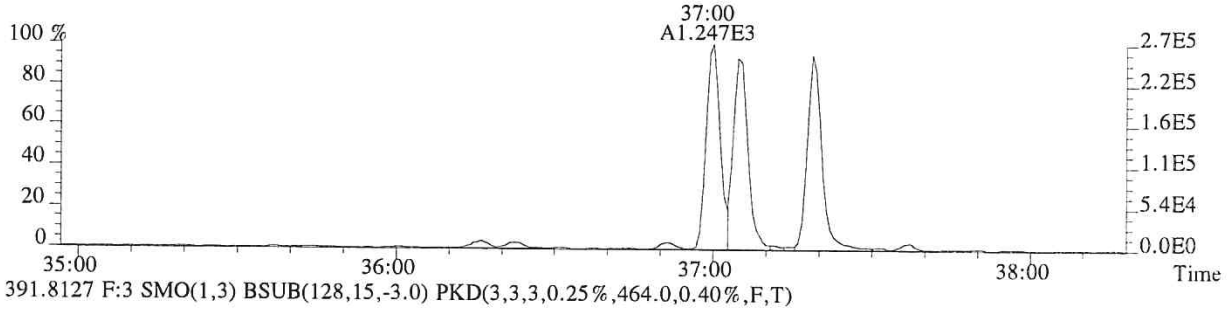


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

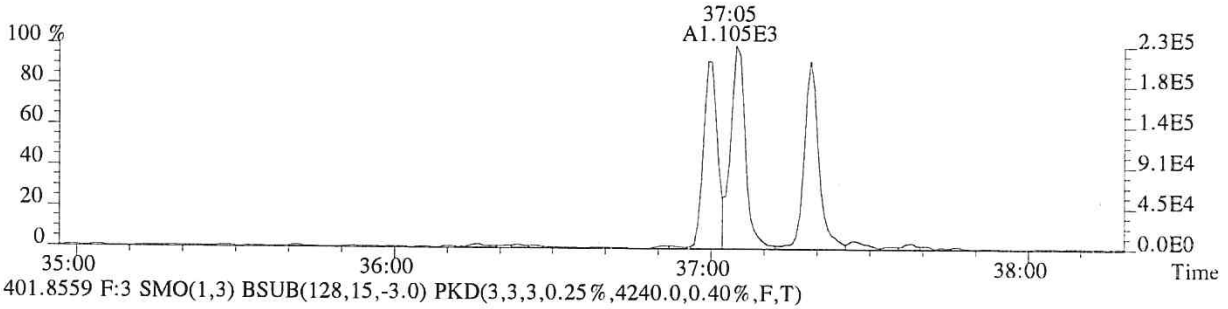


009309

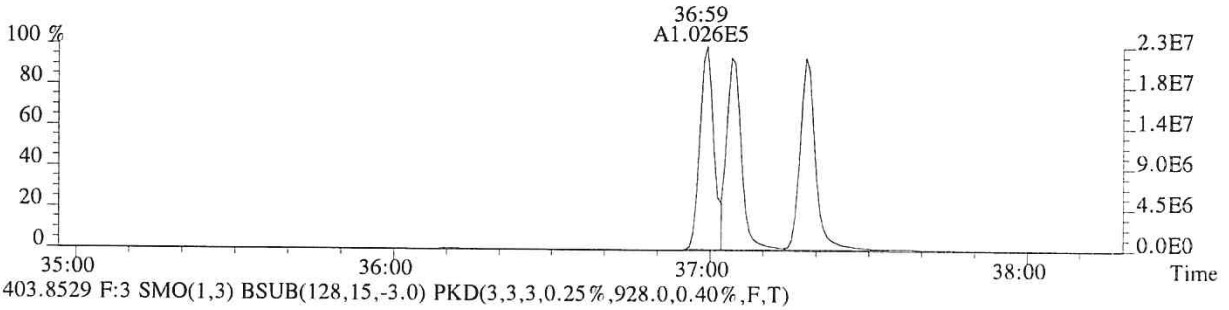
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



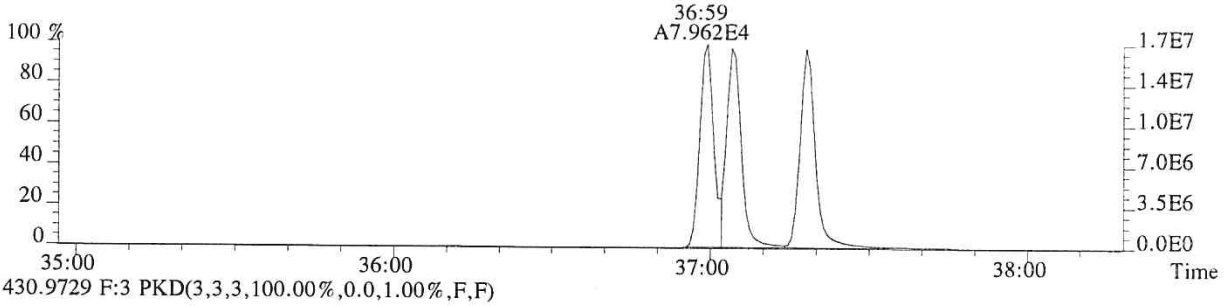
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



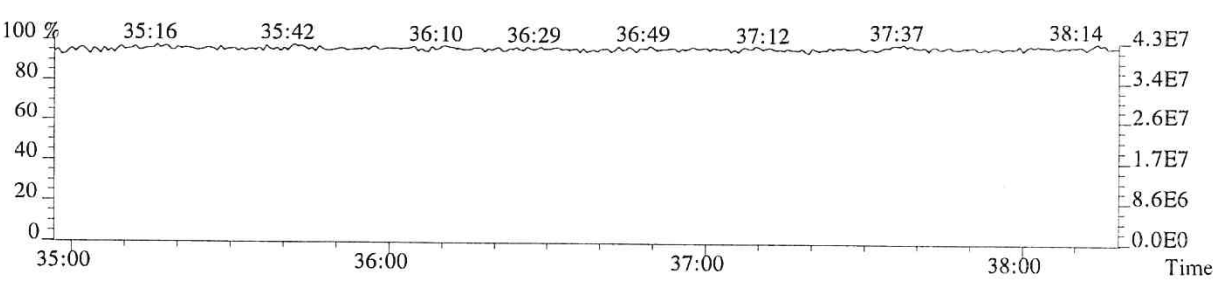
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)

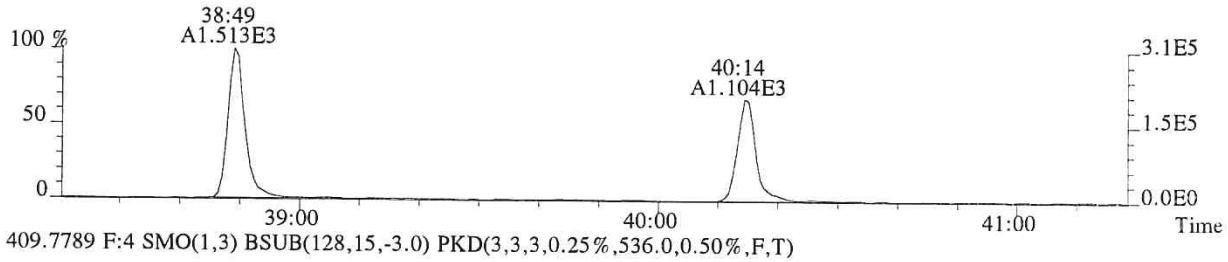


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

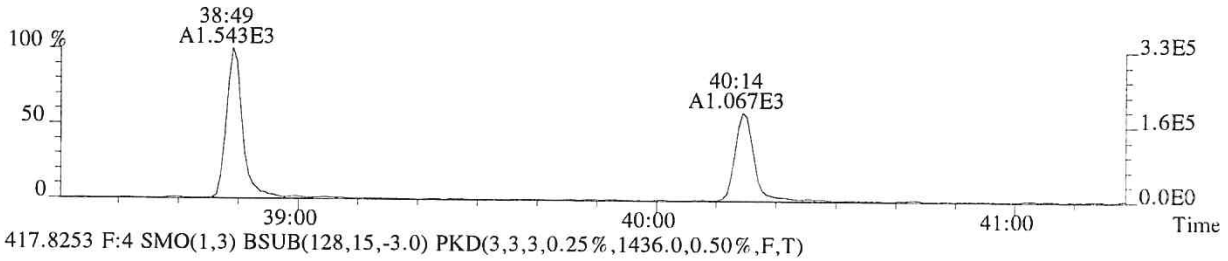


009310

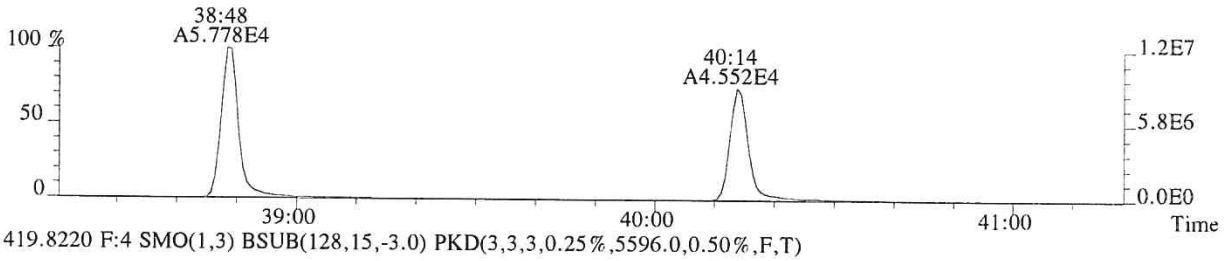
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



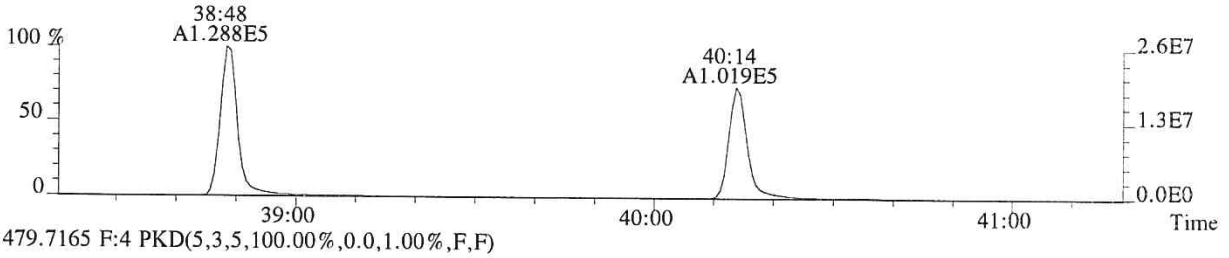
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



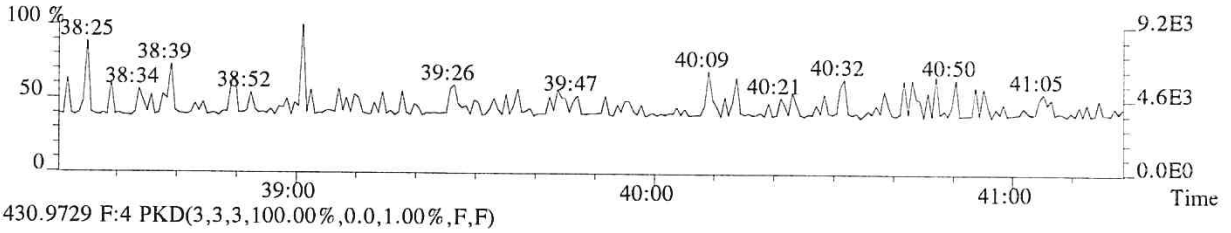
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



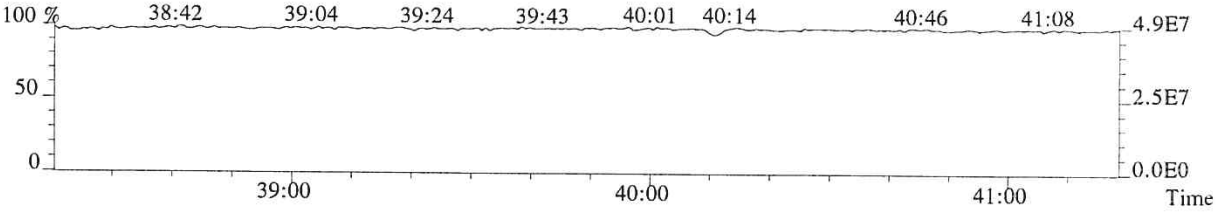
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



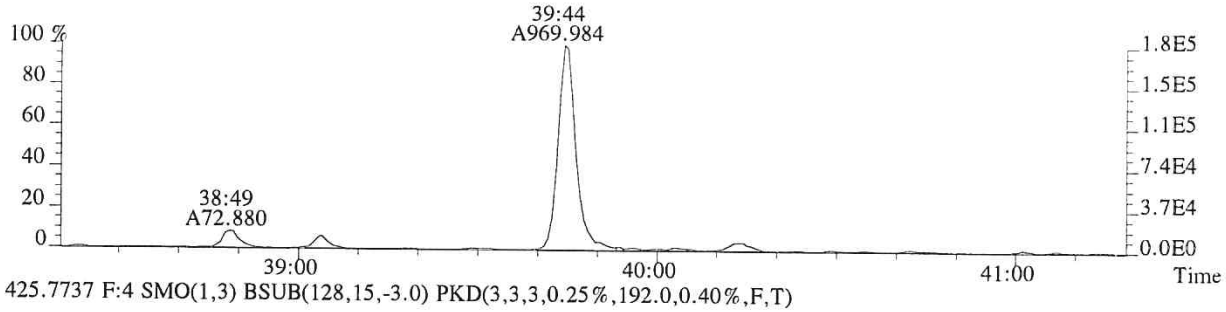
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



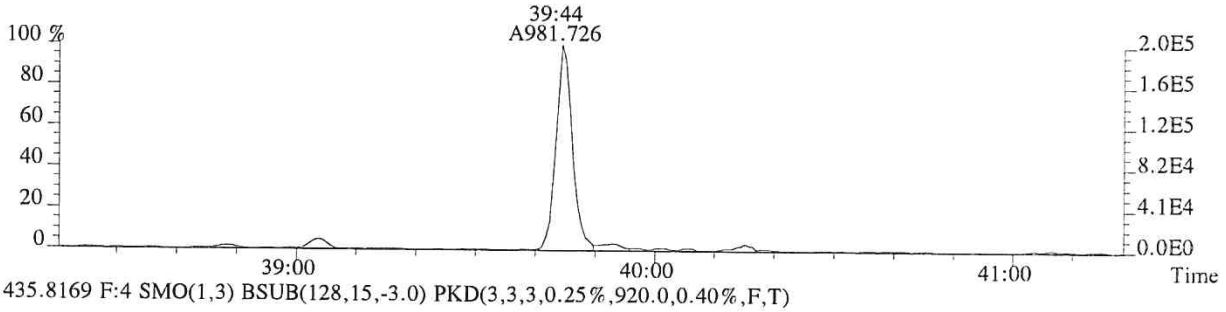
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



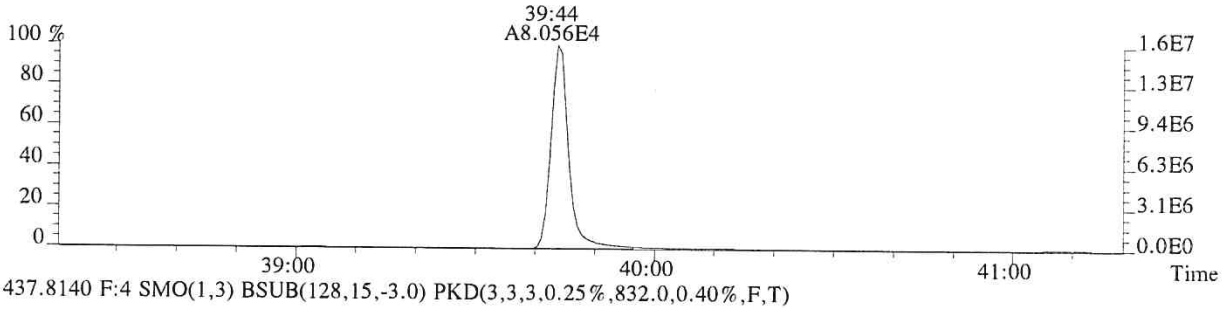
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



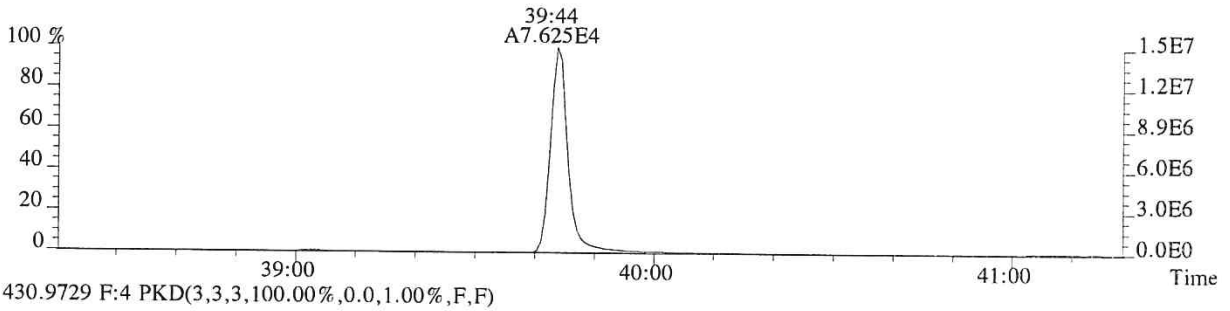
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



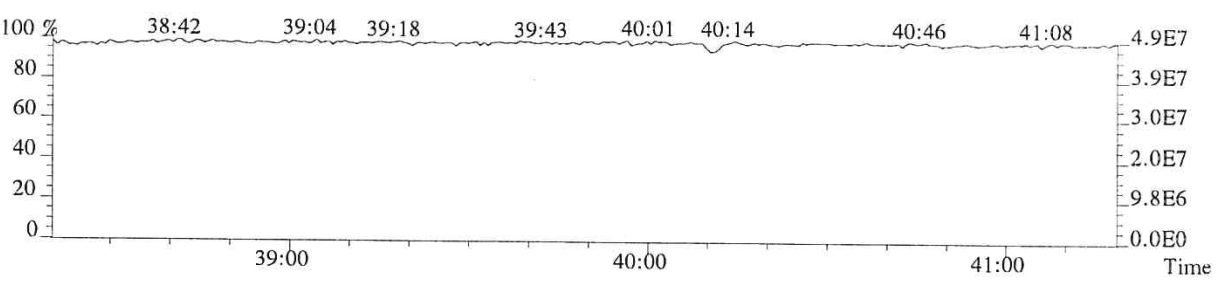
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)

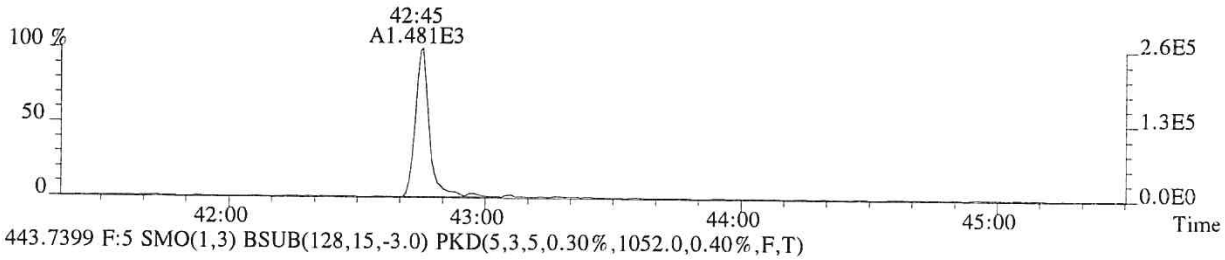


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

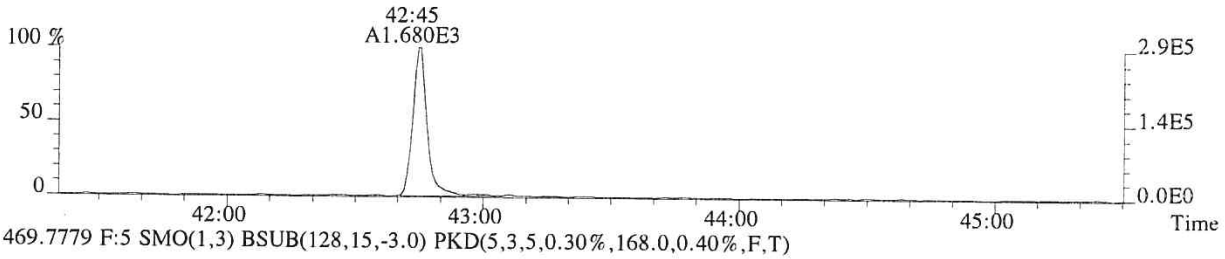


009312

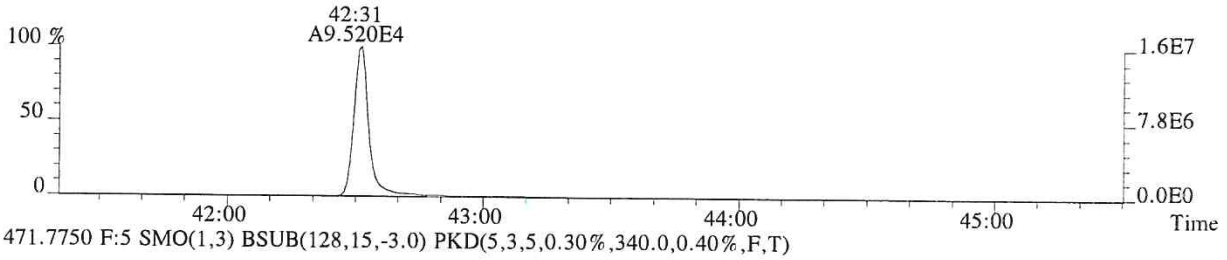
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



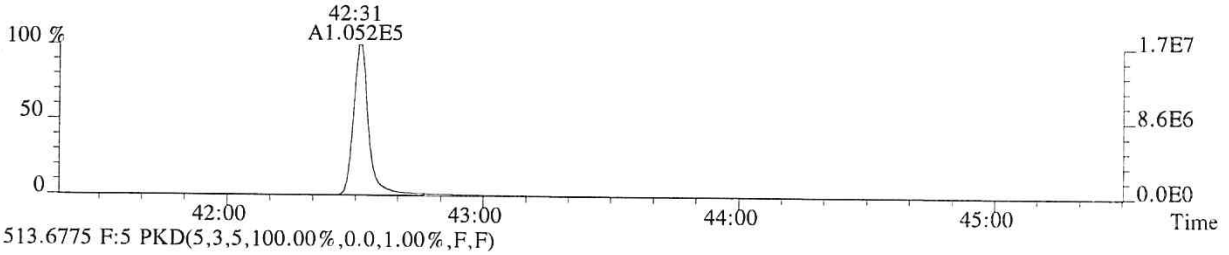
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



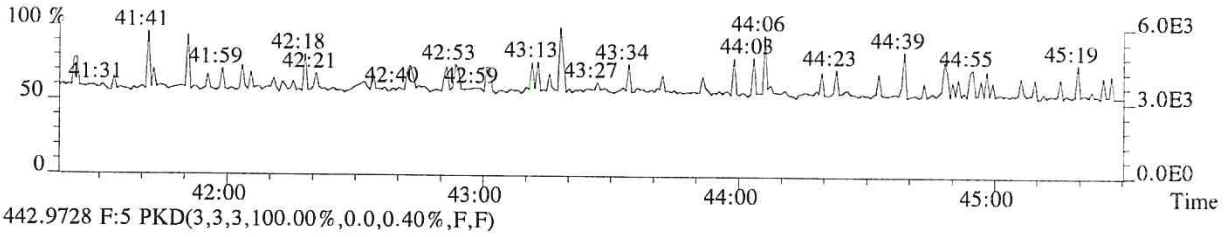
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



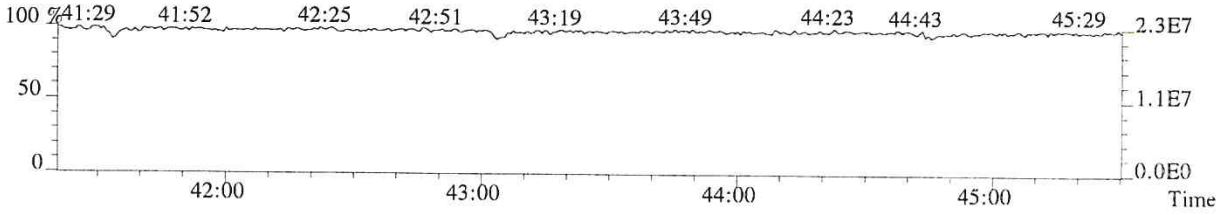
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



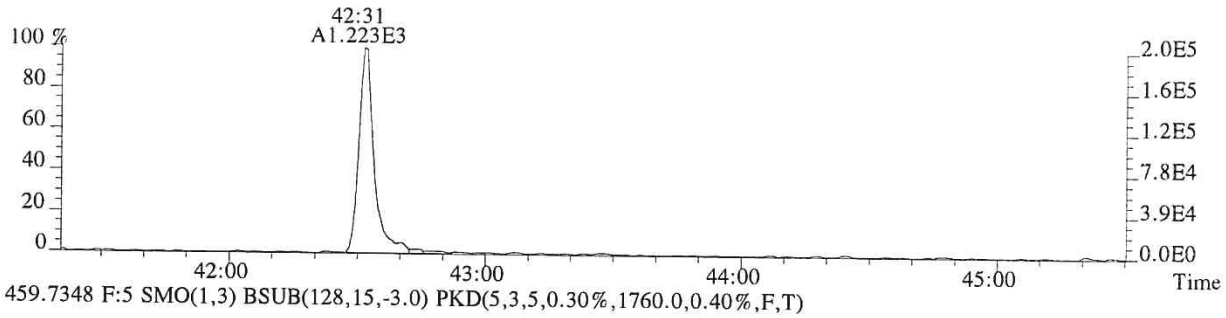
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



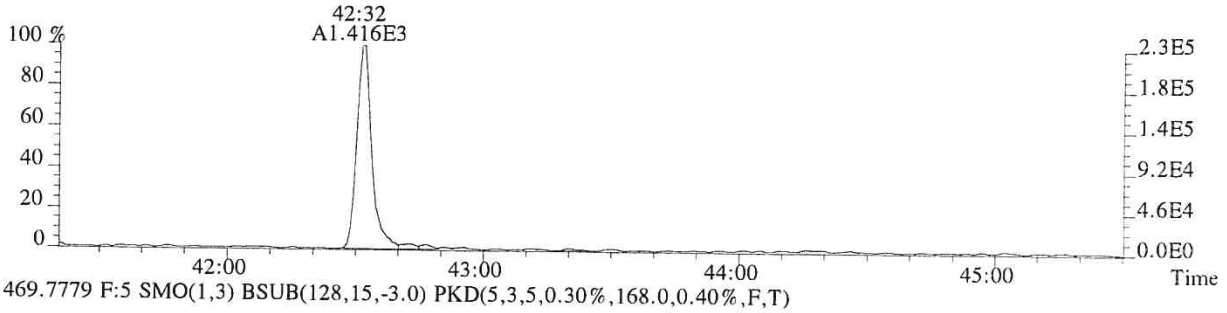
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



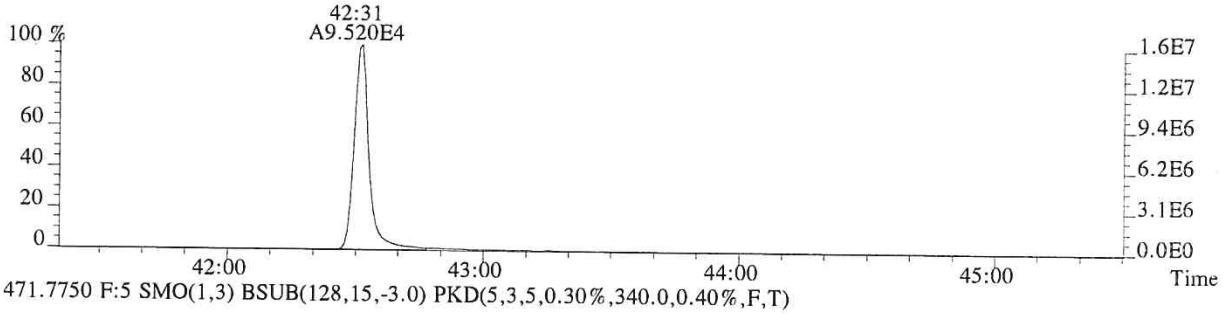
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



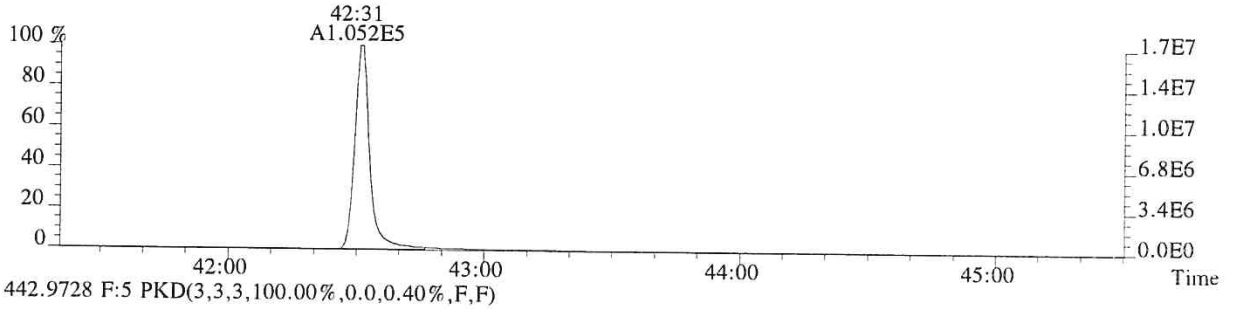
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



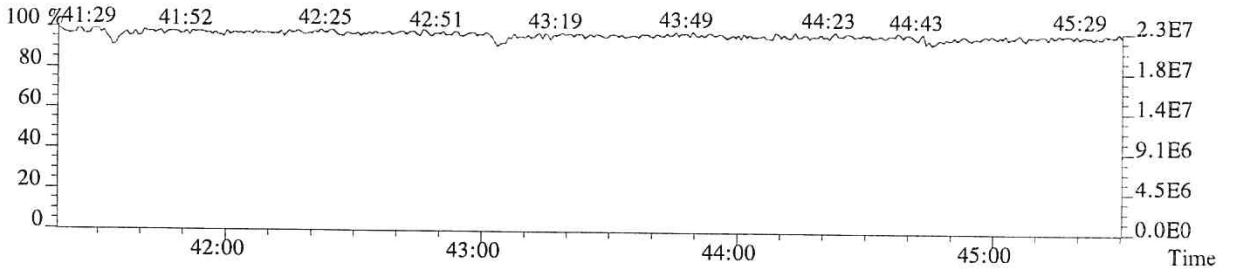
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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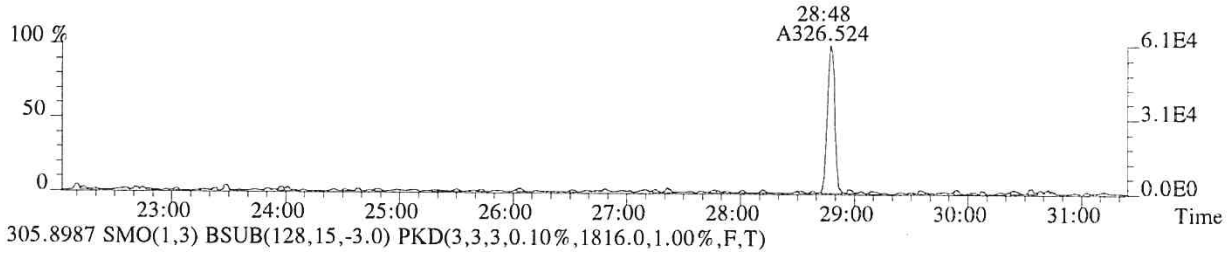
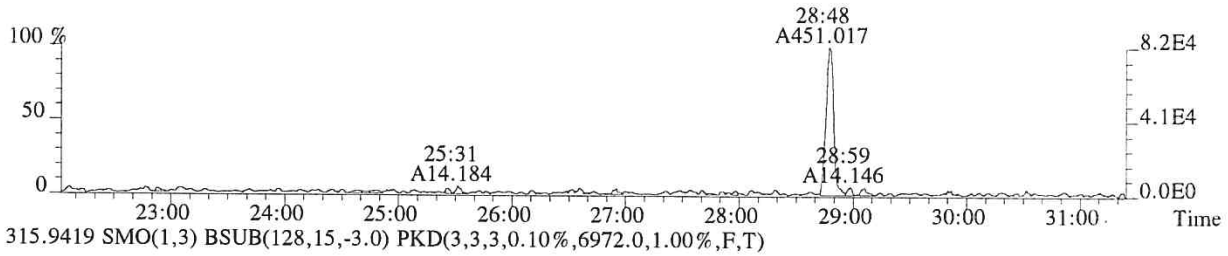
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

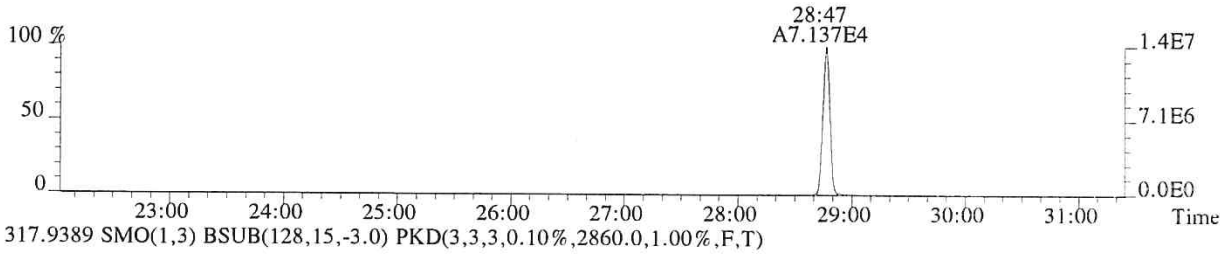
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



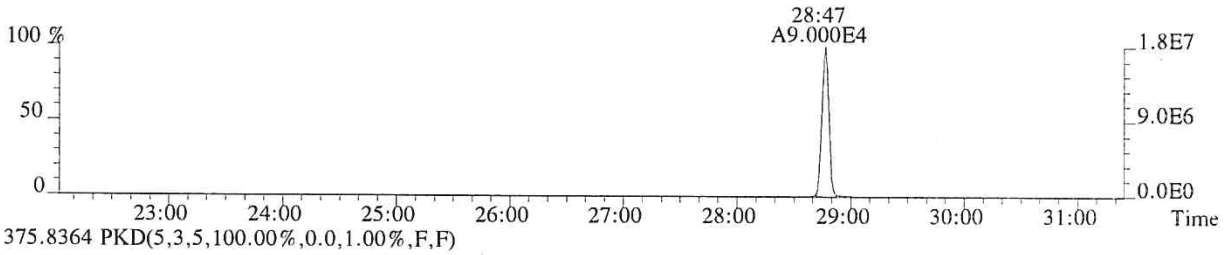
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



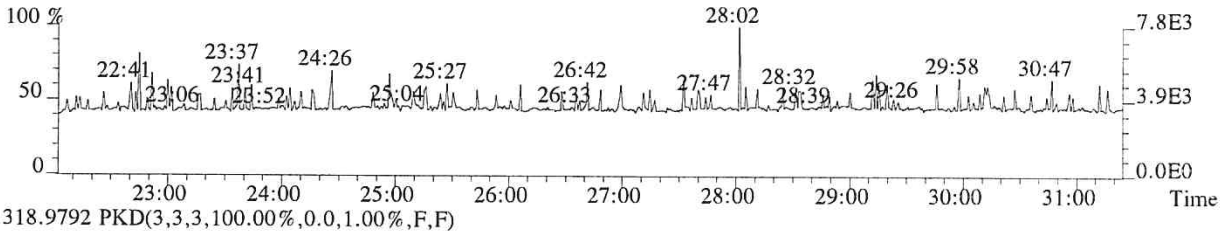
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



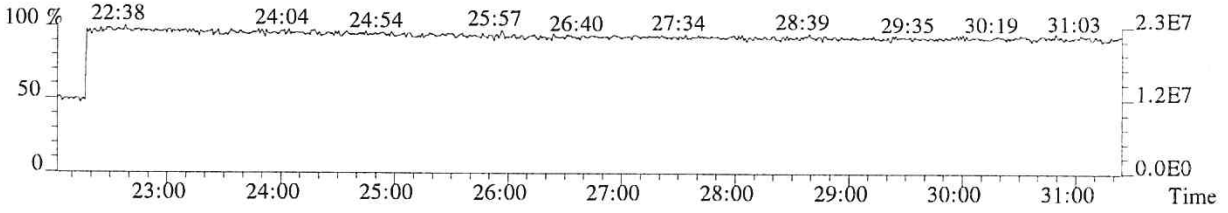
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

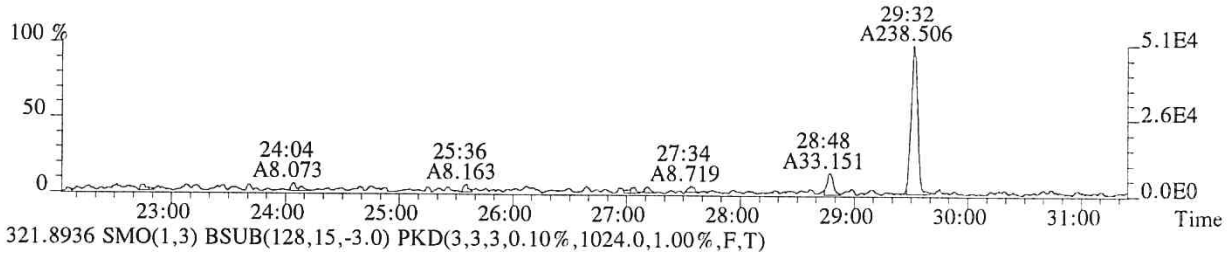


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

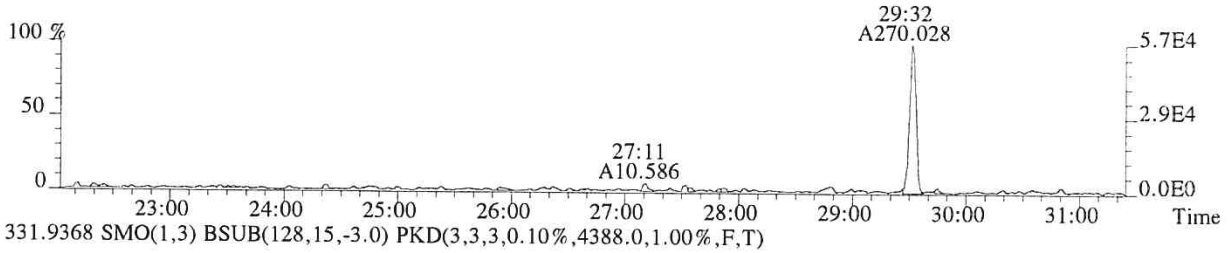


009317

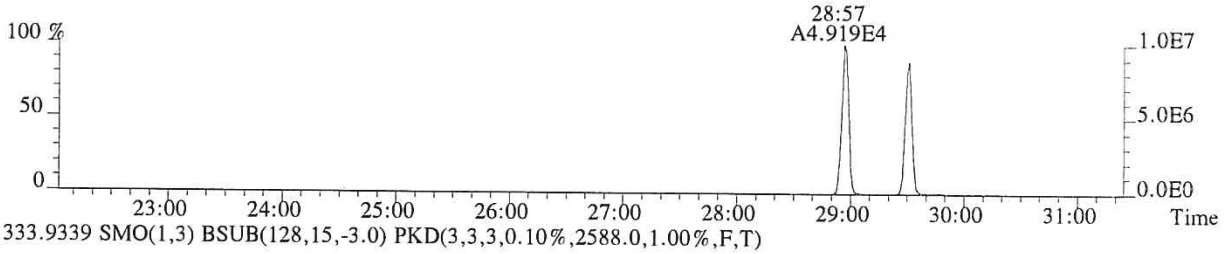
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



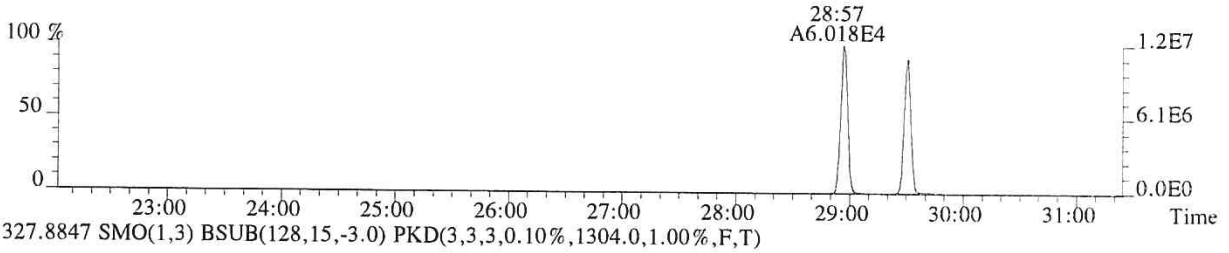
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



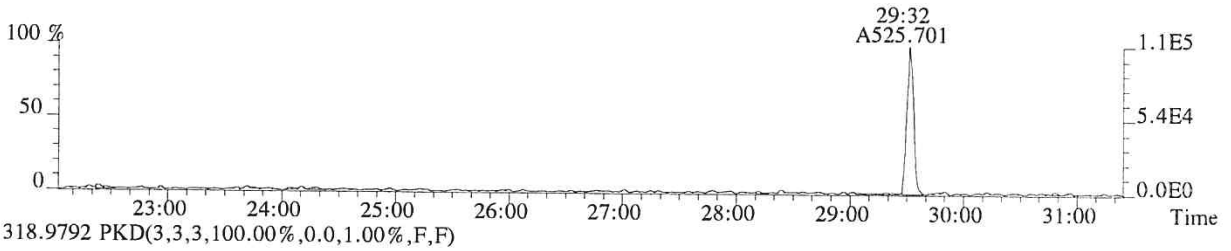
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



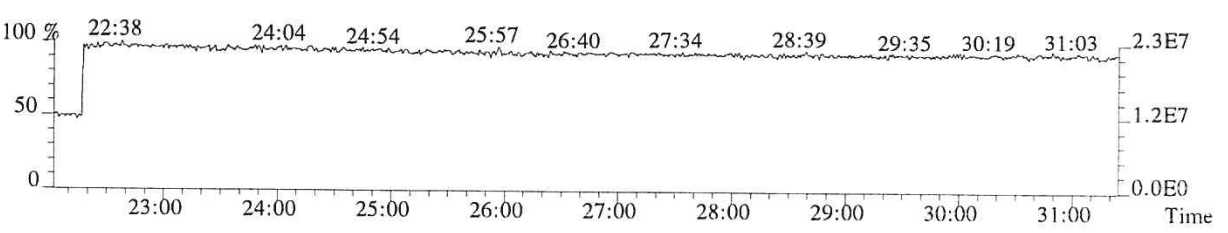
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)

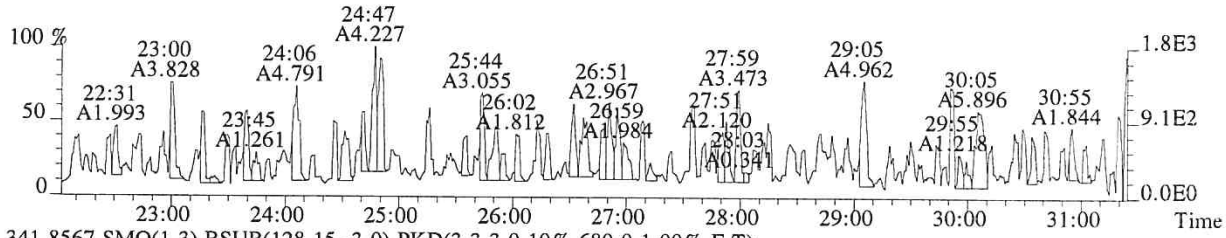


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

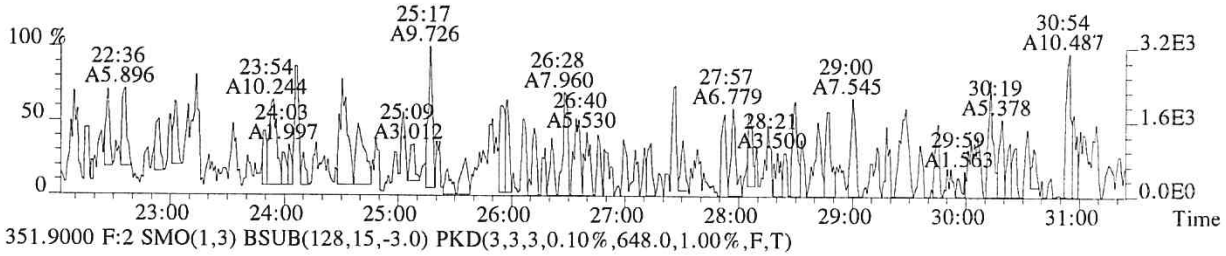


009318

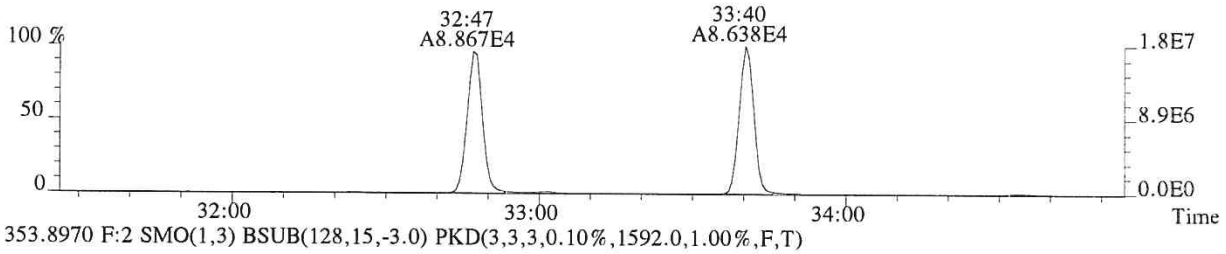
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



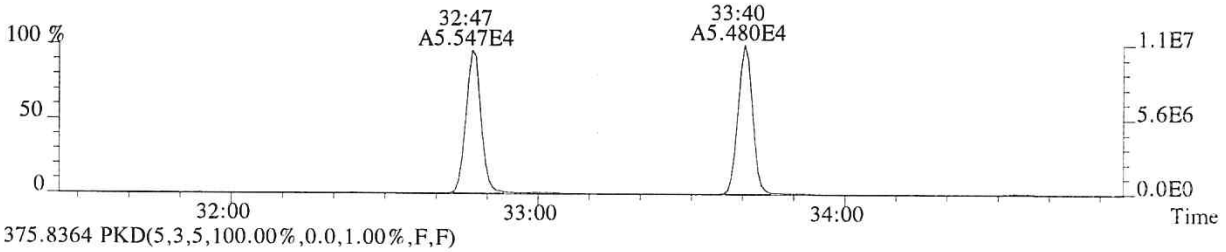
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



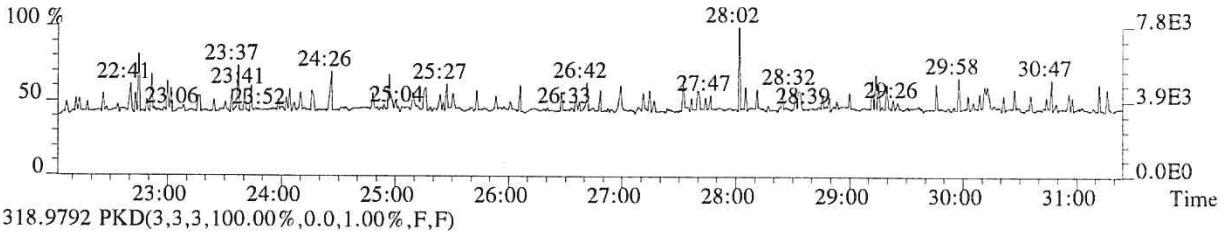
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



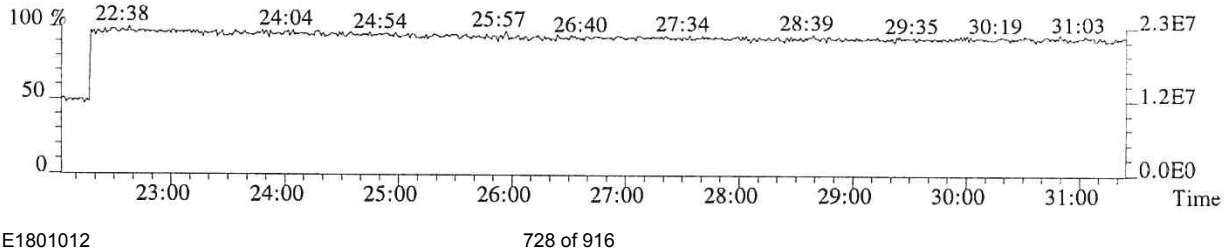
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

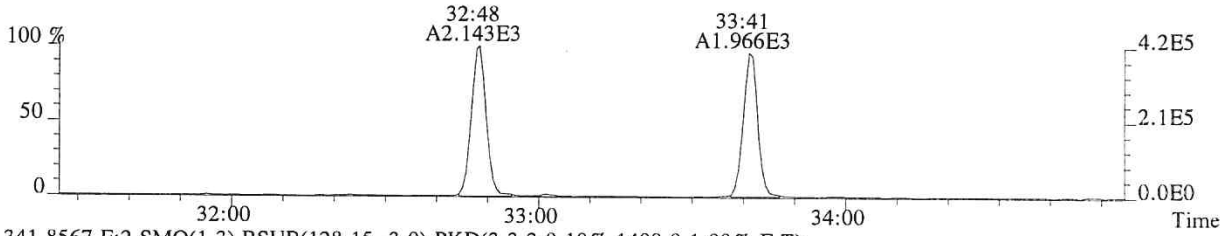


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

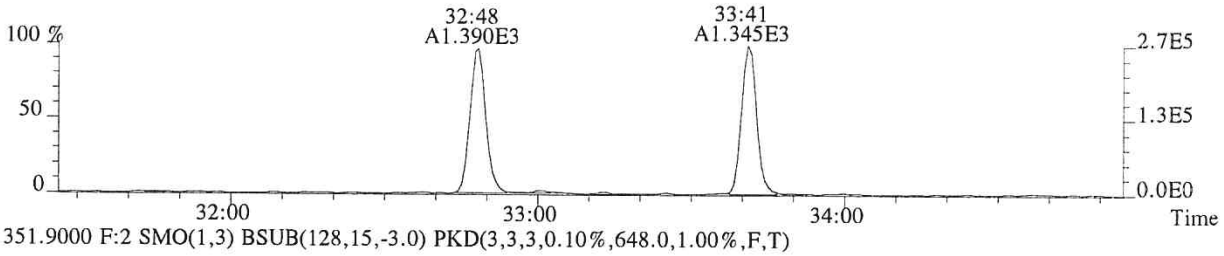


009319

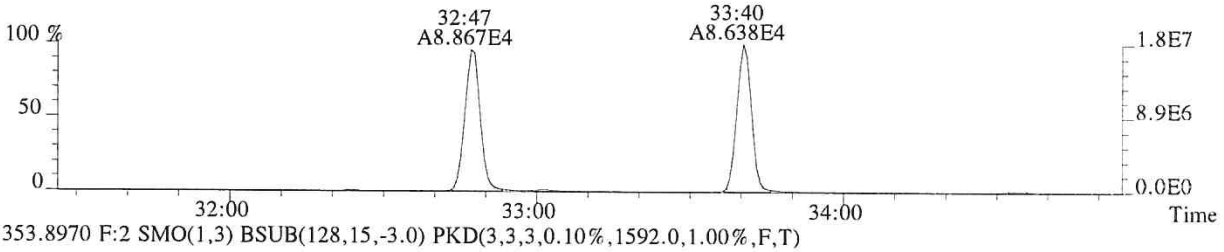
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



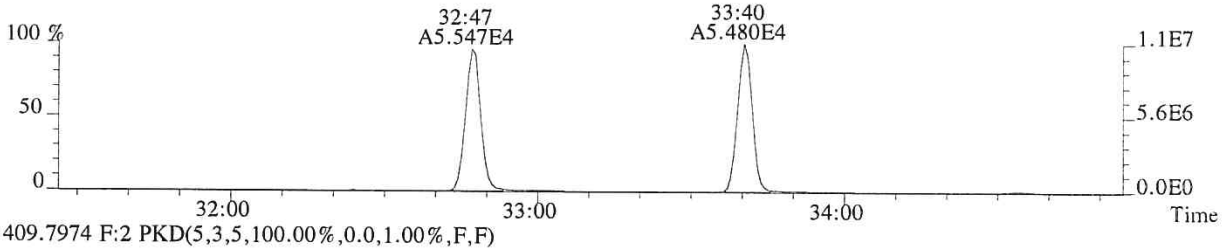
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



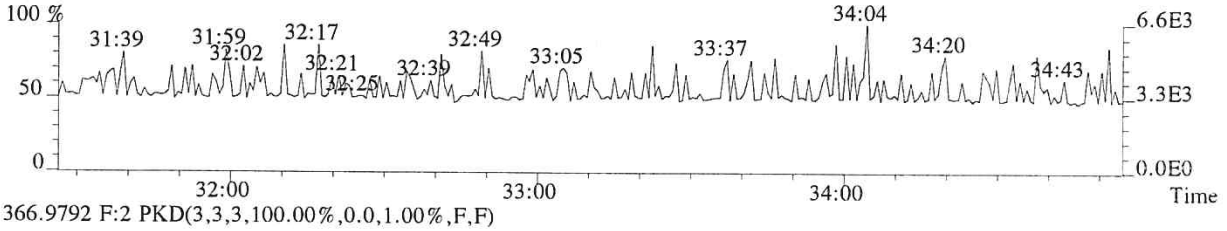
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



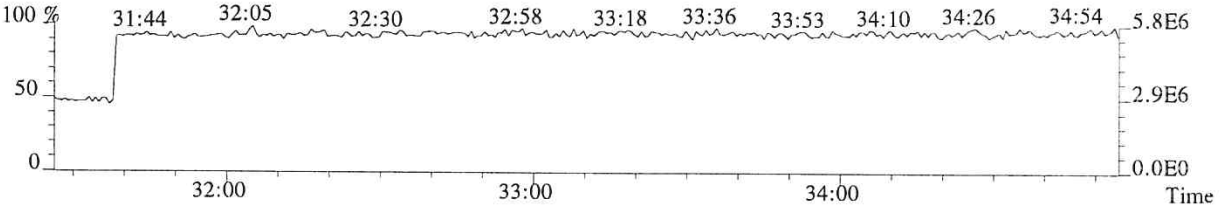
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

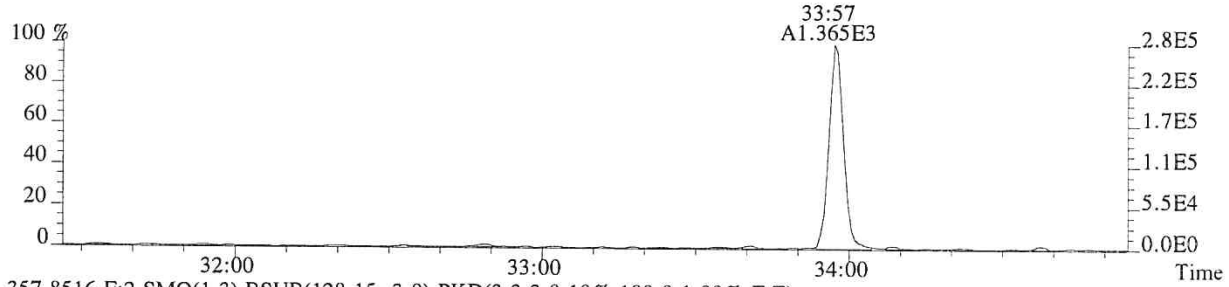


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

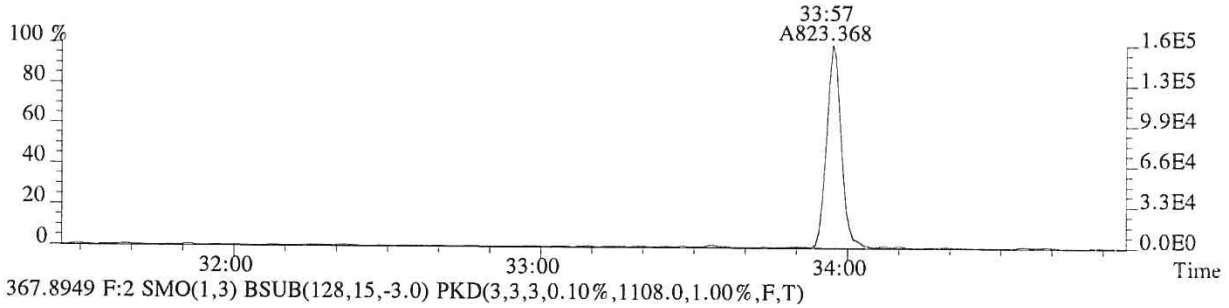


009320

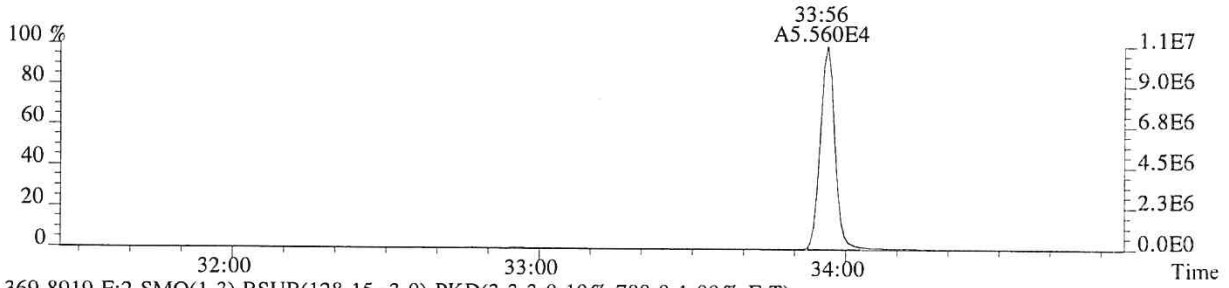
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



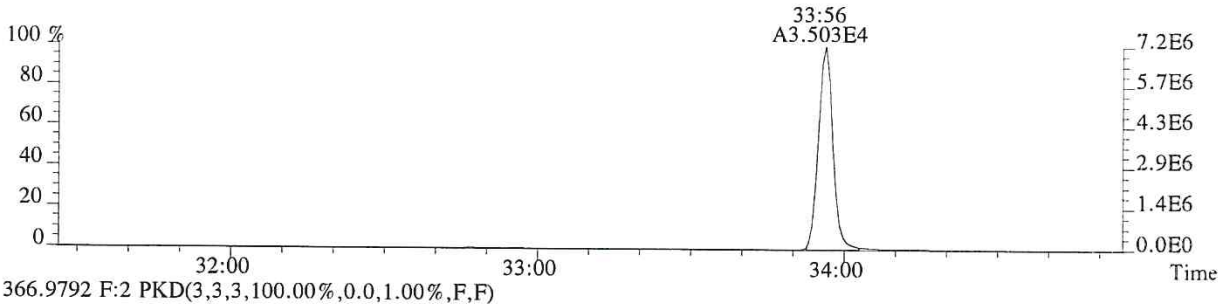
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



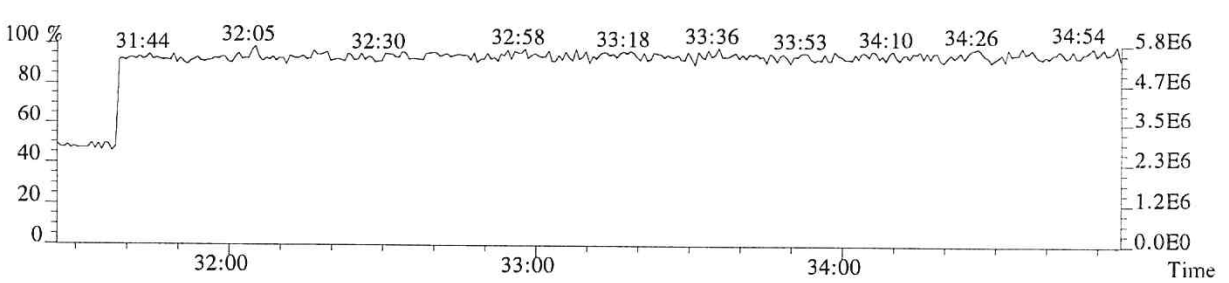
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



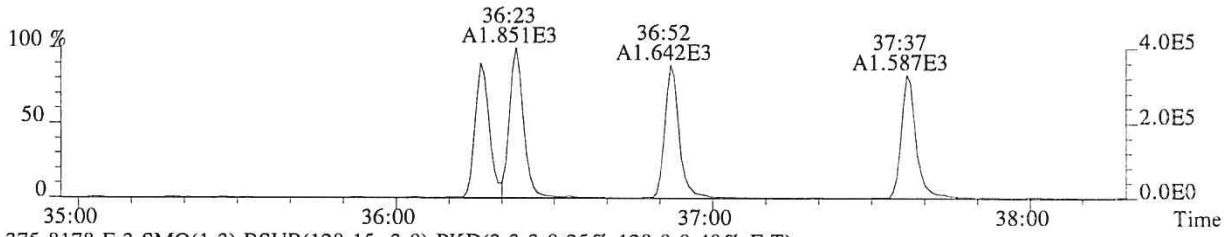
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



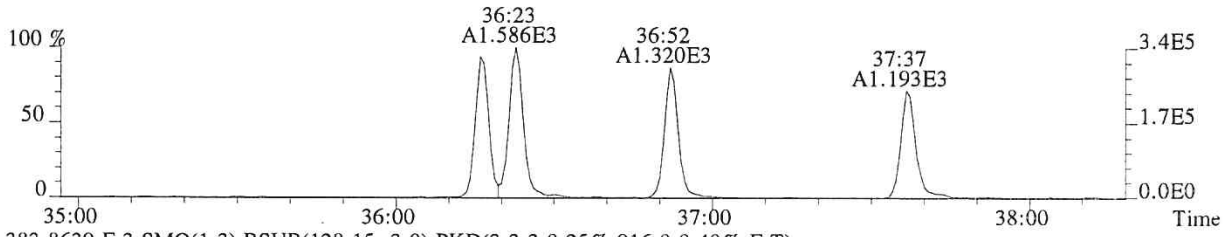
009321

File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

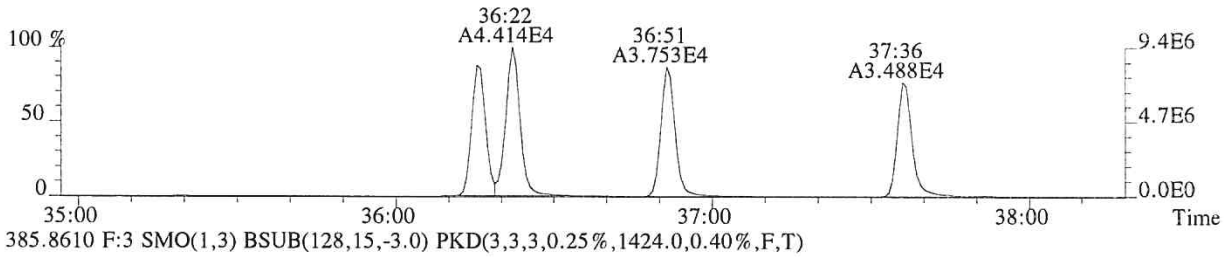
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



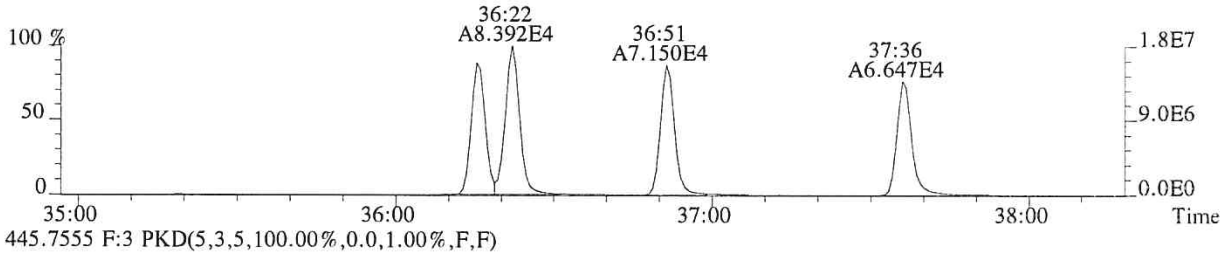
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



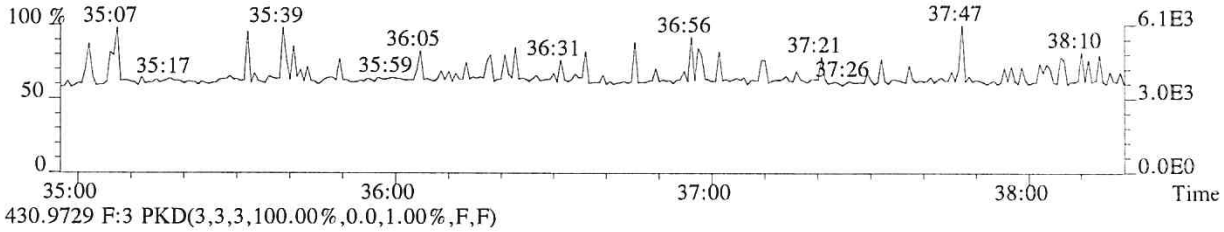
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



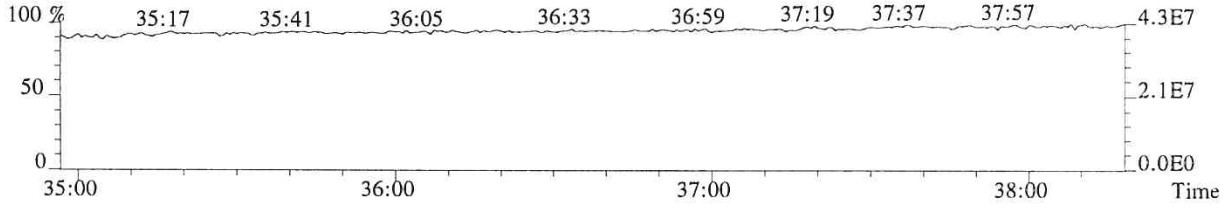
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

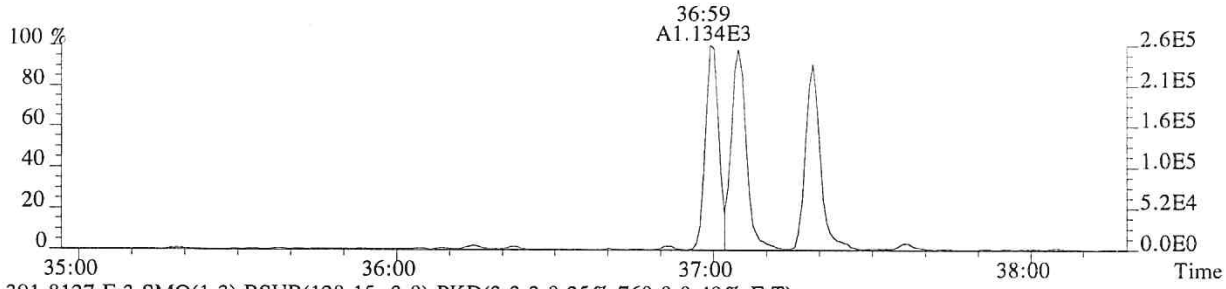


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

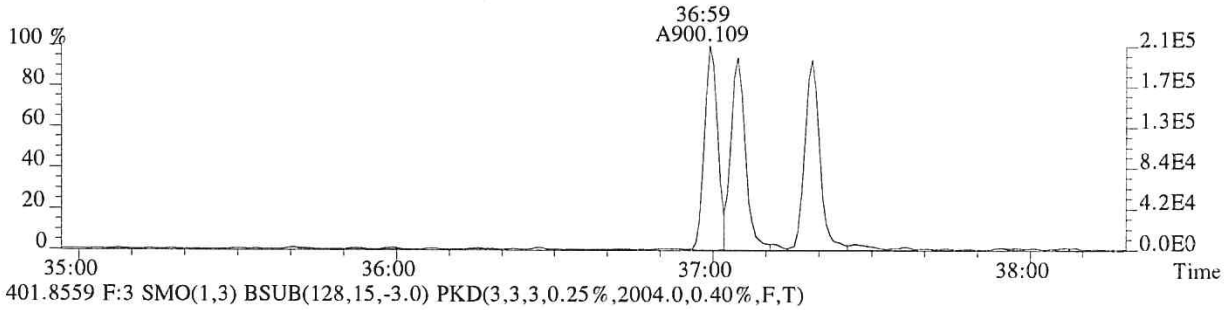


009322

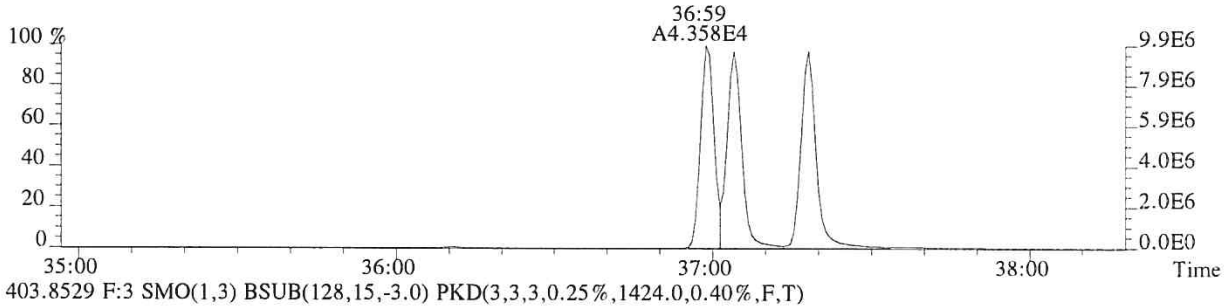
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



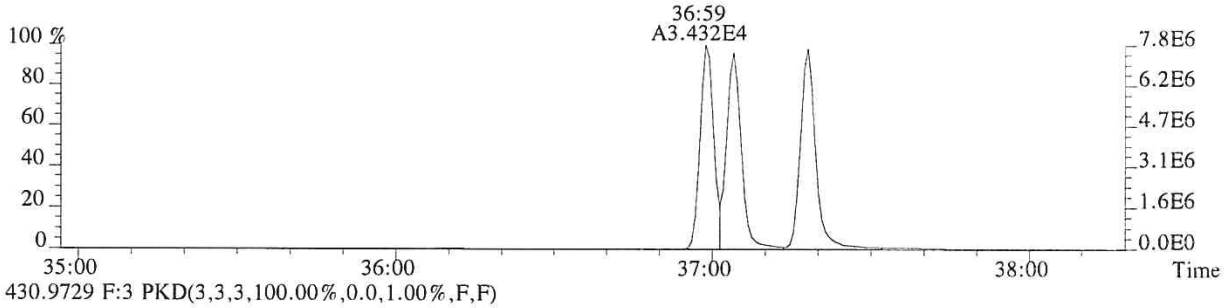
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



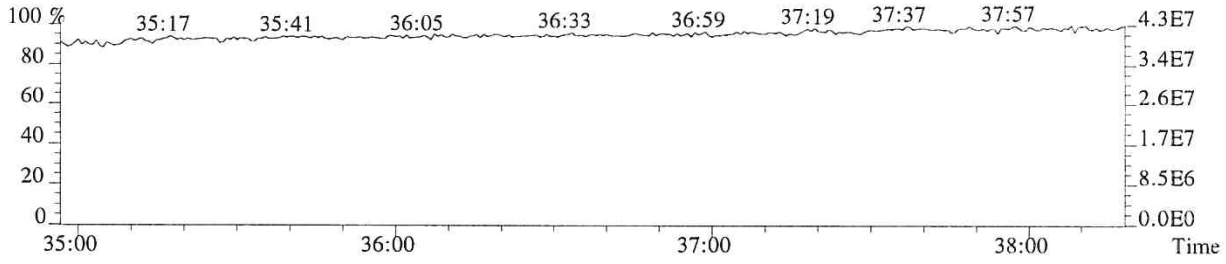
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)

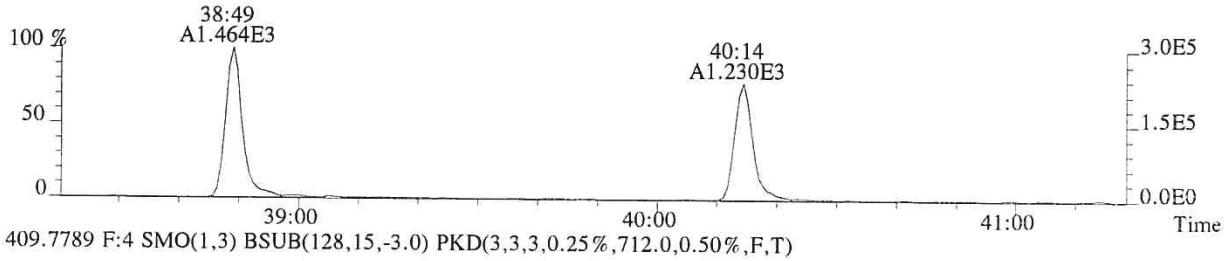


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

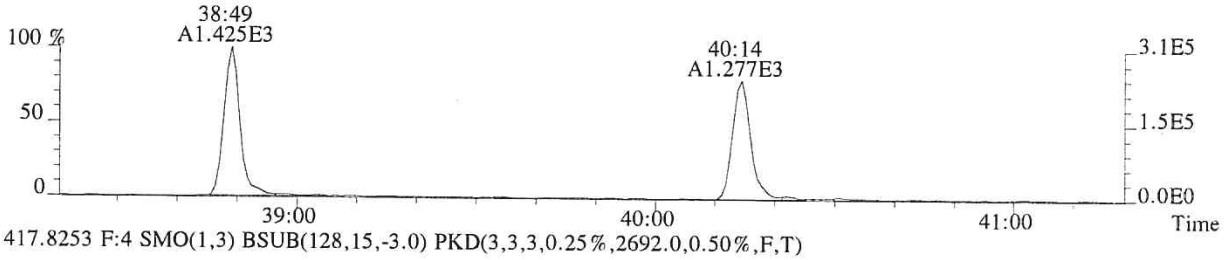


009323

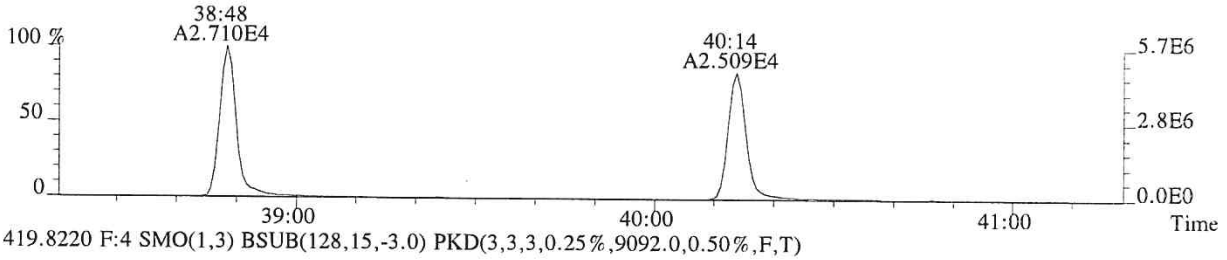
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



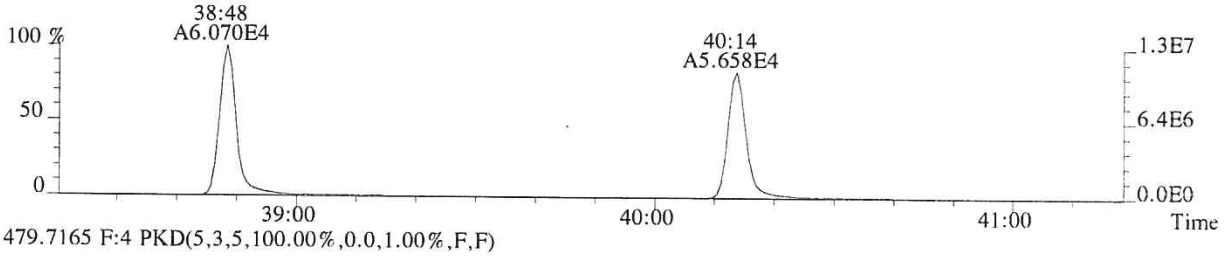
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



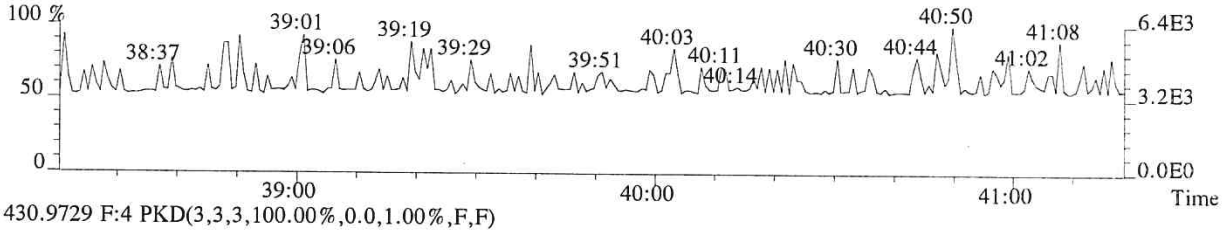
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



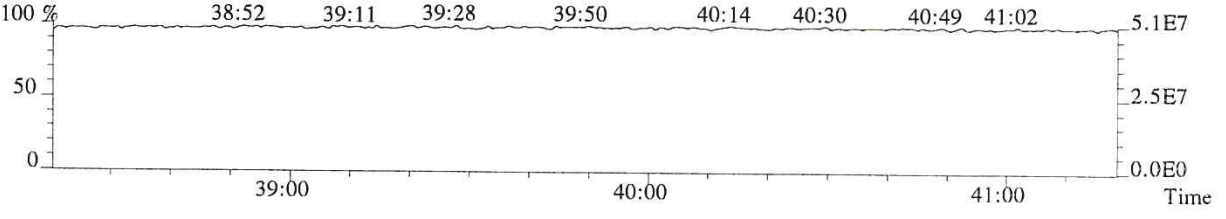
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

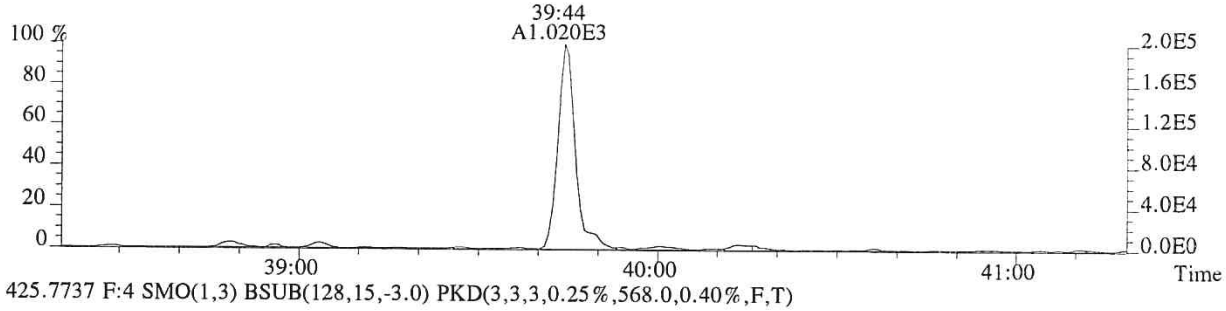


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

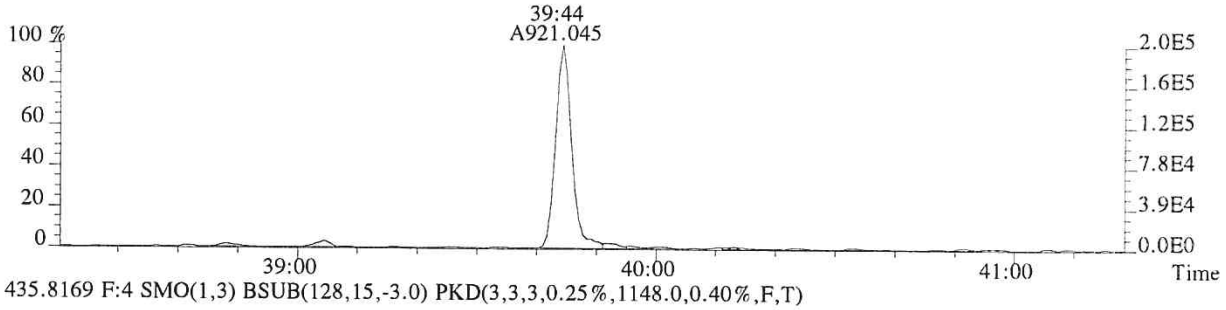


009324

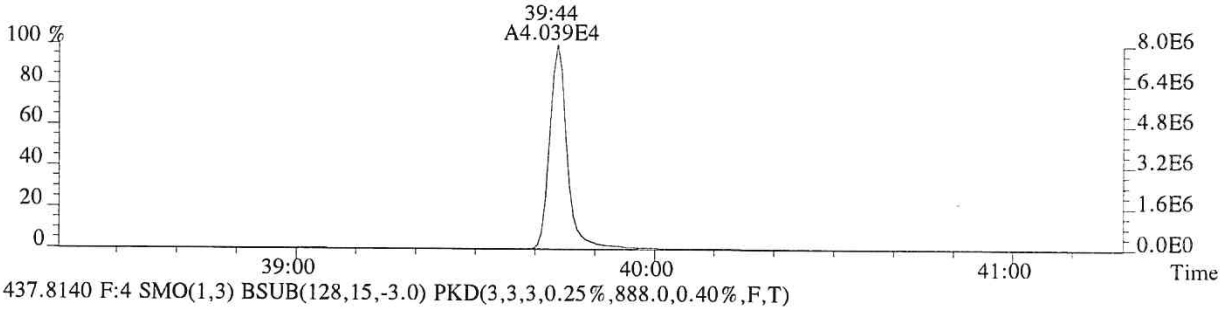
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



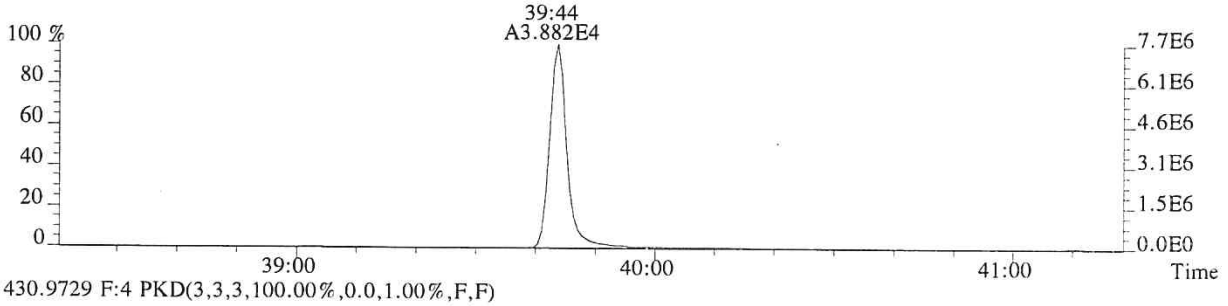
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



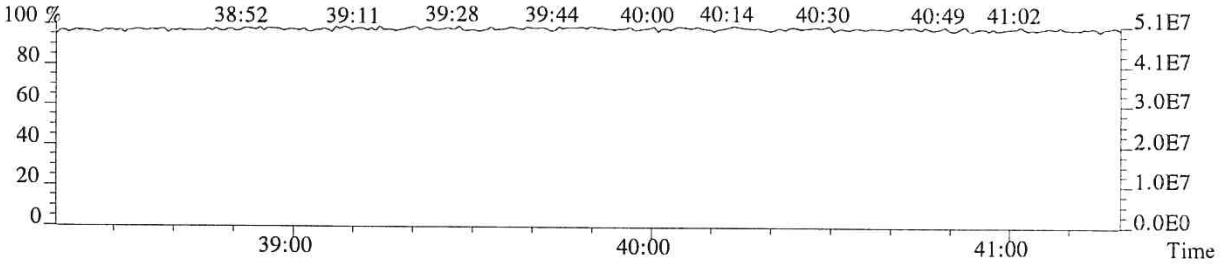
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)

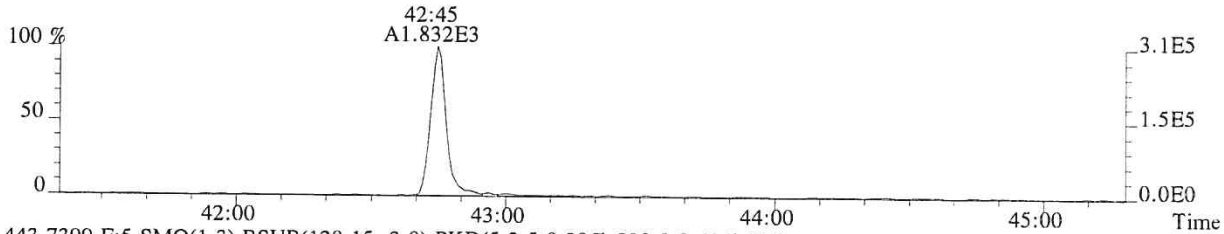


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

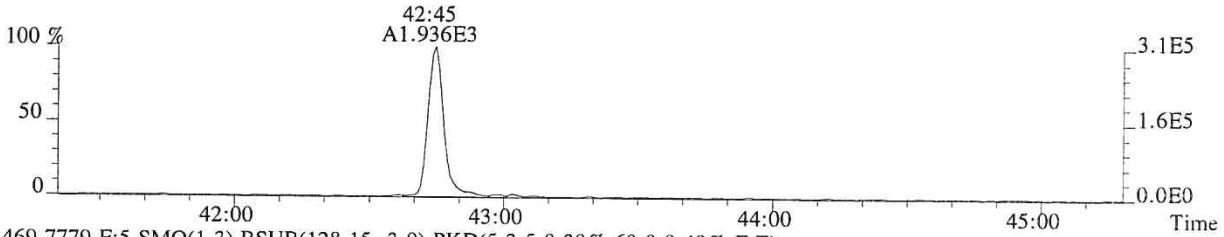


009325

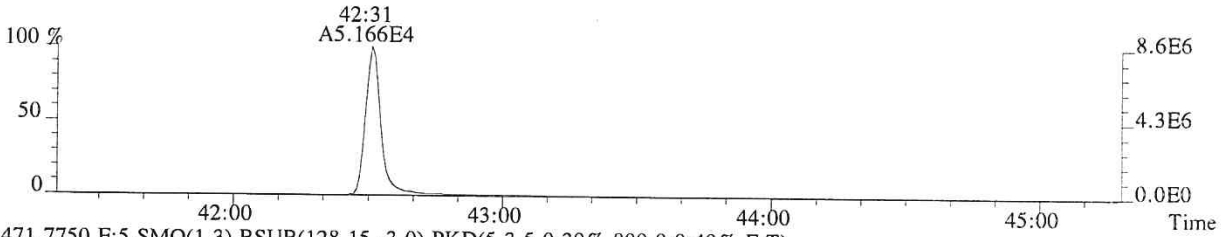
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



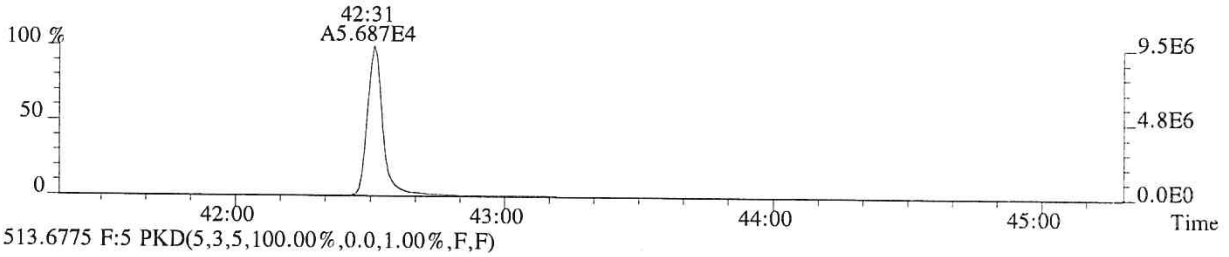
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



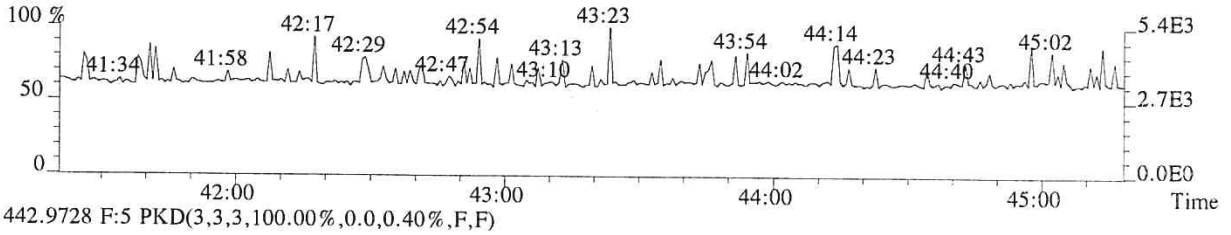
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



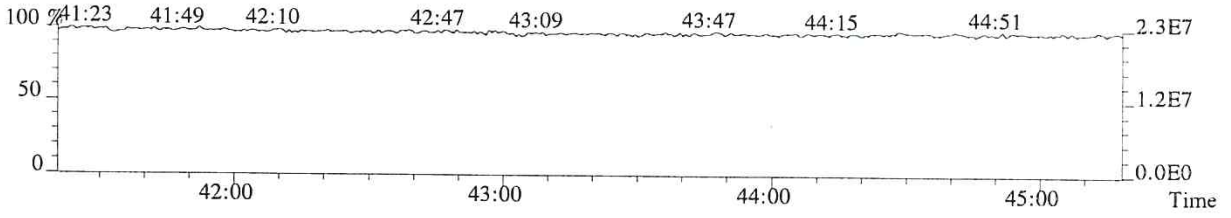
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

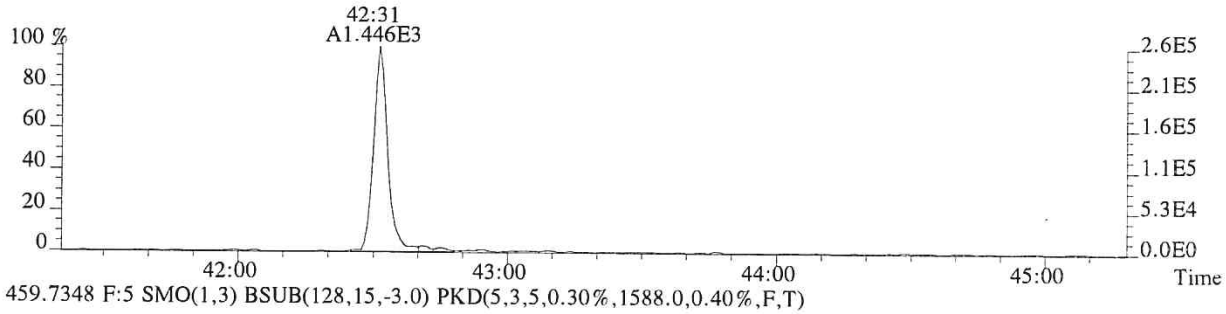


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

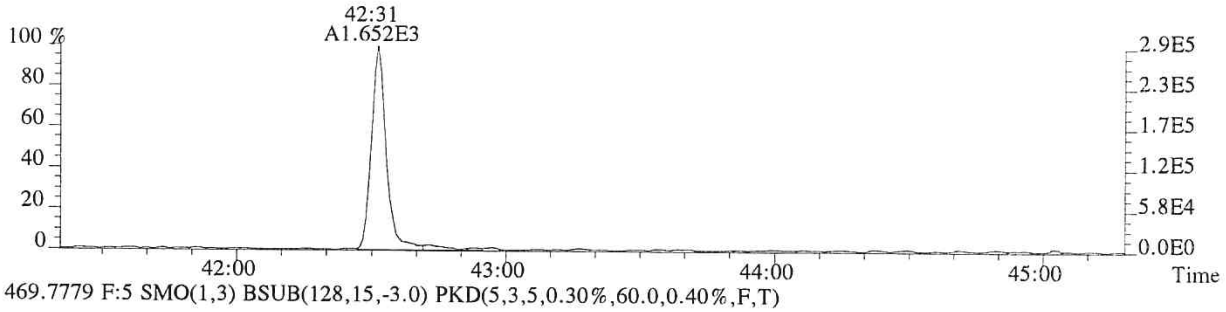


009326

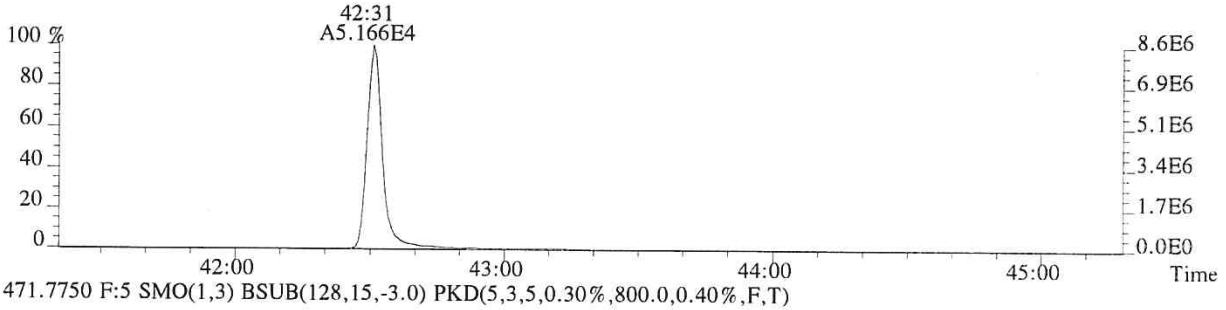
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



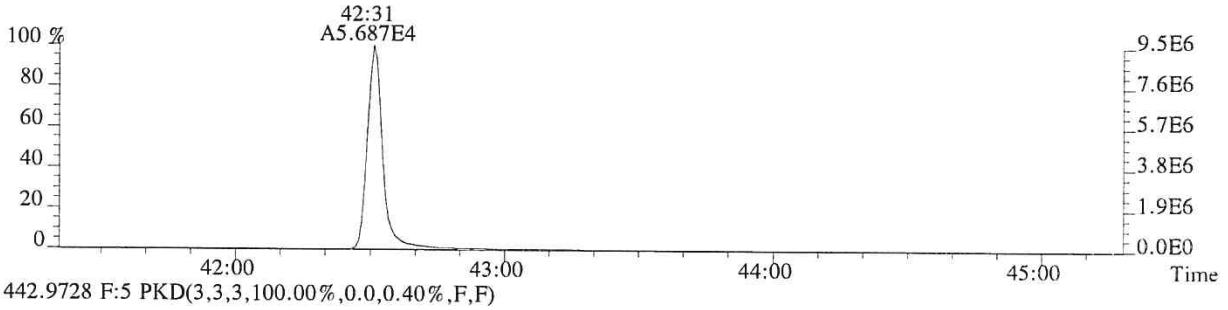
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



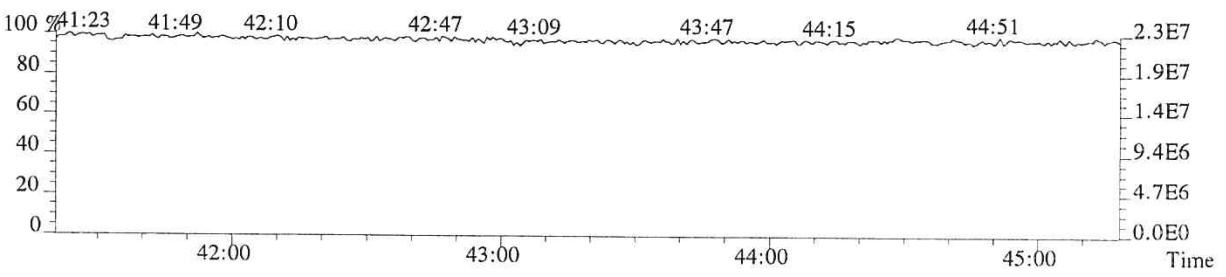
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009327

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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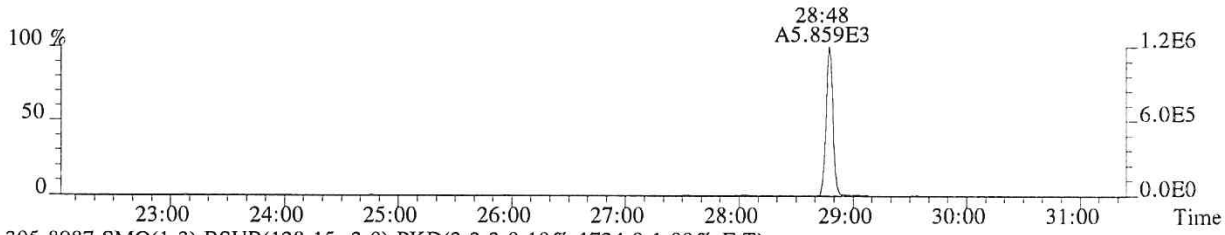
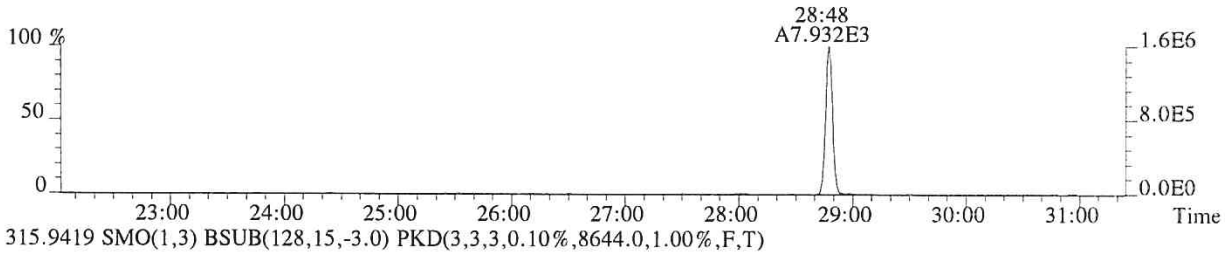
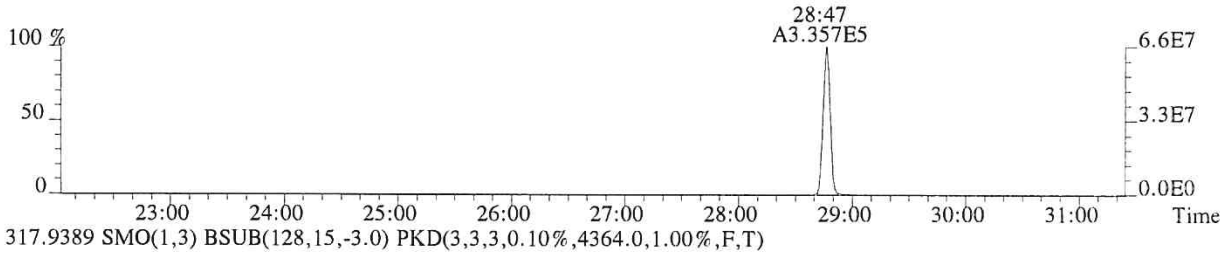
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



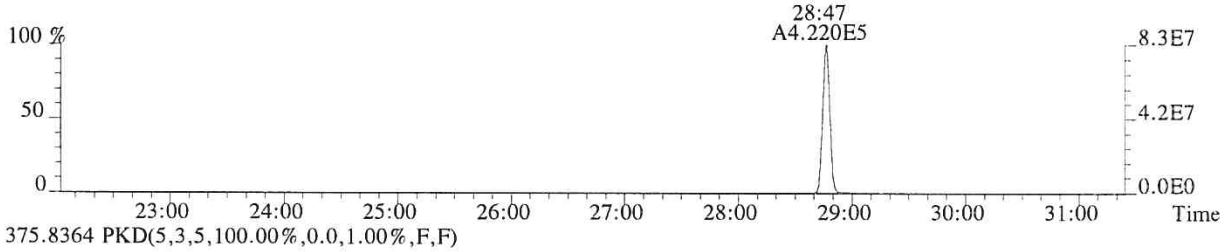
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



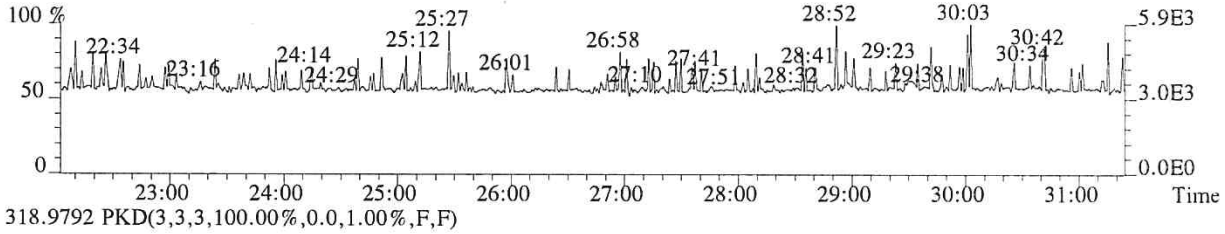
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



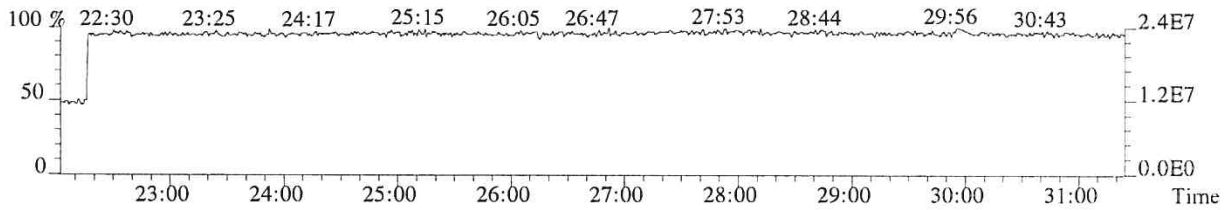
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

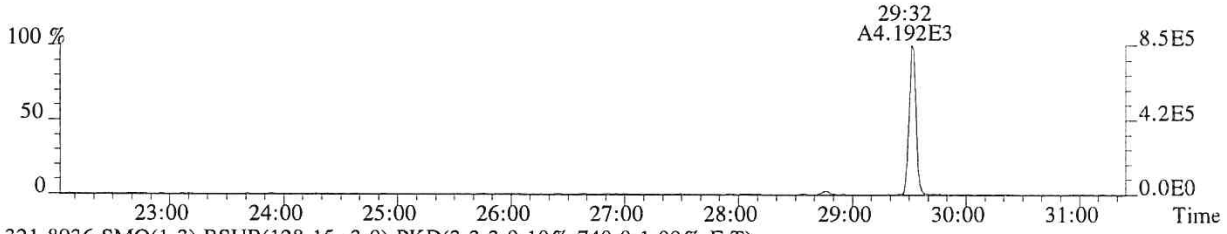


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

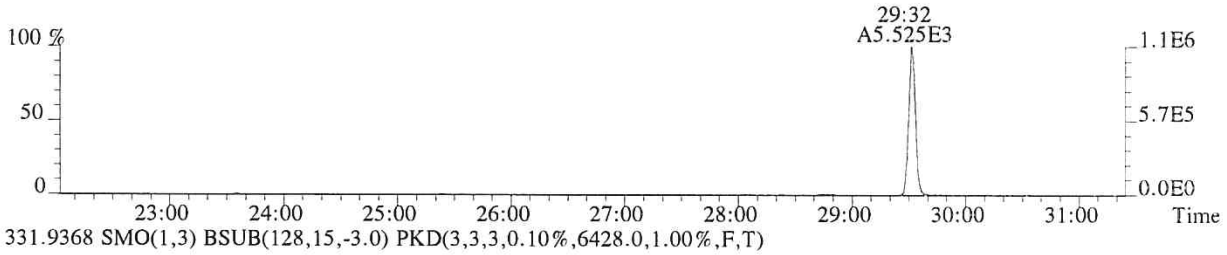


009330

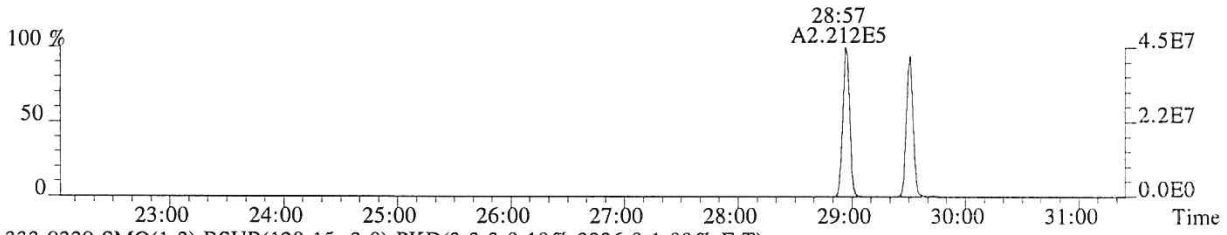
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



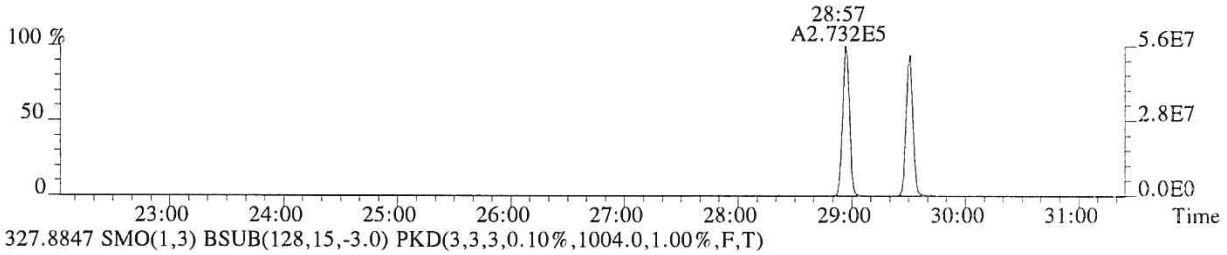
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



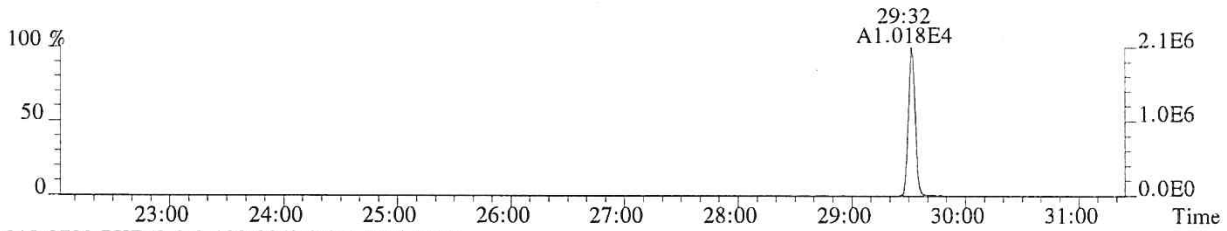
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



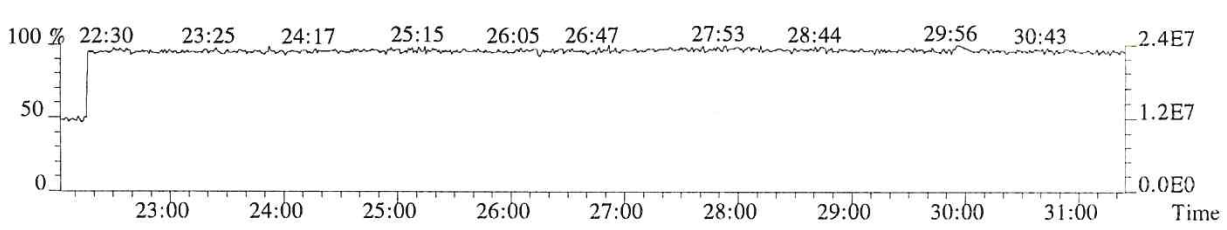
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

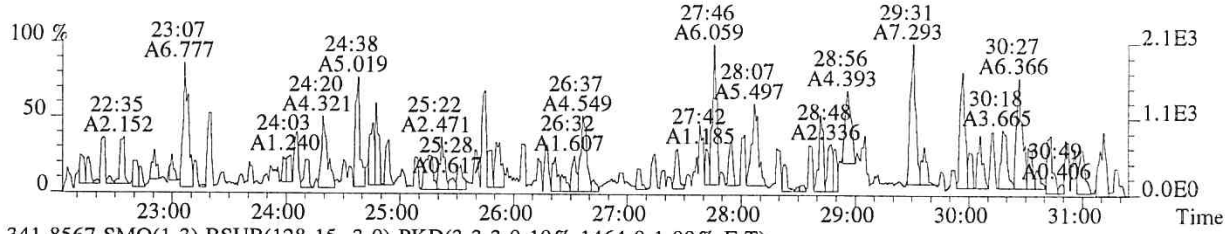


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

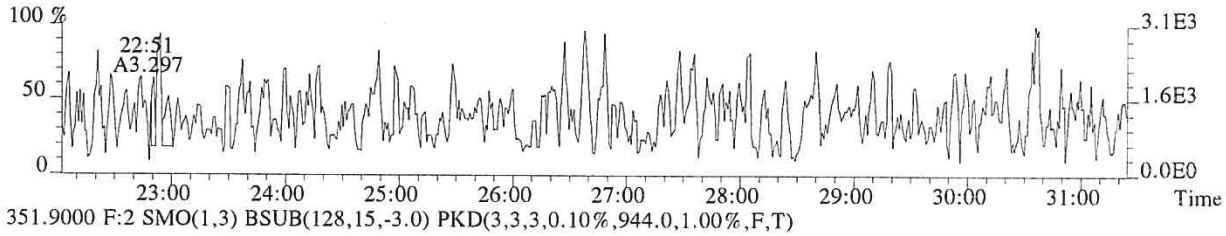


009331

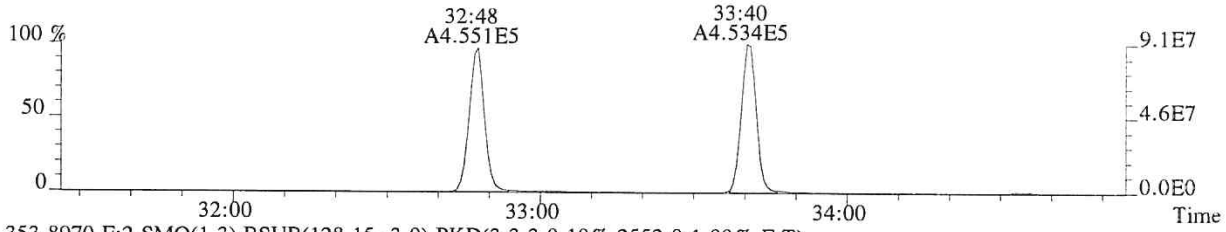
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



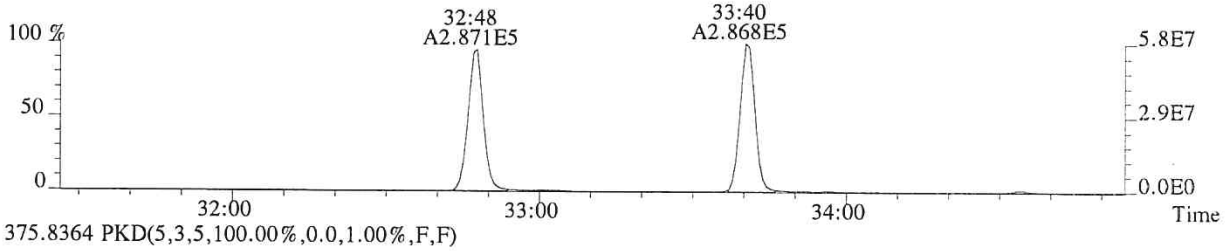
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



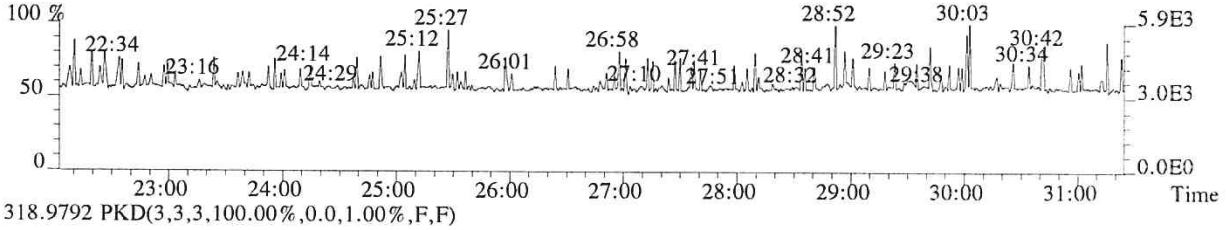
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



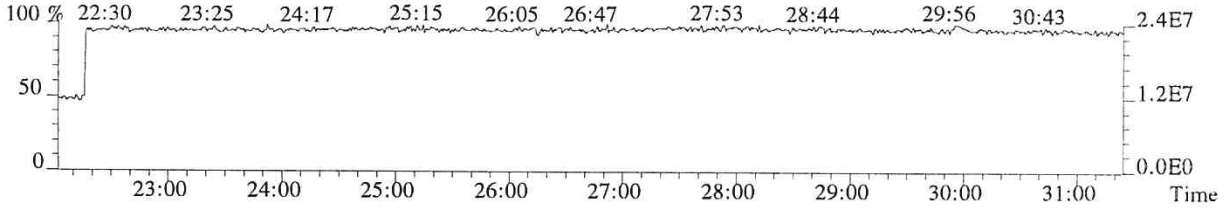
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

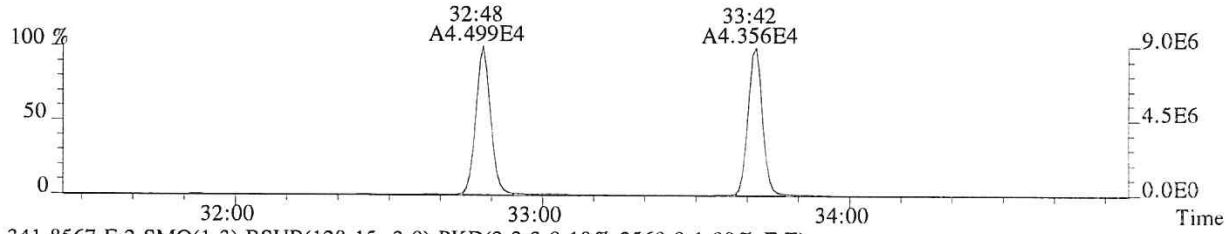


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

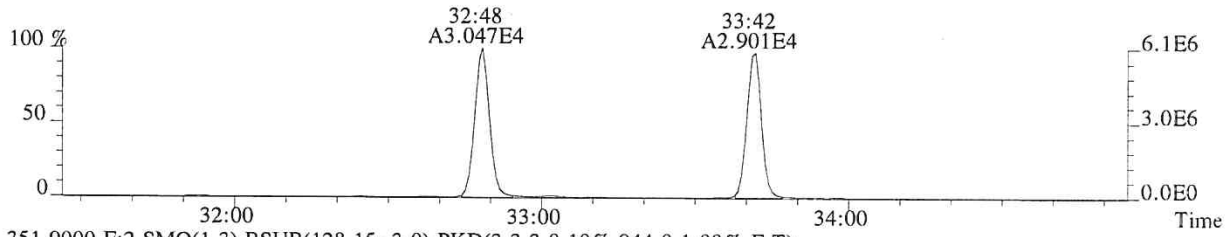


009332

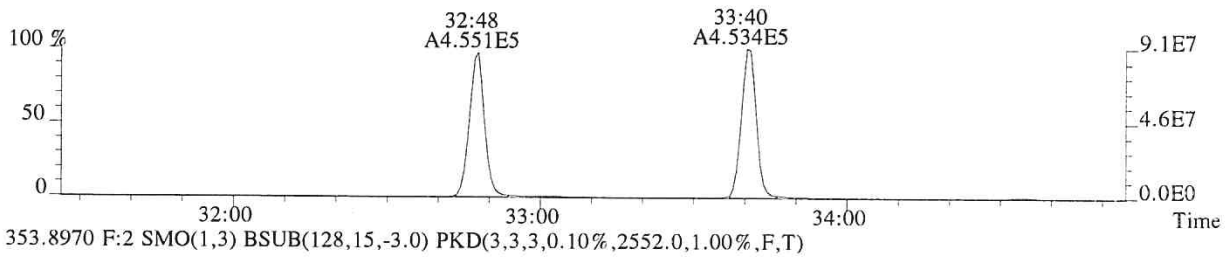
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



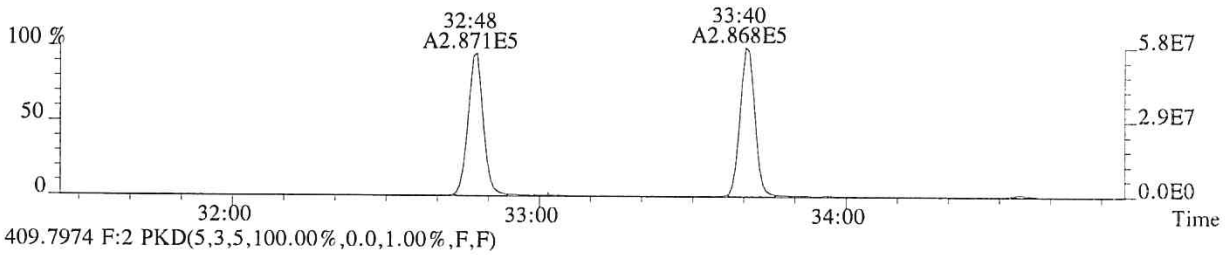
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



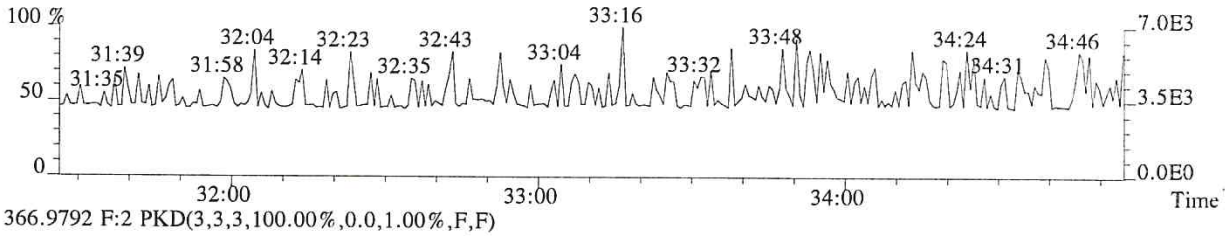
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



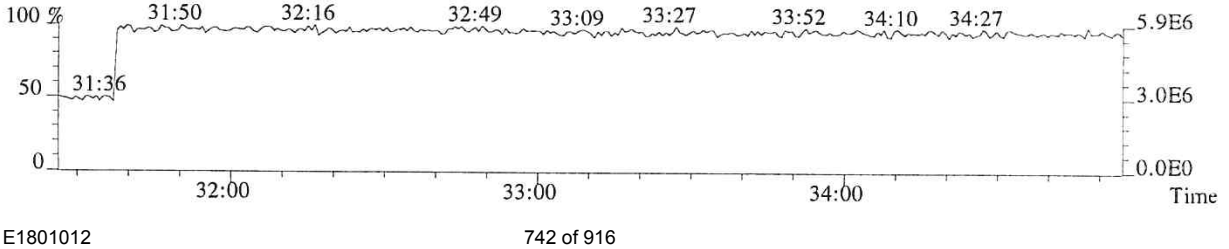
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

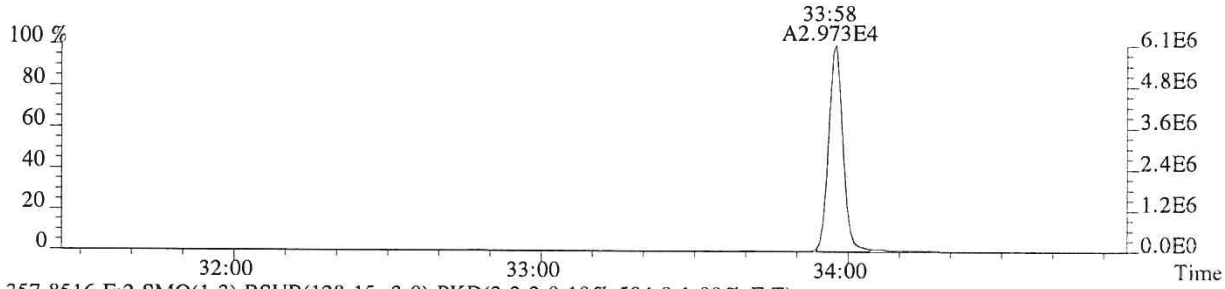


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

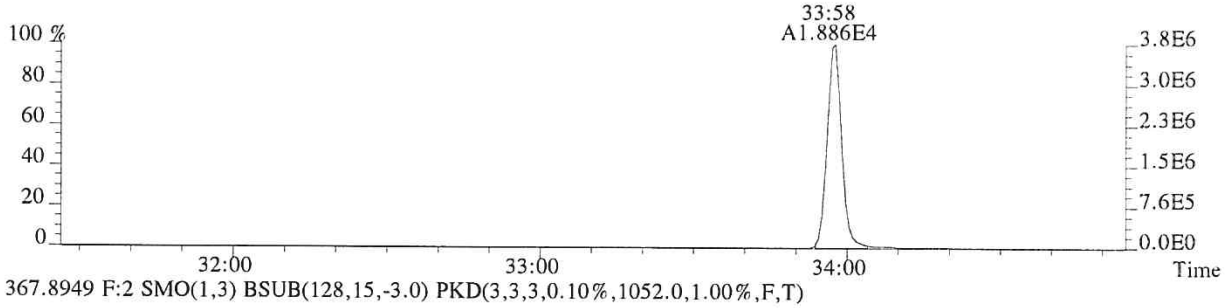


009333

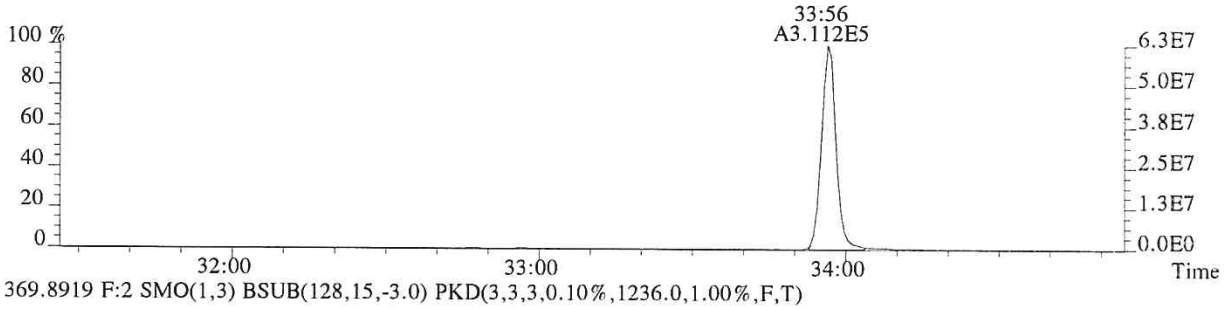
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



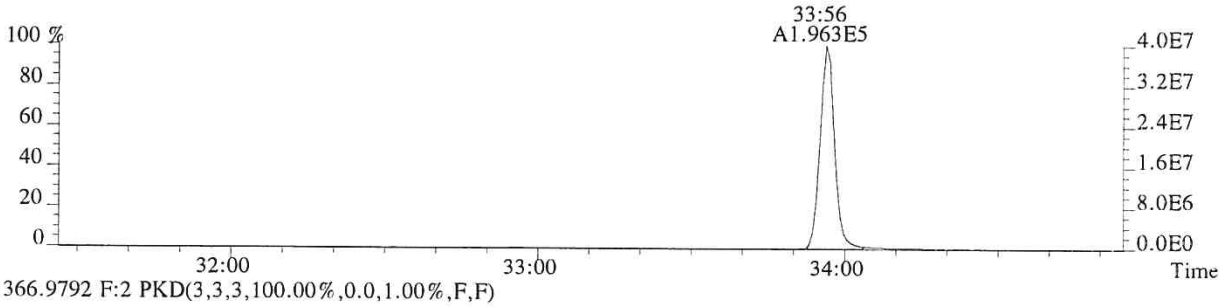
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



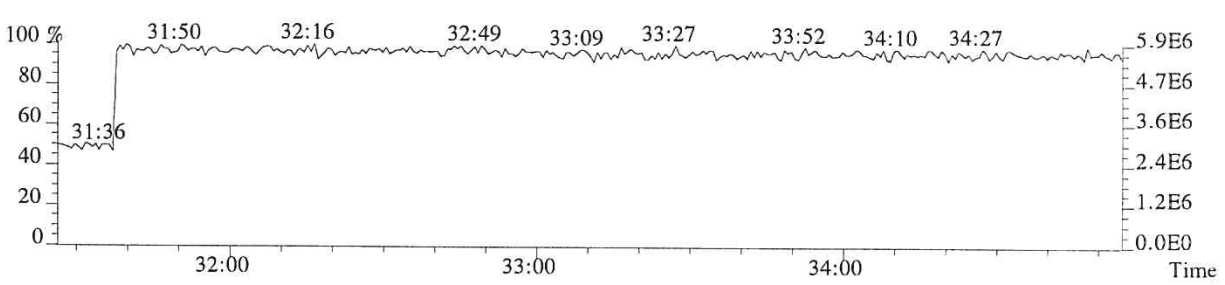
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)

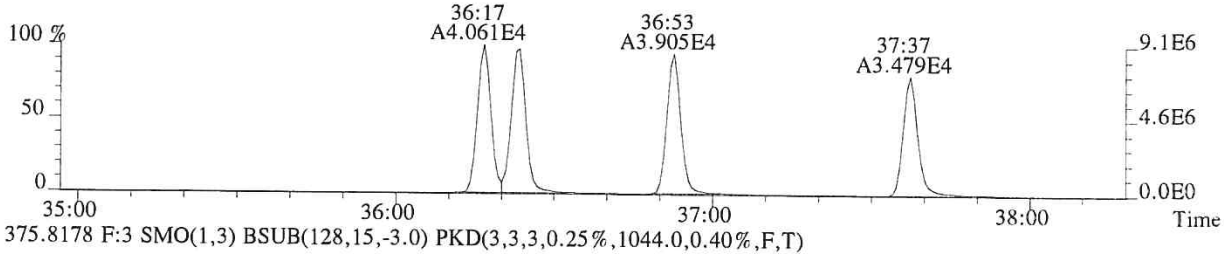


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

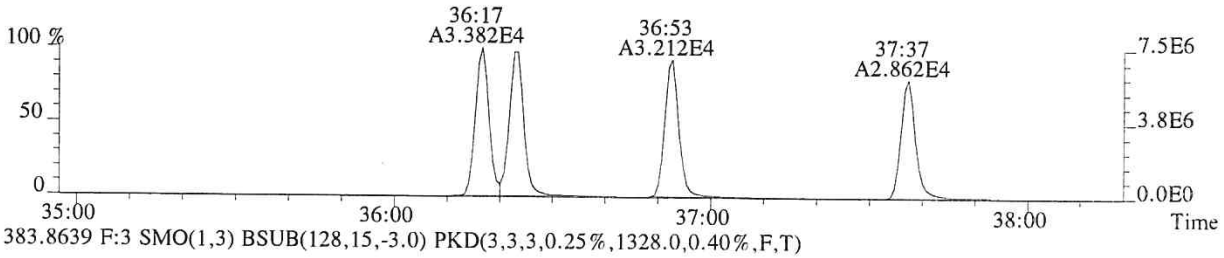


009334

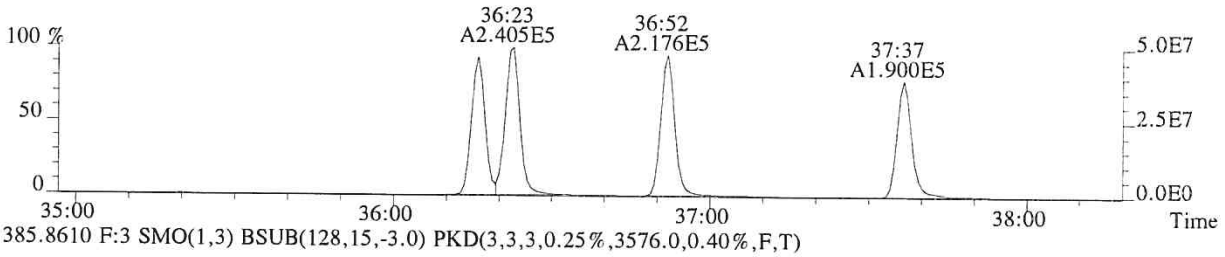
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



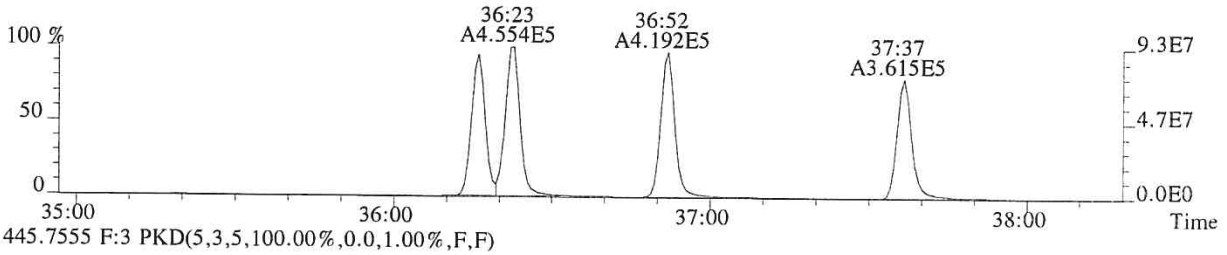
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



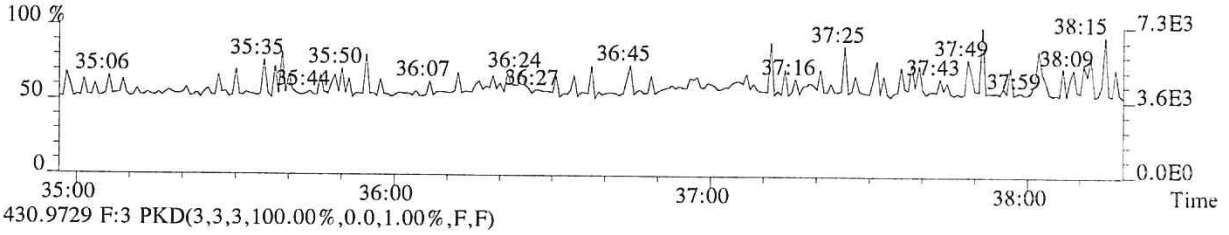
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



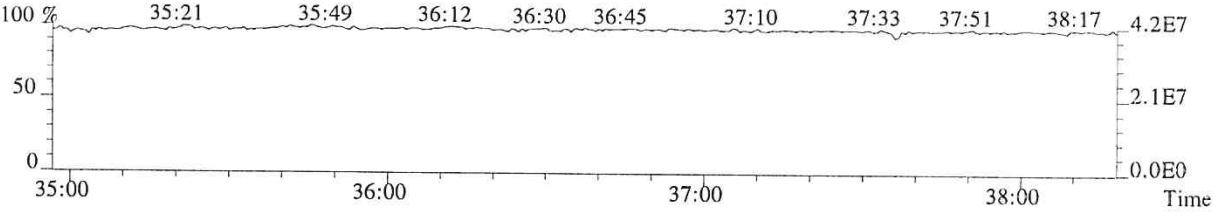
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

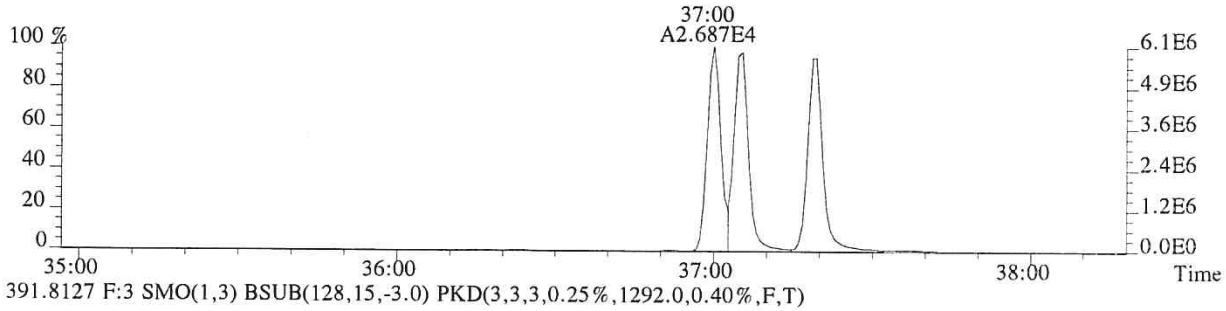


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

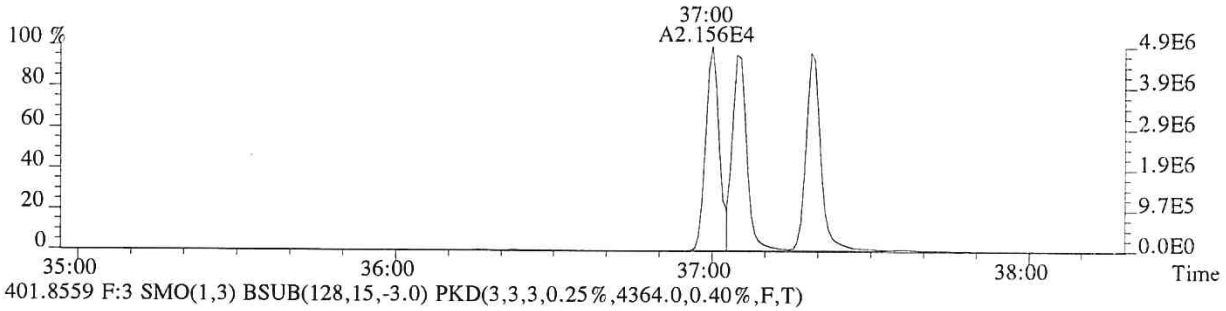


009335

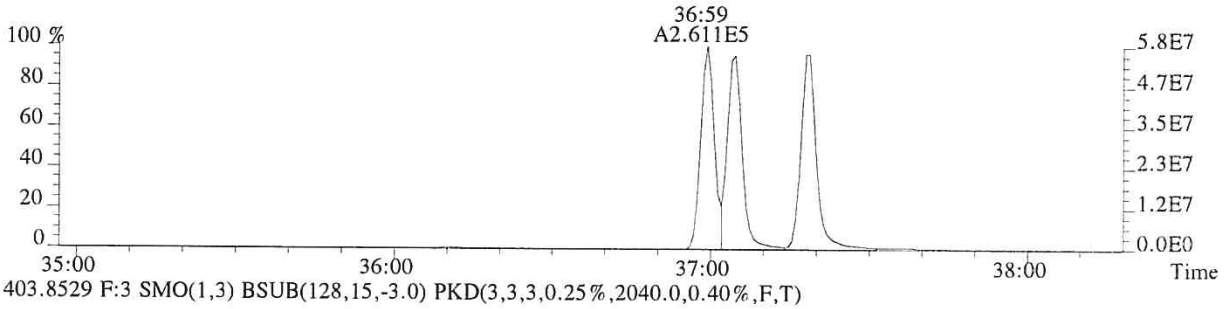
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



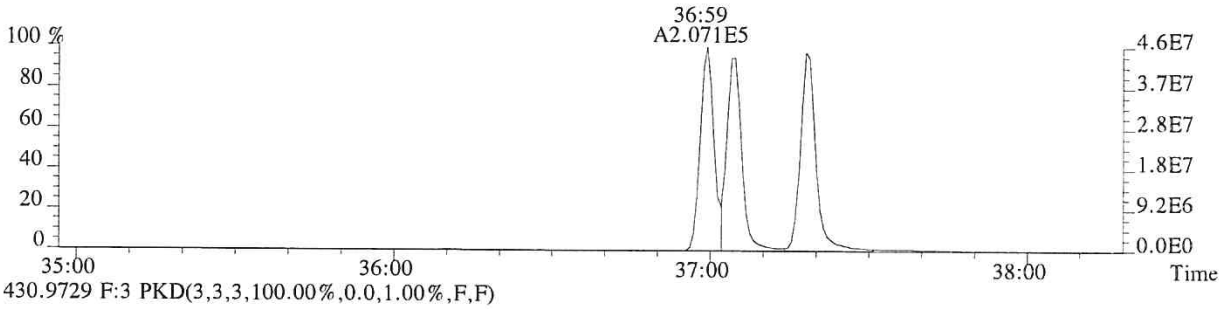
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



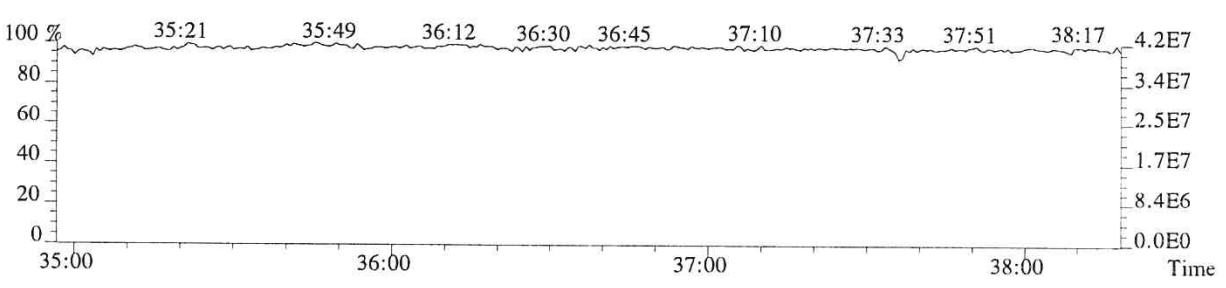
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)

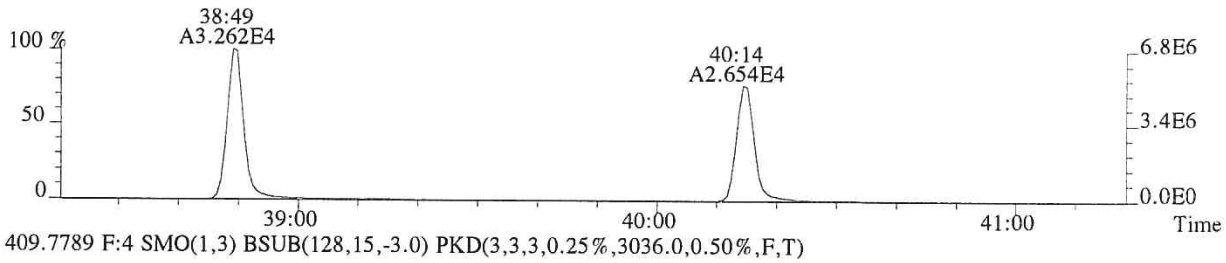


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

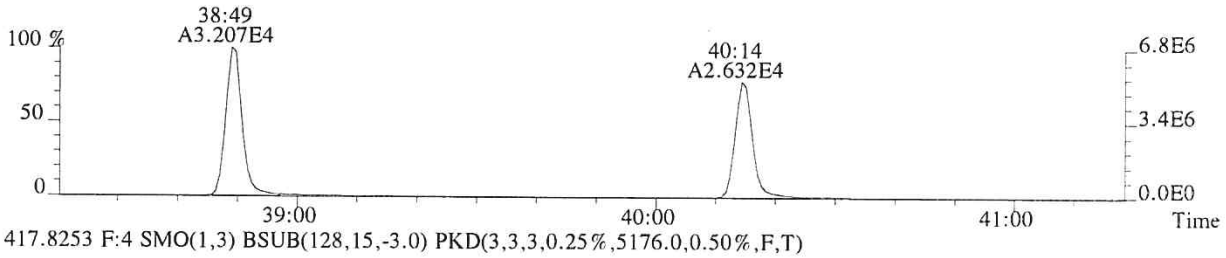


009336

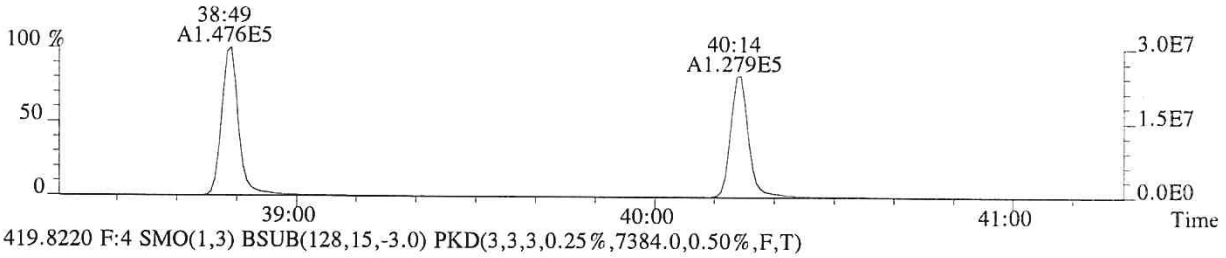
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



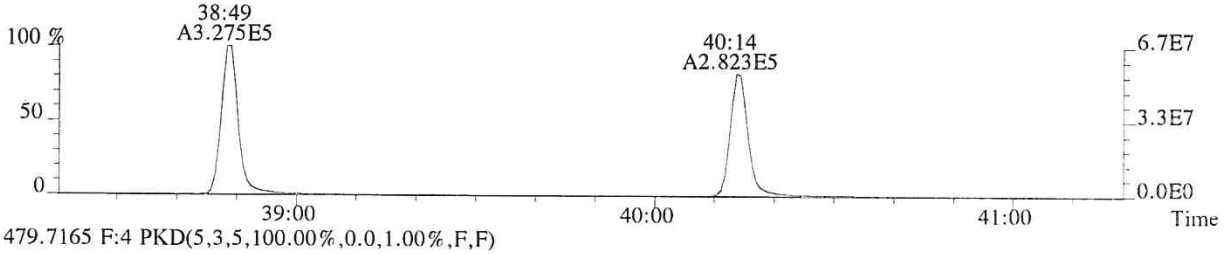
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



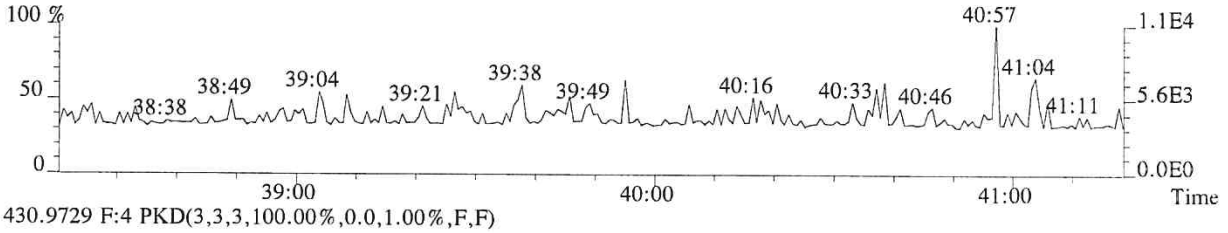
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



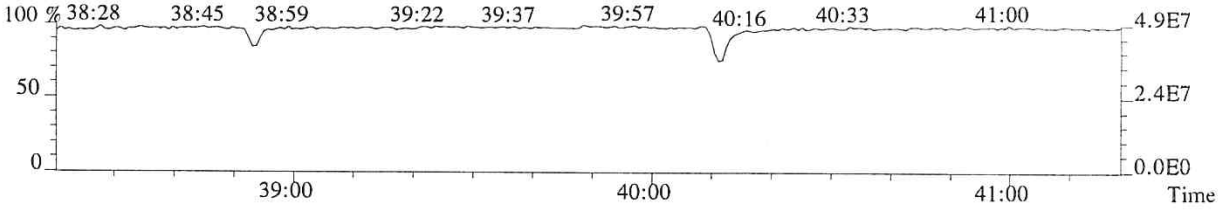
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

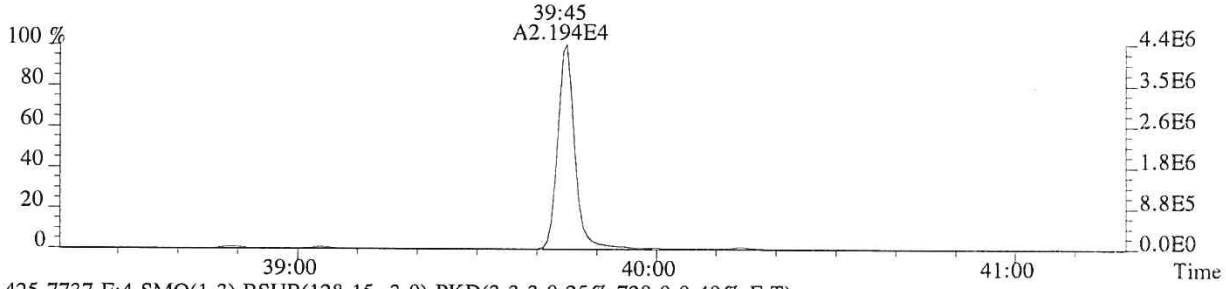


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

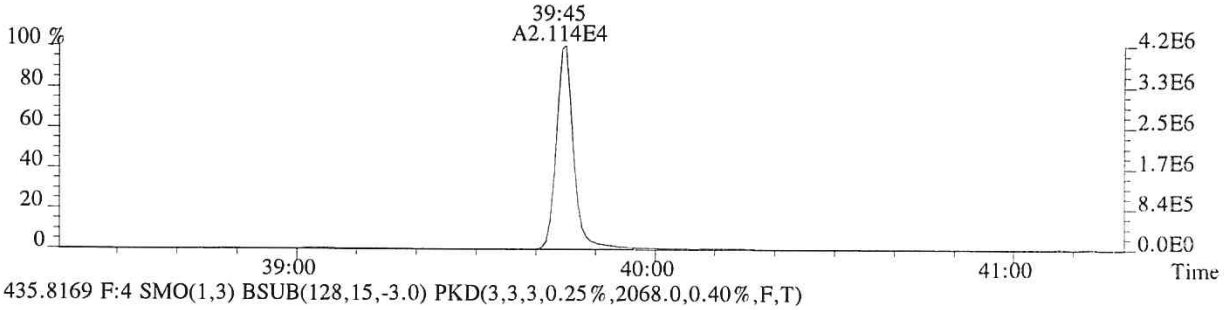


009337

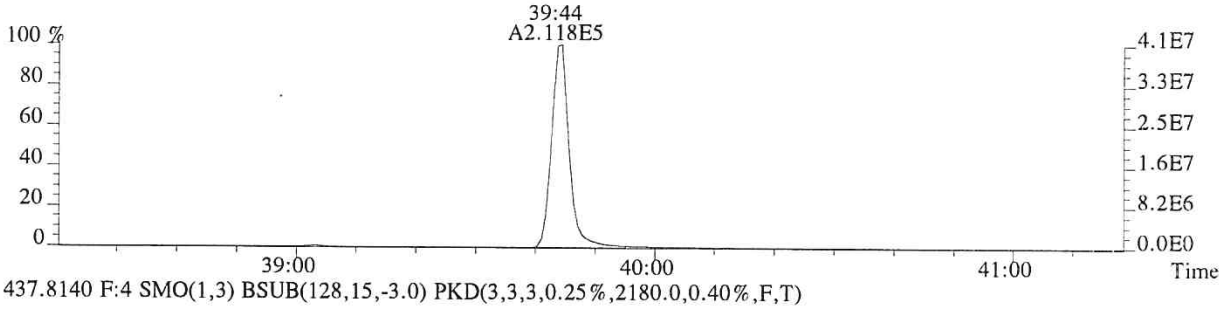
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



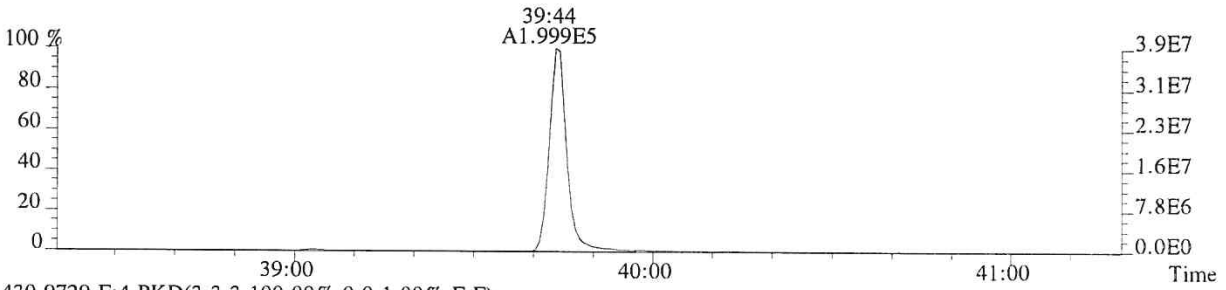
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



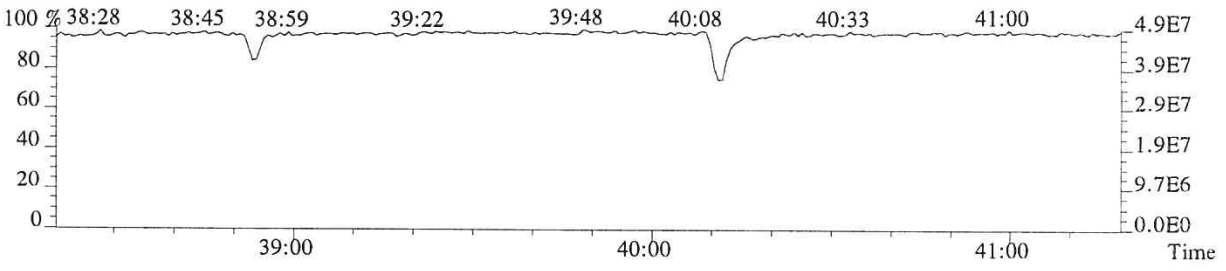
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)

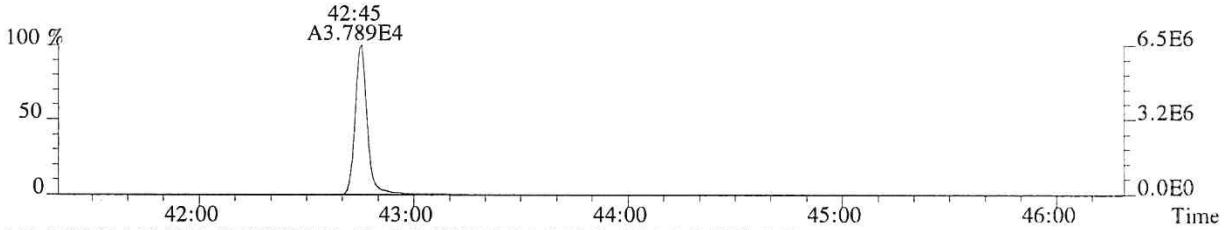


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

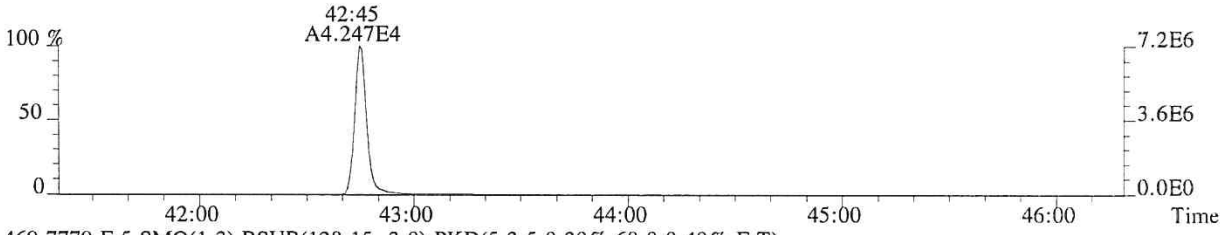


009338

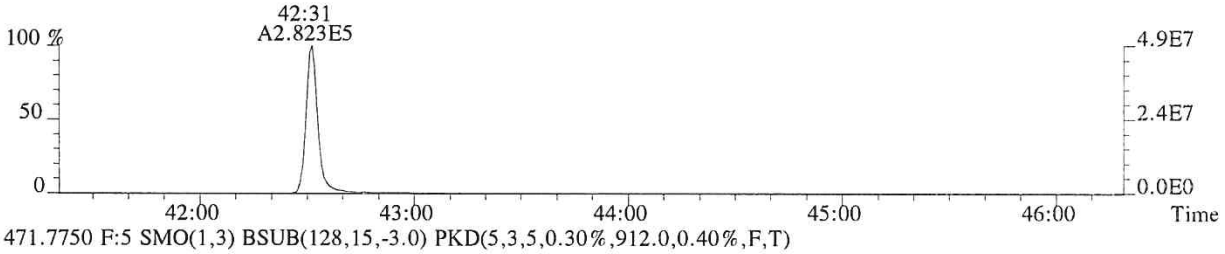
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



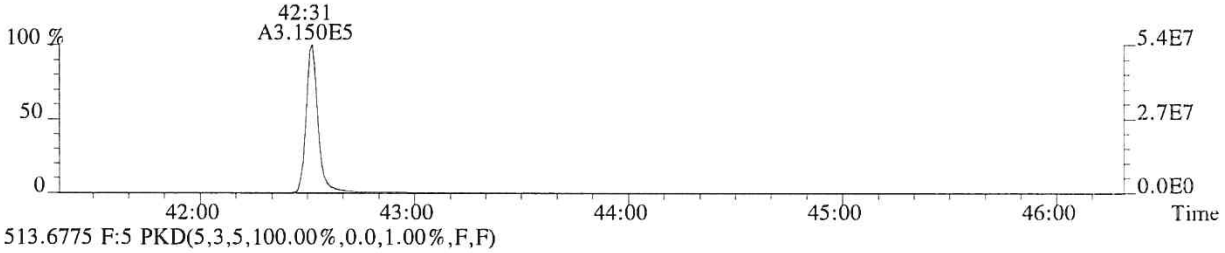
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



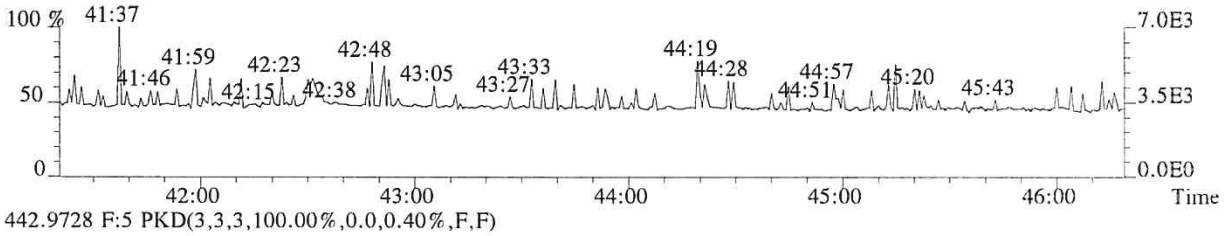
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



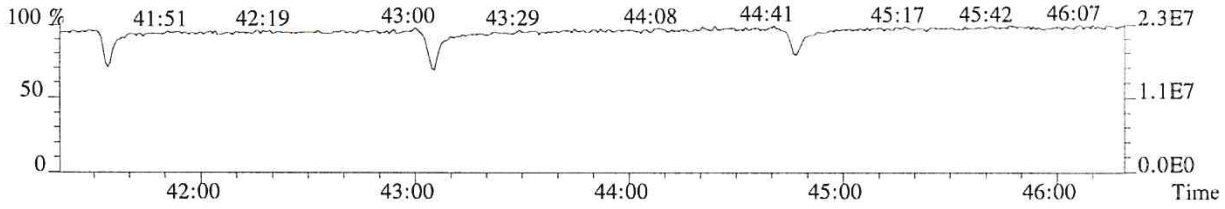
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

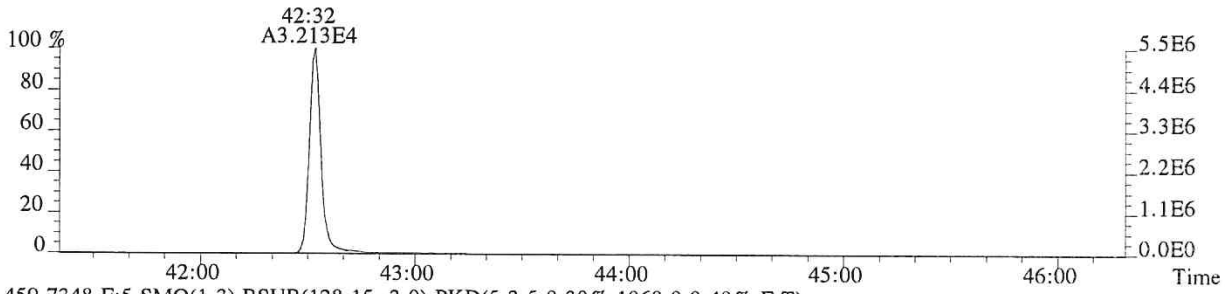


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

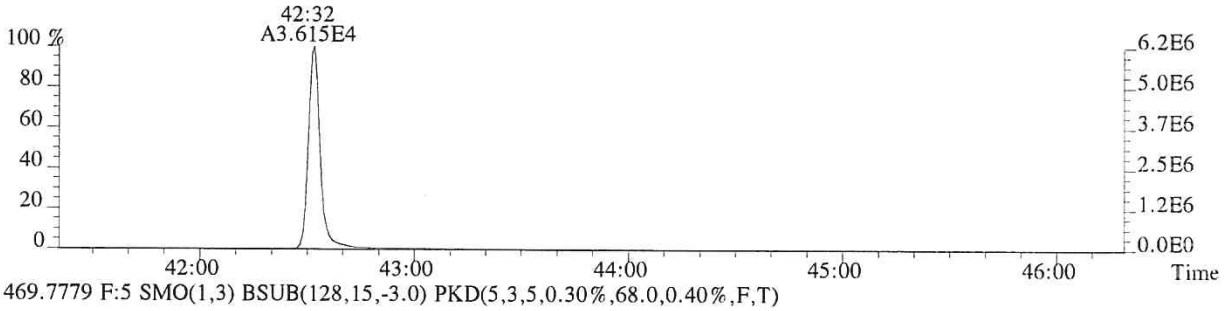


009339

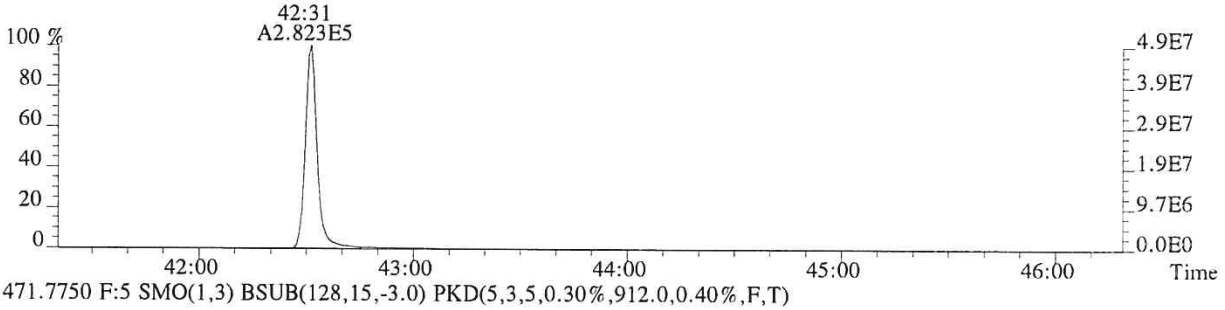
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



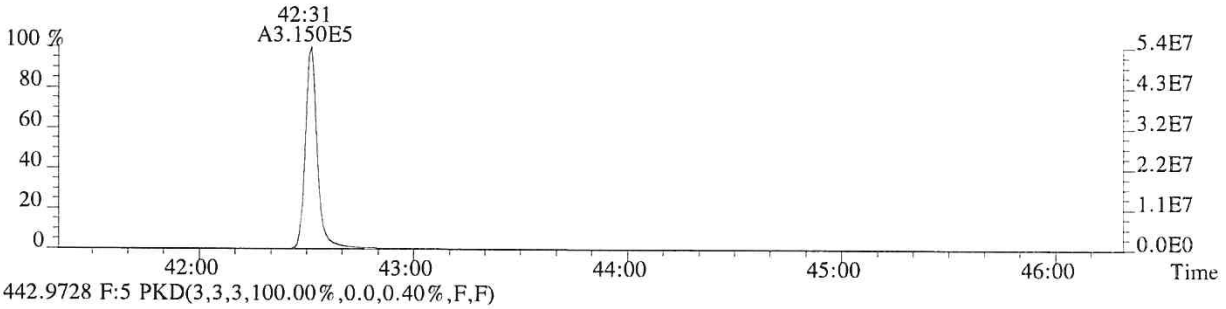
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



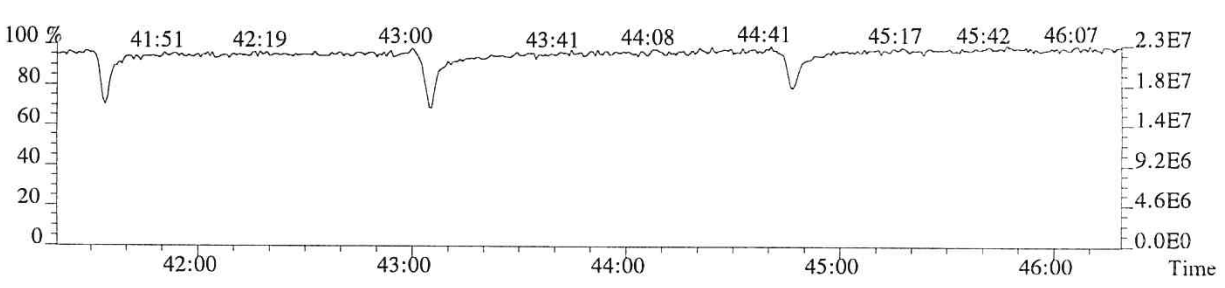
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009340

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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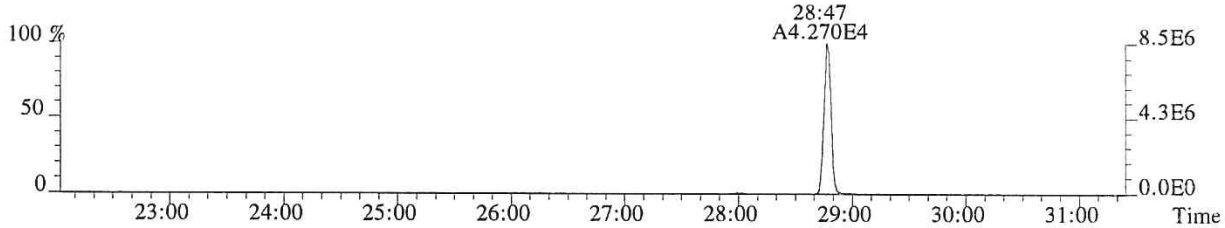
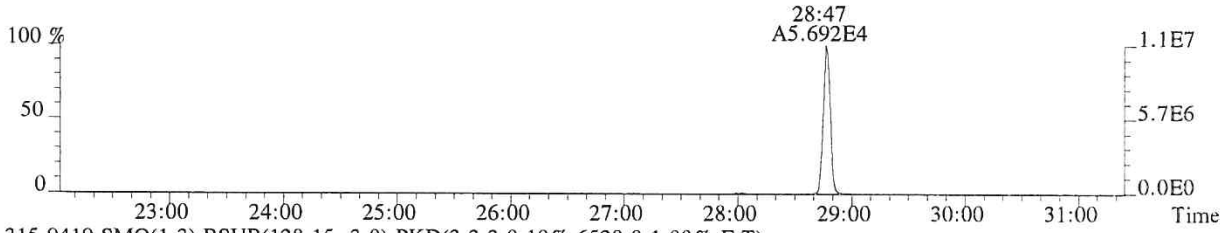
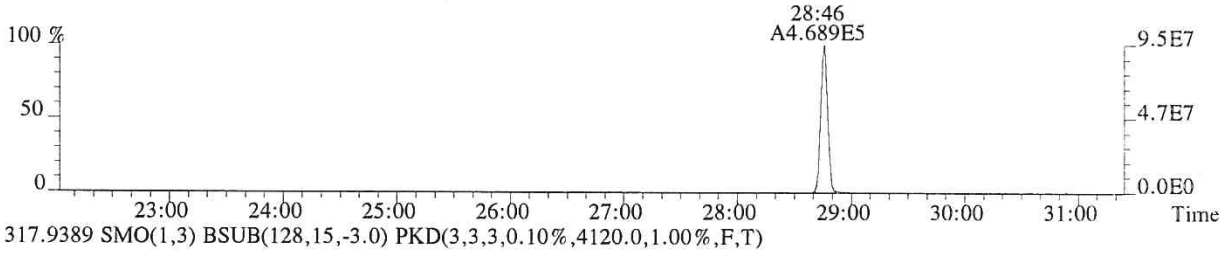
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



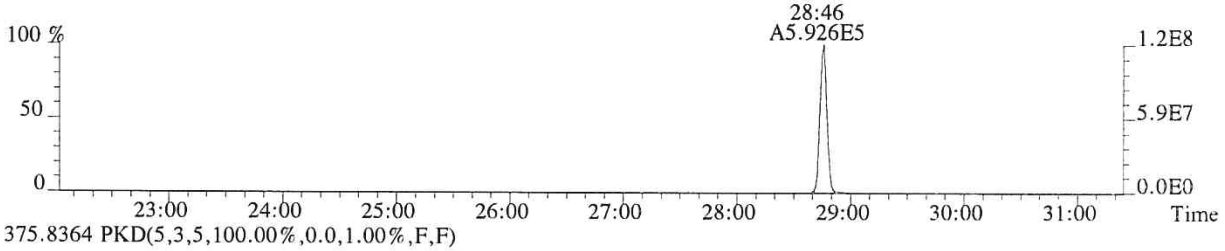
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



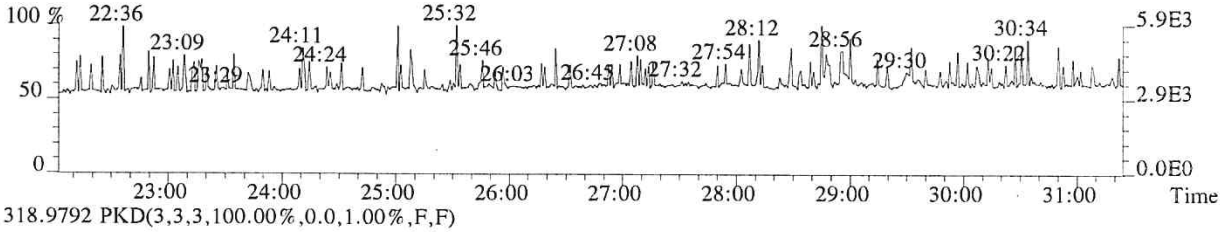
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



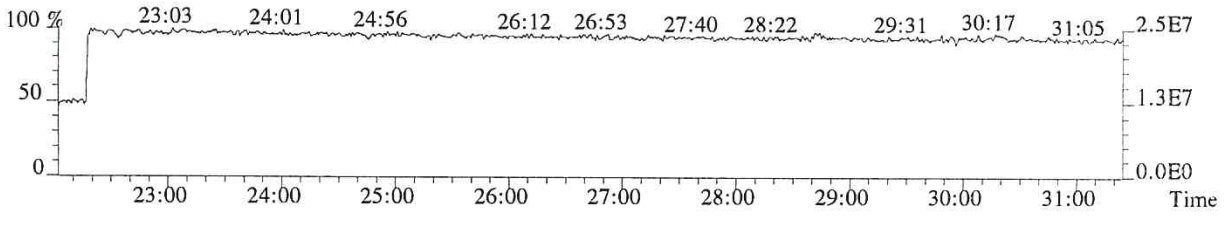
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

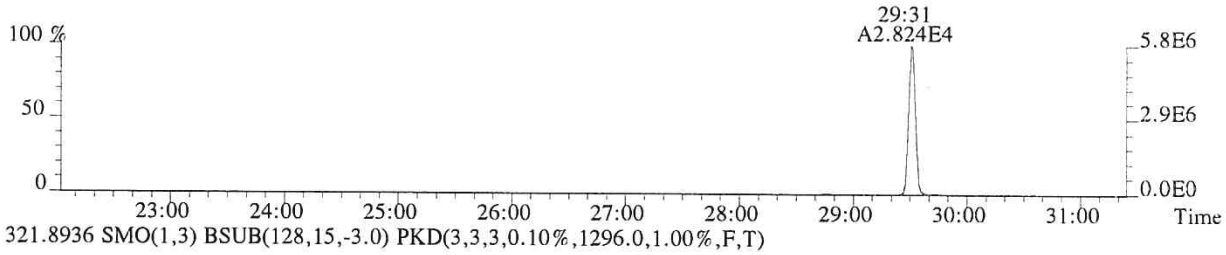


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

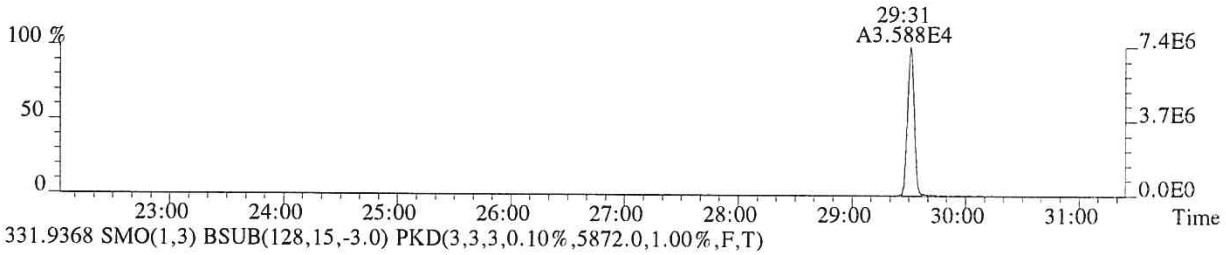


009343

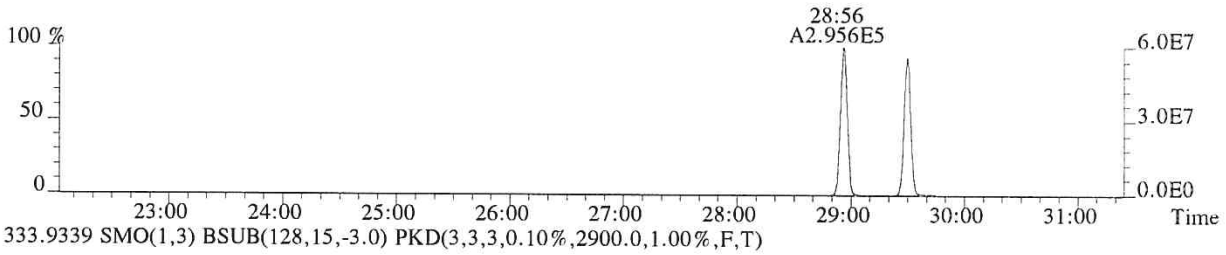
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



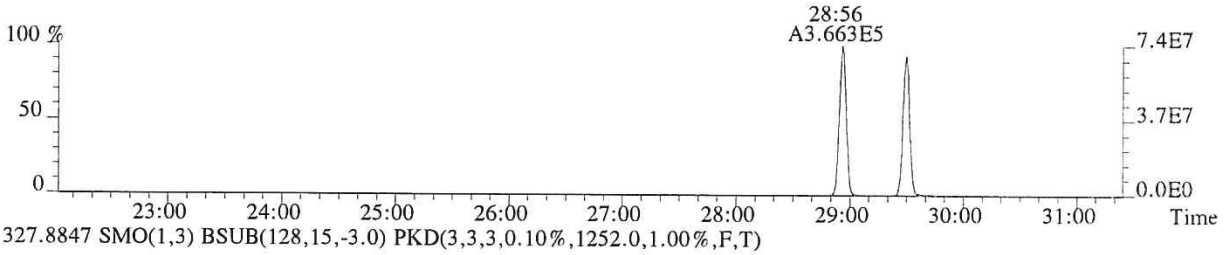
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



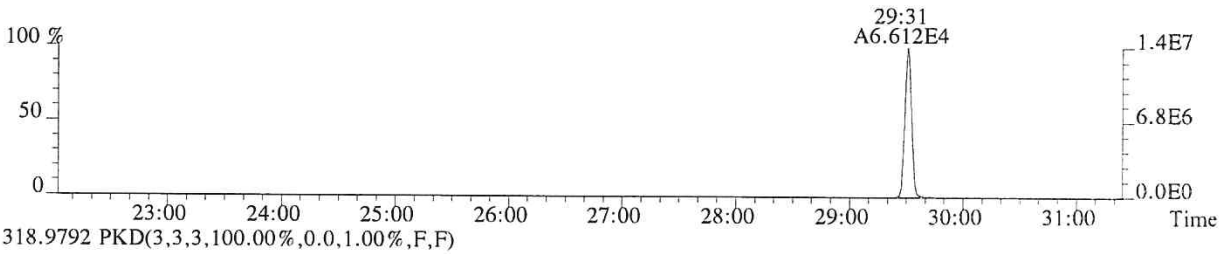
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



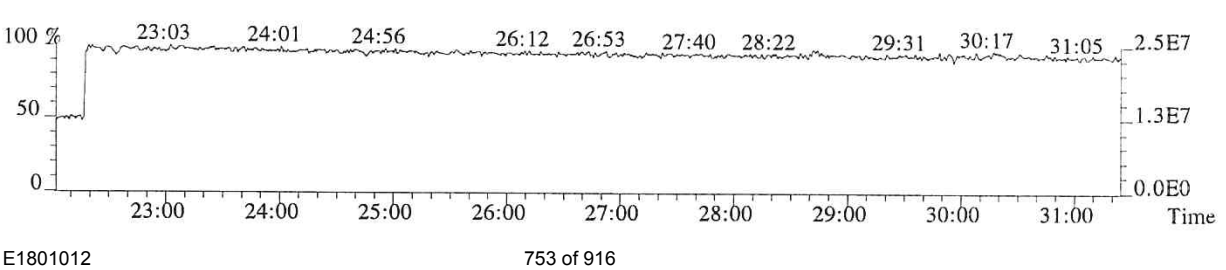
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)

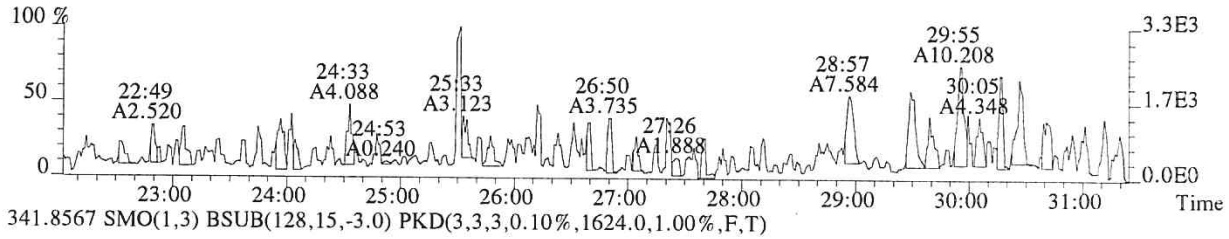


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

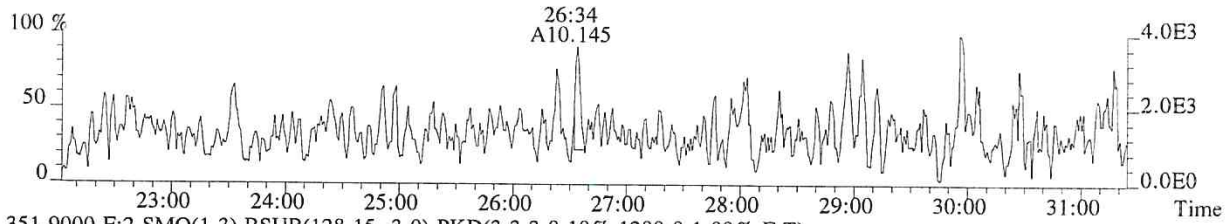


009344

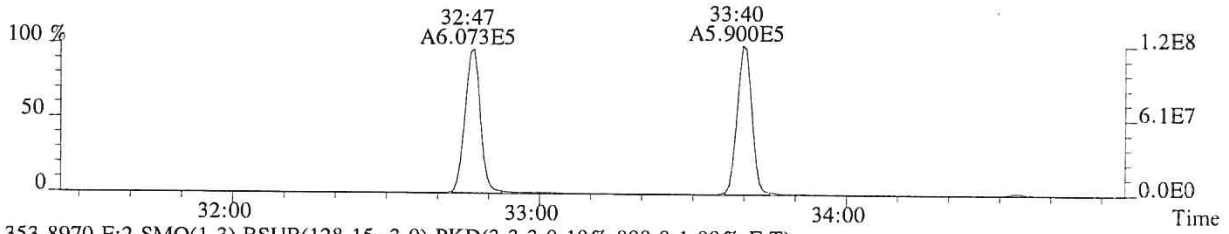
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



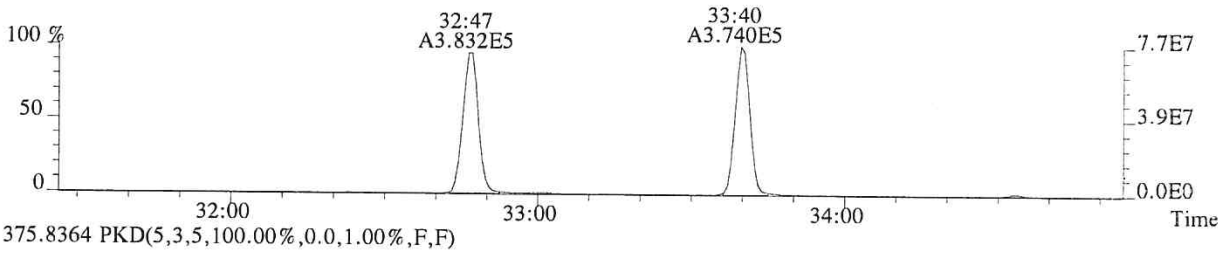
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



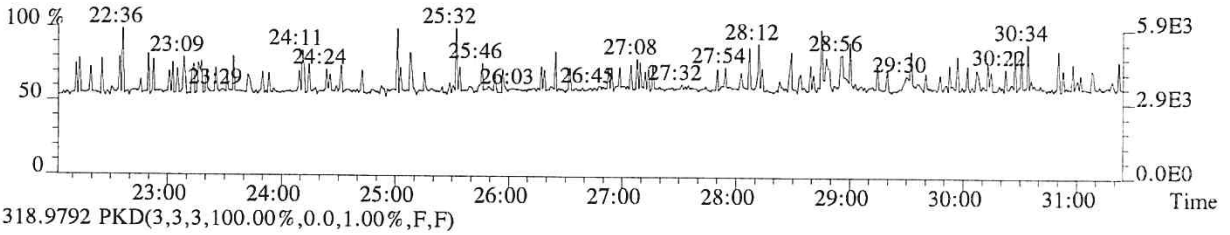
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



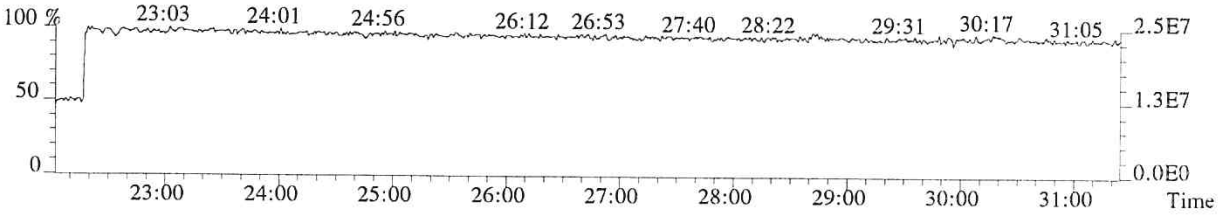
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

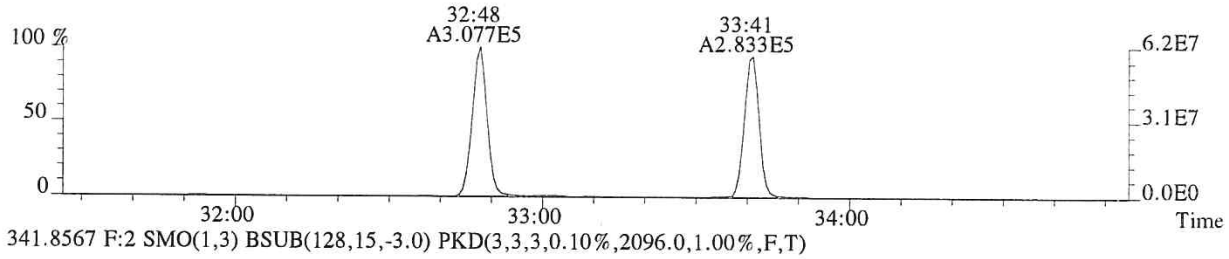


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

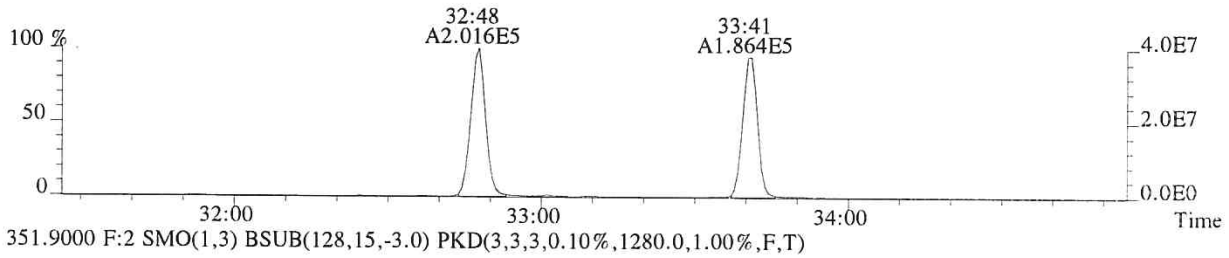


009345

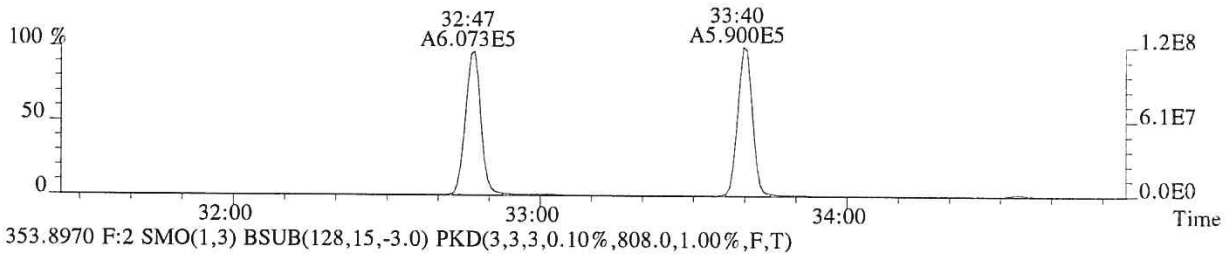
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



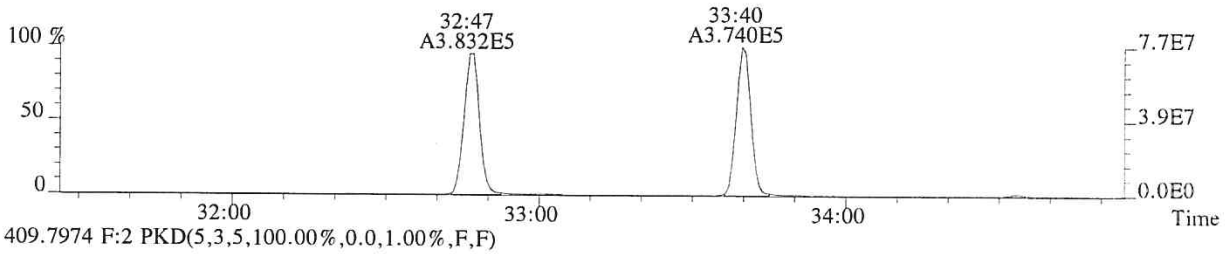
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



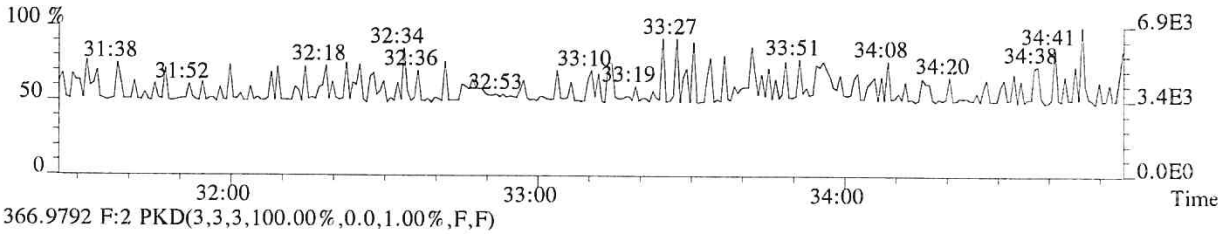
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



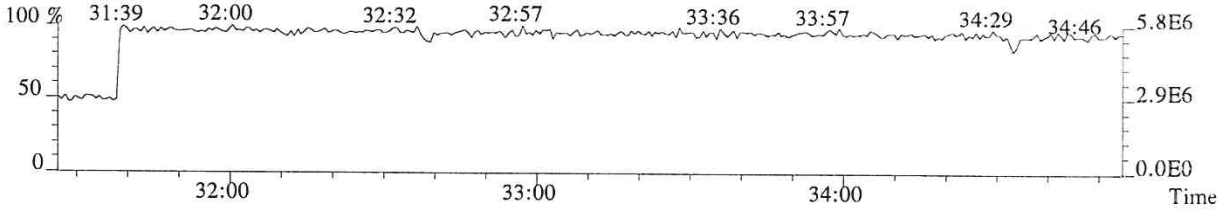
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

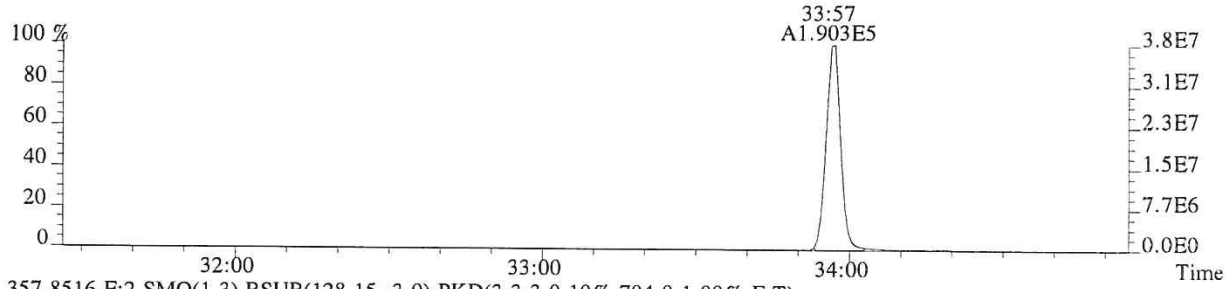


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

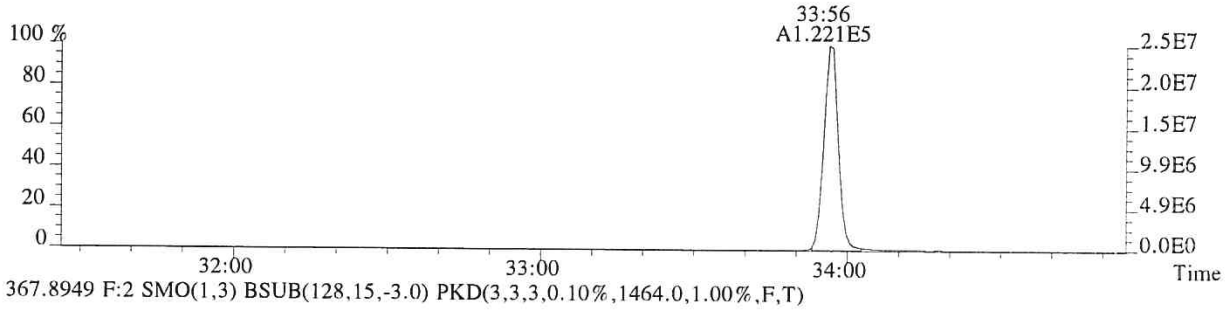


009346

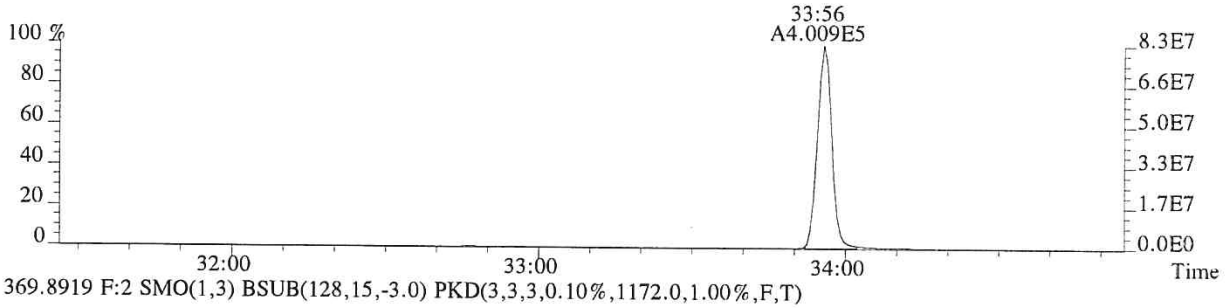
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



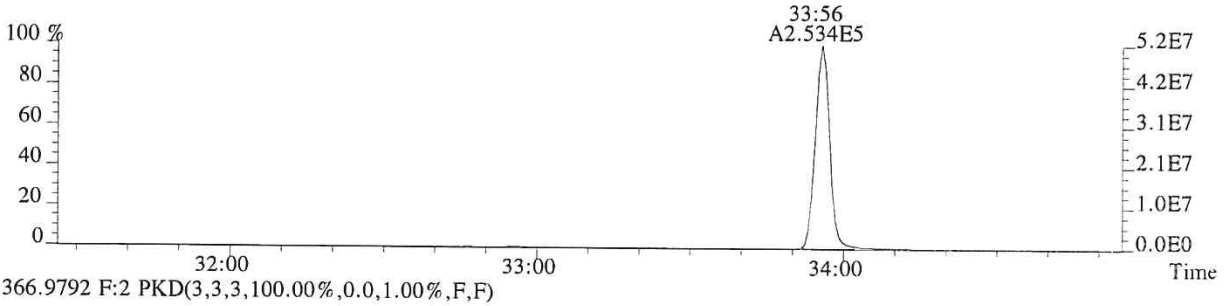
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



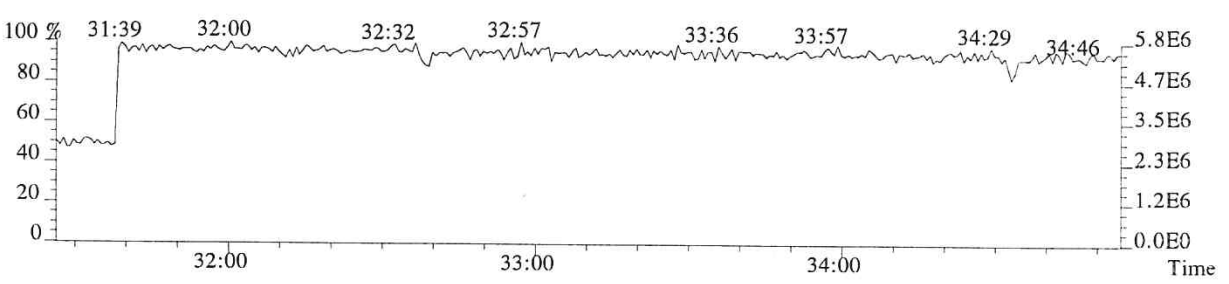
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)

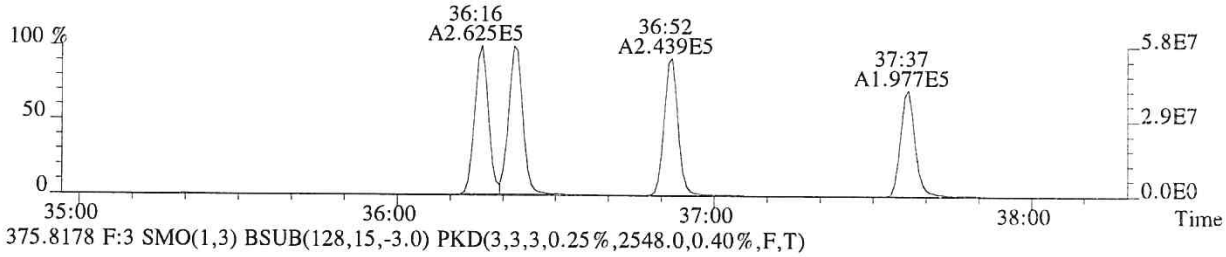


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

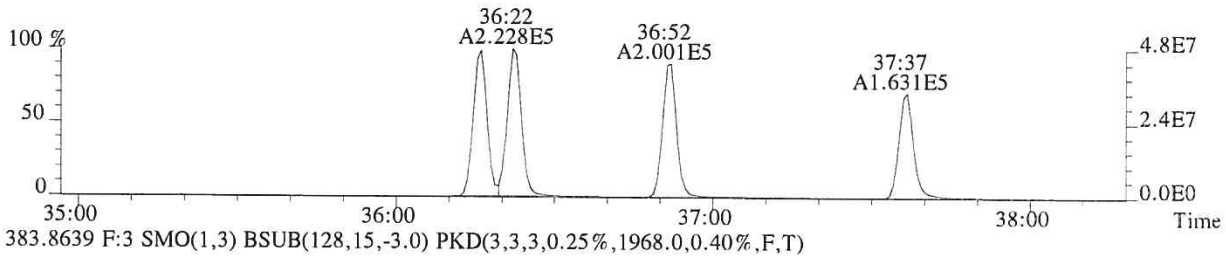


File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76557

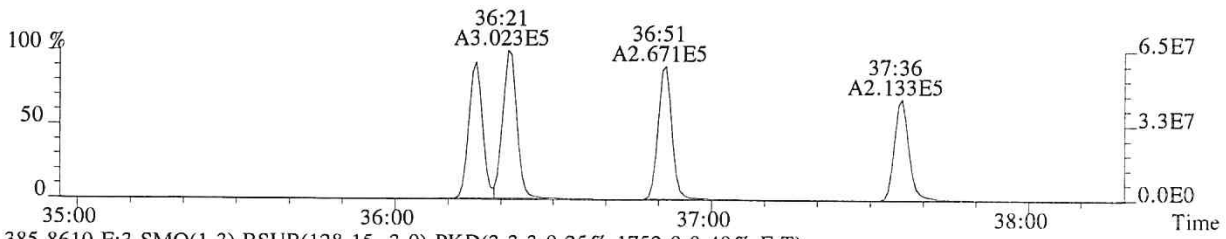
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



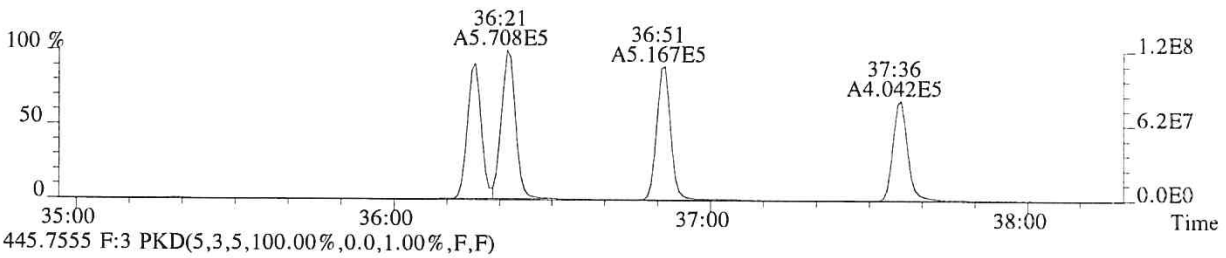
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



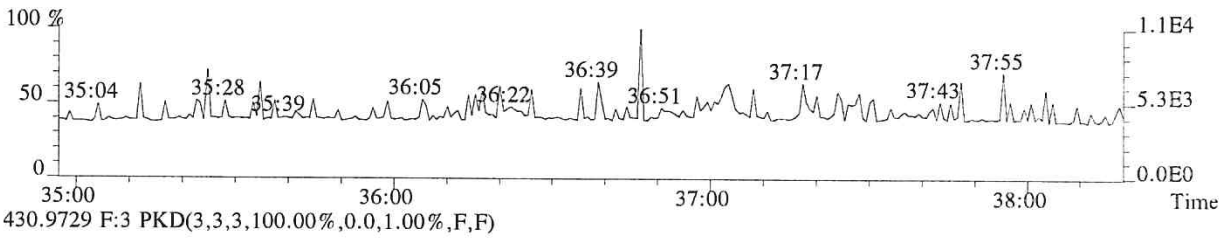
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



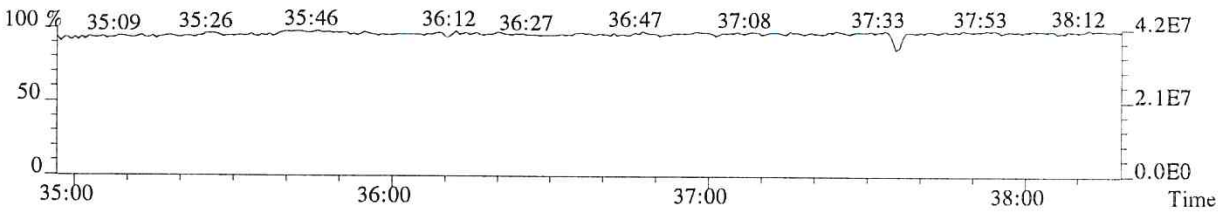
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

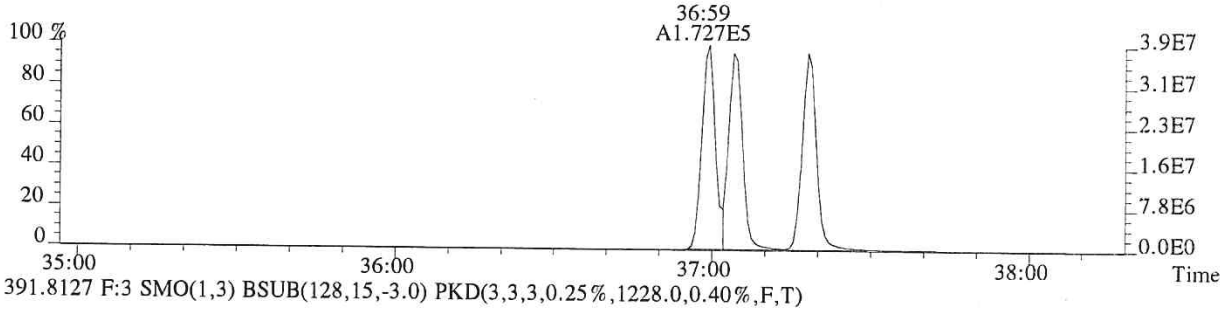


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

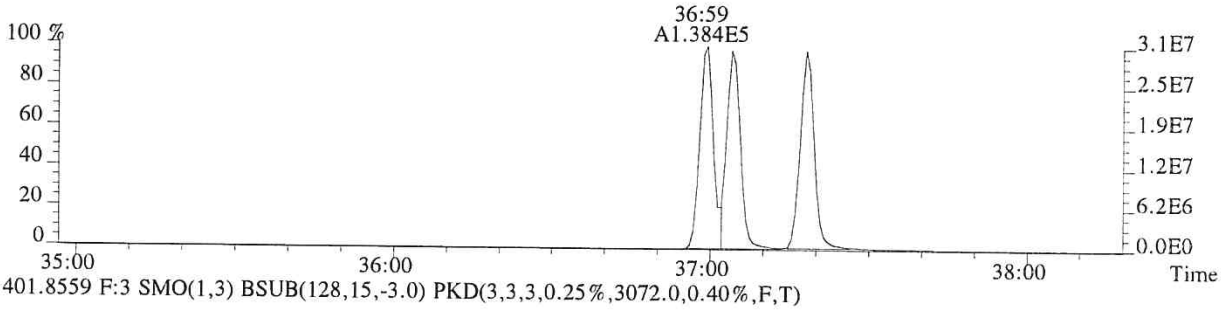


009348

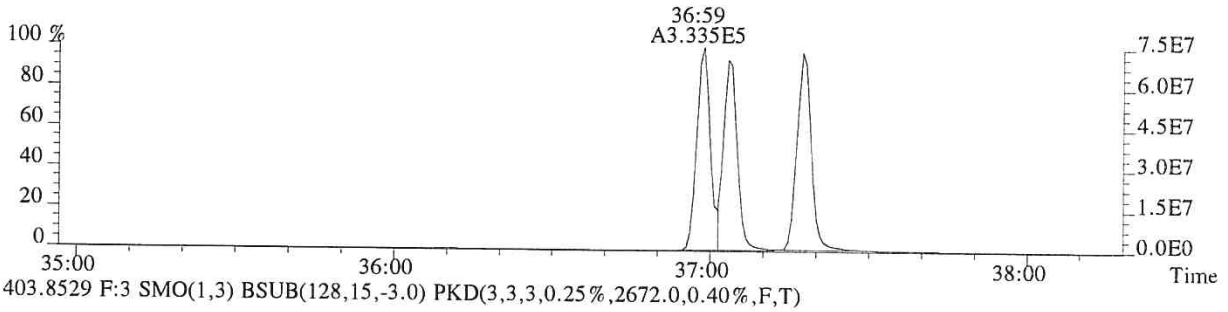
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



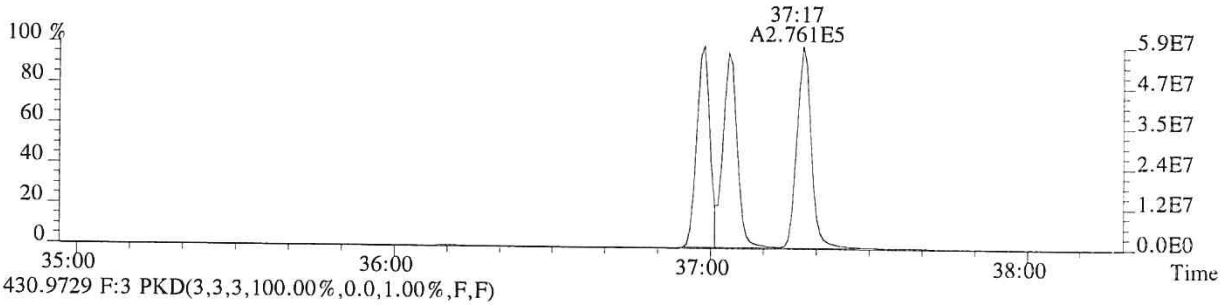
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



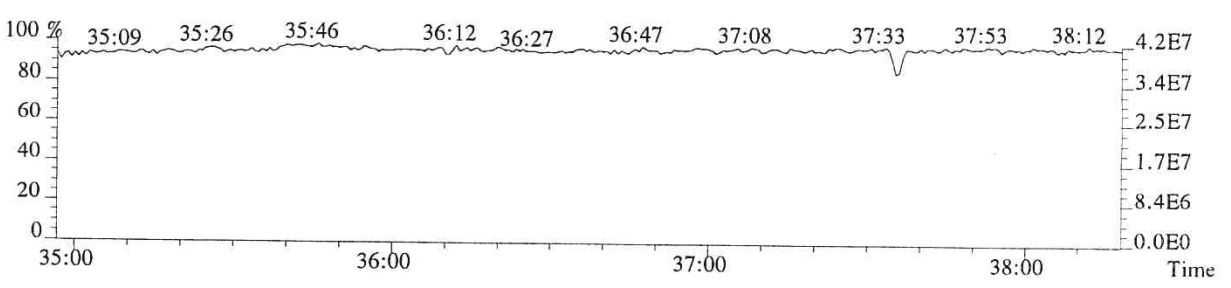
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)

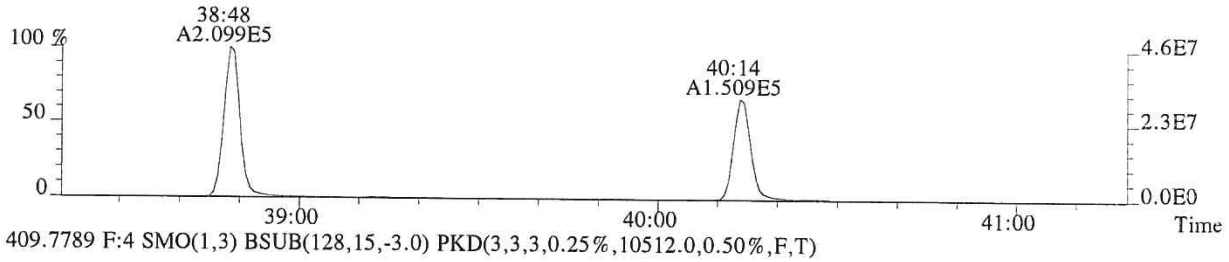


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

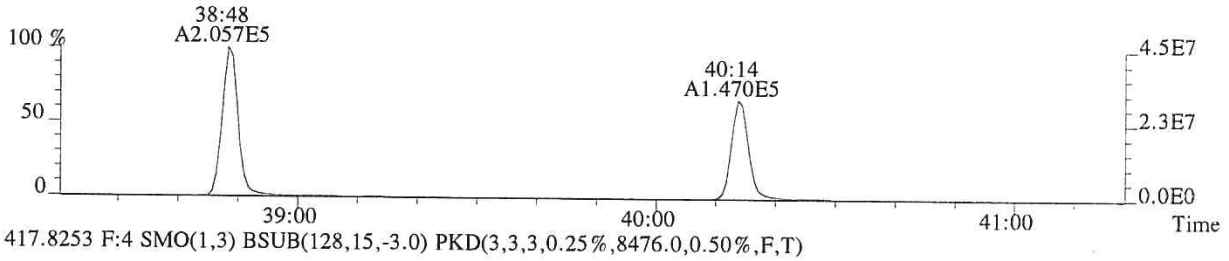


009349

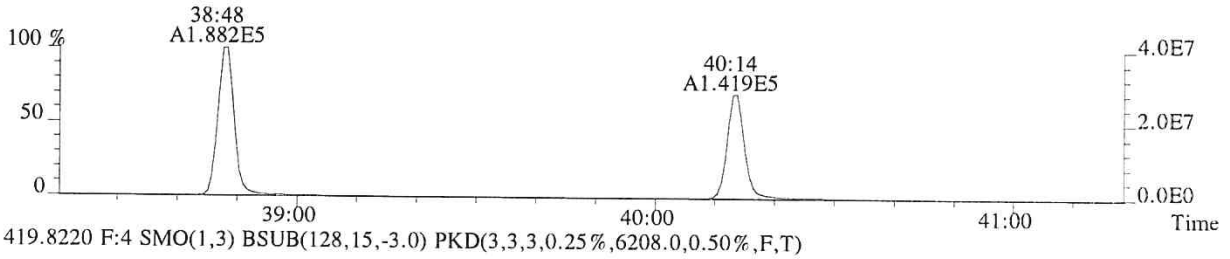
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



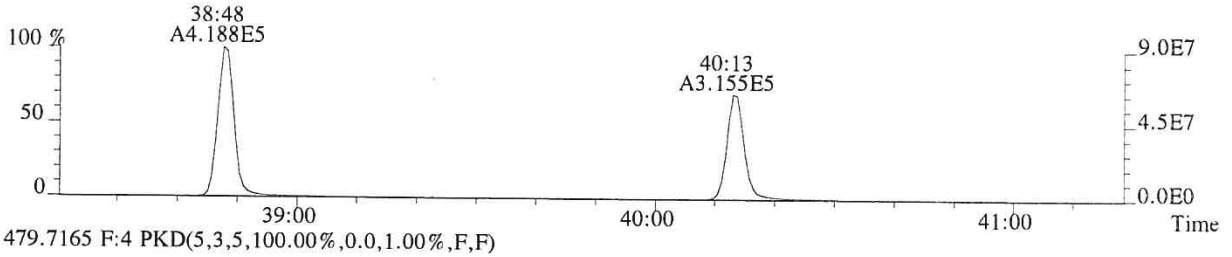
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



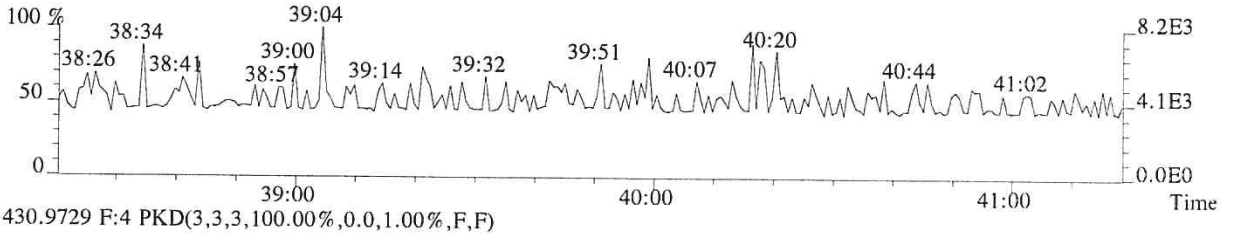
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



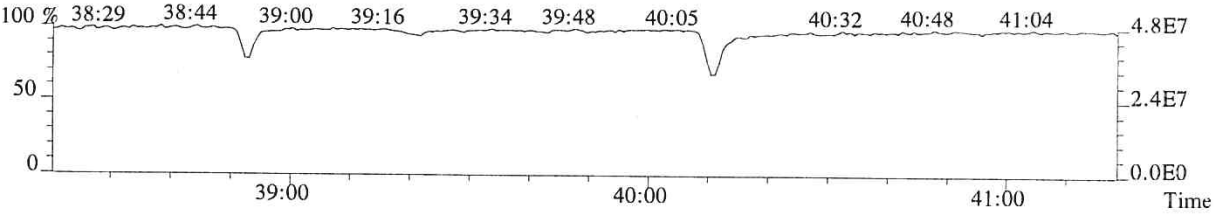
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

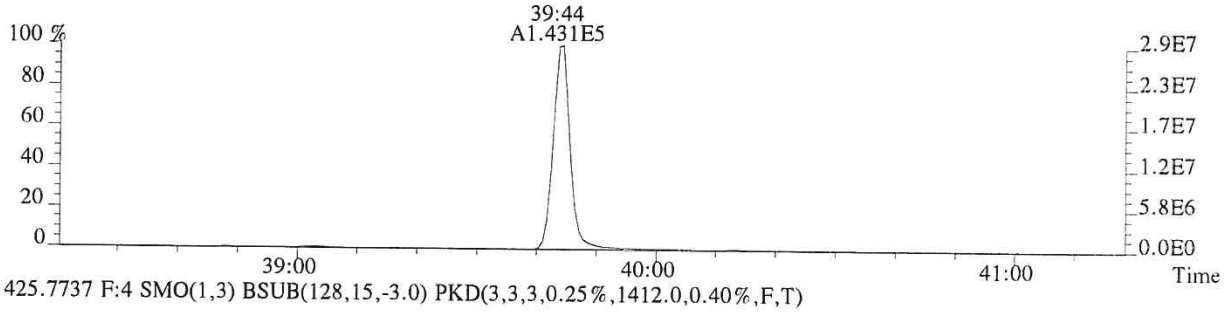


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

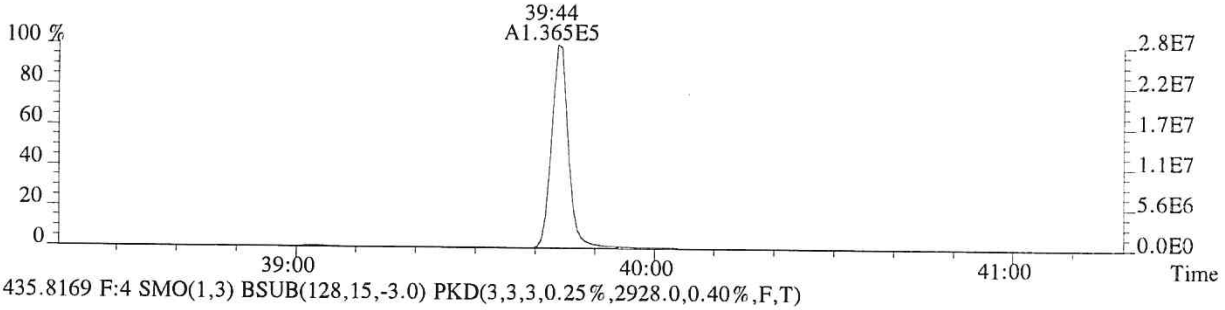


009350

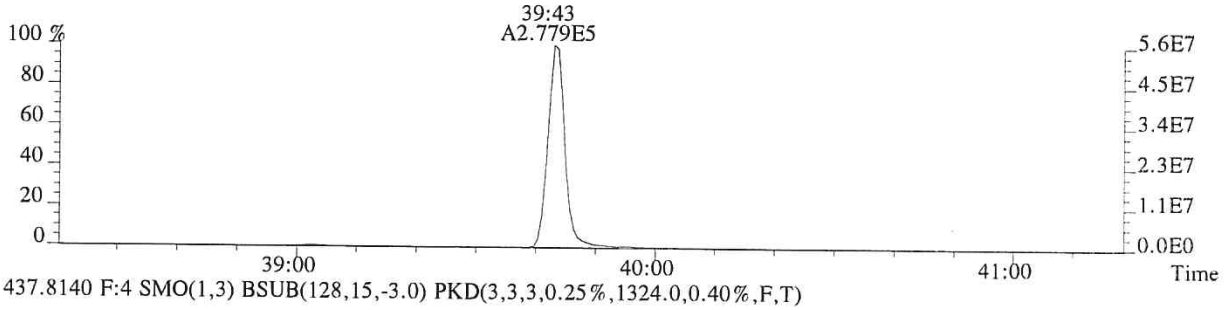
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



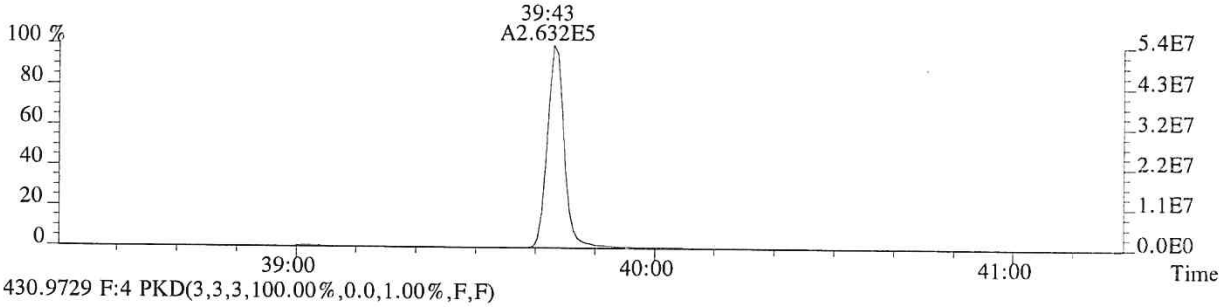
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



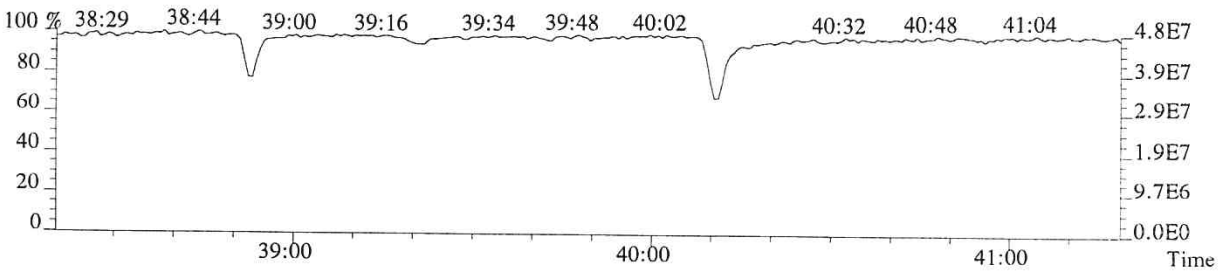
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)

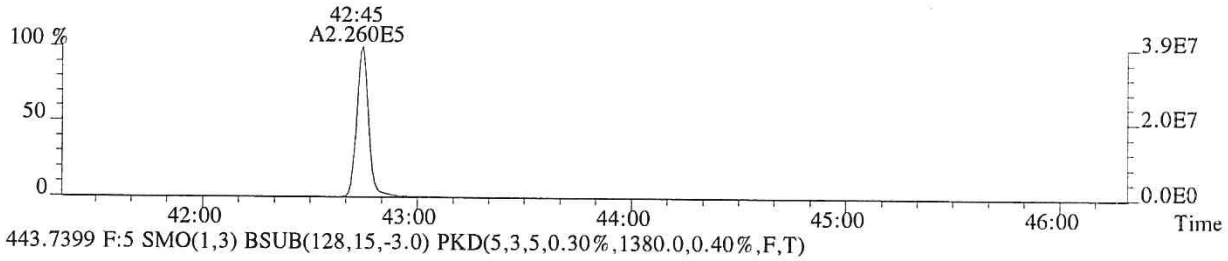


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

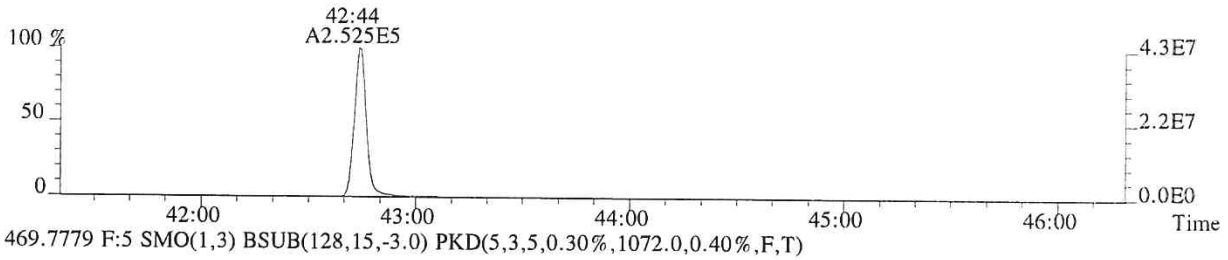


009351

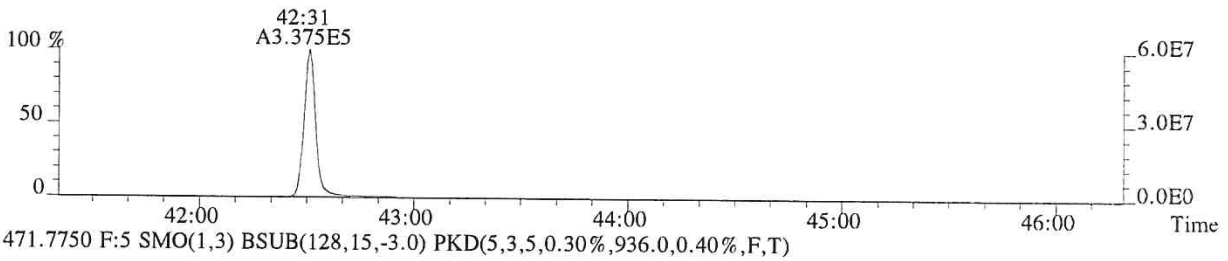
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



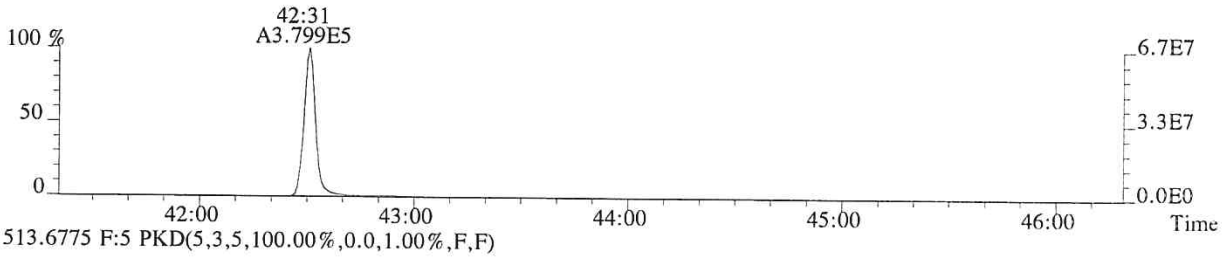
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



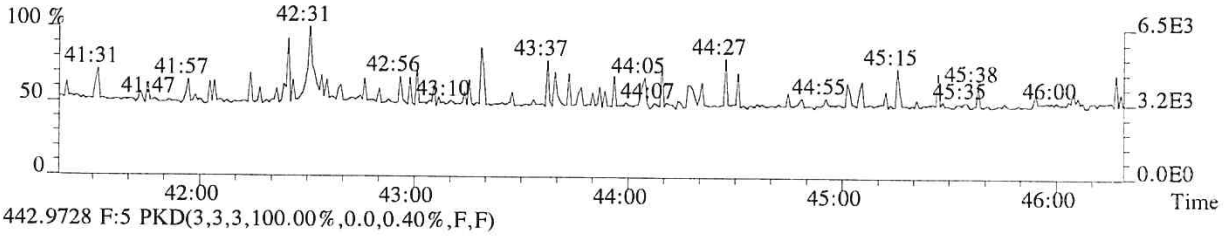
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



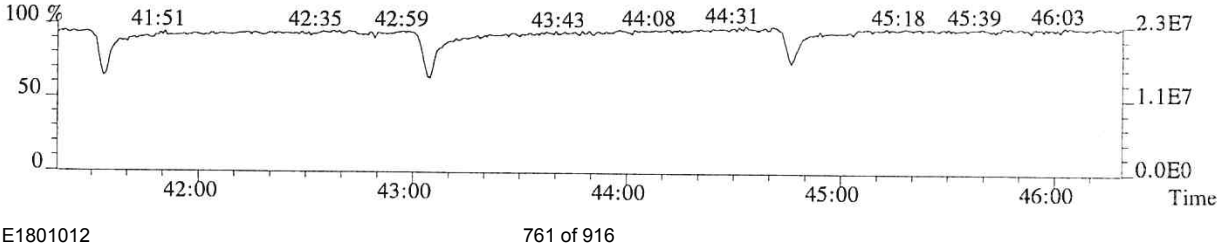
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

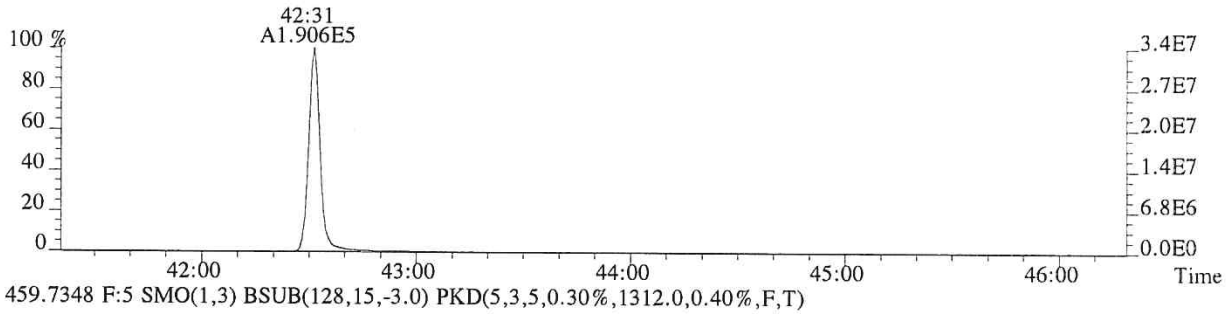


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

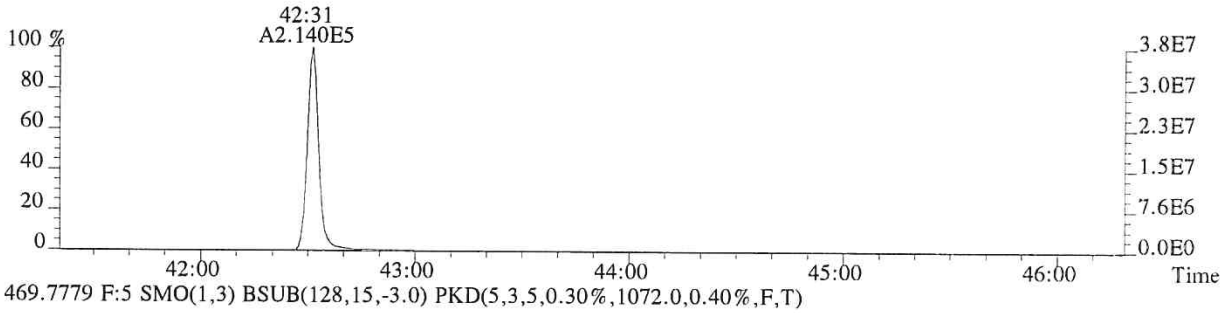


009352

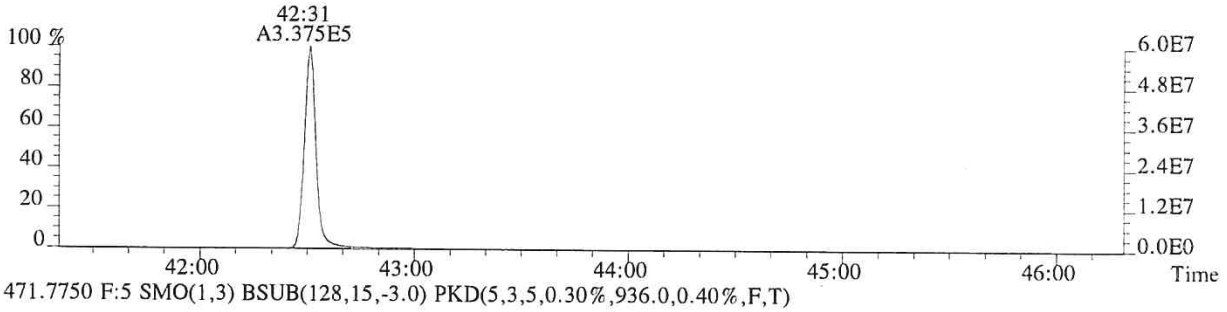
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



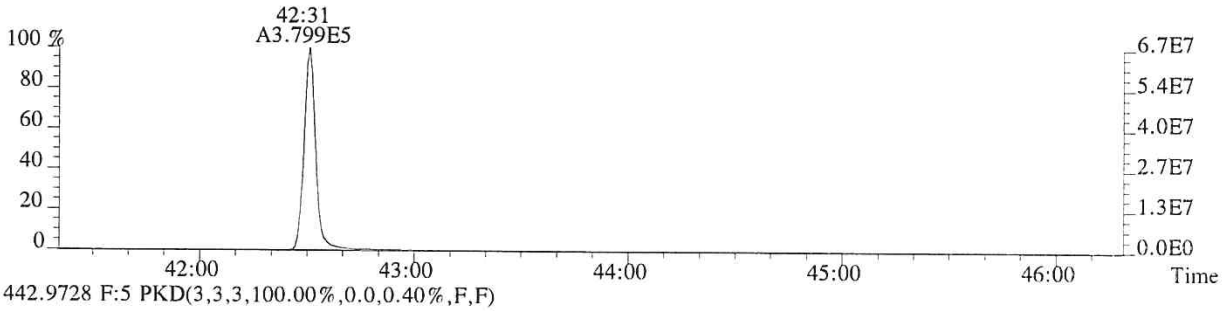
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



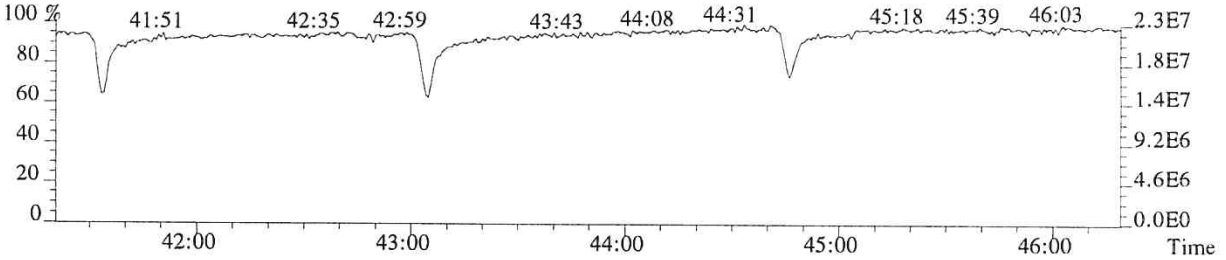
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009353

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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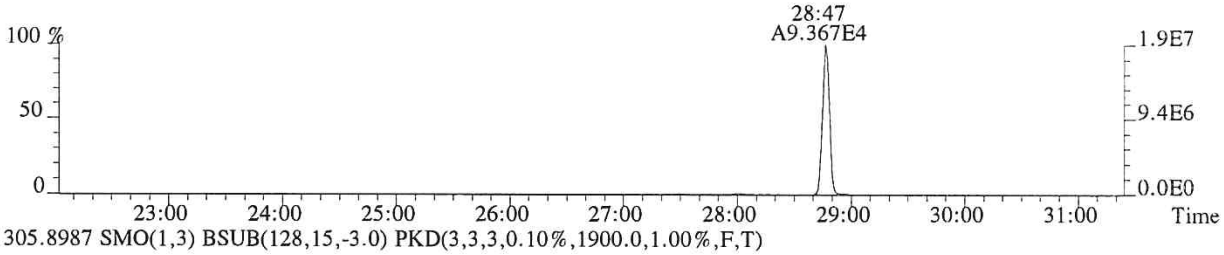
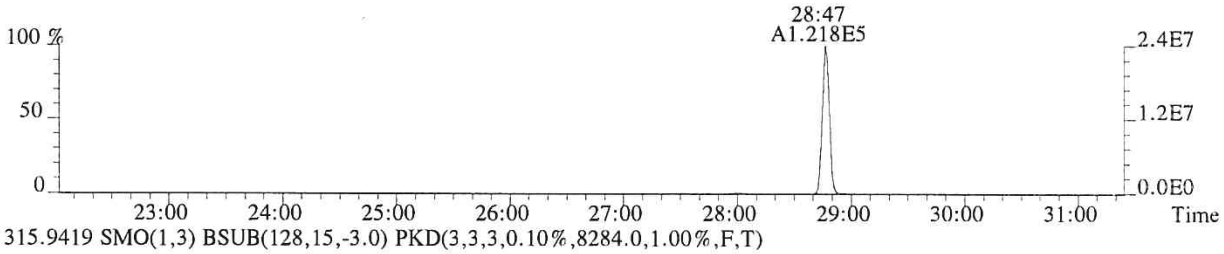
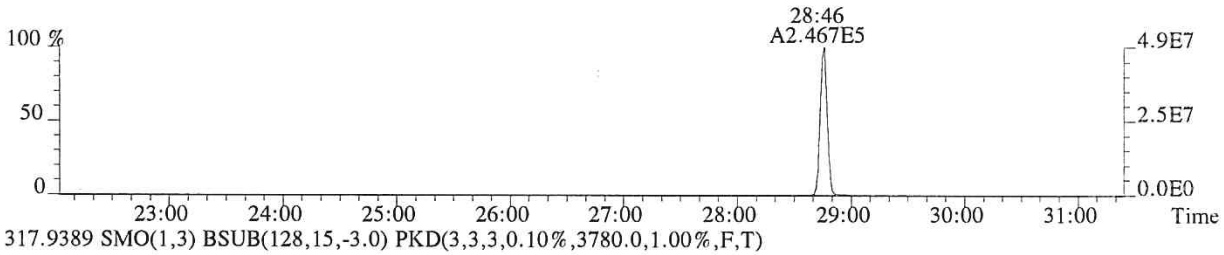
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



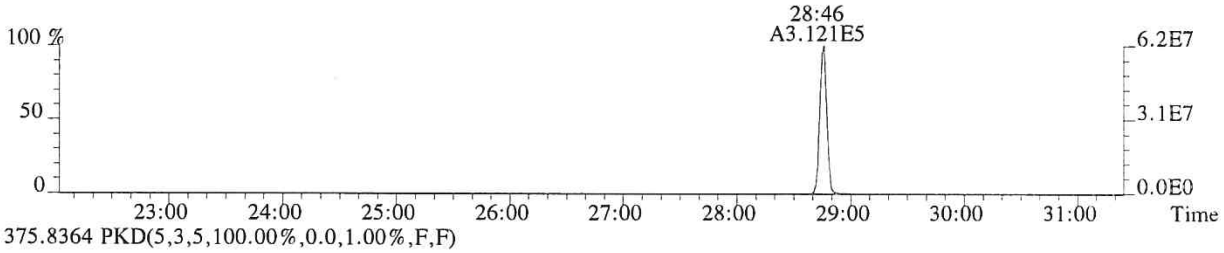
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



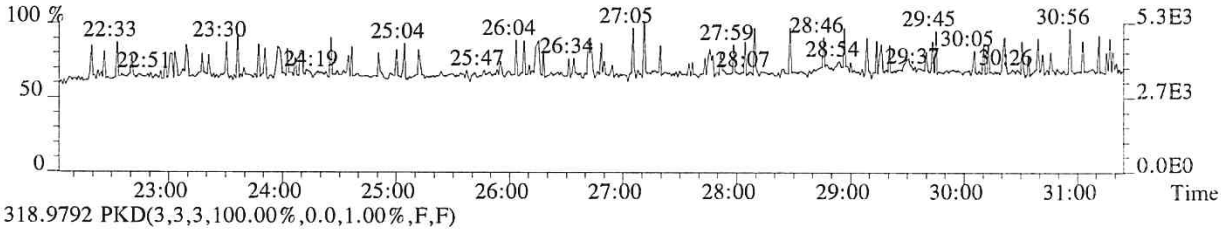
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



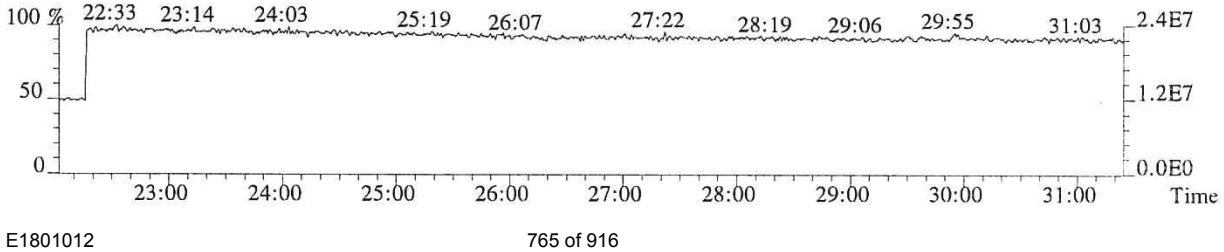
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

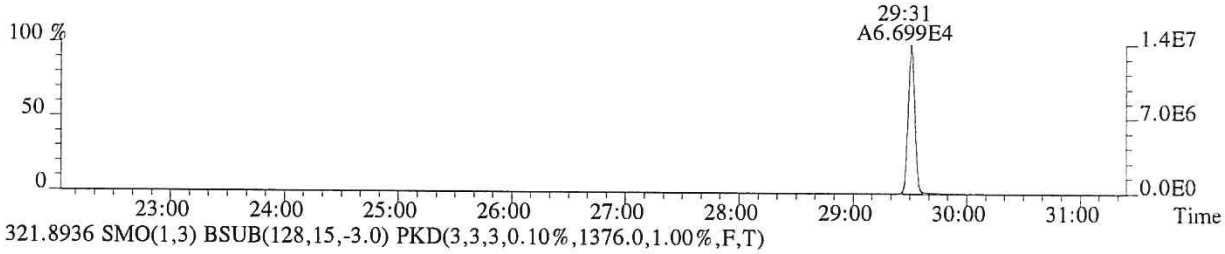


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

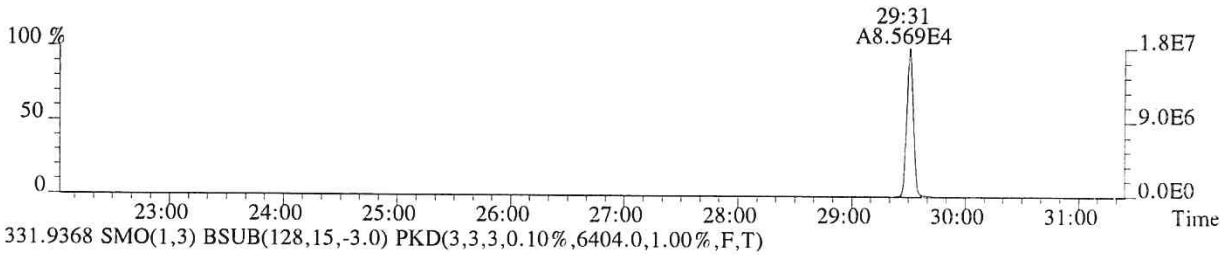


009356

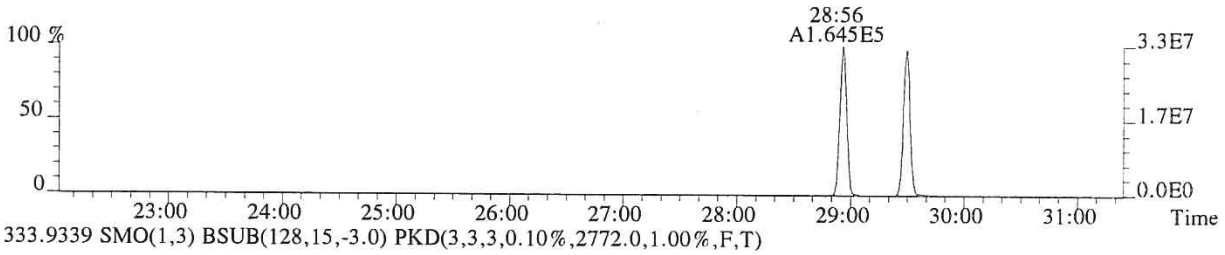
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



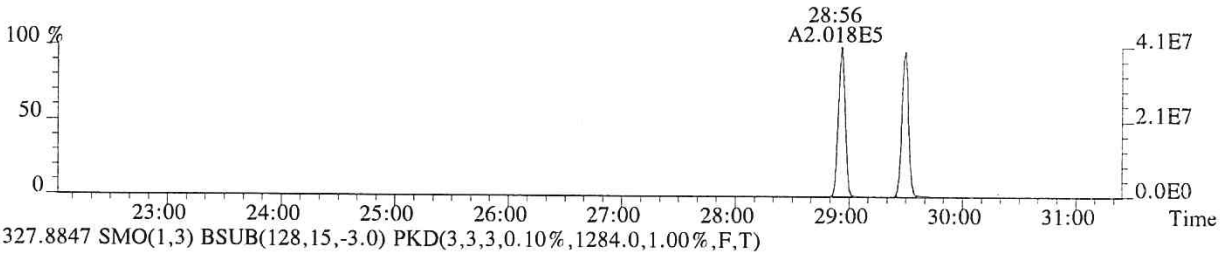
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



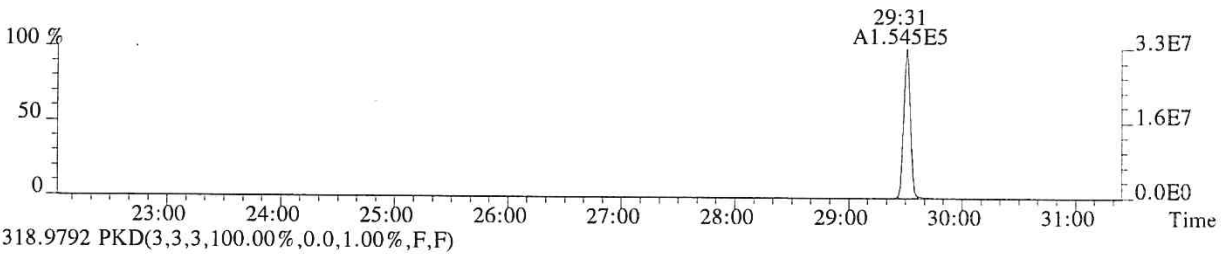
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



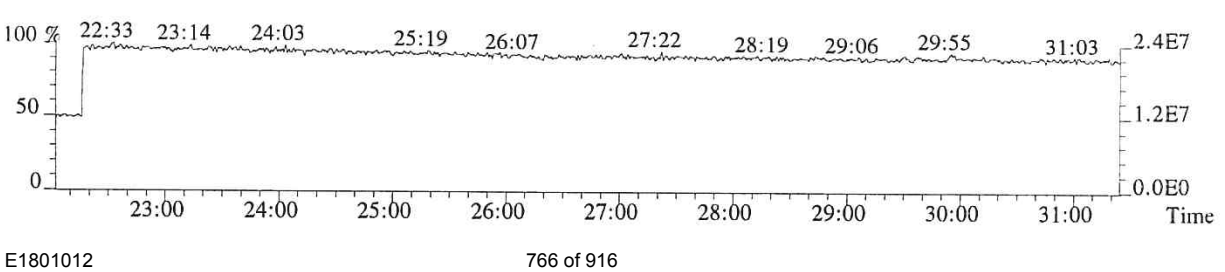
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)

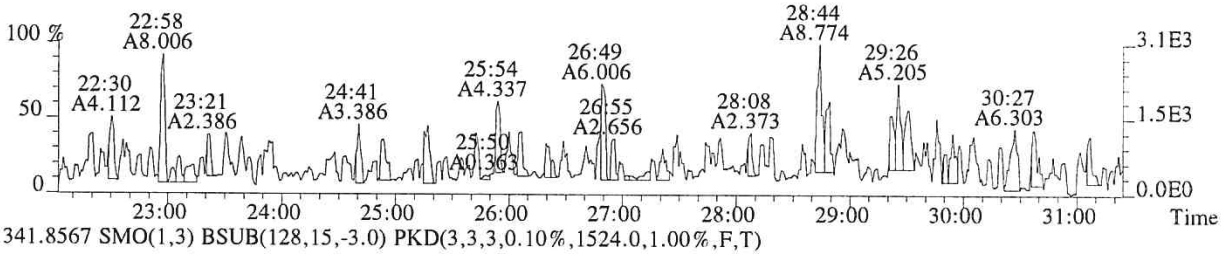


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

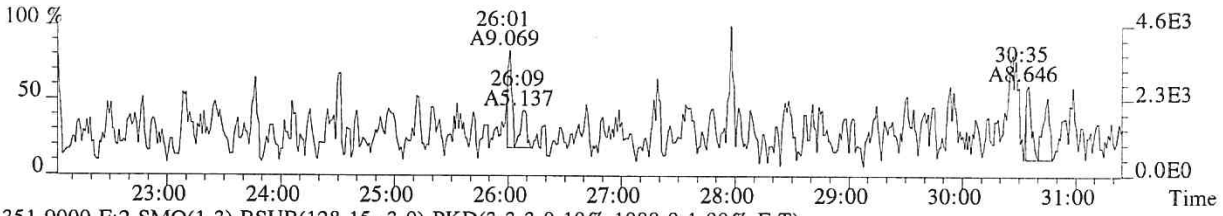


009357

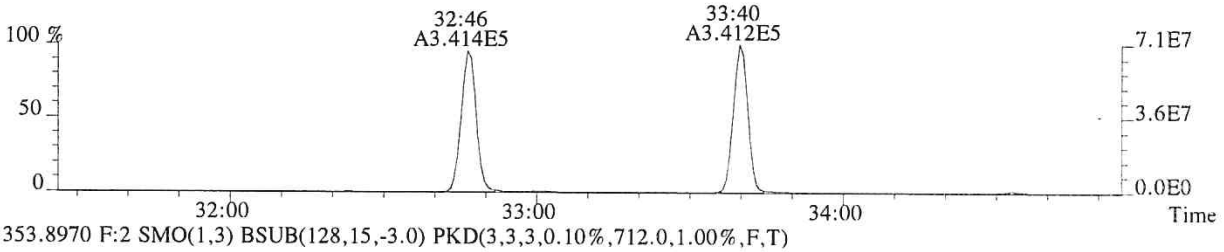
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



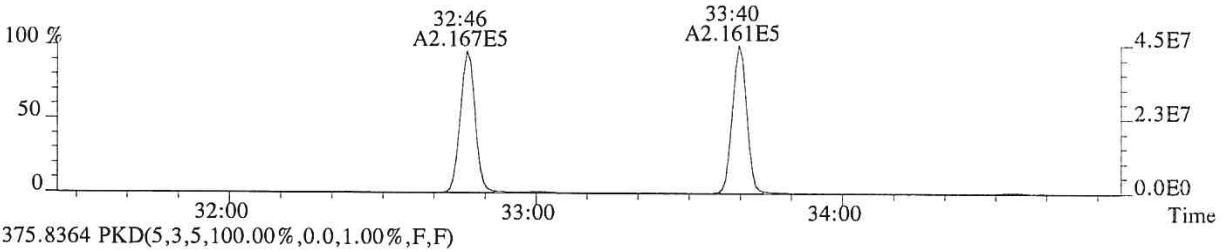
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



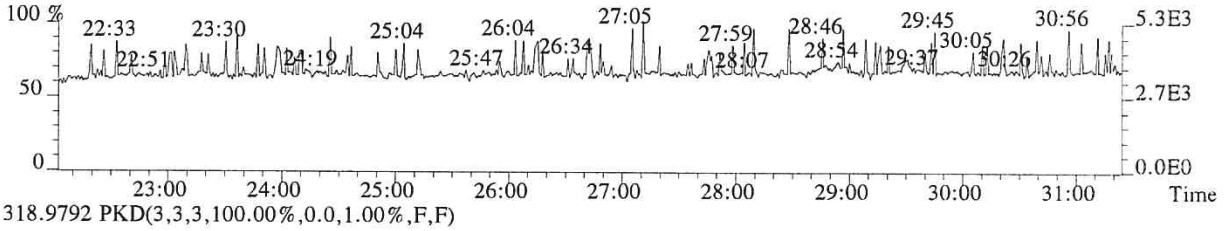
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



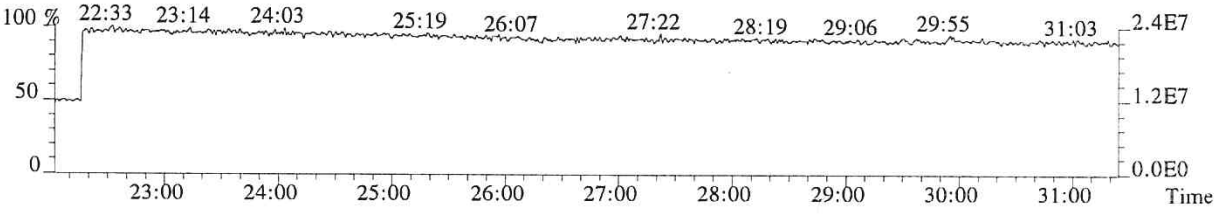
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

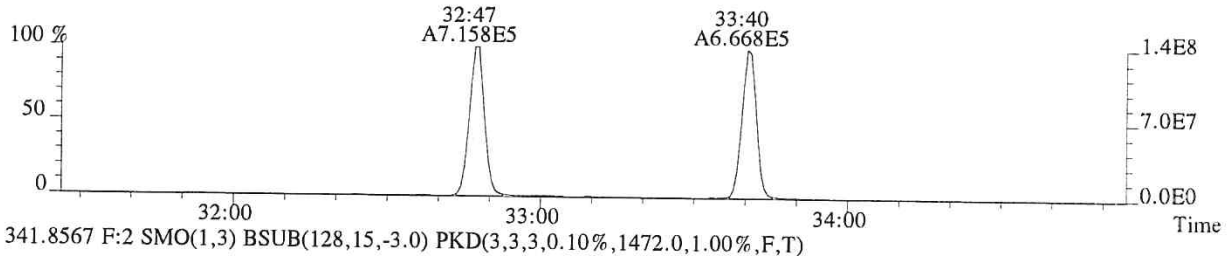


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

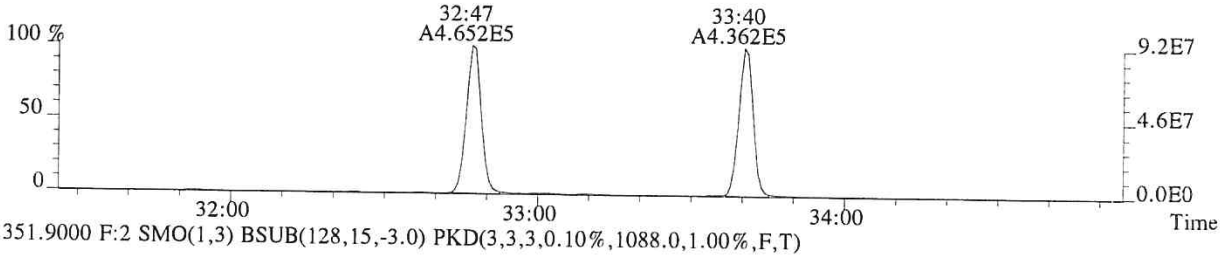


009358

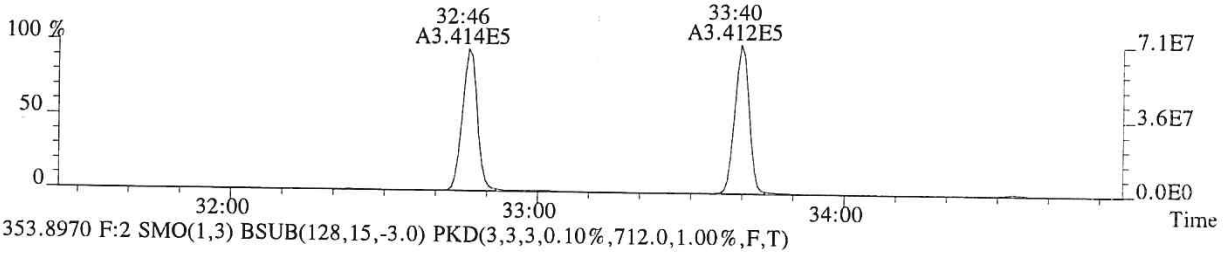
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



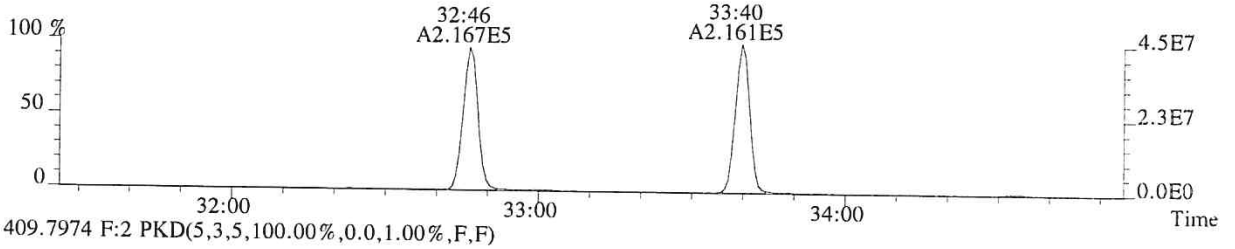
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



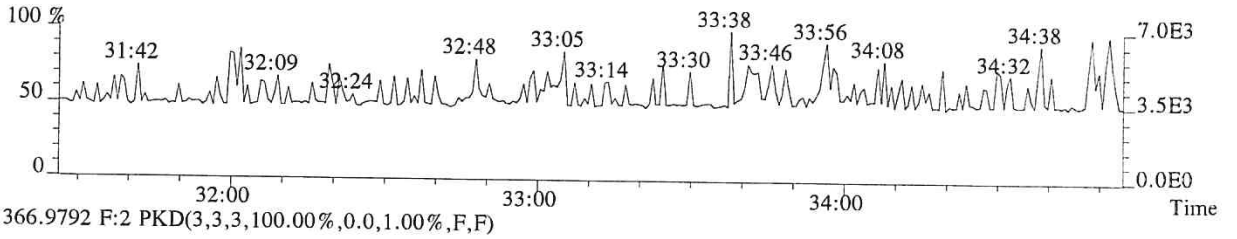
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



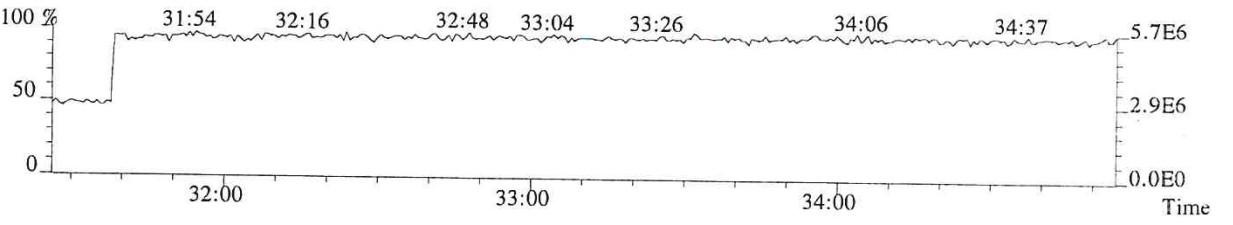
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

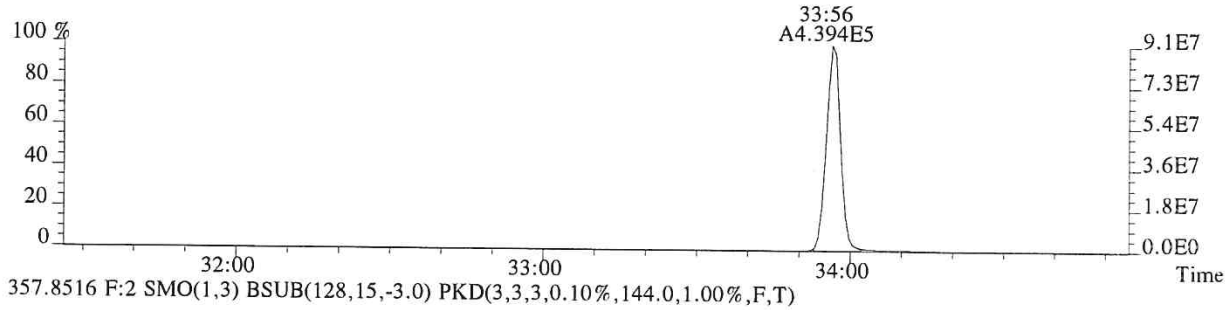


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

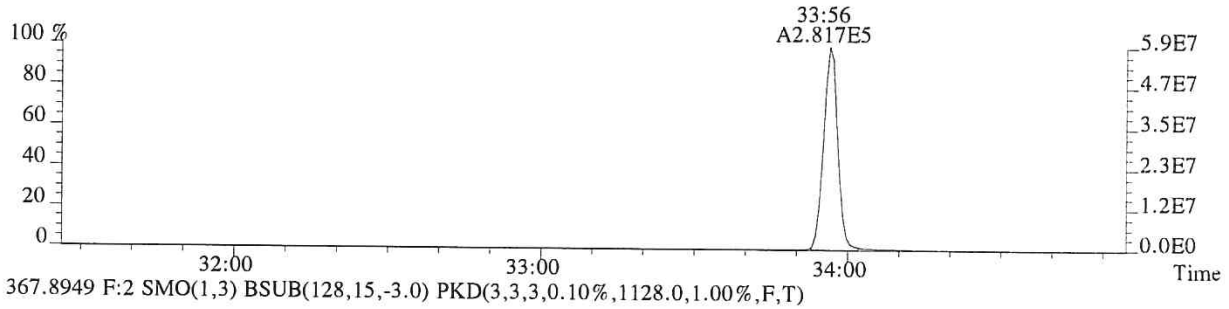


009359

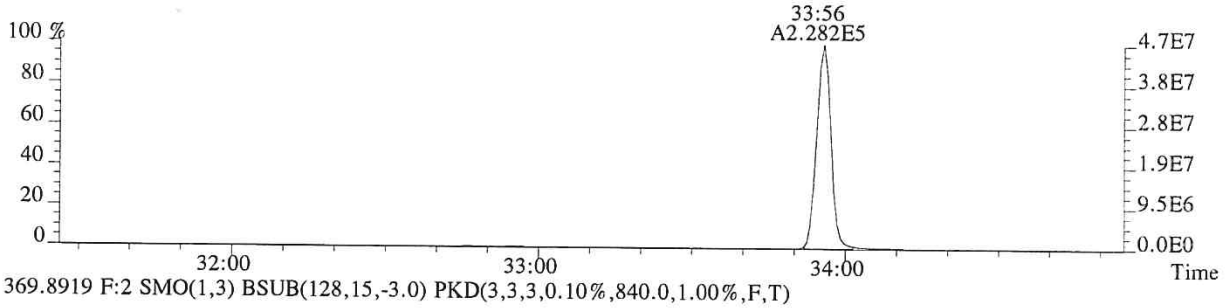
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



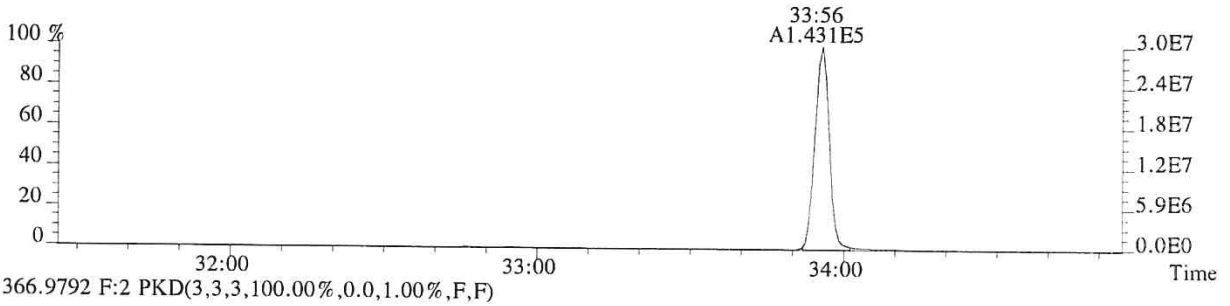
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



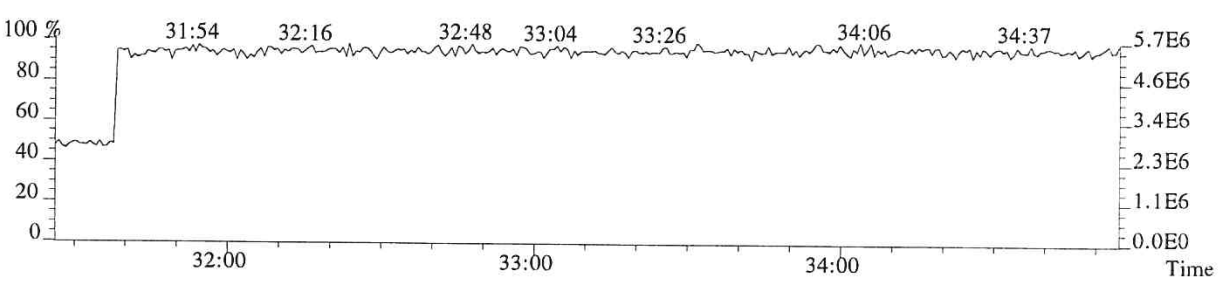
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



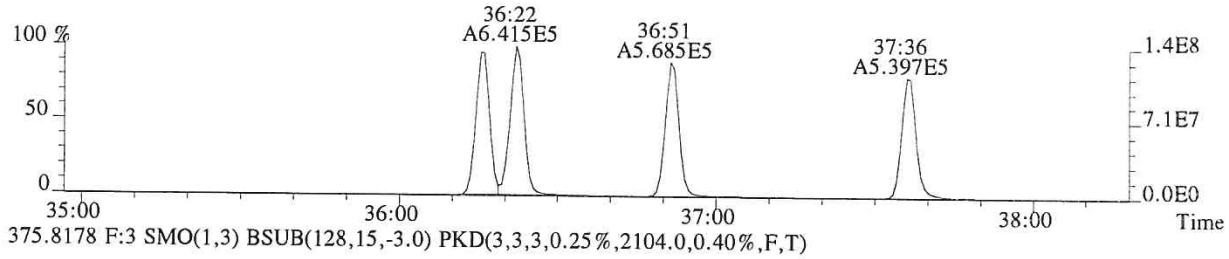
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



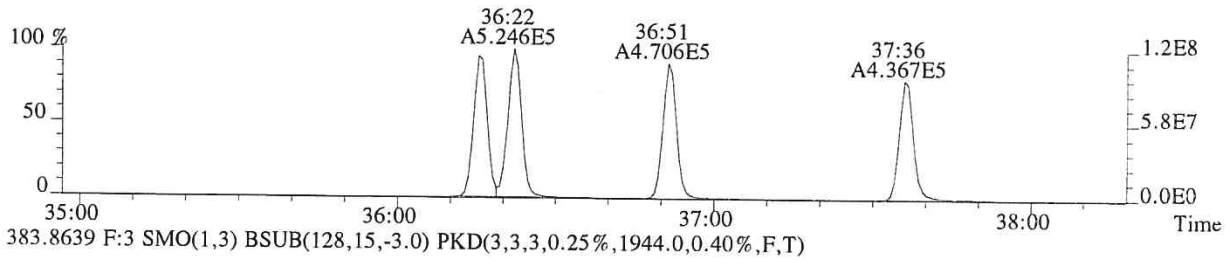
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



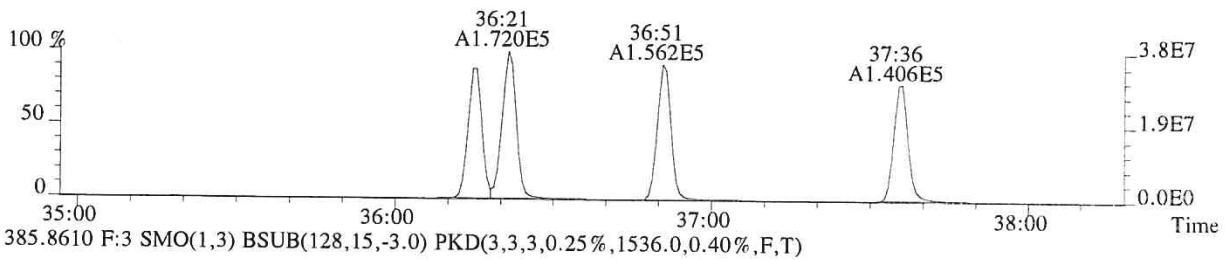
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



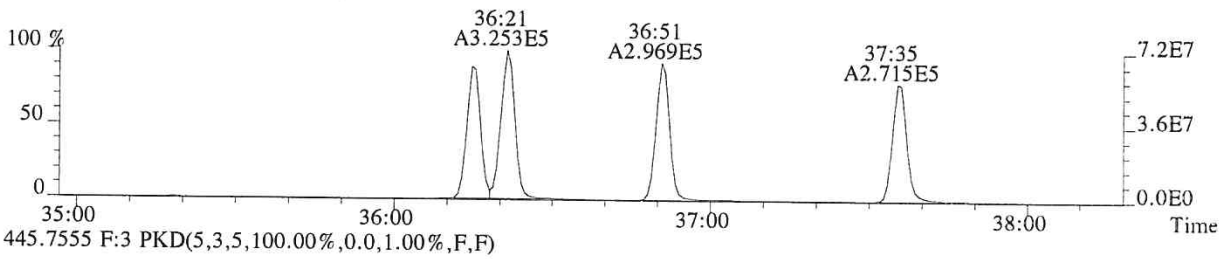
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



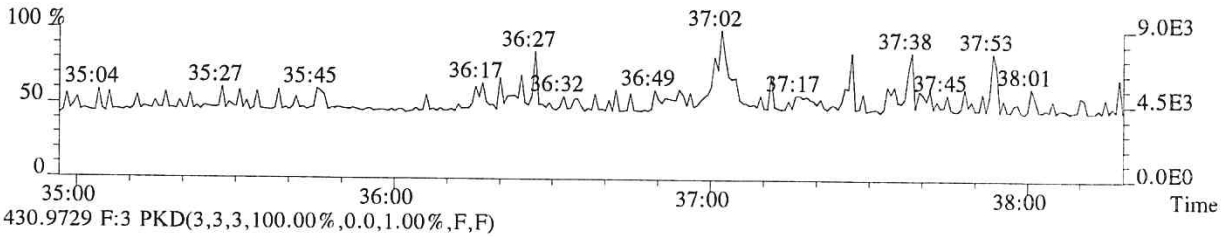
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



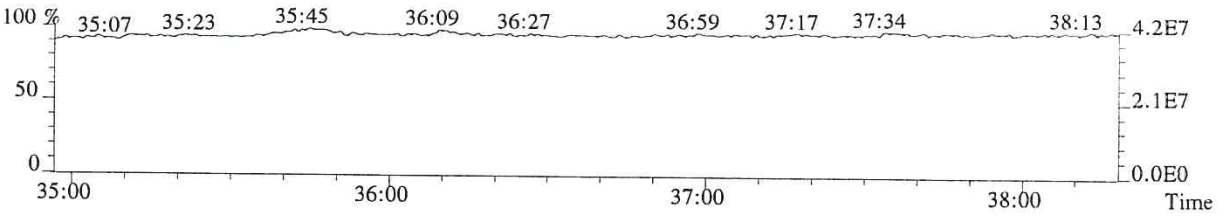
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

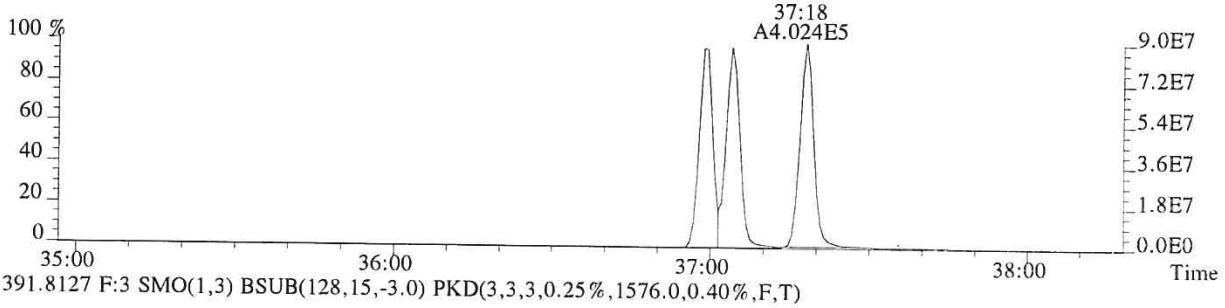


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

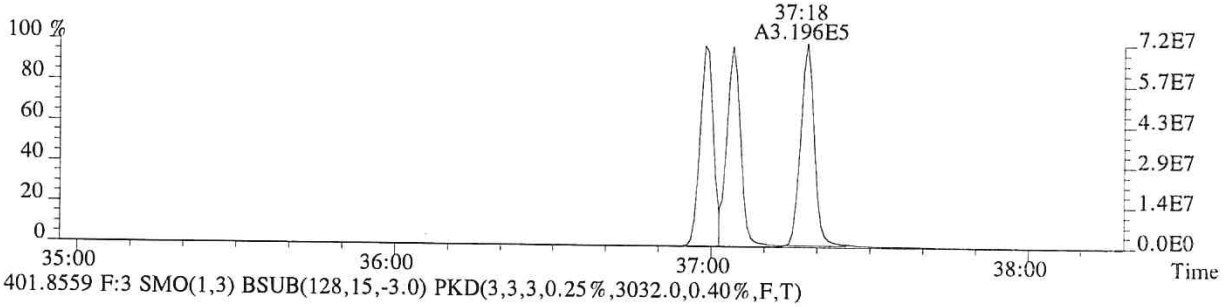


009361

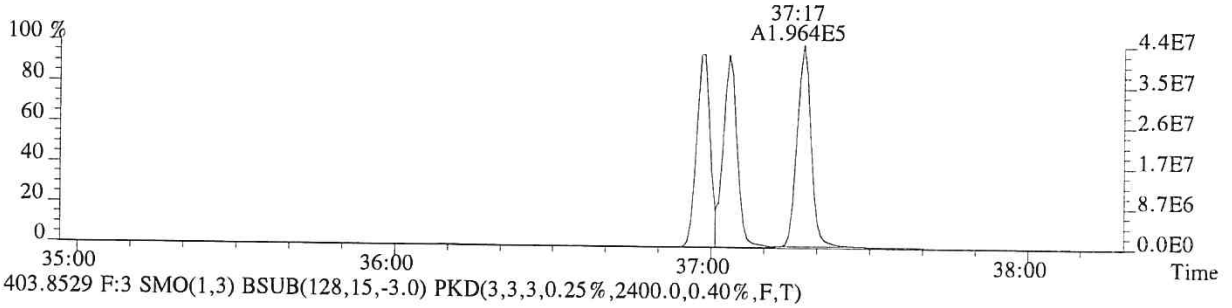
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



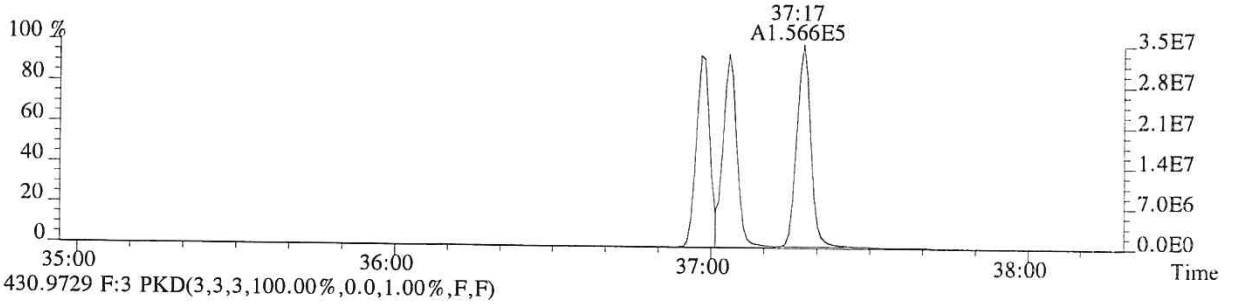
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



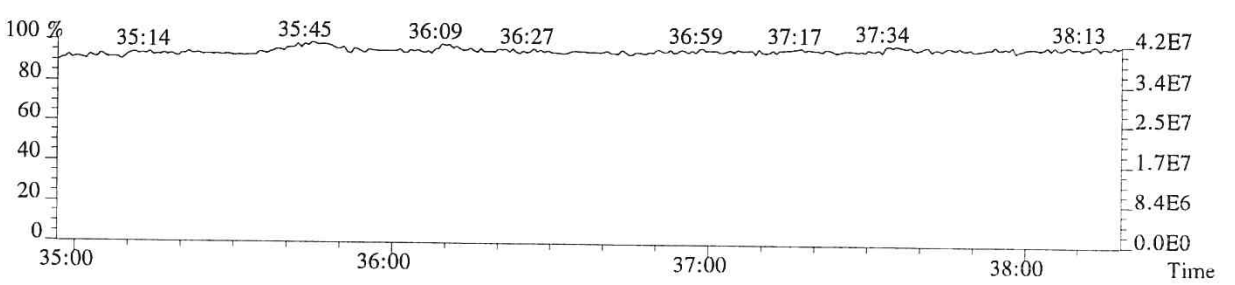
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)

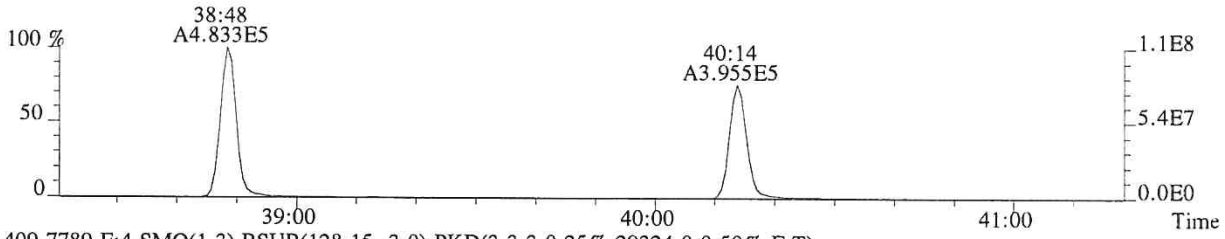


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

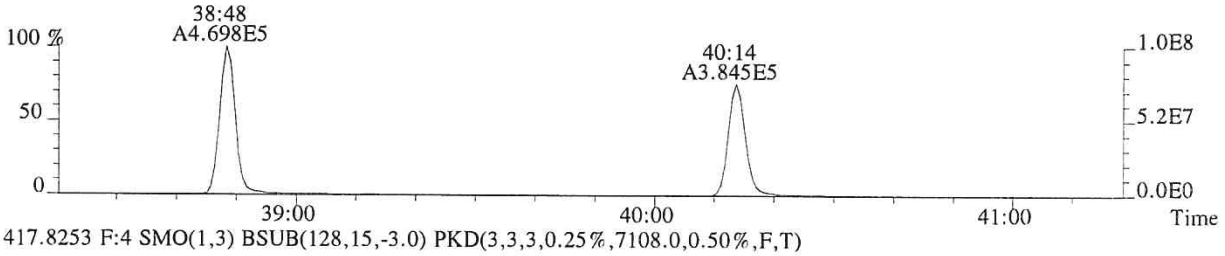


009362

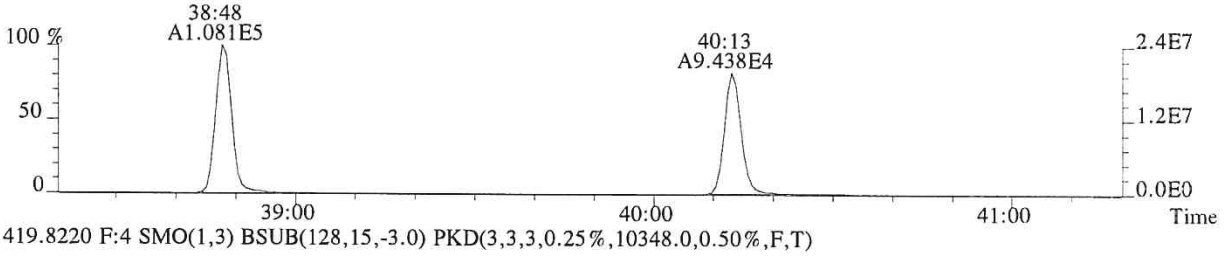
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



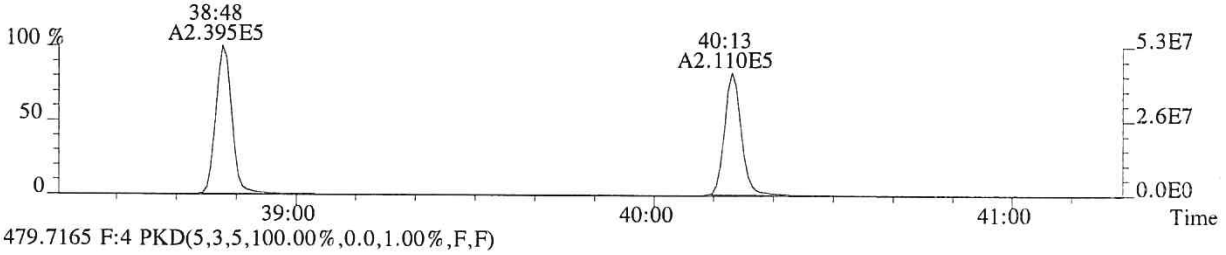
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



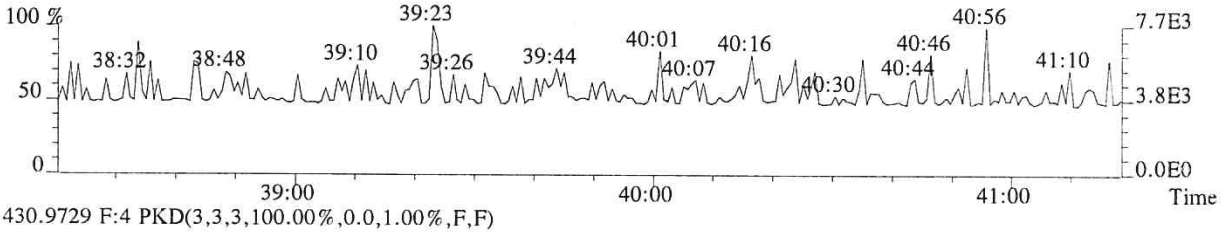
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



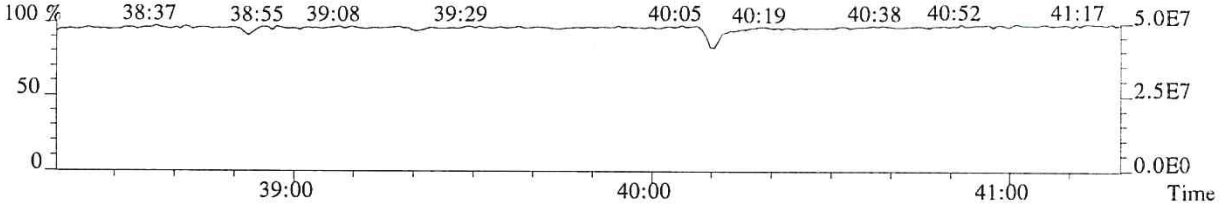
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

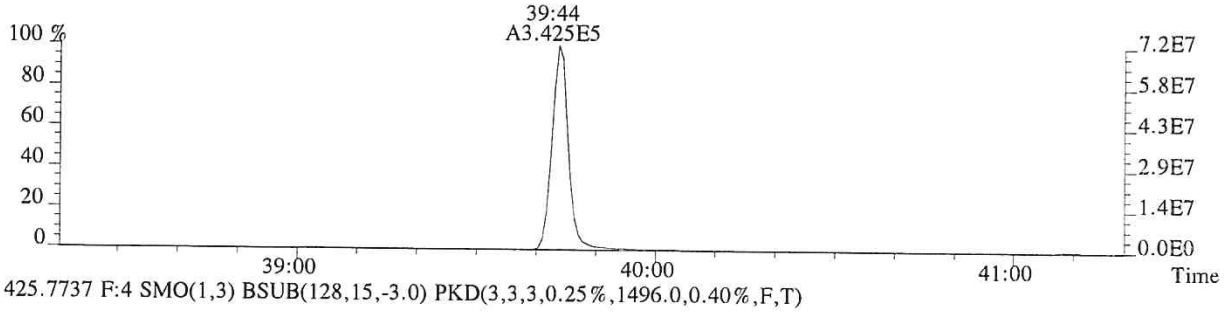


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

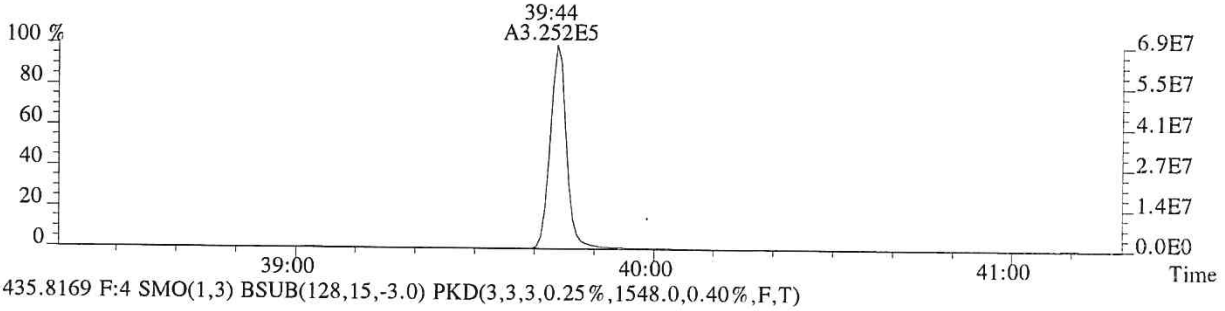


009363

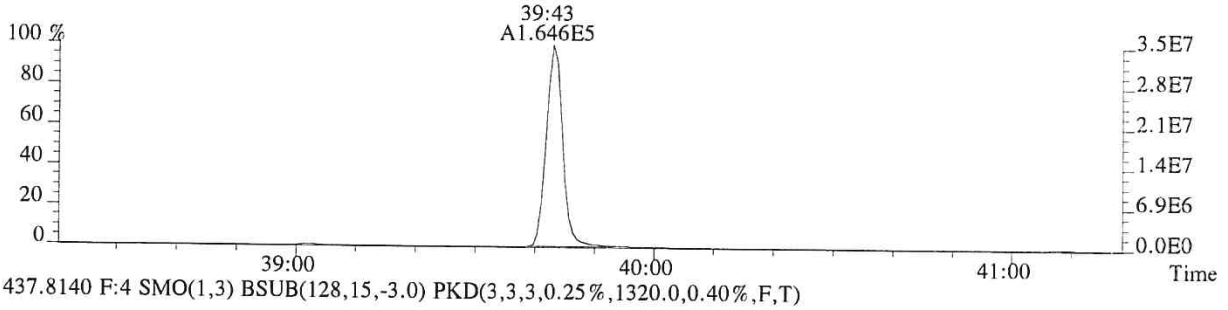
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



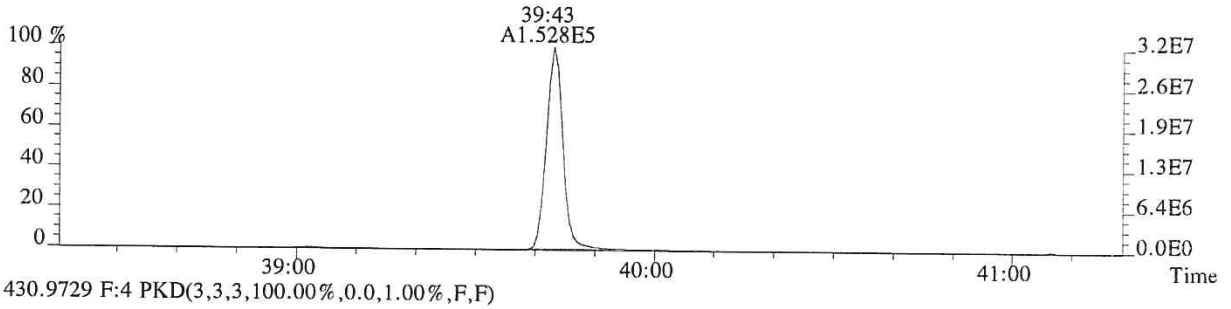
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



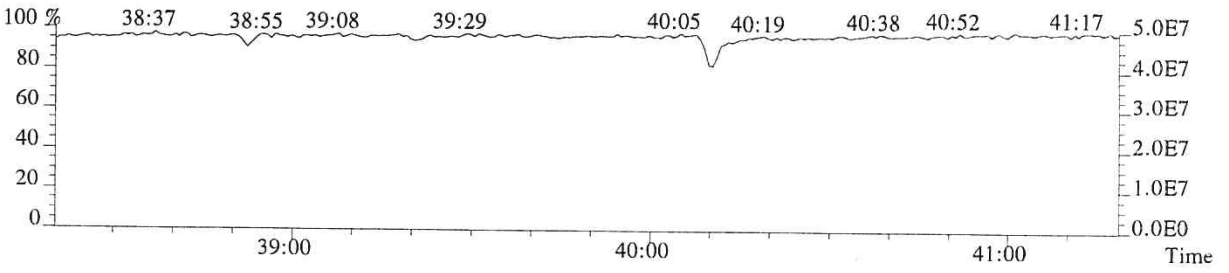
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)

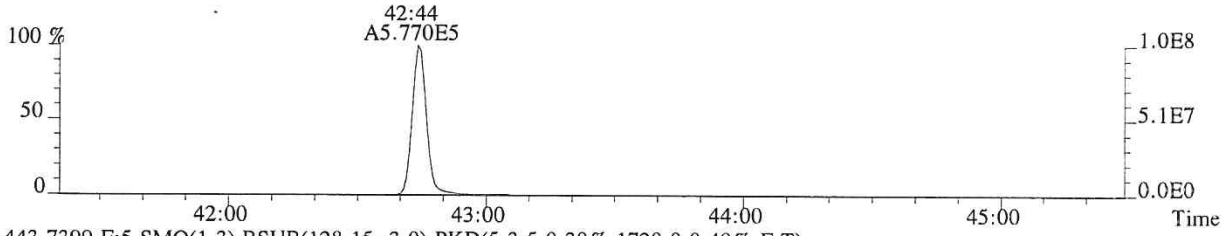


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

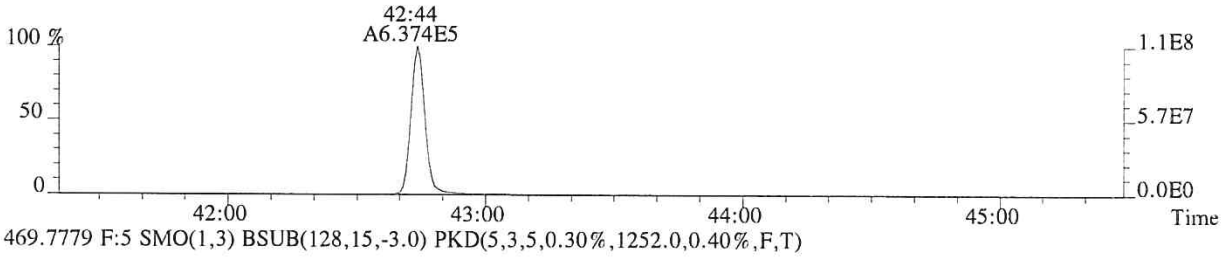


009364

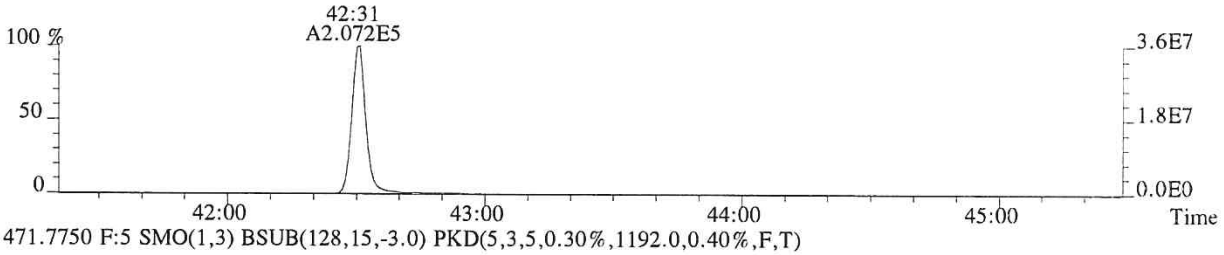
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



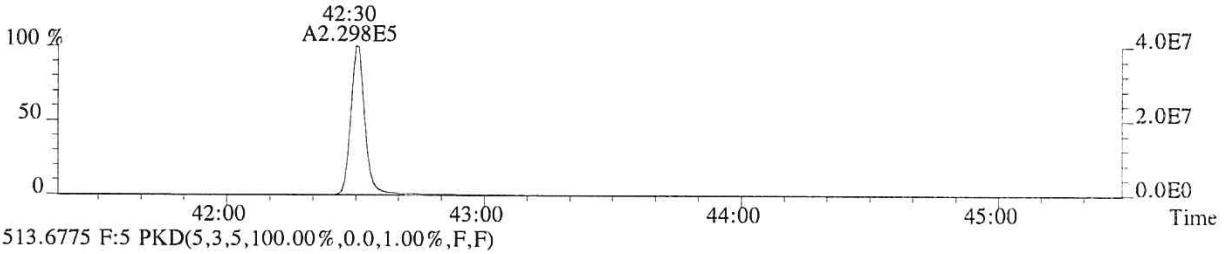
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



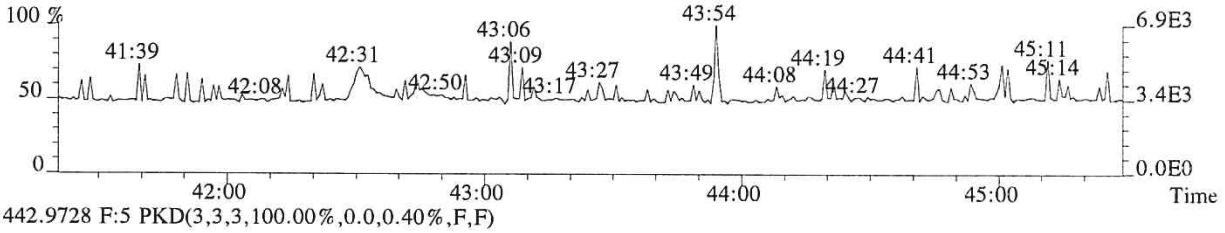
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



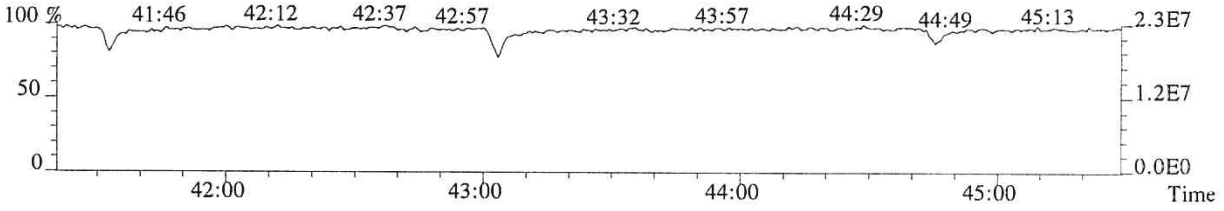
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

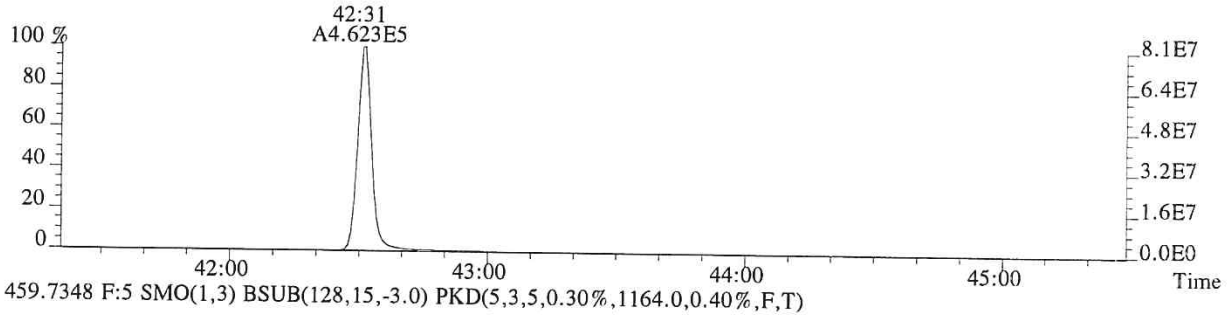


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

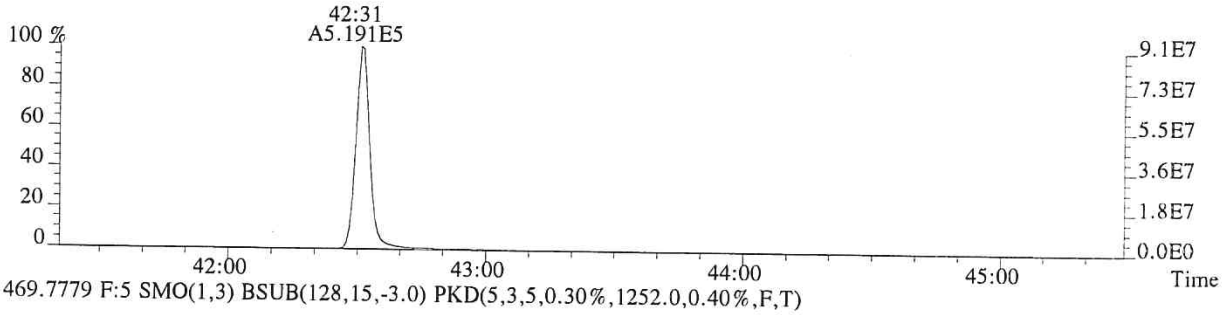


009365

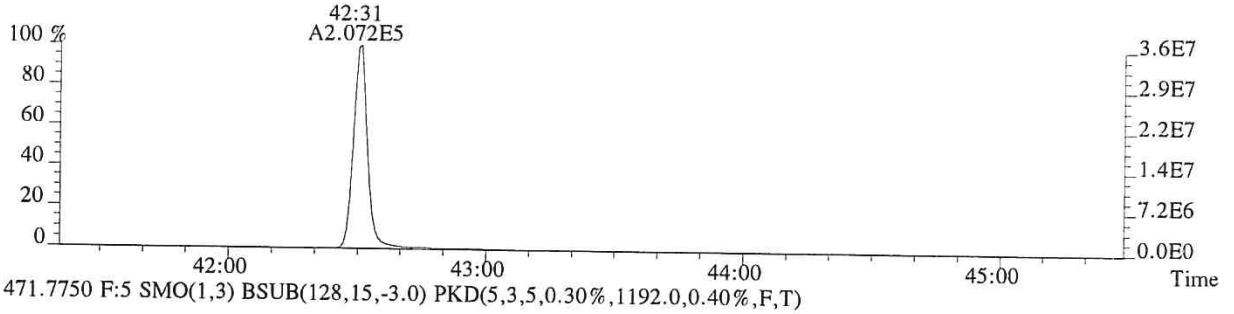
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



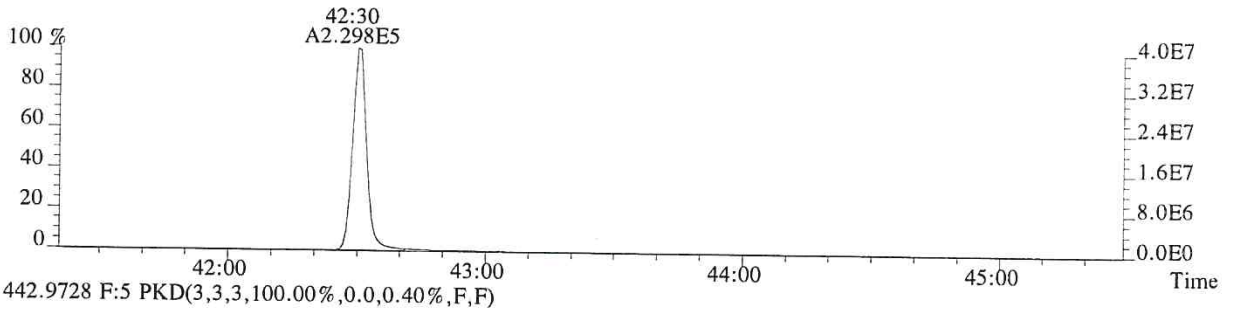
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



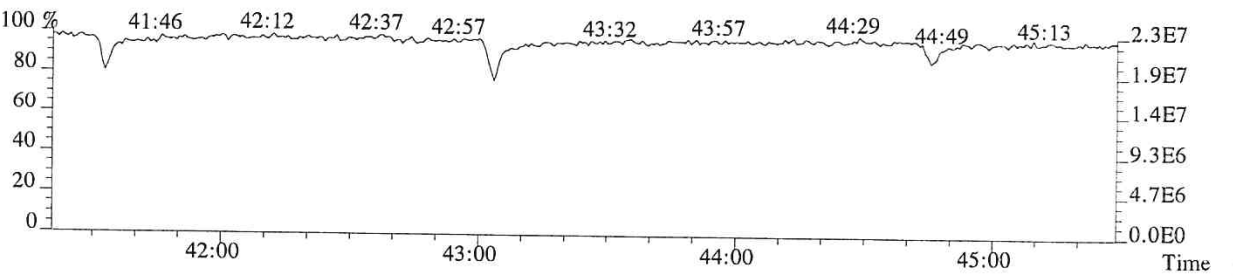
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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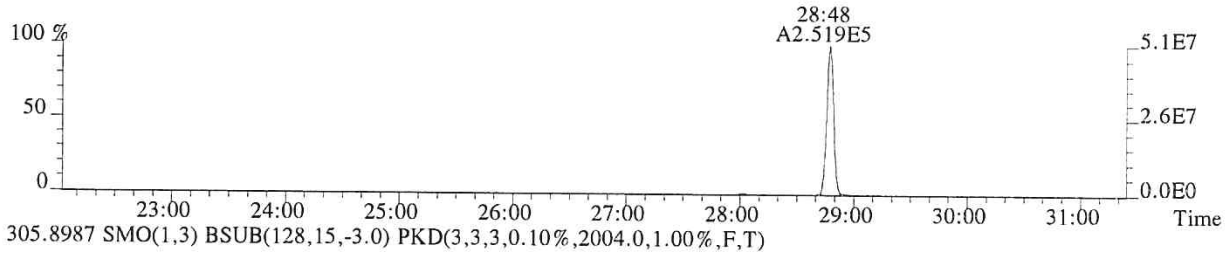
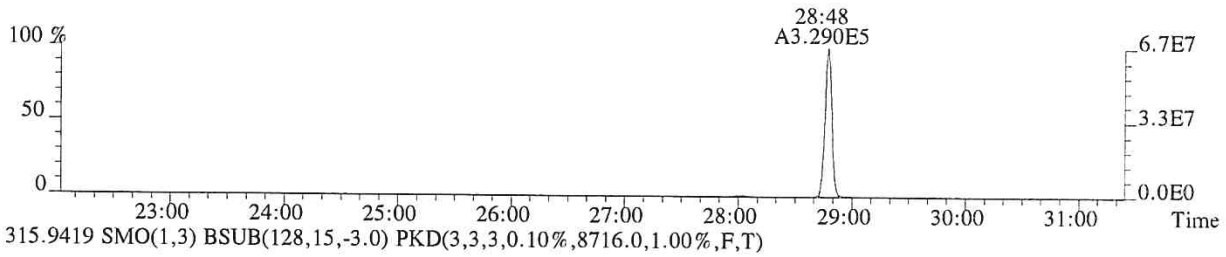
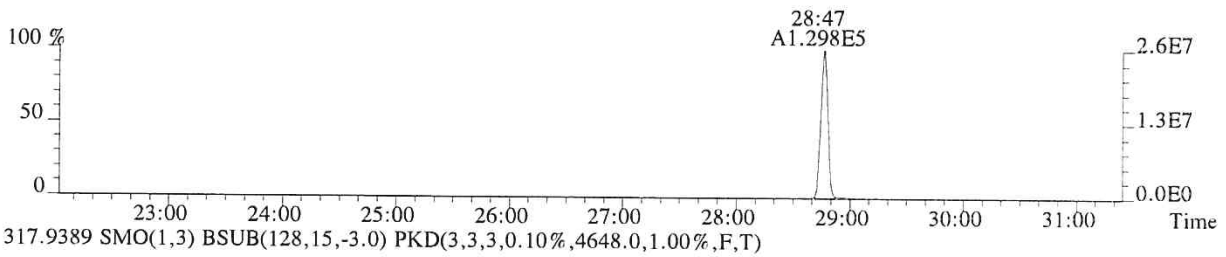
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



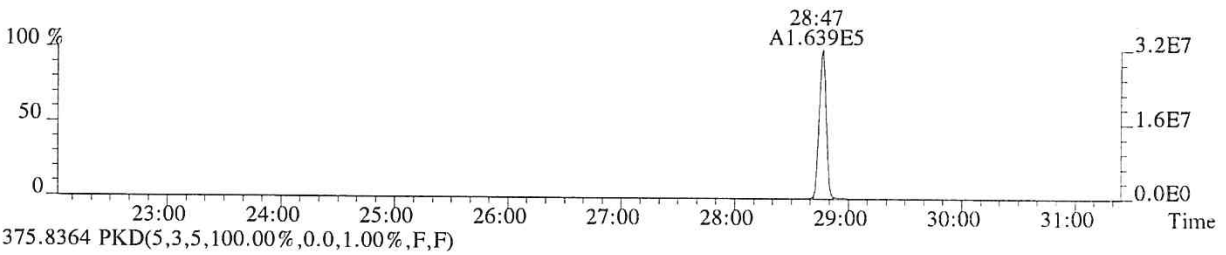
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



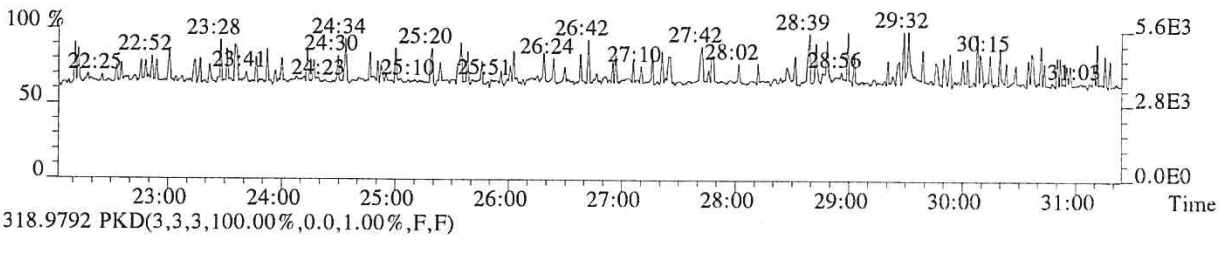
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



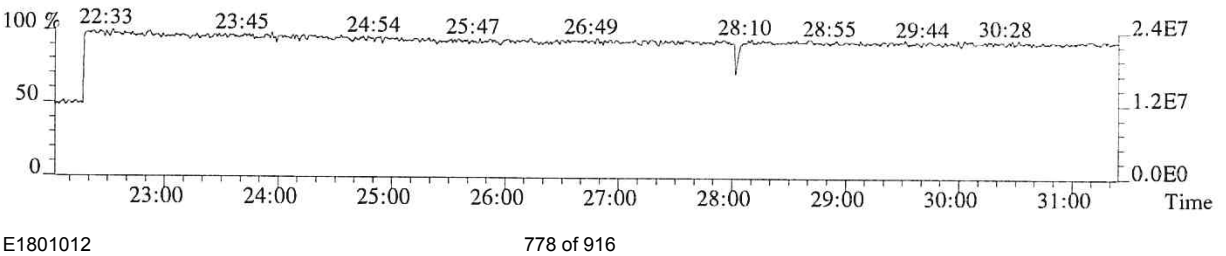
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

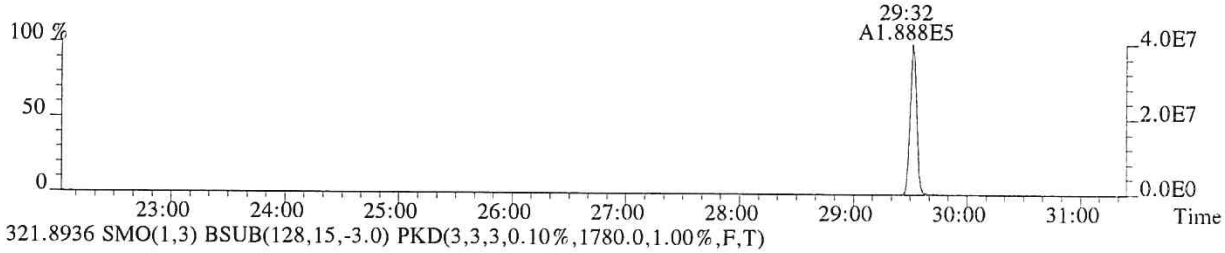


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

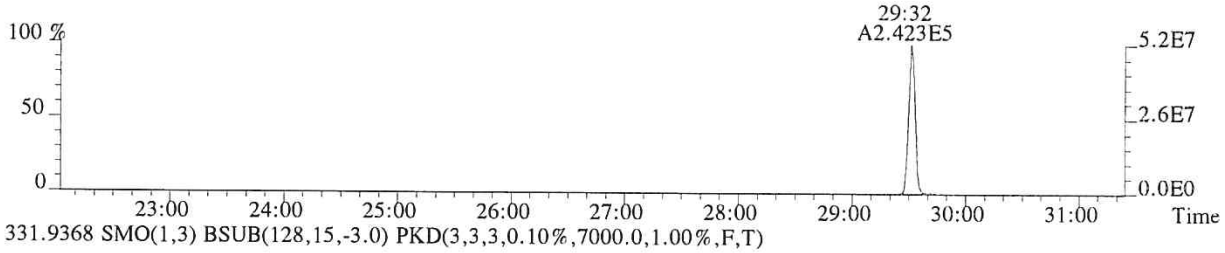


009369

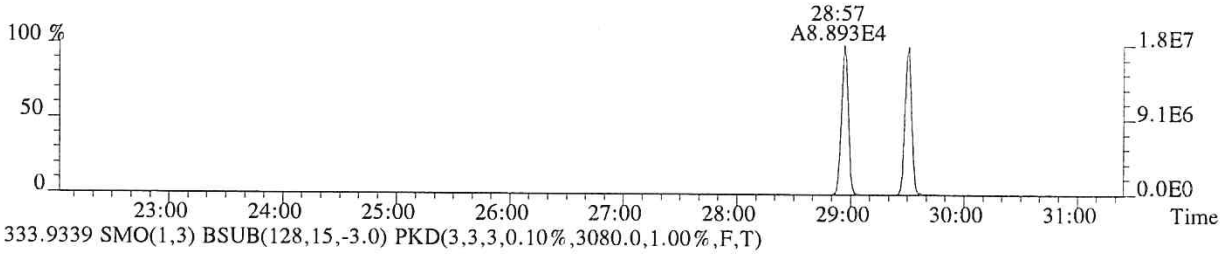
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



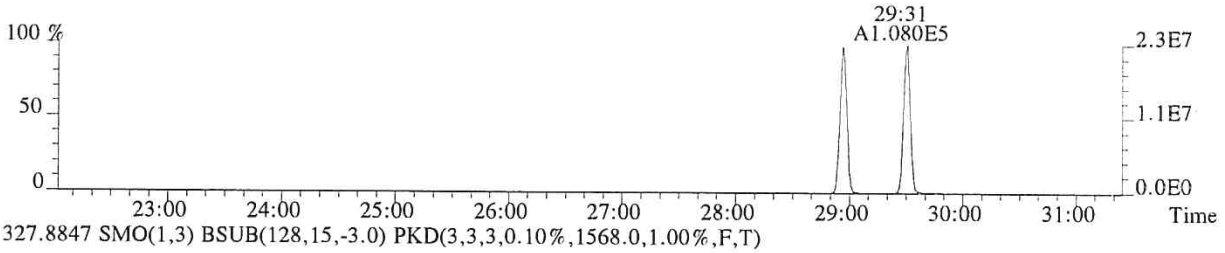
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



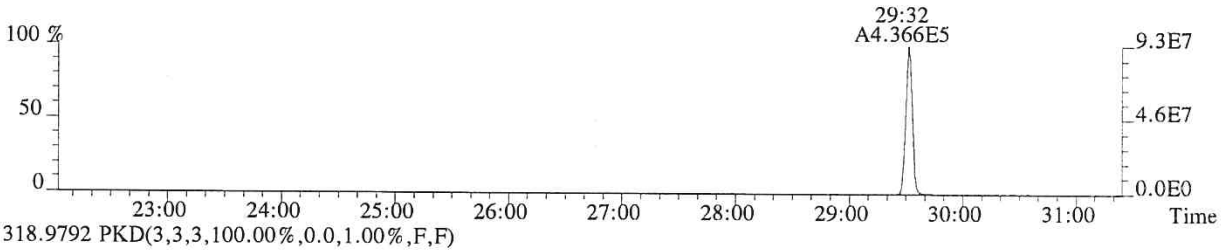
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



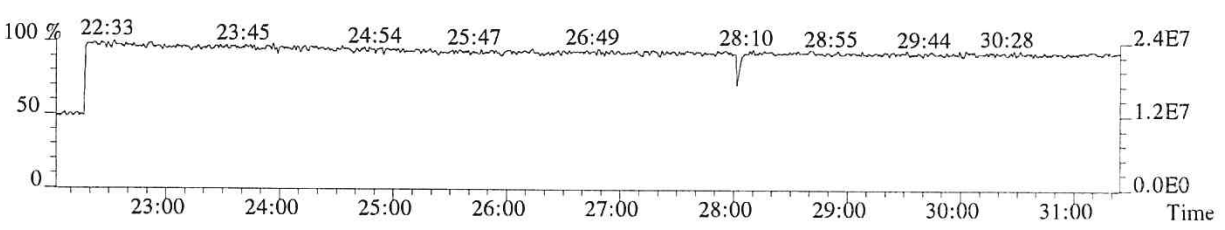
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)

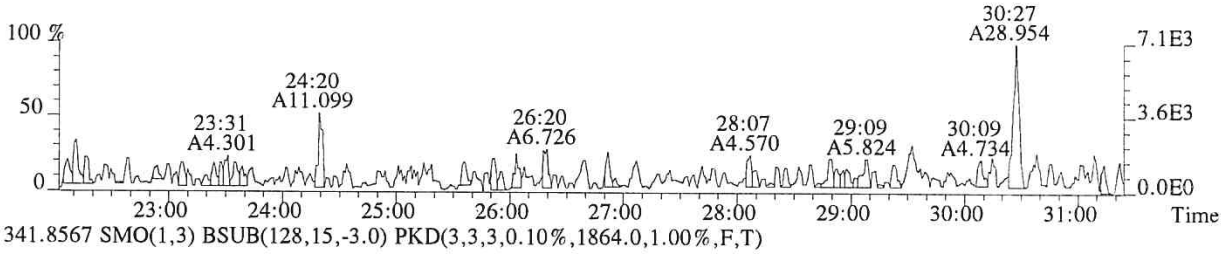


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

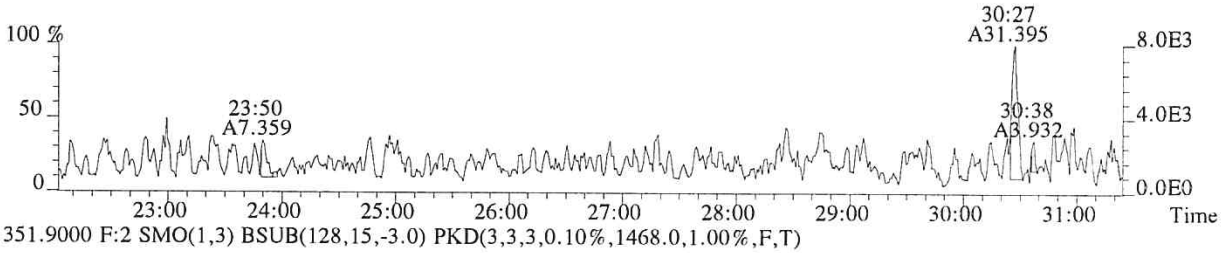


009370

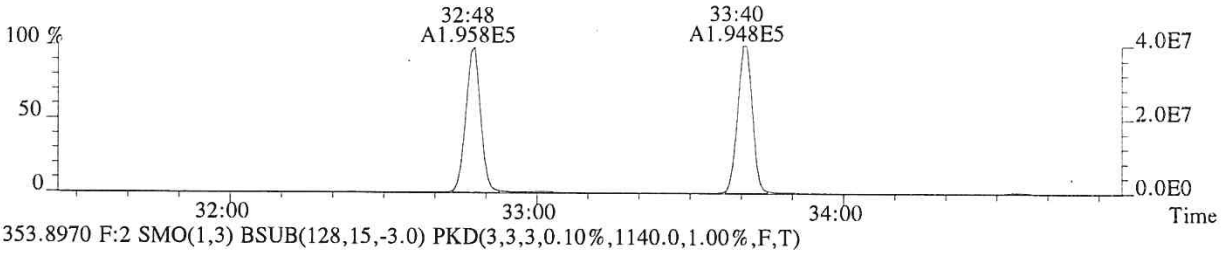
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



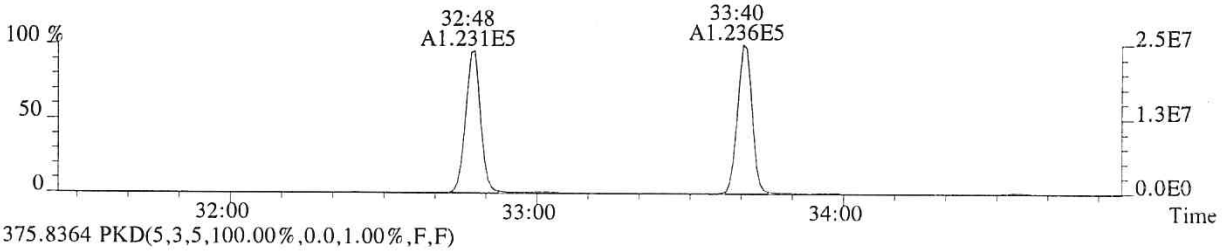
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



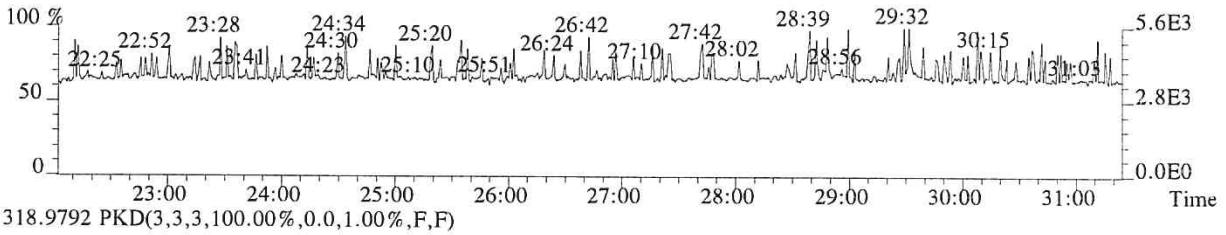
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



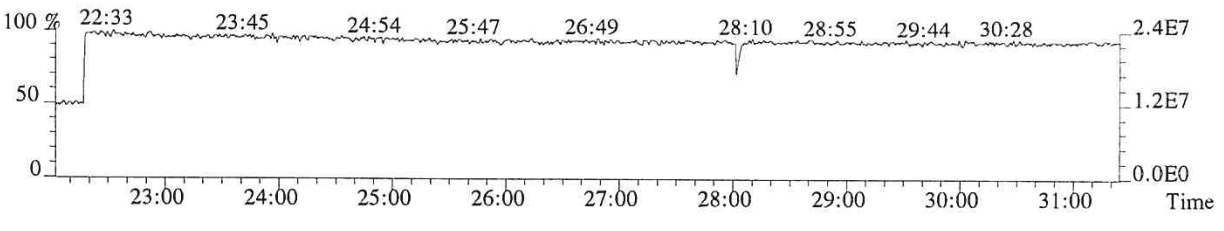
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

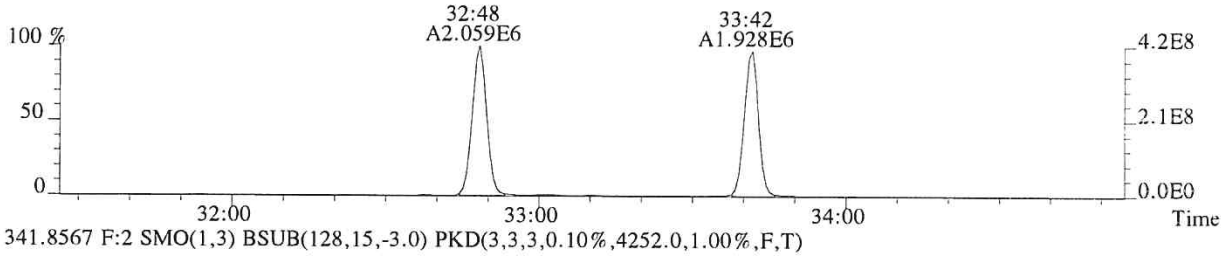


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

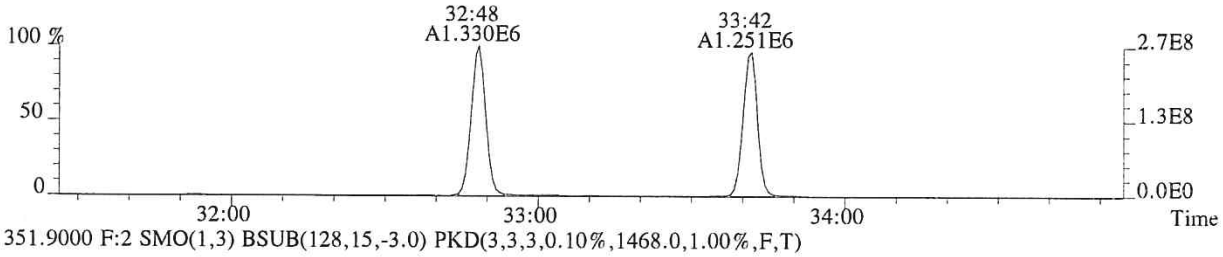


009371

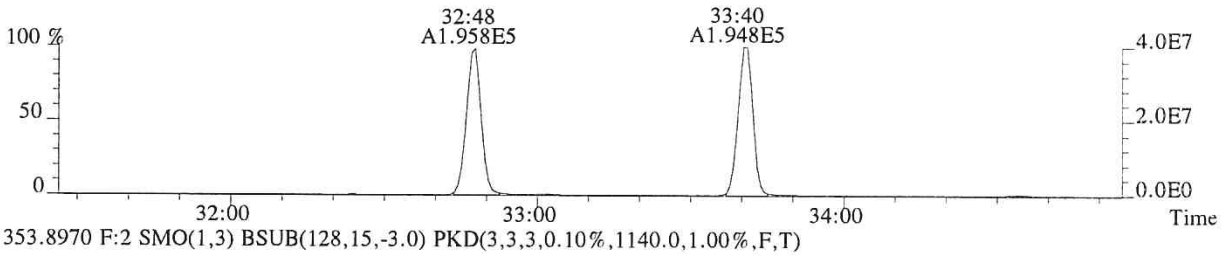
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



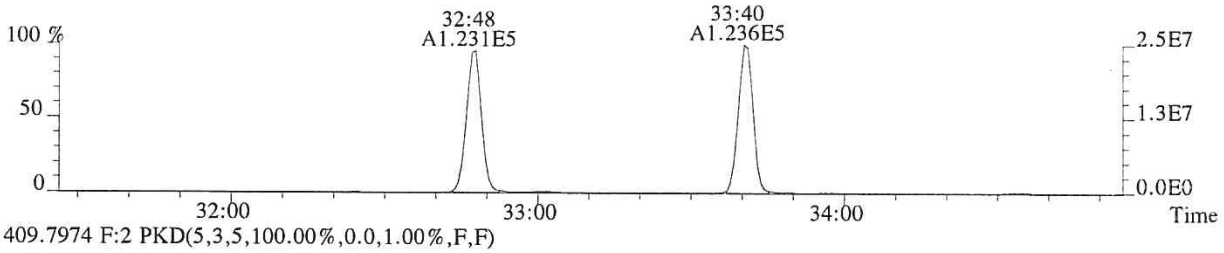
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



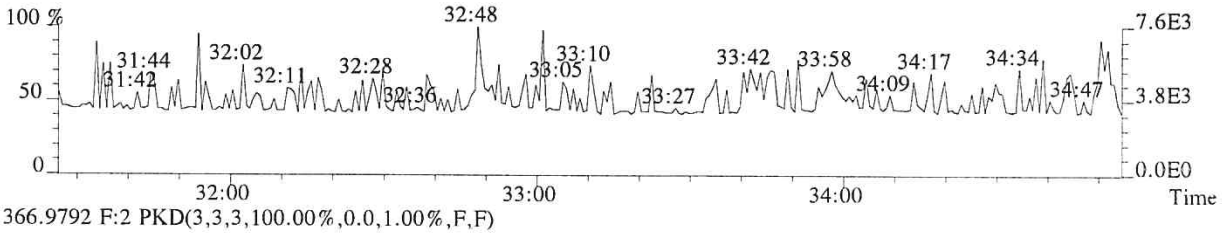
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



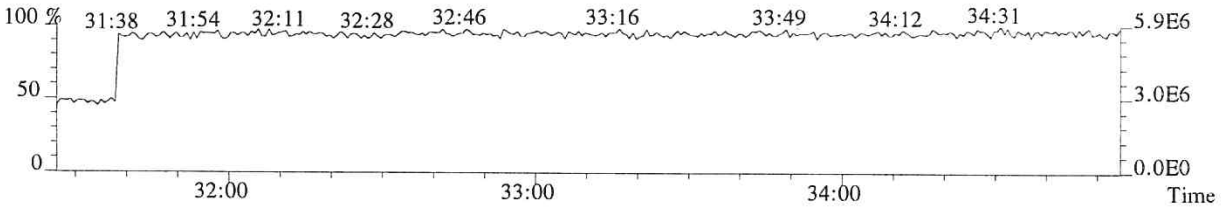
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

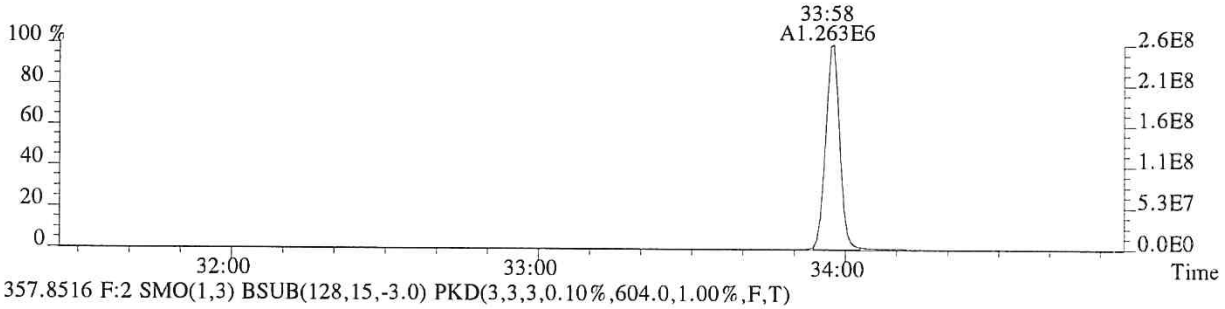


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

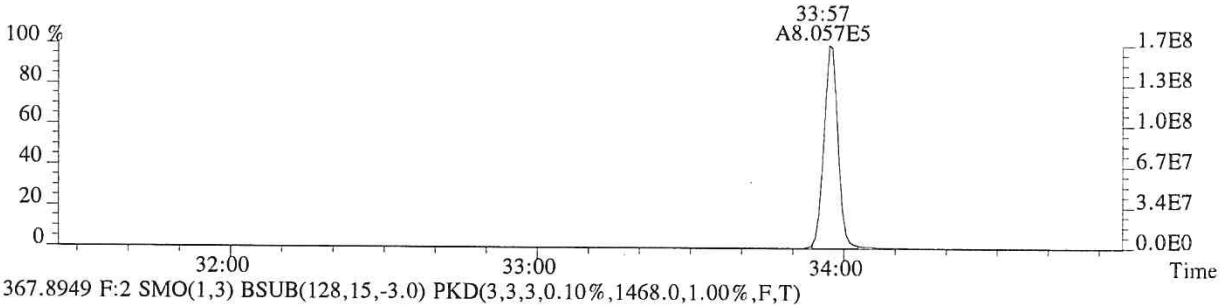


009372

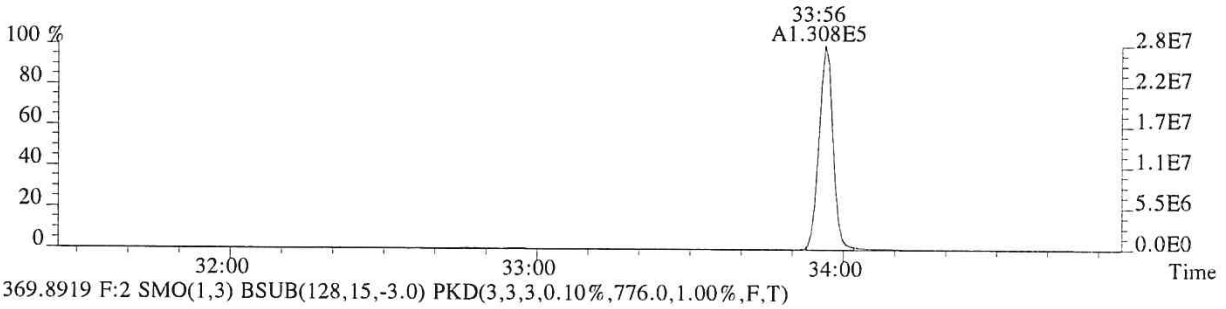
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



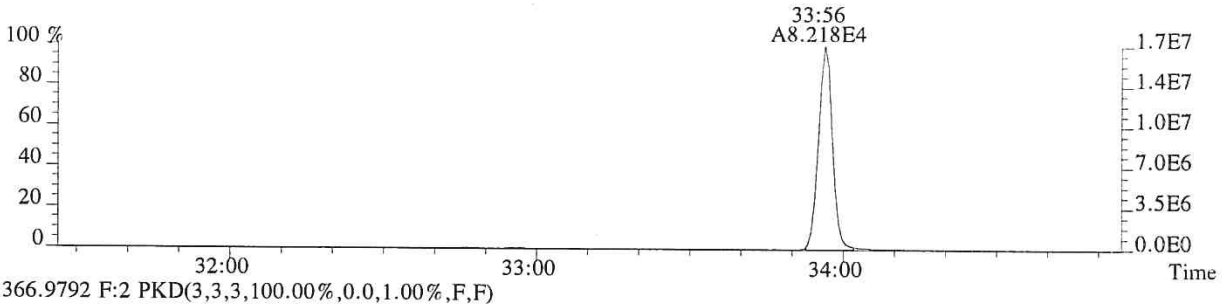
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



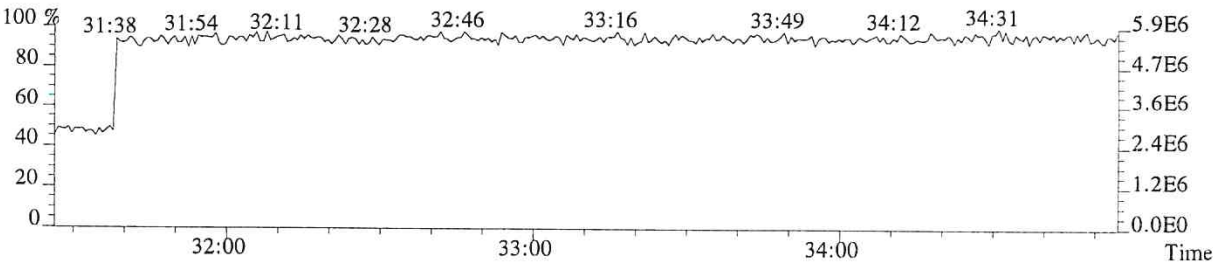
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



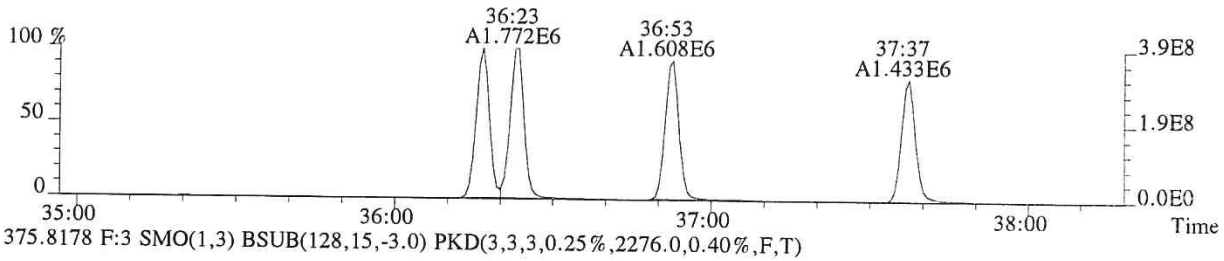
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



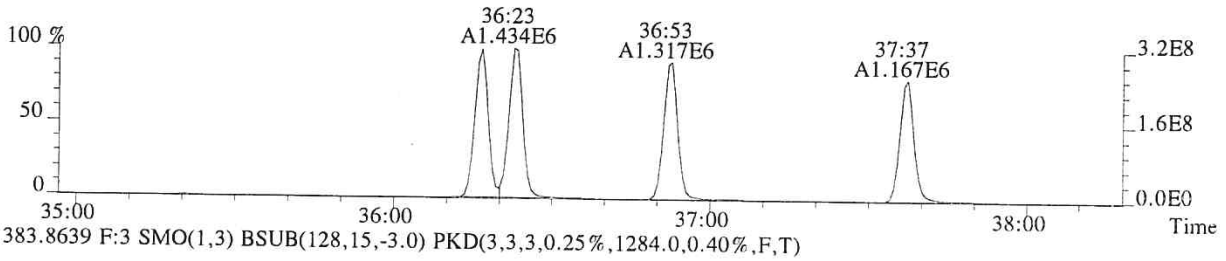
009373

File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657

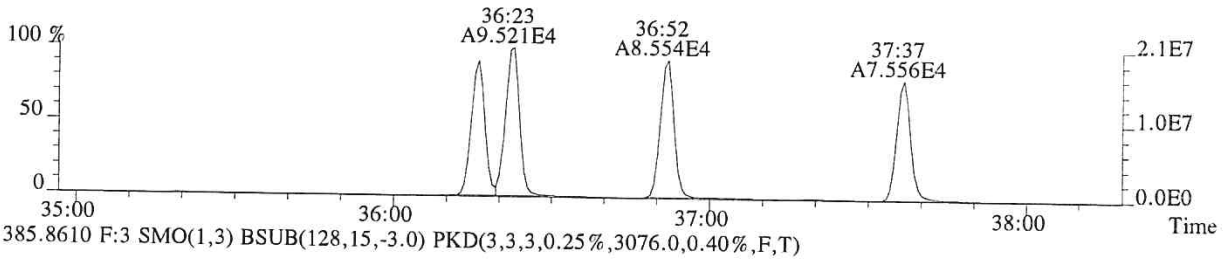
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



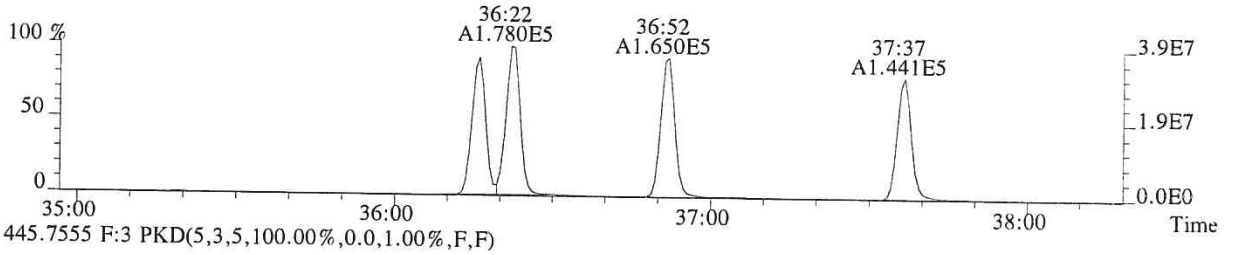
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



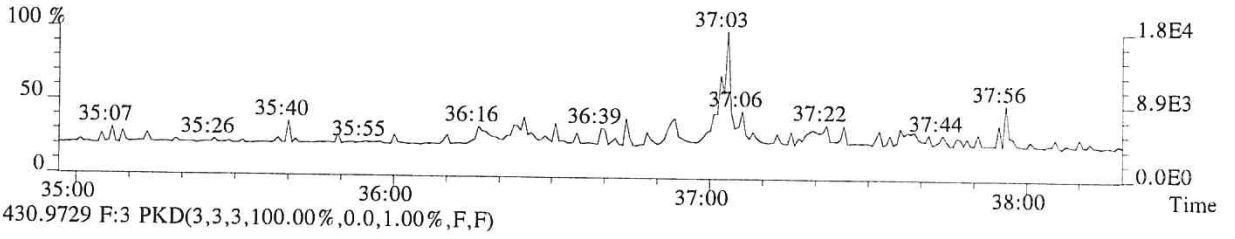
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



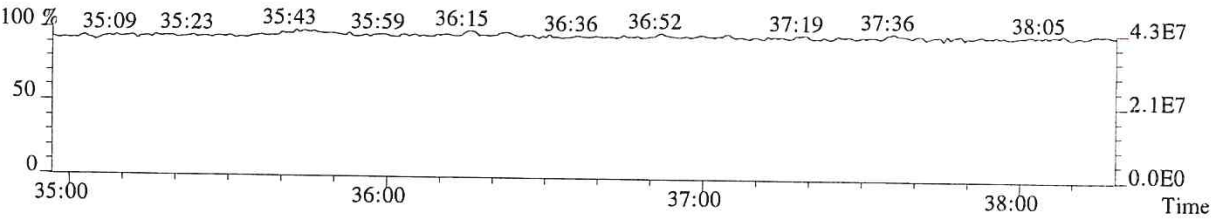
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



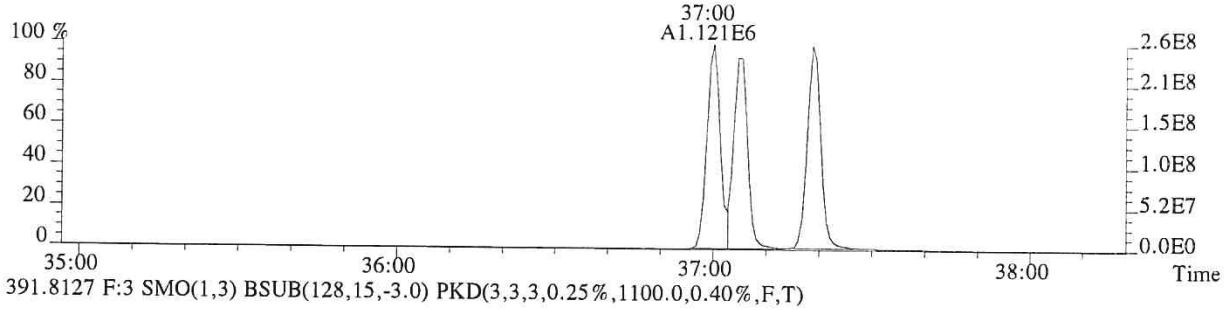
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



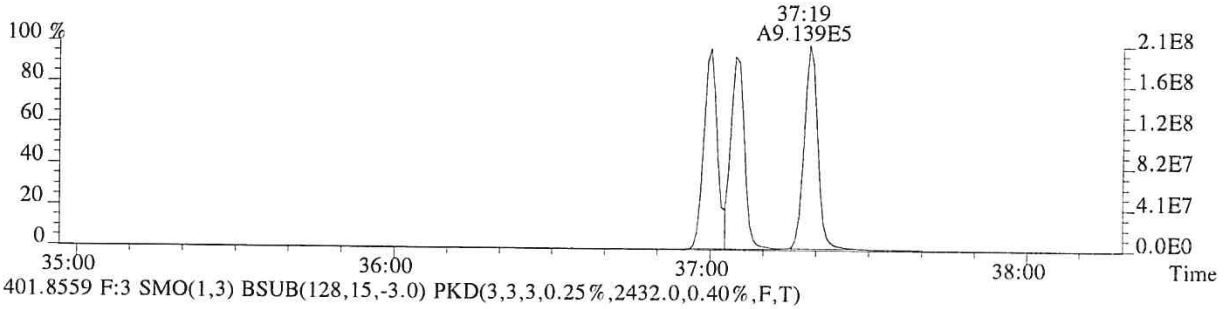
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



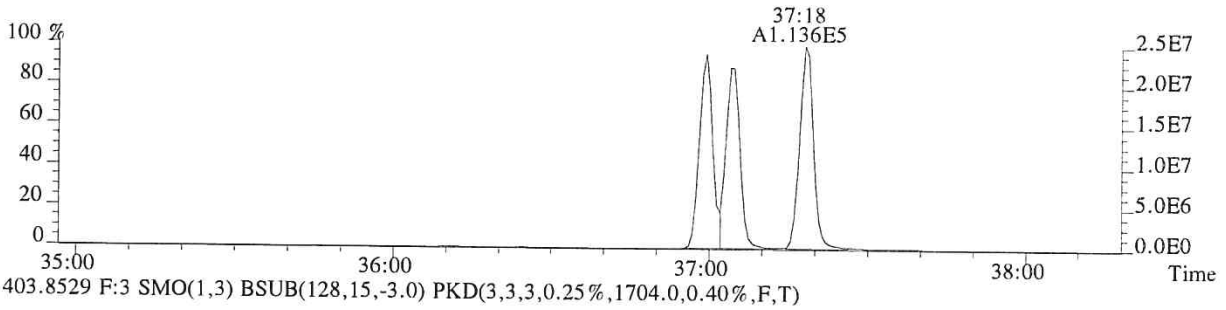
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



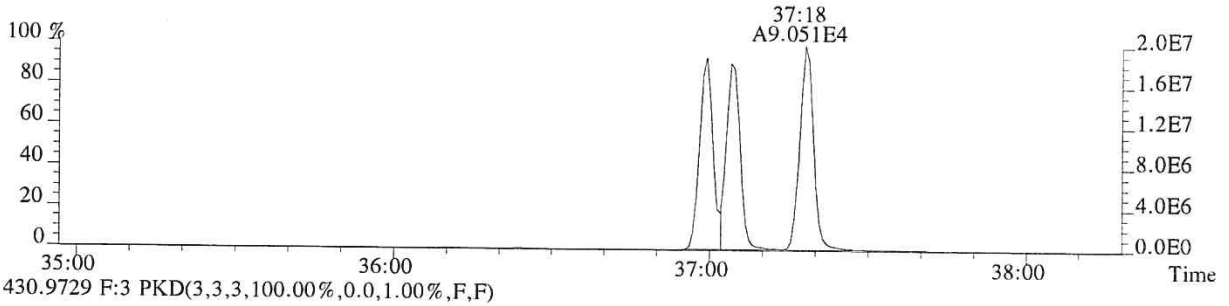
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



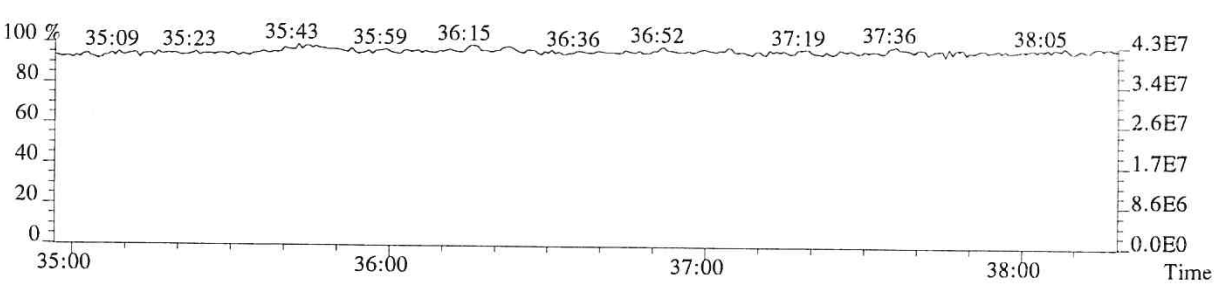
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)

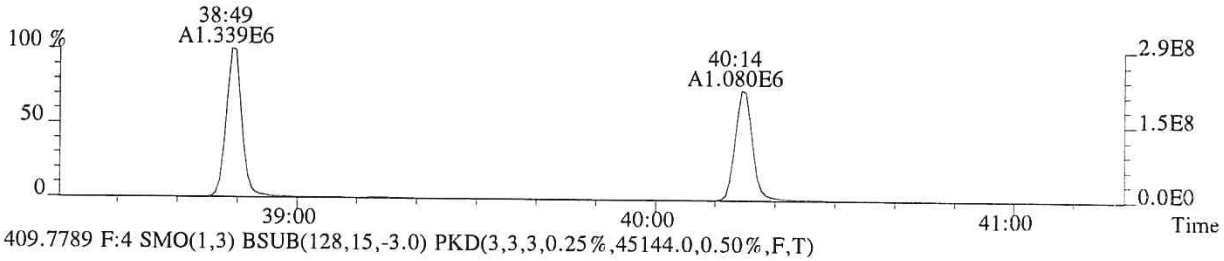


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

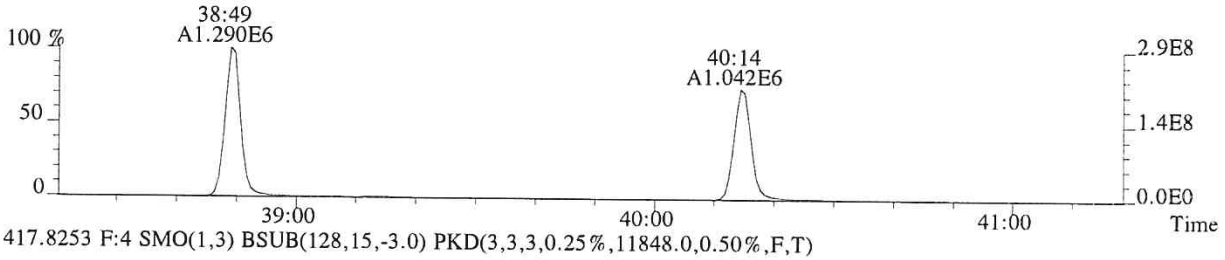


009375

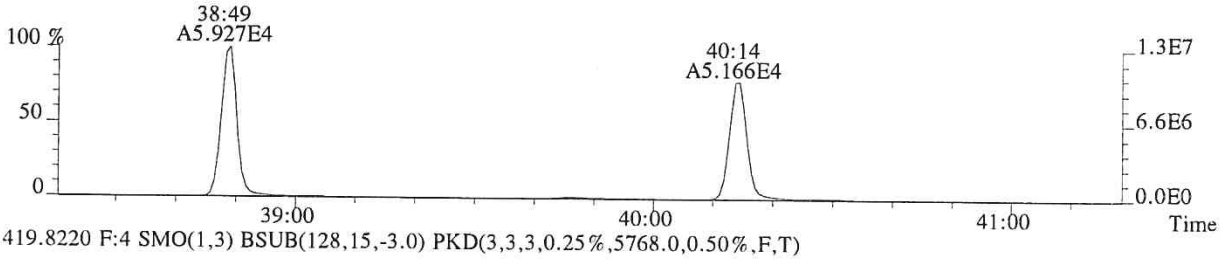
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



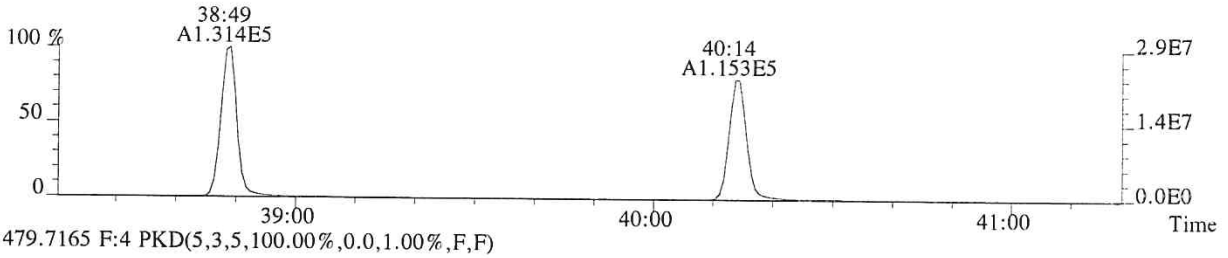
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



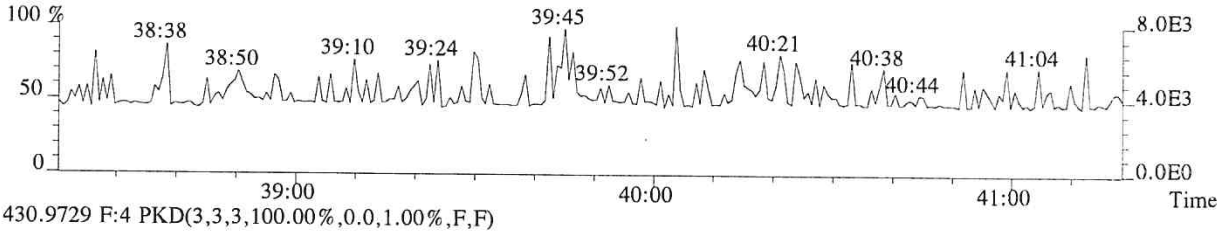
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



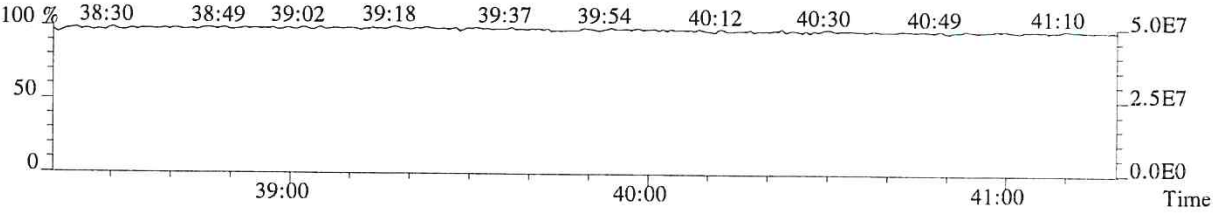
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

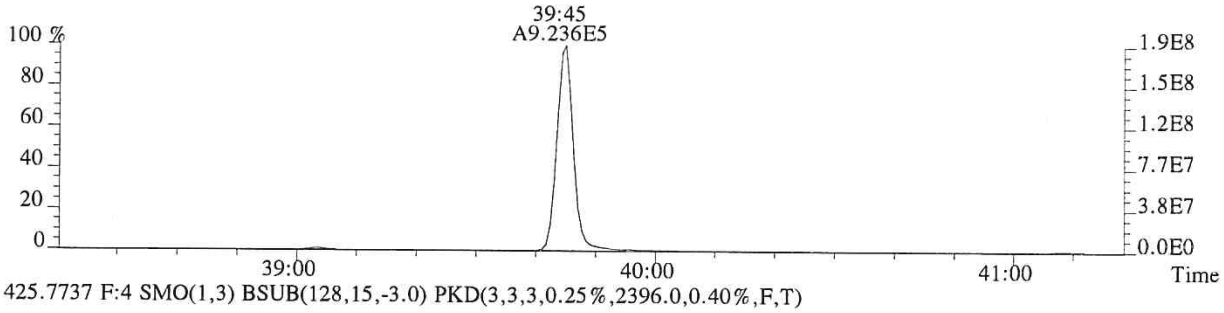


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

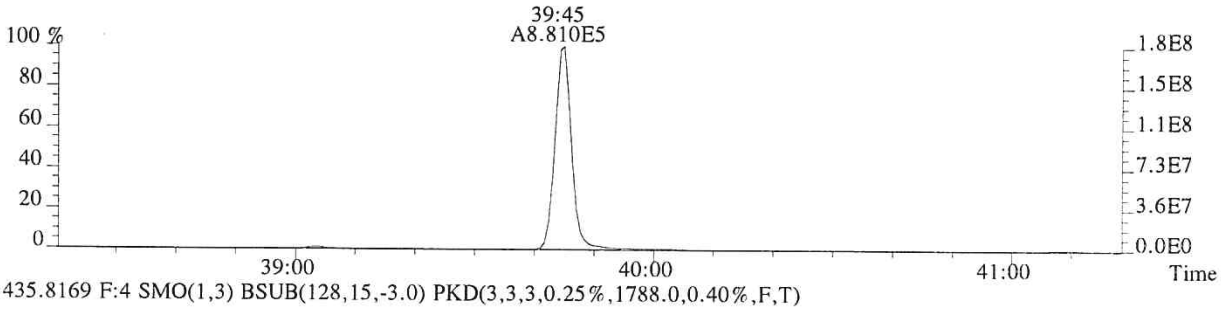


009376

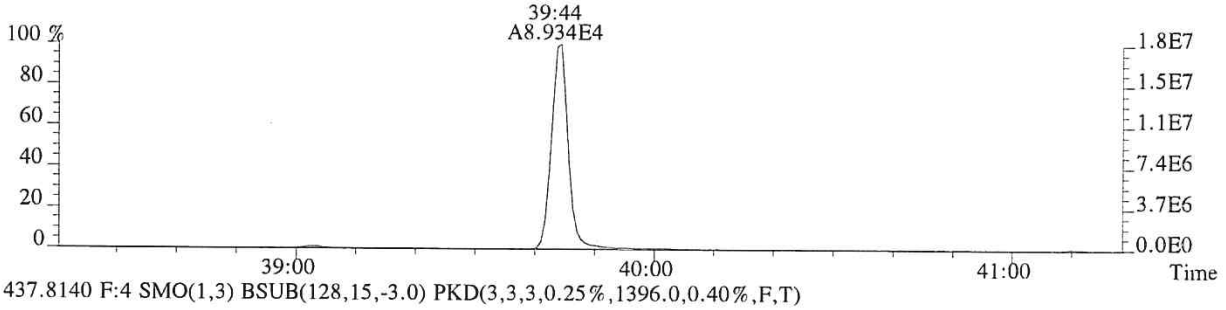
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



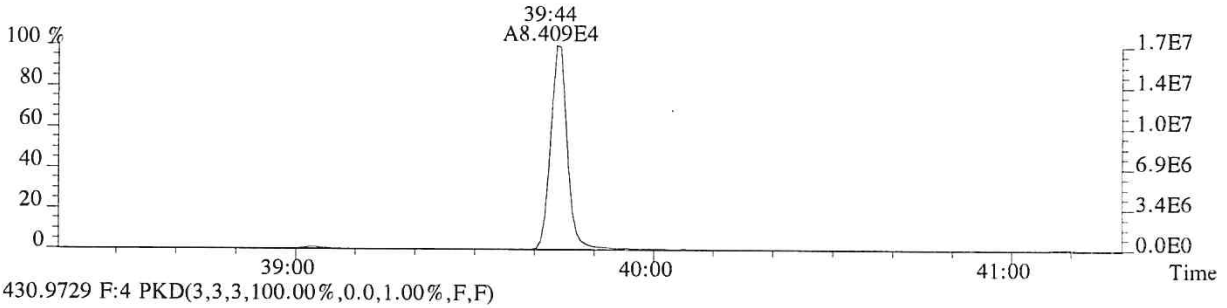
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



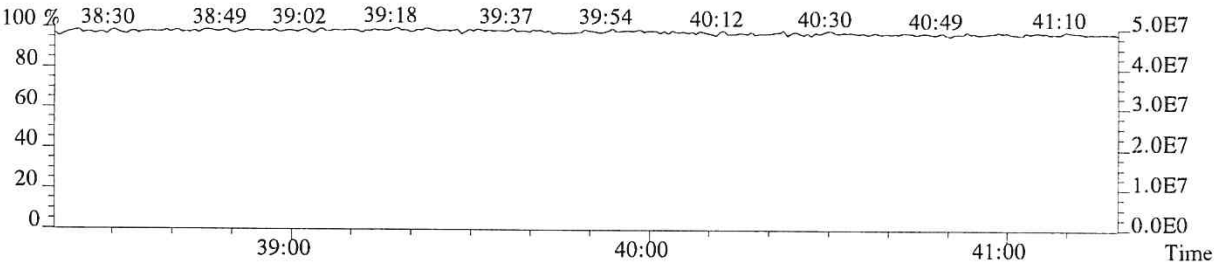
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)

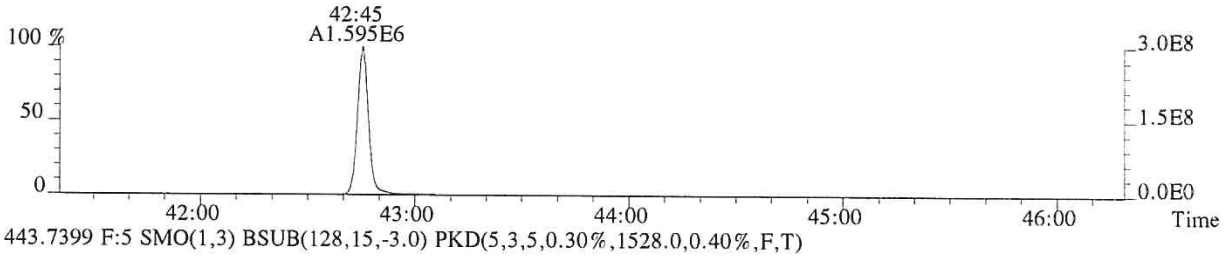


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

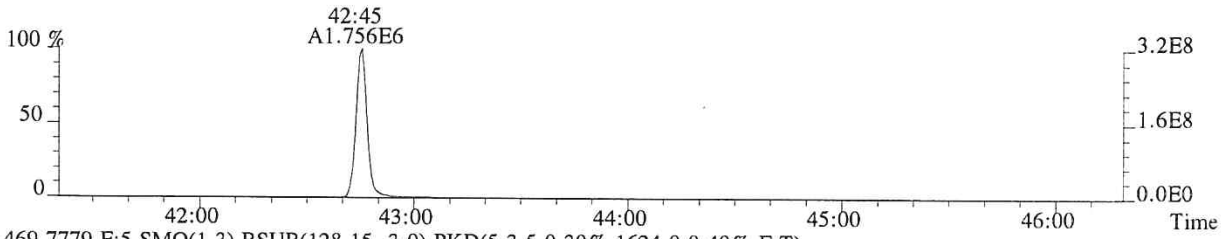


009377

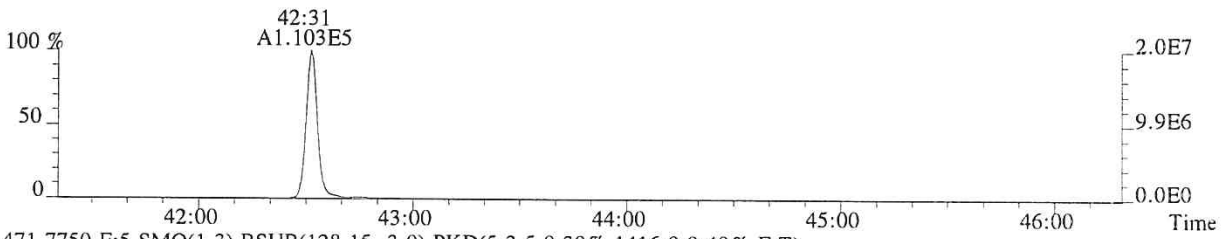
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



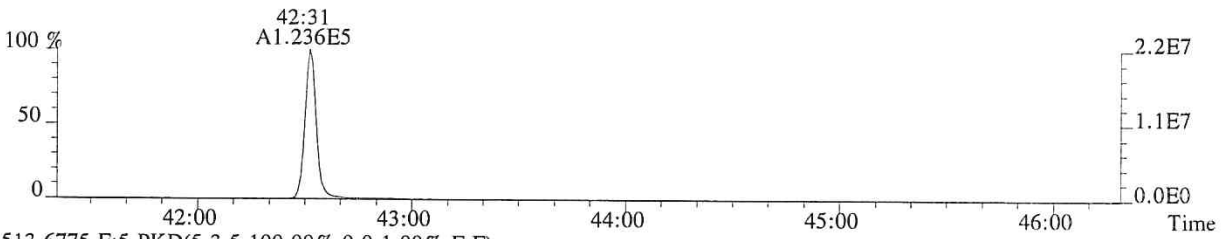
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



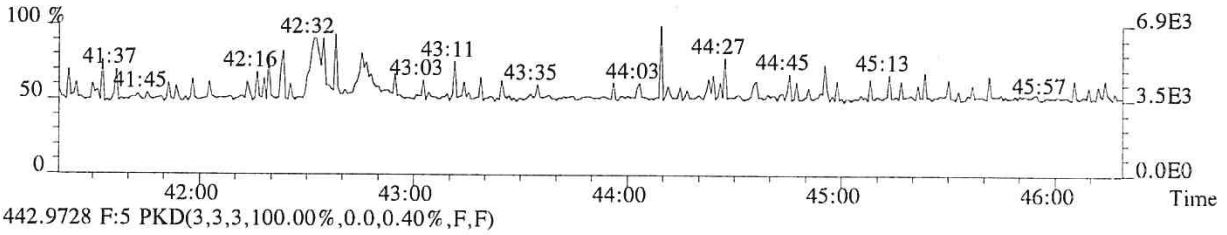
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



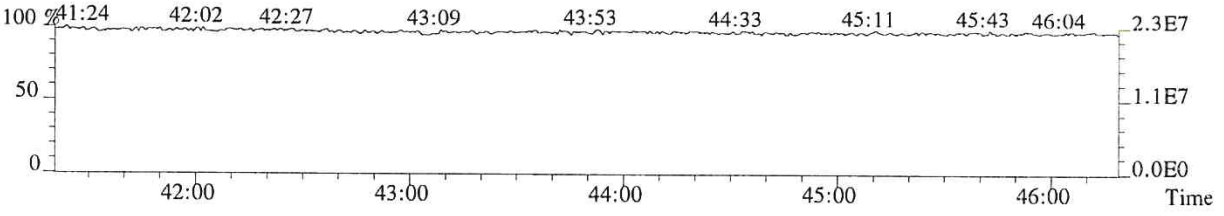
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

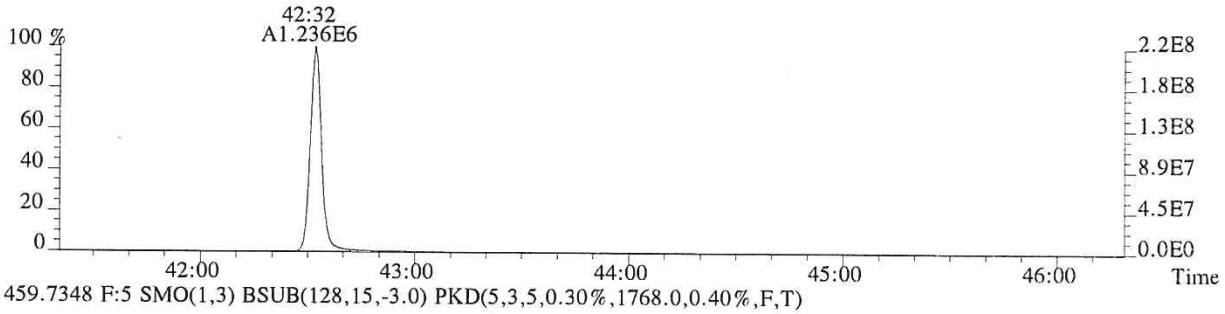


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

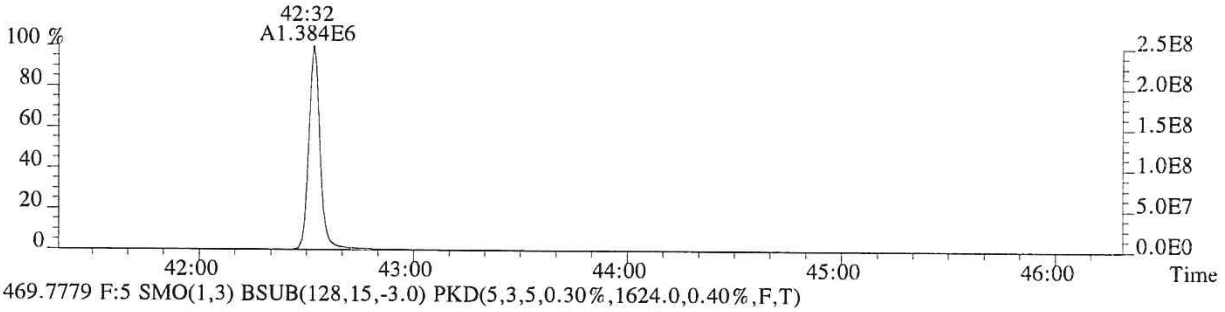


009378

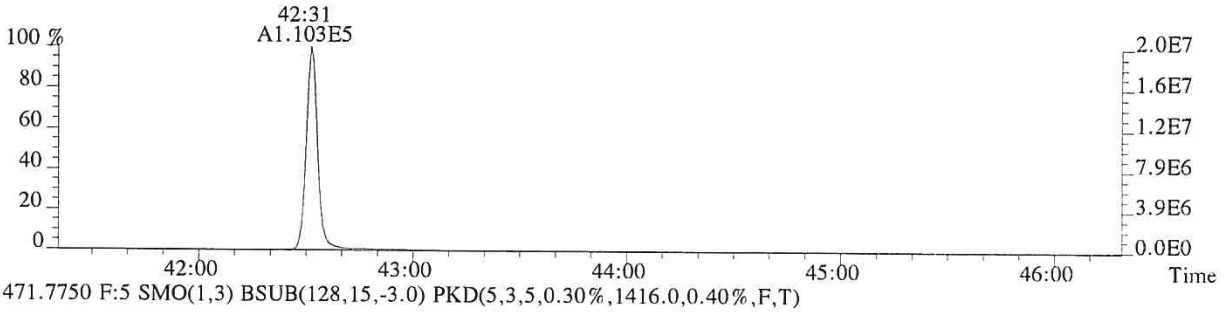
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



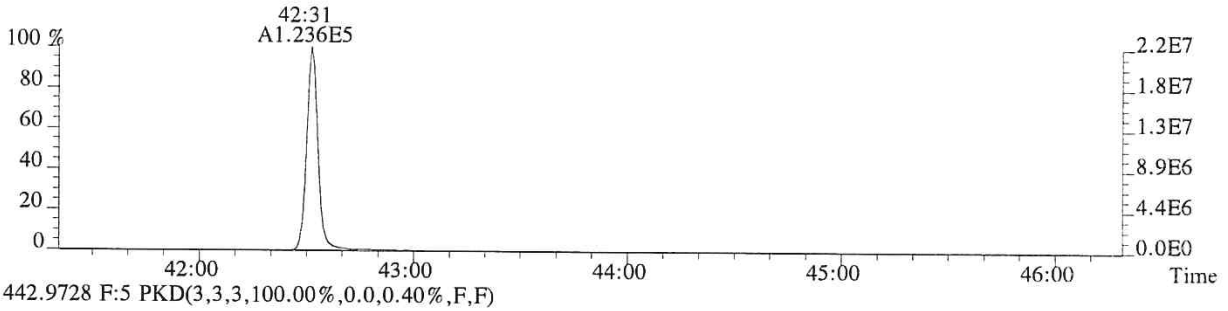
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



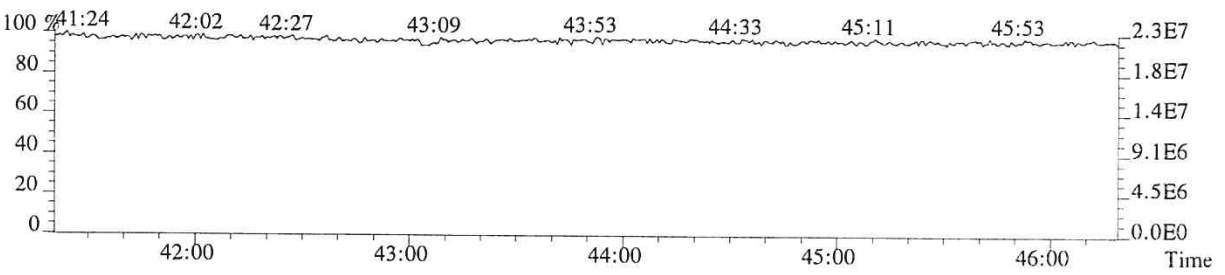
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009379

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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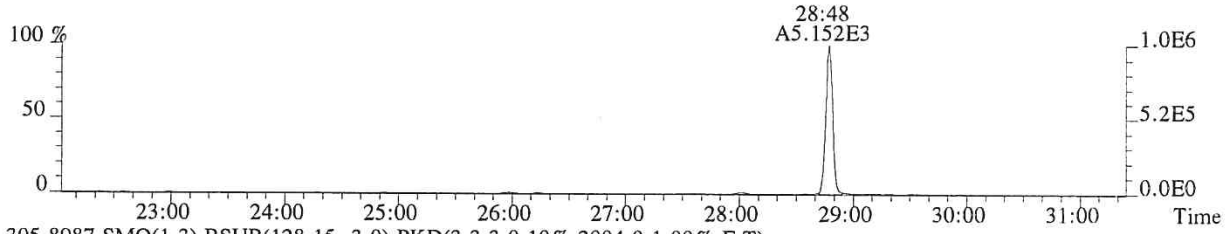
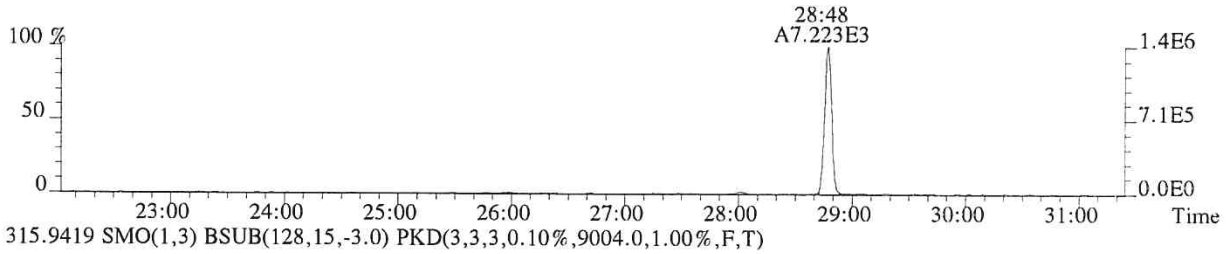
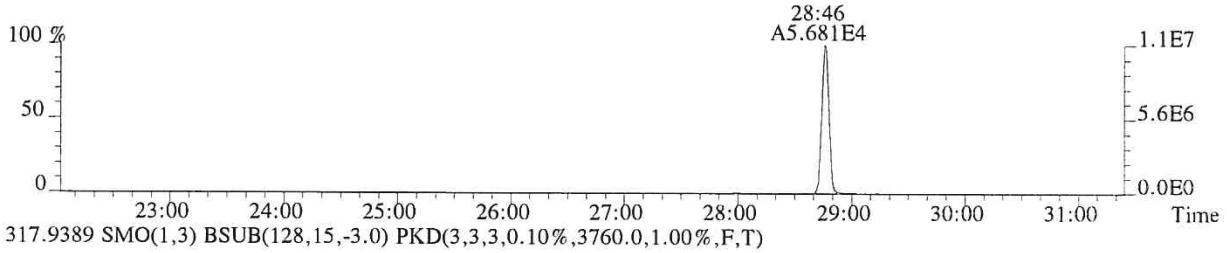
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



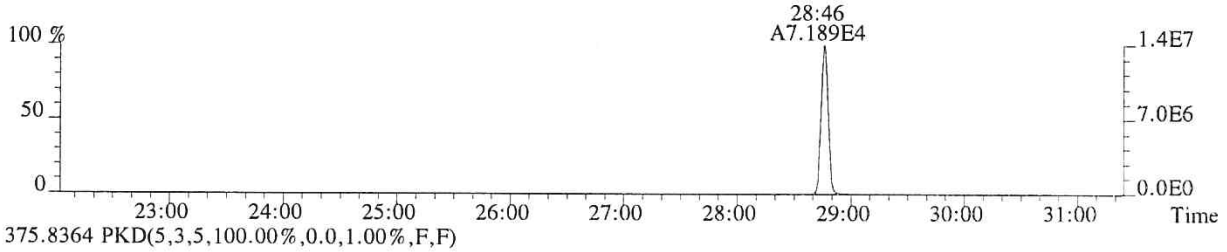
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



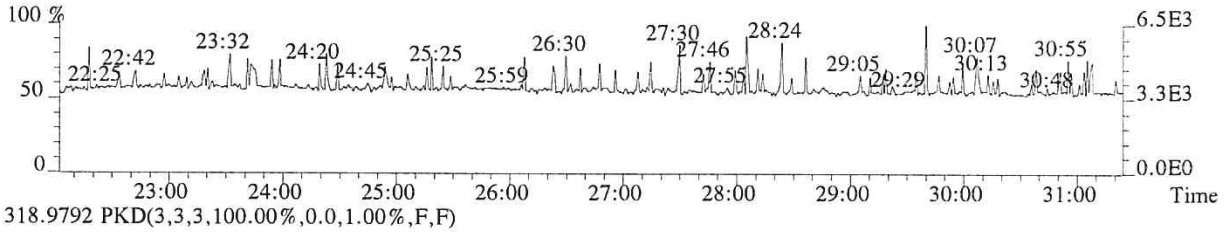
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



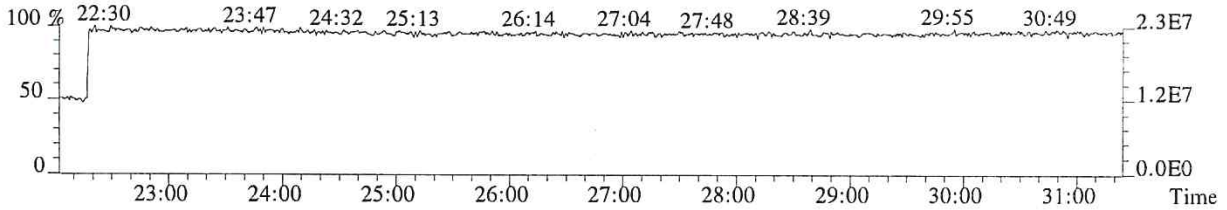
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

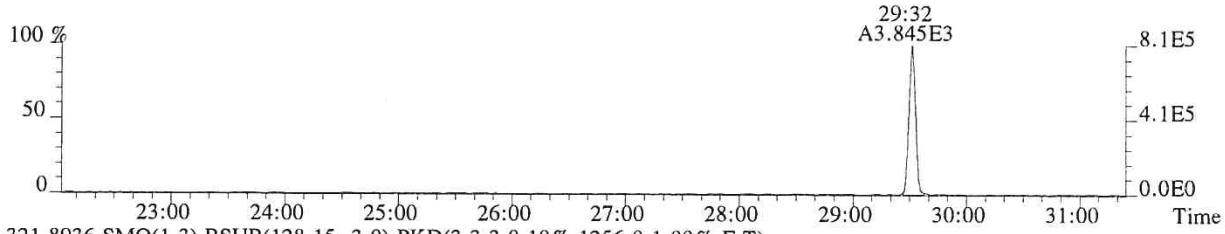


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

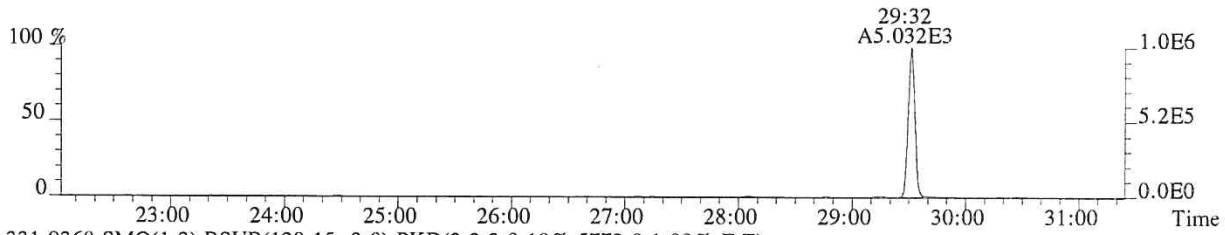


009384

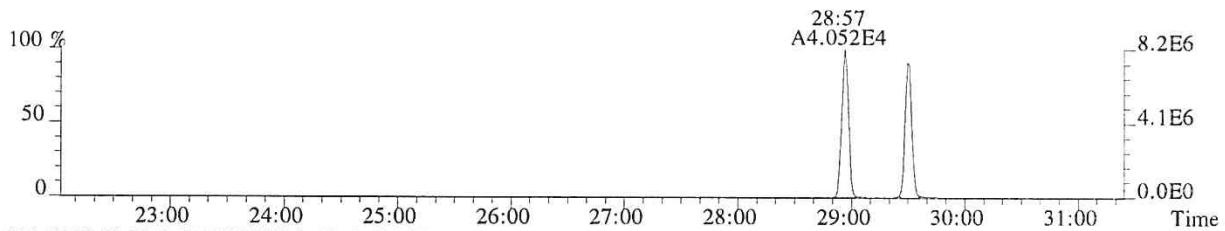
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



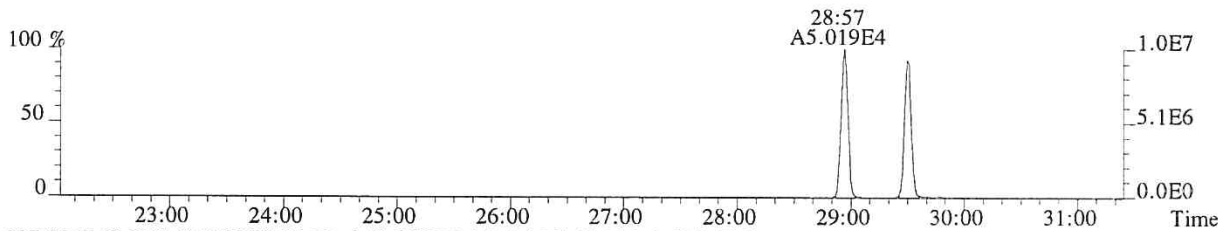
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



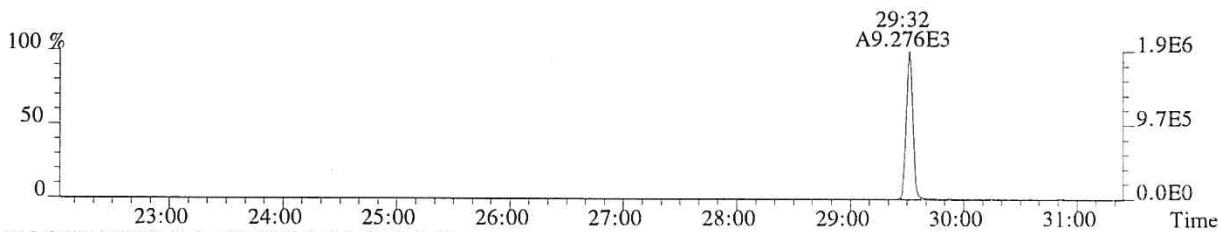
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



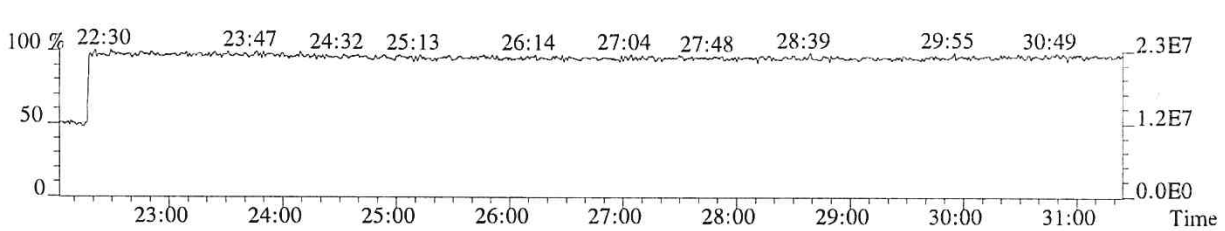
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)

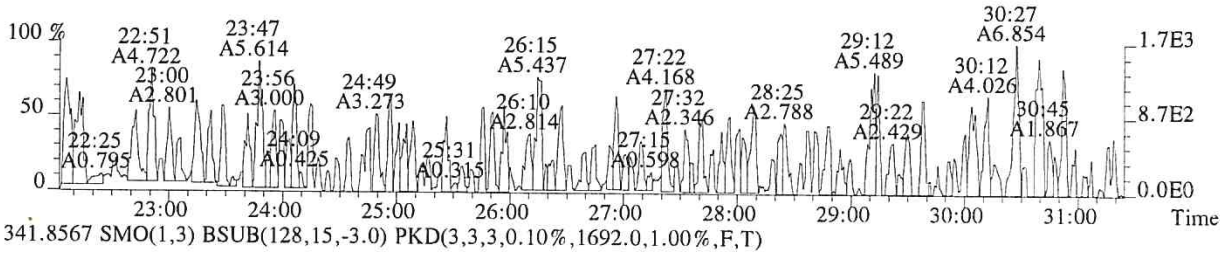


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

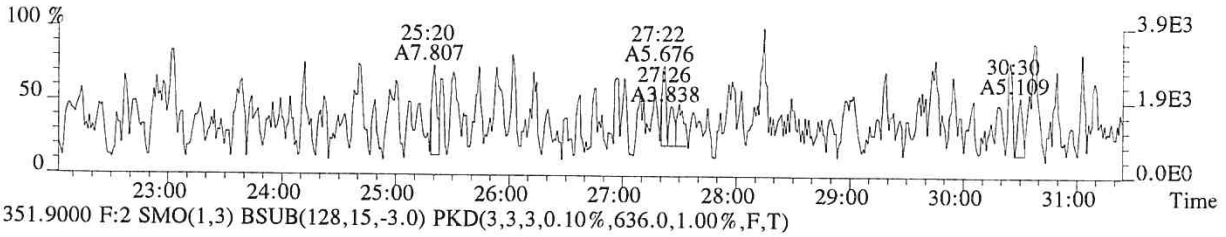


009385

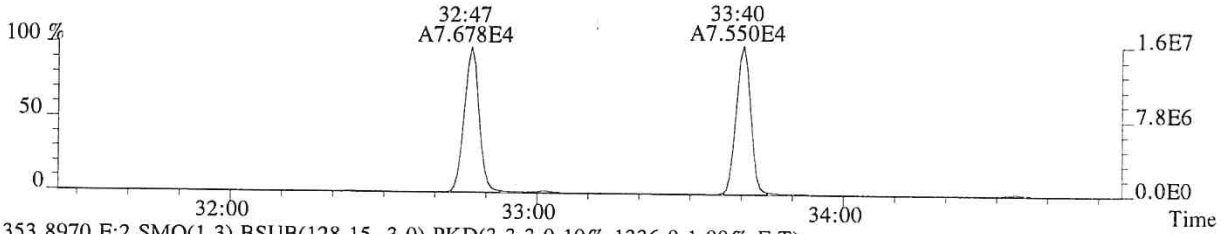
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



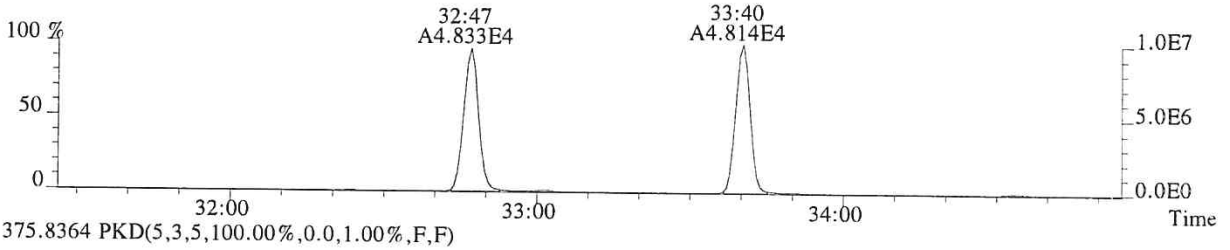
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



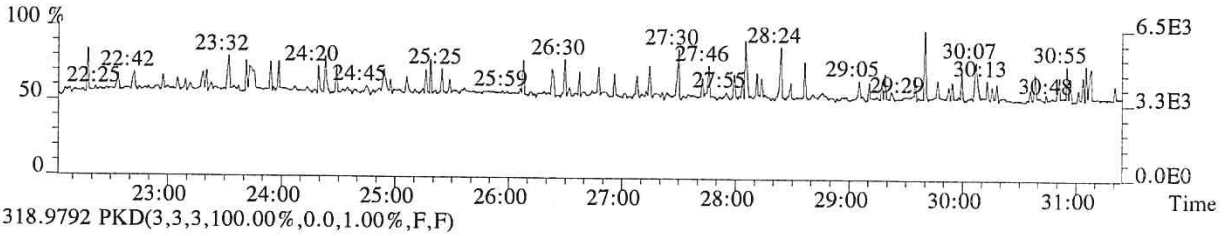
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



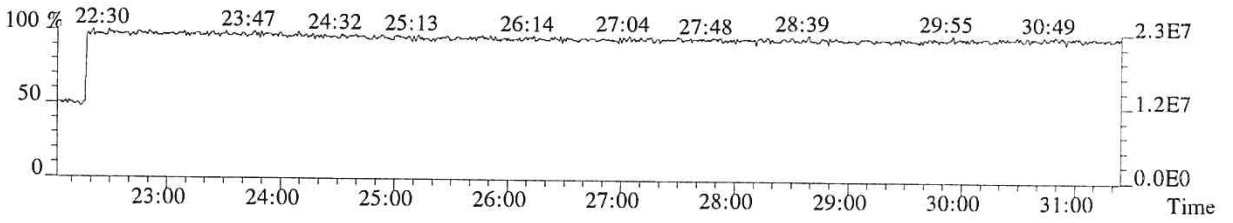
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

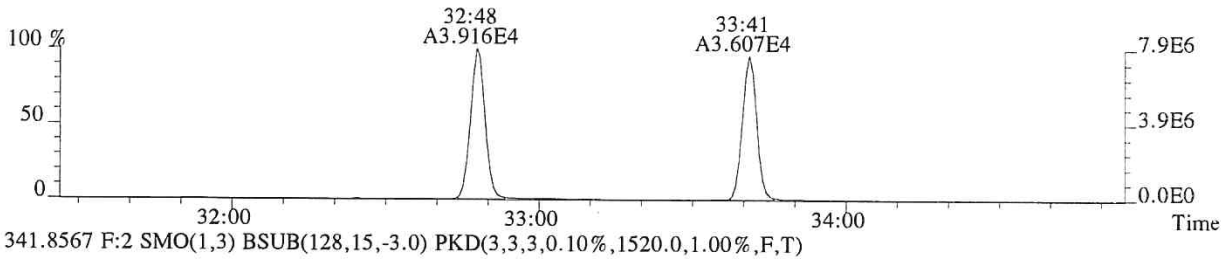


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

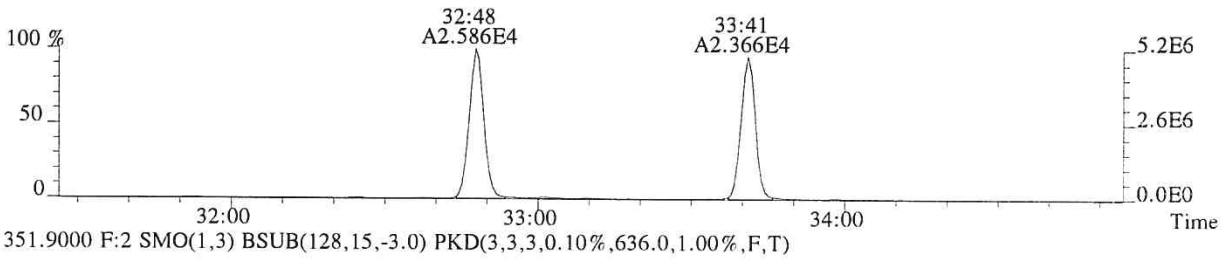


009386

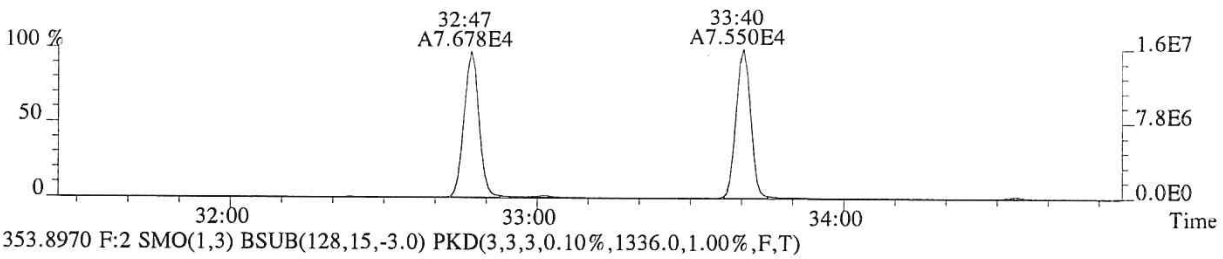
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



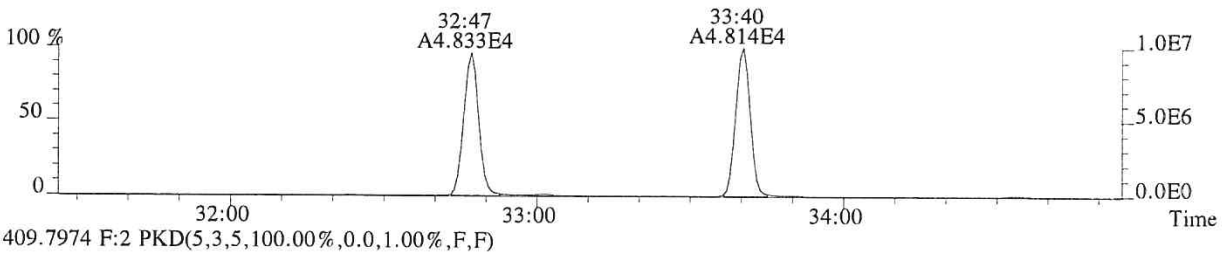
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



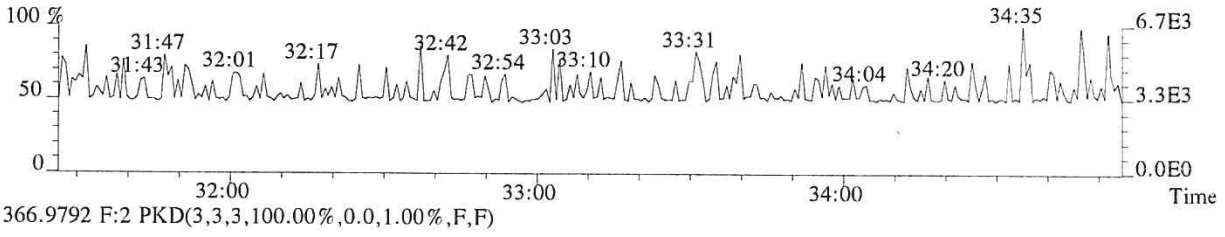
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



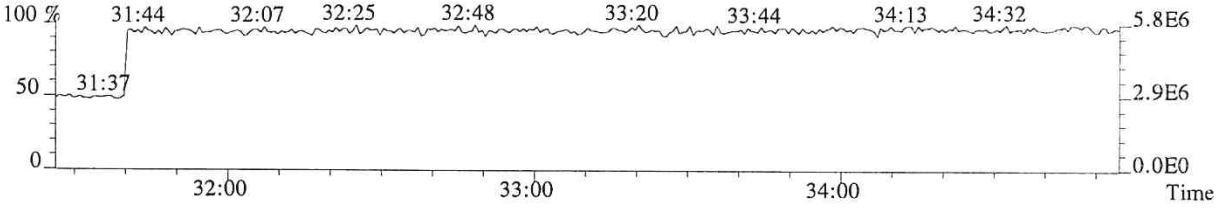
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

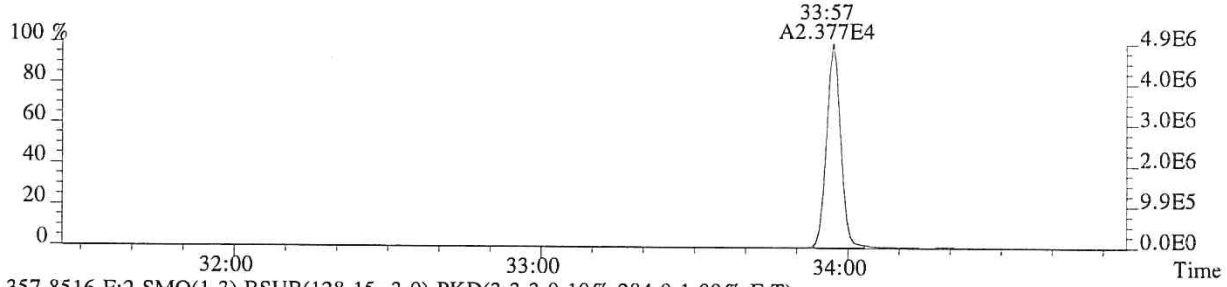


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

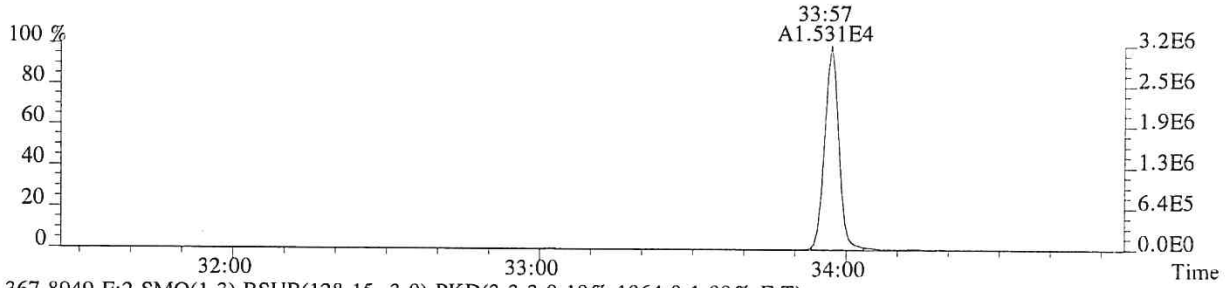


009387

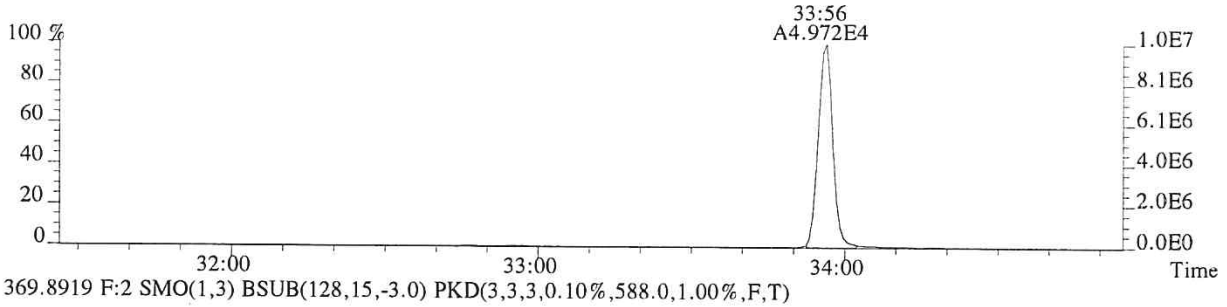
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



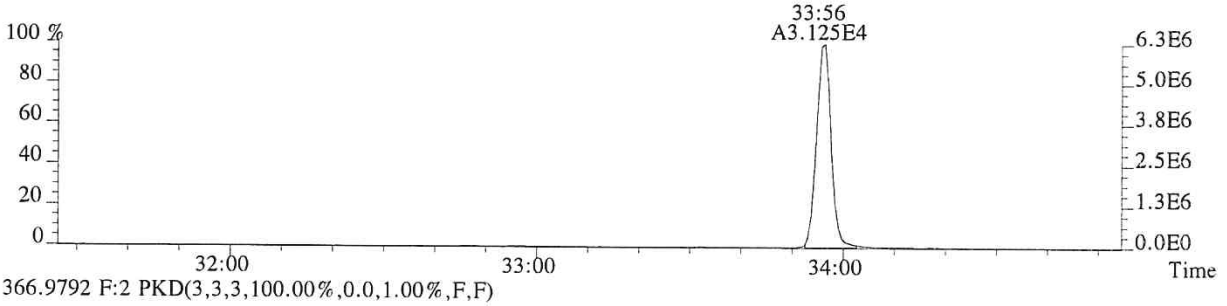
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



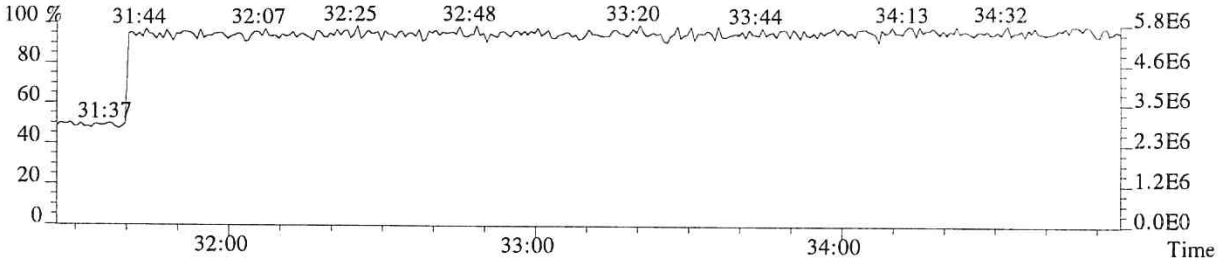
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)

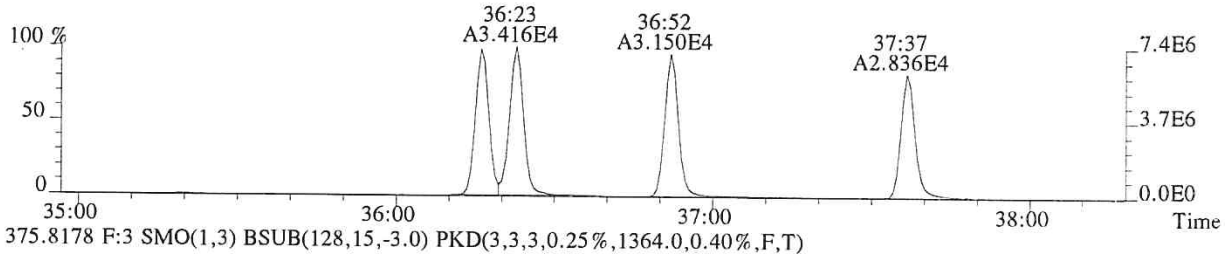


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

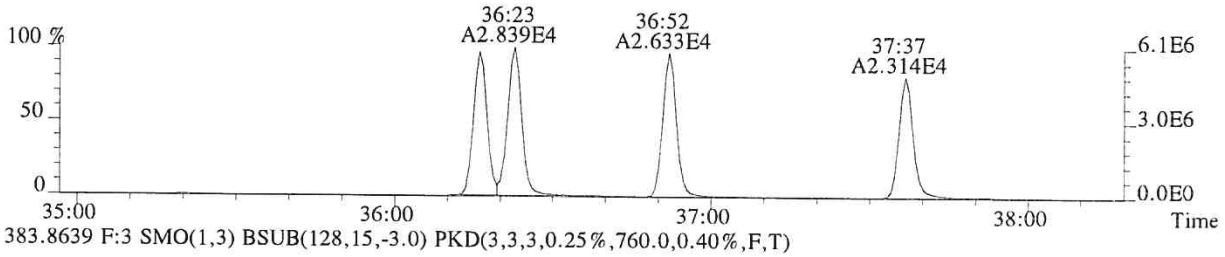


009388

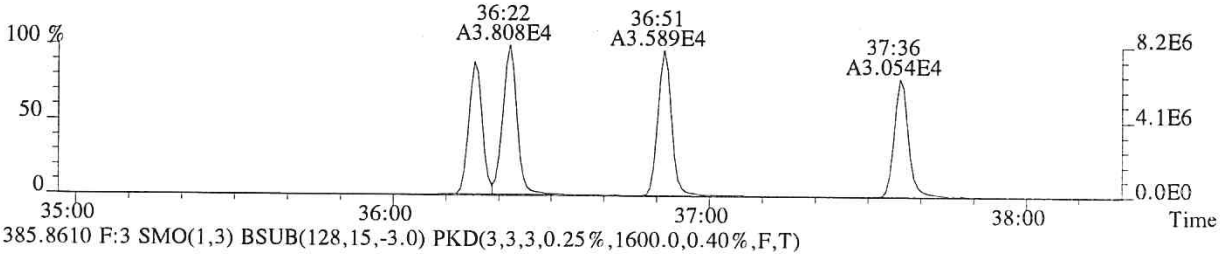
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



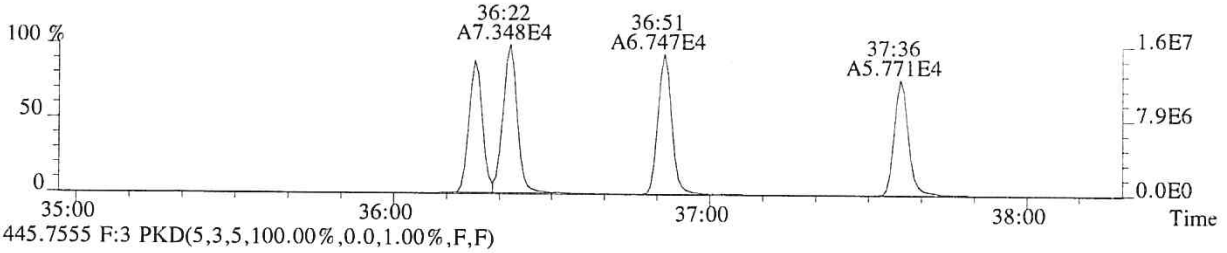
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



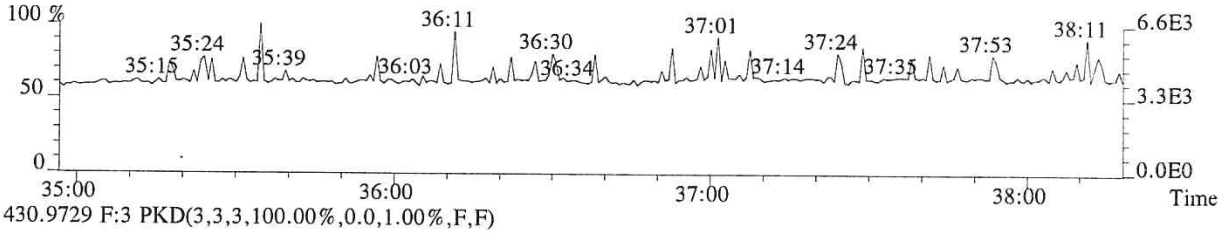
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



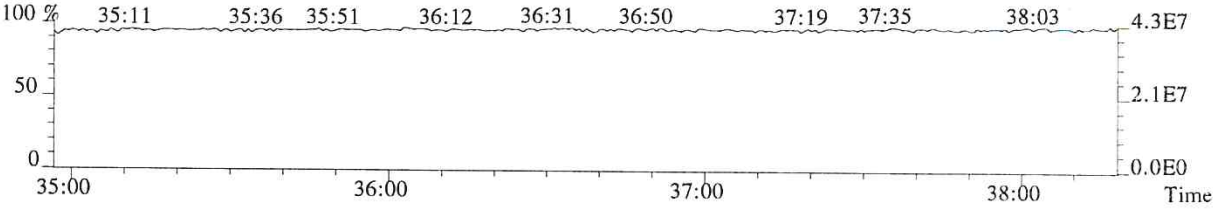
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

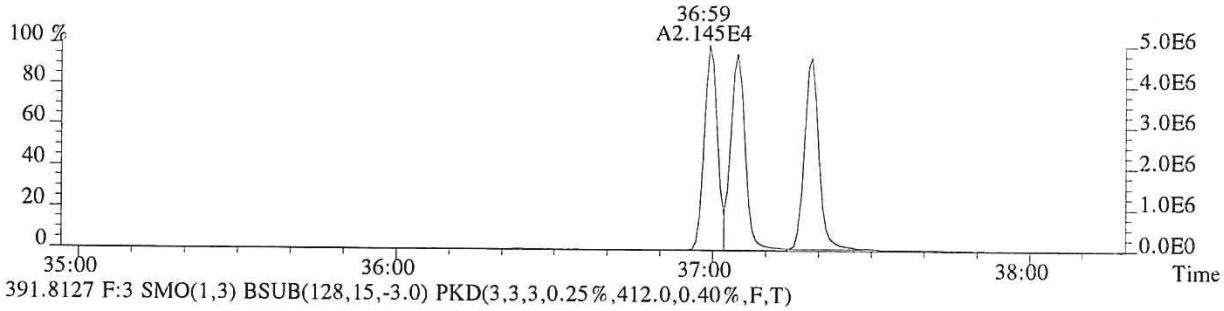


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

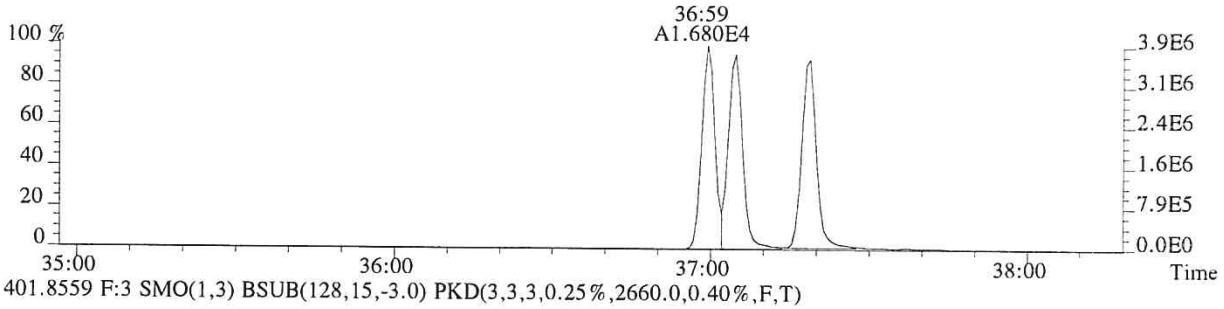


009389

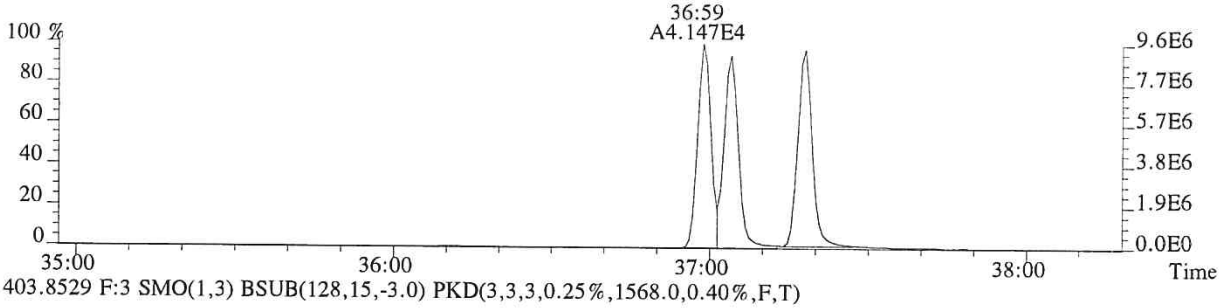
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



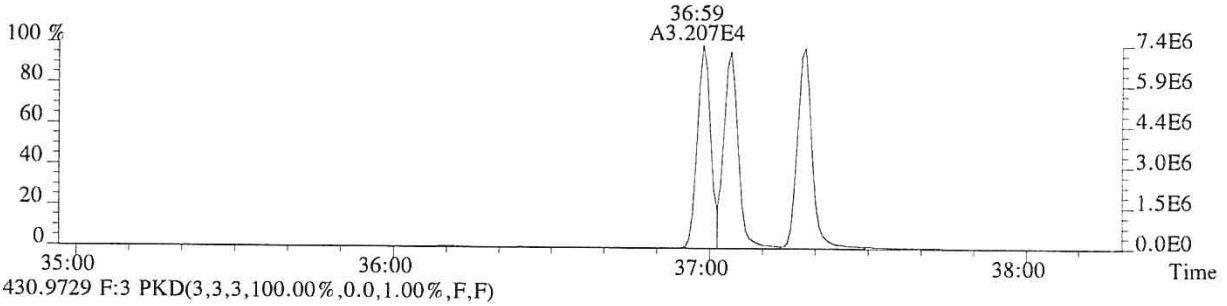
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



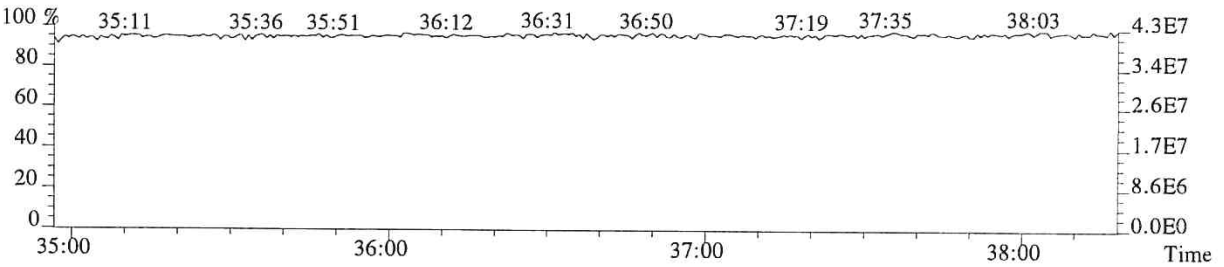
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)

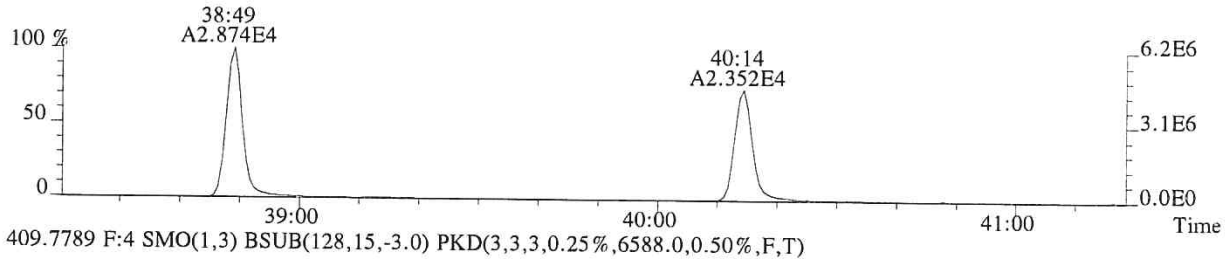


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

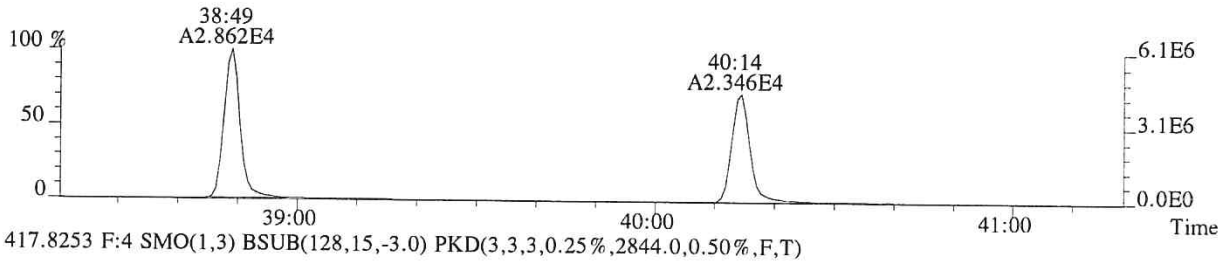


009390

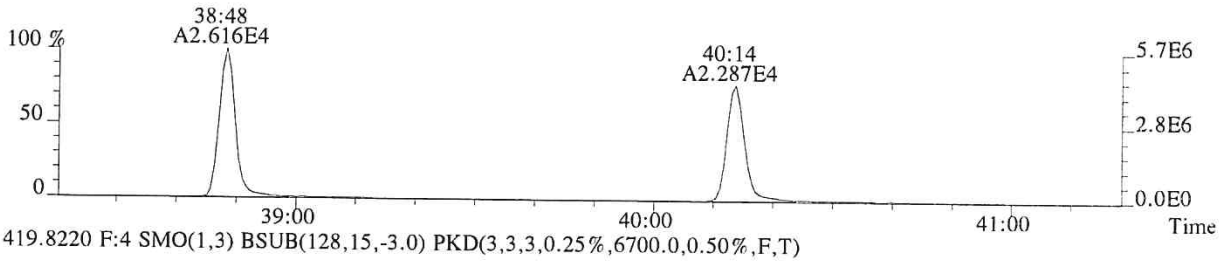
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



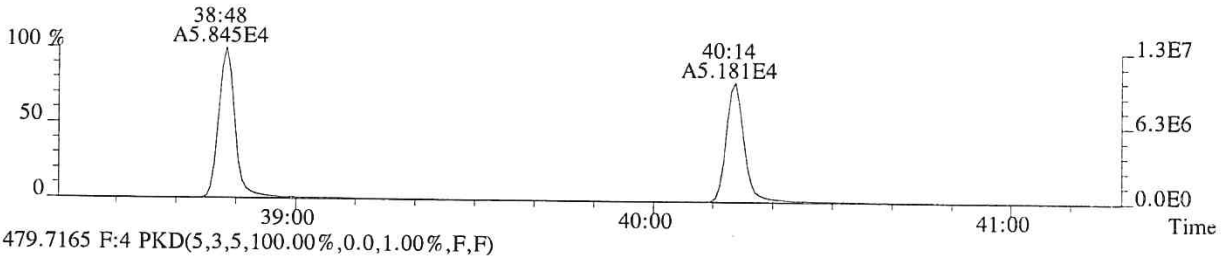
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



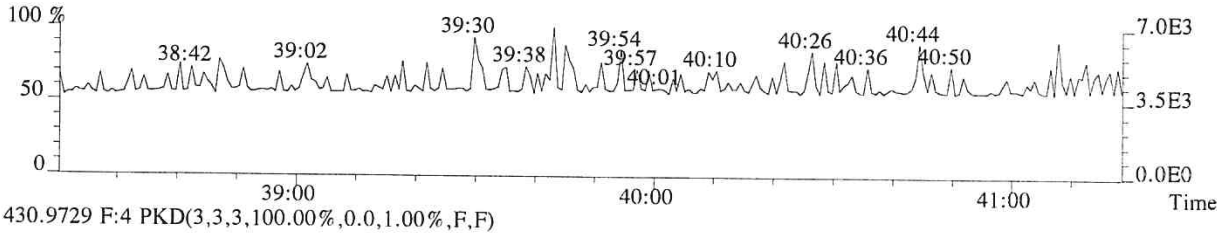
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



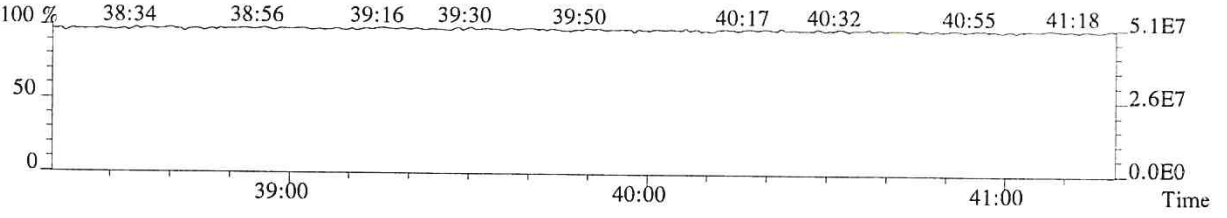
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

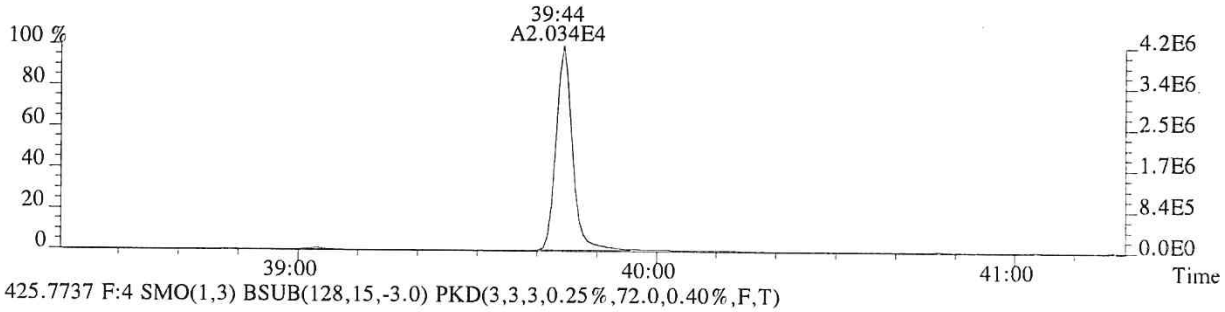


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

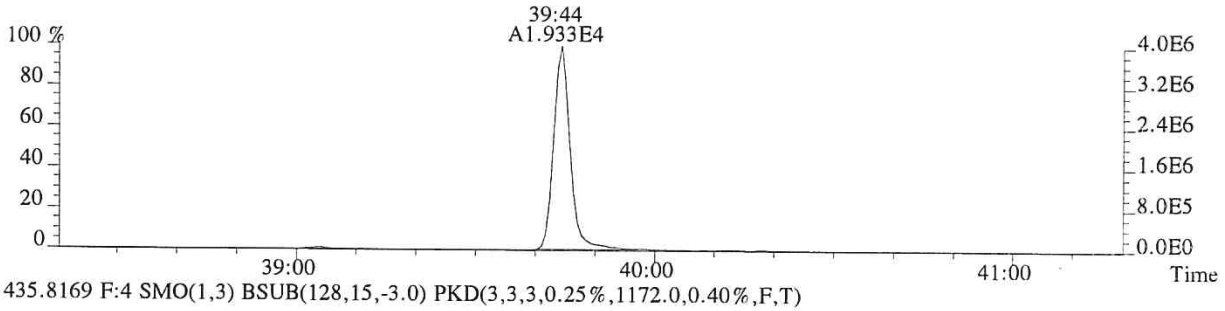


009391

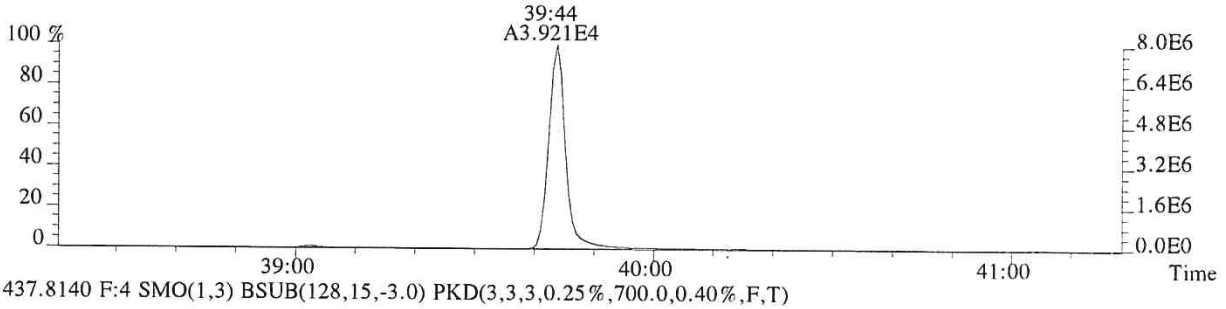
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



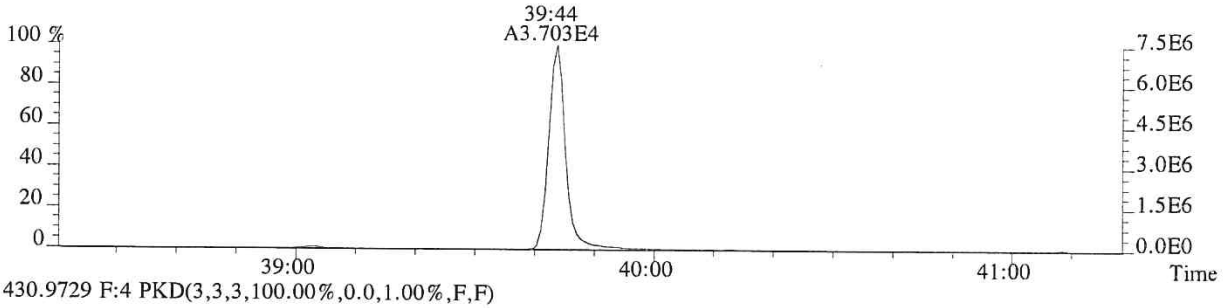
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



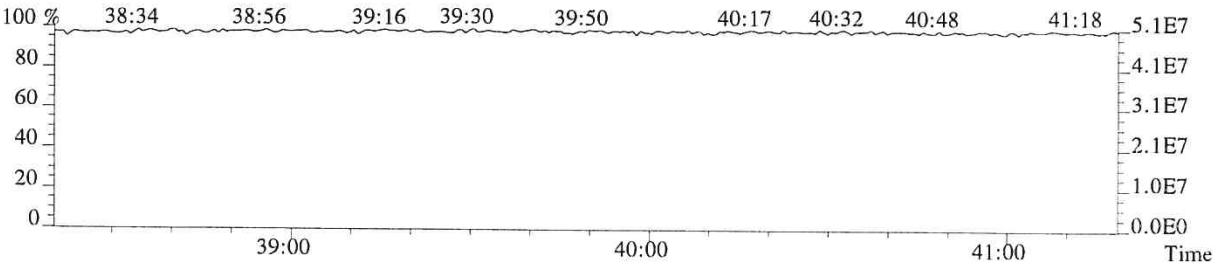
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

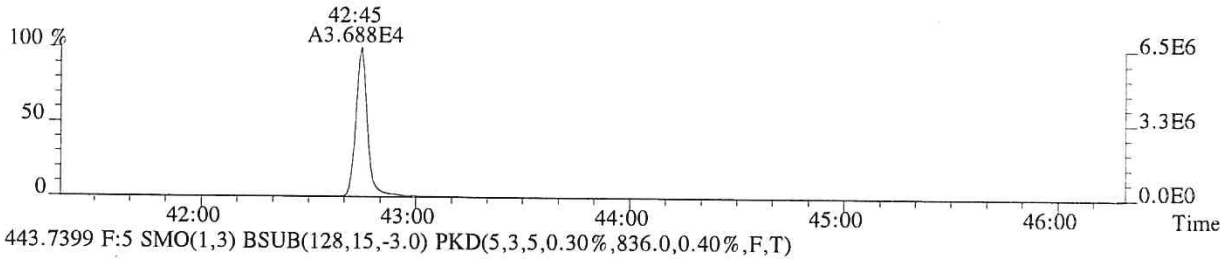


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

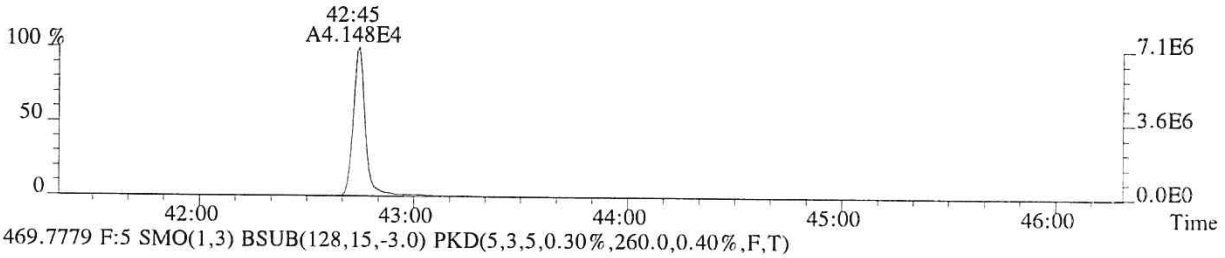


009392

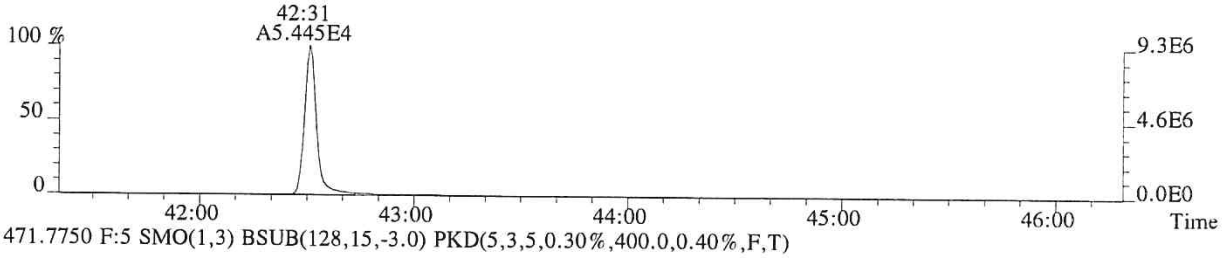
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



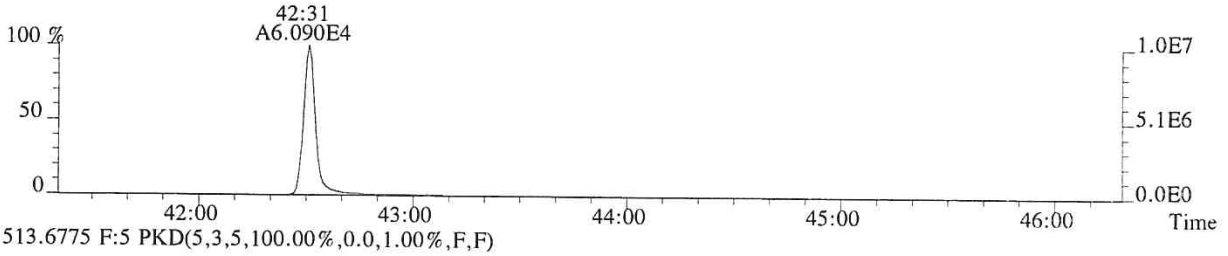
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



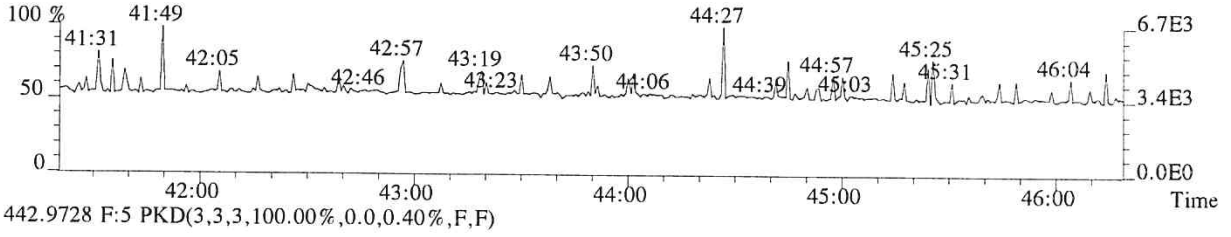
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



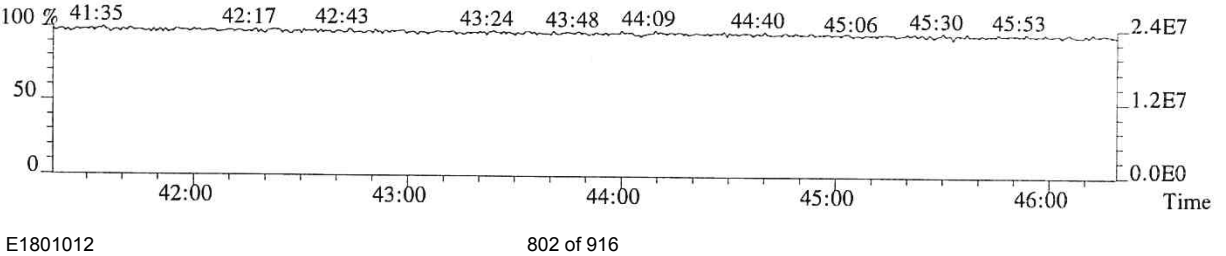
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

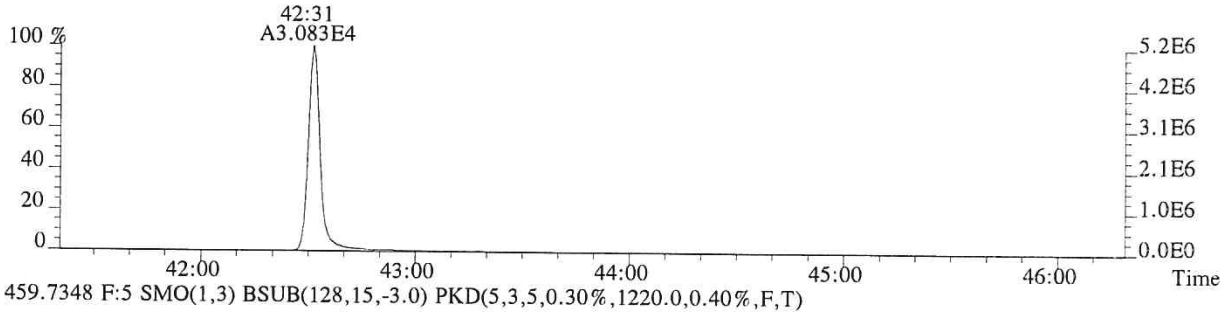


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

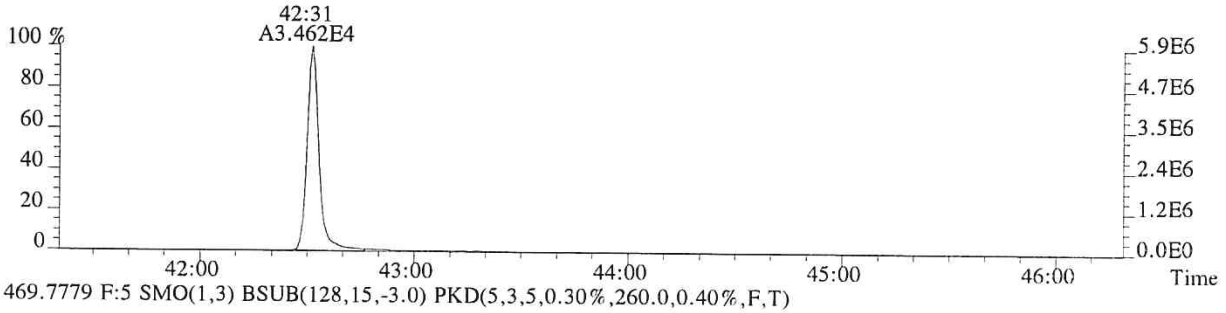


009393

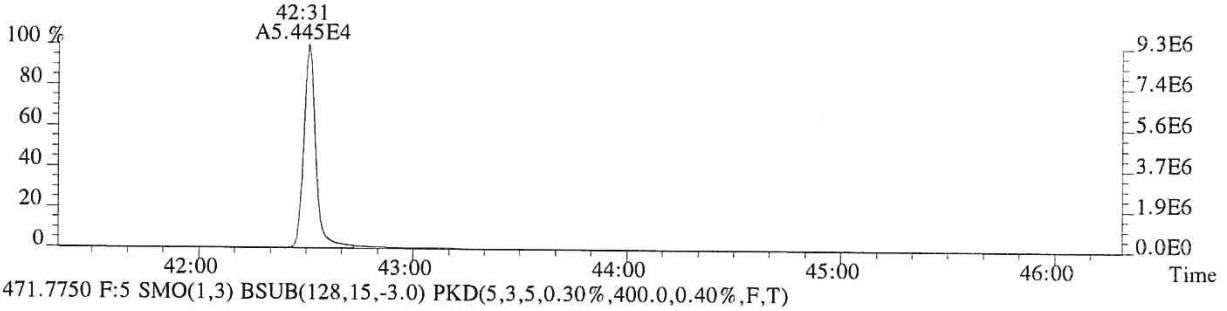
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



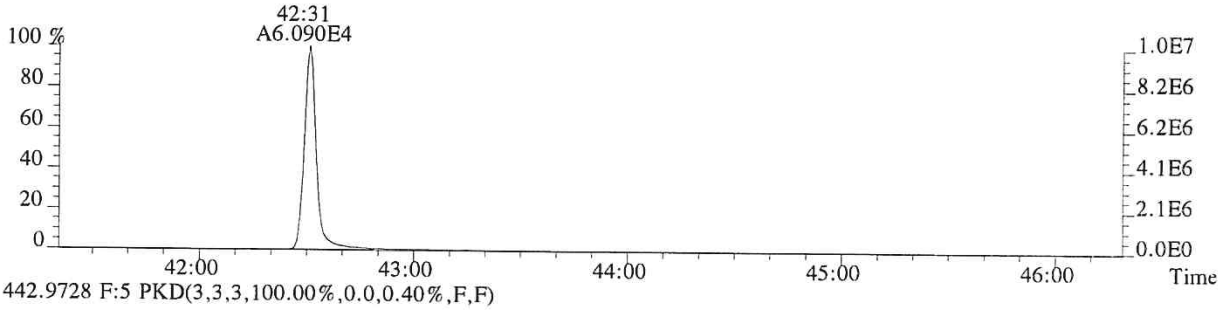
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



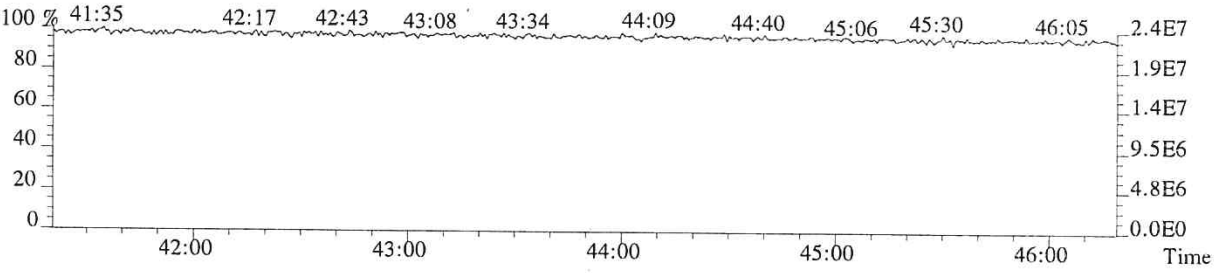
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009394

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-18092516131				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir						
Description		**Yes**	**No**	**NA**	**NR**	**ER#**
Analytical Sequence						
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?		√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?		√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?		√				
Were all calibration standards analyzed only once?		√				
Was the ICV analyzed after the ICAL, before analyzing samples?		√				
Mass Resolution Check						
Are beginning and ending resolution checks provided and legible?		√				
Were all target masses >10,000 resolving power at the beginning of the sequence?		√				
Were all target masses >10,000 resolving power at the end of the sequence?		√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?				√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?				√		
Window Define/209						
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?		√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?		√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?		√				
Were all first and last eluters adequately resolved in each function?		√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?				√		
Was the retention time of PCB 209 >55 min?				√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182				√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?				√		
Calibration Standards						
Were there at least 5 calibration standards analyzed?		√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?				√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?		√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir		Yes	No	NA	NR	ER#
Description						
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?		√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?		√				
Were area counts for the highest calibration standard below levels of saturation?		√				
Were manual integrations technically justified to correct for poor software integration?				√		
Response Factors						
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?		√				
Were all calibration standards used in determining response factors?		√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?		√				
Did the RSD for RRFs for each native analyte meet method criteria?		√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?		√				
Were RFs for each labeled compound calculated for each calibration point?		√				
Did the RSD for RF for each labeled compound meet method criteria?		√				
Initial Calibration Verification						
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)		√				
Did all analytes meet method criteria for the ICV.		√				

Laboratory Review Checklist: Initial Calibration			
Method: 1613/8290		Process Date: 09/26/2018	
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I	
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong	
ER#[5]	**Description**		

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P614680	25-SEP-18	12:13:01
76554	CS0.5	P614682	25-SEP-18	14:18:27
82614	CS1	P614683	25-SEP-18	15:08:49
193434	CS2	P614684	25-SEP-18	15:59:37
76557	CS3	P614685	25-SEP-18	16:52:47
82167	CS4	P614686	25-SEP-18	17:41:03
185657	CS5	P614687	25-SEP-18	18:30:08
188969	2ND SOURCE	P614690	25-SEP-18	20:57:19

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20180925A.SPL
Last Modified: Wednesday, September 26, 2018 06:14:12 Central Daylight Time
Printed: Wednesday, September 26, 2018 06:14:14 Central Daylight Time

Page Position (1, 1)

OPUS4: P6-180925161 3I
P614690 res

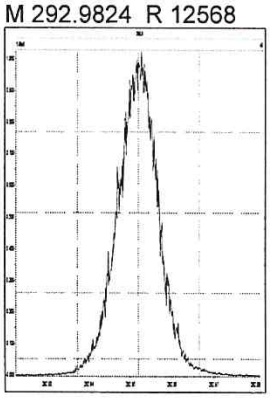
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	9/25/18	12:13	P614680	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 12:08
2		13:01	P614681	192807	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		14:18	P614682	76554	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:08	P614683	82614	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P614684	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:52	P614685	76557	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:41	P614686	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:30	P614687	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:19	P614688	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P614689	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:10		Do not use
11		20:57	P614690	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:52	P614691	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:12		HRMScheck 22:51
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LG 09/26/18

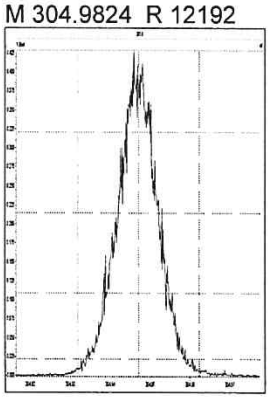
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:08:26 Central Daylight Time

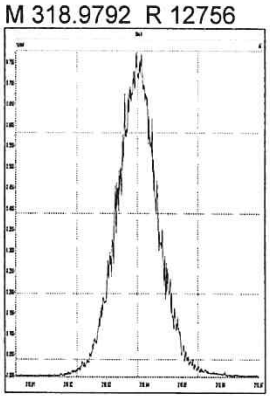
M 292.9824 R 12568



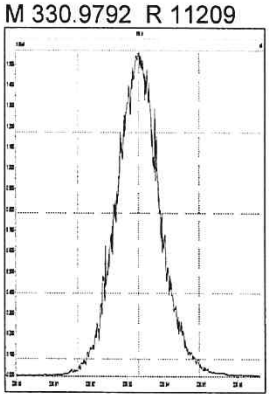
M 304.9824 R 12192



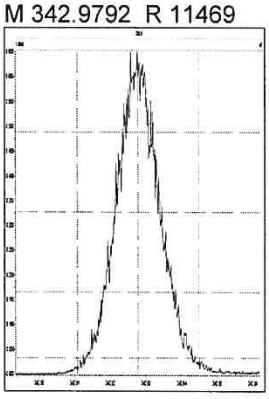
M 318.9792 R 12756



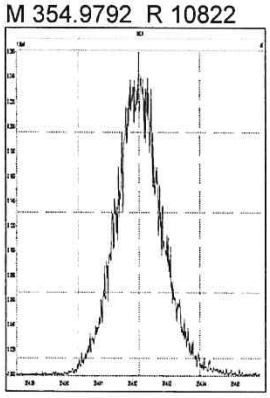
M 330.9792 R 11209



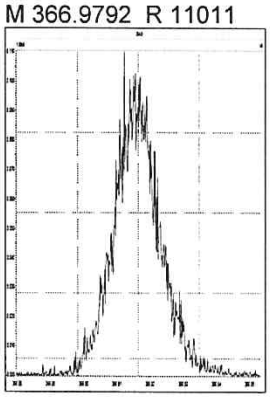
M 342.9792 R 11469



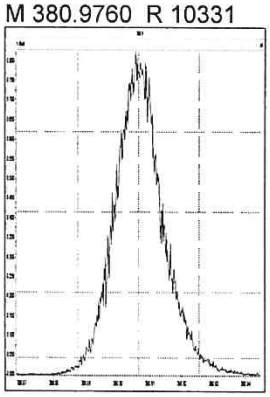
M 354.9792 R 10822



M 366.9792 R 11011



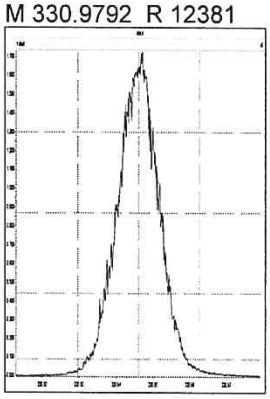
M 380.9760 R 10331



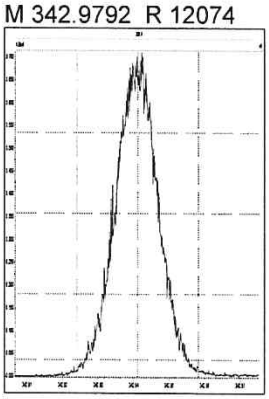
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:09:22 Central Daylight Time

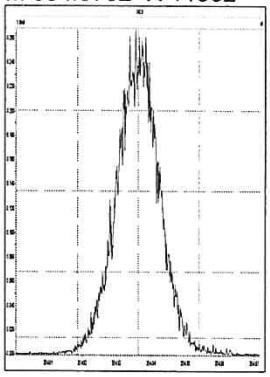
M 330.9792 R 12381



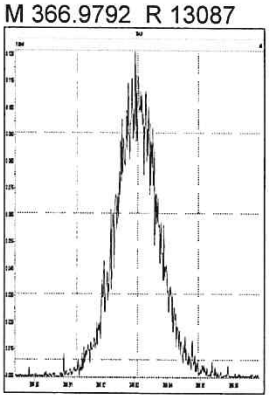
M 342.9792 R 12074



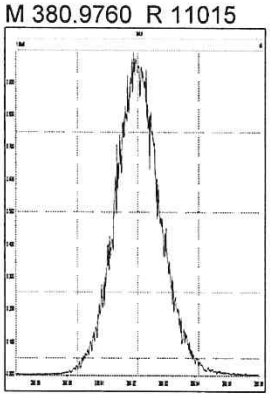
M 354.9792 R 11962



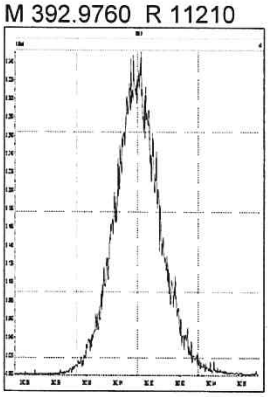
M 366.9792 R 13087



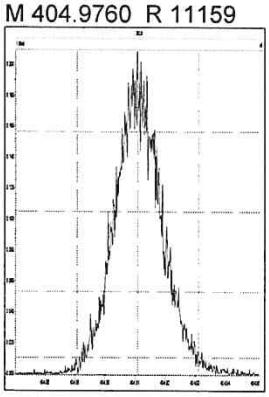
M 380.9760 R 11015



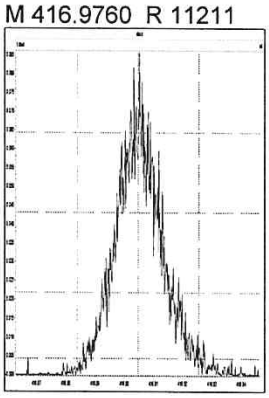
M 392.9760 R 11210



M 404.9760 R 11159



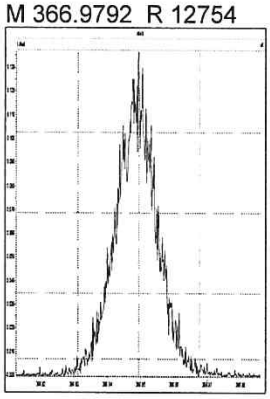
M 416.9760 R 11211



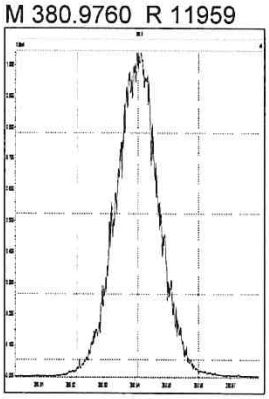
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:10 Central Daylight Time

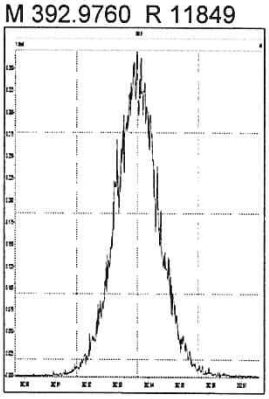
M 366.9792 R 12754



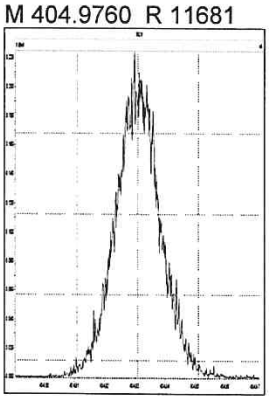
M 380.9760 R 11959



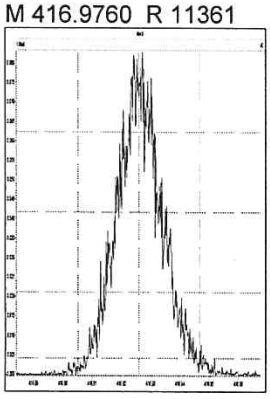
M 392.9760 R 11849



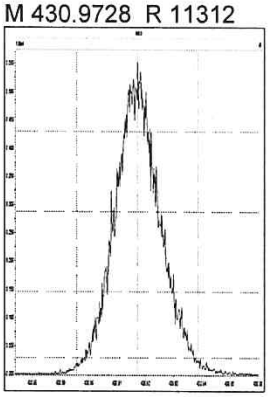
M 404.9760 R 11681



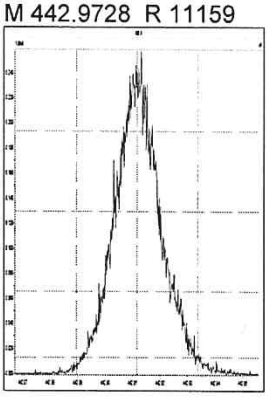
M 416.9760 R 11361



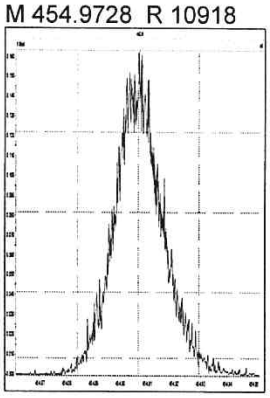
M 430.9728 R 11312



M 442.9728 R 11159



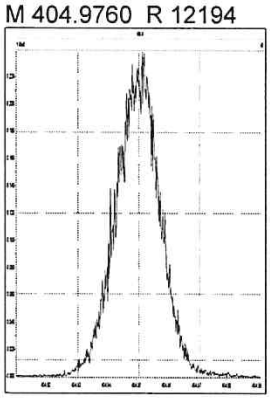
M 454.9728 R 10918



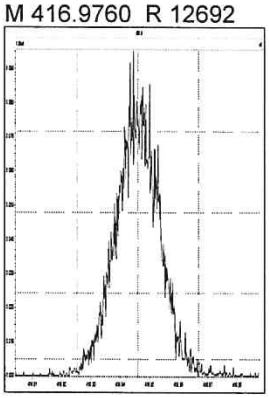
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:51 Central Daylight Time

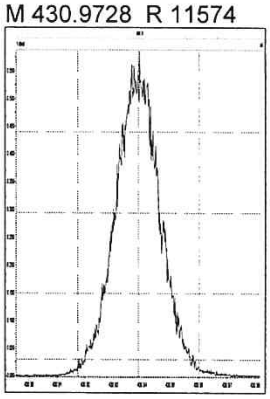
M 404.9760 R 12194



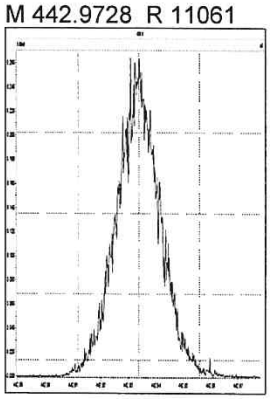
M 416.9760 R 12692



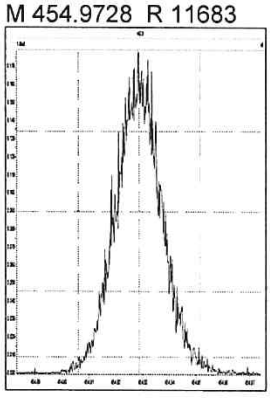
M 430.9728 R 11574



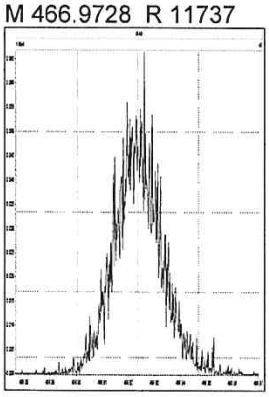
M 442.9728 R 11061



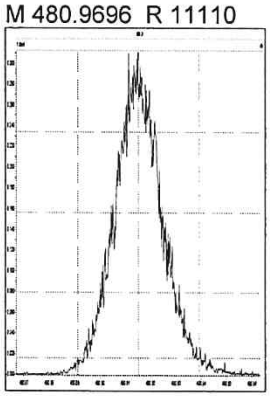
M 454.9728 R 11683



M 466.9728 R 11737



M 480.9696 R 11110



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

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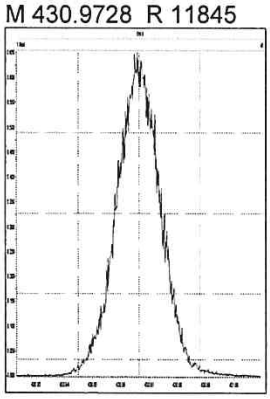
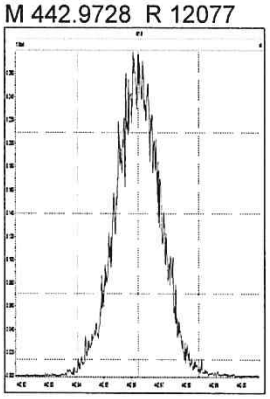
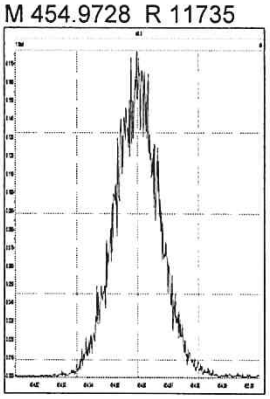
M 430.9728 R 11845



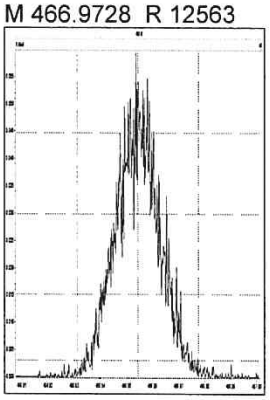
M 442.9728 R 12077



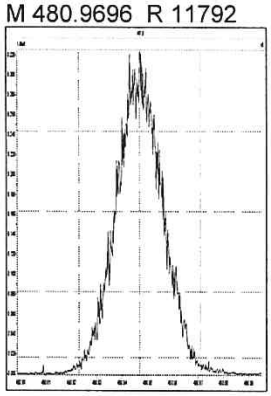
M 454.9728 R 11735



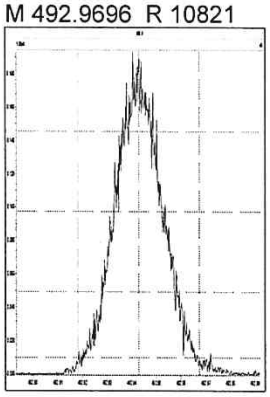
M 466.9728 R 12563



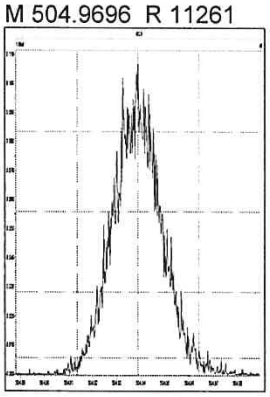
M 480.9696 R 11792



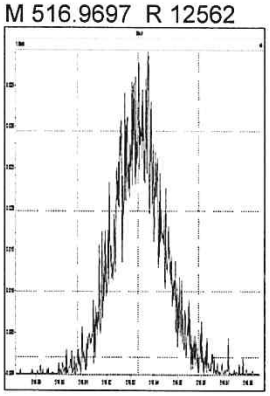
M 492.9696 R 10821



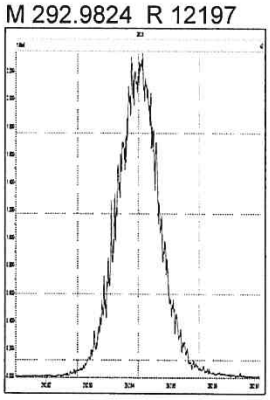
M 504.9696 R 11261



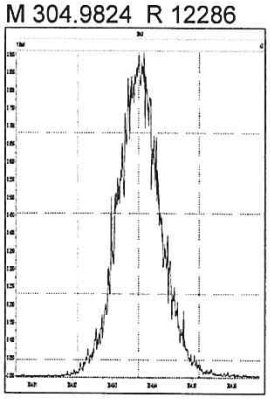
M 516.9697 R 12562



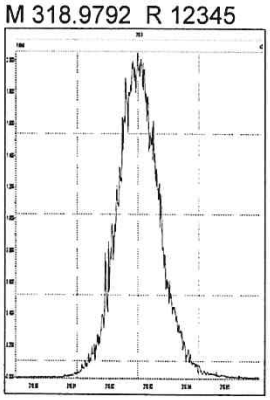
M 292.9824 R 12197



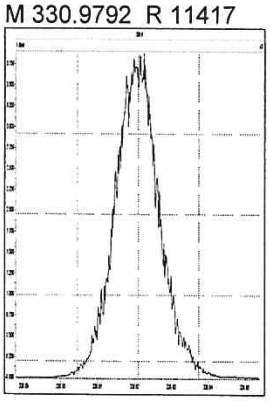
M 304.9824 R 12286



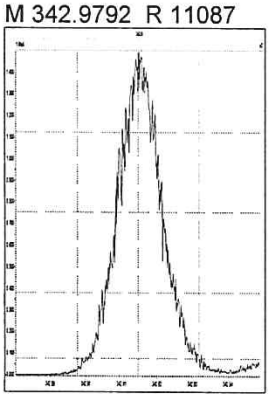
M 318.9792 R 12345



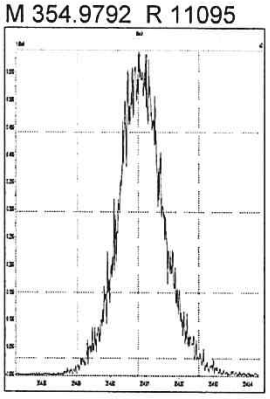
M 330.9792 R 11417



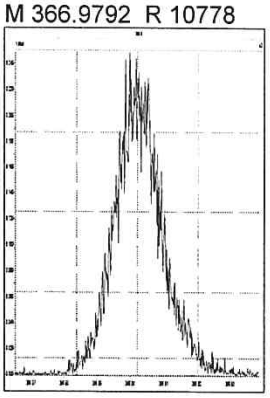
M 342.9792 R 11087



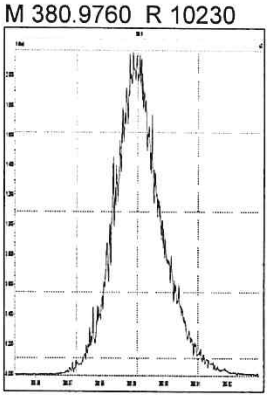
M 354.9792 R 11095



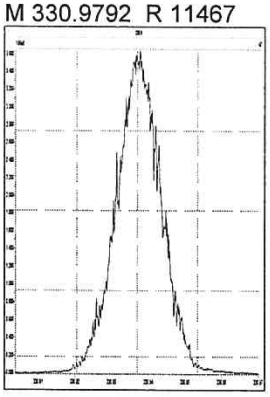
M 366.9792 R 10778



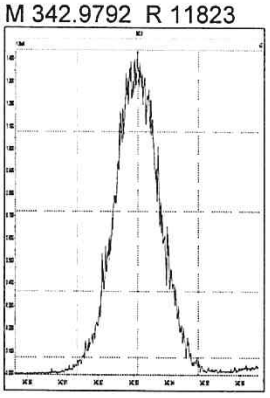
M 380.9760 R 10230



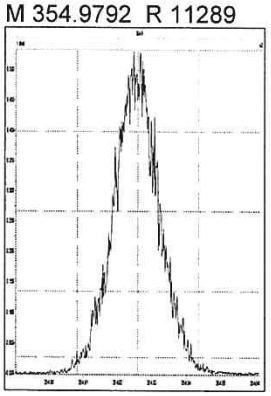
M 330.9792 R 11467



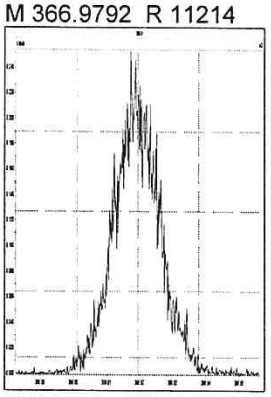
M 342.9792 R 11823



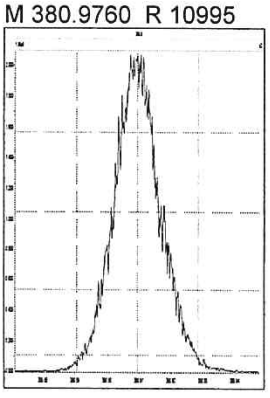
M 354.9792 R 11289



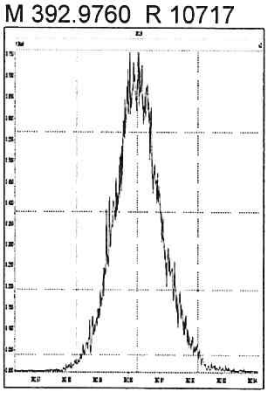
M 366.9792 R 11214



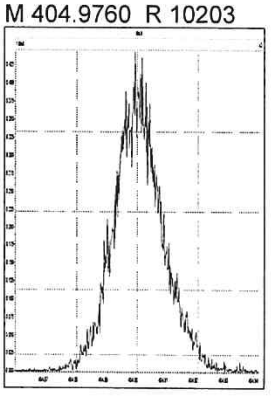
M 380.9760 R 10995



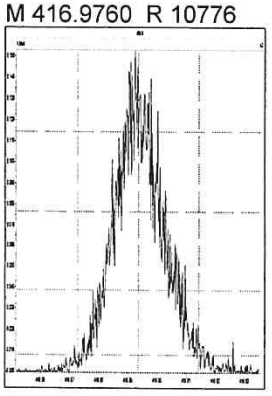
M 392.9760 R 10717



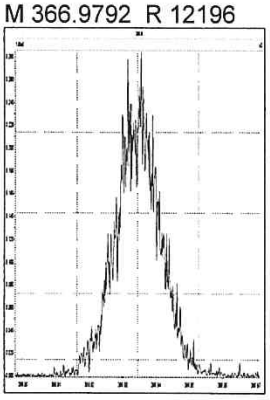
M 404.9760 R 10203



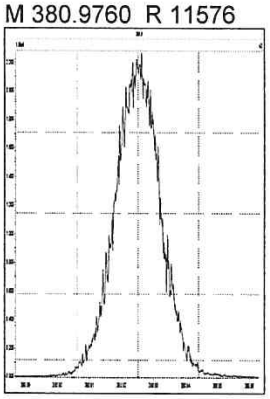
M 416.9760 R 10776



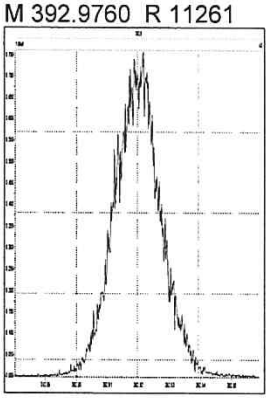
M 366.9792 R 12196



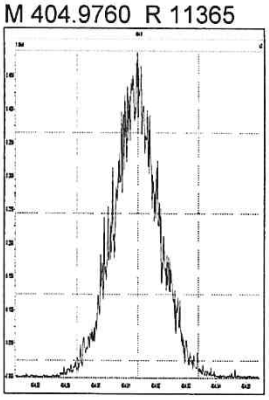
M 380.9760 R 11576



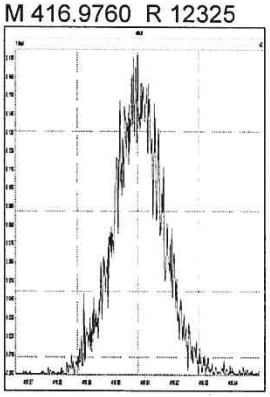
M 392.9760 R 11261



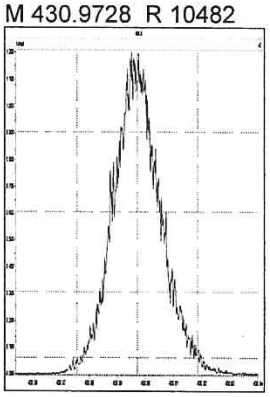
M 404.9760 R 11365



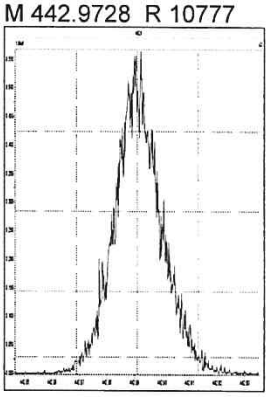
M 416.9760 R 12325



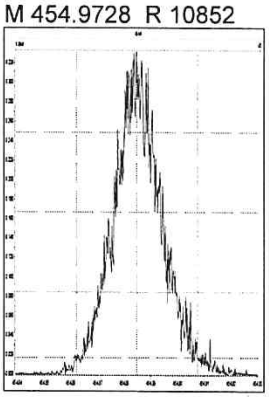
M 430.9728 R 10482



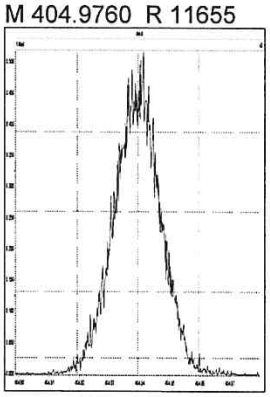
M 442.9728 R 10777



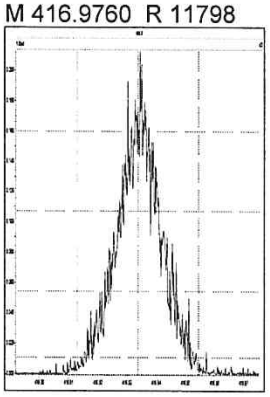
M 454.9728 R 10852



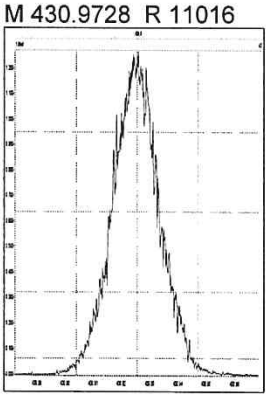
M 404.9760 R 11655



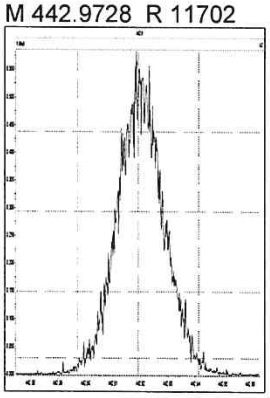
M 416.9760 R 11798



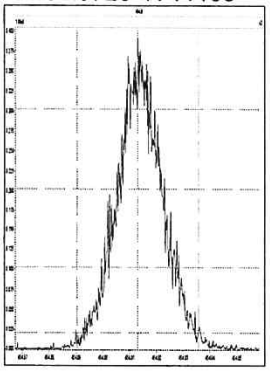
M 430.9728 R 11016



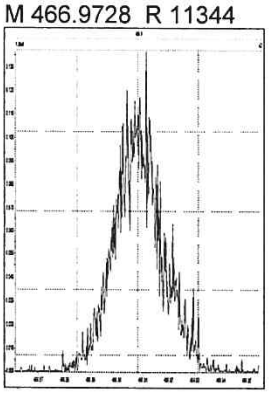
M 442.9728 R 11702



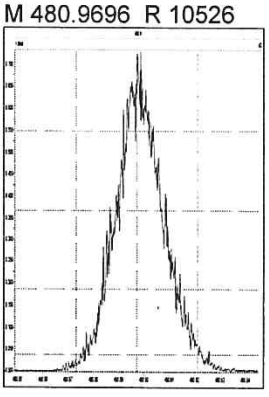
M 454.9728 R 11188



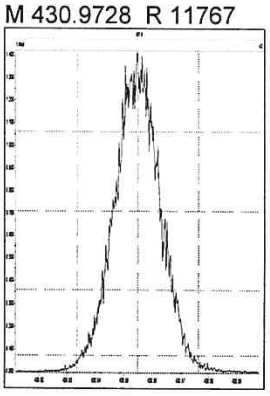
M 466.9728 R 11344



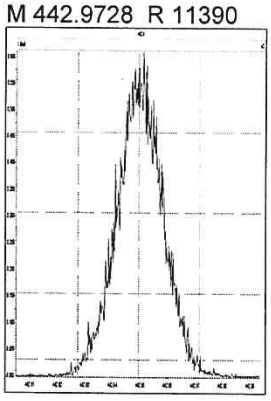
M 480.9696 R 10526



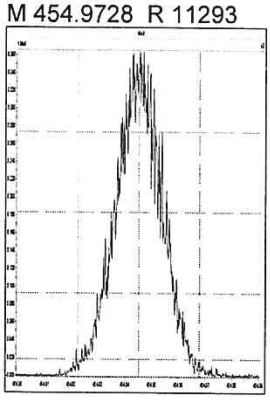
M 430.9728 R 11767



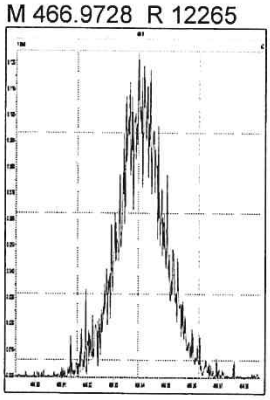
M 442.9728 R 11390



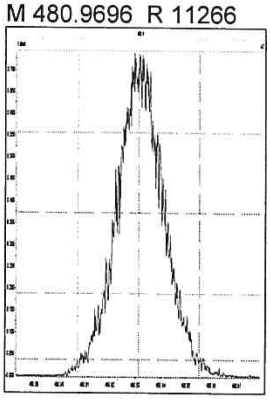
M 454.9728 R 11293



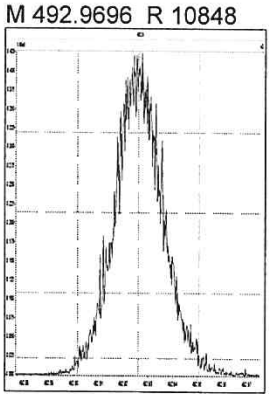
M 466.9728 R 12265



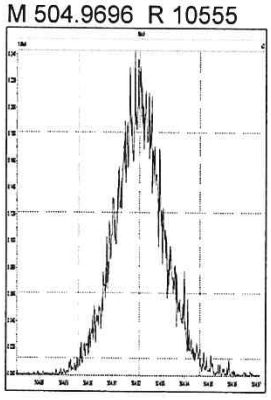
M 480.9696 R 11266



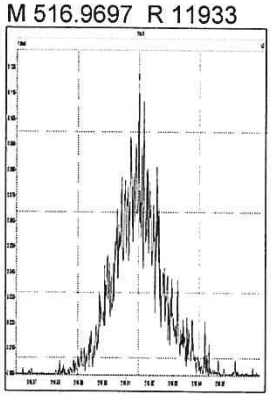
M 492.9696 R 10848



M 504.9696 R 10555



M 516.9697 R 11933



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

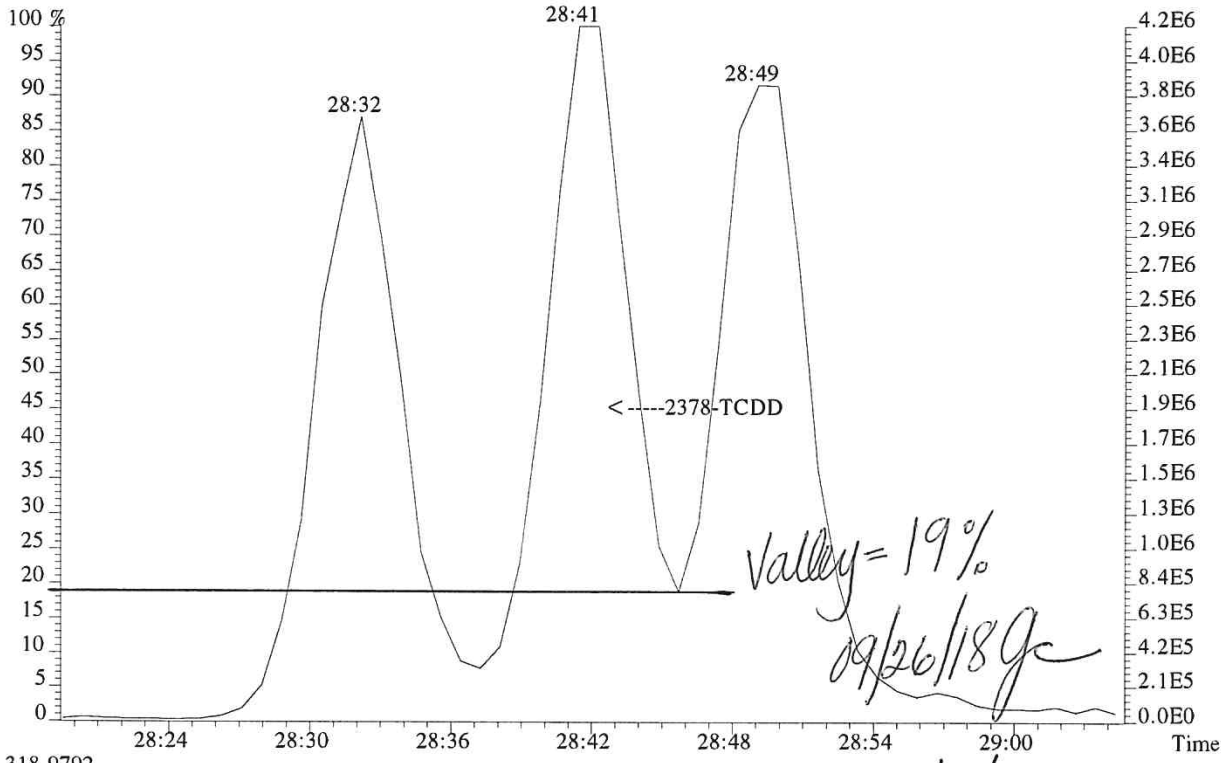
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P614680
Date Analyzed: 25-SEP-18
Time Analyzed: 12:13:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:52
TCDD	25:18	29:42
PeCDF	29:48	34:04
PeCDD	31:21	33:49
HxCDF	34:43	37:12
HxCDD	35:14	36:49
HpCDF	38:24	39:46
HpCDD	38:39	39:18

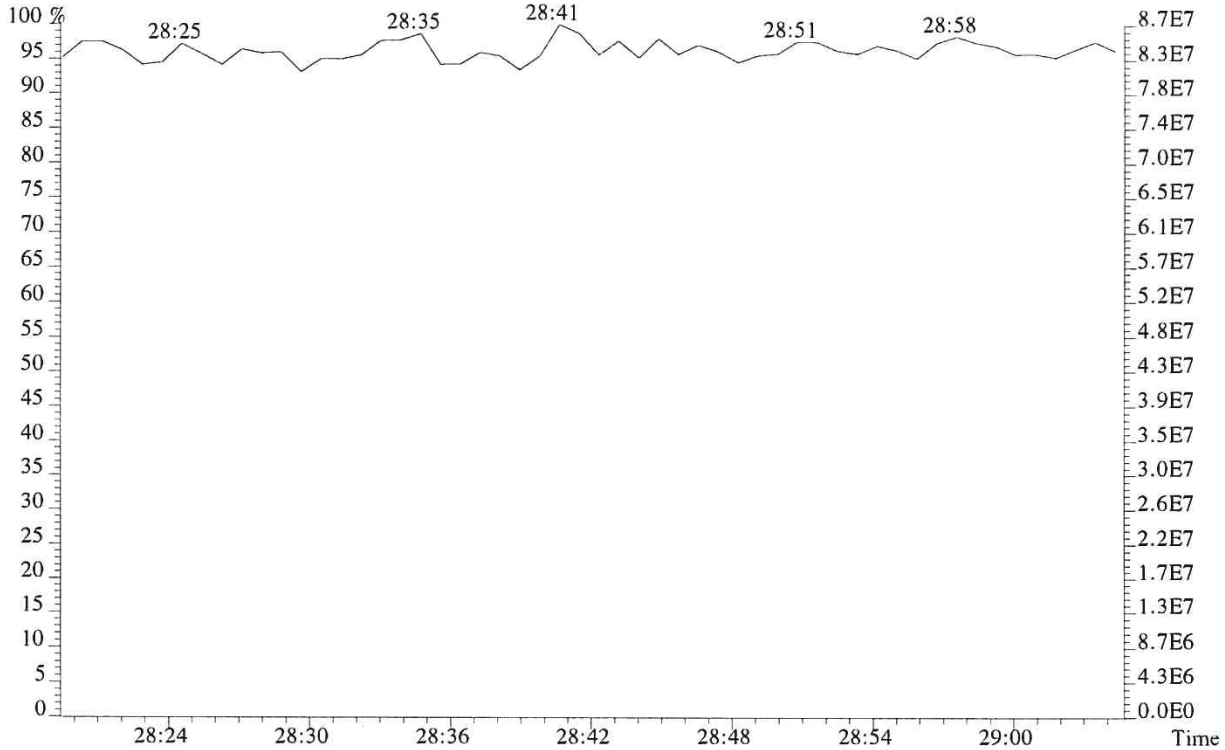
% Valley 2378-TCDD: 19 %

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



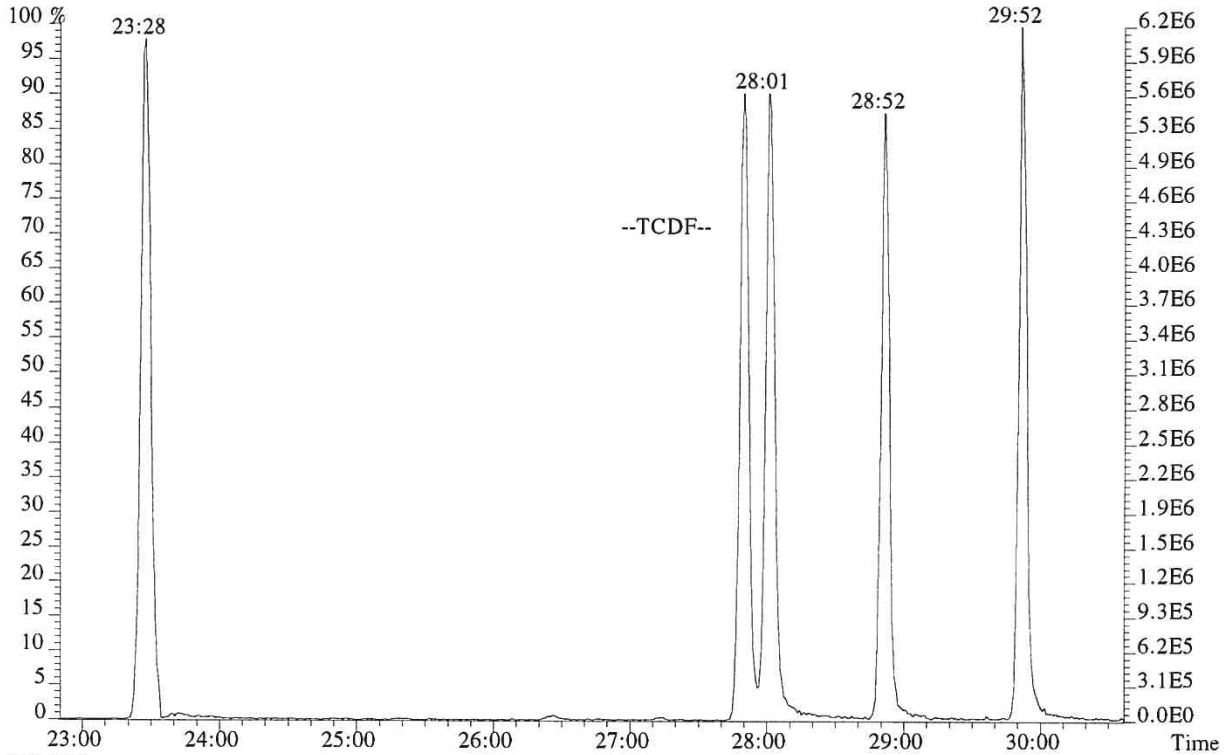
318.9792

LKL 09/26/18

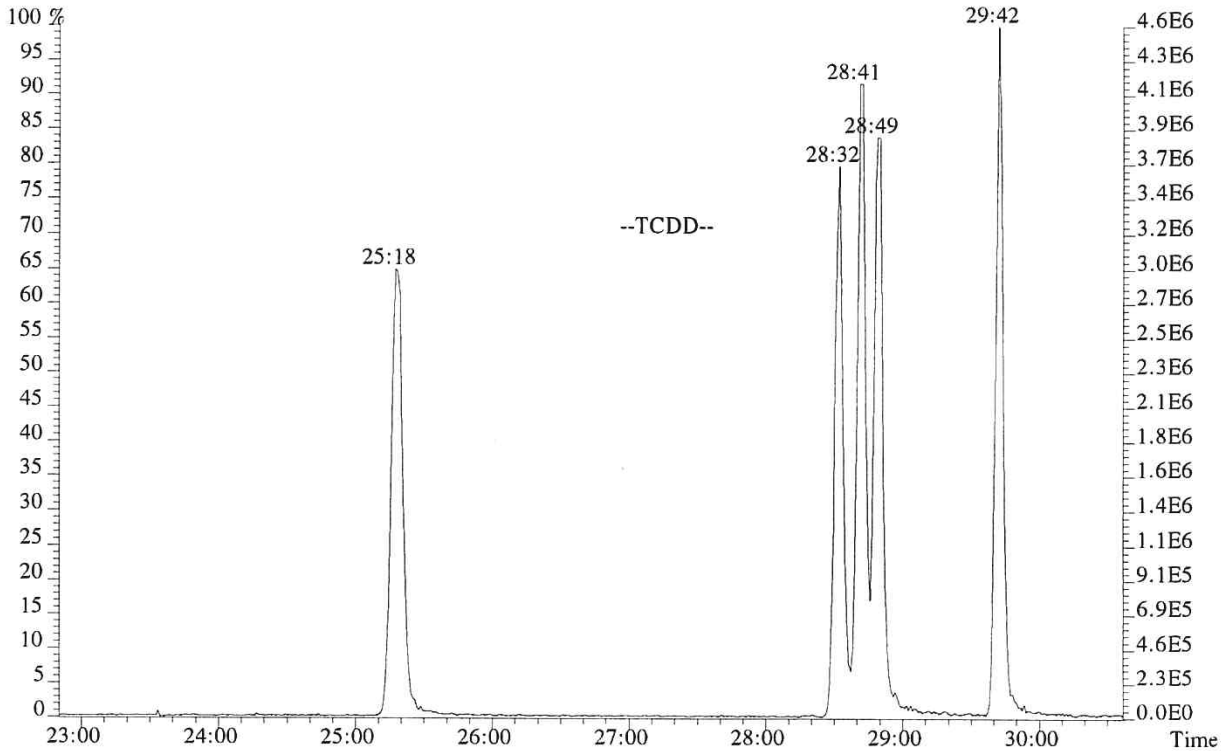


009408

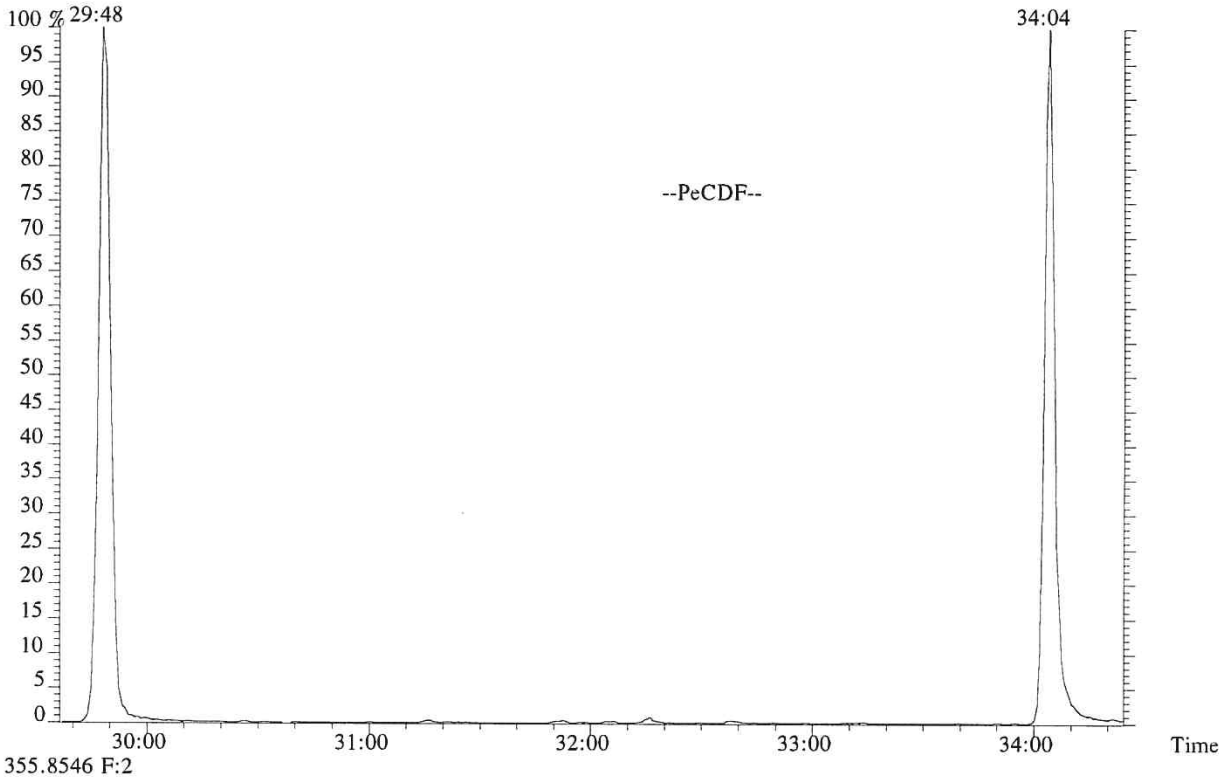
File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



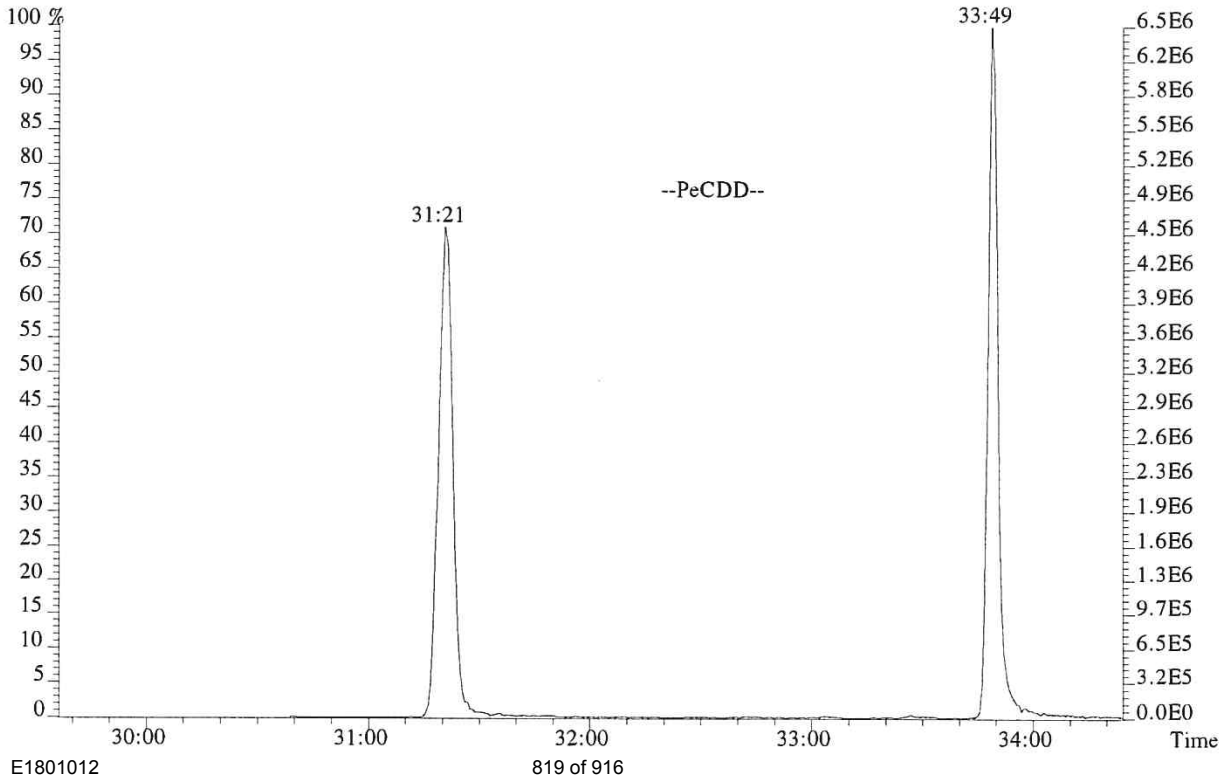
319.8965



File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

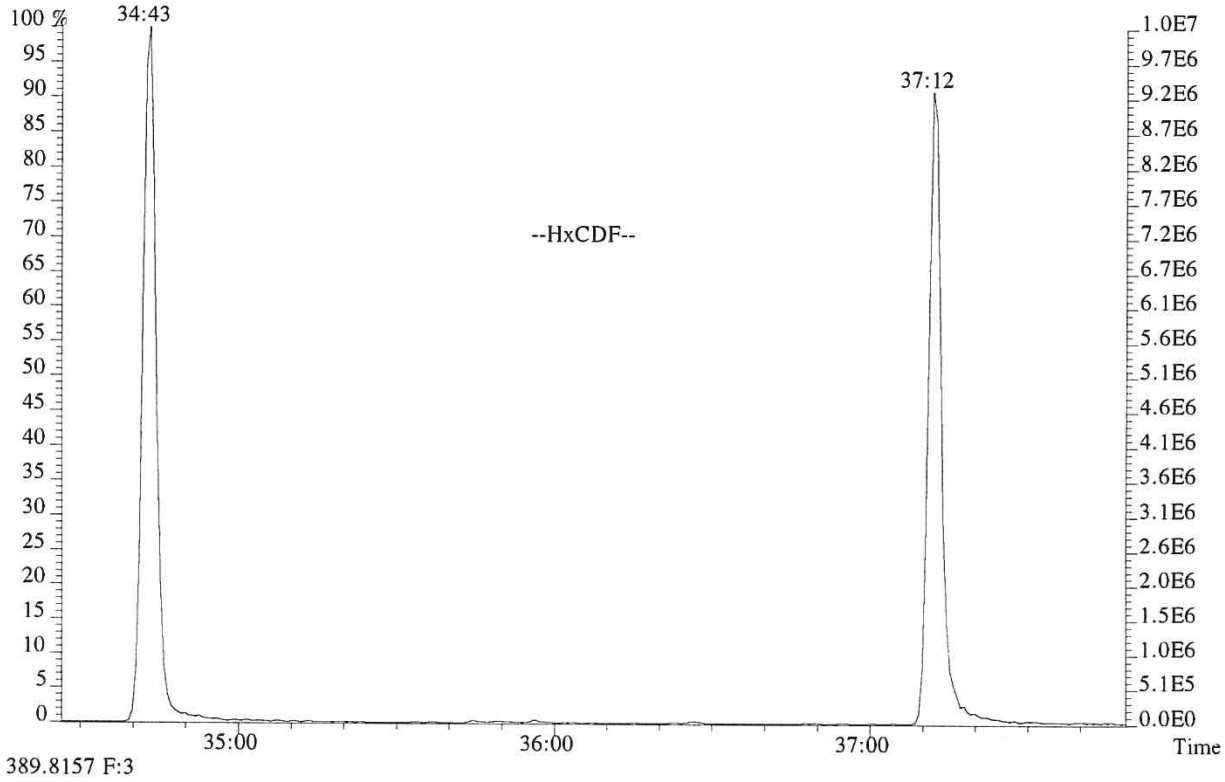


355.8546 F:2

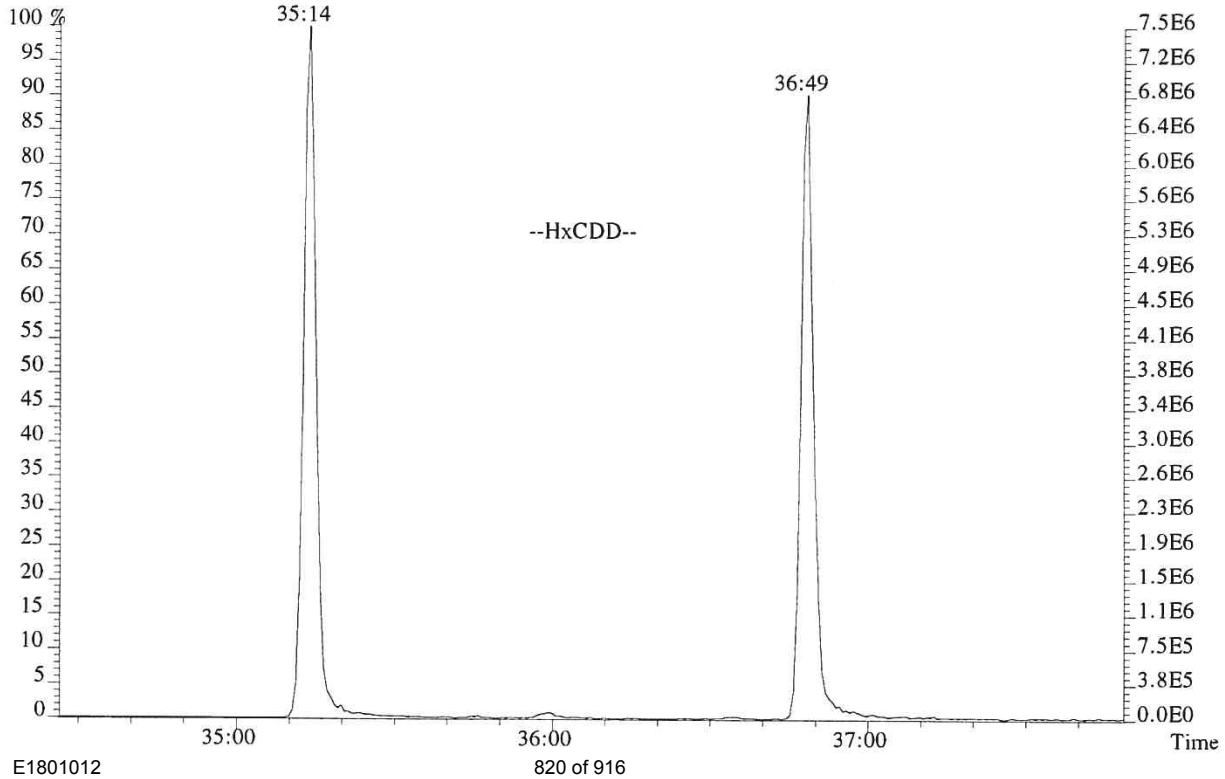


009410

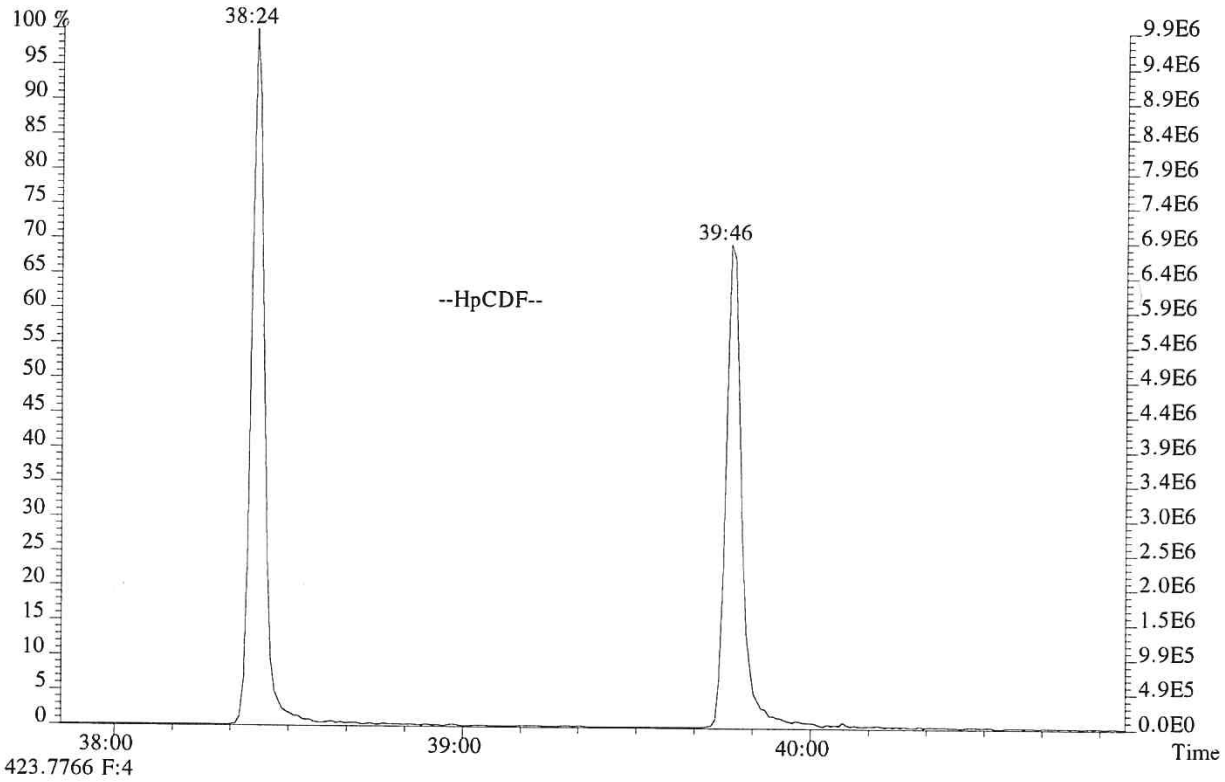
File:P614680 #1-304 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



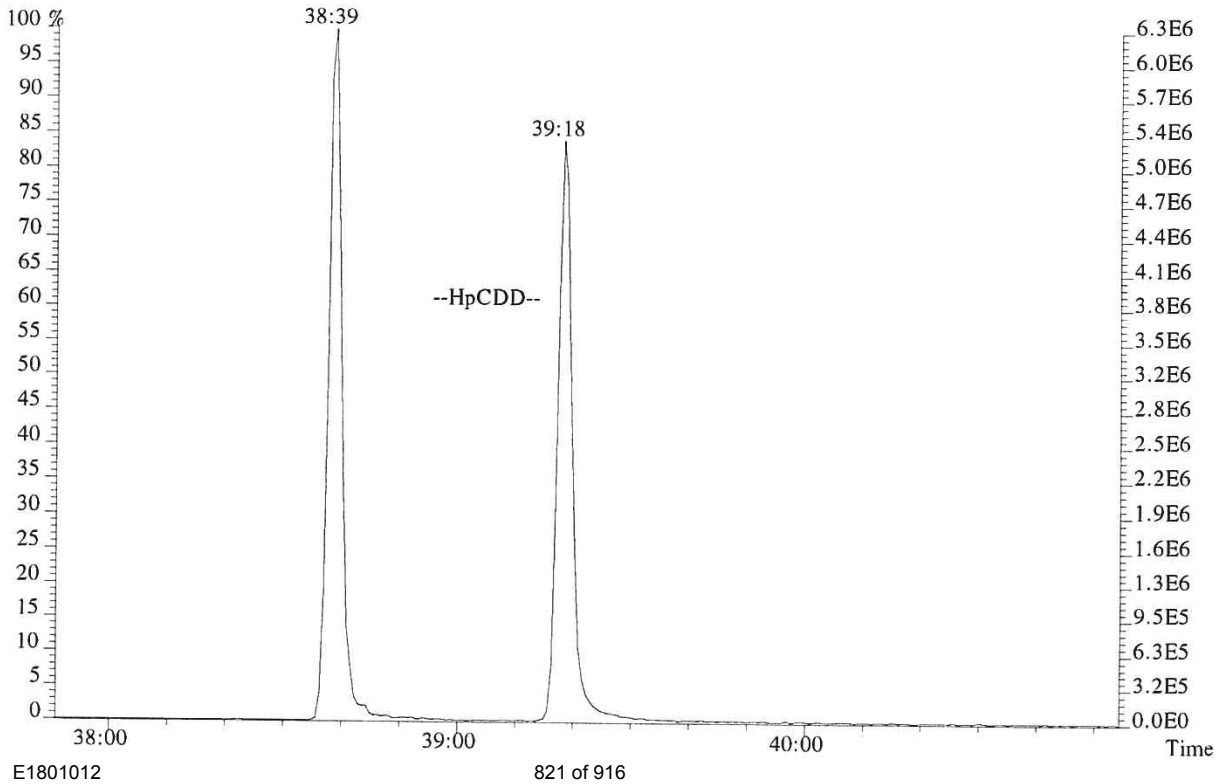
389.8157 F:3



File:P614680 #1-276 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



009412

USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

	RR/RRF						MEAN		
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.15	1.00	1.00	1.03	1.05	1.06	1.05	5.38	+/-20%
2,3,7,8-TCDF	1.13	1.08	1.12	1.05	1.06	1.05	1.08	3.07	+/-20%
1,2,3,7,8-PeCDF	1.16	1.17	1.12	1.15	1.16	1.18	1.16	1.72	+/-20%
1,2,3,7,8-PeCDD	0.89	0.95	0.95	0.91	0.93	0.93	0.93	2.61	+/-20%
2,3,4,7,8-PeCDF	1.10	1.13	1.10	1.08	1.10	1.11	1.10	1.49	+/-20%
1,2,3,4,7,8-HxCDF	1.47	1.46	1.39	1.36	1.38	1.42	1.42	3.10	+/-20%
1,2,3,6,7,8-HxCDF	1.27	1.36	1.30	1.28	1.28	1.28	1.29	2.52	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.11	1.04	1.06	1.05	1.06	1.07	3.00	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.07	1.06	1.06	1.06	1.05	1.06	0.70	+/-20%
1,2,3,7,8,9-HxCDD	1.17	1.18	1.12	1.13	1.14	1.12	1.15	2.24	+/-20%
2,3,4,6,7,8-HxCDF	1.27	1.32	1.29	1.28	1.27	1.27	1.28	1.52	+/-20%
1,2,3,7,8,9-HxCDF	1.34	1.34	1.29	1.30	1.30	1.30	1.31	1.68	+/-20%
1,2,3,4,6,7,8-HpCDF	1.56	1.60	1.46	1.50	1.51	1.51	1.52	3.15	+/-20%
1,2,3,4,6,7,8-HpCDD	1.14	1.13	1.09	1.10	1.10	1.11	1.11	1.85	+/-20%
1,2,3,4,7,8,9-HpCDF	1.47	1.54	1.46	1.45	1.43	1.43	1.46	2.80	+/-20%
OCDD	1.22	1.21	1.10	1.14	1.14	1.14	1.16	4.23	+/-20%
OCDF	1.60	1.61	1.49	1.57	1.57	1.59	1.57	2.60	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.98	0.97	0.97	1.00	1.01	0.98	2.13	+/-35%
13C-1,2,3,7,8-PeCDD	1.09	1.05	1.16	1.13	1.16	1.15	1.12	3.77	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.90	0.91	0.90	0.90	0.89	0.90	0.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.92	0.92	0.89	0.89	0.91	0.90	0.90	1.52	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.86	0.88	0.85	0.86	0.84	0.84	0.86	1.91	+/-35%
13C-OCDD	0.65	0.69	0.65	0.67	0.65	0.65	0.66	2.45	+/-35%
13C-2,3,7,8-TCDF	1.40	1.41	1.42	1.44	1.40	1.43	1.42	1.24	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.54	1.61	1.61	1.65	1.63	1.60	3.24	+/-35%
13C-2,3,4,7,8-PeCDF	1.52	1.49	1.60	1.57	1.63	1.61	1.57	3.42	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.18	1.19	1.14	1.21	1.18	1.06	1.16	4.58	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.39	1.34	1.33	1.35	1.31	1.29	1.34	2.46	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.24	1.24	1.25	1.24	1.25	1.06	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.13	1.13	1.12	1.15	1.15	1.10	1.13	1.66	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.06	1.02	1.04	1.01	1.01	1.03	1.93	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.94	0.95	0.90	0.86	0.90	0.88	0.91	3.64	+/-35%
37Cl-2,3,7,8-TCDD	1.06	1.11	1.07	1.05	1.11	1.13	1.09	3.15	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC lIMITS
2,3,7,8-TCDF	304/306	0.75	0.75	0.83	0.80	0.79	0.80		0.65-0.89
2,3,7,8-TCDD	320/322	0.78	0.83	0.80	0.78	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.58	1.57	1.58	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.57	1.61	1.57	1.58	1.59	1.59		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.56	1.52	1.53	1.55	1.55	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.26	1.28	1.29		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.24	1.25	1.27	1.27	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.29	1.25	1.28	1.28	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.22	1.29	1.23	1.28	1.28	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.21	1.20	1.26	1.33	1.26	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.41	1.27	1.25	1.23	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.22	1.25	1.24	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.04	1.02	1.06	1.05	1.04	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.89	1.07	1.05	1.04	1.05	1.05		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.10	1.07	1.07	1.06	1.06	1.06		0.88-1.20
OCDF	442/444	0.90	0.87	0.91	0.92	0.93	0.92		0.76-1.02
OCDD	458/460	0.93	0.89	0.88	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.80	0.80	0.80	0.80	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.58	1.57	1.58	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.26	1.26	1.32	1.25	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.26	1.26	1.20	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.04	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.91	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.80	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.60	1.60	1.60	1.60		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.62	1.61	1.59	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.54	0.54	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.54	0.54	0.53	0.54	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.53	0.54	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.46	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.46	0.45	0.46	0.45	0.46		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.81	0.81	0.80	0.79	0.81		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.26	1.26	1.24	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.991e+02	5.332e+02	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.245e+03	1.970e+03	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:10	3.017e+03	1.917e+03	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.964e+03	2.360e+03	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.032e+03	2.349e+03	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.788e+03	2.154e+03	1.29	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.544e+03	2.080e+03	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.520e+03	2.421e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.988e+03	2.226e+03	0.89	yes	no	1.463
10	Unk	OCDF	42:13	3.006e+03	3.322e+03	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:49	2.873e+02	3.690e+02	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.757e+03	1.126e+03	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.695e+03	1.402e+03	1.21	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.736e+03	1.234e+03	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.790e+03	1.494e+03	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.575e+03	1.438e+03	1.10	yes	no	1.112
17	Unk	OCDD	42:01	2.333e+03	2.510e+03	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	28:00	1.453e+05	1.860e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.225e+05	1.378e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.208e+05	1.389e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	1.017e+05	1.873e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.172e+05	2.227e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.097e+05	2.020e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.463e+04	1.814e+05	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	7.990e+04	1.736e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	7.243e+04	1.569e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.005e+05	1.270e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.588e+05	1.004e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.251e+05	9.838e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.252e+05	9.893e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.083e+05	1.026e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:01	1.503e+05	1.668e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.058e+05	1.311e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.355e+05	1.094e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.272e+02				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+04	1.79e+03	3.7e+01	1.00e+05	4.41e+03	2.3e+01
2	1,2,3,7,8-PeCDF	5.99e+05	1.18e+03	5.1e+02	3.57e+05	4.28e+03	8.3e+01
3	2,3,4,7,8-PeCDF	5.69e+05	1.18e+03	4.8e+02	3.70e+05	4.28e+03	8.7e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.85e+05	1.42e+03	3.4e+02
5	1,2,3,6,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.95e+05	1.42e+03	3.5e+02
6	2,3,4,6,7,8-HxCDF	6.03e+05	3.25e+03	1.9e+02	4.83e+05	1.42e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	4.97e+05	3.25e+03	1.5e+02	4.13e+05	1.42e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.62e+05	1.66e+03	3.4e+02	5.47e+05	1.04e+03	5.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.66e+03	2.4e+02	4.51e+05	1.04e+03	4.3e+02
10	OCDF	5.23e+05	1.34e+03	3.9e+02	5.81e+05	4.02e+03	1.4e+02
11	2,3,7,8-TCDD	6.18e+04	5.07e+03	1.2e+01	6.68e+04	2.40e+03	2.8e+01
12	1,2,3,7,8-PeCDD	3.47e+05	2.36e+03	1.5e+02	2.20e+05	2.64e+02	8.3e+02
13	1,2,3,4,7,8-HxCDD	3.95e+05	1.84e+03	2.1e+02	3.18e+05	1.66e+03	1.9e+02
14	1,2,3,6,7,8-HxCDD	3.64e+05	1.84e+03	2.0e+02	2.60e+05	1.66e+03	1.6e+02
15	1,2,3,7,8,9-HxCDD	4.06e+05	1.84e+03	2.2e+02	3.23e+05	1.66e+03	1.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.19e+05	2.32e+03	1.4e+02	3.31e+05	1.19e+03	2.8e+02
17	OCDD	4.28e+05	8.48e+02	5.0e+02	4.37e+05	1.30e+03	3.4e+02
18	13C-2,3,7,8-TCDF	2.54e+07	1.52e+04	1.7e+03	3.22e+07	1.06e+04	3.1e+03
19	13C-1,2,3,7,8-PeCDF	4.04e+07	2.12e+03	1.9e+04	2.49e+07	3.13e+03	8.0e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+07	2.12e+03	2.0e+04	2.67e+07	3.13e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.18e+07	3.28e+03	6.7e+03	4.05e+07	3.71e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.40e+07	3.28e+03	7.3e+03	4.55e+07	3.71e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.42e+07	3.28e+03	7.4e+03	4.44e+07	3.71e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.91e+07	3.28e+03	5.8e+03	3.68e+07	3.71e+03	9.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+07	5.66e+03	3.2e+03	3.90e+07	2.05e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+07	5.66e+03	2.6e+03	3.15e+07	2.05e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.84e+07	1.55e+04	1.2e+03	2.34e+07	5.32e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+07	3.24e+03	9.6e+03	1.95e+07	2.82e+03	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	5.20e+03	5.5e+03	2.24e+07	3.08e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+07	5.20e+03	5.1e+03	2.10e+07	3.08e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	2.60e+03	8.7e+03	2.13e+07	2.03e+03	1.1e+04
32	13C-OCDD	2.73e+07	1.56e+03	1.8e+04	2.99e+07	4.32e+02	6.9e+04
33	13C-1,2,3,4-TCDD	1.96e+07	1.55e+04	1.3e+03	2.41e+07	5.32e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+07	5.20e+03	5.8e+03	2.40e+07	3.08e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.12e+05	4.66e+03	2.4e+01			

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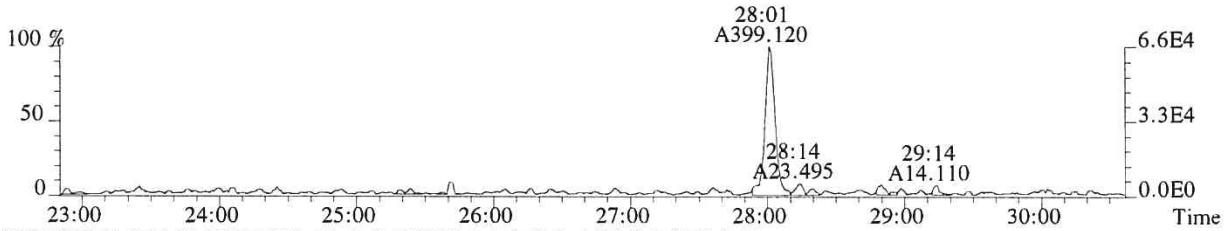
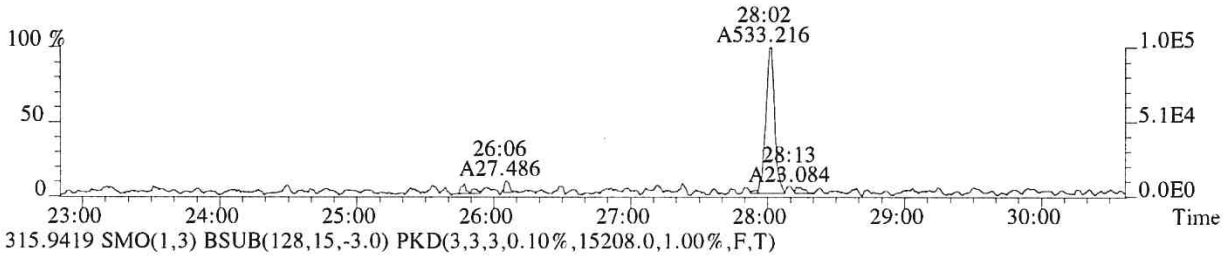
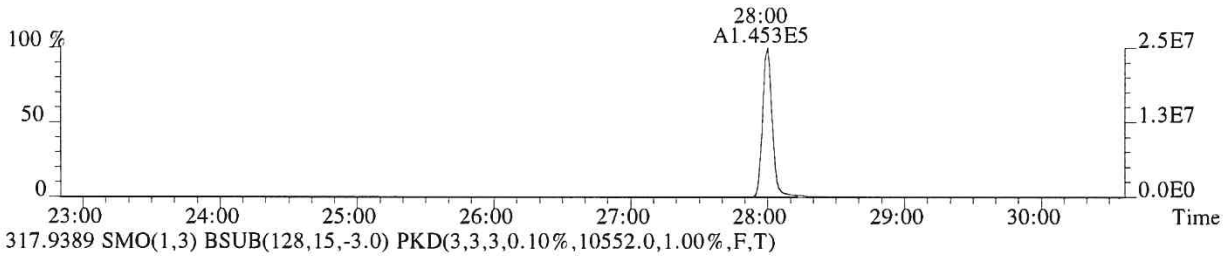
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



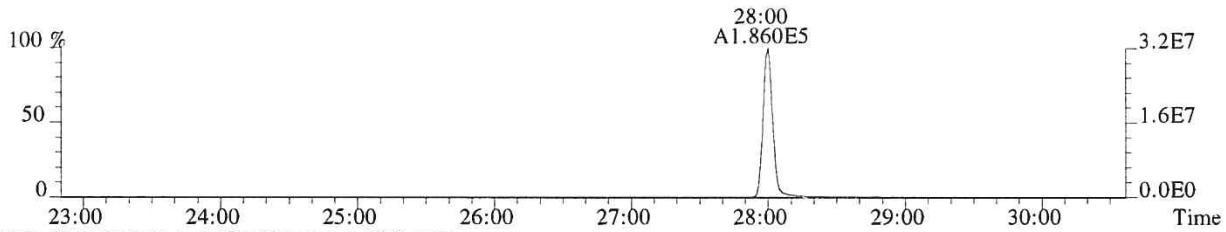
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



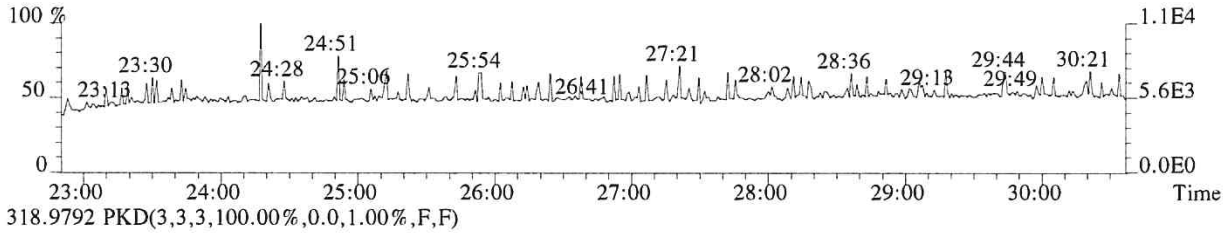
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15208.0,1.00%,F,T)



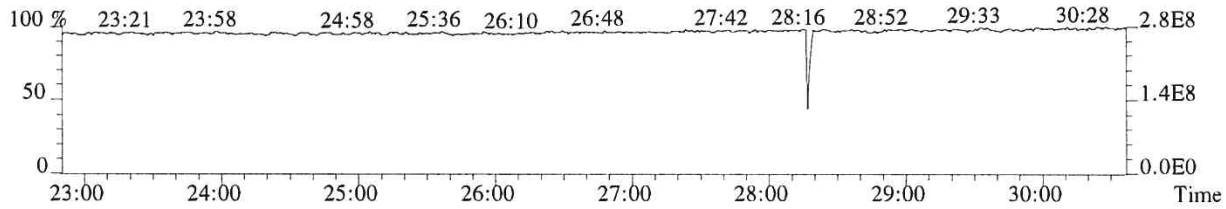
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

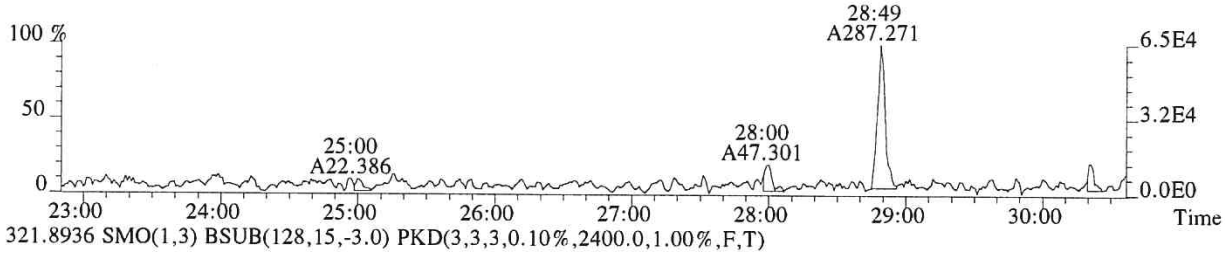


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

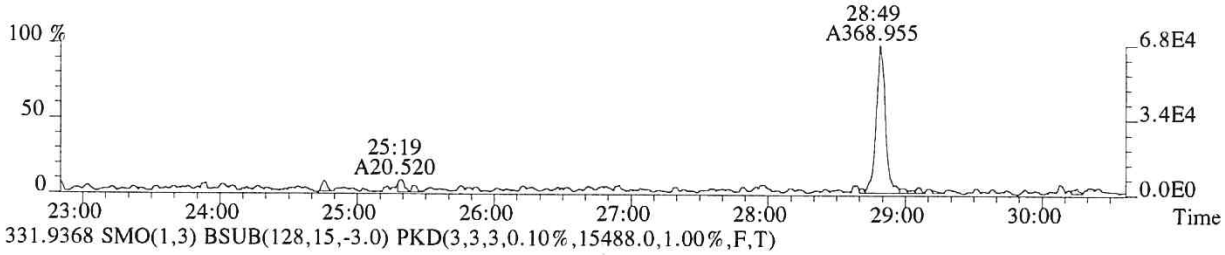


009417

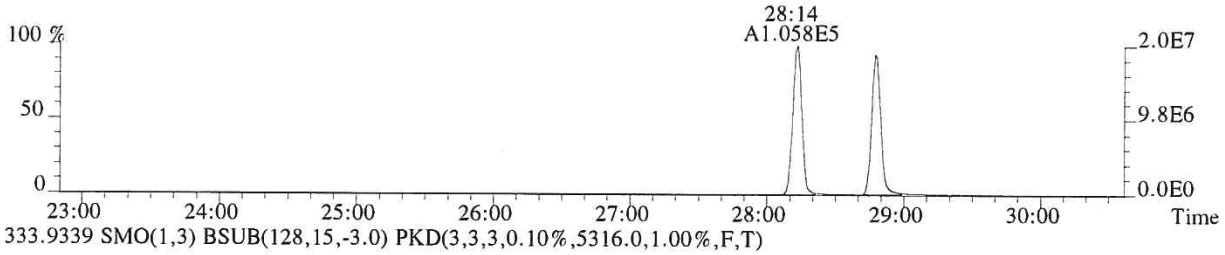
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5072.0,1.00%,F,T)



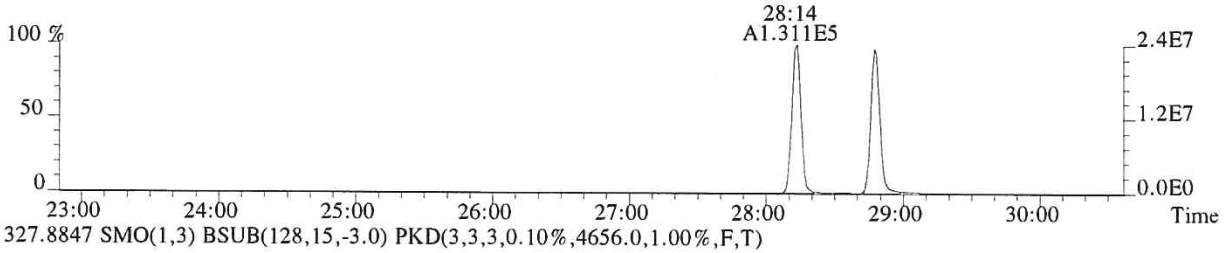
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



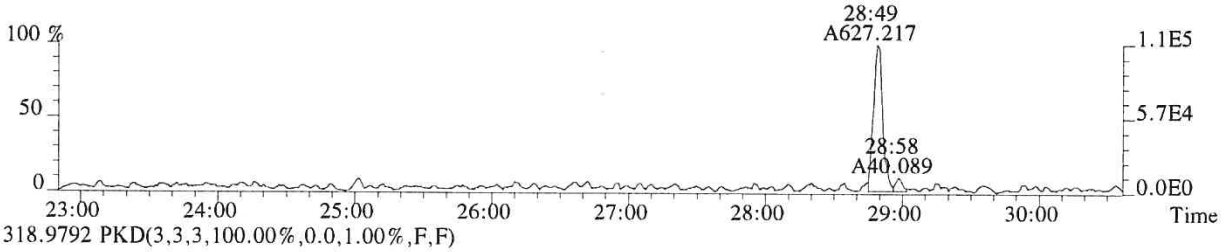
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15488.0,1.00%,F,T)



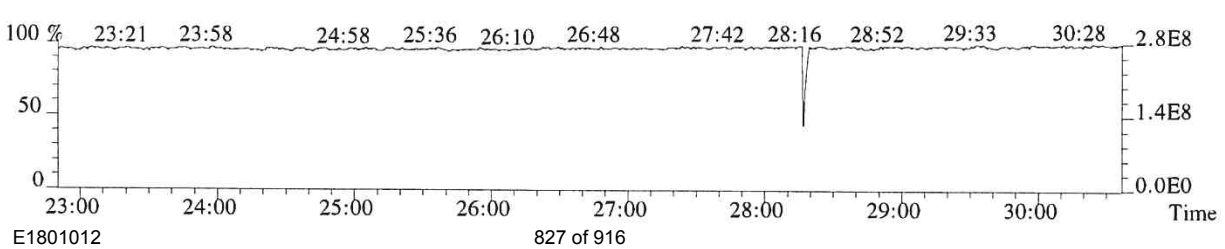
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5316.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)

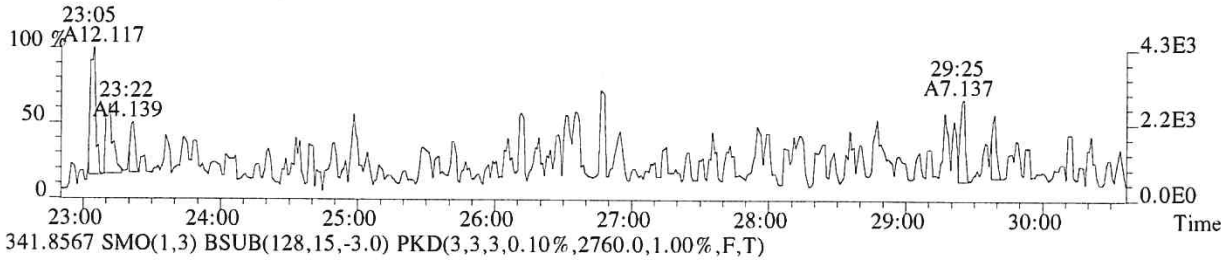


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

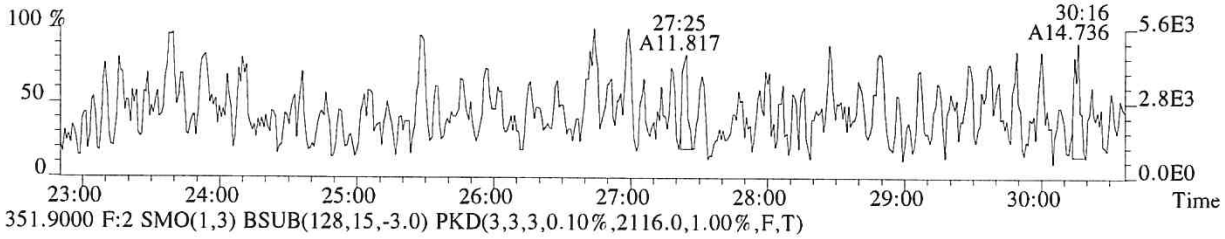


009418

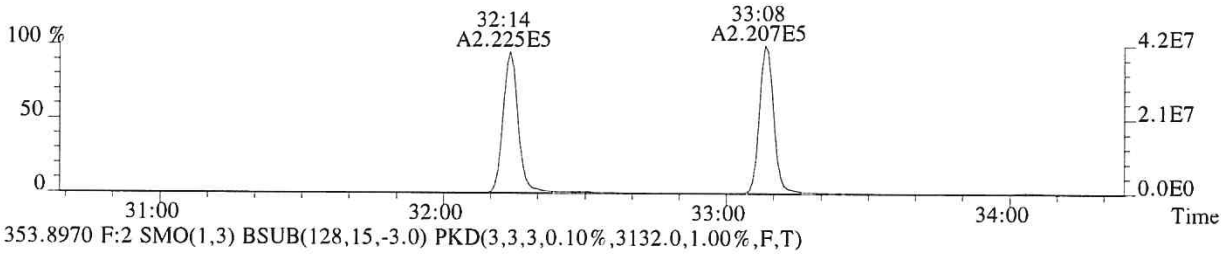
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



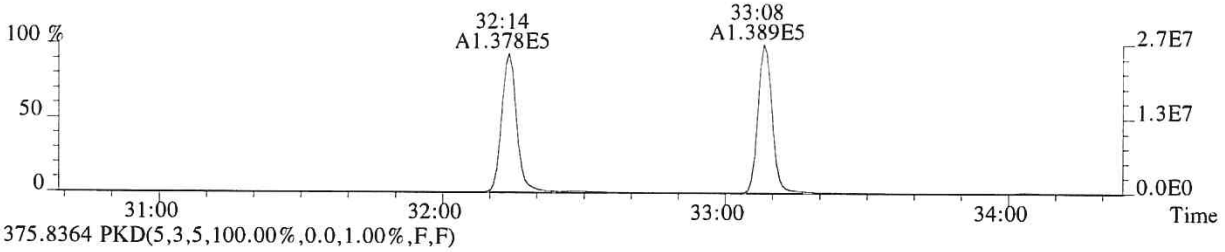
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



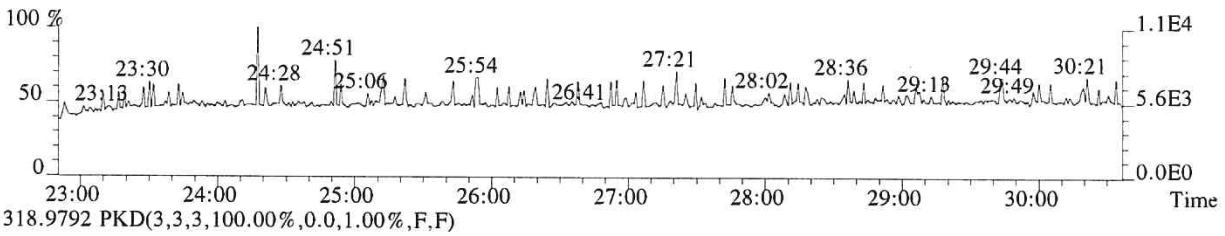
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



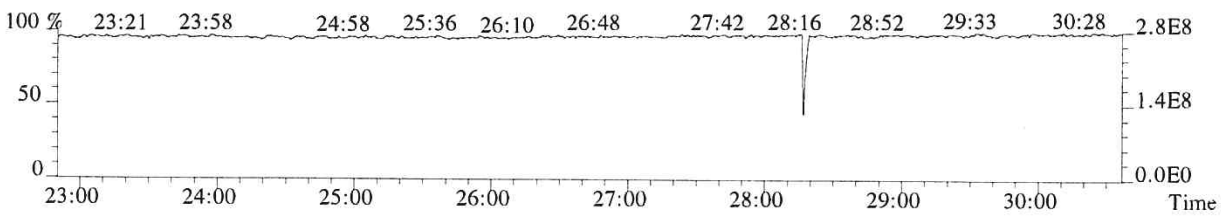
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

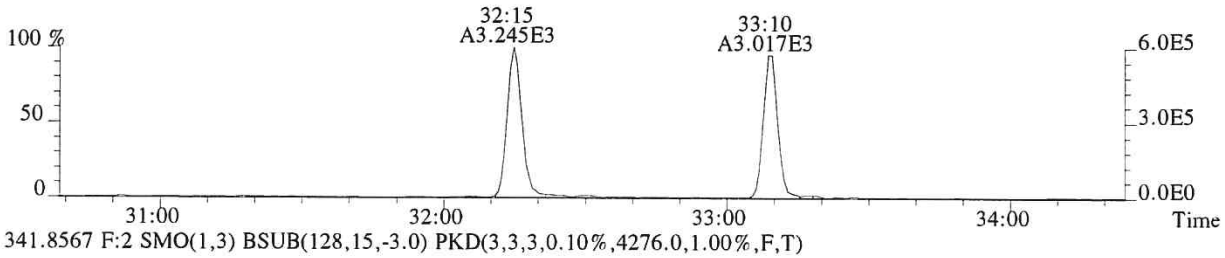


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

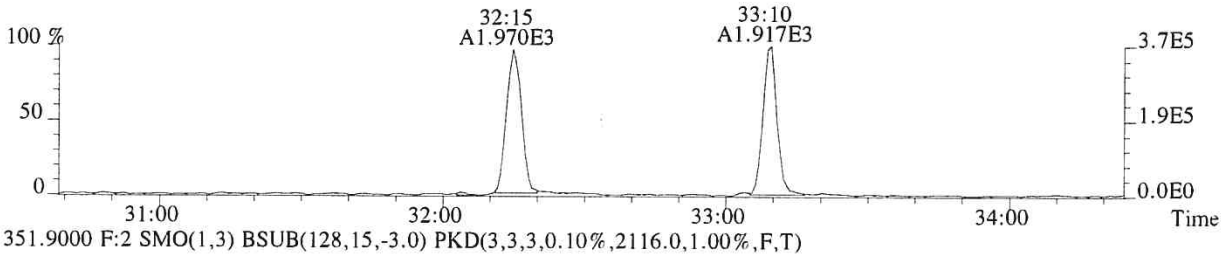


009419

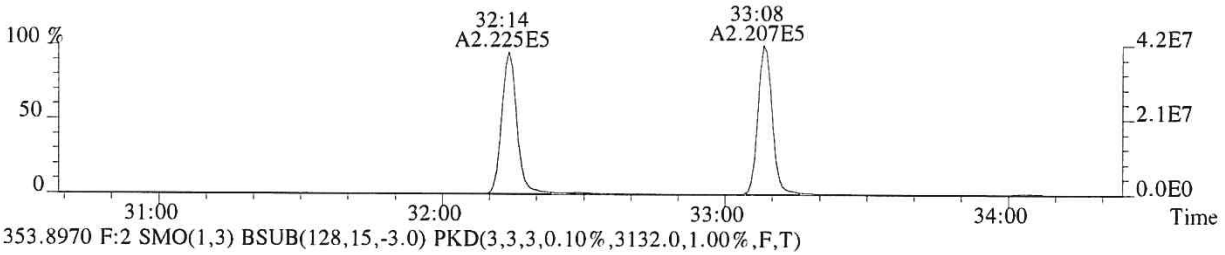
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



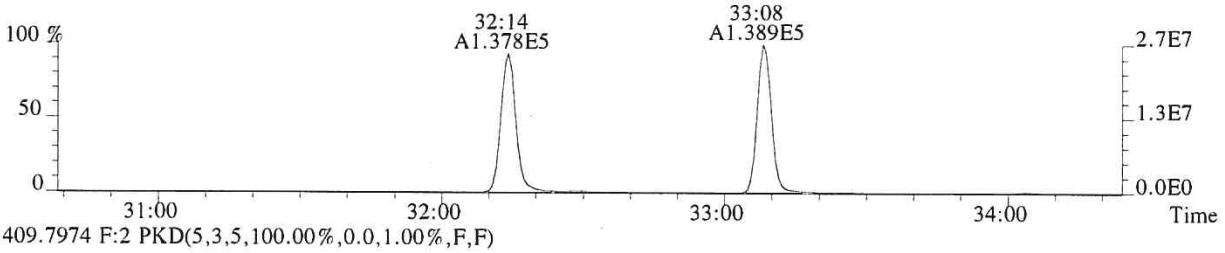
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4276.0,1.00%,F,T)



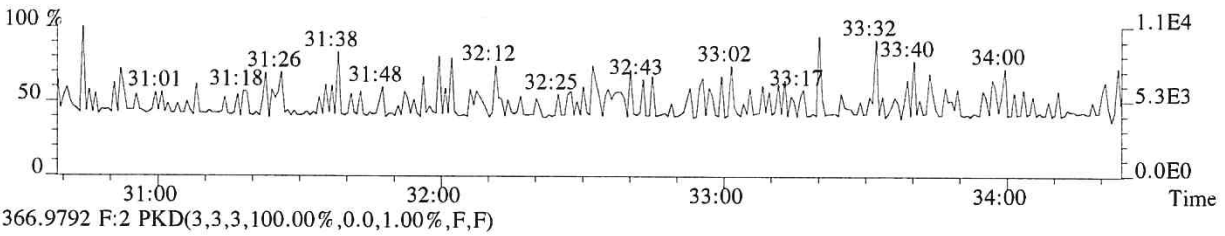
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



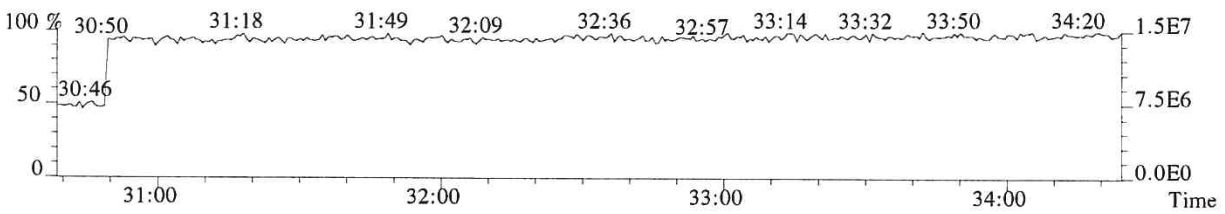
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



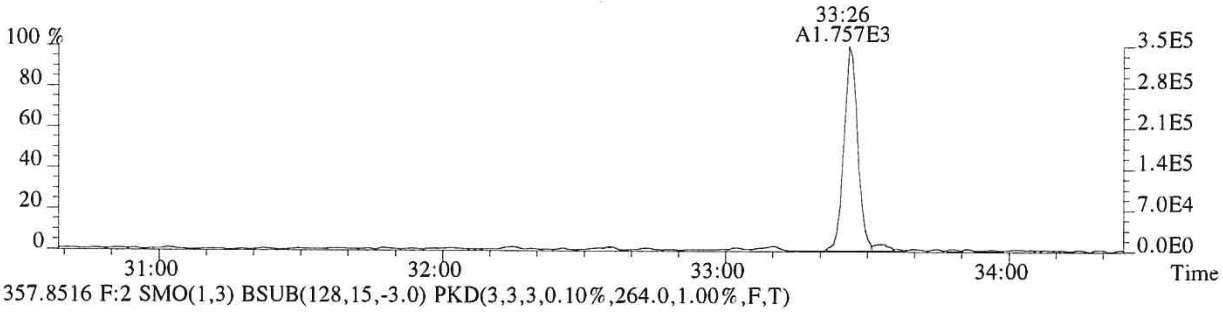
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



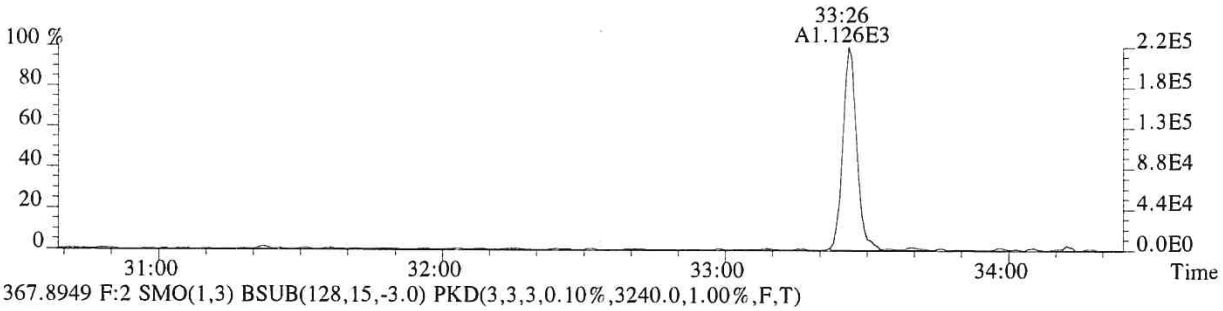
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



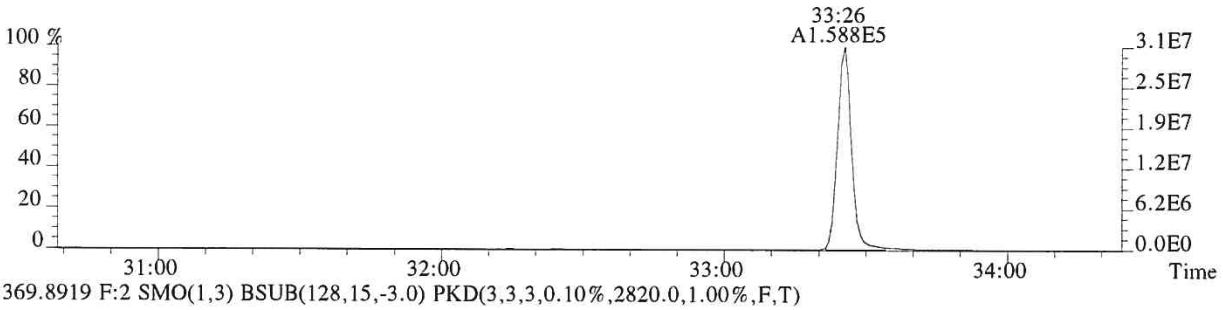
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



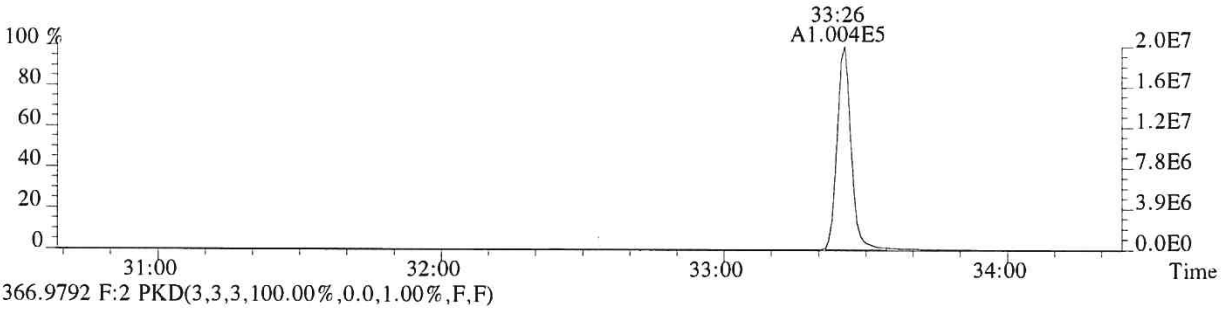
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



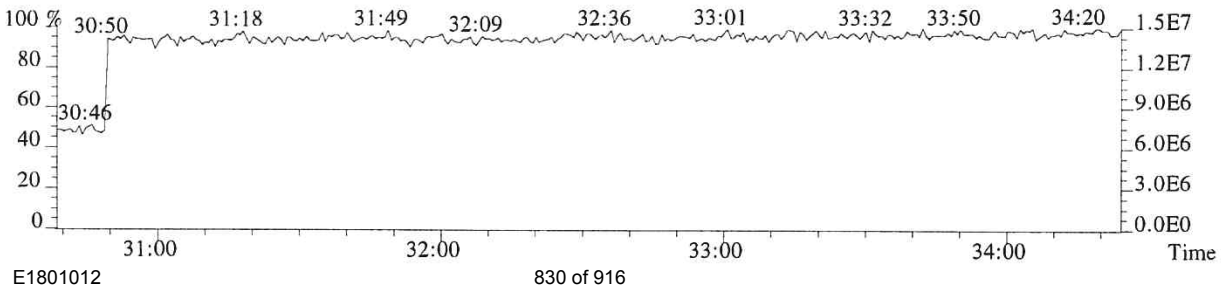
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)

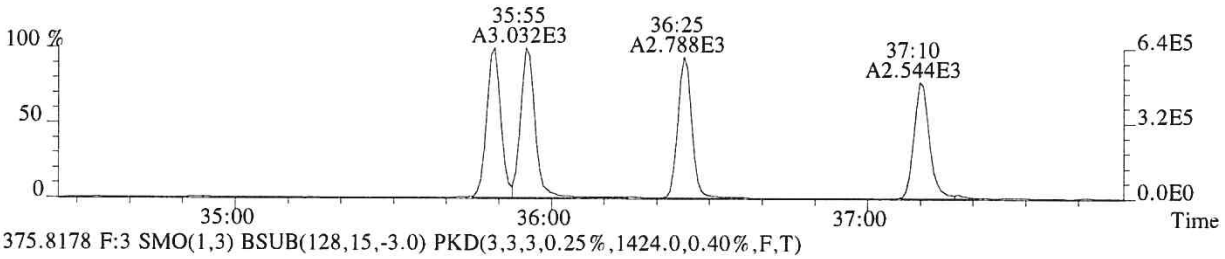


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

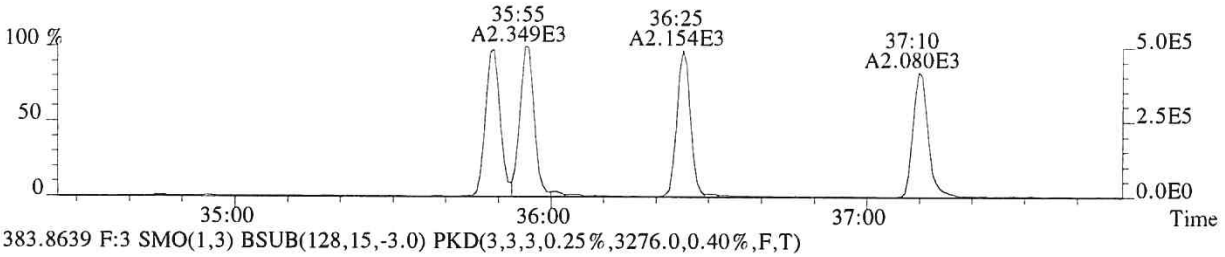


009421

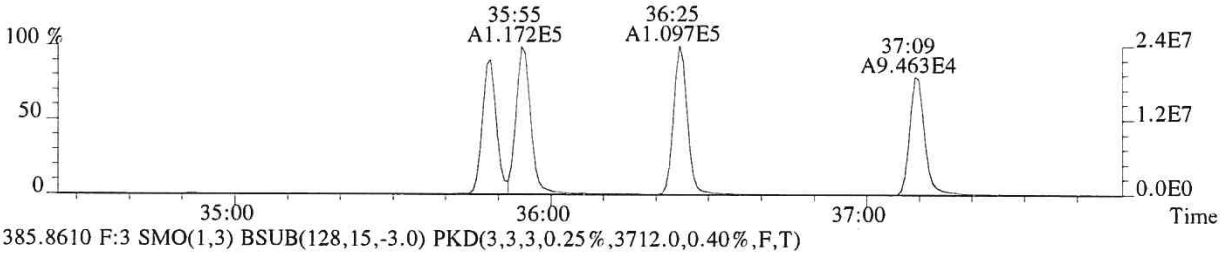
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.40%,F,T)



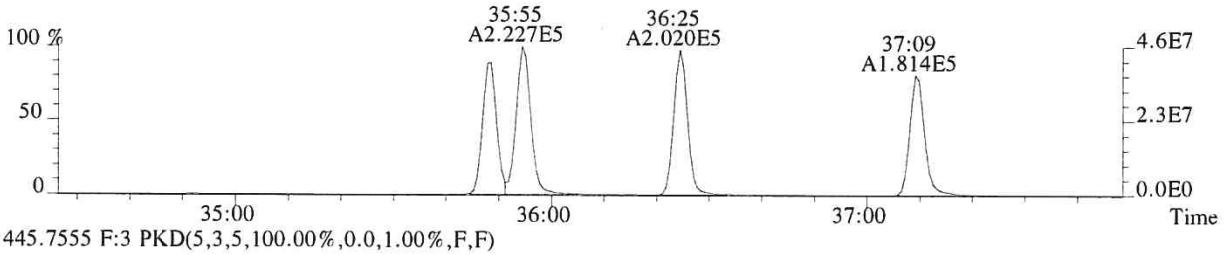
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



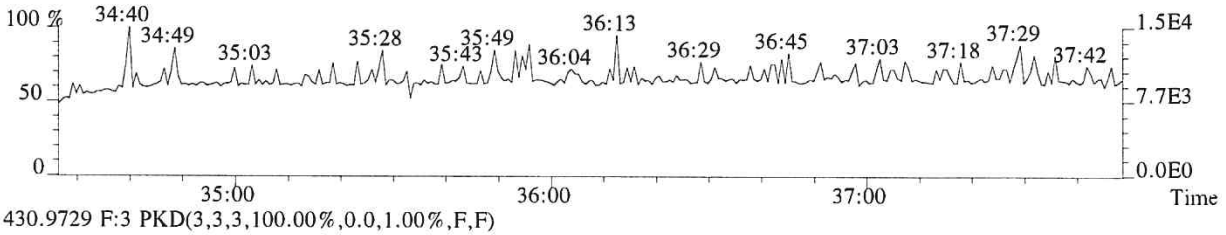
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



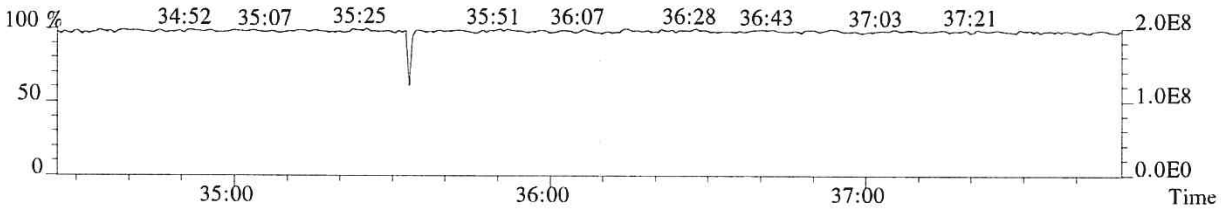
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

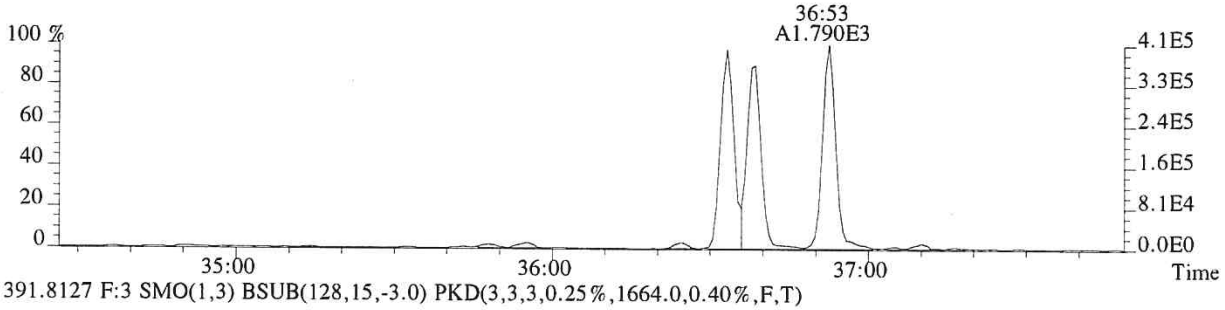


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

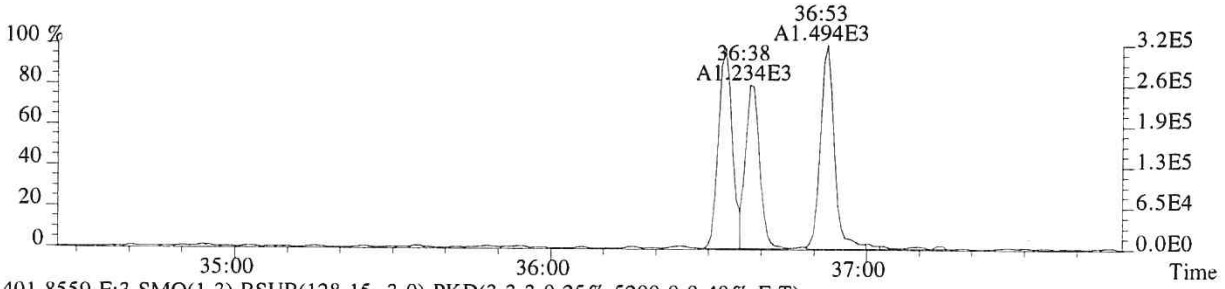


009422

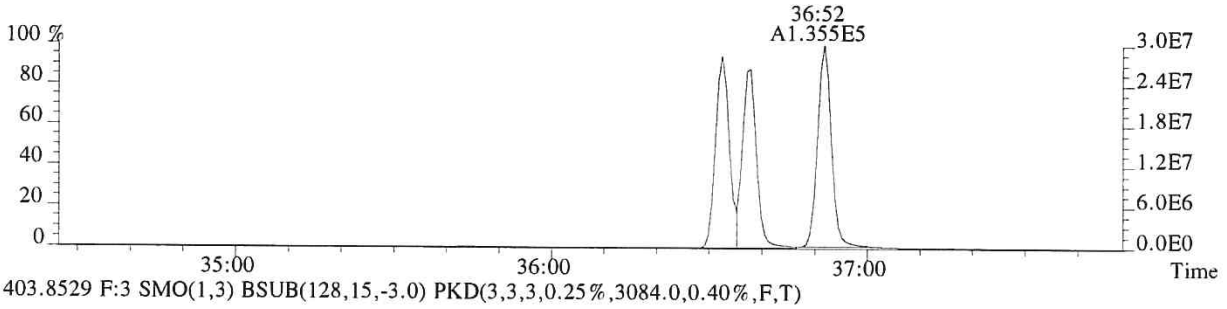
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



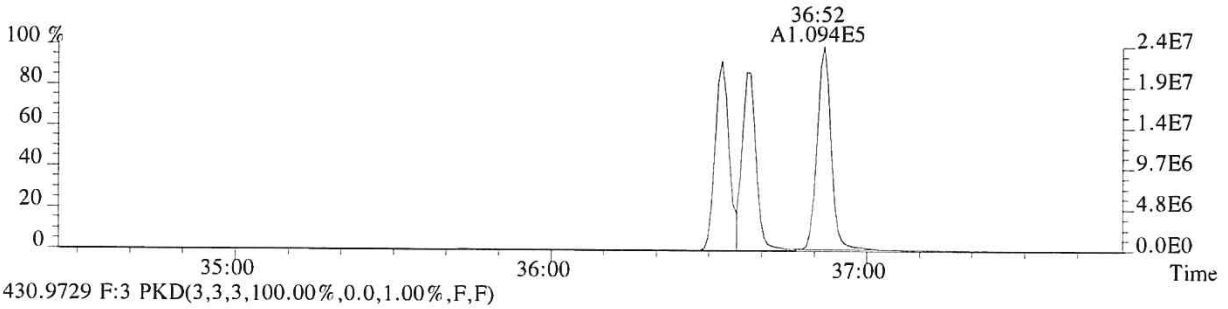
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



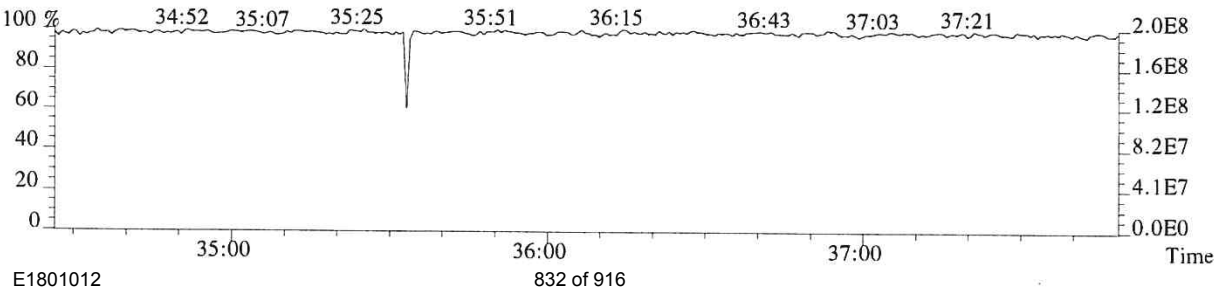
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5200.0,0.40%,F,T)



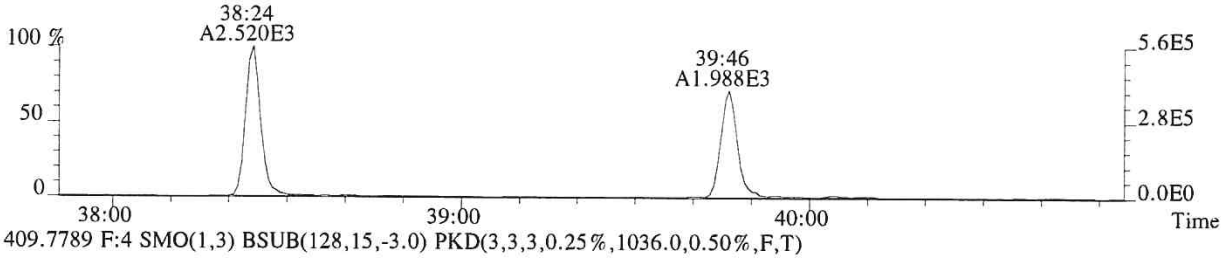
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



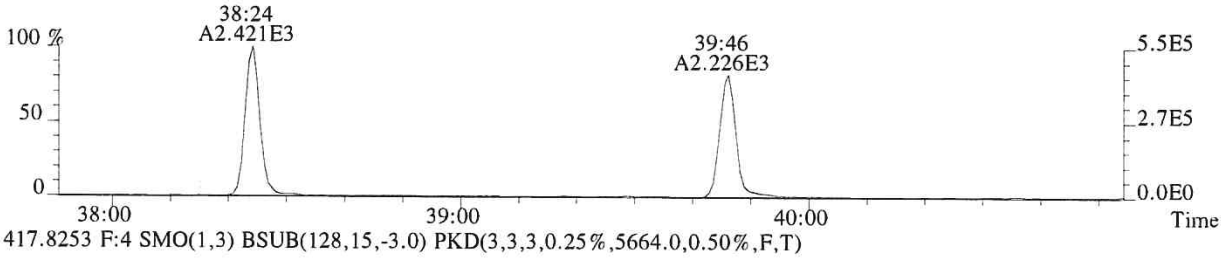
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



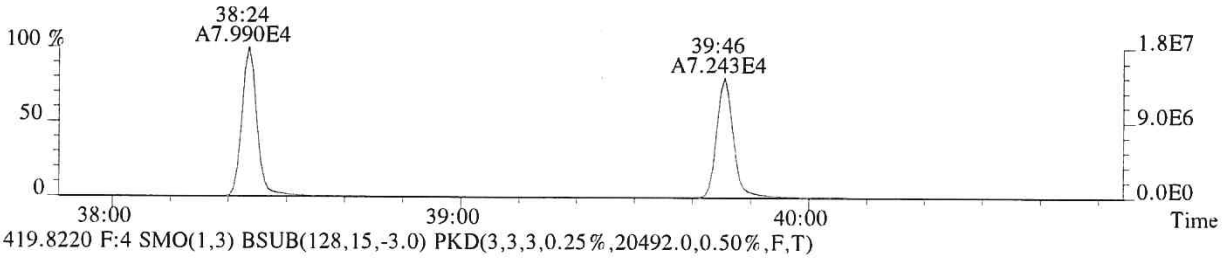
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.50%,F,T)



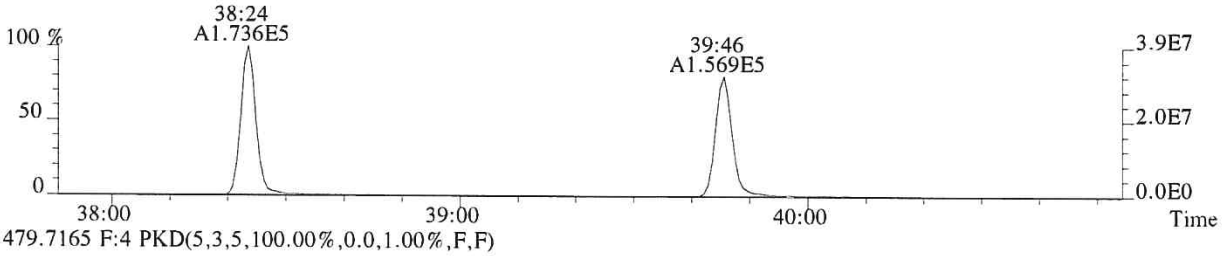
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



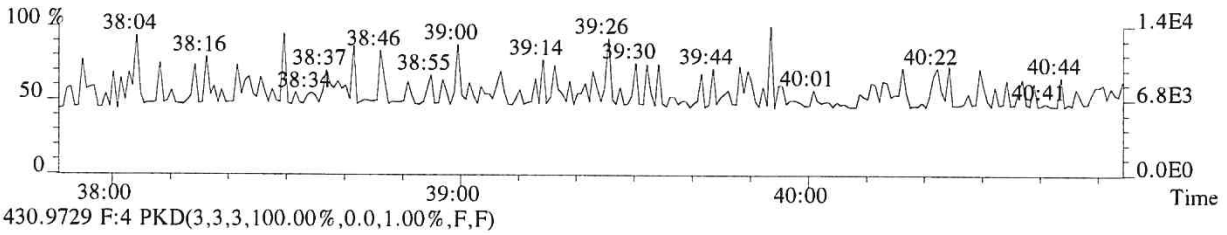
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5664.0,0.50%,F,T)



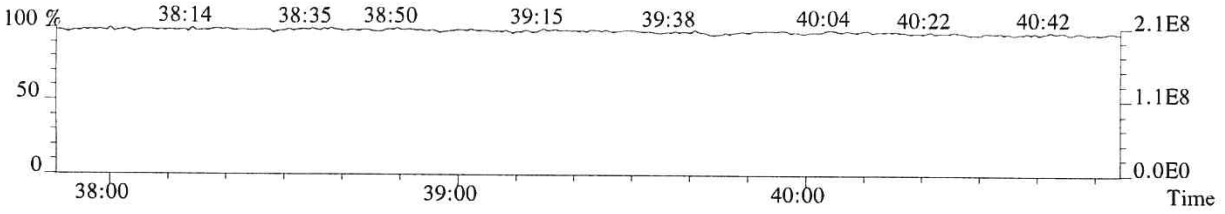
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20492.0,0.50%,F,T)



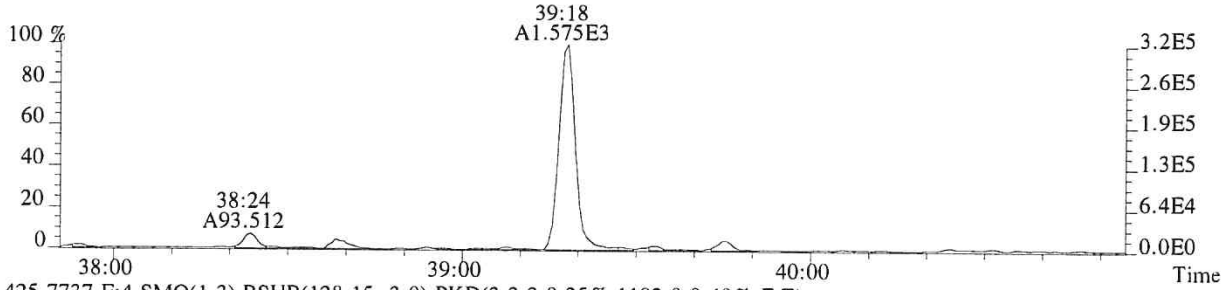
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



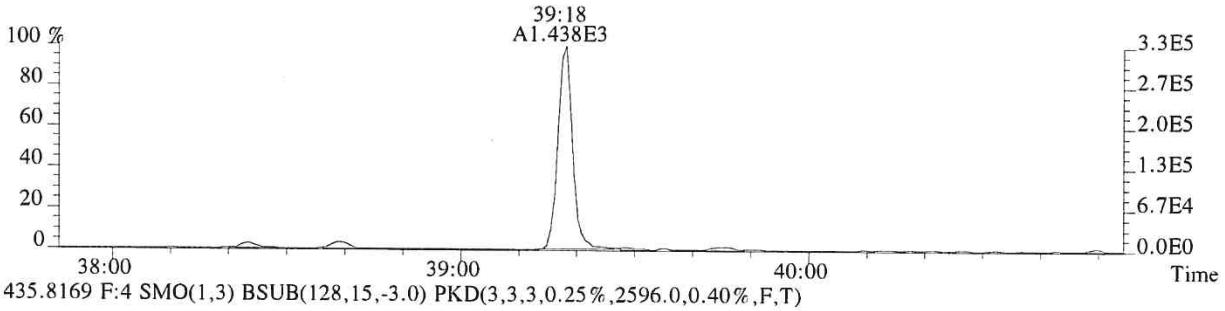
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



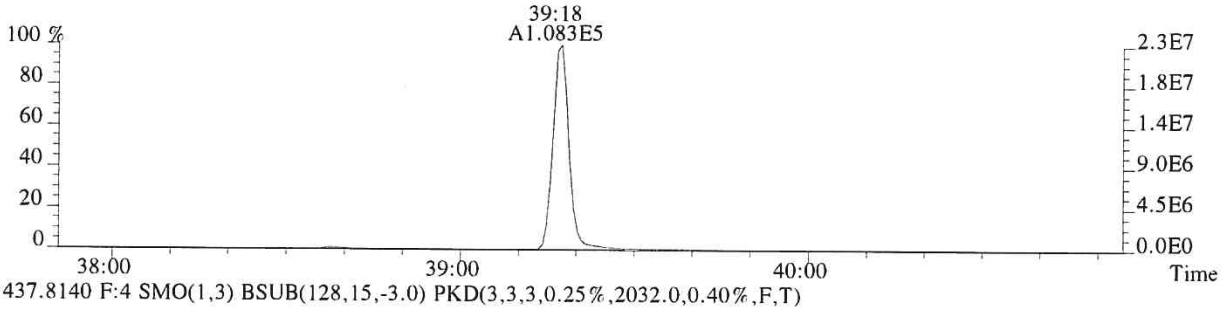
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



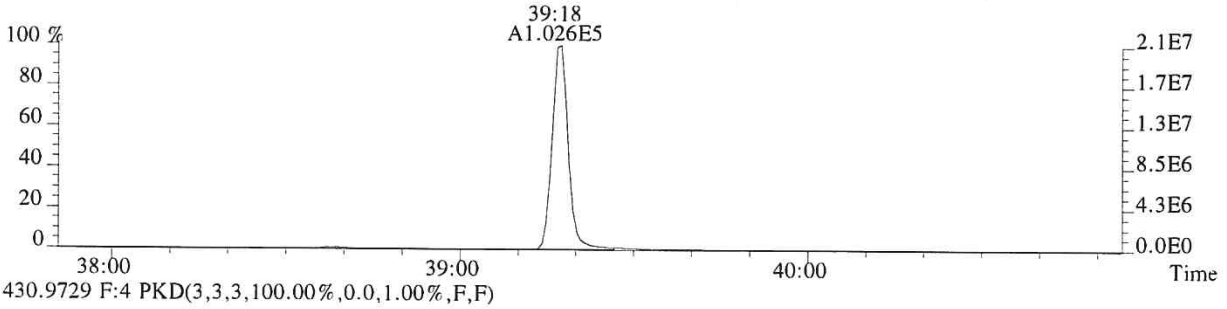
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



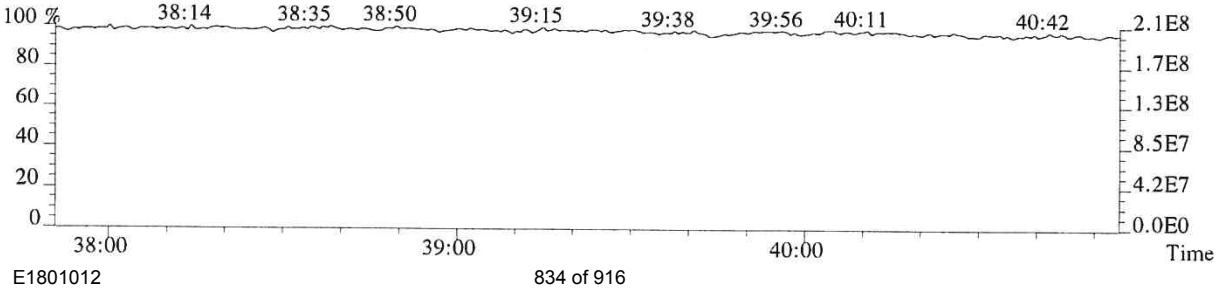
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)

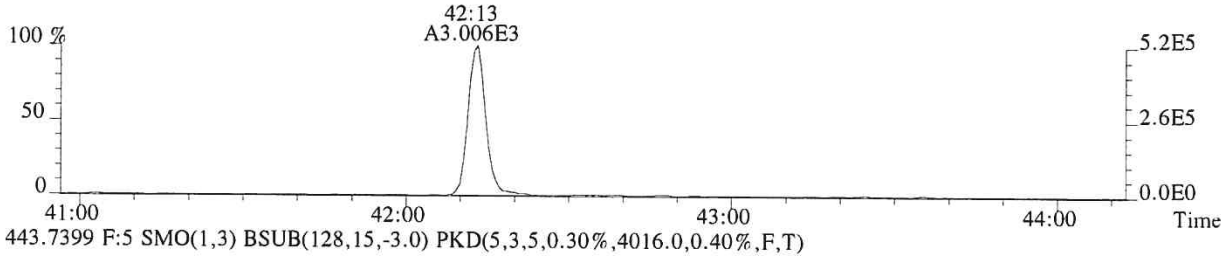


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

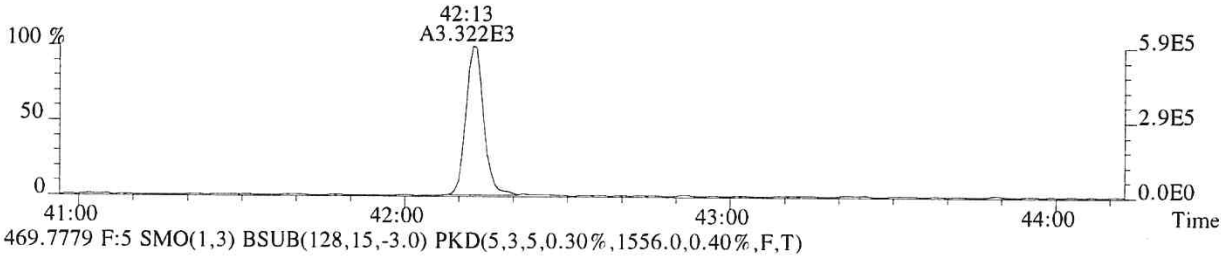


009425

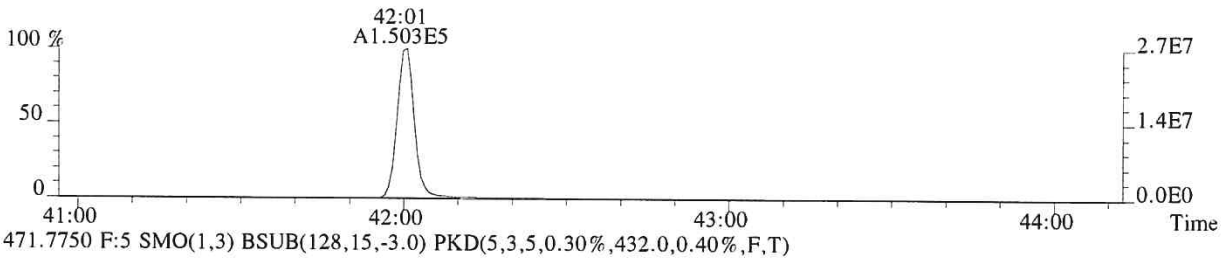
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



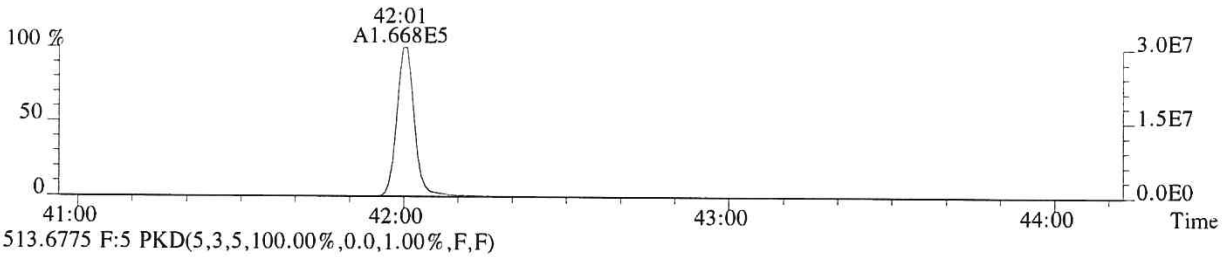
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4016.0,0.40%,F,T)



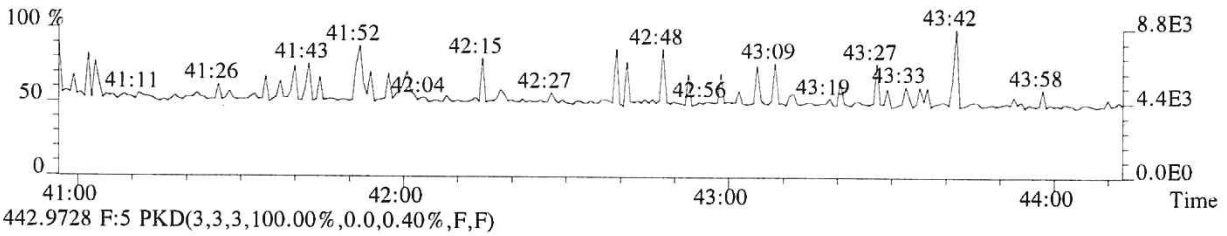
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



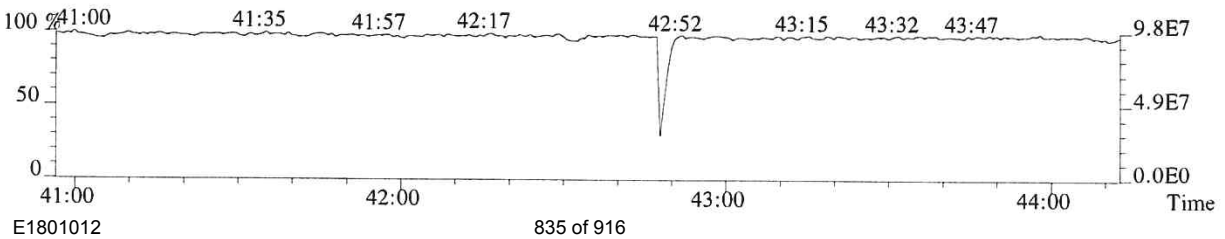
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

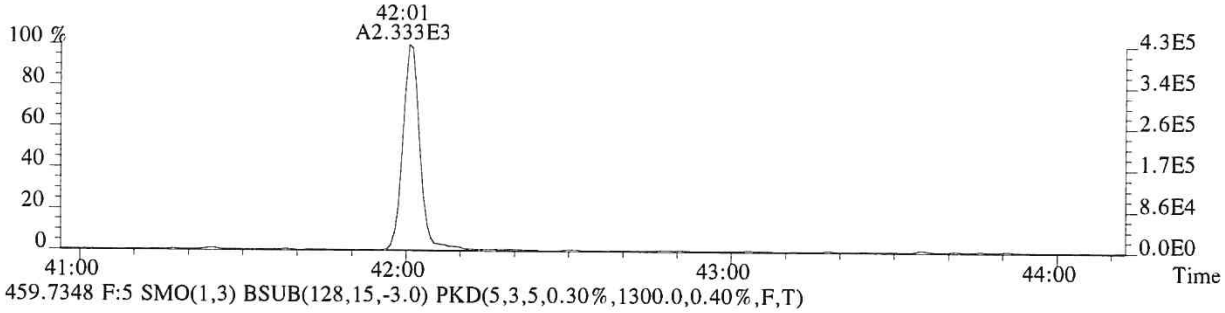


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

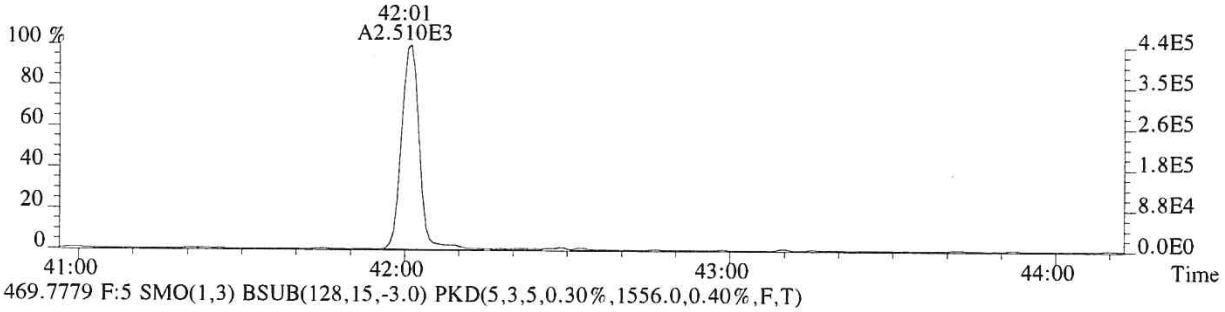


009426

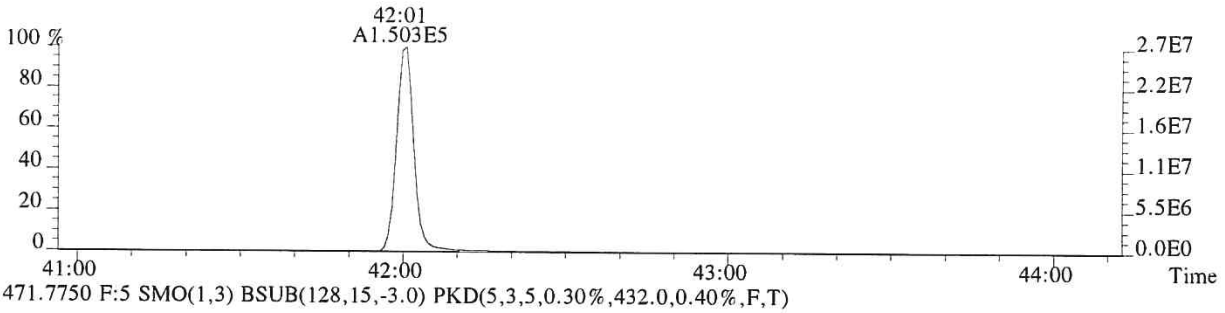
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



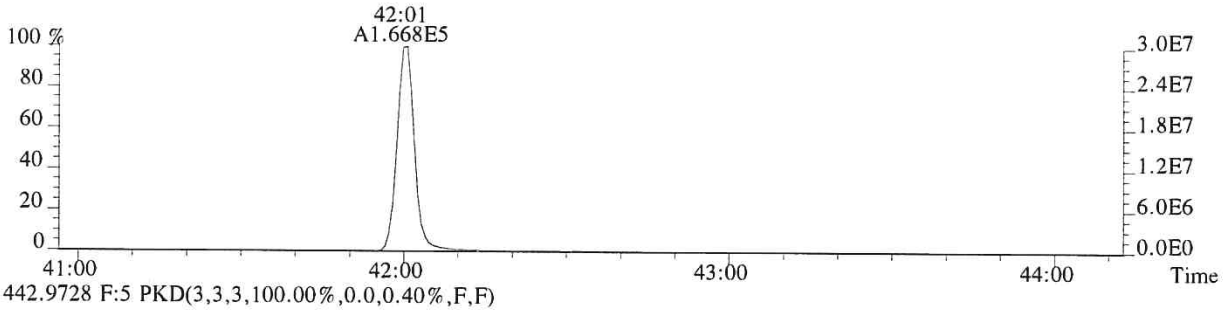
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



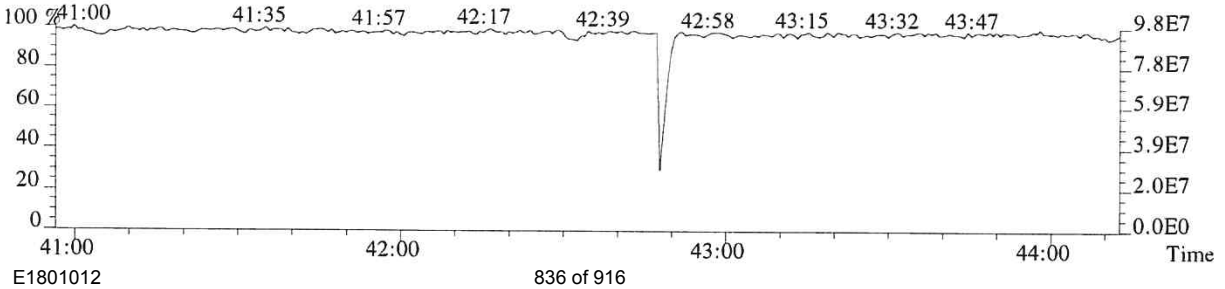
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	9.696e+02	1.301e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	8.209e+03	5.211e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	7.782e+03	4.847e+03	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.580e+03	5.860e+03	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.826e+03	6.295e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	7.149e+03	5.707e+03	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	6.633e+03	5.137e+03	1.29	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	6.668e+03	6.509e+03	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	5.874e+03	5.515e+03	1.07	yes	no	1.463
10	Unk	OCDF	42:13	7.957e+03	9.190e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	6.591e+02	7.969e+02	0.83	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	4.521e+03	2.979e+03	1.52	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	4.250e+03	3.535e+03	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	4.303e+03	3.394e+03	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	4.586e+03	3.767e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.011e+03	3.764e+03	1.07	yes	no	1.112
17	Unk	OCDD	42:01	6.097e+03	6.815e+03	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.863e+05	2.330e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.845e+05	1.757e+05	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.739e+05	1.718e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.281e+05	2.407e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.461e+05	2.703e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.362e+05	2.538e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.215e+05	2.294e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.041e+05	2.259e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	9.345e+04	2.024e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.293e+05	1.616e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.924e+05	1.218e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.556e+05	1.239e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.601e+05	1.267e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.414e+05	1.336e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.022e+05	2.237e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.337e+05	1.646e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.731e+05	1.377e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.653e+03				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.73e+05	2.52e+03	6.9e+01	2.26e+05	4.68e+03	4.8e+01
2	1,2,3,7,8-PeCDF	1.49e+06	1.07e+03	1.4e+03	9.88e+05	5.47e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.55e+06	1.07e+03	1.5e+03	9.81e+05	5.47e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	1.64e+06	3.19e+03	5.1e+02	1.29e+06	1.24e+03	1.0e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	3.19e+03	5.2e+02	1.30e+06	1.24e+03	1.0e+03
6	2,3,4,6,7,8-HxCDF	1.53e+06	3.19e+03	4.8e+02	1.19e+06	1.24e+03	9.6e+02
7	1,2,3,7,8,9-HxCDF	1.37e+06	3.19e+03	4.3e+02	1.06e+06	1.24e+03	8.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.48e+06	1.97e+03	7.5e+02	1.45e+06	1.25e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.19e+06	1.97e+03	6.0e+02	1.11e+06	1.25e+03	8.9e+02
10	OCDF	1.45e+06	1.15e+03	1.3e+03	1.64e+06	2.28e+03	7.2e+02
11	2,3,7,8-TCDD	1.20e+05	6.88e+03	1.7e+01	1.48e+05	2.99e+03	5.0e+01
12	1,2,3,7,8-PeCDD	8.64e+05	2.37e+03	3.6e+02	5.83e+05	1.39e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	9.60e+05	1.02e+03	9.4e+02	8.07e+05	1.68e+03	4.8e+02
14	1,2,3,6,7,8-HxCDD	9.46e+05	1.02e+03	9.3e+02	7.52e+05	1.68e+03	4.5e+02
15	1,2,3,7,8,9-HxCDD	1.01e+06	1.02e+03	9.9e+02	8.34e+05	1.68e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	8.38e+05	1.17e+03	7.2e+02	8.29e+05	4.84e+02	1.7e+03
17	OCDD	1.16e+06	3.14e+03	3.7e+02	1.30e+06	1.96e+03	6.6e+02
18	13C-2,3,7,8-TCDF	3.28e+07	1.64e+04	2.0e+03	4.11e+07	1.27e+04	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.29e+07	3.44e+03	1.5e+04	3.26e+07	2.57e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	3.44e+03	1.6e+04	3.38e+07	2.57e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+07	3.47e+03	8.3e+03	5.39e+07	4.48e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.07e+07	3.47e+03	8.8e+03	5.68e+07	4.48e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.95e+07	3.47e+03	8.5e+03	5.46e+07	4.48e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.51e+07	3.47e+03	7.2e+03	4.72e+07	4.48e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.29e+04	1.8e+03	4.99e+07	2.56e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+07	1.29e+04	1.5e+03	4.06e+07	2.56e+04	1.6e+03
27	13C-2,3,7,8-TCDD	2.37e+07	1.79e+04	1.3e+03	2.98e+07	7.48e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	3.81e+07	3.05e+03	1.3e+04	2.43e+07	1.79e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	3.53e+07	4.99e+03	7.1e+03	2.84e+07	2.28e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.46e+07	4.99e+03	6.9e+03	2.73e+07	2.28e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+07	3.94e+03	7.8e+03	2.93e+07	1.60e+03	1.8e+04
32	13C-OCDD	3.85e+07	1.12e+03	3.4e+04	4.22e+07	1.86e+03	2.3e+04
33	13C-1,2,3,4-TCDD	2.49e+07	1.79e+04	1.4e+03	3.07e+07	7.48e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	4.99e+03	7.5e+03	3.01e+07	2.28e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.03e+05	3.87e+03	7.8e+01			

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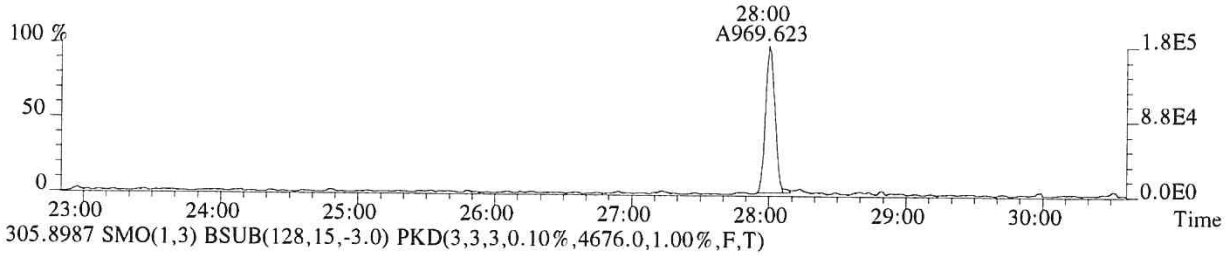
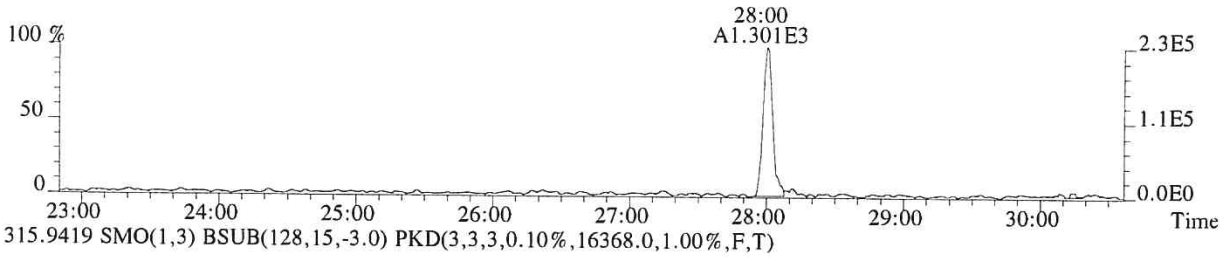
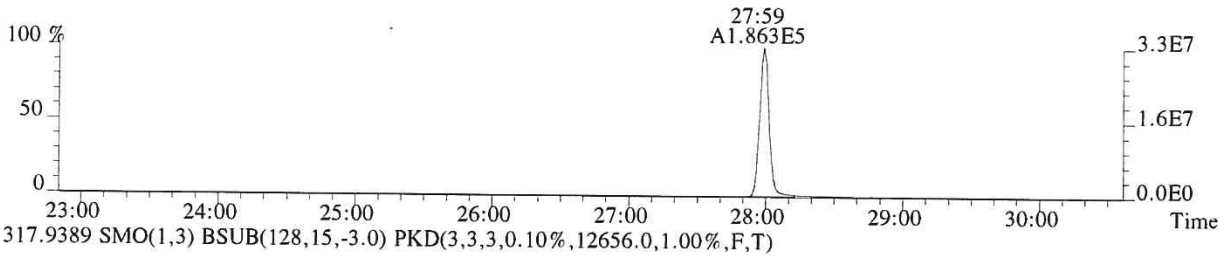
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



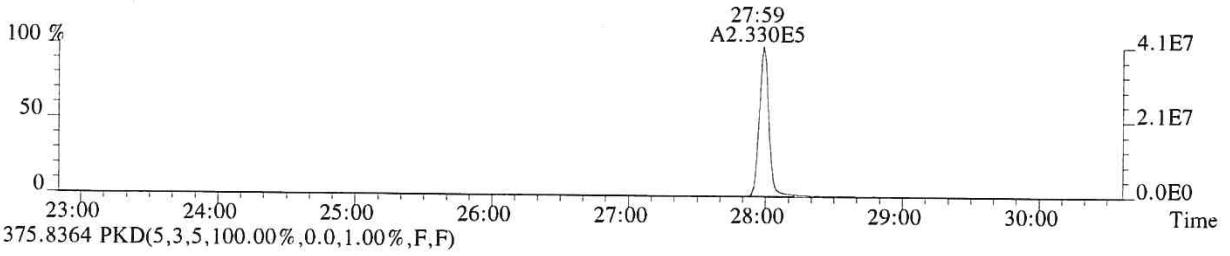
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4676.0,1.00%,F,T)



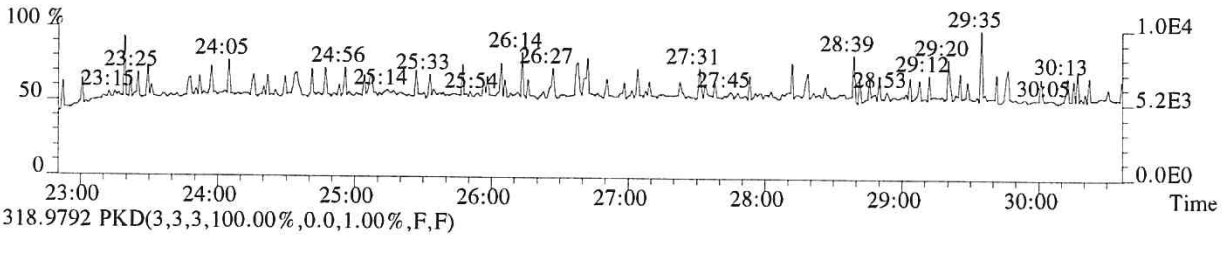
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16368.0,1.00%,F,T)



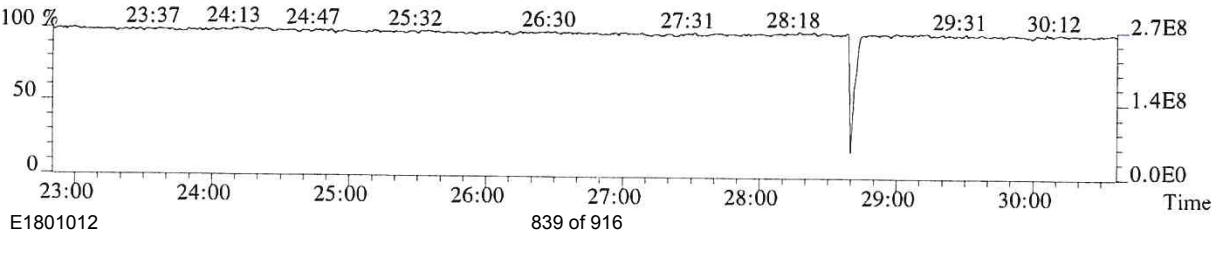
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

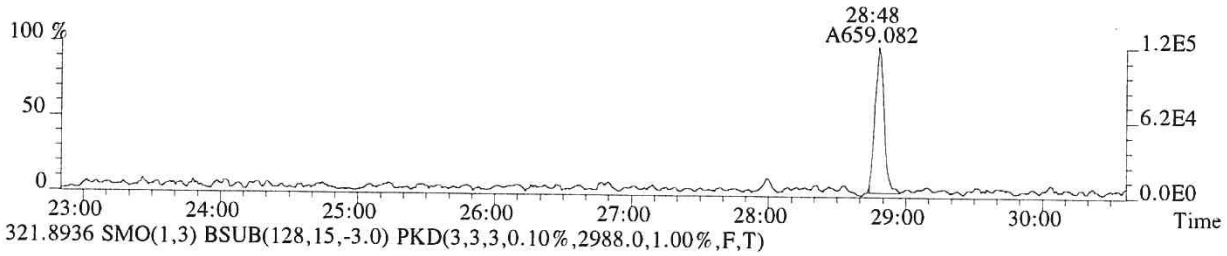


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

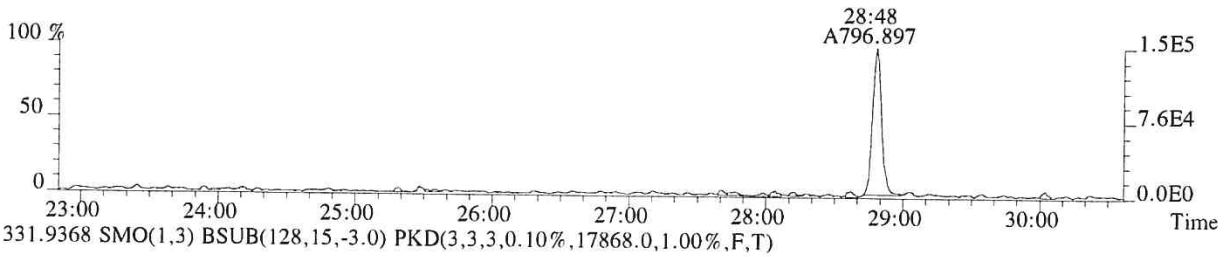


009430

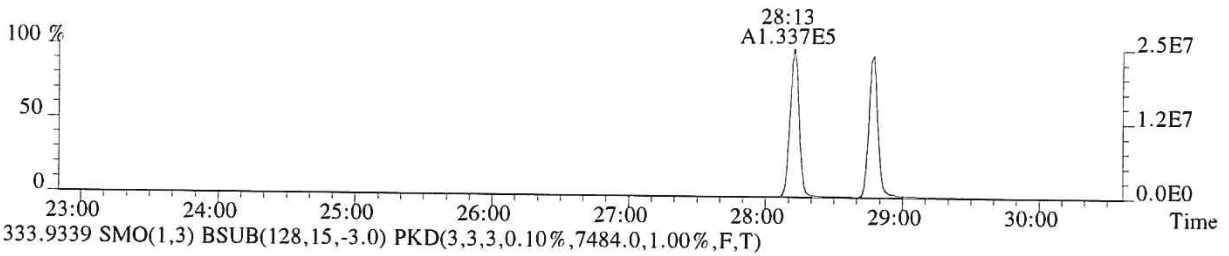
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6880.0,1.00%,F,T)



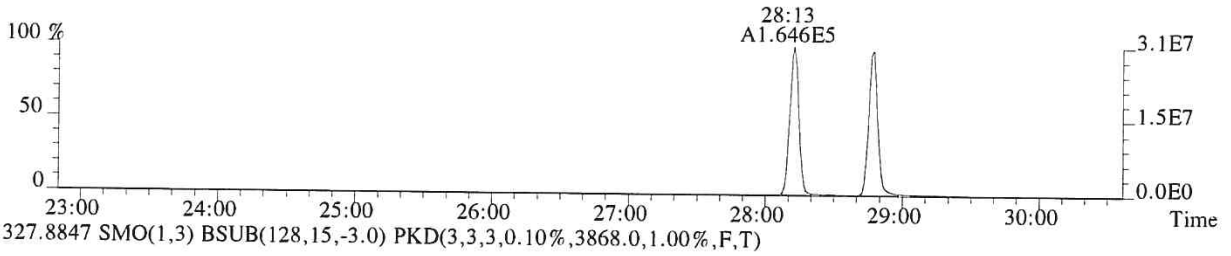
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



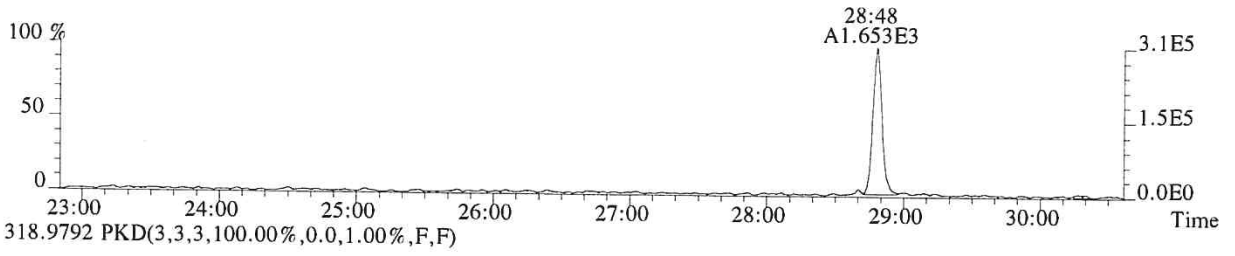
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17868.0,1.00%,F,T)



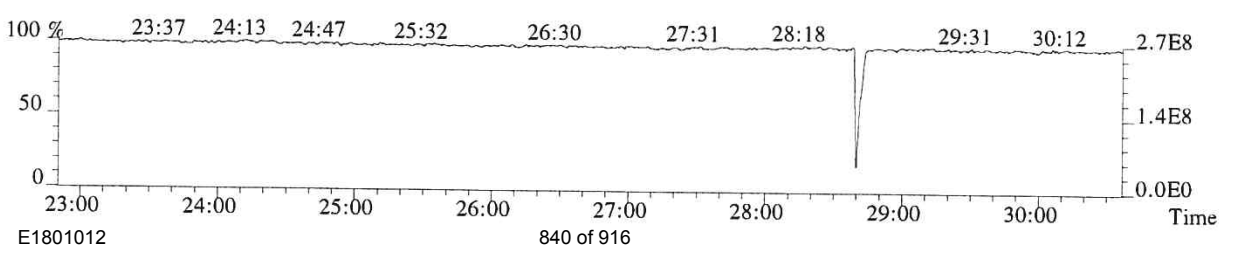
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7484.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)

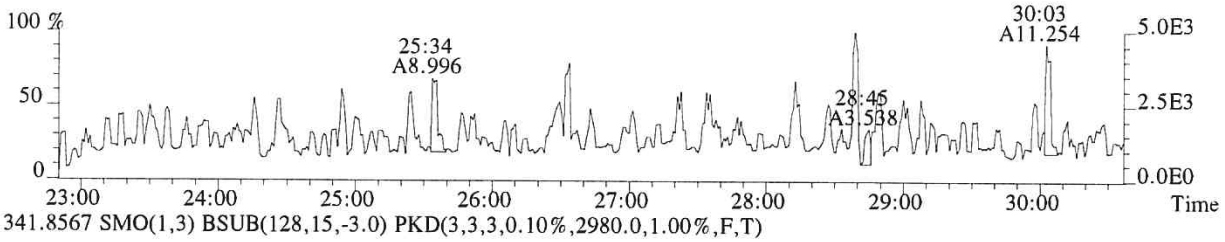


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

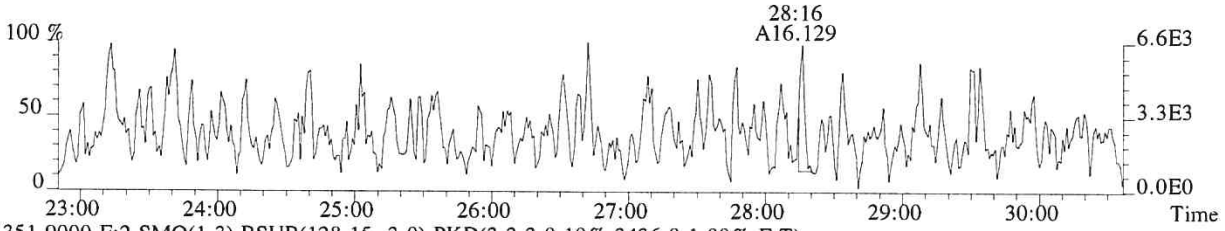


009431

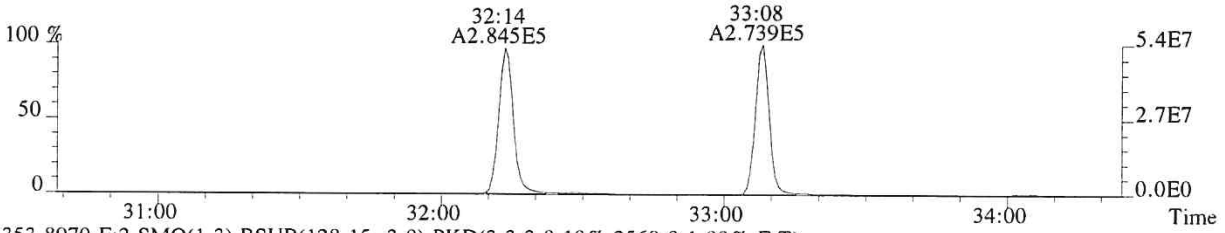
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



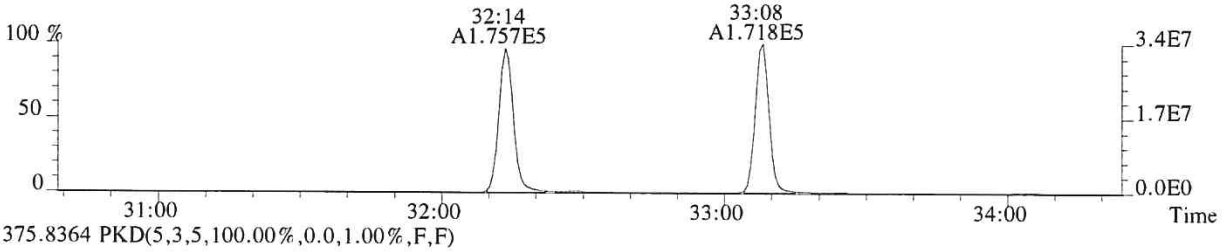
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



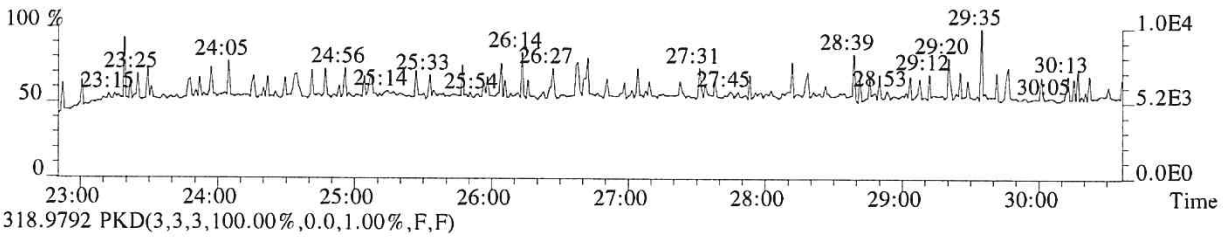
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



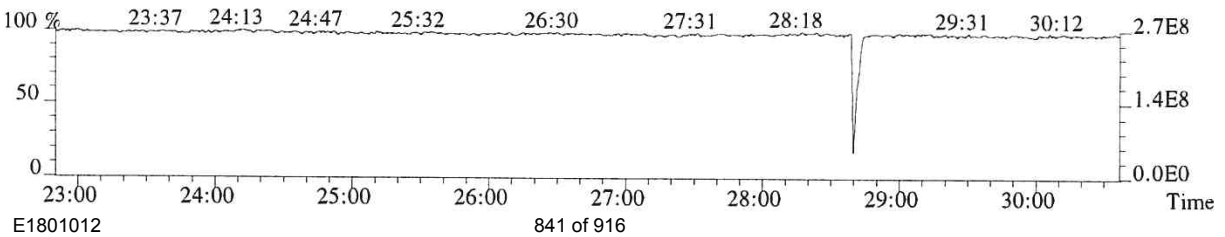
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



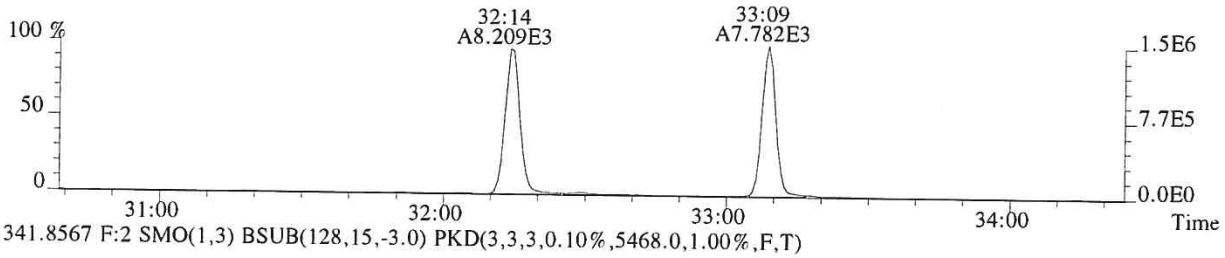
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



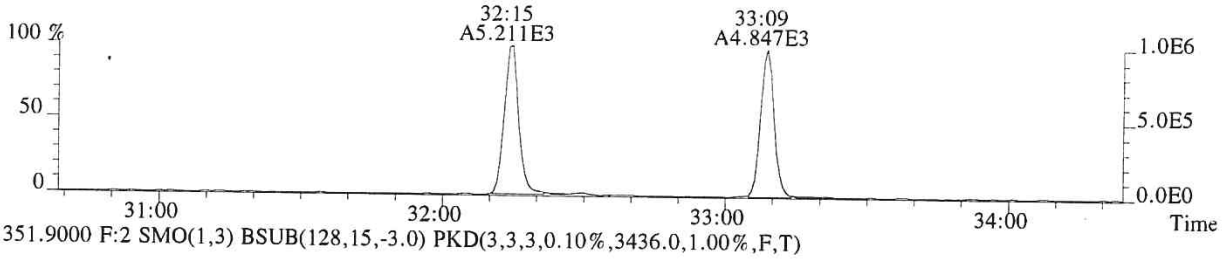
009432

File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

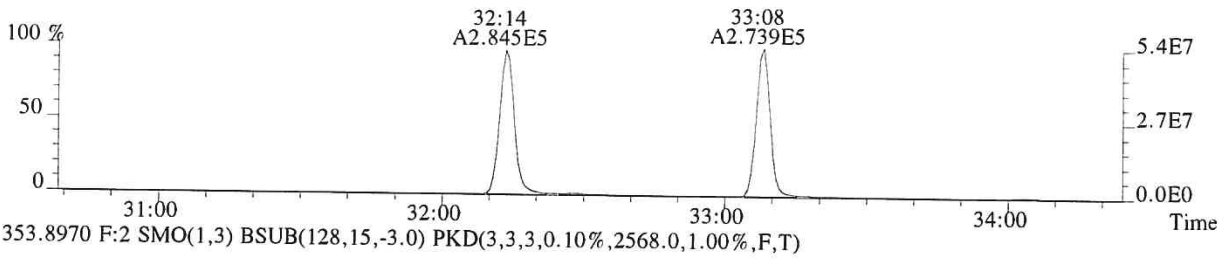
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



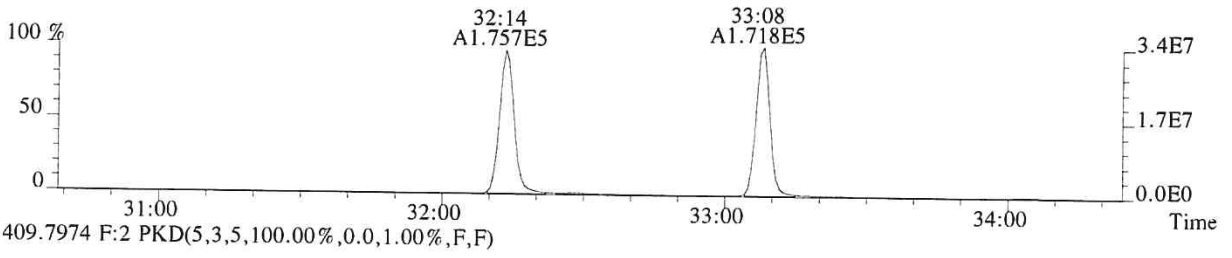
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5468.0,1.00%,F,T)



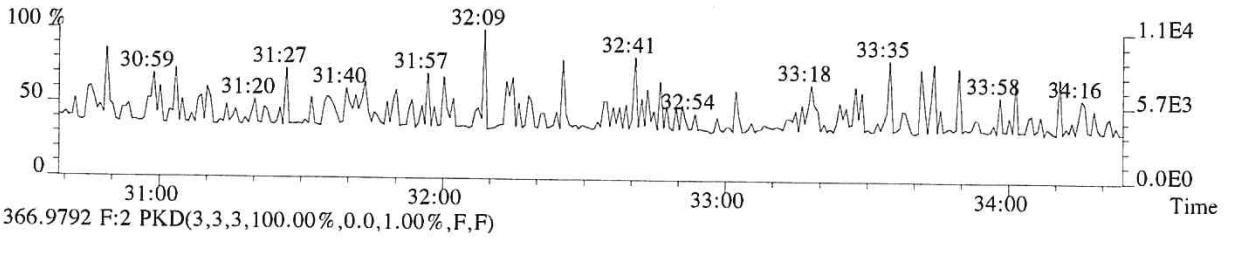
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



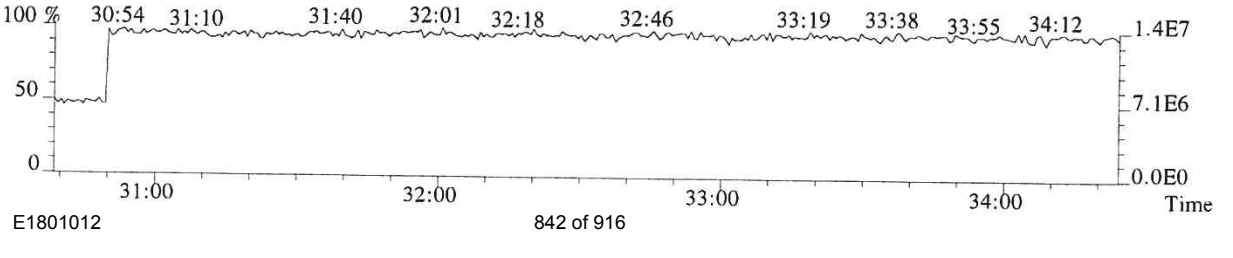
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

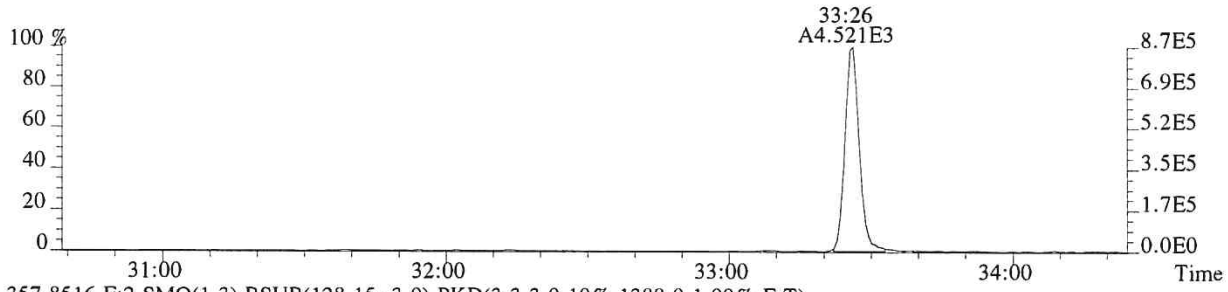


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

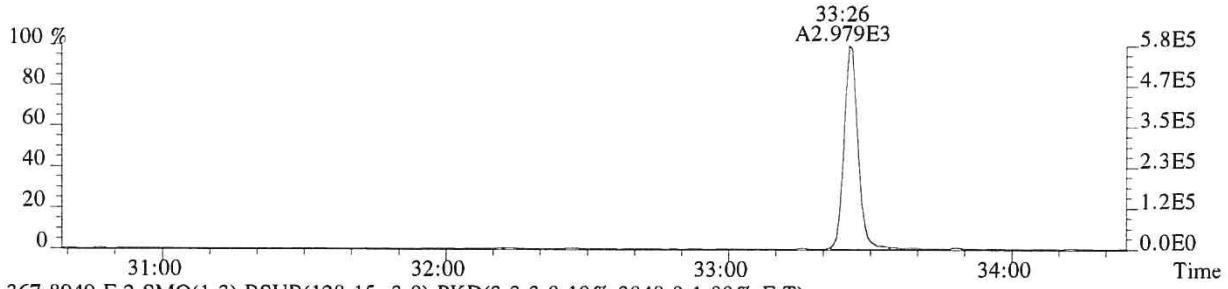


009433

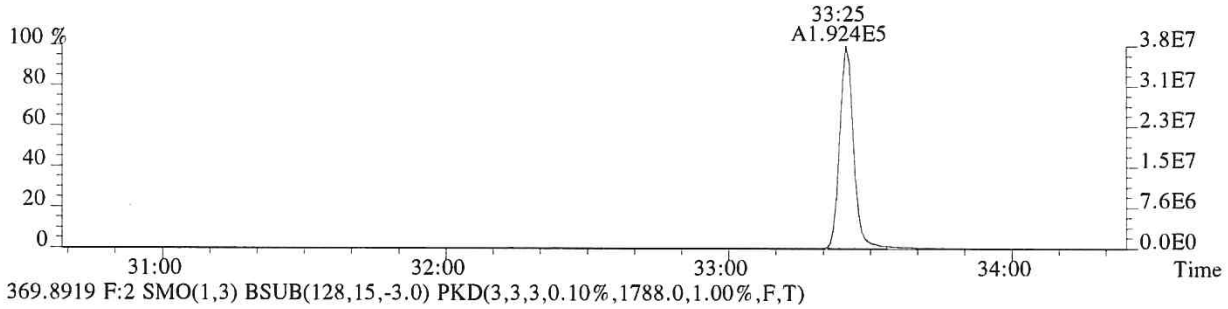
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



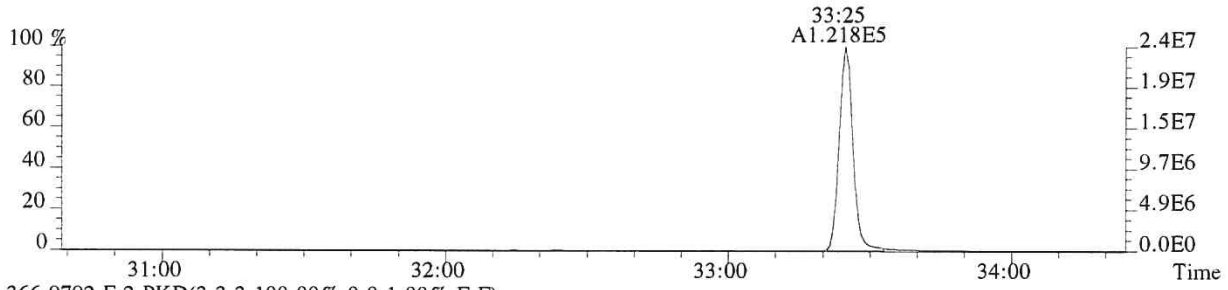
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



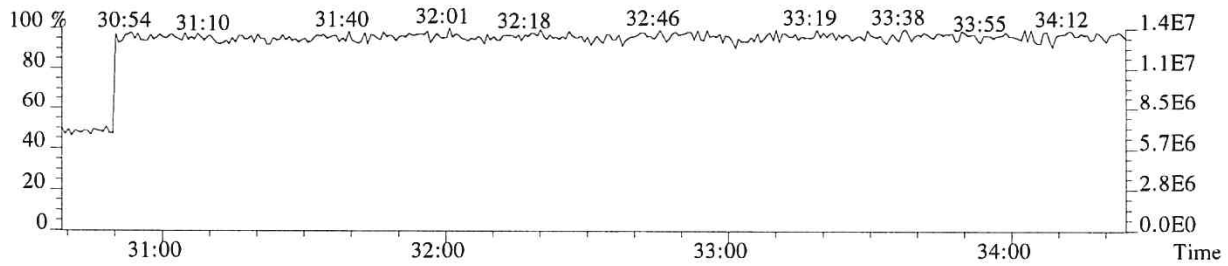
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)

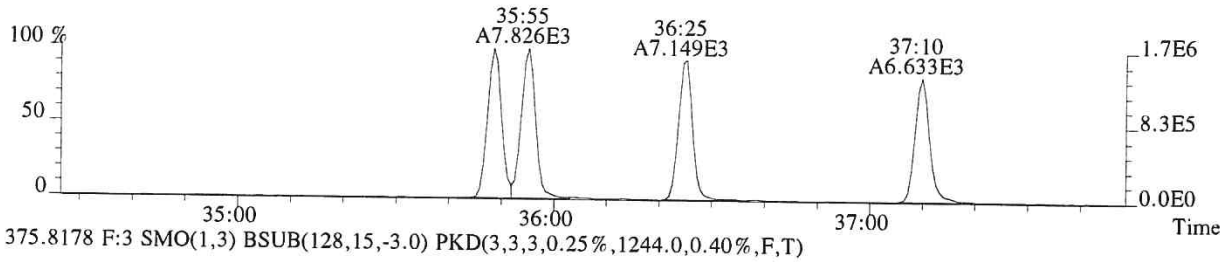


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

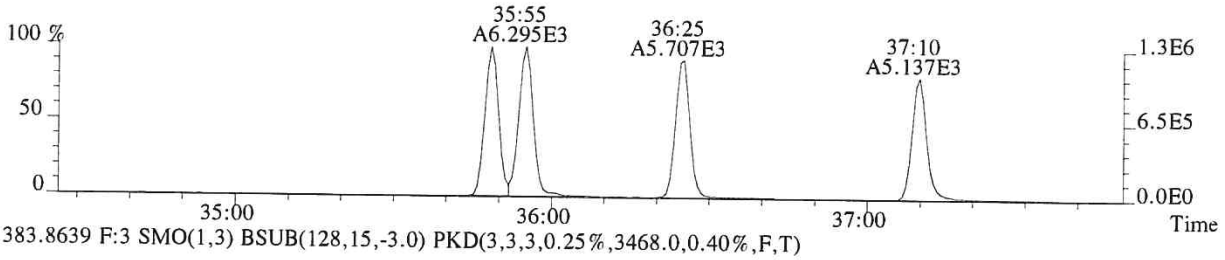


009434

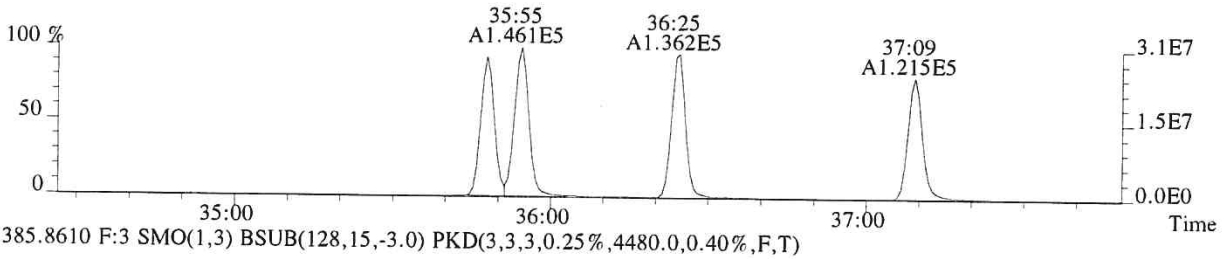
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



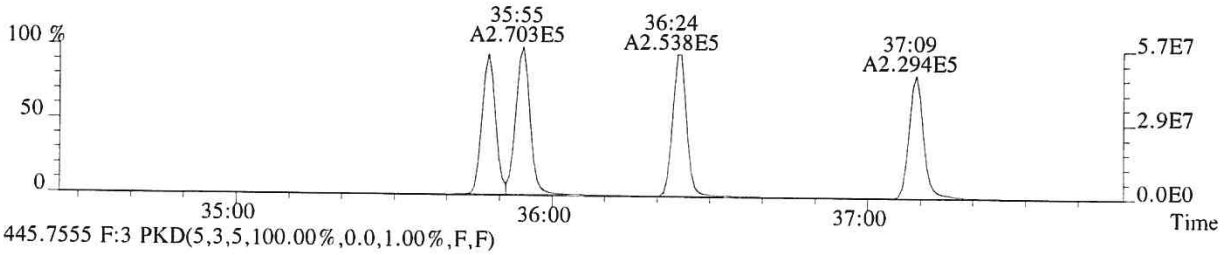
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



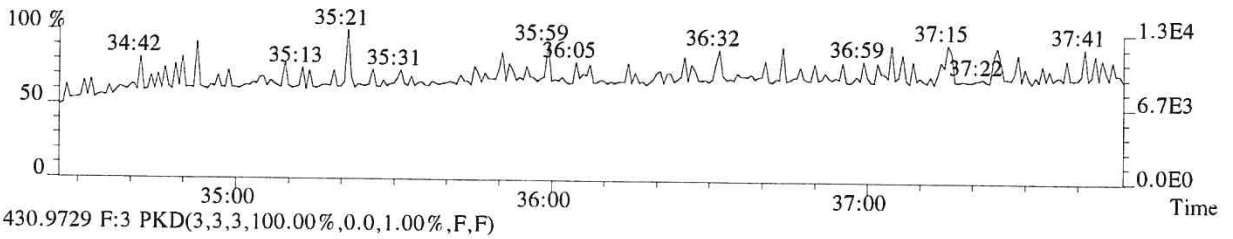
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



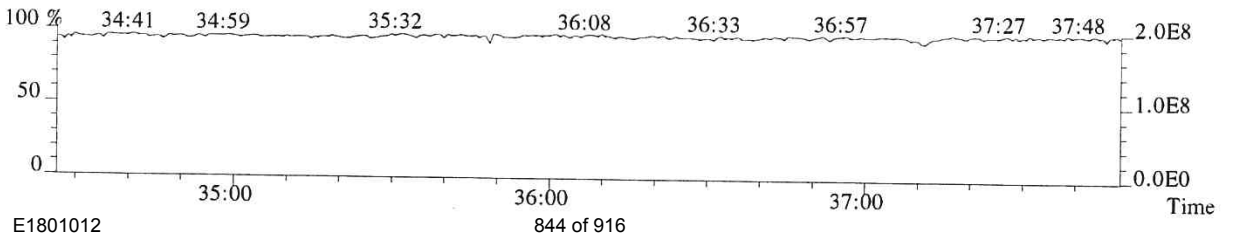
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4480.0,0.40%,F,T)



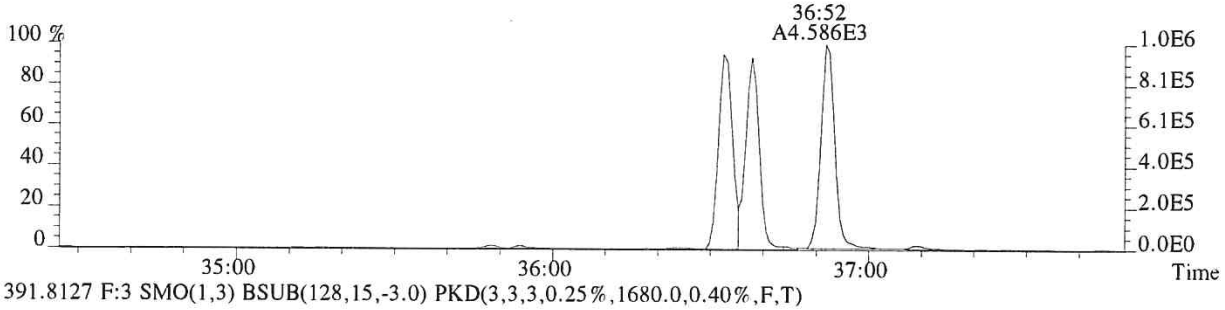
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



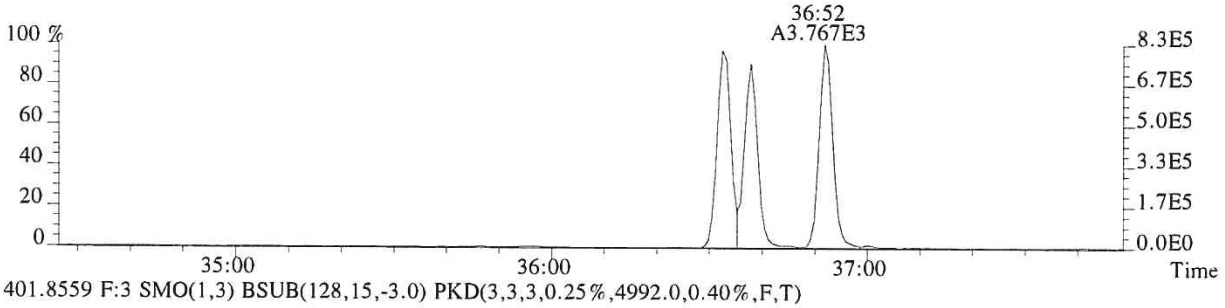
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



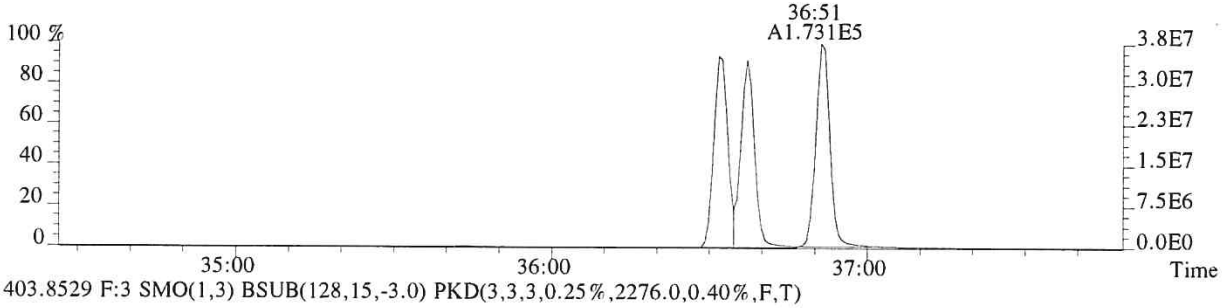
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



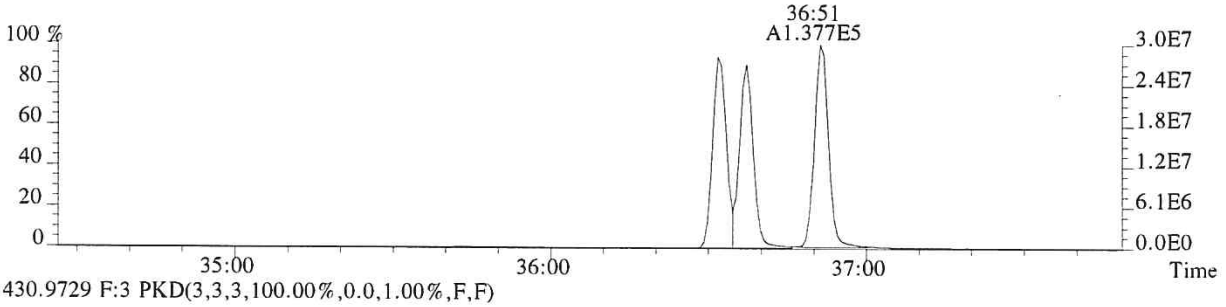
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



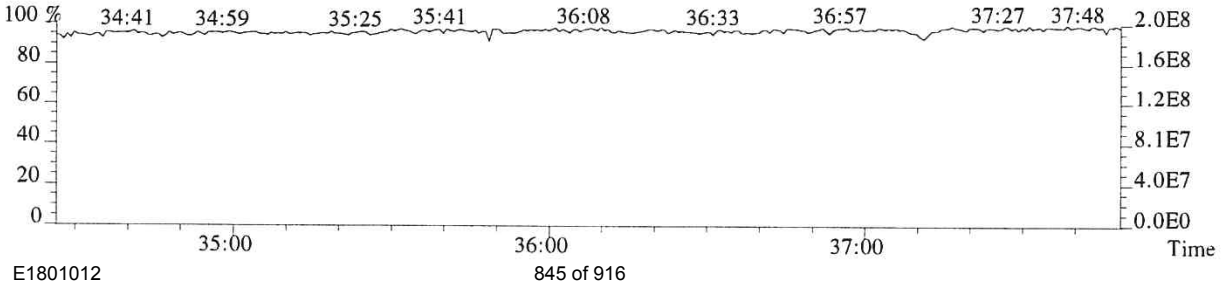
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



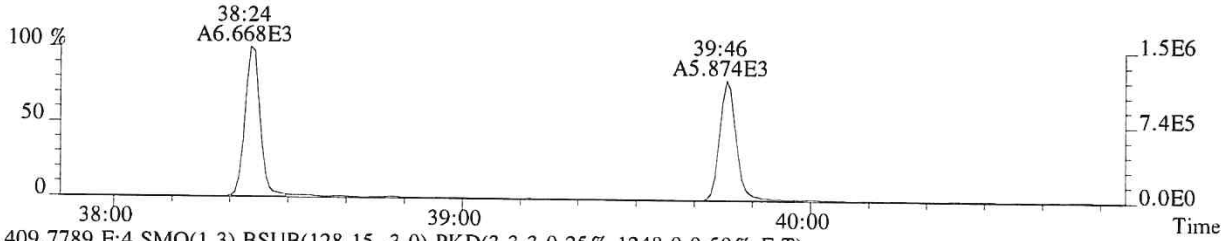
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



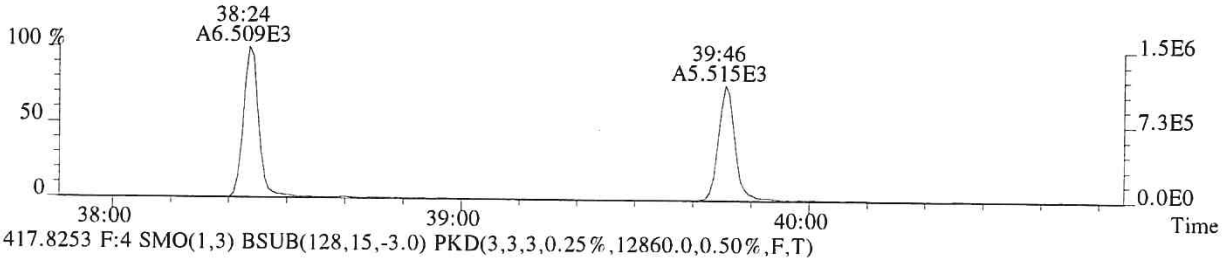
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



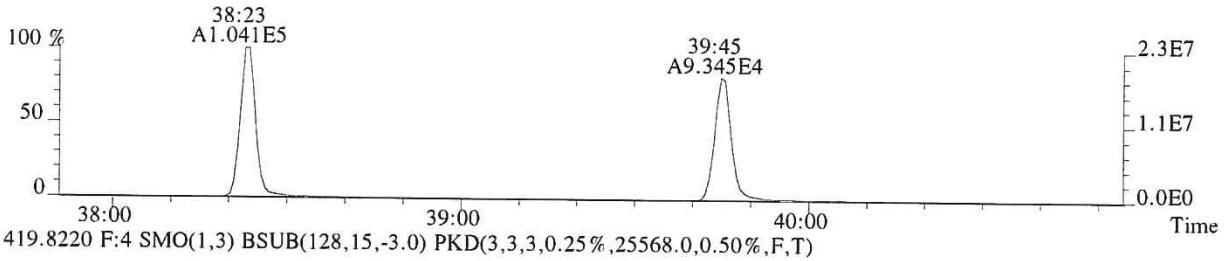
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



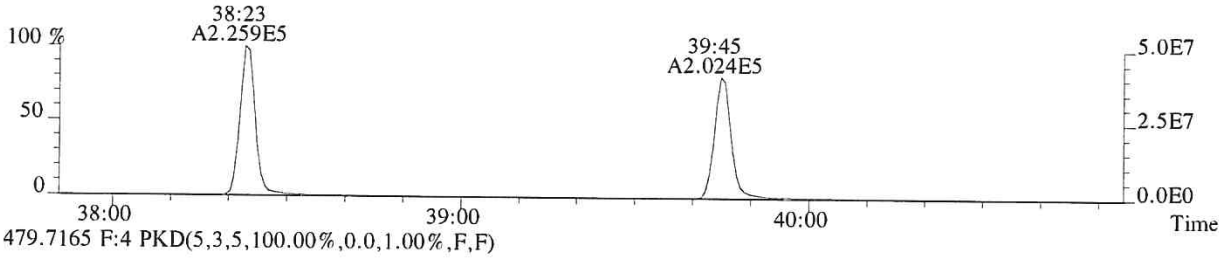
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



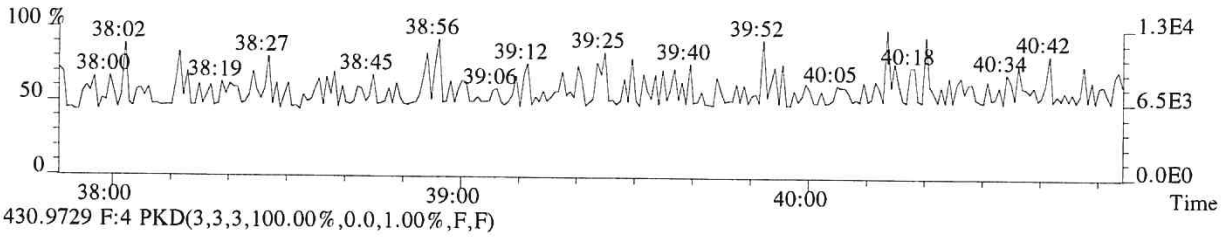
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12860.0,0.50%,F,T)



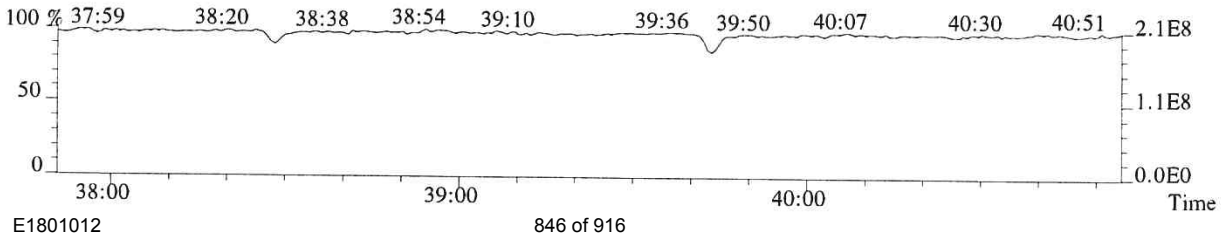
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25568.0,0.50%,F,T)



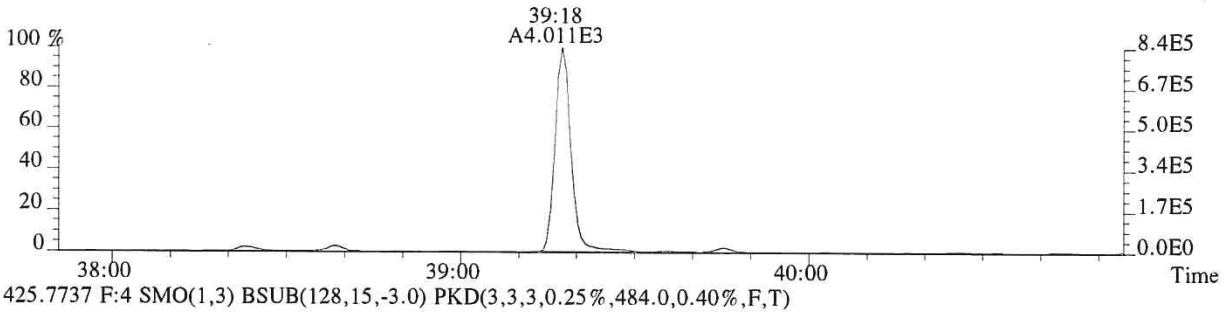
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



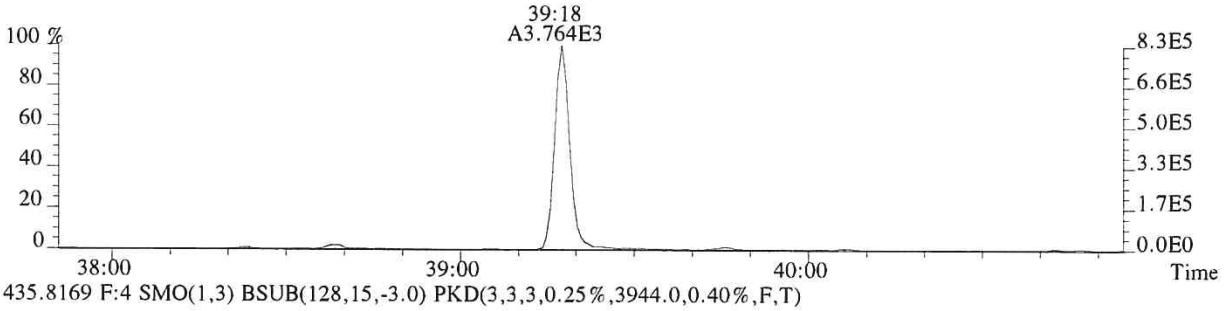
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



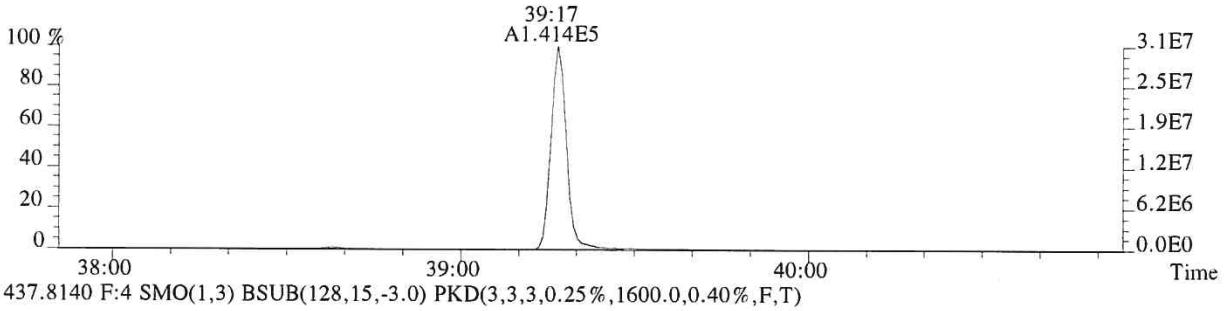
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



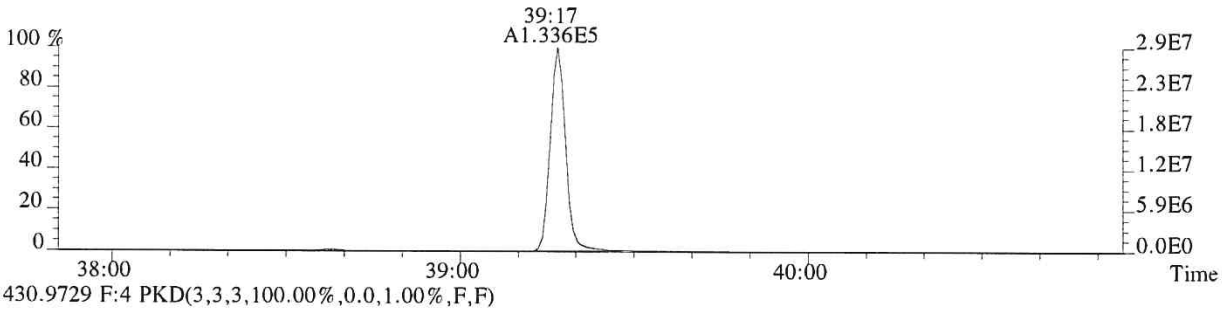
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



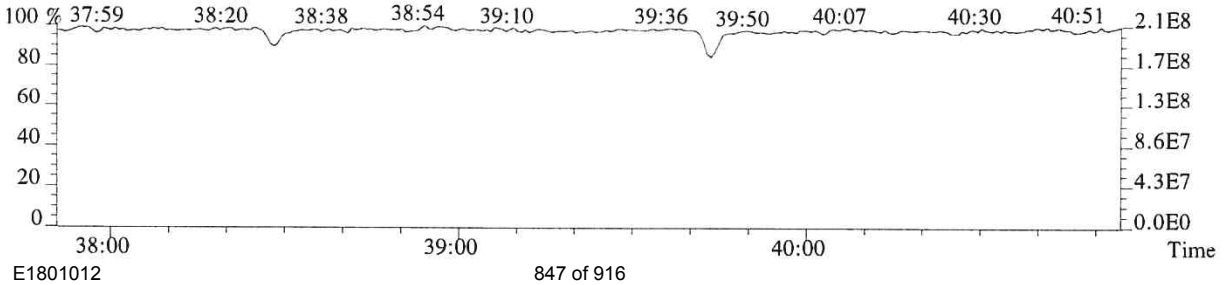
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



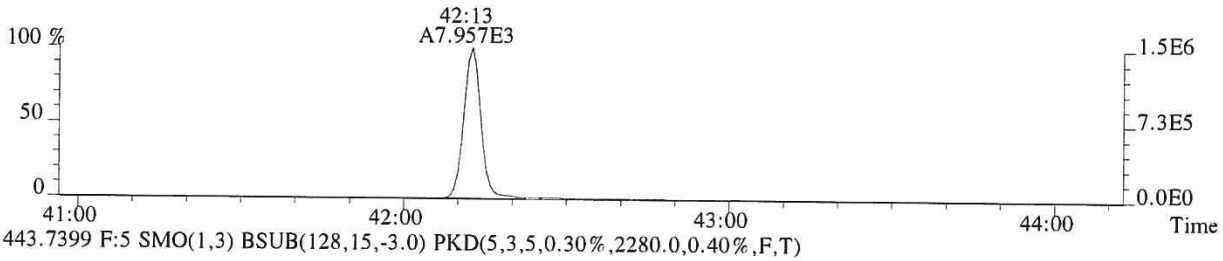
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



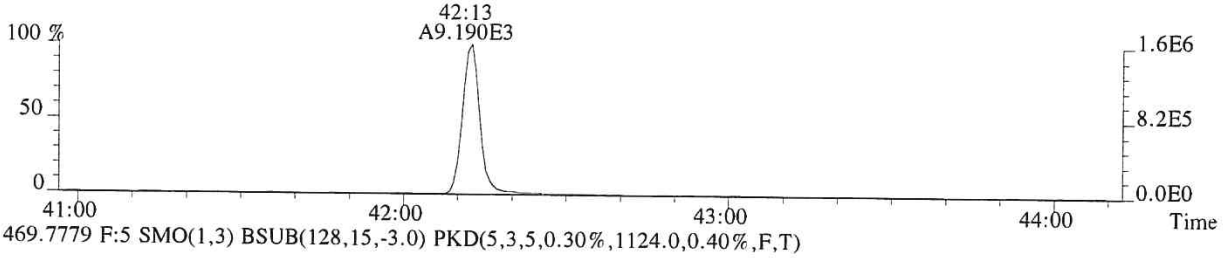
009438

File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

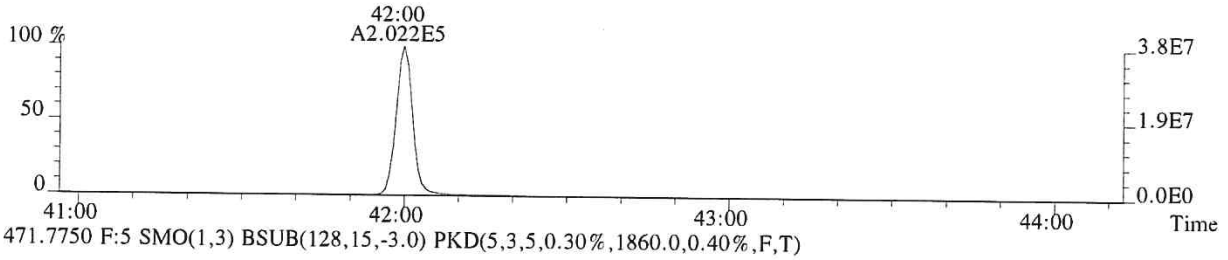
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



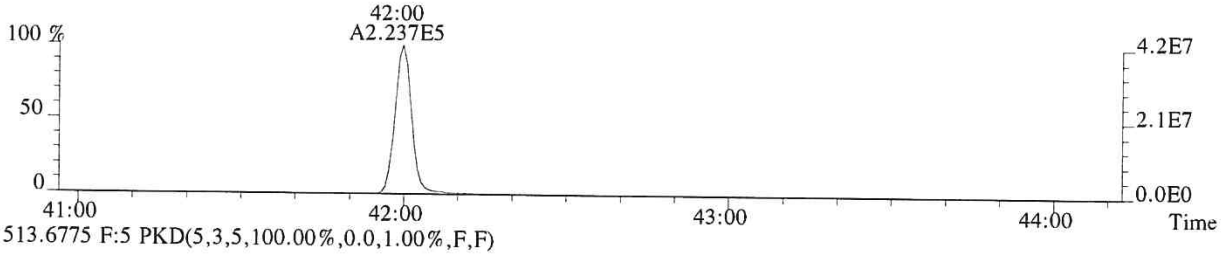
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2280.0,0.40%,F,T)



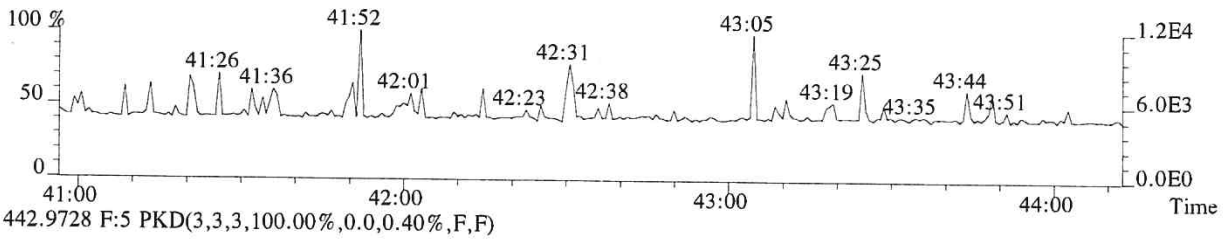
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



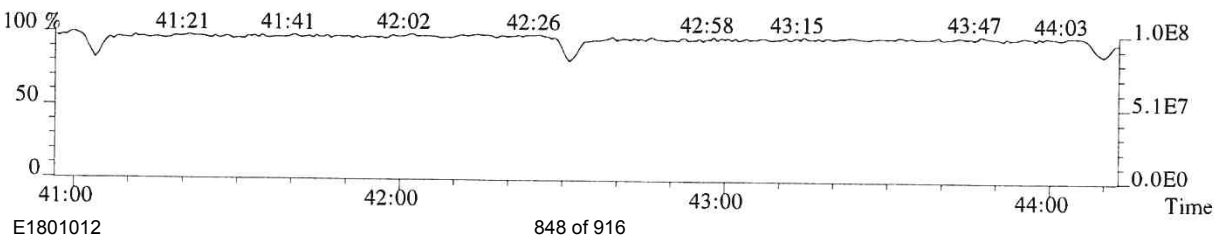
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

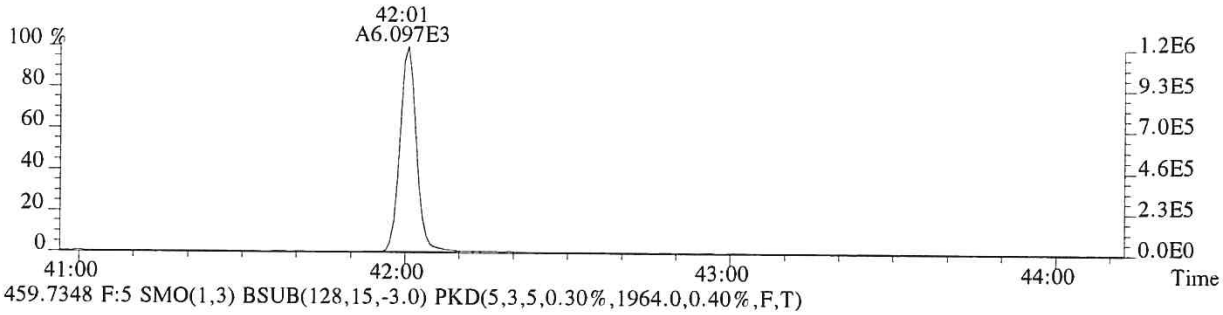


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

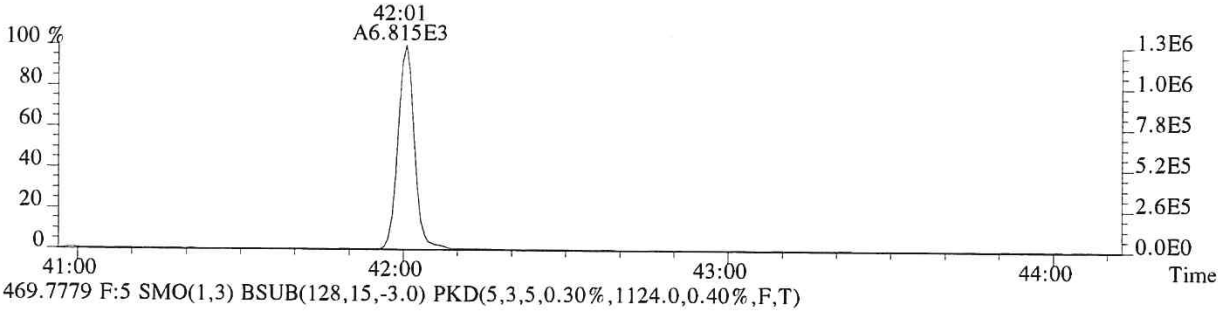


009439

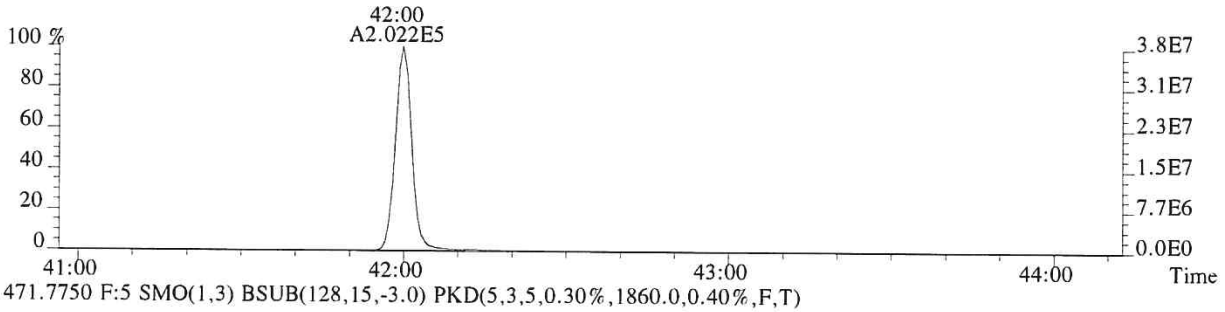
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3136.0,0.40%,F,T)



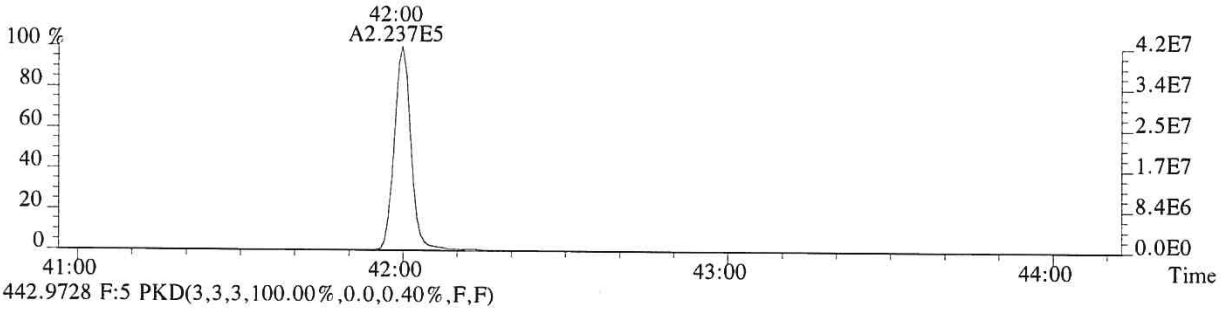
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



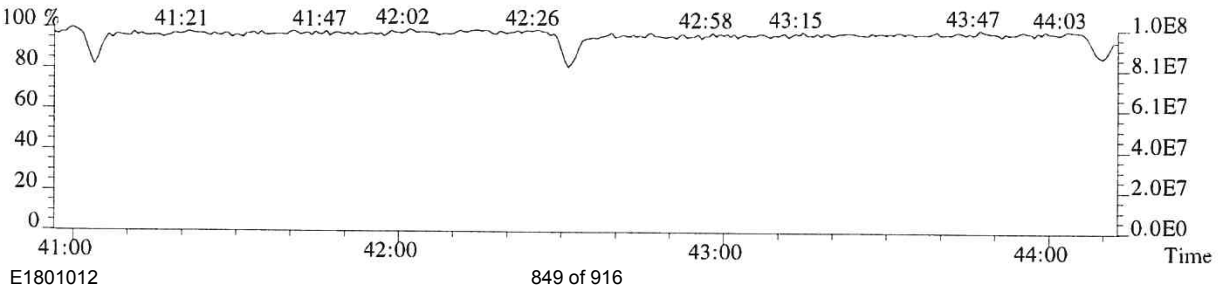
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009440

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.102e+03	3.732e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	2.387e+04	1.519e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:08	2.329e+04	1.484e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.143e+04	1.713e+04	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.340e+04	1.874e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.188e+04	1.713e+04	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.950e+04	1.588e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.863e+04	1.764e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.650e+04	1.567e+04	1.05	yes	no	1.463
10	Unk	OCDF	42:12	2.250e+04	2.478e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.874e+03	2.328e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.440e+04	9.416e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.279e+04	1.013e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.275e+04	1.020e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	1.359e+04	1.091e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.169e+04	1.088e+04	1.07	yes	no	1.112
17	Unk	OCDD	42:01	1.626e+04	1.848e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.350e+05	1.713e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.144e+05	1.340e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.142e+05	1.318e+05	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.603e+04	1.811e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.132e+05	2.120e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.055e+05	1.978e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.513e+04	1.787e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	7.767e+04	1.706e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	6.849e+04	1.521e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	9.327e+04	1.167e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.531e+05	9.729e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.232e+05	9.748e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.208e+05	9.608e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.060e+05	1.018e+05	1.04	yes	no	0.857
32	IS	13C-OCDD	42:00	1.501e+05	1.663e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:12	9.647e+04	1.194e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.360e+05	1.078e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.600e+03				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.46e+05	1.35e+03	4.0e+02	6.81e+05	4.17e+03	1.6e+02
2	1,2,3,7,8-PeCDF	4.40e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	4.45e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	4.64e+06	2.66e+03	1.7e+03	3.65e+06	1.33e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.85e+06	2.66e+03	1.8e+03	3.88e+06	1.33e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.77e+06	2.66e+03	1.8e+03	3.75e+06	1.33e+03	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.92e+06	2.66e+03	1.5e+03	3.16e+06	1.33e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	4.06e+03	1.0e+03	3.98e+06	5.19e+03	7.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.43e+06	4.06e+03	8.5e+02	3.23e+06	5.19e+03	6.2e+02
10	OCDF	4.02e+06	1.02e+03	3.9e+03	4.45e+06	3.18e+03	1.4e+03
11	2,3,7,8-TCDD	3.59e+05	5.08e+03	7.1e+01	4.49e+05	2.84e+03	1.6e+02
12	1,2,3,7,8-PeCDD	2.79e+06	2.23e+03	1.3e+03	1.83e+06	1.03e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	1.16e+03	2.5e+03	2.30e+06	2.22e+03	1.0e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	1.16e+03	2.4e+03	2.20e+06	2.22e+03	9.9e+02
15	1,2,3,7,8,9-HxCDD	2.97e+06	1.16e+03	2.6e+03	2.38e+06	2.22e+03	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.22e+03	2.0e+03	2.30e+06	1.43e+03	1.6e+03
17	OCDD	3.03e+06	8.24e+02	3.7e+03	3.48e+06	2.34e+03	1.5e+03
18	13C-2,3,7,8-TCDF	2.30e+07	1.44e+04	1.6e+03	2.91e+07	8.40e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.88e+07	2.39e+03	1.6e+04	2.43e+07	1.71e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	4.22e+07	2.39e+03	1.8e+04	2.60e+07	1.71e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.07e+07	2.16e+03	9.6e+03	3.93e+07	5.29e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.36e+07	2.16e+03	1.1e+04	4.45e+07	5.29e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.32e+07	2.16e+03	1.1e+04	4.39e+07	5.29e+03	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.16e+03	8.9e+03	3.69e+07	5.29e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+07	7.69e+03	2.3e+03	3.85e+07	2.07e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+07	7.69e+03	1.8e+03	3.12e+07	2.07e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.74e+07	1.66e+04	1.0e+03	2.17e+07	7.77e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.92e+07	3.94e+03	7.4e+03	1.87e+07	3.45e+03	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+07	5.37e+03	5.3e+03	2.21e+07	2.98e+03	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+07	5.37e+03	4.9e+03	2.11e+07	2.98e+03	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+07	3.06e+03	7.3e+03	2.12e+07	2.68e+03	7.9e+03
32	13C-OCDD	2.74e+07	2.09e+03	1.3e+04	3.02e+07	1.61e+03	1.9e+04
33	13C-1,2,3,4-TCDD	1.78e+07	1.66e+04	1.1e+03	2.20e+07	7.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.99e+07	5.37e+03	5.6e+03	2.35e+07	2.98e+03	7.9e+03
35	37Cl-2,3,7,8-TCDD	8.73e+05	3.54e+03	2.5e+02			

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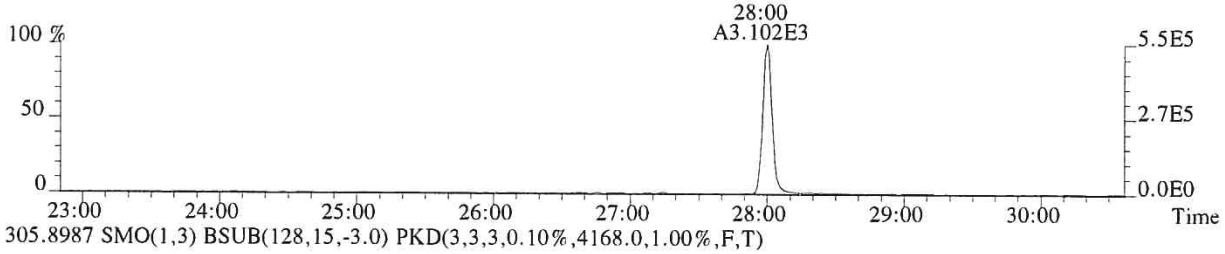
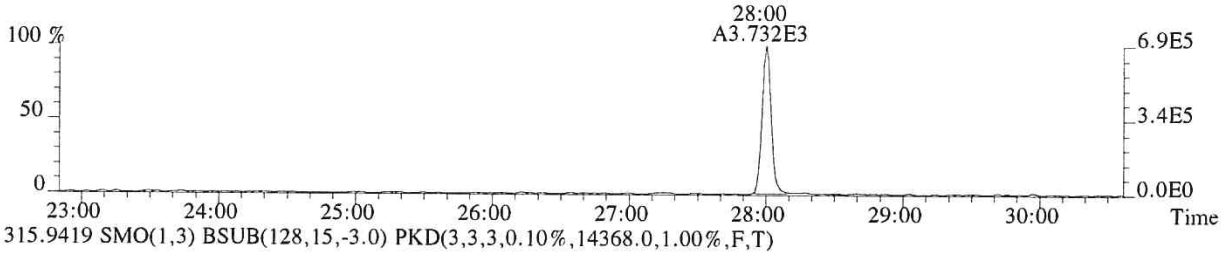
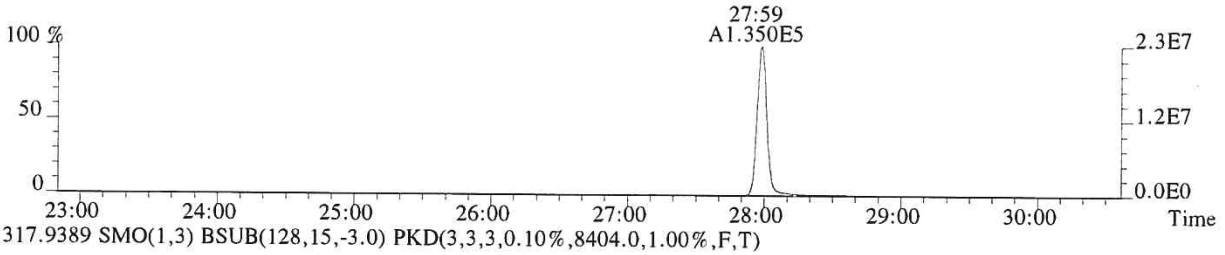
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



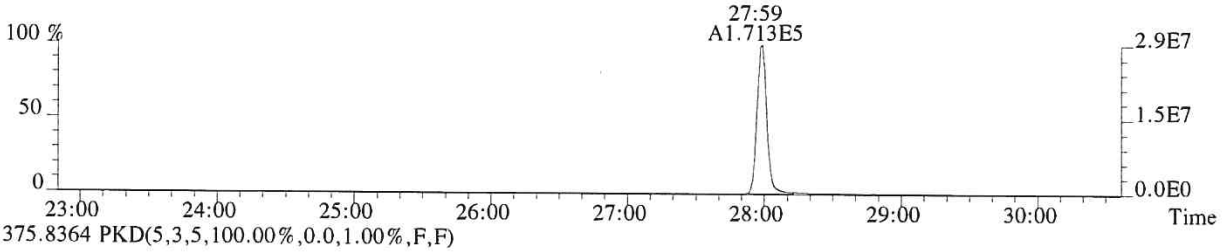
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



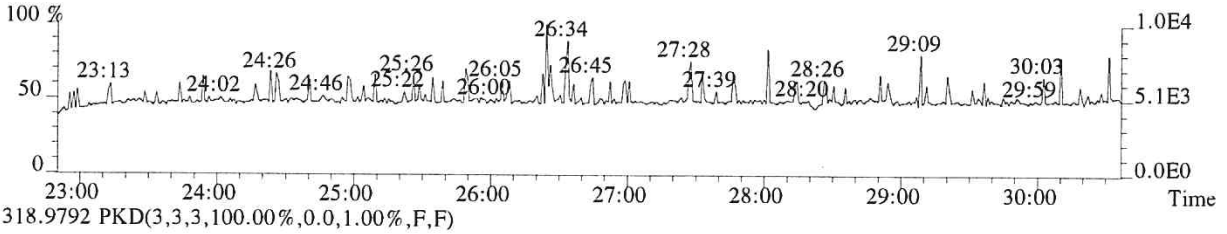
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14368.0,1.00%,F,T)



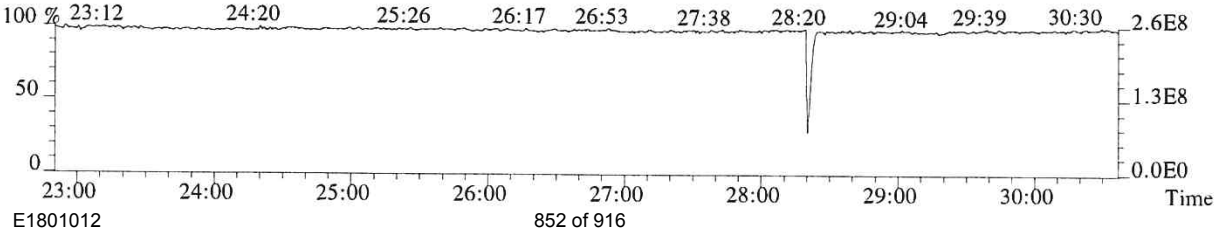
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8404.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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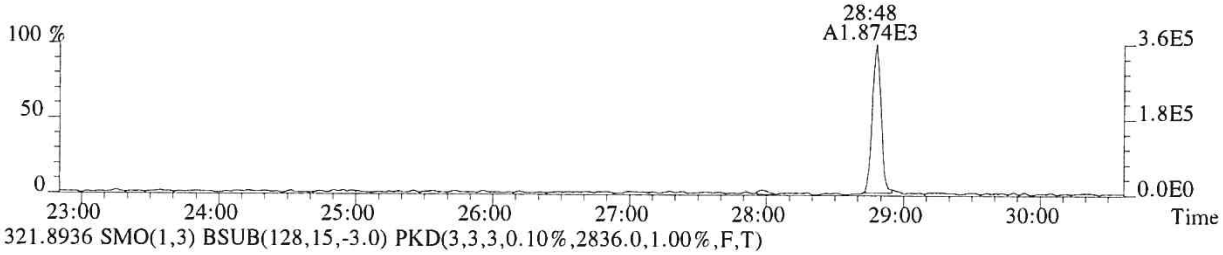
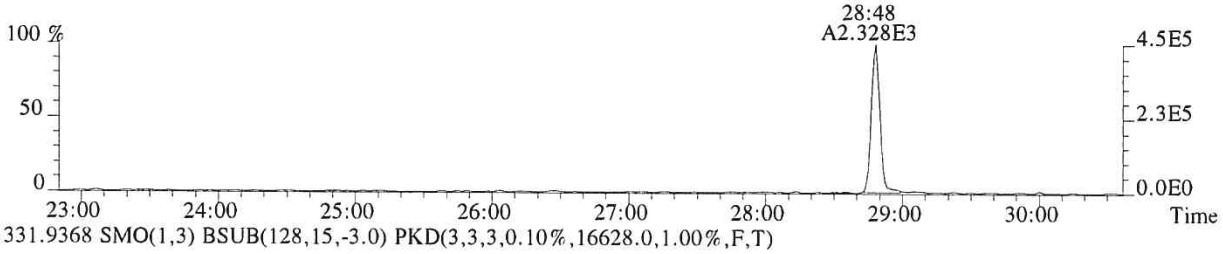
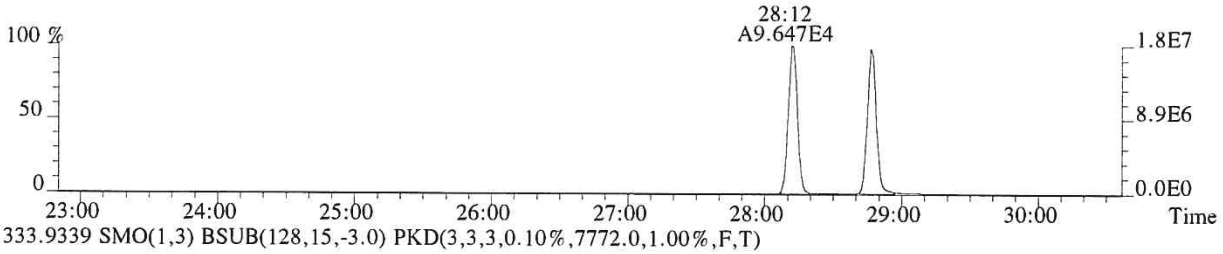
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



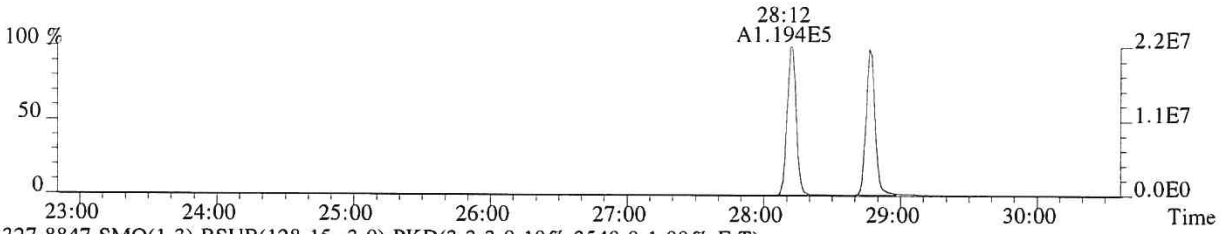
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



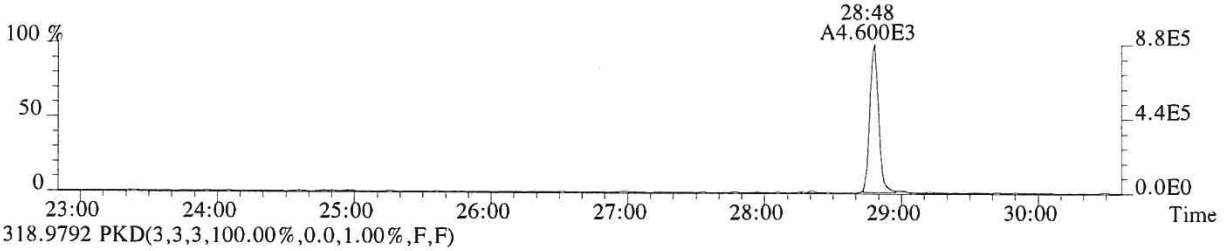
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16628.0,1.00%,F,T)



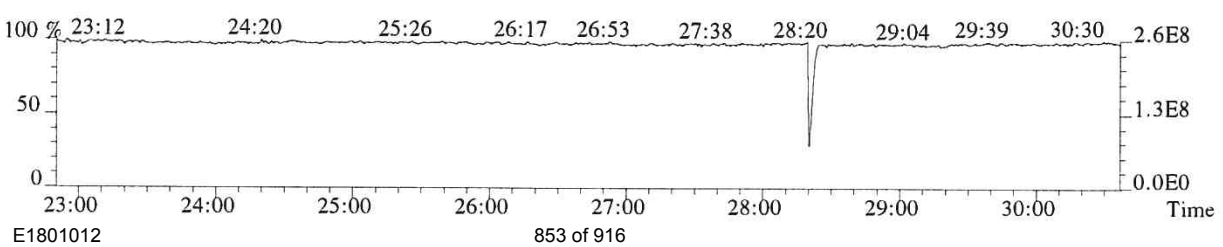
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7772.0,1.00%,F,T)



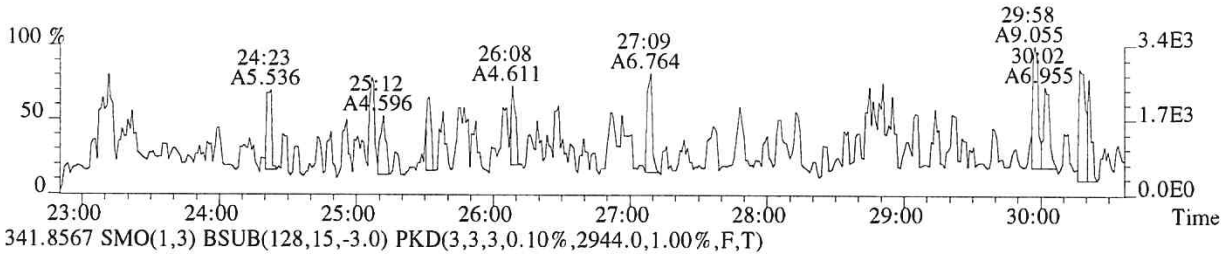
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)



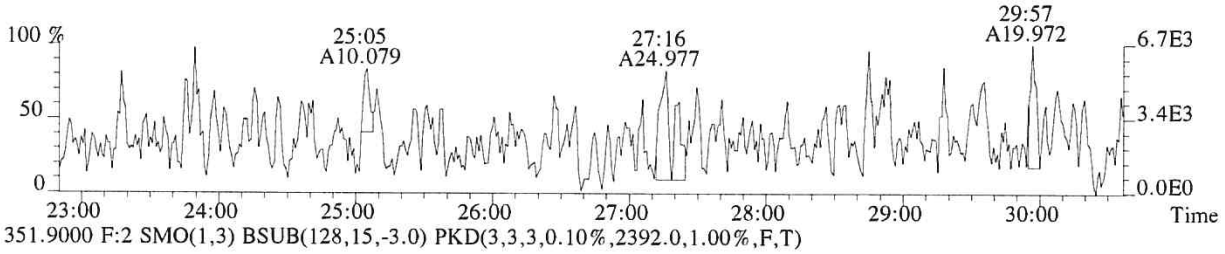
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



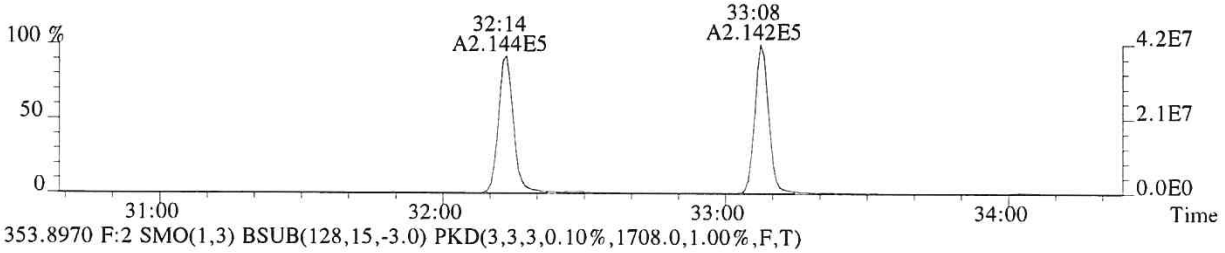
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



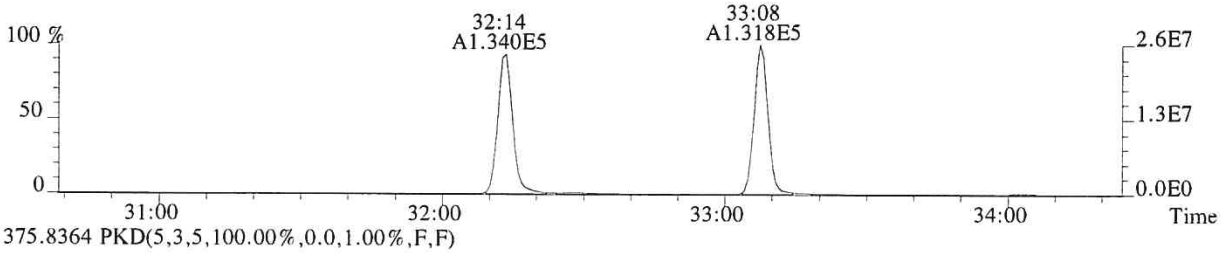
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



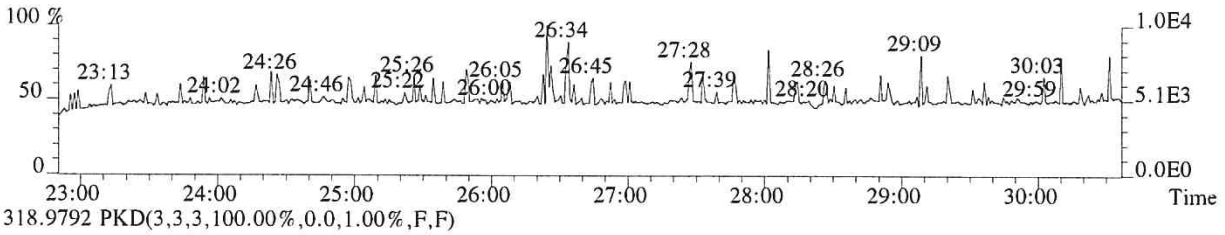
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



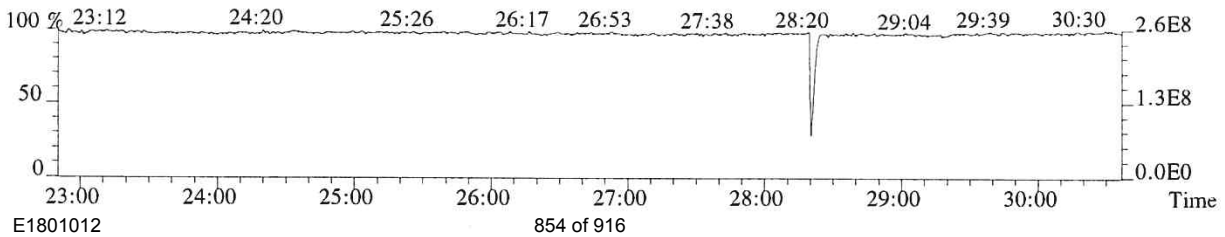
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

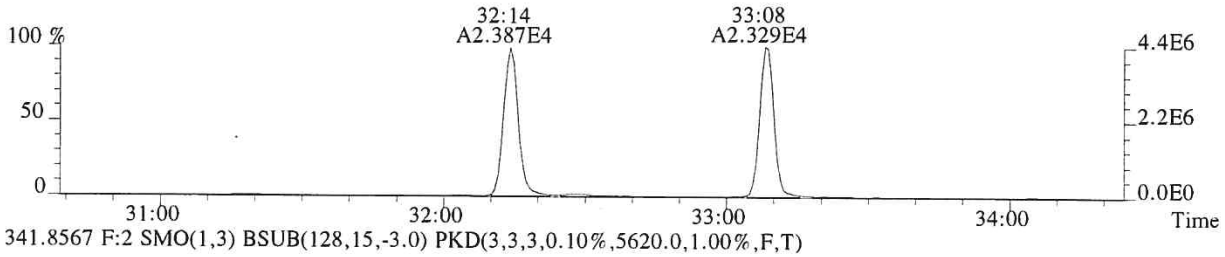


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

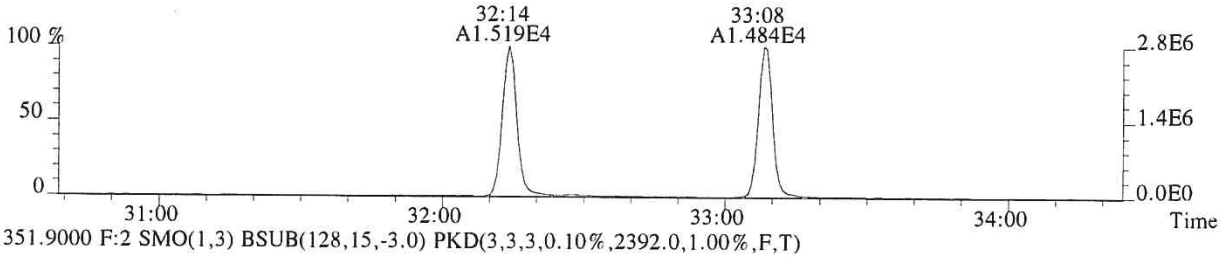


009445

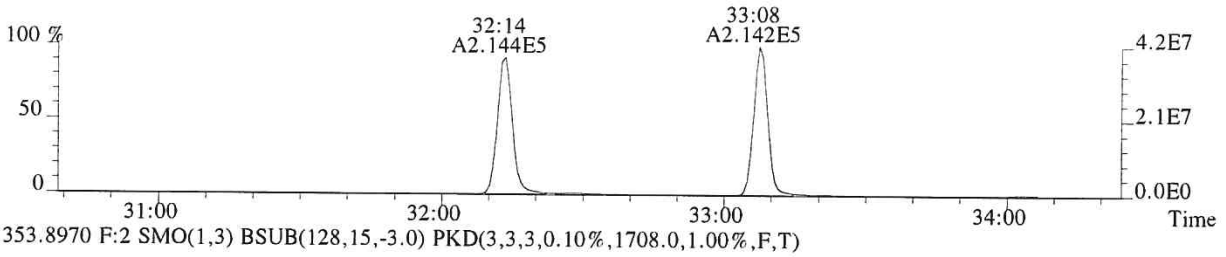
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



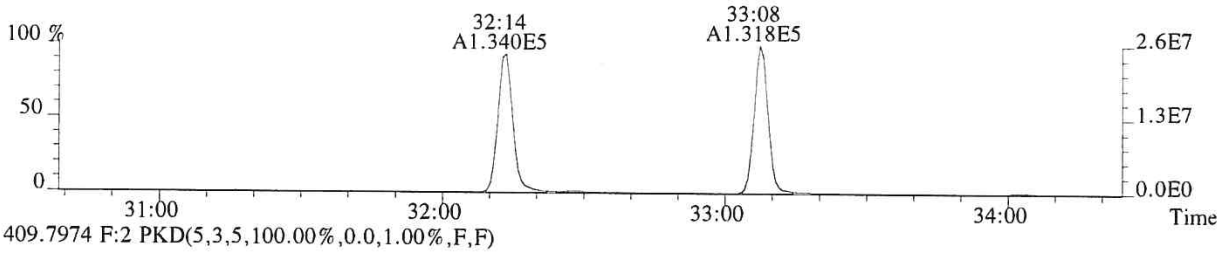
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5620.0,1.00%,F,T)



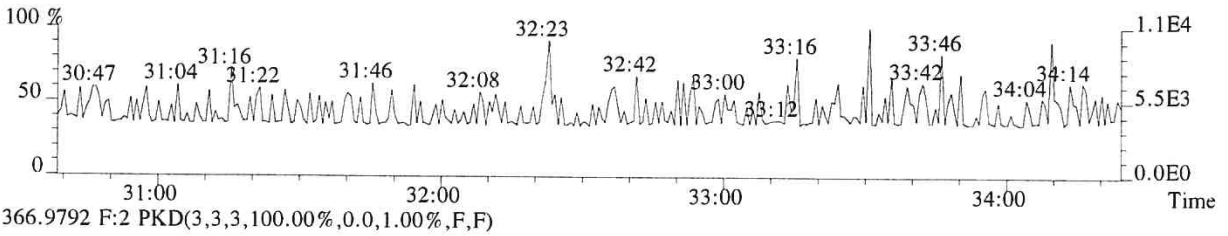
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



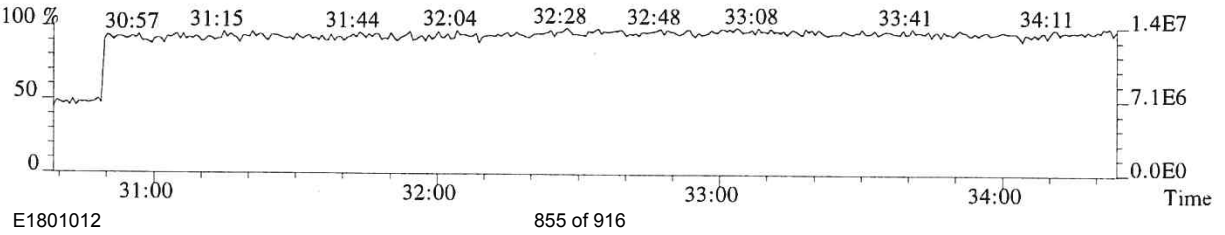
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



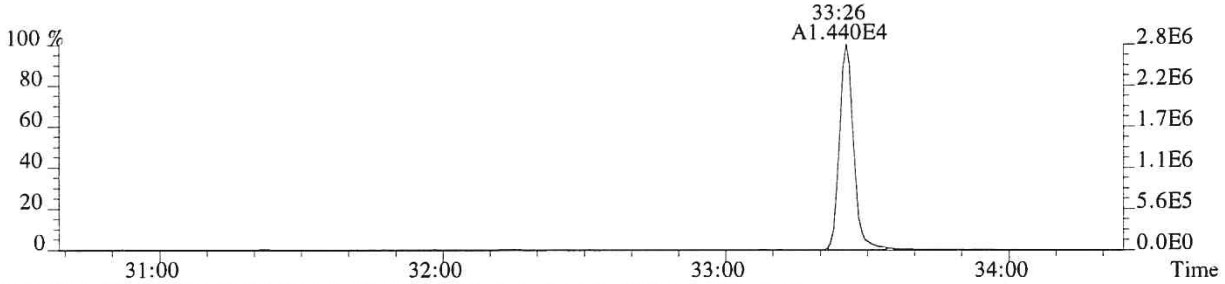
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



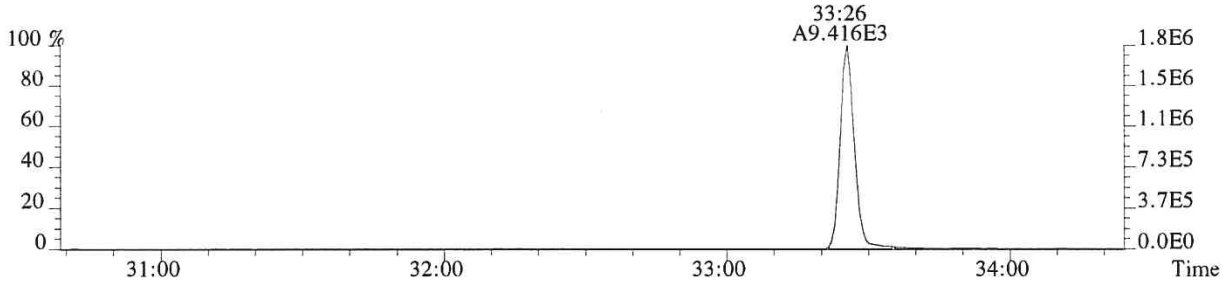
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



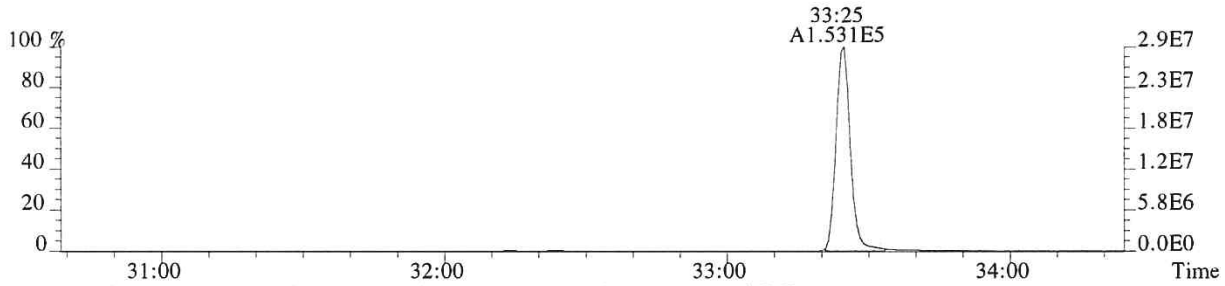
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



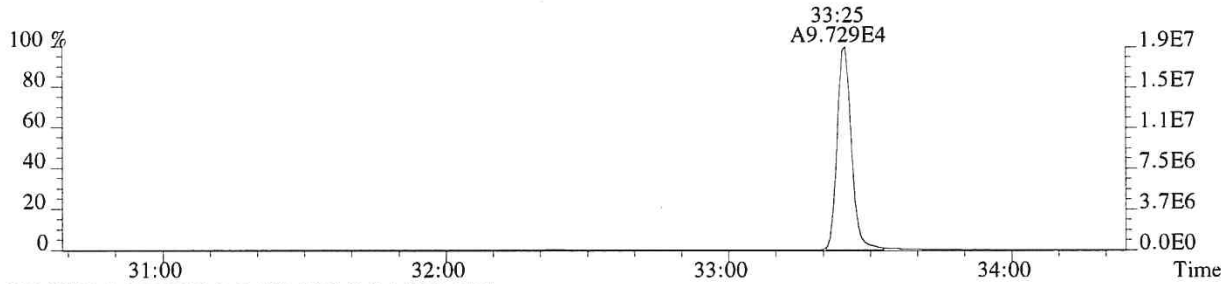
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



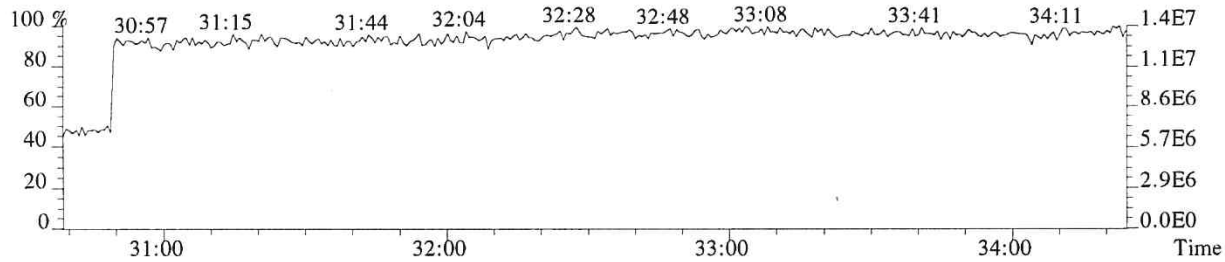
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)

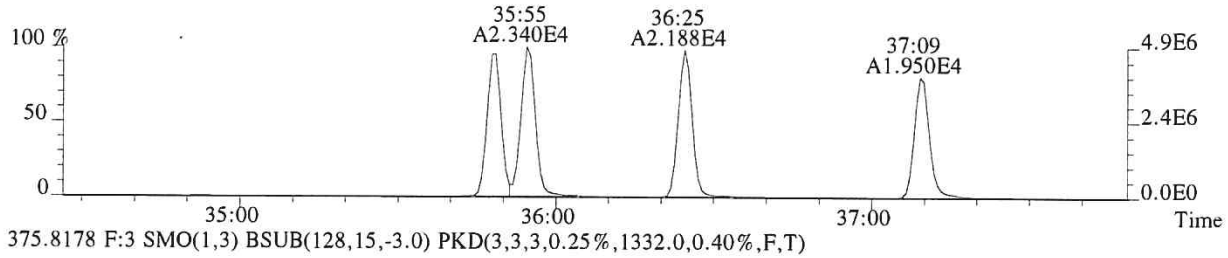


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

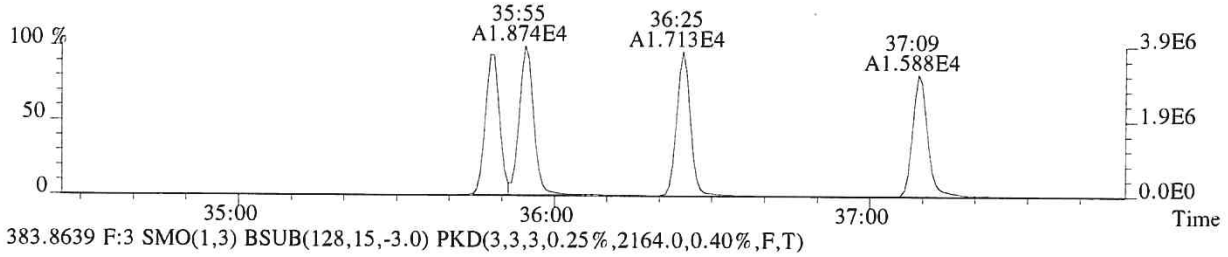


009447

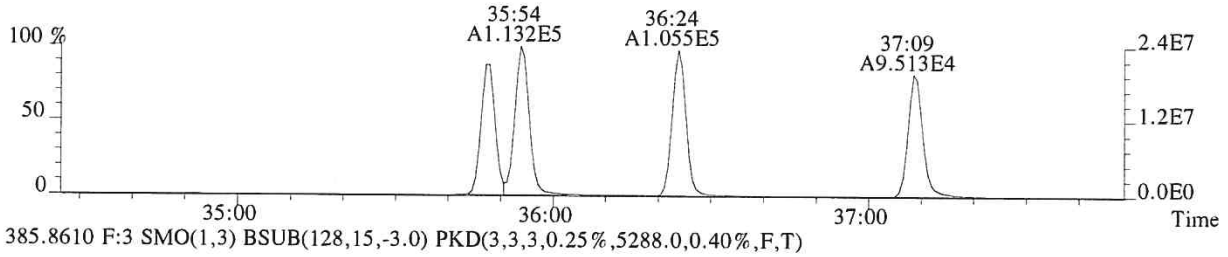
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.40%,F,T)



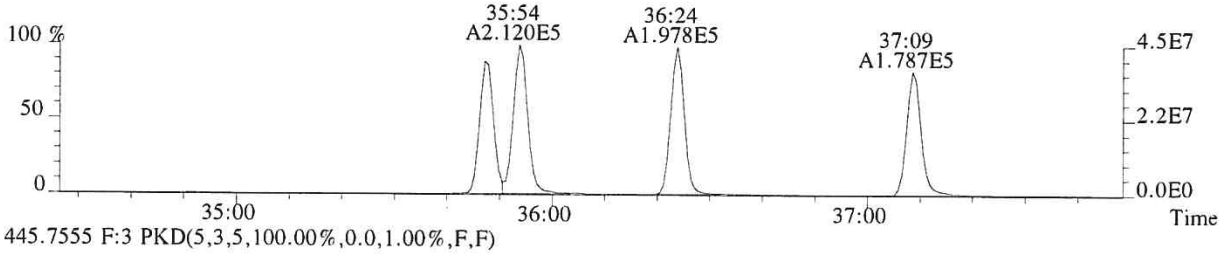
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



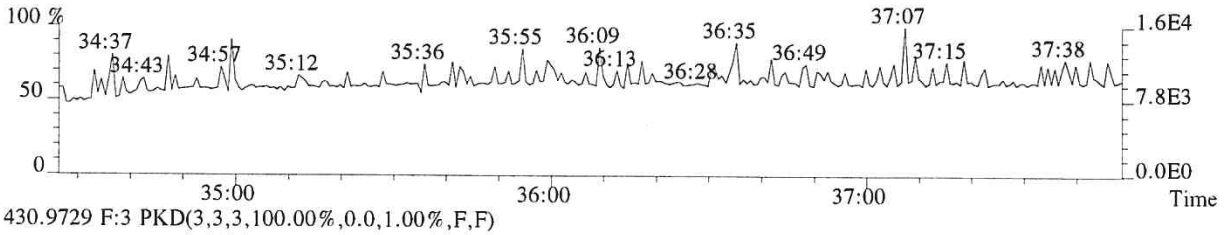
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



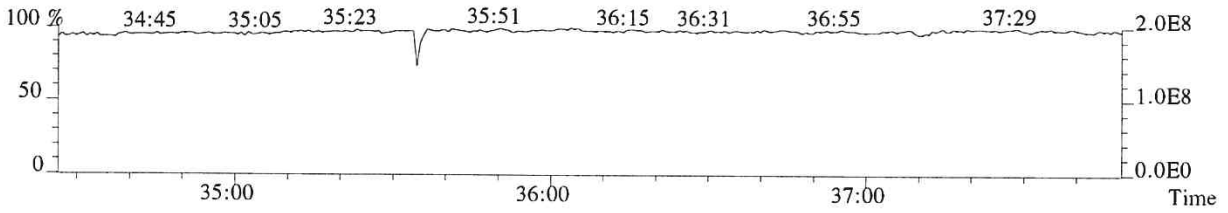
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5288.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

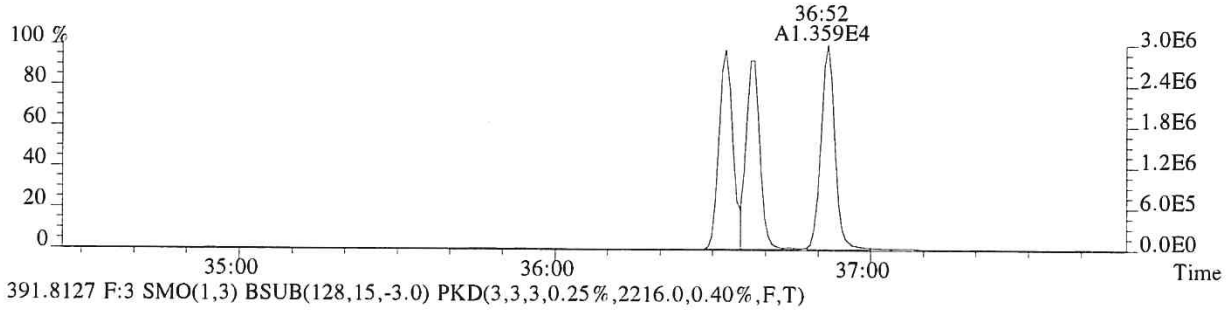


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

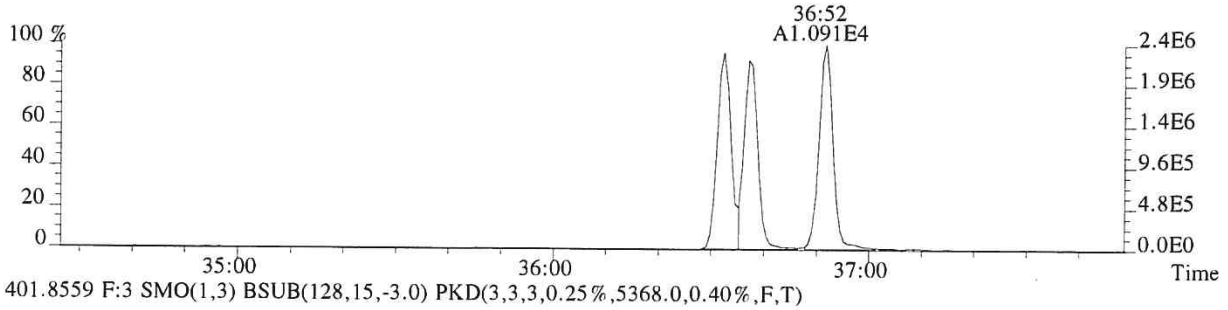


009448

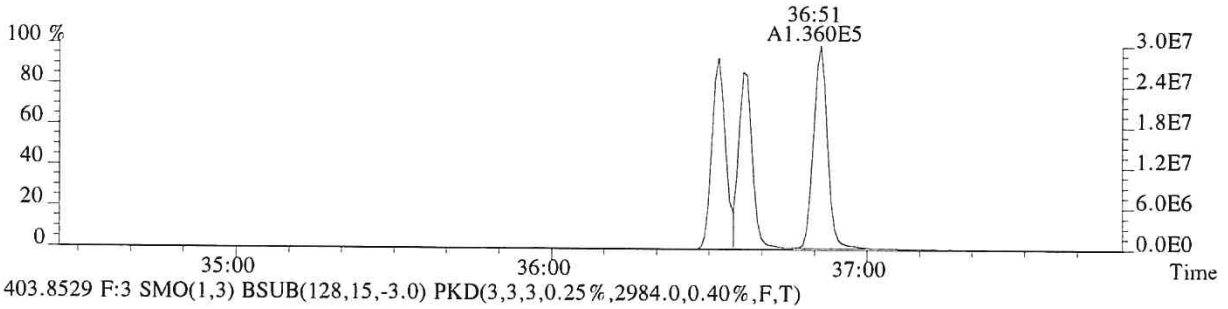
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



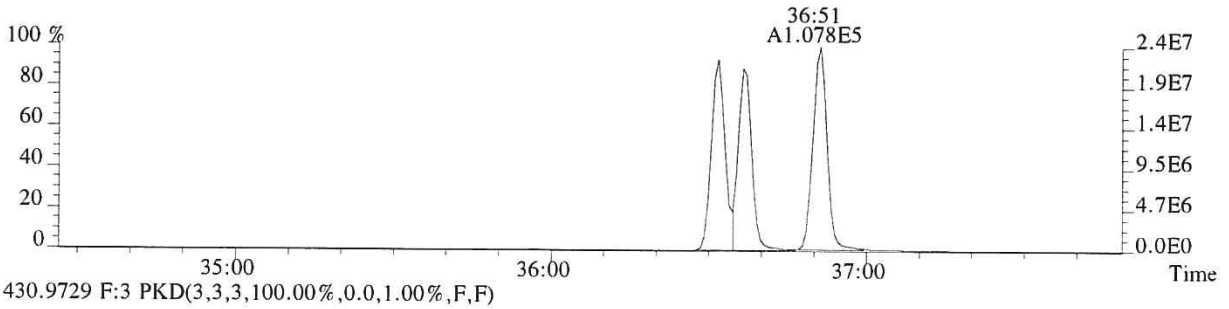
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



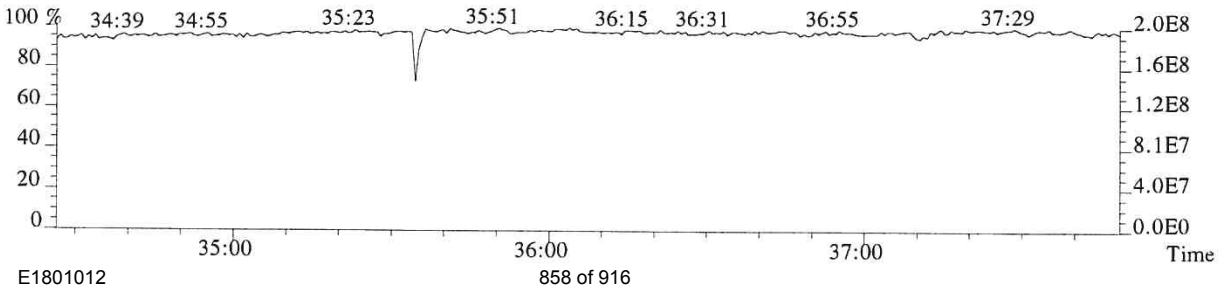
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5368.0,0.40%,F,T)



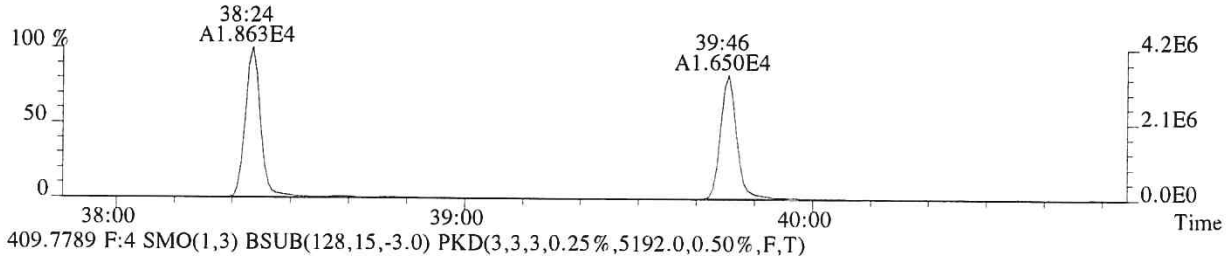
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



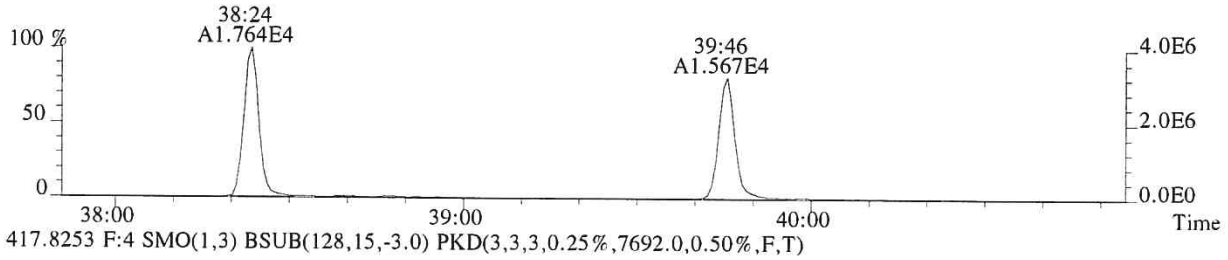
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



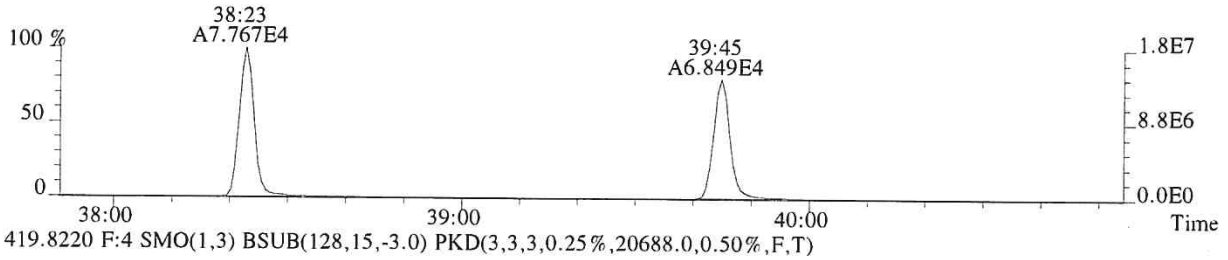
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4060.0,0.50%,F,T)



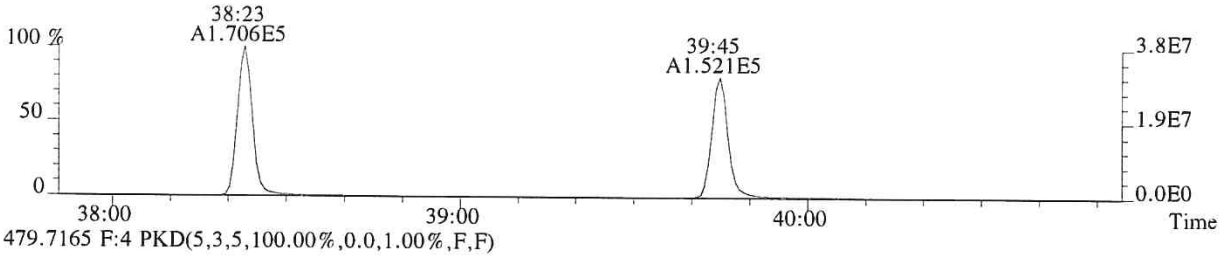
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5192.0,0.50%,F,T)



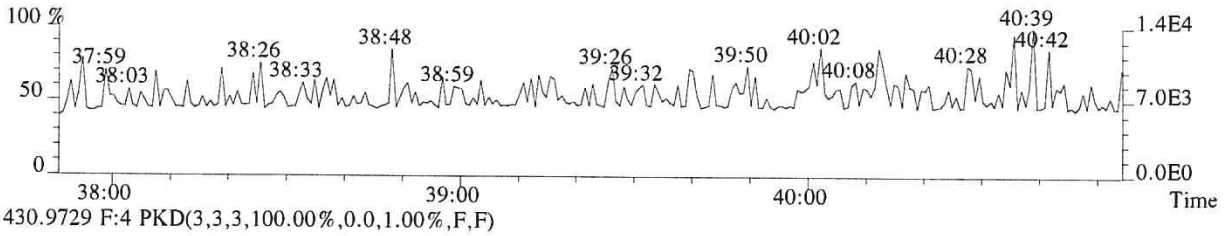
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7692.0,0.50%,F,T)



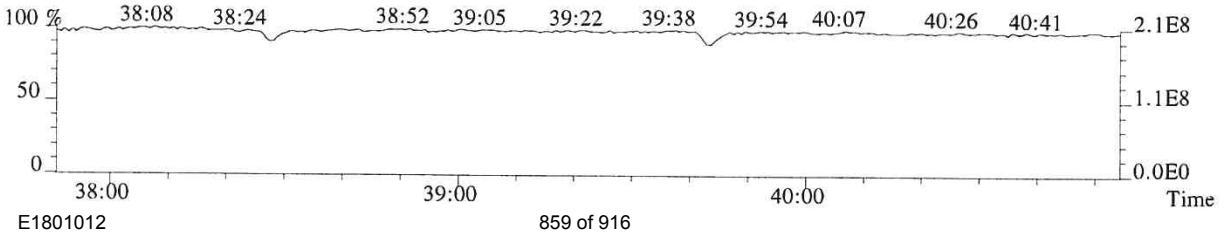
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20688.0,0.50%,F,T)



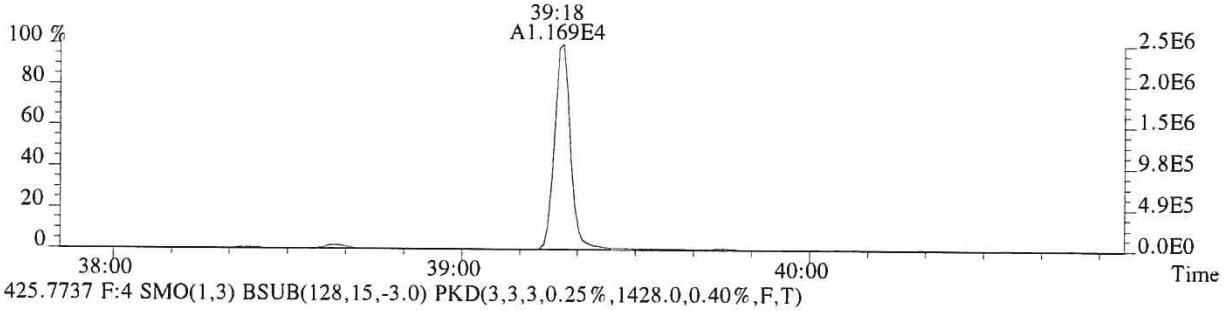
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



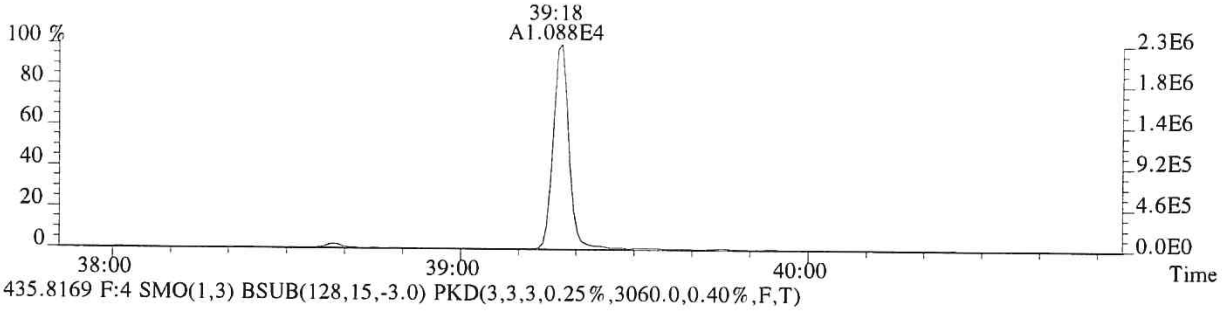
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



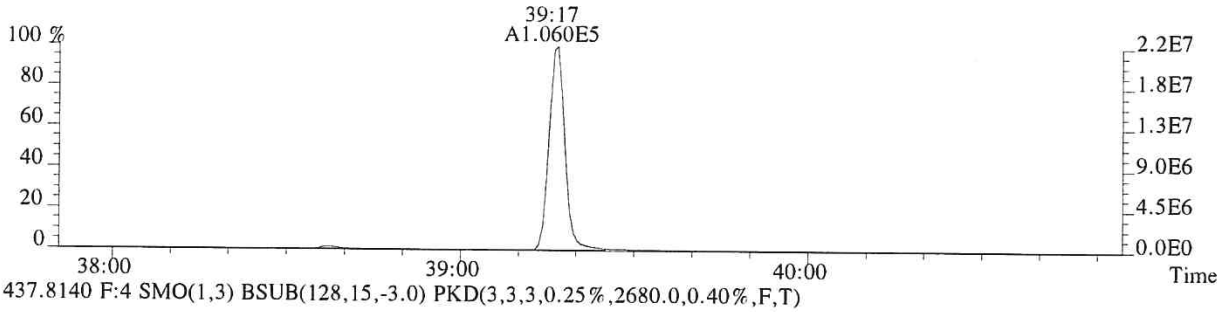
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



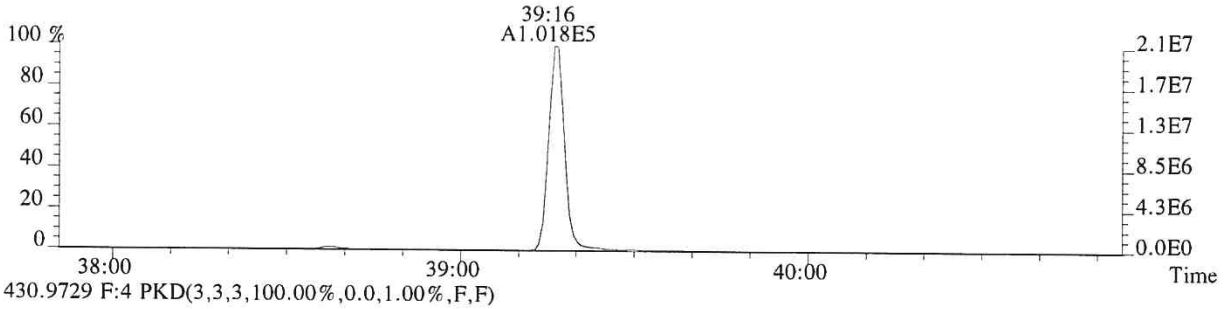
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



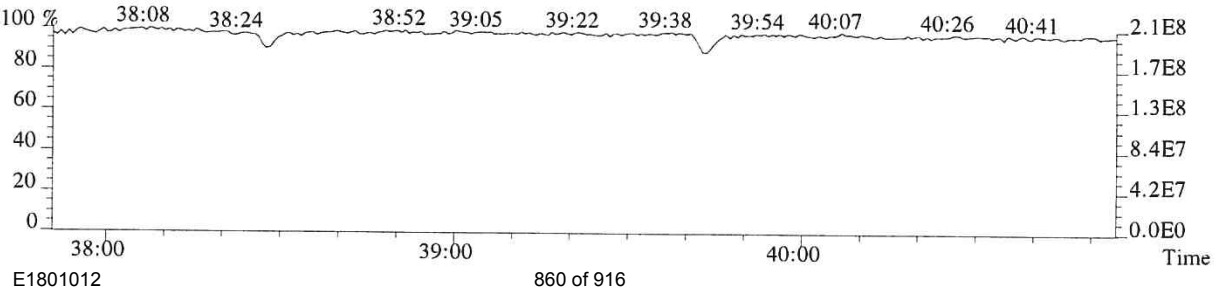
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



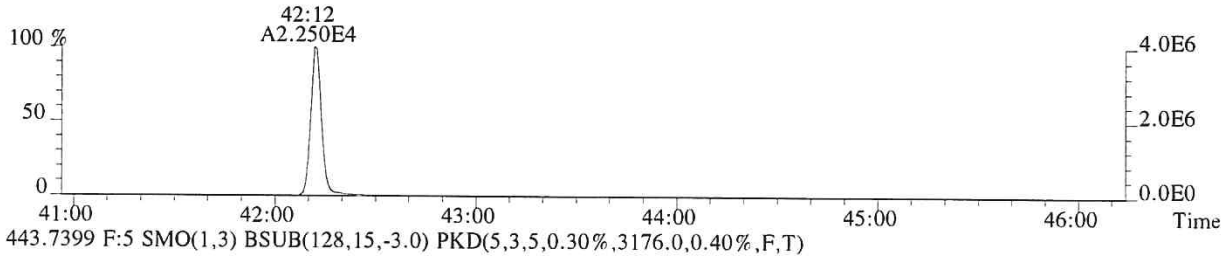
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)



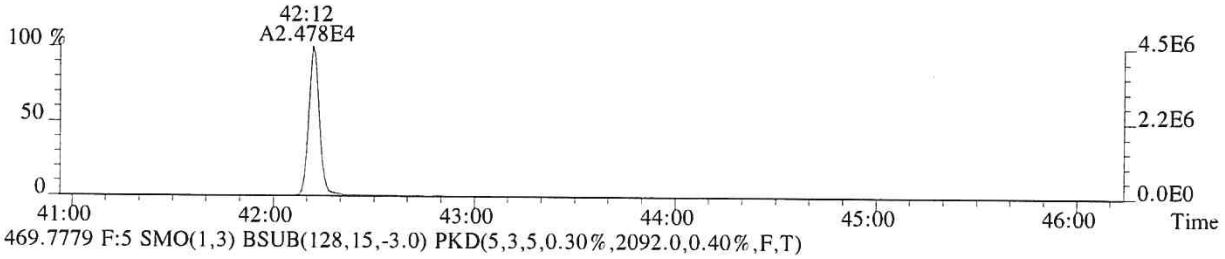
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



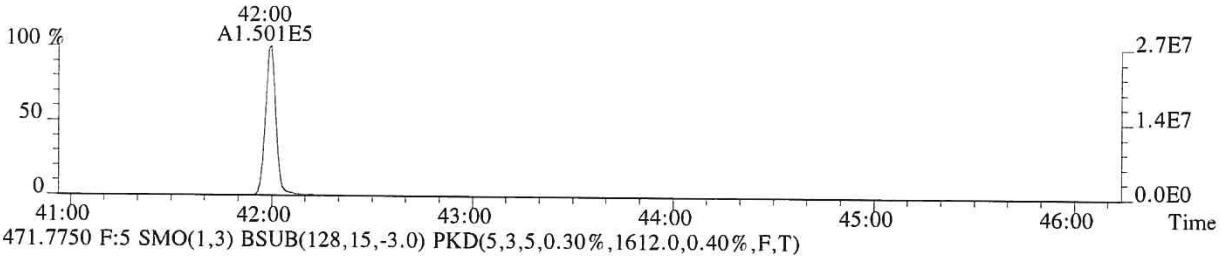
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



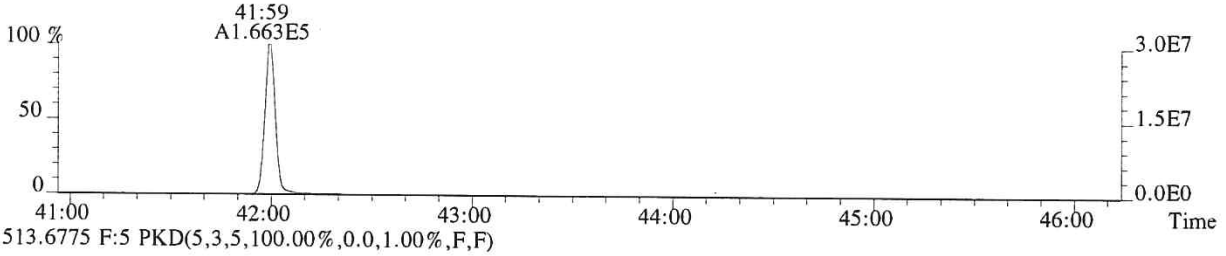
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3176.0,0.40%,F,T)



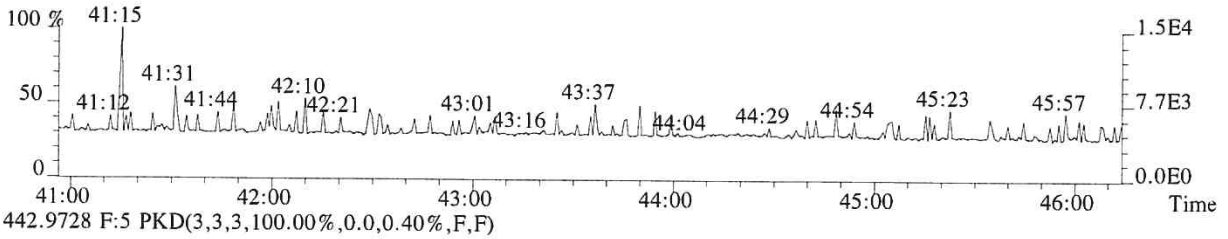
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



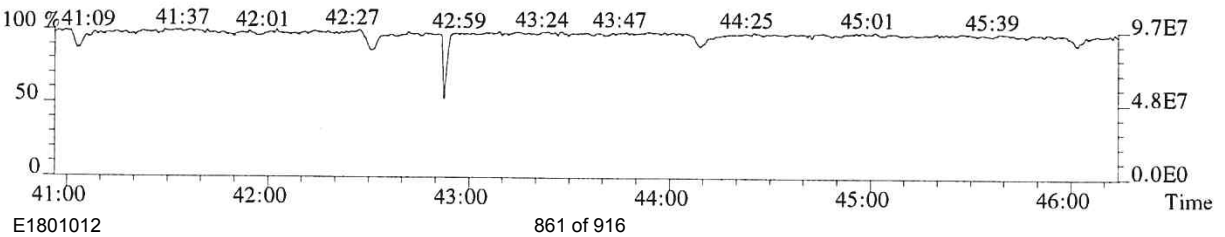
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



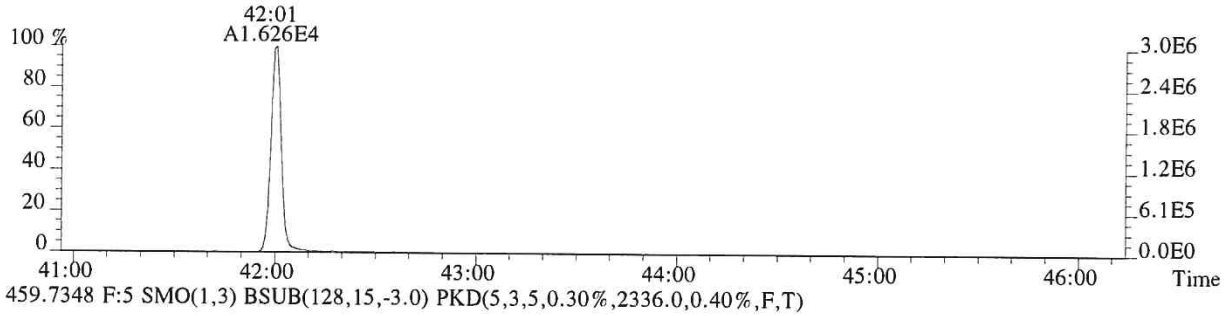
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



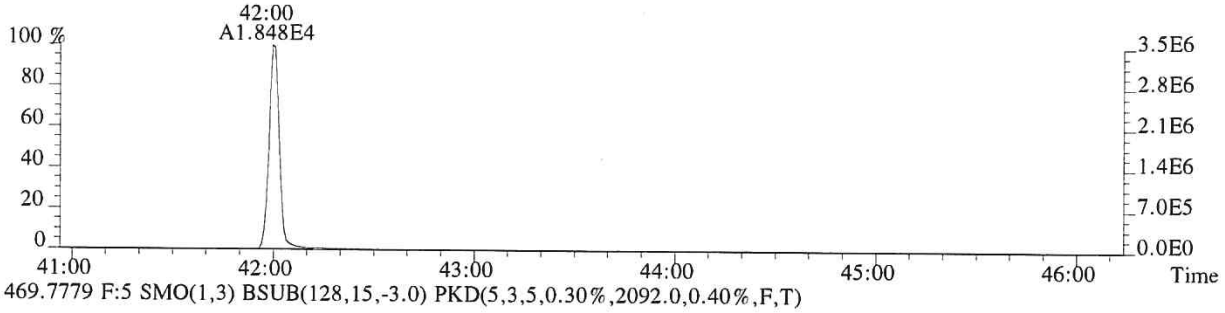
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



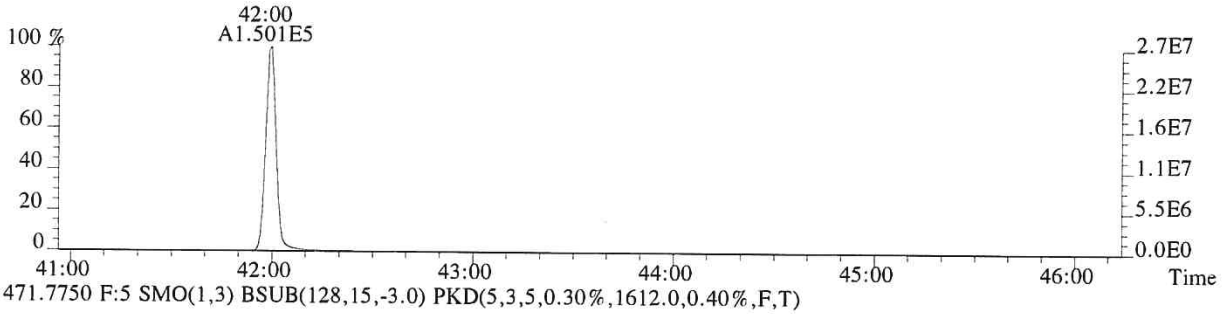
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



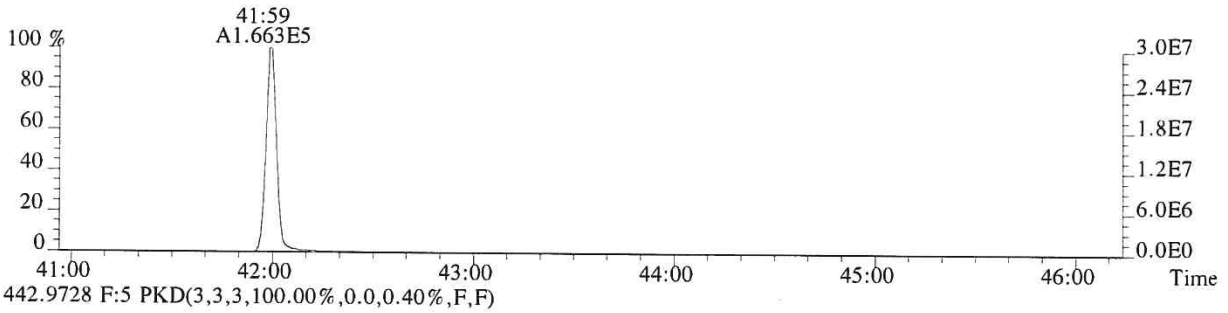
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2336.0,0.40%,F,T)



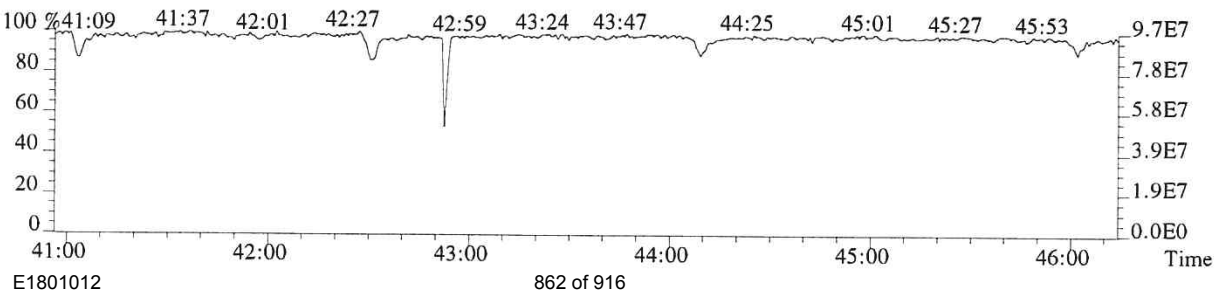
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.637e+04	4.546e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.073e+05	1.939e+05	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	2.818e+05	1.782e+05	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.774e+05	2.200e+05	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.905e+05	2.295e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.685e+05	2.105e+05	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.537e+05	1.982e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.407e+05	2.292e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.925e+05	1.847e+05	1.04	yes	no	1.463
10	Unk	OCDF	42:13	3.041e+05	3.309e+05	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	2.365e+04	3.051e+04	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.706e+05	1.098e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.645e+05	1.238e+05	1.33	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.567e+05	1.272e+05	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.702e+05	1.368e+05	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.477e+05	1.392e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.180e+05	2.422e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	3.444e+05	4.352e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	5.358e+05	3.352e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	5.234e+05	3.254e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.524e+05	4.773e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.834e+05	5.294e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.621e+05	4.867e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.431e+05	4.520e+05	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.967e+05	4.289e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.638e+05	3.571e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.330e+05	2.909e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.758e+05	2.372e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	3.106e+05	2.345e+05	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.932e+05	2.439e+05	1.20	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.673e+05	2.524e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	3.863e+05	4.247e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.395e+05	3.006e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	3.335e+05	2.694e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.645e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+06	2.18e+03	3.0e+03	8.17e+06	4.39e+03	1.9e+03
2	1,2,3,7,8-PeCDF	5.78e+07	2.87e+03	2.0e+04	3.64e+07	4.35e+03	8.4e+03
3	2,3,4,7,8-PeCDF	5.79e+07	2.87e+03	2.0e+04	3.65e+07	4.35e+03	8.4e+03
4	1,2,3,4,7,8-HxCDF	6.15e+07	2.89e+03	2.1e+04	4.93e+07	2.08e+03	2.4e+04
5	1,2,3,6,7,8-HxCDF	6.26e+07	2.89e+03	2.2e+04	4.97e+07	2.08e+03	2.4e+04
6	2,3,4,6,7,8-HxCDF	6.14e+07	2.89e+03	2.1e+04	4.79e+07	2.08e+03	2.3e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.89e+03	1.9e+04	4.26e+07	2.08e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.56e+07	1.47e+04	3.8e+03	5.23e+07	1.66e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.99e+07	1.47e+04	2.7e+03	3.80e+07	1.66e+04	2.3e+03
10	OCDF	5.72e+07	1.23e+03	4.7e+04	6.22e+07	3.01e+03	2.1e+04
11	2,3,7,8-TCDD	4.49e+06	5.36e+03	8.4e+02	5.78e+06	2.64e+03	2.2e+03
12	1,2,3,7,8-PeCDD	3.45e+07	2.46e+03	1.4e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	3.72e+07	9.04e+02	4.1e+04	2.90e+07	1.56e+03	1.9e+04
14	1,2,3,6,7,8-HxCDD	3.60e+07	9.04e+02	4.0e+04	2.81e+07	1.56e+03	1.8e+04
15	1,2,3,7,8,9-HxCDD	3.80e+07	9.04e+02	4.2e+04	3.00e+07	1.56e+03	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	3.19e+07	1.58e+03	2.0e+04	3.06e+07	1.63e+03	1.9e+04
17	OCDD	4.21e+07	1.71e+03	2.5e+04	4.66e+07	1.53e+03	3.0e+04
18	13C-2,3,7,8-TCDF	6.23e+07	1.55e+04	4.0e+03	7.90e+07	1.02e+04	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+08	2.14e+03	4.7e+04	6.28e+07	2.18e+03	2.9e+04
20	13C-2,3,4,7,8-PeCDF	1.07e+08	2.14e+03	5.0e+04	6.66e+07	2.18e+03	3.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.63e+07	2.92e+03	1.9e+04	1.07e+08	4.60e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.12e+07	2.92e+03	2.1e+04	1.15e+08	4.60e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	2.92e+03	2.0e+04	1.10e+08	4.60e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.22e+07	2.92e+03	1.8e+04	9.74e+07	4.60e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.59e+07	1.18e+04	3.9e+03	9.95e+07	3.82e+04	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	1.18e+04	2.9e+03	7.29e+07	3.82e+04	1.9e+03
27	13C-2,3,7,8-TCDD	4.45e+07	1.91e+04	2.3e+03	5.53e+07	7.70e+03	7.2e+03
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.59e+03	2.1e+04	4.74e+07	2.50e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.95e+07	5.55e+03	1.3e+04	5.43e+07	3.18e+03	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	6.70e+07	5.55e+03	1.2e+04	5.36e+07	3.18e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.80e+07	4.72e+03	1.2e+04	5.53e+07	2.63e+03	2.1e+04
32	13C-OCDD	7.33e+07	1.86e+03	4.0e+04	8.10e+07	5.92e+02	1.4e+05
33	13C-1,2,3,4-TCDD	4.48e+07	1.91e+04	2.3e+03	5.67e+07	7.70e+03	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.38e+07	5.55e+03	1.3e+04	5.89e+07	3.18e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	1.08e+07	3.52e+03	3.1e+03			

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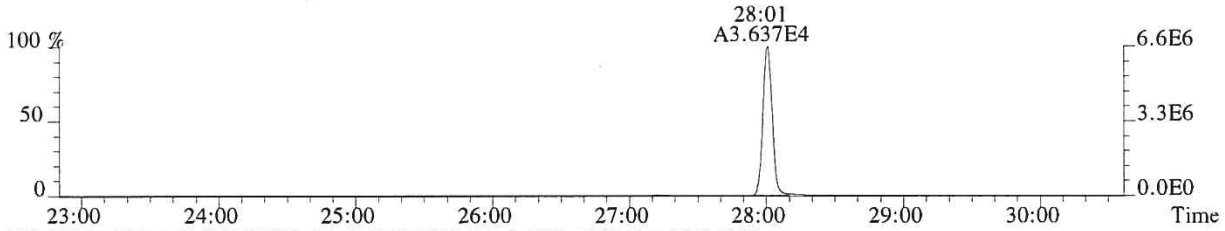
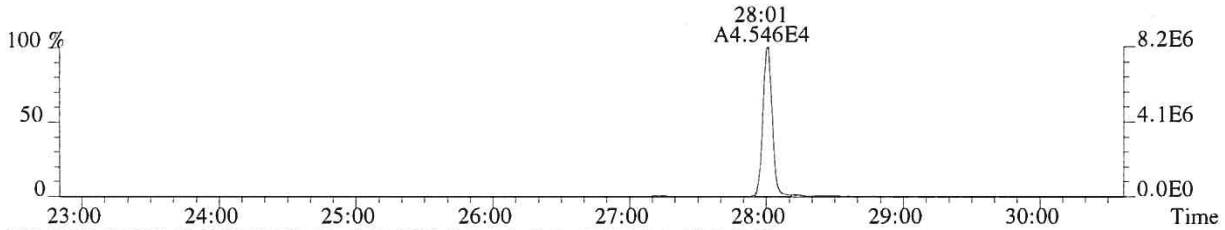
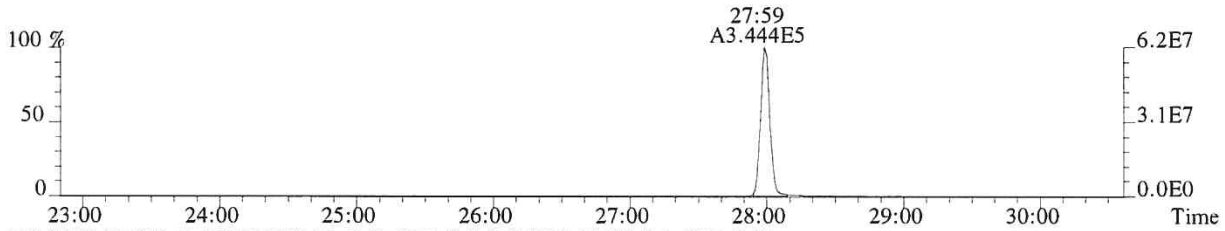
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



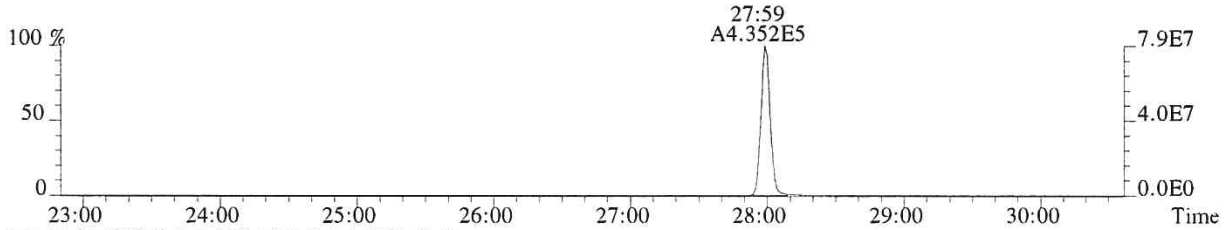
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



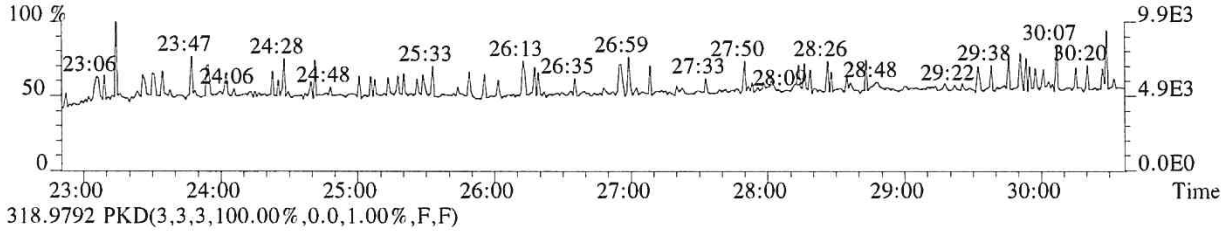
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15516.0,1.00%,F,T)



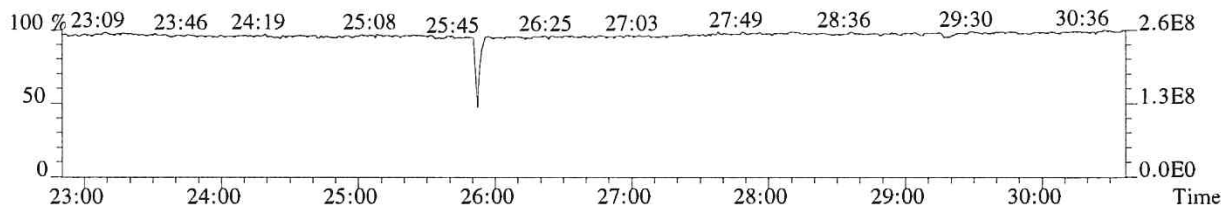
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

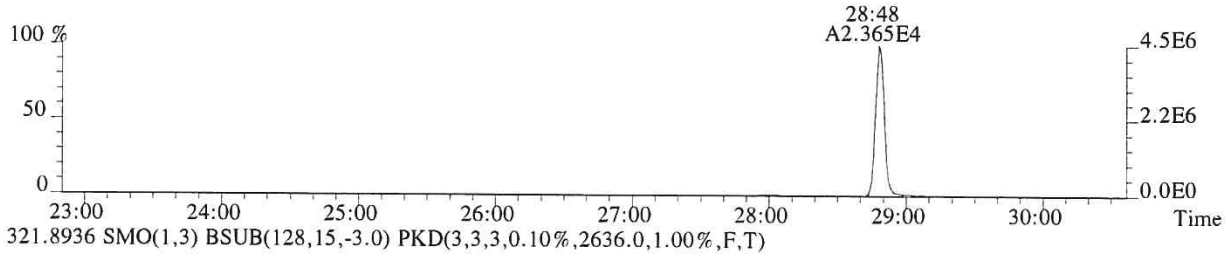


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

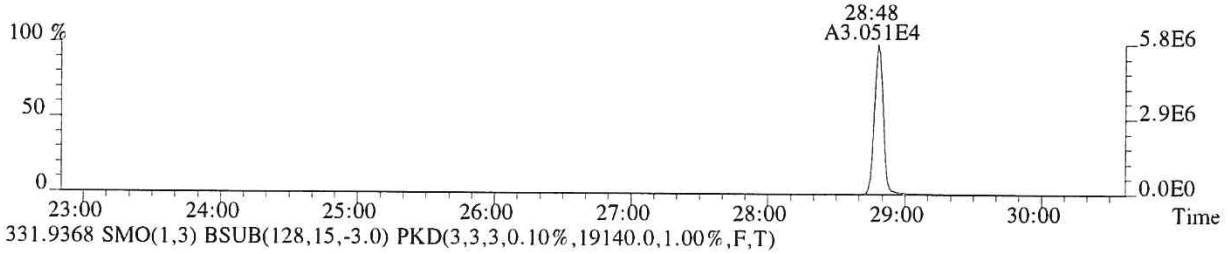


009456

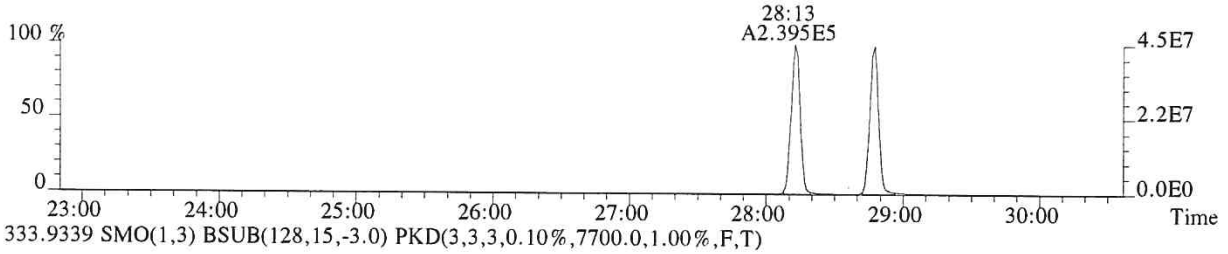
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



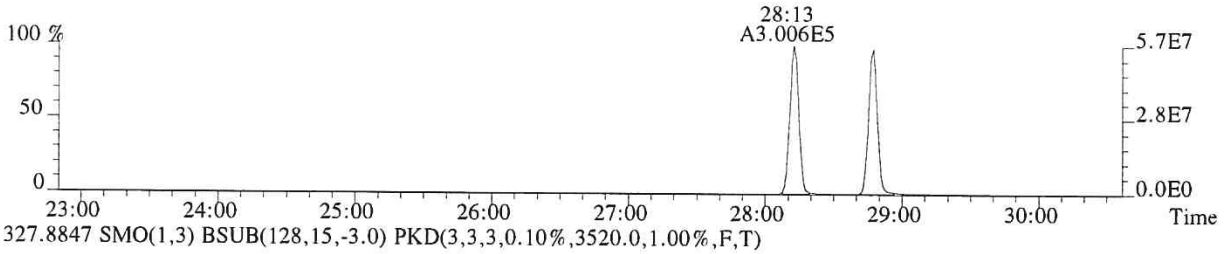
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



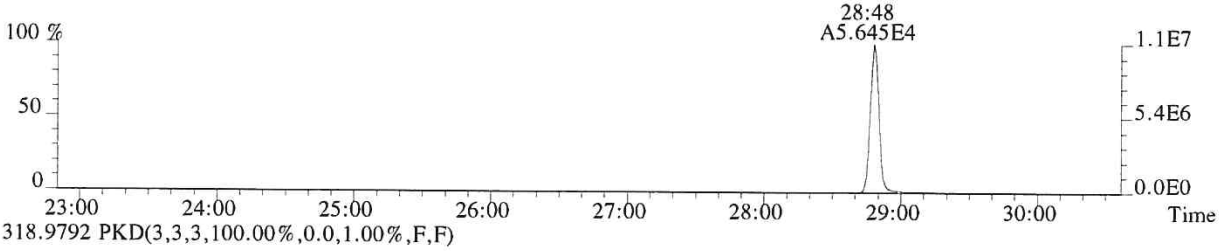
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



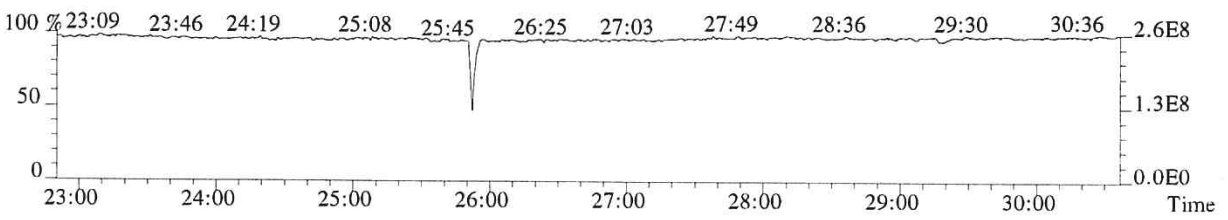
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)

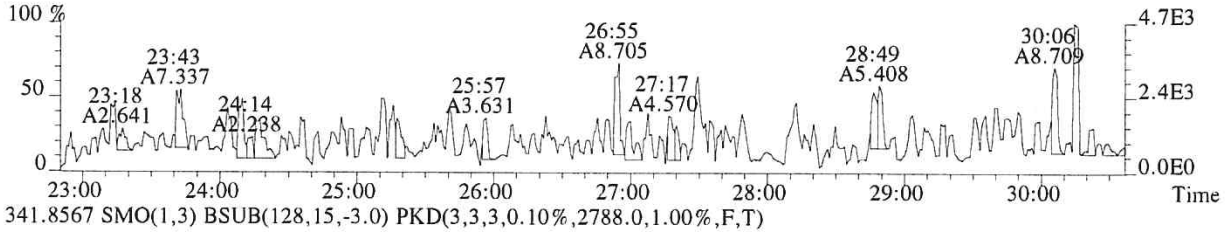


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

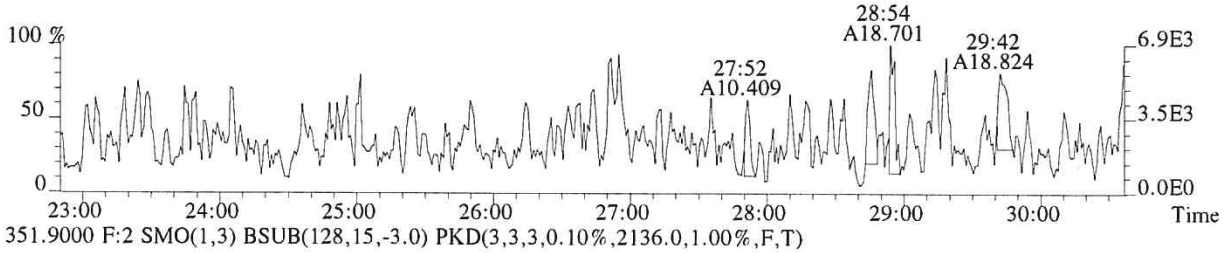


009457

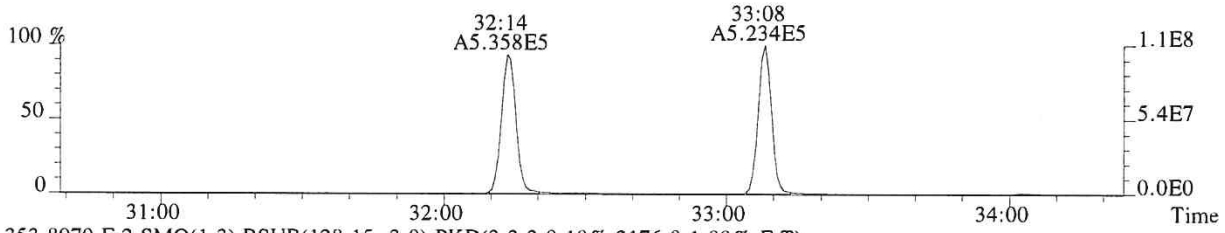
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



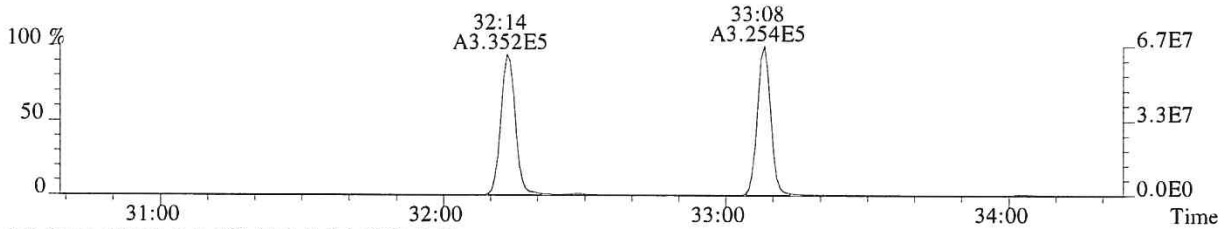
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



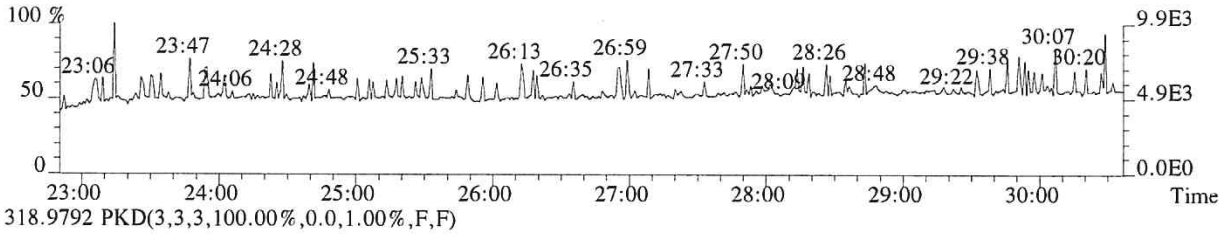
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



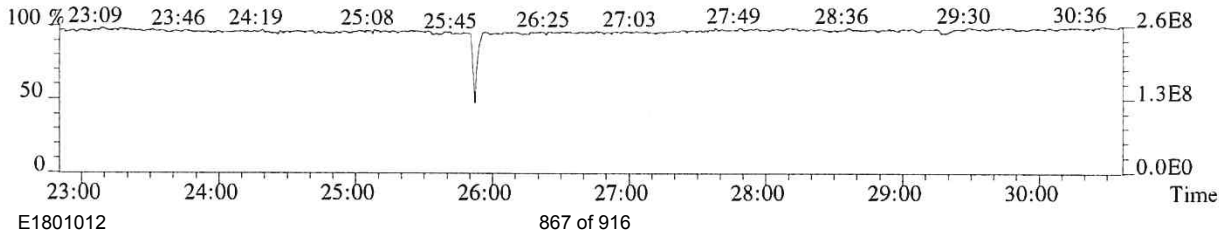
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

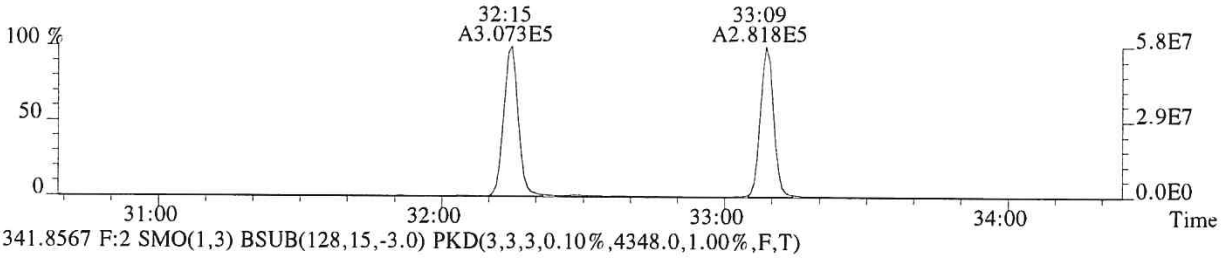


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

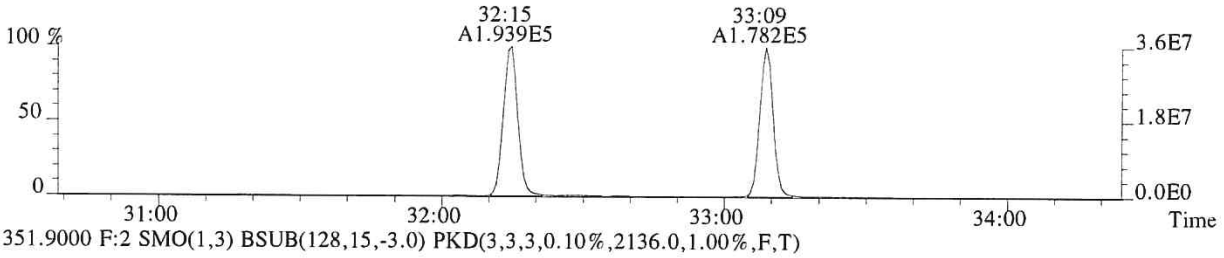


009458

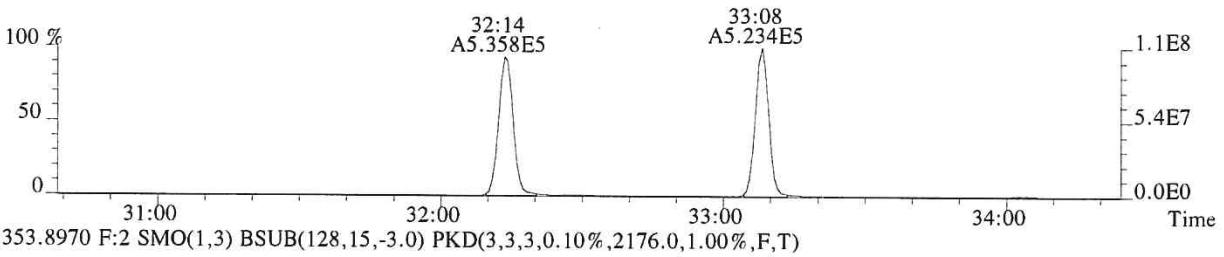
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



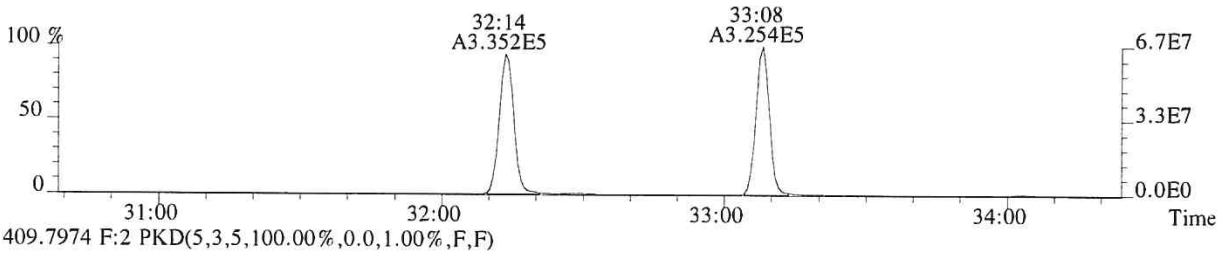
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



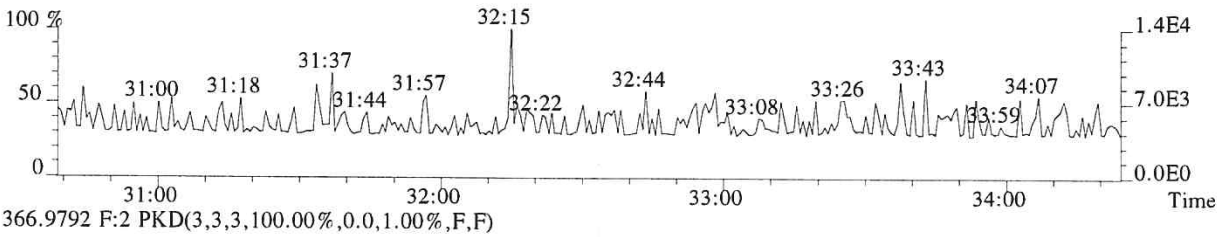
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



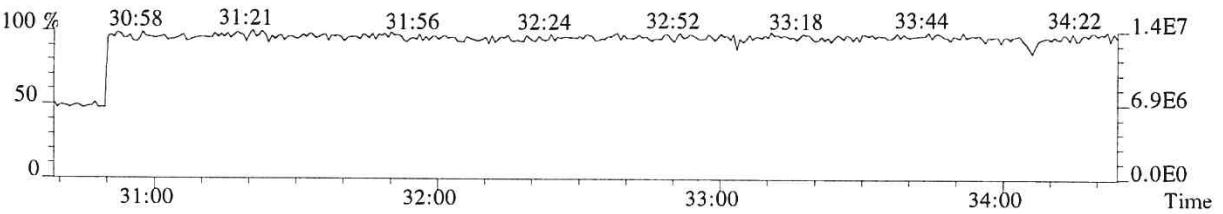
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



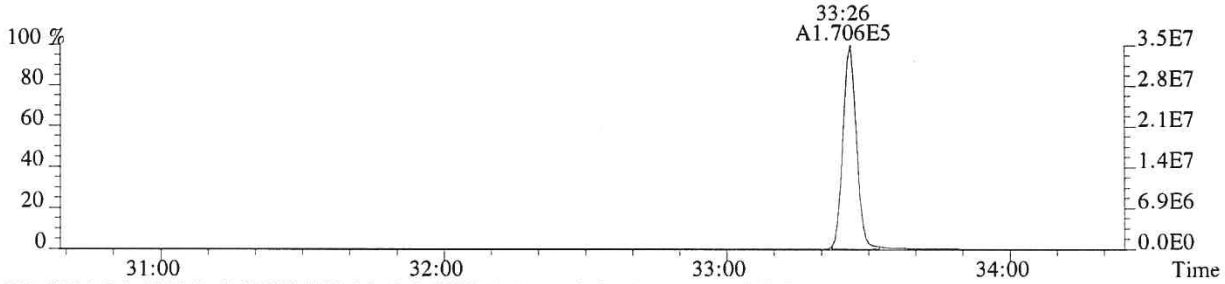
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



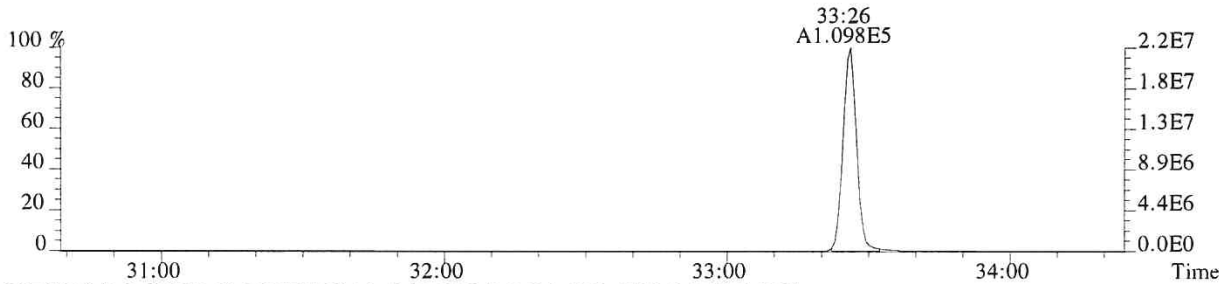
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



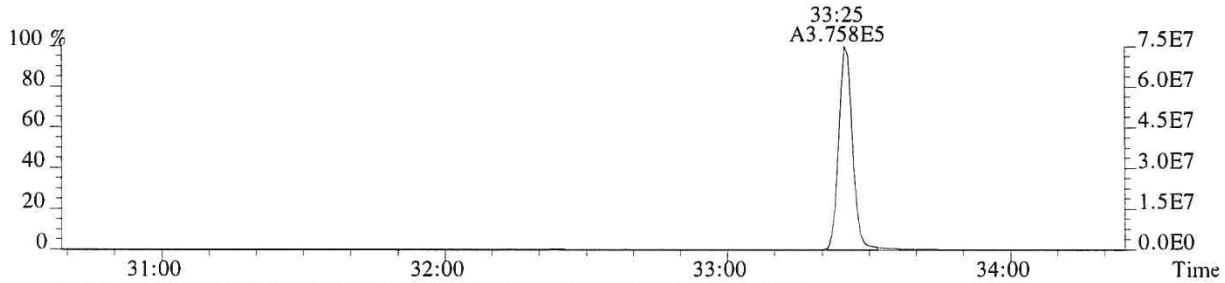
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



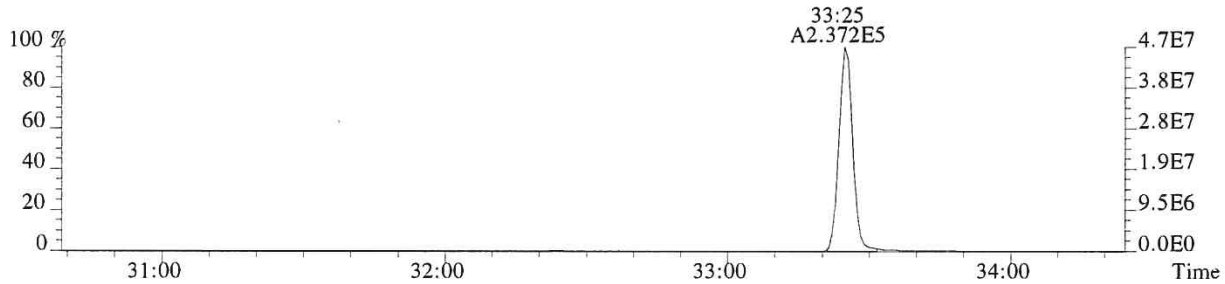
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



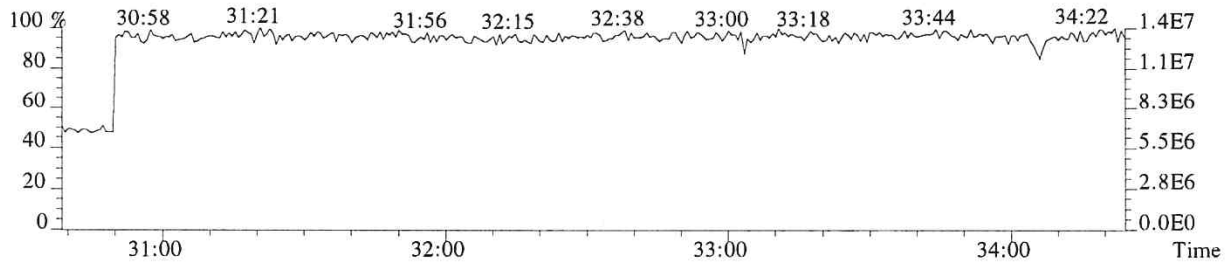
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)

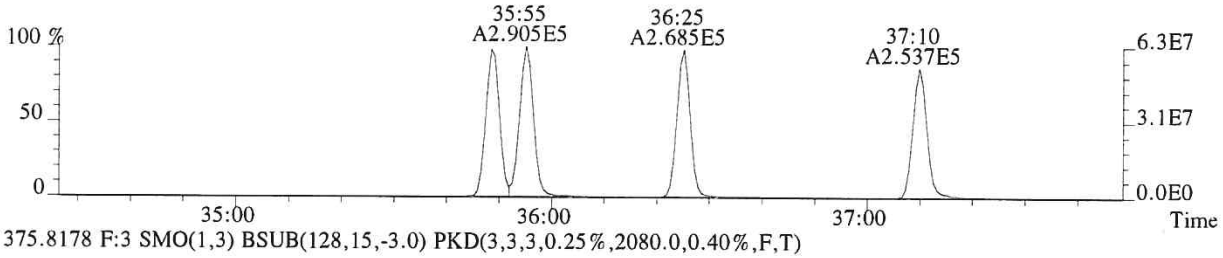


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

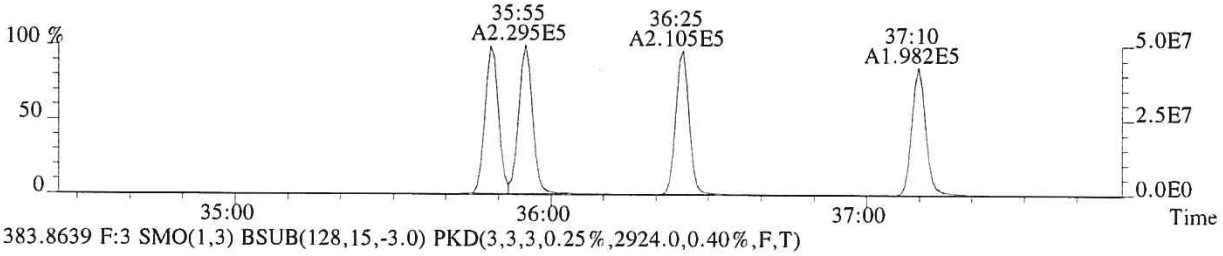


009460

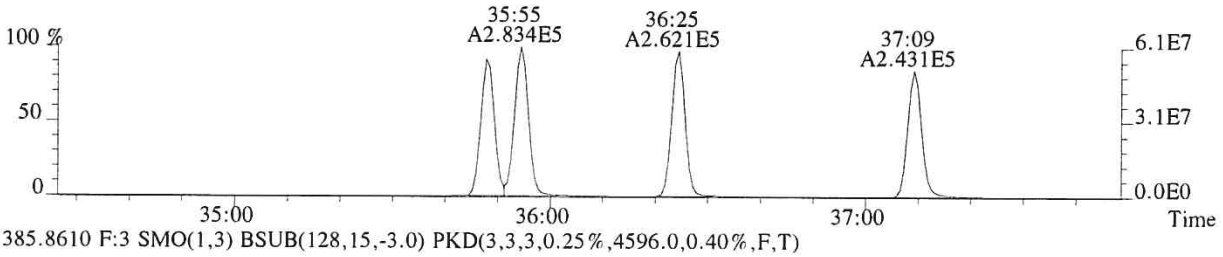
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



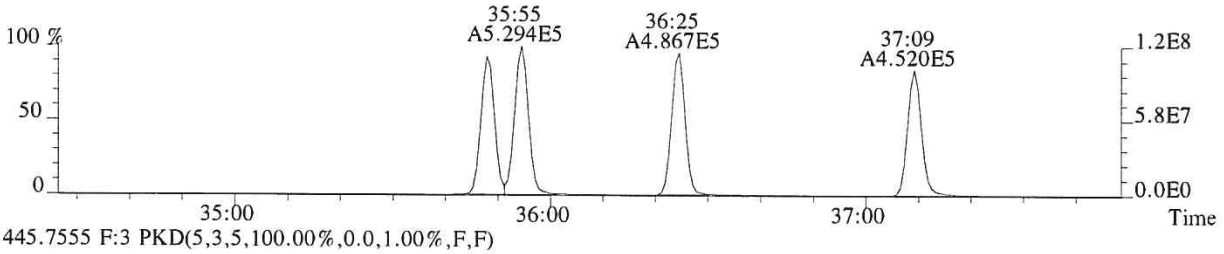
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



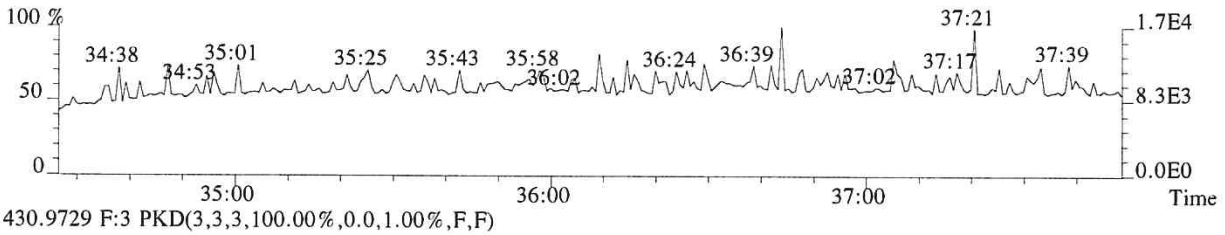
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



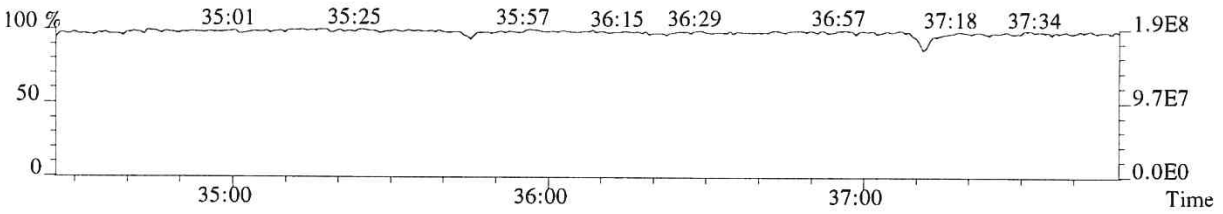
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4596.0,0.40%,F,T)



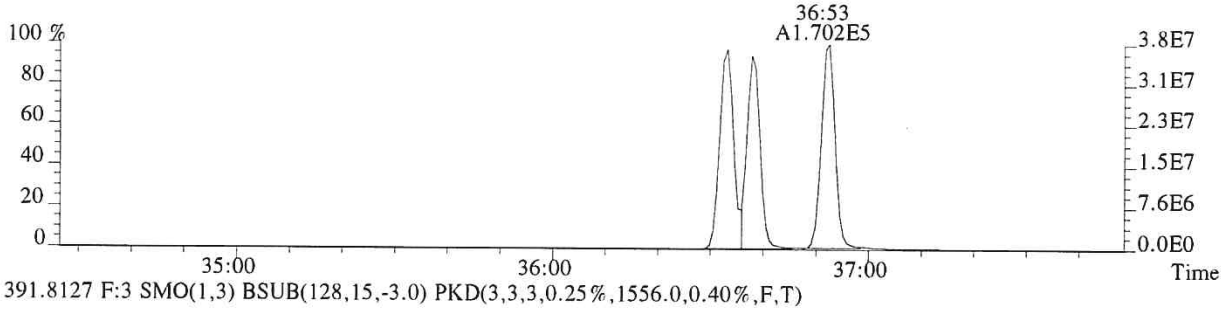
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



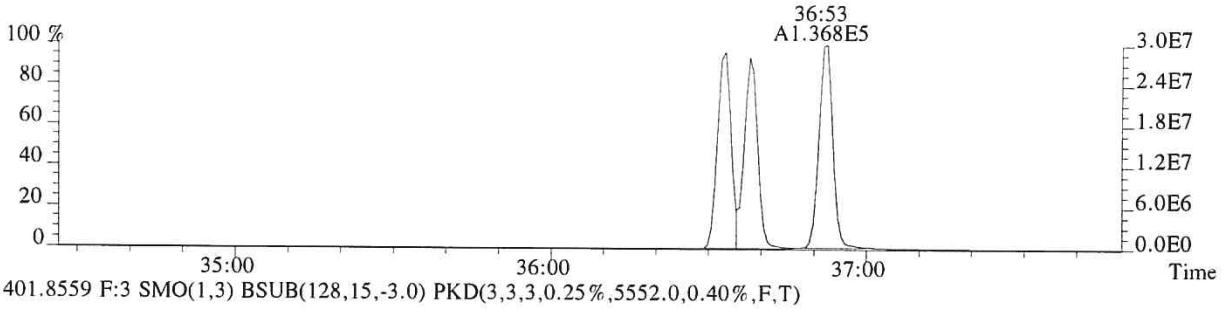
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



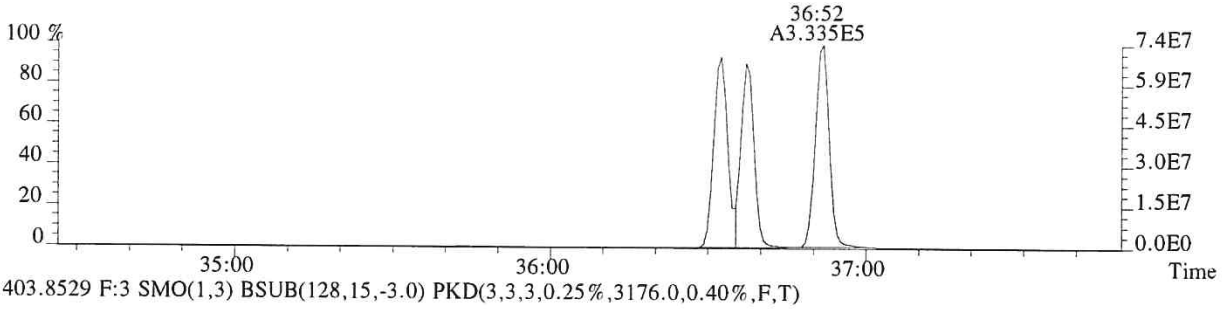
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



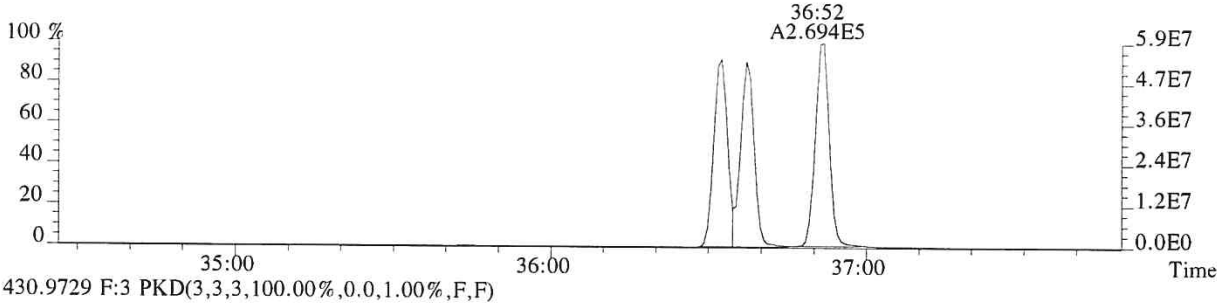
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



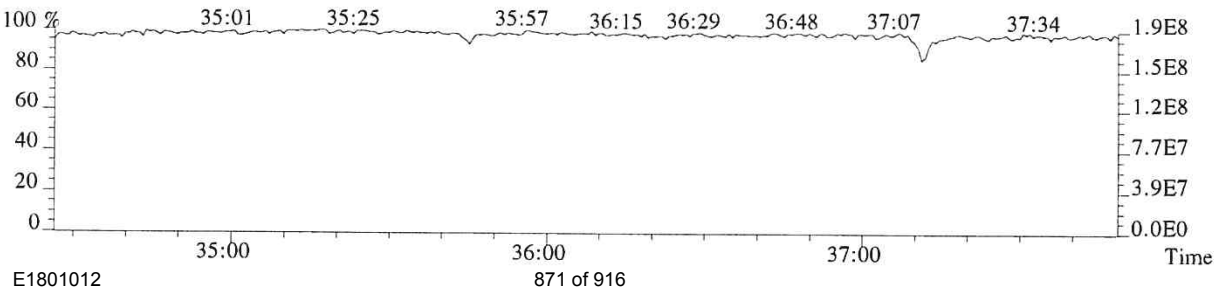
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5552.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)

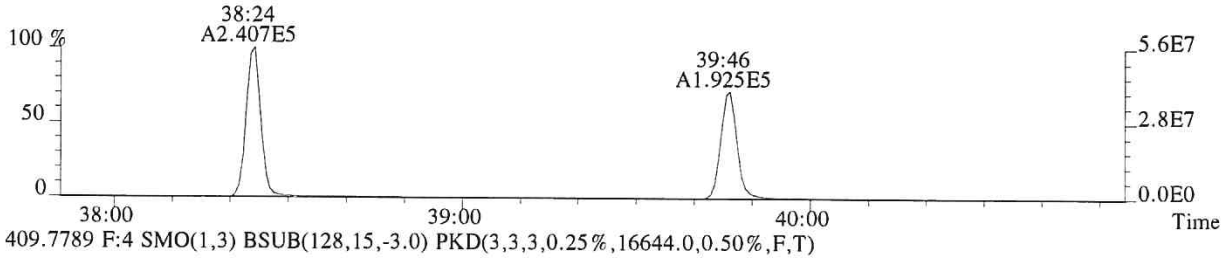


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

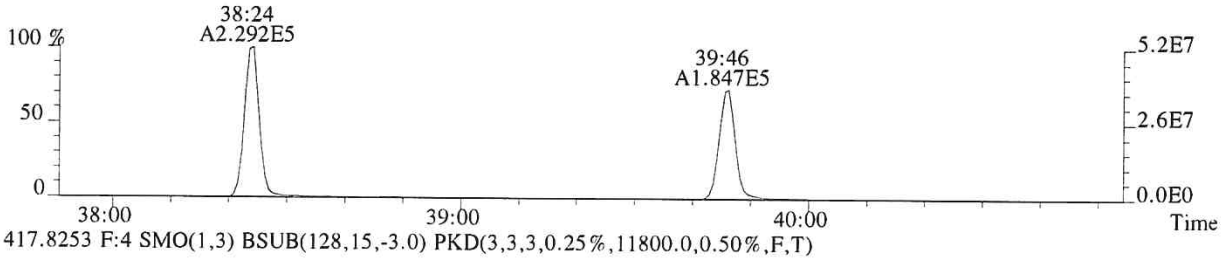


009462

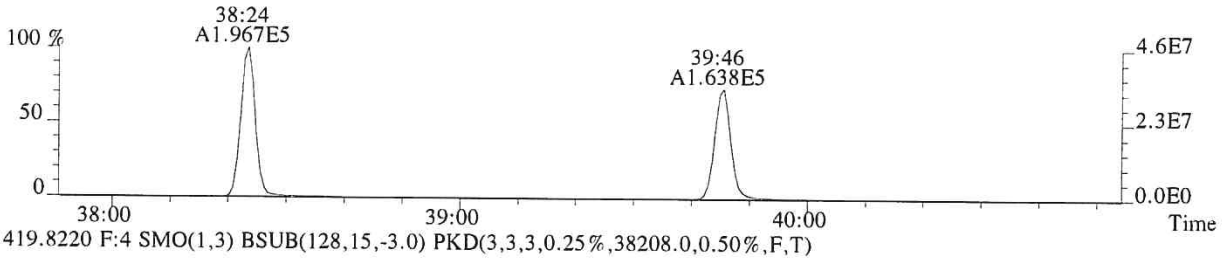
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14728.0,0.50%,F,T)



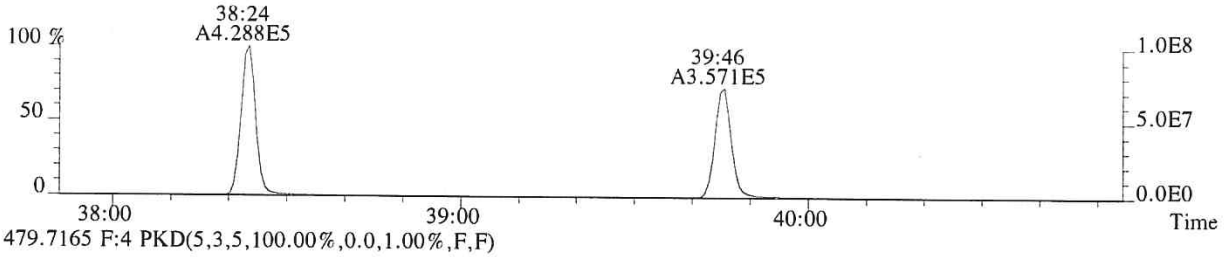
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16644.0,0.50%,F,T)



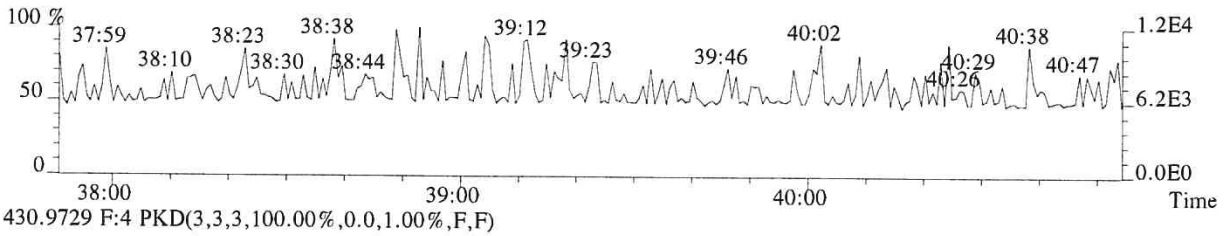
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11800.0,0.50%,F,T)



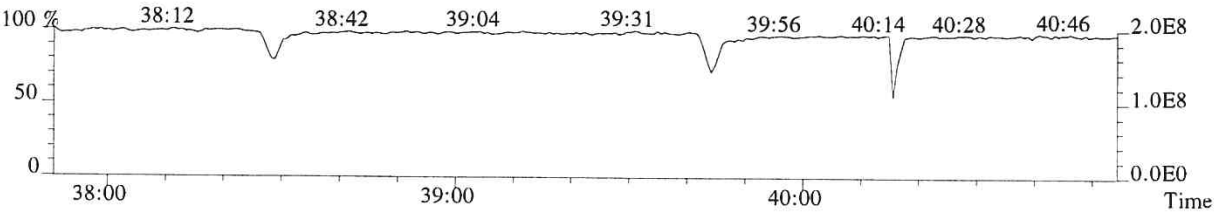
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,38208.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

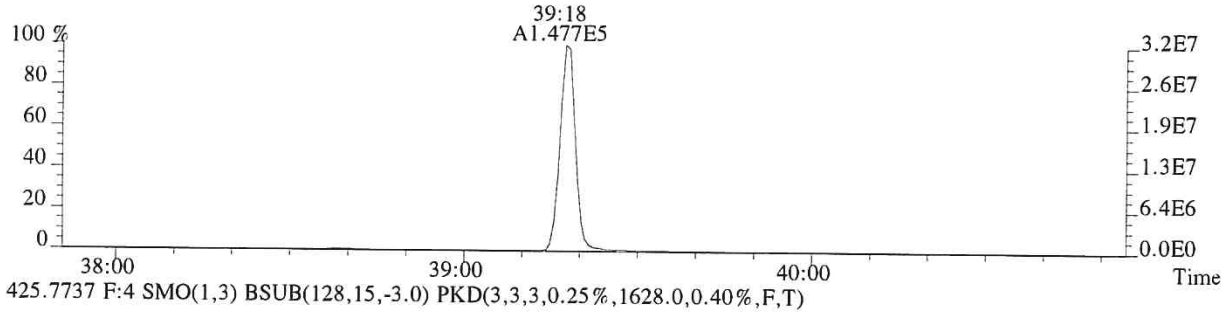


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

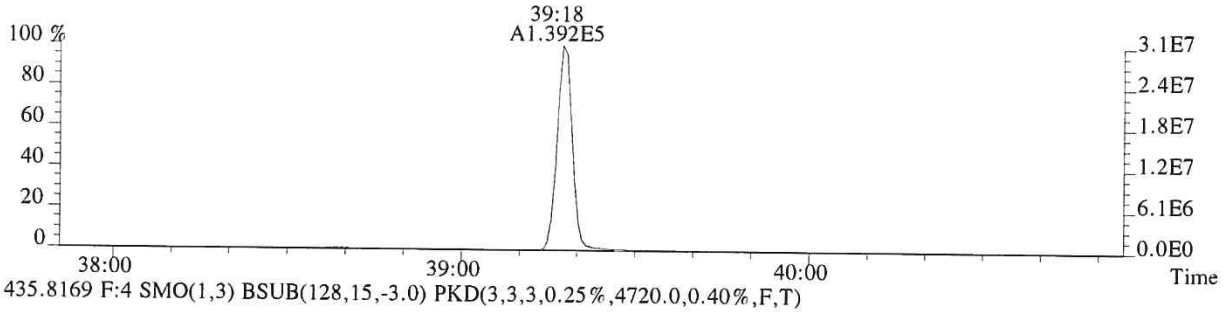


009463

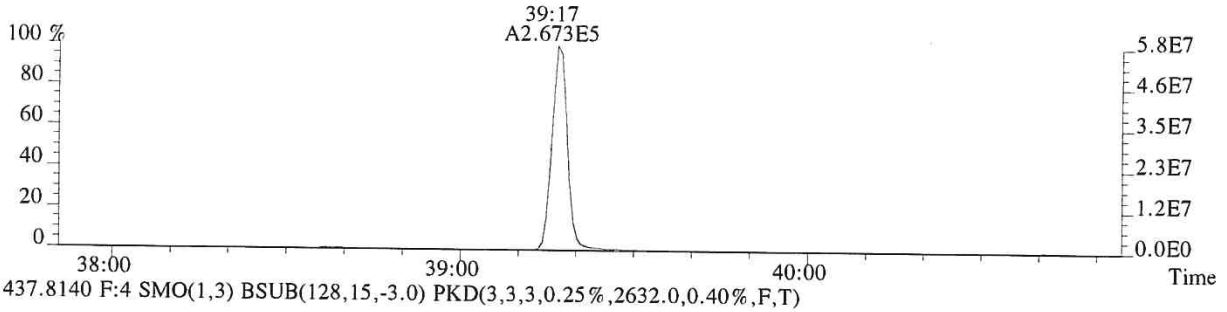
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



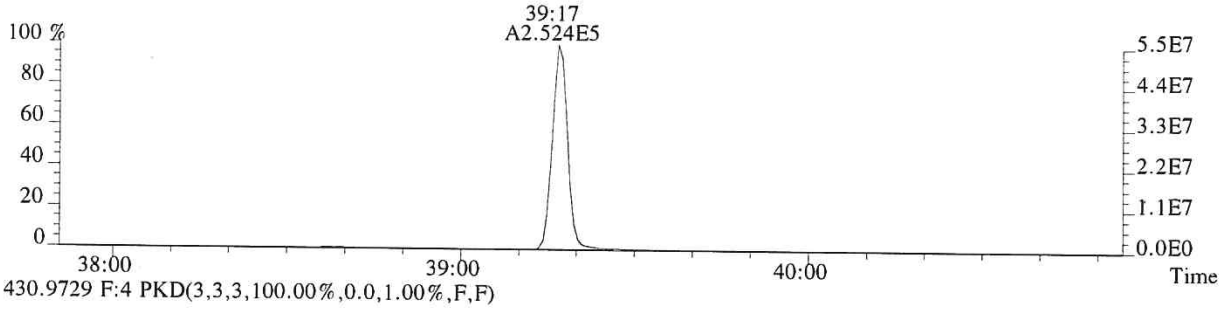
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



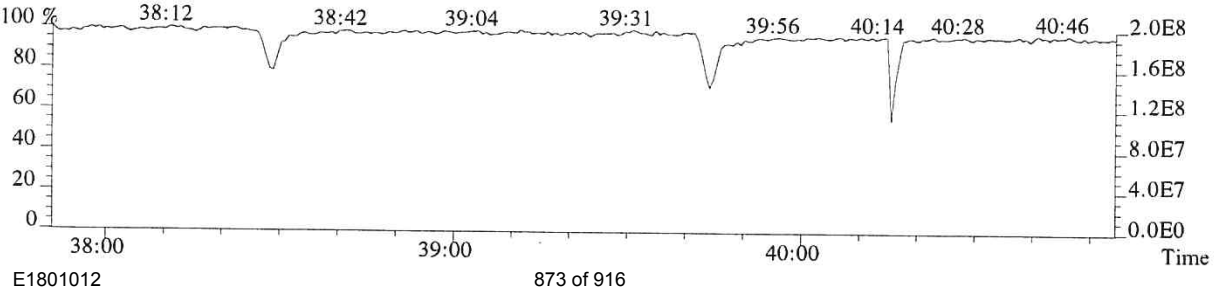
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)

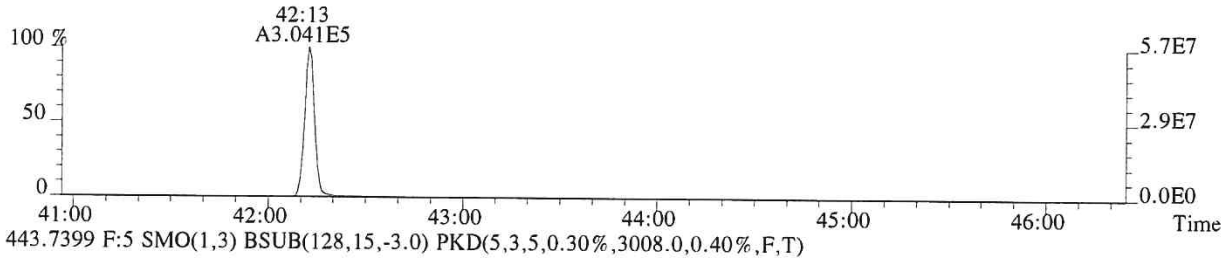


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

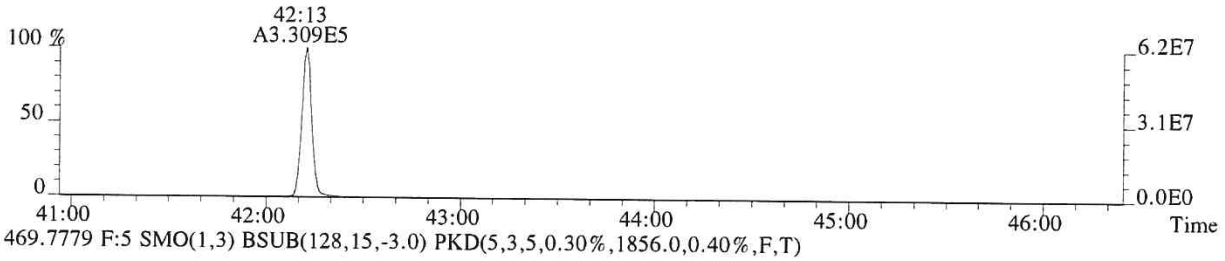


009464

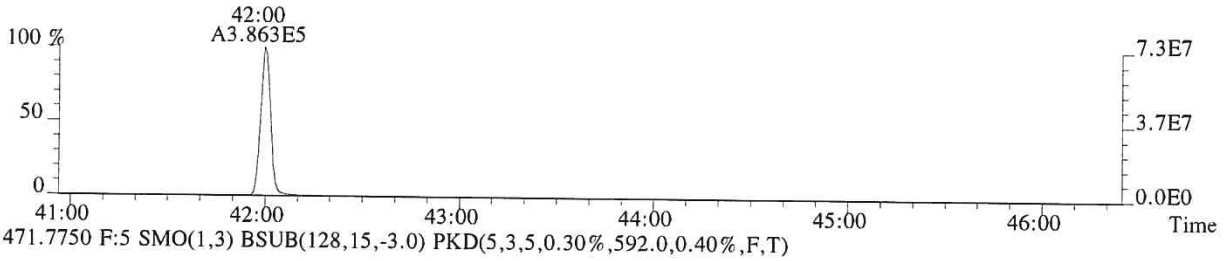
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



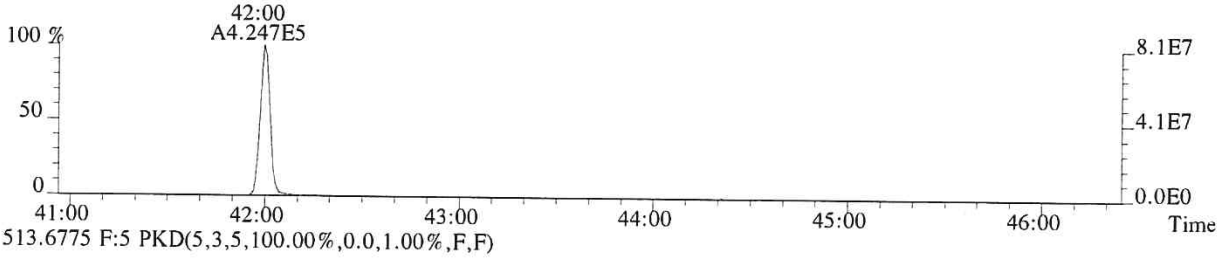
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3008.0,0.40%,F,T)



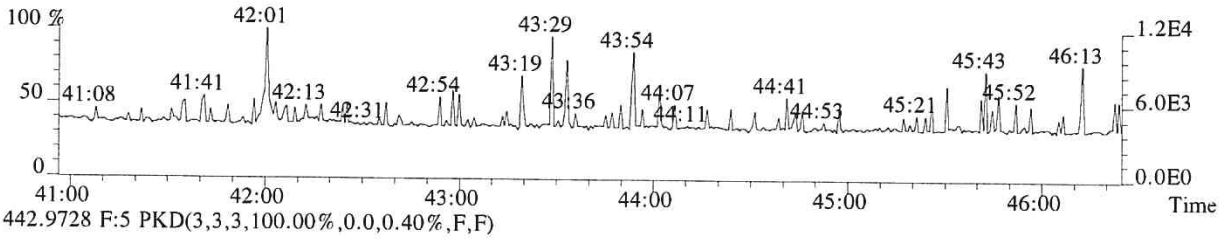
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



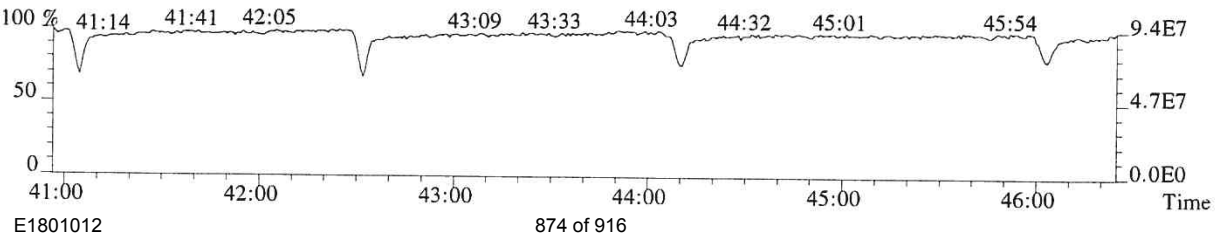
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

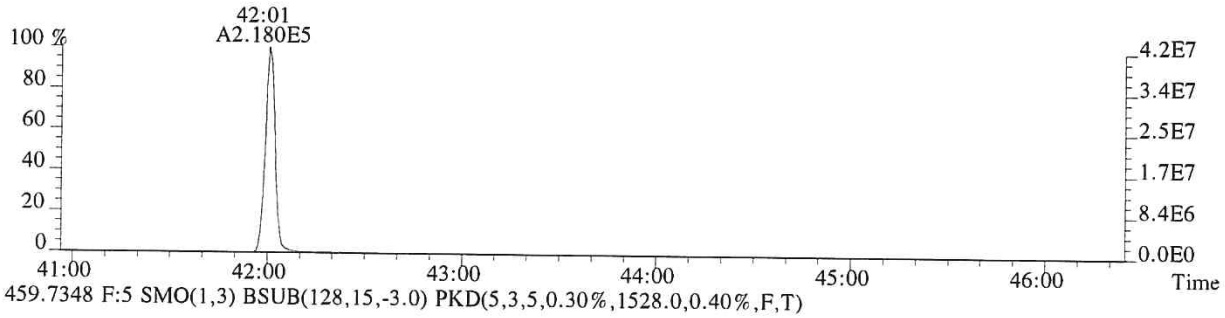


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

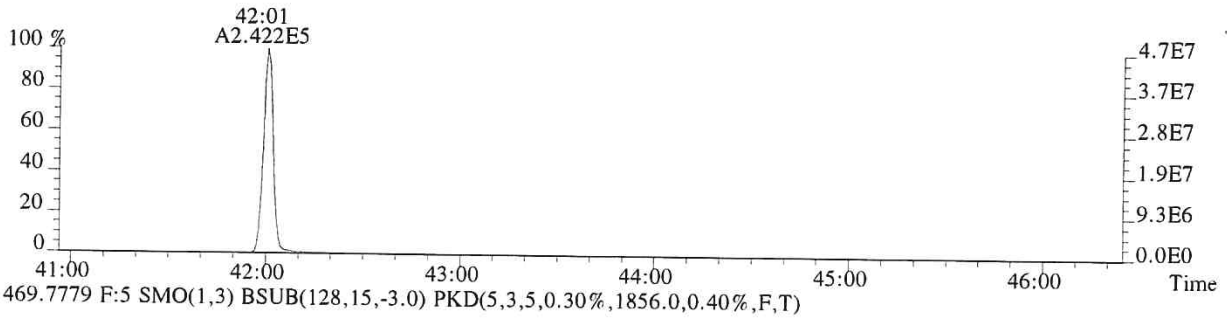


009465

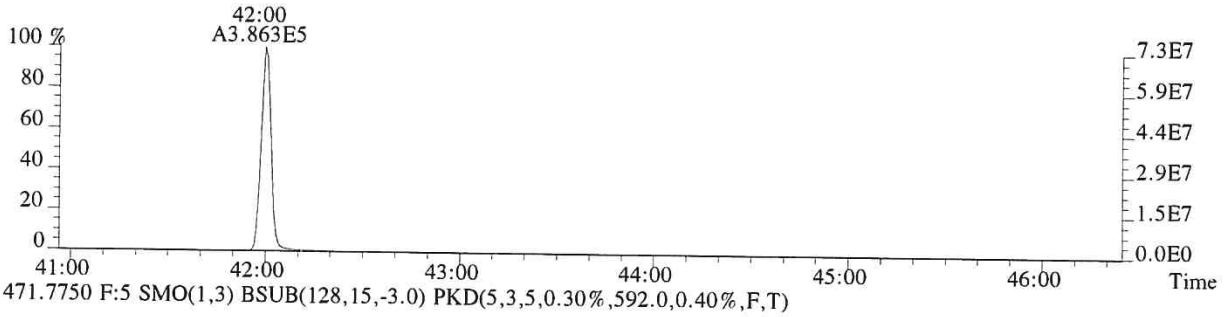
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



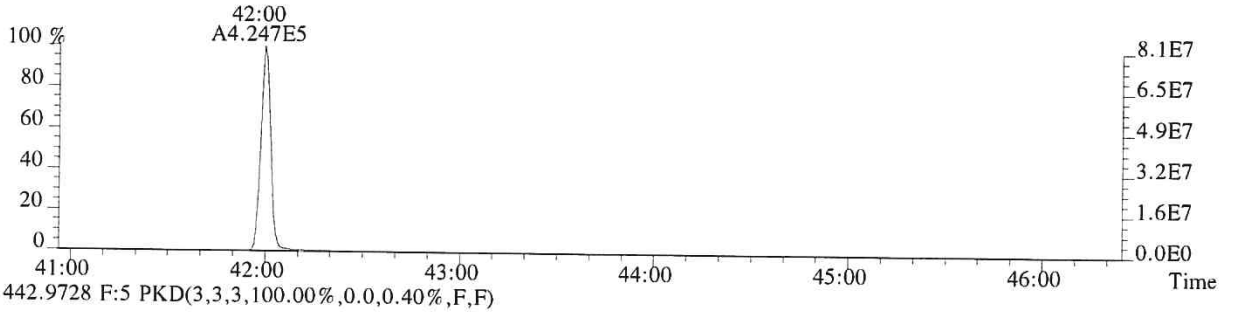
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



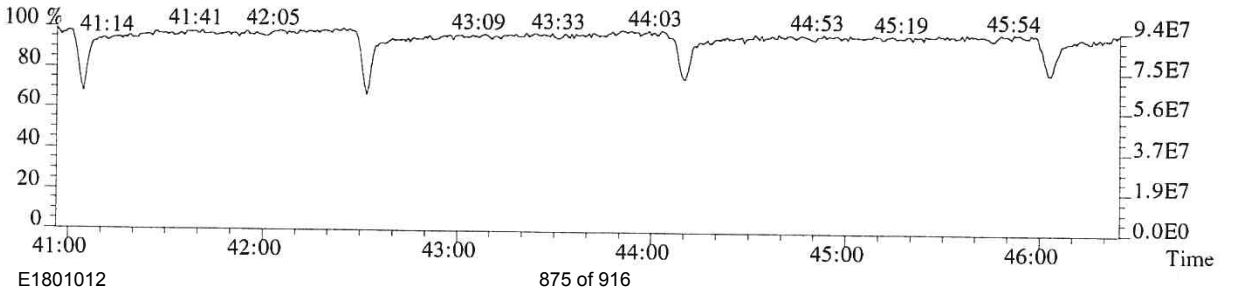
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009466

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.186e+05	1.498e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.070e+06	6.680e+05	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	9.931e+05	6.255e+05	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	9.336e+05	7.318e+05	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.546e+05	7.530e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	9.004e+05	7.134e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	8.574e+05	6.711e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	7.924e+05	7.640e+05	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	6.712e+05	6.389e+05	1.05	yes	no	1.463
10	Unk	OCDF	42:13	9.999e+05	1.075e+06	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	8.371e+04	1.065e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	5.908e+05	3.807e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.387e+05	4.268e+05	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	5.444e+05	4.299e+05	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	5.850e+05	4.610e+05	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.859e+05	4.568e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	7.127e+05	7.901e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.799e+05	3.543e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	4.595e+05	2.875e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	4.523e+05	2.842e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.092e+05	3.928e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.332e+05	4.327e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.224e+05	4.139e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.041e+05	3.825e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.626e+05	3.528e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.431e+05	3.159e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.012e+05	2.528e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.193e+05	2.044e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.552e+05	2.035e+05	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.565e+05	2.045e+05	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.187e+05	2.081e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	3.133e+05	3.464e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.000e+05	2.518e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.828e+05	2.264e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.003e+05				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.13e+07	2.15e+03	9.9e+03	2.70e+07	4.22e+03	6.4e+03
2	1,2,3,7,8-PeCDF	2.03e+08	3.06e+03	6.6e+04	1.29e+08	4.95e+03	2.6e+04
3	2,3,4,7,8-PeCDF	2.04e+08	3.06e+03	6.7e+04	1.28e+08	4.95e+03	2.6e+04
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.85e+03	1.2e+05	1.68e+08	4.92e+03	3.4e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	1.85e+03	1.1e+05	1.67e+08	4.92e+03	3.4e+04
6	2,3,4,6,7,8-HxCDF	2.02e+08	1.85e+03	1.1e+05	1.59e+08	4.92e+03	3.2e+04
7	1,2,3,7,8,9-HxCDF	1.88e+08	1.85e+03	1.0e+05	1.47e+08	4.92e+03	3.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.78e+08	2.61e+04	6.8e+03	1.72e+08	1.83e+04	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+08	2.61e+04	5.4e+03	1.35e+08	1.83e+04	7.4e+03
10	OCDF	1.94e+08	1.46e+03	1.3e+05	2.08e+08	3.00e+03	6.9e+04
11	2,3,7,8-TCDD	1.62e+07	6.38e+03	2.5e+03	2.06e+07	2.42e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.19e+08	3.22e+03	3.7e+04	7.64e+07	1.02e+03	7.5e+04
13	1,2,3,4,7,8-HxCDD	1.25e+08	9.48e+02	1.3e+05	9.78e+07	1.64e+03	5.9e+04
14	1,2,3,6,7,8-HxCDD	1.22e+08	9.48e+02	1.3e+05	9.73e+07	1.64e+03	5.9e+04
15	1,2,3,7,8,9-HxCDD	1.31e+08	9.48e+02	1.4e+05	1.04e+08	1.64e+03	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.10e+08	2.46e+03	4.5e+04	1.04e+08	2.38e+03	4.4e+04
17	OCDD	1.42e+08	1.24e+03	1.1e+05	1.57e+08	1.46e+03	1.1e+05
18	13C-2,3,7,8-TCDF	5.06e+07	1.14e+04	4.4e+03	6.41e+07	7.28e+03	8.8e+03
19	13C-1,2,3,7,8-PeCDF	8.88e+07	3.08e+03	2.9e+04	5.58e+07	3.54e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	9.15e+07	3.08e+03	3.0e+04	5.70e+07	3.54e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	4.76e+07	3.01e+03	1.6e+04	8.96e+07	4.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	5.17e+07	3.01e+03	1.7e+04	9.54e+07	4.64e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.99e+07	3.01e+03	1.7e+04	9.21e+07	4.64e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.48e+07	3.01e+03	1.5e+04	8.44e+07	4.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+07	8.80e+03	4.2e+03	8.02e+07	1.92e+04	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.97e+07	8.80e+03	3.4e+03	6.54e+07	1.92e+04	3.4e+03
27	13C-2,3,7,8-TCDD	3.77e+07	1.85e+04	2.0e+03	4.78e+07	7.81e+03	6.1e+03
28	13C-1,2,3,7,8-PeCDD	6.47e+07	3.56e+03	1.8e+04	4.18e+07	3.26e+03	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	5.86e+07	4.66e+03	1.3e+04	4.67e+07	3.04e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	5.76e+07	4.66e+03	1.2e+04	4.61e+07	3.04e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.94e+07	3.14e+03	1.6e+04	4.74e+07	1.71e+03	2.8e+04
32	13C-OCDD	6.18e+07	1.83e+03	3.4e+04	6.87e+07	9.56e+02	7.2e+04
33	13C-1,2,3,4-TCDD	3.76e+07	1.85e+04	2.0e+03	4.73e+07	7.81e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.25e+07	4.66e+03	1.3e+04	5.04e+07	3.04e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	3.86e+07	4.32e+03	9.0e+03			

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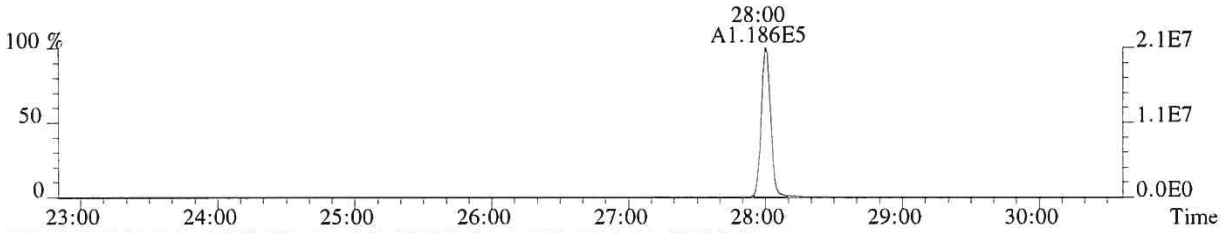
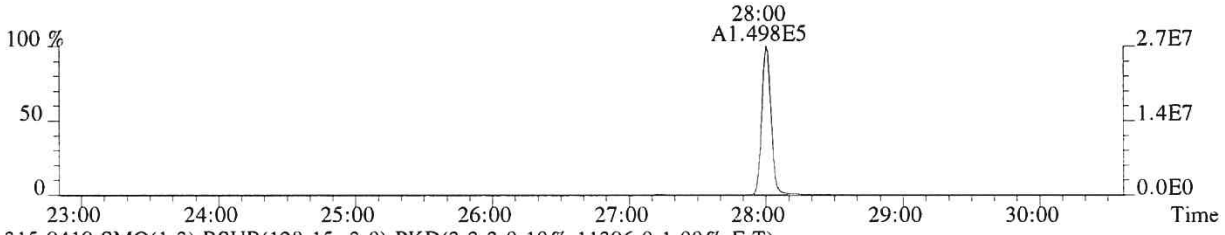
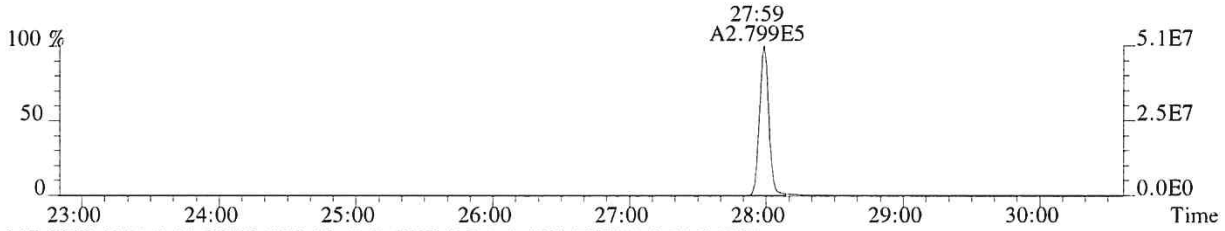
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



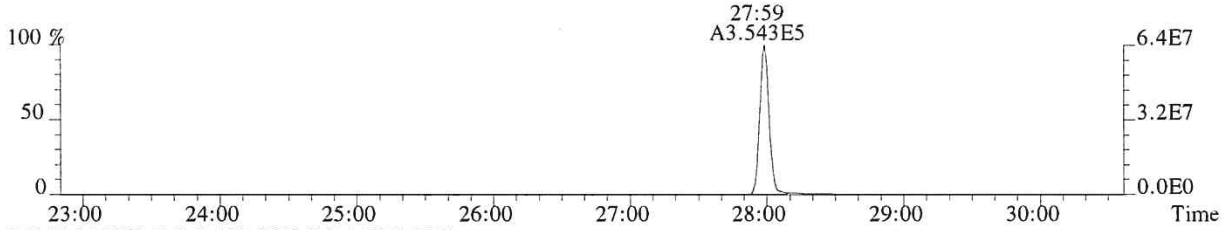
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



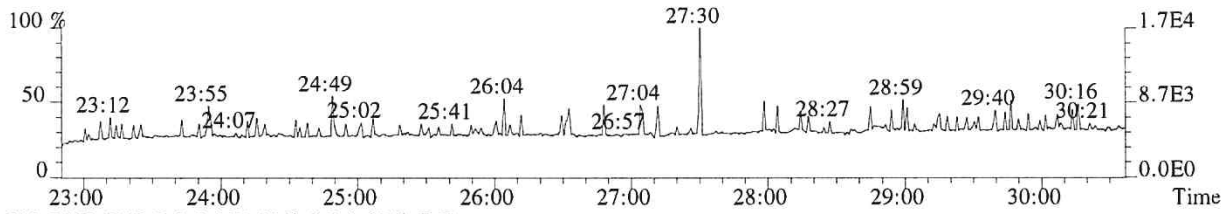
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



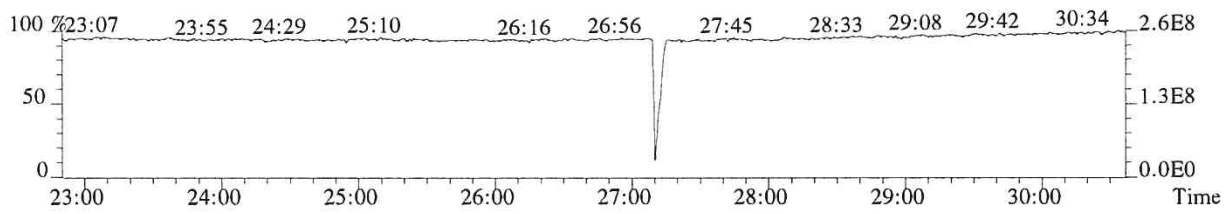
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7276.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

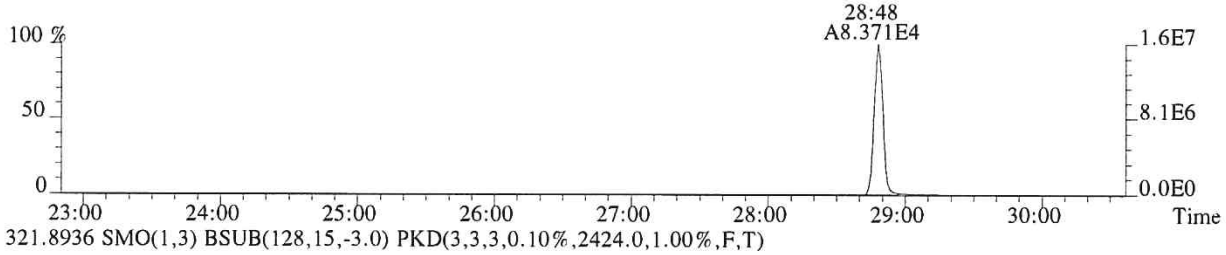


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

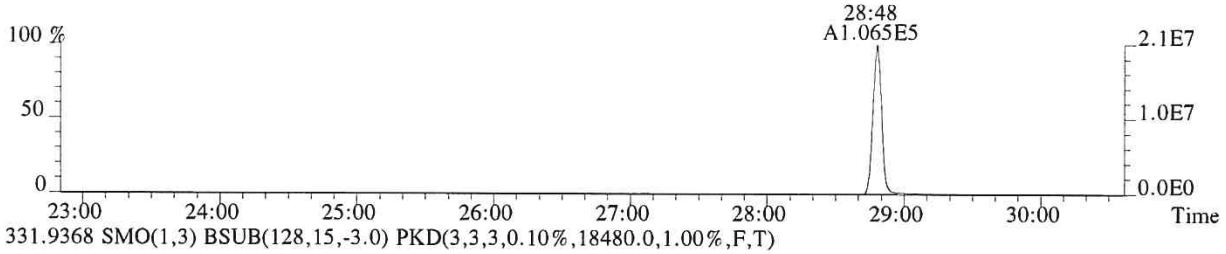


009469

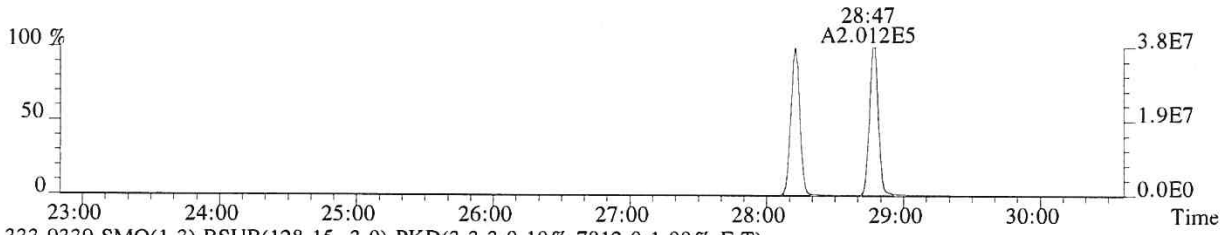
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6384.0,1.00%,F,T)



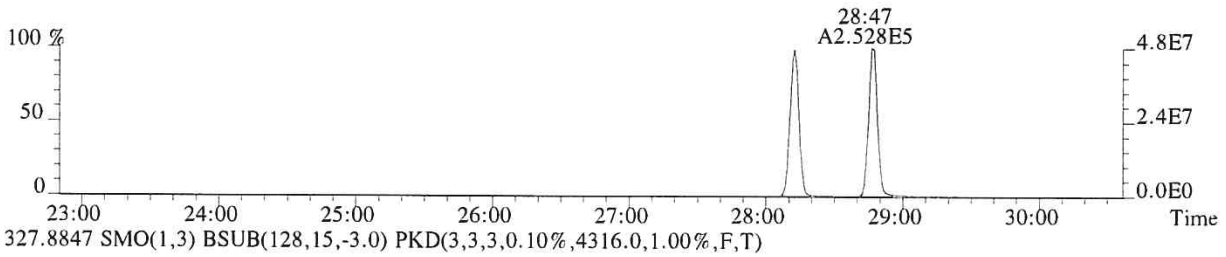
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



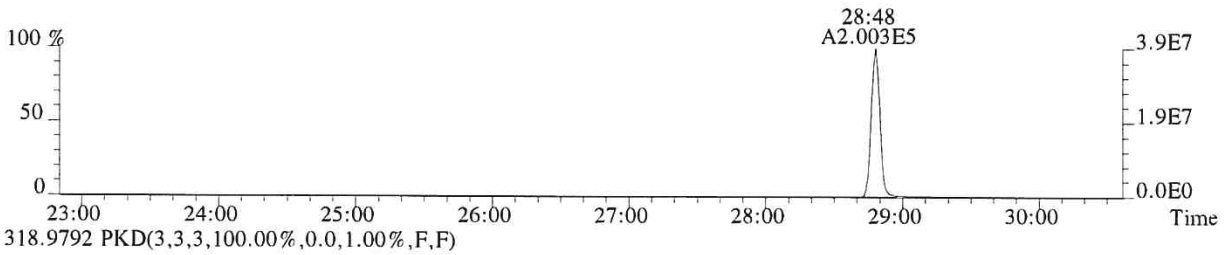
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18480.0,1.00%,F,T)



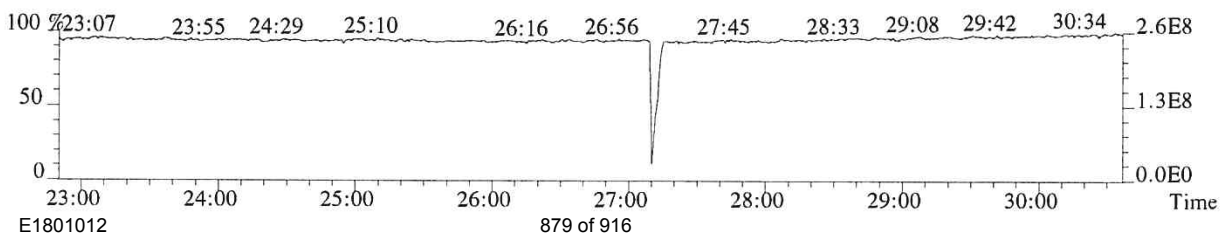
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)

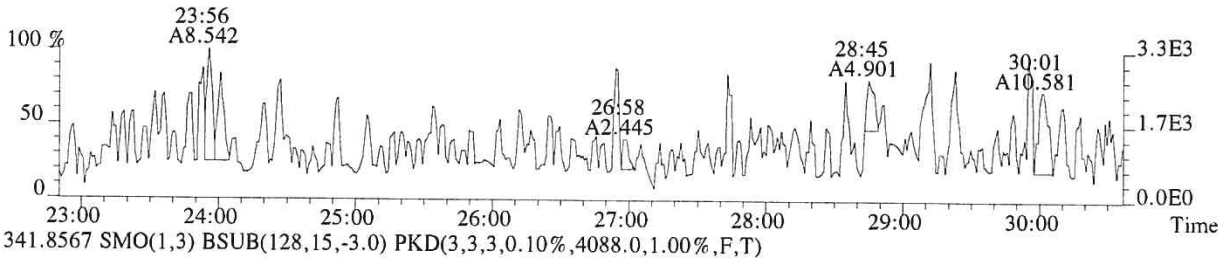


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

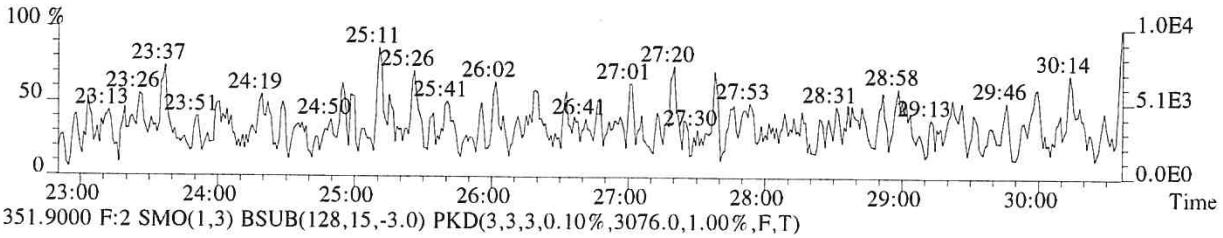


009470

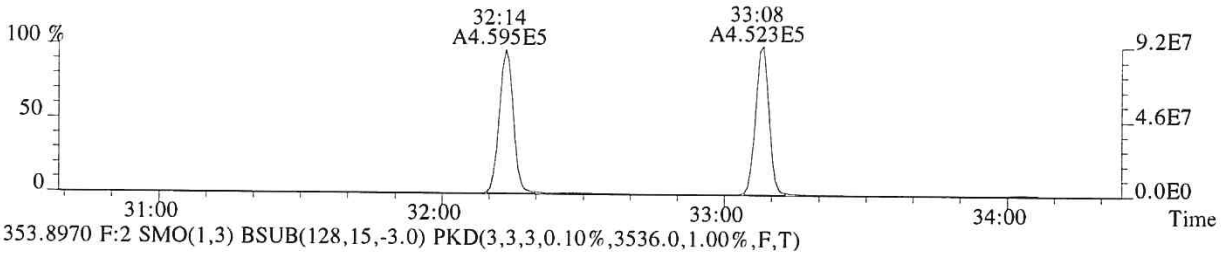
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



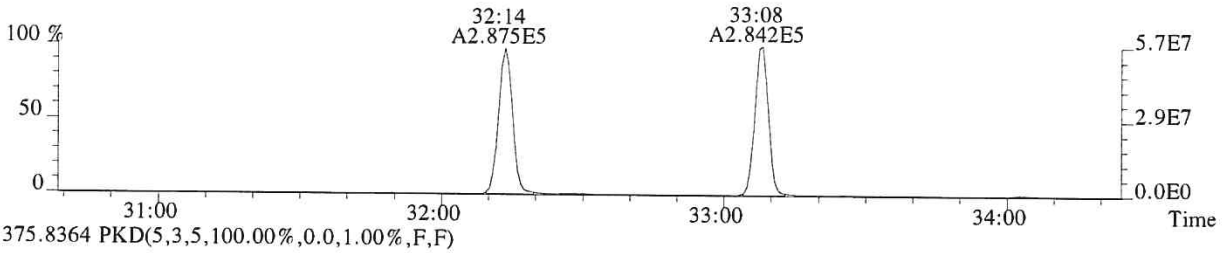
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



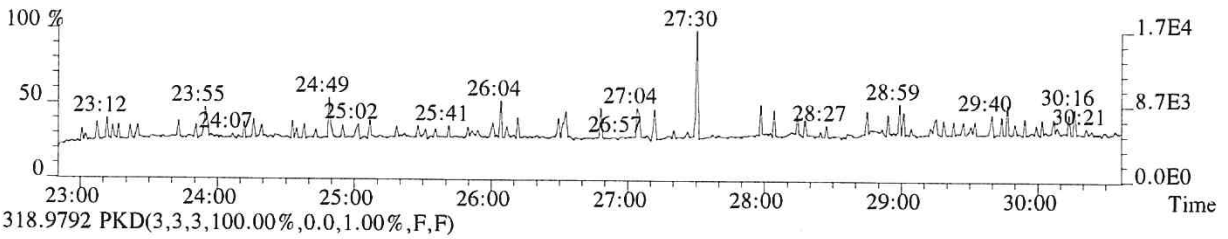
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



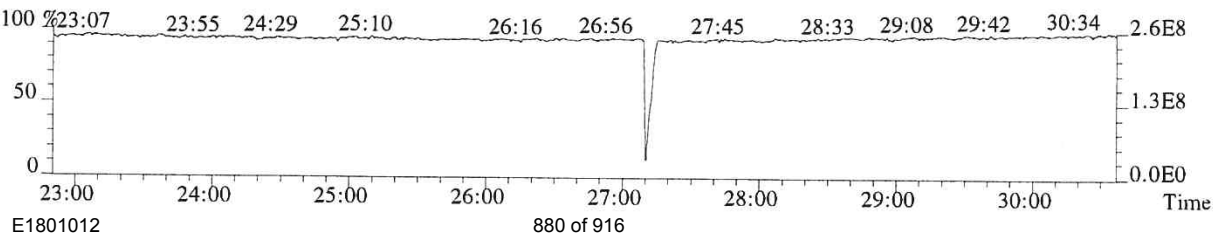
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



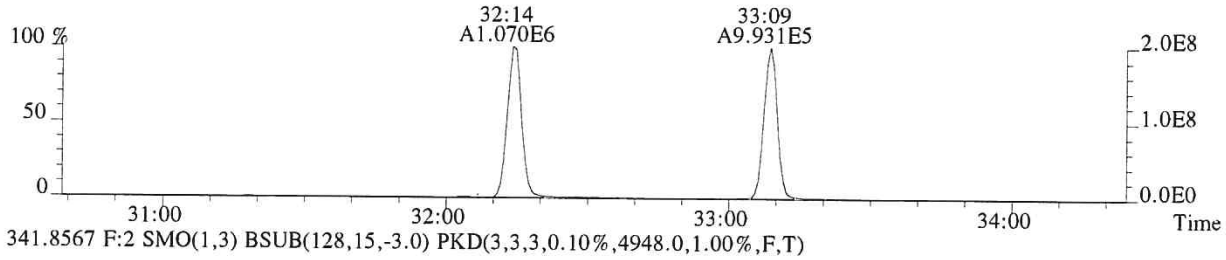
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



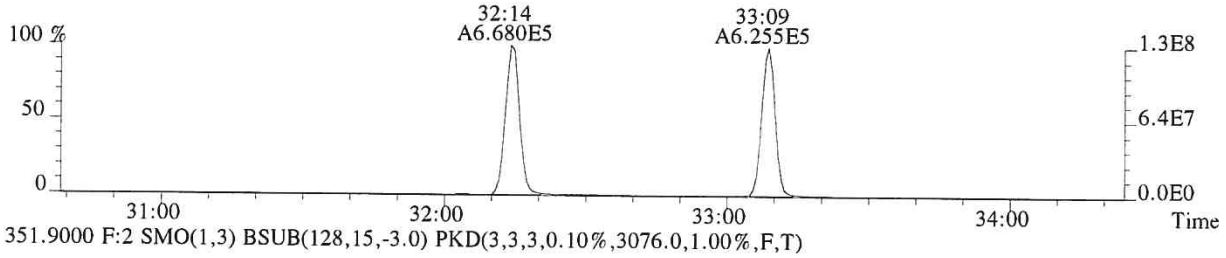
009471

File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

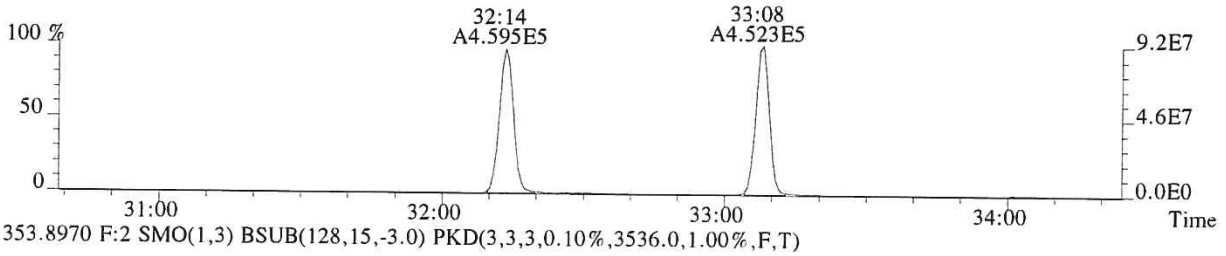
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



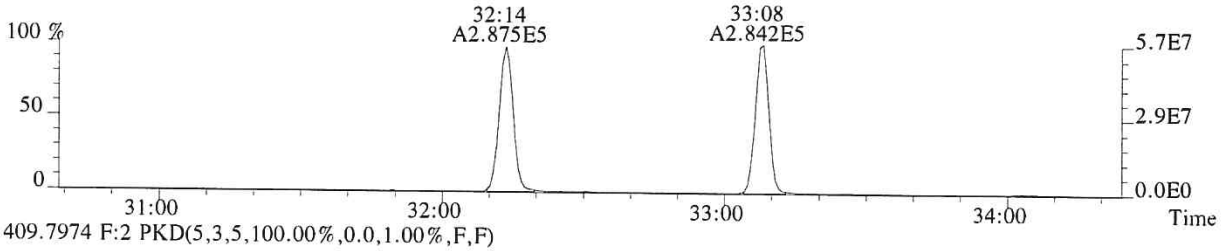
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



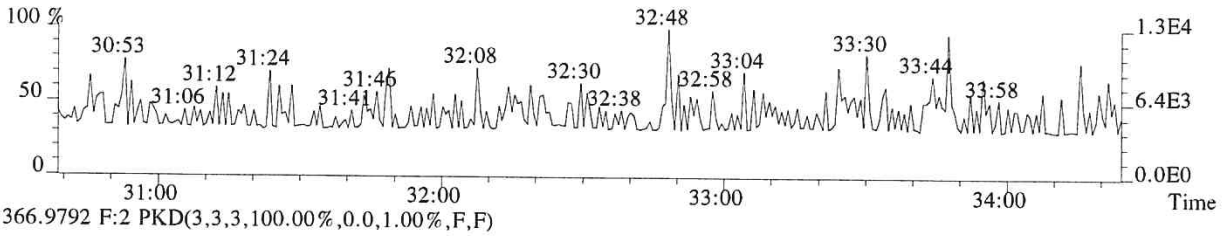
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



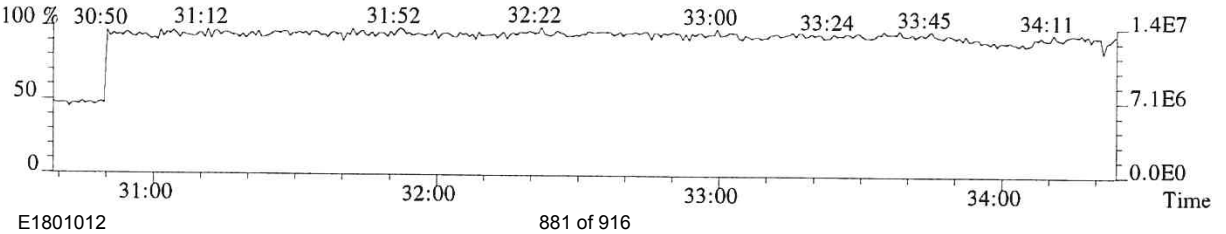
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



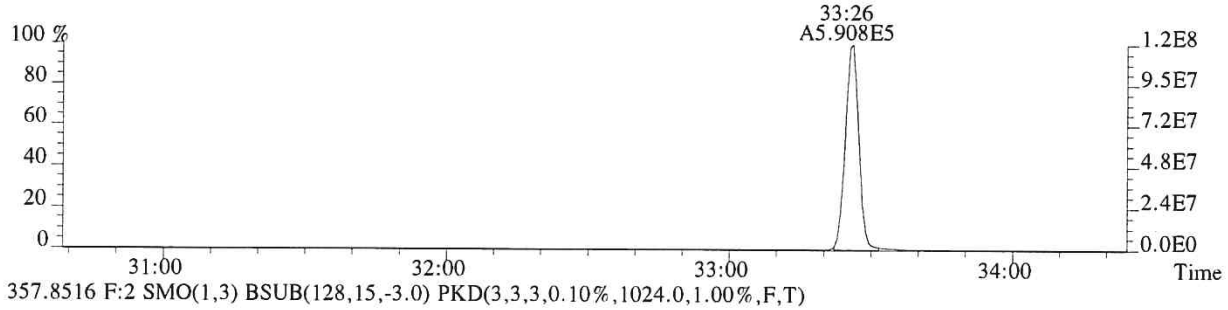
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



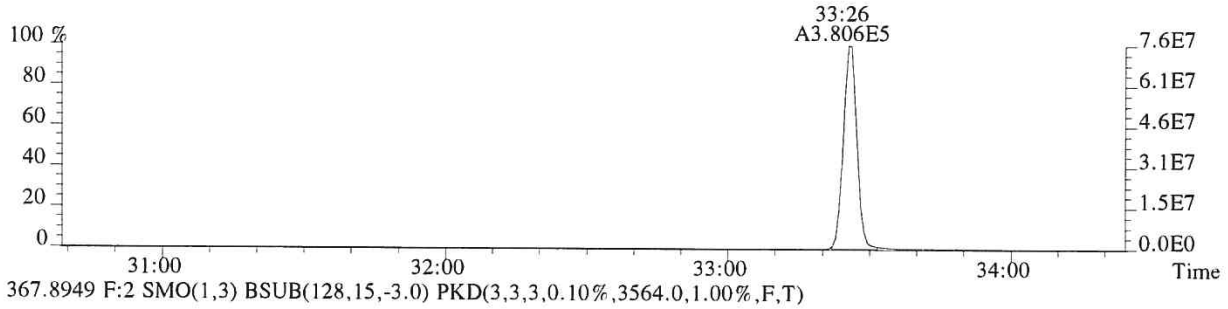
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



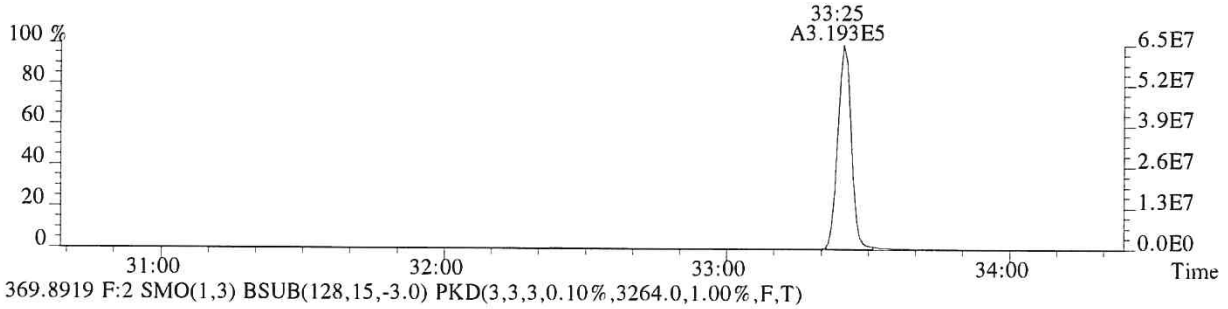
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



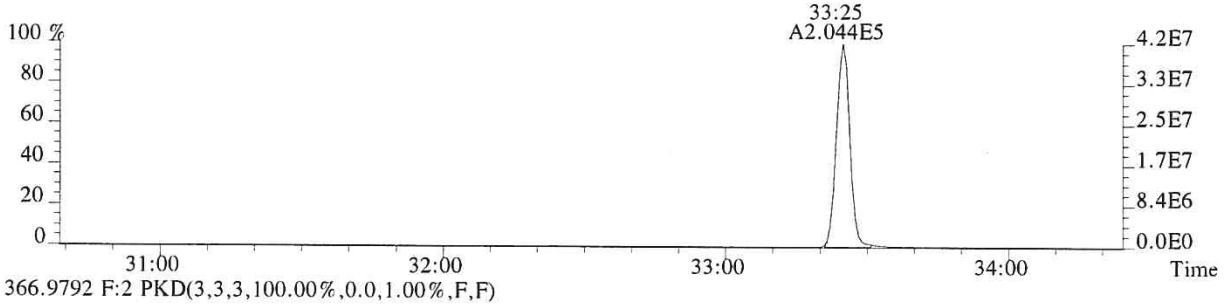
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



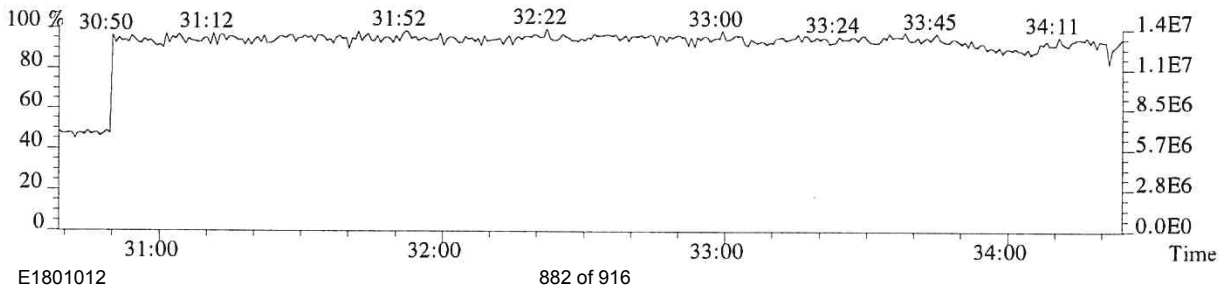
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



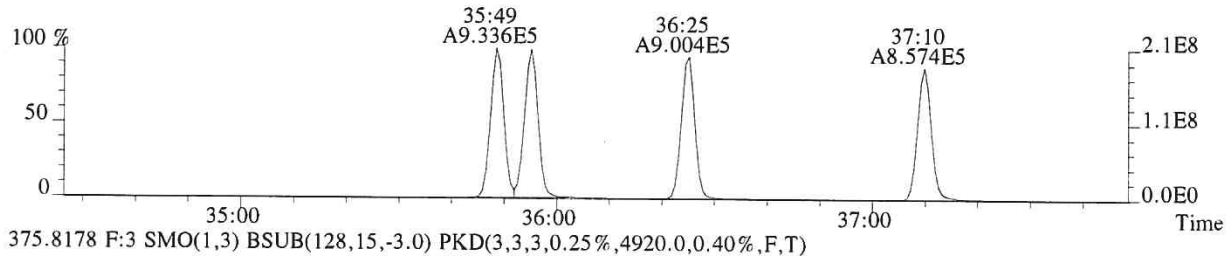
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



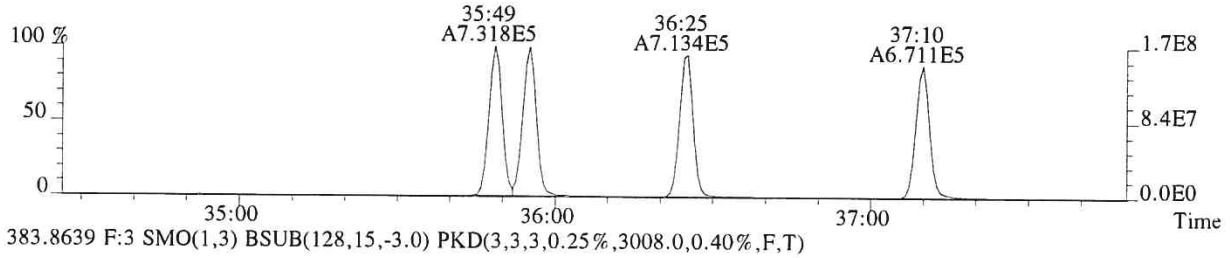
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



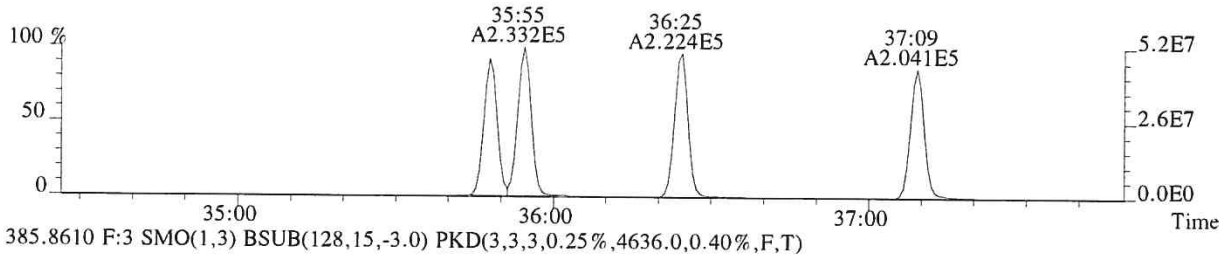
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



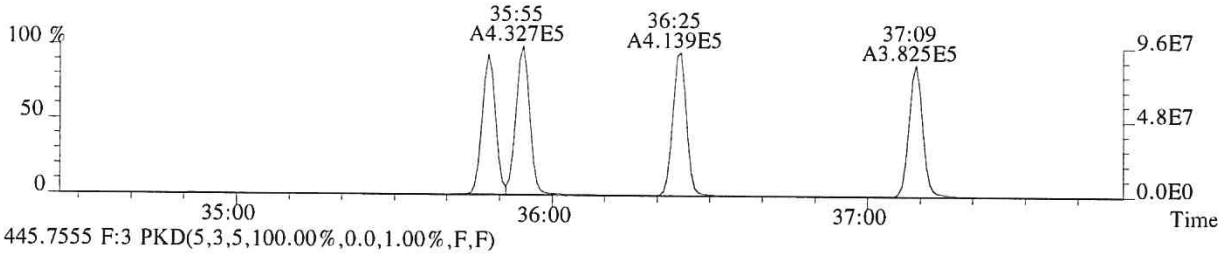
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4920.0,0.40%,F,T)



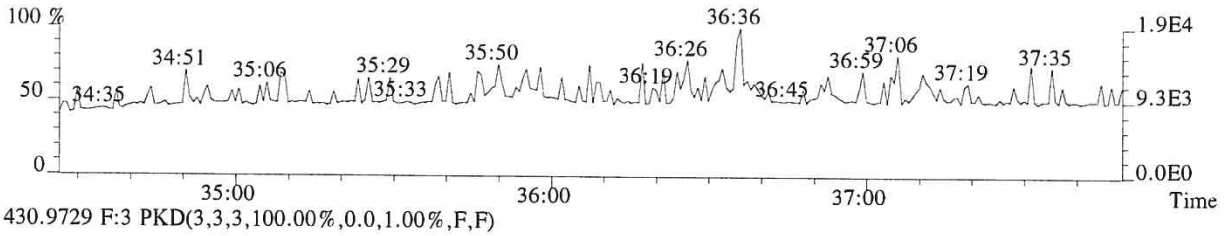
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



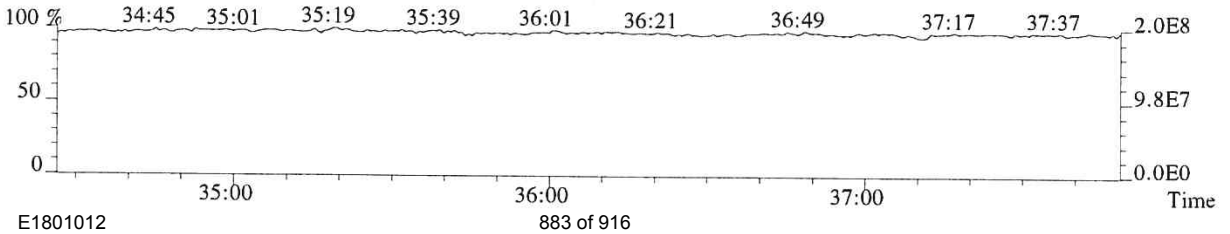
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



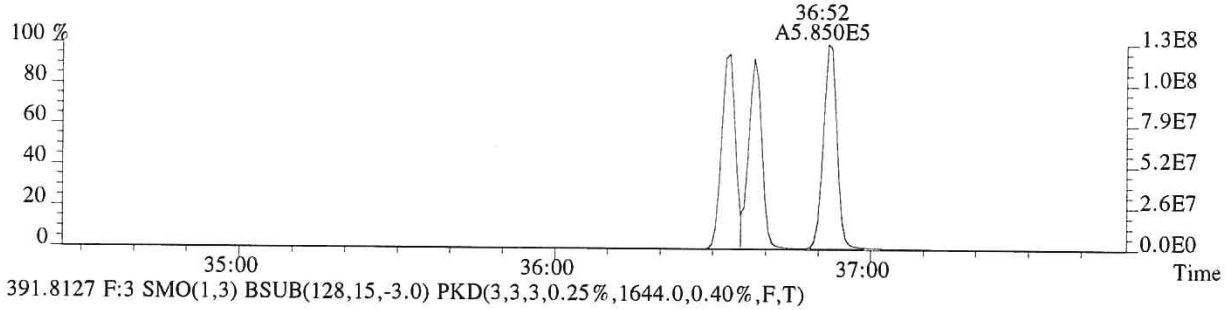
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



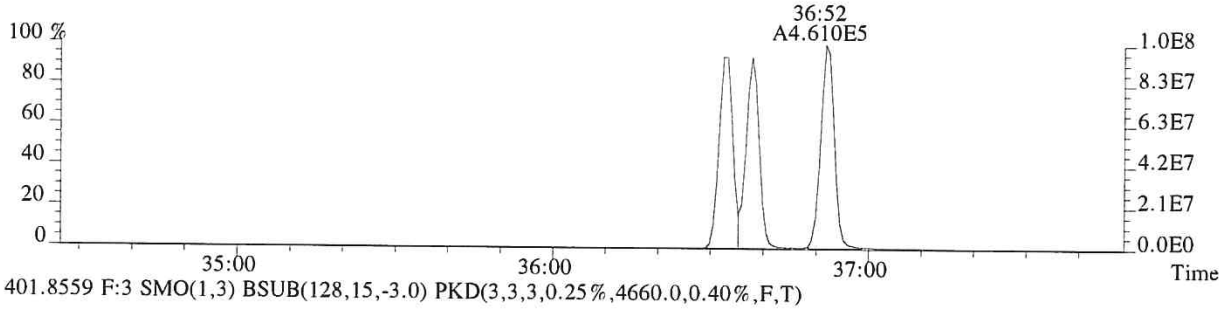
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



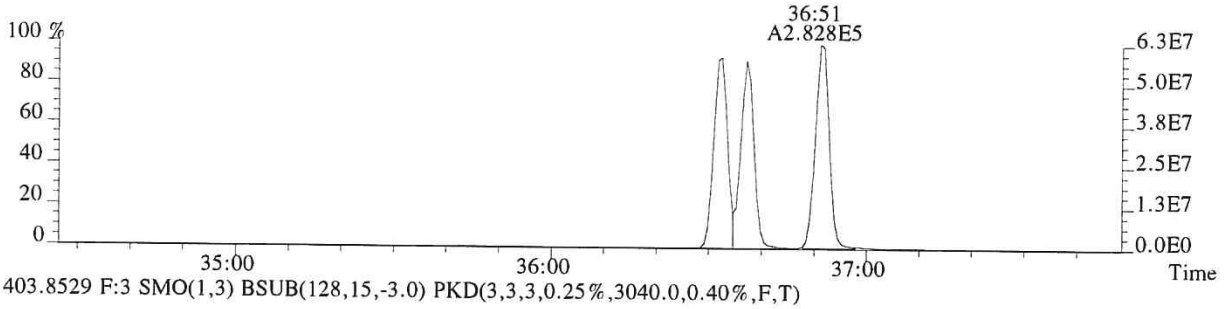
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



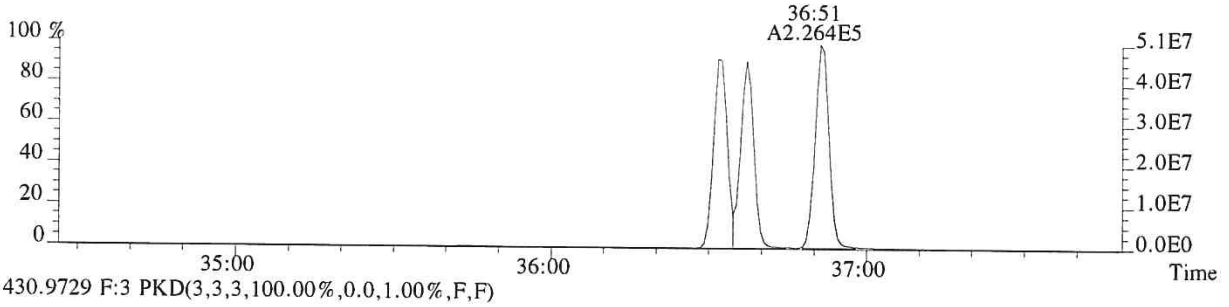
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



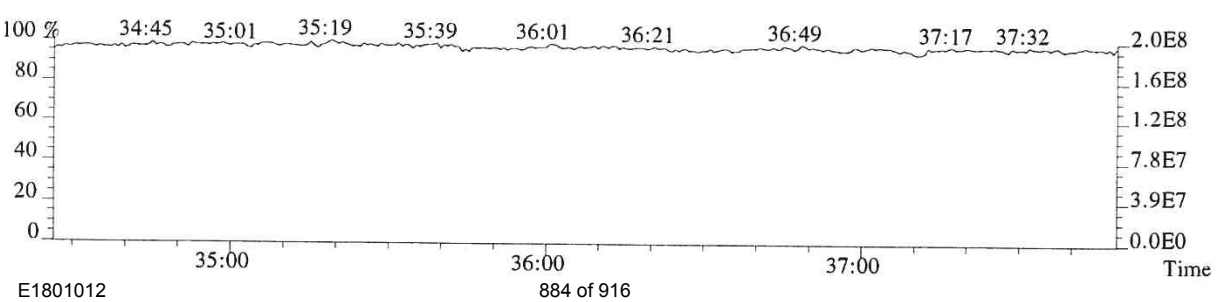
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)

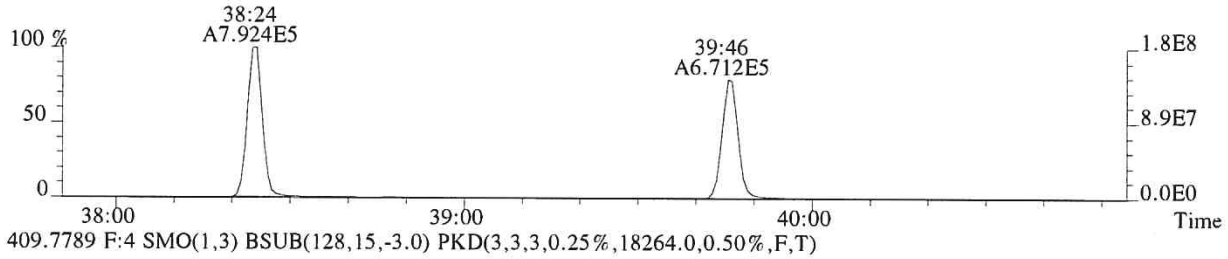


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

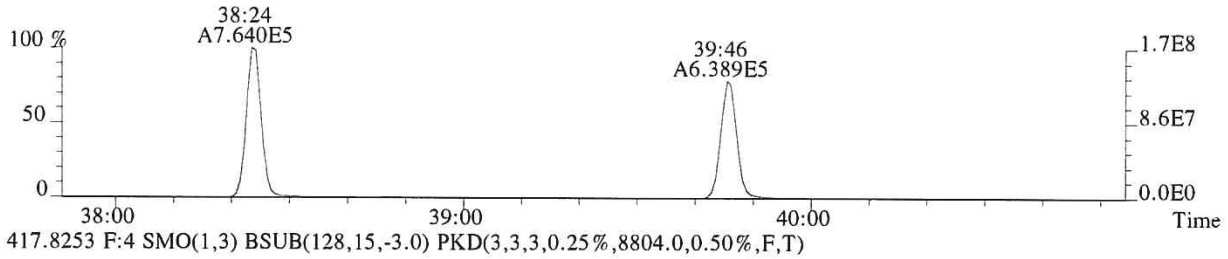


009475

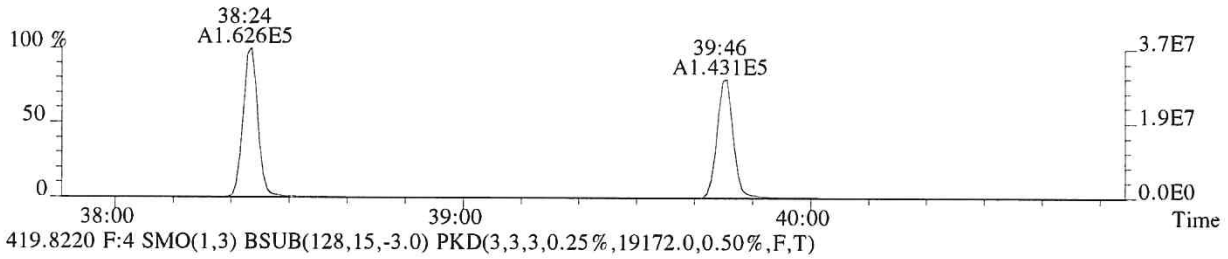
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26056.0,0.50%,F,T)



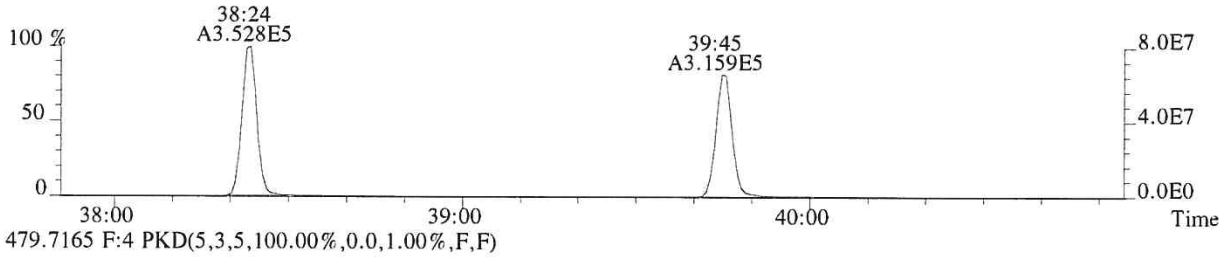
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18264.0,0.50%,F,T)



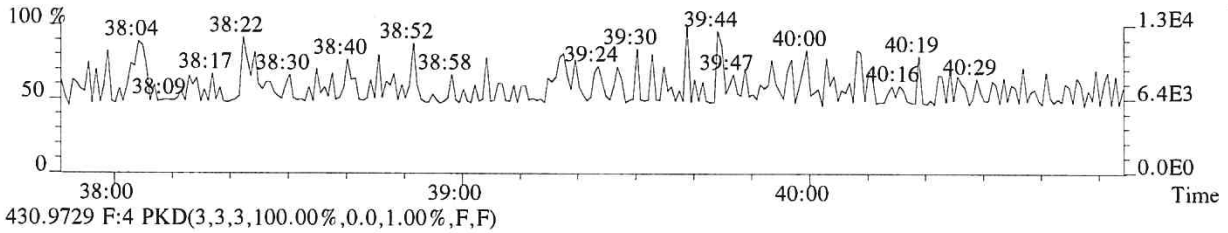
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8804.0,0.50%,F,T)



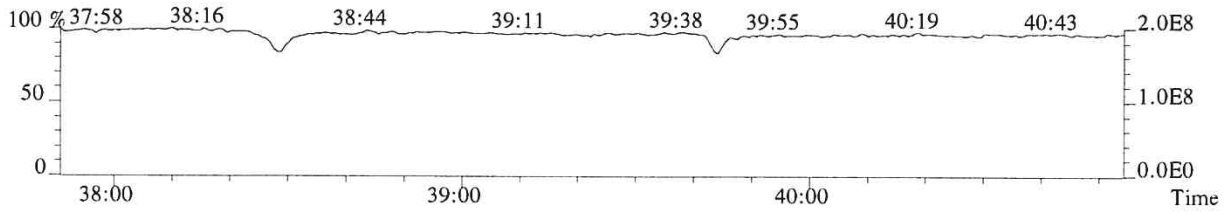
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19172.0,0.50%,F,T)



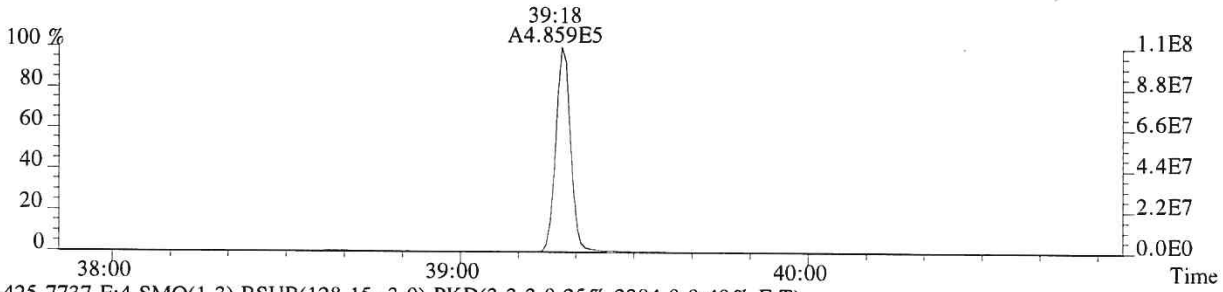
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



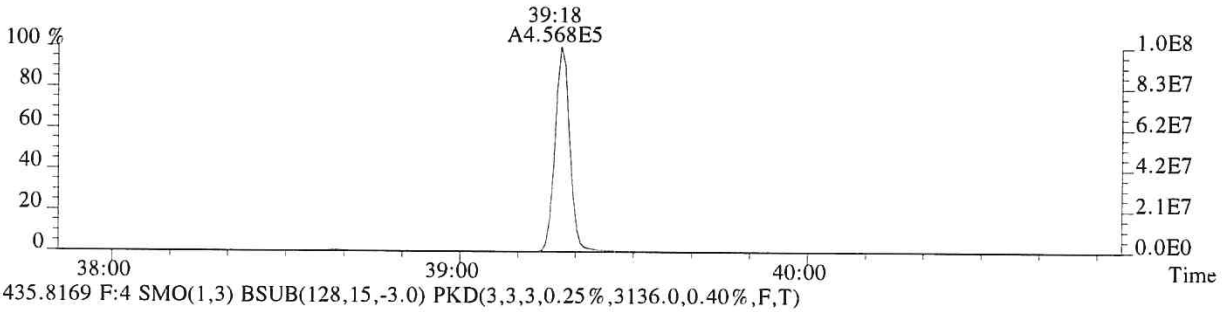
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



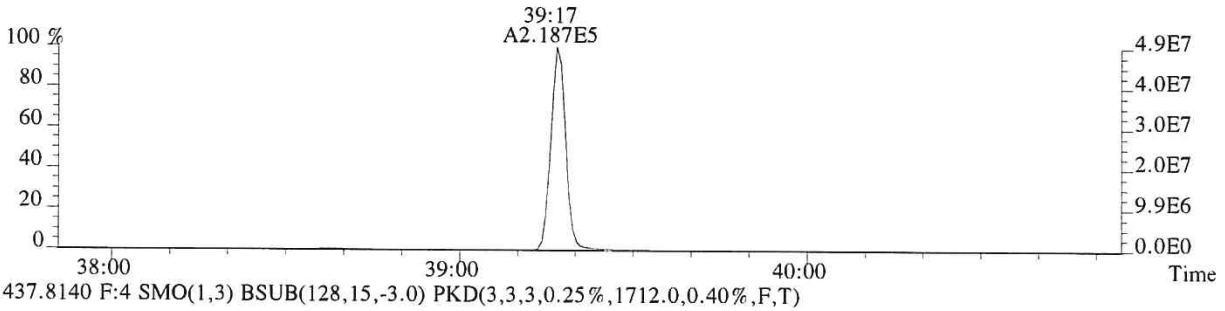
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



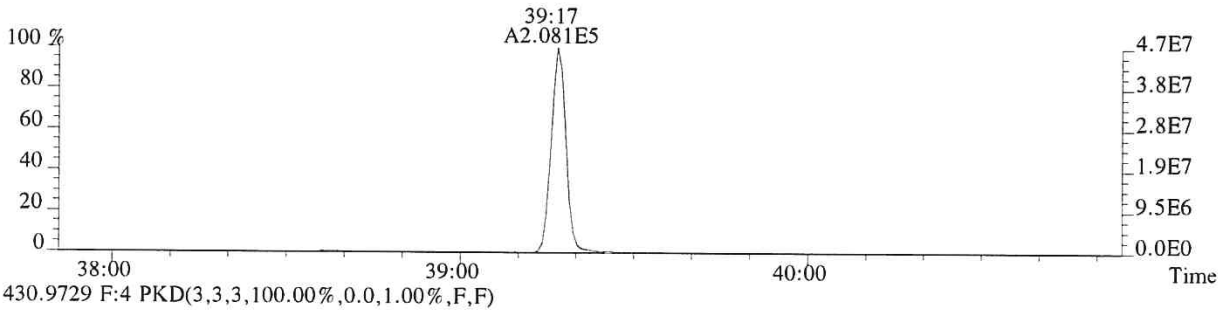
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



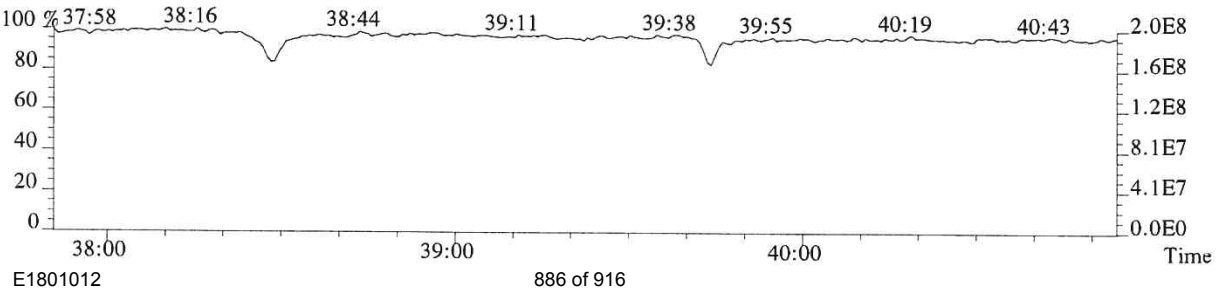
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)

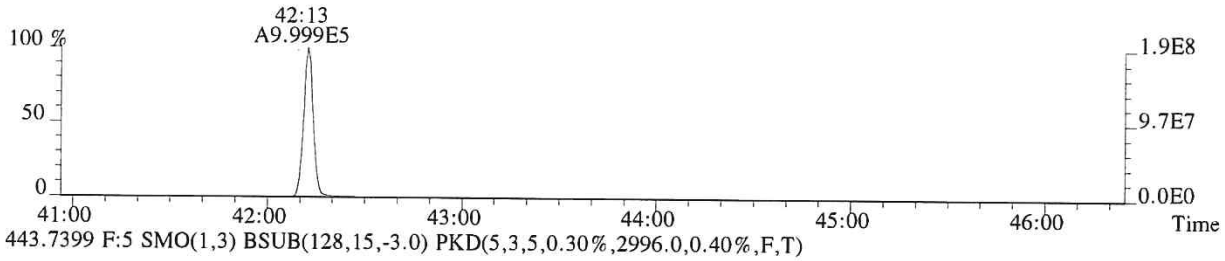


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

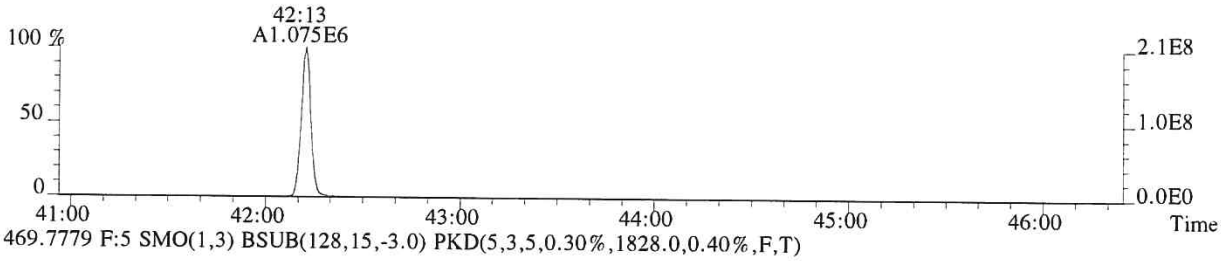


009477

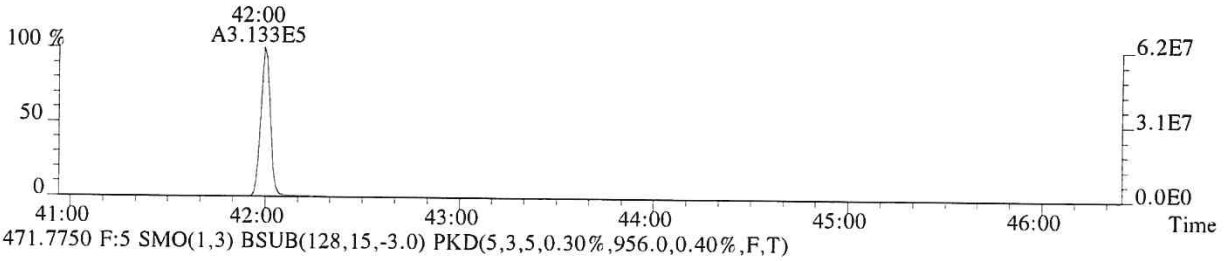
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



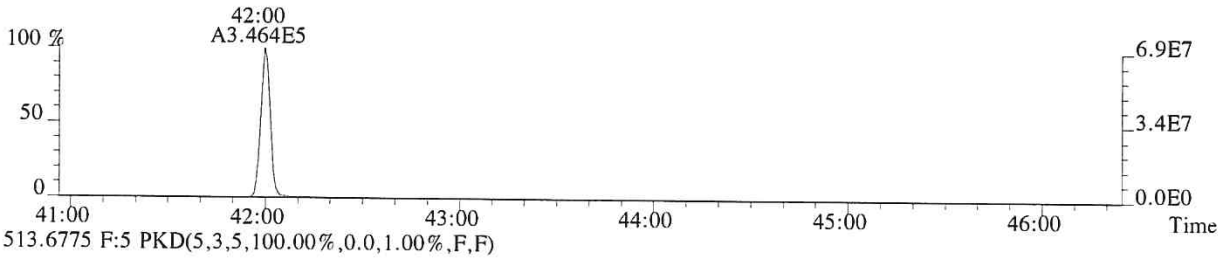
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



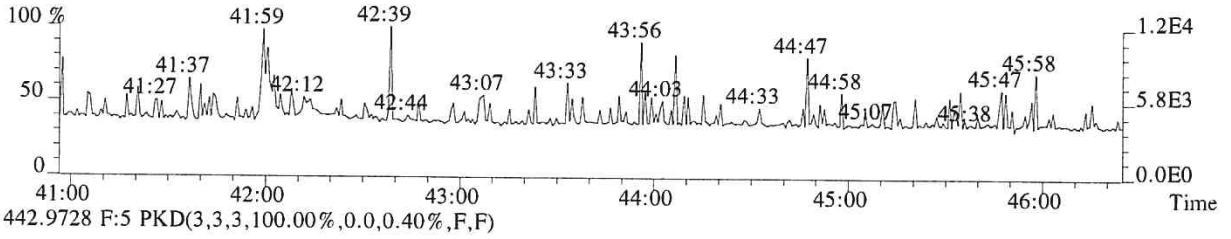
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



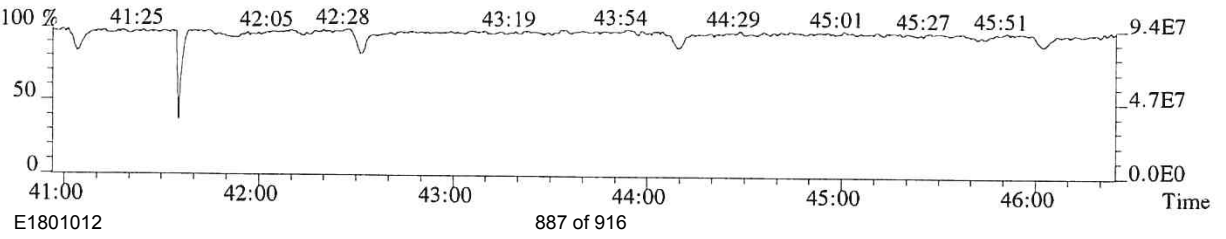
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

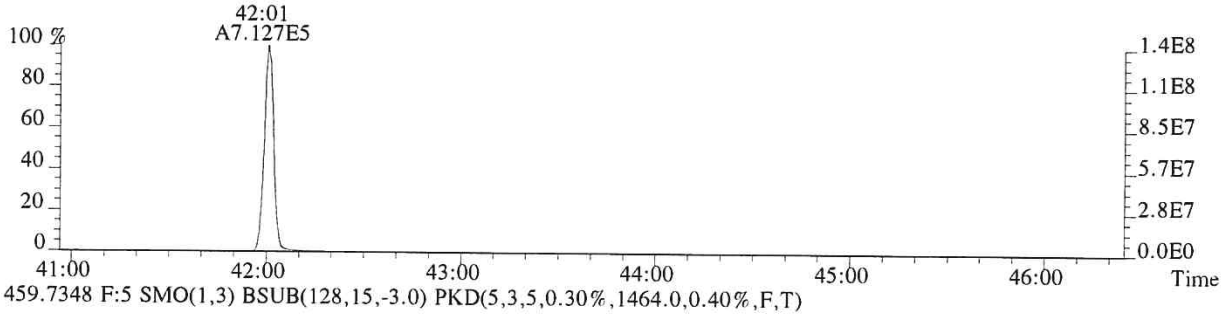


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

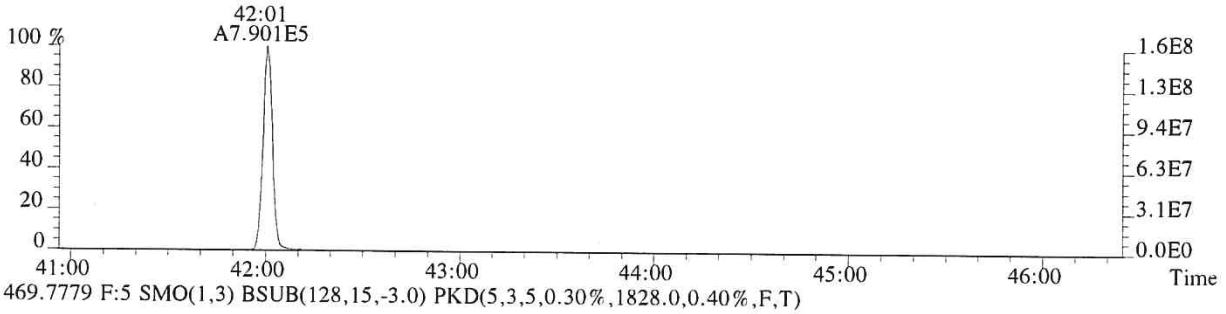


009478

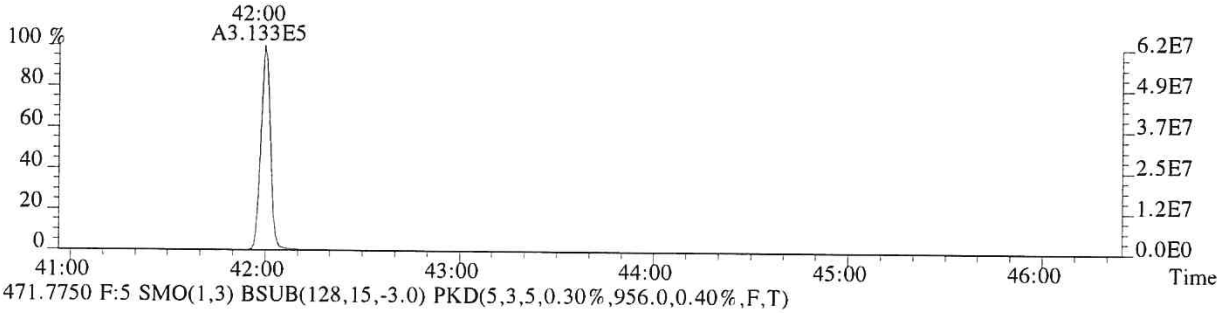
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



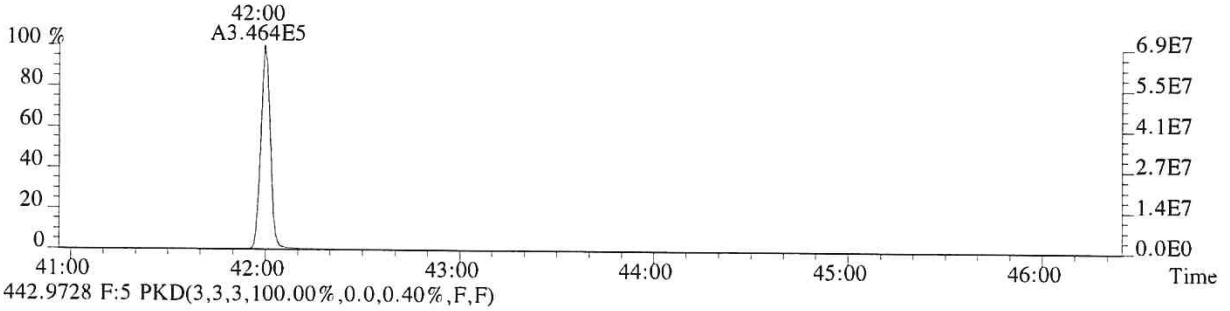
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



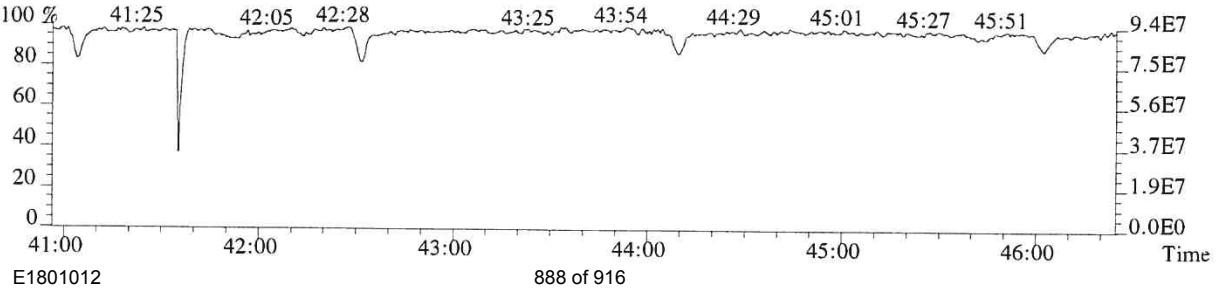
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009479

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.651e+05	5.844e+05	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	4.117e+06	2.575e+06	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	3.795e+06	2.391e+06	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.313e+06	2.571e+06	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.588e+06	2.836e+06	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	3.399e+06	2.690e+06	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	3.119e+06	2.463e+06	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.035e+06	2.883e+06	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	2.518e+06	2.388e+06	1.05	yes	no	1.463
10	Unk	OCDF	42:13	3.855e+06	4.175e+06	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	3.257e+05	4.207e+05	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	2.277e+06	1.455e+06	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.053e+06	1.616e+06	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	2.042e+06	1.617e+06	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	2.180e+06	1.732e+06	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.868e+06	1.765e+06	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.725e+06	3.028e+06	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.197e+05	2.785e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	3.496e+05	2.178e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	3.453e+05	2.138e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.447e+05	2.684e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.758e+05	3.274e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.668e+05	3.132e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.489e+05	2.799e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.241e+05	2.682e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	1.078e+05	2.346e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.558e+05	1.966e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	2.439e+05	1.553e+05	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.940e+05	1.538e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.938e+05	1.542e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.682e+05	1.601e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	2.375e+05	2.681e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.555e+05	1.925e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.160e+05	1.725e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	7.877e+05				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.41e+07	1.94e+03	4.3e+04	1.06e+08	4.26e+03	2.5e+04
2	1,2,3,7,8-PeCDF	8.11e+08	8.46e+03	9.6e+04	5.11e+08	9.13e+03	5.6e+04
3	2,3,4,7,8-PeCDF	7.87e+08	8.46e+03	9.3e+04	4.93e+08	9.13e+03	5.4e+04
4	1,2,3,4,7,8-HxCDF	7.76e+08	1.23e+04	6.3e+04	6.07e+08	9.42e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	8.10e+08	1.23e+04	6.6e+04	6.40e+08	9.42e+03	6.8e+04
6	2,3,4,6,7,8-HxCDF	7.65e+08	1.23e+04	6.2e+04	6.05e+08	9.42e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	6.96e+08	1.23e+04	5.6e+04	5.46e+08	9.42e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.09e+08	9.68e+04	7.3e+03	6.78e+08	6.15e+04	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	5.55e+08	9.68e+04	5.7e+03	5.29e+08	6.15e+04	8.6e+03
10	OCDF	7.55e+08	1.43e+03	5.3e+05	8.22e+08	2.80e+03	2.9e+05
11	2,3,7,8-TCDD	6.32e+07	4.52e+03	1.4e+04	8.21e+07	2.67e+03	3.1e+04
12	1,2,3,7,8-PeCDD	4.67e+08	3.26e+03	1.4e+05	2.98e+08	1.54e+03	1.9e+05
13	1,2,3,4,7,8-HxCDD	4.65e+08	2.34e+03	2.0e+05	3.68e+08	1.99e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	4.59e+08	2.34e+03	2.0e+05	3.67e+08	1.99e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	4.96e+08	2.34e+03	2.1e+05	3.98e+08	1.99e+03	2.0e+05
16	1,2,3,4,6,7,8-HpCDD	4.28e+08	1.10e+04	3.9e+04	4.06e+08	8.82e+03	4.6e+04
17	OCDD	5.24e+08	9.60e+02	5.5e+05	5.87e+08	1.87e+03	3.1e+05
18	13C-2,3,7,8-TCDF	3.91e+07	1.53e+04	2.6e+03	4.94e+07	1.22e+04	4.0e+03
19	13C-1,2,3,7,8-PeCDF	6.89e+07	2.06e+03	3.3e+04	4.27e+07	4.55e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	6.95e+07	2.06e+03	3.4e+04	4.34e+07	4.55e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.33e+07	2.62e+03	1.3e+04	6.22e+07	4.07e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	3.91e+07	2.62e+03	1.5e+04	7.31e+07	4.07e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.74e+07	2.62e+03	1.4e+04	6.98e+07	4.07e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.36e+07	2.62e+03	1.3e+04	6.29e+07	4.07e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.82e+07	6.76e+03	4.2e+03	6.20e+07	1.14e+04	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.34e+07	6.76e+03	3.5e+03	5.11e+07	1.14e+04	4.5e+03
27	13C-2,3,7,8-TCDD	3.04e+07	1.91e+04	1.6e+03	3.86e+07	8.85e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	5.04e+07	1.98e+03	2.5e+04	3.21e+07	2.85e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	4.39e+07	4.70e+03	9.3e+03	3.50e+07	2.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	4.37e+07	4.70e+03	9.3e+03	3.49e+07	2.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.82e+07	2.97e+03	1.3e+04	3.65e+07	2.54e+03	1.4e+04
32	13C-OCDD	4.50e+07	3.46e+03	1.3e+04	5.10e+07	1.82e+03	2.8e+04
33	13C-1,2,3,4-TCDD	2.93e+07	1.91e+04	1.5e+03	3.60e+07	8.85e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.90e+07	4.70e+03	1.0e+04	3.94e+07	2.24e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.54e+08	4.95e+03	3.1e+04			

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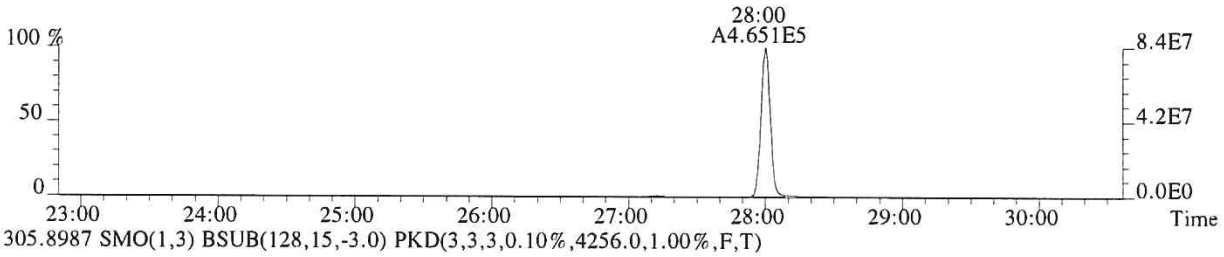
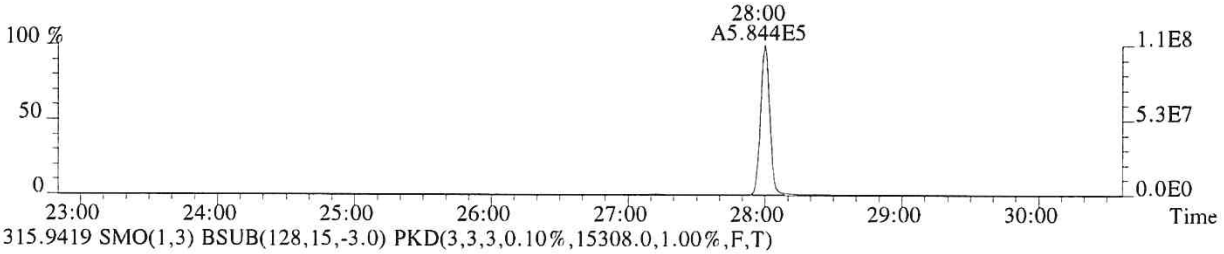
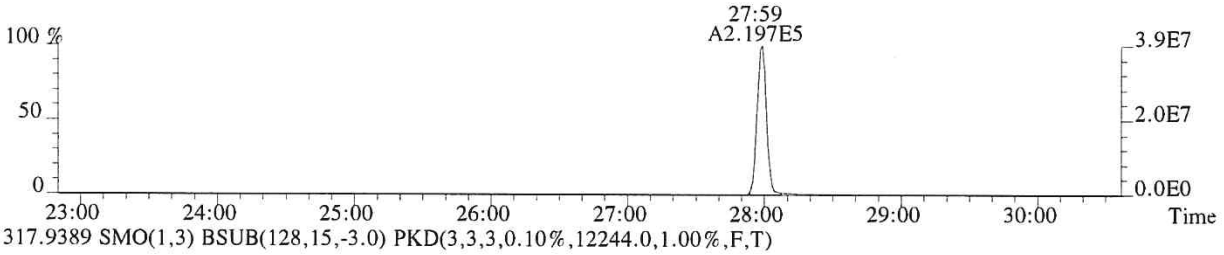
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



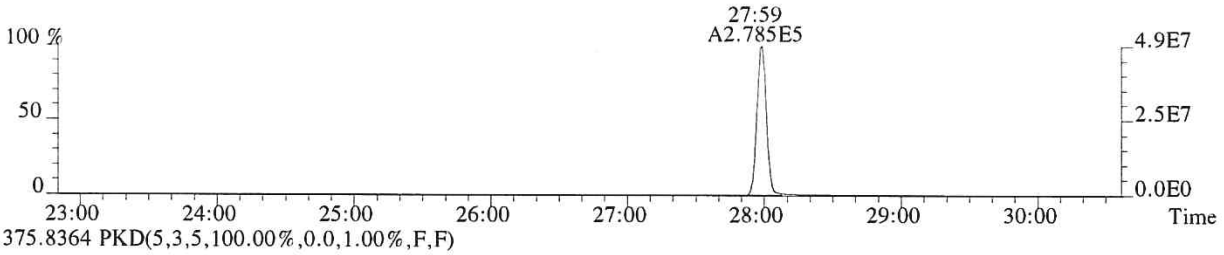
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



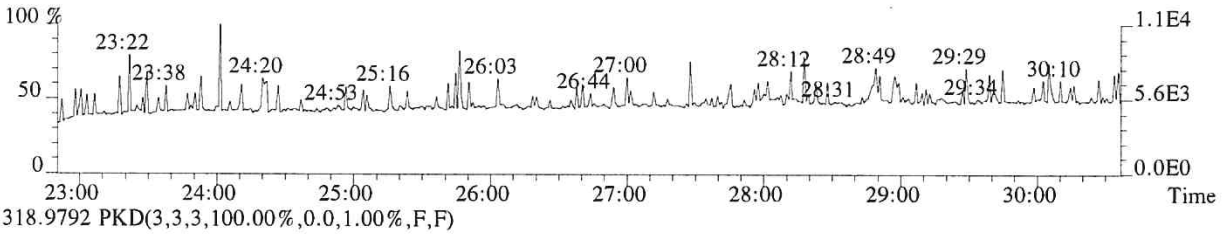
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15308.0,1.00%,F,T)



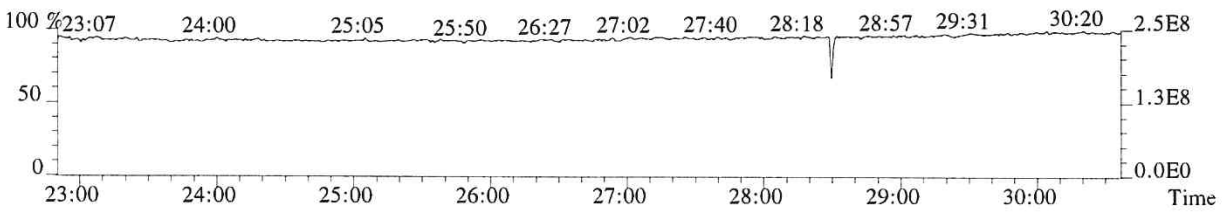
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

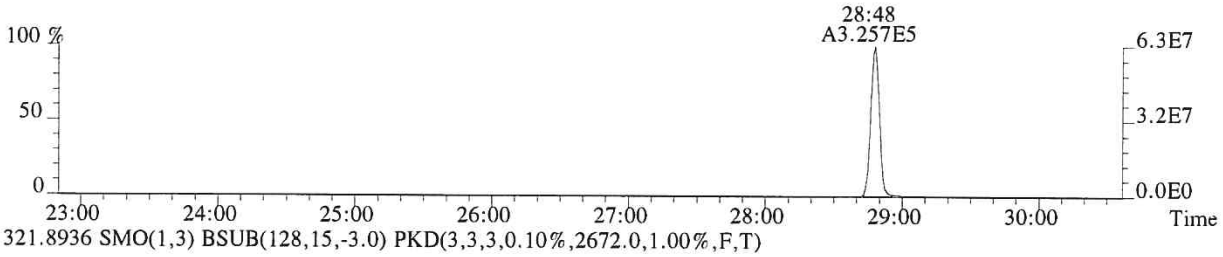


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

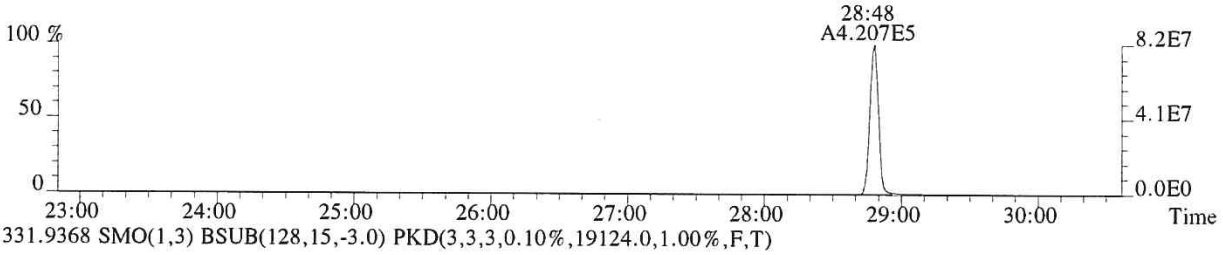


009482

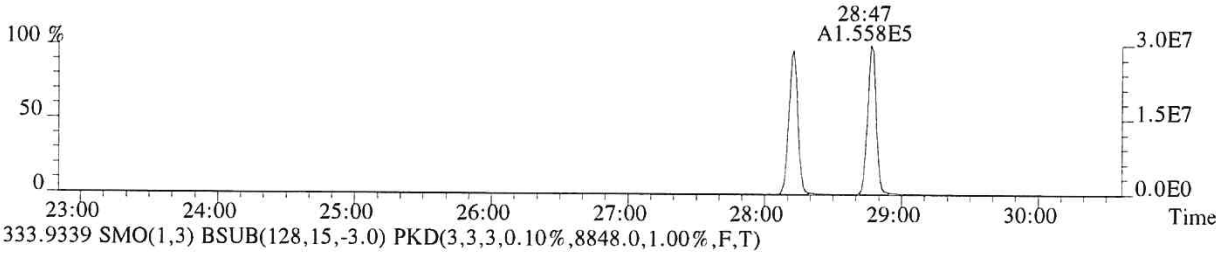
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



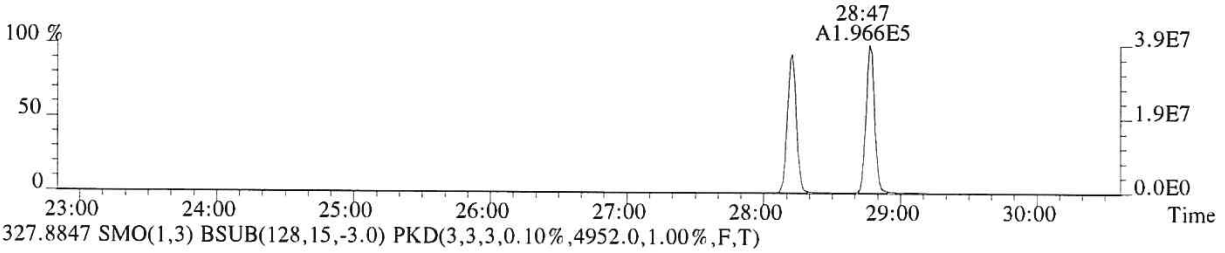
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



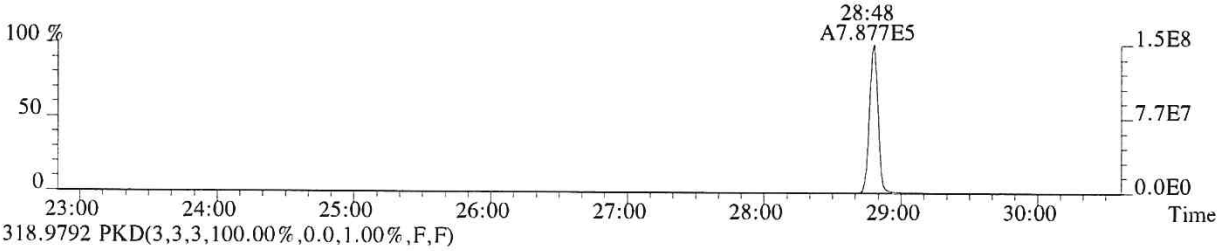
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19124.0,1.00%,F,T)



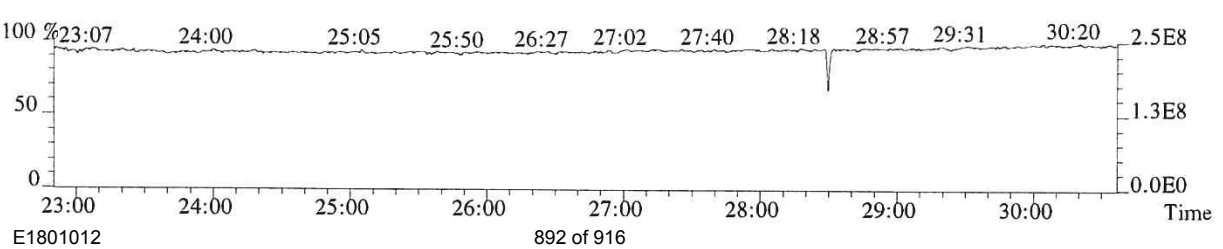
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8848.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)

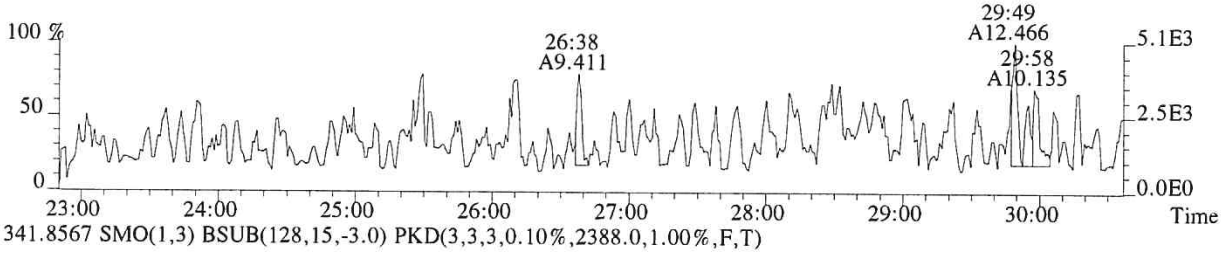


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

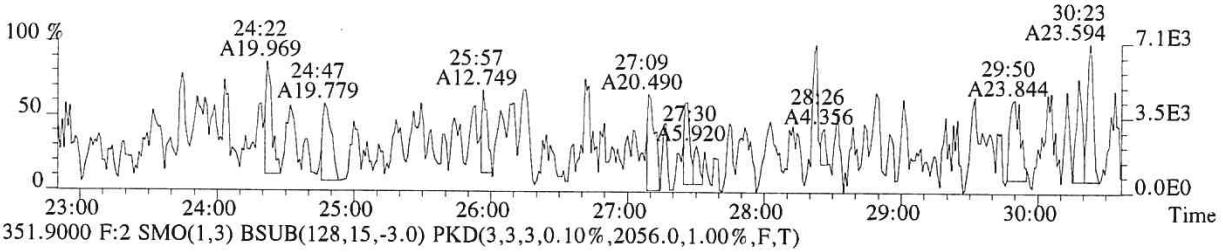


009483

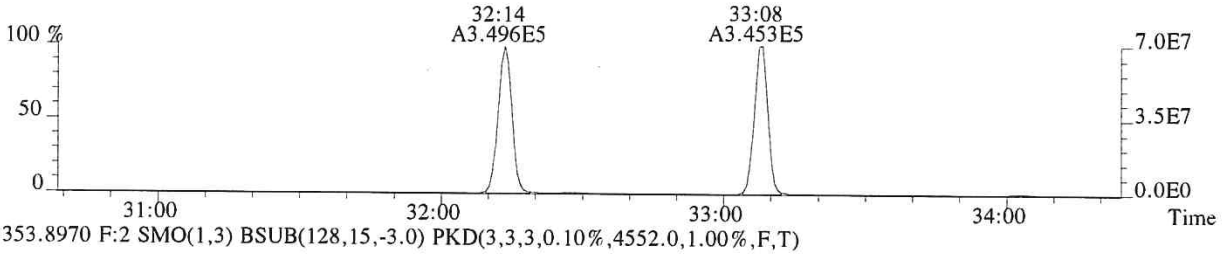
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



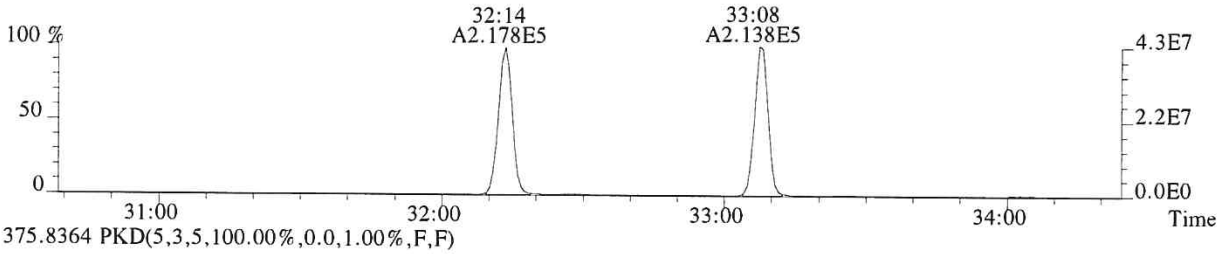
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



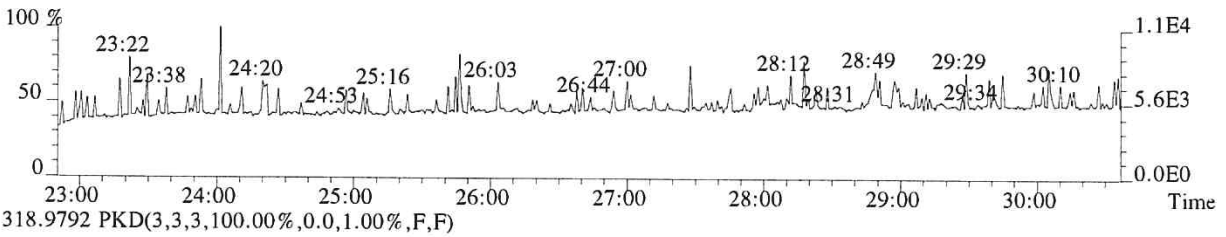
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



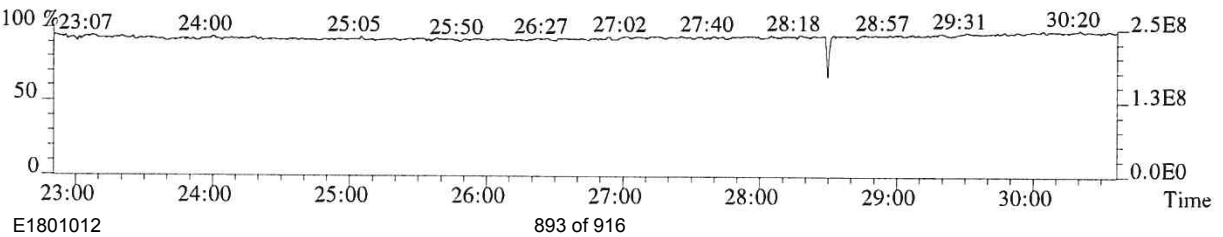
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

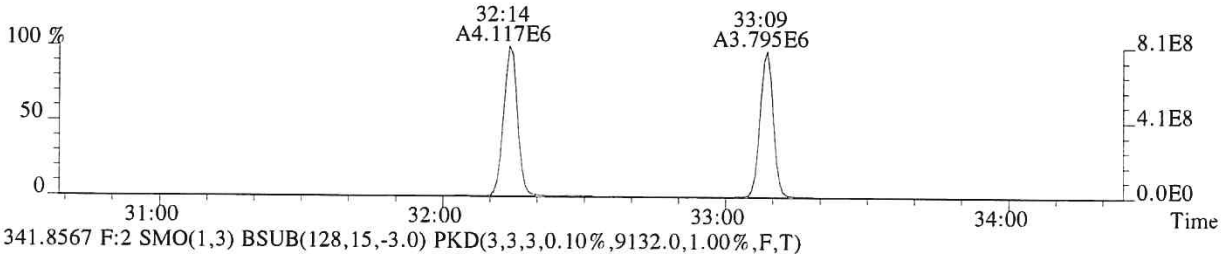


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

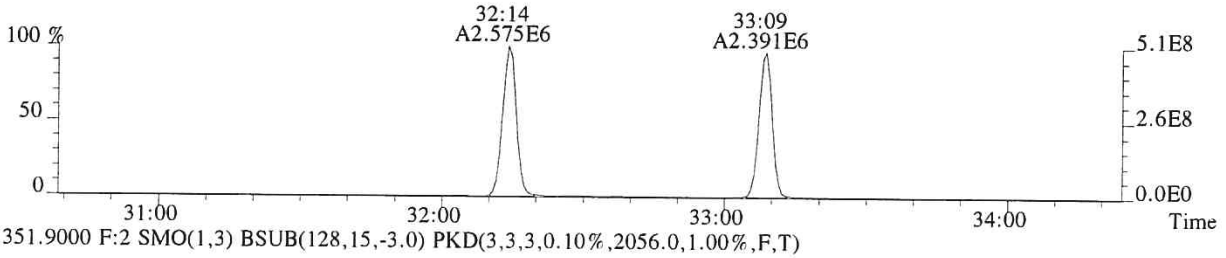


009484

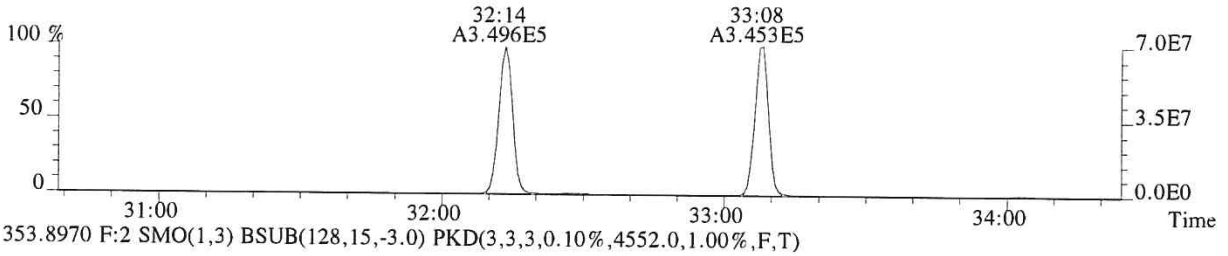
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8456.0,1.00%,F,T)



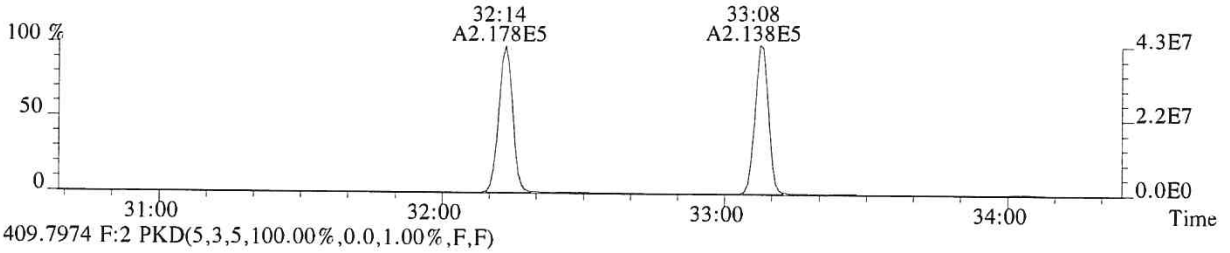
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9132.0,1.00%,F,T)



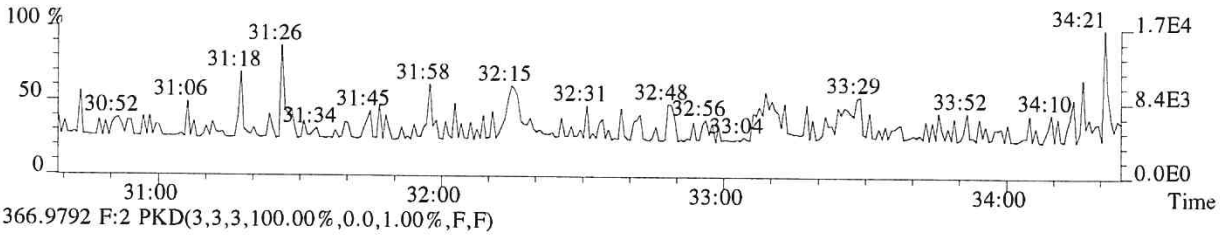
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



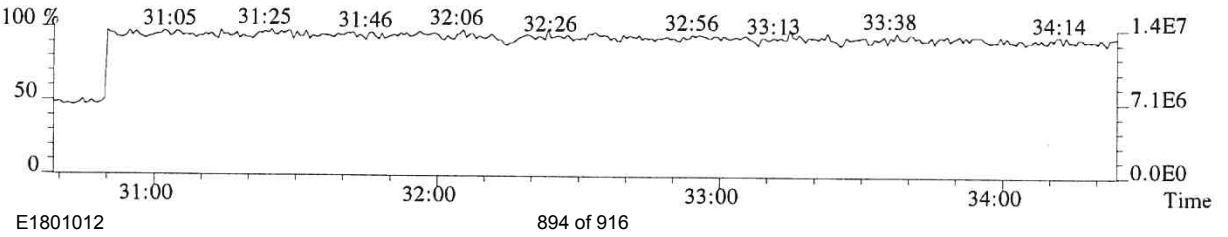
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



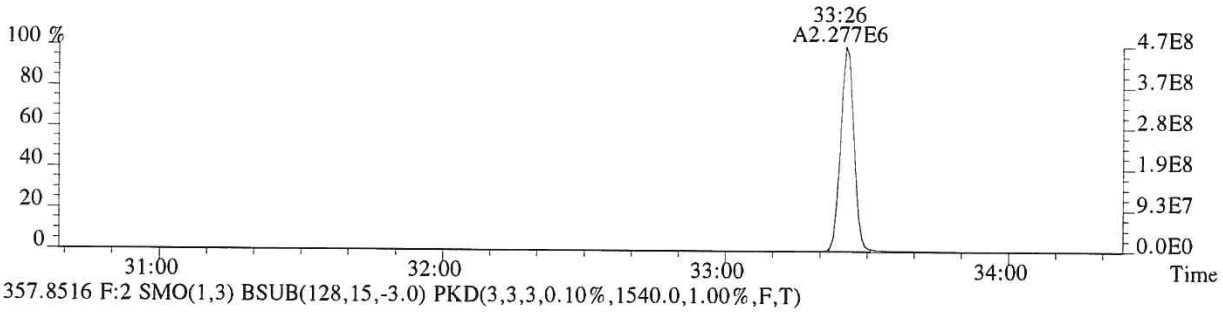
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



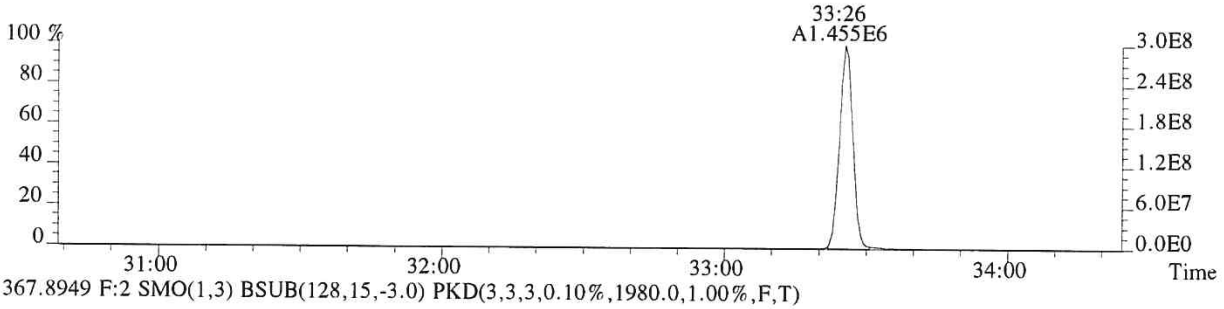
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



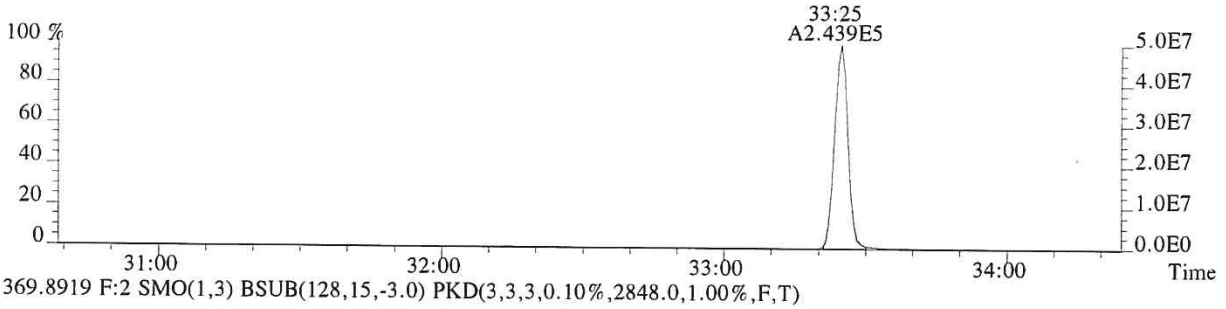
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



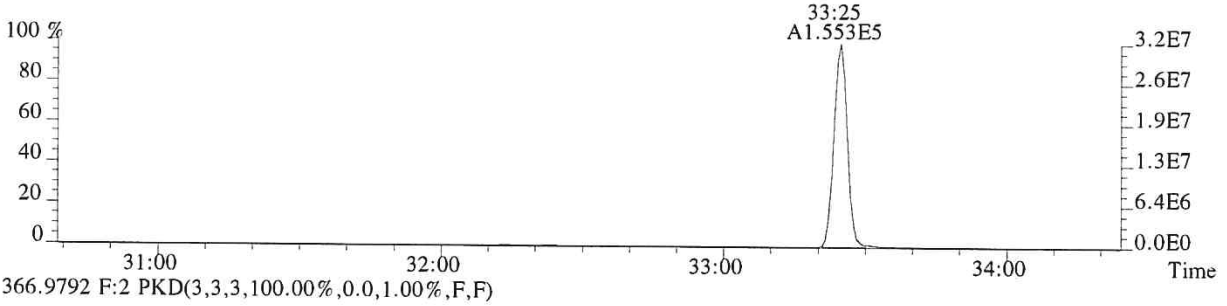
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



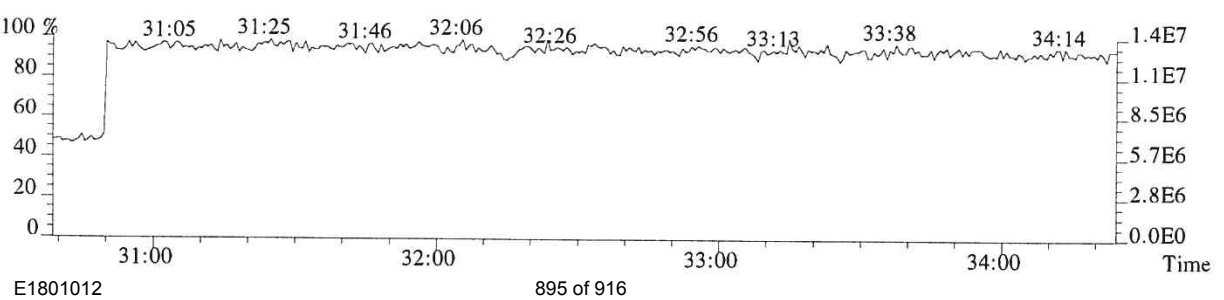
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)

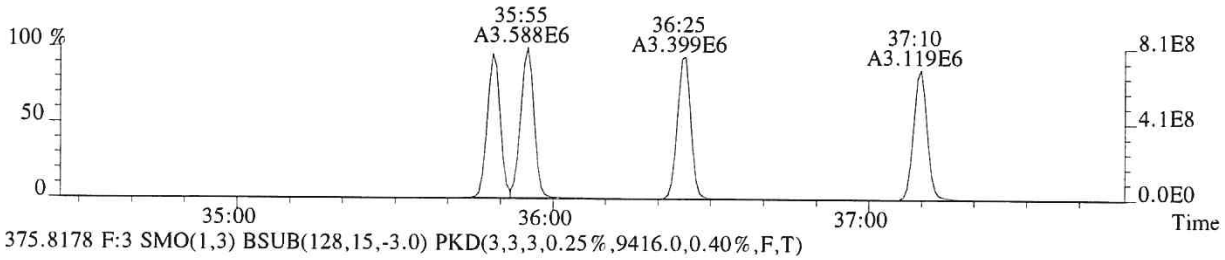


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

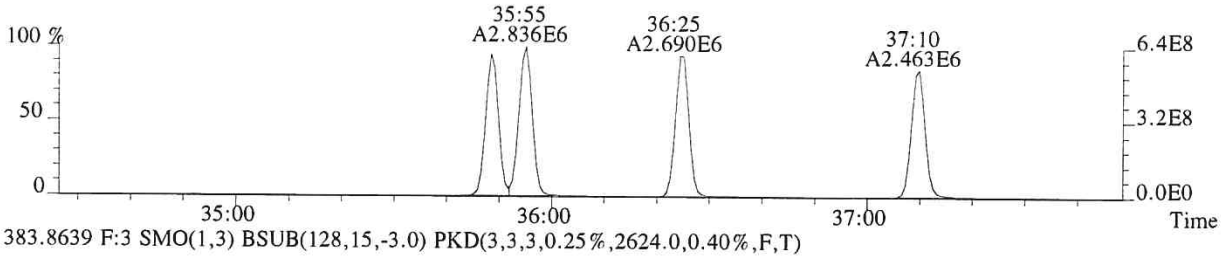


009486

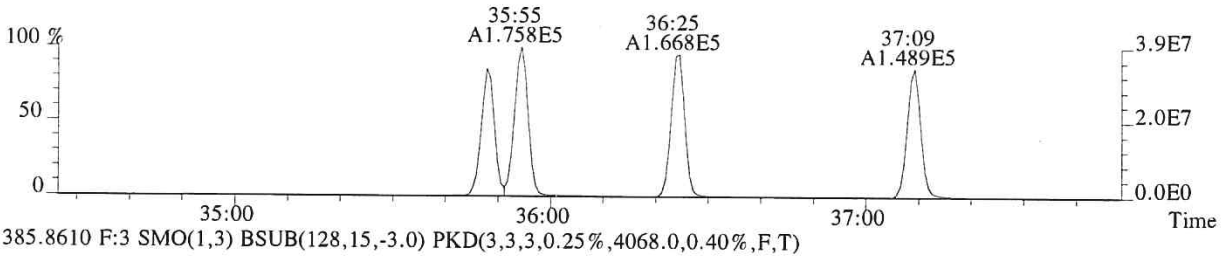
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12332.0,0.40%,F,T)



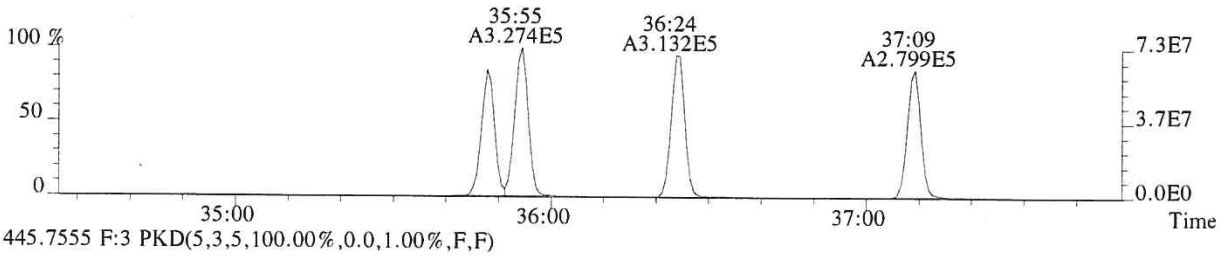
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9416.0,0.40%,F,T)



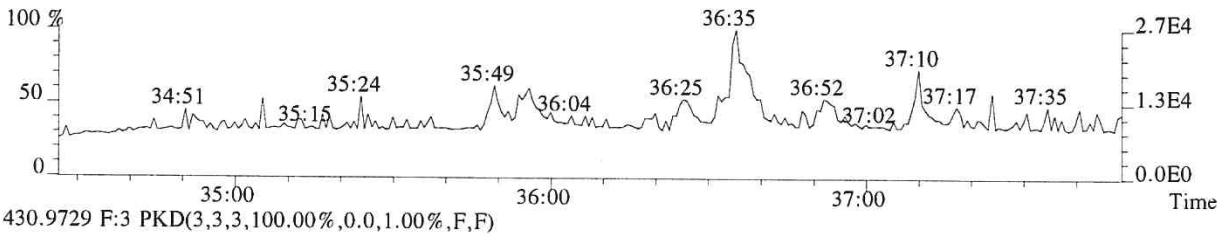
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.40%,F,T)



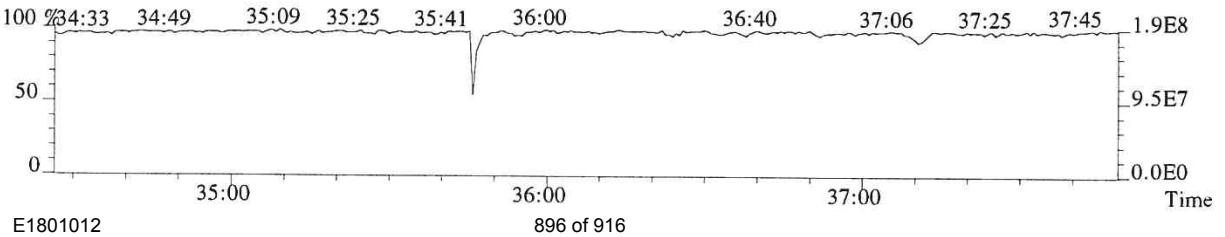
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4068.0,0.40%,F,T)



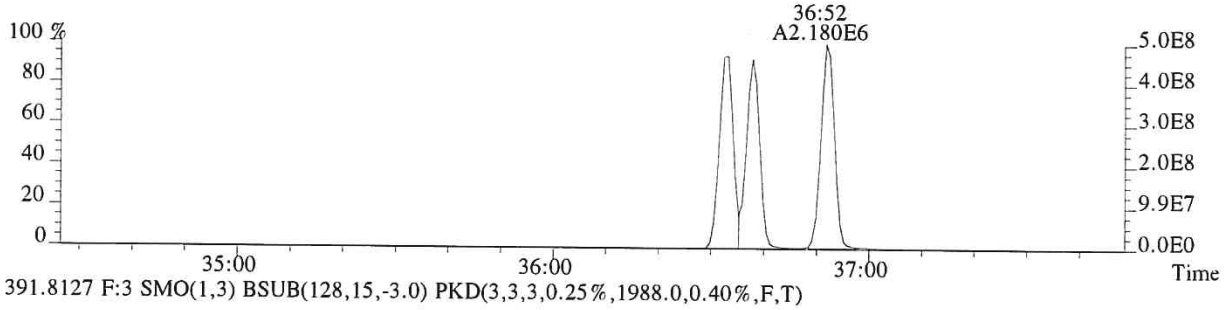
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



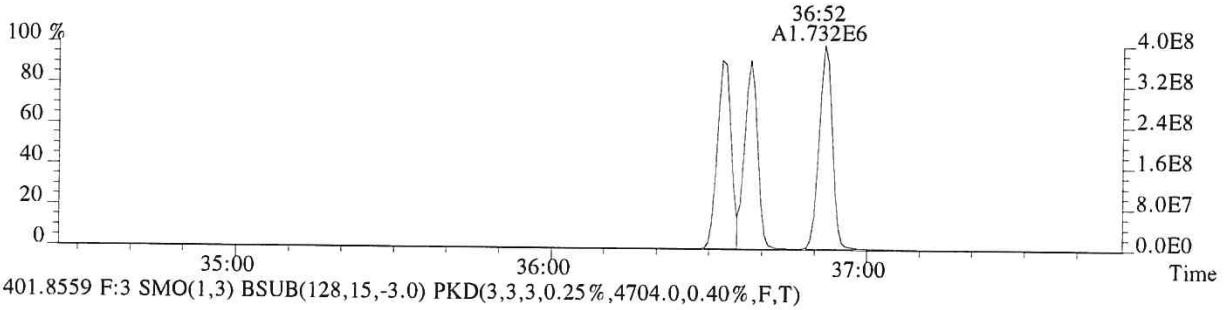
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



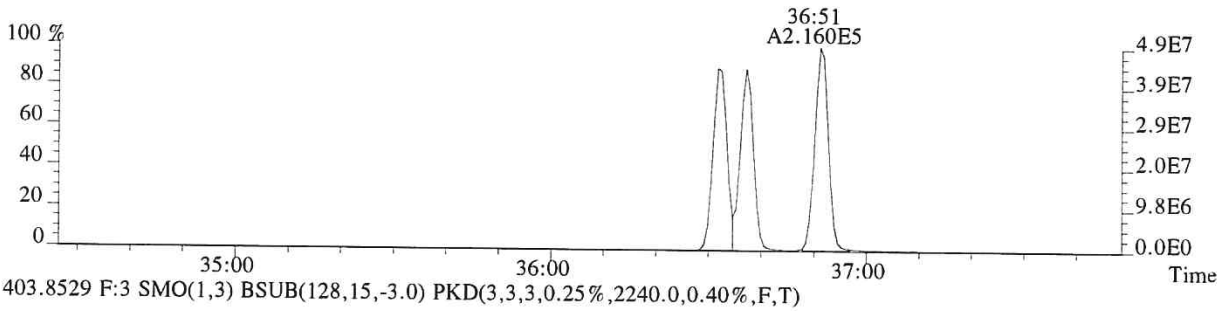
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



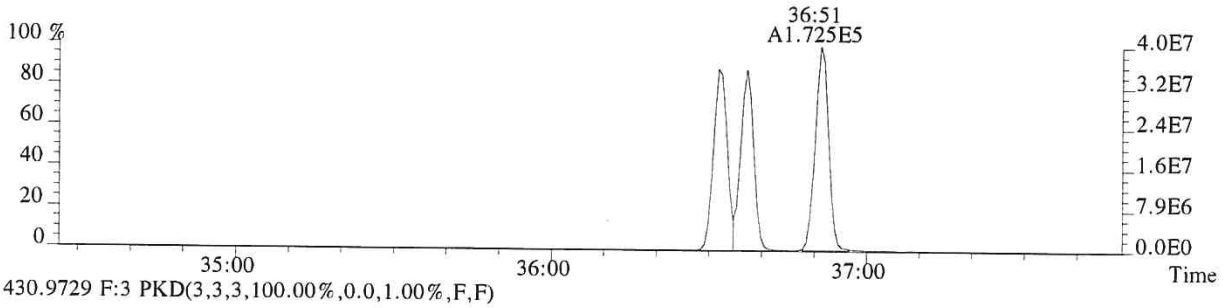
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



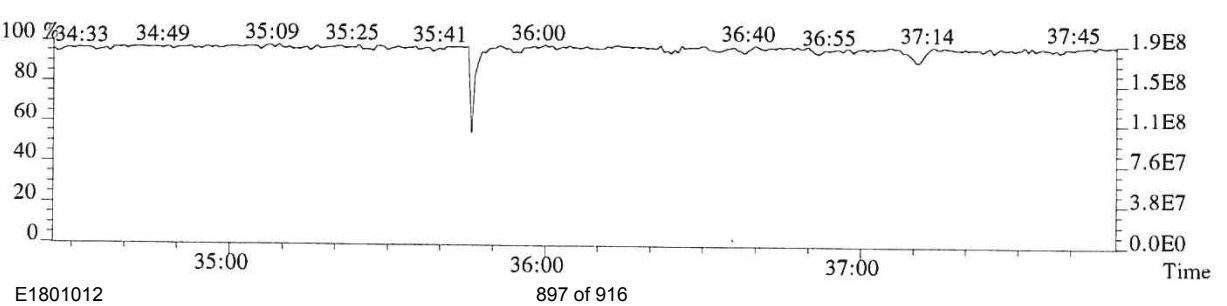
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)

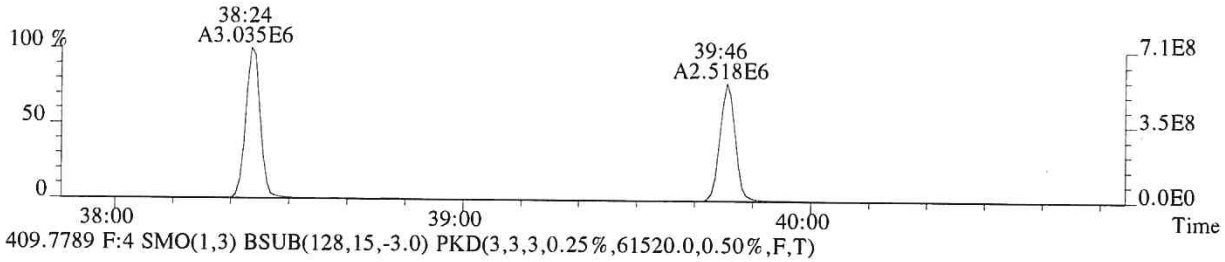


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

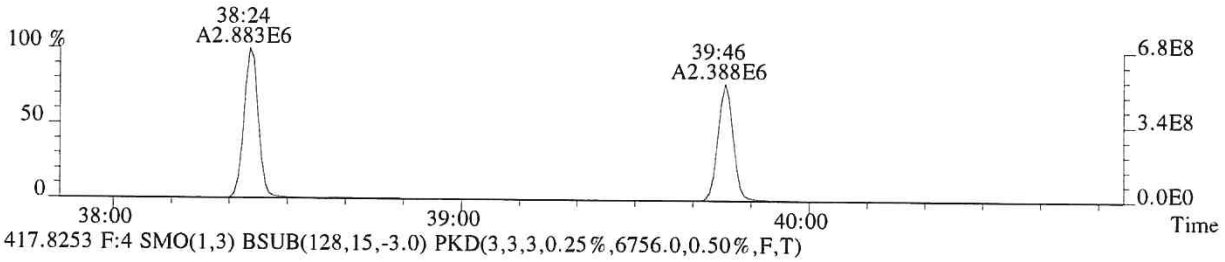


009488

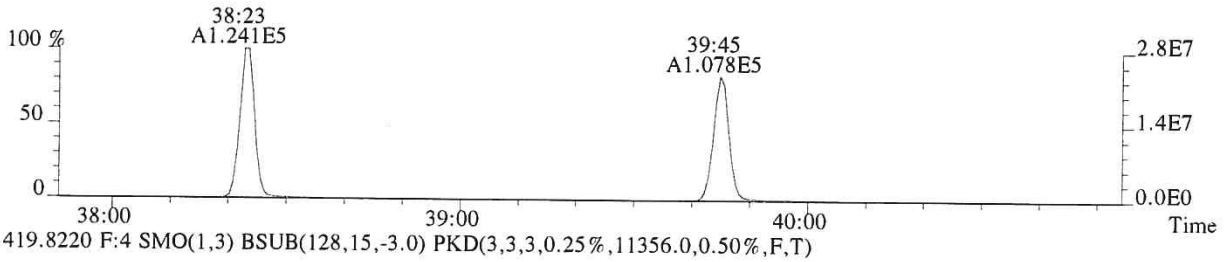
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96804.0,0.50%,F,T)



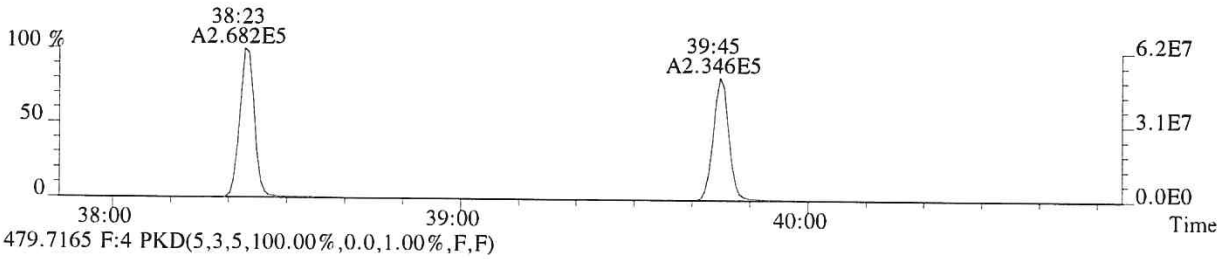
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61520.0,0.50%,F,T)



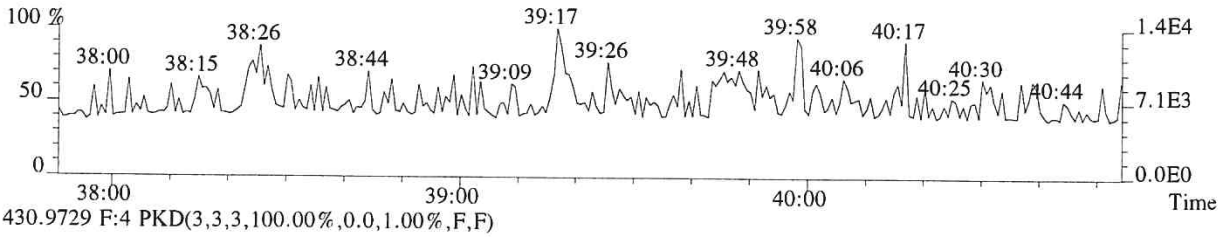
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)



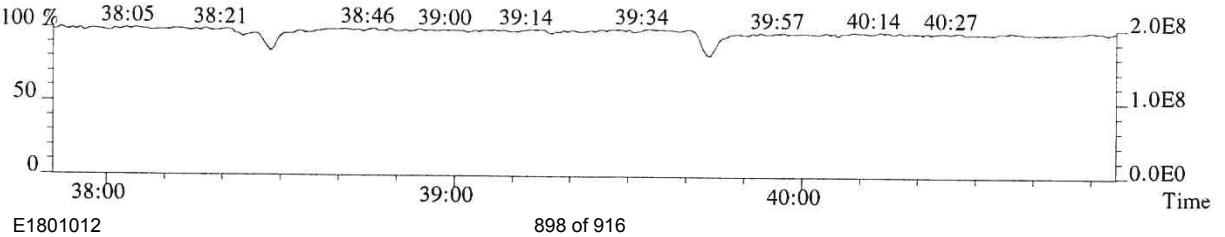
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11356.0,0.50%,F,T)



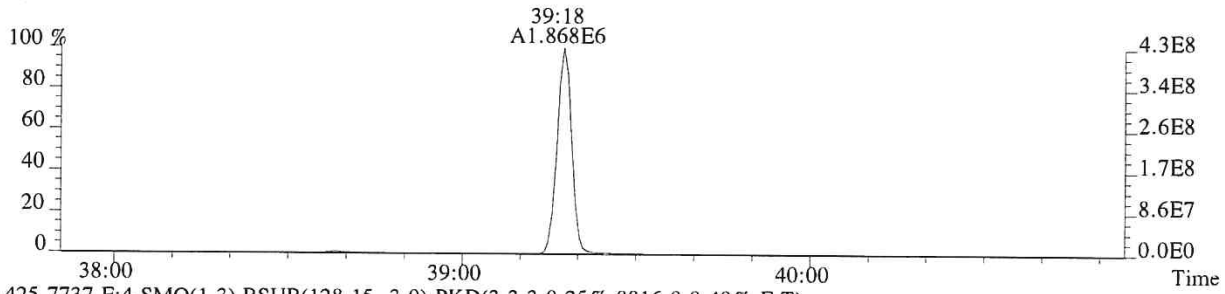
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



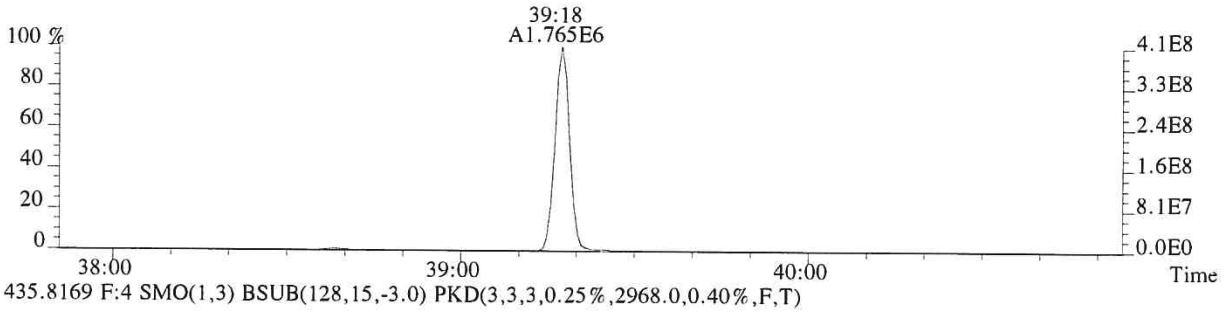
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



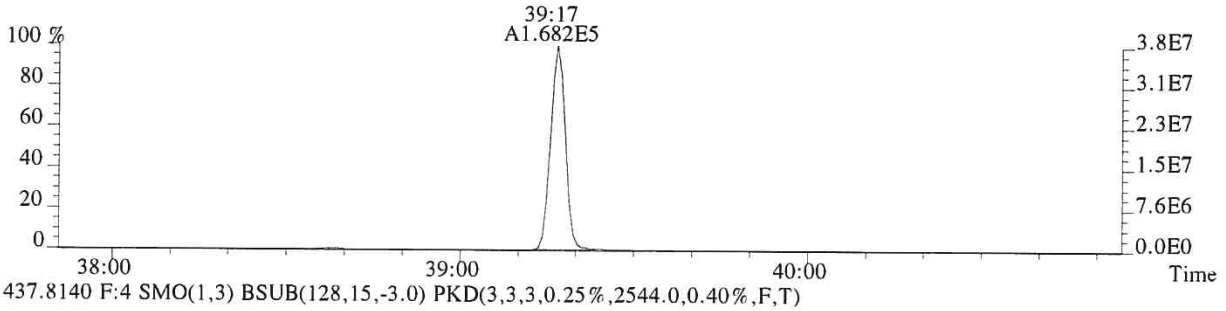
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11044.0,0.40%,F,T)



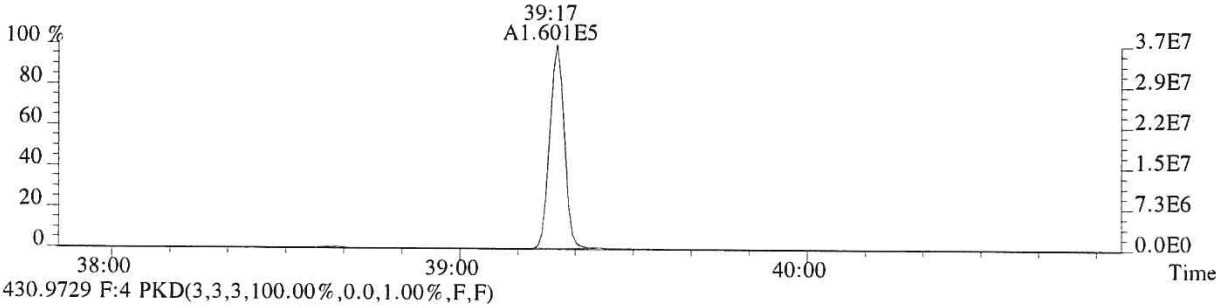
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8816.0,0.40%,F,T)



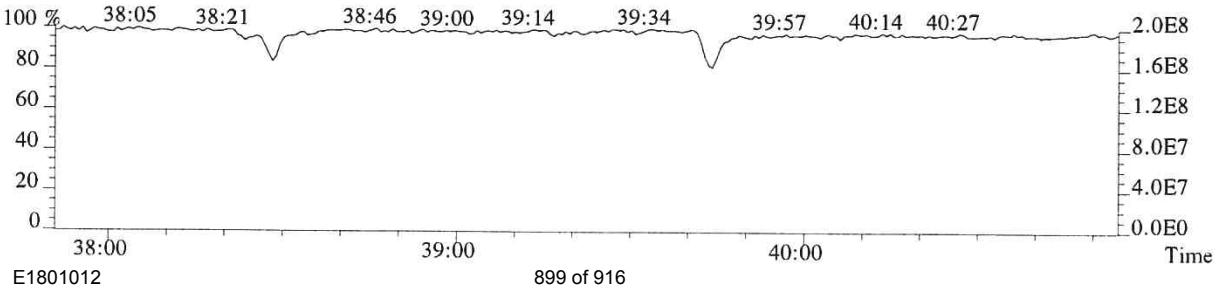
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2968.0,0.40%,F,T)



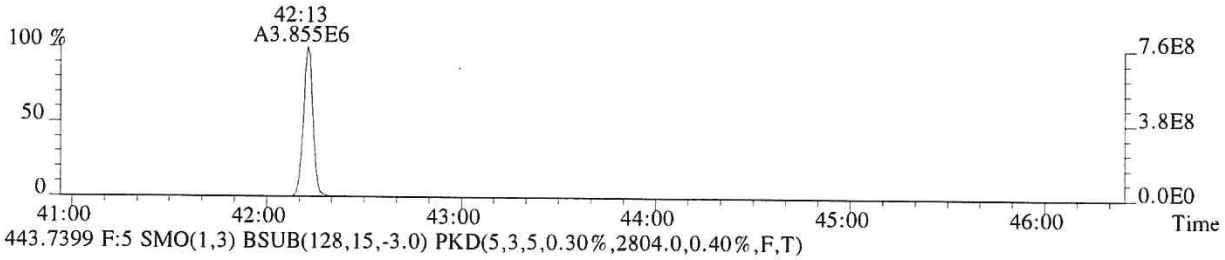
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2544.0,0.40%,F,T)



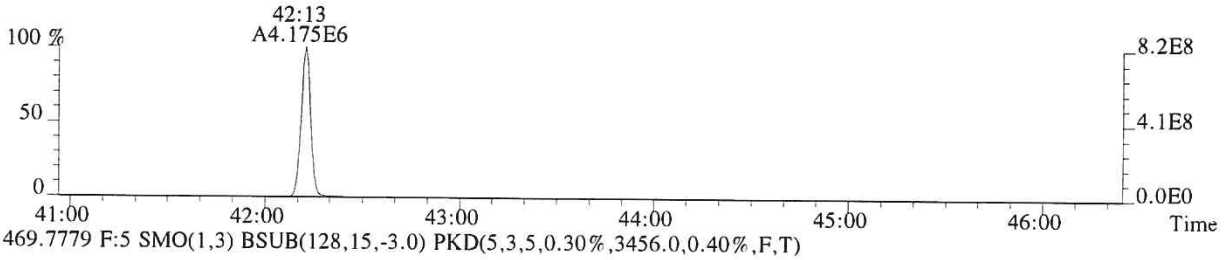
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



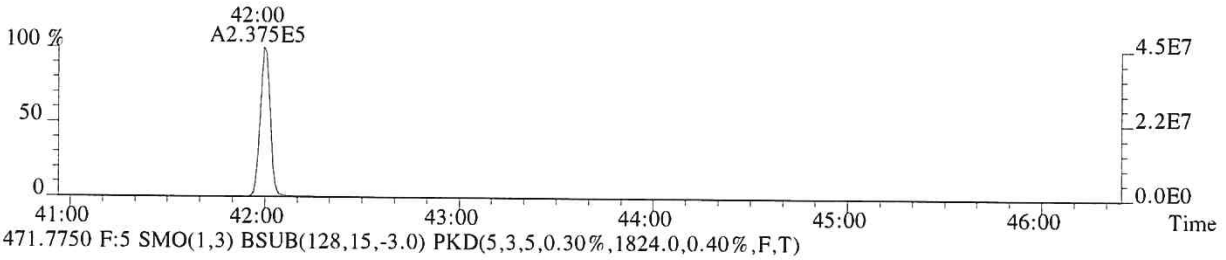
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



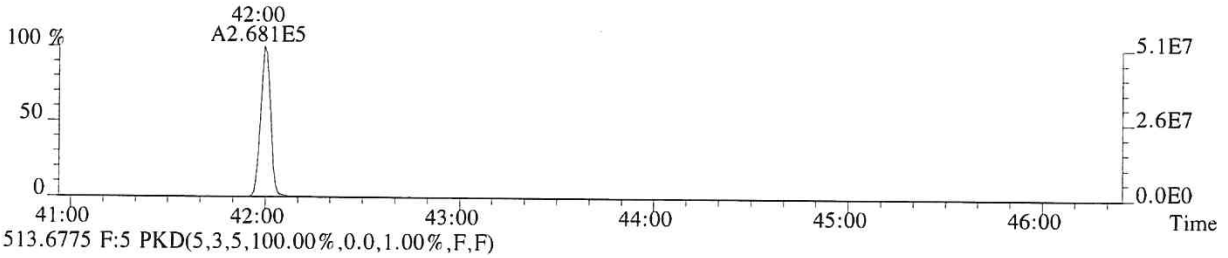
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2804.0,0.40%,F,T)



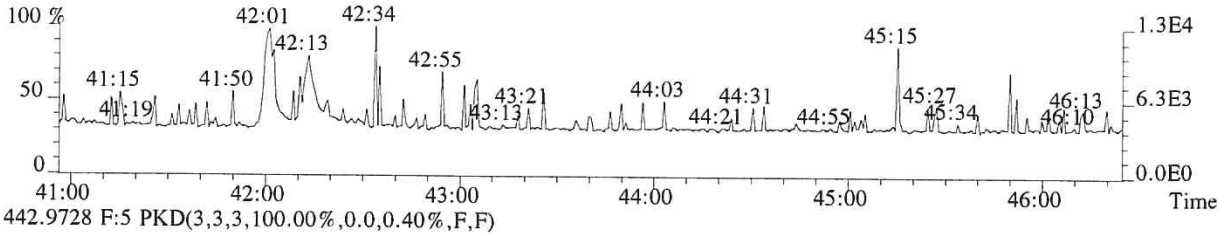
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



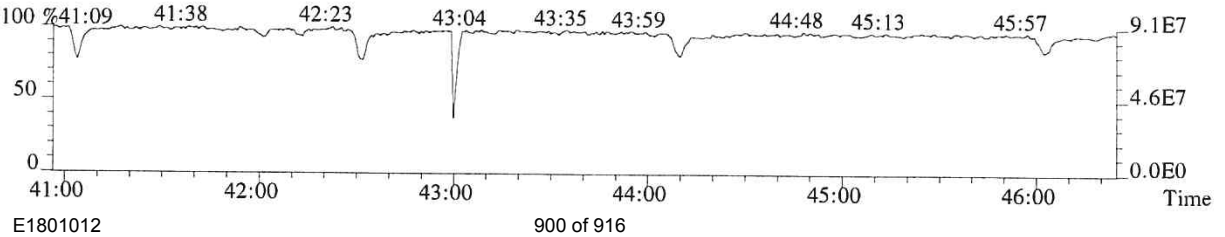
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



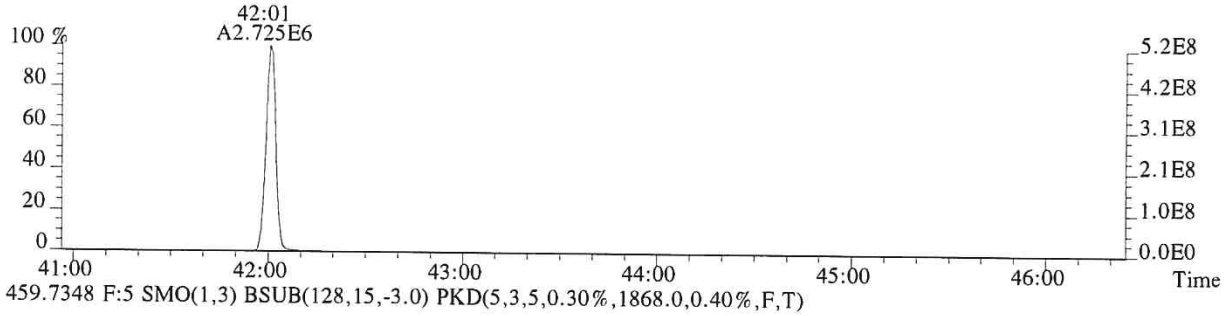
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



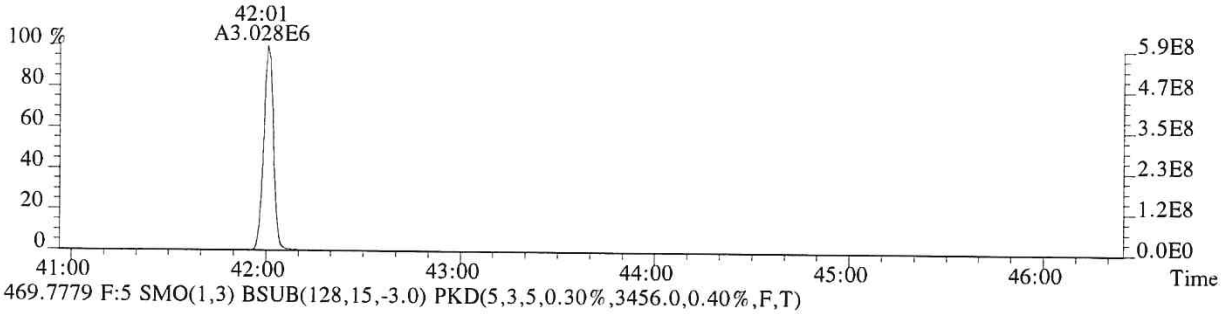
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



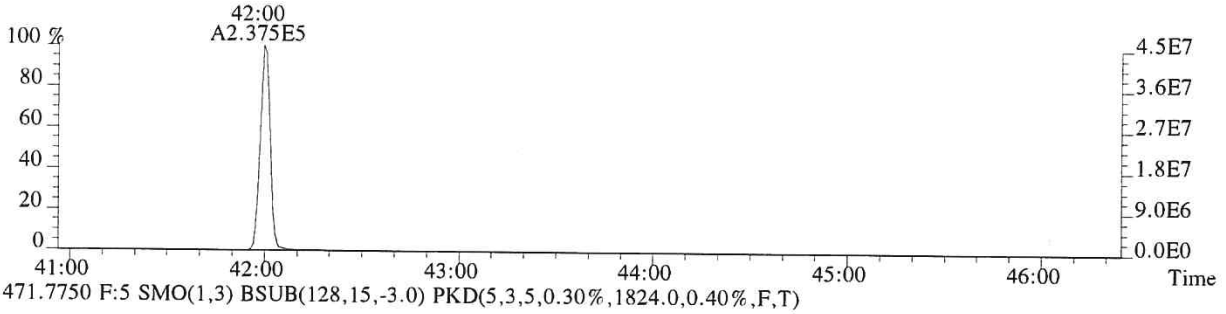
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



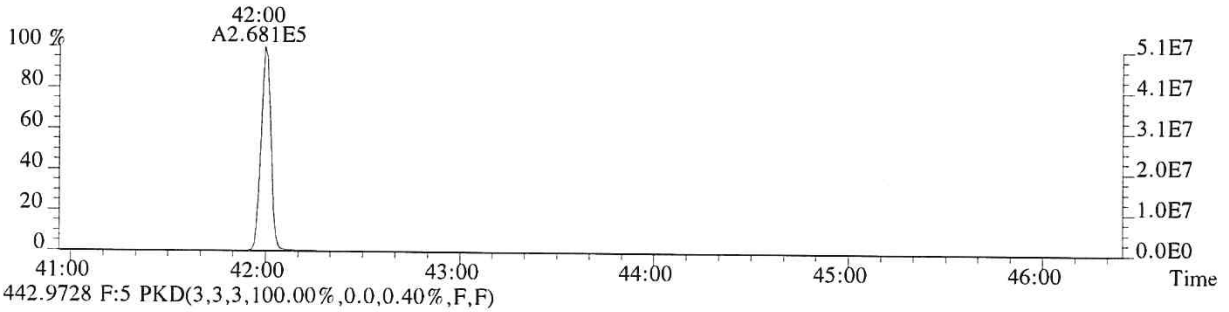
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1868.0,0.40%,F,T)



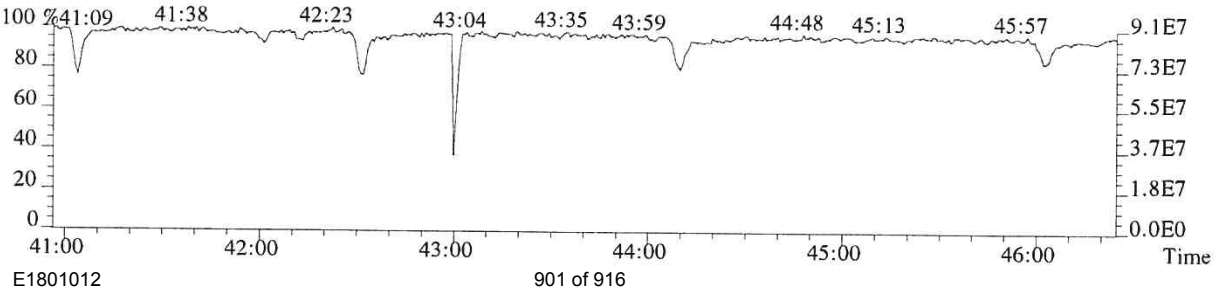
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-2.1
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.7	8.4 - 12.0	-2.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.5
OCDF	M+2/M+4	0.93	0.76-1.02	100	63 - 159	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	99	82 - 121	-0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	97	62 - 160	-2.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	224	96 - 415	11.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	98	76 - 130	-2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	96	77 - 130	-3.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	102	76 - 131	2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	109	77 - 129	9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.742e+04	2.239e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.470e+05	9.342e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	1.362e+05	8.490e+04	1.60	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.308e+05	1.044e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.371e+05	1.074e+05	1.28	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.285e+05	1.018e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.211e+05	9.459e+04	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.180e+05	1.126e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.018e+05	9.931e+04	1.02	yes	no	1.463
10	Unk	OCDF	42:12	1.605e+05	1.721e+05	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.193e+04	1.490e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	8.164e+04	5.215e+04	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	7.752e+04	6.082e+04	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	7.678e+04	6.066e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	8.213e+04	6.494e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	7.382e+04	6.944e+04	1.06	yes	no	1.112
17	Unk	OCDD	42:01	1.146e+05	1.261e+05	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.682e+05	2.104e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.590e+05	1.613e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.497e+05	1.565e+05	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.202e+05	2.212e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.342e+05	2.529e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.258e+05	2.350e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.132e+05	2.142e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	9.579e+04	2.089e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	8.964e+04	1.952e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.166e+05	1.457e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.797e+05	1.149e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.476e+05	1.165e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.453e+05	1.145e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.336e+05	1.263e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.007e+05	2.242e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.202e+05	1.487e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.598e+05	1.284e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.893e+04				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.16e+03	1.4e+03	3.95e+06	5.67e+03	7.0e+02
2	1,2,3,7,8-PeCDF	2.75e+07	1.50e+03	1.8e+04	1.74e+07	8.24e+03	2.1e+03
3	2,3,4,7,8-PeCDF	2.67e+07	1.50e+03	1.8e+04	1.67e+07	8.24e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.29e+07	2.48e+03	9.3e+03
5	1,2,3,6,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.30e+07	2.48e+03	9.3e+03
6	2,3,4,6,7,8-HxCDF	2.86e+07	2.35e+03	1.2e+04	2.28e+07	2.48e+03	9.2e+03
7	1,2,3,7,8,9-HxCDF	2.47e+07	2.35e+03	1.1e+04	1.95e+07	2.48e+03	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.70e+07	4.46e+03	6.0e+03	2.58e+07	1.29e+04	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	4.46e+03	4.8e+03	2.03e+07	1.29e+04	1.6e+03
10	OCDF	3.01e+07	1.50e+03	2.0e+04	3.28e+07	3.09e+03	1.1e+04
11	2,3,7,8-TCDD	2.20e+06	4.04e+03	5.4e+02	2.73e+06	2.27e+03	1.2e+03
12	1,2,3,7,8-PeCDD	1.64e+07	3.14e+03	5.2e+03	1.06e+07	2.92e+02	3.6e+04
13	1,2,3,4,7,8-HxCDD	1.79e+07	1.59e+03	1.1e+04	1.41e+07	2.43e+03	5.8e+03
14	1,2,3,6,7,8-HxCDD	1.70e+07	1.59e+03	1.1e+04	1.34e+07	2.43e+03	5.5e+03
15	1,2,3,7,8,9-HxCDD	1.85e+07	1.59e+03	1.2e+04	1.48e+07	2.43e+03	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+07	2.28e+03	7.0e+03	1.49e+07	8.84e+02	1.7e+04
17	OCDD	2.16e+07	1.17e+03	1.8e+04	2.38e+07	1.31e+03	1.8e+04
18	13C-2,3,7,8-TCDF	2.88e+07	1.57e+04	1.8e+03	3.60e+07	9.18e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	4.01e+03	1.2e+04	3.00e+07	3.41e+03	8.8e+03
20	13C-2,3,4,7,8-PeCDF	4.95e+07	4.01e+03	1.2e+04	3.12e+07	3.41e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+07	2.99e+03	8.9e+03	4.93e+07	3.83e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.83e+07	2.99e+03	9.5e+03	5.32e+07	3.83e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.80e+07	2.99e+03	9.4e+03	5.25e+07	3.83e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.35e+07	2.99e+03	7.9e+03	4.43e+07	3.83e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+07	7.32e+03	3.0e+03	4.77e+07	1.38e+04	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.88e+07	7.32e+03	2.6e+03	4.06e+07	1.38e+04	2.9e+03
27	13C-2,3,7,8-TCDD	2.17e+07	2.56e+04	8.4e+02	2.71e+07	6.97e+03	3.9e+03
28	13C-1,2,3,7,8-PeCDD	3.57e+07	3.26e+03	1.1e+04	2.28e+07	2.28e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.37e+07	5.66e+03	6.0e+03	2.64e+07	3.42e+03	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.18e+07	5.66e+03	5.6e+03	2.51e+07	3.42e+03	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+07	3.13e+03	9.1e+03	2.68e+07	1.88e+03	1.4e+04
32	13C-OCDD	3.77e+07	2.72e+03	1.4e+04	4.17e+07	9.60e+02	4.3e+04
33	13C-1,2,3,4-TCDD	2.21e+07	2.56e+04	8.6e+02	2.72e+07	6.97e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+07	5.66e+03	6.4e+03	2.92e+07	3.42e+03	8.5e+03
35	37Cl-2,3,7,8-TCDD	5.28e+06	4.24e+03	1.2e+03			

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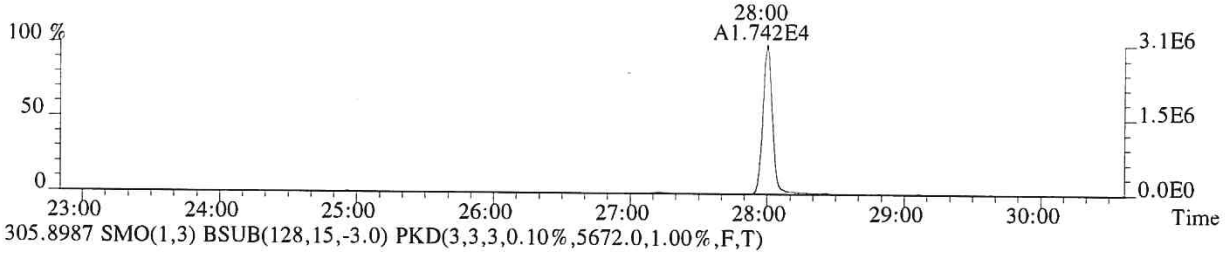
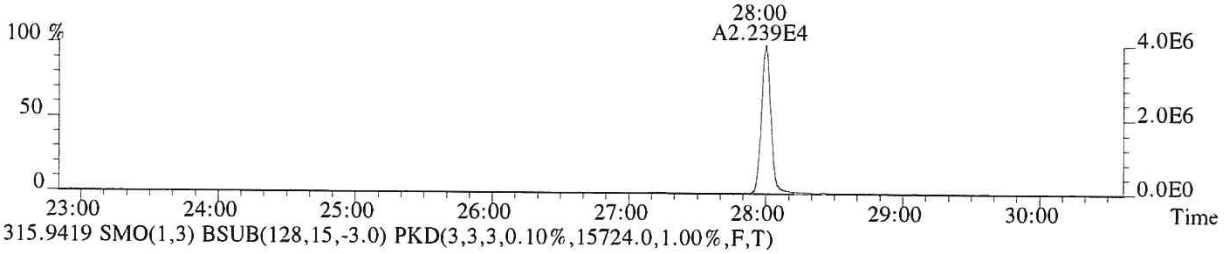
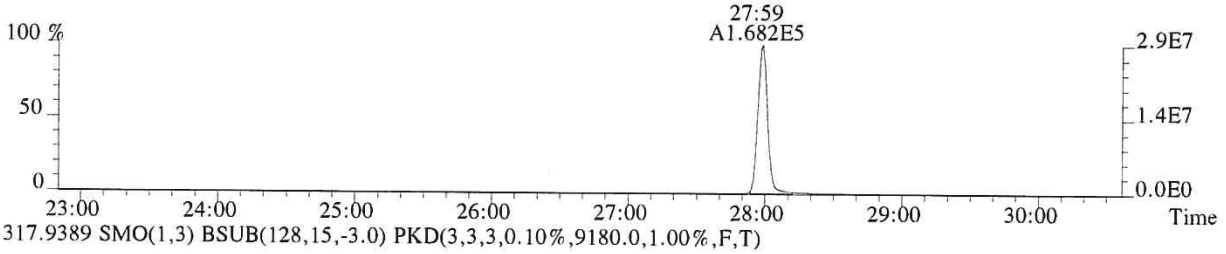
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



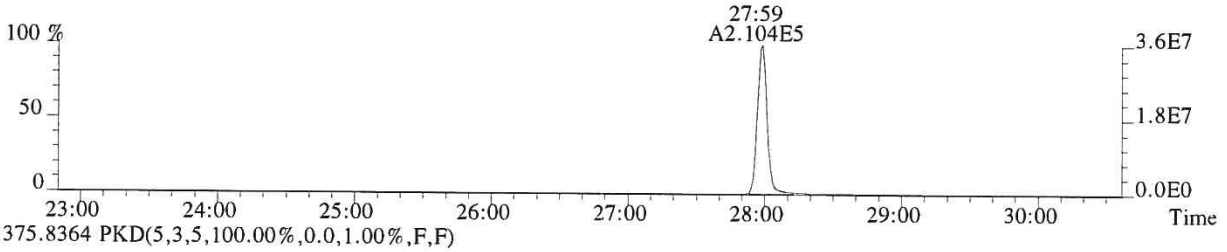
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5672.0,1.00%,F,T)



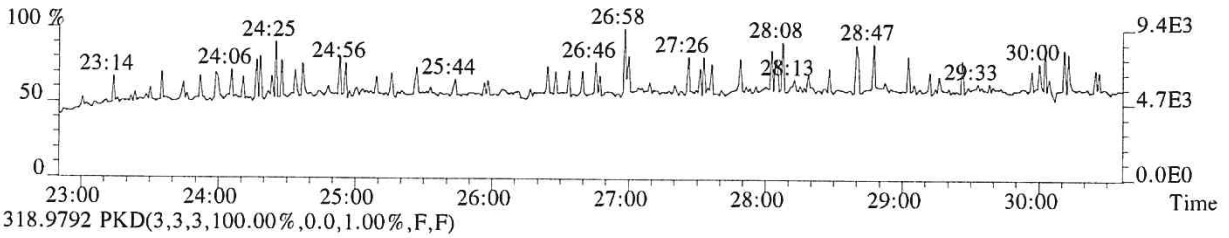
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15724.0,1.00%,F,T)



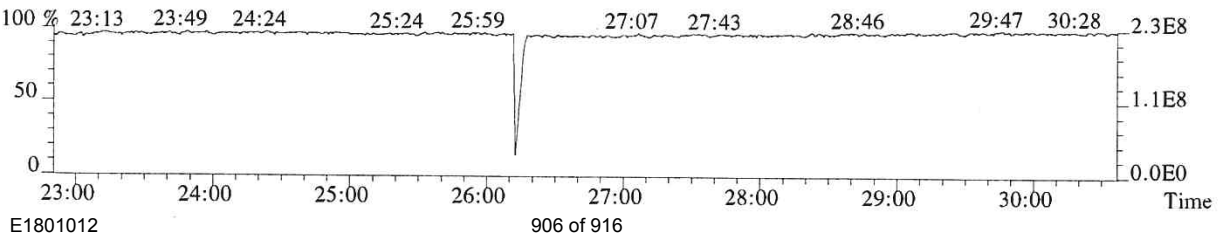
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9180.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

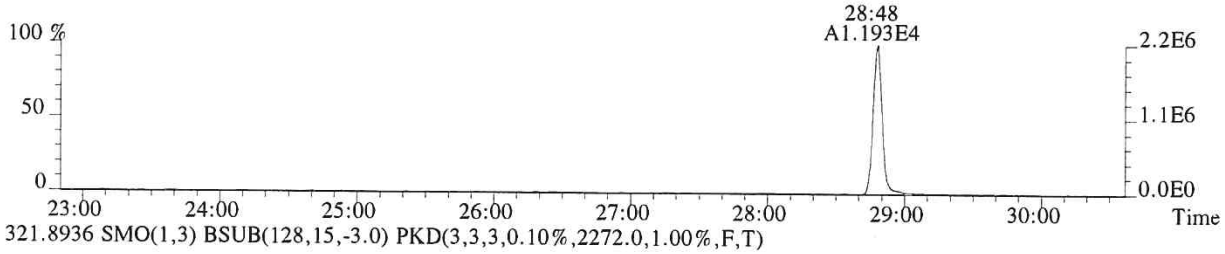


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

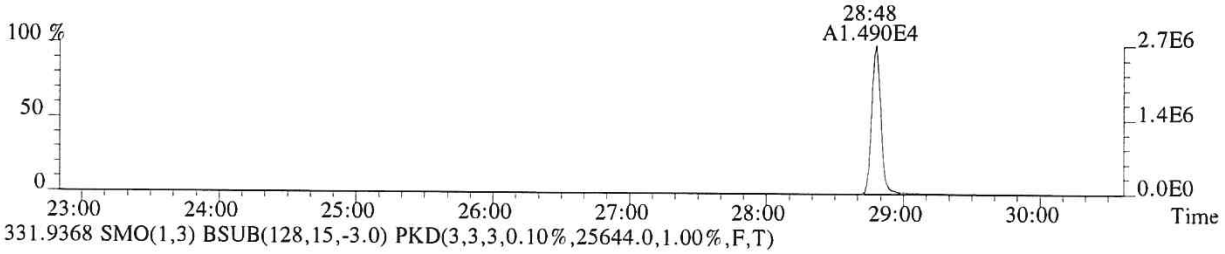


009497

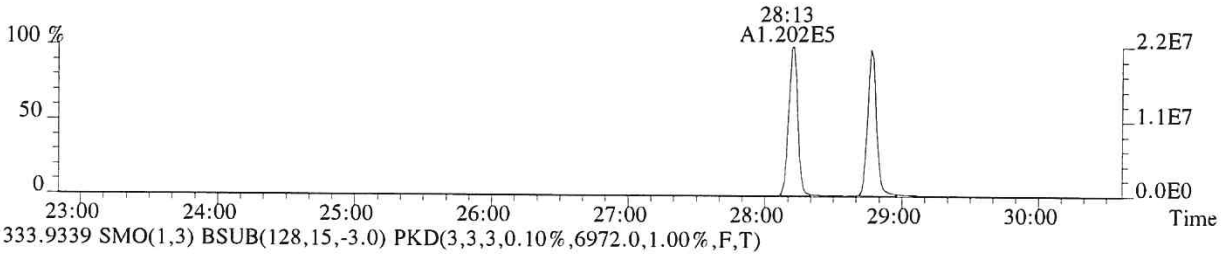
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



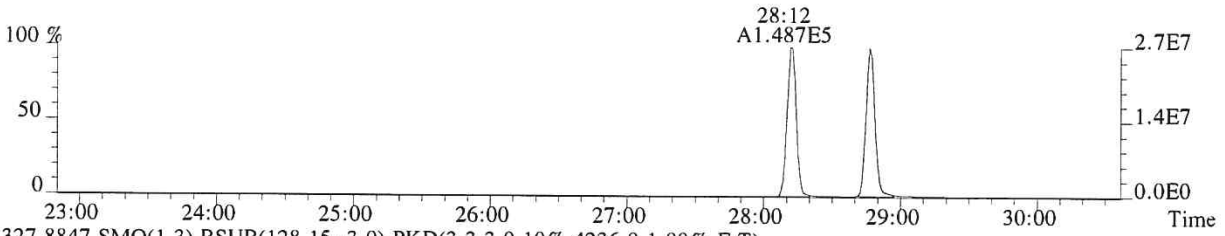
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



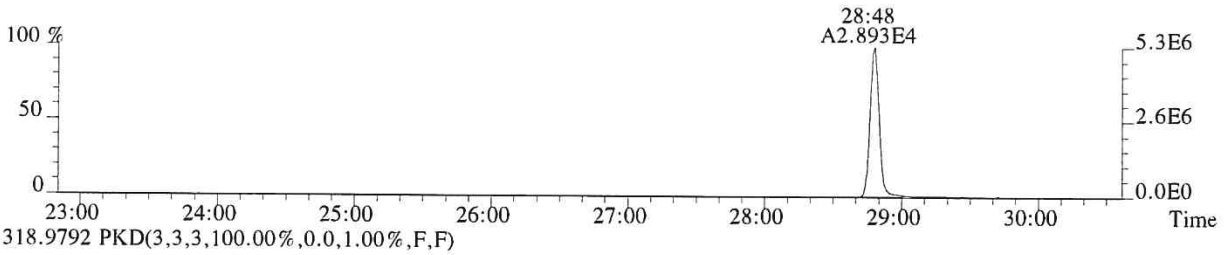
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25644.0,1.00%,F,T)



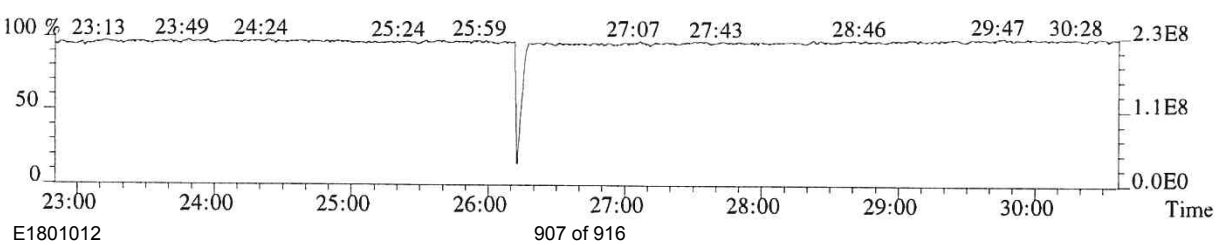
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



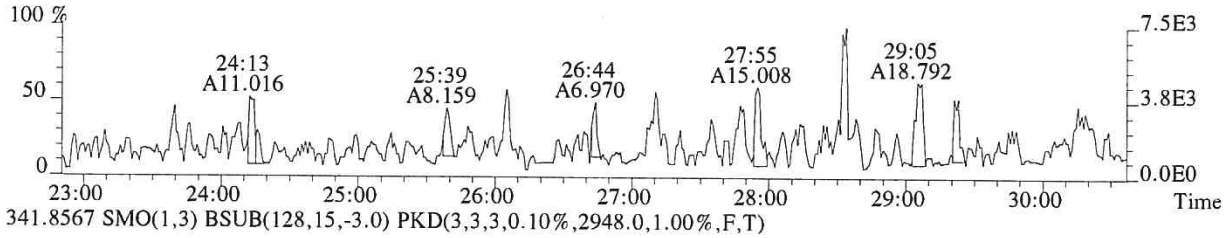
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4236.0,1.00%,F,T)



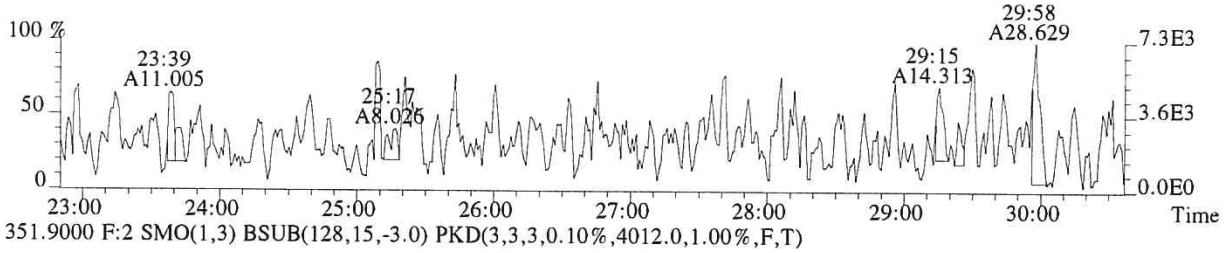
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



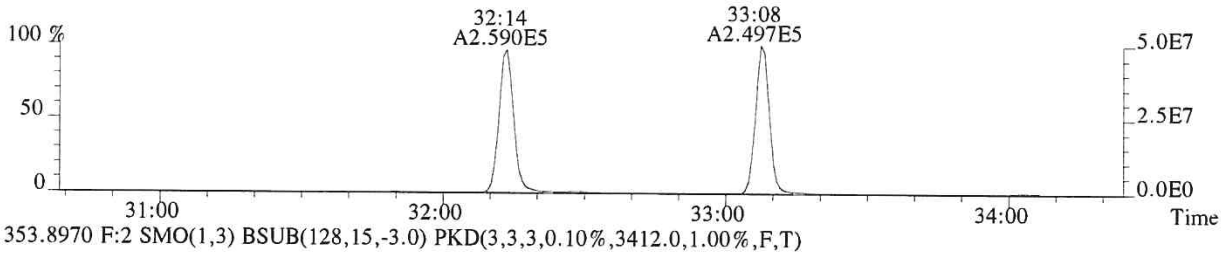
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



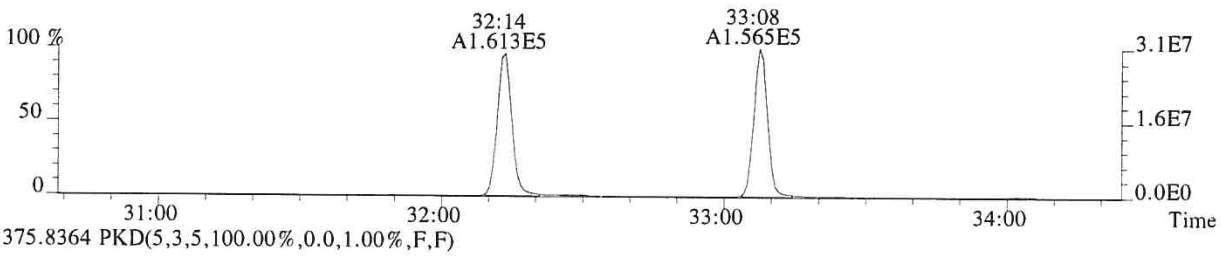
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



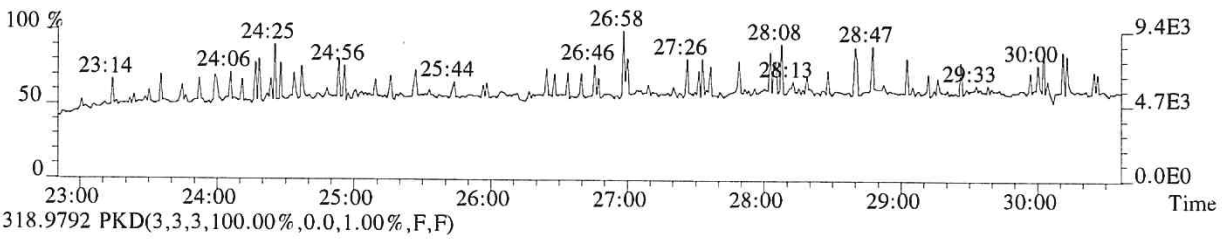
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



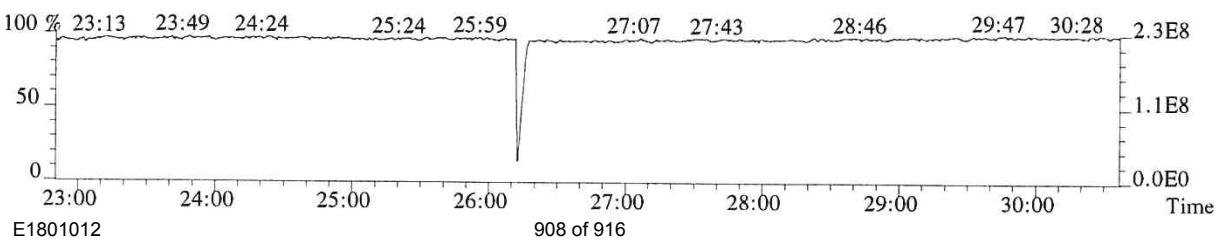
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

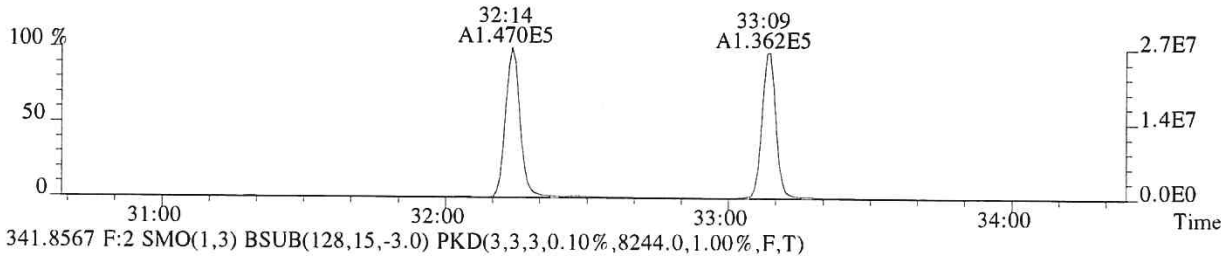


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

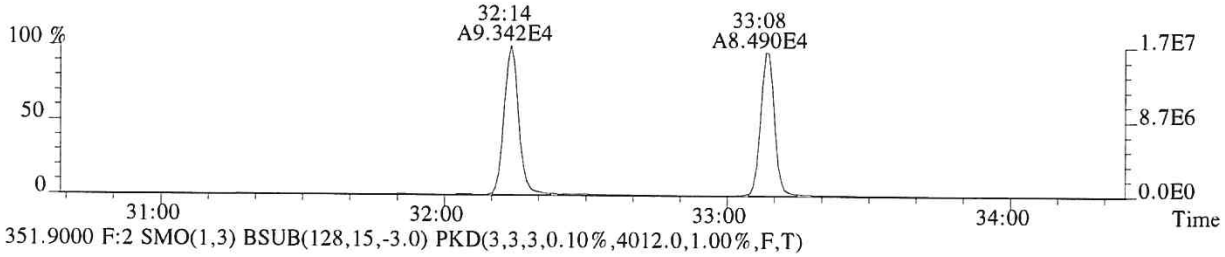


009499

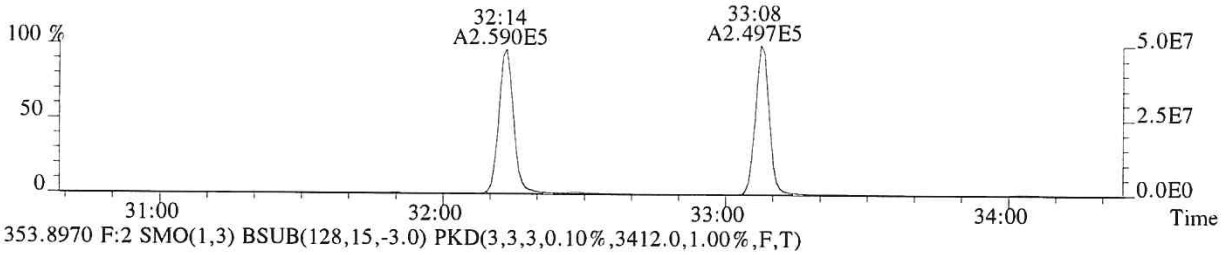
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



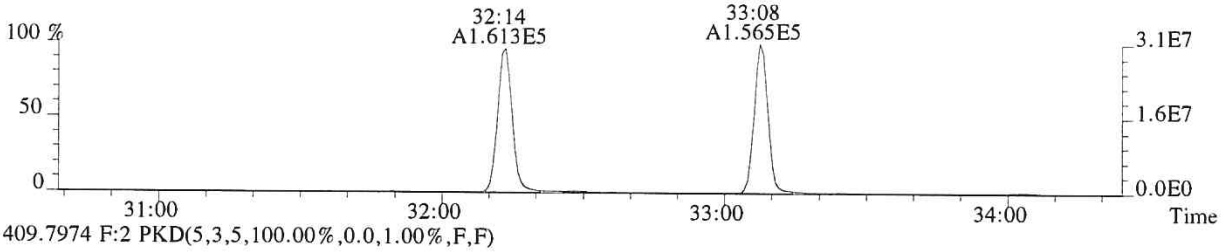
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8244.0,1.00%,F,T)



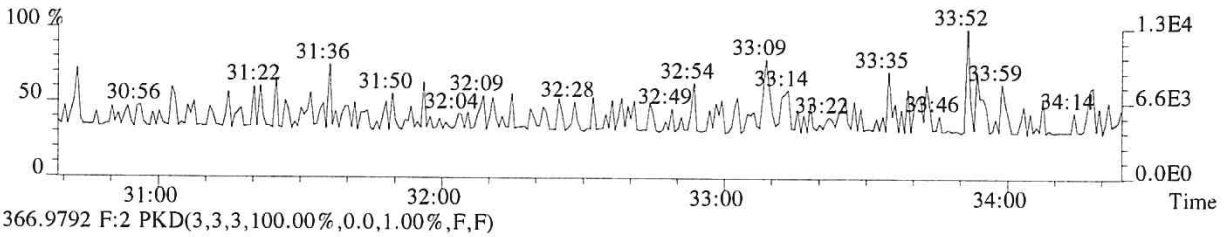
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



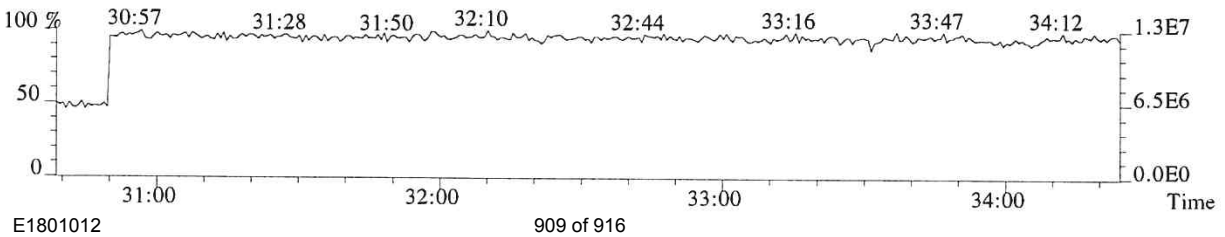
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

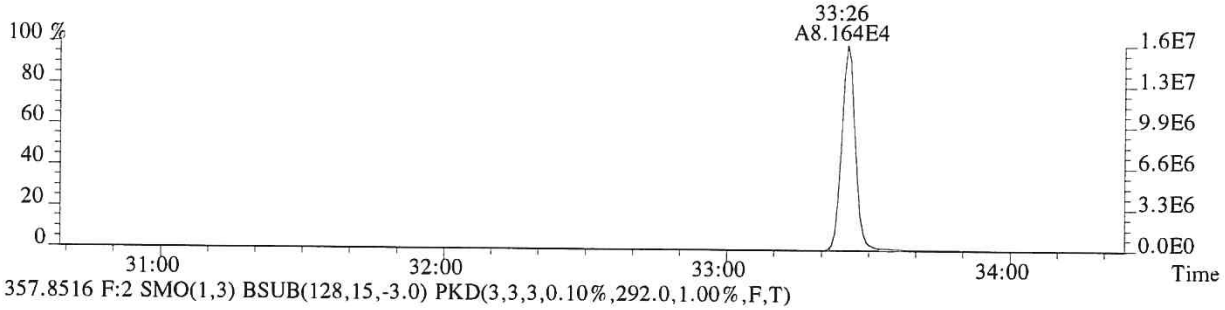


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

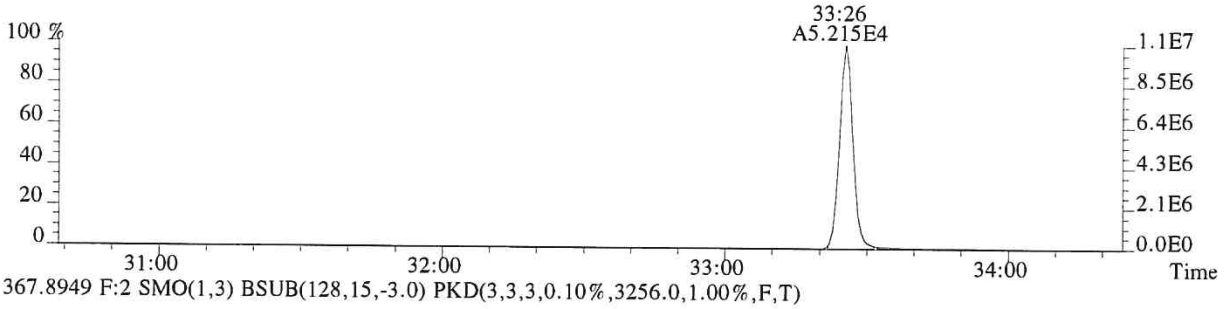


009500

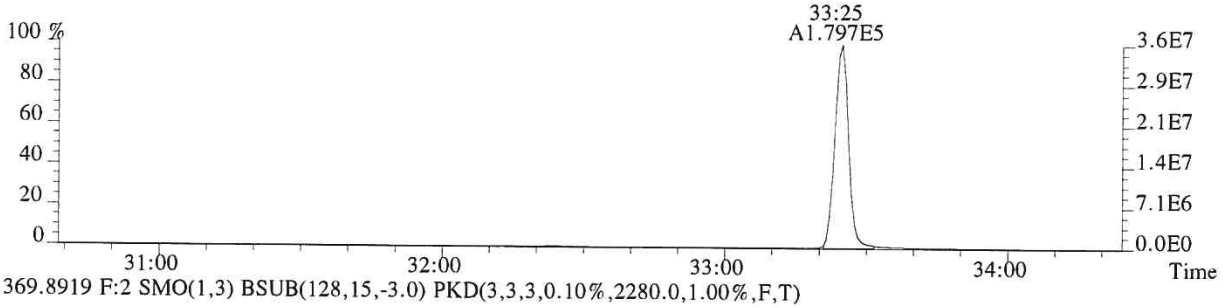
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



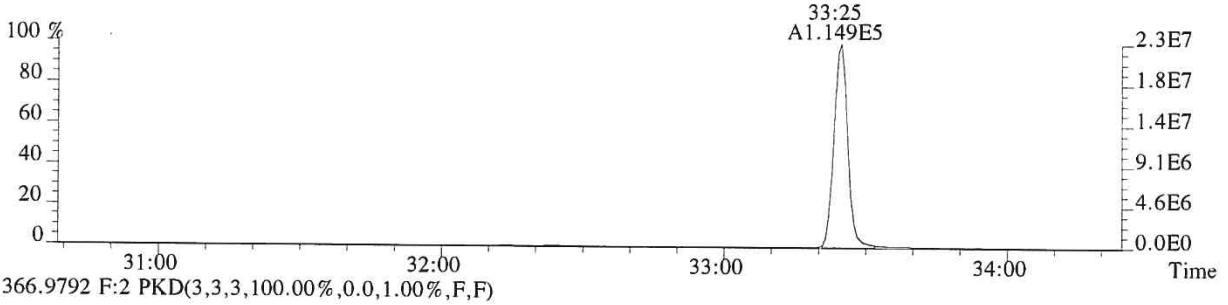
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



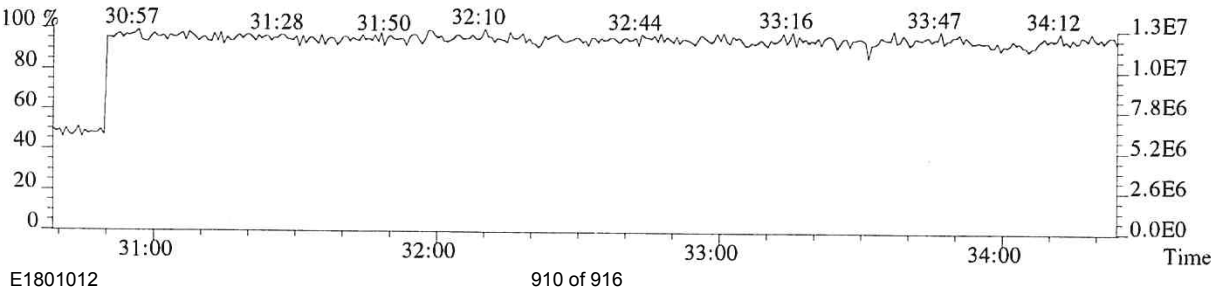
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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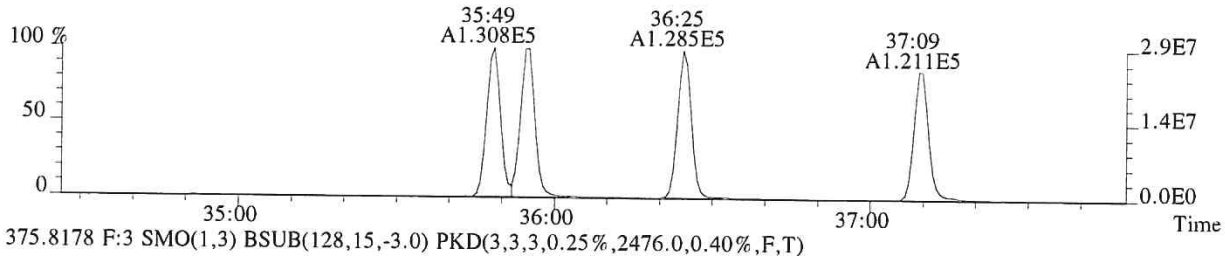
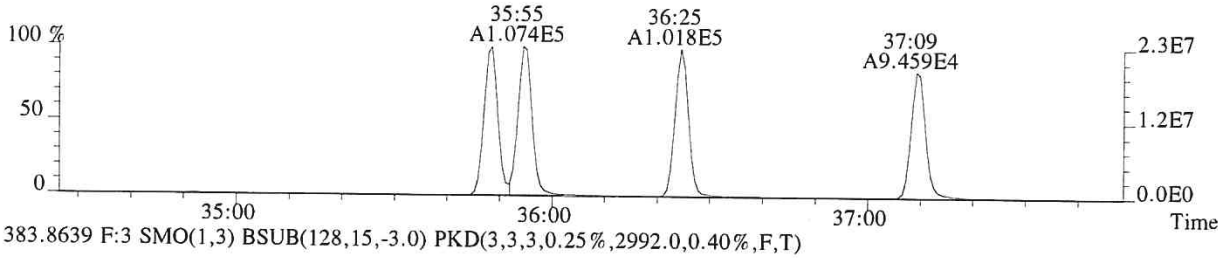
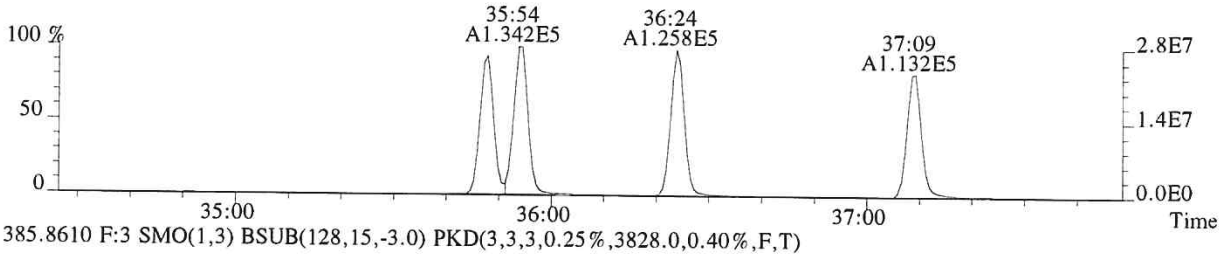
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



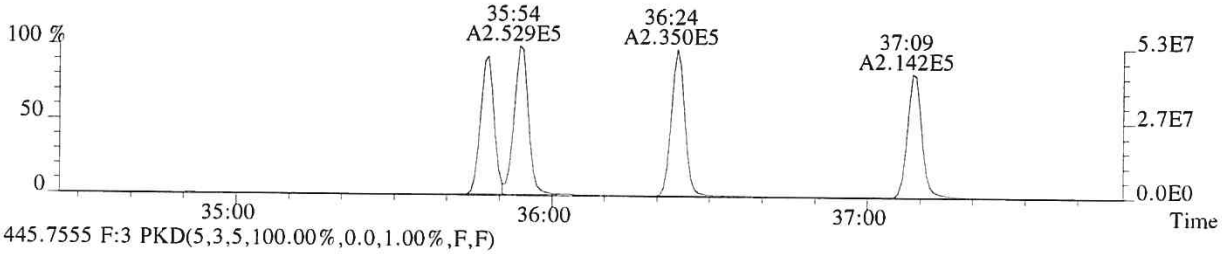
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



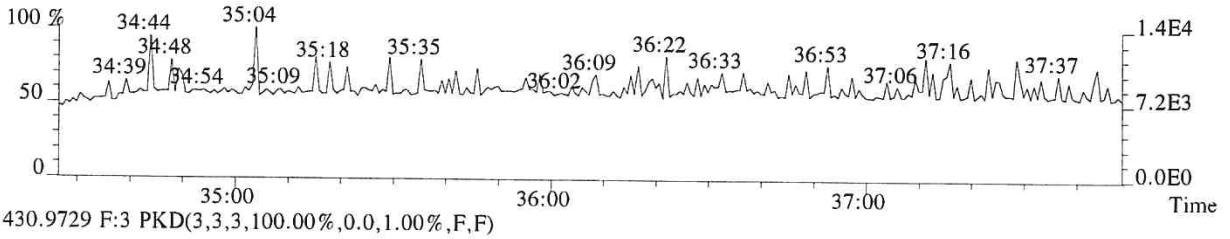
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



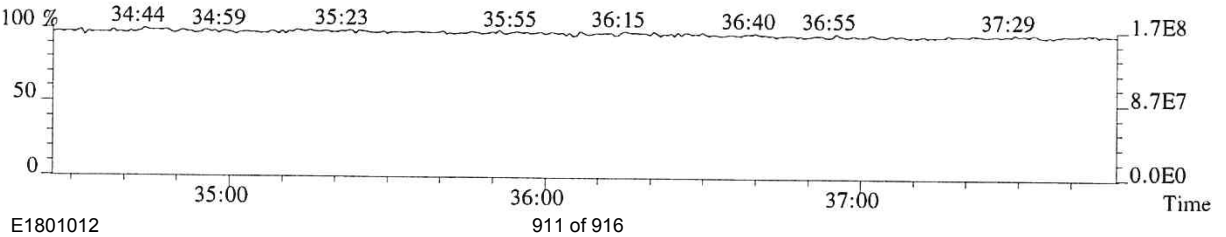
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3828.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

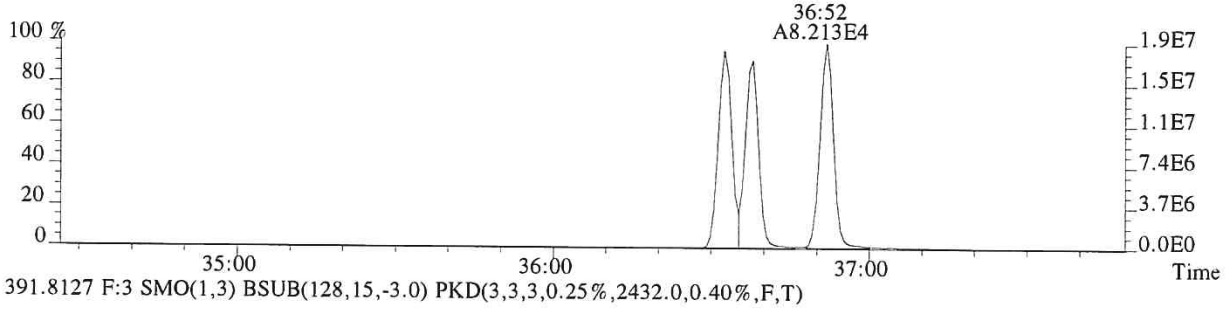


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

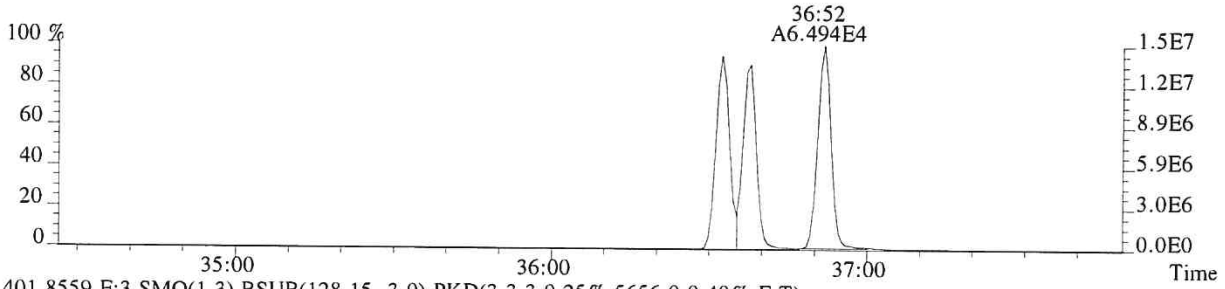


009502

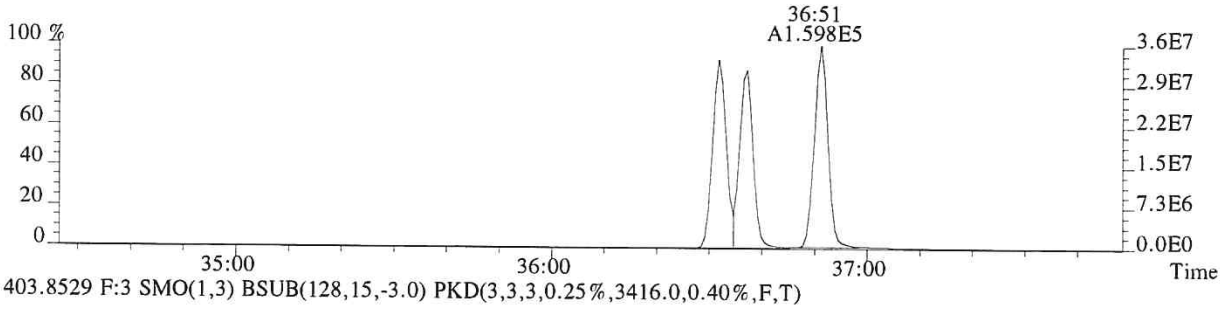
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



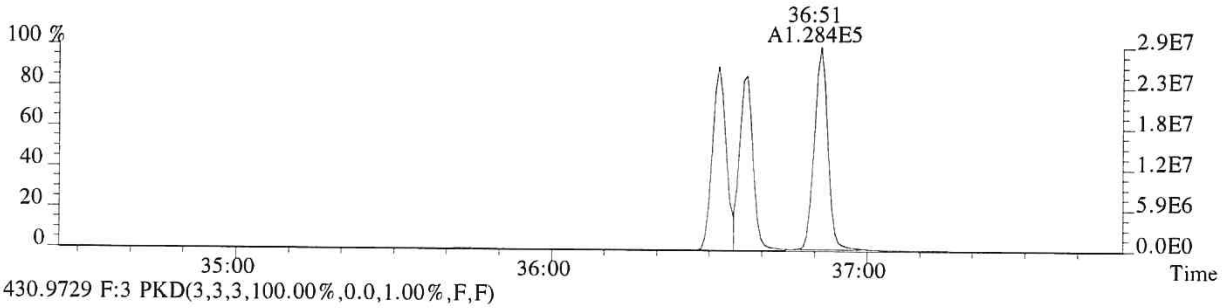
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



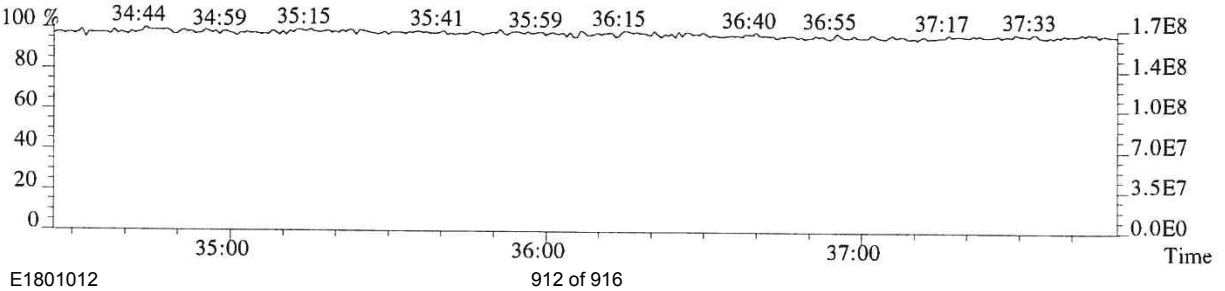
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.40%,F,T)



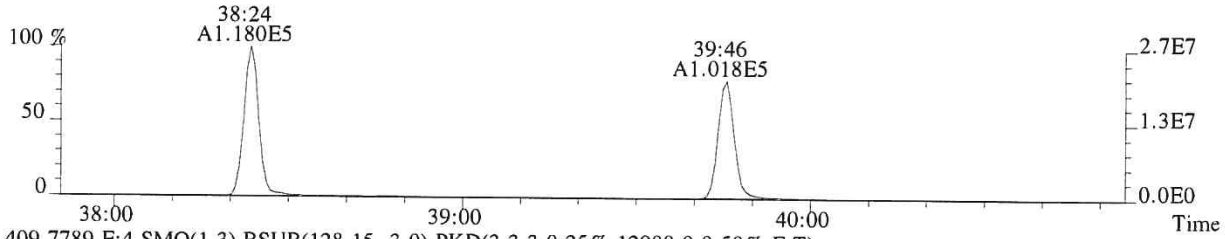
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3416.0,0.40%,F,T)



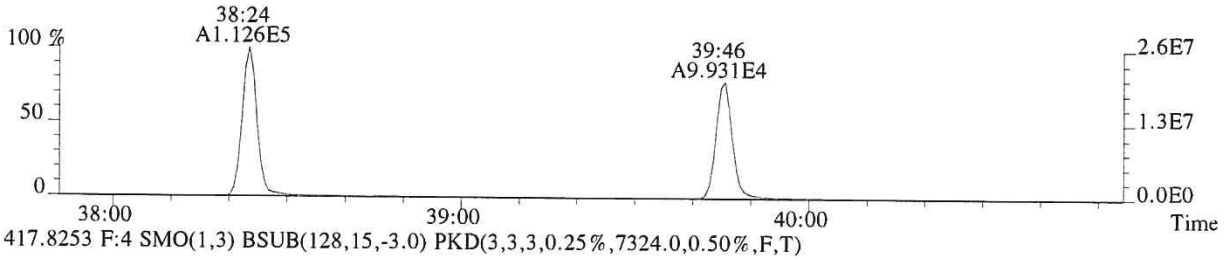
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



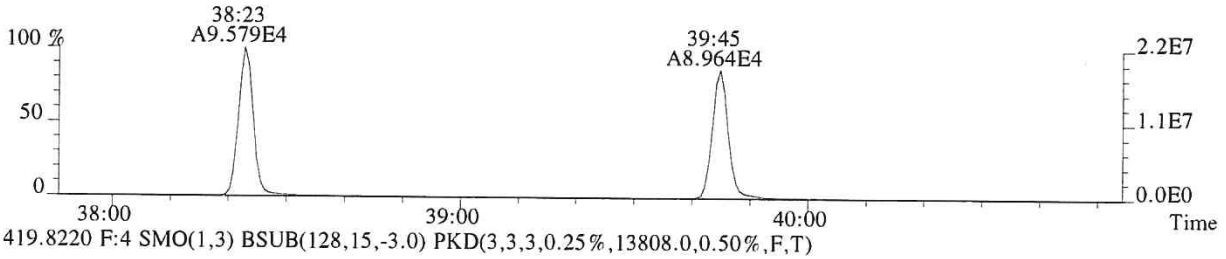
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



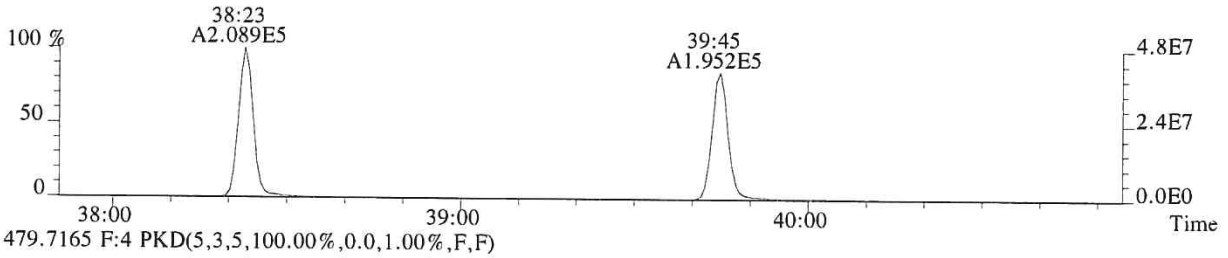
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12908.0,0.50%,F,T)



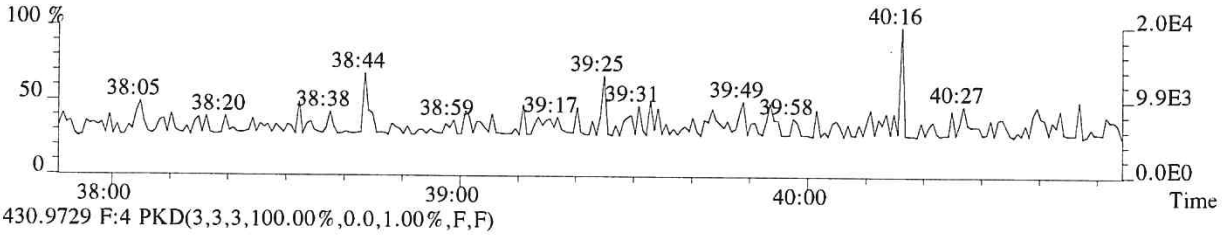
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7324.0,0.50%,F,T)



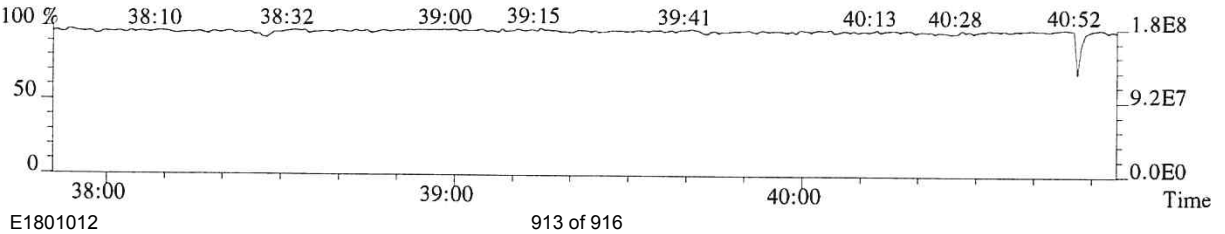
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13808.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

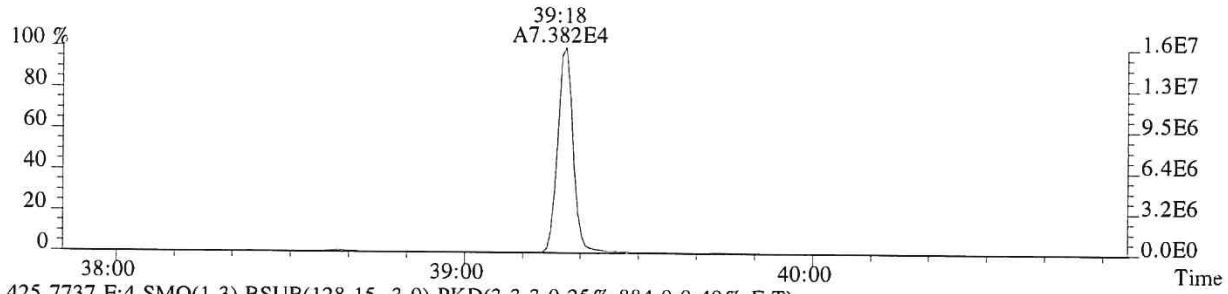


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

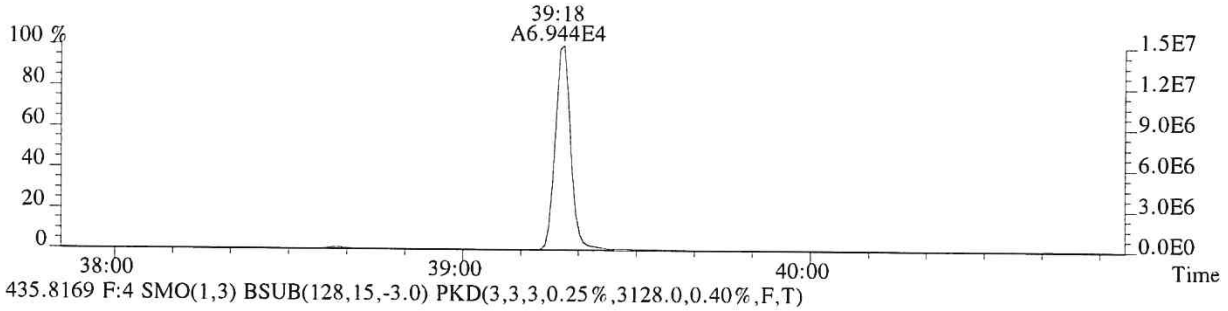


009504

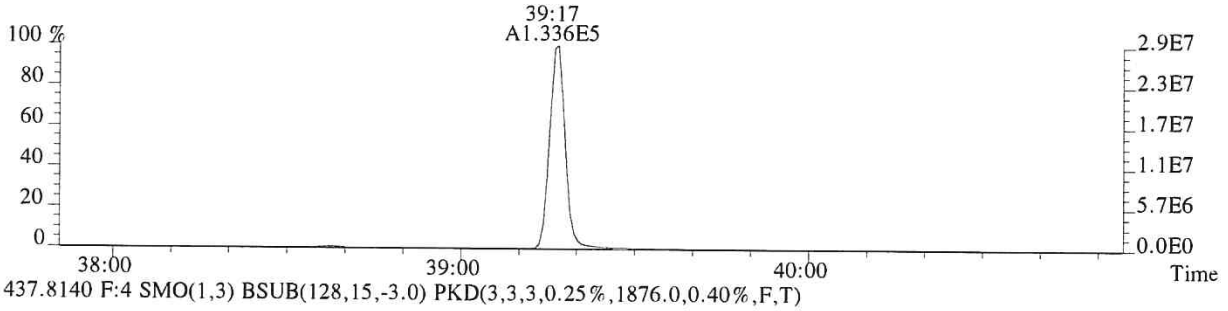
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



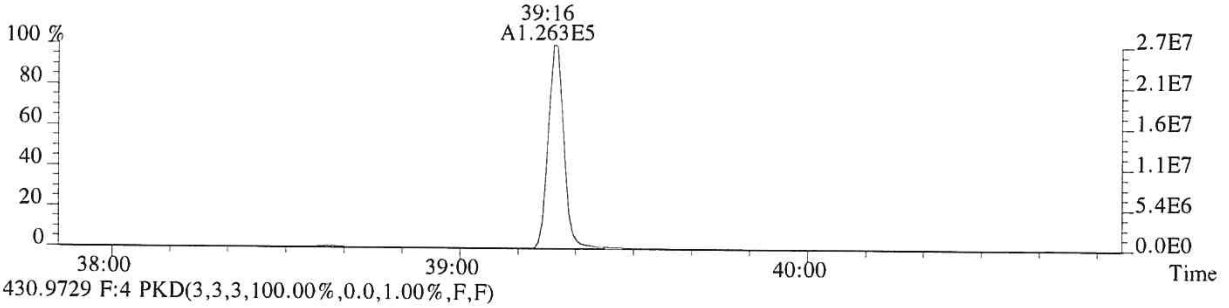
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



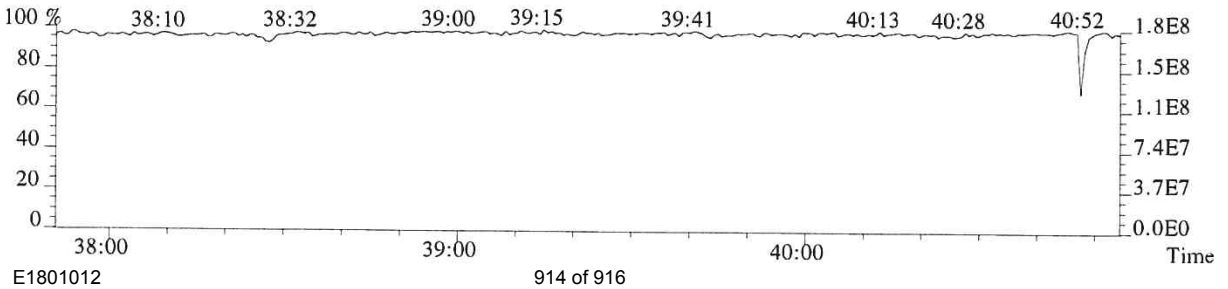
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)

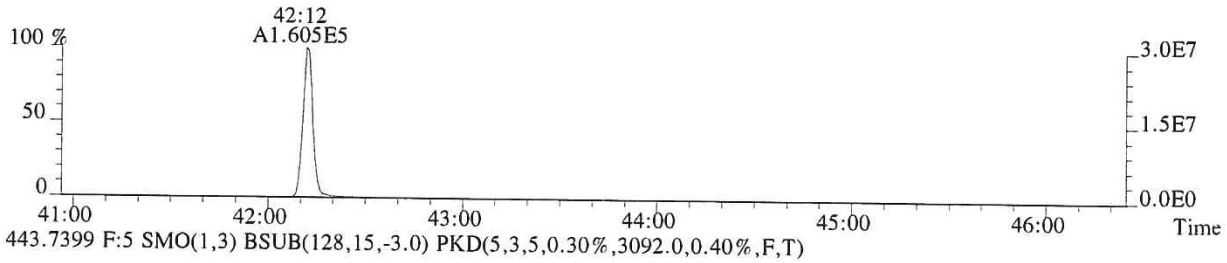


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

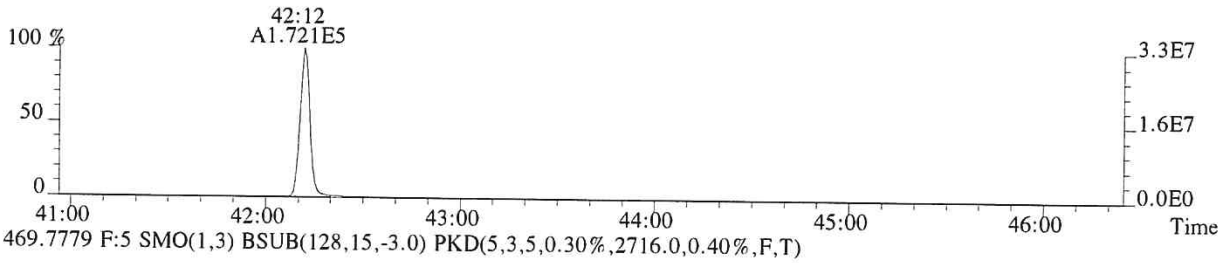


009505

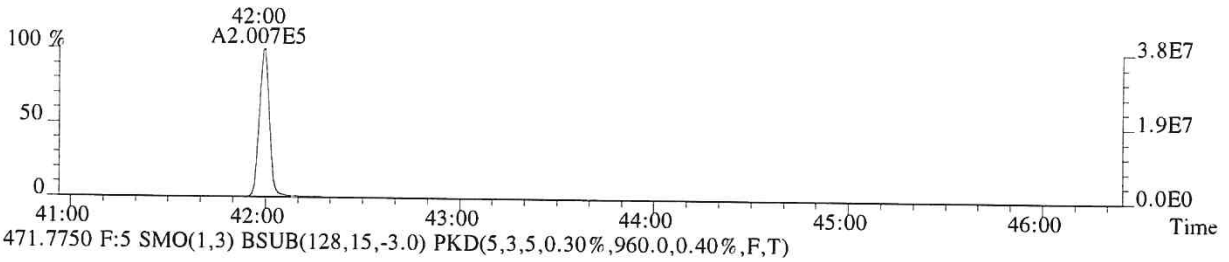
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



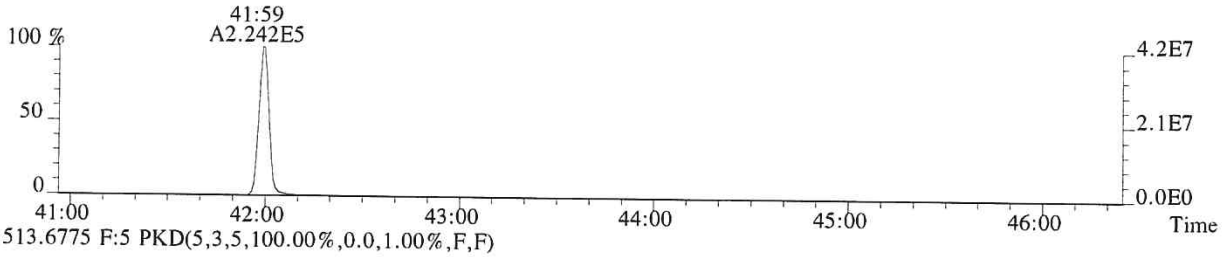
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



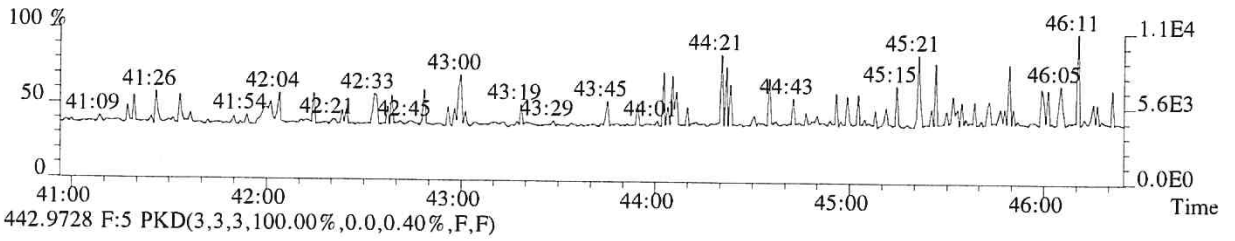
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



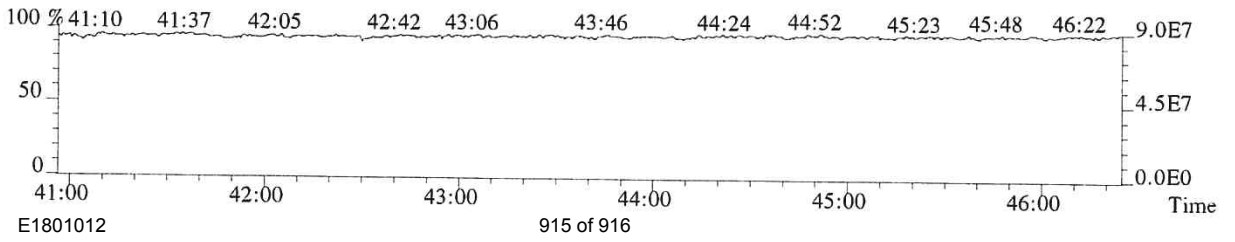
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

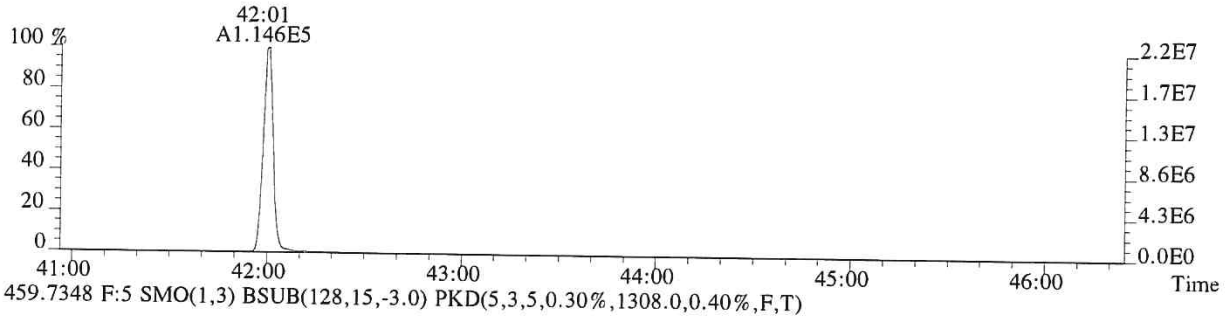


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

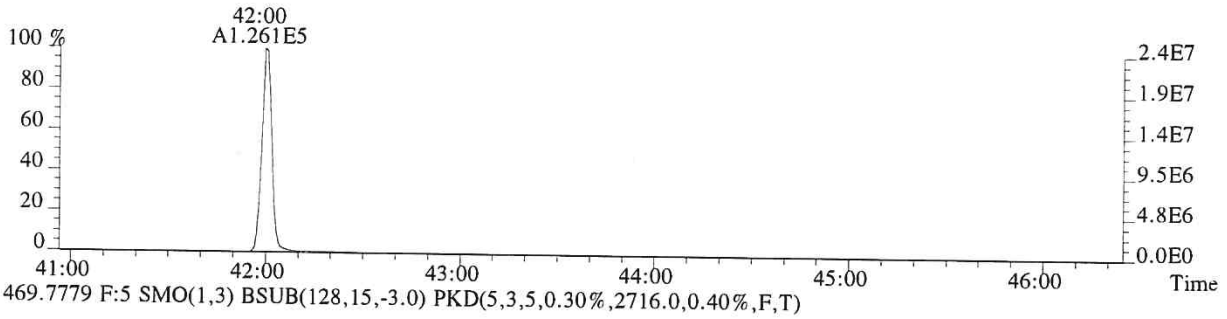


009506

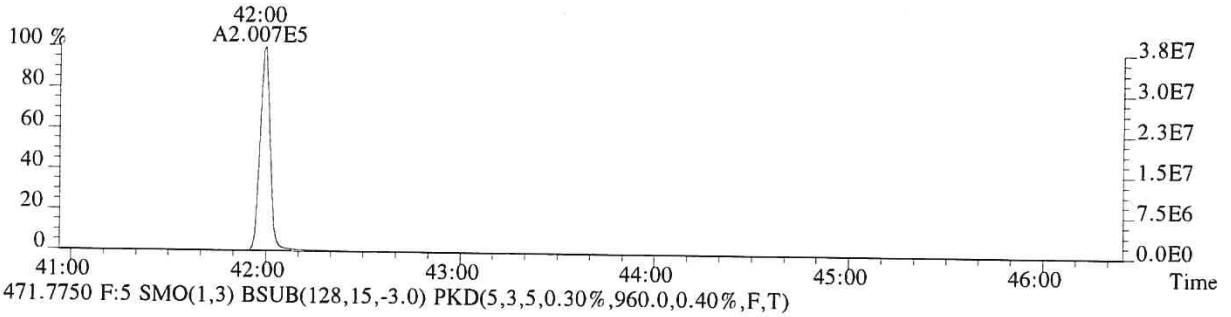
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



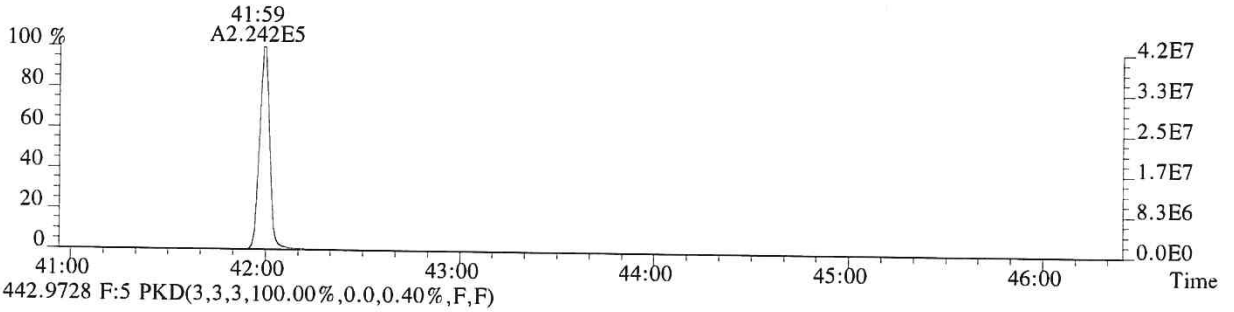
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



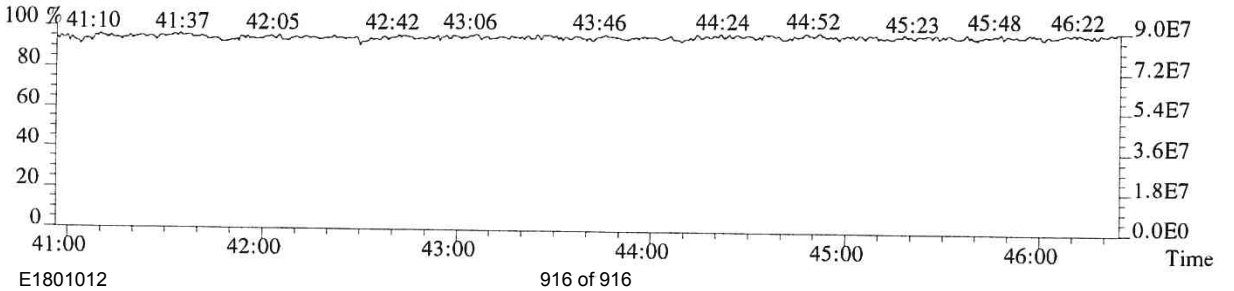
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009507

November 30, 2018 Service Request No:E1801020

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for: C1887-0501

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 05, 2018
For your reference, these analyses have been assigned our service request number **E1801020.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

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PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Integral Consulting	**Service Request No.:**	E1801020
Project:	C1887-0501	**Date Received:**	11/05/18
Sample Matrix:	Sediment/Wipe		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Fifty-four samples were received for analysis at ALS Environmental in Houston on 11/05/18.

The samples were received at -.1 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blanks EQ1800463-01 and EQ1800467-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

MS/MSD

EQ1800463 and EQ1800467: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

Y flags – Labeled Standards

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the

noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

Dilutions

The sample had elevated levels of target analytes and required a dilution. The undiluted and diluted results were combined into one Total TEQ summary report for each sample. This reports a 'Total' result that includes the most appropriate concentration found for the associated target analyte.

When OCDD and/or OCDF exceed the upper method calibration limit (MCL), we use 'E' flag on the Sample Analytical Report results page when the detector is not saturated. Sample(s) are reported with an 'E' flag to denote that they had concentration greater than the high calibration point.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801020-001	SL0040	11/4/2018	1430
E1801020-002	SL0041	11/4/2018	1435
E1801020-003	SL0042	11/4/2018	1440
E1801020-004	SL0043	11/4/2018	1445
E1801020-005	SL0044	11/4/2018	1450
E1801020-006	SL0045	11/4/2018	1455
E1801020-007	SL0047	11/4/2018	1520
E1801020-008	SL0048	11/4/2018	1525
E1801020-009	SL0049	11/4/2018	1530
E1801020-010	SL0050	11/4/2018	1535
E1801020-011	SL0051	11/4/2018	1540
E1801020-012	SL0052	11/4/2018	1545
E1801020-013	SL0017	11/3/2018	1515
E1801020-014	SL0018	11/3/2018	1520
E1801020-015	SL0019	11/3/2018	1525
E1801020-016	SL0020	11/3/2018	1530
E1801020-017	SL0021	11/3/2018	1535
E1801020-018	SL0022	11/3/2018	1540
E1801020-019	SL0023	11/3/2018	1640
E1801020-020	SL0024	11/3/2018	1645
E1801020-021	SL0025	11/3/2018	1650
E1801020-022	SL0026	11/3/2018	1700
E1801020-023	SL0027	11/3/2018	1710
E1801020-024	SL0012	11/3/2018	1400
E1801020-025	SL0013	11/3/2018	1405
E1801020-026	SL0014	11/3/2018	1411
E1801020-027	SL0015	11/3/2018	1417
E1801020-028	SL0016	11/3/2018	1424
E1801020-029	SL0006	11/3/2018	1120
E1801020-030	SL0007	11/3/2018	1125
E1801020-031	SL0008	11/3/2018	1130
E1801020-032	SL0009	11/3/2018	1135
E1801020-033	SL0010	11/3/2018	1140
E1801020-034	SL0011	11/3/2018	1145
E1801020-035	SL0001	11/3/2018	0915
E1801020-036	SL0002	11/3/2018	0920
E1801020-037	SL0003	11/3/2018	0925
E1801020-038	SL0004	11/3/2018	0930
E1801020-039	SL0005	11/3/2018	0940
E1801020-040	SL0028	11/4/2018	1120
E1801020-041	SL0029	11/4/2018	1125
E1801020-042	SL0030	11/4/2018	1130

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801020-043	SL0031	11/4/2018	1135
E1801020-044	SL0032	11/4/2018	1140
E1801020-045	SL0033	11/4/2018	1145
E1801020-046	SL0035	11/4/2018	1310
E1801020-047	SL0036	11/4/2018	1315
E1801020-048	SL0037	11/4/2018	1320
E1801020-049	SL0038	11/4/2018	1325
E1801020-050	SL0039	11/4/2018	1330
E1801020-051	SL0034	11/4/2018	1150
E1801020-052	SL0046	11/4/2018	1500
E1801020-053	FW0001	11/3/2018	1740
E1801020-054	FB0001	11/3/2018	1720

Service Request Summary

Folder #: **E1801020**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: JGUIN
Date Received: 11/05/18
Internal Due Date: 11/26/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

54 -N/A N/A
57 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
11 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: SMO, EHRMS-WIC 2B, E-Disposed

Pressure Gas:

				HOUSTON		Houston Full Service
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP	Misc Out 1/None
E1801020-006	SL0045	Sediment	11/04/18 1455	**IV**	**IV**	
E1801020-012	SL0052	Sediment	11/04/18 1545	**IV**	**IV**	
E1801020-018	SL0022	Sediment	11/03/18 1540	**IV**	**IV**	**IV**
E1801020-034	SL0011	Sediment	11/03/18 1145	**IV**	**IV**	
E1801020-045	SL0033	Sediment	11/04/18 1145	**IV**	**IV**	
E1801020-051	SL0034	Sediment	11/04/18 1150	**IV**	**IV**	
E1801020-052	SL0046	Sediment	11/04/18 1500	**IV**	**IV**	
E1801020-053	FW0001	Wipe	11/03/18 1740	**IV**		
E1801020-054	FB0001	Wipe	11/03/18 1720	**IV**		

Service Request Summary

Folder #: **E1801020**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: JGUIN
Date Received: 11/05/18
Internal Due Date: 11/26/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

54 -N/A N/A
57 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
11 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: SMO, EHRMS-WIC 2B, E-Disposed

Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
SubLab	Misc Out 1/None	1	TX1005 TPH

Superset Summary

Service Request: E1801020 **SuperSet Reference:** 18-0000488840 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P518848	P518837	P518927	E1801020-006
P518849	P518837	P518927	E1801020-012
P518975	P518965	P518927	E1801020-018
P518869	P518865	P518927	E1801020-018.R01
P518976	P518965	P518927	E1801020-034
P518870	P518865	P518927	E1801020-034.R01
P518977	P518965	P518927	E1801020-045
P518871	P518865	P518927	E1801020-045.R01
P518978	P518965	P518927	E1801020-051
P518872	P518865	P518927	E1801020-051.R01
P518873	P518865	P518927	E1801020-052
P518927	P518924	P518927	EQ1800463-01
P518850	P518837	P518927	EQ1800463-02
P518851	P518837	P518927	EQ1800463-03

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P615721	P615714	P615718	E1801020-053
P615722	P615714	P615718	E1801020-054
P615718	P615714	P615718	EQ1800467-01
P615727	P615714	P615718	EQ1800467-02
P615728	P615714	P615718	EQ1800467-03

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E180102O

DB-5MSUI (circled) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/20/18	JC	006, 012

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/21/18	LG	006, ~~007~~ 012

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801020 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/21/18	JC	018, 034, 045, 051, 052

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/21/18	LG	018, 034, 045, 051, 052

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801020 | DB-5MSUI (SPB-Octyl)

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/26/18	LKL	018DL, 034DL, 045DL, 051DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/26/18	LG	018DL, 034DL, 045DL, 051DL

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801020 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/28/18	LKL	053, 054

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/28/18	LG	053, 054

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CHAIN OF CUSTODY FORM

Project: C1887 - 0501

Samplers: Stephen Sherman, Stefan Wodzicki, Sarah Kissel

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to:
Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0040	0564	11/4/18	1430	Soil										X	
SL0041	0565		1435											X	
SL0042	0566		1440											X	
SL0043	0567		1445											X	
SL0044	0568		1450											X	
SL0045	0551		1455		X										
SL0047	0187		1520											X	
SL0048	0188		1525											X	
SL0049	0189		1530											X	
SL0050	0190		1535											X	
SL0051	0191		1540											X	
SL0052	0192		1545		X										
SL0017	0157	11/3/18	1515											X	
SL0018	0158		1520											X	
SL0019	0159		1525											X	
SL0020	0160		1530											X	
SL0021	0161		1535											X	
SL0022	0162		1540		X	X	X	X	X	X		X			0175,0176,0177,0178,0179,0180, 0181
SL0023	0182		1640											X	
SL0024	0193		1645											X	

ANALYSES REQUESTED

E1801020 5
Integral Consulting, Inc.
San Jacinto Waste Pits

Analysis Turn Time: Normal Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code:
GW - Groundwater
SL - Soil SW - Surface water
SD -Sediment Other:

Relinquished by: (signature) **Date/Time:** 11/5/18 0916 **Received by:** (signature) **Date/Time:** 11/5/18 0916

Relinquished by: (signature) **Date/Time:** 11-5-18 2220 **Received by:** (signature) **Date/Time:**

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

009524

CHAIN OF CUSTODY FORM

Project: C1887 - 0501

Samplers: Stephen Sherman, Stefan Wodzicki, Sarah Kissel

integral consulting inc.

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0025	0184	11/3/18	1650	Soil										X	
SL0026	0185		1700											X	
SL0027	0186		1710											X	
SL0012	0151		1400											X	
SL0013	0152		1405											X	
SL0014	0153		1411											X	
SL0015	0154		1417											X	
SL0016	0155		1424											X	
SL0006	0169		1120											X	
SL0007	0170		1125											X	
SL0008	0171		1130											X	
SL0009	0172		1135											X	
SL0010	0173		1140											X	
SL0011	0168		1145		X										
SL0001	0163		0915											X	
SL0002	0164		0920											X	
SL0003	0165		0925											X	
SL0004	0166		0930											X	
SL0005	0167		0940											X	
SL0028	0553	11/4/18	1120											X	

ANALYSES REQUESTED

Analysis Turn Time: Normal Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code: GW - Groundwater; SL - Soil; SW - Surface water; SD -Sediment; Other:

Relinquished by: (signature) **Date/Time:** 11/5/18 916 **Received by:** (signature) **Date/Time:** 11/5/18 0916

Relinquished by: (signature) **Date/Time:** 11/5/18 1720 **Received by:** (signature) **Date/Time:**

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

CHAIN OF CUSTODY FORM

Project: C1887 - 0501

Samplers: Stephen Sherman, Stefan Wodzicki, Sarah Kissel

integral consulting inc.

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0029	0554	11/4/18	1125	Soil										X	
SL0030	0555		1130											X	
SL0031	0556		1135											X	
SL0032	0557		1140											X	
SL0033	0552		1145		X										
SL0035	0558		1310											X	
SL0036	0559		1315											X	
SL0037	0560		1320											X	
SL0038	0561		1325											X	
SL0039	0562		1330											X	
SL0034	0370	↓	1150	↓	X										
SL0046	0378		1500		X										
FW0001	0450	11/3/18	1740	Paper	X	X	X		X	X	X				0451, 0452, 0453, 0454, 0455, 0456, 0457
FB0001	0530	↓	1720	↓	X	X	X		X	X	X				0531, 0532, 0533, 0534, 0535, 0536, 0537

SS 11/4/18

Analysis Turn Time: Normal | Rush | **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Relinquished by: _____ (signature) **Date/Time:** 11/6/18 0916 **Received by:** _____ (signature) **Date/Time:** 11-5-18 0916

Relinquished by: _____ (signature) **Date/Time:** 11/5/18 1700 **Received by:** _____ (signature) **Date/Time:** _____

Matrix Code:
GW - Groundwater
SL - Soil
SW - Surface water
SD -Sediment
Other:

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

009526

Cooler Receipt Form

ALS Environmental

Project Chemist _____

Client/Project Integral / C1887-0501 Thermometer ID SM04

Date/Time Received: _____ Initials: JG Date/Time Logged in: 11/8/18 8AM Initials JG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ○ Courier ✓ Client

2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other _____

3. Were custody seals on coolers? ○ Yes ✓ No
   Were they intact? ○ Yes ○ No ✓ N/A
   Were they signed and dated? ○ Yes ○ No ✓ N/A
   If yes, how many and where?

4. Packing Material: ○ Inserts ○ Baggies ✓ Bubble Wrap ○ Gel Packs ○ Wet Ice ○ Sleeves ○ Other _____

5. Foreign or Regulated Soil? ○ Yes ✓ No Location of Sampling: _____

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
		11/8/18	8AM	JG	-.1 / -1.4	☐
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

We do not know what time or exact day client dropped this off.
JG
11/8/18

Confirmed with driver that pick up date and time was 11/05/18 @ 12:20pm KN 11/9/18

Service request Label:

E1801020 5
Integral Consulting, Inc.
San Jacinto Waste Pits

009527

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 326161 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/12/18 08:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801012-006	SL0058	.01	1613B/Dioxins Furans			Sediment	10.363g	Brown Mud + Rocks
2	E1801012-012	SL0064	.01	1613B/Dioxins Furans			Sediment	10.208g	Brown Mud + Rocks
3	E1801012-018	SL0071	.01	1613B/Dioxins Furans			Sediment	10.315g	Brown Mud + Rocks
4	E1801012-019	SL0065	.01	1613B/Dioxins Furans			Sediment	10.800g	Brown Mud + Rocks
5	E1801018-001	SL0500	.01	1613B/Dioxins Furans			Sediment	10.420g	Brown Mud
6	E1801018-002	SL0501	.01	1613B/Dioxins Furans			Sediment	10.800g	Brown Mud
7	E1801018-003	SL0502	.01	1613B/Dioxins Furans			Sediment	10.933g	Thick Brown Mud
8	E1801018-004	SL0503	.01	1613B/Dioxins Furans			Sediment	10.422g	Thick Brown Mud
9	E1801018-005	SL0504	.01	1613B/Dioxins Furans			Sediment	10.407g	Thick Brown Mud
10	E1801018-006	SL0505	.01	1613B/Dioxins Furans			Sediment	10.475g	Thick Brown Mud
11	E1801018-007	SL0506	.01	1613B/Dioxins Furans			Sediment	10.401g	Thick Brown Mud
12	E1801018-008	SL0507	.01	1613B/Dioxins Furans			Sediment	10.518g	Thick Brown Mud
13	E1801018-009	SL0508	.01	1613B/Dioxins Furans			Sediment	10.525g	Thick Brown Mud
14	E1801020-006	SL0045	.02	1613B/Dioxins Furans			Sediment	10.956g	Thick Brown Mud
15	E1801020-012	SL0052	.02	1613B/Dioxins Furans			Sediment	10.596g	Thick Brown Mud
16	E1801020-018	SL0022	.02	1613B/Dioxins Furans			Sediment	10.125g	Thick Brown Mud + Rocks
17	E1801020-034	SL0011	.02	1613B/Dioxins Furans			Sediment	10.180g	Black Mud + Grass
18	E1801020-045	SL0033	.02	1613B/Dioxins Furans			Sediment	10.447g	Thick Brown Mud + Rocks
19	E1801020-051	SL0034	.02	1613B/Dioxins Furans			Sediment	10.086g	Thick Brown Mud + Rocks
20	E1801020-052	SL0046	.02	1613B/Dioxins Furans			Sediment	10.797g	Thick Brown Mud + Rocks
21	EQ1800463-01	MB		1613B/Dioxins Furans			Solid	10.041g	
22	EQ1800463-02	LCS		1613B/Dioxins Furans			Solid	10.233g	
23	EQ1800463-03	DLCS		1613B/Dioxins Furans			Solid	10.229g	

Spiking Solutions

Name: 8290/1613B Cleanup Working Standard Inventory ID 194514 Logbook Ref: 194514 tw 10/29/18 8ng/ml Expires On: 04/27/2019

E1801012-006	100.00µL	E1801012-006.R	100.00µL	E1801012-012	100.00µL	E1801012-012.R	100.00µL	E1801012-018	100.00µL	E1801012-018.R	100.00µL
E1801012-019	100.00µL	E1801012-019.R	100.00µL	E1801018-001	100.00µL	E1801018-002	100.00µL	E1801018-003	100.00µL	E1801018-004	100.00µL
E1801018-005	100.00µL	E1801018-006	100.00µL	E1801018-007	100.00µL	E1801018-008	100.00µL	E1801018-009	100.00µL	E1801020-006	100.00µL
E1801020-012	100.00µL	E1801020-018	100.00µL	E1801020-034	100.00µL	E1801020-045	100.00µL	E1801020-051	100.00µL	E1801020-052	100.00µL
EQ1800463-01	100.00µL	EQ1800463-02	100.00µL	EQ1800463-03	100.00µL						

Name: 1613B Matrix Working Standard Inventory ID 194569 Logbook Ref: 194569 AL 10/31/18 2-20 ng/mL Expires On: 04/29/2019

EQ1800463-02	100.00µL	EQ1800463-03	100.00µL

Preparation Information Benchsheet

Prep Run#: 326161 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/12/18 08:00 AM

Name:	1613B Labeled Working Standard	Inventory ID	194840	Logbook Ref:	194839 JG 11/12/18 2-4ngml	Expires On:	01/31/2019

E1801012-006	1,000.00µL	E1801012-006.R	1,000.00µL	E1801012-012	1,000.00µL	E1801012-012.R	1,000.00µL
E1801012-018	1,000.00µL	E1801012-018.R	1,000.00µL	E1801012-019	1,000.00µL	E1801012-019.R	1,000.00µL
E1801018-001	1,000.00µL	E1801018-002	1,000.00µL	E1801018-003	1,000.00µL	E1801018-004	1,000.00µL
E1801018-005	1,000.00µL	E1801018-006	1,000.00µL	E1801018-007	1,000.00µL	E1801018-008	1,000.00µL
E1801018-009	1,000.00µL	E1801020-006	1,000.00µL	E1801020-012	1,000.00µL	E1801020-018	1,000.00µL
E1801020-034	1,000.00µL	E1801020-045	1,000.00µL	E1801020-051	1,000.00µL	E1801020-052	1,000.00µL
EQ1800463-01	1,000.00µL	EQ1800463-02	1,000.00µL	EQ1800463-03	1,000.00µL		

Preparation Materials

Carbon, High Purity	TW 11/09/18 CARBON (194871)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	AL 8/20/18 (192604)
Hexanes 95%	JG 10/25/18 (194470)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL 9/5/18 (192924)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	tw 10/31/18 toluene (194570)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/12/18 08:00	Started:	11/14/18 10:00	Started:	11/14/18 13:00	Started:	11/15/18 12:00
Finished:	11/13/18 07:30	Finished:	11/14/18 11:00	Finished:	11/14/18 16:00	Finished:	11/15/18 15:00
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

Prep Run#: 326300 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 11/14/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801012-021	FW0002	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
2	E1801012-022	FW0003	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
3	E1801020-053	FW0001	.03	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
4	E1801020-054	FB0001	.02	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
5	E1801036-001	183384-D/F Wipe of Lab Report	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
6	E1801036-002	183391-D/F Wipe of Green Binder Papers	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
7	E1801036-003	183392-D/F Wipe of History Brook	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
8	E1801038-023	FW0050	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
9	E1801039-039	FW0005	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
10	E1801039-040	FW0006	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
11	E1801039-041	FW0004	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
12	EQ1800467-01	MB		1613B/Dioxins Furans			Wipes	0.5000Sample	
13	EQ1800467-02	LCS		1613B/Dioxins Furans			Wipes	0.5000Sample	
14	EQ1800467-03	DLCS		1613B/Dioxins Furans			Wipes	0.5000Sample	

Spiking Solutions

Name: 1613B Labeled Working Standard Inventory ID 194889 Logbook Ref: 194889 AL 11/13/18 2-4 ng/mL Expires On: 01/31/2019

E1801039-040 1,000.00µL E1801039-041 1,000.00µL

Name: 1613B Labeled Working Standard Inventory ID 194903 Logbook Ref: 194903 JG 11/14/18 2-4ngml Expires On: 01/31/2019

E1801012-021 1,000.00µL E1801012-022 1,000.00µL E1801020-053 1,000.00µL E1801020-054 1,000.00µL E1801036-001 1,000.00µL E1801036-002 1,000.00µL
E1801036-003 1,000.00µL E1801038-023 1,000.00µL E1801039-039 1,000.00µL E1801039-040 1,000.00µL E1801039-041 1,000.00µL EQ1800467-01 1,000.00µL
EQ1800467-02 1,000.00µL EQ1800467-03 1,000.00µL

Name: 1613B Matrix Working Standard Inventory ID 194946 Logbook Ref: 194946 AL 11/14/18 2-20 ng/mL Expires On: 05/13/2019

EQ1800467-02 100.00µL EQ1800467-03 100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195006 Logbook Ref: tw 11/1/18 8ng/ml 195006 Expires On: 04/27/2019

E1801012-021 100.00µL E1801012-022 100.00µL E1801020-053 100.00µL E1801020-054 100.00µL E1801036-001 100.00µL E1801036-002 100.00µL
E1801036-003 100.00µL E1801038-023 100.00µL E1801039-039 100.00µL E1801039-040 100.00µL E1801039-041 100.00µL EQ1800467-01 100.00µL
EQ1800467-02 100.00µL EQ1800467-03 100.00µL

Preparation Information Benchsheet

Prep Run#: 326300 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 11/14/18 11:00 AM

Preparation Materials

Carbon, High Purity	TW 11/09/18 CARBON (194871)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Chloride Reagent Grade NaCl	AL 8/20/18 (192602)
Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)
Silica Gel	AL 10/11/18 (194005)	sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	10/31/18 tw toluene (194571)

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/14/18 11:00	Started:	11/20/18 11:00	Started:	11/21/18 13:30	Started:	11/26/18 13:00
Finished:	11/15/18 07:30	Finished:	11/20/18 12:00	Finished:	11/21/18 16:30	Finished:	11/26/18 14:45
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

ALS Environmental - Houston HRMS
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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 14:55
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0045	**Units:**	ng/Kg
Lab Code:	E1801020-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 08:26
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.956g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518848	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	7.34		0.395	0.570	0.85	1.001	1
1,2,3,7,8-PeCDD	0.384	**JK**	0.112	2.85	1.03	1.001	1
1,2,3,4,7,8-HxCDD	0.840	**J**	0.170	2.85	1.41	1.000	1
1,2,3,6,7,8-HxCDD	3.89		0.185	2.85	1.21	1.000	1
1,2,3,7,8,9-HxCDD	2.00	**J**	0.173	2.85	1.34	1.007	1
1,2,3,4,6,7,8-HpCDD	135		0.0290	2.85	1.05	1.000	1
OCDD	4600	**E**	0.0603	5.70	0.90	1.000	1
2,3,7,8-TCDF	22.3		0.256	0.570	0.76	1.001	1
1,2,3,7,8-PeCDF	1.14	**J**	0.154	2.85	1.51	1.001	1
2,3,4,7,8-PeCDF	1.65	**J**	0.160	2.85	1.56	1.001	1
1,2,3,4,7,8-HxCDF	2.69	**J**	0.230	2.85	1.17	1.000	1
1,2,3,6,7,8-HxCDF	1.47	**J**	0.226	2.85	1.18	1.000	1
1,2,3,7,8,9-HxCDF	0.314	**BJ**	0.255	2.85	1.14	1.001	1
2,3,4,6,7,8-HxCDF	0.954	**J**	0.238	2.85	1.28	1.000	1
1,2,3,4,6,7,8-HpCDF	16.7		0.258	2.85	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	1.09	**JK**	0.301	2.85	1.38	1.000	1
OCDF	45.0		0.0892	5.70	0.85	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 14:55
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0045	**Units:**	ng/Kg
Lab Code:	E1801020-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 08:26
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.956g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518848	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	7.34		0.395	0.570	0.85		1
Total Penta-Dioxins	0.703	**J**	0.112	2.85	1.70		1
Total Hexa-Dioxins	56.9		0.176	2.85	1.30		1
Total Hepta-Dioxins	363		0.0290	2.85	1.07		1
Total Tetra-Furans	38.4		0.256	0.570	0.84		1
Total Penta-Furans	11.0		0.157	2.85	1.62		1
Total Hexa-Furans	23.5		0.237	2.85	1.39		1
Total Hepta-Furans	59.2		0.278	2.85	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 14:55
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0045	**Units:**	Percent
Lab Code:	E1801020-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 08:26
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.956g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518848	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1331.420	67		25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1589.511	79		25-181	1.58	1.235
13C-1,2,3,4,7,8-HxCDD	2000	1257.754	63		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1221.722	61		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1610.928	81		23-140	1.07	1.071
13C-OCDD	4000	2889.917	72		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1211.342	61		24-169	0.81	0.988
13C-1,2,3,7,8-PeCDF	2000	1520.259	76		24-185	1.57	1.183
13C-2,3,4,7,8-PeCDF	2000	1472.466	74		21-178	1.60	1.223
13C-1,2,3,4,7,8-HxCDF	2000	1046.860	52		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1162.695	58		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1272.636	64		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1152.089	58		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1193.941	60		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1383.540	69		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	626.093	78		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 14:55
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0045	**Units:**	ng/Kg
Lab Code:	E1801020-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**7.34**	0.395	0.570	1	1	7.34
1,2,3,7,8-PeCDD	**0.384**	0.112	2.85	1	1	0.384
1,2,3,4,7,8-HxCDD	**0.840**	0.170	2.85	1	0.1	0.0840
1,2,3,6,7,8-HxCDD	**3.89**	0.185	2.85	1	0.1	0.389
1,2,3,7,8,9-HxCDD	**2.00**	0.173	2.85	1	0.1	0.200
1,2,3,4,6,7,8-HpCDD	**135**	0.0290	2.85	1	0.01	1.35
OCDD	**4600**	0.0603	5.70	1	0.0003	1.38
2,3,7,8-TCDF	**22.3**	0.256	0.570	1	0.1	2.23
1,2,3,7,8-PeCDF	**1.14**	0.154	2.85	1	0.03	0.0342
2,3,4,7,8-PeCDF	**1.65**	0.160	2.85	1	0.3	0.495
1,2,3,4,7,8-HxCDF	**2.69**	0.230	2.85	1	0.1	0.269
1,2,3,6,7,8-HxCDF	**1.47**	0.226	2.85	1	0.1	0.147
1,2,3,7,8,9-HxCDF	**0.314**	0.255	2.85	1	0.1	0.0314
2,3,4,6,7,8-HxCDF	**0.954**	0.238	2.85	1	0.1	0.0954
1,2,3,4,6,7,8-HpCDF	**16.7**	0.258	2.85	1	0.01	0.167
1,2,3,4,7,8,9-HpCDF	**1.09**	0.301	2.85	1	0.01	0.0109
OCDF	**45.0**	0.0892	5.70	1	0.0003	0.0135
		Total TEQ				14.6

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 14:55
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0045	**Units:**	Percent
Lab Code:	E1801020-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	6.658g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.0		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 15:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0052	**Units:**	ng/Kg
Lab Code:	E1801020-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 09:15
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.596g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518849	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	9.90		0.661	0.661	0.80	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.220	2.94			1
1,2,3,4,7,8-HxCDD	ND	U	0.189	2.94			1
1,2,3,6,7,8-HxCDD	ND	U	0.204	2.94			1
1,2,3,7,8,9-HxCDD	0.411**BJK**		0.192	2.94	0.86	1.008	1
1,2,3,4,6,7,8-HpCDD	7.06		0.287	2.94	1.02	1.000	1
OCDD	212		0.119	5.88	0.90	1.000	1
2,3,7,8-TCDF	29.7		0.567	0.588	0.80	1.001	1
1,2,3,7,8-PeCDF	1.08**J**		0.163	2.94	1.57	1.001	1
2,3,4,7,8-PeCDF	0.651**JK**		0.150	2.94	1.02	1.001	1
1,2,3,4,7,8-HxCDF	1.63**J**		0.0590	2.94	1.21	1.000	1
1,2,3,6,7,8-HxCDF	0.515**J**		0.0552	2.94	1.07	1.000	1
1,2,3,7,8,9-HxCDF	0.145**BJ**		0.0661	2.94	1.38	1.001	1
2,3,4,6,7,8-HxCDF	0.0866**JK**		0.0577	2.94	2.06	1.000	1
1,2,3,4,6,7,8-HpCDF	1.06**J**		0.0389	2.94	1.08	1.000	1
1,2,3,4,7,8,9-HpCDF	0.177**BJ**		0.0441	2.94	1.00	1.001	1
OCDF	1.51**BJ**		0.158	5.88	0.93	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 15:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0052	**Units:**	ng/Kg
Lab Code:	E1801020-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 09:15
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.596g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518849	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	9.90		0.661	0.661	0.80		1
Total Penta-Dioxins	1.49**J**		0.220	2.94	1.75		1
Total Hexa-Dioxins	12.1		0.195	2.94	1.27		1
Total Hepta-Dioxins	28.7		0.287	2.94	1.09		1
Total Tetra-Furans	42.0		0.567	0.588	0.67		1
Total Penta-Furans	1.51**J**		0.157	2.94	1.39		1
Total Hexa-Furans	2.63**J**		0.0592	2.94	1.21		1
Total Hepta-Furans	1.24**J**		0.0412	2.94	1.08		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 15:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0052	**Units:**	Percent
Lab Code:	E1801020-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 09:15
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.596g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518849	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	601.793	30		25-164	0.79	1.028
13C-1,2,3,7,8-PeCDD	2000	1106.804	55		25-181	1.61	1.235
13C-1,2,3,4,7,8-HxCDD	2000	1028.373	51		32-141	1.31	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1081.165	54		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1430.756	72		23-140	1.07	1.071
13C-OCDD	4000	2275.809	57		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	487.378	24		24-169	0.77	0.988
13C-1,2,3,7,8-PeCDF	2000	963.451	48		24-185	1.56	1.183
13C-2,3,4,7,8-PeCDF	2000	1027.799	51		21-178	1.60	1.223
13C-1,2,3,4,7,8-HxCDF	2000	849.596	42		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	952.293	48		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1052.341	53		29-147	0.54	1.008
13C-2,3,4,6,7,8-HxCDF	2000	994.647	50		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1014.298	51		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1223.562	61		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	284.432	36		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 15:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0052	**Units:**	ng/Kg
Lab Code:	E1801020-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**9.90**	0.661	0.661	1	1	9.90
1,2,3,7,8-PeCDD	ND	0.220	2.94	1	1	
1,2,3,4,7,8-HxCDD	ND	0.189	2.94	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.204	2.94	1	0.1	
1,2,3,7,8,9-HxCDD	**0.411**	0.192	2.94	1	0.1	0.0411
1,2,3,4,6,7,8-HpCDD	**7.06**	0.287	2.94	1	0.01	0.0706
OCDD	**212**	0.119	5.88	1	0.0003	0.0636
2,3,7,8-TCDF	**29.7**	0.567	0.588	1	0.1	2.97
1,2,3,7,8-PeCDF	**1.08**	0.163	2.94	1	0.03	0.0324
2,3,4,7,8-PeCDF	**0.651**	0.150	2.94	1	0.3	0.195
1,2,3,4,7,8-HxCDF	**1.63**	0.0590	2.94	1	0.1	0.163
1,2,3,6,7,8-HxCDF	**0.515**	0.0552	2.94	1	0.1	0.0515
1,2,3,7,8,9-HxCDF	**0.145**	0.0661	2.94	1	0.1	0.0145
2,3,4,6,7,8-HxCDF	**0.0866**	0.0577	2.94	1	0.1	0.00866
1,2,3,4,6,7,8-HpCDF	**1.06**	0.0389	2.94	1	0.01	0.0106
1,2,3,4,7,8,9-HpCDF	**0.177**	0.0441	2.94	1	0.01	0.00177
OCDF	**1.51**	0.158	5.88	1	0.0003	0.000453
		Total TEQ				13.5

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 15:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0052	**Units:**	Percent
Lab Code:	E1801020-012	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	5.176g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.2		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 15:40
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0022	**Units:**	ng/Kg
Lab Code:	E1801020-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 19:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.125g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518975	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3380		21.2	33.4	0.77	1.001	50
1,2,3,7,8-PeCDD	24.6		0.355	3.34	1.43	1.000	1
1,2,3,4,7,8-HxCDD	1.99	**J**	0.280	3.34	1.30	1.000	1
1,2,3,6,7,8-HxCDD	11.6		0.317	3.34	1.20	1.001	1
1,2,3,7,8,9-HxCDD	5.55		0.292	3.34	1.07	1.008	1
1,2,3,4,6,7,8-HpCDD	391		0.763	3.34	1.04	1.000	1
OCDD	7700		5.74	334	0.90	1.000	50
2,3,7,8-TCDF	11100		10.5	33.4	0.76	1.001	50
1,2,3,7,8-PeCDF	222		1.88	3.34	1.53	1.000	1
2,3,4,7,8-PeCDF	196		1.95	3.34	1.55	1.001	1
1,2,3,4,7,8-HxCDF	409		0.727	3.34	1.22	1.000	1
1,2,3,6,7,8-HxCDF	105	**P**	0.713	3.34	1.22	1.000	1
1,2,3,7,8,9-HxCDF	29.0		0.804	3.34	1.18	1.001	1
2,3,4,6,7,8-HxCDF	21.0		0.758	3.34	1.13	1.000	1
1,2,3,4,6,7,8-HpCDF	166		0.598	3.34	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	42.9		0.682	3.34	0.97	1.000	1
OCDF	699		0.108	6.68	0.87	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 15:40
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0022	**Units:**	ng/Kg
Lab Code:	E1801020-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 19:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.125g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518975	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2680		0.375	0.668	0.76		1
Total Penta-Dioxins	35.6		0.355	3.34	1.76		1
Total Hexa-Dioxins	124		0.296	3.34	1.27		1
Total Hepta-Dioxins	958		0.763	3.34	1.05		1
Total Tetra-Furans	12700		0.331	0.668	0.77		1
Total Penta-Furans	586		1.92	3.34	1.77		1
Total Hexa-Furans	662		0.750	3.34	1.16		1
Total Hepta-Furans	365		0.637	3.34	0.99		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 15:40
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0022	**Units:**	Percent
Lab Code:	E1801020-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 04:21
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.125g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518869	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1252.312	63		25-164	0.79	1.027
13C-1,2,3,7,8-PeCDD	2000	1486.329	74		25-181	1.57	1.235
13C-1,2,3,4,7,8-HxCDD	2000	1165.304	58		32-141	1.31	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1182.002	59		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1492.095	75		23-140	1.04	1.071
13C-OCDD	4000	2560.277	64		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	1151.517	58		24-169	0.78	0.988
13C-1,2,3,7,8-PeCDF	2000	1389.487	69		24-185	1.61	1.183
13C-2,3,4,7,8-PeCDF	2000	1368.355	68		21-178	1.61	1.222
13C-1,2,3,4,7,8-HxCDF	2000	1023.505	51		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1067.233	53		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1238.819	62		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1075.031	54		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1110.142	56		28-143	0.46	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1299.896	65		26-138	0.42	1.083
37Cl-2,3,7,8-TCDD	800	638.637	80		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 15:40
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0022	**Units:**	ng/Kg
Lab Code:	E1801020-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**3380**	21.2	33.4	50	1	3380
1,2,3,7,8-PeCDD	**24.6**	0.355	3.34	1	1	24.6
1,2,3,4,7,8-HxCDD	**1.99**	0.280	3.34	1	0.1	0.199
1,2,3,6,7,8-HxCDD	**11.6**	0.317	3.34	1	0.1	1.16
1,2,3,7,8,9-HxCDD	**5.55**	0.292	3.34	1	0.1	0.555
1,2,3,4,6,7,8-HpCDD	**391**	0.763	3.34	1	0.01	3.91
OCDD	**7700**	5.74	334	50	0.0003	2.31
2,3,7,8-TCDF	**11100**	10.5	33.4	50	0.1	1110
1,2,3,7,8-PeCDF	**222**	1.88	3.34	1	0.03	6.66
2,3,4,7,8-PeCDF	**196**	1.95	3.34	1	0.3	58.8
1,2,3,4,7,8-HxCDF	**409**	0.727	3.34	1	0.1	40.9
1,2,3,6,7,8-HxCDF	**105**	0.713	3.34	1	0.1	10.5
1,2,3,7,8,9-HxCDF	**29.0**	0.804	3.34	1	0.1	2.90
2,3,4,6,7,8-HxCDF	**21.0**	0.758	3.34	1	0.1	2.10
1,2,3,4,6,7,8-HpCDF	**166**	0.598	3.34	1	0.01	1.66
1,2,3,4,7,8,9-HpCDF	**42.9**	0.682	3.34	1	0.01	0.429
OCDF	**699**	0.108	6.68	1	0.0003	0.210
		Total TEQ				4650

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 15:40
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0022	**Units:**	Percent
Lab Code:	E1801020-018	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	5.966g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	73.9		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0011	**Units:**	ng/Kg
Lab Code:	E1801020-034	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 20:02
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.180g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518976	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3450		22.0	36.9	0.75	1.001	50
1,2,3,7,8-PeCDD	59.0		0.248	3.69	1.58	1.001	1
1,2,3,4,7,8-HxCDD	2.13	**J**	0.350	3.69	1.34	1.000	1
1,2,3,6,7,8-HxCDD	10.5		0.381	3.69	1.28	1.000	1
1,2,3,7,8,9-HxCDD	3.94	**K**	0.357	3.69	1.67	1.008	1
1,2,3,4,6,7,8-HpCDD	274		0.794	3.69	1.05	1.000	1
OCDD	4980		0.390	7.39	0.90	1.000	1
2,3,7,8-TCDF	11100		11.1	36.9	0.74	1.001	50
1,2,3,7,8-PeCDF	516		1.66	3.69	1.53	1.001	1
2,3,4,7,8-PeCDF	405		1.83	3.69	1.54	1.001	1
1,2,3,4,7,8-HxCDF	1150		0.838	3.69	1.22	1.000	1
1,2,3,6,7,8-HxCDF	284		0.813	3.69	1.23	1.000	1
1,2,3,7,8,9-HxCDF	71.4		0.735	3.69	1.20	1.000	1
2,3,4,6,7,8-HxCDF	44.2		0.840	3.69	1.17	1.000	1
1,2,3,4,6,7,8-HpCDF	410		1.52	3.69	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	136		1.88	3.69	1.02	1.000	1
OCDF	2640		0.217	7.39	0.88	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0011	**Units:**	ng/Kg
Lab Code:	E1801020-034	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 20:02
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.180g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518976	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	6650		0.463	0.739	0.80		1
Total Penta-Dioxins	78.1		0.248	3.69	1.61		1
Total Hexa-Dioxins	117		0.363	3.69	1.26		1
Total Hepta-Dioxins	727		0.794	3.69	1.02		1
Total Tetra-Furans	30800		0.383	0.739	0.74		1
Total Penta-Furans	1430		1.74	3.69	1.57		1
Total Hexa-Furans	1730		0.806	3.69	1.34		1
Total Hepta-Furans	795		1.68	3.69	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0011	**Units:**	Percent
Lab Code:	E1801020-034	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 05:10
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.180g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518870	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1240.159	62		25-164	0.78	1.026
13C-1,2,3,7,8-PeCDD	2000	1400.669	70		25-181	1.58	1.233
13C-1,2,3,4,7,8-HxCDD	2000	1088.892	54		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1081.180	54		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1173.948	59		23-140	1.06	1.071
13C-OCDD	4000	1446.414	36		17-157	0.89	1.142
13C-2,3,7,8-TCDF	2000	1150.085	58		24-169	0.80	0.988
13C-1,2,3,7,8-PeCDF	2000	1337.308	67		24-185	1.60	1.181
13C-2,3,4,7,8-PeCDF	2000	1304.776	65		21-178	1.57	1.221
13C-1,2,3,4,7,8-HxCDF	2000	953.626	48		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	954.520	48		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1162.981	58		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1006.865	50		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	906.219	45		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1024.464	51		26-138	0.44	1.082
37Cl-2,3,7,8-TCDD	800	686.898	86		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0011	**Units:**	ng/Kg
Lab Code:	E1801020-034	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**3450**	22.0	36.9	50	1	3450
1,2,3,7,8-PeCDD	**59.0**	0.248	3.69	1	1	59.0
1,2,3,4,7,8-HxCDD	**2.13**	0.350	3.69	1	0.1	0.213
1,2,3,6,7,8-HxCDD	**10.5**	0.381	3.69	1	0.1	1.05
1,2,3,7,8,9-HxCDD	**3.94**	0.357	3.69	1	0.1	0.394
1,2,3,4,6,7,8-HpCDD	**274**	0.794	3.69	1	0.01	2.74
OCDD	**4980**	0.390	7.39	1	0.0003	1.49
2,3,7,8-TCDF	**11100**	11.1	36.9	50	0.1	1110
1,2,3,7,8-PeCDF	**516**	1.66	3.69	1	0.03	15.5
2,3,4,7,8-PeCDF	**405**	1.83	3.69	1	0.3	122
1,2,3,4,7,8-HxCDF	**1150**	0.838	3.69	1	0.1	115
1,2,3,6,7,8-HxCDF	**284**	0.813	3.69	1	0.1	28.4
1,2,3,7,8,9-HxCDF	**71.4**	0.735	3.69	1	0.1	7.14
2,3,4,6,7,8-HxCDF	**44.2**	0.840	3.69	1	0.1	4.42
1,2,3,4,6,7,8-HpCDF	**410**	1.52	3.69	1	0.01	4.10
1,2,3,4,7,8,9-HpCDF	**136**	1.88	3.69	1	0.01	1.36
OCDF	**2640**	0.217	7.39	1	0.0003	0.792
		Total TEQ				4920

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0011	**Units:**	Percent
Lab Code:	E1801020-034	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	6.133g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	66.5		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0033	**Units:**	ng/Kg
Lab Code:	E1801020-045	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 20:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.447g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518977	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	6510		43.0	71.3	0.81	1.001	100
1,2,3,7,8-PeCDD	58.8		0.511	3.57	1.51	1.001	1
1,2,3,4,7,8-HxCDD	4.35		0.646	3.57	1.30	1.000	1
1,2,3,6,7,8-HxCDD	39.4		0.698	3.57	1.24	1.000	1
1,2,3,7,8,9-HxCDD	14.9		0.656	3.57	1.11	1.008	1
1,2,3,4,6,7,8-HpCDD	1420		1.68	3.57	1.04	1.000	1
OCDD	23600		24.3	713	0.89	1.000	100
2,3,7,8-TCDF	21000		23.6	71.3	0.73	1.001	100
1,2,3,7,8-PeCDF	498	**P**	1.62	3.57	1.54	1.001	1
2,3,4,7,8-PeCDF	416		1.79	3.57	1.52	1.001	1
1,2,3,4,7,8-HxCDF	1140		0.444	3.57	1.23	1.000	1
1,2,3,6,7,8-HxCDF	271		0.435	3.57	1.26	1.000	1
1,2,3,7,8,9-HxCDF	72.8		0.463	3.57	1.18	1.001	1
2,3,4,6,7,8-HxCDF	46.4		0.462	3.57	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	451		1.17	3.57	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	150		1.62	3.57	1.01	1.000	1
OCDF	1850		0.572	7.13	0.86	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0033	**Units:**	ng/Kg
Lab Code:	E1801020-045	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 20:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.447g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518977	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	6200		0.436	0.713	0.78		1
Total Penta-Dioxins	107		0.511	3.57	1.52		1
Total Hexa-Dioxins	416		0.667	3.57	1.25		1
Total Hepta-Dioxins	2760		1.68	3.57	1.03		1
Total Tetra-Furans	29800		0.299	0.713	0.74		1
Total Penta-Furans	1260		1.70	3.57	1.52		1
Total Hexa-Furans	1740		0.450	3.57	1.24		1
Total Hepta-Furans	863		1.37	3.57	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0033	**Units:**	Percent
Lab Code:	E1801020-045	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 05:58
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.447g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518871	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1280.197	64		25-164	0.79	1.027
13C-1,2,3,7,8-PeCDD	2000	1322.724	66		25-181	1.59	1.231
13C-1,2,3,4,7,8-HxCDD	2000	1124.203	56		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1102.669	55		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1006.945	50		23-140	1.07	1.071
13C-OCDD	4000	1108.031	28		17-157	0.87	1.142
13C-2,3,7,8-TCDF	2000	1154.339	58		24-169	0.80	0.988
13C-1,2,3,7,8-PeCDF	2000	1280.346	64		24-185	1.58	1.181
13C-2,3,4,7,8-PeCDF	2000	1218.701	61		21-178	1.59	1.220
13C-1,2,3,4,7,8-HxCDF	2000	1027.813	51		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1033.430	52		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1079.410	54		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1063.087	53		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	827.285	41		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	846.353	42		26-138	0.45	1.082
37Cl-2,3,7,8-TCDD	800	697.464	87		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0033	**Units:**	ng/Kg
Lab Code:	E1801020-045	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**6510**	43.0	71.3	100	1	6510
1,2,3,7,8-PeCDD	**58.8**	0.511	3.57	1	1	58.8
1,2,3,4,7,8-HxCDD	**4.35**	0.646	3.57	1	0.1	0.435
1,2,3,6,7,8-HxCDD	**39.4**	0.698	3.57	1	0.1	3.94
1,2,3,7,8,9-HxCDD	**14.9**	0.656	3.57	1	0.1	1.49
1,2,3,4,6,7,8-HpCDD	**1420**	1.68	3.57	1	0.01	14.2
OCDD	**23600**	24.3	713	100	0.0003	7.08
2,3,7,8-TCDF	**21000**	23.6	71.3	100	0.1	2100
1,2,3,7,8-PeCDF	**498**	1.62	3.57	1	0.03	14.9
2,3,4,7,8-PeCDF	**416**	1.79	3.57	1	0.3	125
1,2,3,4,7,8-HxCDF	**1140**	0.444	3.57	1	0.1	114
1,2,3,6,7,8-HxCDF	**271**	0.435	3.57	1	0.1	27.1
1,2,3,7,8,9-HxCDF	**72.8**	0.463	3.57	1	0.1	7.28
2,3,4,6,7,8-HxCDF	**46.4**	0.462	3.57	1	0.1	4.64
1,2,3,4,6,7,8-HpCDF	**451**	1.17	3.57	1	0.01	4.51
1,2,3,4,7,8,9-HpCDF	**150**	1.62	3.57	1	0.01	1.50
OCDF	**1850**	0.572	7.13	1	0.0003	0.555
		Total TEQ				9000

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0033	**Units:**	Percent
Lab Code:	E1801020-045	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	5.269g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	67.1		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 11:50
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0034	**Units:**	ng/Kg
Lab Code:	E1801020-051	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 21:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.086g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518978	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	5800		22.1	36.3	0.82	1.001	50
1,2,3,7,8-PeCDD	46.5		0.421	3.63	1.53	1.001	1
1,2,3,4,7,8-HxCDD	2.21	**JK**	0.367	3.63	0.91	1.000	1
1,2,3,6,7,8-HxCDD	22.5		0.392	3.63	1.28	1.000	1
1,2,3,7,8,9-HxCDD	9.06		0.371	3.63	1.32	1.007	1
1,2,3,4,6,7,8-HpCDD	922		0.963	3.63	1.03	1.000	1
OCDD	19600		15.0	363	0.89	1.000	50
2,3,7,8-TCDF	17500		11.5	36.3	0.76	1.001	50
1,2,3,7,8-PeCDF	495		0.832	3.63	1.57	1.001	1
2,3,4,7,8-PeCDF	346		0.898	3.63	1.53	1.001	1
1,2,3,4,7,8-HxCDF	1330		0.876	3.63	1.22	1.000	1
1,2,3,6,7,8-HxCDF	314		0.822	3.63	1.16	1.000	1
1,2,3,7,8,9-HxCDF	80.7		1.07	3.63	1.22	1.001	1
2,3,4,6,7,8-HxCDF	50.1		0.910	3.63	1.12	1.000	1
1,2,3,4,6,7,8-HpCDF	406		1.13	3.63	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	165		1.60	3.63	0.95	1.000	1
OCDF	1470		0.275	7.26	0.88	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 11:50
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0034	**Units:**	ng/Kg
Lab Code:	E1801020-051	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 21:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.086g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518978	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518965

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	4910		0.364	0.726	0.71		1
Total Penta-Dioxins	72.7		0.421	3.63	1.47		1
Total Hexa-Dioxins	233		0.377	3.63	1.24		1
Total Hepta-Dioxins	1790		0.963	3.63	1.05		1
Total Tetra-Furans	22700		0.737	0.737	0.75		1
Total Penta-Furans	1280		0.864	3.63	1.56		1
Total Hexa-Furans	1940		0.912	3.63	1.19		1
Total Hepta-Furans	778		1.34	3.63	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 11:50
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0034	**Units:**	Percent
Lab Code:	E1801020-051	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 06:47
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.086g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518872	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1141.886	57		25-164	0.79	1.027
13C-1,2,3,7,8-PeCDD	2000	1195.691	60		25-181	1.55	1.234
13C-1,2,3,4,7,8-HxCDD	2000	1016.007	51		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	969.486	48		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	936.767	47		23-140	1.07	1.071
13C-OCDD	4000	1016.796	25		17-157	0.92	1.143
13C-2,3,7,8-TCDF	2000	1053.900	53		24-169	0.79	0.988
13C-1,2,3,7,8-PeCDF	2000	1175.891	59		24-185	1.57	1.182
13C-2,3,4,7,8-PeCDF	2000	1117.347	56		21-178	1.61	1.222
13C-1,2,3,4,7,8-HxCDF	2000	934.427	47		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	949.824	47		26-123	0.53	0.971
13C-1,2,3,7,8,9-HxCDF	2000	980.090	49		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	947.080	47		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	783.699	39		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	773.241	39		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	607.961	76		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 11:50
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0034	**Units:**	ng/Kg
Lab Code:	E1801020-051	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**5800**	22.1	36.3	50	1	5800
1,2,3,7,8-PeCDD	**46.5**	0.421	3.63	1	1	46.5
1,2,3,4,7,8-HxCDD	**2.21**	0.367	3.63	1	0.1	0.221
1,2,3,6,7,8-HxCDD	**22.5**	0.392	3.63	1	0.1	2.25
1,2,3,7,8,9-HxCDD	**9.06**	0.371	3.63	1	0.1	0.906
1,2,3,4,6,7,8-HpCDD	**922**	0.963	3.63	1	0.01	9.22
OCDD	**19600**	15.0	363	50	0.0003	5.88
2,3,7,8-TCDF	**17500**	11.5	36.3	50	0.1	1750
1,2,3,7,8-PeCDF	**495**	0.832	3.63	1	0.03	14.9
2,3,4,7,8-PeCDF	**346**	0.898	3.63	1	0.3	104
1,2,3,4,7,8-HxCDF	**1330**	0.876	3.63	1	0.1	133
1,2,3,6,7,8-HxCDF	**314**	0.822	3.63	1	0.1	31.4
1,2,3,7,8,9-HxCDF	**80.7**	1.07	3.63	1	0.1	8.07
2,3,4,6,7,8-HxCDF	**50.1**	0.910	3.63	1	0.1	5.01
1,2,3,4,6,7,8-HpCDF	**406**	1.13	3.63	1	0.01	4.06
1,2,3,4,7,8,9-HpCDF	**165**	1.60	3.63	1	0.01	1.65
OCDF	**1470**	0.275	7.26	1	0.0003	0.441
		Total TEQ				7920

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 11:50
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0034	**Units:**	Percent
Lab Code:	E1801020-051	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	7.246g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	68.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 15:00
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0046	**Units:**	ng/Kg
Lab Code:	E1801020-052	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 07:36
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.797g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518873	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	8.69		0.282	0.588	0.84	1.001	1
1,2,3,7,8-PeCDD	0.690**JK**		0.108	2.94	1.11	1.001	1
1,2,3,4,7,8-HxCDD	0.968**J**		0.234	2.94	1.32	1.000	1
1,2,3,6,7,8-HxCDD	4.41		0.260	2.94	1.24	1.000	1
1,2,3,7,8,9-HxCDD	2.30**J**		0.242	2.94	1.37	1.008	1
1,2,3,4,6,7,8-HpCDD	146		0.784	2.94	1.01	1.000	1
OCDD	4870**E**		0.207	5.88	0.90	1.000	1
2,3,7,8-TCDF	26.7		0.266	0.588	0.81	1.001	1
1,2,3,7,8-PeCDF	1.21**JK**		0.243	2.94	1.18	1.001	1
2,3,4,7,8-PeCDF	1.85**J**		0.254	2.94	1.67	1.000	1
1,2,3,4,7,8-HxCDF	3.26		0.343	2.94	1.38	1.000	1
1,2,3,6,7,8-HxCDF	1.50**JK**		0.312	2.94	1.58	1.000	1
1,2,3,7,8,9-HxCDF	0.567**BJ**		0.403	2.94	1.28	1.001	1
2,3,4,6,7,8-HxCDF	1.24**JK**		0.356	2.94	1.59	1.000	1
1,2,3,4,6,7,8-HpCDF	19.6		0.257	2.94	0.97	1.000	1
1,2,3,4,7,8,9-HpCDF	1.51**J**		0.352	2.94	1.19	1.000	1
OCDF	51.8		0.154	5.88	0.88	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 15:00
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0046	**Units:**	ng/Kg
Lab Code:	E1801020-052	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 07:36
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.797g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518873	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	12.6		0.282	0.588	0.82		1
Total Penta-Dioxins	4.21		0.108	2.94	1.60		1
Total Hexa-Dioxins	62.5		0.245	2.94	1.26		1
Total Hepta-Dioxins	402		0.784	2.94	1.04		1
Total Tetra-Furans	40.7		0.266	0.588	0.74		1
Total Penta-Furans	10.5		0.248	2.94	1.60		1
Total Hexa-Furans	24.8		0.351	2.94	1.22		1
Total Hepta-Furans	67.9		0.299	2.94	0.97		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 15:00
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0046	**Units:**	Percent
Lab Code:	E1801020-052	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 07:36
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.797g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518873	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1152.037	58		25-164	0.79	1.028
13C-1,2,3,7,8-PeCDD	2000	1541.991	77		25-181	1.58	1.235
13C-1,2,3,4,7,8-HxCDD	2000	1277.537	64		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1267.623	63		28-130	1.30	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1328.266	66		23-140	1.07	1.071
13C-OCDD	4000	1619.899	40		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	992.303	50		24-169	0.78	0.988
13C-1,2,3,7,8-PeCDF	2000	1388.913	69		24-185	1.60	1.183
13C-2,3,4,7,8-PeCDF	2000	1383.853	69		21-178	1.62	1.223
13C-1,2,3,4,7,8-HxCDF	2000	1158.147	58		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1252.046	63		26-123	0.53	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1280.487	64		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1208.247	60		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1063.304	53		28-143	0.46	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1090.048	55		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	526.587	66		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 15:00
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0046	**Units:**	ng/Kg
Lab Code:	E1801020-052	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**8.69**	0.282	0.588	1	1	8.69
1,2,3,7,8-PeCDD	**0.690**	0.108	2.94	1	1	0.690
1,2,3,4,7,8-HxCDD	**0.968**	0.234	2.94	1	0.1	0.0968
1,2,3,6,7,8-HxCDD	**4.41**	0.260	2.94	1	0.1	0.441
1,2,3,7,8,9-HxCDD	**2.30**	0.242	2.94	1	0.1	0.230
1,2,3,4,6,7,8-HpCDD	**146**	0.784	2.94	1	0.01	1.46
OCDD	**4870**	0.207	5.88	1	0.0003	1.46
2,3,7,8-TCDF	**26.7**	0.266	0.588	1	0.1	2.67
1,2,3,7,8-PeCDF	**1.21**	0.243	2.94	1	0.03	0.0363
2,3,4,7,8-PeCDF	**1.85**	0.254	2.94	1	0.3	0.555
1,2,3,4,7,8-HxCDF	**3.26**	0.343	2.94	1	0.1	0.326
1,2,3,6,7,8-HxCDF	**1.50**	0.312	2.94	1	0.1	0.150
1,2,3,7,8,9-HxCDF	**0.567**	0.403	2.94	1	0.1	0.0567
2,3,4,6,7,8-HxCDF	**1.24**	0.356	2.94	1	0.1	0.124
1,2,3,4,6,7,8-HpCDF	**19.6**	0.257	2.94	1	0.01	0.196
1,2,3,4,7,8,9-HpCDF	**1.51**	0.352	2.94	1	0.01	0.0151
OCDF	**51.8**	0.154	5.88	1	0.0003	0.0155
		Total TEQ				17.2

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/04/18 15:00
Sample Matrix:	Sediment	**Date Received:**	11/05/18 12:20
Sample Name:	SL0046	**Units:**	Percent
Lab Code:	E1801020-052	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/21/18 15:43
	8.569g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	78.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 17:40
Sample Matrix:	Wipe	**Date Received:**	11/05/18 12:20
Sample Name:	FW0001	**Units:**	pg
Lab Code:	E1801020-053	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 15:59
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615721	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	4.31	10.0			1
1,2,3,7,8-PeCDD	ND	U	2.58	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.72	50.0			1
1,2,3,6,7,8-HxCDD	3.42**BJ**		1.92	50.0	1.28	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	1.69	50.0			1
1,2,3,4,6,7,8-HpCDD	1.56**BJK**		1.11	50.0	1.27	1.000	1
OCDD	10.5**BJK**		2.20	100	0.73	1.000	1
2,3,7,8-TCDF	ND	U	3.80	10.0			1
1,2,3,7,8-PeCDF	5.75**J**		2.30	50.0	1.39	1.001	1
2,3,4,7,8-PeCDF	5.04**J**		2.36	50.0	1.35	1.000	1
1,2,3,4,7,8-HxCDF	5.26**JK**		2.61	50.0	1.81	1.000	1
1,2,3,6,7,8-HxCDF	3.17**JK**		2.68	50.0	1.75	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	3.08	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	2.67	50.0			1
1,2,3,4,6,7,8-HpCDF	4.41**JK**		3.40	50.0	1.99	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	4.20	50.0			1
OCDF	82.0**BJ**		4.08	100	0.79	1.006	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 17:40
Sample Matrix:	Wipe	**Date Received:**	11/05/18 12:20
Sample Name:	FW0001	**Units:**	pg
Lab Code:	E1801020-053	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 15:59
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615721	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	4.31	10.0			1
Total Penta-Dioxins	ND	U	2.58	50.0			1
Total Hexa-Dioxins	3.42**J**		1.77	50.0	1.28		1
Total Hepta-Dioxins	ND	U	1.11	50.0			1
Total Tetra-Furans	ND	U	3.80	10.0			1
Total Penta-Furans	10.8**J**		2.33	50.0	1.39		1
Total Hexa-Furans	ND	U	2.75	50.0			1
Total Hepta-Furans	ND	U	3.78	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 17:40
Sample Matrix:	Wipe	**Date Received:**	11/05/18 12:20
Sample Name:	FW0001	**Units:**	Percent
Lab Code:	E1801020-053	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 15:59
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615721	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	727.562	73		25-164	0.79	1.019
13C-1,2,3,7,8-PeCDD	1000	757.339	76		25-181	1.52	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1095.466	110		32-141	1.27	0.992
13C-1,2,3,6,7,8-HxCDD	1000	1006.352	101		28-130	1.23	0.994
13C-1,2,3,4,6,7,8-HpCDD	1000	1162.832	116		23-140	1.07	1.067
13C-OCDD	2000	1592.287	80		17-157	0.92	1.148
13C-2,3,7,8-TCDF	1000	693.496	69		24-169	0.77	0.995
13C-1,2,3,7,8-PeCDF	1000	689.933	69		24-185	1.58	1.129
13C-2,3,4,7,8-PeCDF	1000	710.654	71		21-178	1.60	1.159
13C-1,2,3,4,7,8-HxCDF	1000	960.817	96		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	1000	901.644	90		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	1000	907.910	91		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	1000	964.028	96		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	1000	855.983	86		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	1000	894.355	89		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	302.139	38		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 17:40
Sample Matrix:	Wipe	**Date Received:**	11/05/18 12:20
Sample Name:	FW0001	**Units:**	pg
Lab Code:	E1801020-053	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	4.31	10.0	1	1	
1,2,3,7,8-PeCDD	ND	2.58	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	1.72	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	**3.42**	1.92	50.0	1	0.1	0.342
1,2,3,7,8,9-HxCDD	ND	1.69	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	**1.56**	1.11	50.0	1	0.01	0.0156
OCDD	**10.5**	2.20	100	1	0.0003	0.00315
2,3,7,8-TCDF	ND	3.80	10.0	1	0.1	
1,2,3,7,8-PeCDF	**5.75**	2.30	50.0	1	0.03	0.173
2,3,4,7,8-PeCDF	**5.04**	2.36	50.0	1	0.3	1.51
1,2,3,4,7,8-HxCDF	**5.26**	2.61	50.0	1	0.1	0.526
1,2,3,6,7,8-HxCDF	**3.17**	2.68	50.0	1	0.1	0.317
1,2,3,7,8,9-HxCDF	ND	3.08	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	2.67	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	**4.41**	3.40	50.0	1	0.01	0.0441
1,2,3,4,7,8,9-HpCDF	ND	4.20	50.0	1	0.01	
OCDF	**82.0**	4.08	100	1	0.0003	0.0246
		Total TEQ				2.96

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 17:20
Sample Matrix:	Wipe	**Date Received:**	11/05/18 12:20
Sample Name:	FB0001	**Units:**	pg
Lab Code:	E1801020-054	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 16:48
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615722	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	4.68	10.0			1
1,2,3,7,8-PeCDD	ND	U	1.68	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.13	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.30	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	1.12	50.0			1
1,2,3,4,6,7,8-HpCDD	2.72**BJK**		0.712	50.0	0.72	1.001	1
OCDD	12.2**BJ**		2.87	100	1.01	1.000	1
2,3,7,8-TCDF	ND	U	3.30	10.0			1
1,2,3,7,8-PeCDF	ND	U	2.90	50.0			1
2,3,4,7,8-PeCDF	ND	U	3.16	50.0			1
1,2,3,4,7,8-HxCDF	2.87**JK**		1.65	50.0	1.70	1.000	1
1,2,3,6,7,8-HxCDF	1.75**J**		1.73	50.0	1.14	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	1.90	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	1.74	50.0			1
1,2,3,4,6,7,8-HpCDF	5.59**JK**		2.32	50.0	1.59	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	2.85	50.0			1
OCDF	89.9**BJ**		2.83	100	0.92	1.006	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 17:20
Sample Matrix:	Wipe	**Date Received:**	11/05/18 12:20
Sample Name:	FB0001	**Units:**	pg
Lab Code:	E1801020-054	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 16:48
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615722	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	4.68	10.0			1
Total Penta-Dioxins	ND	U	1.68	50.0			1
Total Hexa-Dioxins	ND	U	1.18	50.0			1
Total Hepta-Dioxins	ND	U	0.712	50.0			1
Total Tetra-Furans	ND	U	3.30	10.0			1
Total Penta-Furans	ND	U	3.03	50.0			1
Total Hexa-Furans	4.99**J**		1.75	50.0	1.29		1
Total Hepta-Furans	ND	U	2.57	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 17:20
Sample Matrix:	Wipe	**Date Received:**	11/05/18 12:20
Sample Name:	FB0001	**Units:**	Percent
Lab Code:	E1801020-054	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 16:48
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615722	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	688.452	69		25-164	0.76	1.019
13C-1,2,3,7,8-PeCDD	1000	788.075	79		25-181	1.56	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1101.747	110		32-141	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	1000	984.633	98		28-130	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	1000	1178.091	118		23-140	1.06	1.067
13C-OCDD	2000	1590.144	80		17-157	0.92	1.148
13C-2,3,7,8-TCDF	1000	633.769	63		24-169	0.78	0.994
13C-1,2,3,7,8-PeCDF	1000	736.495	74		24-185	1.60	1.129
13C-2,3,4,7,8-PeCDF	1000	703.374	70		21-178	1.60	1.159
13C-1,2,3,4,7,8-HxCDF	1000	954.873	95		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	1000	884.380	88		26-123	0.54	0.975
13C-1,2,3,7,8,9-HxCDF	1000	944.355	94		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	1000	953.521	95		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	1000	862.460	86		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	1000	910.394	91		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	273.063	34	**Y**	35-197	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	11/03/18 17:20
Sample Matrix:	Wipe	**Date Received:**	11/05/18 12:20
Sample Name:	FB0001	**Units:**	pg
Lab Code:	E1801020-054	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	4.68	10.0	1	1	
1,2,3,7,8-PeCDD	ND	1.68	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	1.13	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	1.30	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	1.12	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	**2.72**	0.712	50.0	1	0.01	0.0272
OCDD	**12.2**	2.87	100	1	0.0003	0.00366
2,3,7,8-TCDF	ND	3.30	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	2.90	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	3.16	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	**2.87**	1.65	50.0	1	0.1	0.287
1,2,3,6,7,8-HxCDF	**1.75**	1.73	50.0	1	0.1	0.175
1,2,3,7,8,9-HxCDF	ND	1.90	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	1.74	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	**5.59**	2.32	50.0	1	0.01	0.0559
1,2,3,4,7,8,9-HpCDF	ND	2.85	50.0	1	0.01	
OCDF	**89.9**	2.83	100	1	0.0003	0.0270
		Total TEQ				0.576

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800463-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/19/18 23:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.041g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518927	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518924

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.131	0.498			1
1,2,3,7,8-PeCDD	ND	U	0.0321	2.49			1
1,2,3,4,7,8-HxCDD	0.0405**JK**		0.0202	2.49	1.77	1.000	1
1,2,3,6,7,8-HxCDD	0.0470**J**		0.0224	2.49	1.43	1.000	1
1,2,3,7,8,9-HxCDD	0.0563**JK**		0.0209	2.49	1.59	1.007	1
1,2,3,4,6,7,8-HpCDD	0.0714**JK**		0.0139	2.49	0.63	1.000	1
OCDD	0.673**J**		0.0430	4.98	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.0599	0.498			1
1,2,3,7,8-PeCDF	0.0739**JK**		0.0410	2.49	1.79	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.0426	2.49			1
1,2,3,4,7,8-HxCDF	0.0408**JK**		0.0244	2.49	0.59	1.000	1
1,2,3,6,7,8-HxCDF	0.0406**JK**		0.0231	2.49	0.87	1.001	1
1,2,3,7,8,9-HxCDF	0.0697**J**		0.0278	2.49	1.33	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0232	2.49			1
1,2,3,4,6,7,8-HpCDF	0.0647**JK**		0.0154	2.49	1.50	1.000	1
1,2,3,4,7,8,9-HpCDF	0.0349**JK**		0.0190	2.49	0.33	1.000	1
OCDF	0.216**JK**		0.0396	4.98	1.04	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800463-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/19/18 23:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.041g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518927	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518924

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.131	0.498			1
Total Penta-Dioxins	ND	U	0.0321	2.49			1
Total Hexa-Dioxins	ND	U	0.0212	2.49			1
Total Hepta-Dioxins	0.138**J**		0.0139	2.49	1.03		1
Total Tetra-Furans	ND	U	0.0599	0.498			1
Total Penta-Furans	ND	U	0.0418	2.49			1
Total Hexa-Furans	0.0697**J**		0.0244	2.49	1.33		1
Total Hepta-Furans	ND	U	0.0170	2.49			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800463-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/19/18 23:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.041g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518927	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518924

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	985.569	49		25-164	0.78	1.029
13C-1,2,3,7,8-PeCDD	2000	1285.986	64		25-181	1.60	1.239
13C-1,2,3,4,7,8-HxCDD	2000	1144.187	57		32-141	1.35	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1151.653	58		28-130	1.20	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1360.632	68		23-140	1.06	1.071
13C-OCDD	4000	2130.455	53		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	792.633	40		24-169	0.77	0.988
13C-1,2,3,7,8-PeCDF	2000	1146.109	57		24-185	1.56	1.186
13C-2,3,4,7,8-PeCDF	2000	1088.446	54		21-178	1.58	1.226
13C-1,2,3,4,7,8-HxCDF	2000	903.149	45		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	971.370	49		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1033.004	52		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1015.051	51		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	995.827	50		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1099.973	55		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	454.281	57		35-197	NA	1.030

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800467-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 13:29
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615718	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	4.27	10.0			1
1,2,3,7,8-PeCDD	ND	U	1.85	50.0			1
1,2,3,4,7,8-HxCDD	1.14**JK**		0.810	50.0	0.69	1.000	1
1,2,3,6,7,8-HxCDD	1.59**JK**		0.922	50.0	0.84	1.000	1
1,2,3,7,8,9-HxCDD	1.99**J**		0.804	50.0	1.12	1.006	1
1,2,3,4,6,7,8-HpCDD	2.20**JK**		1.17	50.0	1.44	1.001	1
OCDD	28.8**JK**		2.97	100	1.07	1.000	1
2,3,7,8-TCDF	ND	U	2.60	10.0			1
1,2,3,7,8-PeCDF	ND	U	1.97	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.07	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	3.60	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	3.61	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	4.01	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	3.70	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	5.41	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	6.02	50.0			1
OCDF	22.7**J**		3.47	100	0.80	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800467-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 13:29
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615718	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	4.27	10.0			1
Total Penta-Dioxins	ND	U	1.85	50.0			1
Total Hexa-Dioxins	1.99**J**		0.842	50.0	1.12		1
Total Hepta-Dioxins	ND	U	1.17	50.0			1
Total Tetra-Furans	ND	U	2.60	10.0			1
Total Penta-Furans	ND	U	2.02	50.0			1
Total Hexa-Furans	ND	U	3.72	50.0			1
Total Hepta-Furans	ND	U	5.70	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800467-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 13:29
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615718	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	949.516	95		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	1000	958.356	96		25-181	1.56	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1122.846	112		32-141	1.26	0.992
13C-1,2,3,6,7,8-HxCDD	1000	1028.676	103		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	1000	1081.689	108		23-140	1.06	1.067
13C-OCDD	2000	1240.779	62		17-157	0.89	1.148
13C-2,3,7,8-TCDF	1000	867.537	87		24-169	0.78	0.995
13C-1,2,3,7,8-PeCDF	1000	934.266	93		24-185	1.59	1.129
13C-2,3,4,7,8-PeCDF	1000	896.332	90		21-178	1.61	1.159
13C-1,2,3,4,7,8-HxCDF	1000	970.380	97		26-152	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	1000	928.302	93		26-123	0.55	0.975
13C-1,2,3,7,8,9-HxCDF	1000	973.549	97		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	1000	981.780	98		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	1000	789.790	79		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	1000	899.253	90		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	362.236	45		35-197	NA	1.020

Accuracy & Precision

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Analyzed:**	11/16/18
Sample Matrix:	Sediment	**Date Extracted:**	11/12/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	616035

	Lab Control Sample EQ1800463-02			Duplicate Lab Control Sample EQ1800463-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	77.1	97.7	79	78.1	97.8	80	70-140	1	50
1,2,3,4,7,8-HxCDD	91.6	97.7	94	92.9	97.8	95	70-164	1	50
1,2,3,6,7,8-HxCDD	100	97.7	103	96.6	97.8	99	76-134	4	50
1,2,3,7,8,9-HxCDD	96.2	97.7	98	98.5	97.8	101	64-162	2	50
1,2,3,7,8-PeCDD	98.1	97.7	100	101	97.8	103	70-142	3	50
2,3,7,8-TCDD	19.7	19.5	101	18.0	19.6	92	67-158	9	50
OCDD	184	195	94	192	196	98	78-144	4	50
1,2,3,4,6,7,8-HpCDF	92.7	97.7	95	95.4	97.8	98	82-122	3	50
1,2,3,4,7,8,9-HpCDF	98.5	97.7	101	95.3	97.8	98	78-138	3	50
1,2,3,4,7,8-HxCDF	93.6	97.7	96	95.4	97.8	98	72-134	2	50
1,2,3,6,7,8-HxCDF	99.2	97.7	101	97.0	97.8	99	84-130	2	50
1,2,3,7,8,9-HxCDF	93.2	97.7	95	96.3	97.8	98	78-130	3	50
1,2,3,7,8-PeCDF	90.7	97.7	93	92.2	97.8	94	80-134	2	50
2,3,4,6,7,8-HxCDF	95.7	97.7	98	93.3	97.8	95	70-156	3	50
2,3,4,7,8-PeCDF	101	97.7	103	98.8	97.8	101	68-160	2	50
2,3,7,8-TCDF	19.6	19.5	100	19.0	19.6	97	75-158	3	50
OCDF	215	195	110	206	196	105	63-170	4	50

ALS Group USA, Corp.
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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Analyzed:**	11/16/18
Sample Matrix:	Sediment	**Date Extracted:**	11/12/18

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	616035

EQ1800463-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	77.1	97.7	79	70-140
1,2,3,4,7,8-HxCDD	91.6	97.7	94	70-164
1,2,3,6,7,8-HxCDD	100	97.7	103	76-134
1,2,3,7,8,9-HxCDD	96.2	97.7	98	64-162
1,2,3,7,8-PeCDD	98.1	97.7	100	70-142
2,3,7,8-TCDD	19.7	19.5	101	67-158
OCDD	184	195	94	78-144
1,2,3,4,6,7,8-HpCDF	92.7	97.7	95	82-122
1,2,3,4,7,8,9-HpCDF	98.5	97.7	101	78-138
1,2,3,4,7,8-HxCDF	93.6	97.7	96	72-134
1,2,3,6,7,8-HxCDF	99.2	97.7	101	84-130
1,2,3,7,8,9-HxCDF	93.2	97.7	95	78-130
1,2,3,7,8-PeCDF	90.7	97.7	93	80-134
2,3,4,6,7,8-HxCDF	95.7	97.7	98	70-156
2,3,4,7,8-PeCDF	101	97.7	103	68-160
2,3,7,8-TCDF	19.6	19.5	100	75-158
OCDF	215	195	110	63-170

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800463-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 10:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.233g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518850	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	728.937	36		25-164	0.78	1.028
13C-1,2,3,7,8-PeCDD	2000	1032.441	52		25-181	1.61	1.236
13C-1,2,3,4,7,8-HxCDD	2000	877.367	44		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	863.569	43		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1174.034	59		23-140	1.03	1.071
13C-OCDD	4000	1845.168	46		17-157	0.92	1.142
13C-2,3,7,8-TCDF	2000	686.215	34		24-169	0.78	0.988
13C-1,2,3,7,8-PeCDF	2000	961.145	48		24-185	1.58	1.184
13C-2,3,4,7,8-PeCDF	2000	961.653	48		21-178	1.55	1.223
13C-1,2,3,4,7,8-HxCDF	2000	729.204	36		26-152	0.53	0.968
13C-1,2,3,6,7,8-HxCDF	2000	787.502	39		26-123	0.51	0.971
13C-1,2,3,7,8,9-HxCDF	2000	846.481	42		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	853.876	43		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	908.164	45		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	996.136	50		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	321.890	40		35-197	NA	1.029

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800463-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 10:52
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.229g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518851	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.0		0.355	0.489	0.77	1.001	1
1,2,3,7,8-PeCDD	101		0.102	2.44	1.58	1.001	1
1,2,3,4,7,8-HxCDD	92.9		0.0444	2.44	1.30	1.000	1
1,2,3,6,7,8-HxCDD	96.6		0.0498	2.44	1.30	1.000	1
1,2,3,7,8,9-HxCDD	98.5		0.0461	2.44	1.30	1.007	1
1,2,3,4,6,7,8-HpCDD	78.1		0.0584	2.44	1.02	1.000	1
OCDD	192		0.0628	4.89	0.89	1.000	1
2,3,7,8-TCDF	19.0		0.279	0.489	0.71	1.001	1
1,2,3,7,8-PeCDF	92.2		0.130	2.44	1.55	1.001	1
2,3,4,7,8-PeCDF	98.8		0.130	2.44	1.52	1.000	1
1,2,3,4,7,8-HxCDF	95.4		0.0369	2.44	1.22	1.000	1
1,2,3,6,7,8-HxCDF	97.0		0.0375	2.44	1.22	1.001	1
1,2,3,7,8,9-HxCDF	96.3		0.0460	2.44	1.20	1.000	1
2,3,4,6,7,8-HxCDF	93.3		0.0380	2.44	1.23	1.000	1
1,2,3,4,6,7,8-HpCDF	95.4		0.235	2.44	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	95.3		0.282	2.44	1.02	1.000	1
OCDF	206		0.0965	4.89	0.92	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800463-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 10:52
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.229g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518851	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.0		0.355	0.489	0.77		1
Total Penta-Dioxins	101		0.102	2.44	1.58		1
Total Hexa-Dioxins	288		0.0468	2.44	1.30		1
Total Hepta-Dioxins	78.1		0.0584	2.44	1.02		1
Total Tetra-Furans	19.2		0.279	0.489	0.71		1
Total Penta-Furans	191		0.130	2.44	1.55		1
Total Hexa-Furans	382		0.0394	2.44	1.22		1
Total Hepta-Furans	191		0.257	2.44	0.99		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800463-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/16/18 10:52
Prep Method:	Method Soxhlet	**Date Extracted:**	11/12/18
Sample Amount:	10.229g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518851	**Blank File Name:**	P518927
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518837

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	745.491	37		25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1141.413	57		25-181	1.59	1.235
13C-1,2,3,4,7,8-HxCDD	2000	972.529	49		32-141	1.37	0.991
13C-1,2,3,6,7,8-HxCDD	2000	988.828	49		28-130	1.22	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1296.560	65		23-140	1.08	1.071
13C-OCDD	4000	2220.172	56		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	688.734	34		24-169	0.80	0.988
13C-1,2,3,7,8-PeCDF	2000	1028.246	51		24-185	1.60	1.183
13C-2,3,4,7,8-PeCDF	2000	1056.331	53		21-178	1.62	1.223
13C-1,2,3,4,7,8-HxCDF	2000	837.374	42		26-152	0.53	0.968
13C-1,2,3,6,7,8-HxCDF	2000	909.834	45		26-123	0.53	0.971
13C-1,2,3,7,8,9-HxCDF	2000	935.131	47		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	909.410	45		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	970.378	49		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1128.309	56		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	333.496	42		35-197	NA	1.028

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Analyzed:**	11/27/18
Sample Matrix:	Wipe	**Date Extracted:**	11/14/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	pg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	616654

	Lab Control Sample EQ1800467-02			Duplicate Lab Control Sample EQ1800467-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	1400	2000	70	1450	2000	73	70-140	4	50
1,2,3,4,7,8-HxCDD	1720	2000	86	1740	2000	87	70-164	<1	50
1,2,3,6,7,8-HxCDD	1840	2000	92	1920	2000	96	76-134	4	50
1,2,3,7,8,9-HxCDD	1730	2000	86	1910	2000	95	64-162	10	50
1,2,3,7,8-PeCDD	1860	2000	93	1910	2000	96	70-142	3	50
2,3,7,8-TCDD	374	400	94	359	400	90	67-158	4	50
OCDD	3430	4000	86	3570	4000	89	78-144	4	50
1,2,3,4,6,7,8-HpCDF	1670	2000	84	1750	2000	87	82-122	4	50
1,2,3,4,7,8,9-HpCDF	1660	2000	83	1690	2000	84	78-138	2	50
1,2,3,4,7,8-HxCDF	1630	2000	81	1720	2000	86	72-134	6	50
1,2,3,6,7,8-HxCDF	1690	2000	84	1750	2000	87	84-130	3	50
1,2,3,7,8,9-HxCDF	1640	2000	82	1730	2000	87	78-130	5	50
1,2,3,7,8-PeCDF	1600	2000	80	1660	2000	83	80-134	4	50
2,3,4,6,7,8-HxCDF	1690	2000	84	1740	2000	87	70-156	3	50
2,3,4,7,8-PeCDF	1720	2000	86	1800	2000	90	68-160	4	50
2,3,7,8-TCDF	361	400	90	359	400	90	75-158	<1	50
OCDF	3470	4000	87	3780	4000	94	63-170	9	50

ALS Group USA, Corp.
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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Analyzed:**	11/27/18
Sample Matrix:	Wipe	**Date Extracted:**	11/14/18

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	pg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	616654

EQ1800467-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	1400	2000	70	70-140
1,2,3,4,7,8-HxCDD	1720	2000	86	70-164
1,2,3,6,7,8-HxCDD	1840	2000	92	76-134
1,2,3,7,8,9-HxCDD	1730	2000	86	64-162
1,2,3,7,8-PeCDD	1860	2000	93	70-142
2,3,7,8-TCDD	374	400	94	67-158
OCDD	3430	4000	86	78-144
1,2,3,4,6,7,8-HpCDF	1670	2000	84	82-122
1,2,3,4,7,8,9-HpCDF	1660	2000	83	78-138
1,2,3,4,7,8-HxCDF	1630	2000	81	72-134
1,2,3,6,7,8-HxCDF	1690	2000	84	84-130
1,2,3,7,8,9-HxCDF	1640	2000	82	78-130
1,2,3,7,8-PeCDF	1600	2000	80	80-134
2,3,4,6,7,8-HxCDF	1690	2000	84	70-156
2,3,4,7,8-PeCDF	1720	2000	86	68-160
2,3,7,8-TCDF	361	400	90	75-158
OCDF	3470	4000	87	63-170

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800467-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:53
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615727	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	660.335	66		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	1000	920.408	92		25-181	1.56	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1054.347	105		32-141	1.34	0.992
13C-1,2,3,6,7,8-HxCDD	1000	980.692	98		28-130	1.21	0.993
13C-1,2,3,4,6,7,8-HpCDD	1000	1158.013	116		23-140	1.04	1.067
13C-OCDD	2000	1607.740	80		17-157	0.91	1.147
13C-2,3,7,8-TCDF	1000	610.393	61		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	1000	835.498	84		24-185	1.60	1.129
13C-2,3,4,7,8-PeCDF	1000	848.533	85		21-178	1.60	1.159
13C-1,2,3,4,7,8-HxCDF	1000	925.804	93		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	1000	866.870	87		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	1000	936.187	94		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	1000	916.446	92		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	1000	846.066	85		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	1000	877.956	88		26-138	0.46	1.081
37Cl-2,3,7,8-TCDD	800	259.109	32	**Y**	35-197	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 21:43
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615728	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	359		5.02	10.0	0.75	1.001	1
1,2,3,7,8-PeCDD	1910		3.05	50.0	1.53	1.000	1
1,2,3,4,7,8-HxCDD	1740		1.59	50.0	1.29	1.000	1
1,2,3,6,7,8-HxCDD	1920		1.85	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDD	1910		1.59	50.0	1.26	1.007	1
1,2,3,4,6,7,8-HpCDD	1450		1.43	50.0	1.04	1.000	1
OCDD	3570		1.97	100	0.89	1.000	1
2,3,7,8-TCDF	359		3.37	10.0	0.79	1.001	1
1,2,3,7,8-PeCDF	1660		3.07	50.0	1.59	1.000	1
2,3,4,7,8-PeCDF	1800		3.27	50.0	1.57	1.000	1
1,2,3,4,7,8-HxCDF	1720		1.16	50.0	1.26	1.000	1
1,2,3,6,7,8-HxCDF	1750		1.18	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDF	1730		1.22	50.0	1.23	1.000	1
2,3,4,6,7,8-HxCDF	1740		1.10	50.0	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	1750		2.93	50.0	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	1690		3.55	50.0	1.02	1.000	1
OCDF	3780		2.74	100	0.88	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 21:43
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615728	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	359		5.02	10.0	0.75		1
Total Penta-Dioxins	1910		3.05	50.0	1.53		1
Total Hexa-Dioxins	5560		1.67	50.0	1.29		1
Total Hepta-Dioxins	1450		1.43	50.0	1.04		1
Total Tetra-Furans	359		3.37	10.0	0.79		1
Total Penta-Furans	3480		3.17	50.0	1.59		1
Total Hexa-Furans	6950		1.16	50.0	1.17		1
Total Hepta-Furans	3440		3.23	50.0	1.03		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801020
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800467-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 21:43
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615728	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	548.649	55		25-164	0.80	1.019
13C-1,2,3,7,8-PeCDD	1000	691.869	69		25-181	1.55	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1005.111	101		32-141	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	1000	918.899	92		28-130	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	1000	1220.514	122		23-140	1.06	1.068
13C-OCDD	2000	1766.243	88		17-157	0.91	1.148
13C-2,3,7,8-TCDF	1000	497.659	50		24-169	0.80	0.994
13C-1,2,3,7,8-PeCDF	1000	659.461	66		24-185	1.58	1.129
13C-2,3,4,7,8-PeCDF	1000	652.101	65		21-178	1.60	1.159
13C-1,2,3,4,7,8-HxCDF	1000	839.434	84		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	1000	816.265	82		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	1000	924.236	92		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	1000	923.073	92		28-136	0.51	0.989
13C-1,2,3,4,6,7,8-HpCDF	1000	889.156	89		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	1000	958.622	96		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	222.895	28	**Y**	35-197	NA	1.019

Chromatograms and Selected Ion Monitoring

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0045

Run #18 Filename P518848 Samp: 1 Inj: 1 Acquired: 16-NOV-18 08:26:33
Processed: 19-NOV-18 09:11:55 Sample ID: E1801020-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	1.635e+03	2.150e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.527e+02	1.008e+02	1.51	yes	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	31:37	2.030e+02	1.298e+02	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	3.096e+02	2.644e+02	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	2.011e+02	1.708e+02	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.194e+02	9.306e+01	1.28	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:57	3.655e+01	3.220e+01	1.14	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	1.801e+03	1.798e+03	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	1.462e+02	1.058e+02	1.38	no	no	1.258
10	Unk	OCDF	40:51	3.282e+03	3.845e+03	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:35	4.439e+02	5.192e+02	0.85	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	3.398e+01	3.304e+01	1.03	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	8.228e+01	5.824e+01	1.41	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	3.560e+02	2.935e+02	1.21	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	1.962e+02	1.466e+02	1.34	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	1.359e+04	1.299e+04	1.05	yes	no	1.025
17	Unk	OCDD	40:42	2.836e+05	3.165e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.836e+04	2.276e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	3.065e+04	1.952e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.959e+04	1.852e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.379e+04	2.707e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:36	1.734e+04	3.410e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.543e+04	3.036e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.489e+04	2.882e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	1.125e+04	2.524e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	1.091e+04	2.498e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	1.227e+04	1.532e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	2.127e+04	1.349e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	2.067e+04	1.612e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	2.035e+04	1.632e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	2.263e+04	2.107e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:41	2.520e+04	2.804e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	1.974e+04	2.512e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.529e+04	2.797e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	1.424e+04				no	1.014

$$\text{OCDD} = \frac{(2.836e+05 + 3.165e+05) \times 4000\ \text{pg} \times 1}{(2.520e+04 + 2.804e+04) \times 10.95\text{g} \times 80 / 100 \times 1.118} = 4601.100\ \text{ng/kg}$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0045

Run #18 Filename P518848 Samp: 1 Inj: 1 Acquired: 16-NOV-18 08:26:33
Processed: 19-NOV-18 09:11:55 LAB. ID: E1801020-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.14e+05	6.12e+02	3.5e+02	2.73e+05	1.71e+03	1.6e+02
2	1,2,3,7,8-PeCDF	2.74e+04	6.48e+02	4.2e+01	1.66e+04	1.59e+03	1.0e+01
3	2,3,4,7,8-PeCDF	2.89e+04	6.48e+02	4.5e+01	1.82e+04	1.59e+03	1.1e+01
4	1,2,3,4,7,8-HxCDF	6.32e+04	1.74e+03	3.6e+01	4.87e+04	2.34e+03	2.1e+01
5	1,2,3,6,7,8-HxCDF	3.92e+04	1.74e+03	2.3e+01	3.29e+04	2.34e+03	1.4e+01
6	2,3,4,6,7,8-HxCDF	2.60e+04	1.74e+03	1.5e+01	1.87e+04	2.34e+03	8.0e+00
7	1,2,3,7,8,9-HxCDF	6.41e+03	1.74e+03	3.7e+00	6.35e+03	2.34e+03	2.7e+00
8	1,2,3,4,6,7,8-HpCDF	3.57e+05	2.15e+03	1.7e+02	3.39e+05	2.06e+03	1.6e+02
9	1,2,3,4,7,8,9-HpCDF	2.62e+04	2.15e+03	1.2e+01	1.97e+04	2.06e+03	9.5e+00
10	OCDF	5.38e+05	1.40e+02	3.8e+03	5.98e+05	7.72e+02	7.7e+02
11	2,3,7,8-TCDD	6.10e+04	2.02e+03	3.0e+01	7.99e+04	1.09e+03	7.3e+01
12	1,2,3,7,8-PeCDD	6.26e+03	7.56e+02	8.3e+00	7.77e+03	3.52e+02	2.2e+01
13	1,2,3,4,7,8-HxCDD	1.71e+04	7.12e+02	2.4e+01	1.52e+04	1.62e+03	9.3e+00
14	1,2,3,6,7,8-HxCDD	7.15e+04	7.12e+02	1.0e+02	5.38e+04	1.62e+03	3.3e+01
15	1,2,3,7,8,9-HxCDD	3.59e+04	7.12e+02	5.0e+01	2.50e+04	1.62e+03	1.5e+01
16	1,2,3,4,6,7,8-HpCDD	2.62e+06	2.40e+02	1.1e+04	2.51e+06	1.96e+02	1.3e+04
17	OCDD	4.64e+07	3.32e+02	1.4e+05	5.18e+07	1.76e+02	2.9e+05
18	13C-2,3,7,8-TCDF	2.45e+06	3.76e+03	6.5e+02	3.04e+06	1.83e+03	1.7e+03
19	13C-1,2,3,7,8-PeCDF	5.00e+06	2.28e+02	2.2e+04	3.19e+06	2.20e+02	1.4e+04
20	13C-2,3,4,7,8-PeCDF	5.07e+06	2.28e+02	2.2e+04	3.22e+06	2.20e+02	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.87e+06	6.72e+02	4.3e+03	5.60e+06	4.60e+02	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.09e+06	6.72e+02	4.6e+03	6.04e+06	4.60e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.93e+06	6.72e+02	4.4e+03	5.87e+06	4.60e+02	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.72e+06	6.72e+02	4.1e+03	5.21e+06	4.60e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.10e+06	2.82e+03	7.4e+02	4.80e+06	2.58e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.92e+06	2.82e+03	6.8e+02	4.42e+06	2.58e+03	1.7e+03
27	13C-2,3,7,8-TCDD	1.82e+06	5.06e+03	3.6e+02	2.31e+06	1.37e+03	1.7e+03
28	13C-1,2,3,7,8-PeCDD	3.64e+06	7.80e+02	4.7e+03	2.27e+06	6.28e+02	3.6e+03
29	13C-1,2,3,4,7,8-HxCDD	4.25e+06	9.12e+02	4.7e+03	3.29e+06	7.40e+02	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	3.82e+06	9.12e+02	4.2e+03	3.12e+06	7.40e+02	4.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.35e+06	5.88e+02	7.4e+03	4.01e+06	4.16e+02	9.6e+03
32	13C-OCDD	4.07e+06	2.44e+02	1.7e+04	4.49e+06	1.72e+02	2.6e+04
33	13C-1,2,3,4-TCDD	2.86e+06	5.06e+03	5.6e+02	3.62e+06	1.37e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	6.45e+06	9.12e+02	7.1e+03	5.13e+06	7.40e+02	6.9e+03
35	37Cl-2,3,7,8-TCDD	2.11e+06	1.20e+03	1.8e+03			

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Peak List Summary

CLIENT ID.
SL0045

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P518848 Sample:1 Injection:1 Function:1

Acquired: 16-NOV-18 08:26:33 Processed: 19-NOV-18 09:11:55

Mass: 303.9020 305.8990 Tot Response: 6.51e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	21:58	7.29e+01	8.69e+01	0.84	yes	1.60e+02		y	y
2	22:24	3.87e+01	5.13e+01	0.76	yes	9.00e+01		y	y
3	23:11	1.27e+01	1.62e+01	0.78	yes	2.89e+01		y	y
4	23:20	8.02e+01	1.06e+02	0.76	yes	1.86e+02		y	y
5	23:56	8.41e+01	1.14e+02	0.74	yes	1.98e+02		y	y
6	24:34	6.92e+02	8.28e+02	0.84	yes	1.52e+03		n	n
7	24:50	4.78e+01	6.56e+01	0.73	yes	1.13e+02		y	y
8	25:34	1.64e+03	2.15e+03	0.76	yes	3.79e+03	2,3,7,8-TCDF	n	n
9	26:00	1.63e+02	1.93e+02	0.85	yes	3.55e+02		n	n
10	26:17	3.49e+01	4.12e+01	0.85	yes	7.61e+01		y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0045

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P518848 Sample:1 Injection:1 Function:1

Acquired: 16-NOV-18 08:26:33 Processed: 19-NOV-18 09:11:55

Mass: 319.8970 321.8940 Tot Response: 9.63e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:35	4.44e+02	5.19e+02 0.85	yes	9.63e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0045

Entry: 38 Totals Name: Total Penta-Furans1

Run: 18 File: P518848 Sample:1 Injection:1 Function:1

Acquired: 16-NOV-18 08:26:33 Processed: 19-NOV-18 09:11:55

Mass: 339.8600 341.8570 Tot Response: 7.05e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:50	4.28e+02	2.77e+02 1.55	yes	7.05e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0045

Entry: 39 Totals Name: Total Penta-Furans2

Run: 18 File: P518848 Sample:1 Injection:1 Function:2

Acquired: 16-NOV-18 08:26:33 Processed: 19-NOV-18 09:11:55

Mass: 339.8600 341.8570 Tot Response: 1.62e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:22	1.10e+02	6.78e+01	1.62	yes	1.77e+02		y	y
2	29:33	3.48e+02	2.15e+02	1.62	yes	5.63e+02		y	y
3	30:10	6.97e+01	4.88e+01	1.43	yes	1.18e+02		y	y
4	30:35	1.53e+02	1.01e+02	1.51	yes	2.53e+02	1,2,3,7,8-PeCDF	y	n
5	30:52	1.08e+02	6.75e+01	1.61	yes	1.76e+02		n	n
6	31:37	2.03e+02	1.30e+02	1.56	yes	3.33e+02	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0045

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P518848 Sample:1 Injection:1 Function:2

Acquired: 16-NOV-18 08:26:33 Processed: 19-NOV-18 09:11:55

Mass: 355.8550 357.8520 Tot Response: 1.02e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:48	6.46e+01	3.79e+01 1.70	yes	1.02e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0045

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P518848 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 08:26:33 Processed: 19-NOV-18 09:11:55

Mass: 373.8210 375.8180 Tot Response: 5.33e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:19	2.01e+02	1.45e+02	1.39	yes	3.45e+02		n	n
2	33:29	8.64e+02	7.51e+02	1.15	yes	1.61e+03		n	n
3	34:02	1.18e+03	9.63e+02	1.23	yes	2.15e+03		n	n
4	34:29	3.10e+02	2.64e+02	1.17	yes	5.74e+02	1,2,3,4,7,8-HxCDF	n	n
5	34:37	2.01e+02	1.71e+02	1.18	yes	3.72e+02	1,2,3,6,7,8-HxCDF	n	n
6	35:09	1.19e+02	9.31e+01	1.28	yes	2.12e+02	2,3,4,6,7,8-HxCDF	n	n
7	35:57	3.65e+01	3.22e+01	1.14	yes	6.87e+01	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0045

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P518848 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 08:26:33 Processed: 19-NOV-18 09:11:55

Mass: 389.8160 391.8130 Tot Response: 9.58e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	2.94e+03	2.27e+03	1.30	yes	5.20e+03		n	n
2	34:25	1.52e+02	1.09e+02	1.40	yes	2.61e+02		n	n
3	34:41	1.52e+03	1.16e+03	1.30	yes	2.68e+03		n	n
4	34:47	1.64e+02	1.35e+02	1.22	yes	2.99e+02		n	n
5	35:18	8.23e+01	5.82e+01	1.41	yes	1.41e+02	1,2,3,4,7,8-HxCDD	n	n
6	35:23	3.56e+02	2.93e+02	1.21	yes	6.49e+02	1,2,3,6,7,8-HxCDD	n	n
7	35:37	1.96e+02	1.47e+02	1.34	yes	3.43e+02	1,2,3,7,8,9-HxCDD	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0045

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P518848 Sample:1 Injection:1 Function:4

Acquired: 16-NOV-18 08:26:33 Processed: 19-NOV-18 09:11:55

Mass: 407.7820 409.7790 Tot Response: 1.24e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:15	1.80e+03	1.80e+03	1.00	yes	3.60e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	37:38	4.55e+03	4.27e+03	1.07	yes	8.82e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0045

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P518848 Sample:1 Injection:1 Function:4

Acquired: 16-NOV-18 08:26:33 Processed: 19-NOV-18 09:11:55

Mass: 423.7770 425.7740 Tot Response: 7.12e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	2.30e+04	2.16e+04 1.07	yes	4.46e+04		n	n
2	38:10	1.36e+04	1.30e+04 1.05	yes	2.66e+04	1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
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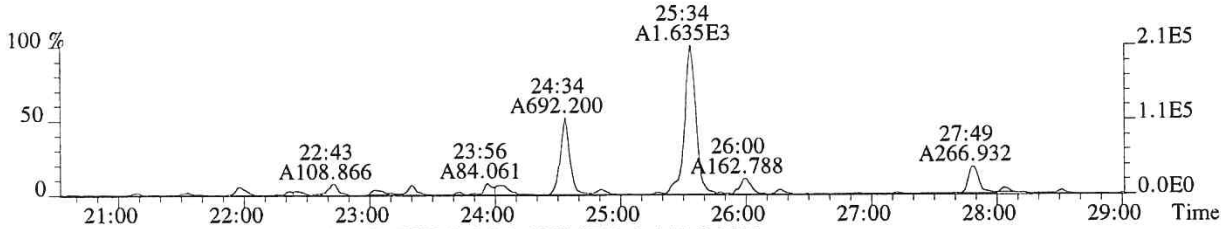
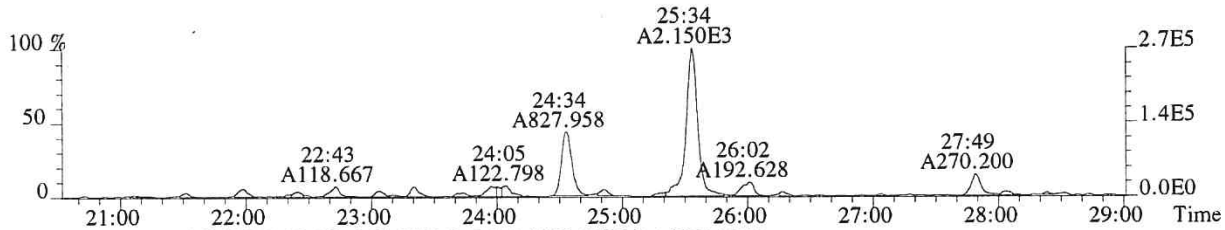
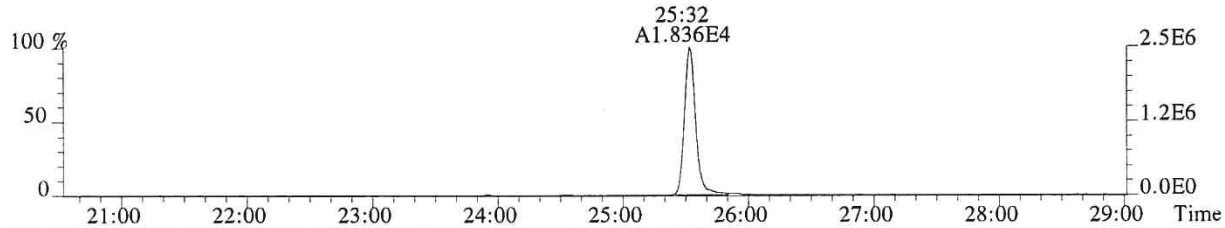
File:P518848 #1-602 Acq:16-NOV-2018 08:26:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



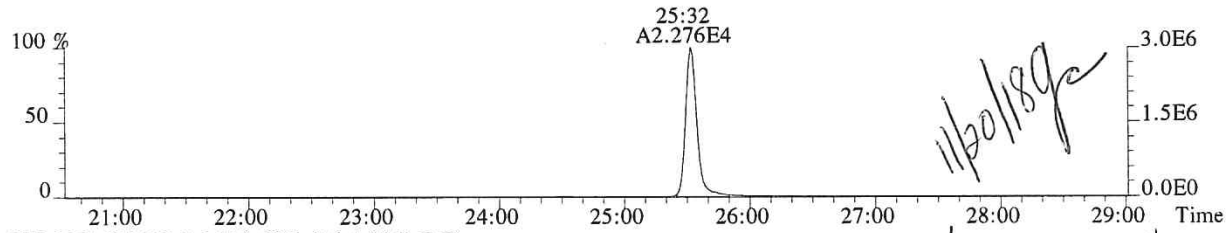
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



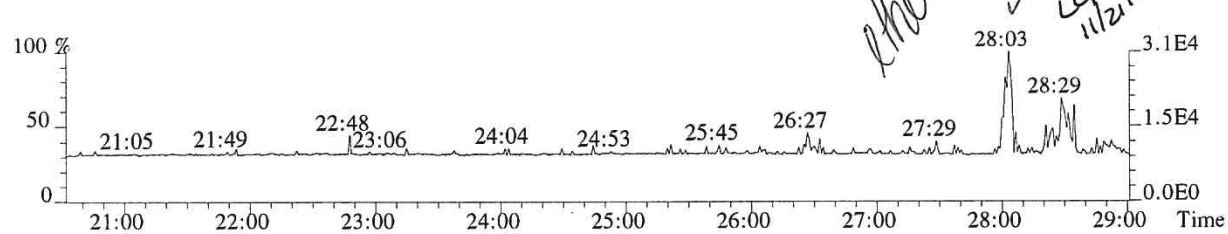
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3756.0,1.00%,F,T)



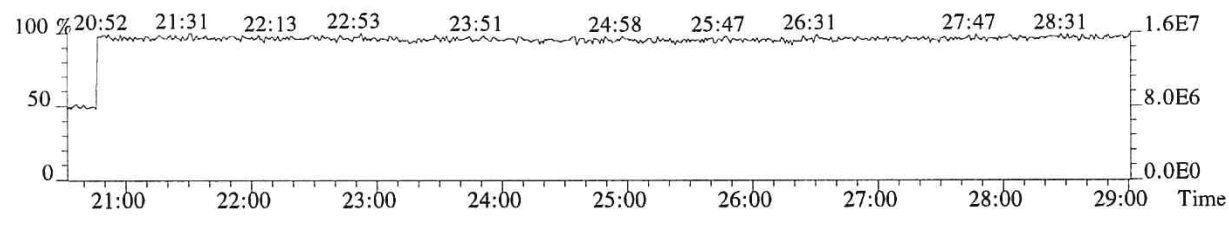
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

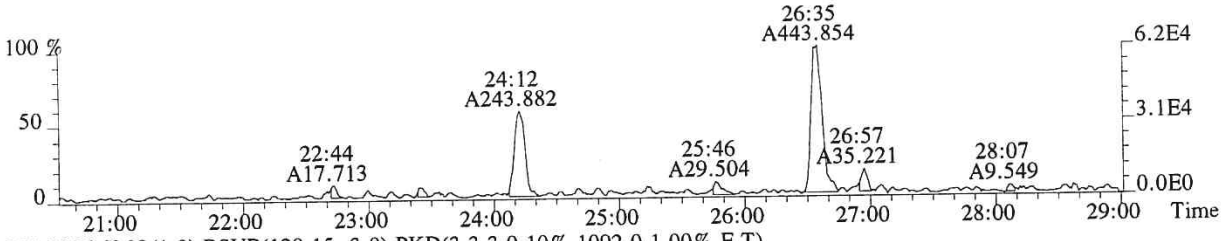


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

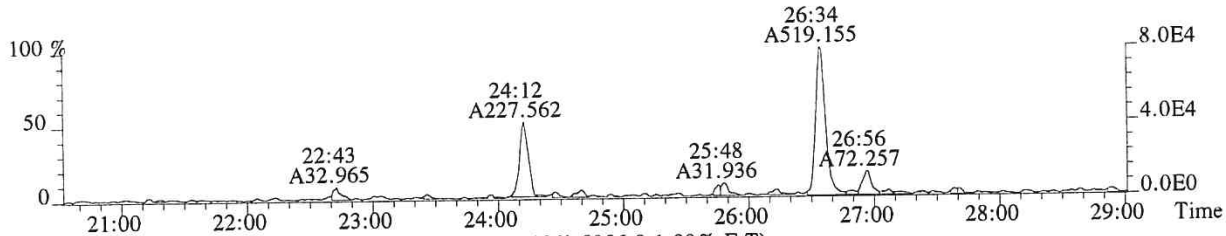


009609

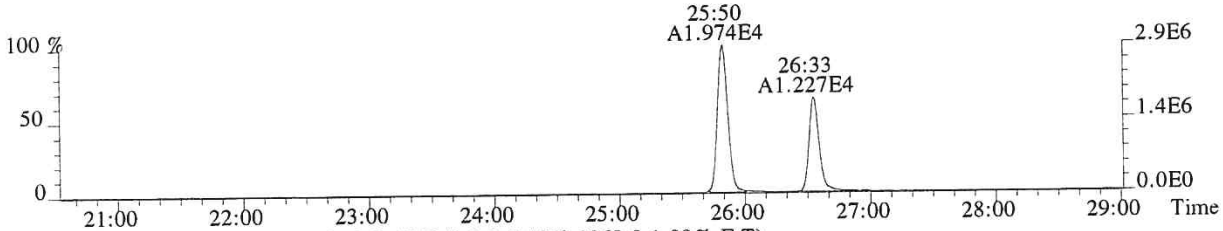
File:P518848 #1-602 Acq:16-NOV-2018 08:26:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2024.0,1.00%,F,T)



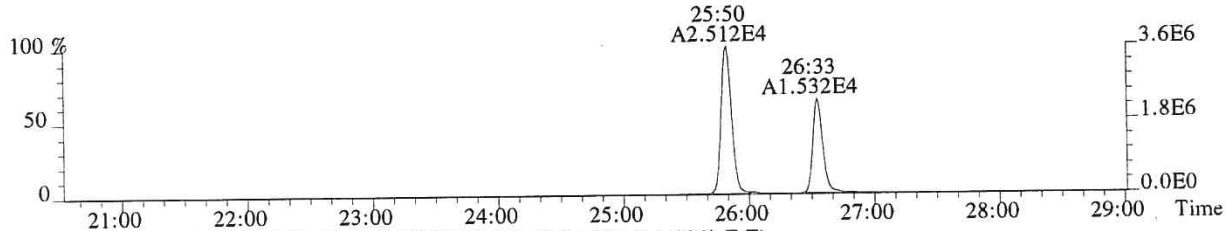
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



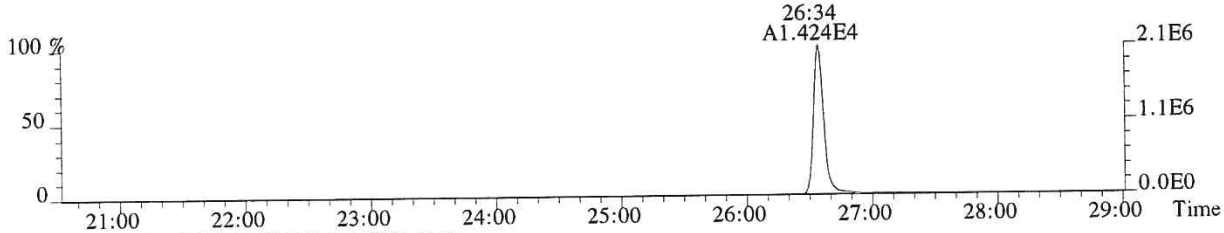
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5056.0,1.00%,F,T)



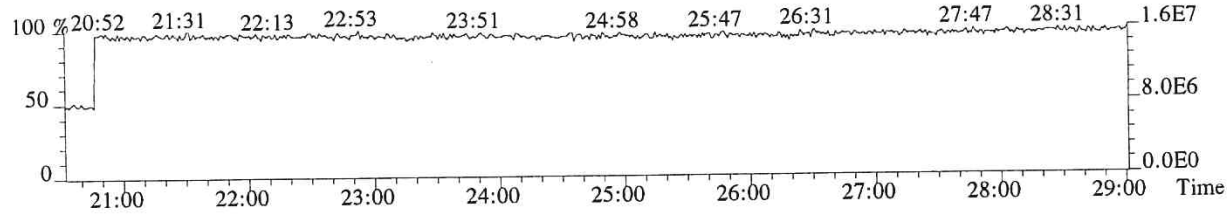
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)

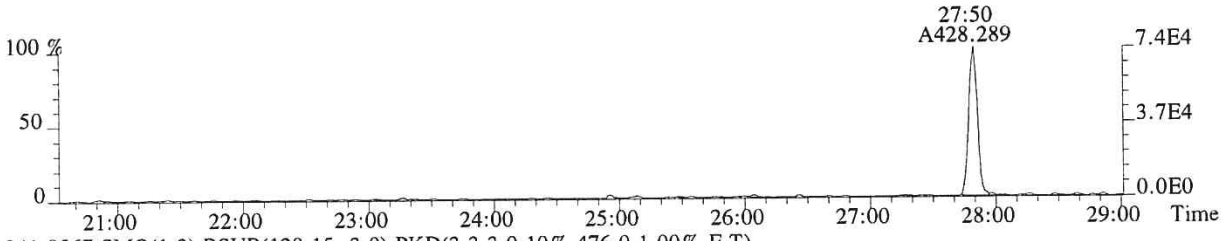


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

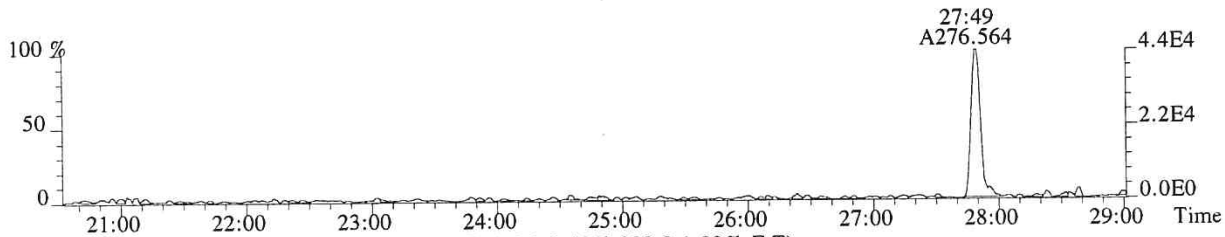


009610

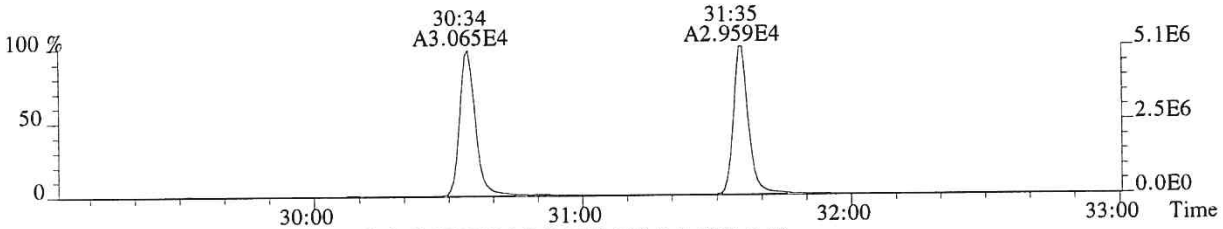
File:P518848 #1-602 Acq:16-NOV-2018 08:26:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



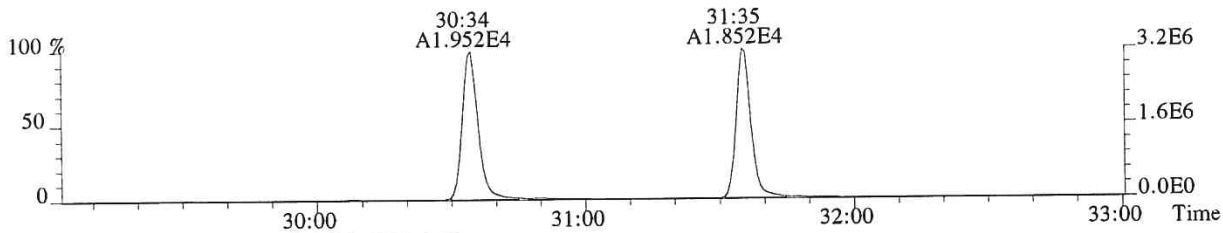
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



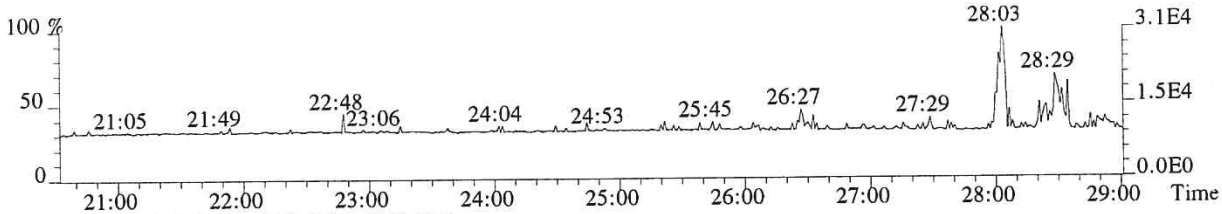
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



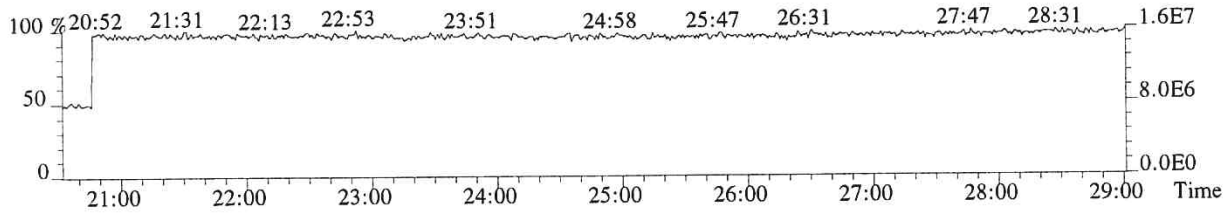
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

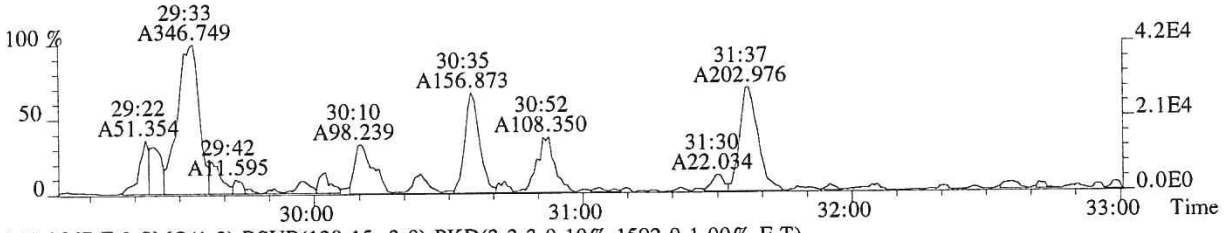


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

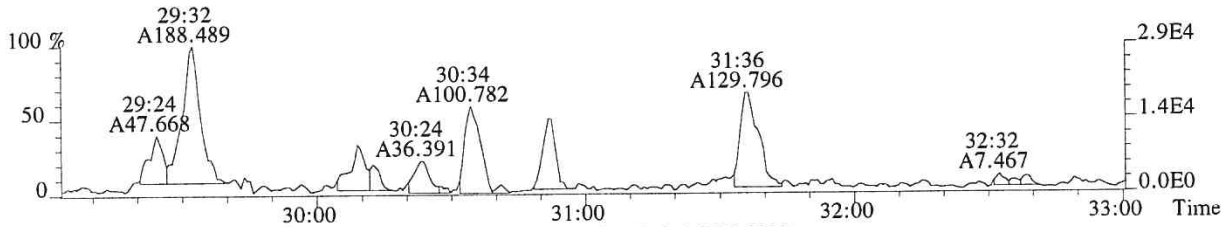


009611

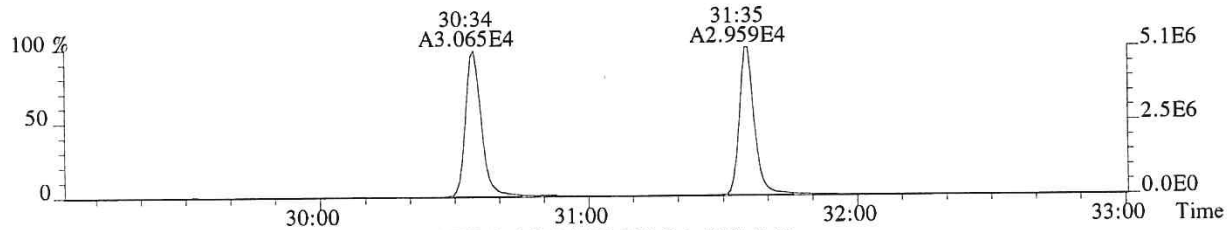
File:P518848 #1-357 Acq:16-NOV-2018 08:26:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



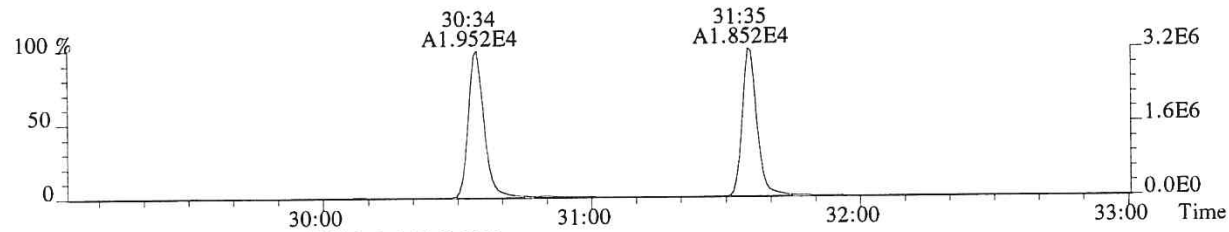
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



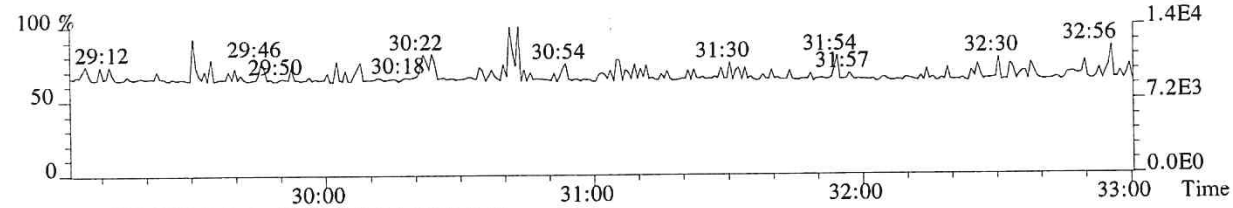
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



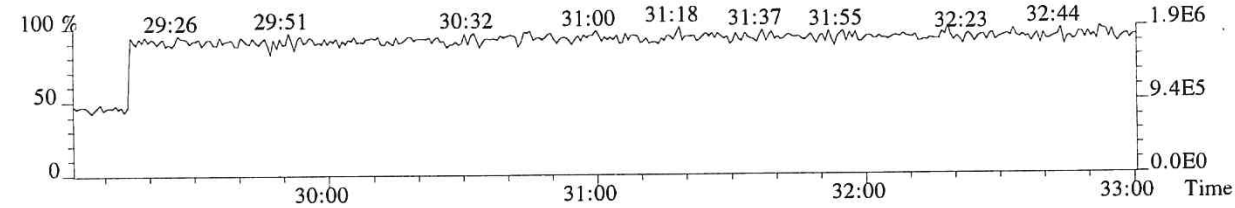
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



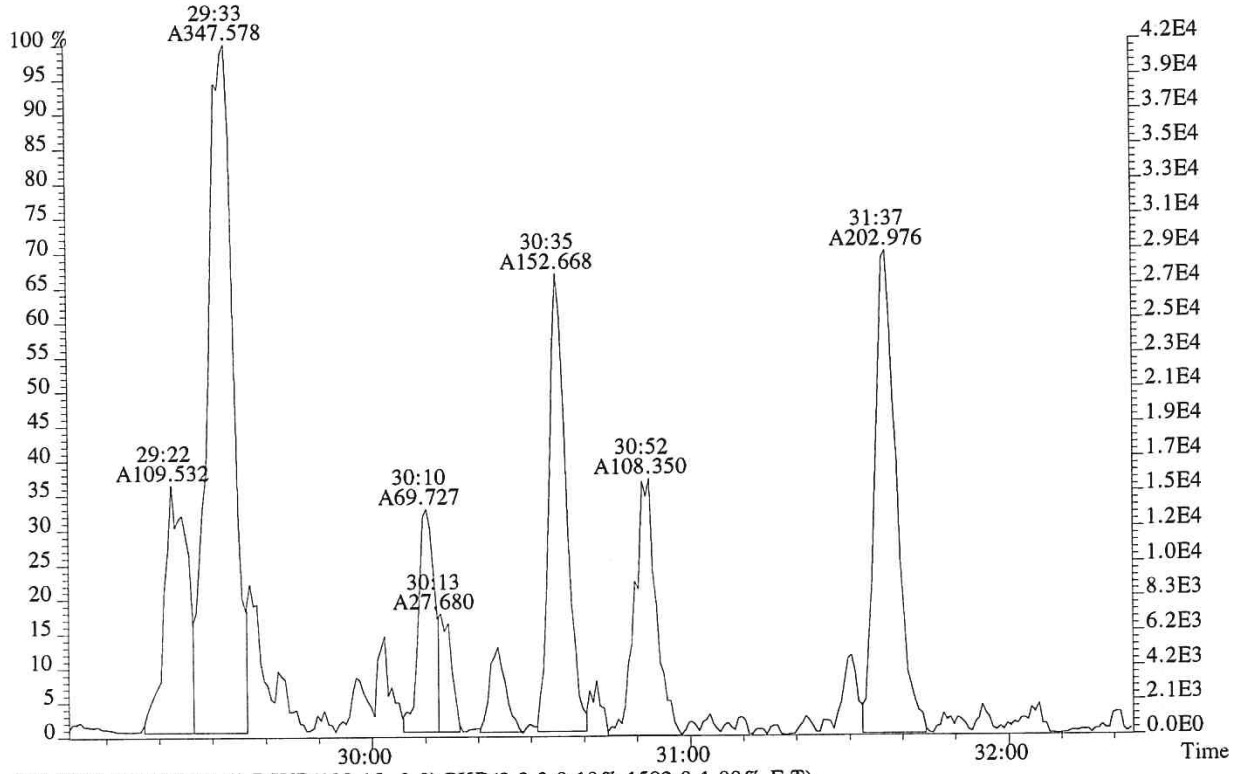
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



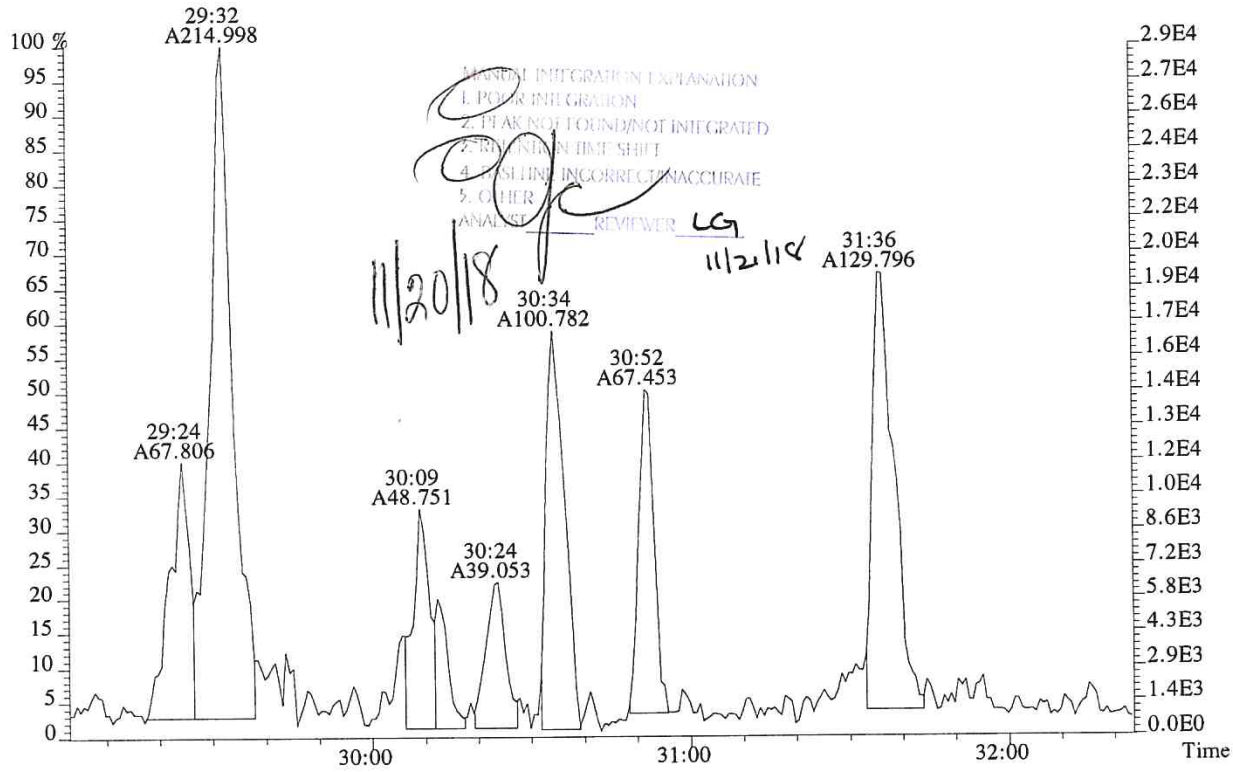
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518848 #1-357 Acq:16-NOV-2018 08:26:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)

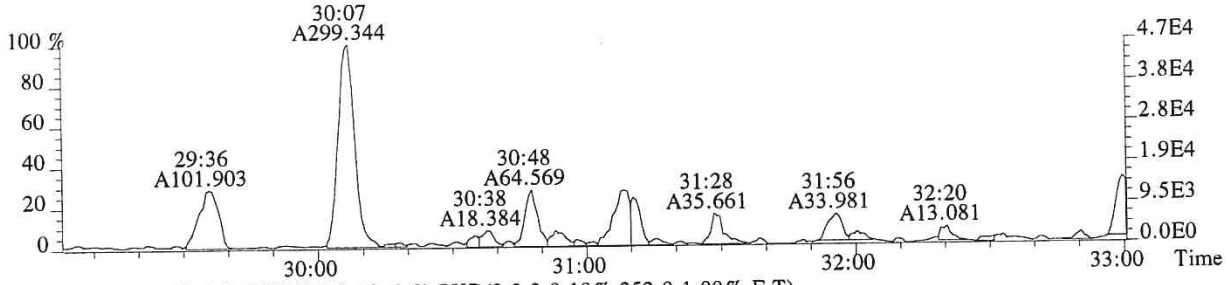


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)

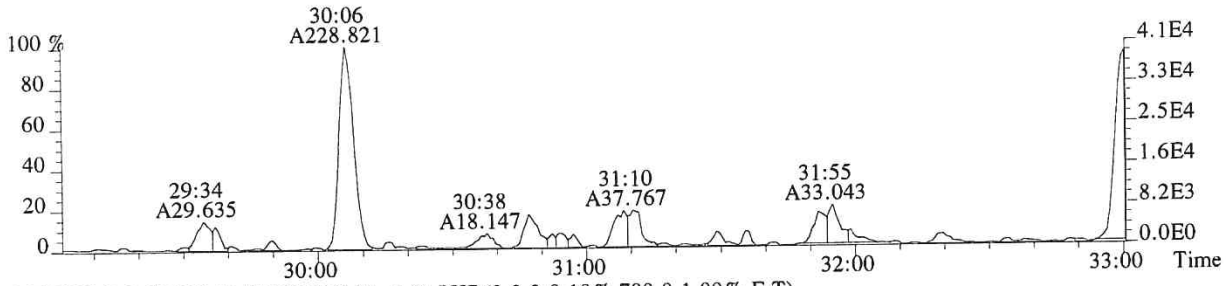


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RT/INTERN TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER LG
11/20/18 11/21/18

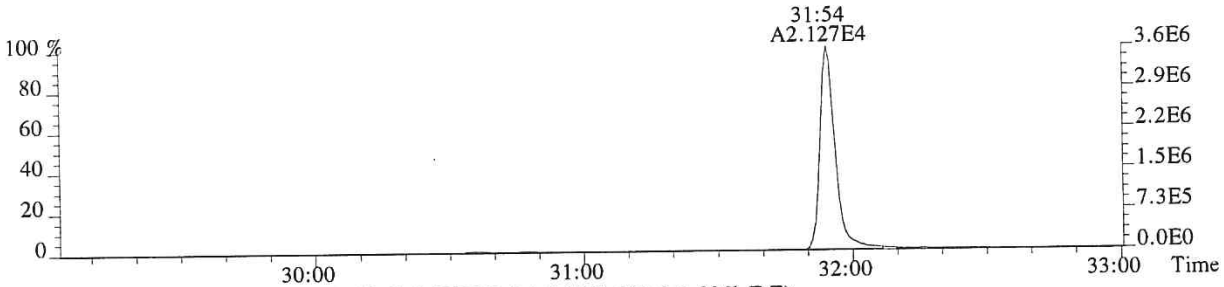
File:P518848 #1-357 Acq:16-NOV-2018 08:26:33 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801020-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



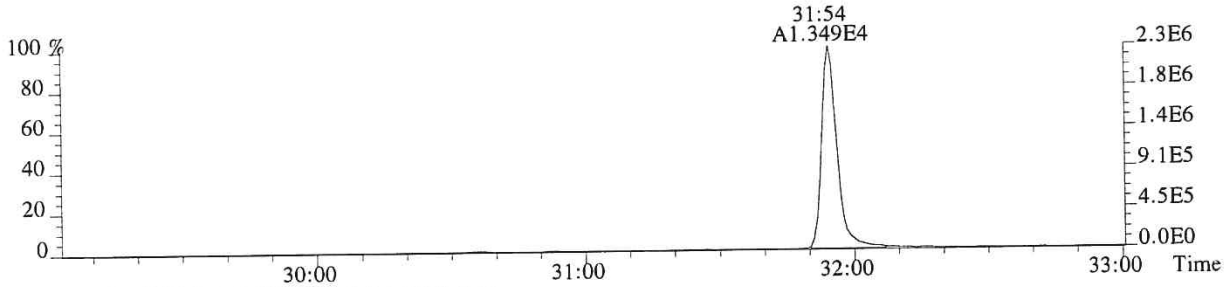
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



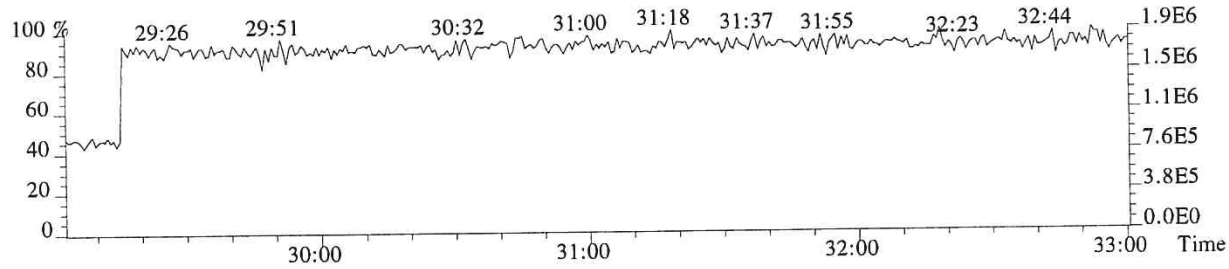
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



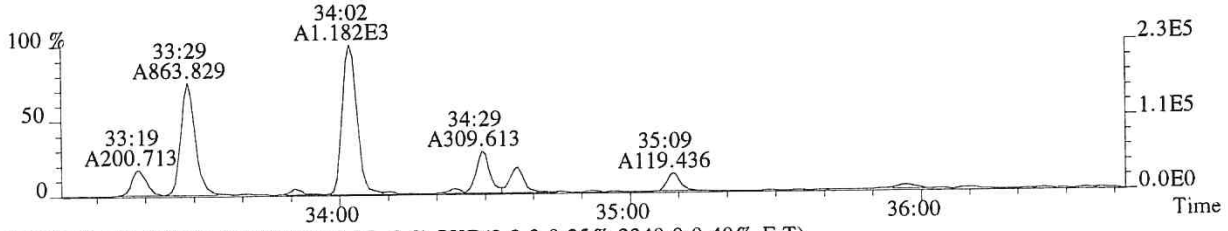
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



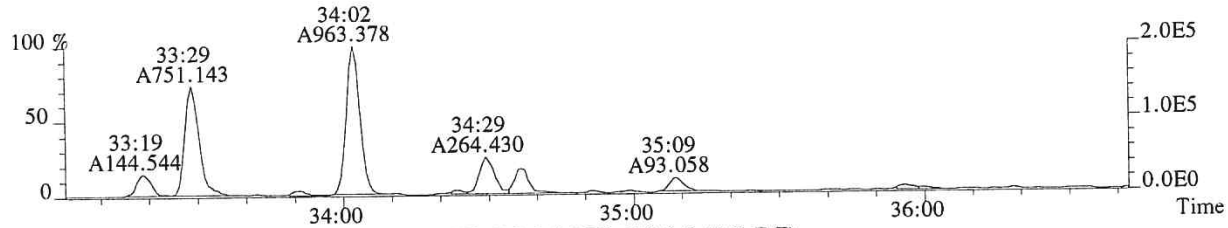
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



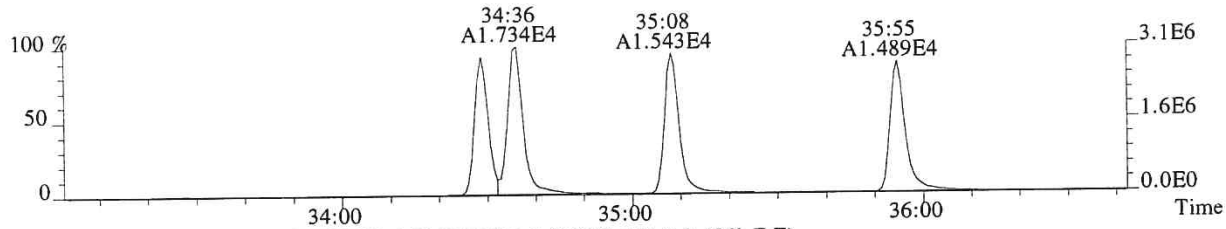
File:P518848 #1-330 Acq:16-NOV-2018 08:26:33 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801020-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.40%,F,T)



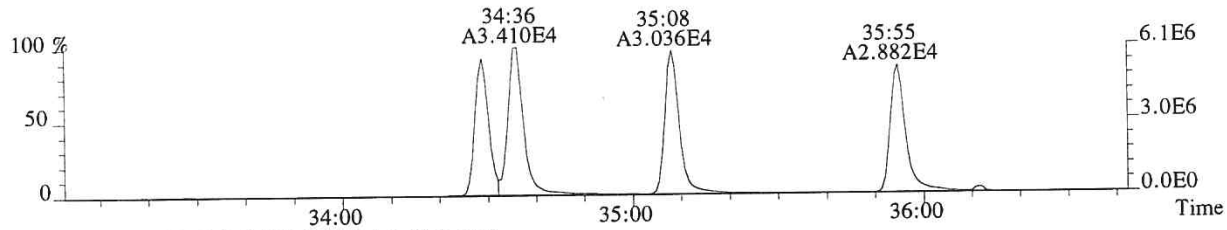
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2340.0,0.40%,F,T)



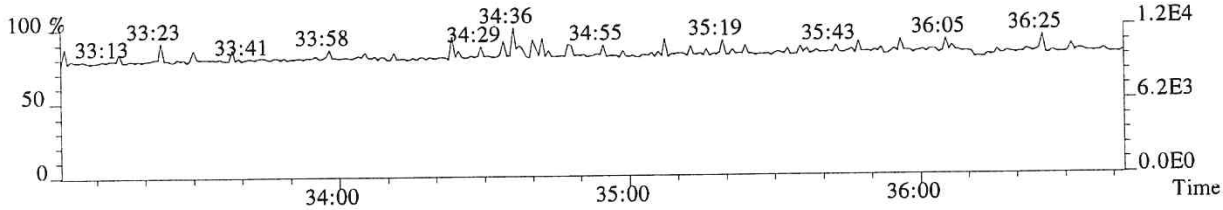
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



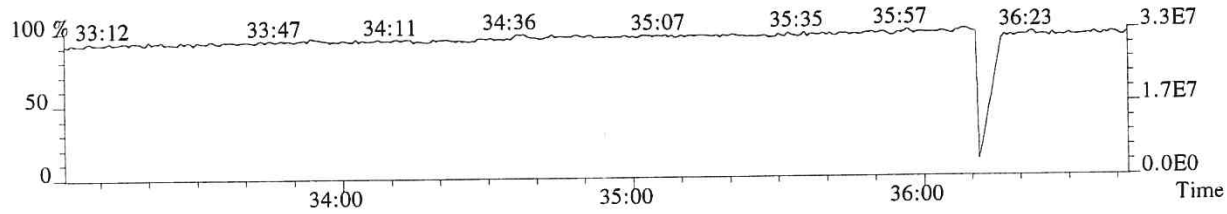
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



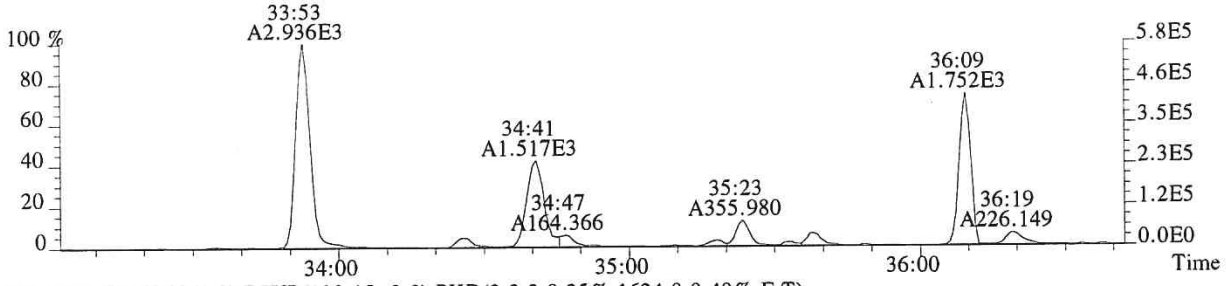
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



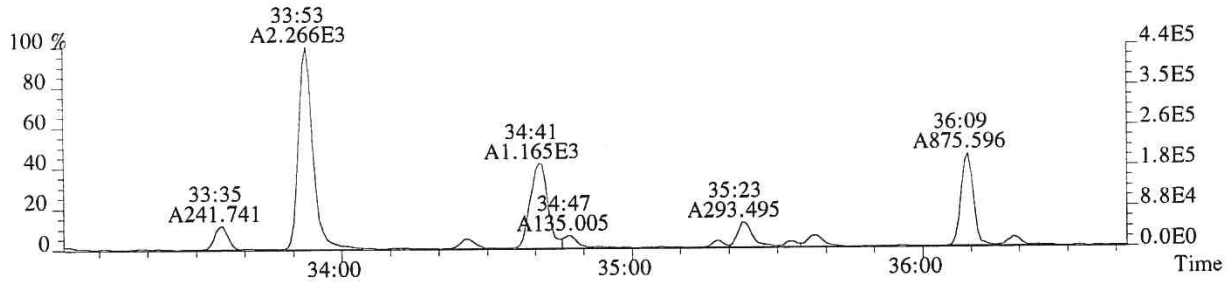
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



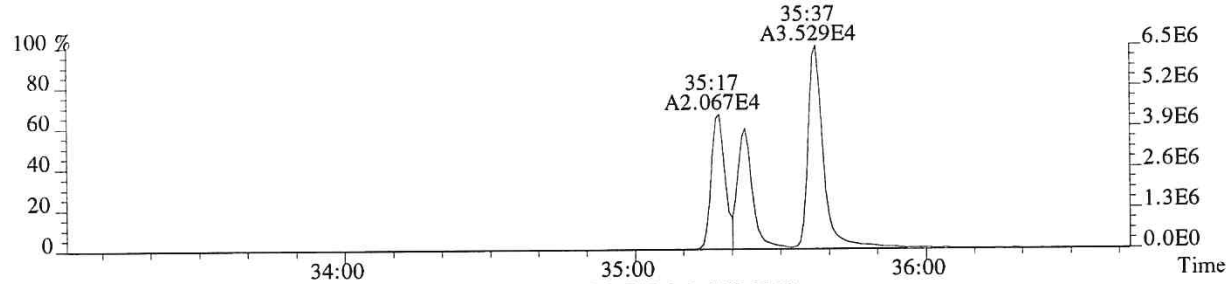
File:P518848 #1-330 Acq:16-NOV-2018 08:26:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



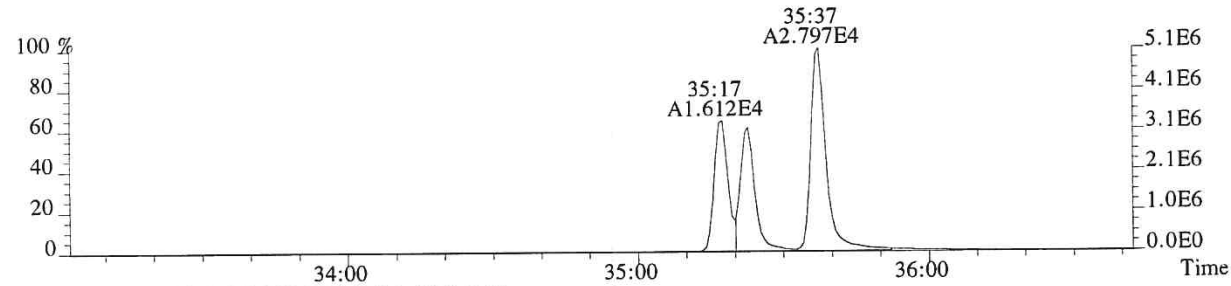
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.40%,F,T)



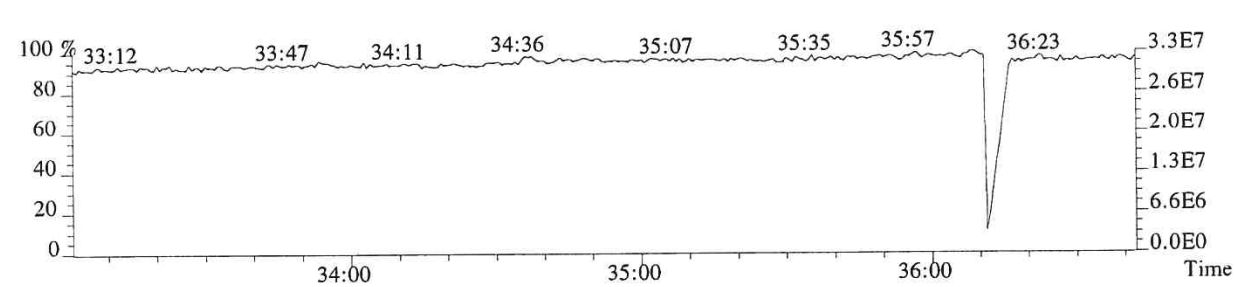
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



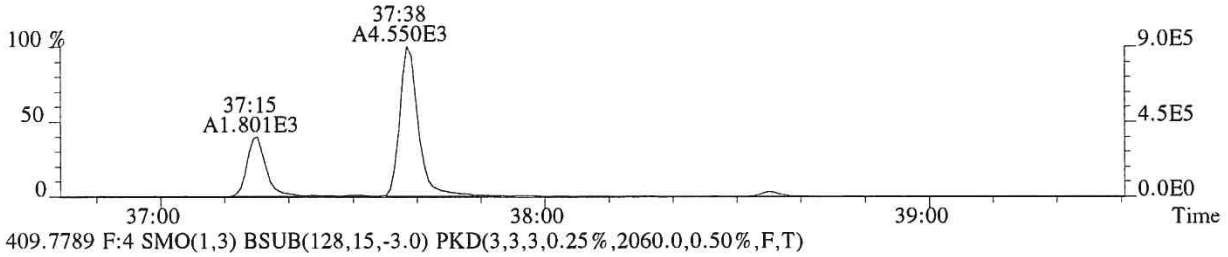
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



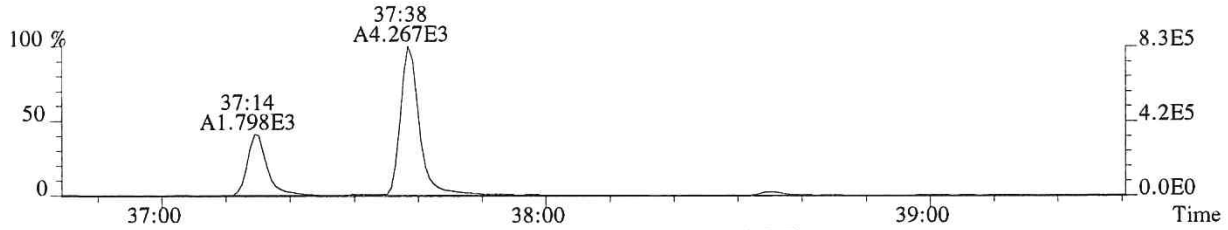
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



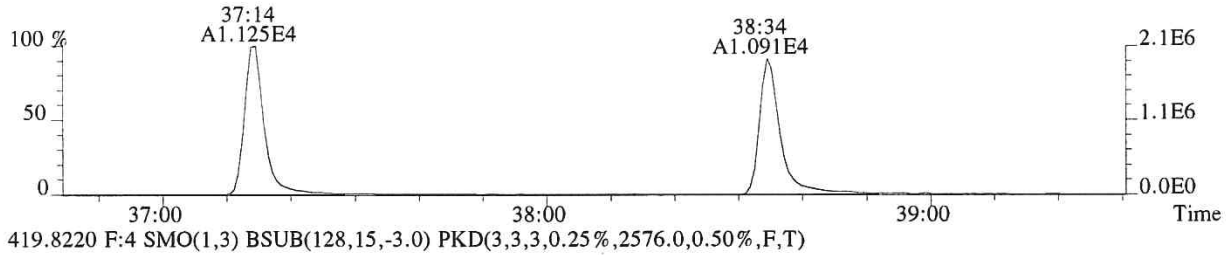
File:P518848 #1-250 Acq:16-NOV-2018 08:26:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2152.0,0.50%,F,T)



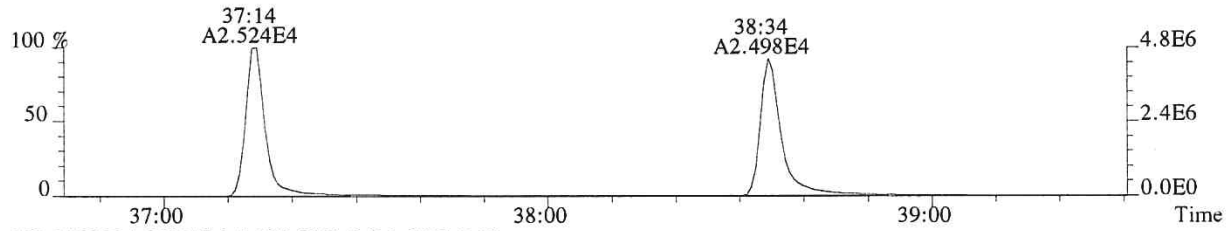
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2060.0,0.50%,F,T)



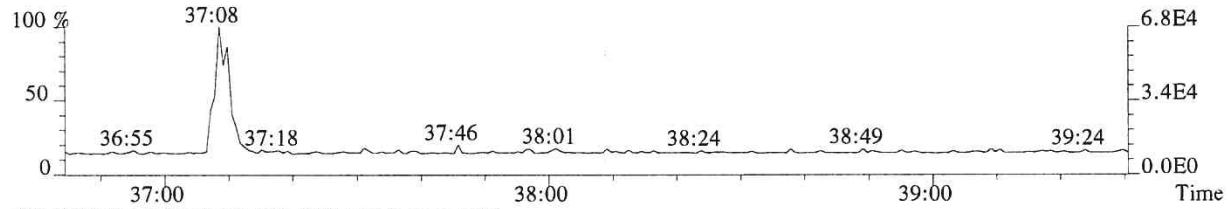
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2816.0,0.50%,F,T)



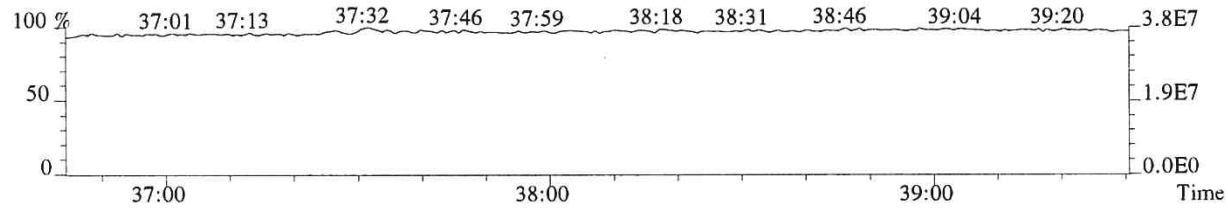
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2576.0,0.50%,F,T)



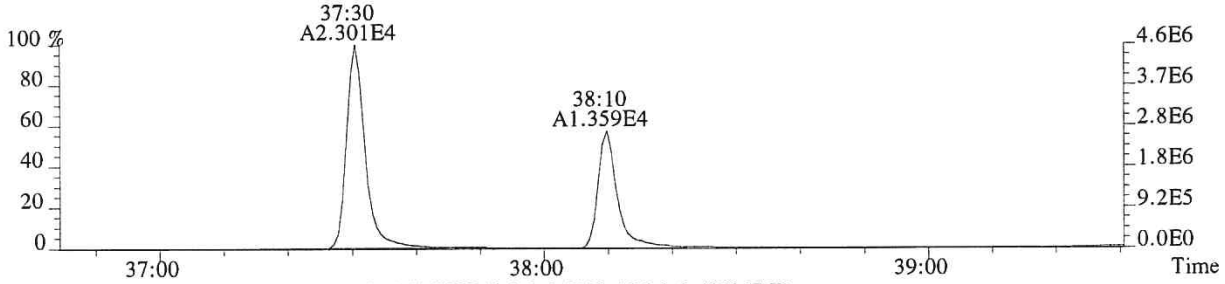
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



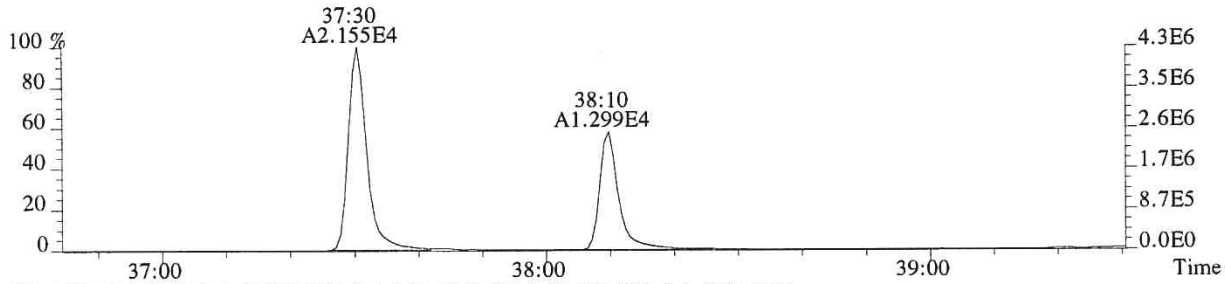
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



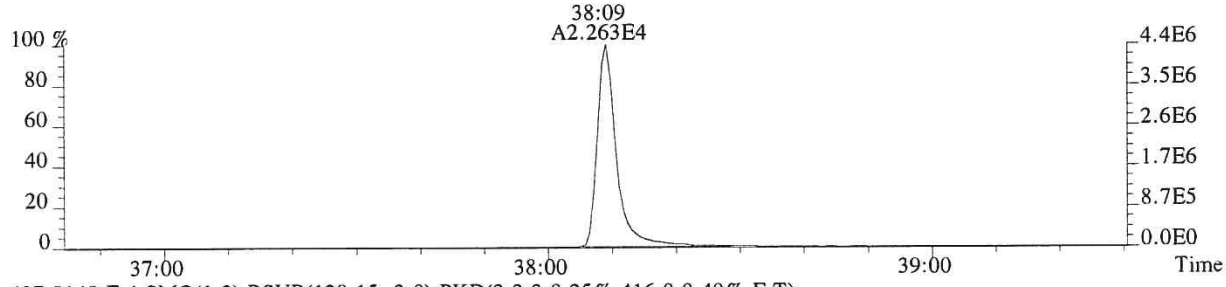
File:P518848 #1-250 Acq:16-NOV-2018 08:26:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



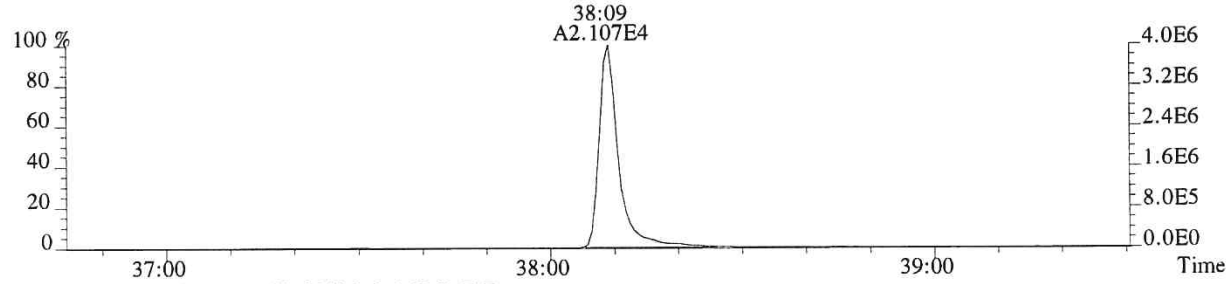
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



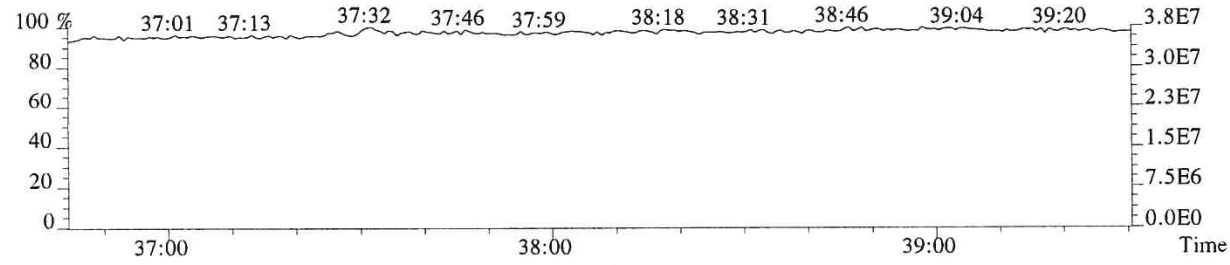
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



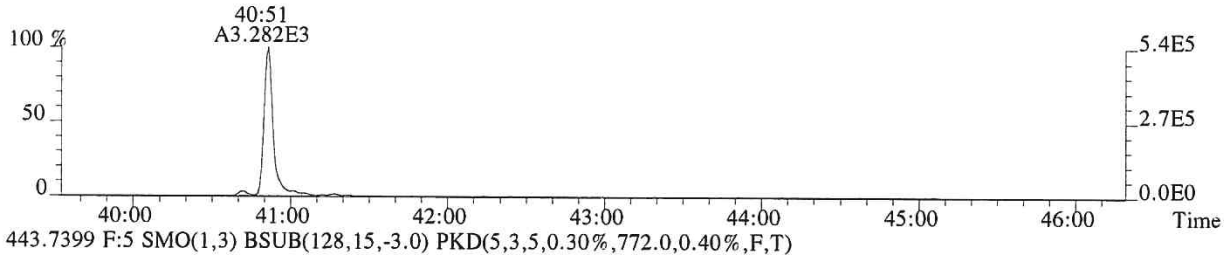
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



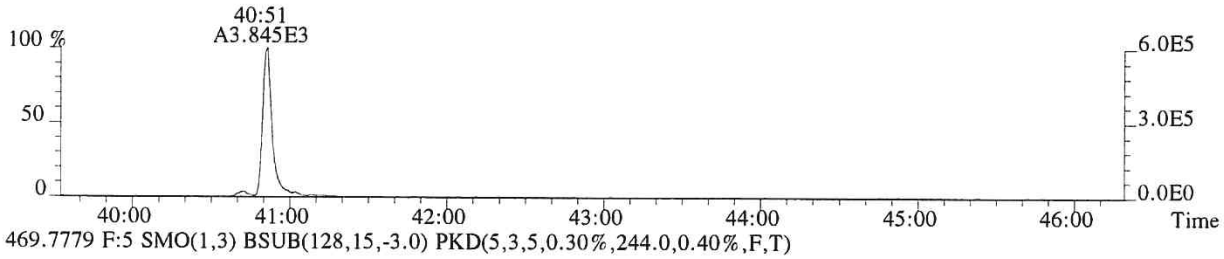
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



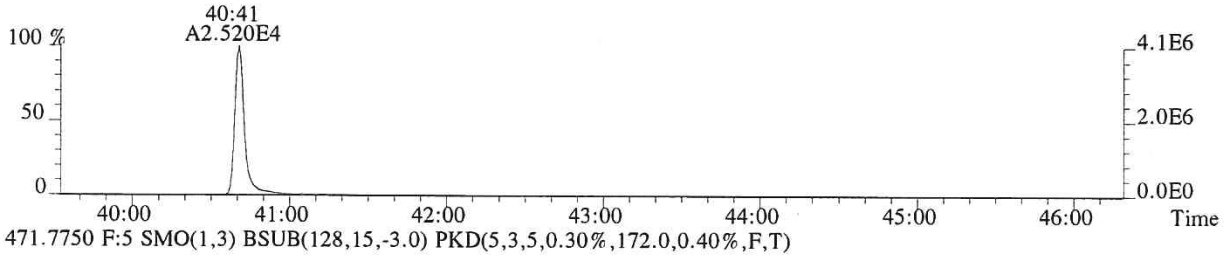
File:P518848 #1-610 Acq:16-NOV-2018 08:26:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



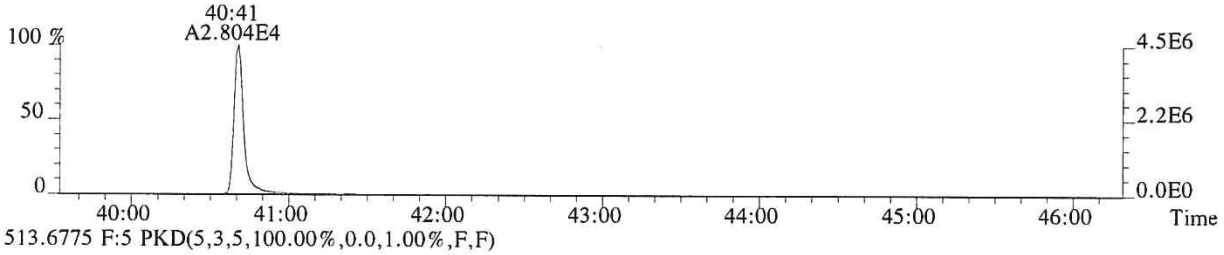
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



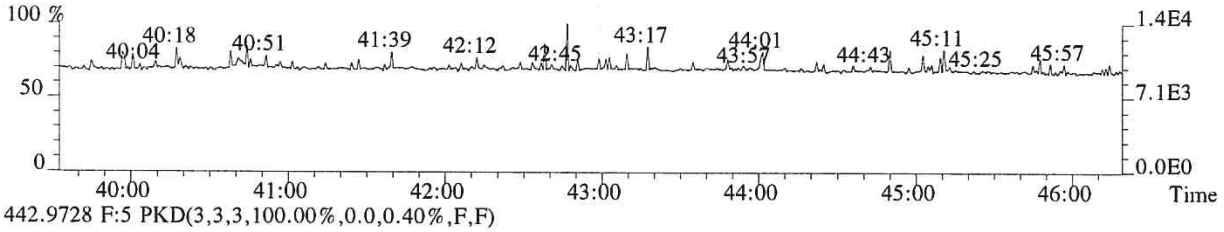
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



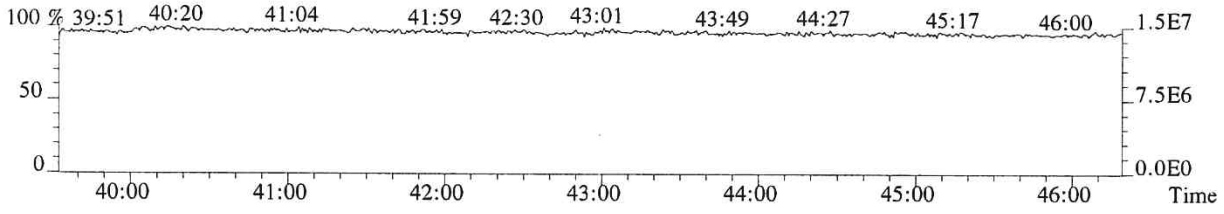
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



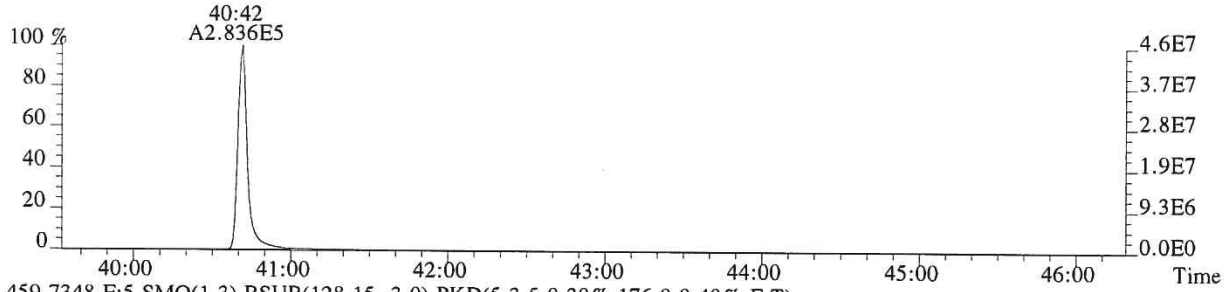
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



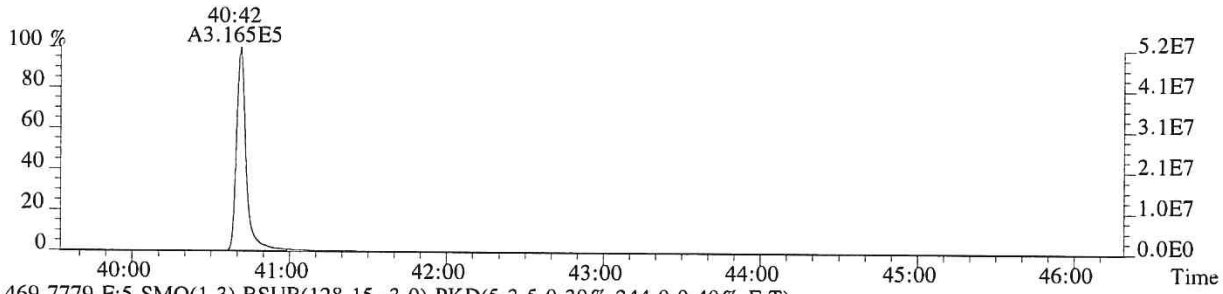
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



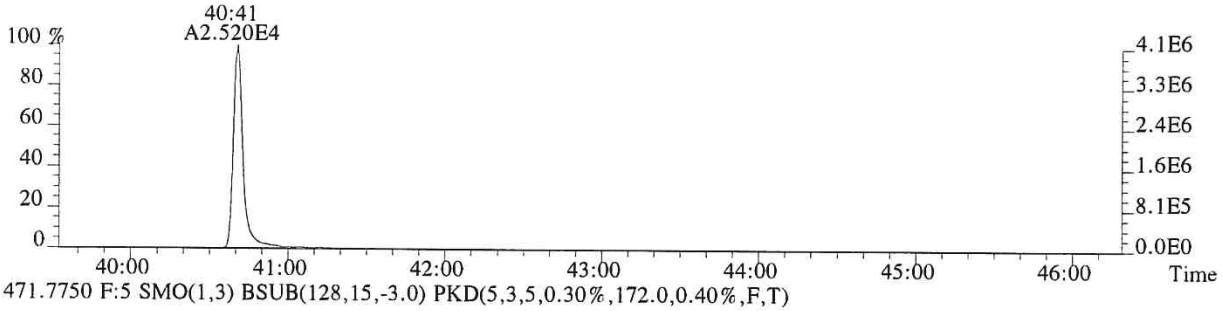
File:P518848 #1-610 Acq:16-NOV-2018 08:26:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



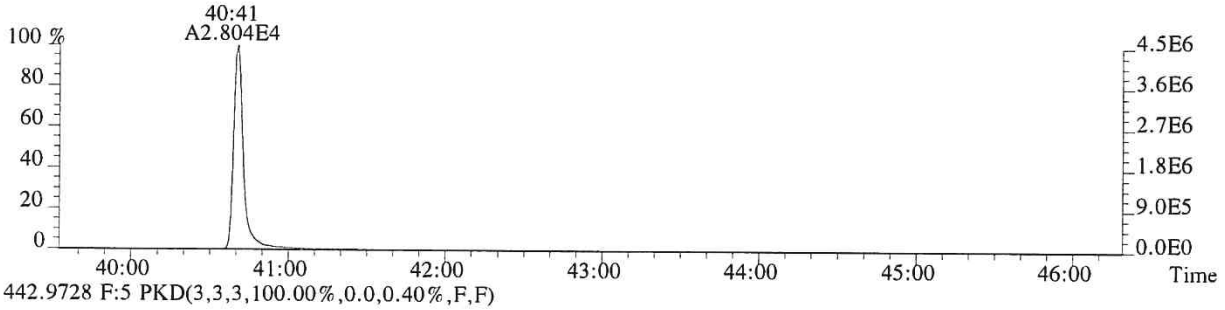
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



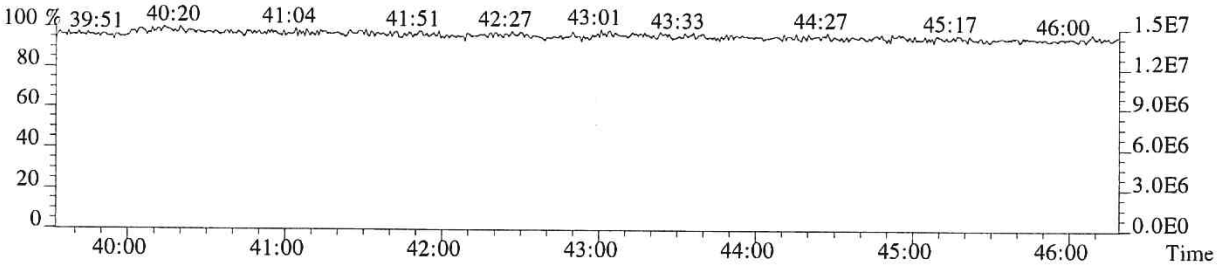
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009620

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0052

Run #19 Filename P518849 Samp: 1 Inj: 1 Acquired: 16-NOV-18 09:15:12
Processed: 19-NOV-18 09:11:56 Sample ID: E1801020-012

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	8.861e+02	1.109e+03	0.80	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	9.151e+01	5.819e+01	1.57	yes	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	5.494e+01	5.367e+01	1.02	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	1.427e+02	1.180e+02	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:35	5.103e+01	4.755e+01	1.07	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.413e+01	6.861e+00	2.06	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:57	1.409e+01	1.020e+01	1.38	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	9.335e+01	8.636e+01	1.08	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	1.432e+01	1.430e+01	1.00	yes	yes	1.258
10	Unk	OCDF	40:51	8.380e+01	9.003e+01	0.93	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:35	2.568e+02	3.205e+02	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	3.058e+01	3.564e+01	0.86	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	5.743e+02	5.614e+02	1.02	yes	no	1.025
17	Unk	OCDD	40:42	9.522e+03	1.059e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	7.326e+03	9.456e+03	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	1.965e+04	1.261e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.094e+04	1.313e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.079e+04	2.077e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.372e+04	2.637e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.294e+04	2.469e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.201e+04	2.238e+04	0.54	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	9.100e+03	2.040e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	9.326e+03	2.088e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	5.583e+03	7.068e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.514e+04	9.424e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.621e+04	1.241e+04	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.737e+04	1.352e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.913e+04	1.780e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:41	1.885e+04	2.105e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	2.013e+04	2.539e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.447e+04	2.573e+04	1.34	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	6.562e+03				no	1.014

$$\text{OCDD} = \frac{(9.522e+03 + 1.059e+04) \times 4000\ \text{pg} \times 1}{(1.885e+04 + 2.105e+04) \times 10.596\ \text{g} \times 80.2 / 100 \times 1.118} = 212.219\ \text{ng/kg}$$

LG 11/26/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0052

Run #19 Filename P518849 Samp: 1 Inj: 1 Acquired: 16-NOV-18 09:15:12
Processed: 19-NOV-18 09:11:56 LAB. ID: E1801020-012

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.14e+05	8.64e+02	1.3e+02	1.47e+05	1.16e+03	1.3e+02
2	1,2,3,7,8-PeCDF	1.63e+04	6.80e+02	2.4e+01	9.76e+03	7.48e+02	1.3e+01
3	2,3,4,7,8-PeCDF	8.28e+03	6.80e+02	1.2e+01	9.48e+03	7.48e+02	1.3e+01
4	1,2,3,4,7,8-HxCDF	2.59e+04	4.32e+02	6.0e+01	2.19e+04	3.36e+02	6.5e+01
5	1,2,3,6,7,8-HxCDF	8.48e+03	4.32e+02	2.0e+01	1.05e+04	3.36e+02	3.1e+01
6	2,3,4,6,7,8-HxCDF	3.49e+03	4.32e+02	8.1e+00	2.06e+03	3.36e+02	6.1e+00
7	1,2,3,7,8,9-HxCDF	2.95e+03	4.32e+02	6.8e+00	2.75e+03	3.36e+02	8.2e+00
8	1,2,3,4,6,7,8-HpCDF	1.76e+04	2.56e+02	6.9e+01	1.73e+04	2.52e+02	6.8e+01
9	1,2,3,4,7,8,9-HpCDF	2.09e+03	2.56e+02	8.2e+00	2.16e+03	2.52e+02	8.6e+00
10	OCDF	1.63e+04	5.64e+02	2.9e+01	1.61e+04	5.72e+02	2.8e+01
11	2,3,7,8-TCDD	4.20e+04	1.21e+03	3.5e+01	4.96e+04	1.04e+03	4.8e+01
12	1,2,3,7,8-PeCDD	*	1.06e+03	*	*	4.16e+02	*
13	1,2,3,4,7,8-HxCDD	*	8.56e+02	*	*	1.20e+03	*
14	1,2,3,6,7,8-HxCDD	*	8.56e+02	*	*	1.20e+03	*
15	1,2,3,7,8,9-HxCDD	7.24e+03	8.56e+02	8.5e+00	6.00e+03	1.20e+03	5.0e+00
16	1,2,3,4,6,7,8-HpCDD	1.12e+05	1.60e+03	7.0e+01	1.09e+05	1.73e+03	6.3e+01
17	OCDD	1.47e+06	5.16e+02	2.8e+03	1.67e+06	1.88e+02	8.9e+03
18	13C-2,3,7,8-TCDF	1.00e+06	2.80e+03	3.6e+02	1.21e+06	1.59e+03	7.6e+02
19	13C-1,2,3,7,8-PeCDF	3.12e+06	1.84e+02	1.7e+04	1.97e+06	5.48e+02	3.6e+03
20	13C-2,3,4,7,8-PeCDF	3.53e+06	1.84e+02	1.9e+04	2.29e+06	5.48e+02	4.2e+03
21	13C-1,2,3,4,7,8-HxCDF	2.22e+06	5.12e+02	4.3e+03	4.18e+06	5.08e+02	8.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.52e+06	5.12e+02	4.9e+03	4.72e+06	5.08e+02	9.3e+03
23	13C-2,3,4,6,7,8-HxCDF	2.41e+06	5.12e+02	4.7e+03	4.63e+06	5.08e+02	9.1e+03
24	13C-1,2,3,7,8,9-HxCDF	2.06e+06	5.12e+02	4.0e+03	3.92e+06	5.08e+02	7.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.74e+06	1.52e+03	1.1e+03	3.94e+06	5.92e+03	6.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.67e+06	1.52e+03	1.1e+03	3.71e+06	5.92e+03	6.3e+02
27	13C-2,3,7,8-TCDD	8.17e+05	4.88e+03	1.7e+02	1.02e+06	1.81e+03	5.6e+02
28	13C-1,2,3,7,8-PeCDD	2.55e+06	2.56e+02	1.0e+04	1.59e+06	7.92e+02	2.0e+03
29	13C-1,2,3,4,7,8-HxCDD	3.49e+06	1.01e+03	3.4e+03	2.69e+06	4.68e+02	5.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.19e+06	1.01e+03	3.2e+03	2.51e+06	4.68e+02	5.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+06	3.72e+02	9.3e+03	3.19e+06	3.64e+02	8.8e+03
32	13C-OCDD	2.89e+06	2.64e+02	1.1e+04	3.33e+06	4.16e+02	8.0e+03
33	13C-1,2,3,4-TCDD	2.98e+06	4.88e+03	6.1e+02	3.75e+06	1.81e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	5.95e+06	1.01e+03	5.9e+03	4.69e+06	4.68e+02	1.0e+04
35	37Cl-2,3,7,8-TCDD	9.26e+05	6.96e+02	1.3e+03			

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Peak List Summary

CLIENT ID.
SL0052

Entry: 36 Totals Name: Total Tetra-Furans

Run: 19 File: P518849 Sample:1 Injection:1 Function:1

Acquired: 16-NOV-18 09:15:12 Processed: 19-NOV-18 09:11:56

Mass: 303.9020 305.8990 Tot Response: 2.82e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:34	2.73e+02	4.05e+02	0.67	yes	6.78e+02		n	n
2	25:34	8.86e+02	1.11e+03	0.80	yes	2.00e+03	2,3,7,8-TCDF	n	n
3	25:59	6.47e+01	8.33e+01	0.78	yes	1.48e+02		n	n

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Peak List Summary

CLIENT ID.
SL0052

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 19 File: P518849 Sample:1 Injection:1 Function:1

Acquired: 16-NOV-18 09:15:12 Processed: 19-NOV-18 09:11:56

Mass: 319.8970 321.8940 Tot Response: 5.77e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:35	2.57e+02	3.20e+02 0.80	yes	5.77e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0052

Entry: 39 Totals Name: Total Penta-Furans2

Run: 19 File: P518849 Sample:1 Injection:1 Function:2

Acquired: 16-NOV-18 09:15:12 Processed: 19-NOV-18 09:11:56

Mass: 339.8600 341.8570 Tot Response: 2.10e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:32	3.48e+01	2.51e+01 1.39	yes	6.00e+01		n	y
2	30:35	9.15e+01	5.82e+01 1.57	yes	1.50e+02	1,2,3,7,8-PeCDF	n	y

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Peak List Summary

CLIENT ID.
SL0052

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 19 File: P518849 Sample:1 Injection:1 Function:2

Acquired: 16-NOV-18 09:15:12 Processed: 19-NOV-18 09:11:56

Mass: 355.8550 357.8520 Tot Response: 1.49e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:06	9.49e+01	5.42e+01 1.75	yes	1.49e+02		n	n

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Peak List Summary

CLIENT ID.
SL0052

Entry: 41 Totals Name: Total Hexa-Furans

Run: 19 File: P518849 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 09:15:12 Processed: 19-NOV-18 09:11:56

Mass: 373.8210 375.8180 Tot Response: 4.41e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:29	1.43e+02	1.18e+02	1.21	yes	2.61e+02	1,2,3,4,7,8-HxCDF	n	n
2	34:35	5.10e+01	4.75e+01	1.07	yes	9.86e+01	1,2,3,6,7,8-HxCDF	n	n
3	35:01	3.05e+01	2.74e+01	1.11	yes	5.80e+01		n	n
4	35:57	1.41e+01	1.02e+01	1.38	yes	2.43e+01	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0052

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 19 File: P518849 Sample:1 Injection:1 Function:3

Acquired: 16-NOV-18 09:15:12 Processed: 19-NOV-18 09:11:56

Mass: 389.8160 391.8130 Tot Response: 1.60e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	7.64e+02	6.03e+02 1.27	yes	1.37e+03		n	n
2	34:41	1.39e+02	9.80e+01 1.41	yes	2.37e+02		n	n

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Peak List Summary

CLIENT ID.
SL0052

Entry: 43 Totals Name: Total Hepta-Furans

Run: 19 File: P518849 Sample:1 Injection:1 Function:4

Acquired: 16-NOV-18 09:15:12 Processed: 19-NOV-18 09:11:56

Mass: 407.7820 409.7790 Tot Response: 2.08e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:14	9.33e+01	8.64e+01 1.08	yes	1.80e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	38:36	1.43e+01	1.43e+01 1.00	yes	2.86e+01	1,2,3,4,7,8,9-HpCDF	y	n

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Peak List Summary

CLIENT ID.
SL0052

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 19 File: P518849 Sample:1 Injection:1 Function:4

Acquired: 16-NOV-18 09:15:12 Processed: 19-NOV-18 09:11:56

Mass: 423.7770 425.7740 Tot Response: 4.61e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	1.81e+03	1.67e+03	1.09	yes	3.48e+03		n	n
2	38:10	5.74e+02	5.61e+02	1.02	yes	1.14e+03	1,2,3,4,6,7,8-HpCDD	n	n

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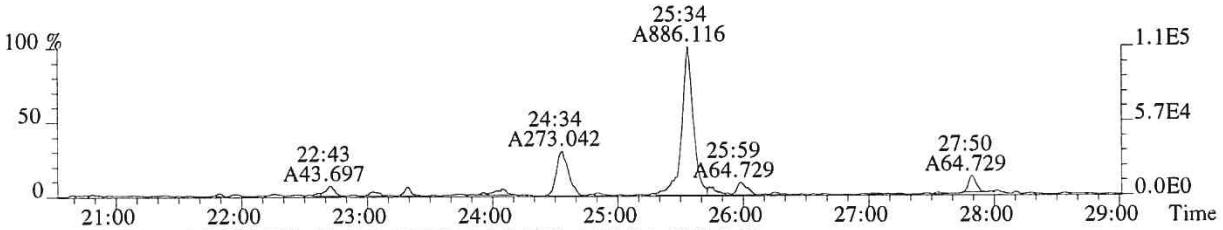
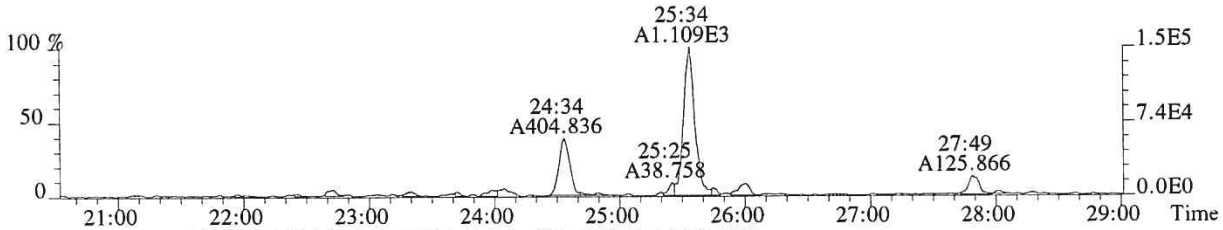
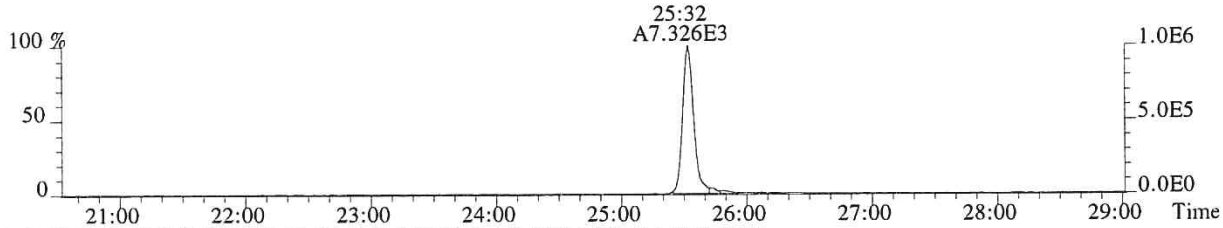
File:P518849 #1-602 Acq:16-NOV-2018 09:15:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-012
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



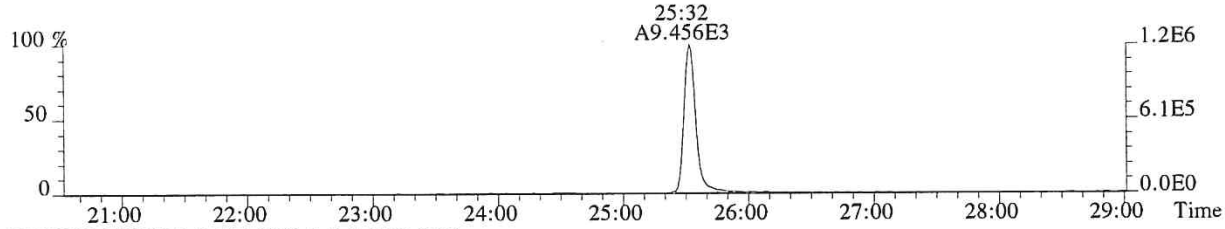
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



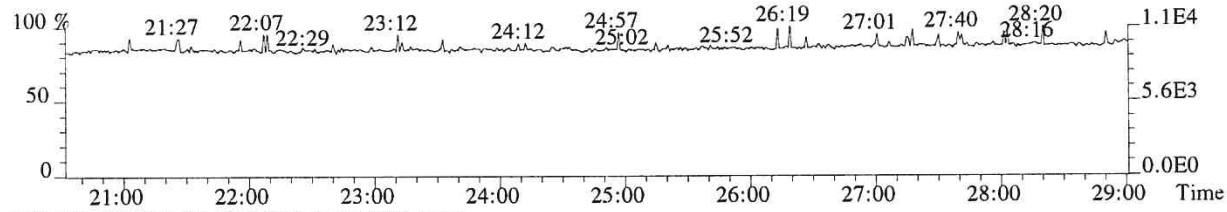
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2804.0,1.00%,F,T)



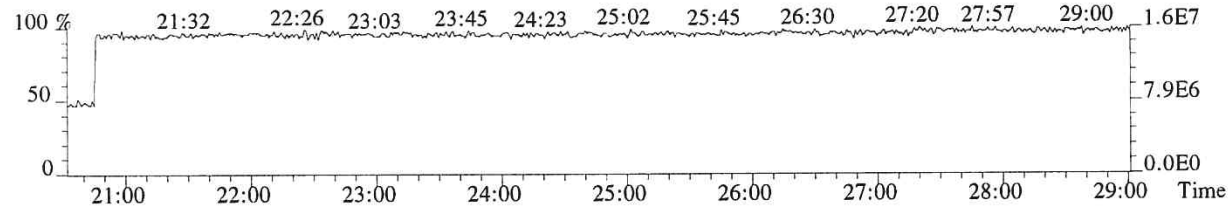
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



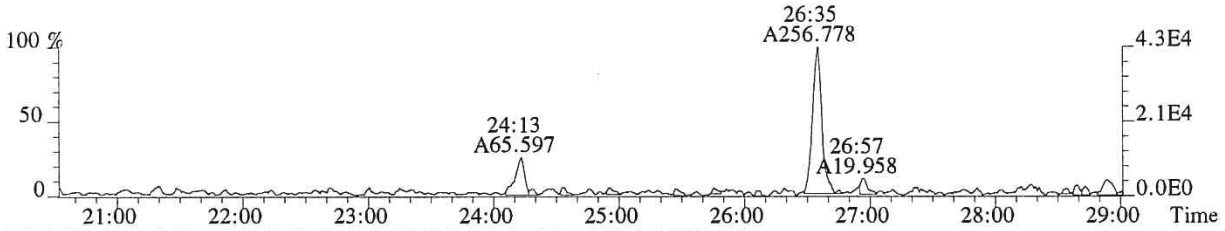
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



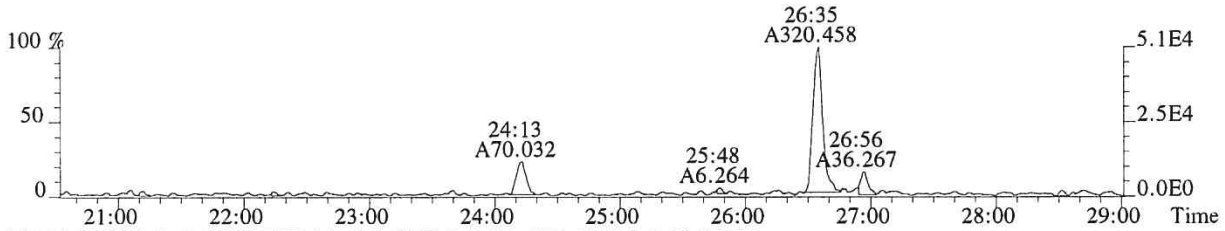
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



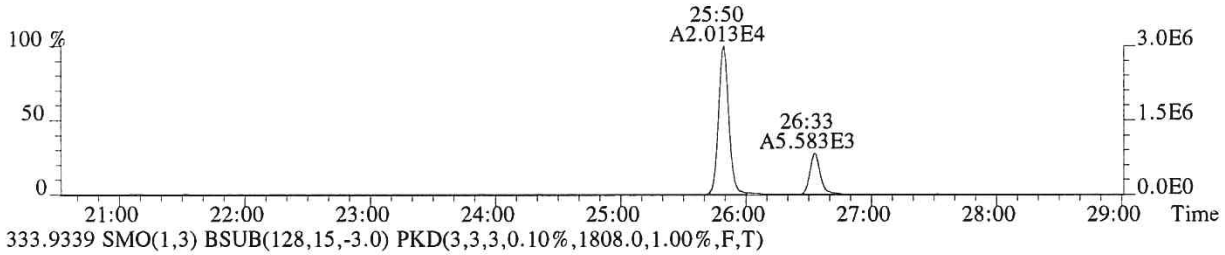
File:P518849 #1-602 Acq:16-NOV-2018 09:15:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-012
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



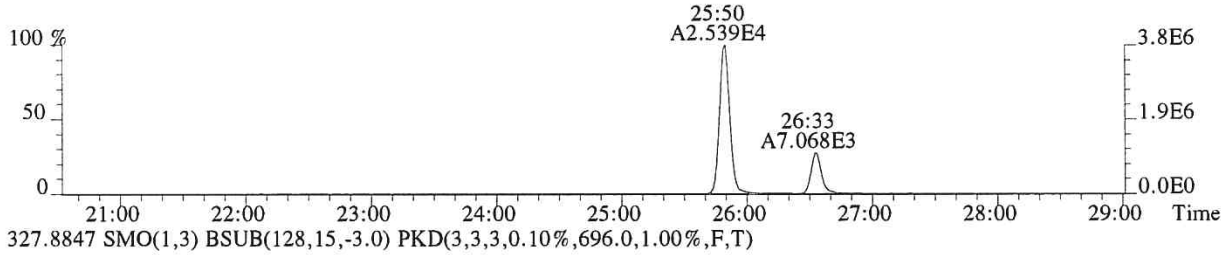
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



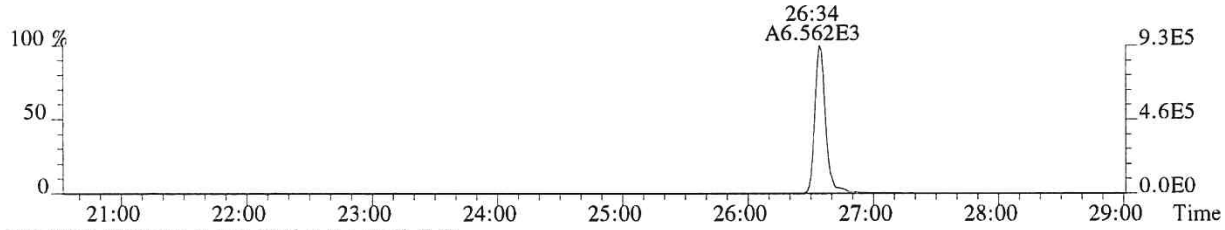
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4880.0,1.00%,F,T)



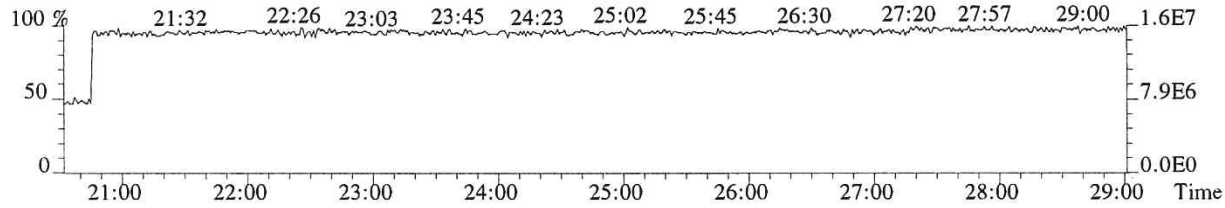
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1808.0,1.00%,F,T)



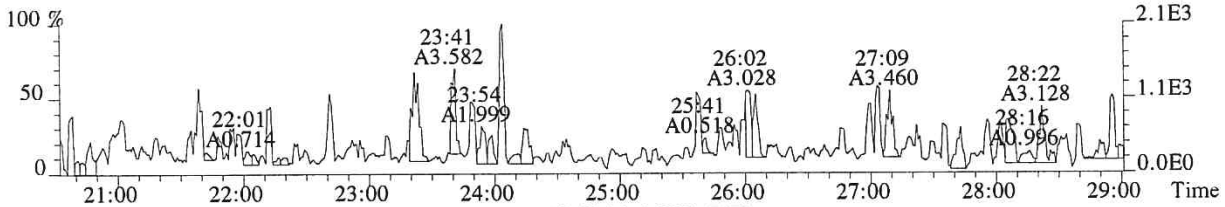
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



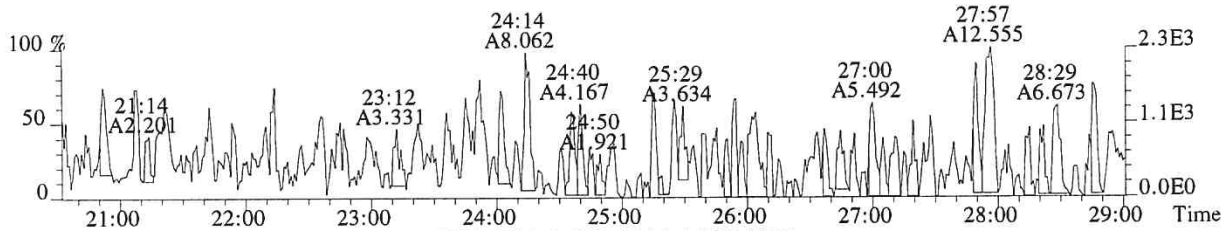
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



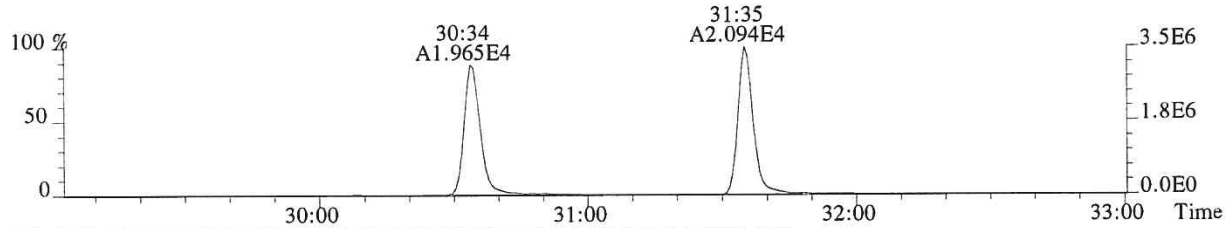
File:P518849 #1-602 Acq:16-NOV-2018 09:15:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-012
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



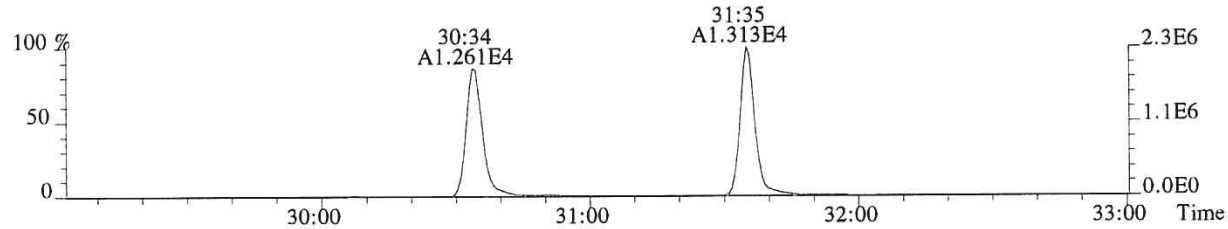
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



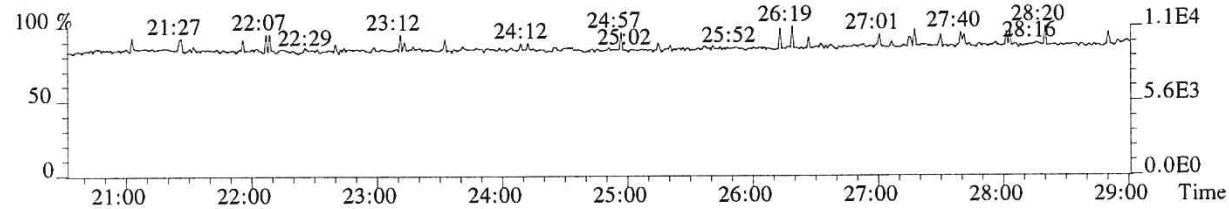
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



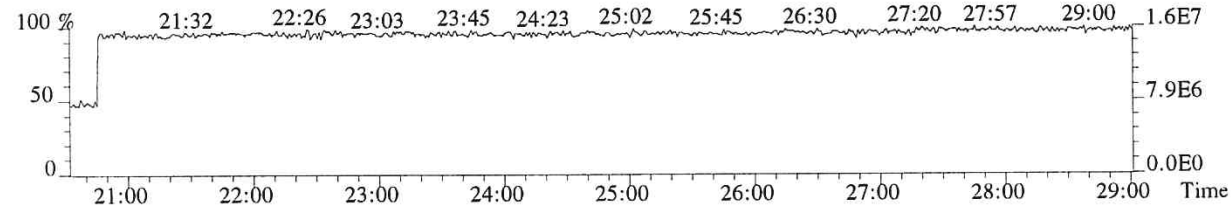
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

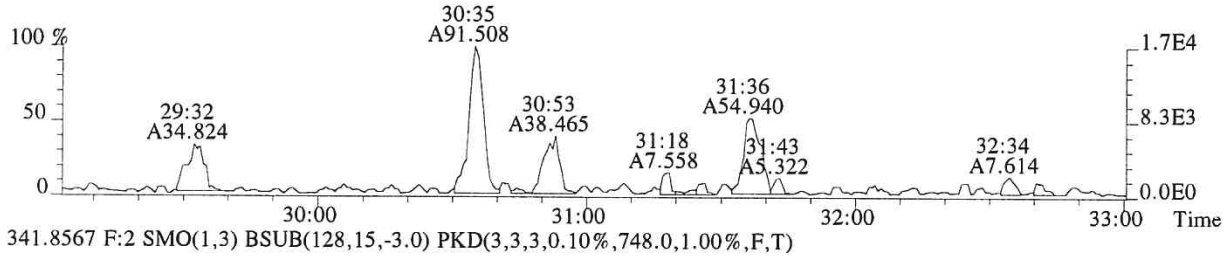


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

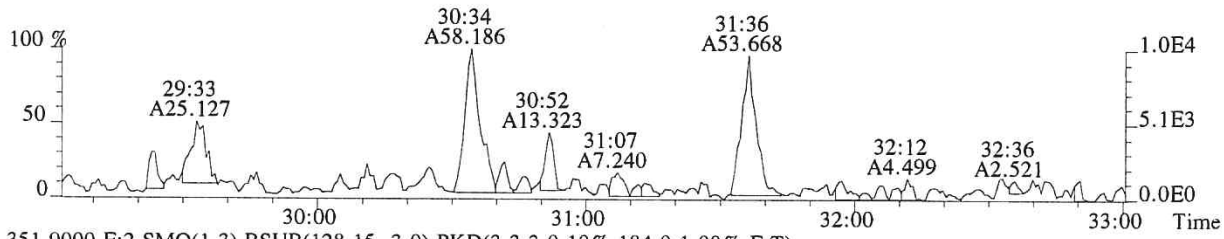


009633

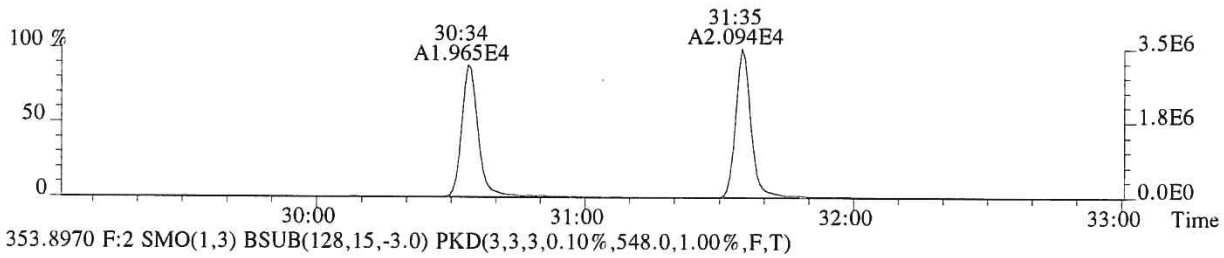
File:P518849 #1-357 Acq:16-NOV-2018 09:15:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-012
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



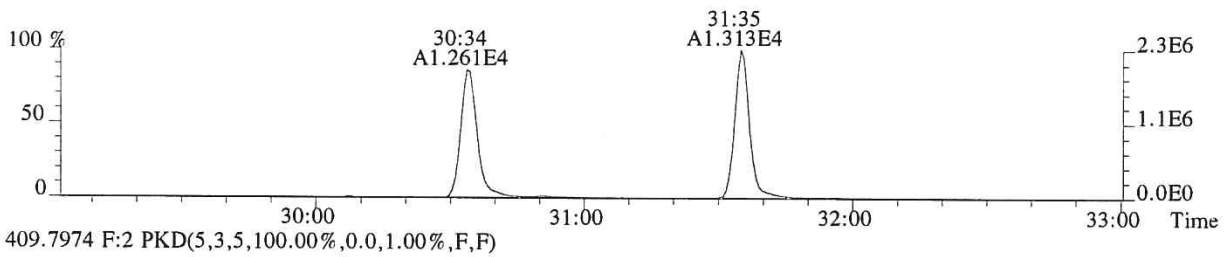
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



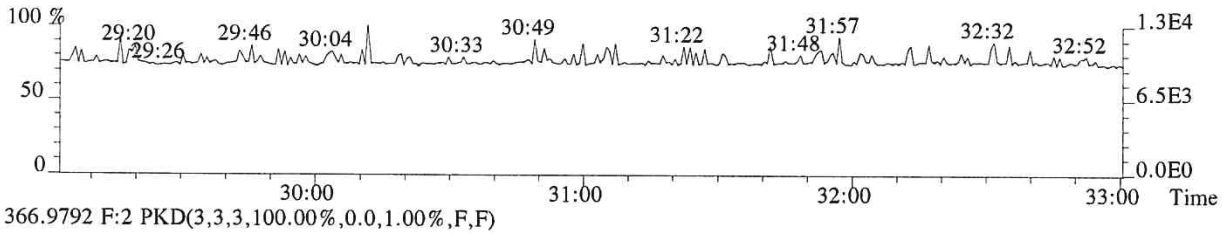
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



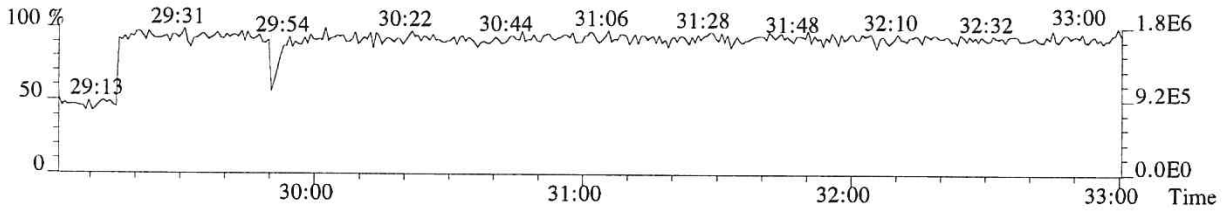
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



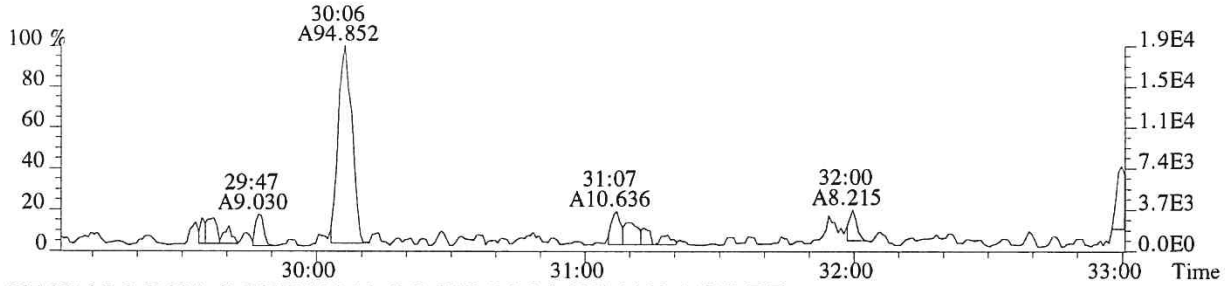
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



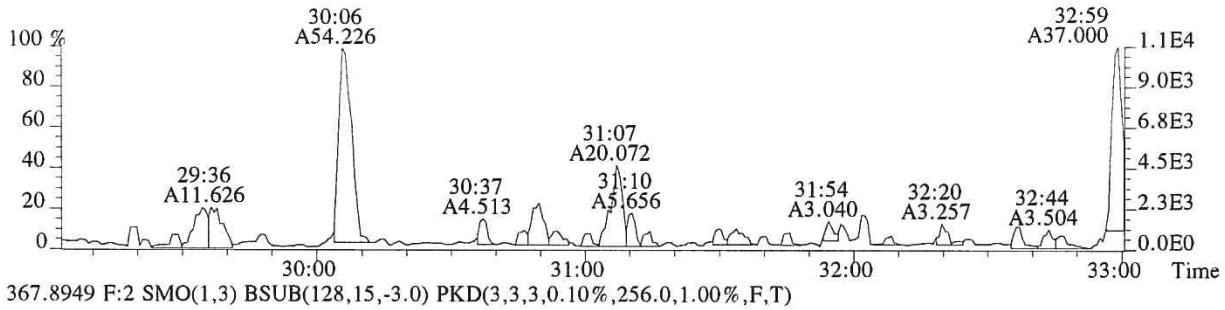
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



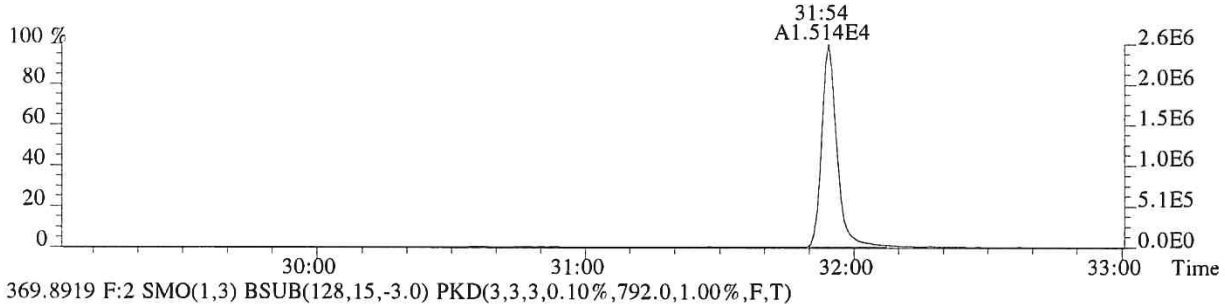
File:P518849 #1-357 Acq:16-NOV-2018 09:15:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-012
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



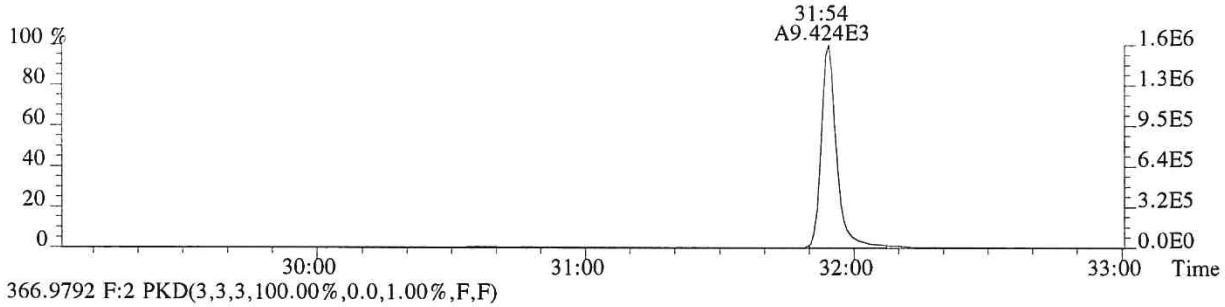
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



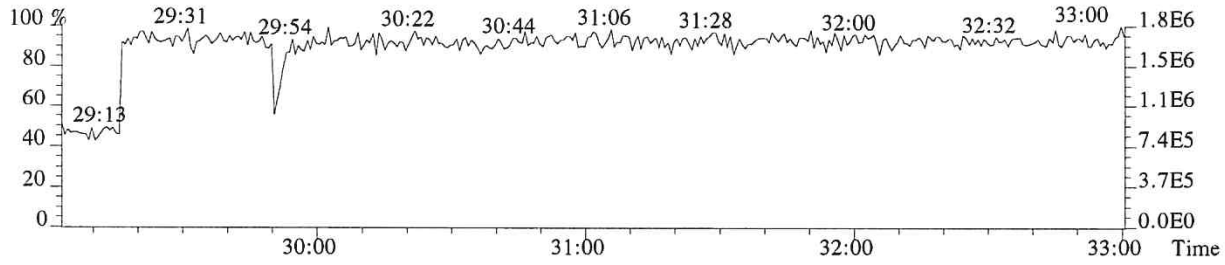
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



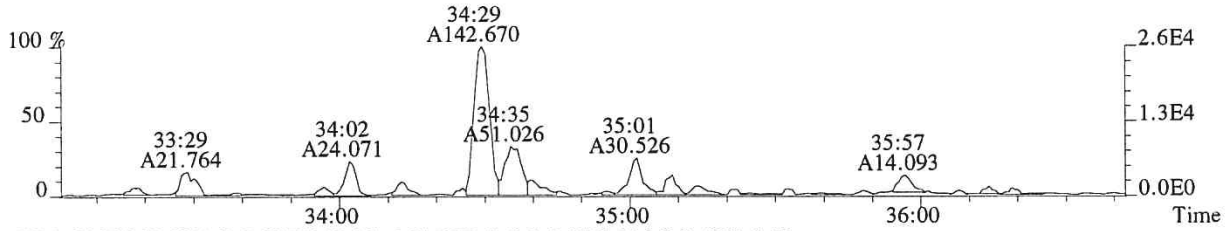
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



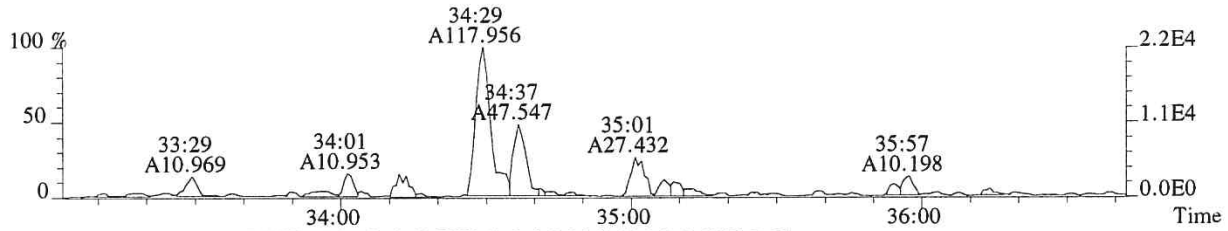
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



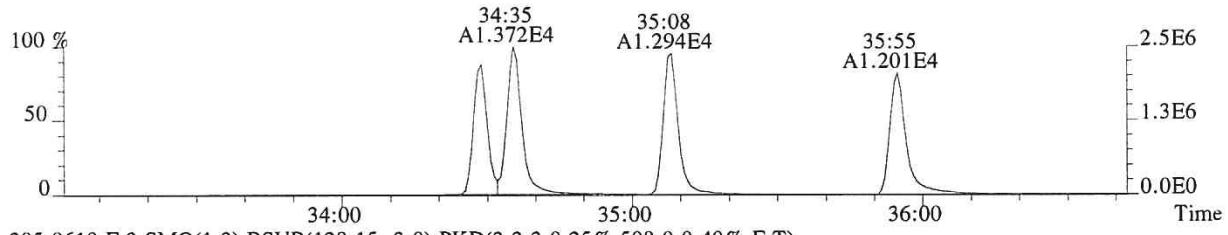
File:P518849 #1-330 Acq:16-NOV-2018 09:15:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-012
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



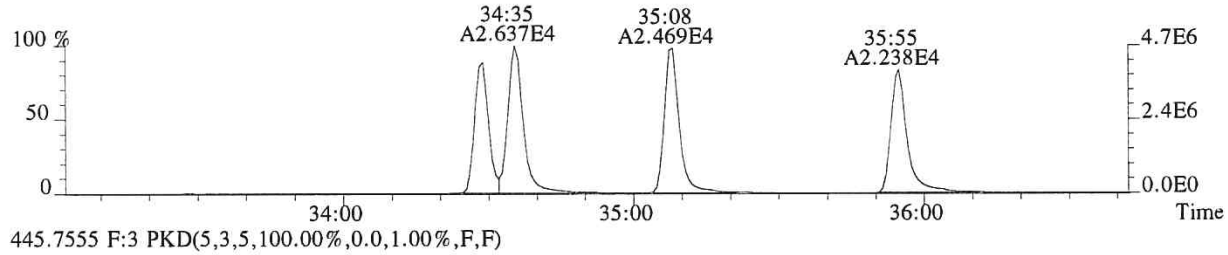
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



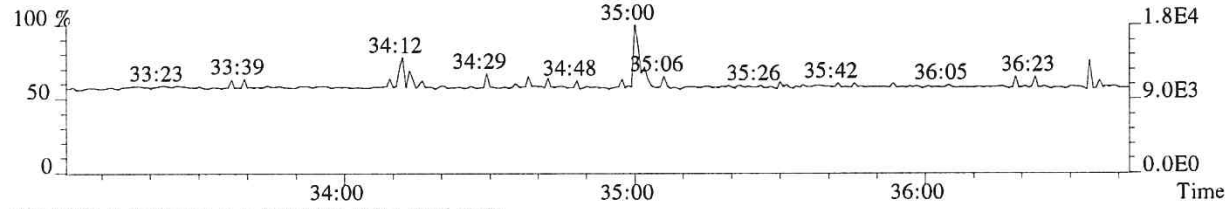
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



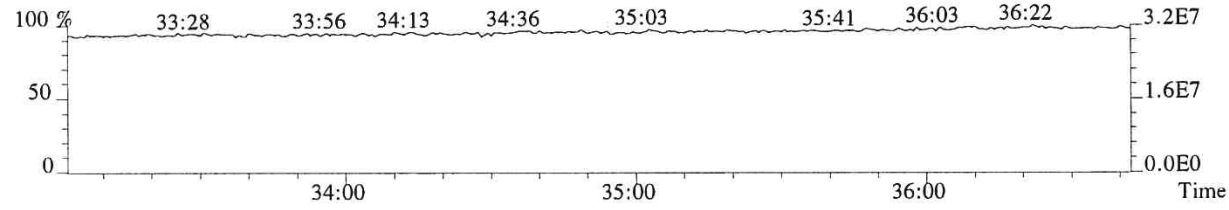
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



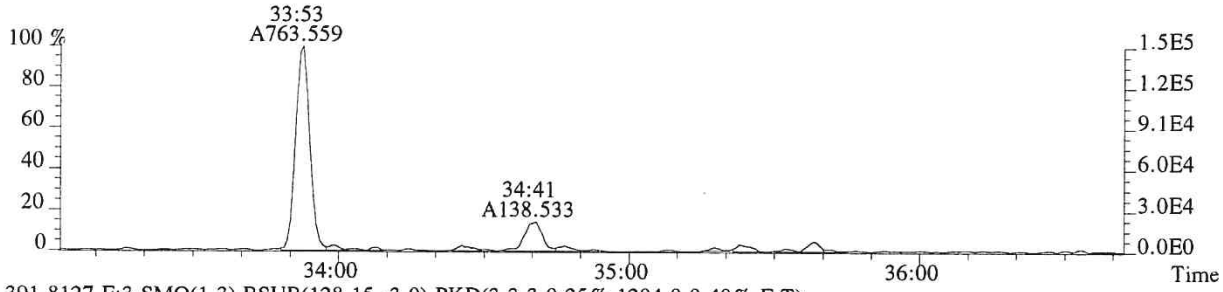
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



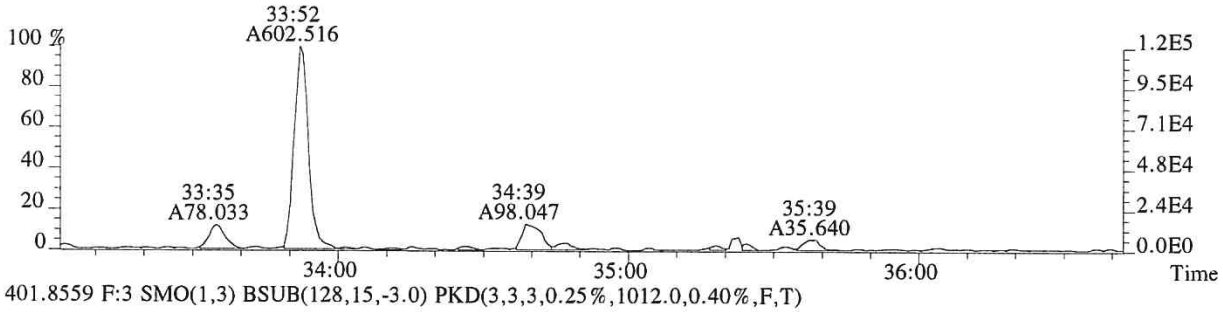
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



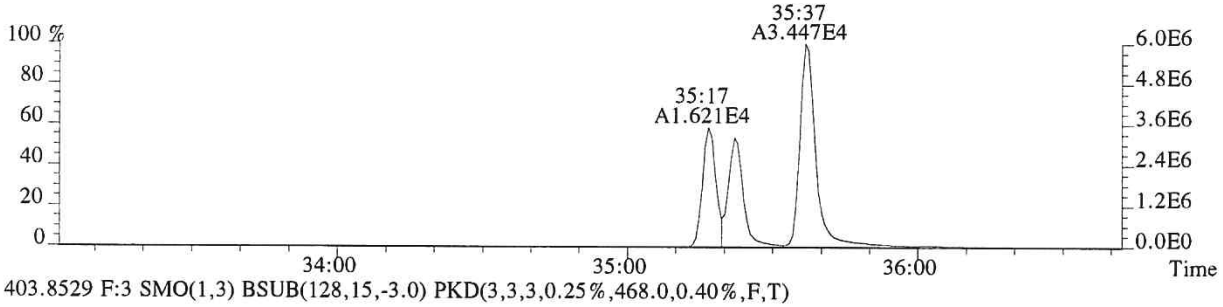
File:P518849 #1-330 Acq:16-NOV-2018 09:15:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-012
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



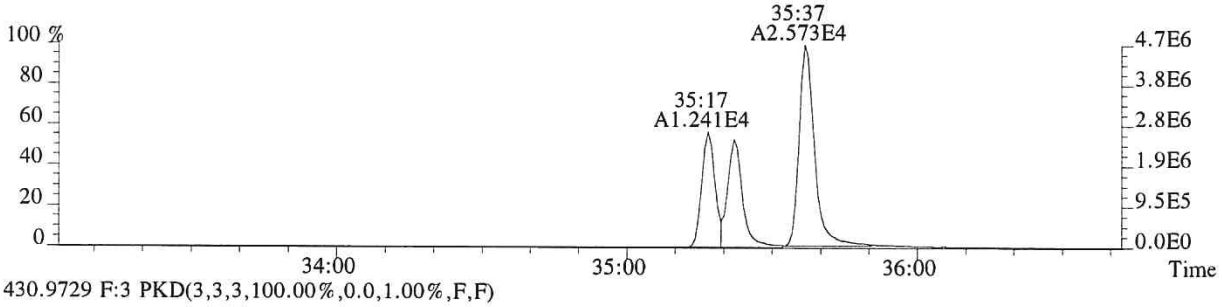
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



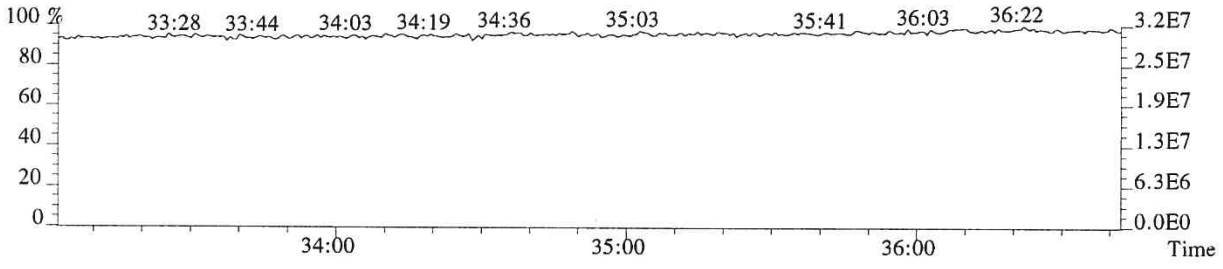
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.40%,F,T)



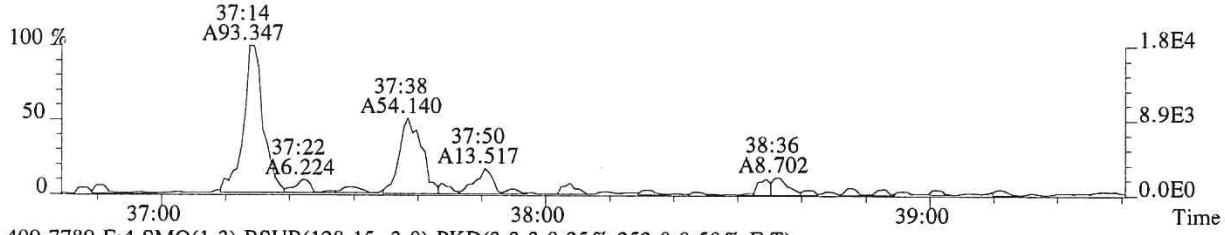
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



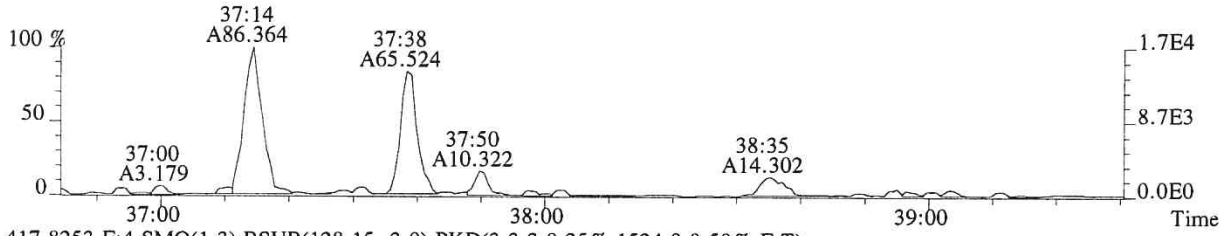
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



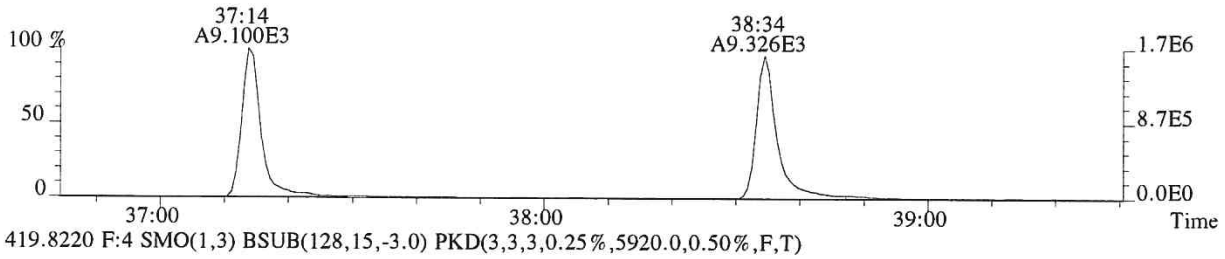
File:P518849 #1-250 Acq:16-NOV-2018 09:15:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-012
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.50%,F,T)



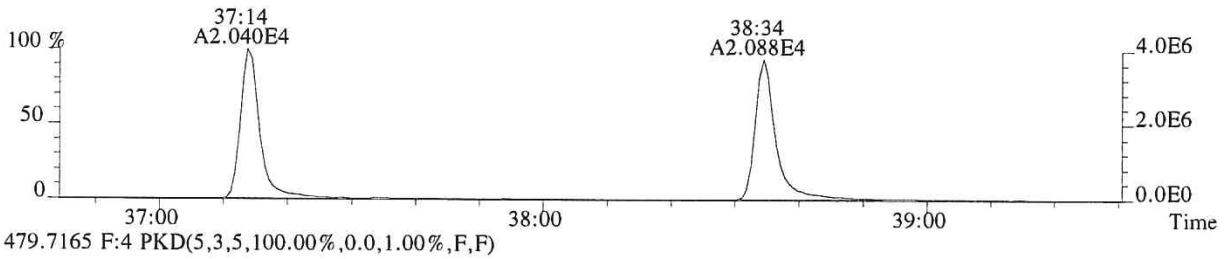
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.50%,F,T)



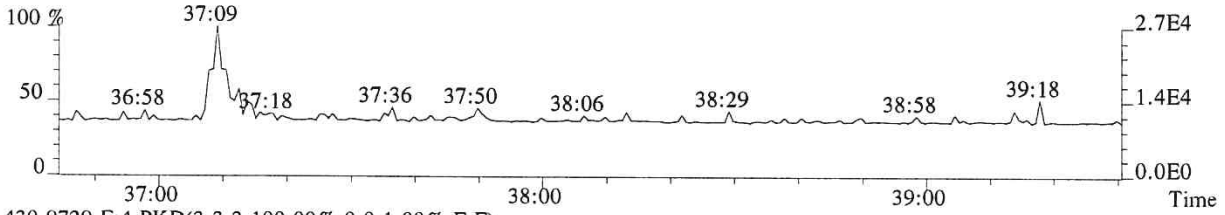
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1524.0,0.50%,F,T)



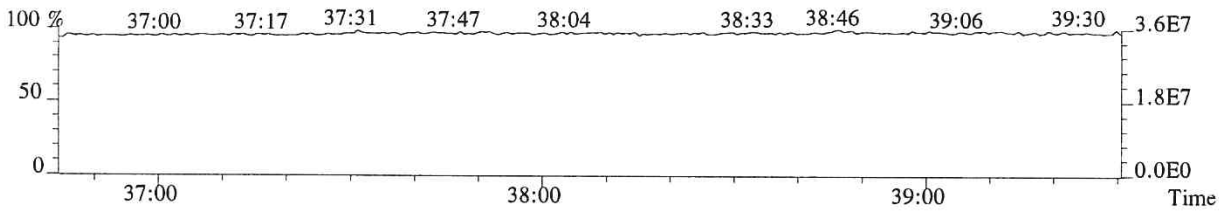
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5920.0,0.50%,F,T)



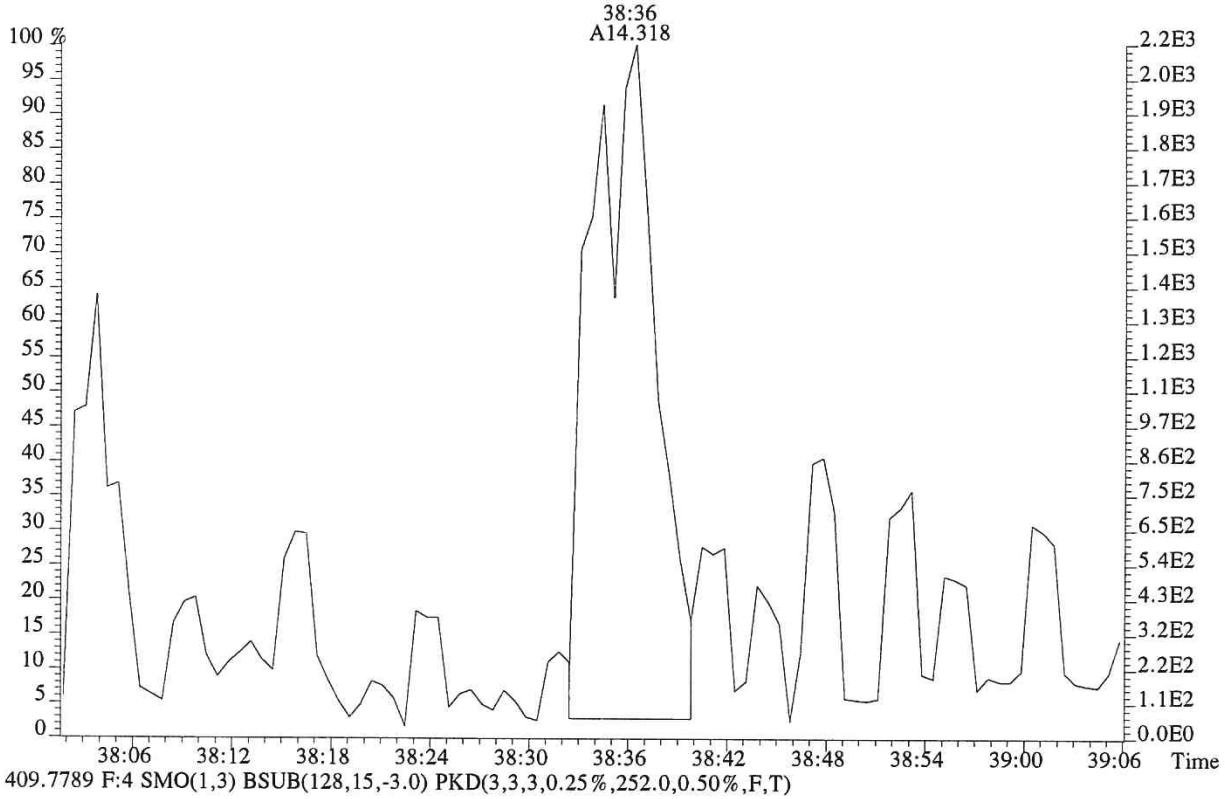
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



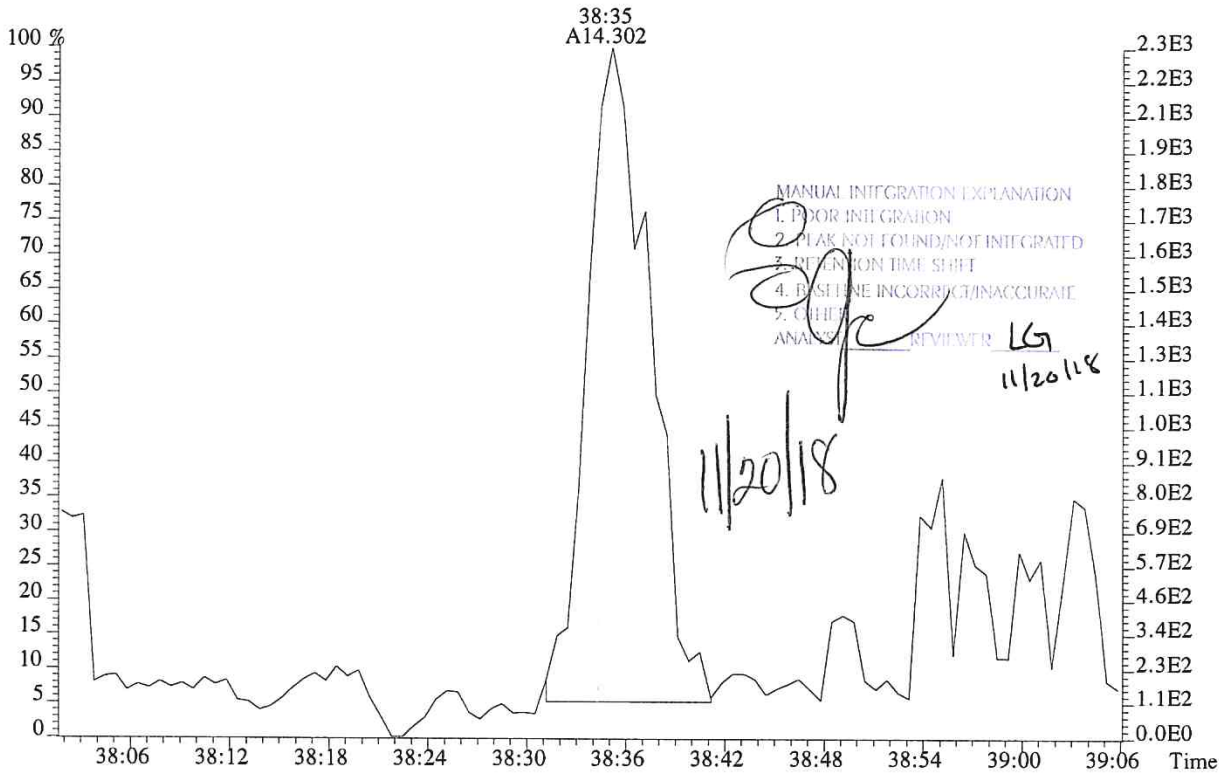
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



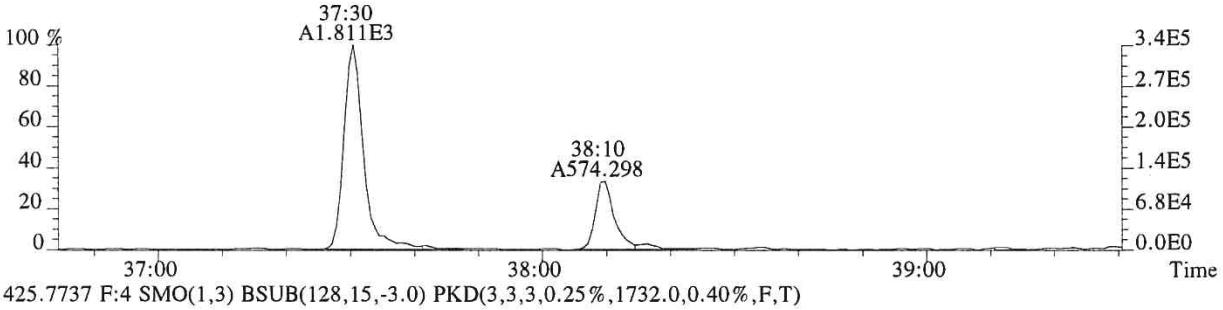
File:P518849 #1-250 Acq:16-NOV-2018 09:15:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-012
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.50%,F,T)



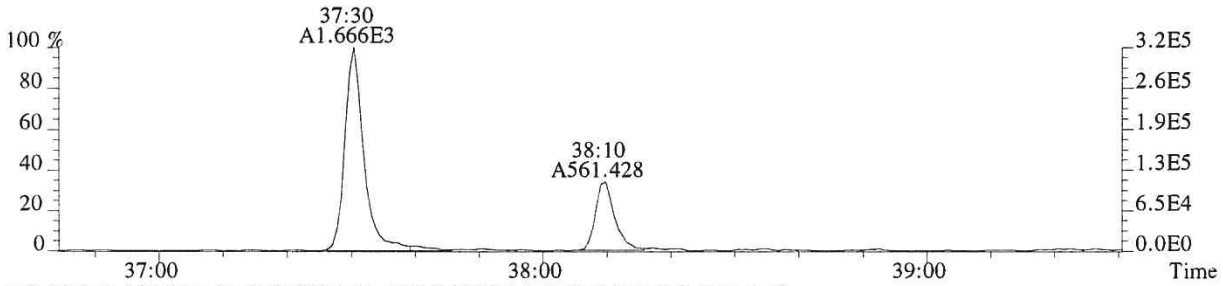
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.50%,F,T)



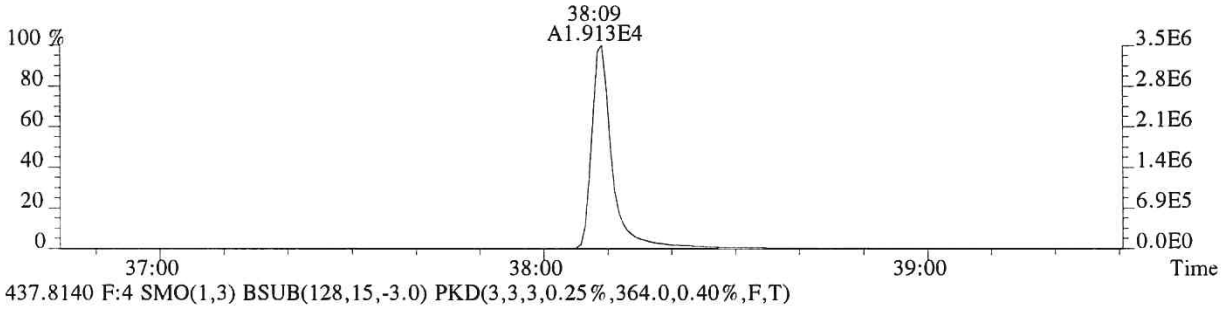
File:P518849 #1-250 Acq:16-NOV-2018 09:15:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-012
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



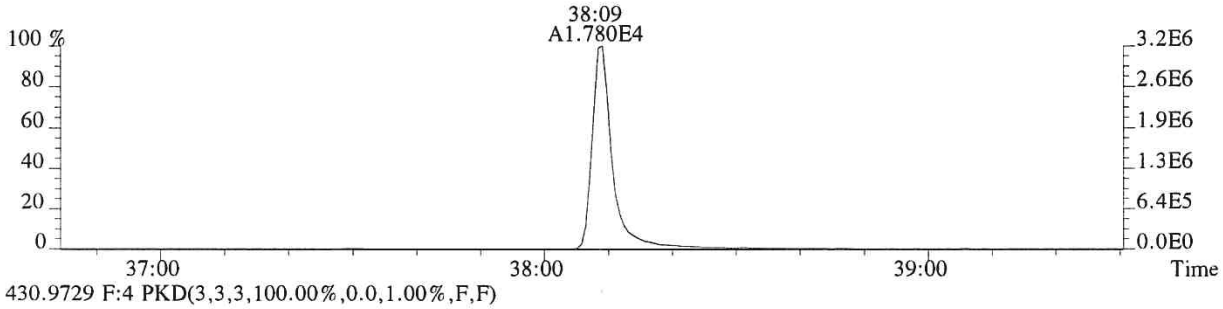
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1732.0,0.40%,F,T)



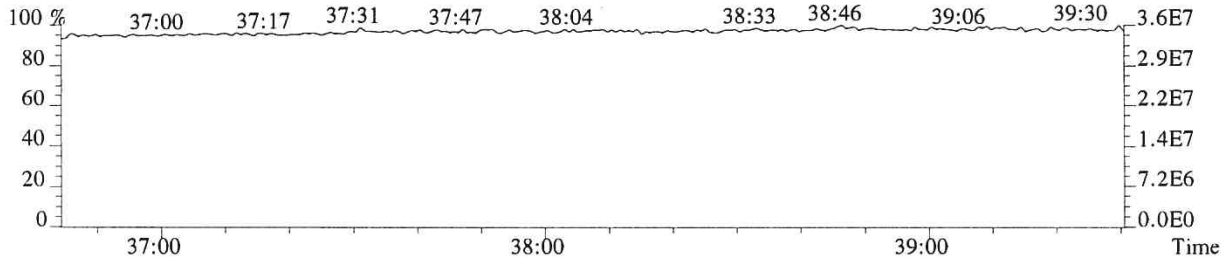
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



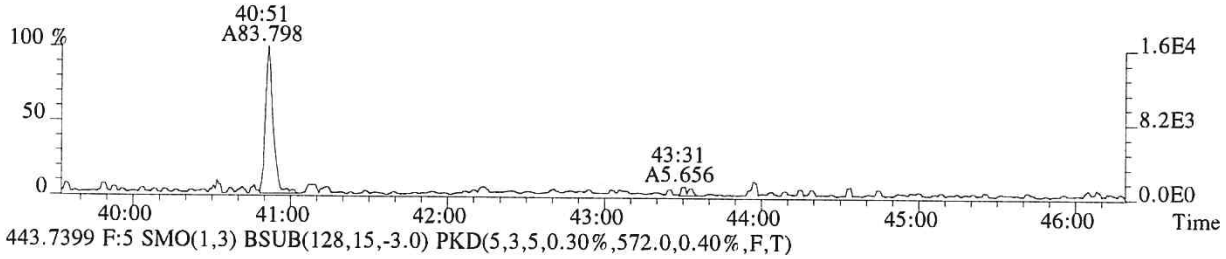
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



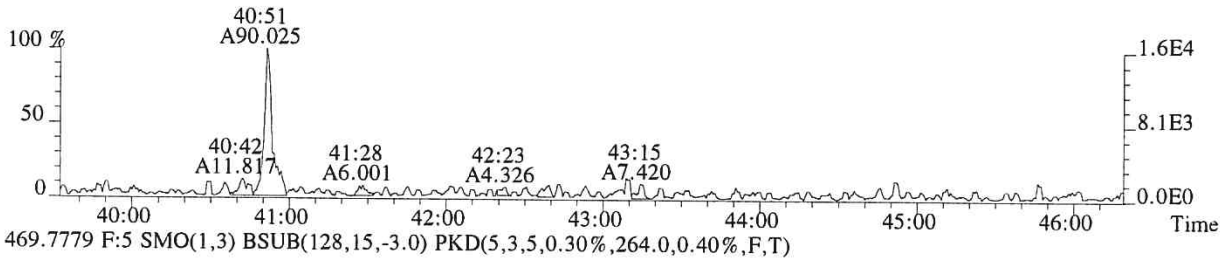
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



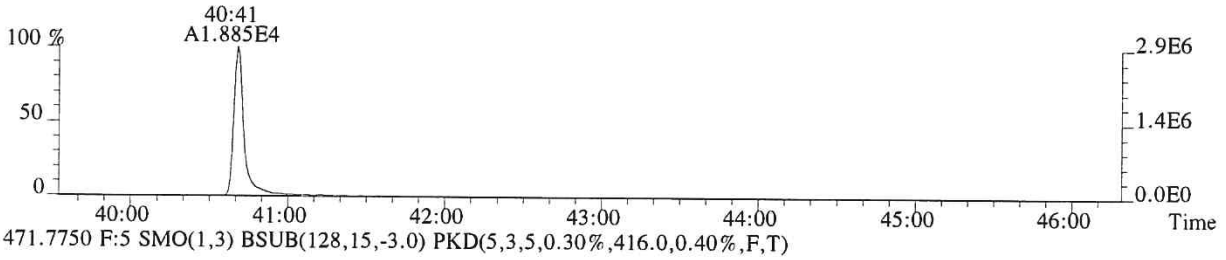
File:P518849 #1-610 Acq:16-NOV-2018 09:15:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-012
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



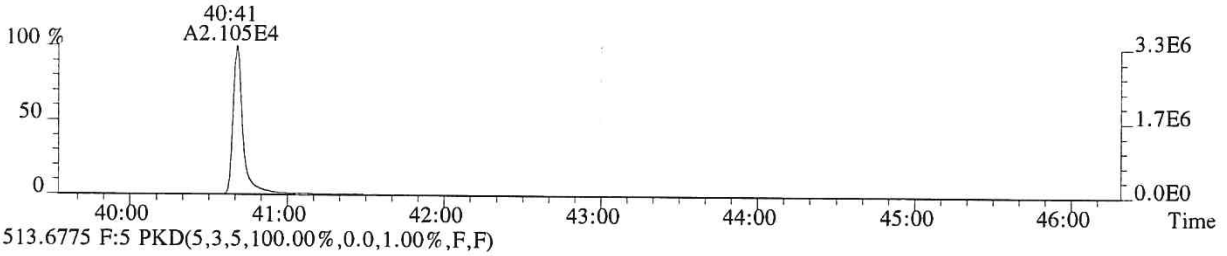
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



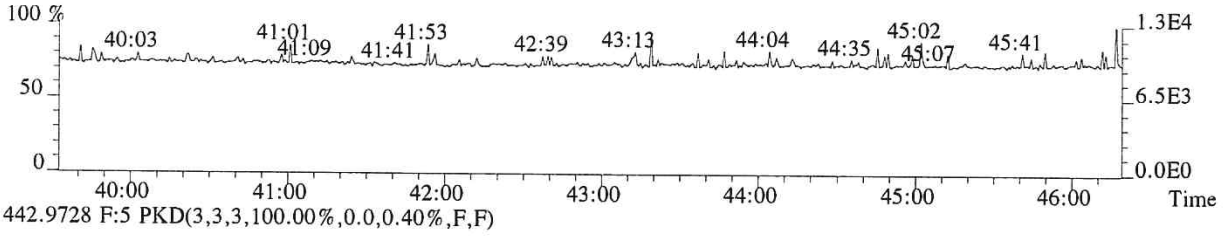
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



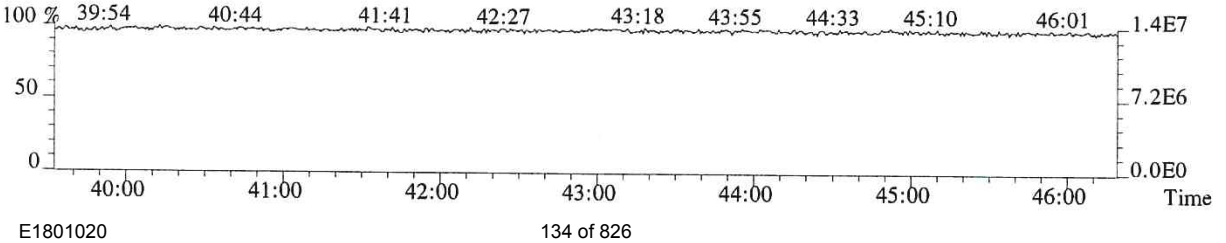
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



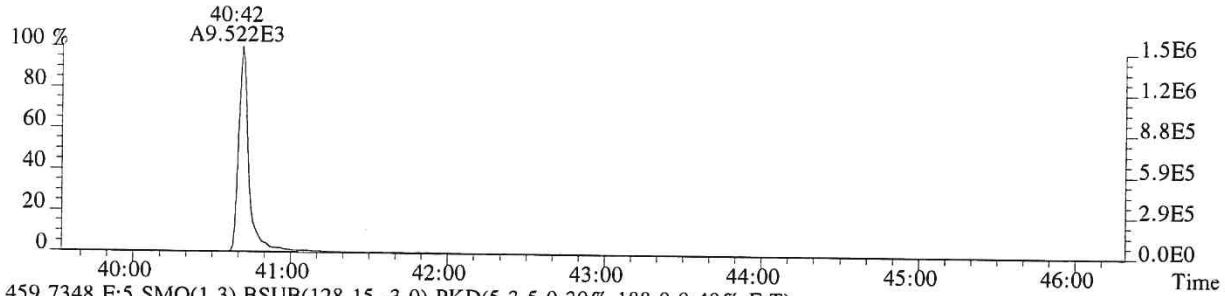
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



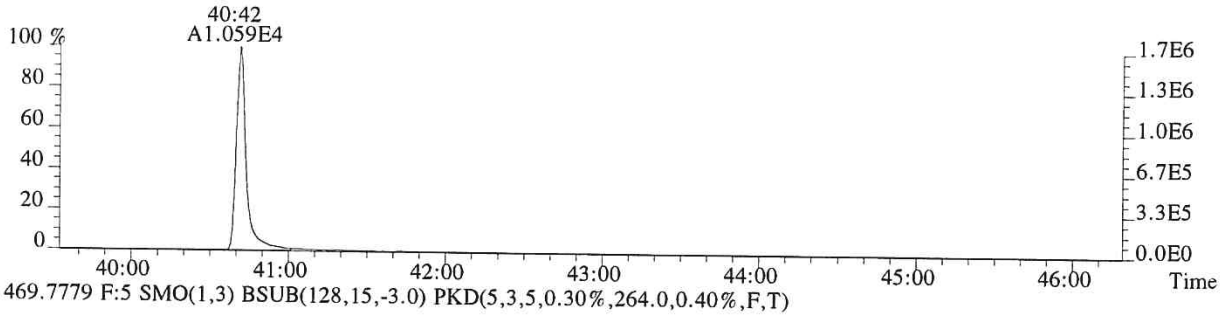
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



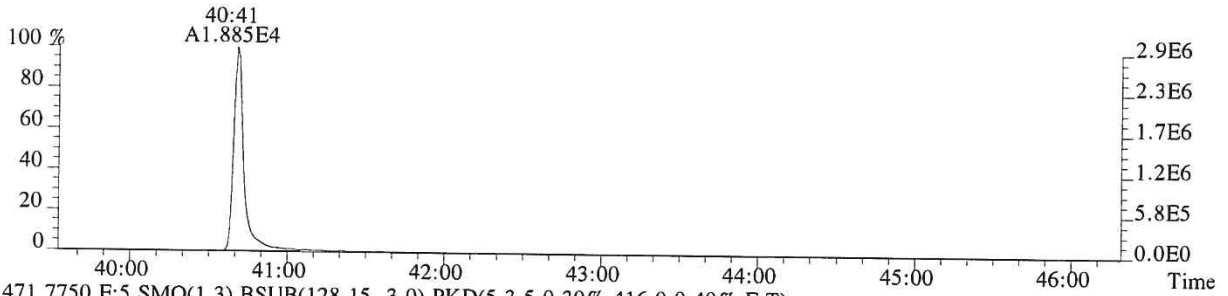
File:P518849 #1-610 Acq:16-NOV-2018 09:15:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-012
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



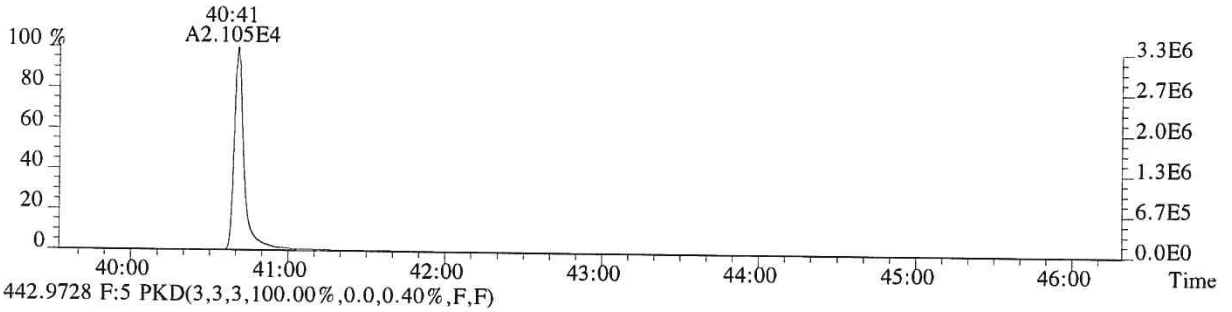
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



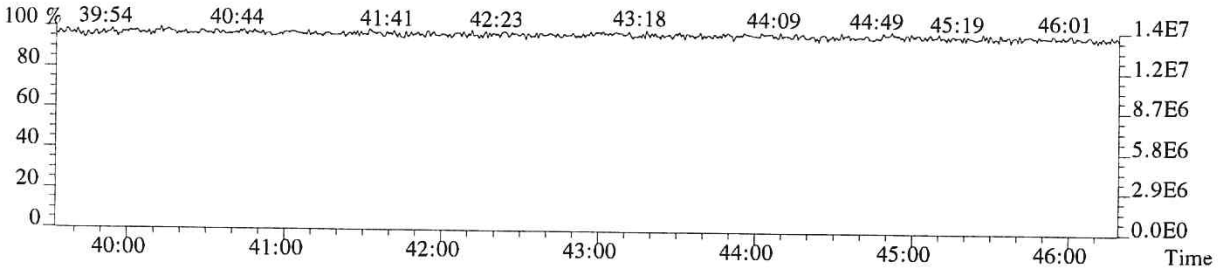
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009642

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0022

Run #11 Filename P518869 Samp: 1 Inj: 1 Acquired: 17-NOV-18 04:21:31
Processed: 21-NOV-18 09:19:29 Sample ID: E1801020-018

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	4.921e+05	6.296e+05	0.78	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:34	2.707e+04	1.773e+04	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	2.217e+04	1.434e+04	1.55	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	4.082e+04	3.351e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:35	1.172e+04	9.638e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:08	2.014e+03	1.785e+03	1.13	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:56	2.913e+03	2.471e+03	1.18	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	1.449e+04	1.457e+04	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	3.417e+03	3.525e+03	0.97	yes	no	1.258
10	Unk	OCDF	40:51	3.989e+04	4.562e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	1.312e+05	1.654e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:54	1.955e+03	1.366e+03	1.43	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	1.520e+02	1.172e+02	1.30	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.871e+02	7.418e+02	1.20	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	4.058e+02	3.784e+02	1.07	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	3.151e+04	3.033e+04	1.04	yes	no	1.025
17	Unk	OCDD	40:42	3.605e+05	3.997e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.997e+04	2.547e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	3.287e+04	2.043e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:34	3.204e+04	1.993e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	1.390e+04	2.688e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.628e+04	3.191e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.478e+04	2.883e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.487e+04	2.856e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:13	1.092e+04	2.371e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	1.010e+04	2.432e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	1.335e+04	1.682e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	2.309e+04	1.470e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:16	1.971e+04	1.508e+04	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:21	2.020e+04	1.601e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	2.108e+04	2.023e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	40:41	2.295e+04	2.519e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	2.299e+04	2.916e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:36	3.545e+04	2.911e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	1.688e+04				no	1.014

$$\text{OCDD} = \frac{(3.605e+05 + 3.997e+05) \times 4000\ \text{pg} \times 1}{(2.295e+04 + 2.519e+04) \times 10.125\ \text{g} \times 13.9 / 100 \times 1.118} = 7550.9309\ \text{ng/kg}$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0022

Run #11 Filename P518869 Samp: 1 Inj: 1 Acquired: 17-NOV-18 04:21:31
Processed: 21-NOV-18 09:19:29 LAB. ID: E1801020-018

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.97e+07	1.25e+03	5.6e+04	8.93e+07	1.85e+03	4.8e+04
2	1,2,3,7,8-PeCDF	4.67e+06	1.26e+04	3.7e+02	3.08e+06	1.35e+04	2.3e+02
3	2,3,4,7,8-PeCDF	3.47e+06	1.26e+04	2.8e+02	2.23e+06	1.35e+04	1.7e+02
4	1,2,3,4,7,8-HxCDF	8.36e+06	2.61e+03	3.2e+03	6.86e+06	8.46e+03	8.1e+02
5	1,2,3,6,7,8-HxCDF	2.10e+06	2.61e+03	8.0e+02	1.75e+06	8.46e+03	2.1e+02
6	2,3,4,6,7,8-HxCDF	4.18e+05	2.61e+03	1.6e+02	3.74e+05	8.46e+03	4.4e+01
7	1,2,3,7,8,9-HxCDF	5.36e+05	2.61e+03	2.1e+02	4.52e+05	8.46e+03	5.3e+01
8	1,2,3,4,6,7,8-HpCDF	2.91e+06	1.94e+03	1.5e+03	2.97e+06	6.40e+03	4.6e+02
9	1,2,3,4,7,8,9-HpCDF	6.71e+05	1.94e+03	3.5e+02	6.67e+05	6.40e+03	1.0e+02
10	OCDF	6.29e+06	2.24e+02	2.8e+04	7.26e+06	6.48e+02	1.1e+04
11	2,3,7,8-TCDD	2.14e+07	1.98e+03	1.1e+04	2.68e+07	9.92e+02	2.7e+04
12	1,2,3,7,8-PeCDD	3.31e+05	1.71e+03	1.9e+02	2.08e+05	1.76e+03	1.2e+02
13	1,2,3,4,7,8-HxCDD	3.23e+04	8.44e+02	3.8e+01	3.01e+04	2.48e+03	1.2e+01
14	1,2,3,6,7,8-HxCDD	1.82e+05	8.44e+02	2.2e+02	1.41e+05	2.48e+03	5.7e+01
15	1,2,3,7,8,9-HxCDD	8.55e+04	8.44e+02	1.0e+02	7.28e+04	2.48e+03	2.9e+01
16	1,2,3,4,6,7,8-HpCDD	6.20e+06	7.27e+03	8.5e+02	5.94e+06	2.11e+03	2.8e+03
17	OCDD	5.92e+07	3.00e+02	2.0e+05	6.55e+07	4.12e+02	1.6e+05
18	13C-2,3,7,8-TCDF	2.93e+06	5.20e+03	5.6e+02	3.70e+06	2.88e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	5.63e+06	3.77e+03	1.5e+03	3.49e+06	2.45e+03	1.4e+03
20	13C-2,3,4,7,8-PeCDF	5.71e+06	3.77e+03	1.5e+03	3.57e+06	2.45e+03	1.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.90e+06	2.19e+03	1.3e+03	5.61e+06	1.46e+03	3.9e+03
22	13C-1,2,3,6,7,8-HxCDF	3.15e+06	2.19e+03	1.4e+03	6.03e+06	1.46e+03	4.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.97e+06	2.19e+03	1.4e+03	5.79e+06	1.46e+03	4.0e+03
24	13C-1,2,3,7,8,9-HxCDF	2.73e+06	2.19e+03	1.2e+03	5.28e+06	1.46e+03	3.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.15e+06	2.55e+03	8.5e+02	4.74e+06	3.66e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.90e+06	2.55e+03	7.5e+02	4.57e+06	3.66e+03	1.2e+03
27	13C-2,3,7,8-TCDD	2.17e+06	3.68e+03	5.9e+02	2.68e+06	2.18e+03	1.2e+03
28	13C-1,2,3,7,8-PeCDD	4.16e+06	5.80e+02	7.2e+03	2.66e+06	5.20e+02	5.1e+03
29	13C-1,2,3,4,7,8-HxCDD	4.31e+06	6.68e+02	6.4e+03	3.30e+06	4.44e+02	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	3.72e+06	6.68e+02	5.6e+03	3.01e+06	4.44e+02	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+06	2.24e+02	1.8e+04	3.87e+06	2.88e+02	1.3e+04
32	13C-OCDD	3.76e+06	7.44e+02	5.1e+03	4.16e+06	2.20e+02	1.9e+04
33	13C-1,2,3,4-TCDD	3.43e+06	3.68e+03	9.3e+02	4.37e+06	2.18e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	6.64e+06	6.68e+02	9.9e+03	5.40e+06	4.44e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	2.71e+06	1.88e+03	1.4e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0022

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P518869 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 04:21:31 Processed: 21-NOV-18 09:19:29

Mass: 303.9020 305.8990 Tot Response: 2.04e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:25	4.45e+03	5.75e+03	0.77	yes	1.02e+04		n	n
2	22:42	2.33e+04	3.04e+04	0.77	yes	5.38e+04		n	n
3	23:03	7.07e+03	9.23e+03	0.77	yes	1.63e+04		n	n
4	23:20	1.91e+04	2.57e+04	0.74	yes	4.49e+04		n	n
5	23:56	1.41e+04	1.89e+04	0.74	yes	3.29e+04		n	n
6	24:03	2.34e+04	3.07e+04	0.76	yes	5.41e+04		n	n
7	24:33	2.16e+05	2.80e+05	0.77	yes	4.96e+05		n	n
8	24:50	1.04e+04	1.38e+04	0.75	yes	2.43e+04		n	n
9	25:33	4.92e+05	6.30e+05	0.78	yes	1.12e+06	2,3,7,8-TCDF	y	y
10	25:59	3.70e+04	4.72e+04	0.78	yes	8.42e+04		n	n
11	26:17	5.62e+03	7.11e+03	0.79	yes	1.27e+04		n	n
12	27:49	3.71e+04	4.92e+04	0.75	yes	8.63e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0022

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 11 File: P518869 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 04:21:31 Processed: 21-NOV-18 09:19:29

Mass: 319.8970 321.8940 Tot Response: 3.28e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:14	1.68e+03	2.21e+03	0.76	yes	3.89e+03		n	n
2	26:34	1.31e+05	1.65e+05	0.79	yes	2.97e+05	2,3,7,8-TCDD	n	n
3	26:56	1.21e+04	1.54e+04	0.78	yes	2.75e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0022

Entry: 38 Totals Name: Total Penta-Furans1

Run: 11 File: P518869 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 04:21:31 Processed: 21-NOV-18 09:19:29

Mass: 339.8600 341.8570 Tot Response: 3.57e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:50	2.21e+03	1.35e+03 1.63	yes	3.57e+03		n	n

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Peak List Summary

CLIENT ID.
SL0022

Entry: 39 Totals Name: Total Penta-Furans2

Run: 11 File: P518869 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 04:21:31 Processed: 21-NOV-18 09:19:29

Mass: 339.8600 341.8570 Tot Response: 1.10e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:23	4.12e+02	2.33e+02	1.77	yes	6.45e+02		n	n
2	29:32	1.26e+04	8.53e+03	1.47	yes	2.11e+04		n	n
3	30:14	5.36e+02	3.85e+02	1.39	yes	9.21e+02		n	n
4	30:23	2.66e+03	1.71e+03	1.55	yes	4.37e+03		n	n
5	30:34	2.71e+04	1.77e+04	1.53	yes	4.48e+04	1,2,3,7,8-PeCDF	n	n
6	31:30	3.30e+02	1.93e+02	1.71	yes	5.22e+02		n	n
7	31:36	2.22e+04	1.43e+04	1.55	yes	3.65e+04	2,3,4,7,8-PeCDF	n	n
8	32:34	9.85e+02	6.36e+02	1.55	yes	1.62e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0022

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P518869 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 04:21:31 Processed: 21-NOV-18 09:19:29

Mass: 355.8550 357.8520 Tot Response: 4.81e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:34	3.72e+02	2.12e+02 1.76	yes	5.84e+02		n	n
2	30:37	3.24e+02	1.95e+02 1.66	yes	5.19e+02		n	n
3	30:47	2.24e+02	1.60e+02 1.39	yes	3.84e+02		n	n
4	31:54	1.96e+03	1.37e+03 1.43	yes	3.32e+03	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0022

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P518869 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 04:21:31 Processed: 21-NOV-18 09:19:29

Mass: 373.8210 375.8180 Tot Response: 1.23e+05 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:18	7.37e+02	6.38e+02 1.16	yes	1.38e+03		n	n
2	33:28	4.95e+03	4.15e+03 1.19	yes	9.10e+03		n	n
3	34:01	4.24e+03	3.62e+03 1.17	yes	7.86e+03		n	n
4	34:29	4.08e+04	3.35e+04 1.22	yes	7.43e+04	1,2,3,4,7,8-HxCDF	n	n
5	34:35	1.17e+04	9.64e+03 1.22	yes	2.14e+04	1,2,3,6,7,8-HxCDF	n	n
6	35:08	2.01e+03	1.79e+03 1.13	yes	3.80e+03	2,3,4,6,7,8-HxCDF	n	n
7	35:56	2.91e+03	2.47e+03 1.18	yes	5.38e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0022

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P518869 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 04:21:31 Processed: 21-NOV-18 09:19:29

Mass: 389.8160 391.8130 Tot Response: 1.72e+04 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:52	4.03e+03	3.16e+03 1.27	yes	7.19e+03		n	n
2	34:25	3.92e+02	3.01e+02 1.30	yes	6.93e+02		n	n
3	34:40	3.33e+03	2.57e+03 1.29	yes	5.90e+03		n	n
4	34:46	4.22e+02	3.18e+02 1.33	yes	7.40e+02		n	n
5	35:17	1.52e+02	1.17e+02 1.30	yes	2.69e+02	1,2,3,4,7,8-HxCDD	n	n
6	35:23	8.87e+02	7.42e+02 1.20	yes	1.63e+03	1,2,3,6,7,8-HxCDD	n	n
7	35:37	4.06e+02	3.78e+02 1.07	yes	7.84e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0022

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P518869 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 04:21:31 Processed: 21-NOV-18 09:19:29

Mass: 407.7820 409.7790 Tot Response: 6.24e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:14	1.45e+04	1.46e+04 0.99	yes	2.91e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	37:30	3.08e+02	3.09e+02 1.00	yes	6.17e+02		n	n
3	37:38	1.29e+04	1.28e+04 1.01	yes	2.58e+04		n	n
4	38:34	3.42e+03	3.52e+03 0.97	yes	6.94e+03	1,2,3,4,7,8,9-HpCDF	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0022

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P518869 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 04:21:31 Processed: 21-NOV-18 09:19:29

Mass: 423.7770 425.7740 Tot Response: 1.52e+05 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	4.60e+04	4.39e+04 1.05	yes	8.99e+04		n	n
2	38:09	3.15e+04	3.03e+04 1.04	yes	6.18e+04	1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
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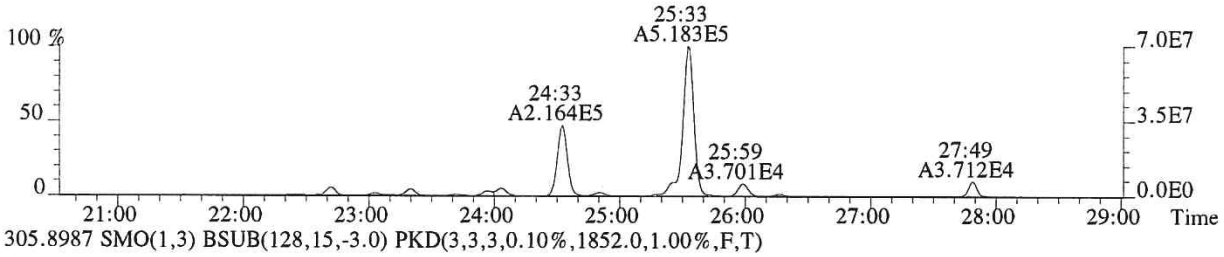
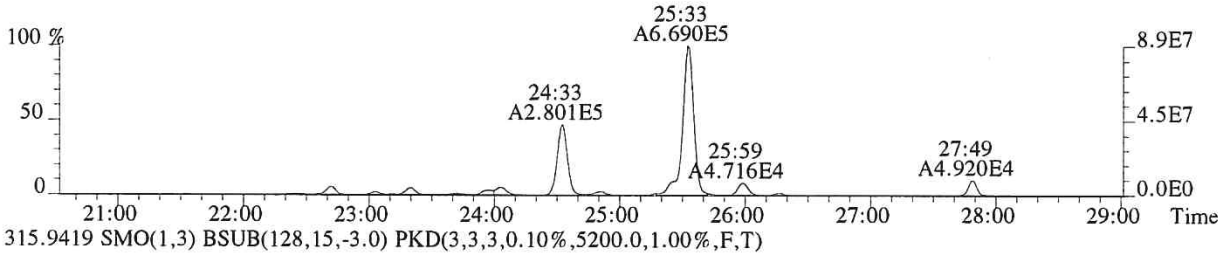
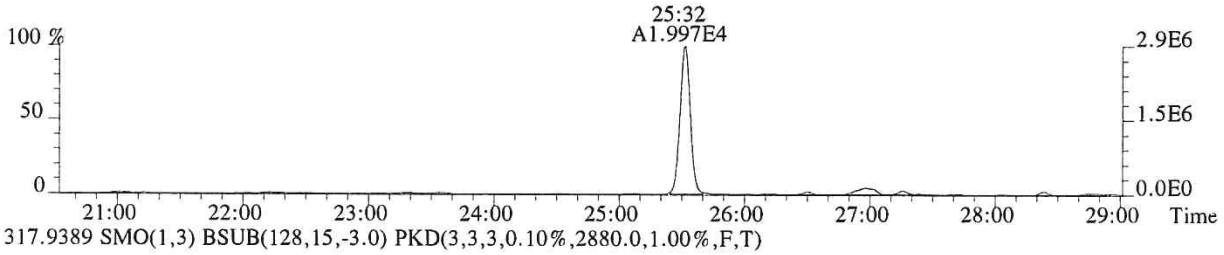
File:P518869 #1-602 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



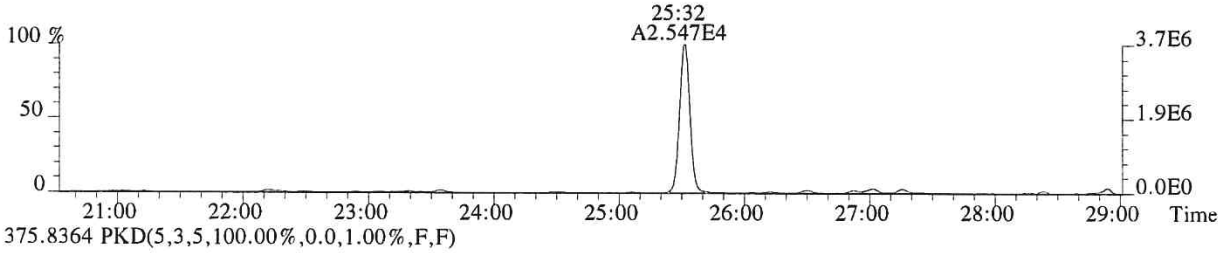
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1852.0,1.00%,F,T)



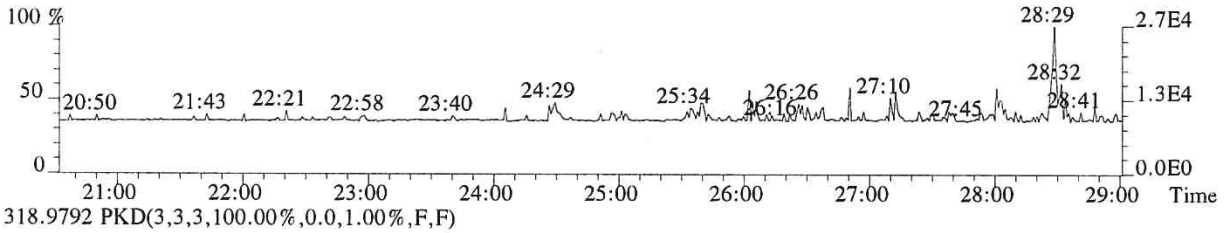
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5200.0,1.00%,F,T)



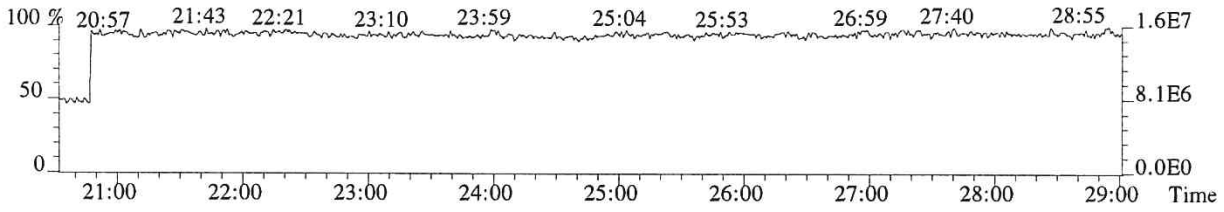
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2880.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

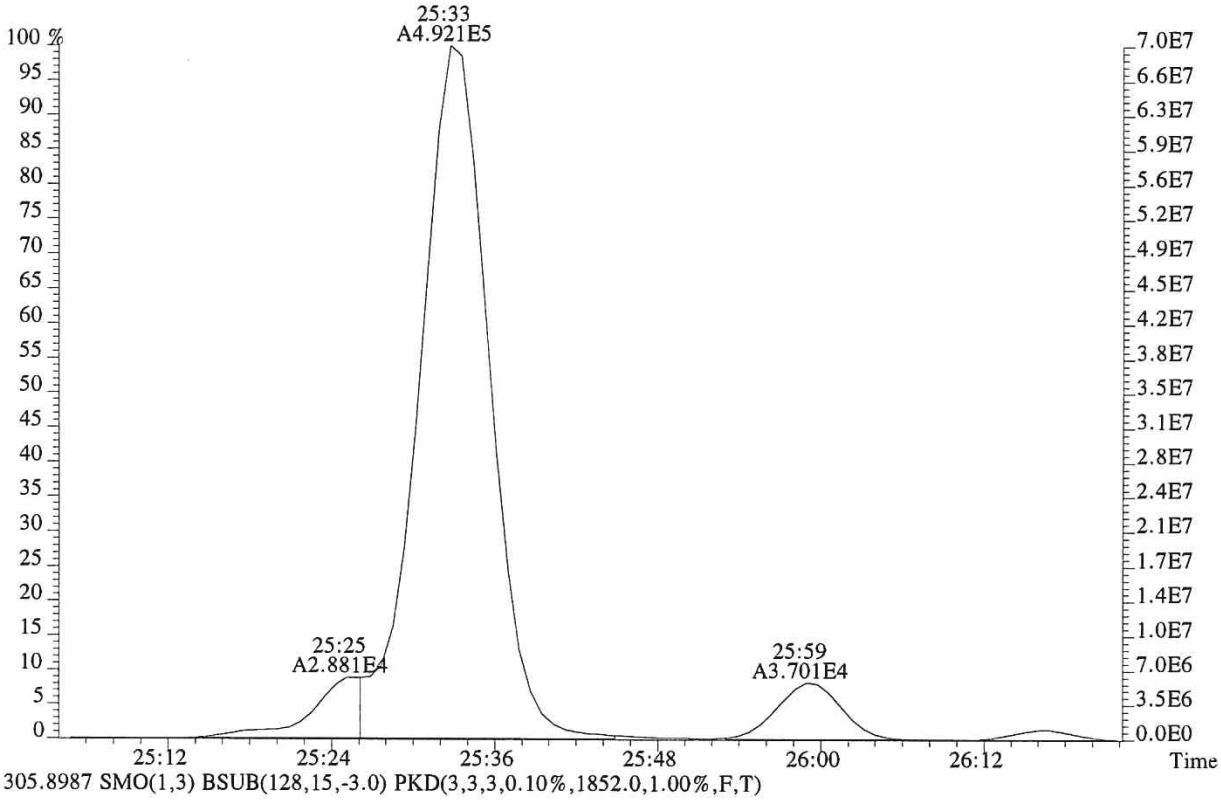


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

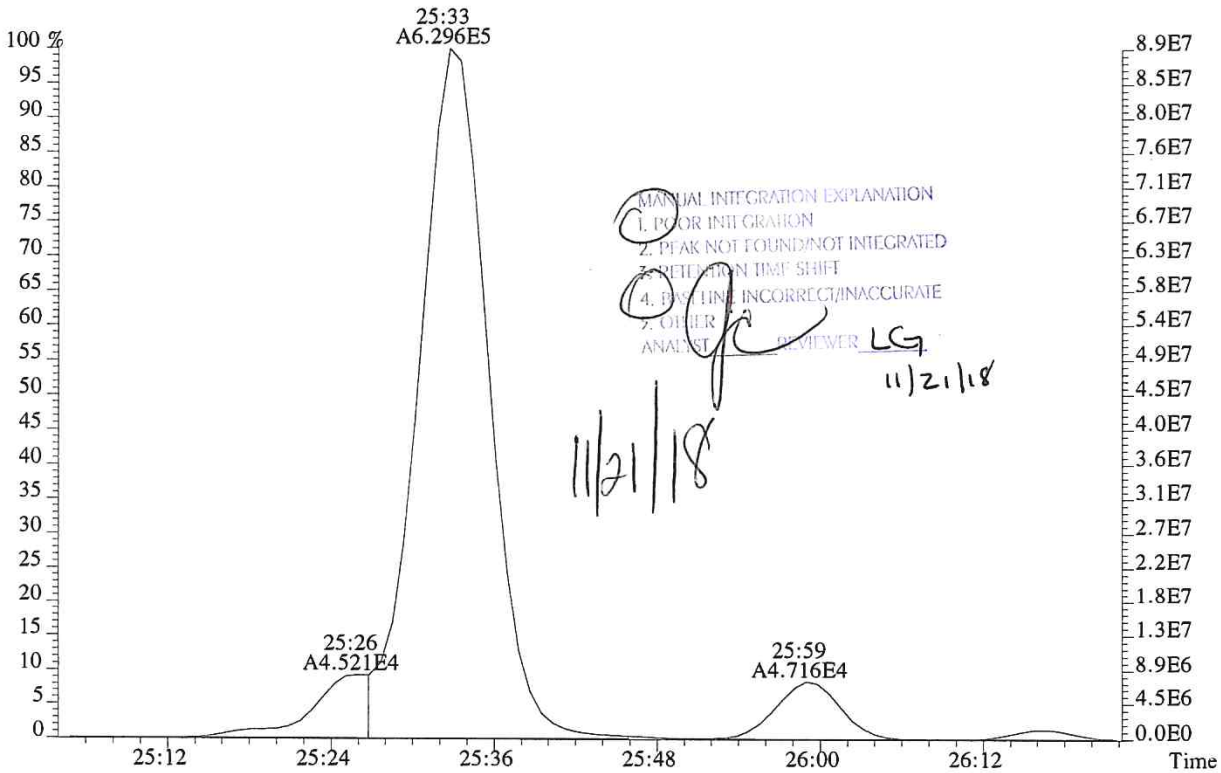


009654

File:P518869 #1-602 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)

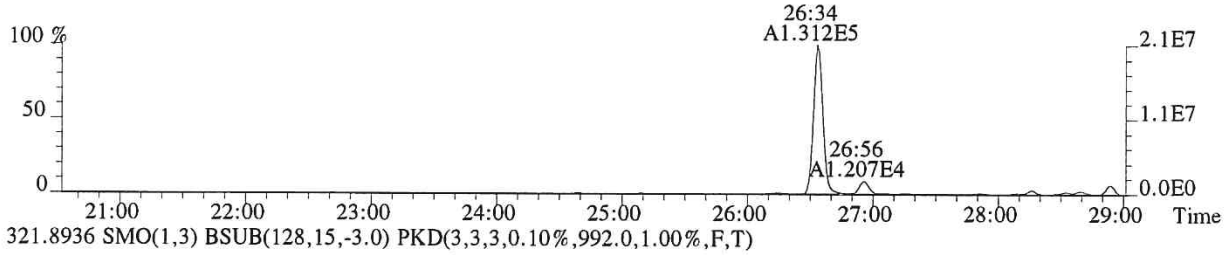


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1852.0,1.00%,F,T)

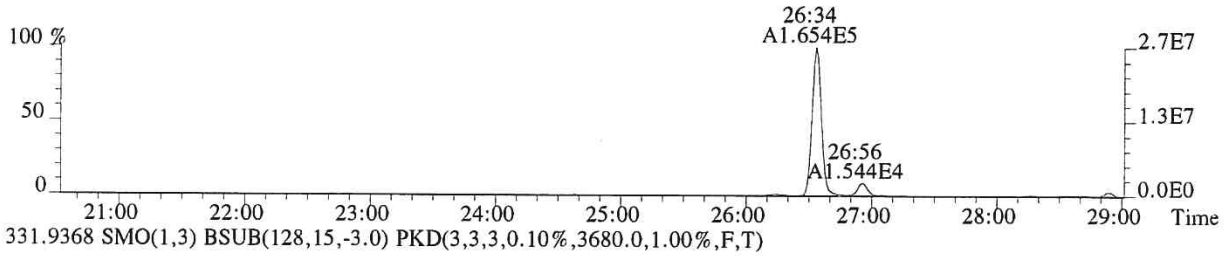


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER LG
11/21/18
11/21/18

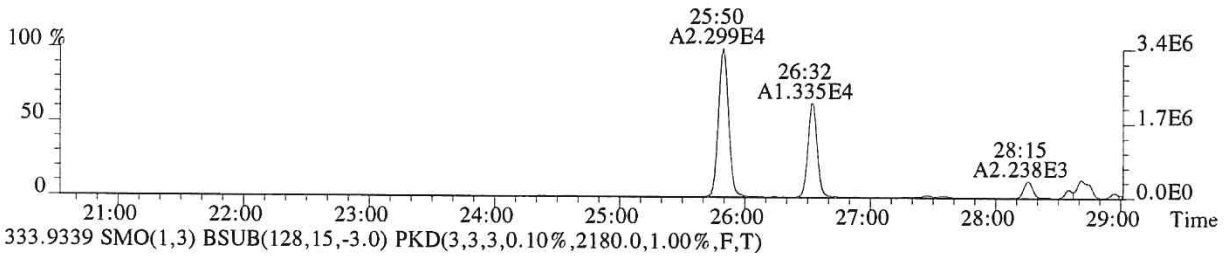
File:P518869 #1-602 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1976.0,1.00%,F,T)



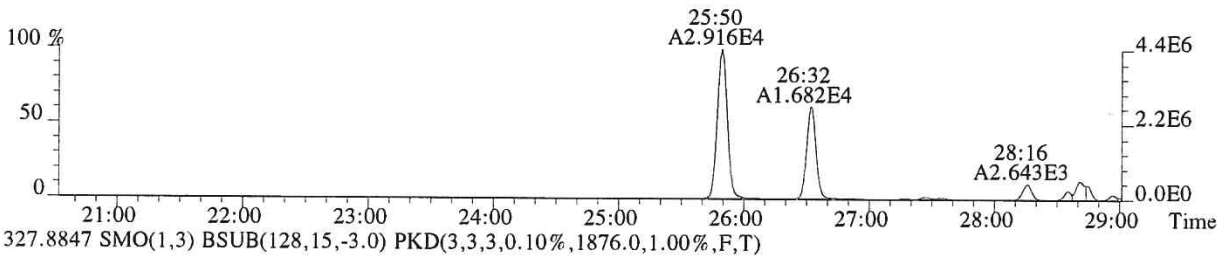
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



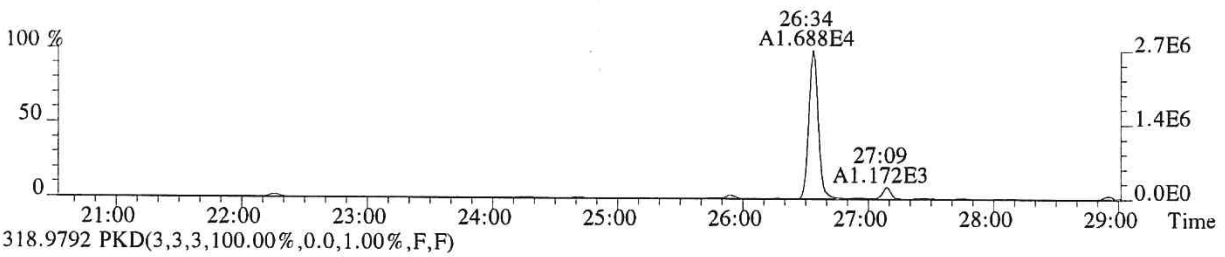
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3680.0,1.00%,F,T)



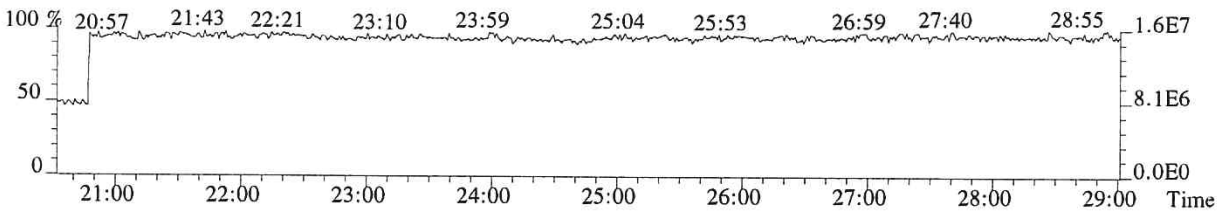
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)

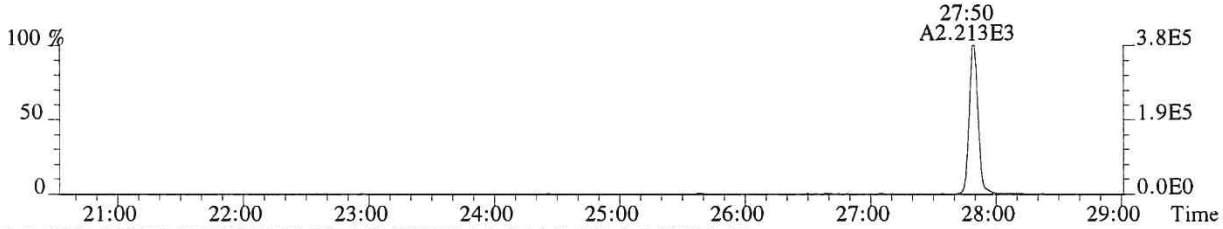


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

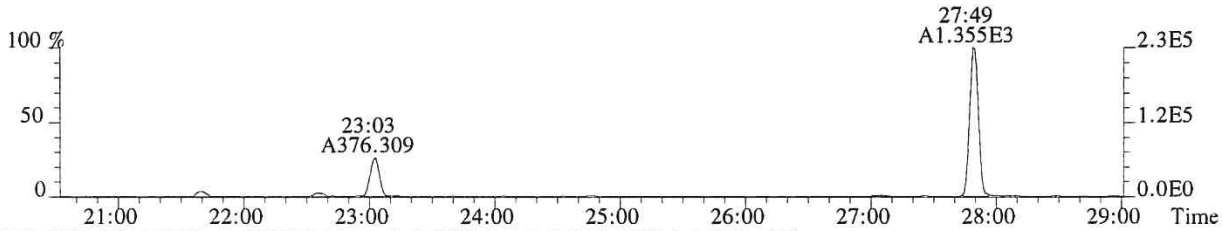


009656

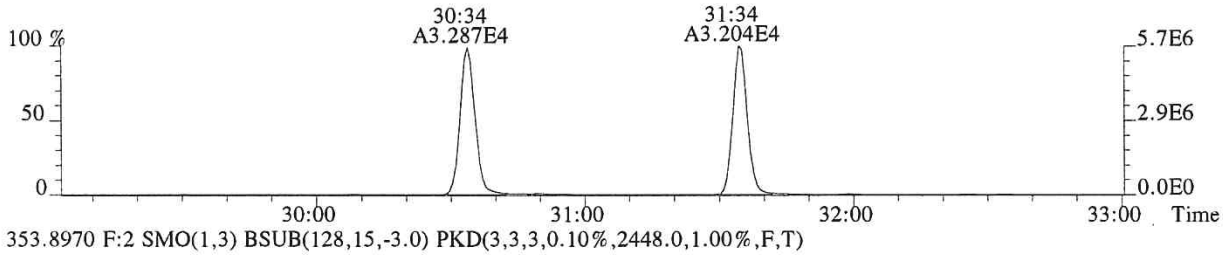
File:P518869 #1-602 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



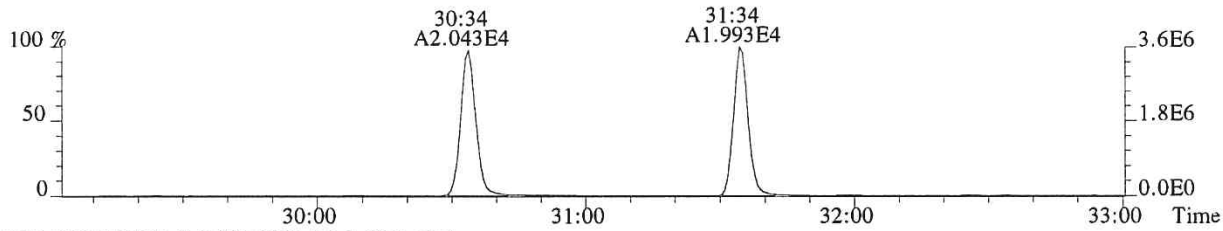
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



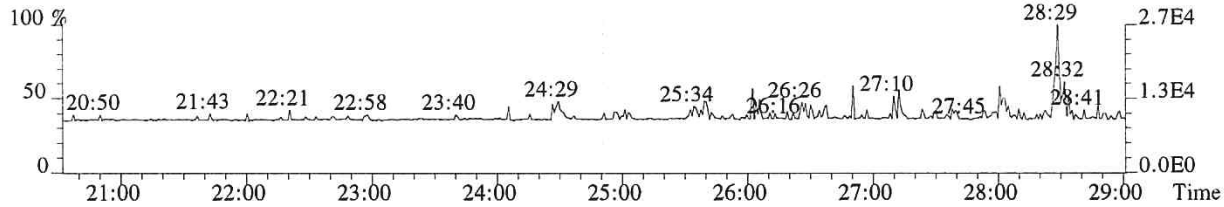
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3772.0,1.00%,F,T)



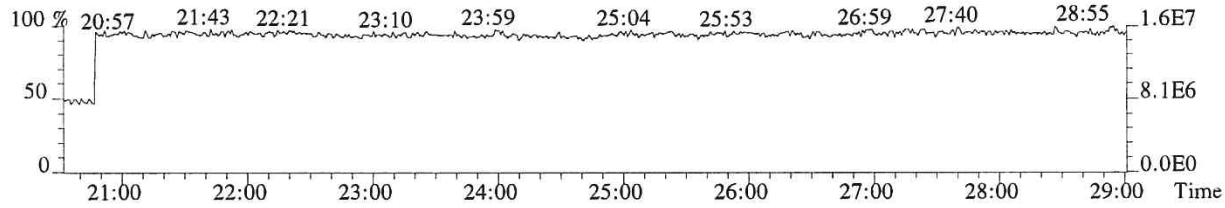
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2448.0,1.00%,F,T)



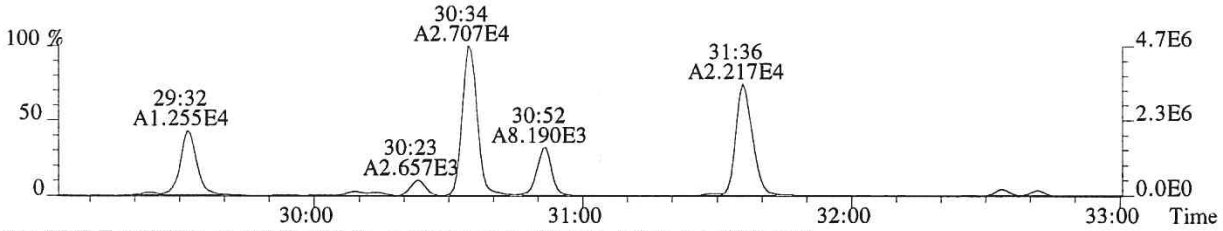
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



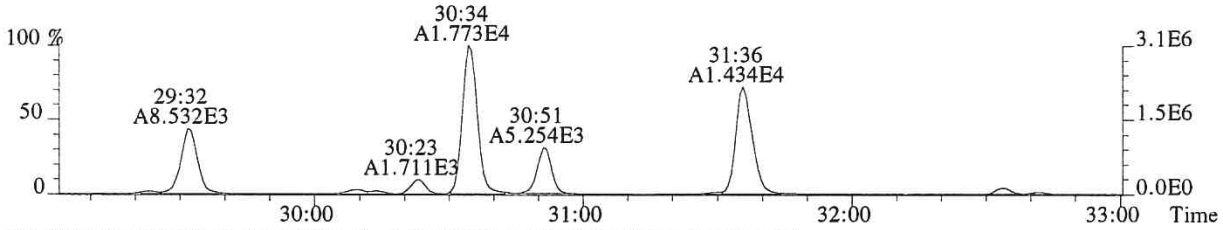
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



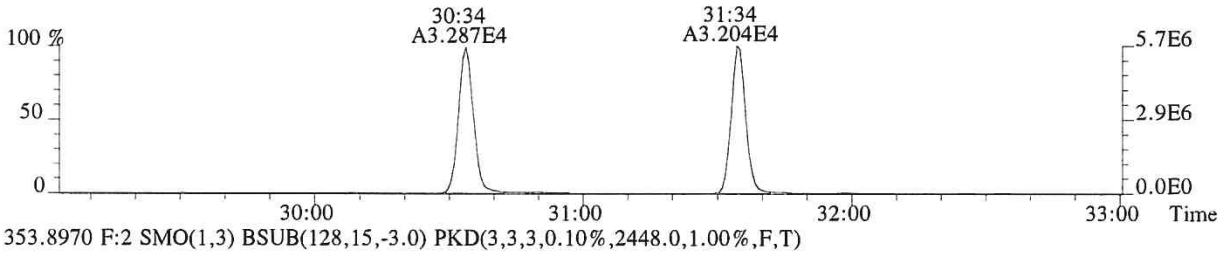
File:P518869 #1-357 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12556.0,1.00%,F,T)



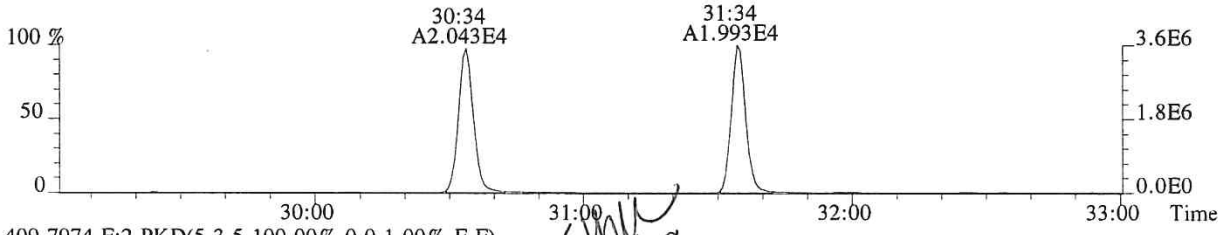
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13492.0,1.00%,F,T)



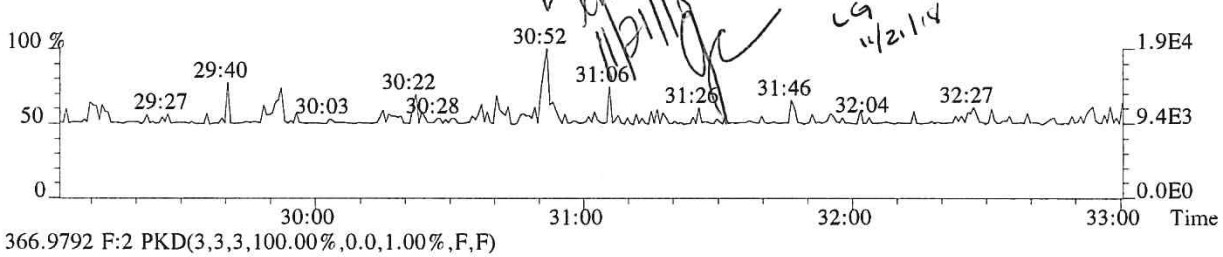
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3772.0,1.00%,F,T)



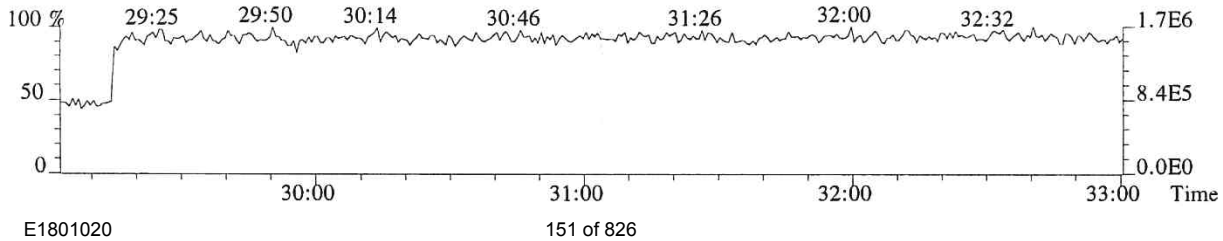
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2448.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

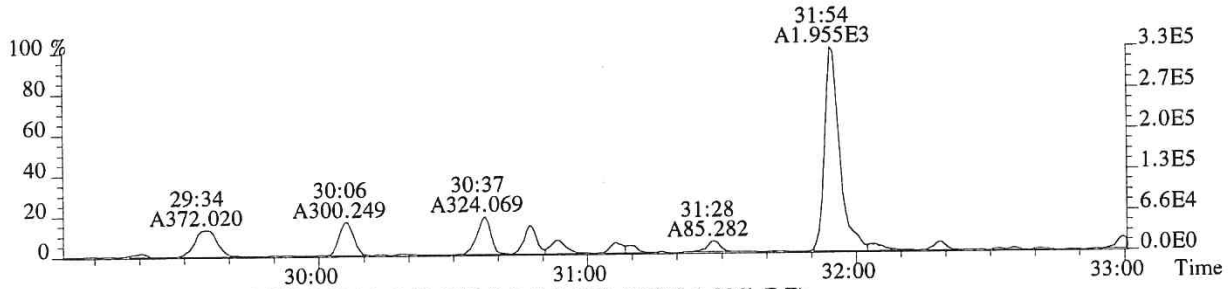


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

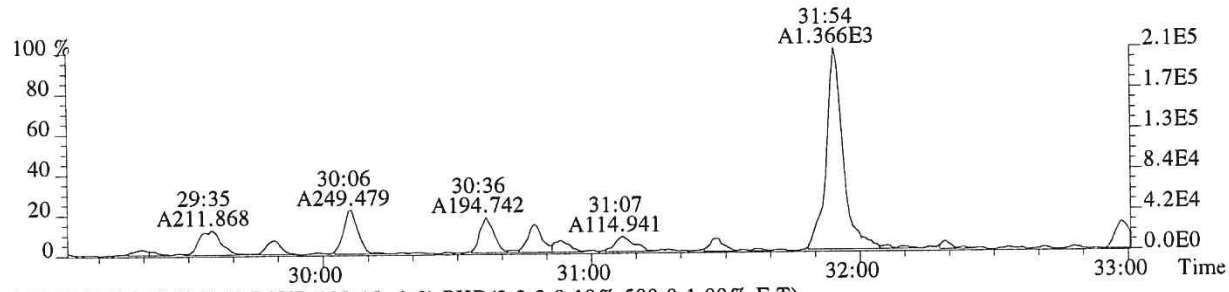


009658

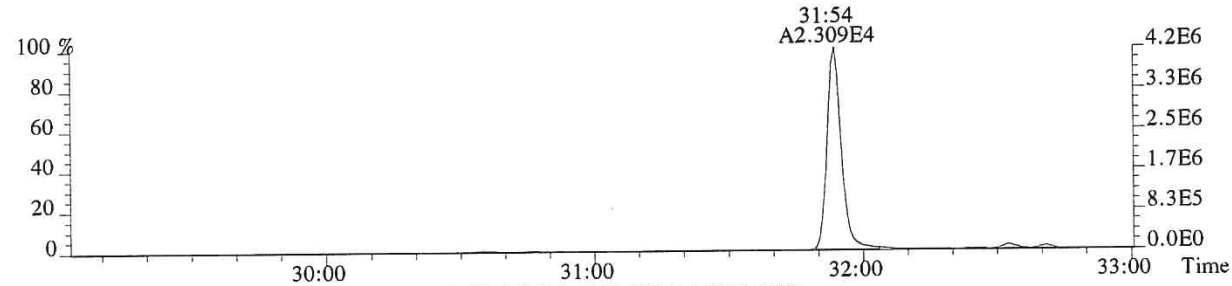
File:P518869 #1-357 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



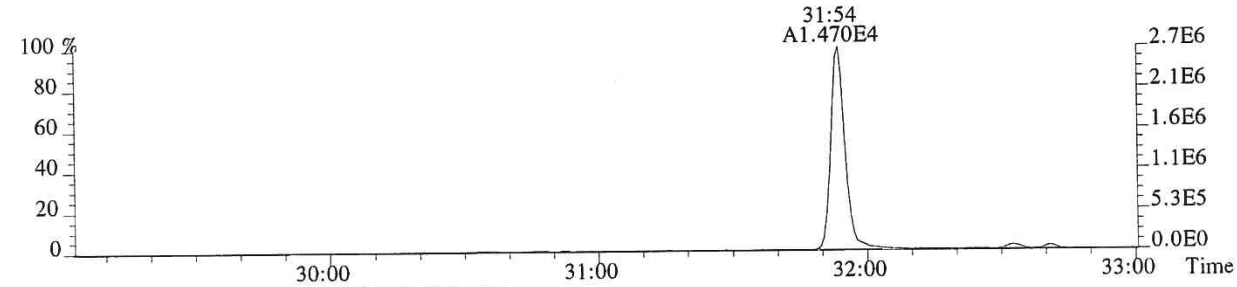
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



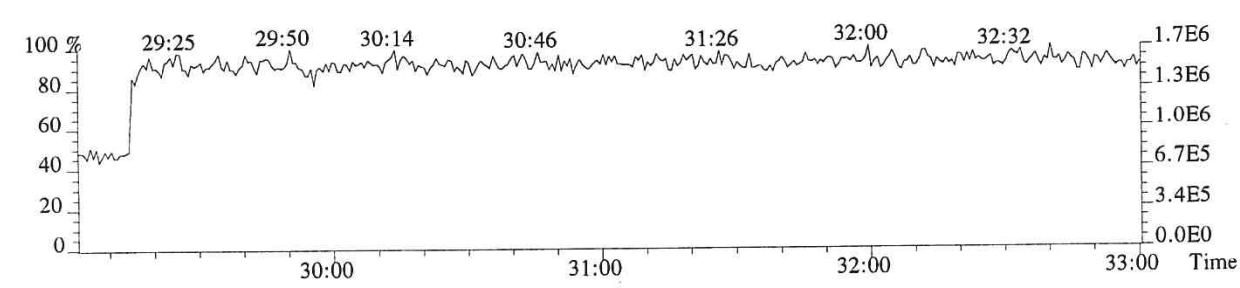
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



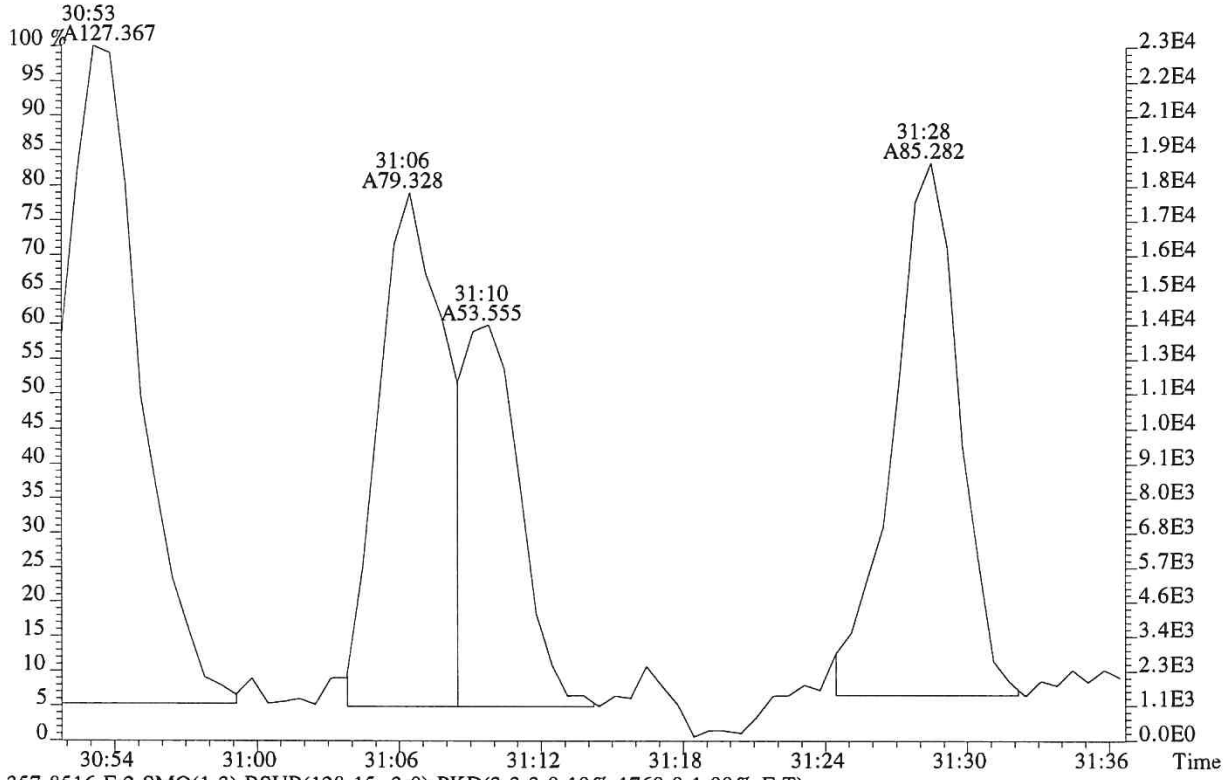
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



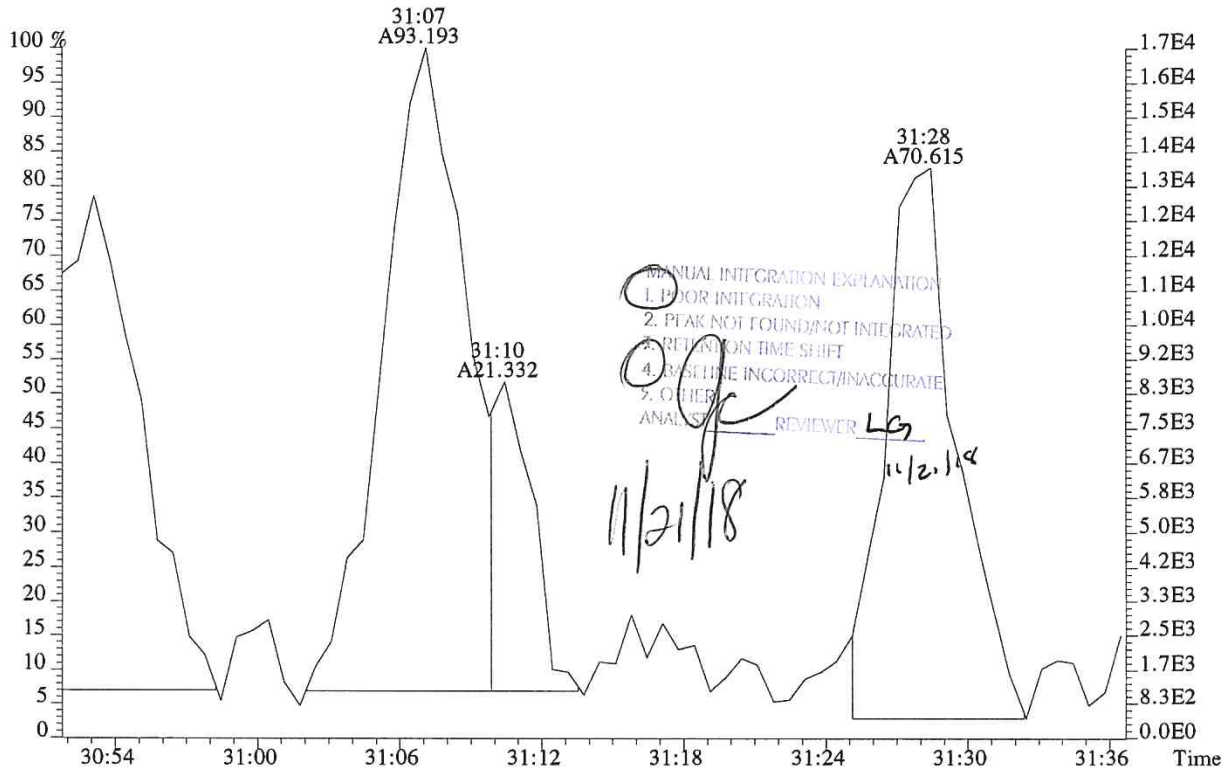
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518869 #1-357 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



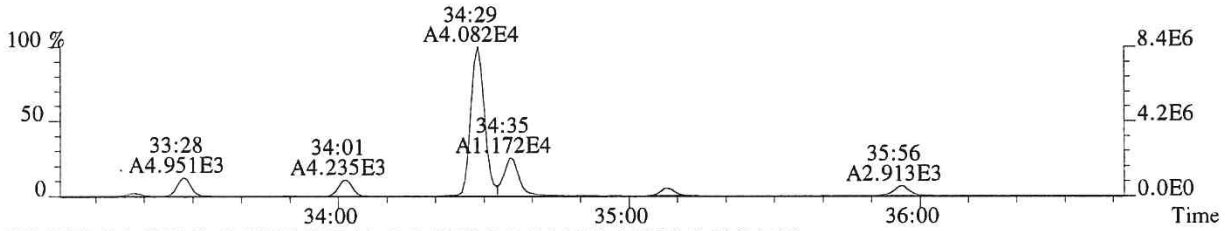
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



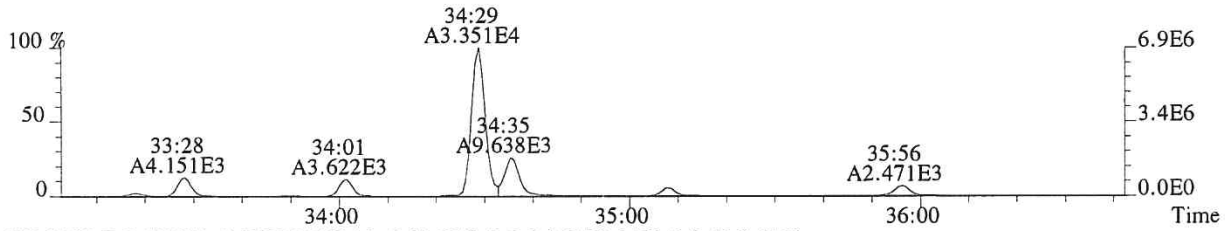
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LG
11/21/18
11/21/18

009660

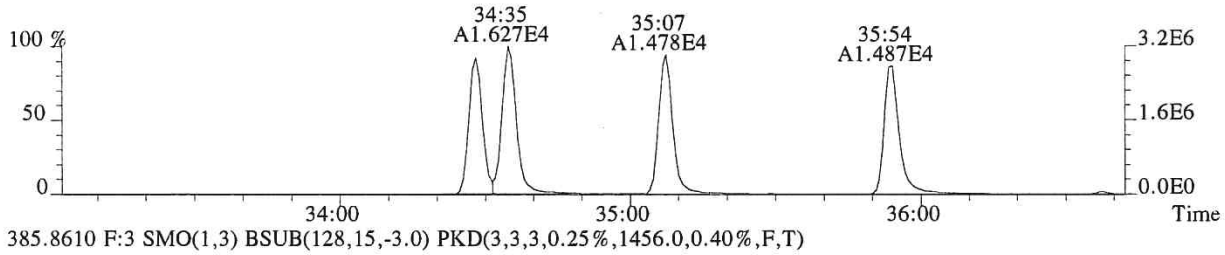
File:P518869 #1-330 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2612.0,0.40%,F,T)



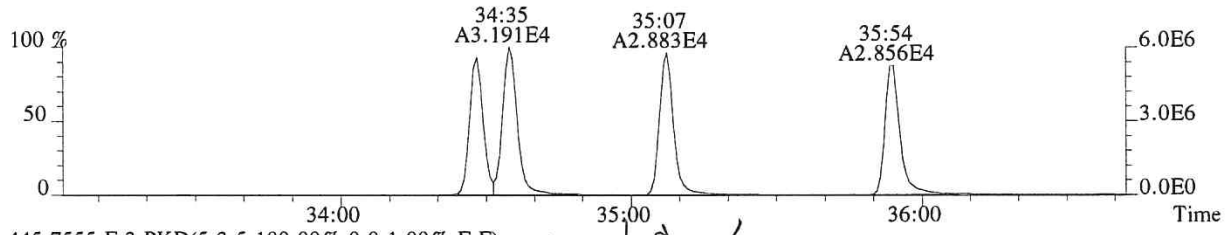
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8456.0,0.40%,F,T)



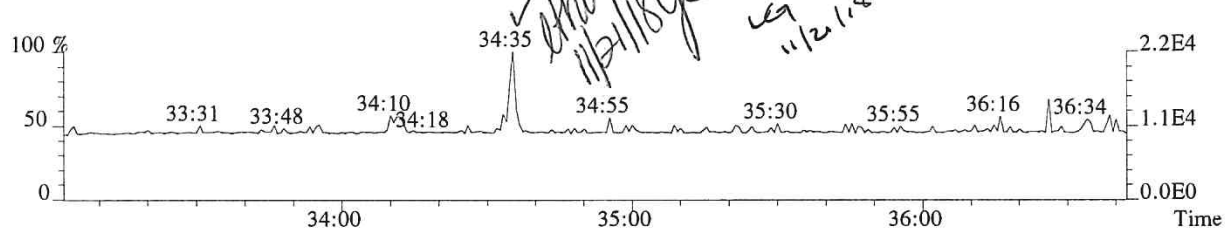
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2192.0,0.40%,F,T)



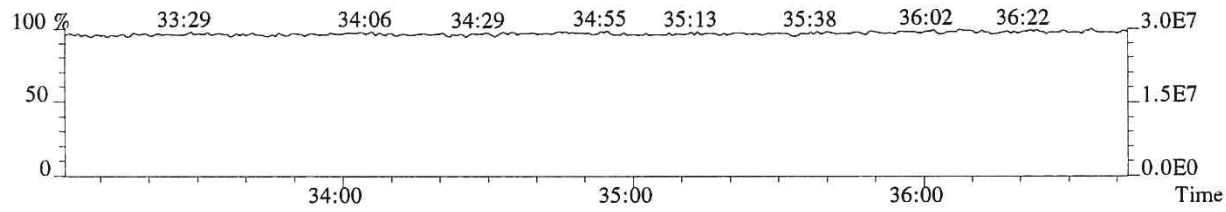
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

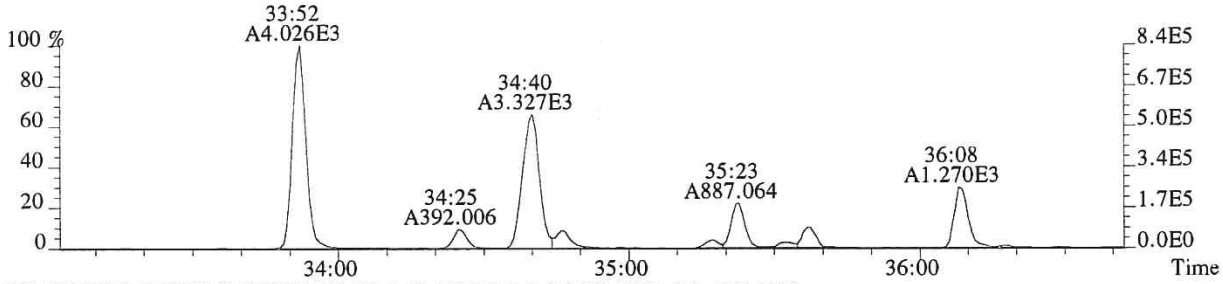


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

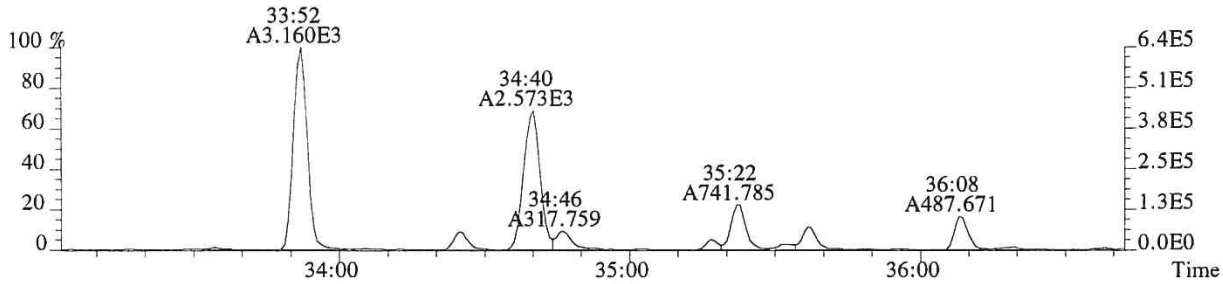


009661

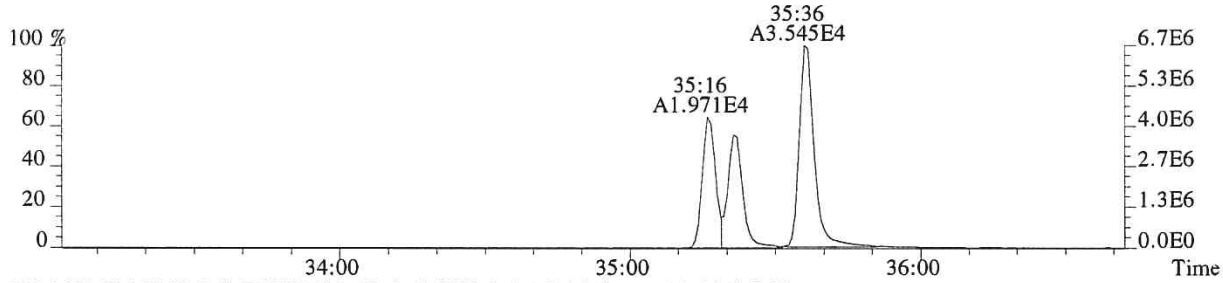
File:P518869 #1-330 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



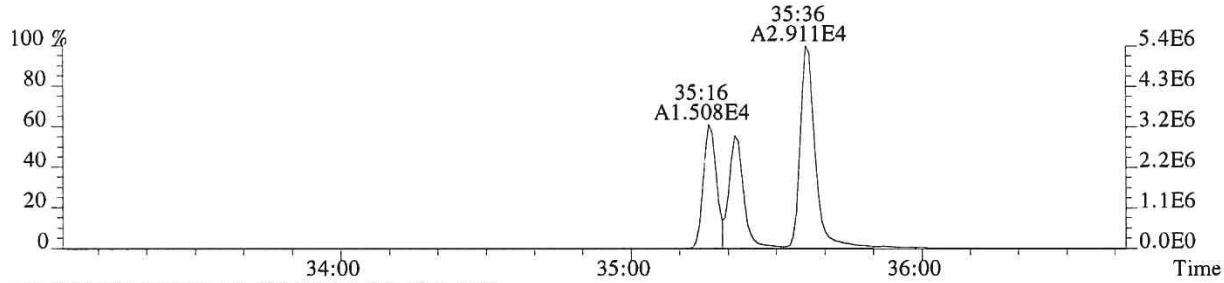
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



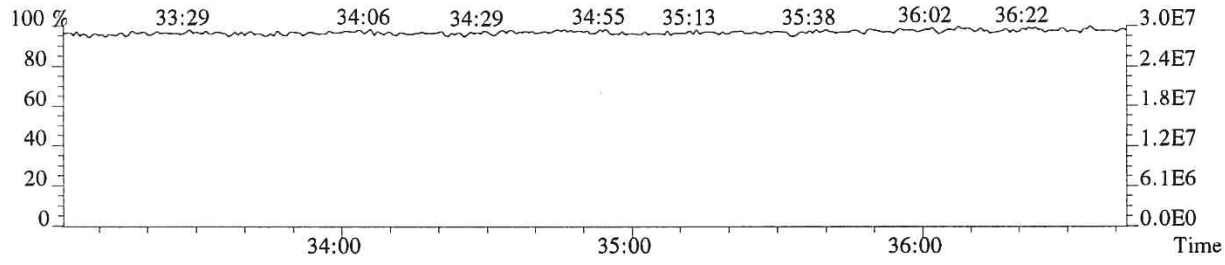
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



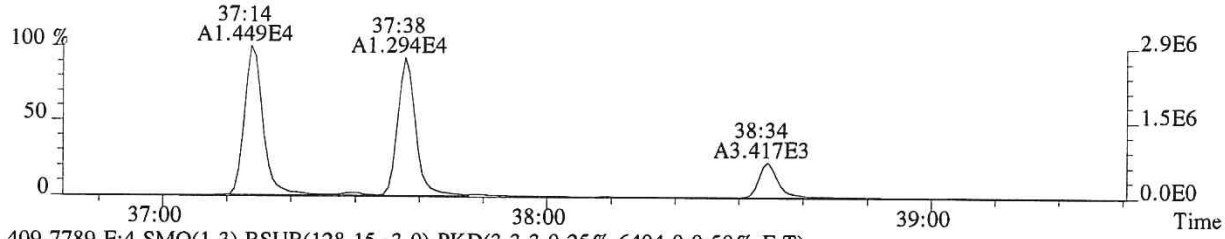
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



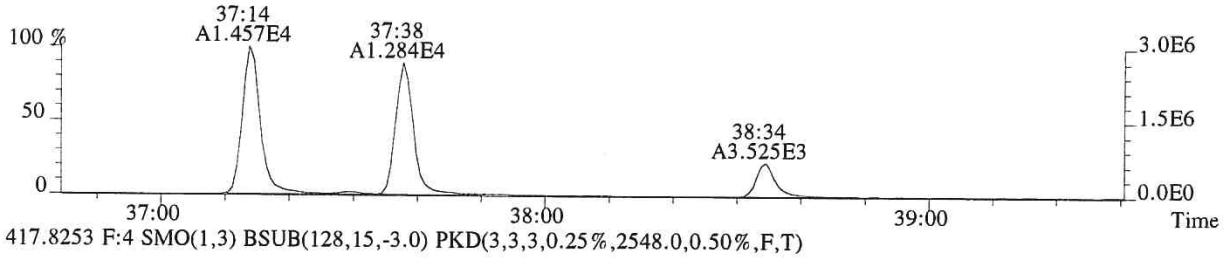
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



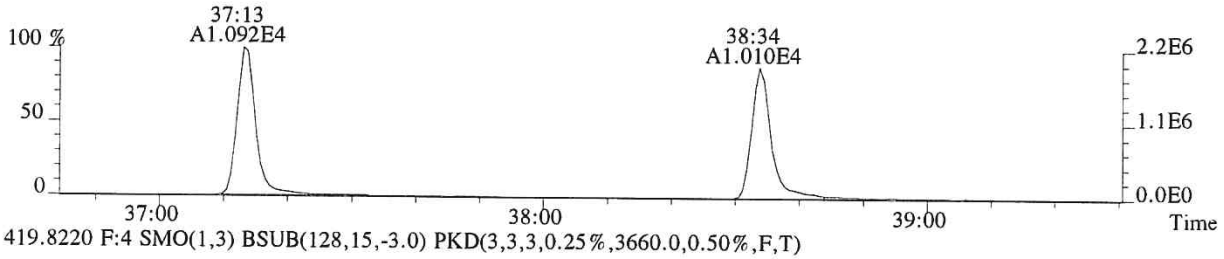
File:P518869 #1-250 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1940.0,0.50%,F,T)



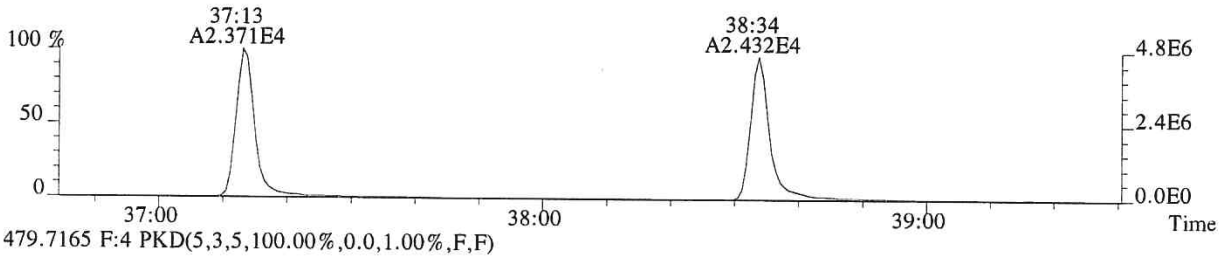
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6404.0,0.50%,F,T)



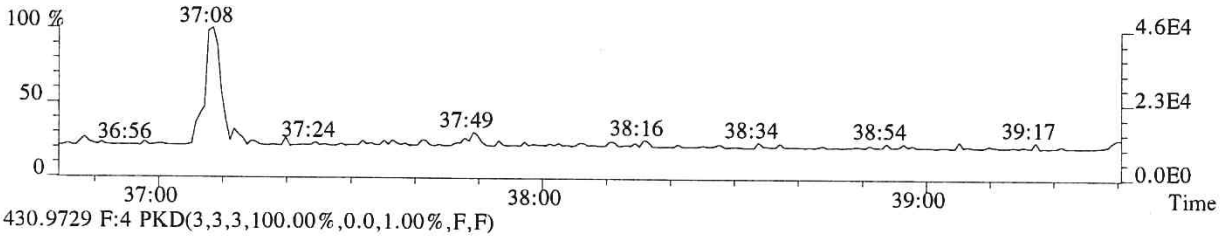
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.50%,F,T)



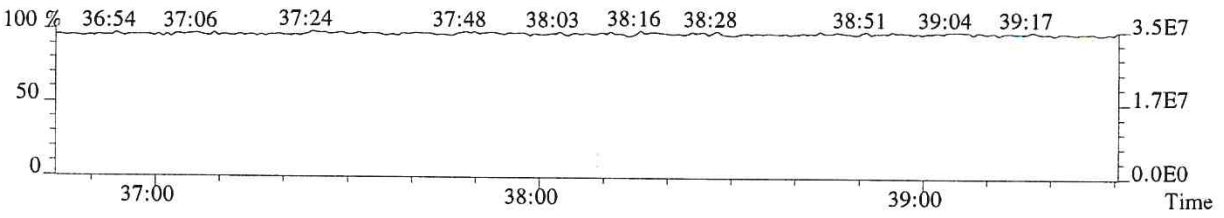
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3660.0,0.50%,F,T)



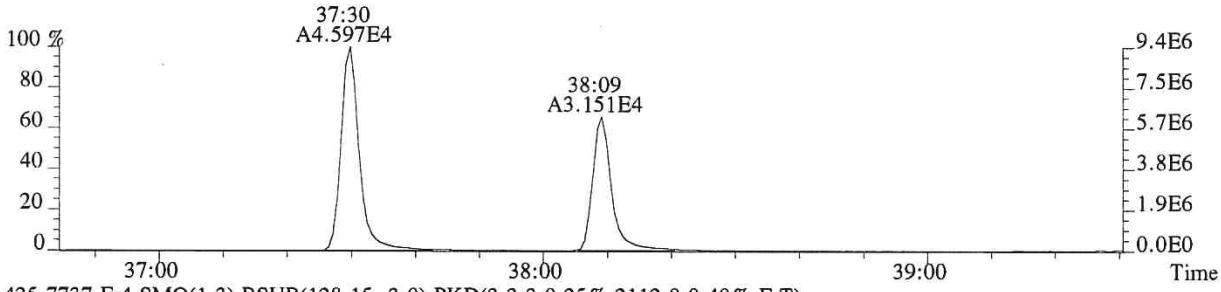
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



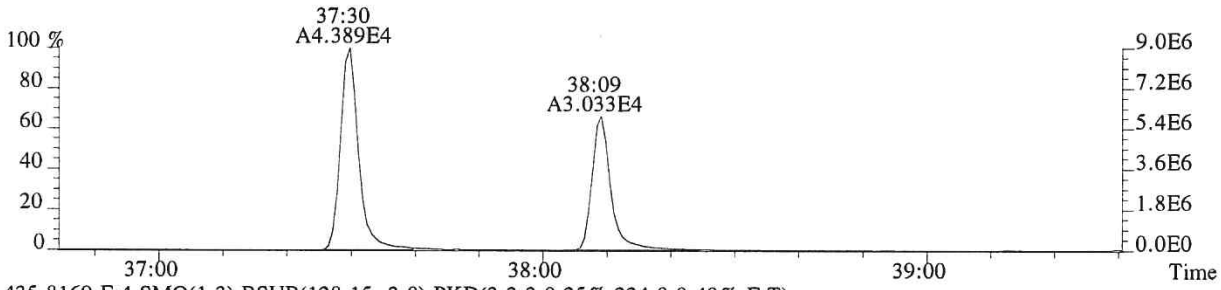
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



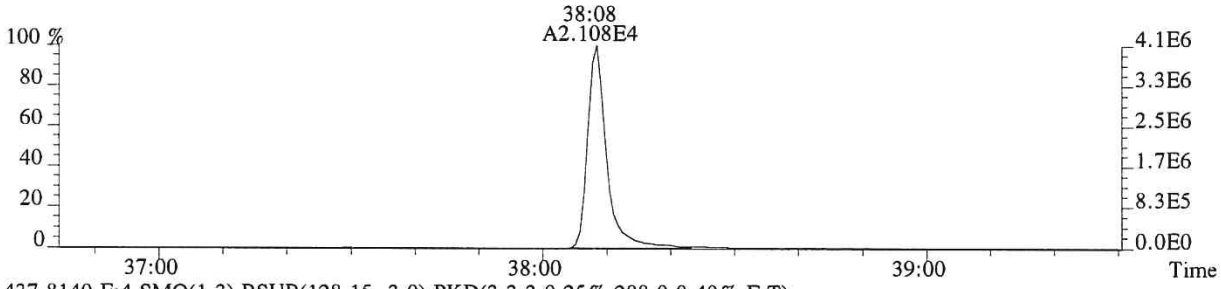
File:P518869 #1-250 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7268.0,0.40%,F,T)



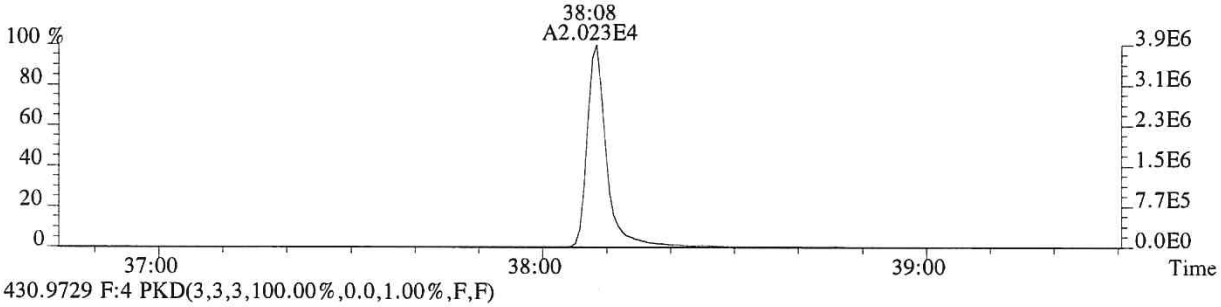
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2112.0,0.40%,F,T)



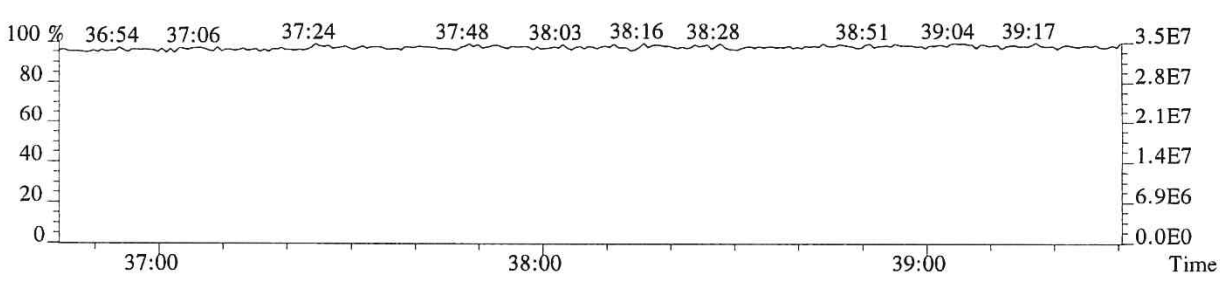
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



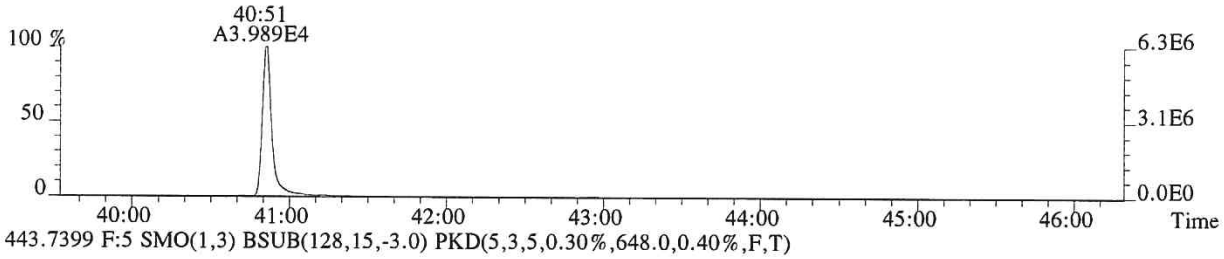
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



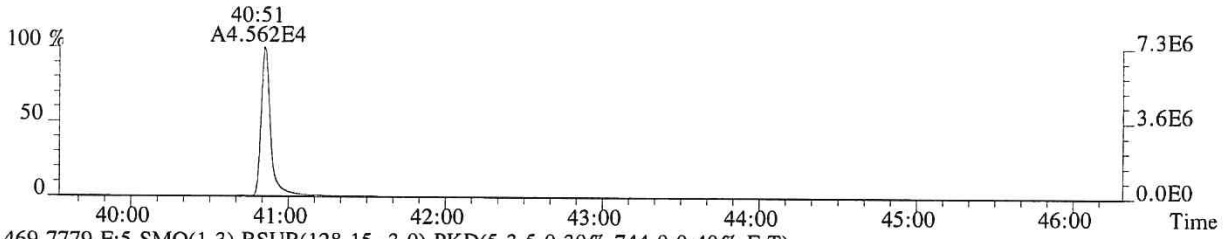
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



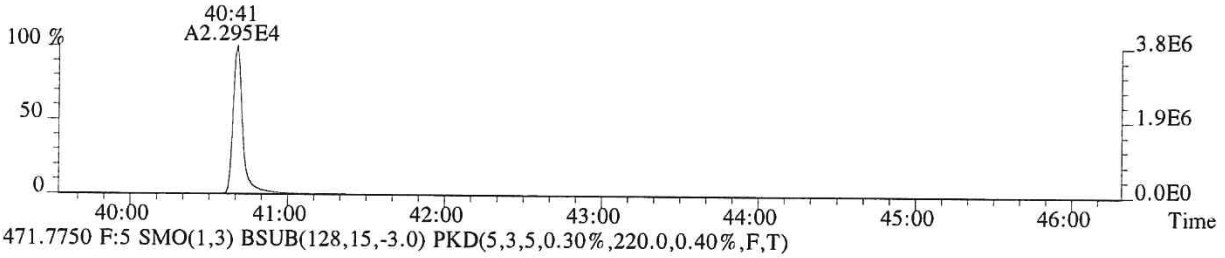
File:P518869 #1-610 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



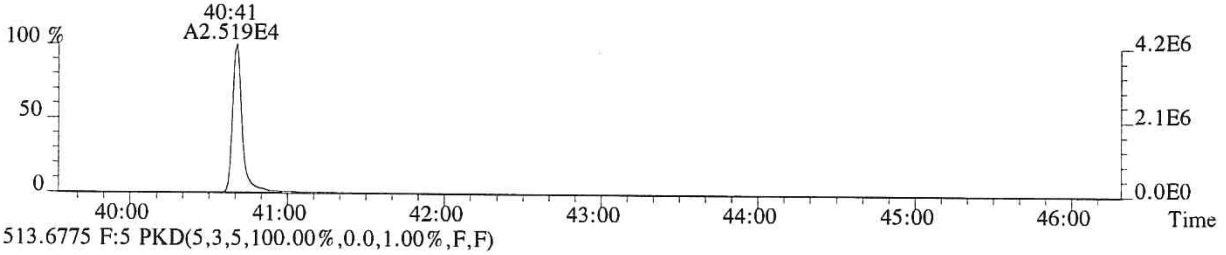
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



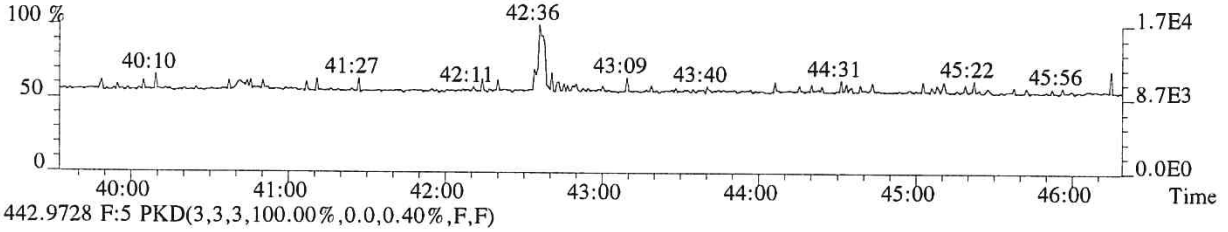
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



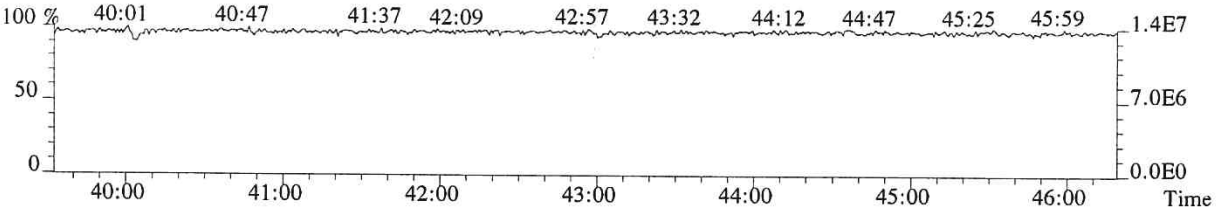
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



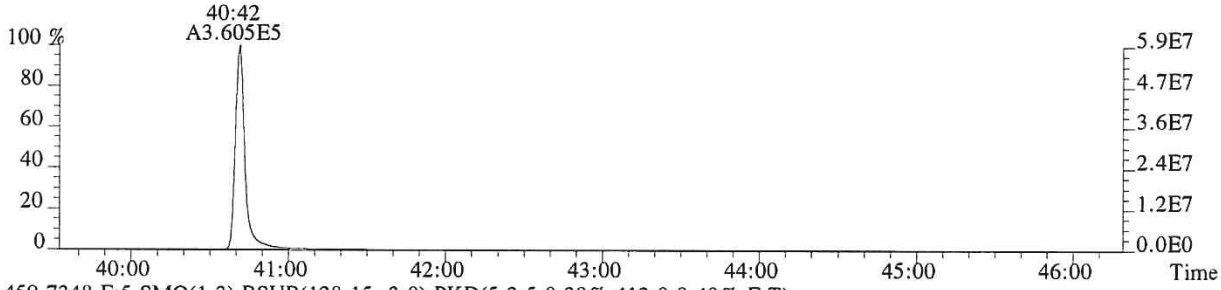
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



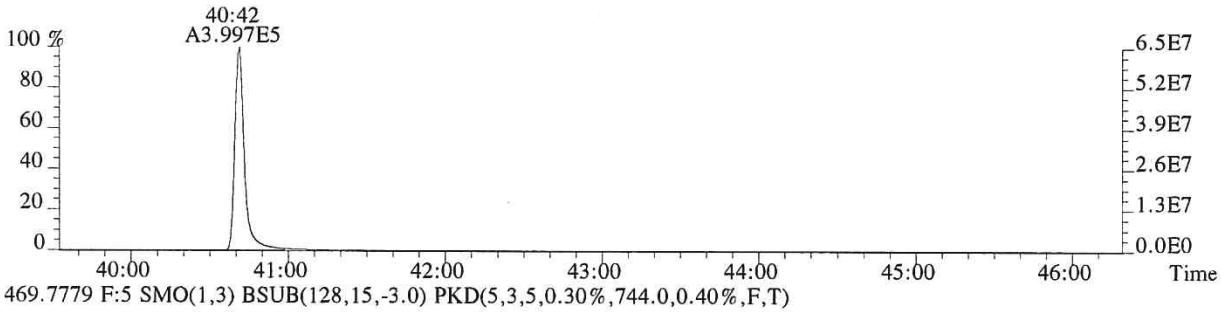
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



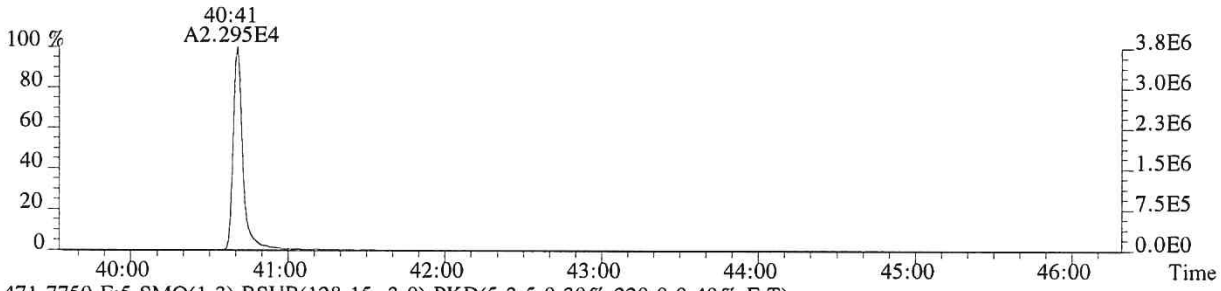
File:P518869 #1-610 Acq:17-NOV-2018 04:21:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



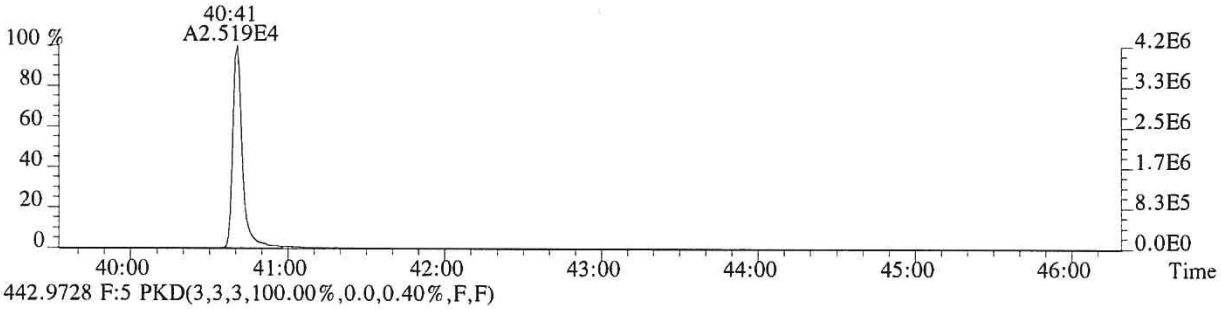
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



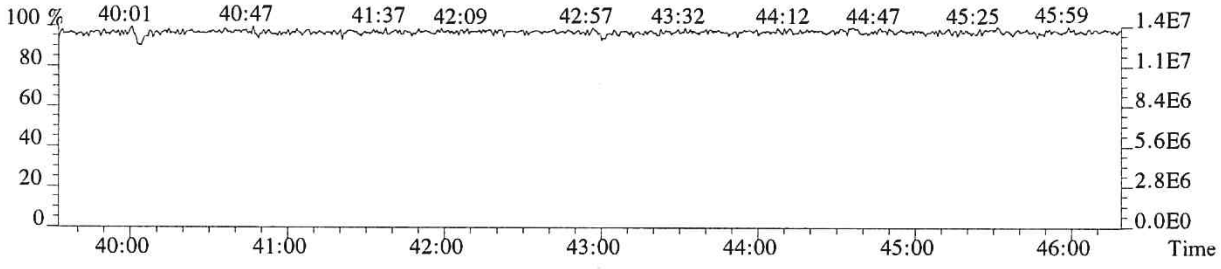
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009666

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0022

Run #17 Filename P518975 Samp: 1 Inj: 1 Acquired: 21-NOV-18 19:13:19
Processed: 26-NOV-18 13:55:51 Sample ID: E1801020-018DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	1.036e+04	1.362e+04	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:42	5.546e+02	3.261e+02	1.70	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:36	3.936e+02	2.380e+02	1.65	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	7.377e+02	6.314e+02	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:21	1.993e+02	1.886e+02	1.06	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.541e+01	3.153e+01	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	6.264e+01	3.933e+01	1.59	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	2.553e+02	2.363e+02	1.08	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:16	4.407e+01	4.878e+01	0.90	yes	no	1.258
10	Unk	OCDF	42:51	6.877e+02	8.018e+02	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:23	2.634e+03	3.429e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:52	4.139e+01	2.115e+01	1.96	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	2.848e+01	8.581e+00	3.32	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	5.050e+02	5.466e+02	0.92	yes	no	1.025
17	Unk	OCDD	42:39	6.099e+03	6.771e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:35	2.328e+04	2.980e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	3.584e+04	2.309e+04	1.55	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:35	3.471e+04	2.156e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	1.381e+04	2.735e+04	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.828e+04	3.538e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	1.920e+04	3.693e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	1.450e+04	2.830e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	1.488e+04	3.412e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	1.462e+04	3.294e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	1.540e+04	1.966e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	2.679e+04	1.683e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	1.908e+04	1.476e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	2.234e+04	1.745e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	2.015e+04	1.895e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:38	2.947e+04	3.298e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:49	1.783e+04	2.235e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	2.417e+04	1.878e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	3.334e+02				no	1.014

$$\text{OCDD} = \frac{(6.099e{+}03 + 6.771e{+}03) \times 4000\ \text{pg} \times 50}{(2.947e{+}04 + 3.298e{+}04) \times 10.125\ \text{g} \times 73.9 / 100 \times 1.118} = 71698.6549\ \text{ng/kg}$$

LG 11/27/18

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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0022

Run #17 Filename P518975 Samp: 1 Inj: 1 Acquired: 21-NOV-18 19:13:19
Processed: 26-NOV-18 13:55:51 LAB. ID: E1801020-018DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.78e+06	6.96e+02	2.6e+03	2.31e+06	9.60e+02	2.4e+03
2	1,2,3,7,8-PeCDF	9.44e+04	9.28e+02	1.0e+02	6.23e+04	8.08e+02	7.7e+01
3	2,3,4,7,8-PeCDF	5.08e+04	9.28e+02	5.5e+01	3.74e+04	8.08e+02	4.6e+01
4	1,2,3,4,7,8-HxCDF	1.46e+05	8.48e+02	1.7e+02	1.27e+05	8.00e+02	1.6e+02
5	1,2,3,6,7,8-HxCDF	3.64e+04	8.48e+02	4.3e+01	2.99e+04	8.00e+02	3.7e+01
6	2,3,4,6,7,8-HxCDF	5.73e+03	8.48e+02	6.8e+00	6.60e+03	8.00e+02	8.3e+00
7	1,2,3,7,8,9-HxCDF	1.21e+04	8.48e+02	1.4e+01	7.01e+03	8.00e+02	8.8e+00
8	1,2,3,4,6,7,8-HpCDF	5.52e+04	5.04e+02	1.1e+02	4.25e+04	5.24e+02	8.1e+01
9	1,2,3,4,7,8,9-HpCDF	1.13e+04	5.04e+02	2.2e+01	8.42e+03	5.24e+02	1.6e+01
10	OCDF	9.48e+04	3.12e+02	3.0e+02	1.03e+05	5.36e+02	1.9e+02
11	2,3,7,8-TCDD	5.04e+05	2.21e+03	2.3e+02	6.65e+05	6.44e+02	1.0e+03
12	1,2,3,7,8-PeCDD	5.90e+03	4.88e+02	1.2e+01	3.76e+03	2.12e+02	1.8e+01
13	1,2,3,4,7,8-HxCDD	*	3.16e+02	*	*	2.48e+02	*
14	1,2,3,6,7,8-HxCDD	6.30e+03	3.16e+02	2.0e+01	2.74e+03	2.48e+02	1.1e+01
15	1,2,3,7,8,9-HxCDD	*	3.16e+02	*	*	2.48e+02	*
16	1,2,3,4,6,7,8-HpCDD	9.58e+04	4.72e+02	2.0e+02	9.28e+04	8.24e+02	1.1e+02
17	OCDD	8.34e+05	3.24e+02	2.6e+03	9.26e+05	2.04e+02	4.5e+03
18	13C-2,3,7,8-TCDF	4.24e+06	4.89e+03	8.7e+02	5.41e+06	4.09e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	6.13e+06	3.96e+02	1.5e+04	3.97e+06	5.44e+02	7.3e+03
20	13C-2,3,4,7,8-PeCDF	6.19e+06	3.96e+02	1.6e+04	3.85e+06	5.44e+02	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.80e+06	8.28e+02	3.4e+03	5.47e+06	7.04e+02	7.8e+03
22	13C-1,2,3,6,7,8-HxCDF	3.34e+06	8.28e+02	4.0e+03	6.25e+06	7.04e+02	8.9e+03
23	13C-2,3,4,6,7,8-HxCDF	3.64e+06	8.28e+02	4.4e+03	6.94e+06	7.04e+02	9.9e+03
24	13C-1,2,3,7,8,9-HxCDF	2.46e+06	8.28e+02	3.0e+03	4.75e+06	7.04e+02	6.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.75e+06	2.10e+03	1.3e+03	6.22e+06	3.59e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.41e+06	2.10e+03	1.2e+03	5.37e+06	3.59e+03	1.5e+03
27	13C-2,3,7,8-TCDD	2.91e+06	5.80e+03	5.0e+02	3.65e+06	1.45e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	4.61e+06	3.28e+02	1.4e+04	2.96e+06	6.32e+02	4.7e+03
29	13C-1,2,3,4,7,8-HxCDD	3.99e+06	1.00e+03	4.0e+03	3.04e+06	3.28e+02	9.3e+03
30	13C-1,2,3,6,7,8-HxCDD	3.98e+06	1.00e+03	4.0e+03	3.11e+06	3.28e+02	9.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.37e+06	4.28e+02	7.9e+03	3.18e+06	3.64e+02	8.7e+03
32	13C-OCDD	4.06e+06	3.40e+02	1.2e+04	4.51e+06	3.40e+02	1.3e+04
33	13C-1,2,3,4-TCDD	3.48e+06	5.80e+03	6.0e+02	4.36e+06	1.45e+03	3.0e+03
34	13C-1,2,3,7,8,9-HxCDD	4.03e+06	1.00e+03	4.0e+03	3.22e+06	3.28e+02	9.8e+03
35	37Cl-2,3,7,8-TCDD	6.21e+04	1.23e+03	5.0e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.212e+03 + 6.440e+02) \times 2000}{(2.907e+06 + 3.653e+06) \times (\quad) \times 1.085} =$$

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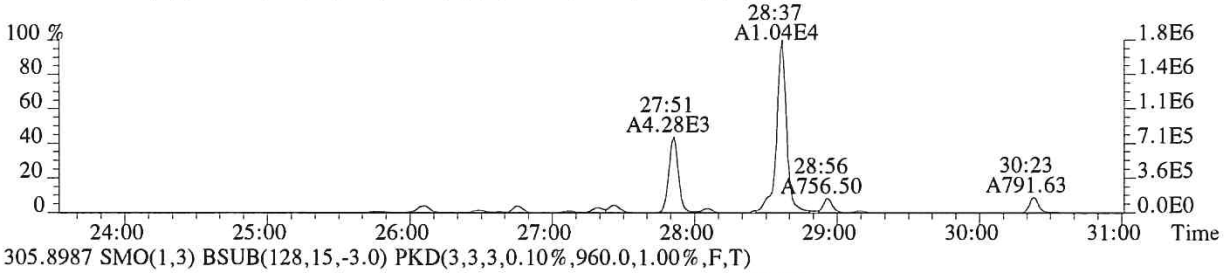
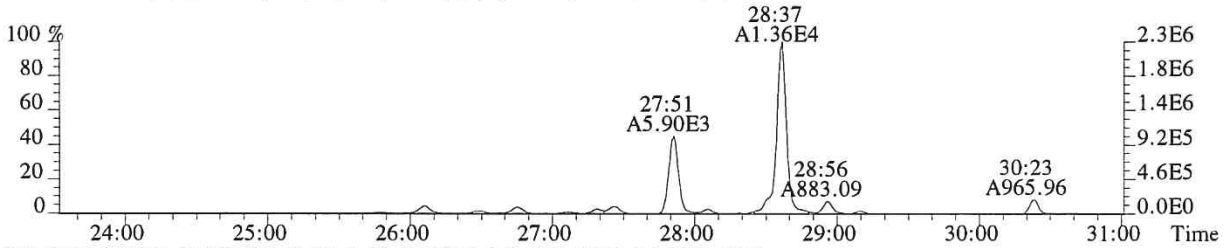
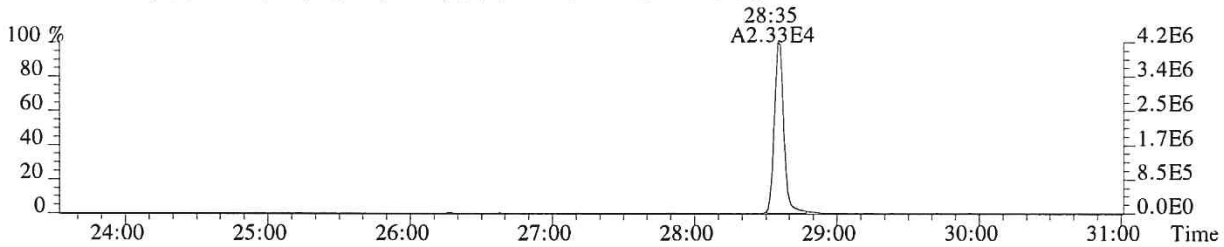
File:P518975 #1-531 Acq:21-NOV-2018 19:13:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



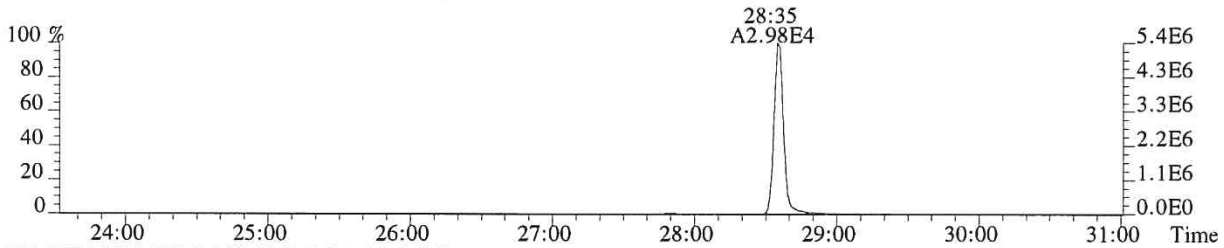
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



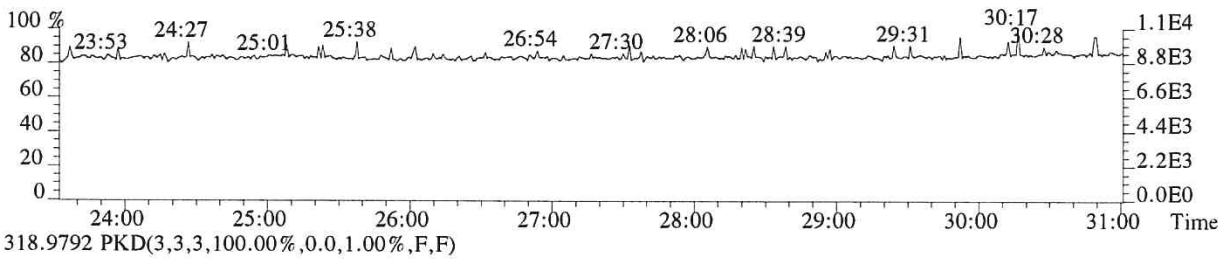
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4892.0,1.00%,F,T)



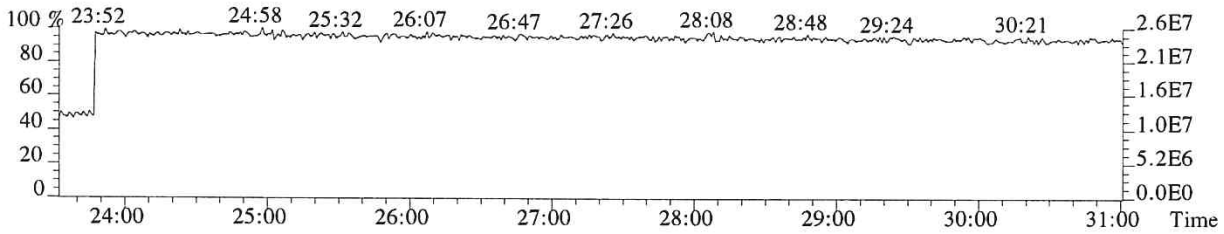
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4092.0,1.00%,F,T)



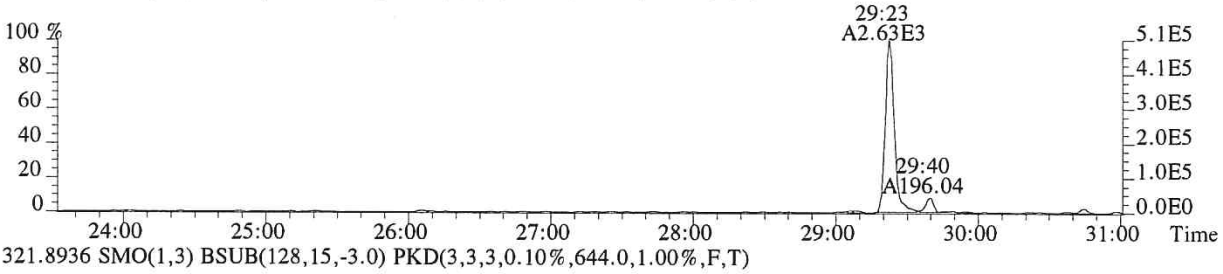
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



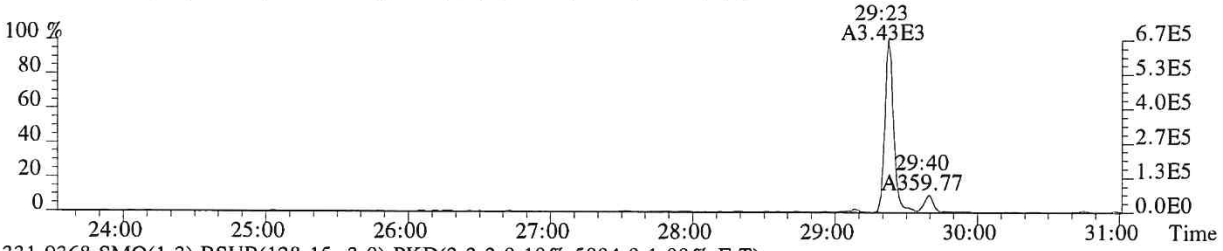
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



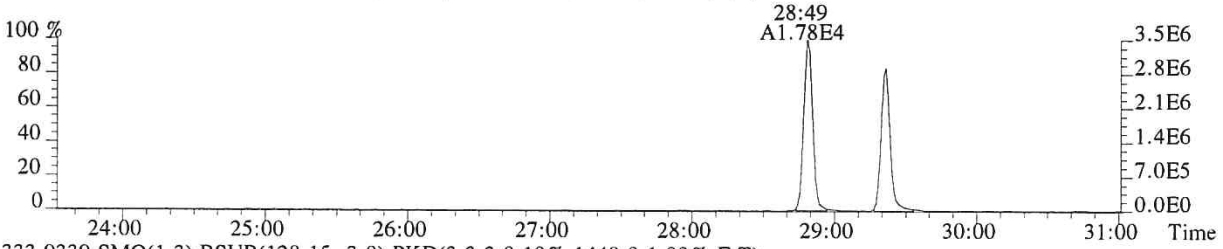
File:P518975 #1-531 Acq:21-NOV-2018 19:13:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2212.0,1.00%,F,T)



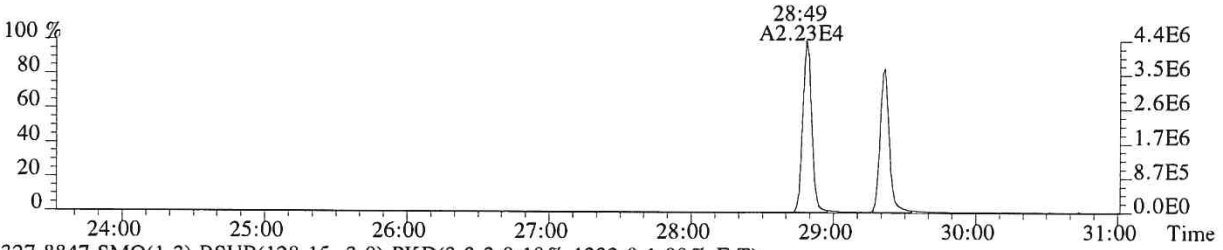
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



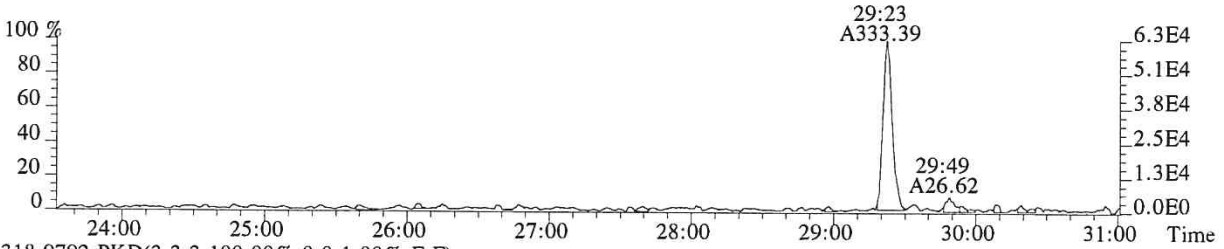
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5804.0,1.00%,F,T)



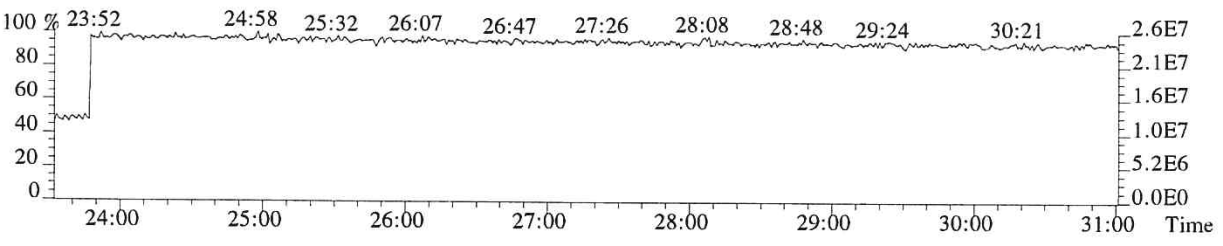
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)

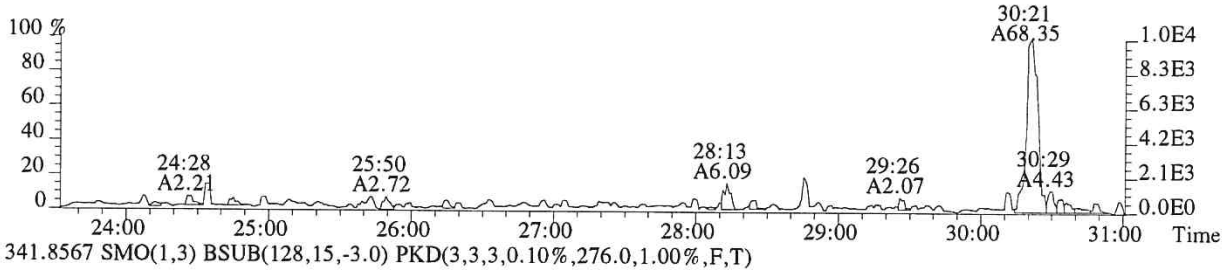


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

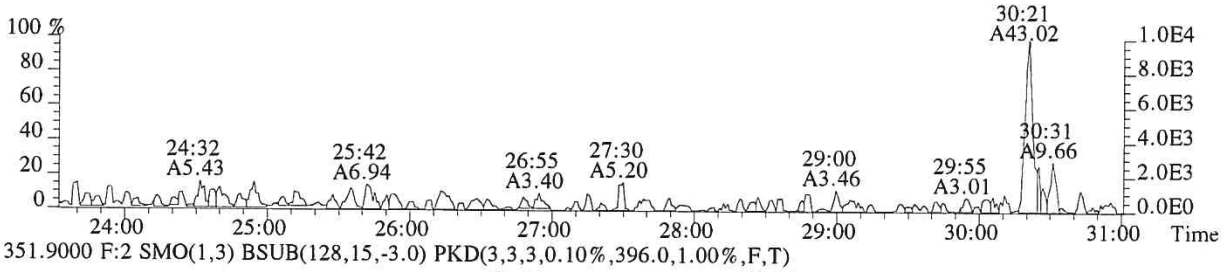


009670

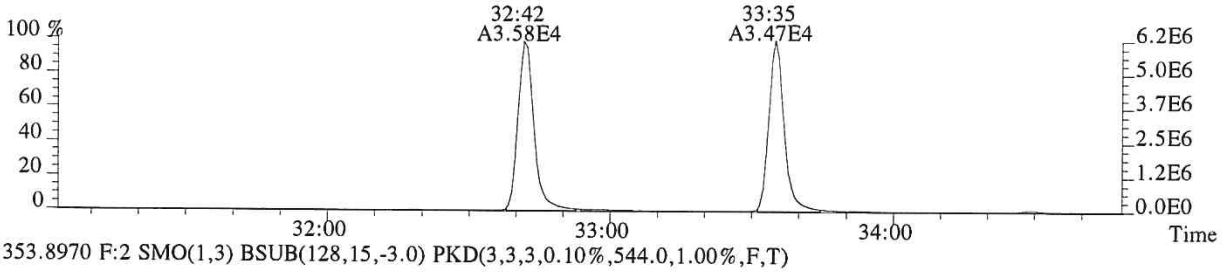
File:P518975 #1-531 Acq:21-NOV-2018 19:13:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



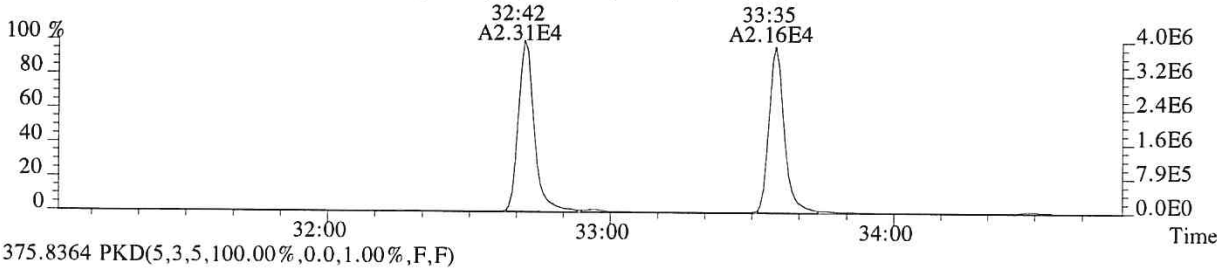
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



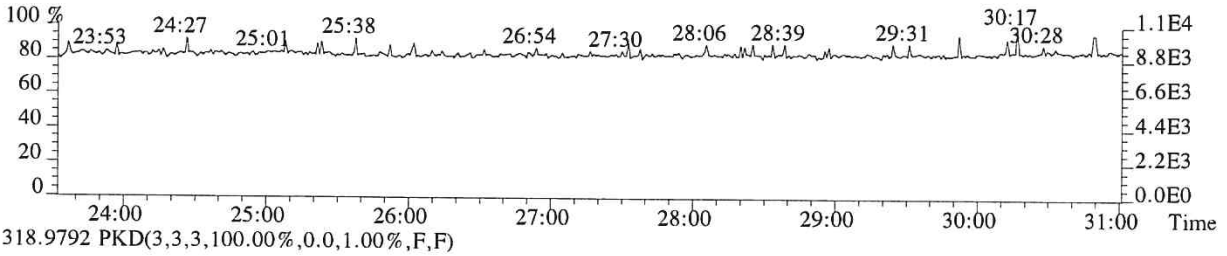
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



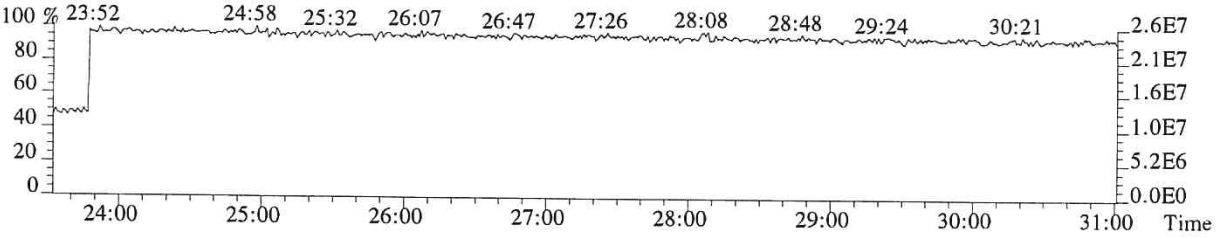
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

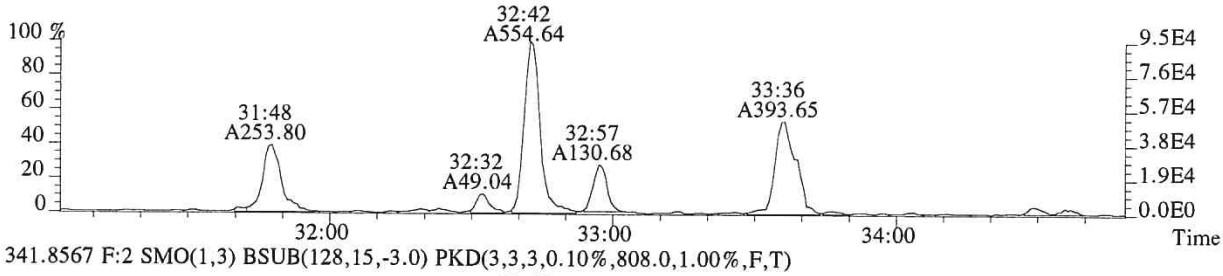


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

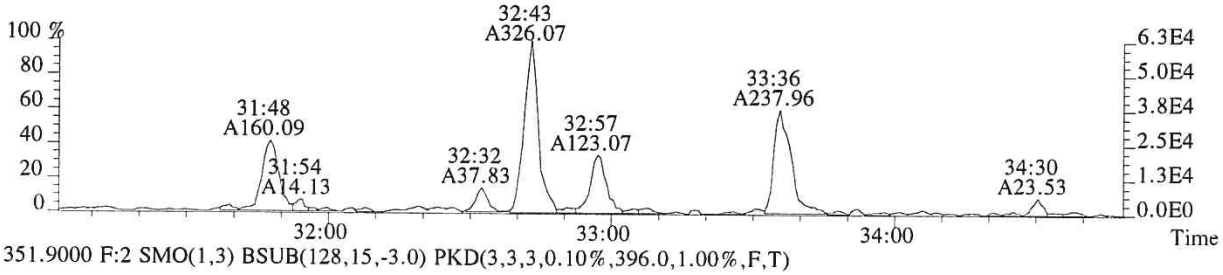


009671

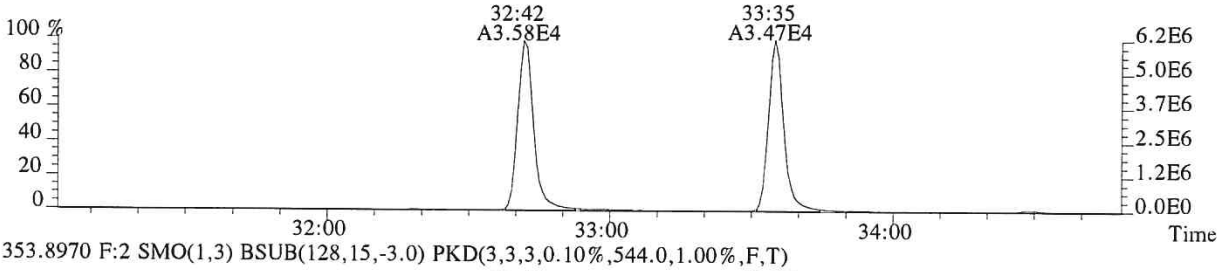
File:P518975 #1-339 Acq:21-NOV-2018 19:13:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



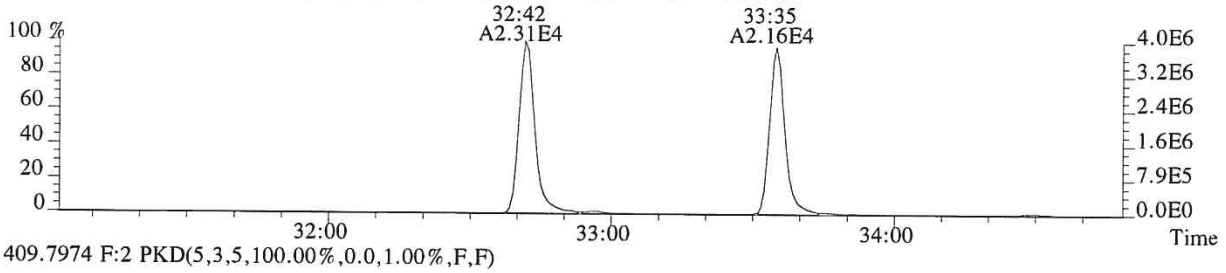
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



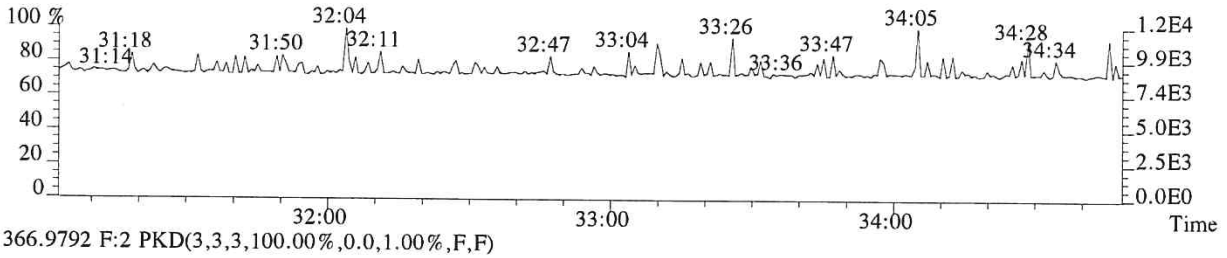
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



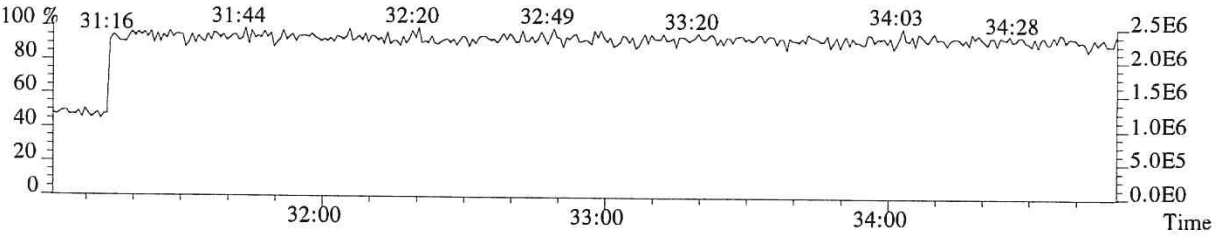
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



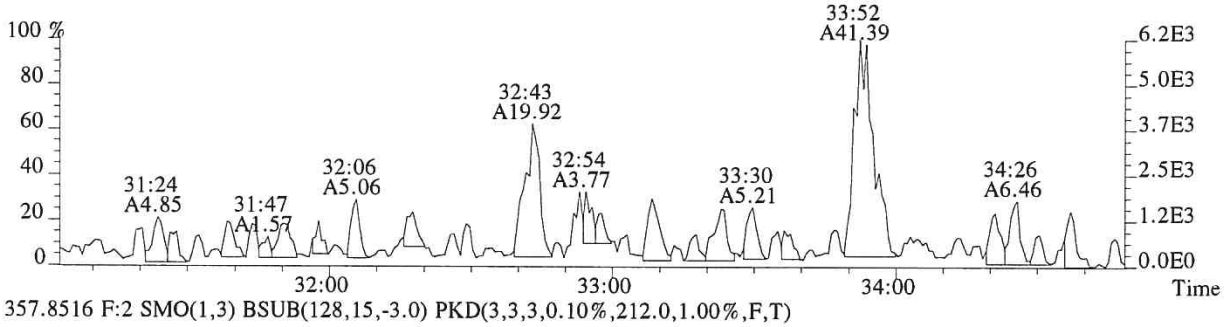
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



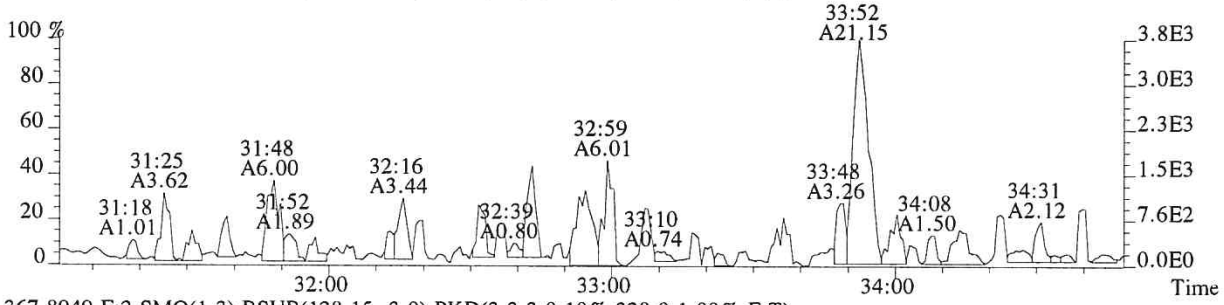
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



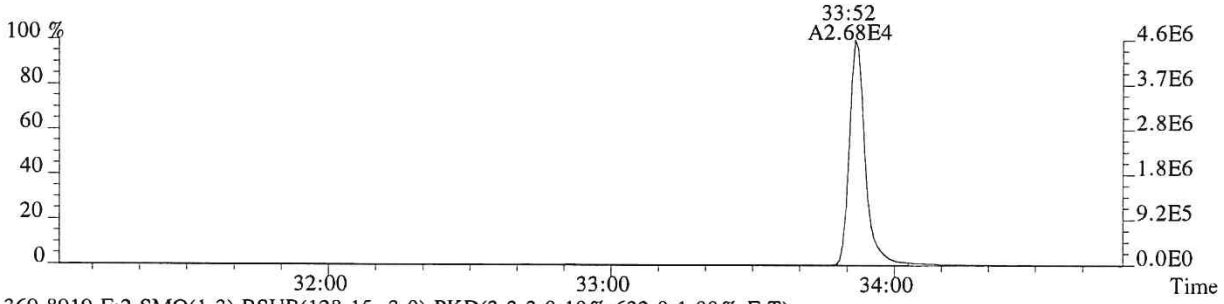
File:P518975 #1-339 Acq:21-NOV-2018 19:13:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



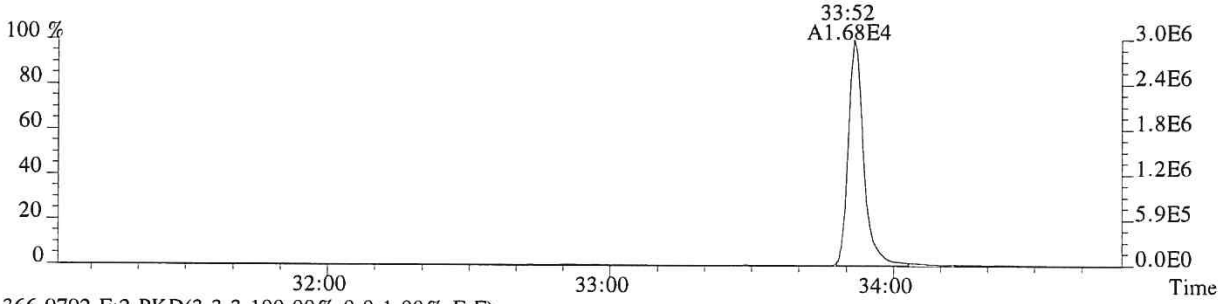
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



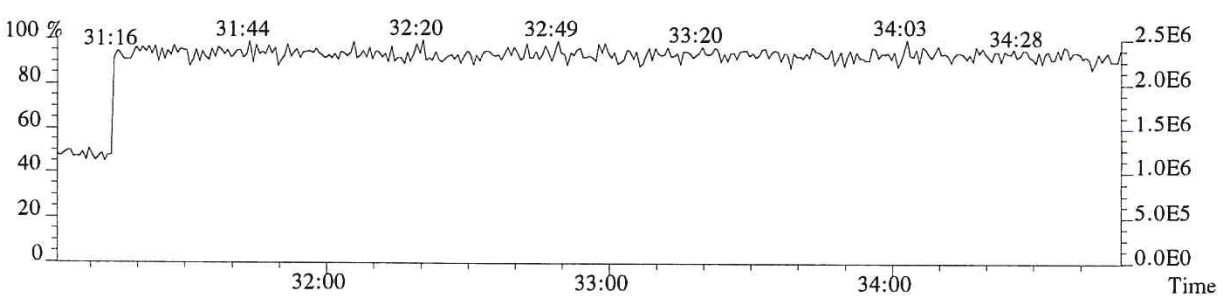
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)

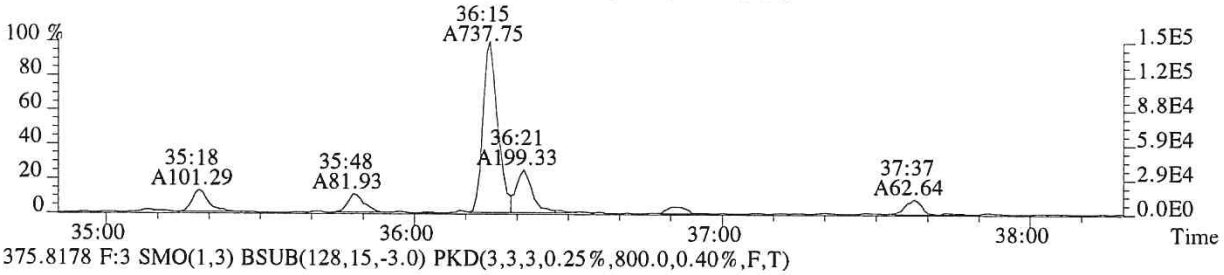


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

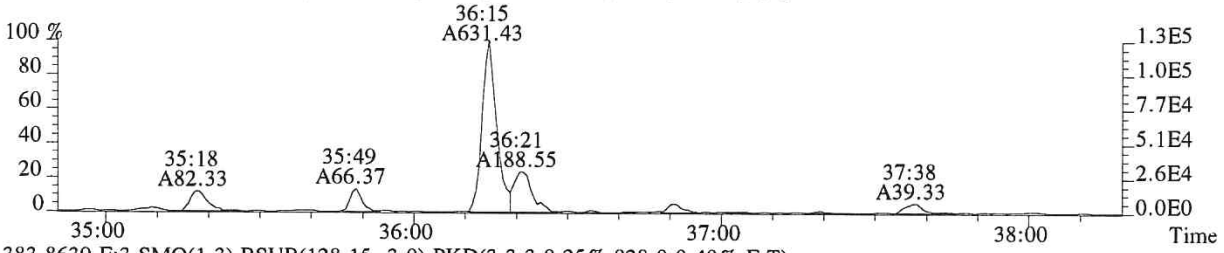


File:P518975 #1-312 Acq:21-NOV-2018 19:13:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018DL

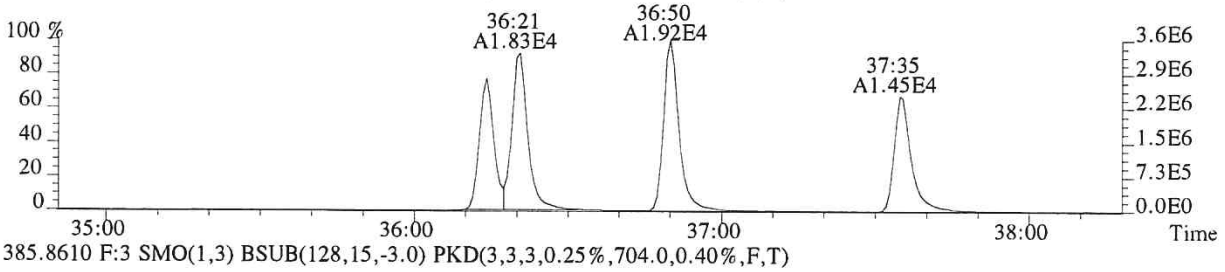
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



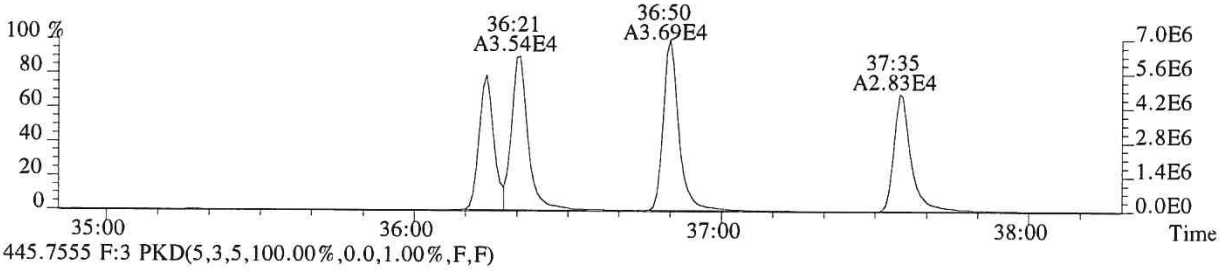
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



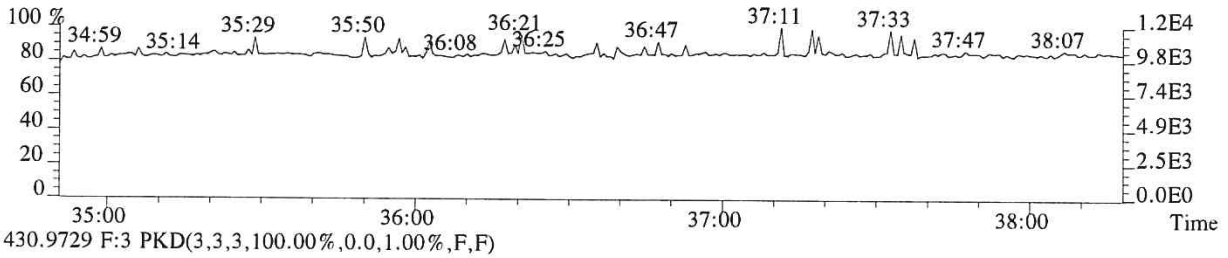
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



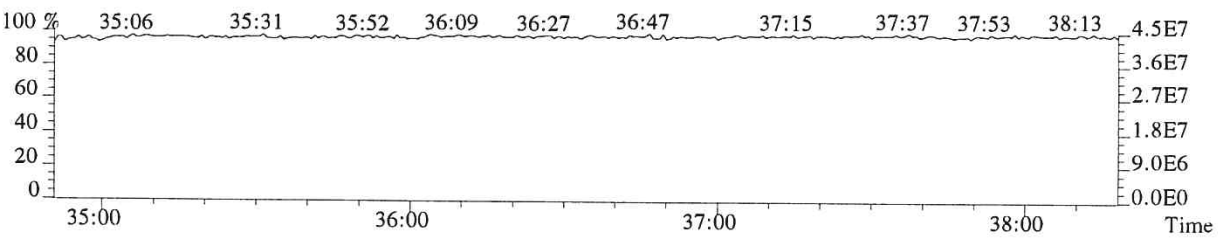
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



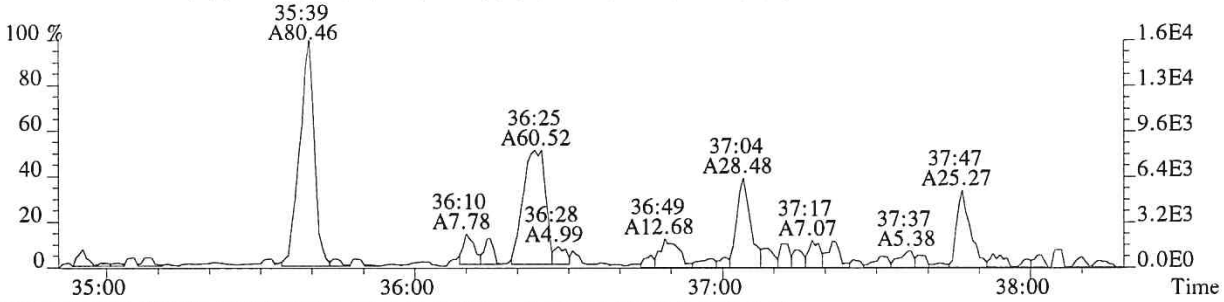
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



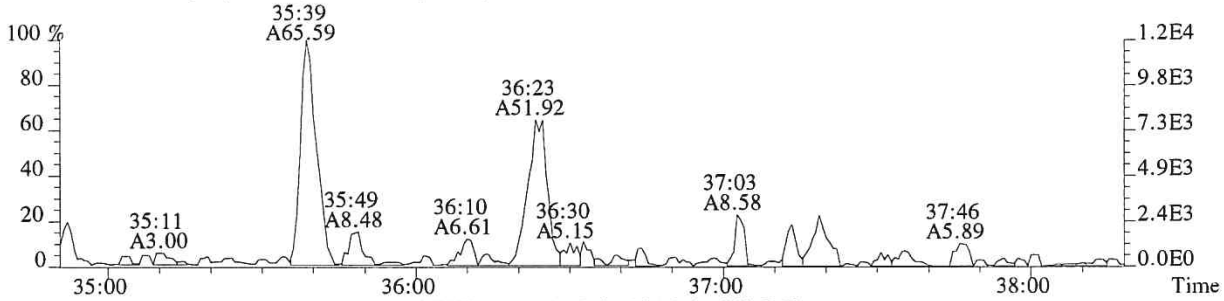
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



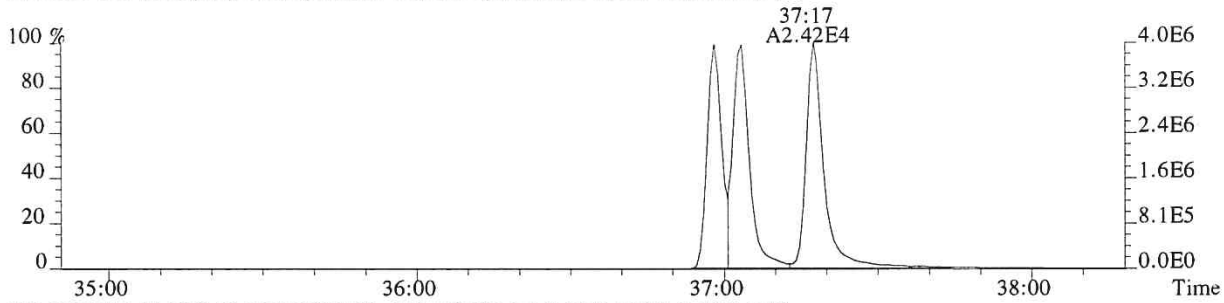
File:P518975 #1-312 Acq:21-NOV-2018 19:13:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



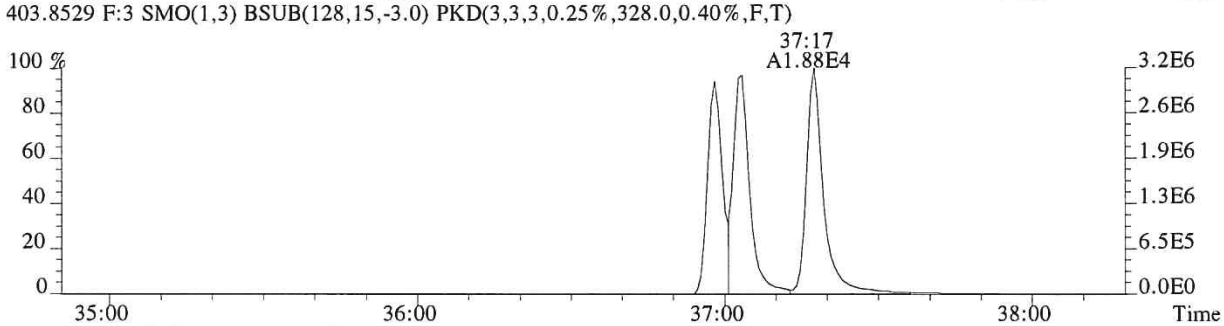
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



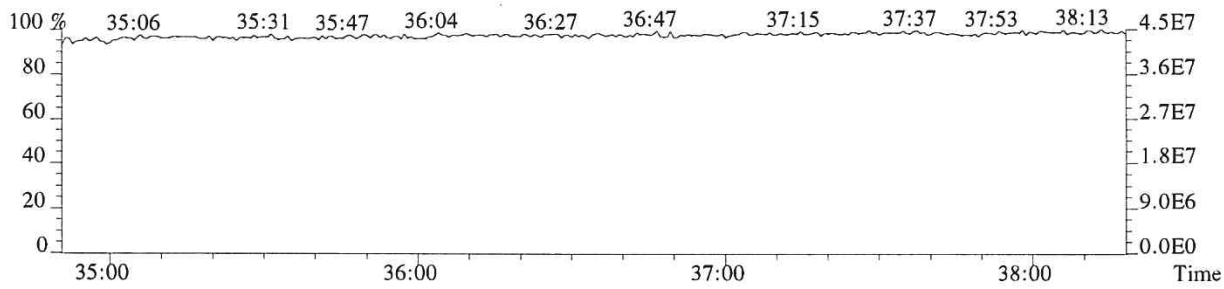
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)

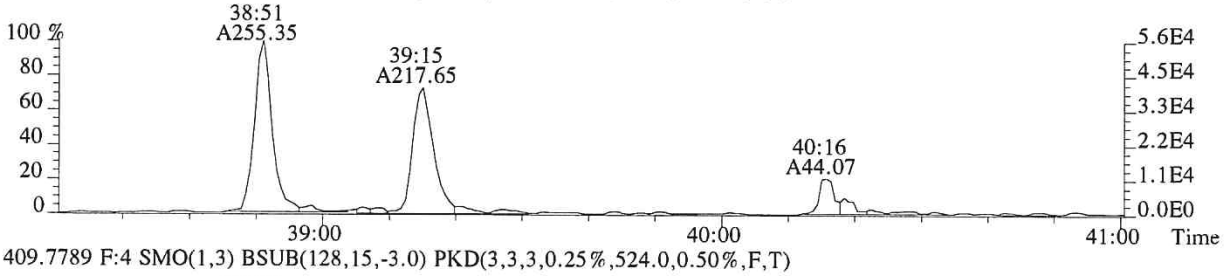


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

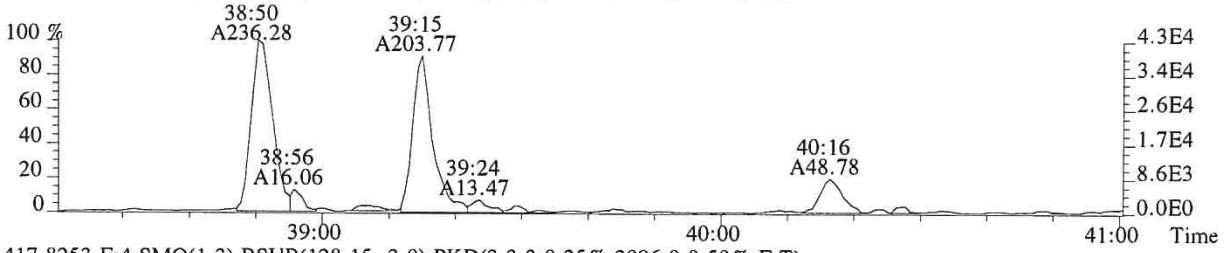


File:P518975 #1-241 Acq:21-NOV-2018 19:13:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018DL

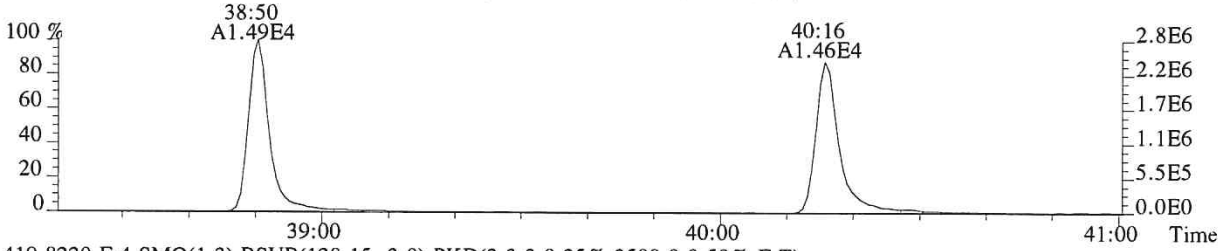
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.50%,F,T)



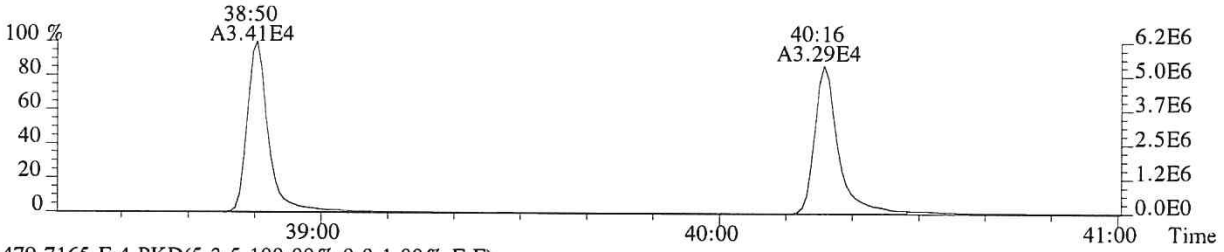
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.50%,F,T)



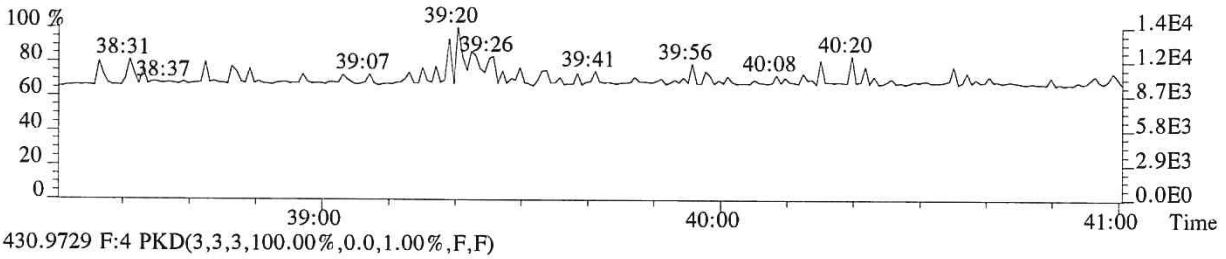
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2096.0,0.50%,F,T)



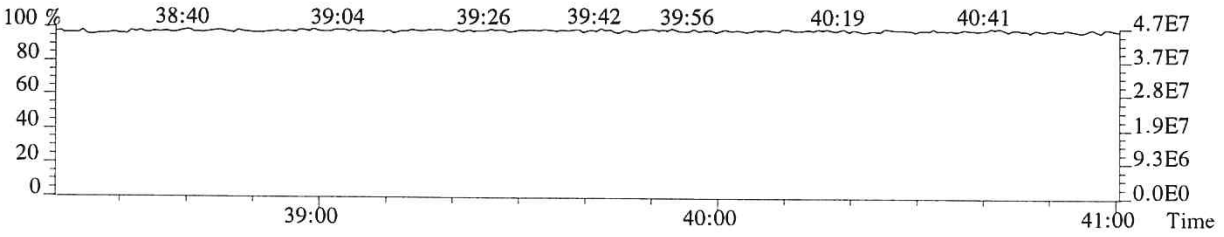
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3588.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

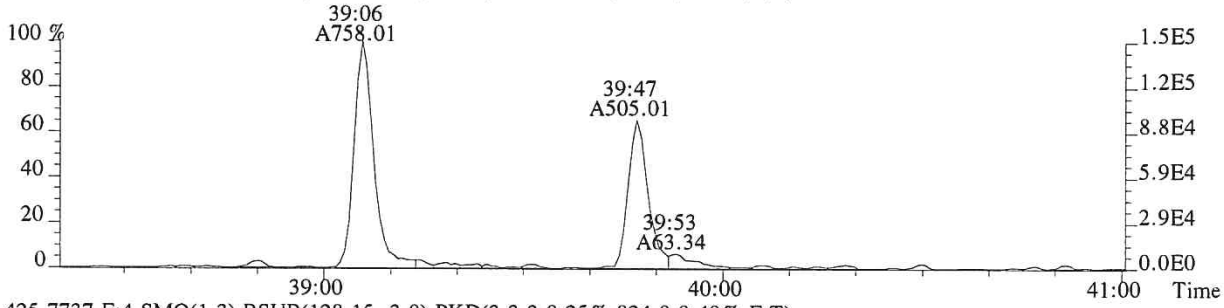


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

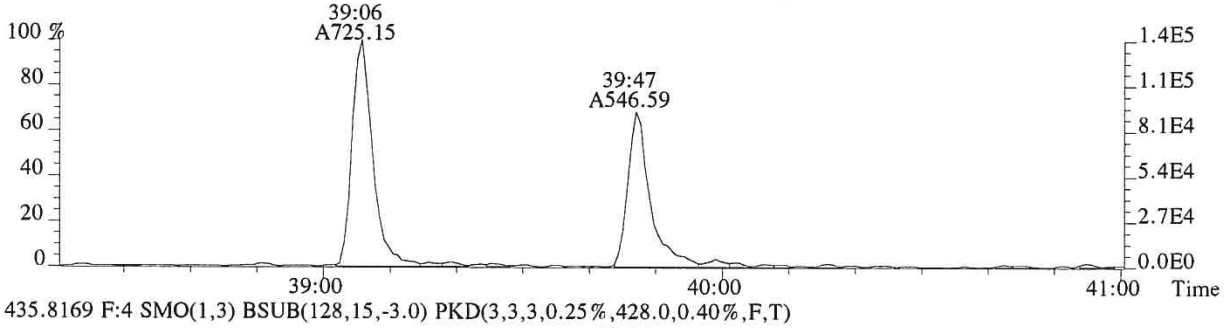


009676

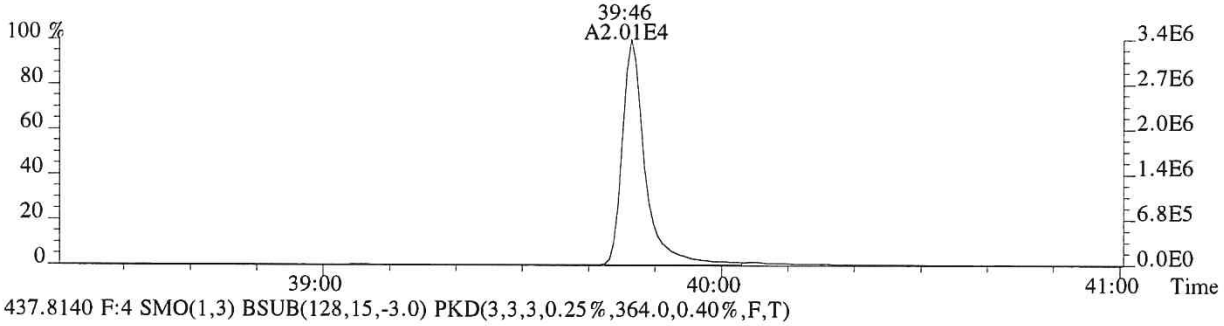
File:P518975 #1-241 Acq:21-NOV-2018 19:13:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



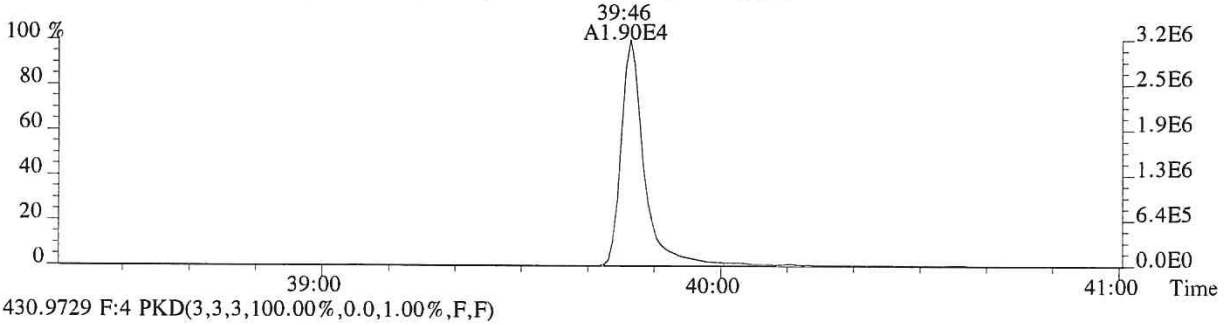
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



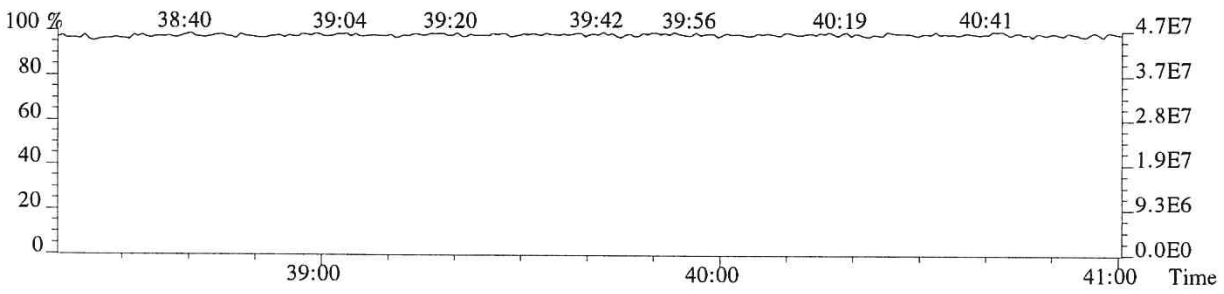
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)

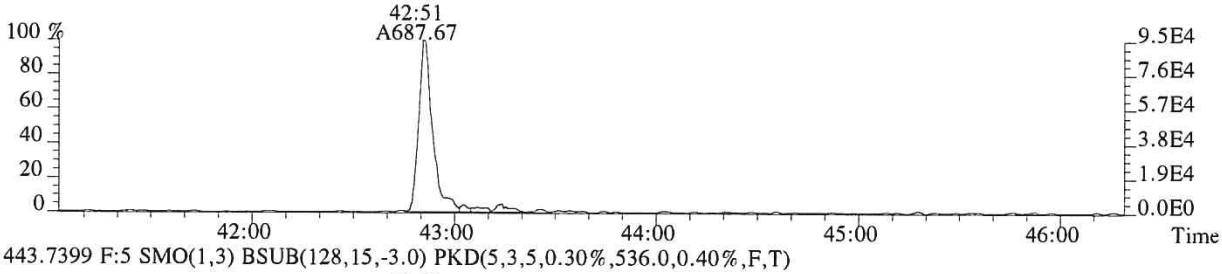


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

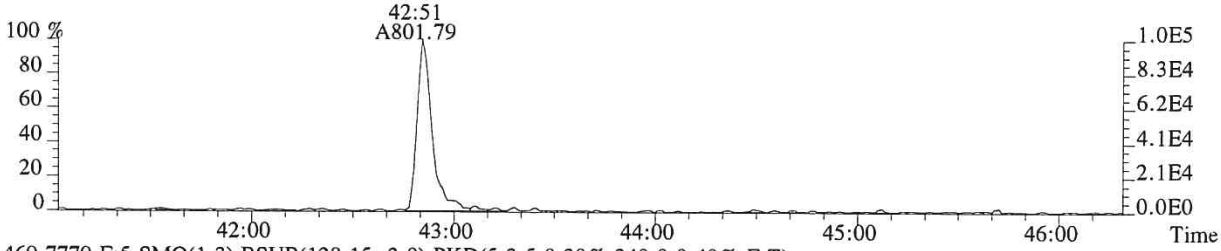


File:P518975 #1-475 Acq:21-NOV-2018 19:13:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018DL

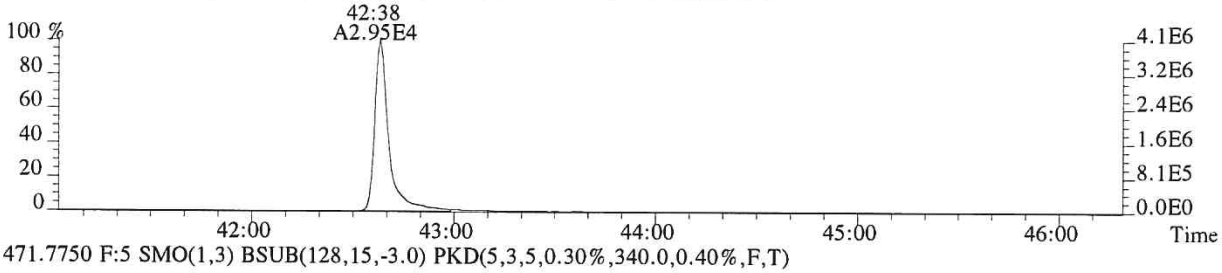
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



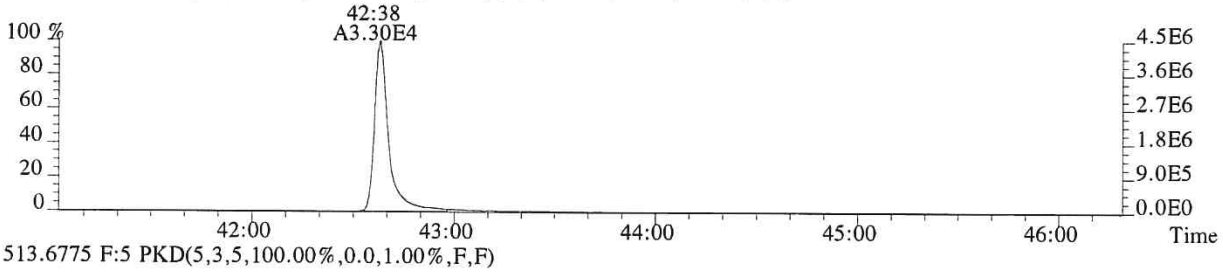
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,536.0,0.40%,F,T)



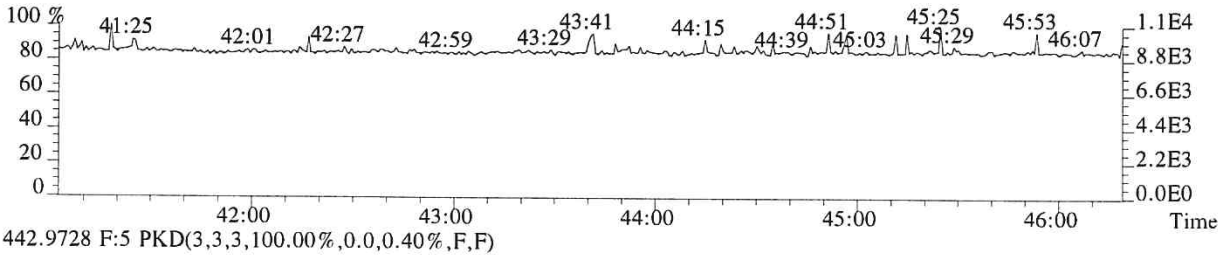
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



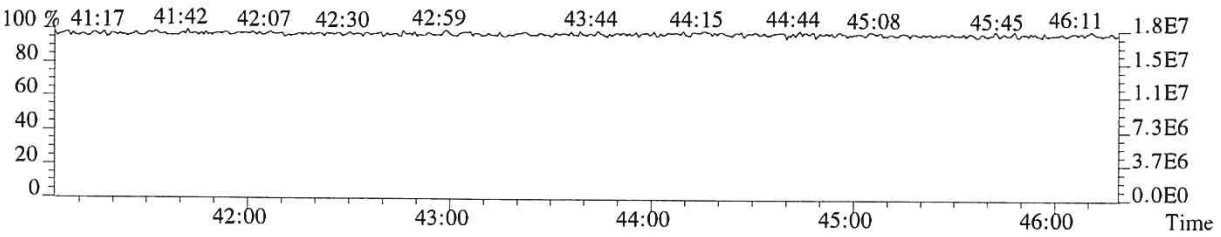
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



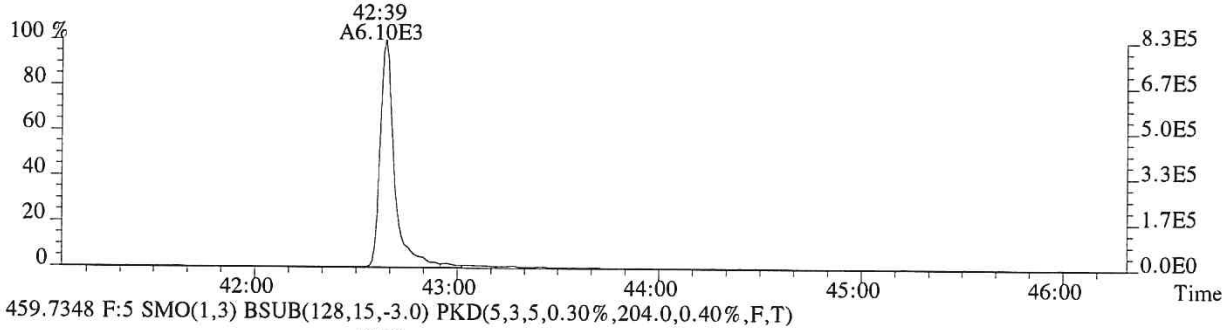
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



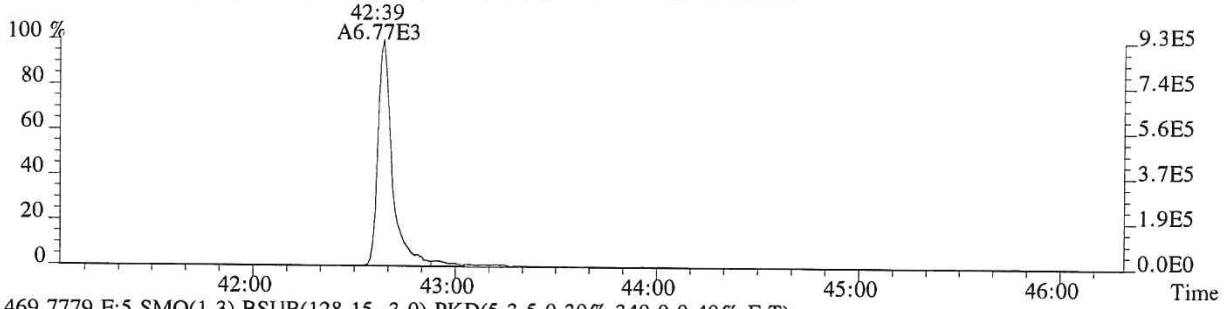
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



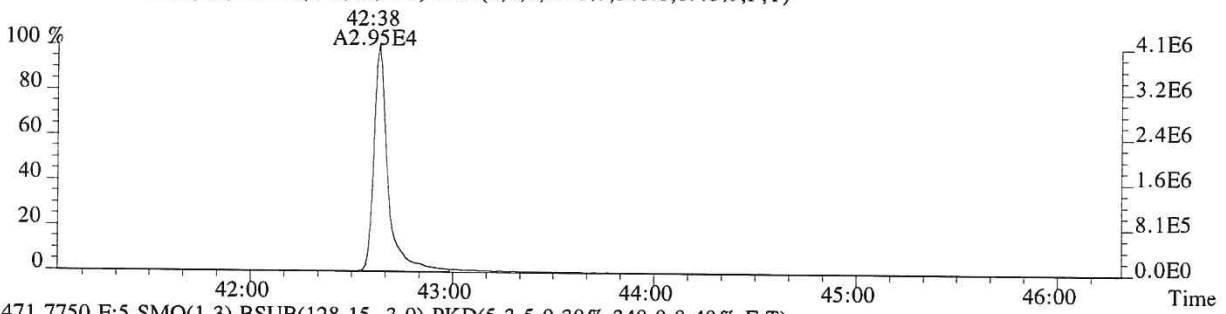
File:P518975 #1-475 Acq:21-NOV-2018 19:13:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-018DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



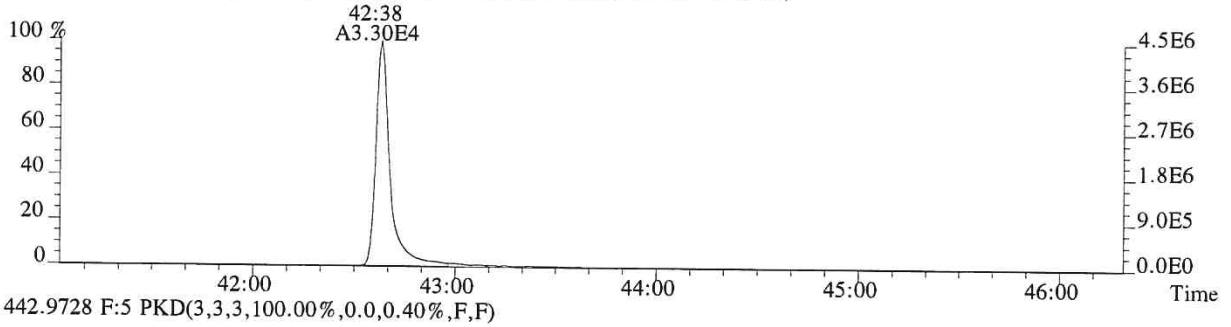
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



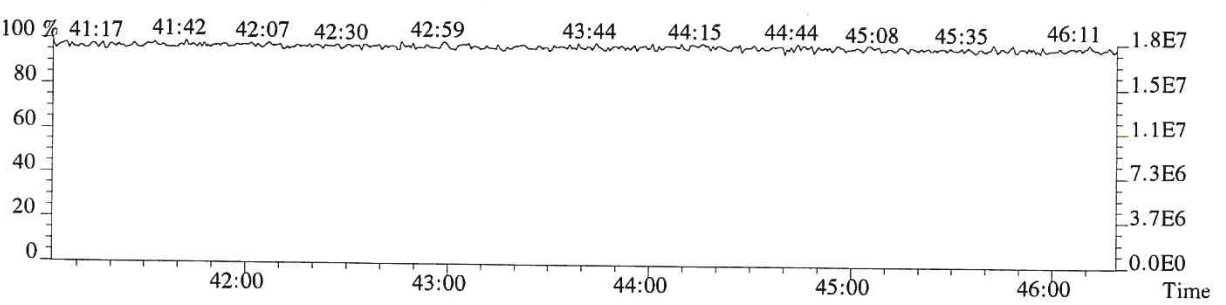
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0011

Run #12 Filename P518870 Samp: 1 Inj: 1 Acquired: 17-NOV-18 05:10:10
Processed: 21-NOV-18 09:19:30 Sample ID: E1801020-034

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:37	1.199e+06	1.535e+06	0.78	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:37	6.243e+04	4.084e+04	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:38	4.488e+04	2.924e+04	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:31	1.069e+05	8.789e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:38	2.841e+04	2.312e+04	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:10	4.048e+03	3.465e+03	1.17	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:58	6.813e+03	5.682e+03	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	2.949e+04	2.918e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	8.782e+03	8.603e+03	1.02	yes	no	1.258
10	Unk	OCDF	40:52	8.551e+04	9.734e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:37	3.329e+05	4.227e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:57	4.748e+03	3.000e+03	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:19	1.544e+02	1.156e+02	1.34	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:25	7.580e+02	5.900e+02	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:41	3.853e+02	2.300e+02	1.67	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	1.756e+04	1.667e+04	1.05	yes	no	1.025
17	Unk	OCDD	40:42	1.342e+05	1.499e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:35	2.303e+04	2.862e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:36	3.595e+04	2.244e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:37	3.443e+04	2.197e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:30	1.449e+04	2.761e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:37	1.640e+04	3.135e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:09	1.563e+04	2.963e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:57	1.554e+04	2.963e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:15	9.687e+03	2.164e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:35	9.237e+03	2.082e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:35	1.487e+04	1.913e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:56	2.483e+04	1.570e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:19	2.020e+04	1.581e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:24	2.066e+04	1.604e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:10	1.849e+04	1.752e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	40:42	1.423e+04	1.591e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:54	2.608e+04	3.327e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:39	3.939e+04	3.215e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:37	2.067e+04				no	1.014

$$\text{OCDD} = \frac{(1.342e{+}05 + 1.499e{+}05) \times 4000\ \text{pg} \times 1}{(1.423e{+}04 + 1.591e{+}04) \times 10.18\ \text{g} \times 66.5/100 \times 1.118} = 4981.0996\ \text{ng/kg}$$

LG 11/26/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0011

Run #12 Filename P518870 Samp: 1 Inj: 1 Acquired: 17-NOV-18 05:10:10
Processed: 21-NOV-18 09:19:30 LAB. ID: E1801020-034

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.65e+08	1.86e+03	8.9e+04	2.09e+08	1.68e+03	1.2e+05
2	1,2,3,7,8-PeCDF	1.07e+07	1.05e+04	1.0e+03	7.06e+06	1.29e+04	5.5e+02
3	2,3,4,7,8-PeCDF	6.89e+06	1.05e+04	6.6e+02	4.40e+06	1.29e+04	3.4e+02
4	1,2,3,4,7,8-HxCDF	2.15e+07	4.32e+03	5.0e+03	1.78e+07	7.12e+03	2.5e+03
5	1,2,3,6,7,8-HxCDF	5.10e+06	4.32e+03	1.2e+03	4.17e+06	7.12e+03	5.9e+02
6	2,3,4,6,7,8-HxCDF	8.67e+05	4.32e+03	2.0e+02	7.18e+05	7.12e+03	1.0e+02
7	1,2,3,7,8,9-HxCDF	1.48e+06	4.32e+03	3.4e+02	1.22e+06	7.12e+03	1.7e+02
8	1,2,3,4,6,7,8-HpCDF	5.99e+06	1.10e+04	5.5e+02	5.85e+06	6.60e+03	8.9e+02
9	1,2,3,4,7,8,9-HpCDF	1.68e+06	1.10e+04	1.5e+02	1.59e+06	6.60e+03	2.4e+02
10	OCDF	1.40e+07	2.12e+02	6.6e+04	1.58e+07	7.64e+02	2.1e+04
11	2,3,7,8-TCDD	5.42e+07	2.42e+03	2.2e+04	6.89e+07	1.43e+03	4.8e+04
12	1,2,3,7,8-PeCDD	8.05e+05	8.92e+02	9.0e+02	4.94e+05	1.48e+03	3.3e+02
13	1,2,3,4,7,8-HxCDD	3.41e+04	8.12e+02	4.2e+01	2.37e+04	2.89e+03	8.2e+00
14	1,2,3,6,7,8-HxCDD	1.41e+05	8.12e+02	1.7e+02	1.16e+05	2.89e+03	4.0e+01
15	1,2,3,7,8,9-HxCDD	7.04e+04	8.12e+02	8.7e+01	4.16e+04	2.89e+03	1.4e+01
16	1,2,3,4,6,7,8-HpCDD	3.37e+06	6.23e+03	5.4e+02	3.25e+06	1.40e+03	2.3e+03
17	OCDD	2.13e+07	2.84e+02	7.5e+04	2.39e+07	1.16e+03	2.1e+04
18	13C-2,3,7,8-TCDF	3.19e+06	4.74e+03	6.7e+02	4.05e+06	4.84e+03	8.4e+02
19	13C-1,2,3,7,8-PeCDF	6.38e+06	8.44e+03	7.6e+02	3.93e+06	8.69e+03	4.5e+02
20	13C-2,3,4,7,8-PeCDF	6.07e+06	8.44e+03	7.2e+02	3.82e+06	8.69e+03	4.4e+02
21	13C-1,2,3,4,7,8-HxCDF	2.91e+06	1.94e+03	1.5e+03	5.54e+06	4.44e+03	1.2e+03
22	13C-1,2,3,6,7,8-HxCDF	3.15e+06	1.94e+03	1.6e+03	6.09e+06	4.44e+03	1.4e+03
23	13C-2,3,4,6,7,8-HxCDF	3.11e+06	1.94e+03	1.6e+03	5.94e+06	4.44e+03	1.3e+03
24	13C-1,2,3,7,8,9-HxCDF	3.46e+06	1.94e+03	1.8e+03	6.55e+06	4.44e+03	1.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.93e+06	1.08e+03	1.8e+03	4.42e+06	3.78e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.66e+06	1.08e+03	1.5e+03	3.85e+06	3.78e+03	1.0e+03
27	13C-2,3,7,8-TCDD	2.48e+06	4.43e+03	5.6e+02	3.17e+06	2.42e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	4.51e+06	1.28e+03	3.5e+03	2.86e+06	9.72e+02	2.9e+03
29	13C-1,2,3,4,7,8-HxCDD	4.23e+06	1.16e+03	3.6e+03	3.29e+06	1.88e+02	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	3.89e+06	1.16e+03	3.3e+03	3.00e+06	1.88e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.58e+06	2.36e+02	1.5e+04	3.33e+06	1.92e+02	1.7e+04
32	13C-OCDD	2.34e+06	4.08e+02	5.7e+03	2.54e+06	5.20e+02	4.9e+03
33	13C-1,2,3,4-TCDD	3.91e+06	4.43e+03	8.8e+02	4.96e+06	2.42e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	7.18e+06	1.16e+03	6.2e+03	5.69e+06	1.88e+02	3.0e+04
35	37Cl-2,3,7,8-TCDD	3.41e+06	1.31e+03	2.6e+03			

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Peak List Summary

CLIENT ID.
SL0011

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P518870 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 05:10:10 Processed: 21-NOV-18 09:19:30

Mass: 303.9020 305.8990 Tot Response: 5.08e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:28	8.90e+03	1.20e+04	0.74	yes	2.09e+04		n	n
2	22:45	4.70e+04	6.20e+04	0.76	yes	1.09e+05		n	n
3	23:06	1.39e+04	1.84e+04	0.75	yes	3.23e+04		n	n
4	23:14	1.69e+03	2.40e+03	0.71	yes	4.09e+03		n	n
5	23:23	4.11e+04	5.45e+04	0.75	yes	9.55e+04		n	n
6	23:45	1.03e+04	1.34e+04	0.77	yes	2.36e+04		n	n
7	24:01	2.43e+04	3.22e+04	0.76	yes	5.65e+04		n	n
8	24:06	5.60e+04	7.28e+04	0.77	yes	1.29e+05		n	n
9	24:35	5.29e+05	6.81e+05	0.78	yes	1.21e+06		n	n
10	24:54	2.48e+04	3.20e+04	0.77	yes	5.68e+04		n	n
11	25:29	6.72e+04	8.85e+04	0.76	yes	1.56e+05		y	y
12	25:37	1.20e+06	1.53e+06	0.78	yes	2.73e+06	2,3,7,8-TCDF	y	y
13	26:03	8.85e+04	1.15e+05	0.77	yes	2.03e+05		n	n
14	26:20	1.25e+04	1.50e+04	0.83	yes	2.75e+04		n	n
15	27:52	9.58e+04	1.25e+05	0.77	yes	2.21e+05		n	n

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Peak List Summary

CLIENT ID.
SL0011

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P518870 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 05:10:10 Processed: 21-NOV-18 09:19:30

Mass: 319.8970 321.8940 Tot Response: 8.30e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:18	4.24e+03	5.33e+03	0.80	yes	9.57e+03		n	n
2	26:37	3.33e+05	4.23e+05	0.79	yes	7.56e+05	2,3,7,8-TCDD	n	n
3	26:59	2.70e+04	3.81e+04	0.71	yes	6.52e+04		n	n

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Peak List Summary

CLIENT ID.
SL0011

Entry: 38 Totals Name: Total Penta-Furans1

Run: 12 File: P518870 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 05:10:10 Processed: 21-NOV-18 09:19:30

Mass: 339.8600 341.8570 Tot Response: 4.45e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:53	2.79e+03	1.66e+03 1.68	yes	4.45e+03		n	n

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SL0011

Entry: 39 Totals Name: Total Penta-Furans2

Run: 12 File: P518870 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 05:10:10 Processed: 21-NOV-18 09:19:30

Mass: 339.8600 341.8570 Tot Response: 2.70e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:36	2.80e+04	1.78e+04	1.57	yes	4.59e+04		n	n
2	30:12	1.27e+03	7.47e+02	1.70	yes	2.02e+03		n	n
3	30:16	1.05e+03	6.82e+02	1.53	yes	1.73e+03		n	n
4	30:26	5.18e+03	3.23e+03	1.61	yes	8.41e+03		n	n
5	30:37	6.24e+04	4.08e+04	1.53	yes	1.03e+05	1,2,3,7,8-PeCDF	n	n
6	30:54	1.77e+04	1.15e+04	1.54	yes	2.92e+04		n	n
7	31:32	6.17e+02	3.59e+02	1.72	yes	9.76e+02		n	n
8	31:38	4.49e+04	2.92e+04	1.54	yes	7.41e+04	2,3,4,7,8-PeCDF	n	n
9	32:36	2.38e+03	1.55e+03	1.54	yes	3.93e+03		n	n

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Peak List Summary

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SL0011

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P518870 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 05:10:10 Processed: 21-NOV-18 09:19:30

Mass: 355.8550 357.8520 Tot Response: 1.03e+04 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:39	6.00e+02	3.74e+02	1.61	yes	9.73e+02		n	n
2	30:40	3.02e+02	2.08e+02	1.45	yes	5.10e+02		n	n
3	31:11	2.19e+02	1.53e+02	1.43	yes	3.72e+02		n	n
4	31:31	1.62e+02	9.32e+01	1.74	yes	2.55e+02		n	n
5	31:57	4.75e+03	3.00e+03	1.58	yes	7.75e+03	1,2,3,7,8-PeCDD	n	n
6	32:06	1.24e+02	7.77e+01	1.60	yes	2.02e+02		n	n
7	32:21	1.12e+02	7.76e+01	1.44	yes	1.90e+02		n	n

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Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P518870 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 05:10:10 Processed: 21-NOV-18 09:19:30

Mass: 373.8210 375.8180 Tot Response: 2.99e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:20	1.13e+03	8.43e+02	1.34	yes	1.97e+03		n	n
2	33:31	8.56e+03	7.03e+03	1.22	yes	1.56e+04		n	n
3	34:03	7.93e+03	6.69e+03	1.19	yes	1.46e+04		n	n
4	34:31	1.07e+05	8.79e+04	1.22	yes	1.95e+05	1,2,3,4,7,8-HxCDF	n	n
5	34:38	2.84e+04	2.31e+04	1.23	yes	5.15e+04	1,2,3,6,7,8-HxCDF	n	n
6	35:10	4.05e+03	3.47e+03	1.17	yes	7.51e+03	2,3,4,6,7,8-HxCDF	n	n
7	35:58	6.81e+03	5.68e+03	1.20	yes	1.25e+04	1,2,3,7,8,9-HxCDF	n	n

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Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P518870 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 05:10:10 Processed: 21-NOV-18 09:19:30

Mass: 389.8160 391.8130 Tot Response: 1.51e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:54	3.97e+03	3.16e+03	1.26	yes	7.12e+03		n	n
2	34:27	4.93e+02	4.22e+02	1.17	yes	9.14e+02		n	n
3	34:42	2.67e+03	2.04e+03	1.31	yes	4.71e+03		n	n
4	34:49	2.81e+02	2.19e+02	1.28	yes	4.99e+02		n	n
5	35:19	1.54e+02	1.16e+02	1.34	yes	2.70e+02	1,2,3,4,7,8-HxCDD	n	n
6	35:25	7.58e+02	5.90e+02	1.28	yes	1.35e+03	1,2,3,6,7,8-HxCDD	n	n
7	35:35	1.45e+02	1.12e+02	1.29	yes	2.57e+02		n	n

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Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P518870 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 05:10:10 Processed: 21-NOV-18 09:19:30

Mass: 407.7820 409.7790 Tot Response: 1.10e+05 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:16	2.95e+04	1.01	yes	5.87e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	37:40	1.73e+04	1.04	yes	3.39e+04		n	n
3	38:36	8.78e+03	1.02	yes	1.74e+04	1,2,3,4,7,8,9-HpCDF	n	n

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Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P518870 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 05:10:10 Processed: 21-NOV-18 09:19:30

Mass: 423.7770 425.7740 Tot Response: 9.08e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:31	2.85e+04	2.80e+04 1.02	yes	5.66e+04		n	n
2	38:10	1.76e+04	1.67e+04 1.05	yes	3.42e+04	1,2,3,4,6,7,8-HpCDD	n	n

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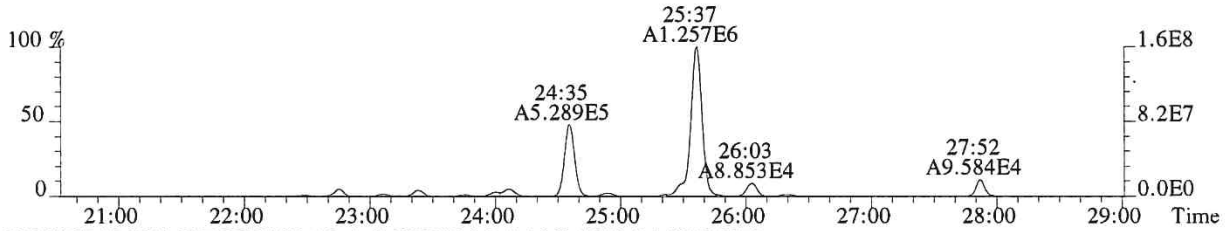
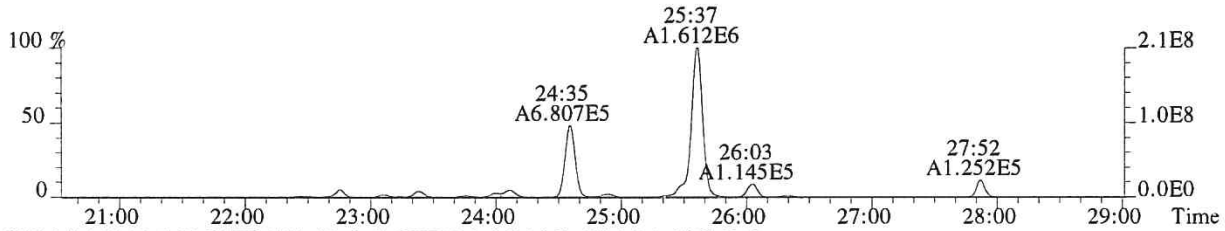
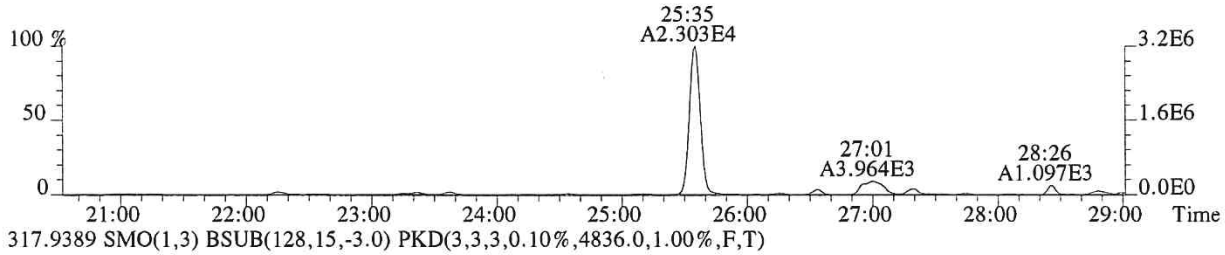
File:P518870 #1-602 Acq:17-NOV-2018 05:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1860.0,1.00%,F,T)



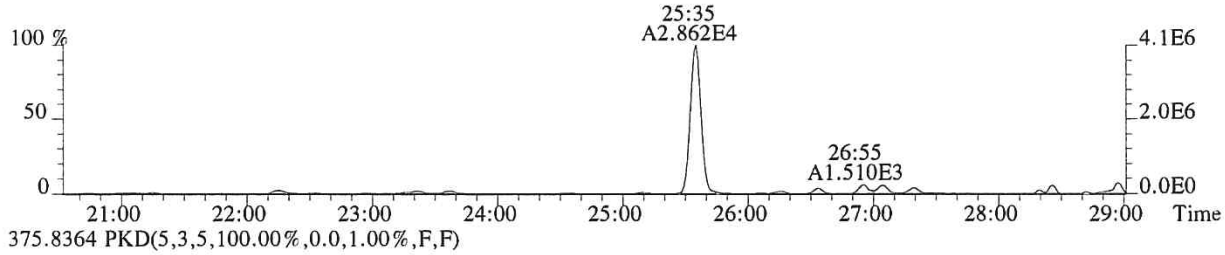
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)



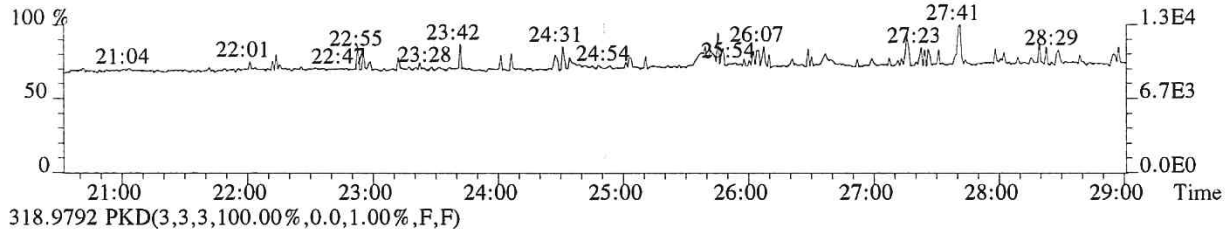
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4736.0,1.00%,F,T)



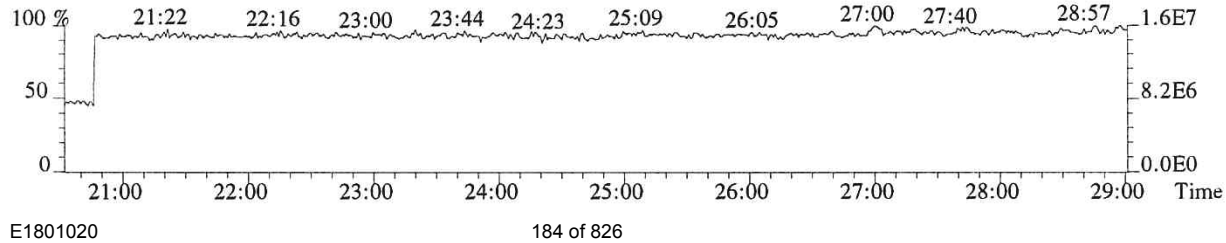
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4836.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

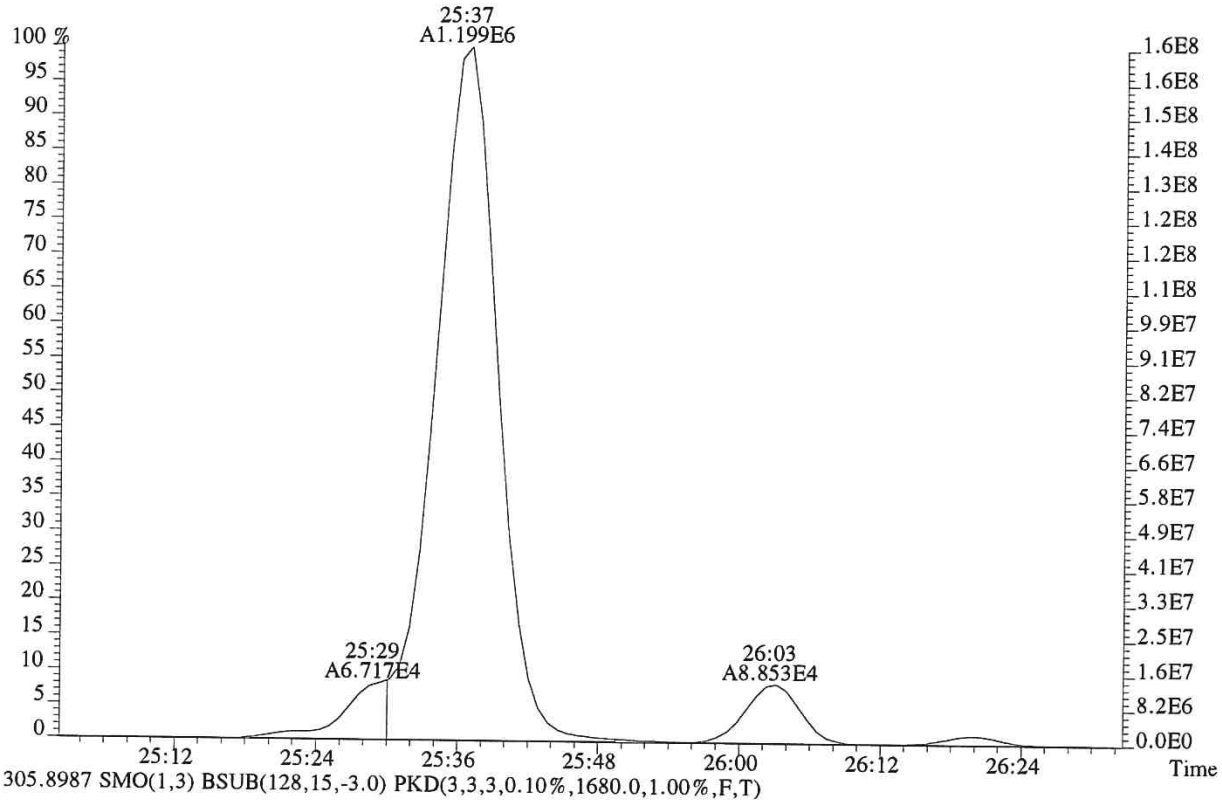


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

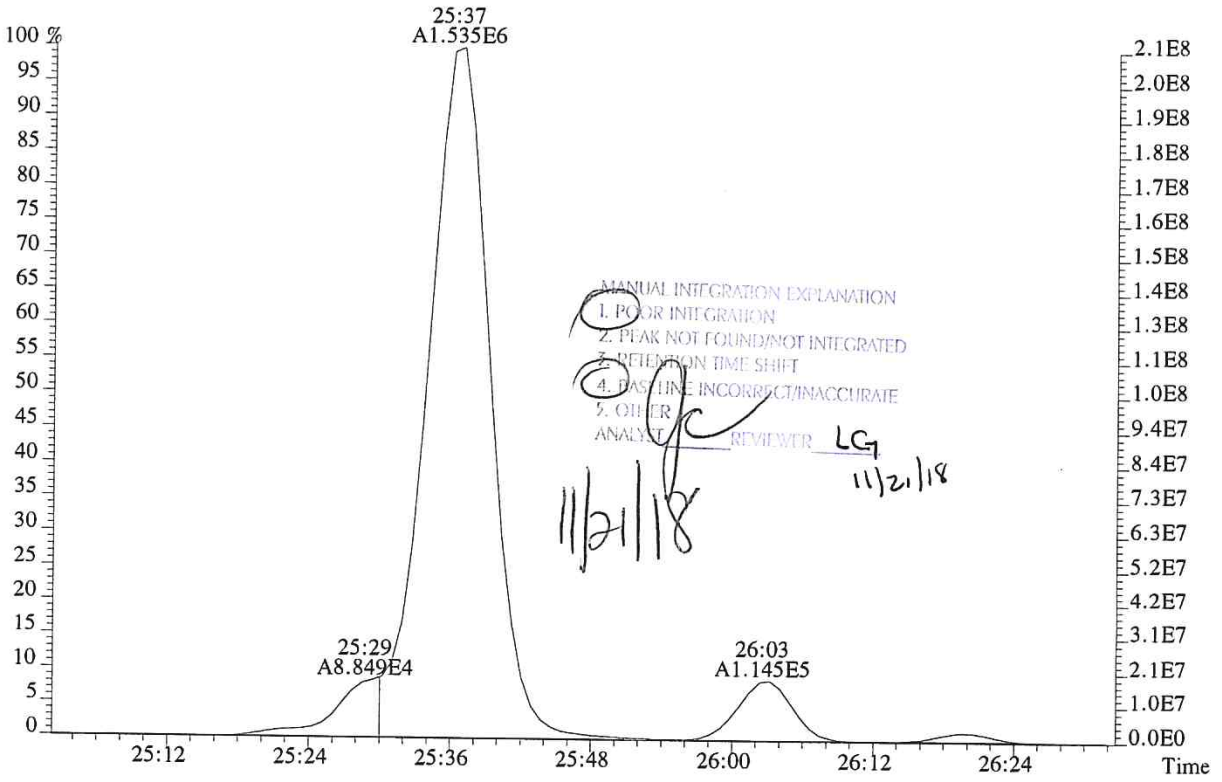


009691

File:P518870 #1-602 Acq:17-NOV-2018 05:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1860.0,1.00%,F,T)

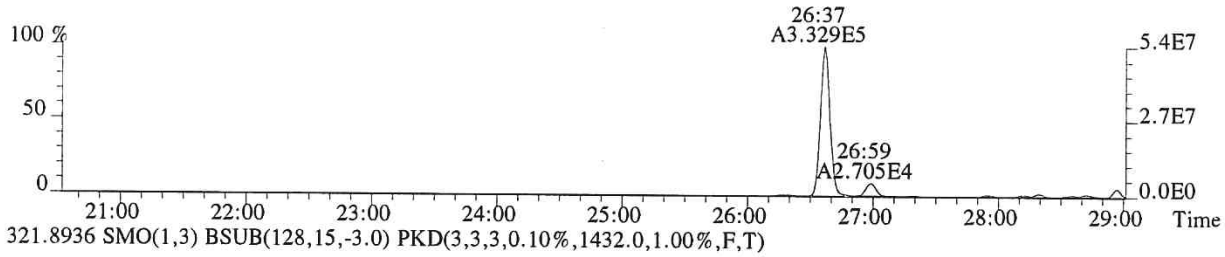


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)

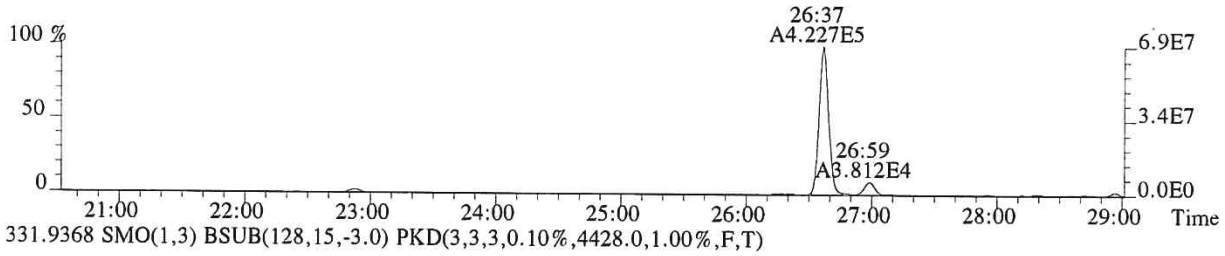


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LG
11/21/18
11/21/18

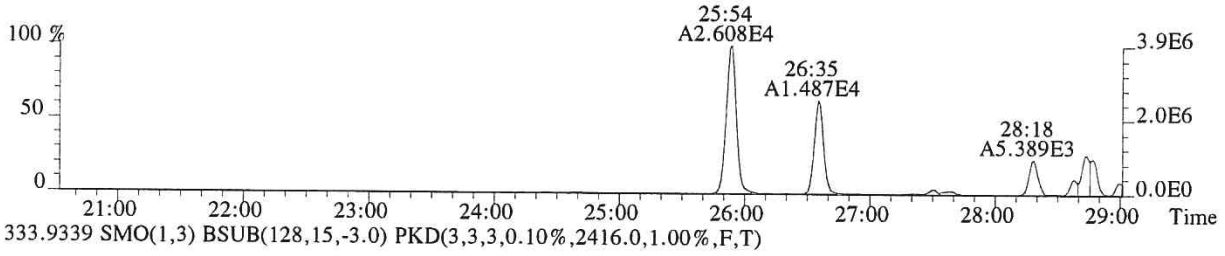
File:P518870 #1-602 Acq:17-NOV-2018 05:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2420.0,1.00%,F,T)



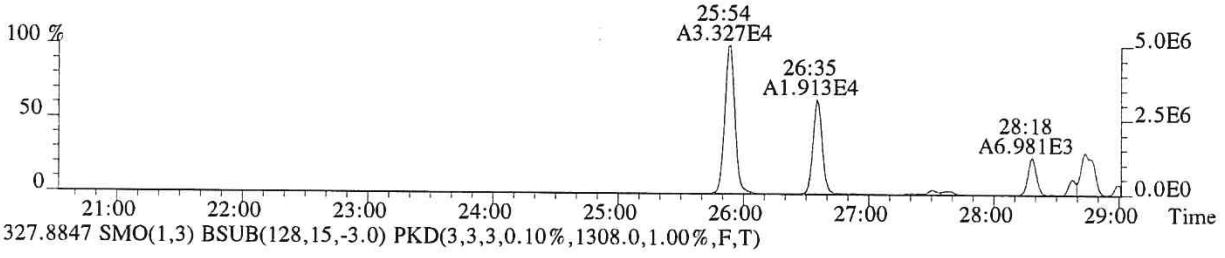
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



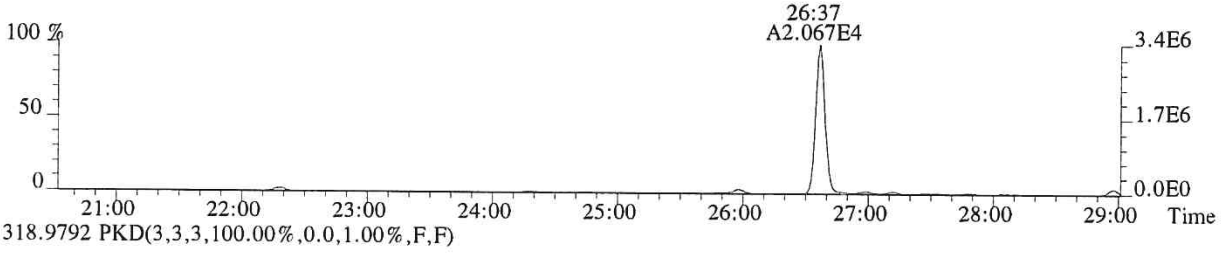
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4428.0,1.00%,F,T)



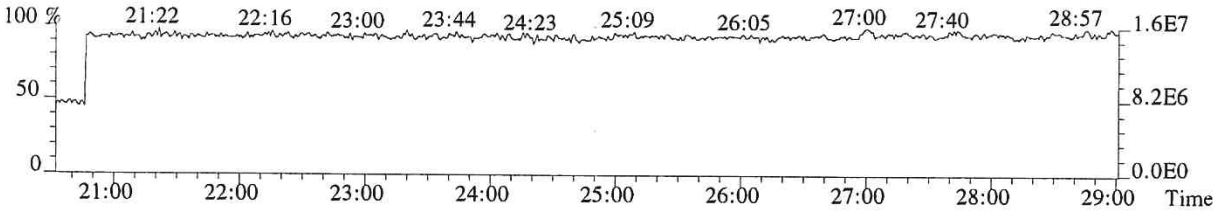
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2416.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)

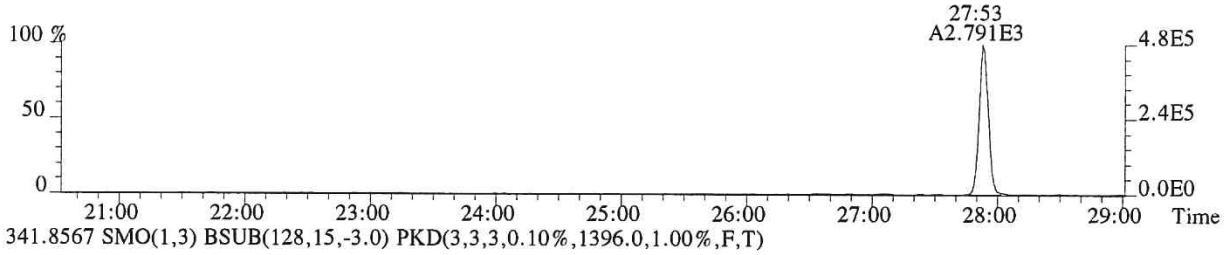


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

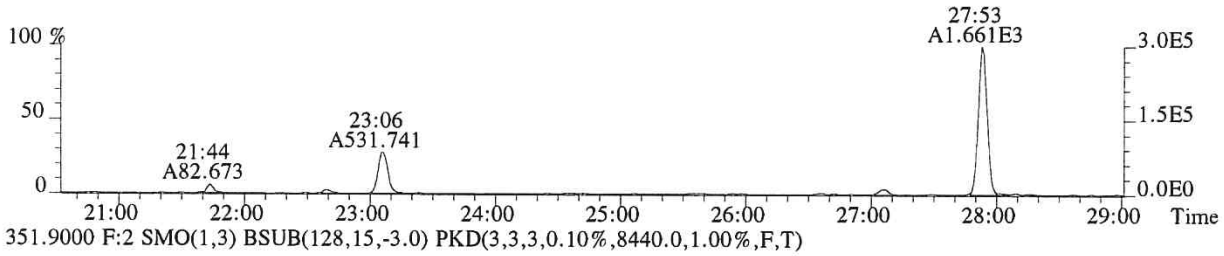


009693

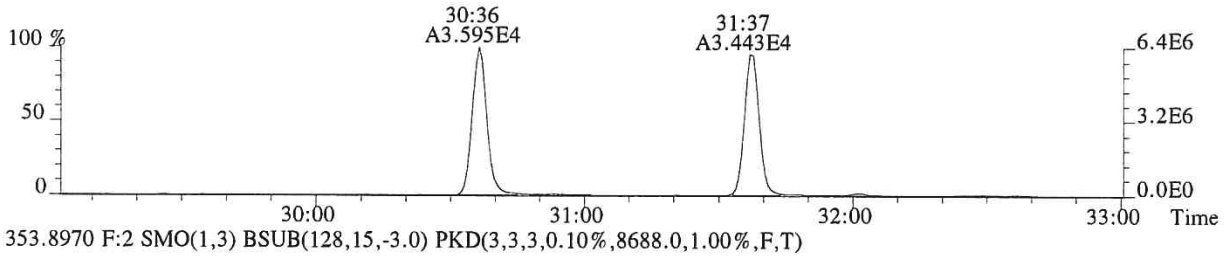
File:P518870 #1-602 Acq:17-NOV-2018 05:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



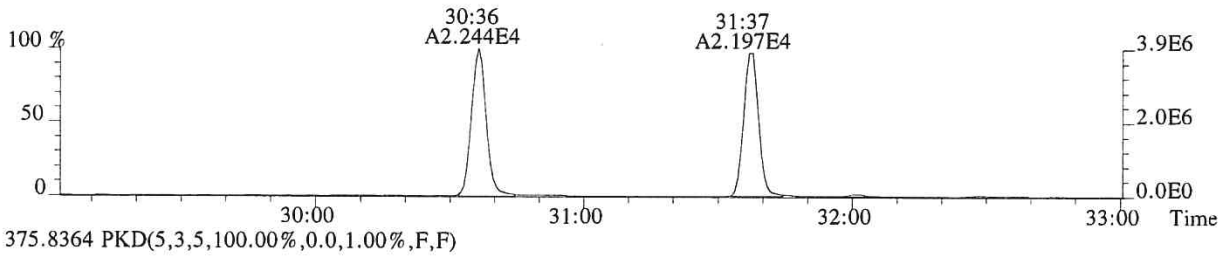
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



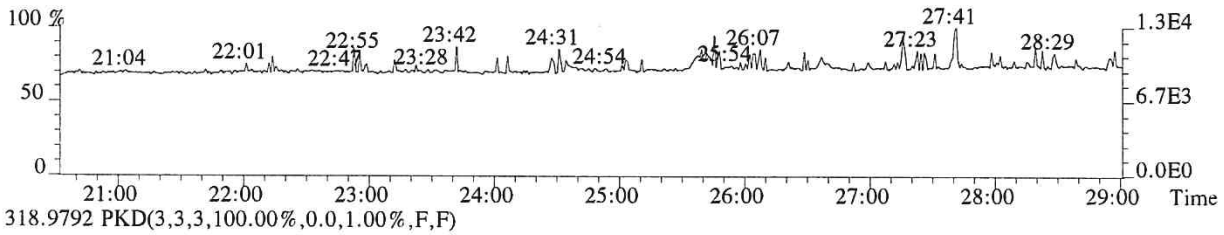
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8440.0,1.00%,F,T)



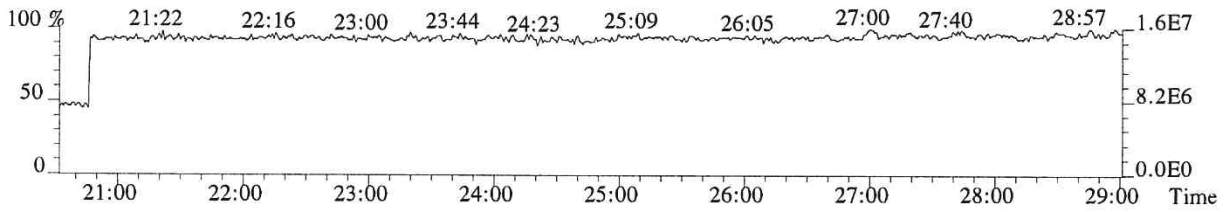
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8688.0,1.00%,F,T)



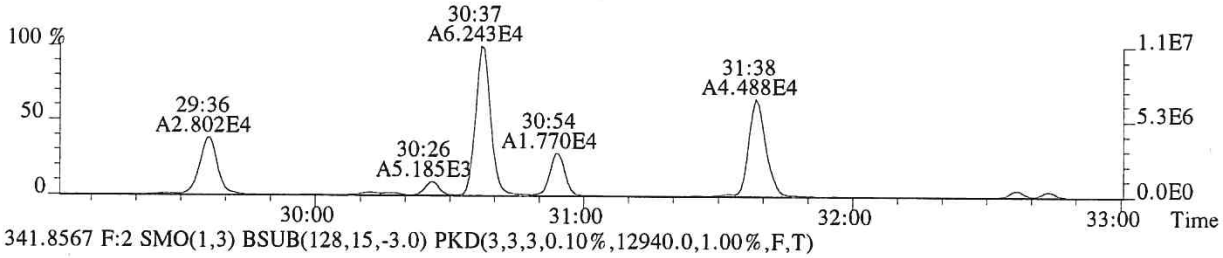
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



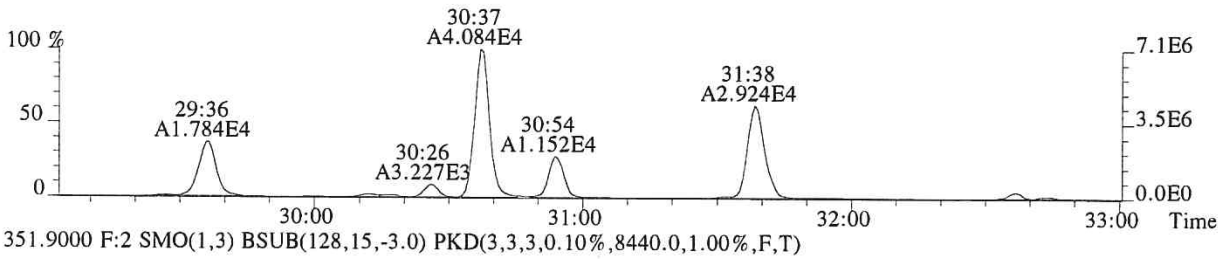
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



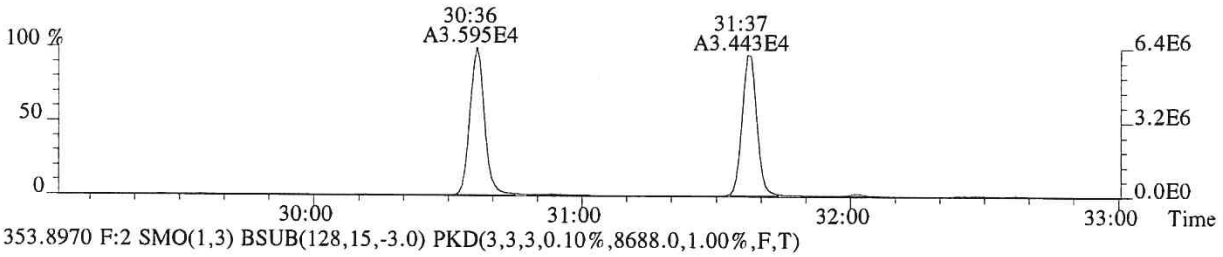
File:P518870 #1-357 Acq:17-NOV-2018 05:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10504.0,1.00%,F,T)



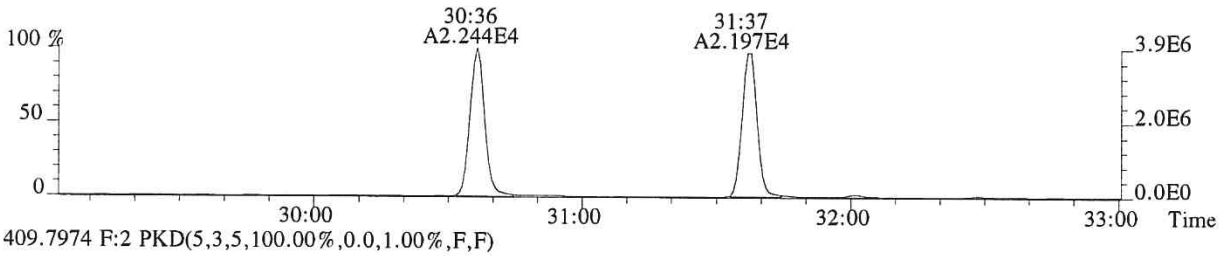
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12940.0,1.00%,F,T)



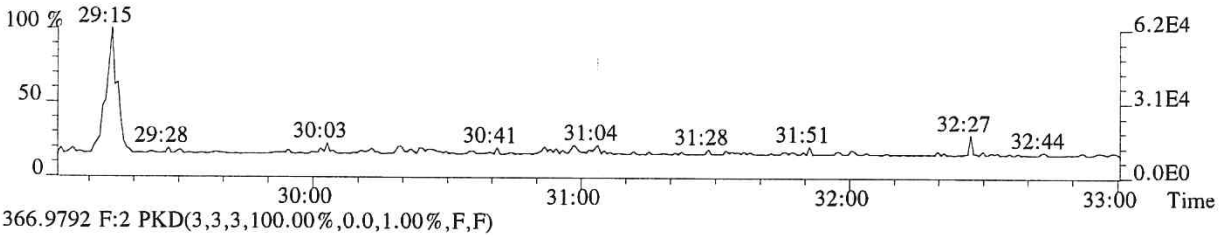
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8440.0,1.00%,F,T)



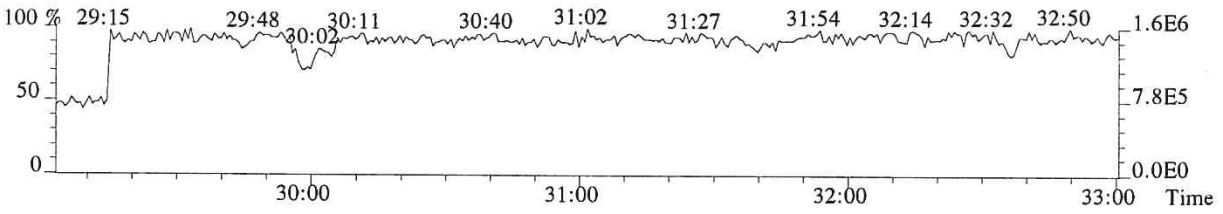
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8688.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

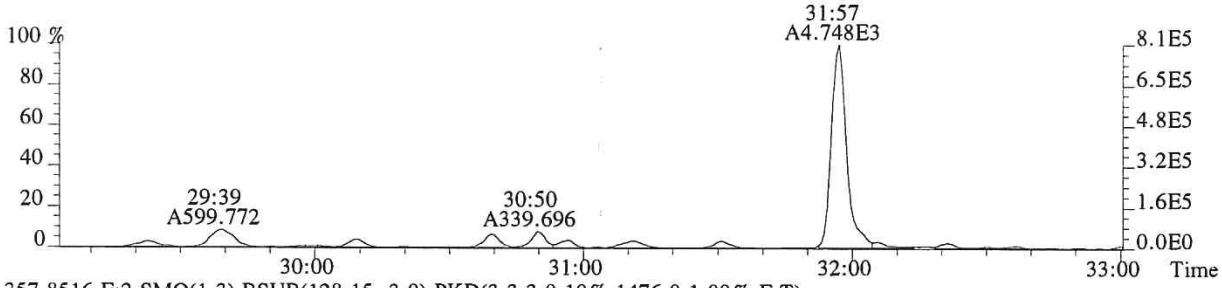


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

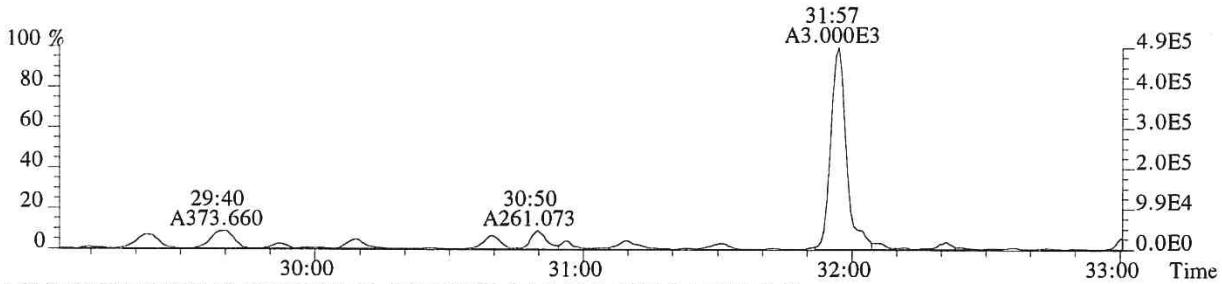


009695

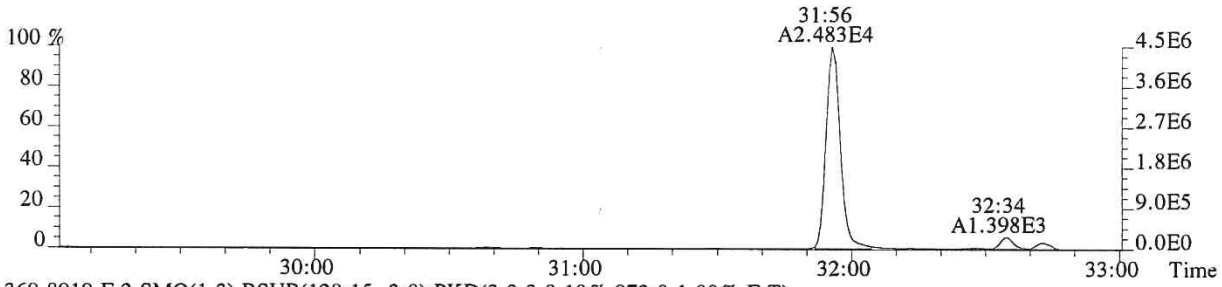
File:P518870 #1-357 Acq:17-NOV-2018 05:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



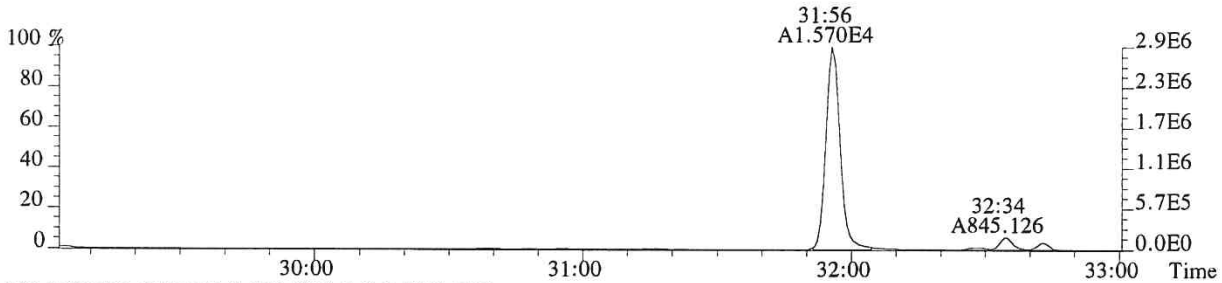
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



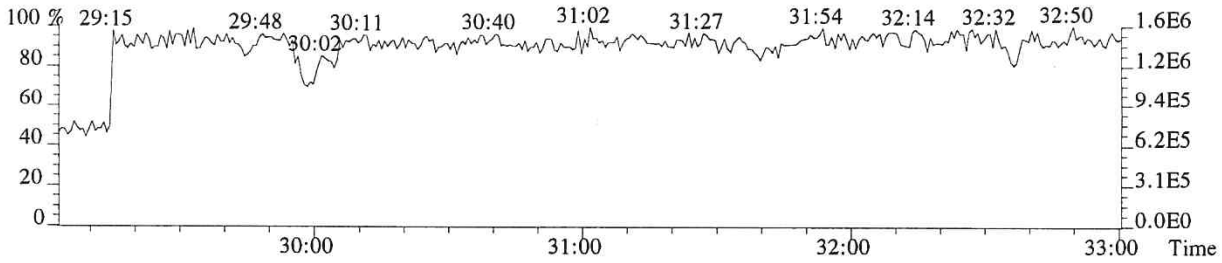
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)

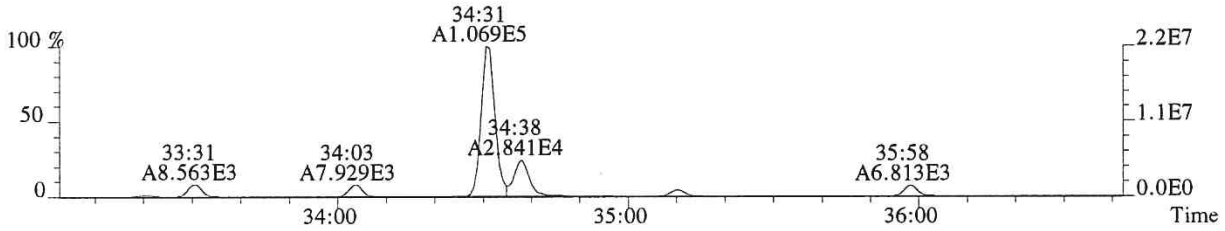


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

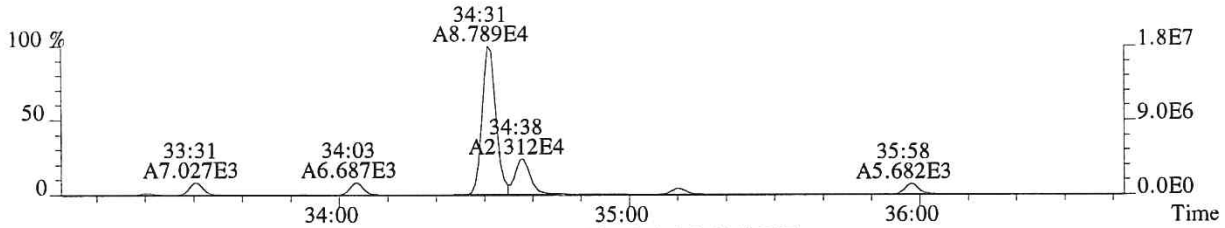


009696

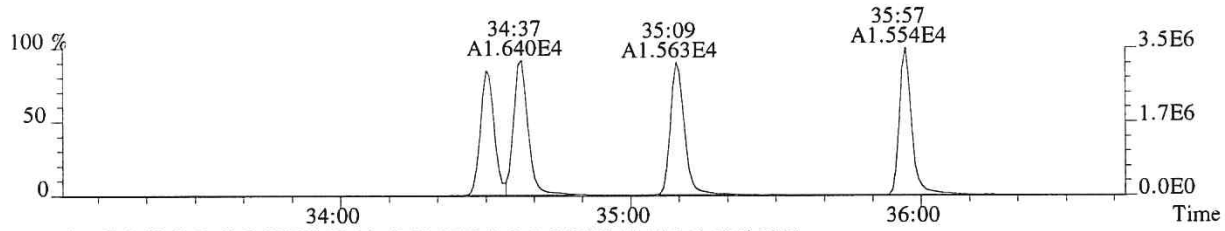
File:P518870 #1-330 Acq:17-NOV-2018 05:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4324.0,0.40%,F,T)



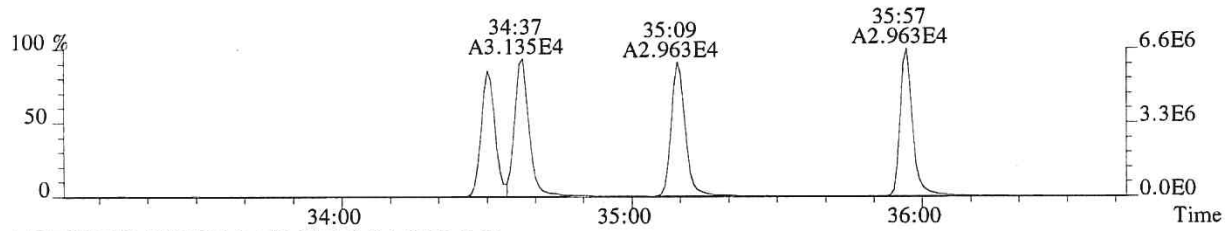
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7124.0,0.40%,F,T)



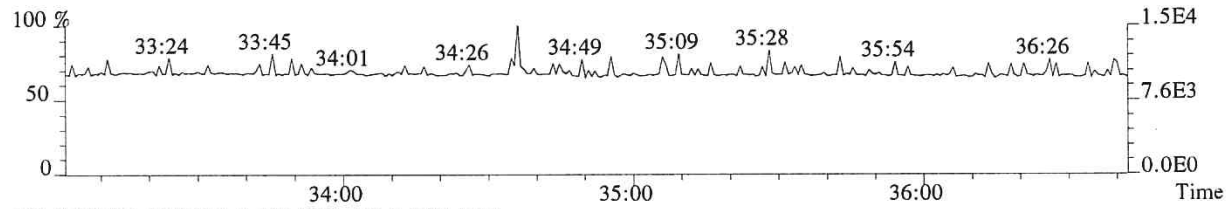
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1940.0,0.40%,F,T)



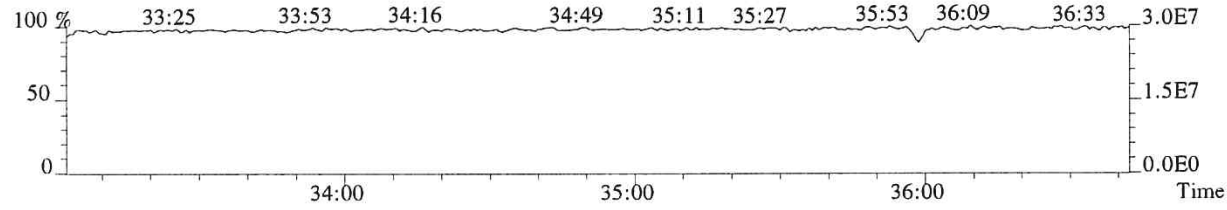
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4444.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

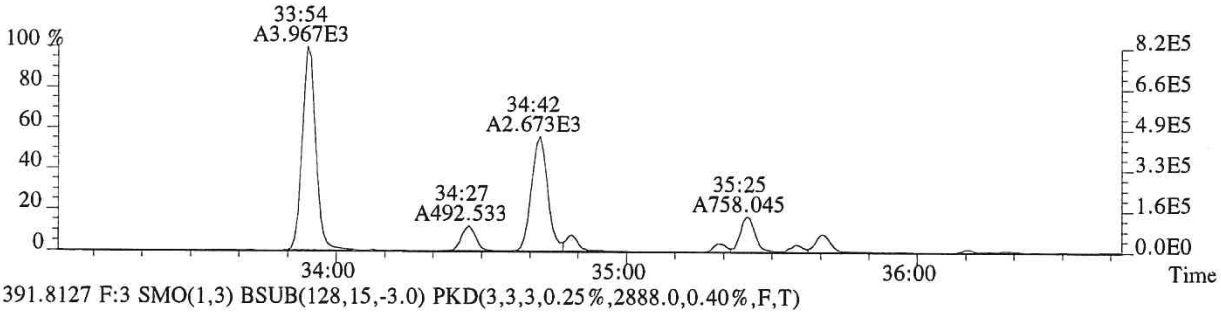


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

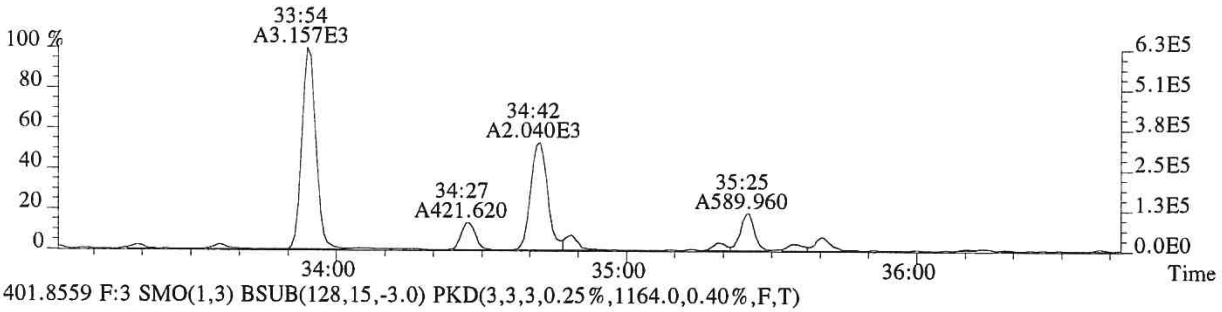


009697

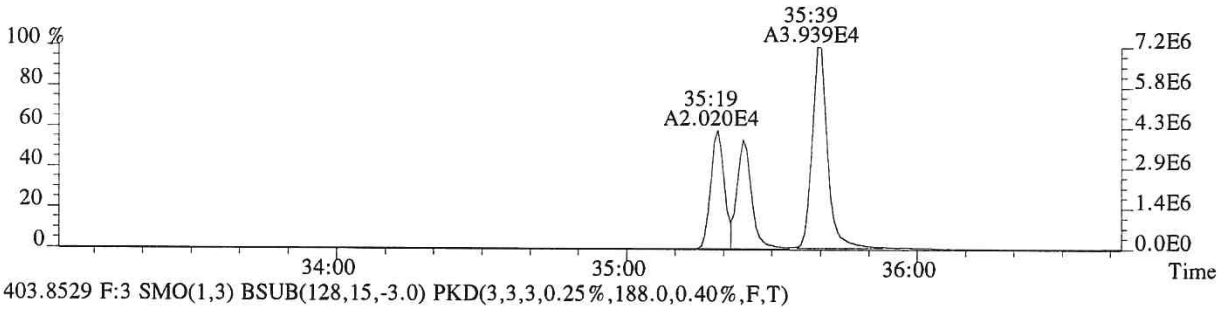
File:P518870 #1-330 Acq:17-NOV-2018 05:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



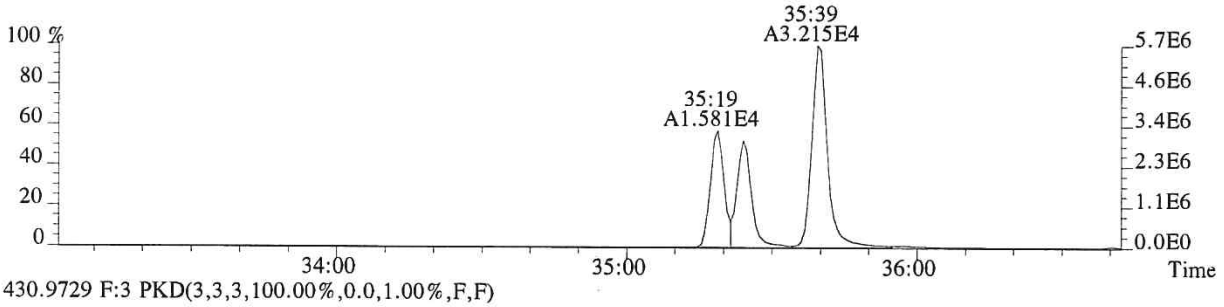
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



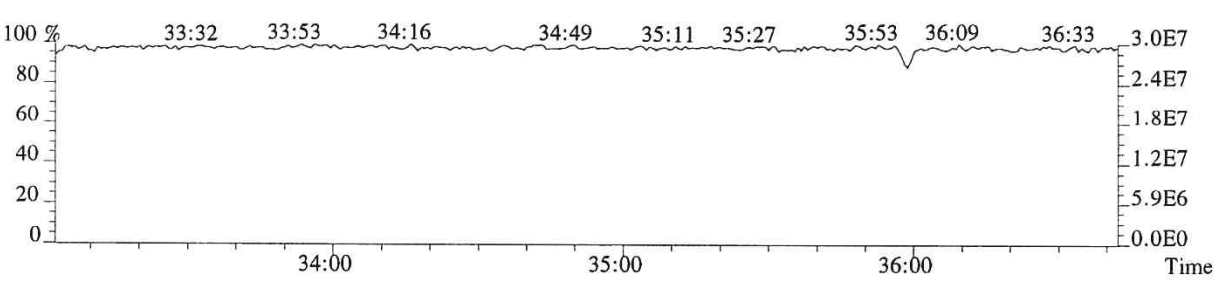
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)

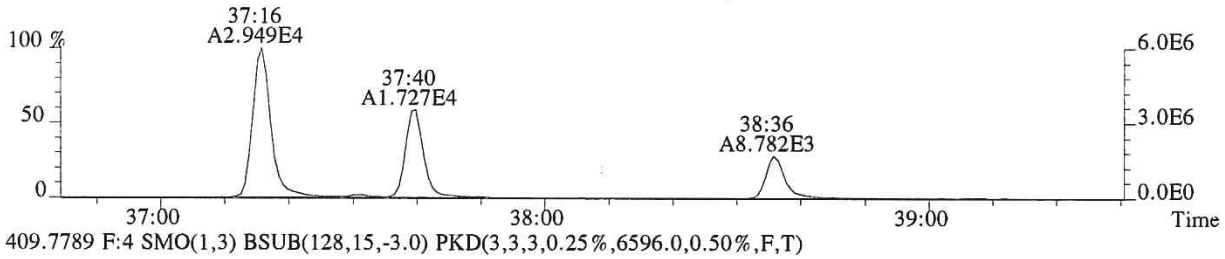


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

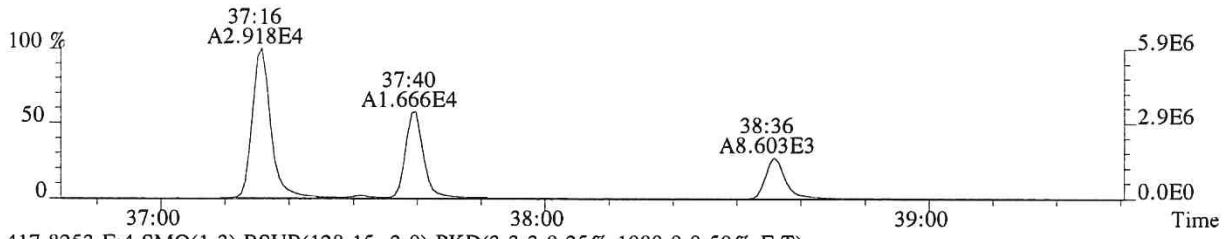


009698

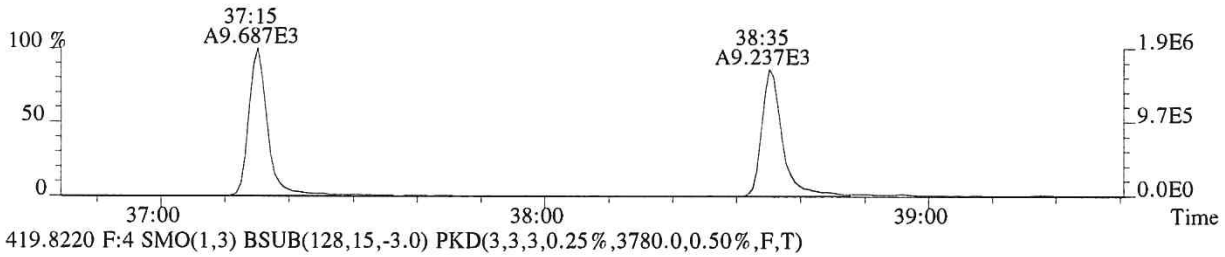
File:P518870 #1-250 Acq:17-NOV-2018 05:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10976.0,0.50%,F,T)



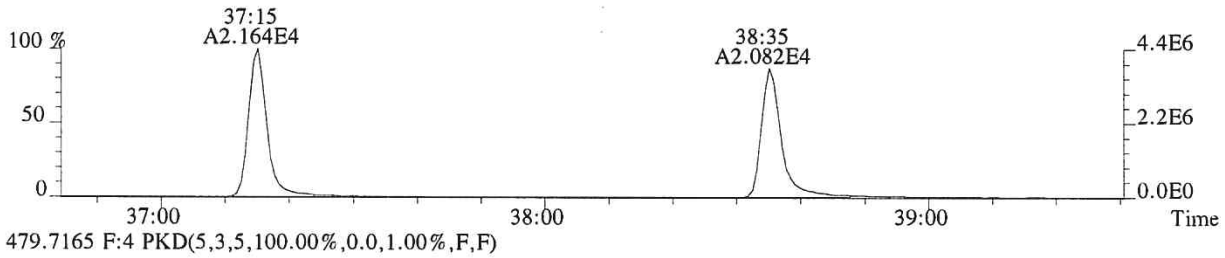
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6596.0,0.50%,F,T)



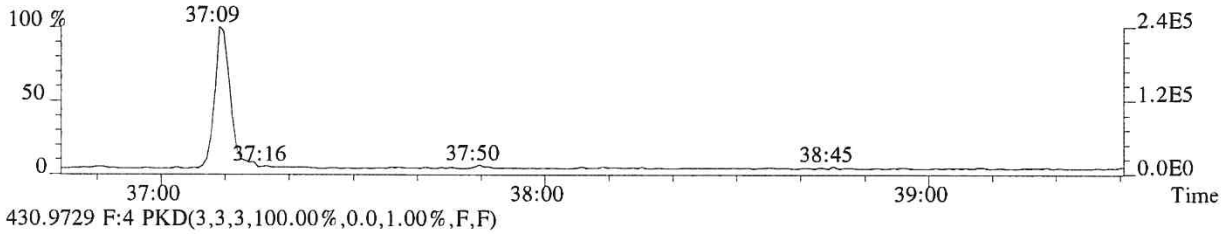
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.50%,F,T)



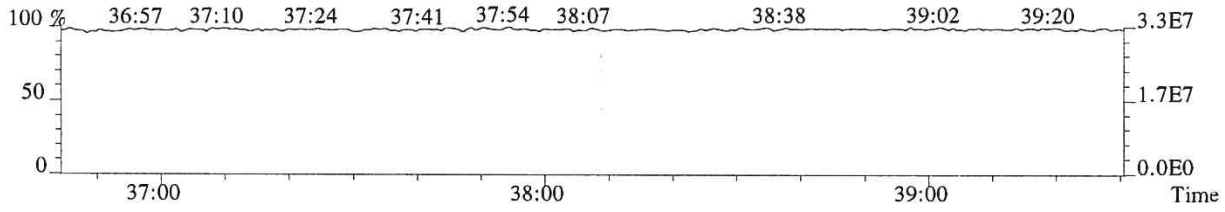
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3780.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

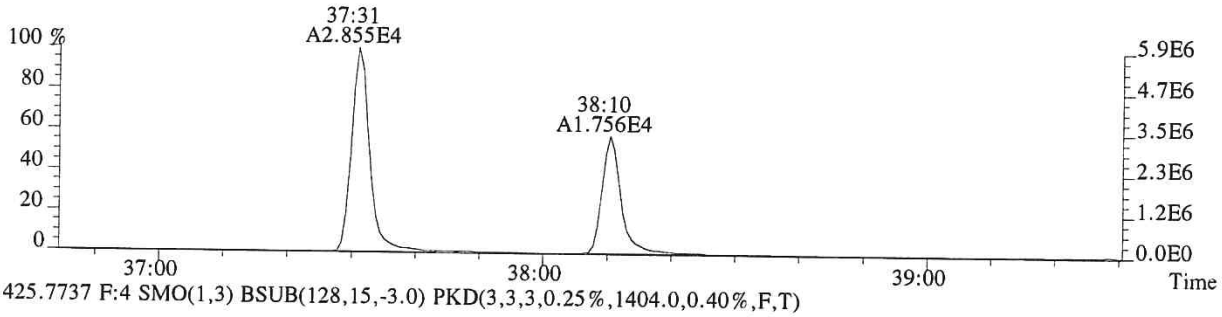


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

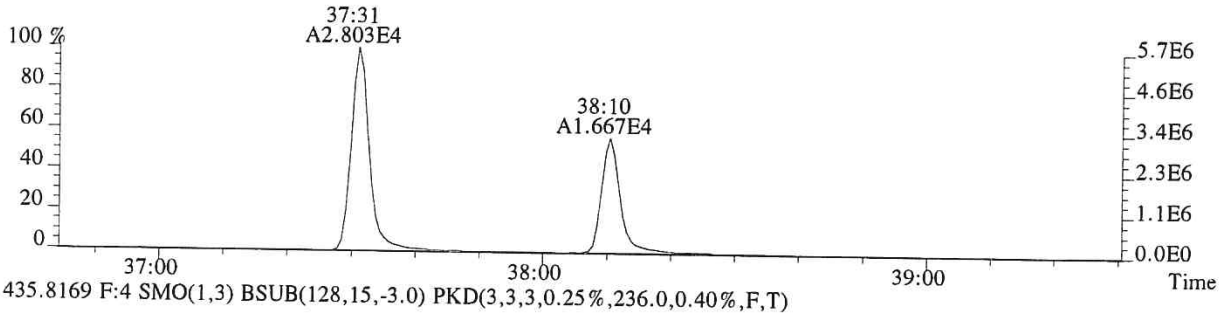


009699

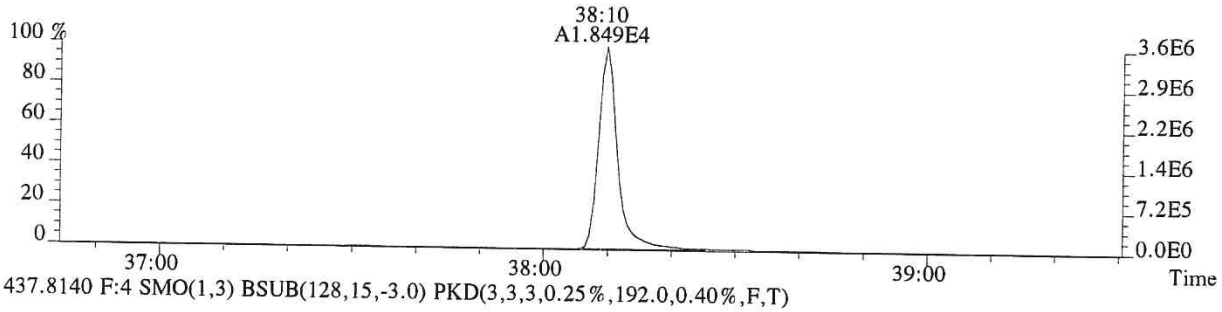
File:P518870 #1-250 Acq:17-NOV-2018 05:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6232.0,0.40%,F,T)



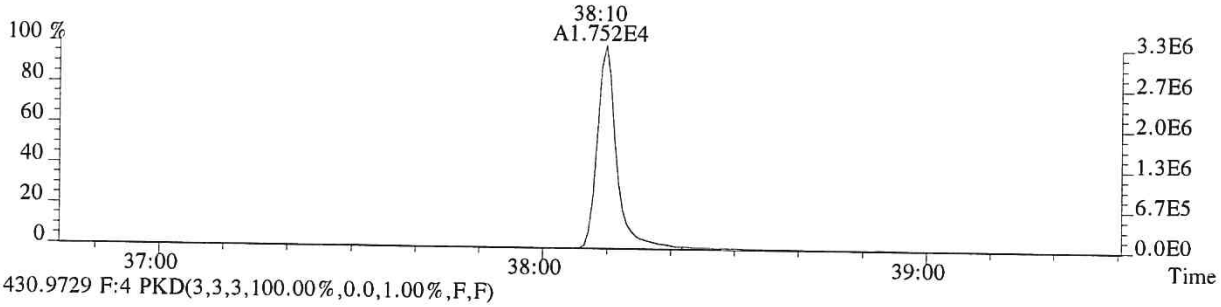
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.40%,F,T)



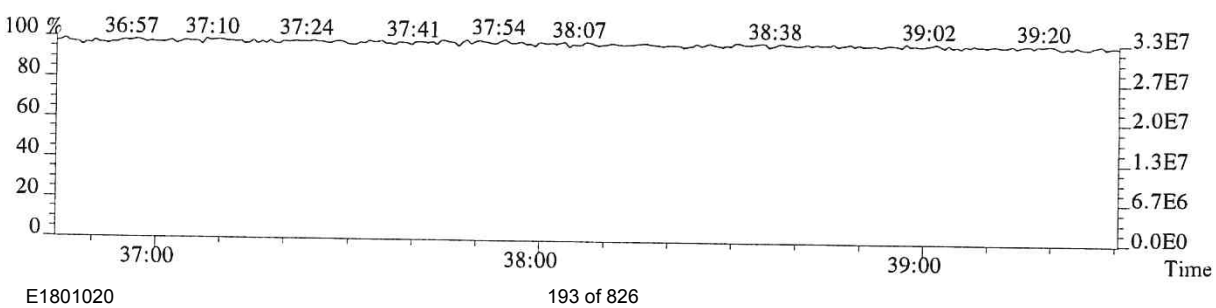
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)

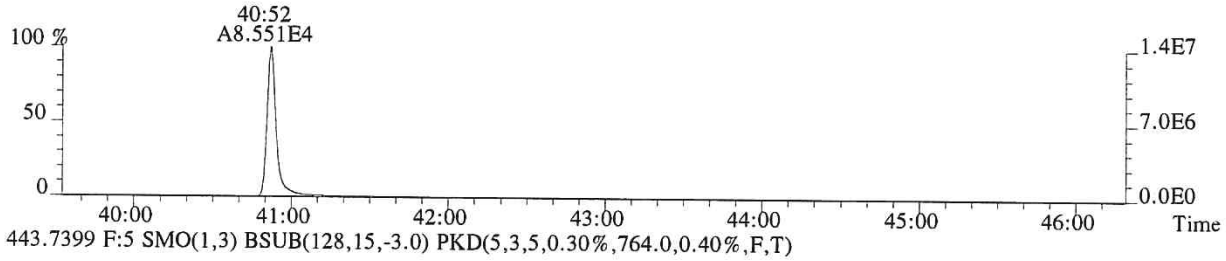


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

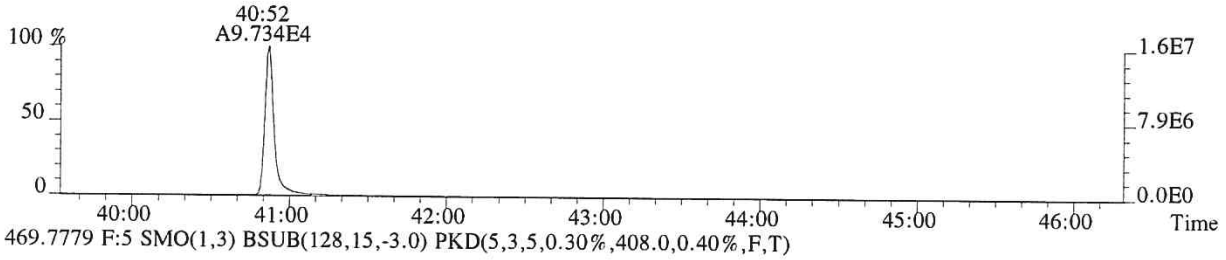


009700

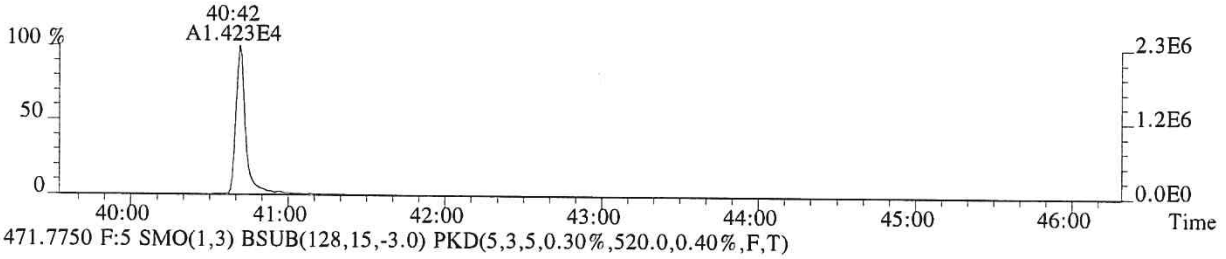
File:P518870 #1-610 Acq:17-NOV-2018 05:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



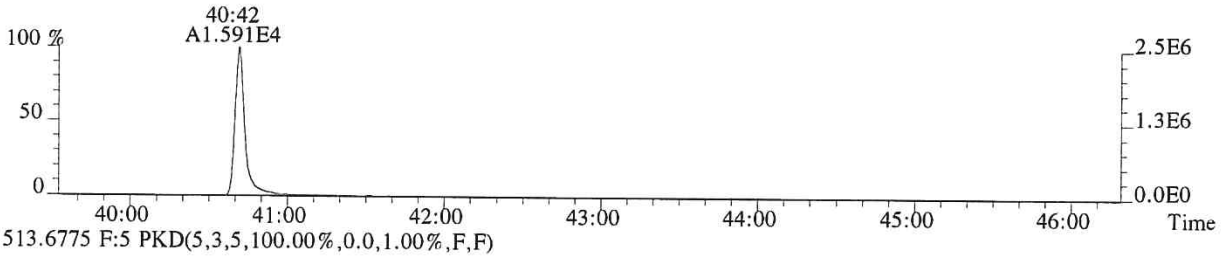
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,764.0,0.40%,F,T)



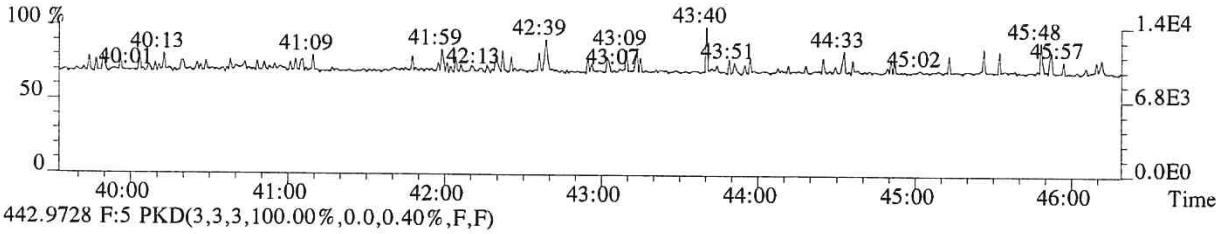
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



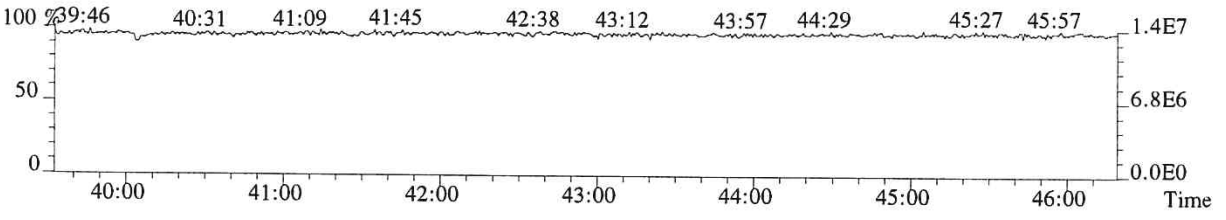
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

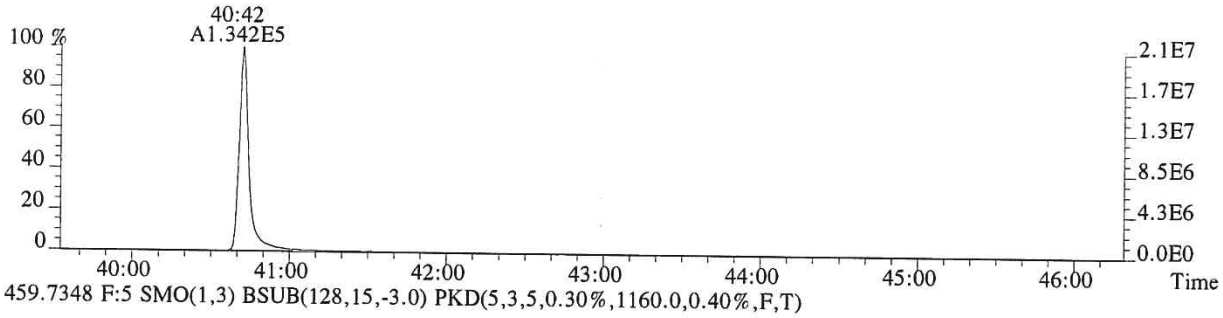


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

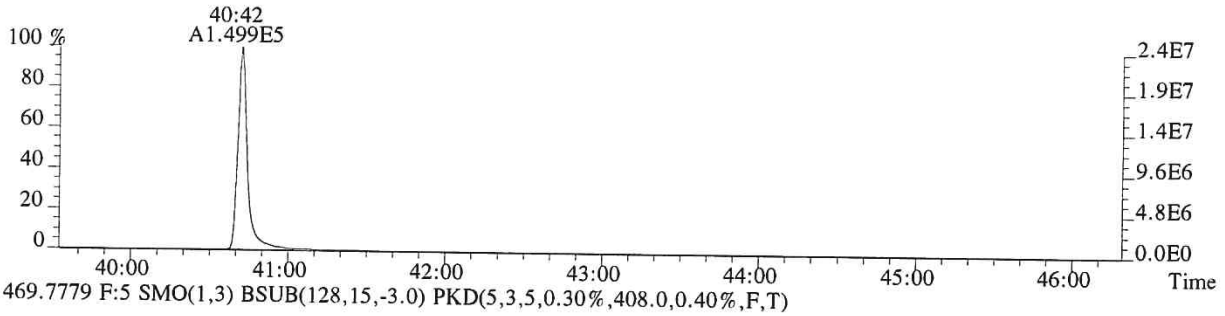


009701

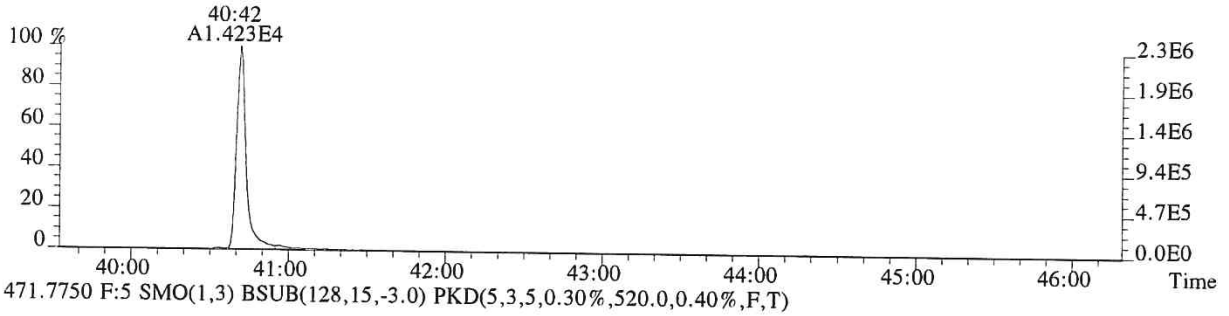
File:P518870 #1-610 Acq:17-NOV-2018 05:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



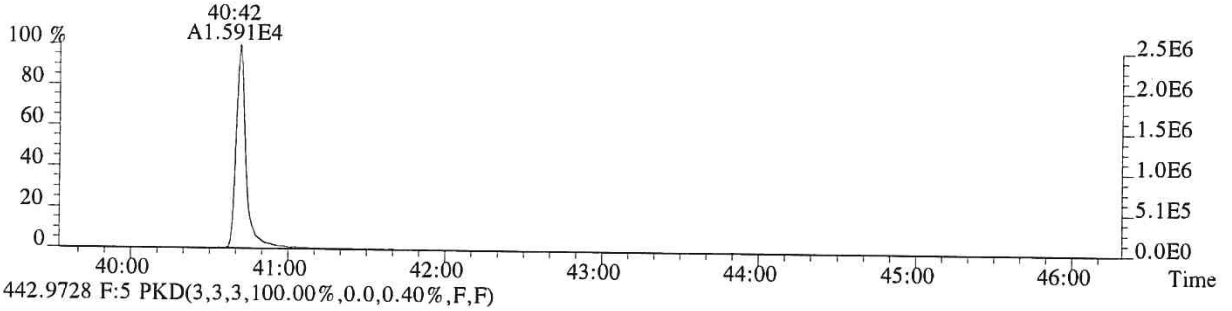
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1160.0,0.40%,F,T)



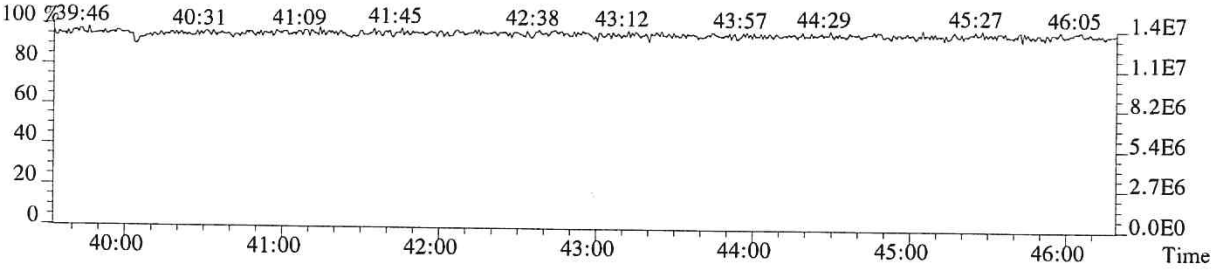
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009702

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0011

Run #18 Filename P518976 Samp: 1 Inj: 1 Acquired: 21-NOV-18 20:02:00
Processed: 26-NOV-18 13:56:46 Sample ID: E1801020-034DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	8.708e+03	1.173e+04	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:43	3.951e+02	3.088e+02	1.28	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:36	2.984e+02	2.060e+02	1.45	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.993e+02	5.812e+02	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:21	1.675e+02	1.758e+02	0.95	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	4.572e+01	3.055e+01	1.50	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:38	3.105e+01	3.478e+01	0.89	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	2.062e+02	2.122e+02	0.97	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:17	7.609e+01	6.647e+01	1.14	yes	no	1.258
10	Unk	OCDF	42:51	7.319e+02	8.700e+02	0.84	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:23	2.230e+03	2.981e+03	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:52	3.154e+01	1.741e+01	1.81	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.082e+01	8.112e+00	1.33	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	1.377e+02	1.394e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:39	1.224e+03	1.371e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:36	2.202e+04	2.765e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	3.418e+04	2.108e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:35	3.281e+04	2.045e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	1.294e+04	2.577e+04	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.733e+04	3.351e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	1.810e+04	3.509e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	1.353e+04	2.628e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	1.439e+04	3.229e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	1.408e+04	3.197e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	1.457e+04	1.856e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	2.499e+04	1.614e+04	1.55	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	1.770e+04	1.400e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	2.117e+04	1.656e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	1.887e+04	1.804e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:38	2.805e+04	3.145e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:49	1.606e+04	2.039e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	2.189e+04	1.758e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	1.509e+02				no	1.014

$$\text{OCDD} = \frac{(1.224e+03 + 1.371e+03) \times 4000 \text{ pg} \times 50}{(2.805e+04 + 3.145e+04) \times 10.18 \text{ g} \times 46.5 / 100 \times 1.118} = 3201.3759 \text{ ng/kg}$$

LG 11/27/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0011

Run #18 Filename P518976 Samp: 1 Inj: 1 Acquired: 21-NOV-18 20:02:00
Processed: 26-NOV-18 13:56:46 LAB. ID: E1801020-034DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.51e+06	2.76e+02	5.5e+03	2.03e+06	1.20e+03	1.7e+03
2	1,2,3,7,8-PeCDF	7.03e+04	5.24e+02	1.3e+02	5.26e+04	1.23e+03	4.3e+01
3	2,3,4,7,8-PeCDF	4.67e+04	5.24e+02	8.9e+01	2.66e+04	1.23e+03	2.2e+01
4	1,2,3,4,7,8-HxCDF	1.32e+05	3.00e+02	4.4e+02	1.08e+05	2.56e+02	4.2e+02
5	1,2,3,6,7,8-HxCDF	3.06e+04	3.00e+02	1.0e+02	3.56e+04	2.56e+02	1.4e+02
6	2,3,4,6,7,8-HxCDF	9.47e+03	3.00e+02	3.2e+01	5.03e+03	2.56e+02	2.0e+01
7	1,2,3,7,8,9-HxCDF	7.17e+03	3.00e+02	2.4e+01	5.12e+03	2.56e+02	2.0e+01
8	1,2,3,4,6,7,8-HpCDF	3.69e+04	4.84e+02	7.6e+01	3.87e+04	2.84e+02	1.4e+02
9	1,2,3,4,7,8,9-HpCDF	1.09e+04	4.84e+02	2.3e+01	1.15e+04	2.84e+02	4.0e+01
10	OCDF	1.06e+05	1.96e+02	5.4e+02	1.09e+05	5.52e+02	2.0e+02
11	2,3,7,8-TCDD	4.17e+05	1.74e+03	2.4e+02	5.63e+05	7.48e+02	7.5e+02
12	1,2,3,7,8-PeCDD	5.66e+03	8.72e+02	6.5e+00	4.46e+03	4.20e+02	1.1e+01
13	1,2,3,4,7,8-HxCDD	*	2.60e+02	*	*	3.28e+02	*
14	1,2,3,6,7,8-HxCDD	2.57e+03	2.60e+02	9.9e+00	2.29e+03	3.28e+02	7.0e+00
15	1,2,3,7,8,9-HxCDD	*	2.60e+02	*	*	3.28e+02	*
16	1,2,3,4,6,7,8-HpCDD	2.31e+04	1.80e+02	1.3e+02	2.28e+04	3.16e+02	7.2e+01
17	OCDD	1.58e+05	1.92e+02	8.2e+02	1.75e+05	3.24e+02	5.4e+02
18	13C-2,3,7,8-TCDF	4.00e+06	5.08e+03	7.9e+02	5.02e+06	2.74e+03	1.8e+03
19	13C-1,2,3,7,8-PeCDF	5.77e+06	4.28e+02	1.3e+04	3.59e+06	7.88e+02	4.6e+03
20	13C-2,3,4,7,8-PeCDF	5.91e+06	4.28e+02	1.4e+04	3.67e+06	7.88e+02	4.7e+03
21	13C-1,2,3,4,7,8-HxCDF	2.62e+06	4.04e+02	6.5e+03	5.20e+06	5.64e+02	9.2e+03
22	13C-1,2,3,6,7,8-HxCDF	3.18e+06	4.04e+02	7.9e+03	6.02e+06	5.64e+02	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	3.40e+06	4.04e+02	8.4e+03	6.61e+06	5.64e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.32e+06	4.04e+02	5.7e+03	4.43e+06	5.64e+02	7.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.70e+06	2.01e+03	1.3e+03	5.89e+06	6.46e+03	9.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.20e+06	2.01e+03	1.1e+03	4.97e+06	6.46e+03	7.7e+02
27	13C-2,3,7,8-TCDD	2.74e+06	5.23e+03	5.2e+02	3.47e+06	1.40e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	4.26e+06	3.36e+02	1.3e+04	2.72e+06	5.16e+02	5.3e+03
29	13C-1,2,3,4,7,8-HxCDD	3.73e+06	9.12e+02	4.1e+03	2.96e+06	1.92e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	3.80e+06	9.12e+02	4.2e+03	2.94e+06	1.92e+02	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+06	6.08e+02	5.1e+03	2.93e+06	5.28e+02	5.6e+03
32	13C-OCDD	3.64e+06	2.76e+02	1.3e+04	4.14e+06	2.32e+02	1.8e+04
33	13C-1,2,3,4-TCDD	3.10e+06	5.23e+03	5.9e+02	3.90e+06	1.40e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	3.67e+06	9.12e+02	4.0e+03	2.91e+06	1.92e+02	1.5e+04
35	37Cl-2,3,7,8-TCDD	3.18e+04	1.29e+03	2.5e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.744e{+}03 + 7.480e{+}02) \times 2000}{(2.742e{+}06 + 3.466e{+}06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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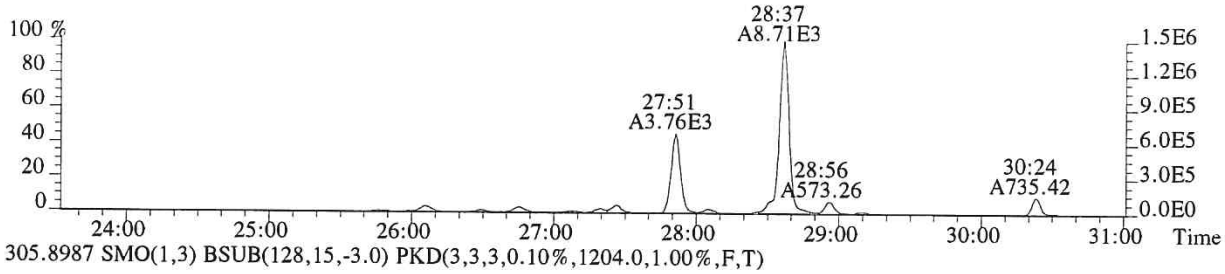
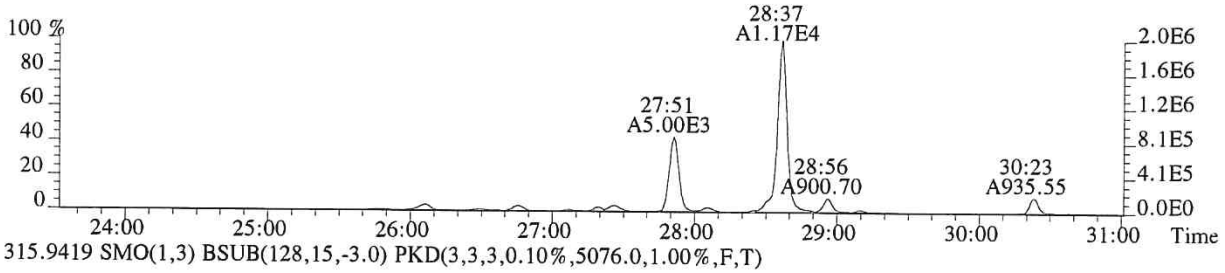
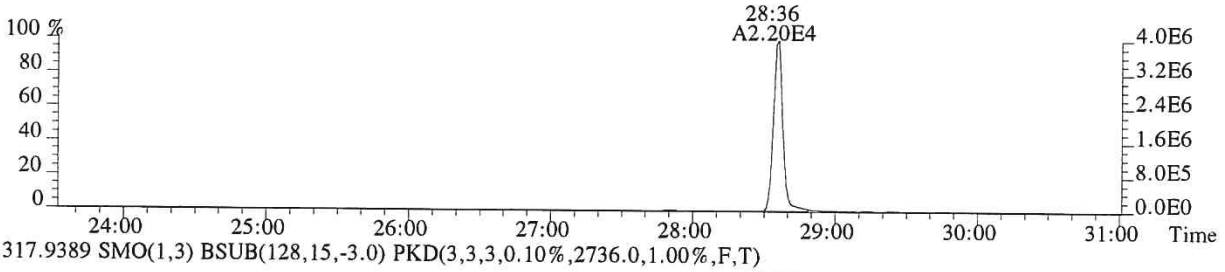
File:P518976 #1-531 Acq:21-NOV-2018 20:02:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



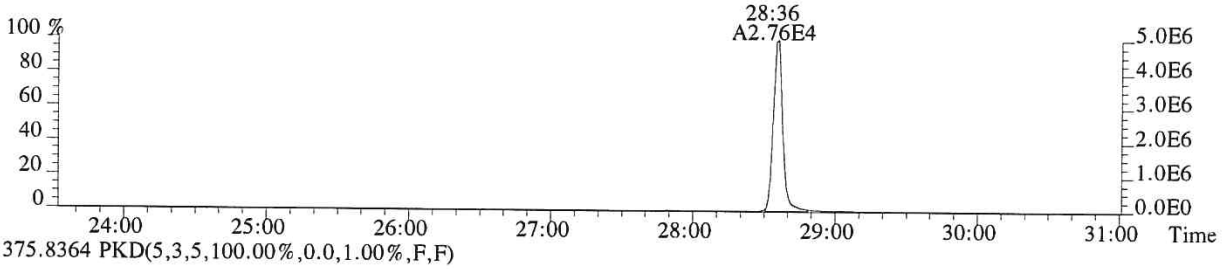
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



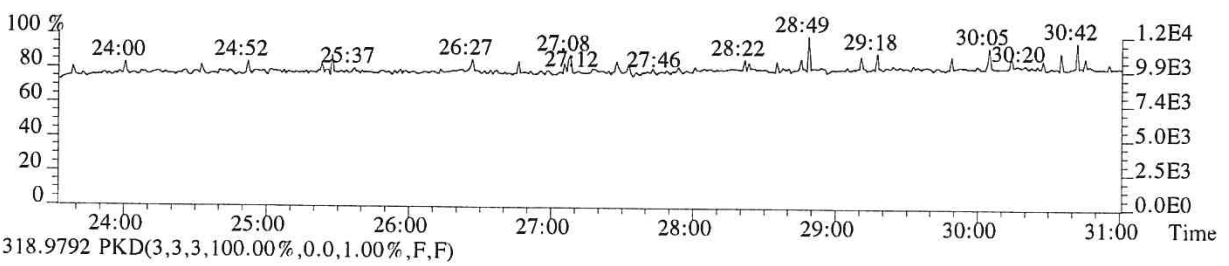
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5076.0,1.00%,F,T)



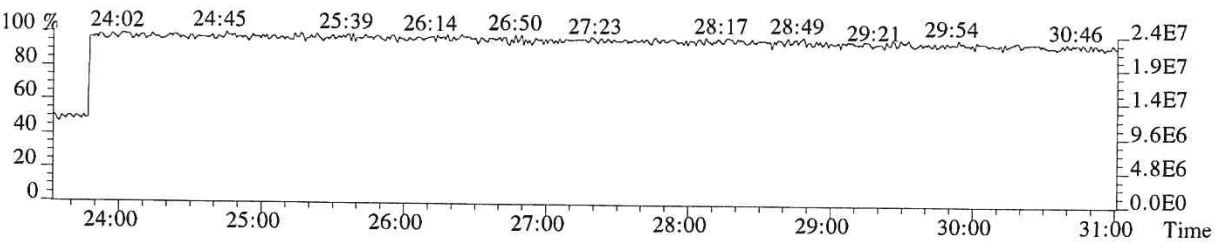
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2736.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

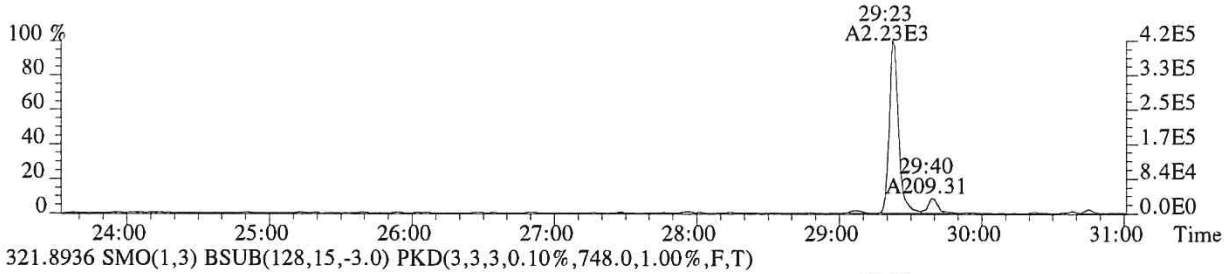


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

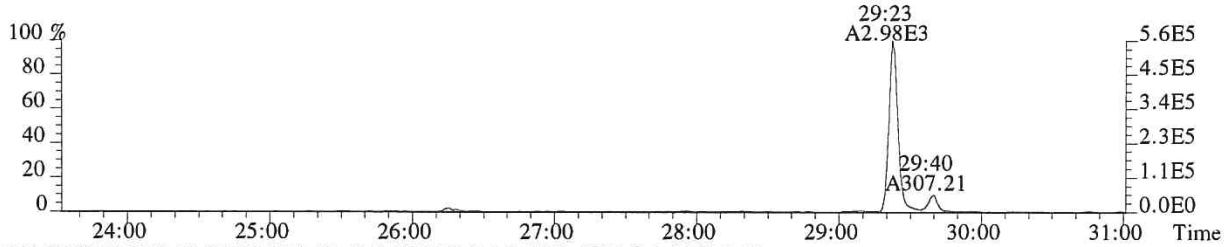


009705

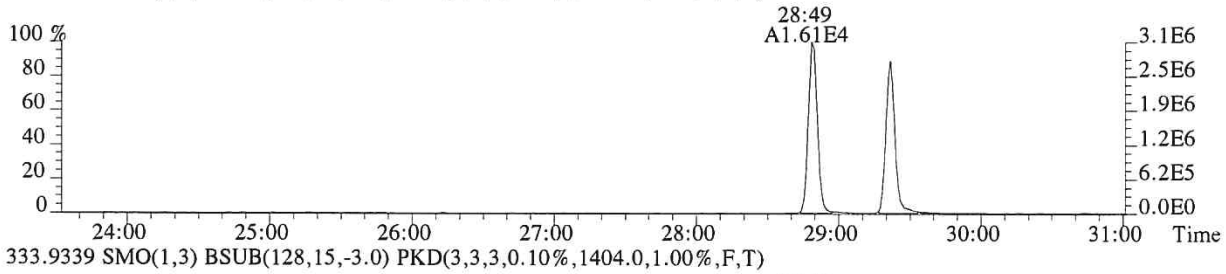
File:P518976 #1-531 Acq:21-NOV-2018 20:02:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



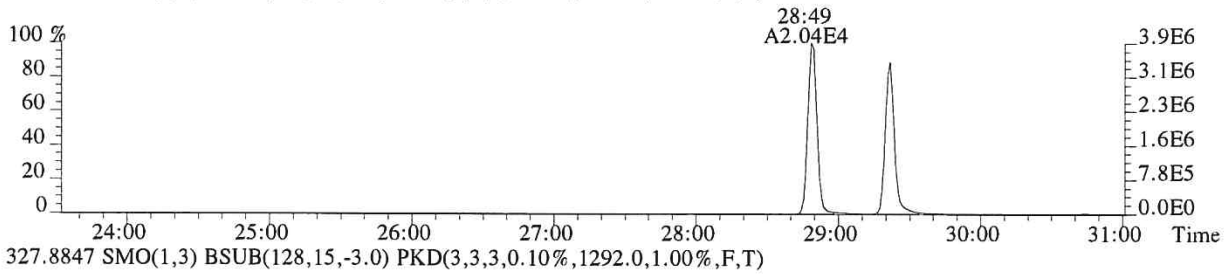
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



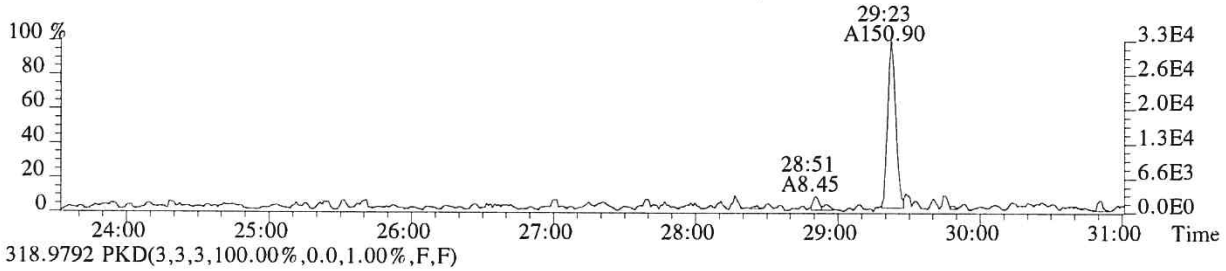
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5228.0,1.00%,F,T)



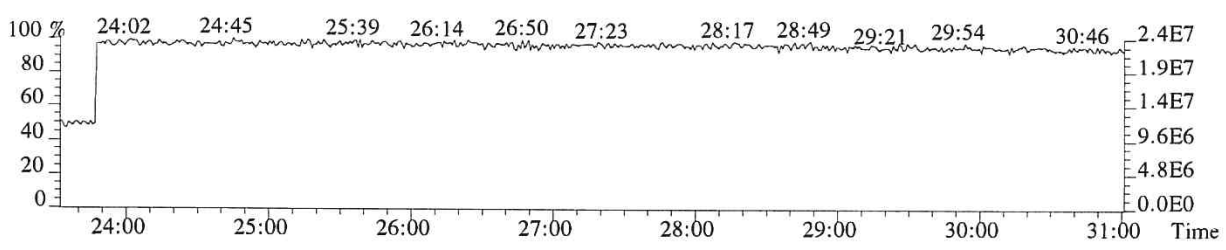
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)

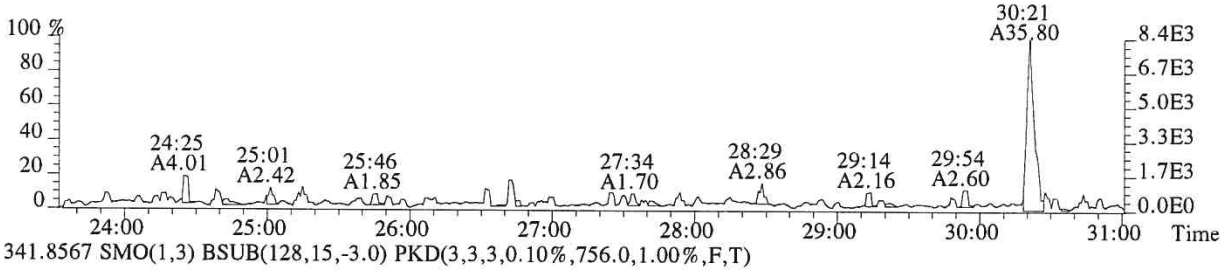


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

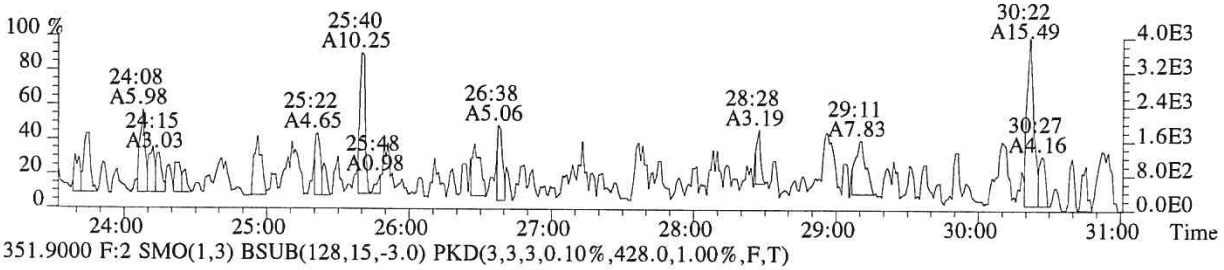


009706

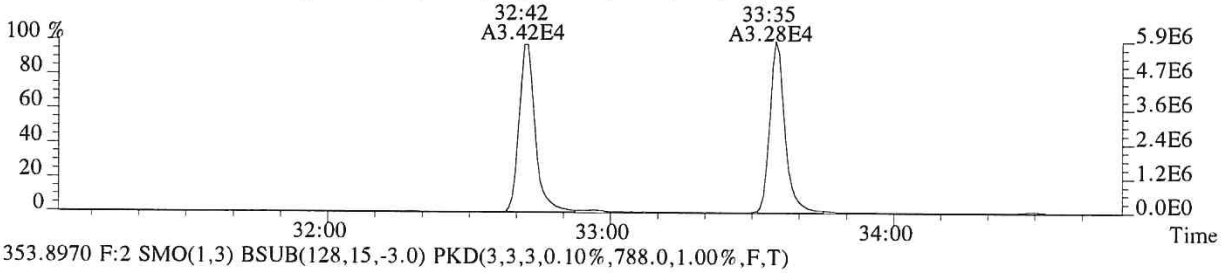
File:P518976 #1-531 Acq:21-NOV-2018 20:02:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



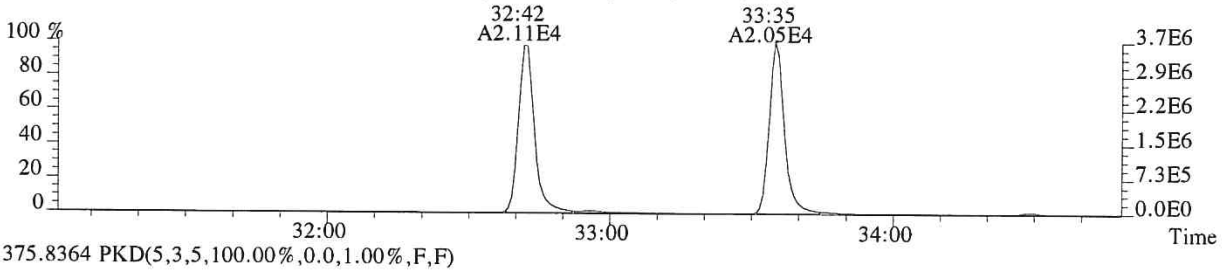
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



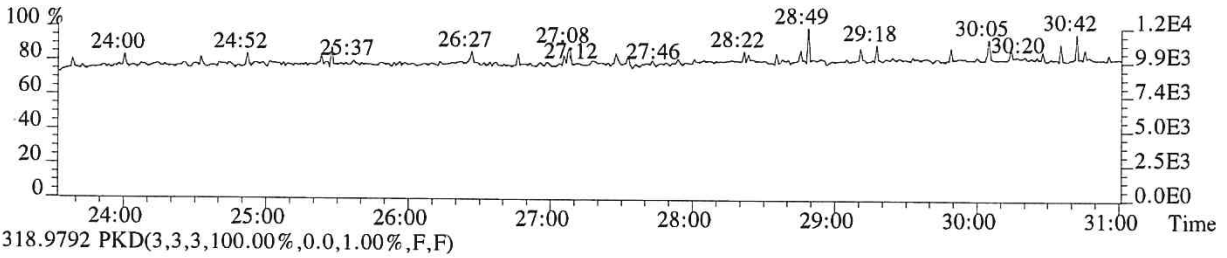
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



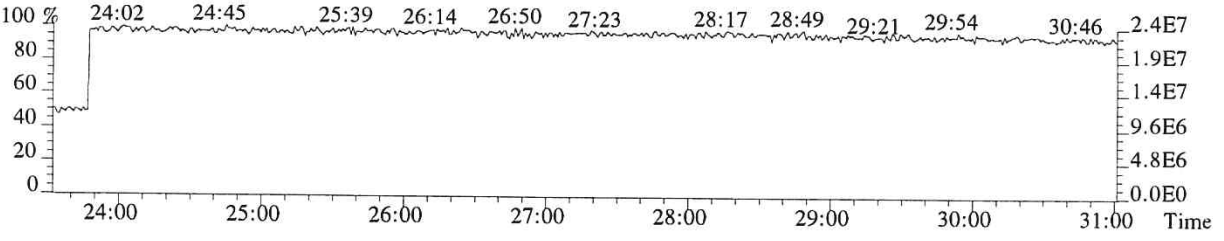
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



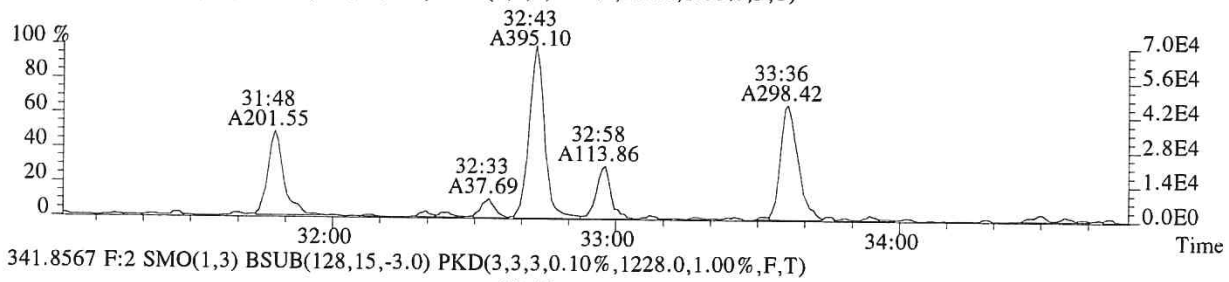
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



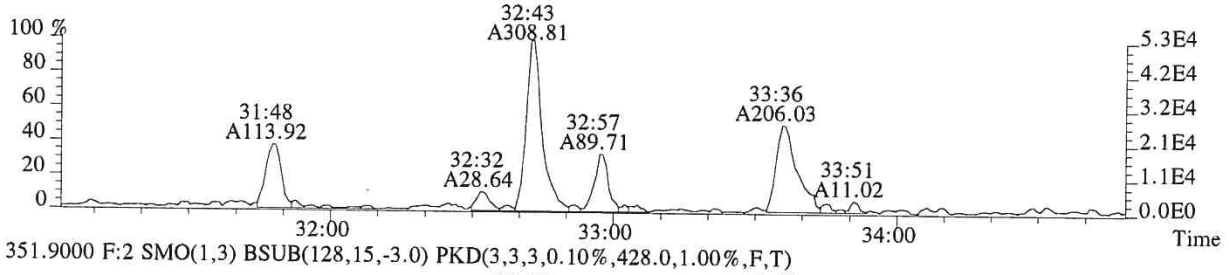
009707

File:P518976 #1-339 Acq:21-NOV-2018 20:02:00 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801020-034DL

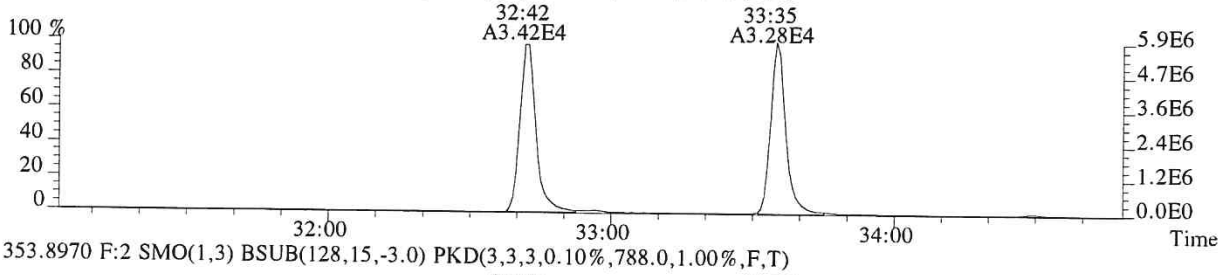
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



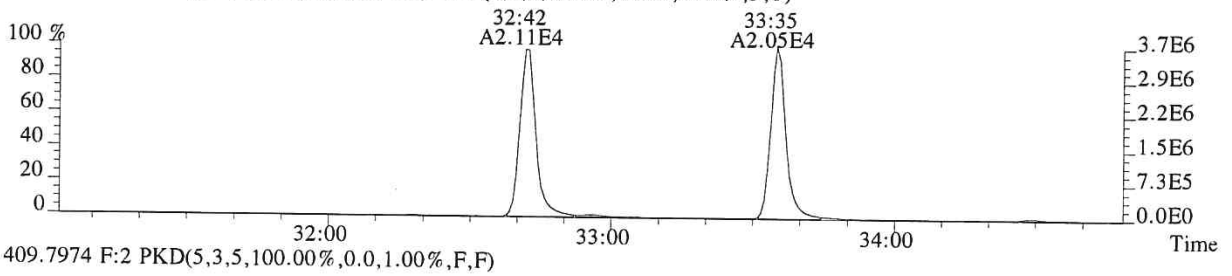
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



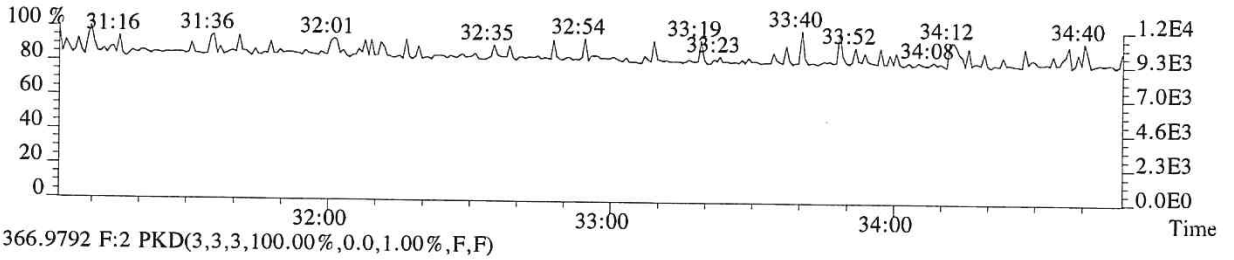
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



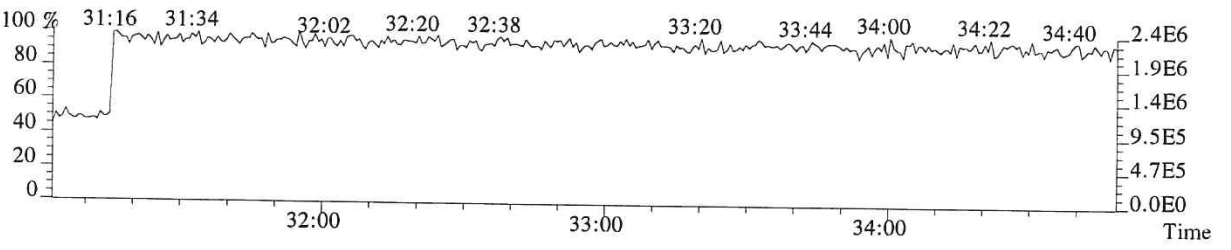
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



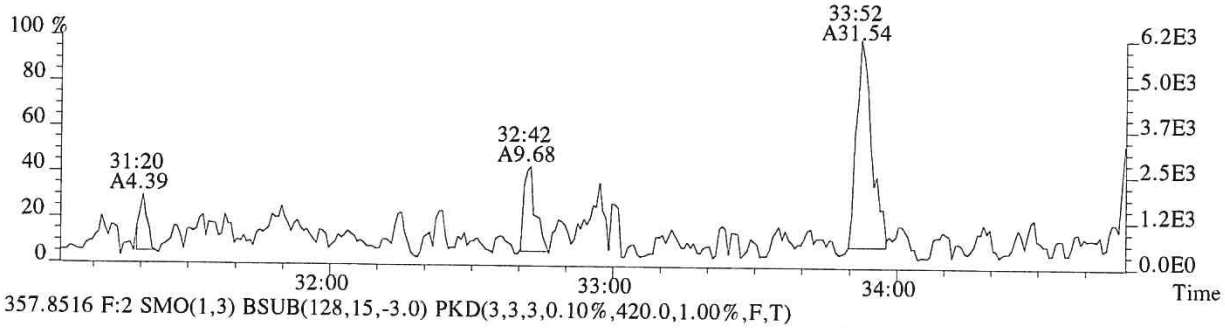
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



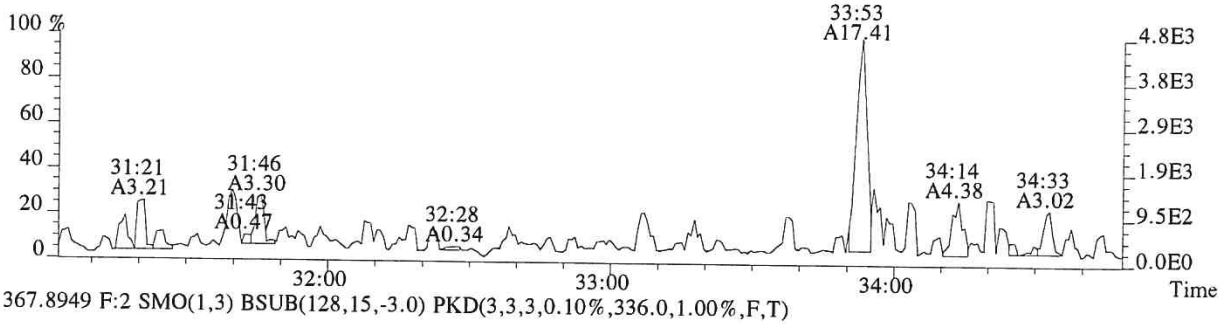
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



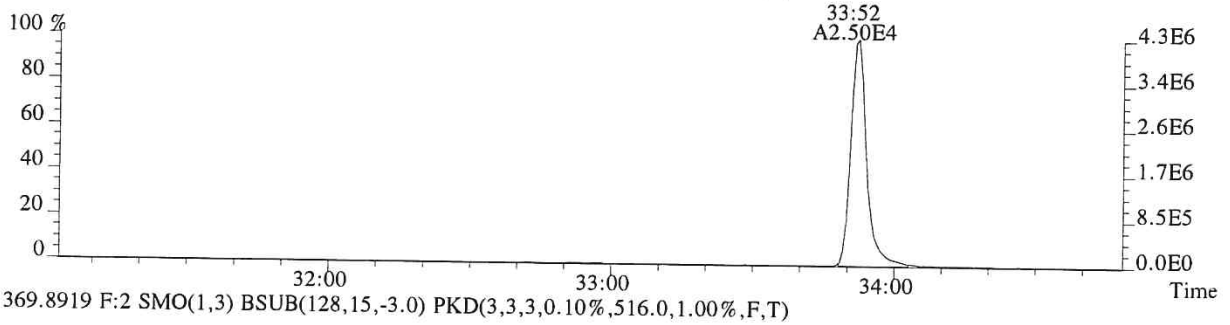
File:P518976 #1-339 Acq:21-NOV-2018 20:02:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



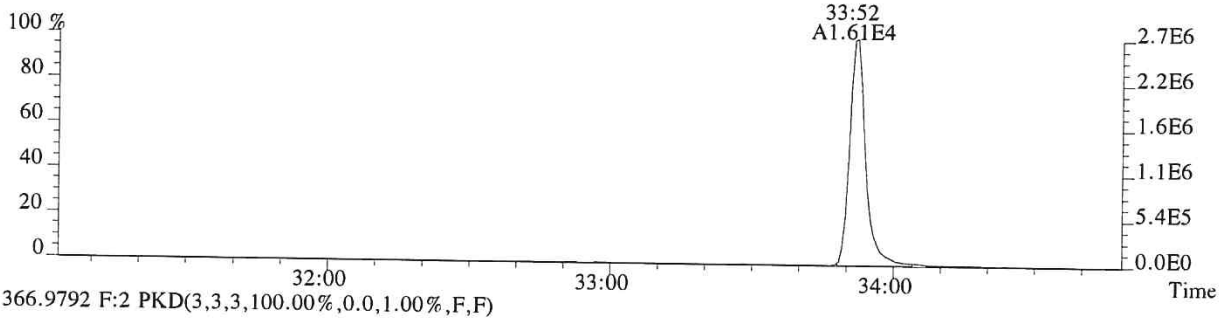
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



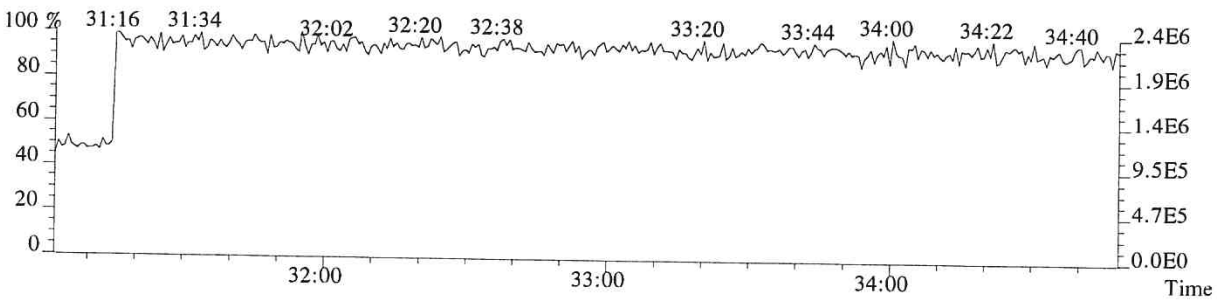
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)

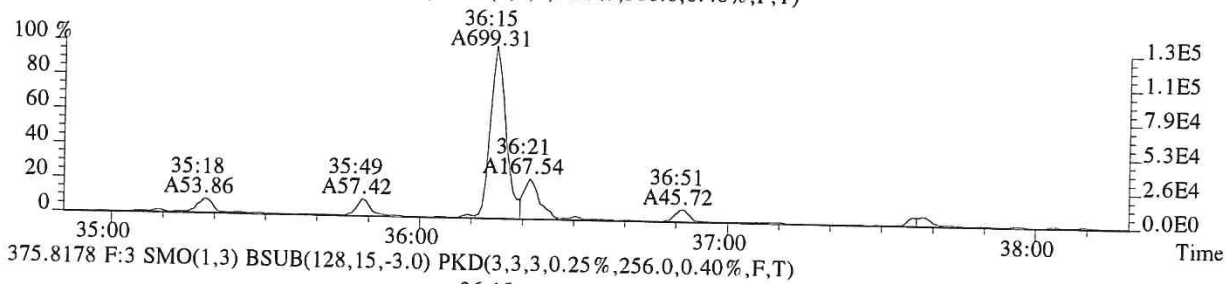


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

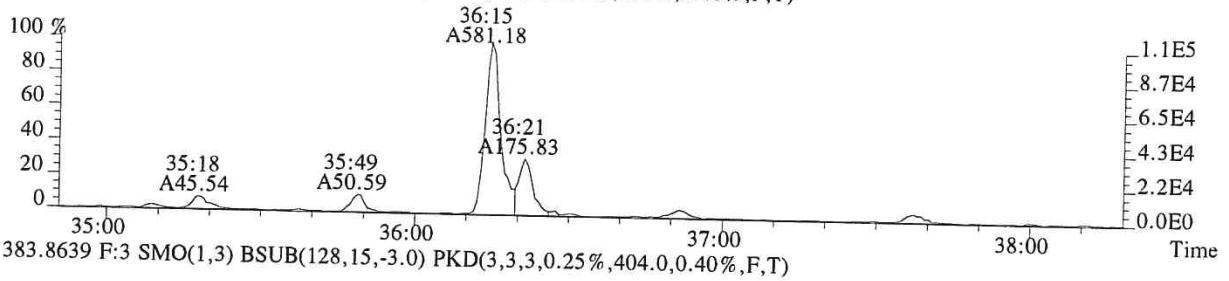


File:P518976 #1-312 Acq:21-NOV-2018 20:02:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034DL

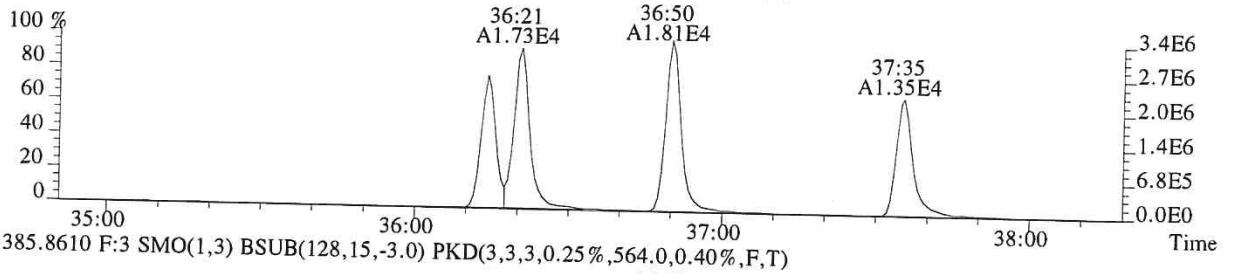
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



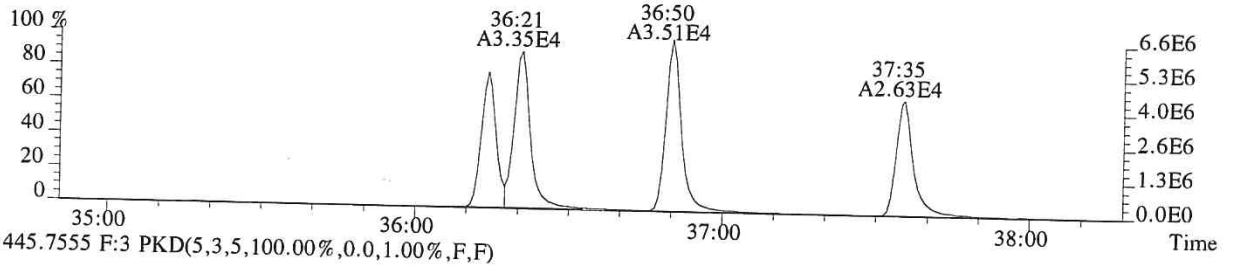
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



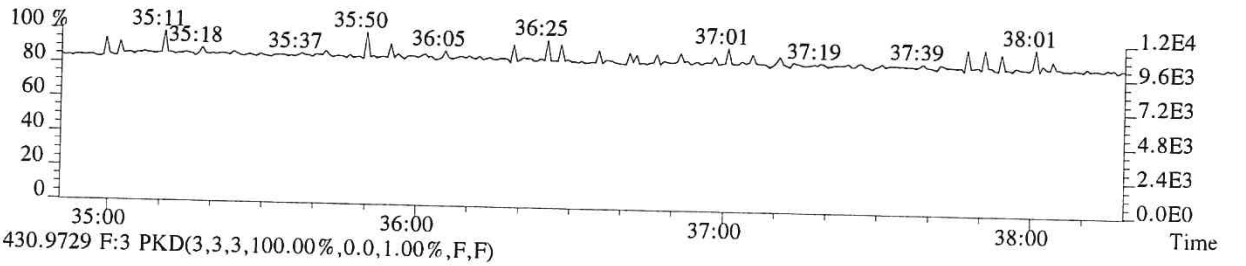
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



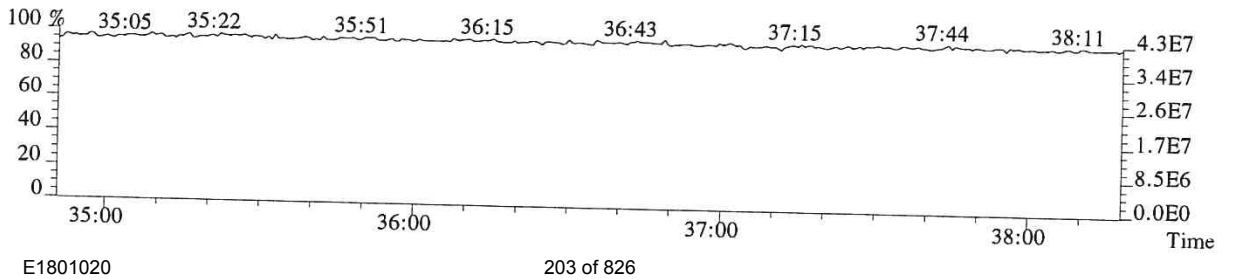
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

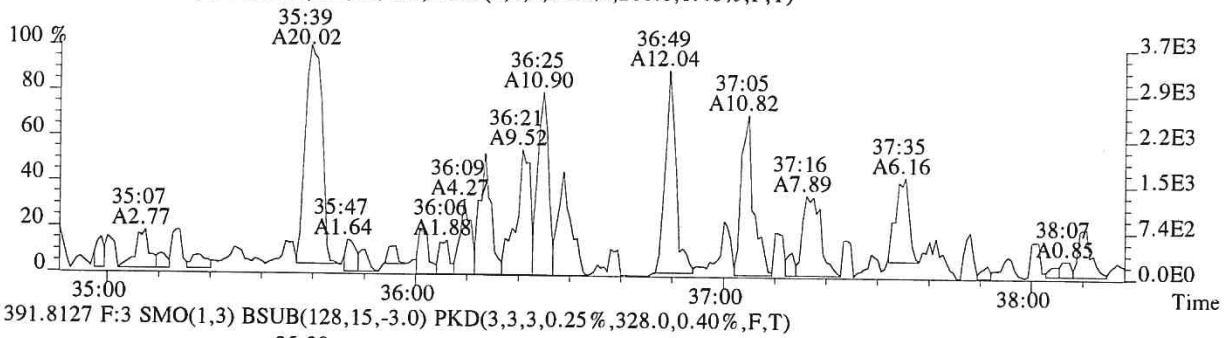


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

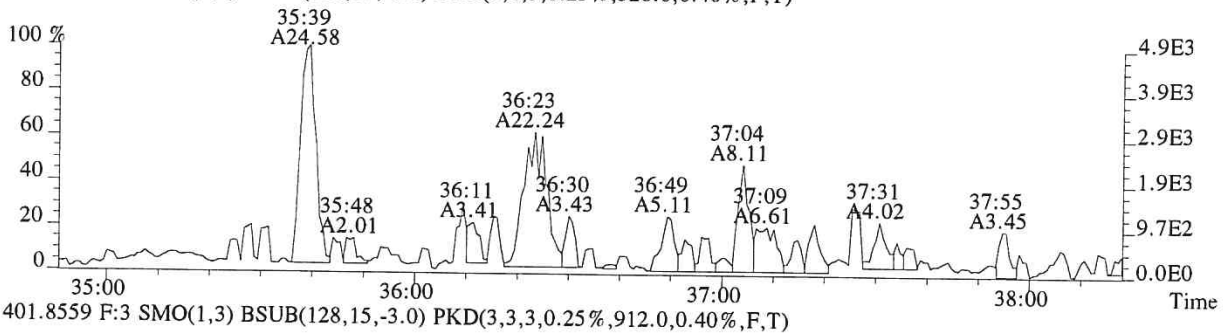


009710

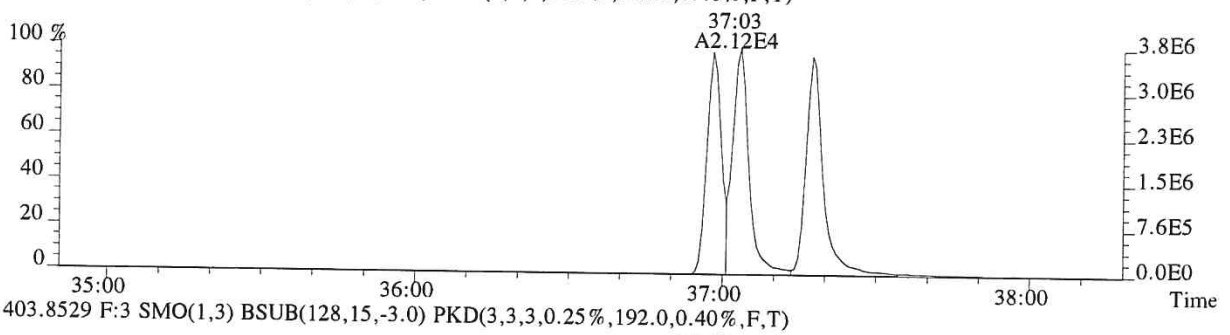
File:P518976 #1-312 Acq:21-NOV-2018 20:02:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



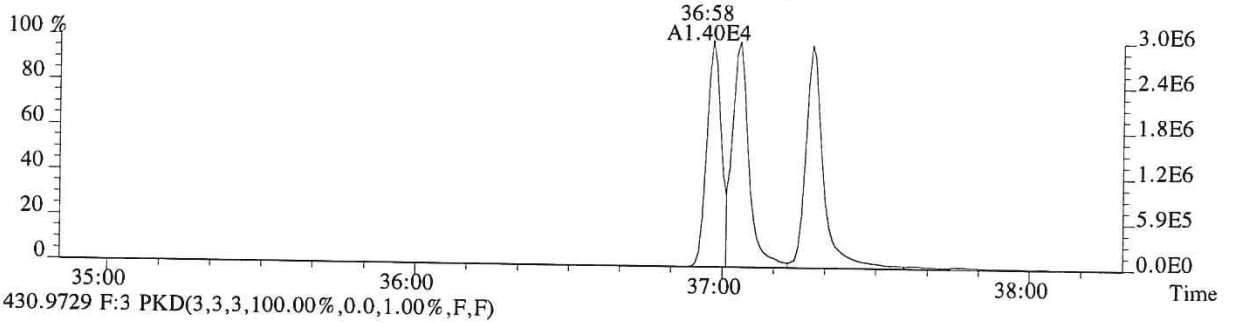
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



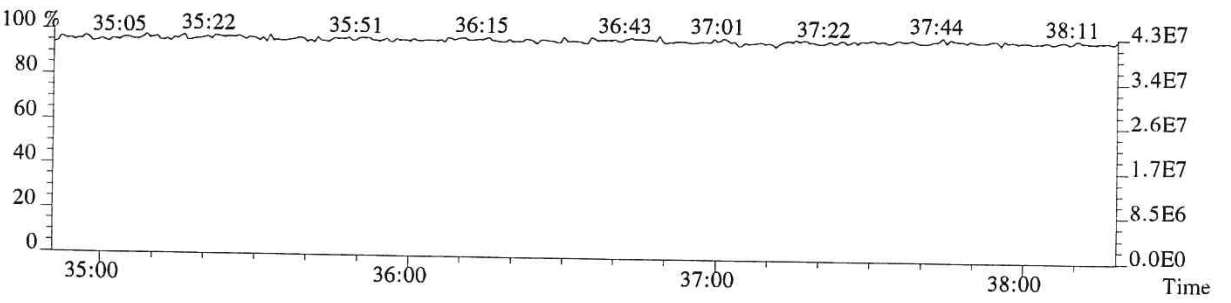
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)

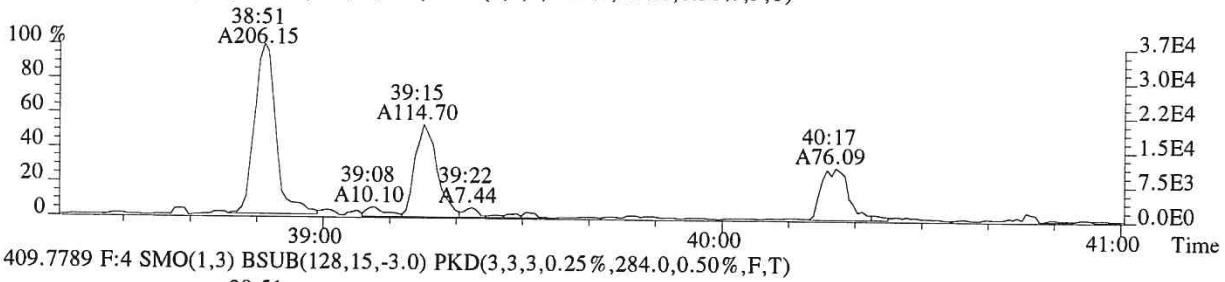


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

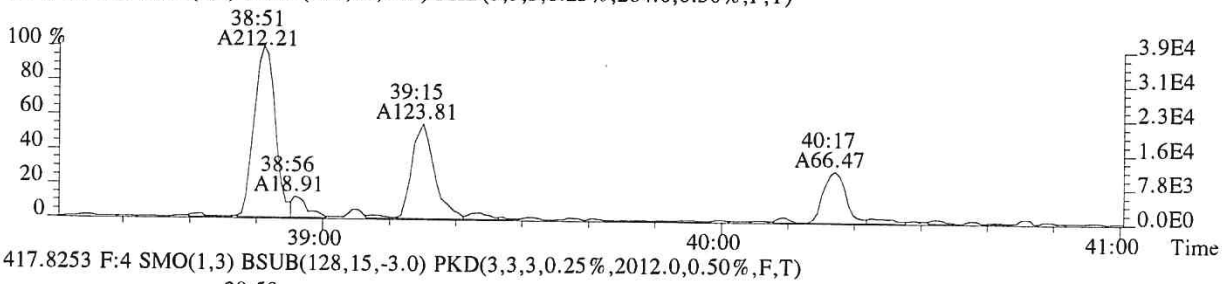


File:P518976 #1-241 Acq:21-NOV-2018 20:02:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034DL

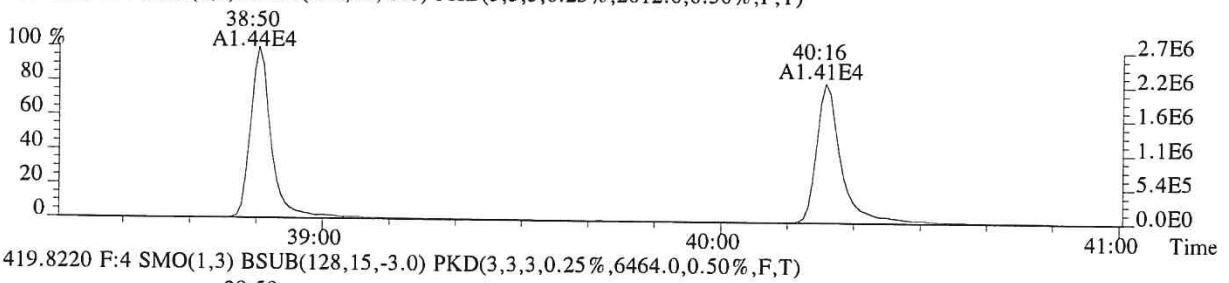
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.50%,F,T)



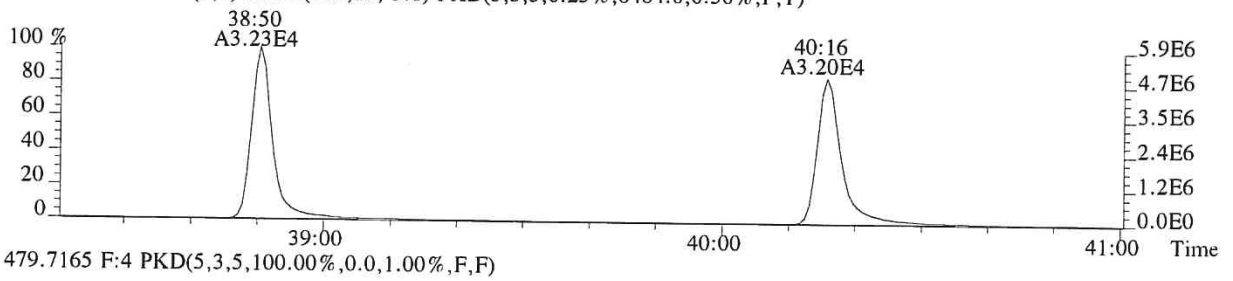
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.50%,F,T)



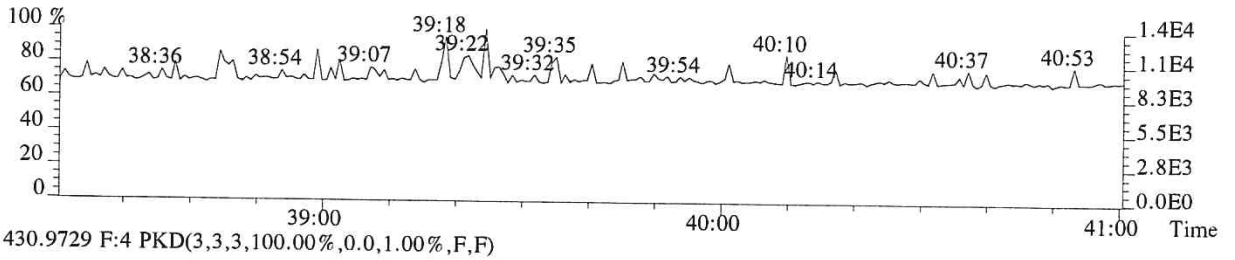
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2012.0,0.50%,F,T)



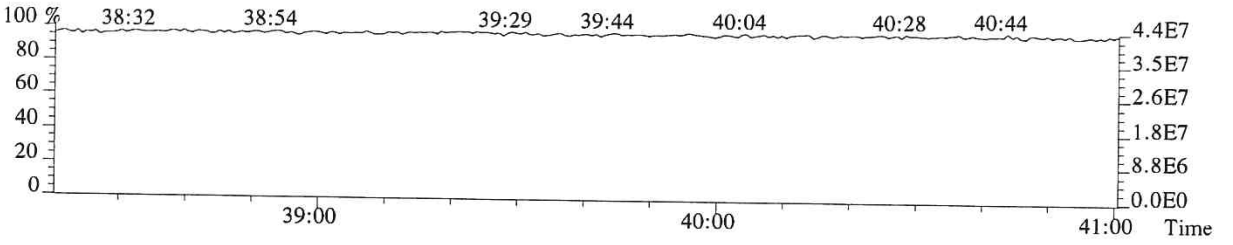
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6464.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

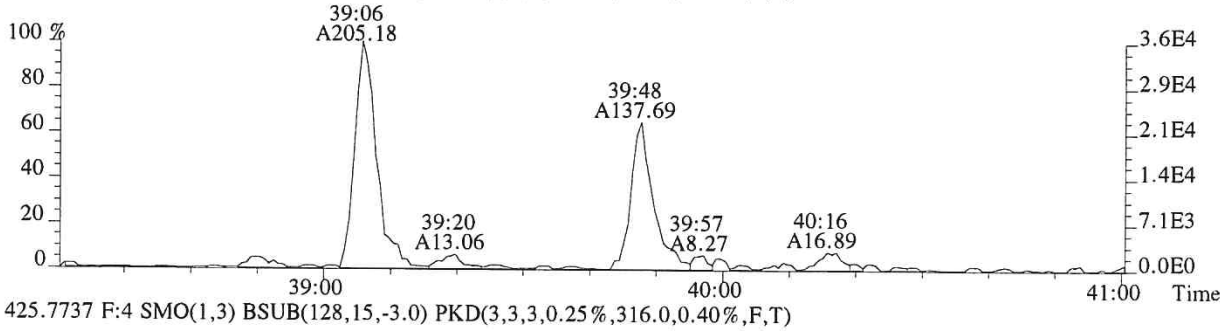


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

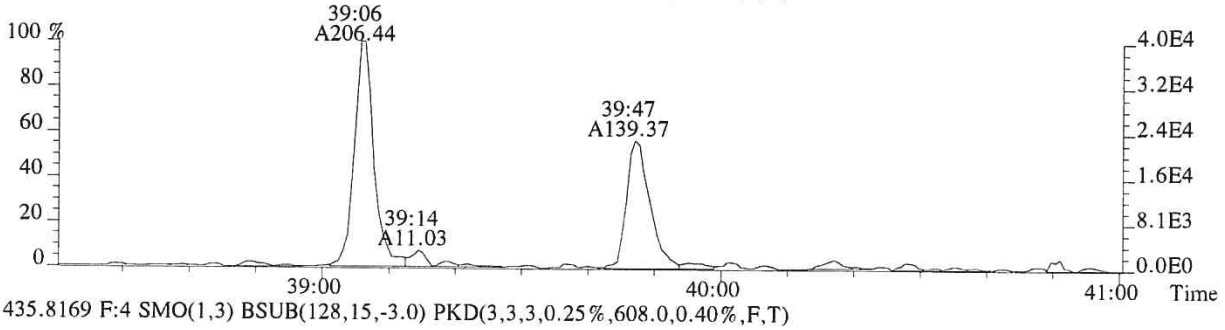


009712

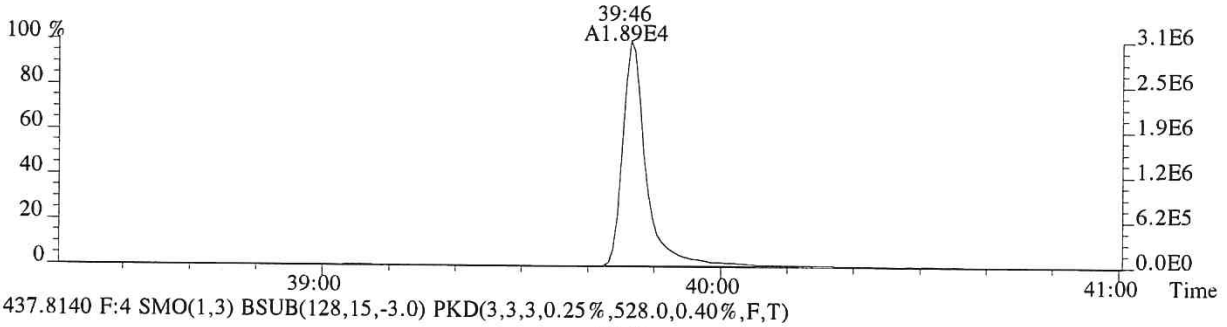
File:P518976 #1-241 Acq:21-NOV-2018 20:02:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



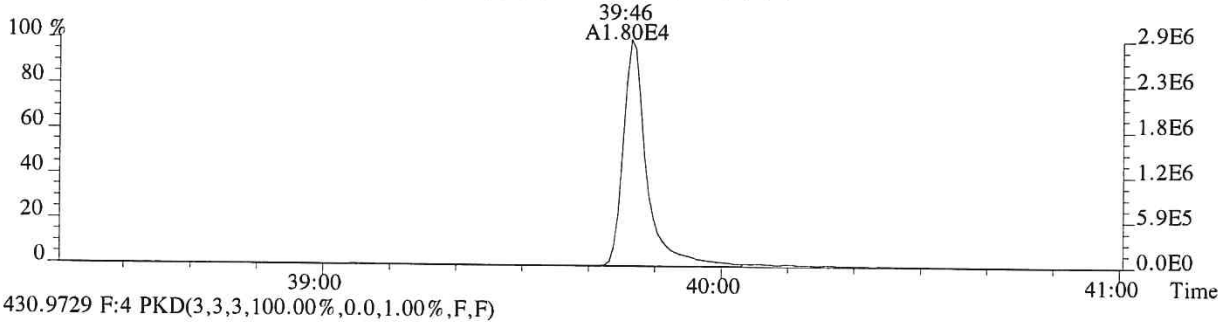
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



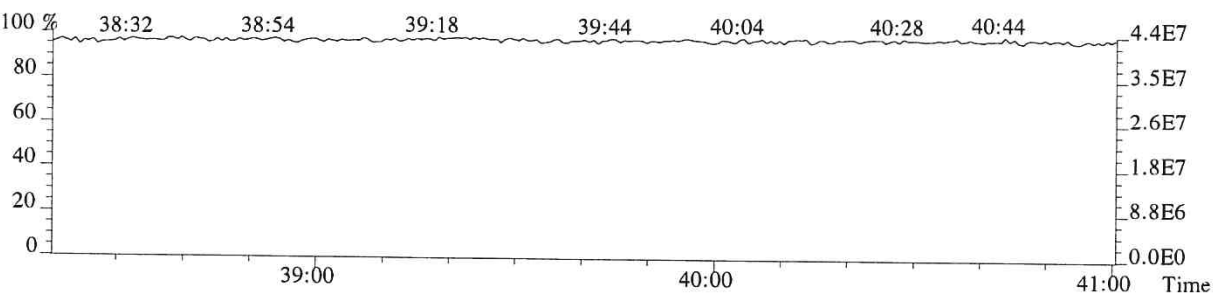
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)

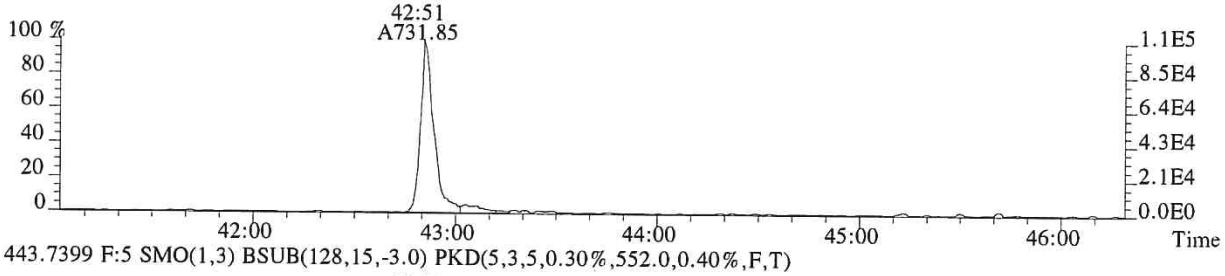


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

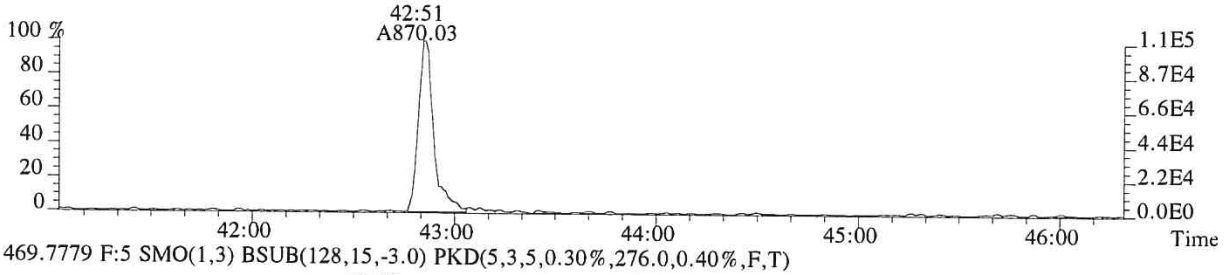


File:P518976 #1-475 Acq:21-NOV-2018 20:02:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034DL

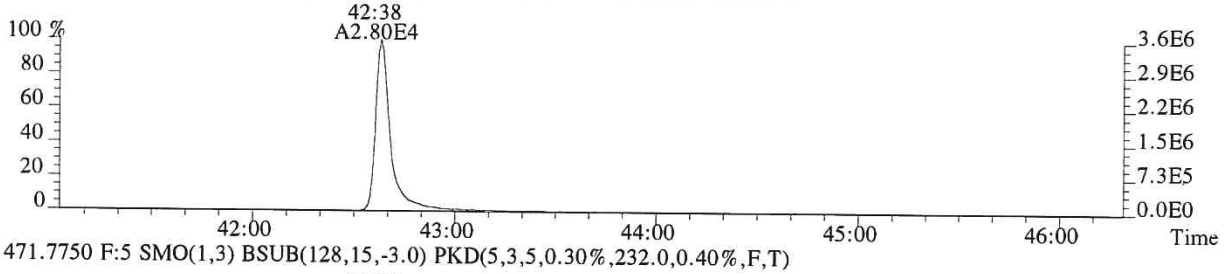
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



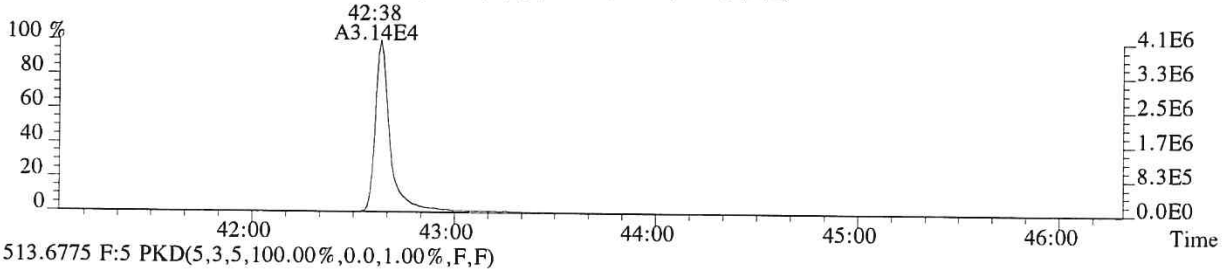
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



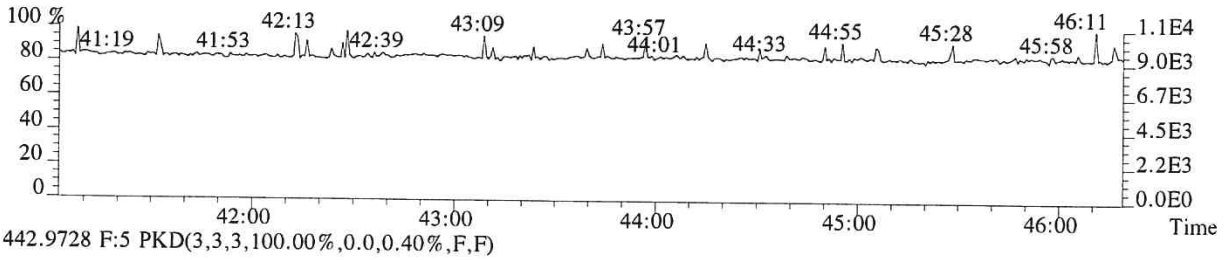
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



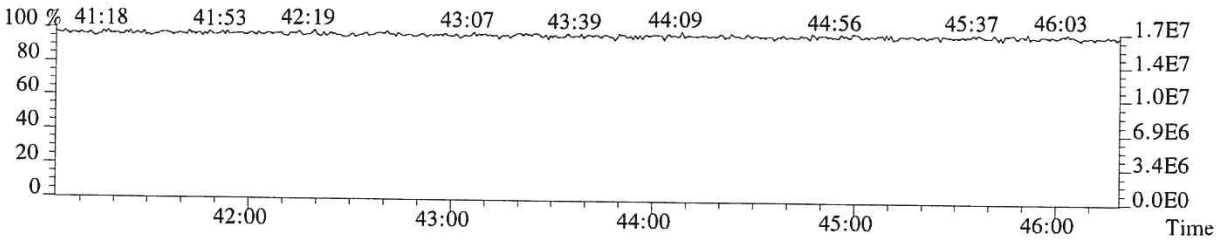
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



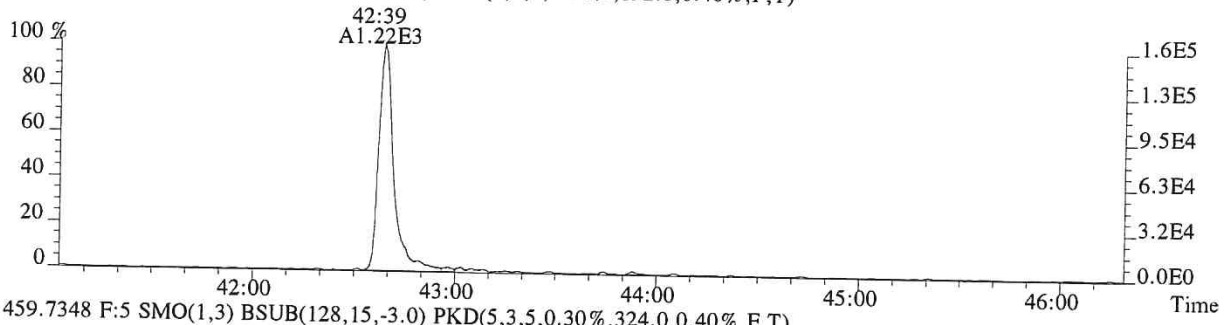
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



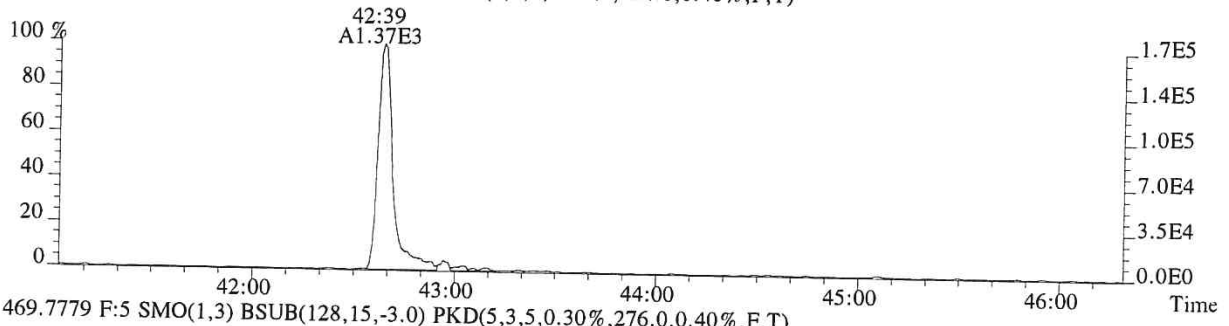
009714

File:P518976 #1-475 Acq:21-NOV-2018 20:02:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-034DL

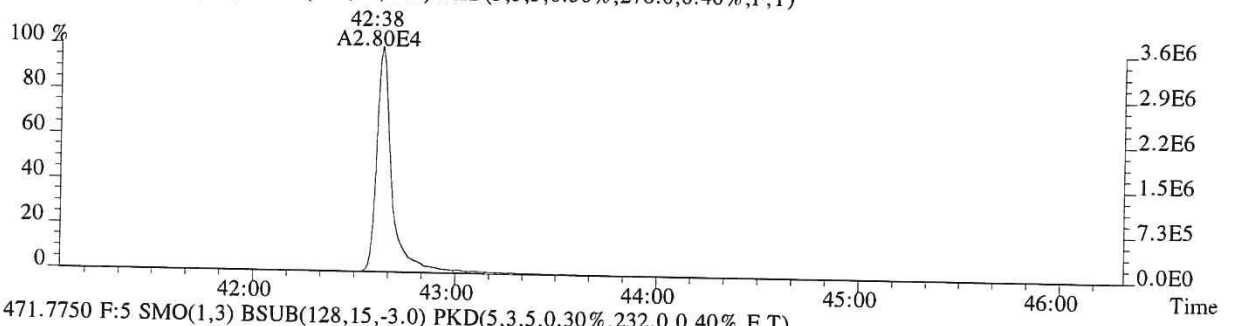
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



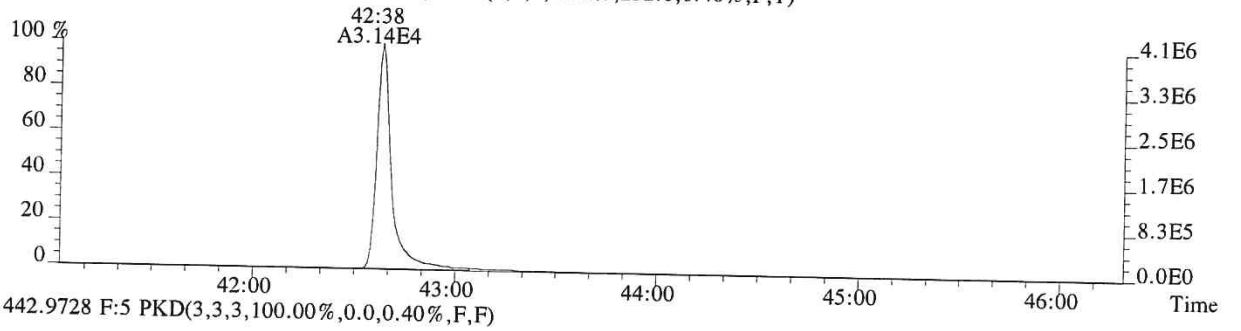
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



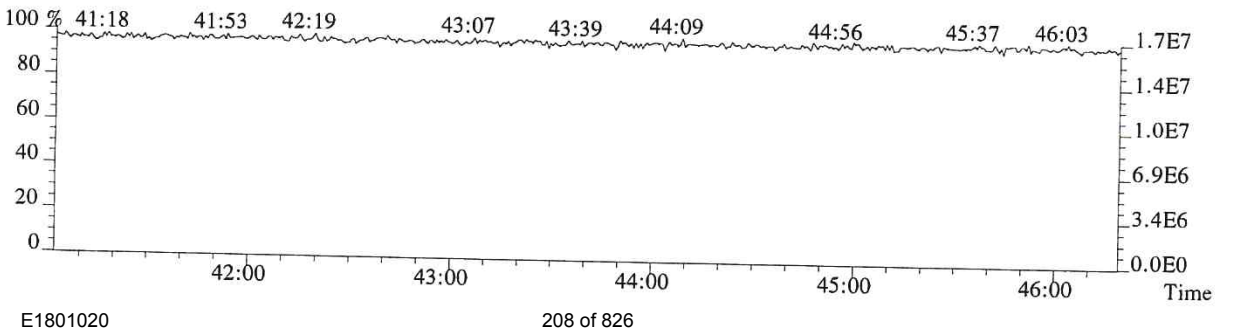
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0033

Run #13 Filename P518871 Samp: 1 Inj: 1 Acquired: 17-NOV-18 05:58:47
Processed: 21-NOV-18 09:19:31 Sample ID: E1801020-045

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:39	1.333e+06	1.707e+06	0.78	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:38	6.684e+04	4.326e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:39	4.946e+04	3.262e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:31	1.067e+05	8.665e+04	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:38	2.760e+04	2.195e+04	1.26	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:10	4.259e+03	3.488e+03	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:58	5.946e+03	5.045e+03	1.18	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	2.746e+04	2.738e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	7.406e+03	7.298e+03	1.01	yes	no	1.258
10	Unk	OCDF	40:52	4.223e+04	4.921e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:40	3.698e+05	4.687e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:58	5.059e+03	3.346e+03	1.51	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:19	2.991e+02	2.293e+02	1.30	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:25	2.665e+03	2.149e+03	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:40	9.763e+02	8.782e+02	1.11	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	7.240e+04	6.938e+04	1.04	yes	no	1.025
17	Unk	OCDD	40:42	2.664e+05	2.985e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:37	2.574e+04	3.204e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:37	3.820e+04	2.411e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:38	3.605e+04	2.267e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:31	1.391e+04	2.684e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:37	1.585e+04	3.059e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:10	1.461e+04	2.831e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:56	1.303e+04	2.462e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:15	7.856e+03	1.782e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:35	6.921e+03	1.538e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:38	1.723e+04	2.189e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:56	2.622e+04	1.644e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:19	1.884e+04	1.455e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:24	1.886e+04	1.475e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:10	1.433e+04	1.341e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:42	9.672e+03	1.106e+04	0.87	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:56	2.900e+04	3.716e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:39	3.604e+04	2.820e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:40	2.339e+04				no	1.014

$$\text{OCDD} = \frac{(2.664e{+}05 + 2.985e{+}05) \times 4000\ \text{pg} \times 1}{(9.672e{+}03 + 1.106e{+}04) \times 10.447\text{g} \times 67.1 / 100 \times 1.118} = 13907.0218\ \text{ng/kg}$$

LG 11/26/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0033

Run #13 Filename P518871 Samp: 1 Inj: 1 Acquired: 17-NOV-18 05:58:47
Processed: 21-NOV-18 09:19:31 LAB. ID: E1801020-045

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.80e+08	7.48e+02	2.4e+05	2.30e+08	2.38e+03	9.7e+04
2	1,2,3,7,8-PeCDF	1.18e+07	1.54e+04	7.6e+02	7.52e+06	1.01e+04	7.5e+02
3	2,3,4,7,8-PeCDF	7.85e+06	1.54e+04	5.1e+02	5.05e+06	1.01e+04	5.0e+02
4	1,2,3,4,7,8-HxCDF	2.19e+07	3.47e+03	6.3e+03	1.75e+07	2.68e+03	6.5e+03
5	1,2,3,6,7,8-HxCDF	5.14e+06	3.47e+03	1.5e+03	4.05e+06	2.68e+03	1.5e+03
6	2,3,4,6,7,8-HxCDF	8.91e+05	3.47e+03	2.6e+02	7.48e+05	2.68e+03	2.8e+02
7	1,2,3,7,8,9-HxCDF	1.23e+06	3.47e+03	3.6e+02	1.04e+06	2.68e+03	3.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.79e+06	1.97e+03	2.9e+03	5.68e+06	1.00e+04	5.7e+02
9	1,2,3,4,7,8,9-HpCDF	1.45e+06	1.97e+03	7.4e+02	1.45e+06	1.00e+04	1.4e+02
10	OCDF	6.97e+06	8.60e+02	8.1e+03	8.09e+06	9.44e+02	8.6e+03
11	2,3,7,8-TCDD	6.13e+07	2.50e+03	2.4e+04	7.73e+07	1.75e+03	4.4e+04
12	1,2,3,7,8-PeCDD	8.29e+05	3.16e+03	2.6e+02	5.48e+05	2.18e+03	2.5e+02
13	1,2,3,4,7,8-HxCDD	6.99e+04	3.13e+03	2.2e+01	5.06e+04	3.63e+03	1.4e+01
14	1,2,3,6,7,8-HxCDD	5.42e+05	3.13e+03	1.7e+02	4.38e+05	3.63e+03	1.2e+02
15	1,2,3,7,8,9-HxCDD	1.94e+05	3.13e+03	6.2e+01	1.67e+05	3.63e+03	4.6e+01
16	1,2,3,4,6,7,8-HpCDD	1.44e+07	1.20e+04	1.2e+03	1.37e+07	1.11e+03	1.2e+04
17	OCDD	4.32e+07	6.84e+02	6.3e+04	4.88e+07	1.06e+03	4.6e+04
18	13C-2,3,7,8-TCDF	3.52e+06	3.61e+03	9.7e+02	4.40e+06	5.46e+03	8.1e+02
19	13C-1,2,3,7,8-PeCDF	6.79e+06	5.36e+03	1.3e+03	4.30e+06	6.80e+03	6.3e+02
20	13C-2,3,4,7,8-PeCDF	6.47e+06	5.36e+03	1.2e+03	4.08e+06	6.80e+03	6.0e+02
21	13C-1,2,3,4,7,8-HxCDF	2.84e+06	2.51e+03	1.1e+03	5.42e+06	1.97e+03	2.8e+03
22	13C-1,2,3,6,7,8-HxCDF	3.07e+06	2.51e+03	1.2e+03	5.88e+06	1.97e+03	3.0e+03
23	13C-2,3,4,6,7,8-HxCDF	2.92e+06	2.51e+03	1.2e+03	5.61e+06	1.97e+03	2.9e+03
24	13C-1,2,3,7,8,9-HxCDF	2.83e+06	2.51e+03	1.1e+03	5.45e+06	1.97e+03	2.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.64e+06	2.98e+03	5.5e+02	3.76e+06	4.08e+03	9.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.30e+06	2.98e+03	4.4e+02	2.90e+06	4.08e+03	7.1e+02
27	13C-2,3,7,8-TCDD	2.84e+06	4.64e+03	6.1e+02	3.55e+06	3.63e+03	9.8e+02
28	13C-1,2,3,7,8-PeCDD	4.78e+06	1.24e+03	3.9e+03	2.99e+06	6.32e+02	4.7e+03
29	13C-1,2,3,4,7,8-HxCDD	4.02e+06	8.64e+02	4.7e+03	3.13e+06	9.48e+02	3.3e+03
30	13C-1,2,3,6,7,8-HxCDD	3.71e+06	8.64e+02	4.3e+03	2.92e+06	9.48e+02	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.82e+06	8.16e+02	3.5e+03	2.63e+06	1.20e+03	2.2e+03
32	13C-OCDD	1.54e+06	8.84e+02	1.7e+03	1.76e+06	6.48e+02	2.7e+03
33	13C-1,2,3,4-TCDD	4.51e+06	4.64e+03	9.7e+02	5.76e+06	3.63e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	6.97e+06	8.64e+02	8.1e+03	5.50e+06	9.48e+02	5.8e+03
35	37Cl-2,3,7,8-TCDD	3.97e+06	3.49e+03	1.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0033

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P518871 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 05:58:47 Processed: 21-NOV-18 09:19:31

Mass: 303.9020 305.8990 Tot Response: 5.68e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:30	1.16e+04	1.56e+04	0.74	yes	2.72e+04		n	n
2	22:47	5.78e+04	7.51e+04	0.77	yes	1.33e+05		n	n
3	23:08	1.62e+04	2.08e+04	0.78	yes	3.70e+04		n	n
4	23:16	1.29e+03	1.59e+03	0.81	yes	2.88e+03		n	n
5	23:25	5.06e+04	6.55e+04	0.77	yes	1.16e+05		n	n
6	23:47	1.09e+04	1.48e+04	0.74	yes	2.57e+04		n	n
7	24:02	3.19e+04	4.20e+04	0.76	yes	7.39e+04		n	n
8	24:08	6.29e+04	8.23e+04	0.76	yes	1.45e+05		n	n
9	24:38	5.91e+05	7.58e+05	0.78	yes	1.35e+06		n	n
10	24:56	2.82e+04	3.70e+04	0.76	yes	6.52e+04		n	n
11	25:31	7.71e+04	1.05e+05	0.73	yes	1.83e+05		y	y
12	25:39	1.33e+06	1.71e+06	0.78	yes	3.04e+06	2,3,7,8-TCDF	y	y
13	26:05	9.55e+04	1.24e+05	0.77	yes	2.19e+05		n	n
14	26:21	1.45e+04	1.82e+04	0.80	yes	3.27e+04		n	n
15	27:53	9.97e+04	1.28e+05	0.78	yes	2.28e+05		n	n

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Peak List Summary

CLIENT ID.
SL0033

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P518871 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 05:58:47 Processed: 21-NOV-18 09:19:31

Mass: 319.8970 321.8940 Tot Response: 9.22e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:19	4.61e+03	5.89e+03	0.78	yes	1.05e+04		n	n
2	26:40	3.70e+05	4.69e+05	0.79	yes	8.38e+05	2,3,7,8-TCDD	n	n
3	27:01	3.30e+04	4.04e+04	0.82	yes	7.34e+04		n	n

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CLIENT ID.
SL0033

Entry: 38 Totals Name: Total Penta-Furans1

Run: 13 File: P518871 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 05:58:47 Processed: 21-NOV-18 09:19:31

Mass: 339.8600 341.8570 Tot Response: 8.17e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:55	5.04e+03	3.13e+03 1.61	yes	8.17e+03		n	n

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Peak List Summary

CLIENT ID.
SL0033

Entry: 39 Totals Name: Total Penta-Furans2

Run: 13 File: P518871 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 05:58:47 Processed: 21-NOV-18 09:19:31

Mass: 339.8600 341.8570 Tot Response: 2.56e+05 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:38	3.26e+04	2.15e+04 1.52	yes	5.41e+04		n	n
2	30:13	2.17e+03	1.34e+03 1.62	yes	3.51e+03		n	n
3	30:38	6.68e+04	4.33e+04 1.54	yes	1.10e+05	1,2,3,7,8-PeCDF	n	n
4	31:32	1.03e+03	7.02e+02 1.47	yes	1.73e+03		n	n
5	31:39	4.95e+04	3.26e+04 1.52	yes	8.21e+04	2,3,4,7,8-PeCDF	n	n
6	32:38	2.43e+03	1.57e+03 1.54	yes	4.00e+03		n	n

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Peak List Summary

CLIENT ID.
SL0033

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P518871 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 05:58:47 Processed: 21-NOV-18 09:19:31

Mass: 355.8550 357.8520 Tot Response: 1.53e+04 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:42	1.42e+03	9.37e+02	1.52	yes	2.36e+03		n	n
2	30:40	9.74e+02	6.71e+02	1.45	yes	1.65e+03		n	n
3	30:56	4.40e+02	3.03e+02	1.45	yes	7.43e+02		n	n
4	31:10	6.31e+02	4.07e+02	1.55	yes	1.04e+03		n	n
5	31:32	6.77e+02	4.02e+02	1.68	yes	1.08e+03		n	n
6	31:58	5.06e+03	3.35e+03	1.51	yes	8.41e+03	1,2,3,7,8-PeCDD	n	n

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CLIENT ID.
SL0033

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P518871 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 05:58:47 Processed: 21-NOV-18 09:19:31

Mass: 373.8210 375.8180 Tot Response: 2.97e+05 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:21	1.34e+03	1.08e+03 1.24	yes	2.42e+03		n	n
2	33:31	1.03e+04	8.46e+03 1.22	yes	1.88e+04		n	n
3	34:04	7.61e+03	6.18e+03 1.23	yes	1.38e+04		n	n
4	34:25	3.30e+02	2.99e+02 1.10	yes	6.29e+02		n	n
5	34:31	1.07e+05	8.66e+04 1.23	yes	1.93e+05	1,2,3,4,7,8-HxCDF	n	n
6	34:38	2.76e+04	2.19e+04 1.26	yes	4.95e+04	1,2,3,6,7,8-HxCDF	n	n
7	35:10	4.26e+03	3.49e+03 1.22	yes	7.75e+03	2,3,4,6,7,8-HxCDF	n	n
8	35:58	5.95e+03	5.04e+03 1.18	yes	1.10e+04	1,2,3,7,8,9-HxCDF	n	n

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SL0033

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P518871 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 05:58:47 Processed: 21-NOV-18 09:19:31

Mass: 389.8160 391.8130 Tot Response: 5.11e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:55	8.38e+03	6.70e+03	1.25	yes	1.51e+04		n	n
2	34:27	1.04e+03	8.42e+02	1.23	yes	1.88e+03		n	n
3	34:42	1.40e+04	1.10e+04	1.27	yes	2.50e+04		n	n
4	34:49	6.00e+02	5.15e+02	1.16	yes	1.11e+03		n	n
5	35:19	2.99e+02	2.29e+02	1.30	yes	5.28e+02	1,2,3,4,7,8-HxCDD	n	n
6	35:25	2.66e+03	2.15e+03	1.24	yes	4.81e+03	1,2,3,6,7,8-HxCDD	n	n
7	35:35	4.23e+02	3.27e+02	1.29	yes	7.50e+02		n	n
8	35:40	9.76e+02	8.78e+02	1.11	yes	1.85e+03	1,2,3,7,8,9-HxCDD	n	n

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SL0033

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P518871 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 05:58:47 Processed: 21-NOV-18 09:19:31

Mass: 407.7820 409.7790 Tot Response: 9.84e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:16	2.75e+04	1.00	yes	5.48e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	37:31	4.04e+02	0.97	yes	8.22e+02		n	n
3	37:40	1.42e+04	1.02	yes	2.80e+04		n	n
4	38:36	7.41e+03	1.01	yes	1.47e+04	1,2,3,4,7,8,9-HpCDF	n	n

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CLIENT ID.
SL0033

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P518871 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 05:58:47 Processed: 21-NOV-18 09:19:31

Mass: 423.7770 425.7740 Tot Response: 2.75e+05 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:31	6.78e+04	6.55e+04	1.03	yes	1.33e+05		n	n
2	38:10	7.24e+04	6.94e+04	1.04	yes	1.42e+05	1,2,3,4,6,7,8-HpCDD	n	n

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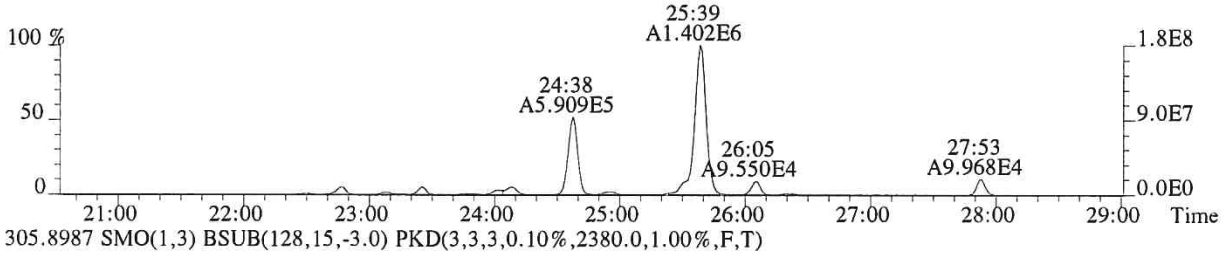
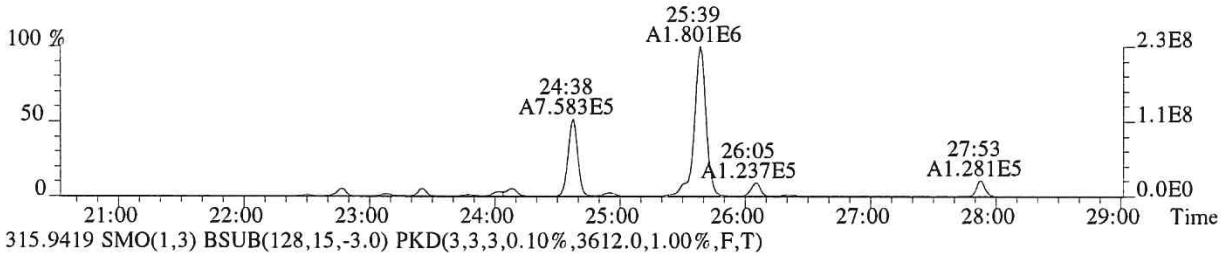
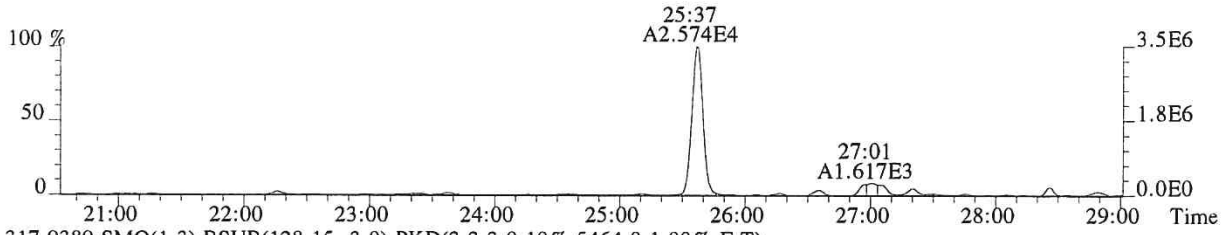
File:P518871 #1-602 Acq:17-NOV-2018 05:58:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



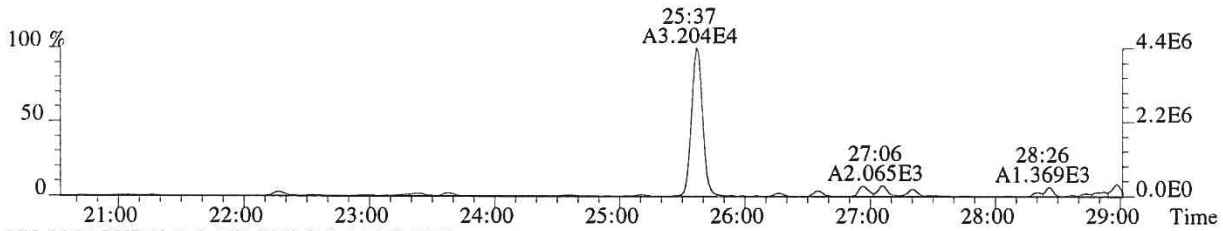
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)



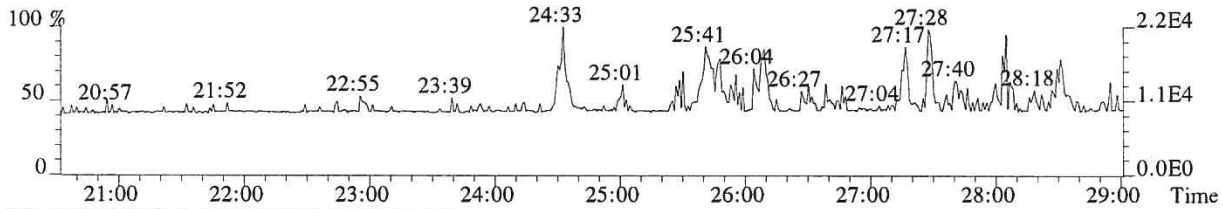
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3612.0,1.00%,F,T)



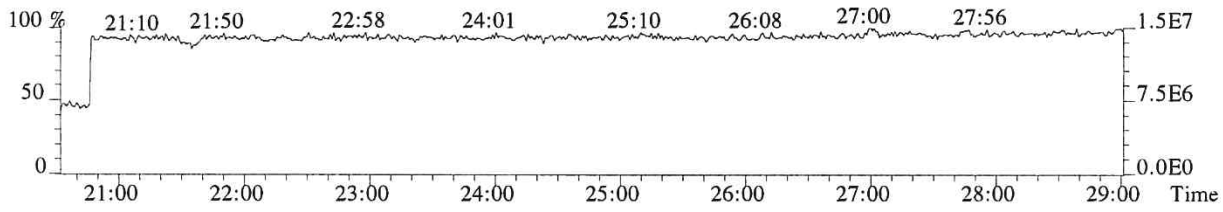
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5464.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

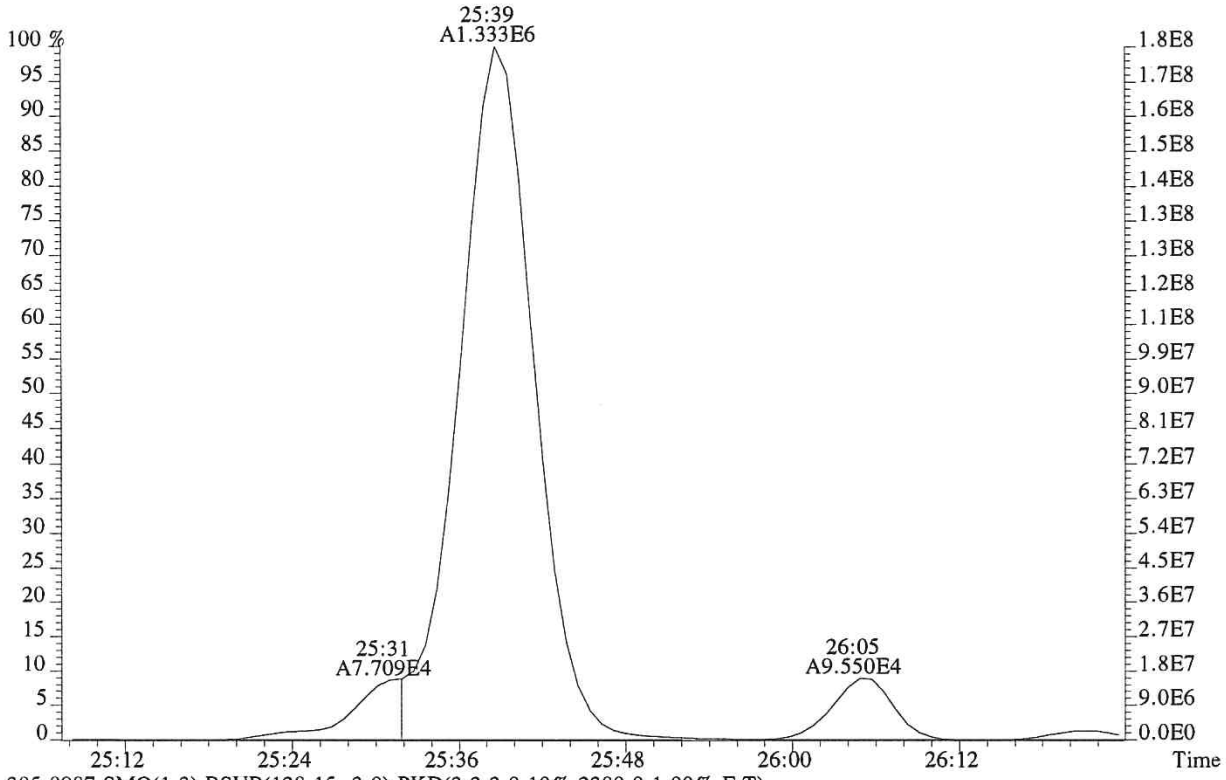


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

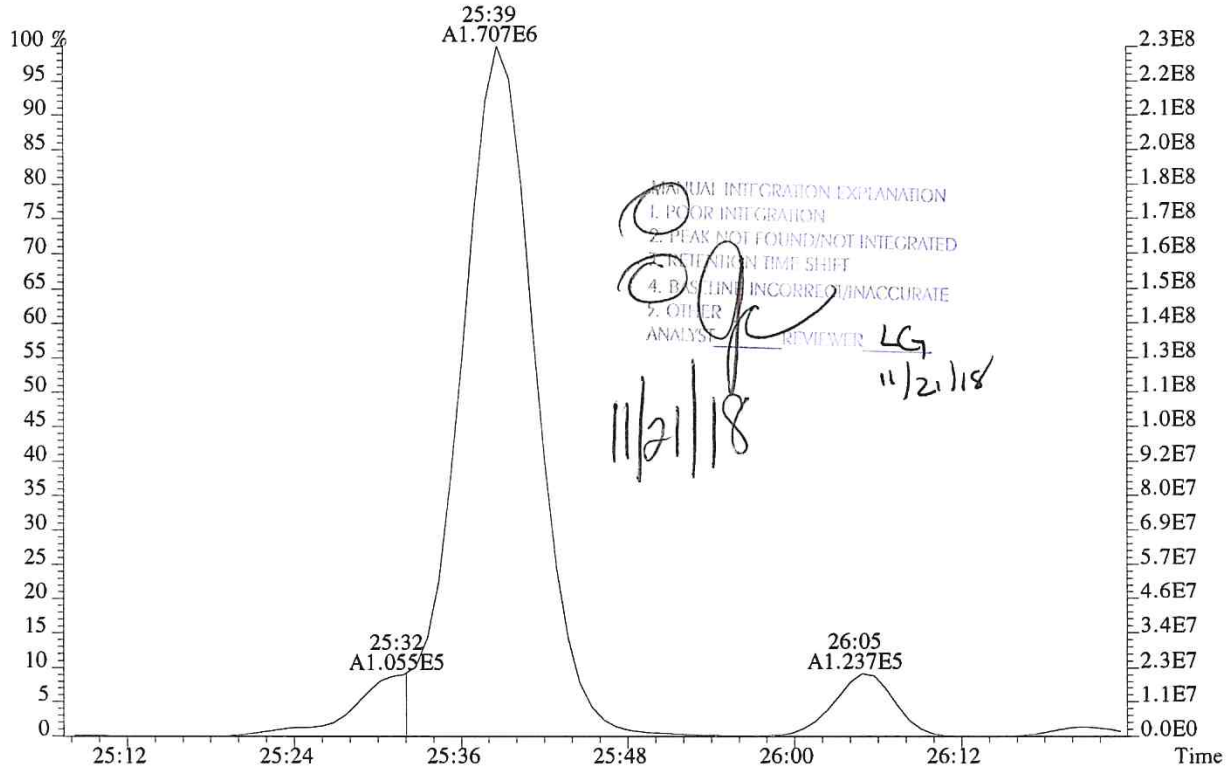


009727

File:P518871 #1-602 Acq:17-NOV-2018 05:58:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)

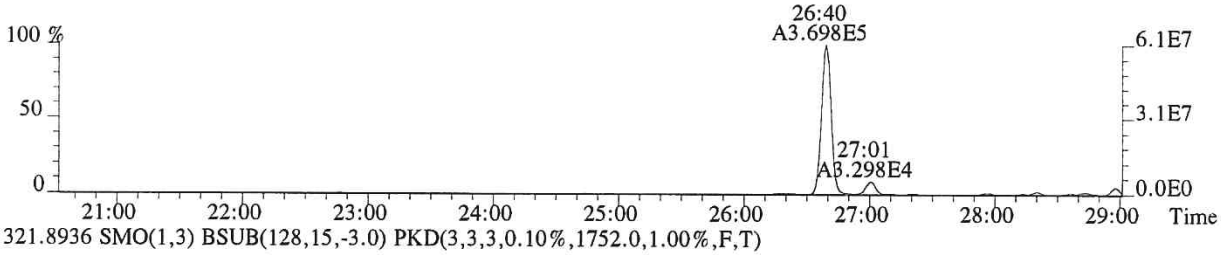


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)

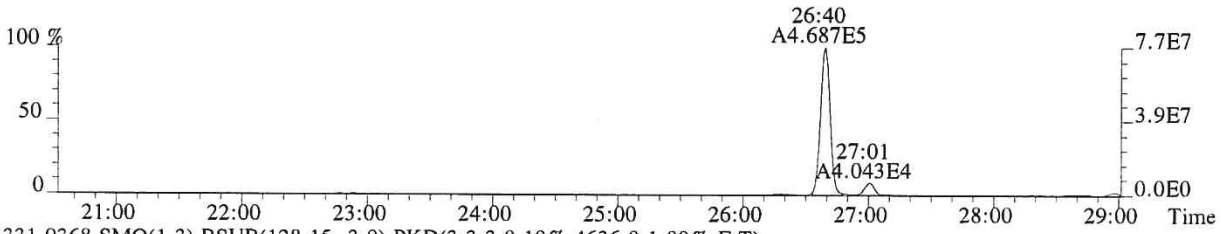


009728

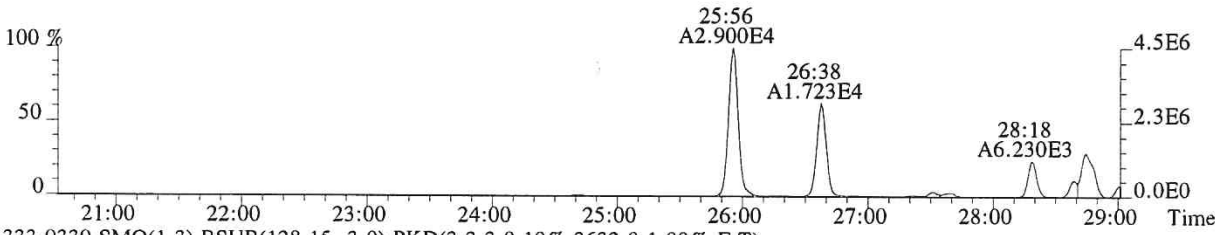
File:P518871 #1-602 Acq:17-NOV-2018 05:58:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2504.0,1.00%,F,T)



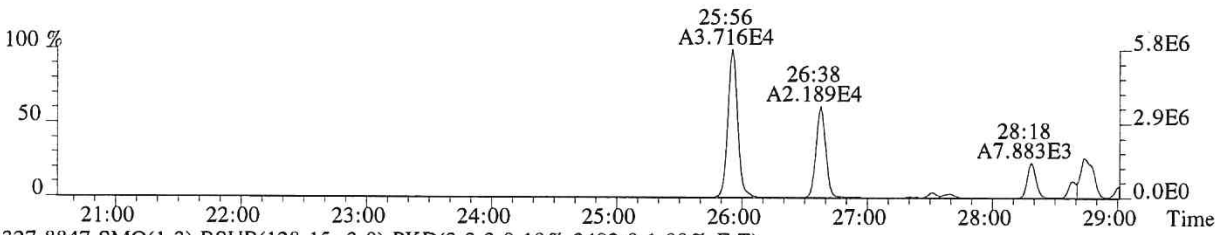
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



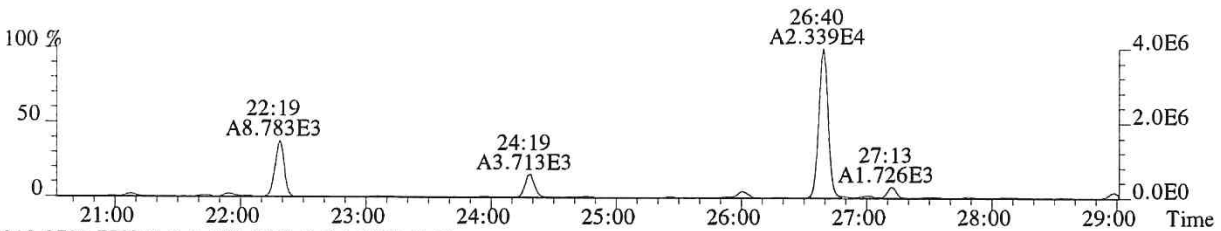
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4636.0,1.00%,F,T)



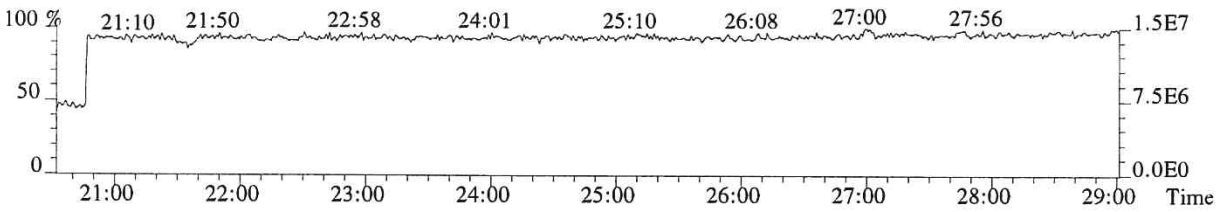
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3632.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3492.0,1.00%,F,T)

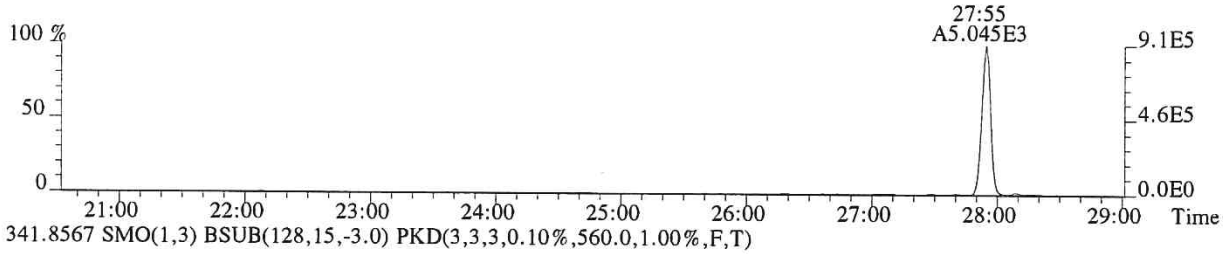


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

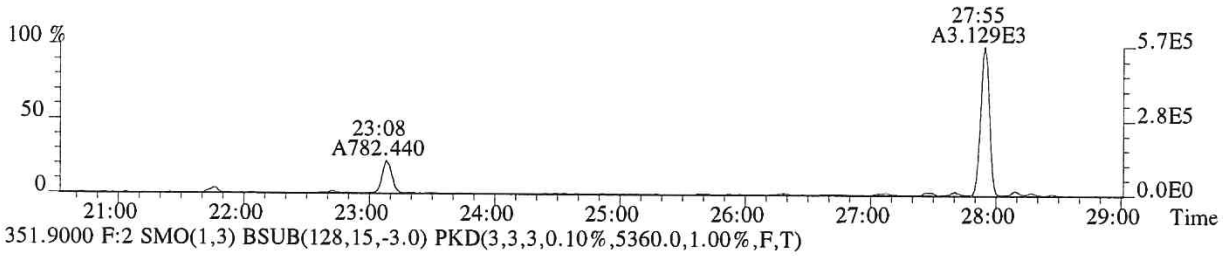


009729

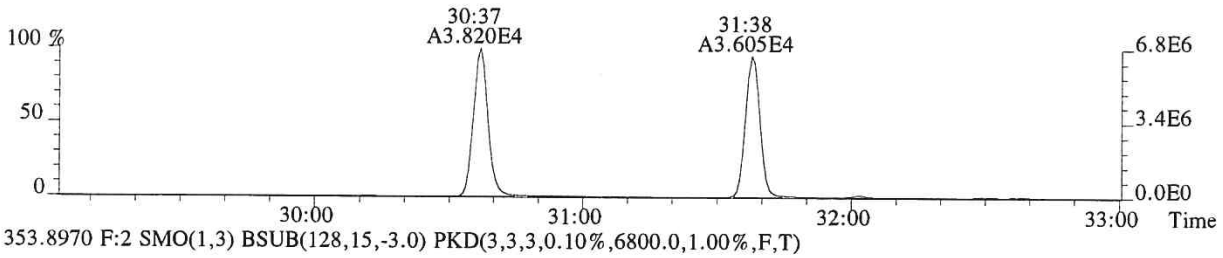
File:P518871 #1-602 Acq:17-NOV-2018 05:58:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



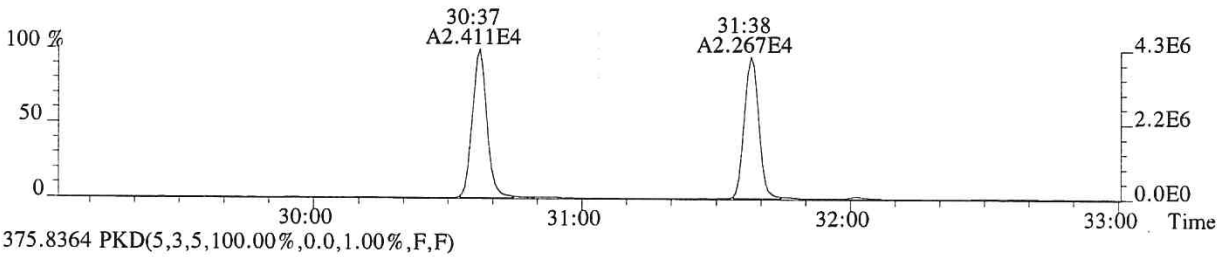
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



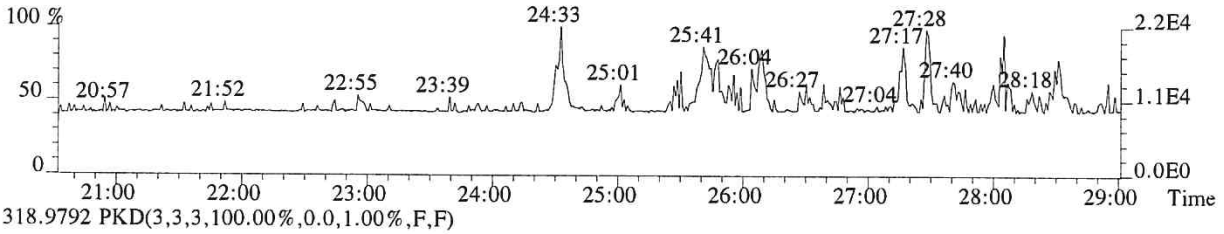
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5360.0,1.00%,F,T)



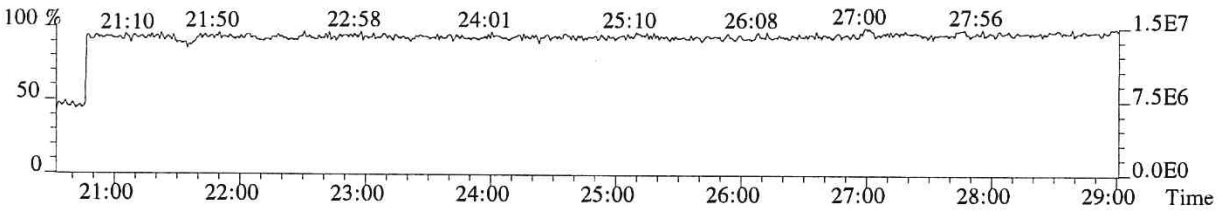
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6800.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

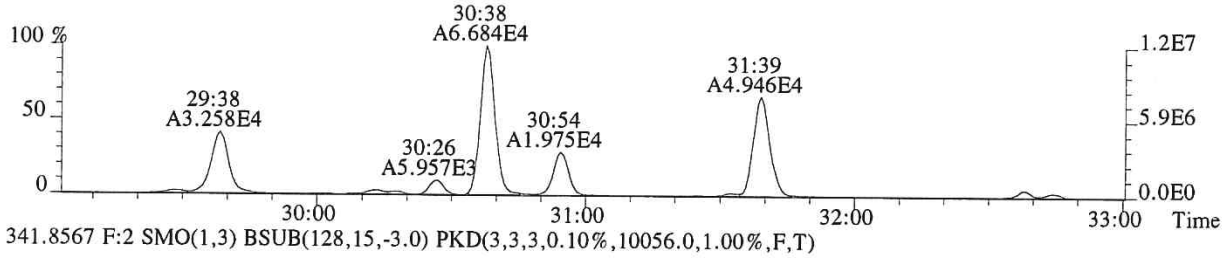


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

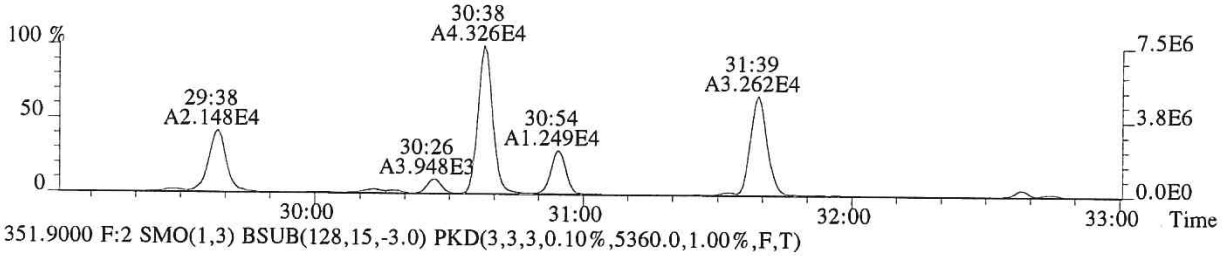


009730

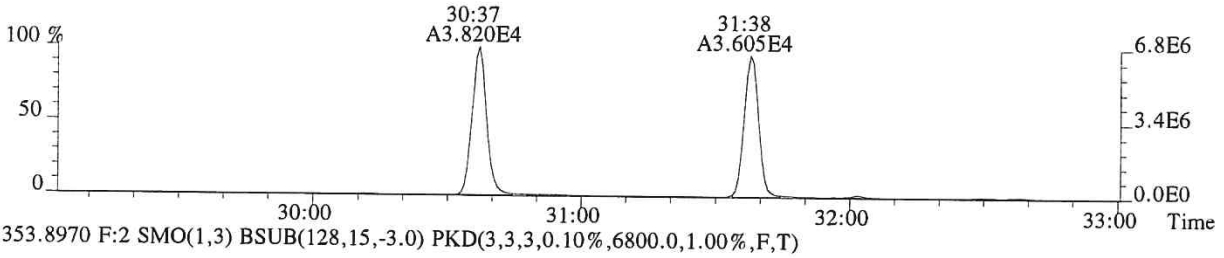
File:P518871 #1-357 Acq:17-NOV-2018 05:58:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15424.0,1.00%,F,T)



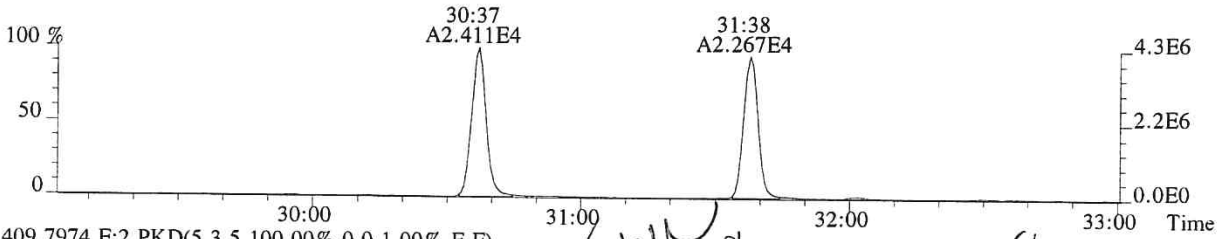
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10056.0,1.00%,F,T)



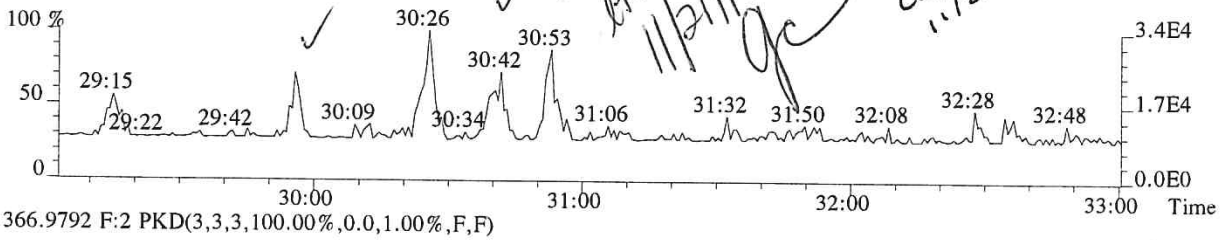
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5360.0,1.00%,F,T)



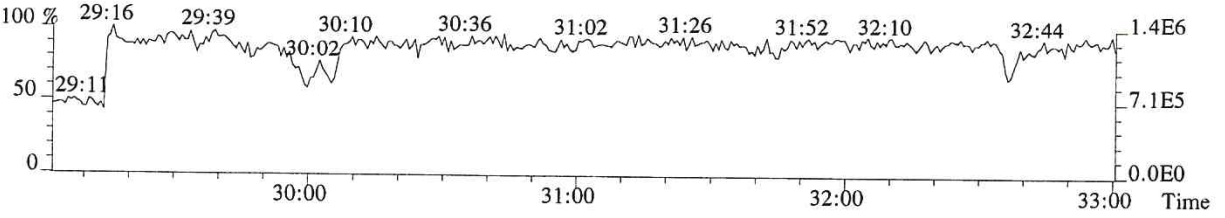
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6800.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

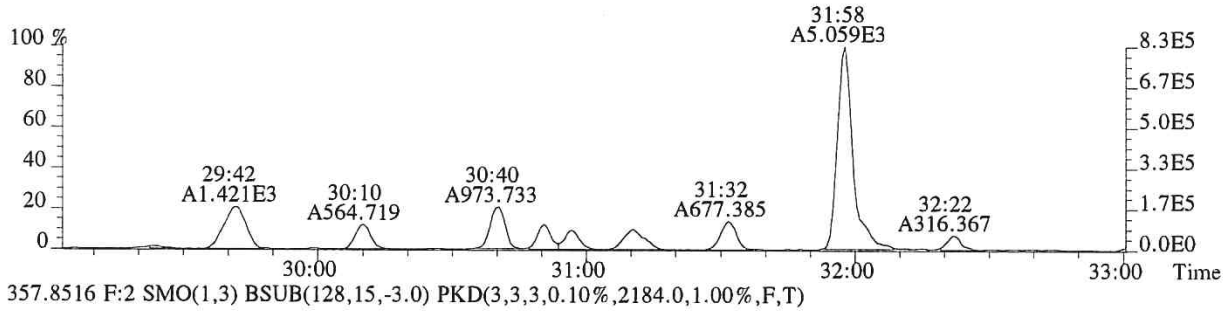


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

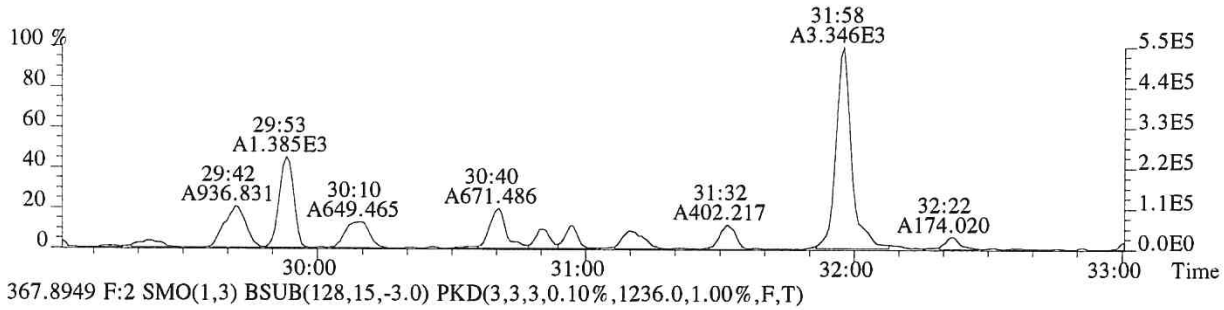


009731

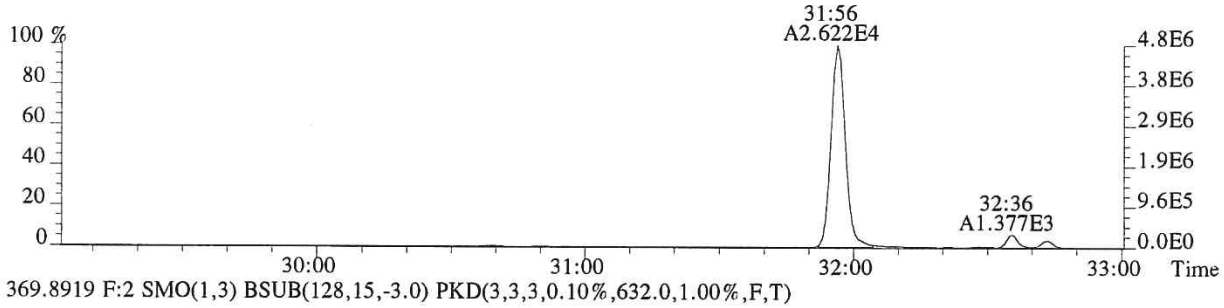
File:P518871 #1-357 Acq:17-NOV-2018 05:58:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3156.0,1.00%,F,T)



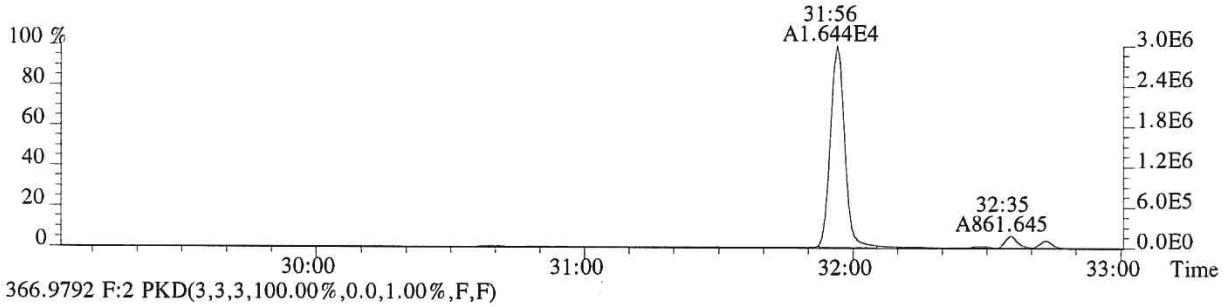
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2184.0,1.00%,F,T)



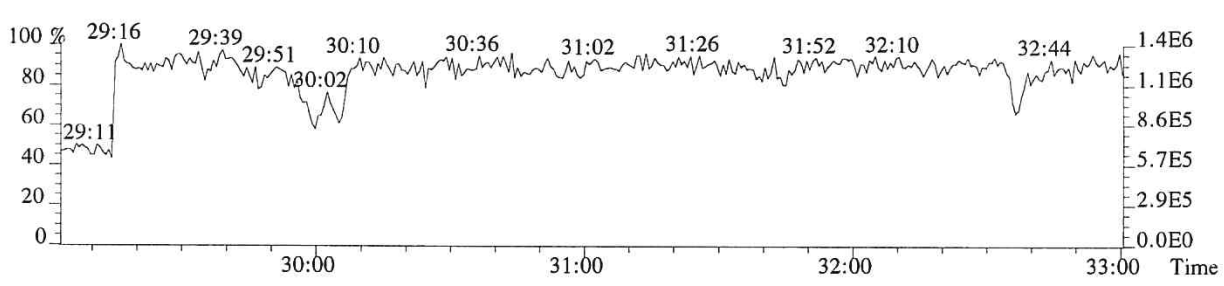
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)

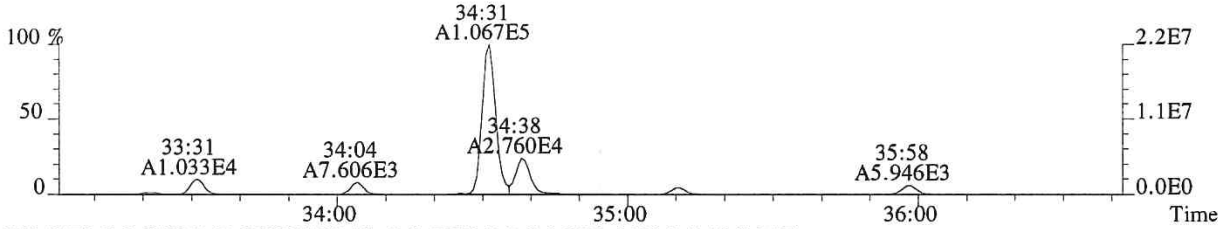


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

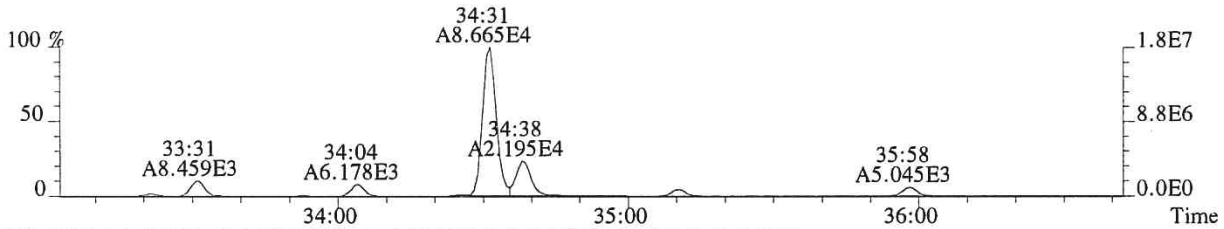


File:P518871 #1-330 Acq:17-NOV-2018 05:58:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045

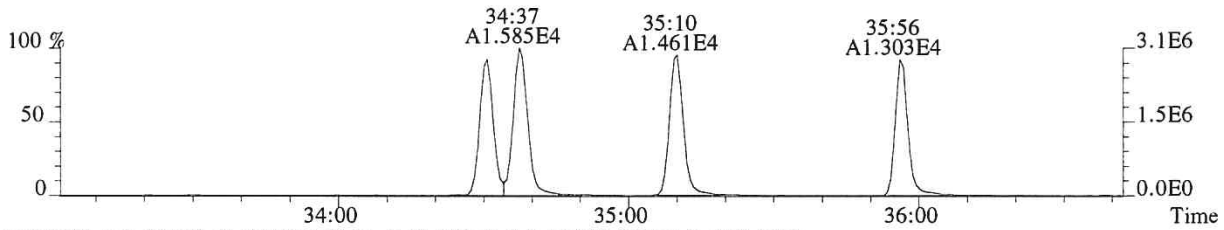
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



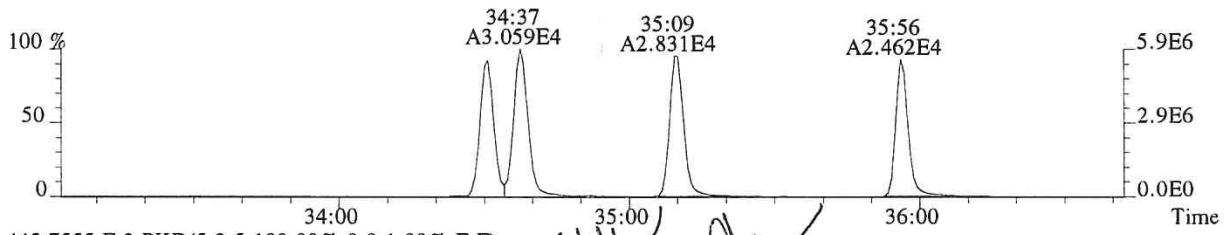
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)



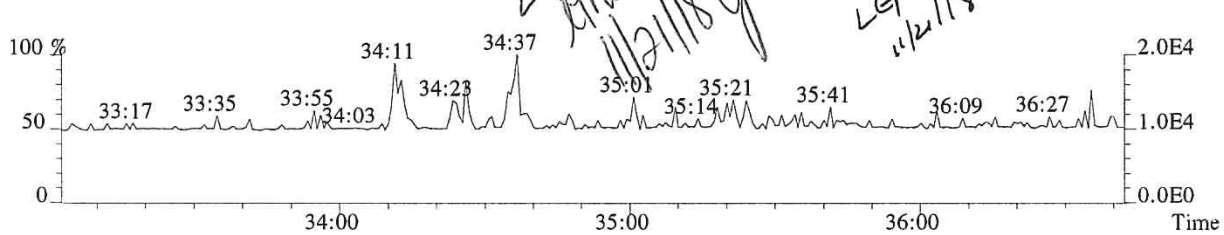
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2512.0,0.40%,F,T)



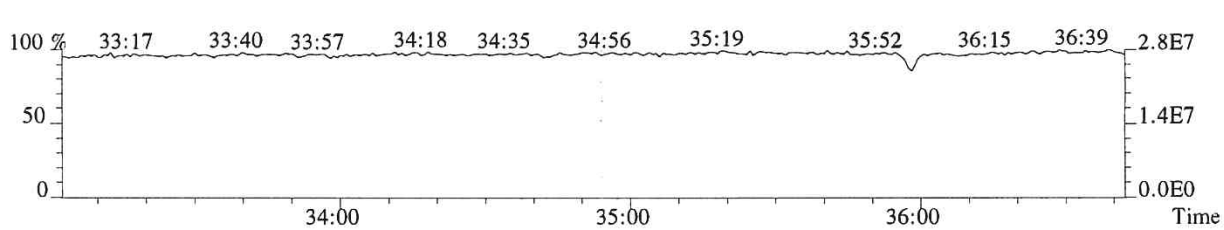
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

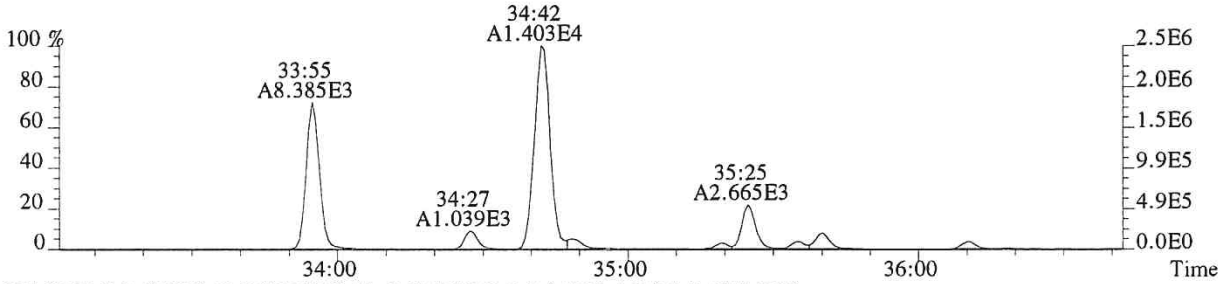


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

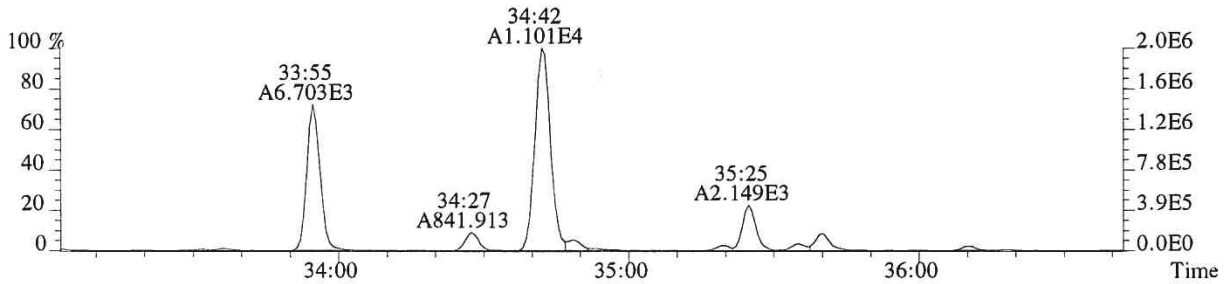


009733

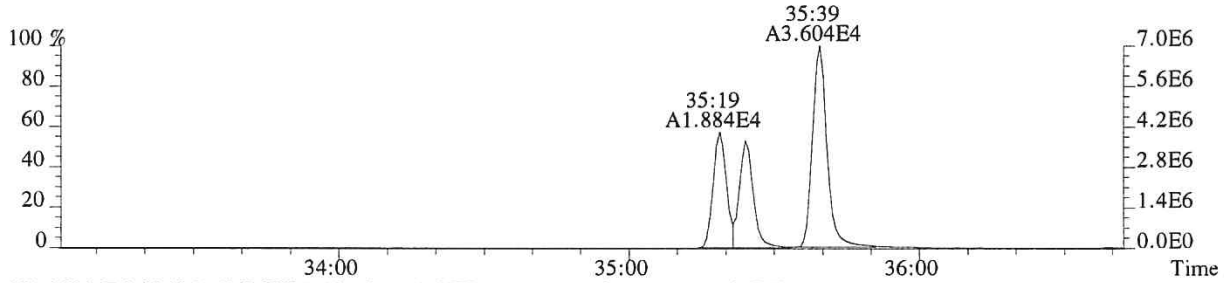
File:P518871 #1-330 Acq:17-NOV-2018 05:58:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3132.0,0.40%,F,T)



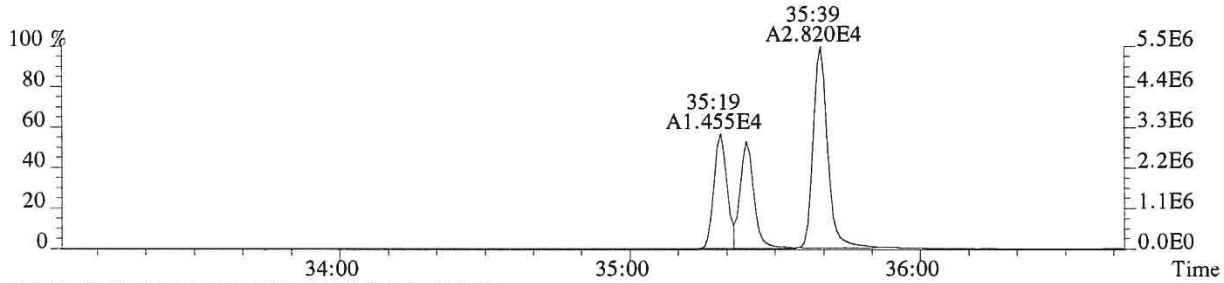
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3628.0,0.40%,F,T)



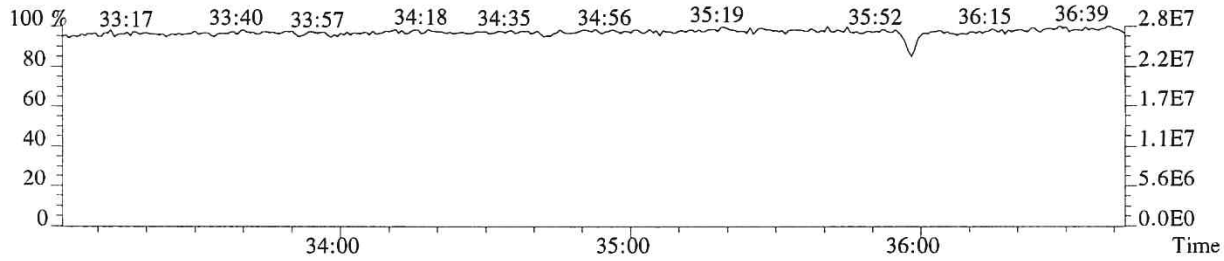
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



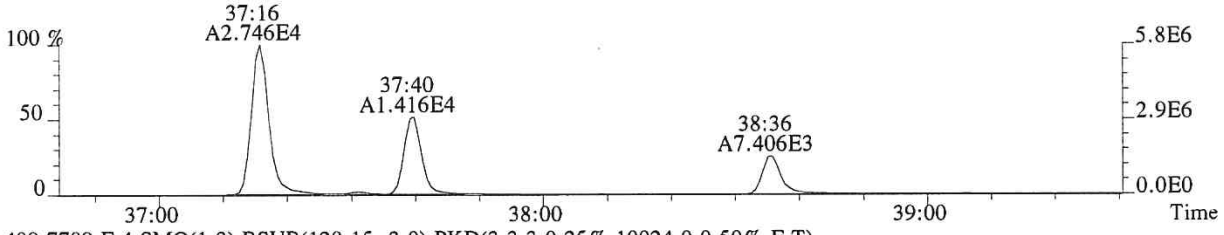
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



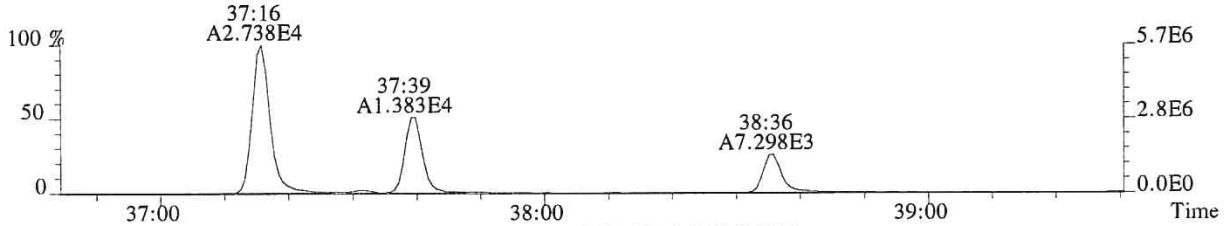
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



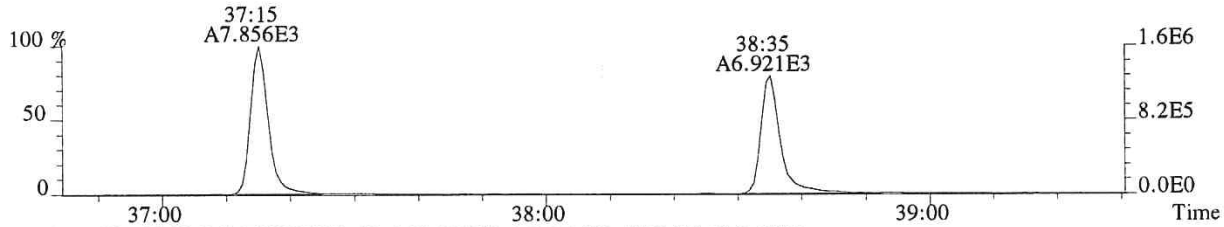
File:P518871 #1-250 Acq:17-NOV-2018 05:58:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1972.0,0.50%,F,T)



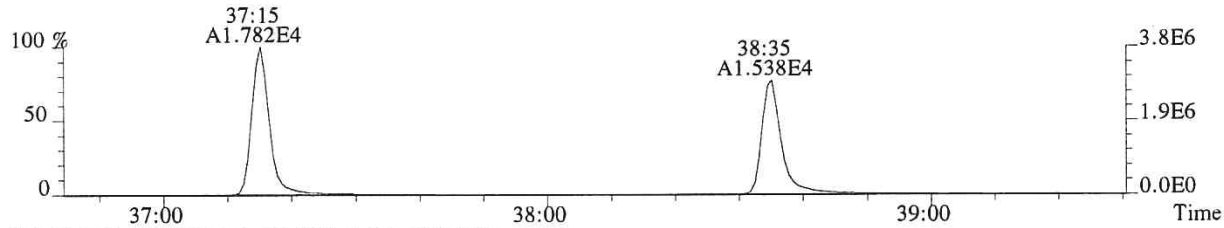
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10024.0,0.50%,F,T)



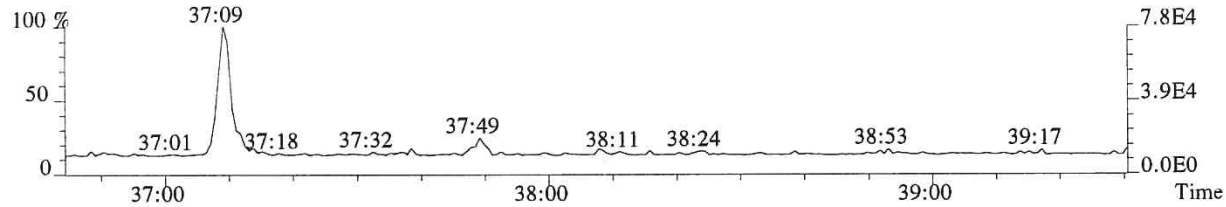
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.50%,F,T)



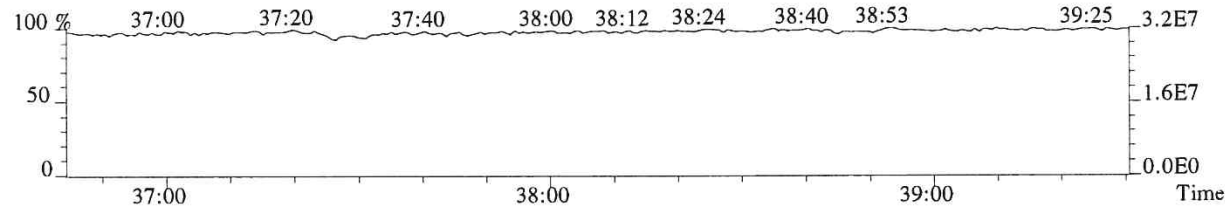
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4076.0,0.50%,F,T)



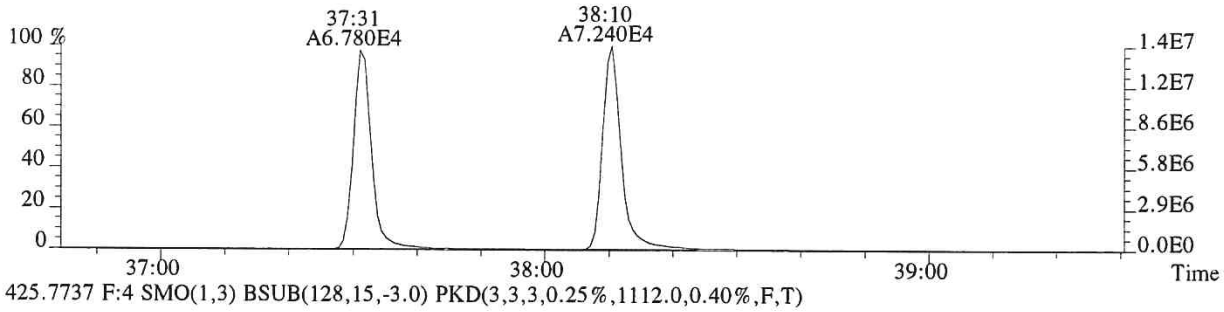
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



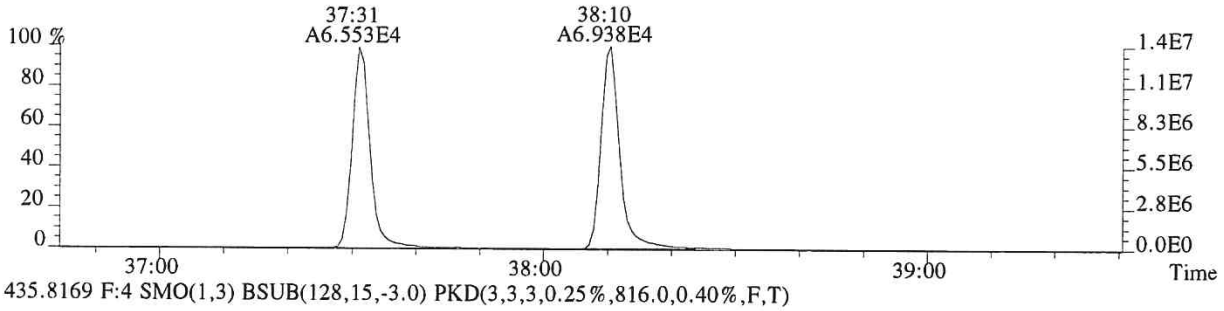
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



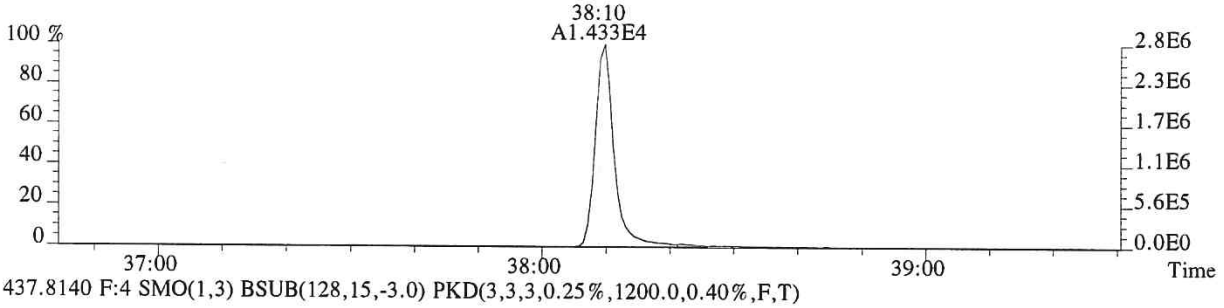
File:P518871 #1-250 Acq:17-NOV-2018 05:58:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12036.0,0.40%,F,T)



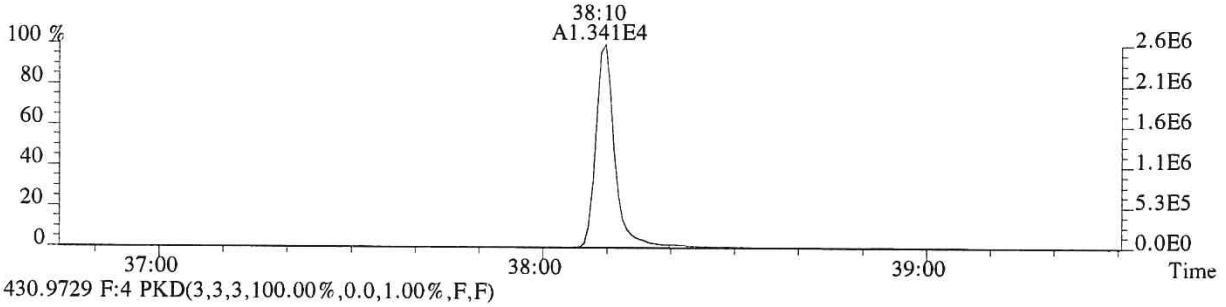
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1112.0,0.40%,F,T)



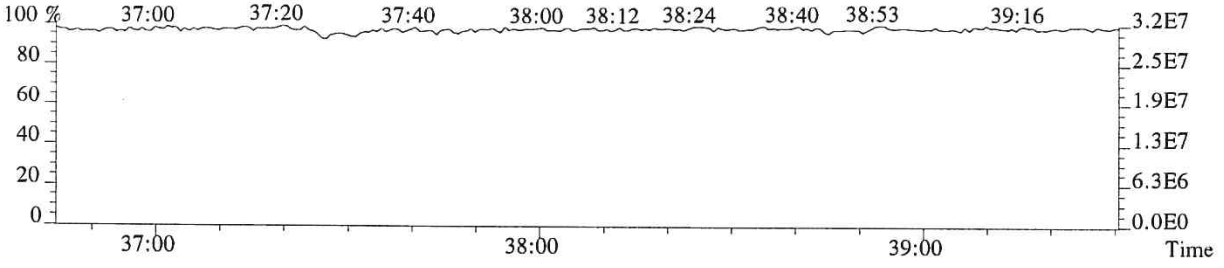
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



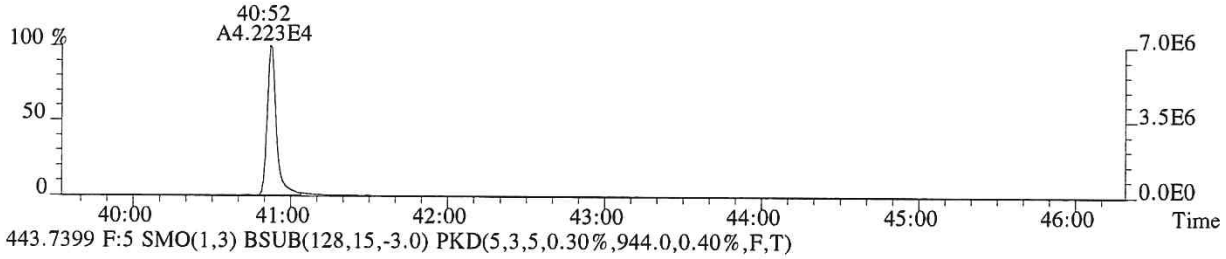
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



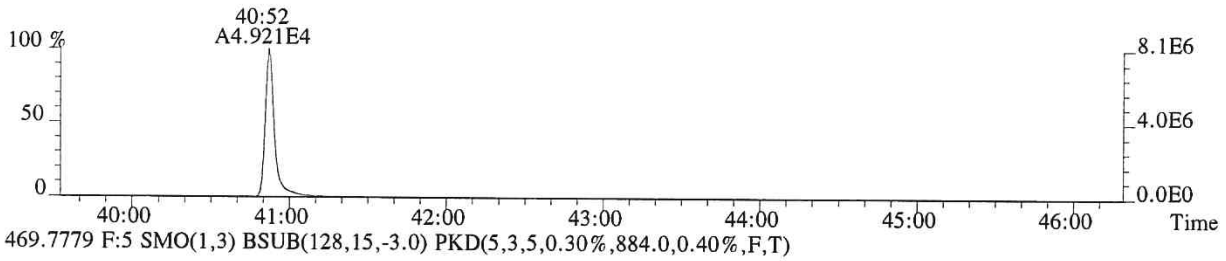
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



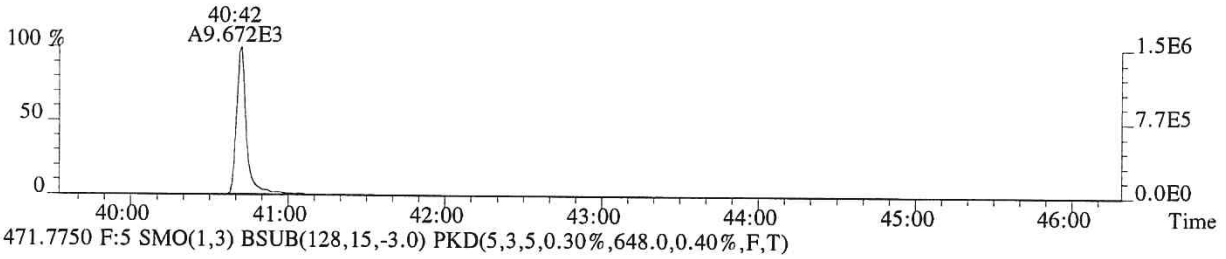
File:P518871 #1-610 Acq:17-NOV-2018 05:58:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,860.0,0.40%,F,T)



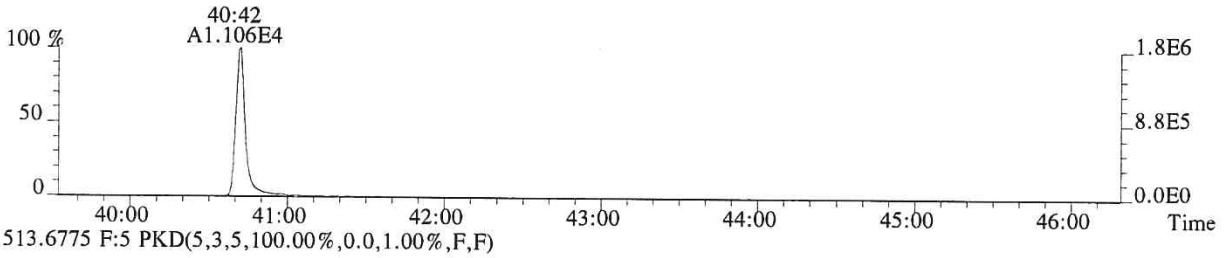
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,944.0,0.40%,F,T)



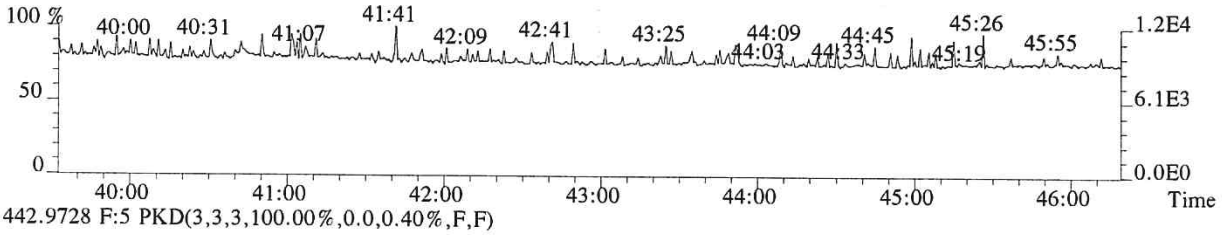
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,884.0,0.40%,F,T)



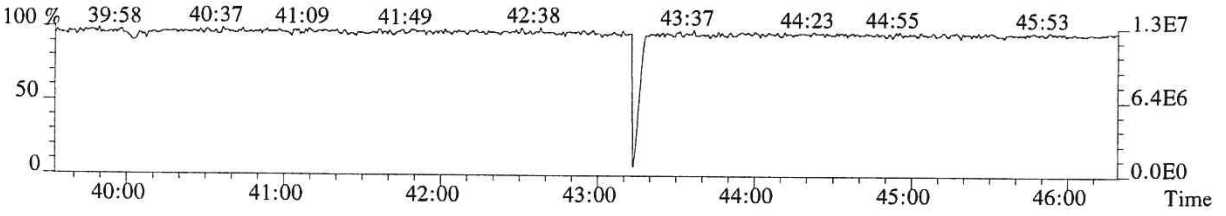
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



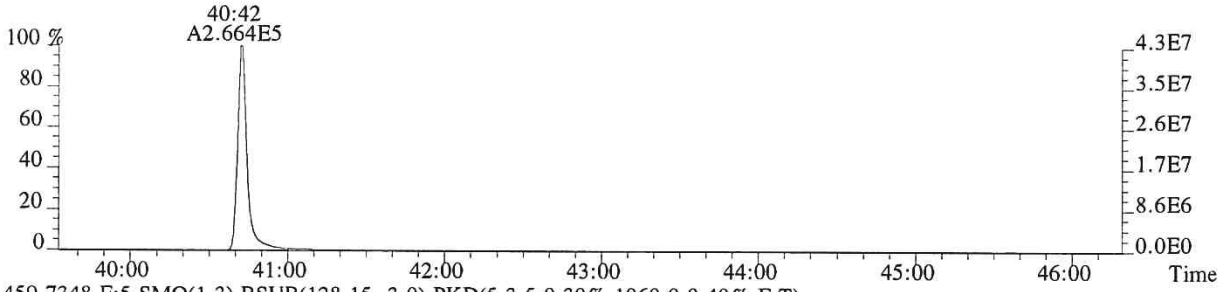
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



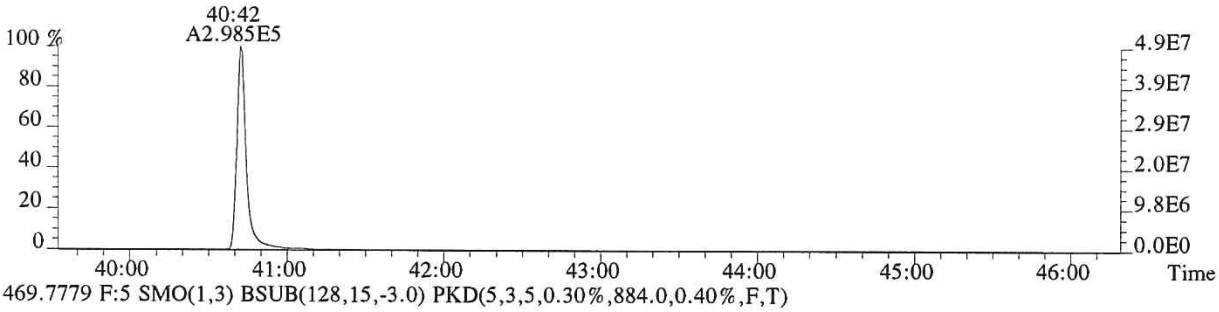
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



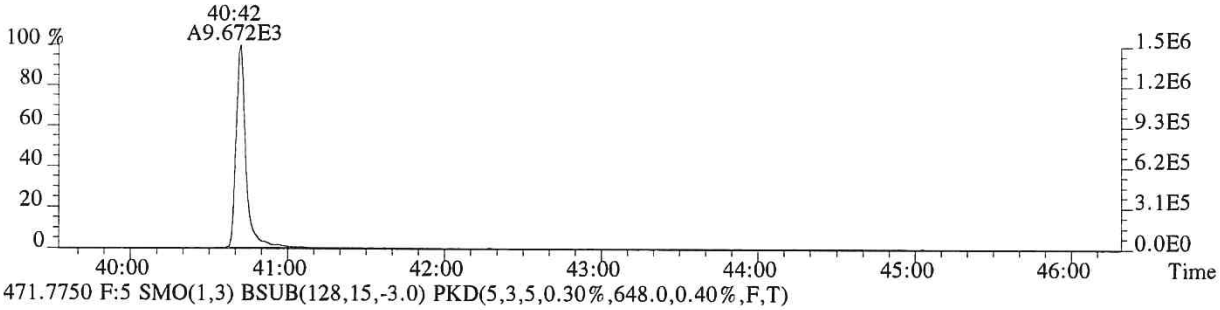
File:P518871 #1-610 Acq:17-NOV-2018 05:58:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,684.0,0.40%,F,T)



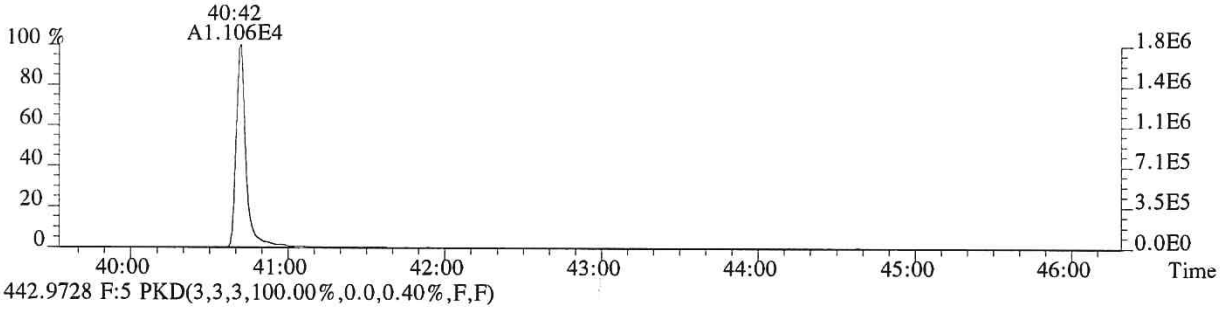
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1060.0,0.40%,F,T)



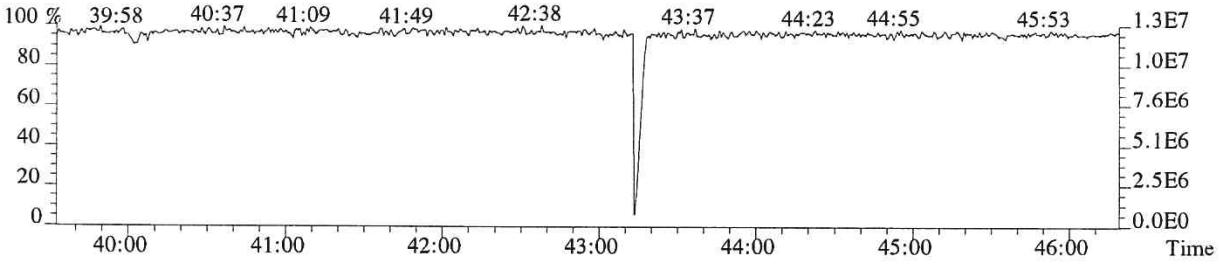
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,884.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009738

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0033

Run #19 Filename P518977 Samp: 1 Inj: 1 Acquired: 21-NOV-18 20:50:38
Processed: 26-NOV-18 13:57:43 Sample ID: E1801020-045DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:38	8.064e+03	1.097e+04	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:44	4.110e+02	2.740e+02	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:37	3.392e+02	1.880e+02	1.80	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.774e+02	5.475e+02	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:21	1.964e+02	1.476e+02	1.33	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.013e+01	3.579e+01	0.56	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:39	2.796e+01	4.080e+01	0.69	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	2.374e+02	2.119e+02	1.12	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:17	6.892e+01	6.830e+01	1.01	yes	no	1.258
10	Unk	OCDF	42:51	5.227e+02	6.847e+02	0.76	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:23	2.188e+03	2.709e+03	0.81	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:53	3.188e+01	1.037e+01	3.08	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.904e+01	2.642e+01	0.72	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	6.443e+02	6.021e+02	1.07	yes	no	1.025
17	Unk	OCDD	42:39	3.517e+03	3.956e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:36	2.077e+04	2.651e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	3.258e+04	2.012e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:36	3.125e+04	1.946e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.283e+04	2.466e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.624e+04	3.183e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.670e+04	3.309e+04	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	1.313e+04	2.540e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	1.364e+04	3.107e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	1.349e+04	3.045e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	1.373e+04	1.717e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	2.391e+04	1.505e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.737e+04	1.354e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.975e+04	1.519e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	1.859e+04	1.769e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:39	2.722e+04	3.044e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:50	1.663e+04	2.037e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	2.178e+04	1.787e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	1.595e+02				no	1.014

$$\text{OCDD} = \frac{(3.517e+03 + 3.956e+03) \times 4000\ \text{pg} \times 100}{(2.722e+04 + 3.044e+04) \times 10.447\ \text{g} \times 67.1 / 100 \times 1.118} = 23624.7045\ \text{ng/kg}$$

LG 11/27/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0033

Run #19 Filename P518977 Samp: 1 Inj: 1 Acquired: 21-NOV-18 20:50:38
Processed: 26-NOV-18 13:57:43 LAB. ID: E1801020-045DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.34e+06	5.12e+02	2.6e+03	1.83e+06	1.07e+03	1.7e+03
2	1,2,3,7,8-PeCDF	6.78e+04	2.68e+02	2.5e+02	4.35e+04	8.04e+02	5.4e+01
3	2,3,4,7,8-PeCDF	4.61e+04	2.68e+02	1.7e+02	2.52e+04	8.04e+02	3.1e+01
4	1,2,3,4,7,8-HxCDF	1.34e+05	6.72e+02	2.0e+02	1.11e+05	7.28e+02	1.5e+02
5	1,2,3,6,7,8-HxCDF	3.47e+04	6.72e+02	5.2e+01	3.05e+04	7.28e+02	4.2e+01
6	2,3,4,6,7,8-HxCDF	3.07e+03	6.72e+02	4.6e+00	6.28e+03	7.28e+02	8.6e+00
7	1,2,3,7,8,9-HxCDF	7.44e+03	6.72e+02	1.1e+01	9.59e+03	7.28e+02	1.3e+01
8	1,2,3,4,6,7,8-HpCDF	4.66e+04	3.32e+02	1.4e+02	4.36e+04	3.68e+02	1.2e+02
9	1,2,3,4,7,8,9-HpCDF	1.37e+04	3.32e+02	4.1e+01	1.13e+04	3.68e+02	3.1e+01
10	OCDF	7.52e+04	1.72e+02	4.4e+02	9.63e+04	3.16e+02	3.0e+02
11	2,3,7,8-TCDD	4.04e+05	1.76e+03	2.3e+02	5.15e+05	6.48e+02	7.9e+02
12	1,2,3,7,8-PeCDD	8.38e+03	4.88e+02	1.7e+01	2.58e+03	2.28e+02	1.1e+01
13	1,2,3,4,7,8-HxCDD	*	3.52e+02	*	*	4.32e+02	*
14	1,2,3,6,7,8-HxCDD	4.39e+03	3.52e+02	1.2e+01	5.88e+03	4.32e+02	1.4e+01
15	1,2,3,7,8,9-HxCDD	*	3.52e+02	*	*	4.32e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.07e+05	2.16e+02	4.9e+02	1.00e+05	2.16e+02	4.6e+02
17	OCDD	4.73e+05	1.64e+02	2.9e+03	5.51e+05	2.56e+02	2.2e+03
18	13C-2,3,7,8-TCDF	3.86e+06	4.27e+03	9.0e+02	4.90e+06	2.29e+03	2.1e+03
19	13C-1,2,3,7,8-PeCDF	5.63e+06	1.06e+03	5.3e+03	3.47e+06	7.28e+02	4.8e+03
20	13C-2,3,4,7,8-PeCDF	5.58e+06	1.06e+03	5.3e+03	3.54e+06	7.28e+02	4.9e+03
21	13C-1,2,3,4,7,8-HxCDF	2.52e+06	8.64e+02	2.9e+03	4.81e+06	9.92e+02	4.8e+03
22	13C-1,2,3,6,7,8-HxCDF	2.99e+06	8.64e+02	3.5e+03	5.84e+06	9.92e+02	5.9e+03
23	13C-2,3,4,6,7,8-HxCDF	3.14e+06	8.64e+02	3.6e+03	6.21e+06	9.92e+02	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	2.22e+06	8.64e+02	2.6e+03	4.38e+06	9.92e+02	4.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.54e+06	2.44e+03	1.0e+03	5.68e+06	1.76e+03	3.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.15e+06	2.44e+03	8.8e+02	4.87e+06	1.76e+03	2.8e+03
27	13C-2,3,7,8-TCDD	2.53e+06	3.85e+03	6.6e+02	3.20e+06	1.40e+03	2.3e+03
28	13C-1,2,3,7,8-PeCDD	4.15e+06	6.28e+02	6.6e+03	2.62e+06	7.64e+02	3.4e+03
29	13C-1,2,3,4,7,8-HxCDD	3.52e+06	7.44e+02	4.7e+03	2.71e+06	2.76e+02	9.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.55e+06	7.44e+02	4.8e+03	2.76e+06	2.76e+02	1.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.12e+06	3.88e+02	8.0e+03	2.87e+06	3.56e+02	8.1e+03
32	13C-OCDD	3.69e+06	3.44e+02	1.1e+04	4.17e+06	2.48e+02	1.7e+04
33	13C-1,2,3,4-TCDD	3.19e+06	3.85e+03	8.3e+02	3.97e+06	1.40e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	3.83e+06	7.44e+02	5.1e+03	3.05e+06	2.76e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	3.23e+04	1.16e+03	2.8e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.756e+03 + 6.480e+02) \times 2000}{(2.532e+06 + 3.200e+06) \times (\quad) \times 1.085} =$$

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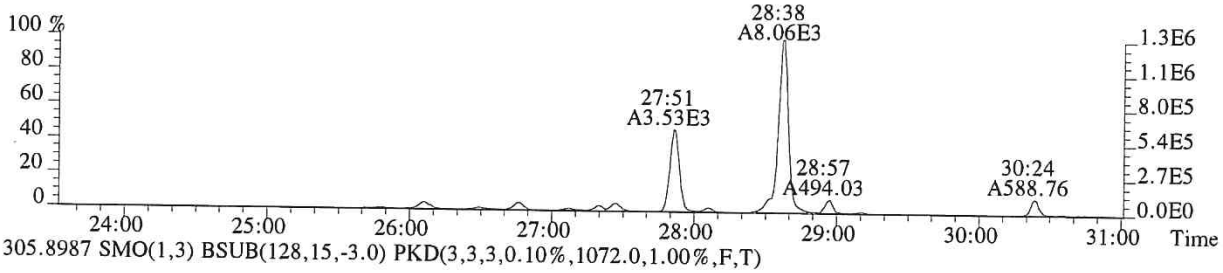
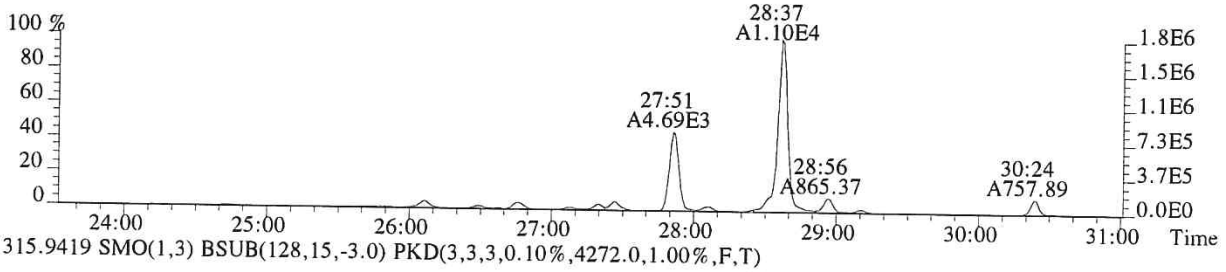
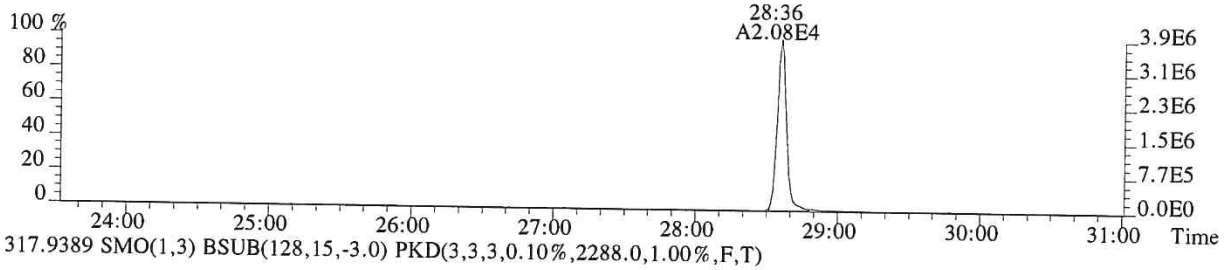
File:P518977 #1-531 Acq:21-NOV-2018 20:50:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



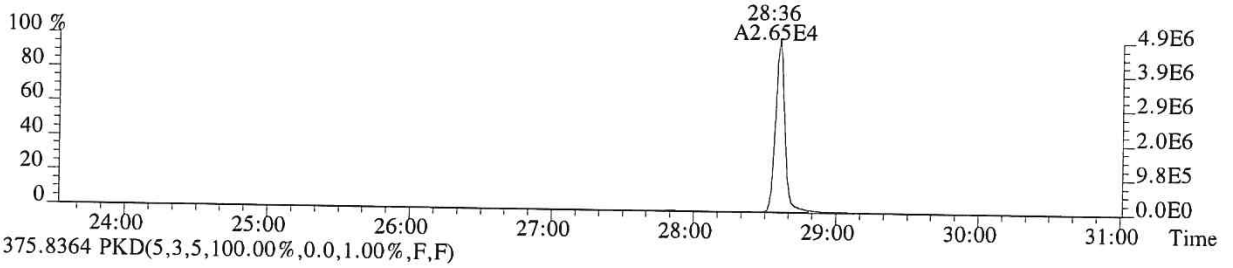
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



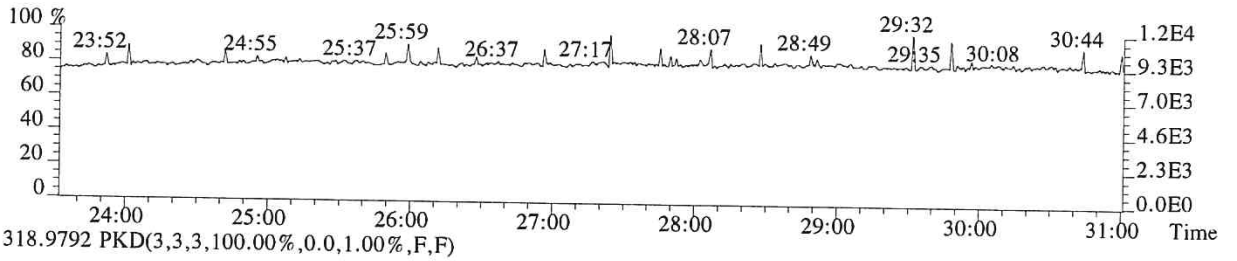
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4272.0,1.00%,F,T)



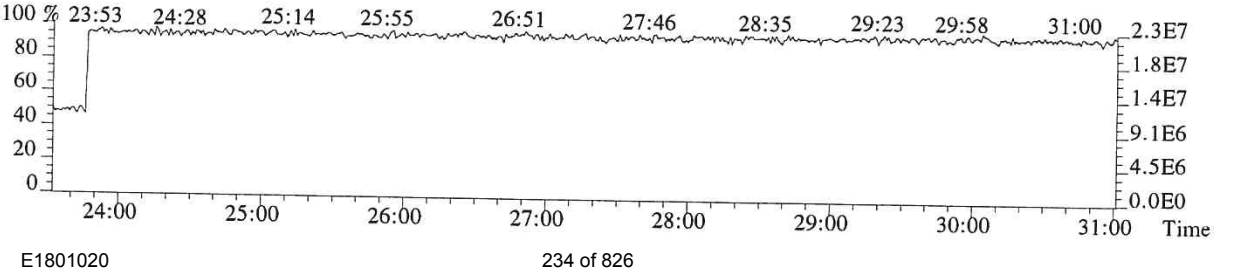
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



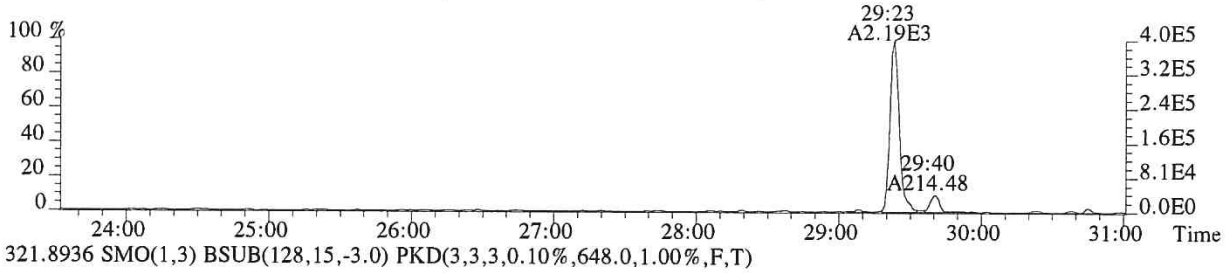
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



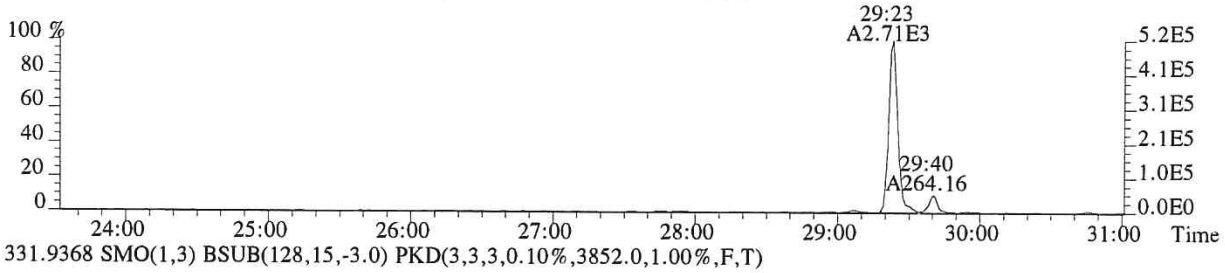
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



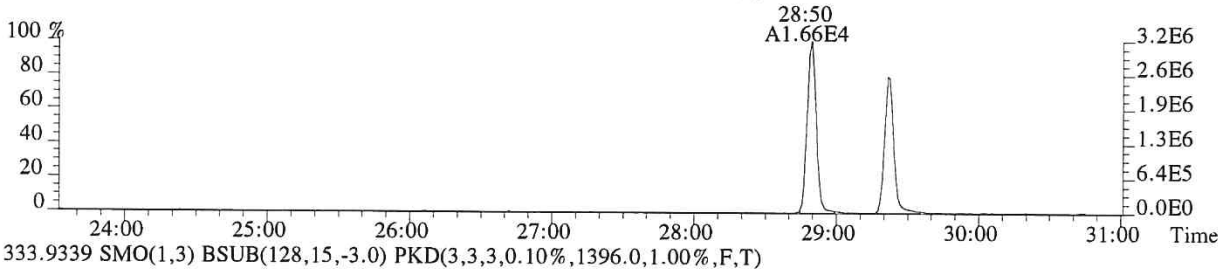
File:P518977 #1-531 Acq:21-NOV-2018 20:50:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



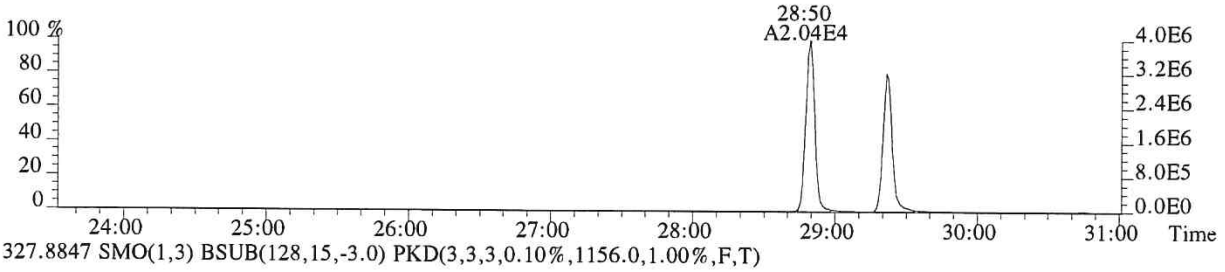
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



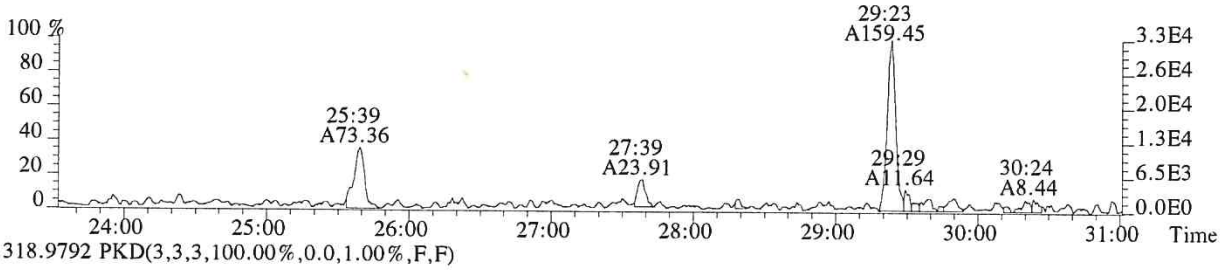
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3852.0,1.00%,F,T)



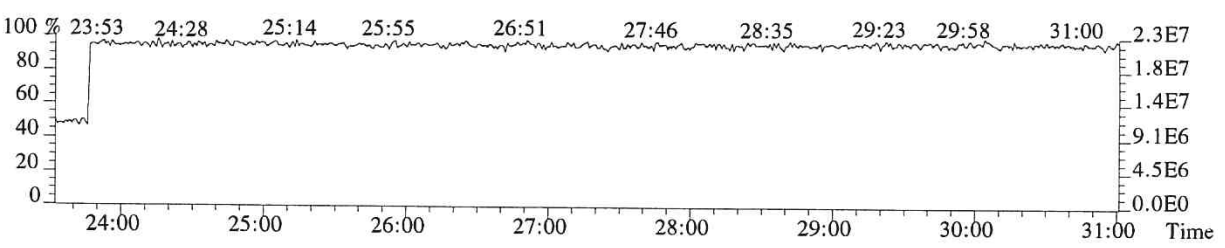
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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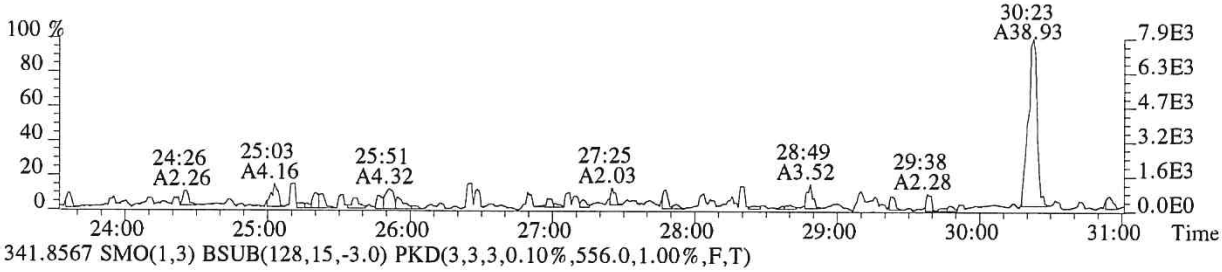
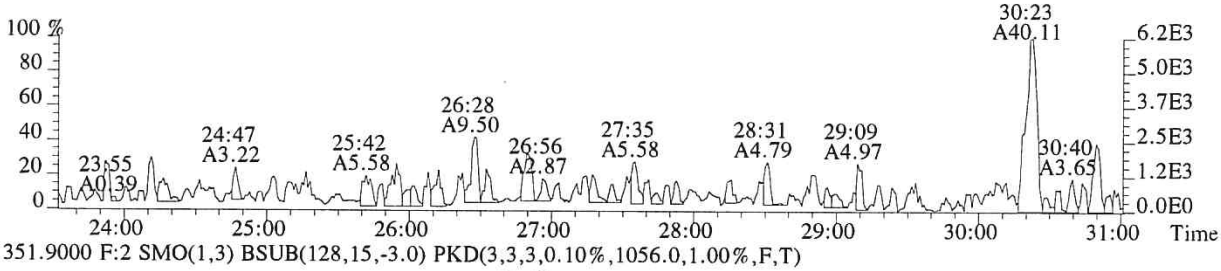
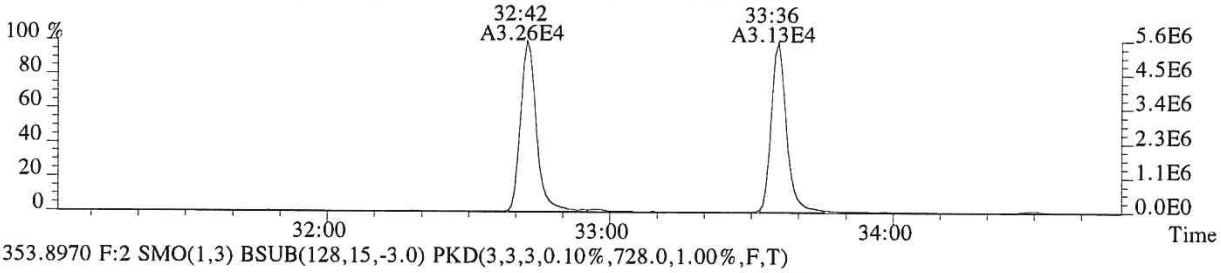
File:P518977 #1-531 Acq:21-NOV-2018 20:50:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



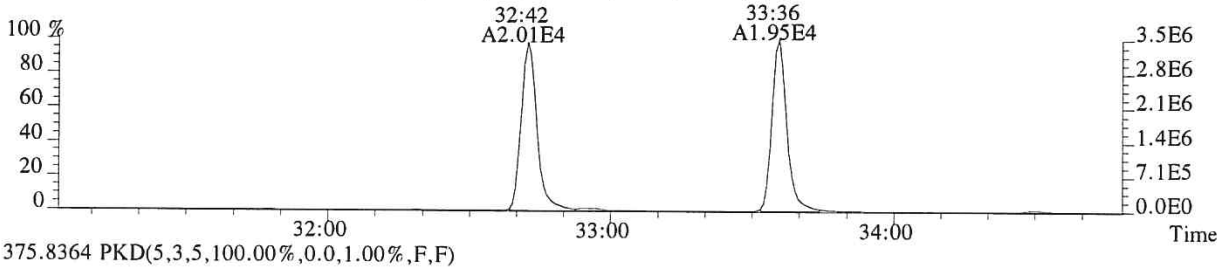
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



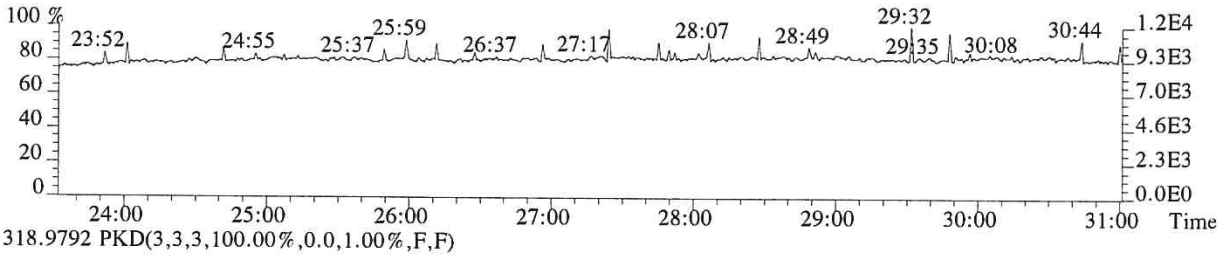
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



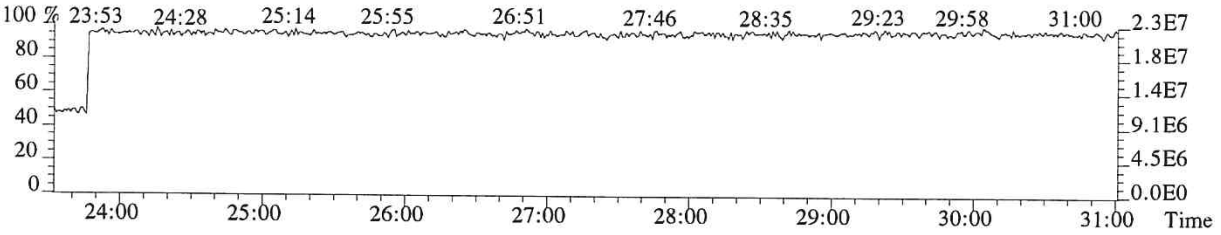
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

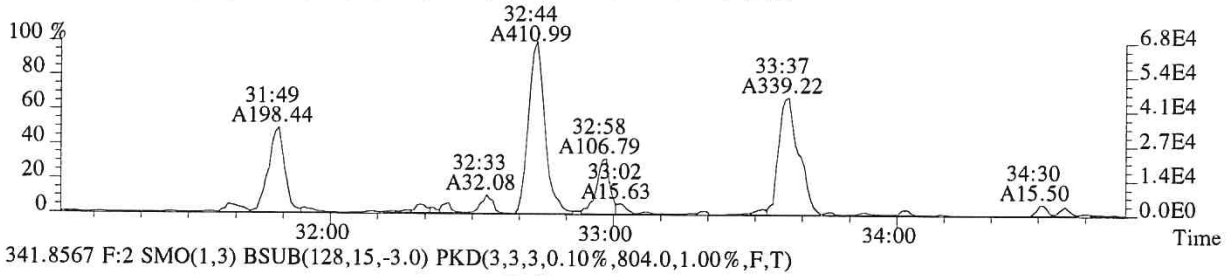


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

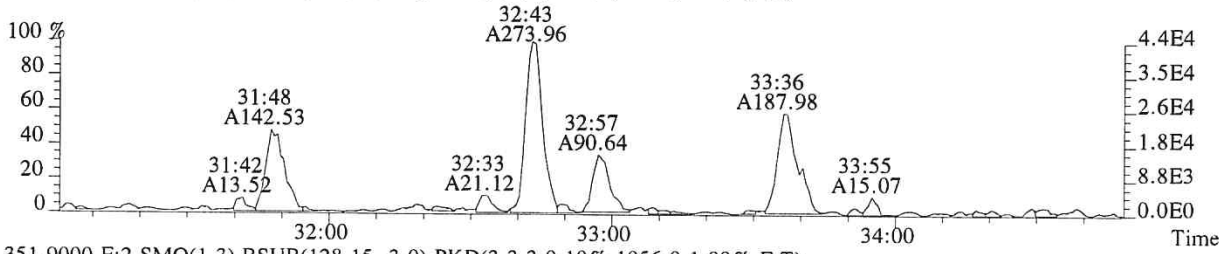


009743

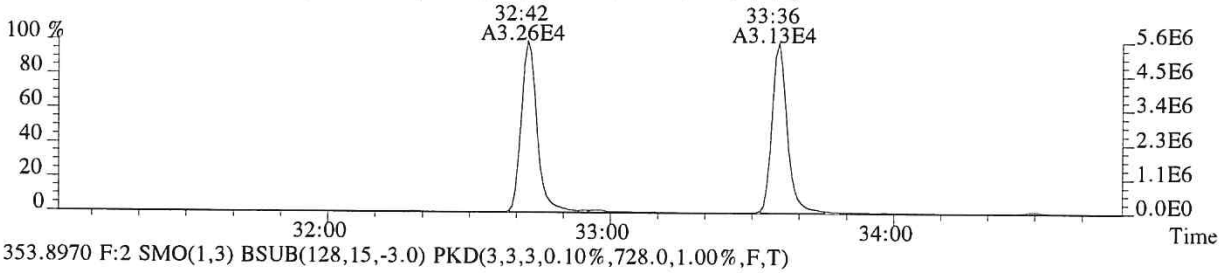
File:P518977 #1-339 Acq:21-NOV-2018 20:50:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



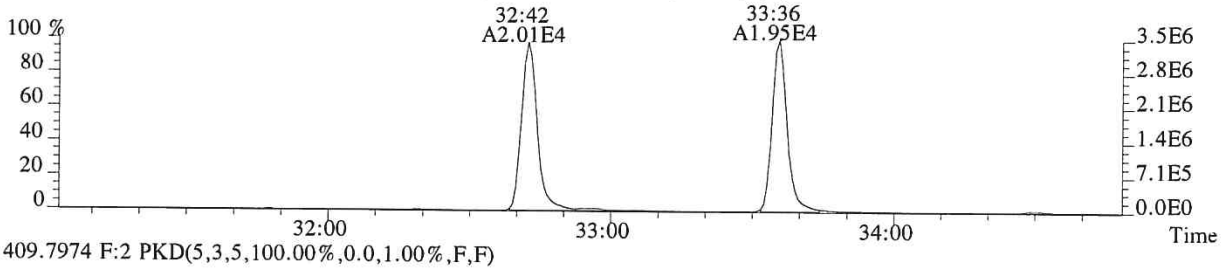
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



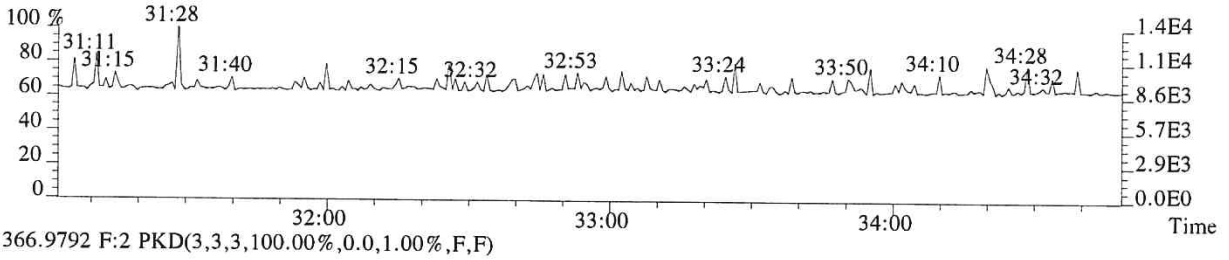
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



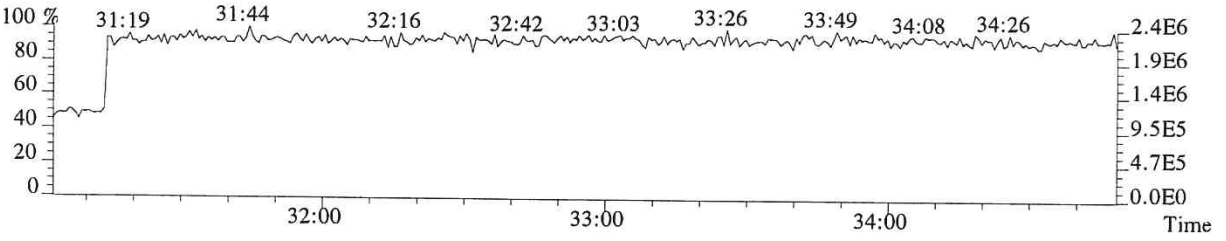
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



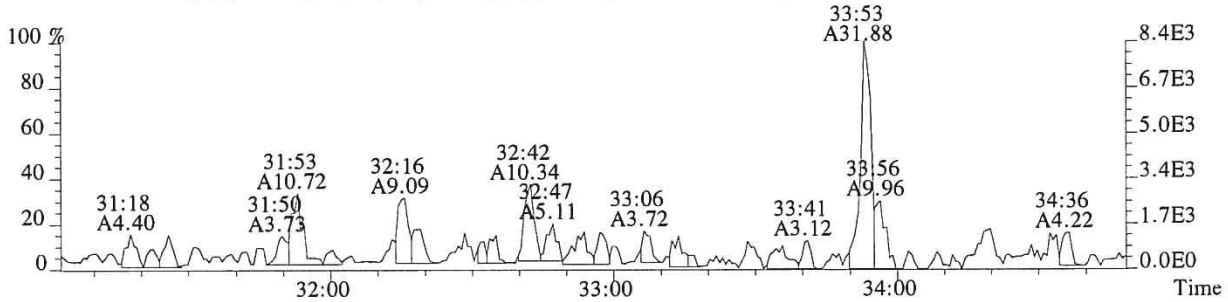
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



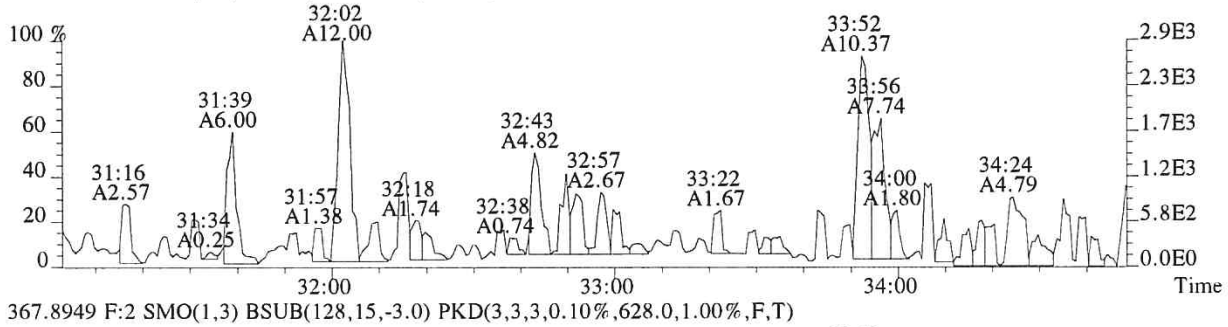
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



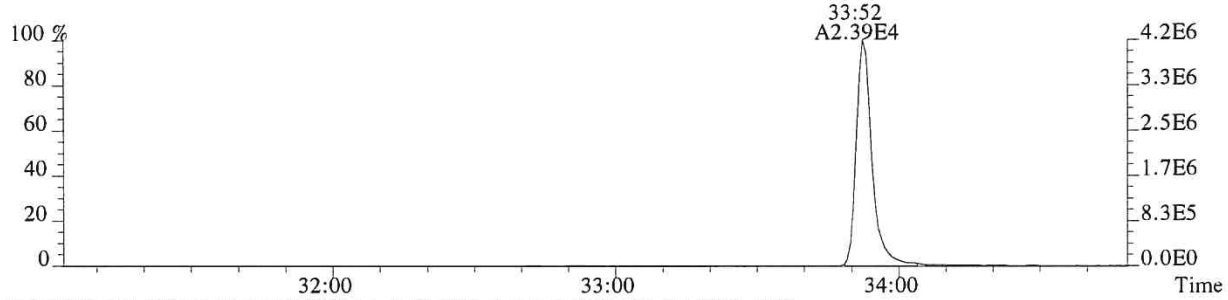
File:P518977 #1-339 Acq:21-NOV-2018 20:50:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



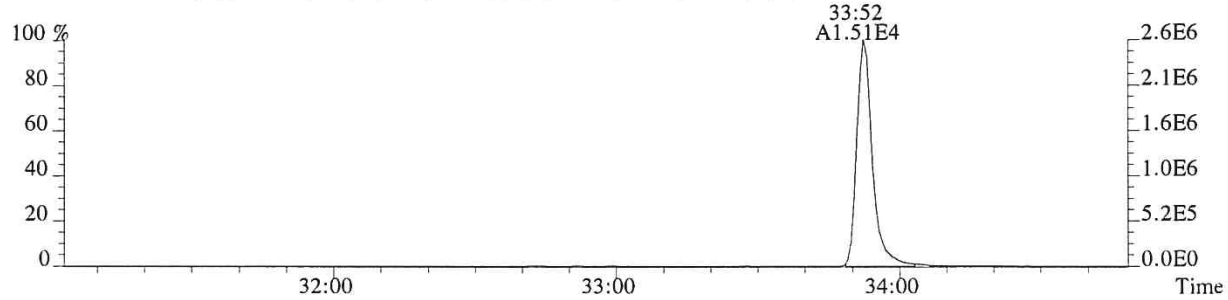
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



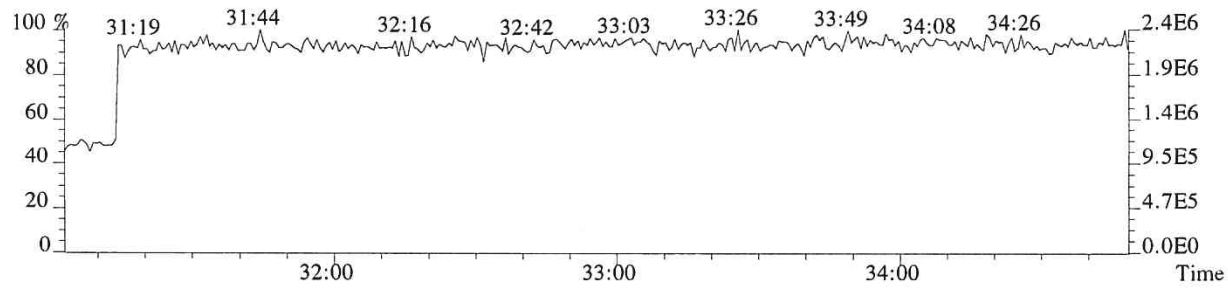
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



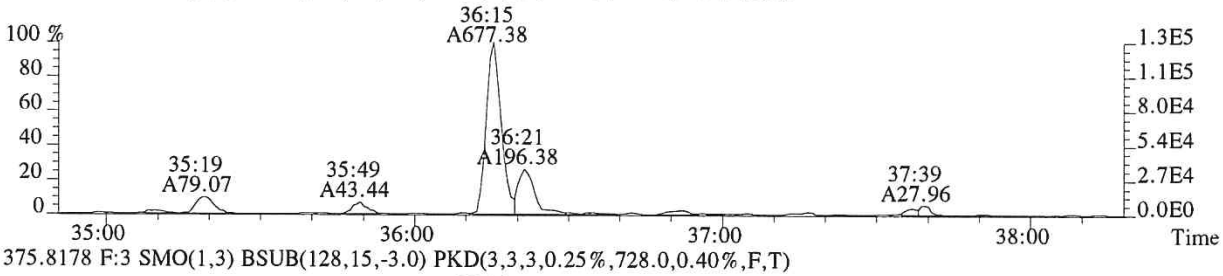
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



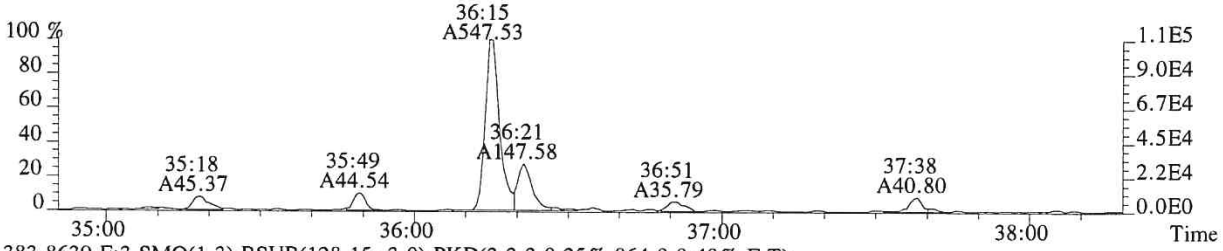
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



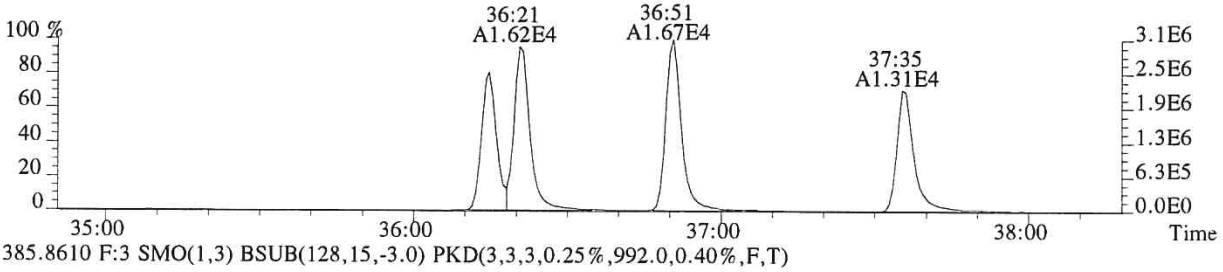
File:P518977 #1-312 Acq:21-NOV-2018 20:50:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



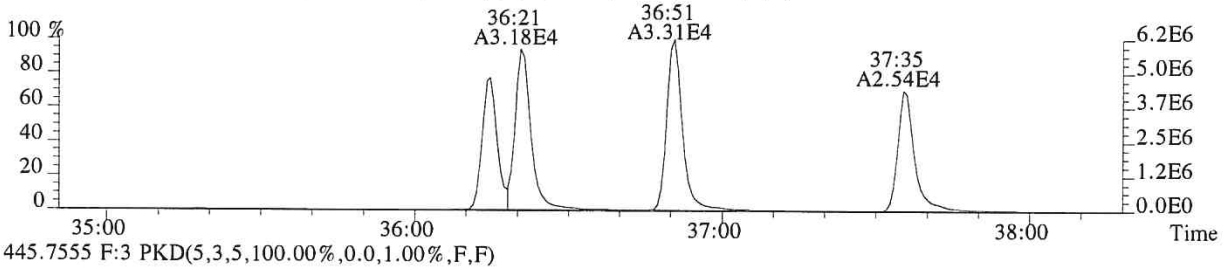
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



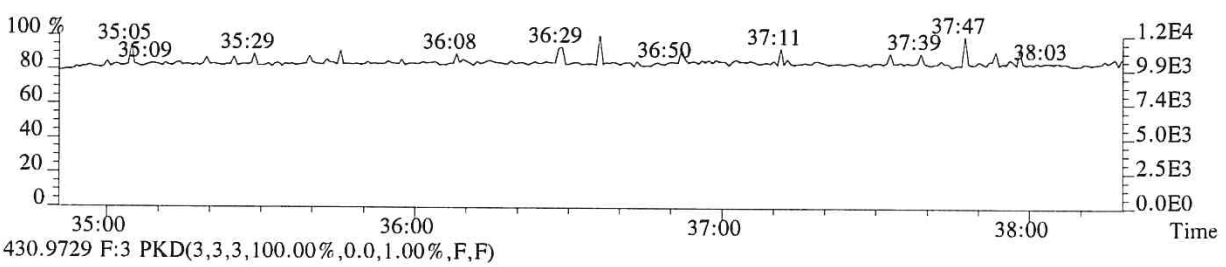
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



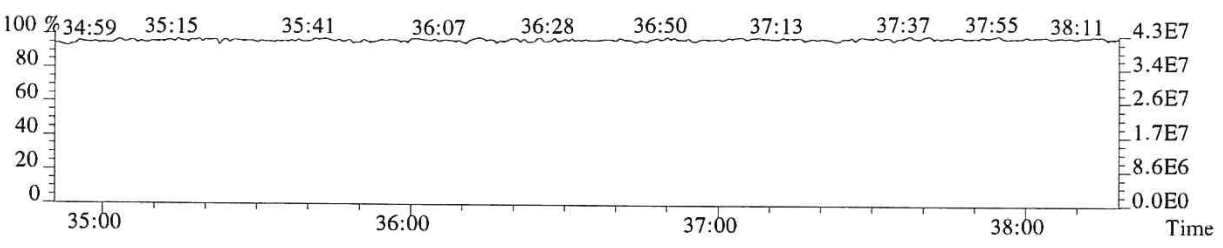
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



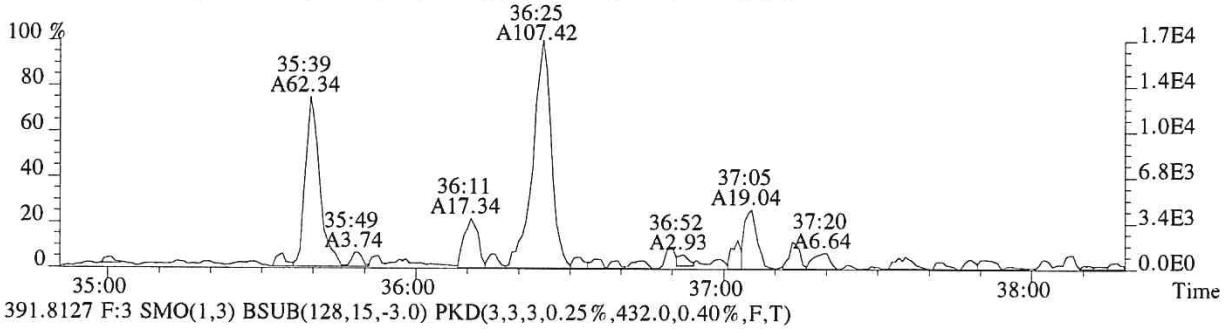
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



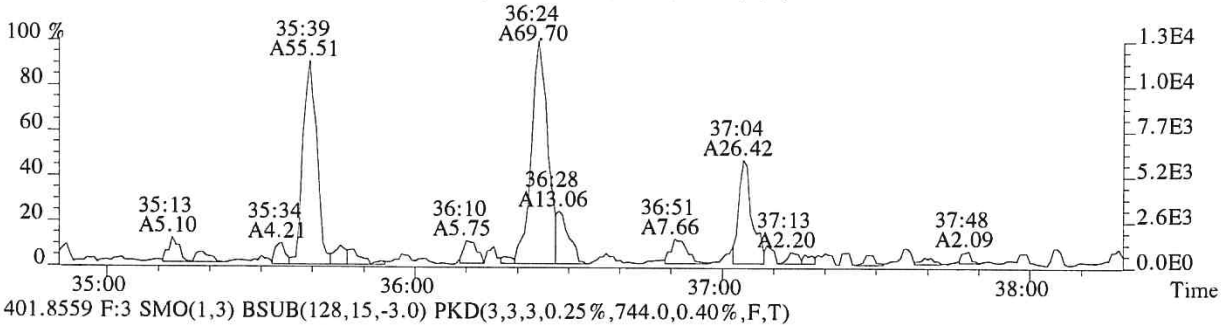
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



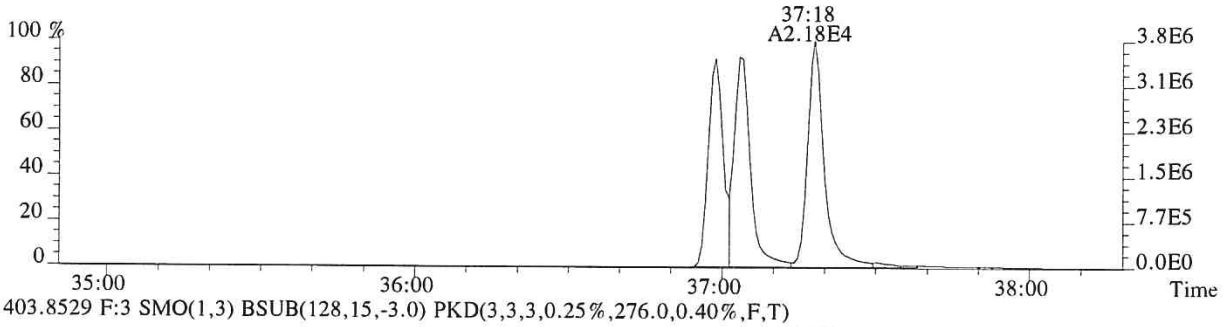
File:P518977 #1-312 Acq:21-NOV-2018 20:50:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



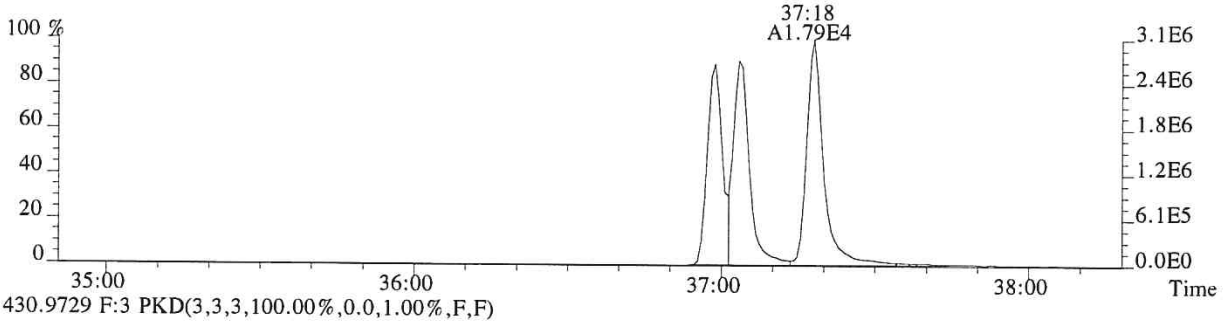
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



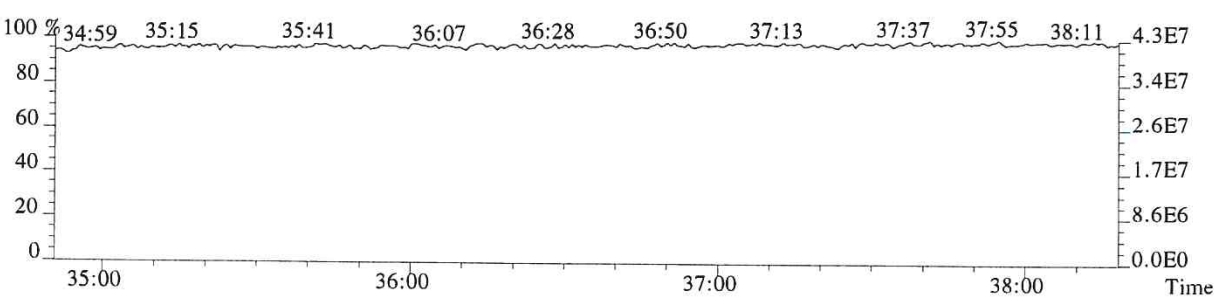
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



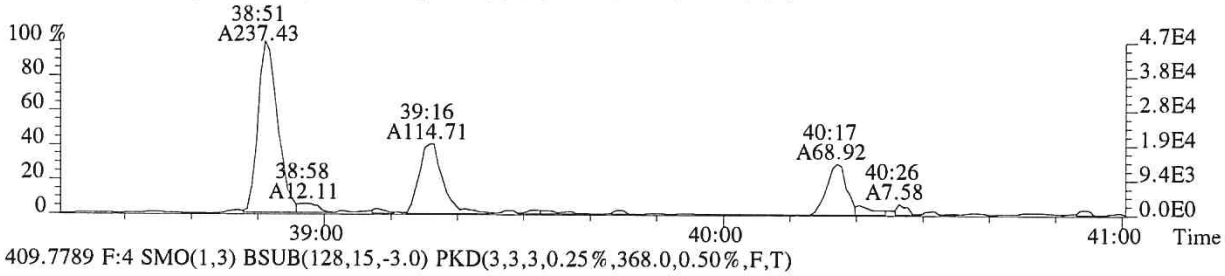
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



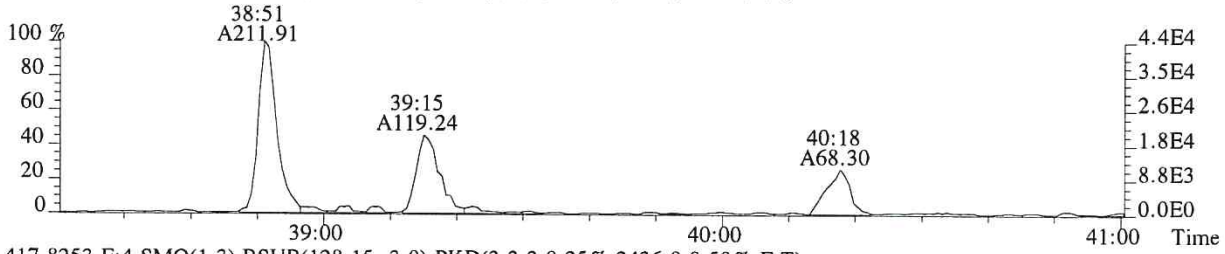
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



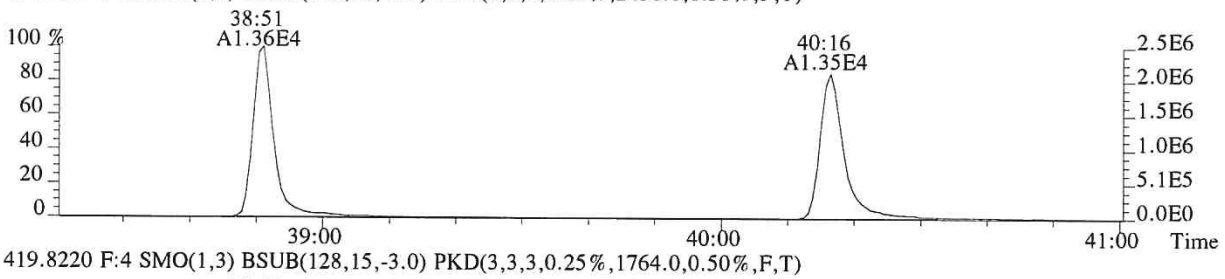
File:P518977 #1-241 Acq:21-NOV-2018 20:50:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)



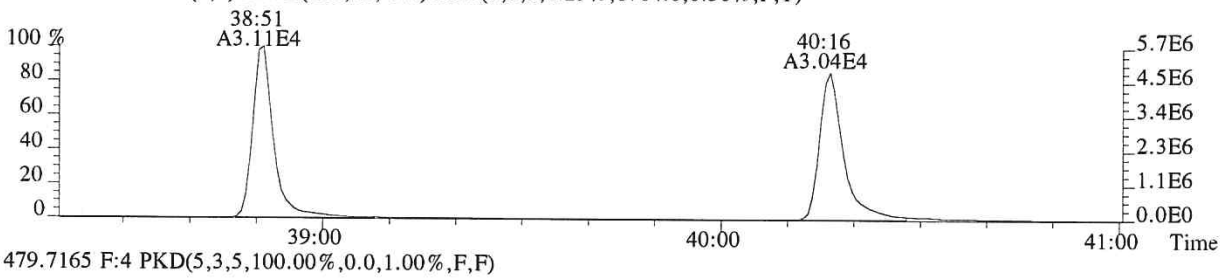
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.50%,F,T)



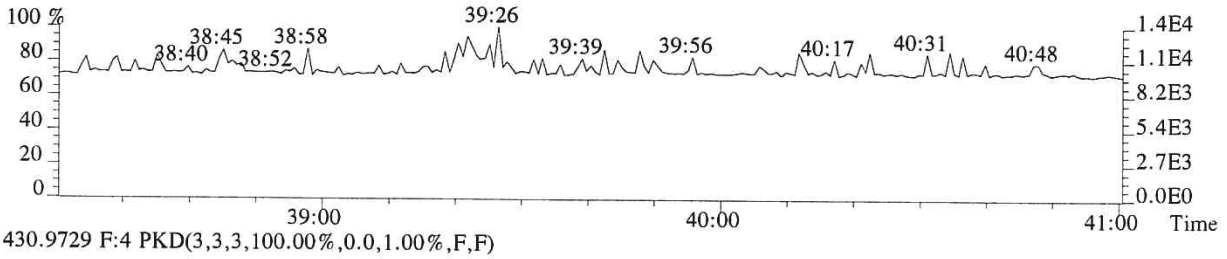
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2436.0,0.50%,F,T)



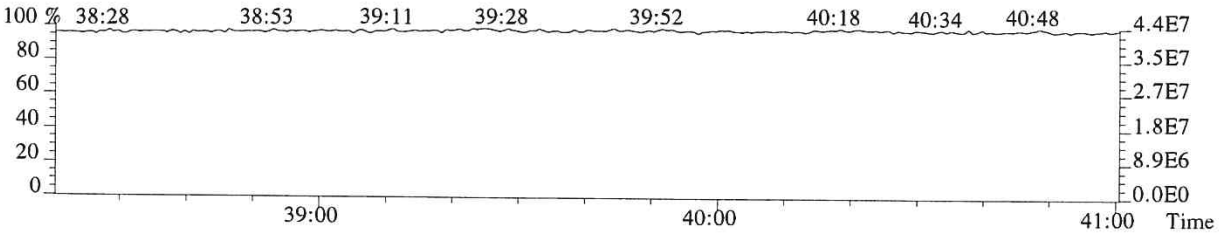
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1764.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

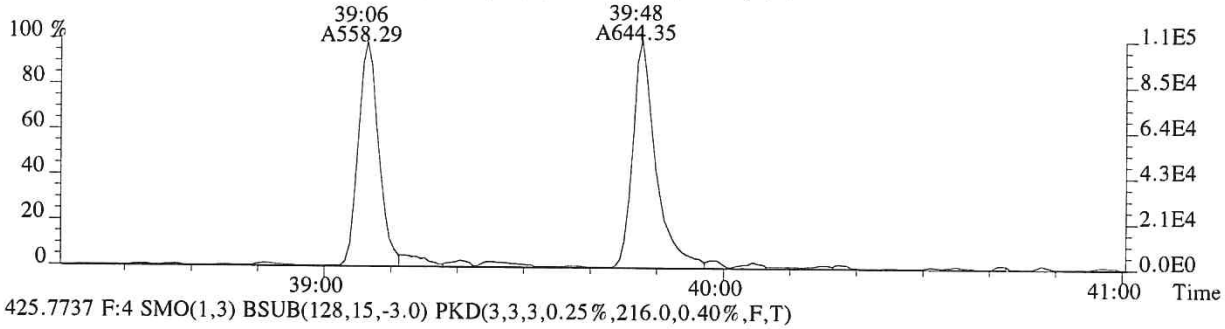


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

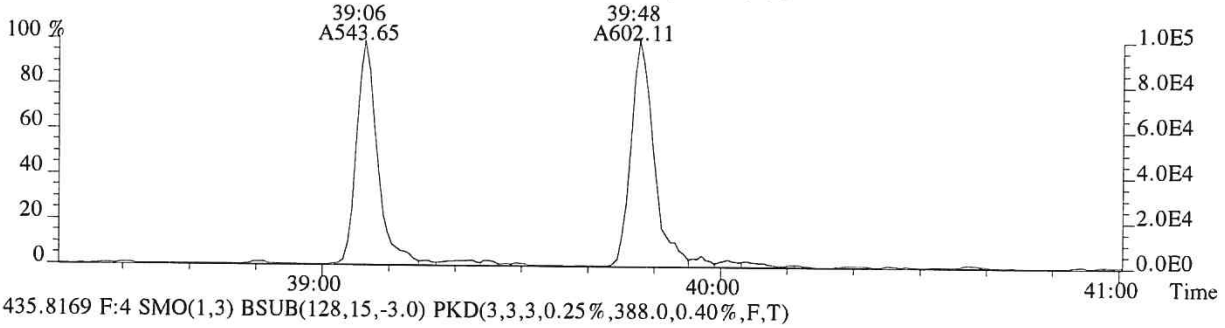


009748

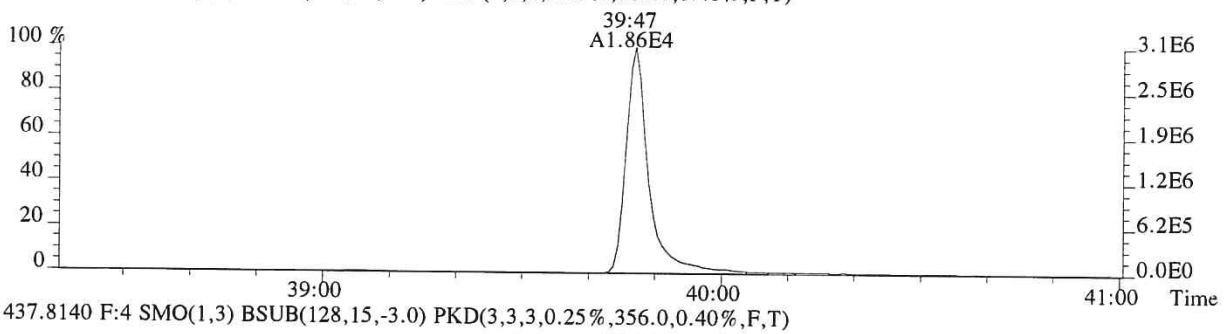
File:P518977 #1-241 Acq:21-NOV-2018 20:50:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



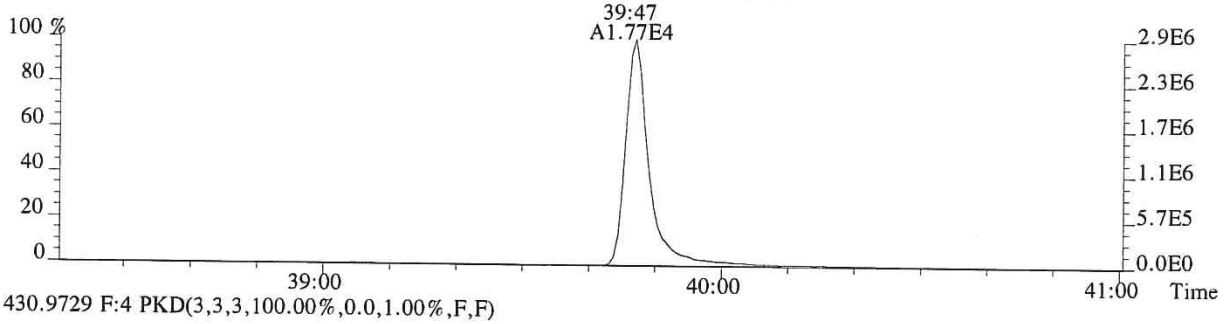
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



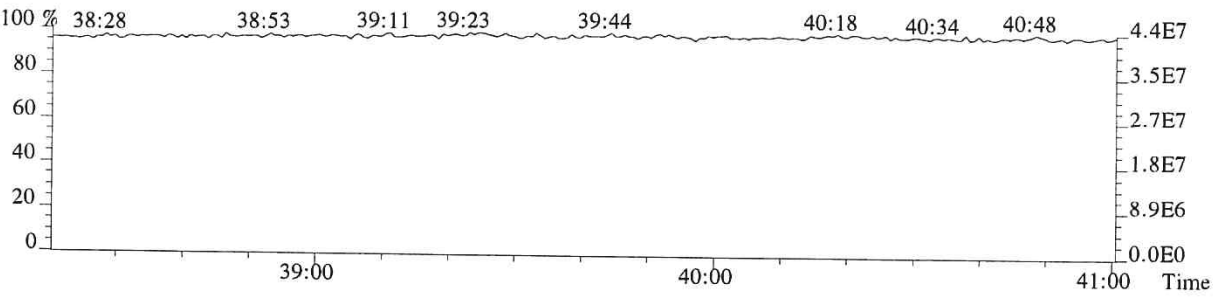
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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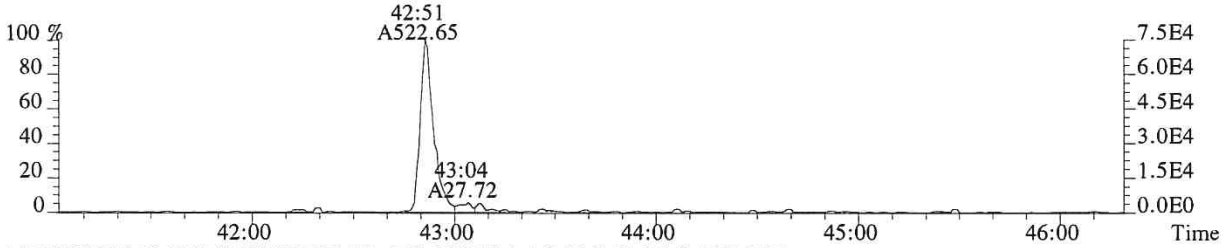
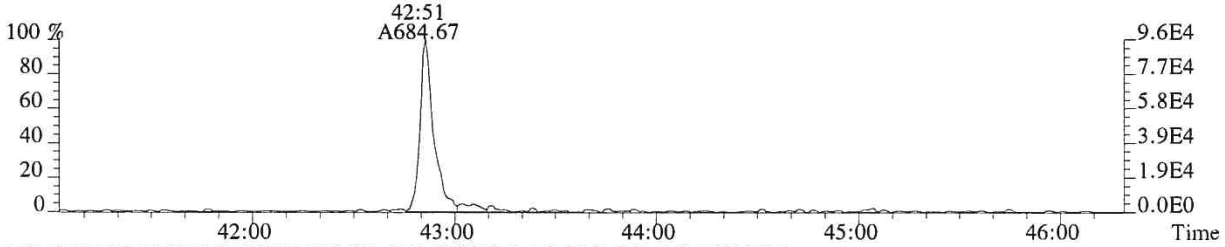
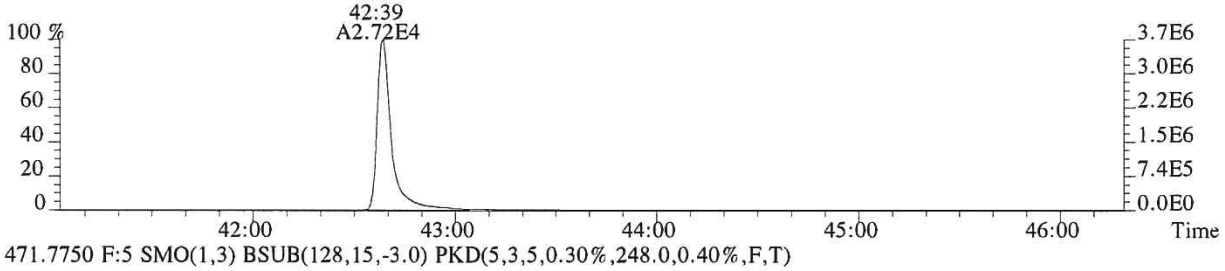
File:P518977 #1-475 Acq:21-NOV-2018 20:50:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



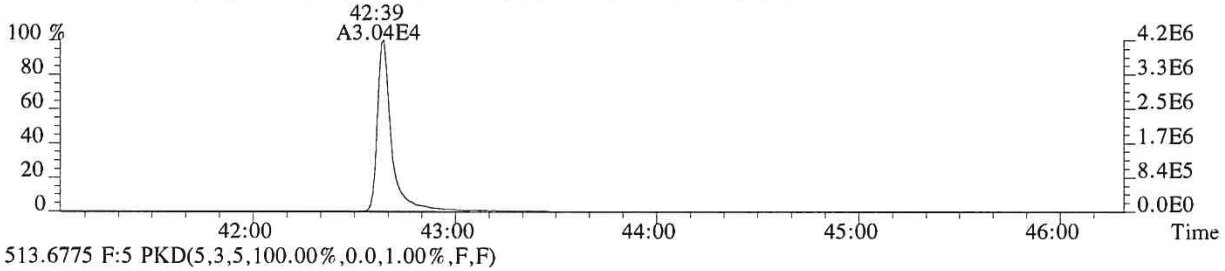
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



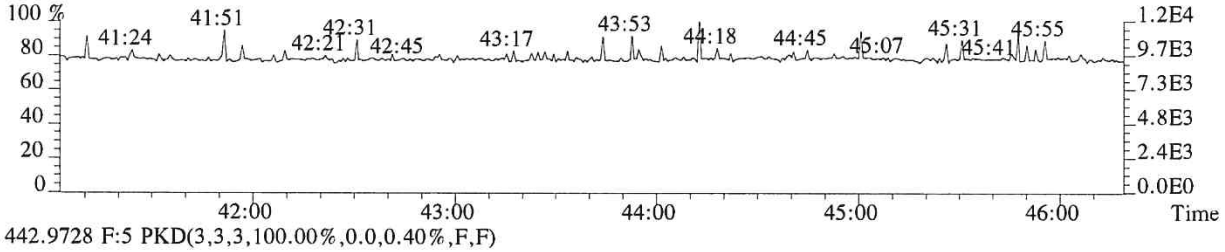
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



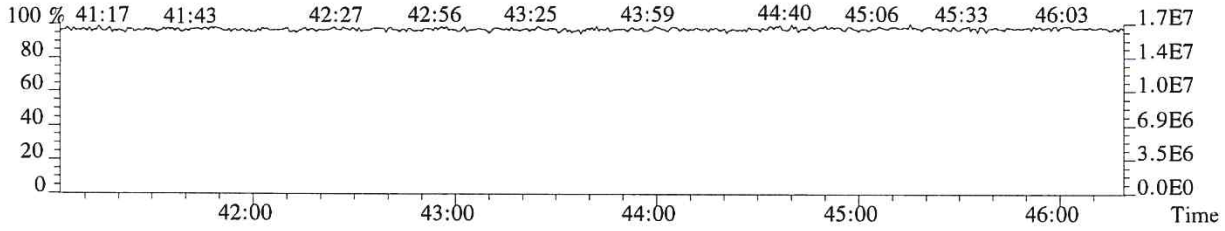
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



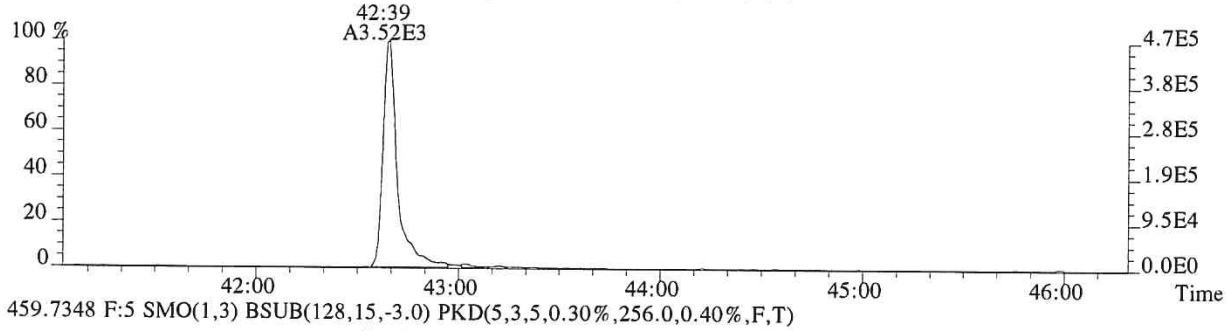
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



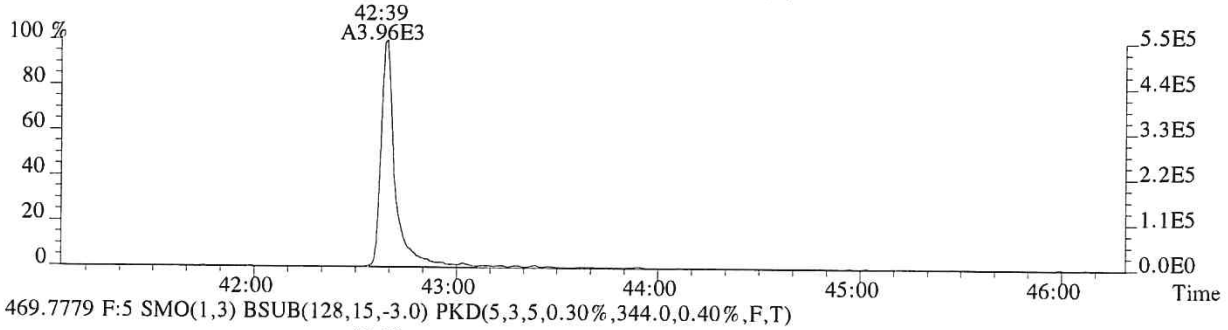
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



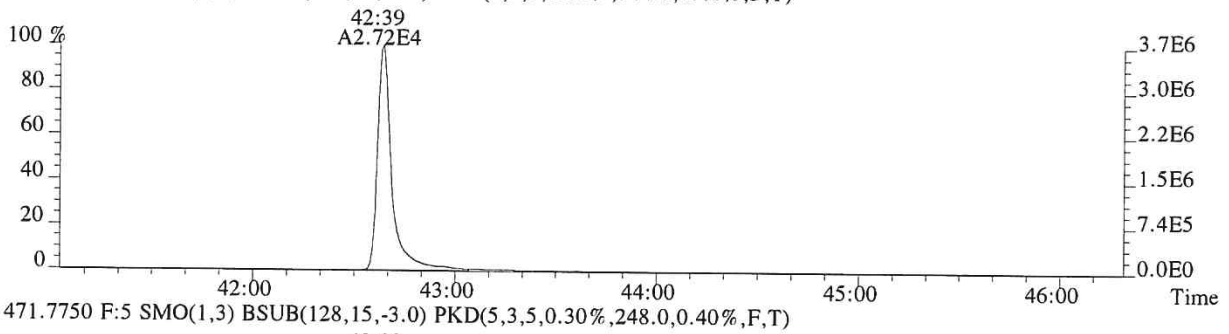
File:P518977 #1-475 Acq:21-NOV-2018 20:50:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-045DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



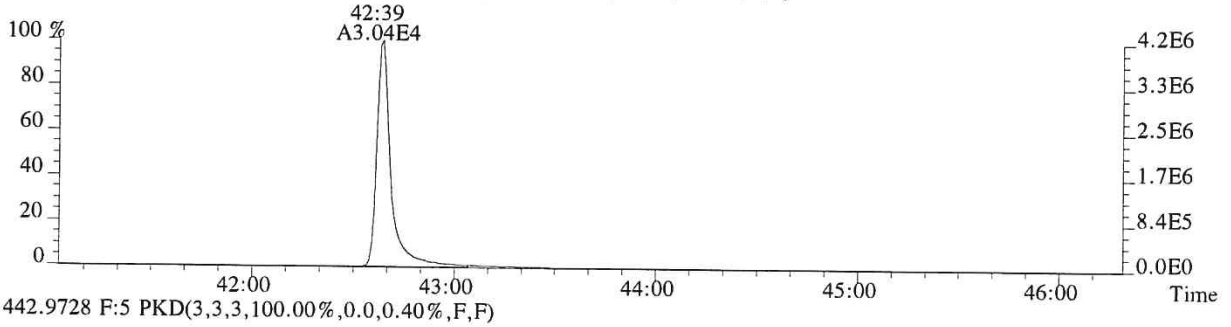
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



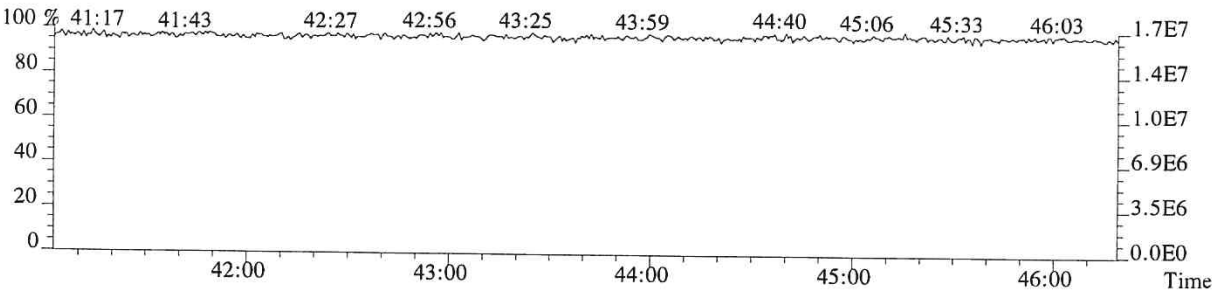
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0034

Run #14 Filename P518872 Samp: 1 Inj: 1 Acquired: 17-NOV-18 06:47:25
Processed: 21-NOV-18 09:19:32 Sample ID: E1801020-051

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:35	8.287e+05	1.068e+06	0.78	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:36	5.479e+04	3.501e+04	1.57	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:37	3.387e+04	2.210e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:30	1.011e+05	8.253e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	2.538e+04	2.191e+04	1.16	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	3.525e+03	3.142e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:57	5.435e+03	4.471e+03	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	2.117e+04	2.074e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	6.476e+03	6.813e+03	0.95	yes	no	1.258
10	Unk	OCDF	40:52	2.794e+04	3.162e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:36	2.327e+05	2.960e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	3.255e+03	2.121e+03	1.53	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	1.204e+02	1.321e+02	0.91	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	1.215e+03	9.498e+02	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	5.134e+02	3.896e+02	1.32	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	3.881e+04	3.770e+04	1.03	yes	no	1.025
17	Unk	OCDD	40:42	1.573e+05	1.749e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:34	2.109e+04	2.686e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:35	3.178e+04	2.025e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	3.021e+04	1.873e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.140e+04	2.235e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:36	1.346e+04	2.542e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.203e+04	2.280e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.063e+04	2.051e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	6.801e+03	1.536e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	5.744e+03	1.282e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:34	1.403e+04	1.769e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:55	2.131e+04	1.375e+04	1.55	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.528e+04	1.221e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.514e+04	1.179e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.214e+04	1.138e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:42	8.283e+03	9.049e+03	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:52	2.661e+04	3.353e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.275e+04	2.579e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:36	1.853e+04				no	1.014

$$OCDD = \frac{(1.573e+05 + 1.749e+05) \times 4000\ pg \times 1}{(8.283e+03 + 9.049e+03) \times 10.08\ g \times 68.3 / 100 \times 1.118} = 9954.7296\ ng/kg$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0034

Run #14 Filename P518872 Samp: 1 Inj: 1 Acquired: 17-NOV-18 06:47:25
Processed: 21-NOV-18 09:19:32 LAB. ID: E1801020-051

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.15e+08	2.77e+03	4.1e+04	1.48e+08	3.84e+03	3.9e+04
2	1,2,3,7,8-PeCDF	9.36e+06	5.63e+03	1.7e+03	5.97e+06	4.74e+03	1.3e+03
3	2,3,4,7,8-PeCDF	5.15e+06	5.63e+03	9.1e+02	3.35e+06	4.74e+03	7.1e+02
4	1,2,3,4,7,8-HxCDF	2.03e+07	6.26e+03	3.2e+03	1.63e+07	3.48e+03	4.7e+03
5	1,2,3,6,7,8-HxCDF	4.91e+06	6.26e+03	7.8e+02	4.13e+06	3.48e+03	1.2e+03
6	2,3,4,6,7,8-HxCDF	7.55e+05	6.26e+03	1.2e+02	6.29e+05	3.48e+03	1.8e+02
7	1,2,3,7,8,9-HxCDF	9.98e+05	6.26e+03	1.6e+02	8.35e+05	3.48e+03	2.4e+02
8	1,2,3,4,6,7,8-HpCDF	4.34e+06	4.34e+03	1.0e+03	4.27e+06	5.10e+03	8.4e+02
9	1,2,3,4,7,8,9-HpCDF	1.24e+06	4.34e+03	2.8e+02	1.23e+06	5.10e+03	2.4e+02
10	OCDF	4.51e+06	2.32e+02	1.9e+04	5.07e+06	5.04e+02	1.0e+04
11	2,3,7,8-TCDD	3.68e+07	1.61e+03	2.3e+04	4.68e+07	1.14e+03	4.1e+04
12	1,2,3,7,8-PeCDD	5.56e+05	1.54e+03	3.6e+02	3.42e+05	1.95e+03	1.8e+02
13	1,2,3,4,7,8-HxCDD	2.62e+04	1.31e+03	2.0e+01	2.74e+04	1.63e+03	1.7e+01
14	1,2,3,6,7,8-HxCDD	2.43e+05	1.31e+03	1.9e+02	1.87e+05	1.63e+03	1.1e+02
15	1,2,3,7,8,9-HxCDD	1.01e+05	1.31e+03	7.7e+01	7.27e+04	1.63e+03	4.5e+01
16	1,2,3,4,6,7,8-HpCDD	7.30e+06	9.80e+02	7.5e+03	7.01e+06	4.99e+03	1.4e+03
17	OCDD	2.52e+07	8.60e+02	2.9e+04	2.82e+07	1.18e+03	2.4e+04
18	13C-2,3,7,8-TCDF	3.01e+06	4.38e+03	6.9e+02	3.89e+06	4.60e+03	8.5e+02
19	13C-1,2,3,7,8-PeCDF	5.45e+06	4.53e+03	1.2e+03	3.46e+06	3.84e+03	9.0e+02
20	13C-2,3,4,7,8-PeCDF	5.37e+06	4.53e+03	1.2e+03	3.34e+06	3.84e+03	8.7e+02
21	13C-1,2,3,4,7,8-HxCDF	2.28e+06	2.06e+03	1.1e+03	4.47e+06	1.20e+03	3.7e+03
22	13C-1,2,3,6,7,8-HxCDF	2.62e+06	2.06e+03	1.3e+03	5.02e+06	1.20e+03	4.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.35e+06	2.06e+03	1.1e+03	4.67e+06	1.20e+03	3.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.97e+06	2.06e+03	9.6e+02	3.80e+06	1.20e+03	3.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.38e+06	1.90e+03	7.3e+02	3.09e+06	2.72e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.06e+06	1.90e+03	5.6e+02	2.34e+06	2.72e+03	8.6e+02
27	13C-2,3,7,8-TCDD	2.24e+06	5.02e+03	4.5e+02	2.79e+06	2.53e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	3.83e+06	5.84e+02	6.6e+03	2.44e+06	7.56e+02	3.2e+03
29	13C-1,2,3,4,7,8-HxCDD	3.08e+06	1.10e+03	2.8e+03	2.50e+06	6.20e+02	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.95e+06	1.10e+03	2.7e+03	2.28e+06	6.20e+02	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+06	1.06e+03	2.1e+03	2.13e+06	3.16e+02	6.8e+03
32	13C-OCDD	1.37e+06	1.56e+02	8.8e+03	1.48e+06	5.44e+02	2.7e+03
33	13C-1,2,3,4-TCDD	3.95e+06	5.02e+03	7.9e+02	4.97e+06	2.53e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	6.12e+06	1.10e+03	5.6e+03	4.81e+06	6.20e+02	7.8e+03
35	37Cl-2,3,7,8-TCDD	2.90e+06	1.60e+03	1.8e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0034

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P518872 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 06:47:25 Processed: 21-NOV-18 09:19:32

Mass: 303.9020 305.8990 Tot Response: 3.54e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:28	7.12e+03	9.54e+03	0.75	yes	1.67e+04		n	n
2	22:44	3.69e+04	4.74e+04	0.78	yes	8.43e+04		n	n
3	23:06	1.10e+04	1.44e+04	0.76	yes	2.54e+04		n	n
4	23:12	1.27e+03	1.48e+03	0.85	yes	2.75e+03		n	n
5	23:22	3.23e+04	4.21e+04	0.77	yes	7.44e+04		n	n
6	23:45	6.61e+03	8.81e+03	0.75	yes	1.54e+04		n	n
7	23:59	2.17e+04	2.83e+04	0.77	yes	5.00e+04		n	n
8	24:06	3.86e+04	5.00e+04	0.77	yes	8.86e+04		n	n
9	24:34	3.59e+05	4.66e+05	0.77	yes	8.26e+05		n	n
10	24:52	1.78e+04	2.28e+04	0.78	yes	4.06e+04		n	n
11	25:29	5.05e+04	6.37e+04	0.79	yes	1.14e+05		y	y
12	25:35	8.29e+05	1.07e+06	0.78	yes	1.90e+06	2,3,7,8-TCDF	y	y
13	26:02	6.15e+04	7.94e+04	0.77	yes	1.41e+05		n	n
14	26:18	9.47e+03	1.17e+04	0.81	yes	2.12e+04		n	n
15	27:51	6.15e+04	7.91e+04	0.78	yes	1.41e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0034

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P518872 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 06:47:25 Processed: 21-NOV-18 09:19:32

Mass: 319.8970 321.8940 Tot Response: 5.82e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:40	4.16e+02	5.88e+02	0.71	yes	1.00e+03		n	n
2	26:17	2.95e+03	3.69e+03	0.80	yes	6.64e+03		n	n
3	26:36	2.33e+05	2.96e+05	0.79	yes	5.29e+05	2,3,7,8-TCDD	n	n
4	26:58	2.02e+04	2.53e+04	0.80	yes	4.54e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0034

Entry: 38 Totals Name: Total Penta-Furans1

Run: 14 File: P518872 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 06:47:25 Processed: 21-NOV-18 09:19:32

Mass: 339.8600 341.8570 Tot Response: 4.42e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:51	2.74e+03	1.69e+03 1.62	yes	4.42e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0034

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P518872 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 06:47:25 Processed: 21-NOV-18 09:19:32

Mass: 339.8600 341.8570 Tot Response: 2.16e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:34	2.29e+04	1.47e+04	1.56	yes	3.76e+04		n	n
2	30:16	7.68e+02	4.33e+02	1.77	yes	1.20e+03		n	n
3	30:24	3.64e+03	2.39e+03	1.52	yes	6.04e+03		n	n
4	30:36	5.48e+04	3.50e+04	1.57	yes	8.98e+04	1,2,3,7,8-PeCDF	n	n
5	30:53	1.33e+04	8.72e+03	1.53	yes	2.20e+04		n	n
6	31:31	4.86e+02	3.57e+02	1.36	yes	8.42e+02		n	n
7	31:37	3.39e+04	2.21e+04	1.53	yes	5.60e+04	2,3,4,7,8-PeCDF	n	n
8	32:35	1.51e+03	9.93e+02	1.52	yes	2.51e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0034

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P518872 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 06:47:25 Processed: 21-NOV-18 09:19:32

Mass: 355.8550 357.8520 Tot Response: 8.40e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:37	6.94e+02	4.74e+02	1.47	yes	1.17e+03		n	y
2	30:38	5.25e+02	3.34e+02	1.57	yes	8.59e+02		n	n
3	31:08	1.80e+02	1.22e+02	1.48	yes	3.02e+02		y	n
4	31:30	2.75e+02	1.95e+02	1.41	yes	4.70e+02		n	n
5	31:56	3.25e+03	2.12e+03	1.53	yes	5.38e+03	1,2,3,7,8-PeCDD	n	n
6	32:20	1.30e+02	9.24e+01	1.40	yes	2.22e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0034

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P518872 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 06:47:25 Processed: 21-NOV-18 09:19:32

Mass: 373.8210 375.8180 Tot Response: 2.71e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:29	7.50e+03	6.32e+03	1.19	yes	1.38e+04		n	n
2	34:03	5.13e+03	4.14e+03	1.24	yes	9.27e+03		n	n
3	34:30	1.01e+05	8.25e+04	1.22	yes	1.84e+05	1,2,3,4,7,8-HxCDF	n	n
4	34:37	2.54e+04	2.19e+04	1.16	yes	4.73e+04	1,2,3,6,7,8-HxCDF	n	n
5	35:09	3.53e+03	3.14e+03	1.12	yes	6.67e+03	2,3,4,6,7,8-HxCDF	n	n
6	35:57	5.43e+03	4.47e+03	1.22	yes	9.91e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0034

ntry: 42 Totals Name: Total Hexa-Dioxins

un: 14 File: P518872 Sample:1 Injection:1 Function:3

cquired: 17-NOV-18 06:47:25 Processed: 21-NOV-18 09:19:32

lass: 389.8160 391.8130 Tot Response: 2.29e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	4.22e+03	3.40e+03	1.24	yes	7.62e+03		n	n
2	34:26	4.99e+02	3.72e+02	1.34	yes	8.71e+02		n	n
3	34:41	6.08e+03	4.90e+03	1.24	yes	1.10e+04		n	n
4	35:23	1.22e+03	9.50e+02	1.28	yes	2.17e+03	1,2,3,6,7,8-HxCDD	n	n
5	35:33	1.93e+02	1.40e+02	1.38	yes	3.33e+02		n	n
6	35:38	5.13e+02	3.90e+02	1.32	yes	9.03e+02	1,2,3,7,8,9-HxCDD	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0034

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P518872 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 06:47:25 Processed: 21-NOV-18 09:19:32

Mass: 407.7820 409.7790 Tot Response: 7.42e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:14	2.12e+04	2.07e+04	1.02	yes	4.19e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	37:38	9.55e+03	9.28e+03	1.03	yes	1.88e+04		n	n
3	37:48	7.42e+01	6.37e+01	1.16	yes	1.38e+02		n	n
4	38:35	6.48e+03	6.81e+03	0.95	yes	1.33e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0034

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P518872 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 06:47:25 Processed: 21-NOV-18 09:19:32

Mass: 423.7770 425.7740 Tot Response: 1.49e+05 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	3.70e+04	3.53e+04	1.05	yes	7.23e+04		n	n
2	38:10	3.88e+04	3.77e+04	1.03	yes	7.65e+04	1,2,3,4,6,7,8-HpCDD	n	n

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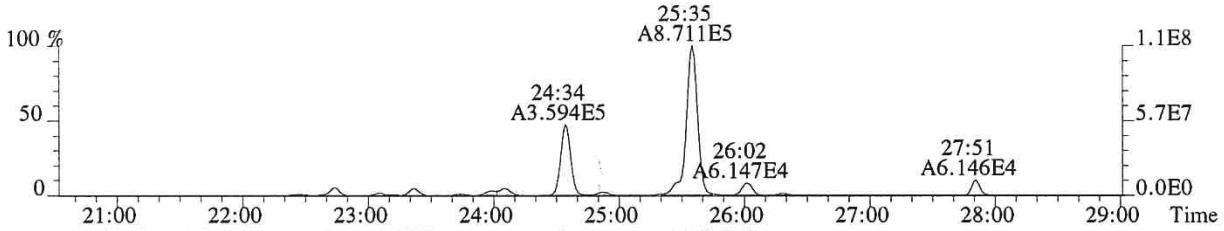
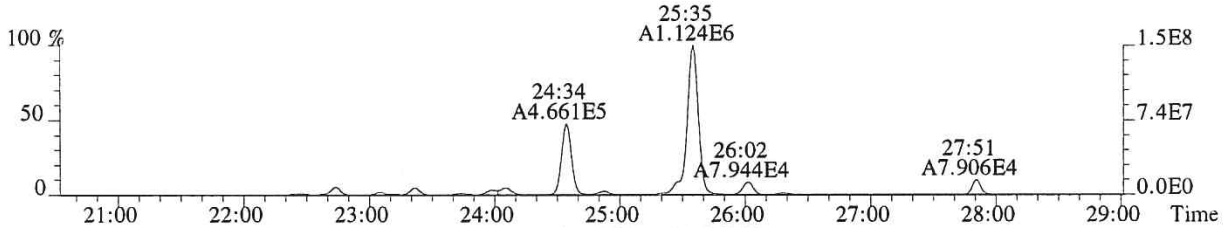
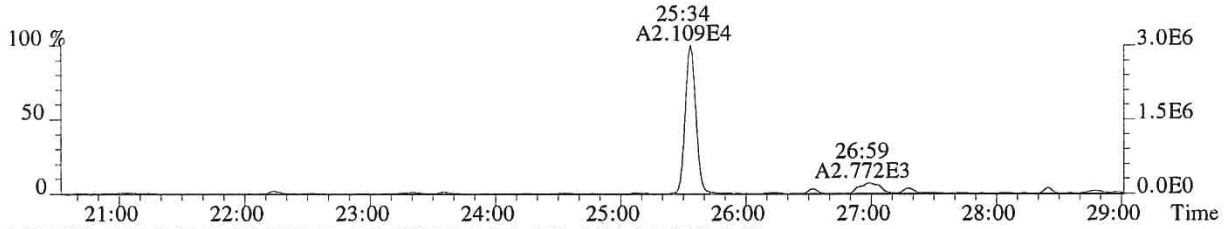
File:P518872 #1-602 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2768.0,1.00%,F,T)



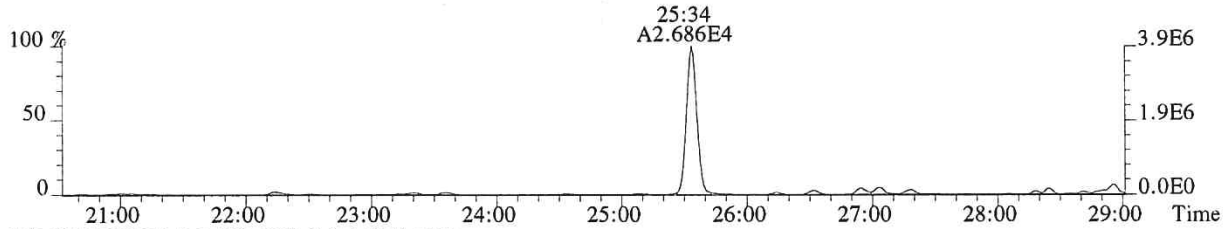
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3844.0,1.00%,F,T)



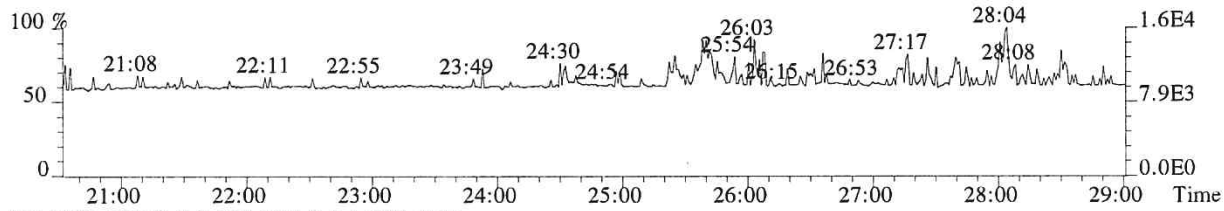
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4376.0,1.00%,F,T)



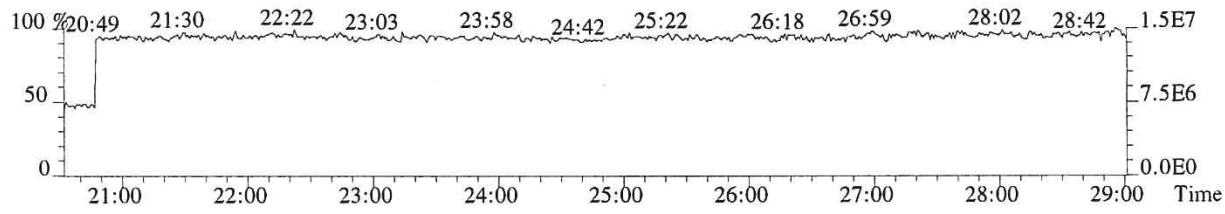
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4600.0,1.00%,F,T)



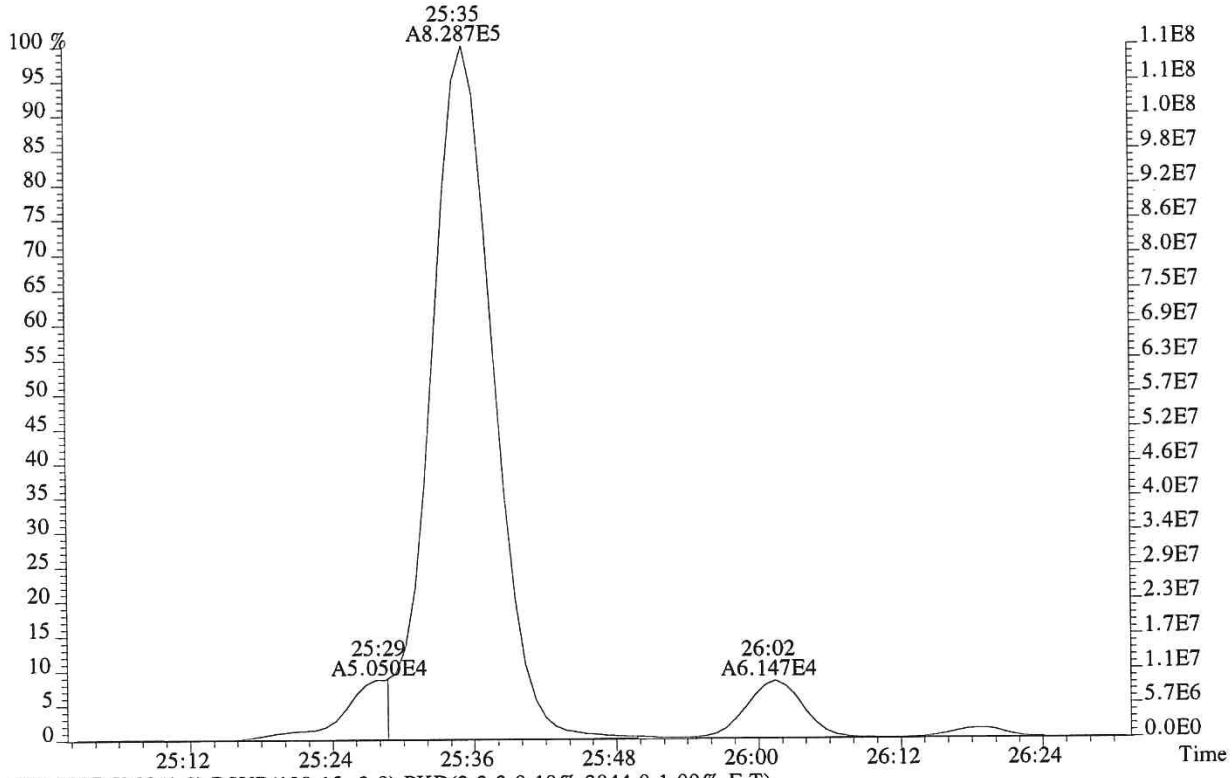
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



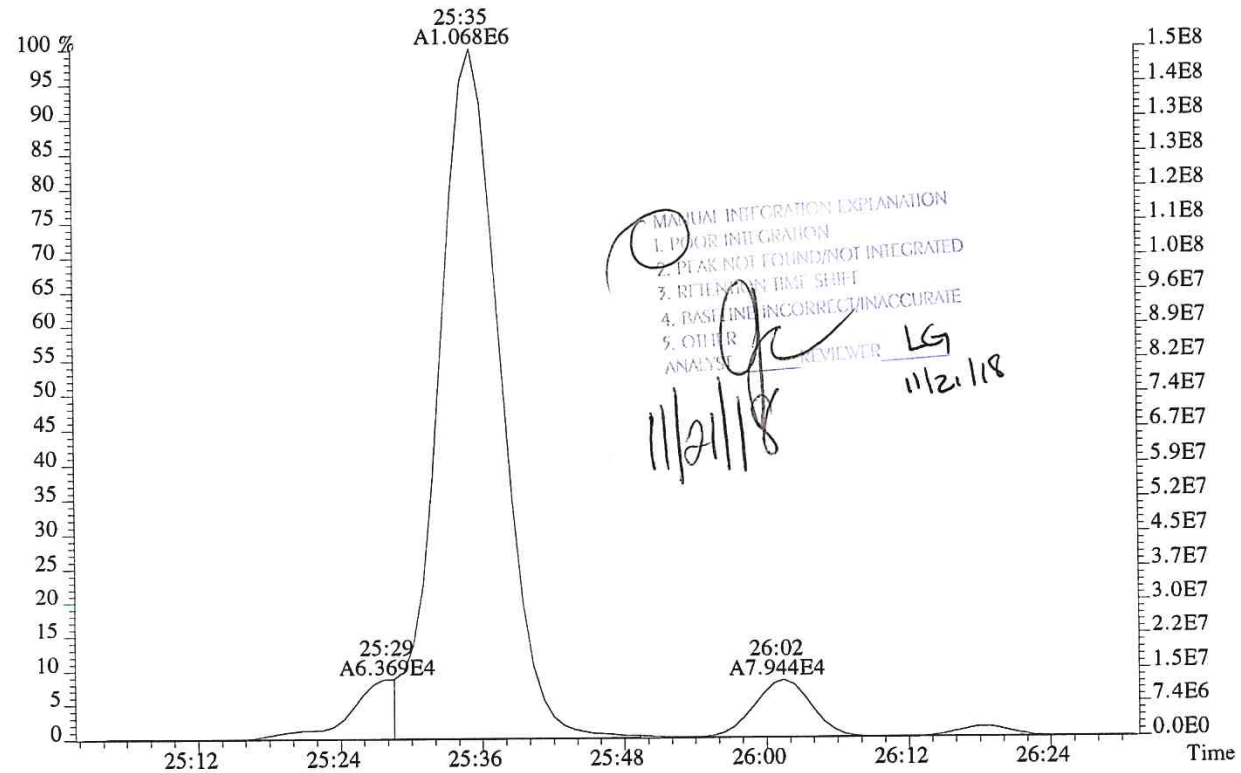
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518872 #1-602 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2768.0,1.00%,F,T)

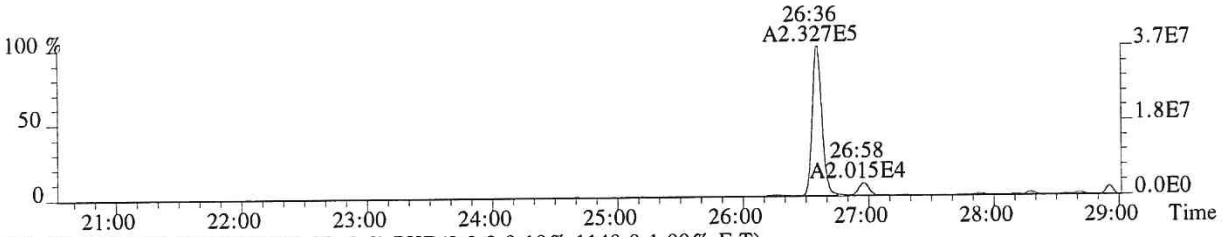


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3844.0,1.00%,F,T)

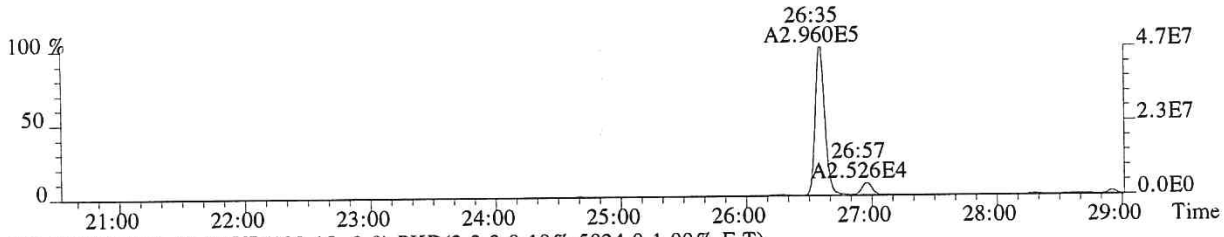


MANUAL INTEGRATION EXPLANATION
1. INCORRECT INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LG
11/21/18
11/21/18

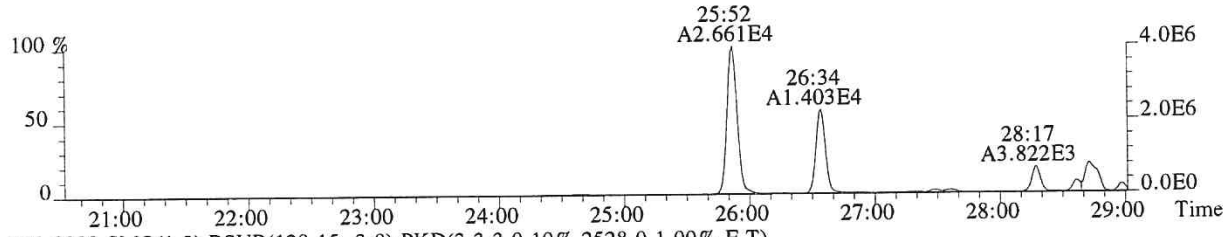
File:P518872 #1-602 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1608.0,1.00%,F,T)



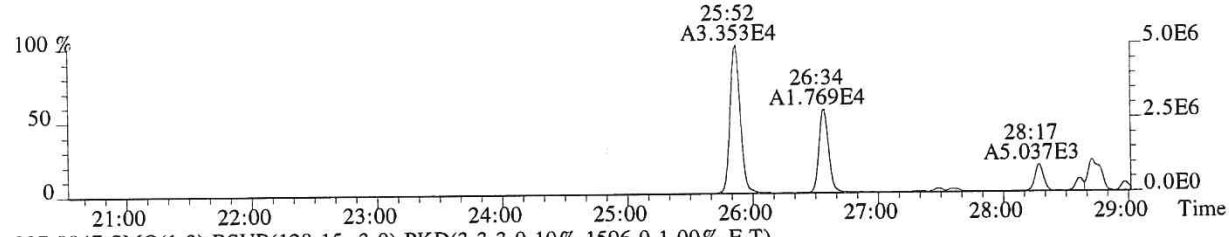
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



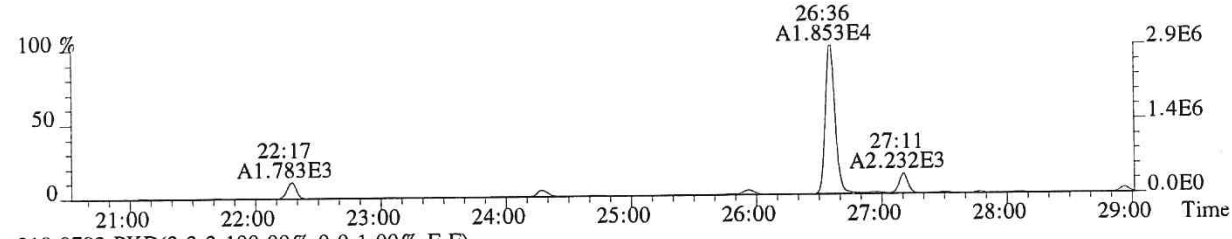
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5024.0,1.00%,F,T)



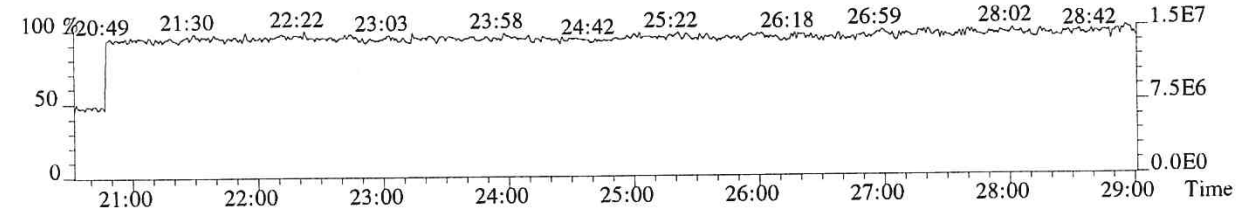
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2528.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1596.0,1.00%,F,T)

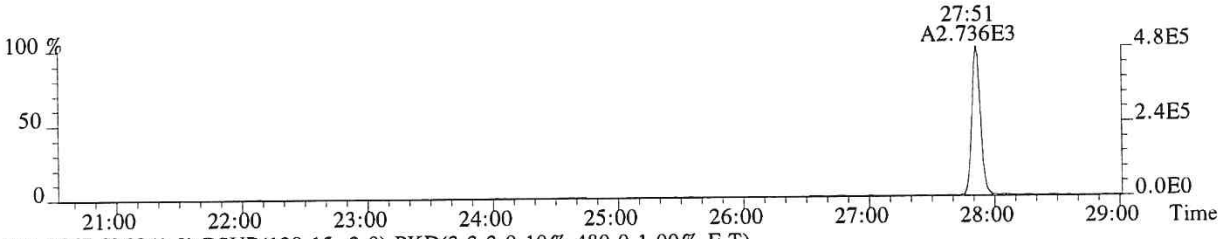


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

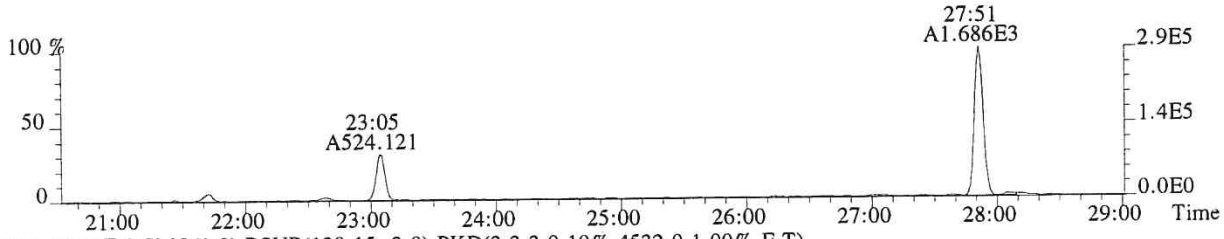


009765

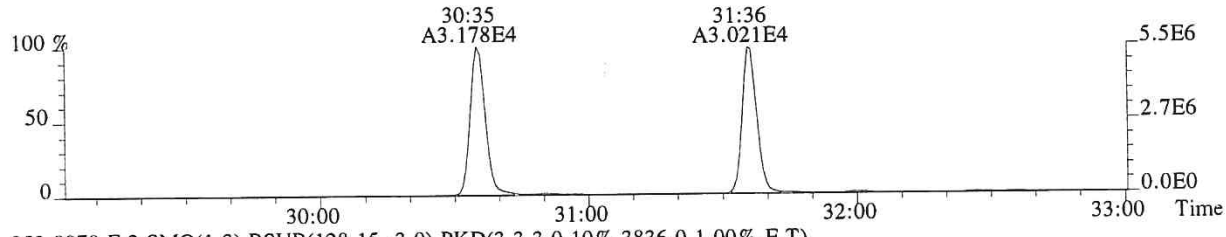
File:P518872 #1-602 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



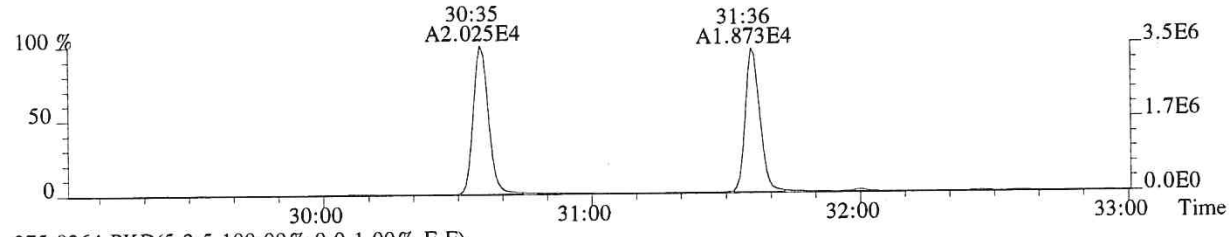
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



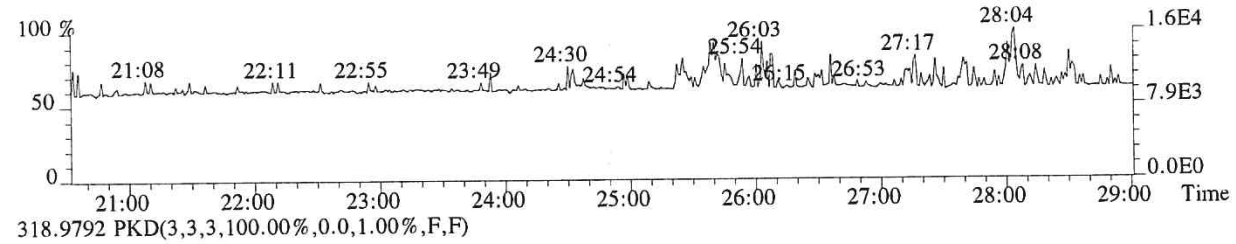
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4532.0,1.00%,F,T)



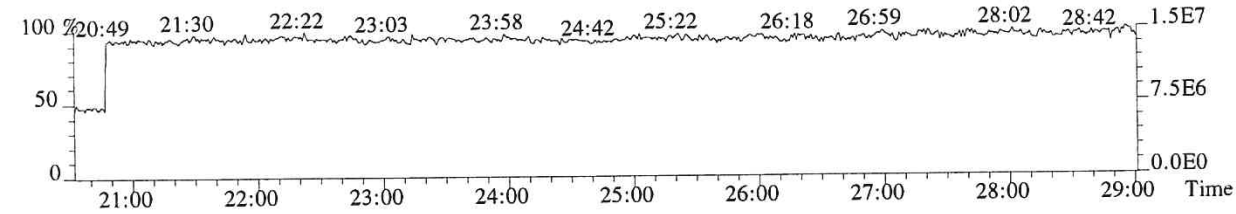
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3836.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

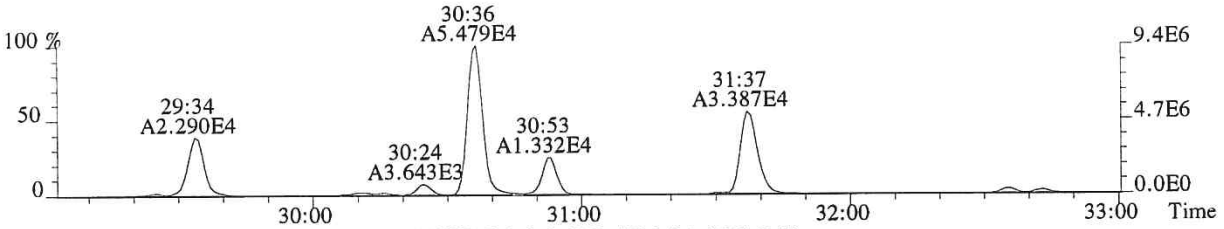


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

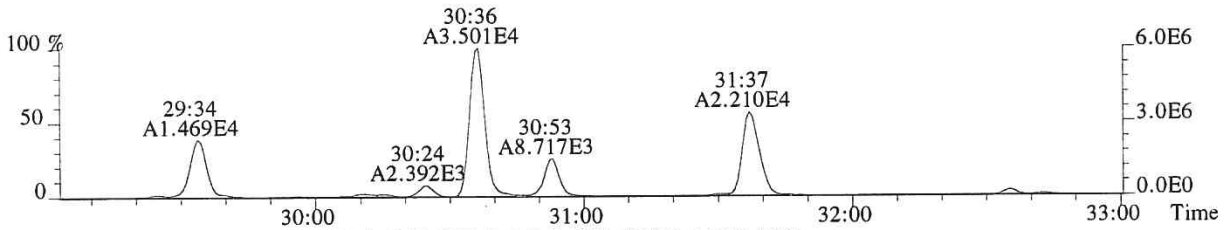


009766

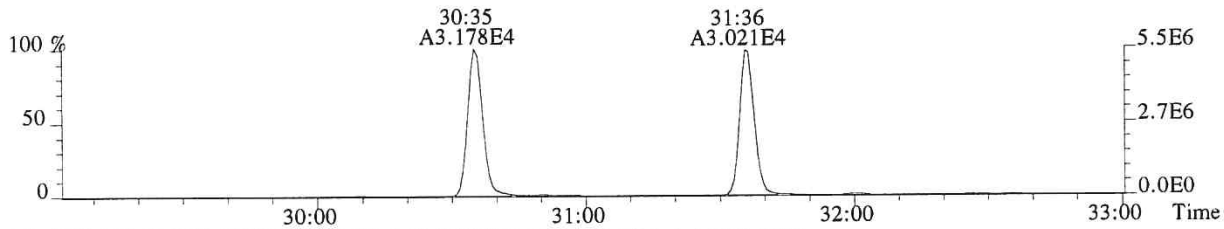
File:P518872 #1-357 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5632.0,1.00%,F,T)



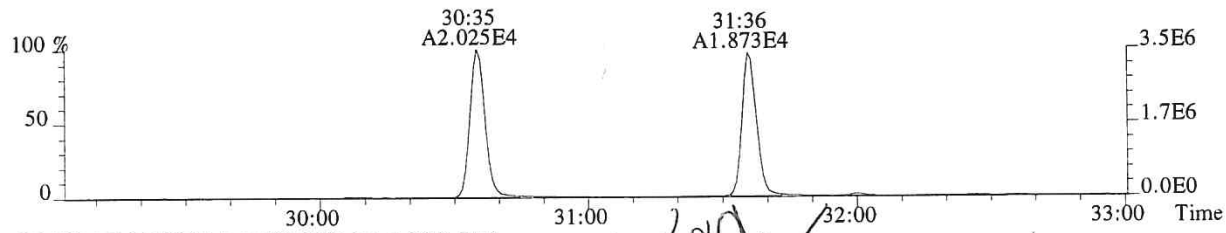
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4736.0,1.00%,F,T)



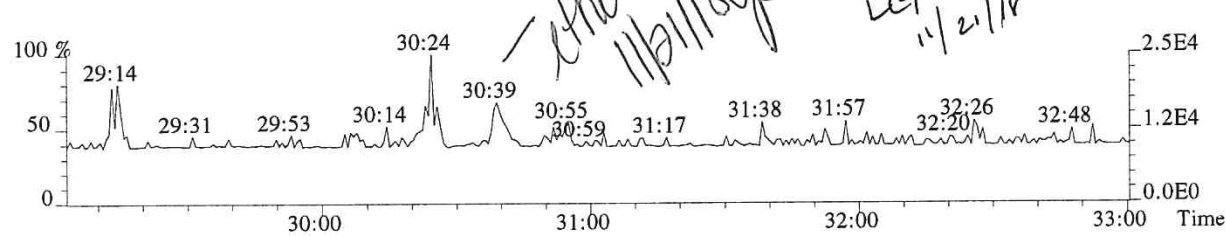
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4532.0,1.00%,F,T)



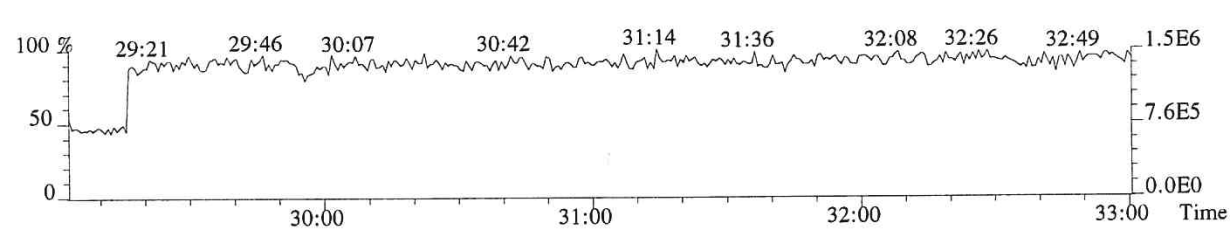
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3836.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

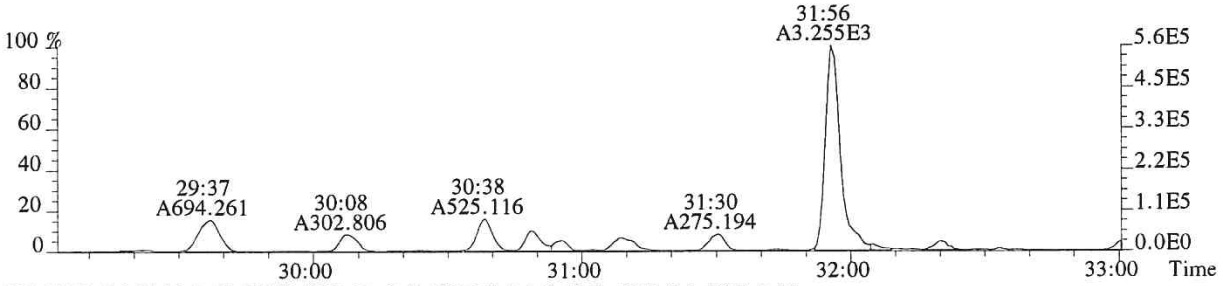


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

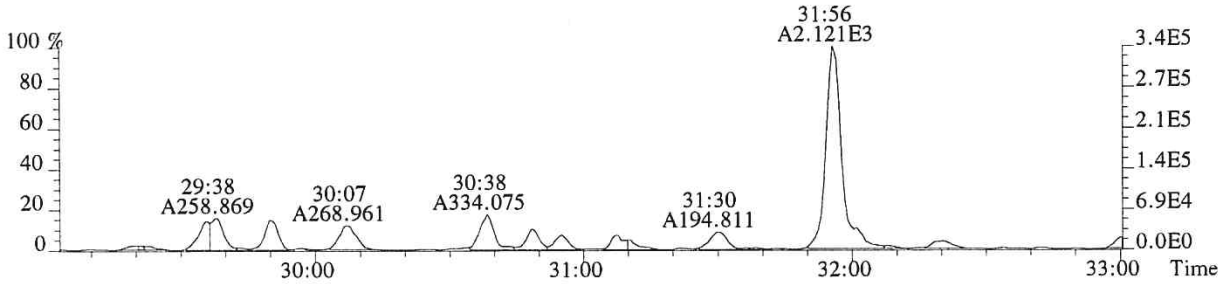


009767

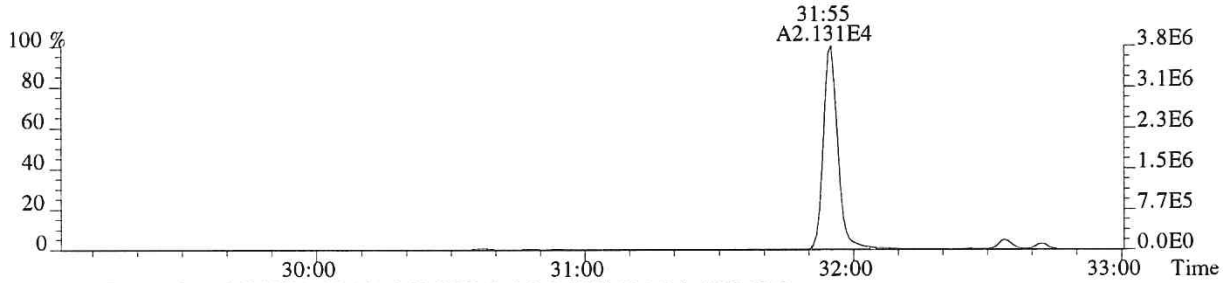
File:P518872 #1-357 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



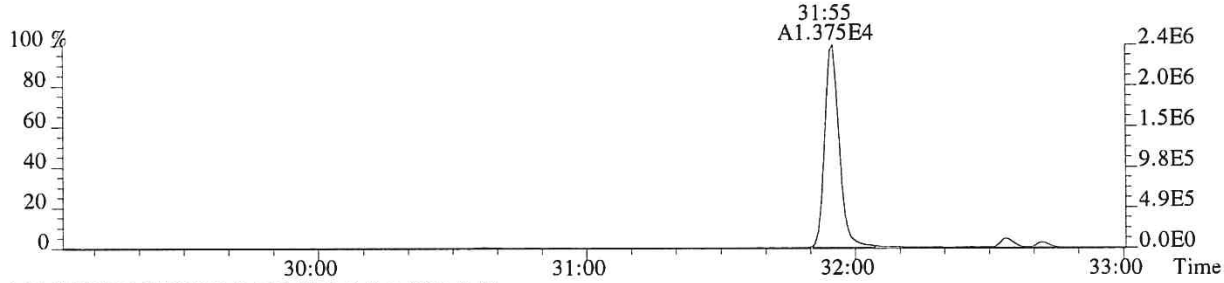
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



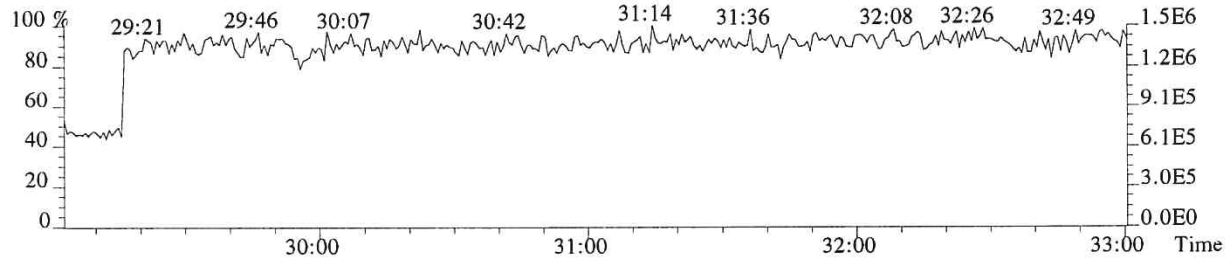
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)

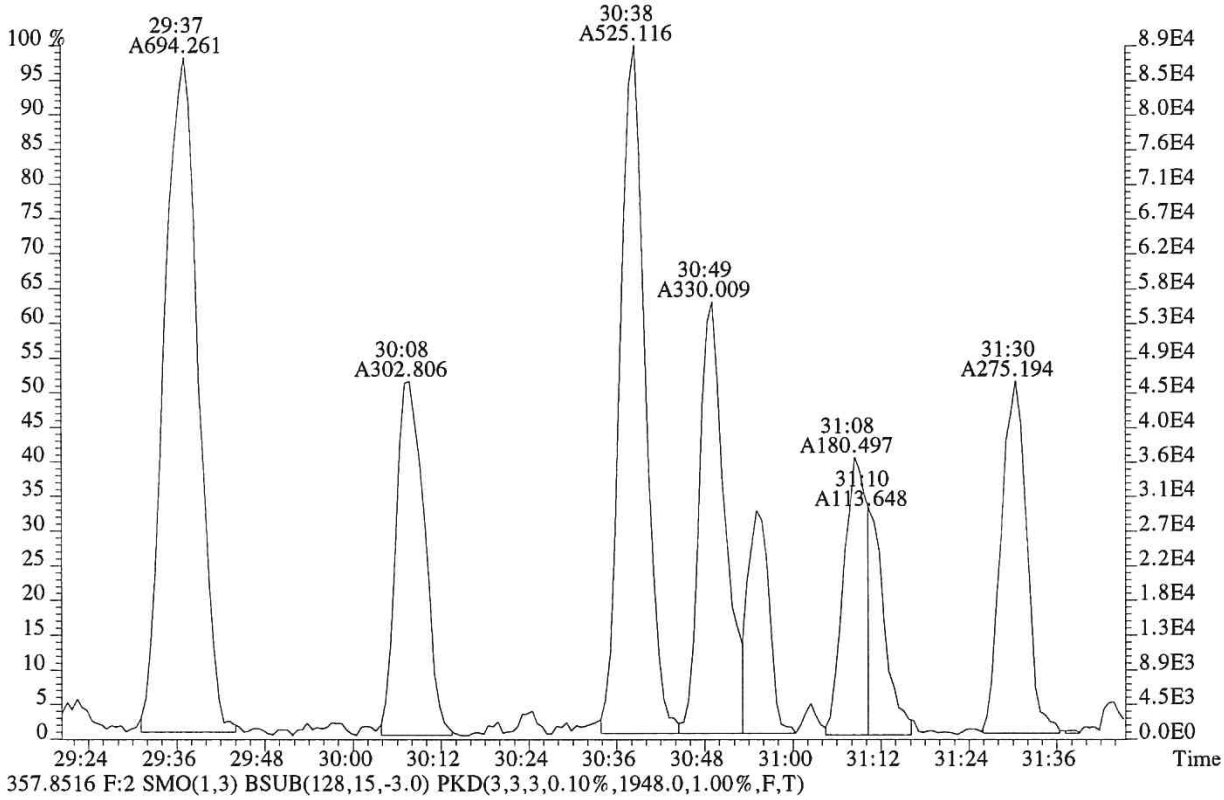


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

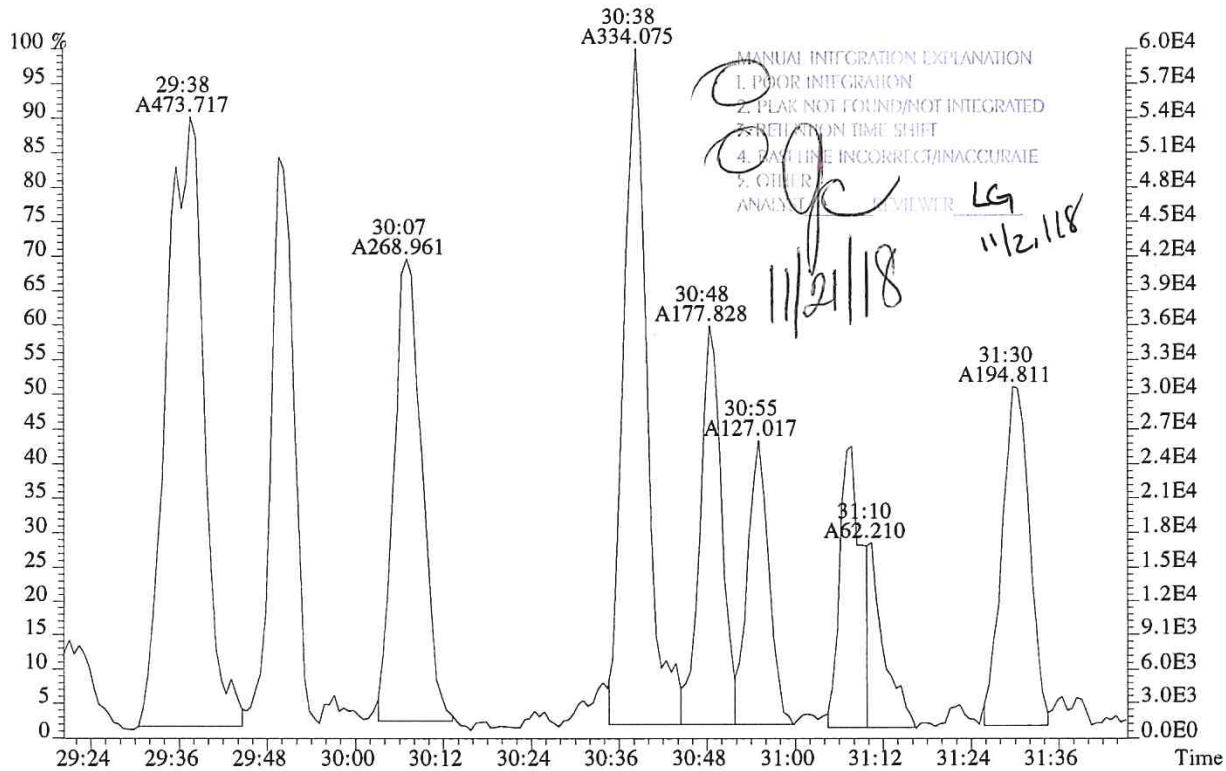


009768

File:P518872 #1-357 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)

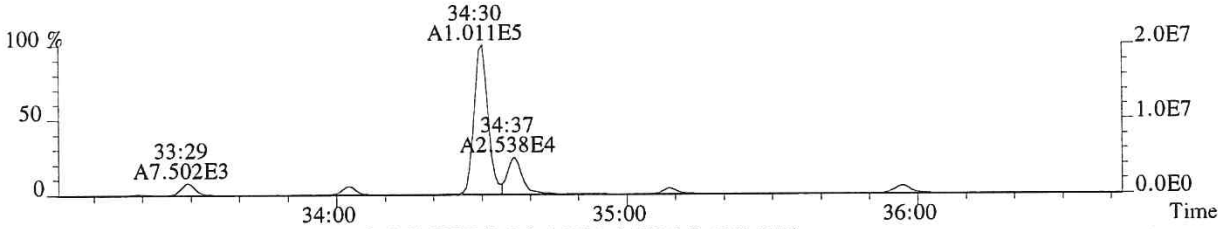


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)

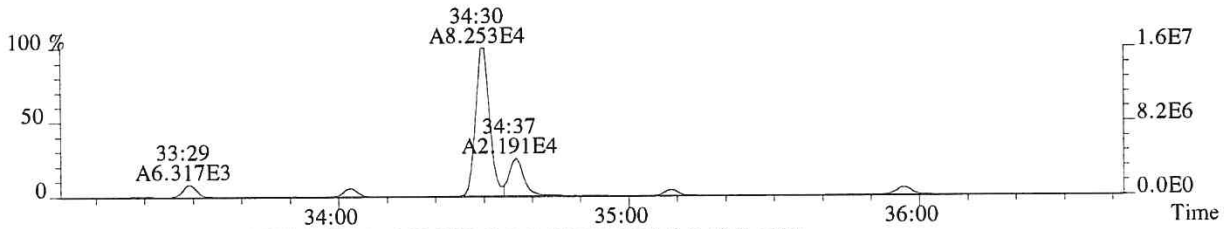


009769

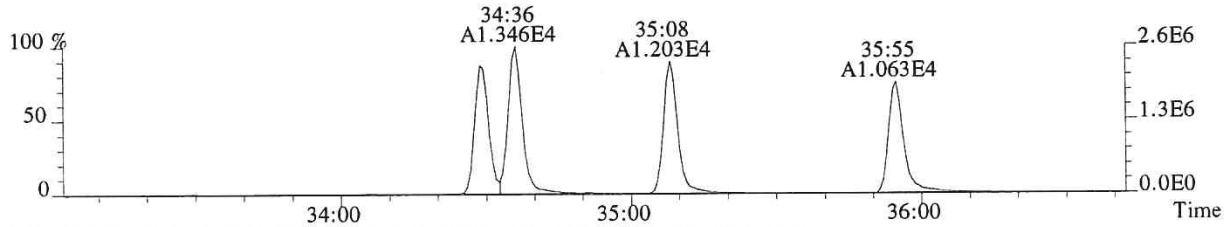
File:P518872 #1-330 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6260.0,0.40%,F,T)



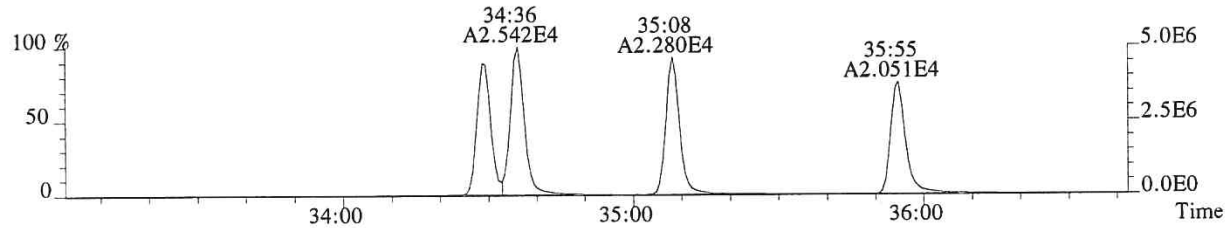
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3476.0,0.40%,F,T)



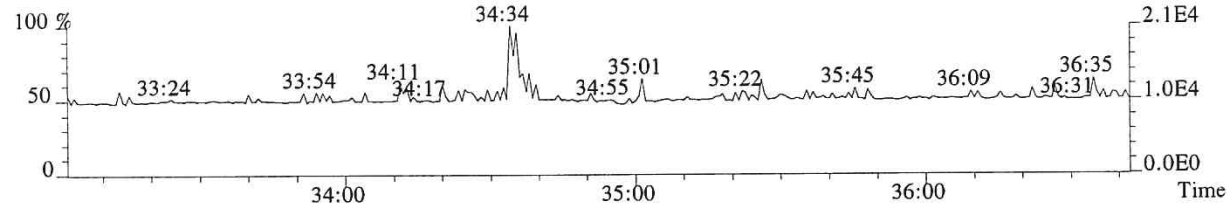
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2060.0,0.40%,F,T)



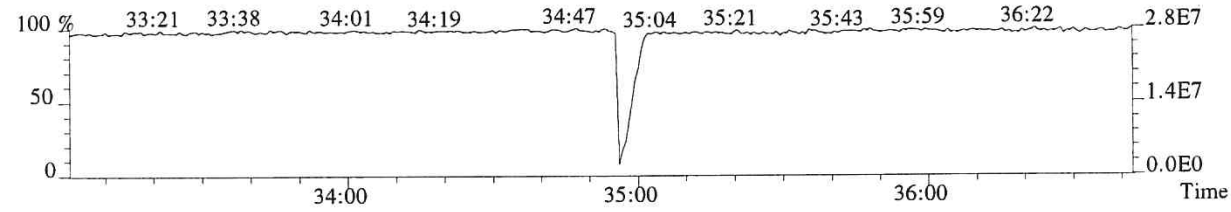
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

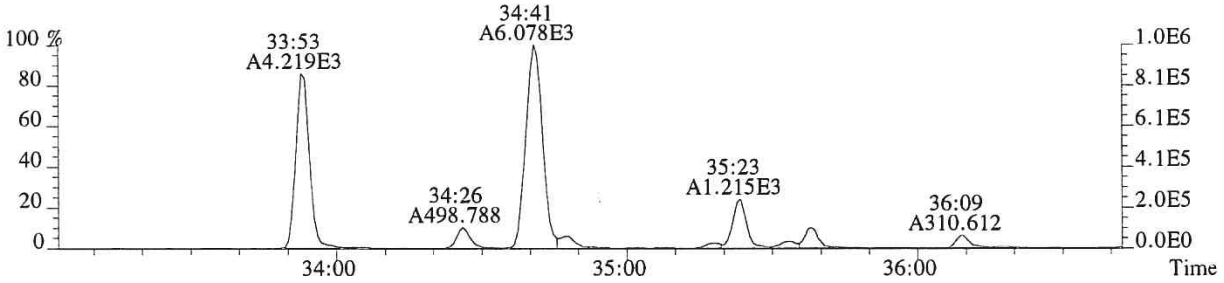


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

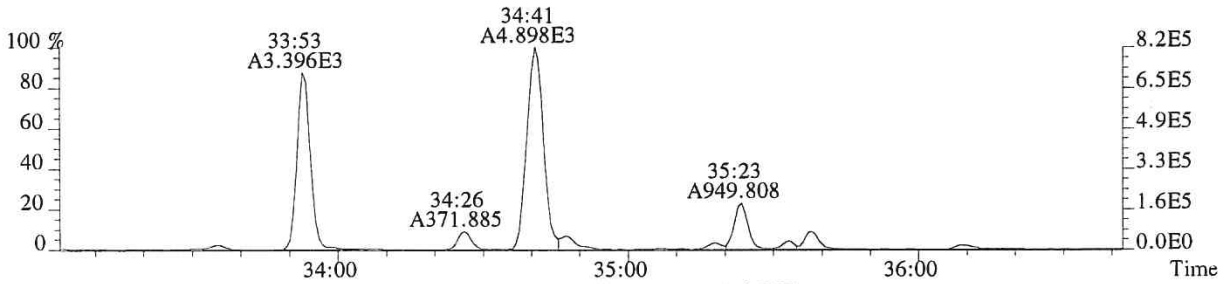


009770

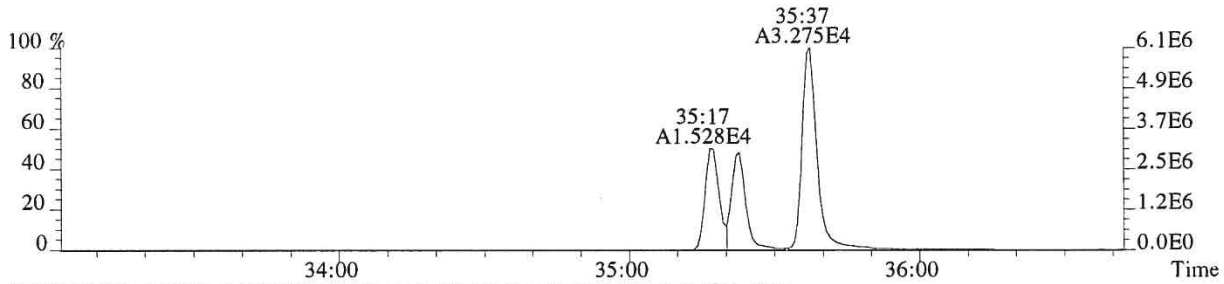
File:P518872 #1-330 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.40%,F,T)



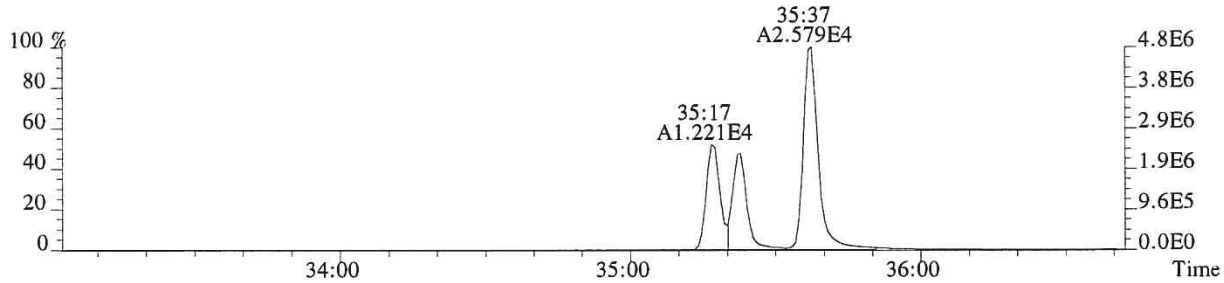
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.40%,F,T)



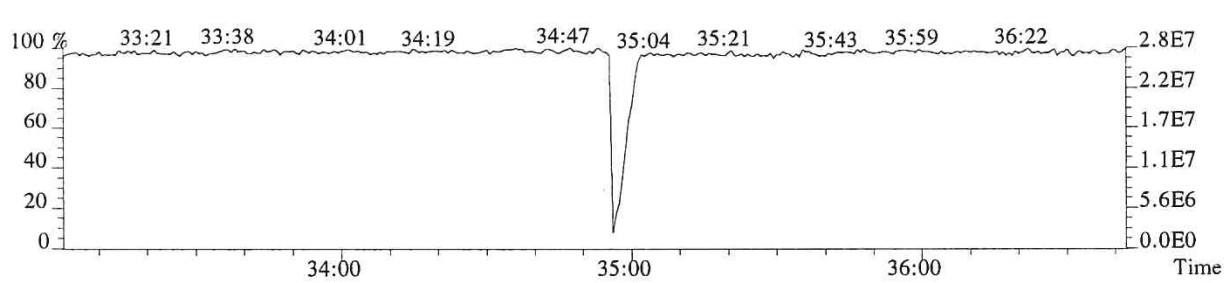
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



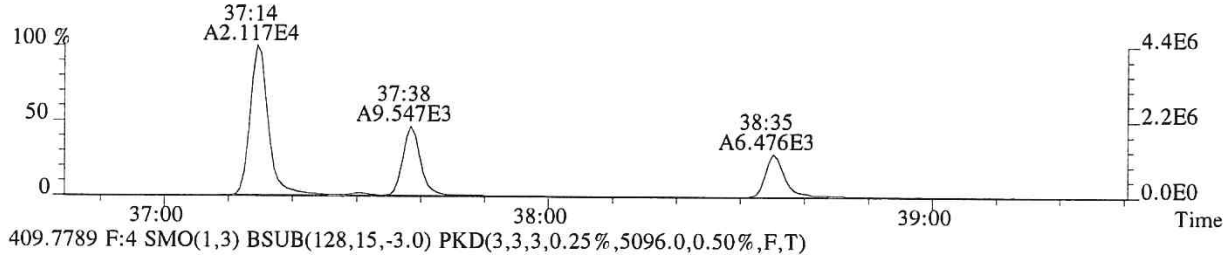
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



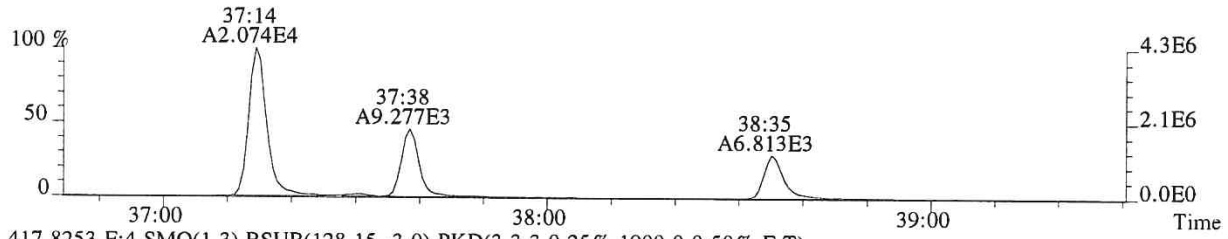
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



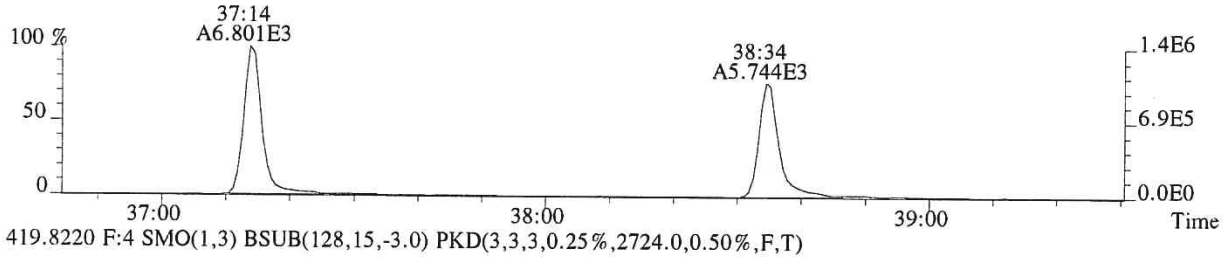
File:P518872 #1-250 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4340.0,0.50%,F,T)



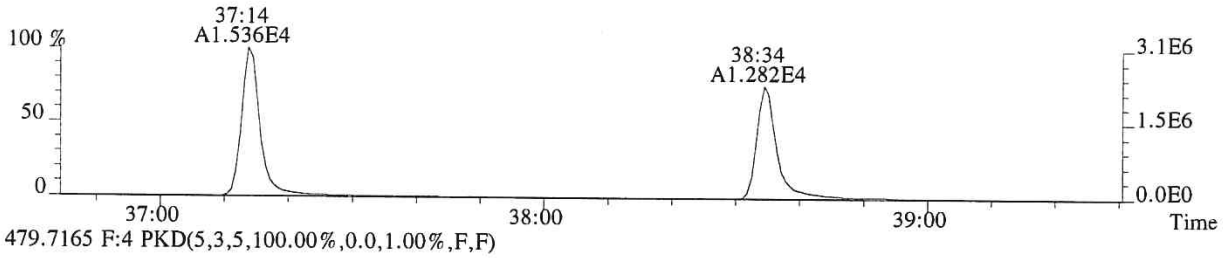
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5096.0,0.50%,F,T)



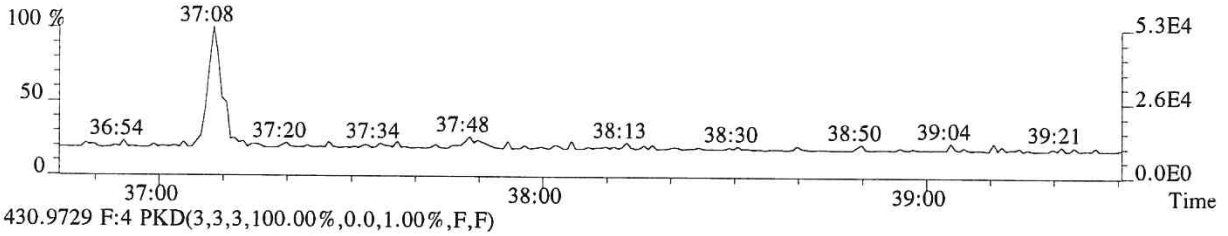
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1900.0,0.50%,F,T)



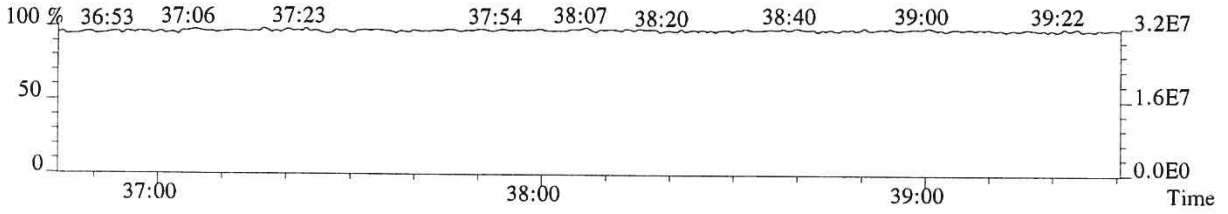
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2724.0,0.50%,F,T)



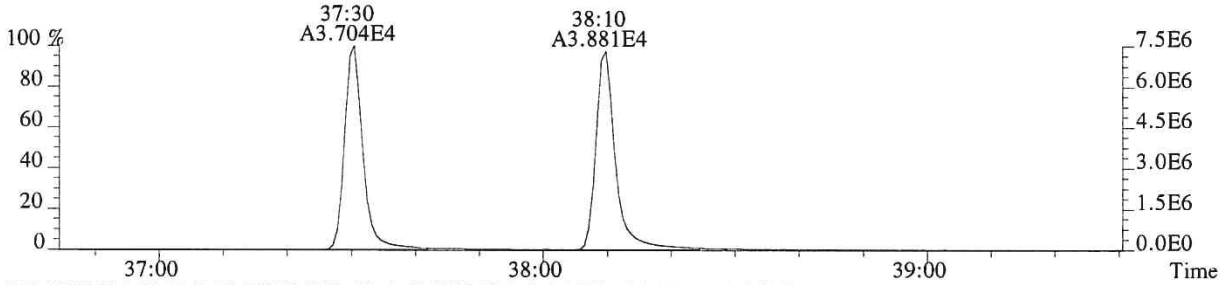
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



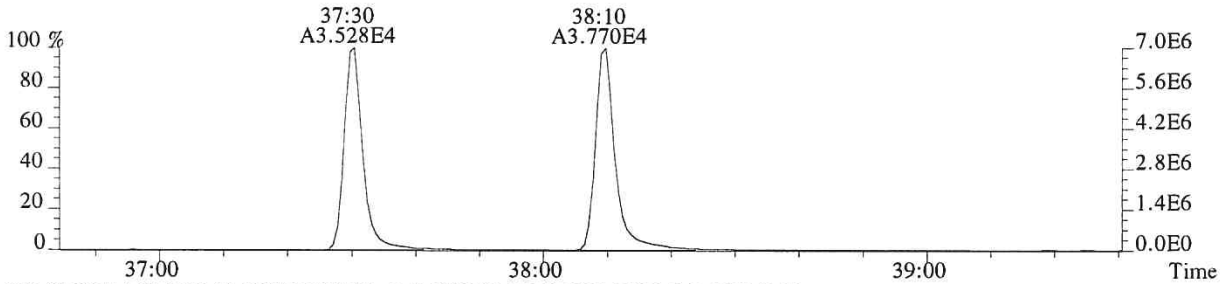
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



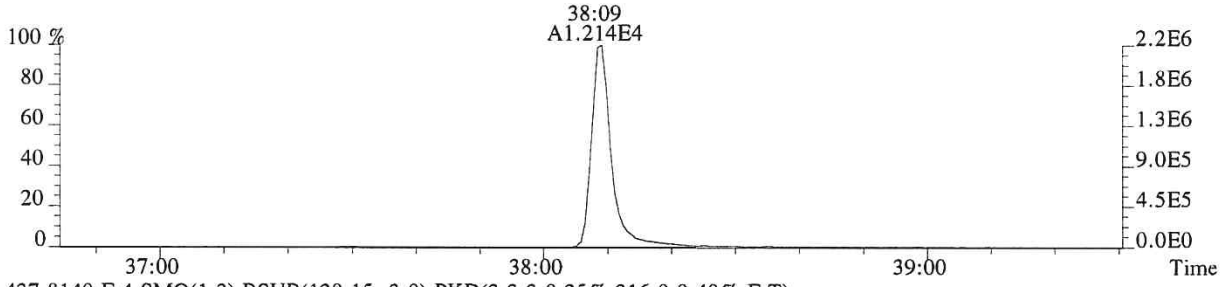
File:P518872 #1-250 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



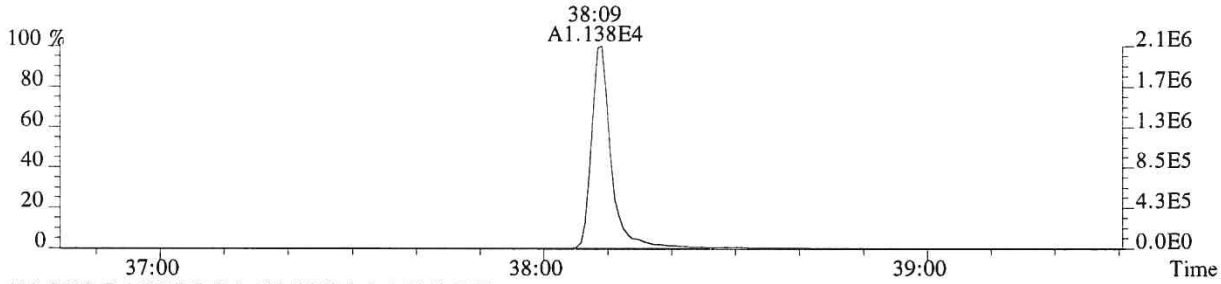
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



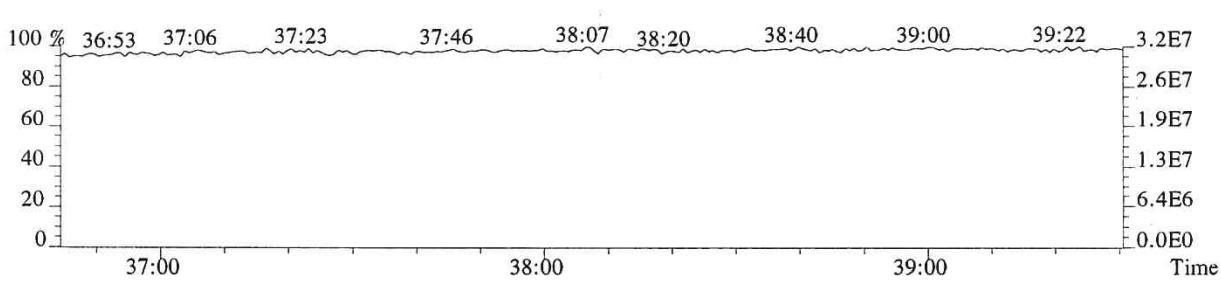
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



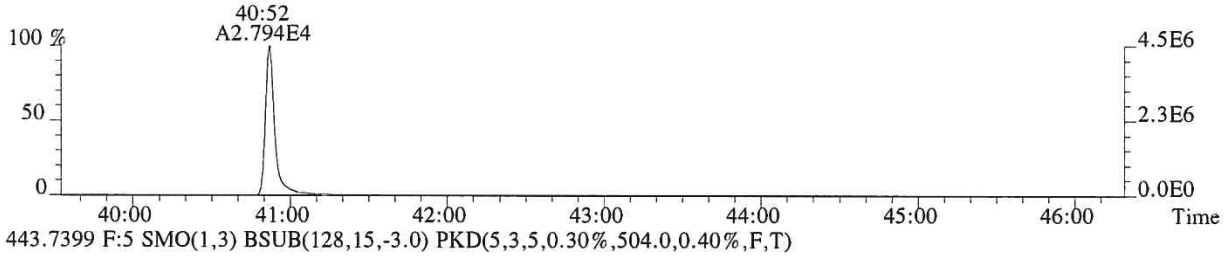
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



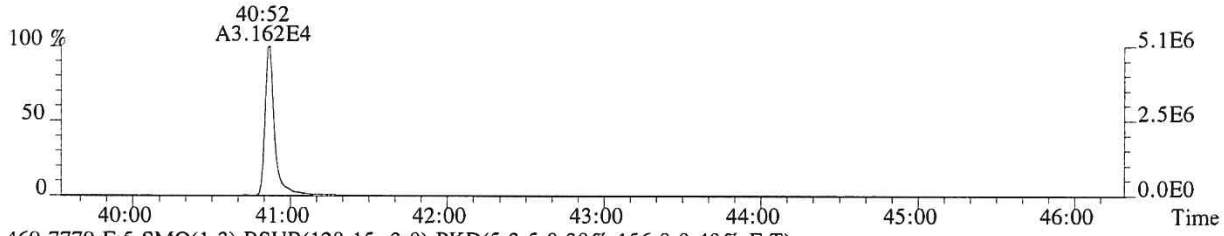
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



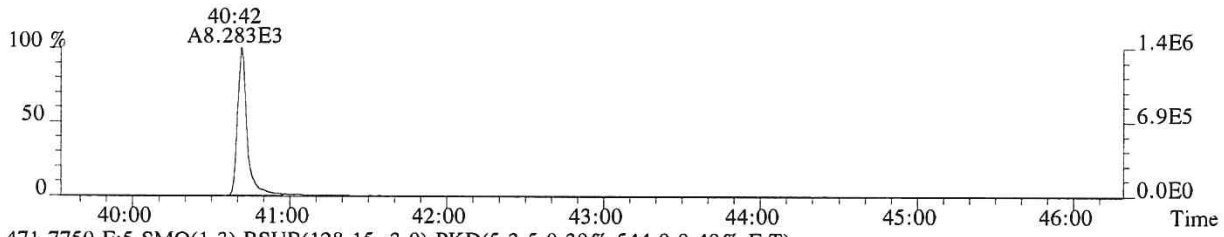
File:P518872 #1-610 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



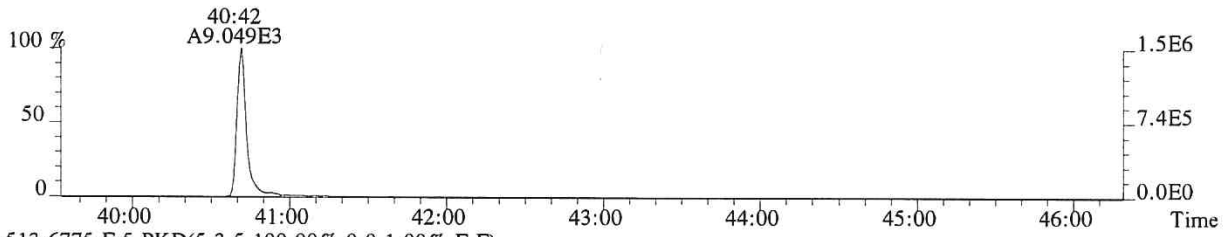
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



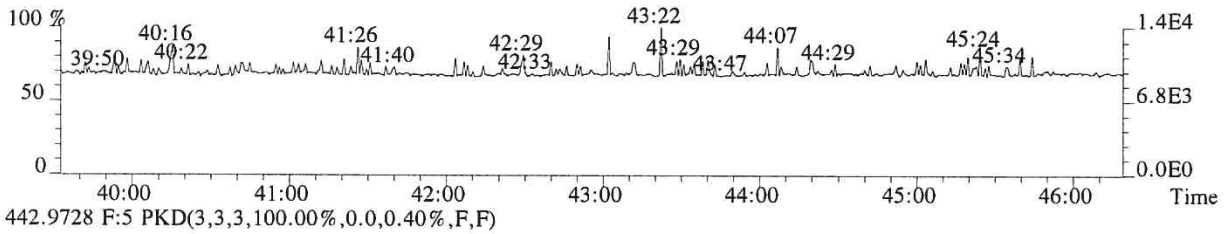
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



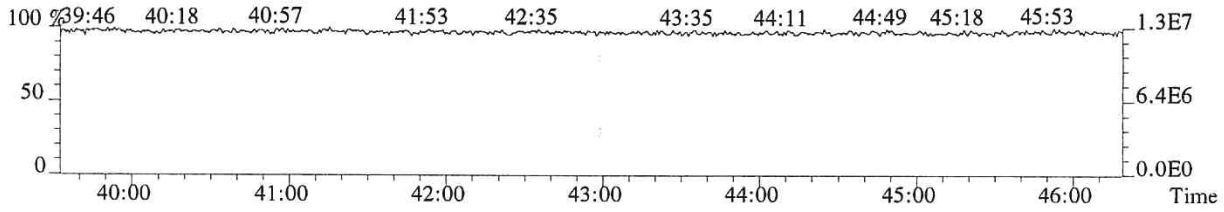
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

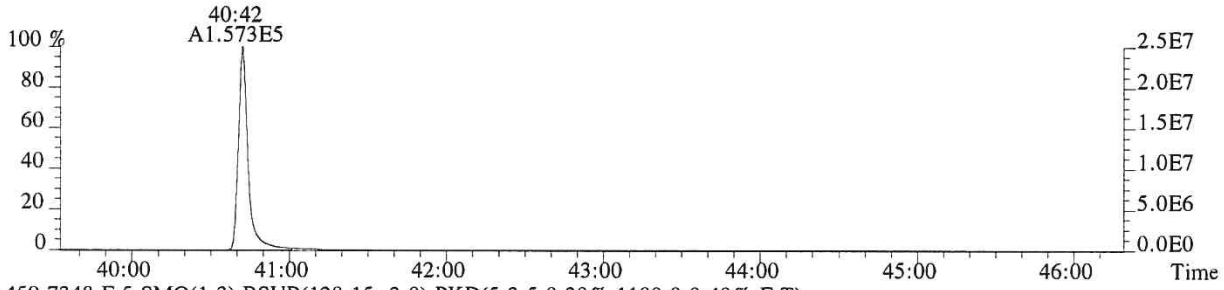


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

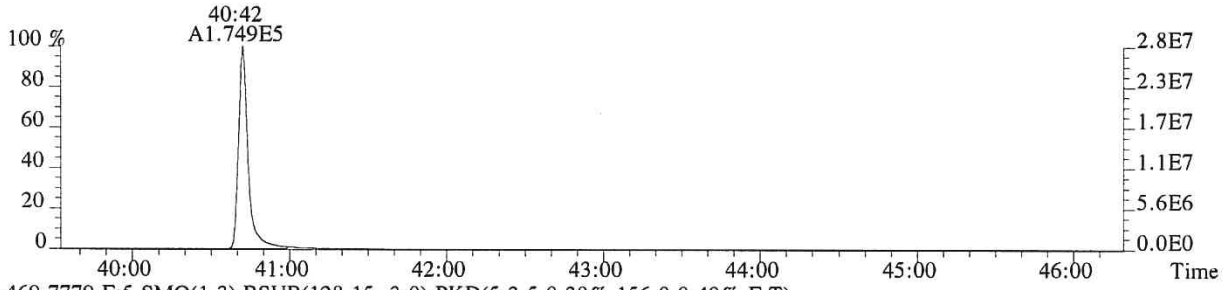


009774

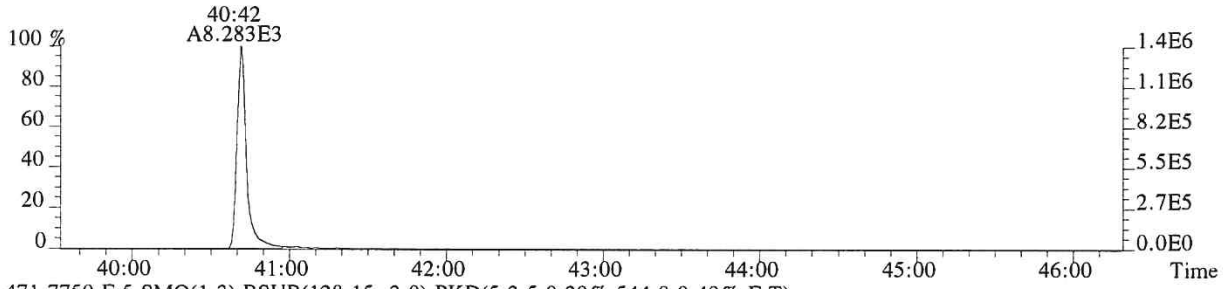
File:P518872 #1-610 Acq:17-NOV-2018 06:47:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,860.0,0.40%,F,T)



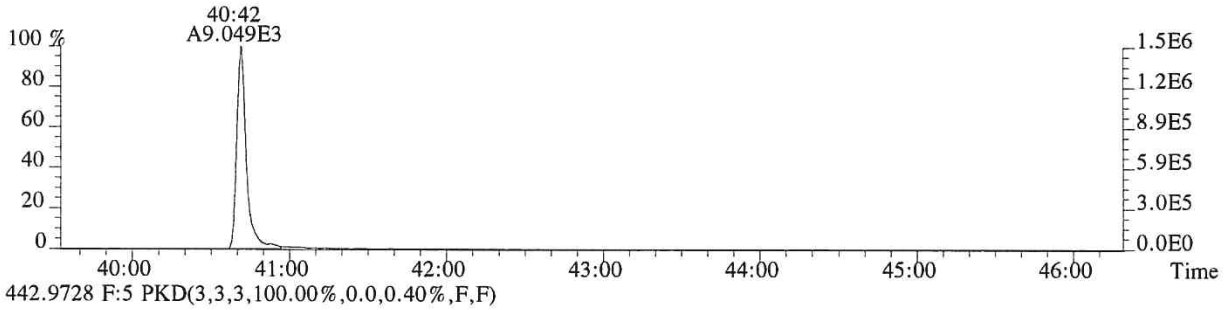
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1180.0,0.40%,F,T)



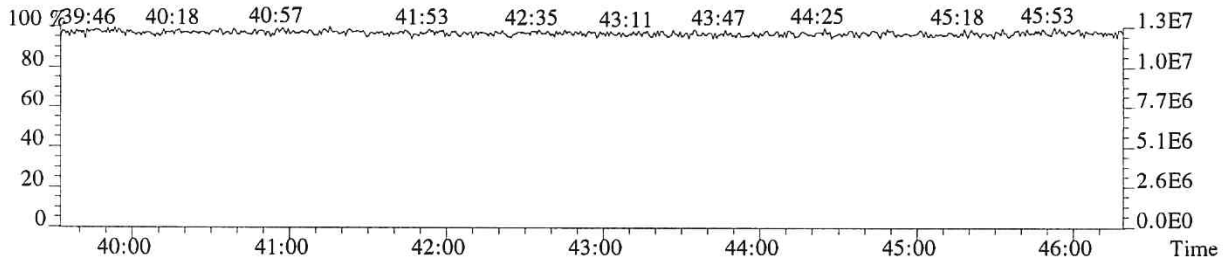
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009775

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0034

un #20 Filename P518978 Samp: 1 Inj: 1 Acquired: 21-NOV-18 21:39:14
rocessed: 26-NOV-18 13:58:39 Sample ID: E1801020-051DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:36	1.208e+04	1.593e+04	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:42	7.104e+02	4.777e+02	1.49	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:36	4.565e+02	2.726e+02	1.67	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	1.482e+03	1.211e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:21	4.094e+02	3.121e+02	1.31	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	4.686e+01	4.724e+01	0.99	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.116e+02	7.722e+01	1.45	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	4.070e+02	4.227e+02	0.96	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:17	1.705e+02	1.703e+02	1.00	yes	no	1.258
.0	Unk	OCDF	42:51	8.684e+02	1.087e+03	0.80	yes	no	1.359
.1	Unk	2,3,7,8-TCDD	29:23	3.446e+03	4.200e+03	0.82	yes	no	1.085
.2	Unk	1,2,3,7,8-PeCDD	33:54	6.296e+01	2.520e+01	2.50	no	no	0.956
.3	Unk	1,2,3,4,7,8-HxCDD	36:57	6.478e+00	6.700e+00	0.97	no	no	1.038
.4	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
.5	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.063
.6	Unk	1,2,3,4,6,7,8-HpCDD	39:47	8.317e+02	8.056e+02	1.03	yes	no	1.025
.7	Unk	OCDD	42:39	5.119e+03	5.780e+03	0.89	yes	no	1.118
.8	IS	13C-2,3,7,8-TCDF	28:35	2.048e+04	2.612e+04	0.78	yes	no	1.513
.9	IS	13C-1,2,3,7,8-PeCDF	32:42	3.209e+04	2.024e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:35	3.058e+04	1.944e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	1.259e+04	2.462e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:20	1.618e+04	3.088e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	1.709e+04	3.248e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	1.264e+04	2.431e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	1.341e+04	3.103e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	1.357e+04	3.010e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:21	1.380e+04	1.714e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	2.392e+04	1.470e+04	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	1.714e+04	1.252e+04	1.37	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.930e+04	1.622e+04	1.19	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	1.845e+04	1.735e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:38	2.728e+04	3.043e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:49	1.708e+04	2.119e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	2.345e+04	1.846e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.721e+02				no	1.014

$$\text{OCDD} = \frac{(5.119e+03 + 5.780e+03) \times 4000\ \text{pg} \times 50}{(2.728e+04 + 3.043e+04) \times 10.086\ \text{g} \times 68.3/100 \times 1.118} = 19617.5196\ \text{ng/kg}$$

LCG 11/27/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0034

un #20 Filename P518978 Samp: 1 Inj: 1 Acquired: 21-NOV-18 21:39:14
rocessed: 26-NOV-18 13:58:39 LAB. ID: E1801020-051DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	2.00e+06	3.08e+02	6.5e+03	2.64e+06	1.04e+03	2.5e+03
	1,2,3,7,8-PeCDF	1.28e+05	1.33e+03	9.7e+01	7.92e+04	1.25e+03	6.3e+01
	2,3,4,7,8-PeCDF	7.80e+04	1.33e+03	5.9e+01	3.91e+04	1.25e+03	3.1e+01
	1,2,3,4,7,8-HxCDF	2.81e+05	6.60e+02	4.3e+02	2.22e+05	7.12e+02	3.1e+02
	1,2,3,6,7,8-HxCDF	7.28e+04	6.60e+02	1.1e+02	5.85e+04	7.12e+02	8.2e+01
	2,3,4,6,7,8-HxCDF	7.12e+03	6.60e+02	1.1e+01	9.48e+03	7.12e+02	1.3e+01
	1,2,3,7,8,9-HxCDF	1.82e+04	6.60e+02	2.8e+01	1.32e+04	7.12e+02	1.9e+01
	1,2,3,4,6,7,8-HpCDF	7.51e+04	2.60e+02	2.9e+02	7.62e+04	2.68e+02	2.8e+02
	1,2,3,4,7,8,9-HpCDF	2.56e+04	2.60e+02	9.9e+01	2.77e+04	2.68e+02	1.0e+02
.0	OCDF	1.22e+05	2.24e+02	5.5e+02	1.34e+05	4.08e+02	3.3e+02
.1	2,3,7,8-TCDD	6.50e+05	1.42e+03	4.6e+02	7.95e+05	7.40e+02	1.1e+03
.2	1,2,3,7,8-PeCDD	1.00e+04	6.52e+02	1.5e+01	4.77e+03	3.16e+02	1.5e+01
.3	1,2,3,4,7,8-HxCDD	1.40e+03	2.88e+02	4.9e+00	1.51e+03	4.20e+02	3.6e+00
.4	1,2,3,6,7,8-HxCDD	*	2.88e+02	*	*	4.20e+02	*
.5	1,2,3,7,8,9-HxCDD	*	2.88e+02	*	*	4.20e+02	*
.6	1,2,3,4,6,7,8-HpCDD	1.38e+05	5.04e+02	2.7e+02	1.27e+05	4.40e+02	2.9e+02
.7	OCDD	6.88e+05	2.24e+02	3.1e+03	7.24e+05	2.04e+02	3.6e+03
.8	13C-2,3,7,8-TCDF	3.76e+06	3.95e+03	9.5e+02	4.78e+06	2.68e+03	1.8e+03
.9	13C-1,2,3,7,8-PeCDF	5.49e+06	3.80e+02	1.4e+04	3.43e+06	4.12e+02	8.3e+03
20	13C-2,3,4,7,8-PeCDF	5.35e+06	3.80e+02	1.4e+04	3.39e+06	4.12e+02	8.2e+03
21	13C-1,2,3,4,7,8-HxCDF	2.47e+06	5.48e+02	4.5e+03	4.77e+06	9.16e+02	5.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.93e+06	5.48e+02	5.4e+03	5.73e+06	9.16e+02	6.3e+03
23	13C-2,3,4,6,7,8-HxCDF	3.16e+06	5.48e+02	5.8e+03	6.01e+06	9.16e+02	6.6e+03
24	13C-1,2,3,7,8,9-HxCDF	2.15e+06	5.48e+02	3.9e+03	4.16e+06	9.16e+02	4.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.48e+06	1.69e+03	1.5e+03	5.69e+06	3.86e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.15e+06	1.69e+03	1.3e+03	4.73e+06	3.86e+03	1.2e+03
27	13C-2,3,7,8-TCDD	2.55e+06	3.82e+03	6.7e+02	3.16e+06	1.52e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	4.21e+06	6.56e+02	6.4e+03	2.59e+06	6.44e+02	4.0e+03
29	13C-1,2,3,4,7,8-HxCDD	3.49e+06	8.76e+02	4.0e+03	2.66e+06	3.56e+02	7.5e+03
30	13C-1,2,3,6,7,8-HxCDD	3.55e+06	8.76e+02	4.1e+03	2.78e+06	3.56e+02	7.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.02e+06	3.68e+02	8.2e+03	2.86e+06	2.64e+02	1.1e+04
32	13C-OCDD	3.54e+06	2.60e+02	1.4e+04	3.88e+06	2.20e+02	1.8e+04
33	13C-1,2,3,4-TCDD	3.32e+06	3.82e+03	8.7e+02	4.13e+06	1.52e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	3.81e+06	8.76e+02	4.3e+03	3.06e+06	3.56e+02	8.6e+03
35	37Cl-2,3,7,8-TCDD	5.42e+04	7.80e+02	6.9e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.420e{+}03 + 7.400e{+}02) \times 2000}{(2.552e{+}06 + 3.164e{+}06) \times (\quad) \times 1.085} =$$

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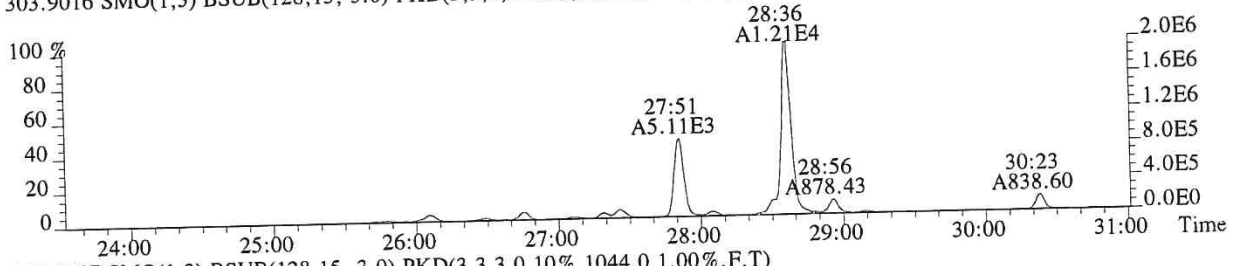
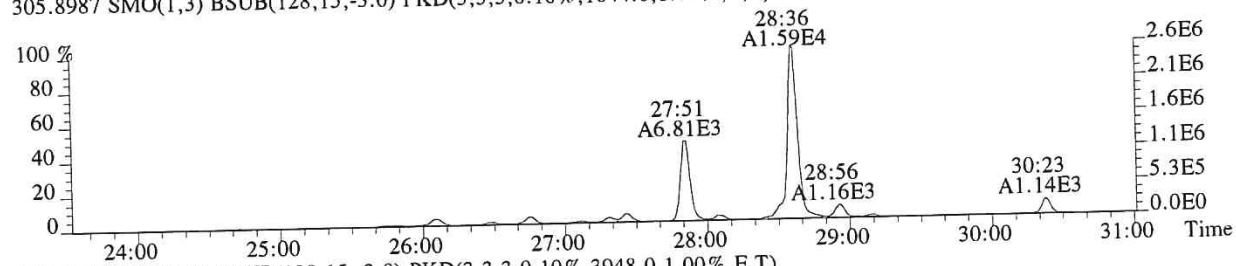
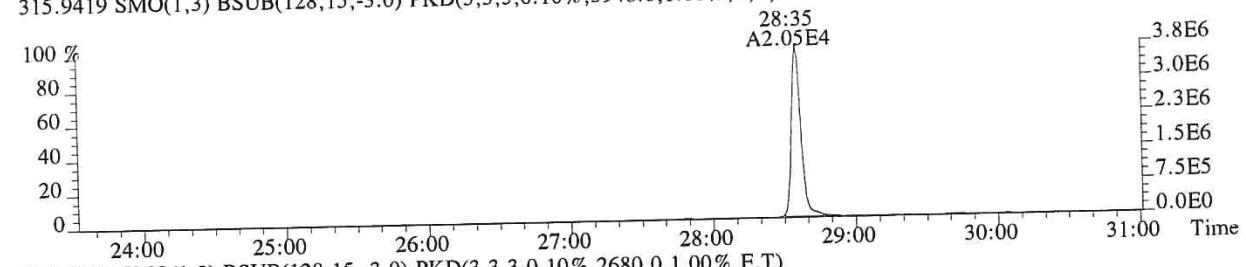
File:P518978 #1-531 Acq:21-NOV-2018 21:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



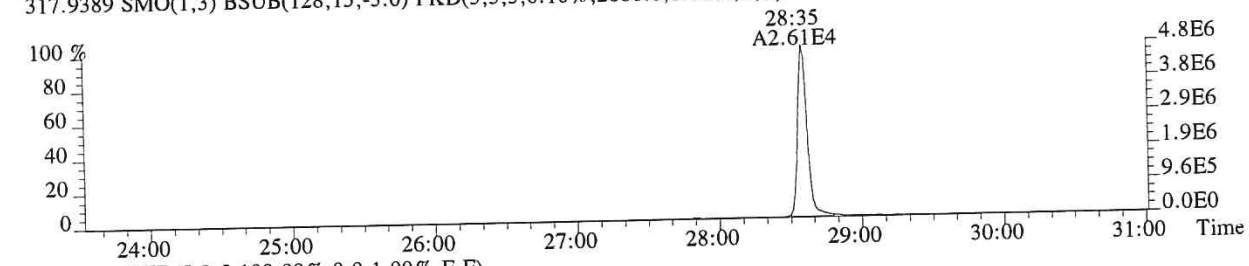
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



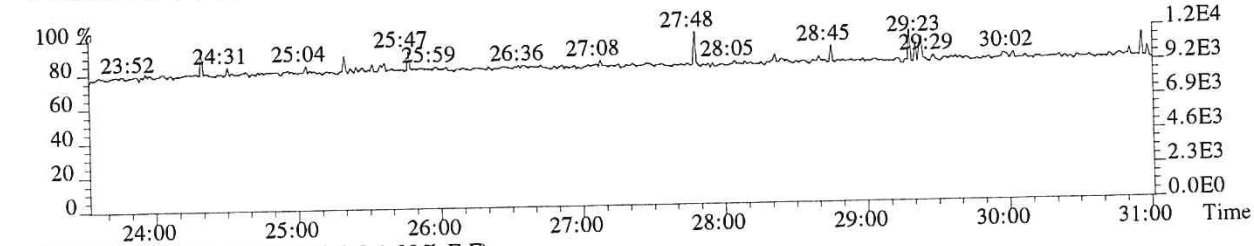
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3948.0,1.00%,F,T)



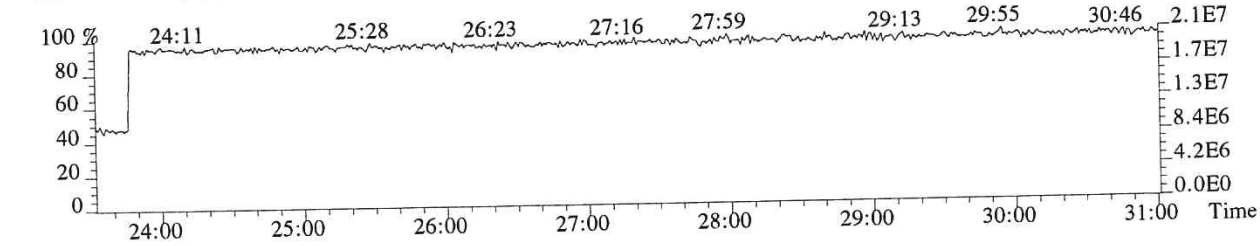
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2680.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

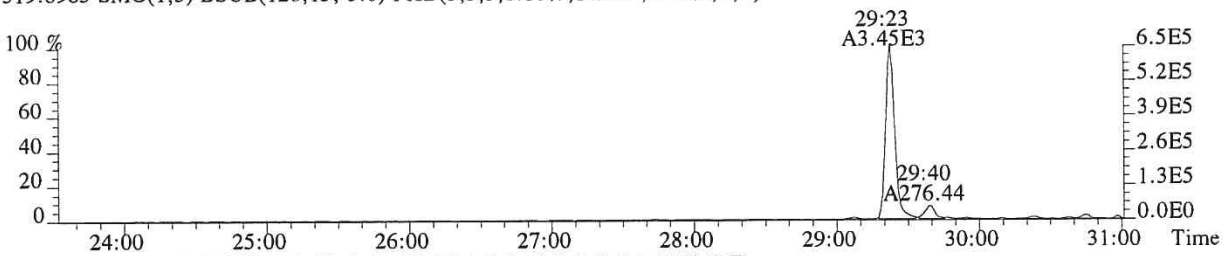


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

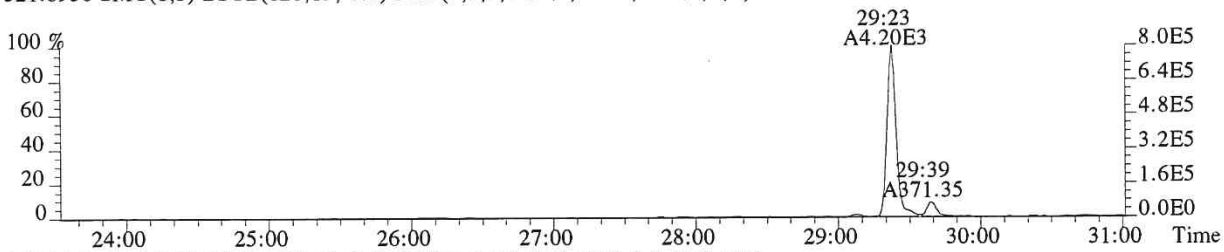


009778

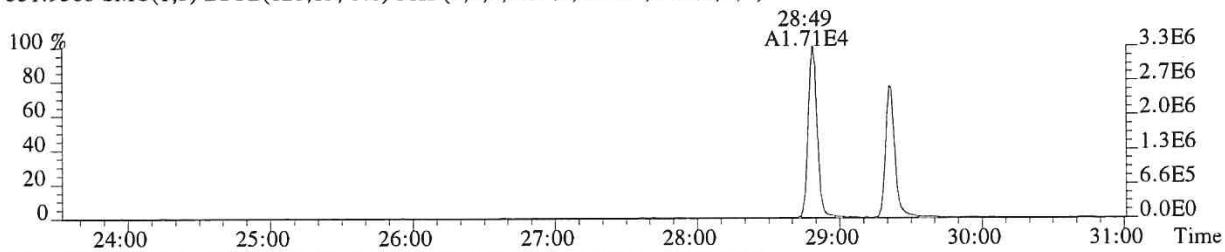
File:P518978 #1-531 Acq:21-NOV-2018 21:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



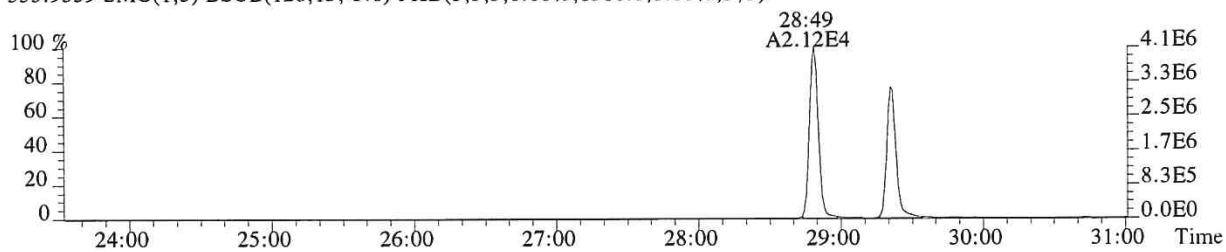
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



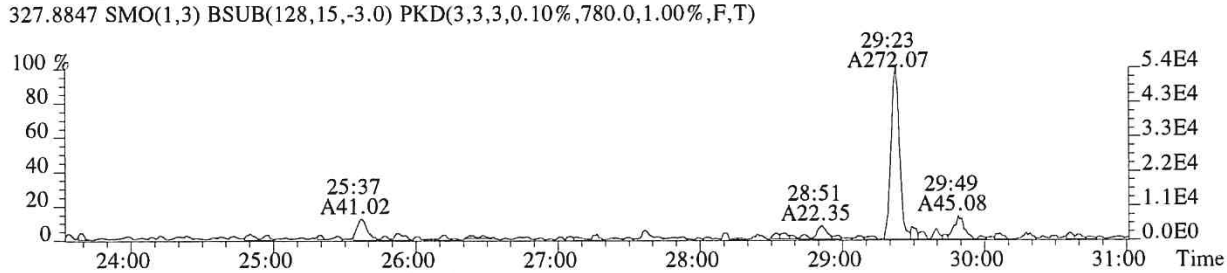
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3820.0,1.00%,F,T)



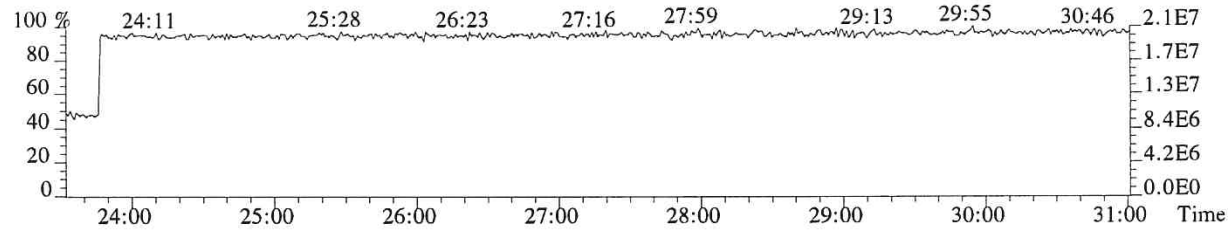
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1516.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)

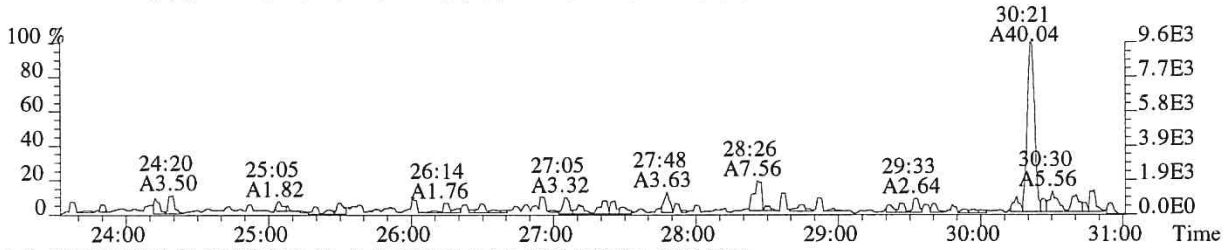


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

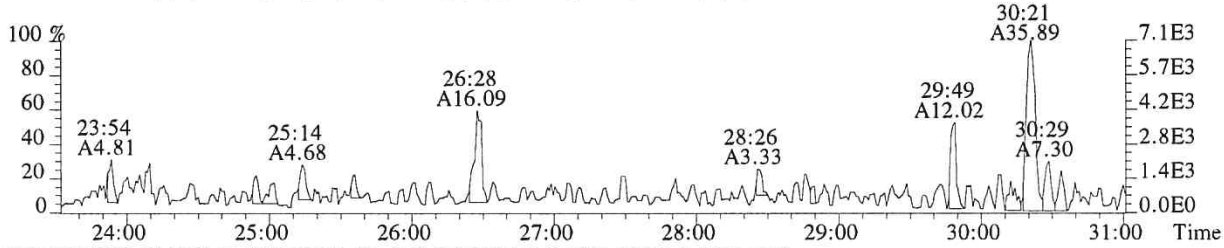


009779

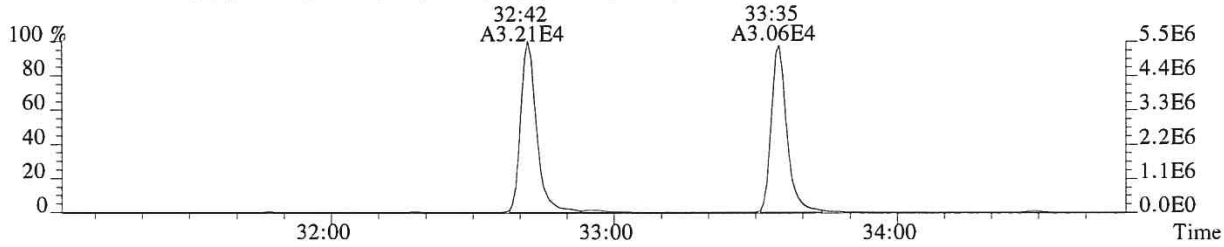
File:P518978 #1-531 Acq:21-NOV-2018 21:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



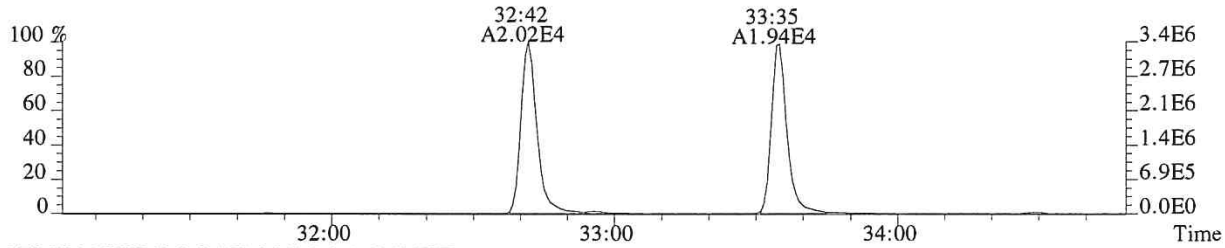
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



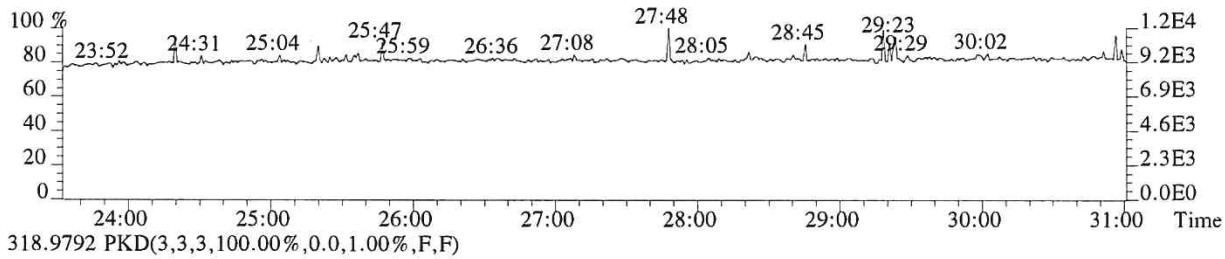
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



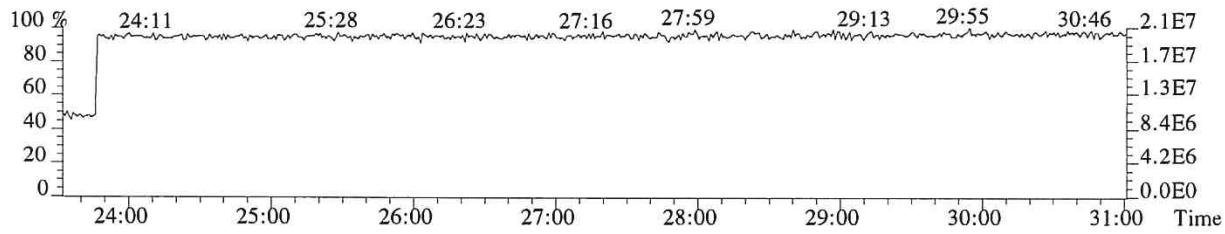
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



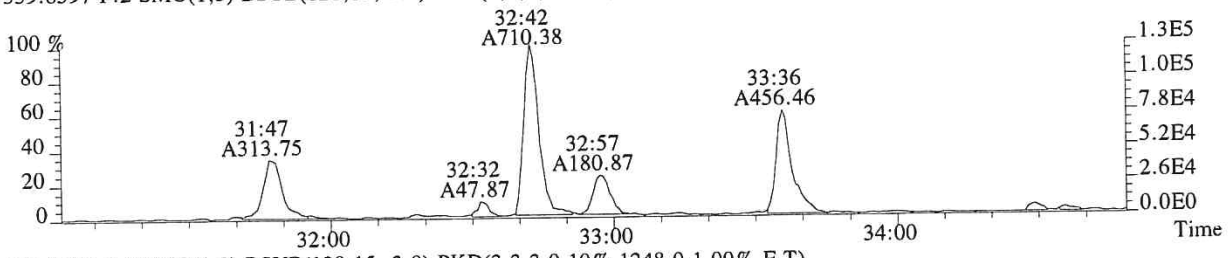
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



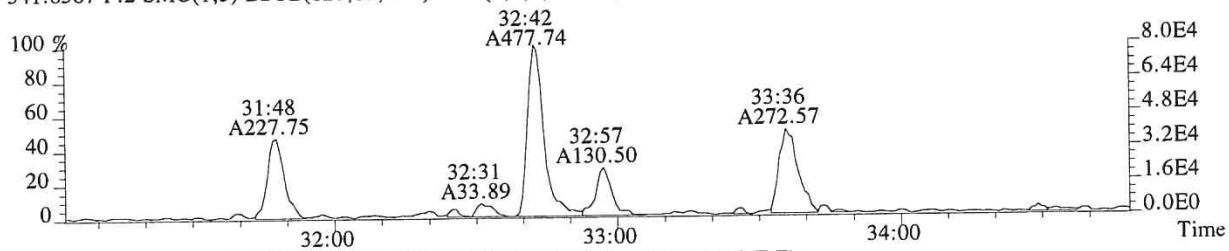
009780

File:P518978 #1-339 Acq:21-NOV-2018 21:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051DL

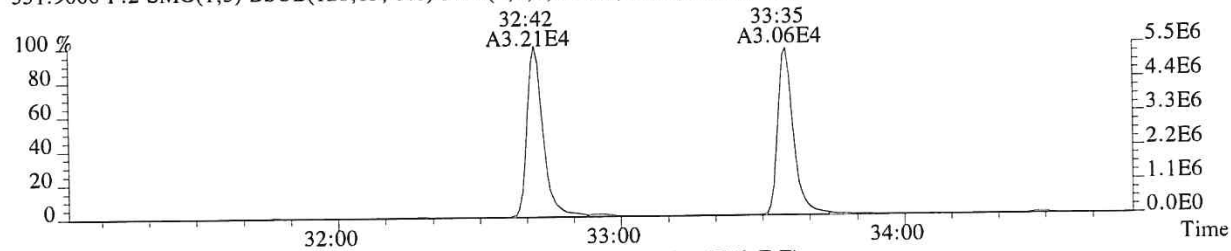
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1328.0,1.00%,F,T)



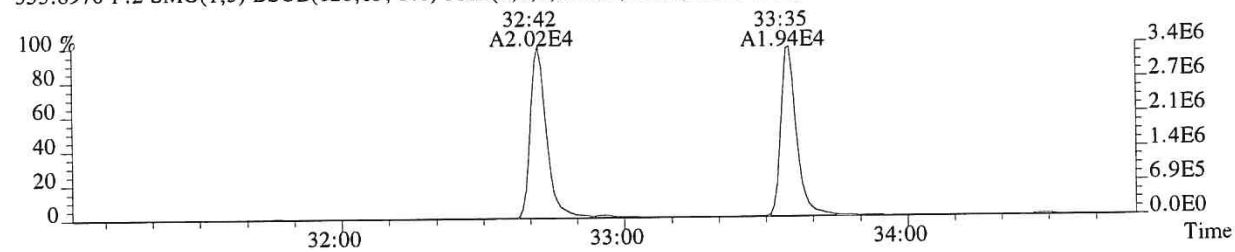
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



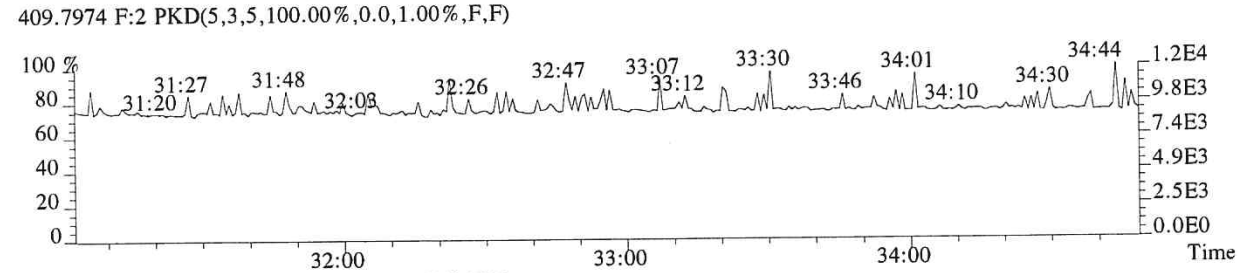
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



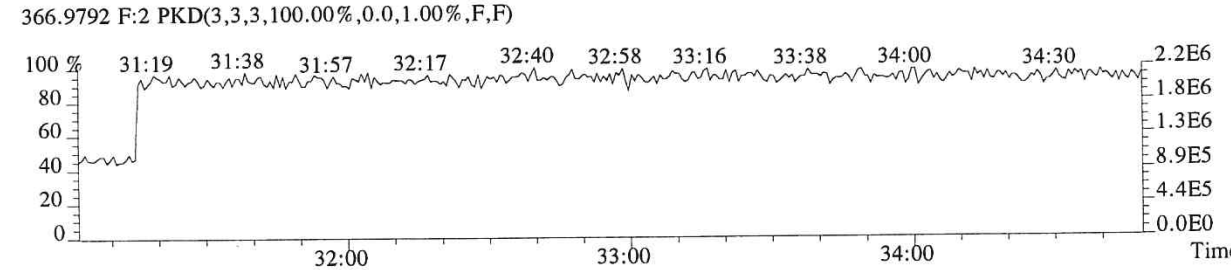
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



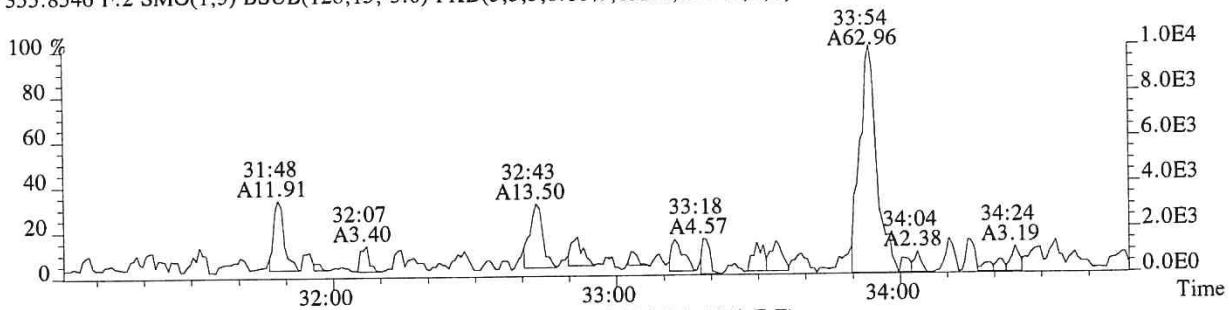
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



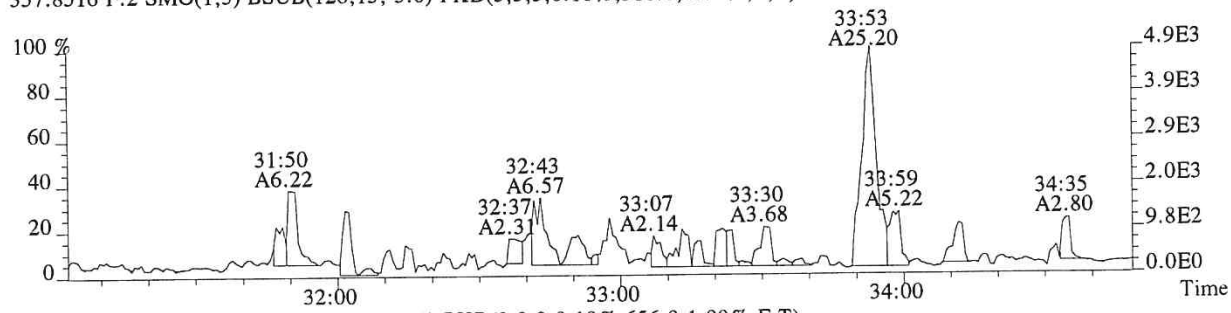
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



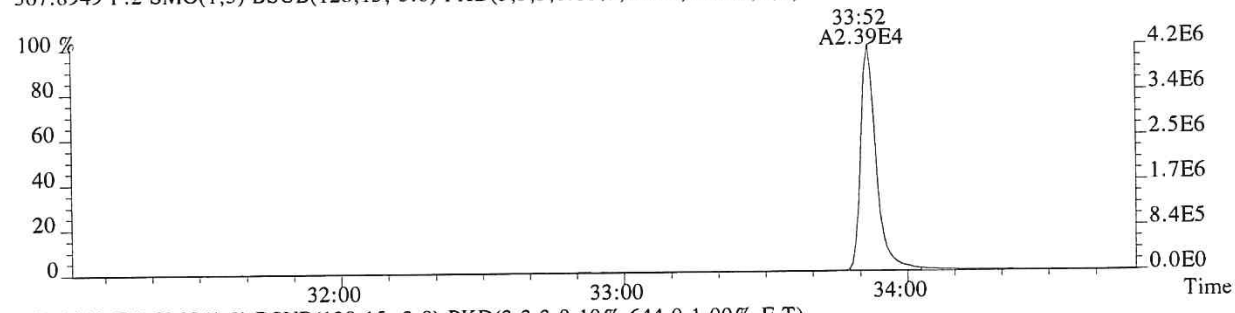
File:P518978 #1-339 Acq:21-NOV-2018 21:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



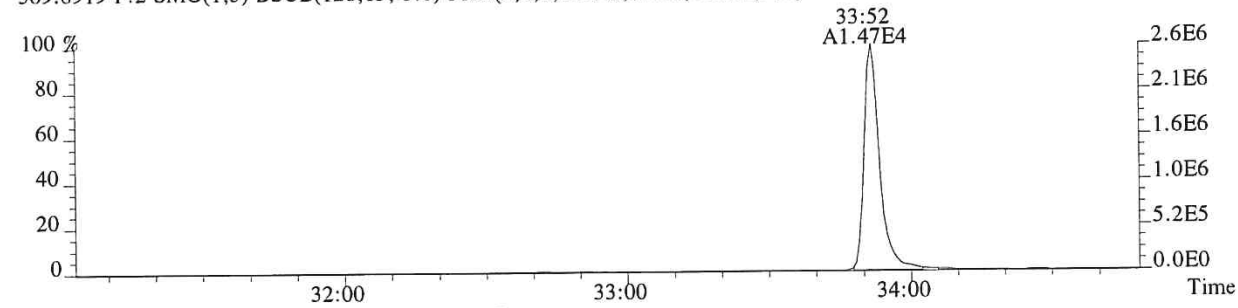
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



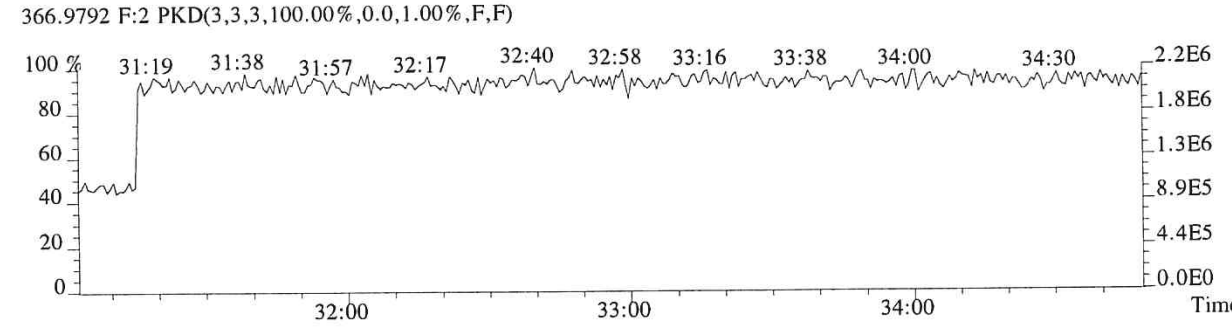
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



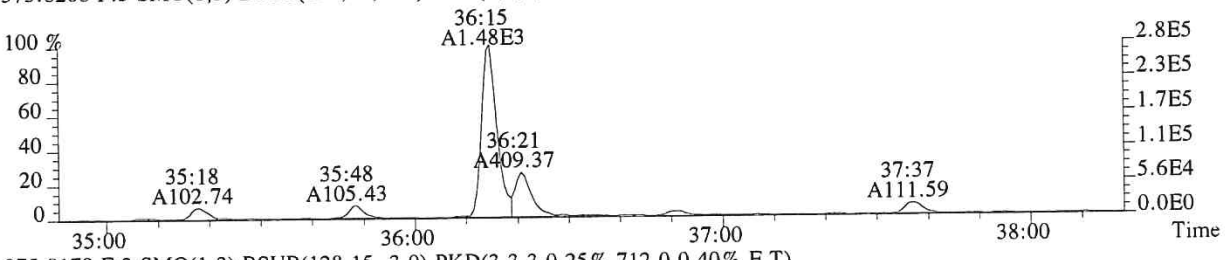
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



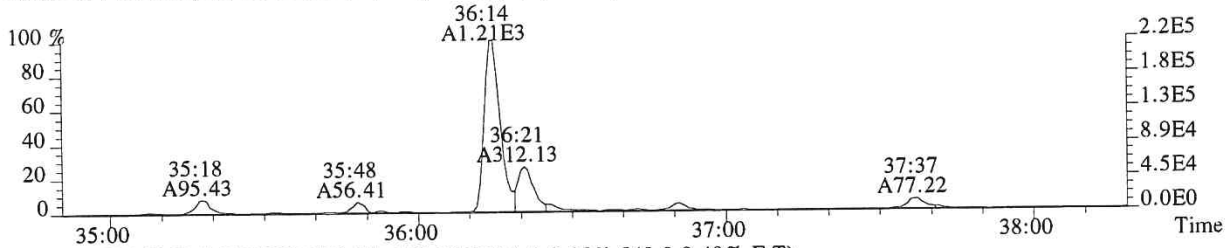
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



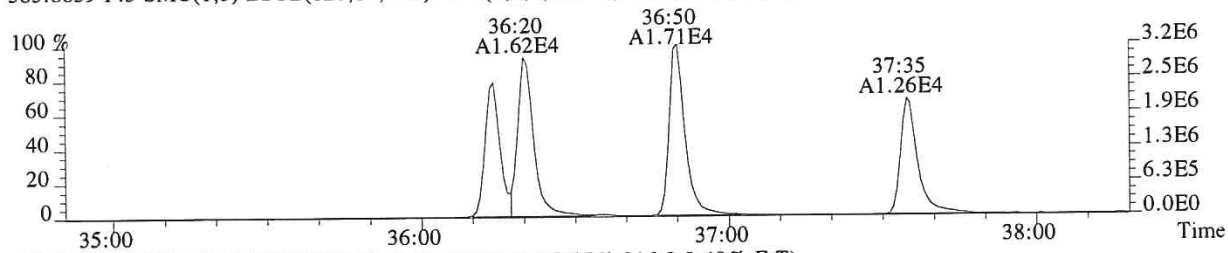
File:P518978 #1-312 Acq:21-NOV-2018 21:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



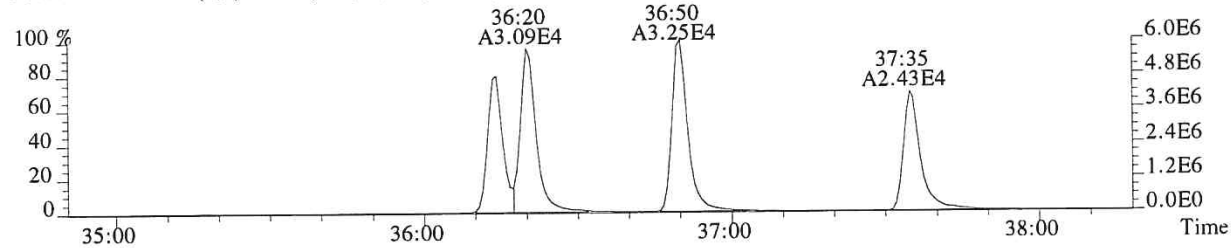
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



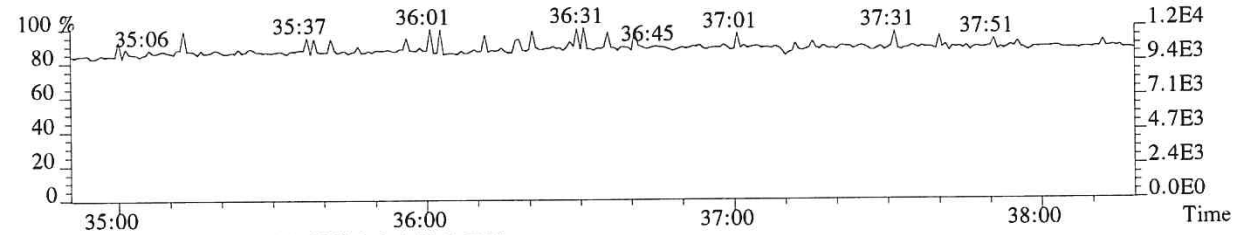
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



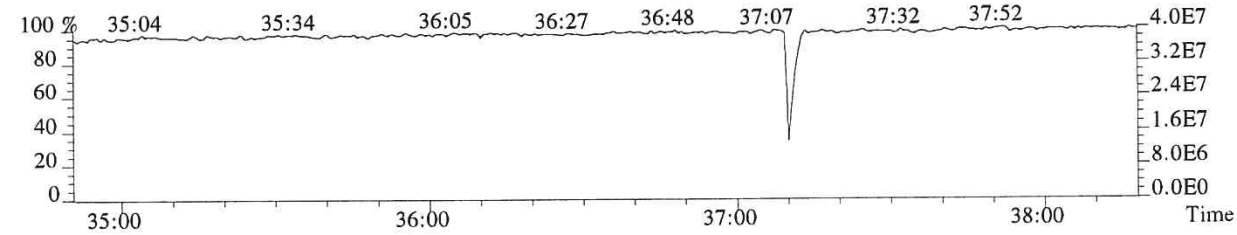
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

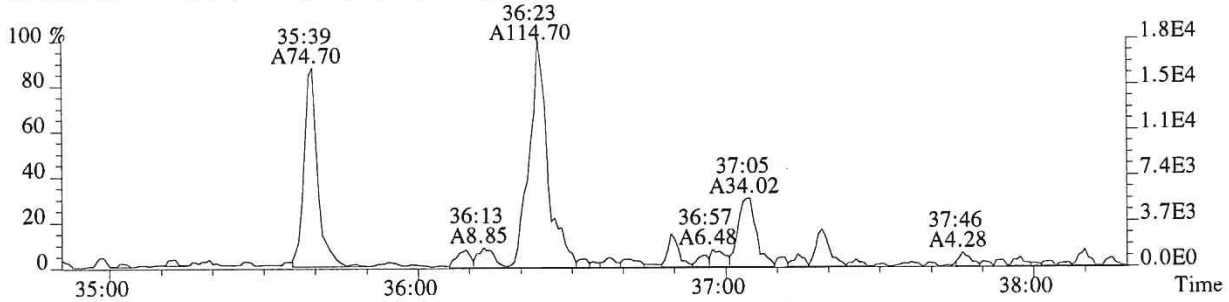


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

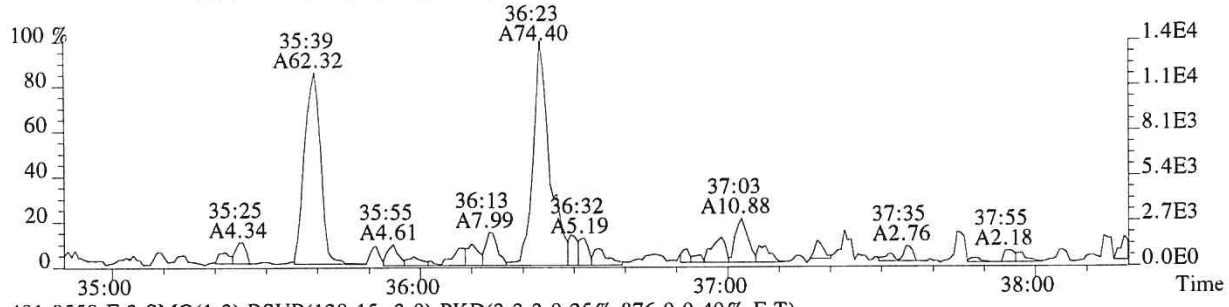


009783

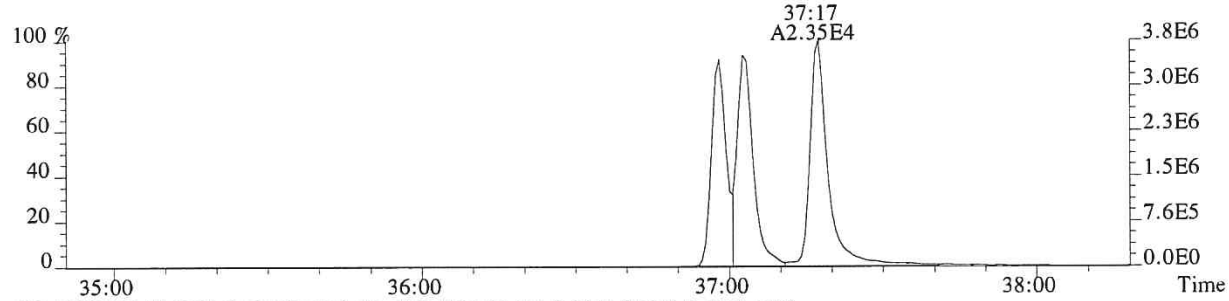
File:P518978 #1-312 Acq:21-NOV-2018 21:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



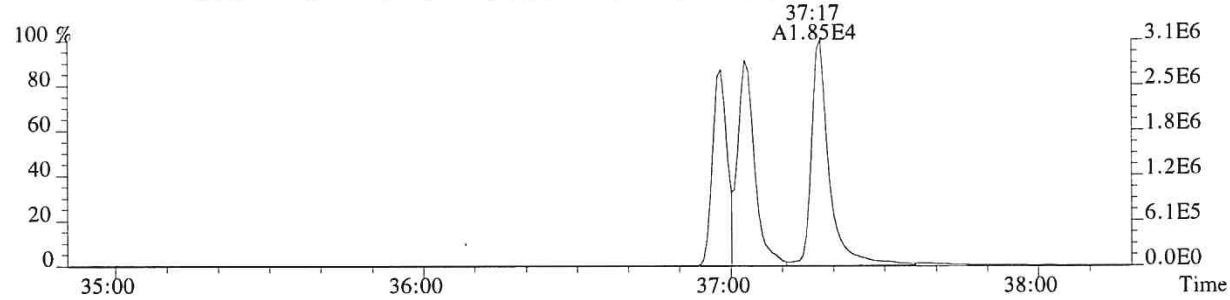
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



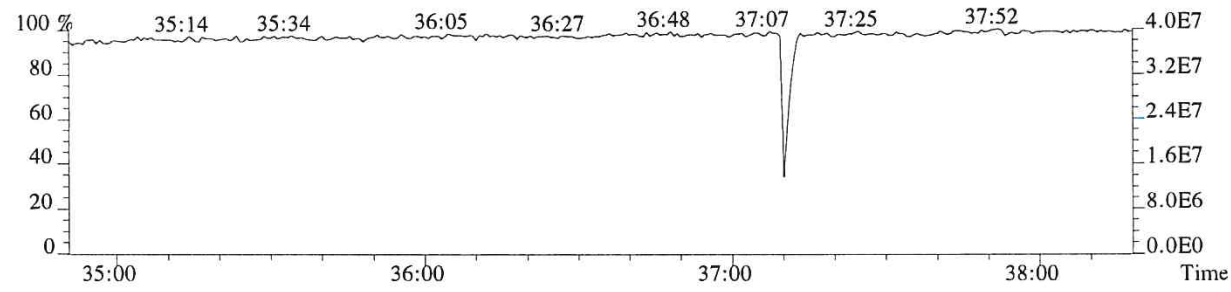
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



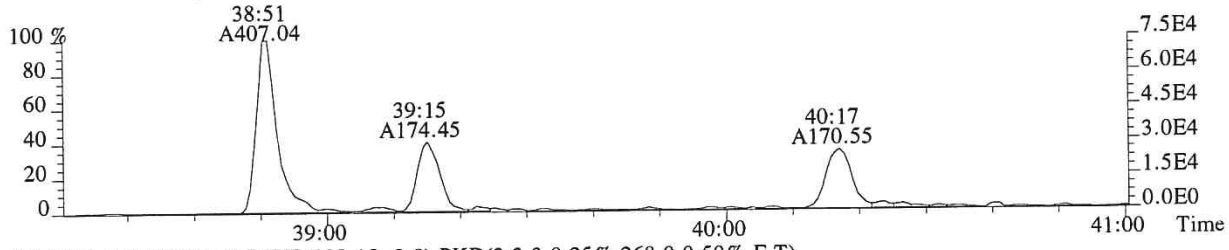
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



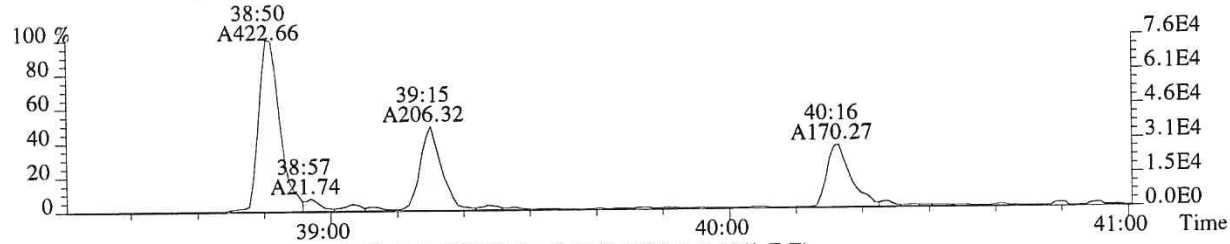
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



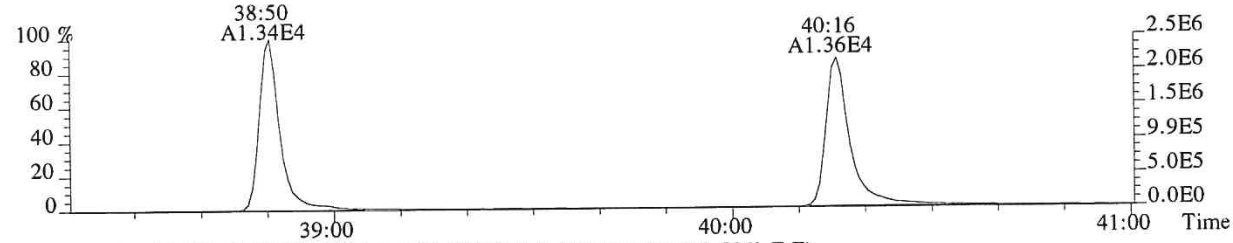
File:P518978 #1-241 Acq:21-NOV-2018 21:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.50%,F,T)



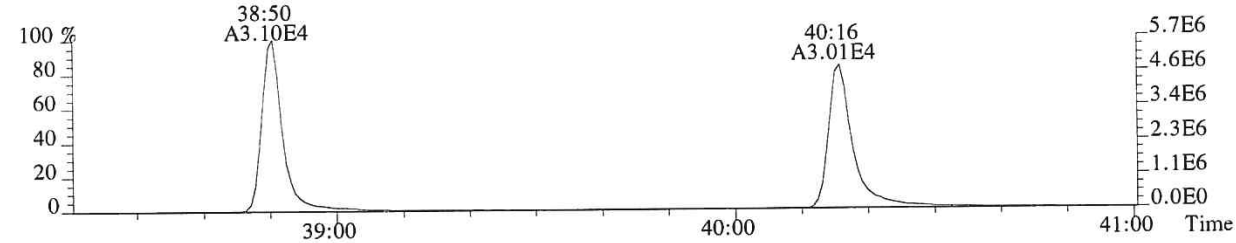
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.50%,F,T)



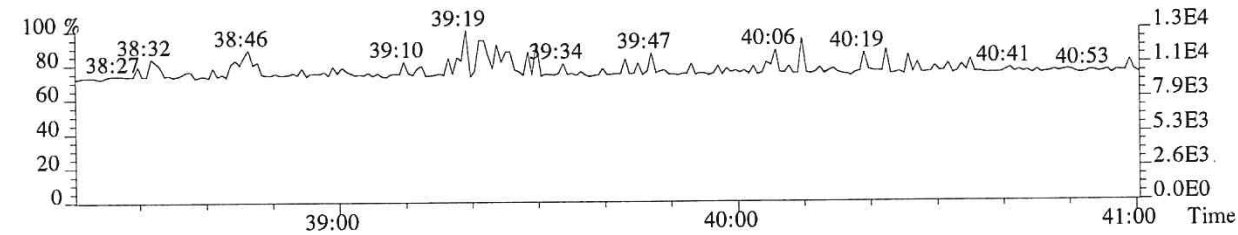
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.50%,F,T)



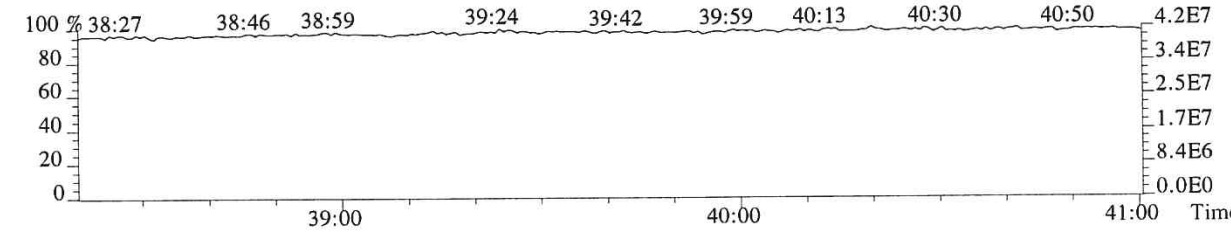
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3856.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

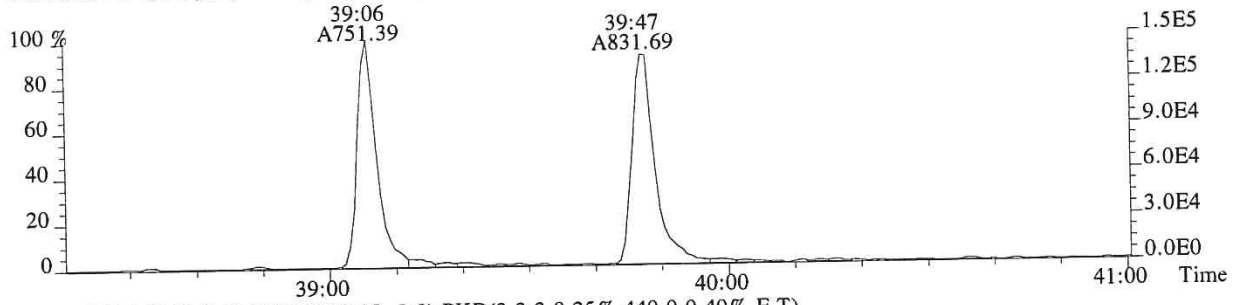


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

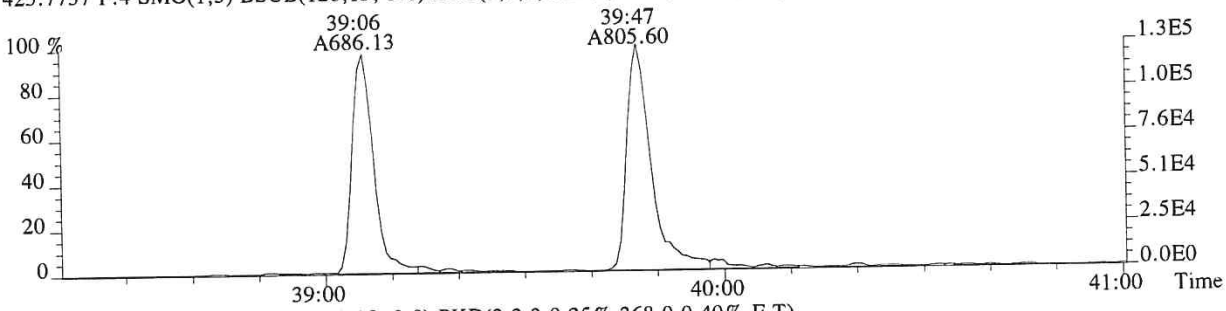


009785

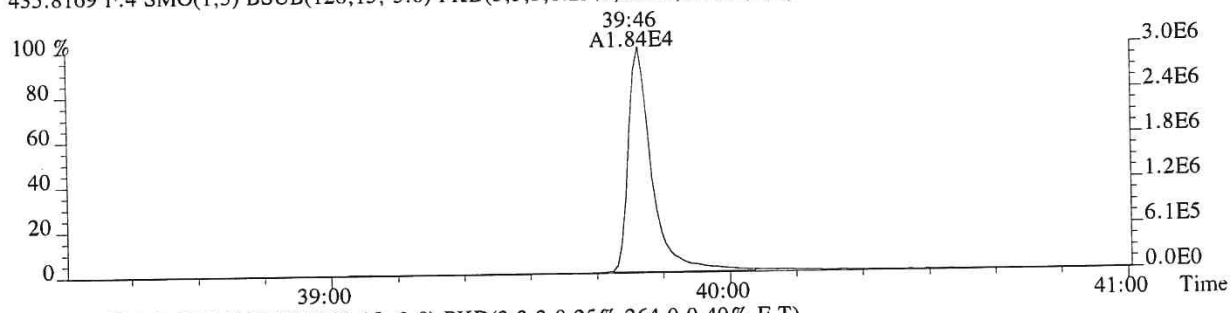
File:P518978 #1-241 Acq:21-NOV-2018 21:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



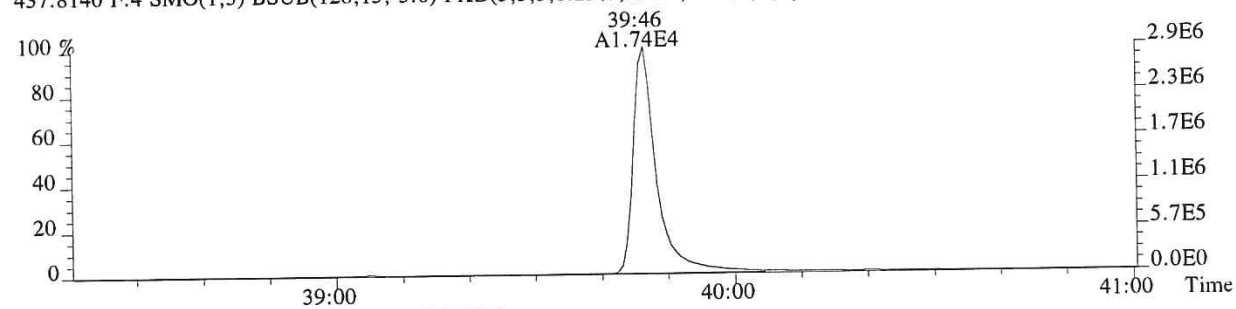
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



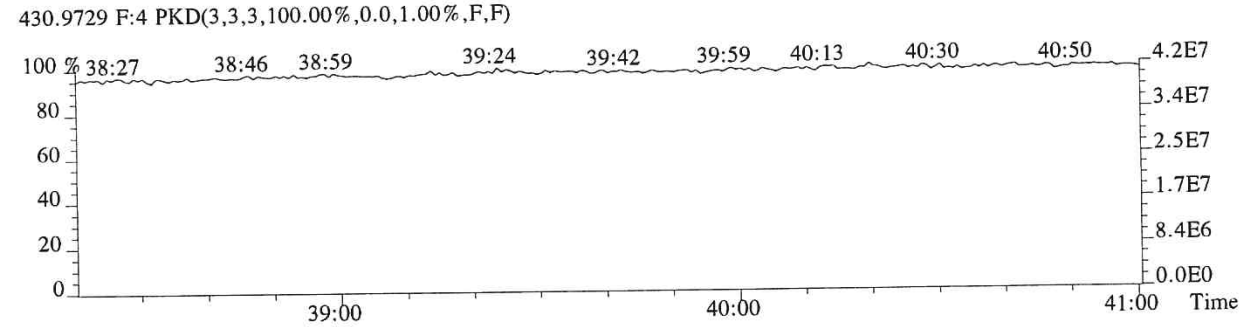
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



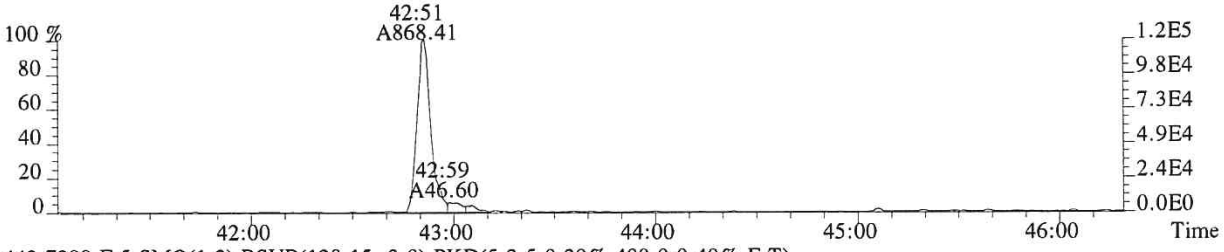
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



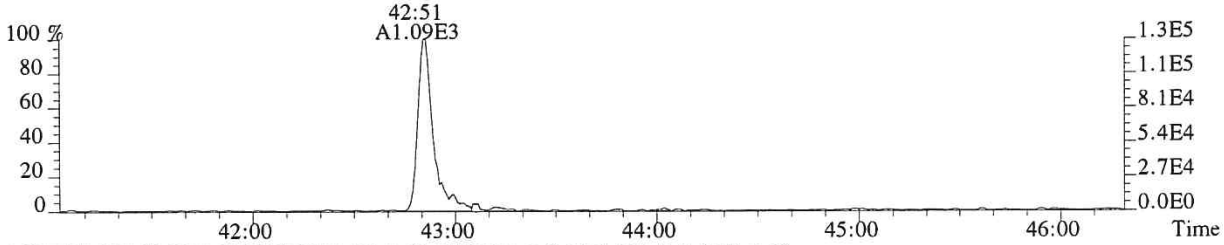
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



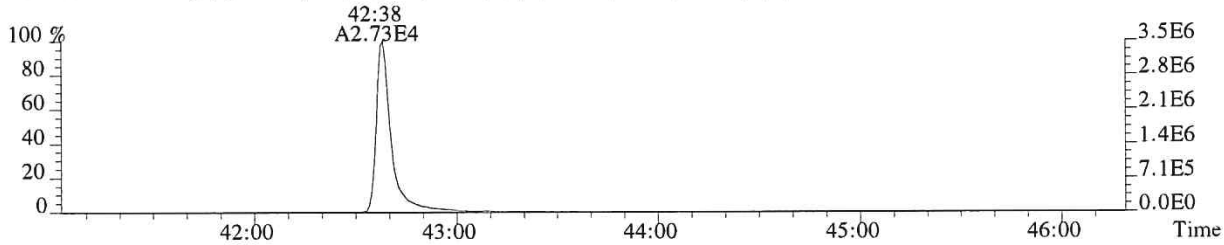
File:P518978 #1-475 Acq:21-NOV-2018 21:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



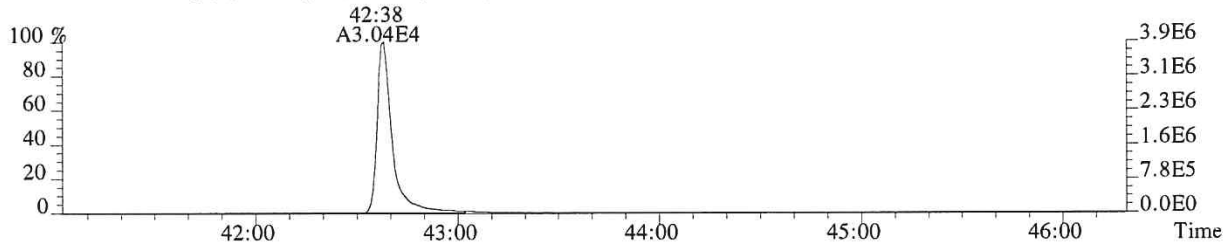
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



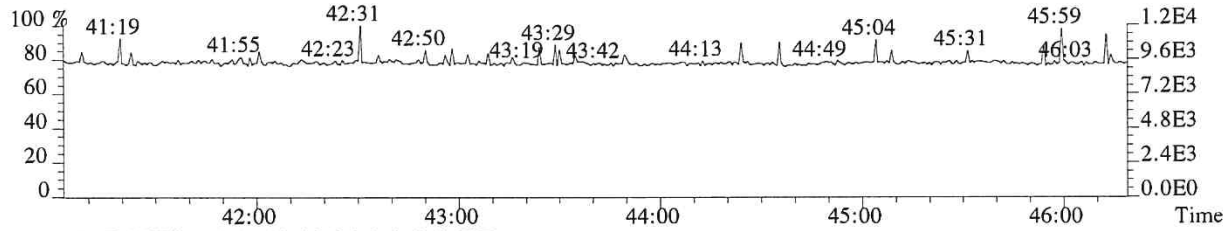
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



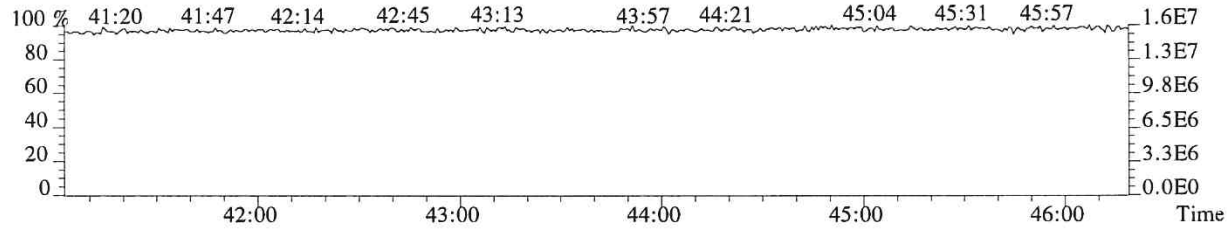
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

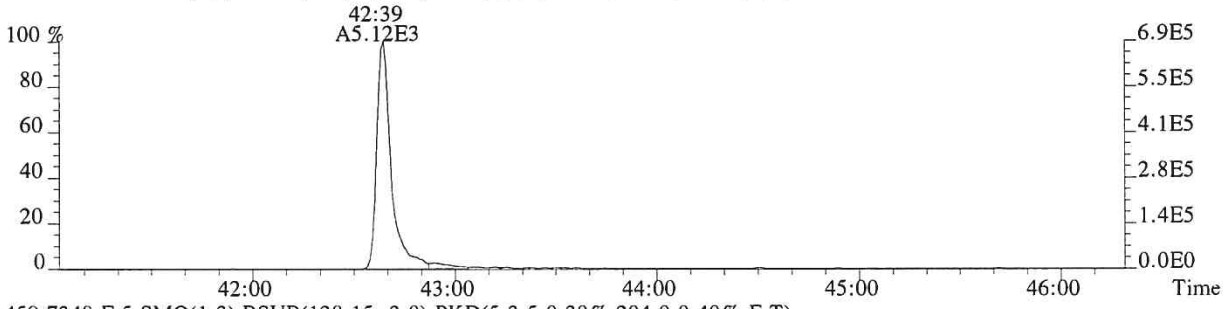


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

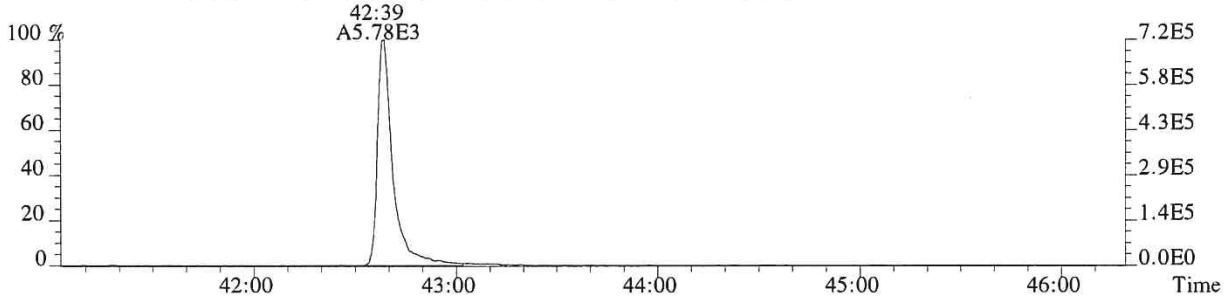


009787

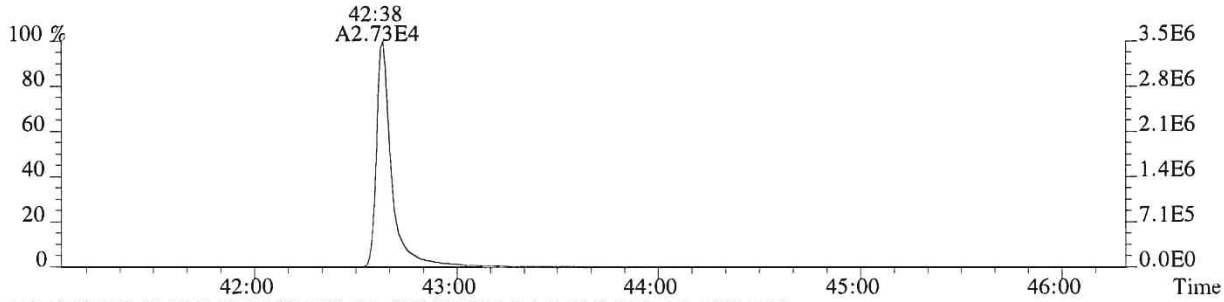
File:P518978 #1-475 Acq:21-NOV-2018 21:39:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-051DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



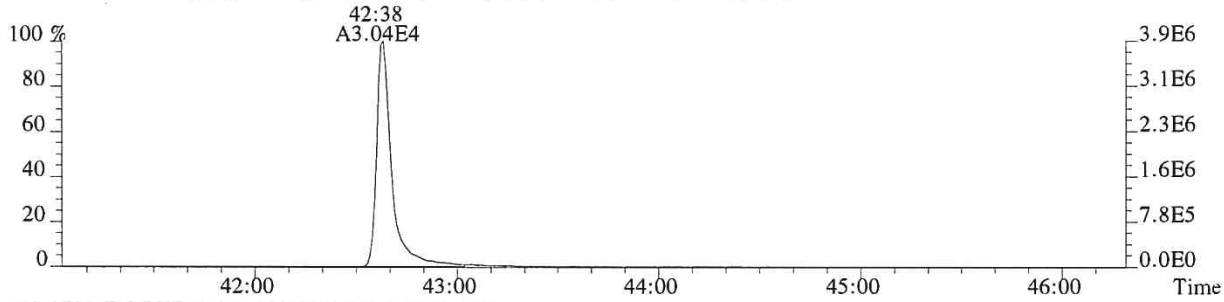
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



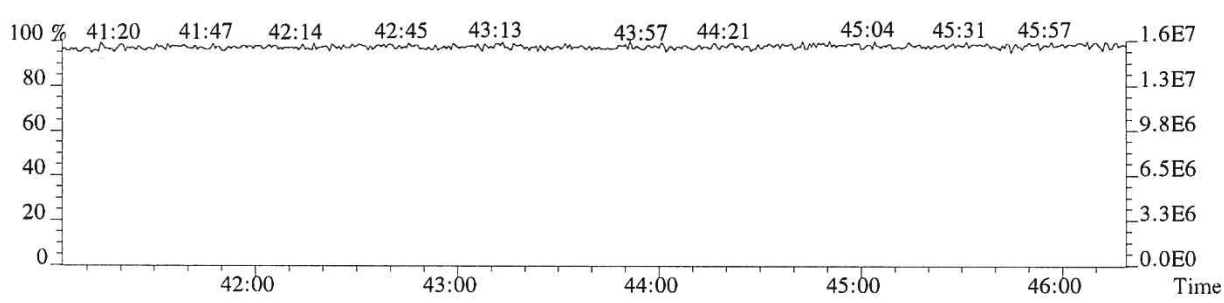
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009788

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0046

Run #15 Filename P518873 Samp: 1 Inj: 1 Acquired: 17-NOV-18 07:36:04
Processed: 21-NOV-18 09:19:32 Sample ID: E1801020-052

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	1.779e+03	2.190e+03	0.81	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.599e+02	1.351e+02	1.18	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	2.348e+02	1.408e+02	1.67	yes	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	3.858e+02	2.790e+02	1.38	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	2.489e+02	1.576e+02	1.58	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.786e+02	1.120e+02	1.59	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:57	6.077e+01	4.746e+01	1.28	yes	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	1.607e+03	1.663e+03	0.97	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:36	1.107e+02	9.304e+01	1.19	yes	no	1.258
10	Unk	OCDF	40:52	1.866e+03	2.115e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:35	4.825e+02	5.732e+02	0.84	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	6.344e+01	5.720e+01	1.11	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	8.113e+01	6.125e+01	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	3.661e+02	2.950e+02	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:39	2.022e+02	1.476e+02	1.37	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	1.023e+04	1.016e+04	1.01	yes	no	1.025
17	Unk	OCDD	40:42	1.462e+05	1.618e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.630e+04	2.085e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	3.115e+04	1.941e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	3.087e+04	1.902e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.378e+04	2.658e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:36	1.712e+04	3.234e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.475e+04	2.813e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.351e+04	2.576e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	9.105e+03	1.991e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:35	7.806e+03	1.744e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	1.166e+04	1.468e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	2.278e+04	1.443e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.853e+04	1.483e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.922e+04	1.475e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.663e+04	1.553e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:42	1.258e+04	1.406e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	2.183e+04	2.767e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.226e+04	2.422e+04	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	1.321e+04				no	1.014

$$\text{OCDD} = \frac{(1.462e+05 + 1.618e+05) \times 4000\ \text{pg} \times 1}{(1.258e+04 + 1.406e+04) \times 10.797\ \text{g} \times 78.7/100 \times 1.118} = 4868.3702\ \text{ng/kg}$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0046

Run #15 Filename P518873 Samp: 1 Inj: 1 Acquired: 17-NOV-18 07:36:04
Processed: 21-NOV-18 09:19:32 LAB. ID: E1801020-052

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.37e+05	6.80e+02	3.5e+02	2.91e+05	1.44e+03	2.0e+02
2	1,2,3,7,8-PeCDF	2.74e+04	8.00e+02	3.4e+01	2.54e+04	2.76e+03	9.2e+00
3	2,3,4,7,8-PeCDF	3.05e+04	8.00e+02	3.8e+01	2.04e+04	2.76e+03	7.4e+00
4	1,2,3,4,7,8-HxCDF	7.78e+04	2.55e+03	3.1e+01	5.49e+04	3.04e+03	1.8e+01
5	1,2,3,6,7,8-HxCDF	4.60e+04	2.55e+03	1.8e+01	2.90e+04	3.04e+03	9.5e+00
6	2,3,4,6,7,8-HxCDF	3.74e+04	2.55e+03	1.5e+01	2.55e+04	3.04e+03	8.4e+00
7	1,2,3,7,8,9-HxCDF	7.53e+03	2.55e+03	3.0e+00	7.71e+03	3.04e+03	2.5e+00
8	1,2,3,4,6,7,8-HpCDF	3.27e+05	1.64e+03	2.0e+02	3.37e+05	1.80e+03	1.9e+02
9	1,2,3,4,7,8,9-HpCDF	2.49e+04	1.64e+03	1.5e+01	1.80e+04	1.80e+03	1.0e+01
10	OCDF	3.10e+05	3.48e+02	8.9e+02	3.34e+05	4.24e+02	7.9e+02
11	2,3,7,8-TCDD	6.99e+04	1.52e+03	4.6e+01	8.73e+04	5.84e+02	1.5e+02
12	1,2,3,7,8-PeCDD	1.12e+04	7.92e+02	1.4e+01	9.30e+03	3.40e+02	2.7e+01
13	1,2,3,4,7,8-HxCDD	2.04e+04	1.20e+03	1.7e+01	1.54e+04	1.80e+03	8.6e+00
14	1,2,3,6,7,8-HxCDD	7.27e+04	1.20e+03	6.0e+01	5.63e+04	1.80e+03	3.1e+01
15	1,2,3,7,8,9-HxCDD	3.51e+04	1.20e+03	2.9e+01	3.29e+04	1.80e+03	1.8e+01
16	1,2,3,4,6,7,8-HpCDD	1.96e+06	3.90e+03	5.0e+02	1.93e+06	4.40e+03	4.4e+02
17	OCDD	2.35e+07	2.40e+02	9.8e+04	2.62e+07	6.16e+02	4.2e+04
18	13C-2,3,7,8-TCDF	2.15e+06	3.77e+03	5.7e+02	2.83e+06	1.56e+03	1.8e+03
19	13C-1,2,3,7,8-PeCDF	5.21e+06	7.80e+02	6.7e+03	3.26e+06	2.76e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	5.34e+06	7.80e+02	6.8e+03	3.25e+06	2.76e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	2.73e+06	3.80e+02	7.2e+03	5.32e+06	5.36e+02	9.9e+03
22	13C-1,2,3,6,7,8-HxCDF	3.24e+06	3.80e+02	8.5e+03	6.13e+06	5.36e+02	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	2.84e+06	3.80e+02	7.5e+03	5.47e+06	5.36e+02	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	2.41e+06	3.80e+02	6.3e+03	4.74e+06	5.36e+02	8.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+06	1.30e+03	1.4e+03	4.01e+06	4.62e+03	8.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.40e+06	1.30e+03	1.1e+03	3.16e+06	4.62e+03	6.8e+02
27	13C-2,3,7,8-TCDD	1.78e+06	3.92e+03	4.5e+02	2.25e+06	2.90e+03	7.8e+02
28	13C-1,2,3,7,8-PeCDD	3.96e+06	4.08e+02	9.7e+03	2.51e+06	6.96e+02	3.6e+03
29	13C-1,2,3,4,7,8-HxCDD	4.03e+06	1.18e+03	3.4e+03	3.22e+06	6.60e+02	4.9e+03
30	13C-1,2,3,6,7,8-HxCDD	3.70e+06	1.18e+03	3.1e+03	2.84e+06	6.60e+02	4.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.11e+06	3.44e+02	9.0e+03	2.95e+06	3.44e+02	8.6e+03
32	13C-OCDD	2.05e+06	1.56e+02	1.3e+04	2.30e+06	1.92e+02	1.2e+04
33	13C-1,2,3,4-TCDD	3.21e+06	3.92e+03	8.2e+02	4.07e+06	2.90e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	6.02e+06	1.18e+03	5.1e+03	4.64e+06	6.60e+02	7.0e+03
35	37Cl-2,3,7,8-TCDD	1.99e+06	7.16e+02	2.8e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0046

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P518873 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 07:36:04 Processed: 21-NOV-18 09:19:32

Mass: 303.9020 305.8990 Tot Response: 6.05e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:27	3.03e+01	4.12e+01	0.74	yes	7.15e+01		y	y
2	23:04	3.13e+01	4.76e+01	0.66	yes	7.89e+01		y	n
3	24:33	7.01e+02	8.39e+02	0.83	yes	1.54e+03		n	n
4	25:34	1.78e+03	2.19e+03	0.81	yes	3.97e+03	2,3,7,8-TCDF	y	y
5	25:59	1.75e+02	2.18e+02	0.81	yes	3.93e+02		y	n

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Peak List Summary

CLIENT ID.
SL0046

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P518873 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 07:36:04 Processed: 21-NOV-18 09:19:32

Mass: 319.8970 321.8940 Tot Response: 1.53e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:12	1.58e+02	1.94e+02	0.82	yes	3.52e+02		n	n
2	26:35	4.83e+02	5.73e+02	0.84	yes	1.06e+03	2,3,7,8-TCDD	n	n
3	26:56	4.88e+01	5.53e+01	0.88	yes	1.04e+02		n	n
4	27:38	7.30e+00	8.75e+00	0.83	yes	1.60e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0046

Entry: 38 Totals Name: Total Penta-Furans1

Run: 15 File: P518873 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 07:36:04 Processed: 21-NOV-18 09:19:32

Mass: 339.8600 341.8570 Tot Response: 6.89e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:50	4.21e+02	2.68e+02 1.57	yes	6.89e+02		n	n

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Peak List Summary

CLIENT ID.
SL0046

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P518873 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 07:36:04 Processed: 21-NOV-18 09:19:32

Mass: 339.8600 341.8570 Tot Response: 1.51e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:24	1.21e+02	7.59e+01	1.60	yes	1.97e+02		n	n
2	29:32	3.69e+02	2.26e+02	1.63	yes	5.96e+02		n	n
3	30:10	9.73e+01	7.38e+01	1.32	yes	1.71e+02		n	y
4	30:52	1.06e+02	6.49e+01	1.63	yes	1.71e+02		y	y
5	31:36	2.35e+02	1.41e+02	1.67	yes	3.76e+02	2,3,4,7,8-PeCDF	n	y

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Peak List Summary

CLIENT ID.
SL0046

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P518873 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 07:36:04 Processed: 21-NOV-18 09:19:32

Mass: 355.8550 357.8520 Tot Response: 6.37e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:36	8.11e+01	5.07e+01	1.60	yes	1.32e+02		n	y
2	30:06	2.68e+02	2.02e+02	1.33	yes	4.70e+02		n	n
3	30:54	2.00e+01	1.44e+01	1.39	yes	3.44e+01		y	n

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Peak List Summary

CLIENT ID.
SL0046

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P518873 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 07:36:04 Processed: 21-NOV-18 09:19:32

Mass: 373.8210 375.8180 Tot Response: 5.14e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:19	2.02e+02	1.66e+02	1.22	yes	3.69e+02		n	n
2	33:29	9.17e+02	7.73e+02	1.19	yes	1.69e+03		n	n
3	33:51	4.19e+01	3.90e+01	1.07	yes	8.10e+01		n	n
4	34:02	1.18e+03	9.73e+02	1.21	yes	2.15e+03		n	n
5	34:24	3.10e+01	2.49e+01	1.25	yes	5.59e+01		n	n
6	34:29	3.86e+02	2.79e+02	1.38	yes	6.65e+02	1,2,3,4,7,8-HxCDF	n	n
7	34:42	1.16e+01	9.23e+00	1.26	yes	2.09e+01		n	n
8	35:57	6.08e+01	4.75e+01	1.28	yes	1.08e+02	1,2,3,7,8,9-HxCDF	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0046

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P518873 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 07:36:04 Processed: 21-NOV-18 09:19:32

Mass: 389.8160 391.8130 Tot Response: 9.36e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	2.74e+03	2.18e+03	1.26	yes	4.92e+03		n	n
2	34:01	2.67e+01	1.92e+01	1.39	yes	4.58e+01		n	n
3	34:41	1.51e+03	1.27e+03	1.20	yes	2.78e+03		n	n
4	34:47	1.90e+02	1.40e+02	1.35	yes	3.31e+02		n	n
5	35:18	8.11e+01	6.13e+01	1.32	yes	1.42e+02	1,2,3,4,7,8-HxCDD	n	n
6	35:23	3.66e+02	2.95e+02	1.24	yes	6.61e+02	1,2,3,6,7,8-HxCDD	n	n
7	35:34	7.01e+01	5.48e+01	1.28	yes	1.25e+02		n	n
8	35:39	2.02e+02	1.48e+02	1.37	yes	3.50e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0046

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P518873 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 07:36:04 Processed: 21-NOV-18 09:19:32

Mass: 407.7820 409.7790 Tot Response: 1.05e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:15	1.61e+03	1.66e+03 0.97	yes	3.27e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	37:39	3.53e+03	3.52e+03 1.00	yes	7.05e+03		n	n
3	38:36	1.11e+02	9.30e+01 1.19	yes	2.04e+02	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0046

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P518873 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 07:36:04 Processed: 21-NOV-18 09:19:32

Mass: 423.7770 425.7740 Tot Response: 5.62e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	1.82e+04	1.04	yes	3.58e+04		n	n
2	38:10	1.02e+04	1.01	yes	2.04e+04	1,2,3,4,6,7,8-HpCDD	n	n

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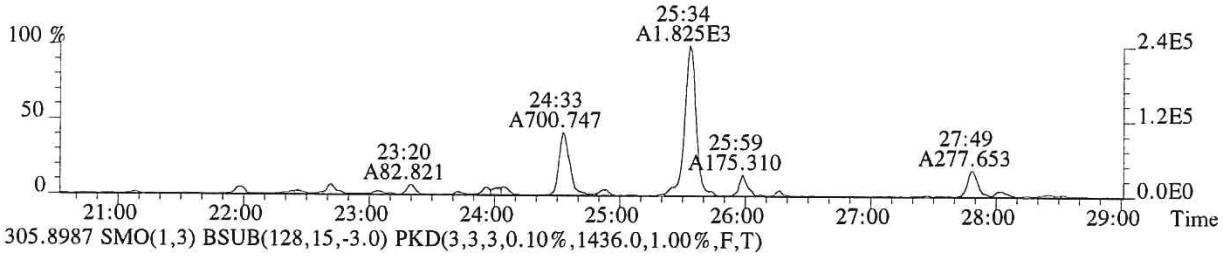
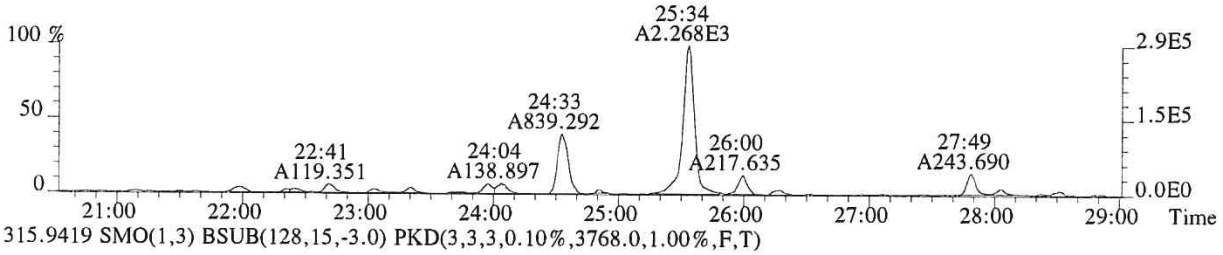
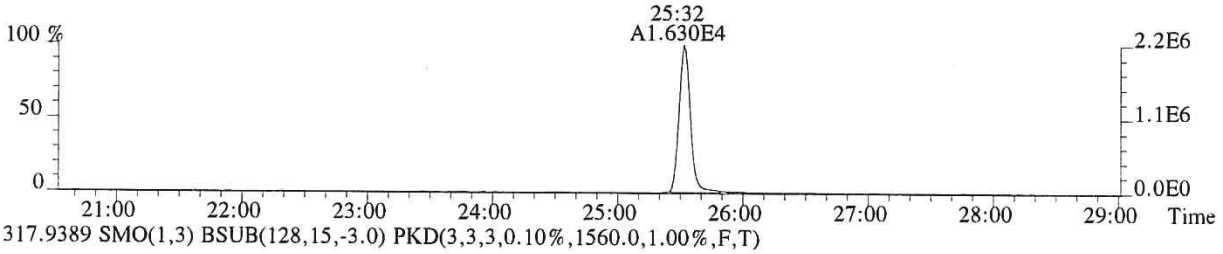
File:P518873 #1-602 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



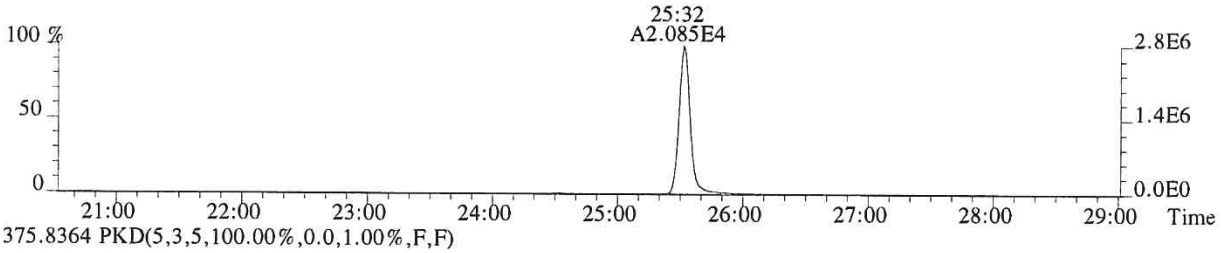
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



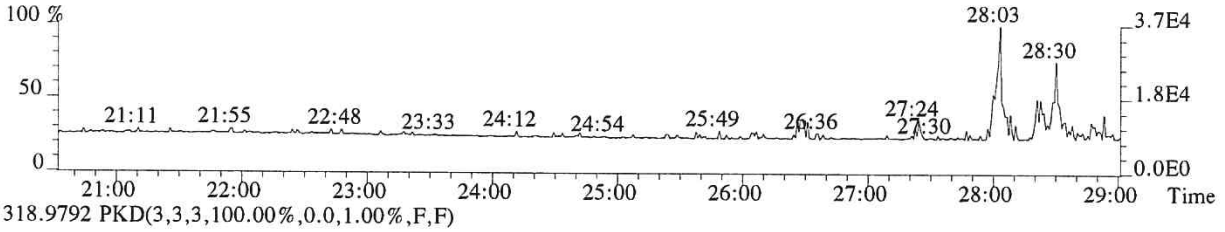
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3768.0,1.00%,F,T)



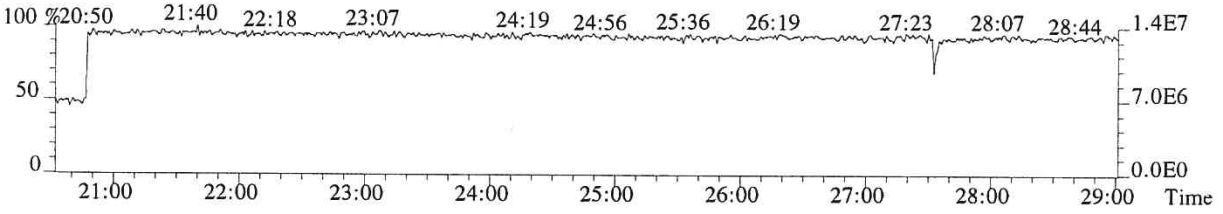
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

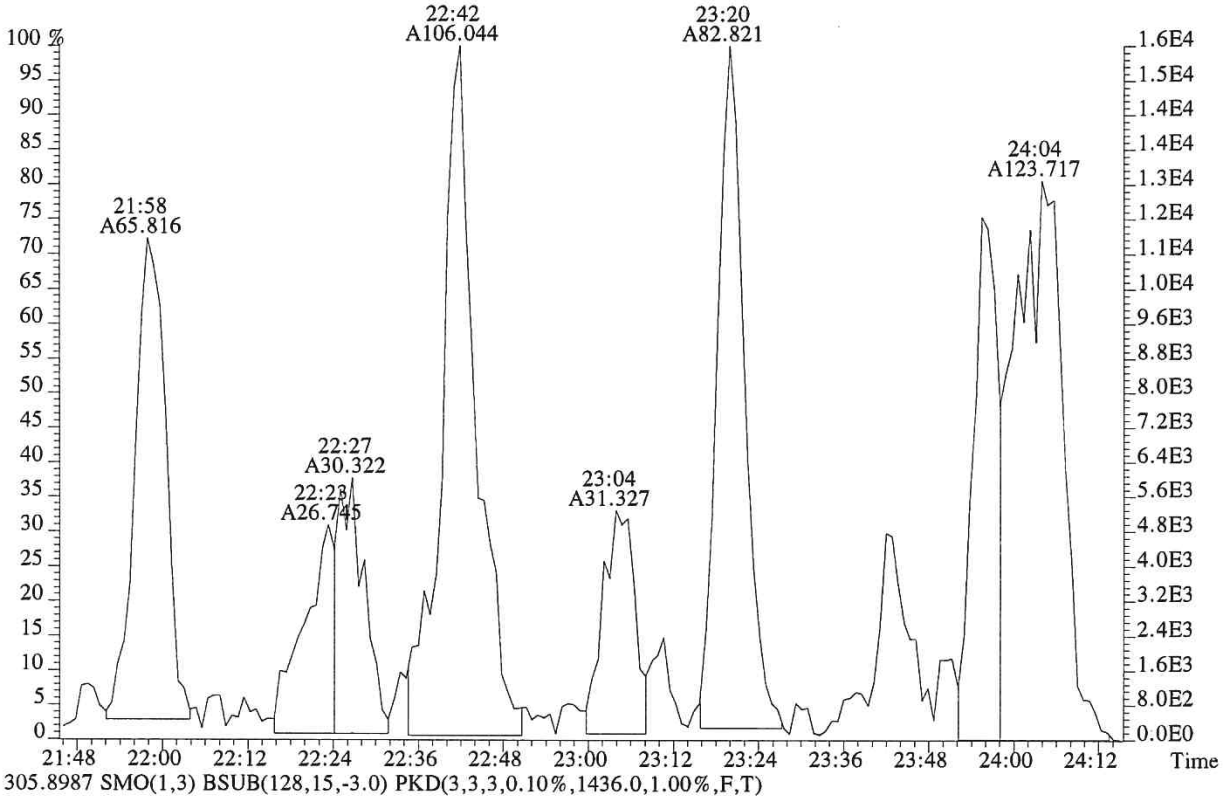


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

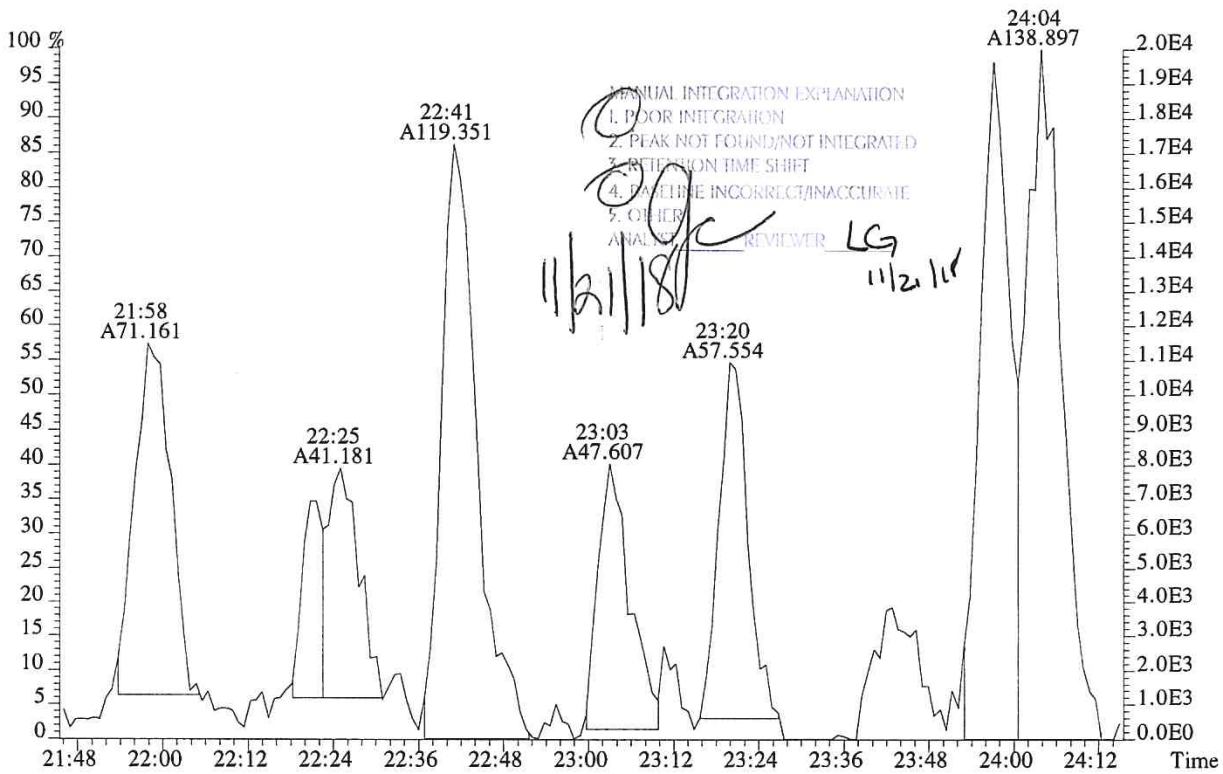


009800

File:P518873 #1-602 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)

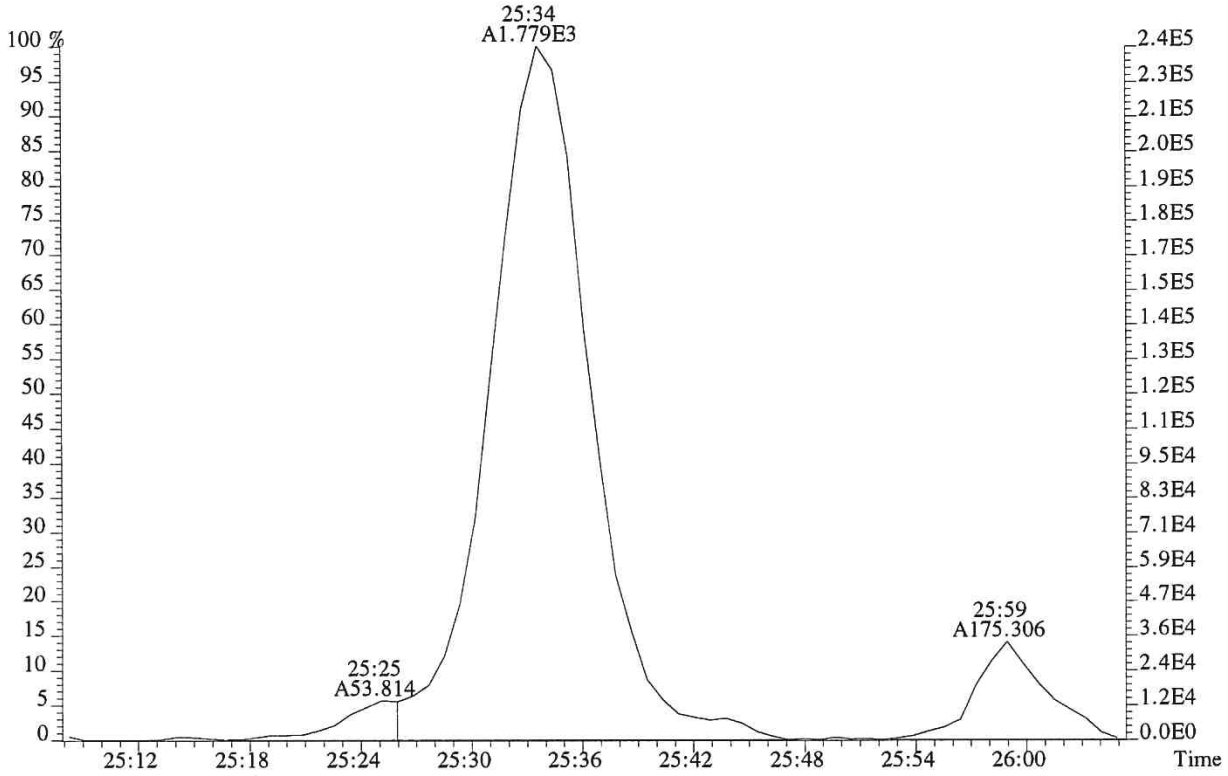


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)

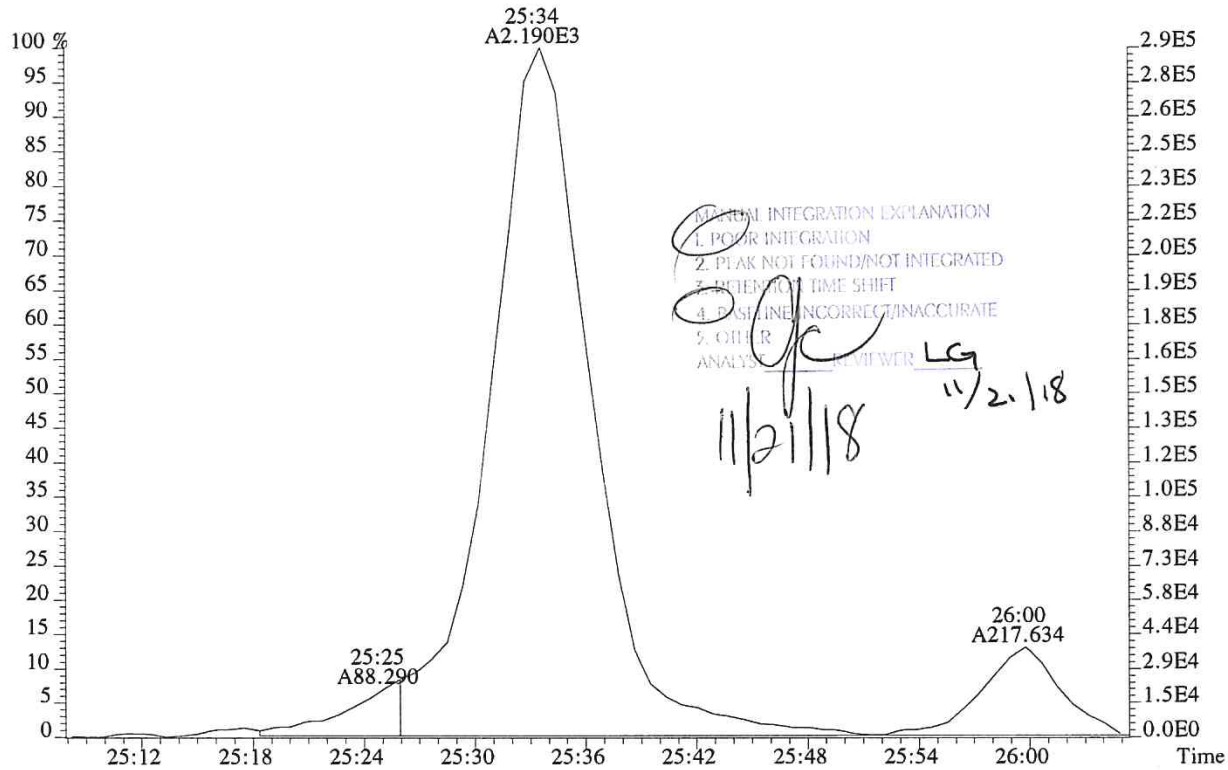


009801

File:P518873 #1-602 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
303.9016 SMO(1,3) BSUB(128,15,-3.0)



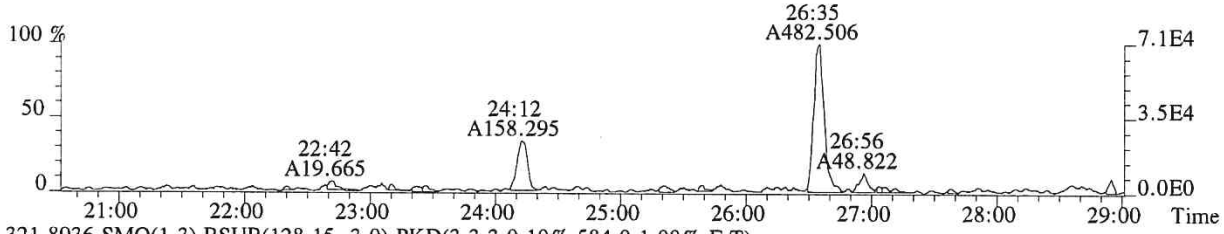
305.8987 SMO(1,3) BSUB(128,15,-3.0)



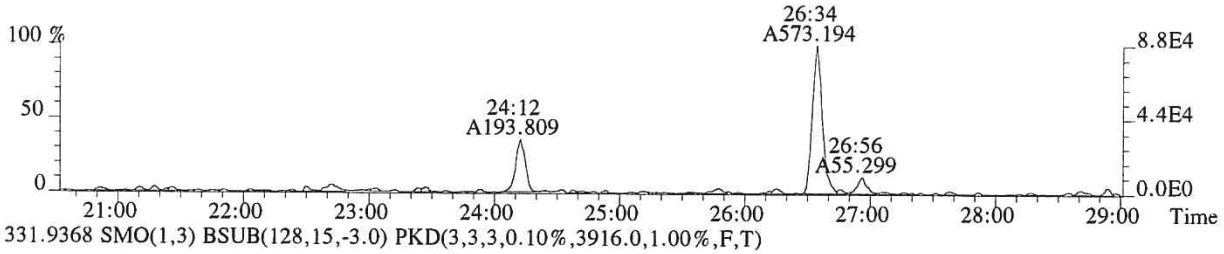
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LG
11/21/18
11/21/18

009802

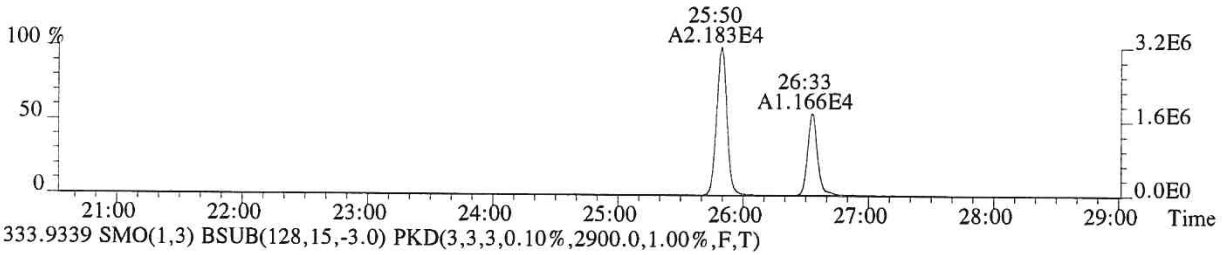
File:P518873 #1-602 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



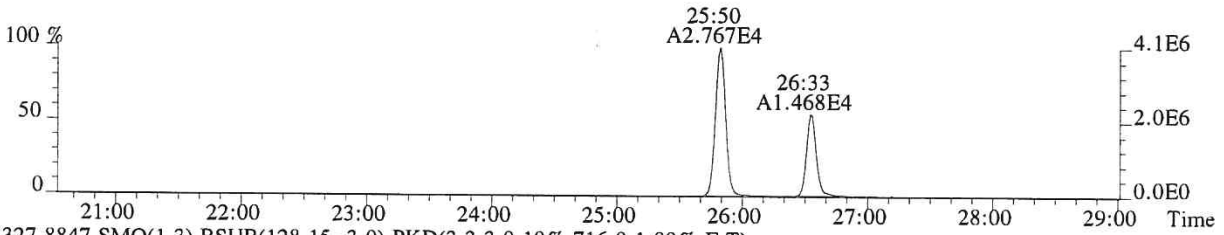
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



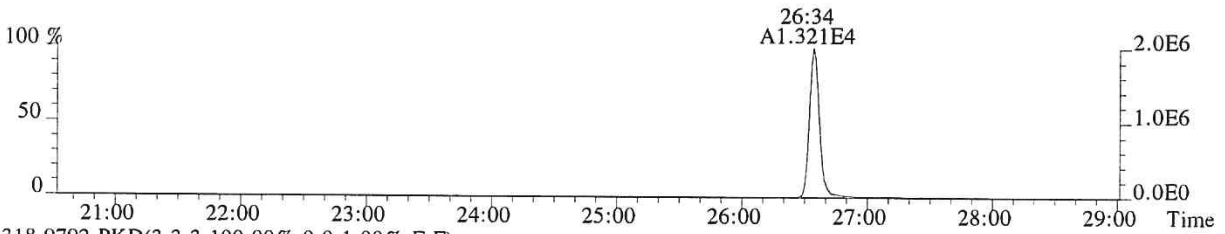
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3916.0,1.00%,F,T)



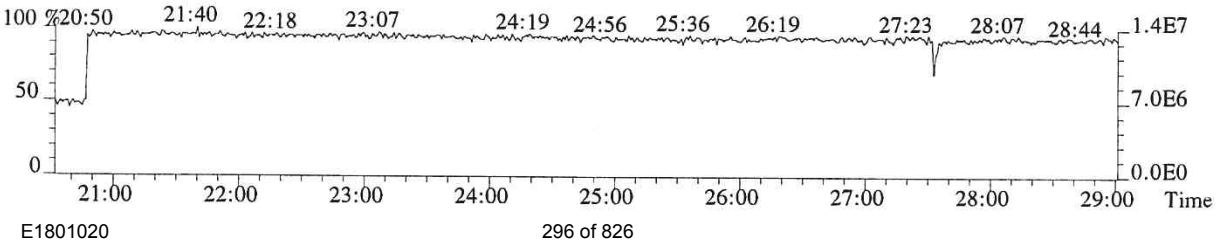
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)

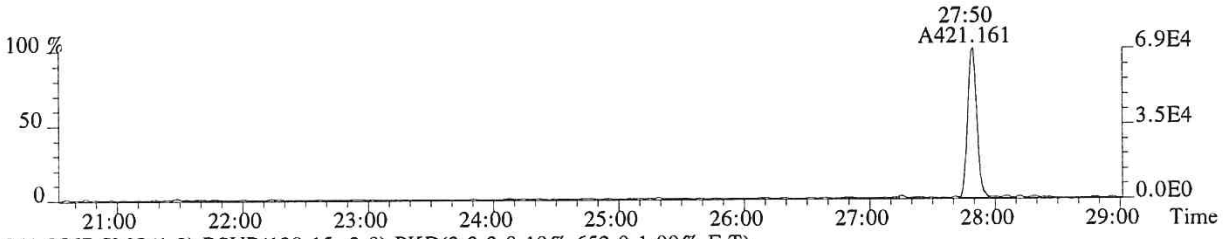


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

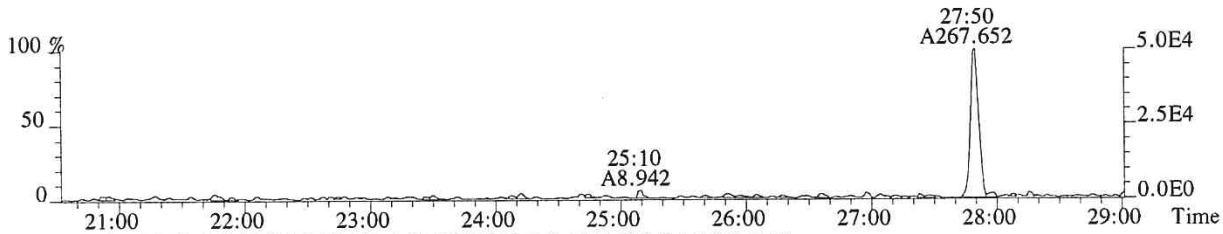


009803

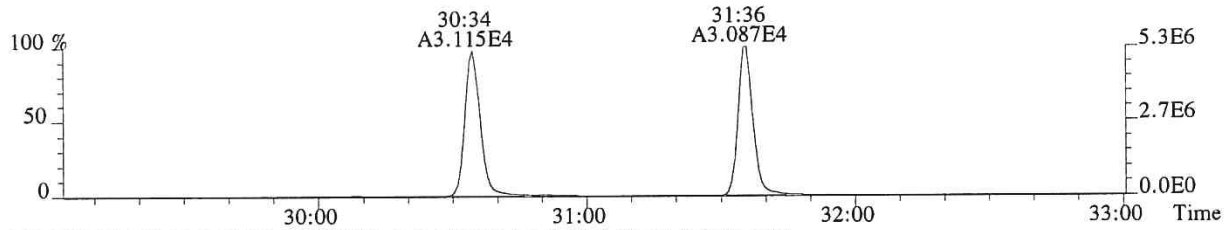
File:P518873 #1-602 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



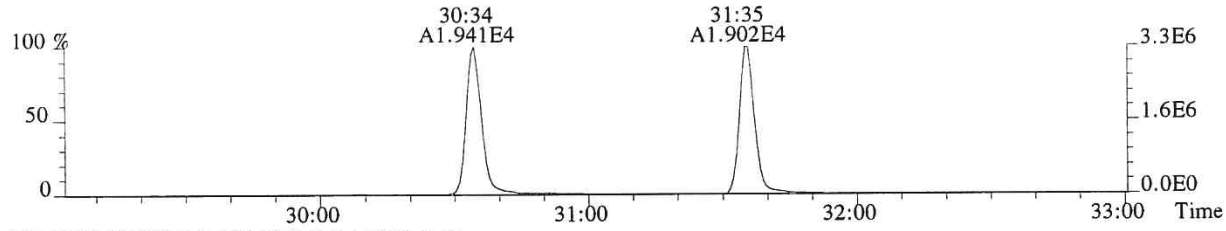
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



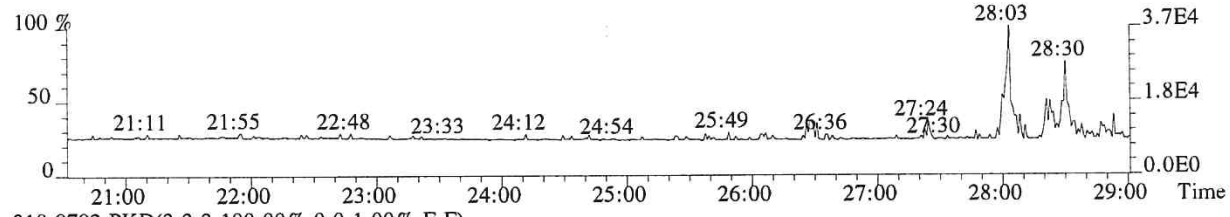
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



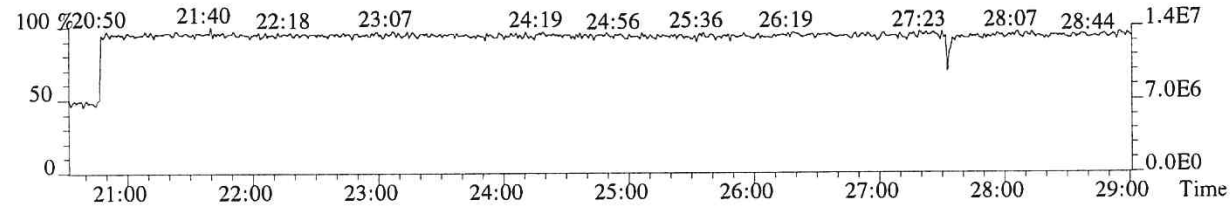
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

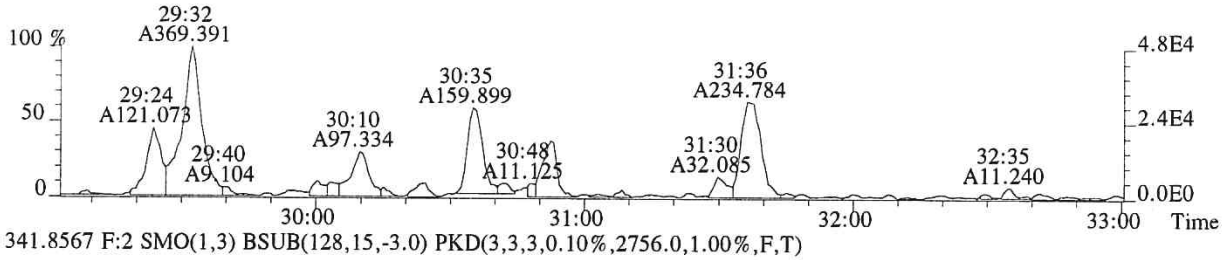


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

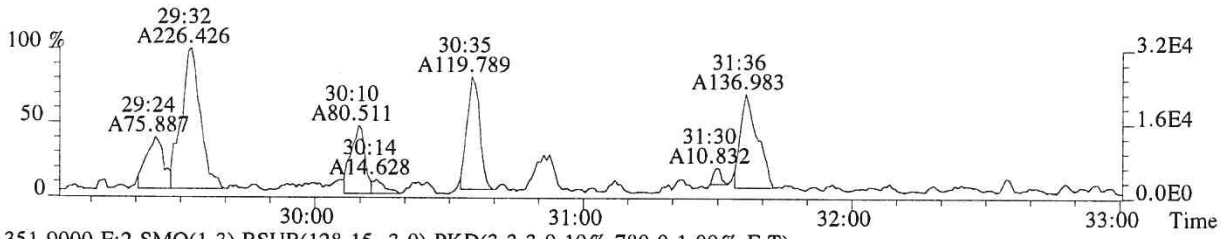


009804

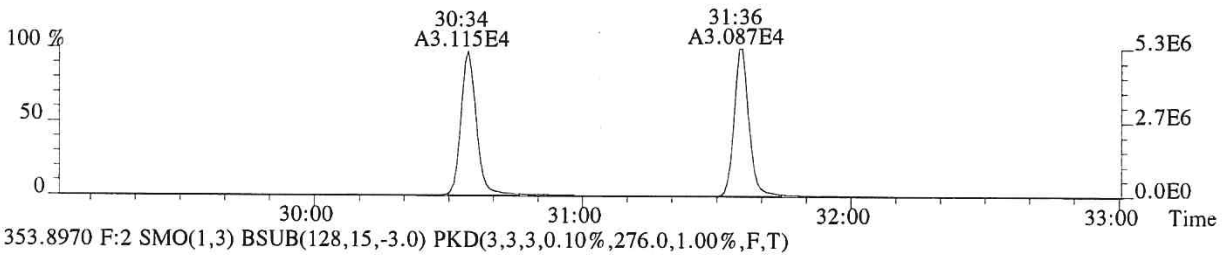
File:P518873 #1-357 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



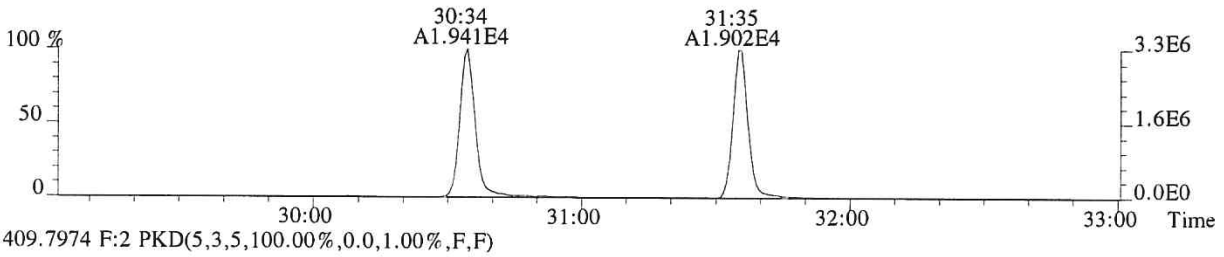
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2756.0,1.00%,F,T)



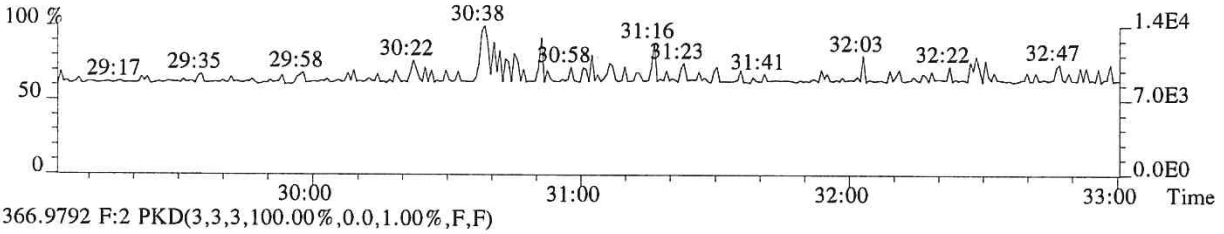
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



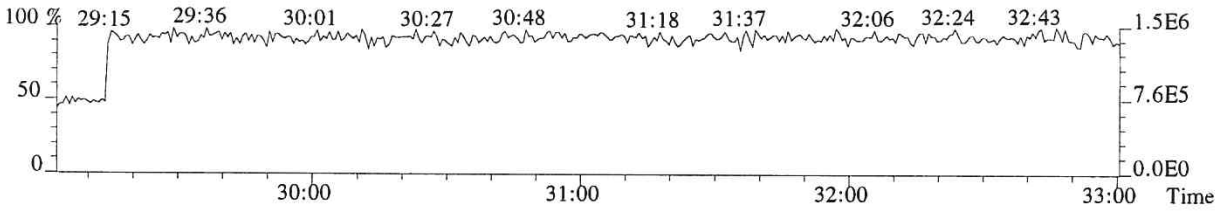
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

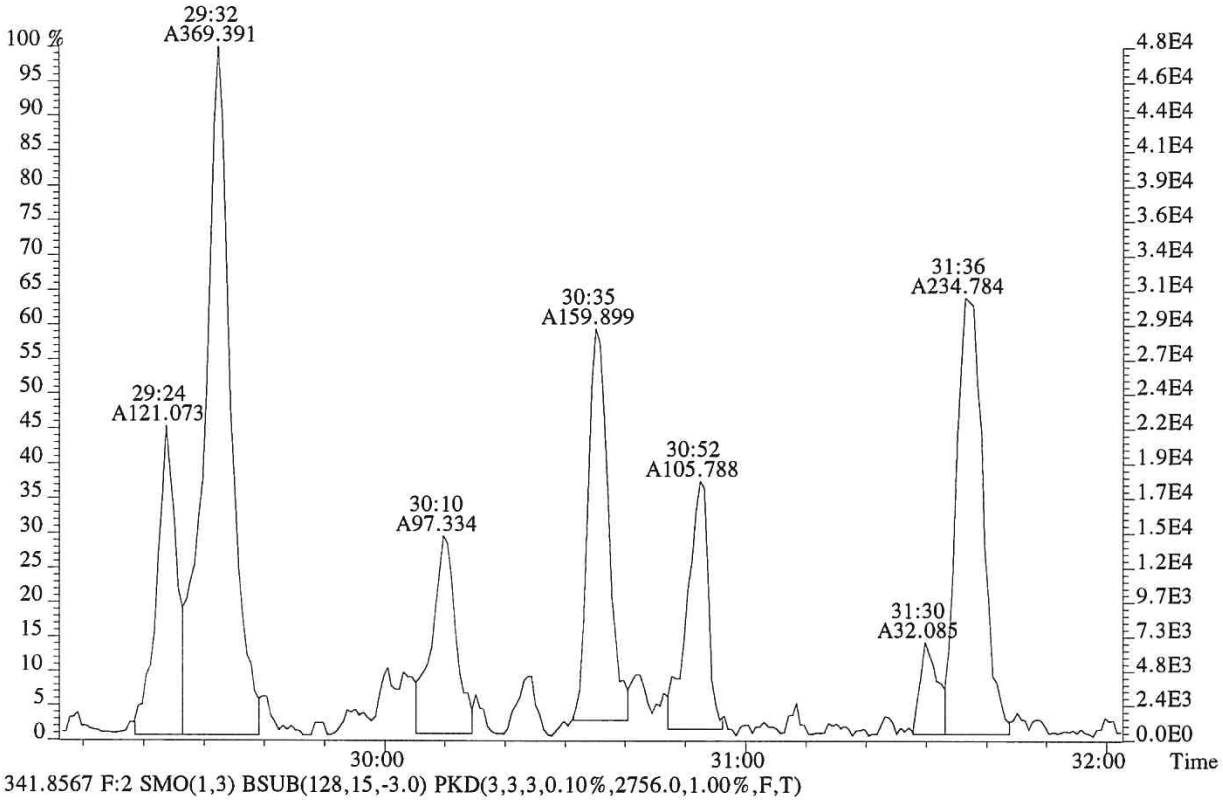


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

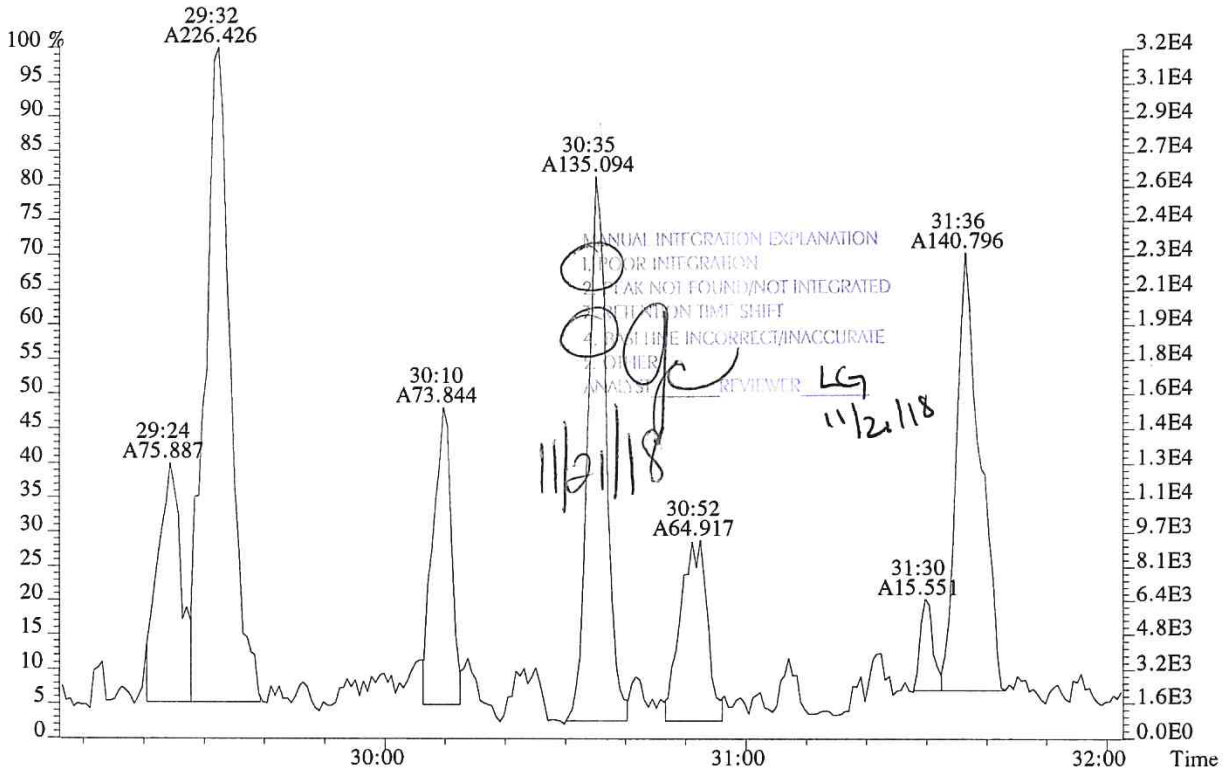


009805

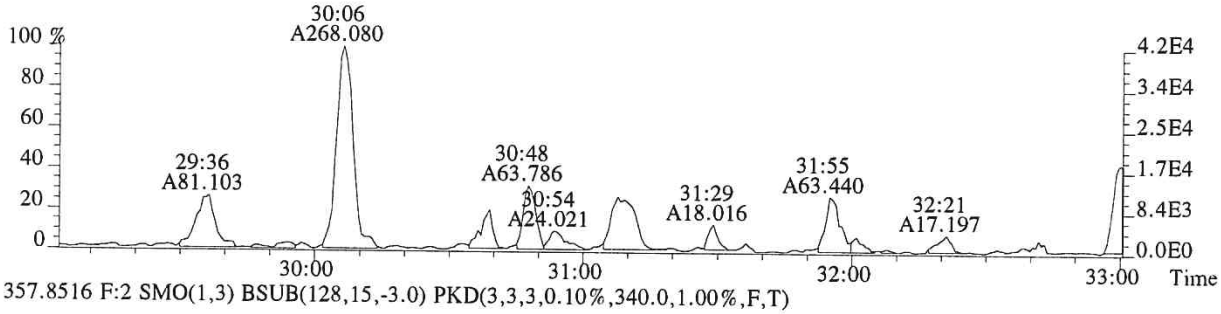
File:P518873 #1-357 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



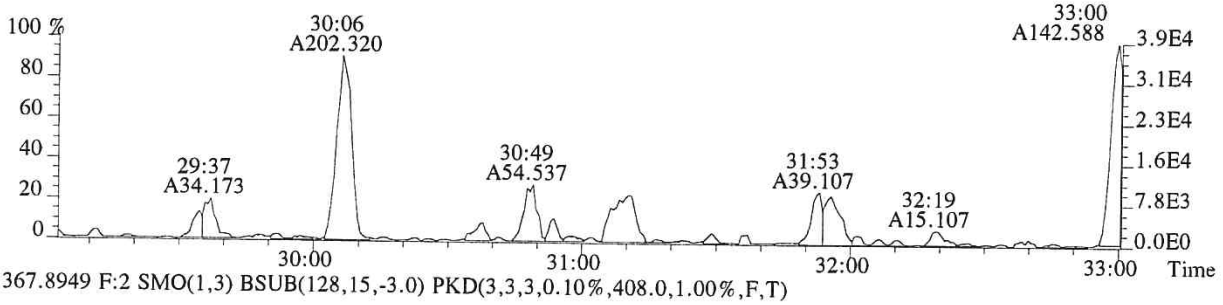
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2756.0,1.00%,F,T)



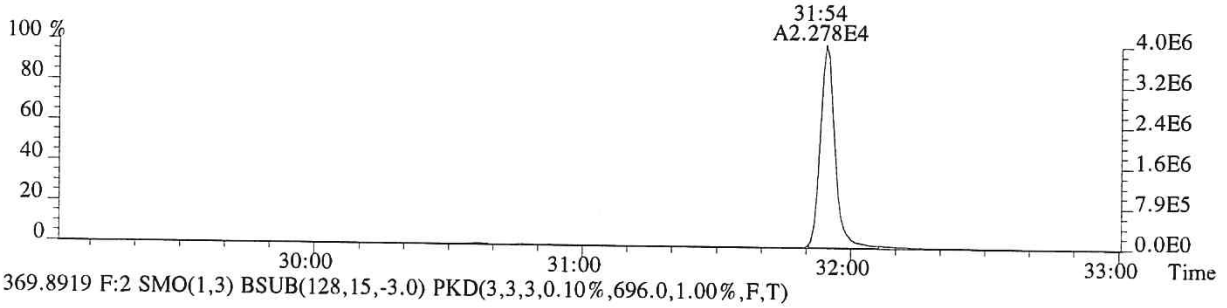
File:P518873 #1-357 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



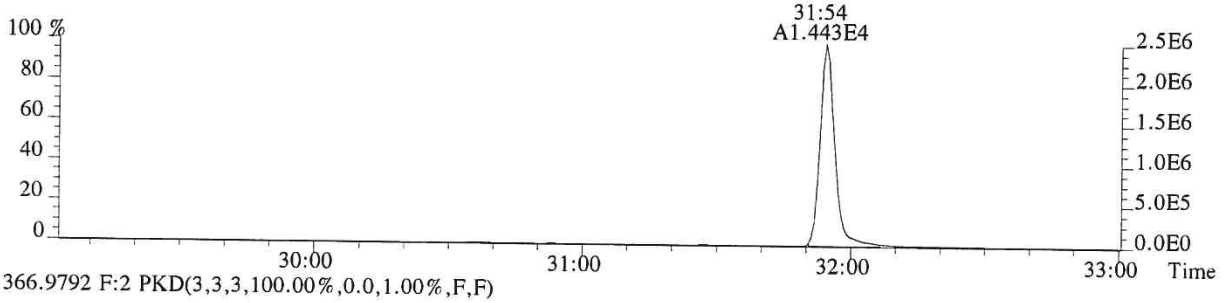
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



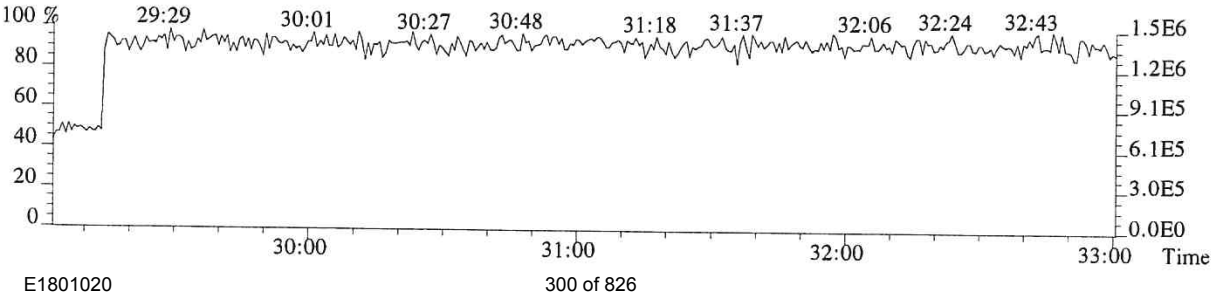
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)

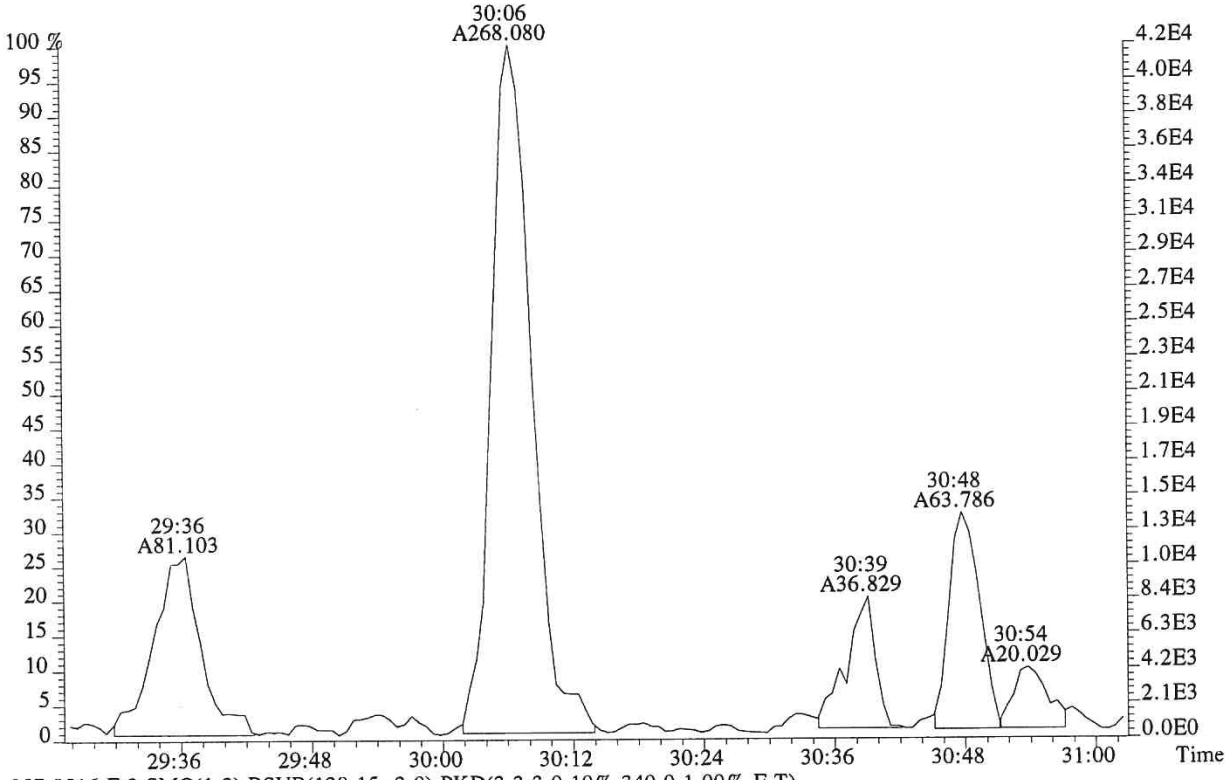


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

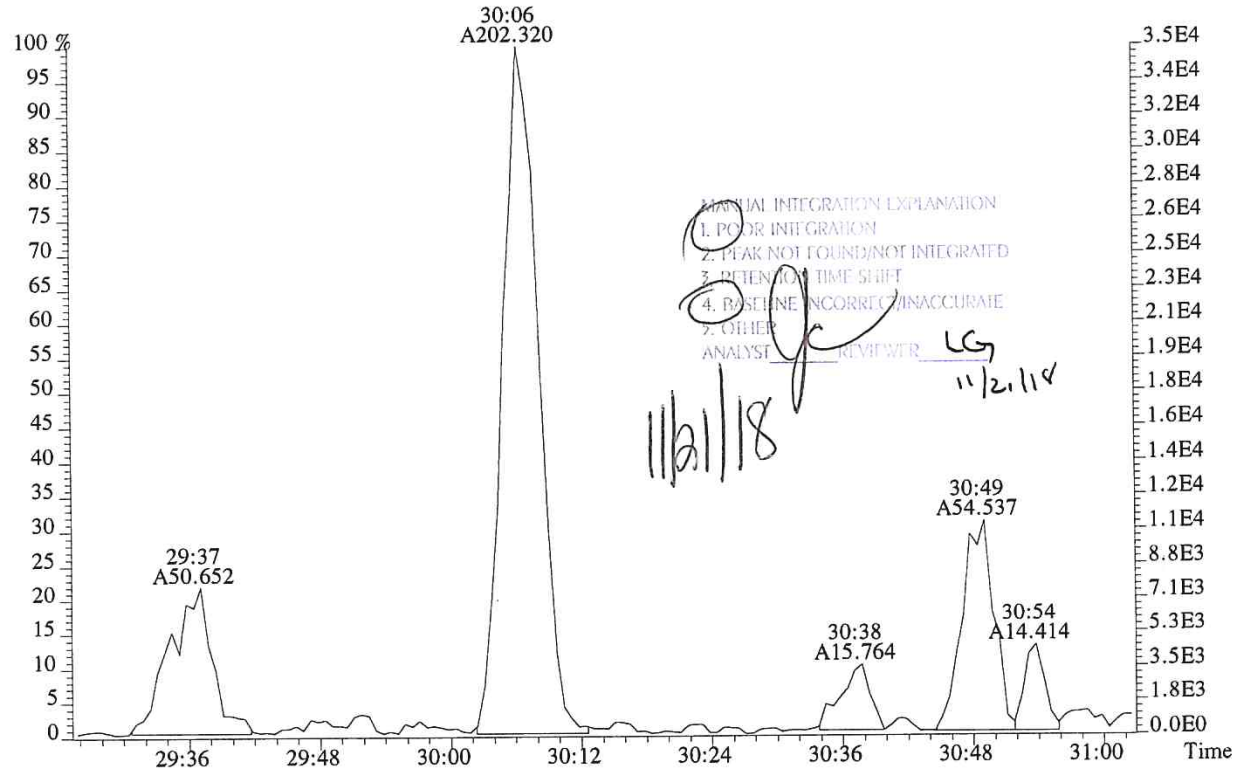


009807

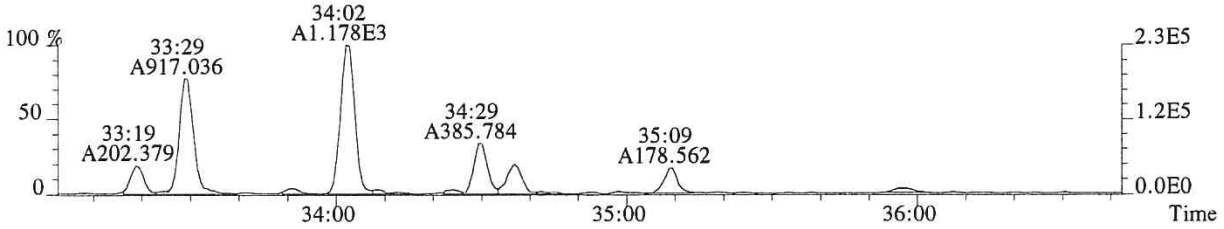
File:P518873 #1-357 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



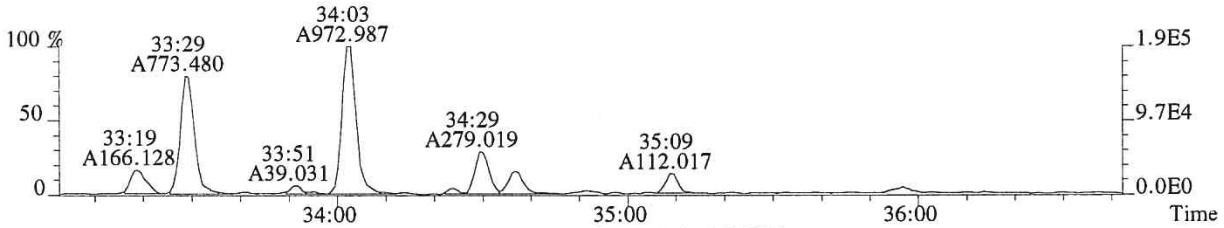
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



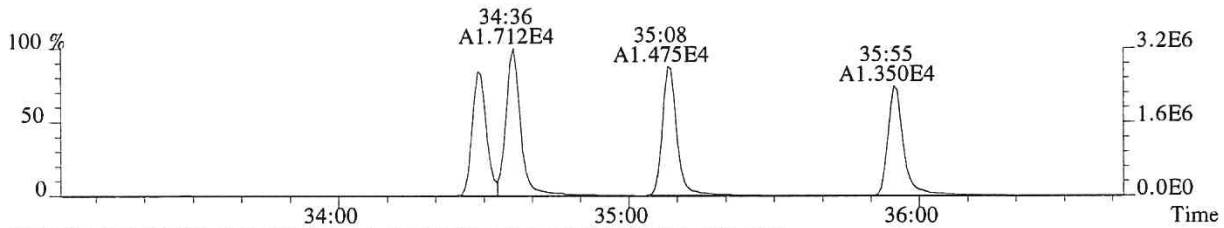
File:P518873 #1-330 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



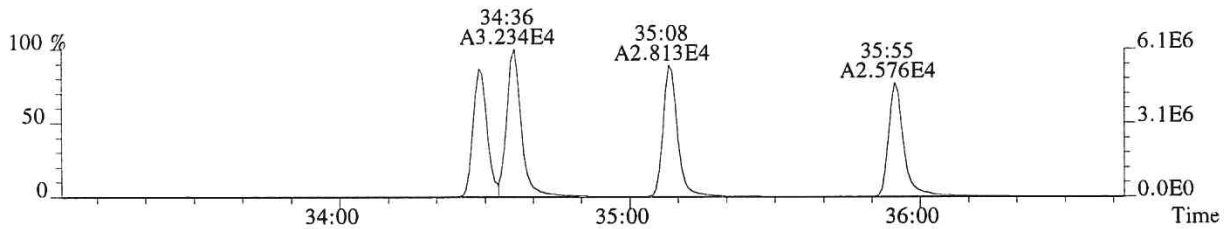
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)



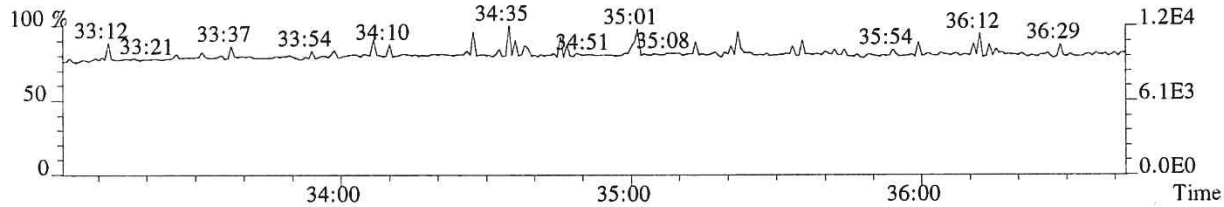
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



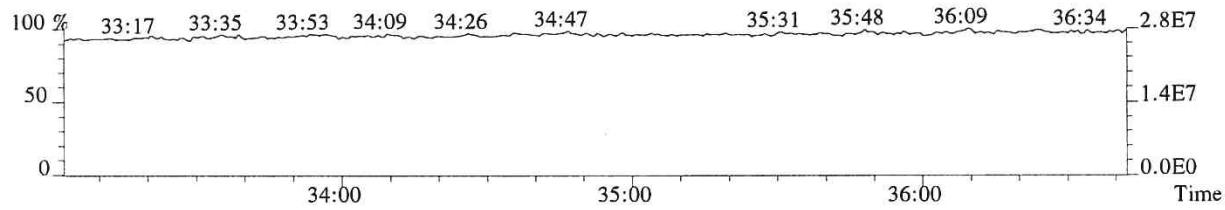
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



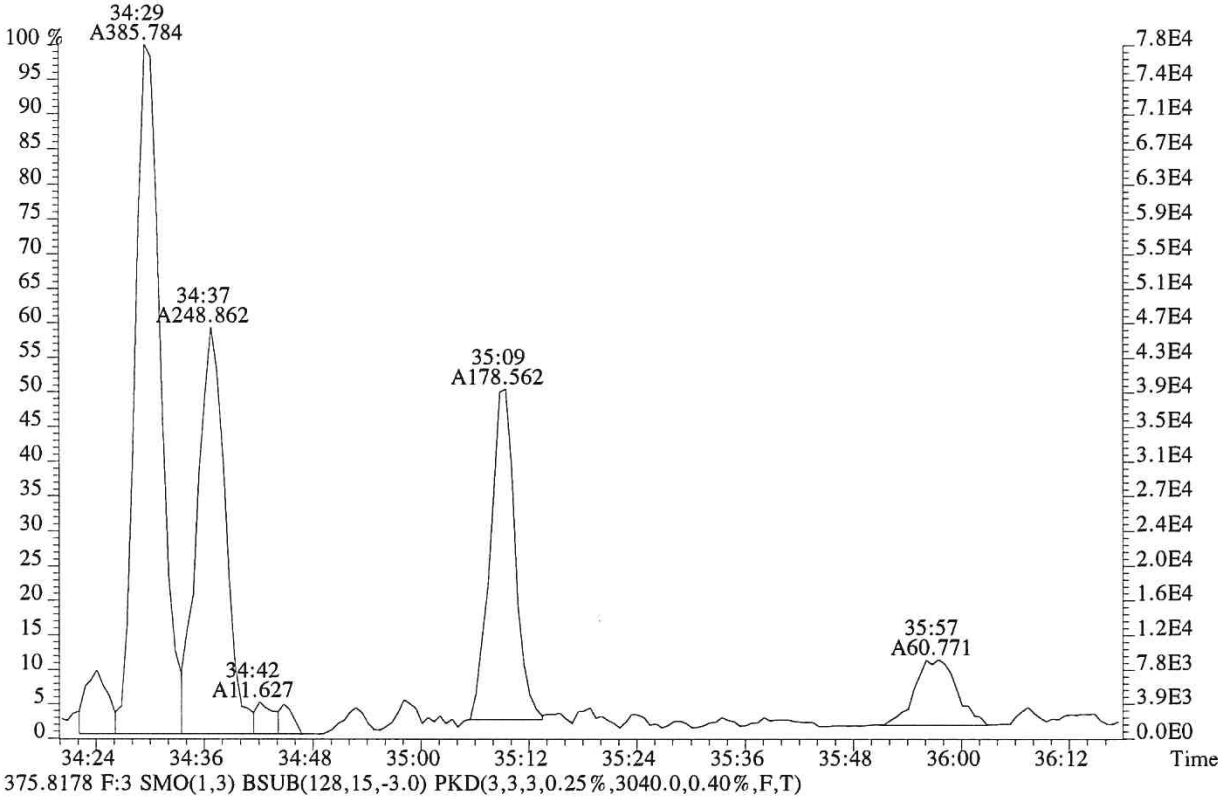
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



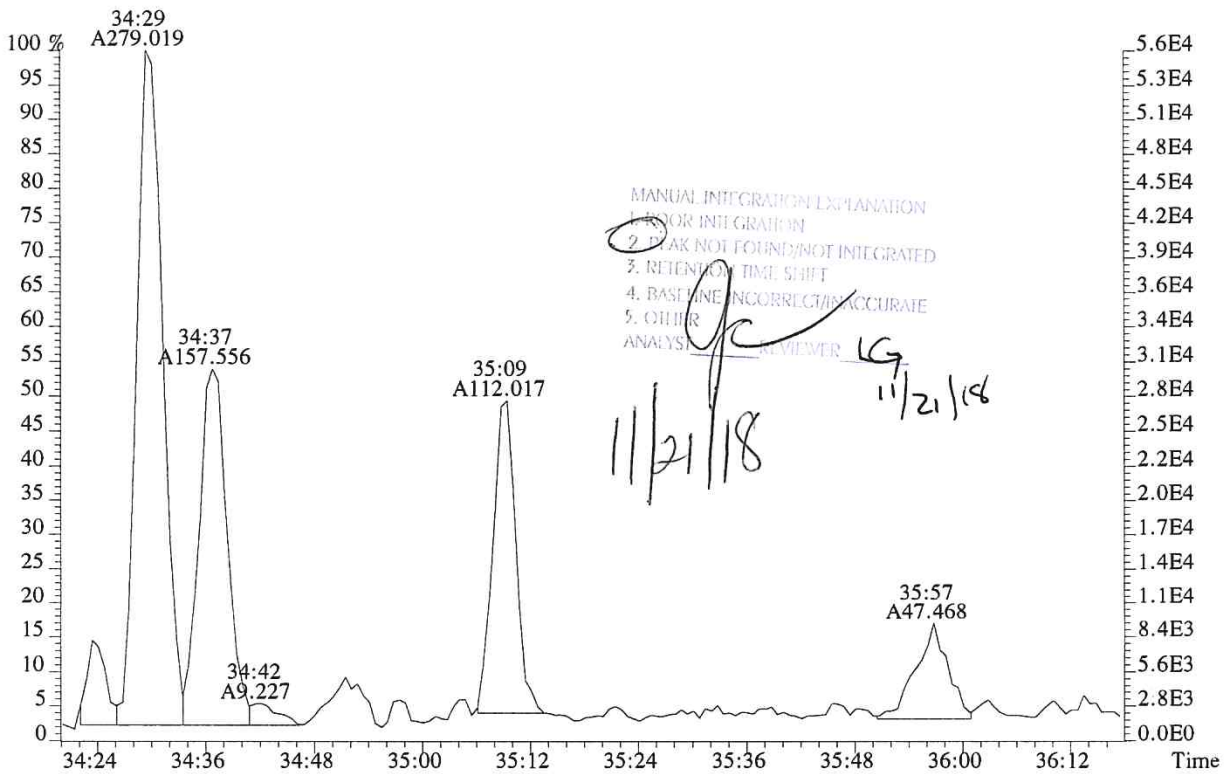
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



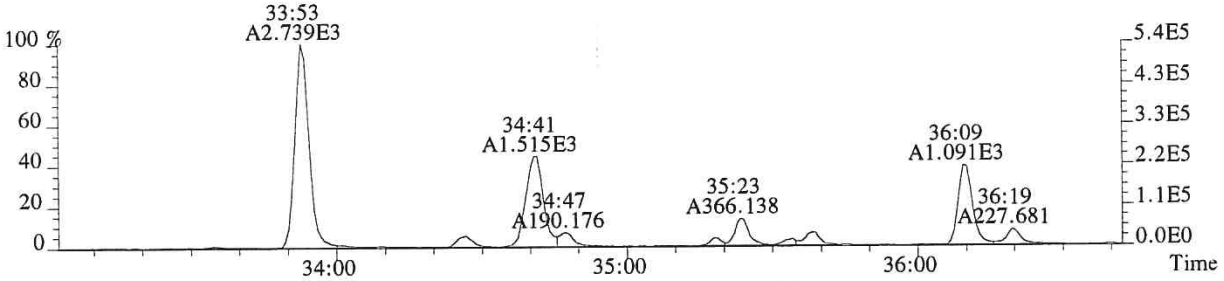
File:P518873 #1-330 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



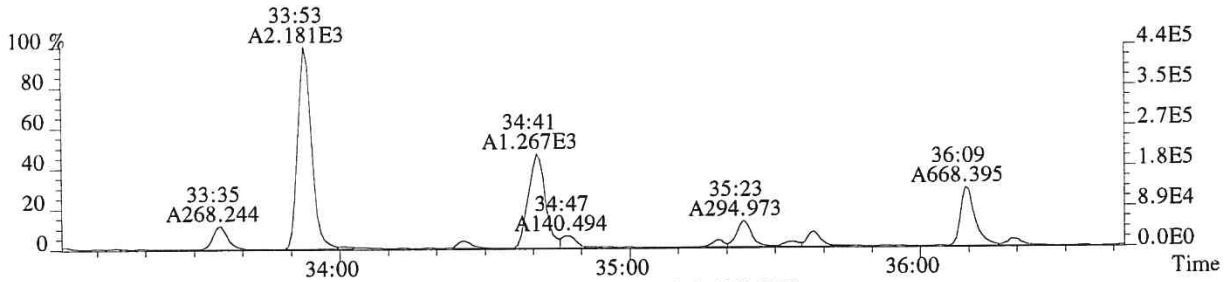
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)



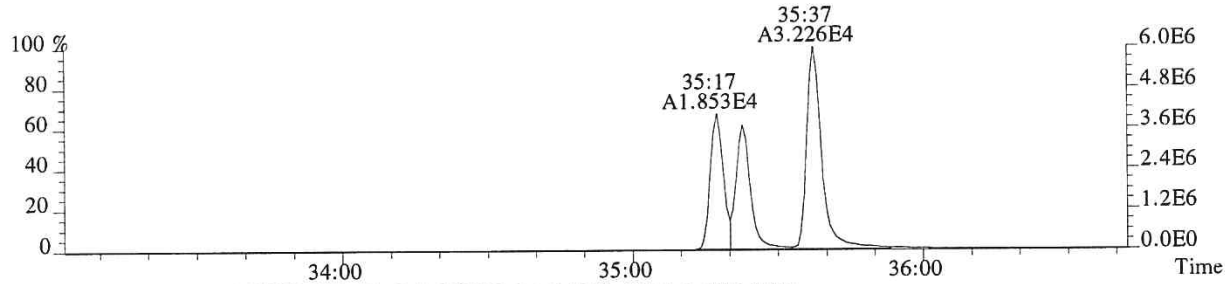
File:P518873 #1-330 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



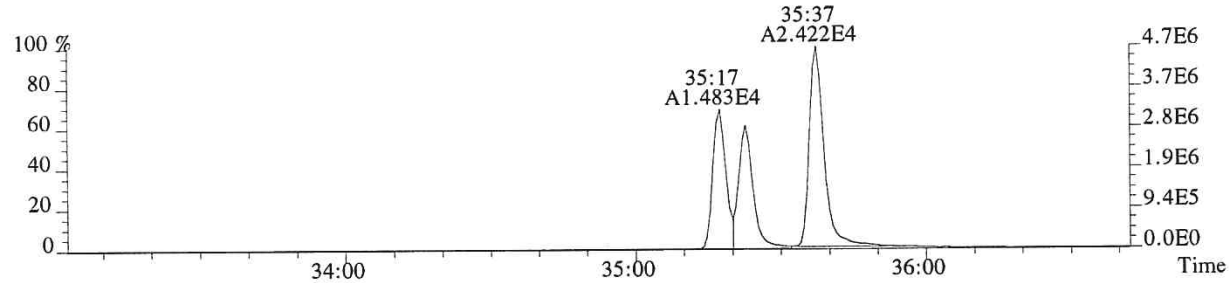
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1800.0,0.40%,F,T)



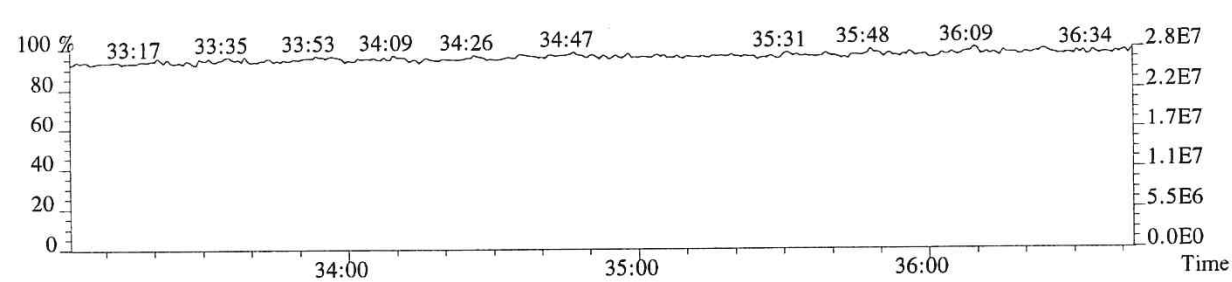
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.40%,F,T)



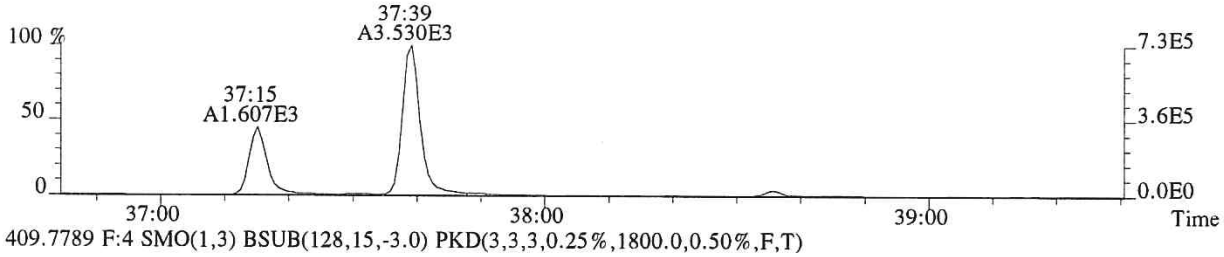
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



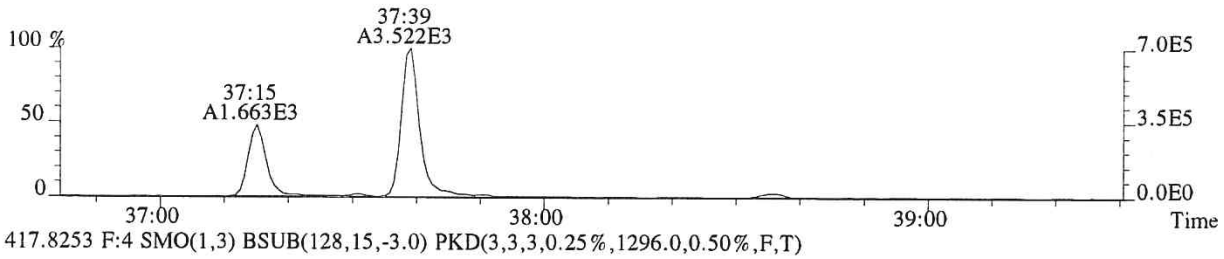
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



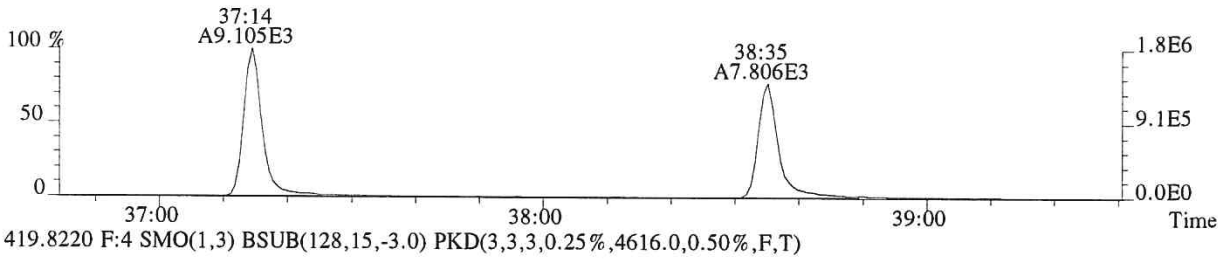
File:P518873 #1-250 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.50%,F,T)



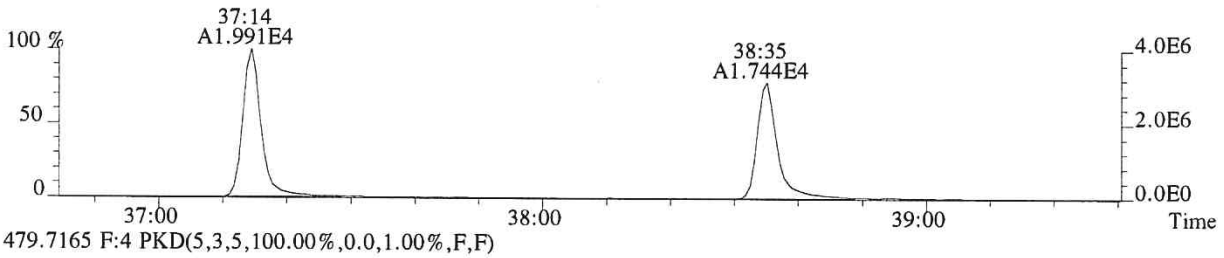
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1800.0,0.50%,F,T)



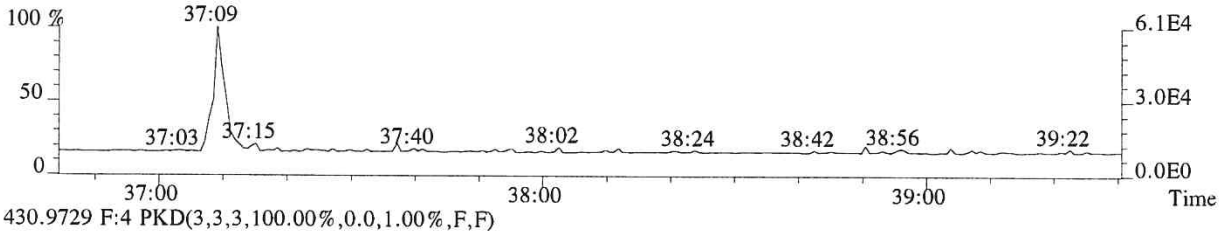
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.50%,F,T)



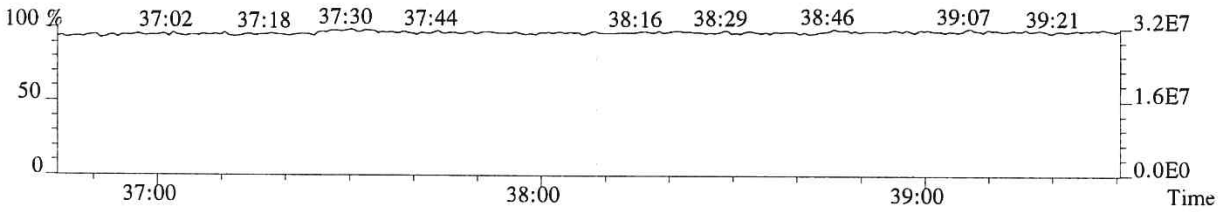
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4616.0,0.50%,F,T)



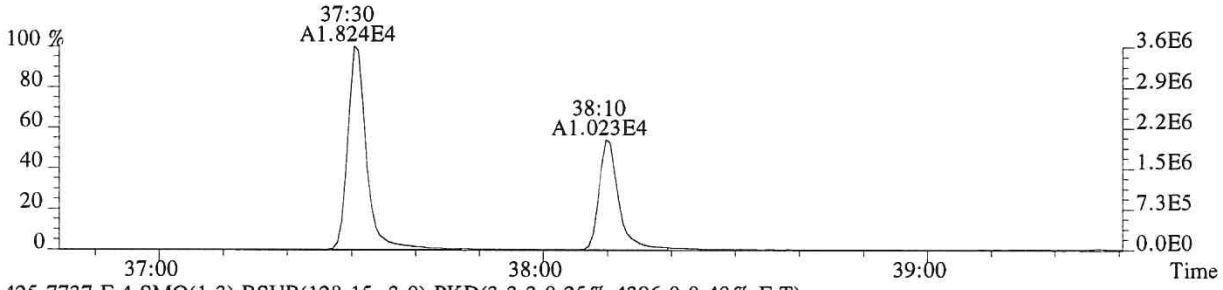
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



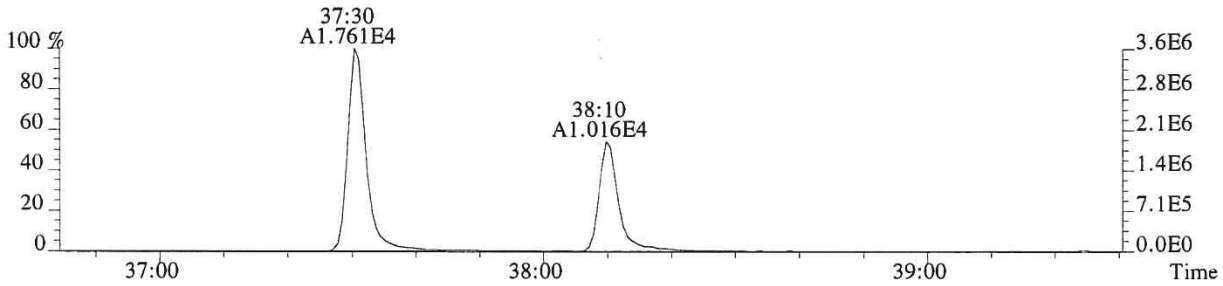
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



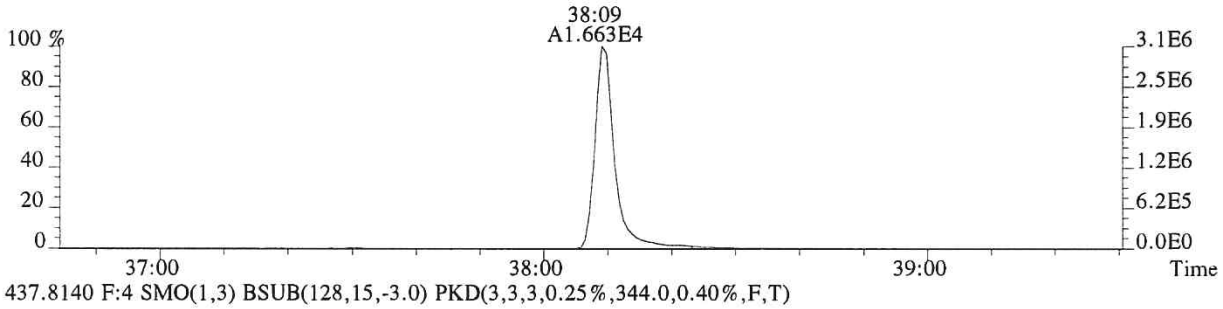
File:P518873 #1-250 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3904.0,0.40%,F,T)



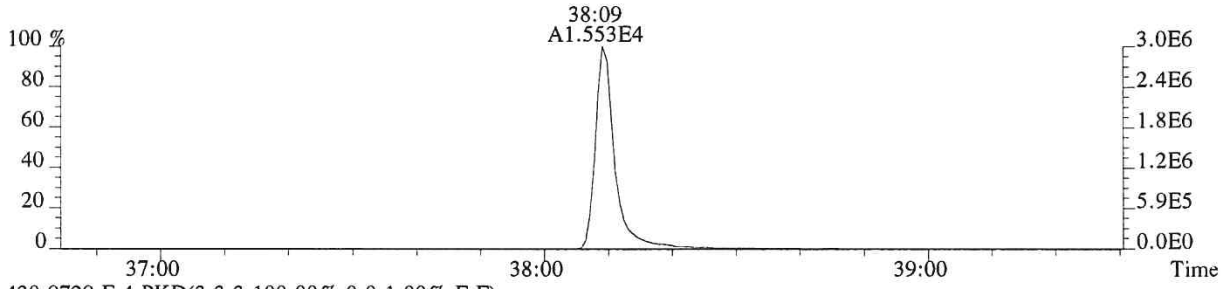
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4396.0,0.40%,F,T)



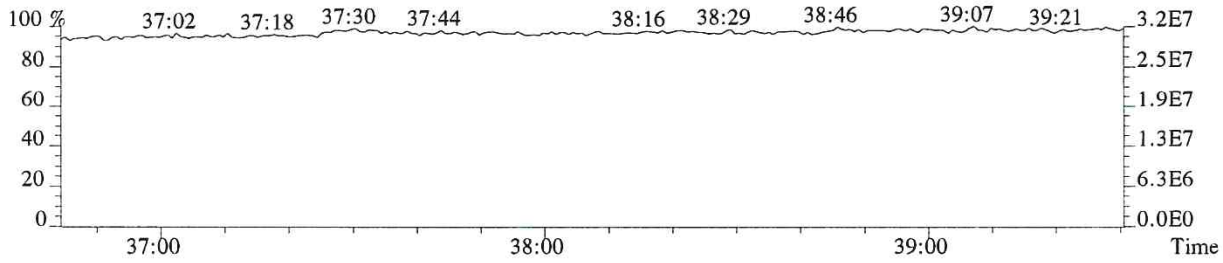
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



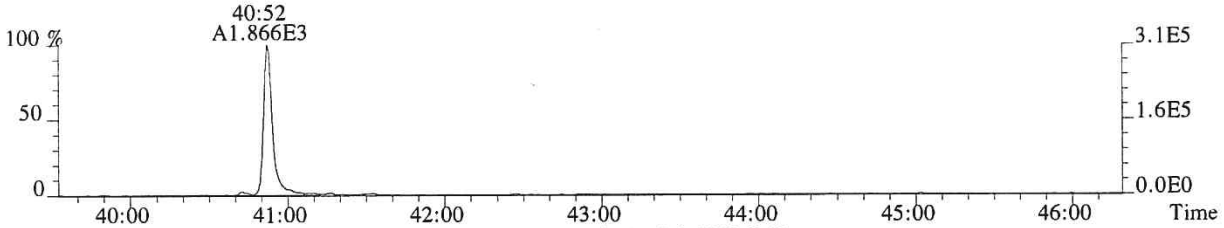
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



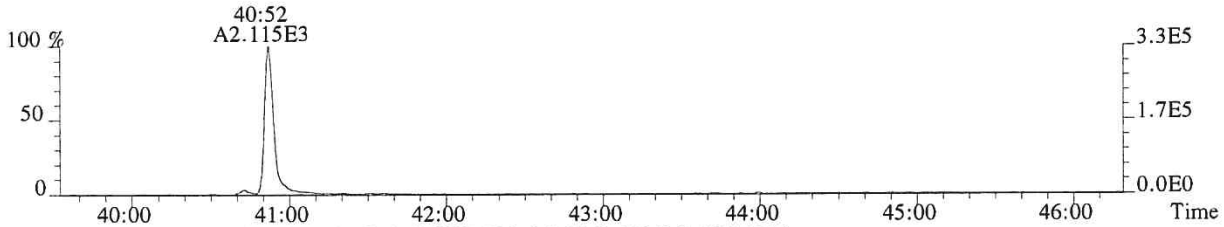
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



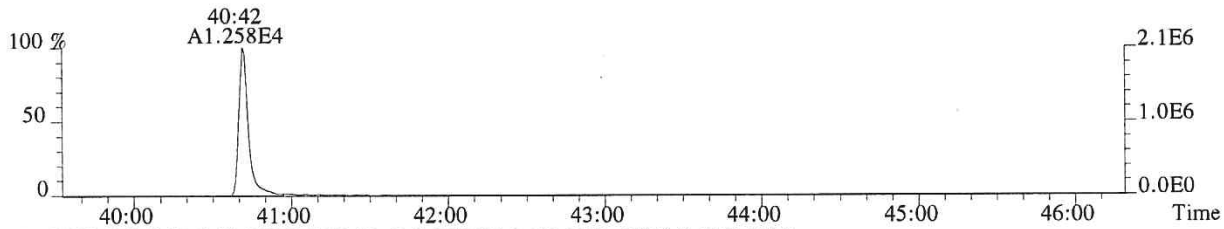
File:P518873 #1-610 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



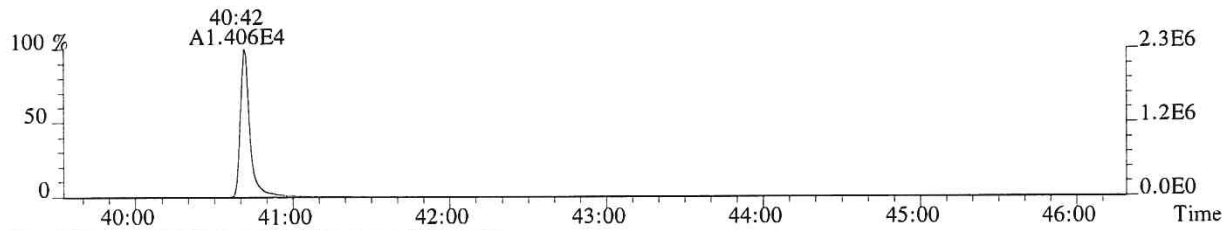
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



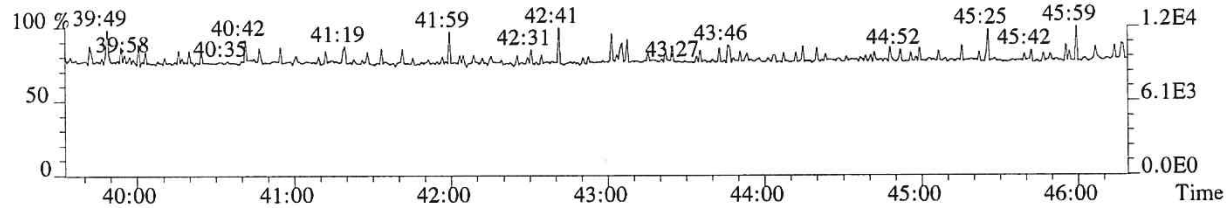
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



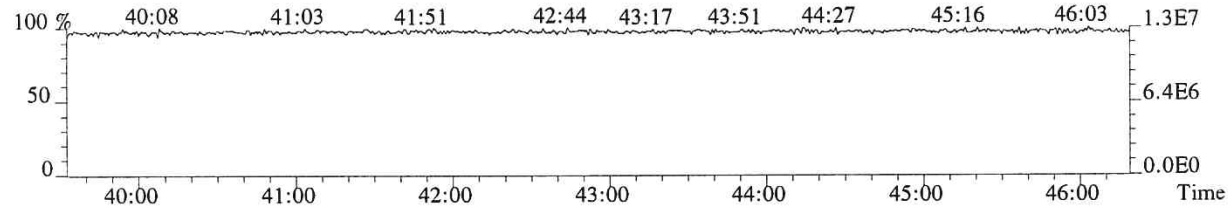
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



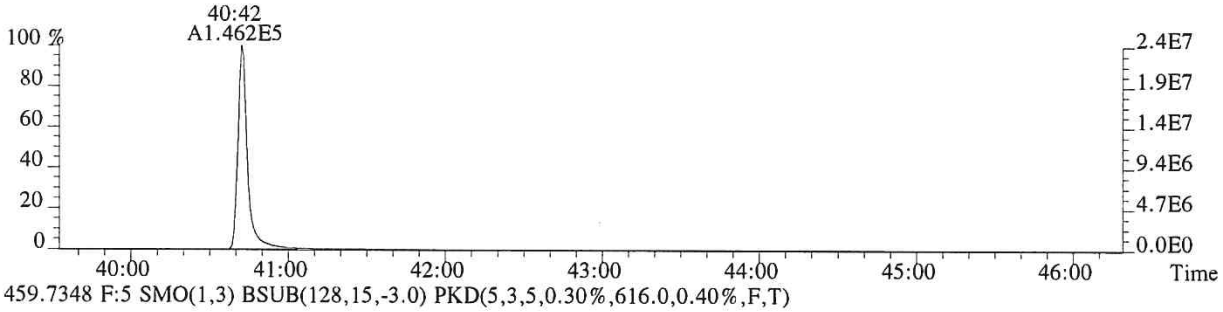
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



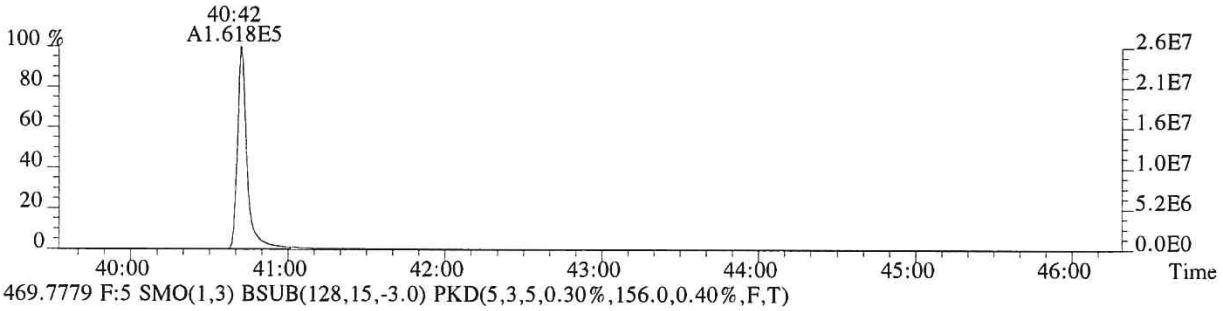
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



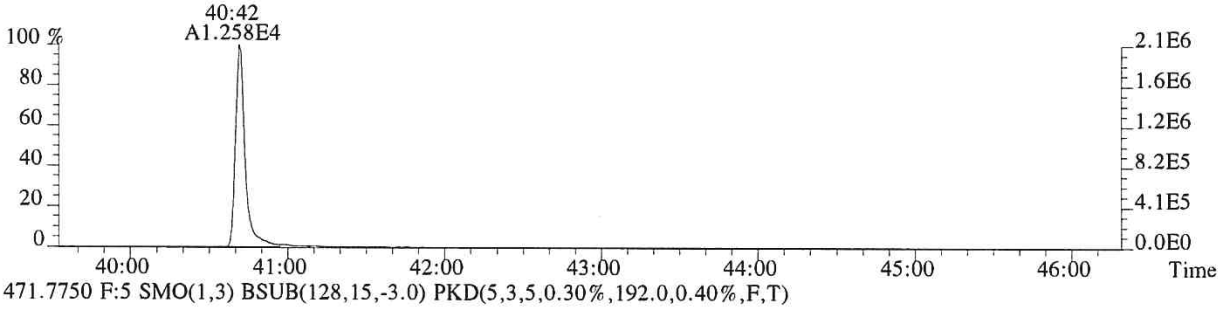
File:P518873 #1-610 Acq:17-NOV-2018 07:36:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-052
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



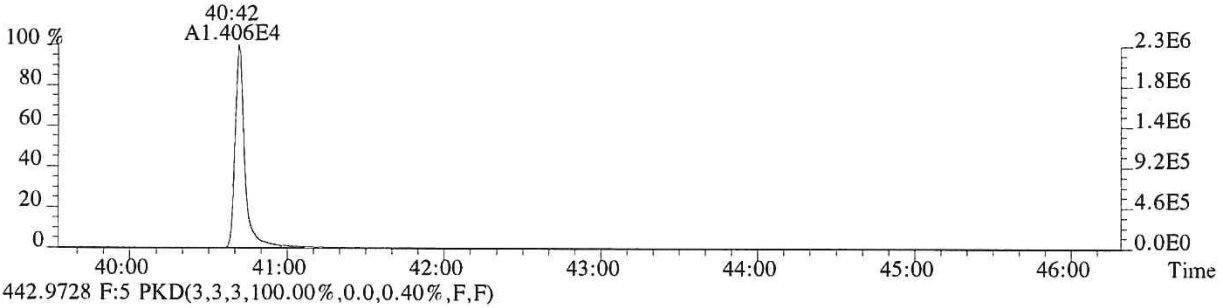
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



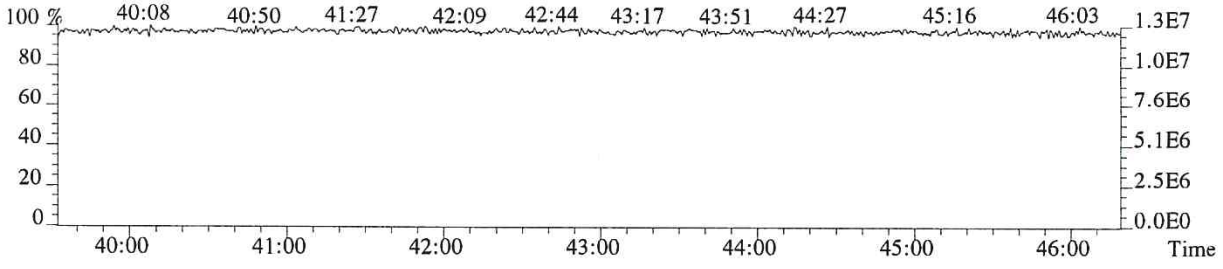
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
FW0001

Run #13 Filename P615721 Samp: 1 Inj: 1 Acquired: 27-NOV-18 15:59:49
Processed: 28-NOV-18 10:20:57 Sample ID: E1801020-053

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:11	8.546e+01	6.140e+01	1.39	yes	yes	1.156
3	Unk	2,3,4,7,8-PeCDF	34:05	7.160e+01	5.291e+01	1.35	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	1.118e+02	6.176e+01	1.81	no	yes	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:46	6.405e+01	3.670e+01	1.75	no	yes	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	9.648e+01	4.836e+01	1.99	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	43:31	4.990e+02	6.276e+02	0.79	yes	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:28	3.085e+01	2.406e+01	1.28	yes	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	1.800e+01	1.417e+01	1.27	no	no	1.112
17	Unk	OCDD	43:16	5.023e+01	6.881e+01	0.73	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:14	3.441e+04	4.444e+04	0.77	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	5.414e+04	3.420e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:04	5.518e+04	3.438e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	2.548e+04	4.883e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	2.791e+04	5.239e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	2.797e+04	5.237e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	2.366e+04	4.484e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	1.840e+04	4.034e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	1.680e+04	3.727e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	2.526e+04	3.211e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	4.122e+04	2.713e+04	1.52	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	3.695e+04	2.900e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:28	3.346e+04	2.715e+04	1.23	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	3.439e+04	3.209e+04	1.07	yes	no	0.857
32	IS	13C-OCDD	43:16	3.348e+04	3.646e+04	0.92	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	6.996e+04	9.053e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	7.384e+04	5.952e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:58	2.634e+04				no	1.086

$$\text{OCDD} = \frac{(5.023e{+}01 + 6.881e{+}01) \times 4000\ \text{pg} \times 1}{(3.348e{+}04 + 3.646e{+}04) \times .5\ \text{g} \times / 100 \times 1.157} = 10.5447\ \text{pg}$$

LG 11/28/18

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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW0001

Run #13 Filename P615721 Samp: 1 Inj: 1 Acquired: 27-NOV-18 15:59:49
Processed: 28-NOV-18 10:20:57 LAB. ID: E1801020-053

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	2.06e+03	*	*	4.40e+03	*
2	1,2,3,7,8-PeCDF	1.70e+04	1.40e+03	1.2e+01	1.40e+04	3.43e+03	4.1e+00
3	2,3,4,7,8-PeCDF	1.51e+04	1.40e+03	1.1e+01	9.10e+03	3.43e+03	2.7e+00
4	1,2,3,4,7,8-HxCDF	2.19e+04	3.48e+03	6.3e+00	1.37e+04	2.68e+03	5.1e+00
5	1,2,3,6,7,8-HxCDF	1.45e+04	3.48e+03	4.1e+00	8.40e+03	2.68e+03	3.1e+00
6	2,3,4,6,7,8-HxCDF	*	3.48e+03	*	*	2.68e+03	*
7	1,2,3,7,8,9-HxCDF	*	3.48e+03	*	*	2.68e+03	*
8	1,2,3,4,6,7,8-HpCDF	2.11e+04	3.02e+03	7.0e+00	1.05e+04	3.45e+03	3.0e+00
9	1,2,3,4,7,8,9-HpCDF	*	3.02e+03	*	*	3.45e+03	*
10	OCDF	7.58e+04	7.72e+02	9.8e+01	9.63e+04	2.82e+03	3.4e+01
11	2,3,7,8-TCDD	*	2.97e+03	*	*	2.53e+03	*
12	1,2,3,7,8-PeCDD	*	2.71e+03	*	*	8.28e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.33e+03	*	*	1.45e+03	*
14	1,2,3,6,7,8-HxCDD	7.28e+03	1.33e+03	5.5e+00	6.17e+03	1.45e+03	4.2e+00
15	1,2,3,7,8,9-HxCDD	*	1.33e+03	*	*	1.45e+03	*
16	1,2,3,4,6,7,8-HpCDD	2.86e+03	7.40e+02	3.9e+00	3.74e+03	8.96e+02	4.2e+00
17	OCDD	9.31e+03	5.88e+02	1.6e+01	1.09e+04	8.36e+02	1.3e+01
18	13C-2,3,7,8-TCDF	6.88e+06	1.33e+04	5.2e+02	8.78e+06	1.00e+04	8.8e+02
19	13C-1,2,3,7,8-PeCDF	1.11e+07	1.66e+03	6.7e+03	6.99e+06	1.56e+03	4.5e+03
20	13C-2,3,4,7,8-PeCDF	1.14e+07	1.66e+03	6.9e+03	7.11e+06	1.56e+03	4.6e+03
21	13C-1,2,3,4,7,8-HxCDF	5.68e+06	8.88e+02	6.4e+03	1.10e+07	1.80e+03	6.1e+03
22	13C-1,2,3,6,7,8-HxCDF	6.18e+06	8.88e+02	7.0e+03	1.16e+07	1.80e+03	6.4e+03
23	13C-2,3,4,6,7,8-HxCDF	6.28e+06	8.88e+02	7.1e+03	1.17e+07	1.80e+03	6.5e+03
24	13C-1,2,3,7,8,9-HxCDF	5.30e+06	8.88e+02	6.0e+03	9.84e+06	1.80e+03	5.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.86e+06	2.75e+03	1.4e+03	8.63e+06	4.12e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.29e+06	2.75e+03	1.2e+03	7.19e+06	4.12e+03	1.7e+03
27	13C-2,3,7,8-TCDD	5.35e+06	1.83e+04	2.9e+02	6.77e+06	6.79e+03	1.0e+03
28	13C-1,2,3,7,8-PeCDD	8.87e+06	2.50e+03	3.5e+03	5.85e+06	2.19e+03	2.7e+03
29	13C-1,2,3,4,7,8-HxCDD	8.43e+06	2.73e+03	3.1e+03	6.60e+06	1.70e+03	3.9e+03
30	13C-1,2,3,6,7,8-HxCDD	7.58e+06	2.73e+03	2.8e+03	6.08e+06	1.70e+03	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.84e+06	1.84e+03	3.7e+03	6.44e+06	1.11e+03	5.8e+03
32	13C-OCDD	5.34e+06	7.68e+02	7.0e+03	5.83e+06	8.48e+02	6.9e+03
33	13C-1,2,3,4-TCDD	1.43e+07	1.83e+04	7.8e+02	1.86e+07	6.79e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.66e+07	2.73e+03	6.1e+03	1.33e+07	1.70e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	5.48e+06	1.94e+03	2.8e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.972e{+}03 + 2.532e{+}03) \times 2000}{(5.348e{+}06 + 6.771e{+}06) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office:(281)530-5656. Fax:(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0001

Entry: 39 Totals Name: Total Penta-Furans2

Run: 13 File: P615721 Sample:1 Injection:1 Function:2

Acquired: 27-NOV-18 15:59:49 Processed: 28-NOV-18 10:20:57

Mass: 339.8600 341.8570 Tot Response: 2.71e+02 RRF: 1.130

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:11	8.55e+01	6.14e+01 1.39	yes	1.47e+02	1,2,3,7,8-PeCDF	y	y
2	34:05	7.16e+01	5.29e+01 1.35	yes	1.25e+02	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0001

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P615721 Sample:1 Injection:1 Function:3

Acquired: 27-NOV-18 15:59:49 Processed: 28-NOV-18 10:20:57

Mass: 389.8160 391.8130 Tot Response: 5.49e+01 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:28	3.09e+01	2.41e+01 1.28	yes	5.49e+01	1,2,3,6,7,8-HxCDD	y	y

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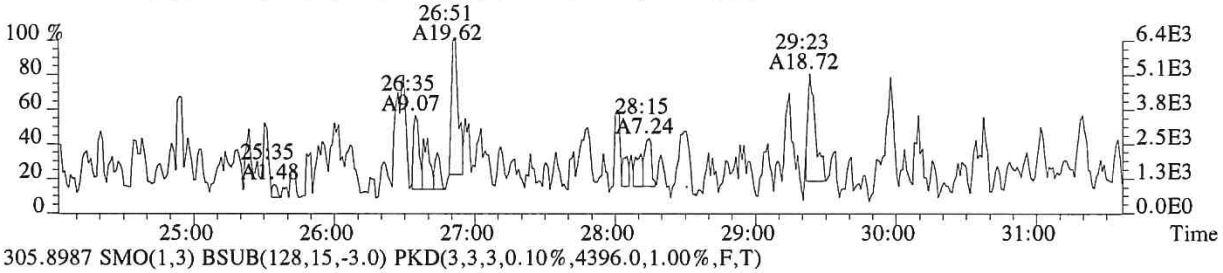
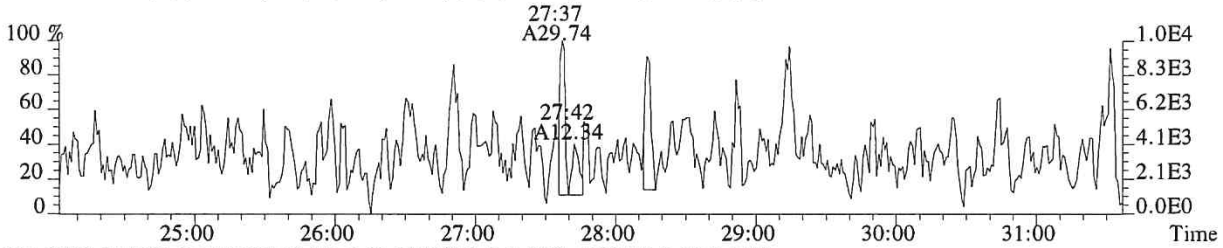
File:P615721 #1-538 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053

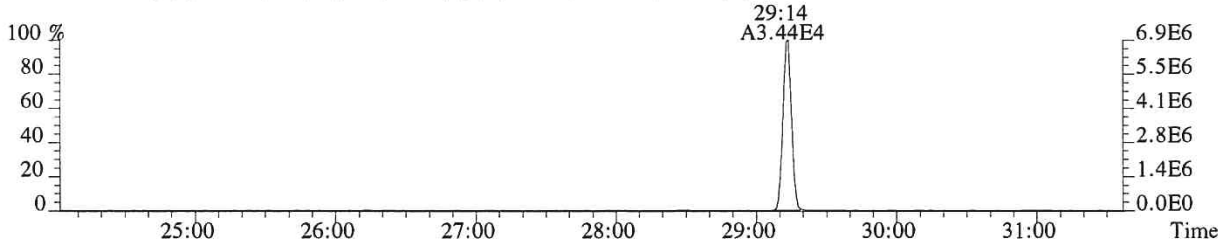
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



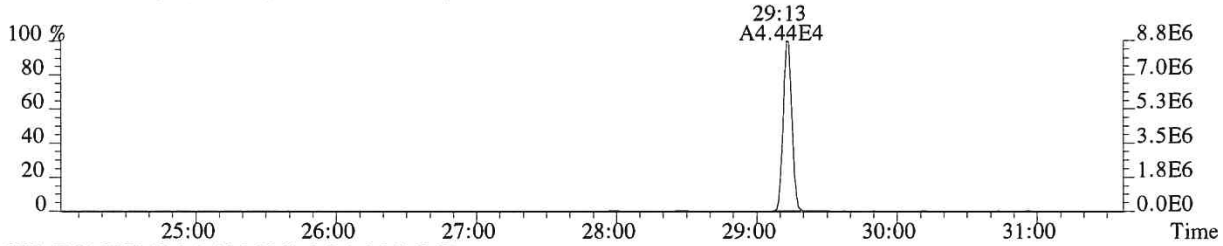
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4396.0,1.00%,F,T)



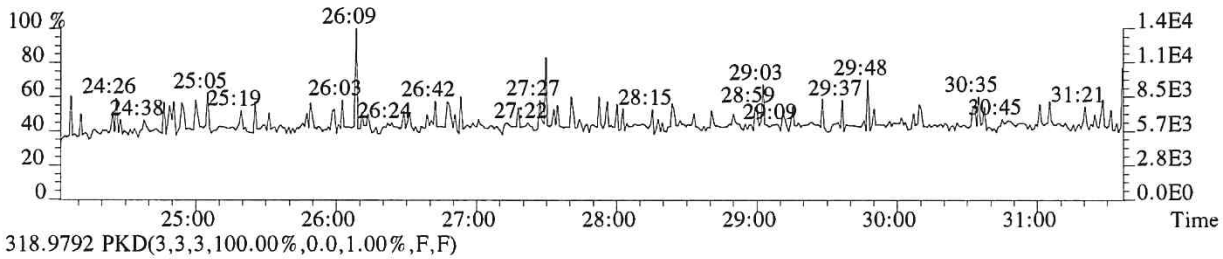
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13320.0,1.00%,F,T)



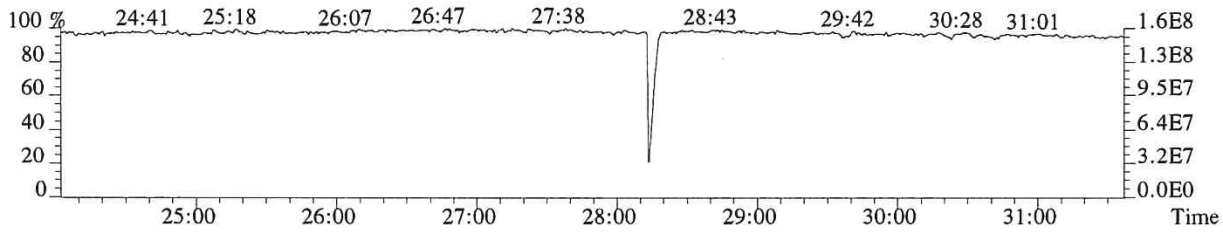
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10000.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



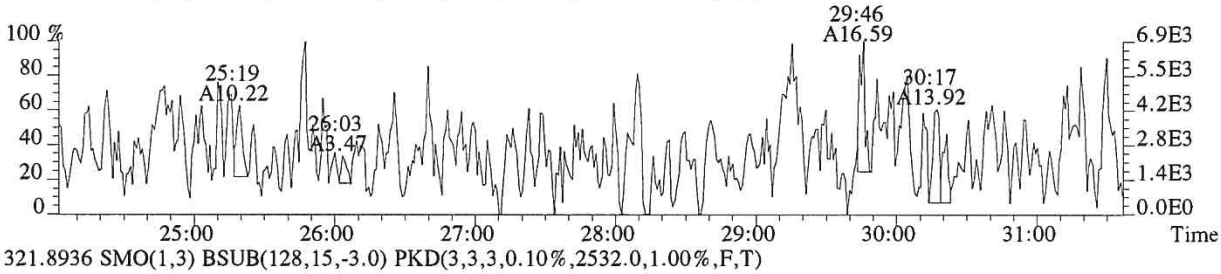
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



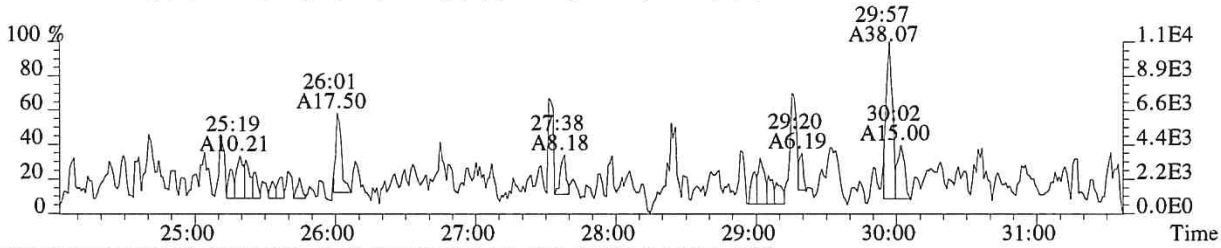
009820

File:P615721 #1-538 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053

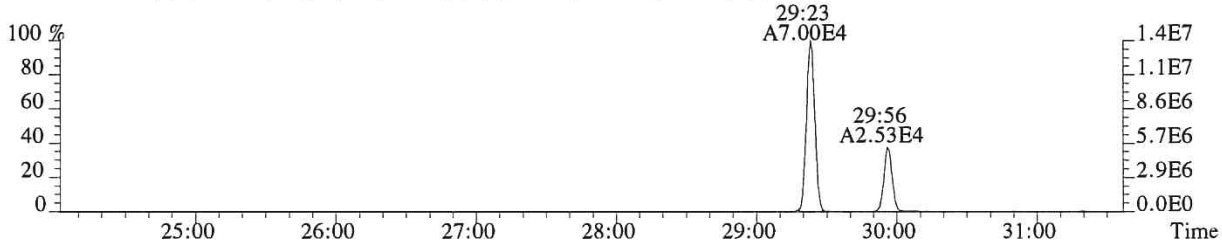
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2972.0,1.00%,F,T)



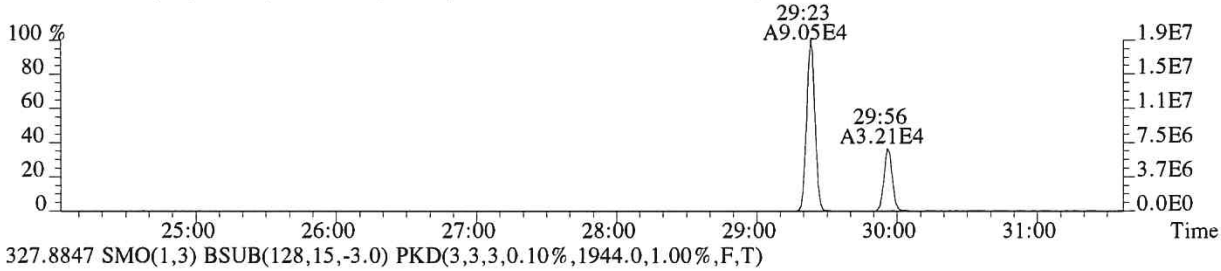
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2532.0,1.00%,F,T)



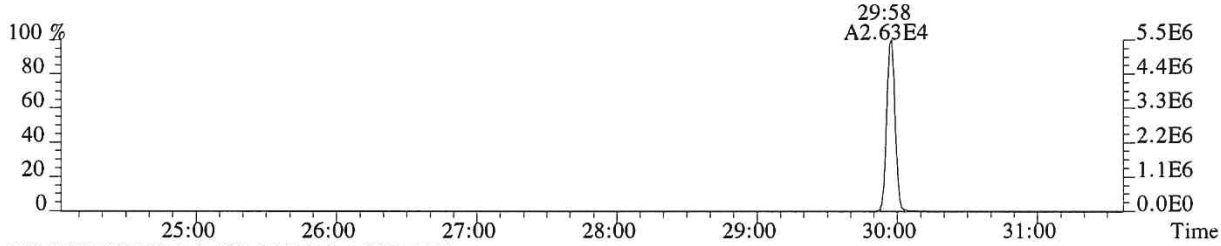
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18284.0,1.00%,F,T)



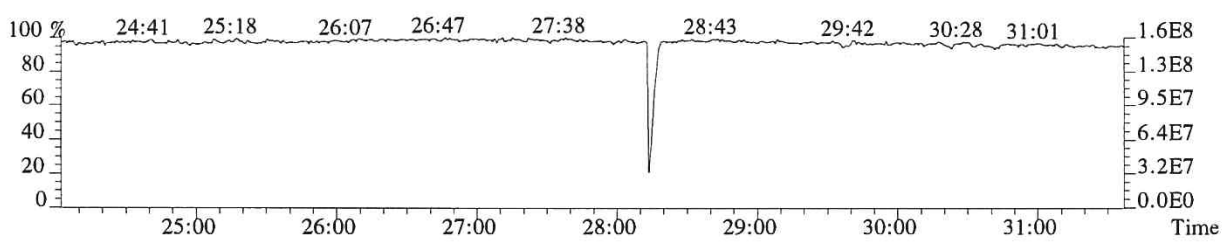
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6792.0,1.00%,F,T)



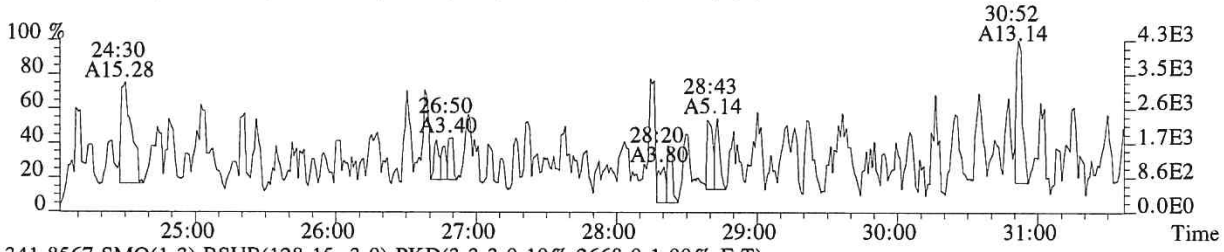
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1944.0,1.00%,F,T)



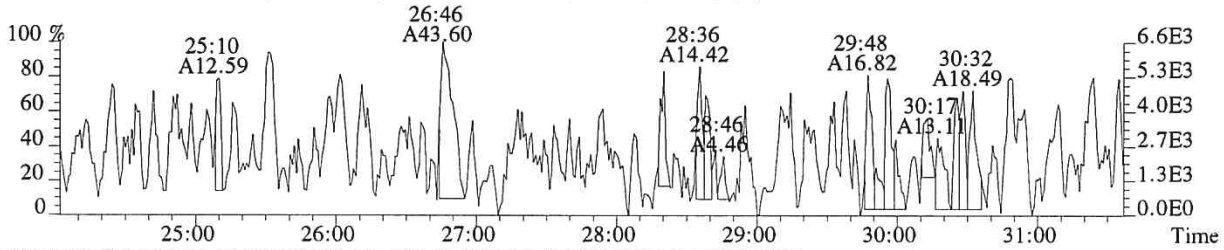
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



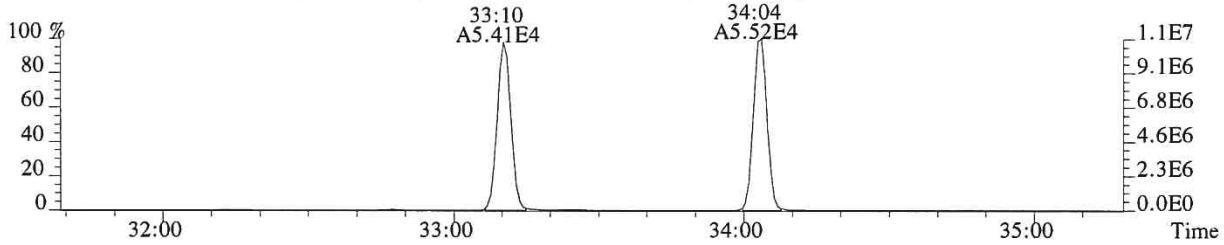
File:P615721 #1-538 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



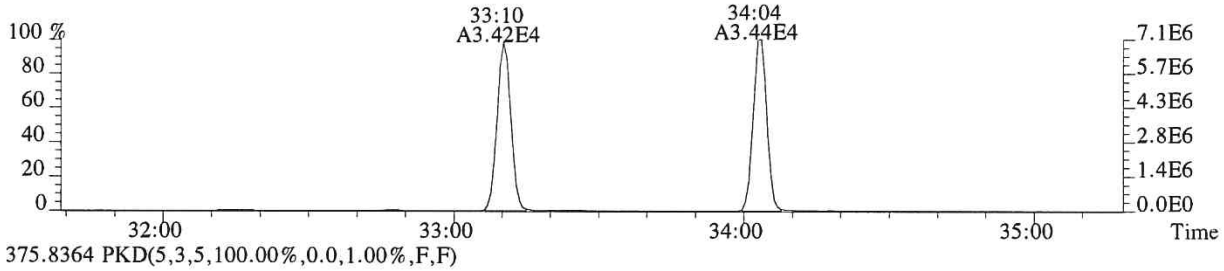
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2668.0,1.00%,F,T)



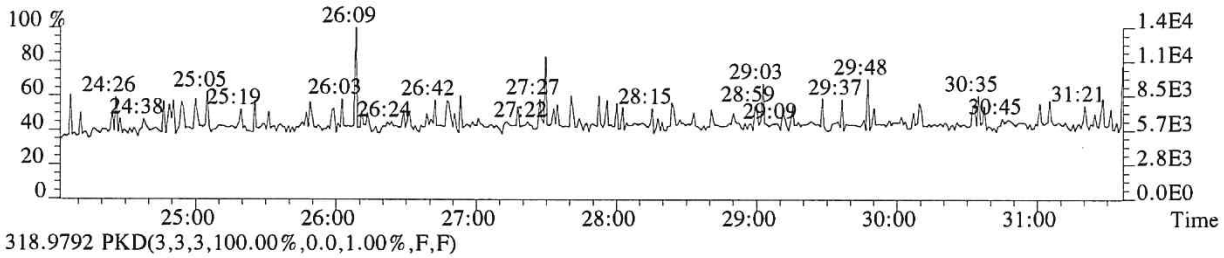
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1660.0,1.00%,F,T)



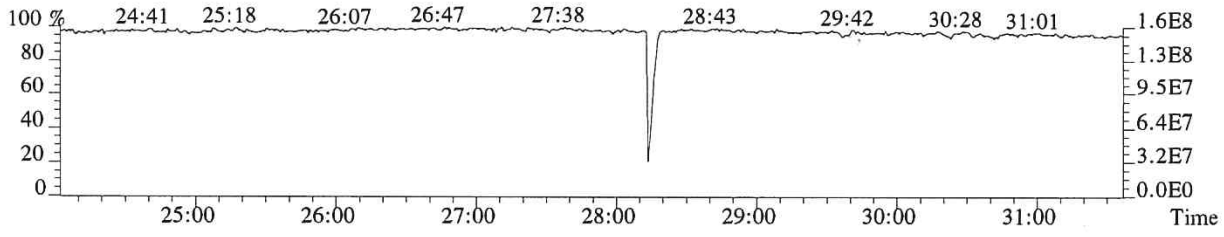
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



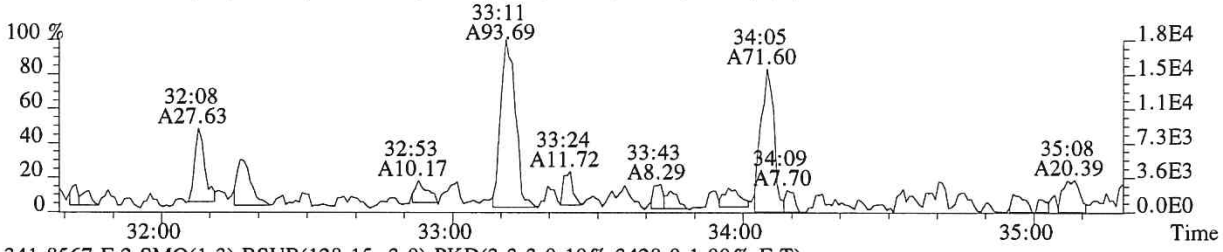
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



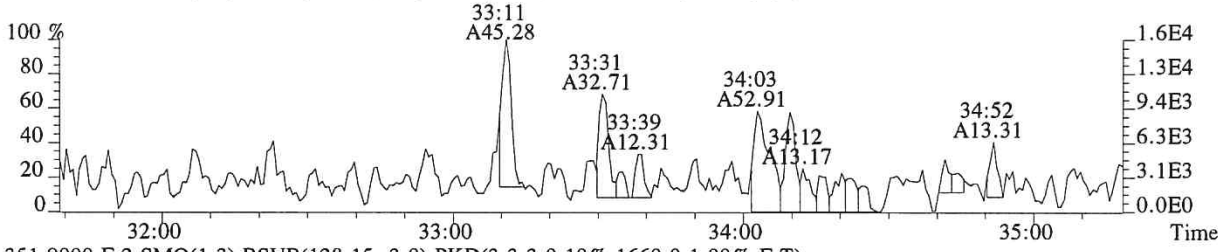
009822

File:P615721 #1-330 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053

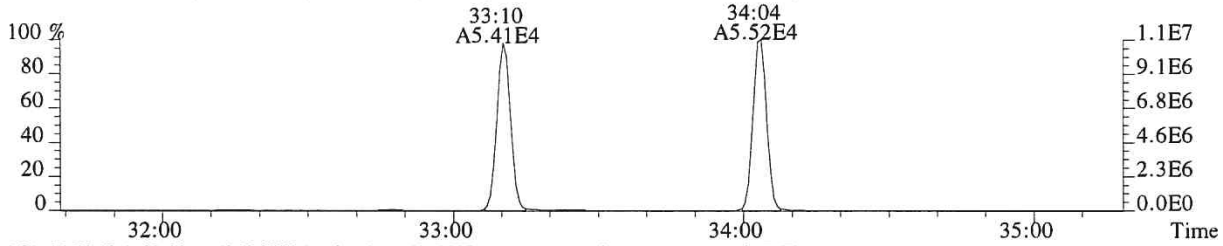
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



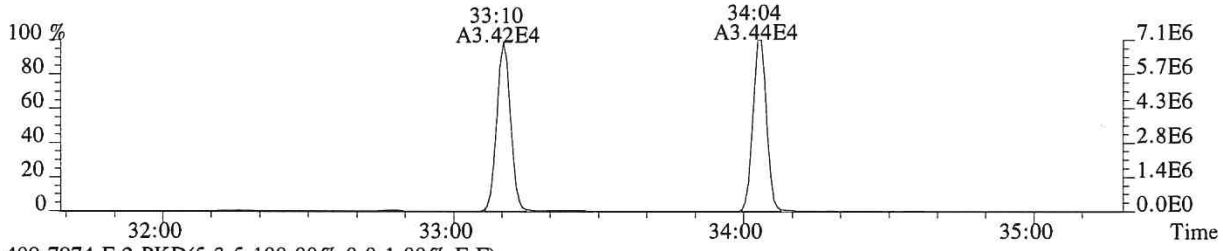
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3428.0,1.00%,F,T)



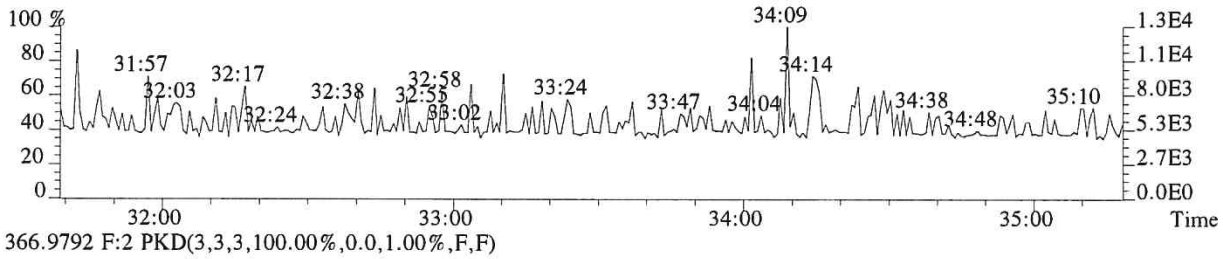
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1660.0,1.00%,F,T)



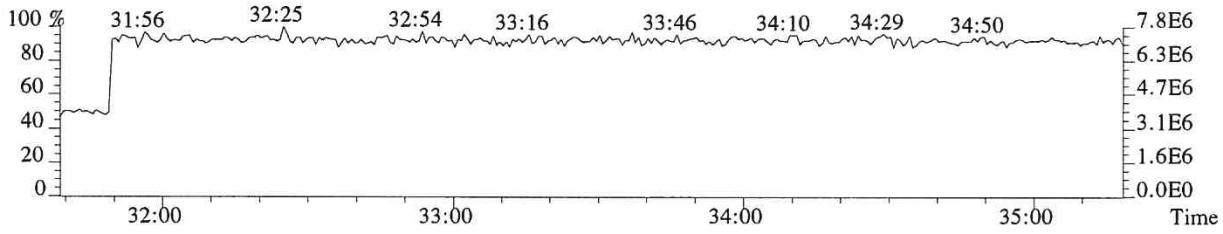
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



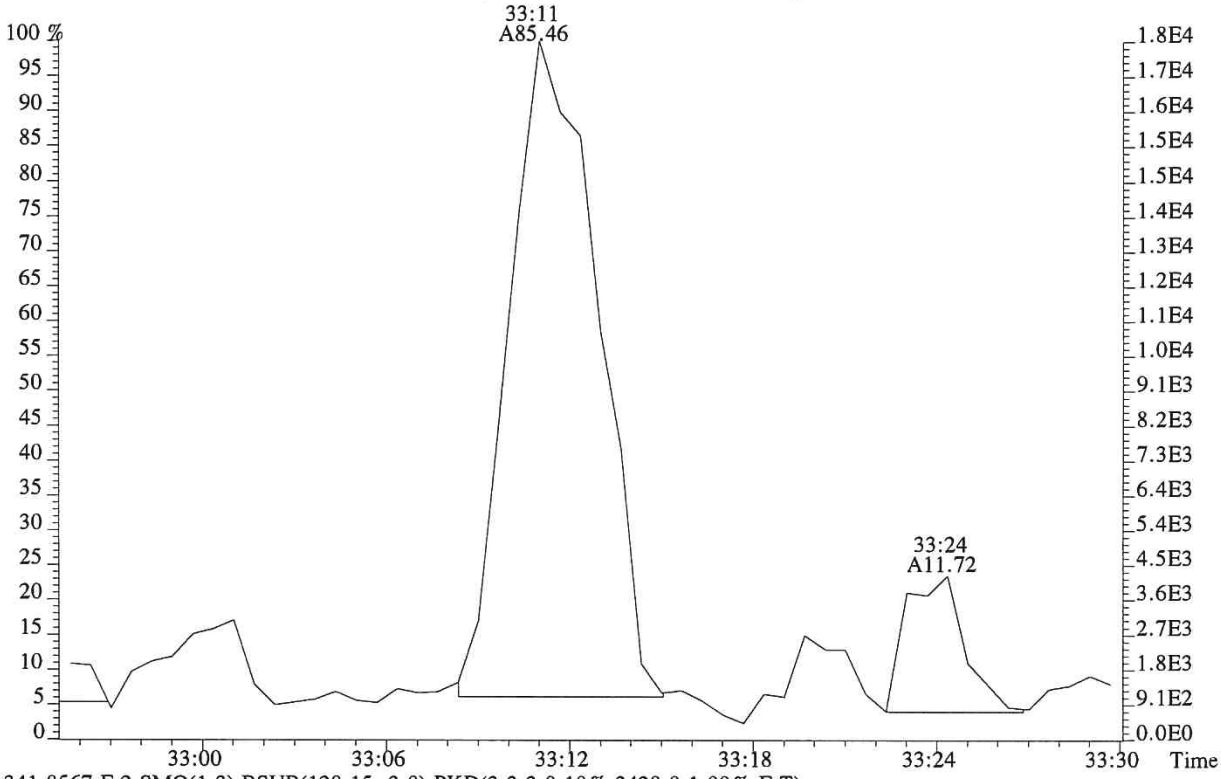
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



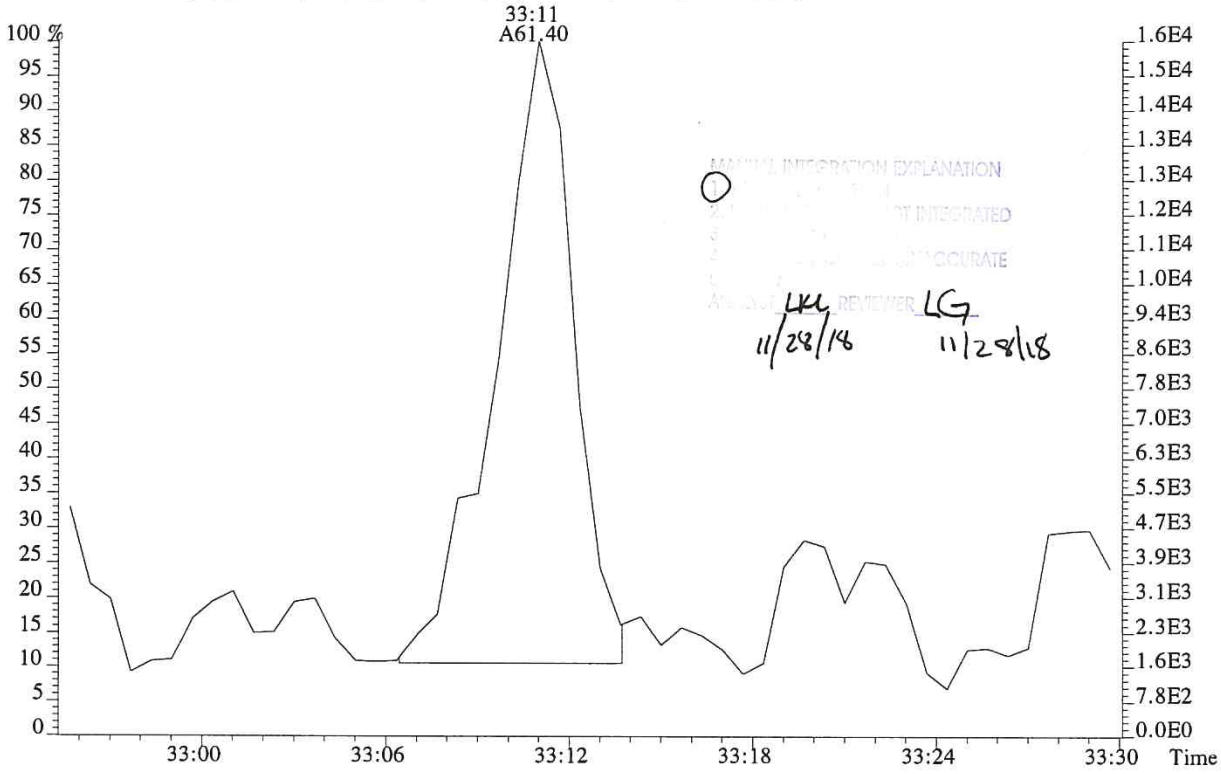
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



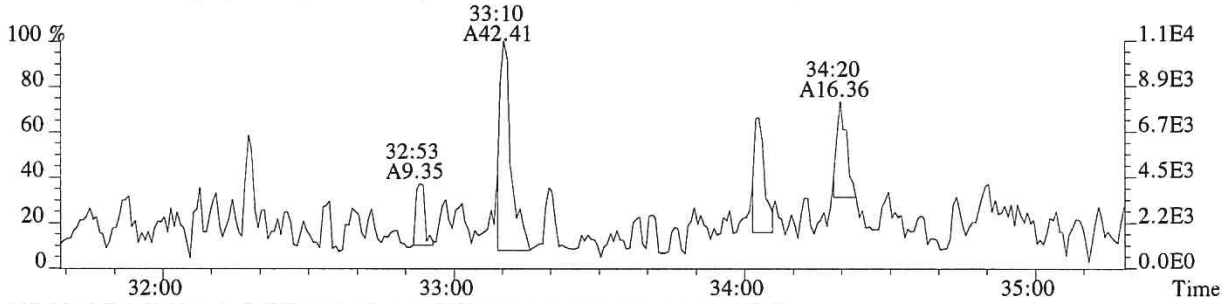
File:P615721 #1-330 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



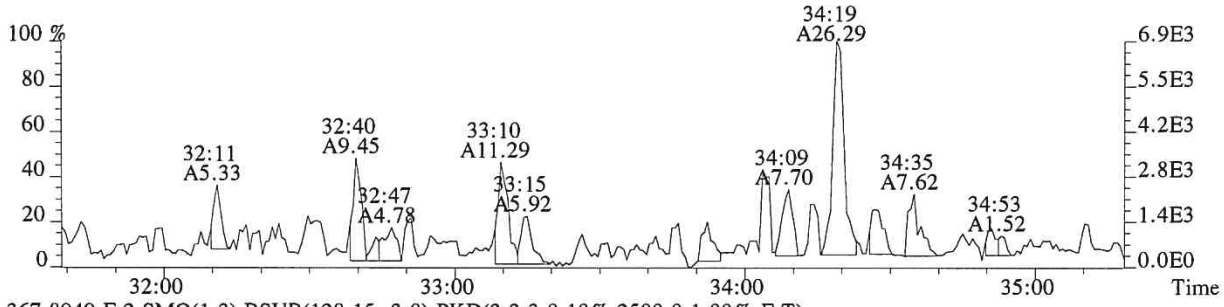
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3428.0,1.00%,F,T)



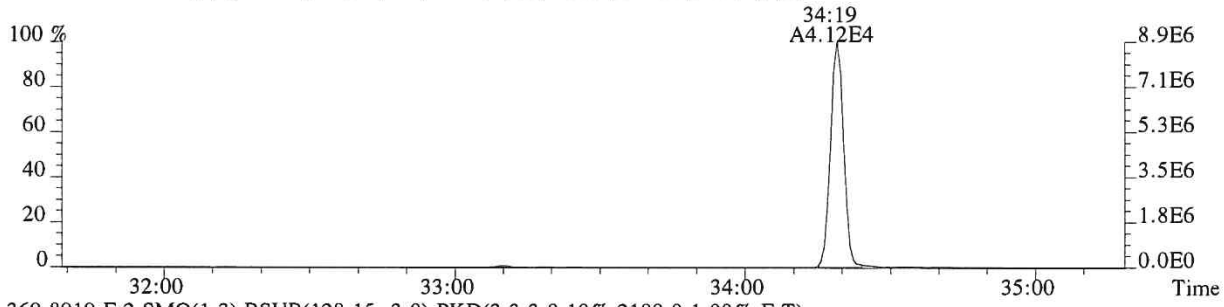
File:P615721 #1-330 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2712.0,1.00%,F,T)



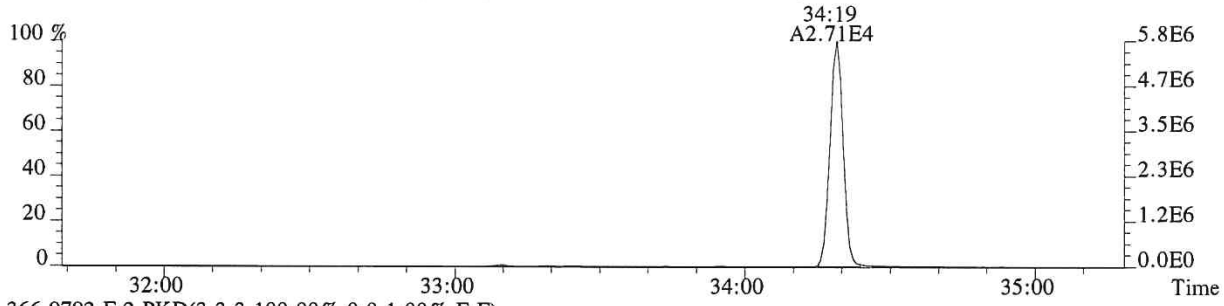
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



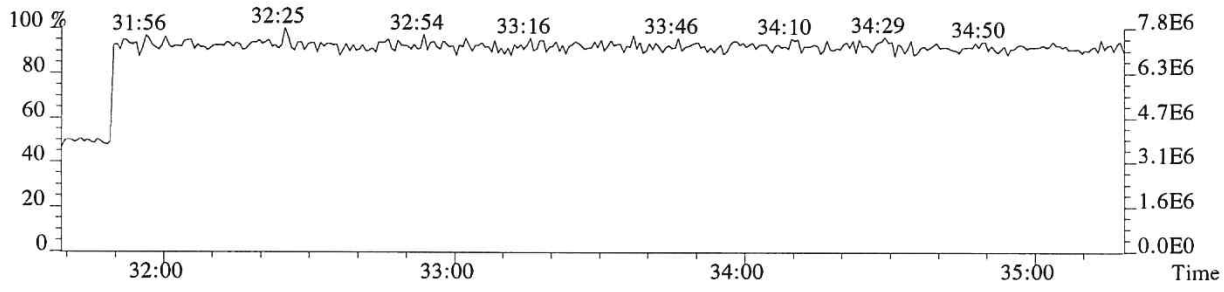
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2500.0,1.00%,F,T)



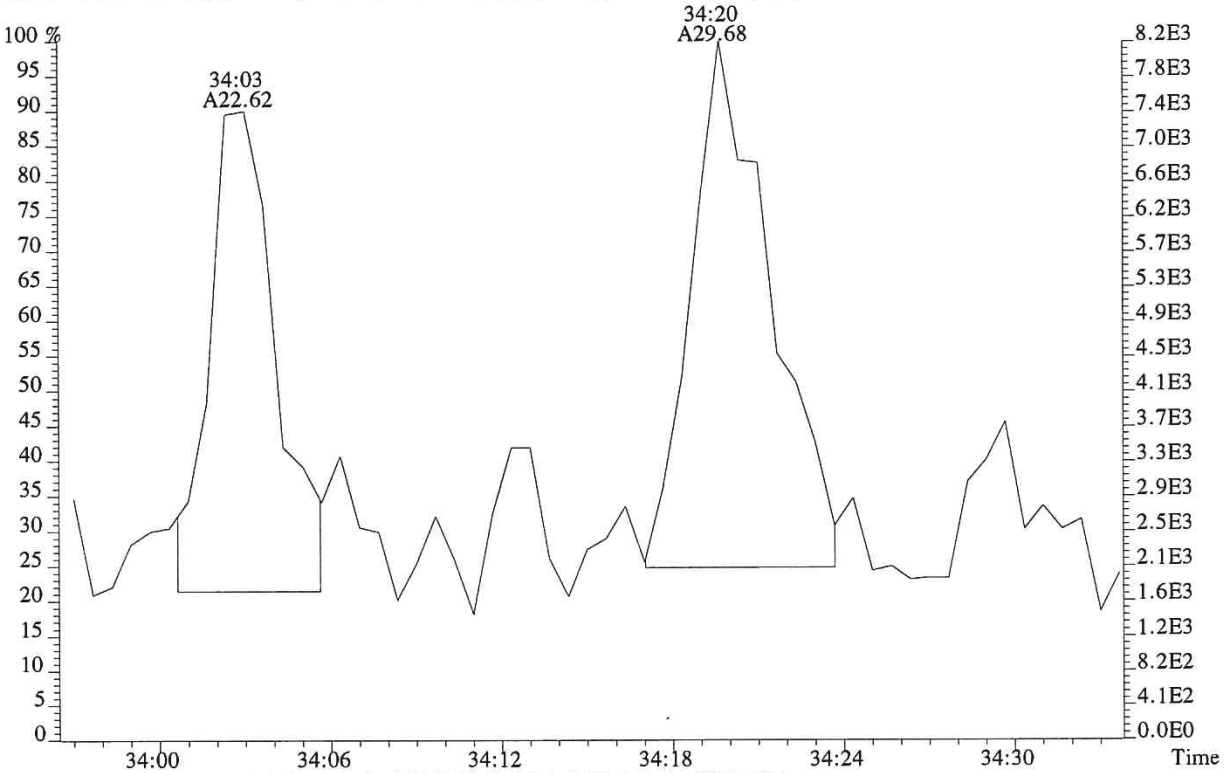
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2188.0,1.00%,F,T)



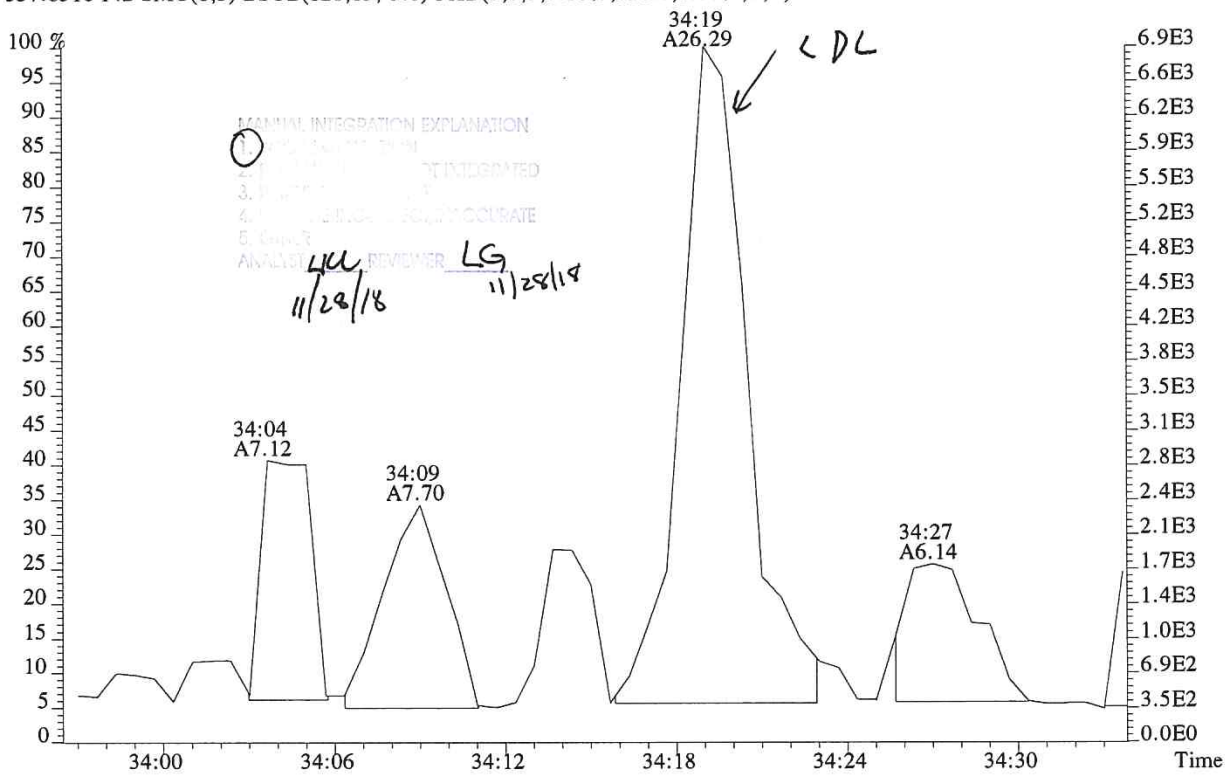
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



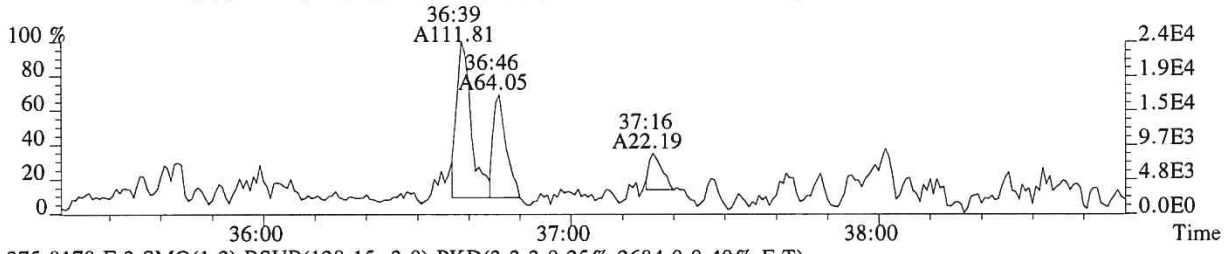
File:P615721 #1-330 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2712.0,1.00%,F,T)



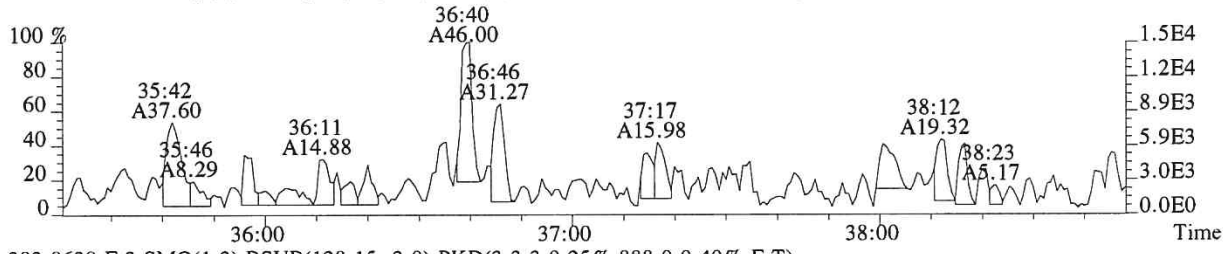
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



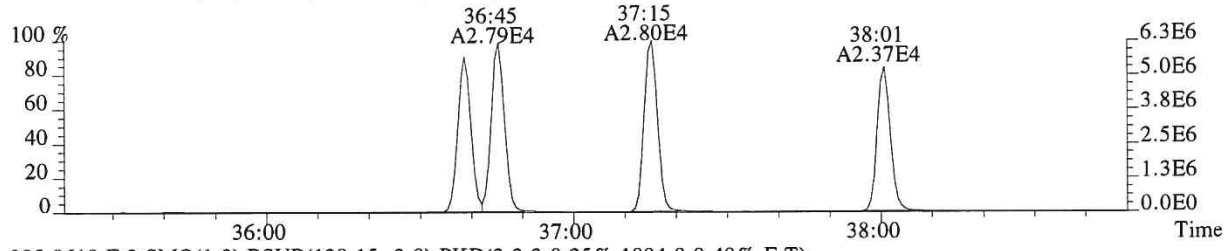
File:P615721 #1-312 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3484.0,0.40%,F,T)



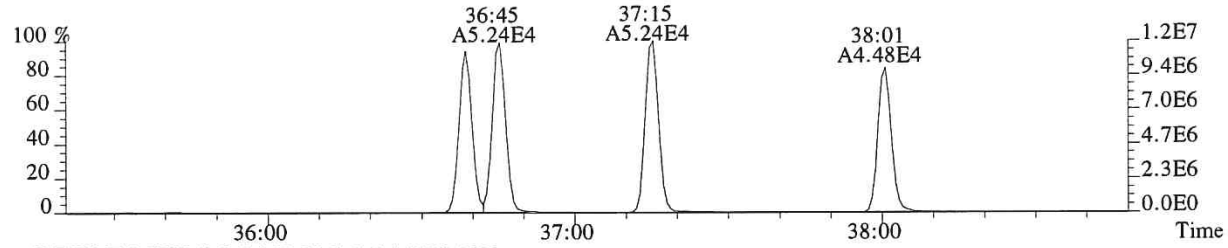
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2684.0,0.40%,F,T)



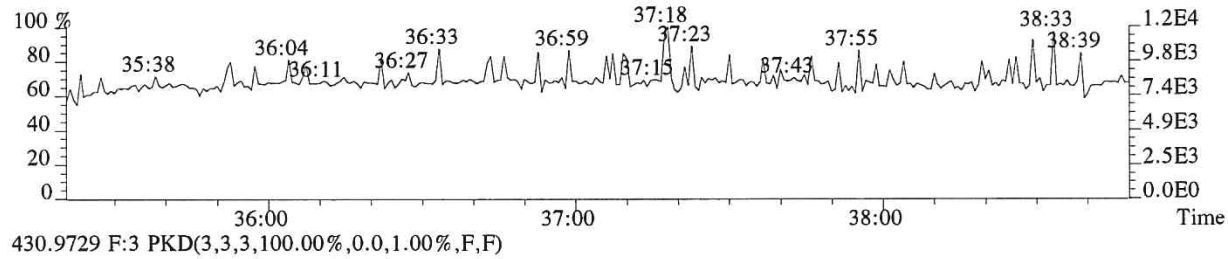
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



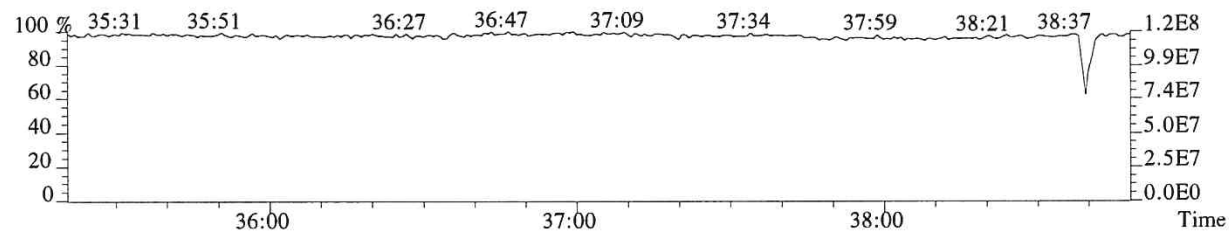
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



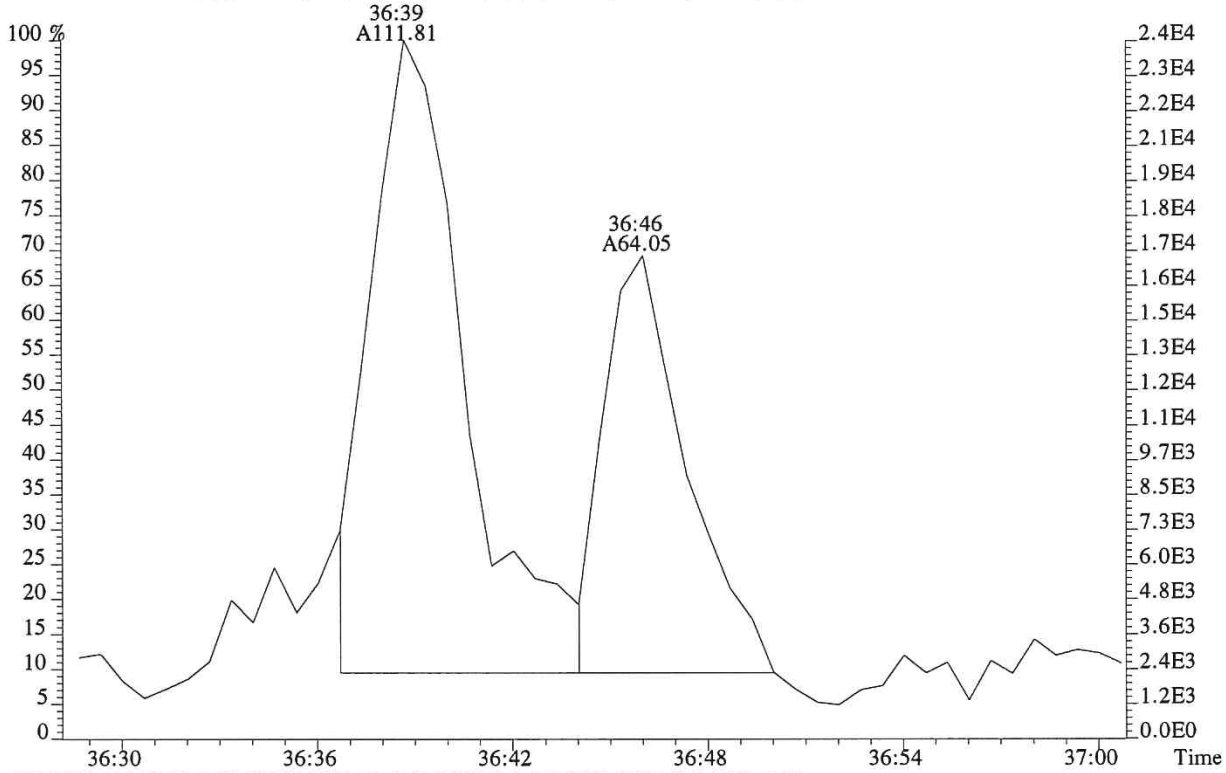
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



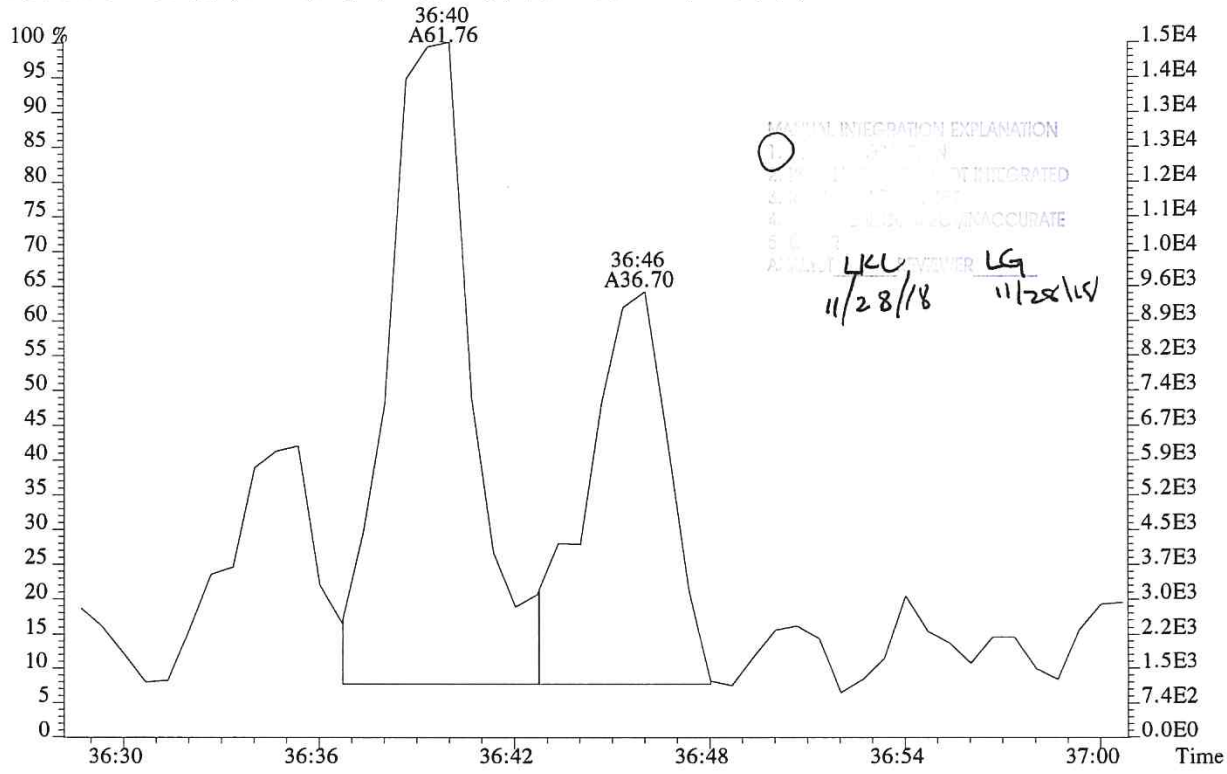
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615721 #1-312 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3484.0,0.40%,F,T)

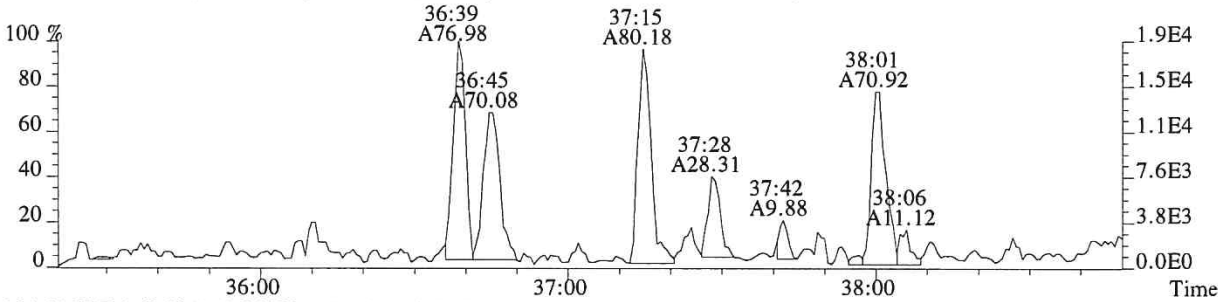


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2684.0,0.40%,F,T)

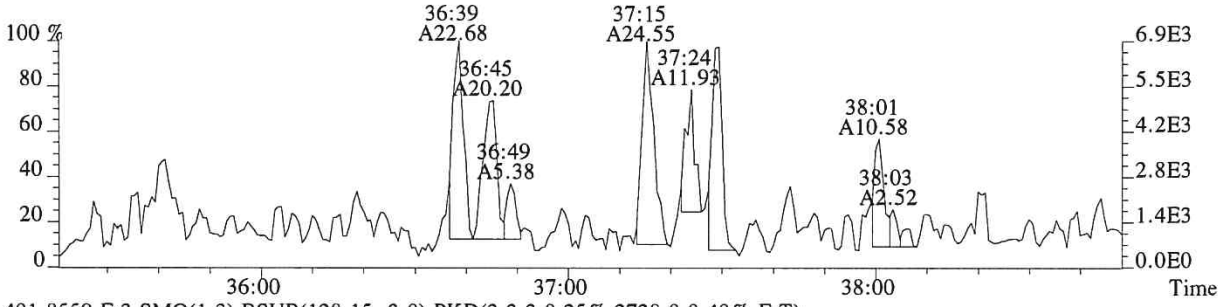


MANUAL INTEGRATION EXPLANATION
INTEGRATED
INACCURATE
LKU 11/28/18 LG 11/28/18

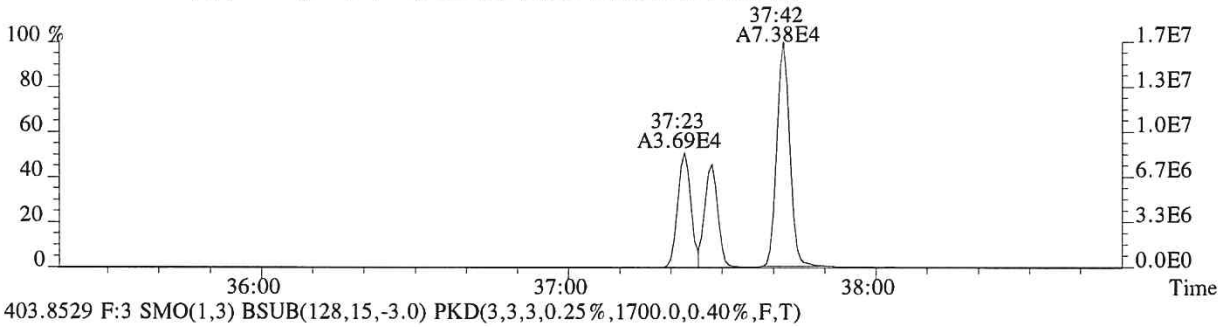
File:P615721 #1-312 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



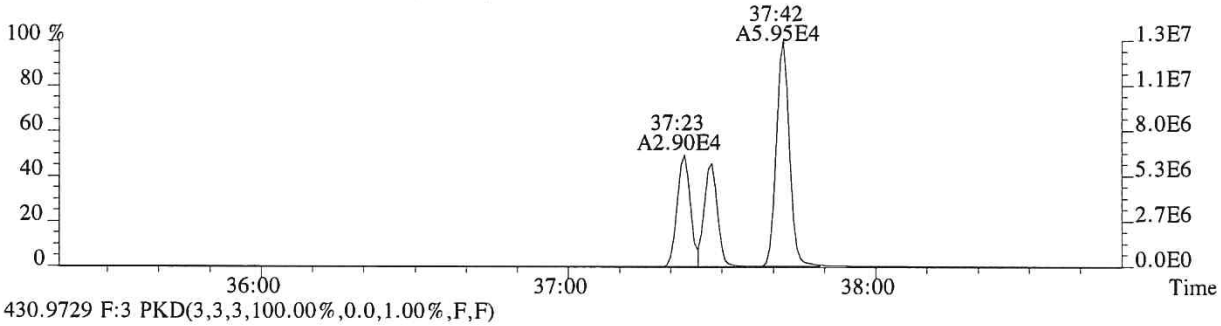
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1452.0,0.40%,F,T)



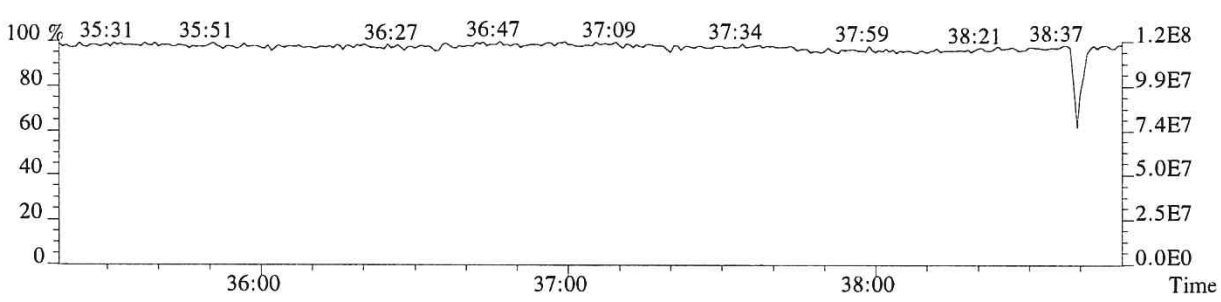
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2728.0,0.40%,F,T)



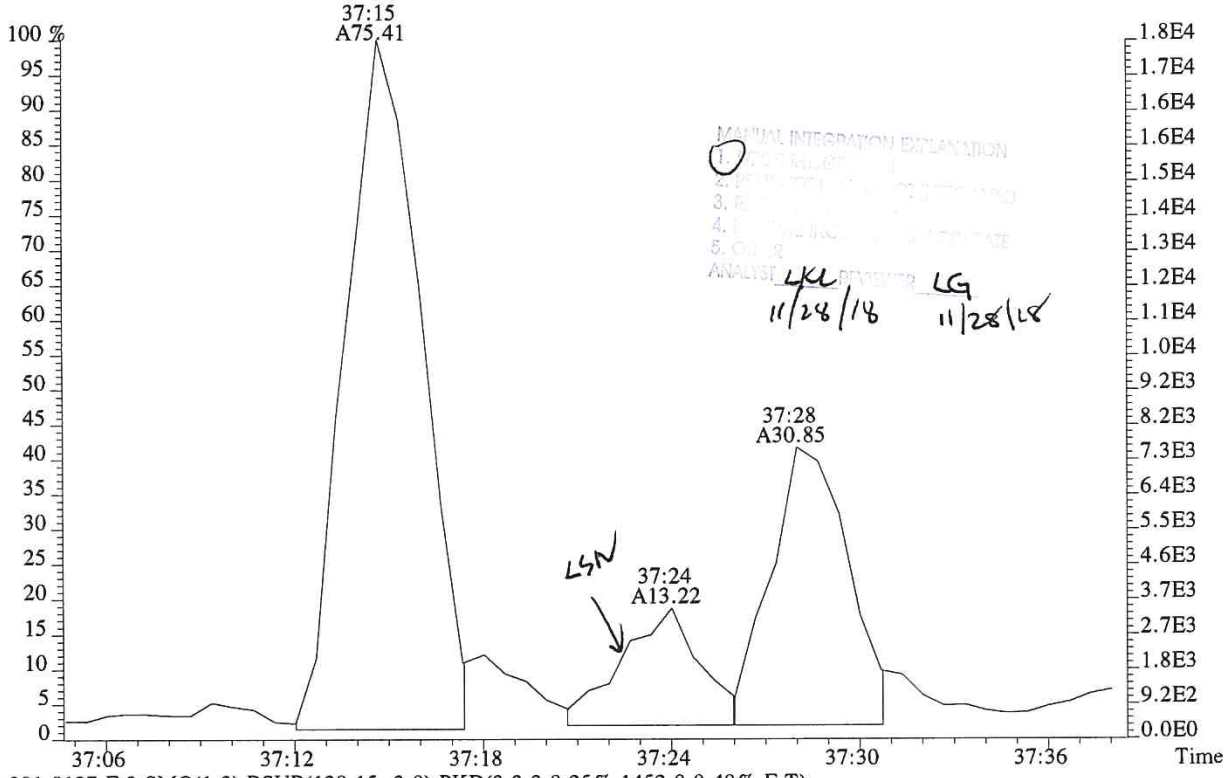
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1700.0,0.40%,F,T)



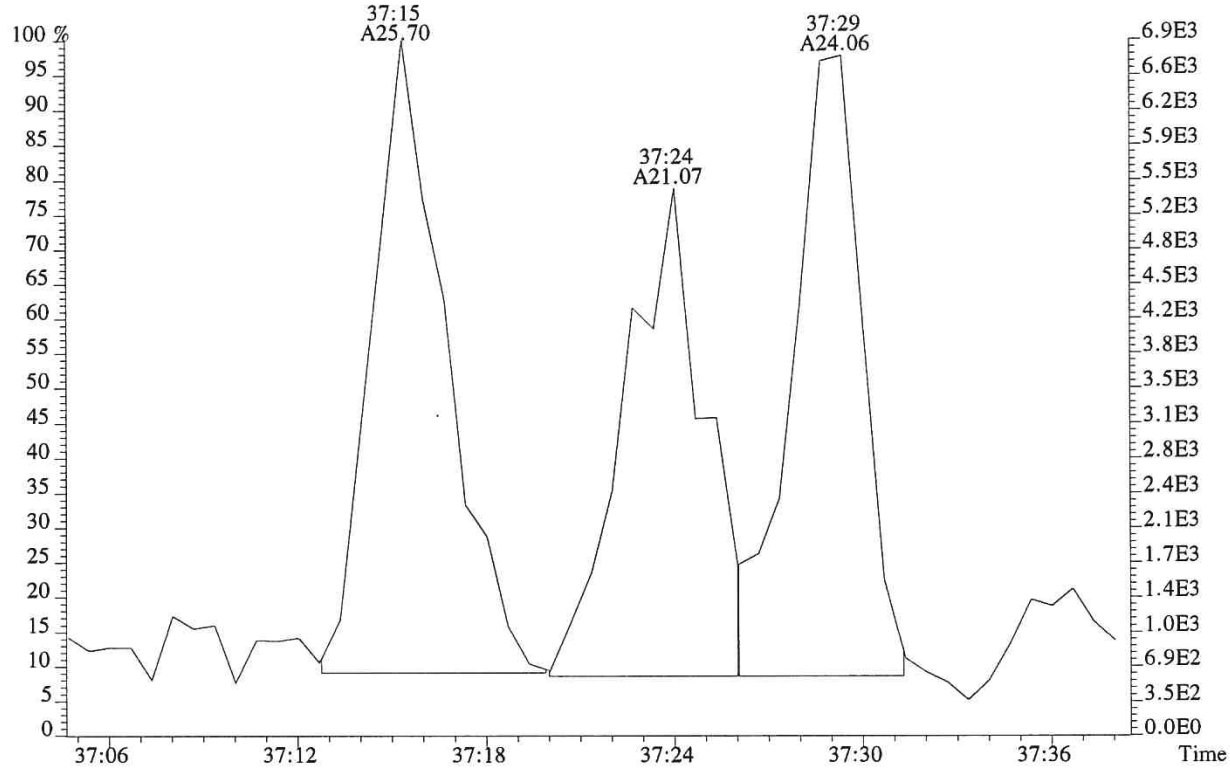
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615721 #1-312 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)

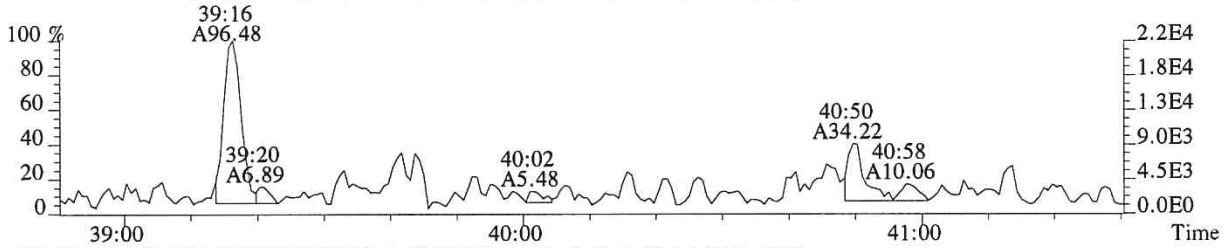


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1452.0,0.40%,F,T)

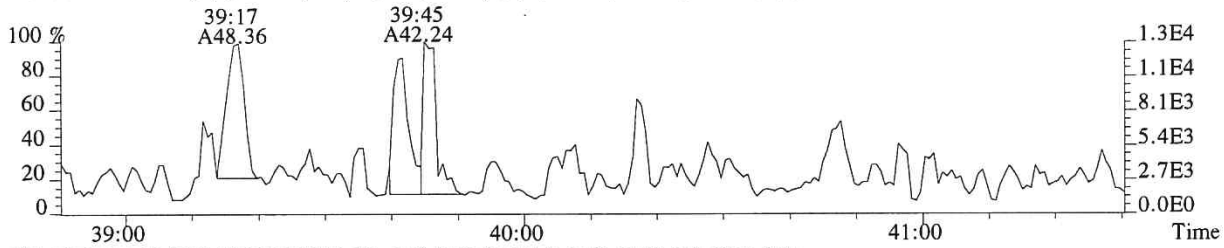


009830

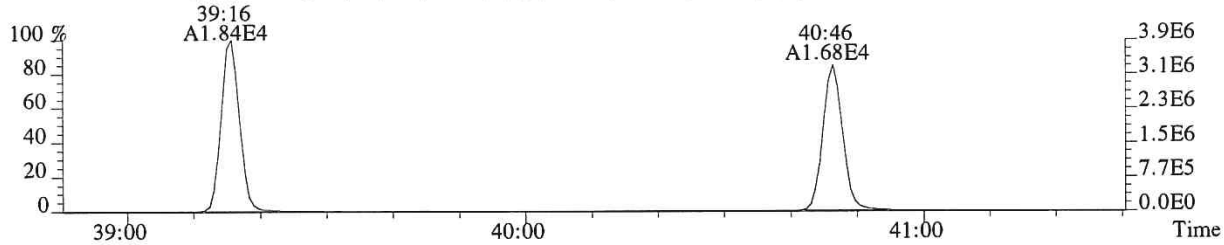
File:P615721 #1-241 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3024.0,0.50%,F,T)



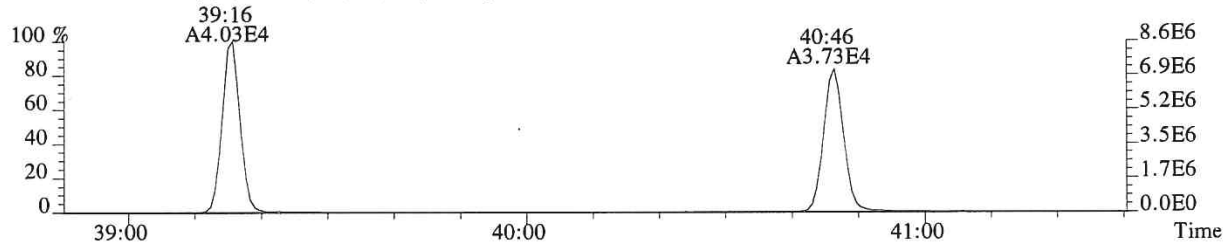
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3448.0,0.50%,F,T)



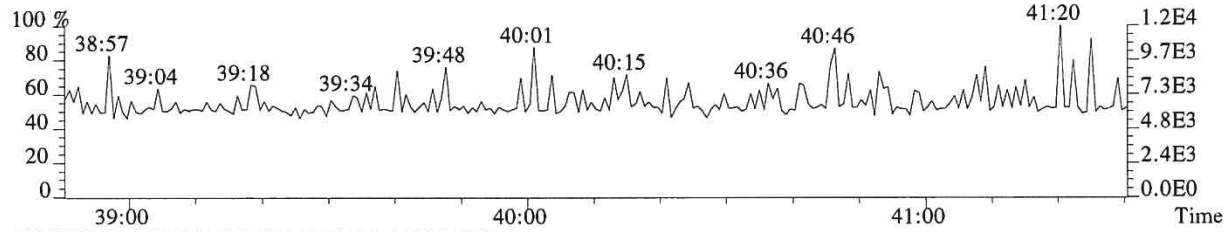
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2748.0,0.50%,F,T)



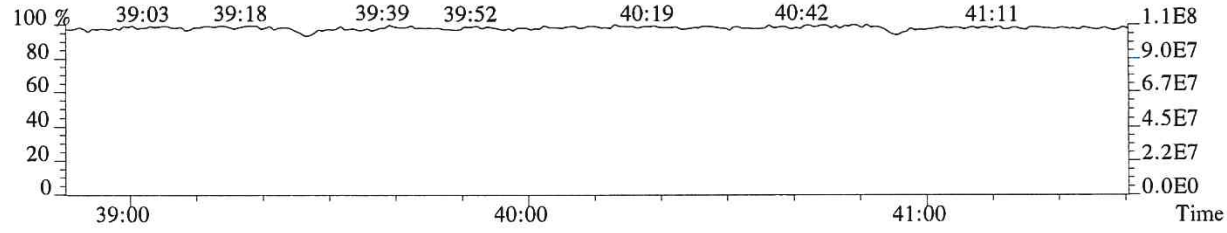
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4120.0,0.50%,F,T)



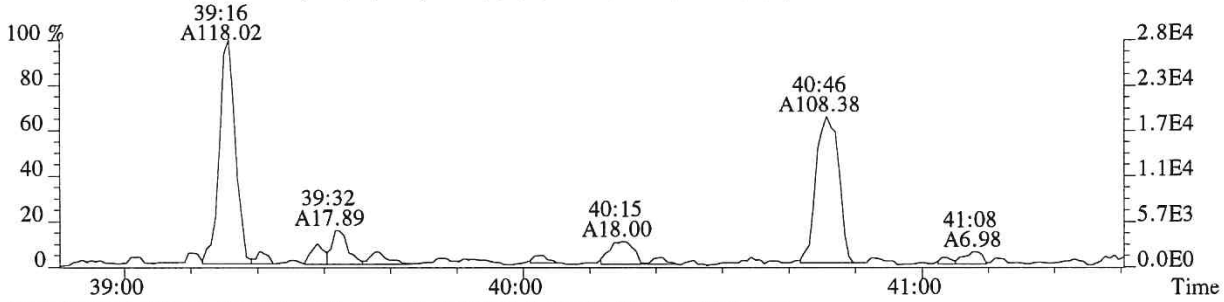
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



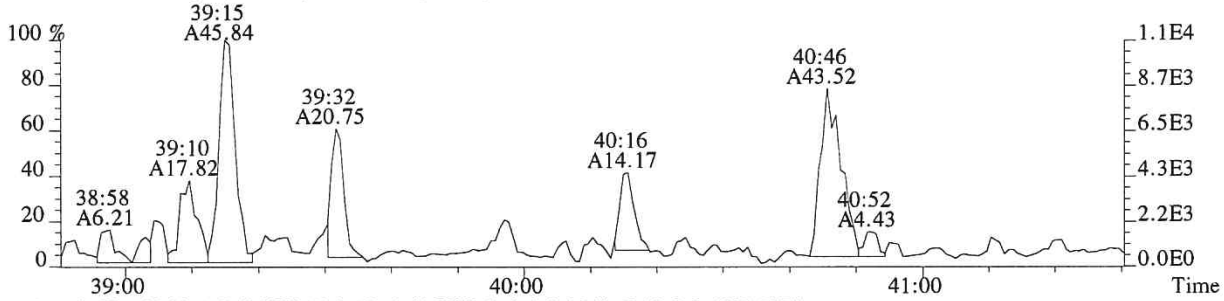
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



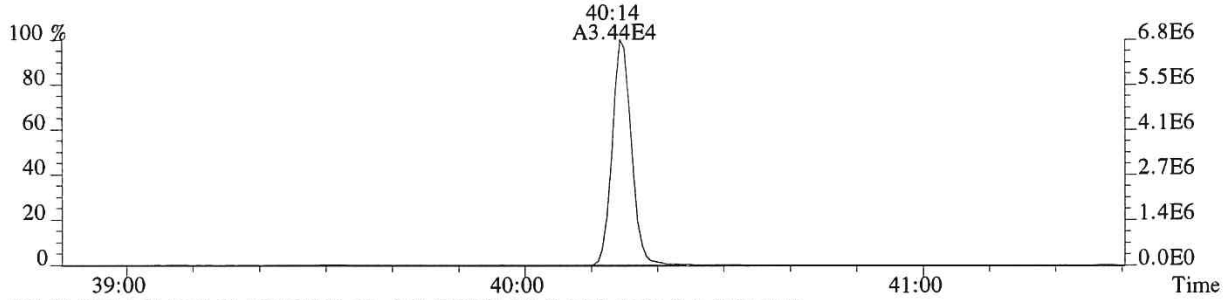
File:P615721 #1-241 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



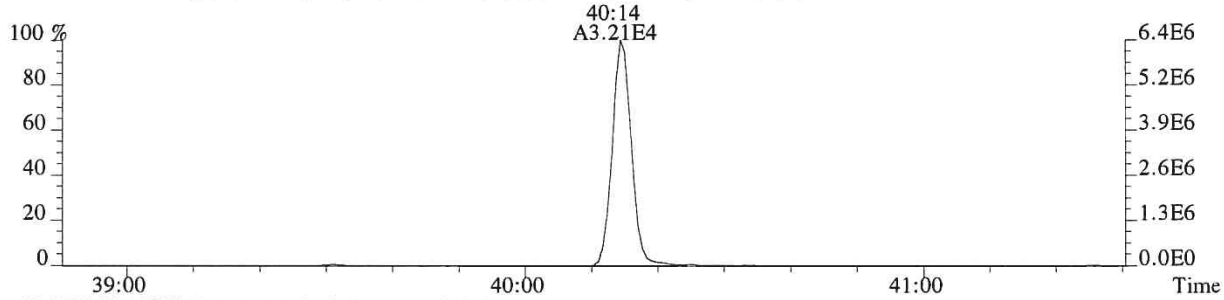
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



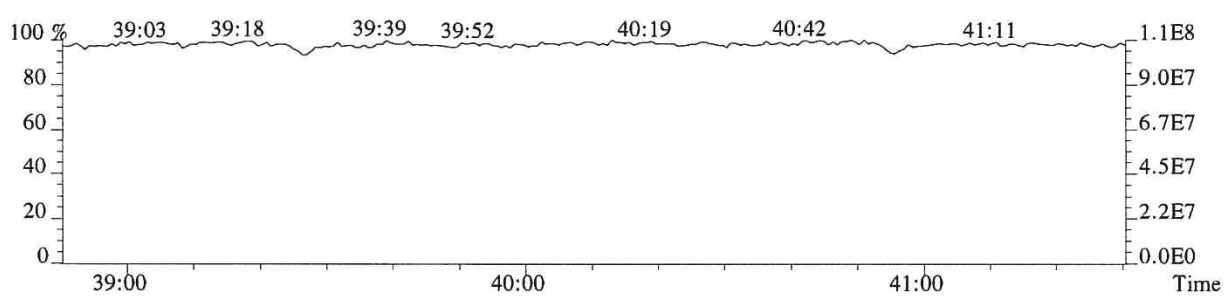
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)

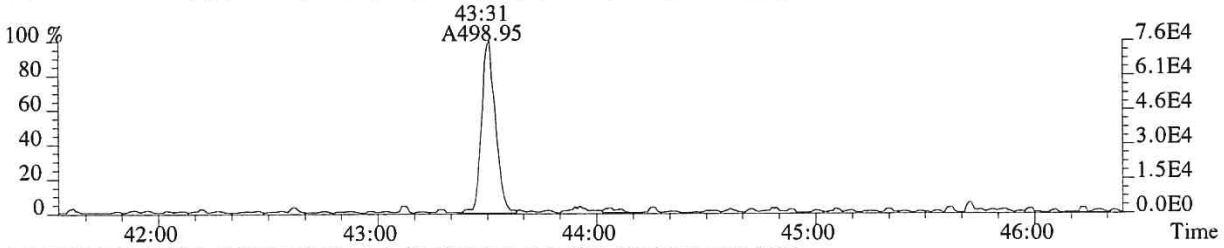


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

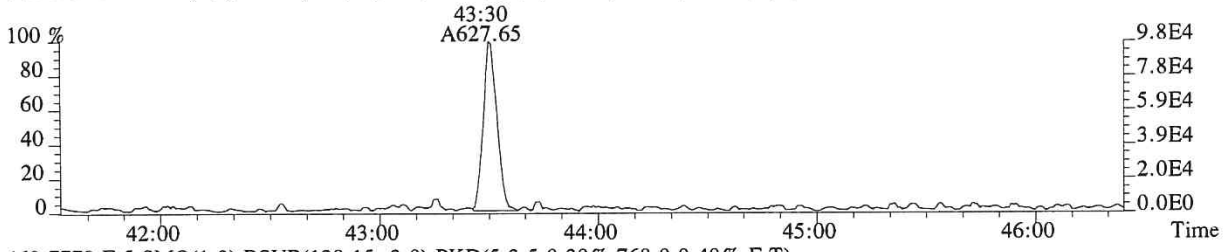


File:P615721 #1-438 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053

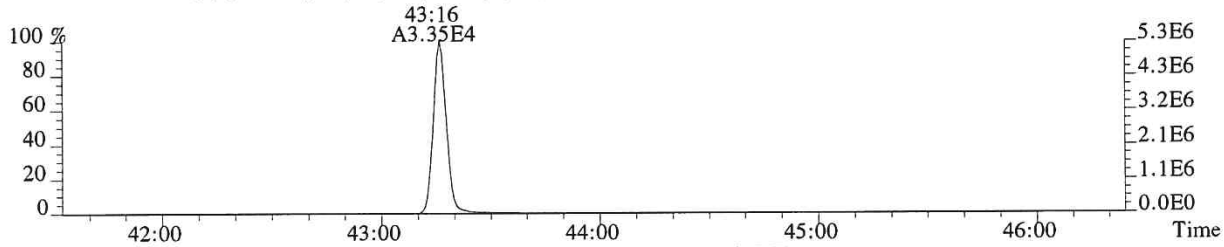
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



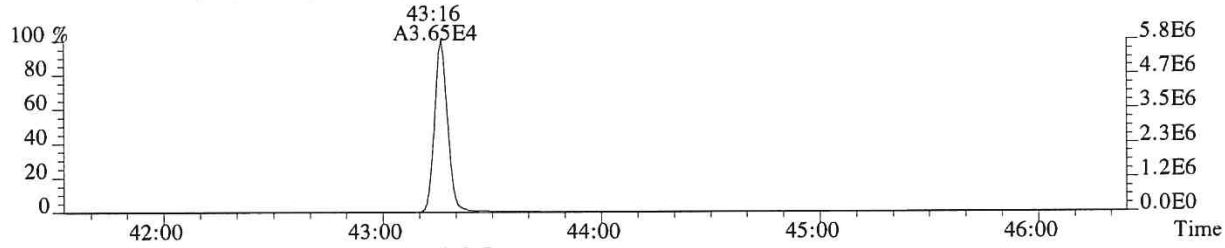
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2816.0,0.40%,F,T)



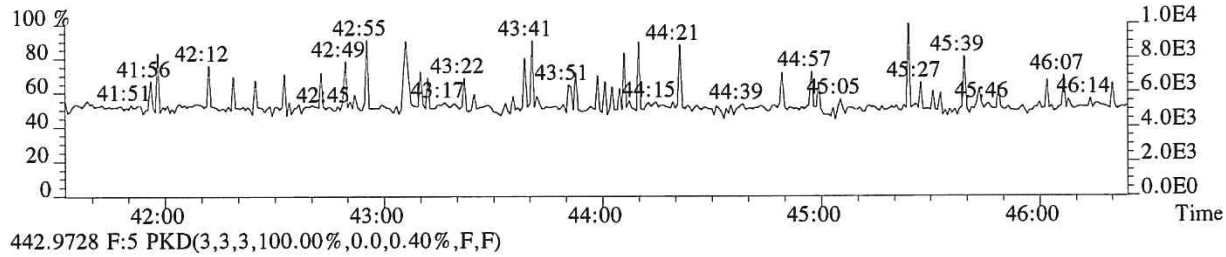
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



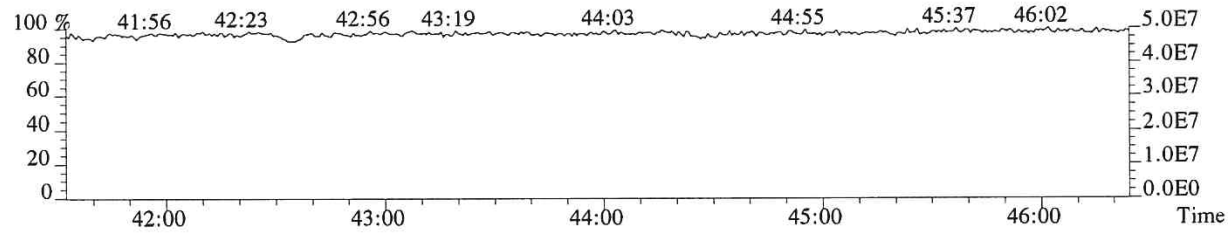
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



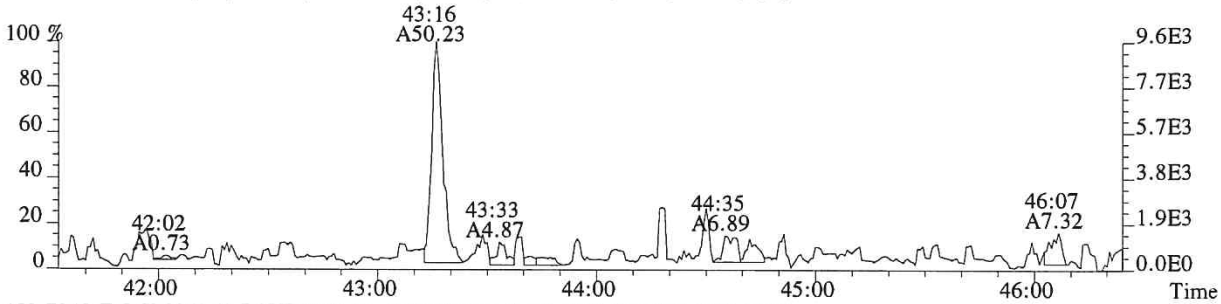
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



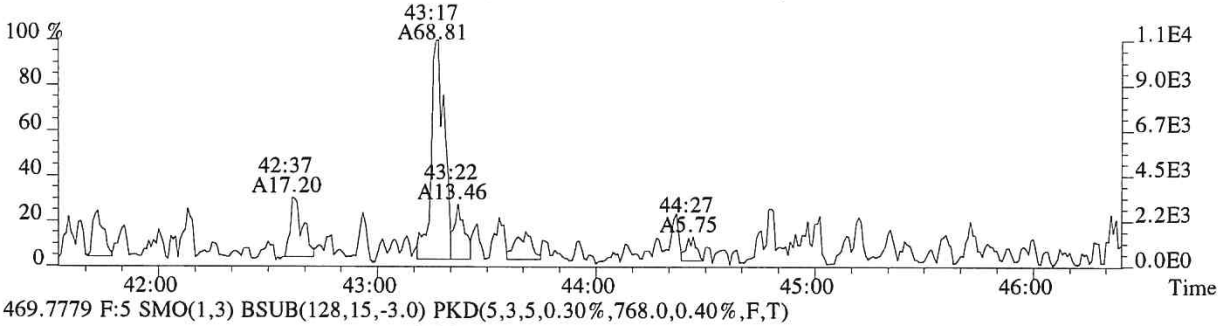
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



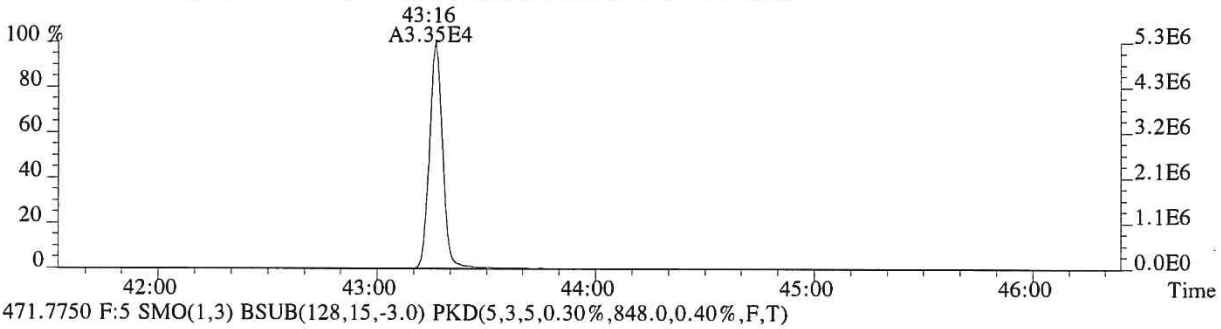
File:P615721 #1-438 Acq:27-NOV-2018 15:59:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-053
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



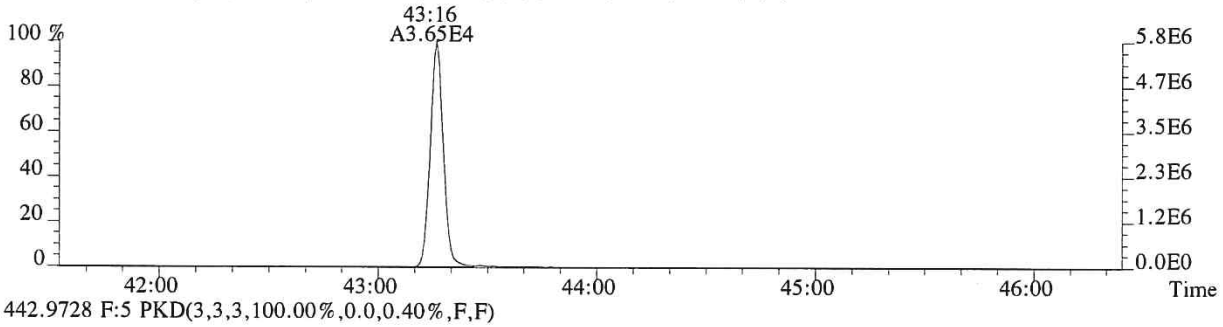
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



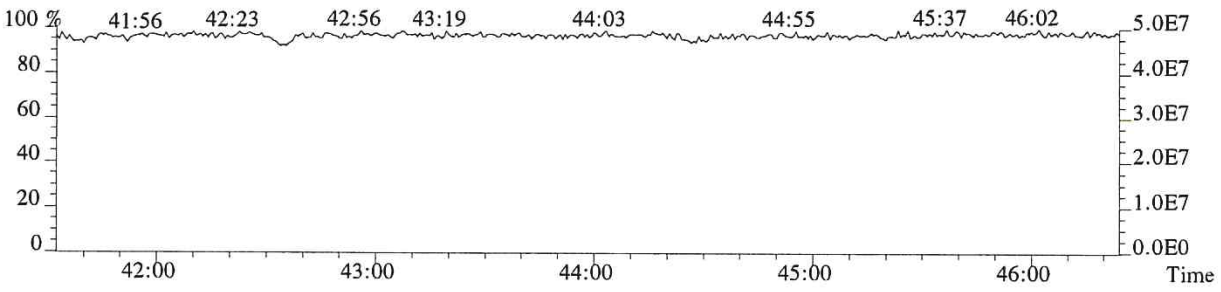
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
FB001

Run #14 Filename P615722 Samp: 1 Inj: 1 Acquired: 27-NOV-18 16:48:08
Processed: 28-NOV-18 10:21:46 Sample ID: E1801020-054

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	6.341e+01	3.724e+01	1.70	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:46	2.641e+01	2.310e+01	1.14	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	1.089e+02	6.870e+01	1.59	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	43:31	6.558e+02	7.162e+02	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	2.890e+01	4.034e+01	0.72	no	no	1.112
17	Unk	OCDD	43:17	6.898e+01	6.822e+01	1.01	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:13	3.227e+04	4.112e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	5.907e+04	3.698e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:03	5.559e+04	3.470e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	2.827e+04	5.391e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	3.073e+04	5.691e+04	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	3.051e+04	5.791e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	2.762e+04	5.166e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	2.066e+04	4.520e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	1.894e+04	4.231e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	2.385e+04	3.143e+04	0.76	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	4.418e+04	2.827e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	4.144e+04	3.237e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:28	3.712e+04	2.887e+04	1.29	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	3.854e+04	3.641e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	43:16	3.722e+04	4.051e+04	0.92	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	7.236e+04	9.109e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	8.251e+04	6.589e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:57	2.424e+04				no	1.086

$$\text{OCDD} = \frac{(6.898e{+}01 + 6.822e{+}01)\ \text{x}\ 4000\ \text{pg}\ \text{x}\ 1}{(3.722e{+}04 + 4.051e{+}04)\ \text{x}\ \text{g}\ \text{x}\ /\ 100\ \text{x}\ 1.157} = 12.2046\ \text{pg}$$

LG 11/28/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FB001

Run #14 Filename P615722 Samp: 1 Inj: 1 Acquired: 27-NOV-18 16:48:08
Processed: 28-NOV-18 10:21:46 LAB. ID: E1801020-054

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.54e+03	*	*	3.83e+03	*
2	1,2,3,7,8-PeCDF	*	1.75e+03	*	*	4.78e+03	*
3	2,3,4,7,8-PeCDF	*	1.75e+03	*	*	4.78e+03	*
4	1,2,3,4,7,8-HxCDF	1.37e+04	2.15e+03	6.3e+00	8.22e+03	2.14e+03	3.8e+00
5	1,2,3,6,7,8-HxCDF	6.95e+03	2.15e+03	3.2e+00	6.03e+03	2.14e+03	2.8e+00
6	2,3,4,6,7,8-HxCDF	*	2.15e+03	*	*	2.14e+03	*
7	1,2,3,7,8,9-HxCDF	*	2.15e+03	*	*	2.14e+03	*
8	1,2,3,4,6,7,8-HpCDF	2.23e+04	2.97e+03	7.5e+00	1.47e+04	1.89e+03	7.8e+00
9	1,2,3,4,7,8,9-HpCDF	*	2.97e+03	*	*	1.89e+03	*
10	OCDF	9.96e+04	7.48e+02	1.3e+02	1.01e+05	1.98e+03	5.1e+01
11	2,3,7,8-TCDD	*	3.77e+03	*	*	1.98e+03	*
12	1,2,3,7,8-PeCDD	*	1.58e+03	*	*	8.00e+02	*
13	1,2,3,4,7,8-HxCDD	*	9.88e+02	*	*	1.01e+03	*
14	1,2,3,6,7,8-HxCDD	*	9.88e+02	*	*	1.01e+03	*
15	1,2,3,7,8,9-HxCDD	*	9.88e+02	*	*	1.01e+03	*
16	1,2,3,4,6,7,8-HpCDD	5.26e+03	7.36e+02	7.1e+00	8.48e+03	4.52e+02	1.9e+01
17	OCDD	1.45e+04	8.00e+02	1.8e+01	1.14e+04	1.24e+03	9.2e+00
18	13C-2,3,7,8-TCDF	6.52e+06	1.35e+04	4.8e+02	8.53e+06	7.78e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	1.20e+07	1.00e+03	1.2e+04	7.43e+06	1.81e+03	4.1e+03
20	13C-2,3,4,7,8-PeCDF	1.14e+07	1.00e+03	1.1e+04	7.20e+06	1.81e+03	4.0e+03
21	13C-1,2,3,4,7,8-HxCDF	6.37e+06	1.15e+03	5.6e+03	1.19e+07	2.00e+03	5.9e+03
22	13C-1,2,3,6,7,8-HxCDF	6.71e+06	1.15e+03	5.8e+03	1.24e+07	2.00e+03	6.2e+03
23	13C-2,3,4,6,7,8-HxCDF	6.65e+06	1.15e+03	5.8e+03	1.26e+07	2.00e+03	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	5.99e+06	1.15e+03	5.2e+03	1.12e+07	2.00e+03	5.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.33e+06	1.96e+03	2.2e+03	9.36e+06	2.52e+03	3.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.59e+06	1.96e+03	1.8e+03	8.05e+06	2.52e+03	3.2e+03
27	13C-2,3,7,8-TCDD	5.07e+06	1.46e+04	3.5e+02	6.59e+06	7.09e+03	9.3e+02
28	13C-1,2,3,7,8-PeCDD	9.33e+06	1.97e+03	4.7e+03	5.93e+06	1.38e+03	4.3e+03
29	13C-1,2,3,4,7,8-HxCDD	9.29e+06	1.89e+03	4.9e+03	7.24e+06	1.50e+03	4.8e+03
30	13C-1,2,3,6,7,8-HxCDD	8.16e+06	1.89e+03	4.3e+03	6.39e+06	1.50e+03	4.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.67e+06	1.62e+03	4.7e+03	7.26e+06	5.68e+02	1.3e+04
32	13C-OCDD	5.82e+06	7.76e+02	7.5e+03	6.40e+06	7.16e+02	8.9e+03
33	13C-1,2,3,4-TCDD	1.51e+07	1.46e+04	1.0e+03	1.91e+07	7.09e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.81e+07	1.89e+03	9.5e+03	1.42e+07	1.50e+03	9.4e+03
35	37Cl-2,3,7,8-TCDD	5.11e+06	1.82e+03	2.8e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.768e+03 + 1.984e+03) \times 2000}{(5.070e+06 + 6.586e+06) \times (\quad) \times 1.049} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FB001

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P615722 Sample:1 Injection:1 Function:3

Acquired: 27-NOV-18 16:48:08 Processed: 28-NOV-18 10:21:46

Mass: 373.8210 375.8180 Tot Response: 1.40e+02 RRF: 1.324

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:14	3.47e+01	2.68e+01	1.29	yes	6.15e+01		n	n
2	36:46	2.64e+01	2.31e+01	1.14	yes	4.95e+01	1,2,3,6,7,8-HxCDF	n	n
3	36:53	1.56e+01	1.35e+01	1.15	yes	2.91e+01		n	n

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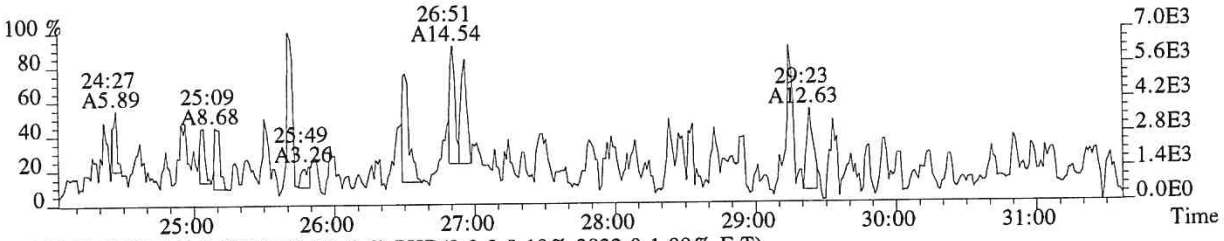
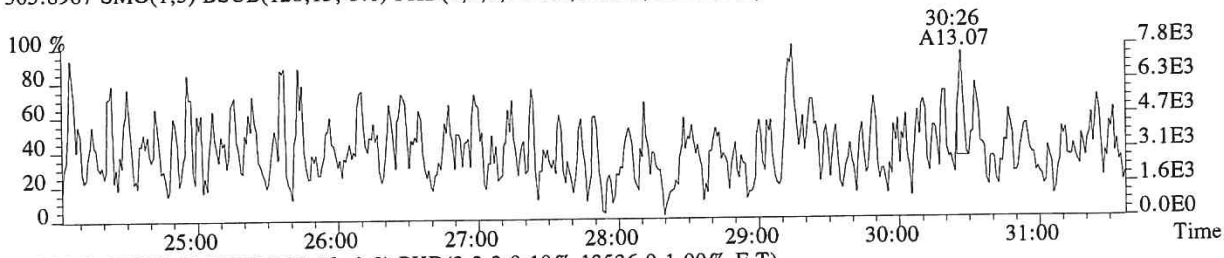
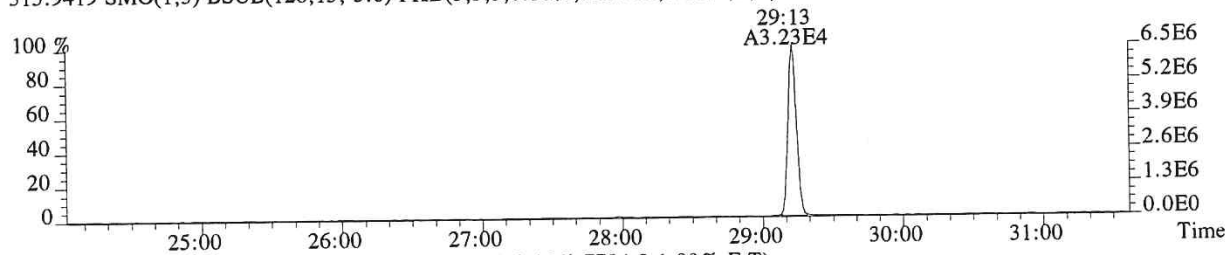
File:P615722 #1-538 Acq:27-NOV-2018 16:48:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-054
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



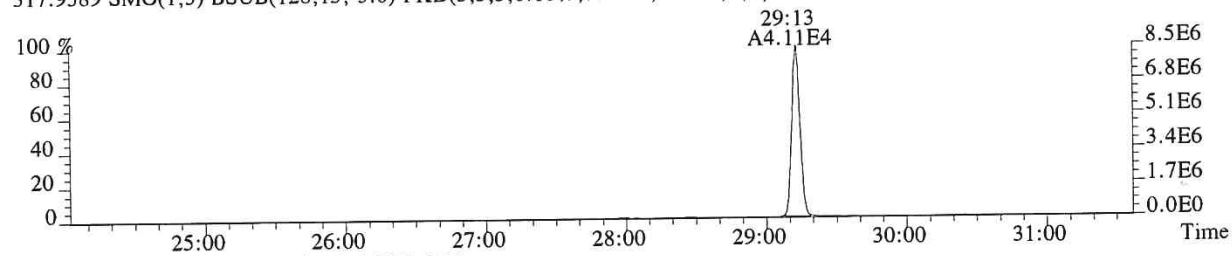
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3832.0,1.00%,F,T)



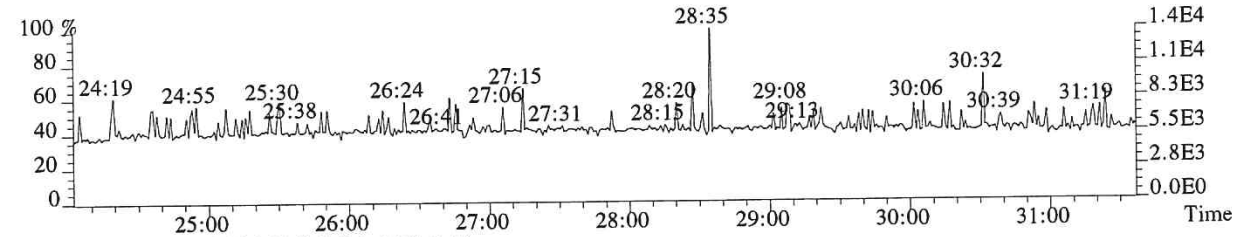
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13536.0,1.00%,F,T)



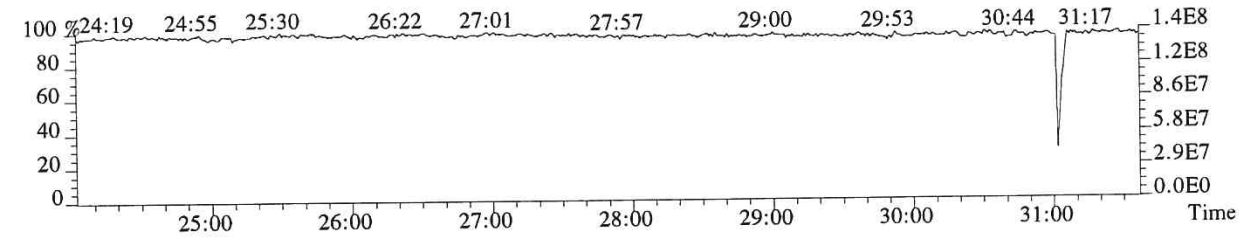
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7784.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



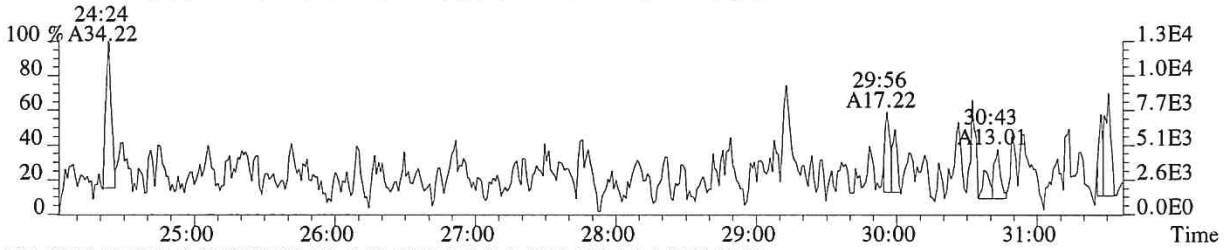
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



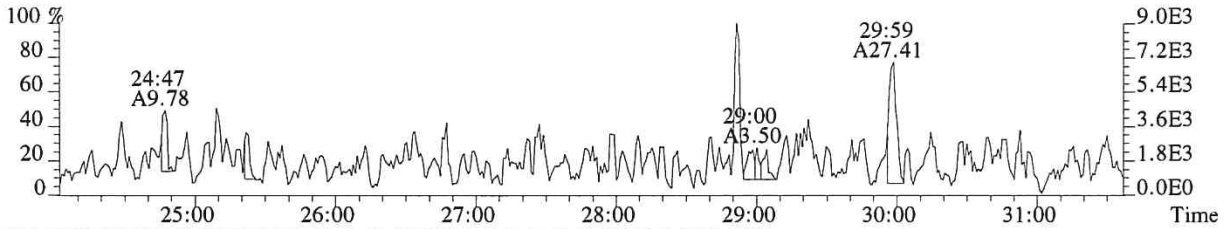
009838

File:P615722 #1-538 Acq:27-NOV-2018 16:48:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-054

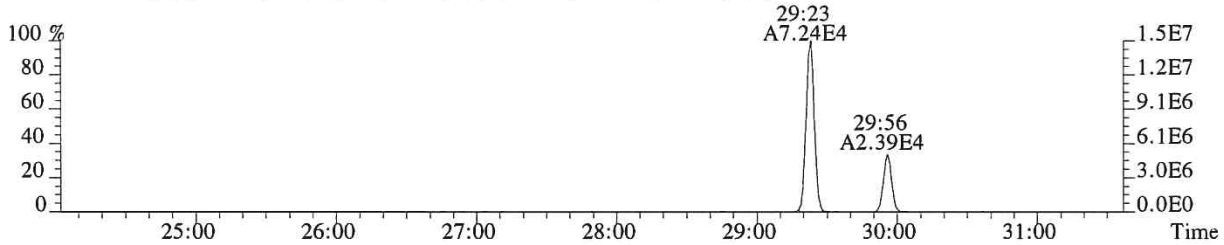
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3768.0,1.00%,F,T)



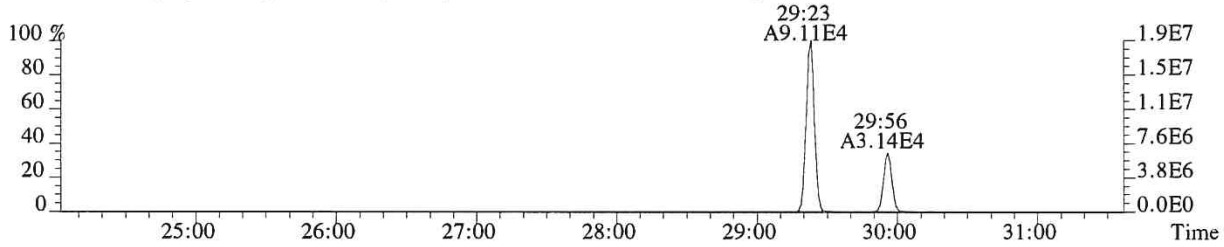
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



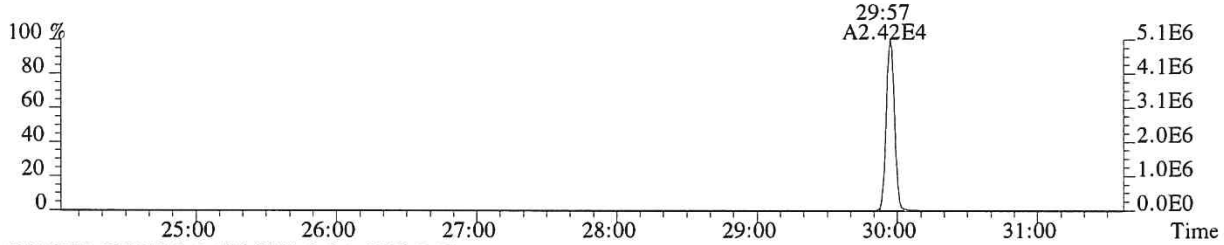
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14608.0,1.00%,F,T)



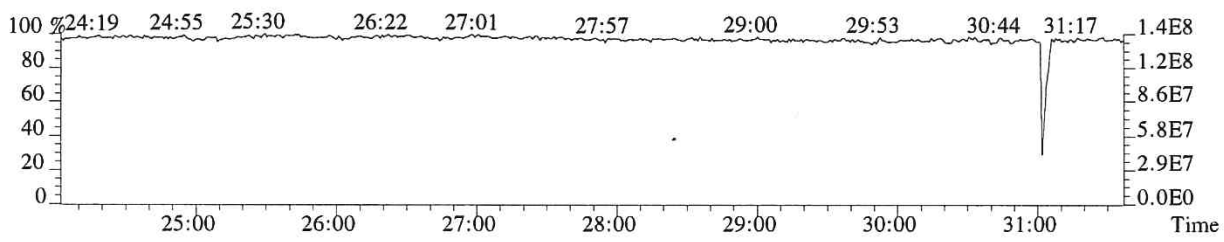
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7088.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1824.0,1.00%,F,T)

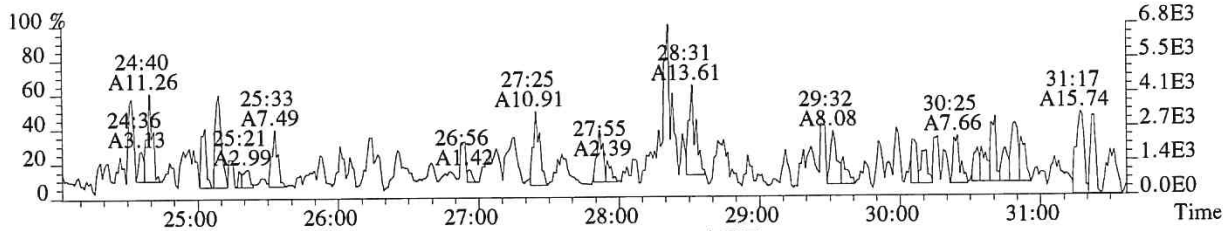


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

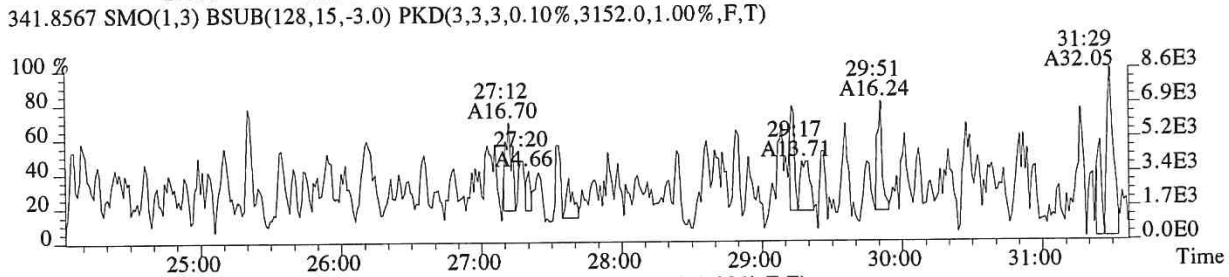


009839

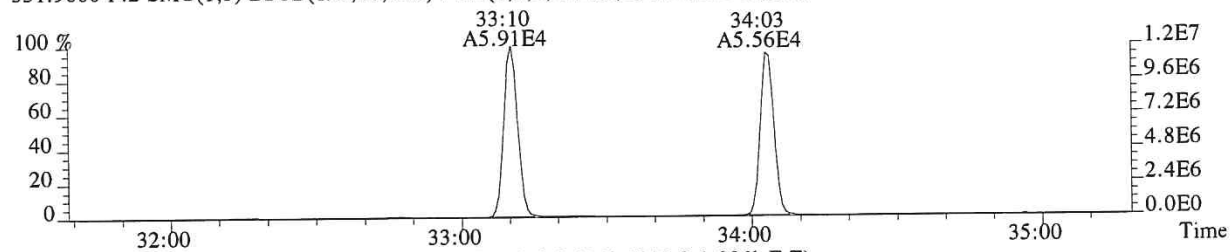
File:P615722 #1-538 Acq:27-NOV-2018 16:48:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-054
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



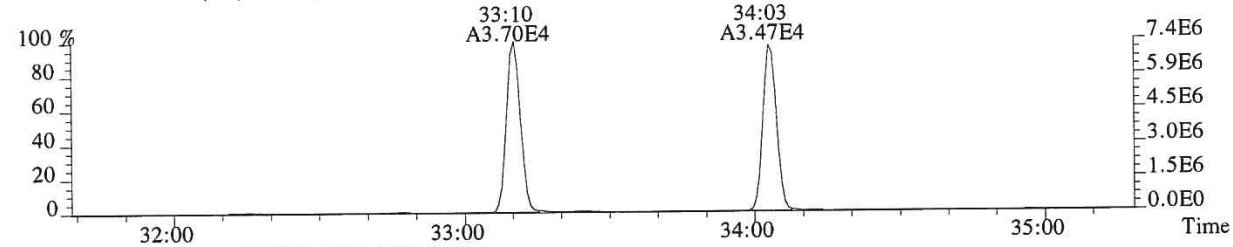
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3152.0,1.00%,F,T)



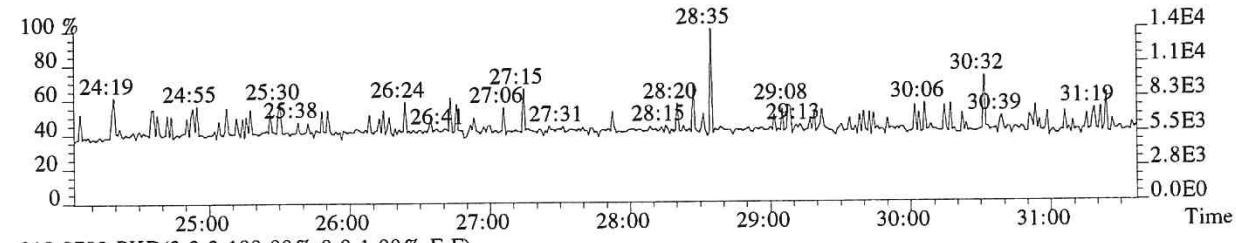
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



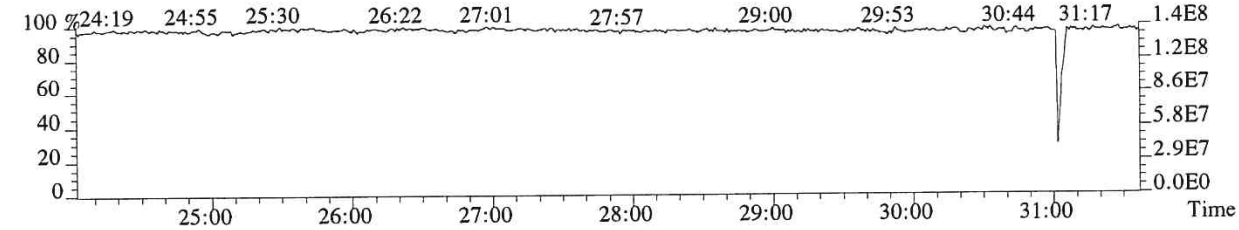
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1812.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

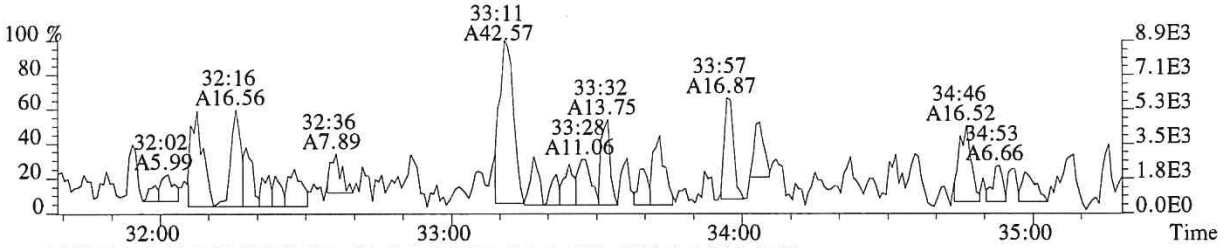


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

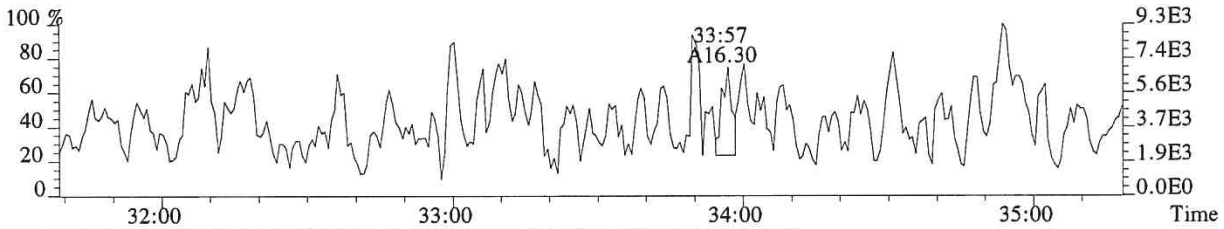


009840

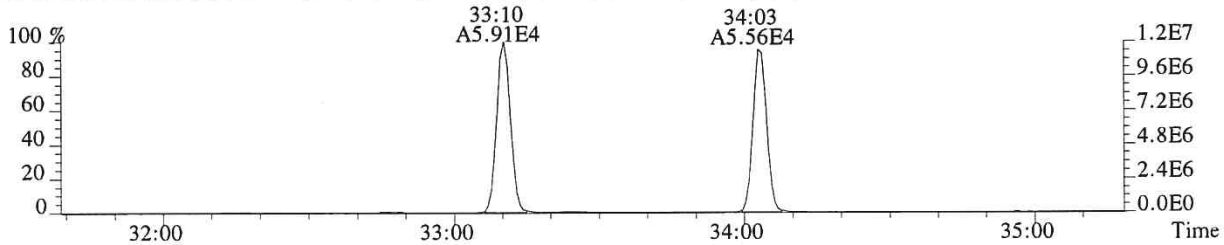
File:P615722 #1-330 Acq:27-NOV-2018 16:48:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-054
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



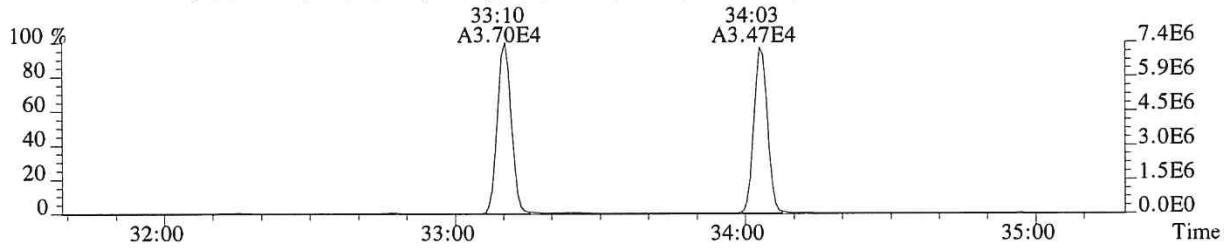
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4780.0,1.00%,F,T)



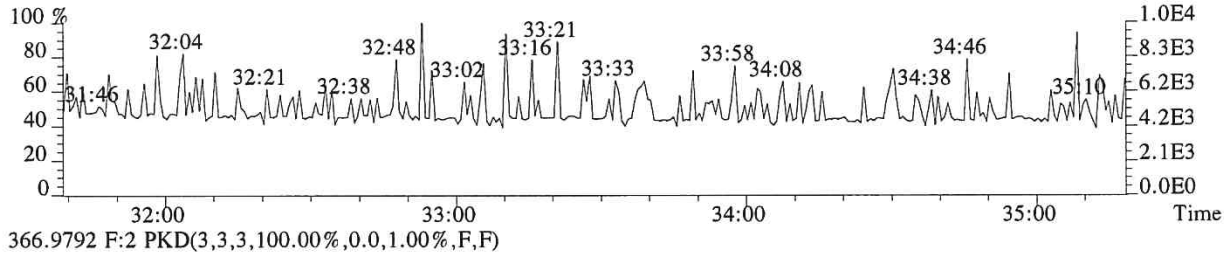
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



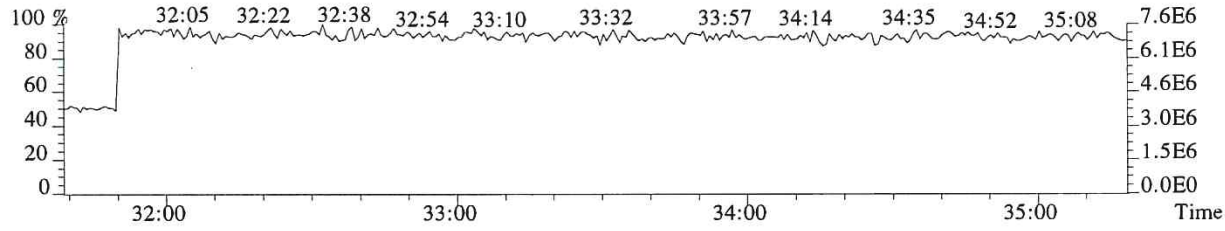
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1812.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

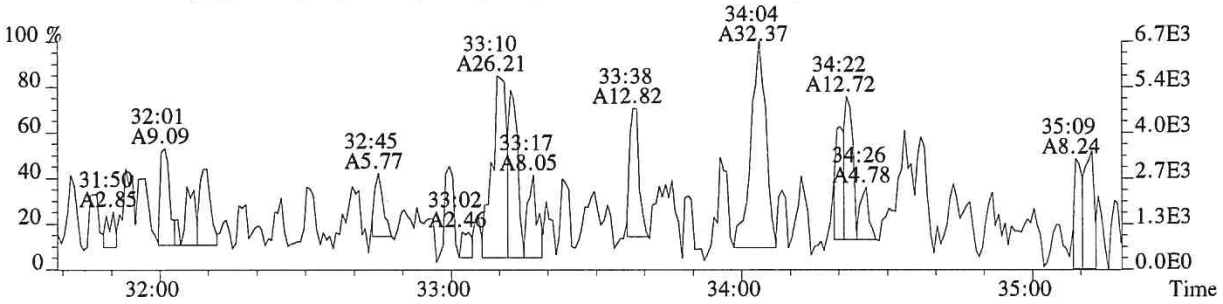


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

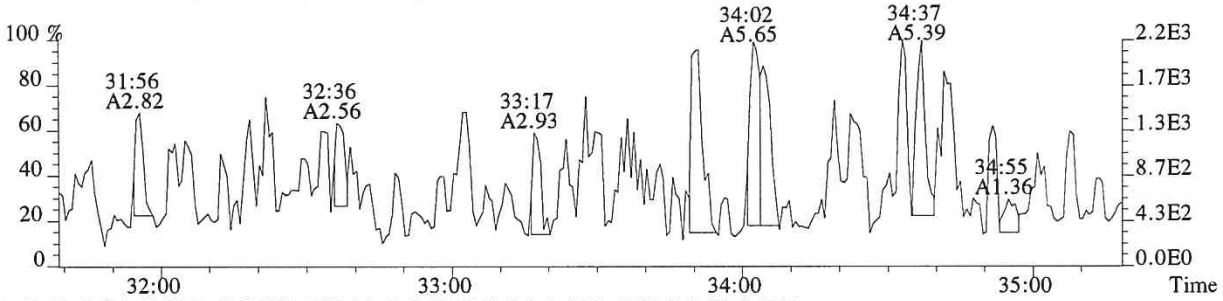


009841

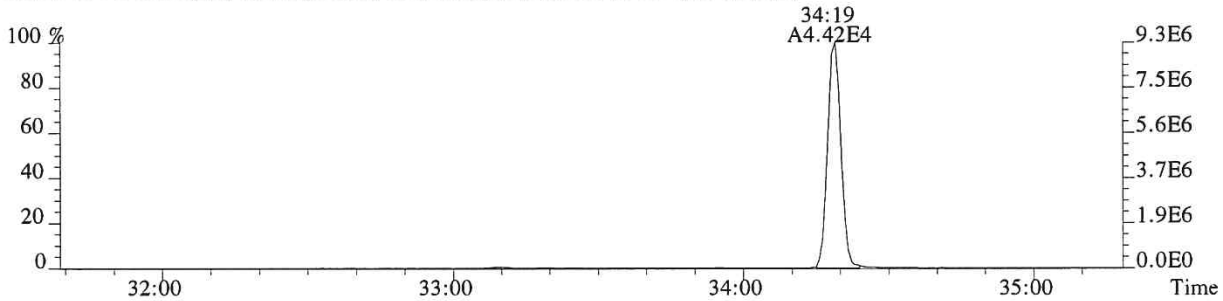
File:P615722 #1-330 Acq:27-NOV-2018 16:48:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-054
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



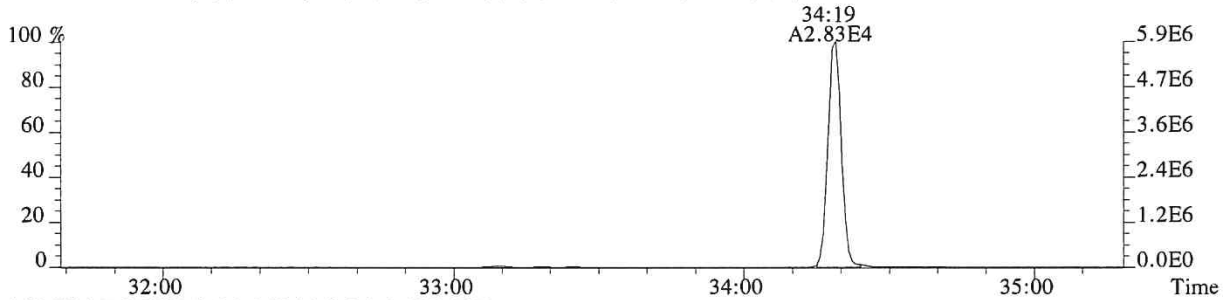
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



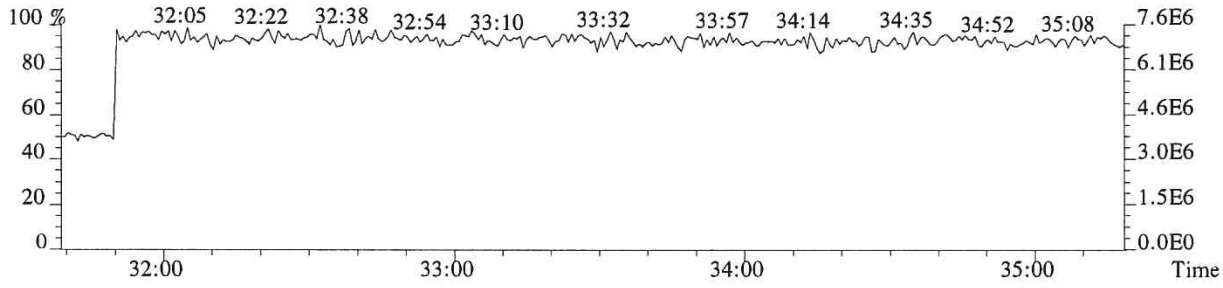
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1968.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)

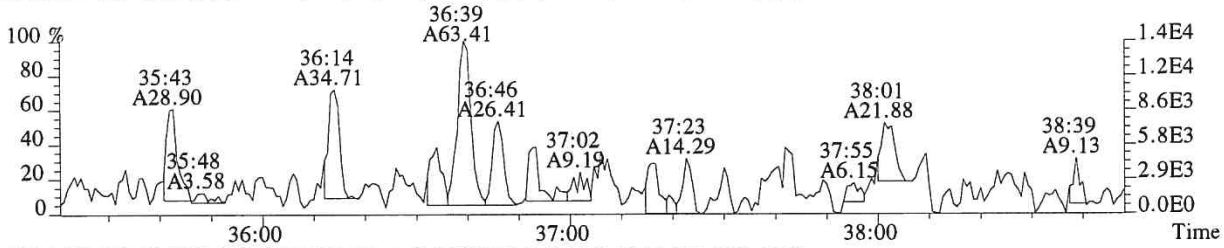


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

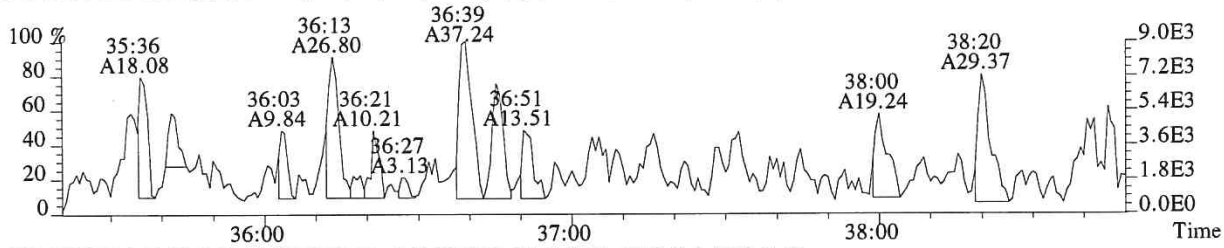


009842

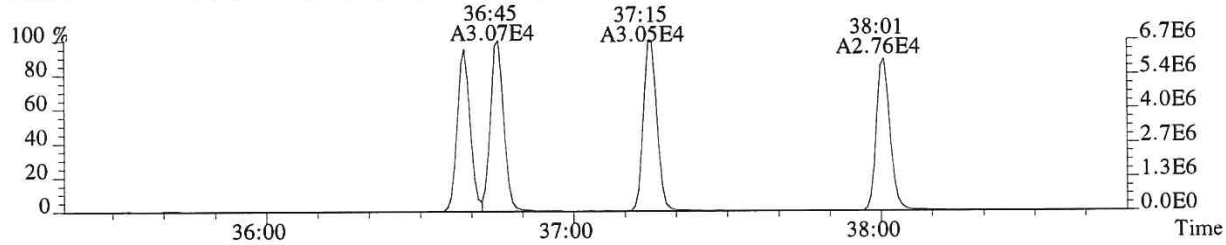
File:P615722 #1-312 Acq:27-NOV-2018 16:48:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-054
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2152.0,0.40%,F,T)



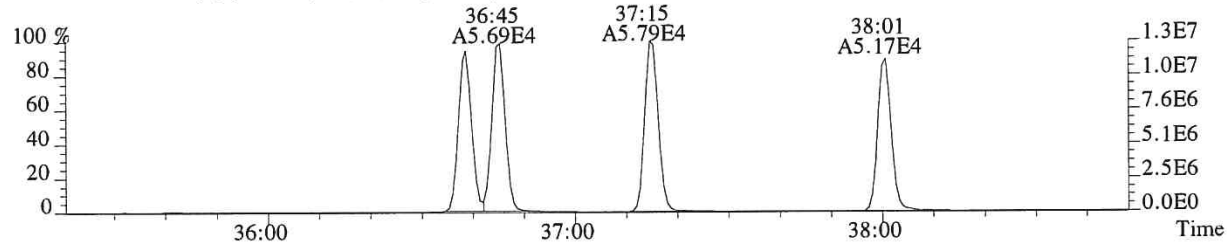
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2144.0,0.40%,F,T)



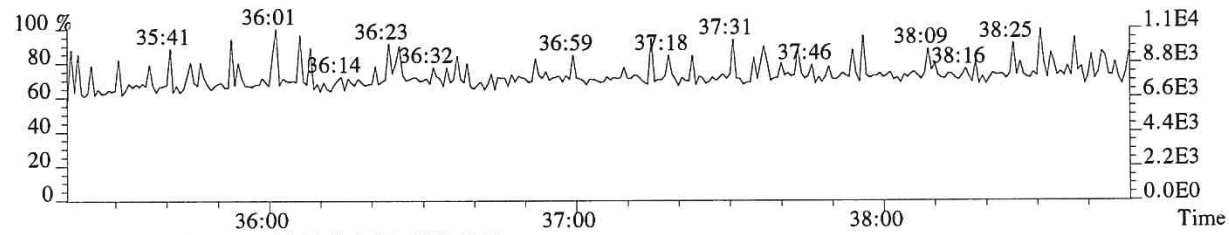
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



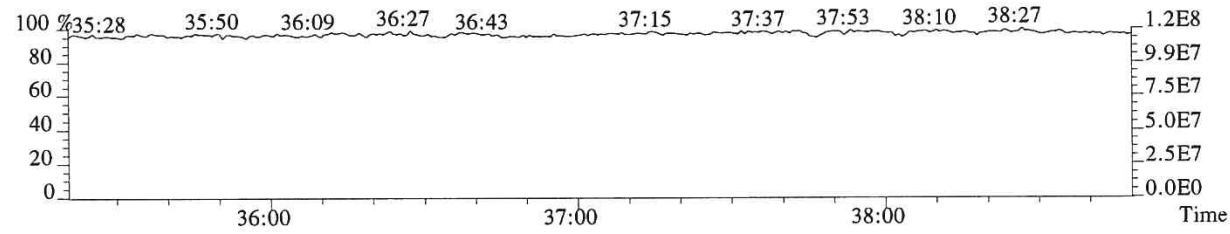
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2000.0,0.40%,F,T)



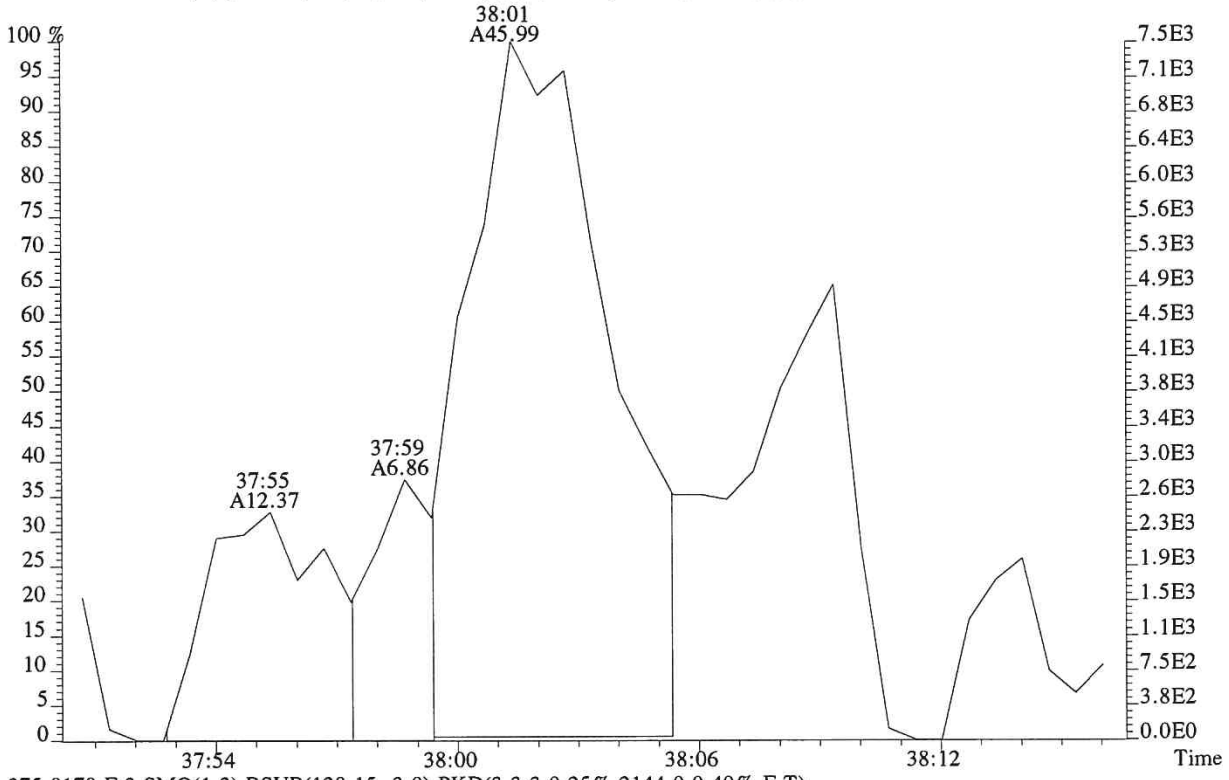
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



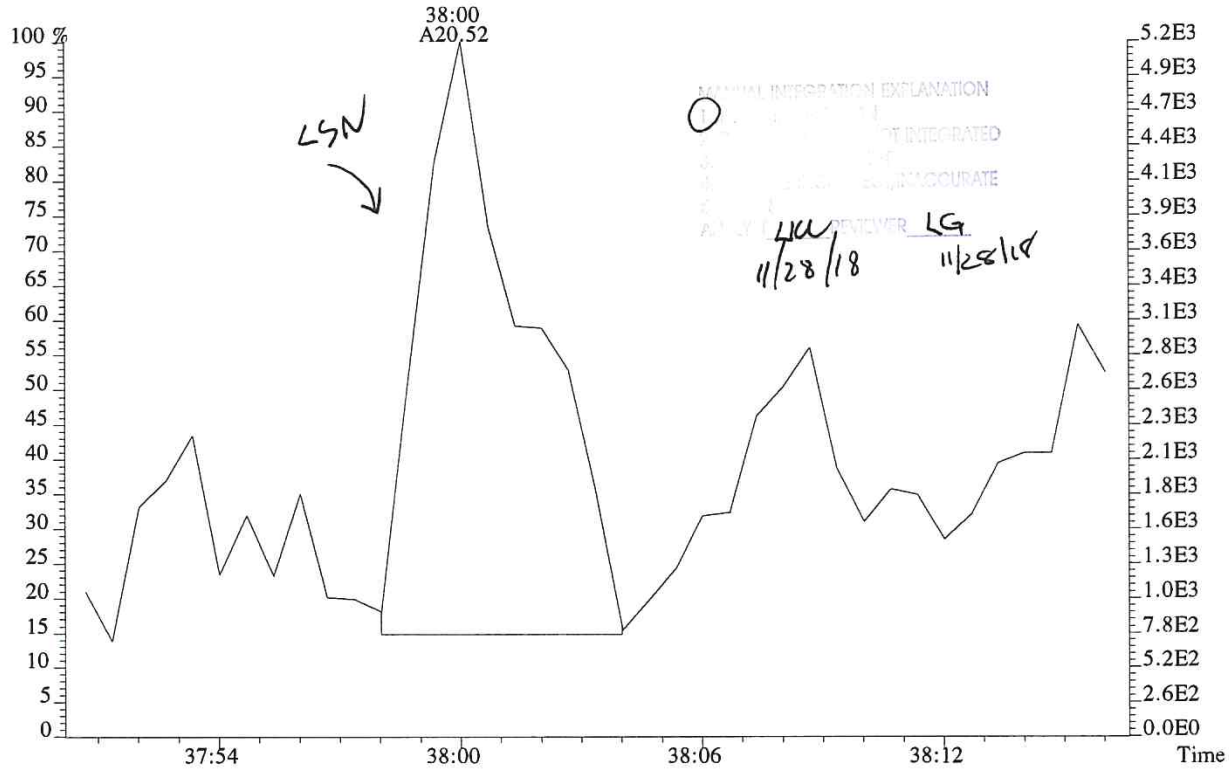
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615722 #1-312 Acq:27-NOV-2018 16:48:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-054
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2152.0,0.40%,F,T)



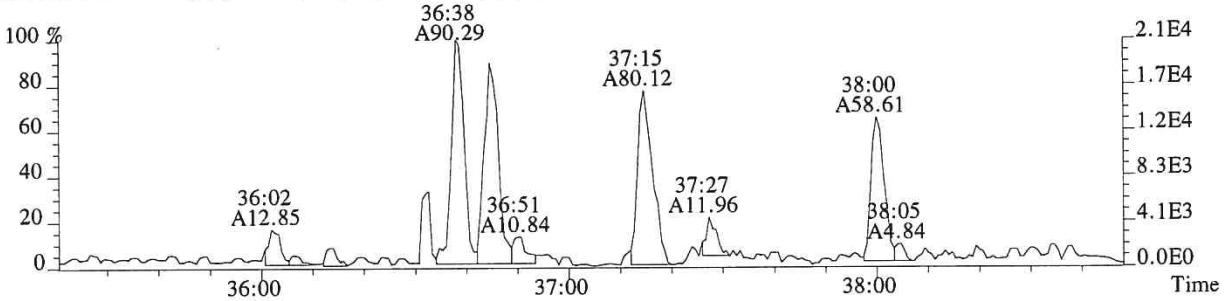
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2144.0,0.40%,F,T)



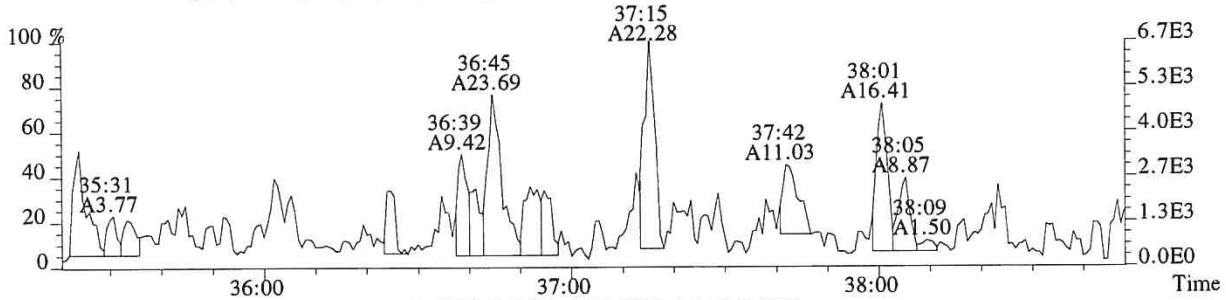
MANUAL INTEGRATION EXPLANATION
NOT INTEGRATED
INACCURATE
REVIEWER LG
11/28/18
11/28/18

009844

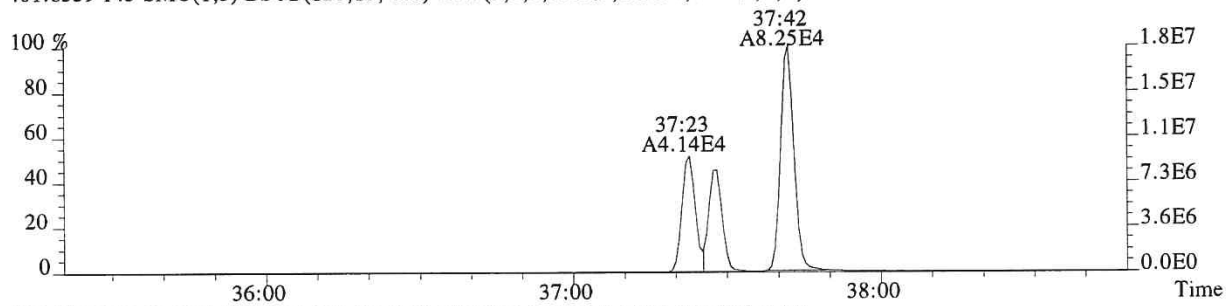
File:P615722 #1-312 Acq:27-NOV-2018 16:48:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-054
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



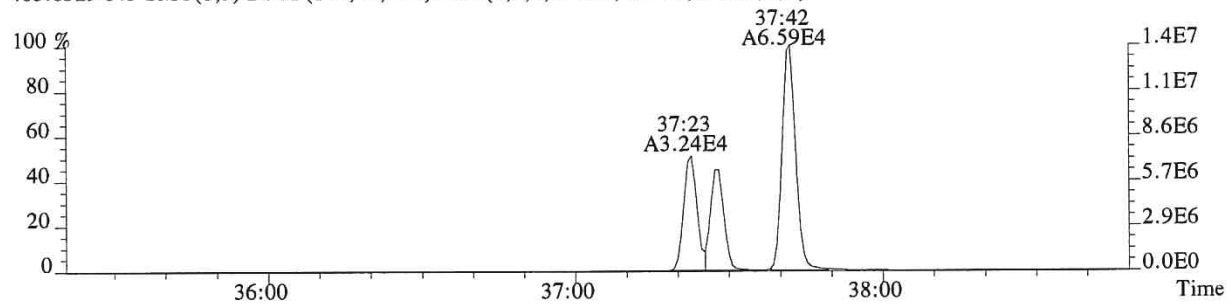
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.40%,F,T)



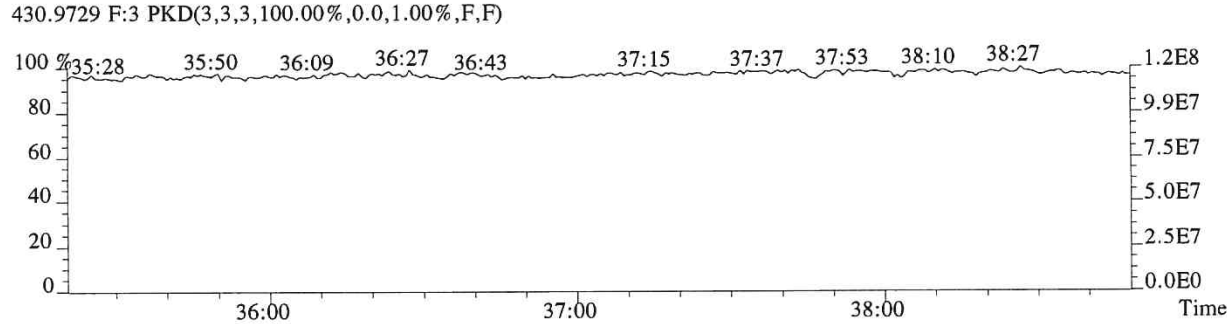
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1892.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1504.0,0.40%,F,T)

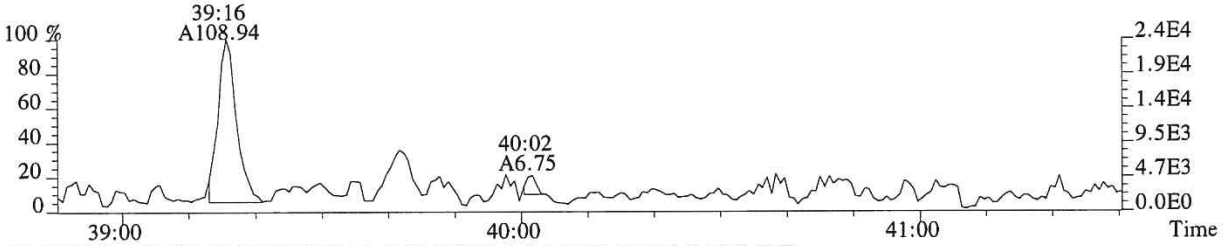


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

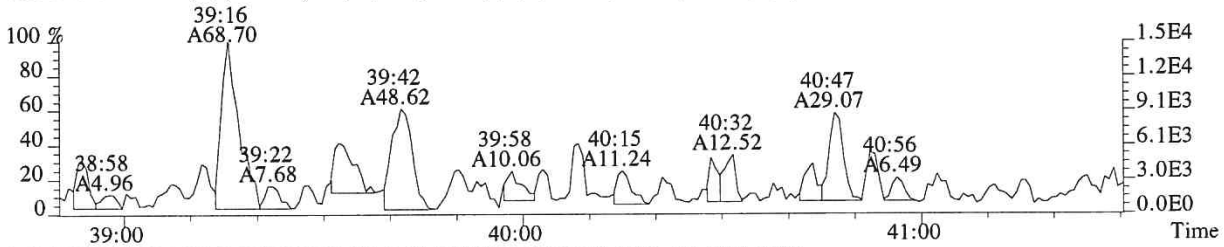


File:P615722 #1-241 Acq:27-NOV-2018 16:48:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-054

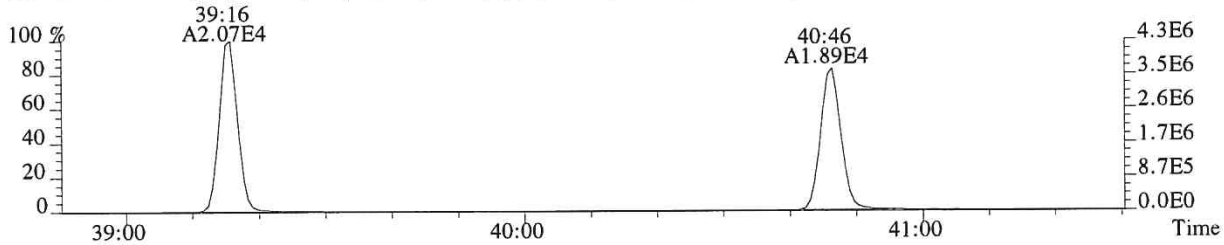
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2972.0,0.50%,F,T)



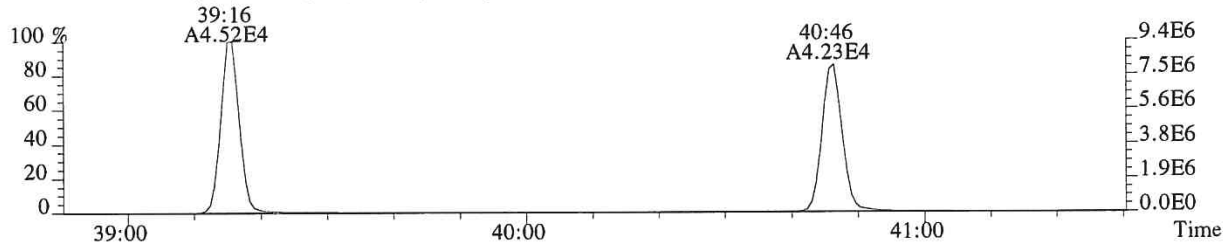
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1892.0,0.50%,F,T)



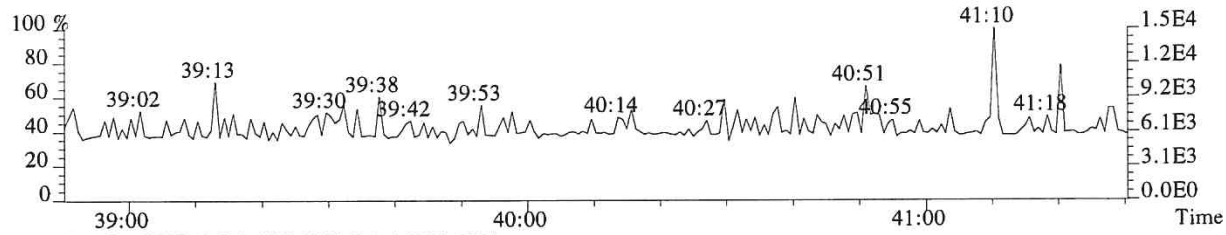
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1956.0,0.50%,F,T)



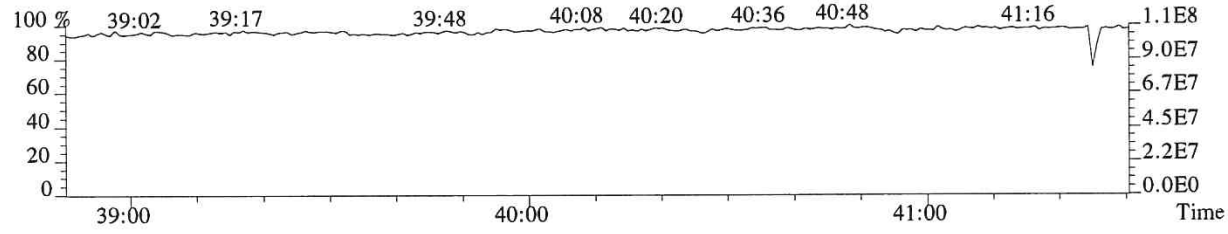
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2524.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

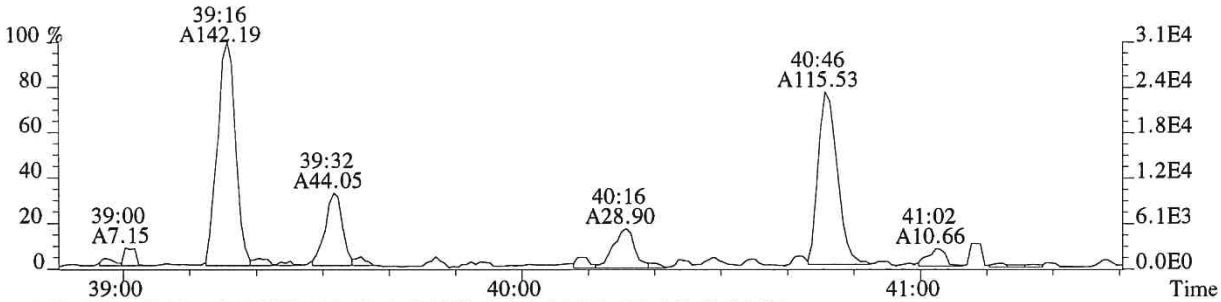


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

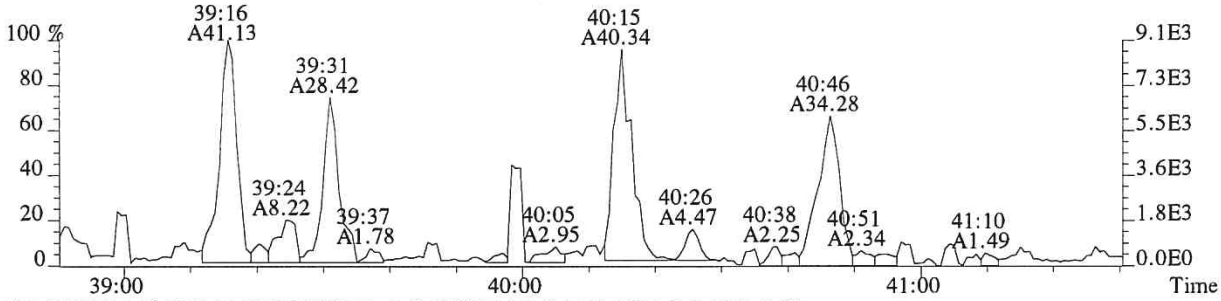


009846

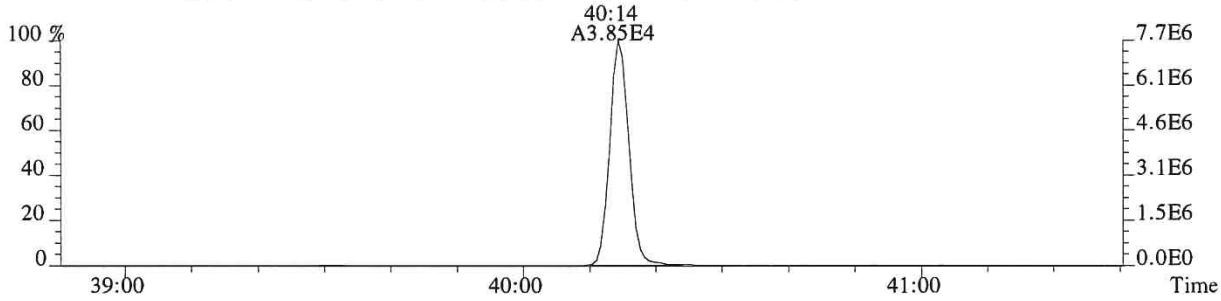
File:P615722 #1-241 Acq:27-NOV-2018 16:48:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-054
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



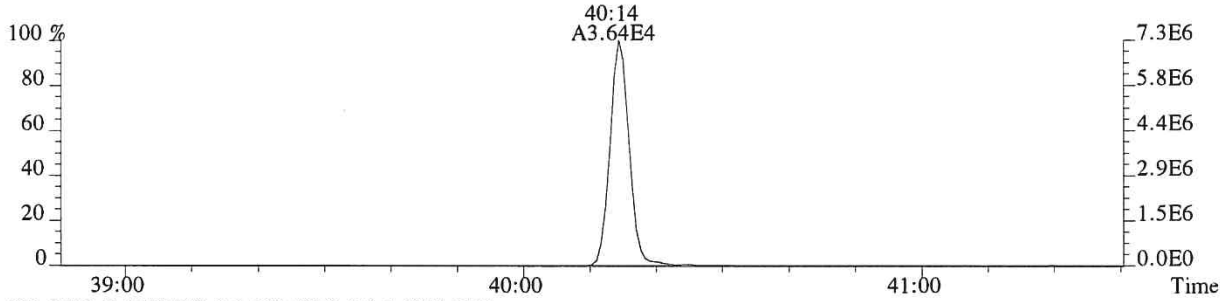
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



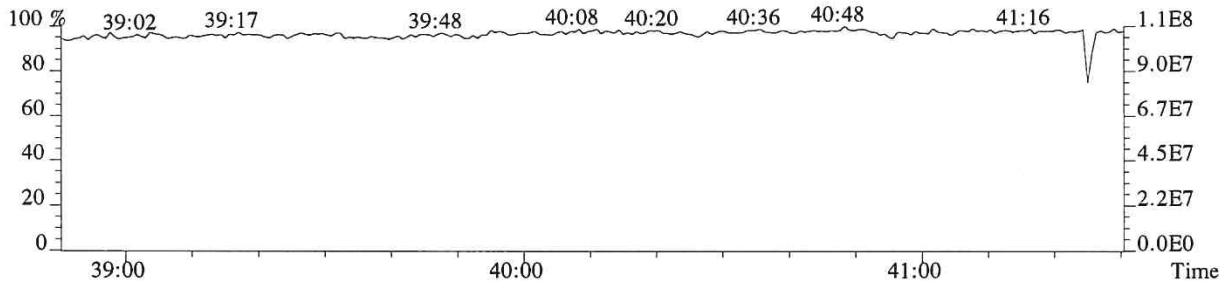
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.40%,F,T)



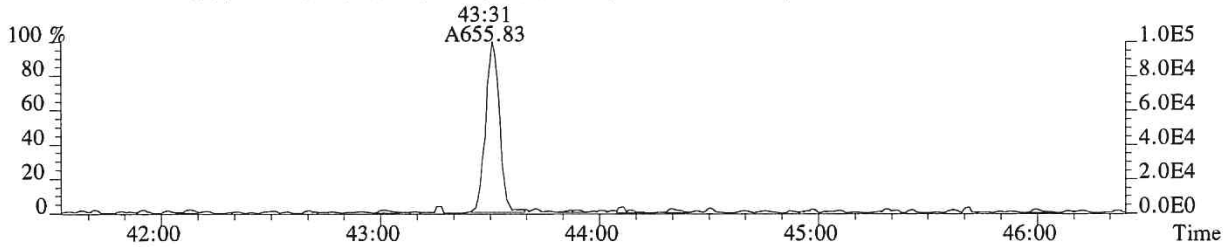
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



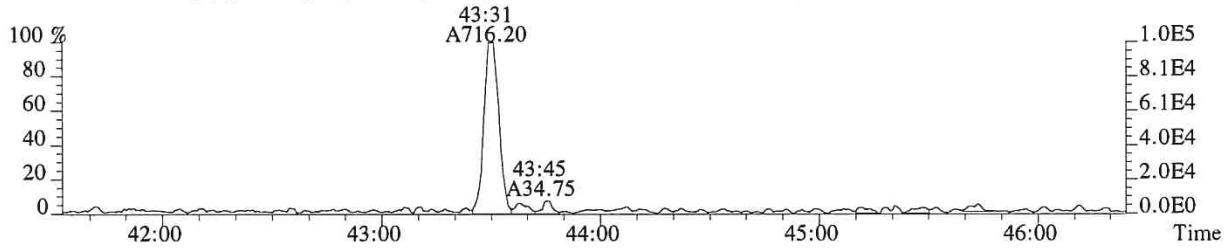
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



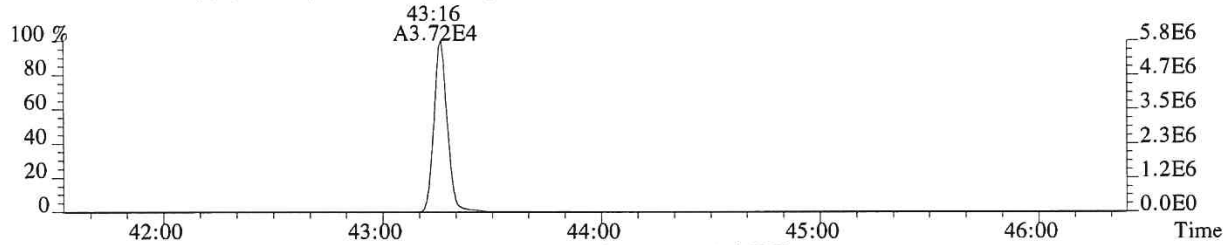
File:P615722 #1-438 Acq:27-NOV-2018 16:48:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-054
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,748.0,0.40%,F,T)



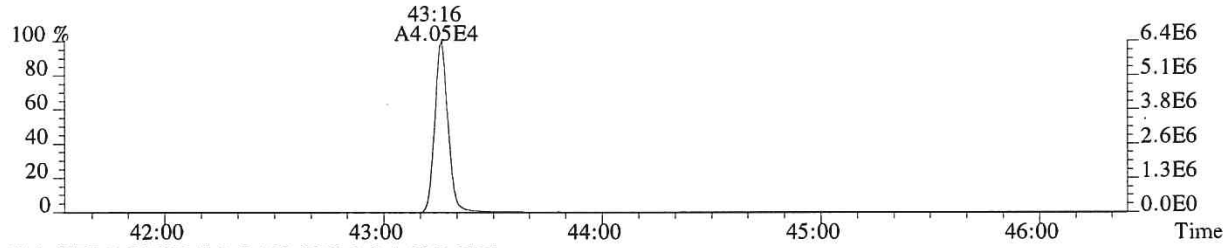
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1976.0,0.40%,F,T)



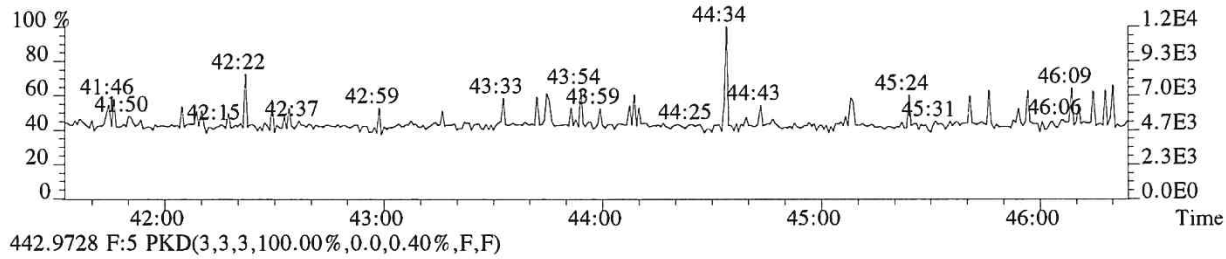
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



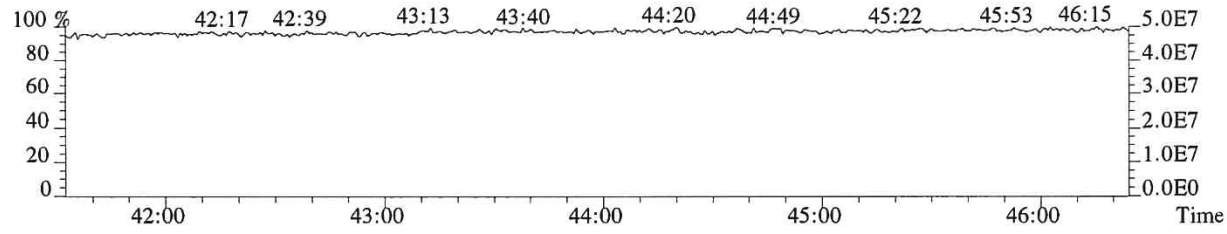
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,716.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

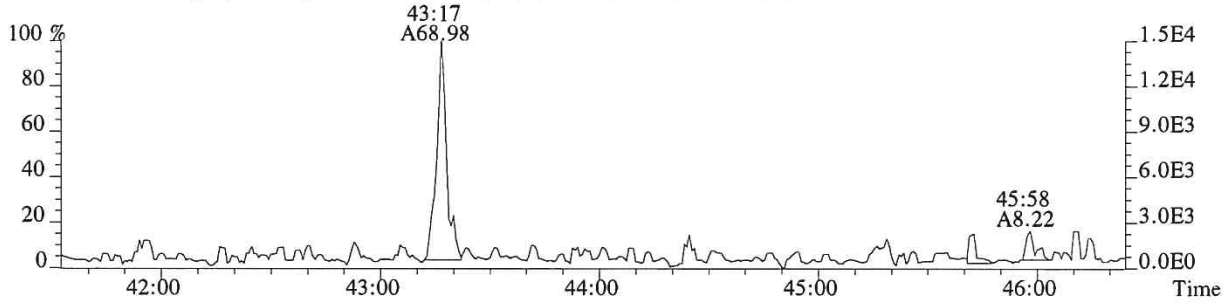


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

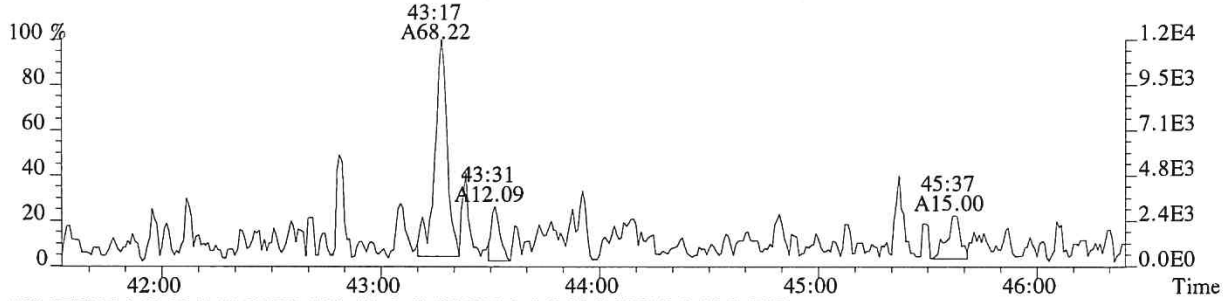


009848

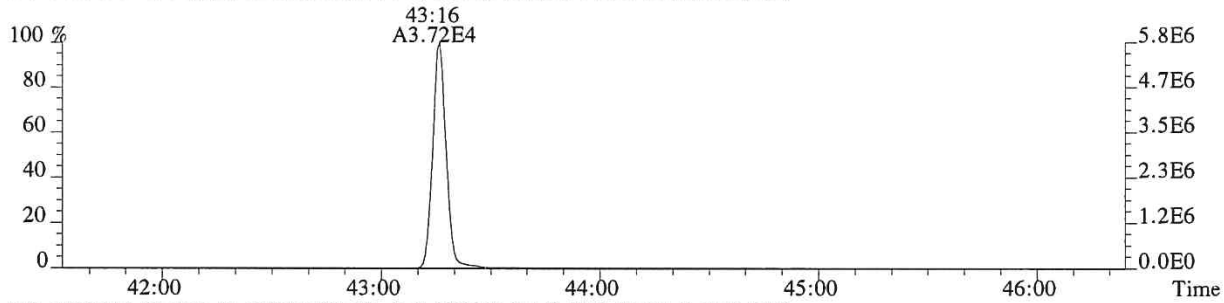
File:P615722 #1-438 Acq:27-NOV-2018 16:48:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801020-054
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



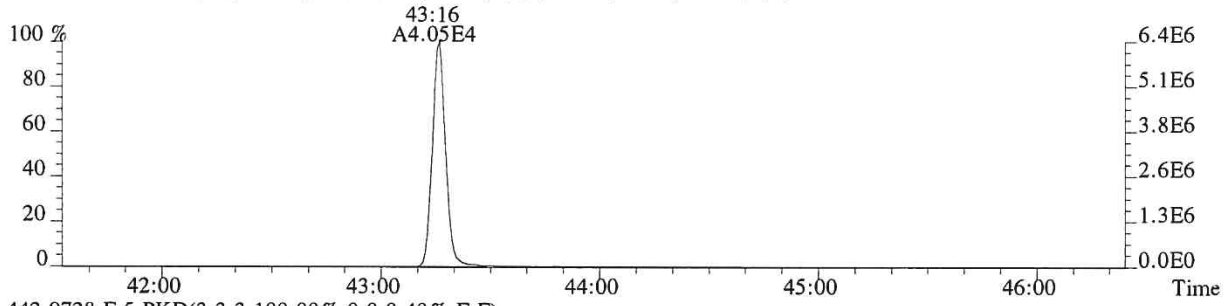
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1236.0,0.40%,F,T)



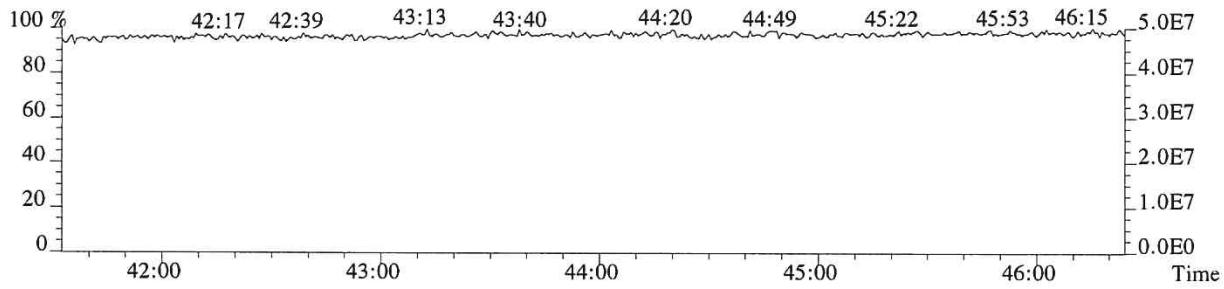
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,716.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009849

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P518927 Samp: 1 Inj: 1 Acquired: 19-NOV-18 23:03:59
Processed: 20-NOV-18 10:35:22 Sample ID: EQ1800463-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:30	3.296e+01	1.839e+01	1.79	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:25	1.317e+01	2.229e+01	0.59	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:33	1.506e+01	1.728e+01	0.87	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:51	2.239e+01	1.685e+01	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:11	2.721e+01	1.809e+01	1.50	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:32	8.853e+00	2.723e+01	0.33	no	no	1.258
10	Unk	OCDF	40:47	4.389e+01	4.225e+01	1.04	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:14	1.540e+01	8.725e+00	1.77	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:19	1.495e+01	1.045e+01	1.43	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:33	2.004e+01	1.260e+01	1.59	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:06	1.908e+01	3.028e+01	0.63	no	no	1.025
17	Unk	OCDD	40:37	9.648e+01	1.083e+02	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:23	3.864e+04	5.015e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:28	7.606e+04	4.877e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:30	7.196e+04	4.541e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:25	3.311e+04	6.428e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:31	4.057e+04	7.814e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:04	3.812e+04	7.333e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:51	3.322e+04	6.479e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:10	2.618e+04	5.790e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:31	2.406e+04	5.477e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:25	2.958e+04	3.782e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:50	5.708e+04	3.575e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:13	5.311e+04	3.933e+04	1.35	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:18	5.202e+04	4.347e+04	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:05	5.247e+04	4.949e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	40:37	5.105e+04	5.737e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:41	6.582e+04	8.224e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:33	9.772e+04	7.704e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:27	3.409e+04				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P518927 Samp: 1 Inj: 1 Acquired: 19-NOV-18 23:03:59
Processed: 20-NOV-18 10:35:22 LAB. ID: EQ1800463-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.20e+02	*	*	8.60e+02	*
2	1,2,3,7,8-PeCDF	7.83e+03	7.52e+02	1.0e+01	4.91e+03	8.92e+02	5.5e+00
3	2,3,4,7,8-PeCDF	*	7.52e+02	*	*	8.92e+02	*
4	1,2,3,4,7,8-HxCDF	3.26e+03	3.92e+02	8.3e+00	4.21e+03	7.40e+02	5.7e+00
5	1,2,3,6,7,8-HxCDF	3.13e+03	3.92e+02	8.0e+00	3.12e+03	7.40e+02	4.2e+00
6	2,3,4,6,7,8-HxCDF	*	3.92e+02	*	*	7.40e+02	*
7	1,2,3,7,8,9-HxCDF	5.01e+03	3.92e+02	1.3e+01	3.90e+03	7.40e+02	5.3e+00
8	1,2,3,4,6,7,8-HpCDF	4.21e+03	3.36e+02	1.3e+01	4.61e+03	3.76e+02	1.2e+01
9	1,2,3,4,7,8,9-HpCDF	1.70e+03	3.36e+02	5.1e+00	6.92e+03	3.76e+02	1.8e+01
10	OCDF	8.54e+03	1.40e+02	6.1e+01	7.41e+03	8.36e+02	8.9e+00
11	2,3,7,8-TCDD	*	1.95e+03	*	*	8.16e+02	*
12	1,2,3,7,8-PeCDD	*	8.00e+02	*	*	1.44e+02	*
13	1,2,3,4,7,8-HxCDD	2.84e+03	3.44e+02	8.3e+00	2.30e+03	4.84e+02	4.7e+00
14	1,2,3,6,7,8-HxCDD	4.35e+03	3.44e+02	1.3e+01	2.12e+03	4.84e+02	4.4e+00
15	1,2,3,7,8,9-HxCDD	5.31e+03	3.44e+02	1.5e+01	2.70e+03	4.84e+02	5.6e+00
16	1,2,3,4,6,7,8-HpCDD	3.78e+03	2.64e+02	1.4e+01	5.45e+03	2.84e+02	1.9e+01
17	OCDD	1.54e+04	3.04e+02	5.1e+01	1.66e+04	5.68e+02	2.9e+01
18	13C-2,3,7,8-TCDF	4.96e+06	5.25e+03	9.4e+02	6.29e+06	2.42e+03	2.6e+03
19	13C-1,2,3,7,8-PeCDF	1.19e+07	1.11e+03	1.1e+04	7.74e+06	1.09e+03	7.1e+03
20	13C-2,3,4,7,8-PeCDF	1.23e+07	1.11e+03	1.1e+04	7.71e+06	1.09e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	6.63e+06	8.52e+02	7.8e+03	1.26e+07	1.40e+03	9.0e+03
22	13C-1,2,3,6,7,8-HxCDF	7.41e+06	8.52e+02	8.7e+03	1.44e+07	1.40e+03	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	7.55e+06	8.52e+02	8.9e+03	1.43e+07	1.40e+03	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	6.02e+06	8.52e+02	7.1e+03	1.16e+07	1.40e+03	8.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.32e+06	5.17e+03	1.0e+03	1.17e+07	5.43e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.59e+06	5.17e+03	8.9e+02	1.02e+07	5.43e+03	1.9e+03
27	13C-2,3,7,8-TCDD	4.32e+06	5.87e+03	7.4e+02	5.34e+06	2.17e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	9.40e+06	5.20e+02	1.8e+04	5.86e+06	7.80e+02	7.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.10e+07	1.39e+03	7.9e+03	8.55e+06	3.24e+02	2.6e+04
30	13C-1,2,3,6,7,8-HxCDD	9.80e+06	1.39e+03	7.1e+03	7.93e+06	3.24e+02	2.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	9.85e+06	5.24e+02	1.9e+04	9.35e+06	7.64e+02	1.2e+04
32	13C-OCDD	8.54e+06	1.64e+02	5.2e+04	9.47e+06	3.60e+02	2.6e+04
33	13C-1,2,3,4-TCDD	9.33e+06	5.87e+03	1.6e+03	1.17e+07	2.17e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.72e+07	1.39e+03	1.2e+04	1.37e+07	3.24e+02	4.2e+04
35	37Cl-2,3,7,8-TCDD	4.86e+06	1.36e+03	3.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.948e{+}03 + 8.160e{+}02) \times 2000}{(4.321e{+}06 + 5.338e{+}06) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P518927 Sample:1 Injection:1 Function:3

Acquired: 19-NOV-18 23:03:59 Processed: 20-NOV-18 10:35:22

Mass: 373.8210 375.8180 Tot Response: 3.92e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:51	2.24e+01	1.68e+01 1.33	yes	3.92e+01	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P518927 Sample:1 Injection:1 Function:4

Acquired: 19-NOV-18 23:03:59 Processed: 20-NOV-18 10:35:22

Mass: 423.7770 425.7740 Tot Response: 7.23e+01 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:27	3.66e+01	3.57e+01 1.03	yes	7.23e+01		n	n

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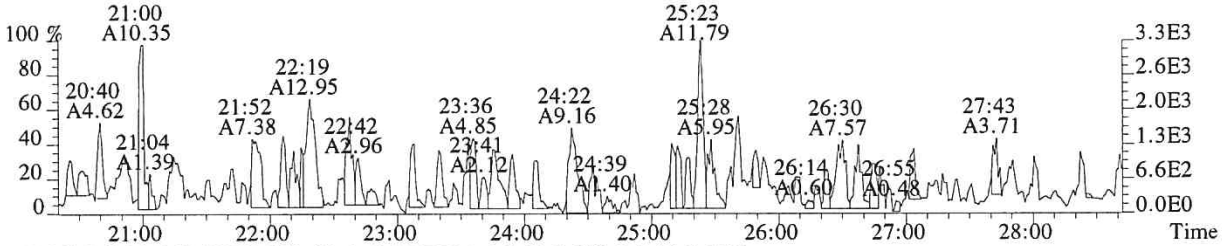
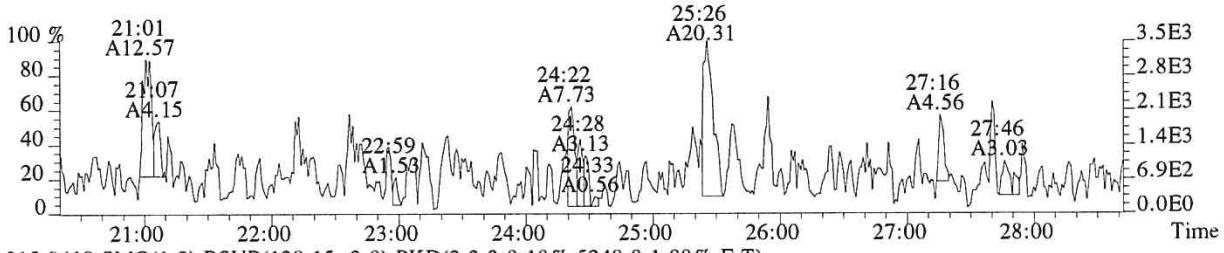
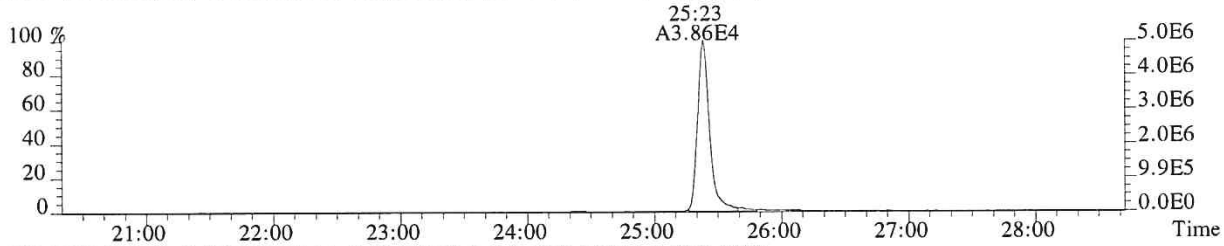
File:P518927 #1-594 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



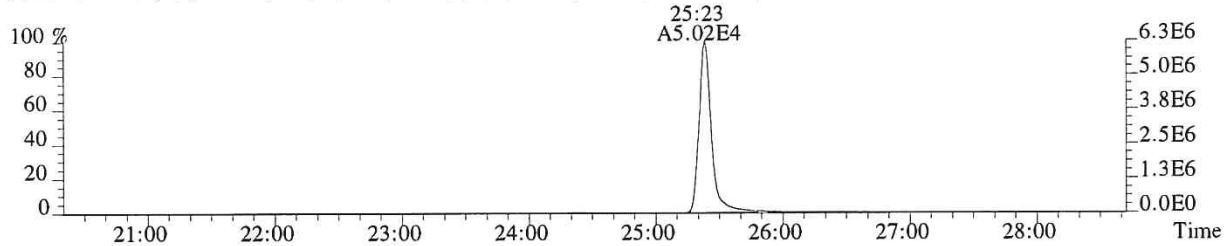
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



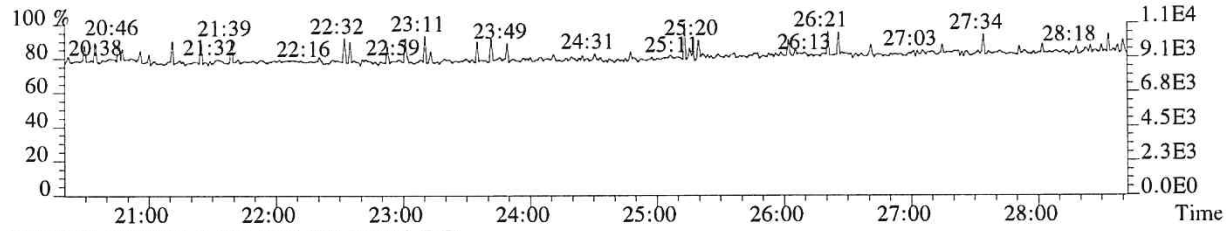
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5248.0,1.00%,F,T)



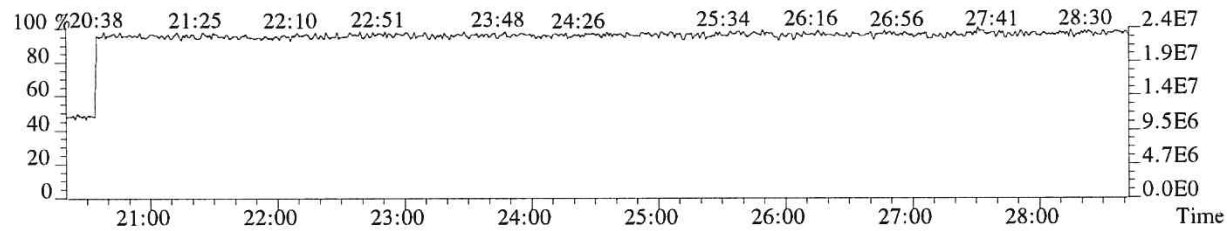
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2420.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

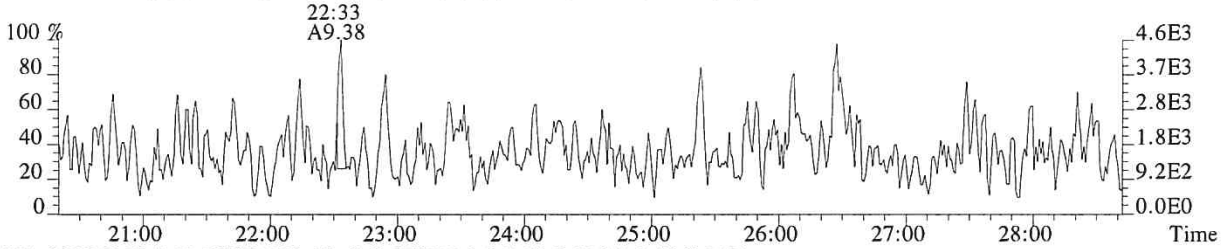


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

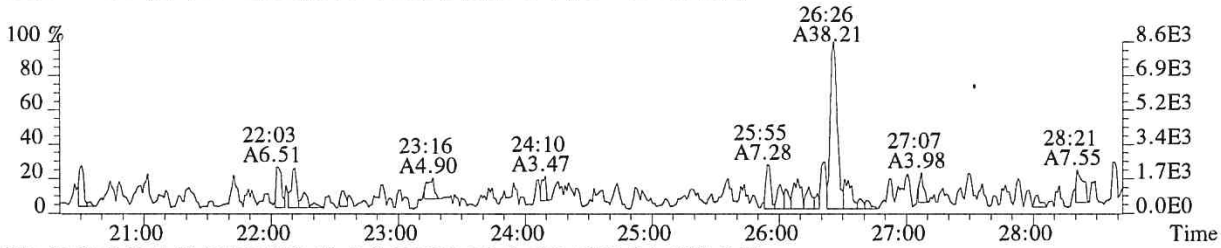


009854

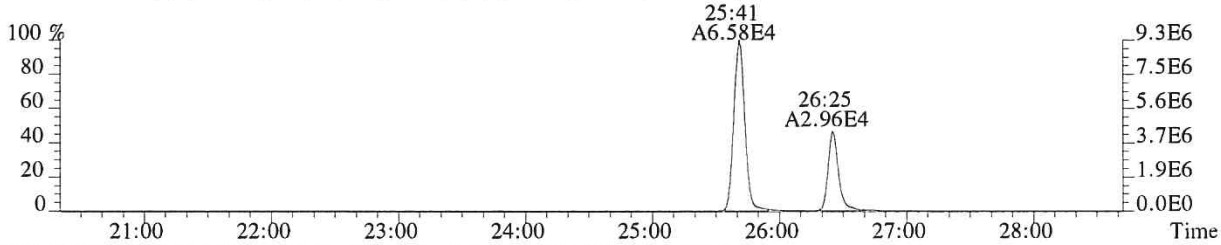
File:P518927 #1-594 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



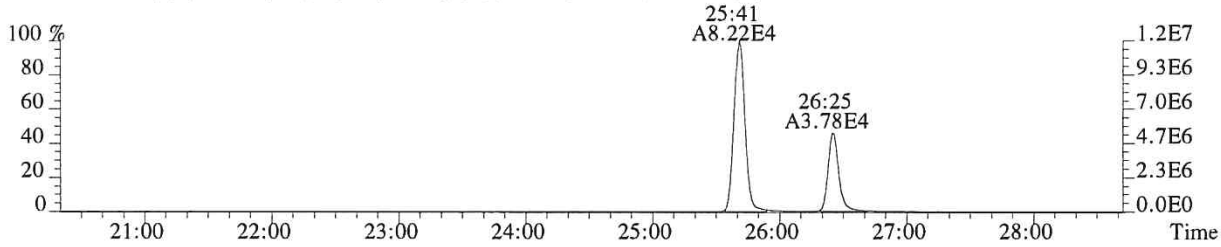
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



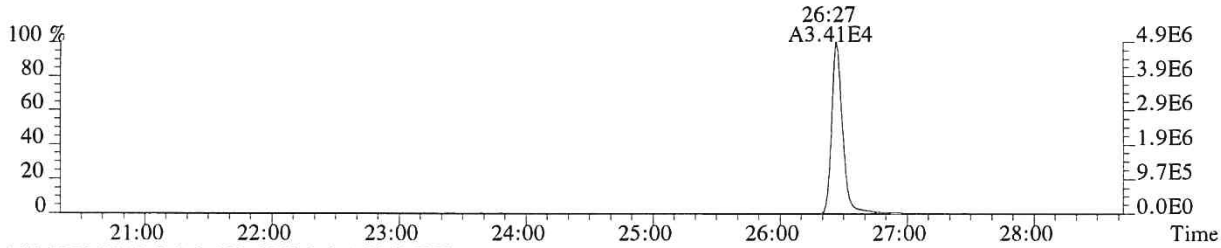
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5868.0,1.00%,F,T)



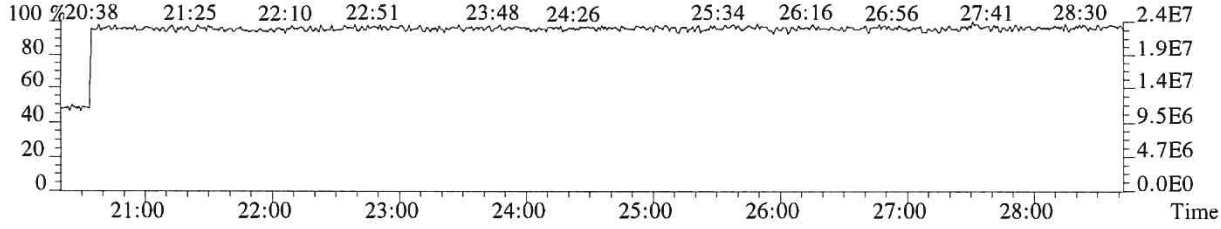
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)

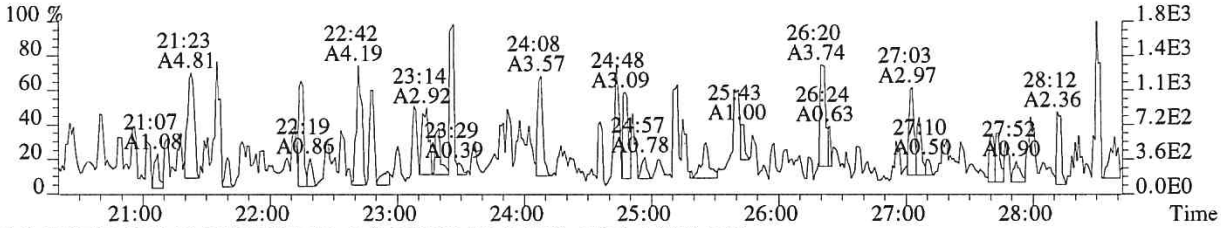


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

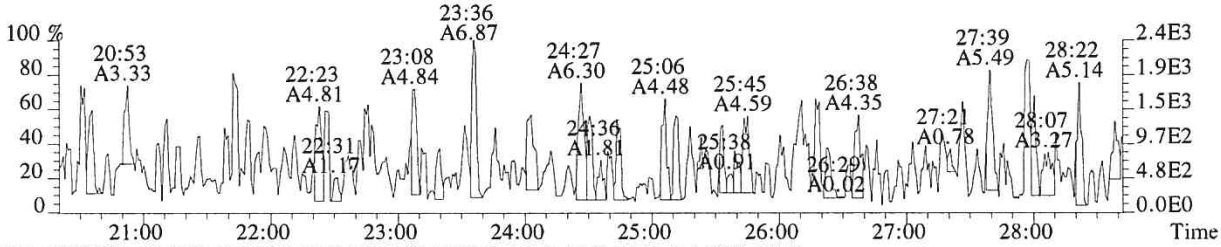


009855

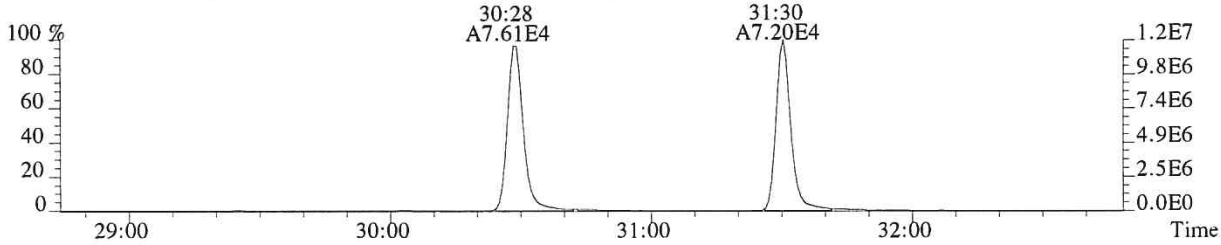
File:P518927 #1-594 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



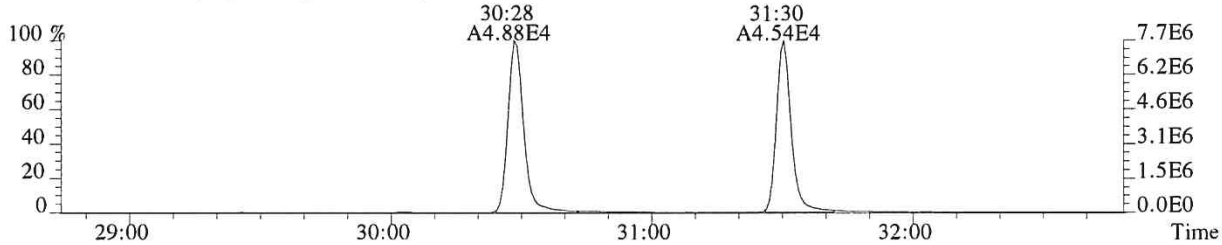
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



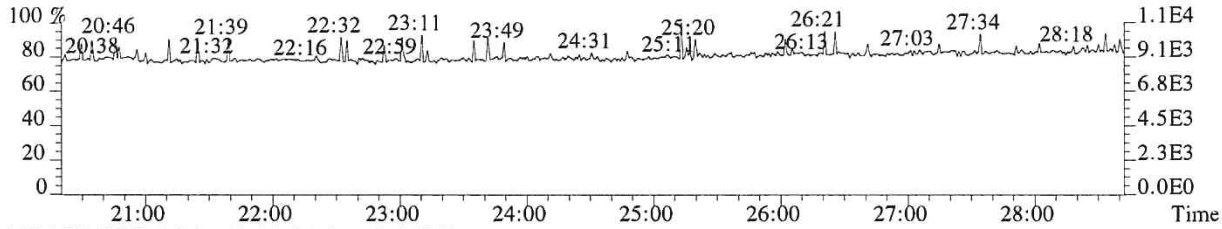
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



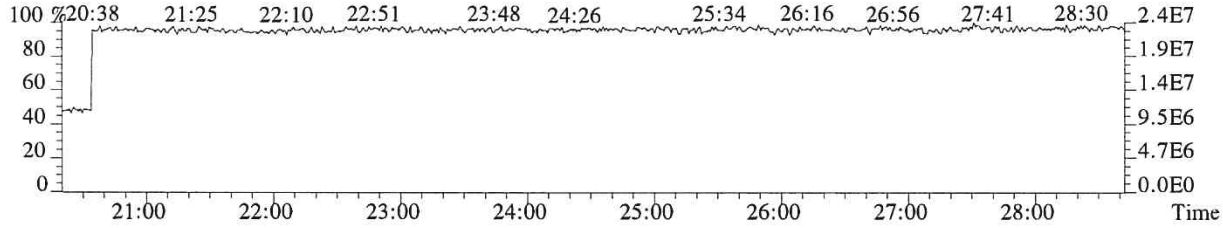
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

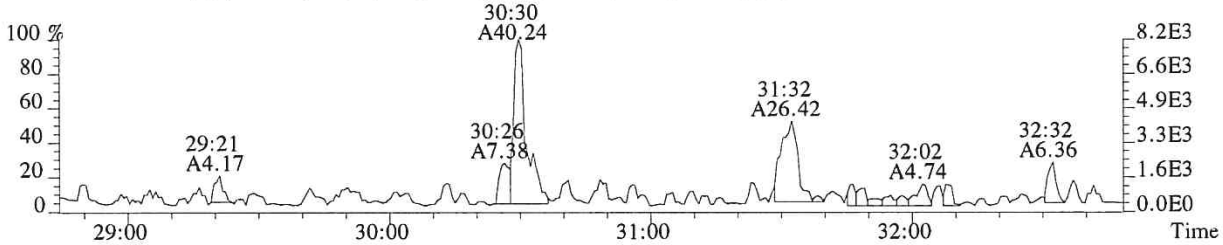


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

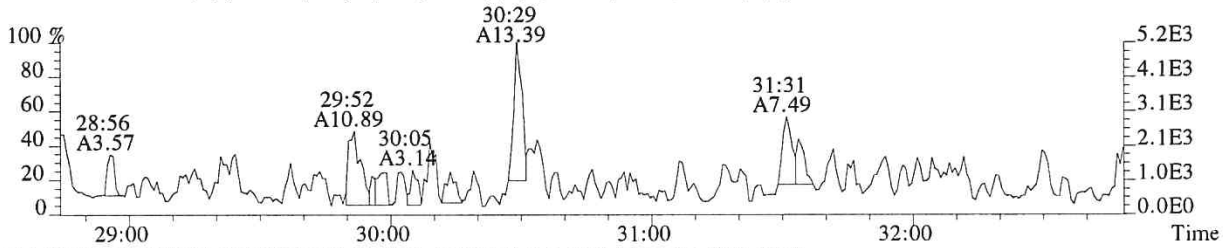


009856

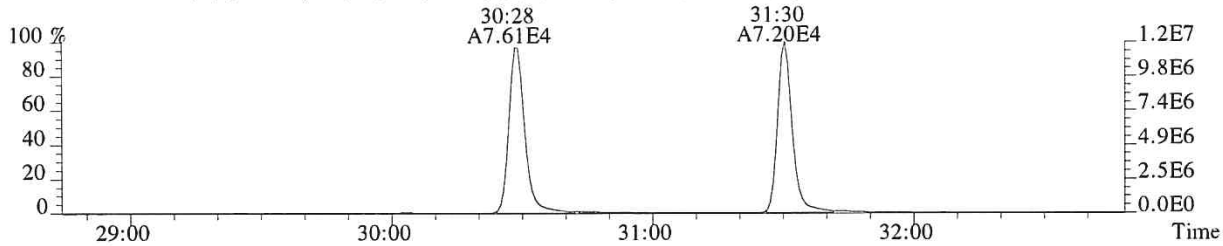
File:P518927 #1-367 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



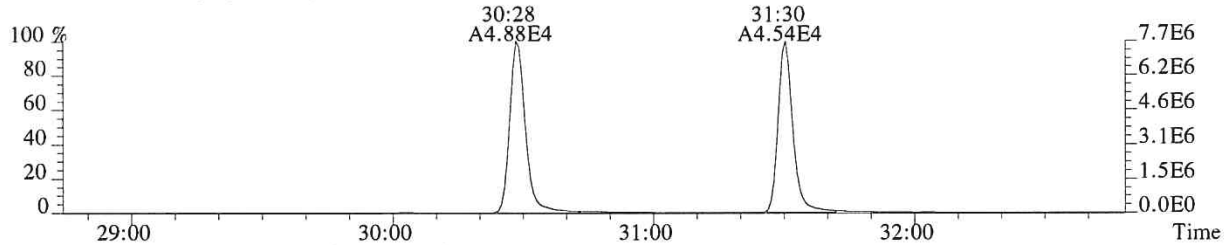
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



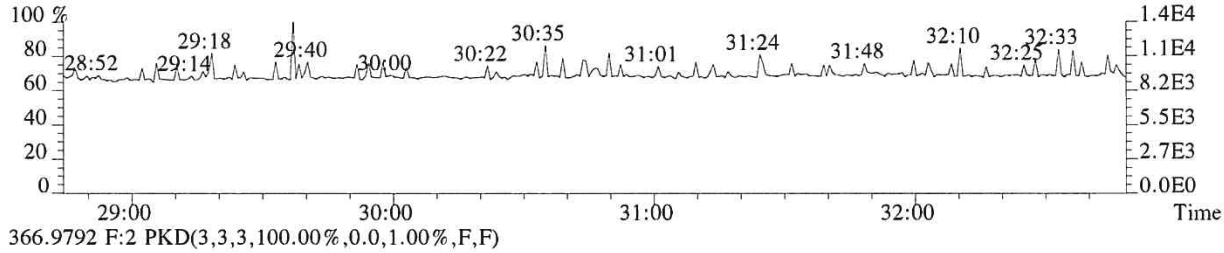
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



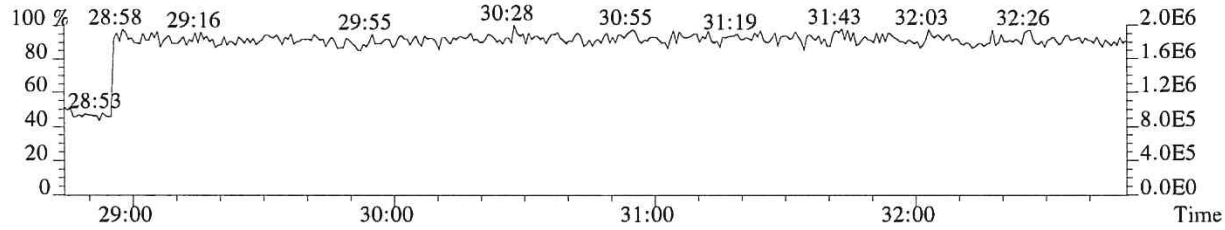
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

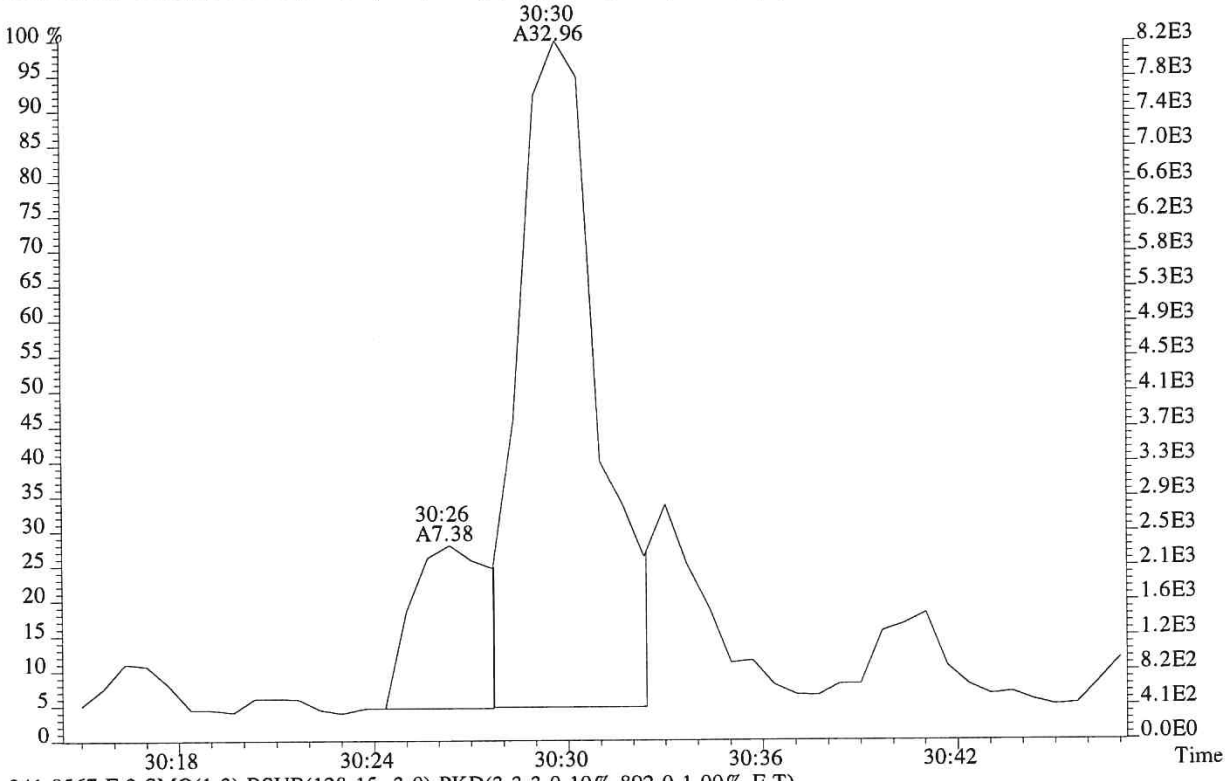


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

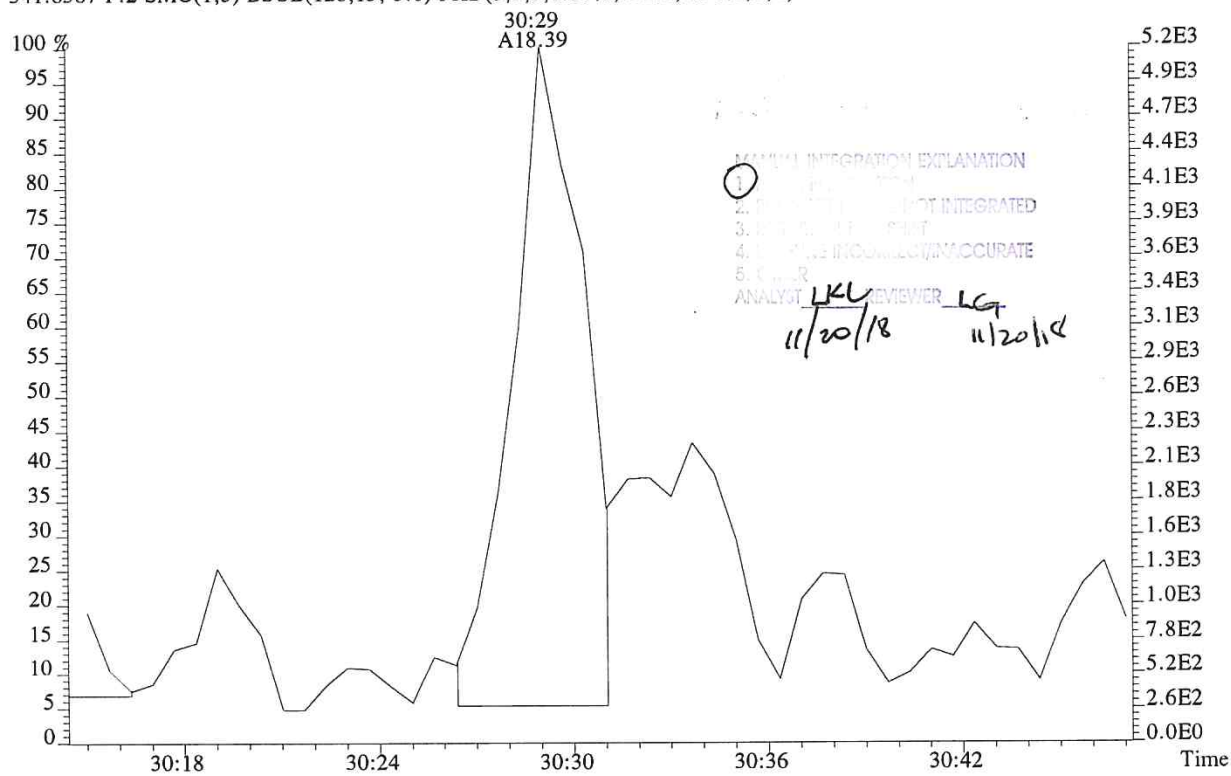


009857

File:P518927 #1-367 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



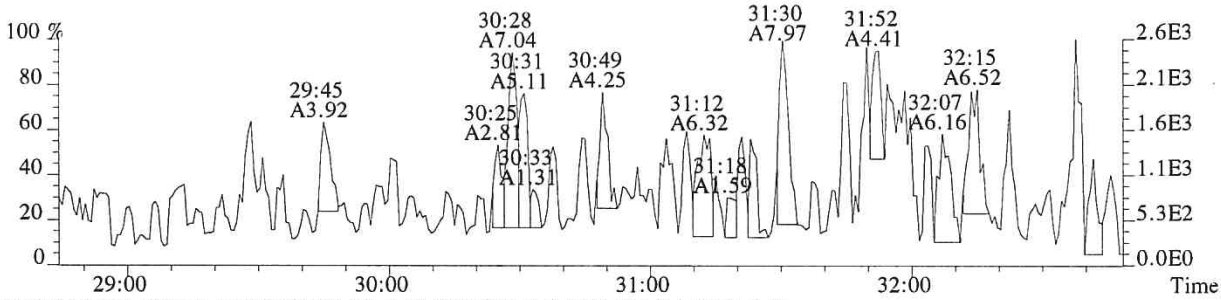
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



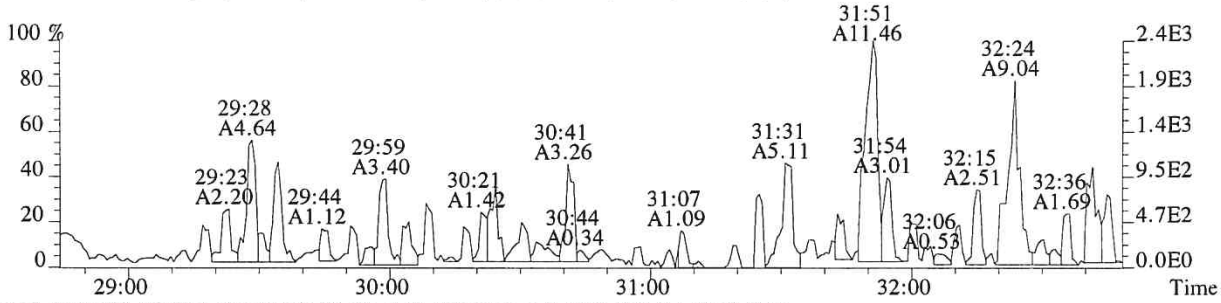
MANUAL INTEGRATION EXPLANATION
1
2. NOT INTEGRATED
3.
4. INCORRECT/INACCURATE
5.
ANALYST LKL REVIEWER LG
11/20/18 11/20/18

009858

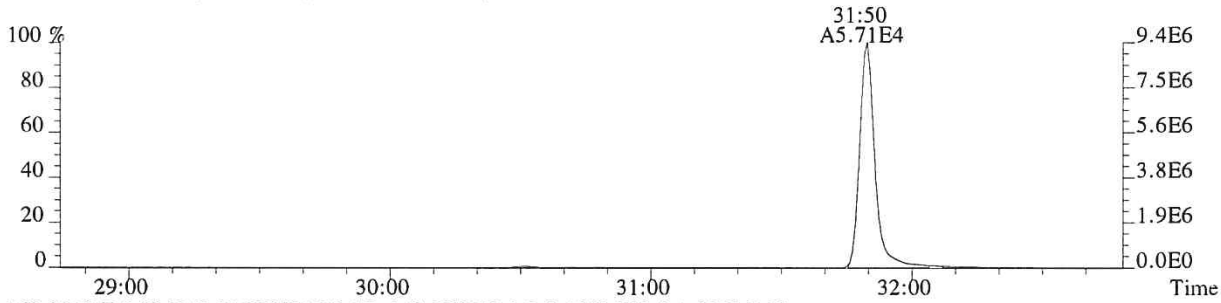
File:P518927 #1-367 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



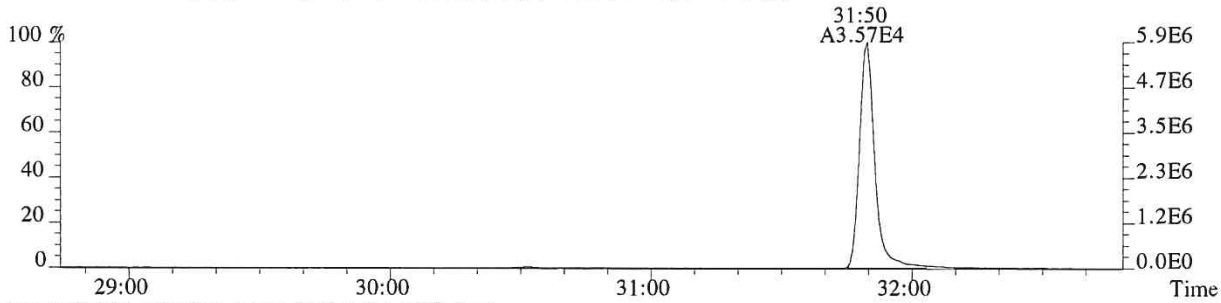
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



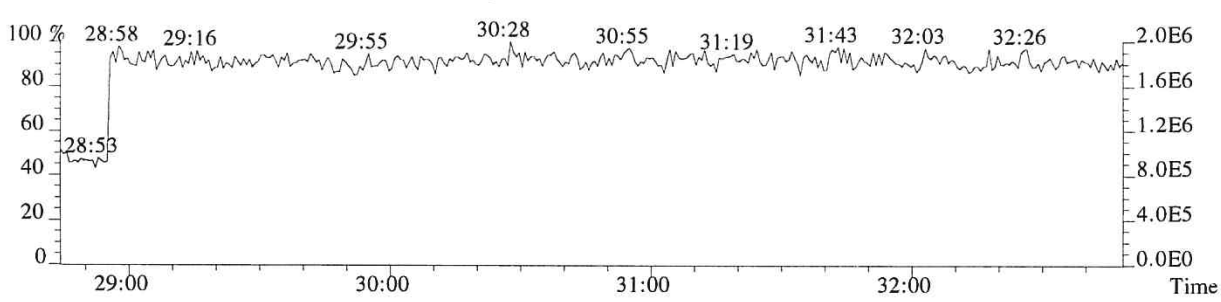
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)

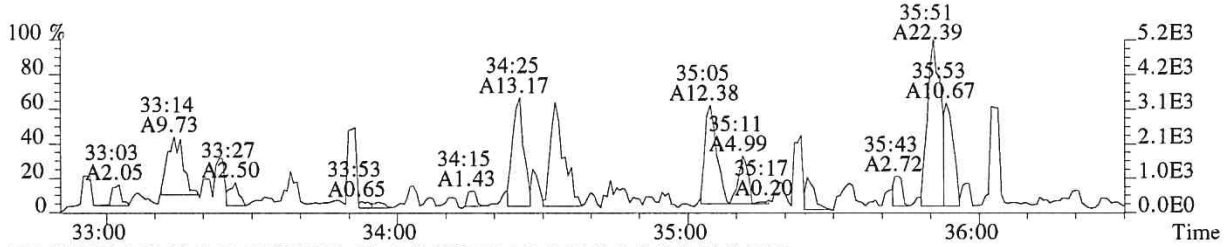


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

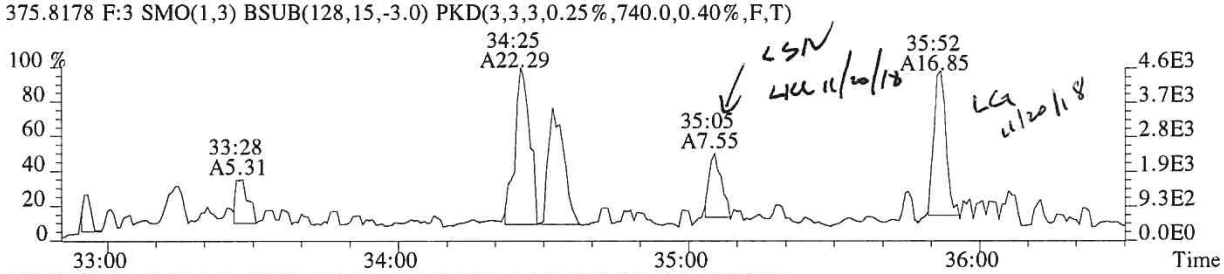


009859

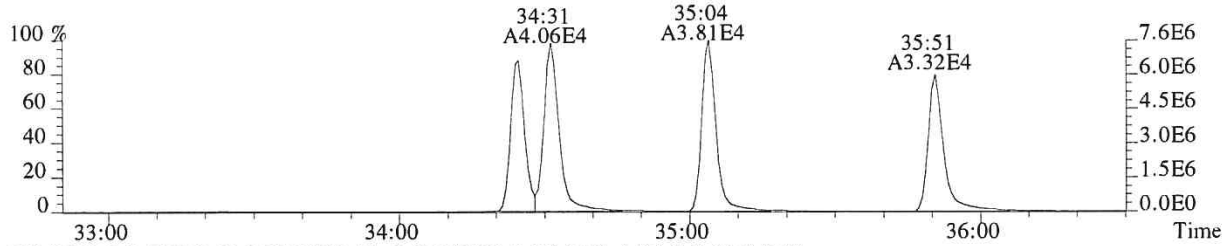
File:P518927 #1-330 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



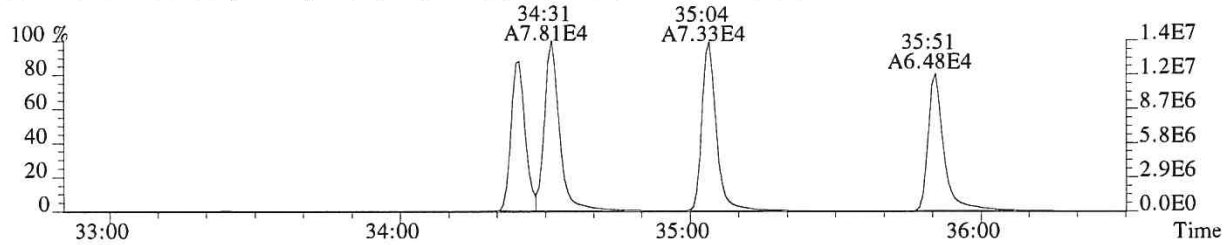
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



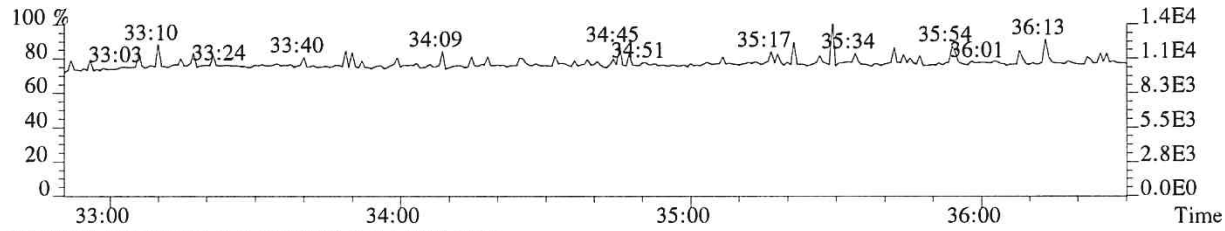
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



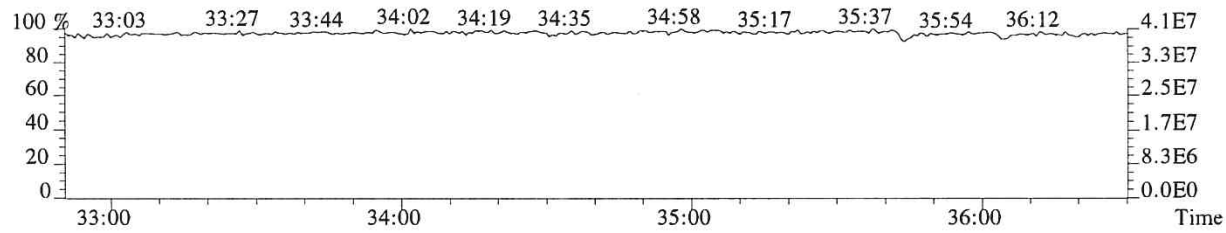
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

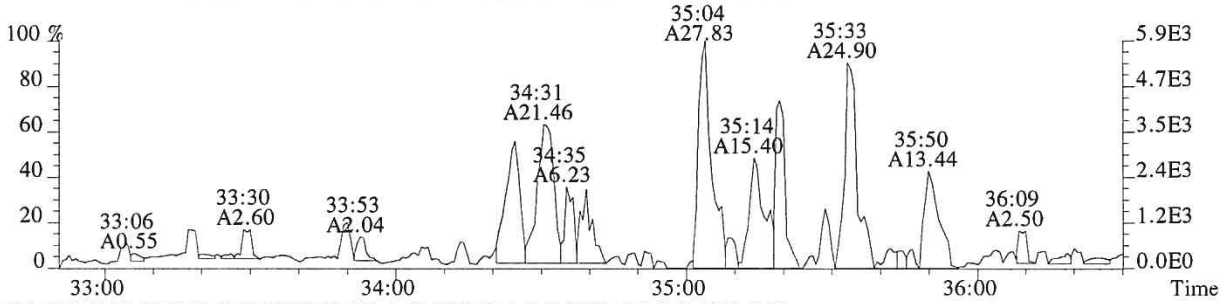


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

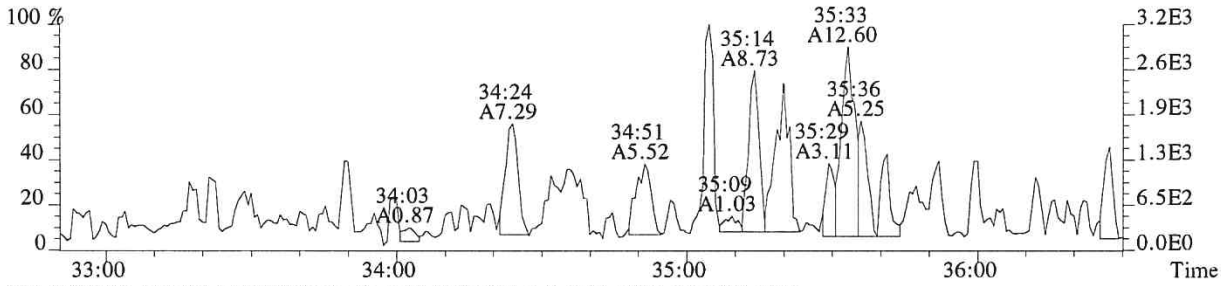


009860

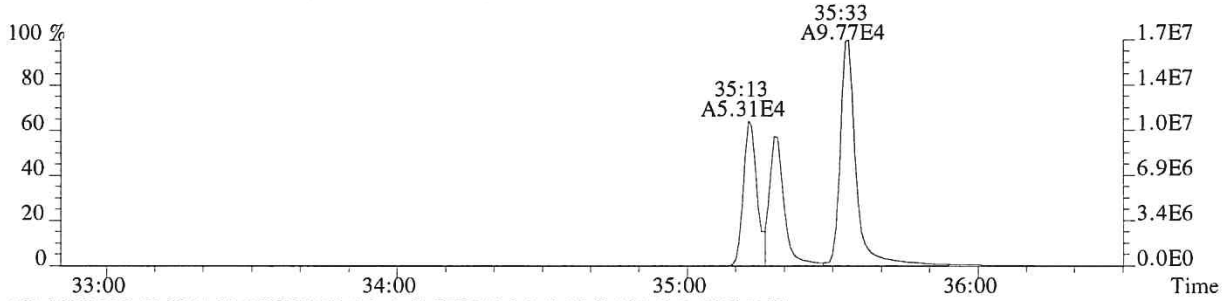
File:P518927 #1-330 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



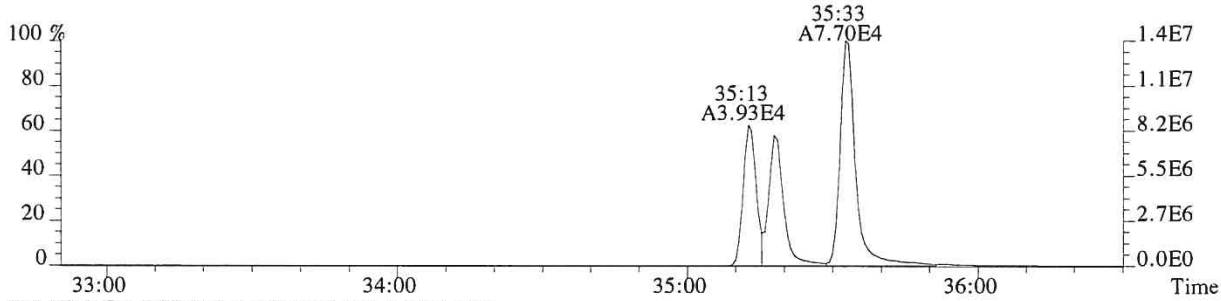
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



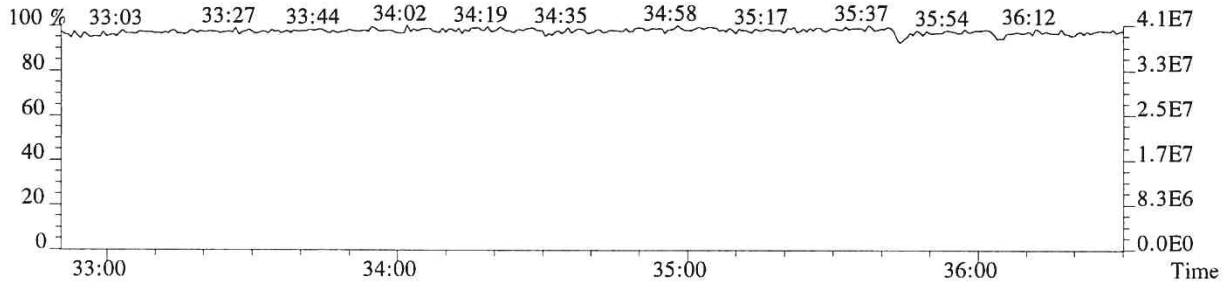
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1388.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)

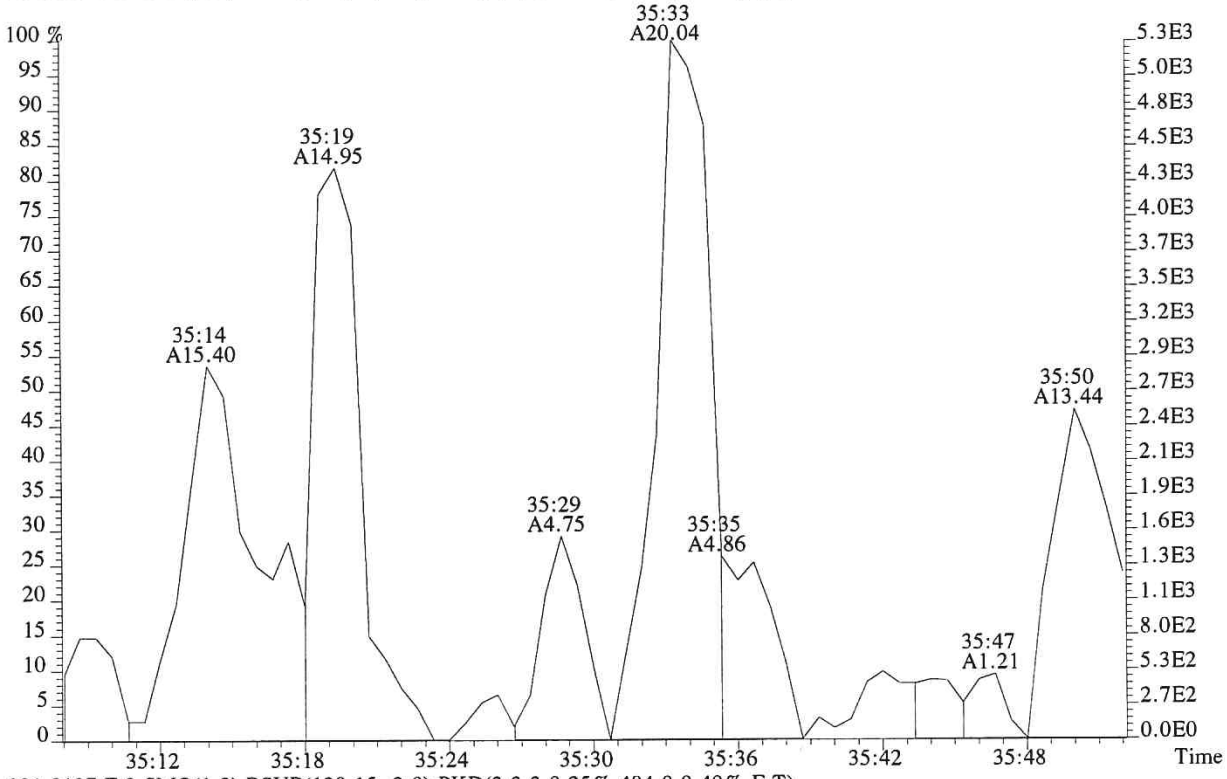


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

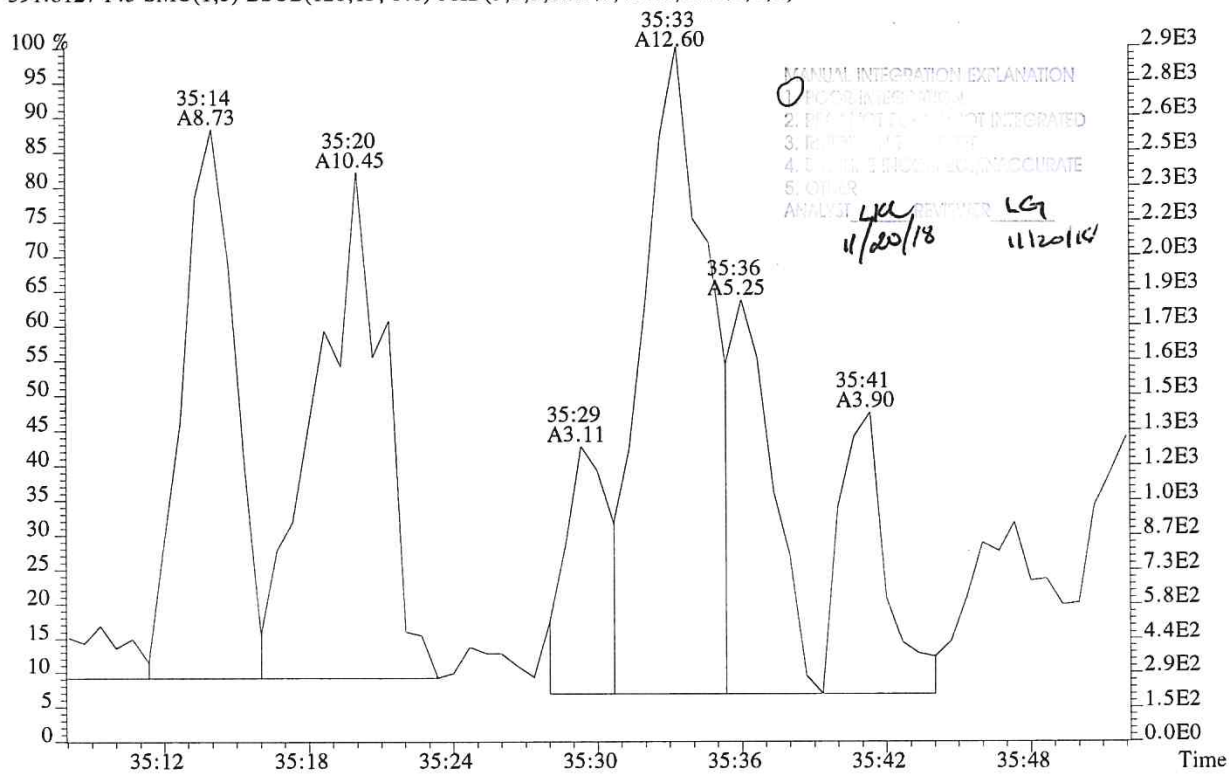


009861

File:P518927 #1-330 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



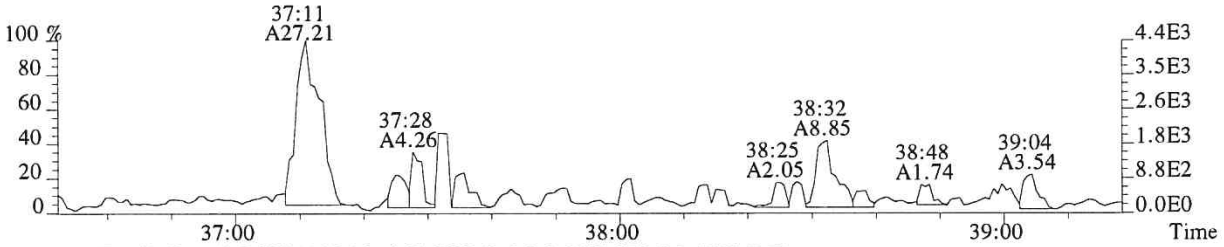
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



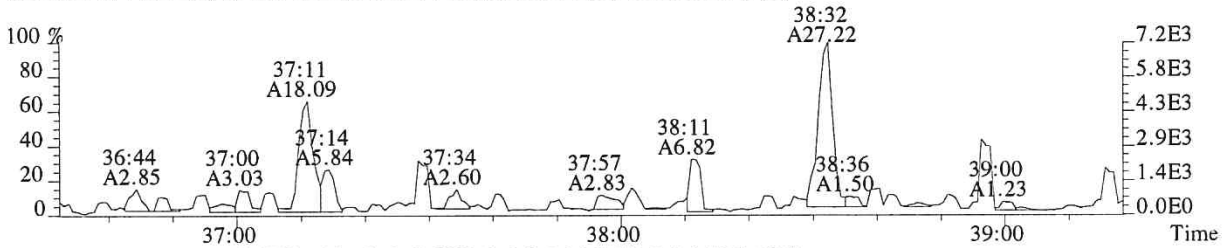
009862

File:P518927 #1-250 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01

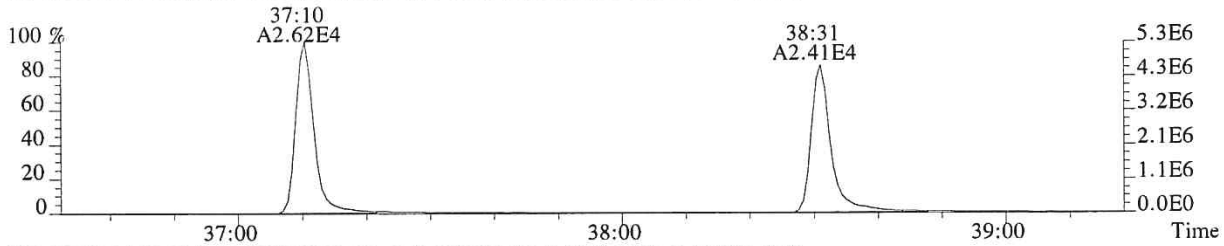
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.50%,F,T)



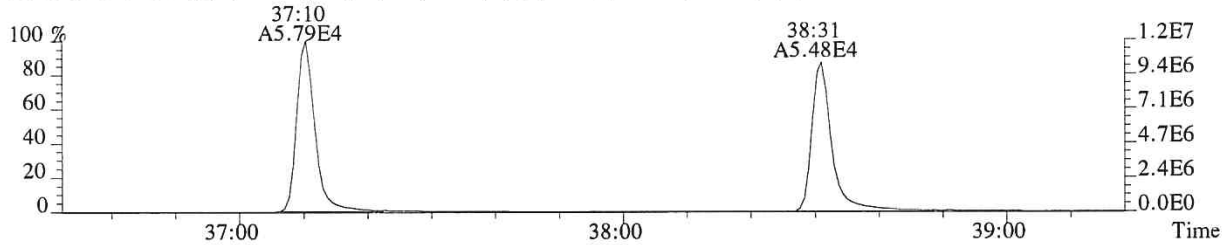
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.50%,F,T)



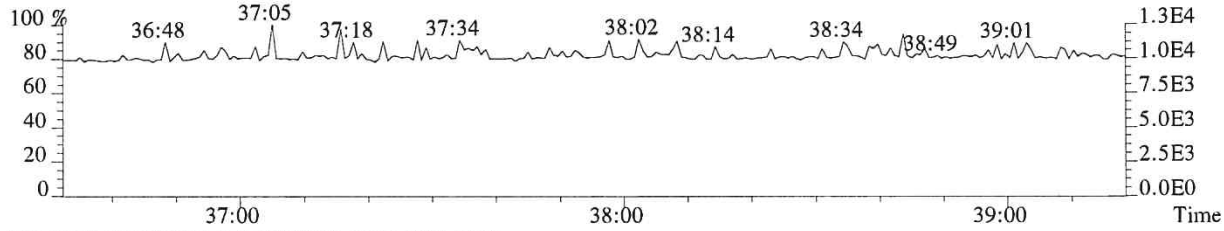
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5172.0,0.50%,F,T)



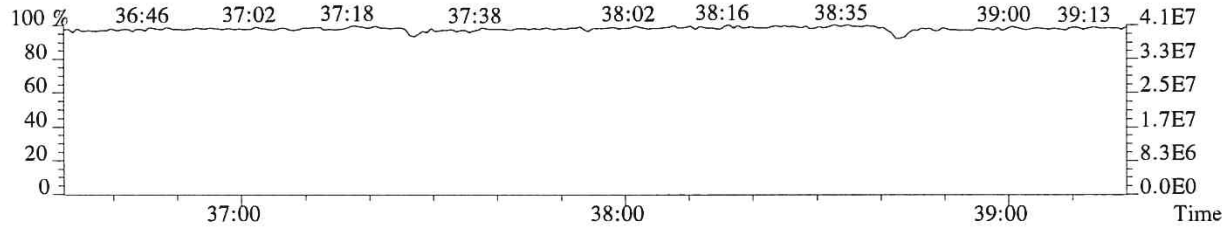
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5432.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

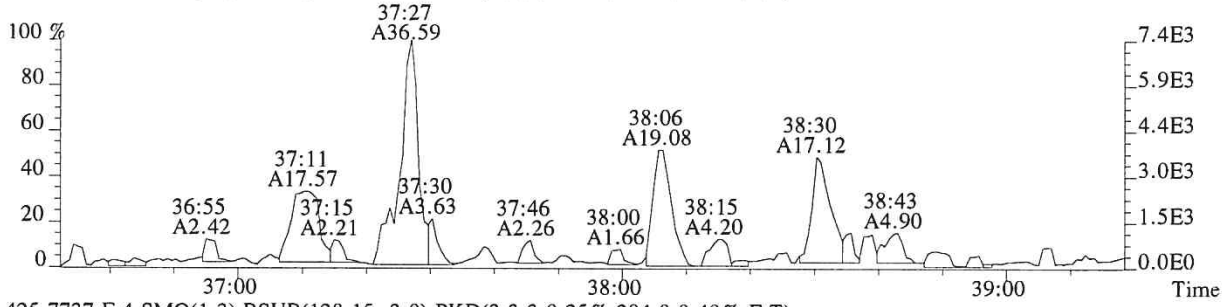


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

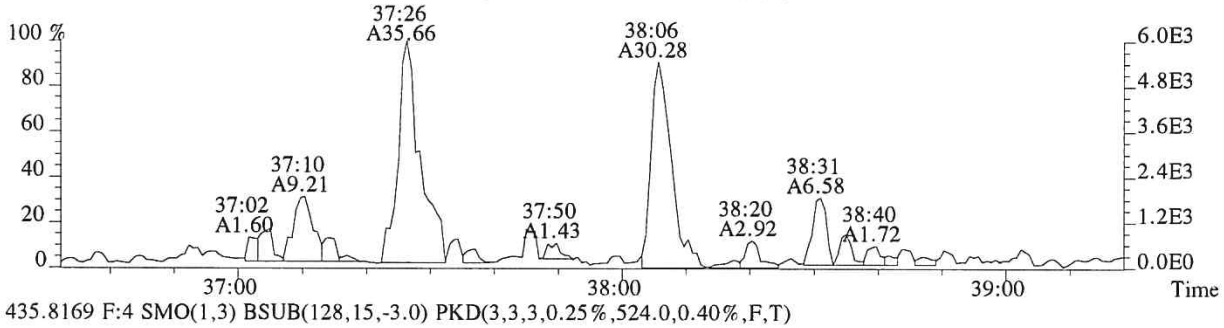


009863

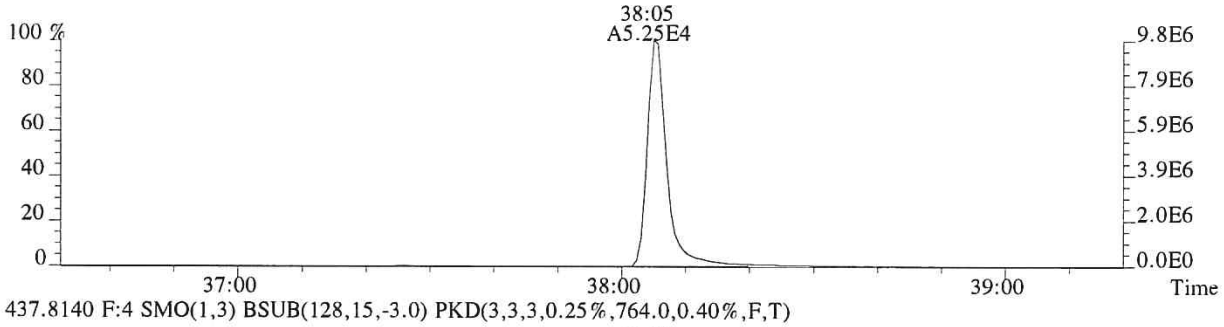
File:P518927 #1-250 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



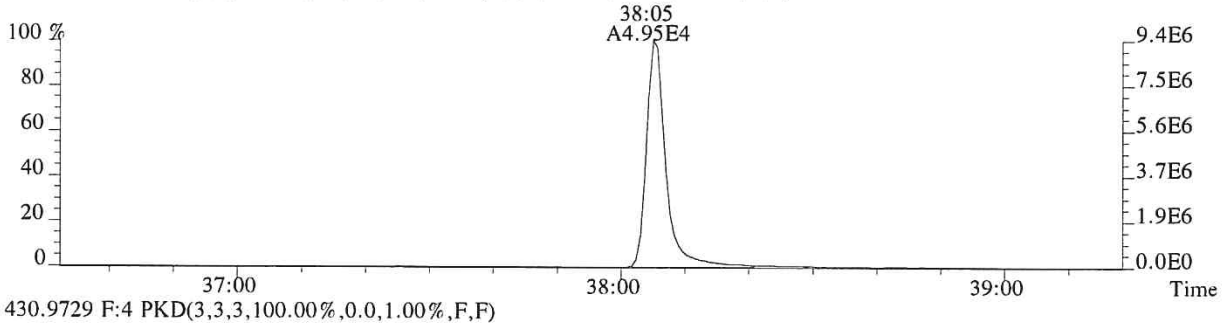
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



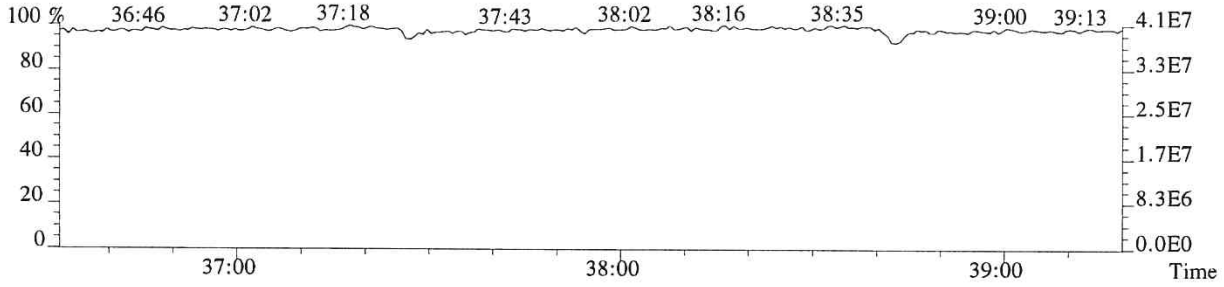
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



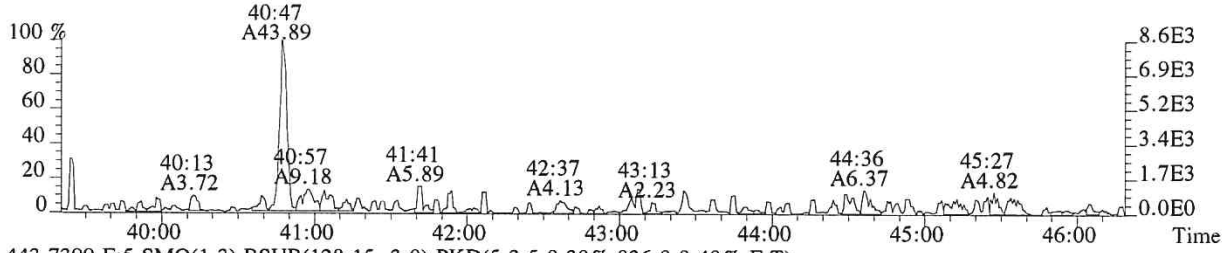
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



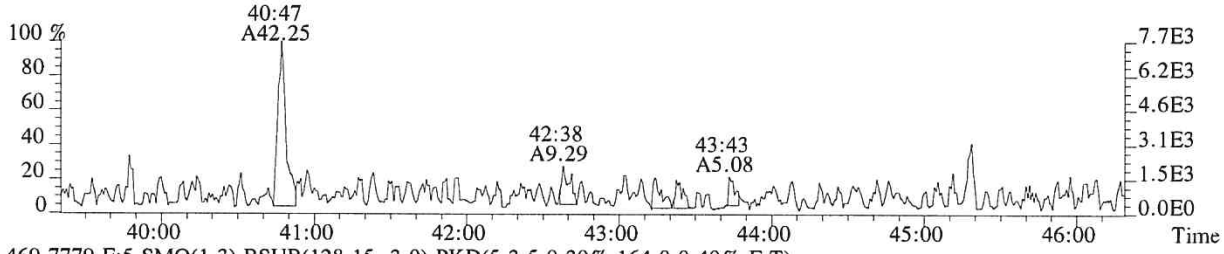
009864

File:P518927 #1-628 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01

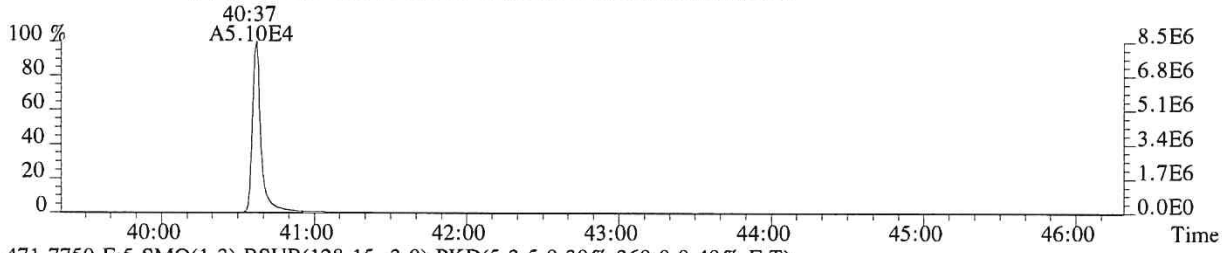
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



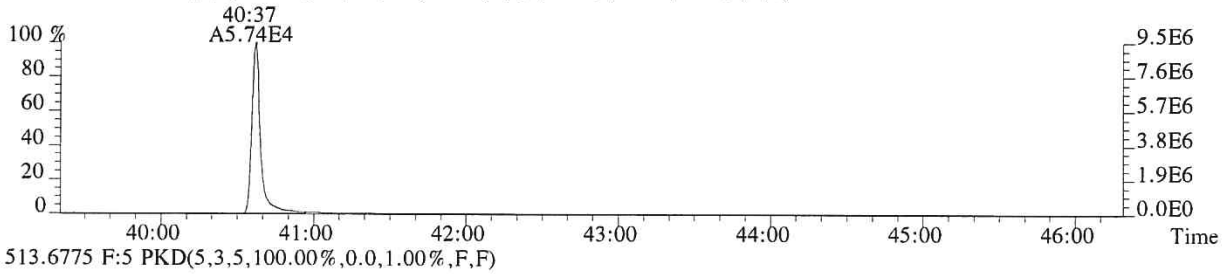
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



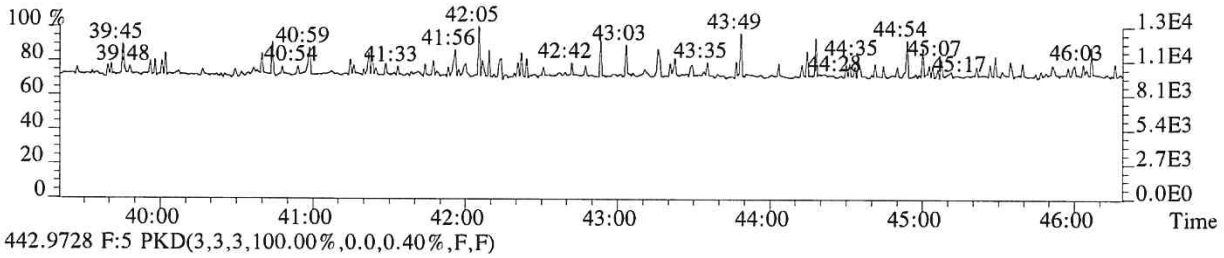
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



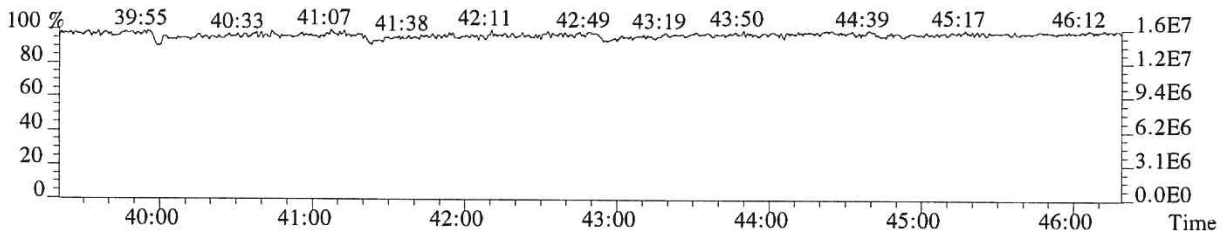
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

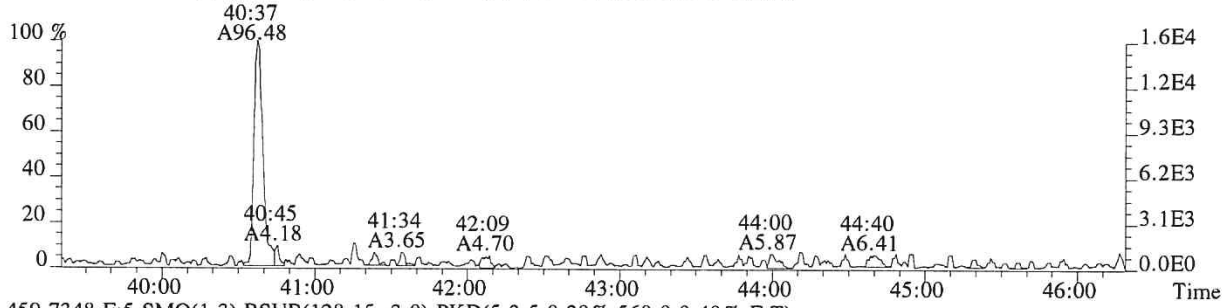


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

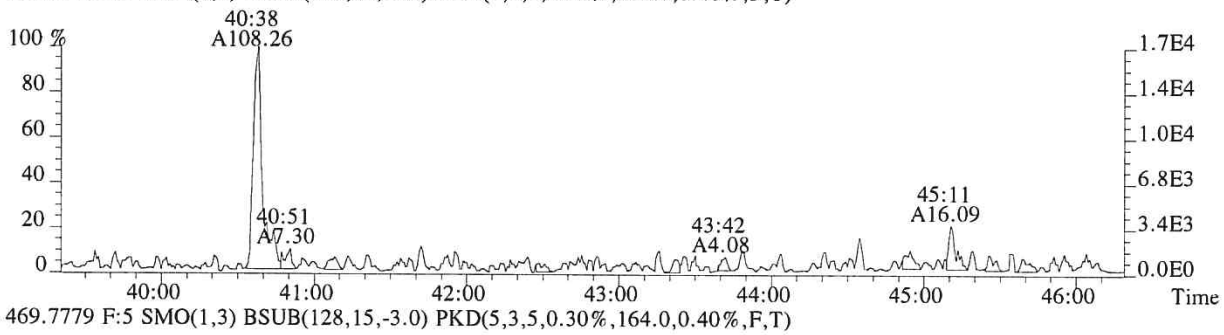


009865

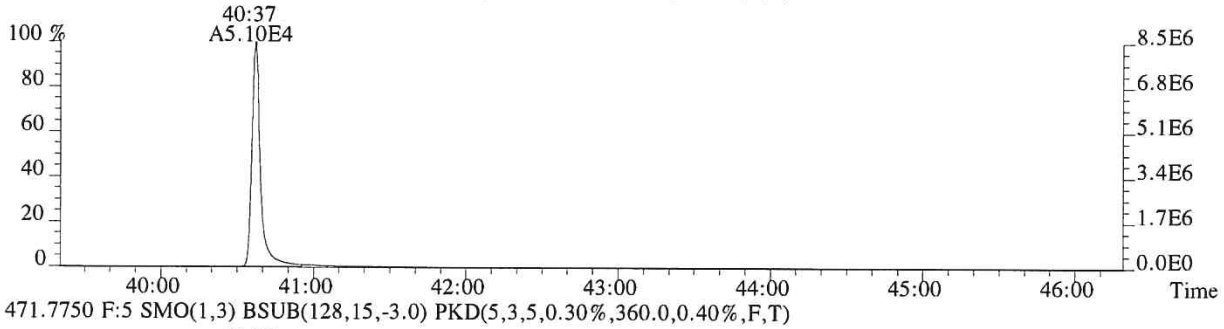
File:P518927 #1-628 Acq:19-NOV-2018 23:03:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



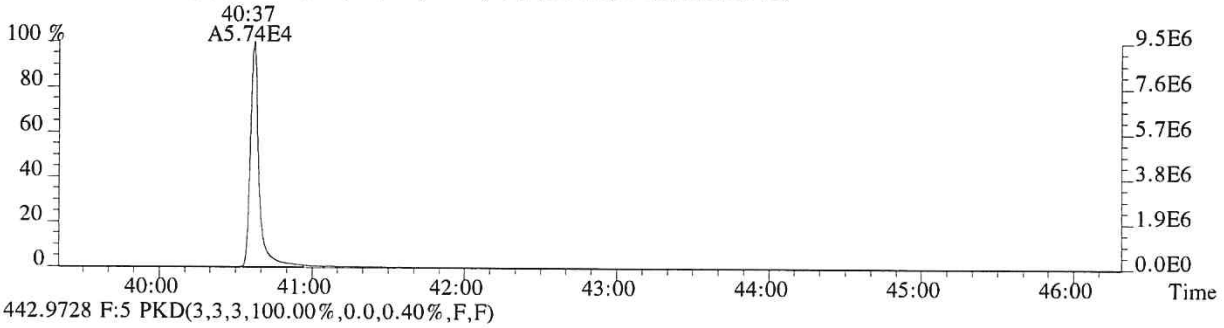
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



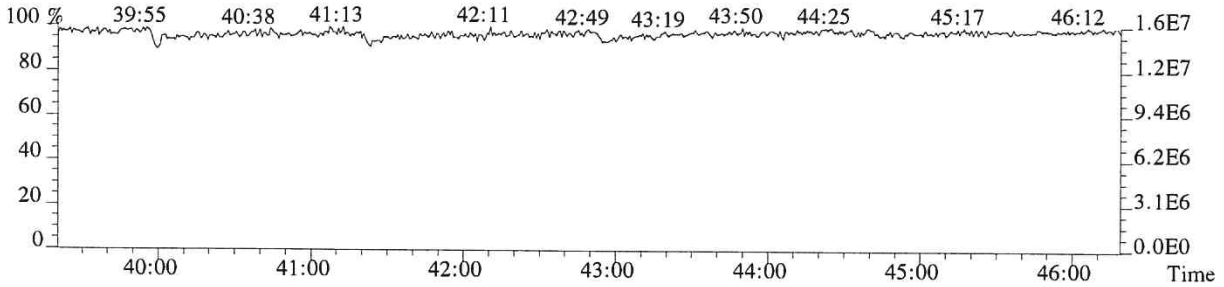
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009866

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P518850 Samp: 1 Inj: 1 Acquired: 16-NOV-18 10:03:50
Processed: 19-NOV-18 09:11:57 Sample ID: EQ1800463-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	9.227e+02	1.262e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:34	9.030e+03	5.782e+03	1.56	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	9.275e+03	6.135e+03	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	8.039e+03	6.684e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	9.878e+03	8.133e+03	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:08	9.018e+03	7.715e+03	1.17	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	7.871e+03	6.519e+03	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	7.992e+03	8.144e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	7.550e+03	7.309e+03	1.03	yes	no	1.258
10	Unk	OCDF	40:51	1.074e+04	1.229e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	7.409e+02	8.974e+02	0.83	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	6.639e+03	4.131e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	6.281e+03	5.050e+03	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	6.945e+03	5.601e+03	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	6.868e+03	5.384e+03	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	5.926e+03	5.749e+03	1.03	yes	no	1.025
17	Unk	OCDD	40:41	7.679e+03	8.584e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:31	1.015e+04	1.300e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	1.930e+04	1.223e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	1.897e+04	1.227e+04	1.55	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	8.935e+03	1.689e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.071e+04	2.090e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.049e+04	2.030e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	9.076e+03	1.730e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:13	7.722e+03	1.746e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	7.287e+03	1.616e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	6.584e+03	8.429e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.386e+04	8.587e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.292e+04	1.036e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.316e+04	1.035e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.466e+04	1.423e+04	1.03	yes	no	0.858
32	IS	13C-OCDD	40:40	1.479e+04	1.605e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	1.987e+04	2.472e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.209e+04	2.531e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	7.276e+03				no	1.014

$$\text{OCDD} = \frac{(7.679\text{e+}03 + 8.584\text{e+}03) \times 4000\ \text{pg} \times 1}{(1.479\text{e+}04 + 1.605\text{e+}04) \times \text{g} \times / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P518850 Samp: 1 Inj: 1 Acquired: 16-NOV-18 10:03:50
Processed: 19-NOV-18 09:11:57 LAB. ID: EQ1800463-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.23e+05	4.12e+02	3.0e+02	1.66e+05	9.88e+02	1.7e+02
2	1,2,3,7,8-PeCDF	1.43e+06	2.36e+02	6.1e+03	9.12e+05	1.09e+03	8.4e+02
3	2,3,4,7,8-PeCDF	1.57e+06	2.36e+02	6.6e+03	1.03e+06	1.09e+03	9.4e+02
4	1,2,3,4,7,8-HxCDF	1.67e+06	1.76e+02	9.5e+03	1.39e+06	2.28e+02	6.1e+03
5	1,2,3,6,7,8-HxCDF	1.69e+06	1.76e+02	9.6e+03	1.44e+06	2.28e+02	6.3e+03
6	2,3,4,6,7,8-HxCDF	1.74e+06	1.76e+02	9.9e+03	1.48e+06	2.28e+02	6.5e+03
7	1,2,3,7,8,9-HxCDF	1.39e+06	1.76e+02	7.9e+03	1.14e+06	2.28e+02	5.0e+03
8	1,2,3,4,6,7,8-HpCDF	1.61e+06	1.08e+03	1.5e+03	1.58e+06	2.58e+03	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	1.35e+06	1.08e+03	1.2e+03	1.31e+06	2.58e+03	5.1e+02
10	OCDF	1.72e+06	2.08e+02	8.3e+03	1.88e+06	4.88e+02	3.9e+03
11	2,3,7,8-TCDD	1.13e+05	1.68e+03	6.7e+01	1.30e+05	5.16e+02	2.5e+02
12	1,2,3,7,8-PeCDD	1.13e+06	5.44e+02	2.1e+03	6.96e+05	2.80e+02	2.5e+03
13	1,2,3,4,7,8-HxCDD	1.31e+06	4.24e+02	3.1e+03	1.01e+06	5.36e+02	1.9e+03
14	1,2,3,6,7,8-HxCDD	1.29e+06	4.24e+02	3.0e+03	1.03e+06	5.36e+02	1.9e+03
15	1,2,3,7,8,9-HxCDD	1.20e+06	4.24e+02	2.8e+03	9.78e+05	5.36e+02	1.8e+03
16	1,2,3,4,6,7,8-HpCDD	1.13e+06	2.40e+02	4.7e+03	1.06e+06	3.20e+02	3.3e+03
17	OCDD	1.22e+06	2.08e+02	5.9e+03	1.32e+06	2.00e+02	6.6e+03
18	13C-2,3,7,8-TCDF	1.29e+06	4.00e+03	3.2e+02	1.65e+06	2.32e+03	7.1e+02
19	13C-1,2,3,7,8-PeCDF	3.11e+06	3.60e+02	8.6e+03	1.92e+06	4.40e+02	4.4e+03
20	13C-2,3,4,7,8-PeCDF	3.17e+06	3.60e+02	8.8e+03	2.06e+06	4.40e+02	4.7e+03
21	13C-1,2,3,4,7,8-HxCDF	1.75e+06	6.40e+02	2.7e+03	3.48e+06	8.16e+02	4.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.96e+06	6.40e+02	3.1e+03	3.70e+06	8.16e+02	4.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.02e+06	6.40e+02	3.2e+03	3.92e+06	8.16e+02	4.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.57e+06	6.40e+02	2.4e+03	3.02e+06	8.16e+02	3.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.50e+06	2.10e+03	7.2e+02	3.35e+06	4.30e+03	7.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.30e+06	2.10e+03	6.2e+02	2.92e+06	4.30e+03	6.8e+02
27	13C-2,3,7,8-TCDD	9.92e+05	4.91e+03	2.0e+02	1.22e+06	1.66e+03	7.4e+02
28	13C-1,2,3,7,8-PeCDD	2.28e+06	2.04e+02	1.1e+04	1.45e+06	3.52e+02	4.1e+03
29	13C-1,2,3,4,7,8-HxCDD	2.65e+06	1.04e+03	2.6e+03	2.10e+06	8.08e+02	2.6e+03
30	13C-1,2,3,6,7,8-HxCDD	2.43e+06	1.04e+03	2.3e+03	1.93e+06	8.08e+02	2.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.74e+06	2.16e+02	1.3e+04	2.60e+06	2.16e+02	1.2e+04
32	13C-OCDD	2.25e+06	2.32e+02	9.7e+03	2.50e+06	2.44e+02	1.0e+04
33	13C-1,2,3,4-TCDD	2.88e+06	4.91e+03	5.9e+02	3.60e+06	1.66e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.74e+06	1.04e+03	5.5e+03	4.46e+06	8.08e+02	5.5e+03
35	37Cl-2,3,7,8-TCDD	1.04e+06	5.92e+02	1.8e+03			

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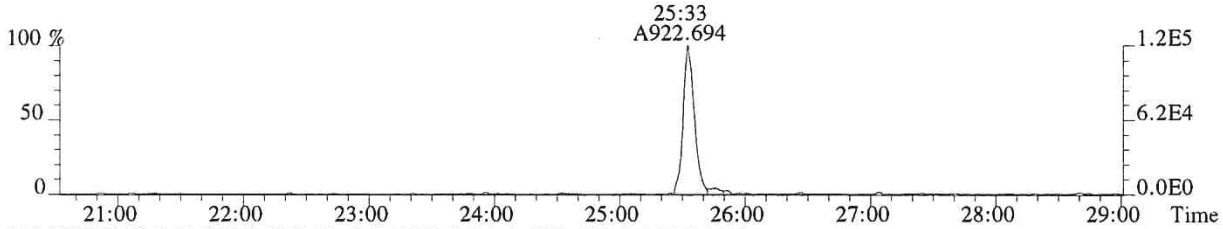
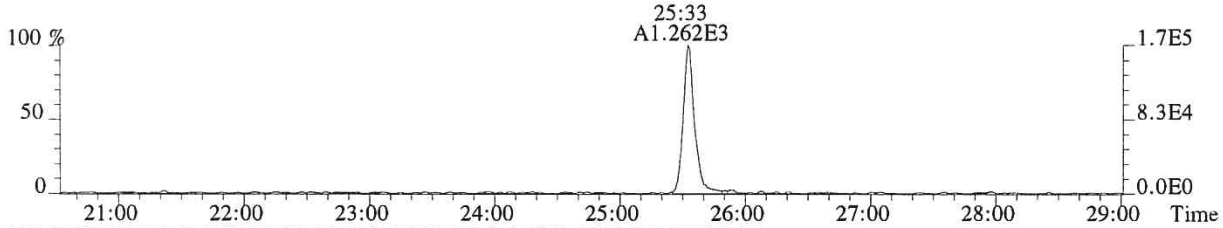
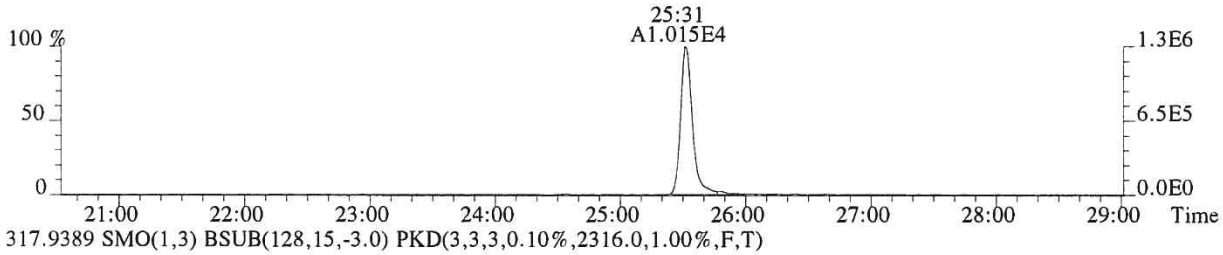
File:P518850 #1-602 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



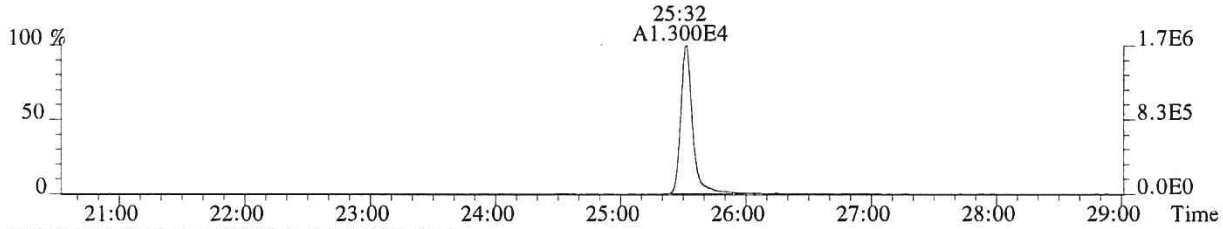
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



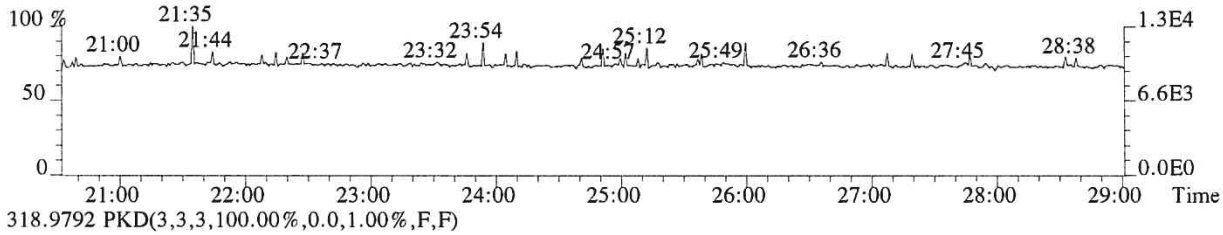
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3996.0,1.00%,F,T)



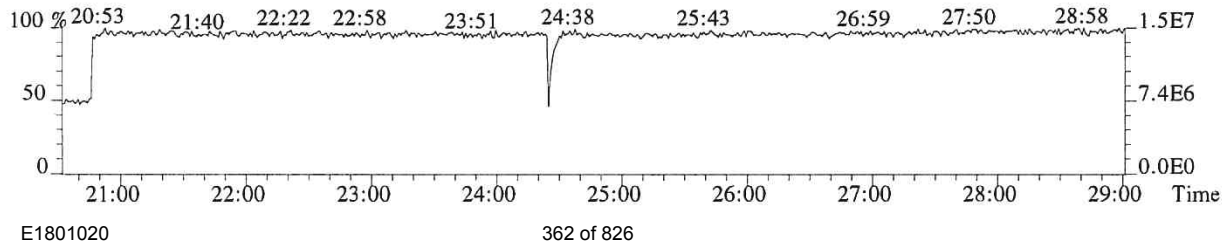
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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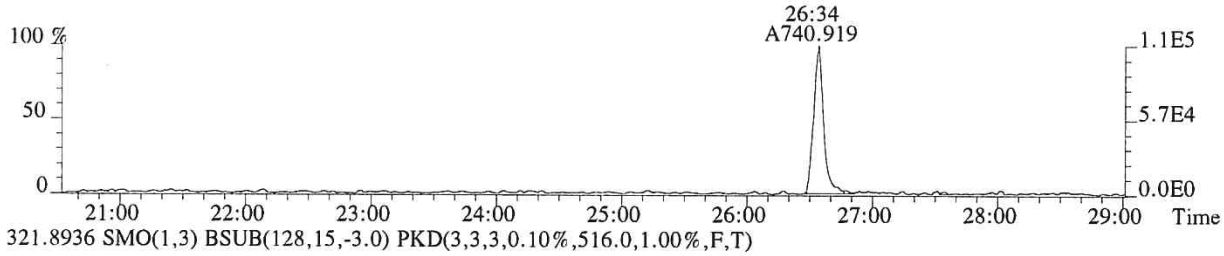
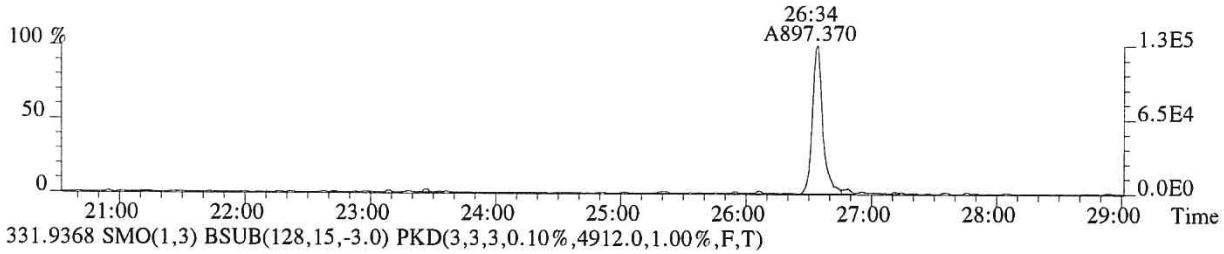
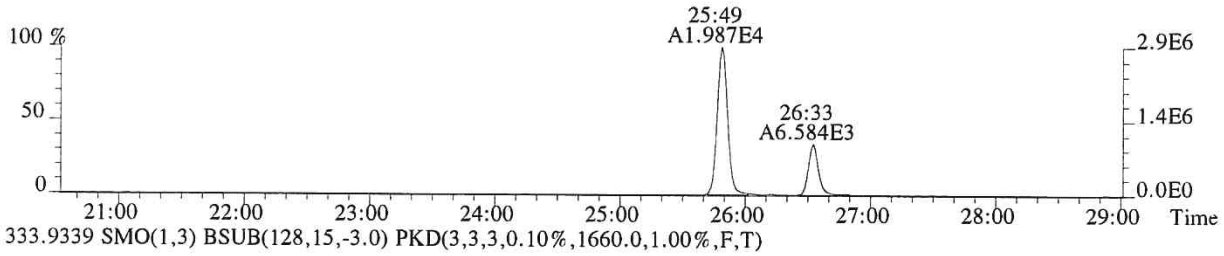
File:P518850 #1-602 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



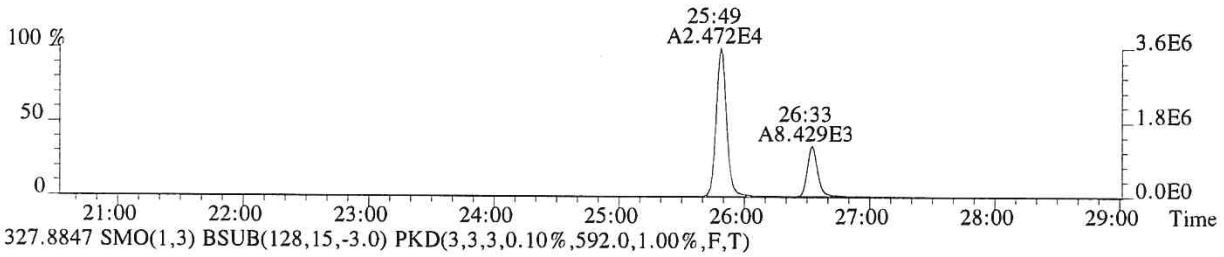
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



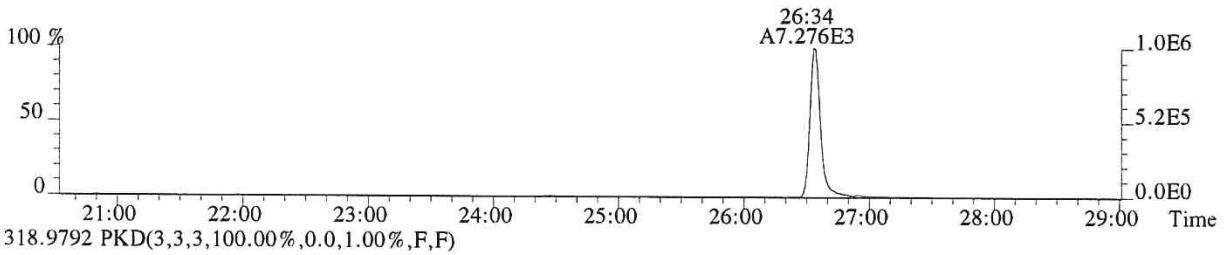
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4912.0,1.00%,F,T)



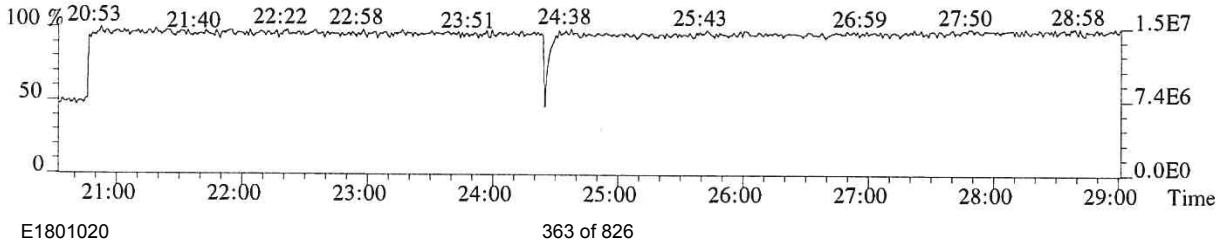
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1660.0,1.00%,F,T)



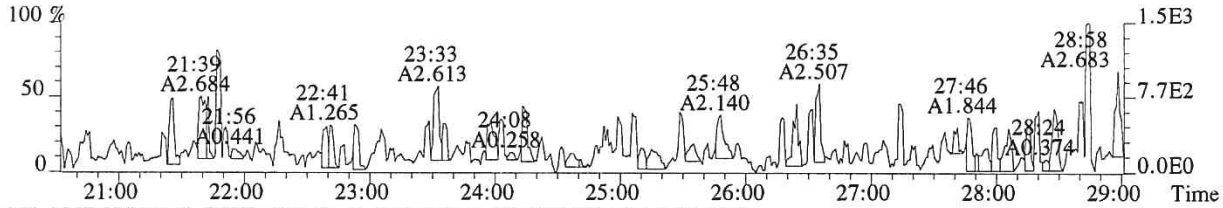
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



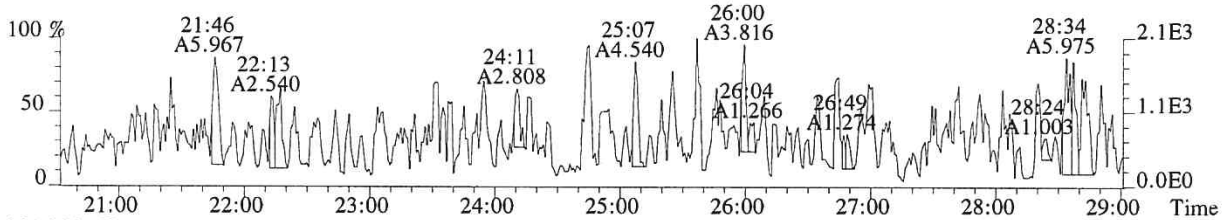
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



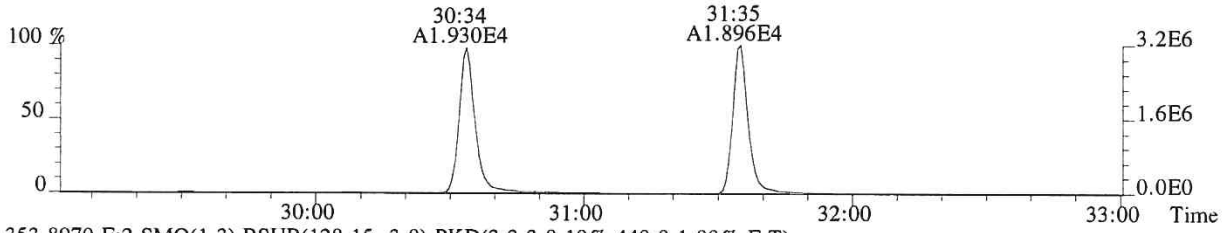
File:P518850 #1-602 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



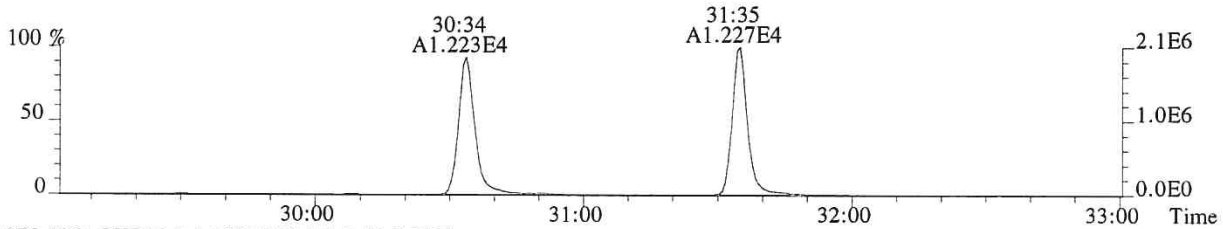
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



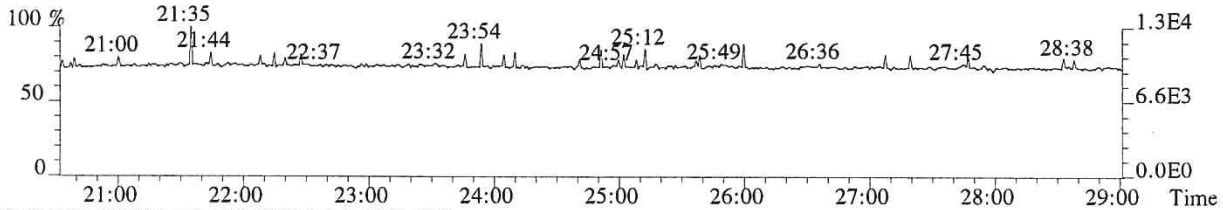
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



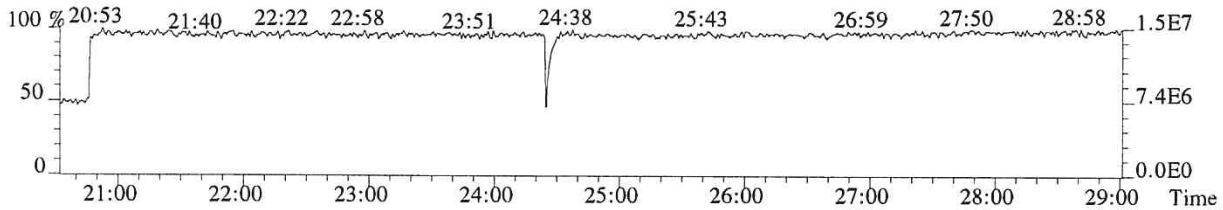
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



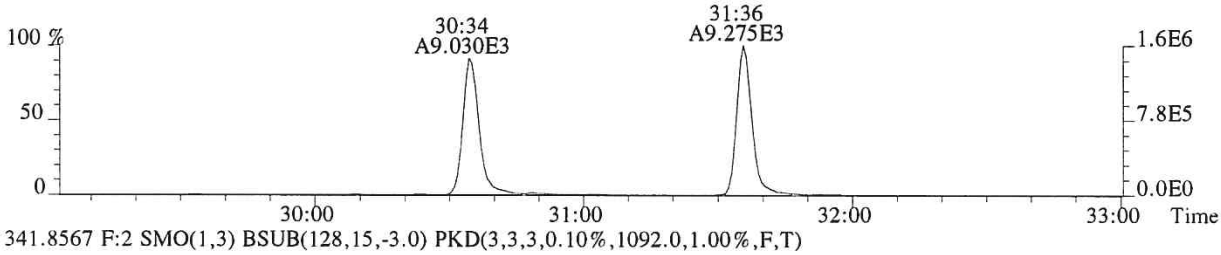
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



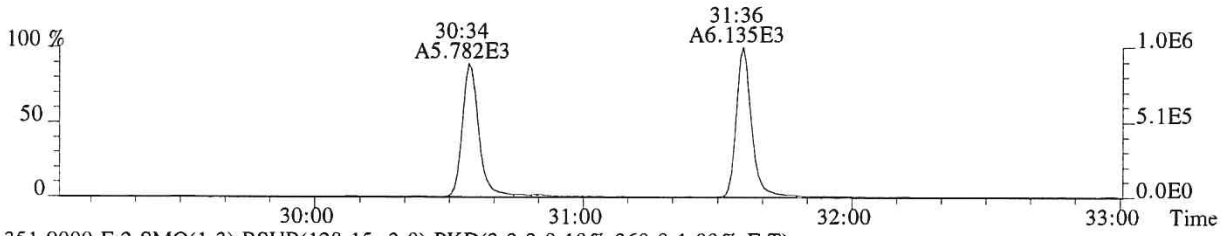
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



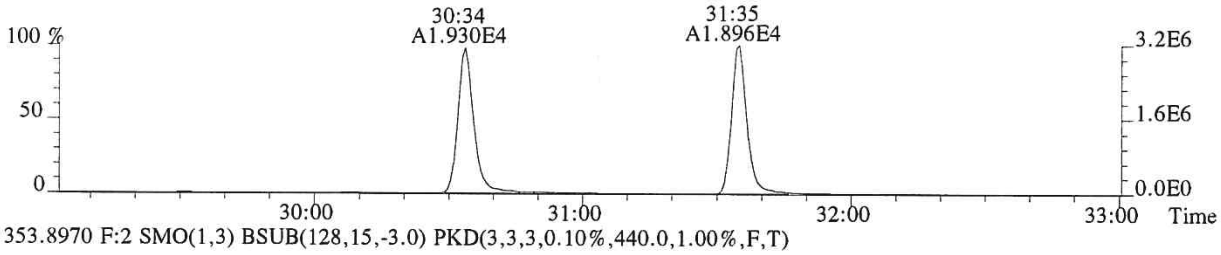
File:P518850 #1-357 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



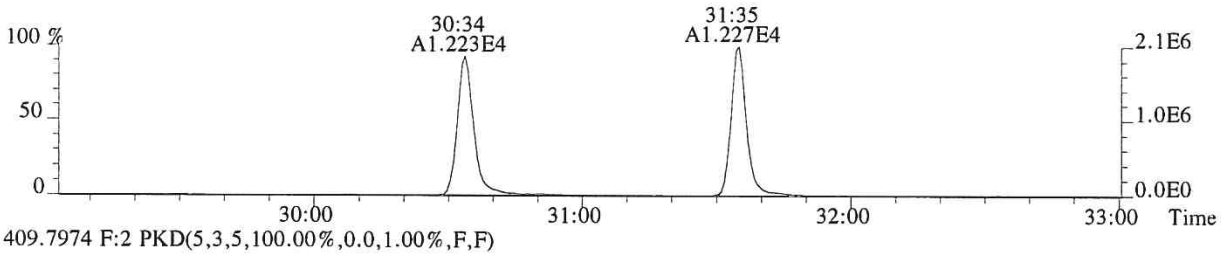
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



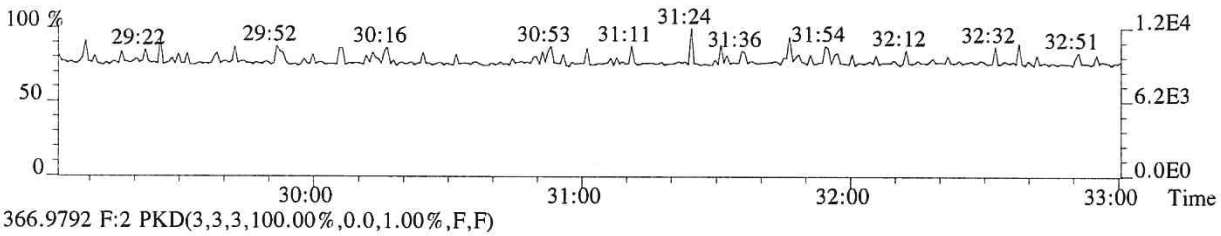
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



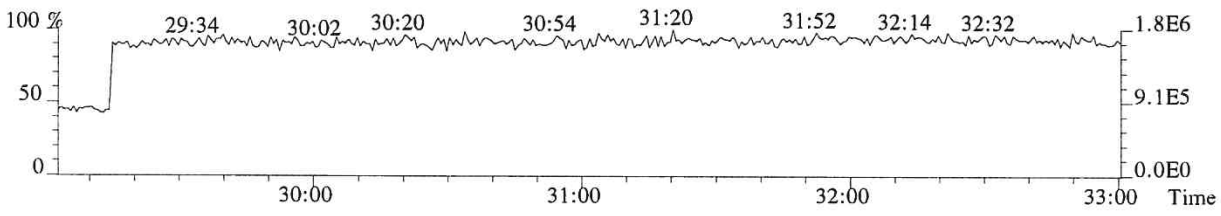
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



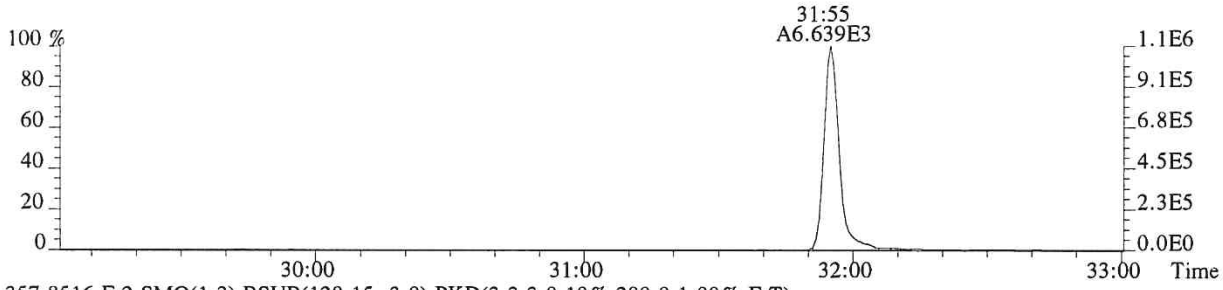
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



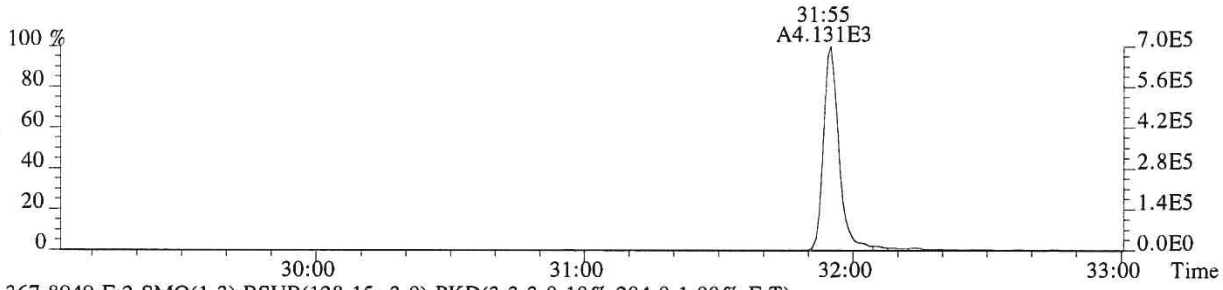
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



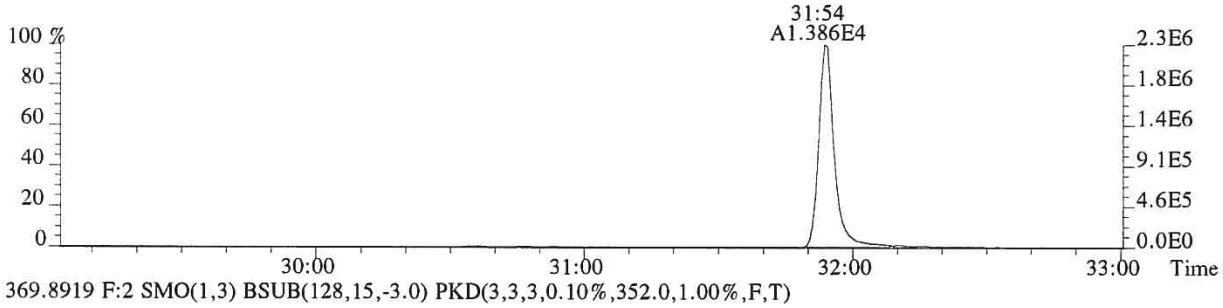
File:P518850 #1-357 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



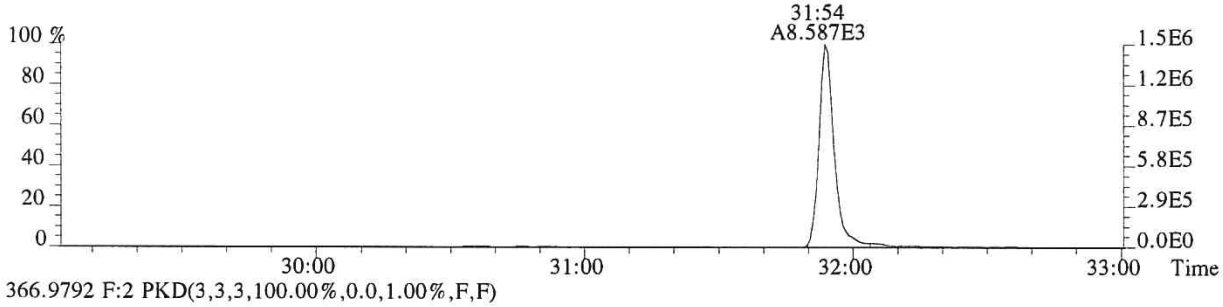
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



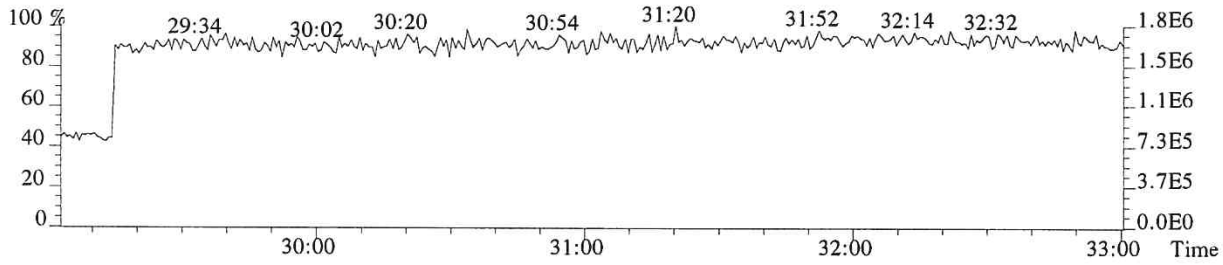
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)

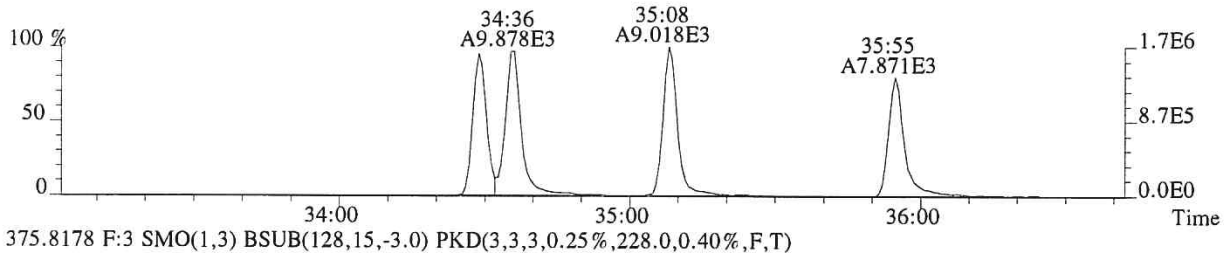


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

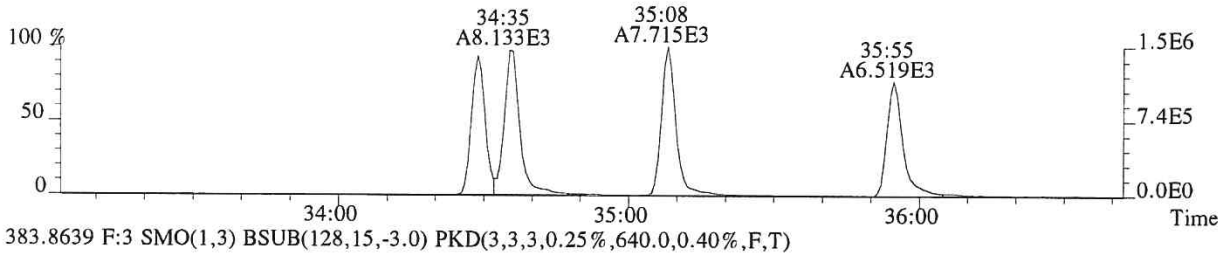


009873

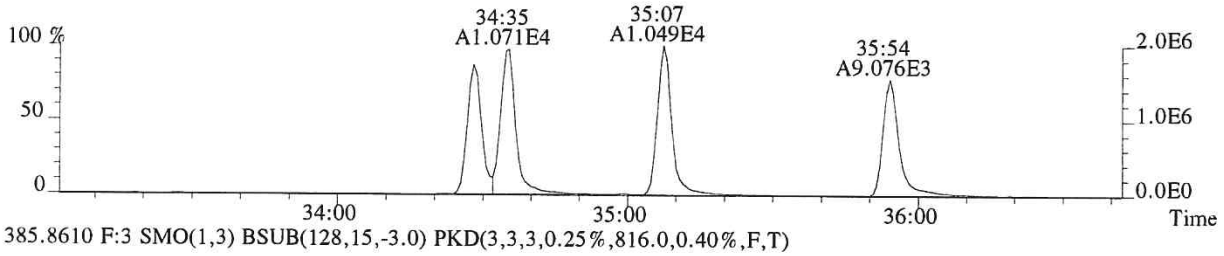
File:P518850 #1-330 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.40%,F,T)



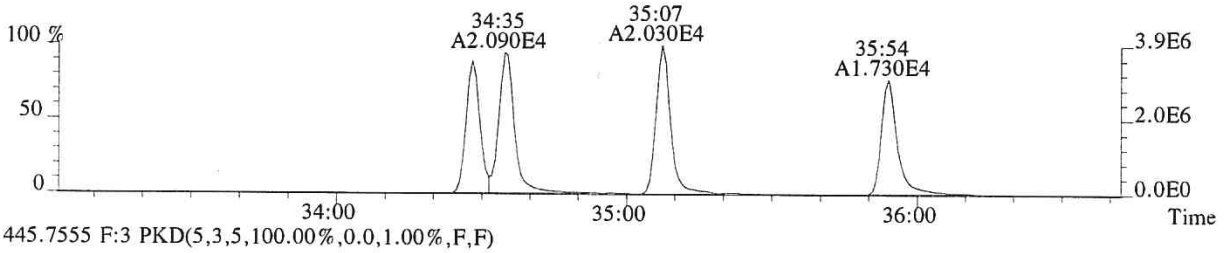
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



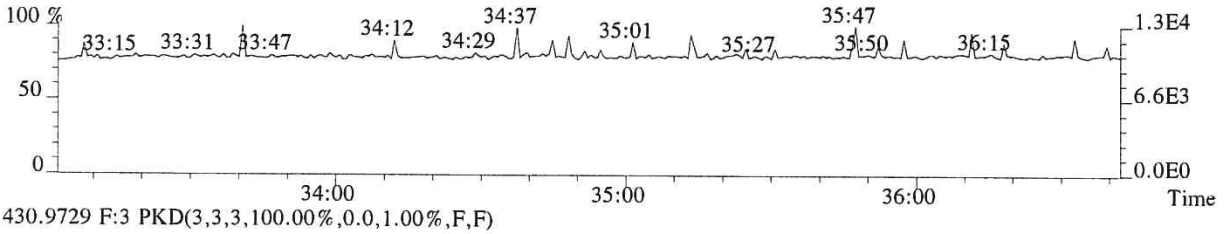
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



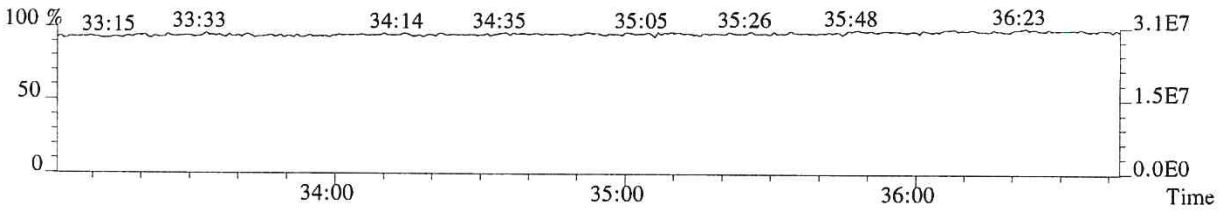
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



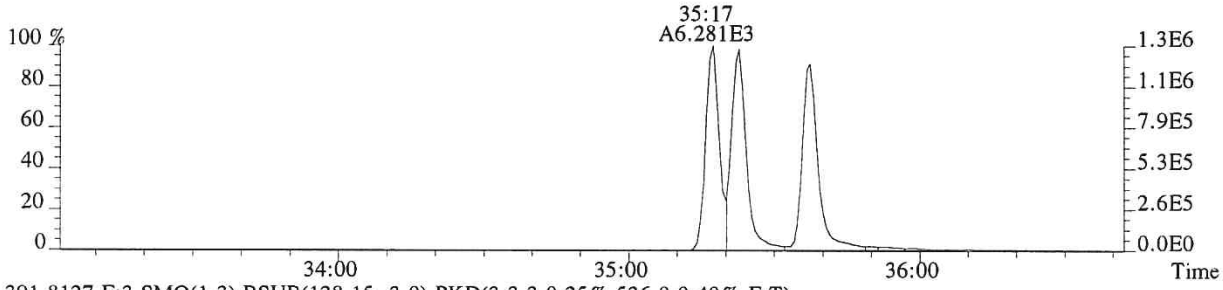
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



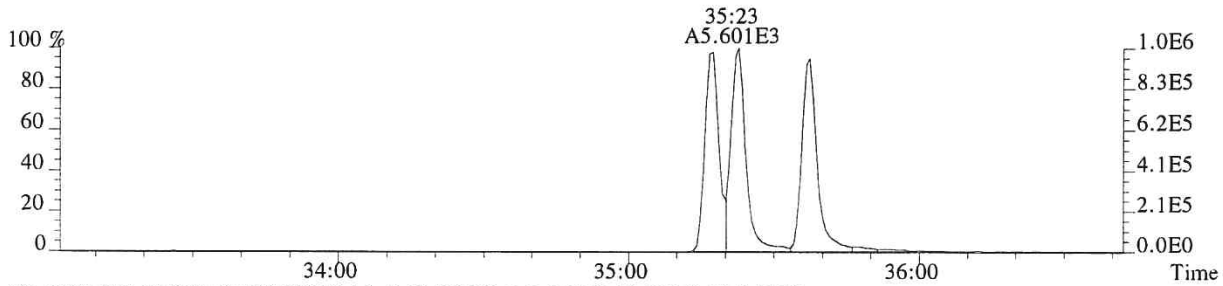
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



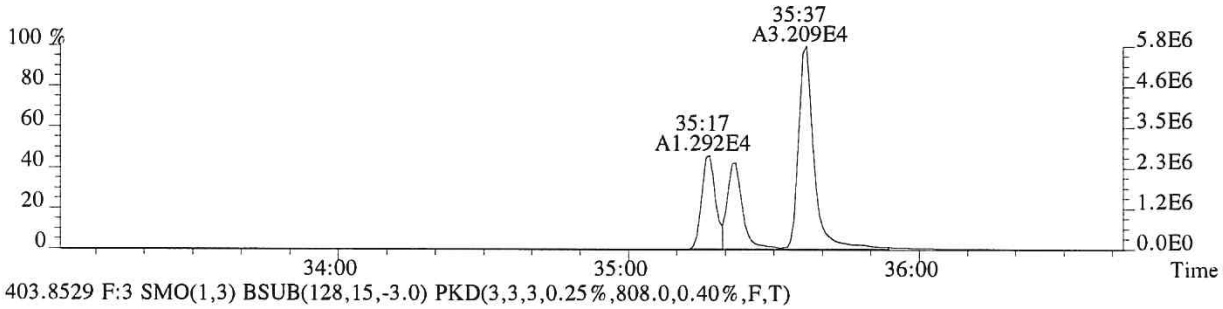
File:P518850 #1-330 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



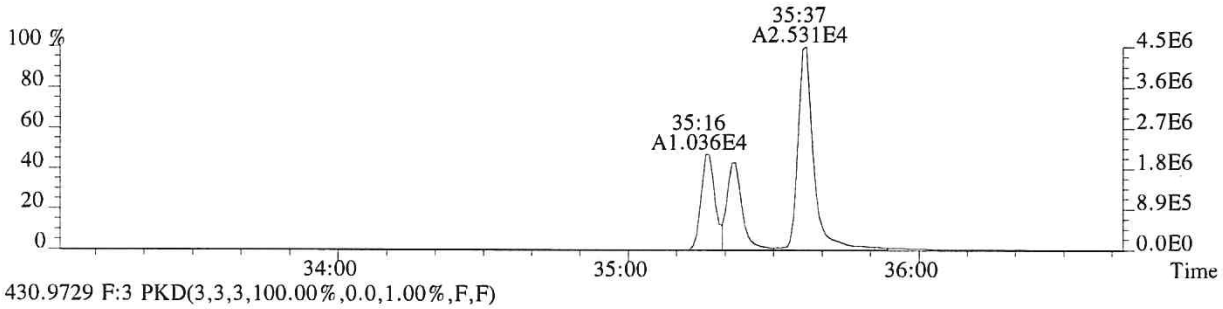
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



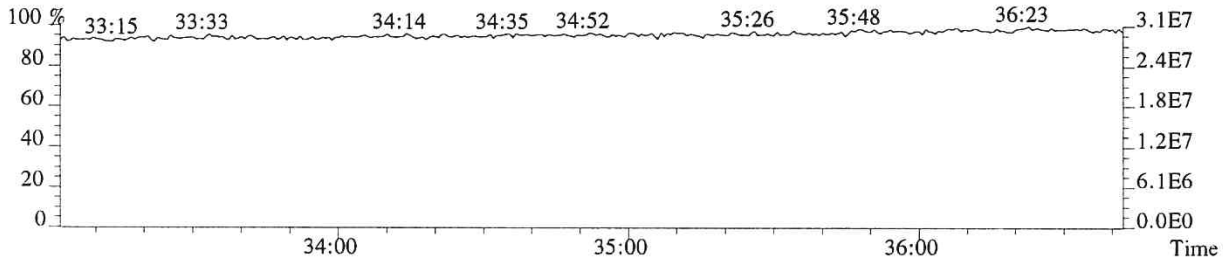
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)

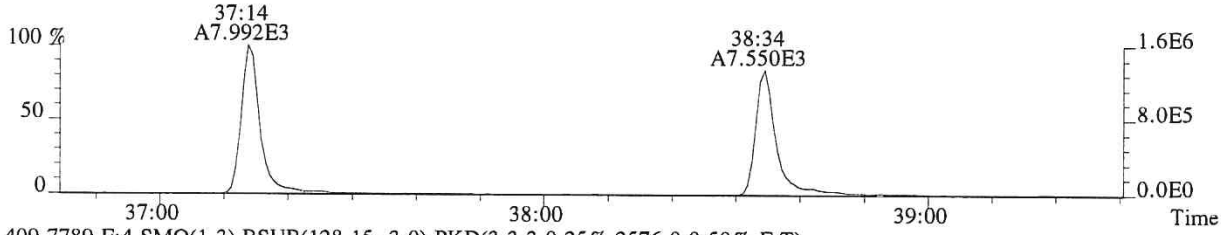


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

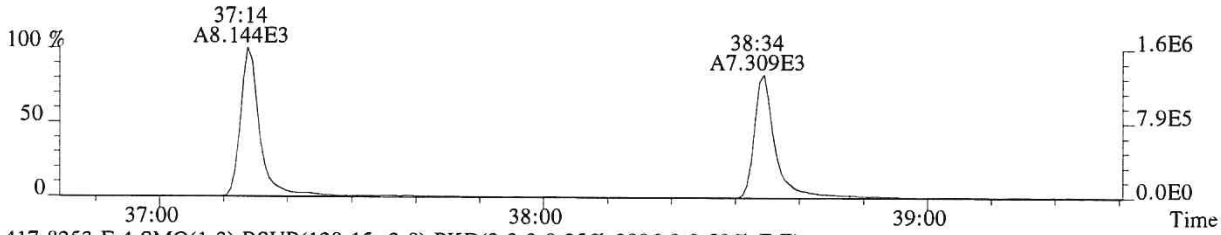


009875

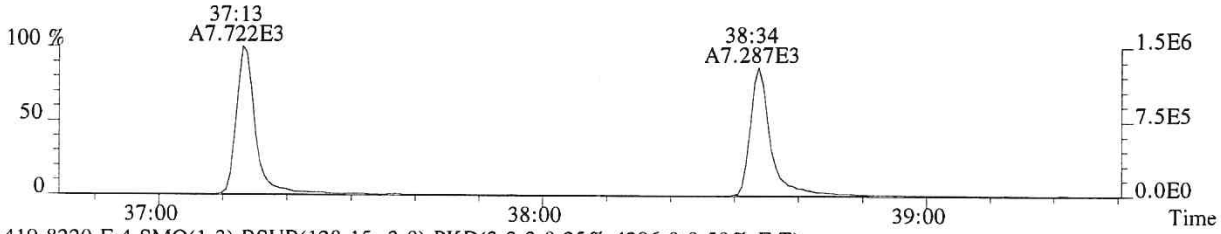
File:P518850 #1-250 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.50%,F,T)



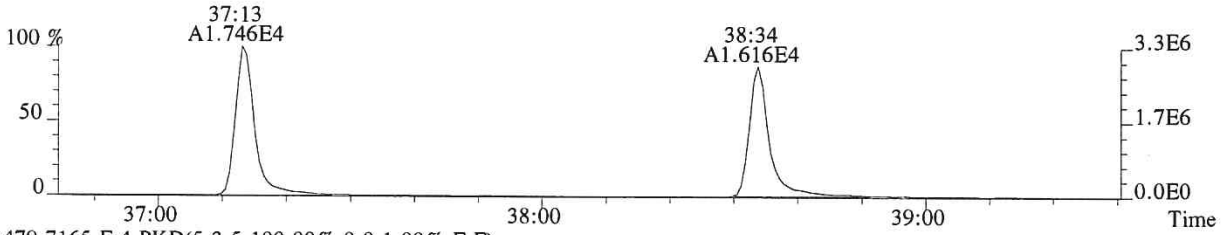
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2576.0,0.50%,F,T)



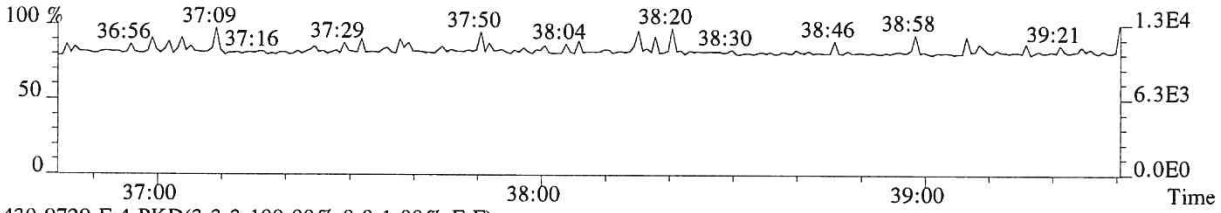
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2096.0,0.50%,F,T)



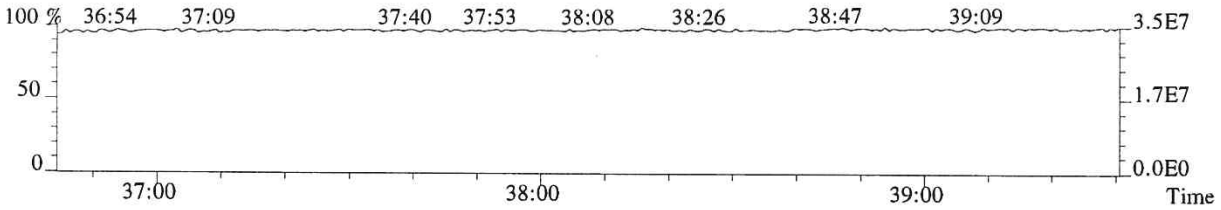
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4296.0,0.50%,F,T)



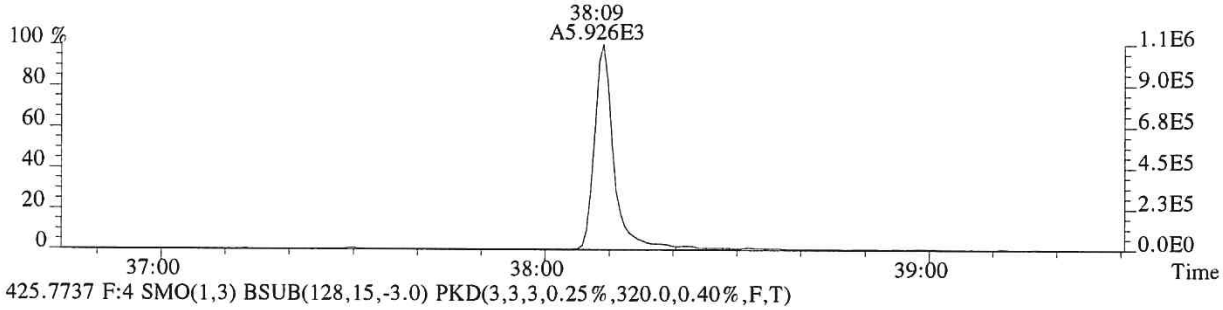
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



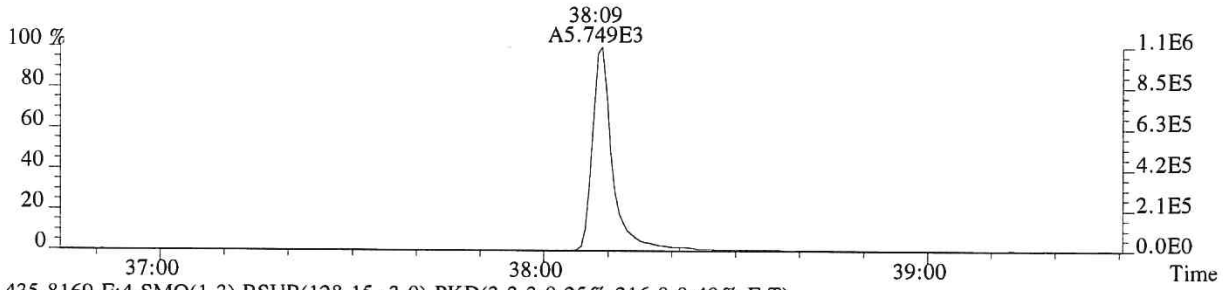
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



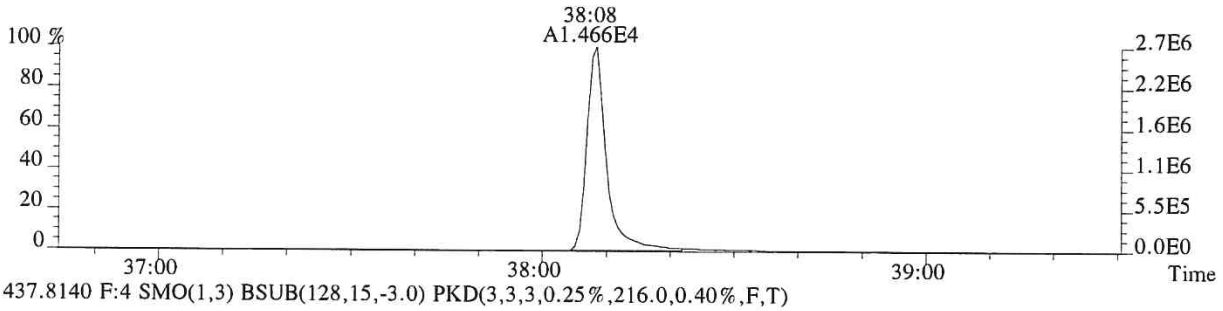
File:P518850 #1-250 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



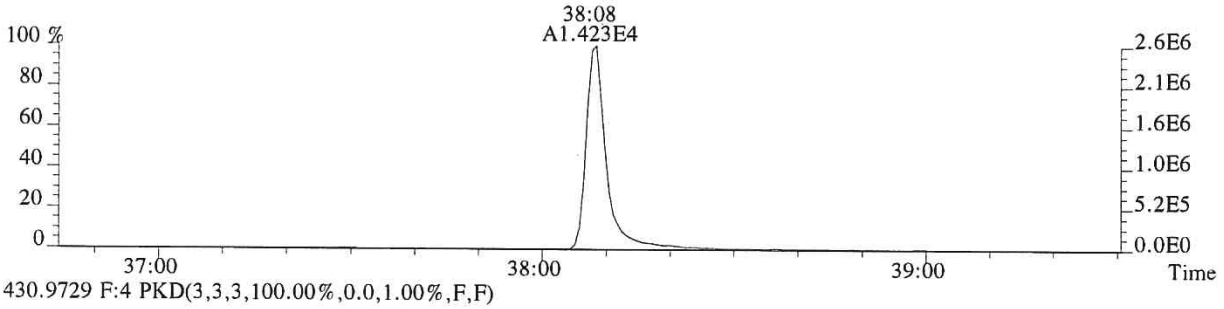
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



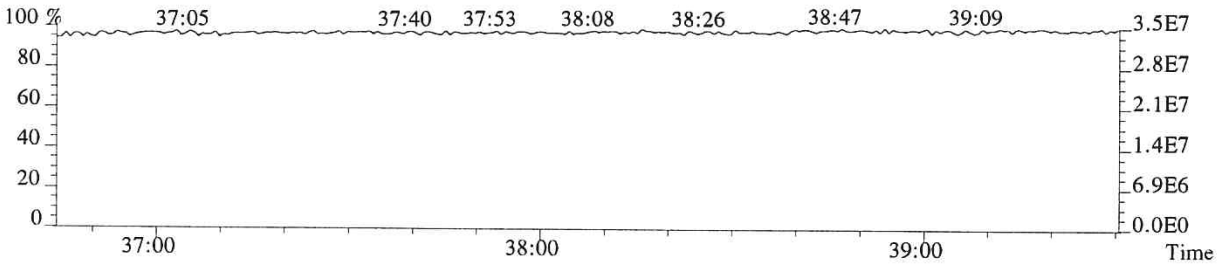
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



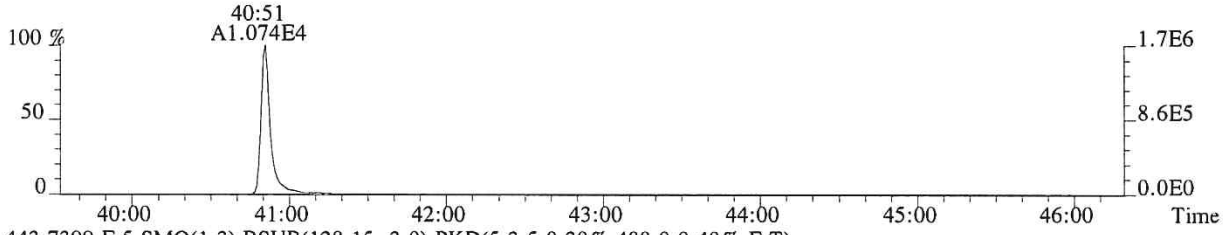
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



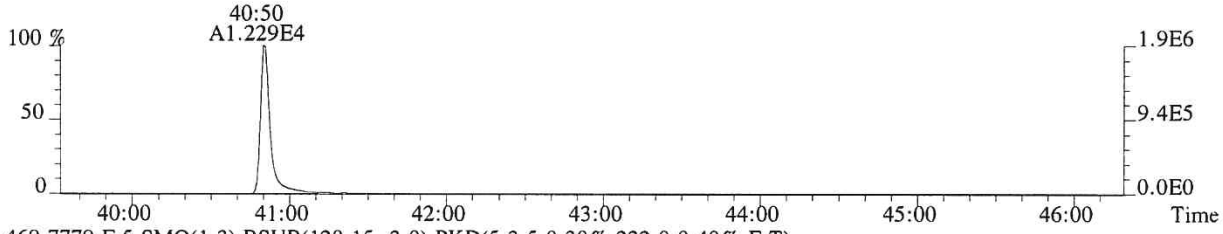
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



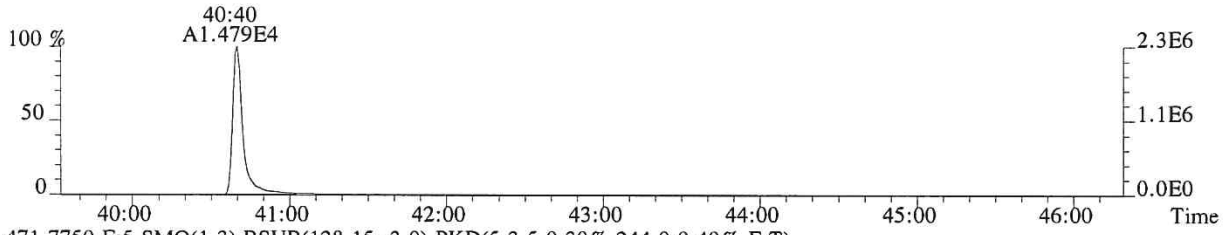
File:P518850 #1-610 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



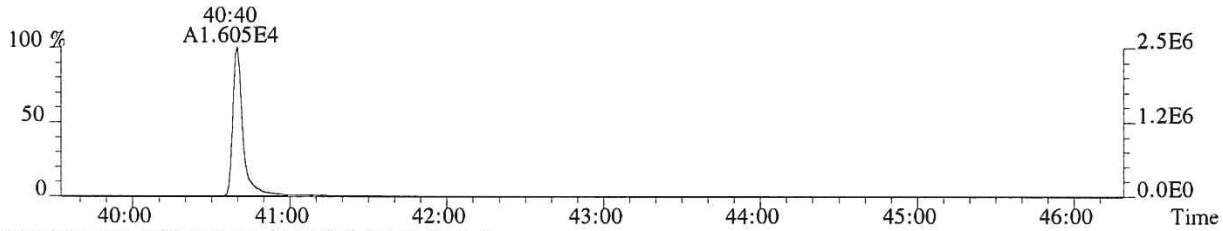
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



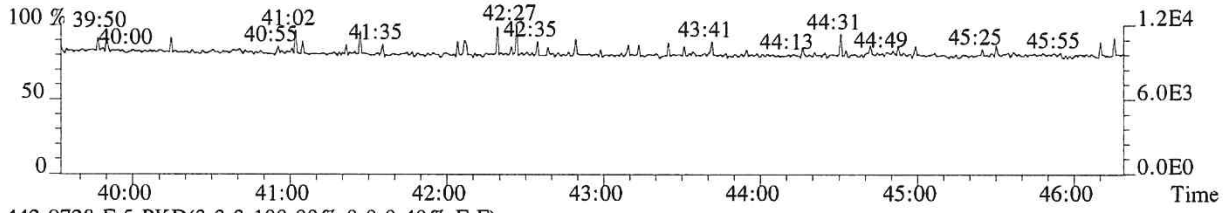
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



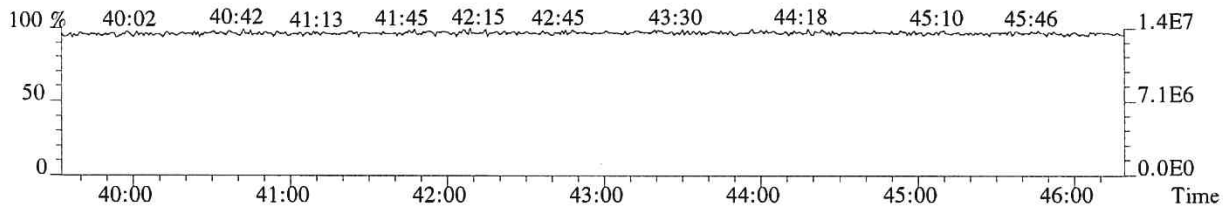
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



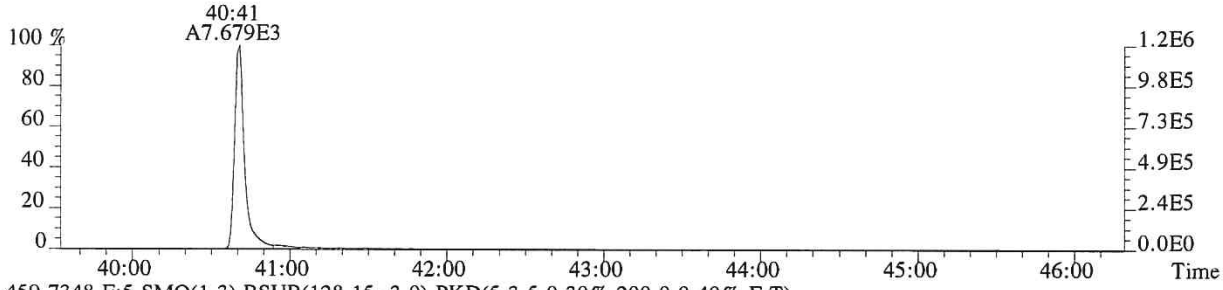
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



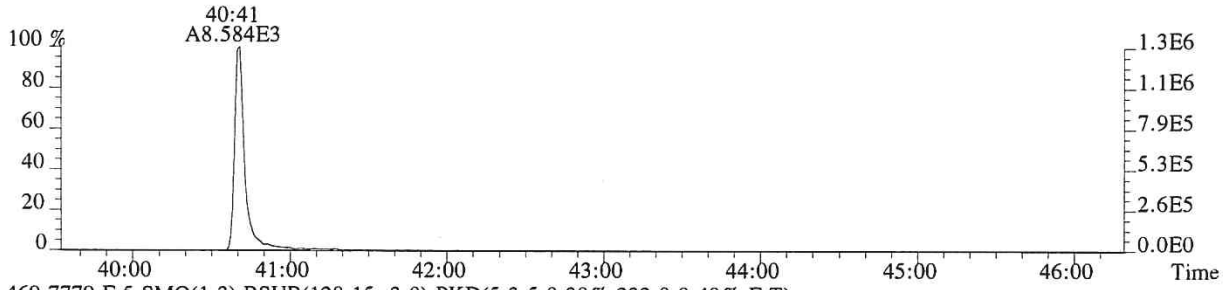
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



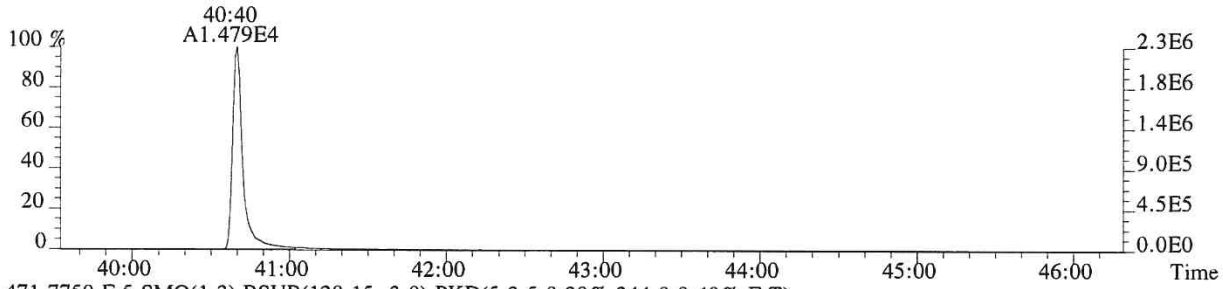
File:P518850 #1-610 Acq:16-NOV-2018 10:03:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



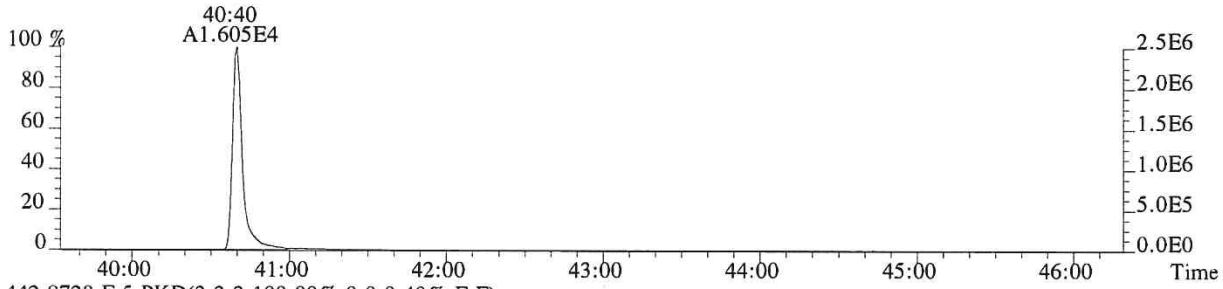
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



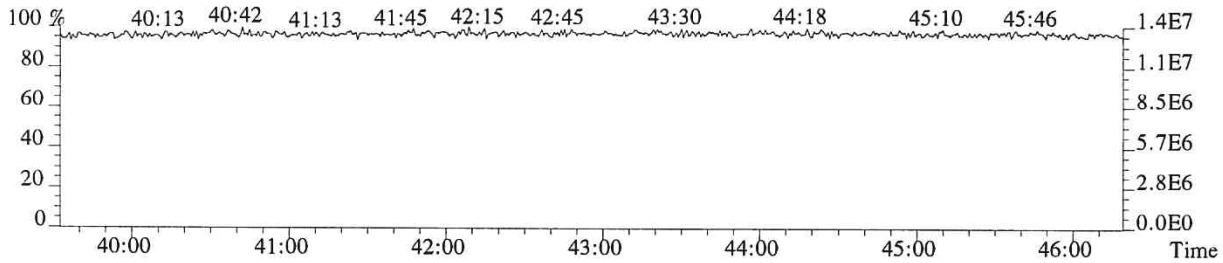
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009879

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P518851 Samp: 1 Inj: 1 Acquired: 16-NOV-18 10:52:30
Processed: 19-NOV-18 09:11:58 Sample ID: EQ1800463-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	9.187e+02	1.286e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.014e+04	6.531e+03	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	1.037e+04	6.841e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	9.773e+03	8.018e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	1.156e+04	9.449e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	9.885e+03	8.059e+03	1.23	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	9.248e+03	7.708e+03	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	9.116e+03	9.217e+03	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	8.513e+03	8.309e+03	1.02	yes	no	1.258
10	Unk	OCDF	40:51	1.316e+04	1.428e+04	0.92	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	6.876e+02	8.988e+02	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	7.742e+03	4.900e+03	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	7.433e+03	5.721e+03	1.30	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.075e+03	6.191e+03	1.30	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	8.246e+03	6.340e+03	1.30	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	6.811e+03	6.681e+03	1.02	yes	no	1.025
17	Unk	OCDD	40:42	9.927e+03	1.116e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.072e+04	1.335e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.147e+04	1.346e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:36	2.199e+04	1.354e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.057e+04	2.007e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.308e+04	2.465e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.138e+04	2.251e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.038e+04	1.973e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	8.541e+03	1.926e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.485e+03	1.895e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	7.057e+03	8.845e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.578e+04	9.922e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.541e+04	1.125e+04	1.37	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.529e+04	1.254e+04	1.22	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.710e+04	1.587e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	40:42	1.814e+04	2.020e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	2.040e+04	2.578e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.405e+04	2.525e+04	1.35	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	7.807e+03				no	1.014

$$\text{OCDD} = \frac{(9.927e+03 + 1.116e+04) \times 4000\ \text{pg} \times 1}{(1.814e+04 + 2.020e+04) \times \text{g} \times / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P518851 Samp: 1 Inj: 1 Acquired: 16-NOV-18 10:52:30
Processed: 19-NOV-18 09:11:58 LAB. ID: EQ1800463-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.14e+05	4.28e+02	2.7e+02	1.71e+05	1.29e+03	1.3e+02
2	1,2,3,7,8-PeCDF	1.67e+06	6.44e+02	2.6e+03	1.08e+06	8.72e+02	1.2e+03
3	2,3,4,7,8-PeCDF	1.82e+06	6.44e+02	2.8e+03	1.20e+06	8.72e+02	1.4e+03
4	1,2,3,4,7,8-HxCDF	2.02e+06	2.60e+02	7.8e+03	1.66e+06	3.16e+02	5.3e+03
5	1,2,3,6,7,8-HxCDF	2.08e+06	2.60e+02	8.0e+03	1.64e+06	3.16e+02	5.2e+03
6	2,3,4,6,7,8-HxCDF	1.97e+06	2.60e+02	7.6e+03	1.60e+06	3.16e+02	5.1e+03
7	1,2,3,7,8,9-HxCDF	1.64e+06	2.60e+02	6.3e+03	1.33e+06	3.16e+02	4.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.76e+06	1.00e+03	1.7e+03	1.74e+06	2.54e+03	6.9e+02
9	1,2,3,4,7,8,9-HpCDF	1.56e+06	1.00e+03	1.6e+03	1.51e+06	2.54e+03	5.9e+02
10	OCDF	2.00e+06	1.56e+02	1.3e+04	2.22e+06	6.44e+02	3.4e+03
11	2,3,7,8-TCDD	1.07e+05	1.32e+03	8.1e+01	1.41e+05	5.32e+02	2.7e+02
12	1,2,3,7,8-PeCDD	1.24e+06	6.76e+02	1.8e+03	8.16e+05	1.84e+02	4.4e+03
13	1,2,3,4,7,8-HxCDD	1.50e+06	2.52e+02	6.0e+03	1.15e+06	2.80e+02	4.1e+03
14	1,2,3,6,7,8-HxCDD	1.52e+06	2.52e+02	6.0e+03	1.17e+06	2.80e+02	4.2e+03
15	1,2,3,7,8,9-HxCDD	1.44e+06	2.52e+02	5.7e+03	1.15e+06	2.80e+02	4.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.28e+06	2.44e+02	5.2e+03	1.23e+06	4.96e+02	2.5e+03
17	OCDD	1.54e+06	1.92e+02	8.0e+03	1.74e+06	2.36e+02	7.4e+03
18	13C-2,3,7,8-TCDF	1.41e+06	3.14e+03	4.5e+02	1.77e+06	1.17e+03	1.5e+03
19	13C-1,2,3,7,8-PeCDF	3.46e+06	1.48e+02	2.3e+04	2.17e+06	4.20e+02	5.2e+03
20	13C-2,3,4,7,8-PeCDF	3.71e+06	1.48e+02	2.5e+04	2.27e+06	4.20e+02	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	2.20e+06	9.20e+02	2.4e+03	4.20e+06	2.56e+02	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	2.28e+06	9.20e+02	2.5e+03	4.42e+06	2.56e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	2.25e+06	9.20e+02	2.4e+03	4.39e+06	2.56e+02	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	1.85e+06	9.20e+02	2.0e+03	3.47e+06	2.56e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.69e+06	2.20e+03	7.6e+02	3.75e+06	3.33e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.52e+06	2.20e+03	6.9e+02	3.35e+06	3.33e+03	1.0e+03
27	13C-2,3,7,8-TCDD	1.05e+06	3.10e+03	3.4e+02	1.29e+06	1.89e+03	6.8e+02
28	13C-1,2,3,7,8-PeCDD	2.62e+06	3.24e+02	8.1e+03	1.68e+06	2.88e+02	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	3.15e+06	1.06e+03	3.0e+03	2.45e+06	3.32e+02	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.78e+06	1.06e+03	2.6e+03	2.24e+06	3.32e+02	6.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.12e+06	1.64e+02	1.9e+04	2.90e+06	2.32e+02	1.3e+04
32	13C-OCDD	2.78e+06	4.88e+02	5.7e+03	3.16e+06	2.16e+02	1.5e+04
33	13C-1,2,3,4-TCDD	3.01e+06	3.10e+03	9.7e+02	3.78e+06	1.89e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	5.90e+06	1.06e+03	5.6e+03	4.51e+06	3.32e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	1.13e+06	1.04e+03	1.1e+03			

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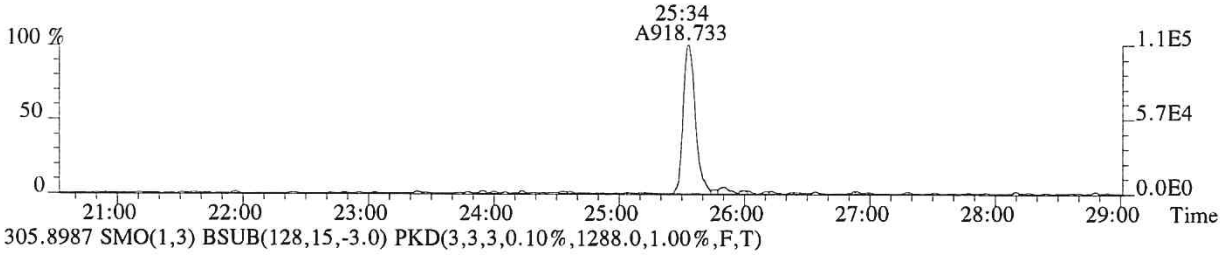
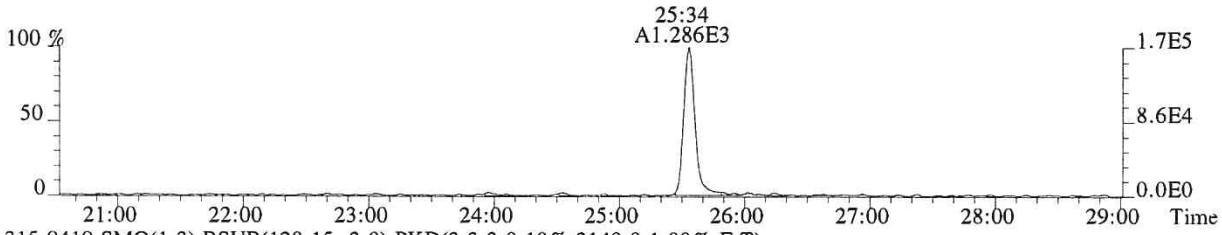
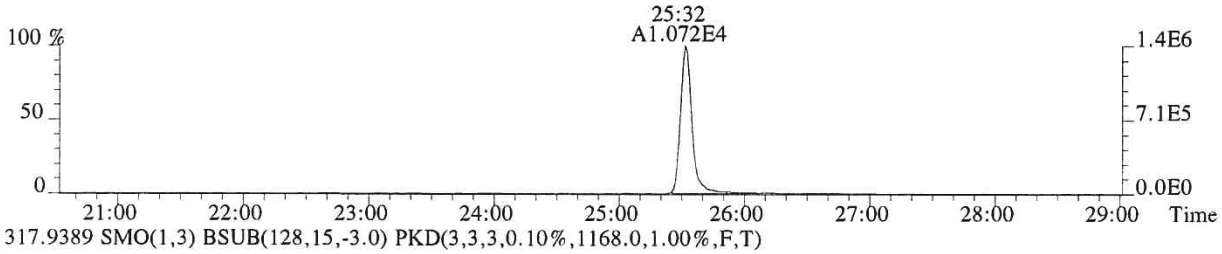
File:P518851 #1-602 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



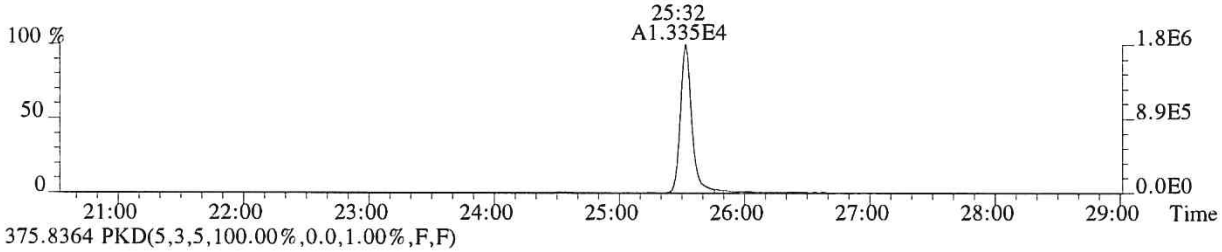
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



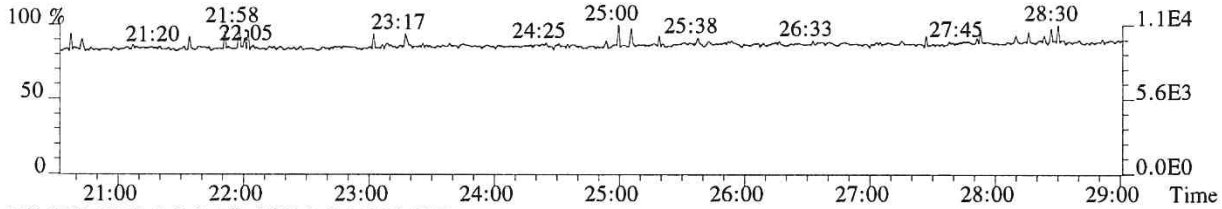
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3140.0,1.00%,F,T)



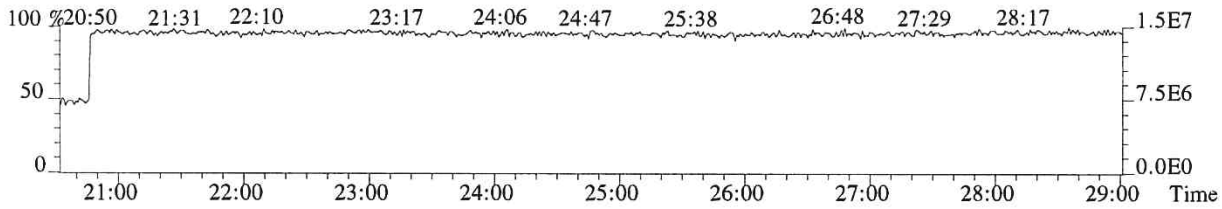
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



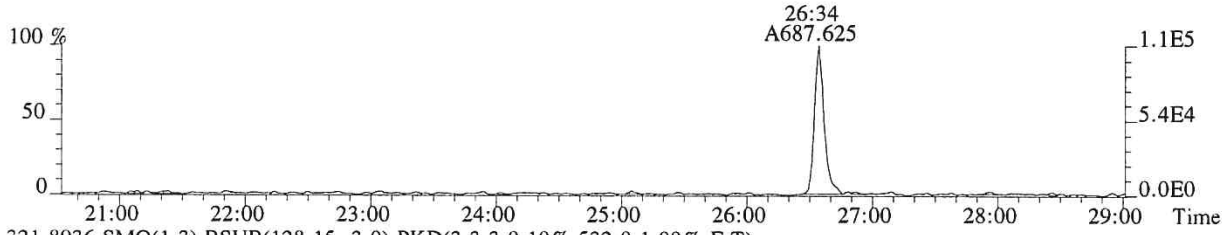
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



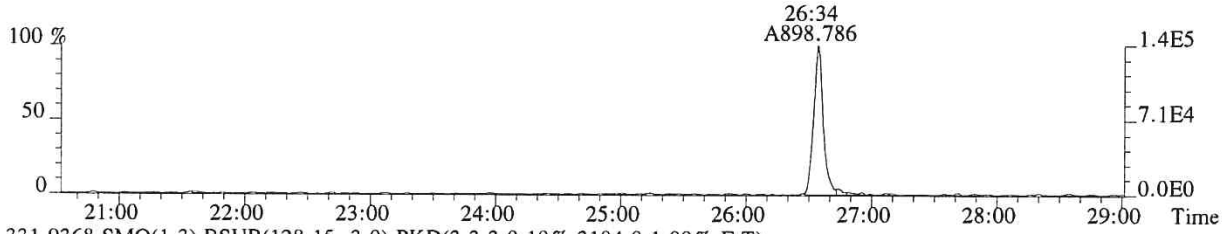
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



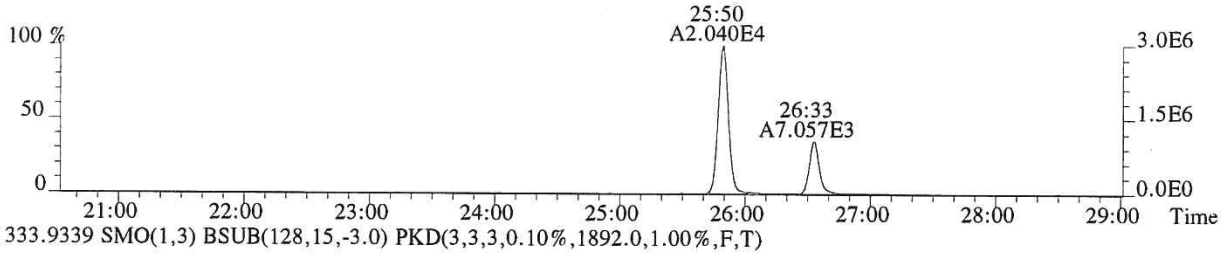
File:P518851 #1-602 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



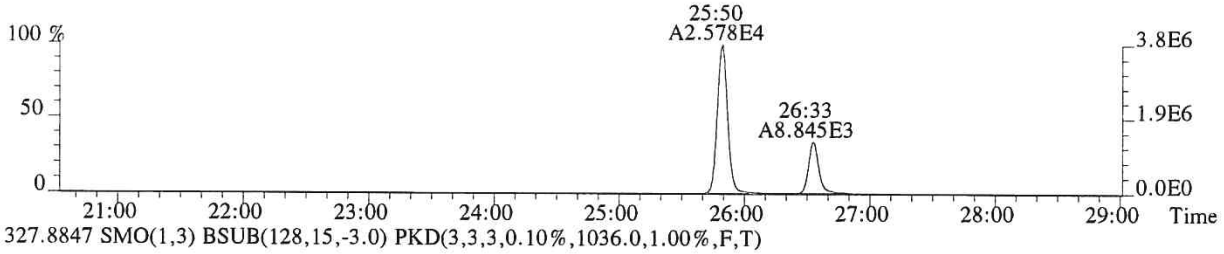
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



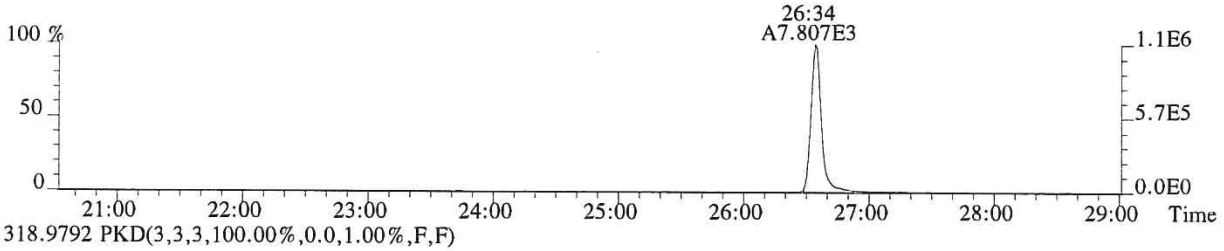
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3104.0,1.00%,F,T)



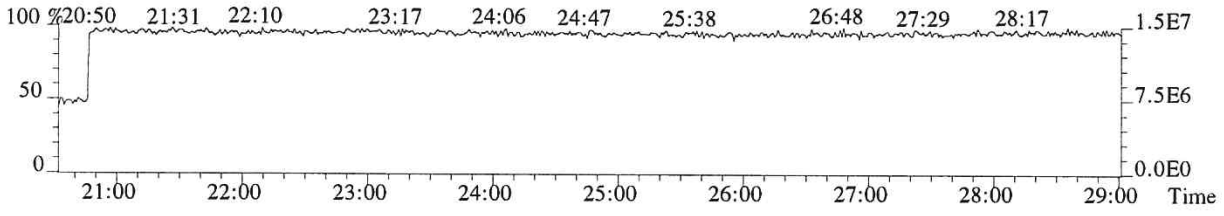
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

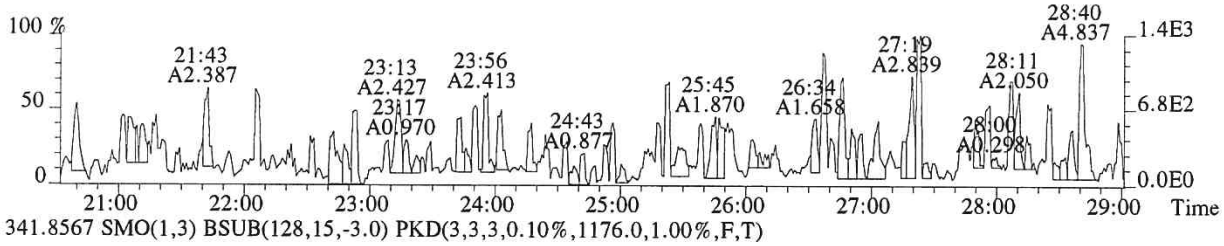


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

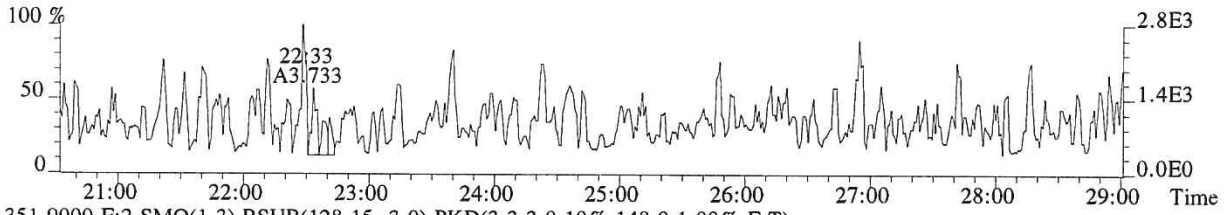


009883

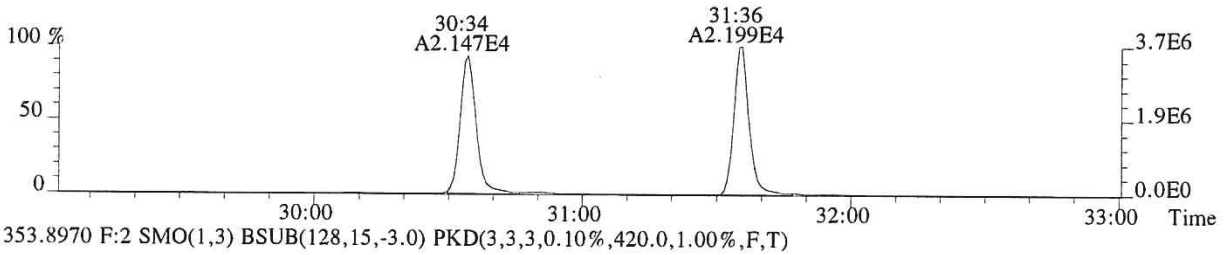
File:P518851 #1-602 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



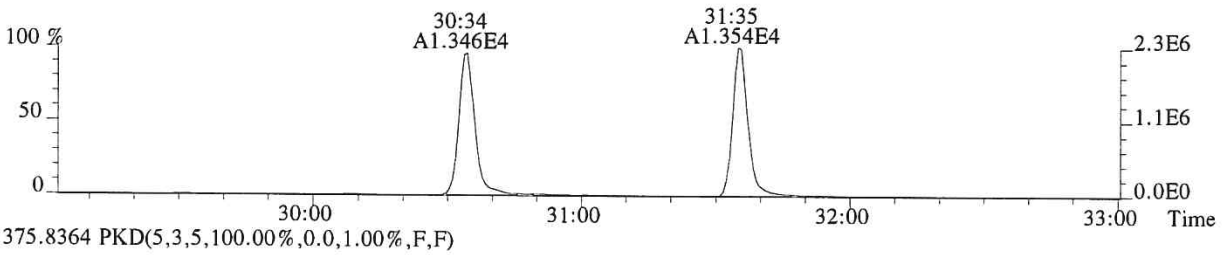
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



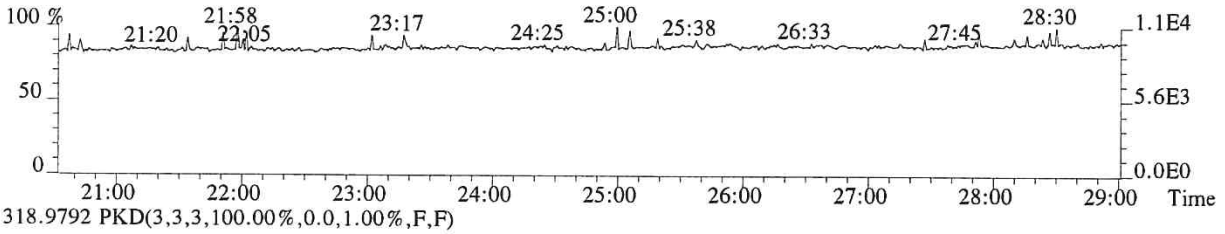
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)



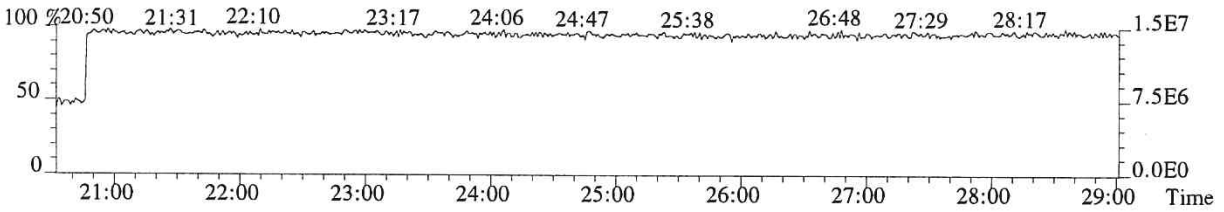
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

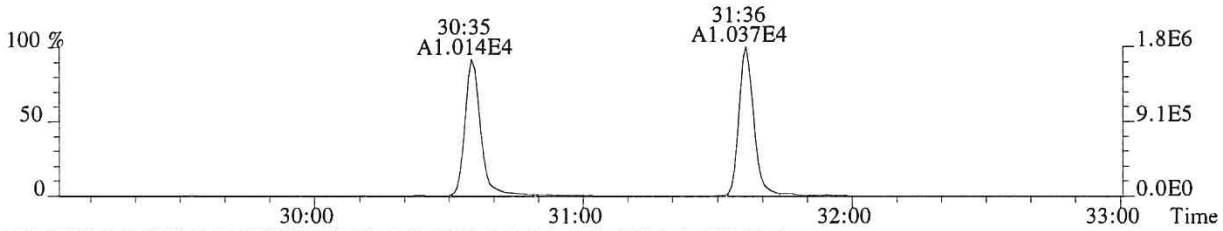


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

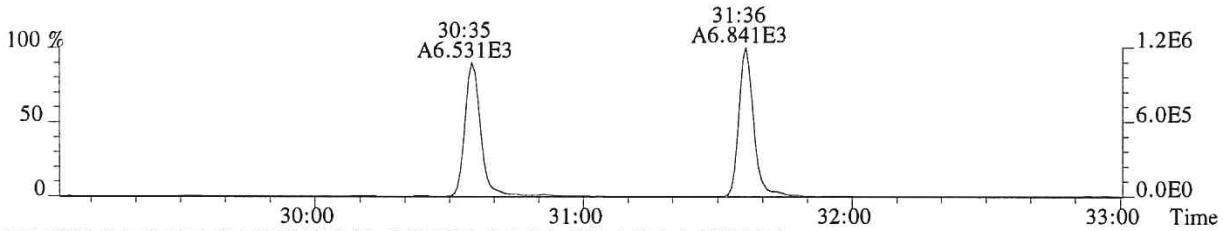


009884

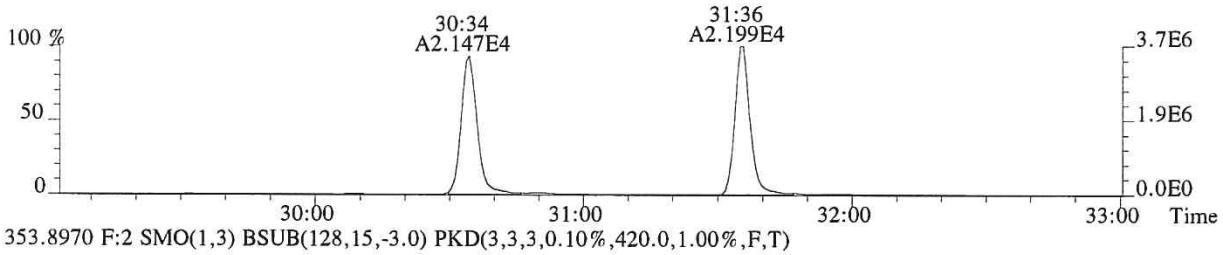
File:P518851 #1-357 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



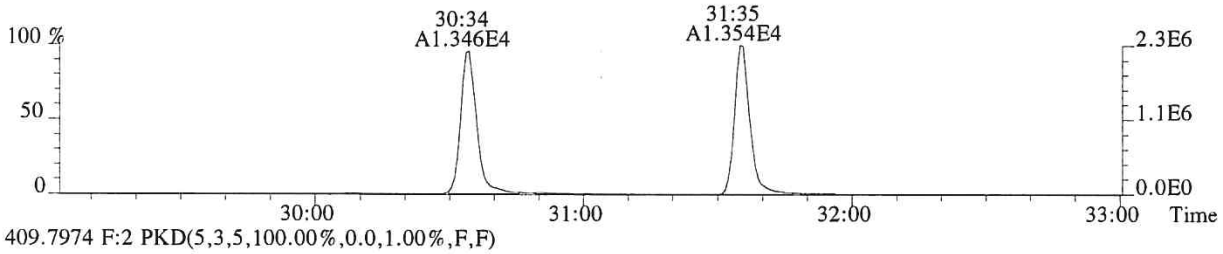
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



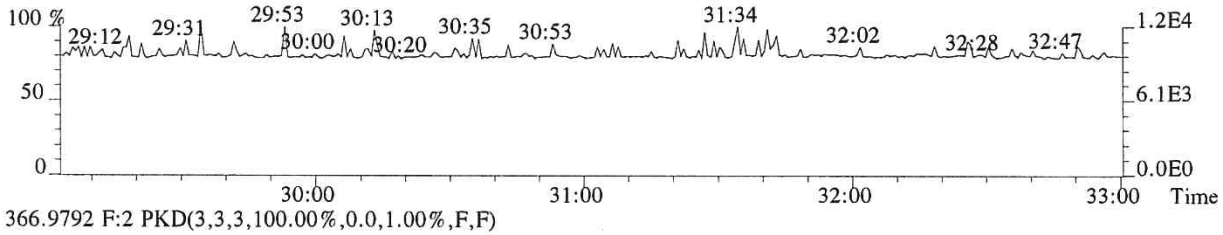
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)



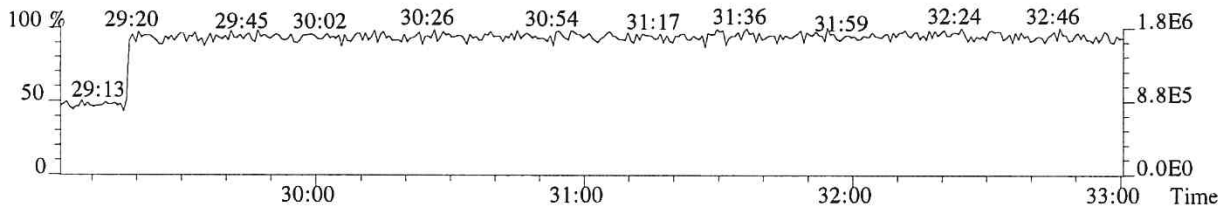
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

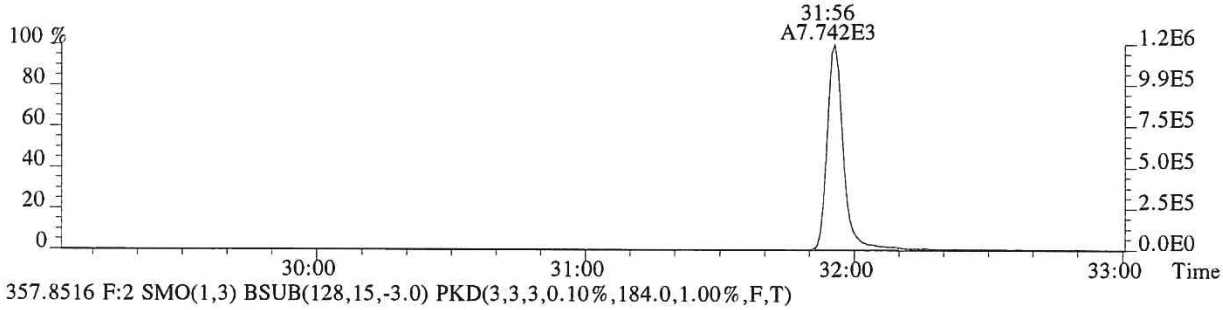


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

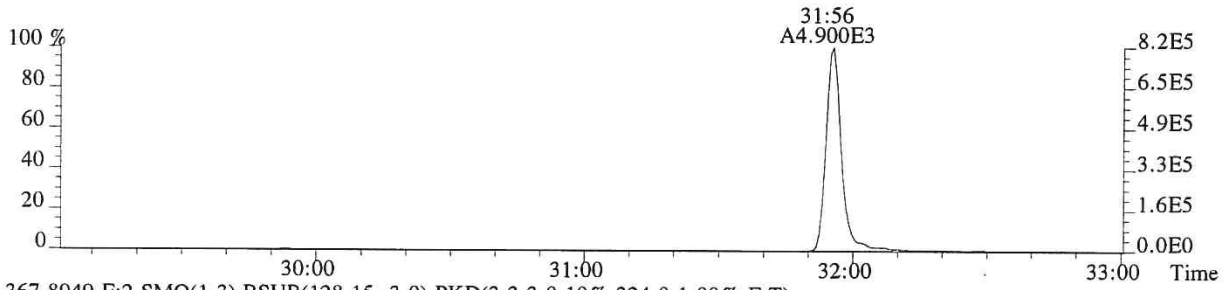


009885

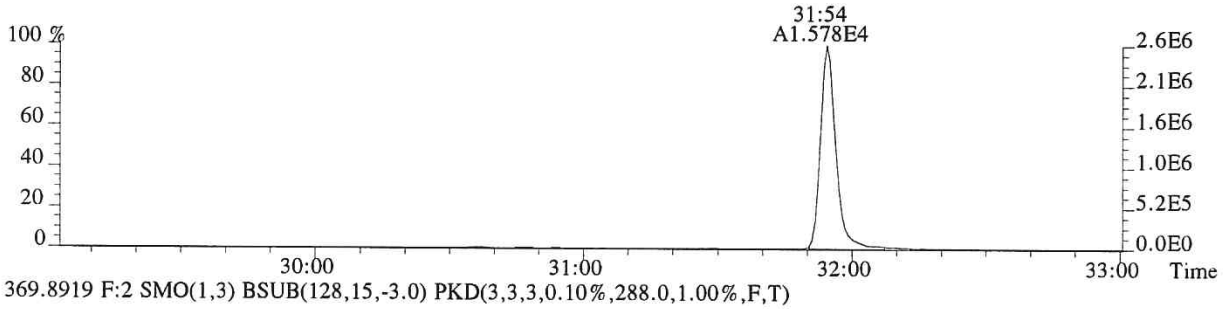
File:P518851 #1-357 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



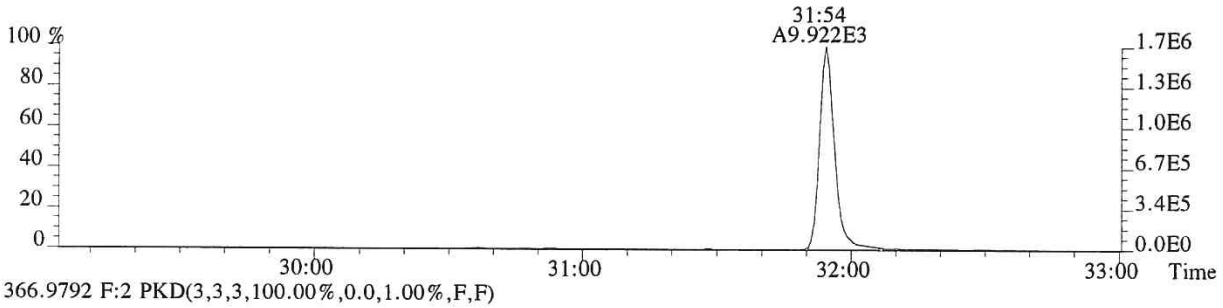
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



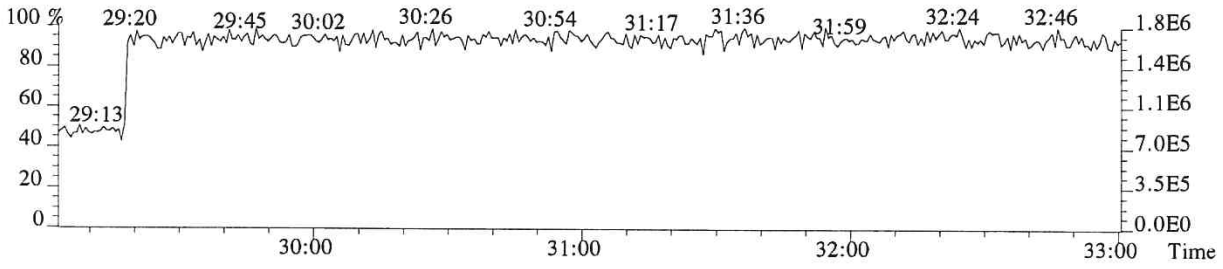
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)

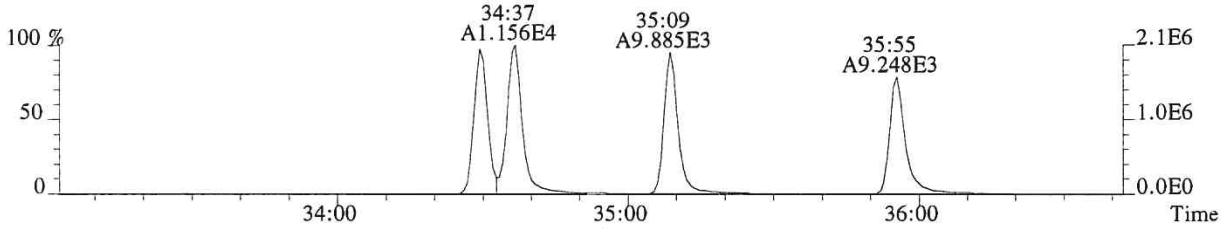


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

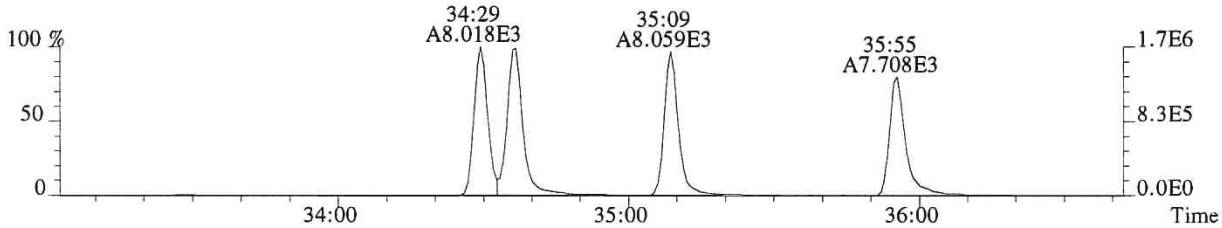


009886

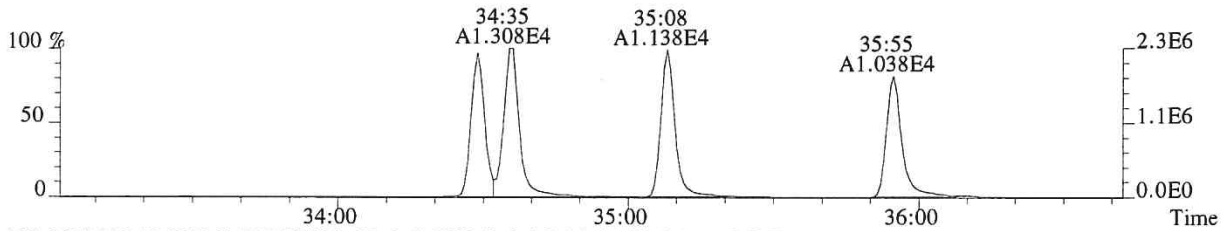
File:P518851 #1-330 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



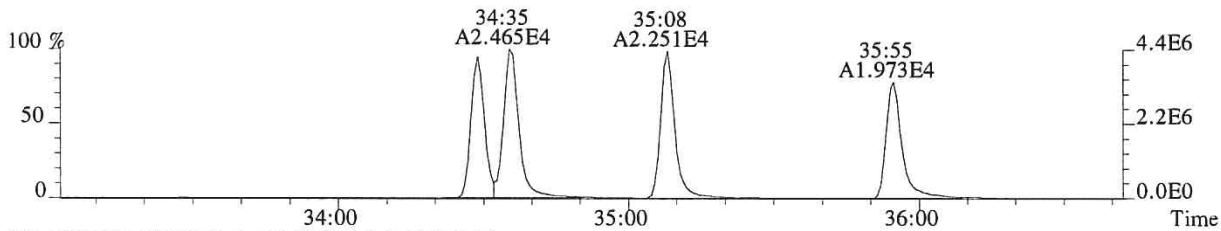
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



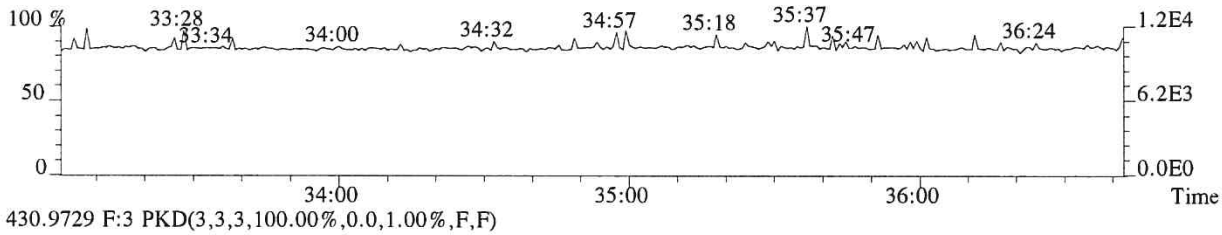
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



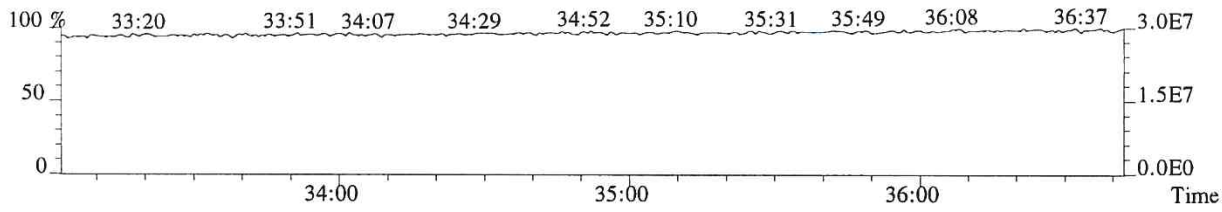
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



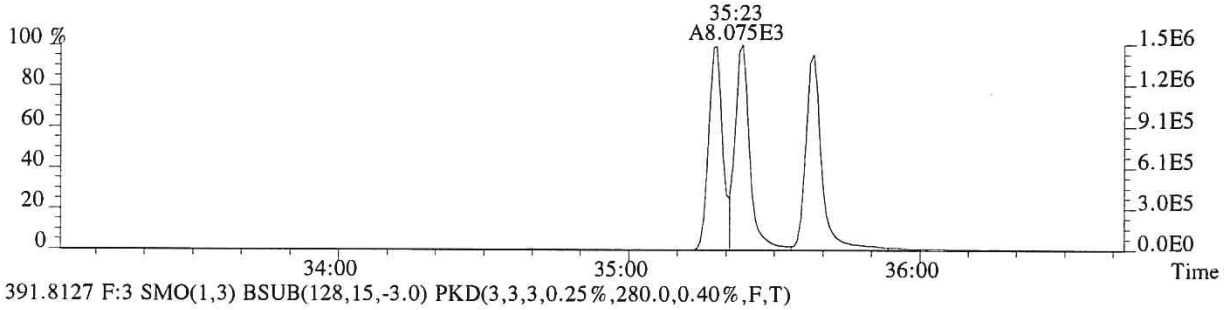
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



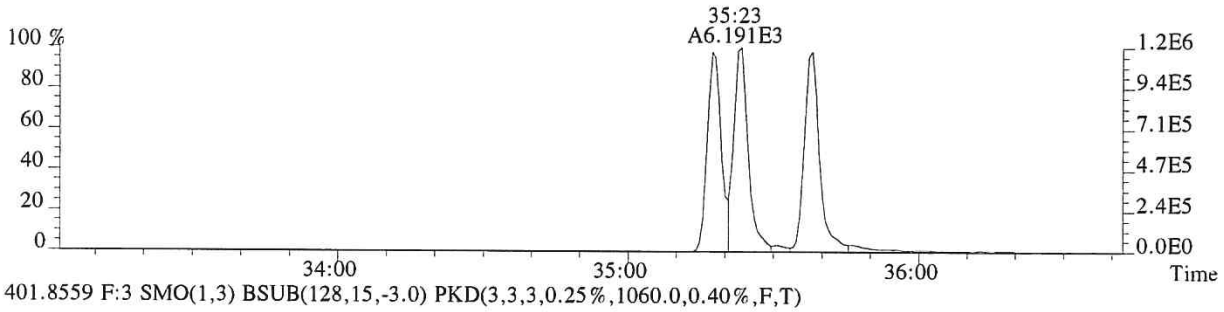
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



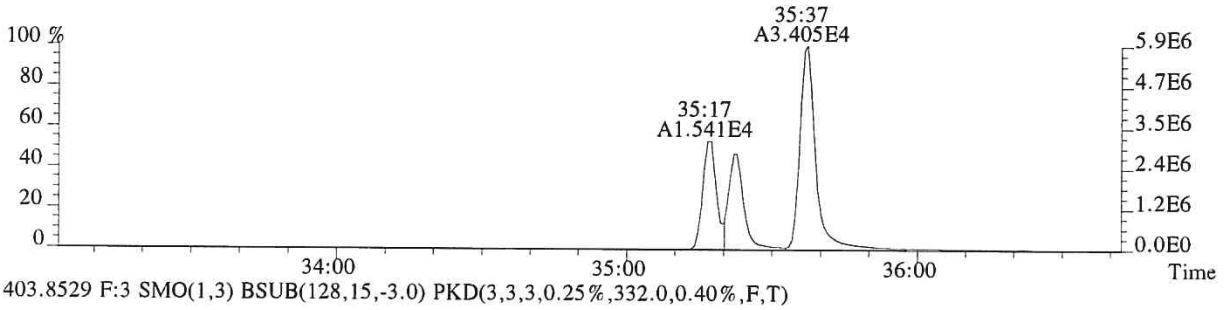
File:P518851 #1-330 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



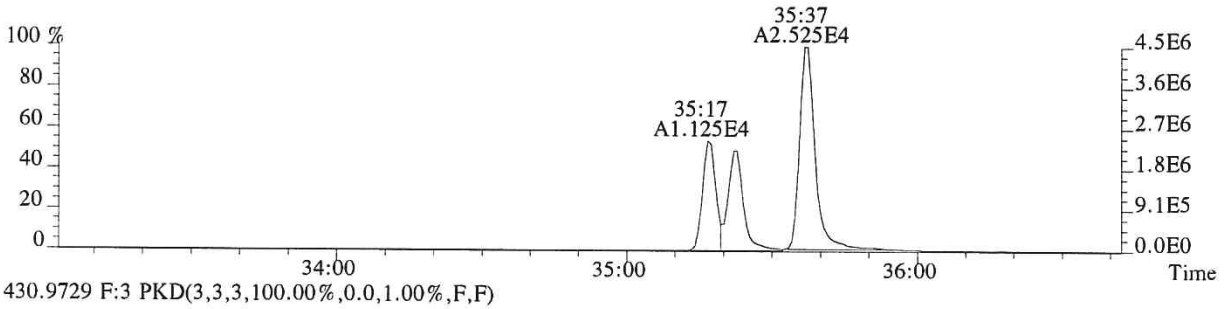
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



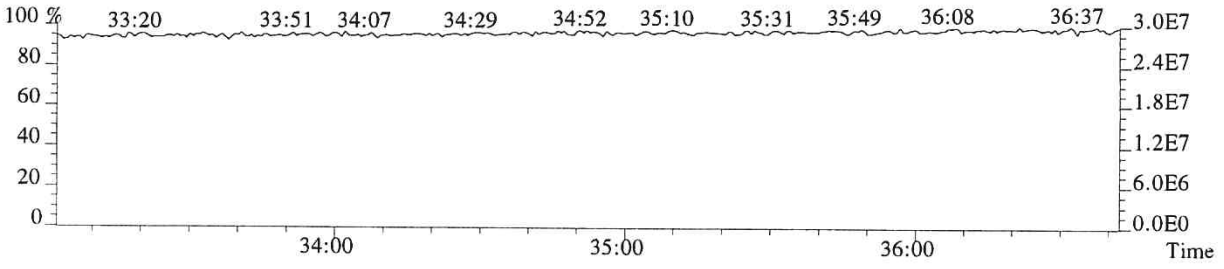
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



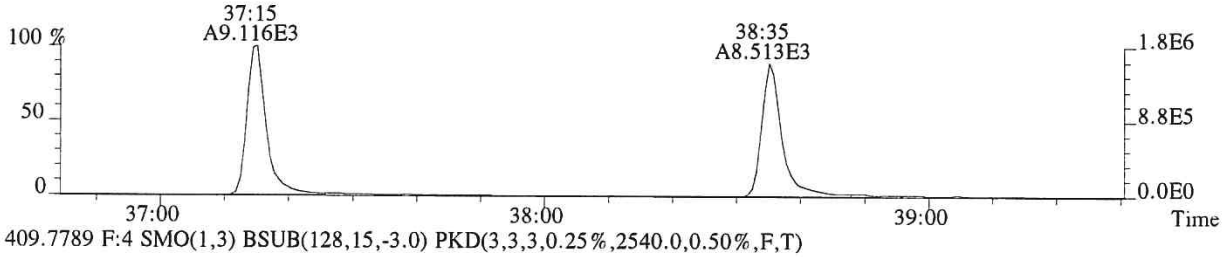
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



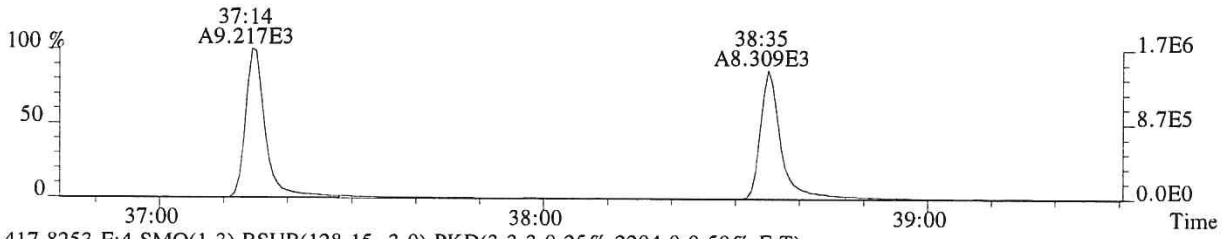
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



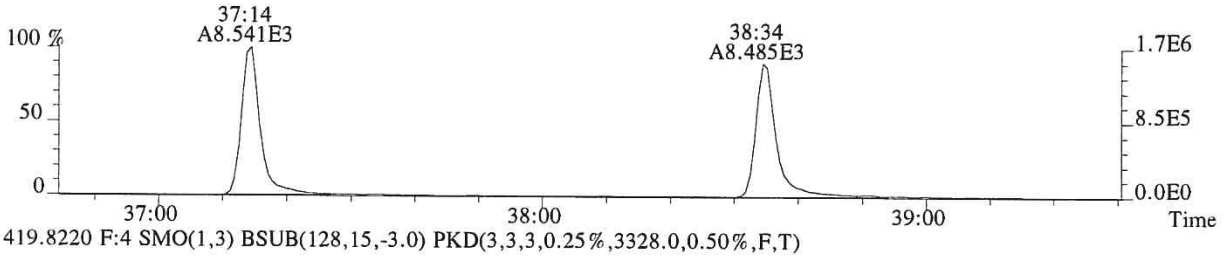
File:P518851 #1-250 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.50%,F,T)



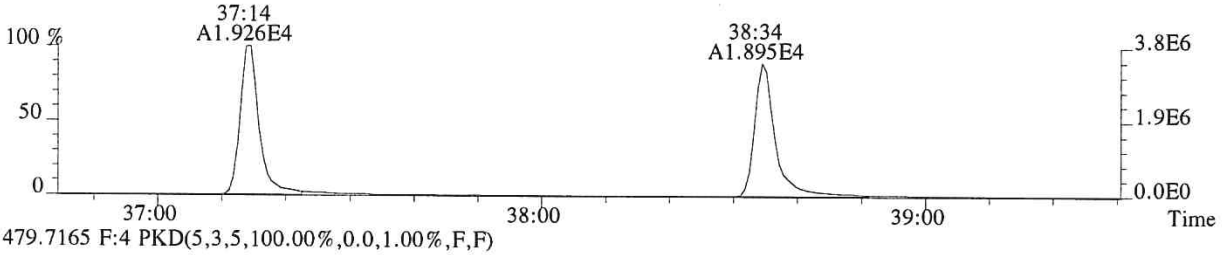
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2540.0,0.50%,F,T)



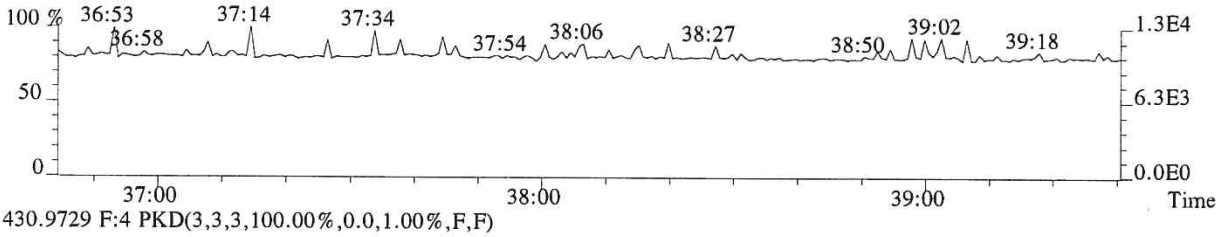
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2204.0,0.50%,F,T)



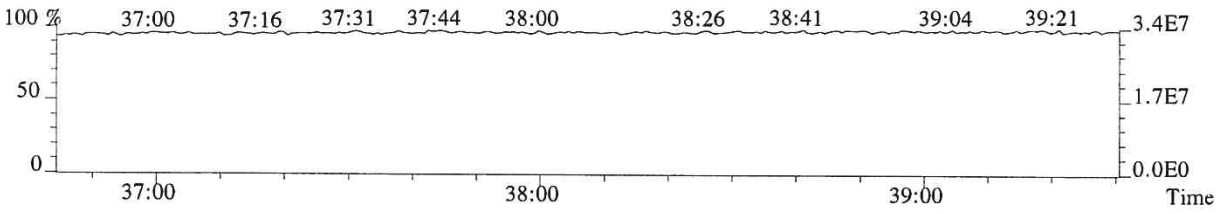
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3328.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

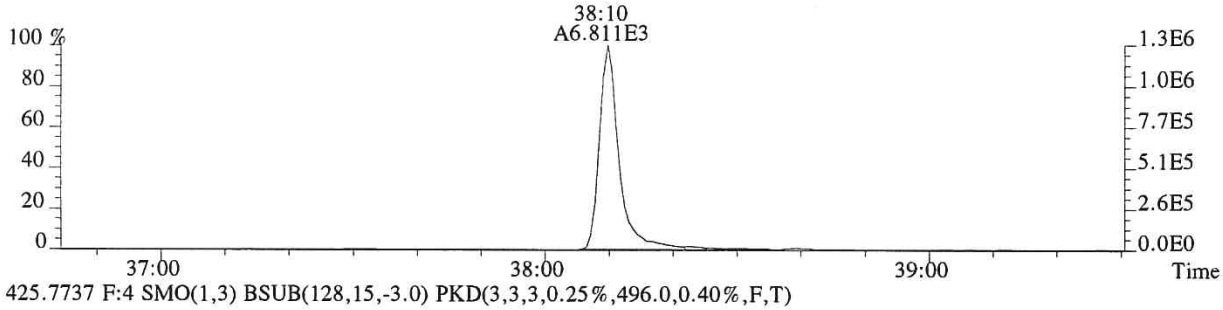


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

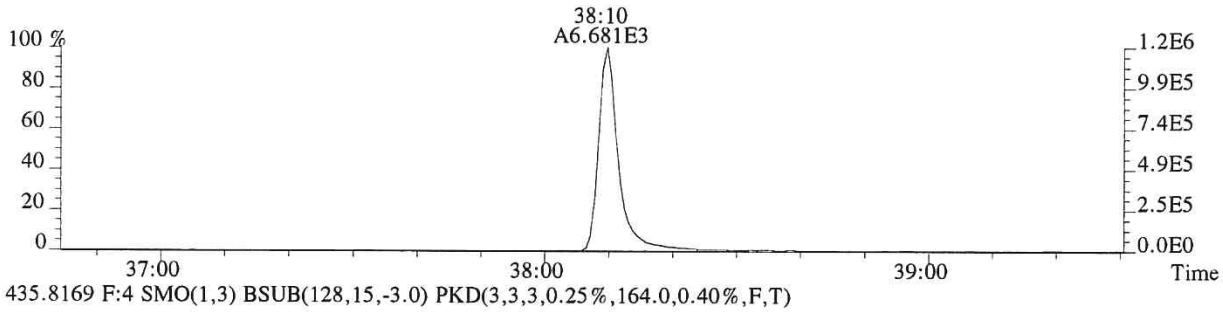


009889

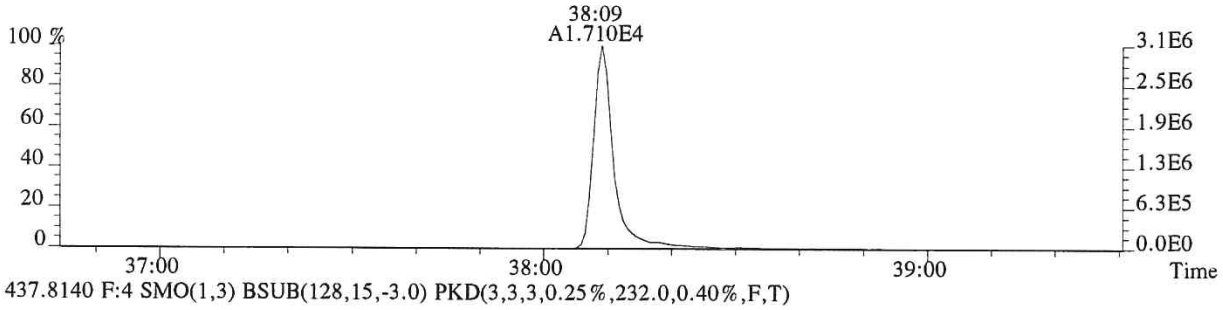
File:P518851 #1-250 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



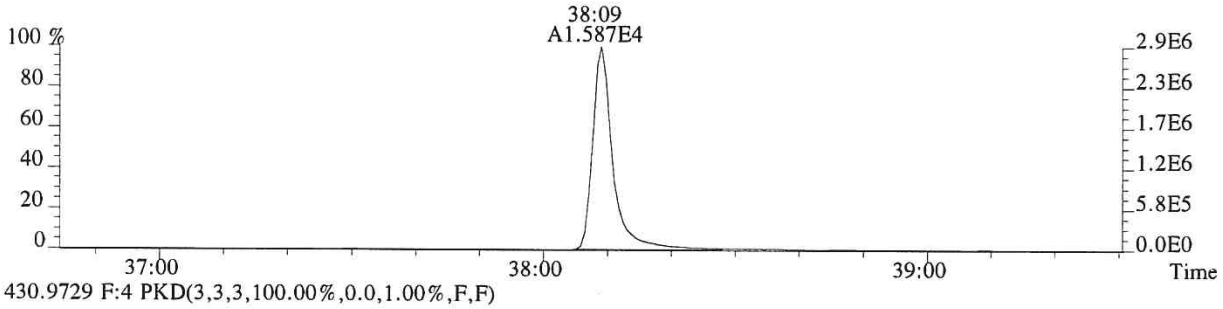
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



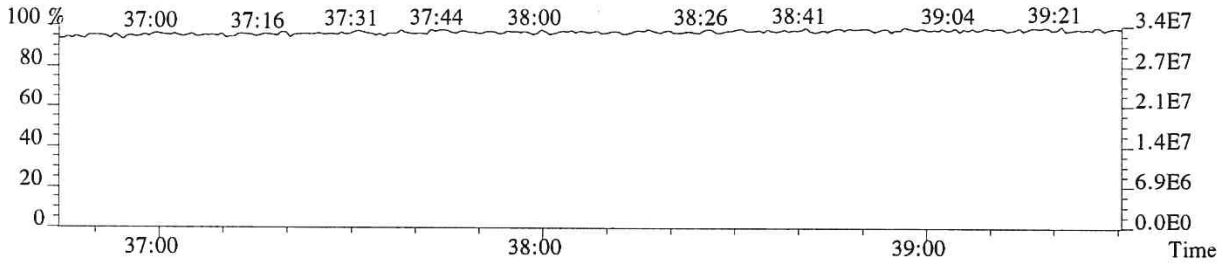
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



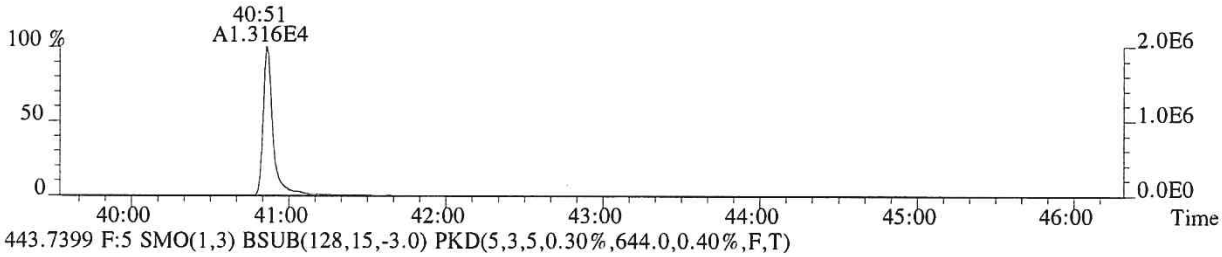
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



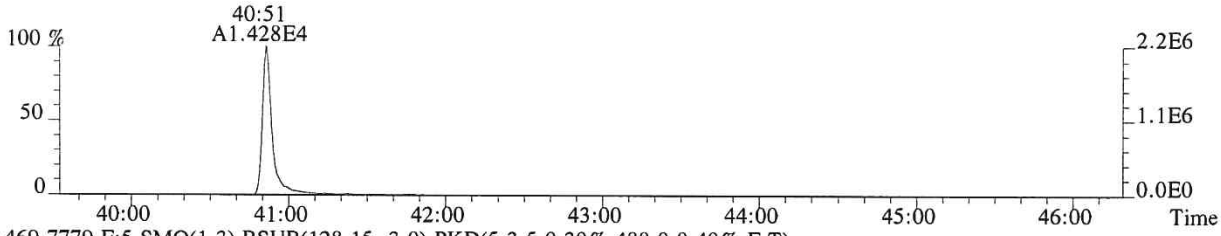
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



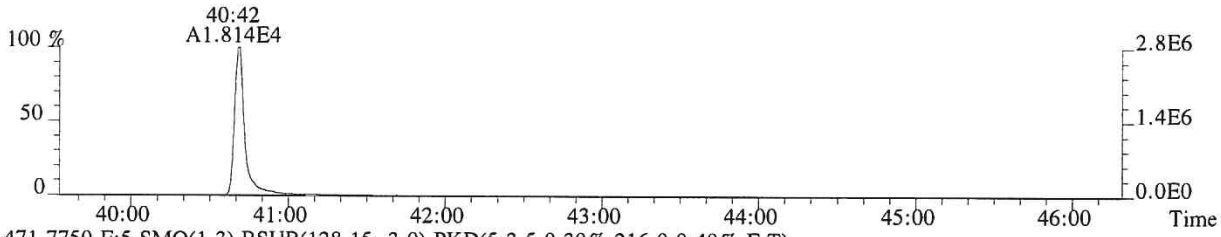
File:P518851 #1-610 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



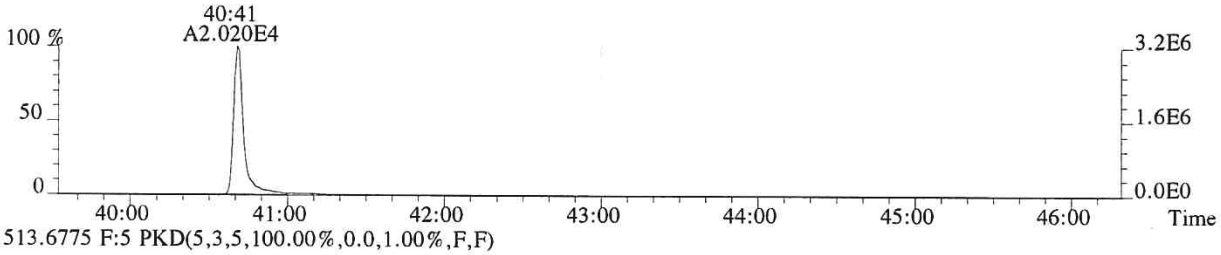
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



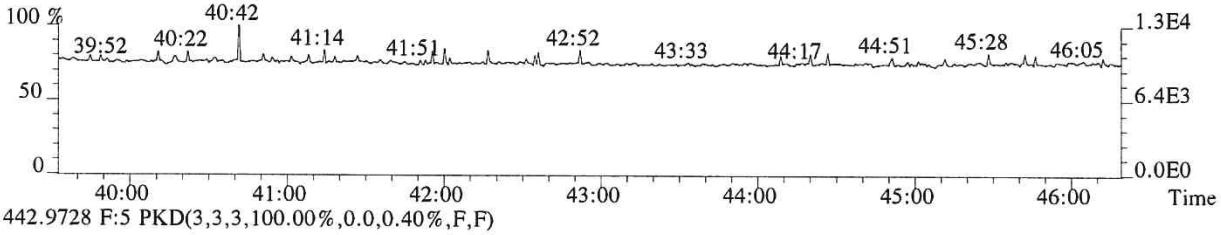
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



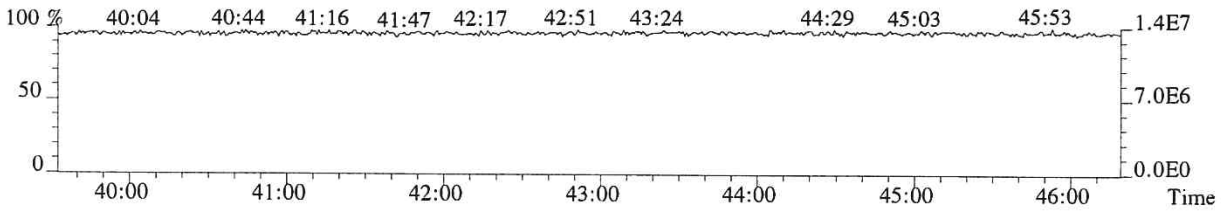
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

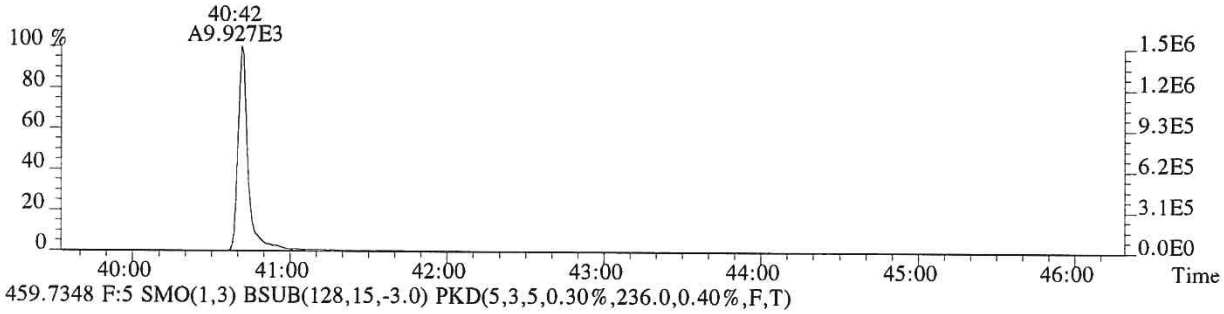


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

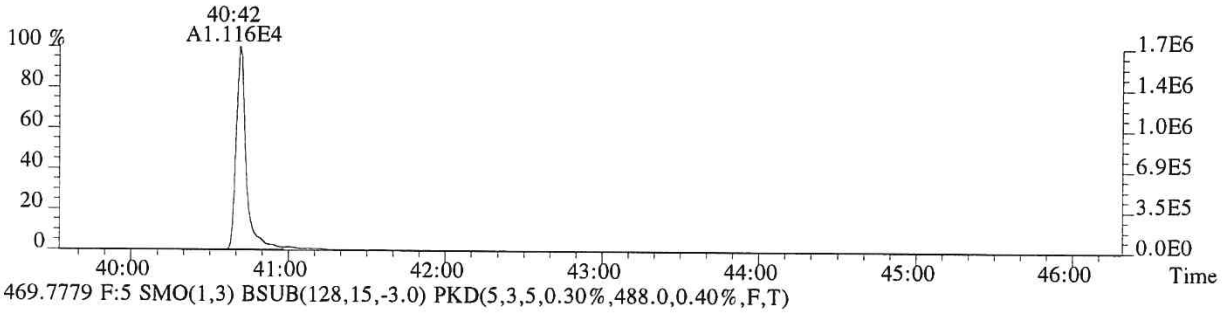


009891

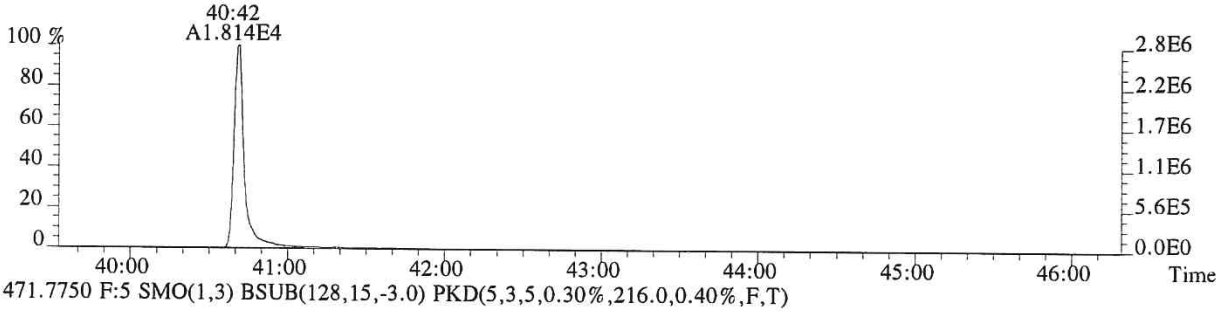
File:P518851 #1-610 Acq:16-NOV-2018 10:52:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800463-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



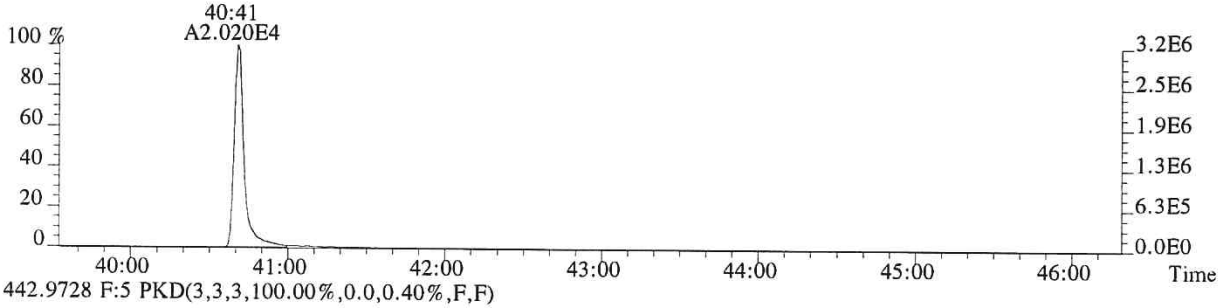
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



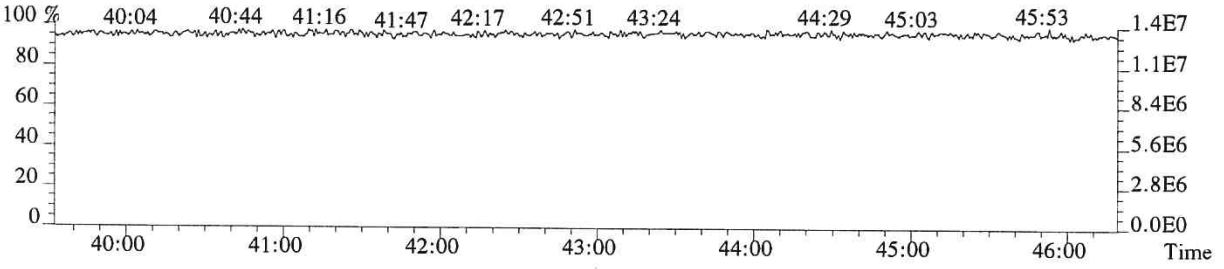
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009892

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P615718 Samp: 1 Inj: 1 Acquired: 27-NOV-18 13:29:29
Processed: 28-NOV-18 10:17:27 Sample ID: EQ1800467-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	43:30	9.705e+01	1.207e+02	0.80	yes	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	1.025e+01	1.475e+01	0.69	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:29	1.291e+01	1.539e+01	0.84	no	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:41	1.746e+01	1.565e+01	1.12	yes	yes	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	2.393e+01	1.664e+01	1.44	no	no	1.112
17	Unk	OCDD	43:17	1.149e+02	1.077e+02	1.07	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:14	3.244e+04	4.150e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	5.504e+04	3.464e+04	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:04	5.225e+04	3.244e+04	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	2.328e+04	4.400e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	2.617e+04	4.795e+04	0.55	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	2.538e+04	4.798e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	2.258e+04	4.327e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	1.515e+04	3.344e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	1.504e+04	3.371e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	2.451e+04	3.161e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	3.954e+04	2.530e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	3.374e+04	2.687e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:28	3.117e+04	2.438e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	2.852e+04	2.692e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	43:16	2.308e+04	2.579e+04	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	5.342e+04	6.689e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	6.632e+04	5.325e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:58	2.367e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P615718 Samp: 1 Inj: 1 Acquired: 27-NOV-18 13:29:29
Processed: 28-NOV-18 10:17:27 LAB. ID: EQ1800467-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.10e+03	*	*	3.04e+03	*
2	1,2,3,7,8-PeCDF	*	1.32e+03	*	*	2.82e+03	*
3	2,3,4,7,8-PeCDF	*	1.32e+03	*	*	2.82e+03	*
4	1,2,3,4,7,8-HxCDF	*	3.98e+03	*	*	3.79e+03	*
5	1,2,3,6,7,8-HxCDF	*	3.98e+03	*	*	3.79e+03	*
6	2,3,4,6,7,8-HxCDF	*	3.98e+03	*	*	3.79e+03	*
7	1,2,3,7,8,9-HxCDF	*	3.98e+03	*	*	3.79e+03	*
8	1,2,3,4,6,7,8-HpCDF	*	4.51e+03	*	*	4.14e+03	*
9	1,2,3,4,7,8,9-HpCDF	*	4.51e+03	*	*	4.14e+03	*
10	OCDF	1.19e+04	6.24e+02	1.9e+01	1.87e+04	1.50e+03	1.2e+01
11	2,3,7,8-TCDD	*	3.26e+03	*	*	2.15e+03	*
12	1,2,3,7,8-PeCDD	*	1.47e+03	*	*	9.20e+02	*
13	1,2,3,4,7,8-HxCDD	2.34e+03	5.76e+02	4.1e+00	4.15e+03	6.52e+02	6.4e+00
14	1,2,3,6,7,8-HxCDD	3.94e+03	5.76e+02	6.8e+00	2.80e+03	6.52e+02	4.3e+00
15	1,2,3,7,8,9-HxCDD	5.24e+03	5.76e+02	9.1e+00	3.61e+03	6.52e+02	5.5e+00
16	1,2,3,4,6,7,8-HpCDD	5.06e+03	9.00e+02	5.6e+00	3.65e+03	5.52e+02	6.6e+00
17	OCDD	1.87e+04	4.44e+02	4.2e+01	1.66e+04	8.96e+02	1.9e+01
18	13C-2,3,7,8-TCDF	6.51e+06	1.18e+04	5.5e+02	8.17e+06	6.07e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	1.11e+07	2.14e+03	5.2e+03	7.08e+06	4.52e+02	1.6e+04
20	13C-2,3,4,7,8-PeCDF	1.12e+07	2.14e+03	5.2e+03	6.94e+06	4.52e+02	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	5.27e+06	1.44e+03	3.7e+03	9.96e+06	1.12e+03	8.9e+03
22	13C-1,2,3,6,7,8-HxCDF	5.84e+06	1.44e+03	4.1e+03	1.08e+07	1.12e+03	9.7e+03
23	13C-2,3,4,6,7,8-HxCDF	5.69e+06	1.44e+03	4.0e+03	1.06e+07	1.12e+03	9.5e+03
24	13C-1,2,3,7,8,9-HxCDF	5.08e+06	1.44e+03	3.5e+03	9.63e+06	1.12e+03	8.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.26e+06	2.70e+03	1.2e+03	7.20e+06	1.69e+03	4.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.01e+06	2.70e+03	1.1e+03	6.80e+06	1.69e+03	4.0e+03
27	13C-2,3,7,8-TCDD	5.27e+06	1.78e+04	3.0e+02	6.76e+06	4.41e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	8.48e+06	1.56e+03	5.4e+03	5.43e+06	1.43e+03	3.8e+03
29	13C-1,2,3,4,7,8-HxCDD	7.85e+06	2.93e+03	2.7e+03	6.23e+06	1.53e+03	4.1e+03
30	13C-1,2,3,6,7,8-HxCDD	7.03e+06	2.93e+03	2.4e+03	5.50e+06	1.53e+03	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.72e+06	1.08e+03	5.3e+03	5.43e+06	1.12e+03	4.9e+03
32	13C-OCDD	3.72e+06	6.52e+02	5.7e+03	4.06e+06	5.88e+02	6.9e+03
33	13C-1,2,3,4-TCDD	1.11e+07	1.78e+04	6.2e+02	1.39e+07	4.41e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.49e+07	2.93e+03	5.1e+03	1.19e+07	1.53e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	4.99e+06	1.06e+03	4.7e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.256e{+}03 + 2.152e{+}03) \times 2000}{(5.272e{+}06 + 6.761e{+}06) \times (\quad) \times 1.049} =$$

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Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P615718 Sample:1 Injection:1 Function:3

Acquired: 27-NOV-18 13:29:29 Processed: 28-NOV-18 10:17:27

Mass: 389.8160 391.8130 Tot Response: 3.31e+01 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:41	1.75e+01	1.56e+01 1.12	yes	3.31e+01	1,2,3,7,8,9-HxCDD	y	y

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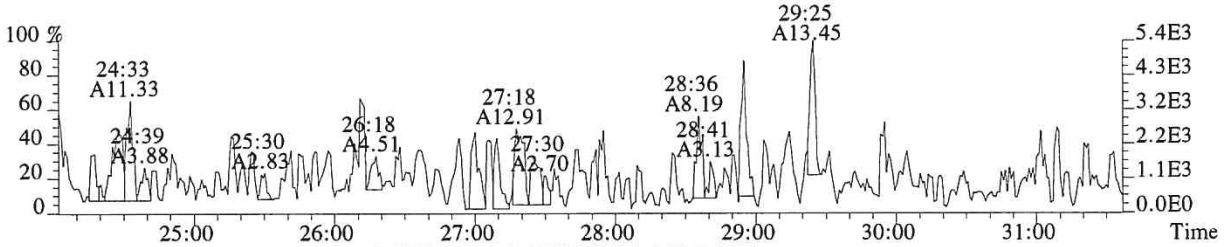
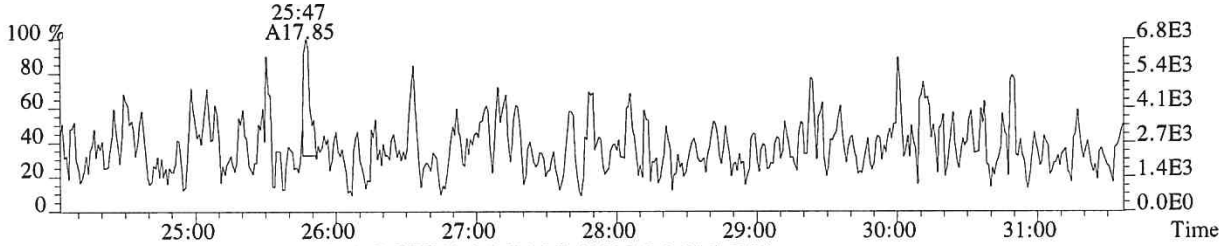
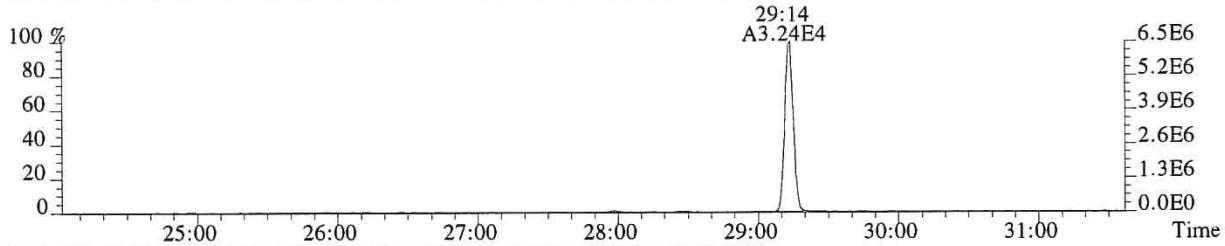
File:P615718 #1-538 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



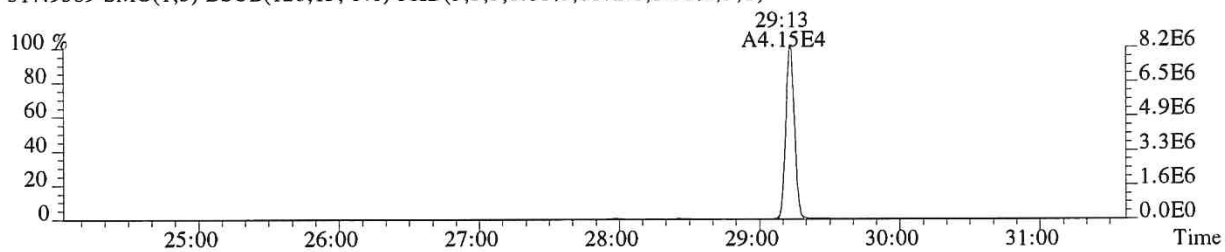
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3036.0,1.00%,F,T)



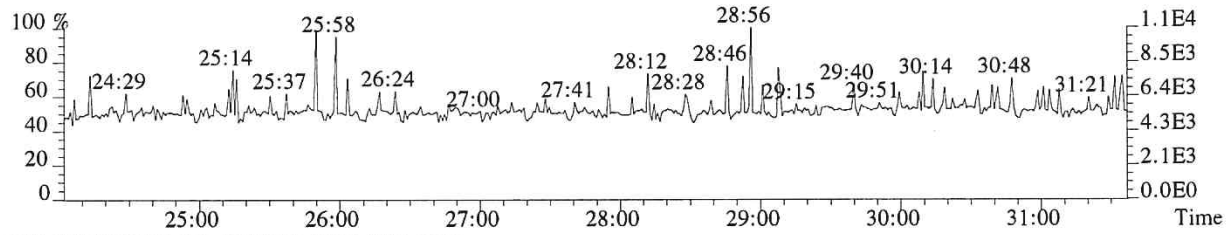
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11816.0,1.00%,F,T)



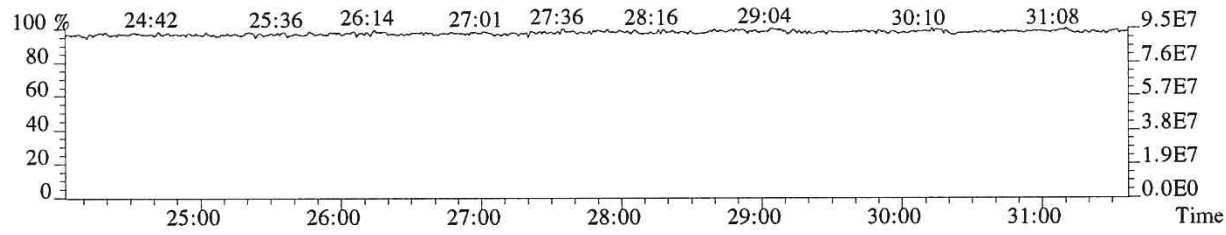
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6072.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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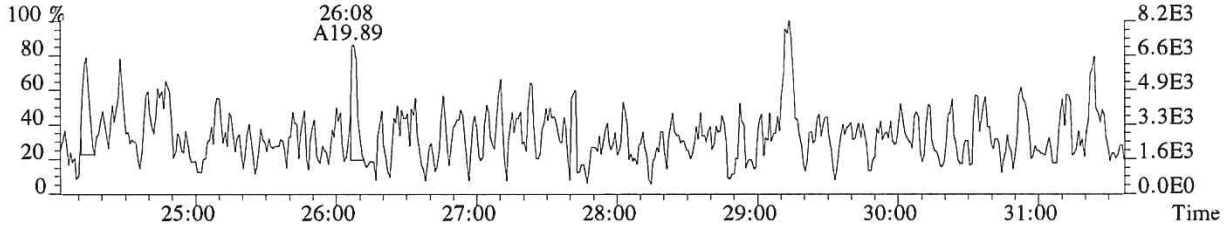
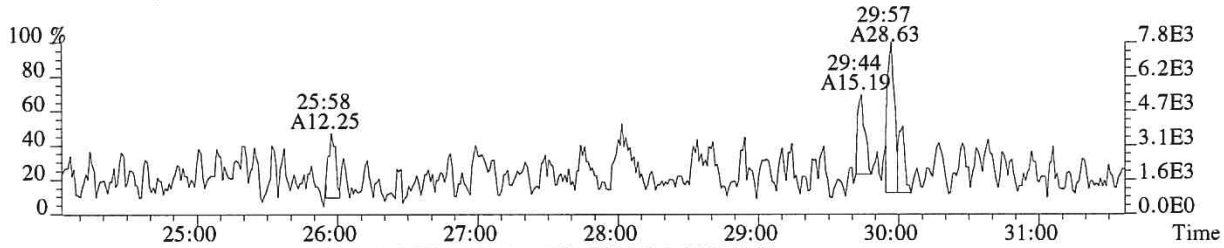
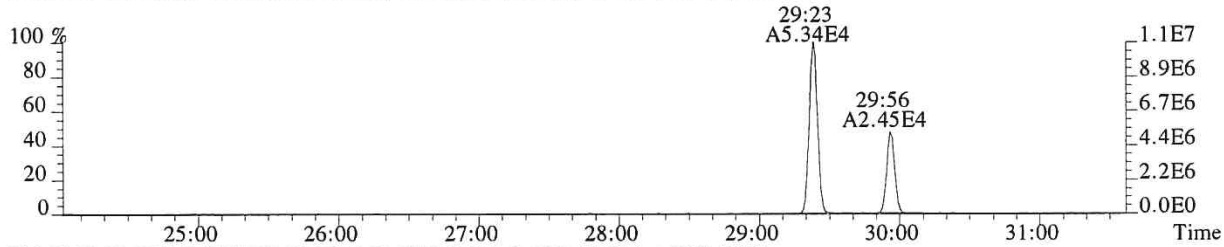
File:P615718 #1-538 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



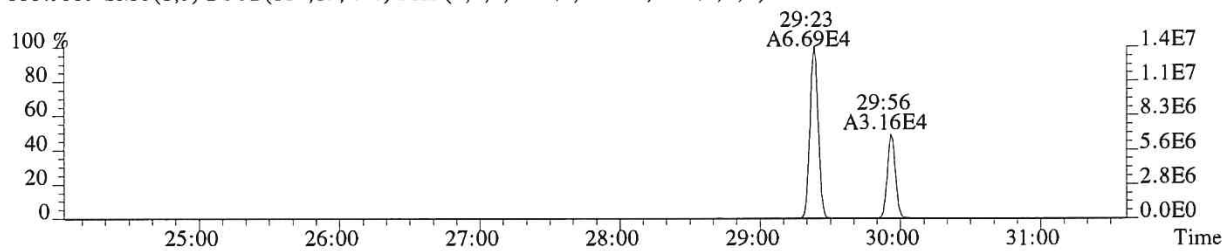
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2152.0,1.00%,F,T)



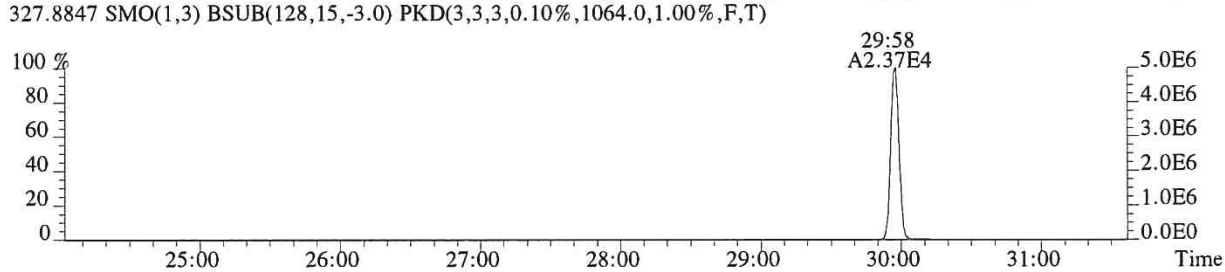
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17780.0,1.00%,F,T)



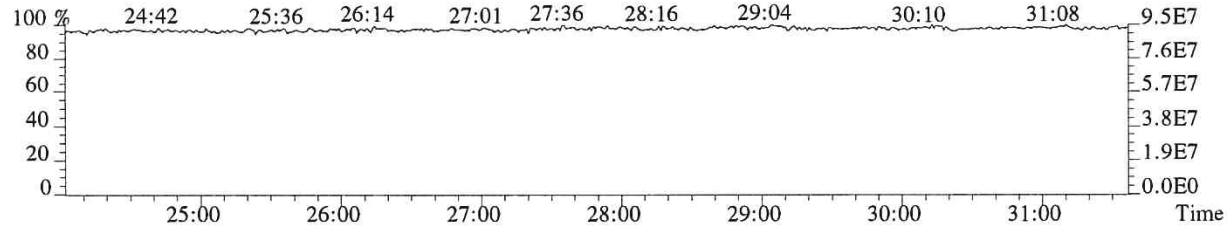
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)

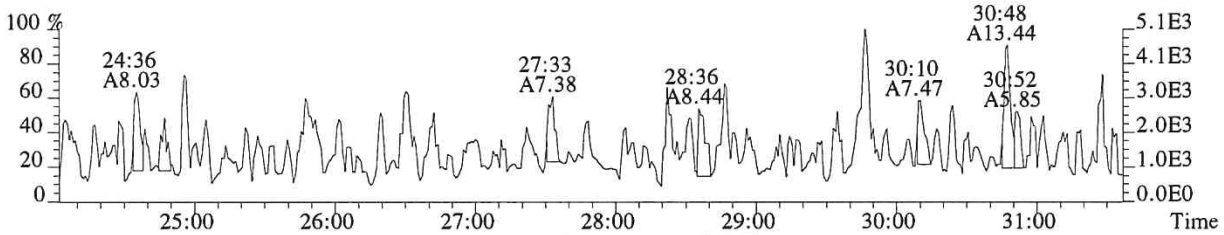


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

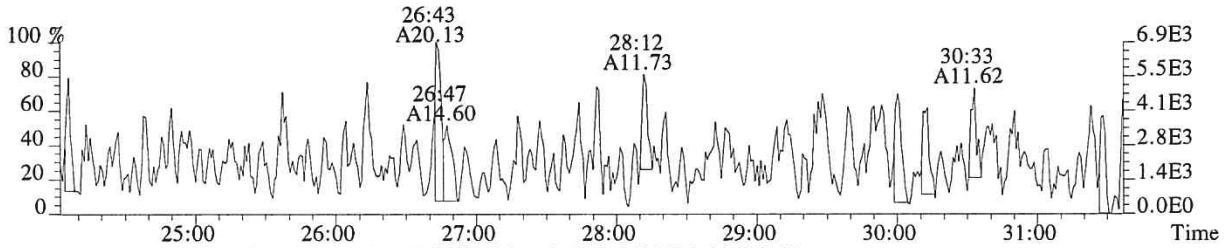


009897

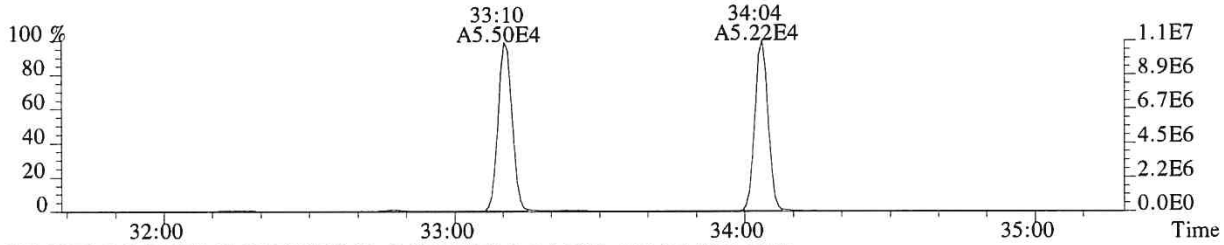
File:P615718 #1-538 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



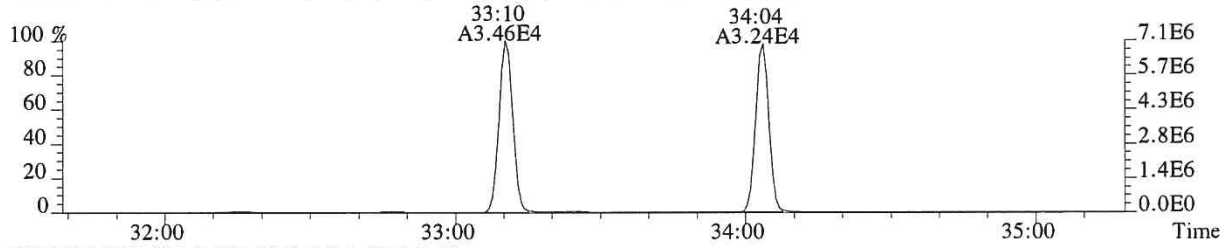
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2484.0,1.00%,F,T)



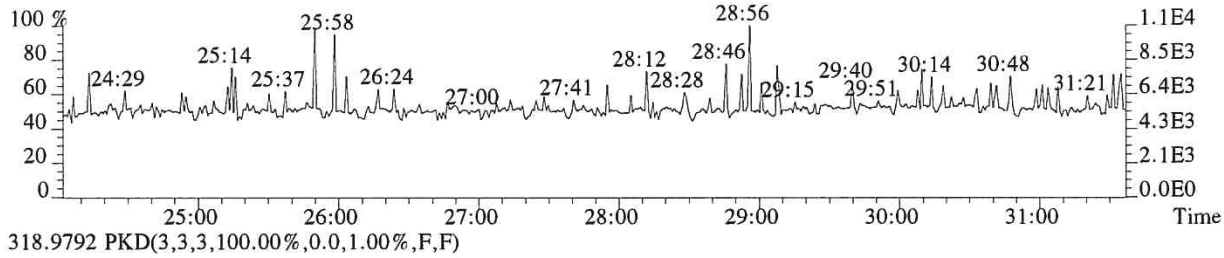
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



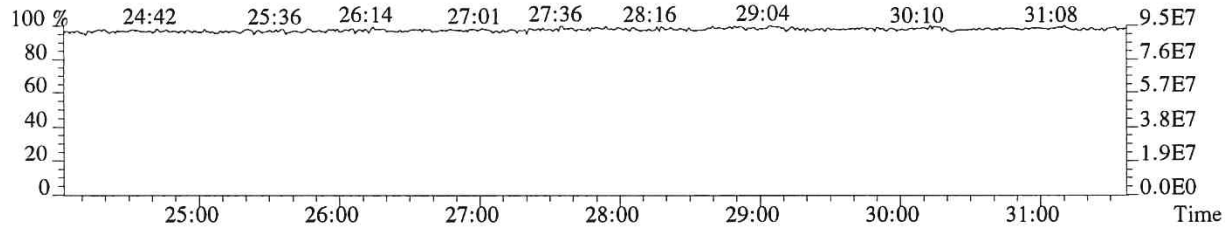
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

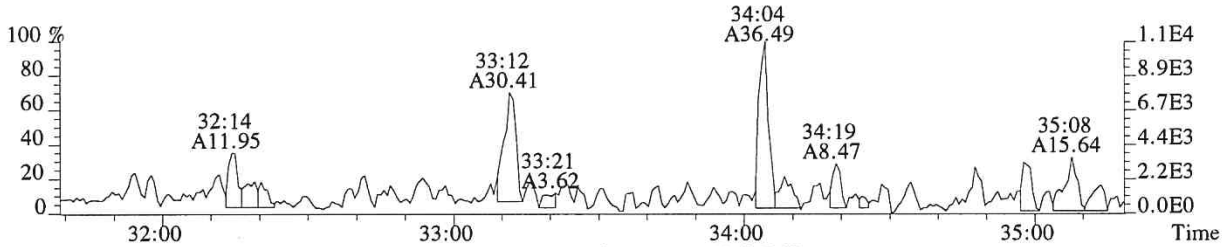


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

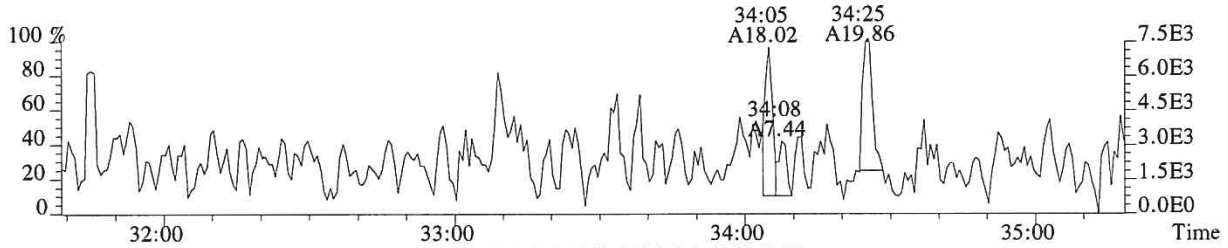


009898

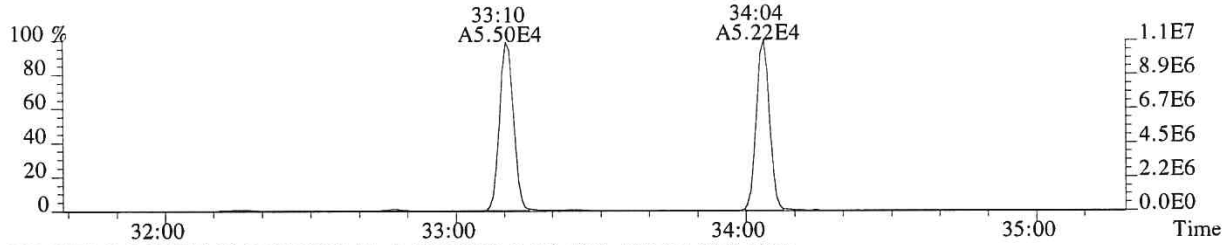
File:P615718 #1-330 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



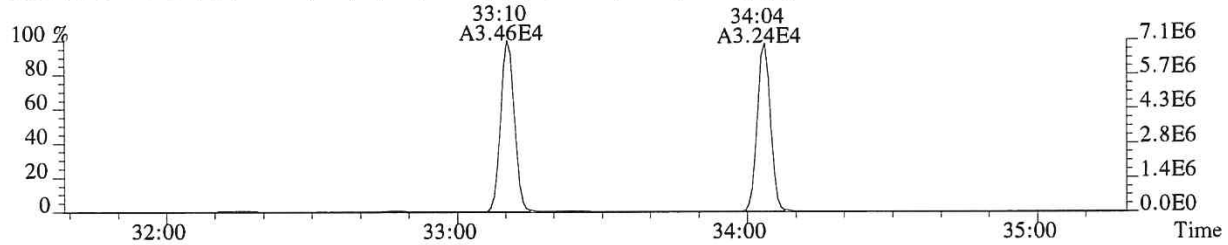
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



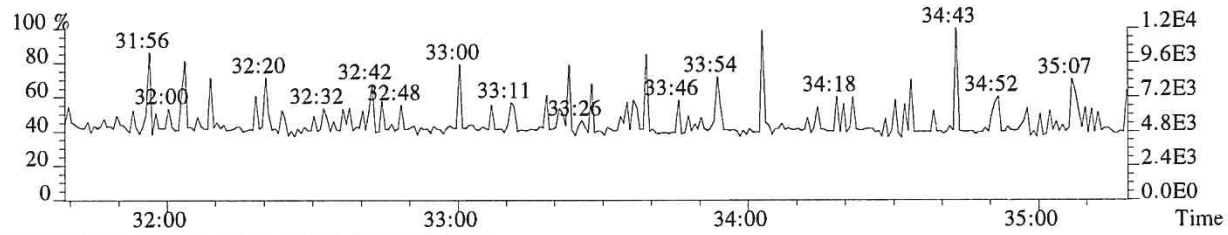
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



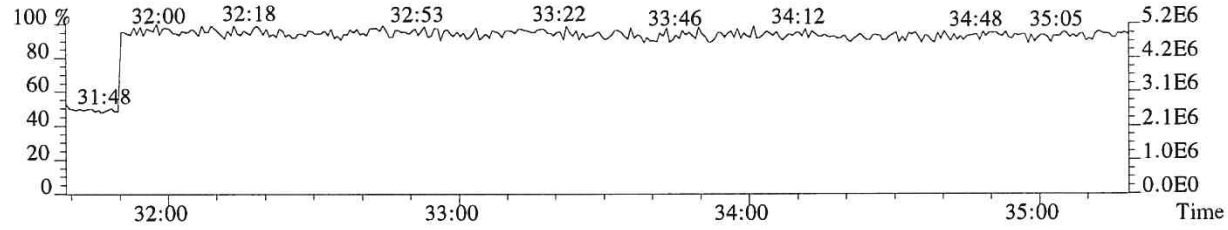
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

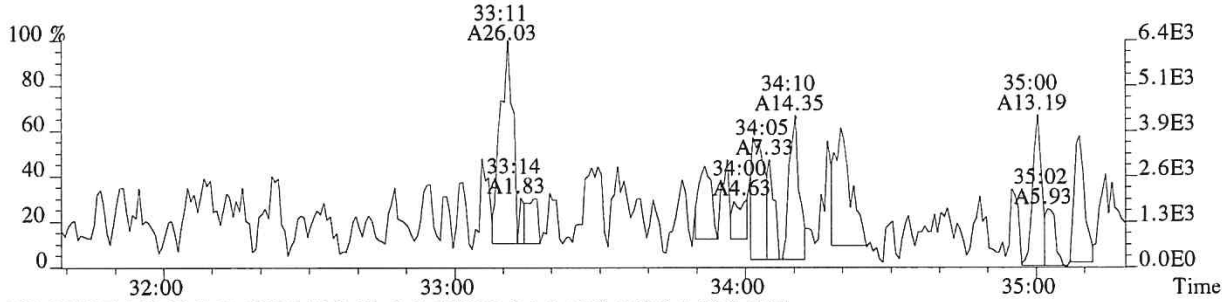


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

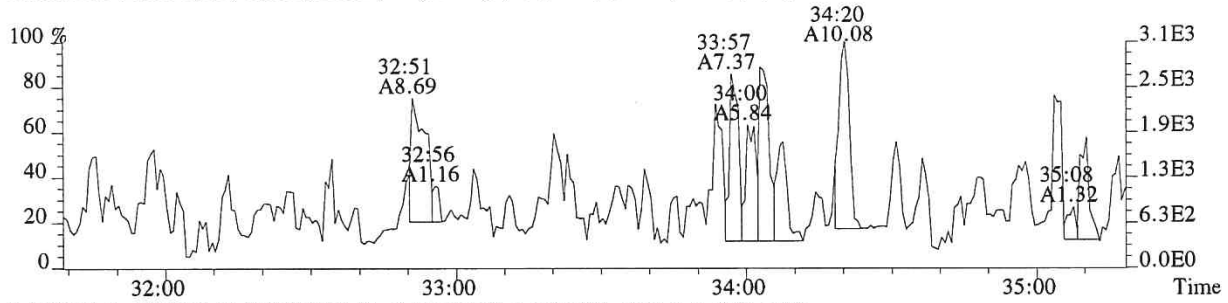


009899

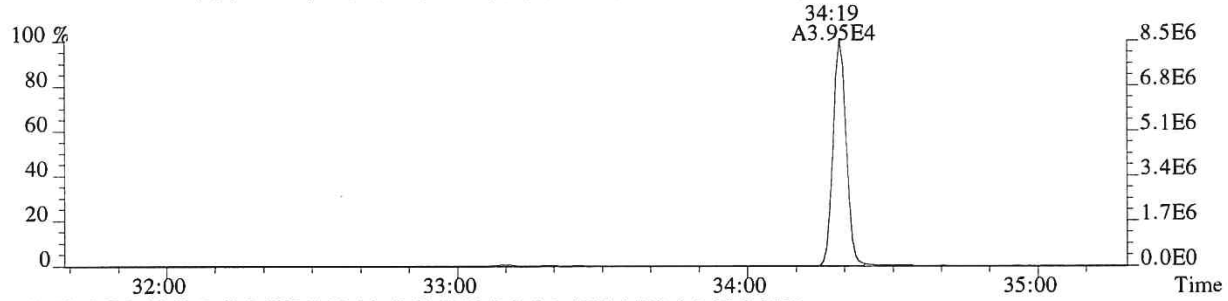
File:P615718 #1-330 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



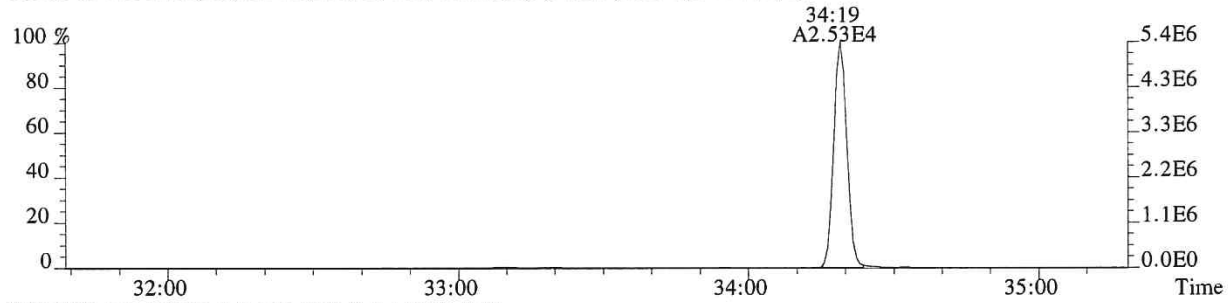
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



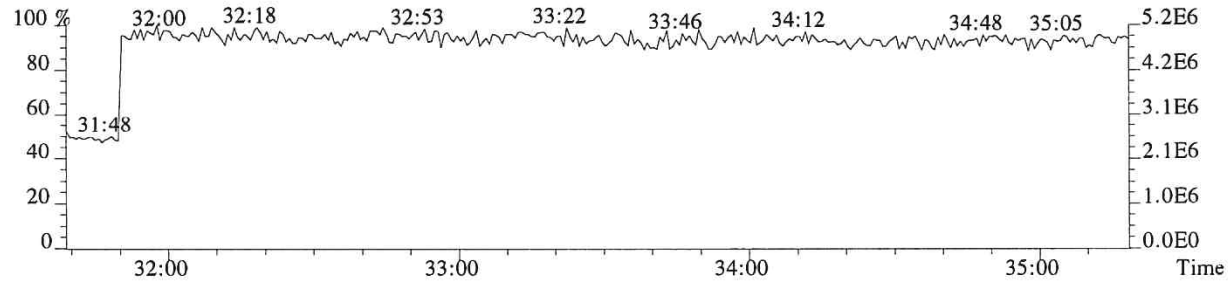
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)

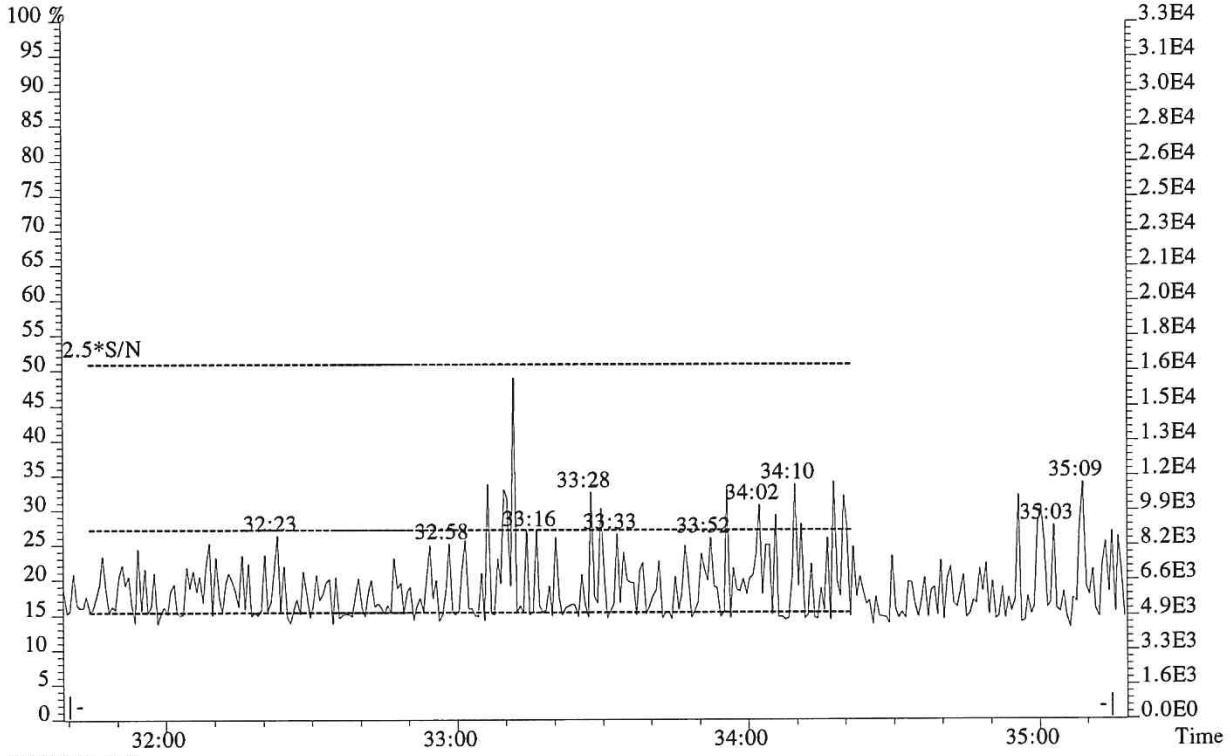


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

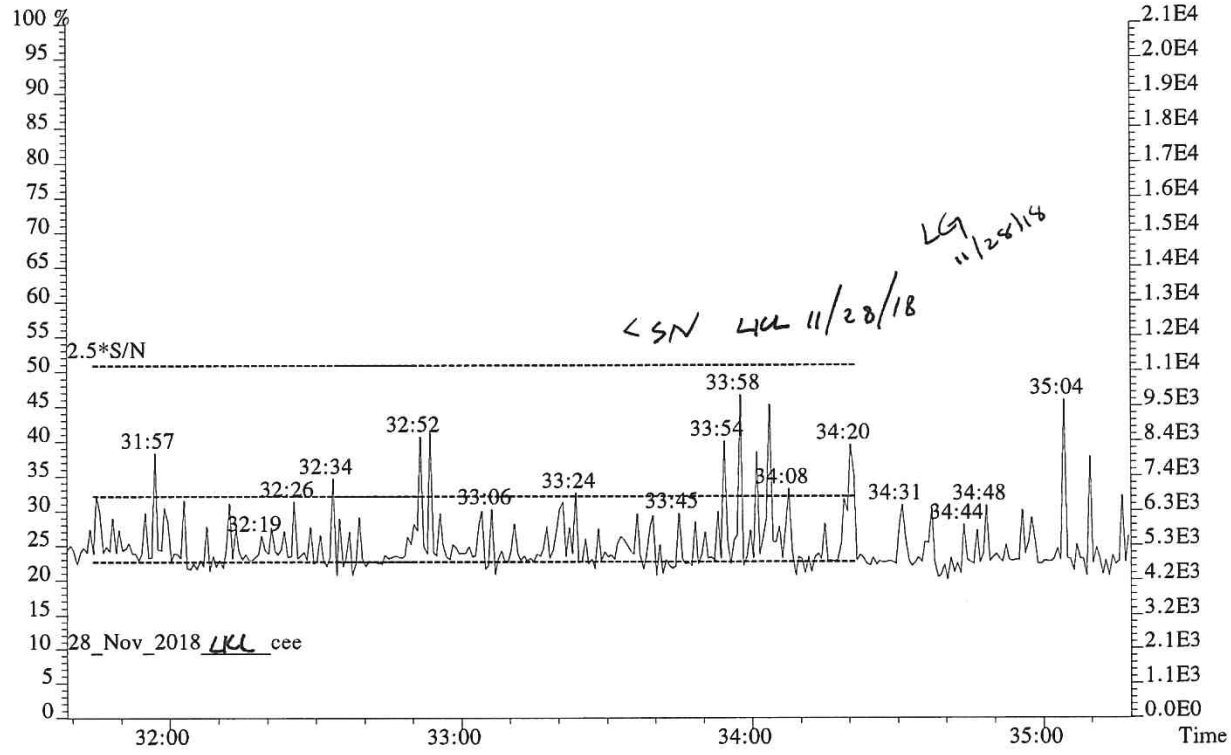


009900

File:P615718 #1-330 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2



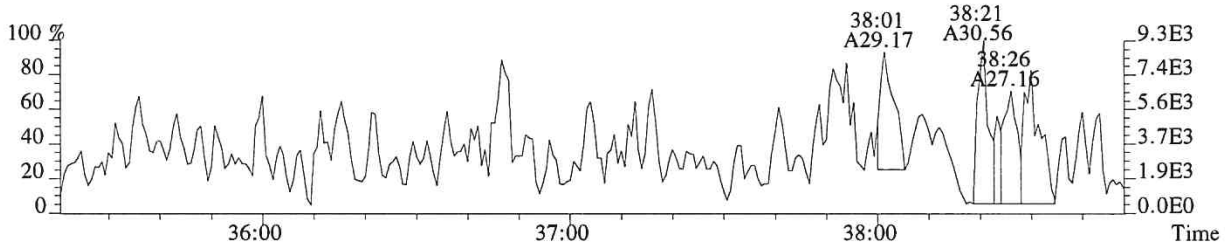
357.8516 F:2



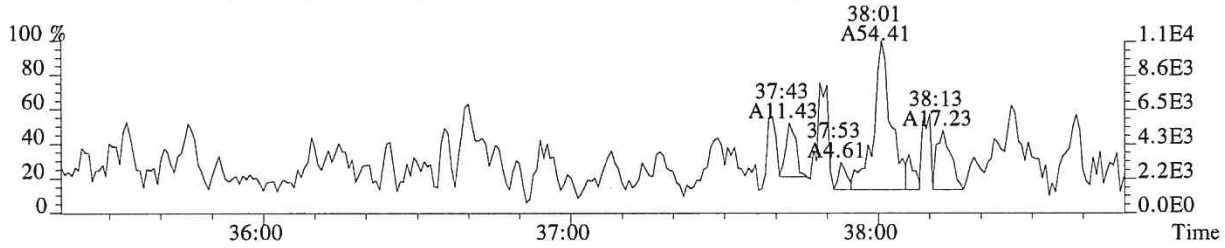
009901

File:P615718 #1-312 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

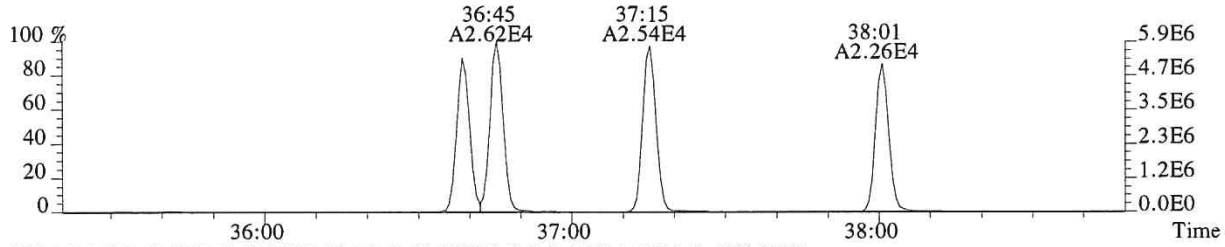
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3984.0,0.40%,F,T)



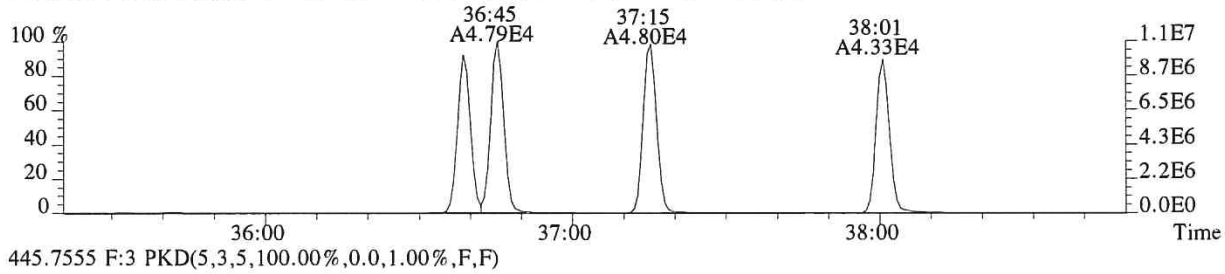
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3792.0,0.40%,F,T)



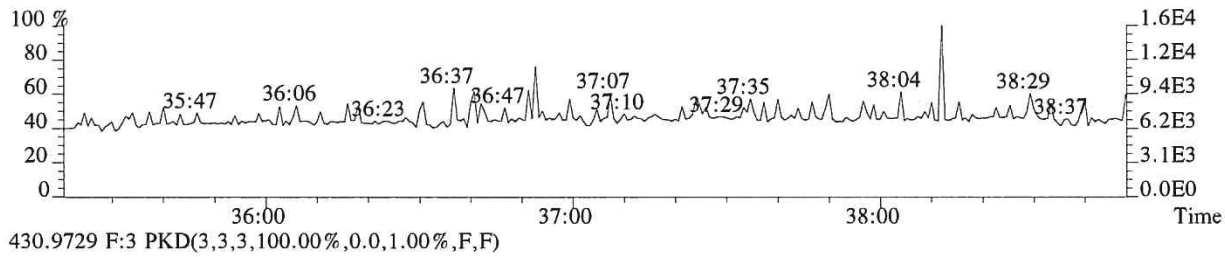
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.40%,F,T)



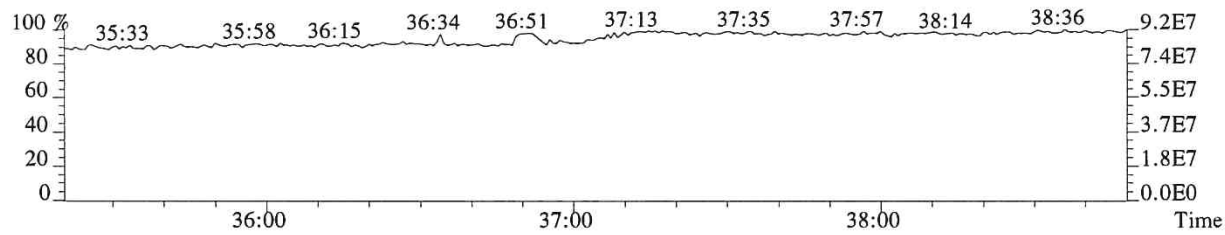
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

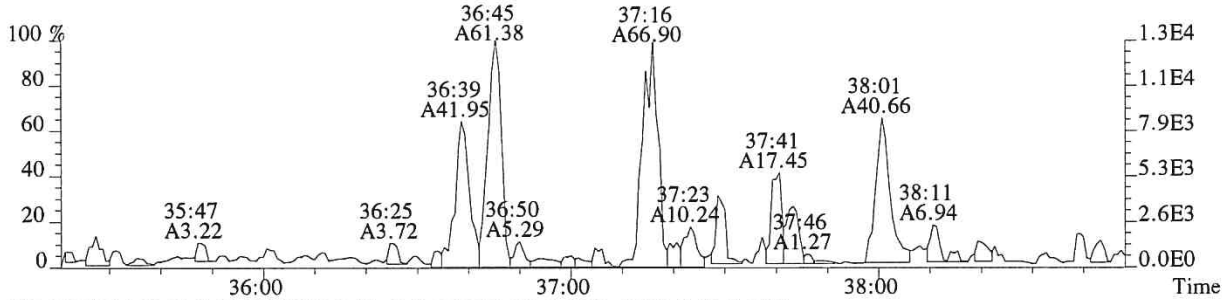


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

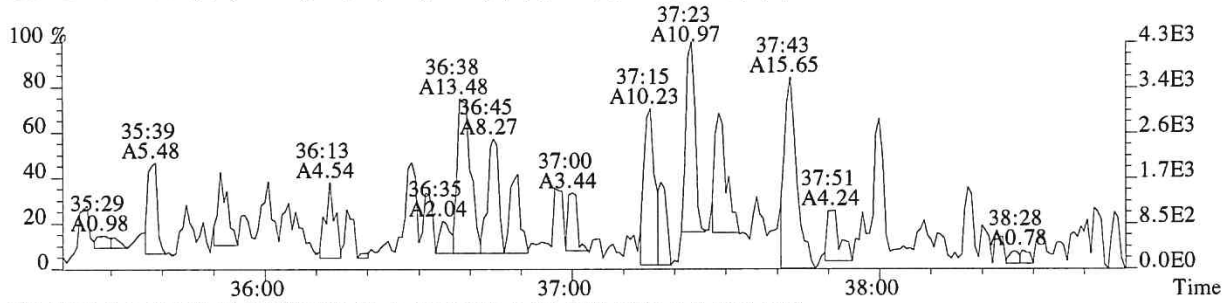


009902

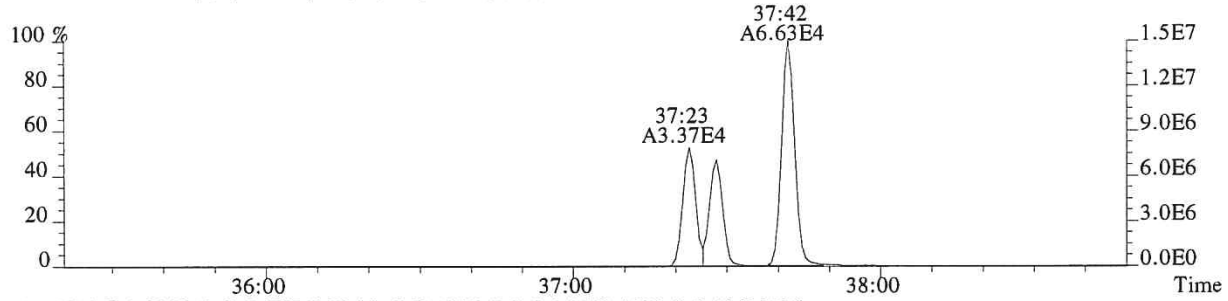
File:P615718 #1-312 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



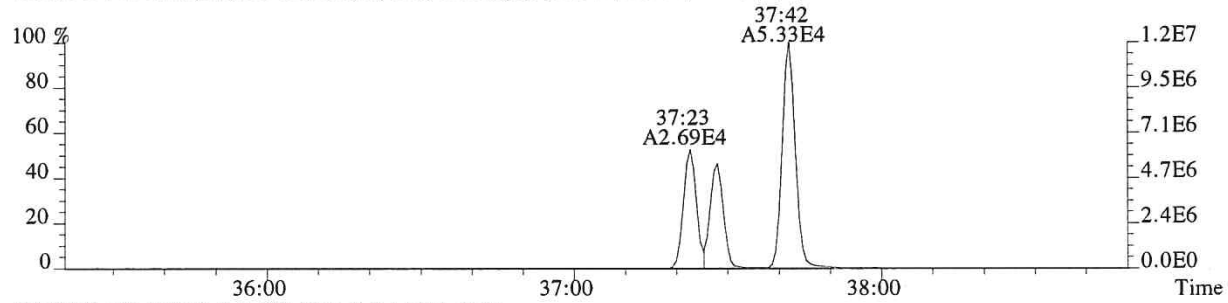
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



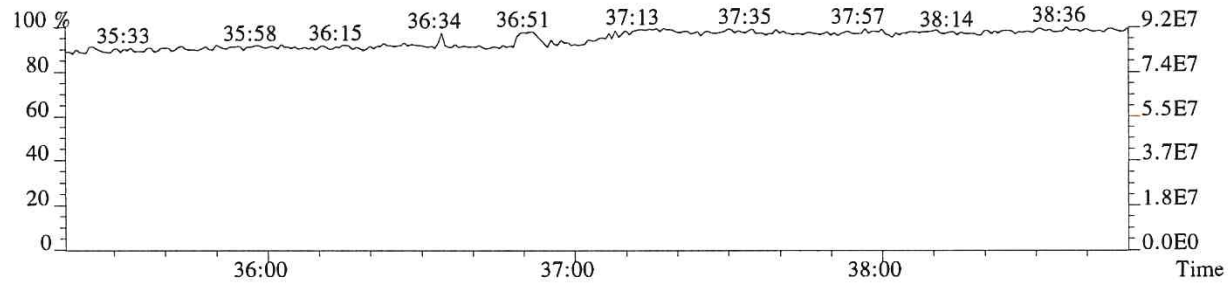
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



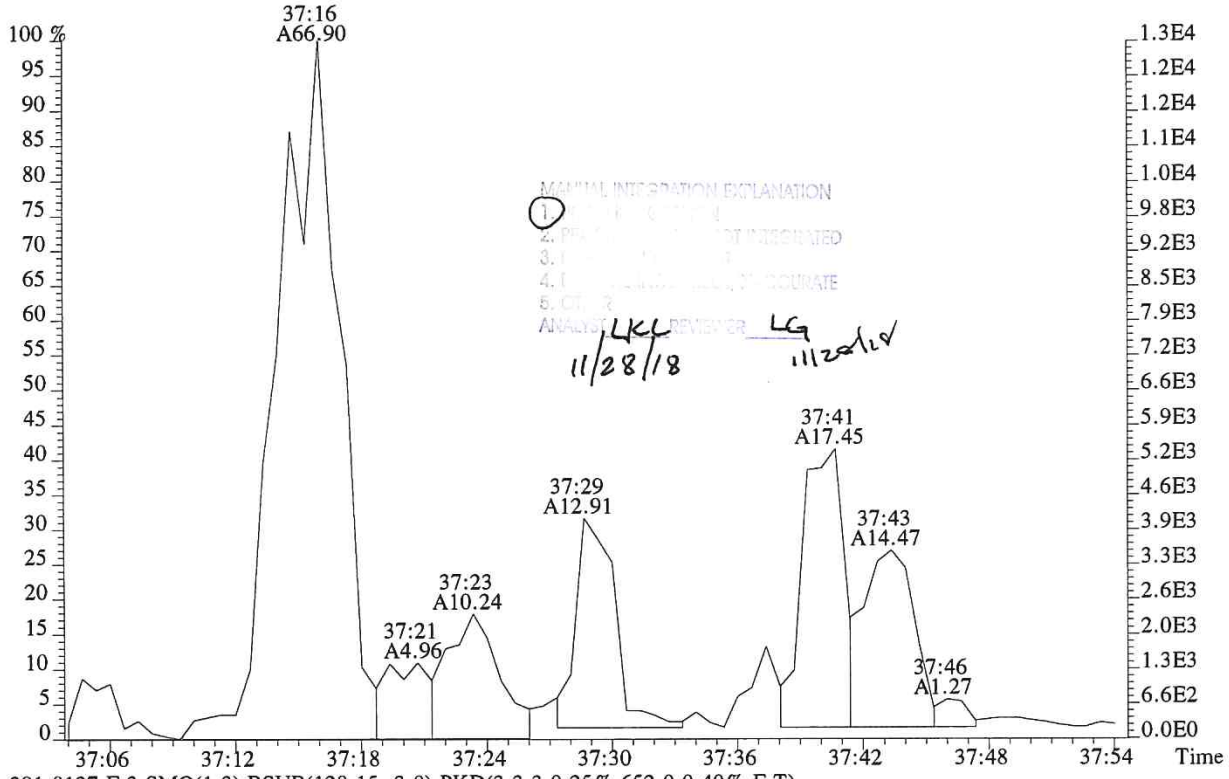
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



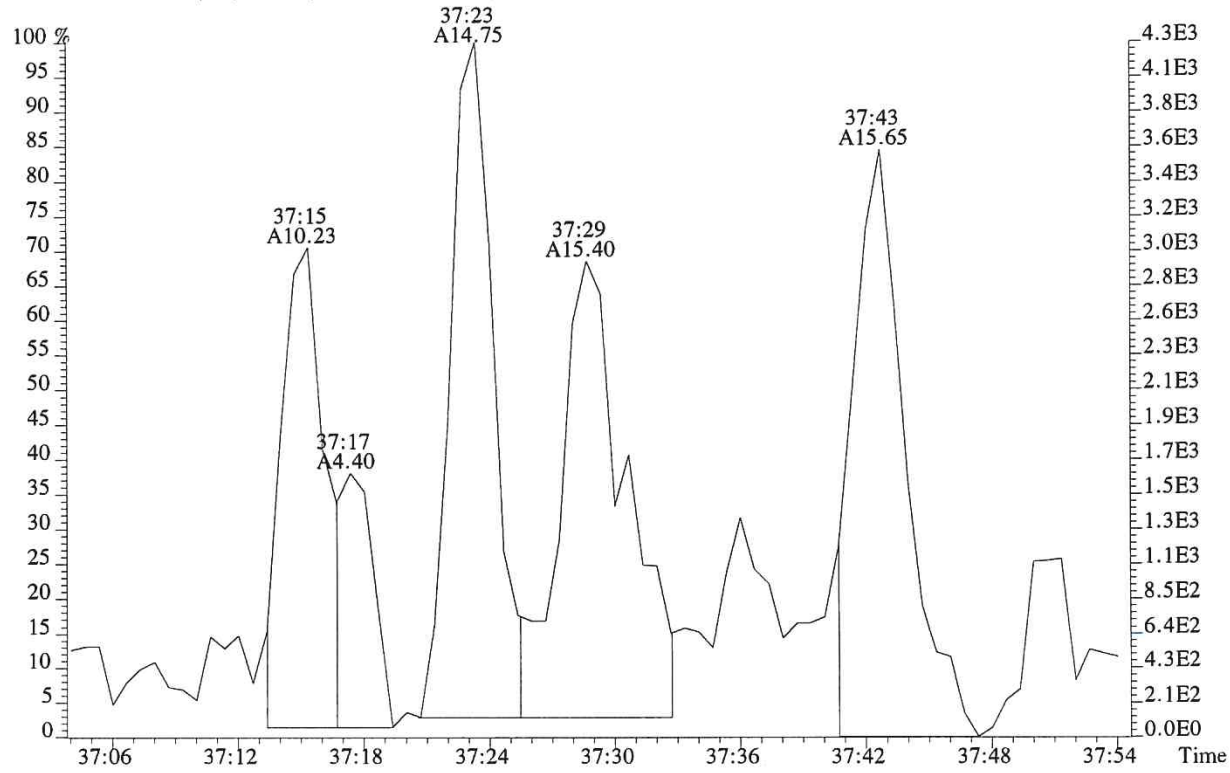
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615718 #1-312 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)

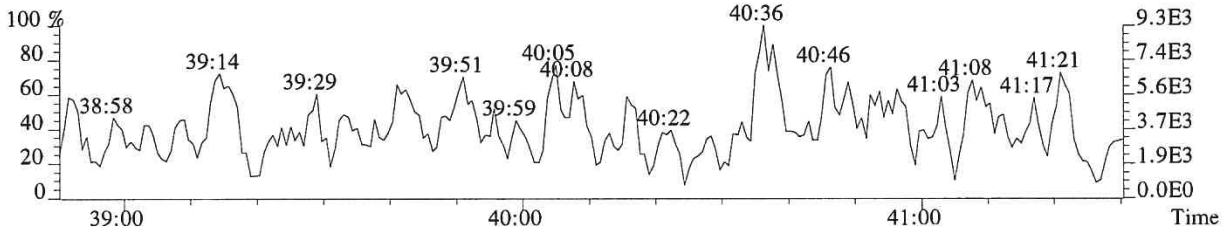


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)

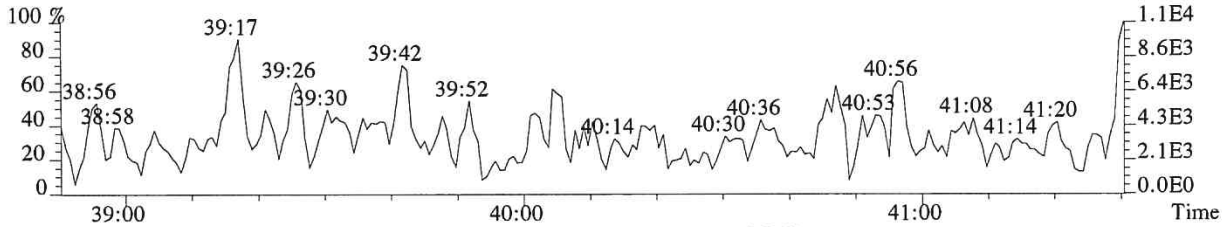


009904

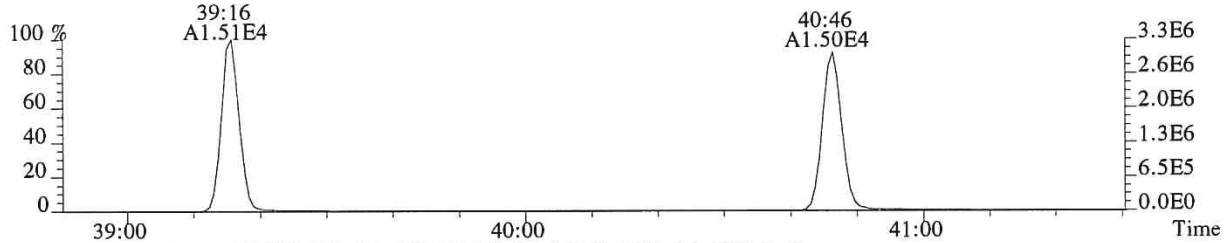
File:P615718 #1-241 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4512.0,0.50%,F,T)



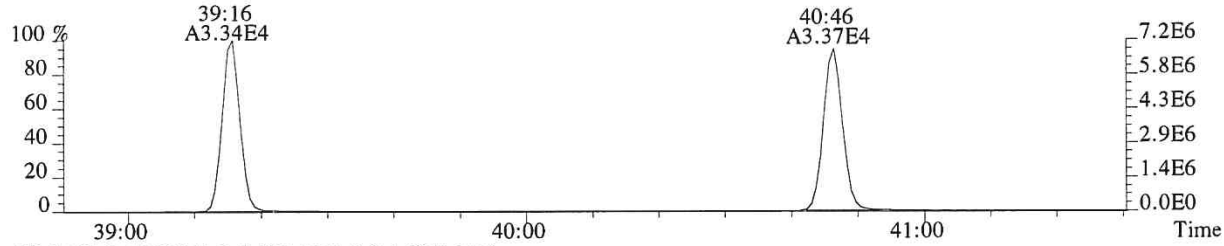
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4144.0,0.50%,F,T)



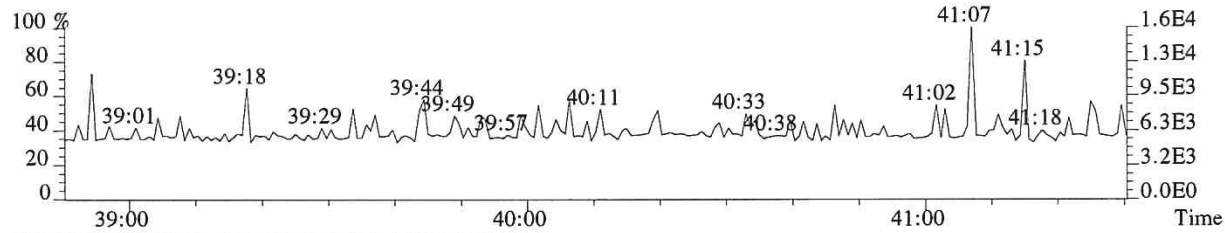
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2696.0,0.50%,F,T)



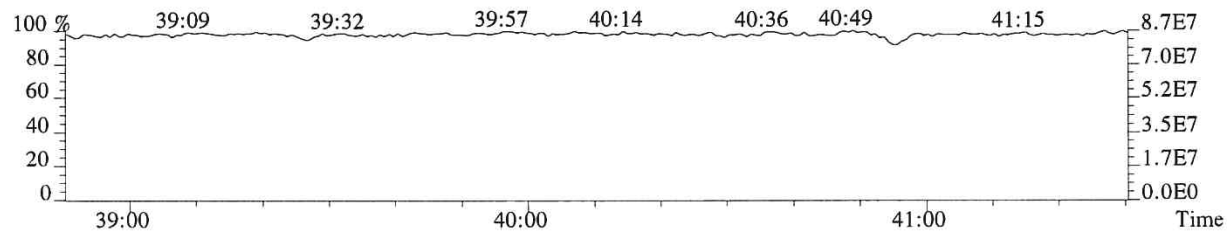
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1692.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

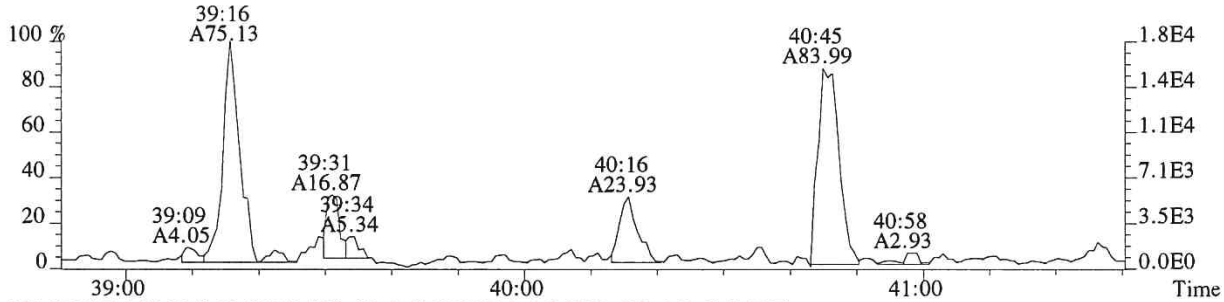


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

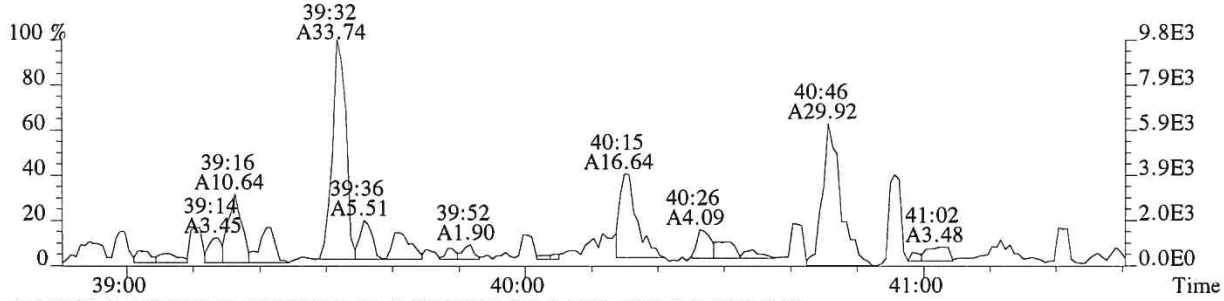


009905

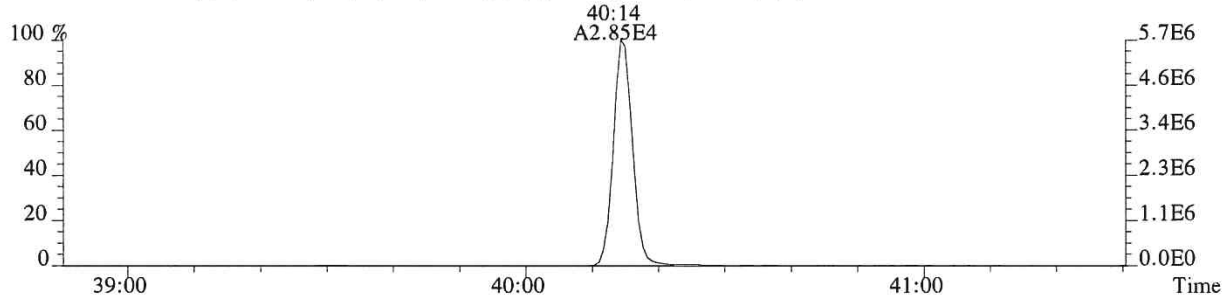
File:P615718 #1-241 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



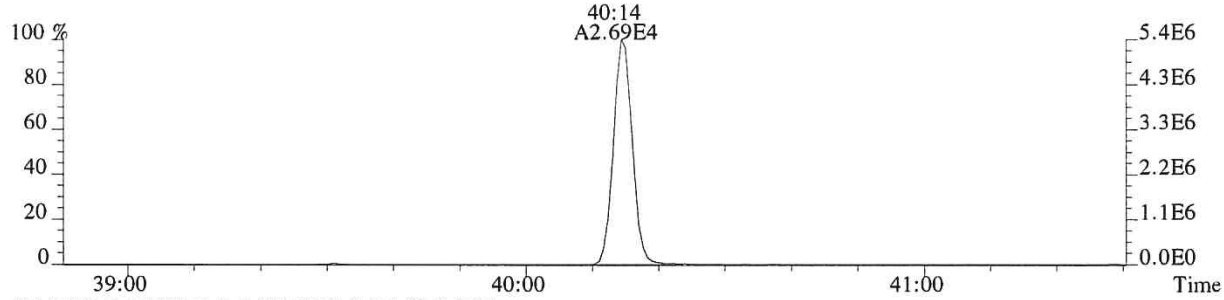
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



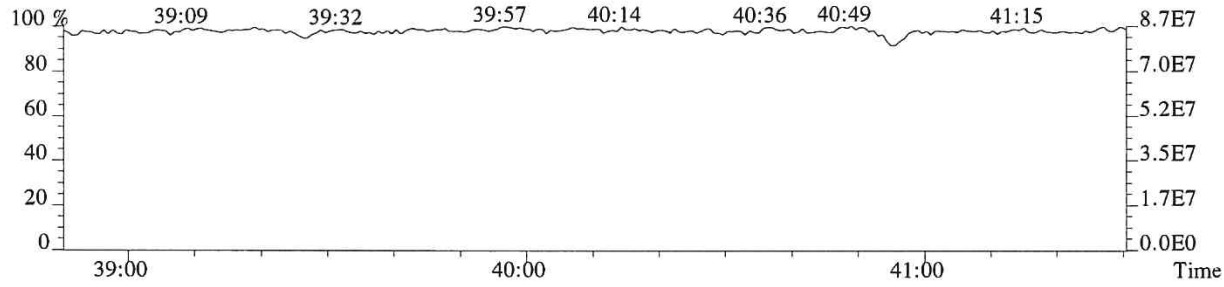
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)

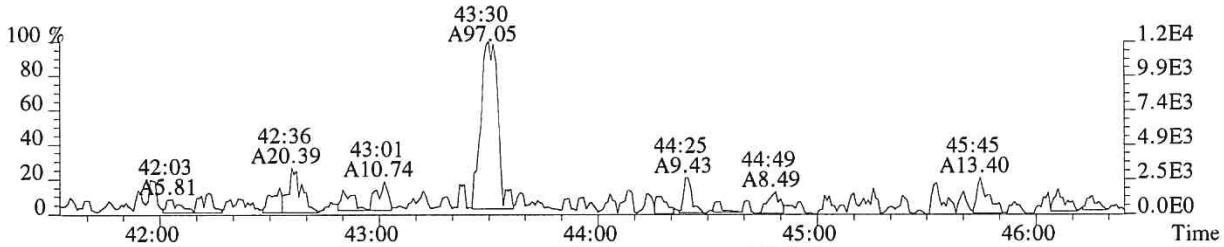


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

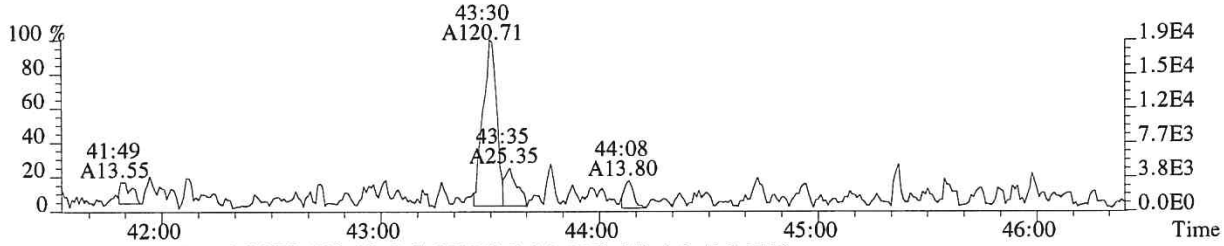


File:P615718 #1-438 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

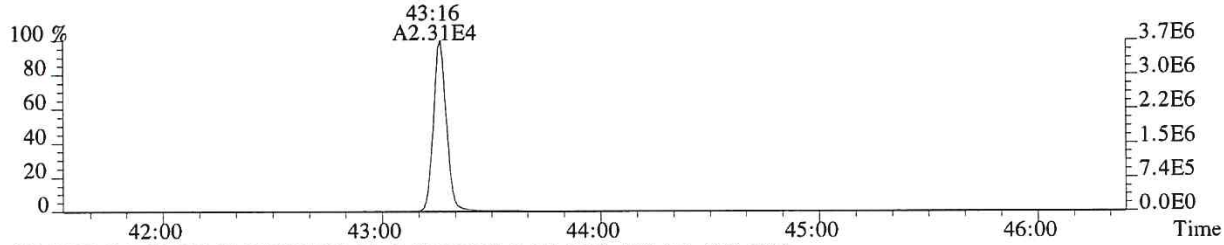
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



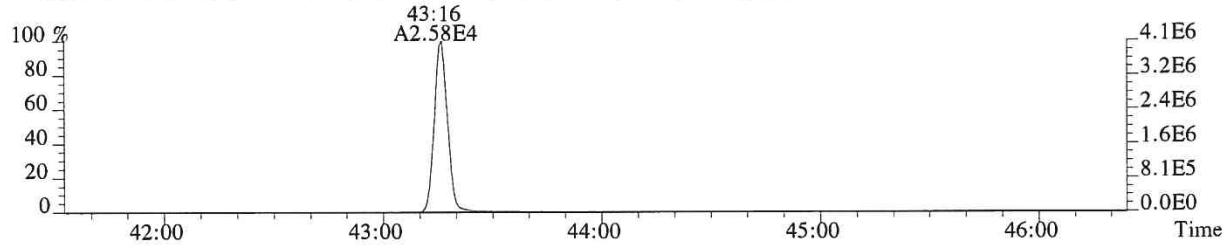
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



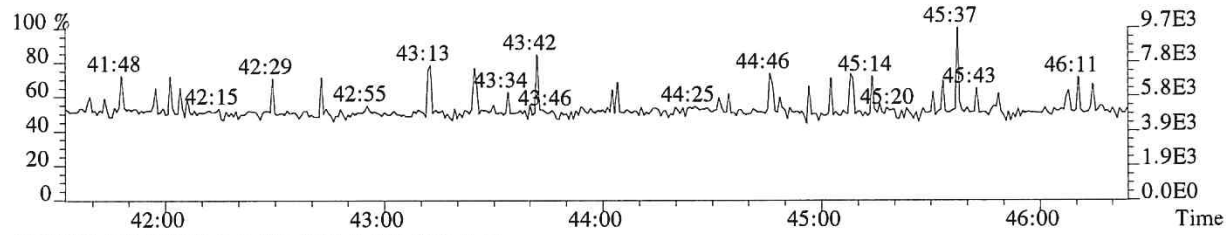
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



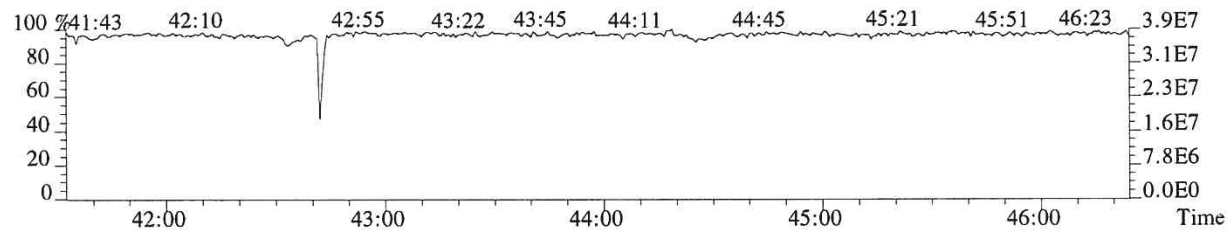
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



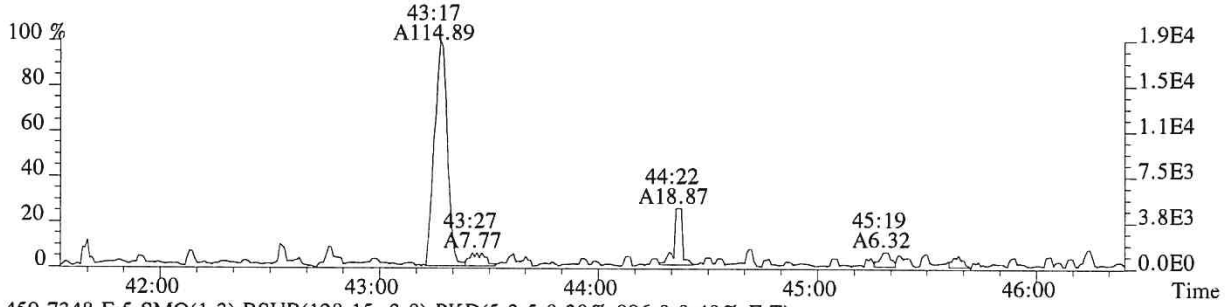
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



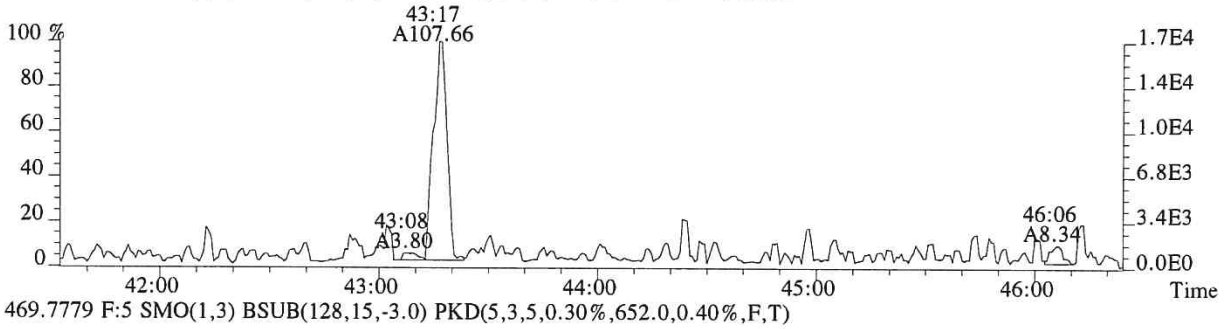
009907

File:P615718 #1-438 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

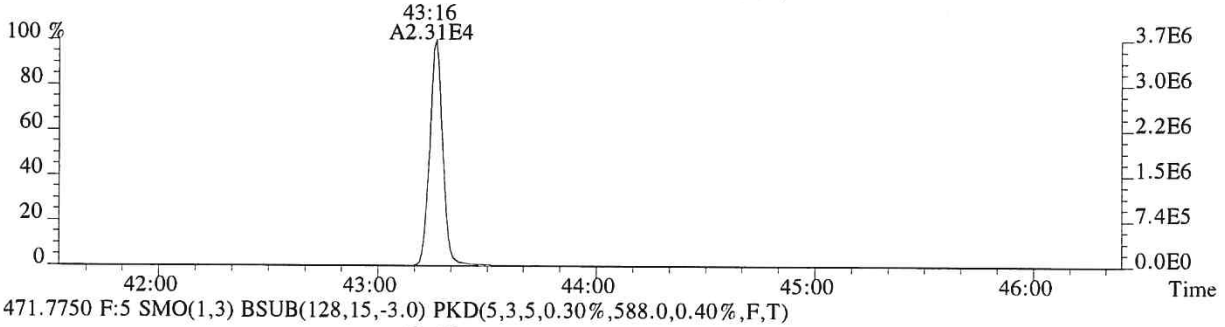
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



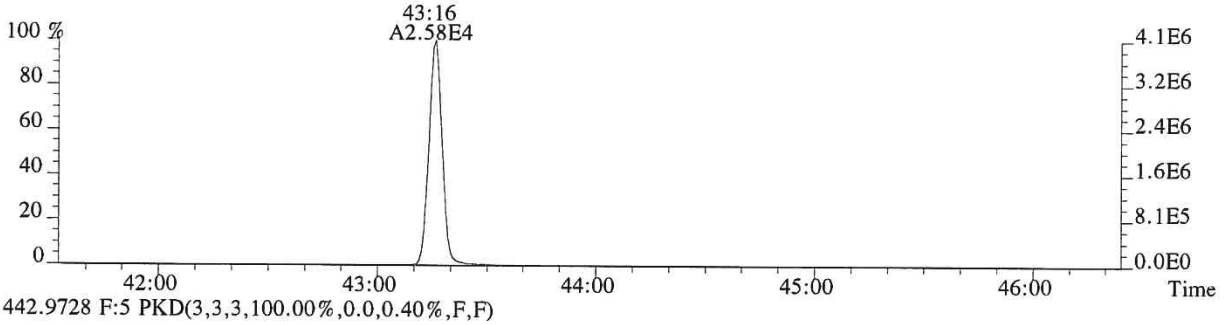
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,896.0,0.40%,F,T)



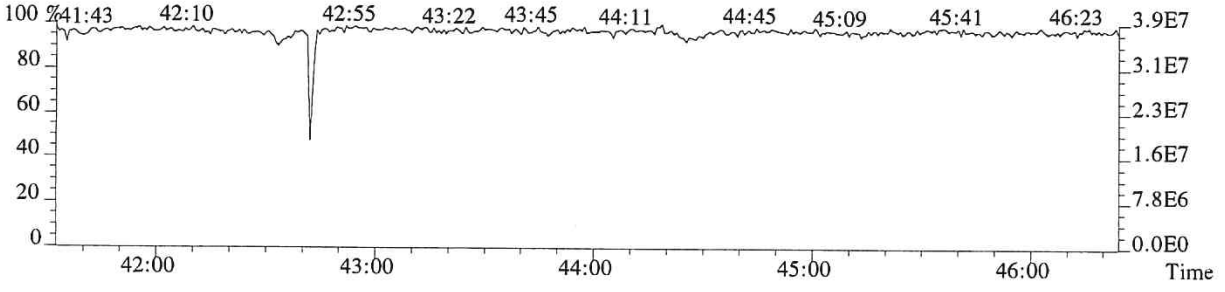
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009908

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #19 Filename P615727 Samp: 1 Inj: 1 Acquired: 27-NOV-18 20:53:53
Processed: 28-NOV-18 10:27:14 Sample ID: EQ1800467-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:14	2.839e+03	3.728e+03	0.76	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:11	2.929e+04	1.872e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:04	2.995e+04	1.934e+04	1.55	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	2.949e+04	2.370e+04	1.24	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:45	3.003e+04	2.429e+04	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:15	2.929e+04	2.401e+04	1.22	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:01	2.697e+04	2.217e+04	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	2.416e+04	2.352e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	2.136e+04	2.014e+04	1.06	yes	no	1.463
10	Unk	OCDF	43:30	2.959e+04	3.246e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	29:57	2.217e+03	2.743e+03	0.81	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:20	2.134e+04	1.350e+04	1.58	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	2.084e+04	1.698e+04	1.23	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:28	2.063e+04	1.648e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:43	2.160e+04	1.746e+04	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	1.706e+04	1.612e+04	1.06	yes	no	1.112
17	Unk	OCDD	43:16	2.146e+04	2.375e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:13	2.965e+04	3.765e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	6.391e+04	3.983e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:03	6.376e+04	3.995e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	3.145e+04	6.095e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	3.421e+04	6.542e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	3.413e+04	6.444e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	3.108e+04	6.007e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:15	2.331e+04	5.162e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	2.170e+04	4.680e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	2.216e+04	2.833e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	4.907e+04	3.149e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	4.694e+04	3.498e+04	1.34	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:27	4.172e+04	3.451e+04	1.21	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	4.358e+04	4.186e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	43:15	4.346e+04	4.768e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	6.840e+04	8.723e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	9.620e+04	7.591e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:57	2.190e+04				no	1.086

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #19 Filename P615727 Samp: 1 Inj: 1 Acquired: 27-NOV-18 20:53:53
Processed: 28-NOV-18 10:27:14 LAB. ID: EQ1800467-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.73e+05	1.22e+03	4.7e+02	7.32e+05	3.20e+03	2.3e+02
2	1,2,3,7,8-PeCDF	5.93e+06	1.92e+03	3.1e+03	3.78e+06	3.14e+03	1.2e+03
3	2,3,4,7,8-PeCDF	6.10e+06	1.92e+03	3.2e+03	3.94e+06	3.14e+03	1.3e+03
4	1,2,3,4,7,8-HxCDF	6.49e+06	2.08e+03	3.1e+03	5.14e+06	3.02e+03	1.7e+03
5	1,2,3,6,7,8-HxCDF	6.33e+06	2.08e+03	3.0e+03	5.23e+06	3.02e+03	1.7e+03
6	2,3,4,6,7,8-HxCDF	6.42e+06	2.08e+03	3.1e+03	5.24e+06	3.02e+03	1.7e+03
7	1,2,3,7,8,9-HxCDF	5.69e+06	2.08e+03	2.7e+03	4.58e+06	3.02e+03	1.5e+03
8	1,2,3,4,6,7,8-HpCDF	5.10e+06	4.58e+03	1.1e+03	5.03e+06	2.89e+03	1.7e+03
9	1,2,3,4,7,8,9-HpCDF	4.01e+06	4.58e+03	8.7e+02	3.80e+06	2.89e+03	1.3e+03
10	OCDF	4.56e+06	1.08e+03	4.2e+03	5.02e+06	2.34e+03	2.1e+03
11	2,3,7,8-TCDD	4.80e+05	3.94e+03	1.2e+02	5.75e+05	1.60e+03	3.6e+02
12	1,2,3,7,8-PeCDD	4.46e+06	2.00e+03	2.2e+03	2.85e+06	6.80e+02	4.2e+03
13	1,2,3,4,7,8-HxCDD	4.60e+06	9.08e+02	5.1e+03	3.66e+06	7.56e+02	4.8e+03
14	1,2,3,6,7,8-HxCDD	4.53e+06	9.08e+02	5.0e+03	3.64e+06	7.56e+02	4.8e+03
15	1,2,3,7,8,9-HxCDD	4.65e+06	9.08e+02	5.1e+03	3.76e+06	7.56e+02	5.0e+03
16	1,2,3,4,6,7,8-HpCDD	3.36e+06	1.16e+03	2.9e+03	3.23e+06	8.72e+02	3.7e+03
17	OCDD	3.26e+06	7.36e+02	4.4e+03	3.61e+06	1.76e+03	2.0e+03
18	13C-2,3,7,8-TCDF	5.88e+06	1.30e+04	4.5e+02	7.66e+06	6.90e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	1.28e+07	1.00e+03	1.3e+04	7.94e+06	1.58e+03	5.0e+03
20	13C-2,3,4,7,8-PeCDF	1.34e+07	1.00e+03	1.3e+04	8.48e+06	1.58e+03	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	6.89e+06	2.20e+03	3.1e+03	1.32e+07	2.00e+03	6.6e+03
22	13C-1,2,3,6,7,8-HxCDF	7.42e+06	2.20e+03	3.4e+03	1.42e+07	2.00e+03	7.1e+03
23	13C-2,3,4,6,7,8-HxCDF	7.56e+06	2.20e+03	3.4e+03	1.43e+07	2.00e+03	7.2e+03
24	13C-1,2,3,7,8,9-HxCDF	6.44e+06	2.20e+03	2.9e+03	1.25e+07	2.00e+03	6.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.93e+06	2.46e+03	2.0e+03	1.10e+07	3.38e+03	3.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.11e+06	2.46e+03	1.7e+03	8.74e+06	3.38e+03	2.6e+03
27	13C-2,3,7,8-TCDD	4.74e+06	1.38e+04	3.4e+02	6.07e+06	5.33e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	1.02e+07	1.83e+03	5.6e+03	6.51e+06	2.04e+03	3.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.04e+07	3.97e+03	2.6e+03	7.98e+06	1.58e+03	5.0e+03
30	13C-1,2,3,6,7,8-HxCDD	9.21e+06	3.97e+03	2.3e+03	7.36e+06	1.58e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.64e+06	1.35e+03	6.4e+03	8.32e+06	8.48e+02	9.8e+03
32	13C-OCDD	6.68e+06	5.80e+02	1.2e+04	7.45e+06	7.68e+02	9.7e+03
33	13C-1,2,3,4-TCDD	1.41e+07	1.38e+04	1.0e+03	1.80e+07	5.33e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	2.07e+07	3.97e+03	5.2e+03	1.63e+07	1.58e+03	1.0e+04
35	37Cl-2,3,7,8-TCDD	4.63e+06	2.23e+03	2.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.936e{+}03 + 1.600e{+}03) \times 2000}{(4.745e{+}06 + 6.071e{+}06) \times (\quad) \times 1.049} =$$

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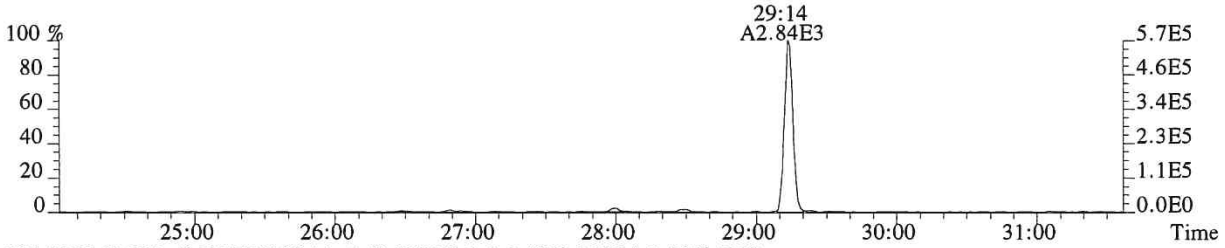
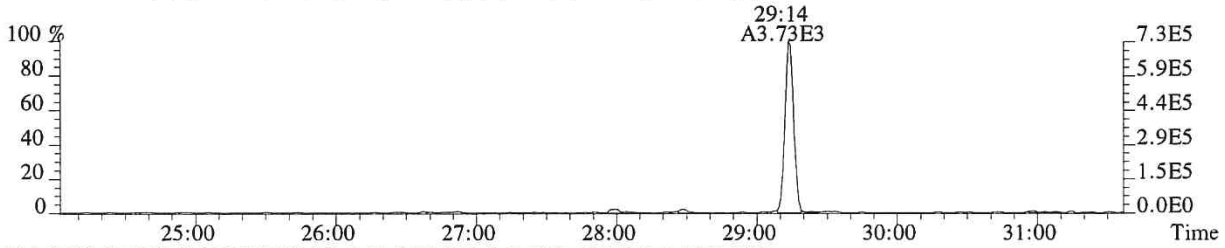
File:P615727 #1-538 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

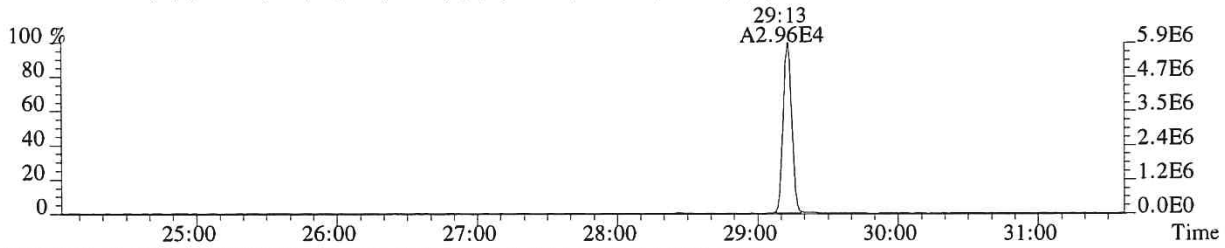
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



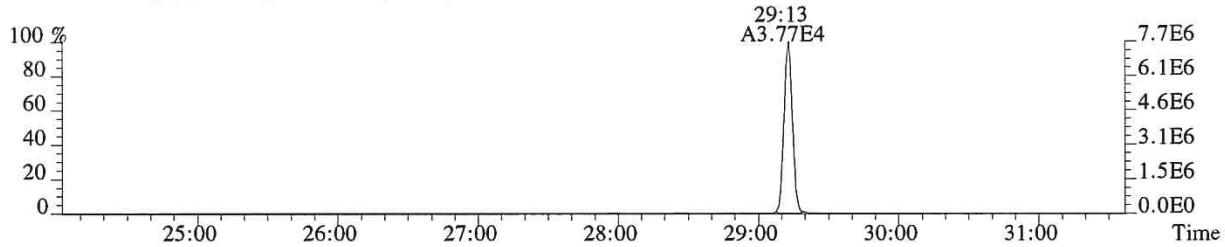
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3196.0,1.00%,F,T)



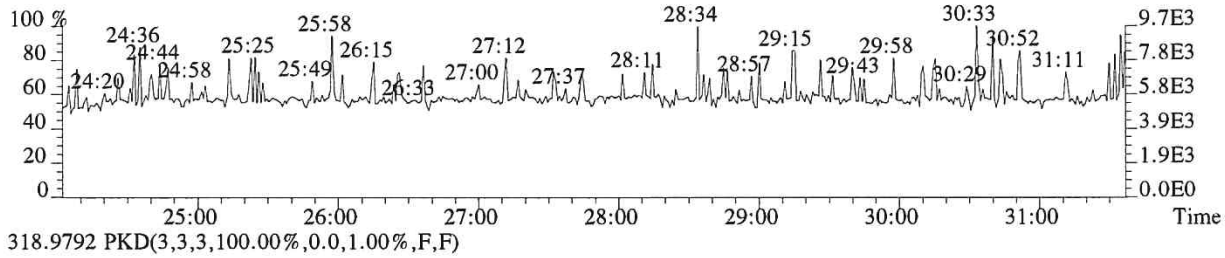
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13040.0,1.00%,F,T)



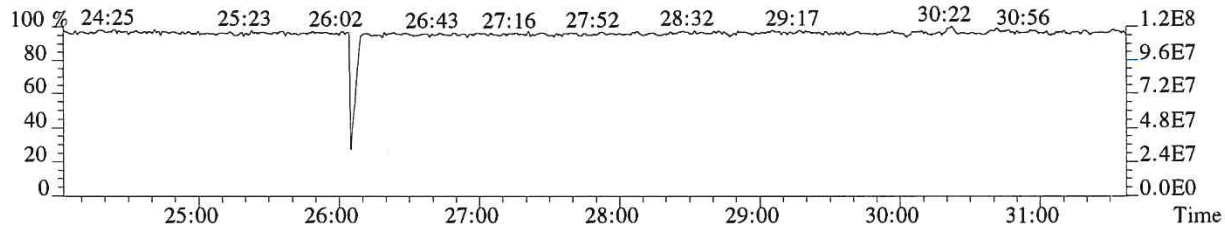
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6900.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

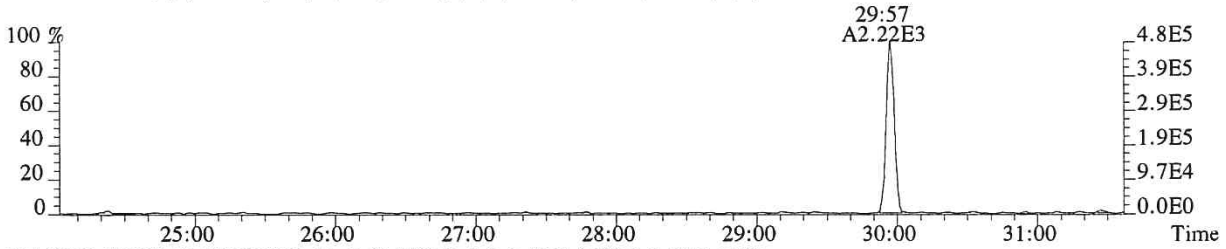


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

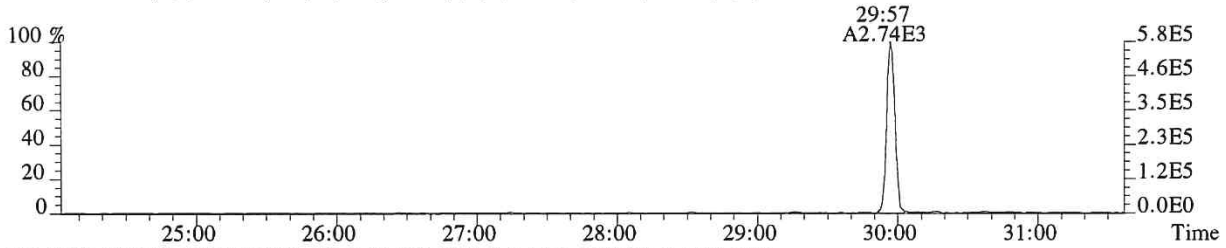


009911

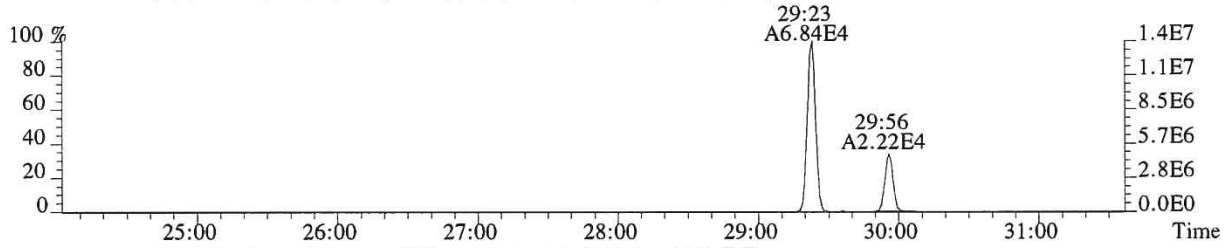
File:P615727 #1-538 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



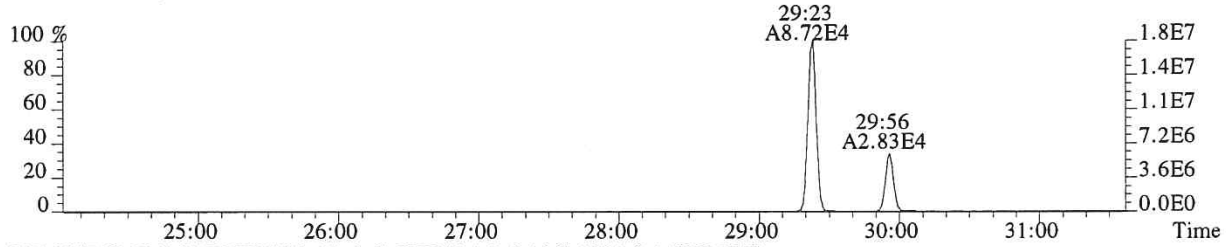
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



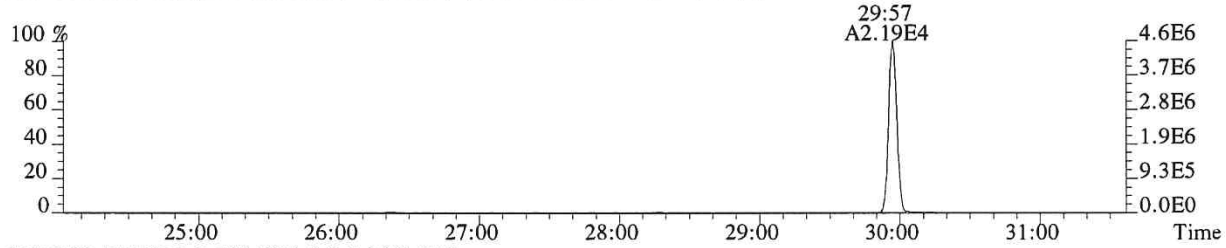
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13780.0,1.00%,F,T)



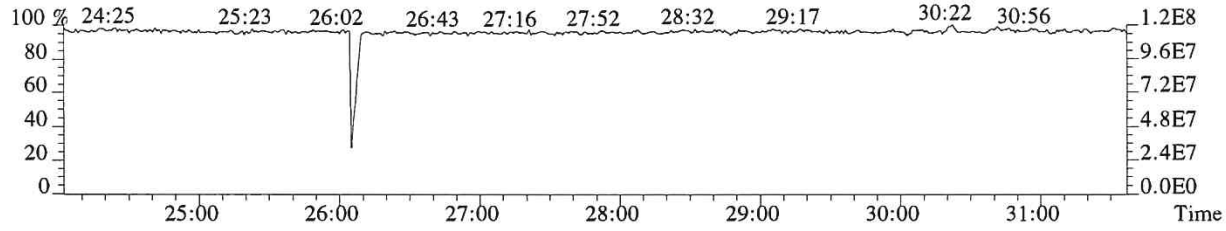
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5332.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2232.0,1.00%,F,T)

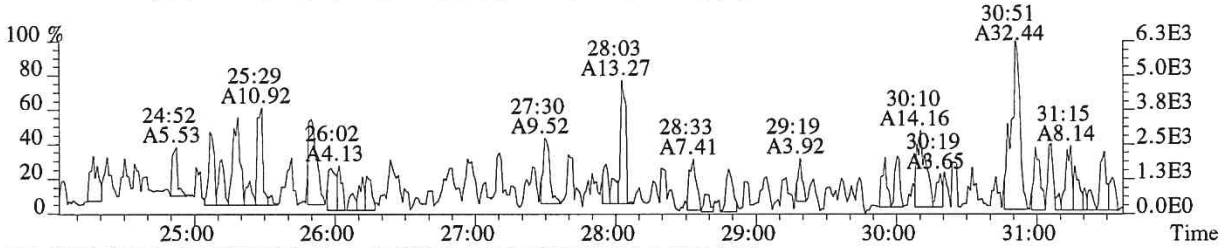


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

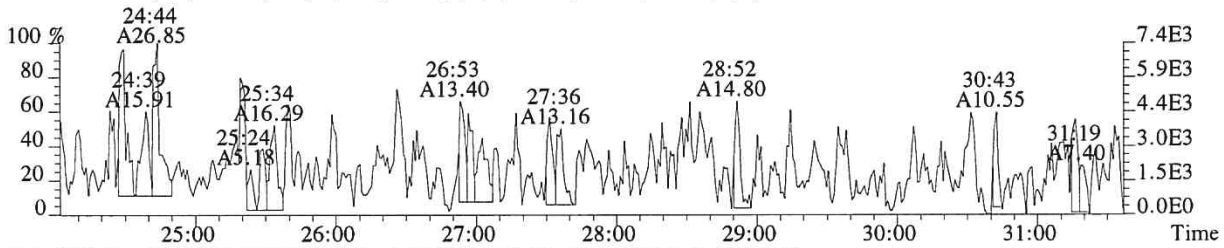


009912

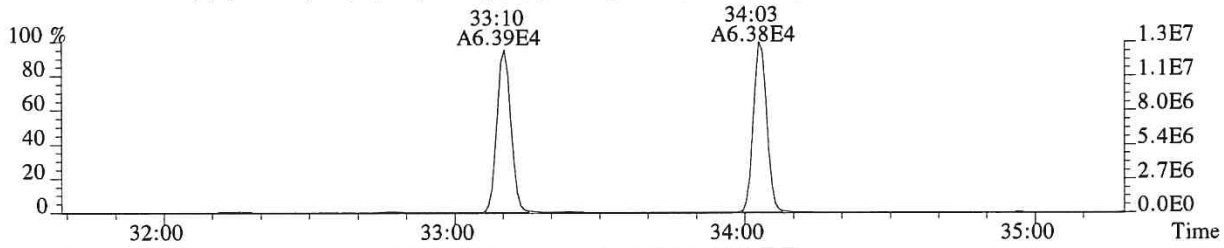
File:P615727 #1-538 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



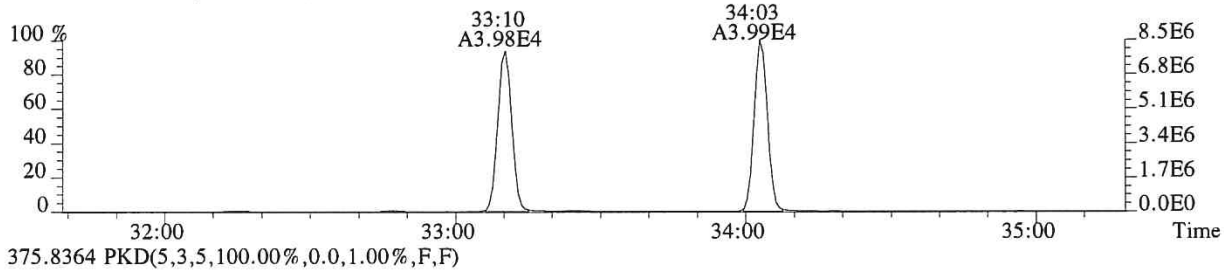
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2332.0,1.00%,F,T)



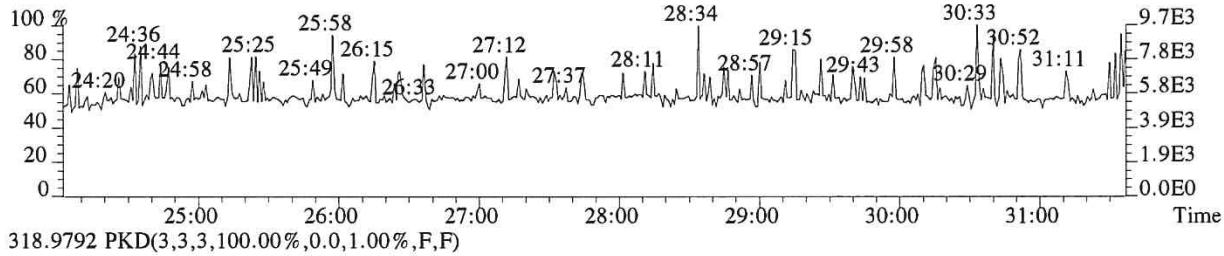
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



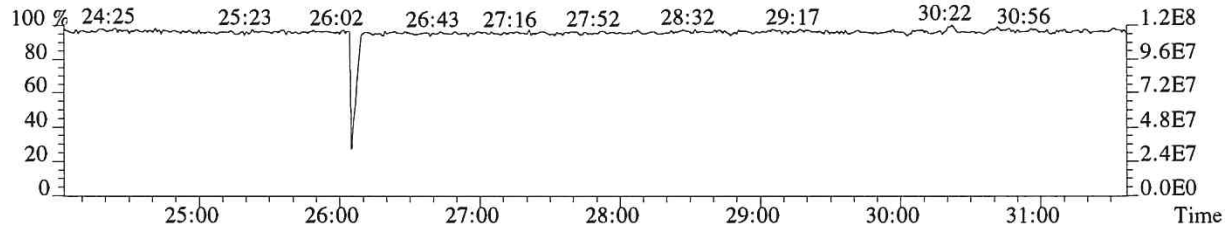
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

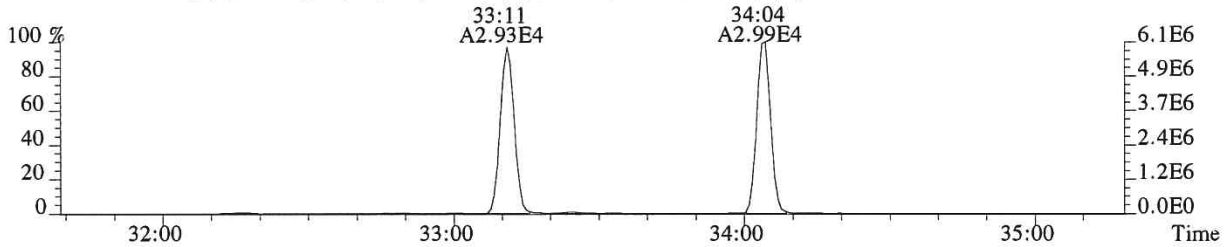


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

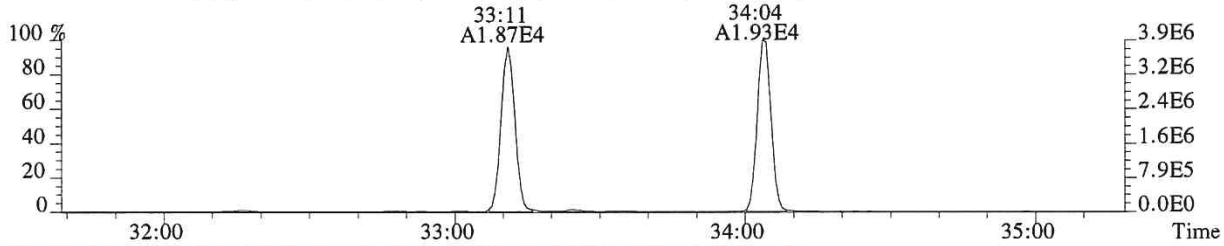


009913

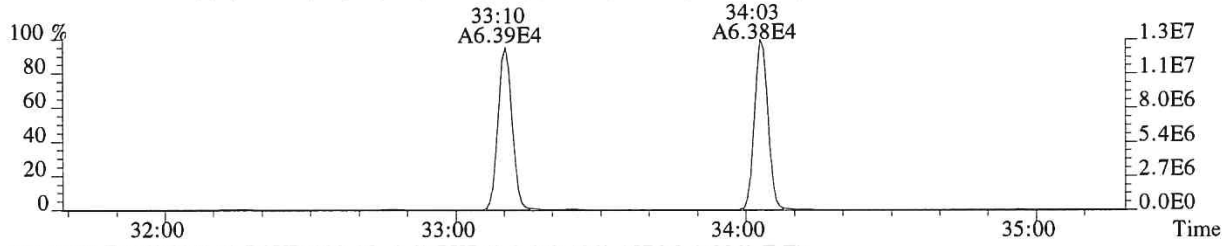
File:P615727 #1-330 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



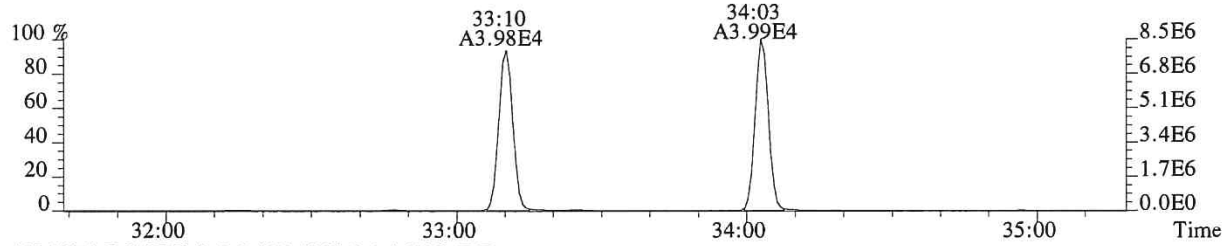
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3140.0,1.00%,F,T)



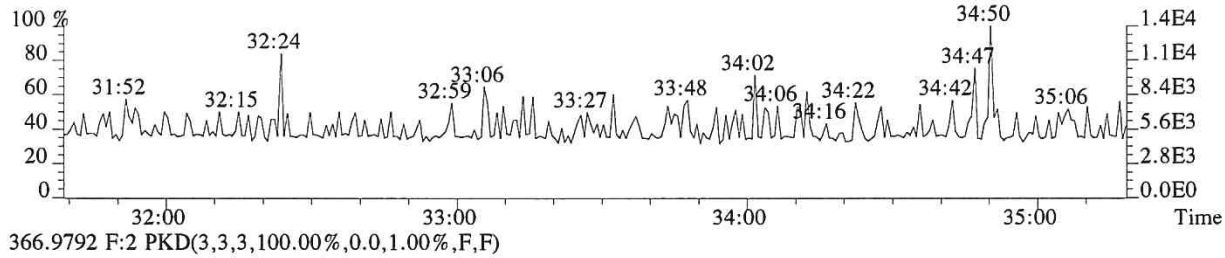
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



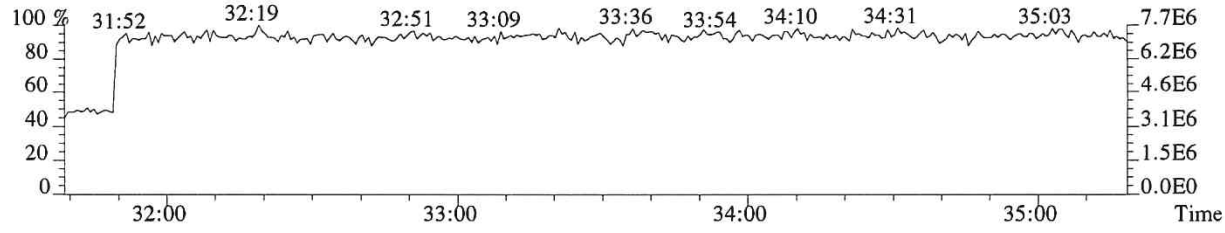
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

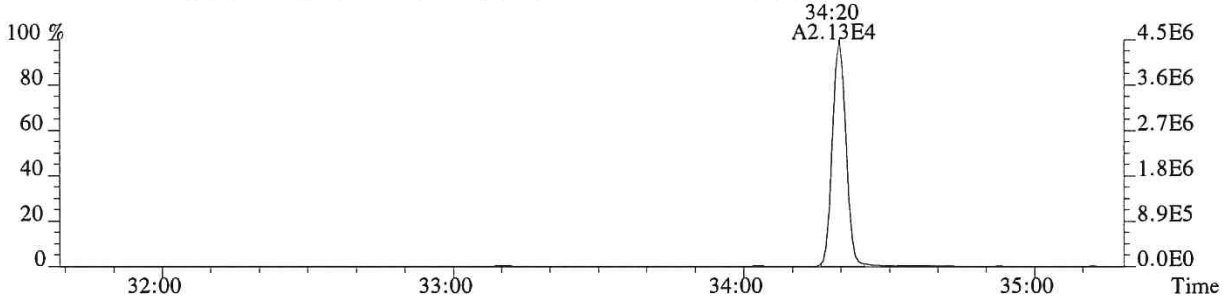


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

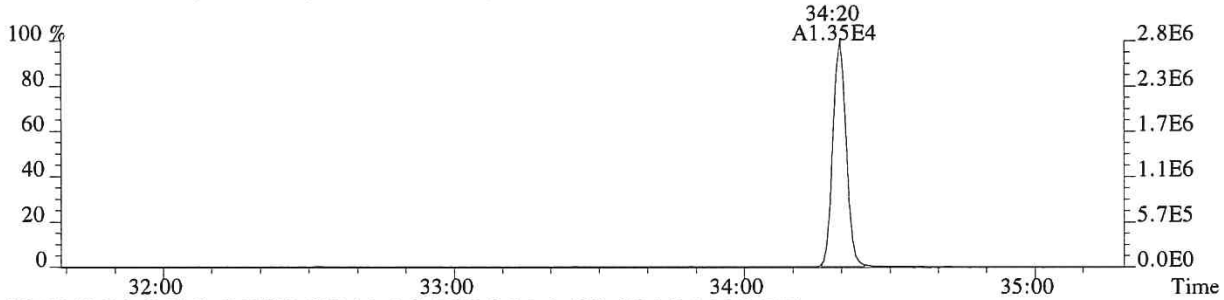


009914

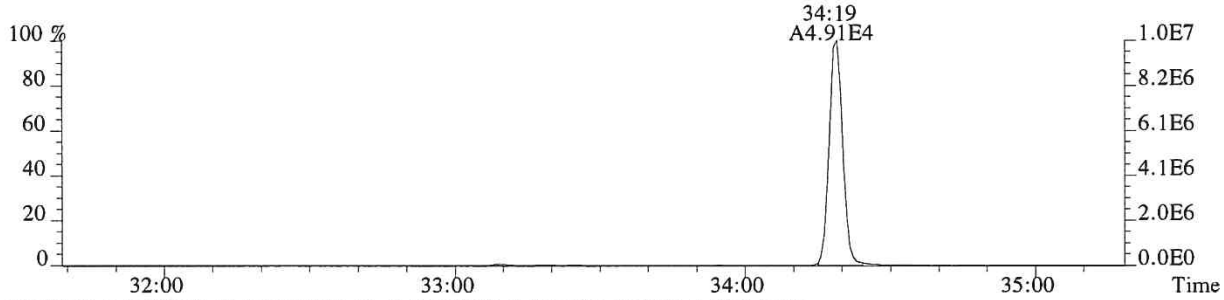
File:P615727 #1-330 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



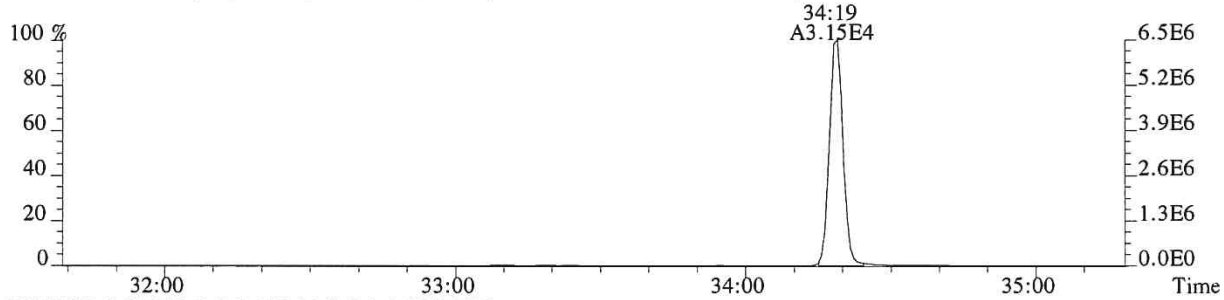
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



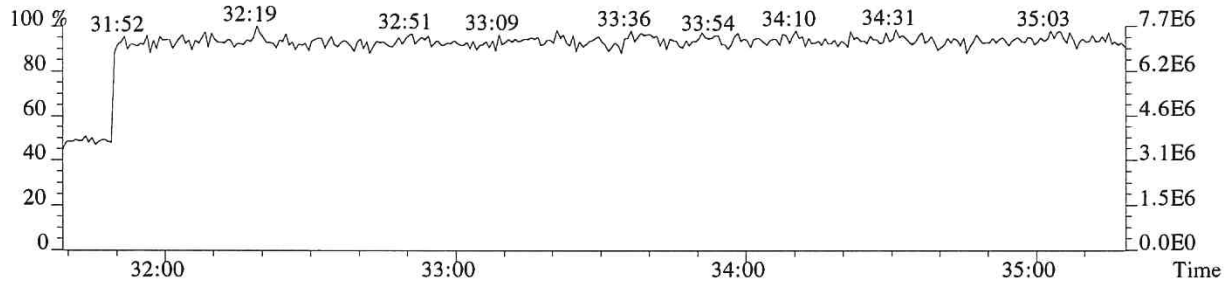
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)

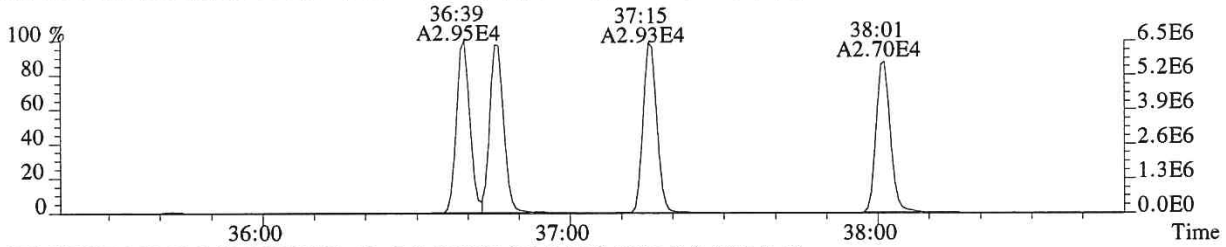


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

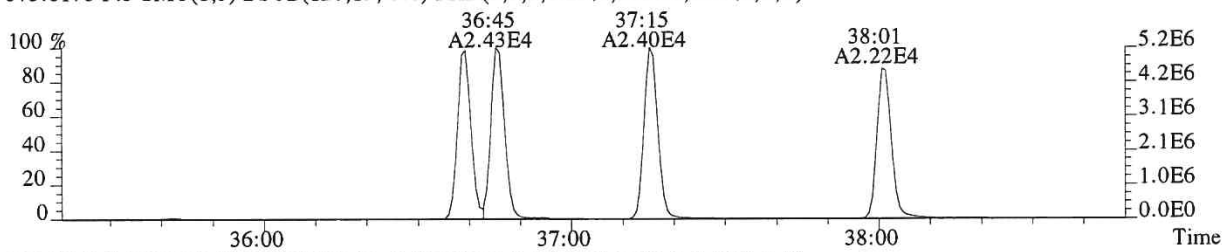


File:P615727 #1-312 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

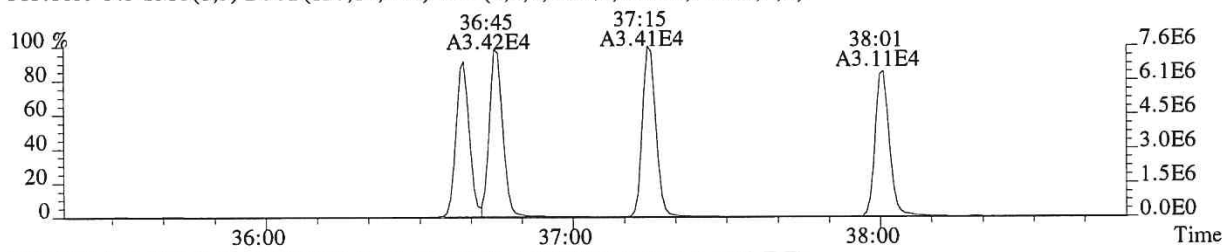
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



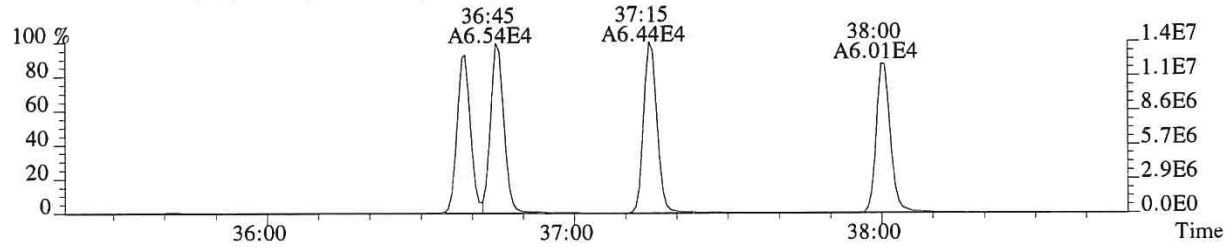
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3016.0,0.40%,F,T)



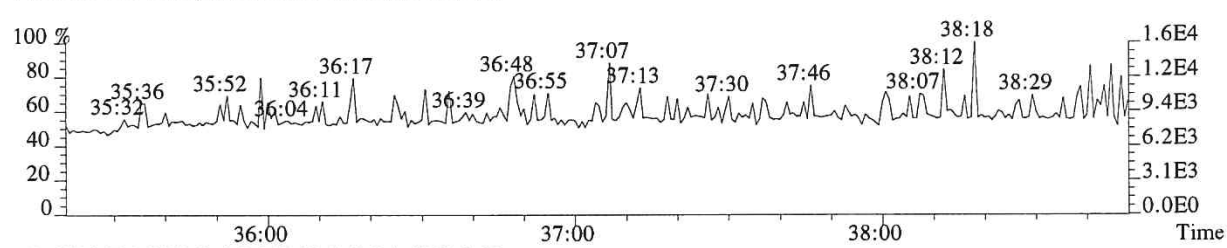
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2200.0,0.40%,F,T)



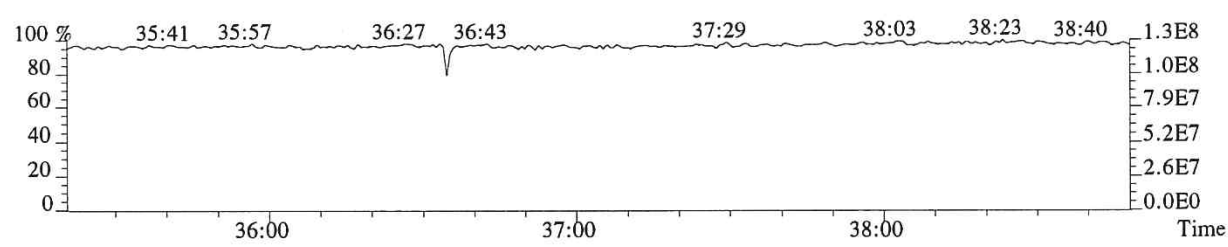
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

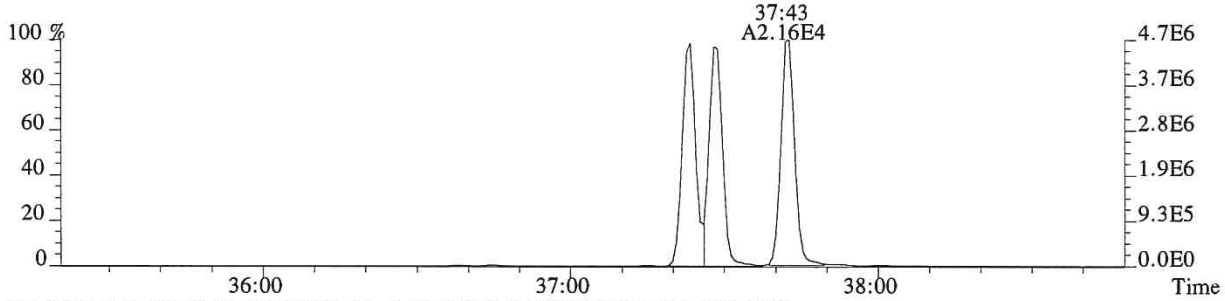


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

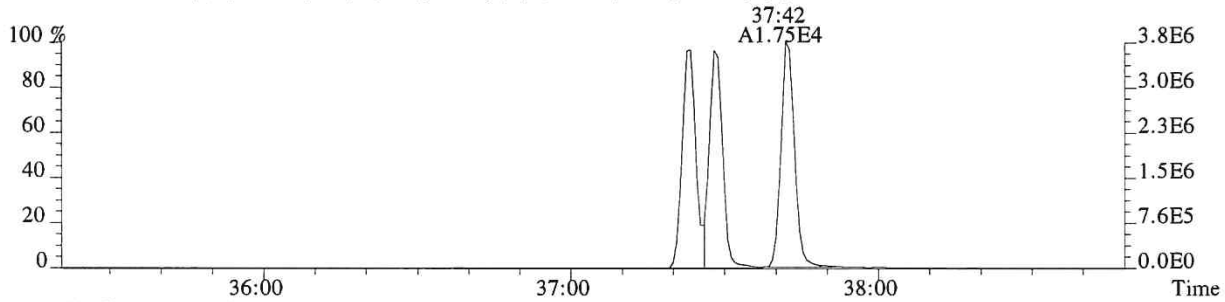


File:P615727 #1-312 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

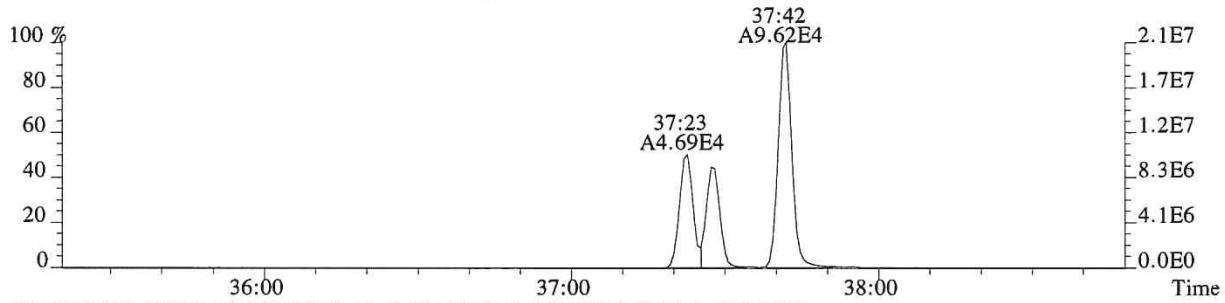
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



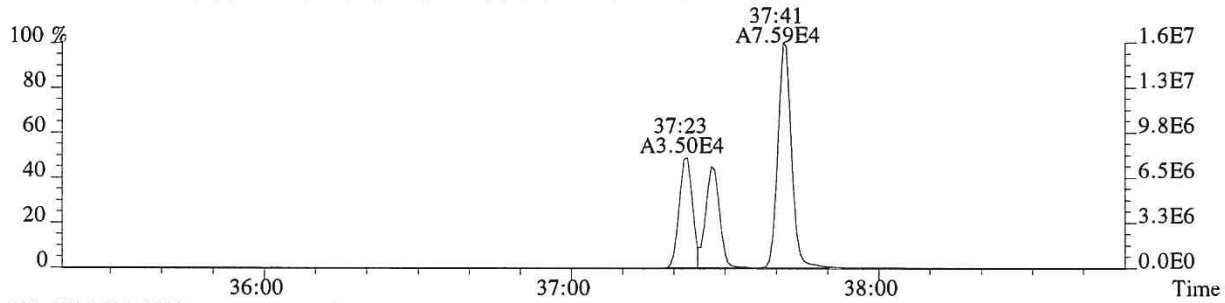
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



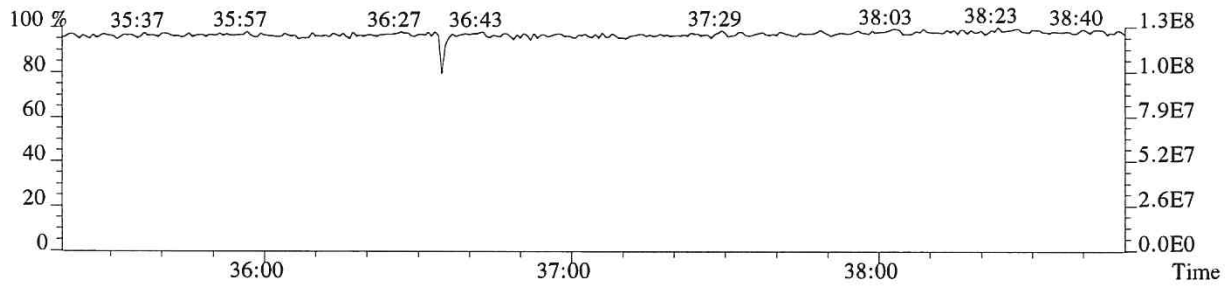
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3972.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)

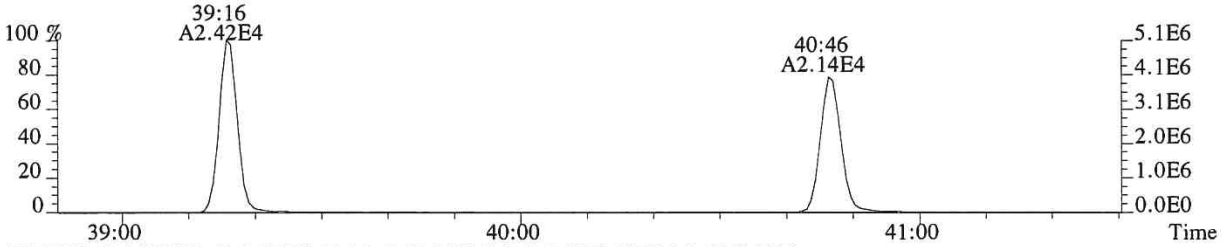


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

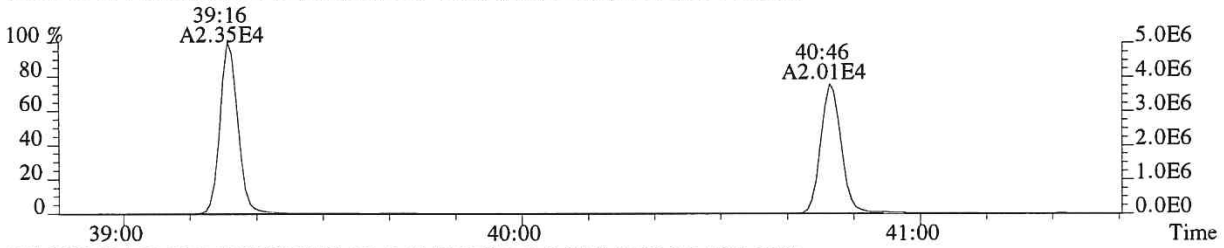


File:P615727 #1-241 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

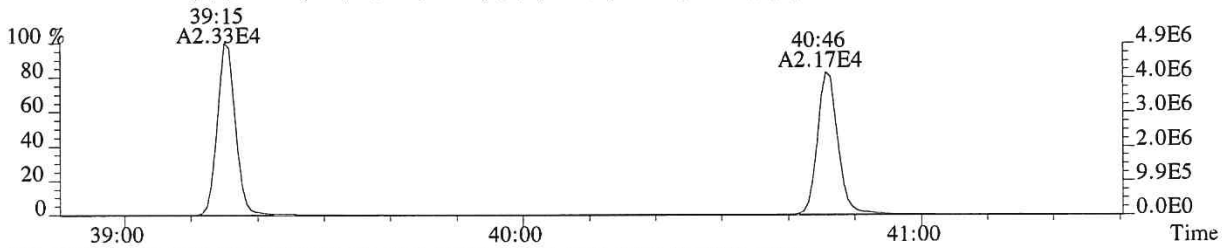
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4584.0,0.50%,F,T)



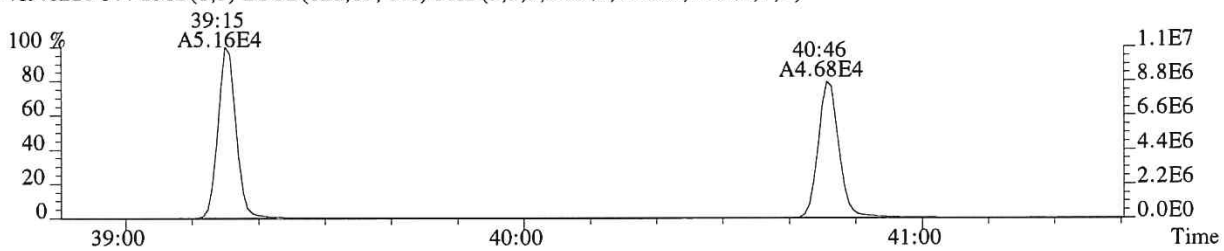
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.50%,F,T)



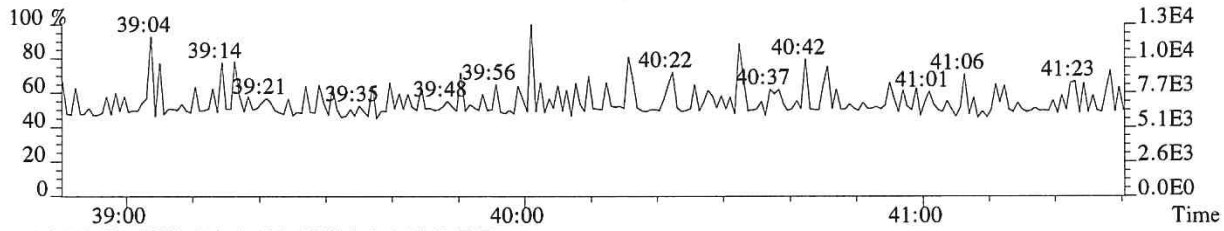
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.50%,F,T)



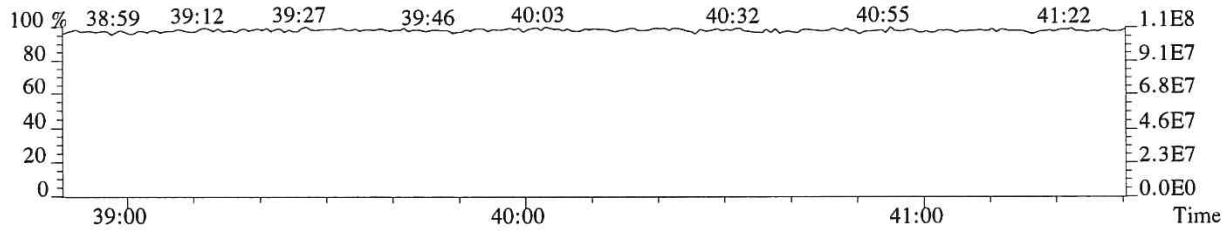
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3376.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

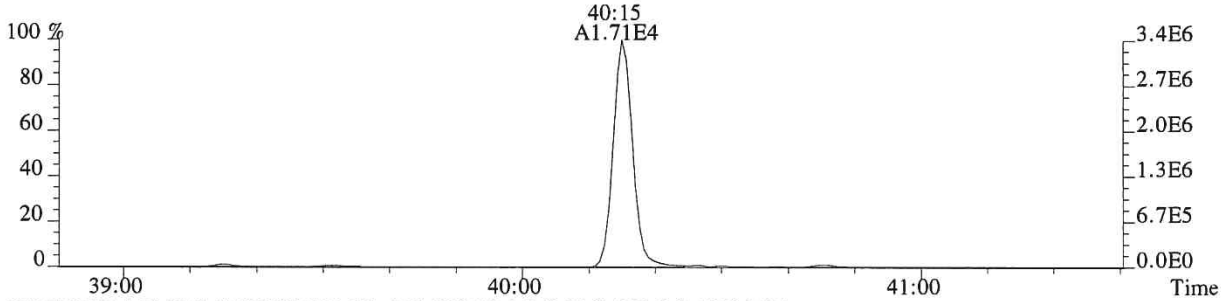


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

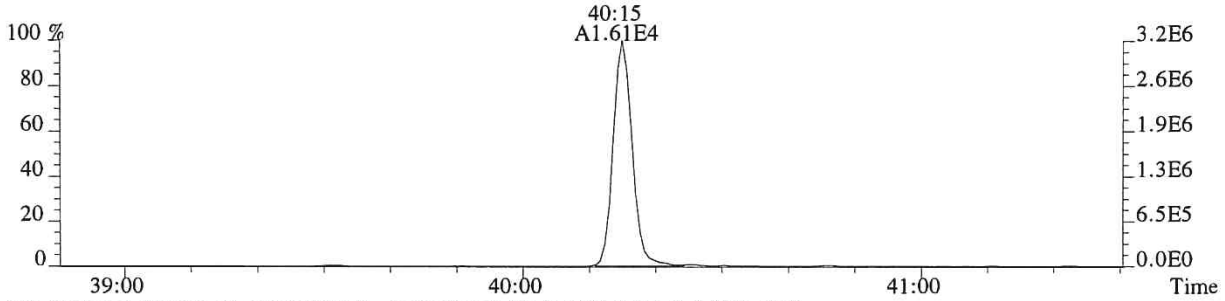


009918

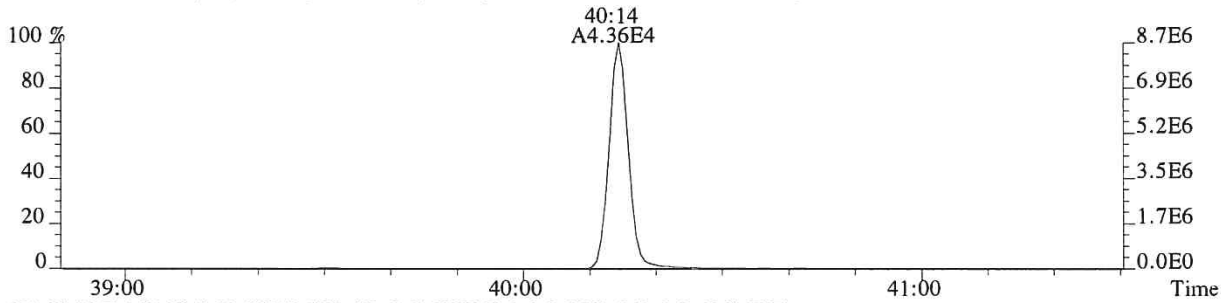
File:P615727 #1-241 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



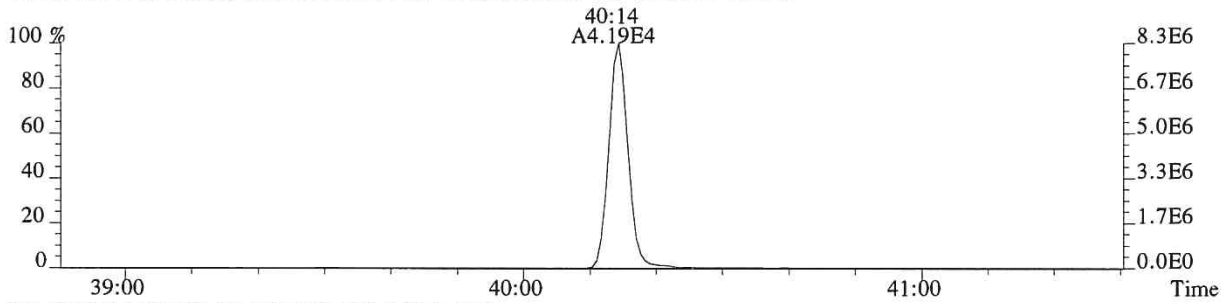
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



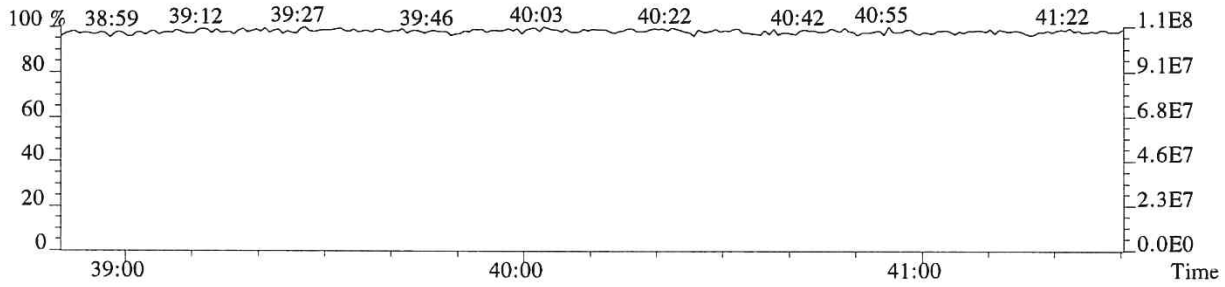
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1352.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)

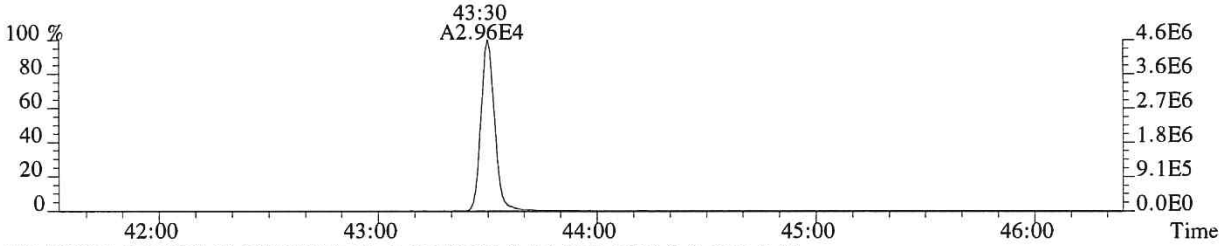


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

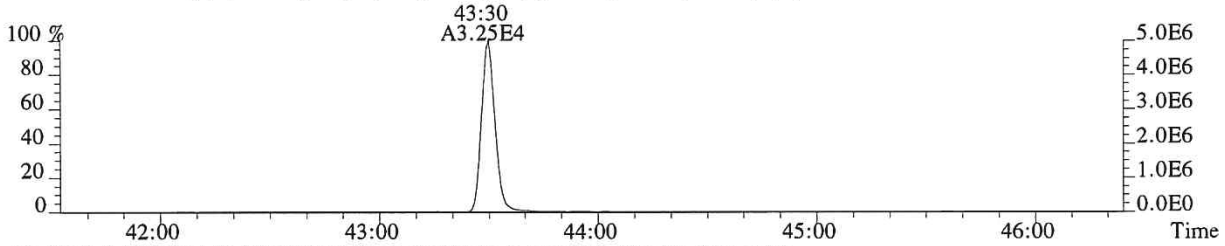


File:P615727 #1-438 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

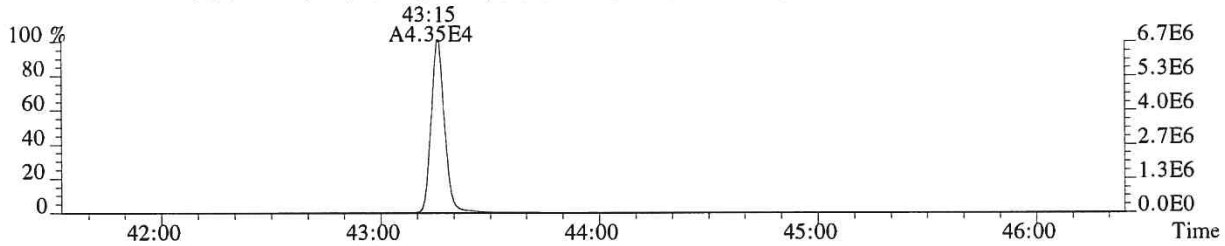
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1080.0,0.40%,F,T)



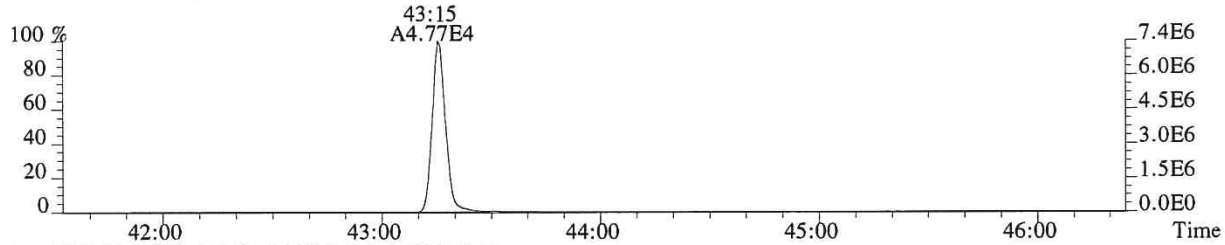
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2344.0,0.40%,F,T)



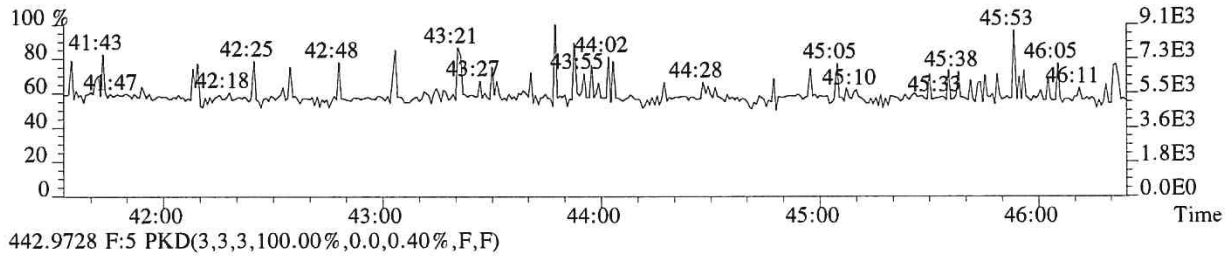
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



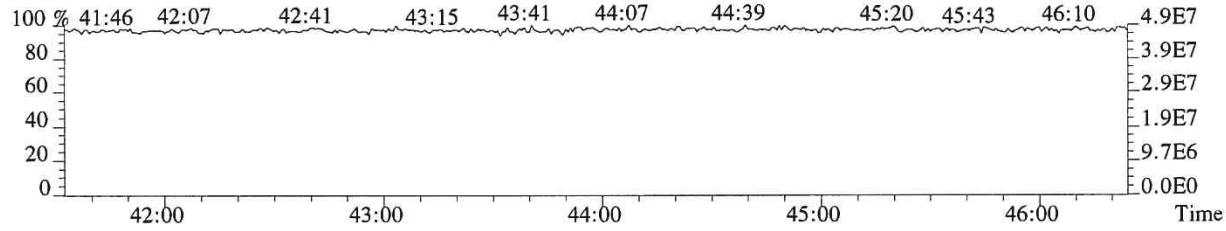
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

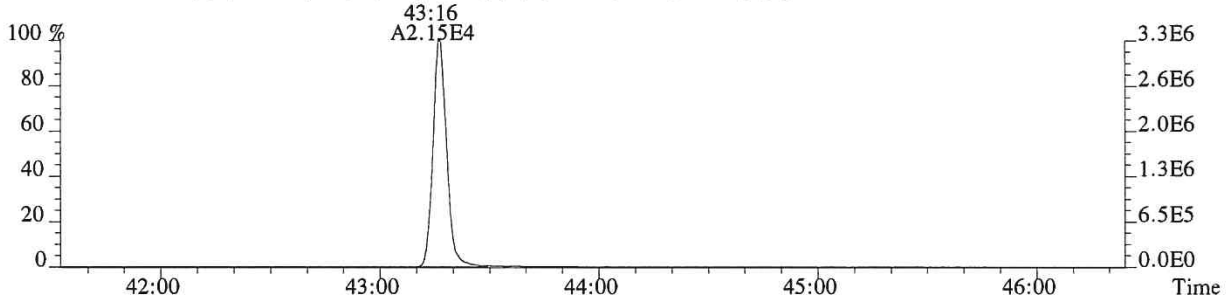


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

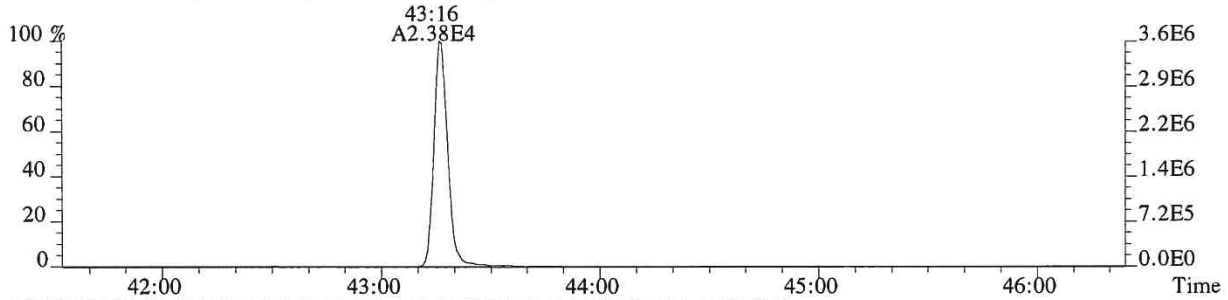


009920

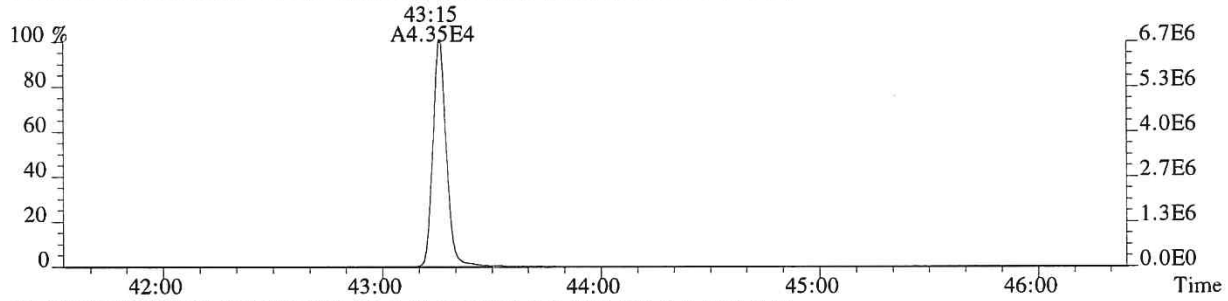
File:P615727 #1-438 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



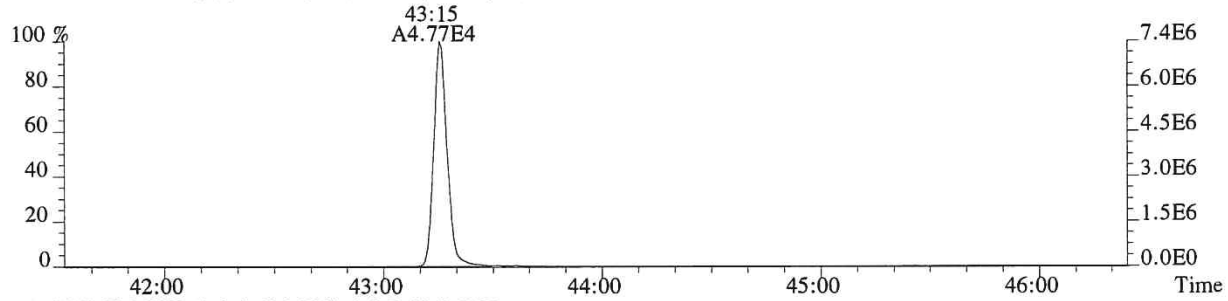
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1764.0,0.40%,F,T)



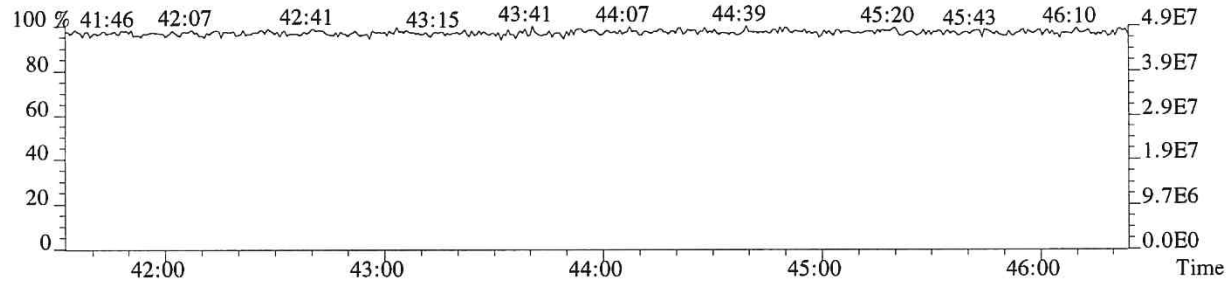
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



009921

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #20 Filename P615728 Samp: 1 Inj: 1 Acquired: 27-NOV-18 21:43:01
Processed: 28-NOV-18 10:28:01 Sample ID: EQ1800467-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:14	2.241e+03	2.853e+03	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:10	2.312e+04	1.452e+04	1.59	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:04	2.313e+04	1.472e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	2.398e+04	1.910e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:45	2.479e+04	1.987e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:15	2.583e+04	2.075e+04	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:01	2.380e+04	1.933e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:15	2.245e+04	2.175e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	1.963e+04	1.929e+04	1.02	yes	no	1.463
10	Unk	OCDF	43:29	2.922e+04	3.339e+04	0.88	yes	no	1.571
11	Unk	2,3,7,8-TCDD	29:57	1.617e+03	2.157e+03	0.75	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:19	1.557e+04	1.015e+04	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	1.724e+04	1.338e+04	1.29	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:28	1.700e+04	1.357e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:42	1.921e+04	1.520e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:14	1.566e+04	1.506e+04	1.04	yes	no	1.112
17	Unk	OCDD	43:15	2.053e+04	2.304e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:12	2.326e+04	2.922e+04	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	4.801e+04	3.031e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:03	4.693e+04	2.930e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:38	2.412e+04	4.653e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	2.734e+04	5.176e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	2.843e+04	5.528e+04	0.51	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:00	2.601e+04	4.986e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:14	2.061e+04	4.579e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:45	1.968e+04	4.339e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:55	1.778e+04	2.234e+04	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:18	3.518e+04	2.274e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:22	3.702e+04	2.883e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:27	3.411e+04	2.611e+04	1.31	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	3.899e+04	3.694e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	43:15	4.012e+04	4.431e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:22	6.603e+04	8.282e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:41	8.059e+04	6.453e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:56	1.802e+04				no	1.086

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #20 Filename P615728 Samp: 1 Inj: 1 Acquired: 27-NOV-18 21:43:01
Processed: 28-NOV-18 10:28:01 LAB. ID: EQ1800467-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.46e+05	1.36e+03	3.3e+02	5.76e+05	2.39e+03	2.4e+02
2	1,2,3,7,8-PeCDF	4.68e+06	1.18e+03	4.0e+03	2.94e+06	4.42e+03	6.6e+02
3	2,3,4,7,8-PeCDF	4.85e+06	1.18e+03	4.1e+03	3.08e+06	4.42e+03	7.0e+02
4	1,2,3,4,7,8-HxCDF	5.37e+06	1.10e+03	4.9e+03	4.25e+06	1.48e+03	2.9e+03
5	1,2,3,6,7,8-HxCDF	5.34e+06	1.10e+03	4.8e+03	4.26e+06	1.48e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	5.57e+06	1.10e+03	5.0e+03	4.47e+06	1.48e+03	3.0e+03
7	1,2,3,7,8,9-HxCDF	5.02e+06	1.10e+03	4.5e+03	4.12e+06	1.48e+03	2.8e+03
8	1,2,3,4,6,7,8-HpCDF	4.67e+06	3.65e+03	1.3e+03	4.52e+06	2.52e+03	1.8e+03
9	1,2,3,4,7,8,9-HpCDF	3.64e+06	3.65e+03	1.0e+03	3.63e+06	2.52e+03	1.4e+03
10	OCDF	4.48e+06	8.72e+02	5.1e+03	5.13e+06	1.95e+03	2.6e+03
11	2,3,7,8-TCDD	3.37e+05	2.49e+03	1.4e+02	4.39e+05	1.98e+03	2.2e+02
12	1,2,3,7,8-PeCDD	3.29e+06	2.30e+03	1.4e+03	2.15e+06	1.17e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	3.89e+06	1.20e+03	3.2e+03	3.03e+06	1.36e+03	2.2e+03
14	1,2,3,6,7,8-HxCDD	3.69e+06	1.20e+03	3.1e+03	2.93e+06	1.36e+03	2.2e+03
15	1,2,3,7,8,9-HxCDD	4.15e+06	1.20e+03	3.4e+03	3.19e+06	1.36e+03	2.4e+03
16	1,2,3,4,6,7,8-HpCDD	3.08e+06	1.47e+03	2.1e+03	2.97e+06	9.08e+02	3.3e+03
17	OCDD	3.14e+06	6.52e+02	4.8e+03	3.58e+06	8.36e+02	4.3e+03
18	13C-2,3,7,8-TCDF	4.54e+06	1.28e+04	3.5e+02	5.72e+06	6.21e+03	9.2e+02
19	13C-1,2,3,7,8-PeCDF	9.67e+06	9.96e+02	9.7e+03	6.08e+06	1.79e+03	3.4e+03
20	13C-2,3,4,7,8-PeCDF	9.59e+06	9.96e+02	9.6e+03	5.91e+06	1.79e+03	3.3e+03
21	13C-1,2,3,4,7,8-HxCDF	5.33e+06	1.44e+03	3.7e+03	1.04e+07	2.61e+03	4.0e+03
22	13C-1,2,3,6,7,8-HxCDF	5.82e+06	1.44e+03	4.0e+03	1.12e+07	2.61e+03	4.3e+03
23	13C-2,3,4,6,7,8-HxCDF	6.28e+06	1.44e+03	4.4e+03	1.19e+07	2.61e+03	4.6e+03
24	13C-1,2,3,7,8,9-HxCDF	5.58e+06	1.44e+03	3.9e+03	1.05e+07	2.61e+03	4.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.23e+06	2.14e+03	2.0e+03	9.60e+06	3.43e+03	2.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.66e+06	2.14e+03	1.7e+03	8.21e+06	3.43e+03	2.4e+03
27	13C-2,3,7,8-TCDD	3.73e+06	1.48e+04	2.5e+02	4.74e+06	5.73e+03	8.3e+02
28	13C-1,2,3,7,8-PeCDD	7.46e+06	2.04e+03	3.7e+03	4.78e+06	1.83e+03	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	8.51e+06	4.12e+03	2.1e+03	6.51e+06	1.86e+03	3.5e+03
30	13C-1,2,3,6,7,8-HxCDD	7.31e+06	4.12e+03	1.8e+03	5.73e+06	1.86e+03	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.57e+06	2.04e+03	3.7e+03	7.32e+06	4.28e+02	1.7e+04
32	13C-OCDD	6.11e+06	8.40e+02	7.3e+03	6.95e+06	6.92e+02	1.0e+04
33	13C-1,2,3,4-TCDD	1.38e+07	1.48e+04	9.4e+02	1.73e+07	5.73e+03	3.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.76e+07	4.12e+03	4.3e+03	1.39e+07	1.86e+03	7.5e+03
35	37Cl-2,3,7,8-TCDD	3.72e+06	1.96e+03	1.9e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.492e{+}03 + 1.980e{+}03) \times 2000}{(3.726e{+}06 + 4.740e{+}06) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
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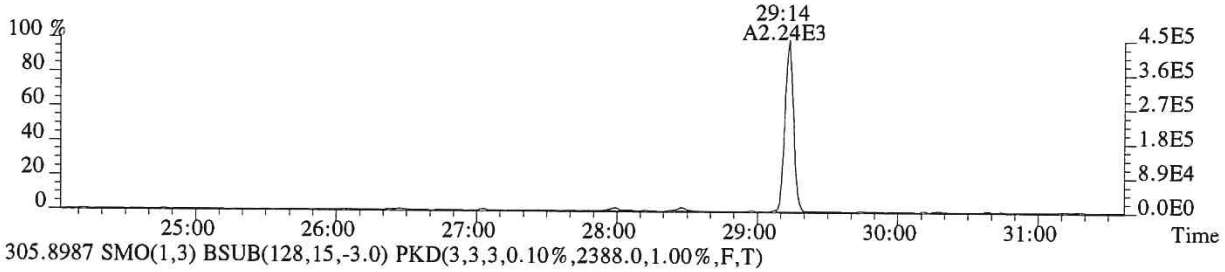
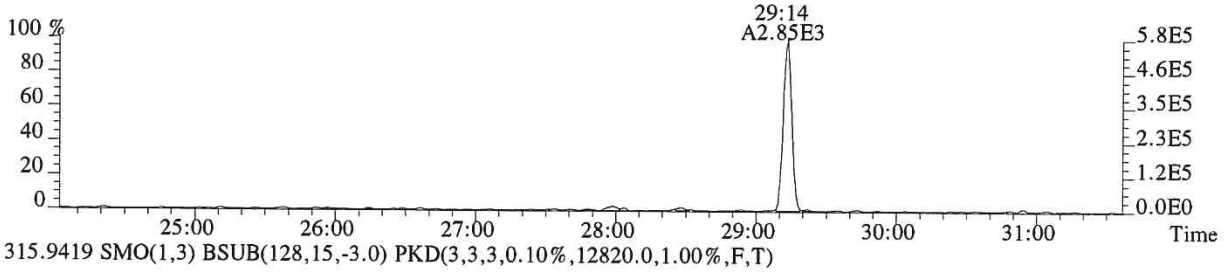
Office:(281)530-5656. Fax:(281)530-5887

File:P615728 #1-538 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

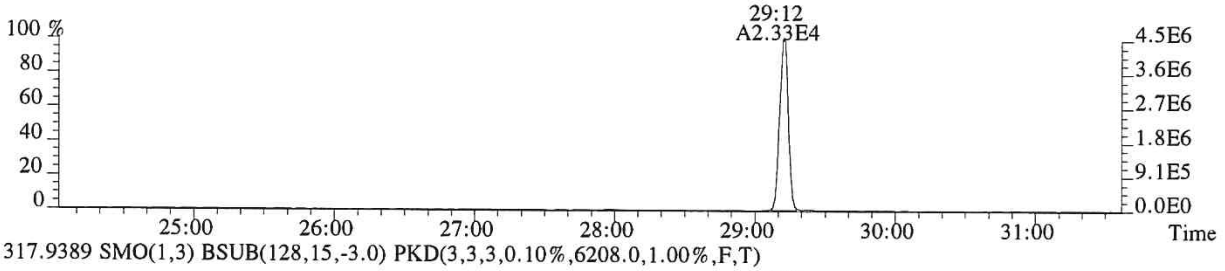
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



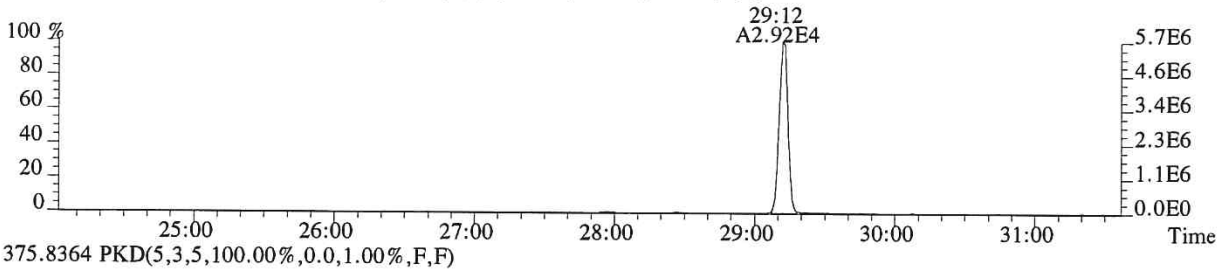
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



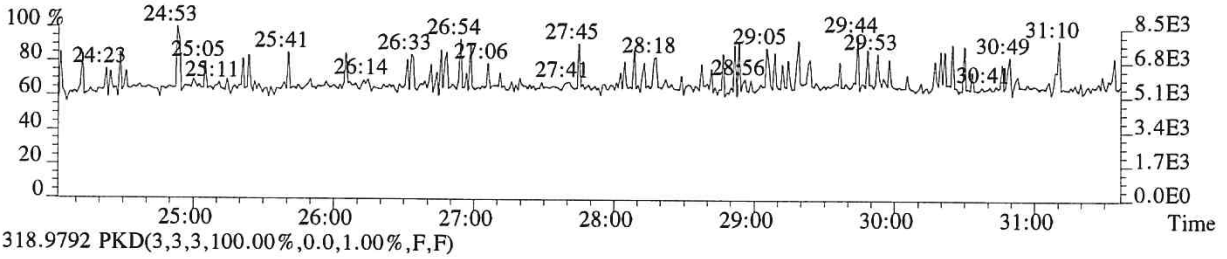
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12820.0,1.00%,F,T)



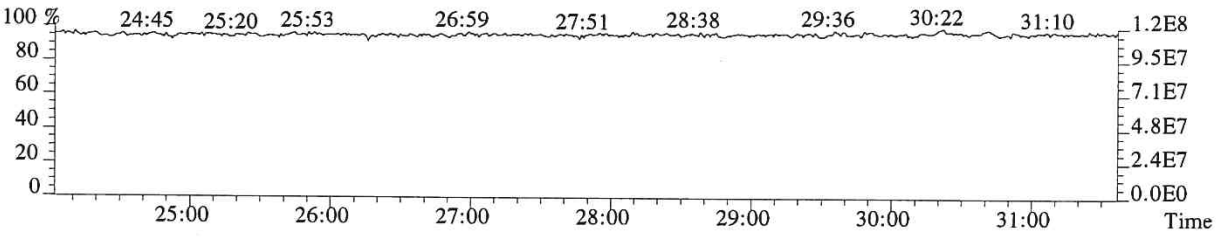
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6208.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



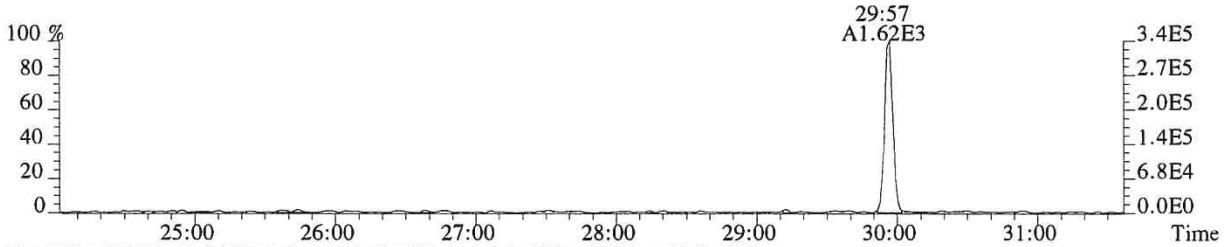
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



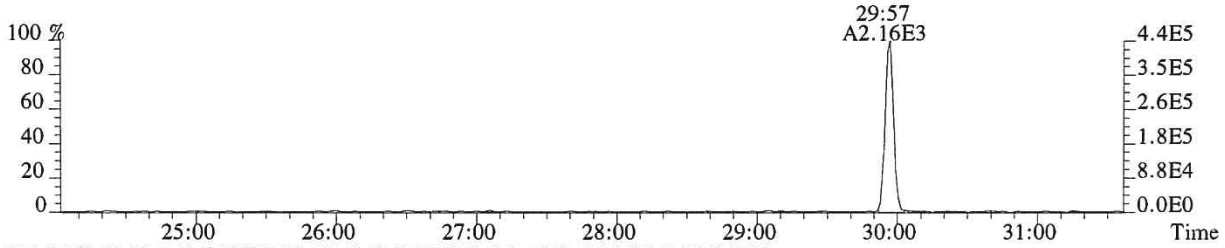
009924

File:P615728 #1-538 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

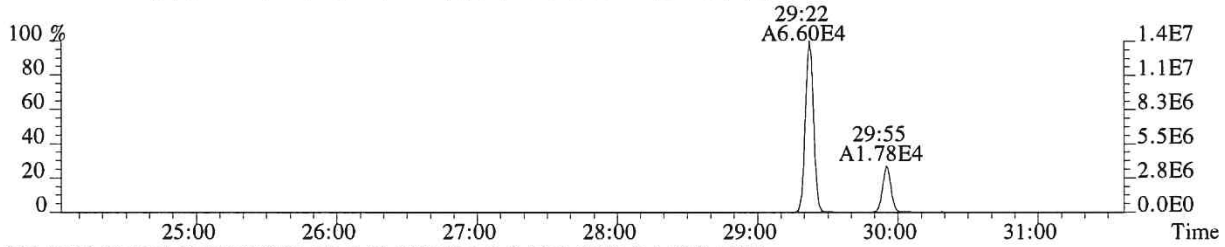
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2492.0,1.00%,F,T)



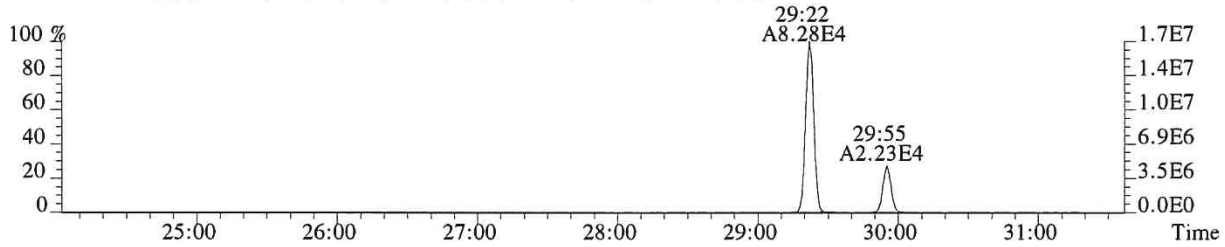
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



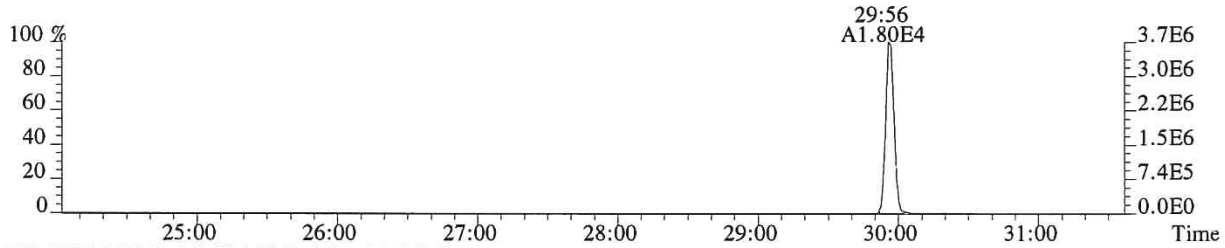
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14796.0,1.00%,F,T)



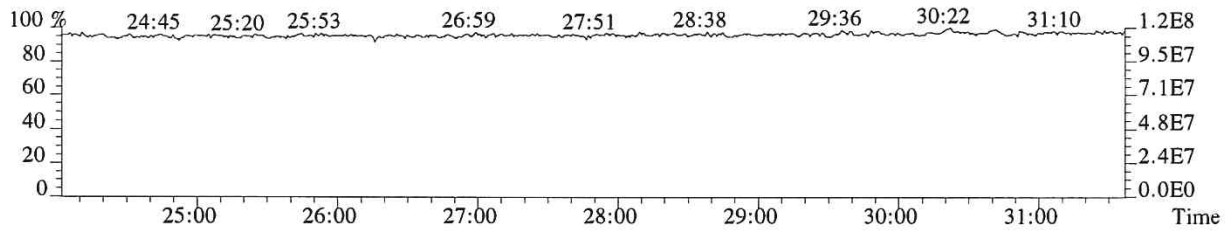
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5732.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1960.0,1.00%,F,T)

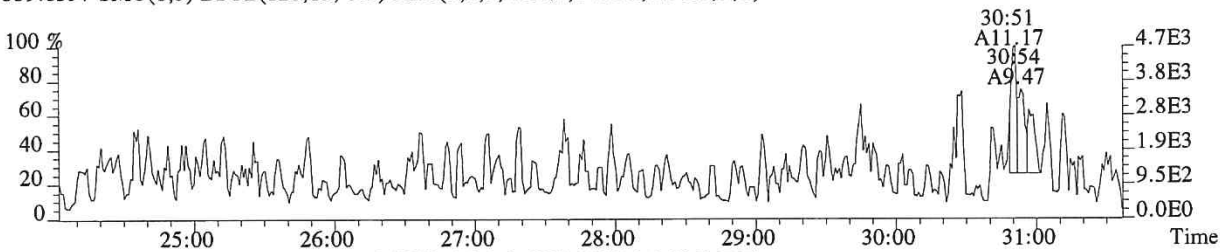


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

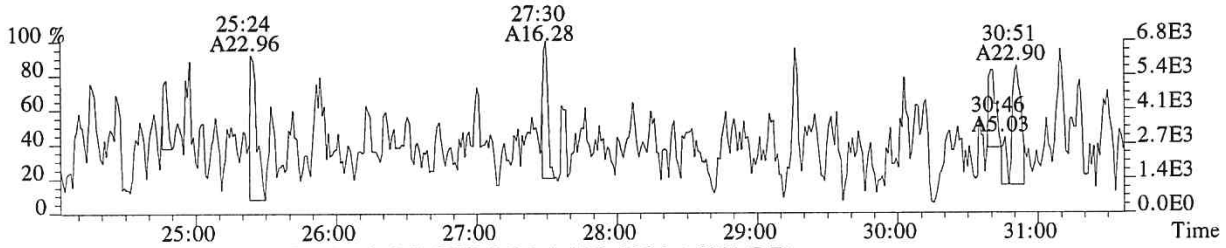


009925

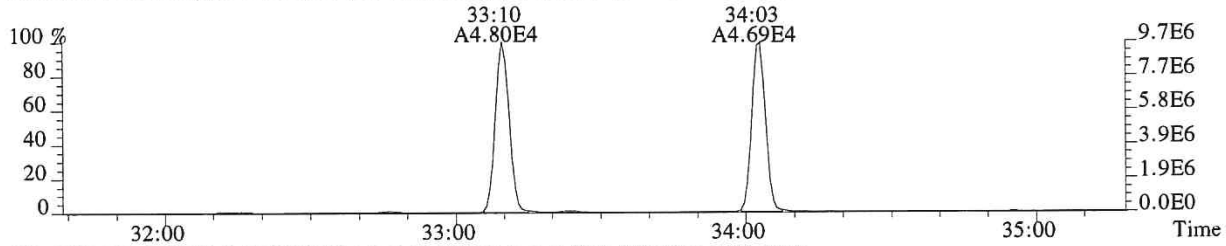
File:P615728 #1-538 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



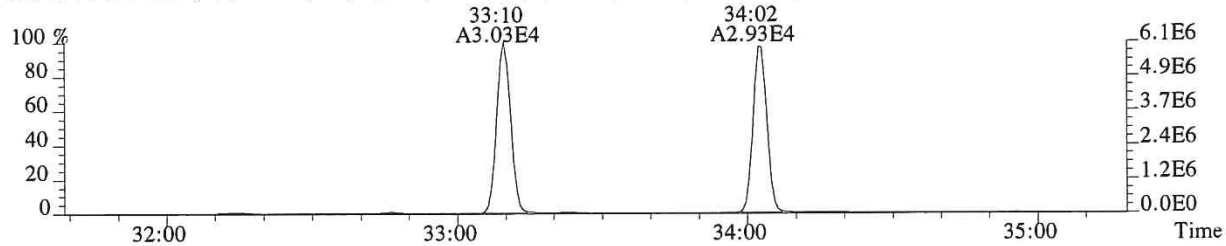
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3316.0,1.00%,F,T)



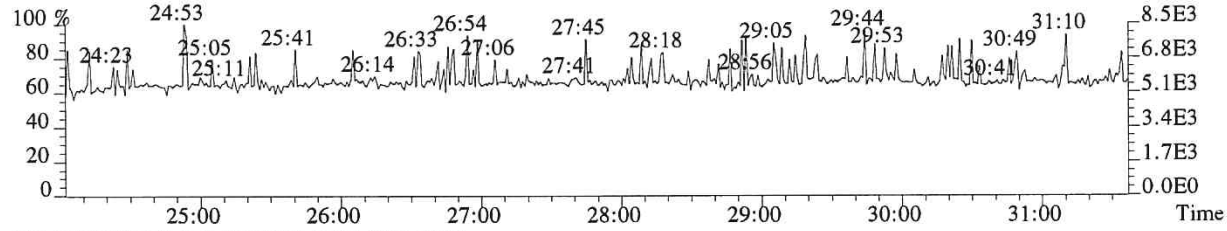
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



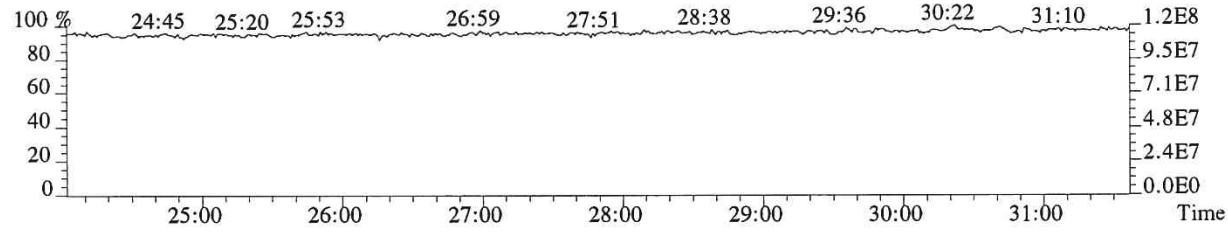
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



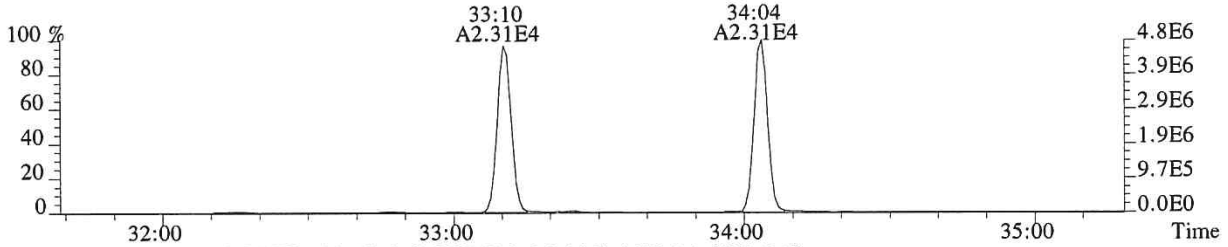
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



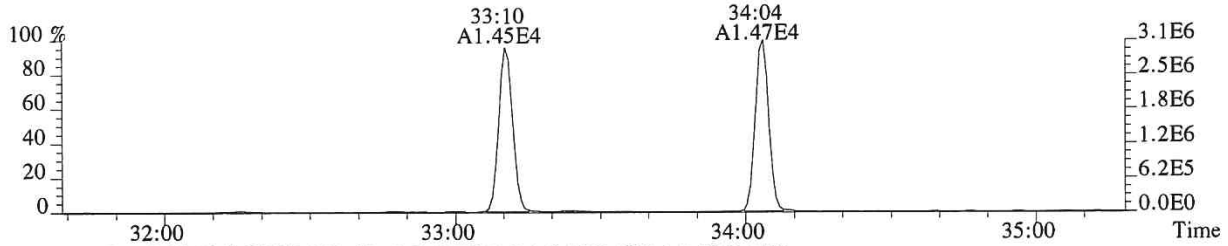
009926

File:P615728 #1-330 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

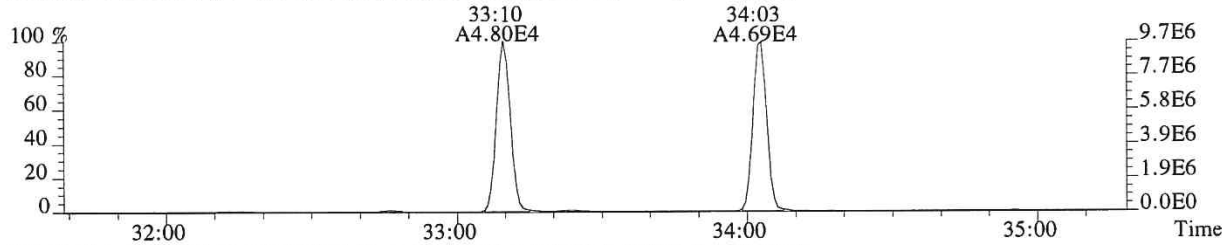
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



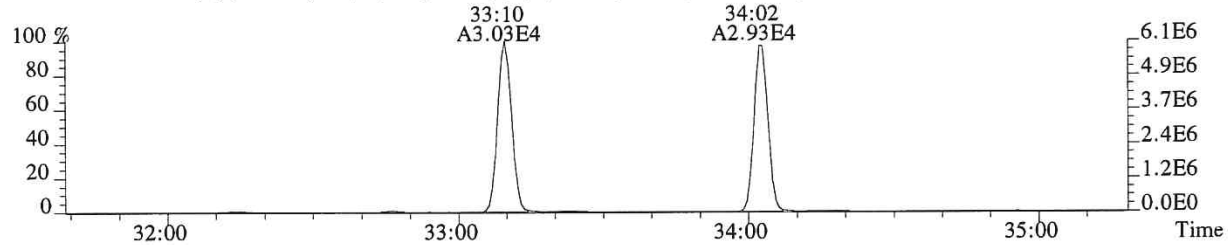
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4420.0,1.00%,F,T)



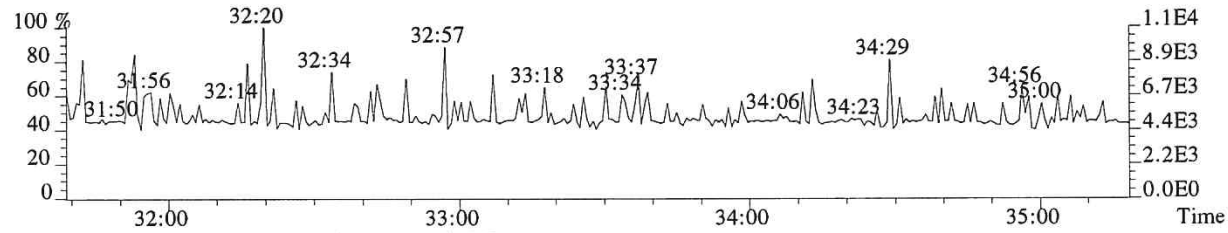
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



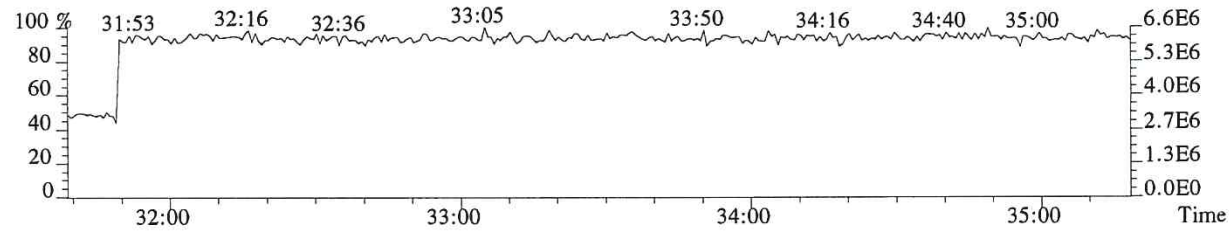
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

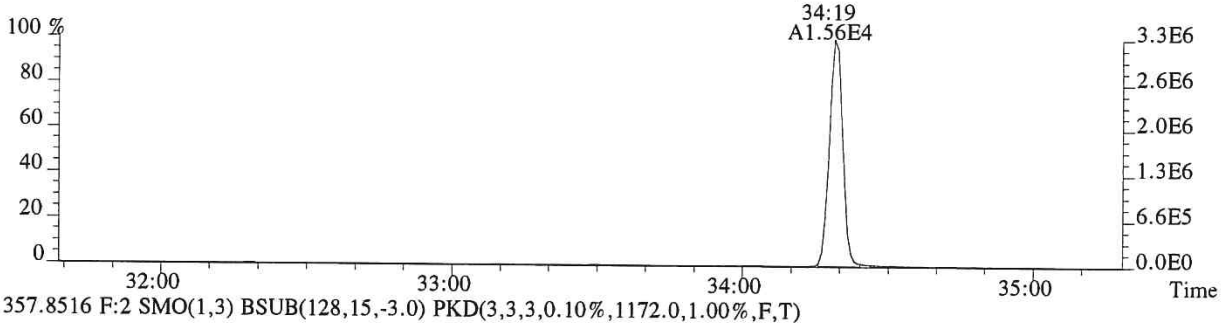


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

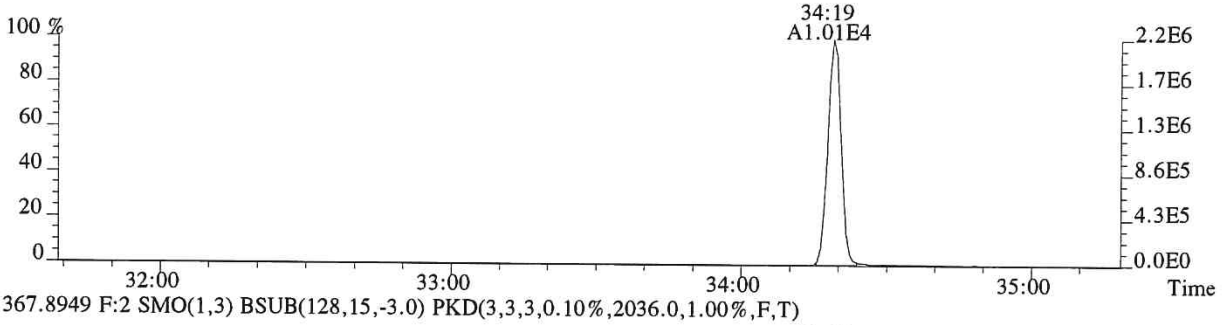


009927

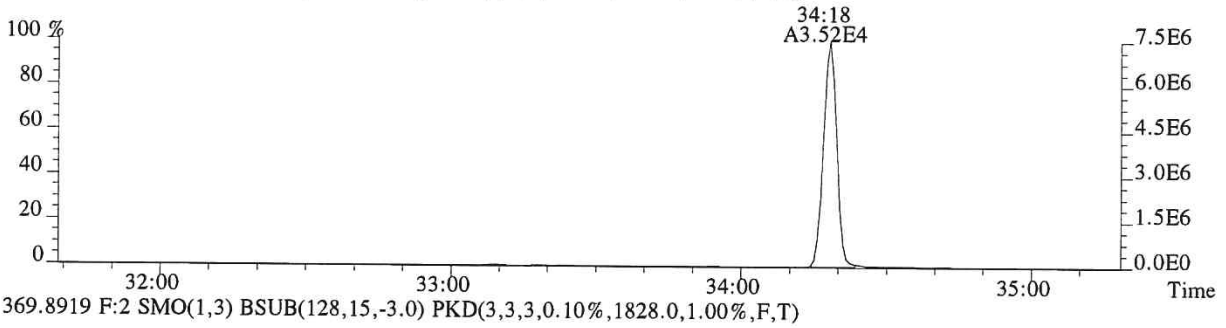
File:P615728 #1-330 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)



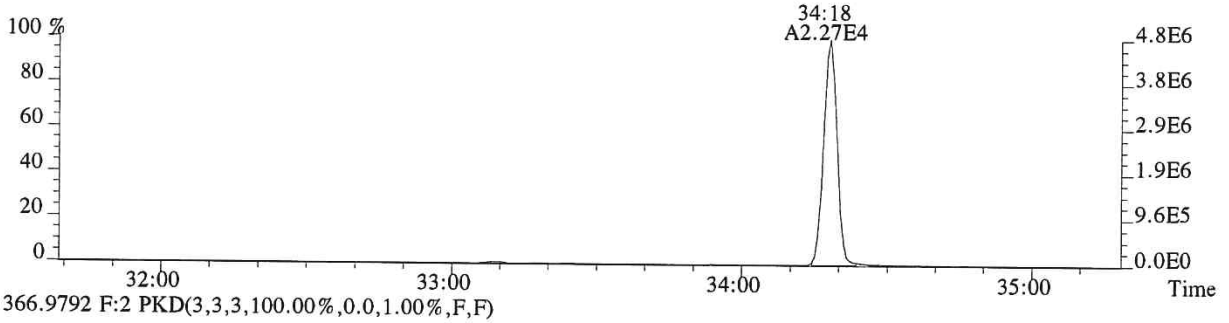
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



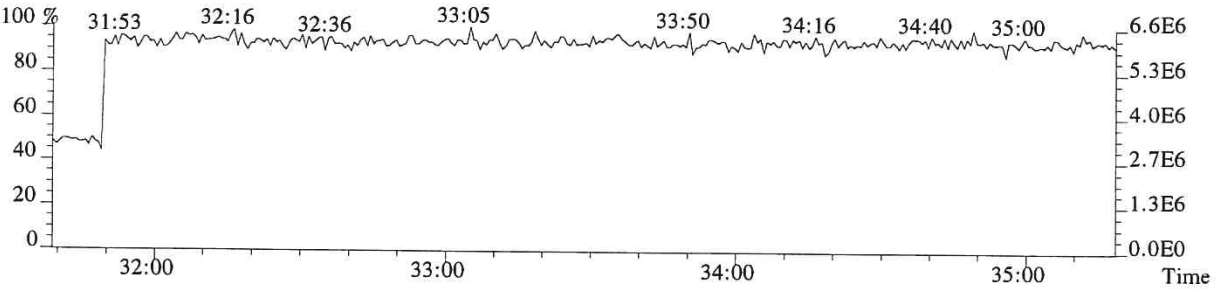
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



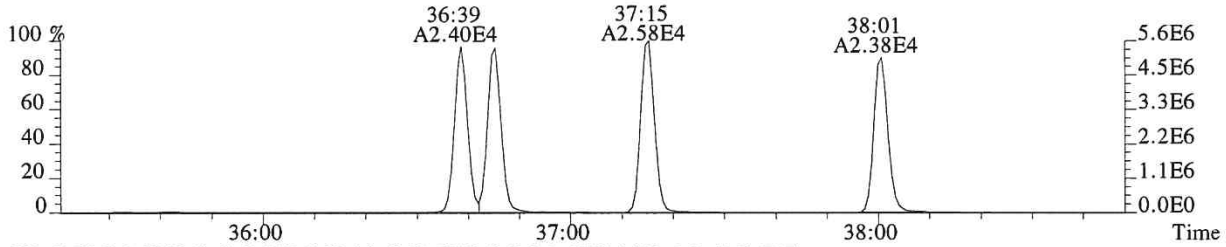
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



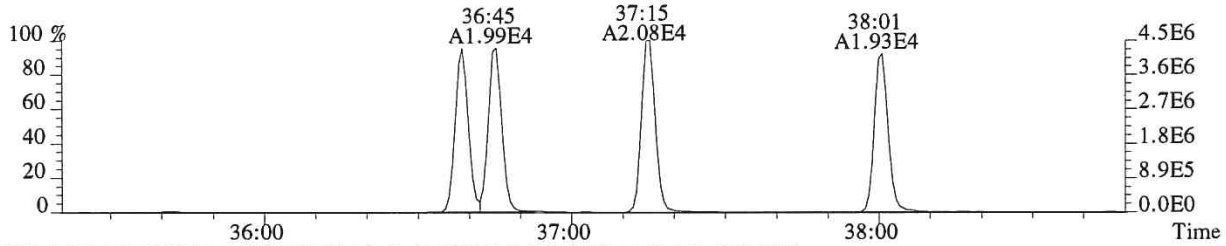
009928

File:P615728 #1-312 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

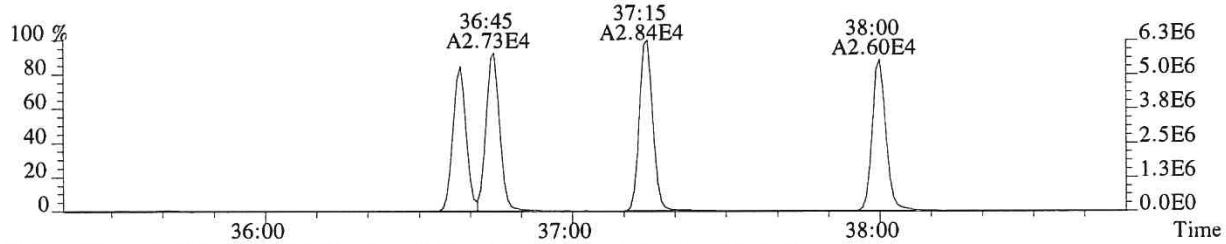
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



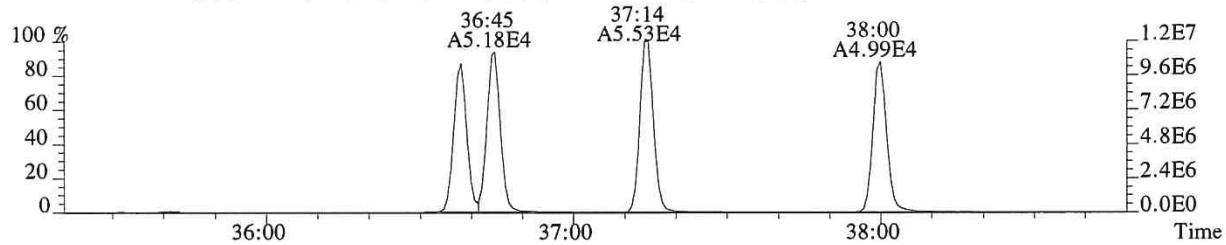
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1480.0,0.40%,F,T)



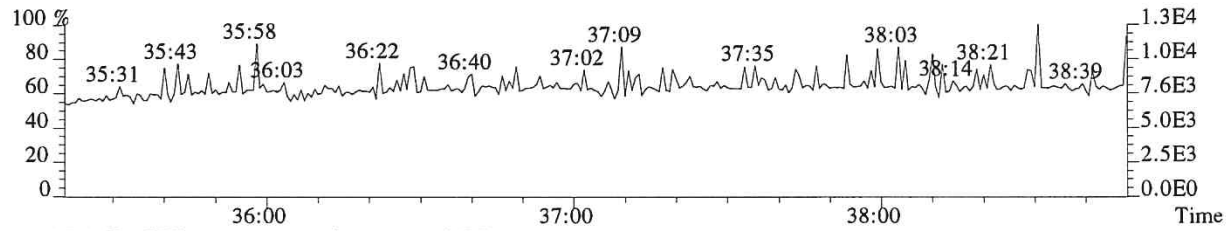
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



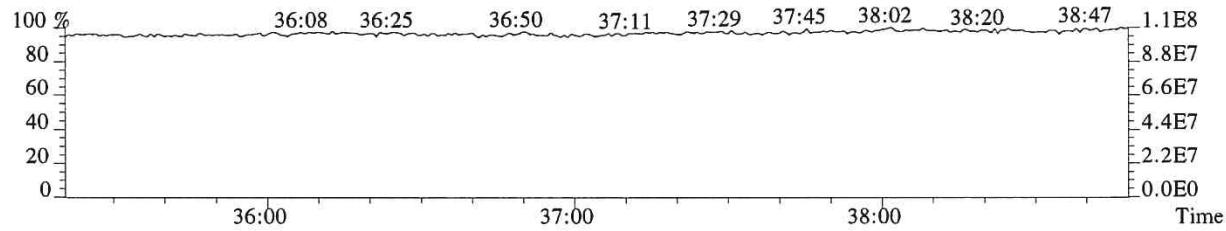
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2608.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



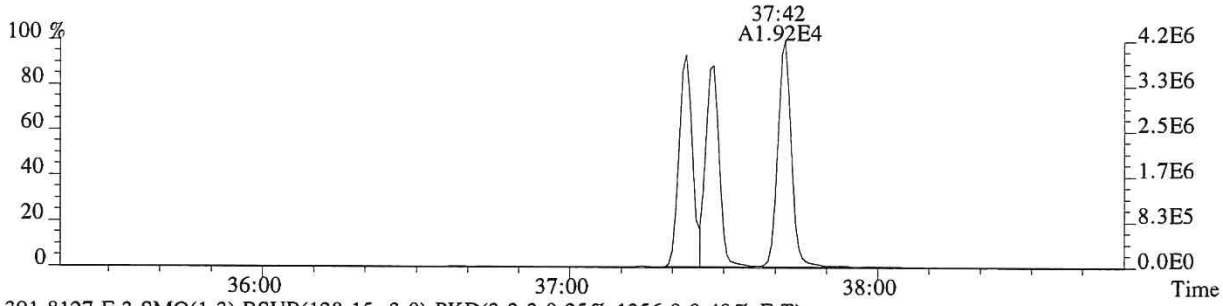
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



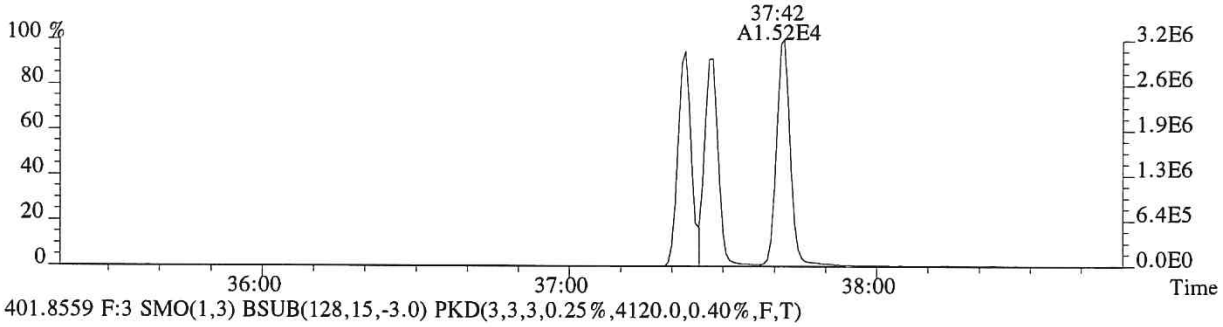
009929

File:P615728 #1-312 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

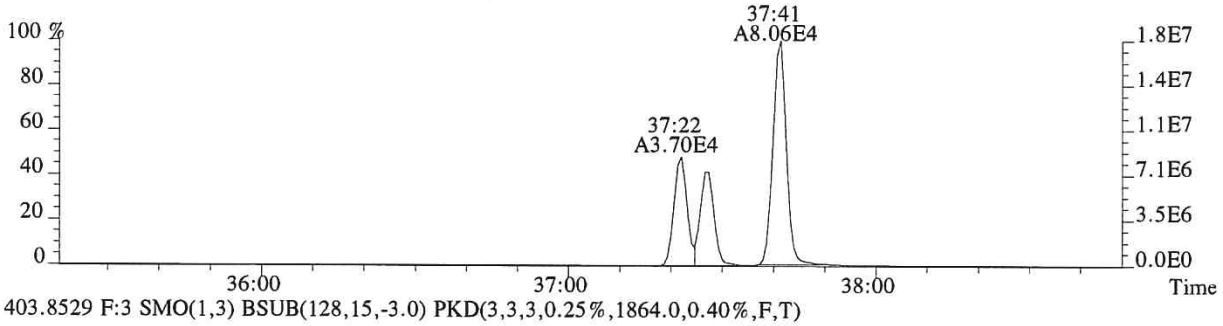
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



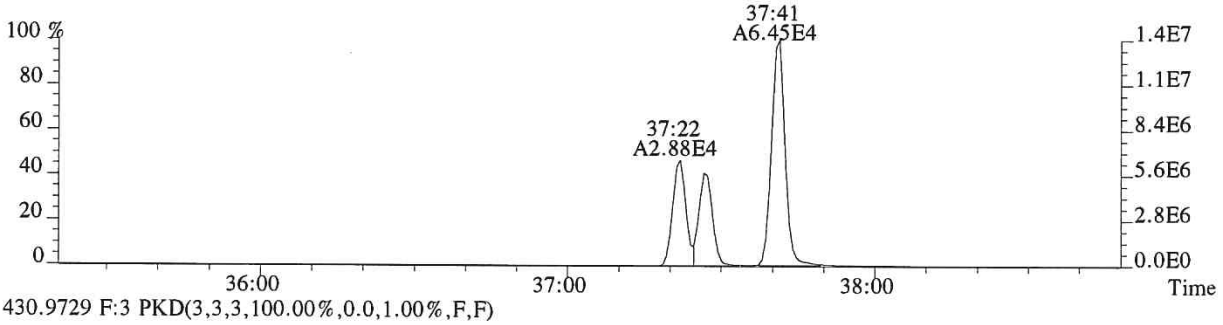
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1356.0,0.40%,F,T)



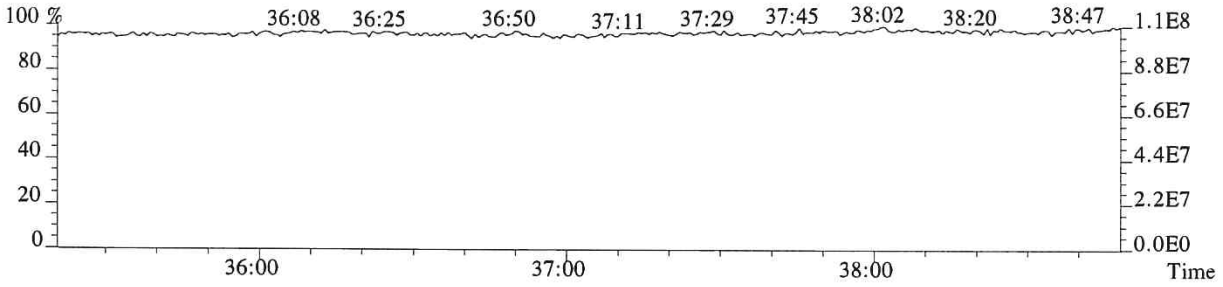
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4120.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1864.0,0.40%,F,T)

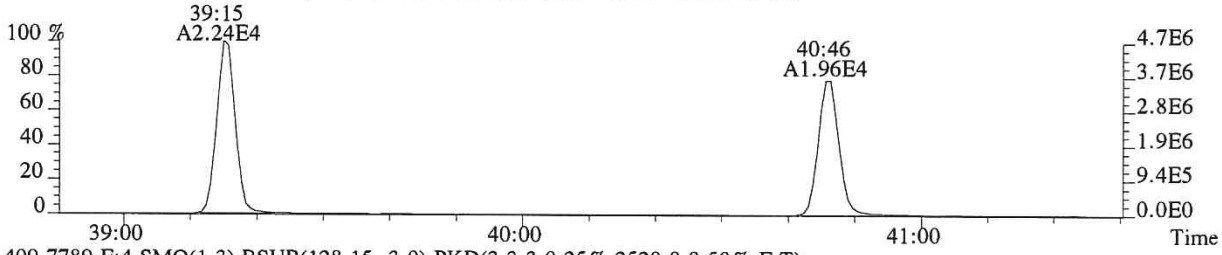


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

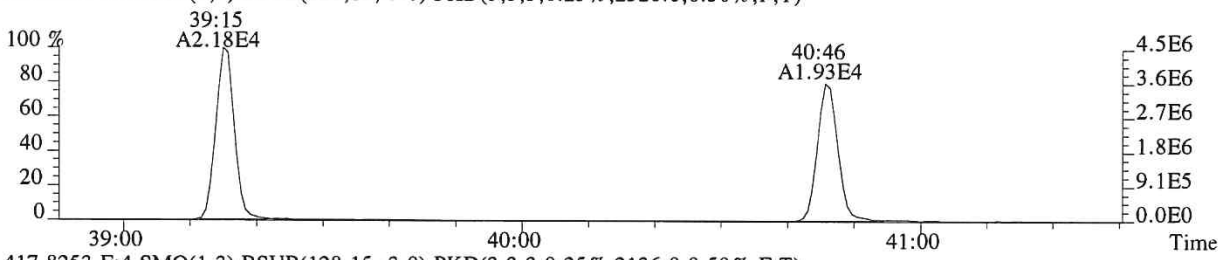


File:P615728 #1-241 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

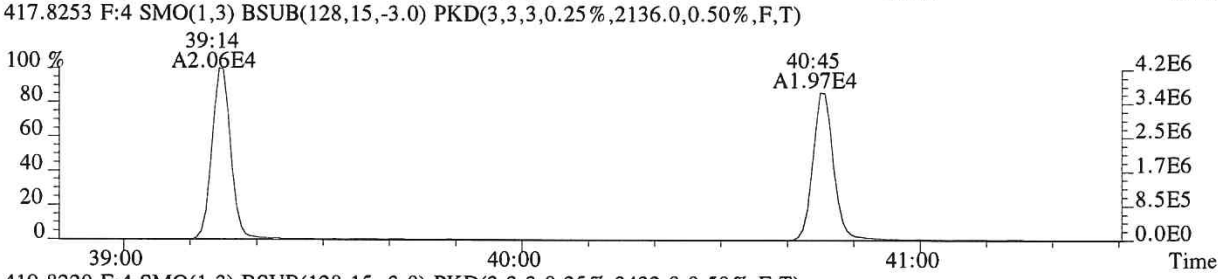
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3652.0,0.50%,F,T)



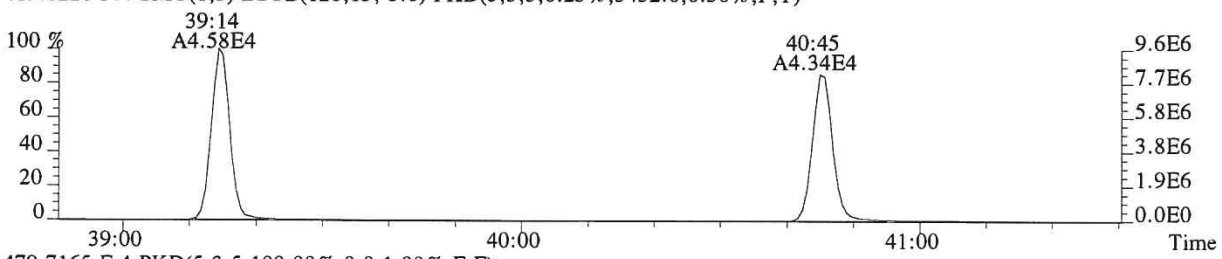
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2520.0,0.50%,F,T)



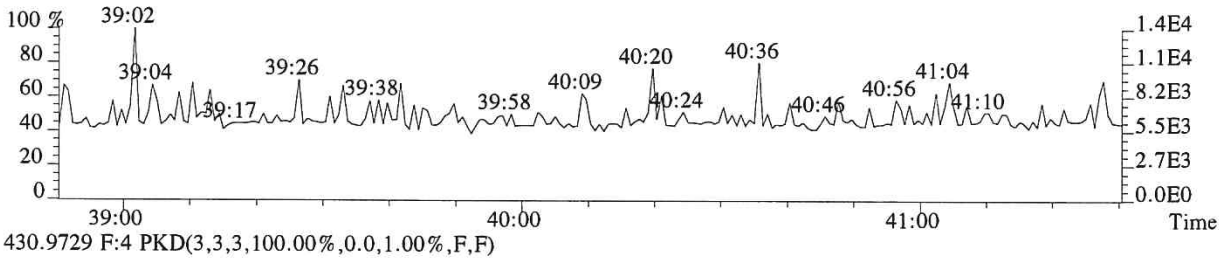
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2136.0,0.50%,F,T)



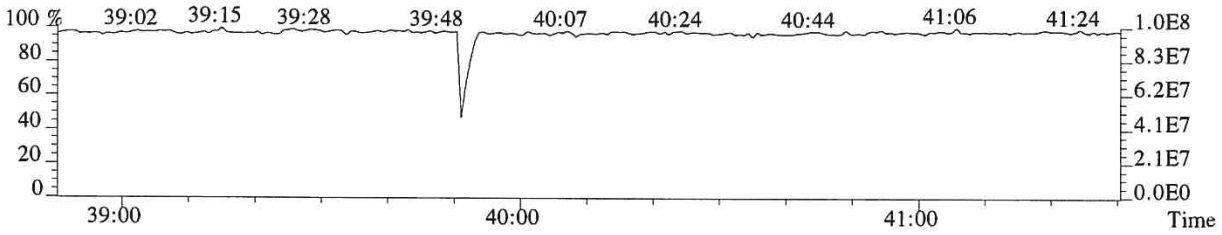
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3432.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

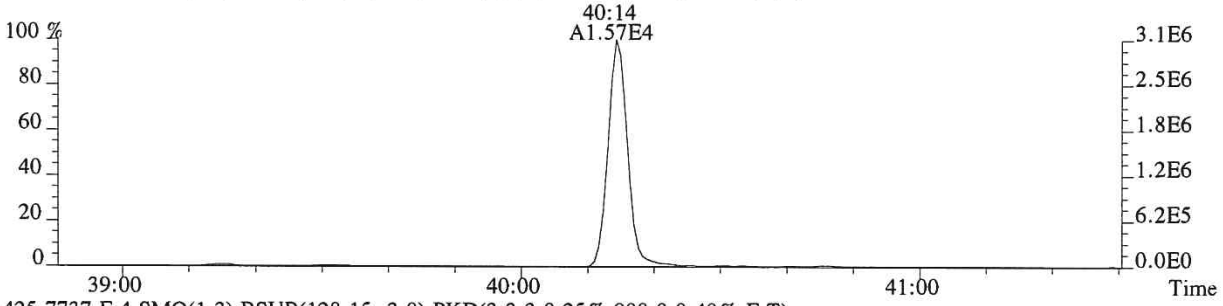


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

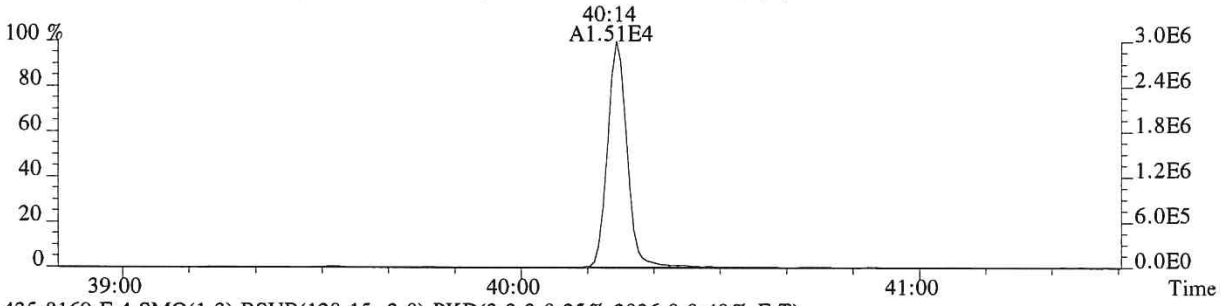


009931

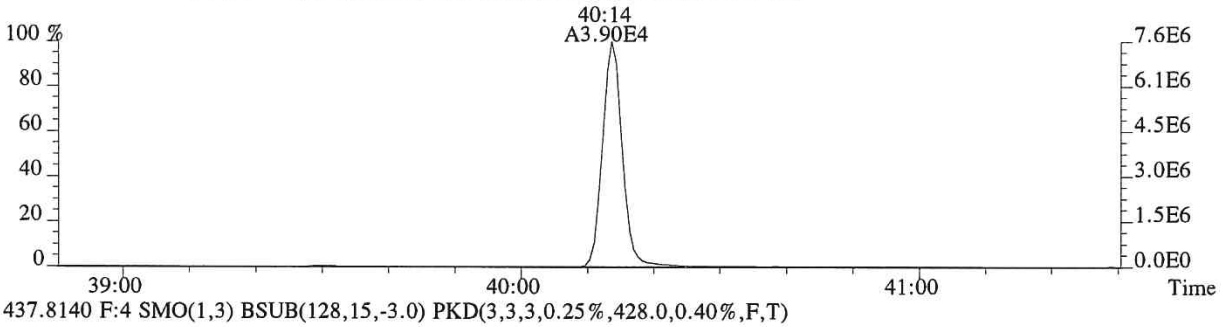
File:P615728 #1-241 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1468.0,0.40%,F,T)



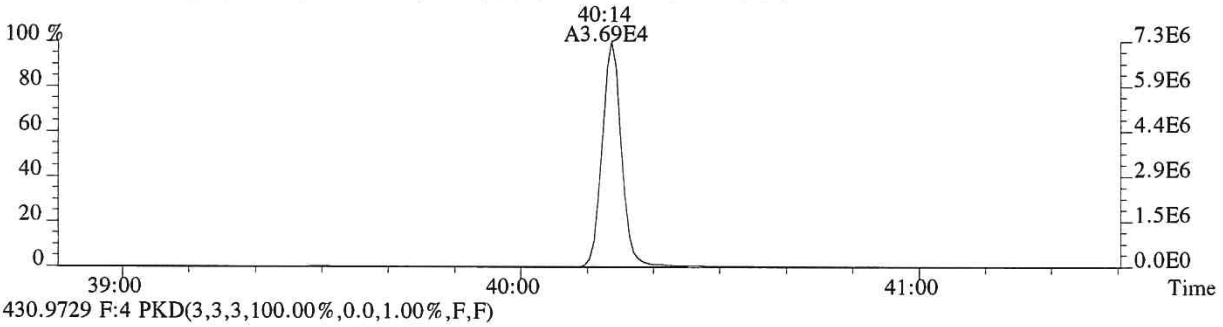
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



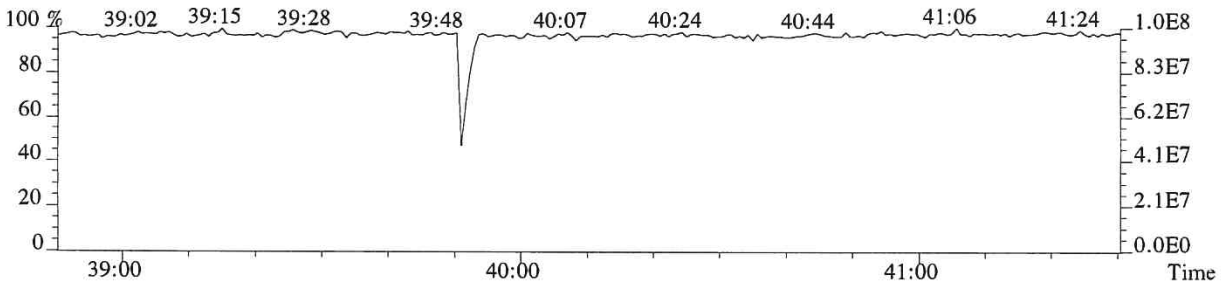
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2036.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)

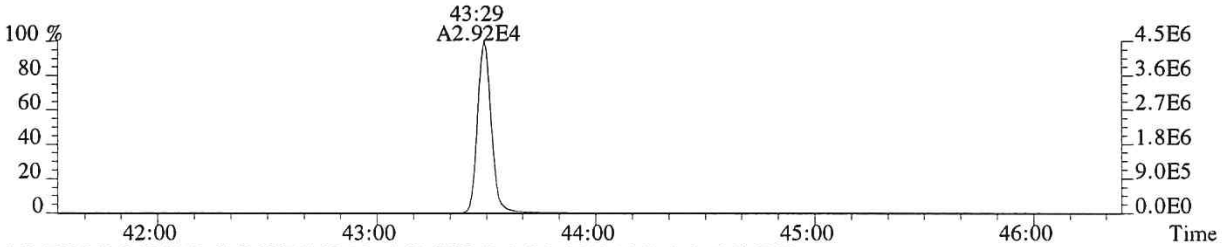


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

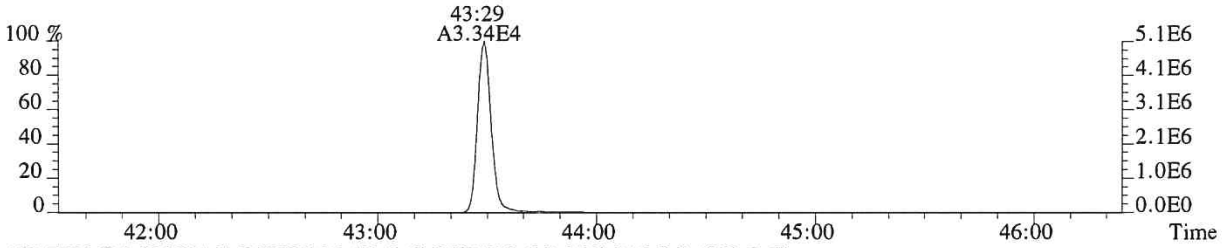


File:P615728 #1-438 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

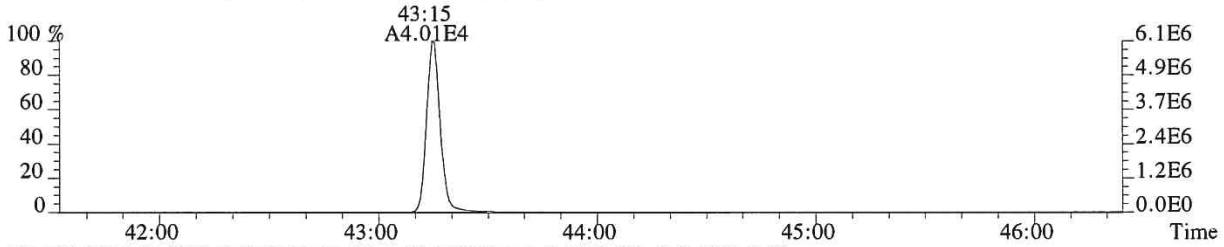
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



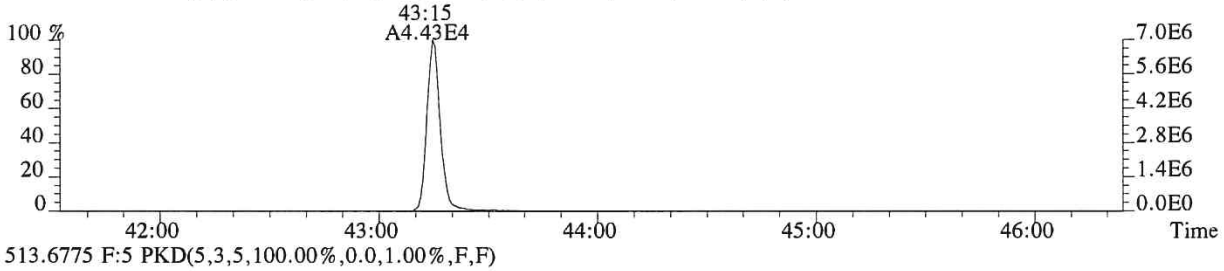
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1948.0,0.40%,F,T)



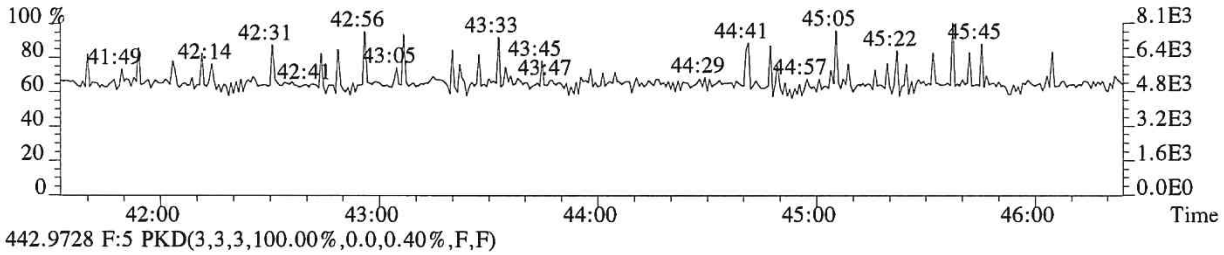
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



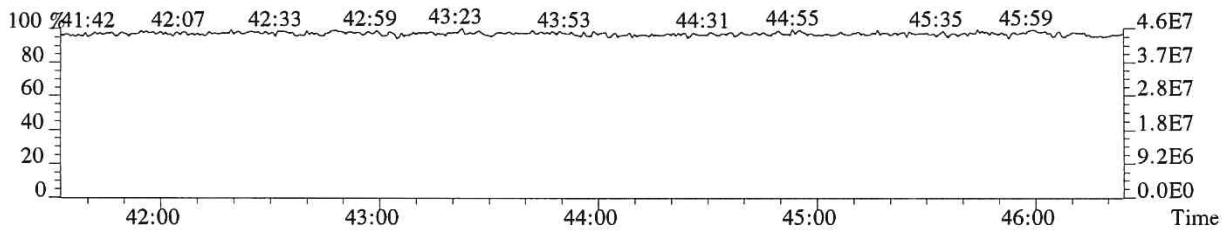
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



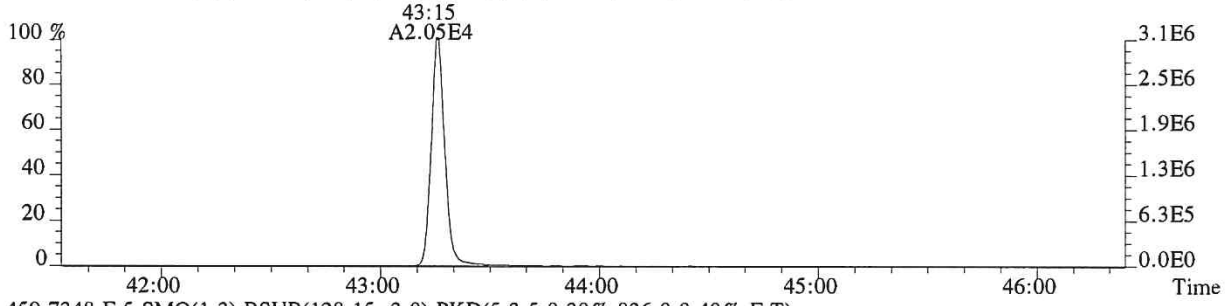
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



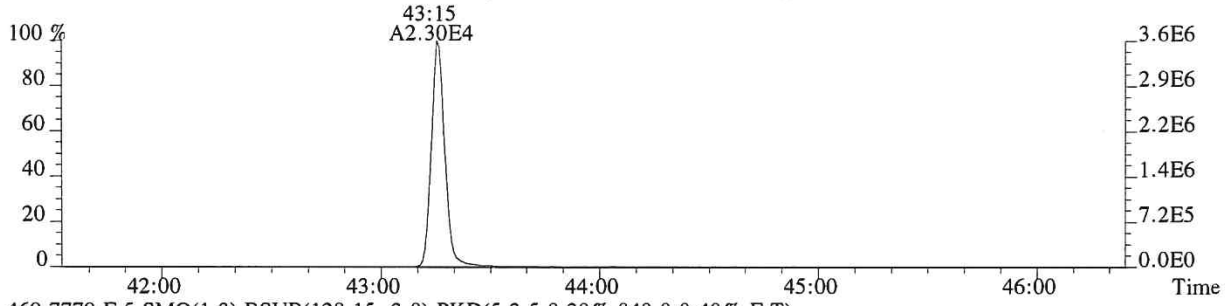
009933

File:P615728 #1-438 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

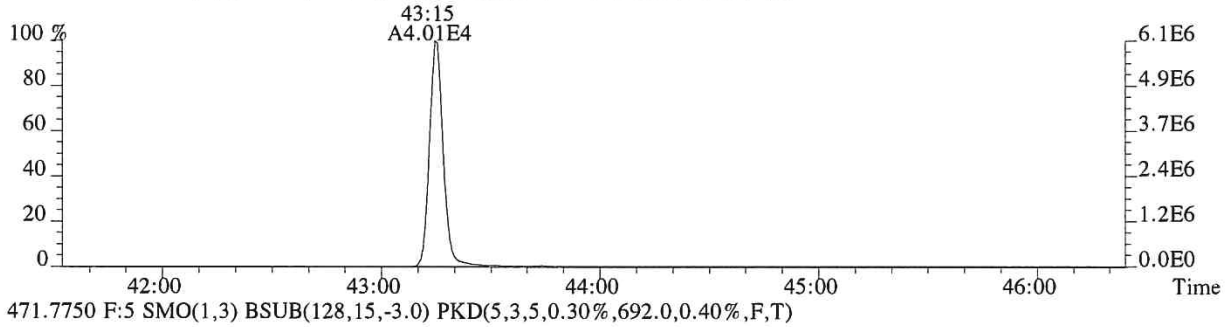
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



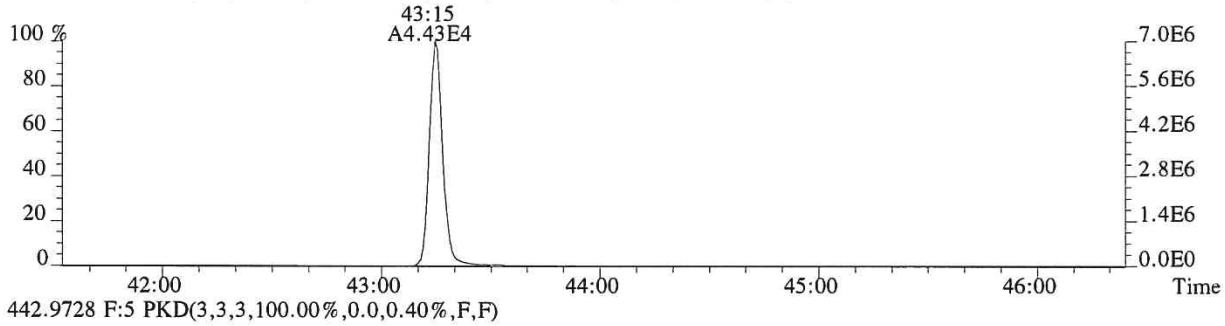
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



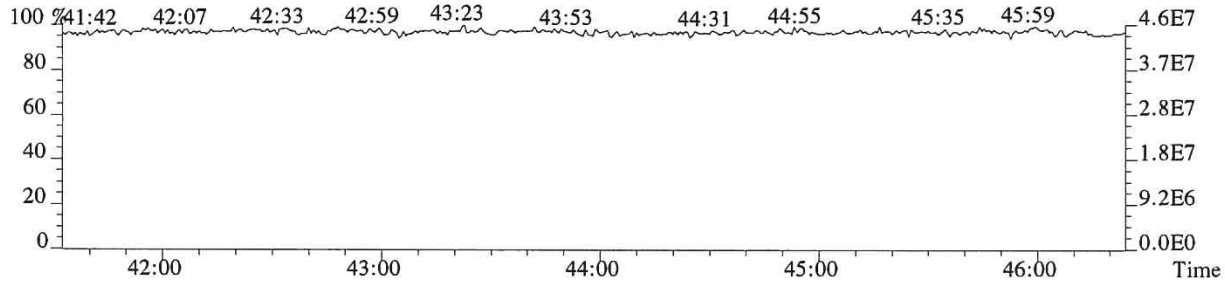
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P518837

Date: 11/15/18-11/16/18 Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LG

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DO NOT USE	CS3	P518837	15-NOV-18	23:25:04
194503	DO NOT USE	P518838	16-NOV-18	00:21:03
192977	WINDOW DEFINE	P518839	16-NOV-18	01:08:50
METHOD BLANK	EQ1800461-01	P518840	16-NOV-18	01:57:29
METHOD BLANK	EQ1800463-01	P518841	16-NOV-18	02:46:07
SL0503	E1801018-004	P518842	16-NOV-18	03:34:44
SL0504	E1801018-005	P518843	16-NOV-18	04:23:22
SL0505	E1801018-006	P518844	16-NOV-18	05:12:00
SL0506	E1801018-007	P518845	16-NOV-18	06:00:38
SL0507	E1801018-008	P518846	16-NOV-18	06:49:17
SL0508	E1801018-009	P518847	16-NOV-18	07:37:55
SL0045	E1801020-006	P518848	16-NOV-18	08:26:33
SL0052	E1801020-012	P518849	16-NOV-18	09:15:12
LCS	EQ1800463-02	P518850	16-NOV-18	10:03:50
DLCS	EQ1800463-03	P518851	16-NOV-18	10:52:30

E1801020

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181115B.SPL
Last Modified: Friday, November 16, 2018 09:51:03 Central Standard Time
Printed: Friday, November 16, 2018 09:51:19 Central Standard Time

1613 Page Position (1, 1)

Opus 4: P518837res

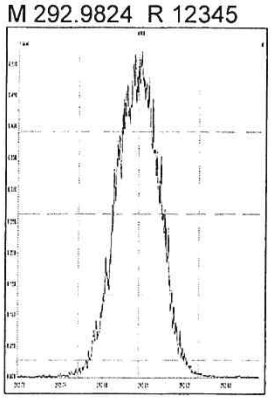
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/15/18	23:25	P518837	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LKL	HRMS check 23:25
2	11/16/18	00:21	P518838	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		NOT USE
3		01:08	P518839	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
4		01:57	P518840	MB	EQ1800461-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		02:46	P518841	MB	EQ1800463-01	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		03:34	P518842	E1801018-004	E1801018-004	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		04:23	P518843	E1801018-005	E1801018-005	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		05:12	P518844	E1801018-006	E1801018-006	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		06:00	P518845	E1801018-007	E1801018-007	EPA1613_ALS	Dioxin_ALS	Tray1:9		meets reinjection
10		06:49	P518846	E1801018-008	E1801018-008	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		07:37	P518847	E1801018-009	E1801018-009	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		08:26	P518848	E1801020-006	E1801020-006	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		09:15	P518849	E1801020-012	E1801020-012	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		10:03	P518850	LCS	EQ1800463-02	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15		10:52	P518851	DLCS	EQ1800463-03	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:49
16			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
17			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17		
18			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18		
19			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19		
20			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20		
21			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21		
22			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22		
23			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23		
24			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24		
25			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25		
26			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:26		
27			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:27	---	---
28	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:28	---	---
29	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:29	---	---
30	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:30	---	---
31	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:31	---	---
32	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:32	---	---
33	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:33	---	---
34	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:34	---	---
35	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:35	---	---
36	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:36	---	---
37	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:37	---	---
38	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:38	---	---
39	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:39	---	---

QC 11/20/18

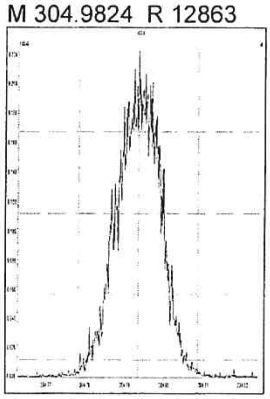
017

Printed: Thursday, November 15, 2018 23:25:02 Central Standard Time

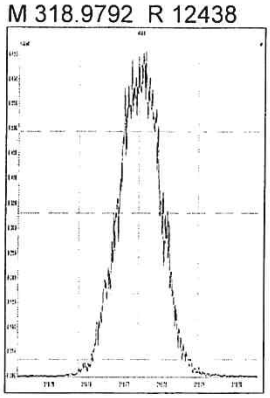
M 292.9824 R 12345



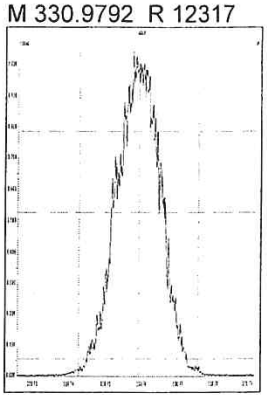
M 304.9824 R 12863



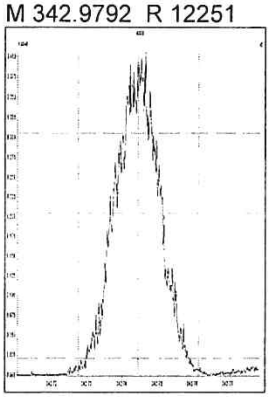
M 318.9792 R 12438



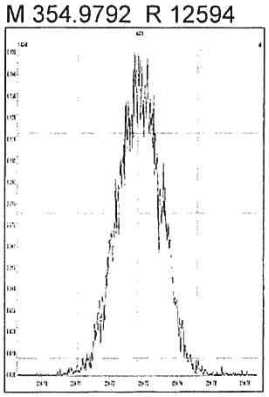
M 330.9792 R 12317



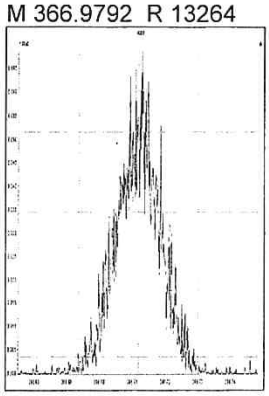
M 342.9792 R 12251



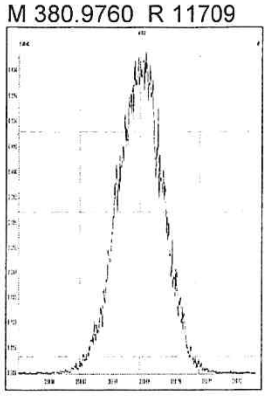
M 354.9792 R 12594



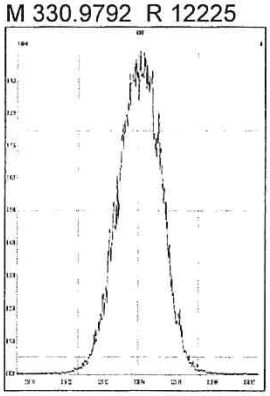
M 366.9792 R 13264



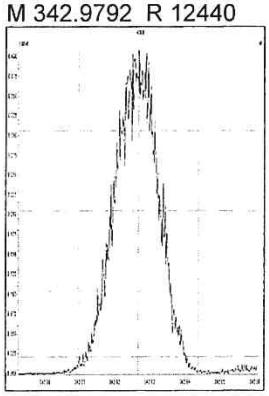
M 380.9760 R 11709



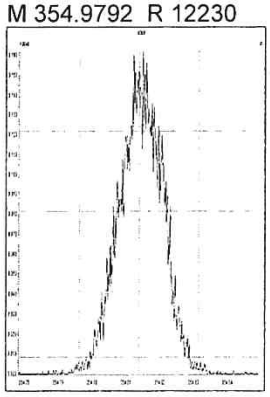
M 330.9792 R 12225



M 342.9792 R 12440



M 354.9792 R 12230



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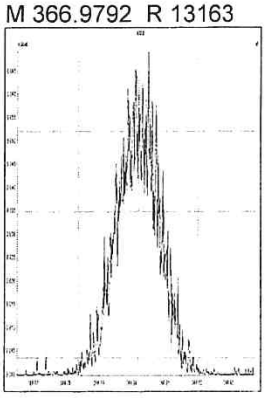
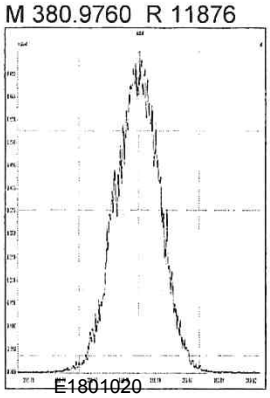
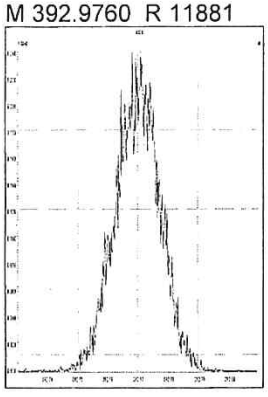


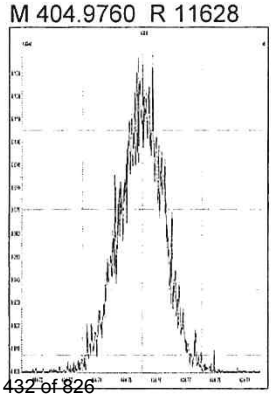
M 380.9760 R 11876



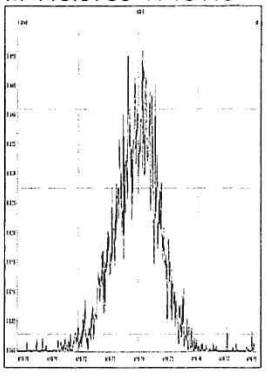
M 392.9760 R 11881



M 404.9760 R 11628



M 416.9760 R 13415



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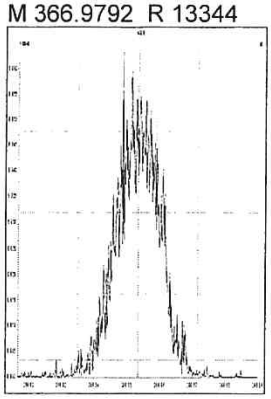
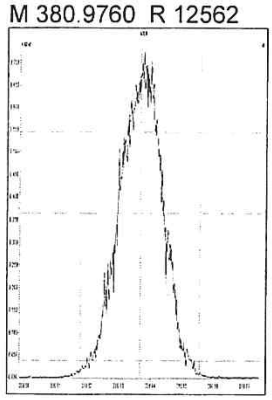
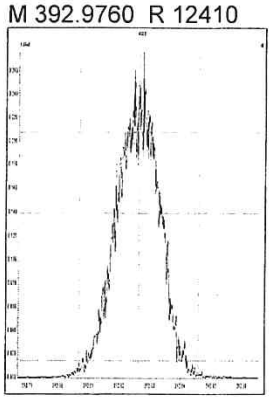


M 380.9760 R 12562



M 392.9760 R 12410



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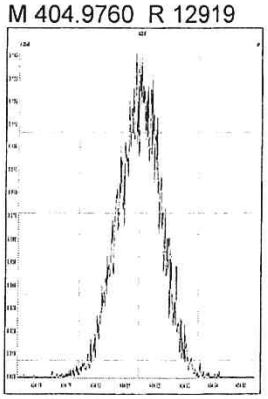
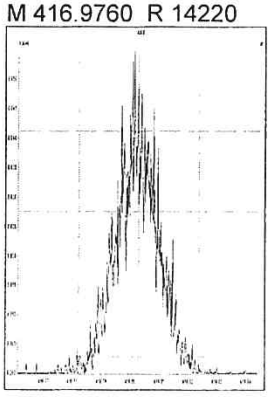
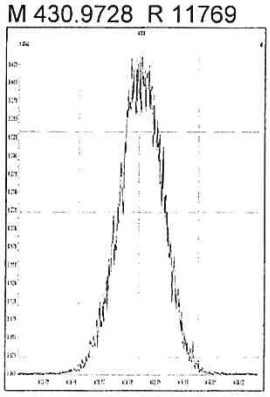


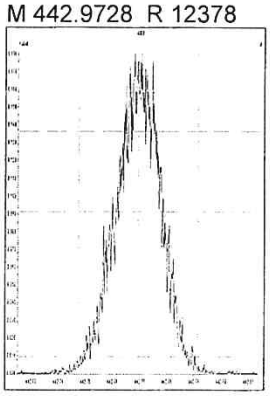
M 416.9760 R 14220



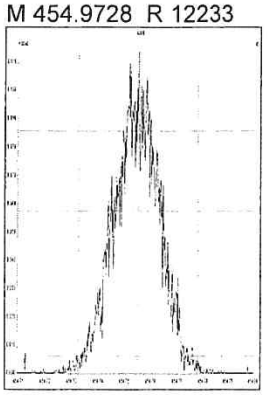
M 430.9728 R 11769



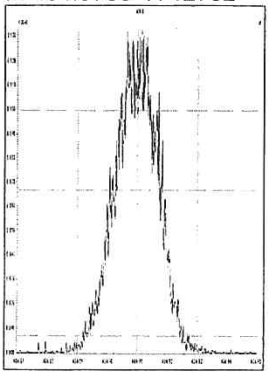
M 442.9728 R 12378



M 454.9728 R 12233



M 404.9760 R 12732



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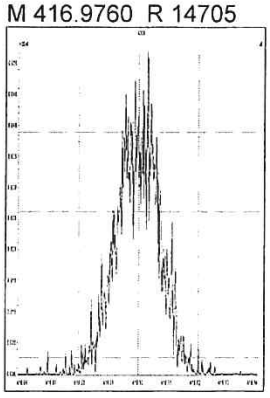

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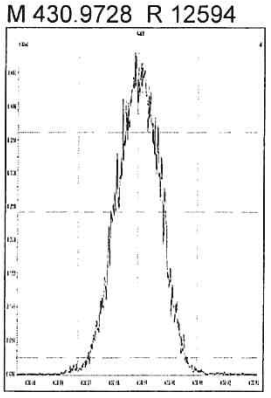
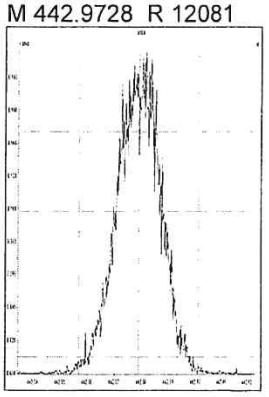
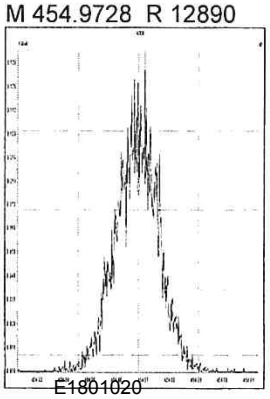


M 442.9728 R 12081



M 454.9728 R 12890



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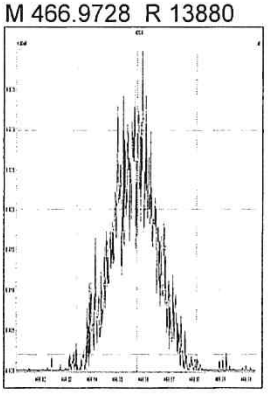
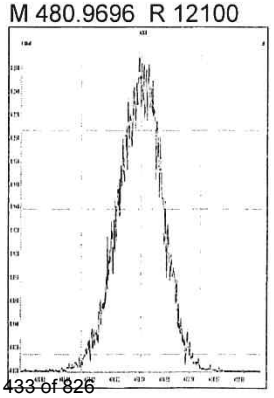
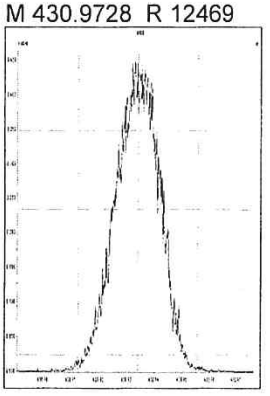


M 480.9696 R 12100



M 430.9728 R 12469



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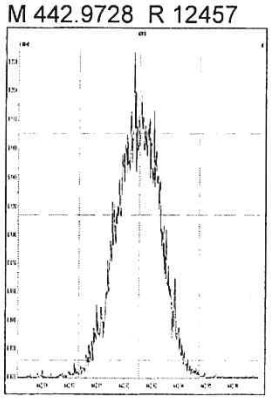
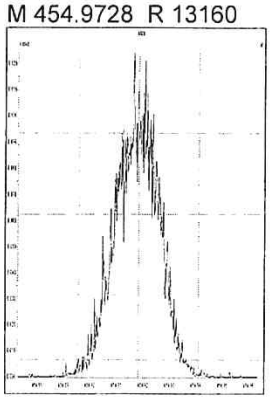
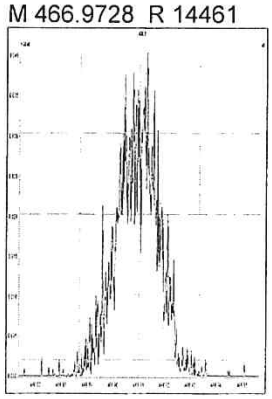


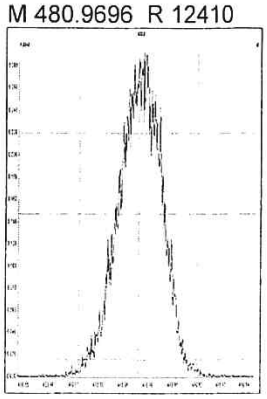
M 454.9728 R 13160



M 466.9728 R 14461



M 480.9696 R 12410



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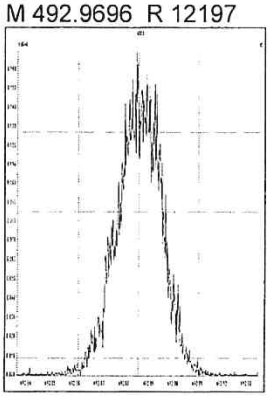

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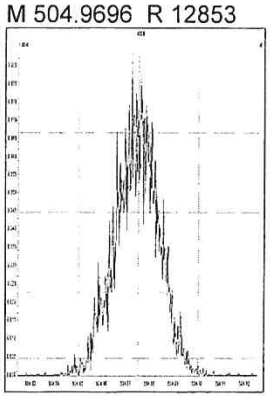
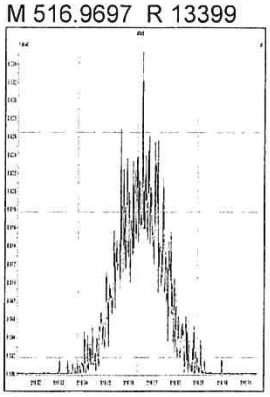


M 516.9697 R 13399



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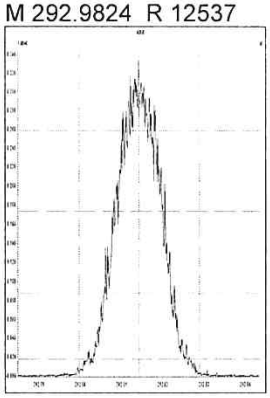
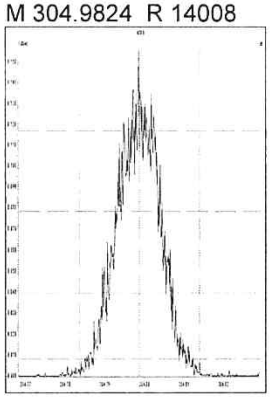
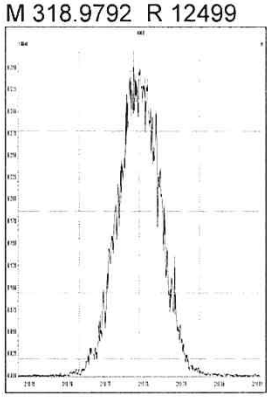


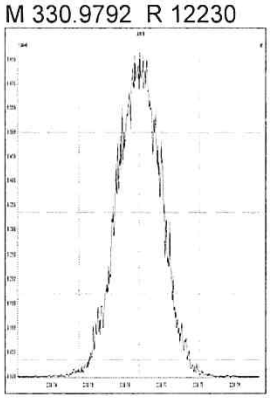
M 304.9824 R 14008



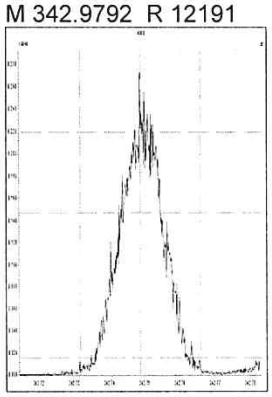
M 318.9792 R 12499



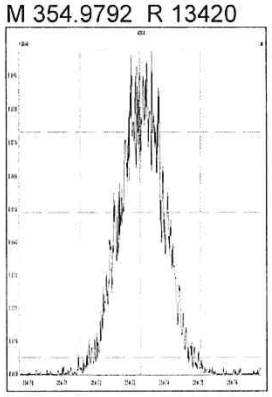
M 330.9792 R 12230



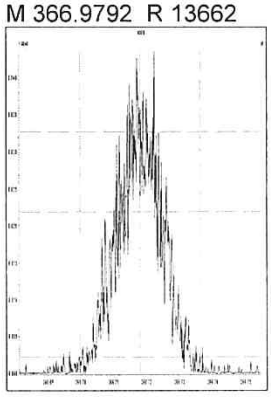
M 342.9792 R 12191



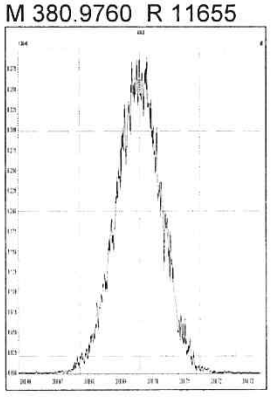
M 354.9792 R 13420



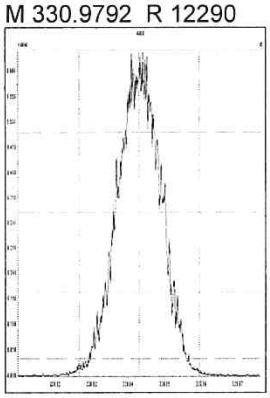
M 366.9792 R 13662



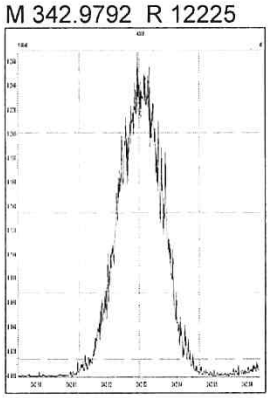
M 380.9760 R 11655



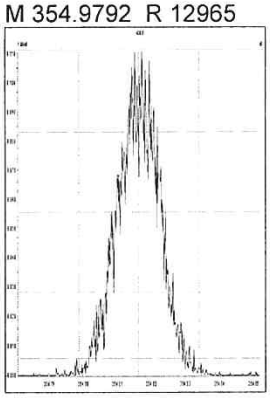
M 330.9792 R 12290



M 342.9792 R 12225



M 354.9792 R 12965



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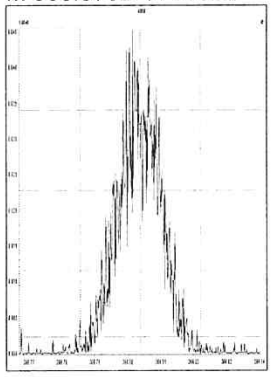
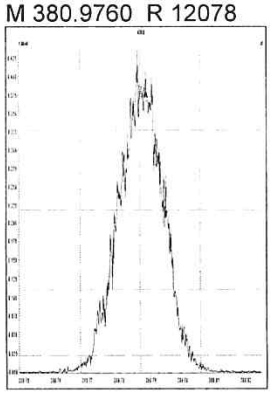
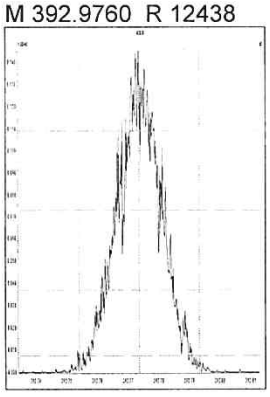


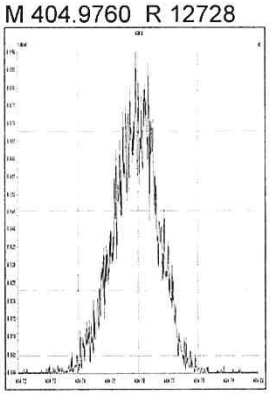
M 380.9760 R 12078



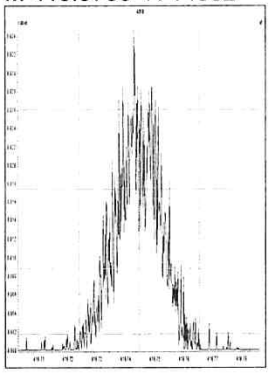
M 392.9760 R 12438



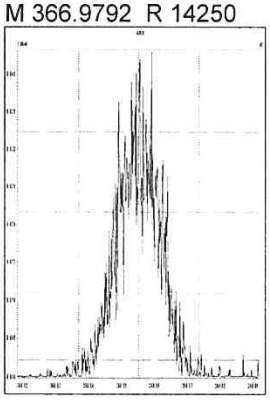
M 404.9760 R 12728



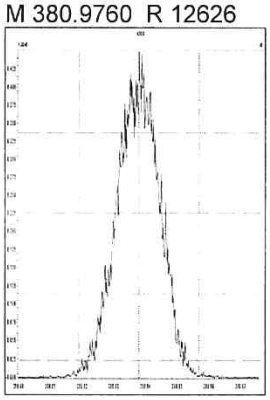
M 416.9760 R 14302



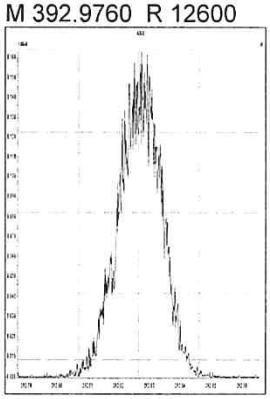
M 366.9792 R 14250



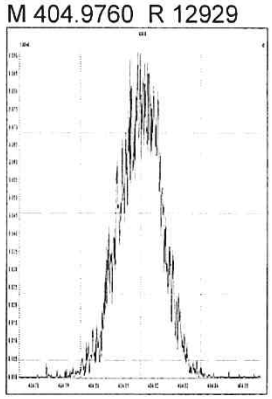
M 380.9760 R 12626



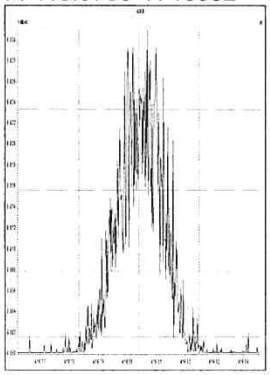
M 392.9760 R 12600



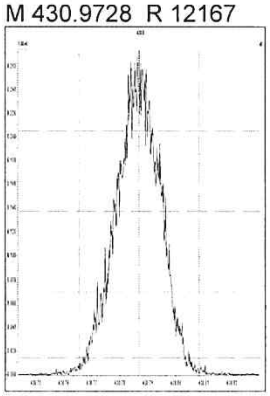
M 404.9760 R 12929



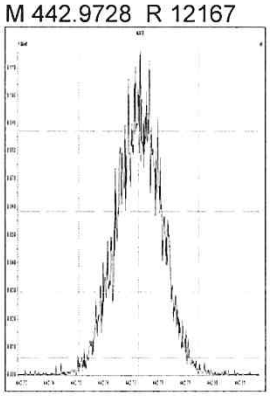
M 416.9760 R 13532



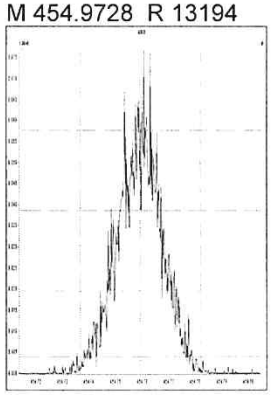
M 430.9728 R 12167



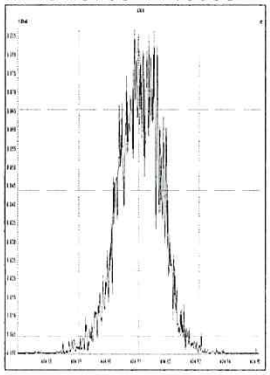
M 442.9728 R 12167



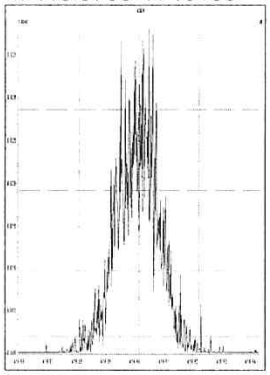
M 454.9728 R 13194



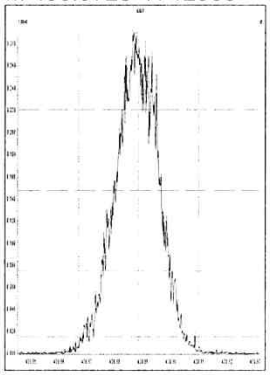
M 404.9760 R 13566



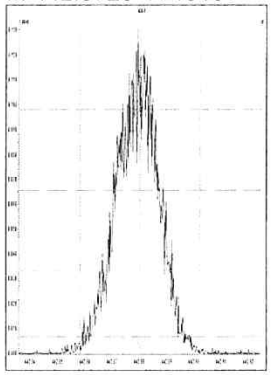
M 416.9760 R 15166



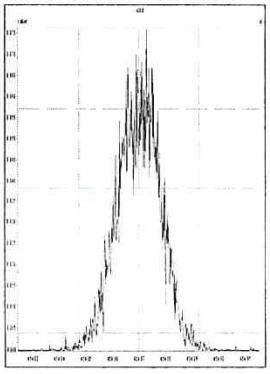
M 430.9728 R 12908



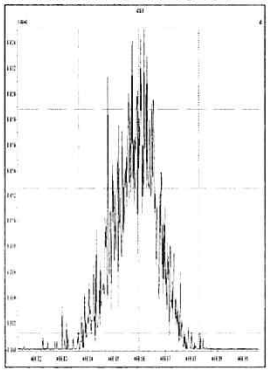
M 442.9728 R 13181



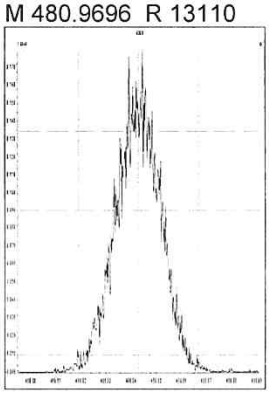
M 454.9728 R 13192



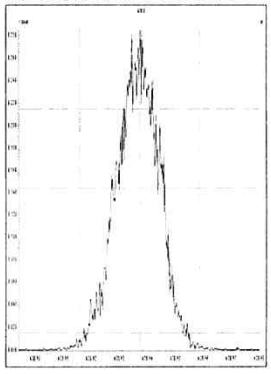
M 466.9728 R 15490



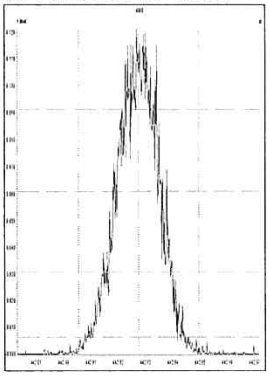
M 480.9696 R 13110



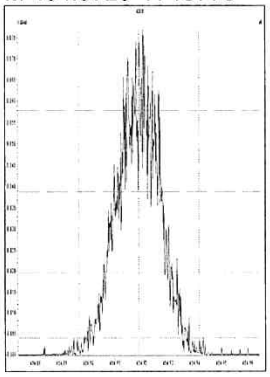
M 430.9728 R 12740



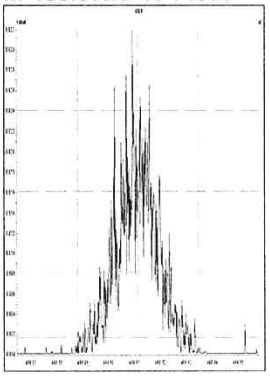
M 442.9728 R 13227



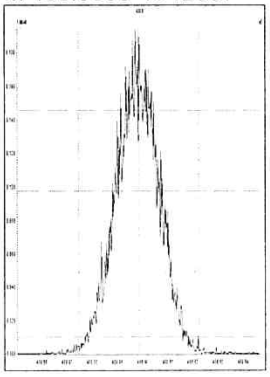
M 454.9728 R 13776



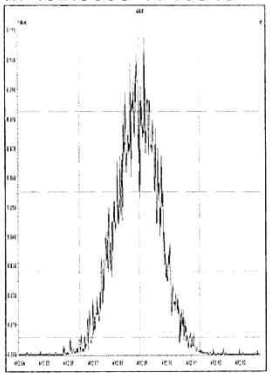
M 466.9728 R 14837



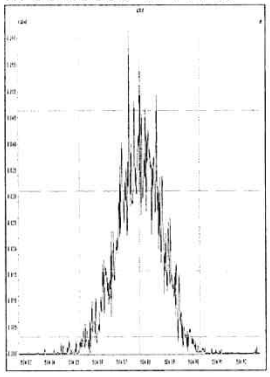
M 480.9696 R 12507



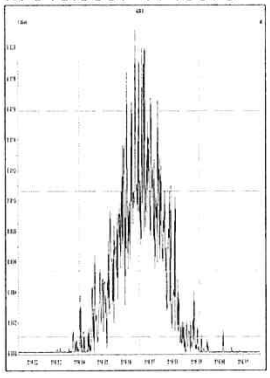
M 492.9696 R 13349



M 504.9696 R 14749



M 516.9697 R 15876



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

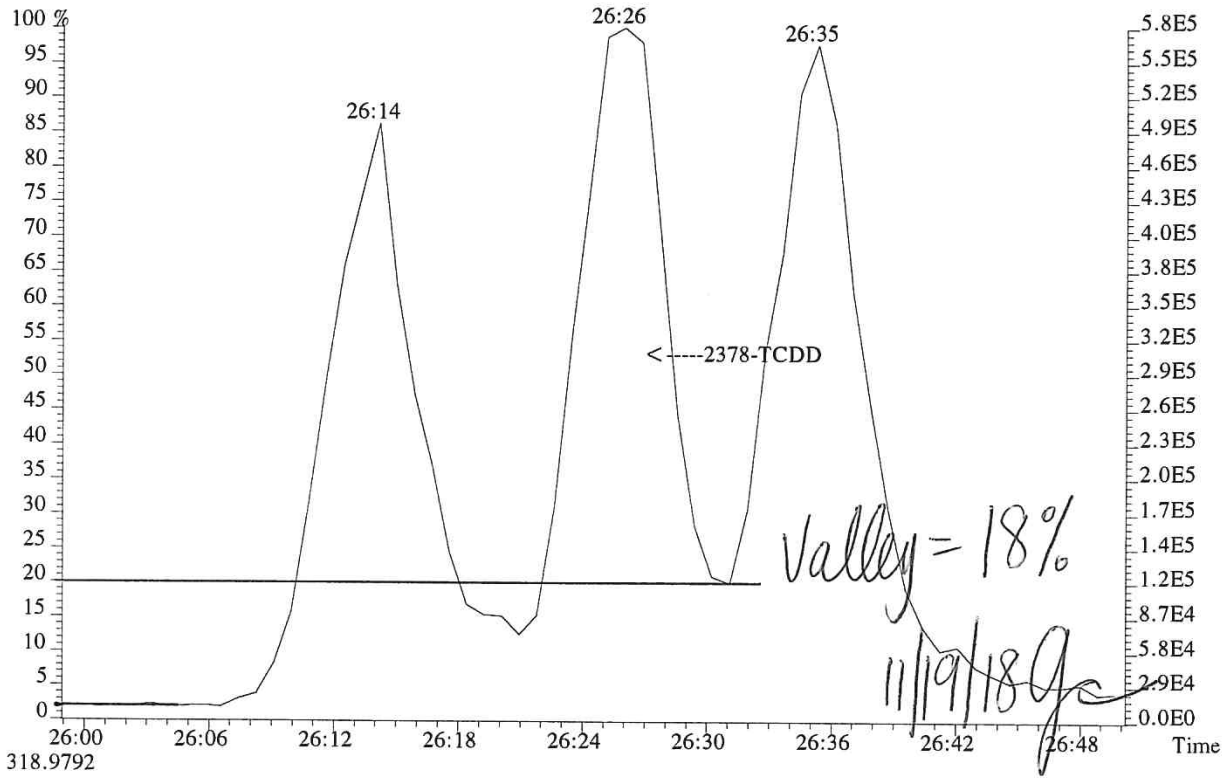
Case No.: _____ SDG No.:
ID: 0.25 (mm)

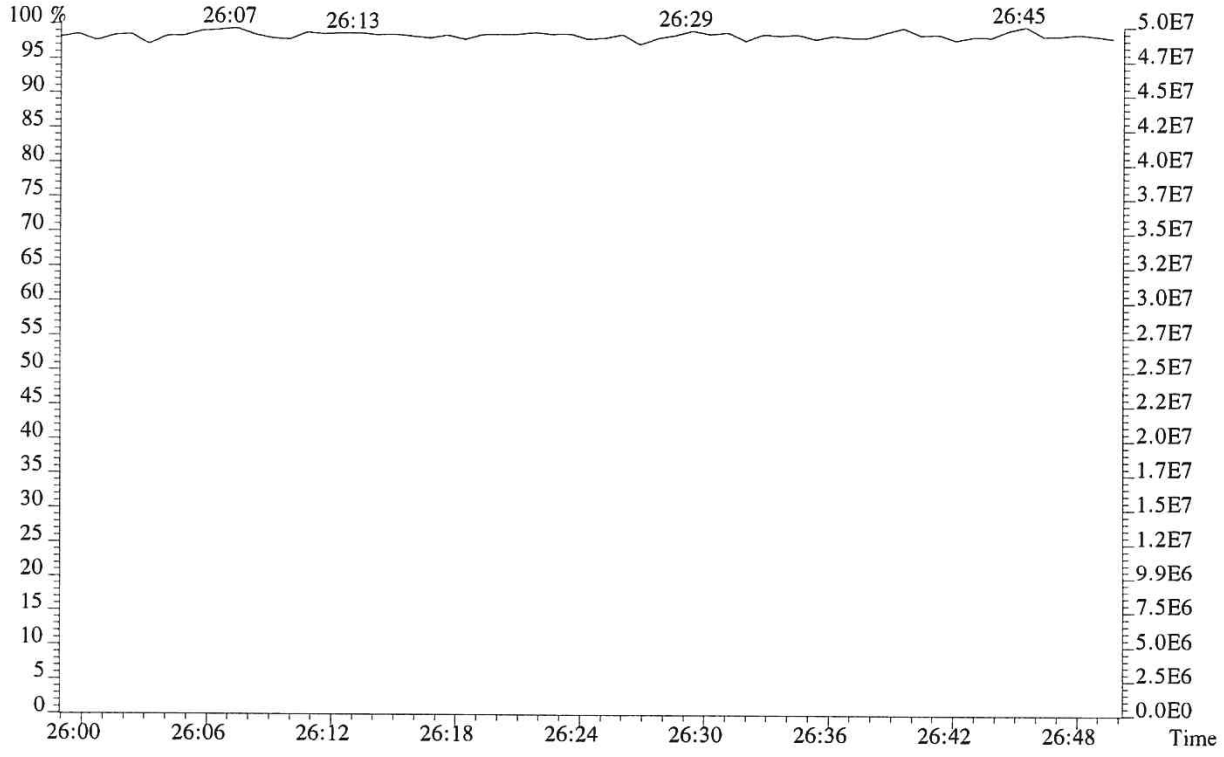
Lab File ID: P518839
Date Analyzed: 16-NOV-2018
Time Analyzed: 01:08:50

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:08	27:50
TCDD	22:42	27:40
PeCDF	27:47	32:35
PeCDD	29:36	32:20
HxCDF	33:19	35:57
HxCDD	33:53	35:33
HpCDF	37:15	38:35
HpCDD	37:30	38:10

% Valley 2378-TCDD: 18 %

File:P518839 #1-602 Acq:16-NOV-2018 01:08:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965





009946

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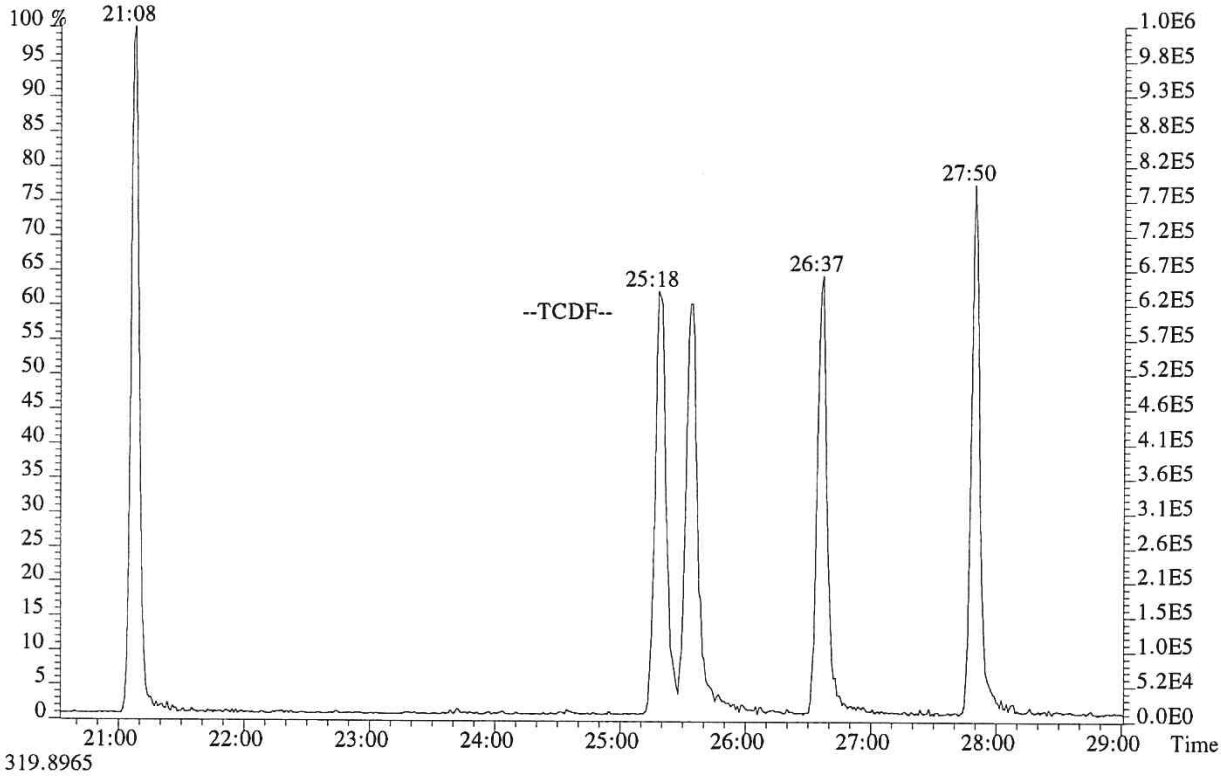
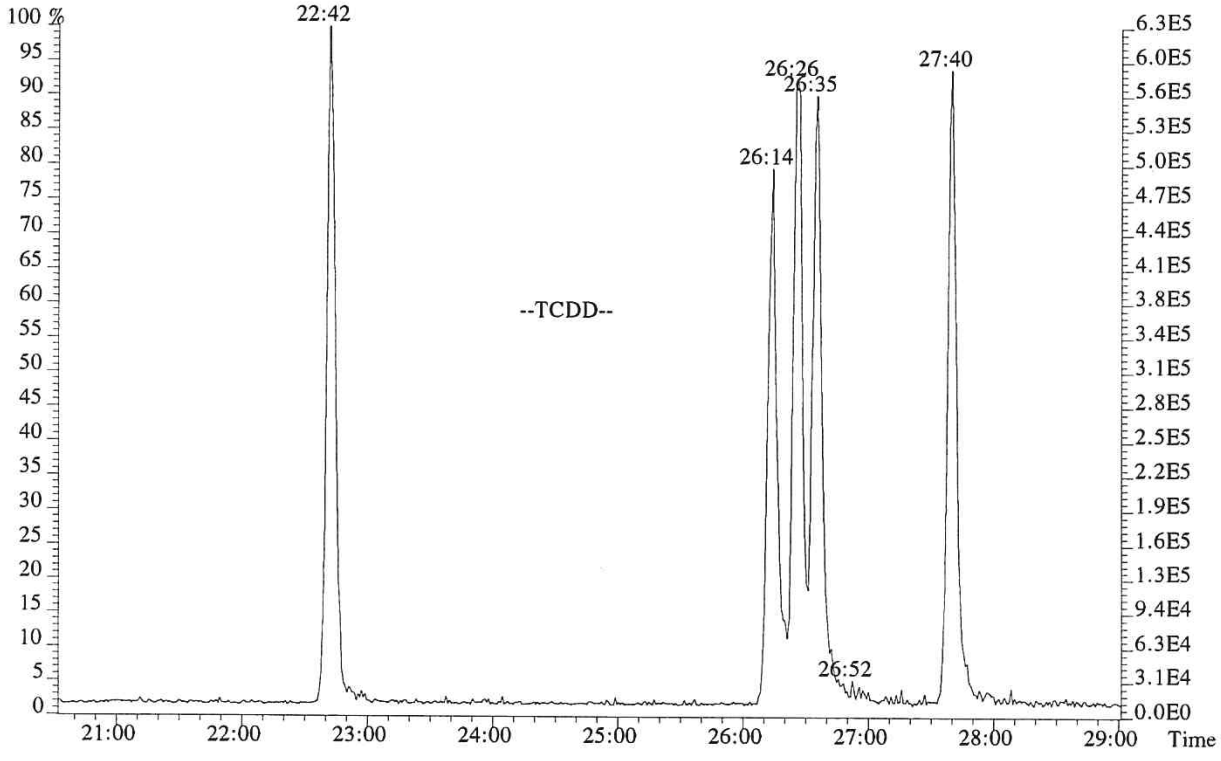
Sample#1 Exp:192977
303.9016

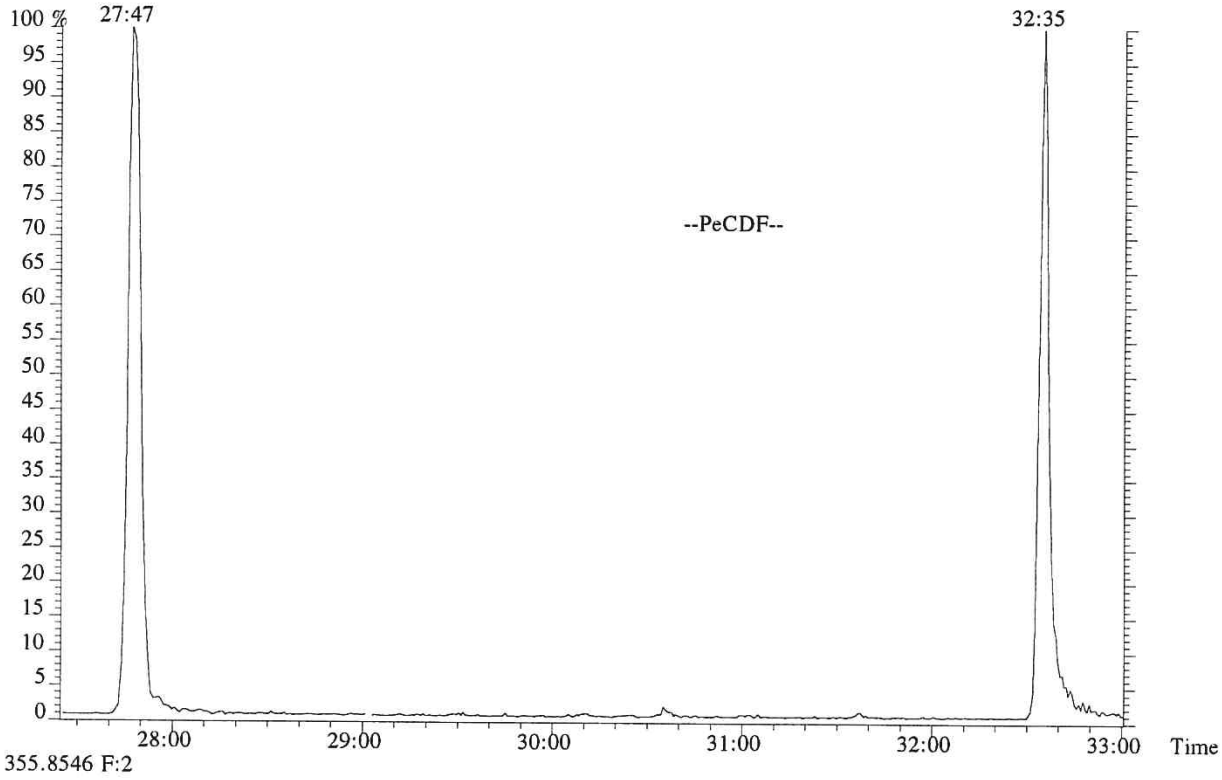


319.8965

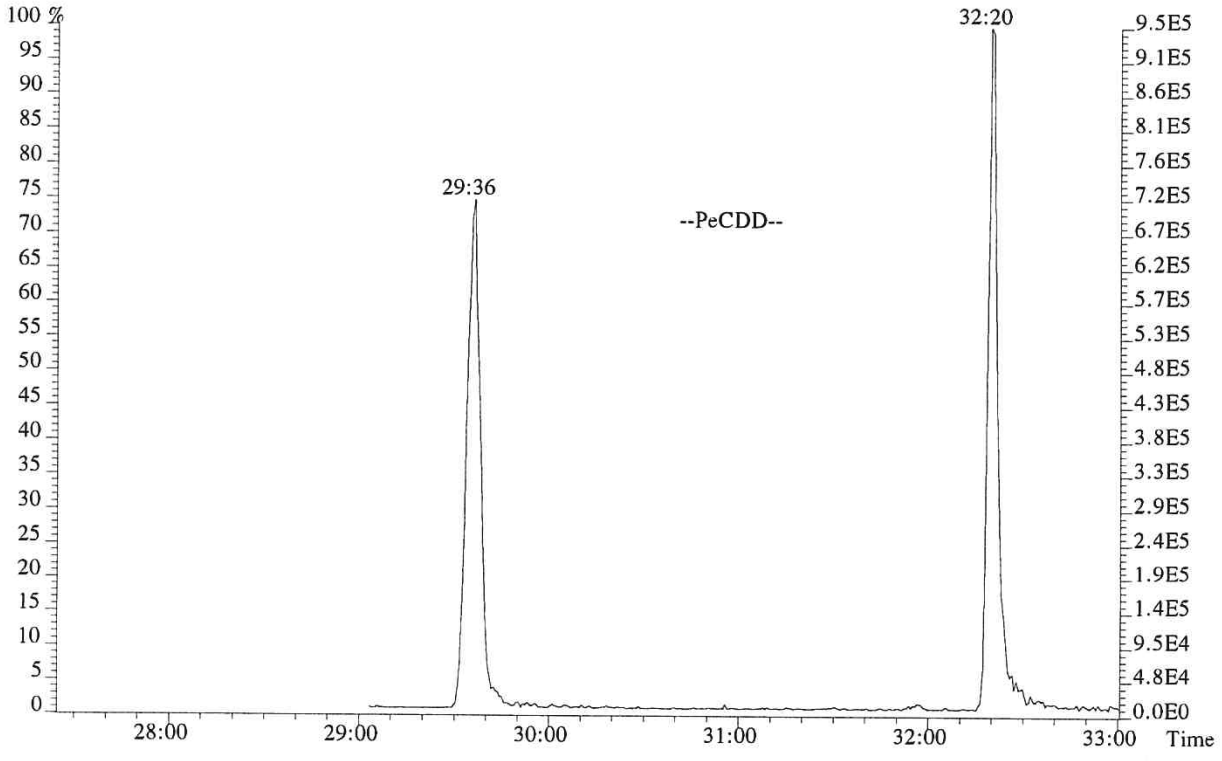


009947

File:P518839 #1-602 Acq:16-NOV-2018 01:08:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2

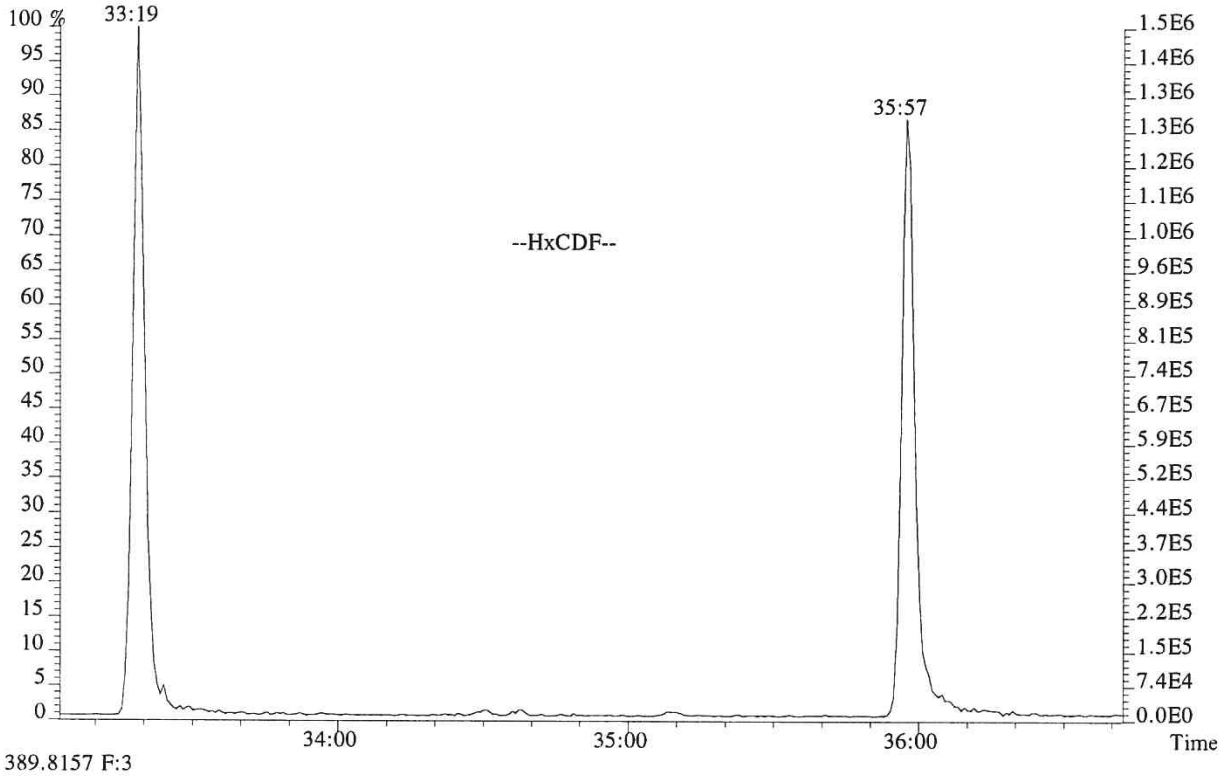


355.8546 F:2

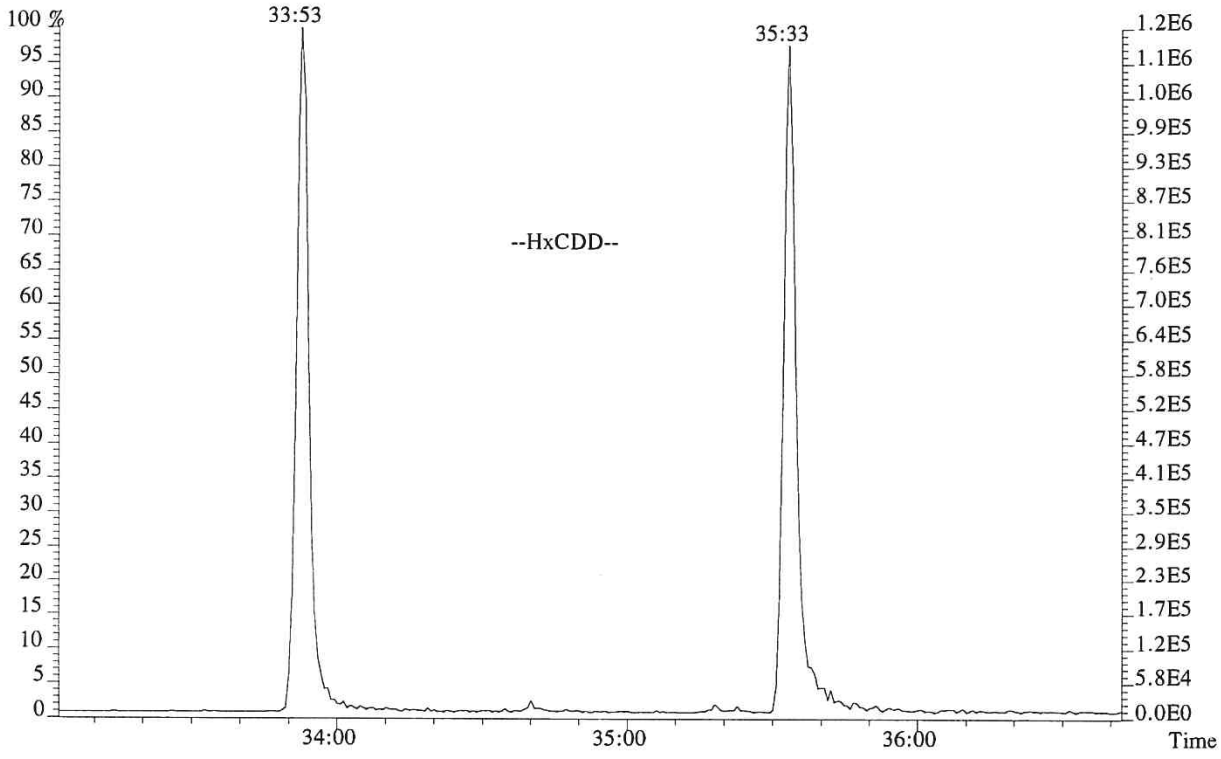


009948

File:P518839 #1-330 Acq:16-NOV-2018 01:08:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3

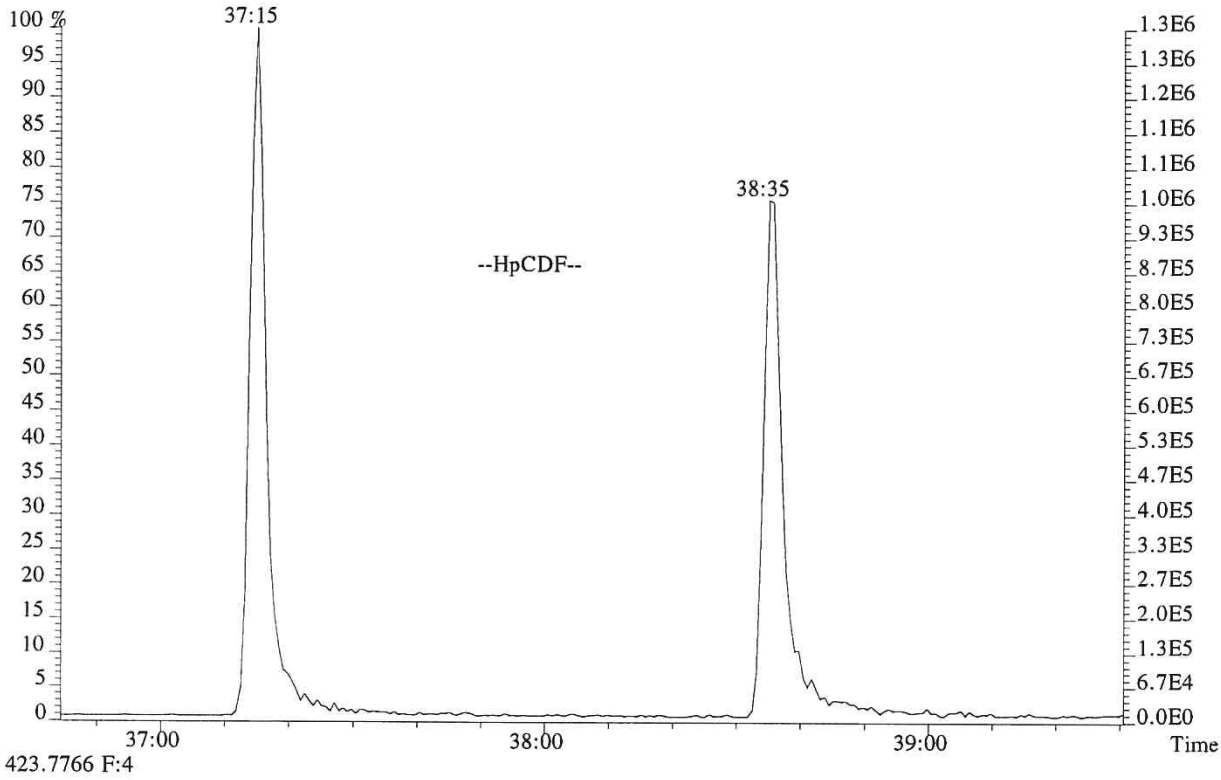


389.8157 F:3

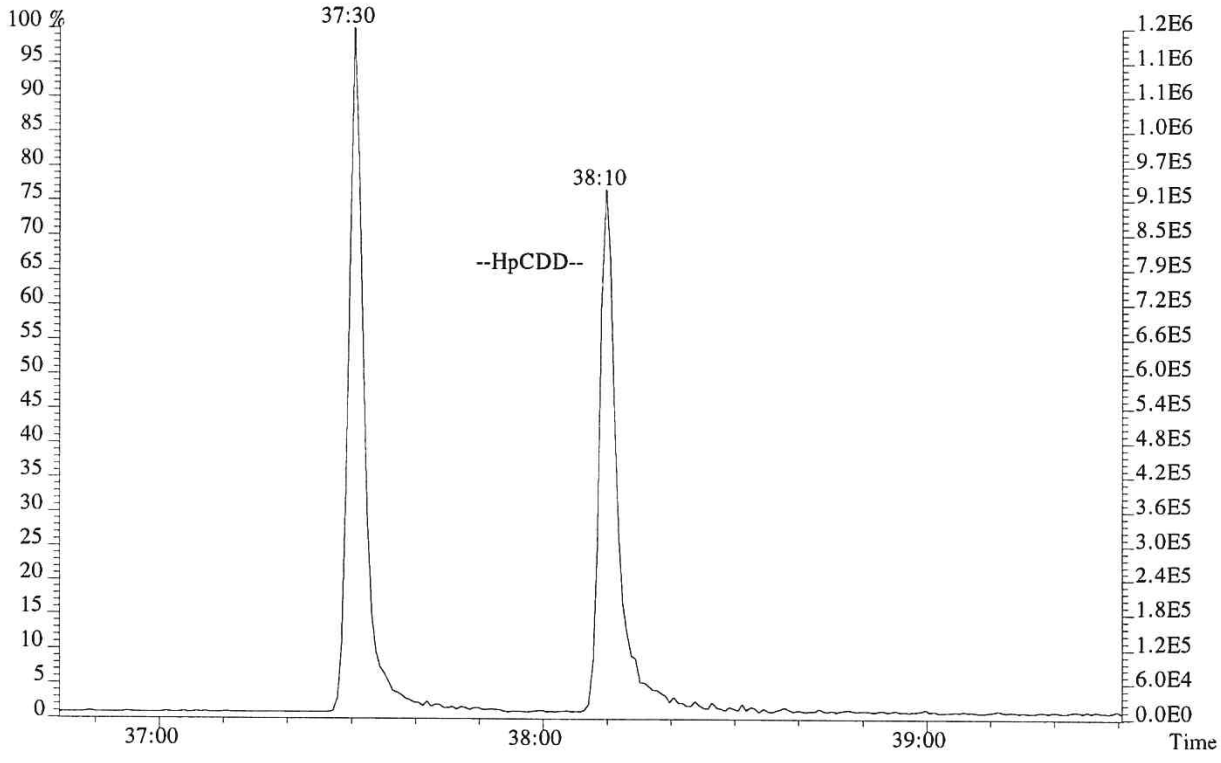


009949

File:P518839 #1-250 Acq:16-NOV-2018 01:08:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518837 Analysis Date: 15-NOV-18 Time: 23:25:04

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	9.5	7.8 - 12.9	-4.9
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	50	39 - 65	-0.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	50	39 - 64	0.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	51	39 - 64	1.4
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	55	41 - 61	10.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	0.7
OCDD	M+2/M+4	0.87	0.76-1.02	102	79 - 126	1.7
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.9	8.4 - 12.0	-1.2
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	51	41 - 60	1.2
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	50	41 - 61	0.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	45 - 56	1.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	0.8
1,2,3,7,8,9-HxCDF	M+2/M+4	1.21	1.05-1.43	50	45 - 56	-0.9
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	44 - 57	1.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	50	45 - 55	0.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	51	43 - 58	1.7
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	-0.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518837 Analysis Date: 15-NOV-18 Time: 23:25:04

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	105	82 - 121	4.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	113	62 - 160	13.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	87	85 - 117	-12.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	99	85 - 118	-1.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	112	72 - 138	12.4
13C-OCDD	M+2/M+4	0.91	0.76-1.02	286	96 - 415	43.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	96	71 - 140	-4.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.63	1.32-1.78	108	76 - 130	8.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	112	77 - 130	11.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	81	76 - 131	-19.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	91	70 - 143	-9.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	95	74 - 135	-5.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	93	73 - 137	-7.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	103	78 - 129	2.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	113	77 - 129	12.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.3	7.8 - 12.7	2.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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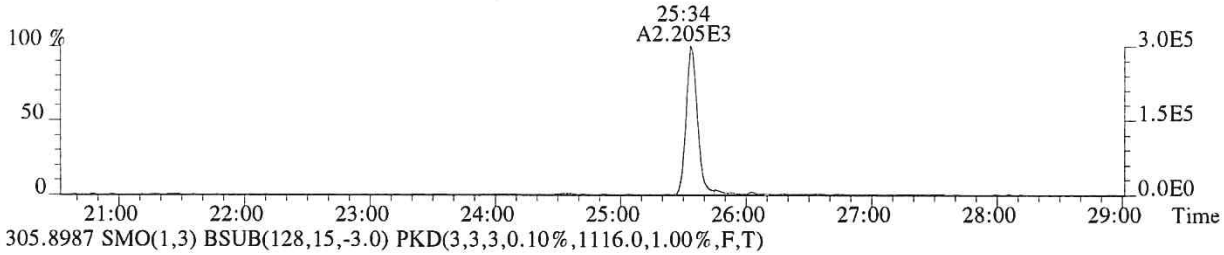
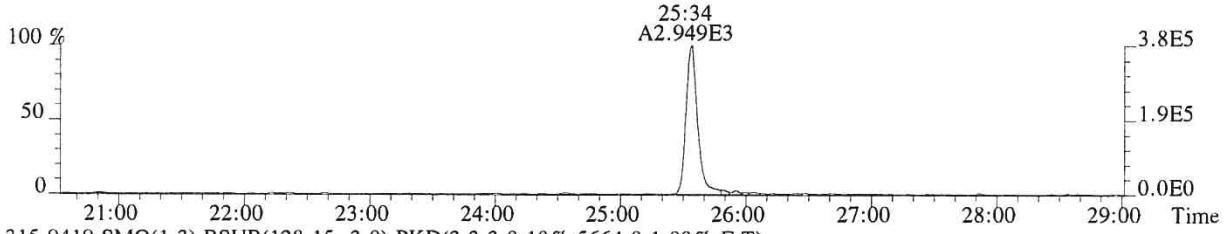
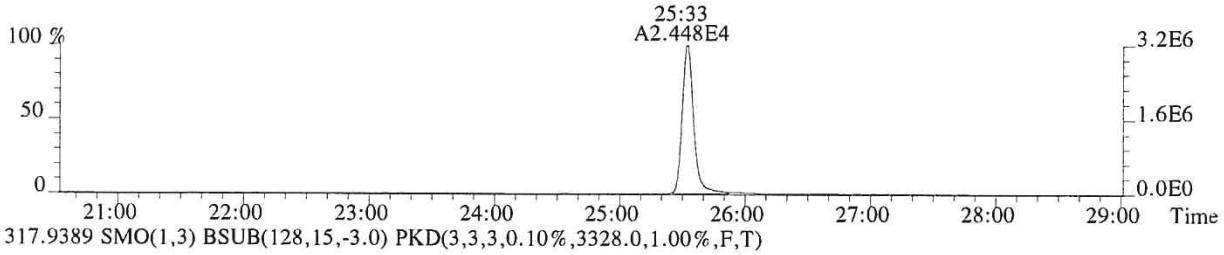
File:P518837 #1-602 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



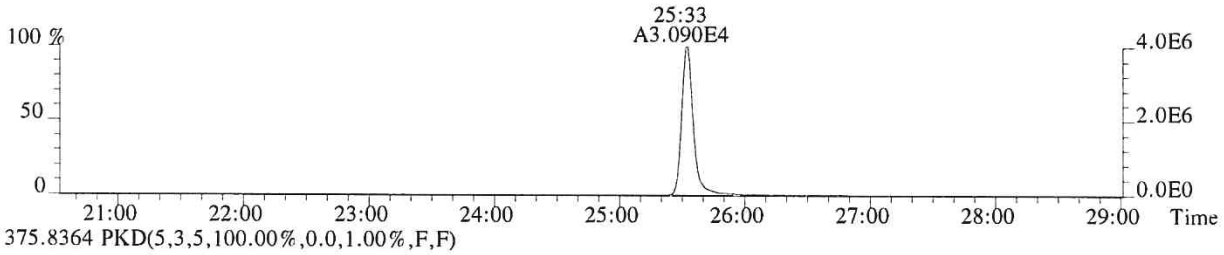
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



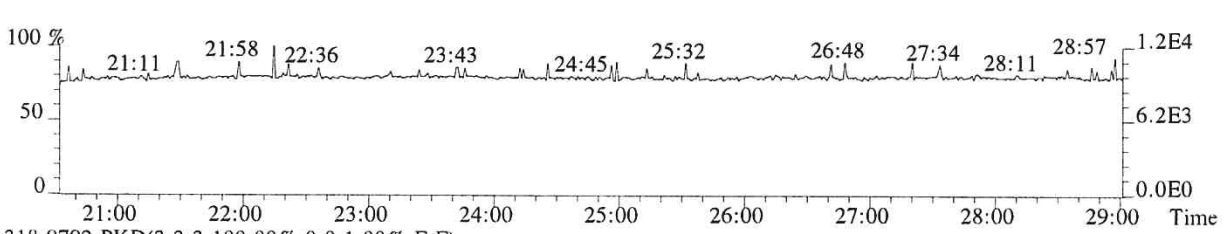
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5664.0,1.00%,F,T)



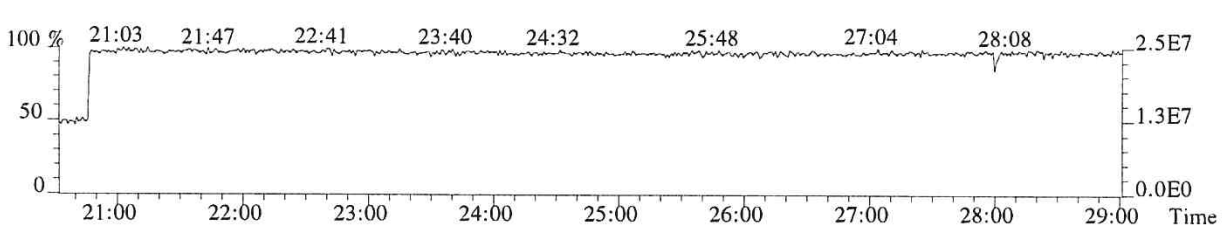
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3328.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

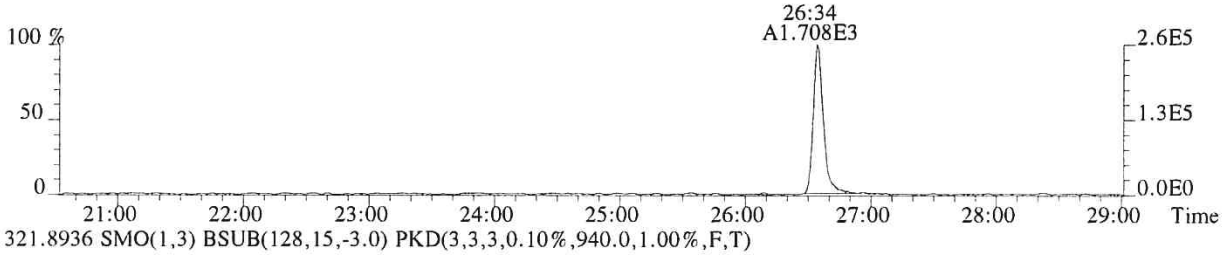


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

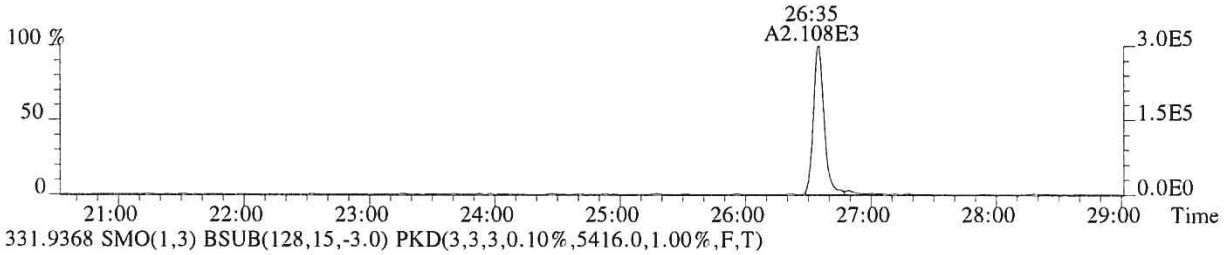


009955

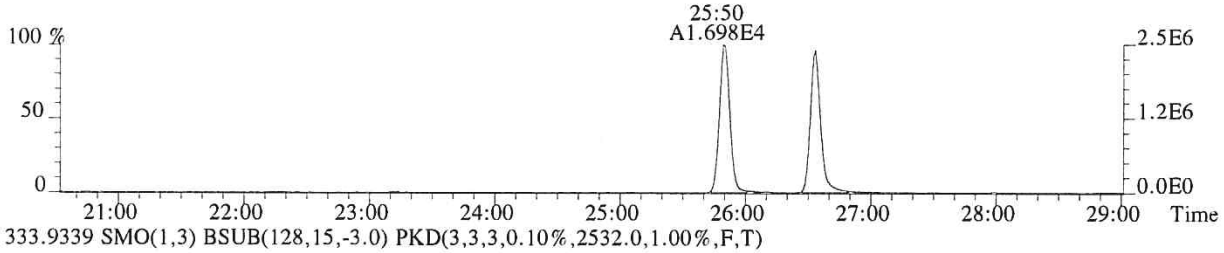
File:P518837 #1-602 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



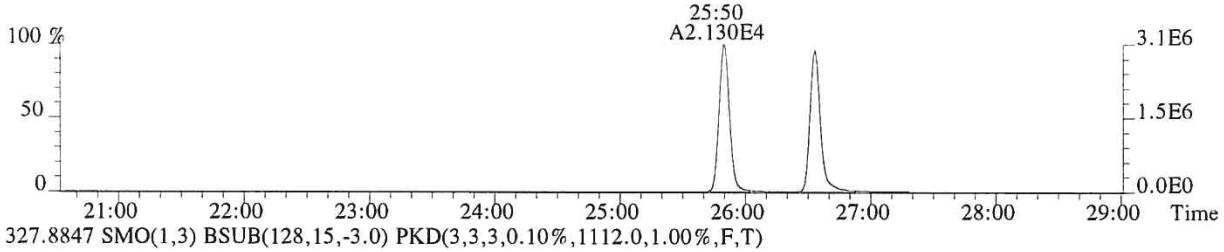
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



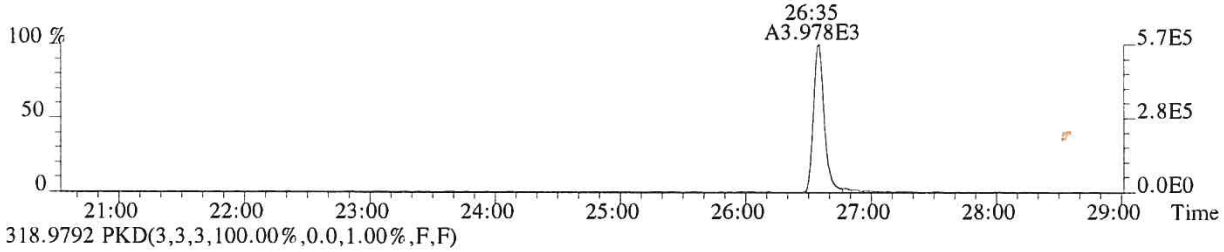
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5416.0,1.00%,F,T)



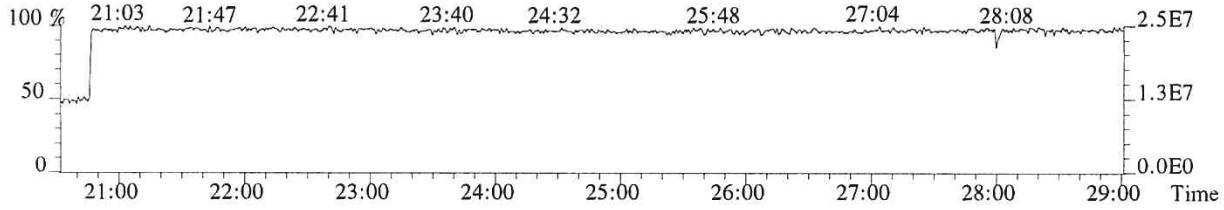
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2532.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)

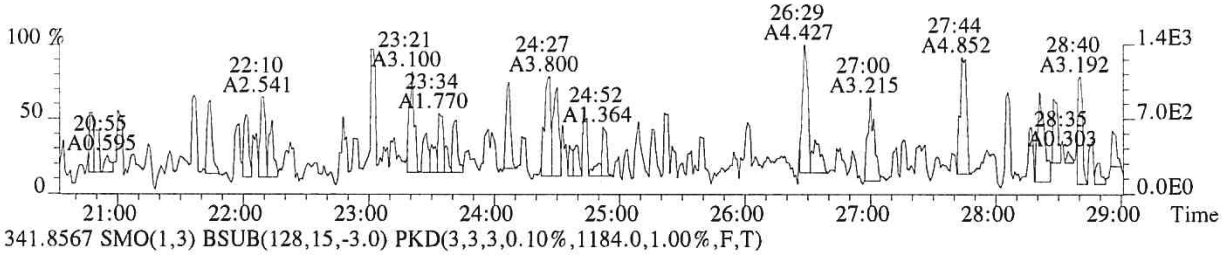


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

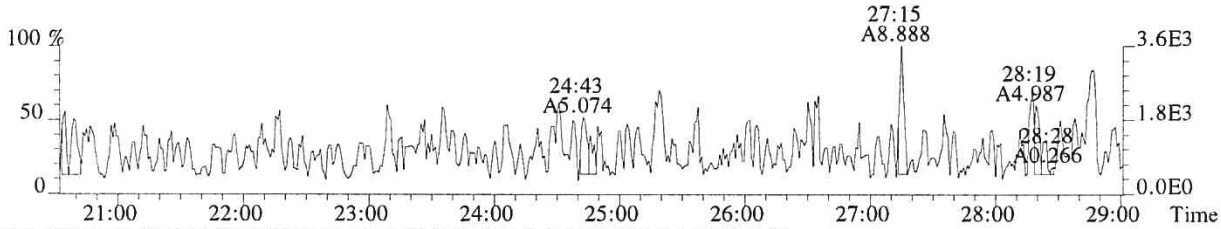


009956

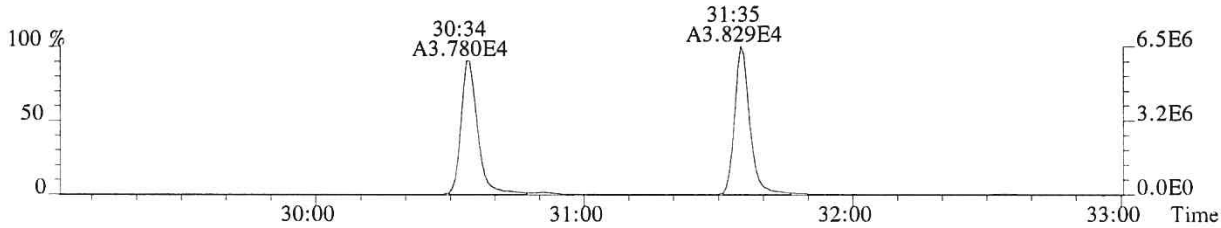
File:P518837 #1-602 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



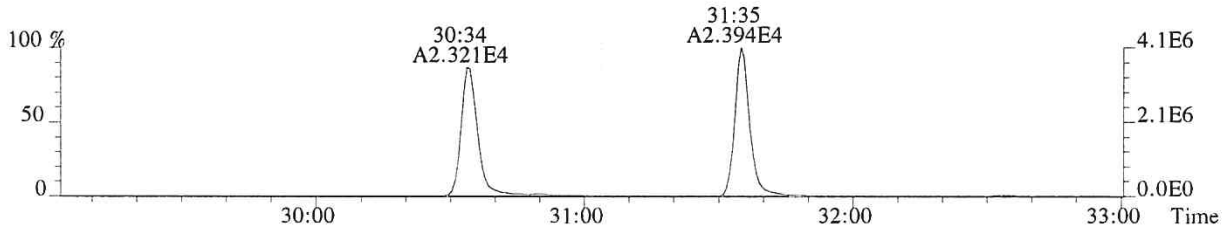
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



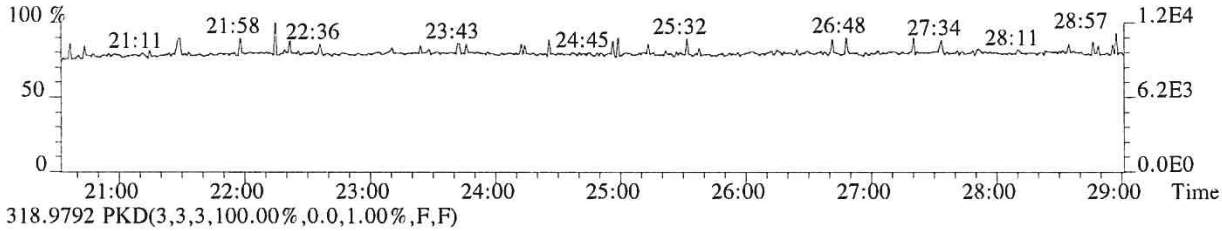
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



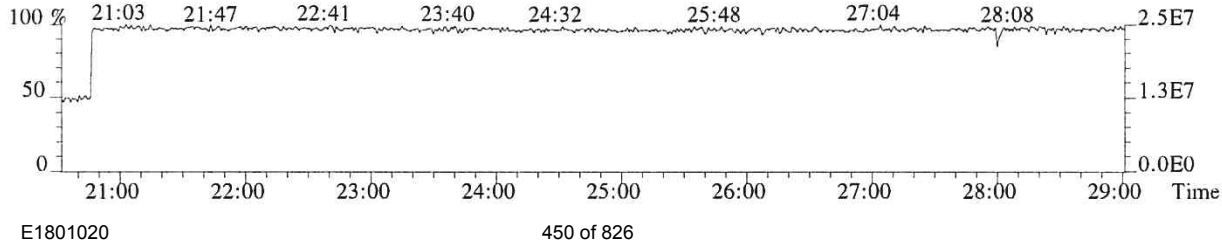
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

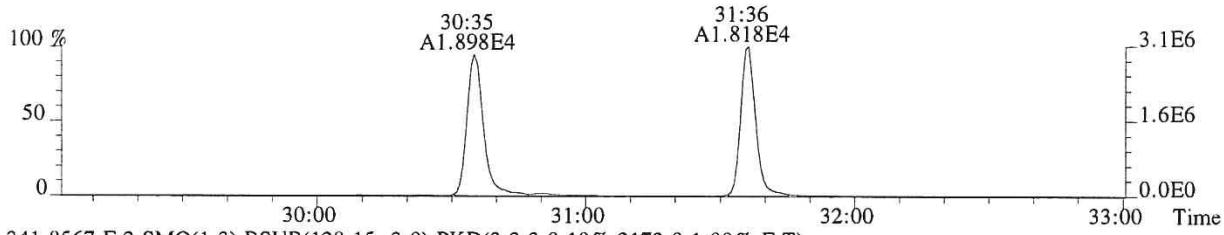


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

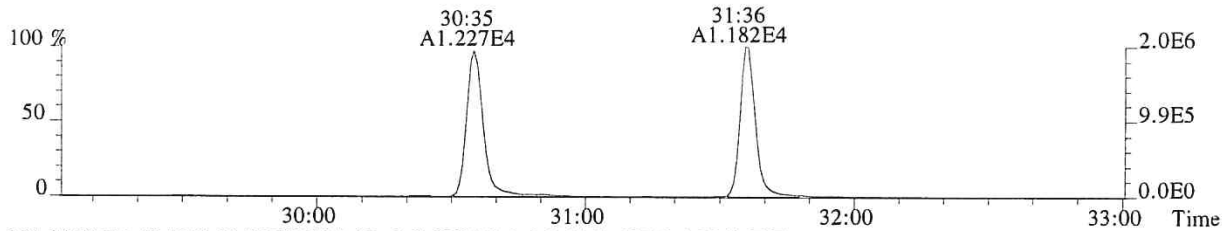


009957

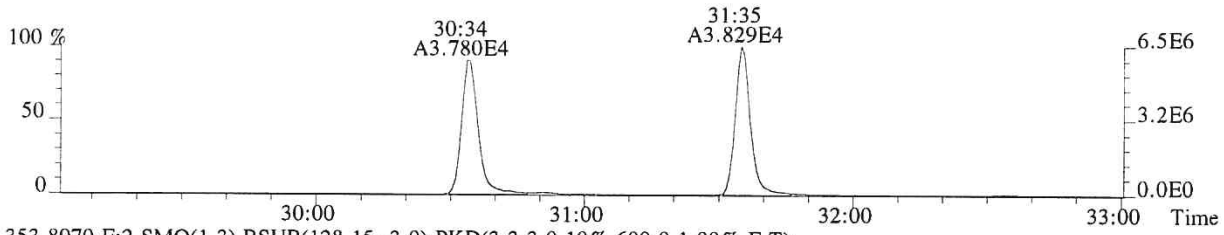
File:P518837 #1-357 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



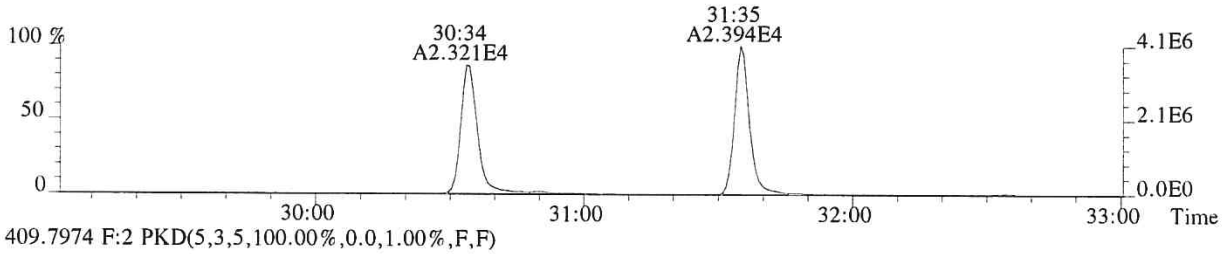
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2172.0,1.00%,F,T)



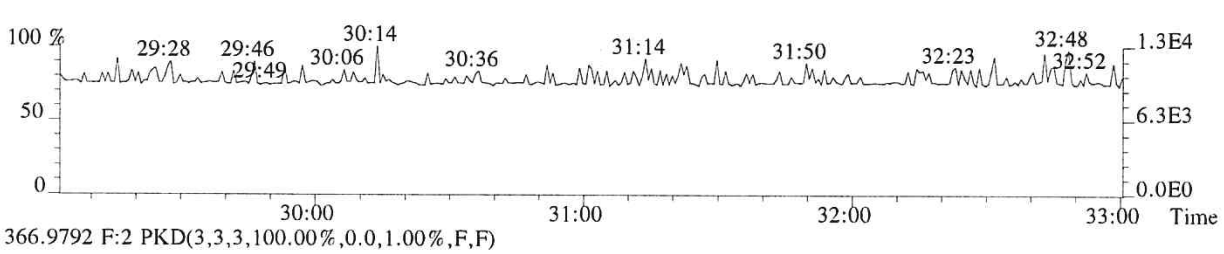
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



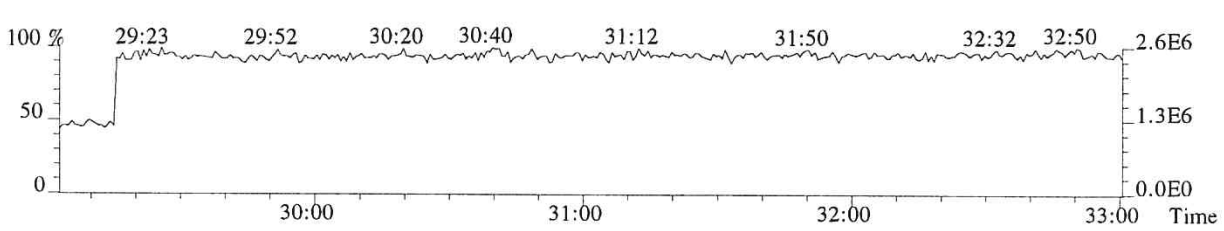
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

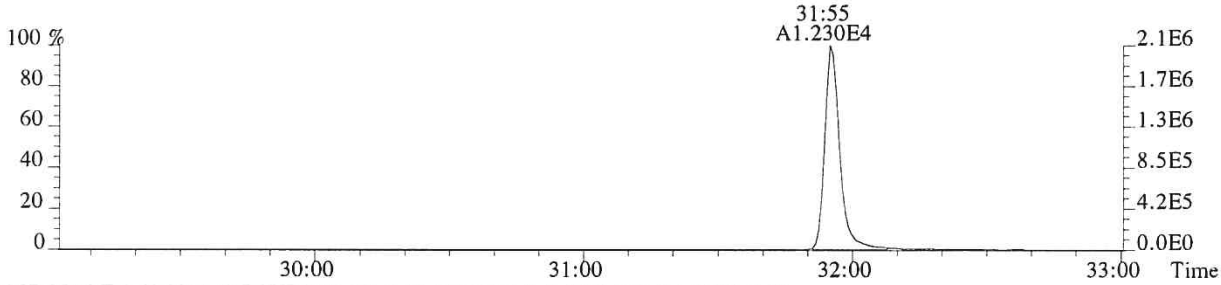


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

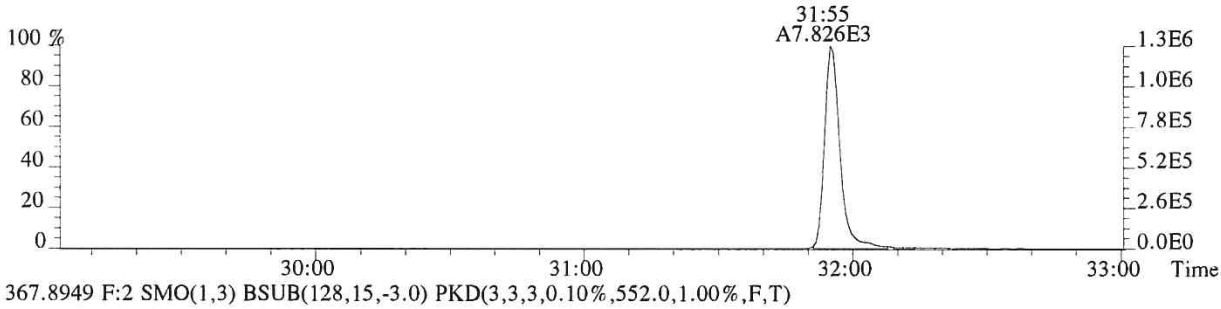


009958

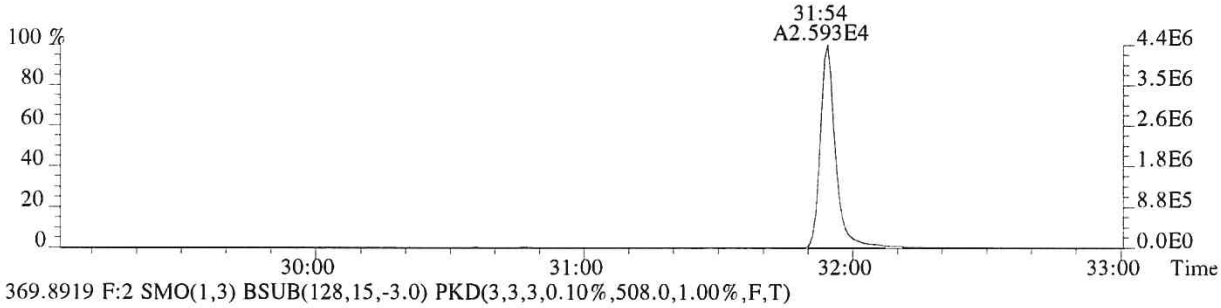
File:P518837 #1-357 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



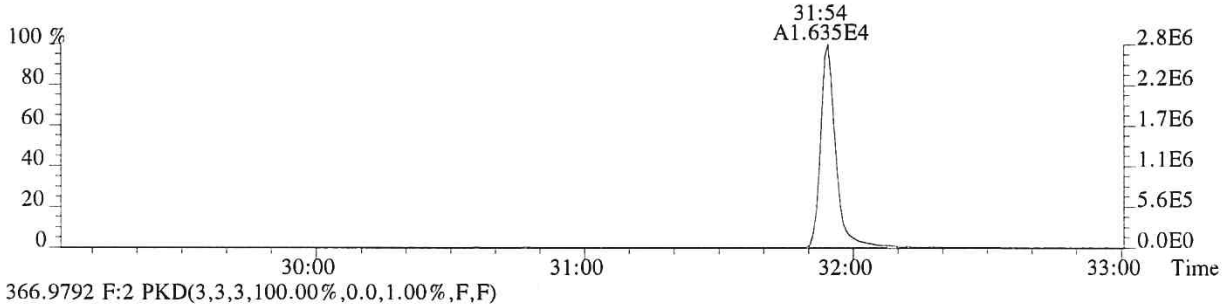
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



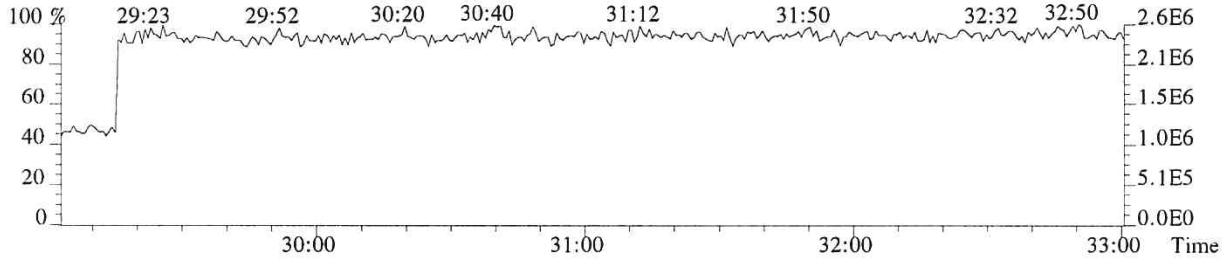
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



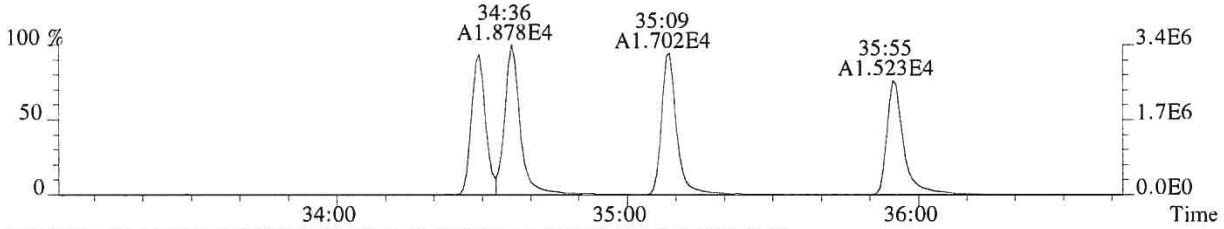
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



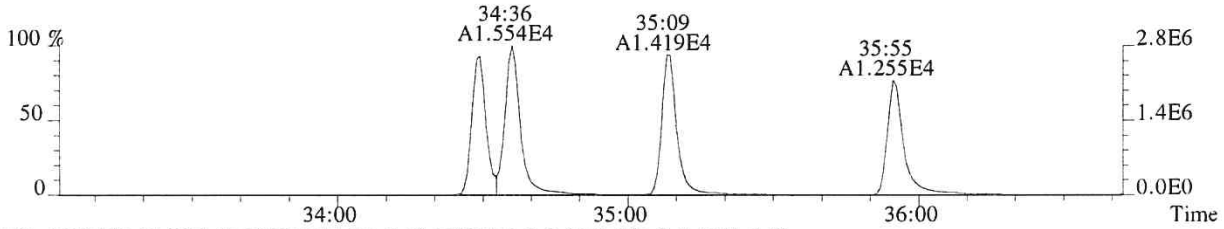
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



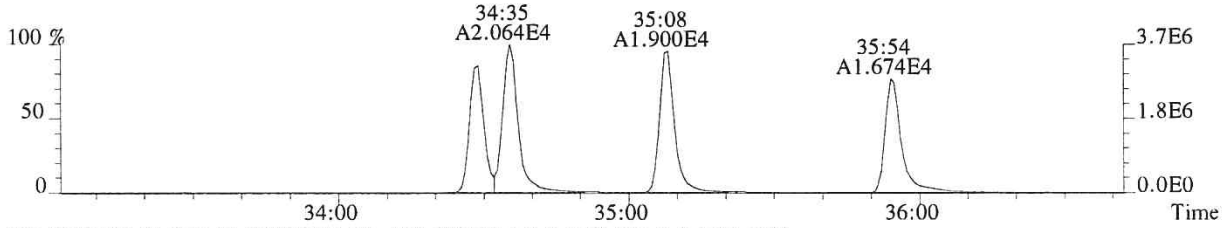
File:P518837 #1-330 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



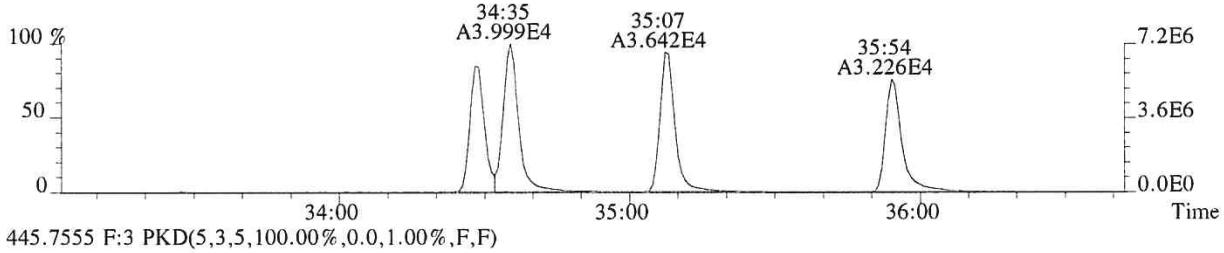
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



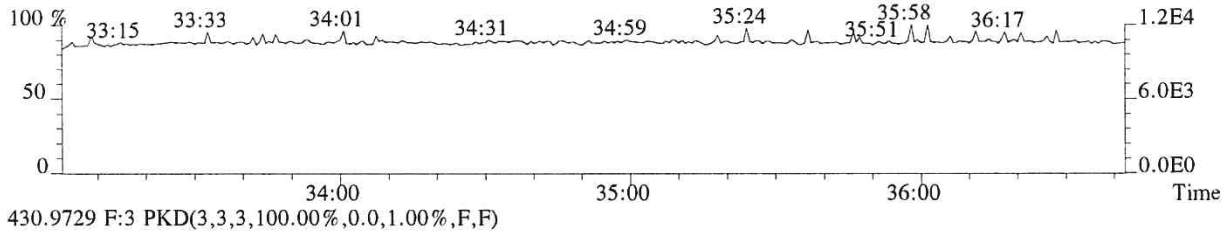
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



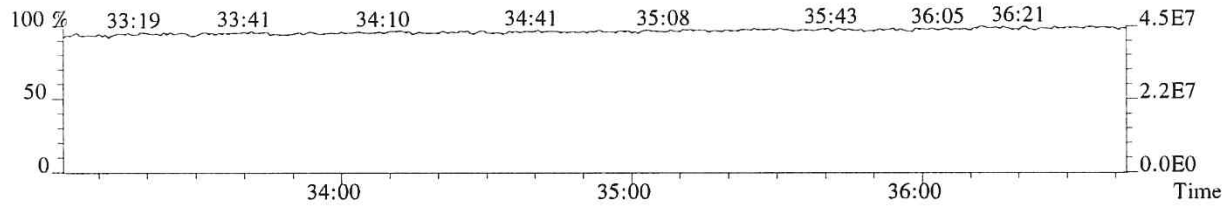
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

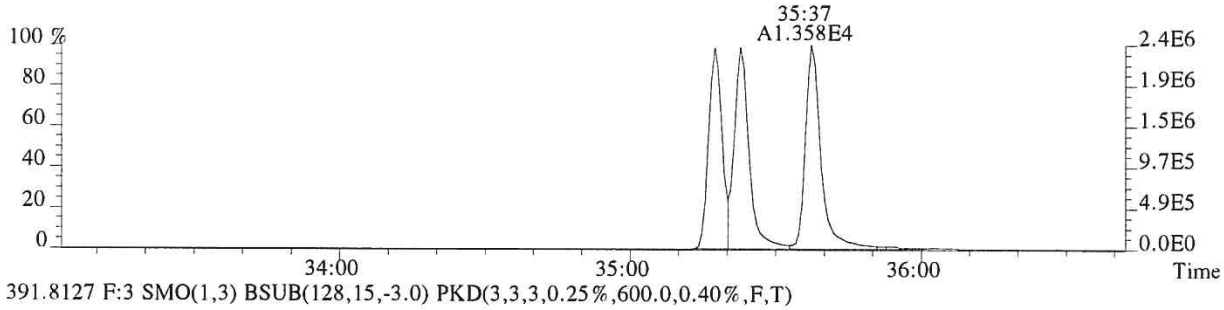


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

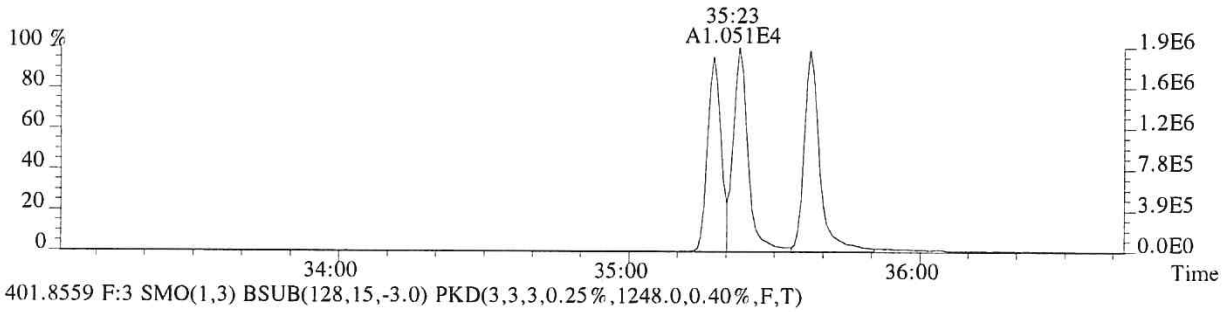


009960

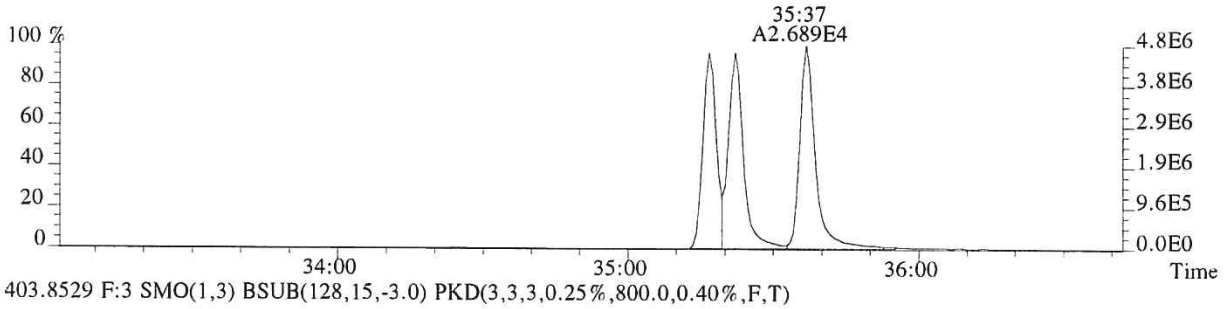
File:P518837 #1-330 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



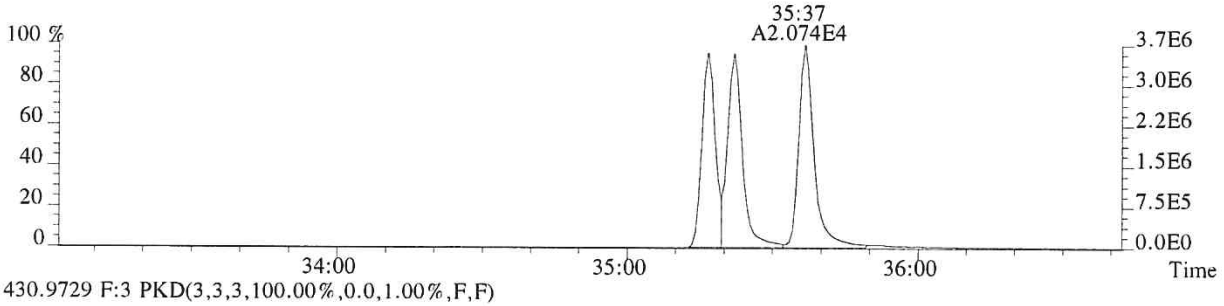
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



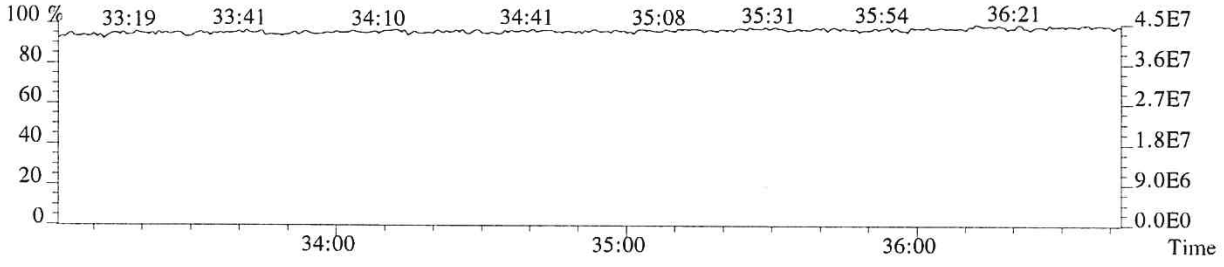
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.40%,F,T)



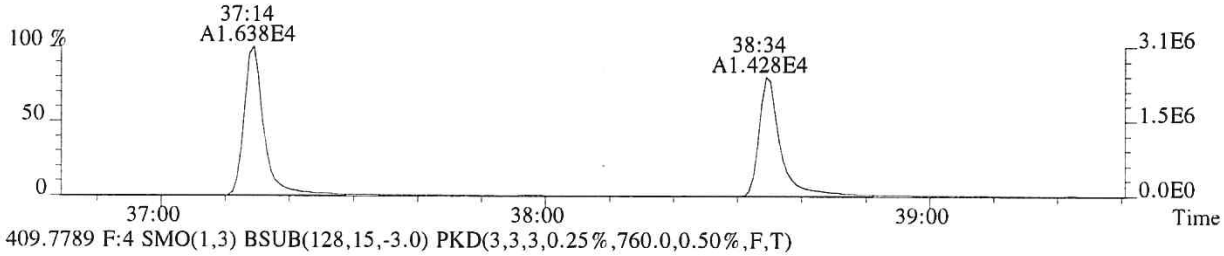
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



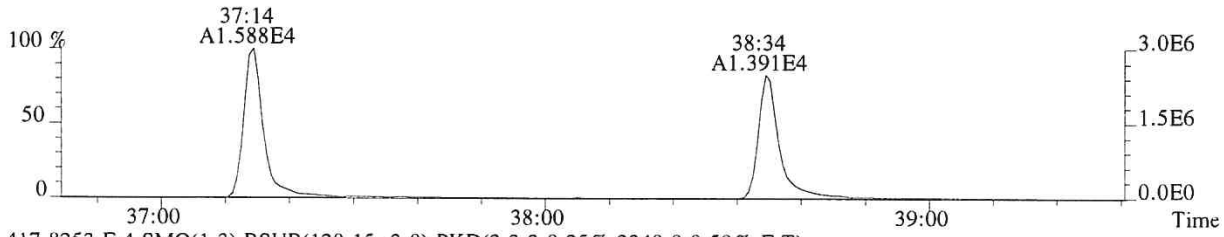
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



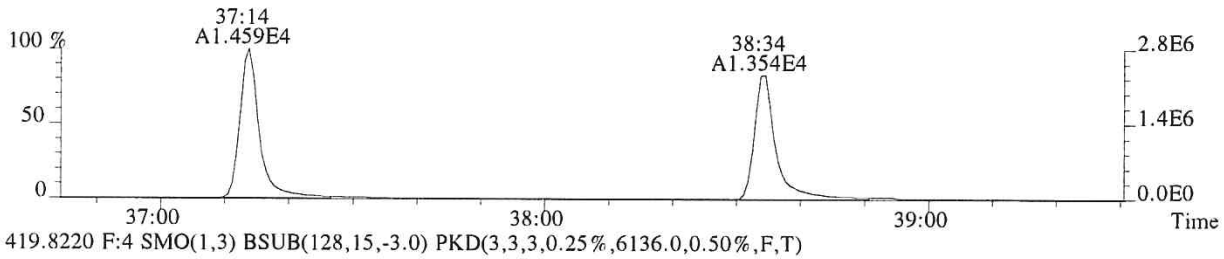
File:P518837 #1-250 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.50%,F,T)



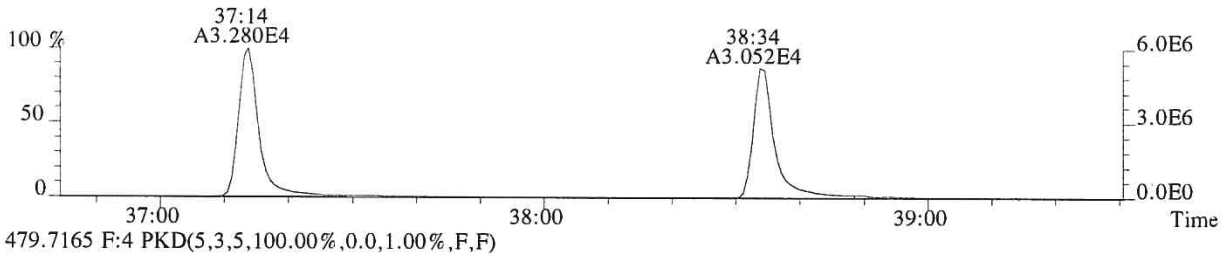
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.50%,F,T)



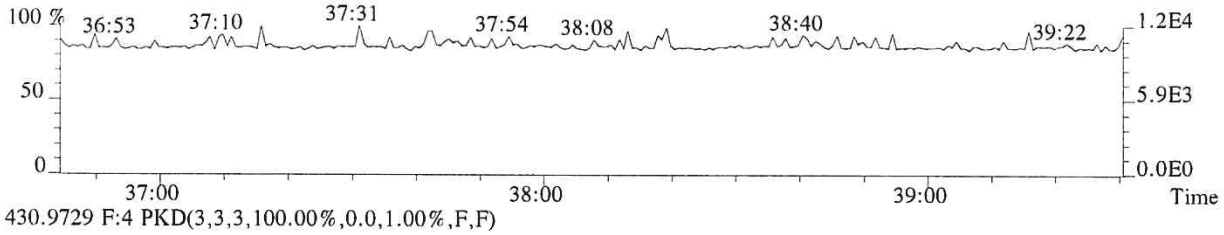
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2340.0,0.50%,F,T)



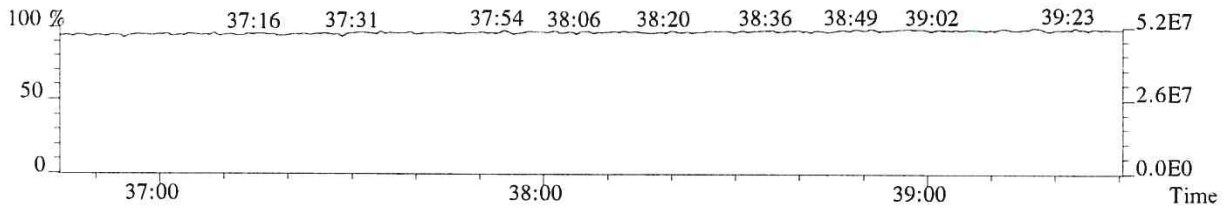
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6136.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

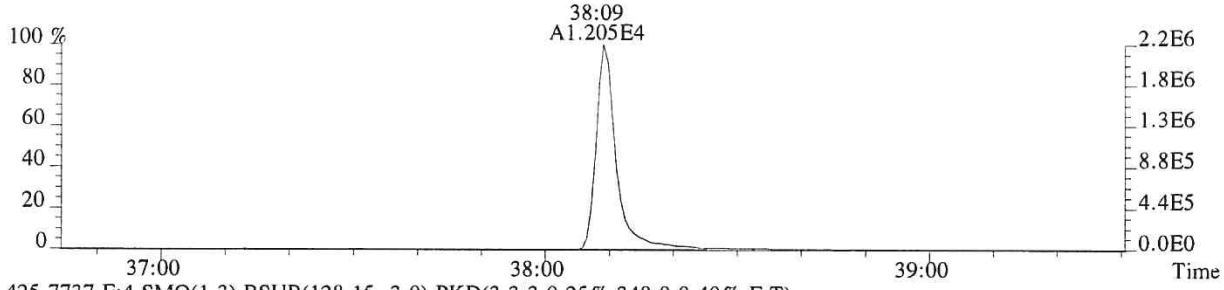


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

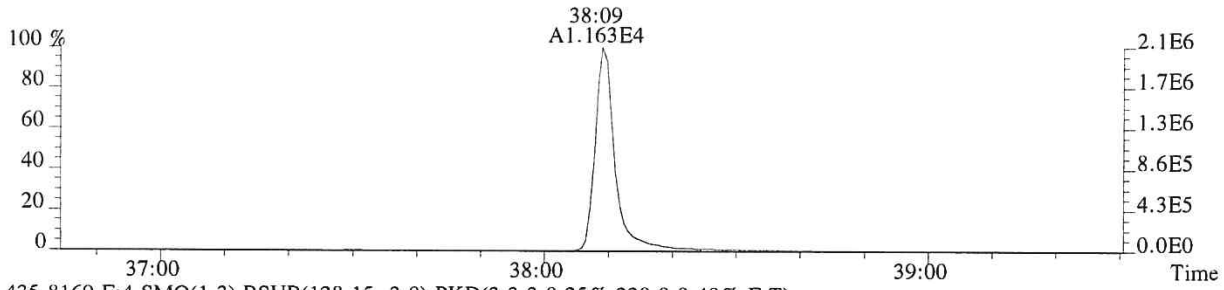


009962

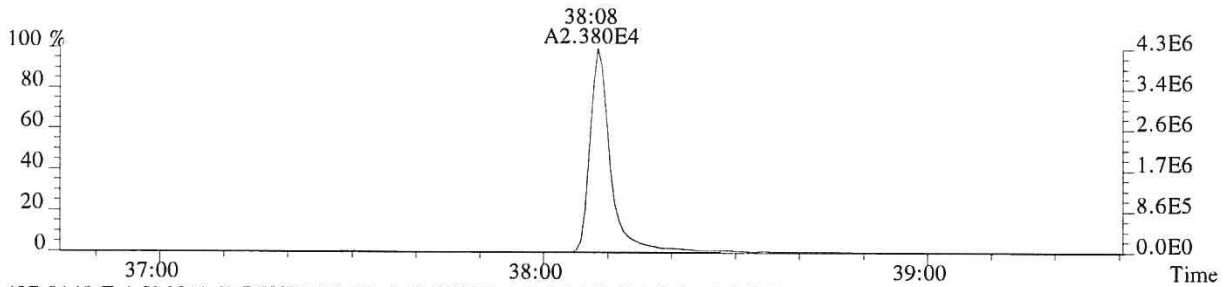
File:P518837 #1-250 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



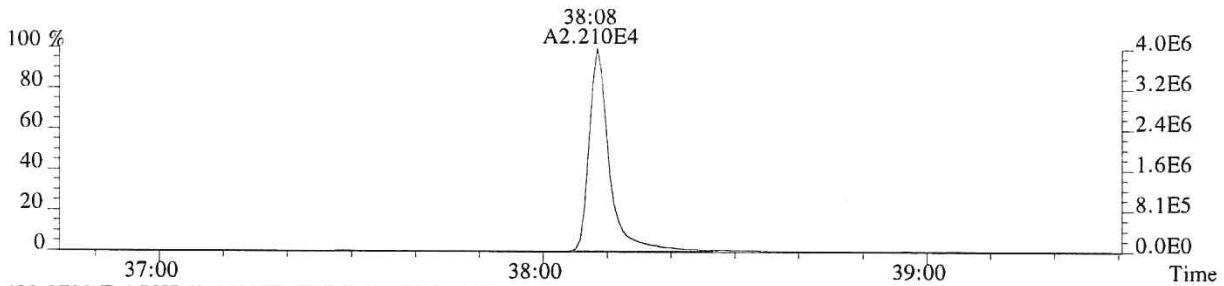
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



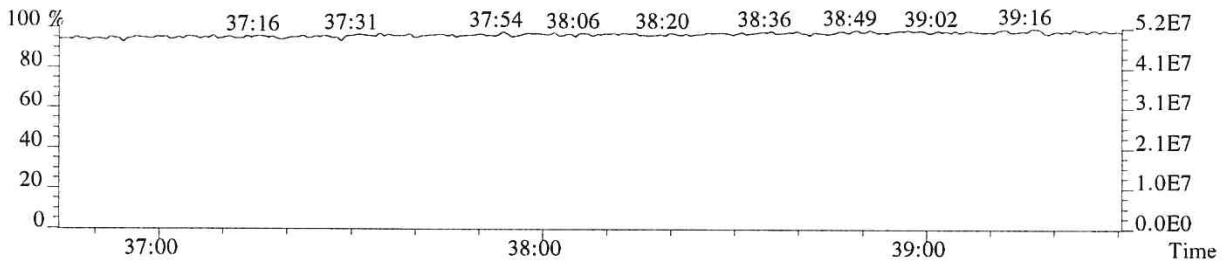
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



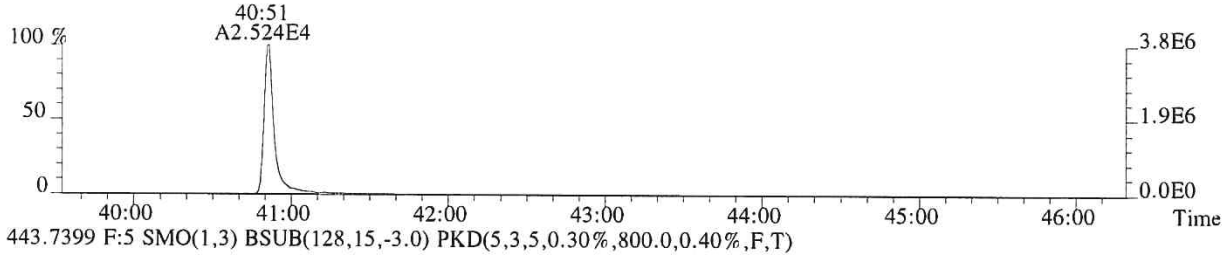
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



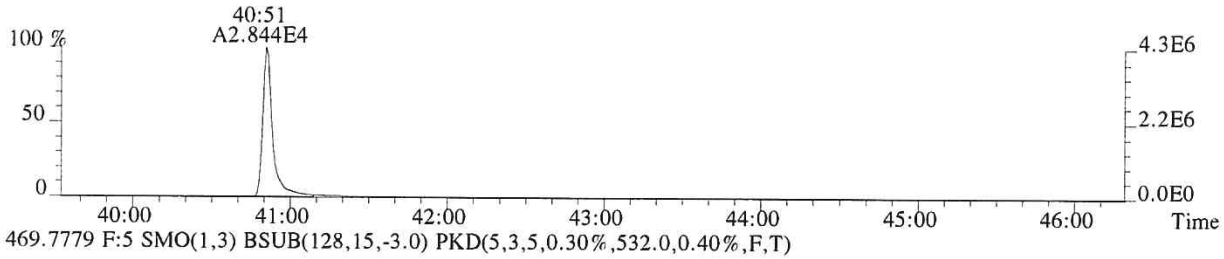
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



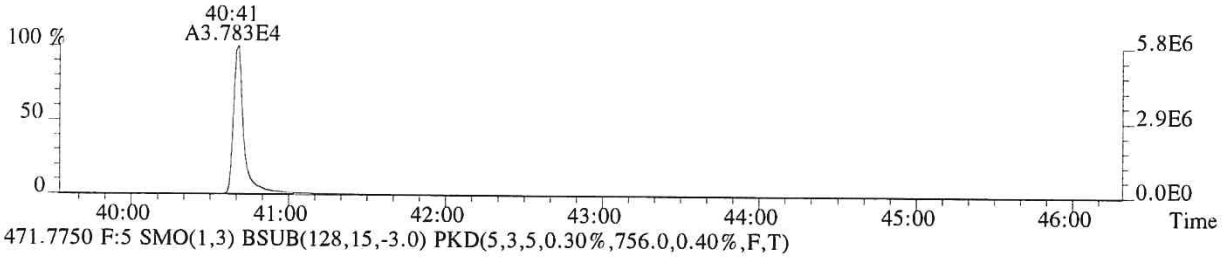
File:P518837 #1-610 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



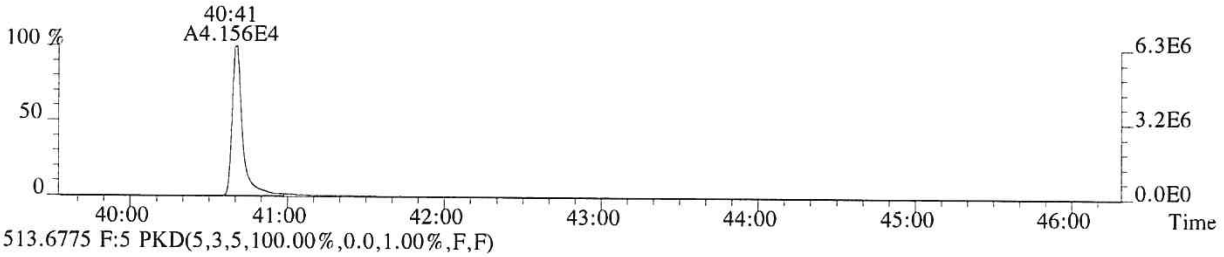
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



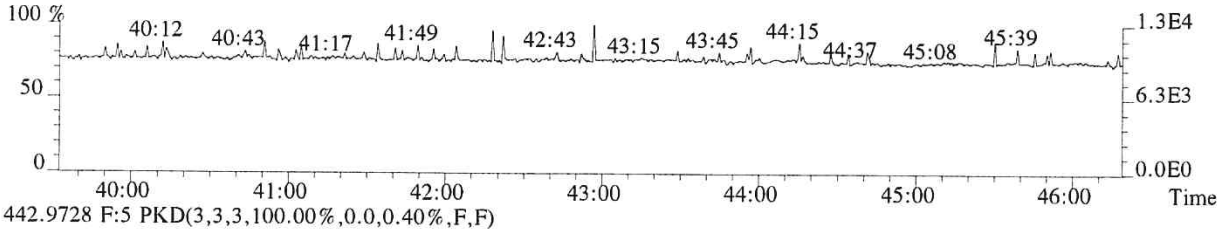
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



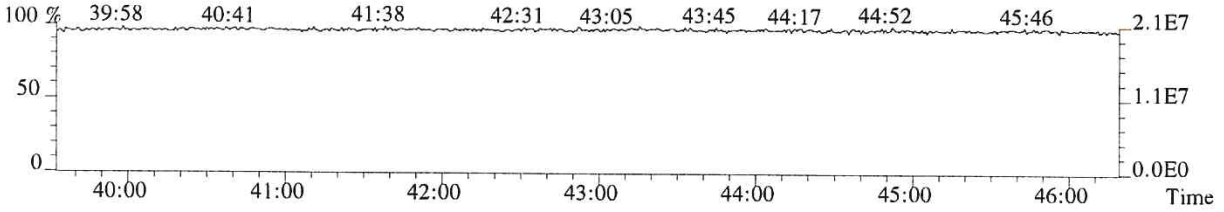
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

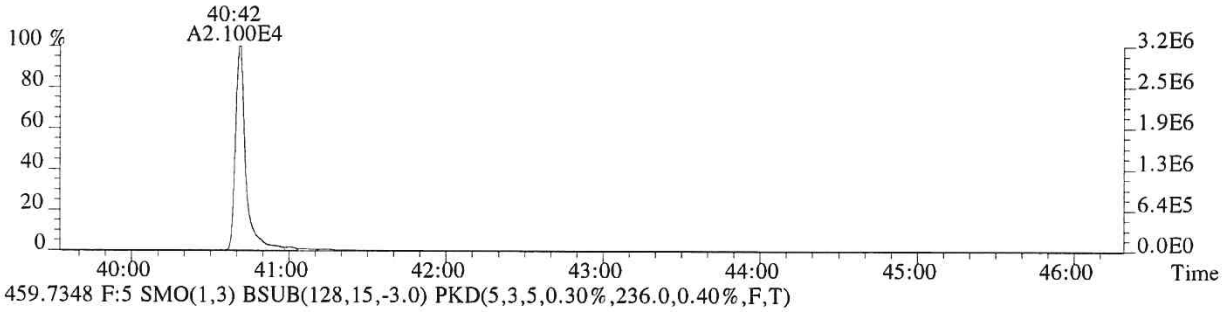


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

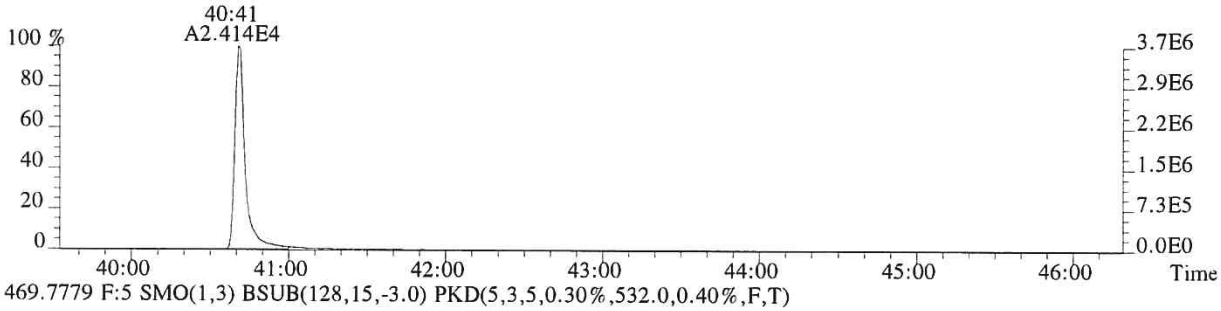


009964

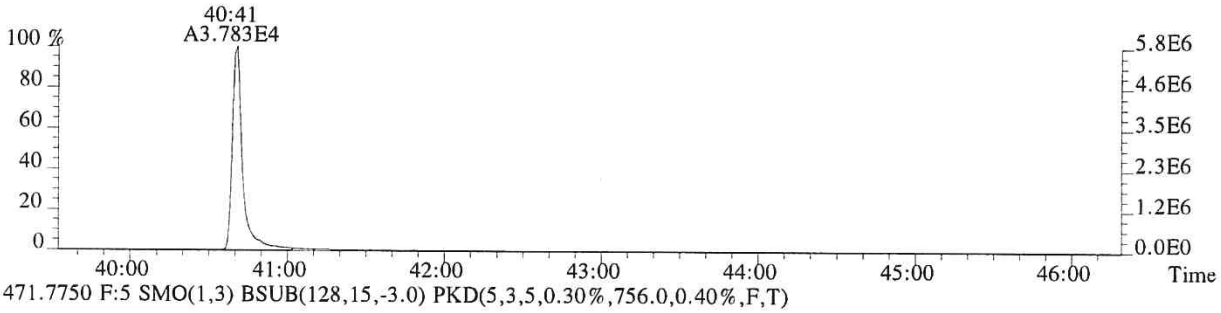
File:P518837 #1-610 Acq:15-NOV-2018 23:25:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



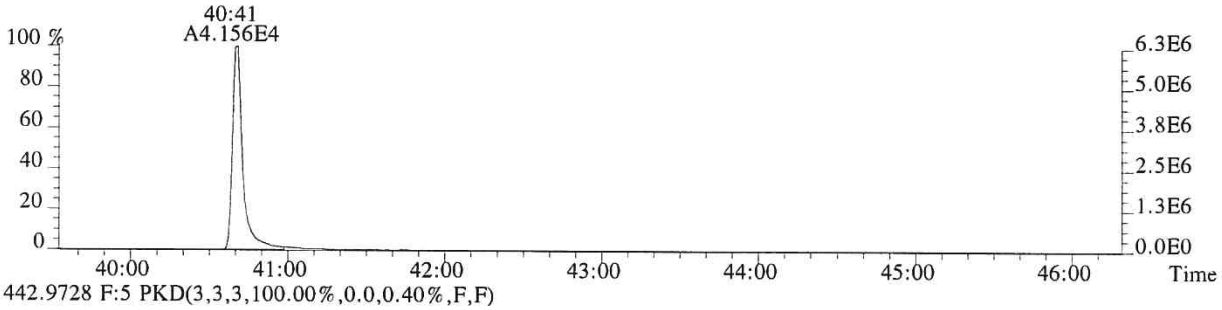
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



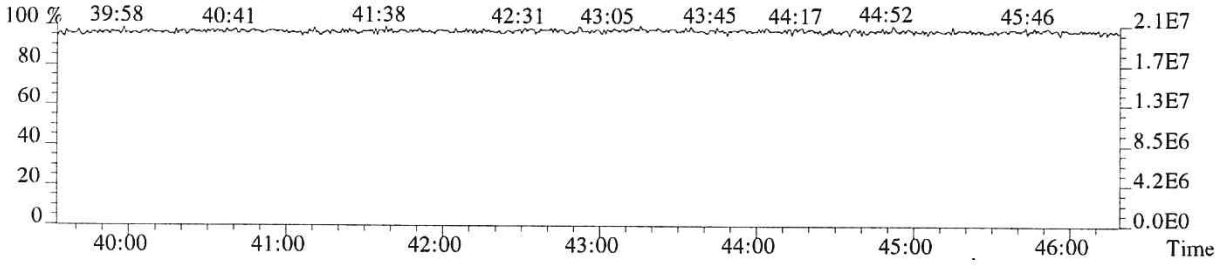
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P5188105

Date: 11/7/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: QC

Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P518865	17-NOV-18	01:07:48
192977	WINDOW DEFINE	P518866	17-NOV-18	01:55:35
METHOD BLANK	EQ1800457-01	P518867	17-NOV-18	02:44:15
METHOD BLANK	EQ1800468-01	P518868	17-NOV-18	03:32:53
SL0022	E1801020-018	P518869	17-NOV-18	04:21:31
SL0011	E1801020-034	P518870	17-NOV-18	05:10:10
SL0033	E1801020-045	P518871	17-NOV-18	05:58:47
SL0034	E1801020-051	P518872	17-NOV-18	06:47:25
SL0046	E1801020-052	P518873	17-NOV-18	07:36:04
SL0072	E1801012-020	P518874	17-NOV-18	08:24:42
SL0084	E1801035-006	P518875	17-NOV-18	09:13:20
SL0519	E1801038-001	P518876	17-NOV-18	10:01:58
LCS	EQ1800468-02	P518877	17-NOV-18	10:50:36
DLCS	EQ1800468-03	P518878	17-NOV-18	11:39:16

E1801020

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181116B.SPL
Last Modified: Monday, November 19, 2018 07:44:12 Central Standard Time
Printed: Monday, November 19, 2018 07:44:15 Central Standard Time

Page Position (1, 1)

OPUS 4: P518865res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst LG for WKL	Comments
1	4/17/18	01:07	P518865	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMScheck 01:07
2		01:55	P518866	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		02:44	P518867	MB	EQ1800457-01	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		03:33	P518868	MB	EQ1800468-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		04:21	P518869	E1801020-018	E1801020-018	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		05:10	P518870	E1801020-034	E1801020-034	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		05:58	P518871	E1801020-045	E1801020-045	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		06:47	P518872	E1801020-051	E1801020-051	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		07:36	P518873	E1801020-052	E1801020-052	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		08:24	P518874	E1801012-020	E1801012-020	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		09:13	P518875	E1801035-006	E1801035-006	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		10:01	P518876	E1801038-001	E1801038-001	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		10:50	P518877	LCS	EQ1800468-02	EPA1613_ALS	Dioxin_ALS	Tray1:2		
14		11:39	P518878	DLCS	EQ1800468-03	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15		12:36	P518879	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMScheck 12:36
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---

LG 11/21/18

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

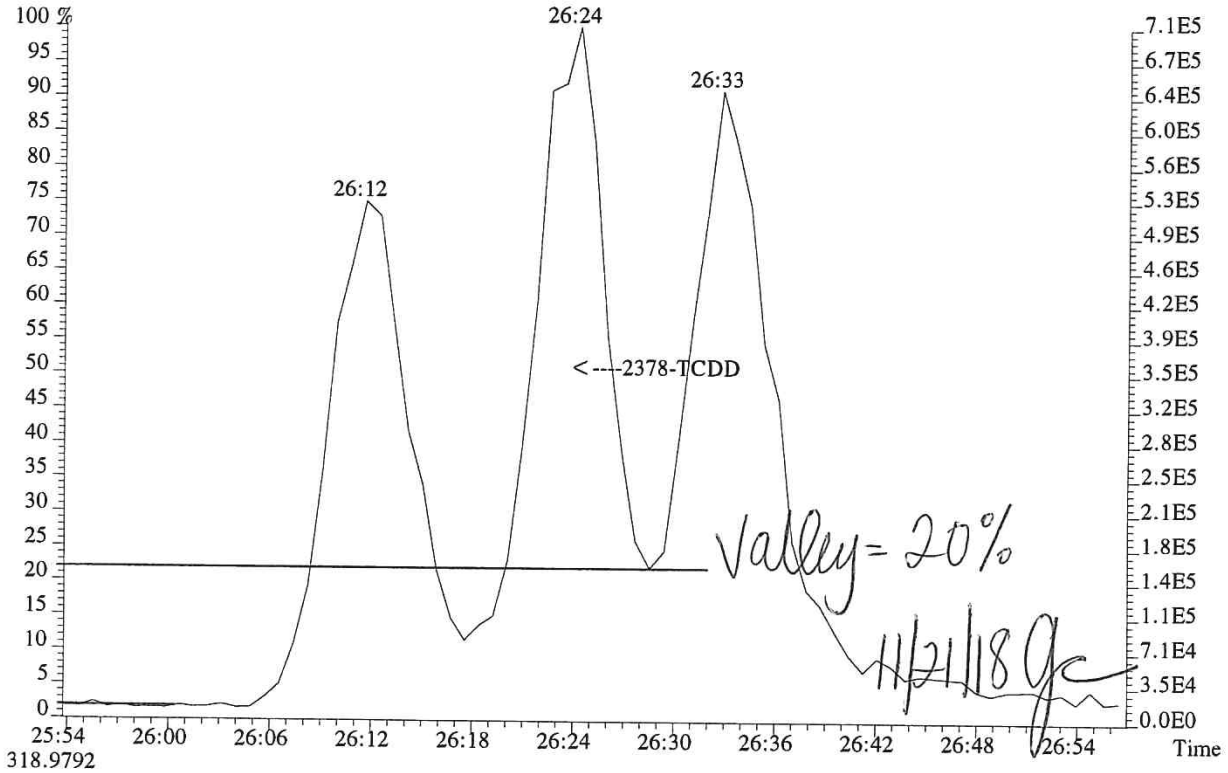
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

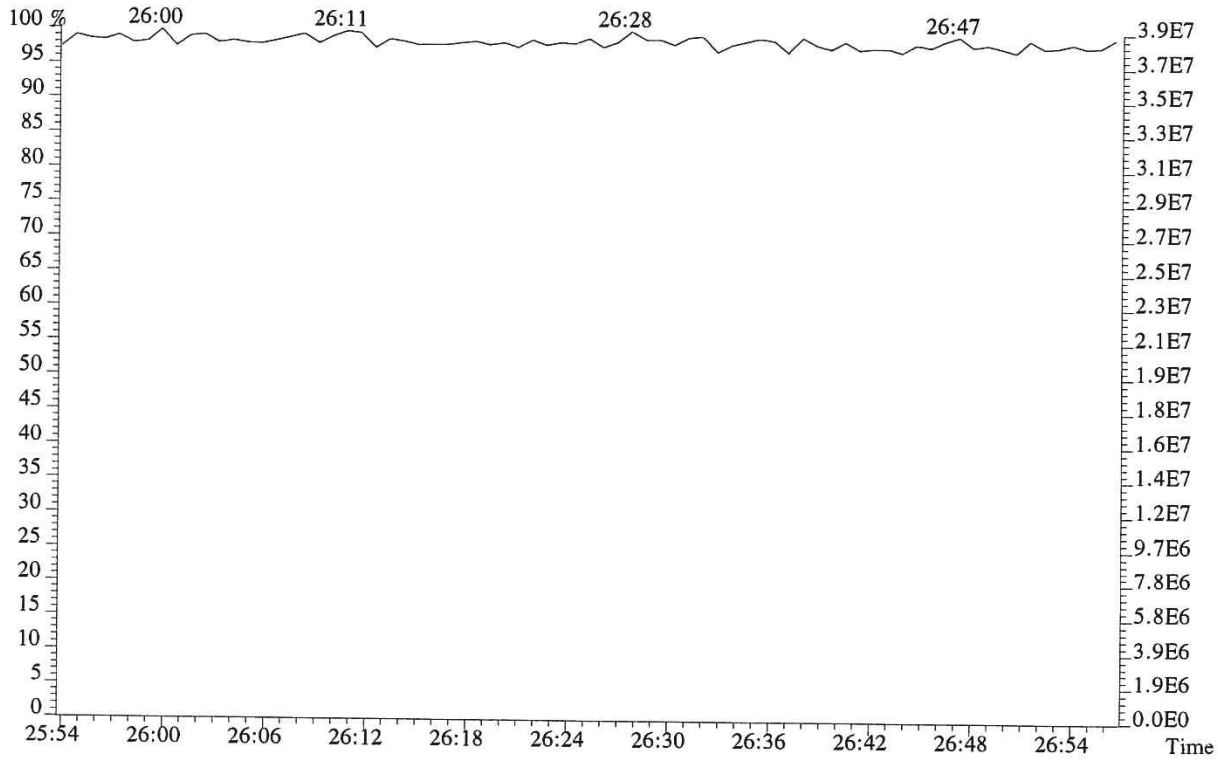
Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P518866
Date Analyzed: 17-NOV-2018
Time Analyzed: 01:55:35

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:06	27:48
TCDD	22:40	27:38
PeCDF	27:46	32:34
PeCDD	29:35	32:18
HxCDF	33:17	35:57
HxCDD	33:51	35:32
HpCDF	37:14	38:34
HpCDD	37:30	38:08

% Valley 2378-TCDD: 20 %

File:P518866 #1-602 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965





009970

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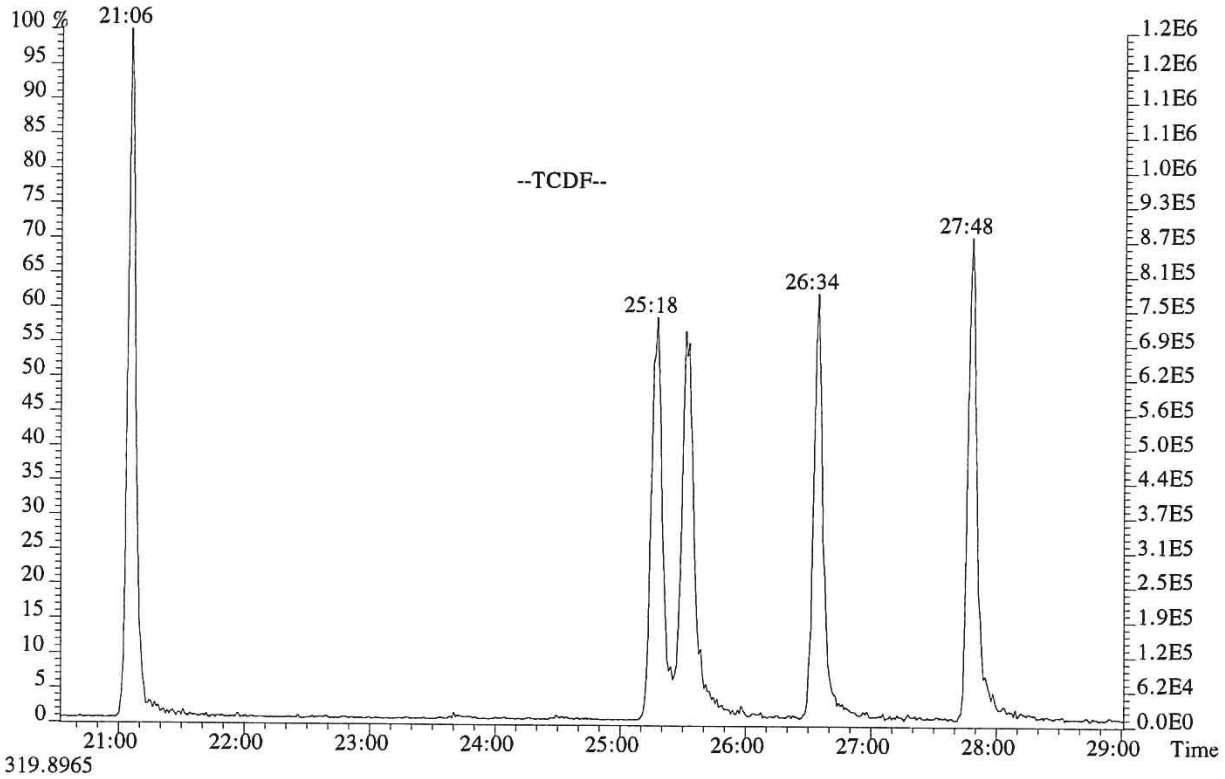
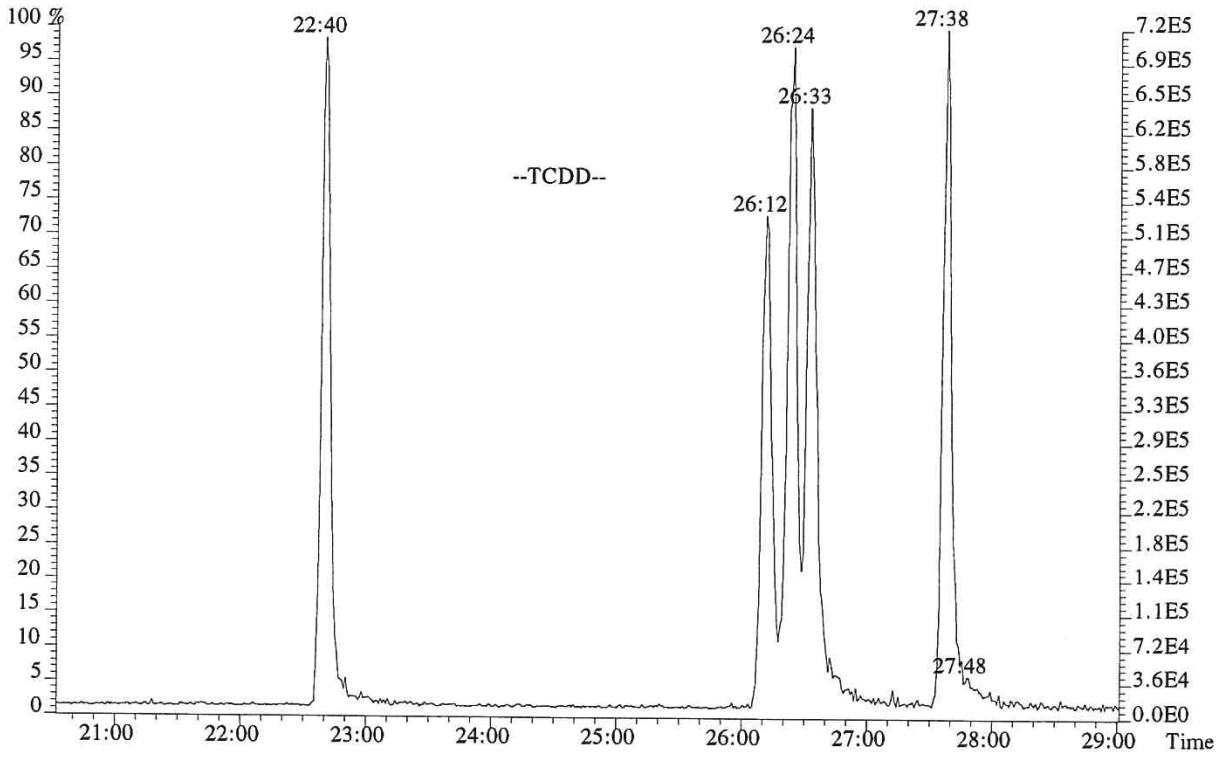
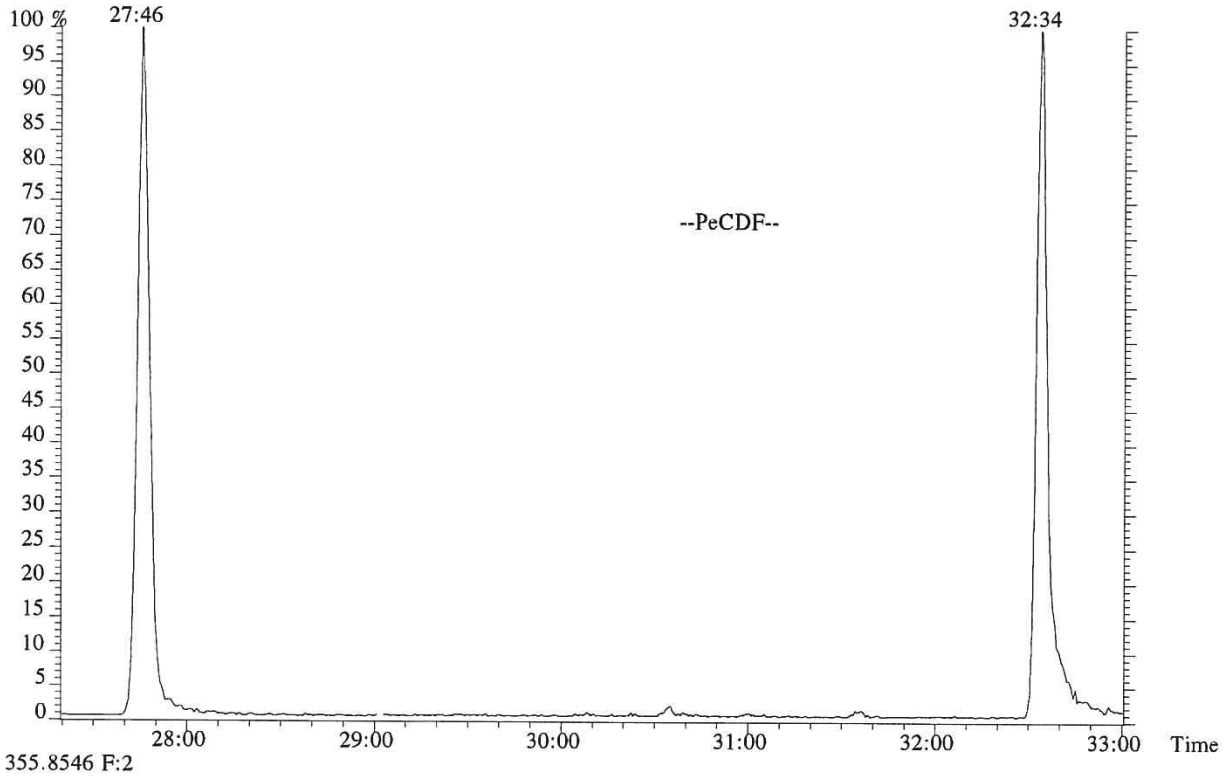
Sample#1 Exp:192977
303.9016



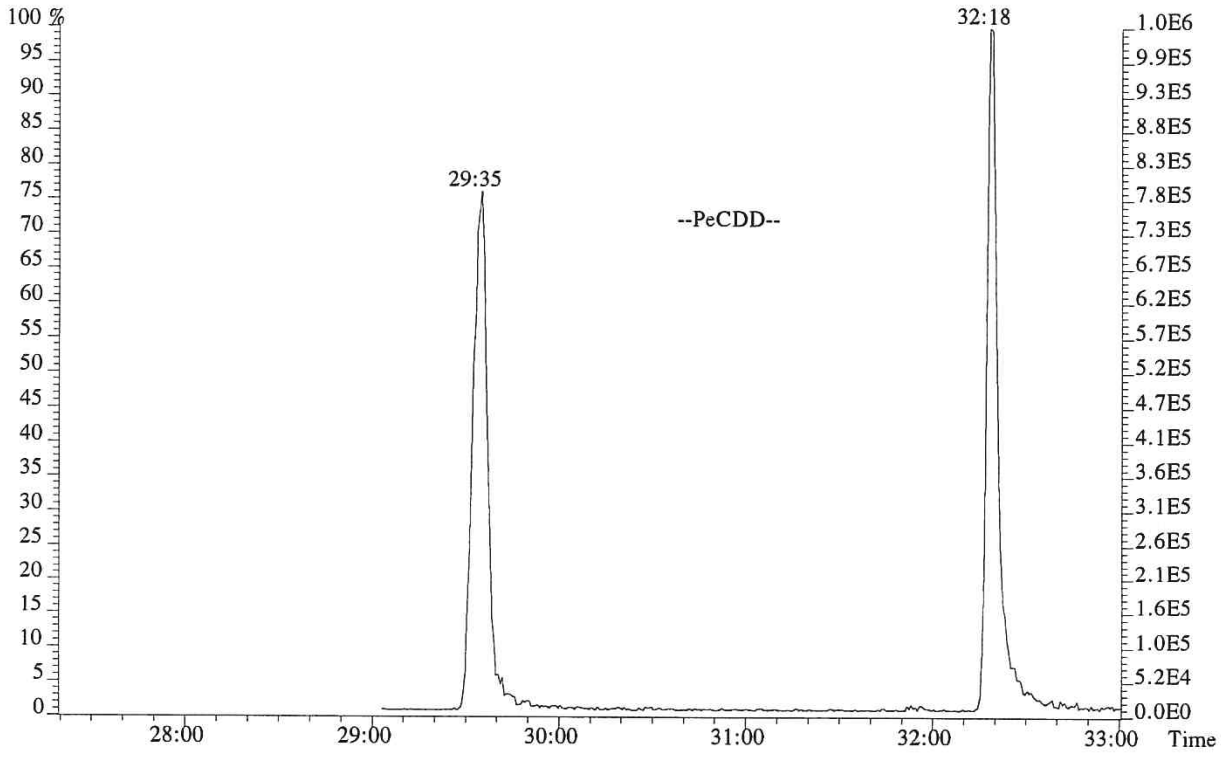


009971

File:P518866 #1-602 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2

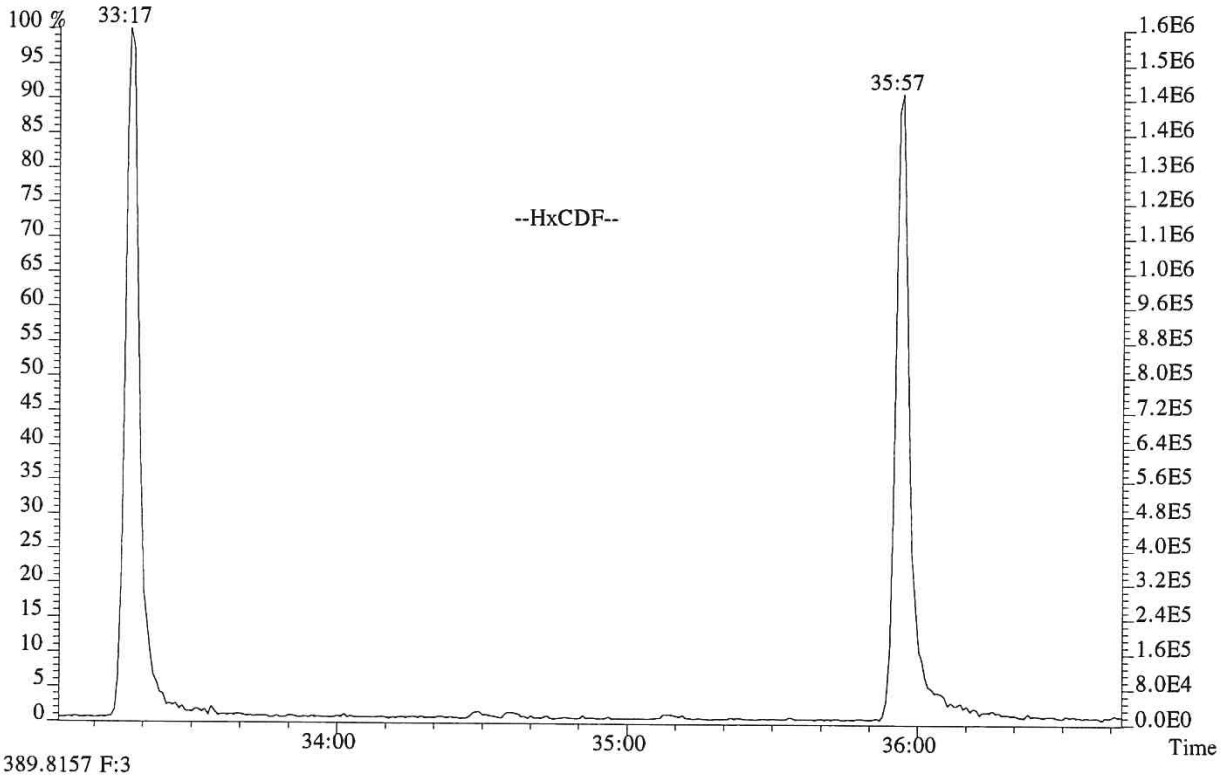


355.8546 F:2

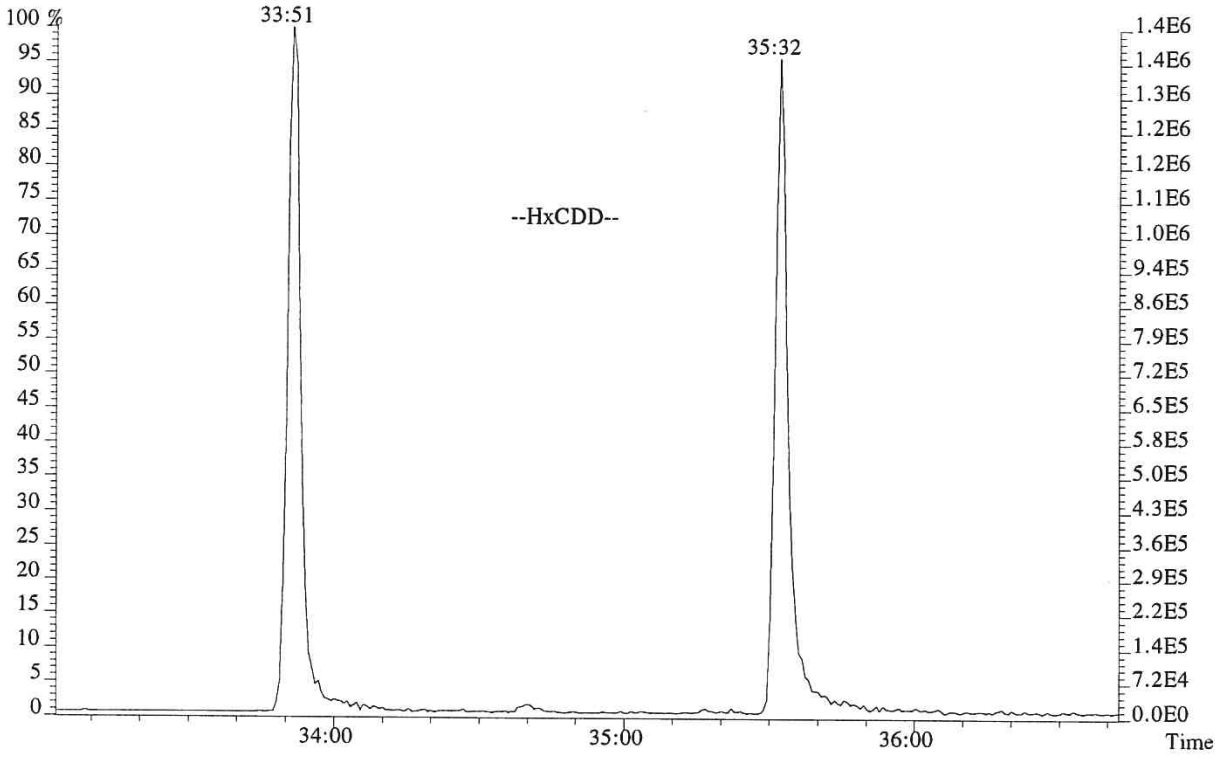


009972

File:P518866 #1-330 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3

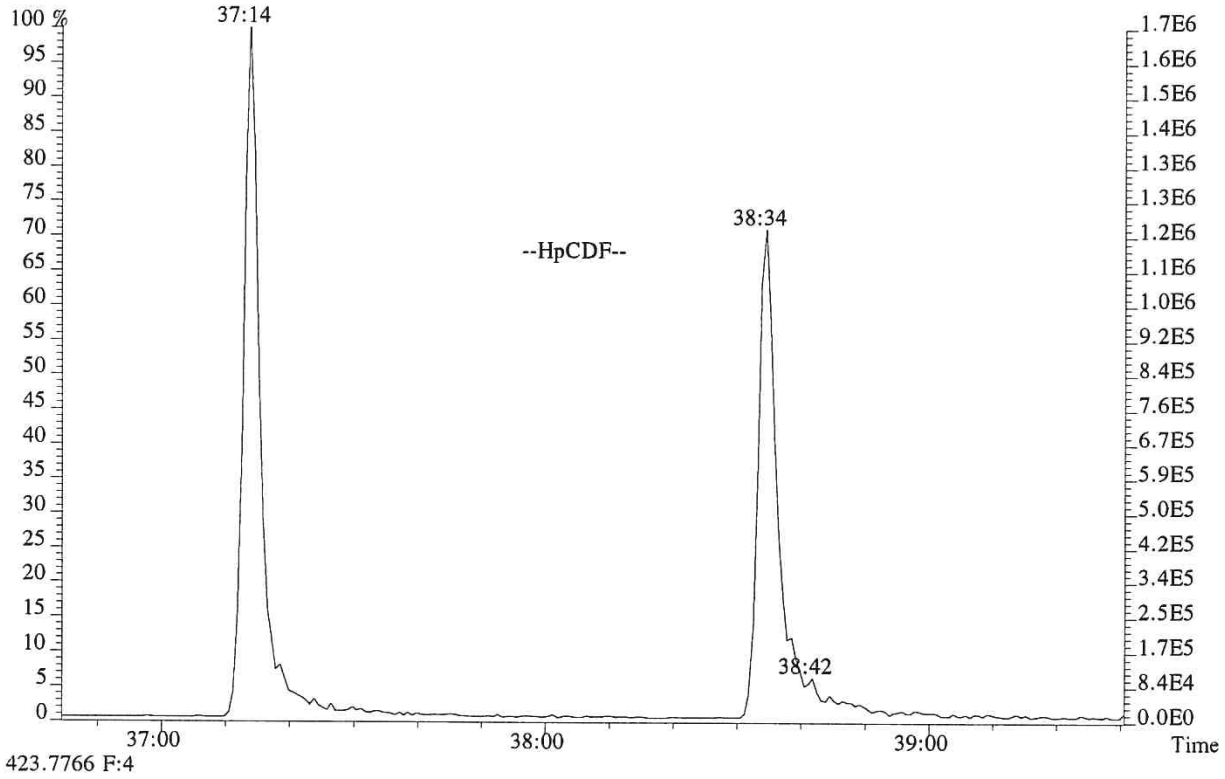


389.8157 F:3

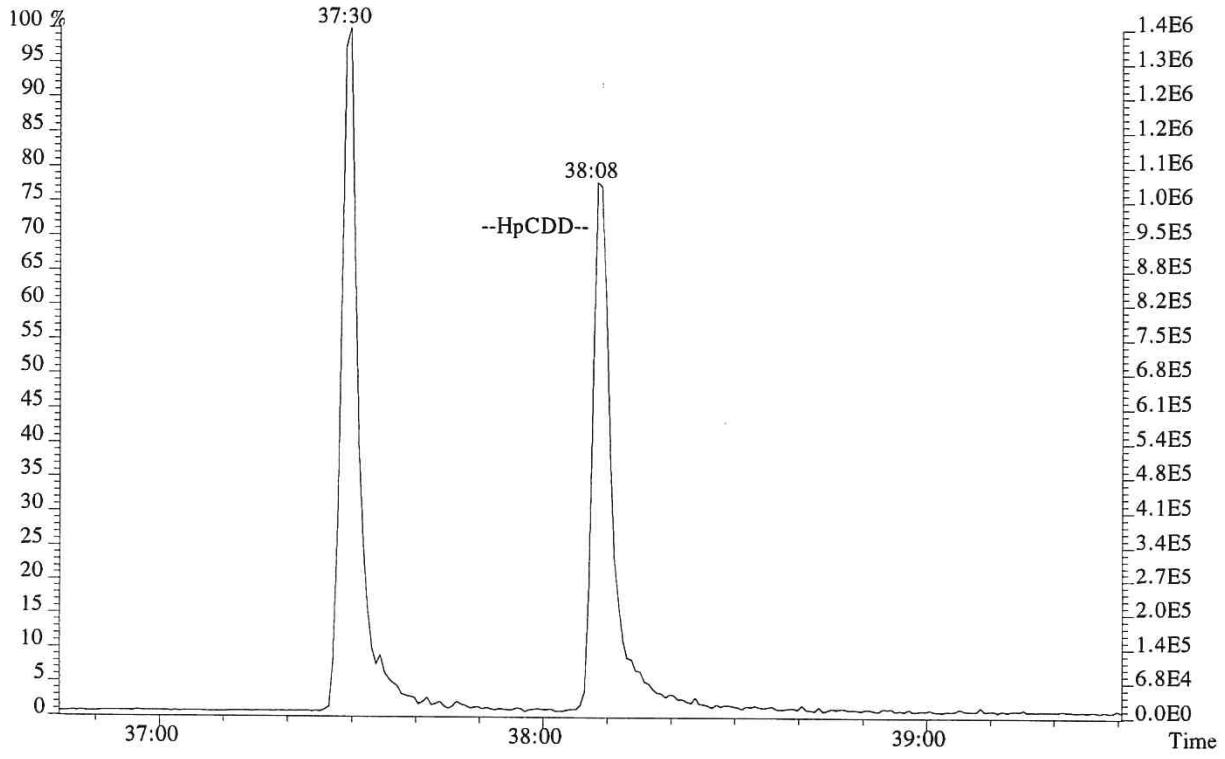


009973

File:P518866 #1-250 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4

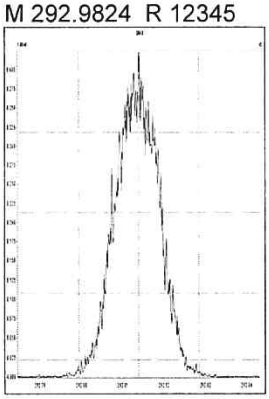


423.7766 F:4

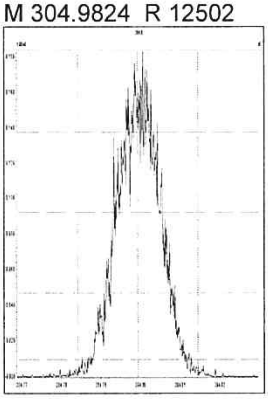


009974

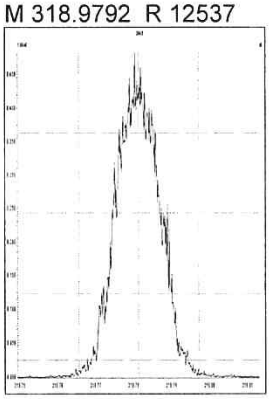
M 292.9824 R 12345



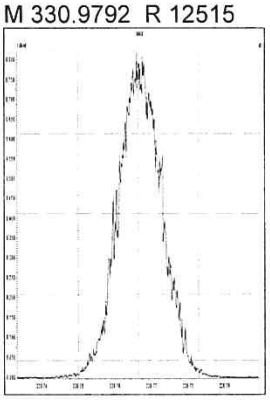
M 304.9824 R 12502



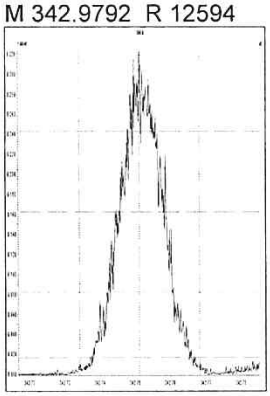
M 318.9792 R 12537



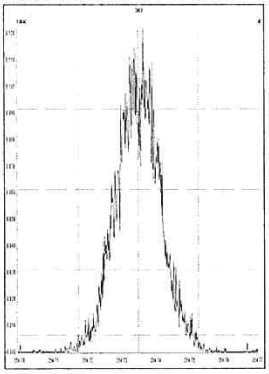
M 330.9792 R 12515



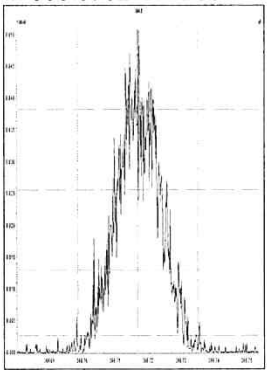
M 342.9792 R 12594



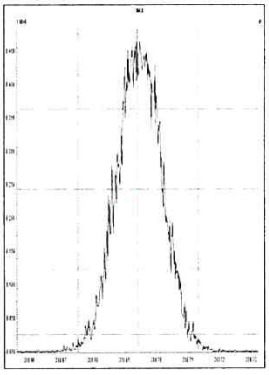
M 354.9792 R 12705



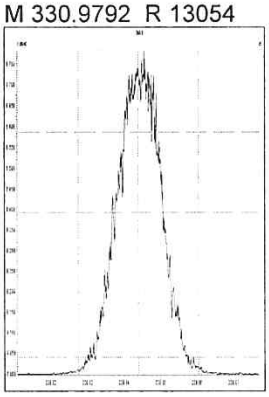
M 366.9792 R 12954



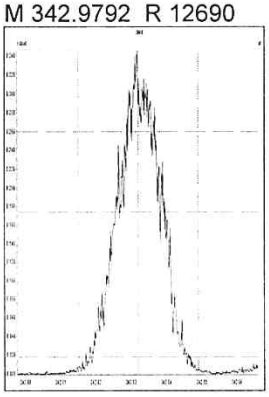
M 380.9760 R 12410



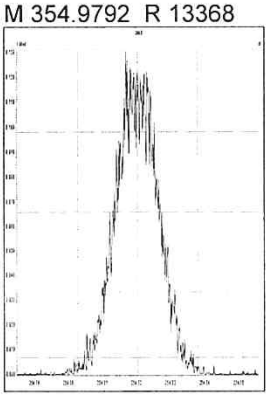
M 330.9792 R 13054



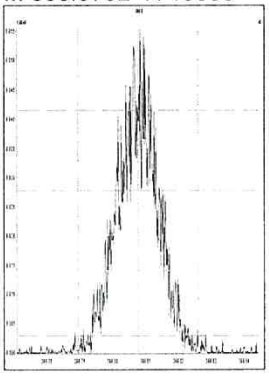
M 342.9792 R 12690



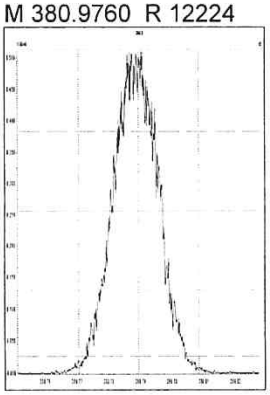
M 354.9792 R 13368



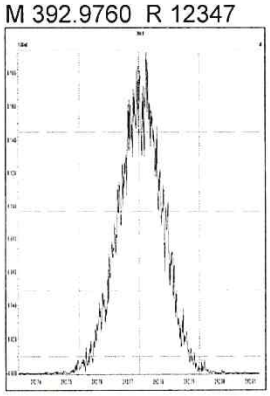
M 366.9792 R 13065



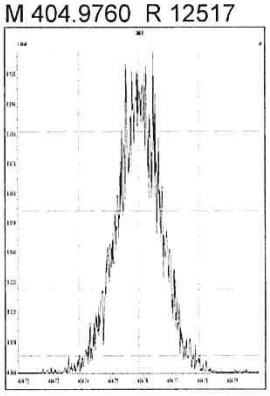
M 380.9760 R 12224



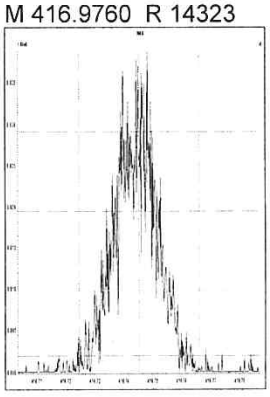
M 392.9760 R 12347



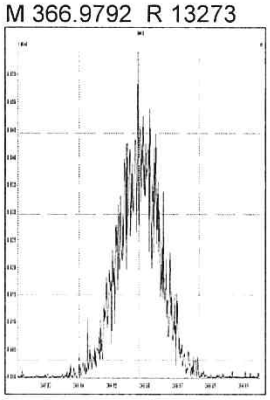
M 404.9760 R 12517



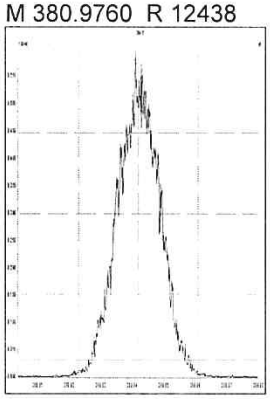
M 416.9760 R 14323



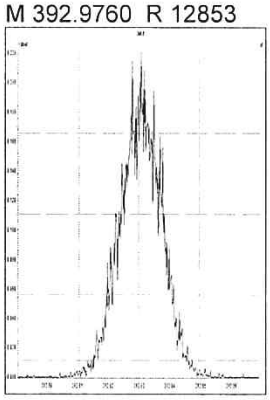
M 366.9792 R 13273



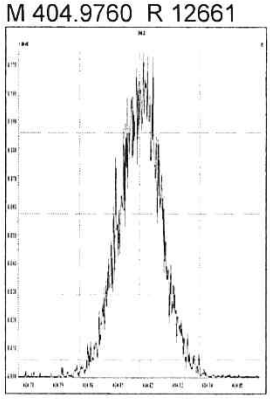
M 380.9760 R 12438



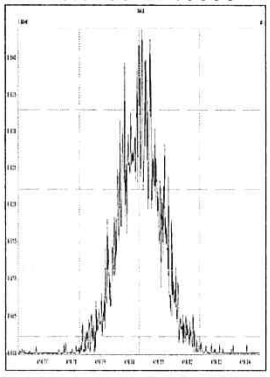
M 392.9760 R 12853



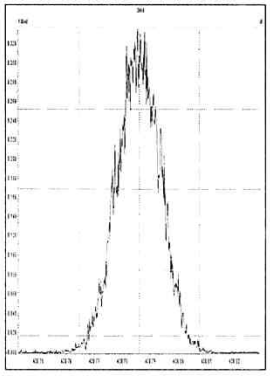
M 404.9760 R 12661



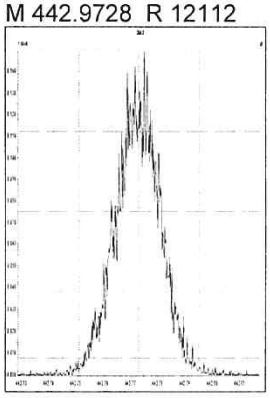
M 416.9760 R 13505



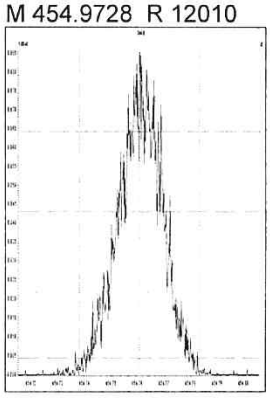
M 430.9728 R 11990



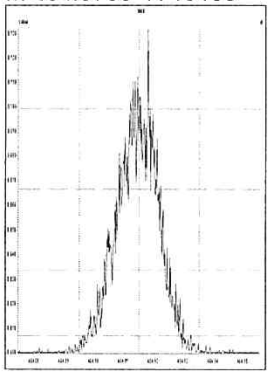
M 442.9728 R 12112



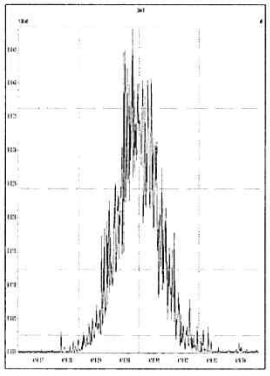
M 454.9728 R 12010



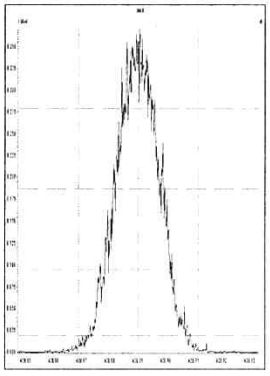
M 404.9760 R 13138



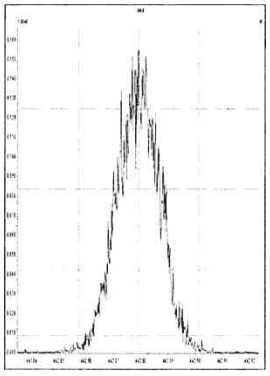
M 416.9760 R 14408



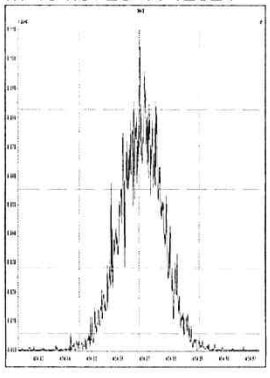
M 430.9728 R 12567



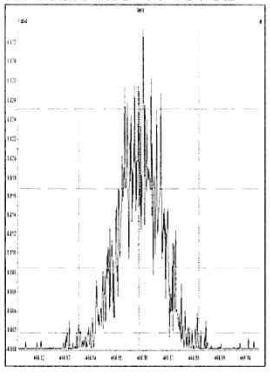
M 442.9728 R 13227



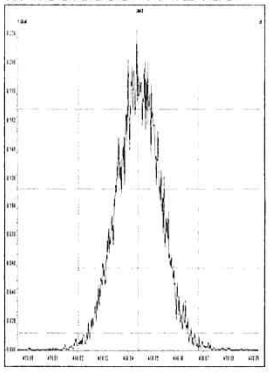
M 454.9728 R 12821



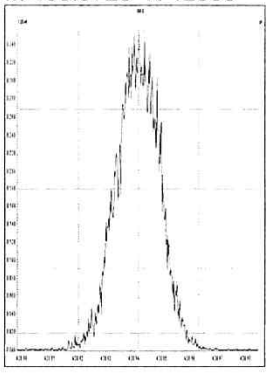
M 466.9728 R 15732



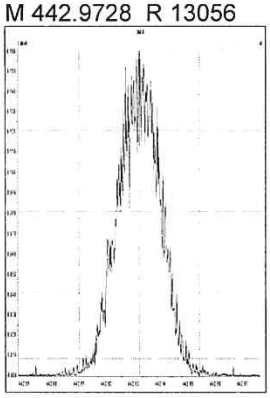
M 480.9696 R 12136



M 430.9728 R 12956



M 442.9728_R 13056



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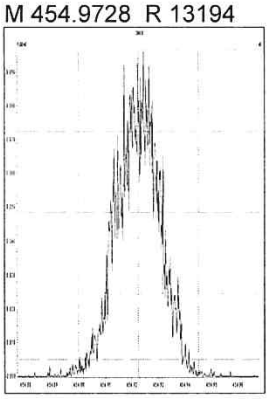
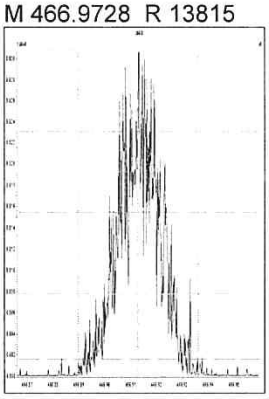


M 466.9728_R 13815



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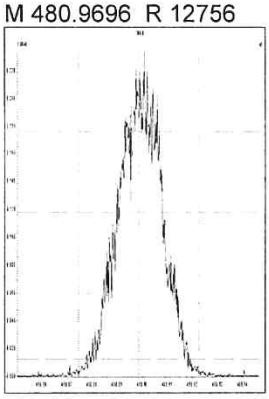

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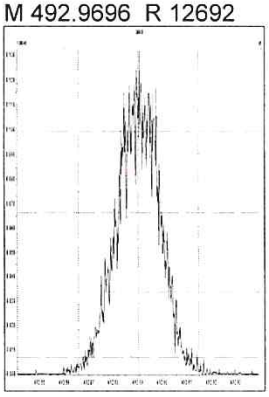

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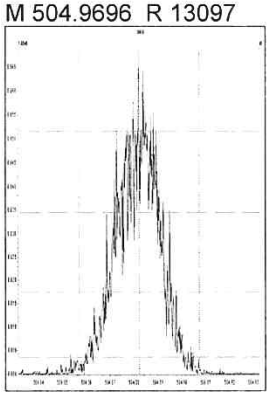

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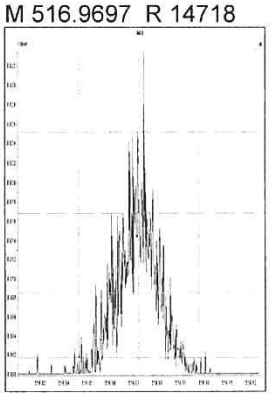

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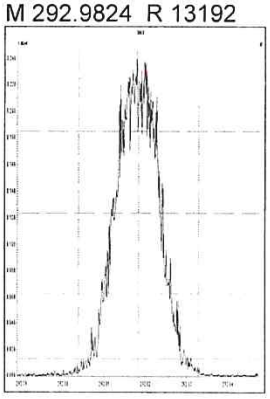

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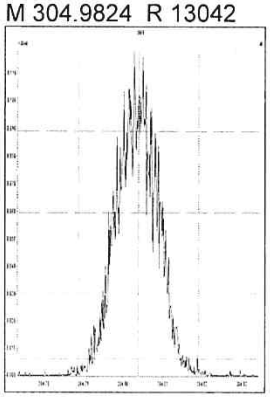

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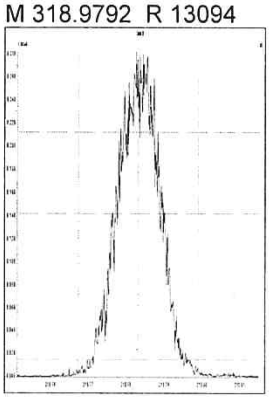

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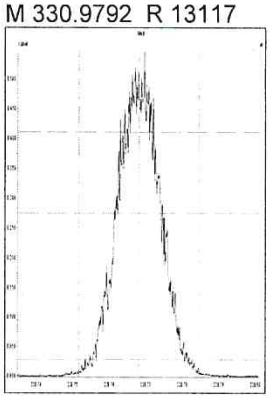

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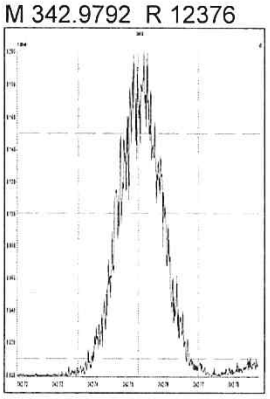

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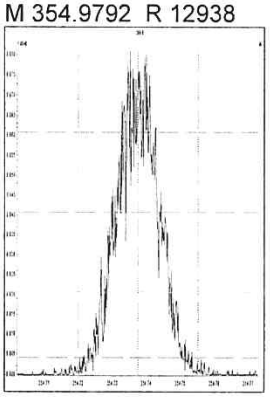

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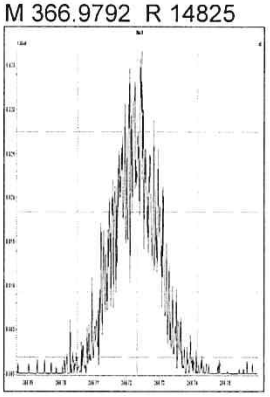

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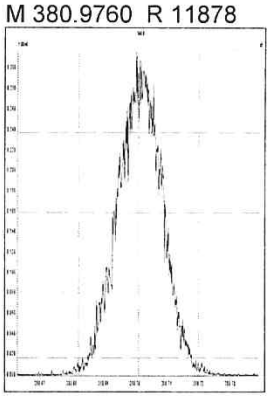

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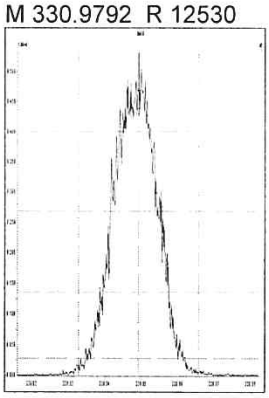

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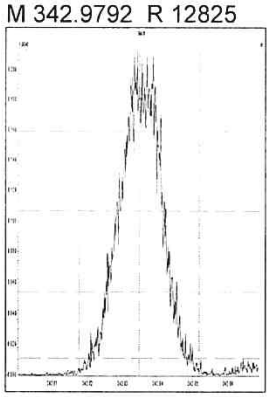

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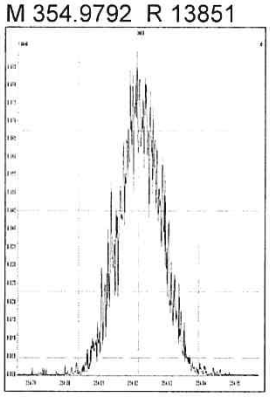

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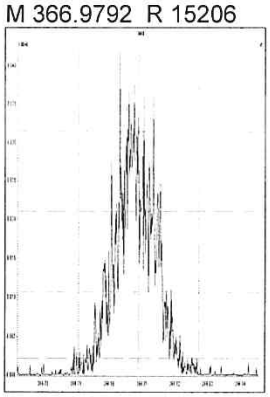

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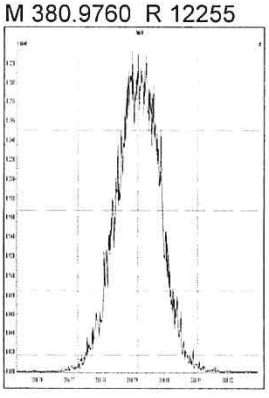

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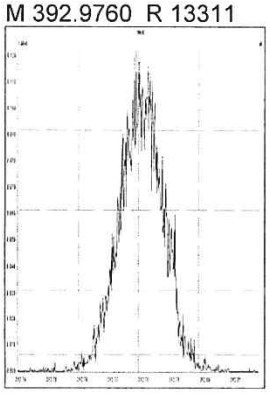

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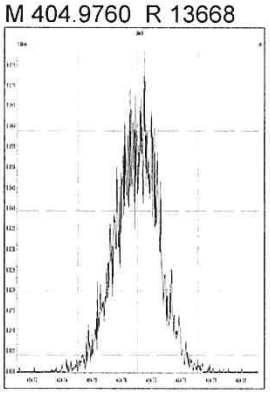

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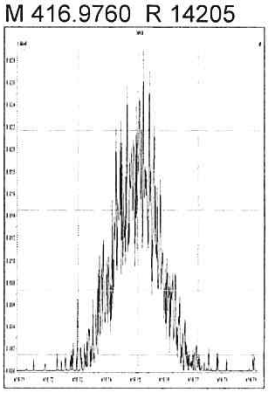

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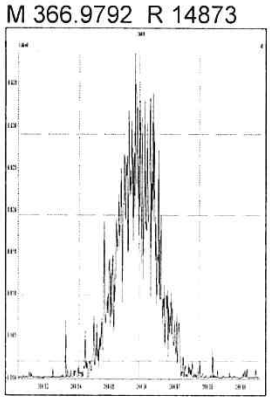

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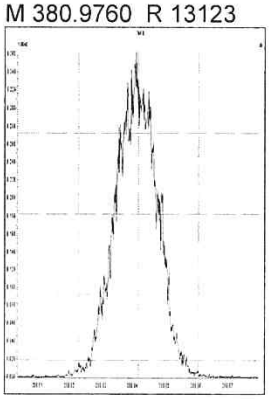

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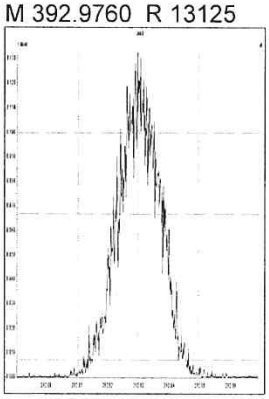

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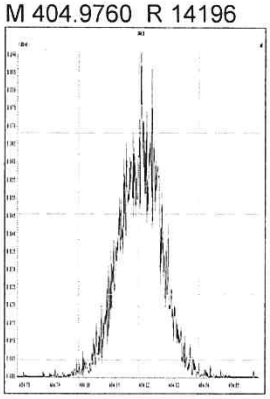

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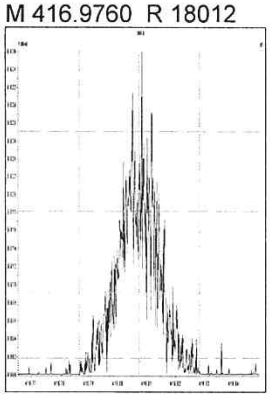

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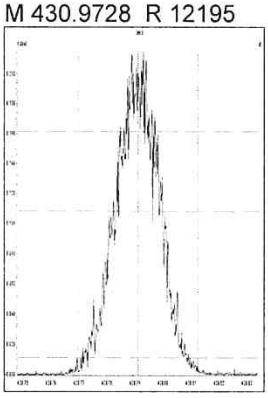

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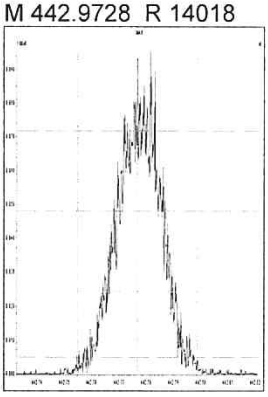

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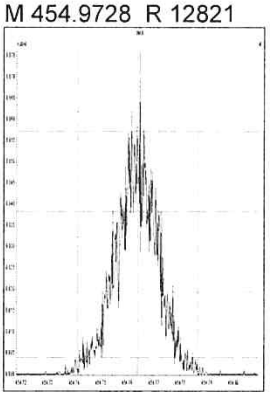

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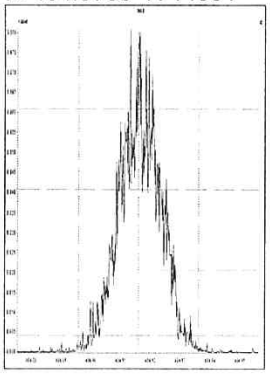

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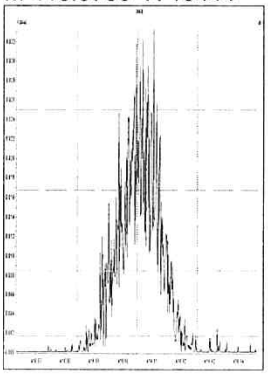

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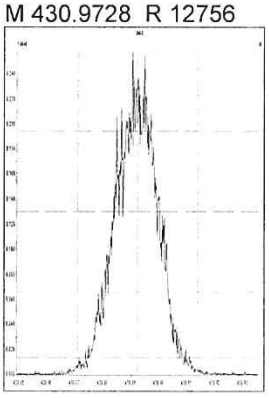

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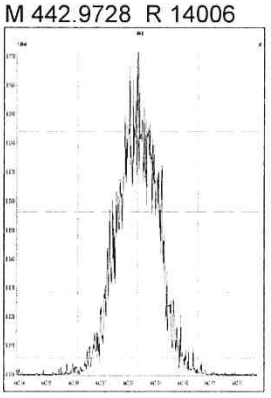

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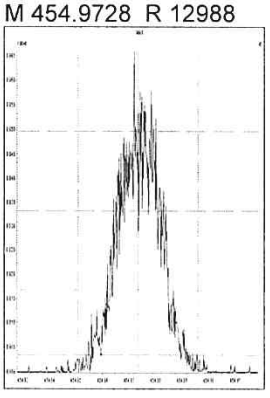

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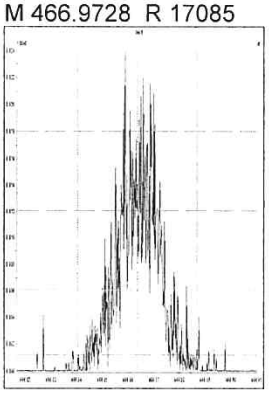

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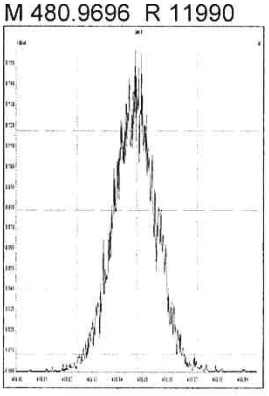

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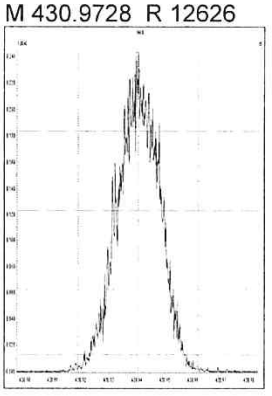

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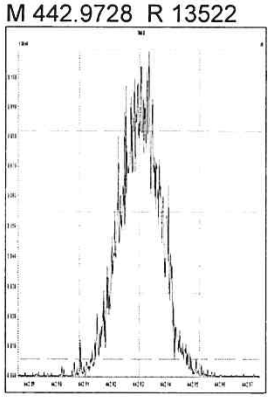

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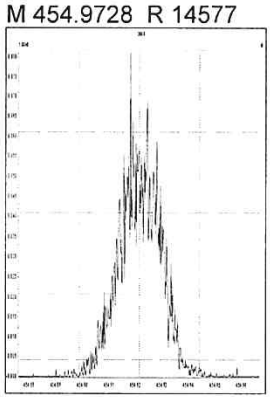

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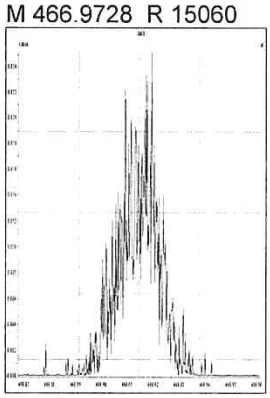

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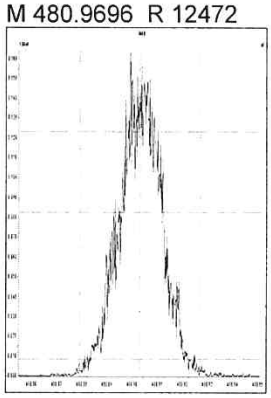

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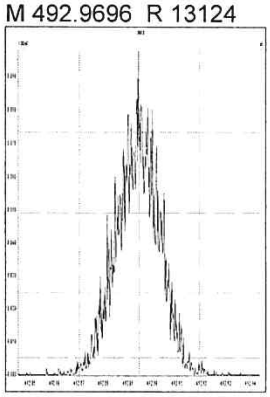

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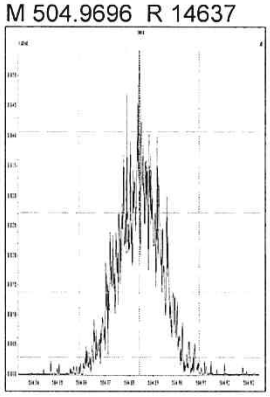

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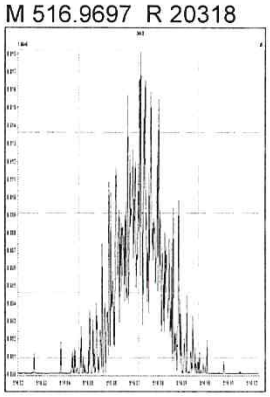

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518865 Analysis Date: 17-NOV-18 Time: 01:07:48

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	9.5	7.8 - 12.9	-5.4
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	51	39 - 65	1.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	1.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	52	39 - 64	3.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	53	41 - 61	5.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	51	43 - 58	1.2
OCDD	M+2/M+4	0.88	0.76-1.02	101	79 - 126	1.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	10.1	8.4 - 12.0	1.3
1,2,3,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	50	41 - 60	0.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 61	-2.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	2.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.19	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	51	45 - 55	1.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.4
OCDF	M+2/M+4	0.90	0.76-1.02	101	63 - 159	0.7

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518865 Analysis Date: 17-NOV-18 Time: 01:07:48

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	92	82 - 121	-7.6
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	117	62 - 160	17.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	86	85 - 117	-13.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	98	85 - 118	-2.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	120	72 - 138	20.4
13C-OCDD	M+2/M+4	0.88	0.76-1.02	338	96 - 415	68.8
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	81	71 - 140	-18.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	110	76 - 130	9.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	114	77 - 130	14.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	78	76 - 131	-22.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	89	70 - 143	-11.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.50	0.43-0.59	90	74 - 135	-9.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	90	73 - 137	-10.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	109	78 - 129	9.4
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	123	77 - 129	22.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.1	7.8 - 12.7	-8.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518865 Samp: 1 Inj: 1 Acquired: 17-NOV-18 01:07:48
Processed: 21-NOV-18 09:19:26 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	1.058e+03	1.395e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.035e+04	6.889e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	9.827e+03	6.465e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	9.727e+03	7.981e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	1.212e+04	9.936e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.067e+04	8.730e+03	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	9.476e+03	7.955e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	1.128e+04	1.104e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	1.012e+04	9.667e+03	1.05	yes	no	1.258
10	Unk	OCDF	40:51	1.961e+04	2.183e+04	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	8.230e+02	1.011e+03	0.81	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	7.059e+03	4.549e+03	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	7.247e+03	5.748e+03	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.642e+03	6.763e+03	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	8.205e+03	6.703e+03	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	8.491e+03	8.003e+03	1.06	yes	no	1.025
17	Unk	OCDD	40:41	1.604e+04	1.828e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.122e+04	1.449e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.092e+04	1.288e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.131e+04	1.357e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.003e+04	1.945e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.291e+04	2.543e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.179e+04	2.287e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.014e+04	2.012e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	1.014e+04	2.243e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	9.382e+03	2.166e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	7.775e+03	1.008e+04	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.459e+04	9.324e+03	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.389e+04	1.069e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.602e+04	1.256e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.650e+04	1.531e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	40:41	2.839e+04	3.220e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	9.224e+03	1.171e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	1.746e+04	1.335e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	1.941e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518865 Samp: 1 Inj: 1 Acquired: 17-NOV-18 01:07:48
Processed: 21-NOV-18 09:19:26 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.29e+05	2.84e+02	4.5e+02	1.72e+05	7.12e+02	2.4e+02
2	1,2,3,7,8-PeCDF	1.50e+06	5.92e+02	2.5e+03	9.78e+05	1.23e+03	7.9e+02
3	2,3,4,7,8-PeCDF	1.54e+06	5.92e+02	2.6e+03	1.04e+06	1.23e+03	8.4e+02
4	1,2,3,4,7,8-HxCDF	1.92e+06	2.64e+02	7.3e+03	1.56e+06	3.96e+02	3.9e+03
5	1,2,3,6,7,8-HxCDF	2.19e+06	2.64e+02	8.3e+03	1.73e+06	3.96e+02	4.4e+03
6	2,3,4,6,7,8-HxCDF	1.90e+06	2.64e+02	7.2e+03	1.57e+06	3.96e+02	4.0e+03
7	1,2,3,7,8,9-HxCDF	1.59e+06	2.64e+02	6.0e+03	1.25e+06	3.96e+02	3.2e+03
8	1,2,3,4,6,7,8-HpCDF	2.16e+06	1.13e+03	1.9e+03	2.07e+06	2.58e+03	8.0e+02
9	1,2,3,4,7,8,9-HpCDF	1.74e+06	1.13e+03	1.5e+03	1.74e+06	2.58e+03	6.7e+02
10	OCDF	2.99e+06	2.44e+02	1.2e+04	3.38e+06	2.76e+02	1.2e+04
11	2,3,7,8-TCDD	1.10e+05	1.70e+03	6.5e+01	1.28e+05	7.56e+02	1.7e+02
12	1,2,3,7,8-PeCDD	1.09e+06	9.64e+02	1.1e+03	7.07e+05	4.16e+02	1.7e+03
13	1,2,3,4,7,8-HxCDD	1.52e+06	5.60e+02	2.7e+03	1.22e+06	4.96e+02	2.5e+03
14	1,2,3,6,7,8-HxCDD	1.52e+06	5.60e+02	2.7e+03	1.18e+06	4.96e+02	2.4e+03
15	1,2,3,7,8,9-HxCDD	1.47e+06	5.60e+02	2.6e+03	1.16e+06	4.96e+02	2.3e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+06	3.72e+02	4.3e+03	1.50e+06	5.12e+02	2.9e+03
17	OCDD	2.51e+06	2.92e+02	8.6e+03	2.91e+06	2.16e+02	1.3e+04
18	13C-2,3,7,8-TCDF	1.33e+06	4.16e+03	3.2e+02	1.68e+06	2.32e+03	7.3e+02
19	13C-1,2,3,7,8-PeCDF	3.07e+06	2.24e+02	1.4e+04	1.95e+06	3.80e+02	5.1e+03
20	13C-2,3,4,7,8-PeCDF	3.49e+06	2.24e+02	1.6e+04	2.17e+06	3.80e+02	5.7e+03
21	13C-1,2,3,4,7,8-HxCDF	1.94e+06	5.92e+02	3.3e+03	3.73e+06	1.05e+03	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.29e+06	5.92e+02	3.9e+03	4.41e+06	1.05e+03	4.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.09e+06	5.92e+02	3.5e+03	4.16e+06	1.05e+03	4.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.67e+06	5.92e+02	2.8e+03	3.35e+06	1.05e+03	3.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.97e+06	3.72e+03	5.3e+02	4.36e+06	1.27e+03	3.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.64e+06	3.72e+03	4.4e+02	3.73e+06	1.27e+03	2.9e+03
27	13C-2,3,7,8-TCDD	1.01e+06	4.52e+03	2.2e+02	1.27e+06	2.09e+03	6.1e+02
28	13C-1,2,3,7,8-PeCDD	2.32e+06	5.12e+02	4.5e+03	1.45e+06	6.28e+02	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	2.86e+06	1.30e+03	2.2e+03	2.24e+06	8.12e+02	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.81e+06	1.30e+03	2.2e+03	2.20e+06	8.12e+02	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.03e+06	3.32e+02	9.1e+03	2.84e+06	2.20e+02	1.3e+04
32	13C-OCDD	4.40e+06	6.88e+02	6.4e+03	5.01e+06	2.72e+02	1.8e+04
33	13C-1,2,3,4-TCDD	1.27e+06	4.52e+03	2.8e+02	1.61e+06	2.09e+03	7.7e+02
34	13C-1,2,3,7,8,9-HxCDD	2.91e+06	1.30e+03	2.2e+03	2.37e+06	8.12e+02	2.9e+03
35	37Cl-2,3,7,8-TCDD	2.53e+05	1.16e+03	2.2e+02			

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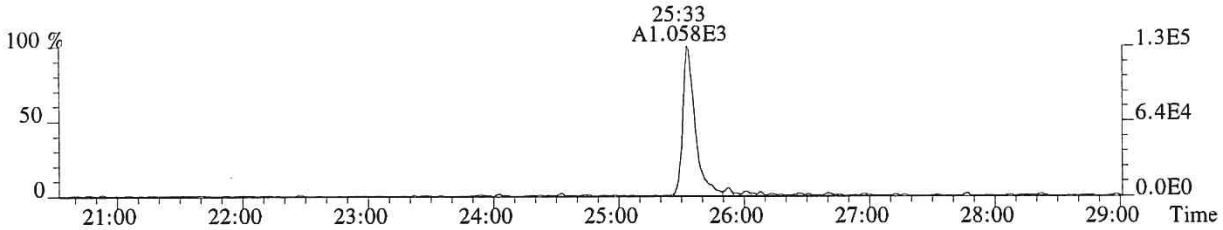
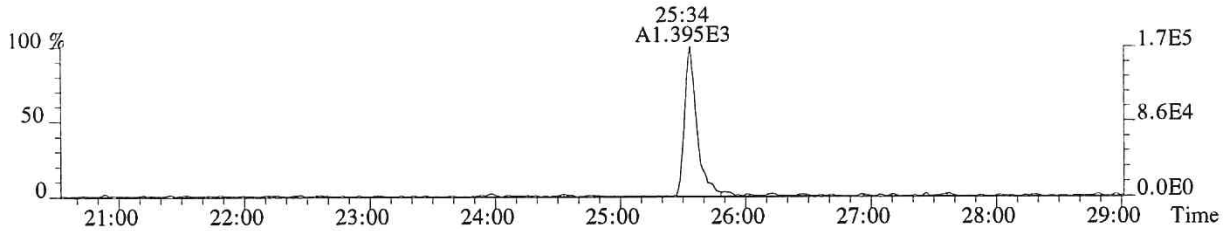
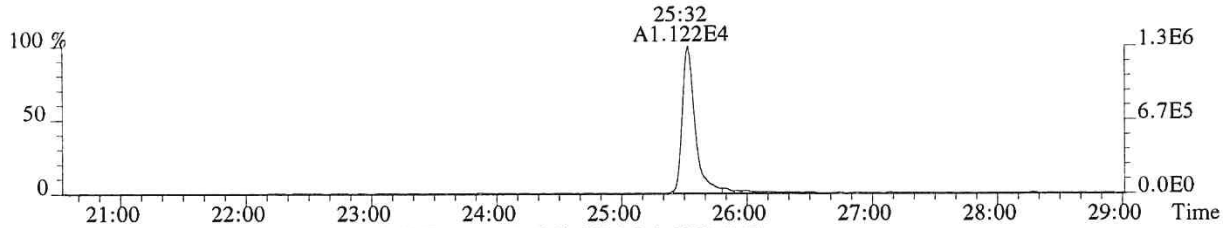
File:P518865 #1-602 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



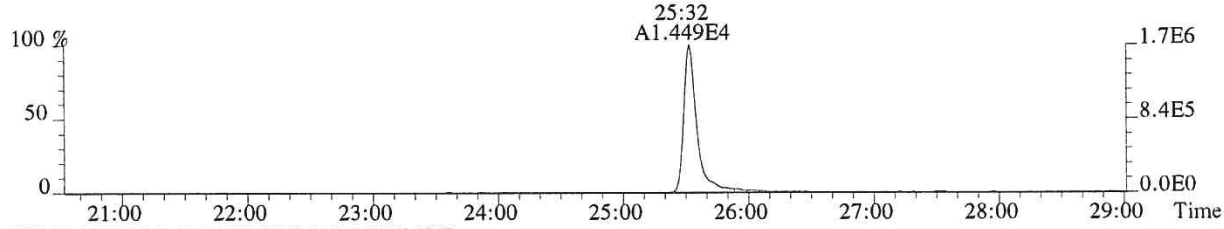
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



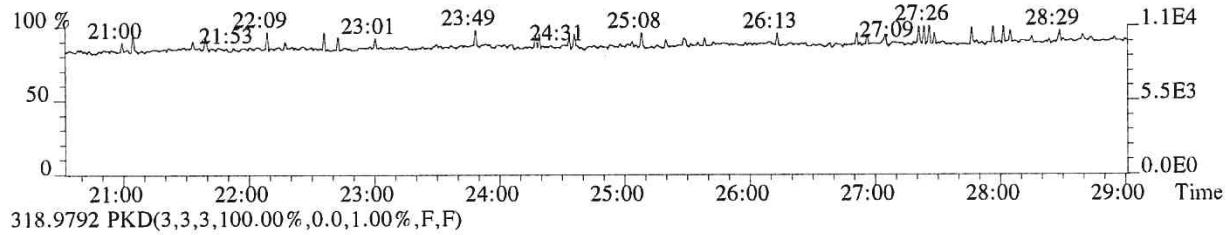
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4164.0,1.00%,F,T)



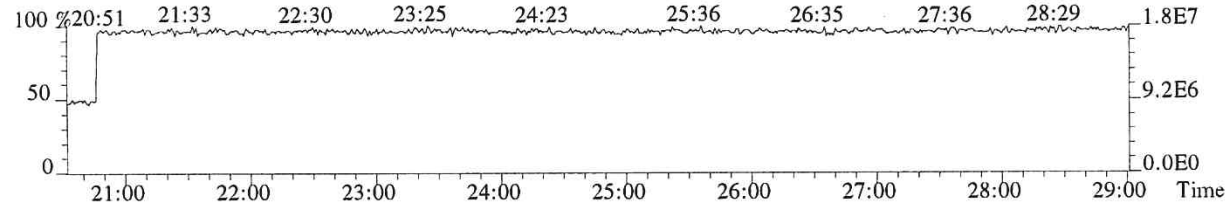
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

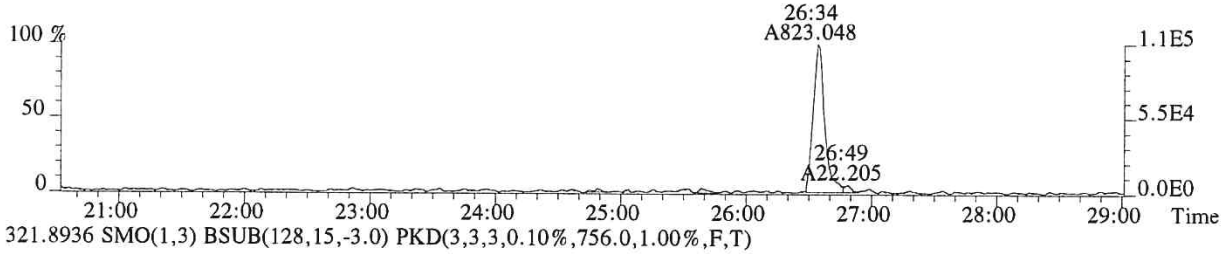


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

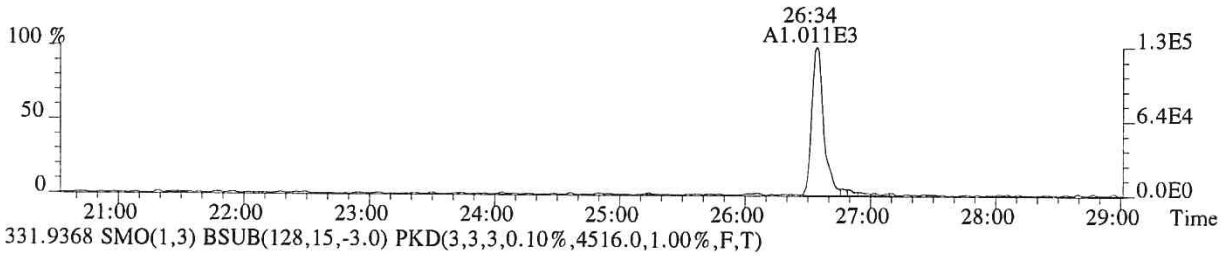


009985

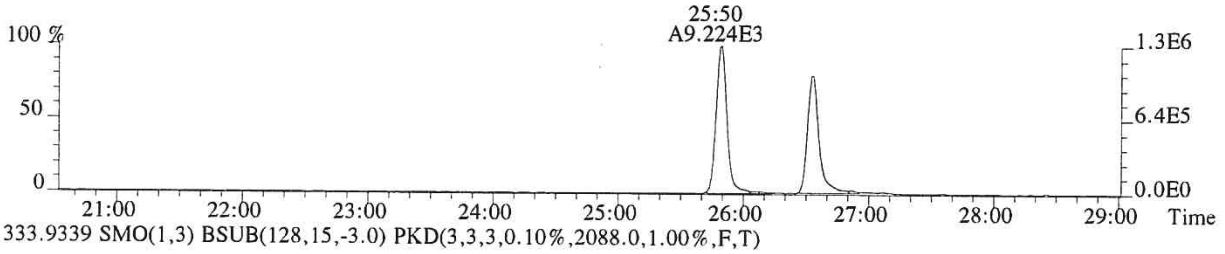
File:P518865 #1-602 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1696.0,1.00%,F,T)



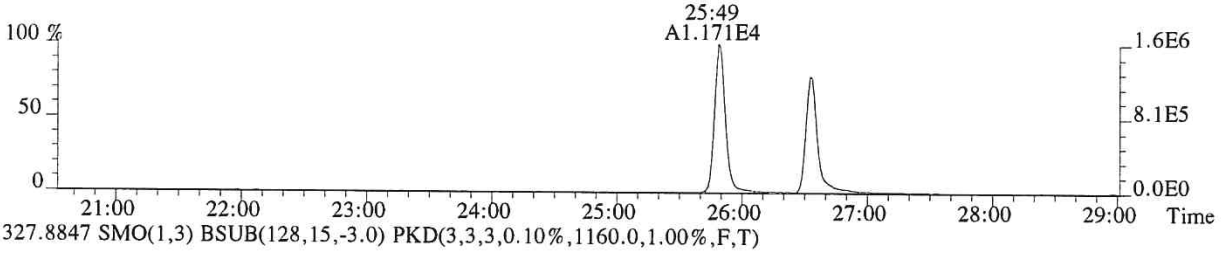
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



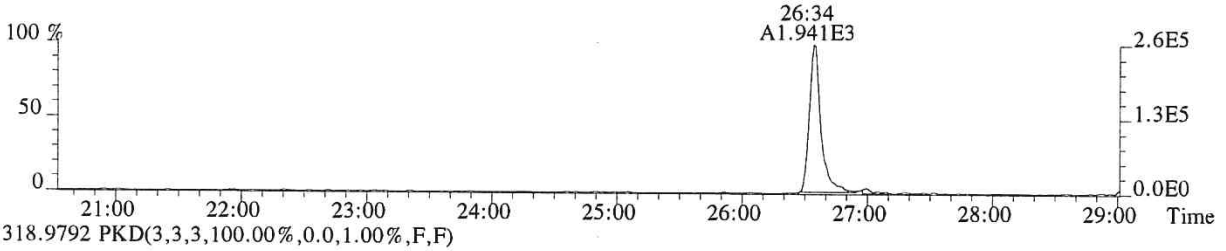
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



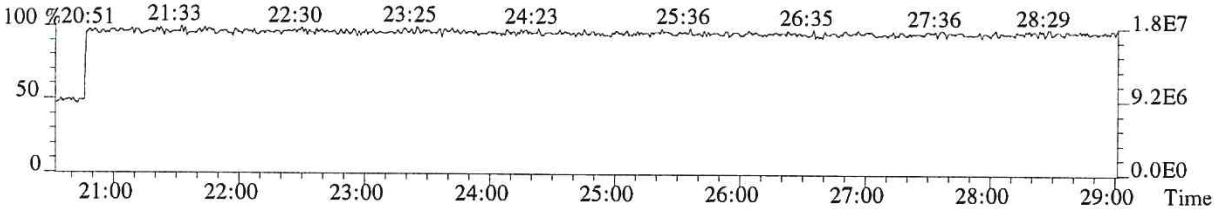
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2088.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)

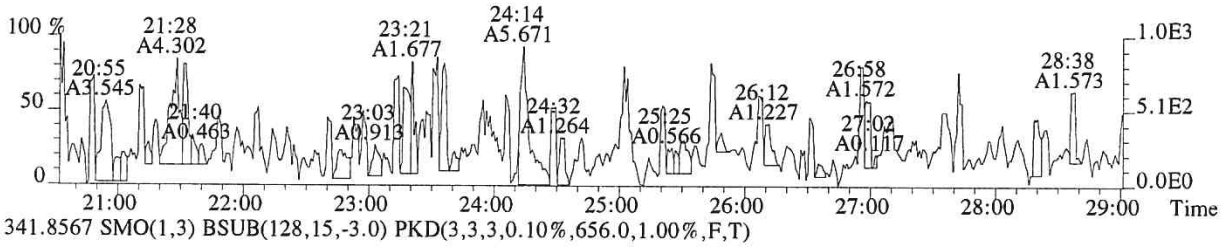


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

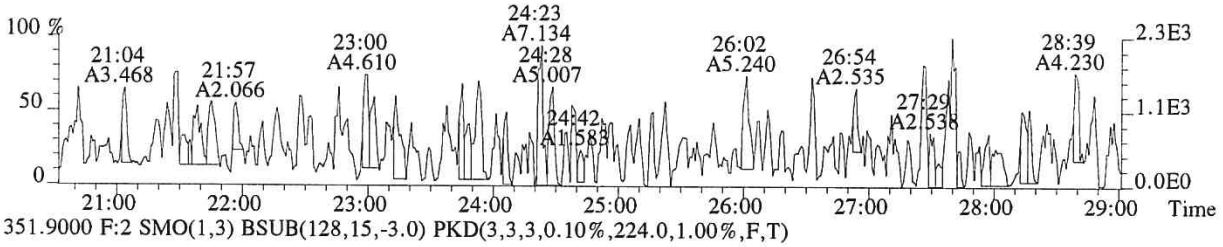


009986

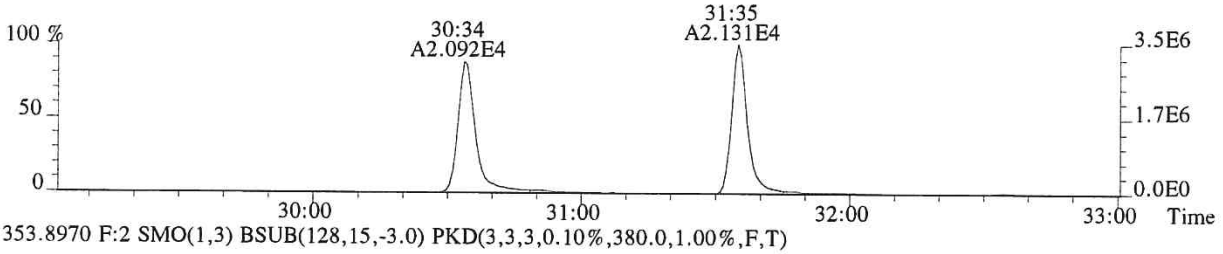
File:P518865 #1-602 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



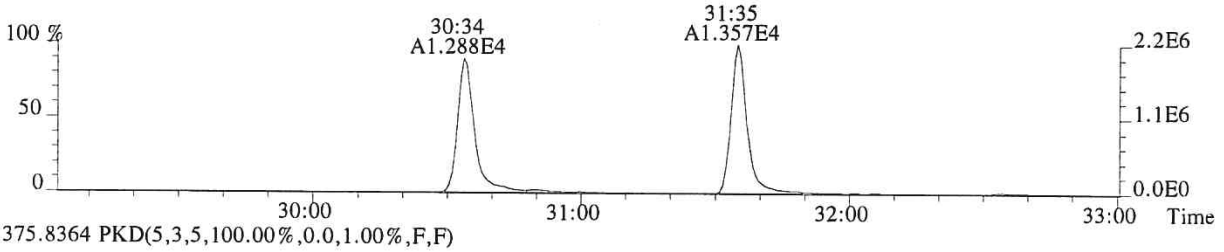
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



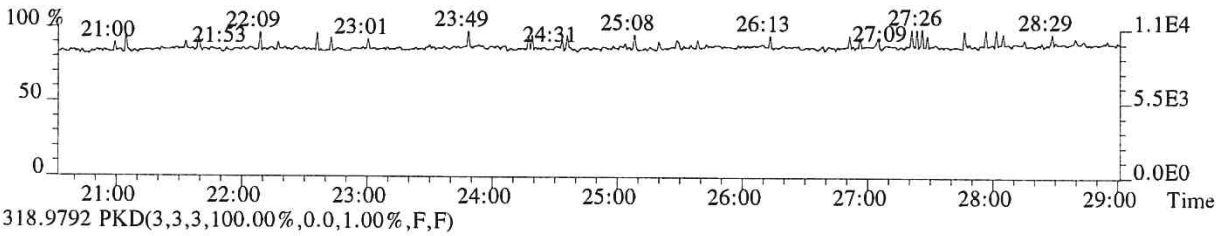
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



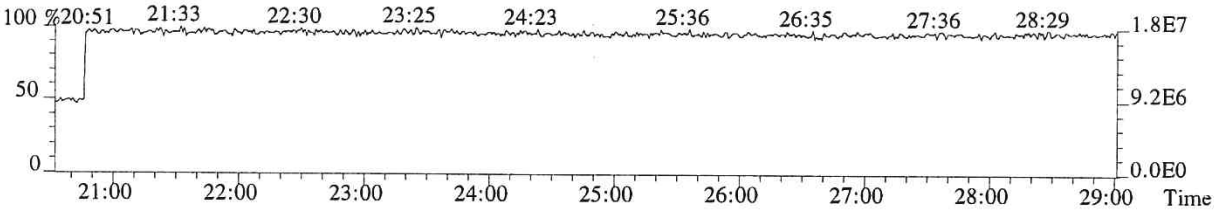
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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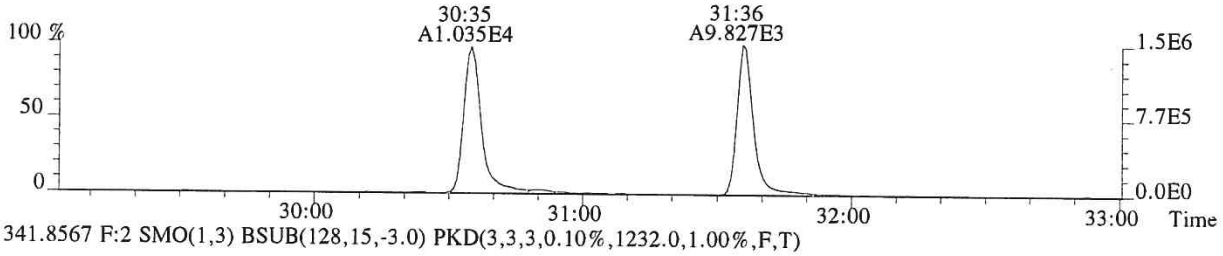
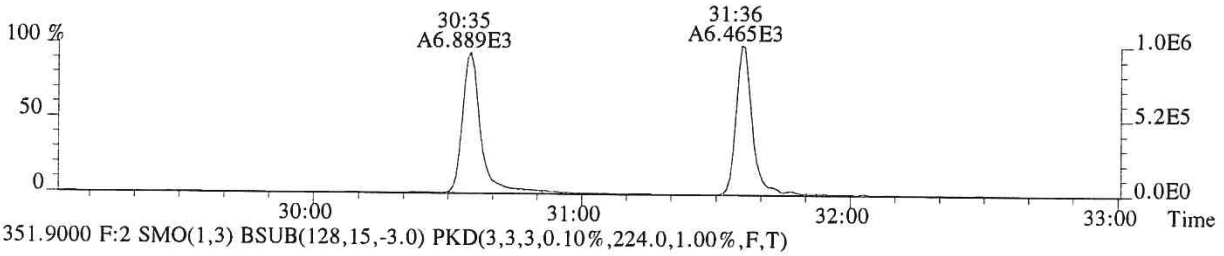
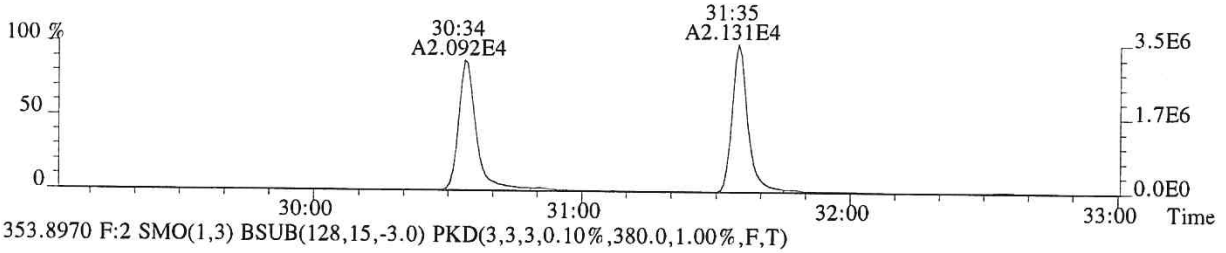
File:P518865 #1-357 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



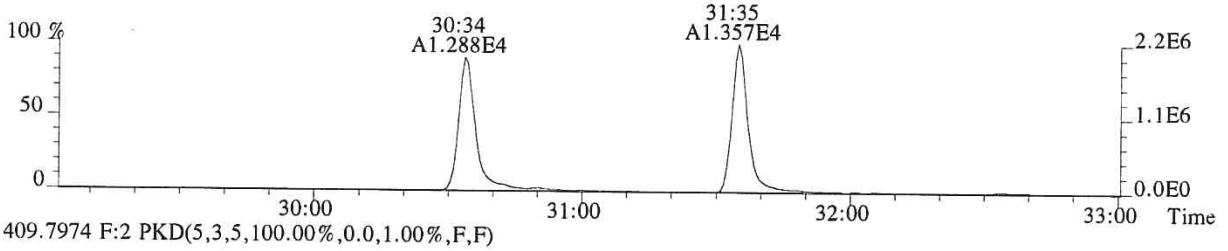
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



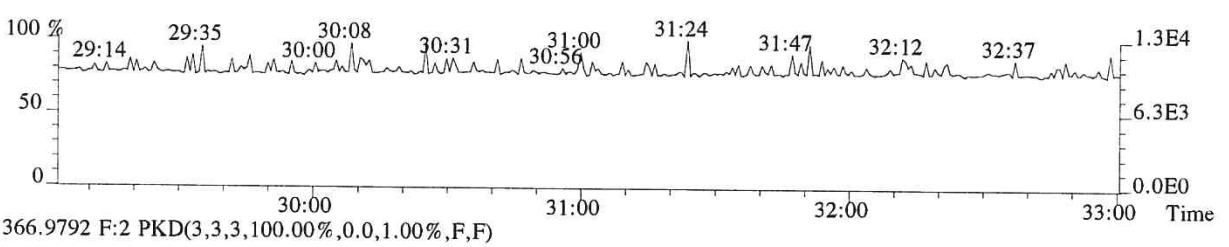
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



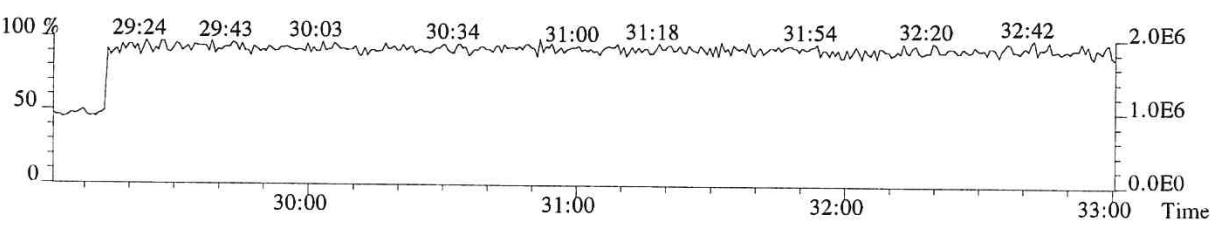
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

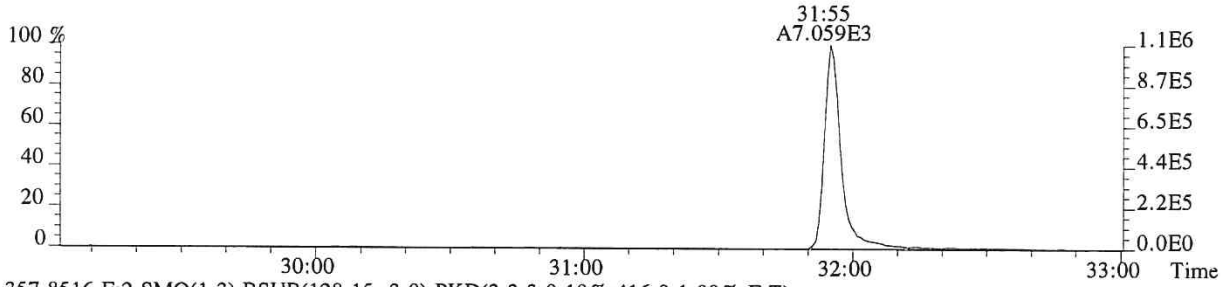


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

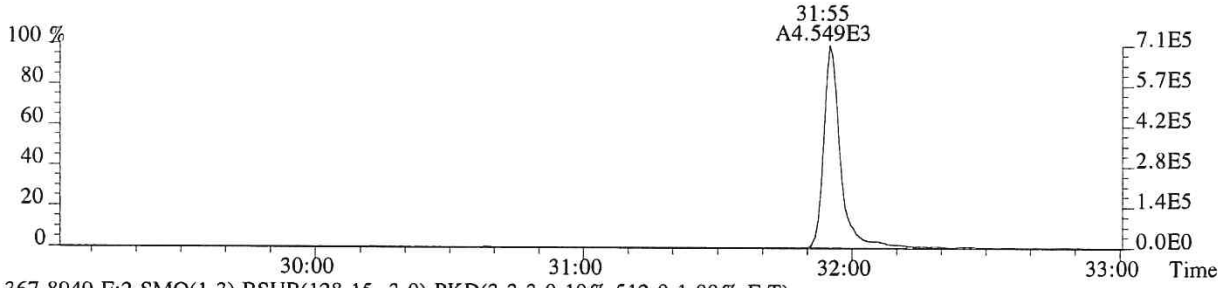


009988

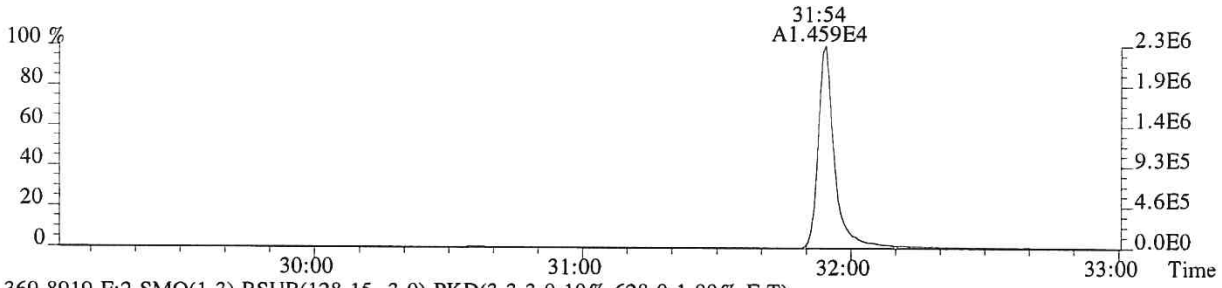
File:P518865 #1-357 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



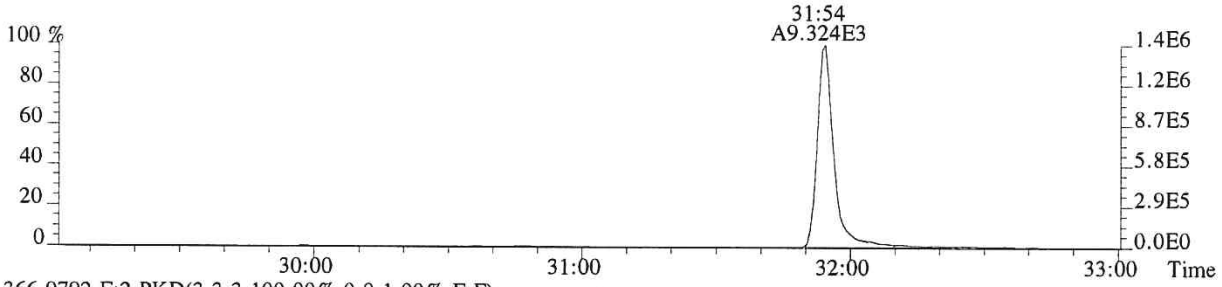
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



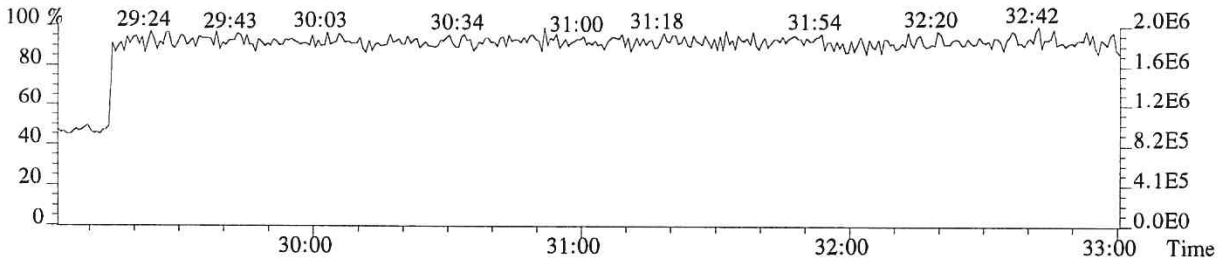
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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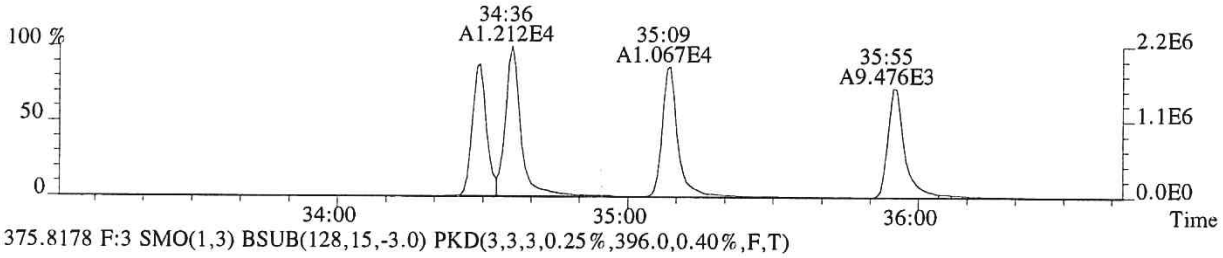
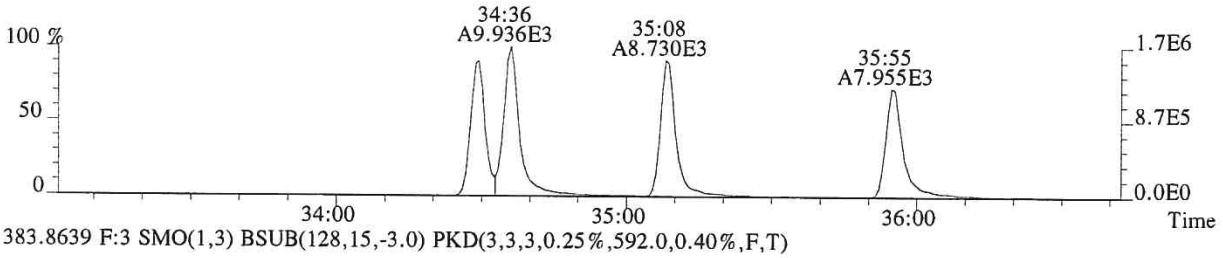
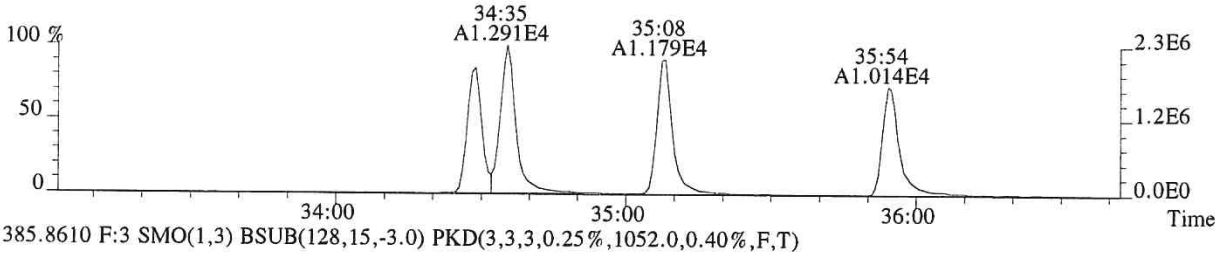
File:P518865 #1-330 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



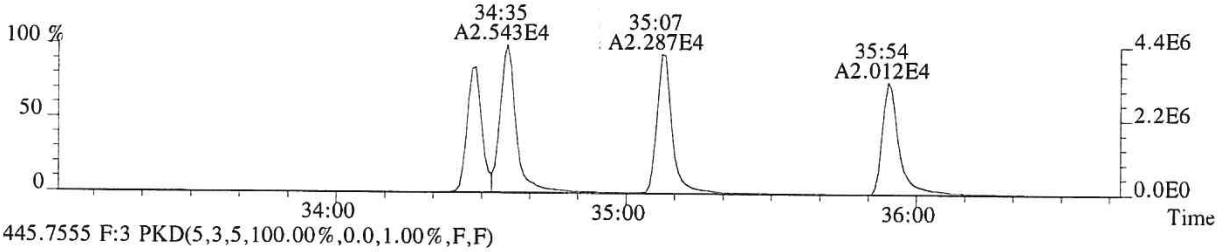
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



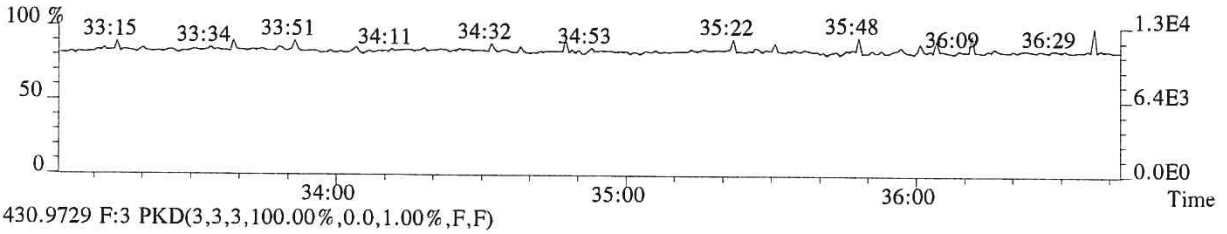
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



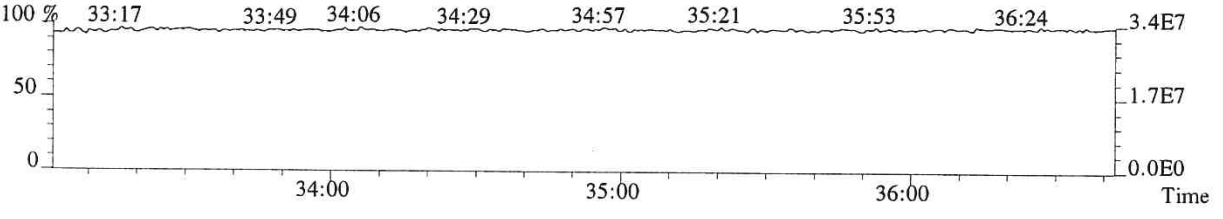
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

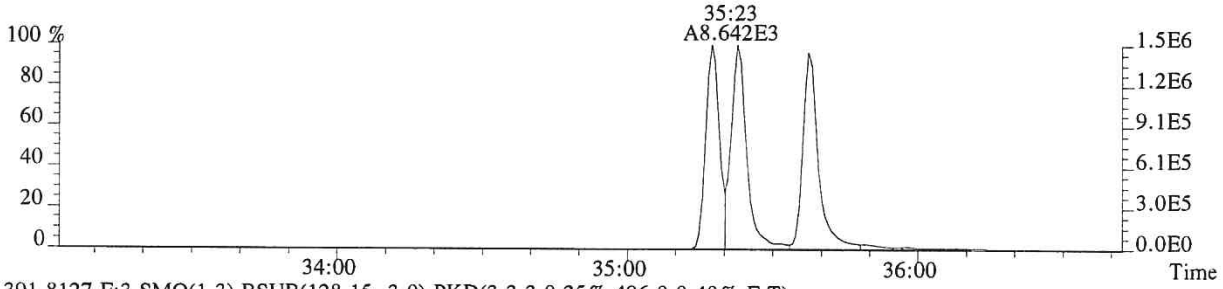


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

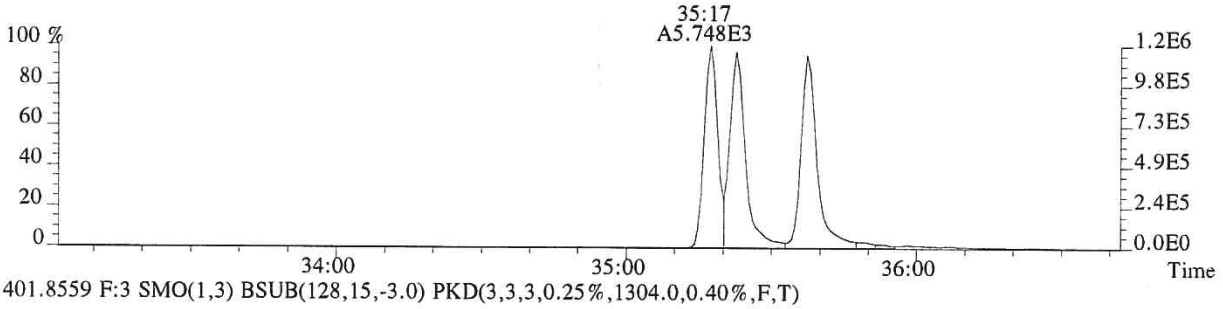


009990

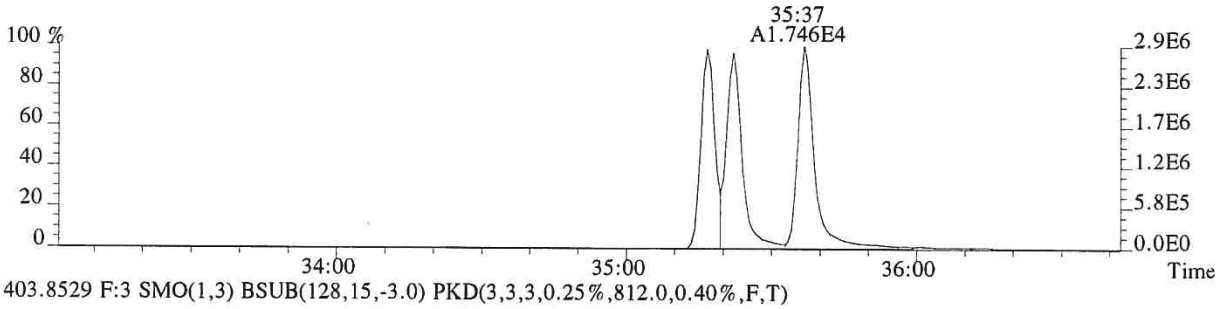
File:P518865 #1-330 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



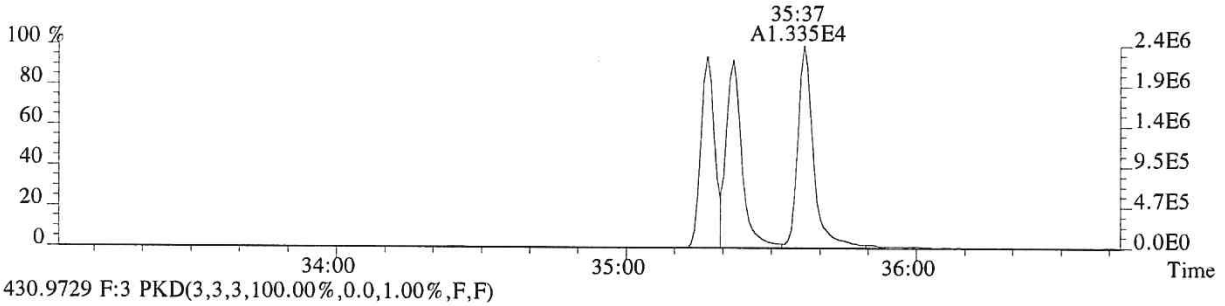
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



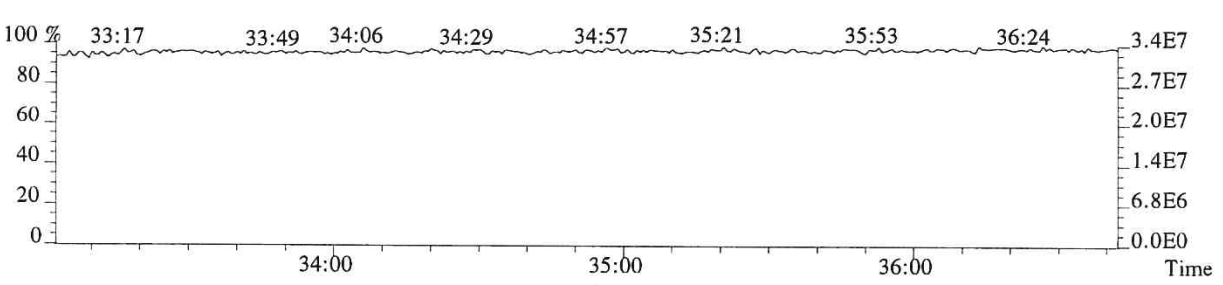
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1304.0,0.40%,F,T)



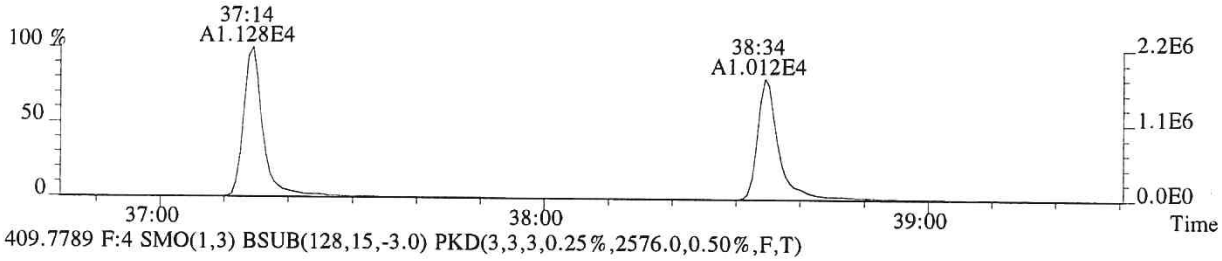
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



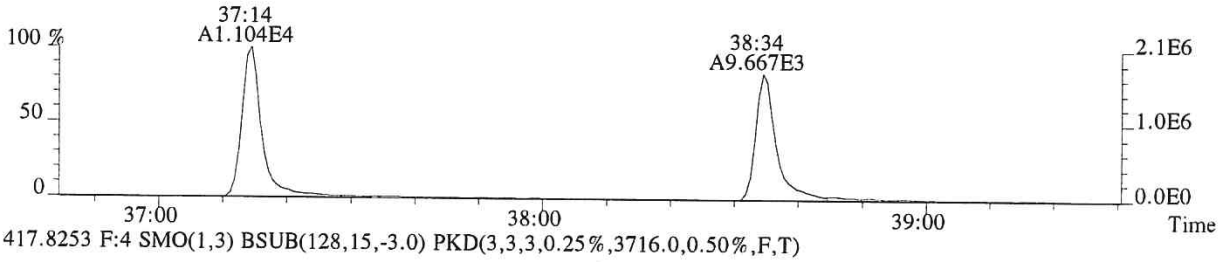
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



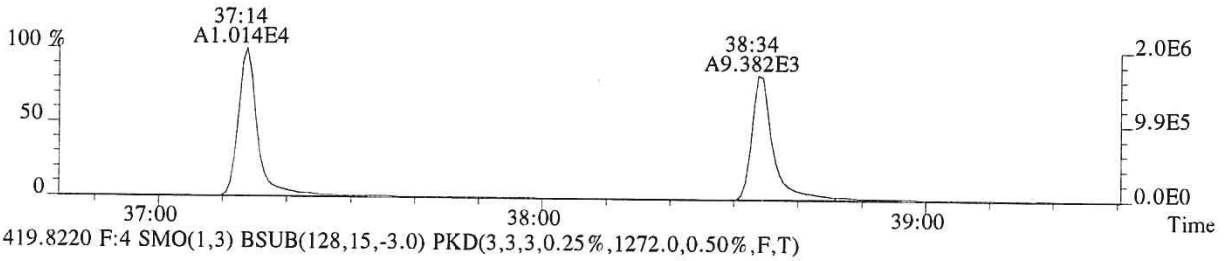
File:P518865 #1-250 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.50%,F,T)



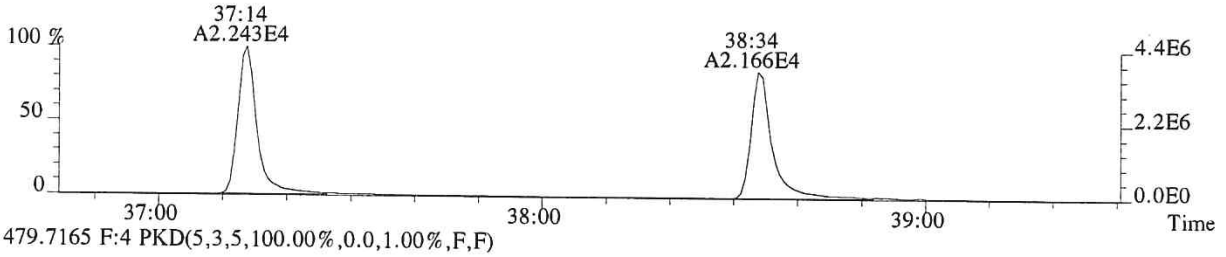
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2576.0,0.50%,F,T)



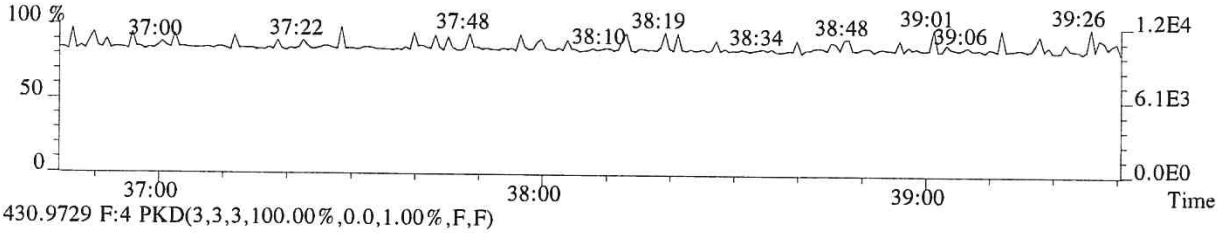
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3716.0,0.50%,F,T)



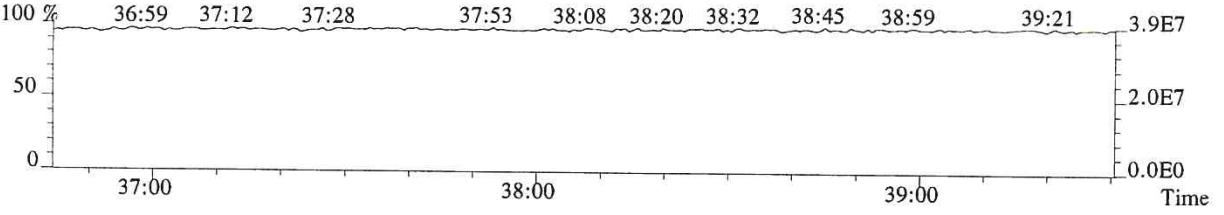
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.50%,F,T)



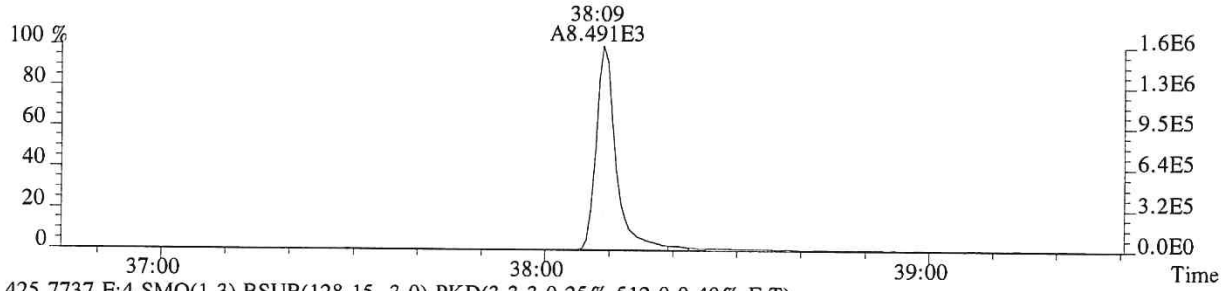
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



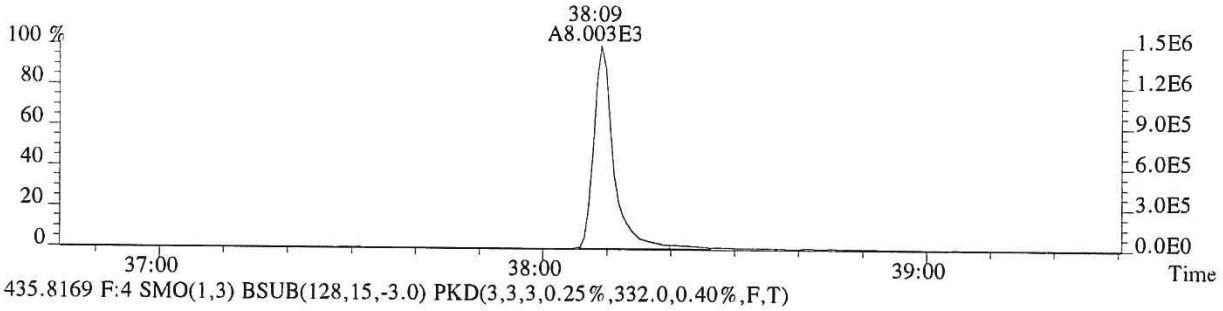
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



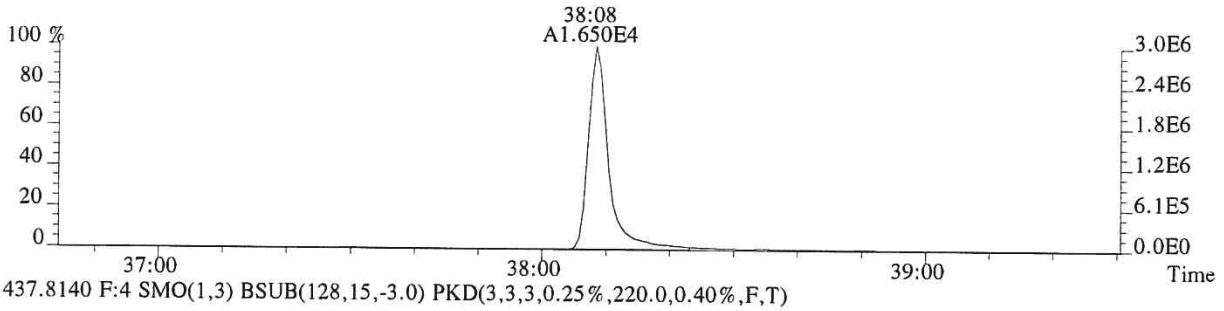
File:P518865 #1-250 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



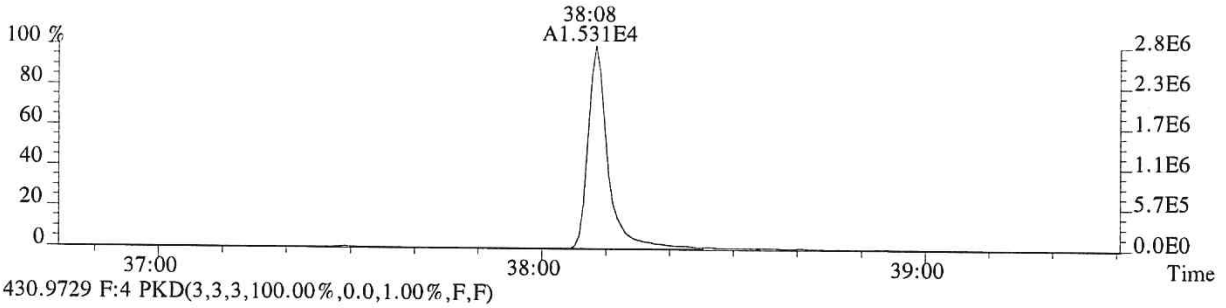
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



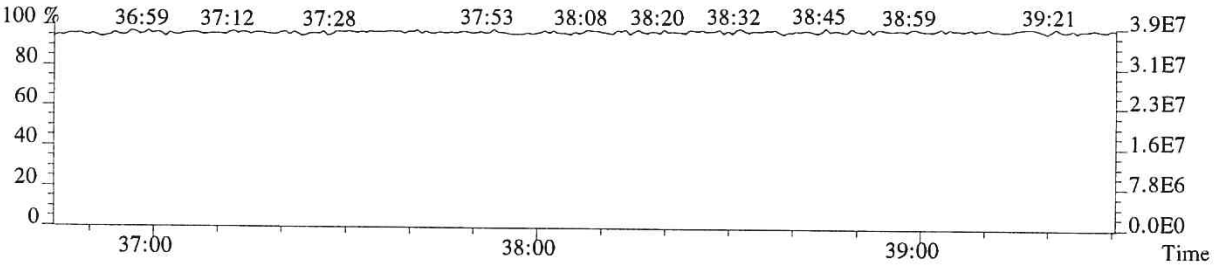
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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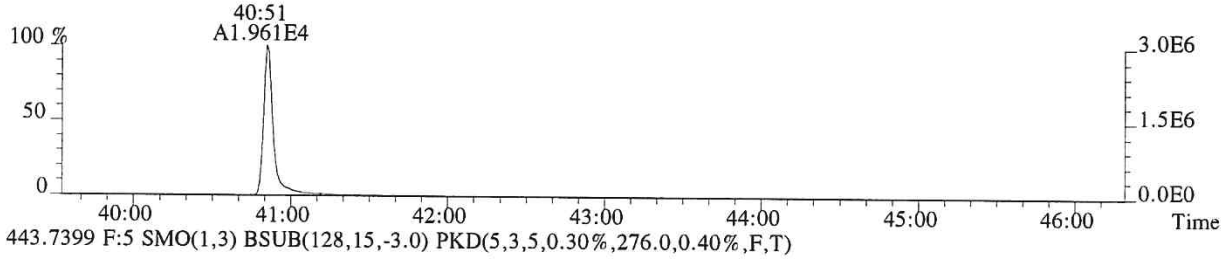
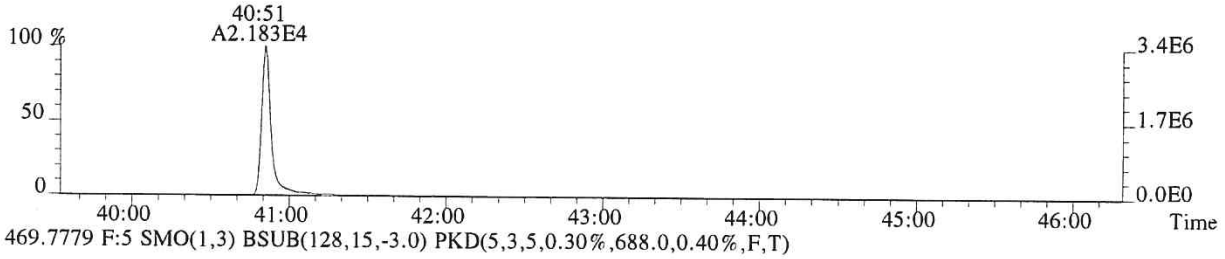
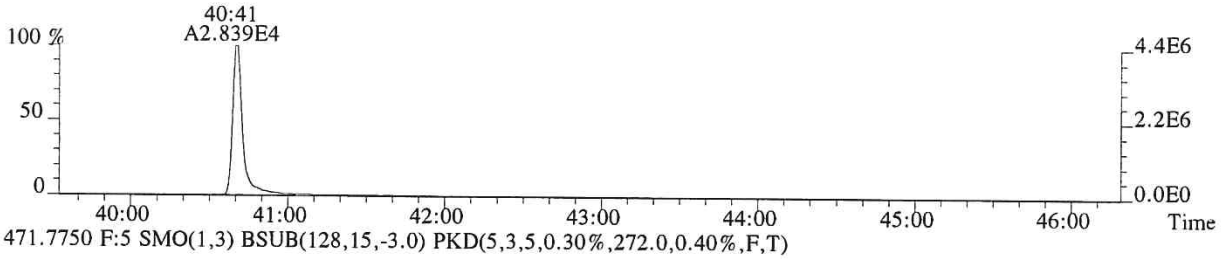
File:P518865 #1-610 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



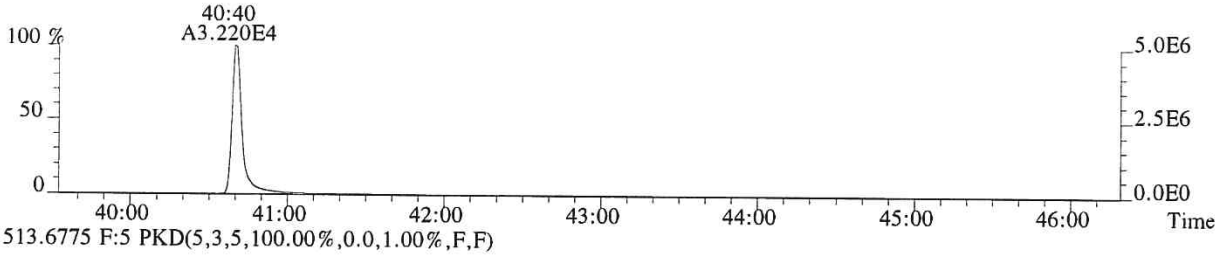
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



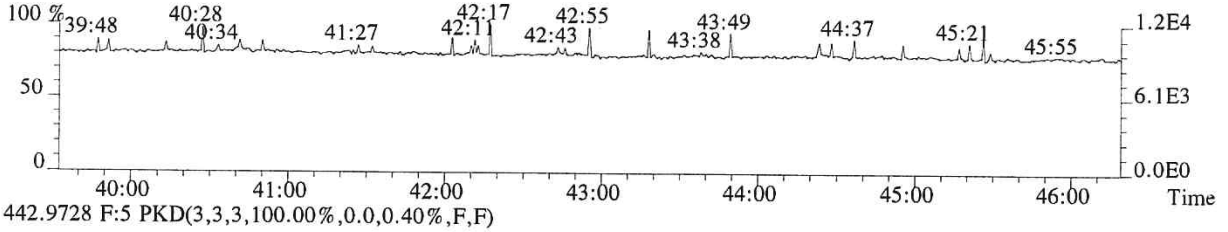
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



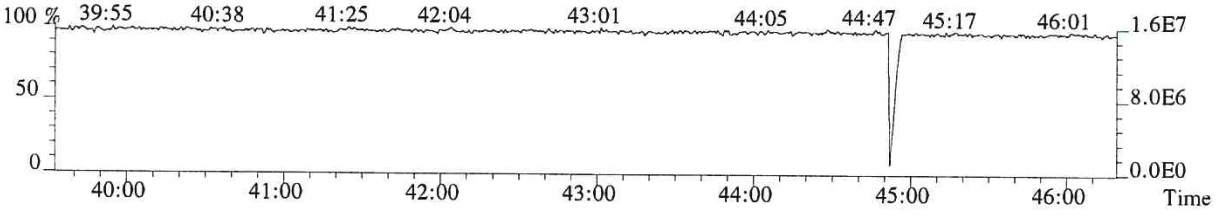
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



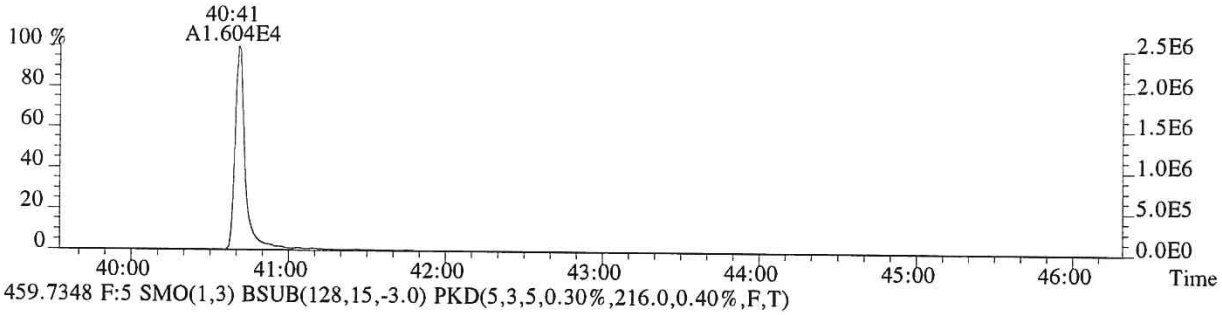
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



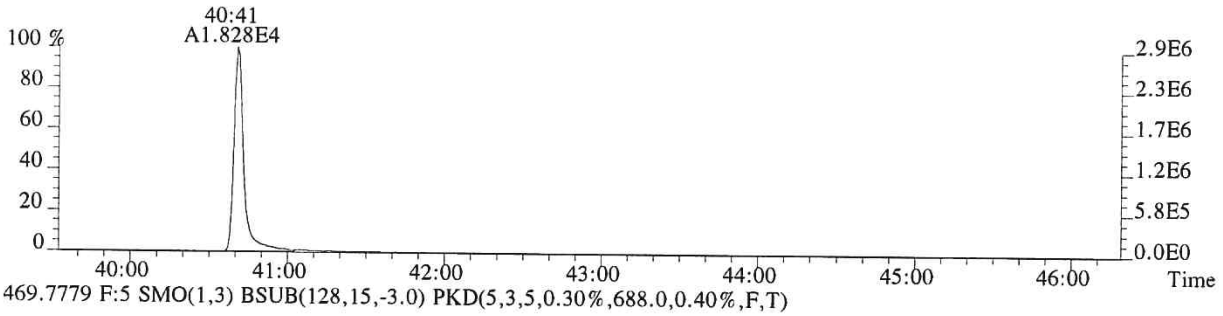
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



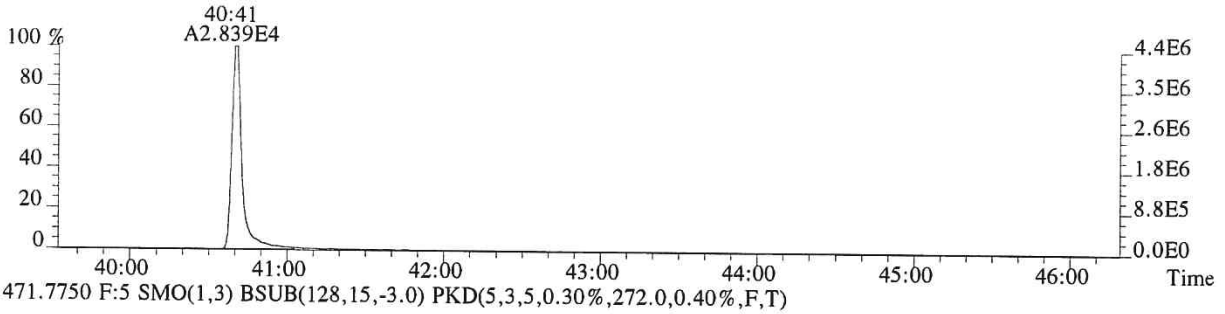
File:P518865 #1-610 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



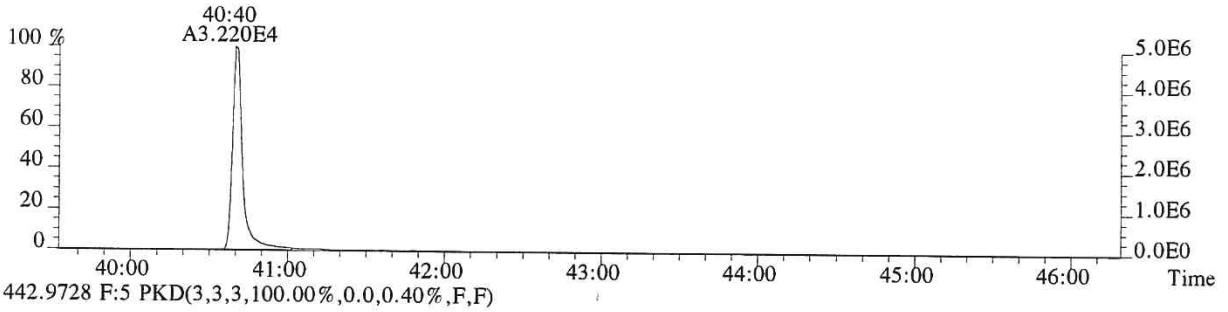
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



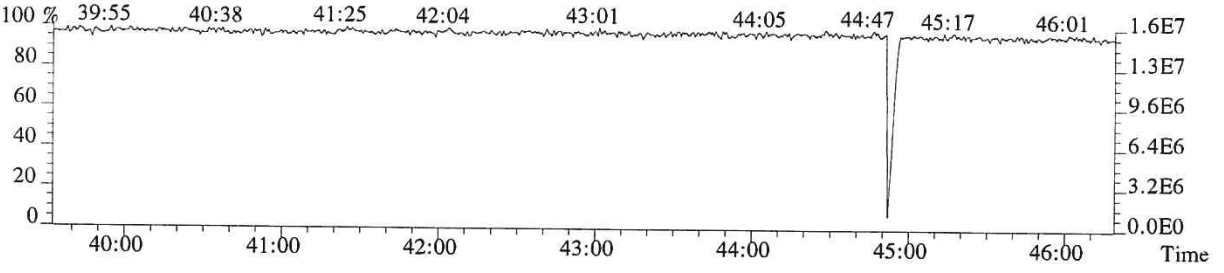
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P518924 - P518937

Date: 11/19 - 11/20/18

Circle one: (Beginning) / (Ending)

Method: (1613) / 1613E / (8290) / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: LKL

Second QC: LG

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P518925	19-NOV-18	21:27:33
194503	CS3	P518924	19-NOV-18	20:31:34
194503	CS3	P518937	20-NOV-18	07:28:54
METHOD BLANK	EQ1800461-01	P518926	19-NOV-18	22:15:21
METHOD BLANK	EQ1800463-01	P518927	19-NOV-18	23:03:59
376137-138	E1801008-014	P518928	19-NOV-18	23:52:36
376095-096	E1801008-015	P518929	20-NOV-18	00:41:12
1810-23037-006	E1800992-002	P518930	20-NOV-18	01:29:50
MSTP 77523-S	E1800993-001	P518931	20-NOV-18	02:18:27
9 DF	E1801007-009	P518932	20-NOV-18	03:07:04
13 DF	E1801007-012	P518933	20-NOV-18	03:55:41
14 DF	E1801007-013	P518934	20-NOV-18	04:44:19
15 DF	E1801007-014	P518935	20-NOV-18	05:32:57

E1801020

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181119B.SPL
Last Modified: Tuesday, November 20, 2018 08:28:16 Central Standard Time
Printed: Tuesday, November 20, 2018 08:28:18 Central Standard Time

Page Position (1, 1)

OPUS 5 NET: P518924 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/19/18	20:31	P518924	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMS check 21:27
2		21:27	P518925	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		22:15	P518926	MB	EQ1800461-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		23:03	P518927	MB	EQ1800463-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		23:52	P518928	E1801008-014	E1801008-014	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6	11/20/18	00:41	P518929	E1801008-015	E1801008-015	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		01:29	P518930	E1800992-002	E1800992-002	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		02:18	P518931	E1800993-001	E1800993-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		03:07	P518932	E1801007-009	E1801007-009	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		03:55	P518933	E1801007-012	E1801007-012	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		04:44	P518934	E1801007-013	E1801007-013	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		05:32	P518935	E1801007-014	E1801007-014	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		06:30	P518936	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:13		not used
14		07:28	P518937	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 07:18
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LKL 11/20/18

Printed: Monday, November 19, 2018 21:27:31 Central Standard Time

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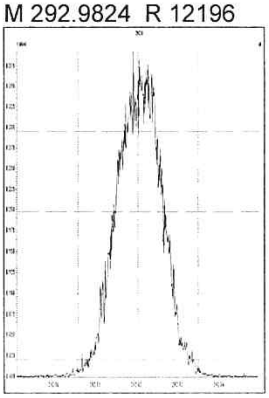

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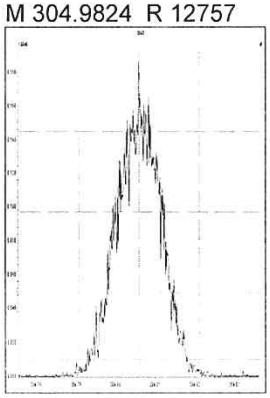

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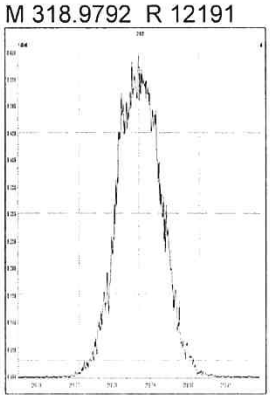

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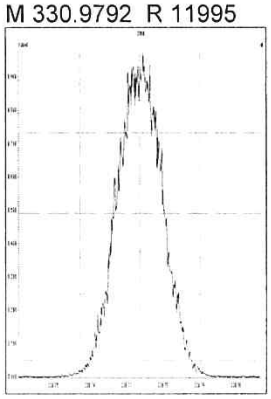

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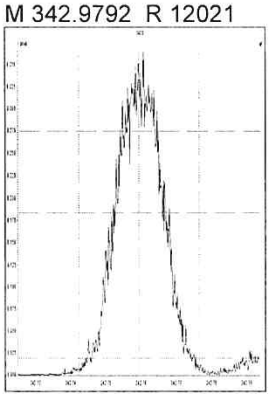

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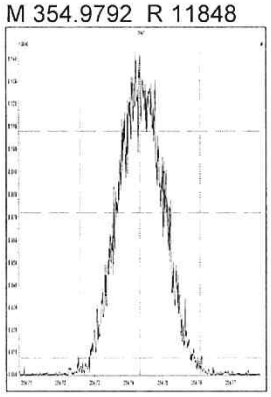

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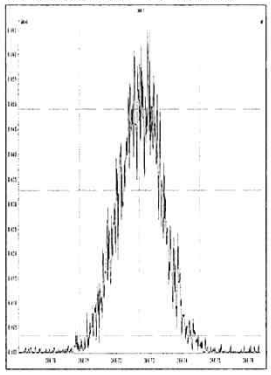

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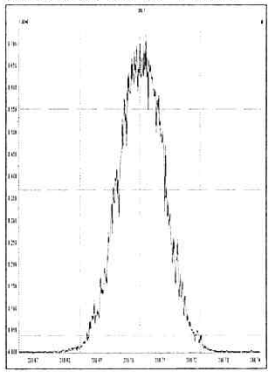
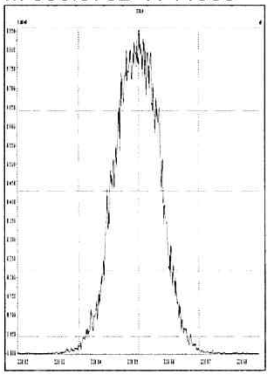


M 330.9792_R 11966



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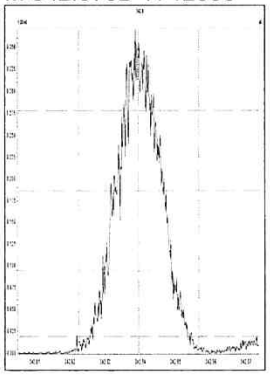

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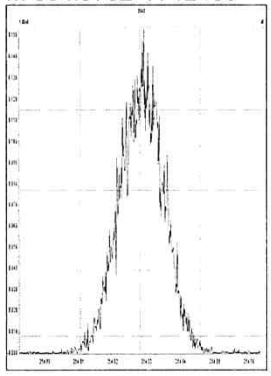

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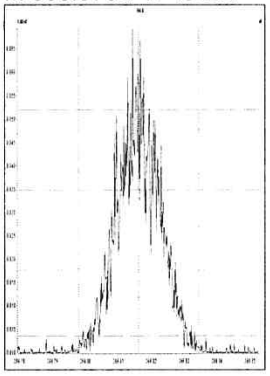

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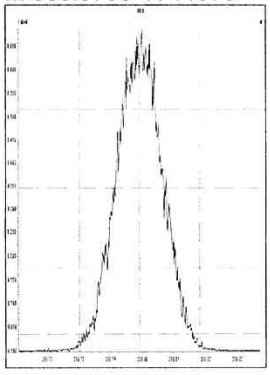

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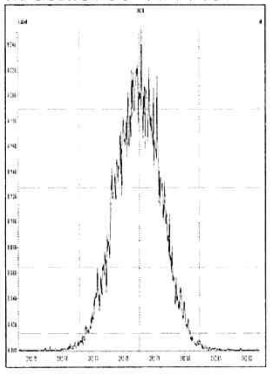

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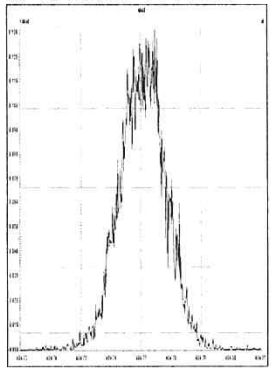

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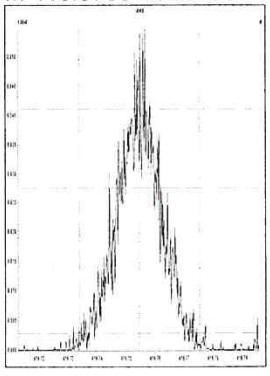

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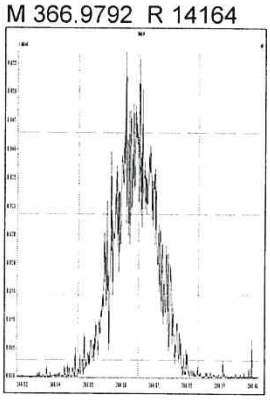

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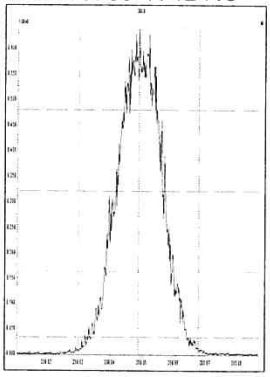

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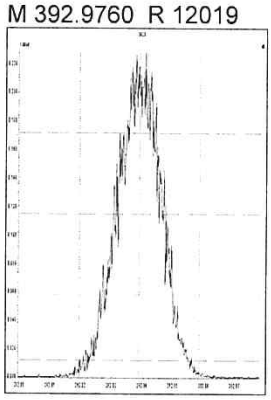

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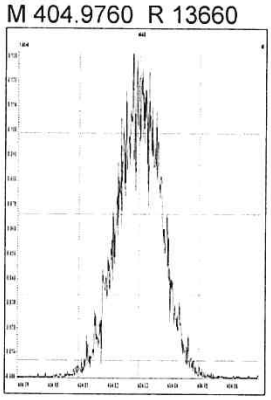

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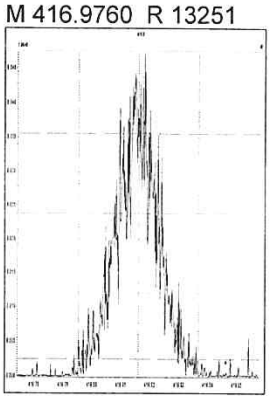
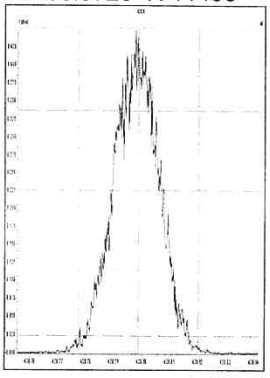
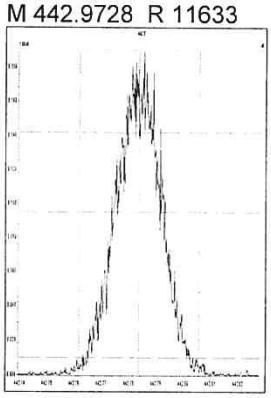


M 430.9728 R 11495



M 442.9728 R 11633



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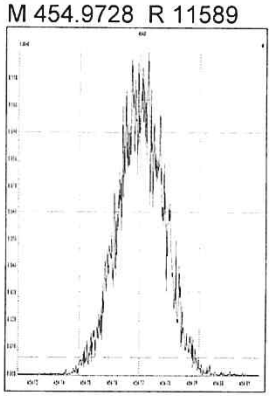

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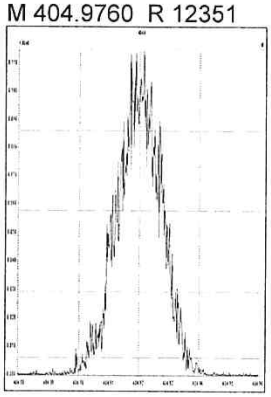

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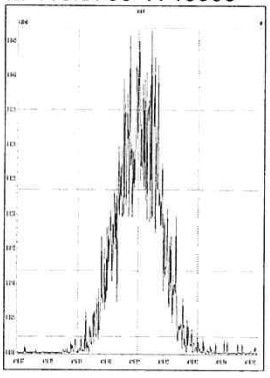

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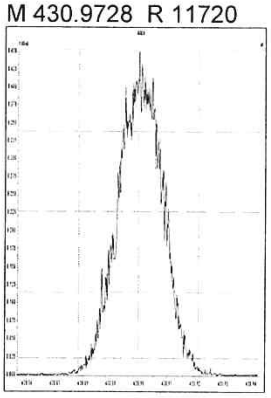

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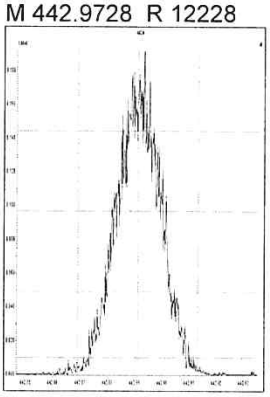

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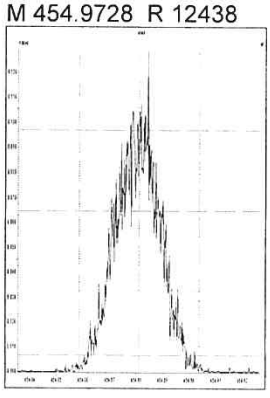

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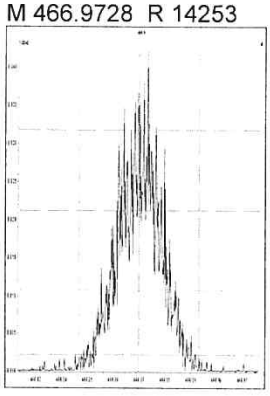

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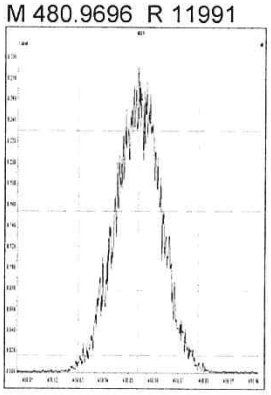

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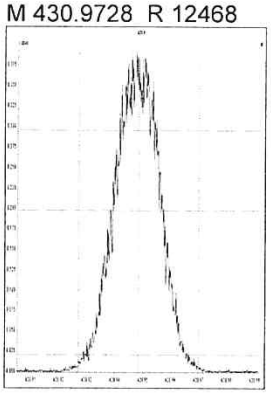

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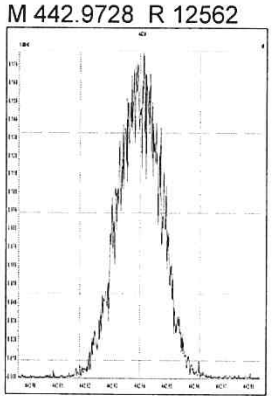

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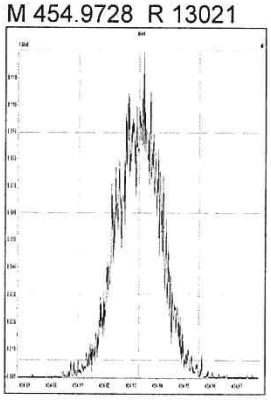

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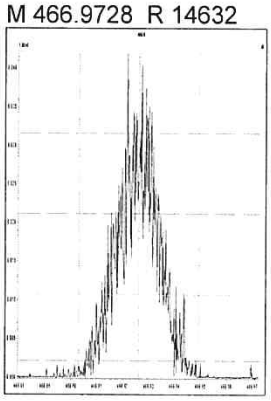

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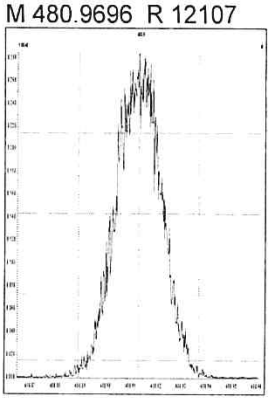

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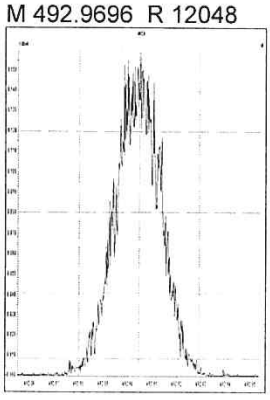

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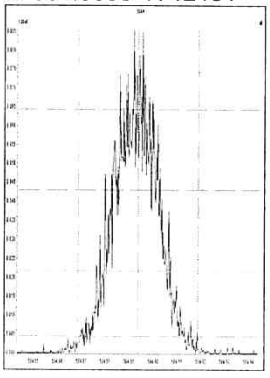

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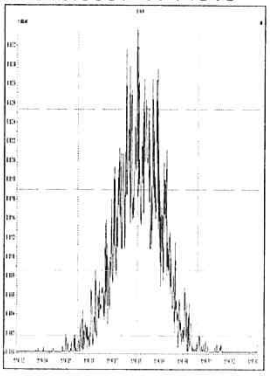

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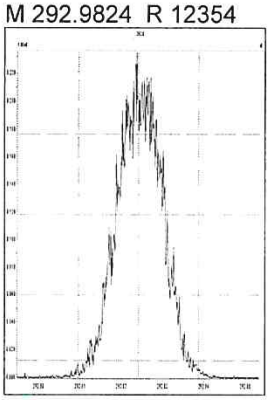

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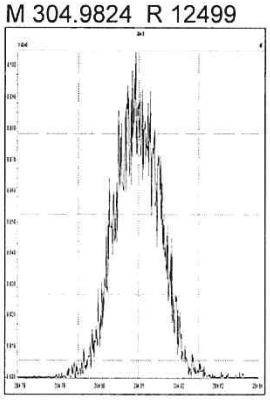

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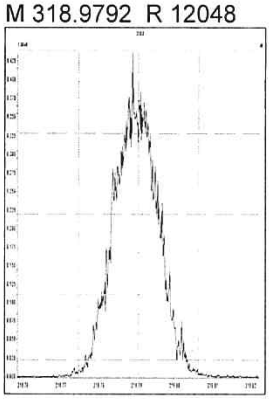

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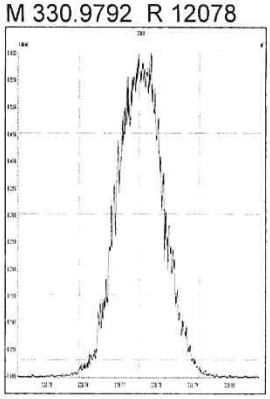

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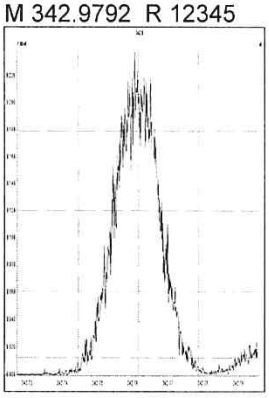

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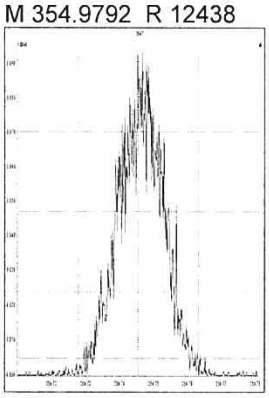

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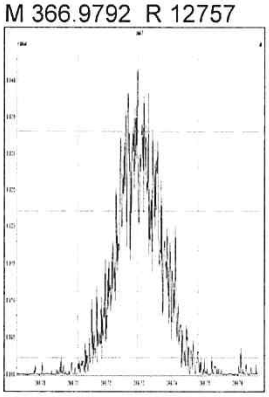

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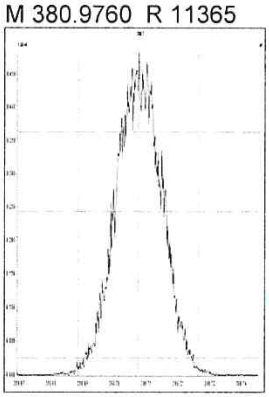

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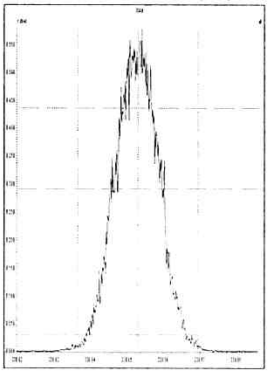

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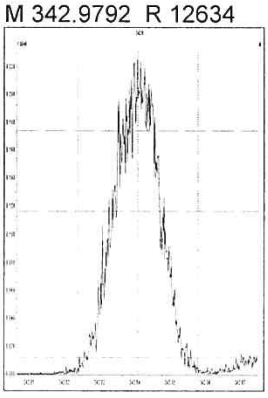

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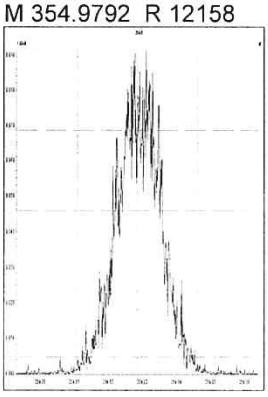

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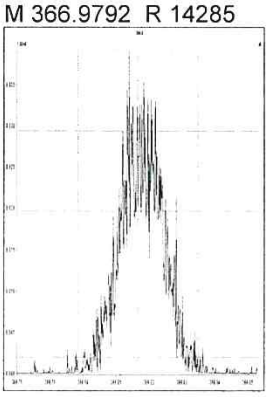

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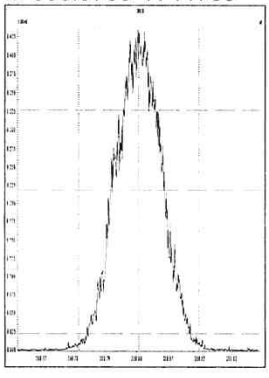

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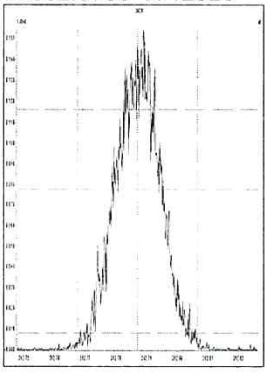

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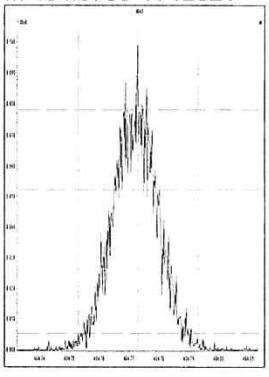

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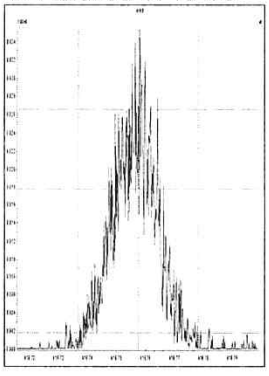

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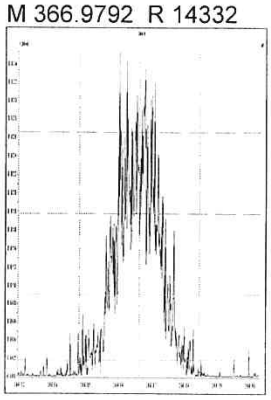

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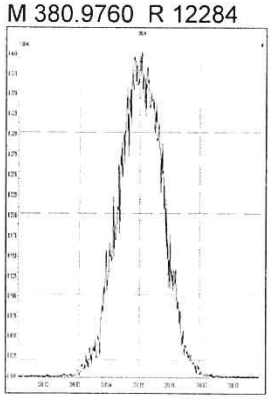

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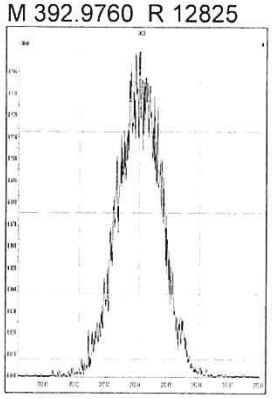

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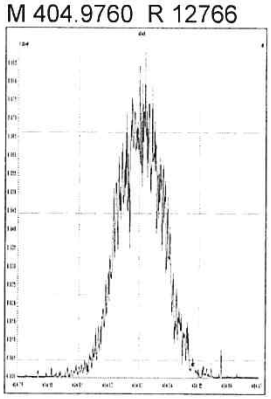

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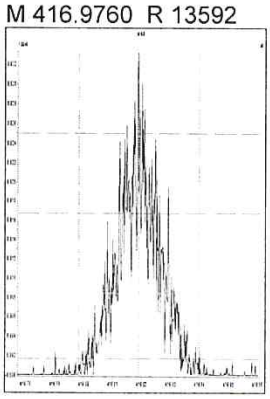

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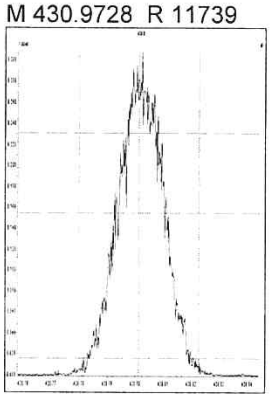

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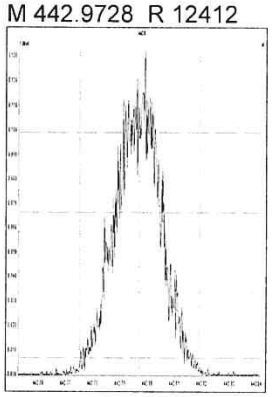

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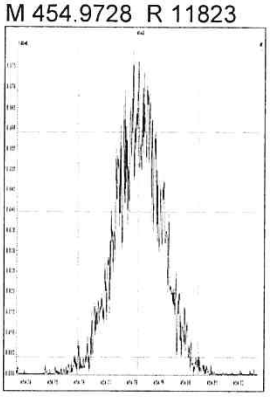

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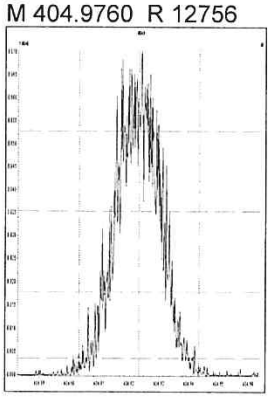

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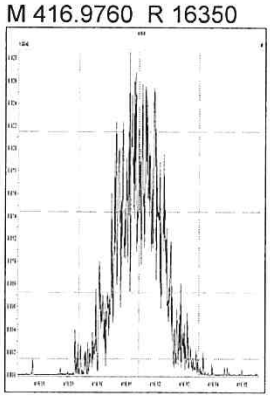

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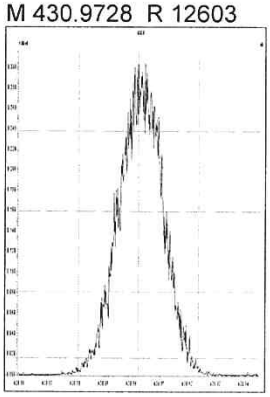

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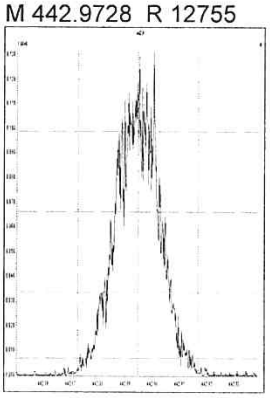

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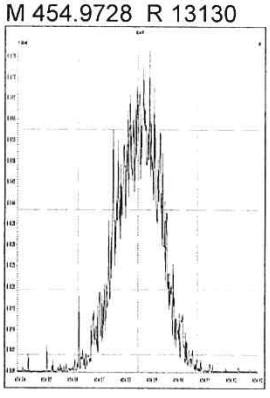

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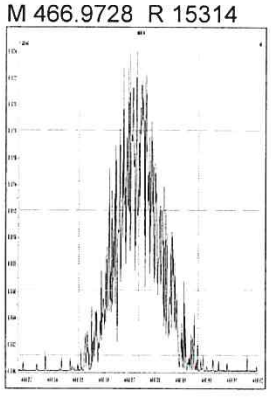

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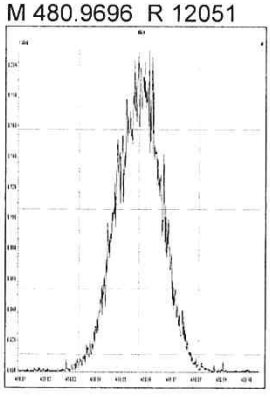

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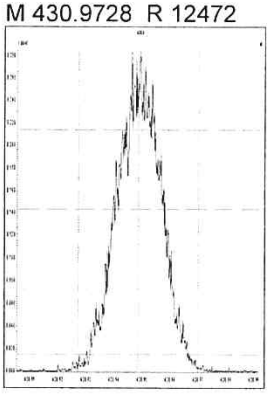

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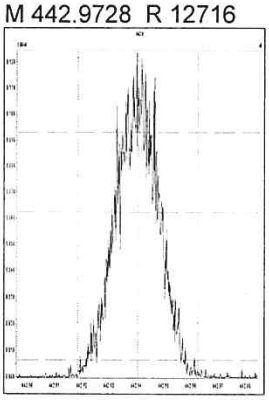

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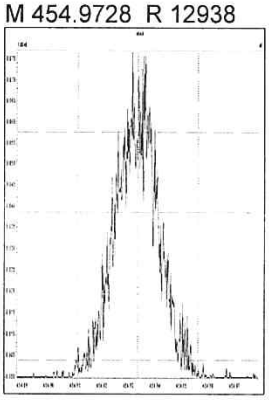

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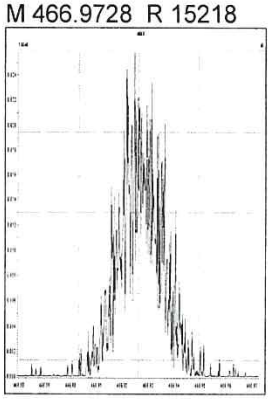

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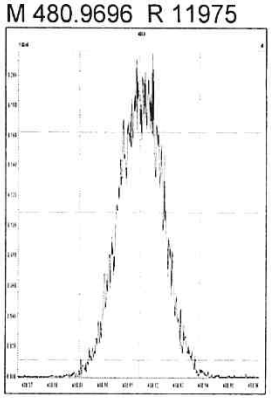

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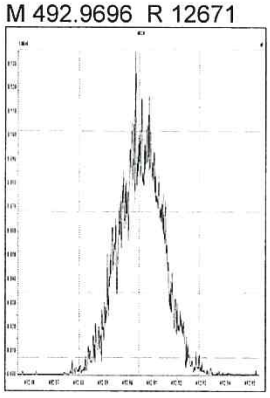
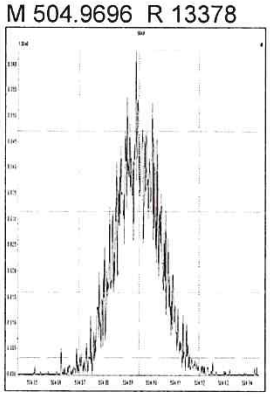


M 504.9696 R 13378



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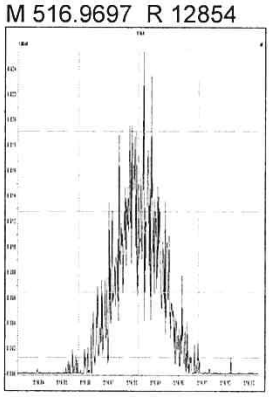

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P518925
Date Analyzed: 19-NOV-18
Time Analyzed: 21:27:33

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:01	27:44
TCDD	22:36	27:33
PeCDF	27:41	32:30
PeCDD	29:31	32:16
HxCDF	33:15	35:53
HxCDD	33:49	35:29
HpCDF	37:11	38:32
HpCDD	37:27	38:06

% Valley 2378-TCDD: 19 %

File:P518925 #1-594 Acq:19-NOV-2018 21:27:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
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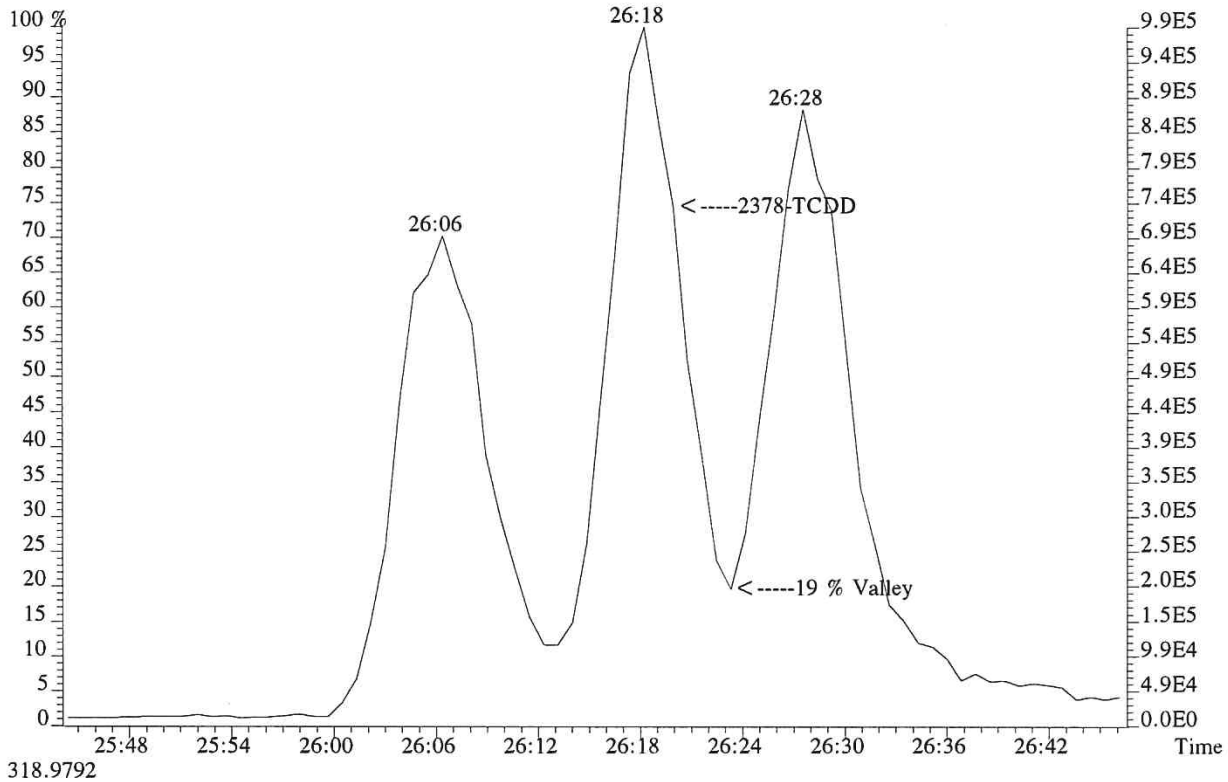

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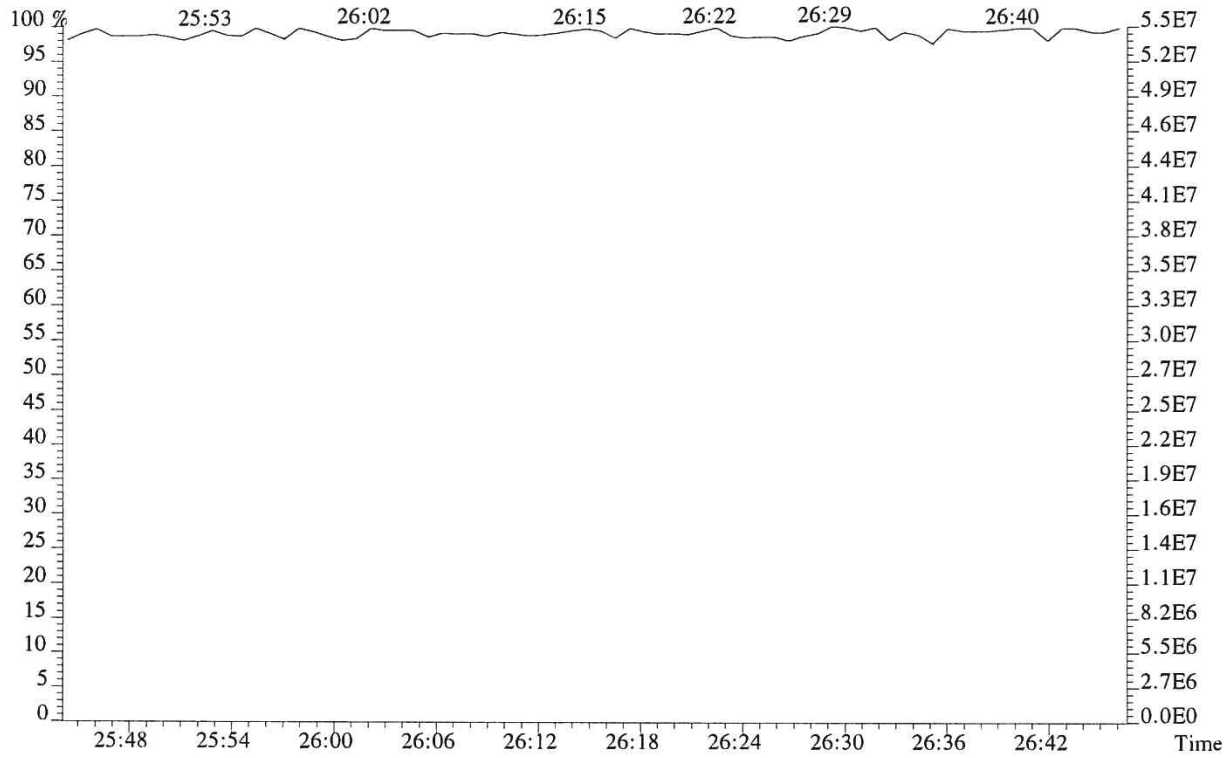

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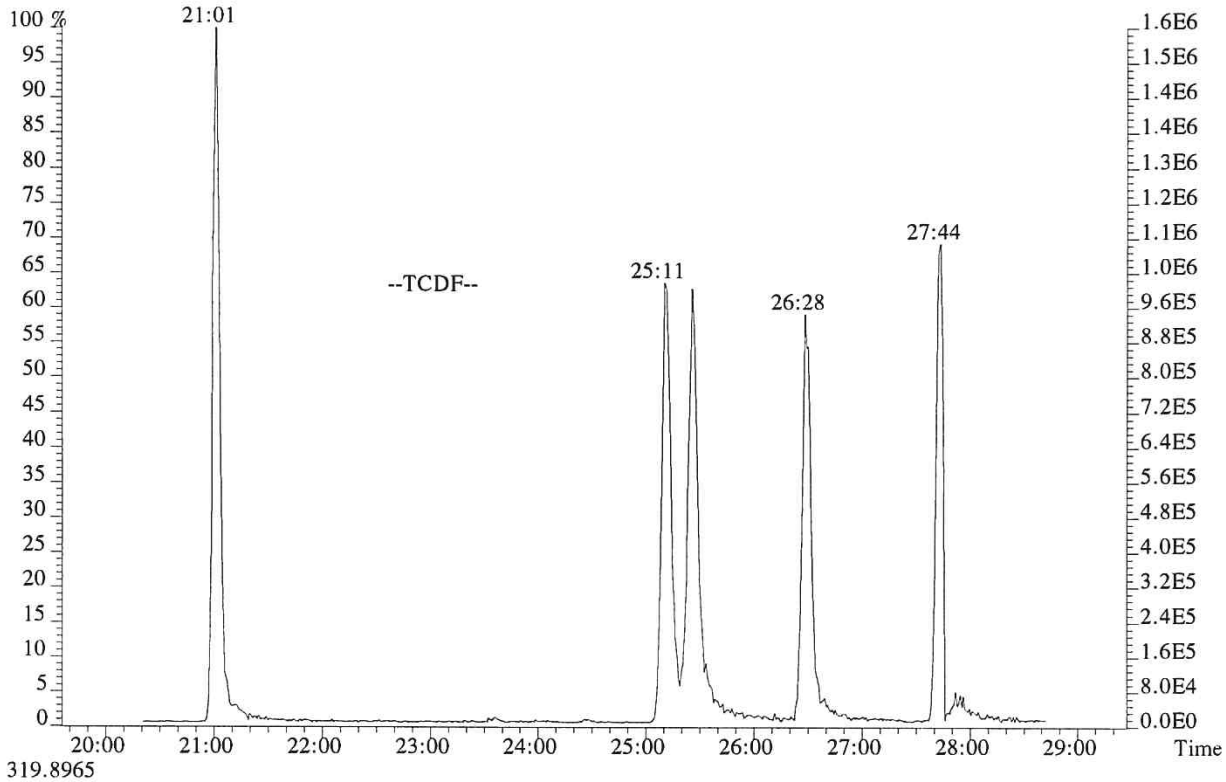

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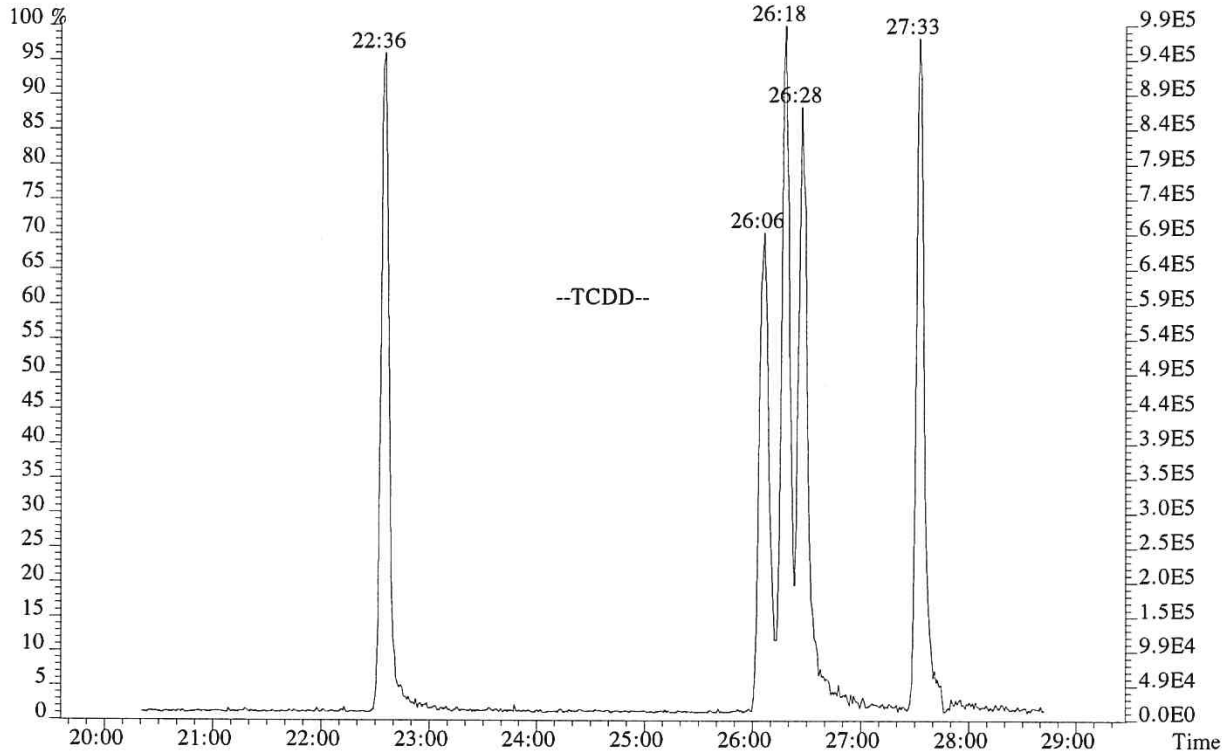

File:P518925 #1-594 Acq:19-NOV-2018 21:27:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
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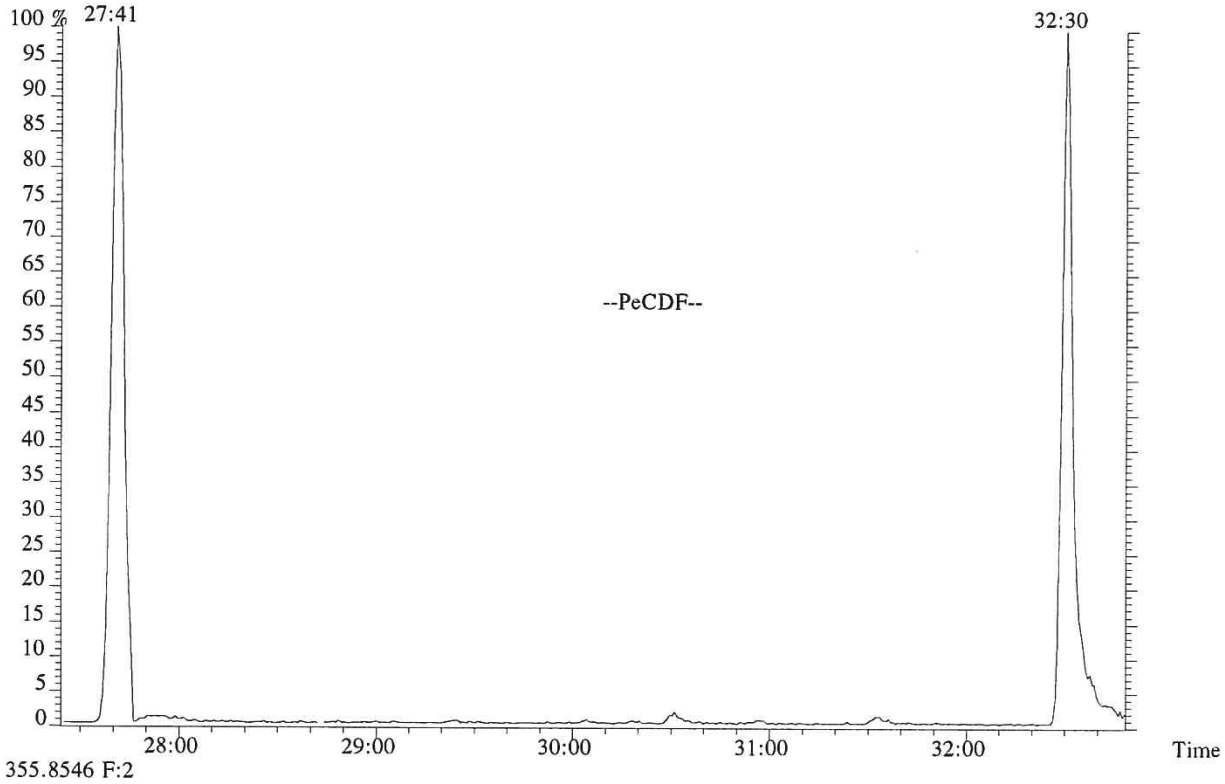

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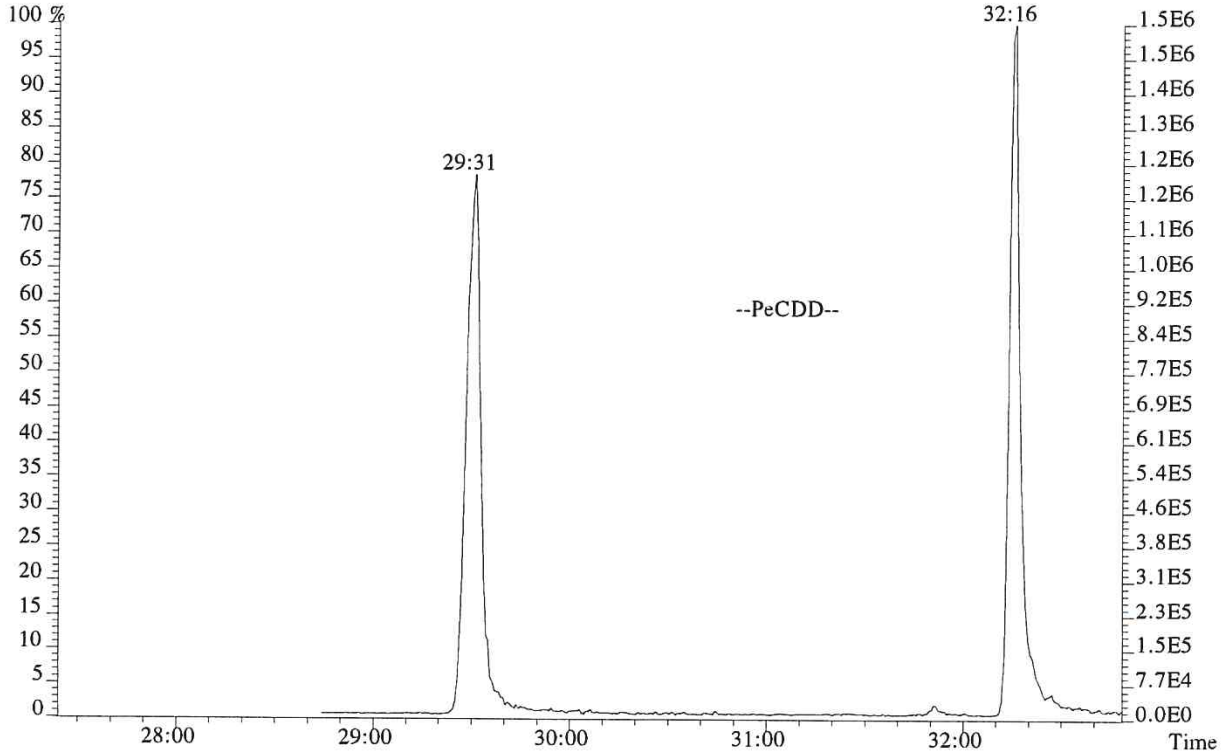

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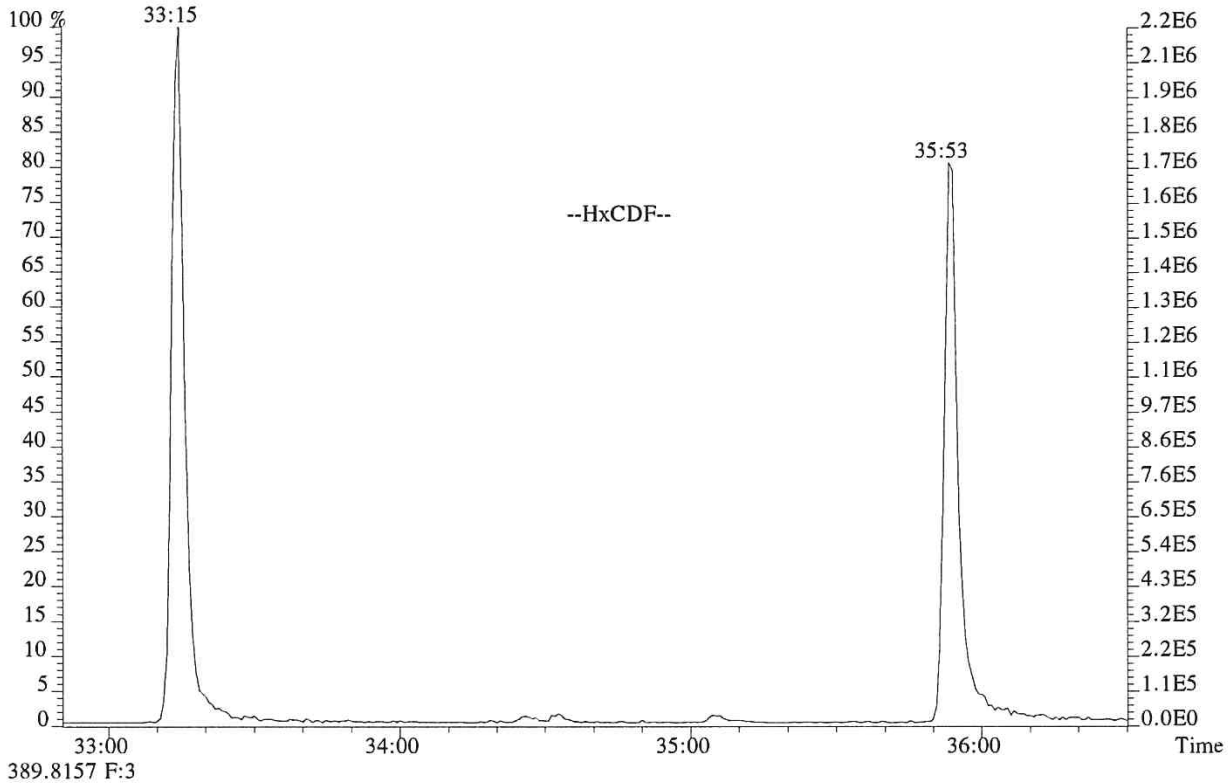
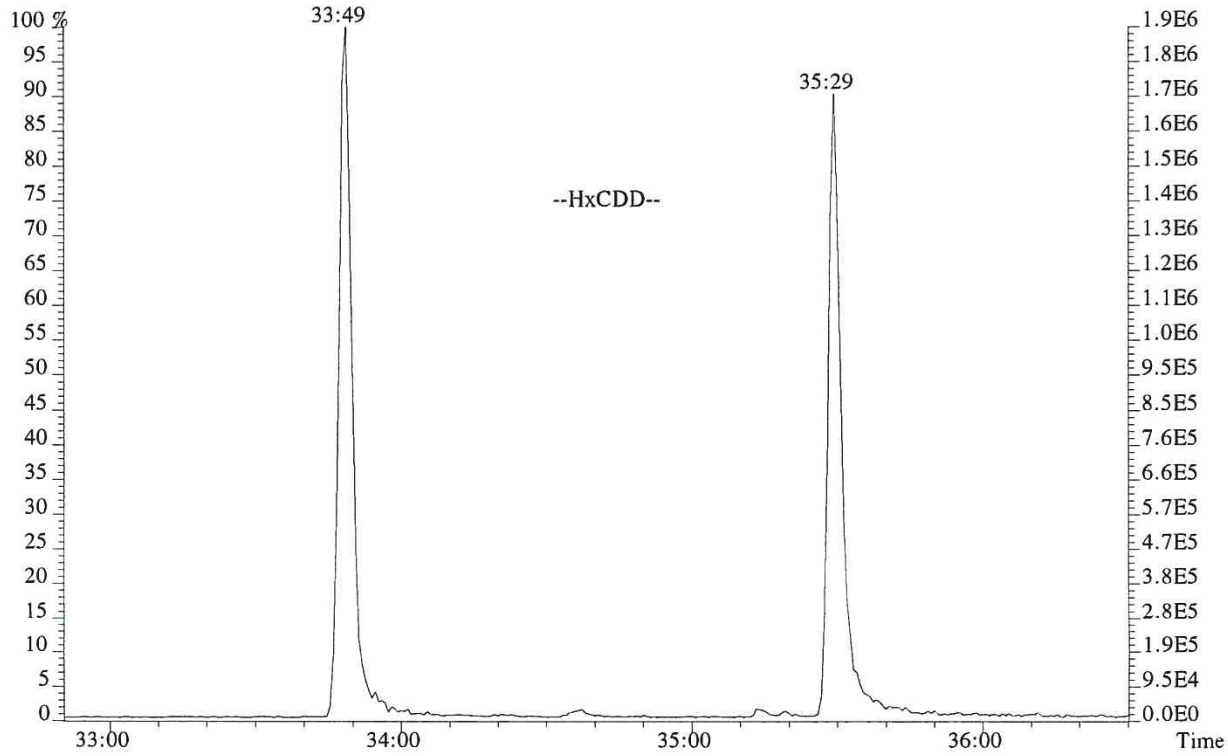
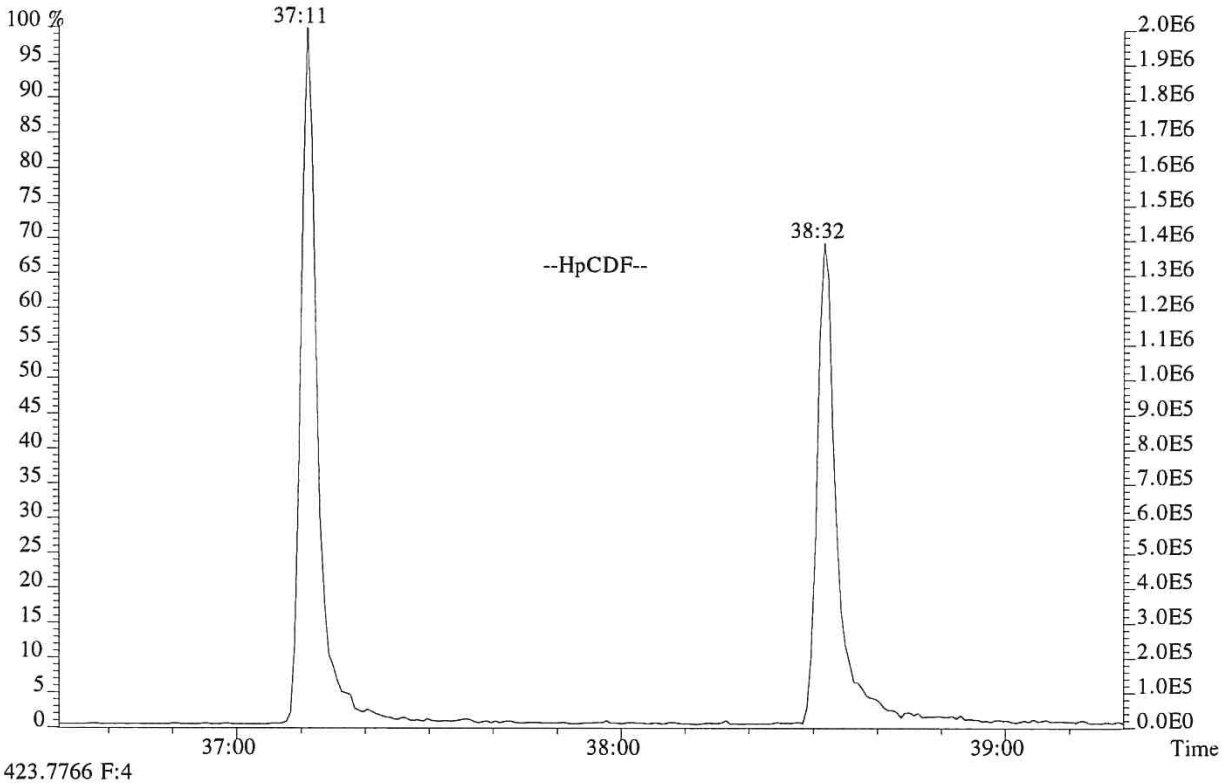


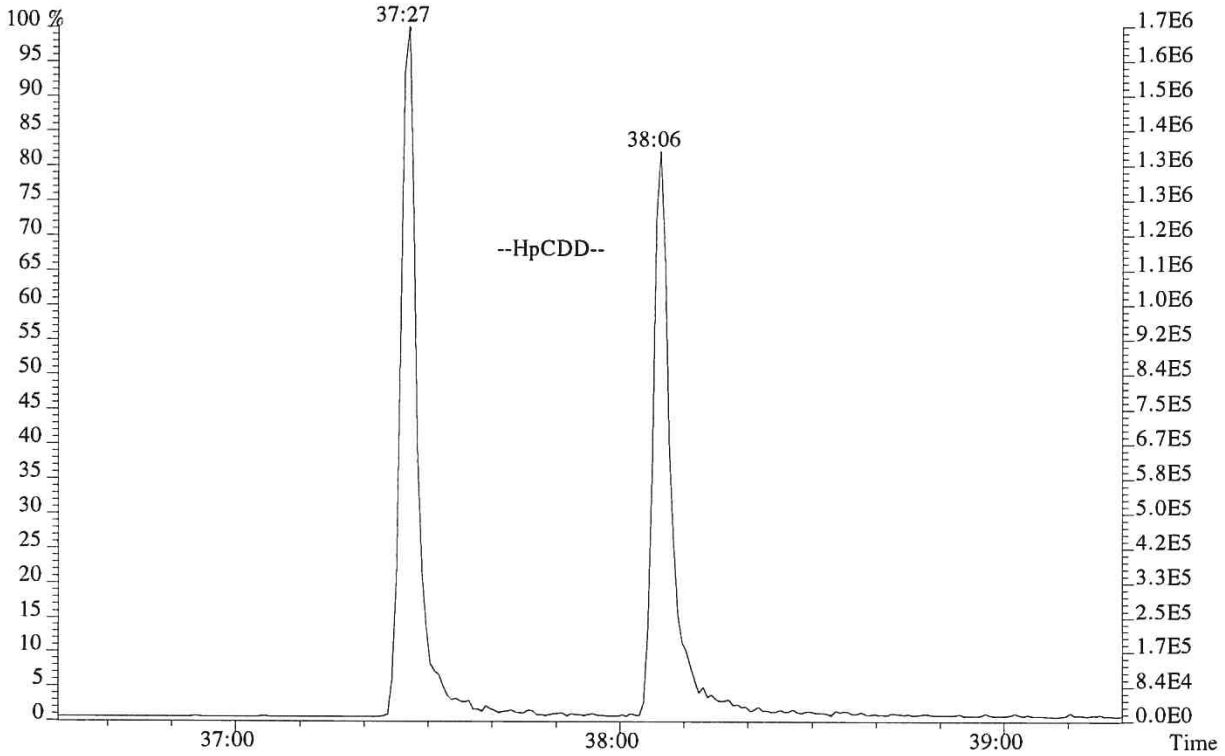
389.8157 F:3



File:P518925 #1-594 Acq:19-NOV-2018 21:27:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



010010

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518924 Analysis Date: 19-NOV-18 Time: 20:31:34

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.2	7.8 - 12.9	-8.4
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	49	39 - 65	-2.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.4
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	53	41 - 61	5.1
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.01	0.88-1.20	49	43 - 58	-1.3
OCDD	M+2/M+4	0.89	0.76-1.02	100	79 - 126	0.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.6	8.4 - 12.0	-4.1
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	49	41 - 60	-1.5
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 61	-1.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	0.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	49	45 - 56	-2.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	50	45 - 55	0.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	50	43 - 58	-0.3
OCDF	M+2/M+4	0.89	0.76-1.02	95	63 - 159	-5.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518924 Analysis Date: 19-NOV-18 Time: 20:31:34

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	103	82 - 121	3.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	109	62 - 160	9.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	90	85 - 117	-9.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	99	85 - 118	-1.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	101	72 - 138	1.3
13C-OCDD	M+2/M+4	0.88	0.76-1.02	236	96 - 415	18.1
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	89	71 - 140	-11.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	99	76 - 130	-1.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	101	77 - 130	0.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	79	76 - 131	-20.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	87	70 - 143	-13.3
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	87	74 - 135	-13.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	90	73 - 137	-9.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	92	78 - 129	-8.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	95	77 - 129	-5.4
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.0	7.8 - 12.7	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518924 Samp: 1 Inj: 1 Acquired: 19-NOV-18 20:31:34
Processed: 20-NOV-18 10:30:23 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:26	1.015e+04	1.339e+04	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:30	8.557e+04	5.503e+04	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:32	8.074e+04	5.297e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:26	6.895e+04	5.729e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:33	8.078e+04	6.644e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:05	7.403e+04	6.075e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:52	6.280e+04	5.062e+04	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:11	6.485e+04	6.448e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:32	5.322e+04	5.160e+04	1.03	yes	no	1.258
10	Unk	OCDF	40:48	9.027e+04	1.010e+05	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:28	8.166e+03	1.026e+04	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:51	5.843e+04	3.763e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:14	5.141e+04	4.085e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:19	5.804e+04	4.597e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:34	5.981e+04	4.716e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:06	4.760e+04	4.699e+04	1.01	yes	no	1.025
17	Unk	OCDD	40:38	7.836e+04	8.783e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:24	1.144e+05	1.463e+05	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:30	1.725e+05	1.094e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:31	1.735e+05	1.105e+05	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:25	7.245e+04	1.389e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:32	8.940e+04	1.720e+05	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:05	8.365e+04	1.603e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:51	6.921e+04	1.338e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:11	5.965e+04	1.318e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:31	5.144e+04	1.158e+05	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:27	8.265e+04	1.027e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:50	1.259e+05	8.047e+04	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:13	1.006e+05	7.960e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:19	1.131e+05	8.935e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:06	9.685e+04	9.027e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:37	1.388e+05	1.576e+05	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:43	8.543e+04	1.085e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:33	1.199e+05	9.557e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:28	1.959e+04				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518924 Samp: 1 Inj: 1 Acquired: 19-NOV-18 20:31:34
Processed: 20-NOV-18 10:30:23 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.31e+06	5.56e+02	2.4e+03	1.75e+06	1.38e+03	1.3e+03
2	1,2,3,7,8-PeCDF	1.36e+07	9.08e+02	1.5e+04	8.69e+06	1.27e+03	6.9e+03
3	2,3,4,7,8-PeCDF	1.37e+07	9.08e+02	1.5e+04	9.09e+06	1.27e+03	7.2e+03
4	1,2,3,4,7,8-HxCDF	1.41e+07	4.12e+02	3.4e+04	1.16e+07	6.88e+02	1.7e+04
5	1,2,3,6,7,8-HxCDF	1.51e+07	4.12e+02	3.7e+04	1.25e+07	6.88e+02	1.8e+04
6	2,3,4,6,7,8-HxCDF	1.44e+07	4.12e+02	3.5e+04	1.20e+07	6.88e+02	1.7e+04
7	1,2,3,7,8,9-HxCDF	1.13e+07	4.12e+02	2.7e+04	9.07e+06	6.88e+02	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	1.29e+07	7.76e+03	1.7e+03	1.27e+07	5.21e+03	2.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.00e+07	7.76e+03	1.3e+03	9.84e+06	5.21e+03	1.9e+03
10	OCDF	1.51e+07	5.20e+02	2.9e+04	1.69e+07	6.88e+02	2.5e+04
11	2,3,7,8-TCDD	1.15e+06	1.91e+03	6.0e+02	1.48e+06	1.28e+03	1.2e+03
12	1,2,3,7,8-PeCDD	9.93e+06	6.40e+02	1.6e+04	6.44e+06	3.28e+02	2.0e+04
13	1,2,3,4,7,8-HxCDD	1.11e+07	3.84e+02	2.9e+04	8.94e+06	4.52e+02	2.0e+04
14	1,2,3,6,7,8-HxCDD	1.06e+07	3.84e+02	2.8e+04	8.56e+06	4.52e+02	1.9e+04
15	1,2,3,7,8,9-HxCDD	1.09e+07	3.84e+02	2.8e+04	8.83e+06	4.52e+02	2.0e+04
16	1,2,3,4,6,7,8-HpCDD	9.53e+06	3.68e+02	2.6e+04	9.38e+06	4.32e+02	2.2e+04
17	OCDD	1.31e+07	1.40e+02	9.4e+04	1.47e+07	1.96e+02	7.5e+04
18	13C-2,3,7,8-TCDF	1.43e+07	4.98e+03	2.9e+03	1.82e+07	3.11e+03	5.8e+03
19	13C-1,2,3,7,8-PeCDF	2.69e+07	8.12e+02	3.3e+04	1.70e+07	1.51e+03	1.1e+04
20	13C-2,3,4,7,8-PeCDF	2.98e+07	8.12e+02	3.7e+04	1.91e+07	1.51e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	1.44e+07	7.68e+02	1.9e+04	2.75e+07	1.57e+03	1.8e+04
22	13C-1,2,3,6,7,8-HxCDF	1.68e+07	7.68e+02	2.2e+04	3.21e+07	1.57e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	1.65e+07	7.68e+02	2.1e+04	3.11e+07	1.57e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.24e+07	7.68e+02	1.6e+04	2.37e+07	1.57e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.18e+07	7.43e+03	1.6e+03	2.59e+07	1.10e+04	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	9.66e+06	7.43e+03	1.3e+03	2.16e+07	1.10e+04	2.0e+03
27	13C-2,3,7,8-TCDD	1.17e+07	5.06e+03	2.3e+03	1.45e+07	2.58e+03	5.6e+03
28	13C-1,2,3,7,8-PeCDD	2.13e+07	8.68e+02	2.5e+04	1.35e+07	5.48e+02	2.5e+04
29	13C-1,2,3,4,7,8-HxCDD	2.17e+07	9.84e+02	2.2e+04	1.72e+07	7.00e+02	2.5e+04
30	13C-1,2,3,6,7,8-HxCDD	2.09e+07	9.84e+02	2.1e+04	1.67e+07	7.00e+02	2.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.90e+07	1.06e+03	1.8e+04	1.79e+07	5.28e+02	3.4e+04
32	13C-OCDD	2.36e+07	6.20e+02	3.8e+04	2.64e+07	3.40e+02	7.8e+04
33	13C-1,2,3,4-TCDD	1.18e+07	5.06e+03	2.3e+03	1.49e+07	2.58e+03	5.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.19e+07	9.84e+02	2.2e+04	1.75e+07	7.00e+02	2.5e+04
35	37Cl-2,3,7,8-TCDD	2.75e+06	1.50e+03	1.8e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.912e{+}03 + 1.280e{+}03) \times 100}{(1.167e{+}07 + 1.454e{+}07) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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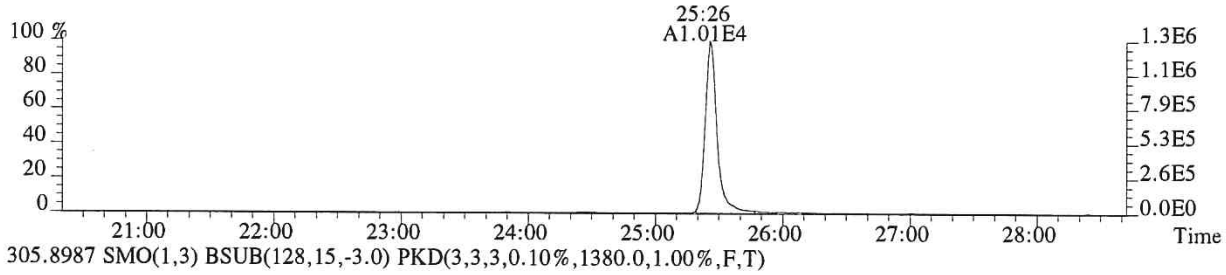
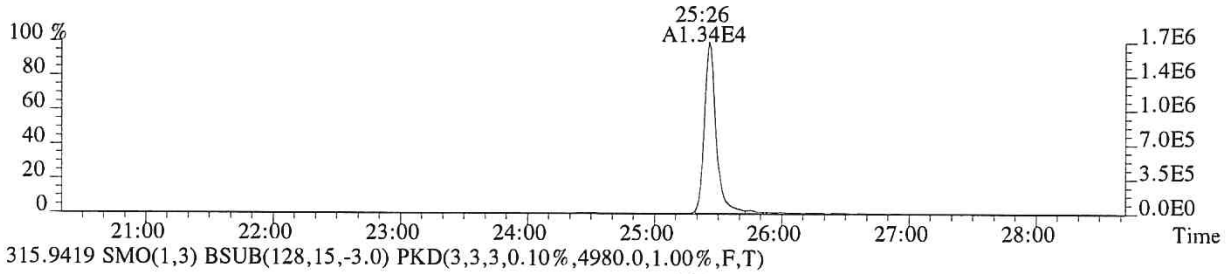
File:P518924 #1-594 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

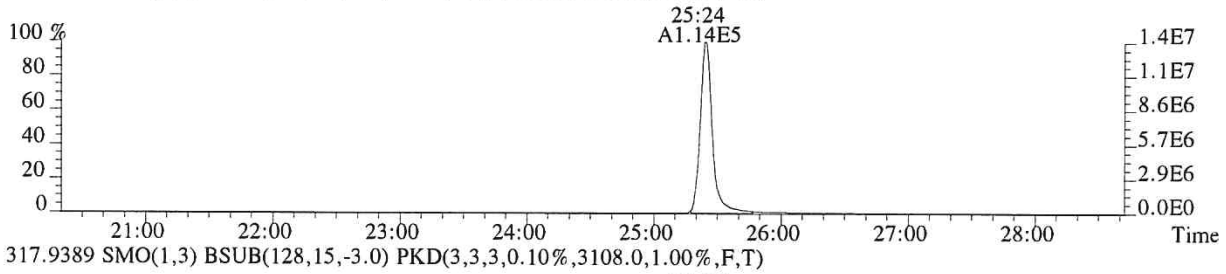
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



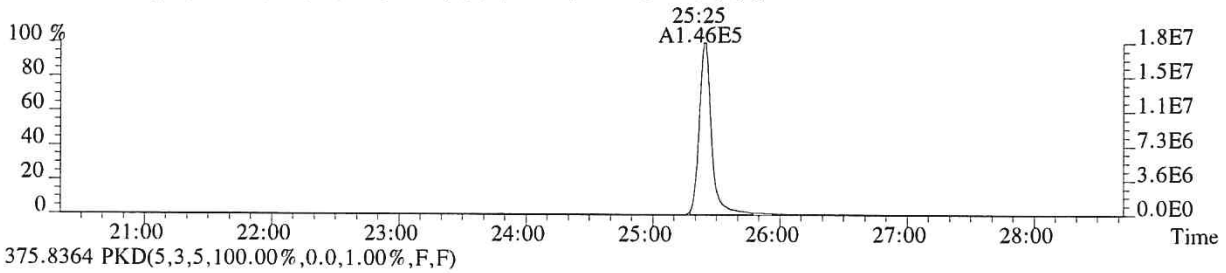
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



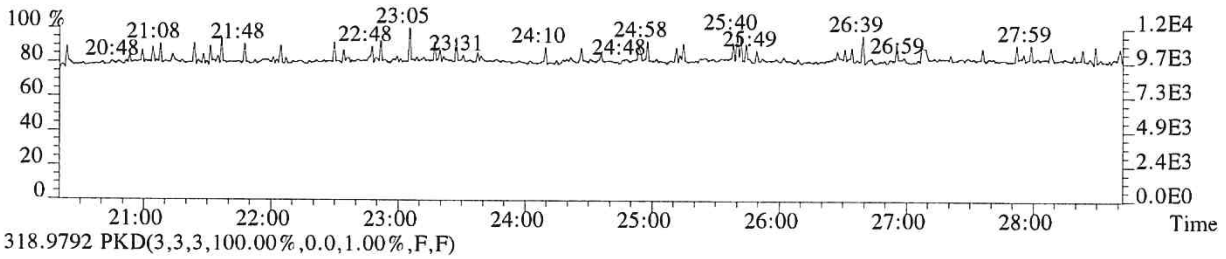
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4980.0,1.00%,F,T)



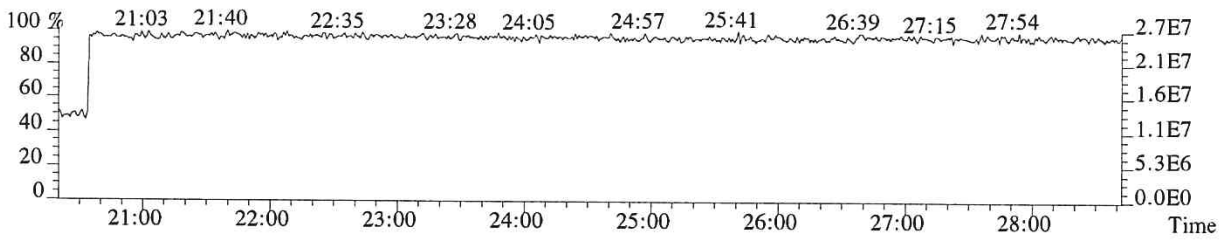
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3108.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

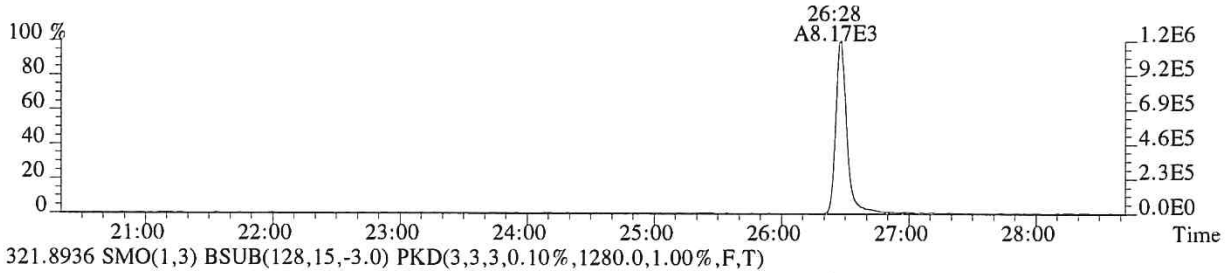


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

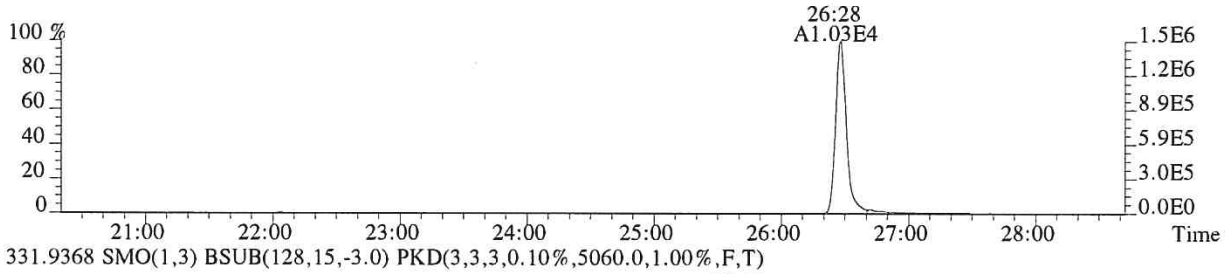


File:P518924 #1-594 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

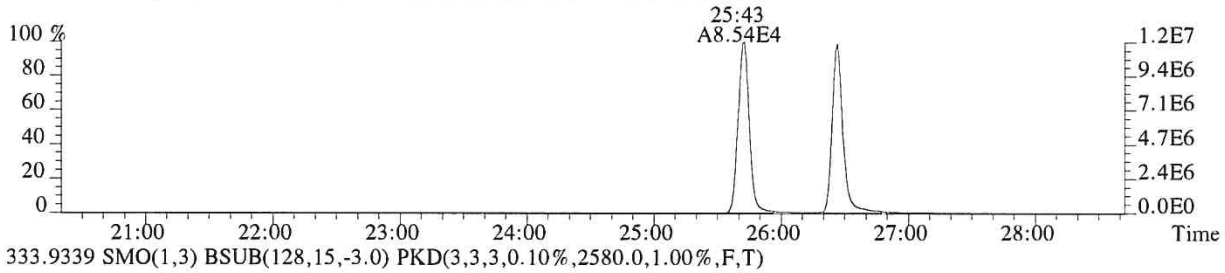
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



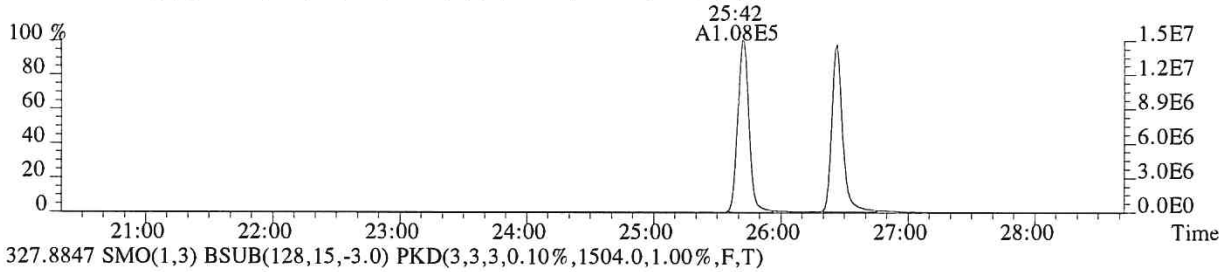
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



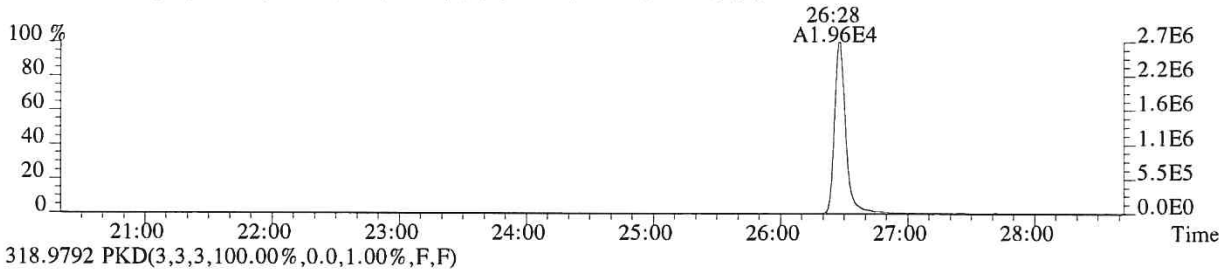
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5060.0,1.00%,F,T)



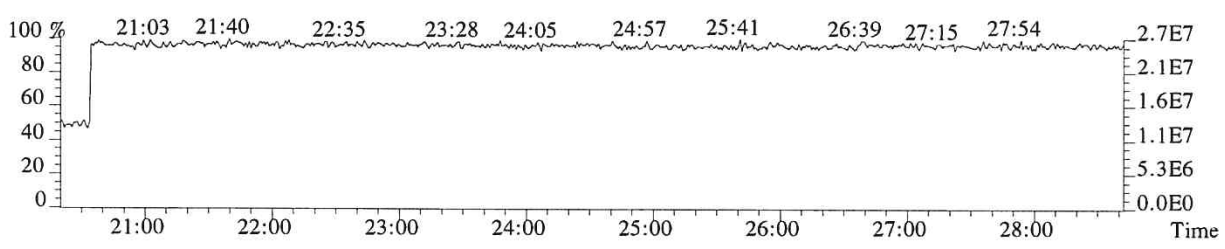
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)

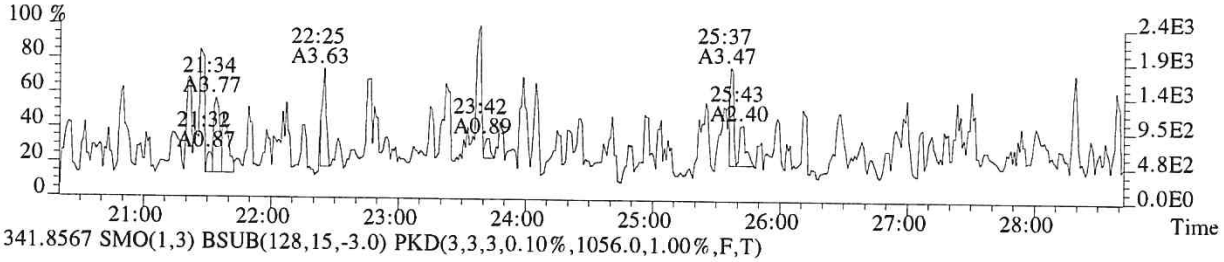


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

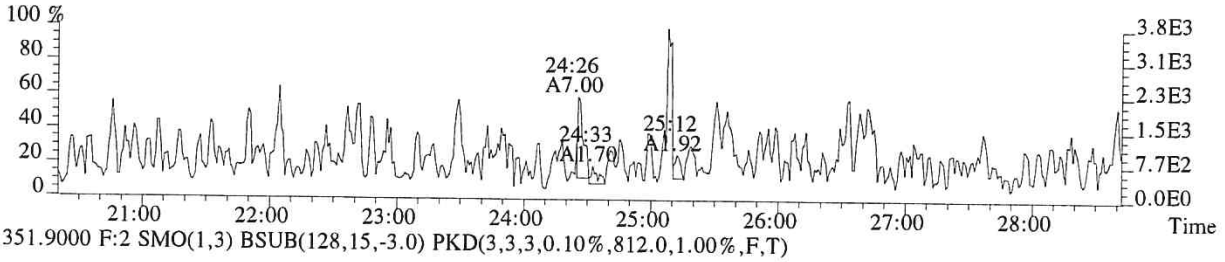


010016

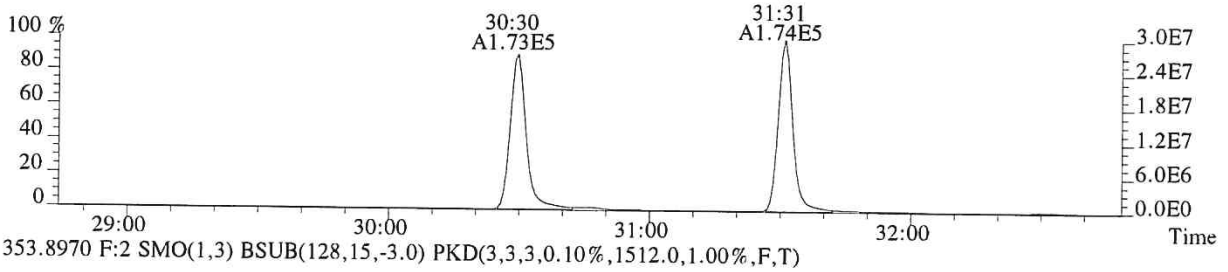
File:P518924 #1-594 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



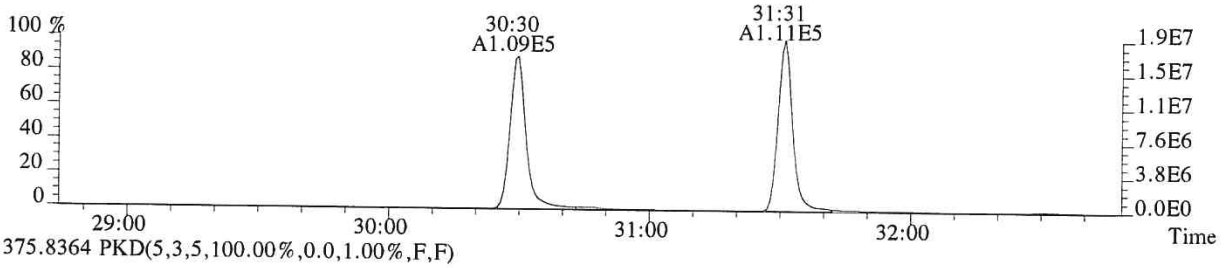
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



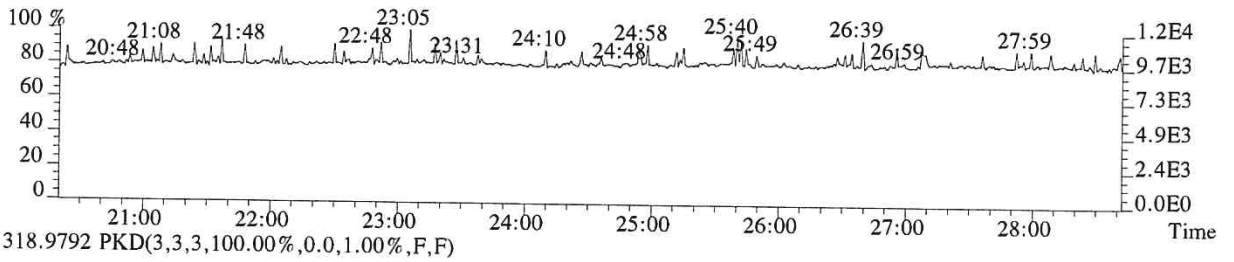
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



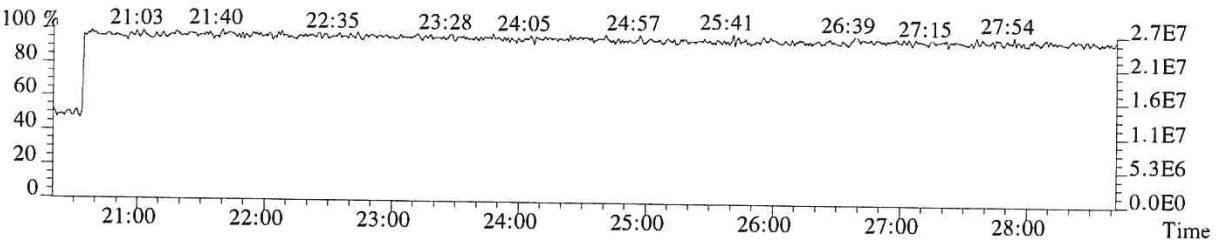
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

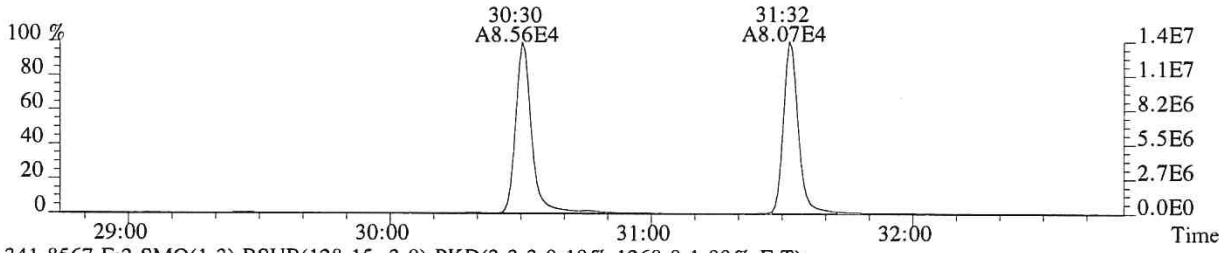


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

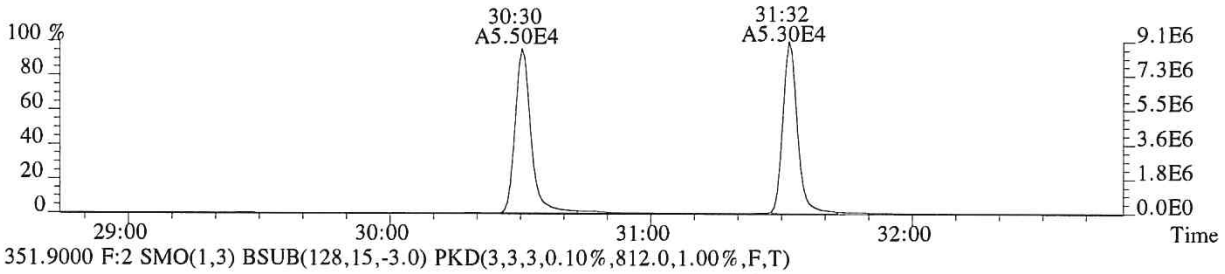


File:P518924 #1-367 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

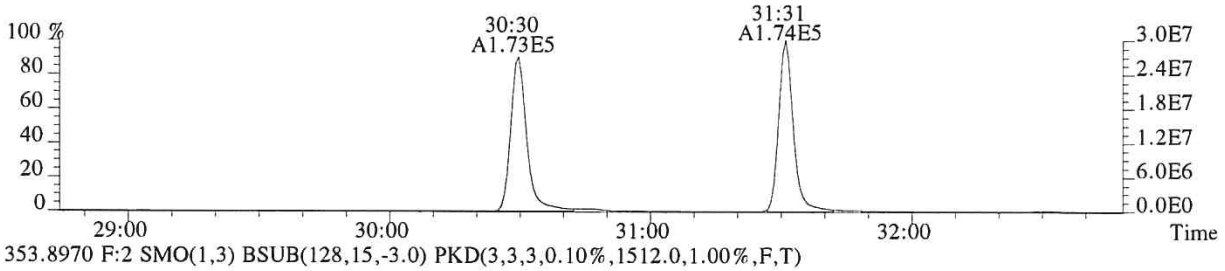
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



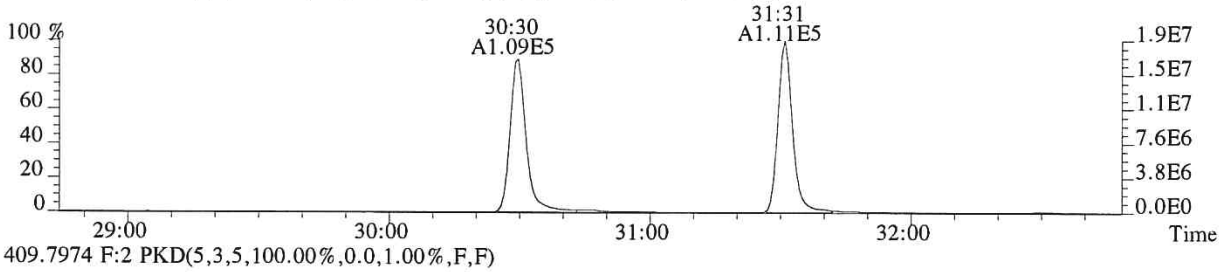
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



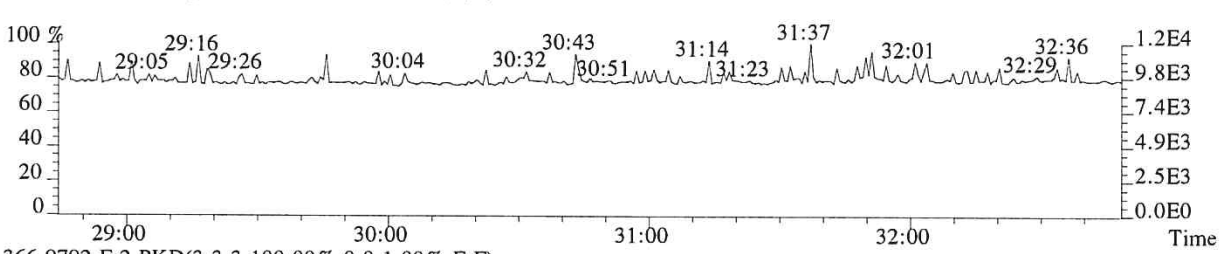
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



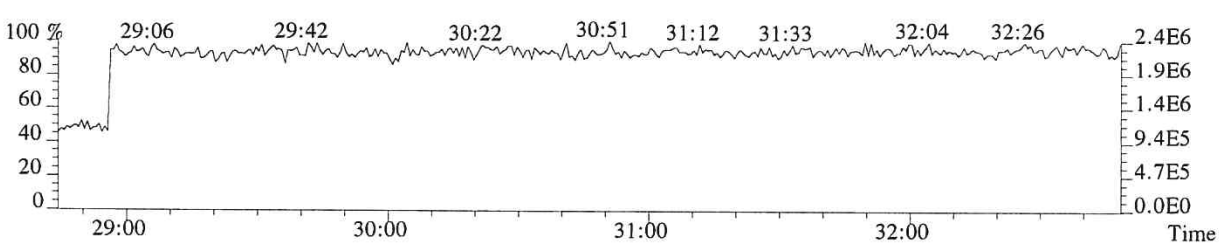
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



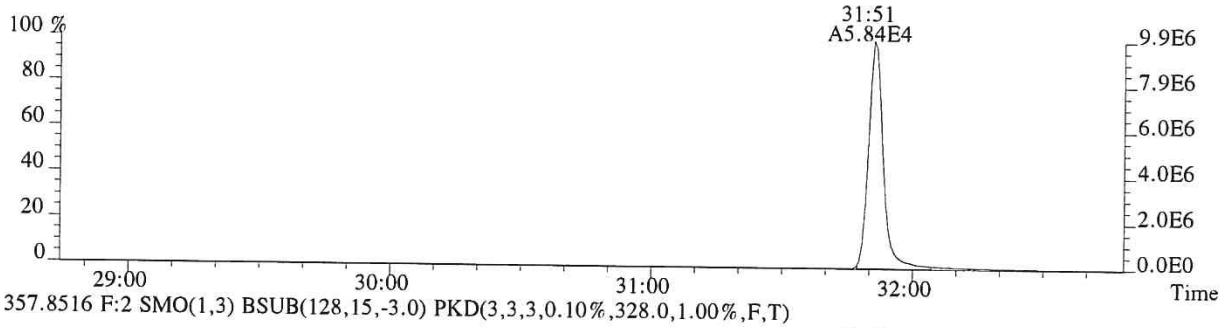
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



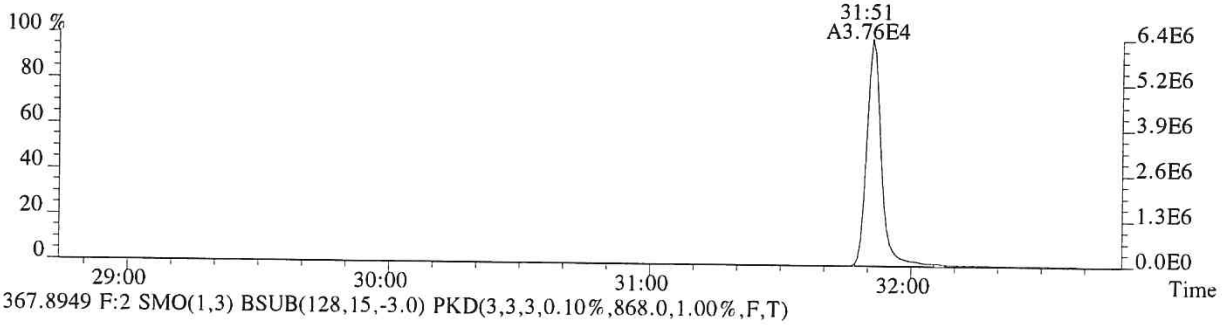
010018

File:P518924 #1-367 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

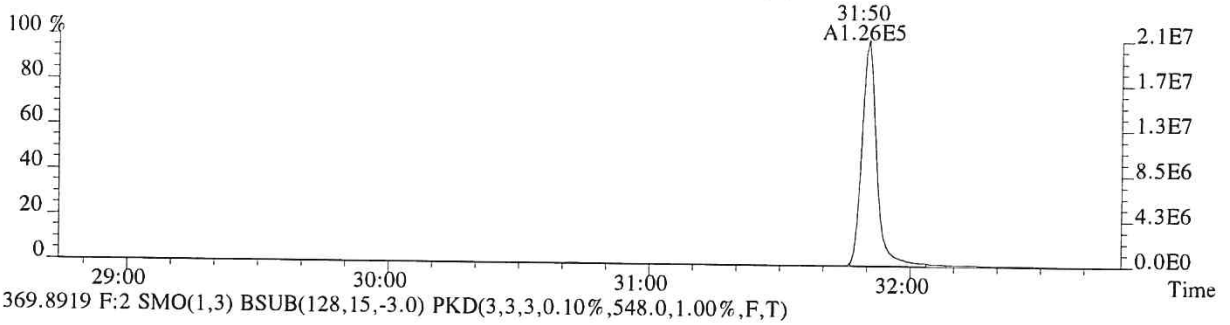
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



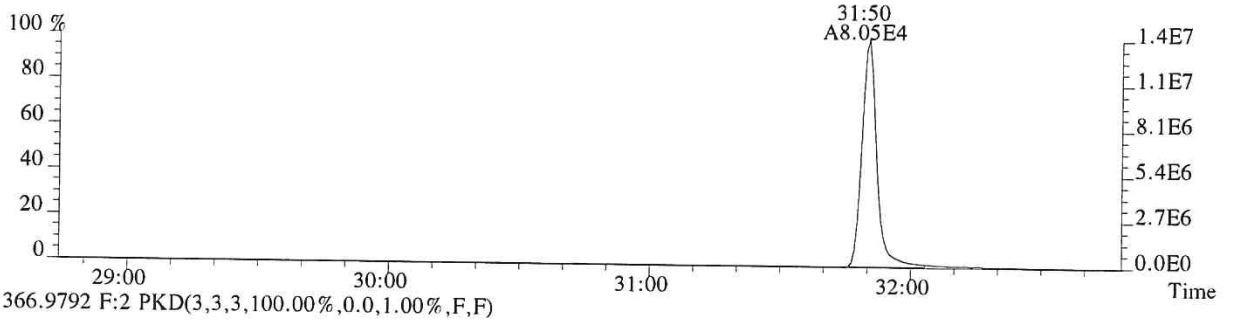
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



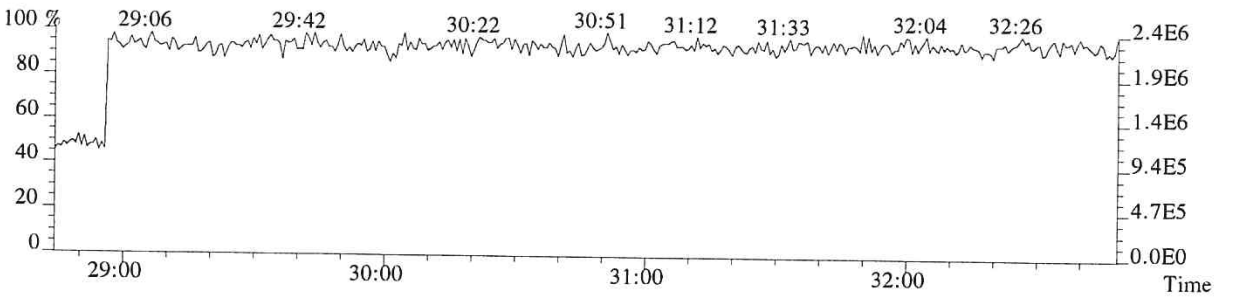
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



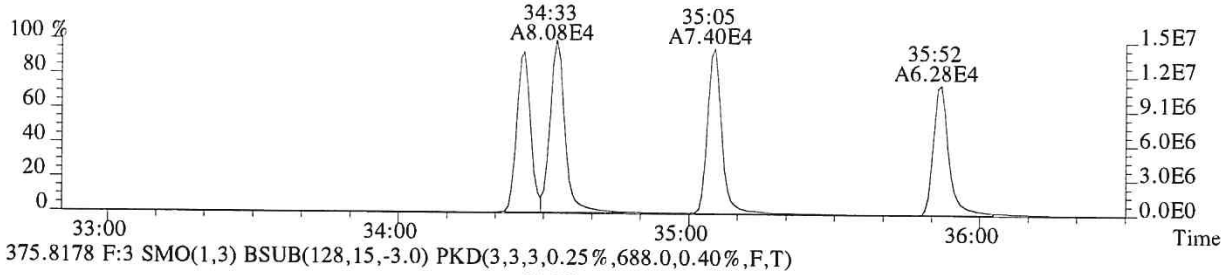
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



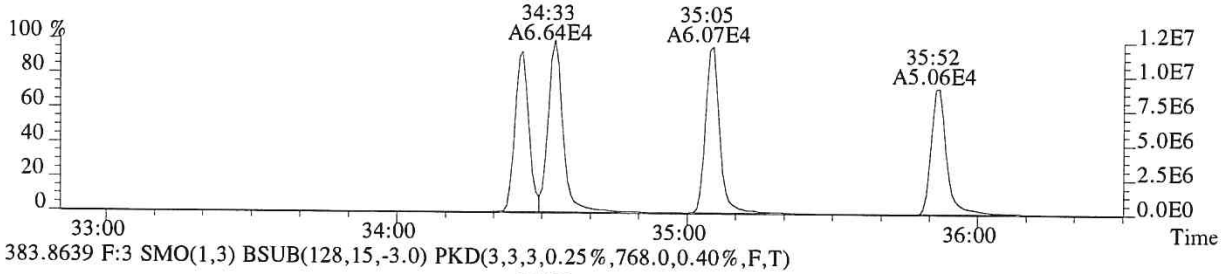
010019

File:P518924 #1-330 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

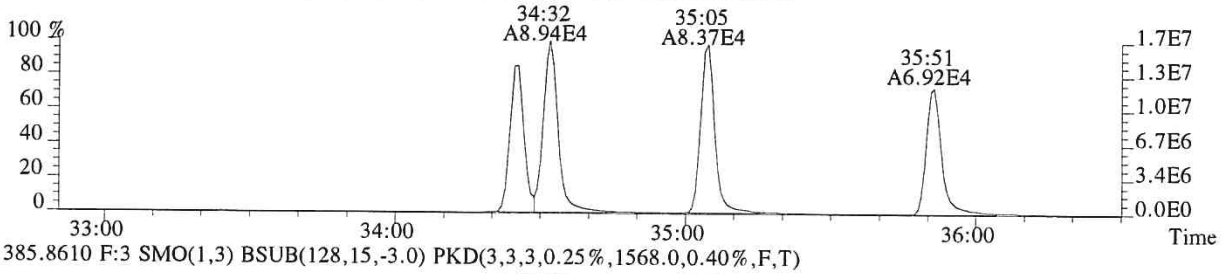
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



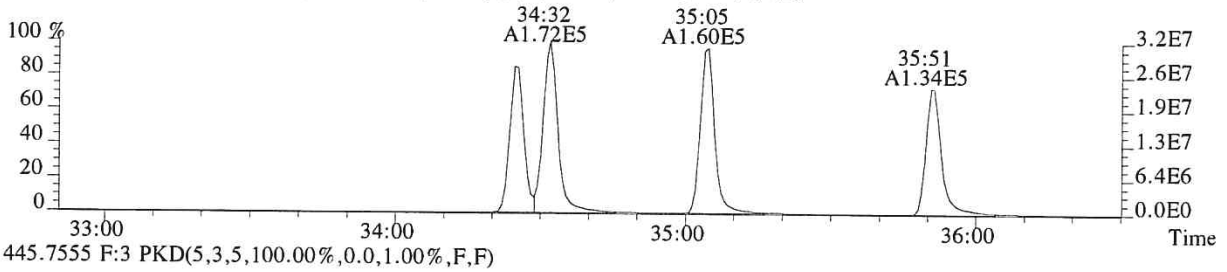
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



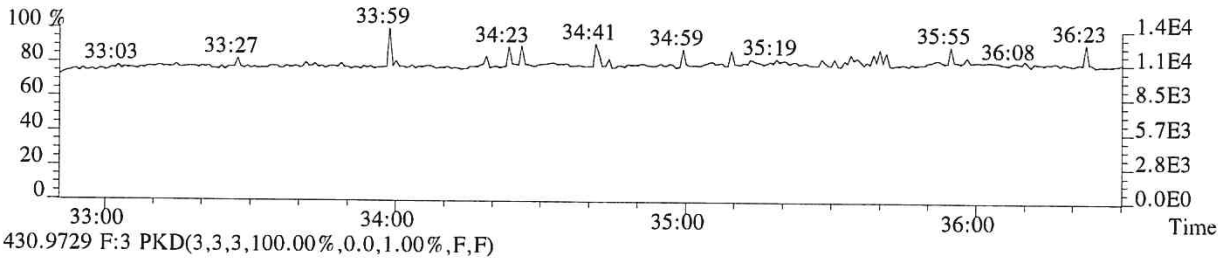
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)



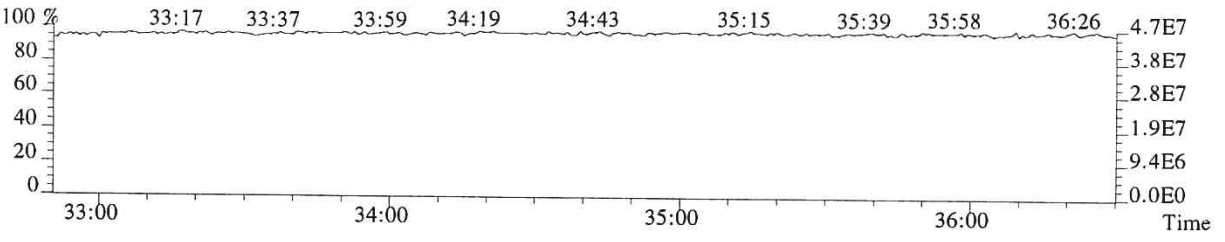
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

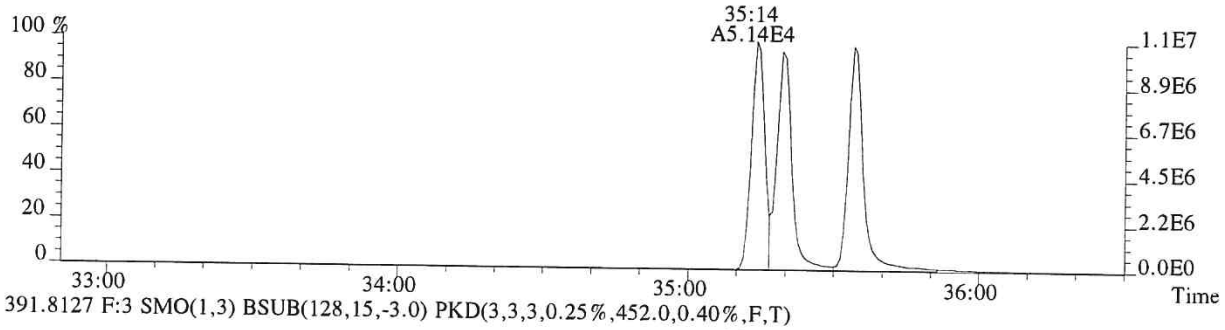


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

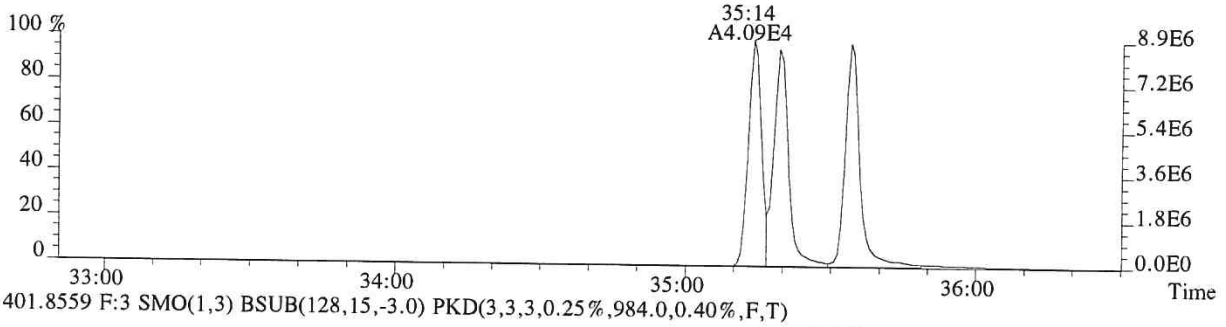


File:P518924 #1-330 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

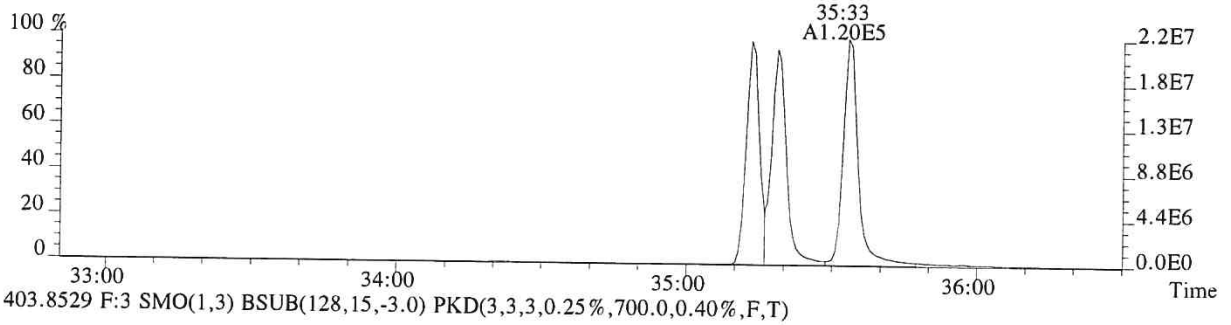
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



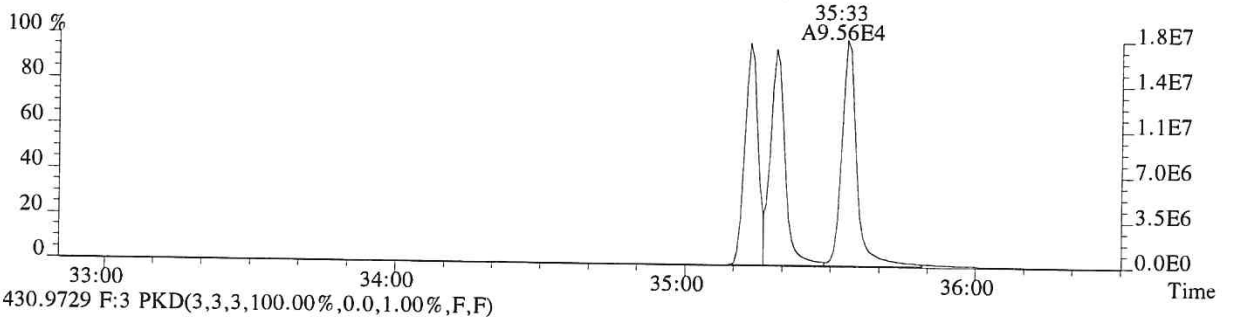
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



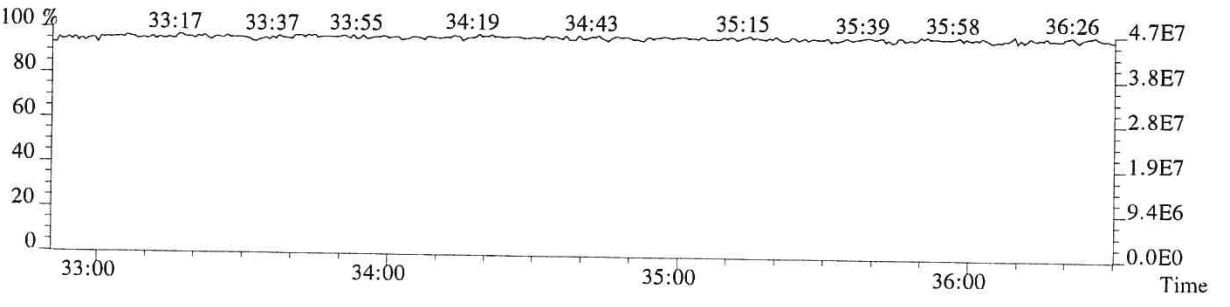
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

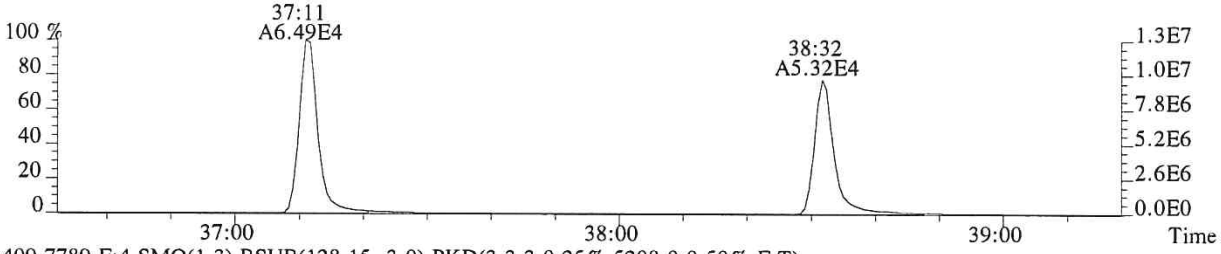


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

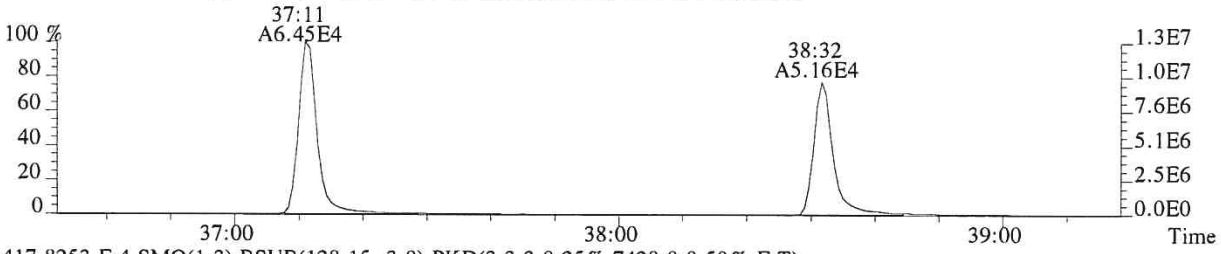


File:P518924 #1-250 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

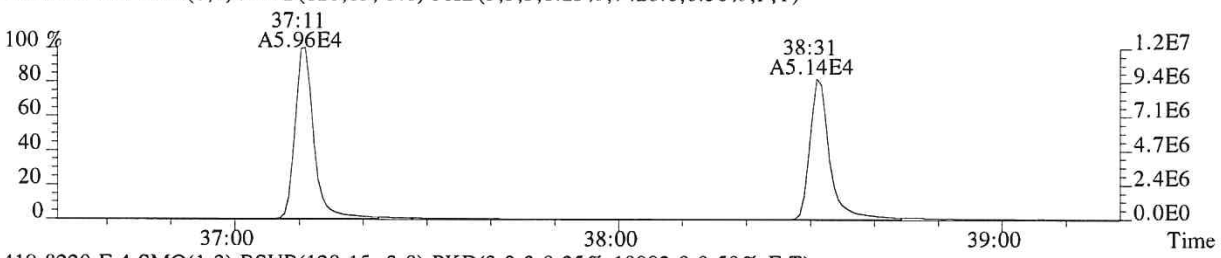
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7756.0,0.50%,F,T)



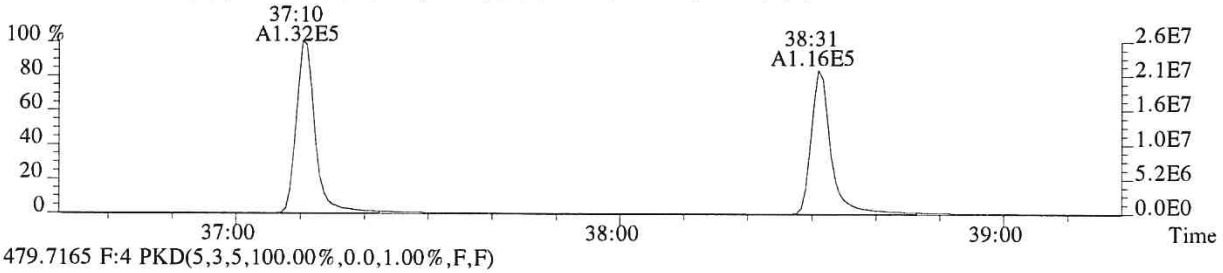
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5208.0,0.50%,F,T)



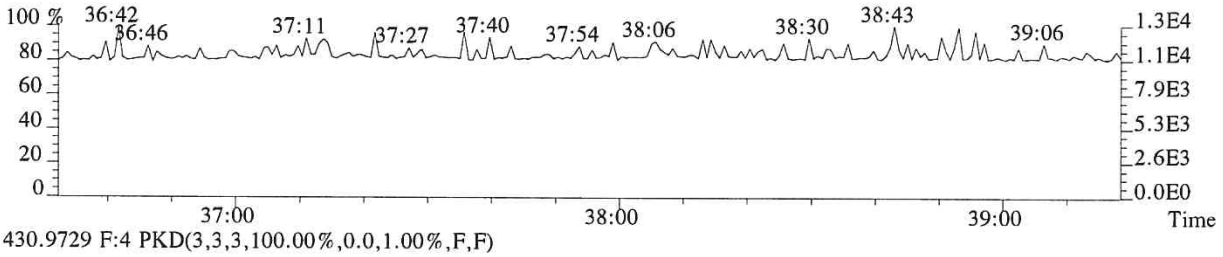
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7428.0,0.50%,F,T)



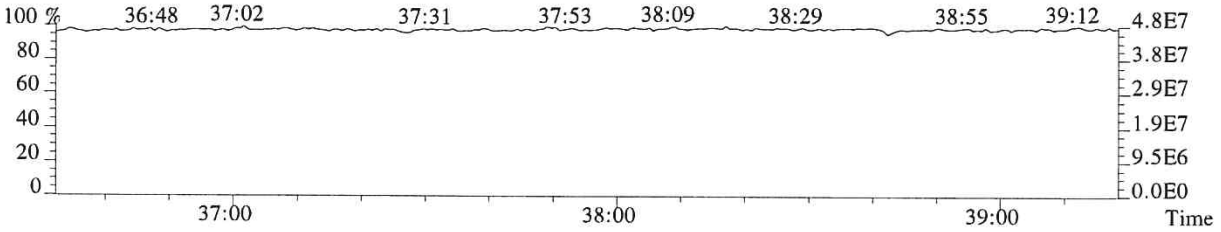
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10992.0,0.50%,F,T)



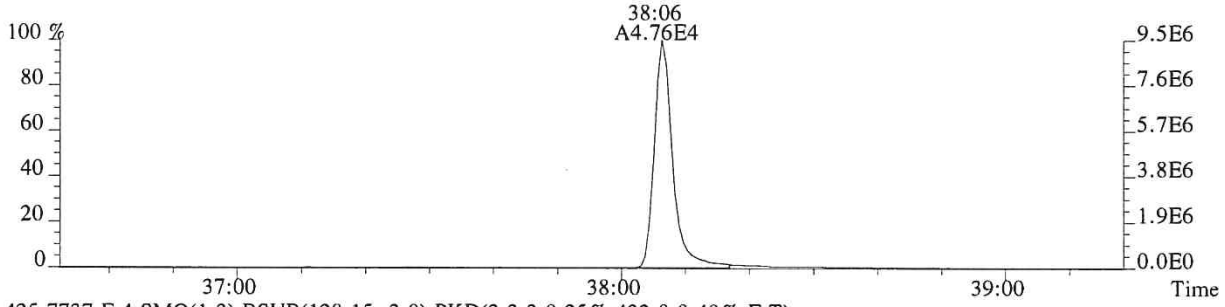
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



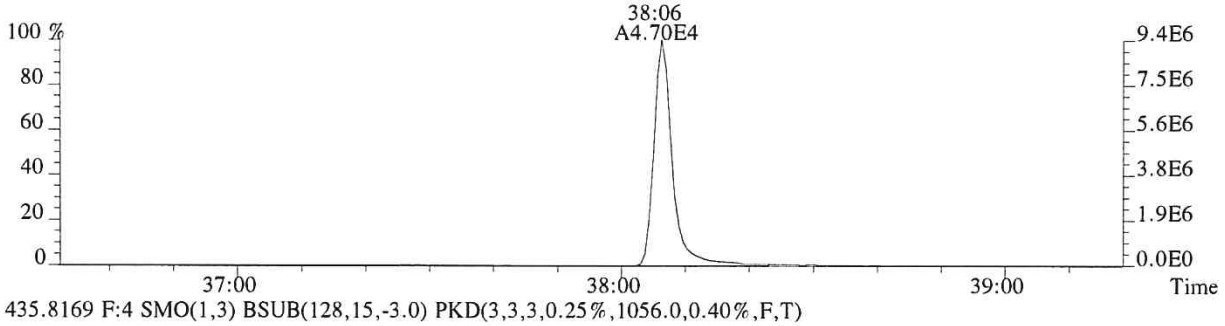
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



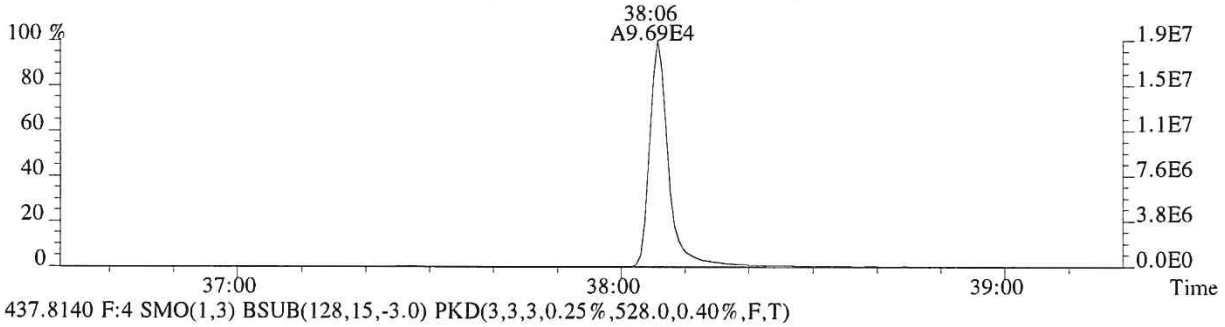
File:P518924 #1-250 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



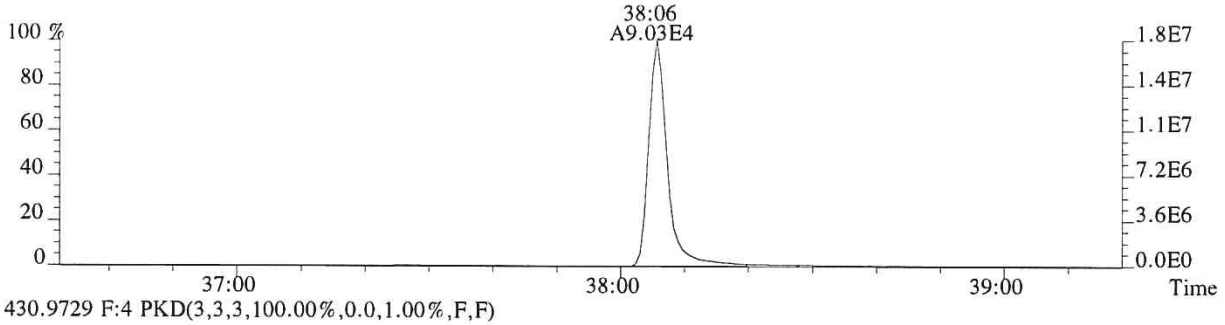
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



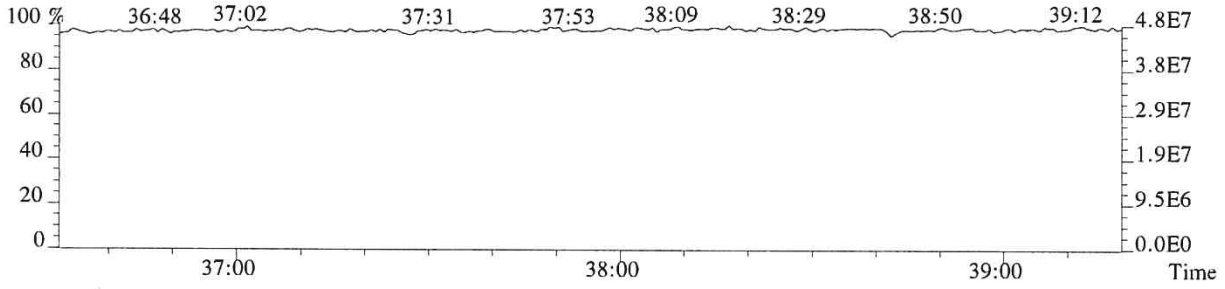
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)

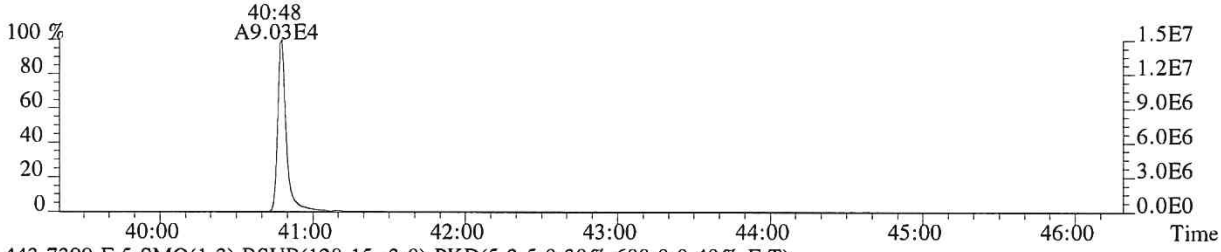


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

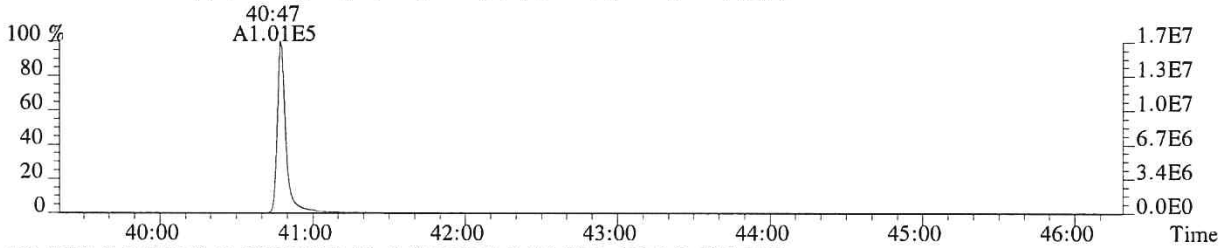


File:P518924 #1-628 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

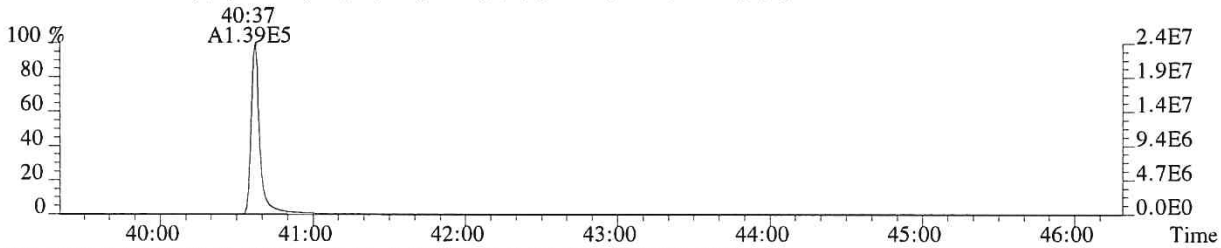
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



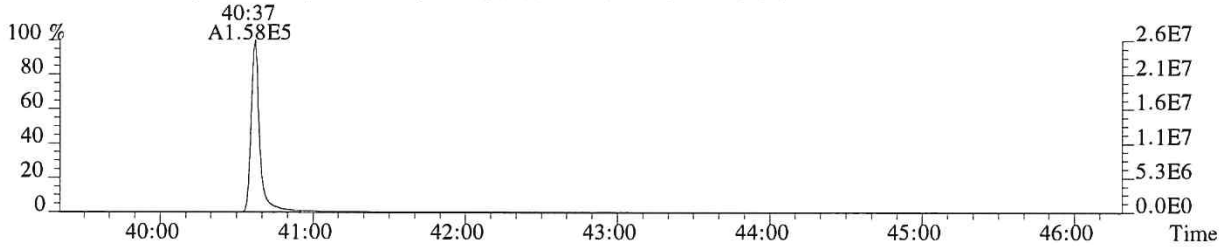
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



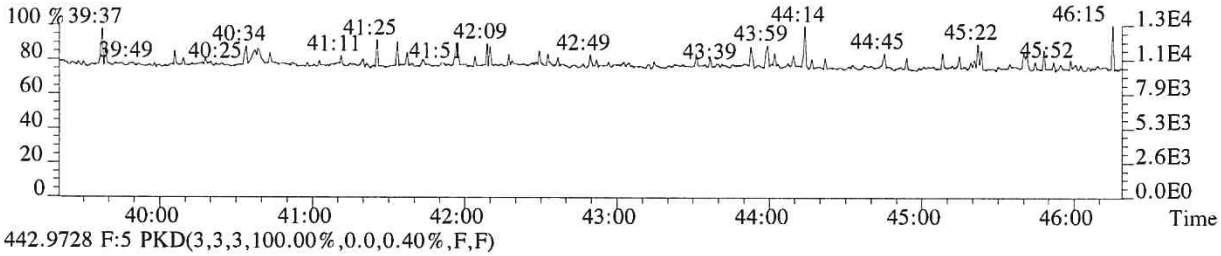
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



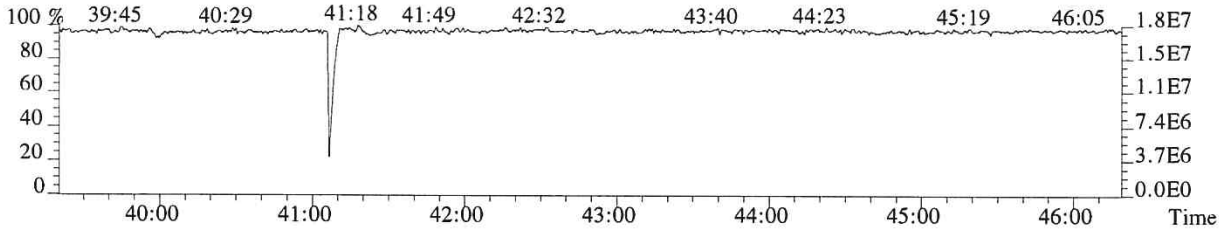
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

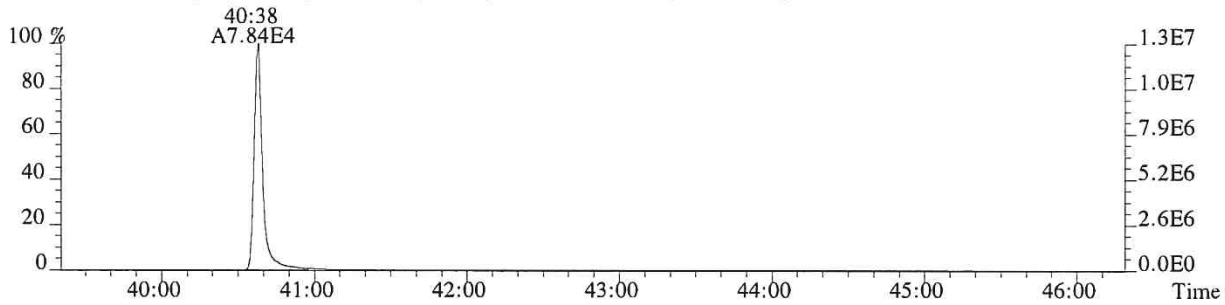


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

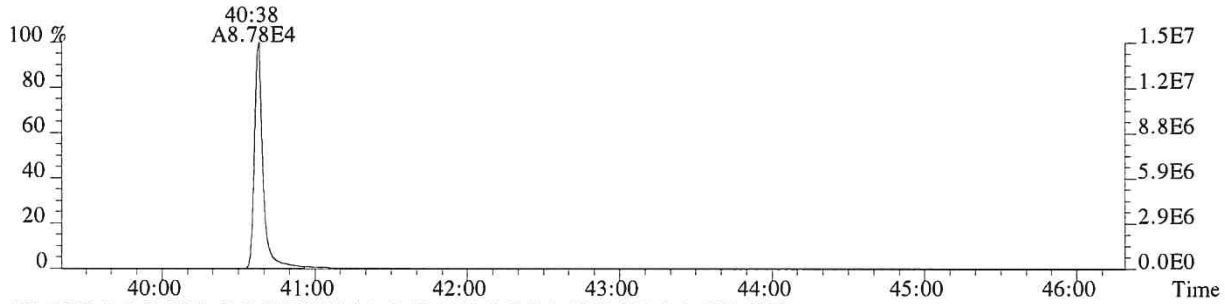


010024

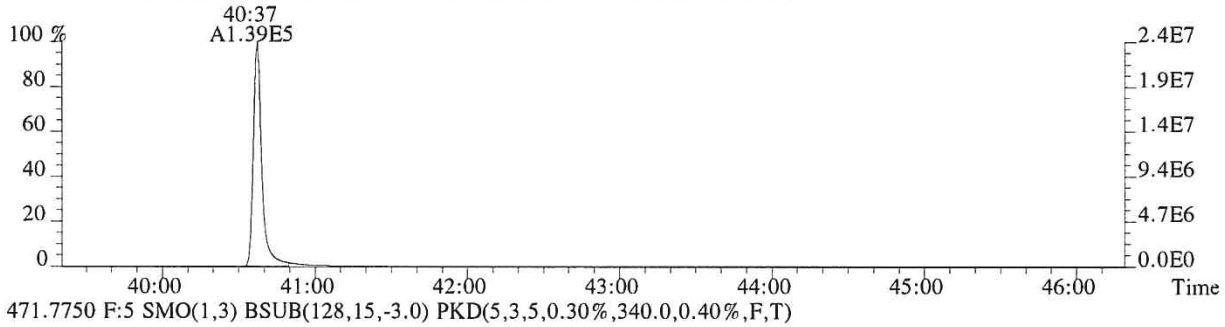
File:P518924 #1-628 Acq:19-NOV-2018 20:31:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



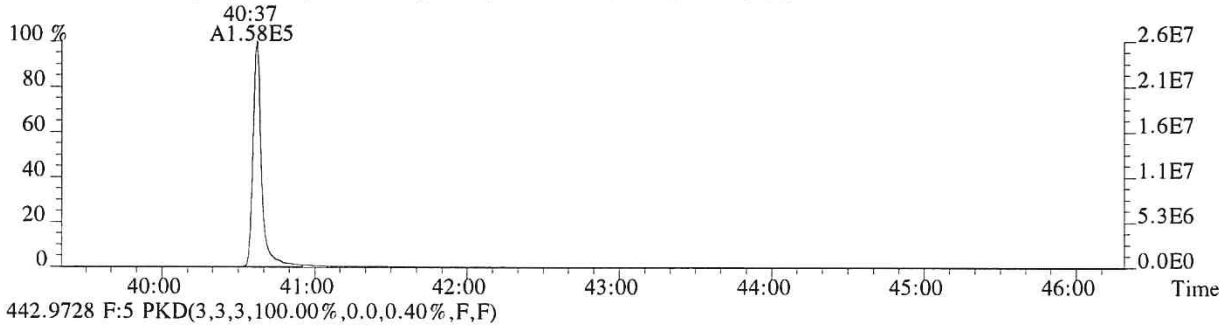
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



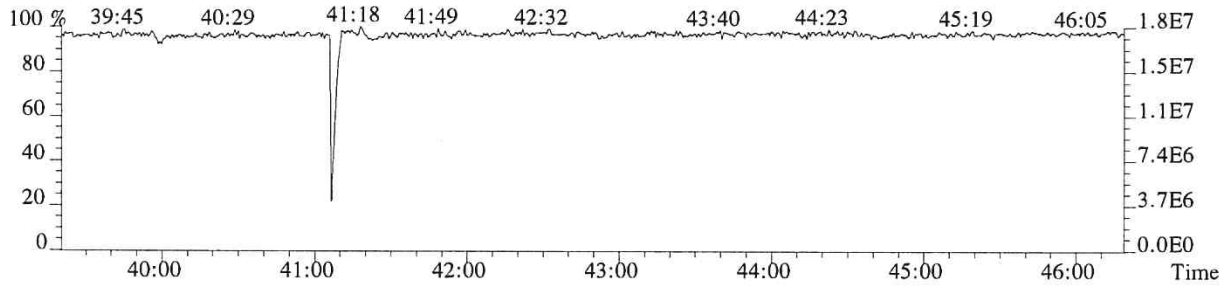
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518937 Analysis Date: 20-NOV-18 Time: 07:28:54

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.0	7.8 - 12.9	-10.0
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	48	39 - 65	-3.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	49	39 - 64	-2.5
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	53	41 - 61	5.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	49	43 - 58	-1.7
OCDD	M+2/M+4	0.89	0.76-1.02	98	79 - 126	-1.8
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.1	8.4 - 12.0	-9.1
1,2,3,7,8-PeCDF	M+2/M+4	1.49	1.32-1.78	49	41 - 60	-3.0
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	48	41 - 61	-3.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	-0.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	49	44 - 57	-1.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	49	45 - 56	-2.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	49	44 - 57	-2.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.4
OCDF	M+2/M+4	0.89	0.76-1.02	93	63 - 159	-7.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518937 Analysis Date: 20-NOV-18 Time: 07:28:54

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	100	82 - 121	0.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	113	62 - 160	12.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	89	85 - 117	-10.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	96	85 - 118	-3.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	100	72 - 138	0.1
13C-OCDD	M+2/M+4	0.90	0.76-1.02	244	96 - 415	22.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	86	71 - 140	-14.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	101	76 - 130	0.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	104	77 - 130	3.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	74	76 - 131	-26.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	84	70 - 143	-15.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	85	74 - 135	-15.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	85	73 - 137	-14.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	90	78 - 129	-10.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	93	77 - 129	-7.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.6	7.8 - 12.7	-4.3

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #8 Filename P518937 Samp: 1 Inj: 1 Acquired: 20-NOV-18 07:28:54
Processed: 20-NOV-18 10:32:47 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:25	3.791e+03	5.056e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:30	3.462e+04	2.326e+04	1.49	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:32	3.331e+04	2.210e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:25	2.816e+04	2.339e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:32	3.399e+04	2.803e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:05	3.005e+04	2.541e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:51	2.668e+04	2.217e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:11	2.807e+04	2.800e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:32	2.313e+04	2.223e+04	1.04	yes	no	1.258
10	Unk	OCDF	40:47	4.034e+04	4.531e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:28	3.189e+03	4.015e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:51	2.463e+04	1.564e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:14	2.193e+04	1.787e+04	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:19	2.464e+04	1.969e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:34	2.588e+04	2.074e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:06	2.127e+04	1.992e+04	1.07	yes	no	1.025
17	Unk	OCDD	40:37	3.508e+04	3.935e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:24	4.567e+04	5.773e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:29	7.227e+04	4.555e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:30	7.321e+04	4.699e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:25	2.944e+04	5.755e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:31	3.837e+04	7.428e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:04	3.501e+04	6.733e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:51	2.972e+04	5.776e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:10	2.557e+04	5.735e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:31	2.244e+04	4.999e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:26	3.236e+04	4.139e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:50	5.368e+04	3.393e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:13	4.420e+04	3.445e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:19	4.879e+04	3.831e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:06	4.221e+04	3.962e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:37	6.424e+04	7.135e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:42	3.527e+04	4.434e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:33	5.344e+04	4.187e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:28	7.724e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary CLIENT ID.
194503

Run #8 Filename P518937 Samp: 1 Inj: 1 Acquired: 20-NOV-18 07:28:54
Processed: 20-NOV-18 10:32:47 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.63e+05	7.16e+02	6.5e+02	6.52e+05	1.74e+03	3.7e+02
2	1,2,3,7,8-PeCDF	5.29e+06	5.16e+02	1.0e+04	3.40e+06	1.37e+03	2.5e+03
3	2,3,4,7,8-PeCDF	5.49e+06	5.16e+02	1.1e+04	3.66e+06	1.37e+03	2.7e+03
4	1,2,3,4,7,8-HxCDF	5.81e+06	1.25e+03	4.6e+03	4.81e+06	5.40e+02	8.9e+03
5	1,2,3,6,7,8-HxCDF	5.95e+06	1.25e+03	4.8e+03	5.00e+06	5.40e+02	9.3e+03
6	2,3,4,6,7,8-HxCDF	5.84e+06	1.25e+03	4.7e+03	4.86e+06	5.40e+02	9.0e+03
7	1,2,3,7,8,9-HxCDF	4.63e+06	1.25e+03	3.7e+03	3.83e+06	5.40e+02	7.1e+03
8	1,2,3,4,6,7,8-HpCDF	5.61e+06	3.68e+03	1.5e+03	5.56e+06	6.00e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.21e+06	3.68e+03	1.1e+03	4.09e+06	6.00e+03	6.8e+02
10	OCDF	6.67e+06	2.28e+02	2.9e+04	7.33e+06	9.12e+02	8.0e+03
11	2,3,7,8-TCDD	4.30e+05	2.57e+03	1.7e+02	5.33e+05	1.05e+03	5.1e+02
12	1,2,3,7,8-PeCDD	4.04e+06	8.40e+02	4.8e+03	2.53e+06	3.36e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	4.65e+06	6.36e+02	7.3e+03	3.75e+06	9.72e+02	3.9e+03
14	1,2,3,6,7,8-HxCDD	4.63e+06	6.36e+02	7.3e+03	3.73e+06	9.72e+02	3.8e+03
15	1,2,3,7,8,9-HxCDD	4.63e+06	6.36e+02	7.3e+03	3.67e+06	9.72e+02	3.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.04e+06	3.16e+02	1.3e+04	3.79e+06	7.60e+02	5.0e+03
17	OCDD	5.87e+06	2.12e+02	2.8e+04	6.59e+06	4.92e+02	1.3e+04
18	13C-2,3,7,8-TCDF	5.62e+06	1.15e+04	4.9e+02	7.12e+06	8.57e+03	8.3e+02
19	13C-1,2,3,7,8-PeCDF	1.09e+07	8.80e+02	1.2e+04	6.87e+06	7.88e+02	8.7e+03
20	13C-2,3,4,7,8-PeCDF	1.18e+07	8.80e+02	1.3e+04	7.68e+06	7.88e+02	9.8e+03
21	13C-1,2,3,4,7,8-HxCDF	6.01e+06	1.46e+03	4.1e+03	1.17e+07	1.73e+03	6.8e+03
22	13C-1,2,3,6,7,8-HxCDF	6.89e+06	1.46e+03	4.7e+03	1.34e+07	1.73e+03	7.7e+03
23	13C-2,3,4,6,7,8-HxCDF	6.75e+06	1.46e+03	4.6e+03	1.29e+07	1.73e+03	7.5e+03
24	13C-1,2,3,7,8,9-HxCDF	5.24e+06	1.46e+03	3.6e+03	1.01e+07	1.73e+03	5.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.01e+06	2.78e+03	1.8e+03	1.13e+07	7.22e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.04e+06	2.78e+03	1.5e+03	9.10e+06	7.22e+03	1.3e+03
27	13C-2,3,7,8-TCDD	4.40e+06	6.95e+03	6.3e+02	5.56e+06	2.68e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	8.65e+06	1.49e+03	5.8e+03	5.45e+06	1.40e+03	3.9e+03
29	13C-1,2,3,4,7,8-HxCDD	9.23e+06	1.28e+03	7.2e+03	7.18e+06	9.60e+02	7.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.02e+06	1.28e+03	7.1e+03	7.13e+06	9.60e+02	7.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.08e+06	8.40e+02	9.6e+03	7.53e+06	7.32e+02	1.0e+04
32	13C-OCDD	1.05e+07	7.92e+02	1.3e+04	1.17e+07	5.28e+02	2.2e+04
33	13C-1,2,3,4-TCDD	4.90e+06	6.95e+03	7.0e+02	6.15e+06	2.68e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	9.38e+06	1.28e+03	7.3e+03	7.41e+06	9.60e+02	7.7e+03
35	37Cl-2,3,7,8-TCDD	1.05e+06	1.83e+03	5.7e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.572e{+}03 + 1.048e{+}03) \times 100}{(4.398e{+}06 + 5.556e{+}06) \times (\quad) \times 1.085} =$$

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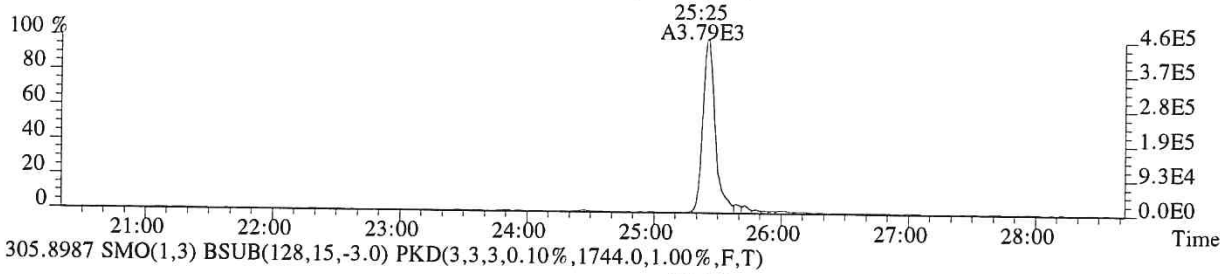
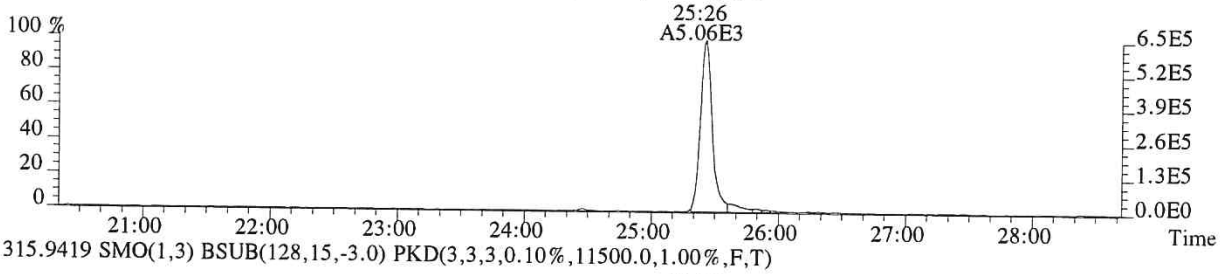
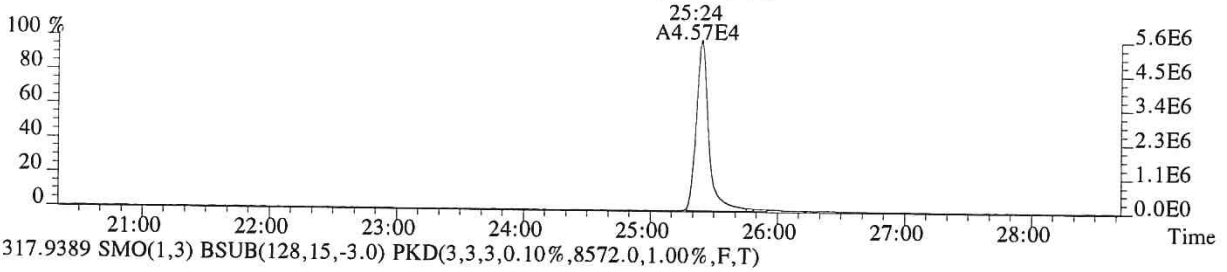
File:P518937 #1-594 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



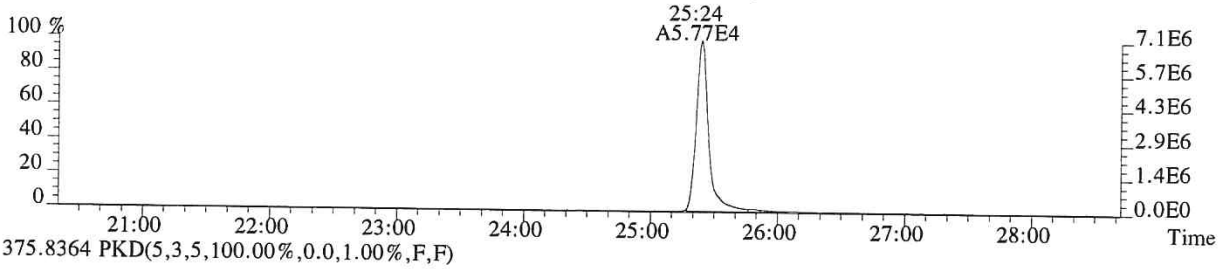
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



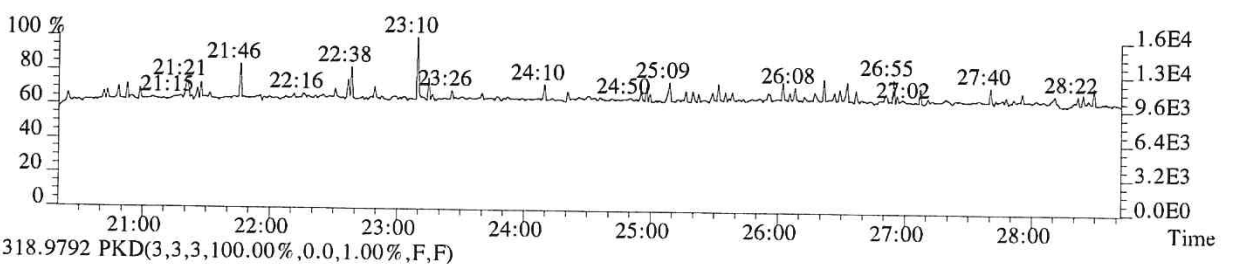
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11500.0,1.00%,F,T)



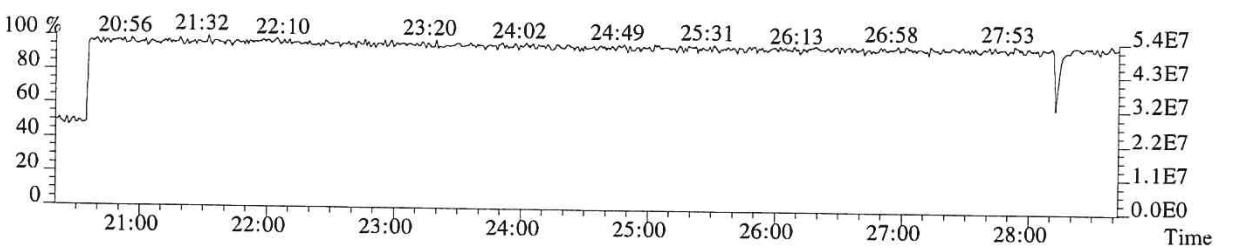
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8572.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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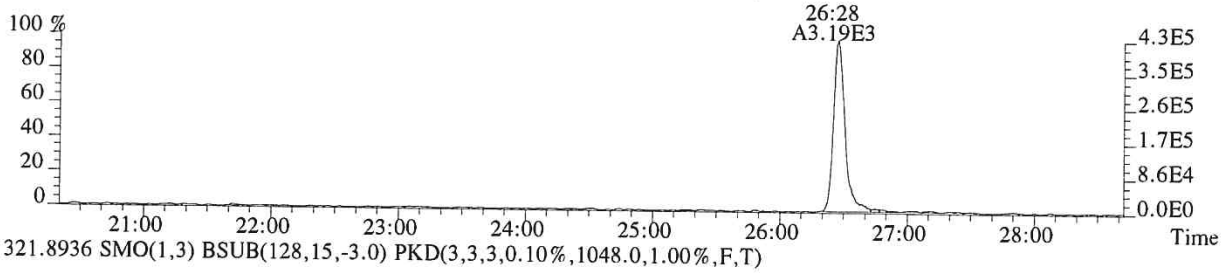
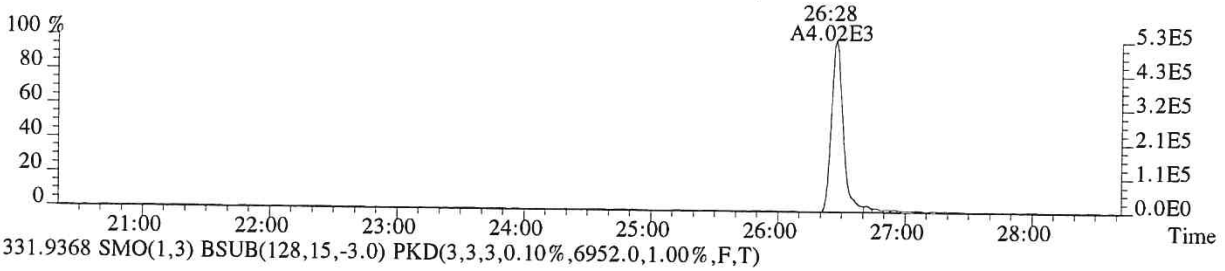
File:P518937 #1-594 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

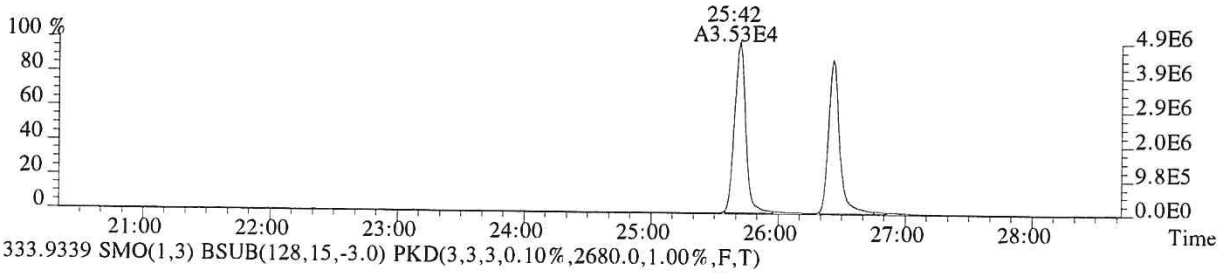
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2572.0,1.00%,F,T)



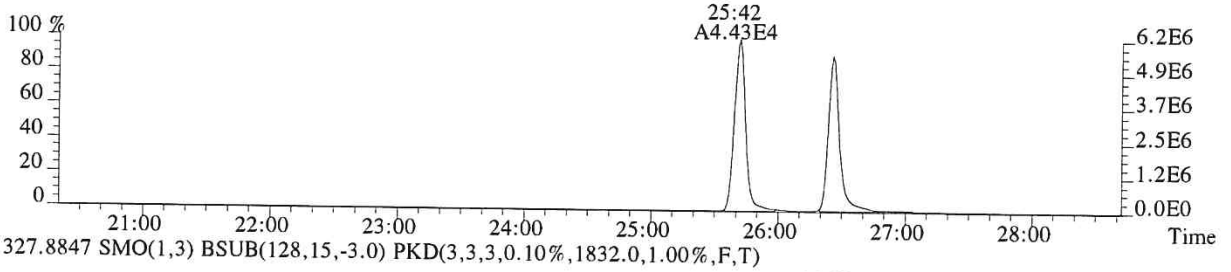
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



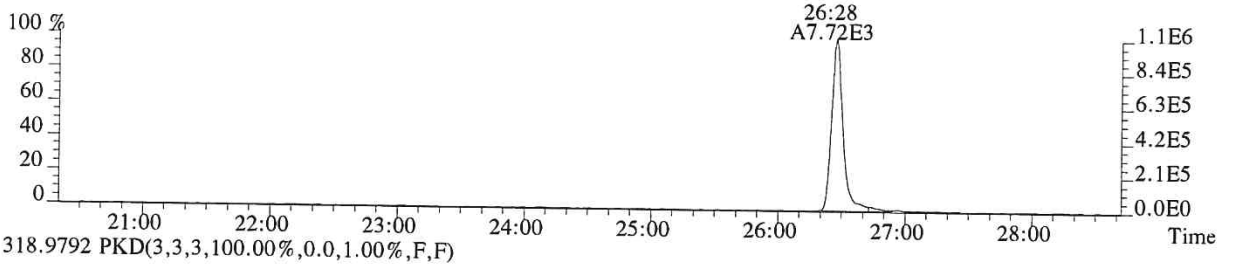
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6952.0,1.00%,F,T)



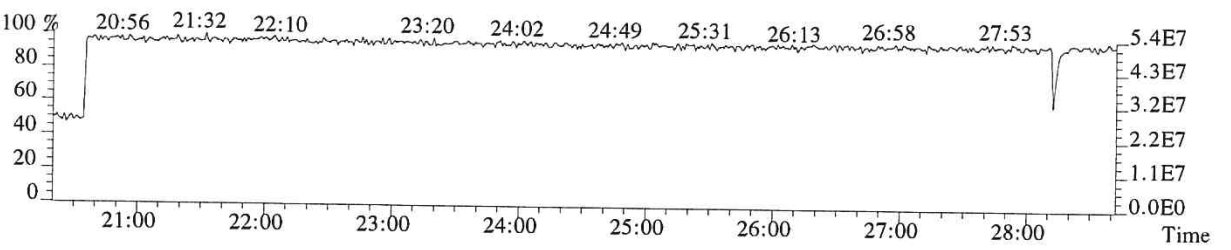
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2680.0,1.00%,F,T)



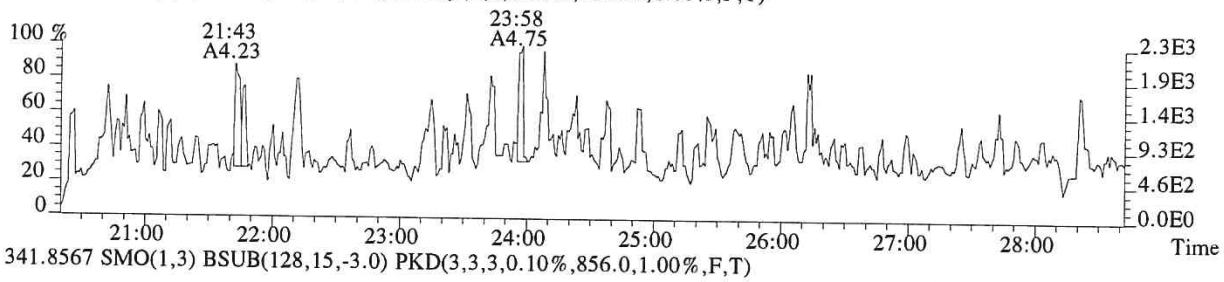
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



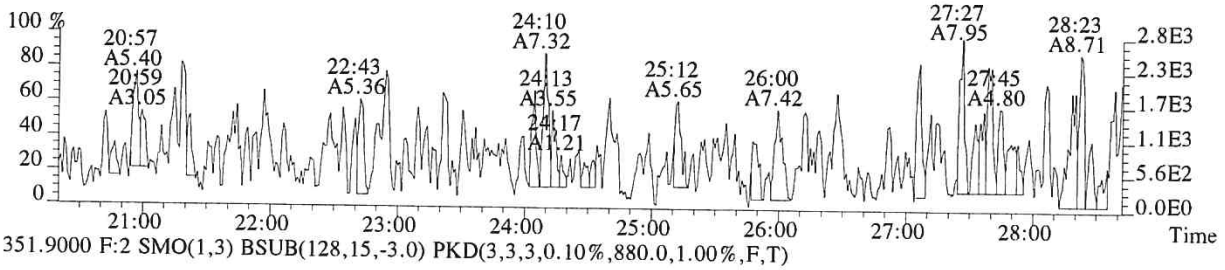
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



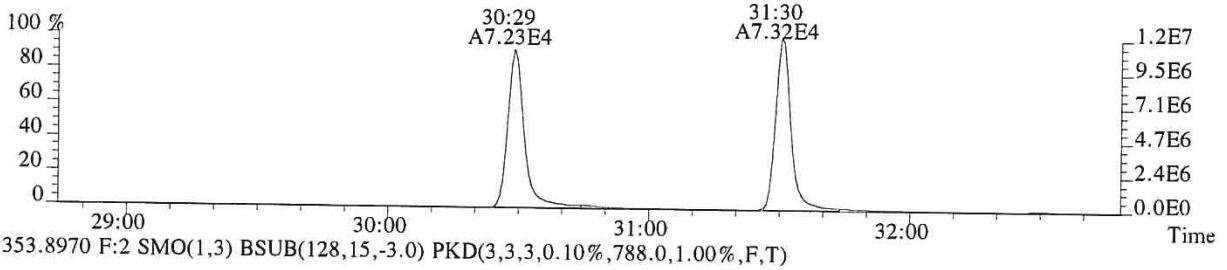
File:P518937 #1-594 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



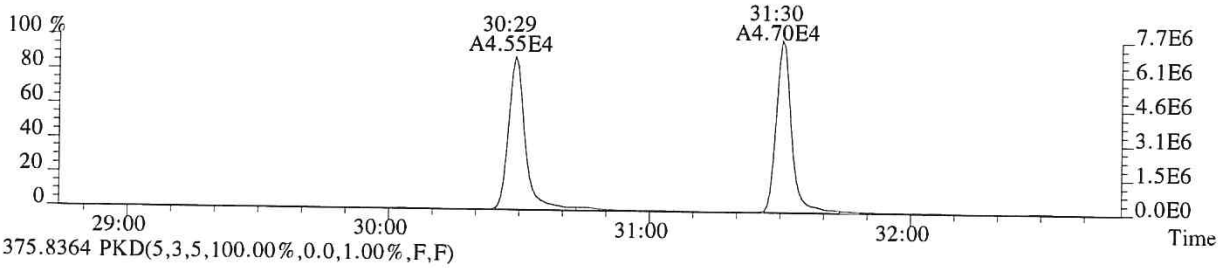
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



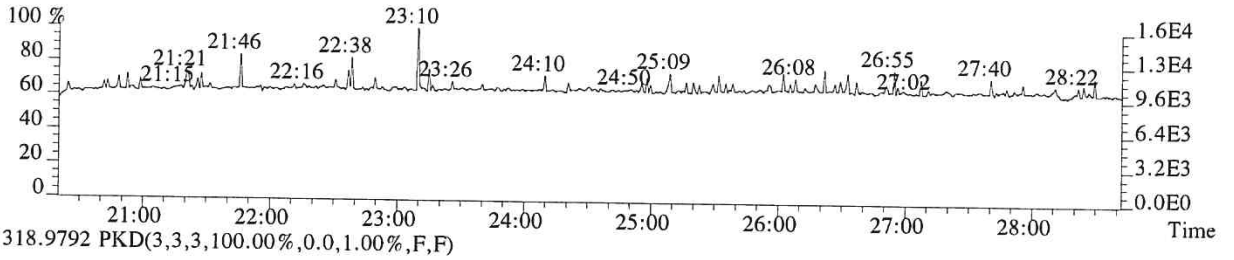
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



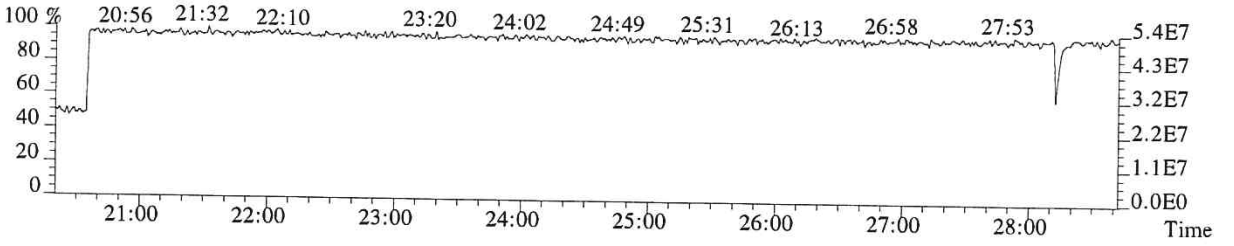
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



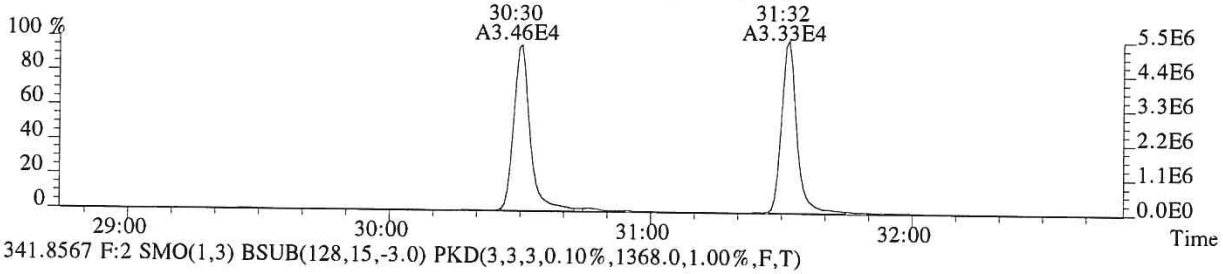
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



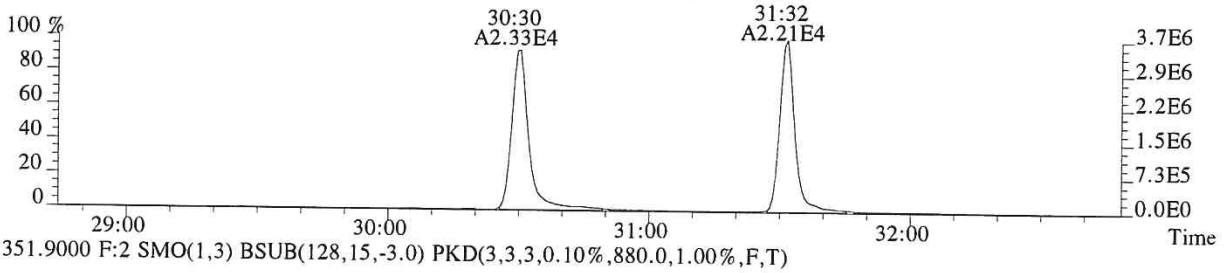
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



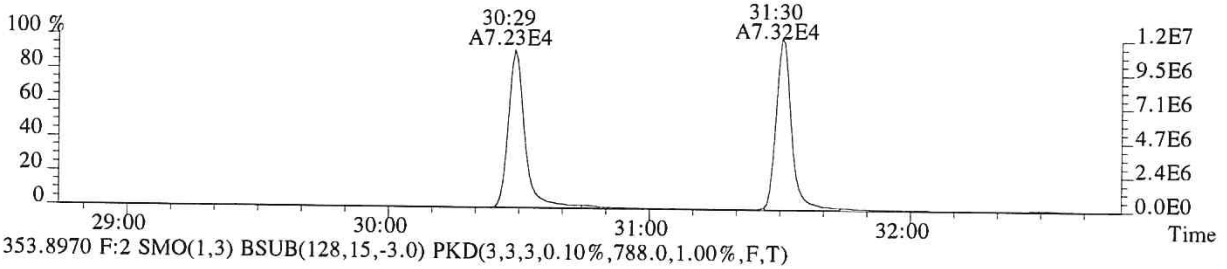
File:P518937 #1-367 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



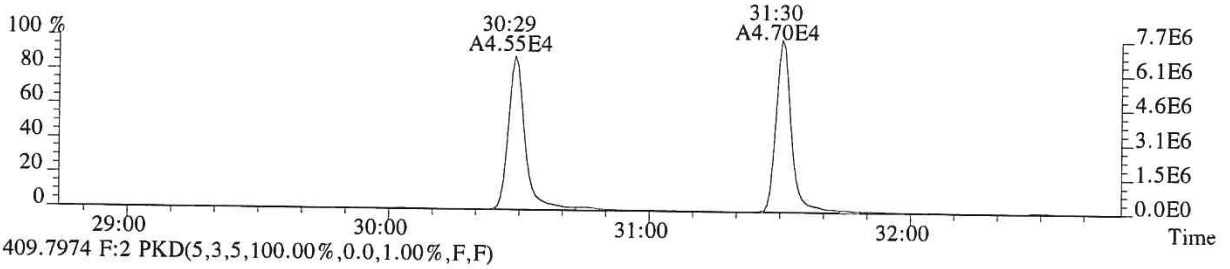
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



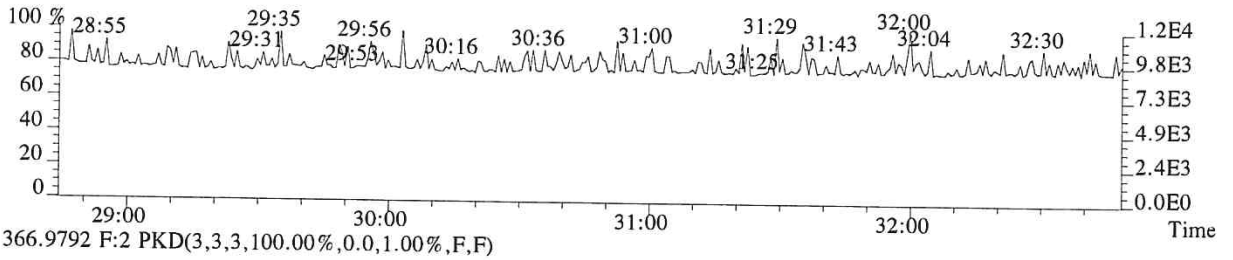
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



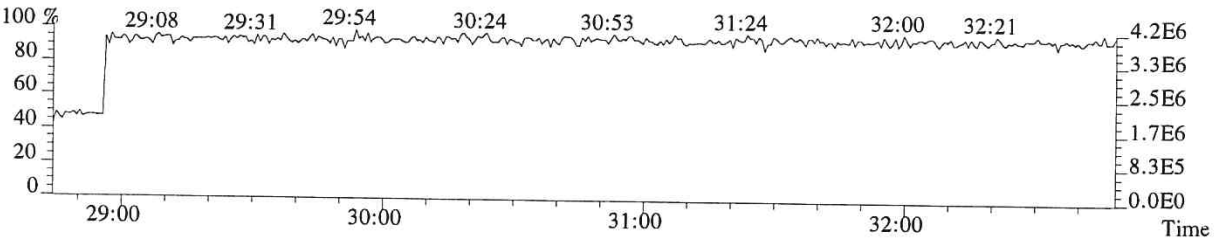
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



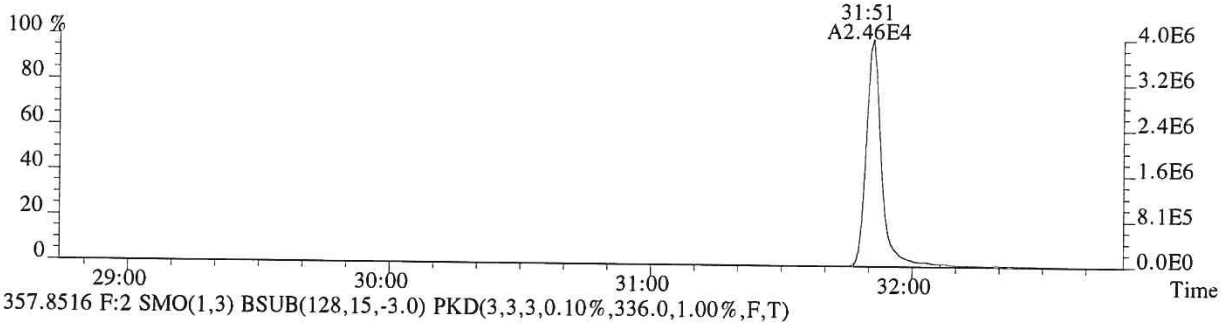
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



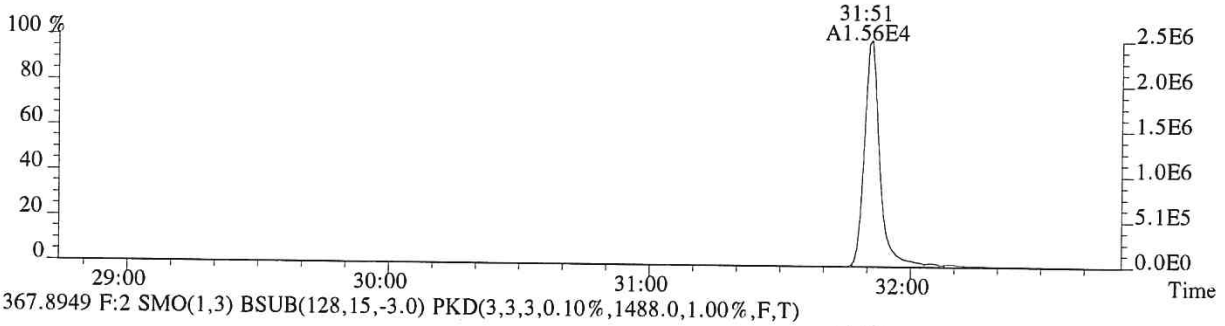
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



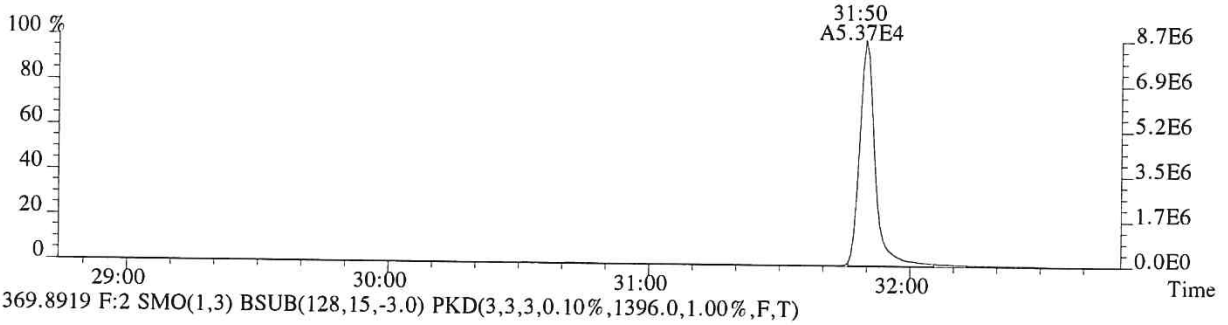
File:P518937 #1-367 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



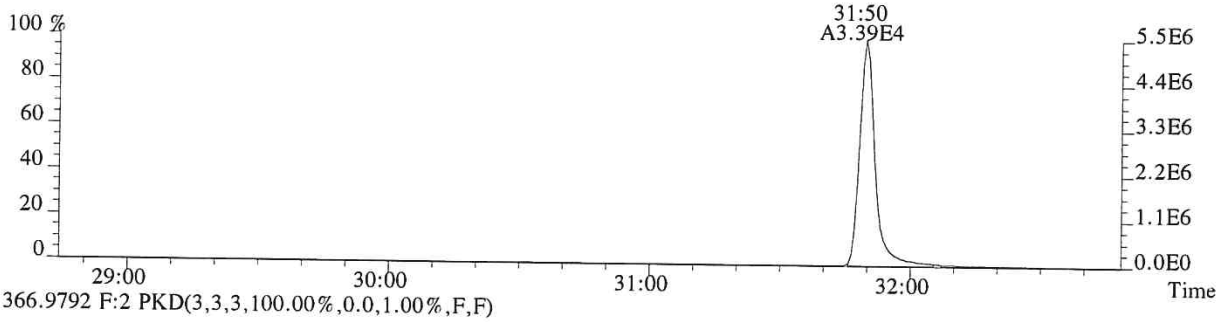
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



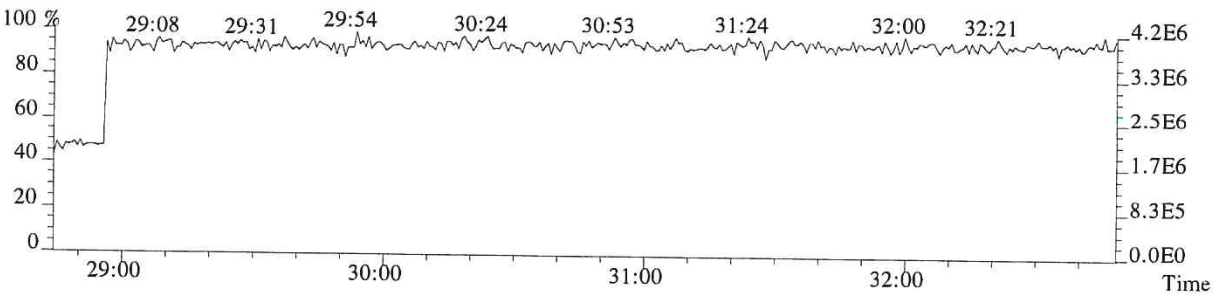
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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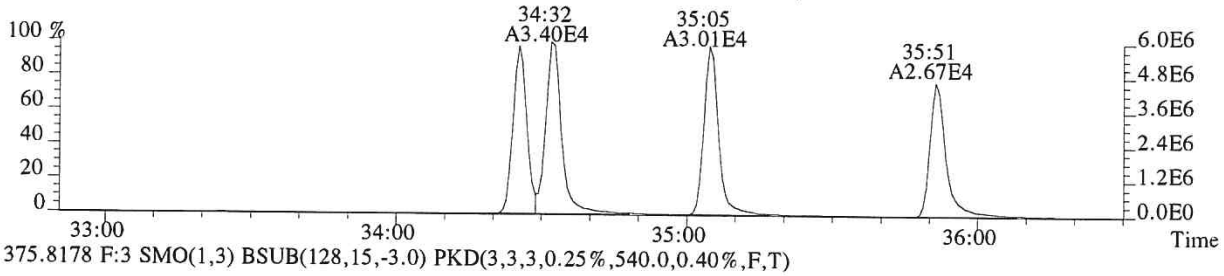
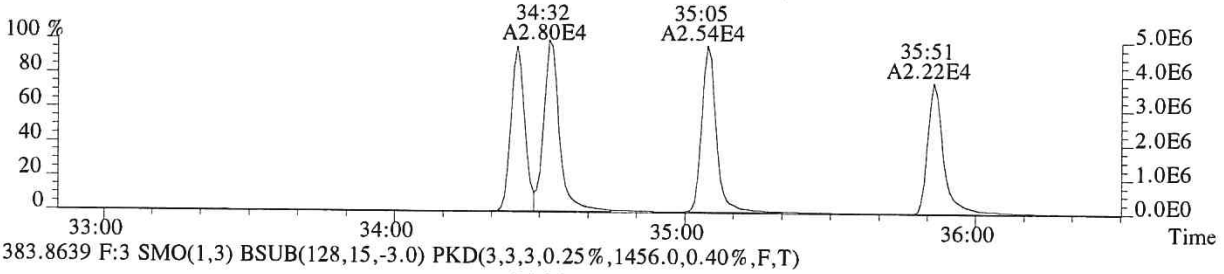
File:P518937 #1-330 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

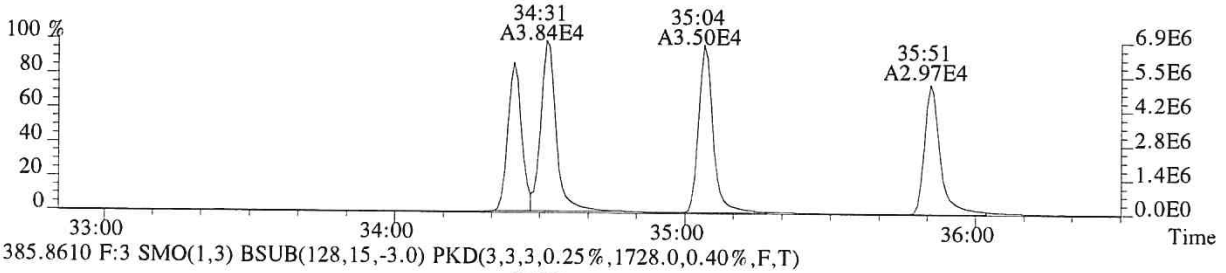
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



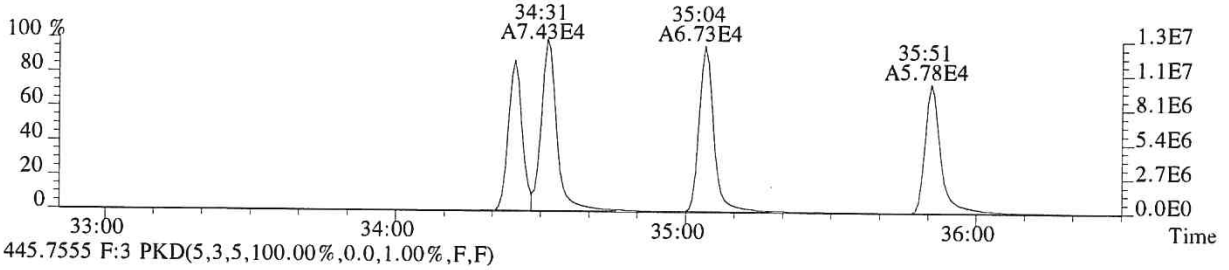
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



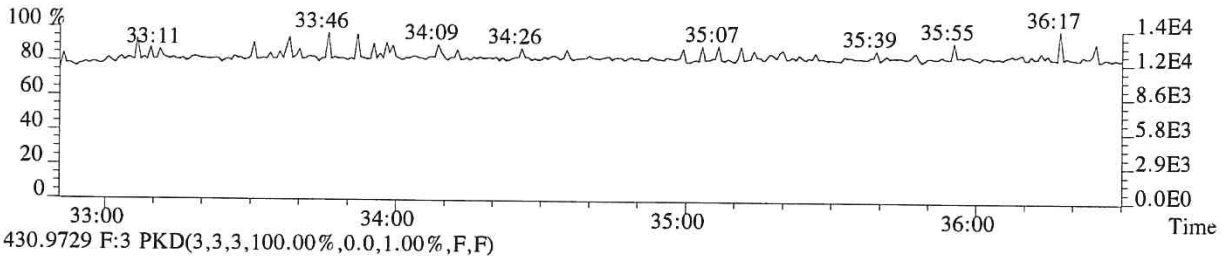
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)



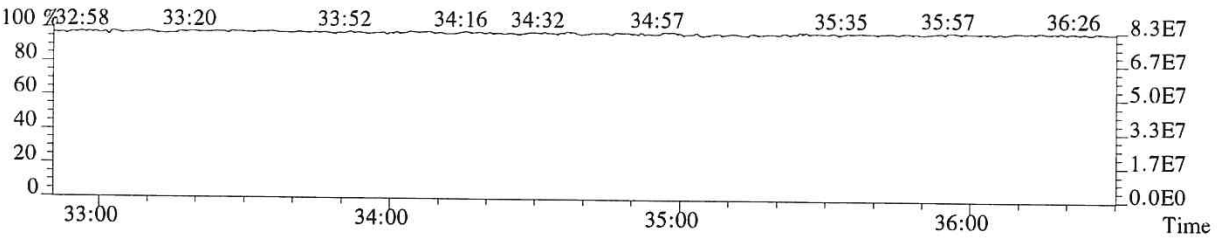
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1728.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

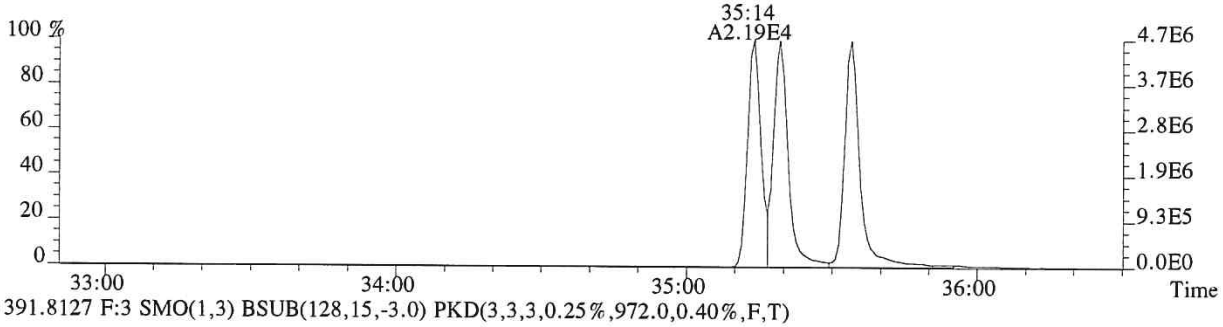


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

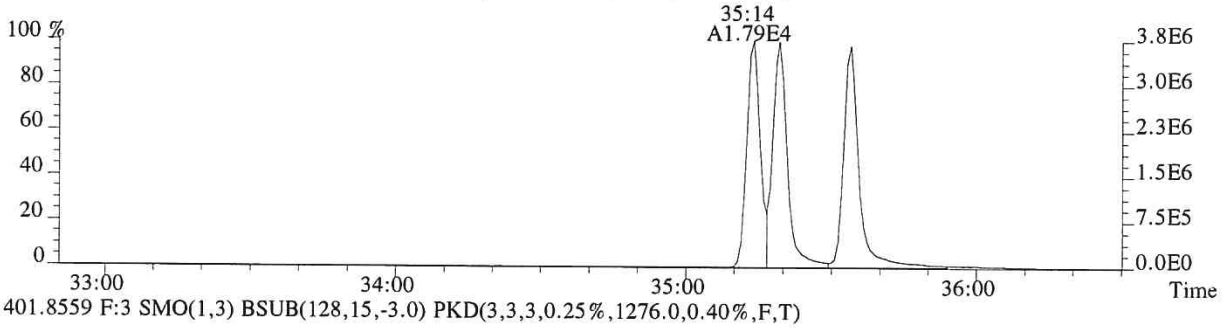


010035

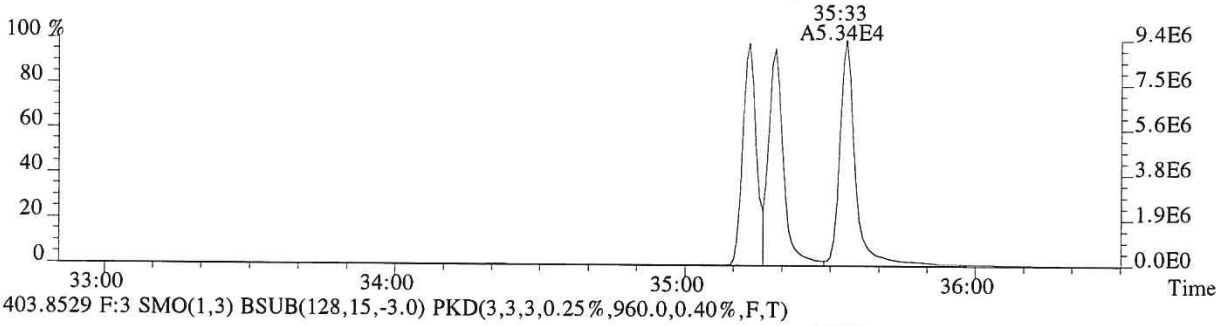
File:P518937 #1-330 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



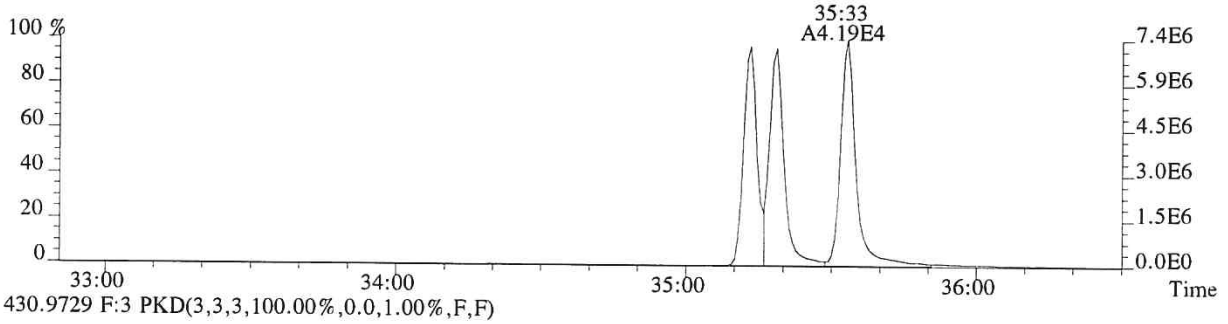
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



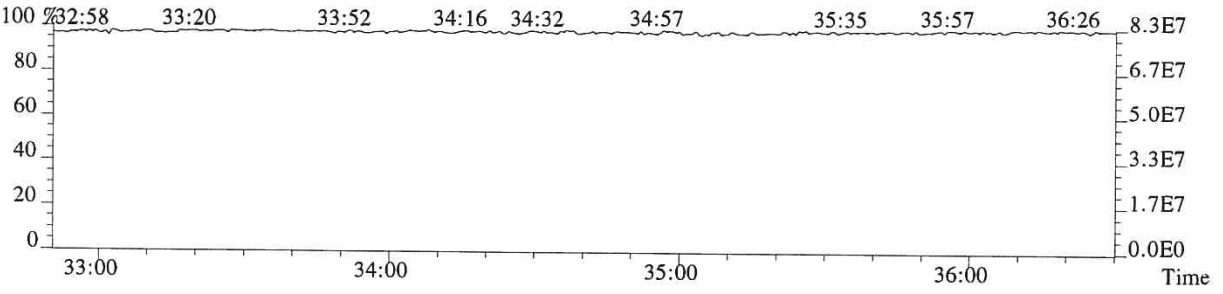
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1276.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)

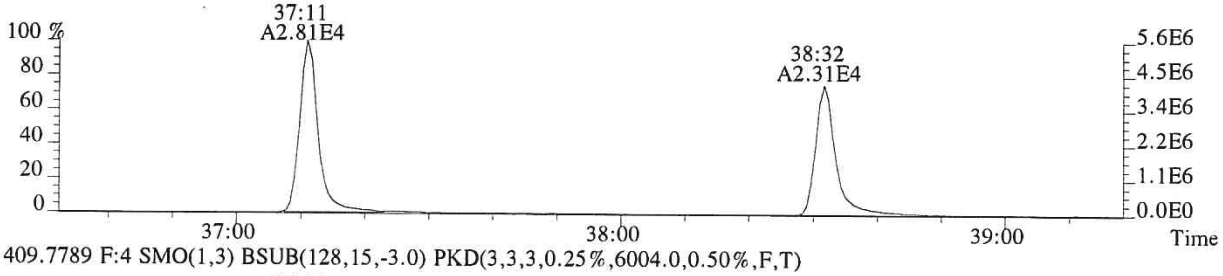


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

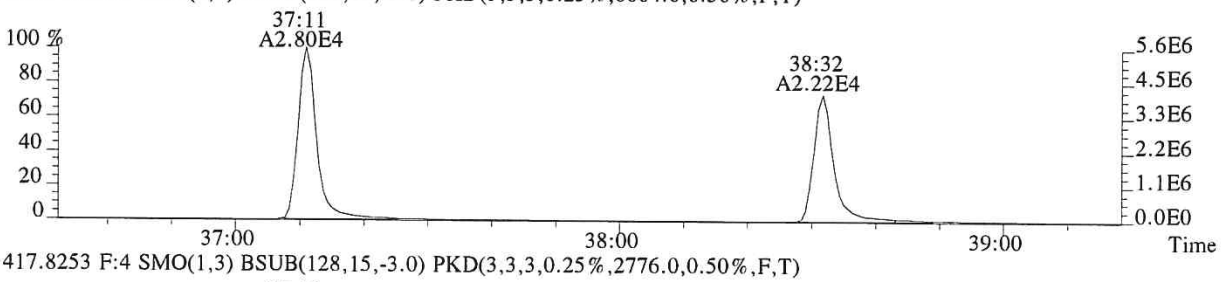


File:P518937 #1-250 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

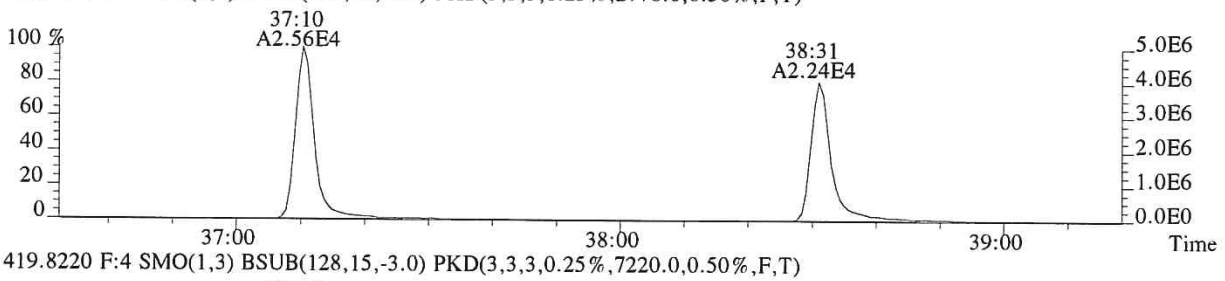
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3684.0,0.50%,F,T)



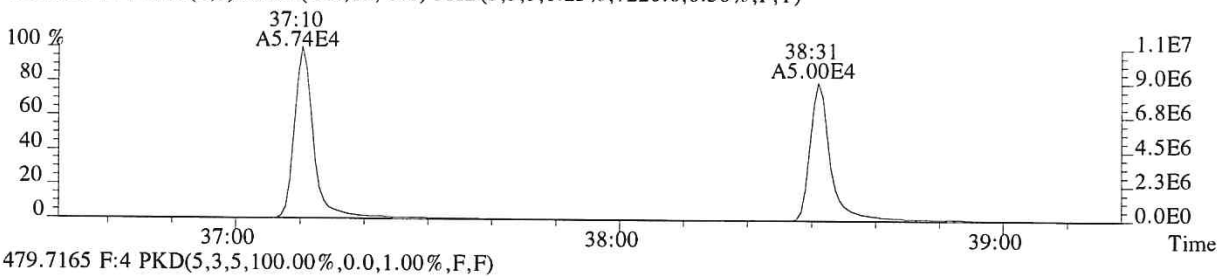
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6004.0,0.50%,F,T)



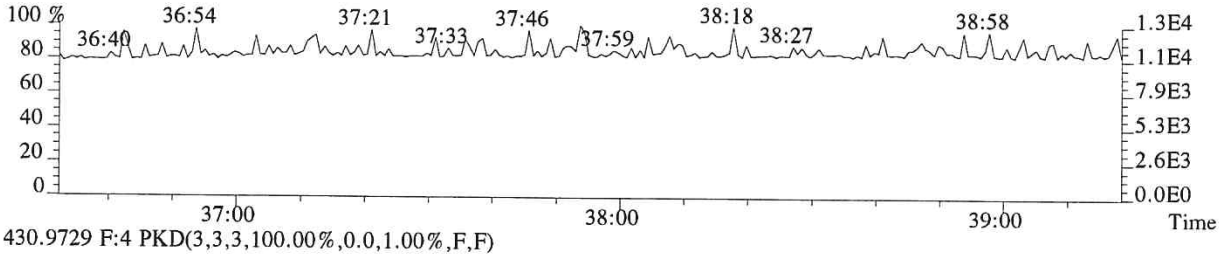
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2776.0,0.50%,F,T)



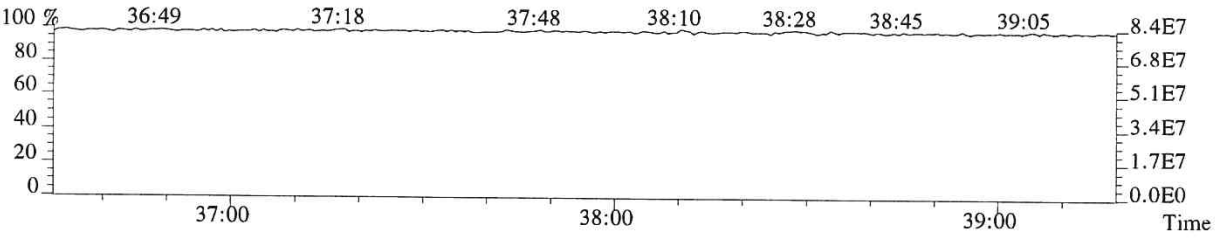
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7220.0,0.50%,F,T)



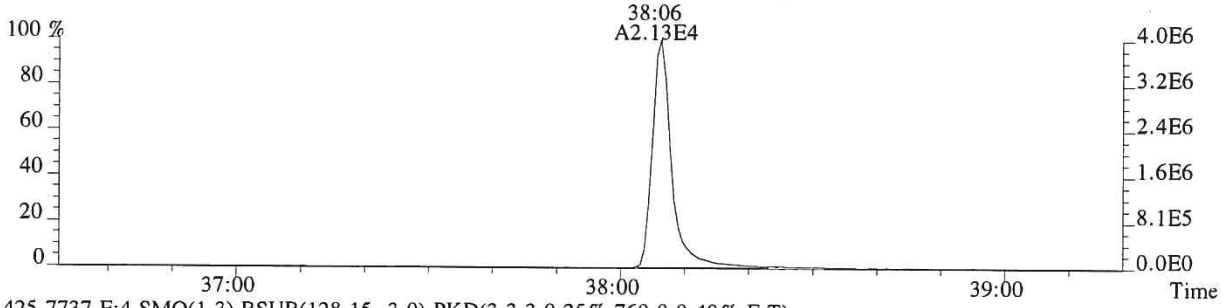
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



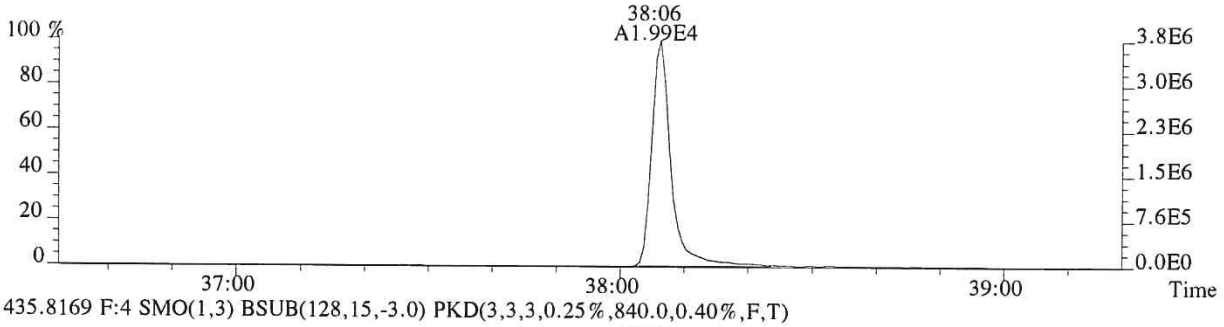
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



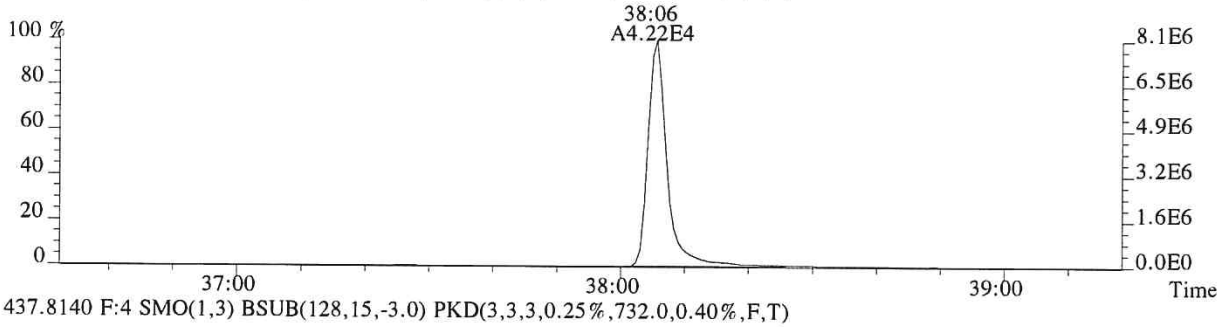
File:P518937 #1-250 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



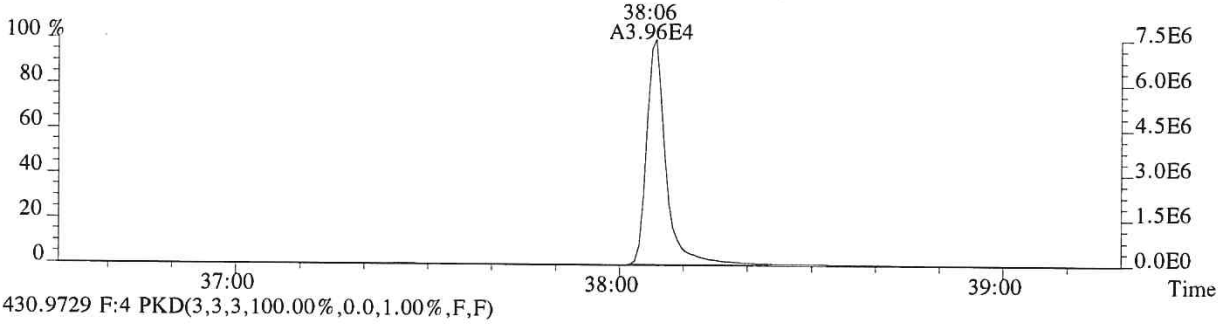
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



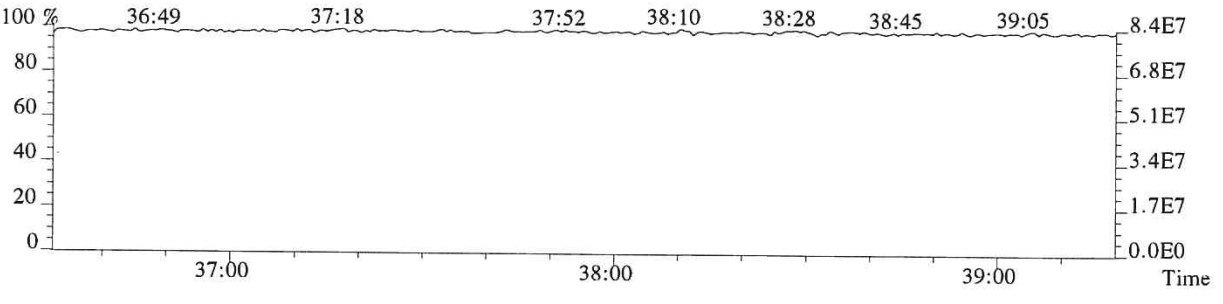
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)

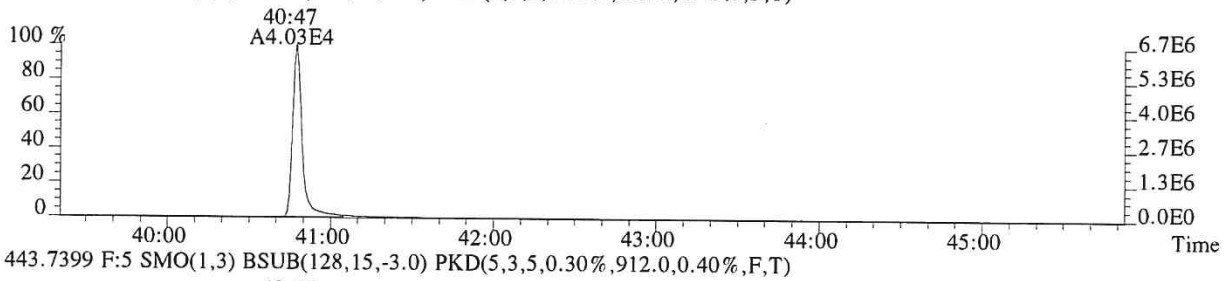


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

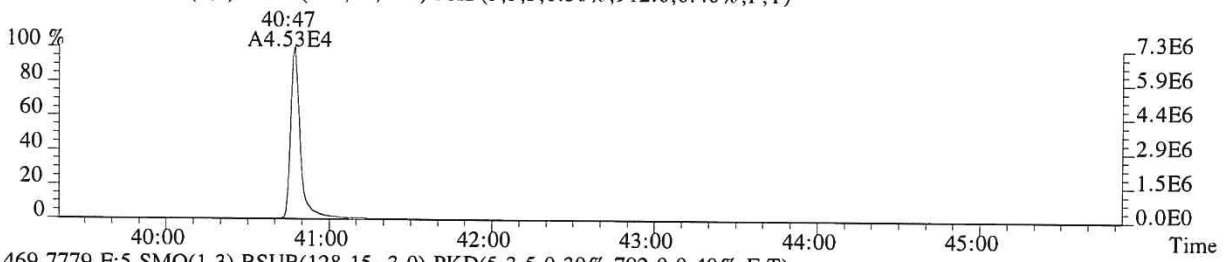


File:P518937 #1-588 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

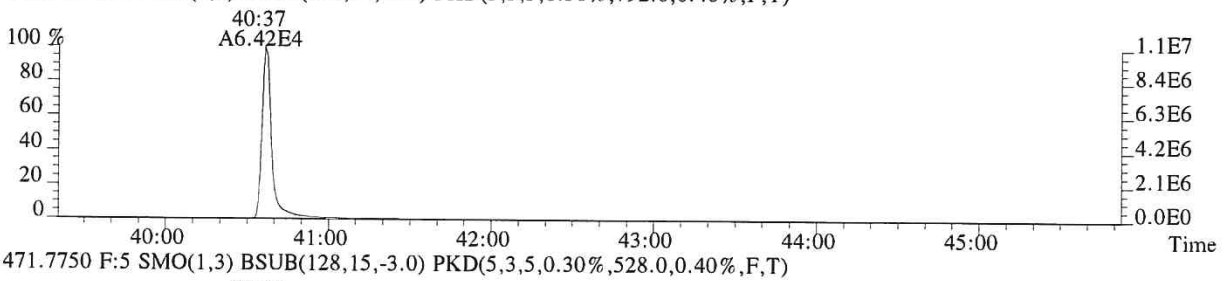
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



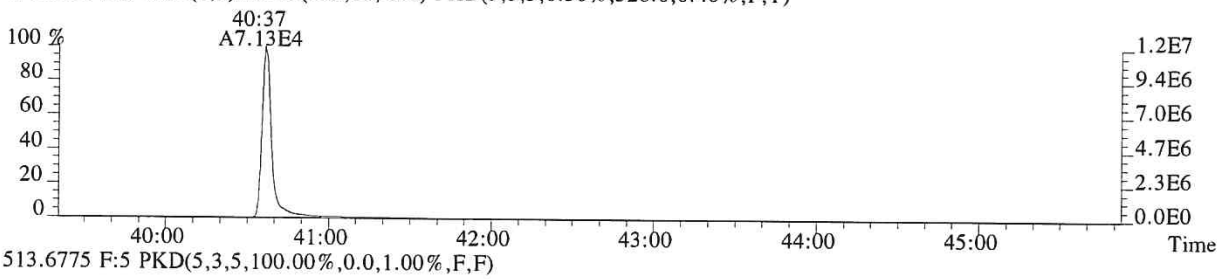
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



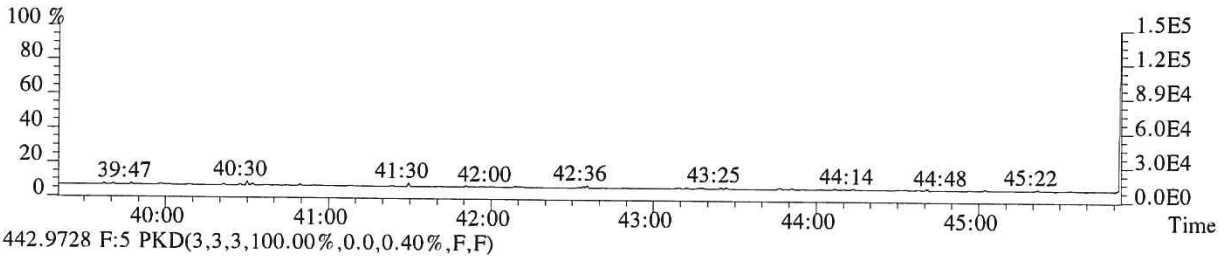
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,792.0,0.40%,F,T)



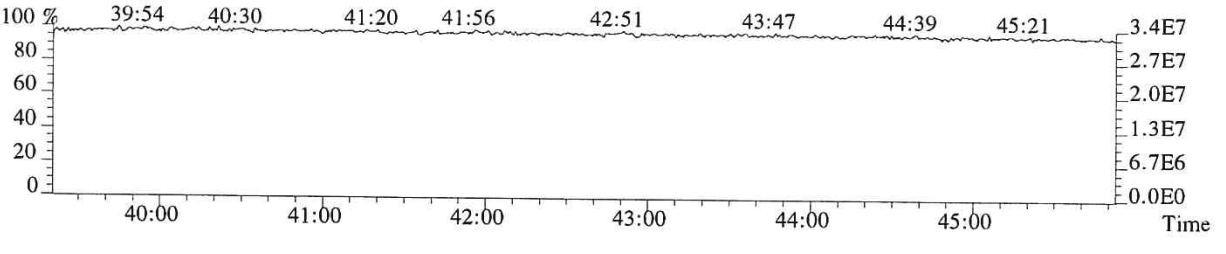
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



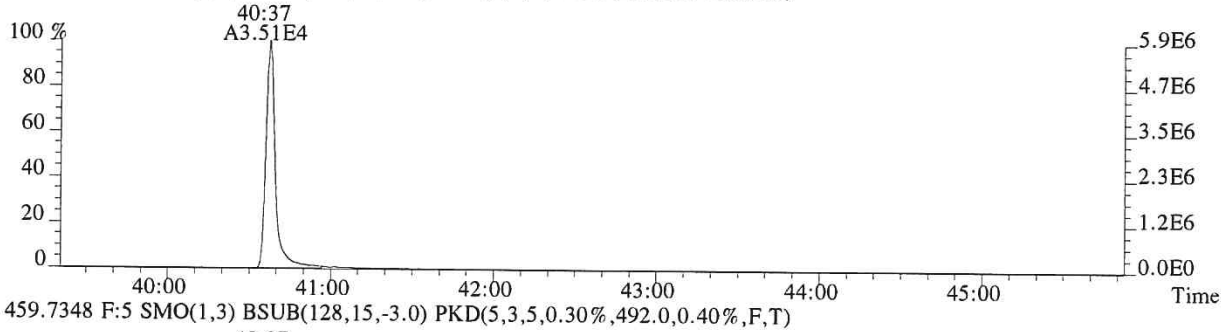
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



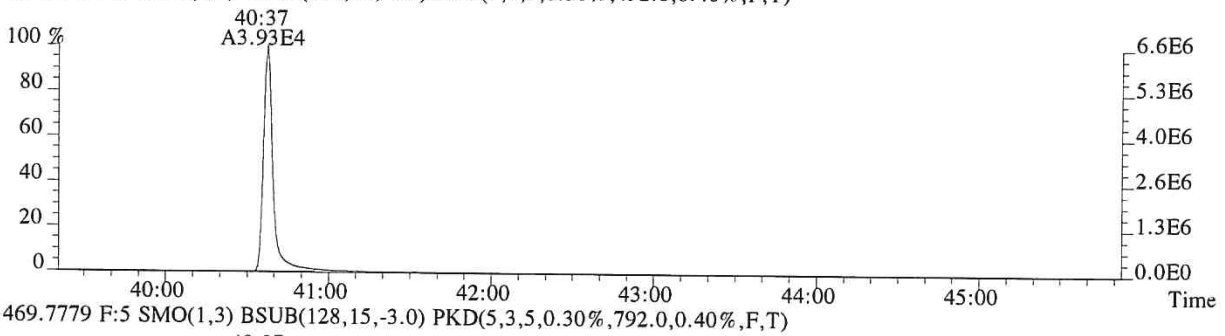
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



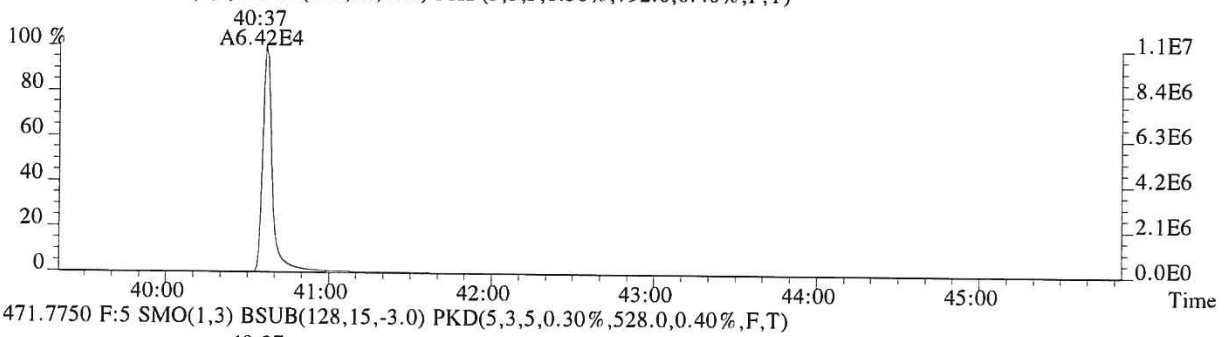
File:P518937 #1-588 Acq:20-NOV-2018 07:28:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



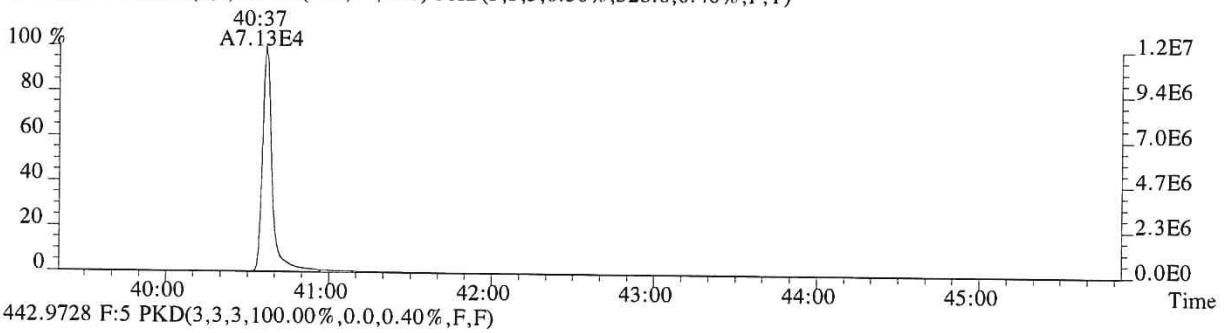
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



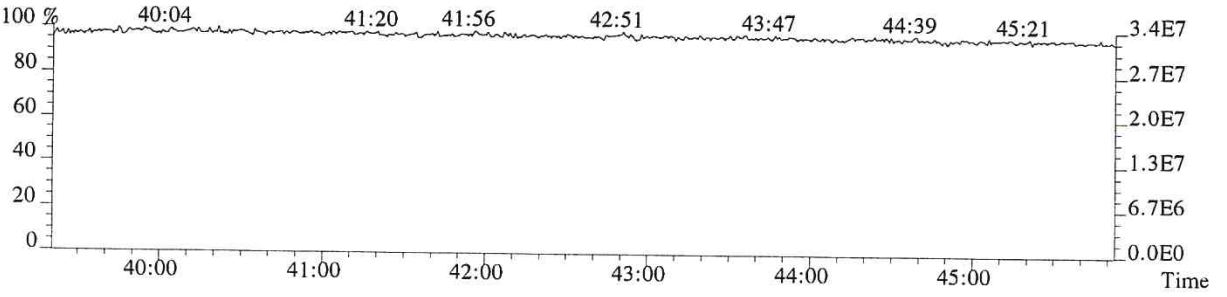
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,792.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P578965

Date: 11/21/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P518964	21-NOV-18	10:03:43
194503	CS3	P518965	21-NOV-18	10:51:31
METHOD BLANK	EQ1800458-01	P518966	21-NOV-18	11:56:15
METHOD BLANK	EQ1800464-01	P518967	21-NOV-18	12:44:03
SL0533	E1801038-015	P518968	21-NOV-18	13:32:44
SL0534	E1801038-016	P518969	21-NOV-18	14:21:20
SL0535	E1801038-017	P518970	21-NOV-18	15:10:37
SL0058	E1801012-006DL	P518971	21-NOV-18	15:58:41
SL0064	E1801012-012DL	P518972	21-NOV-18	16:47:22
SL0071	E1801012-018DL	P518973	21-NOV-18	17:35:58
SL0065	E1801012-019DL	P518974	21-NOV-18	18:24:39
SL0022	E1801020-018DL	P518975	21-NOV-18	19:13:19
SL0011	E1801020-034DL	P518976	21-NOV-18	20:02:00
SL0033	E1801020-045DL	P518977	21-NOV-18	20:50:38
SL0034	E1801020-051DL	P518978	21-NOV-18	21:39:14

E1801020

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181121.SPL
Last Modified: Monday, November 26, 2018 06:47:13 Central Standard Time
Printed: Monday, November 26, 2018 06:47:15 Central Standard Time

Page Position (1, 1)

OPUS 5 NET: P518965 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/21/18	09:14	P518963	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	LKL	Method
2		10:03	P518964	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMS check 09:11
3		10:51	P518965	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		11:56	P518966	MB	EQ1800458-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:44	P518967	MB	EQ1800464-01	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:32	P518968	E1801038-015	E1801038-015	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:21	P518969	E1801038-016	E1801038-016	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:10	P518970	E1801038-017	E1801038-017	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		15:58	P518971	E1801012-006DL	E1801012-006DL	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:47	P518972	E1801012-0012DL	E1801012-0012DL	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		17:35	P518973	E1801012-018DL	E1801012-018DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:24	P518974	E1801012-019DL	E1801012-019DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		19:13	P518975	E1801020-018DL	E1801020-018DL	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:02	P518976	E1801020-034DL	E1801020-034DL	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		20:50	P518977	E1801020-045DL	E1801020-045DL	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		21:39	P518978	E1801020-051DL	E1801020-051DL	EPA1613_ALS	Dioxin_ALS	Tray1:16		HRMS check 22:36
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

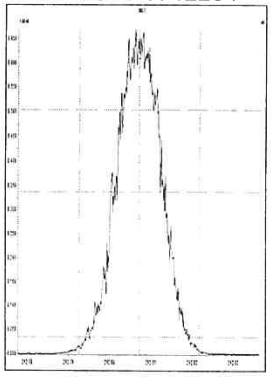
LKL 11/26/18

026

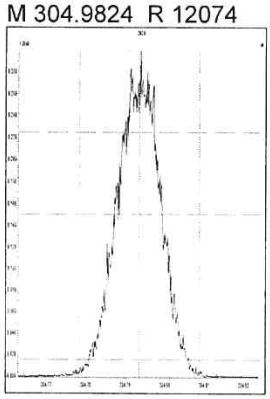
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:11:41 Central Standard Time

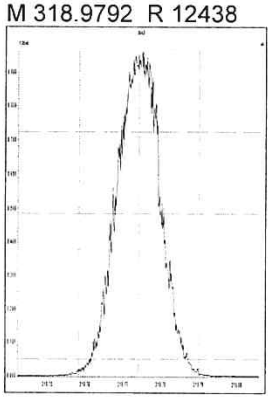
M 292.9824 R 12254



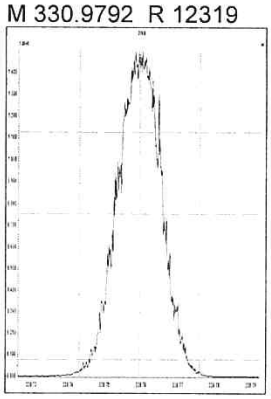
M 304.9824 R 12074



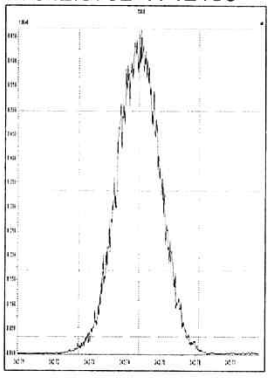
M 318.9792 R 12438



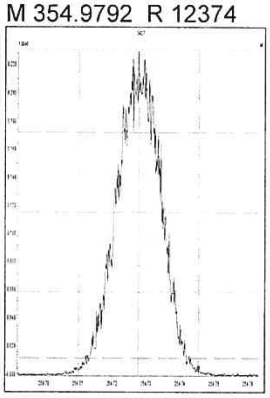
M 330.9792 R 12319



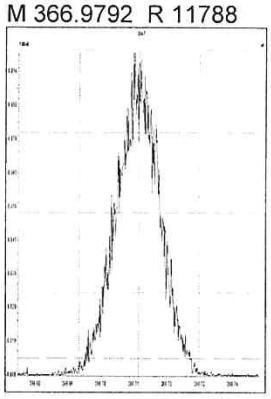
M 342.9792 R 12196



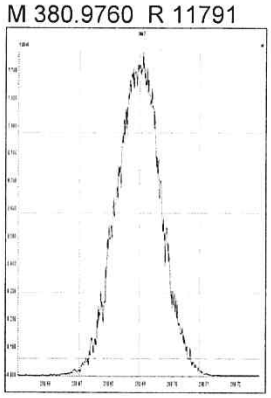
M 354.9792 R 12374



M 366.9792 R 11788



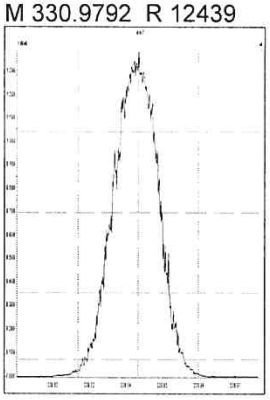
M 380.9760 R 11791



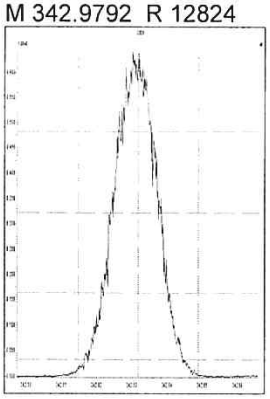
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:12:16 Central Standard Time

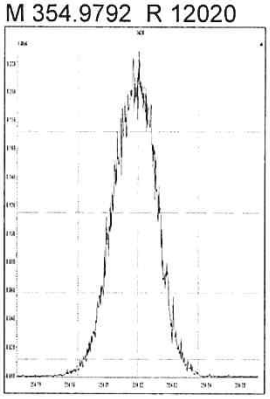
M 330.9792 R 12439



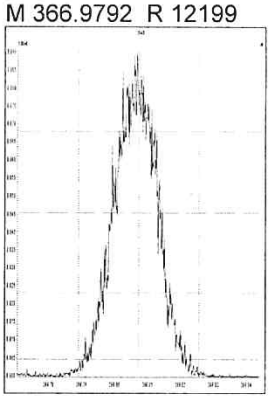
M 342.9792 R 12824



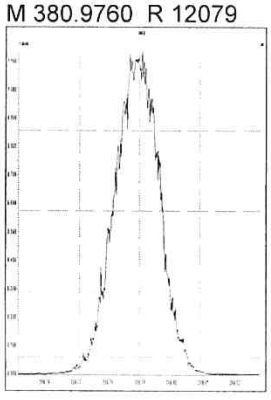
M 354.9792 R 12020



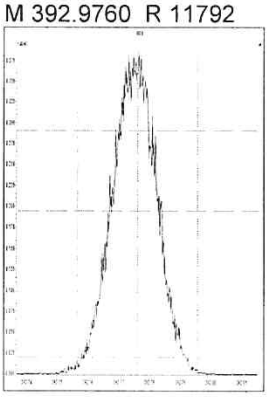
M 366.9792 R 12199



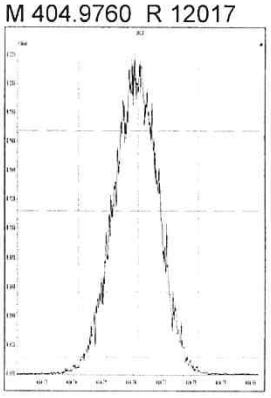
M 380.9760 R 12079



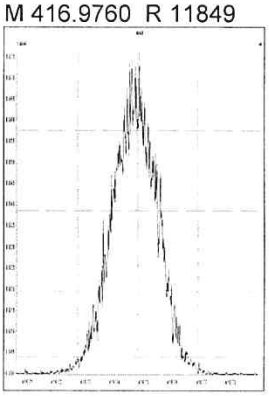
M 392.9760 R 11792



M 404.9760 R 12017



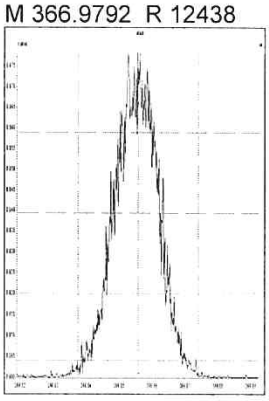
M 416.9760 R 11849



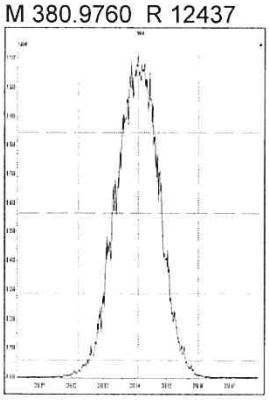
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:12:43 Central Standard Time

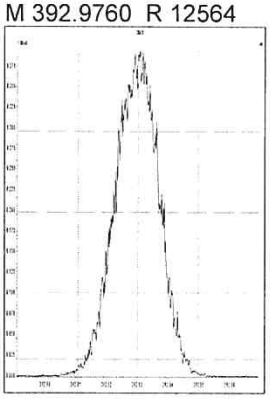
M 366.9792 R 12438



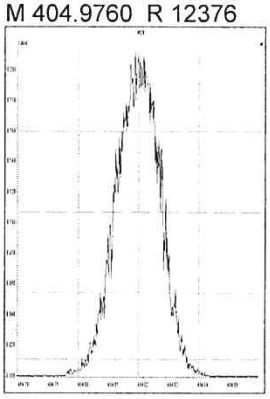
M 380.9760 R 12437



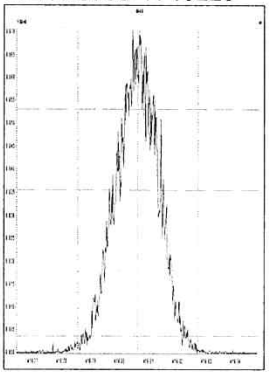
M 392.9760 R 12564



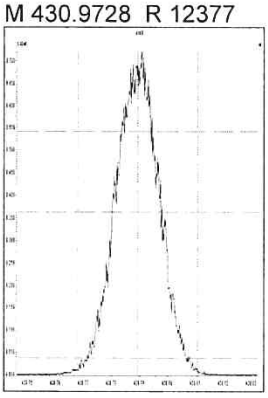
M 404.9760 R 12376



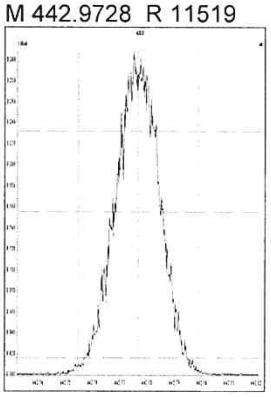
M 416.9760 R 13225



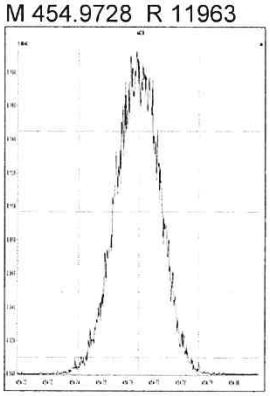
M 430.9728 R 12377



M 442.9728 R 11519



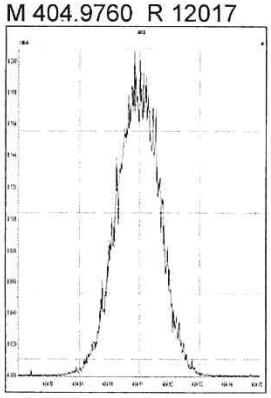
M 454.9728 R 11963



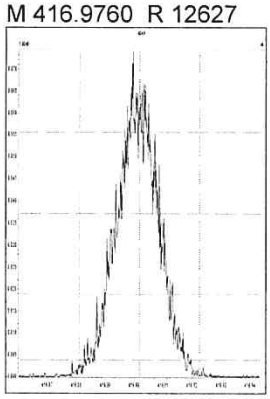
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:13:26 Central Standard Time

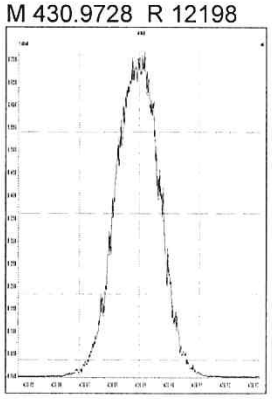
M 404.9760 R 12017



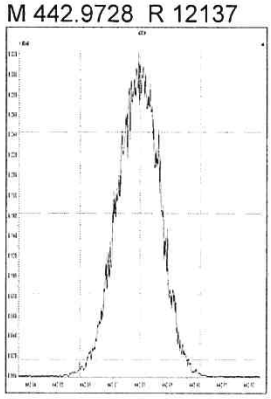
M 416.9760 R 12627



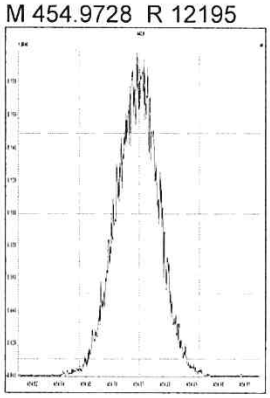
M 430.9728 R 12198



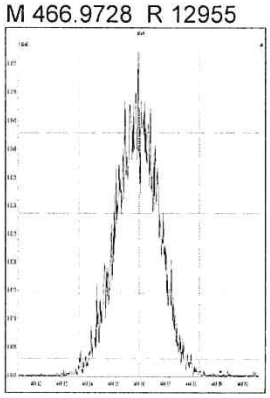
M 442.9728 R 12137



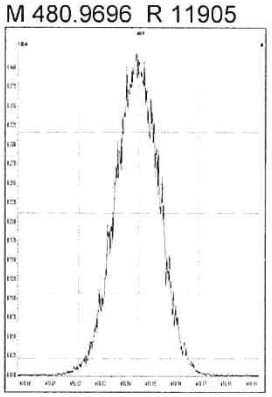
M 454.9728 R 12195



M 466.9728 R 12955



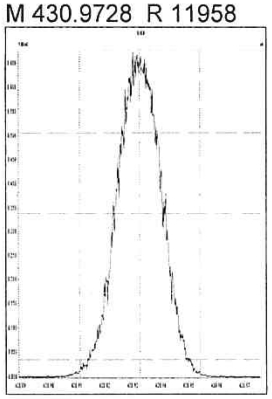
M 480.9696 R 11905



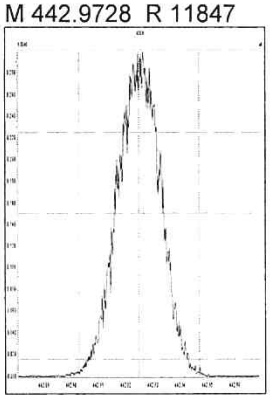
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 09:14:12 Central Standard Time

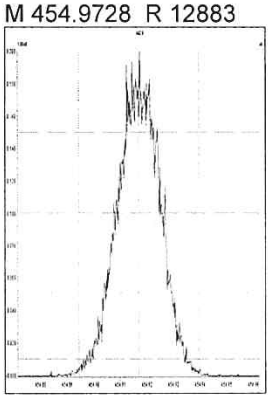
M 430.9728 R 11958



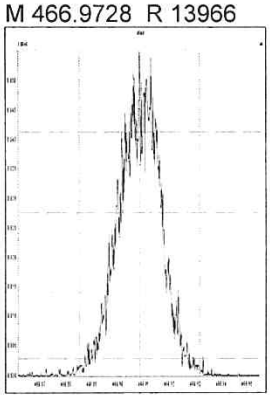
M 442.9728 R 11847



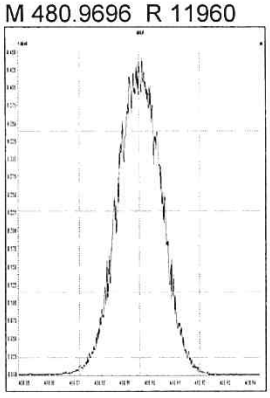
M 454.9728 R 12883



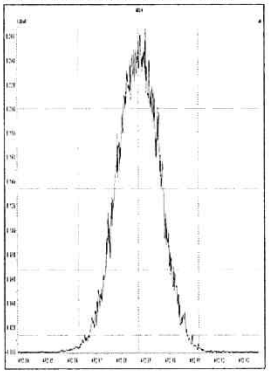
M 466.9728 R 13966



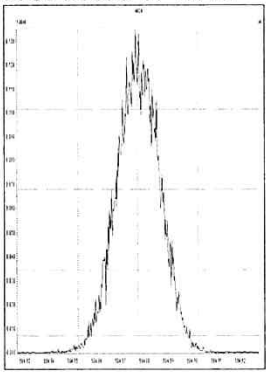
M 480.9696 R 11960



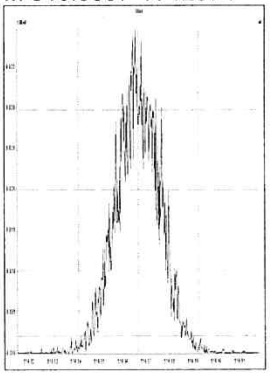
M 492.9696 R 12255



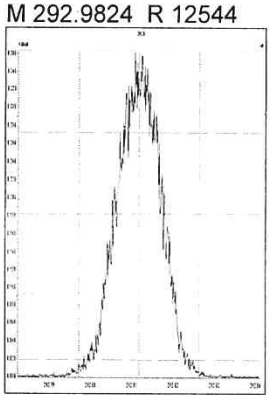
M 504.9696 R 11795



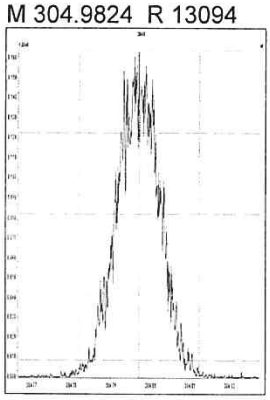
M 516.9697 R 12074



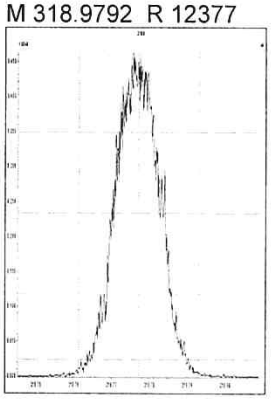
M 292.9824 R 12544



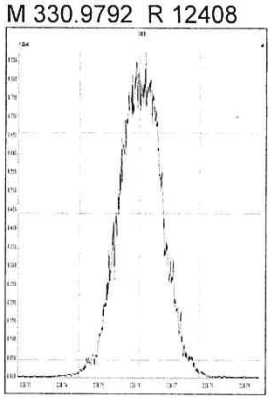
M 304.9824 R 13094



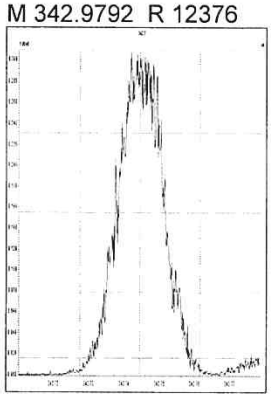
M 318.9792 R 12377



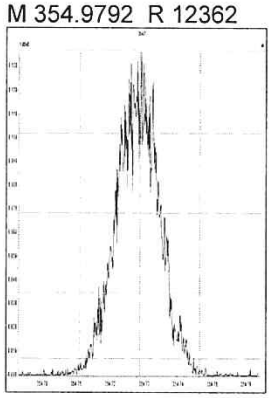
M 330.9792 R 12408



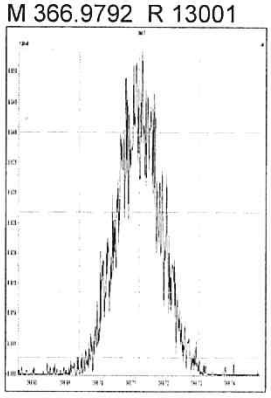
M 342.9792 R 12376



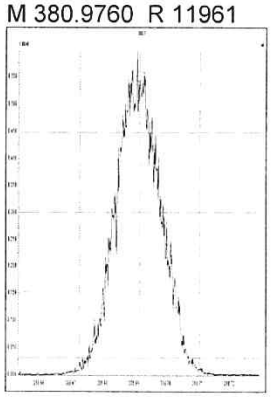
M 354.9792 R 12362



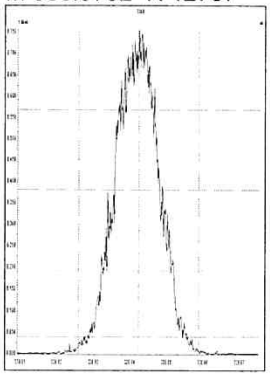
M 366.9792 R 13001



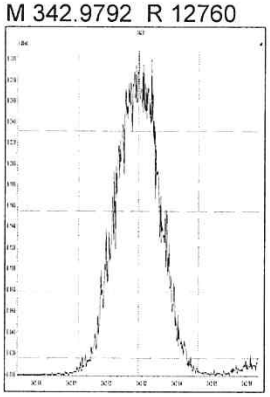
M 380.9760 R 11961



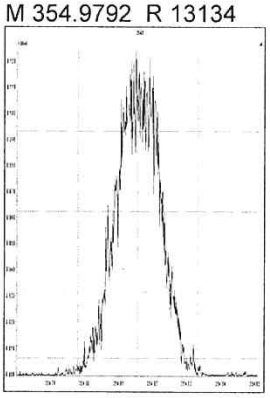
M 330.9792 R 12757



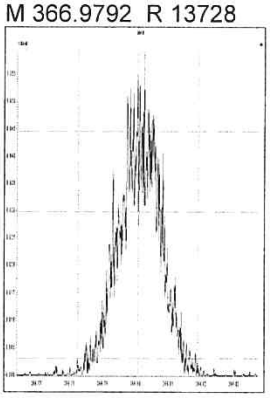
M 342.9792 R 12760



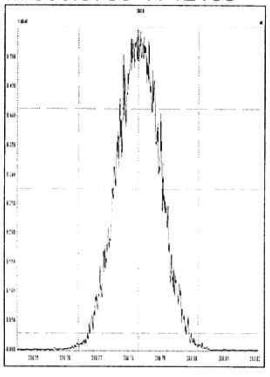
M 354.9792 R 13134



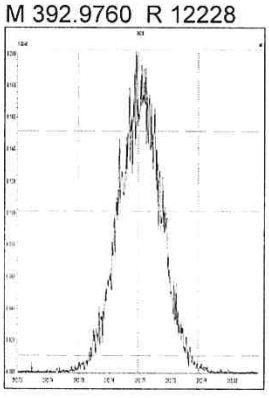
M 366.9792 R 13728



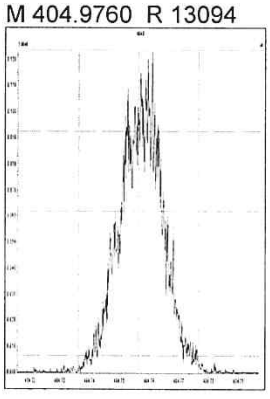
M 380.9760 R 12138



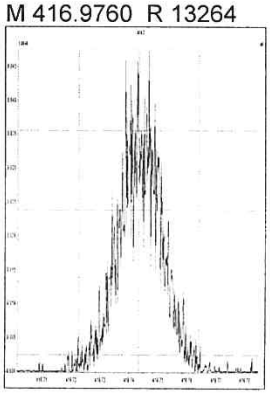
M 392.9760 R 12228



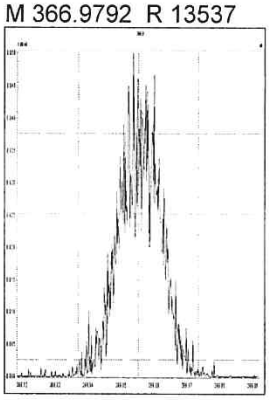
M 404.9760 R 13094



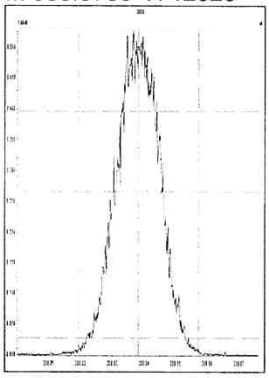
M 416.9760 R 13264



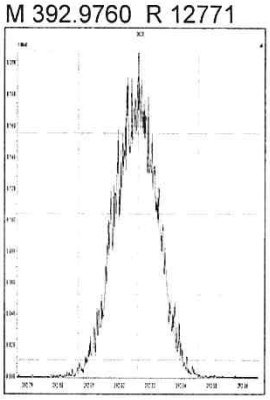
M 366.9792 R 13537



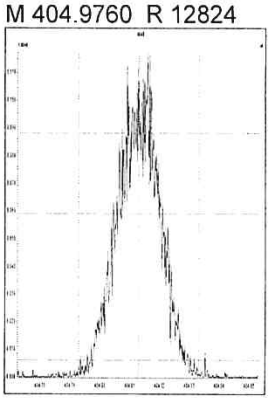
M 380.9760 R 12626



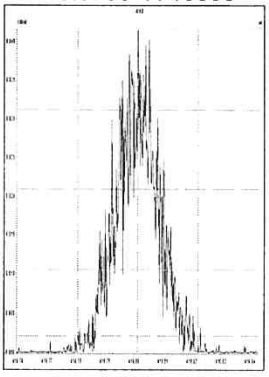
M 392.9760 R 12771



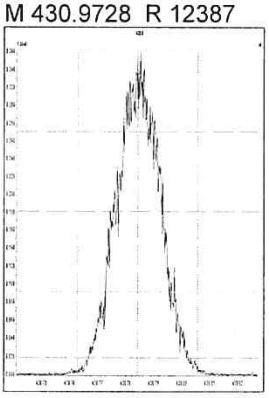
M 404.9760 R 12824



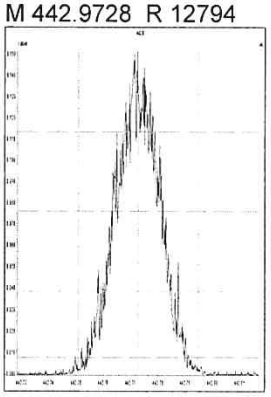
M 416.9760 R 13858



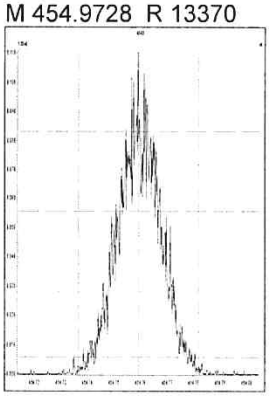
M 430.9728 R 12387



M 442.9728 R 12794



M 454.9728 R 13370



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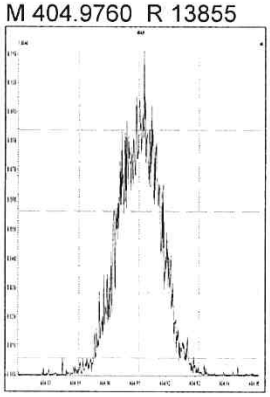

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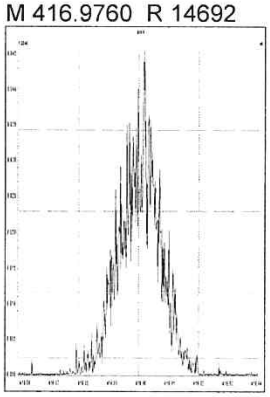
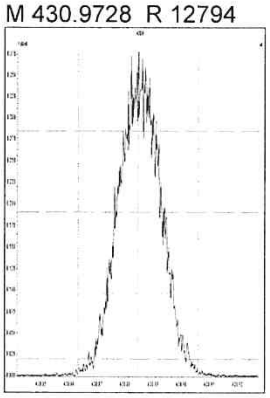
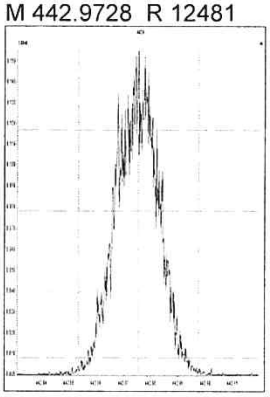


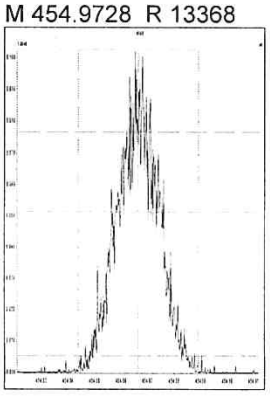
M 430.9728 R 12794



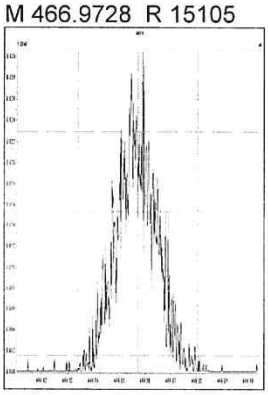
M 442.9728 R 12481



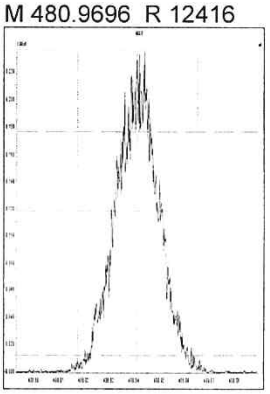
M 454.9728 R 13368



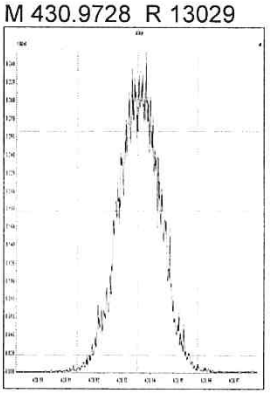
M 466.9728 R 15105



M 480.9696 R 12416

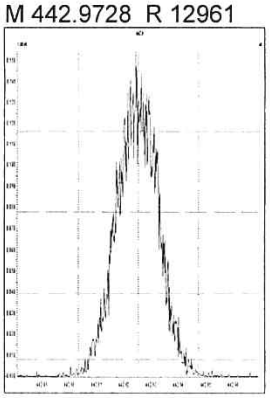


M 430.9728 R 13029

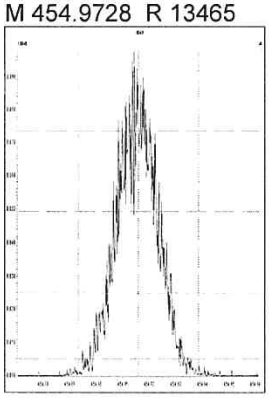


Printed: Wednesday, November 21, 2018 22:36:05 Central Standard Time

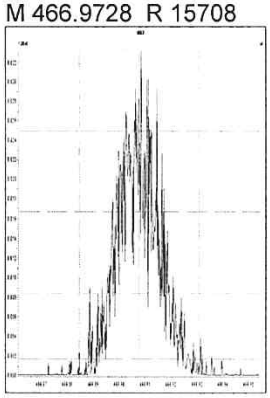
M 442.9728 R 12961



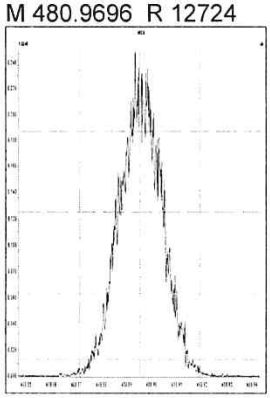
M 454.9728 R 13465



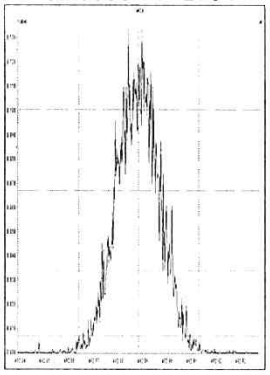
M 466.9728 R 15708



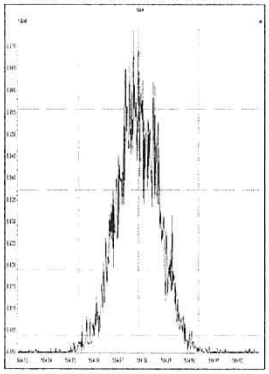
M 480.9696 R 12724



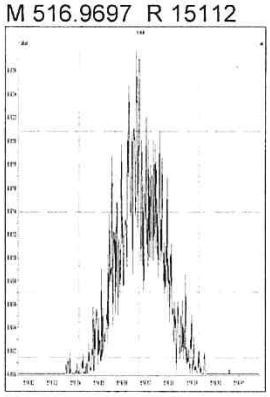
M 492.9696 R 12794



M 504.9696 R 13888



M 516.9697 R 15112



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

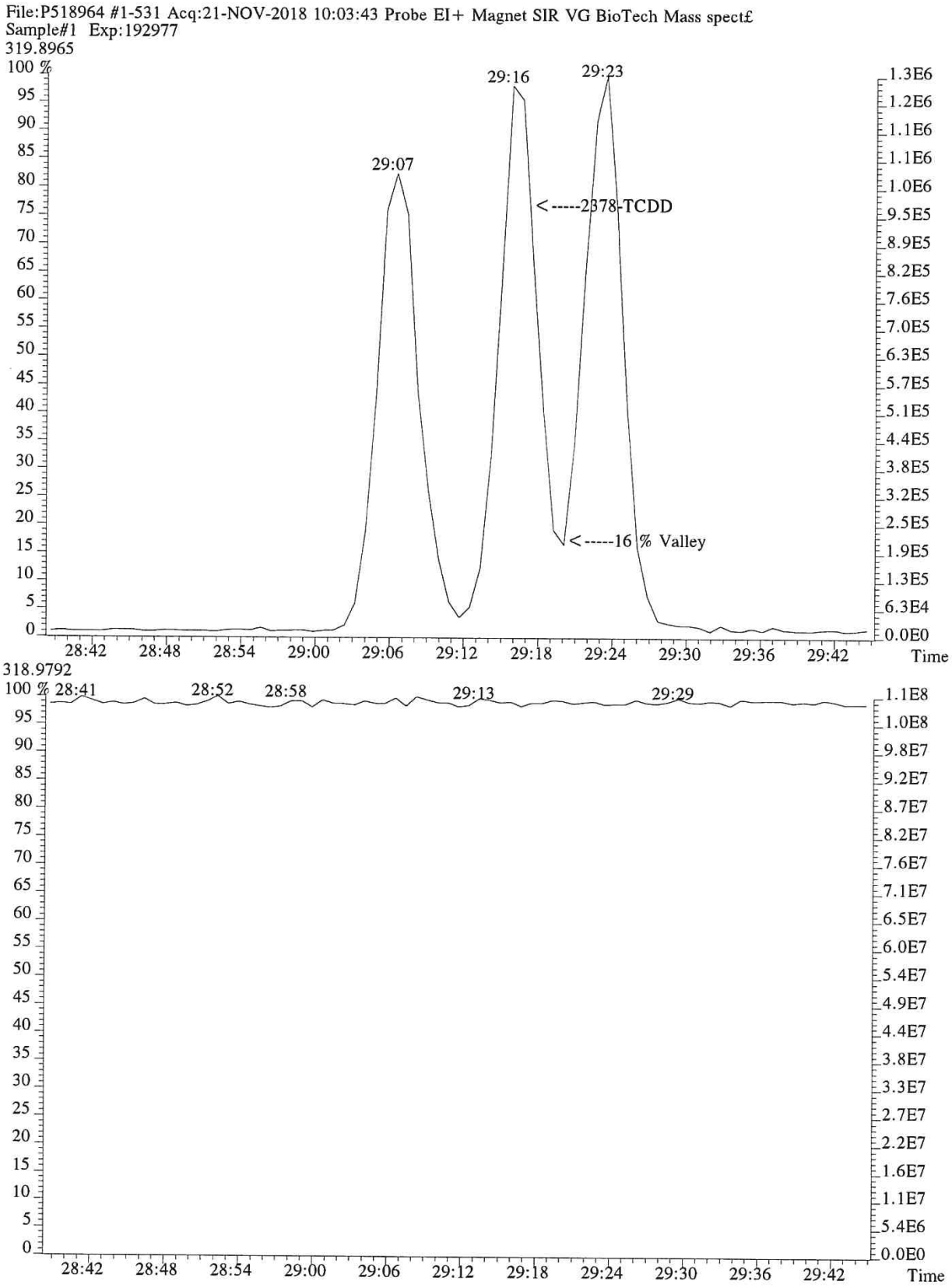
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P518964
Date Analyzed: 21-NOV-18
Time Analyzed: 10:03:43

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:14	30:24
TCDD	26:06	30:14
PeCDF	30:20	34:30
PeCDD	31:50	34:15
HxCDF	35:09	37:37
HxCDD	35:39	37:13
HpCDF	38:51	40:16
HpCDD	39:06	39:47

% Valley 2378-TCDD: 16 %


File:P518964 #1-531 Acq:21-NOV-2018 10:03:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
100 %
29:16
29:23
29:07
<-----2378-TCDD
<-----16 % Valley
28:42
28:48
28:54
29:00
29:06
29:12
29:18
29:24
29:30
29:36
29:42
Time
318.9792
100 %
28:41
28:52
28:58
29:13
29:29
28:42
28:48
28:54
29:00
29:06
29:12
29:18
29:24
29:30
29:36
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Time

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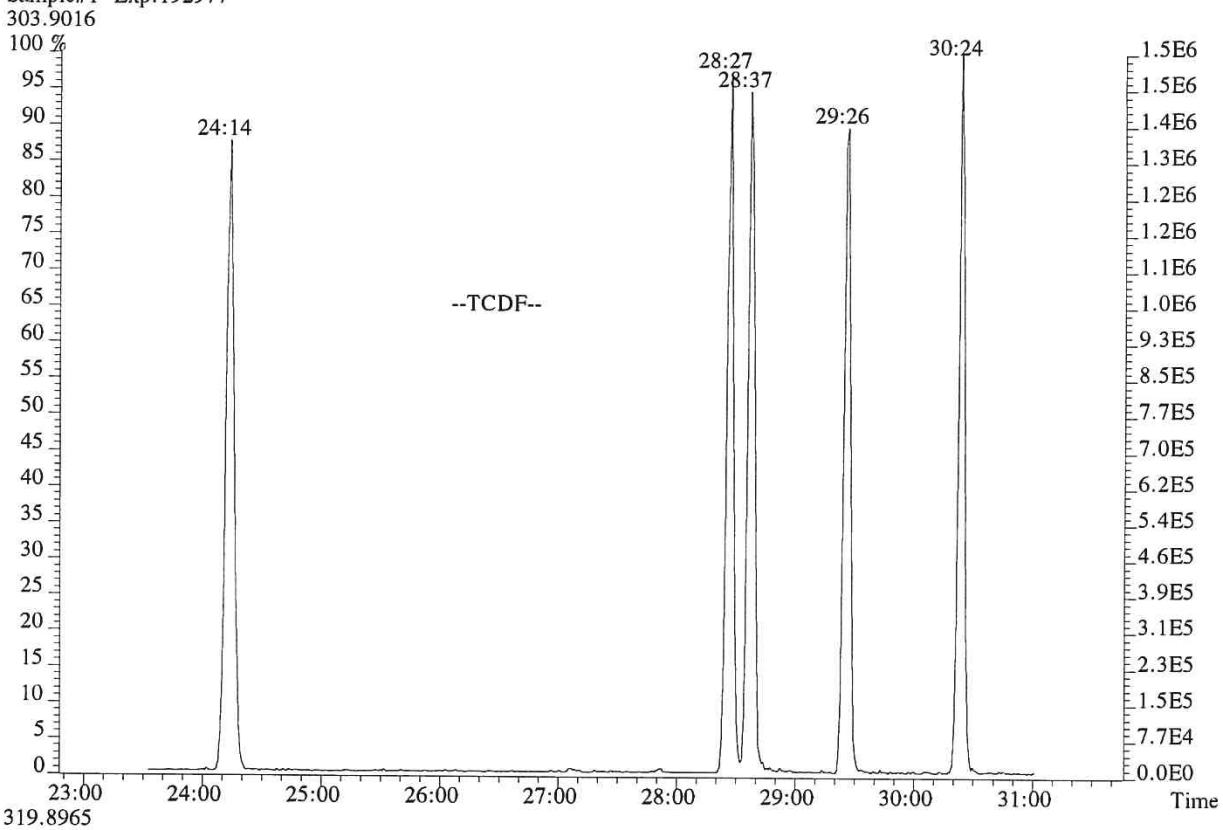
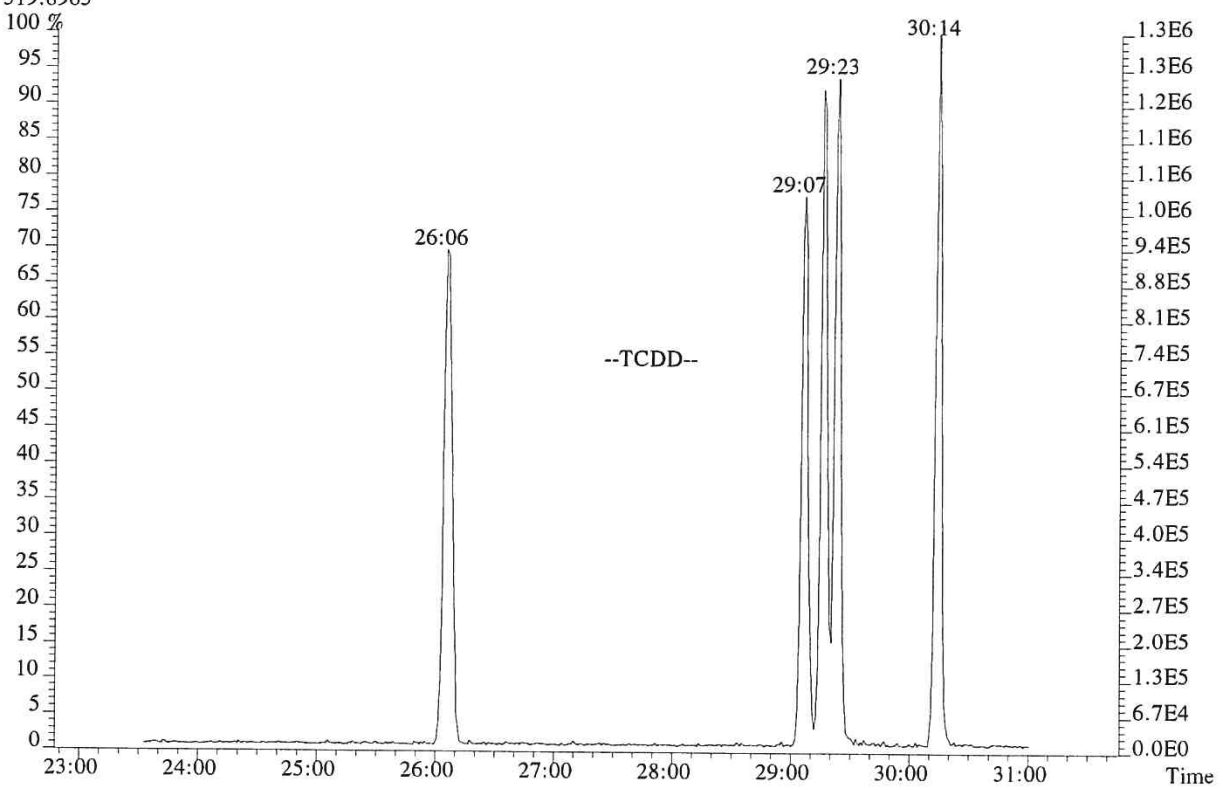
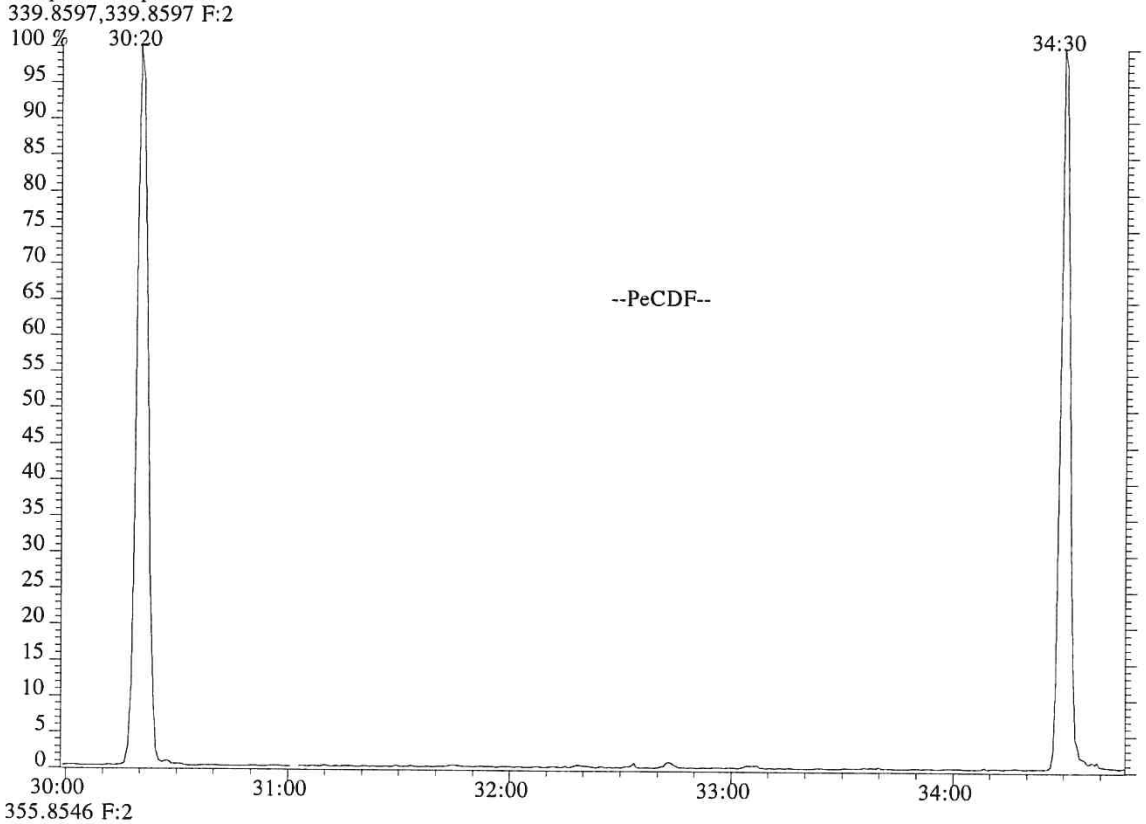


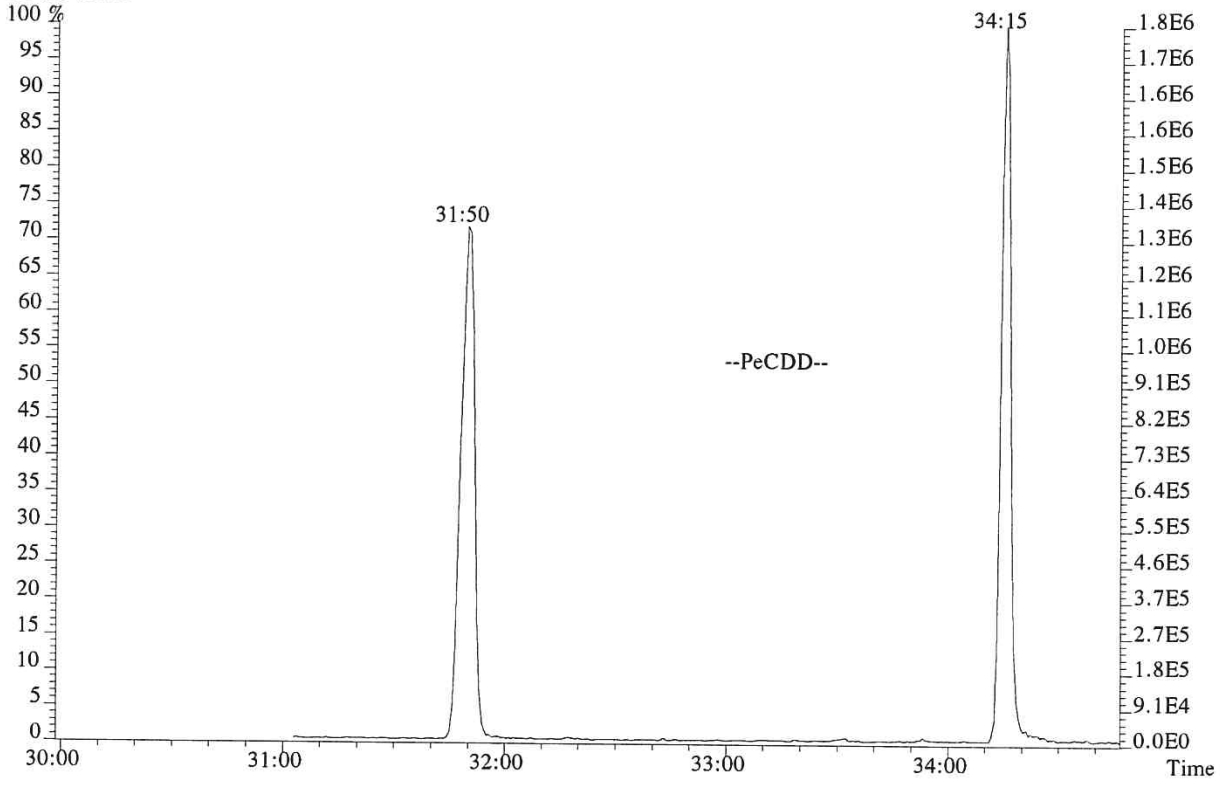


010054

File:P518964 #1-531 Acq:21-NOV-2018 10:03:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



010055

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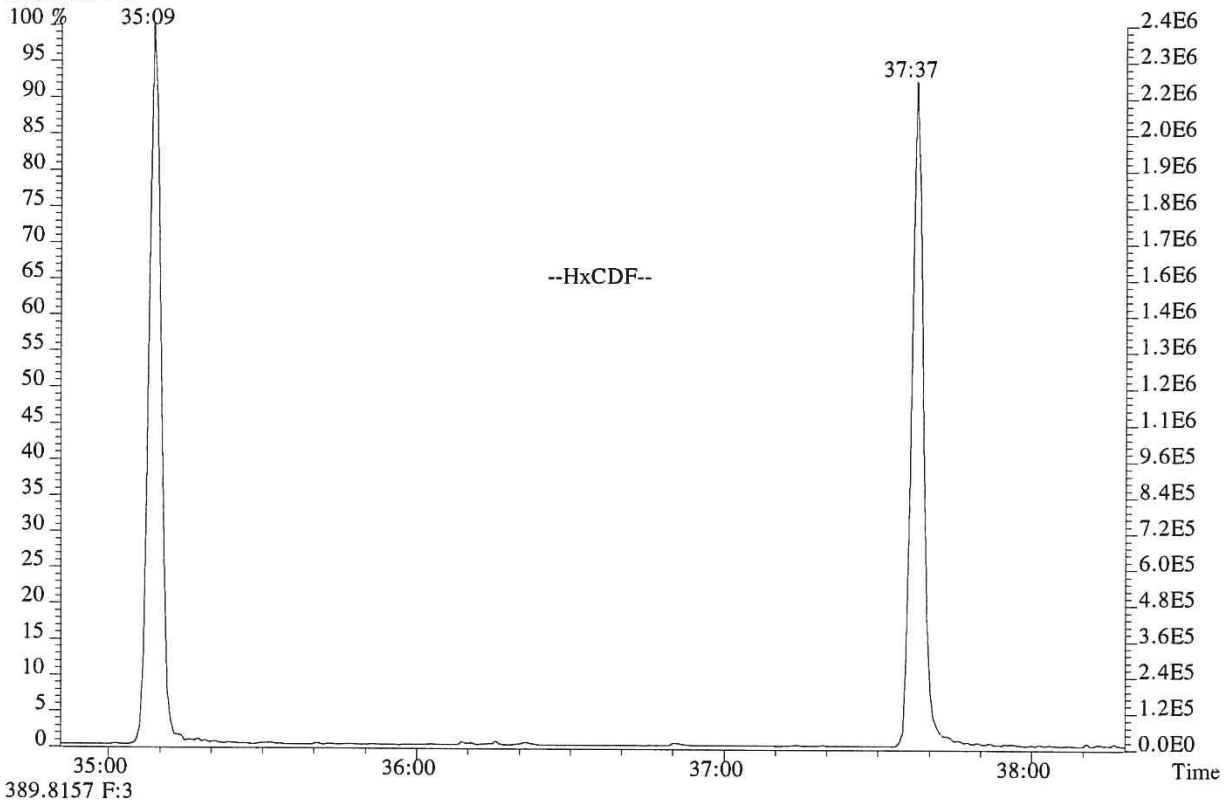
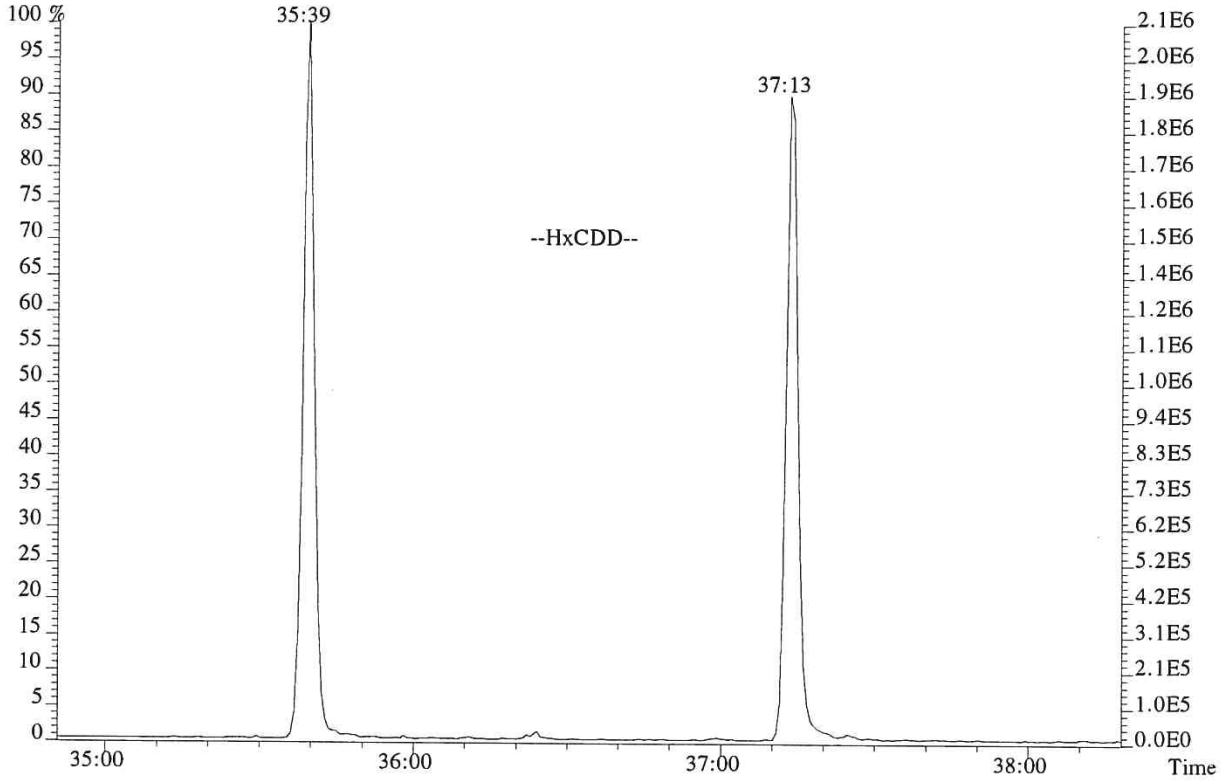
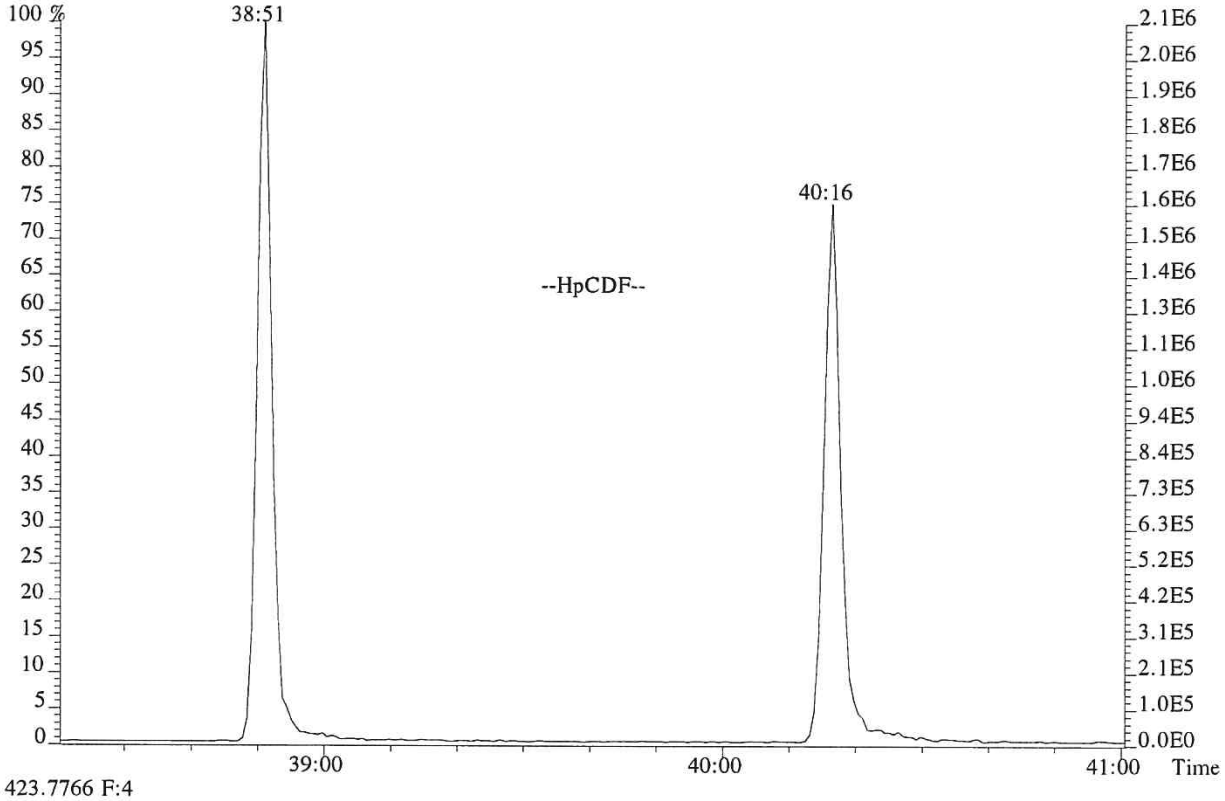
Sample#1 Exp:192977
373.8208 F:3



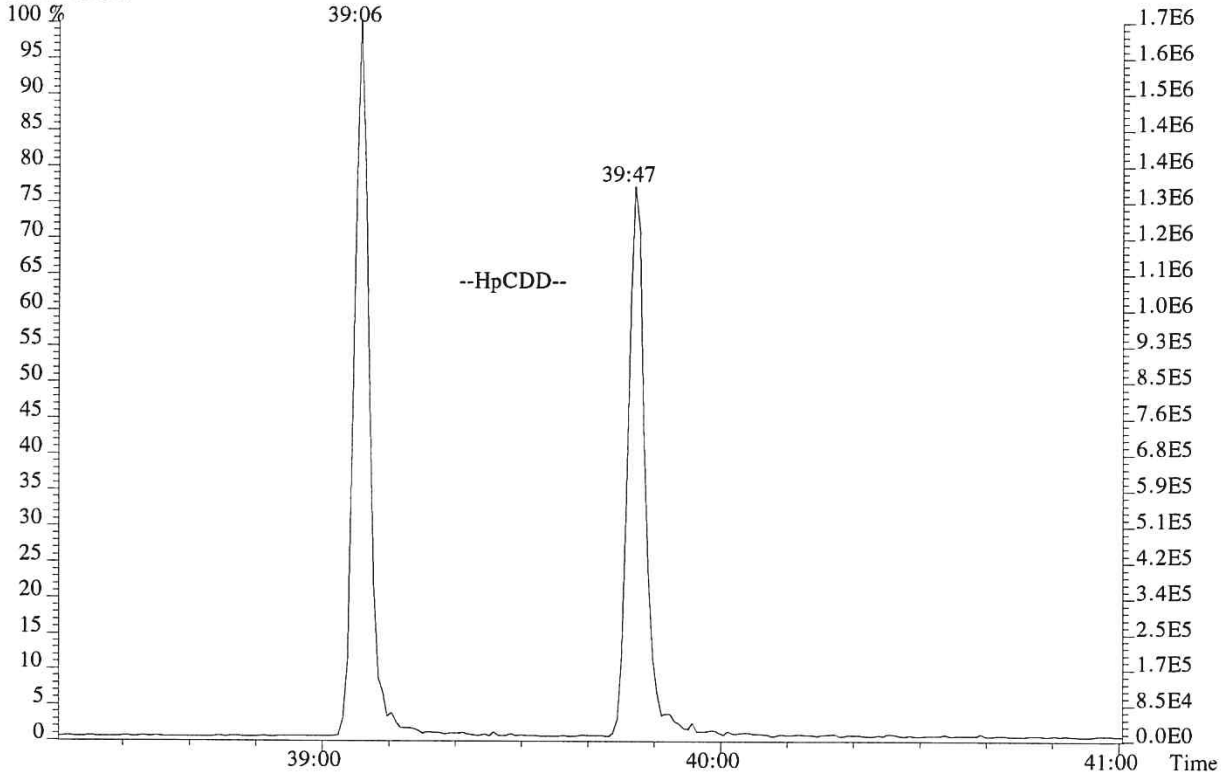
389.8157 F:3



File:P518964 #1-531 Acq:21-NOV-2018 10:03:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518965 Analysis Date: 21-NOV-18 Time: 10:51:31

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.0	7.8 - 12.9	-9.8
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	49	39 - 64	-1.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-1.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	51	41 - 61	1.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	50	43 - 58	0.7
OCDD	M+2/M+4	0.87	0.76-1.02	100	79 - 126	-0.3
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.5	8.4 - 12.0	-5.0
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	49	41 - 60	-1.7
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	49	41 - 61	-2.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	49	45 - 56	-1.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	-0.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	49	45 - 55	-1.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	-0.1
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-3.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518965 Analysis Date: 21-NOV-18 Time: 10:51:31

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	105	82 - 121	4.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	113	62 - 160	12.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	97	85 - 117	-2.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	97	85 - 118	-3.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	4.7
13C-OCDD	M+2/M+4	0.90	0.76-1.02	255	96 - 415	27.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	91	71 - 140	-9.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	102	76 - 130	2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	104	77 - 130	4.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	84	76 - 131	-15.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	85	70 - 143	-14.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	95	74 - 135	-5.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	92	73 - 137	-8.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	96	78 - 129	-4.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	103	77 - 129	3.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.0	7.8 - 12.7	0.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518965 Samp: 1 Inj: 1 Acquired: 21-NOV-18 10:51:31
Processed: 26-NOV-18 13:37:01 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	4.225e+03	5.461e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:43	3.595e+04	2.299e+04	1.56	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:36	3.390e+04	2.180e+04	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	3.012e+04	2.463e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:21	3.216e+04	2.684e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	3.064e+04	2.503e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	2.770e+04	2.301e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	2.738e+04	2.677e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:16	2.355e+04	2.328e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:51	4.015e+04	4.575e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:23	3.291e+03	4.163e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:53	2.474e+04	1.574e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.283e+04	1.776e+04	1.29	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	2.310e+04	1.818e+04	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	2.410e+04	1.893e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	2.111e+04	1.958e+04	1.08	yes	no	1.025
17	Unk	OCDD	42:39	3.381e+04	3.892e+04	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:36	4.787e+04	6.040e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:42	7.264e+04	4.580e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:35	7.344e+04	4.599e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	3.161e+04	5.974e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.562e+04	6.910e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	3.426e+04	6.677e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	3.074e+04	5.947e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	2.500e+04	5.646e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	2.308e+04	5.146e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:22	3.355e+04	4.257e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:52	5.306e+04	3.364e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	4.402e+04	3.508e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	4.531e+04	3.520e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	4.057e+04	3.829e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:38	6.199e+04	6.851e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:50	3.512e+04	4.370e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	4.948e+04	3.835e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	8.007e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518965 Samp: 1 Inj: 1 Acquired: 21-NOV-18 10:51:31
Processed: 26-NOV-18 13:37:01 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.24e+05	8.64e+02	9.5e+02	1.08e+06	7.64e+02	1.4e+03
2	1,2,3,7,8-PeCDF	6.90e+06	1.80e+02	3.8e+04	4.42e+06	6.92e+02	6.4e+03
3	2,3,4,7,8-PeCDF	6.55e+06	1.80e+02	3.6e+04	4.24e+06	6.92e+02	6.1e+03
4	1,2,3,4,7,8-HxCDF	6.55e+06	8.88e+02	7.4e+03	5.42e+06	6.08e+02	8.9e+03
5	1,2,3,6,7,8-HxCDF	6.79e+06	8.88e+02	7.6e+03	5.48e+06	6.08e+02	9.0e+03
6	2,3,4,6,7,8-HxCDF	6.68e+06	8.88e+02	7.5e+03	5.34e+06	6.08e+02	8.8e+03
7	1,2,3,7,8,9-HxCDF	5.62e+06	8.88e+02	6.3e+03	4.55e+06	6.08e+02	7.5e+03
8	1,2,3,4,6,7,8-HpCDF	5.90e+06	1.09e+03	5.4e+03	5.66e+06	1.97e+03	2.9e+03
9	1,2,3,4,7,8,9-HpCDF	4.46e+06	1.09e+03	4.1e+03	4.43e+06	1.97e+03	2.3e+03
10	OCDF	6.29e+06	2.44e+02	2.6e+04	7.19e+06	1.04e+03	6.9e+03
11	2,3,7,8-TCDD	6.46e+05	2.44e+03	2.6e+02	8.33e+05	1.32e+03	6.3e+02
12	1,2,3,7,8-PeCDD	4.96e+06	8.60e+02	5.8e+03	3.15e+06	2.04e+02	1.5e+04
13	1,2,3,4,7,8-HxCDD	5.11e+06	5.72e+02	8.9e+03	4.02e+06	4.60e+02	8.7e+03
14	1,2,3,6,7,8-HxCDD	4.86e+06	5.72e+02	8.5e+03	3.82e+06	4.60e+02	8.3e+03
15	1,2,3,7,8,9-HxCDD	5.07e+06	5.72e+02	8.9e+03	3.97e+06	4.60e+02	8.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.11e+06	5.52e+02	7.5e+03	3.83e+06	3.24e+02	1.2e+04
17	OCDD	5.45e+06	1.64e+02	3.3e+04	6.35e+06	3.56e+02	1.8e+04
18	13C-2,3,7,8-TCDF	9.35e+06	9.62e+03	9.7e+02	1.18e+07	6.70e+03	1.8e+03
19	13C-1,2,3,7,8-PeCDF	1.36e+07	4.32e+02	3.2e+04	8.52e+06	3.40e+02	2.5e+04
20	13C-2,3,4,7,8-PeCDF	1.44e+07	4.32e+02	3.3e+04	9.14e+06	3.40e+02	2.7e+04
21	13C-1,2,3,4,7,8-HxCDF	6.87e+06	9.56e+02	7.2e+03	1.30e+07	9.48e+02	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	7.40e+06	9.56e+02	7.7e+03	1.42e+07	9.48e+02	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	7.34e+06	9.56e+02	7.7e+03	1.42e+07	9.48e+02	1.5e+04
24	13C-1,2,3,7,8,9-HxCDF	6.29e+06	9.56e+02	6.6e+03	1.19e+07	9.48e+02	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.27e+06	3.15e+03	1.7e+03	1.19e+07	4.87e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.31e+06	3.15e+03	1.4e+03	9.63e+06	4.87e+03	2.0e+03
27	13C-2,3,7,8-TCDD	6.94e+06	7.18e+03	9.7e+02	8.72e+06	2.20e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	1.04e+07	1.20e+03	8.6e+03	6.55e+06	1.12e+03	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	9.75e+06	6.00e+02	1.6e+04	7.83e+06	3.96e+02	2.0e+04
30	13C-1,2,3,6,7,8-HxCDD	9.37e+06	6.00e+02	1.6e+04	7.32e+06	3.96e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.99e+06	6.08e+02	1.3e+04	7.59e+06	2.92e+02	2.6e+04
32	13C-OCDD	1.01e+07	5.64e+02	1.8e+04	1.11e+07	2.72e+02	4.1e+04
33	13C-1,2,3,4-TCDD	6.85e+06	7.18e+03	9.5e+02	8.47e+06	2.20e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	6.00e+02	1.7e+04	8.01e+06	3.96e+02	2.0e+04
35	37Cl-2,3,7,8-TCDD	1.63e+06	1.60e+03	1.0e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.440e+03 + 1.324e+03) \times 100}{(6.938e+06 + 8.717e+06) \times (\quad) \times 1.085} =$$

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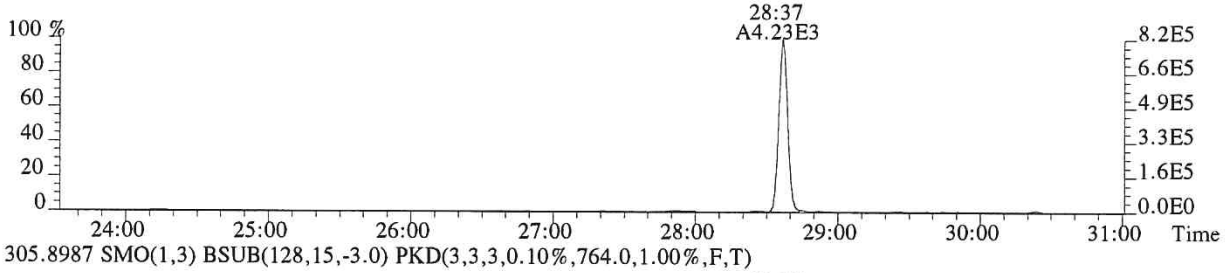
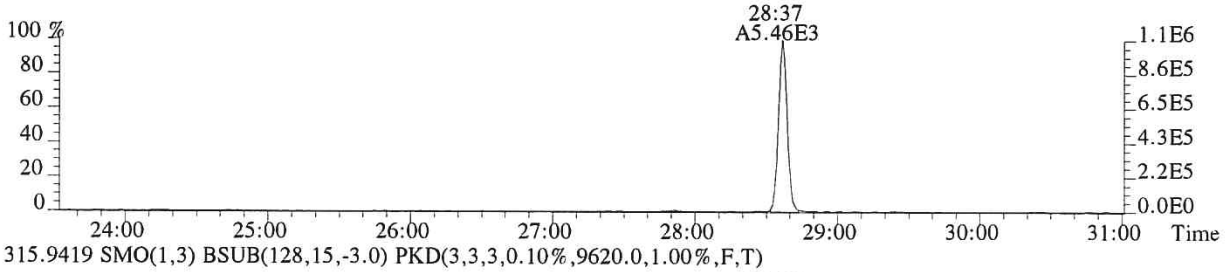
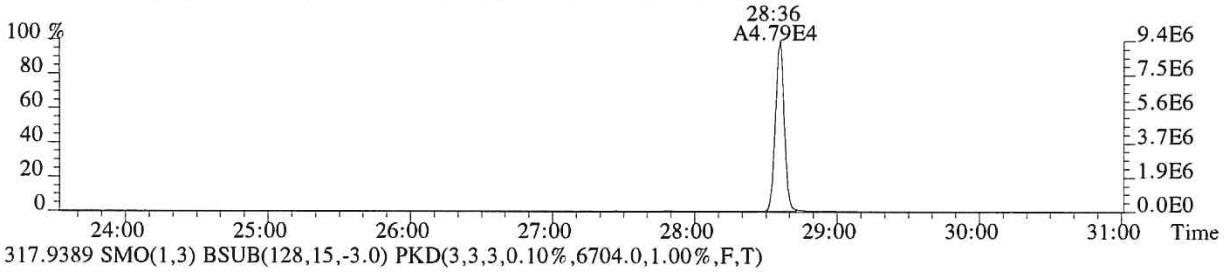
File:P518965 #1-531 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



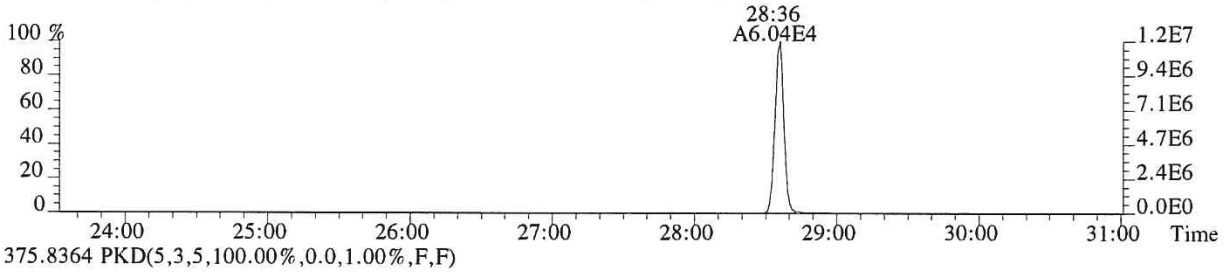
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



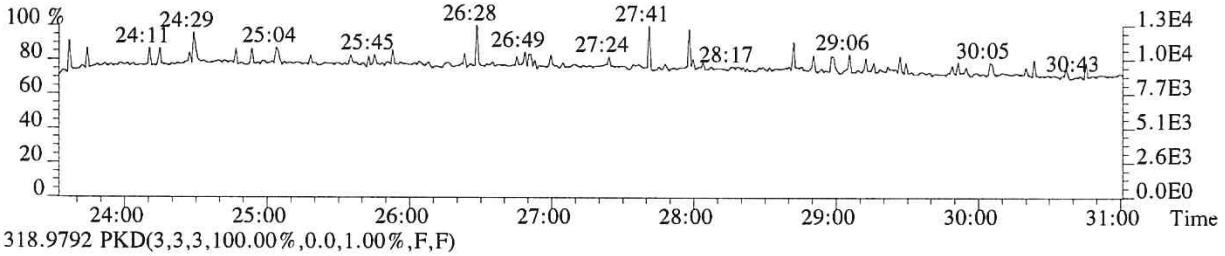
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9620.0,1.00%,F,T)



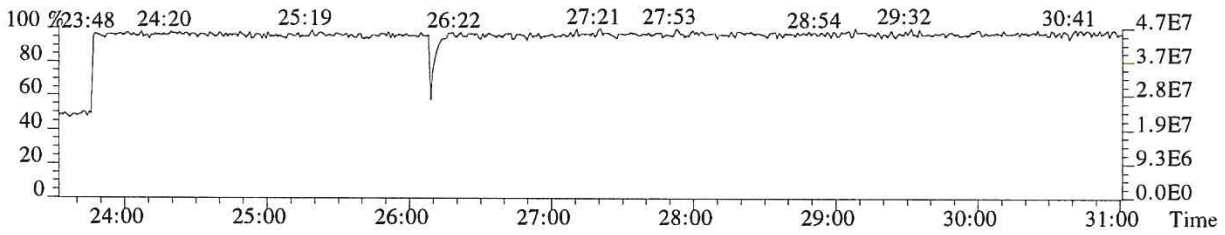
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6704.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



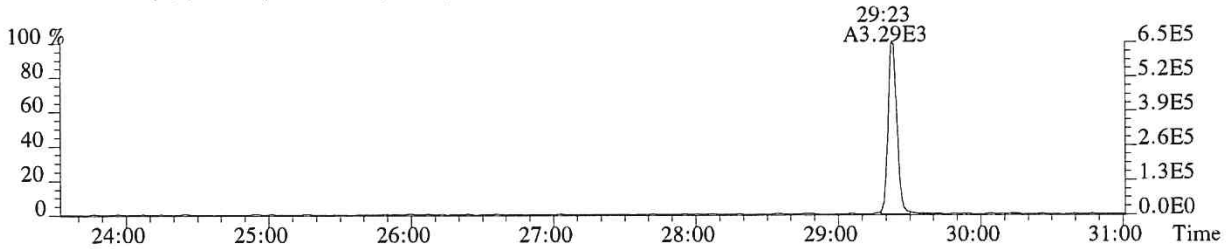
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



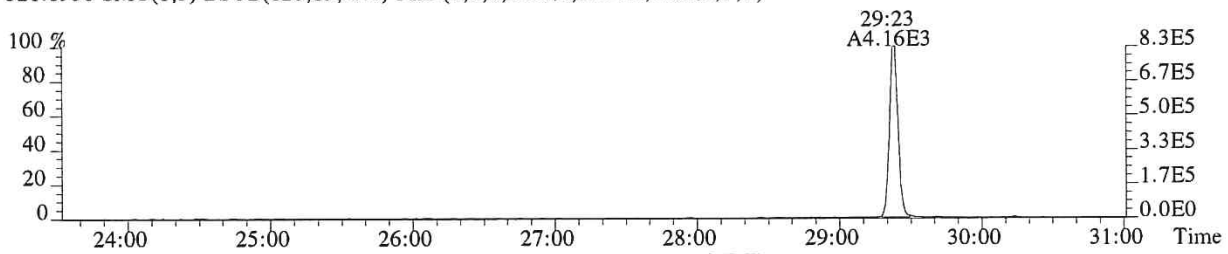
010062

File:P518965 #1-531 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

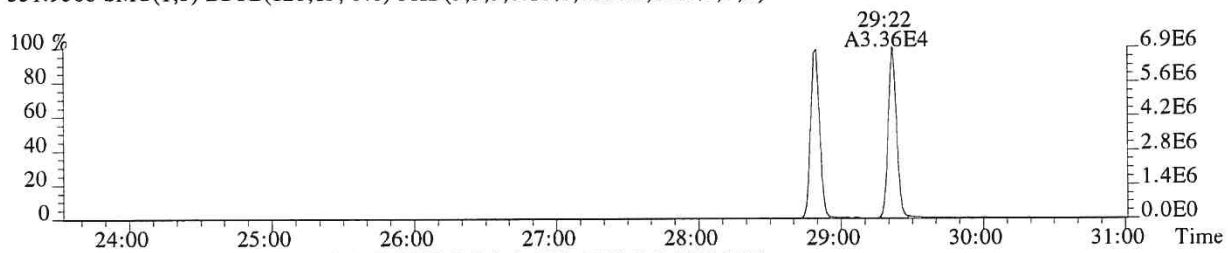
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2440.0,1.00%,F,T)



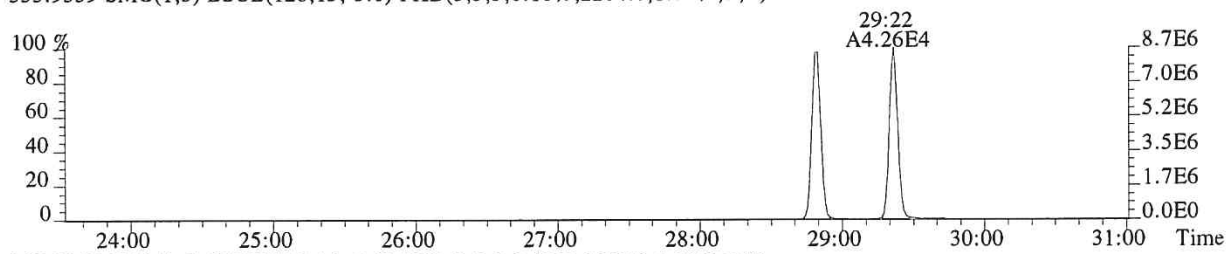
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



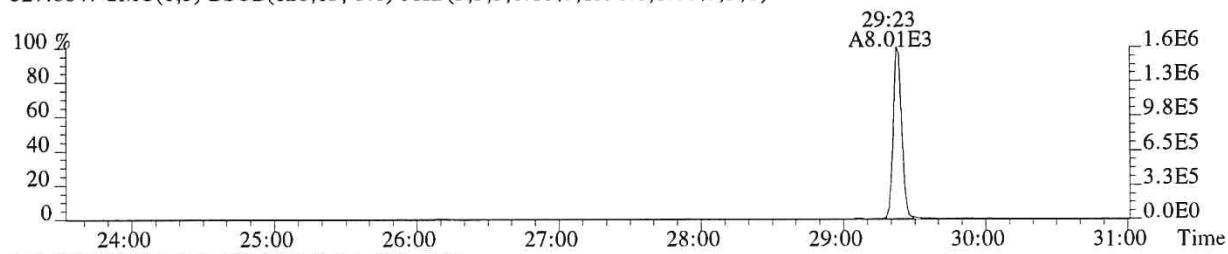
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7184.0,1.00%,F,T)



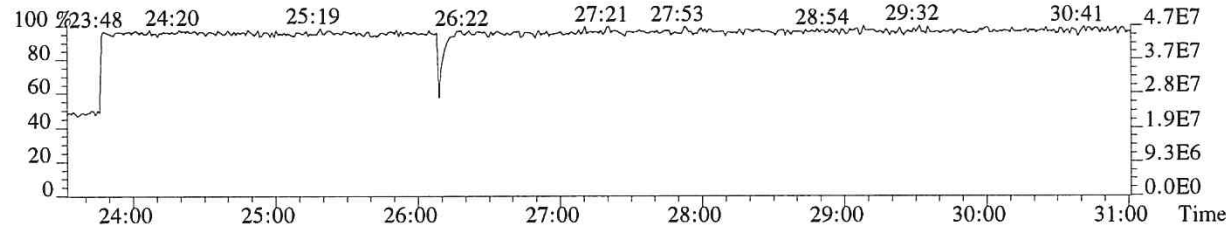
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1596.0,1.00%,F,T)

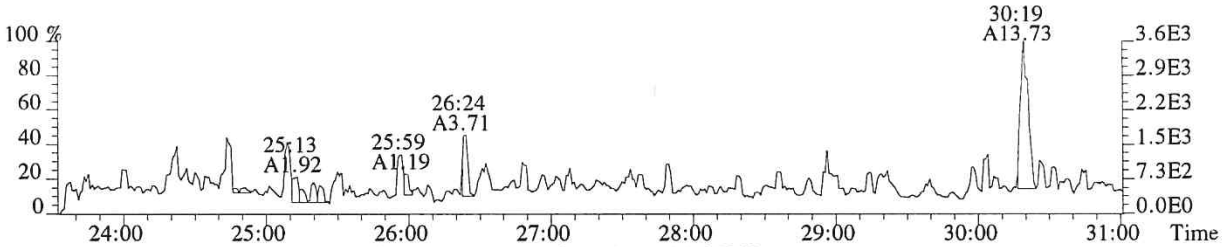


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

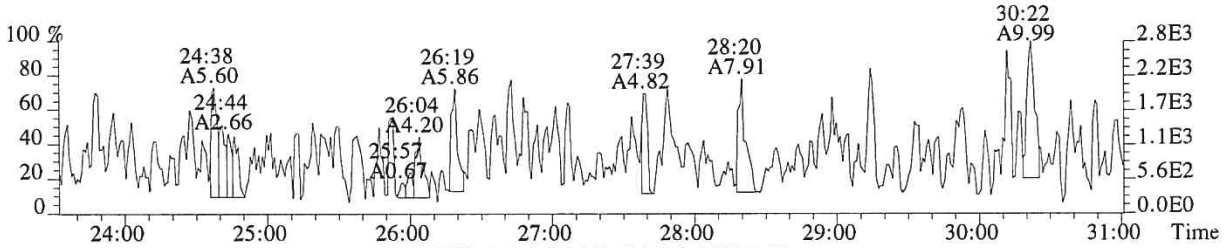


010063

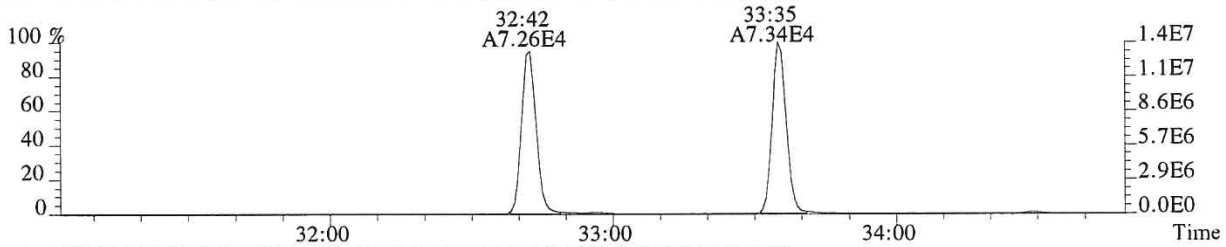
File:P518965 #1-531 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



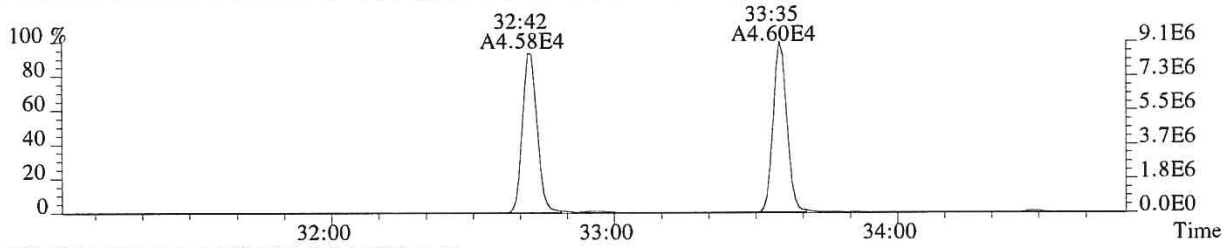
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



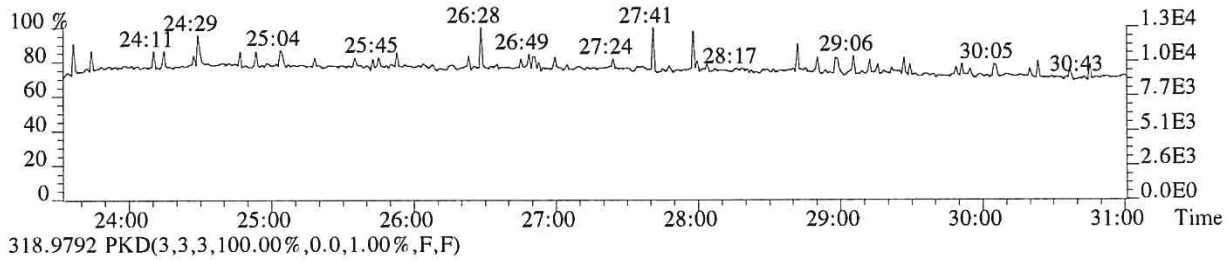
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



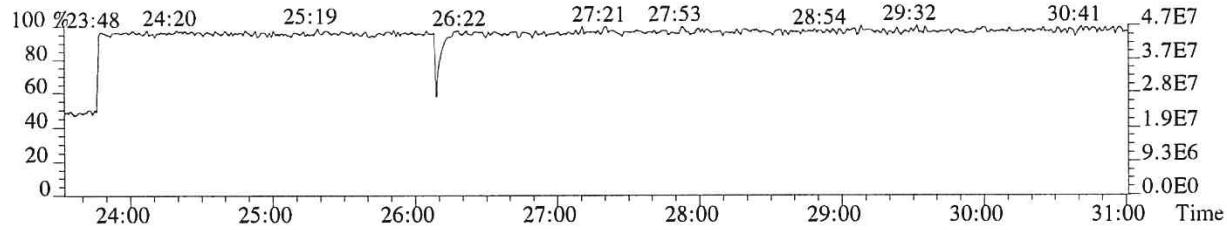
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



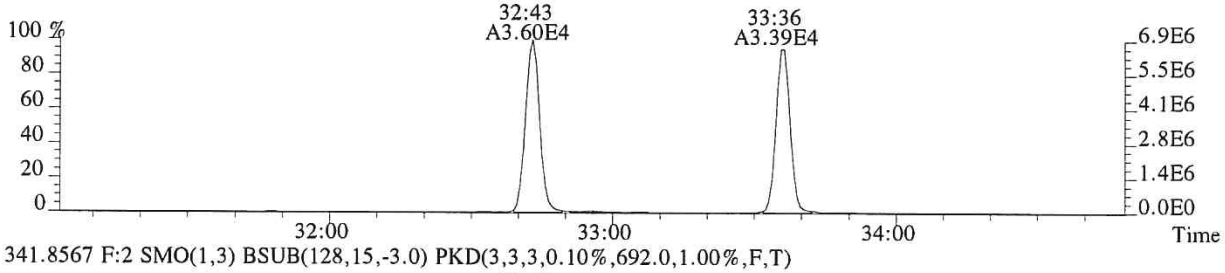
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



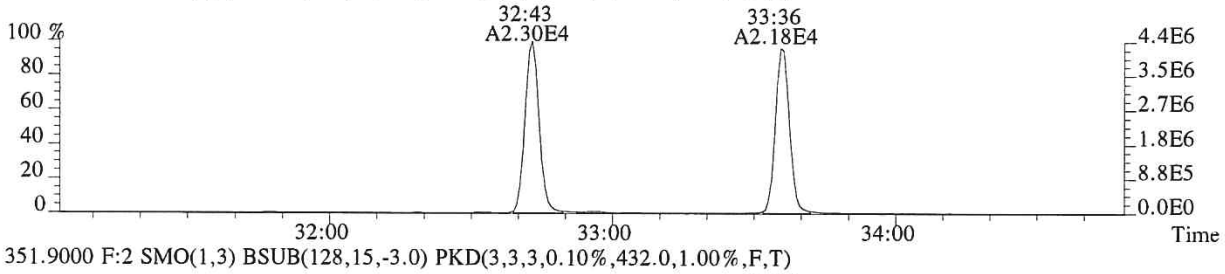
010064

File:P518965 #1-339 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

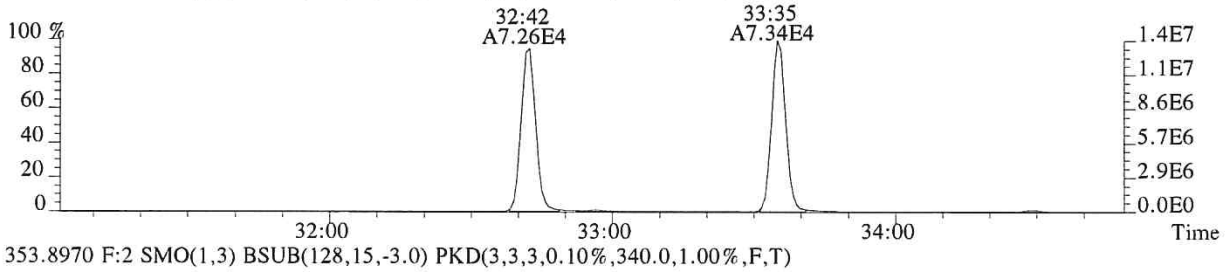
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



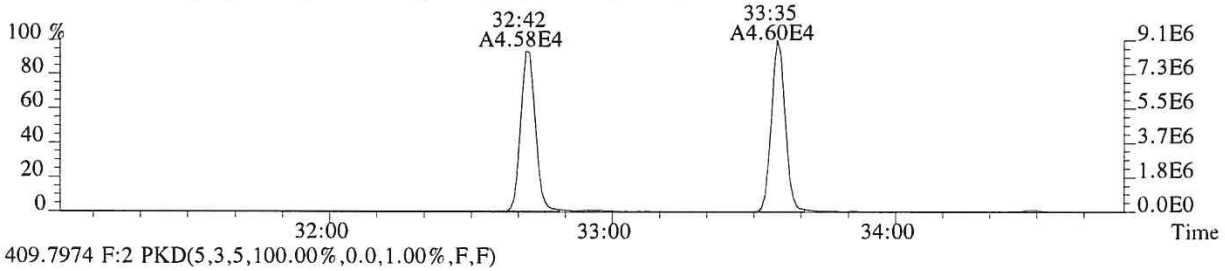
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



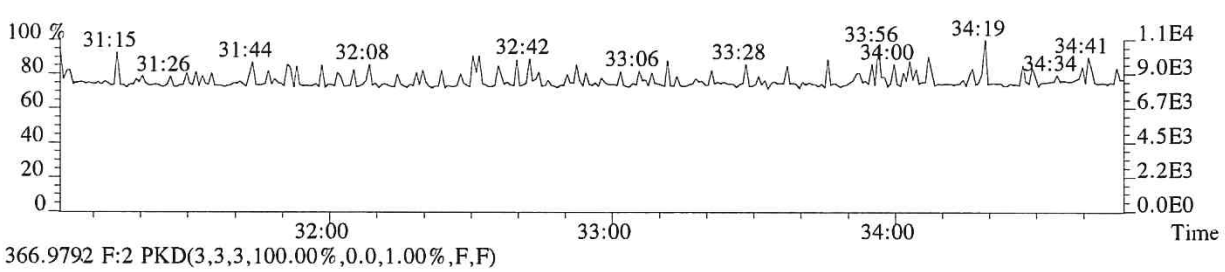
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



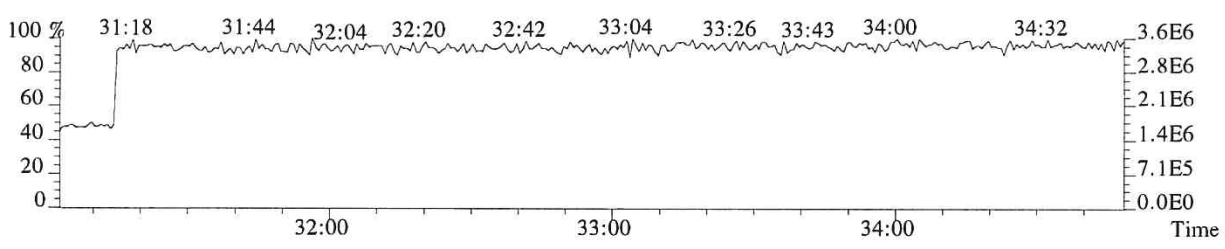
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



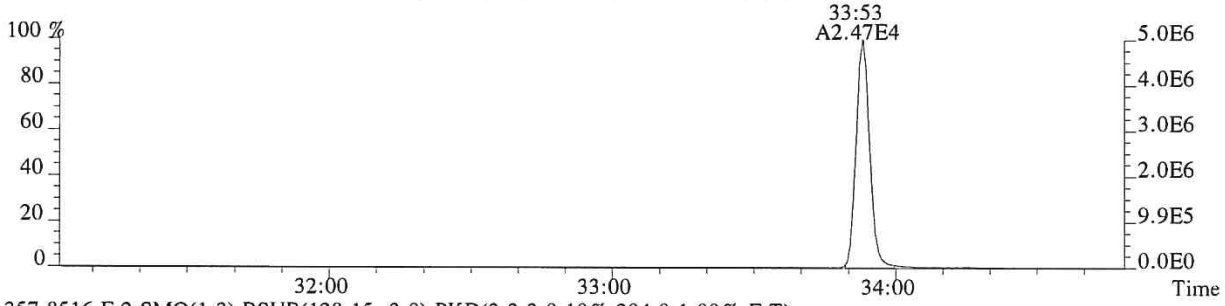
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



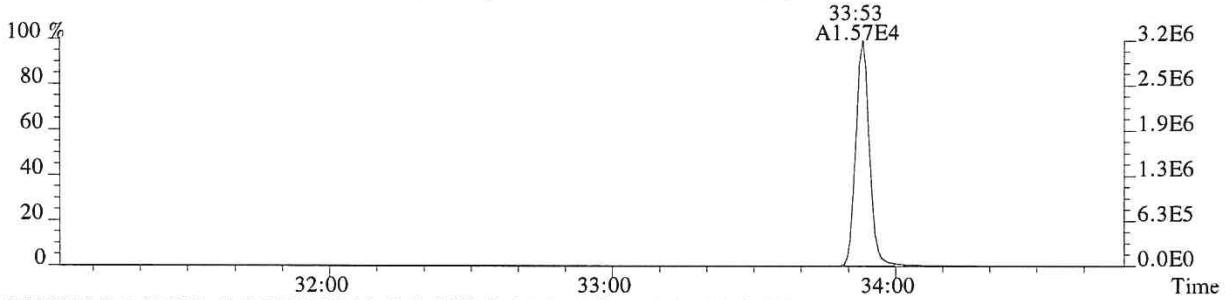
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



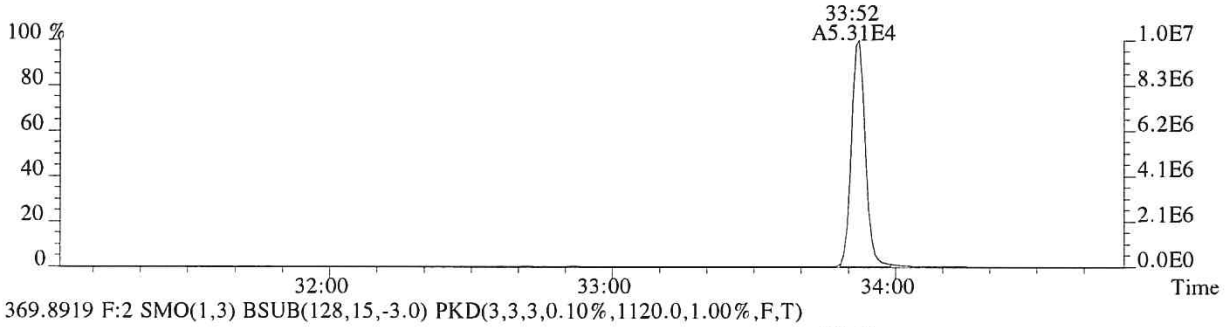
File:P518965 #1-339 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



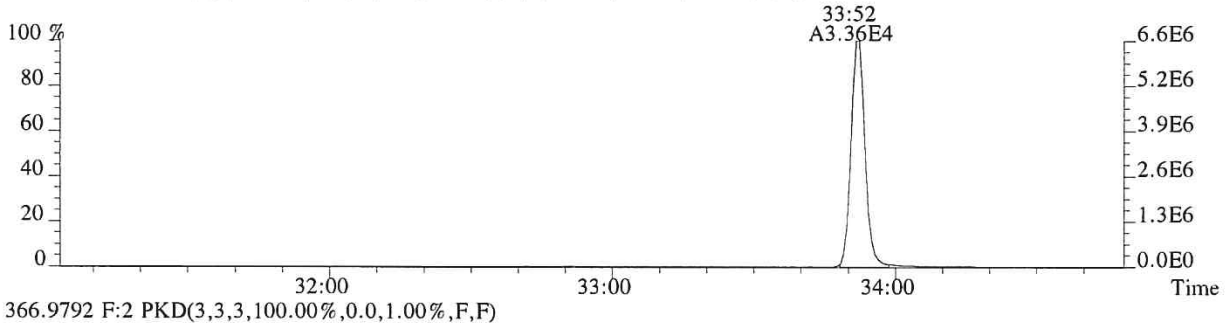
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



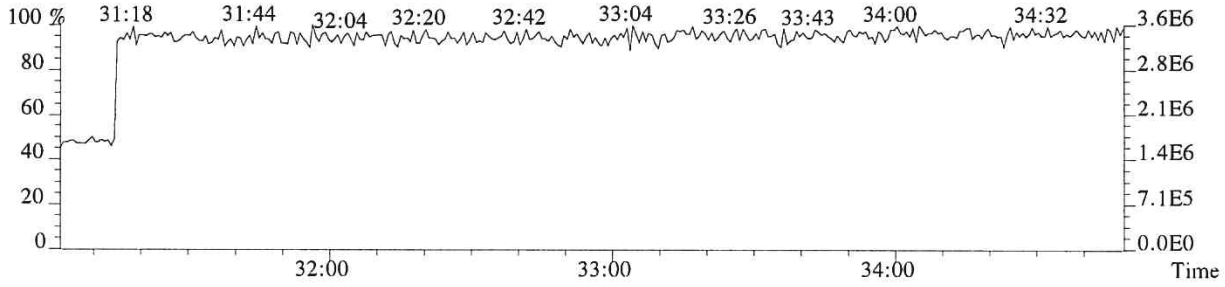
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



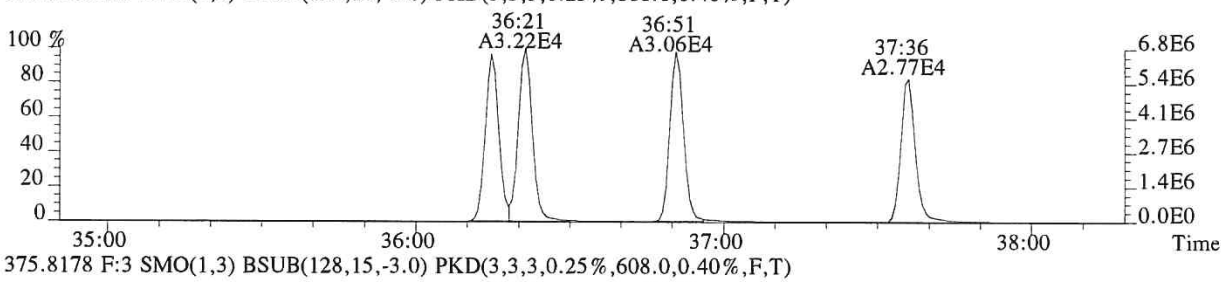
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



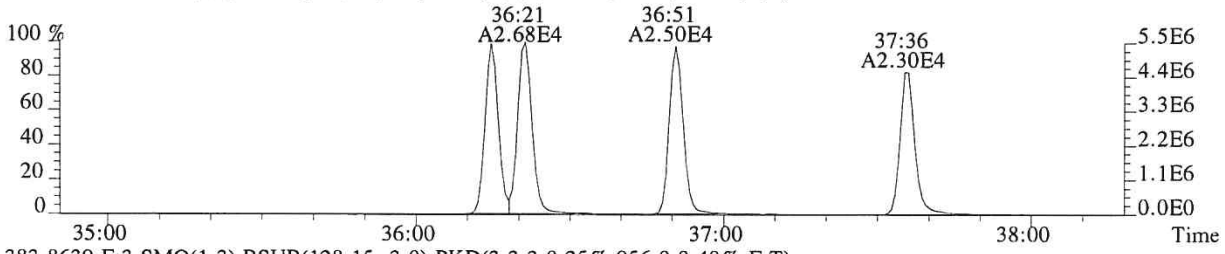
010066

File:P518965 #1-312 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

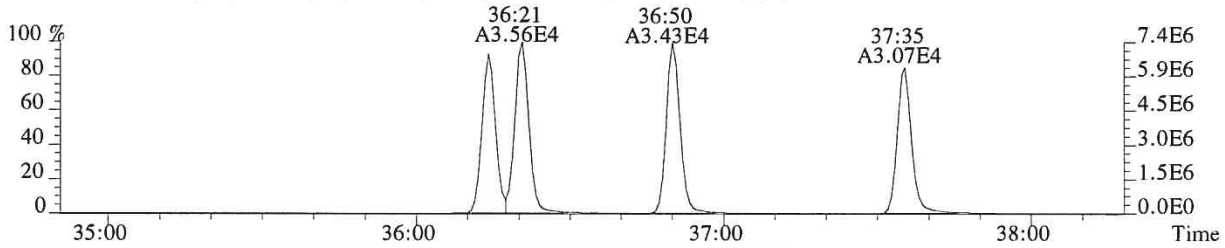
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



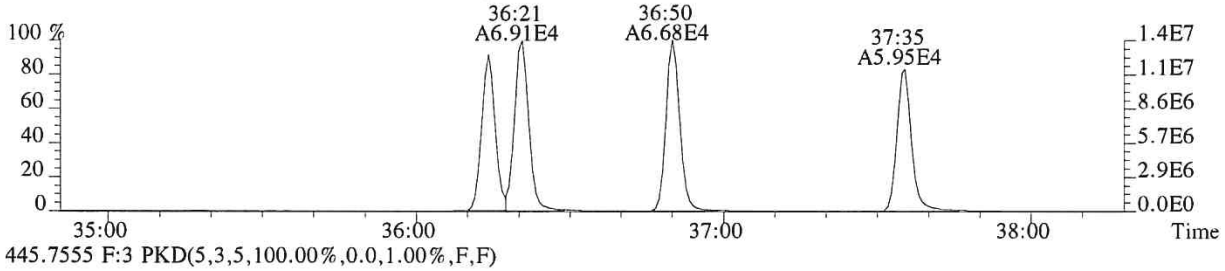
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



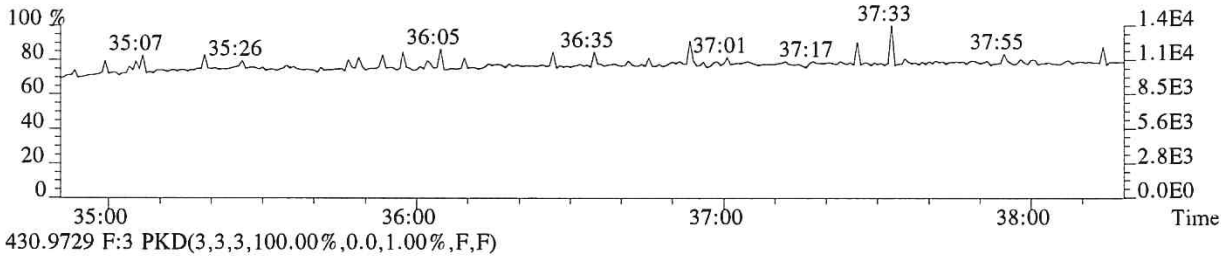
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



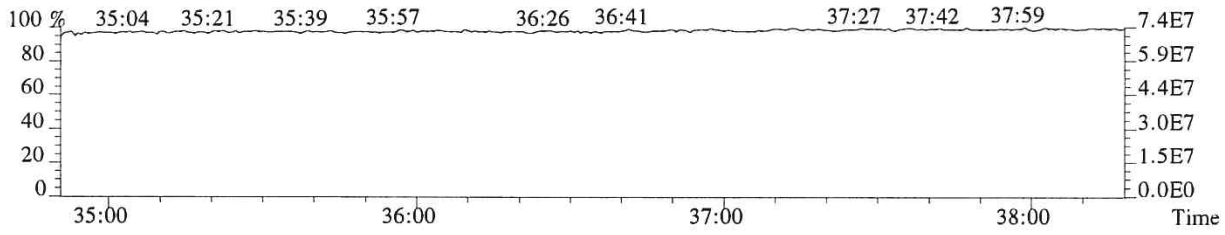
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

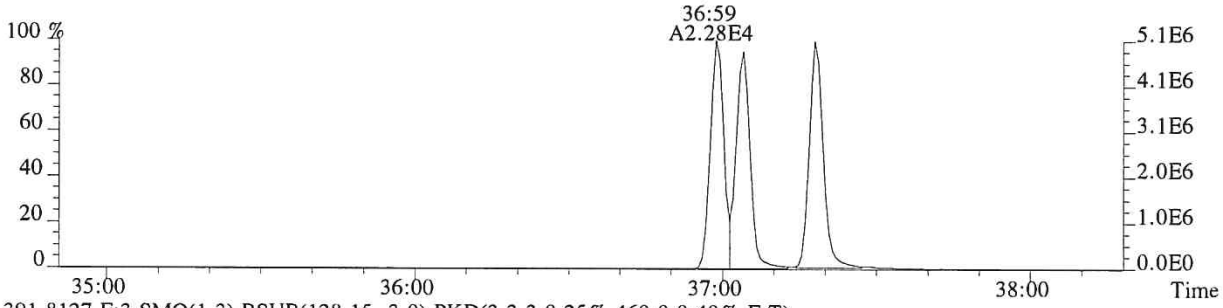


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

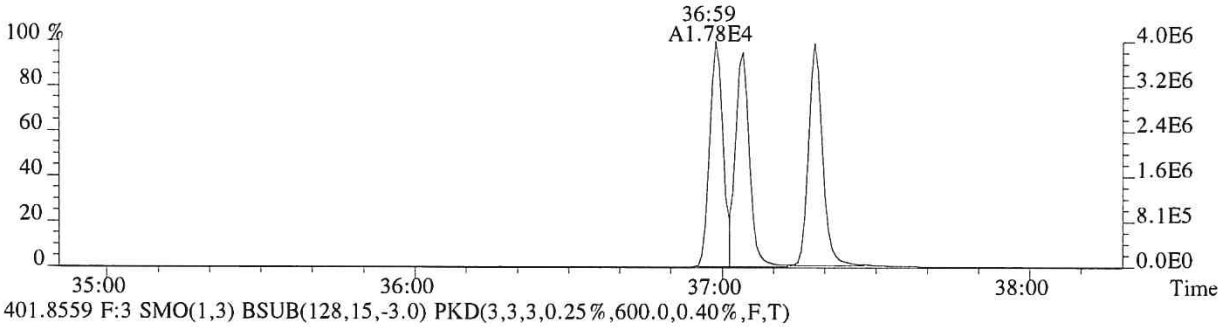


010067

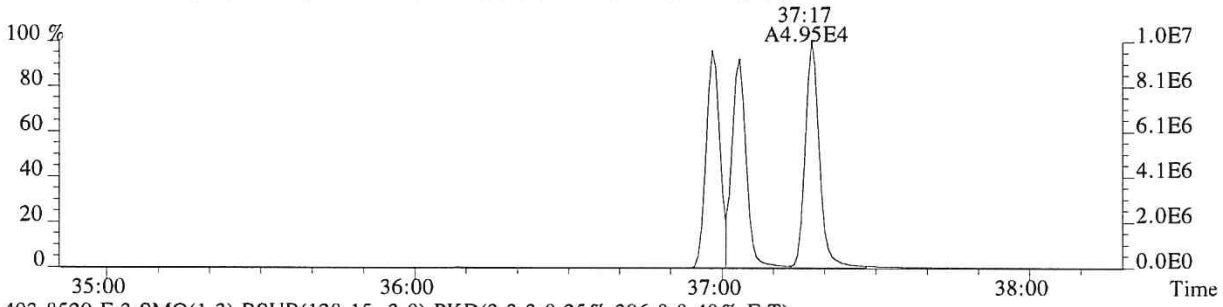
File:P518965 #1-312 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



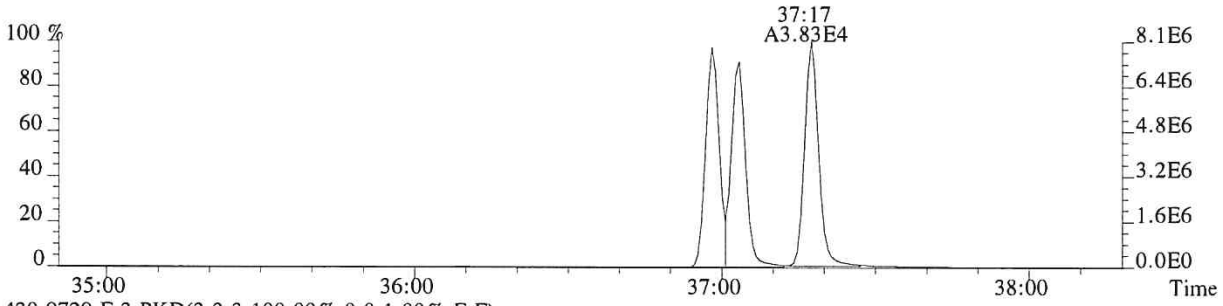
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



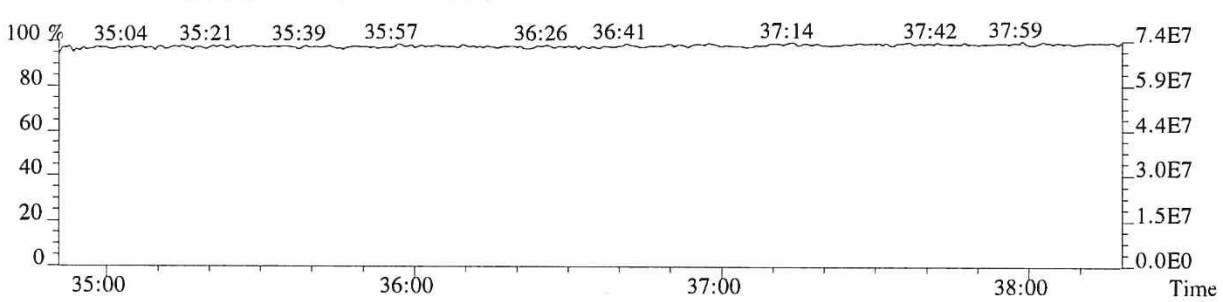
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)

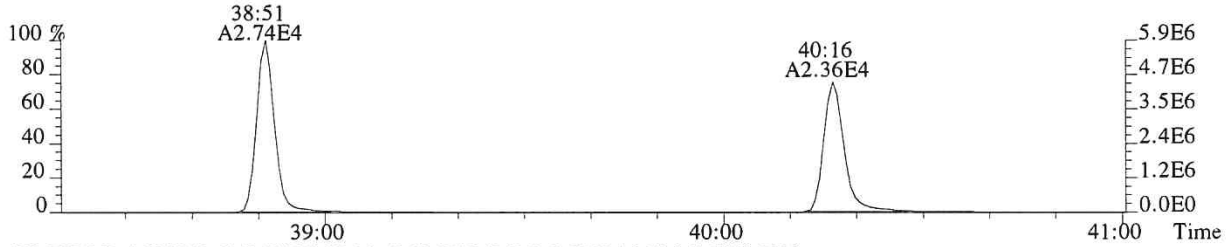


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

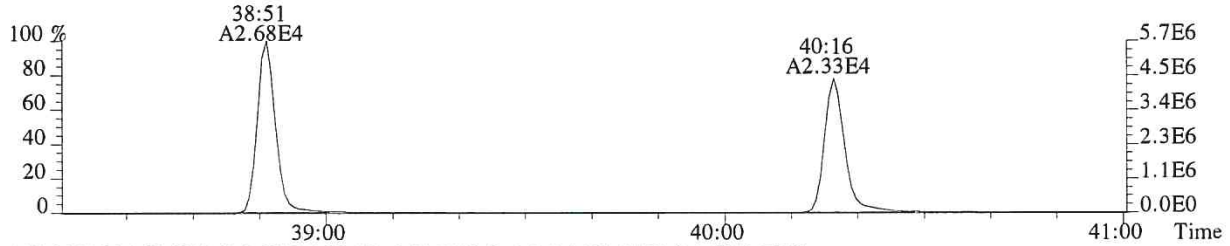


File:P518965 #1-241 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

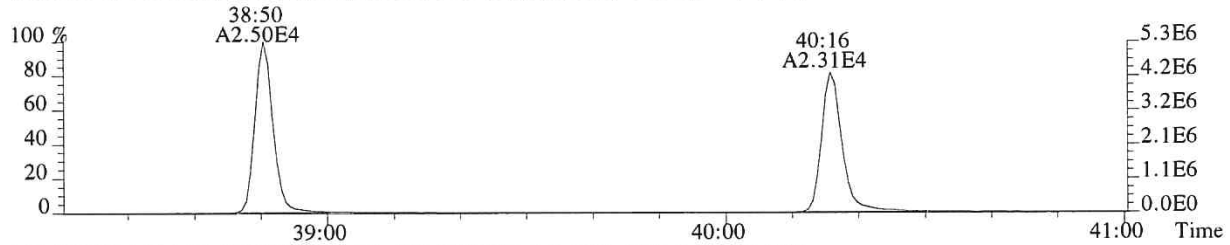
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1088.0,0.50%,F,T)



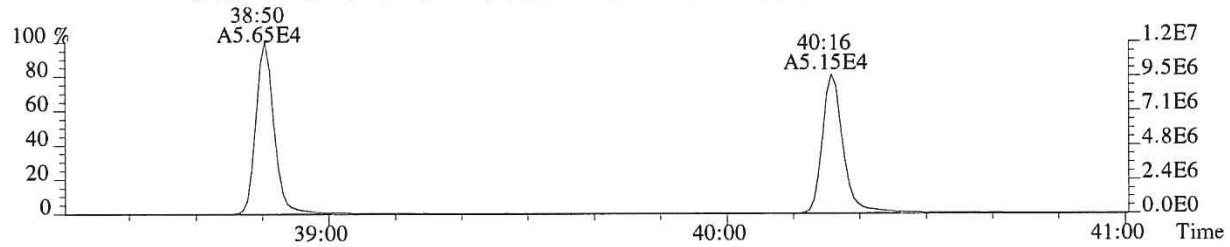
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



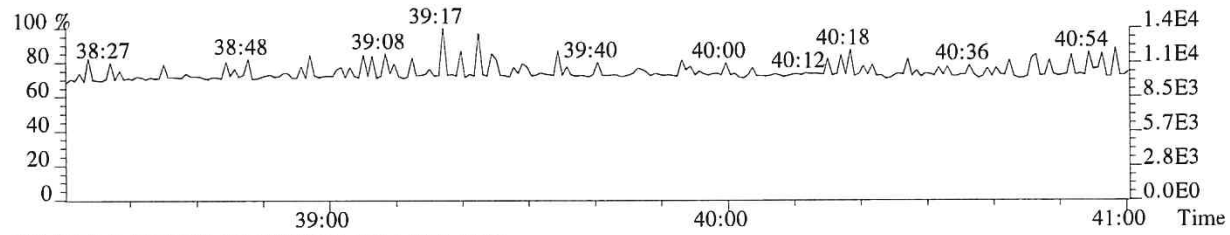
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3152.0,0.50%,F,T)



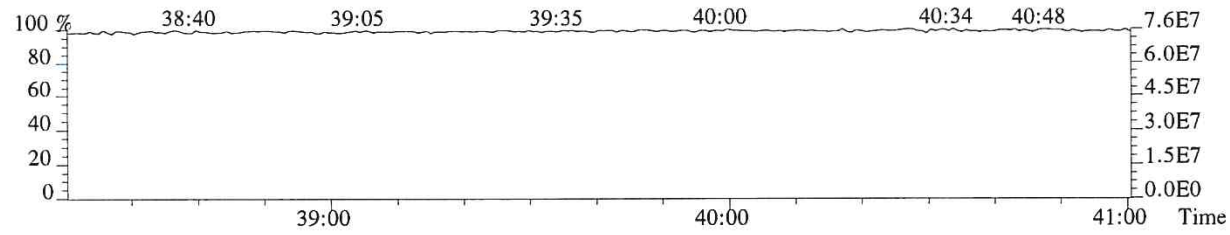
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4868.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

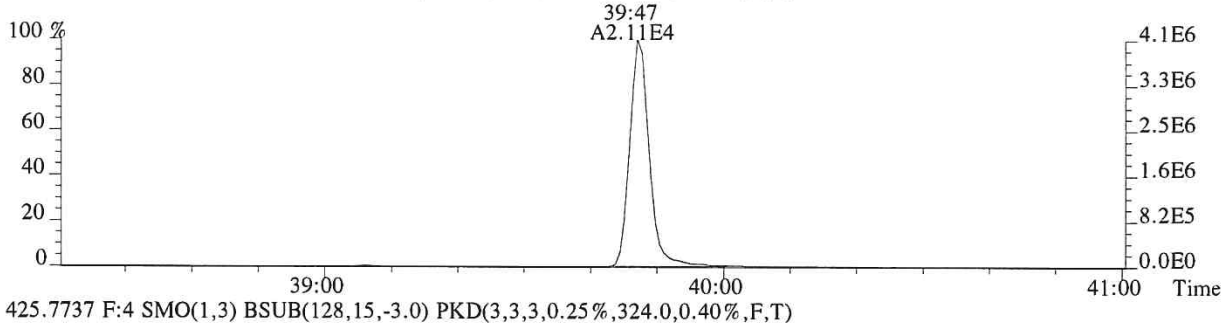


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

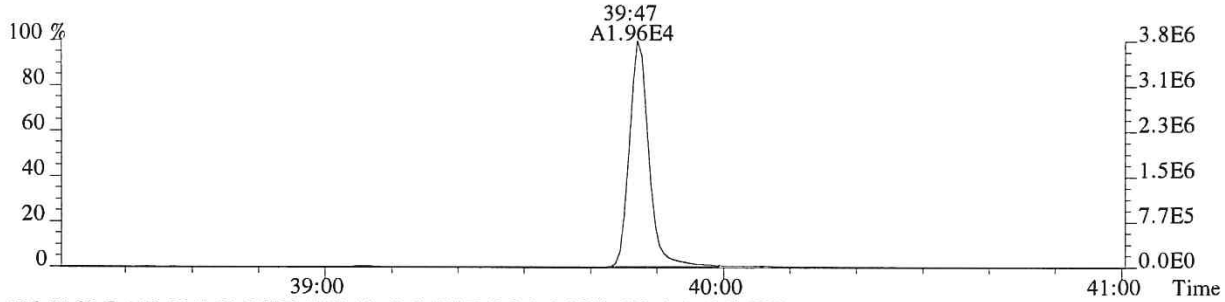


010069

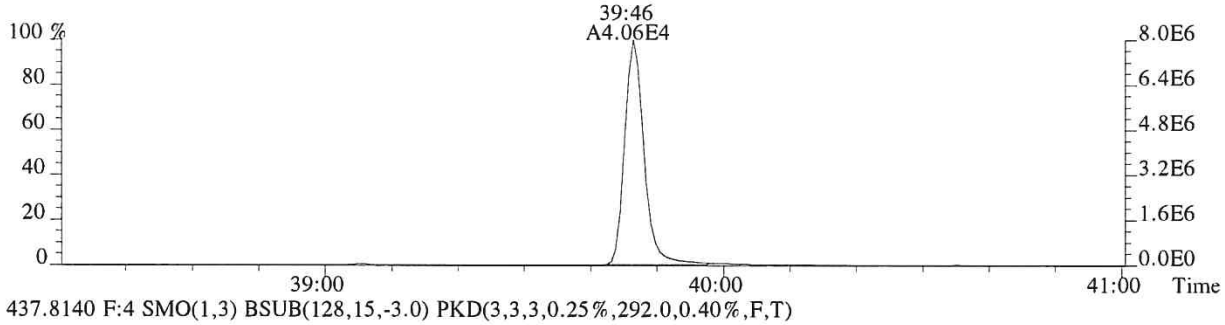
File:P518965 #1-241 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



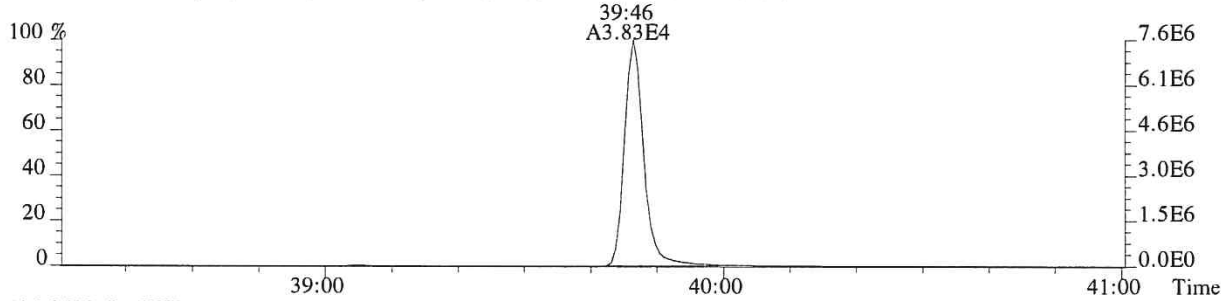
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



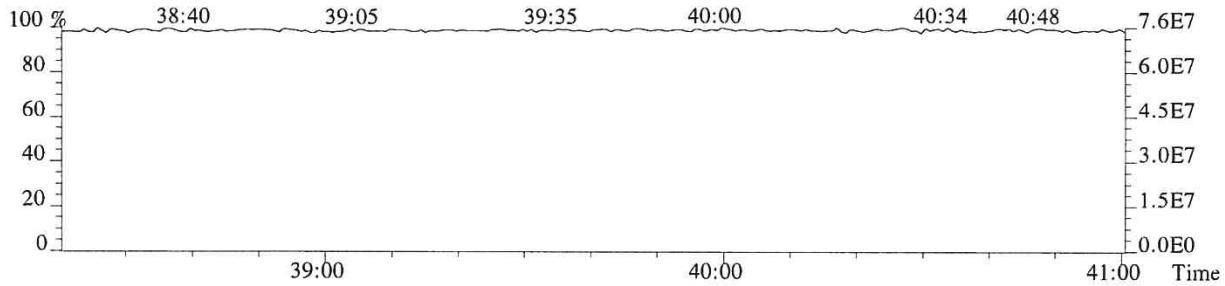
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)

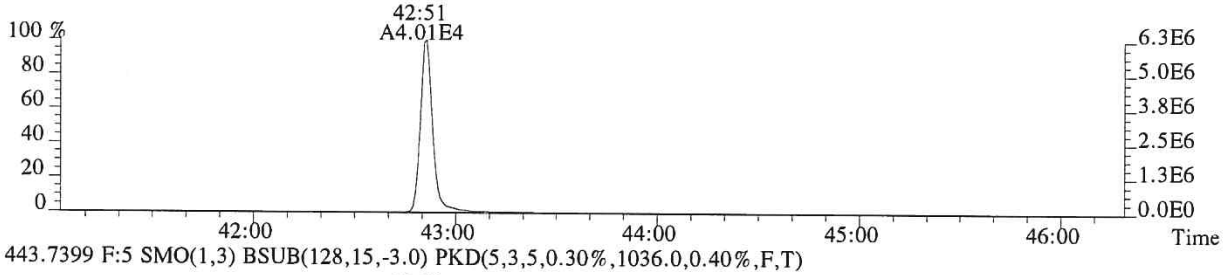


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

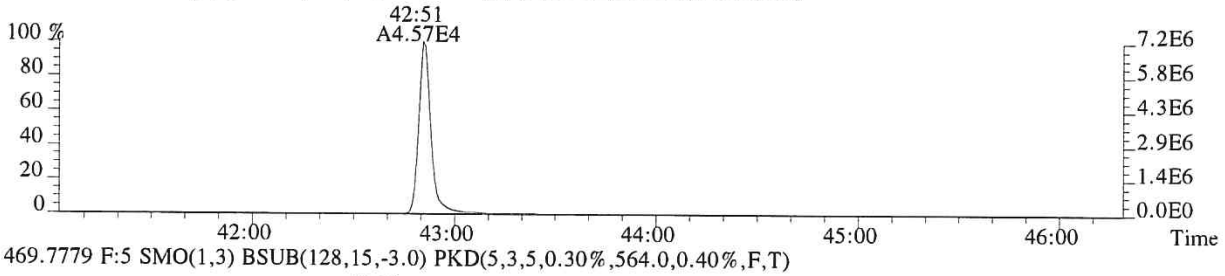


File:P518965 #1-475 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

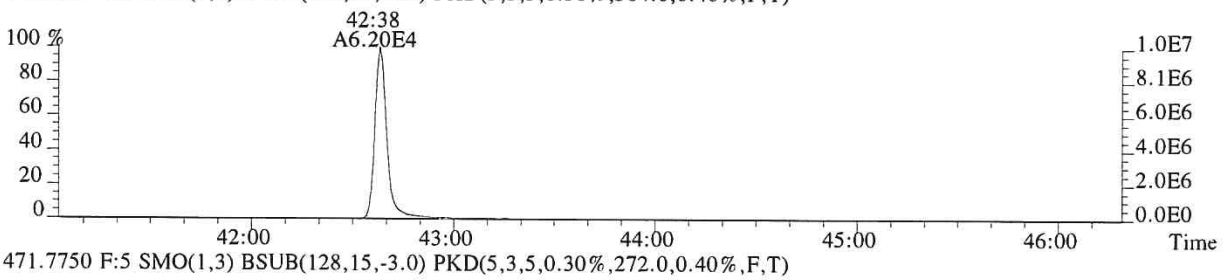
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



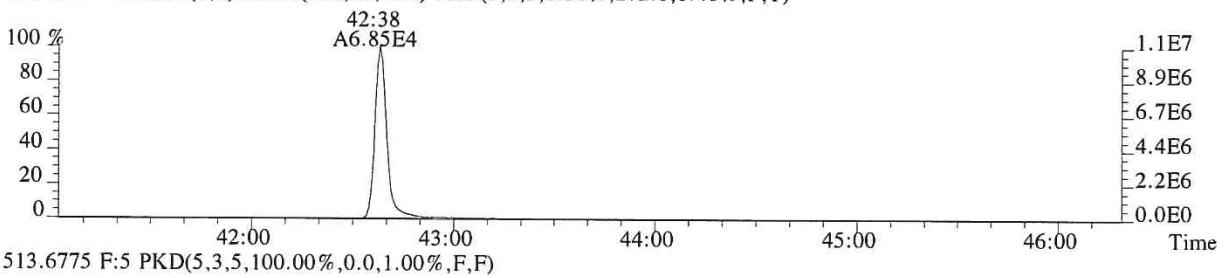
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1036.0,0.40%,F,T)



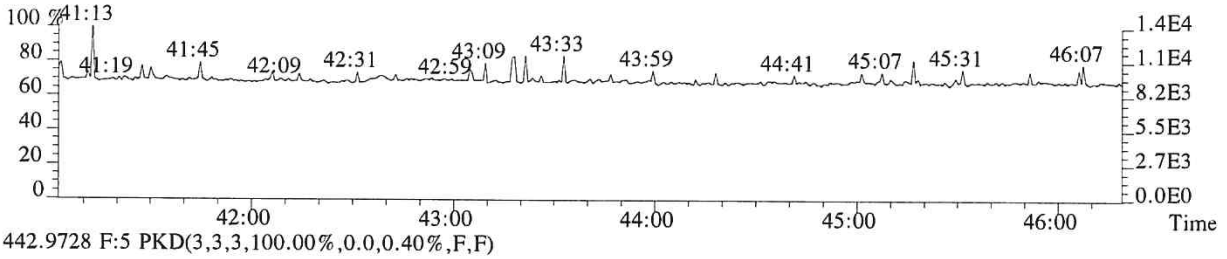
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



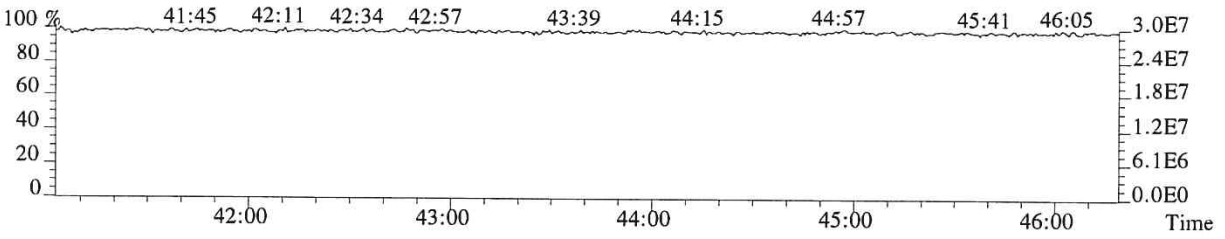
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

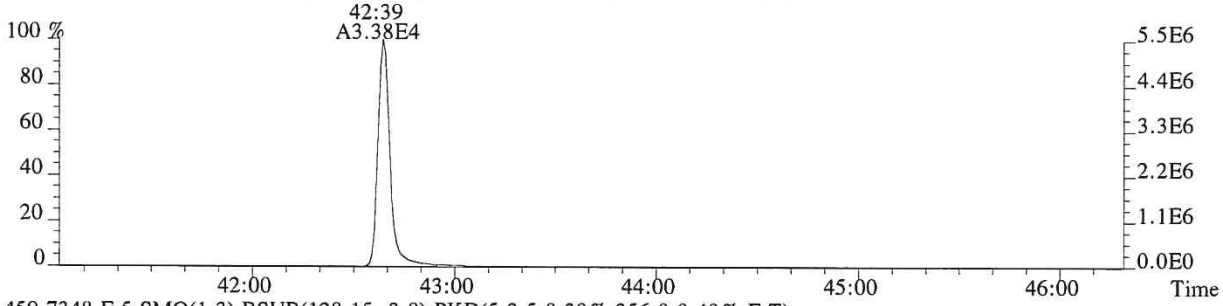


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

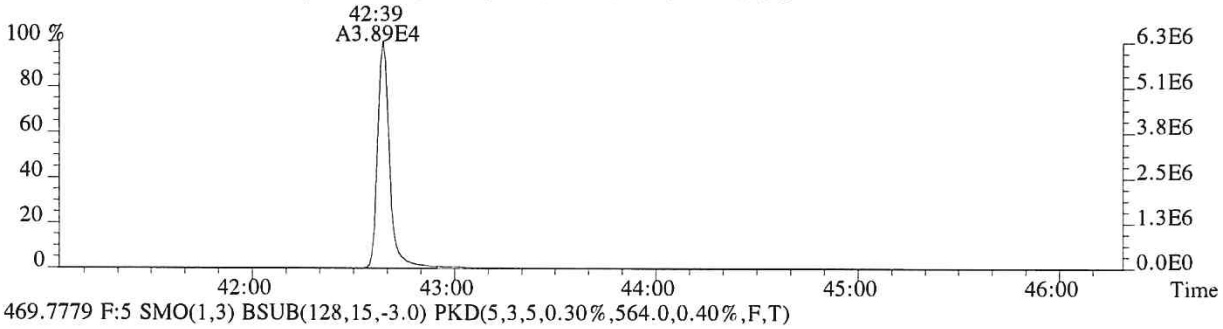


File:P518965 #1-475 Acq:21-NOV-2018 10:51:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

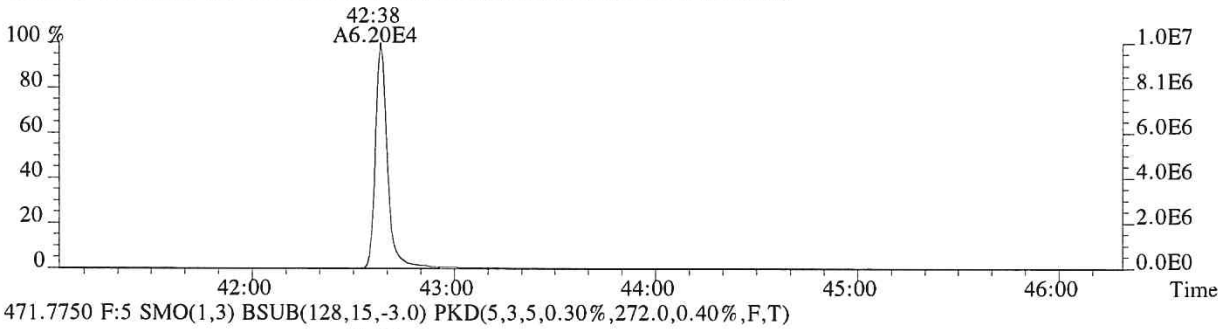
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



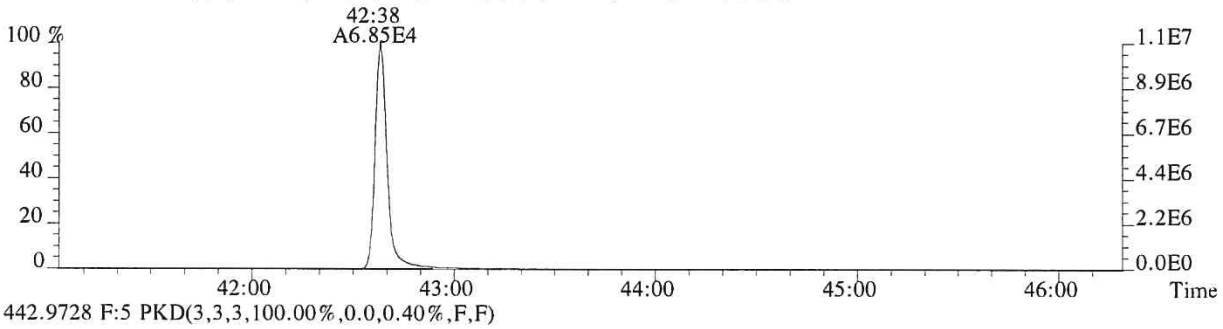
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



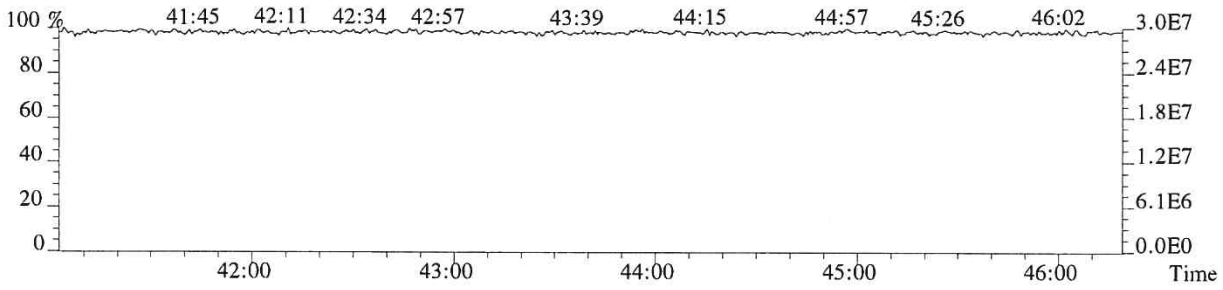
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P615714

Date: 11/27/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: LG

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P615715	27-NOV-18	11:03:06
194503	CS3	P615714	27-NOV-18	10:04:16
METHOD BLANK	EQ1800466-01	P615716	27-NOV-18	11:51:24
METHOD BLANK	EQ1800474-01	P615717	27-NOV-18	12:40:25
METHOD BLANK	EQ1800467-01	P615718	27-NOV-18	13:29:29
FW0002	E1801012-021	P615719	27-NOV-18	14:18:43
FW0003	E1801012-022	P615720	27-NOV-18	15:07:45
FW0001	E1801020-053	P615721	27-NOV-18	15:59:49
FB001	E1801020-054	P615722	27-NOV-18	16:48:08
183384-D/F WIPE OF	E1801036-001	P615723	27-NOV-18	17:37:19
183391-D/F WIPE OF	E1801036-002	P615724	27-NOV-18	18:26:25
183392-D/F WIPE OF	E1801036-003	P615725	27-NOV-18	19:15:37
FW0050	E1801038-023	P615726	27-NOV-18	20:04:50
LCS	EQ1800467-02	P615727	27-NOV-18	20:53:53
DLCS	EQ1800467-03	P615728	27-NOV-18	21:43:01

E1801020

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181127A.SPL
Last Modified: Wednesday, November 28, 2018 10:35:01 Central Standard Time
Printed: Wednesday, November 28, 2018 10:35:03 Central Standard Time

Page Position (1, 1)

OPUS5NET: P615714 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/27/18	10:04	P615714	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LKL	HRMScheck 10:59
2		11:03	P615715	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		11:51	P615716	EQ1800466-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		12:40	P615717	EQ1800474-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		13:29	P615718	EQ1800467-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		14:18	P615719	E1801012-021	E1801012-021	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		15:07	P615720	E1801012-022	E1801012-022	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:59	P615721	E1801020-053	E1801020-053	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		16:48	P615722	E1801020-054	E1801020-054	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		17:37	P615723	E1801036-001	E1801036-001	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		18:26	P615724	E1801036-002	E1801036-002	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		19:15	P615725	E1801036-003	E1801036-003	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		20:04	P615726	E1801038-023	E1801038-023	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:53	P615727	EQ1800467-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		21:43	P615728	EQ1800467-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		22:40	P615729	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMScheck 22:40
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

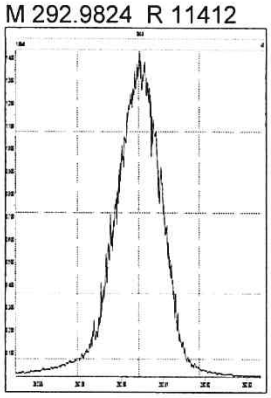
LKL 11/28/18

010075

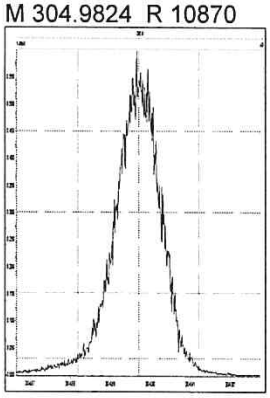
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 10:59:40 Central Standard Time

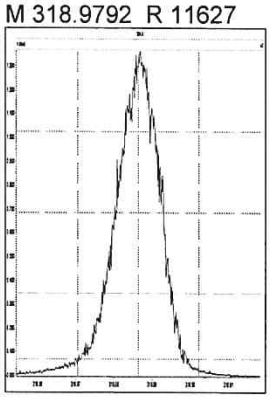
M 292.9824 R 11412



M 304.9824 R 10870



M 318.9792 R 11627



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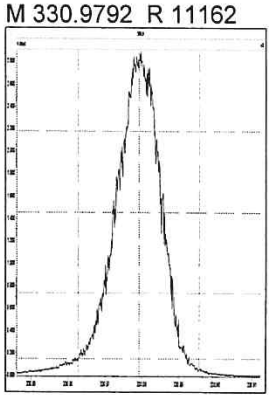

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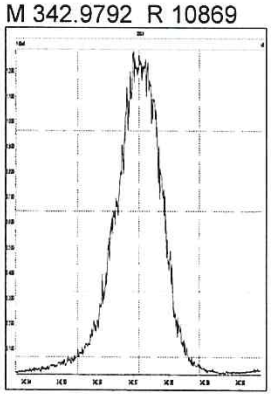
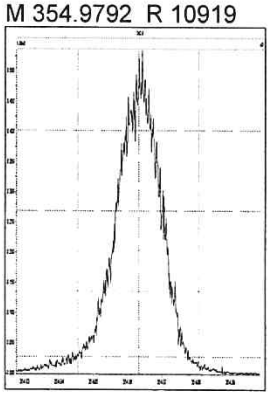


M 354.9792 R 10919



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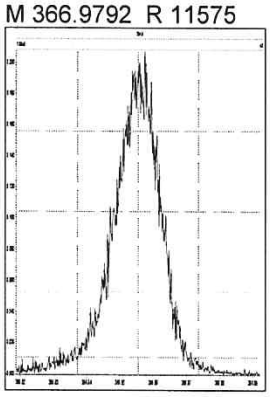
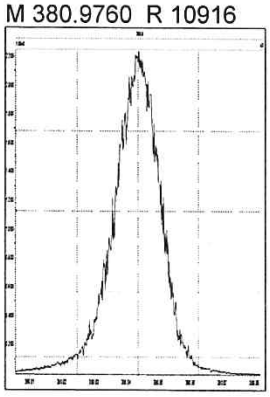


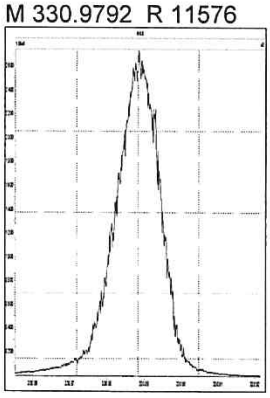
M 380.9760 R 10916



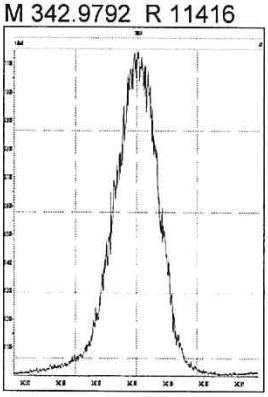
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:00:33 Central Standard Time

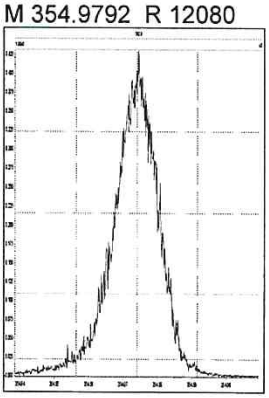
M 330.9792 R 11576



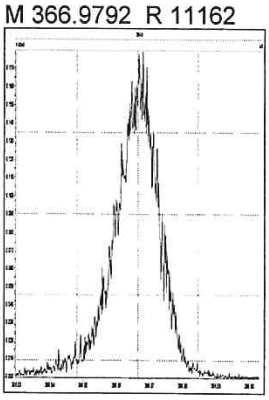
M 342.9792 R 11416



M 354.9792 R 12080



M 366.9792 R 11162



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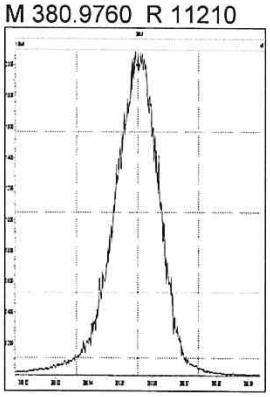

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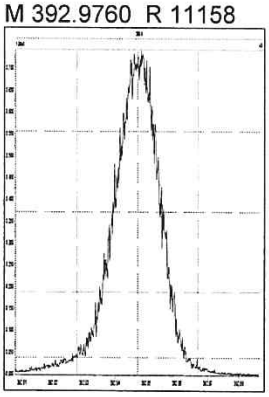
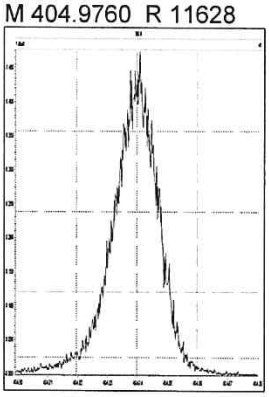
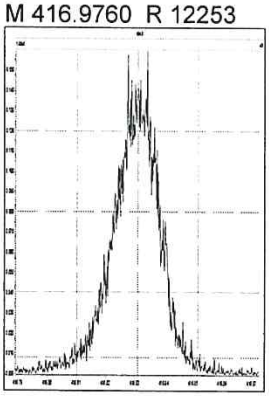


M 404.9760 R 11628



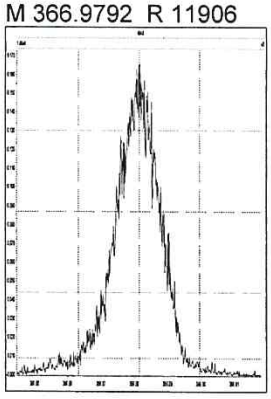
M 416.9760 R 12253



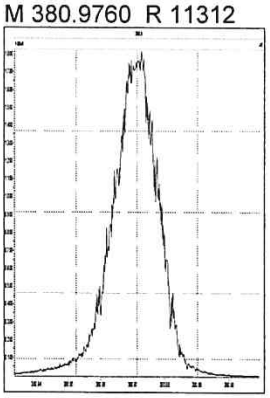
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:01:08 Central Standard Time

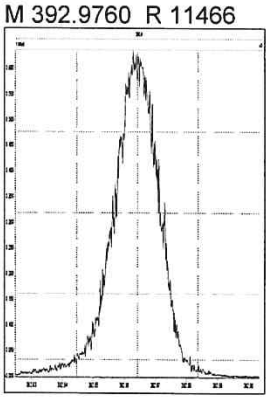
M 366.9792 R 11906



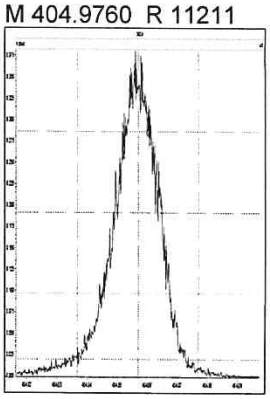
M 380.9760 R 11312



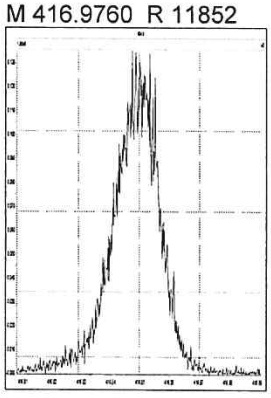
M 392.9760 R 11466



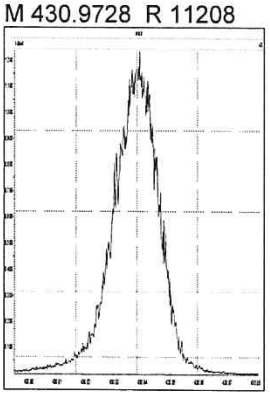
M 404.9760 R 11211



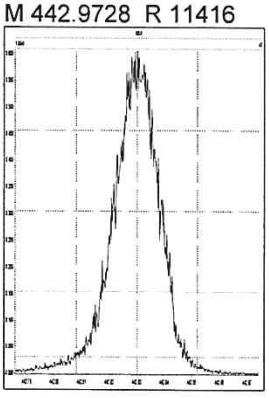
M 416.9760 R 11852



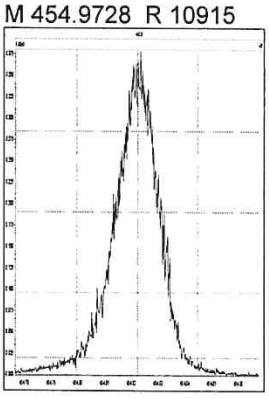
M 430.9728 R 11208



M 442.9728 R 11416



M 454.9728 R 10915



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Printed: Tuesday, November 27, 2018 11:01:36 Central Standard Time

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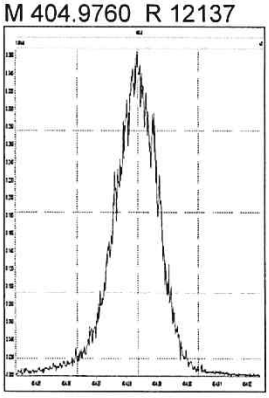

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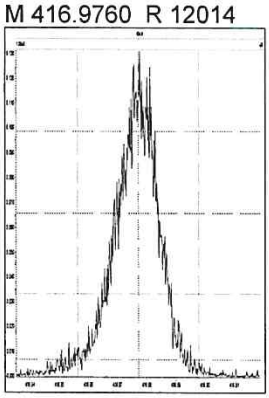

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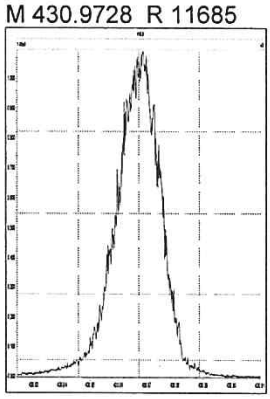

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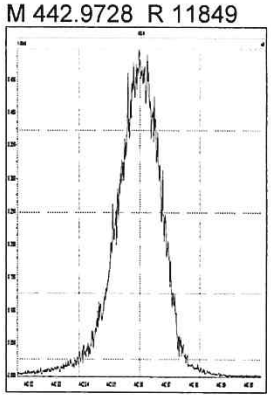
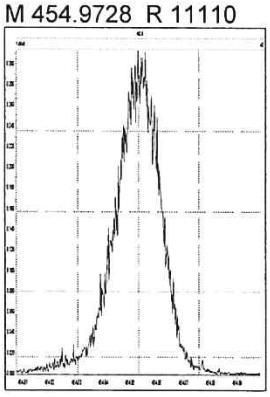


M 454.9728 R 11110



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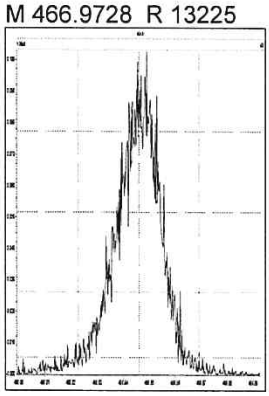

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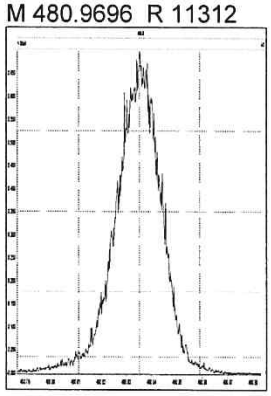

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Printed: Tuesday, November 27, 2018 11:02:11 Central Standard Time

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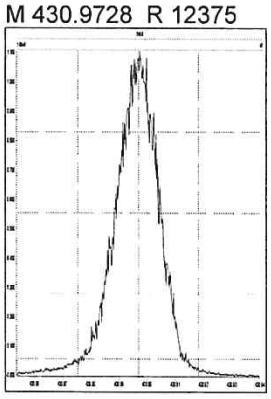

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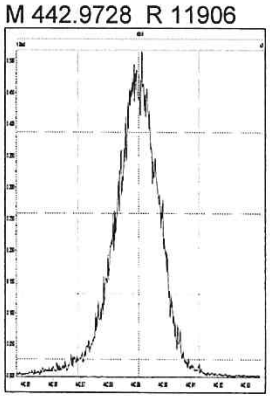

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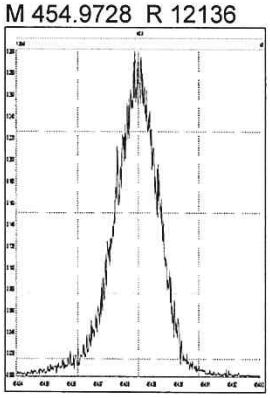

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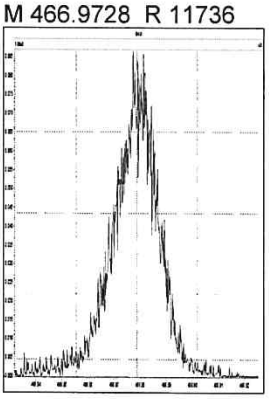
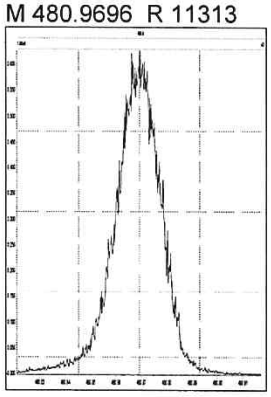


M 480.9696 R 11313



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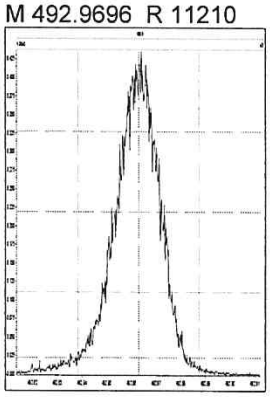
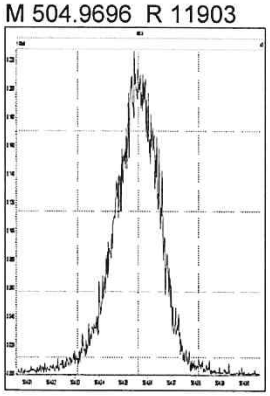
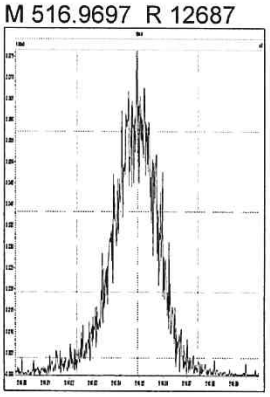


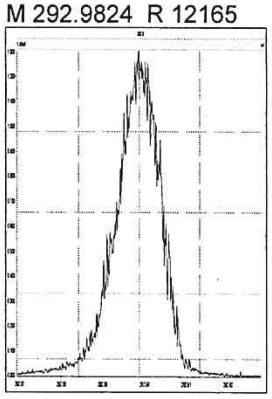
M 504.9696 R 11903



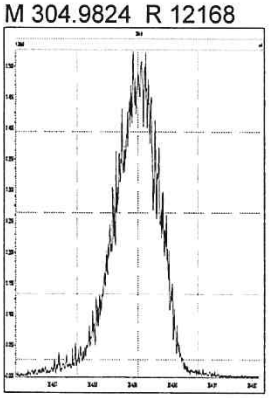
M 516.9697 R 12687



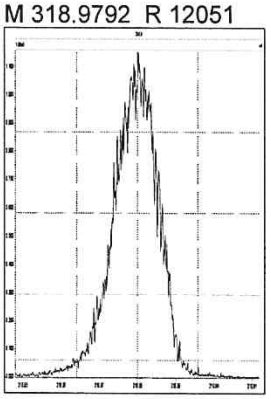
M 292.9824 R 12165



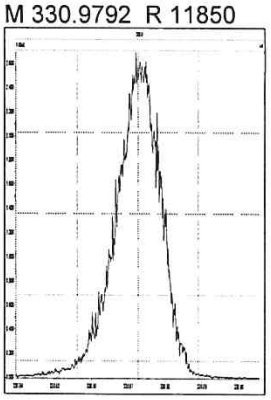
M 304.9824 R 12168



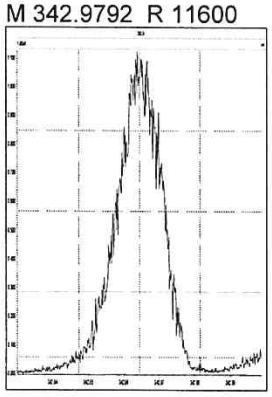
M 318.9792 R 12051



M 330.9792 R 11850



M 342.9792 R 11600



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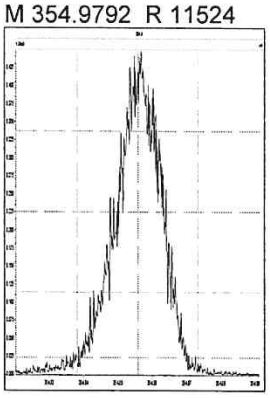

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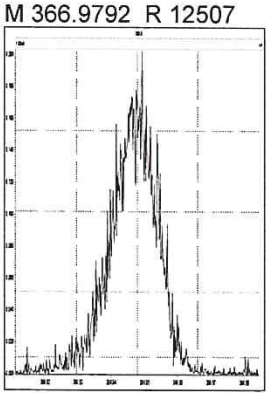
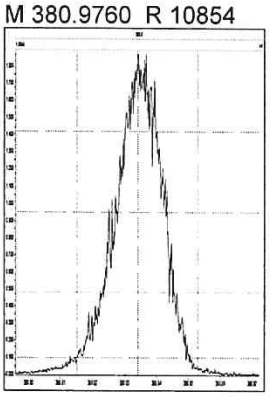
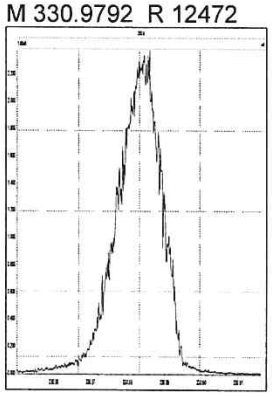


M 380.9760 R 10854



M 330.9792 R 12472



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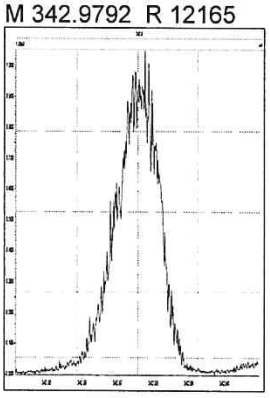

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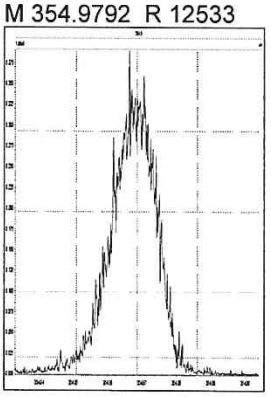
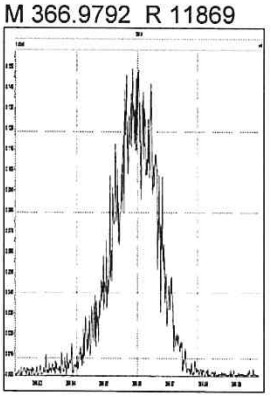
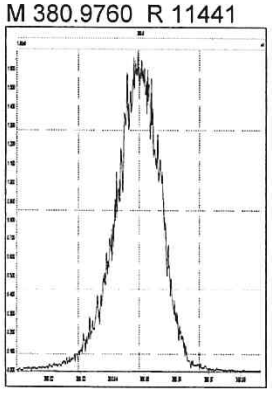


M 366.9792 R 11869



M 380.9760 R 11441



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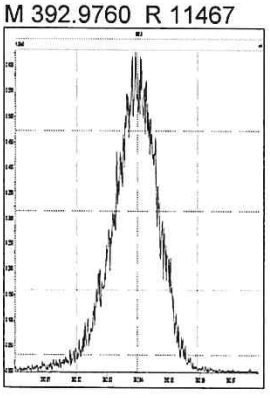
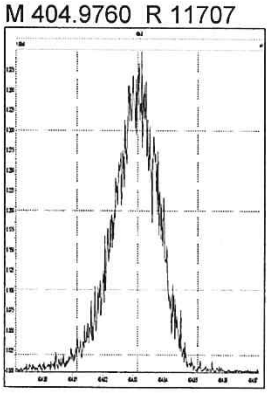
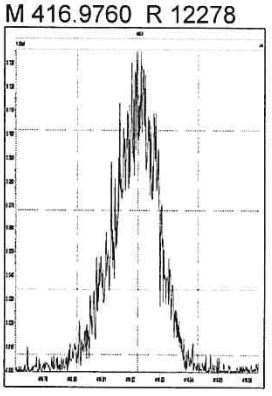


M 404.9760 R 11707



M 416.9760 R 12278



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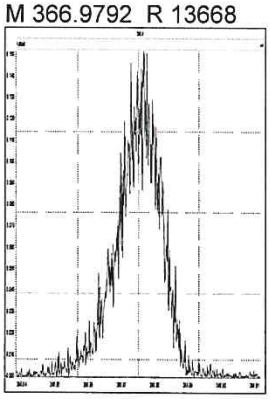
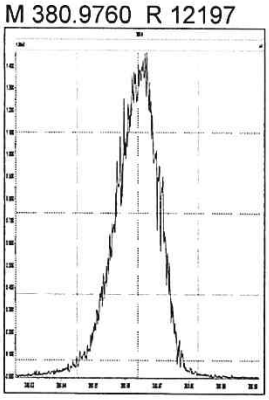


M 380.9760 R 12197



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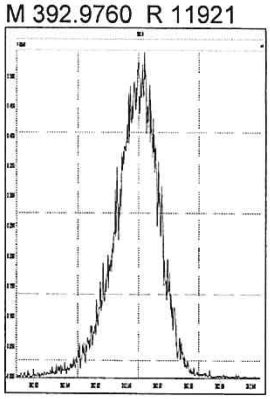
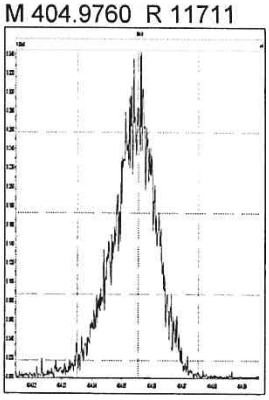


M 404.9760 R 11711



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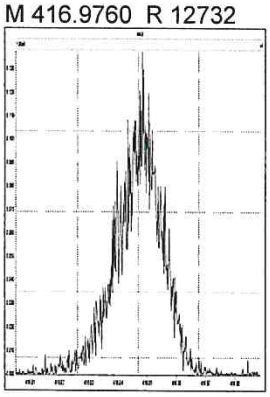
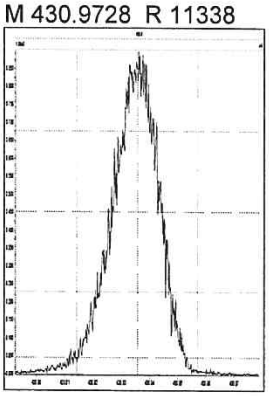
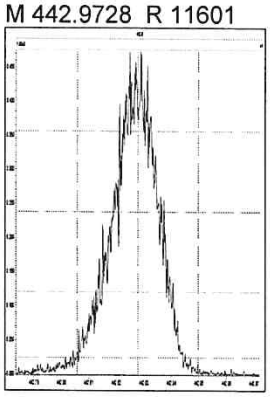


M 430.9728 R 11338



M 442.9728 R 11601



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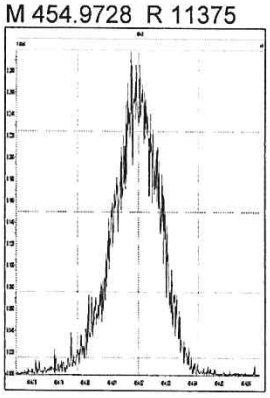
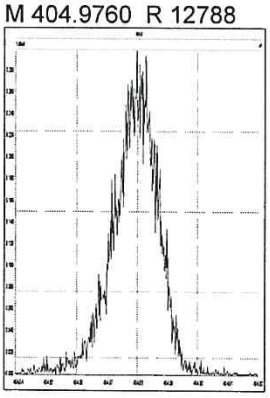
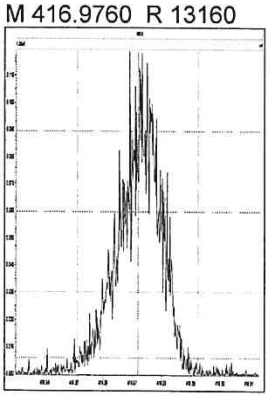


M 404.9760 R 12788



M 416.9760 R 13160



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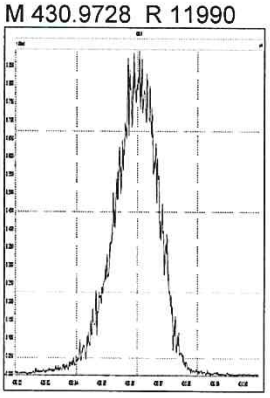
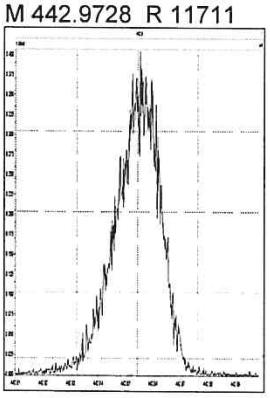
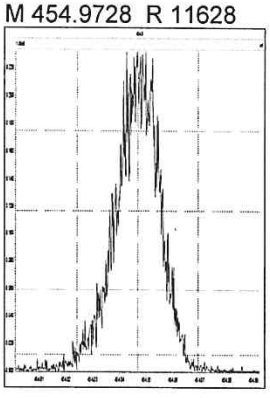


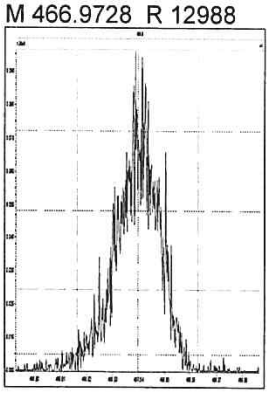
M 442.9728 R 11711



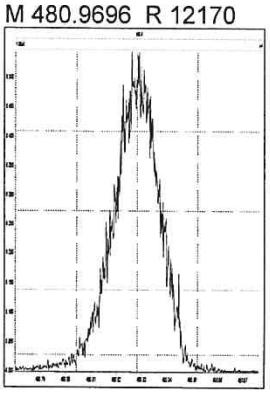
M 454.9728 R 11628



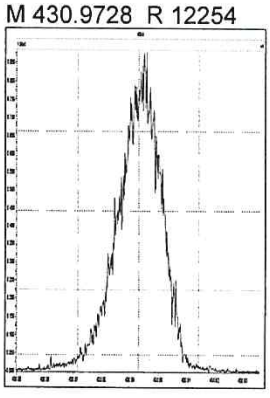
M 466.9728 R 12988



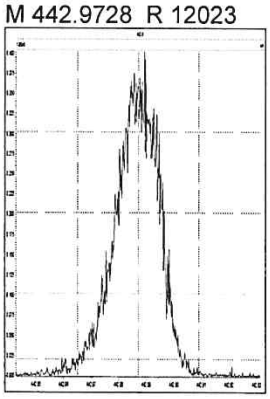
M 480.9696 R 12170



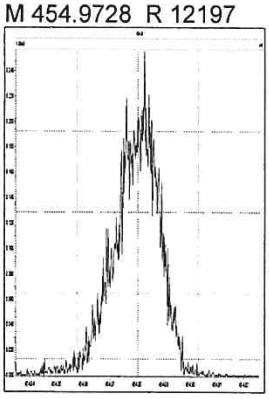
M 430.9728 R 12254



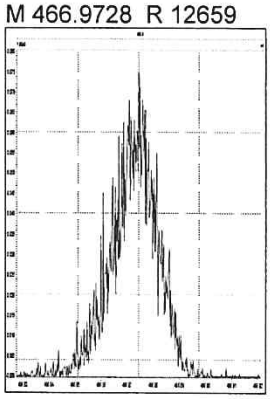
M 442.9728 R 12023



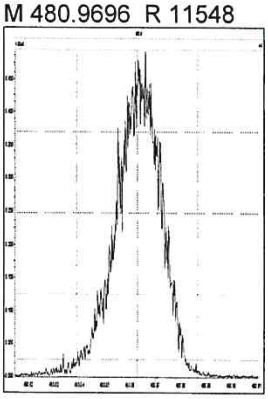
M 454.9728 R 12197



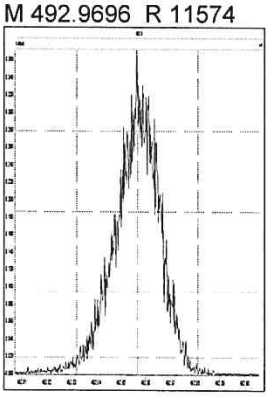
M 466.9728 R 12659



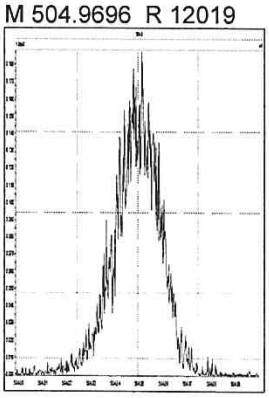
M 480.9696 R 11548



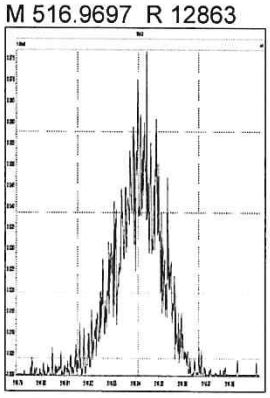
M 492.9696 R 11574



M 504.9696 R 12019



M 516.9697 R 12863



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

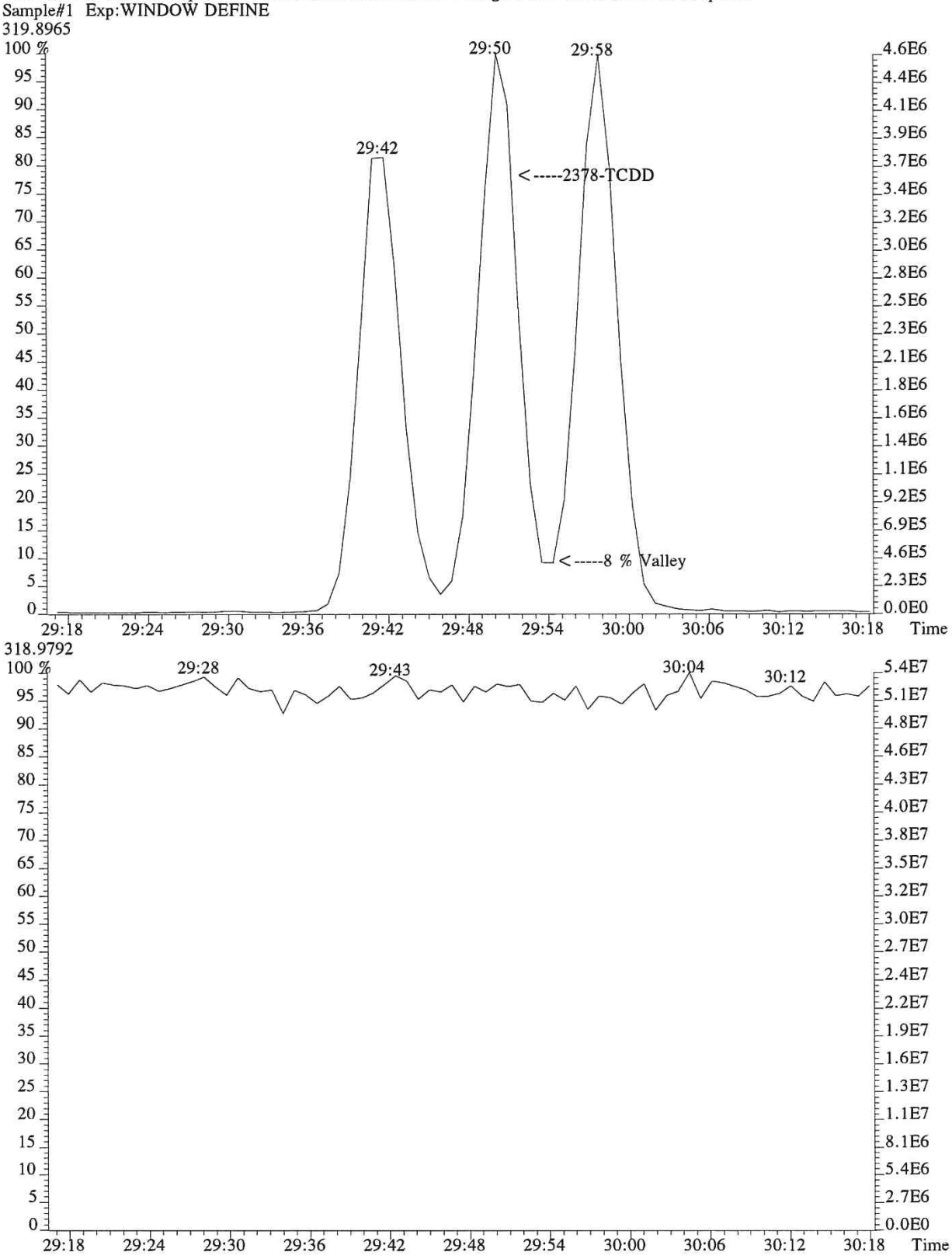
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P615715
Date Analyzed: 27-NOV-18
Time Analyzed: 11:03:06

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:57	30:58
TCDD	26:47	30:47
PeCDF	30:51	34:58
PeCDD	32:18	34:42
HxCDF	35:33	38:03
HxCDD	36:03	37:38
HpCDF	39:16	40:47
HpCDD	39:31	40:15

% Valley 2378-TCDD: 8 %

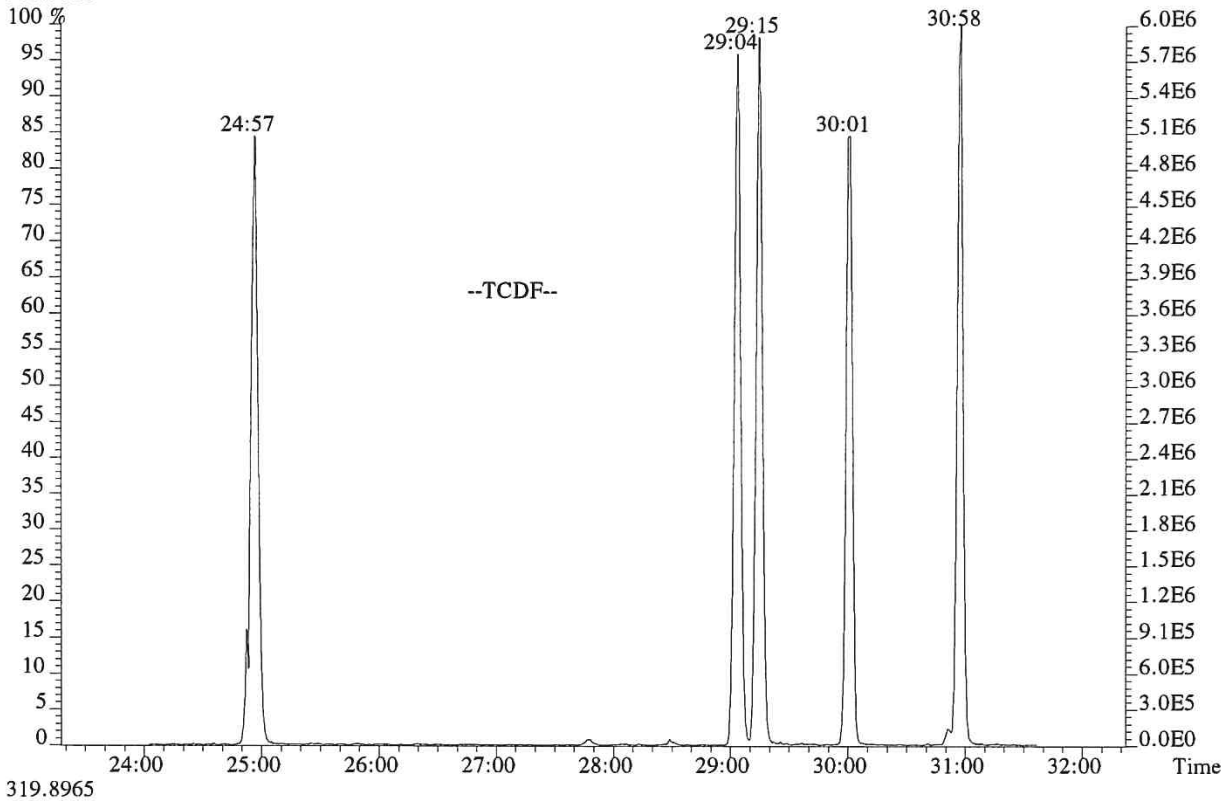
File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



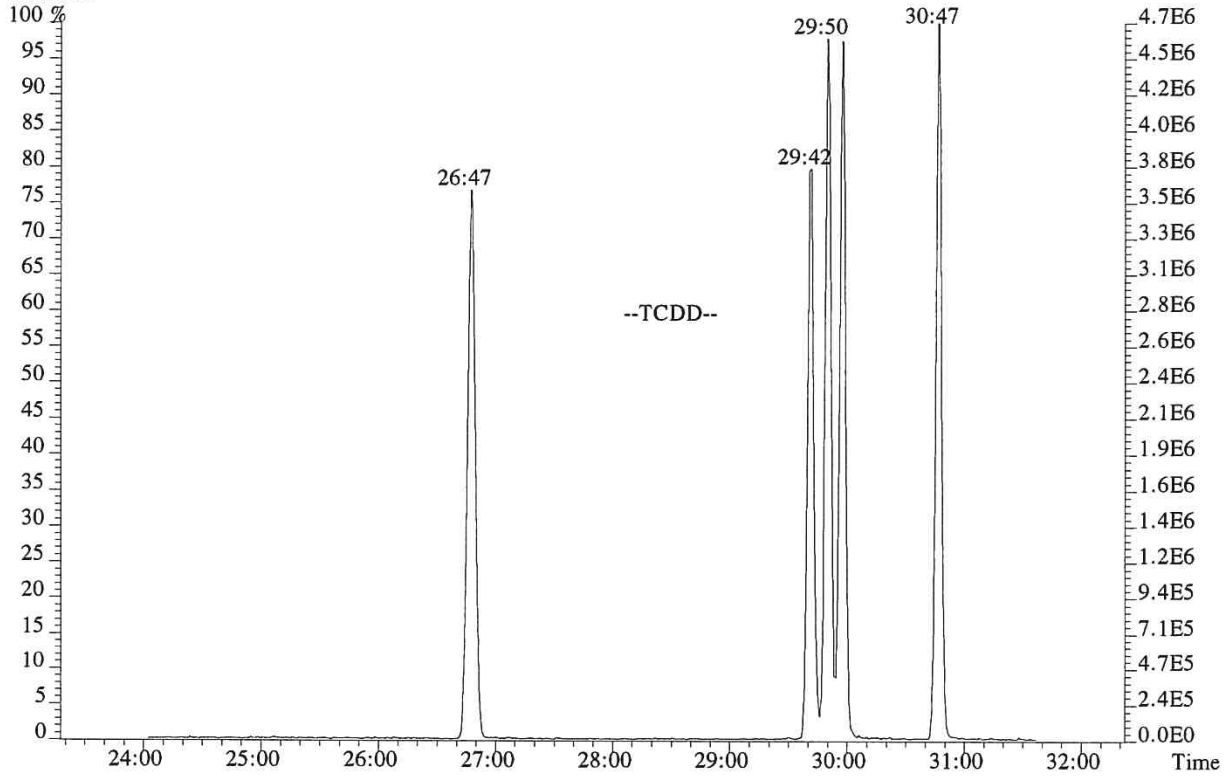
010085

File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

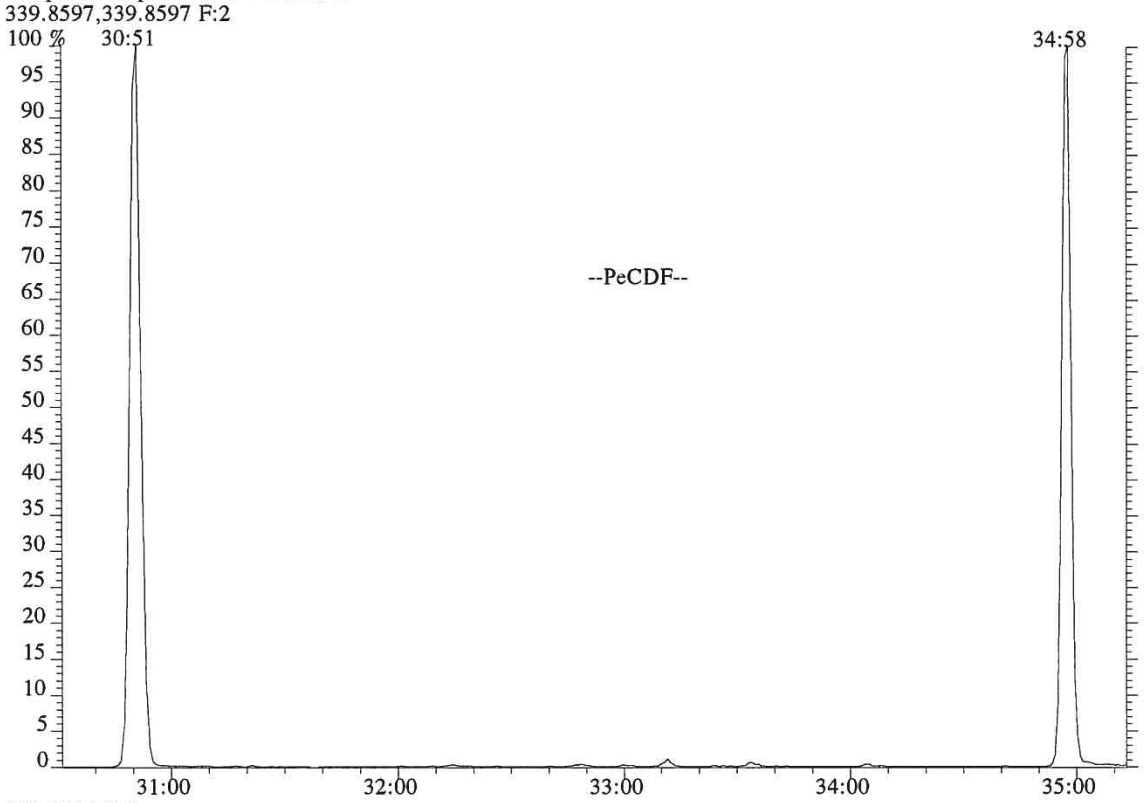
303.9016



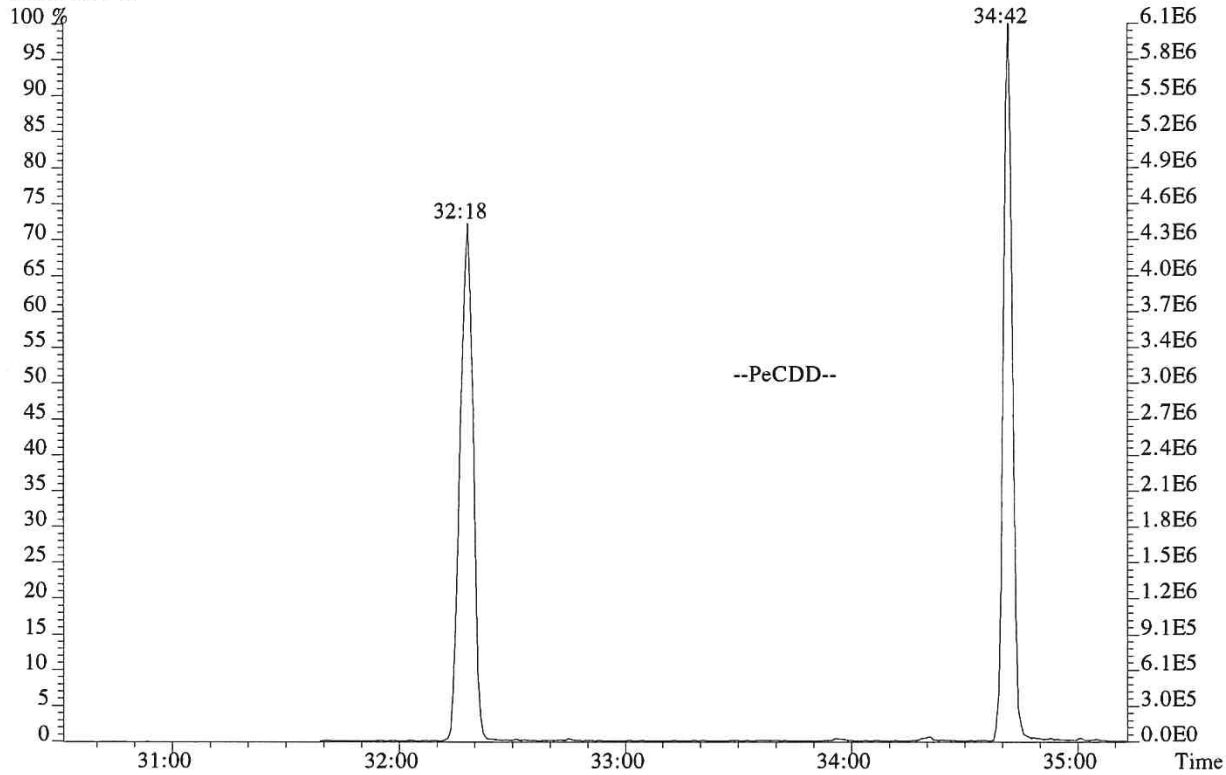
319.8965



File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

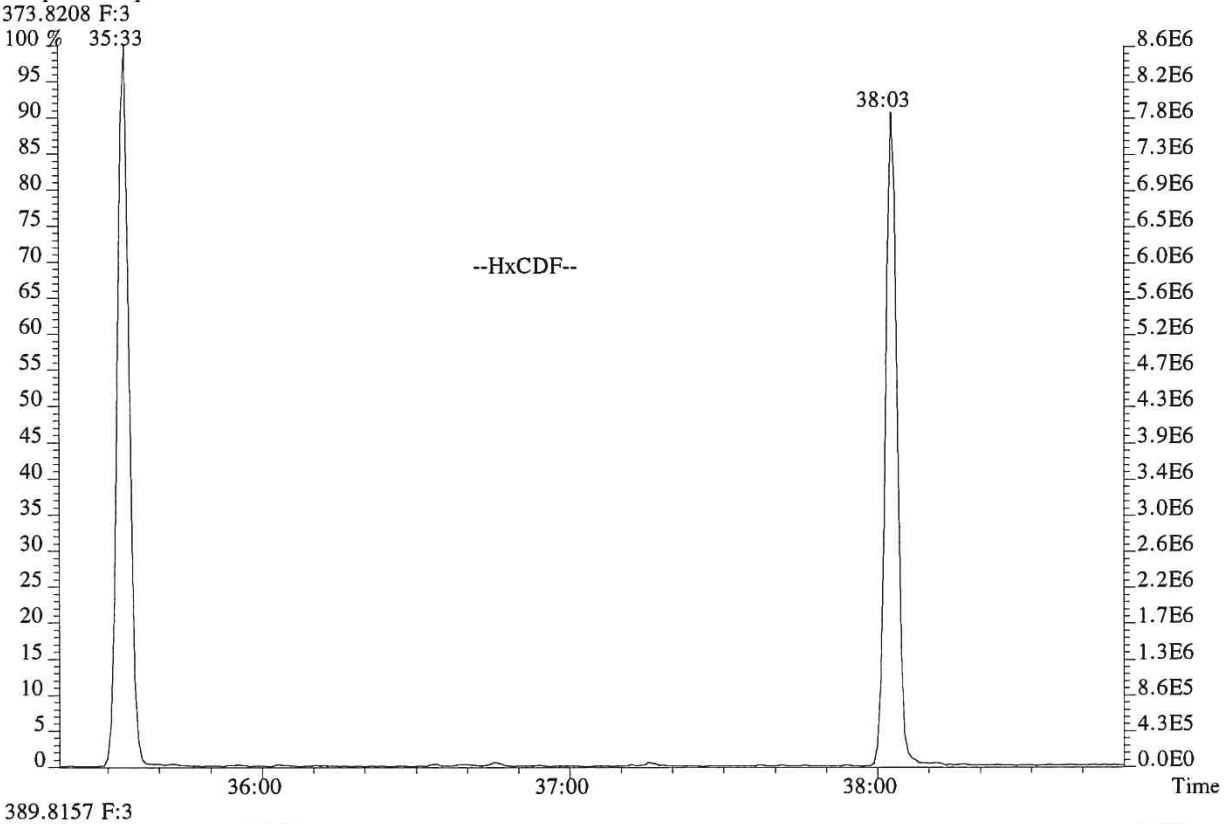


355.8546 F:2

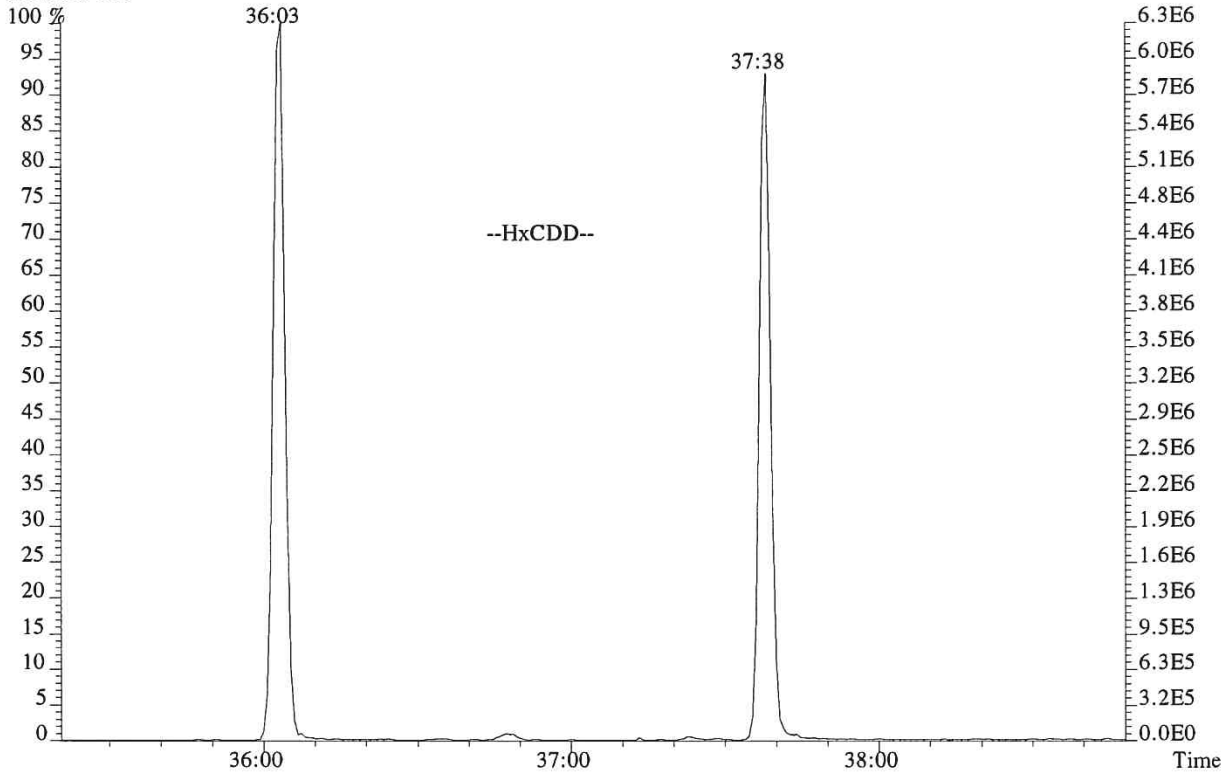


File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

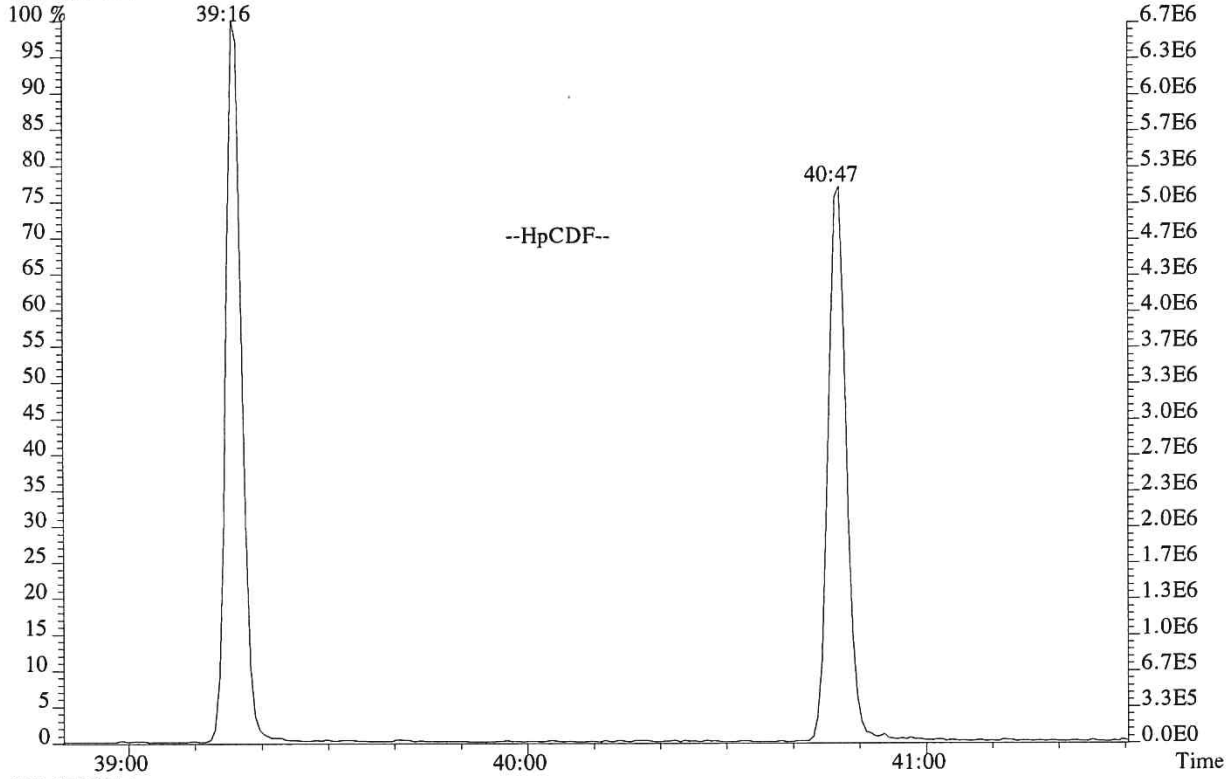
373.8208 F:3

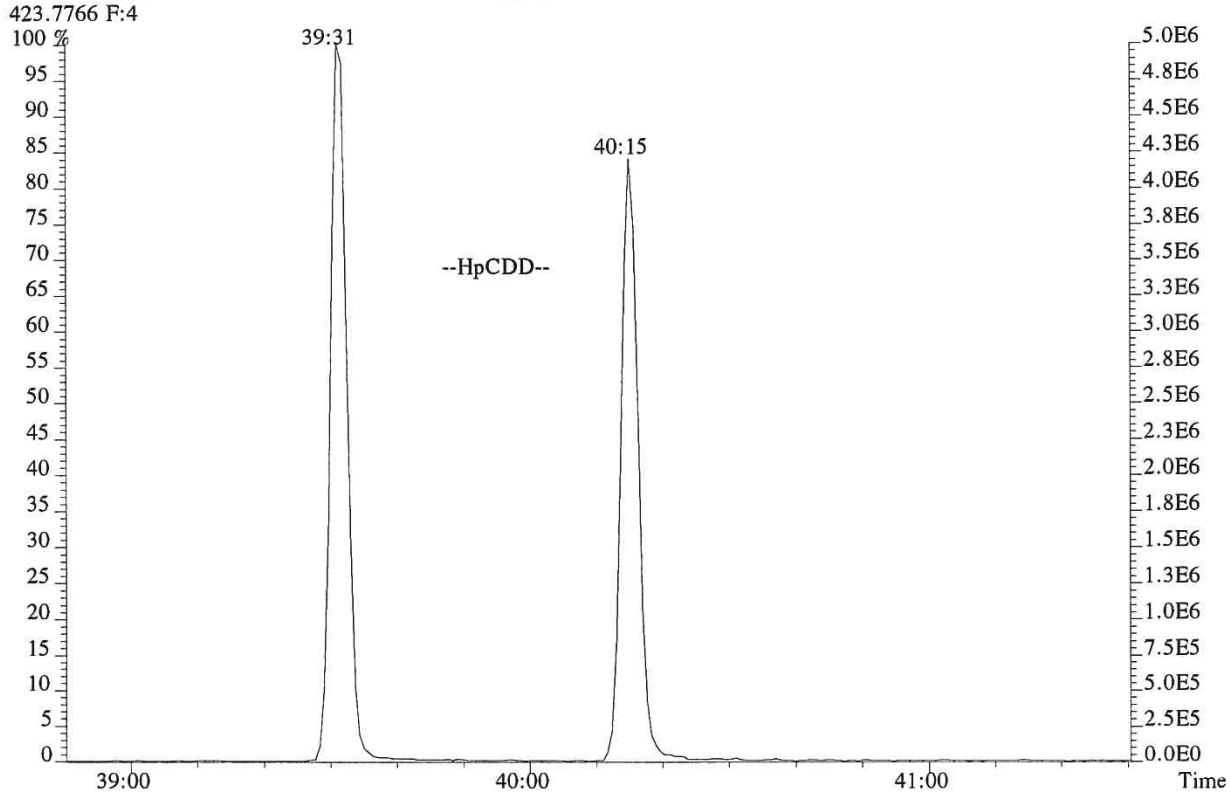


389.8157 F:3



File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





010089

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615714 Analysis Date: 27-NOV-18 Time: 10:04:16

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.4	7.8 - 12.9	-6.2
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	49	39 - 65	-1.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-2.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	47	43 - 58	-6.8
OCDD	M+2/M+4	0.89	0.76-1.02	95	79 - 126	-4.9
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.1	8.4 - 12.0	-9.2
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	46	41 - 60	-7.5
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	46	41 - 61	-8.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	45	45 - 56	-10.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-7.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	46	45 - 56	-7.6
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-8.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	45	45 - 55	-9.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	45	43 - 58	-10.9
OCDF	M+2/M+4	0.91	0.76-1.02	85	63 - 159	-15.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615714 Analysis Date: 27-NOV-18 Time: 10:04:16

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	103	82 - 121	3.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.53	1.32-1.78	92	62 - 160	-7.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	103	85 - 117	2.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	98	85 - 118	-2.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	107	72 - 138	7.3
13C-OCDD	M+2/M+4	0.91	0.76-1.02	222	96 - 415	10.9
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	94	71 - 140	-5.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	90	76 - 130	-9.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	91	77 - 130	-9.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	97	76 - 131	-2.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	93	70 - 143	-7.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	95	74 - 135	-5.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	98	73 - 137	-2.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	96	78 - 129	-3.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	97	77 - 129	-3.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.7	7.8 - 12.7	-3.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P615714 Samp: 1 Inj: 1 Acquired: 27-NOV-18 10:04:16
Processed: 28-NOV-18 10:13:20 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:15	1.940e+04	2.505e+04	0.77	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:12	1.591e+05	1.013e+05	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:04	1.498e+05	9.482e+04	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	1.303e+05	1.046e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:46	1.347e+05	1.084e+05	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:16	1.299e+05	1.046e+05	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:01	1.171e+05	9.560e+04	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	1.133e+05	1.097e+05	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:47	9.515e+04	9.243e+04	1.03	yes	no	1.463
10	Unk	OCDF	43:30	1.516e+05	1.674e+05	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	29:58	1.500e+04	1.868e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:20	9.766e+04	6.288e+04	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	8.865e+04	7.065e+04	1.25	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:29	8.430e+04	6.698e+04	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:43	9.215e+04	7.325e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	8.006e+04	7.591e+04	1.05	yes	no	1.112
17	Unk	OCDD	43:17	1.241e+05	1.389e+05	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:14	1.991e+05	2.537e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	2.981e+05	1.889e+05	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:04	2.965e+05	1.872e+05	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	1.276e+05	2.411e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	1.414e+05	2.648e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	1.387e+05	2.602e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	1.209e+05	2.298e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	1.008e+05	2.232e+05	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	8.959e+04	1.982e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	1.506e+05	1.916e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	2.126e+05	1.388e+05	1.53	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	1.702e+05	1.336e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:28	1.618e+05	1.271e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	1.543e+05	1.467e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	43:16	2.277e+05	2.503e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	1.493e+05	1.890e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	1.823e+05	1.449e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:58	3.548e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P615714 Samp: 1 Inj: 1 Acquired: 27-NOV-18 10:04:16
Processed: 28-NOV-18 10:13:20 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.97e+06	1.68e+03	2.4e+03	5.13e+06	2.93e+03	1.8e+03
2	1,2,3,7,8-PeCDF	3.18e+07	1.23e+03	2.6e+04	2.01e+07	4.35e+03	4.6e+03
3	2,3,4,7,8-PeCDF	3.24e+07	1.23e+03	2.6e+04	2.05e+07	4.35e+03	4.7e+03
4	1,2,3,4,7,8-HxCDF	2.97e+07	5.67e+03	5.2e+03	2.38e+07	3.38e+03	7.1e+03
5	1,2,3,6,7,8-HxCDF	3.01e+07	5.67e+03	5.3e+03	2.42e+07	3.38e+03	7.2e+03
6	2,3,4,6,7,8-HxCDF	2.92e+07	5.67e+03	5.2e+03	2.33e+07	3.38e+03	6.9e+03
7	1,2,3,7,8,9-HxCDF	2.57e+07	5.67e+03	4.5e+03	2.06e+07	3.38e+03	6.1e+03
8	1,2,3,4,6,7,8-HpCDF	2.43e+07	9.67e+03	2.5e+03	2.38e+07	6.98e+03	3.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.86e+07	9.67e+03	1.9e+03	1.77e+07	6.98e+03	2.5e+03
10	OCDF	2.43e+07	1.32e+03	1.8e+04	2.71e+07	2.55e+03	1.1e+04
11	2,3,7,8-TCDD	3.20e+06	3.18e+03	1.0e+03	3.97e+06	1.90e+03	2.1e+03
12	1,2,3,7,8-PeCDD	2.02e+07	1.78e+03	1.1e+04	1.32e+07	7.76e+02	1.7e+04
13	1,2,3,4,7,8-HxCDD	2.01e+07	2.02e+03	1.0e+04	1.59e+07	6.80e+02	2.3e+04
14	1,2,3,6,7,8-HxCDD	1.92e+07	2.02e+03	9.5e+03	1.51e+07	6.80e+02	2.2e+04
15	1,2,3,7,8,9-HxCDD	2.09e+07	2.02e+03	1.0e+04	1.66e+07	6.80e+02	2.4e+04
16	1,2,3,4,6,7,8-HpCDD	1.64e+07	2.62e+03	6.3e+03	1.56e+07	1.80e+03	8.7e+03
17	OCDD	2.02e+07	3.84e+02	5.3e+04	2.25e+07	9.76e+02	2.3e+04
18	13C-2,3,7,8-TCDF	4.03e+07	1.28e+04	3.1e+03	5.06e+07	9.08e+03	5.6e+03
19	13C-1,2,3,7,8-PeCDF	6.01e+07	1.80e+03	3.3e+04	3.84e+07	2.20e+03	1.7e+04
20	13C-2,3,4,7,8-PeCDF	6.34e+07	1.80e+03	3.5e+04	3.98e+07	2.20e+03	1.8e+04
21	13C-1,2,3,4,7,8-HxCDF	2.89e+07	1.82e+03	1.6e+04	5.48e+07	2.92e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	3.14e+07	1.82e+03	1.7e+04	5.86e+07	2.92e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	3.13e+07	1.82e+03	1.7e+04	5.78e+07	2.92e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	2.67e+07	1.82e+03	1.5e+04	5.07e+07	2.92e+03	1.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.15e+07	3.80e+03	5.7e+03	4.81e+07	1.04e+04	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.73e+07	3.80e+03	4.6e+03	3.76e+07	1.04e+04	3.6e+03
27	13C-2,3,7,8-TCDD	3.15e+07	1.98e+04	1.6e+03	4.02e+07	7.29e+03	5.5e+03
28	13C-1,2,3,7,8-PeCDD	4.54e+07	2.14e+03	2.1e+04	2.96e+07	2.84e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.81e+07	3.04e+03	1.3e+04	2.99e+07	1.55e+03	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	3.67e+07	3.04e+03	1.2e+04	2.85e+07	1.55e+03	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.16e+07	2.06e+03	1.5e+04	2.99e+07	2.33e+03	1.3e+04
32	13C-OCDD	3.65e+07	4.56e+02	8.0e+04	4.00e+07	4.44e+02	9.0e+04
33	13C-1,2,3,4-TCDD	3.09e+07	1.98e+04	1.6e+03	3.92e+07	7.29e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	4.17e+07	3.04e+03	1.4e+04	3.28e+07	1.55e+03	2.1e+04
35	37Cl-2,3,7,8-TCDD	7.60e+06	1.66e+03	4.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.180e{+}03 + 1.896e{+}03) \times 100}{(3.149e{+}07 + 4.025e{+}07) \times (\quad) \times 1.049} =$$

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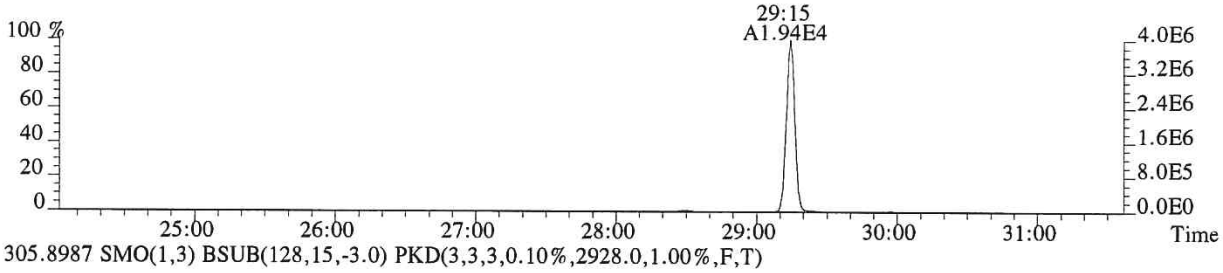
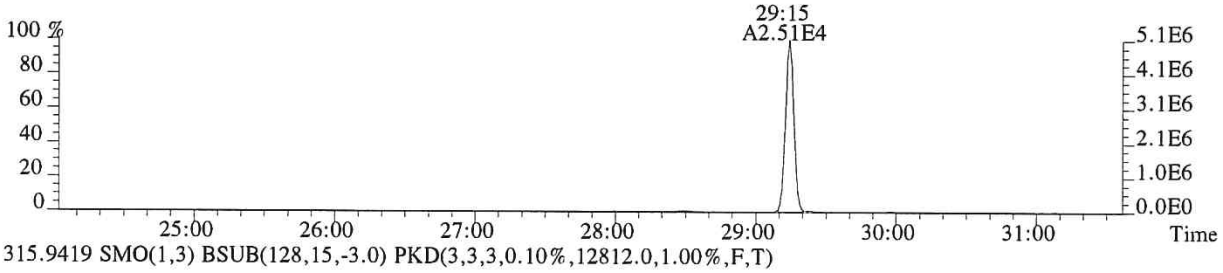
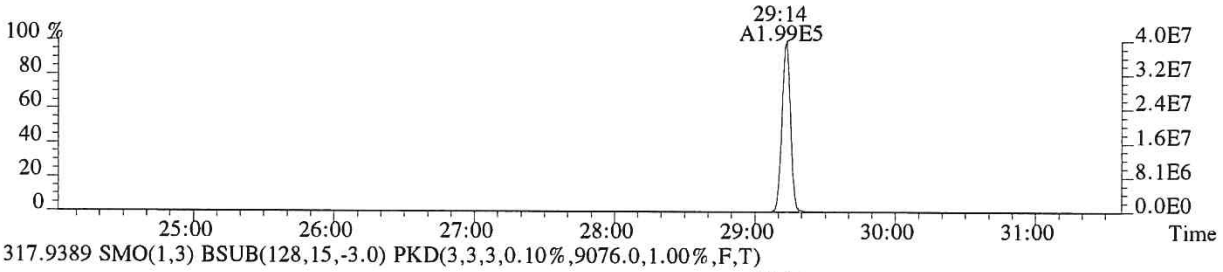
File:P615714 #1-538 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



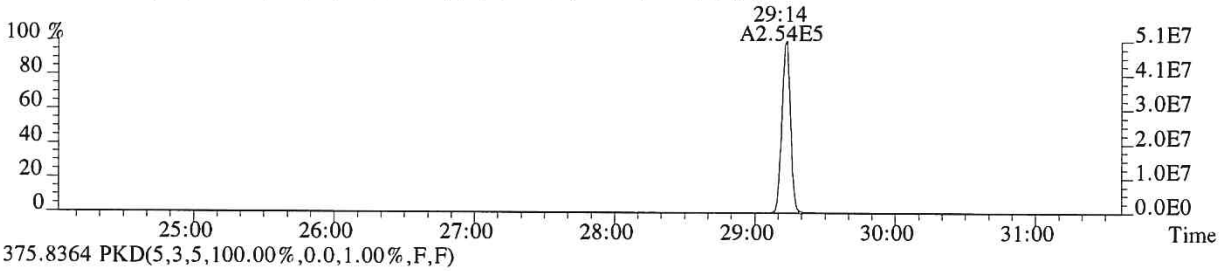
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2928.0,1.00%,F,T)



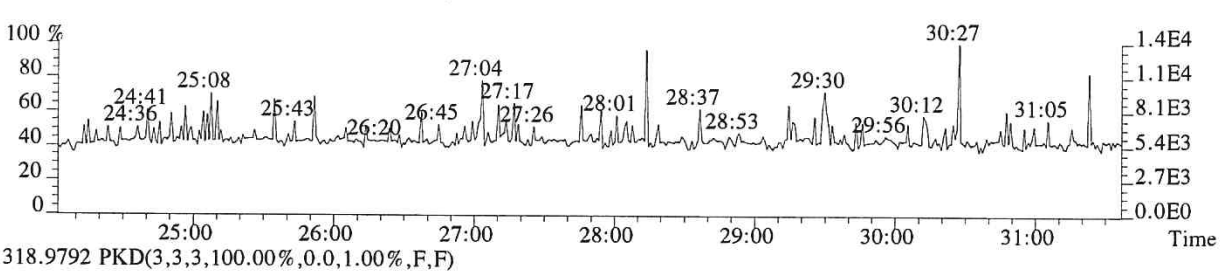
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12812.0,1.00%,F,T)



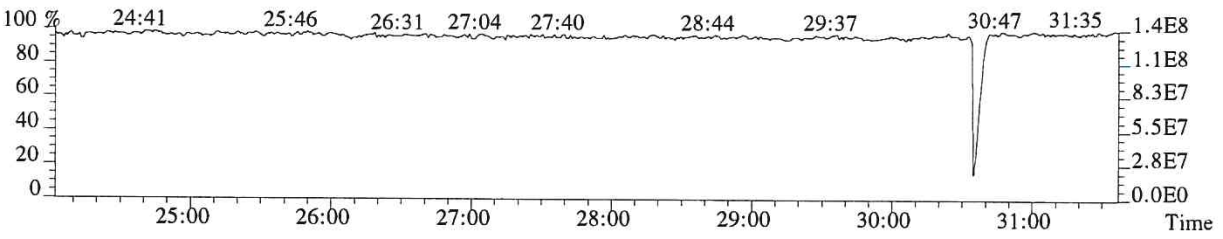
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9076.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

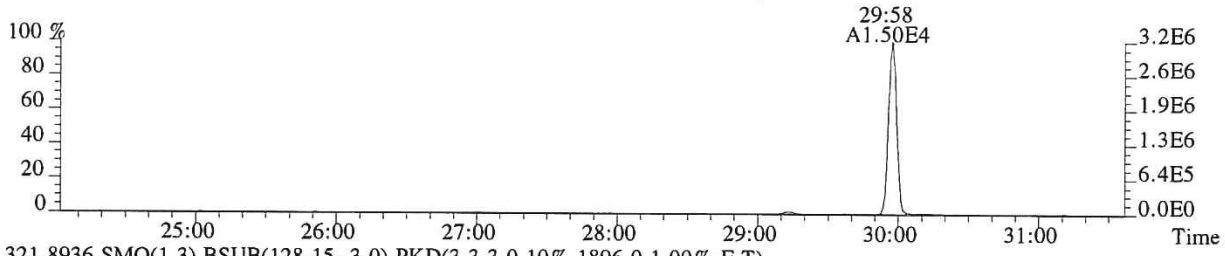


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

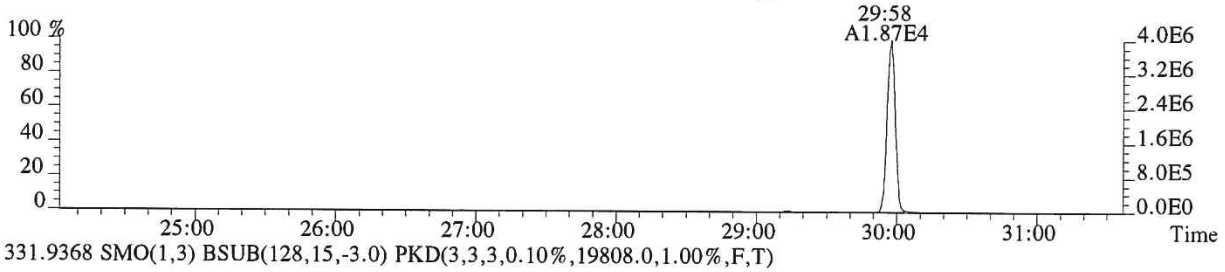


010094

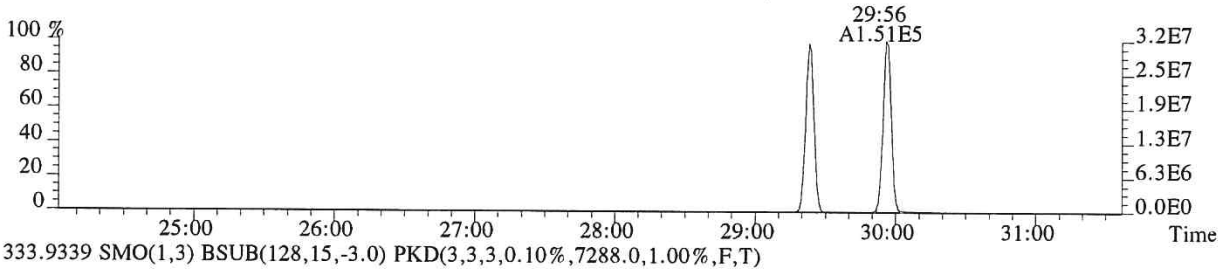
File:P615714 #1-538 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3180.0,1.00%,F,T)



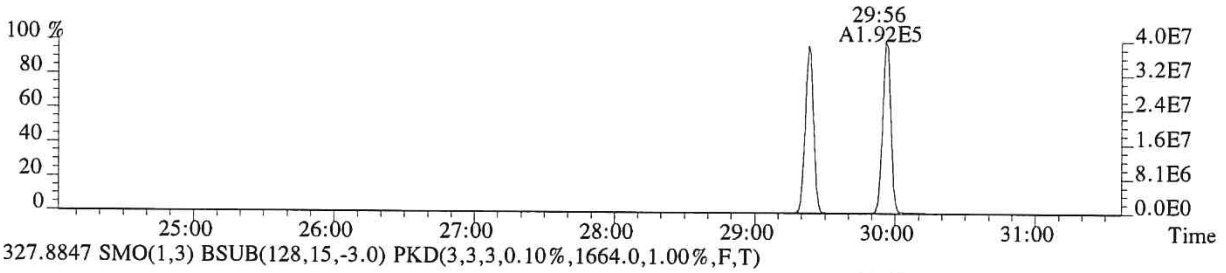
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



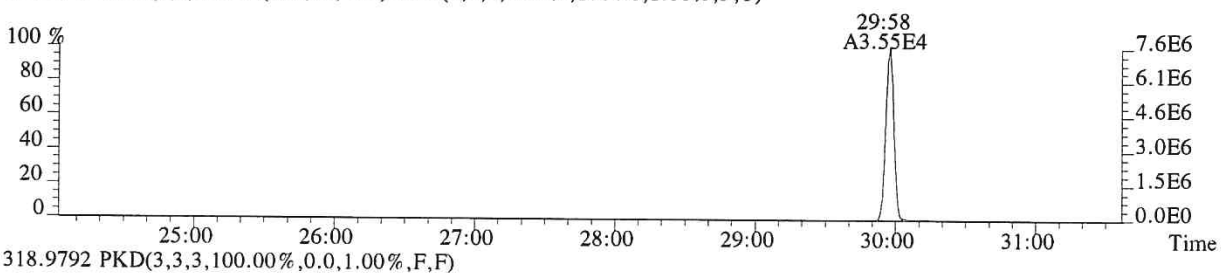
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19808.0,1.00%,F,T)



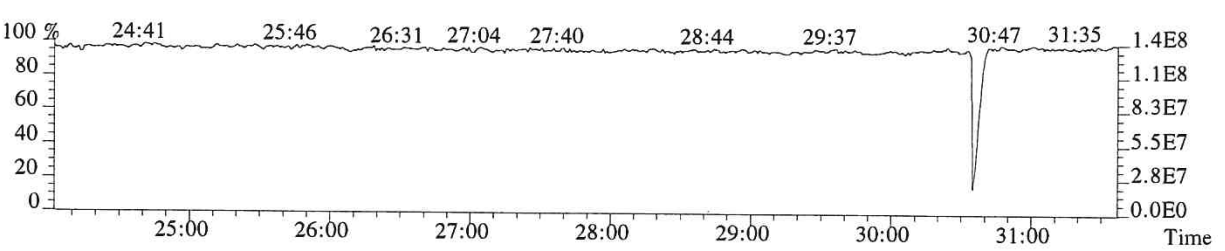
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7288.0,1.00%,F,T)



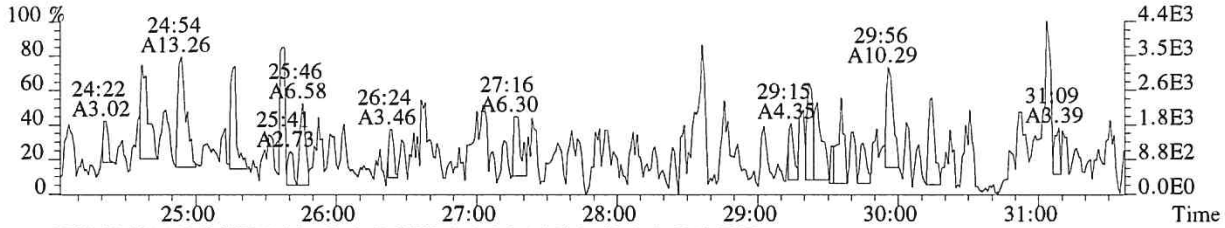
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



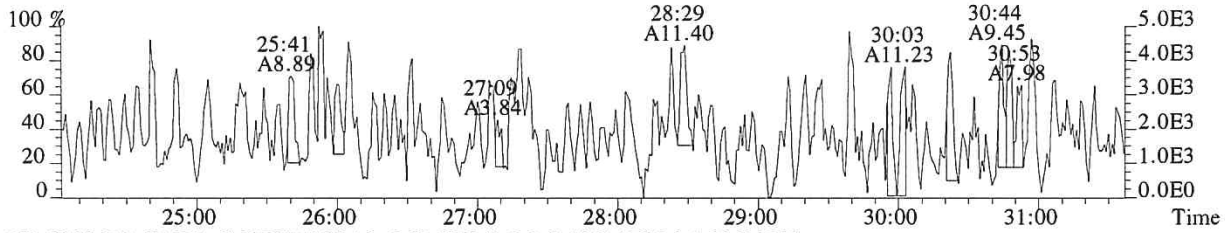
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



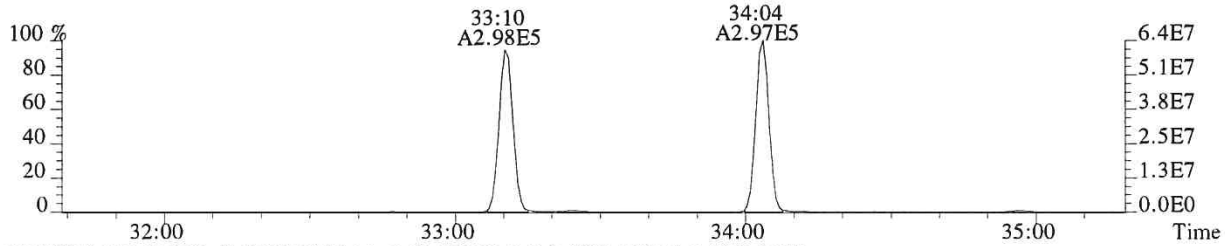
File:P615714 #1-538 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



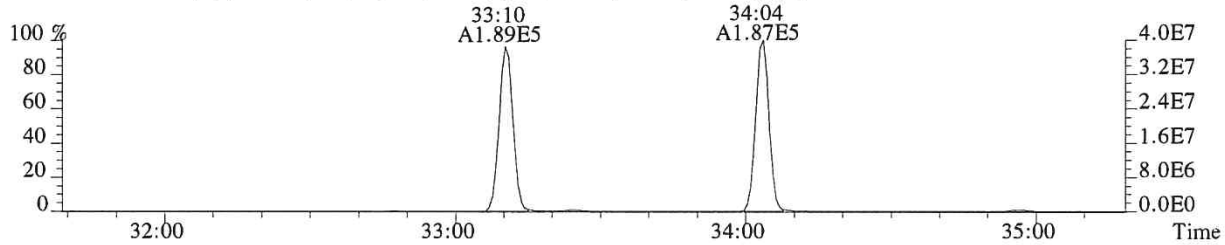
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



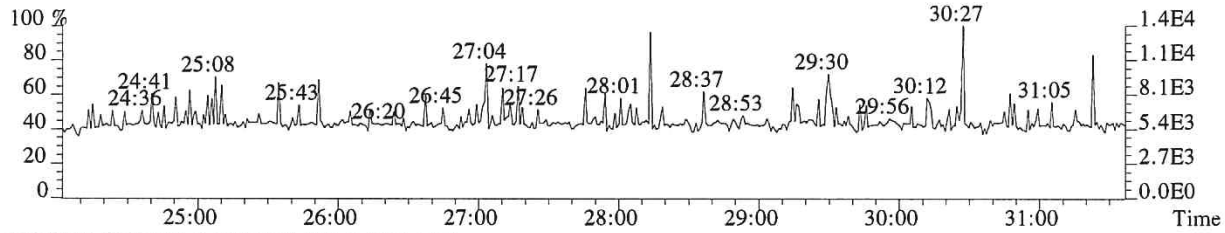
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



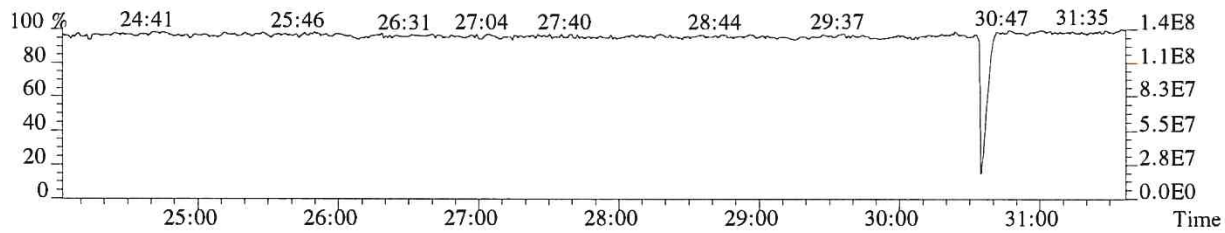
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

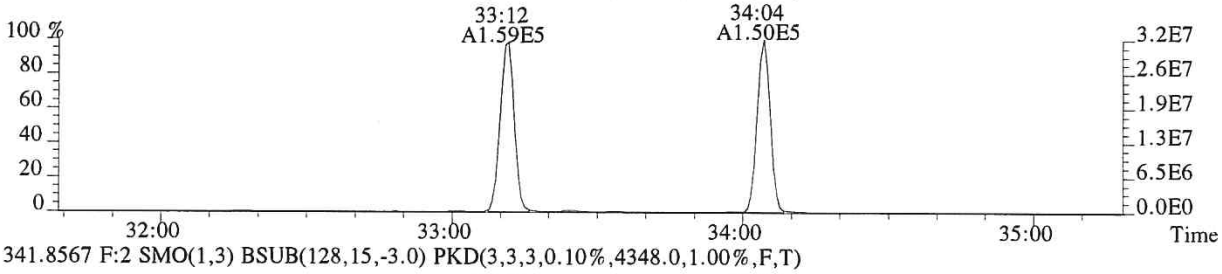


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

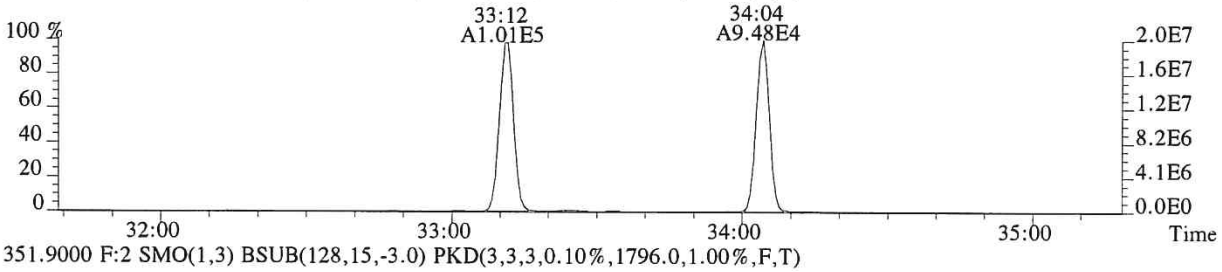


File:P615714 #1-330 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

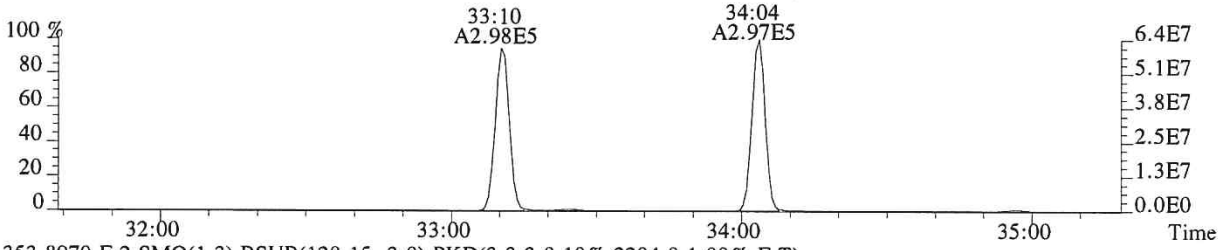
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



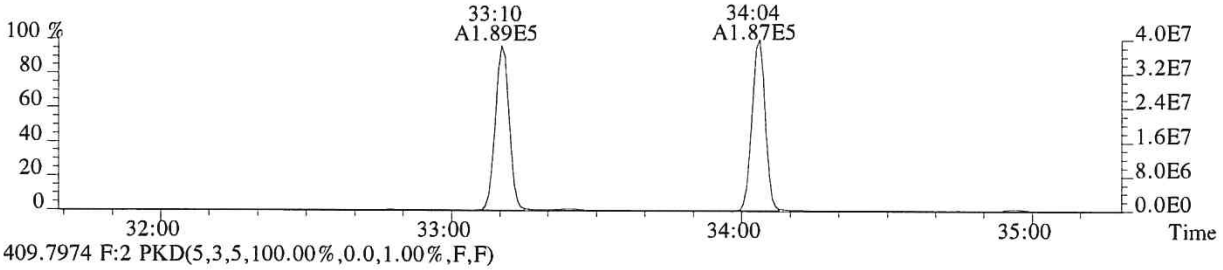
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



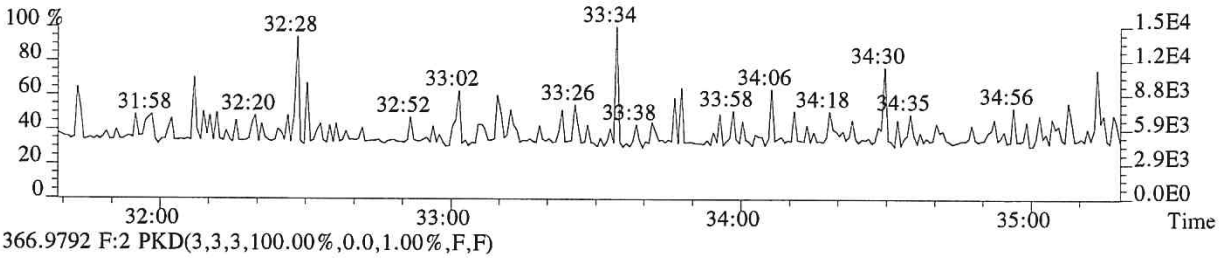
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



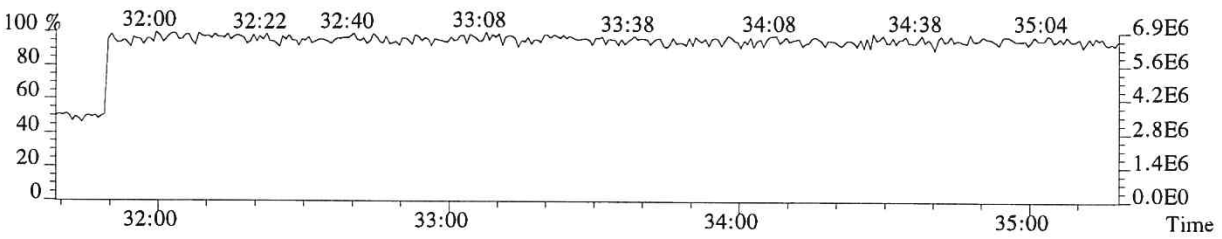
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



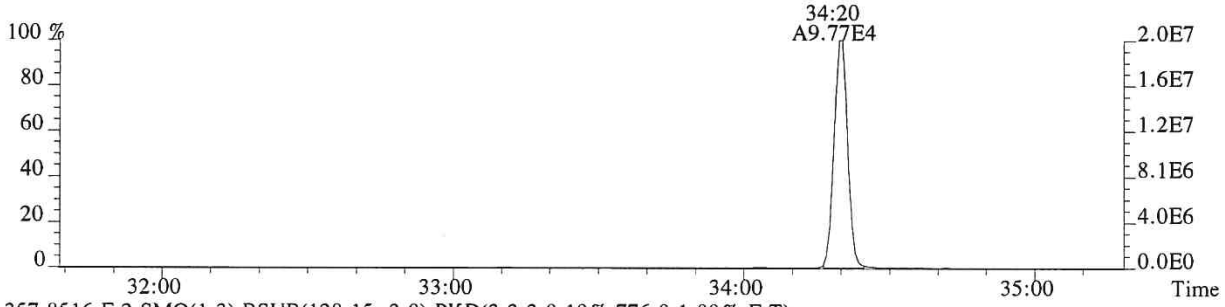
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



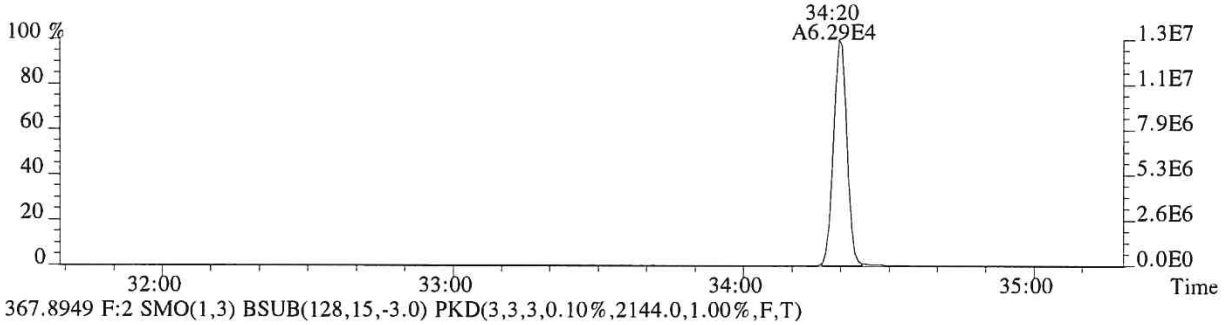
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



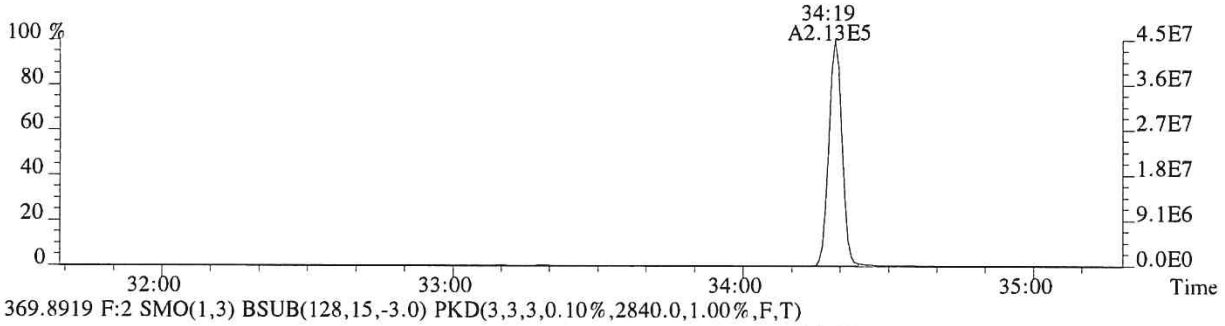
File:P615714 #1-330 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



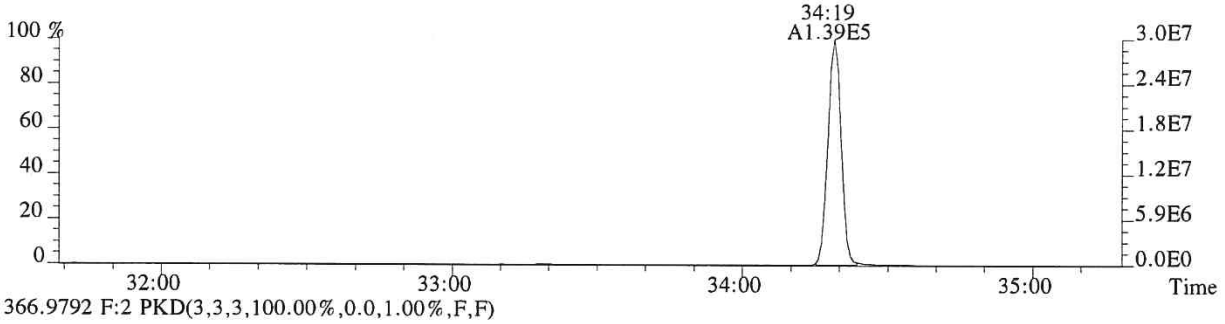
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



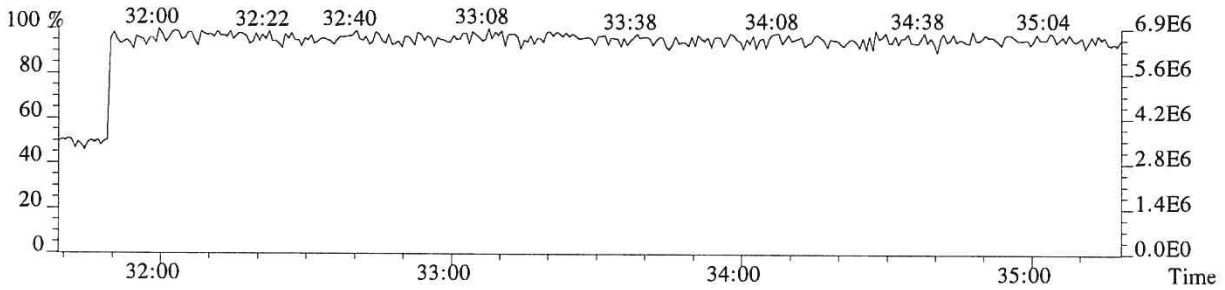
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2840.0,1.00%,F,T)

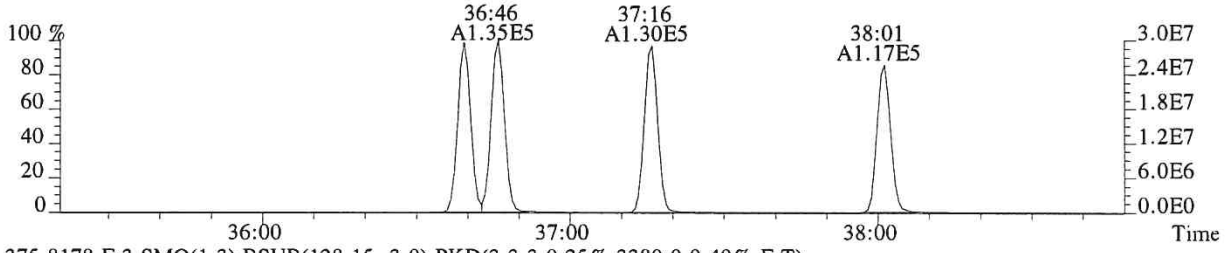


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

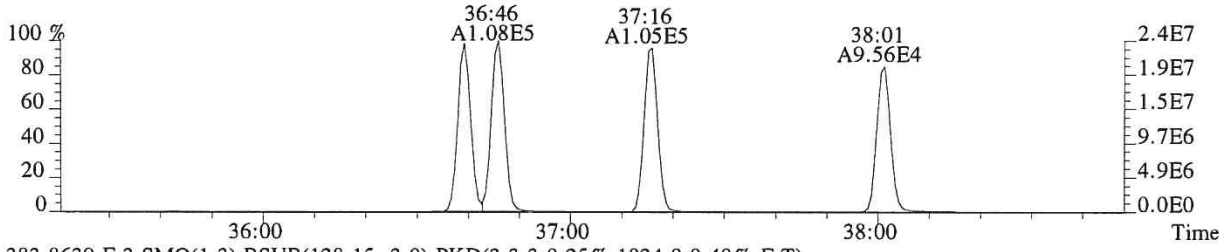


File:P615714 #1-312 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

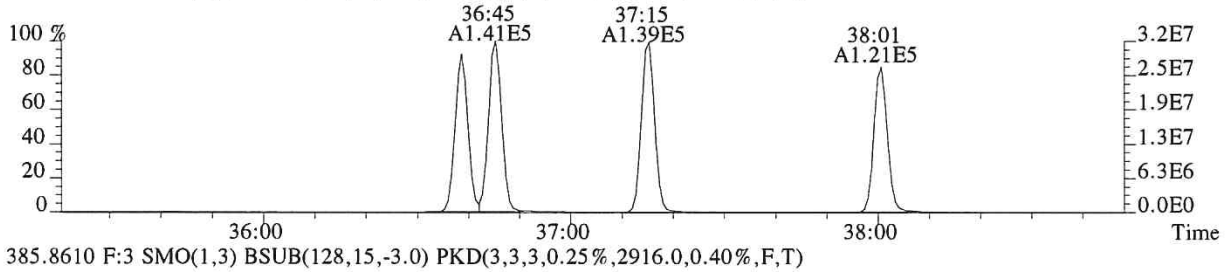
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5668.0,0.40%,F,T)



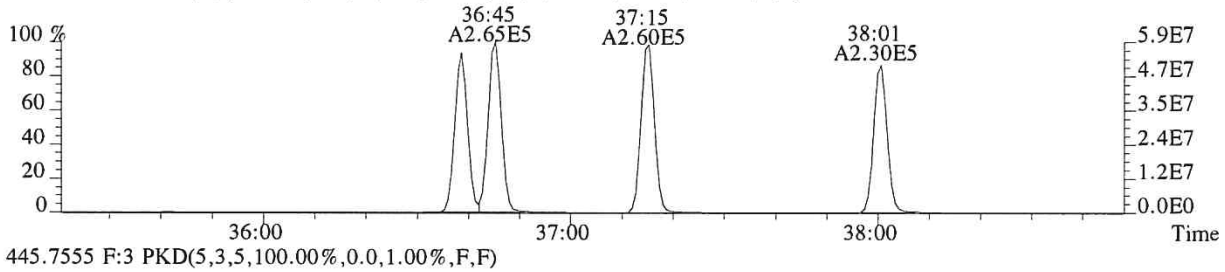
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3380.0,0.40%,F,T)



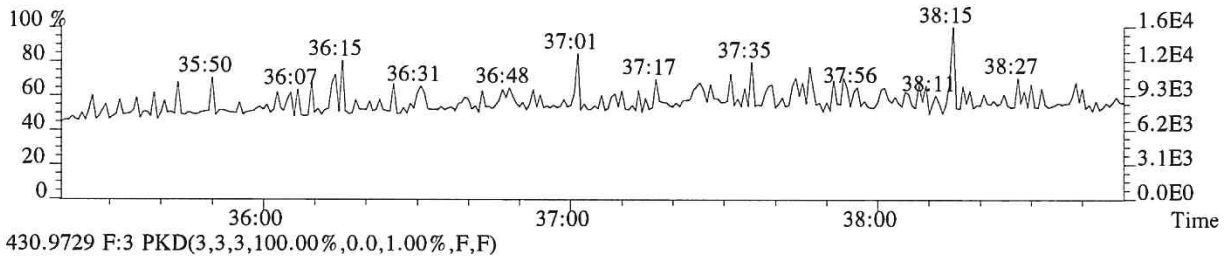
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1824.0,0.40%,F,T)



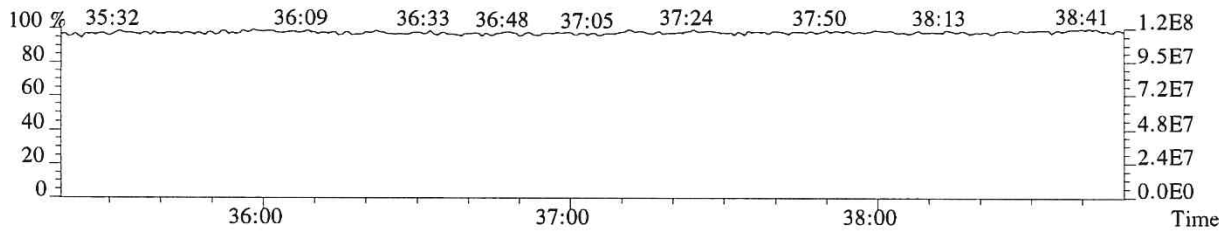
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2916.0,0.40%,F,T)



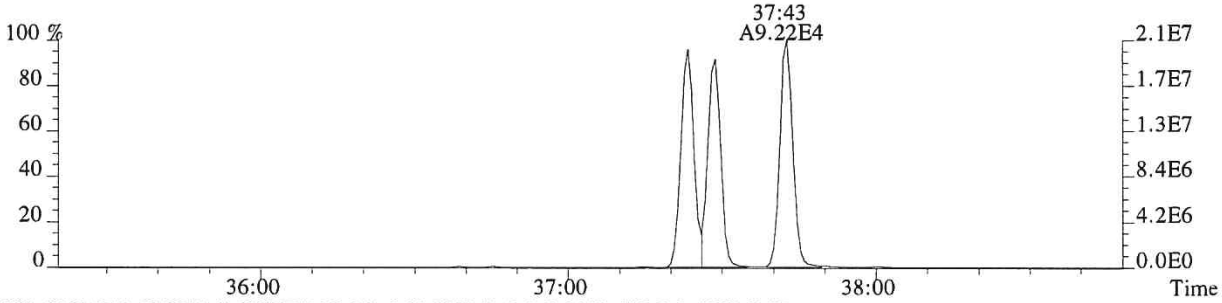
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



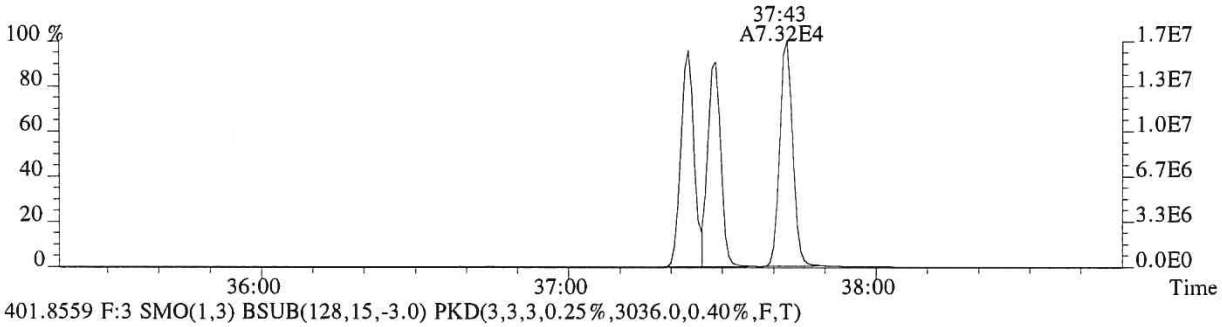
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



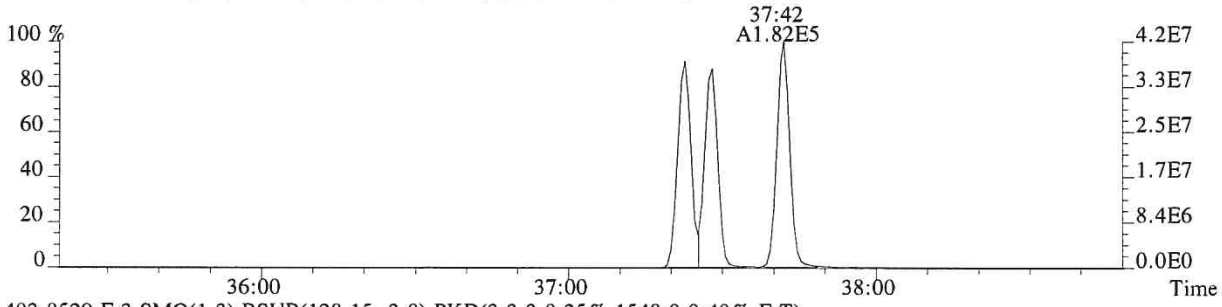
File:P615714 #1-312 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2016.0,0.40%,F,T)



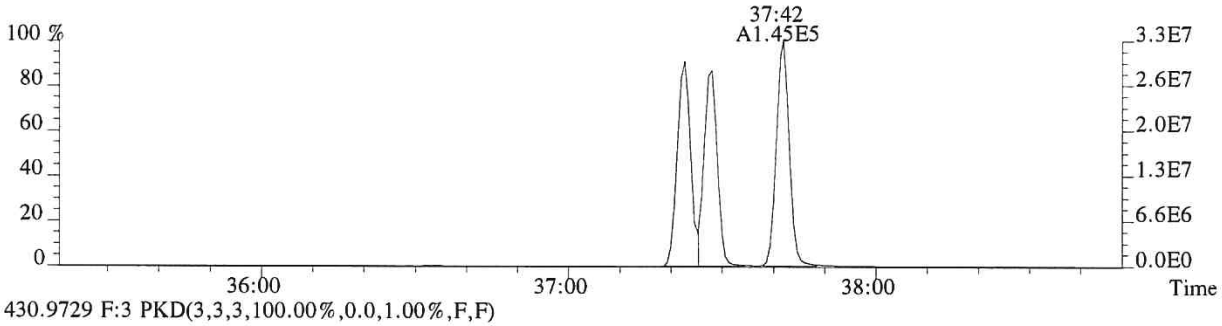
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



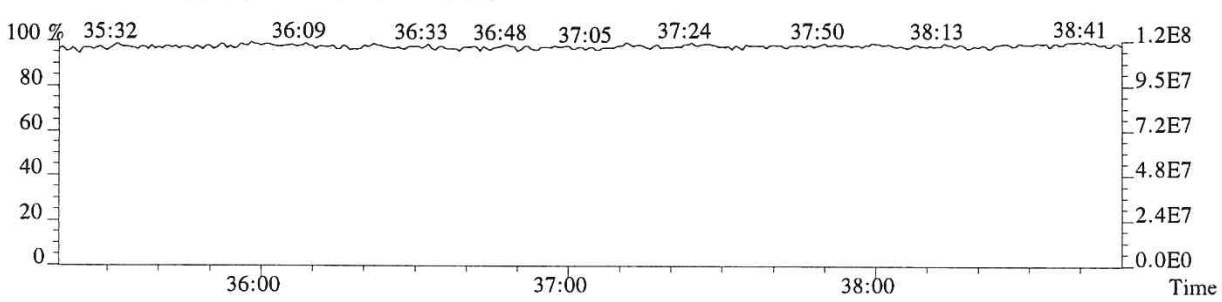
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)

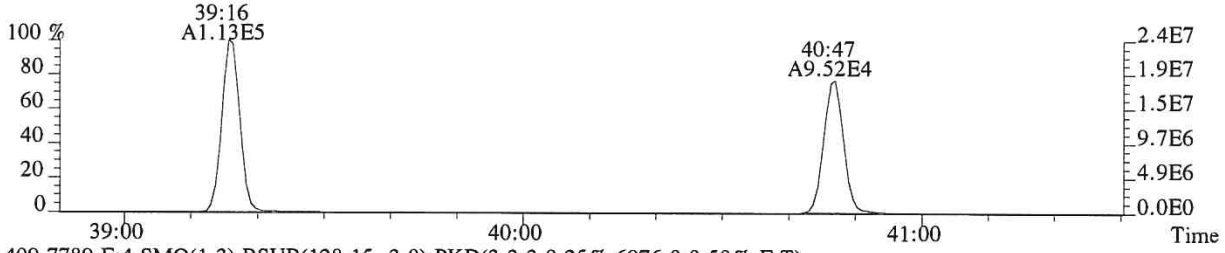


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

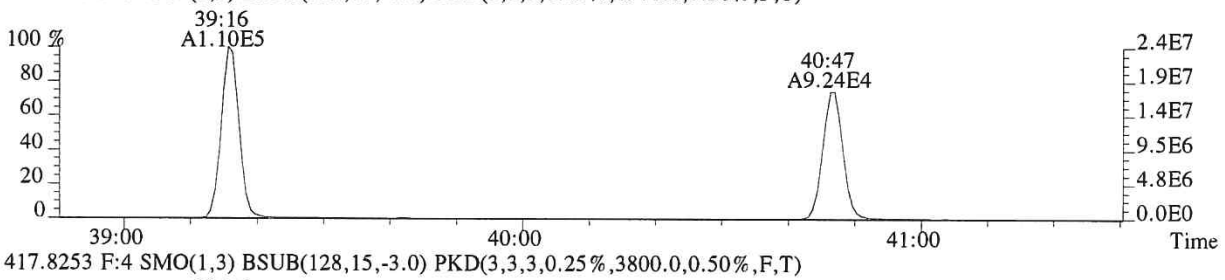


File:P615714 #1-241 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

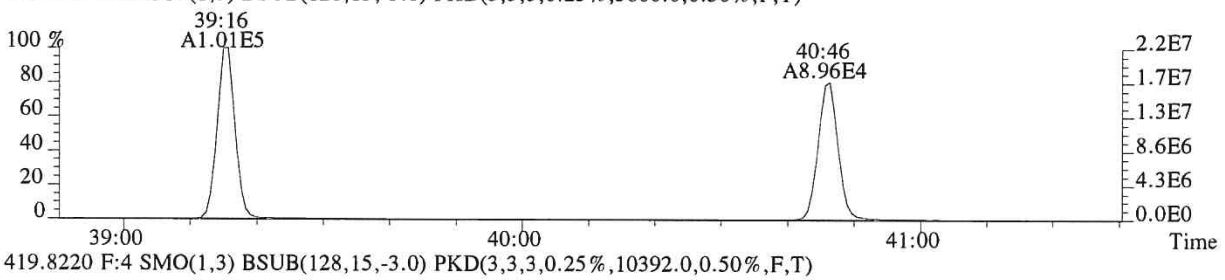
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9668.0,0.50%,F,T)



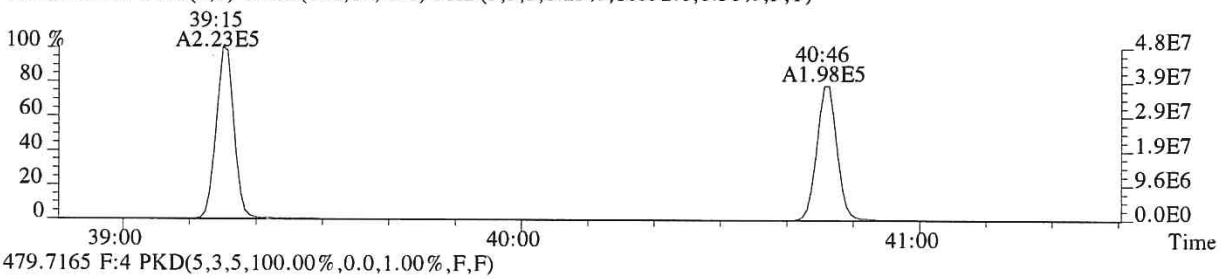
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6976.0,0.50%,F,T)



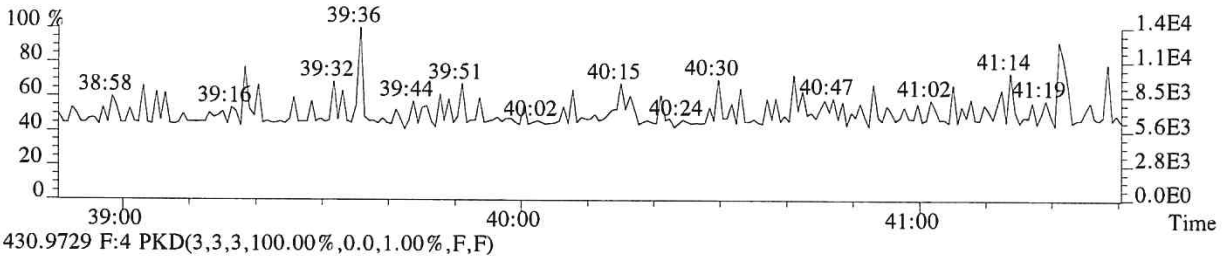
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3800.0,0.50%,F,T)



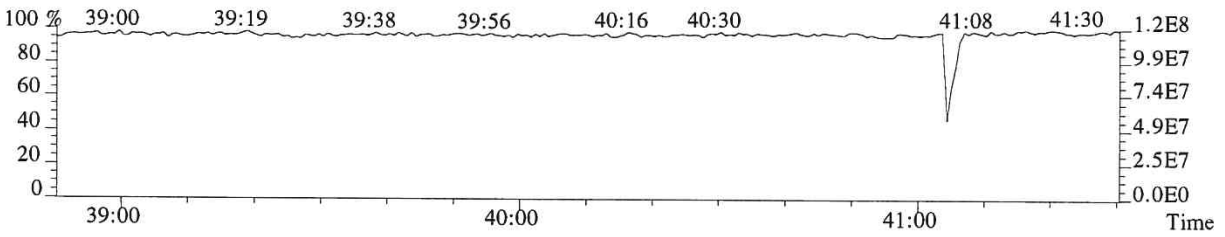
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10392.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

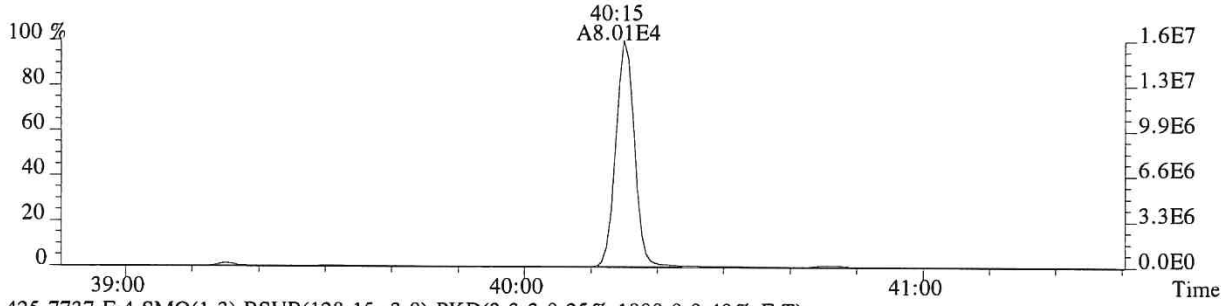


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

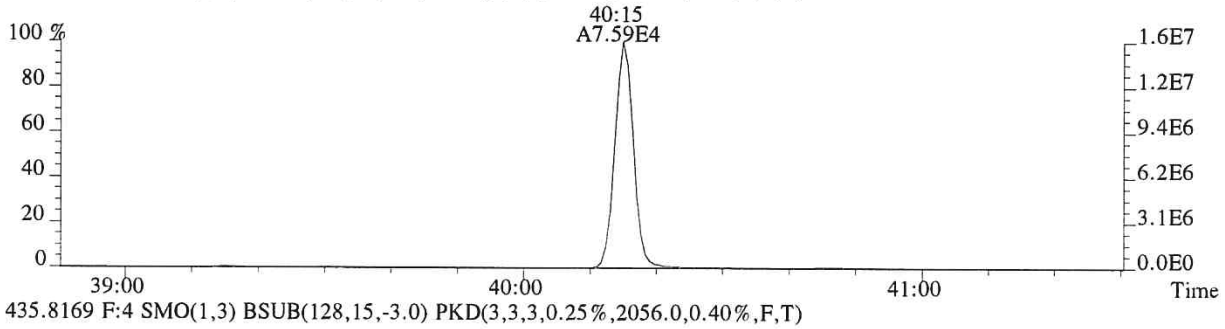


010101

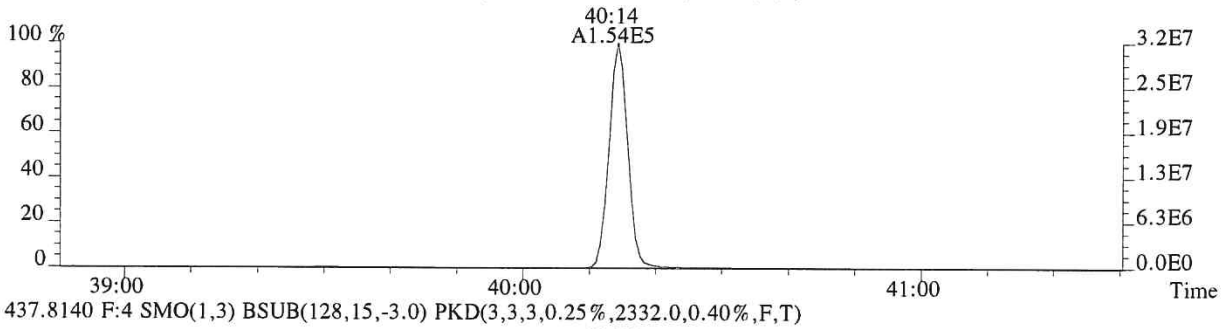
File:P615714 #1-241 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2620.0,0.40%,F,T)



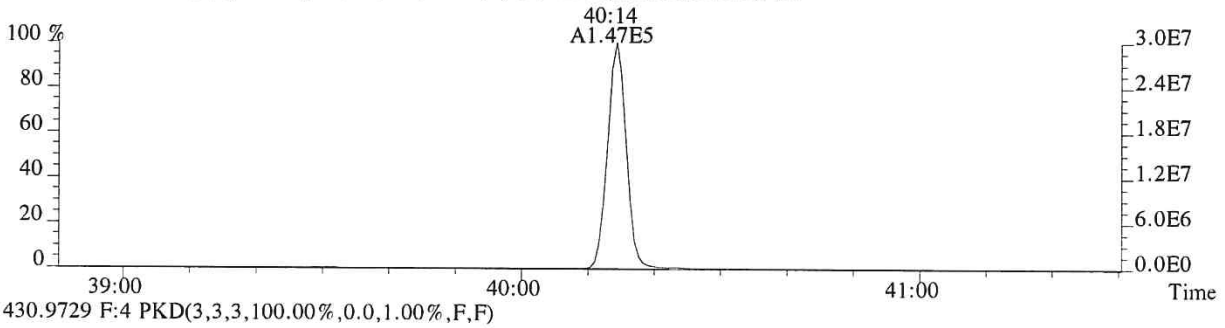
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1800.0,0.40%,F,T)



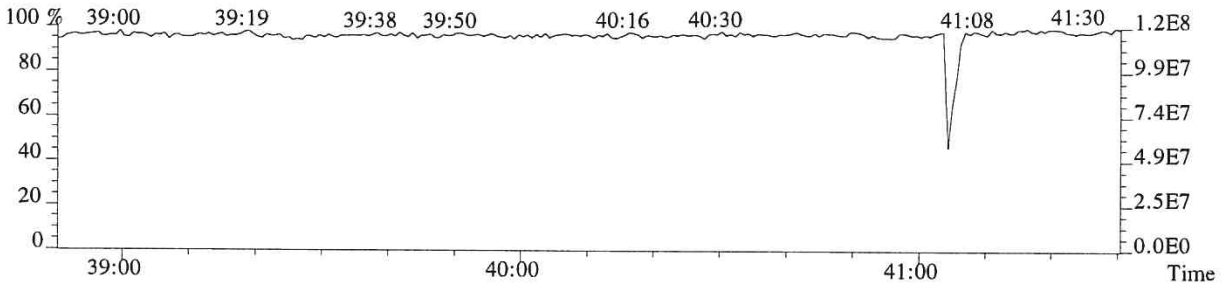
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2056.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.40%,F,T)



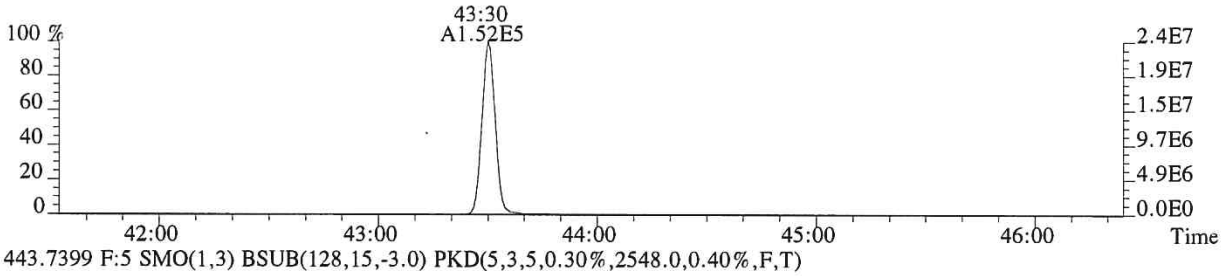
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



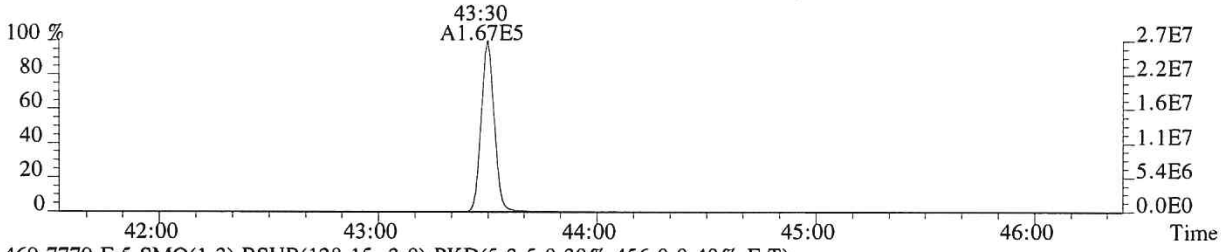
010102

File:P615714 #1-438 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

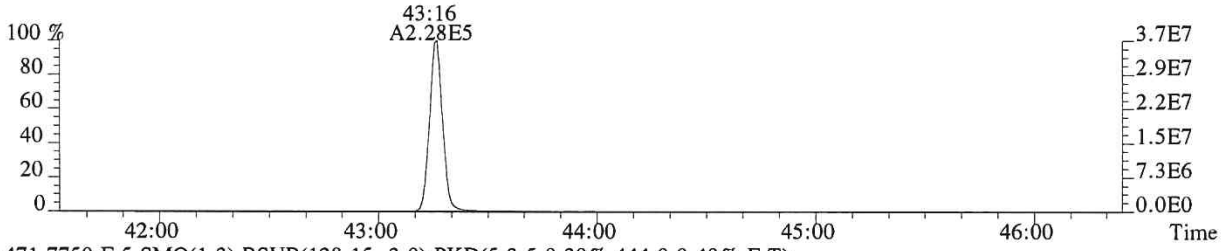
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1324.0,0.40%,F,T)



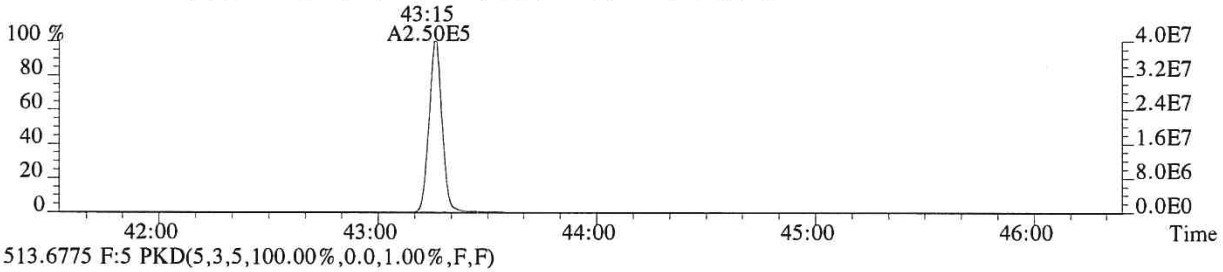
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2548.0,0.40%,F,T)



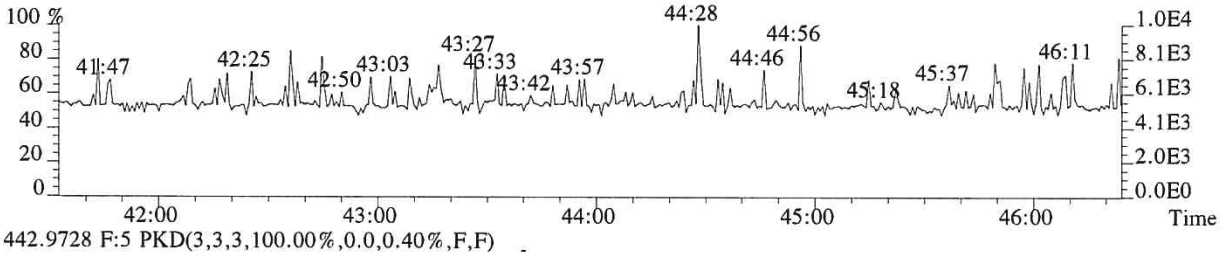
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



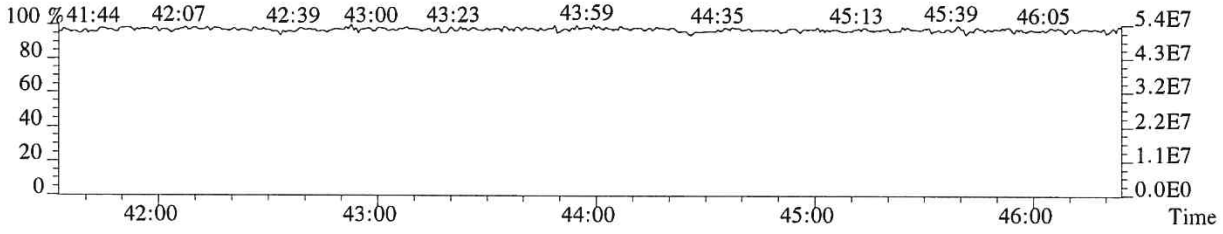
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



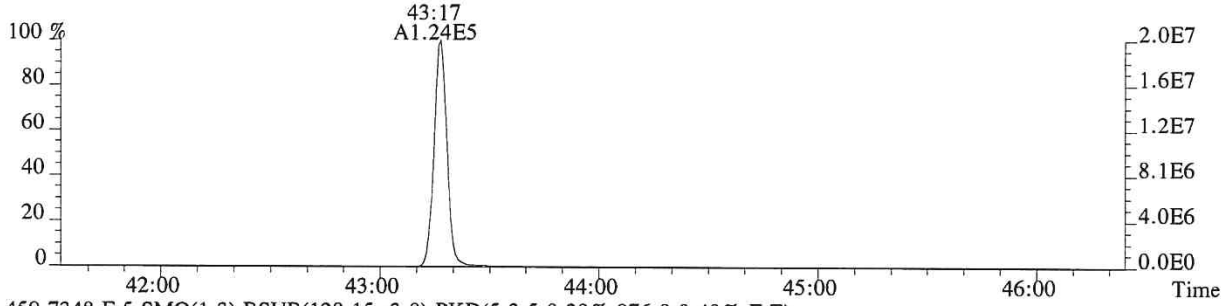
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



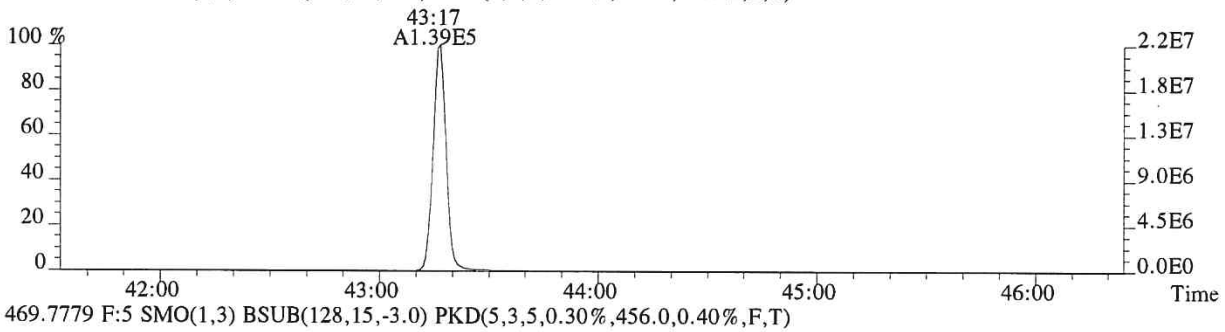
010103

File:P615714 #1-438 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

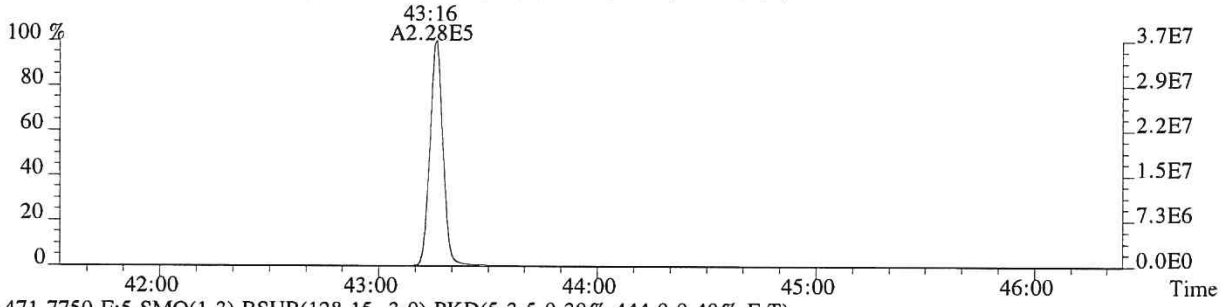
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



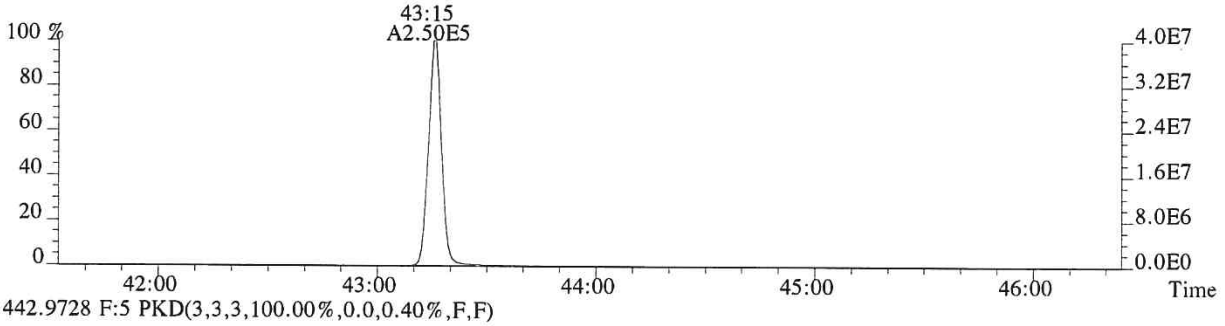
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,976.0,0.40%,F,T)



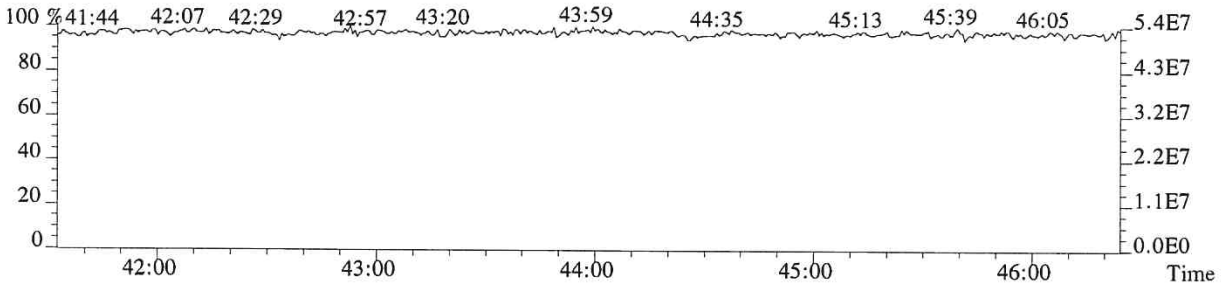
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Leung
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

E1801020

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:39	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	YY	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ YD 1/25/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

602 of 826

gc 01/25/18

* gc 01/25/18

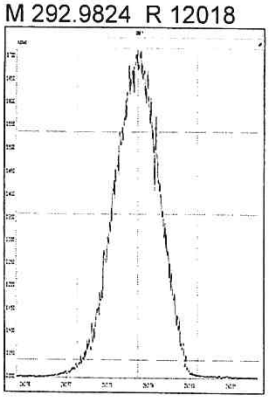
062

010109

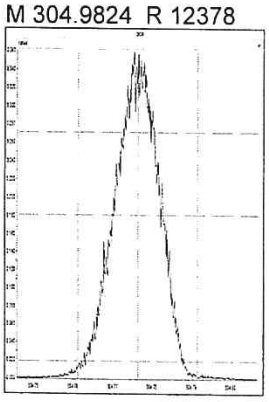
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

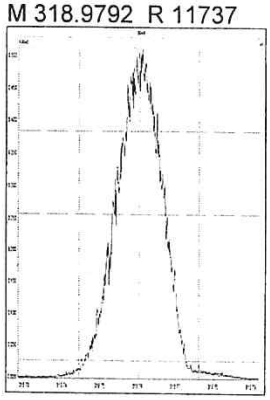
M 292.9824 R 12018



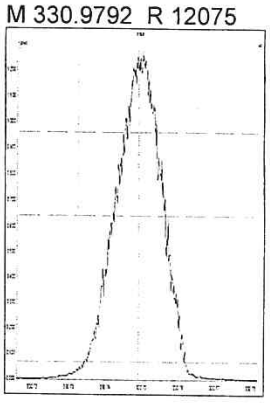
M 304.9824 R 12378



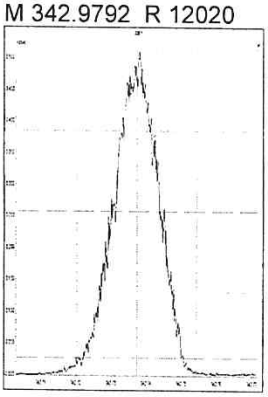
M 318.9792 R 11737



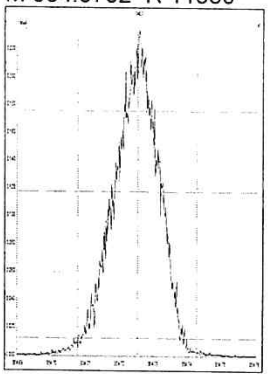
M 330.9792 R 12075



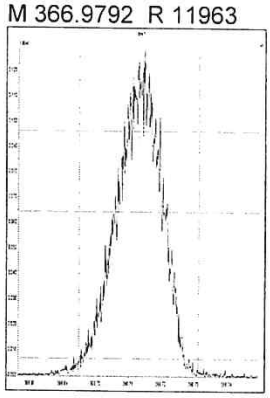
M 342.9792 R 12020



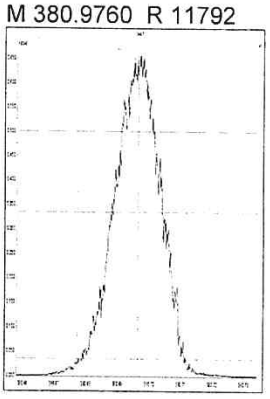
M 354.9792 R 11680



M 366.9792 R 11963



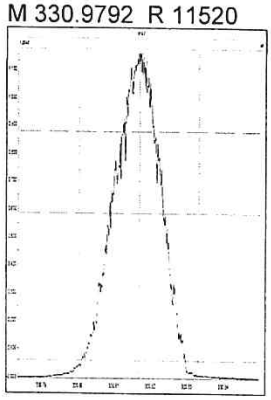
M 380.9760 R 11792



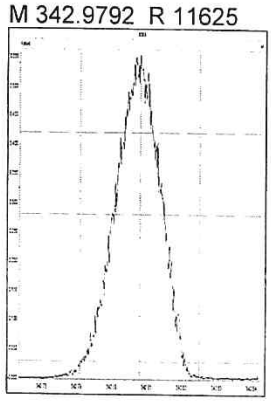
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

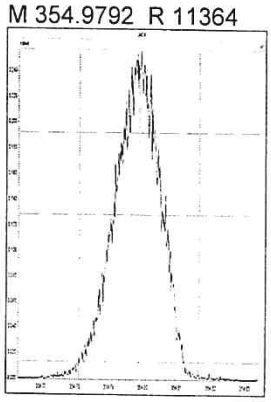
M 330.9792 R 11520



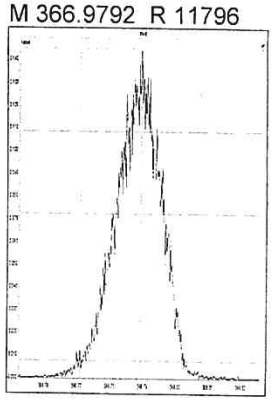
M 342.9792 R 11625



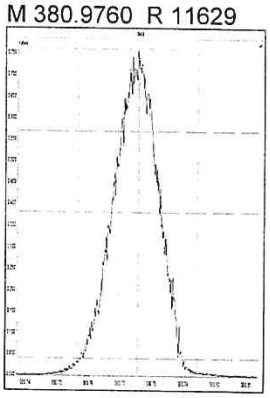
M 354.9792 R 11364



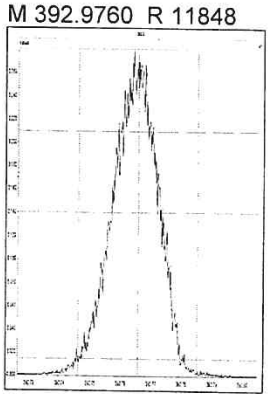
M 366.9792 R 11796



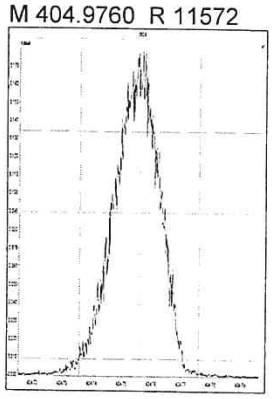
M 380.9760 R 11629



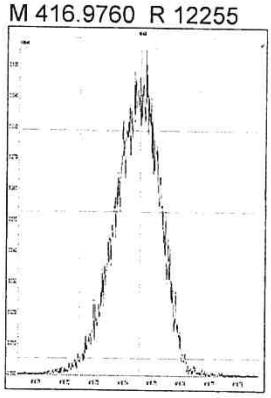
M 392.9760 R 11848



M 404.9760 R 11572



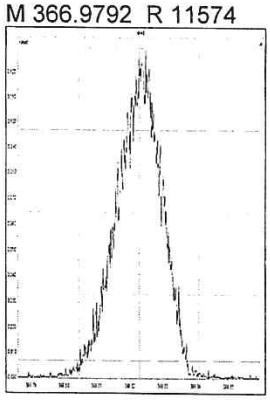
M 416.9760 R 12255



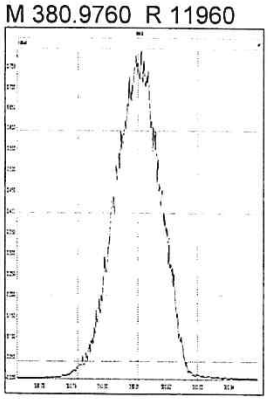
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

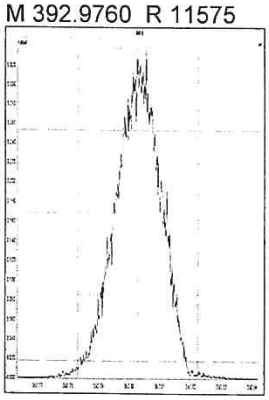
M 366.9792 R 11574



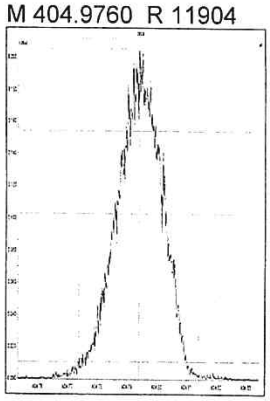
M 380.9760 R 11960



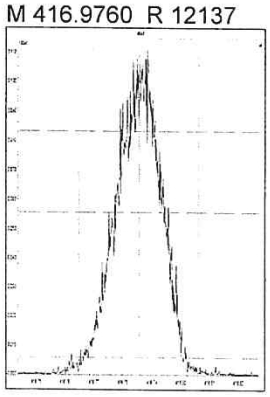
M 392.9760 R 11575



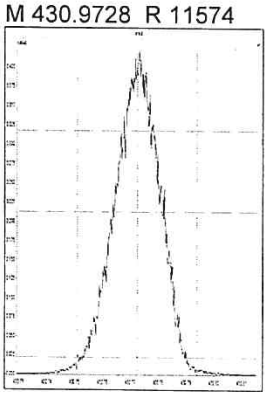
M 404.9760 R 11904



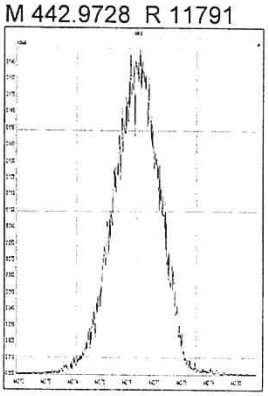
M 416.9760 R 12137



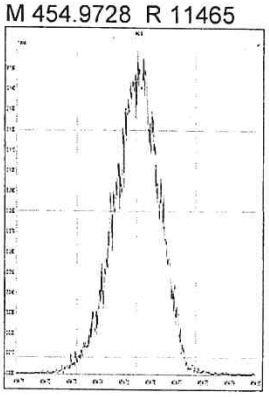
M 430.9728 R 11574



M 442.9728 R 11791



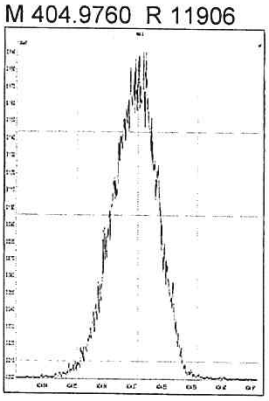
M 454.9728 R 11465



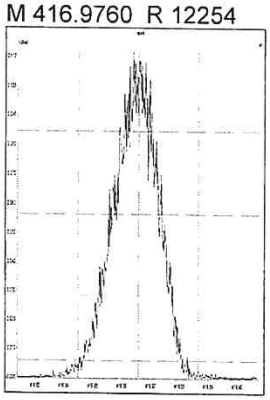
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

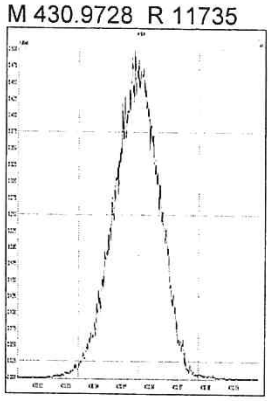
M 404.9760 R 11906



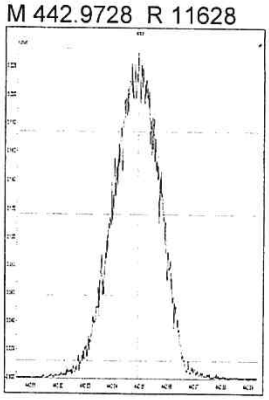
M 416.9760 R 12254



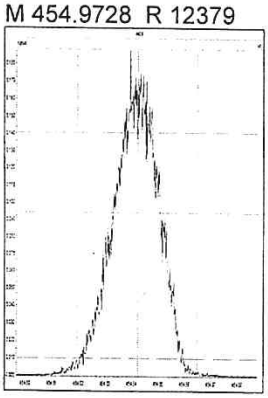
M 430.9728 R 11735



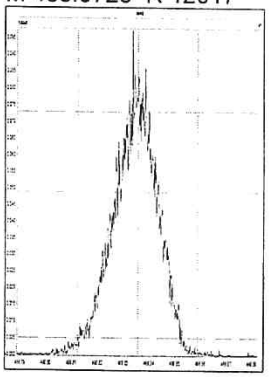
M 442.9728 R 11628



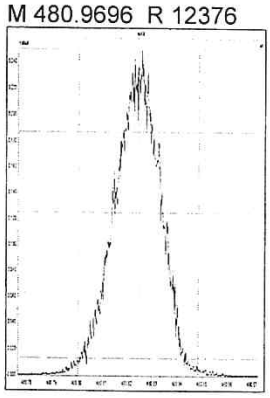
M 454.9728 R 12379



M 466.9728 R 12017



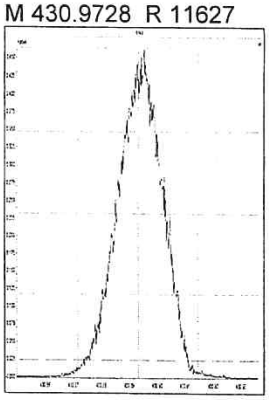
M 480.9696 R 12376



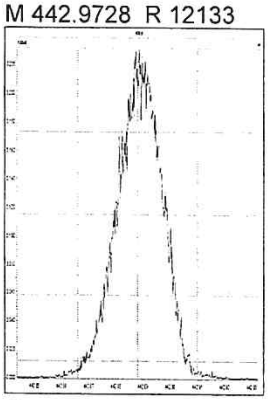
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

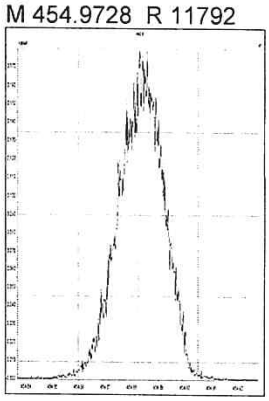
M 430.9728 R 11627



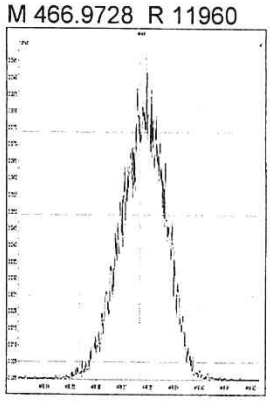
M 442.9728 R 12133



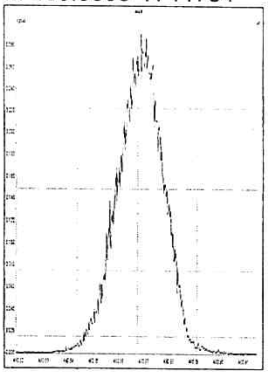
M 454.9728 R 11792



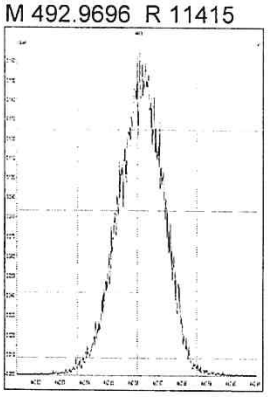
M 466.9728 R 11960



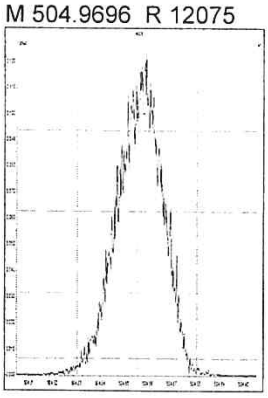
M 480.9696 R 11734



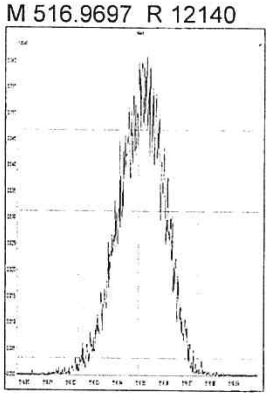
M 492.9696 R 11415



M 504.9696 R 12075



M 516.9697 R 12140

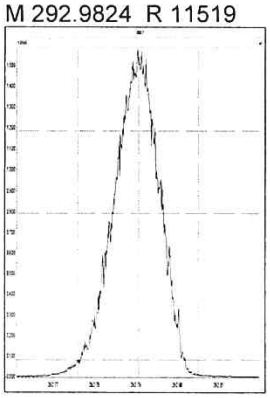


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

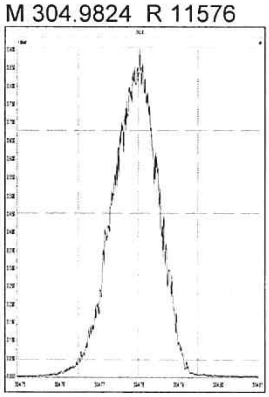
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

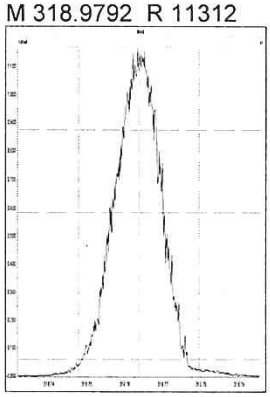
M 292.9824 R 11519



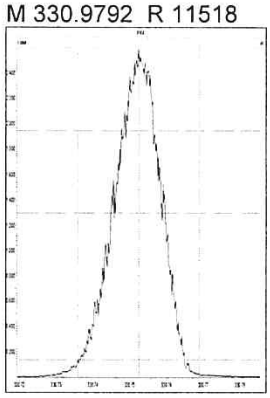
M 304.9824 R 11576



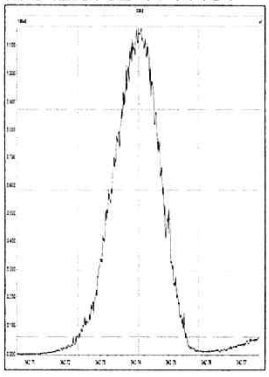
M 318.9792 R 11312



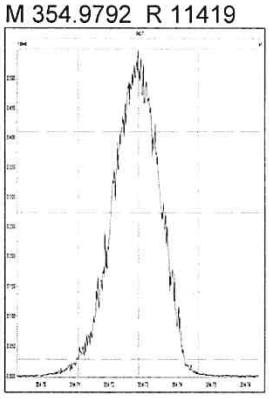
M 330.9792 R 11518



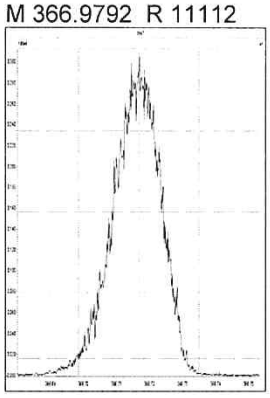
M 342.9792 R 11161



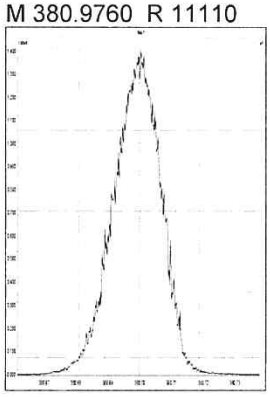
M 354.9792 R 11419



M 366.9792 R 11112



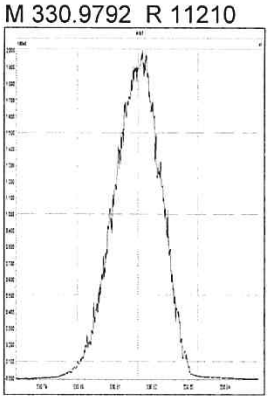
M 380.9760 R 11110



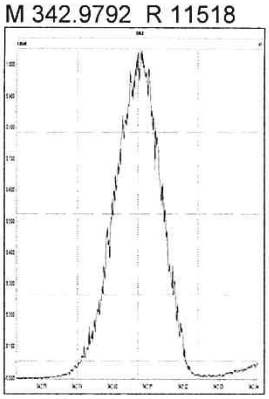
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

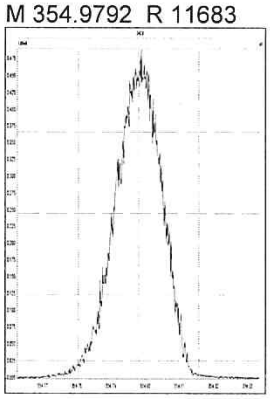
M 330.9792 R 11210



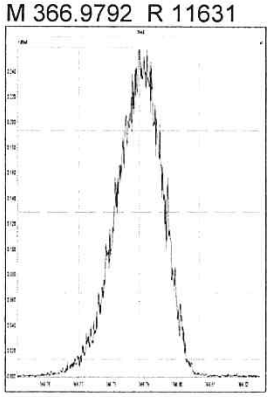
M 342.9792 R 11518



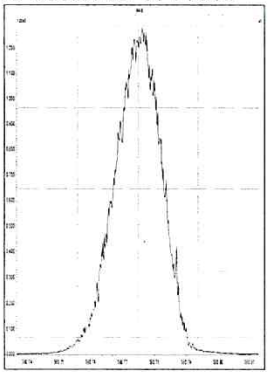
M 354.9792 R 11683



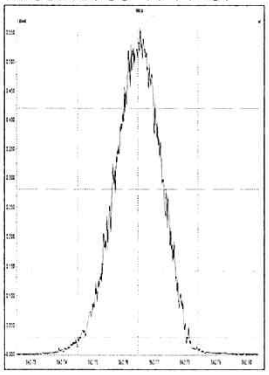
M 366.9792 R 11631



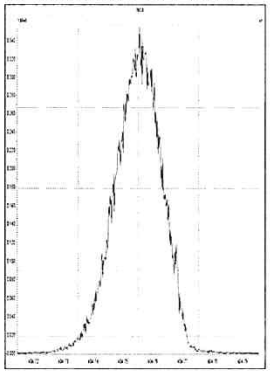
M 380.9760 R 11314



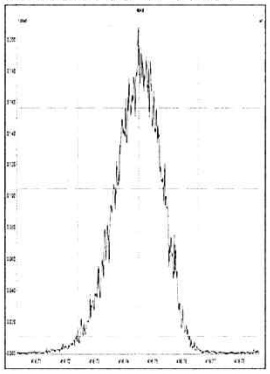
M 392.9760 R 11467



M 404.9760 R 11518



M 416.9760 R 11161

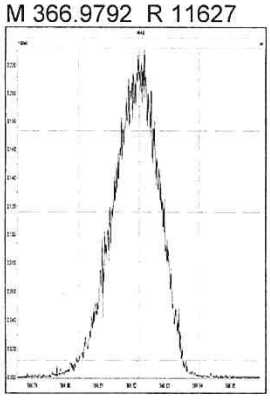


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

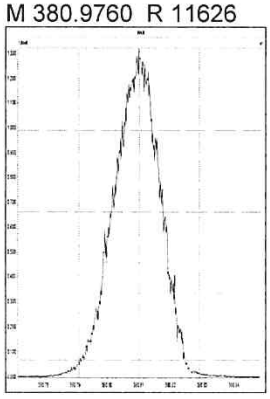
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

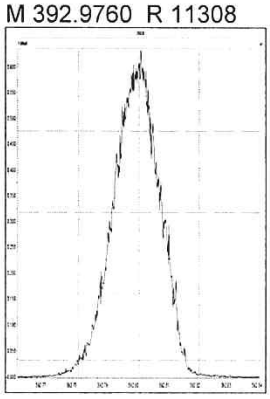
M 366.9792 R 11627



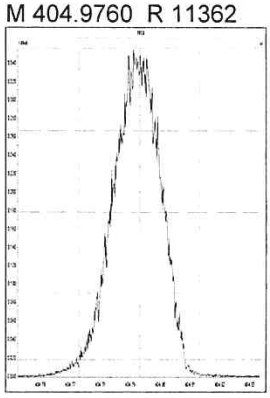
M 380.9760 R 11626



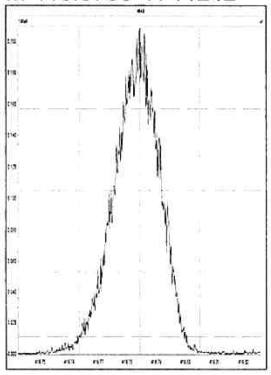
M 392.9760 R 11308



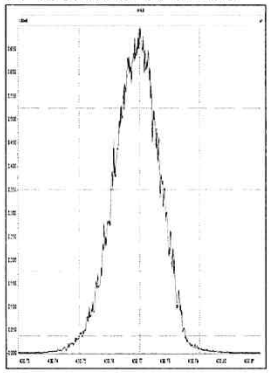
M 404.9760 R 11362



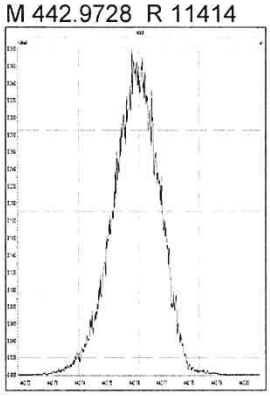
M 416.9760 R 11212



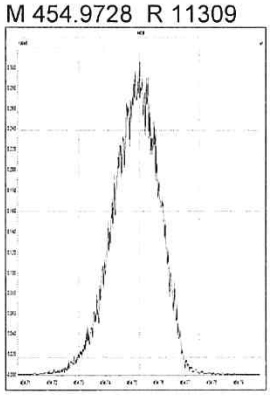
M 430.9728 R 11363



M 442.9728 R 11414



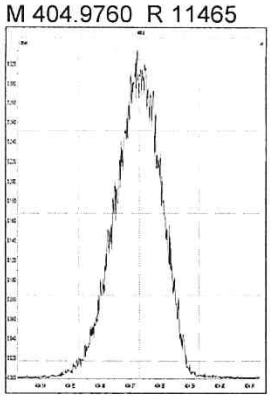
M 454.9728 R 11309



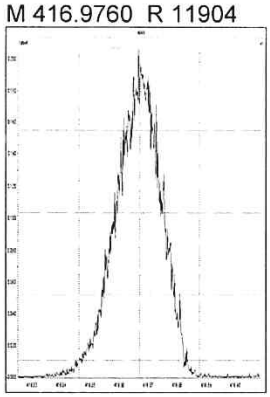
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

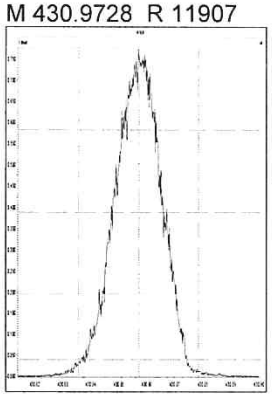
M 404.9760 R 11465



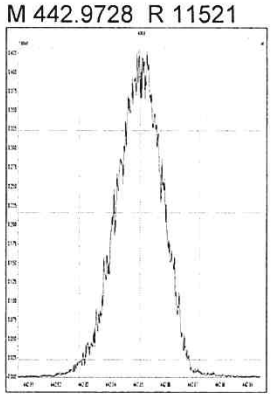
M 416.9760 R 11904



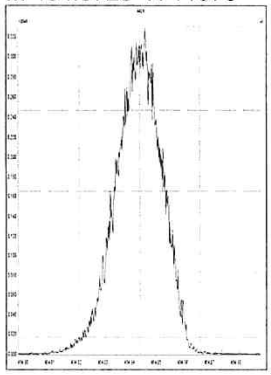
M 430.9728 R 11907



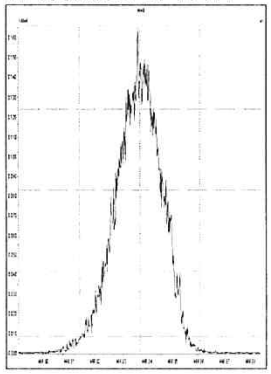
M 442.9728 R 11521



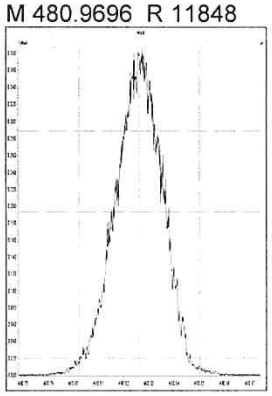
M 454.9728 R 11573



M 466.9728 R 11417



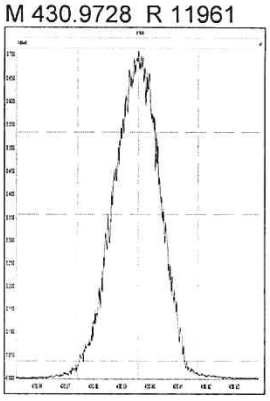
M 480.9696 R 11848



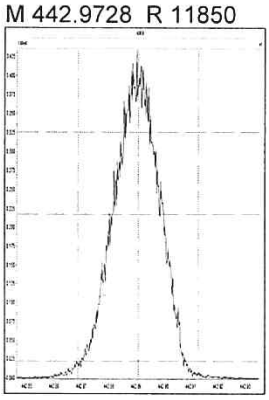
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

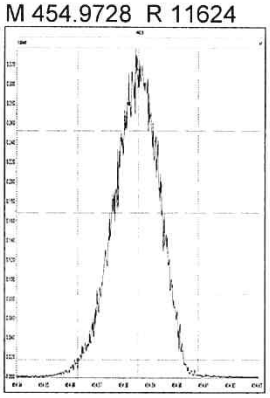
M 430.9728 R 11961



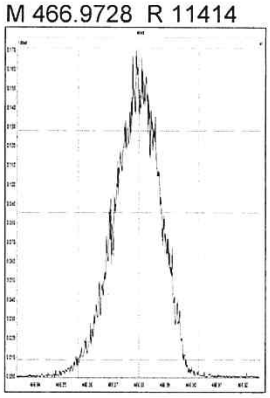
M 442.9728 R 11850



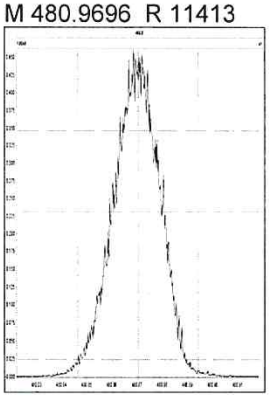
M 454.9728 R 11624



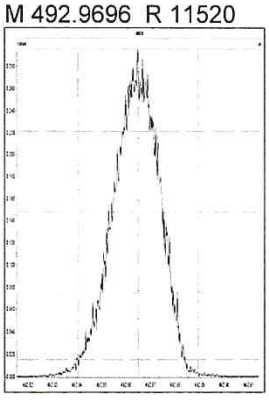
M 466.9728 R 11414



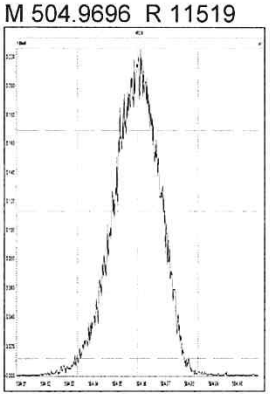
M 480.9696 R 11413



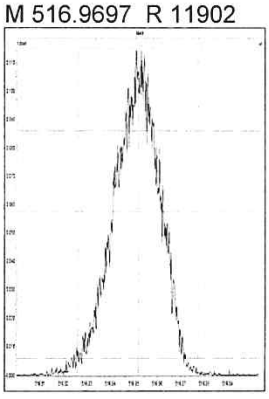
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

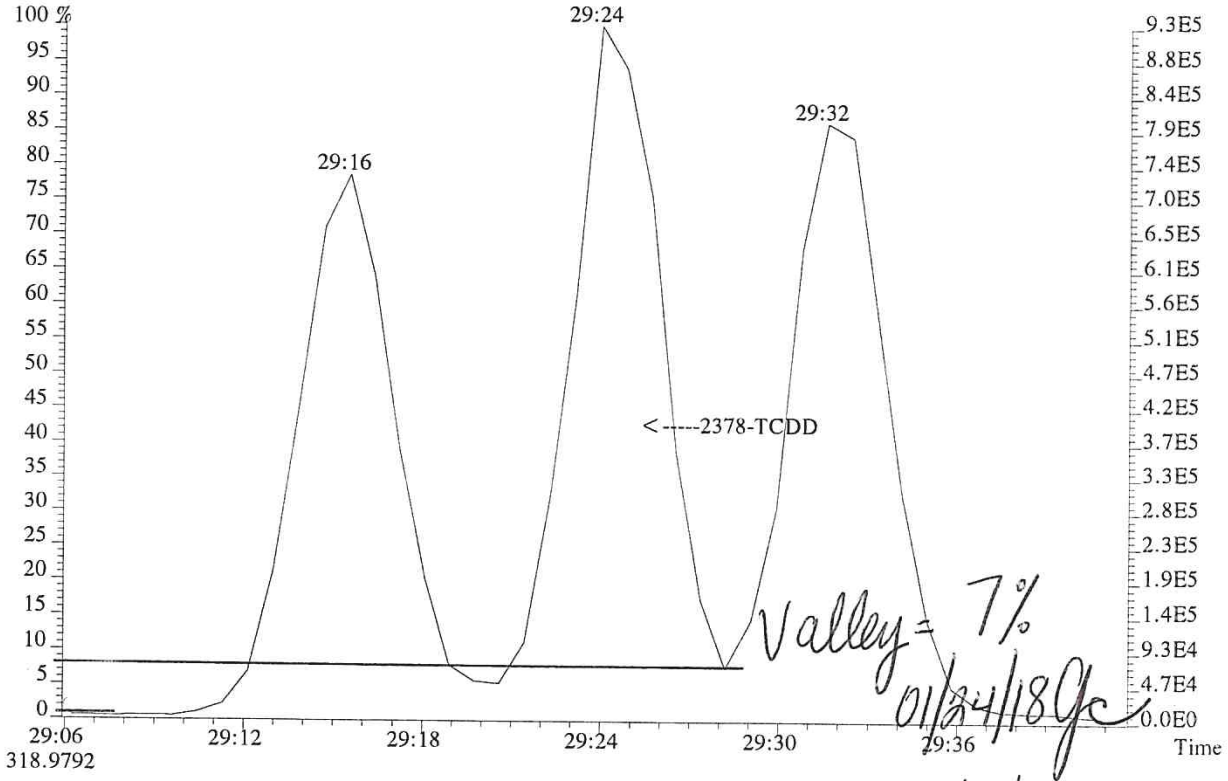
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

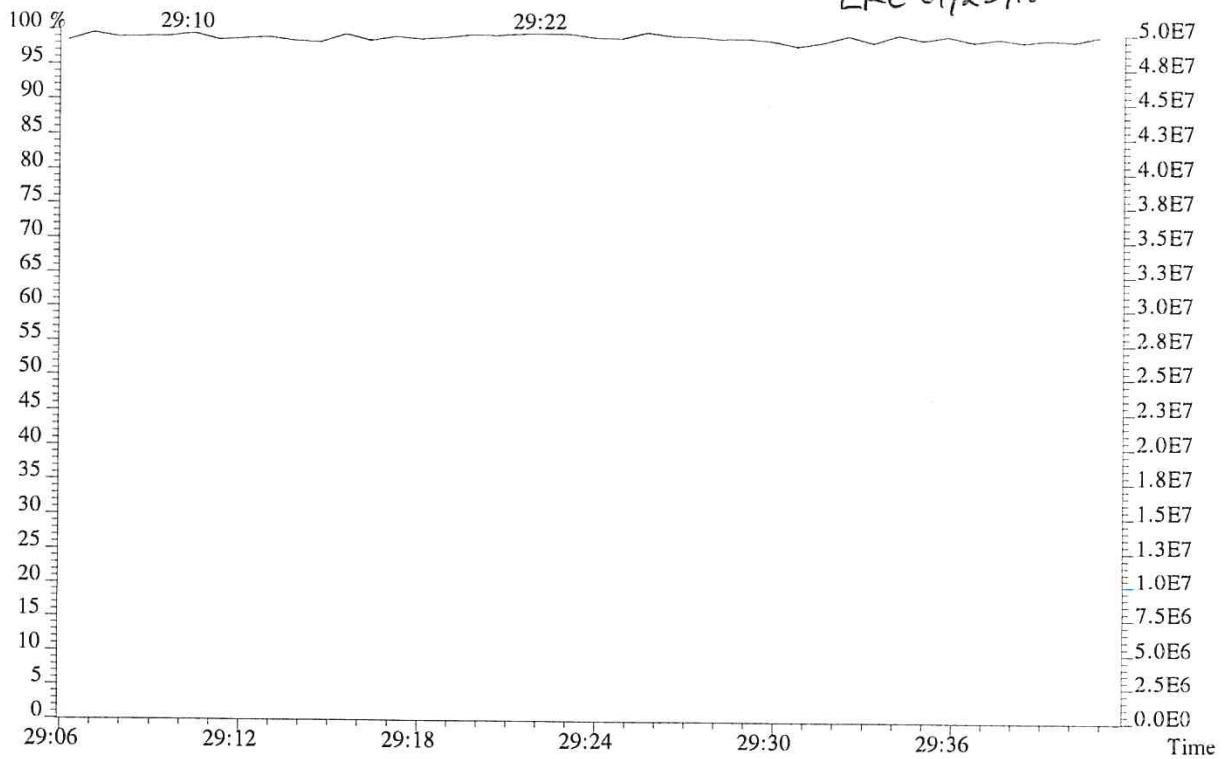
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

% Valley 2378-TCDD: 7 %

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965

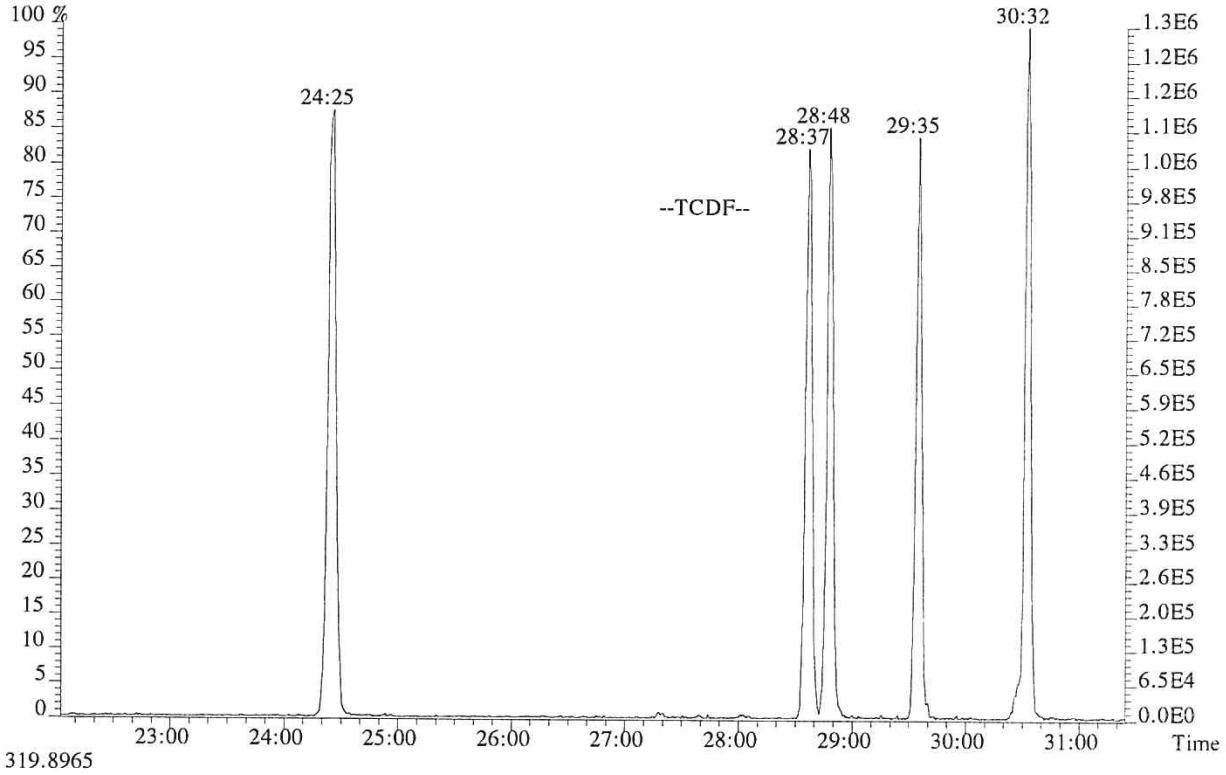


LKL 01/25/18

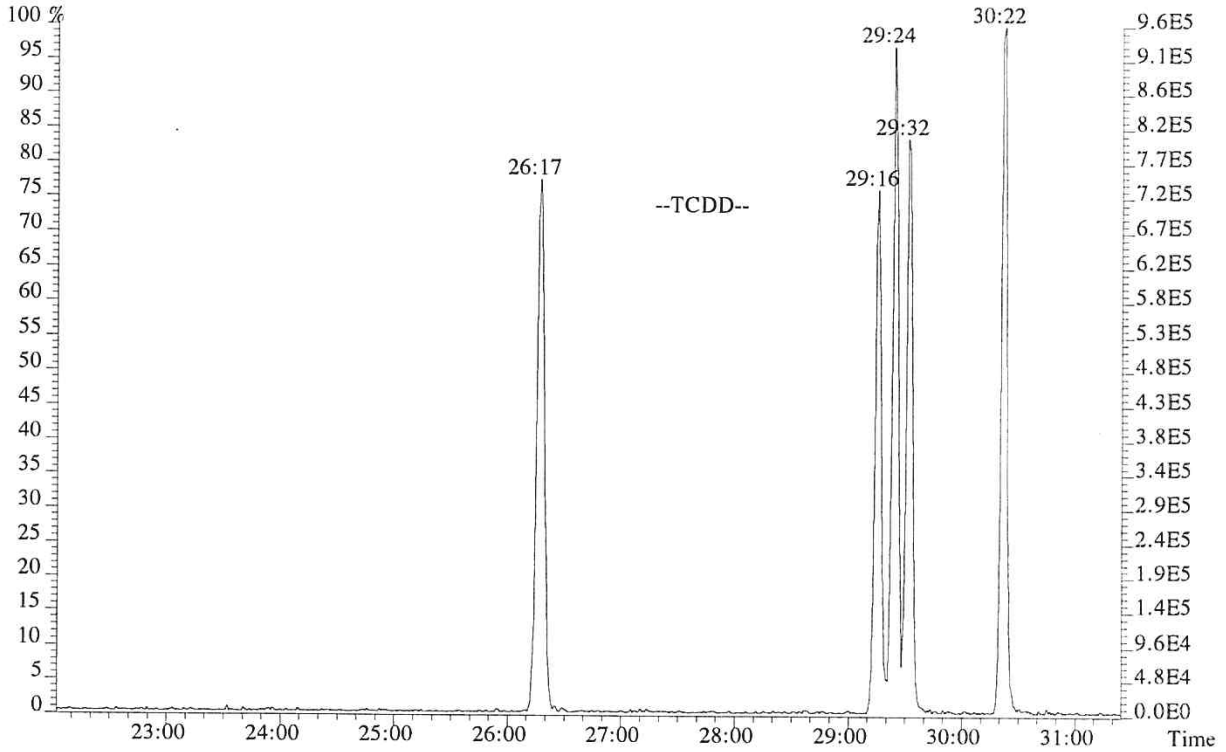


010121

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
303.9016

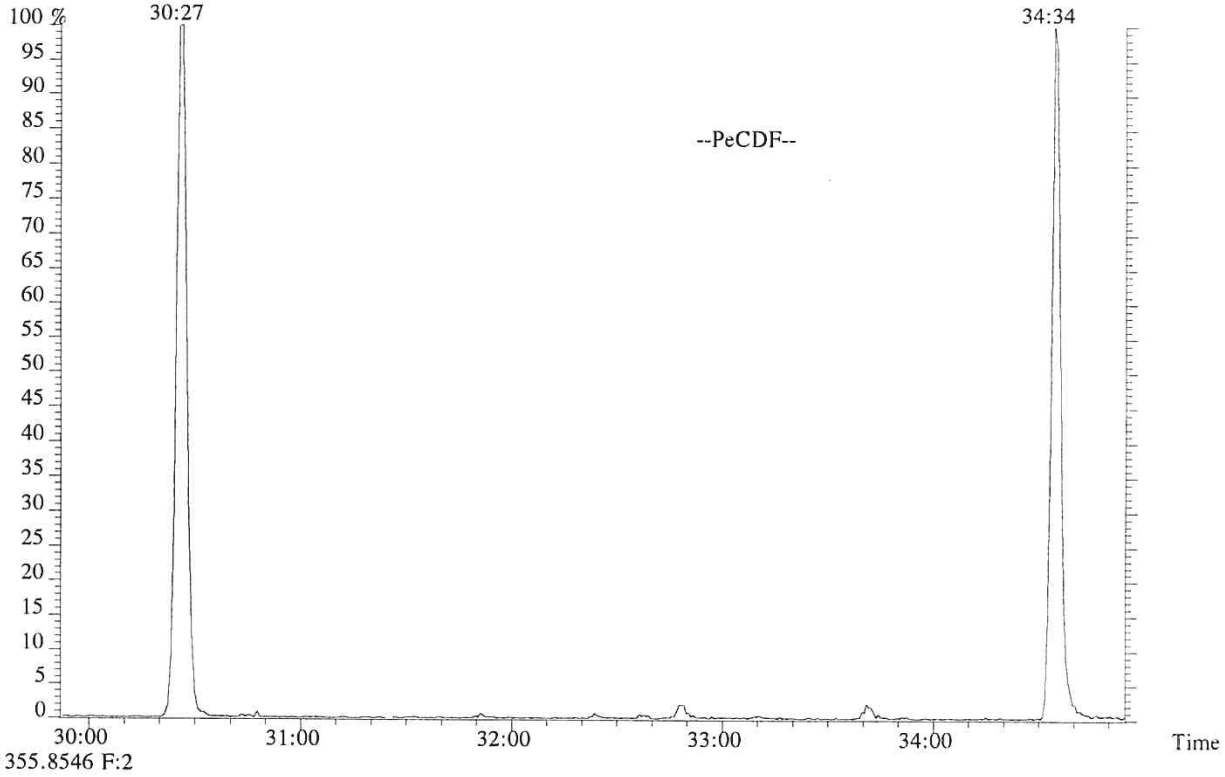


319.8965

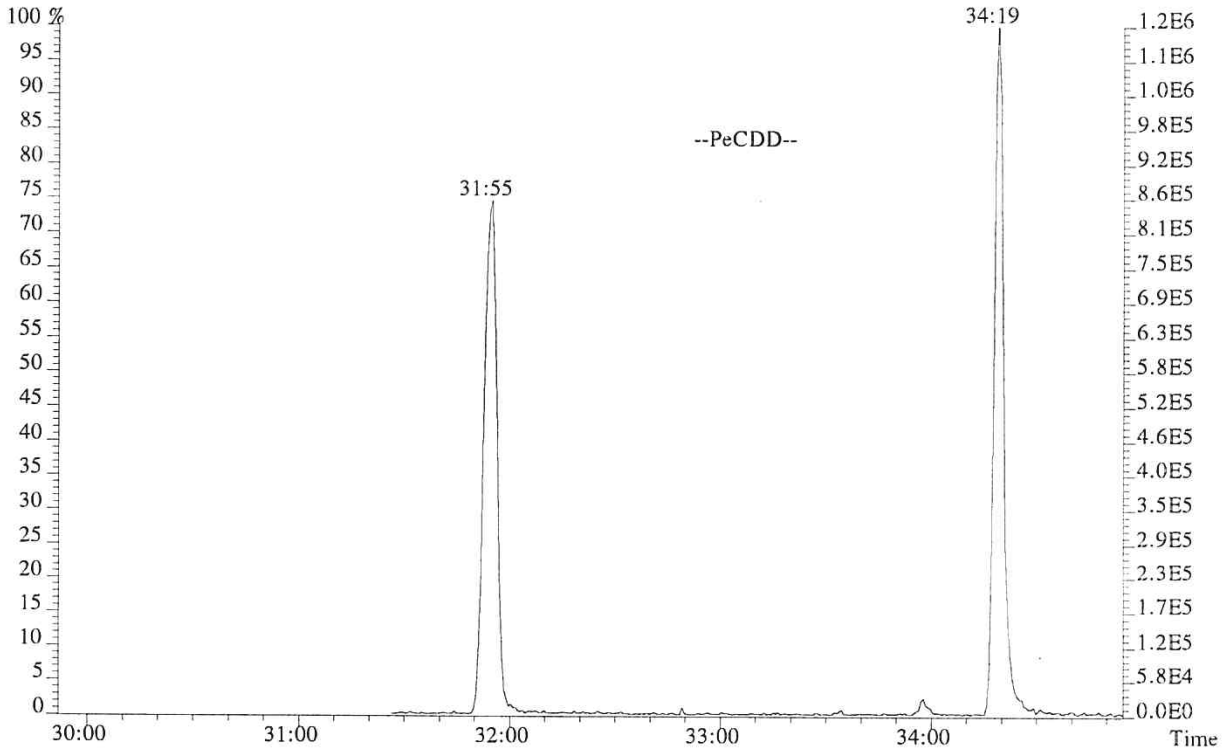


010122

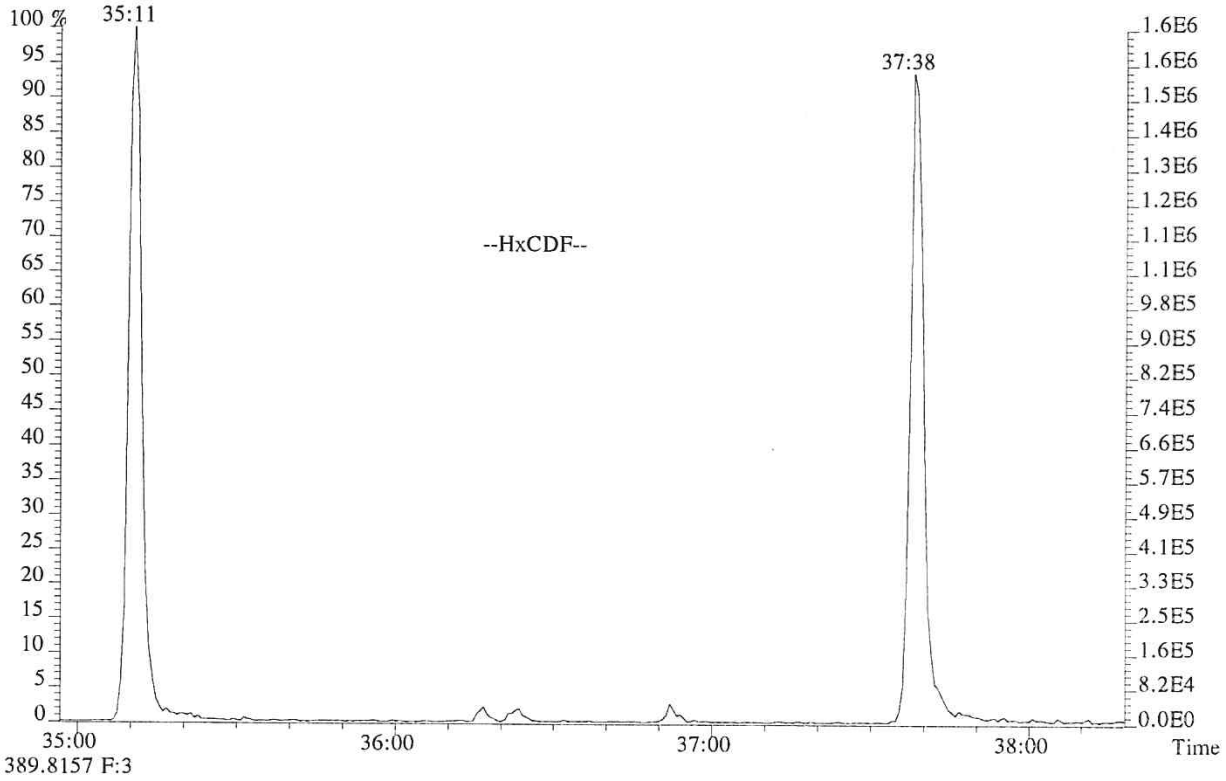
File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2



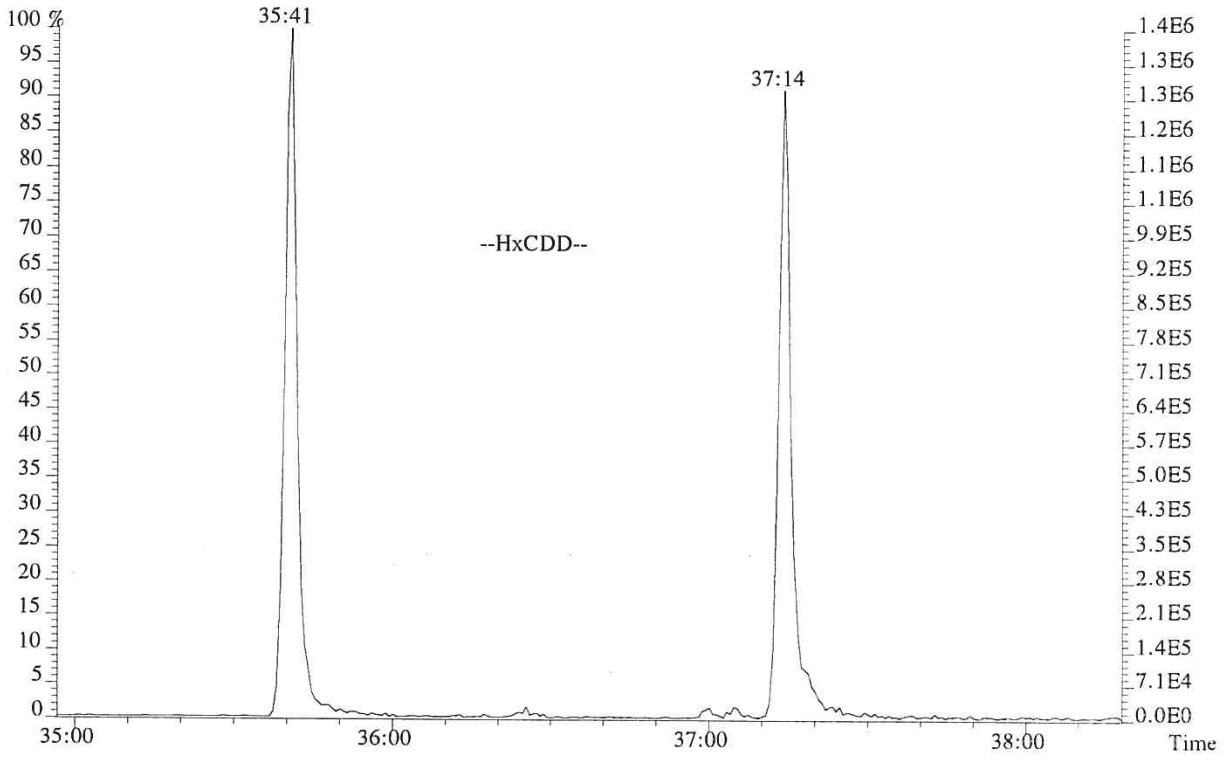
355.8546 F:2



File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3

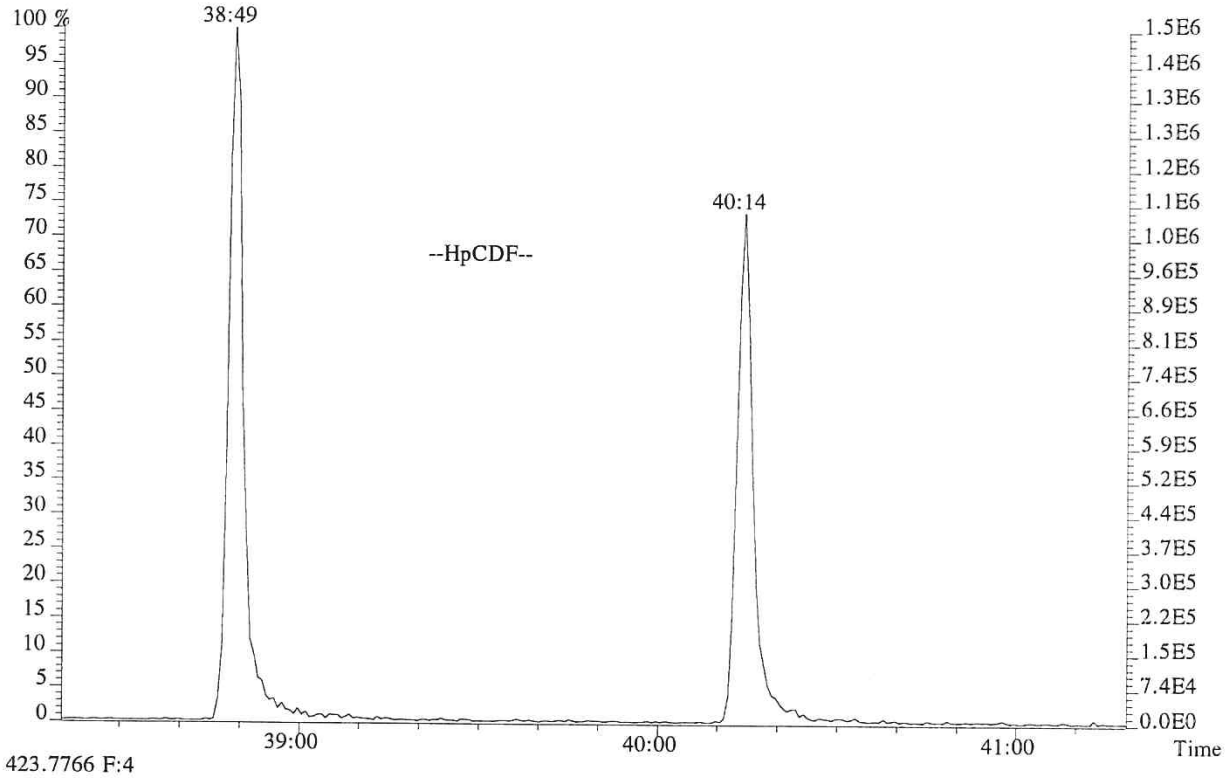


389.8157 F:3

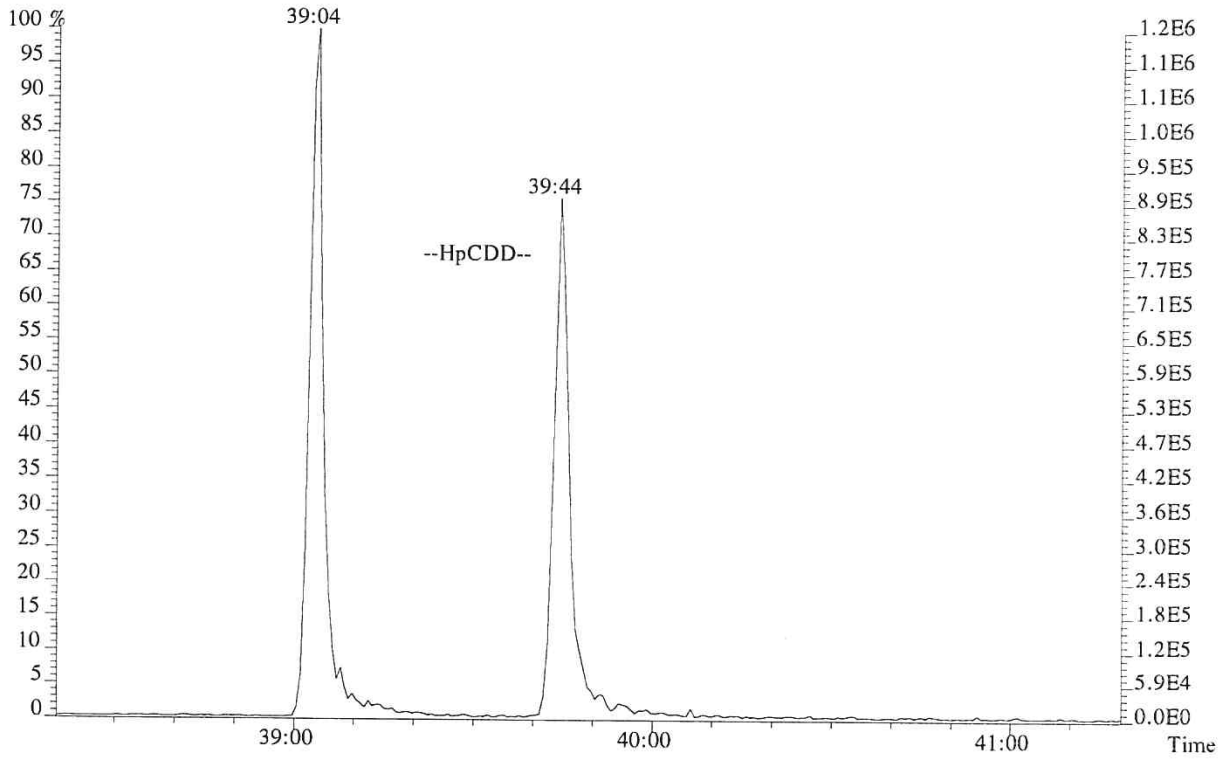


010124

File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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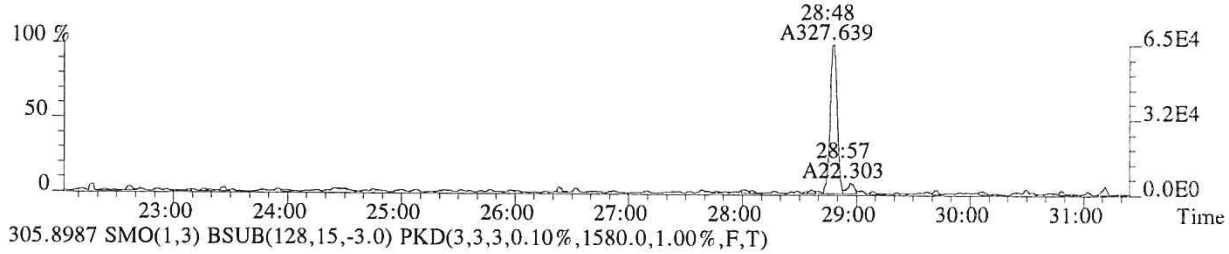
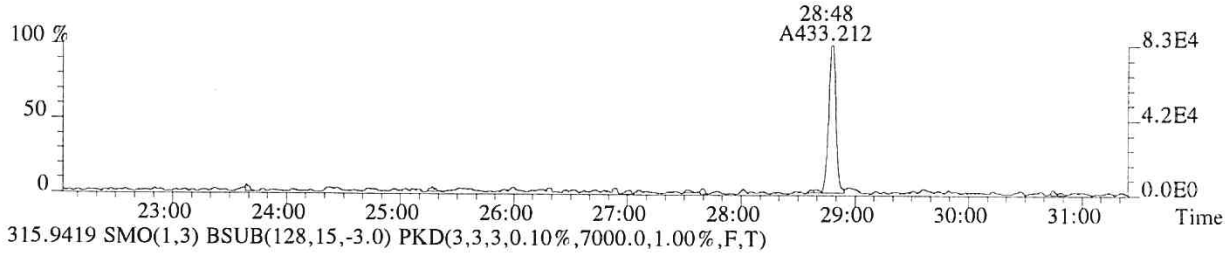
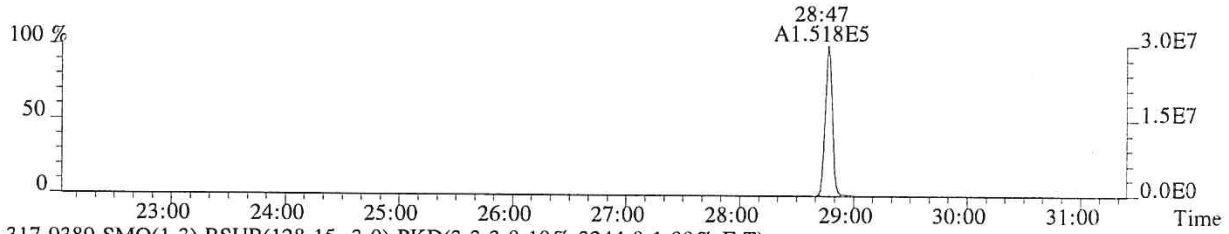
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



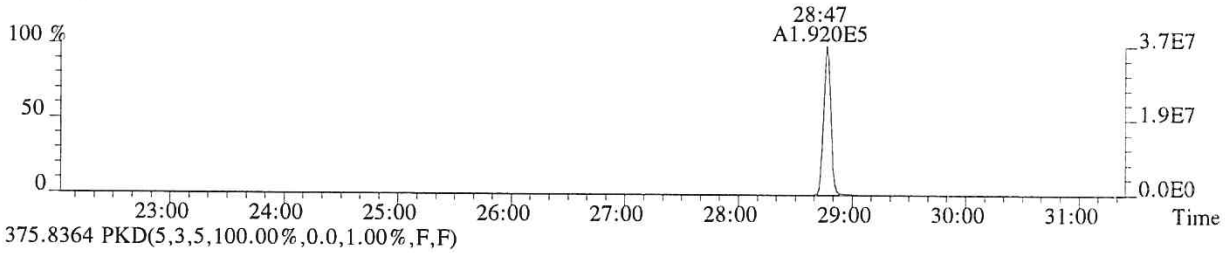
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



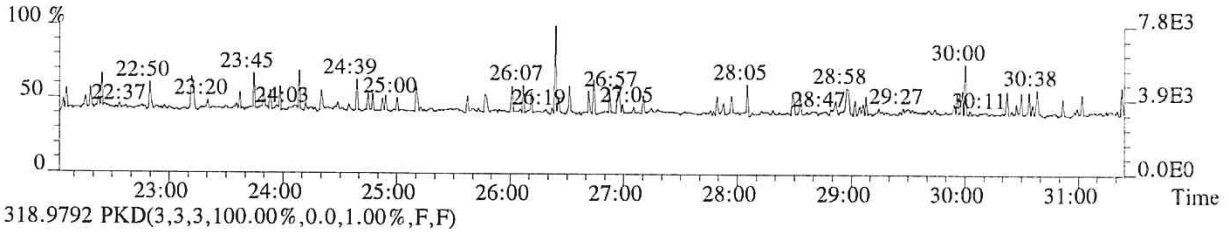
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



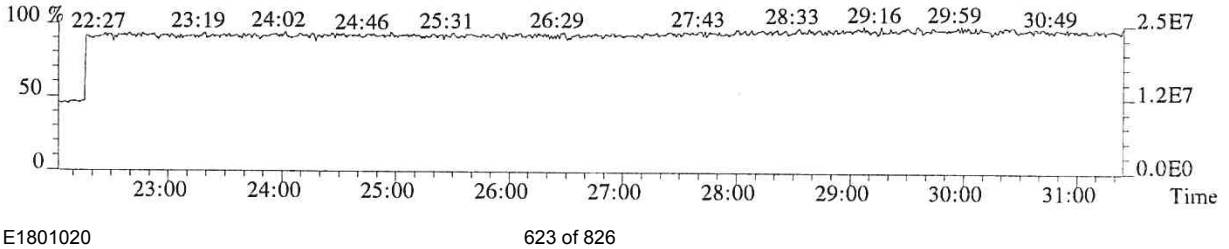
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

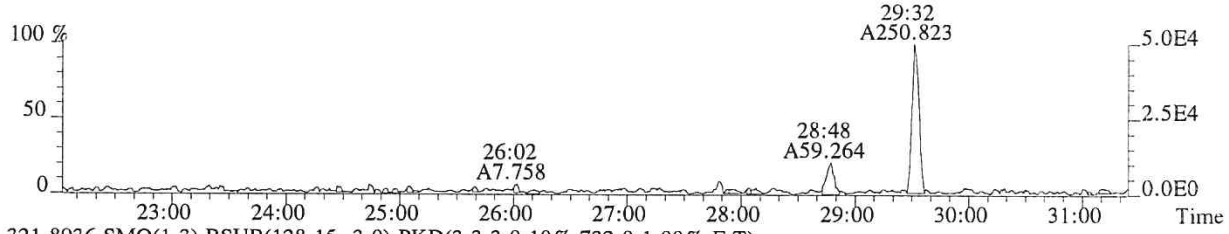


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

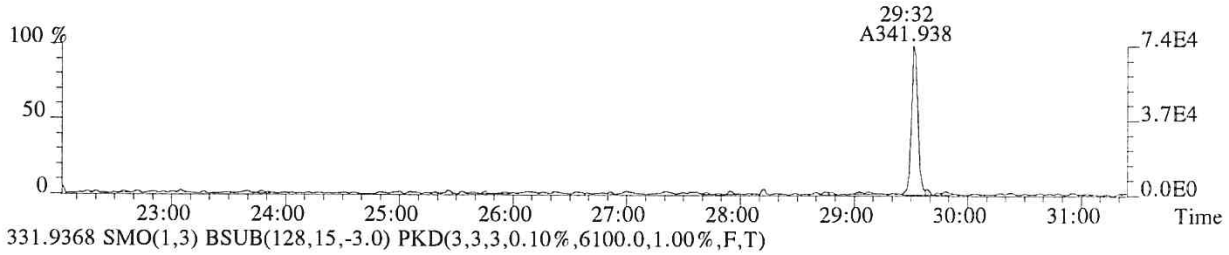


010130

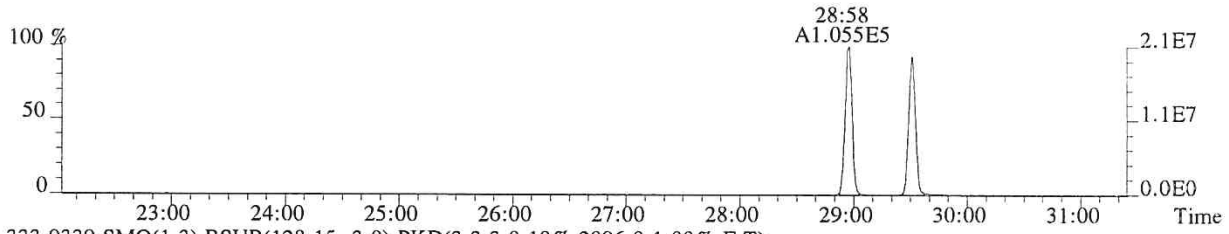
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



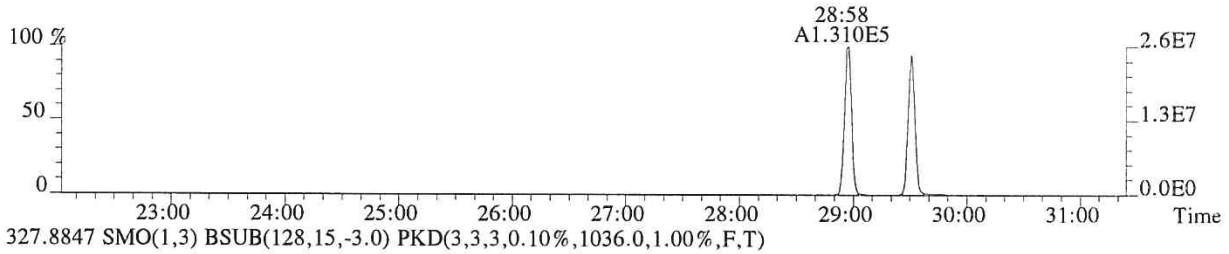
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



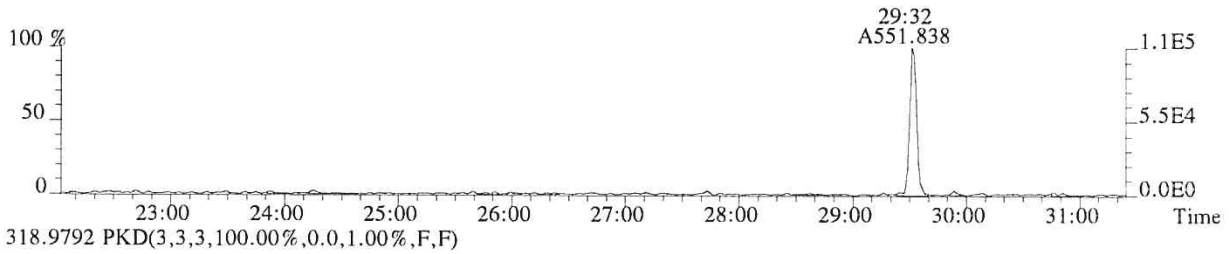
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



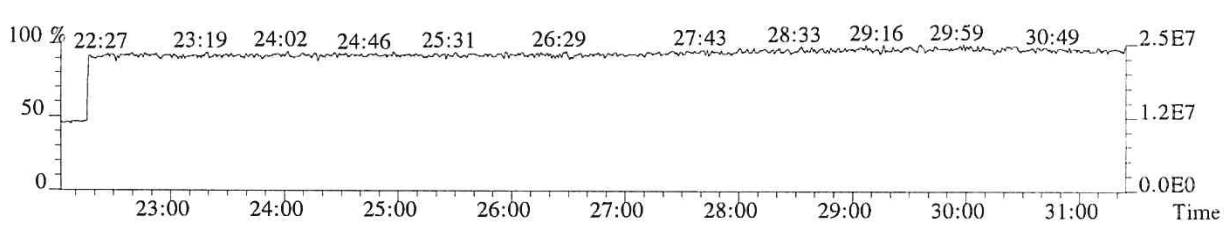
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



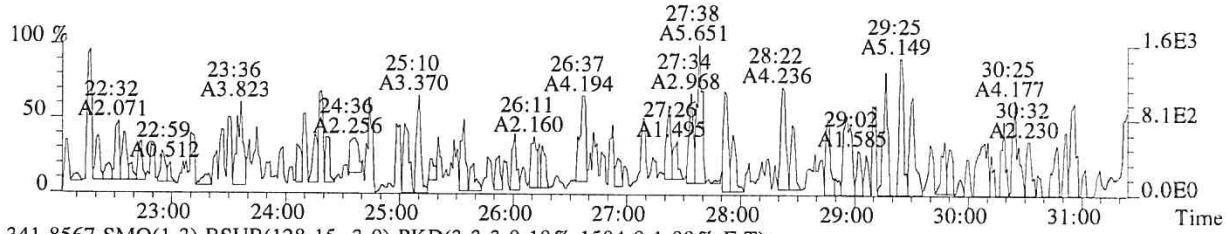
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



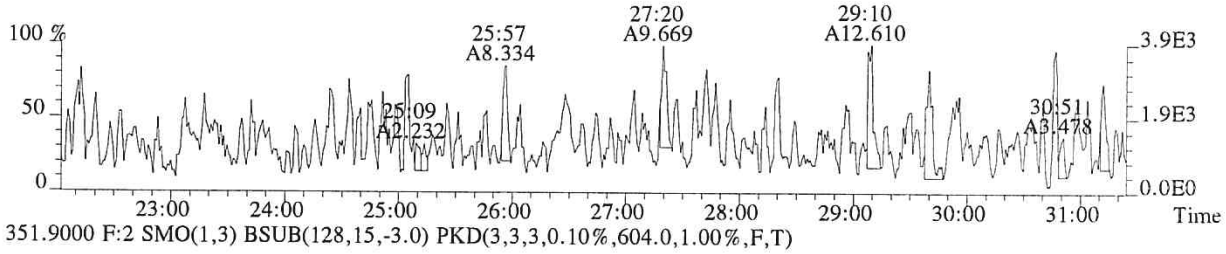
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



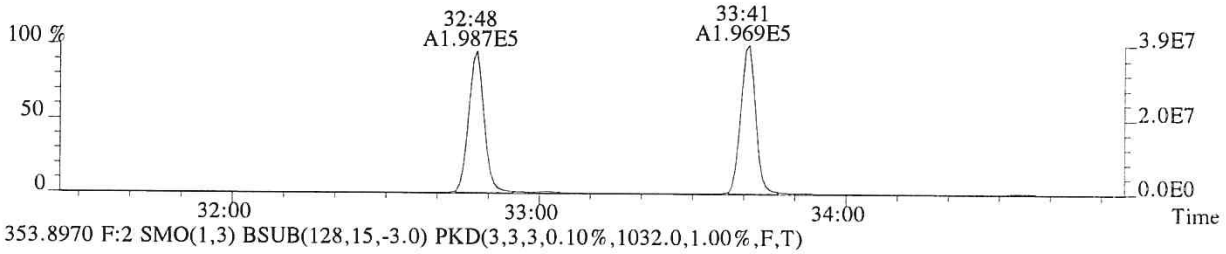
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



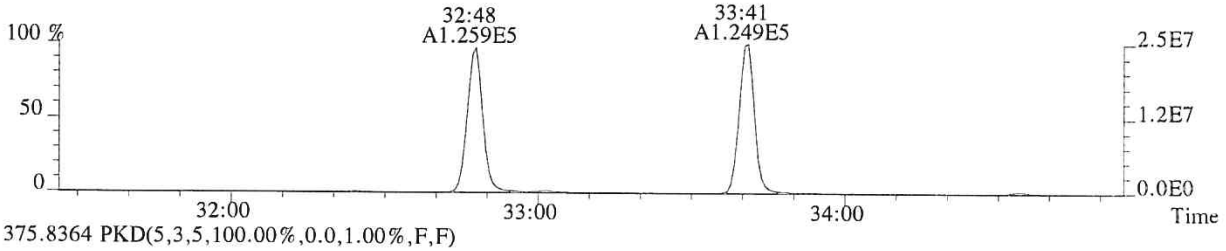
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



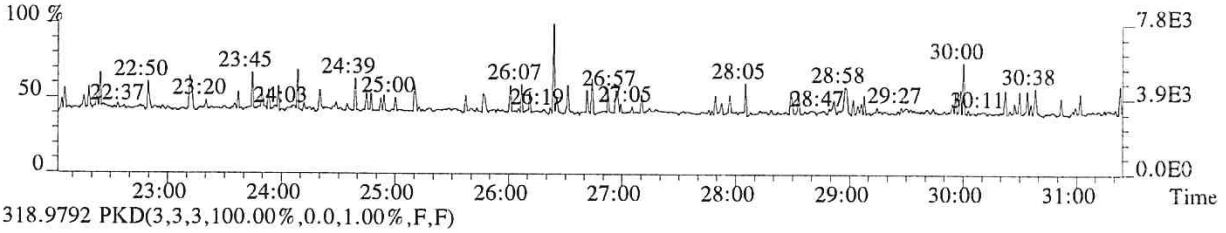
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



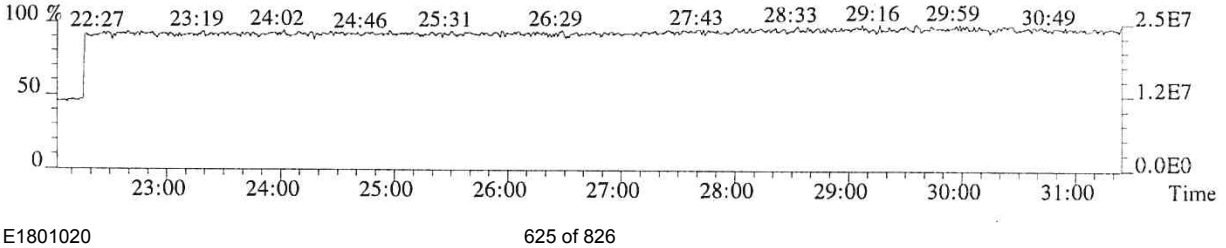
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

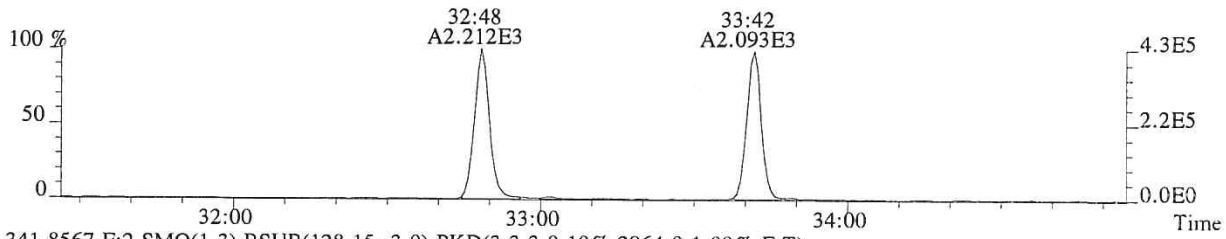


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

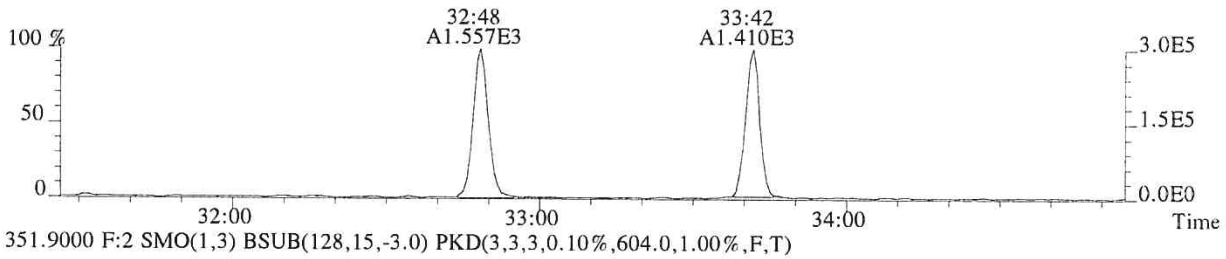


010132

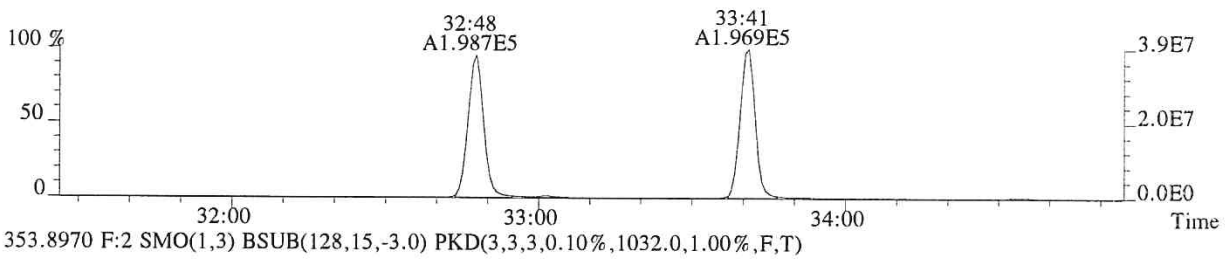
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



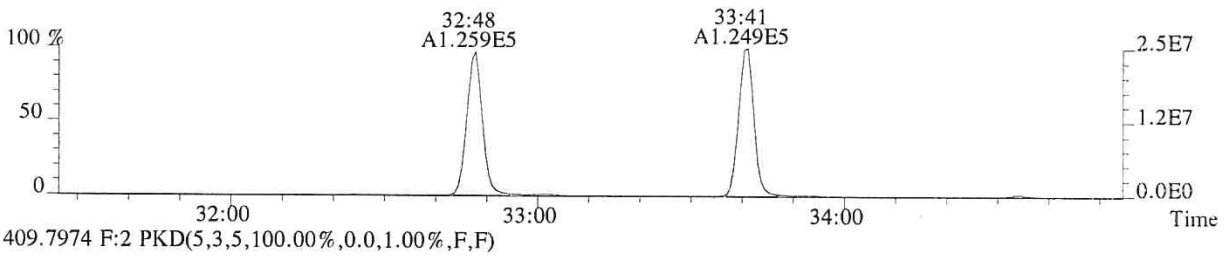
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



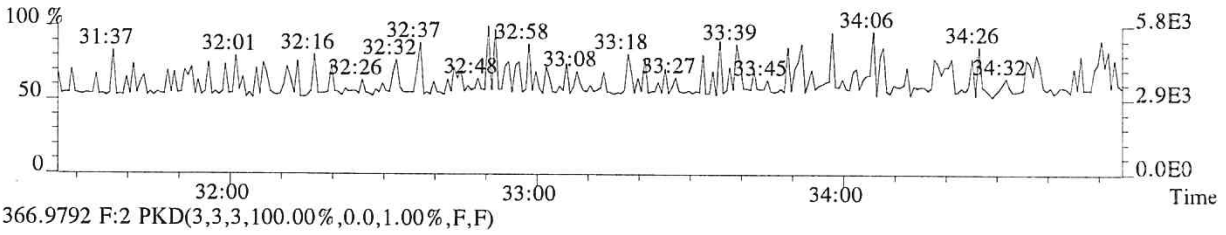
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



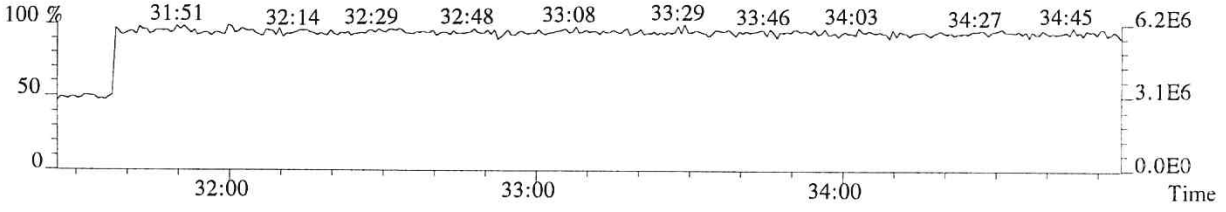
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

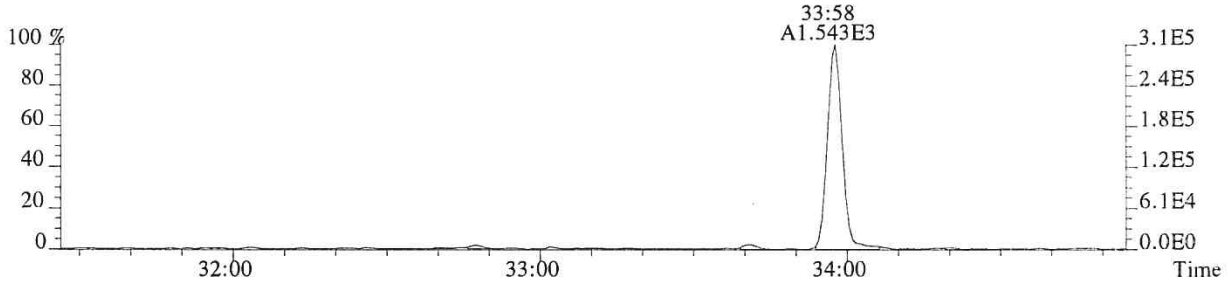


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

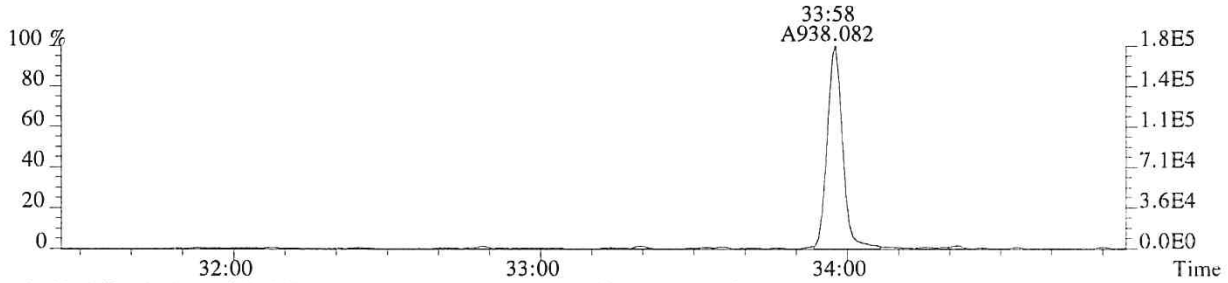


010133

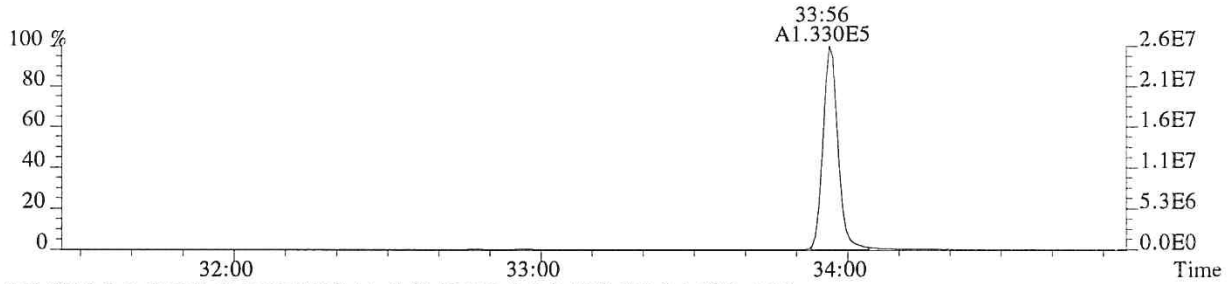
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



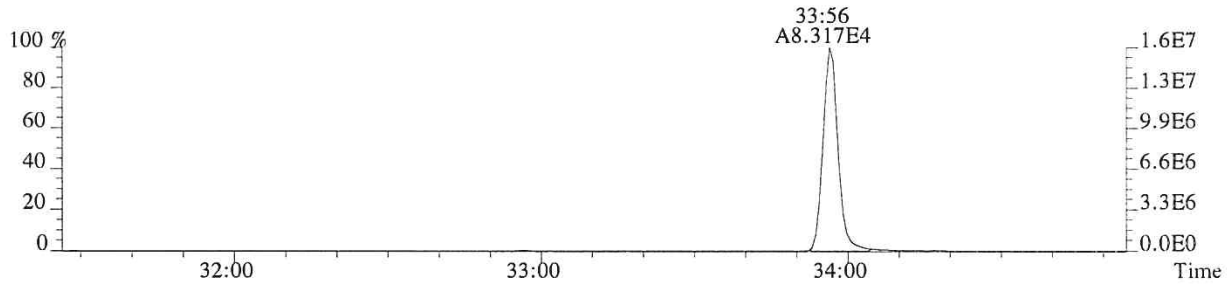
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



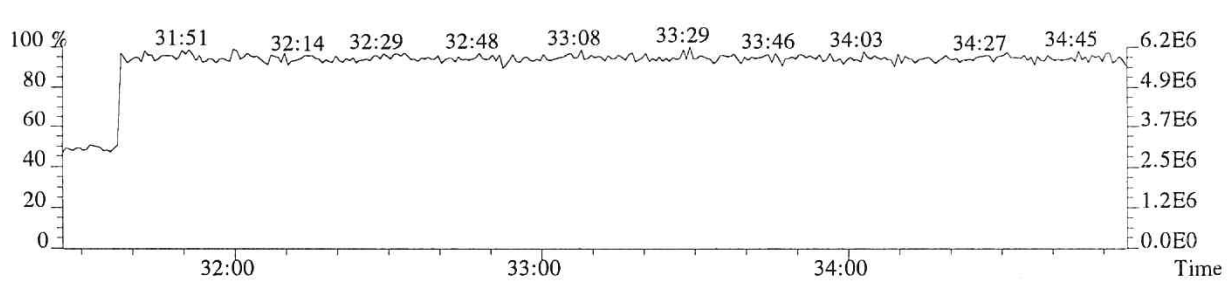
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



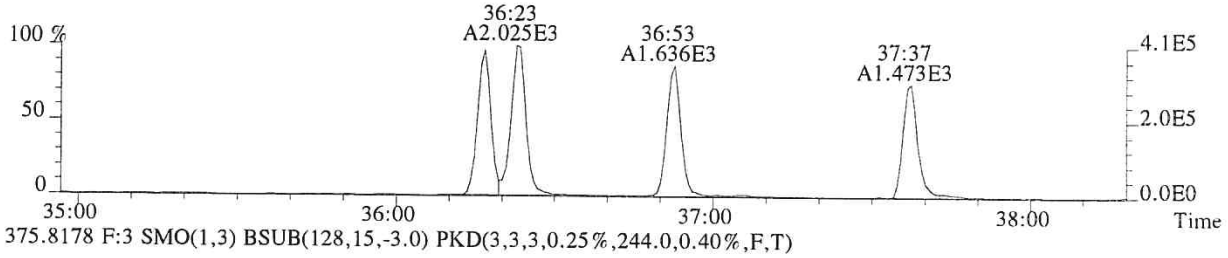
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



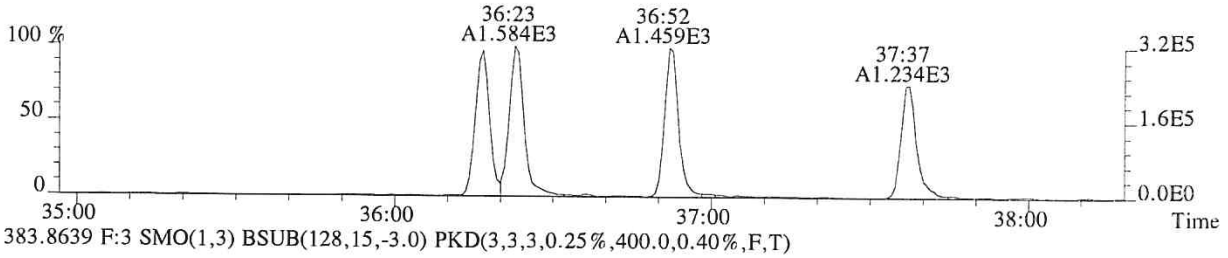
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



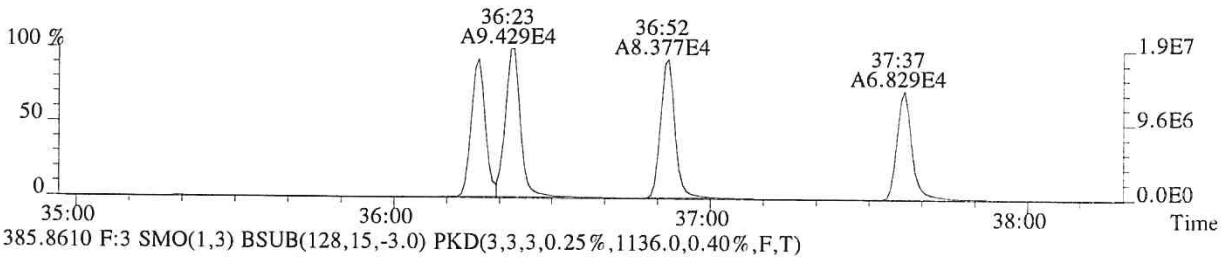
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



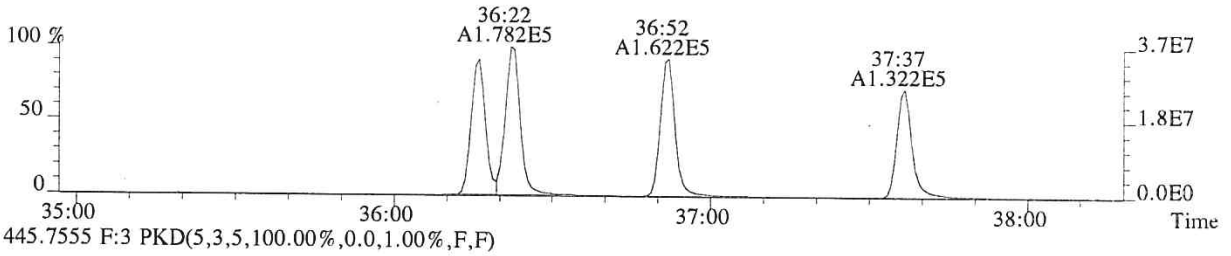
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



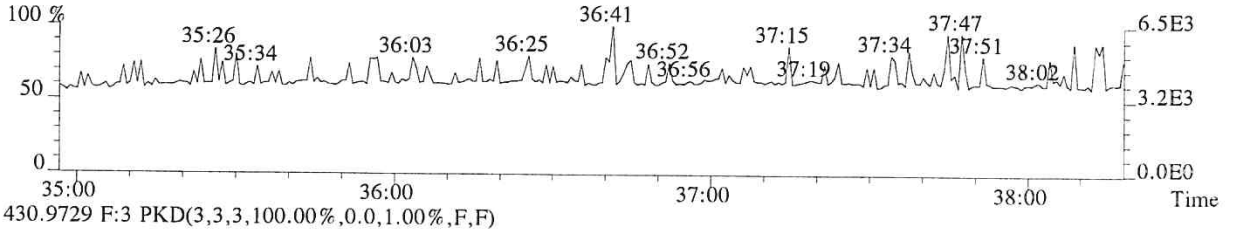
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



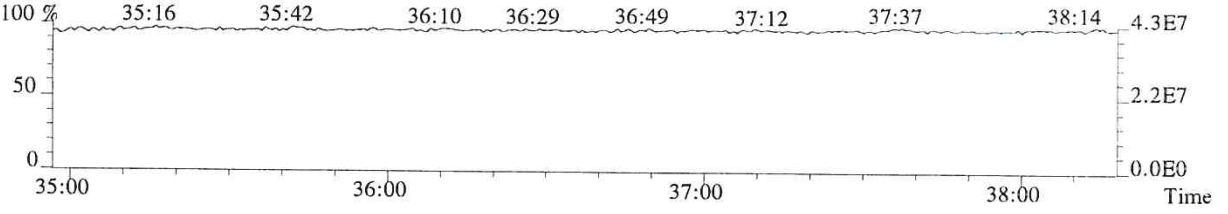
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

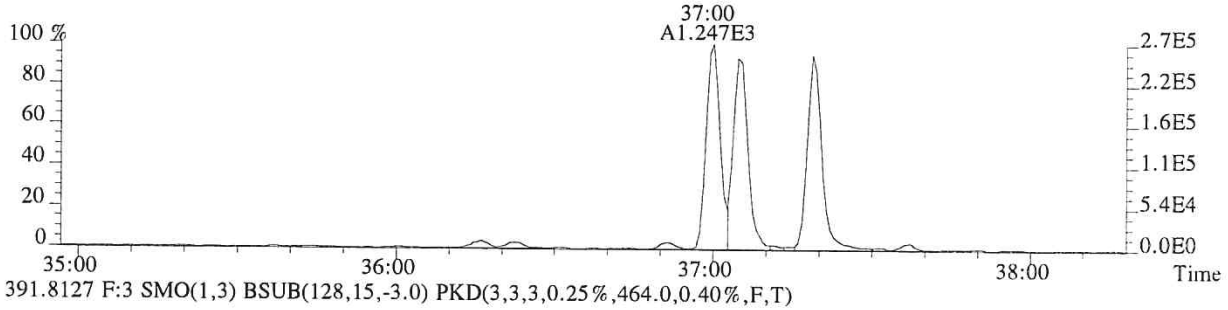


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

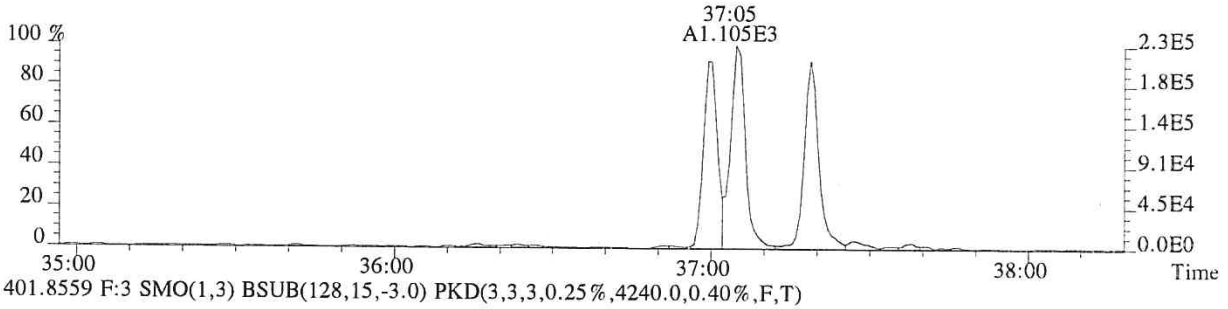


010135

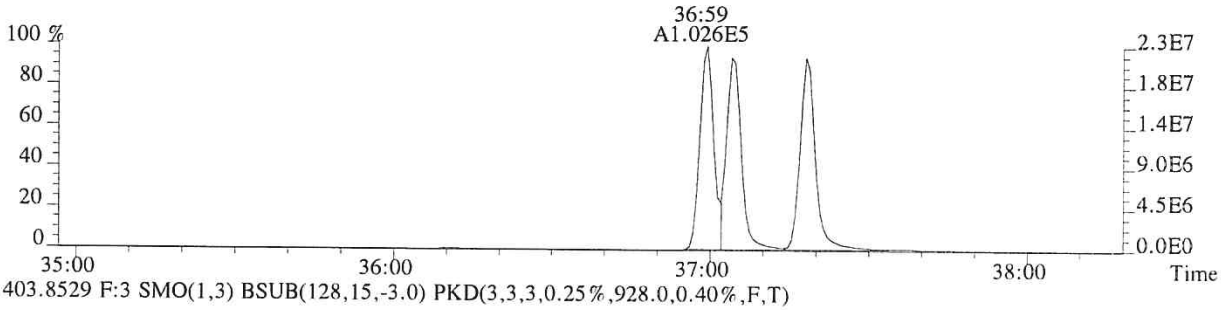
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



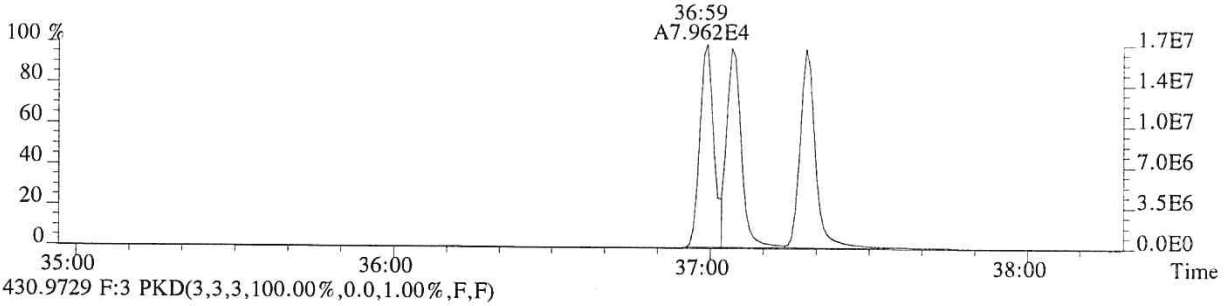
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



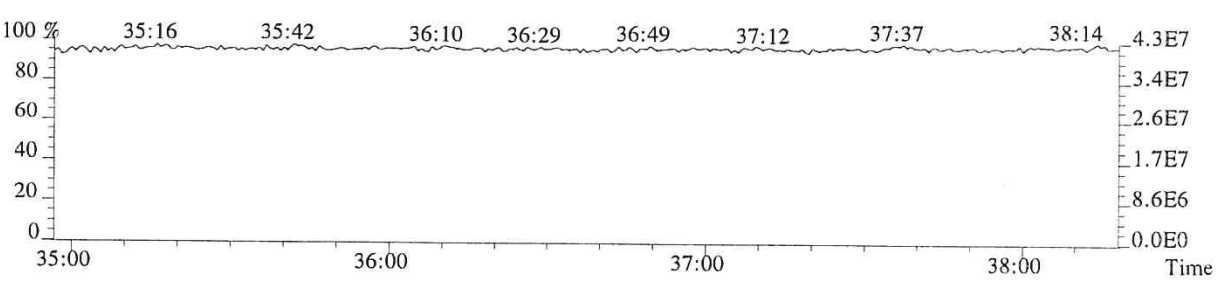
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



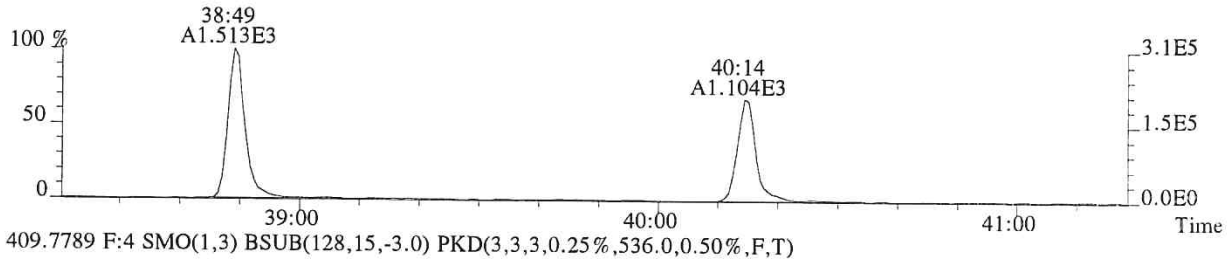
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



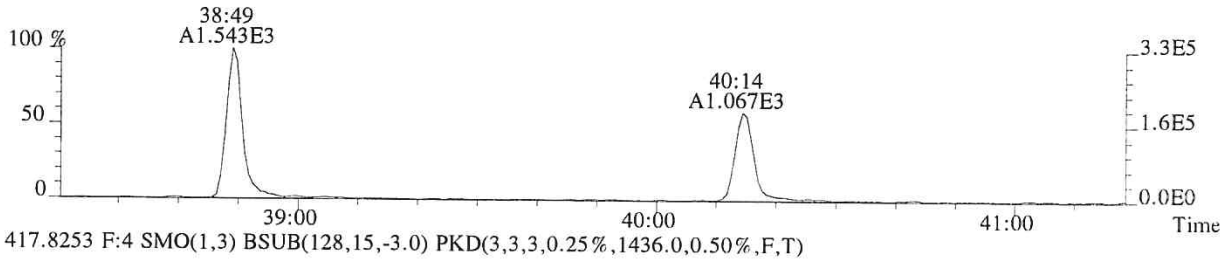
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



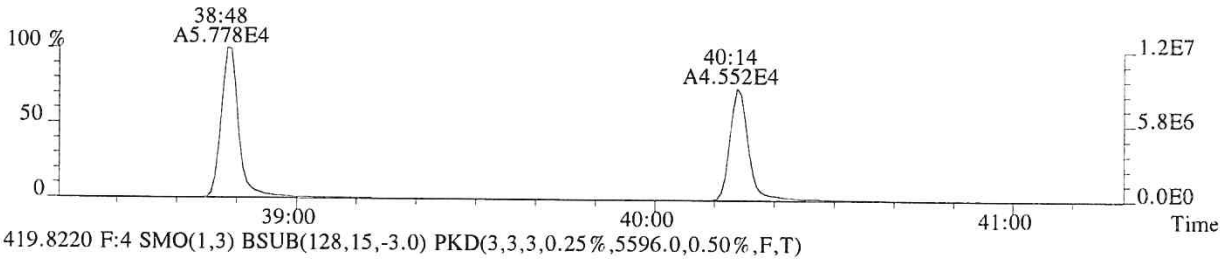
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



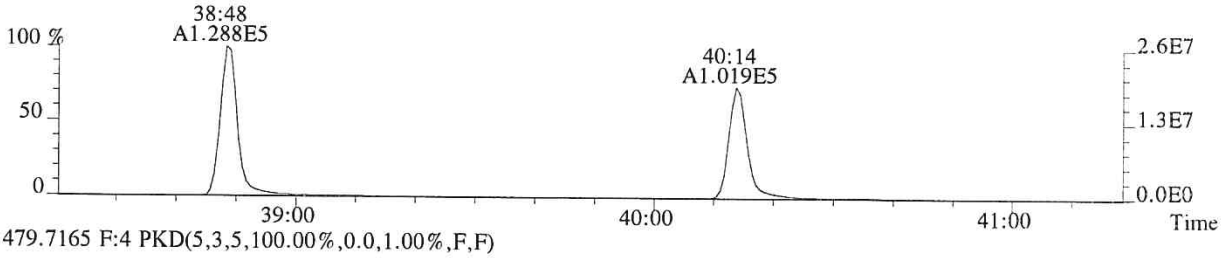
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



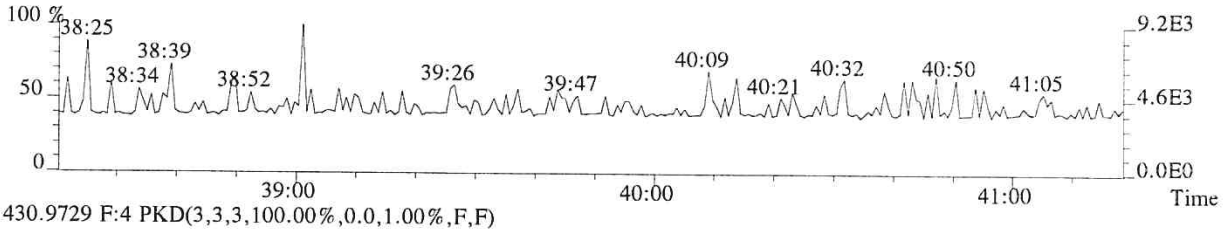
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



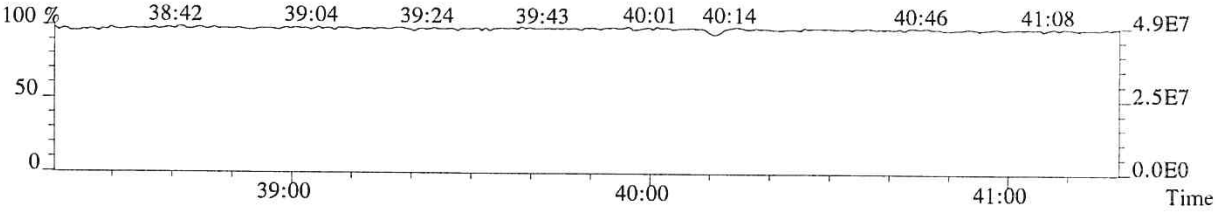
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



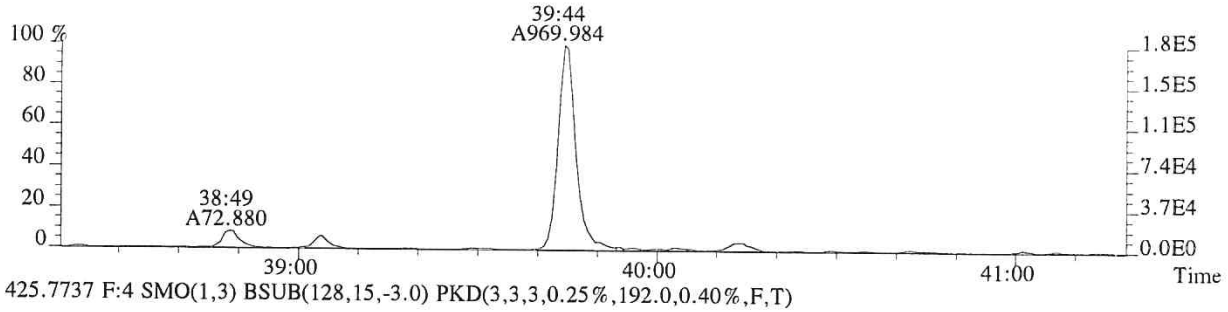
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



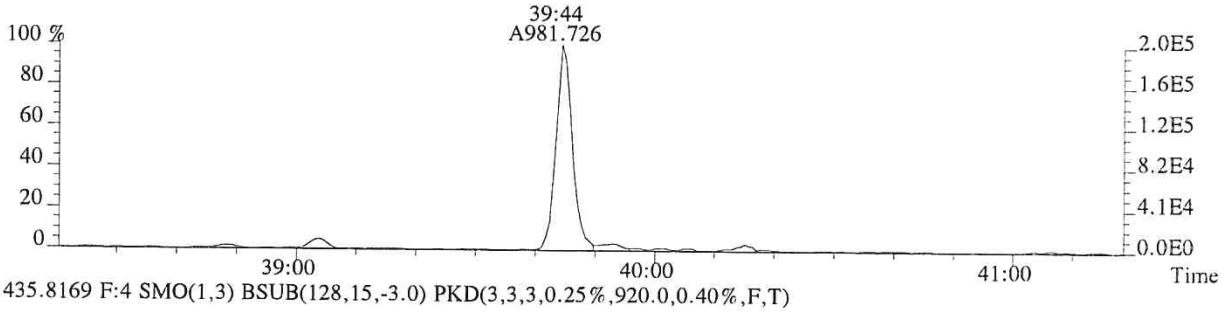
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



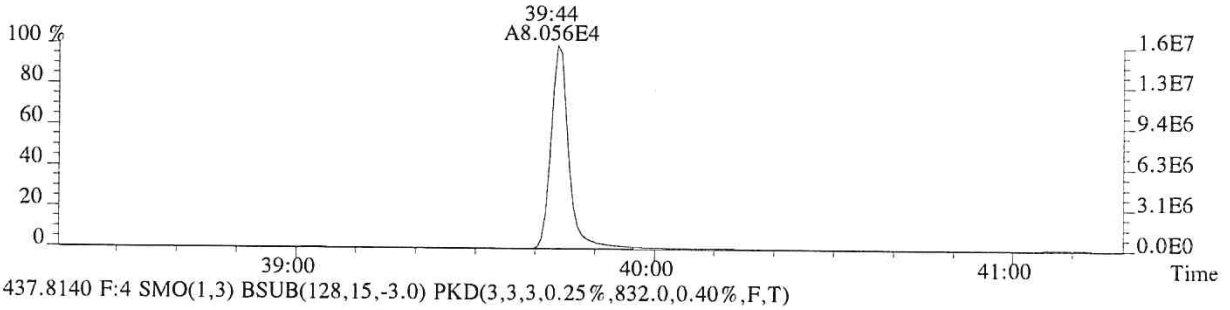
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



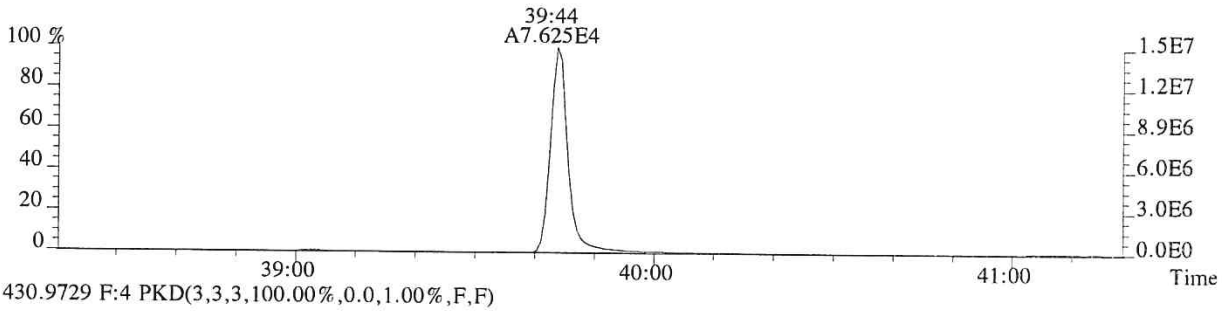
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



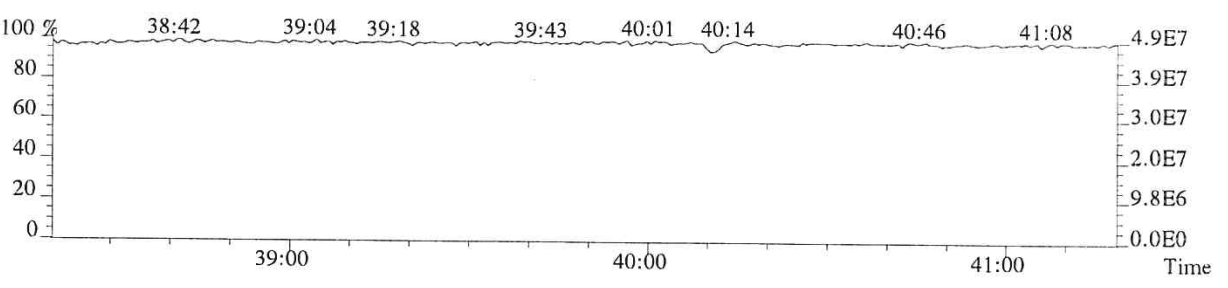
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)

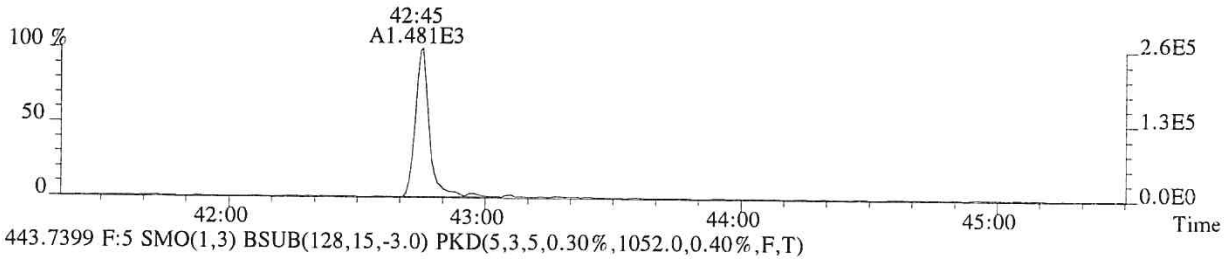


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

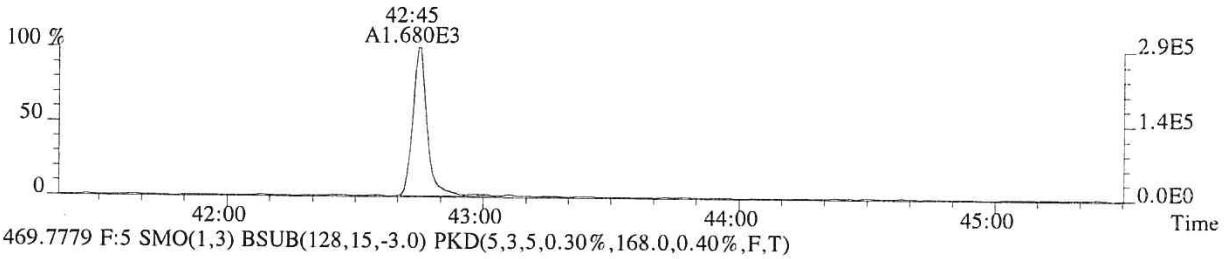


010138

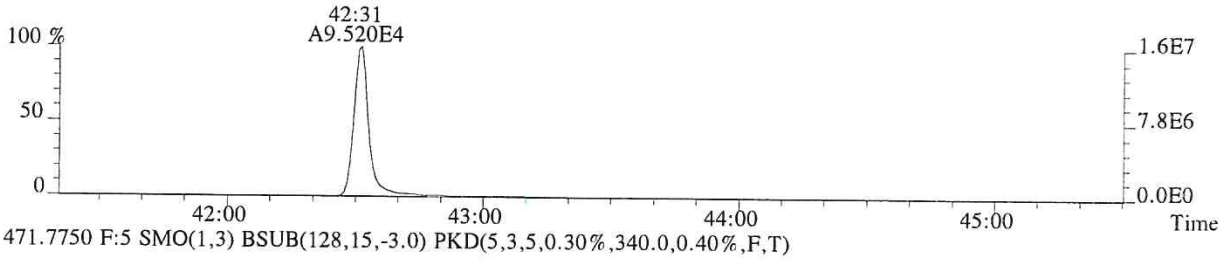
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



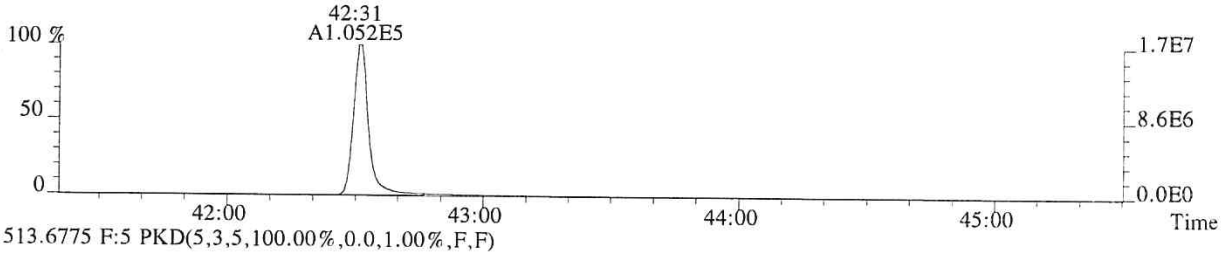
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



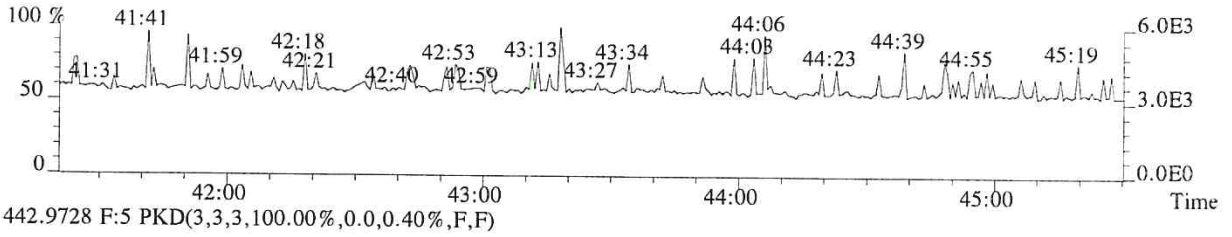
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



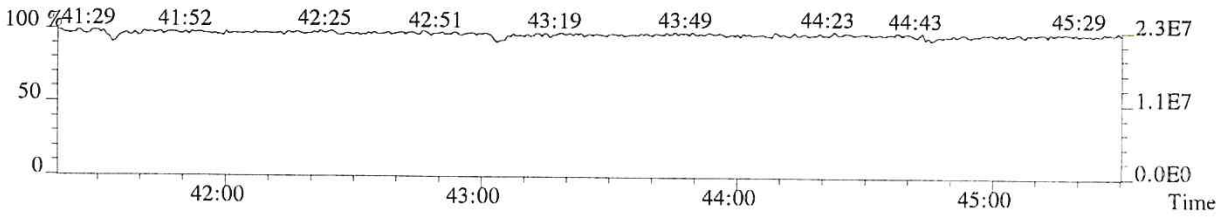
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



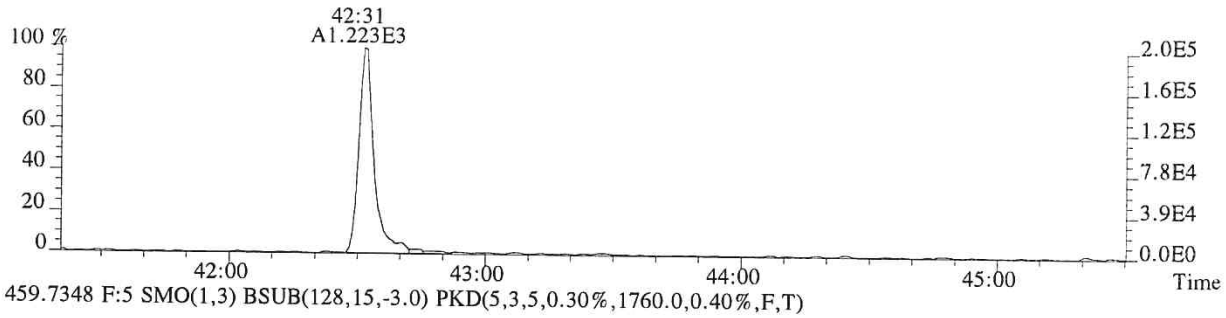
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



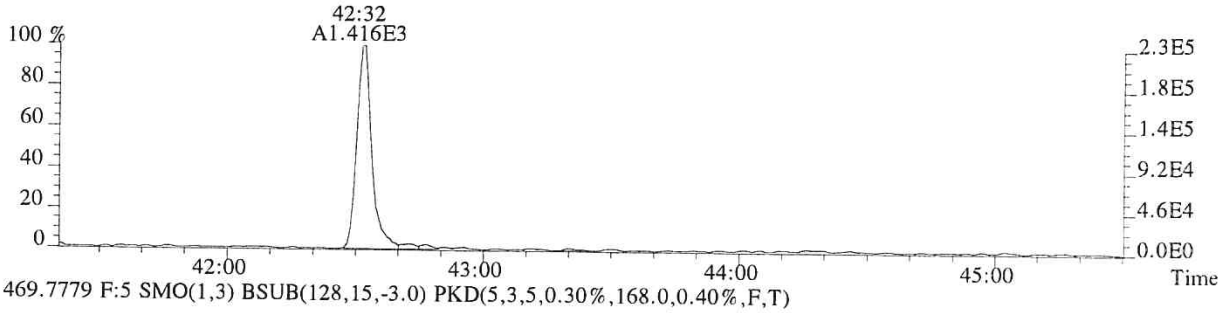
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



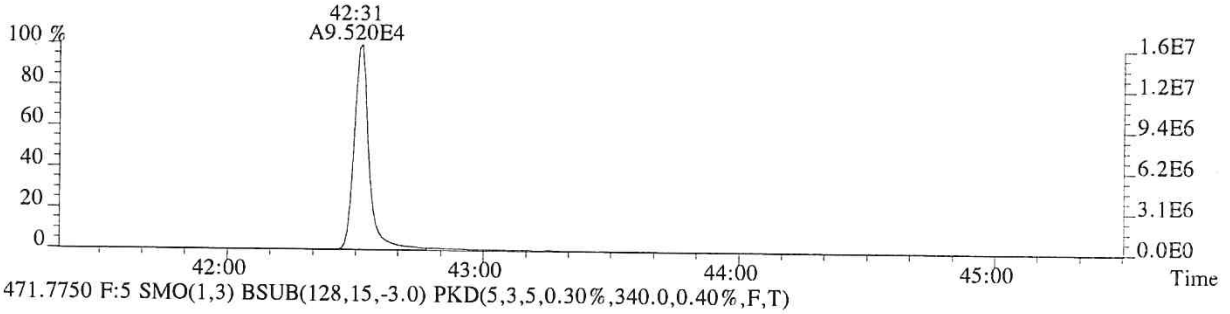
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



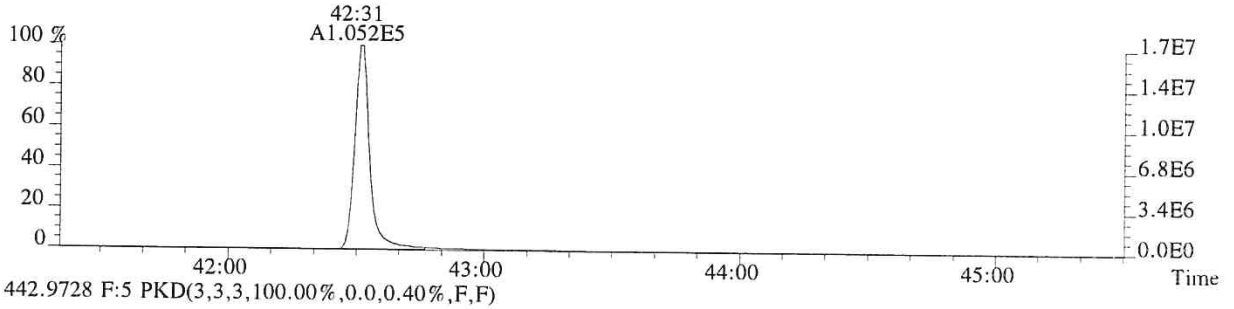
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



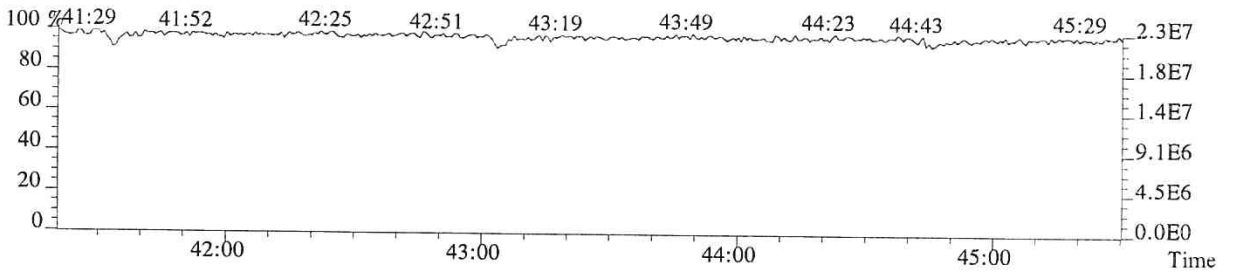
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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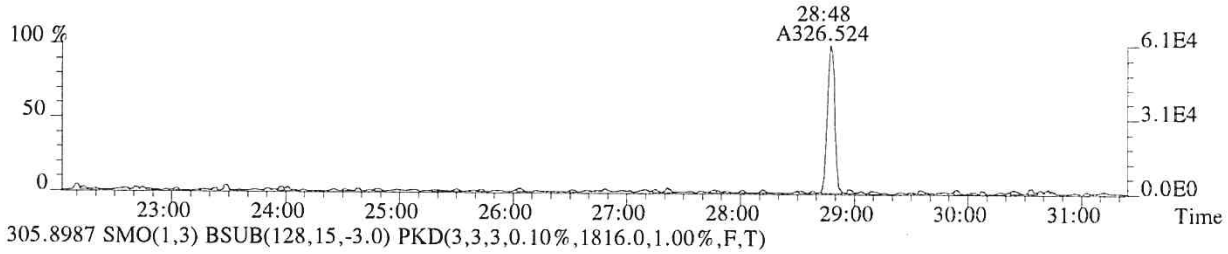
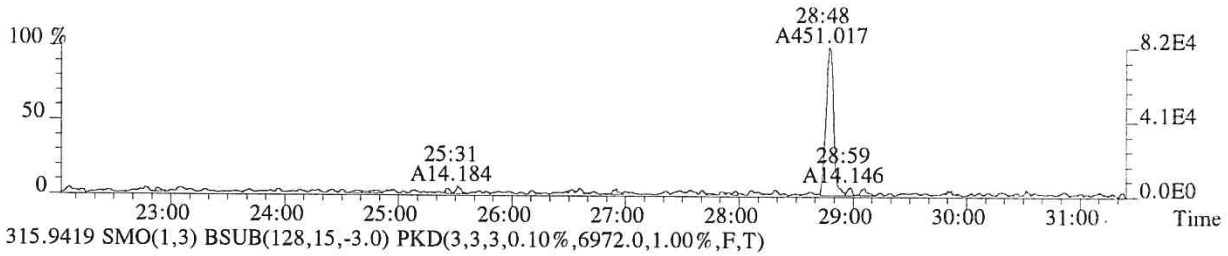
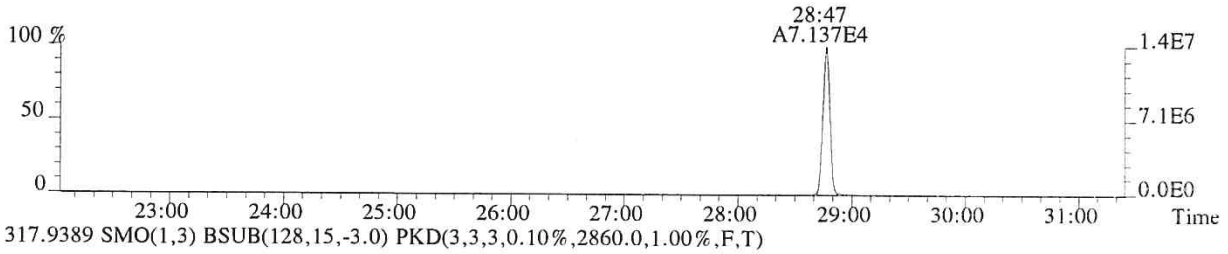
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



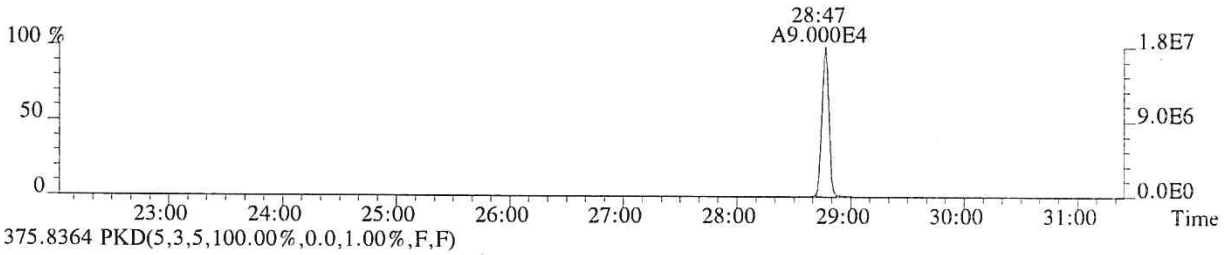
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



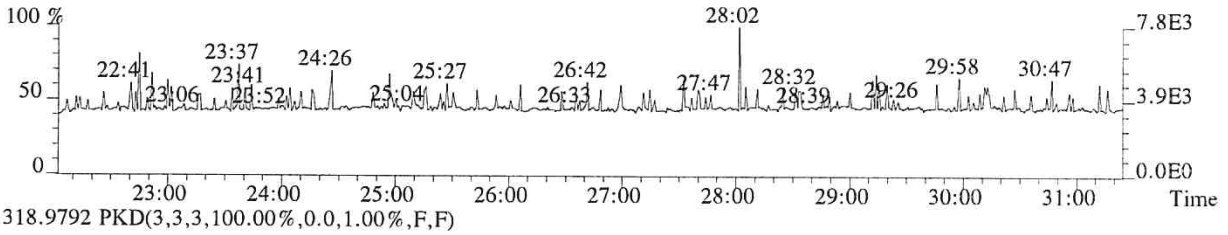
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



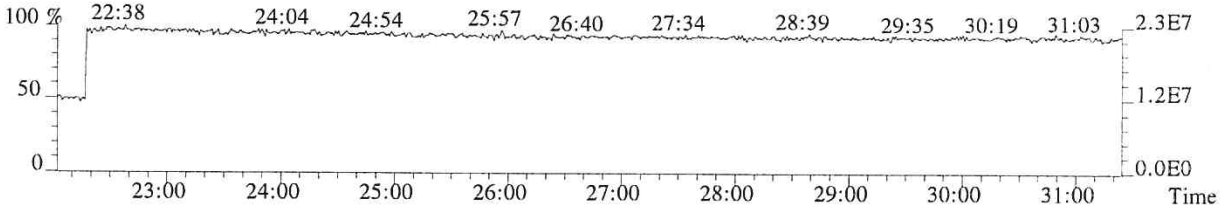
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

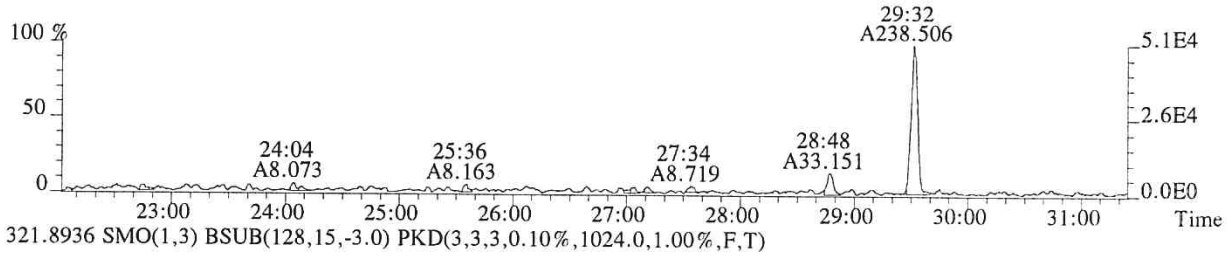


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

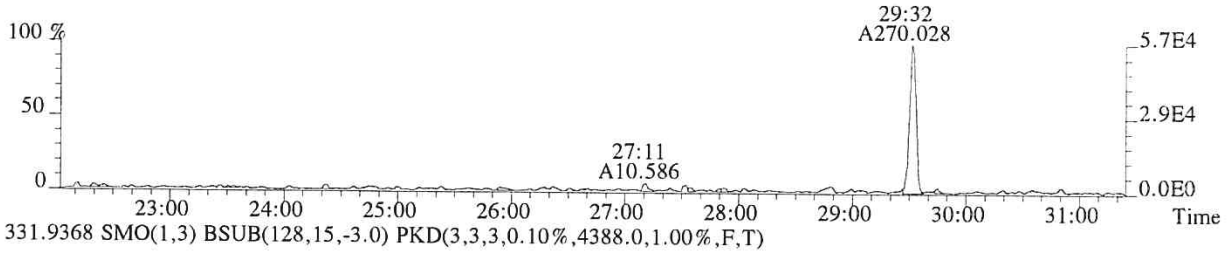


010143

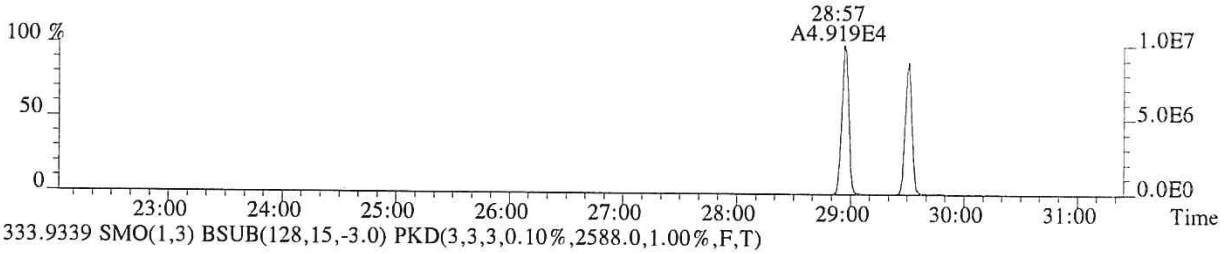
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



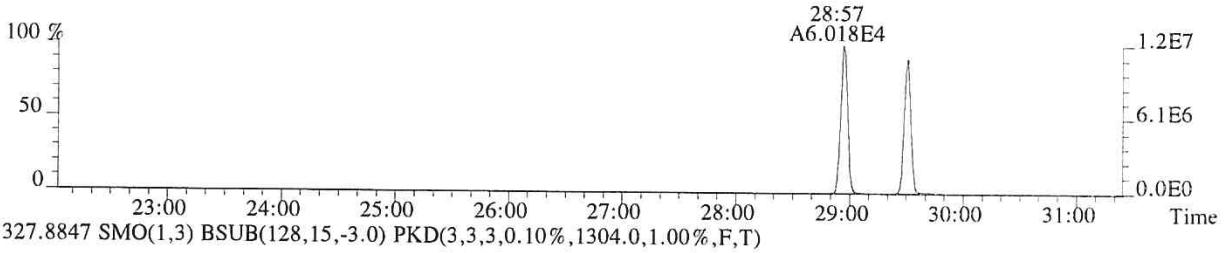
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



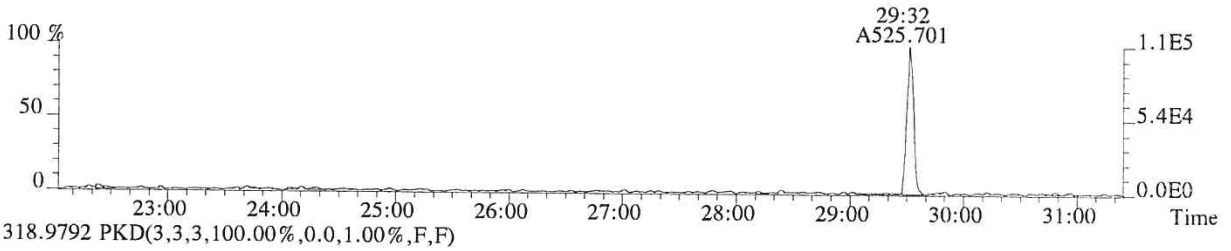
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



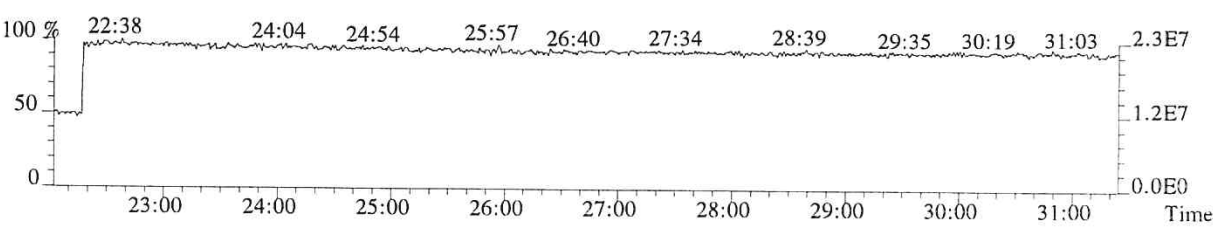
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



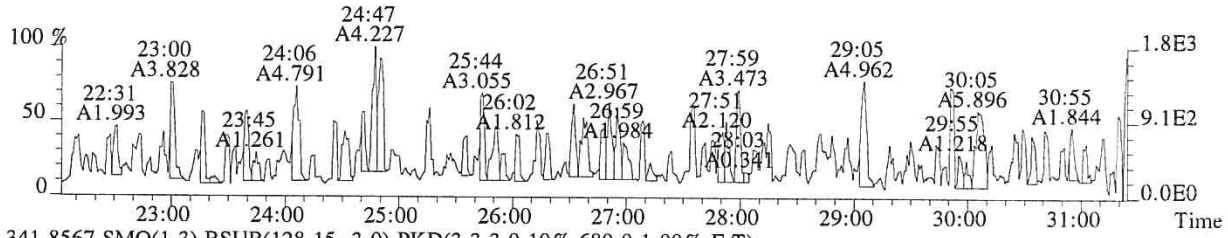
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



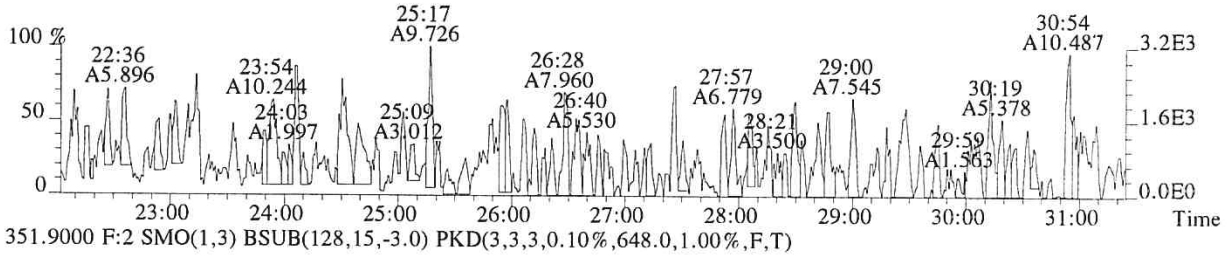
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



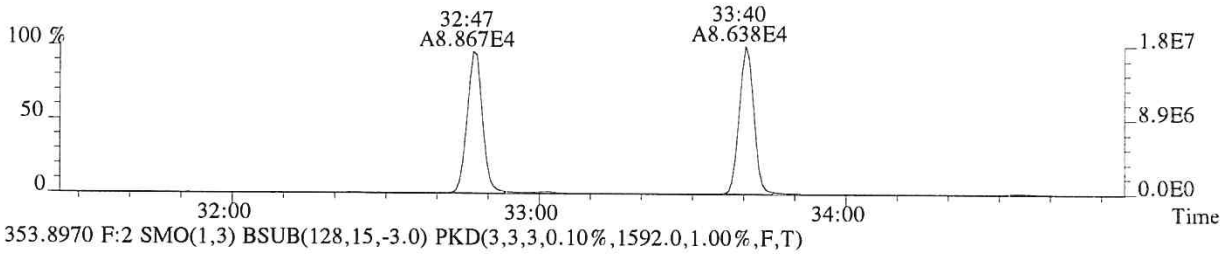
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



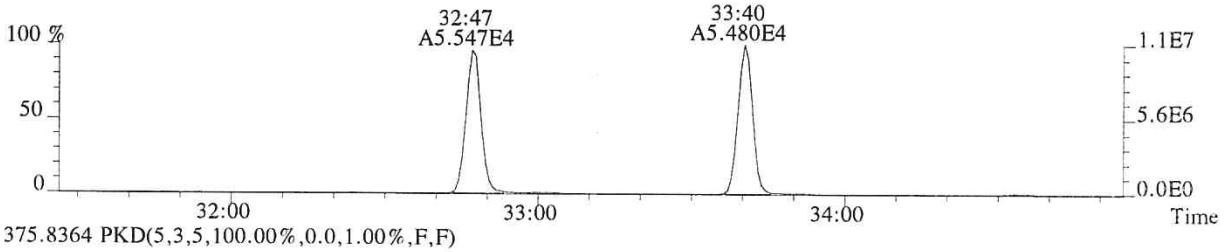
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



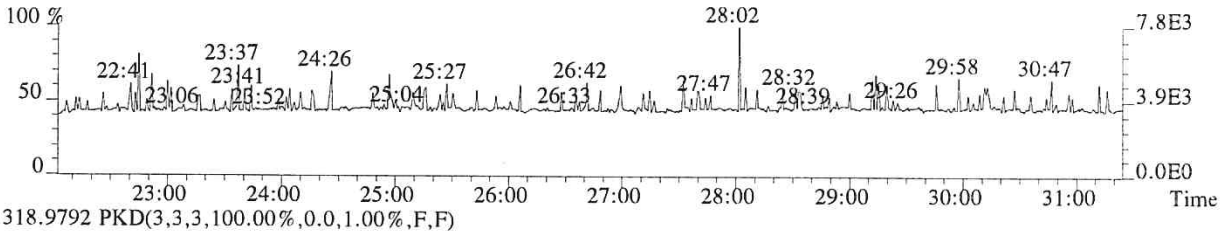
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



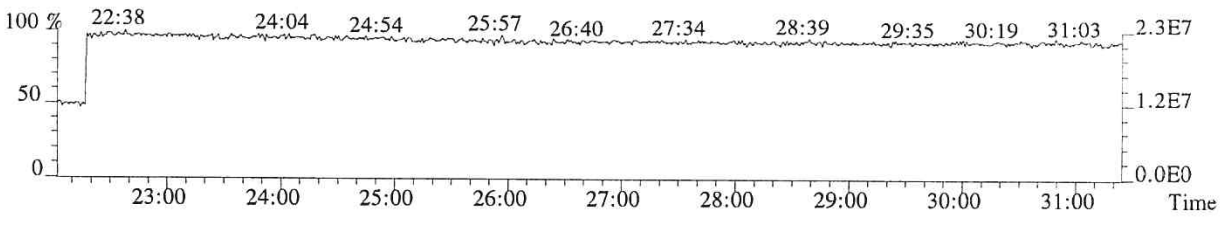
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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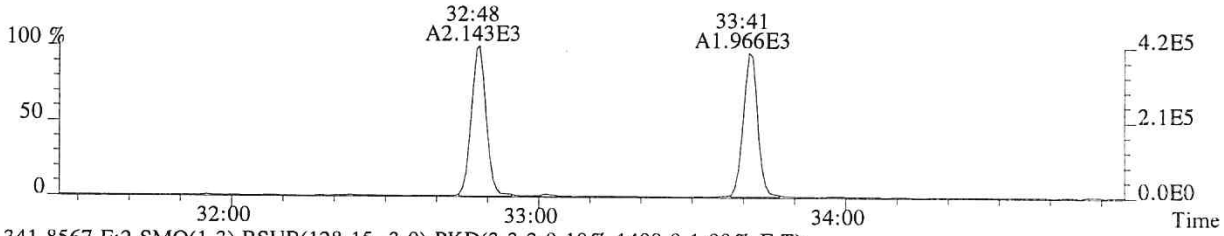
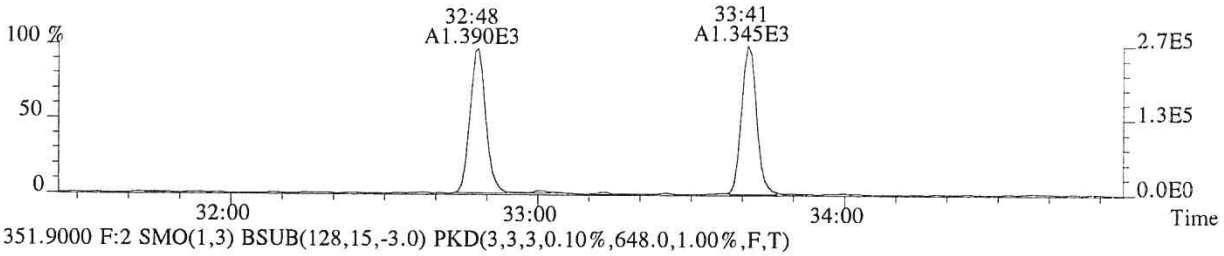
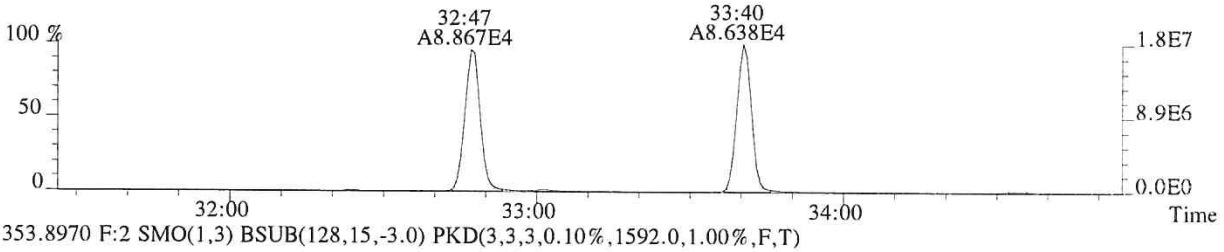
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



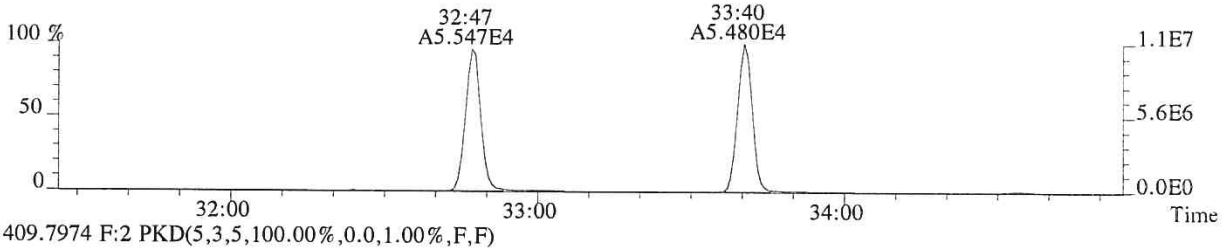
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



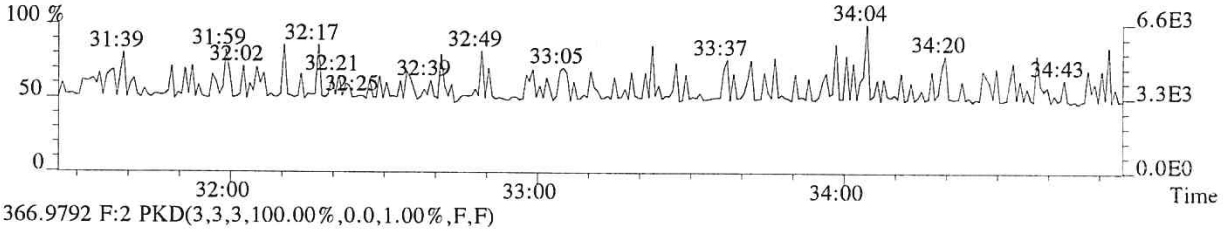
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



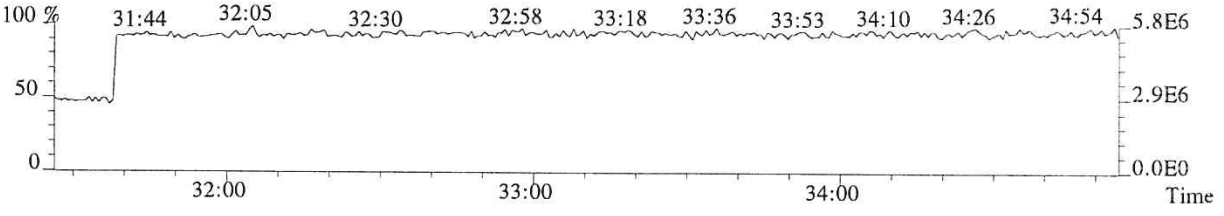
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

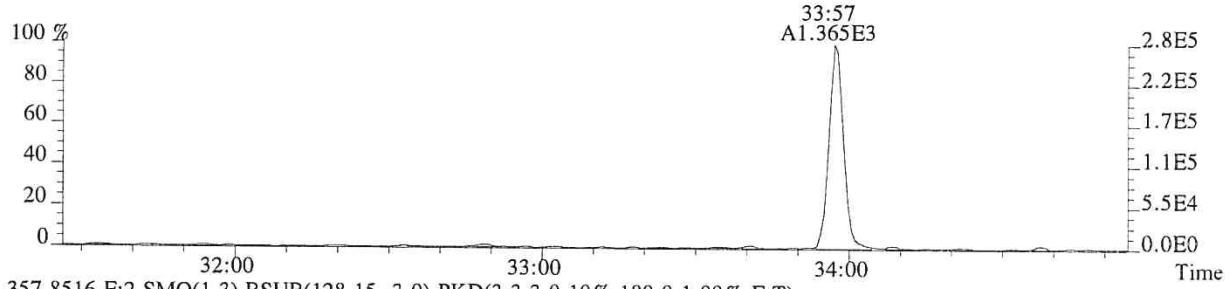


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

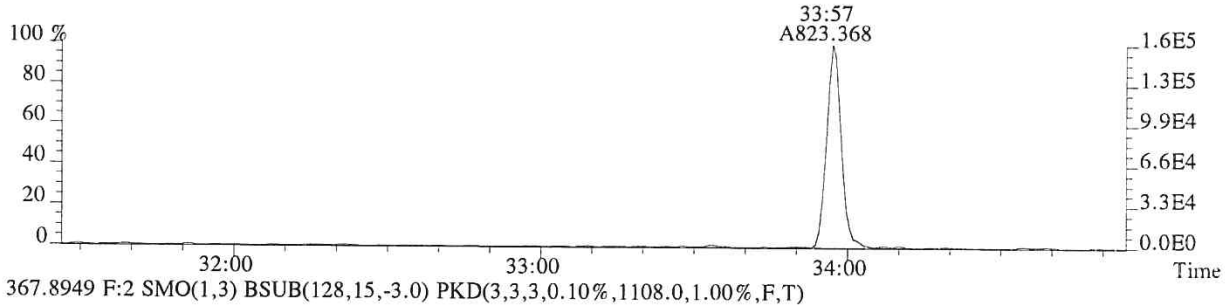


010146

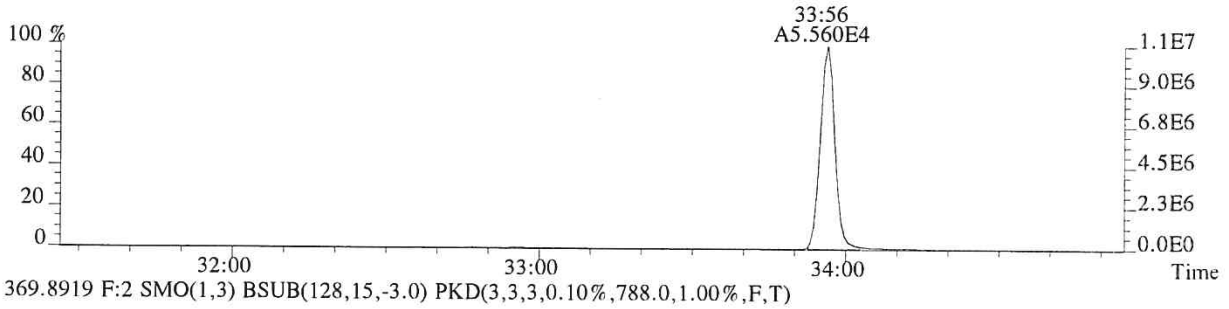
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



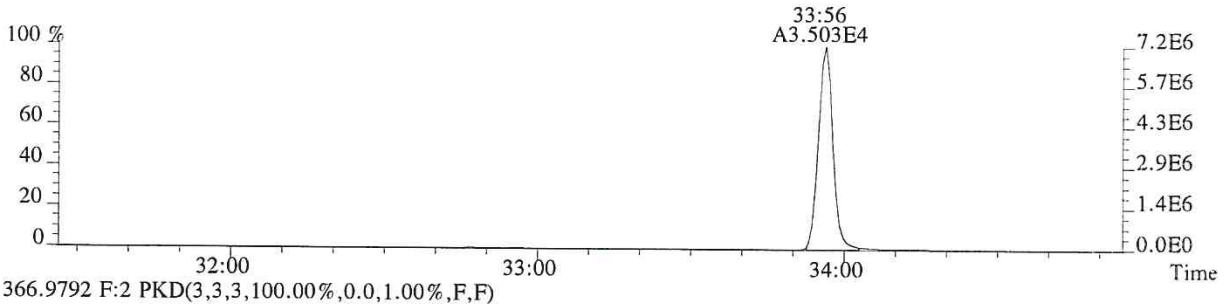
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



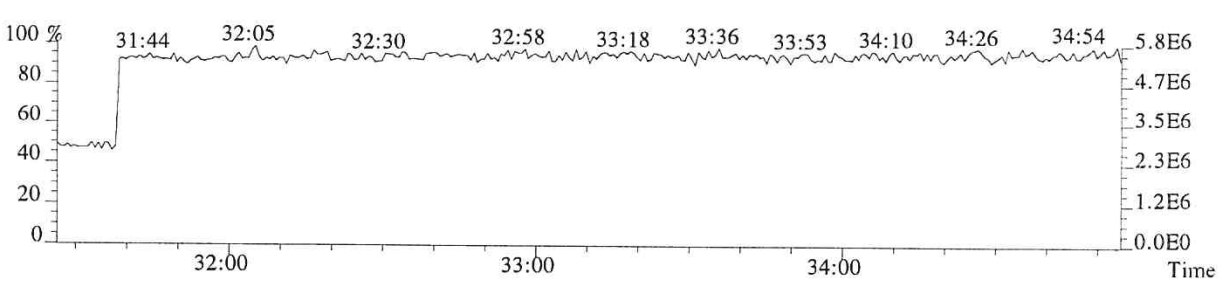
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)

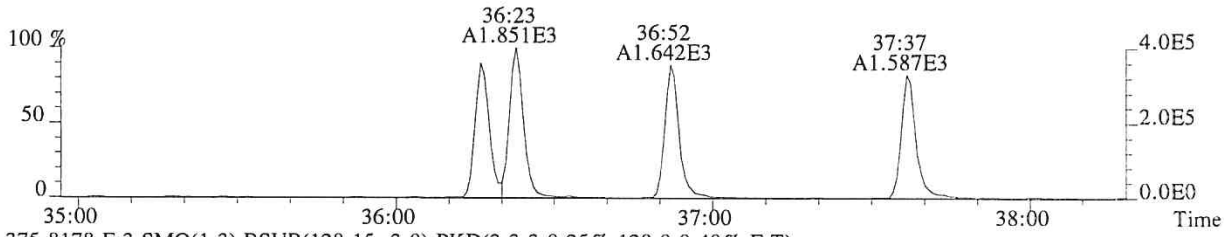


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

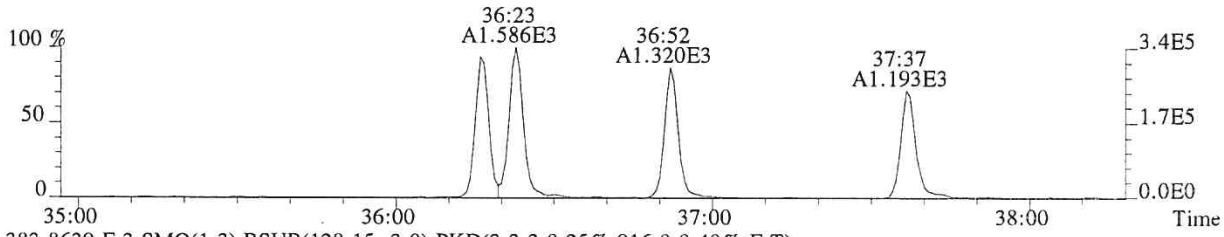


File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

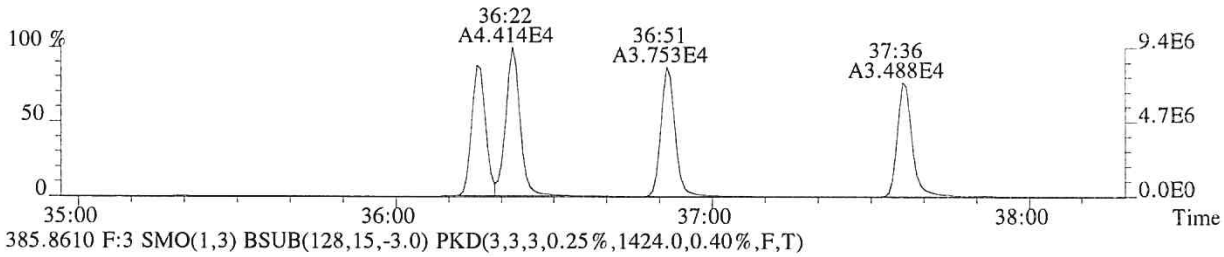
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



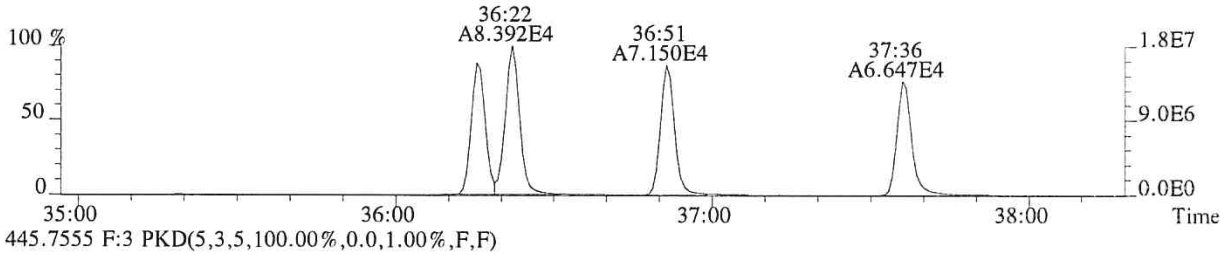
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



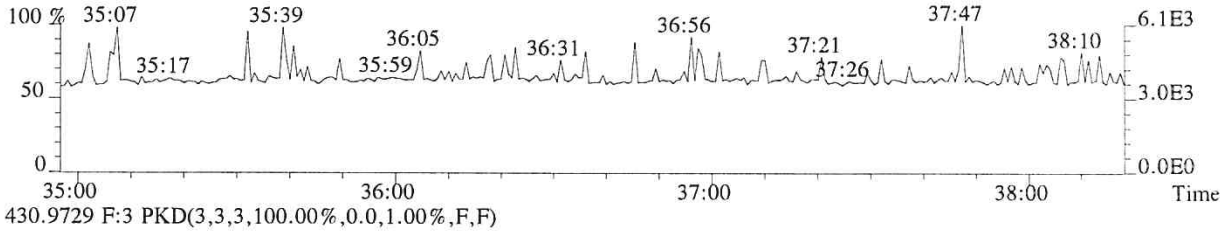
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



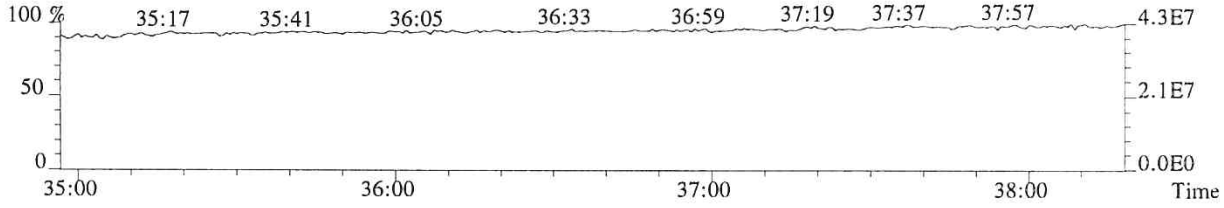
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

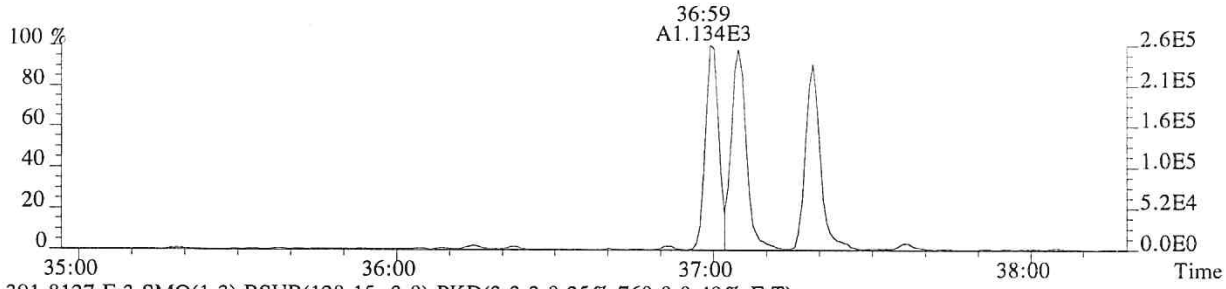


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

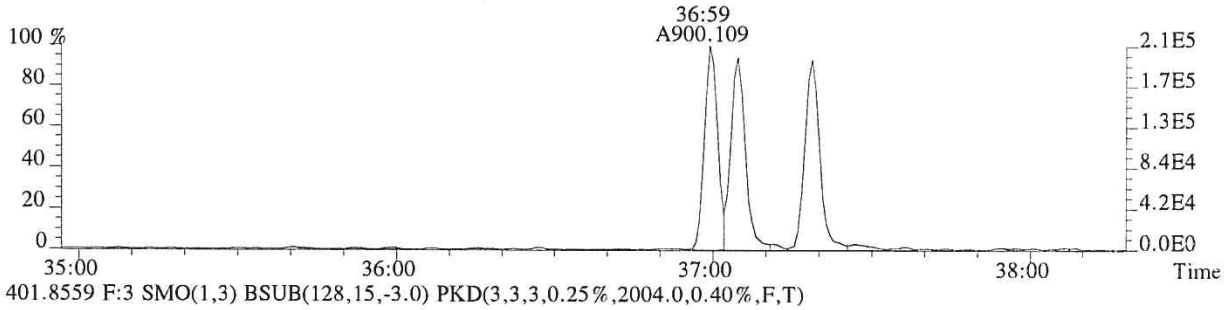


010148

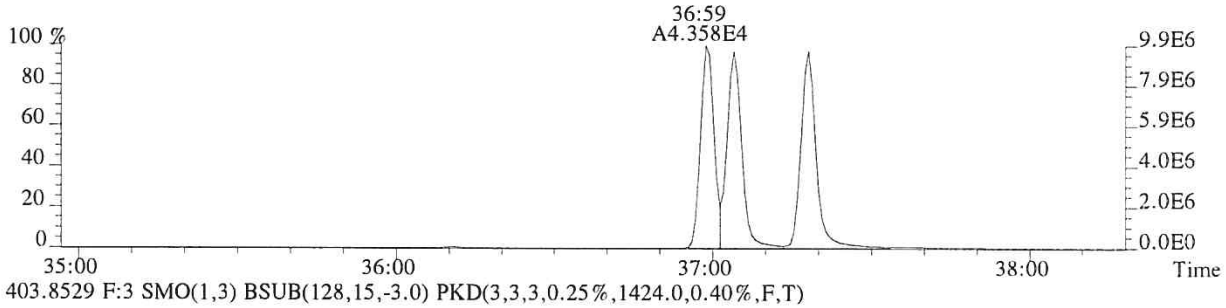
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



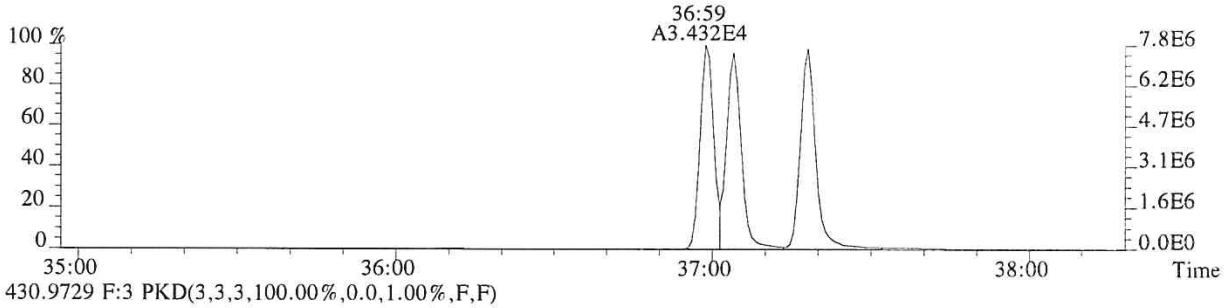
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



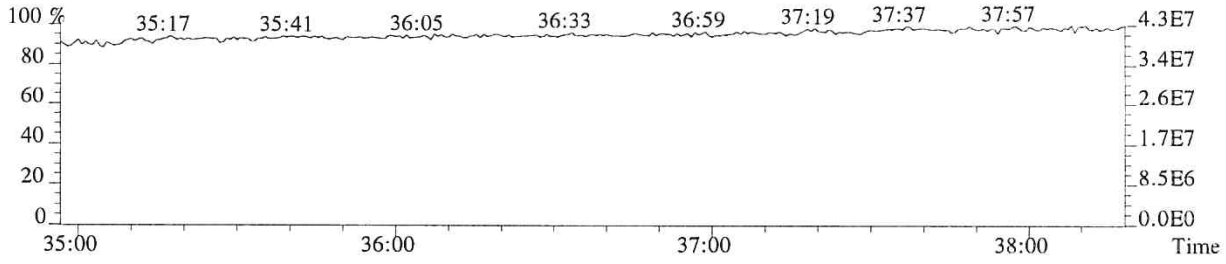
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)

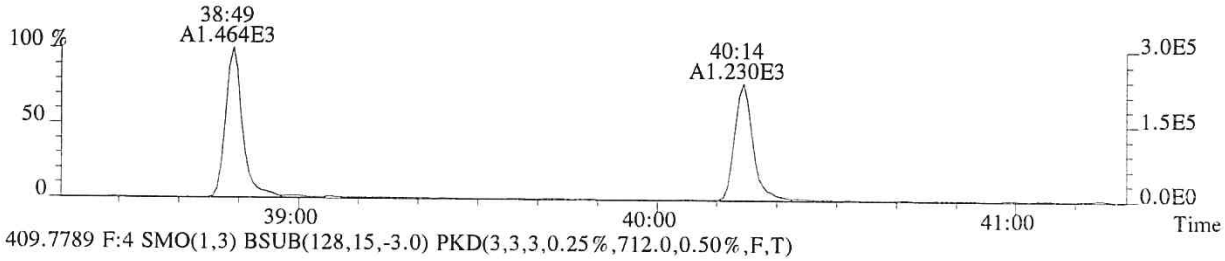


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

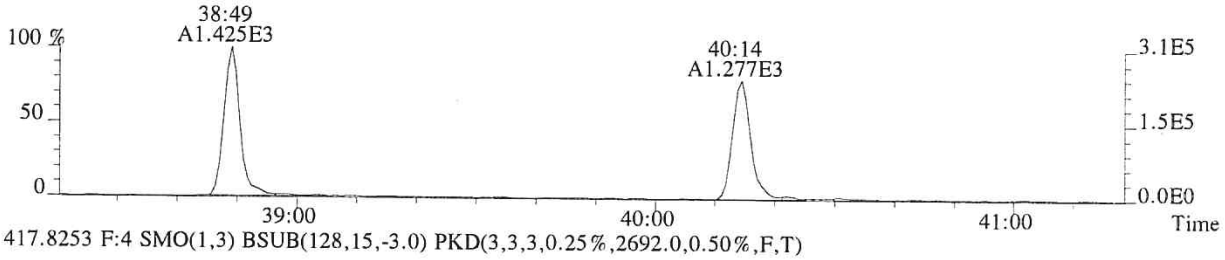


010149

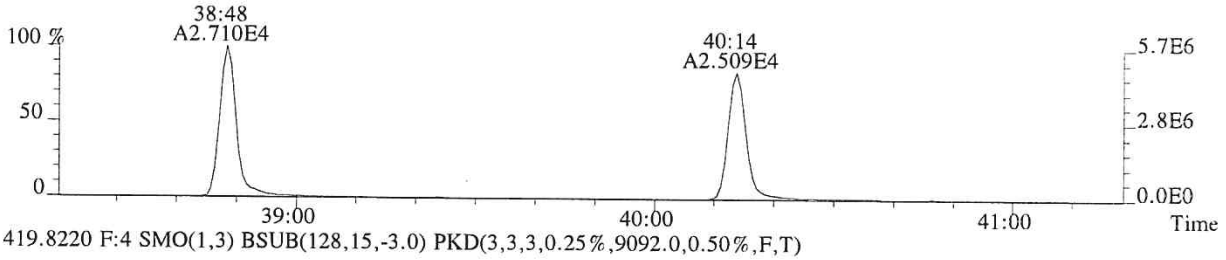
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



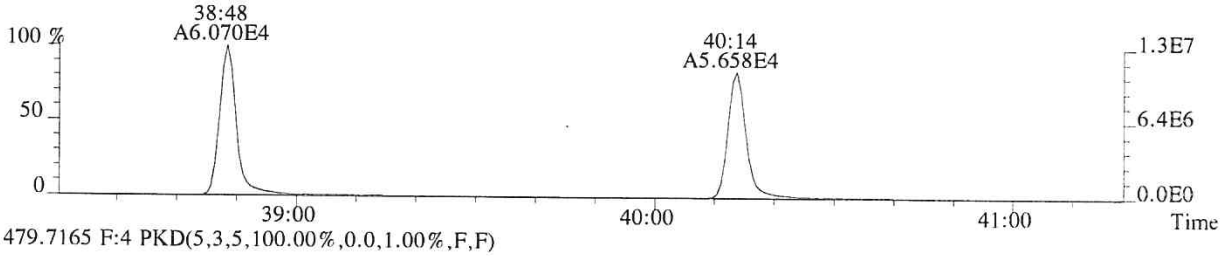
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



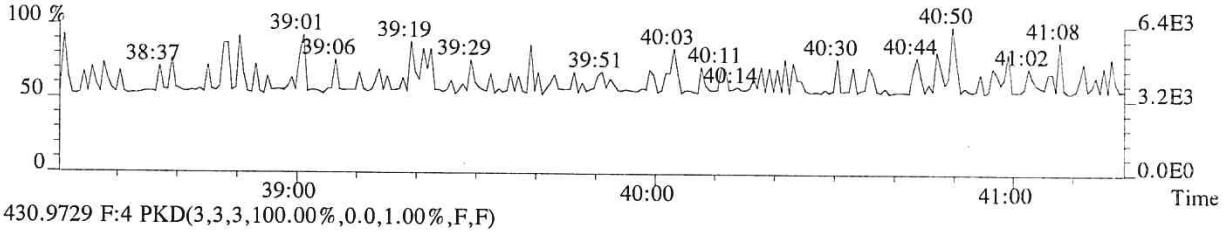
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



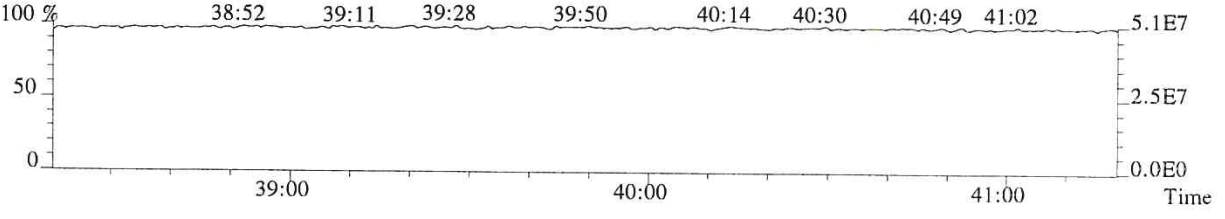
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

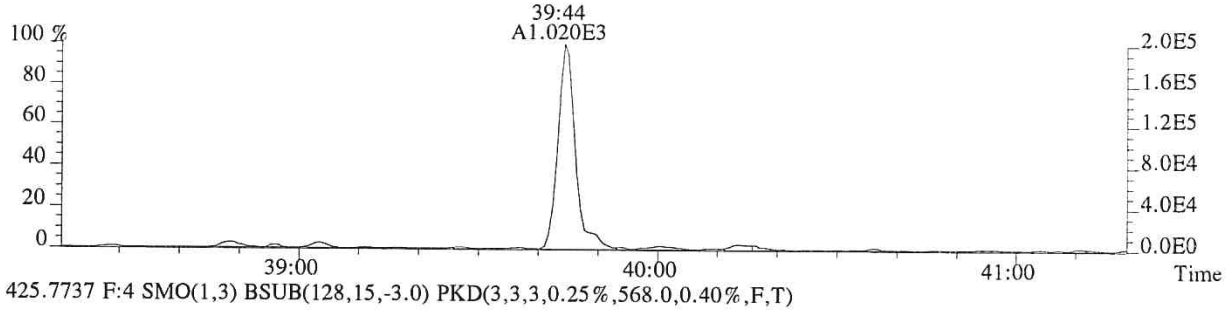


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

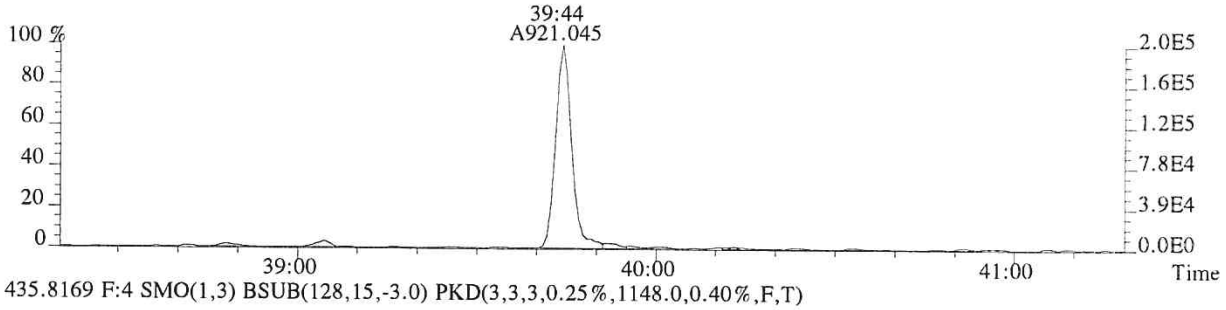


010150

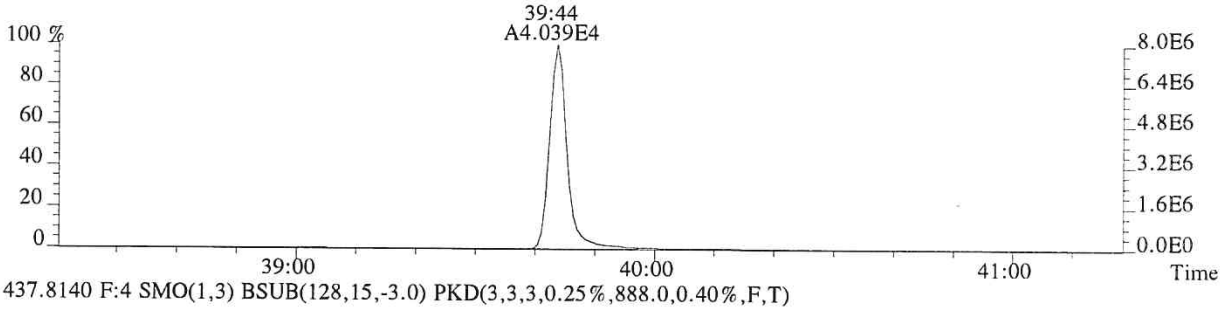
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



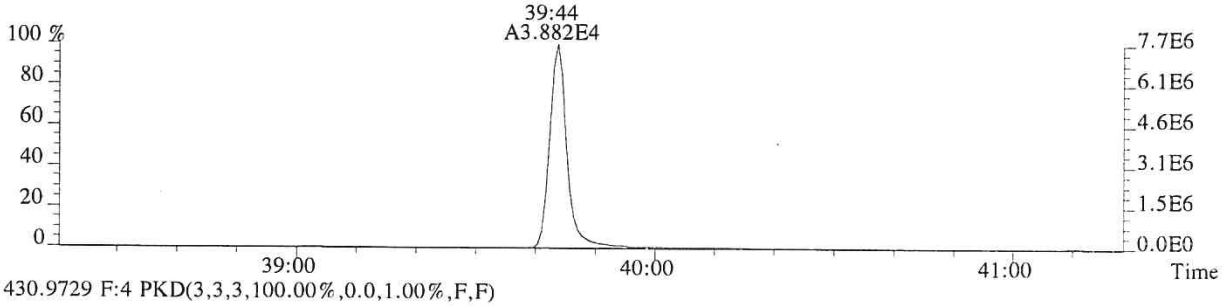
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



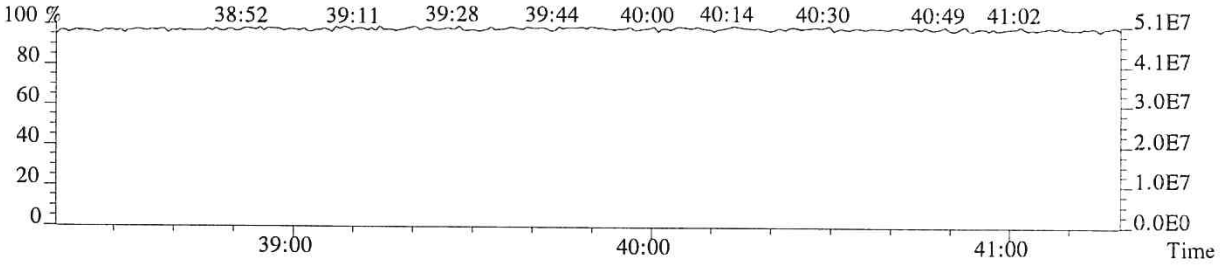
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)

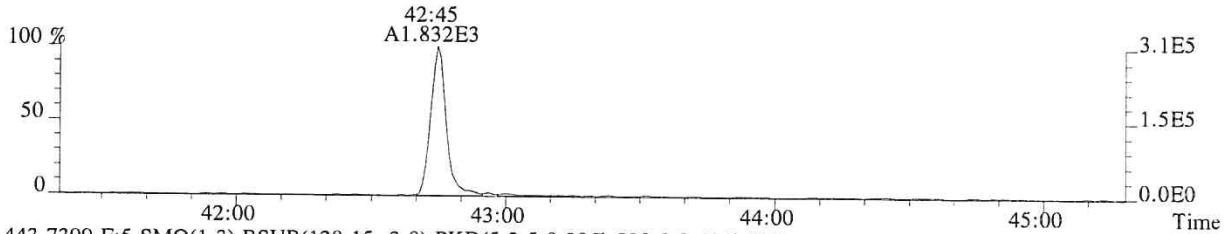


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

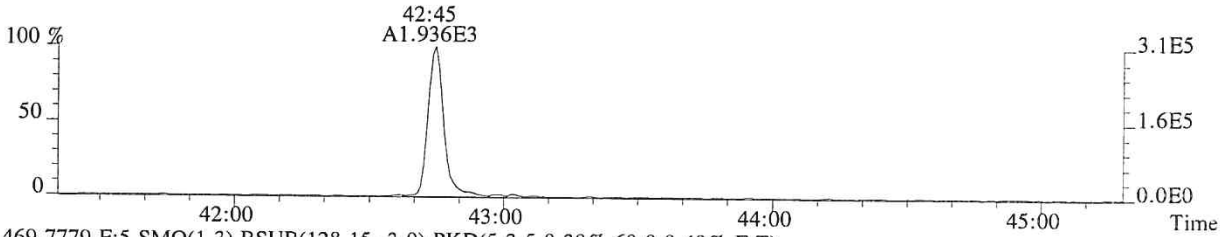


010151

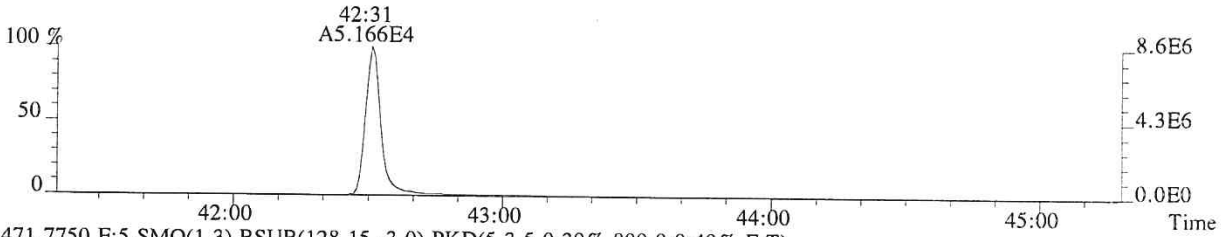
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



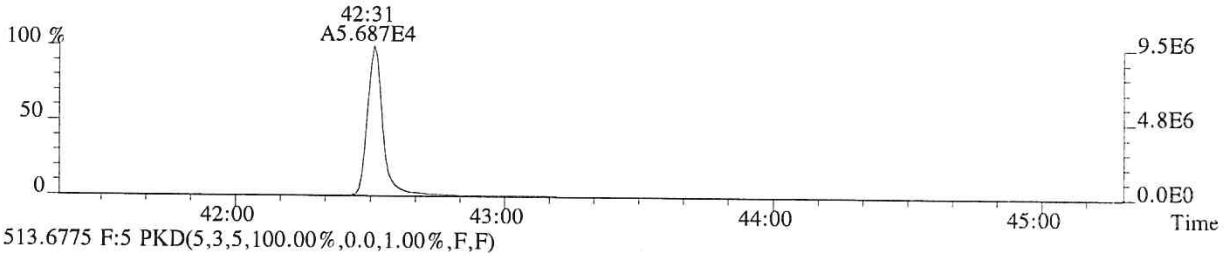
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



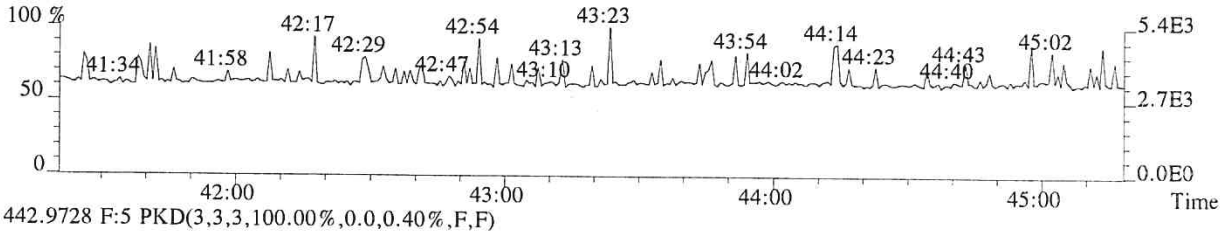
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



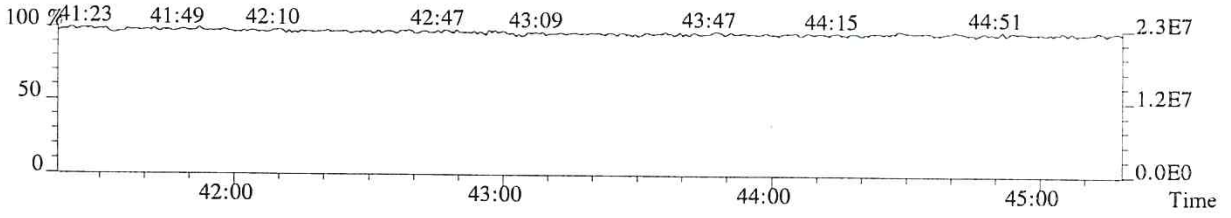
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

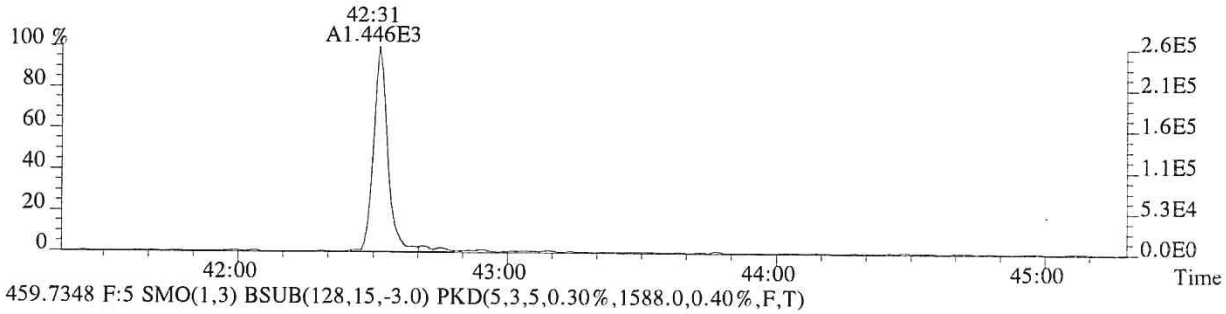


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

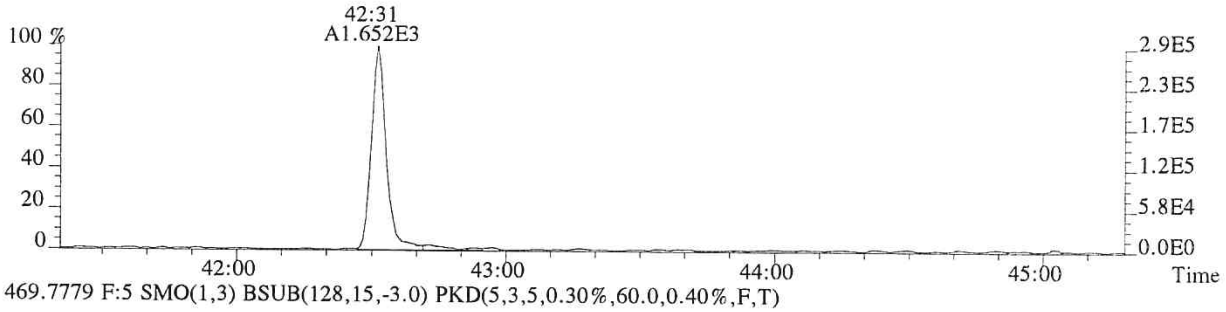


010152

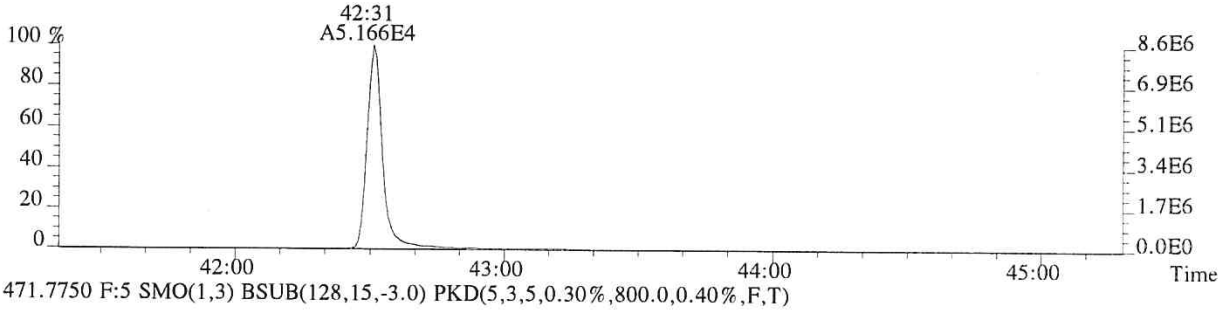
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



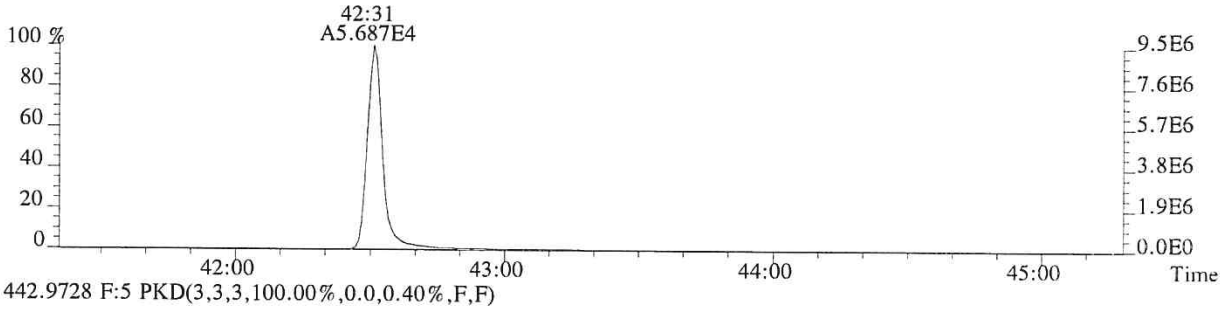
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



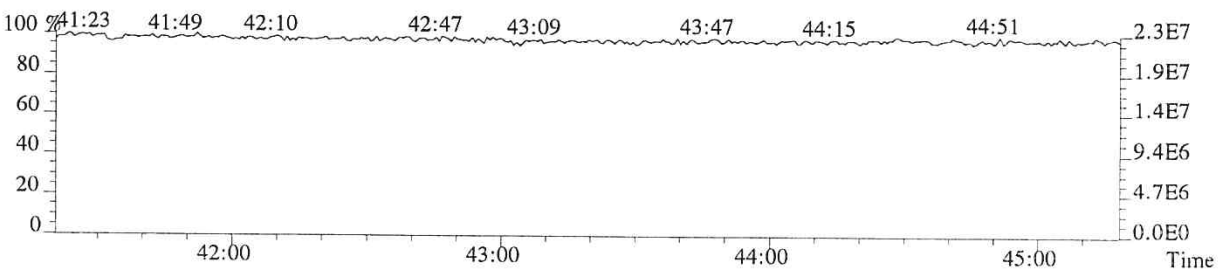
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010153

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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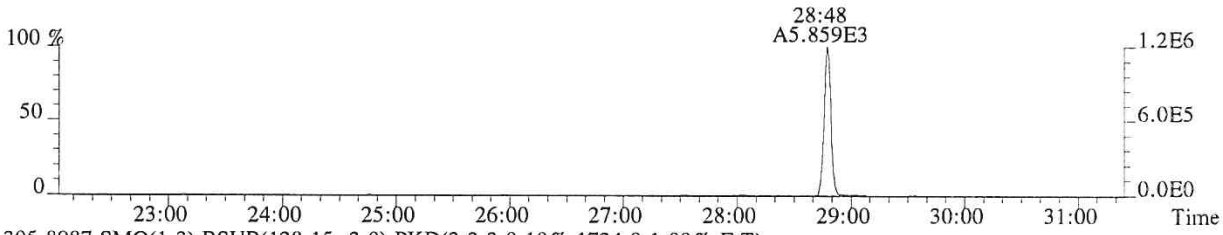
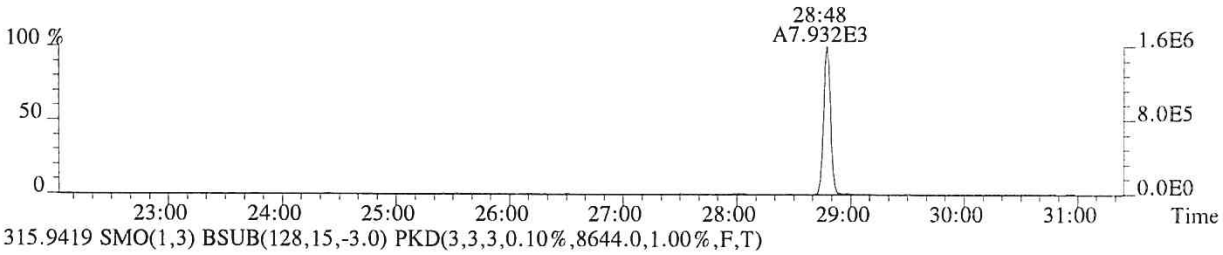
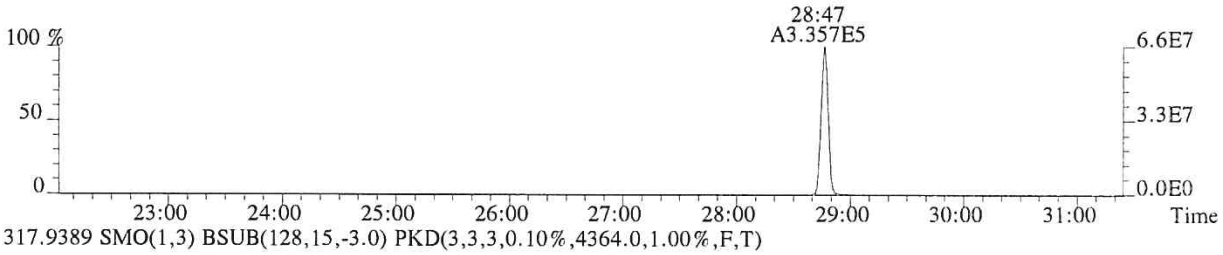
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



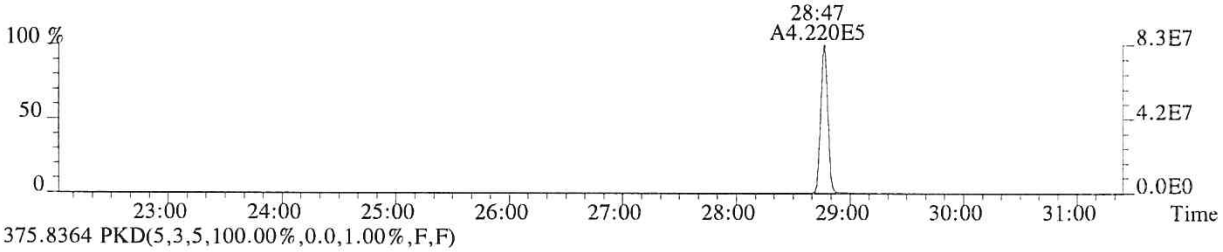
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



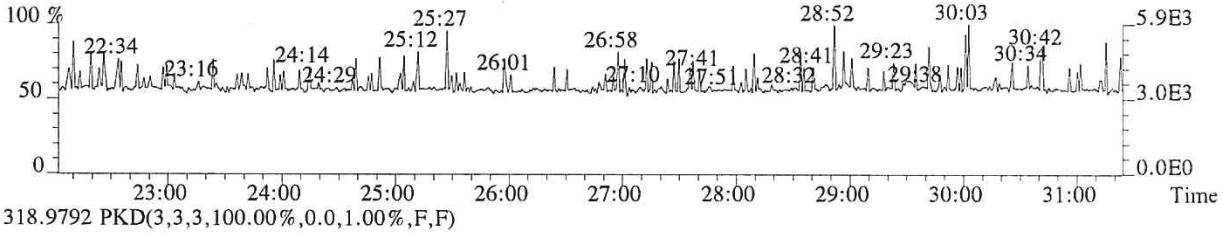
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



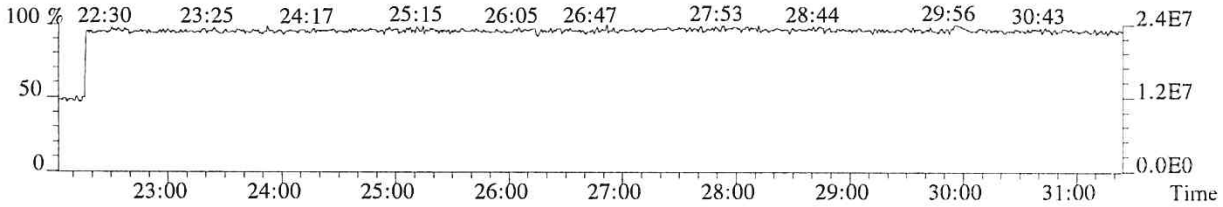
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

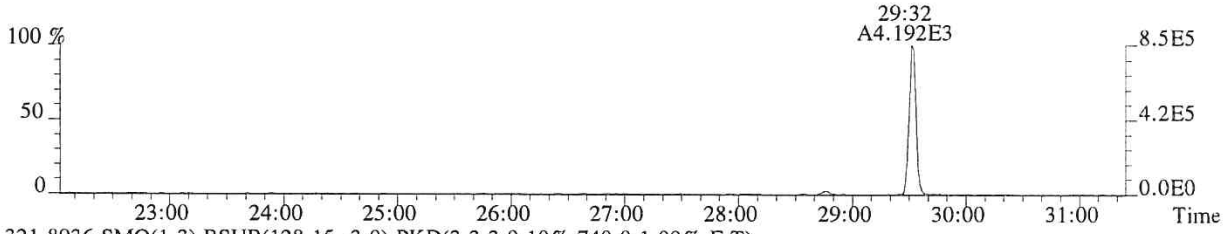


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

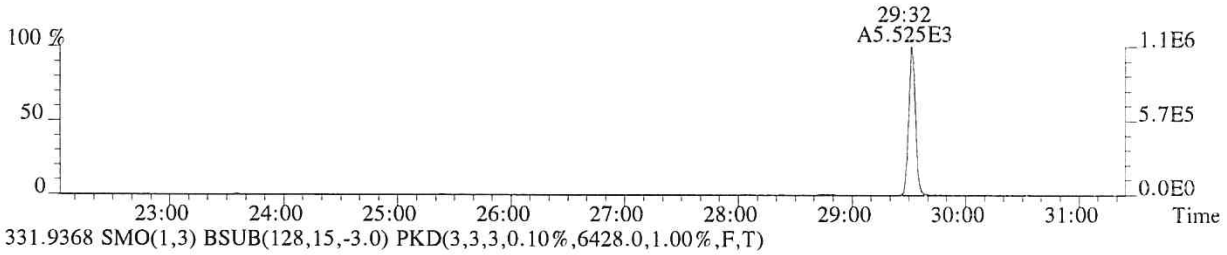


010156

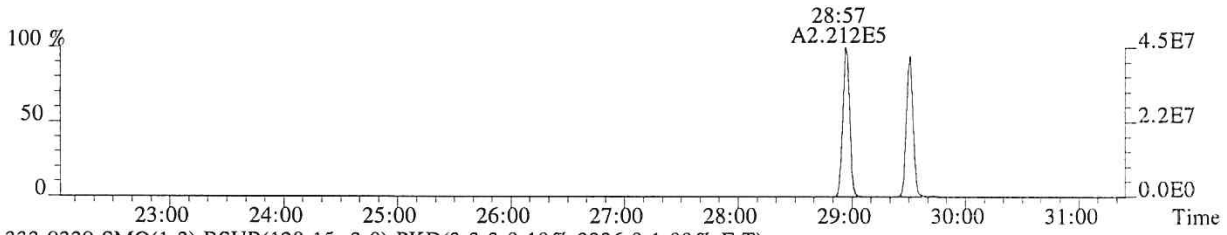
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



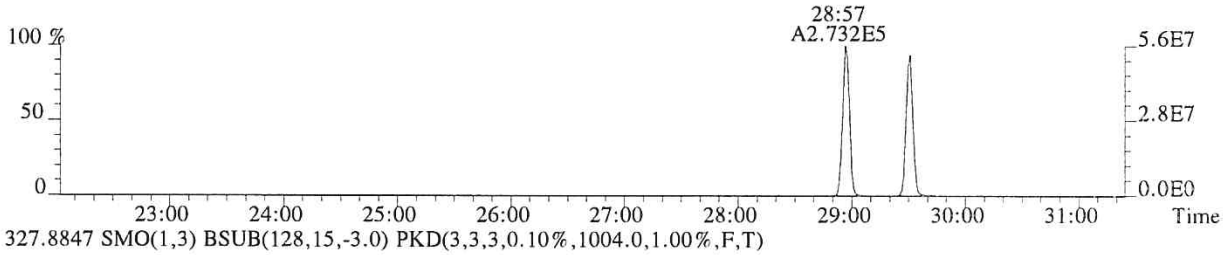
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



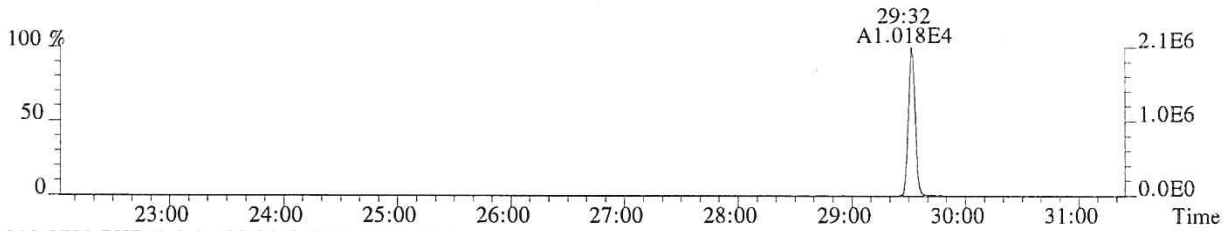
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



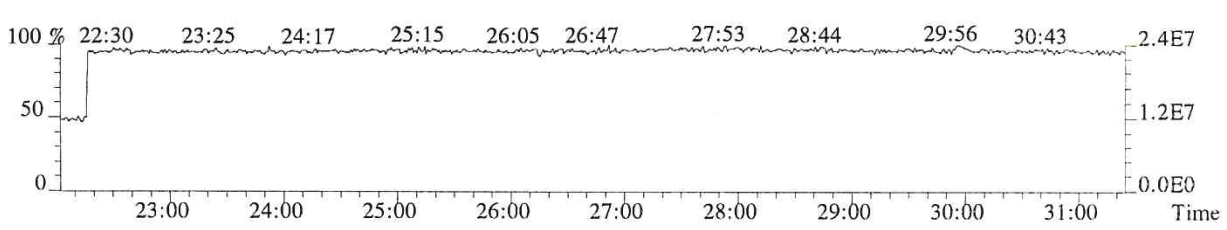
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

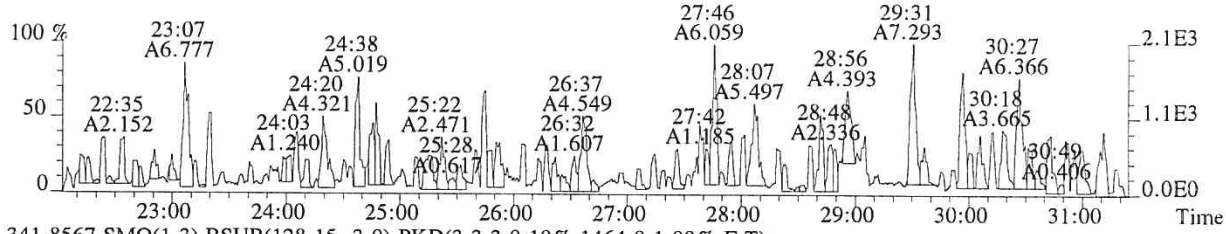


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

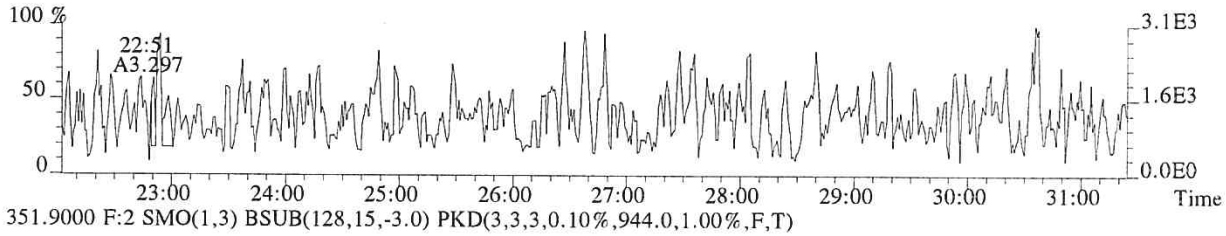


010157

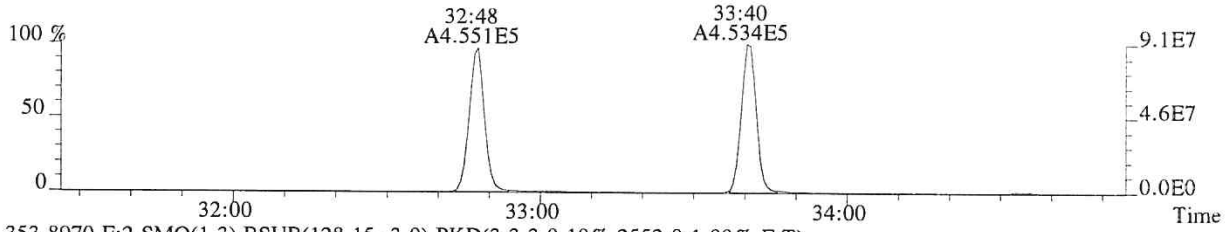
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



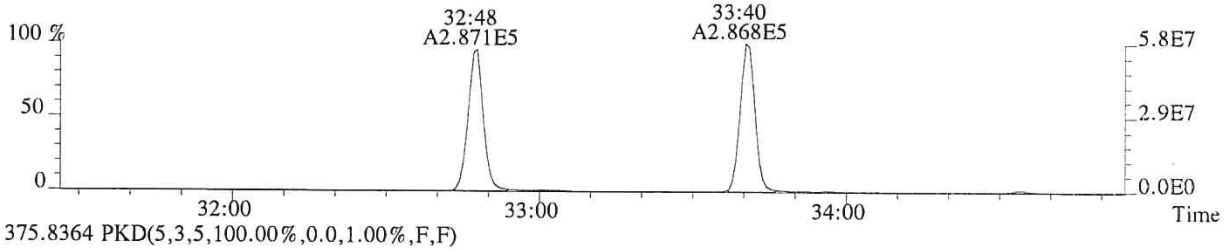
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



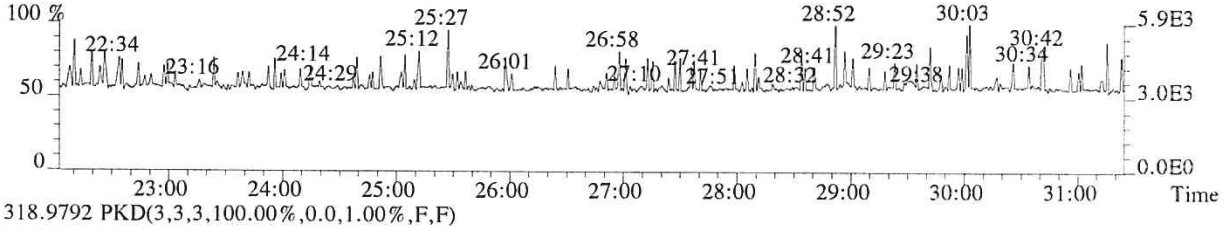
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



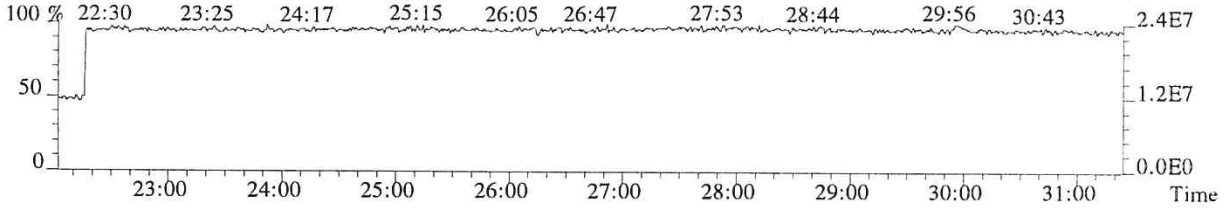
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

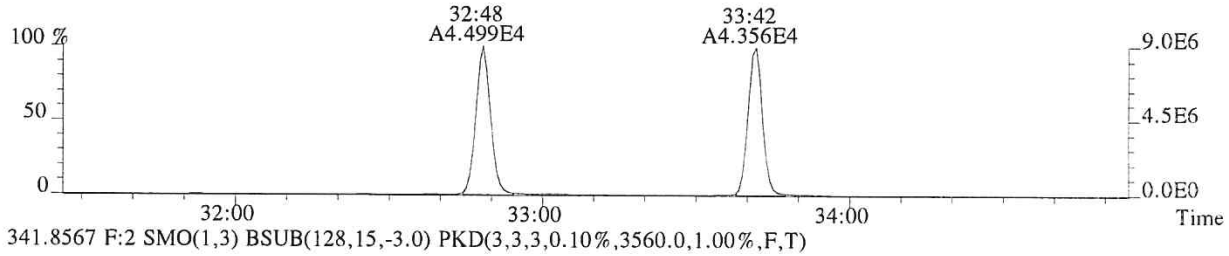


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

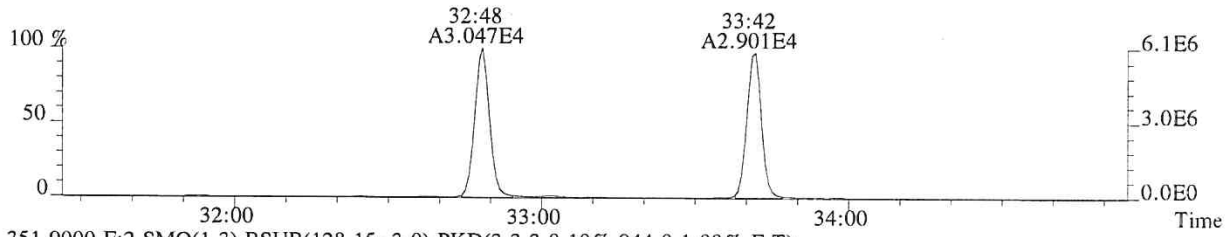


010158

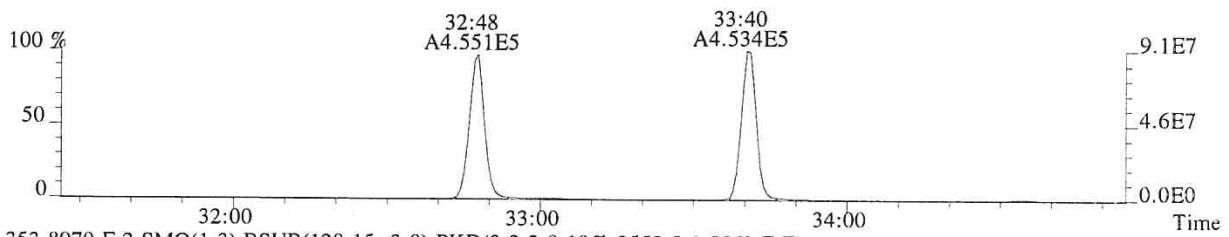
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



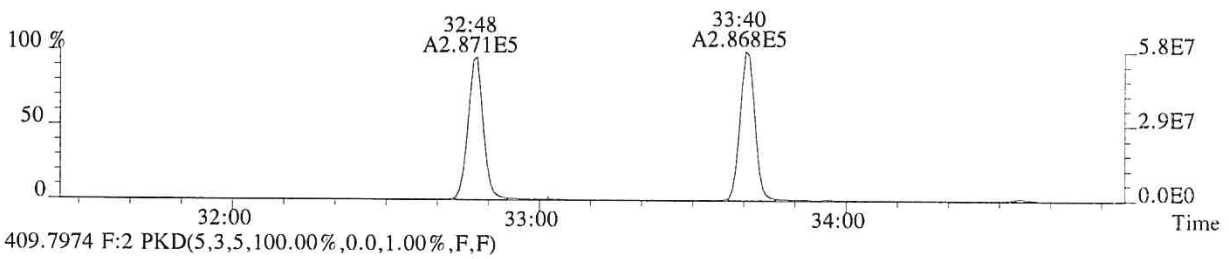
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



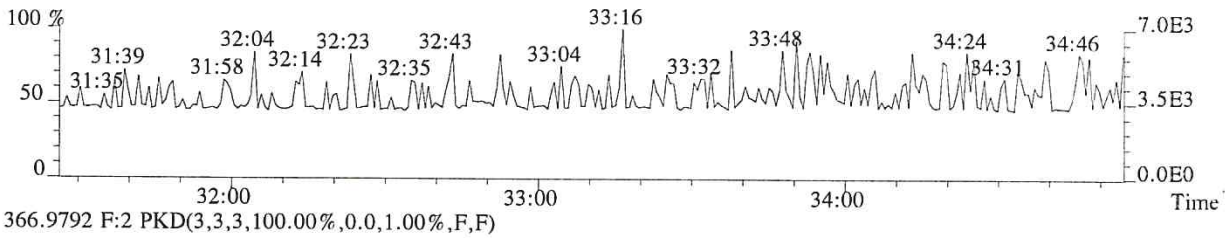
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



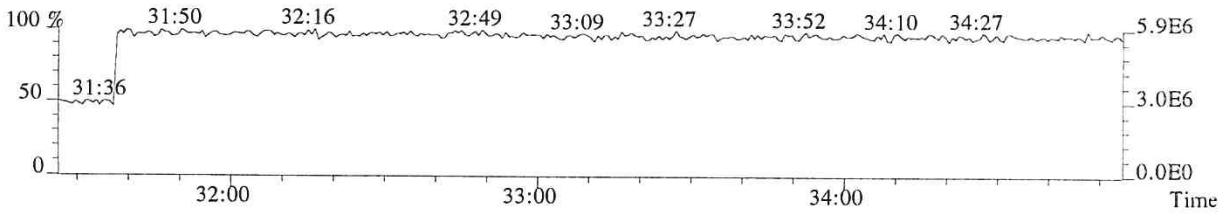
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

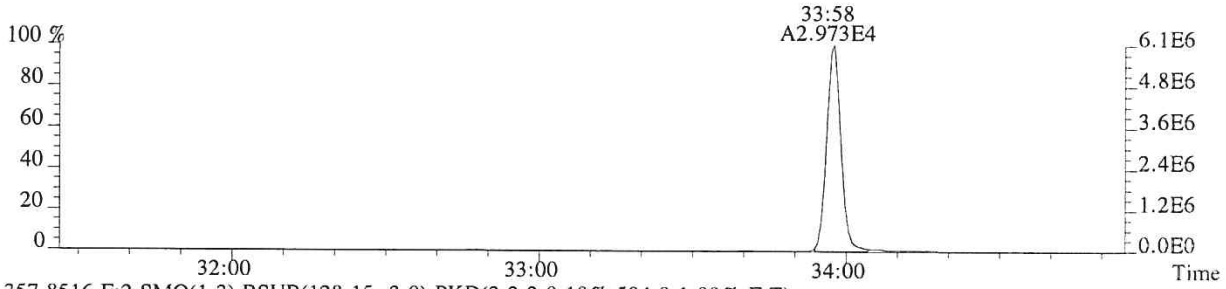


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

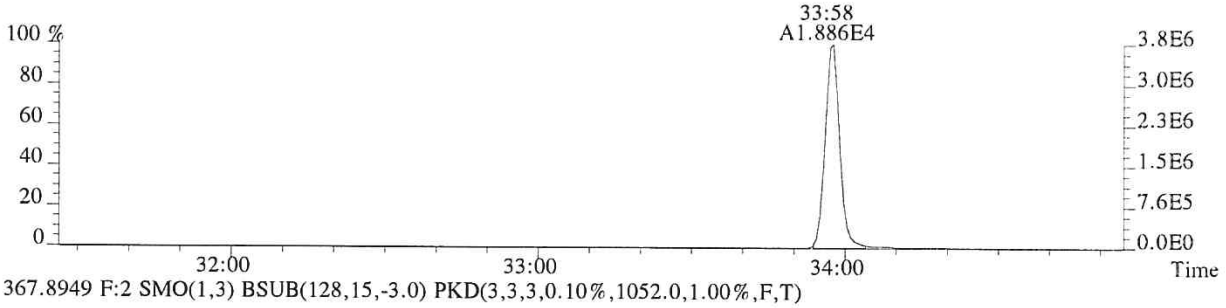


010159

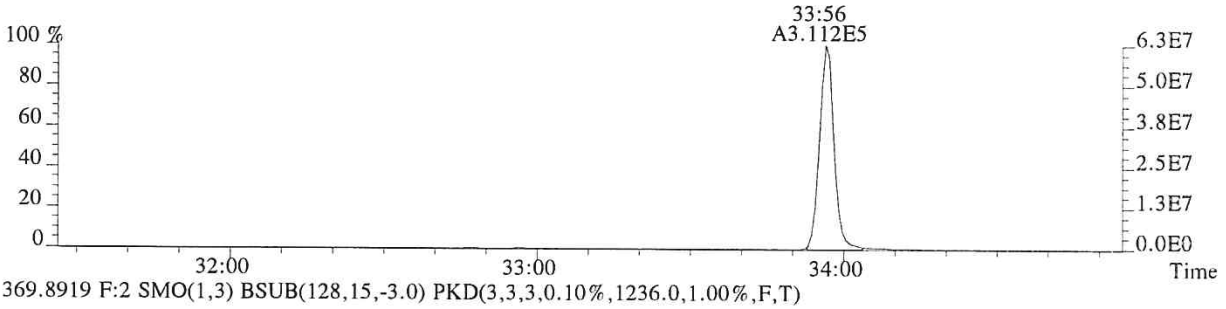
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



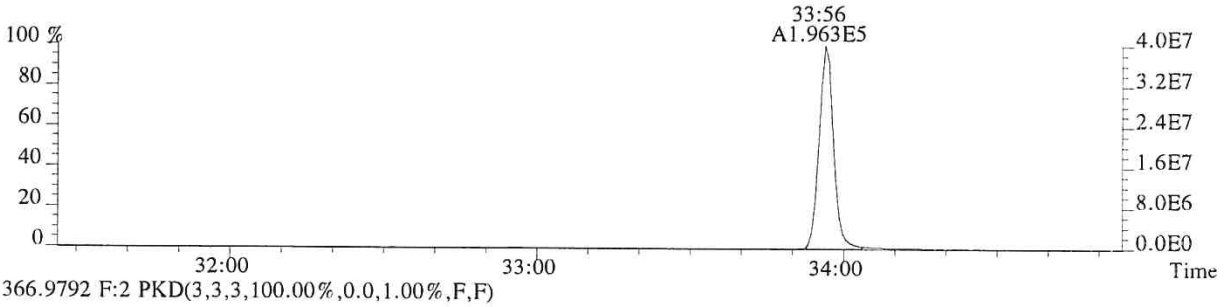
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



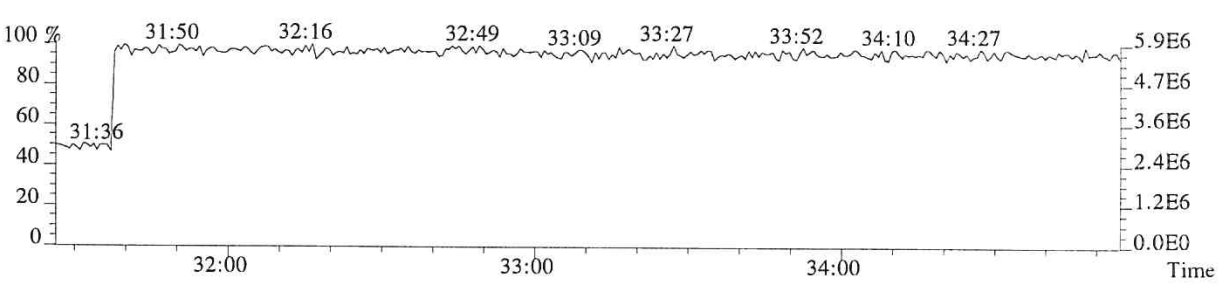
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)

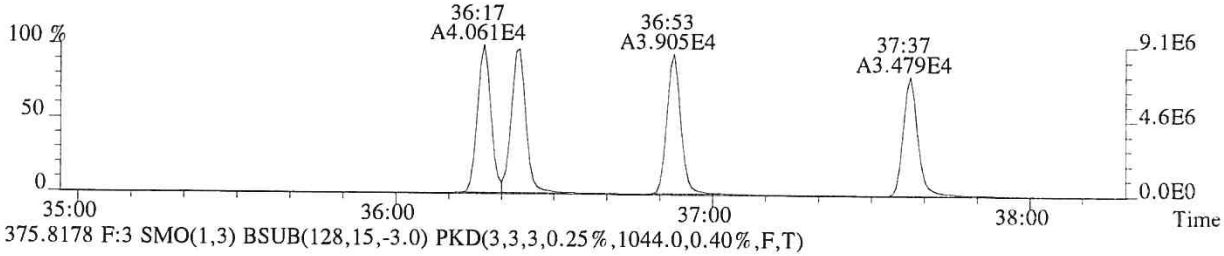


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

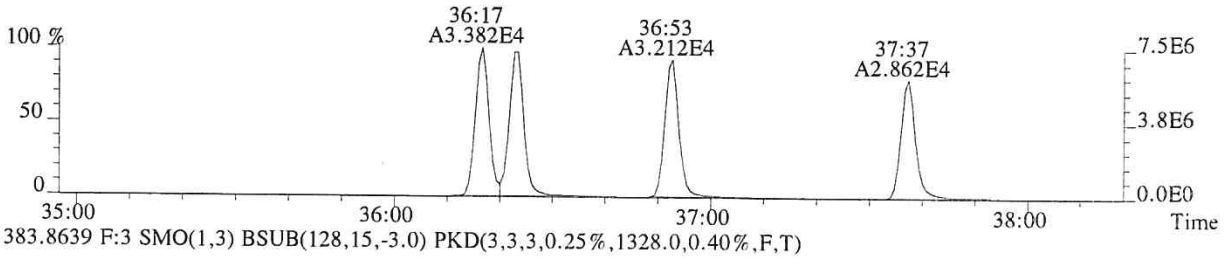


010160

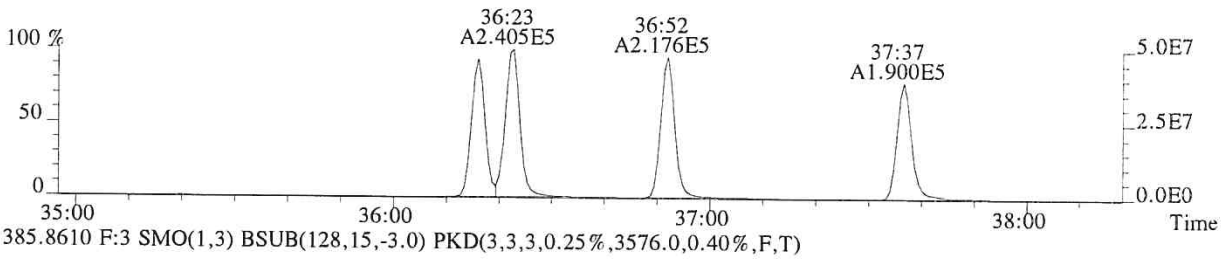
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



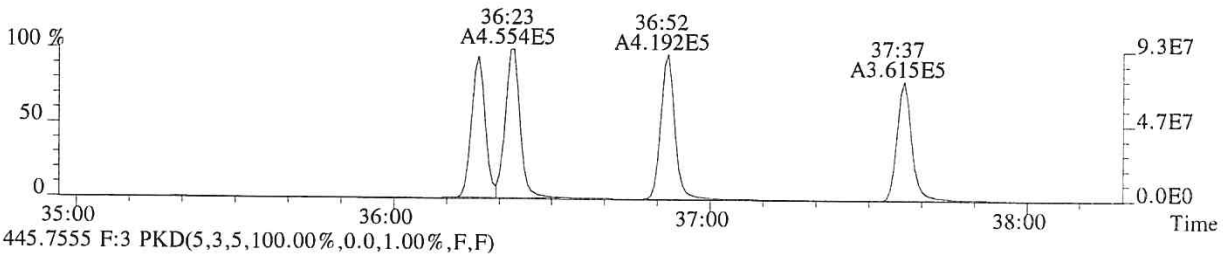
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



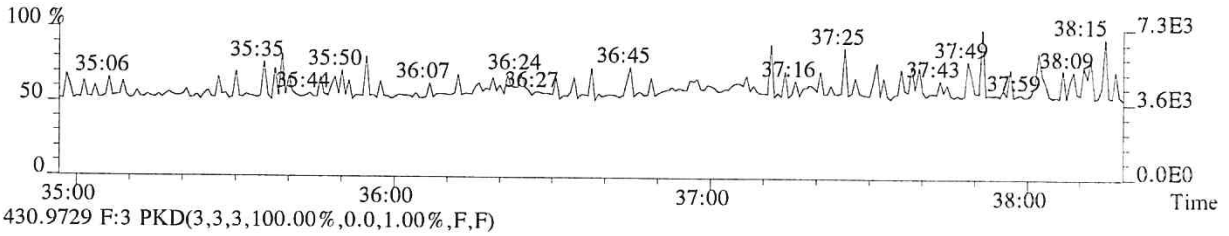
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



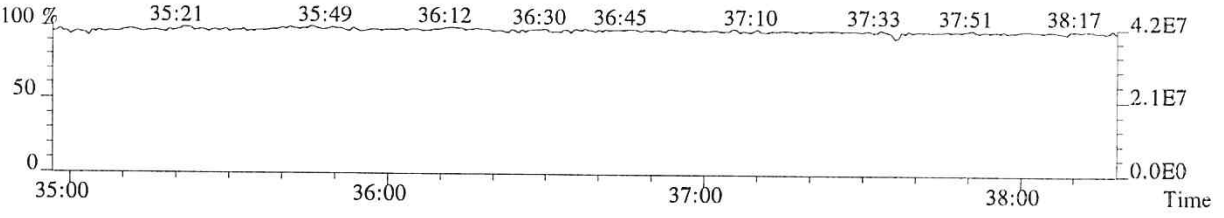
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

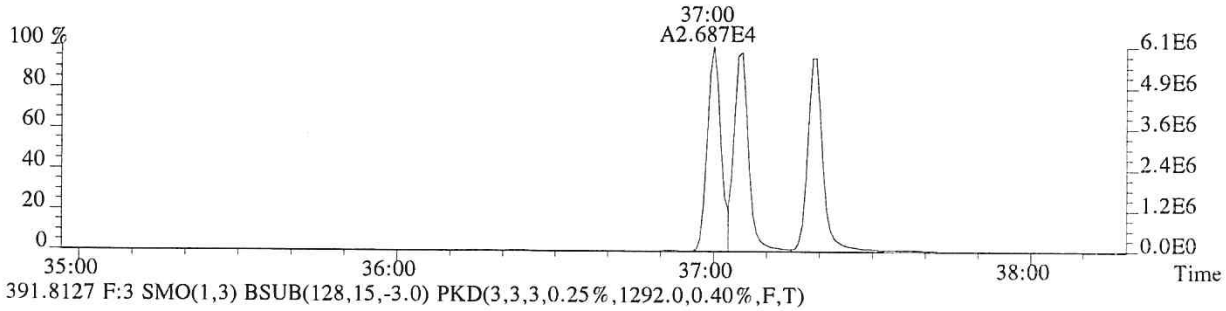


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

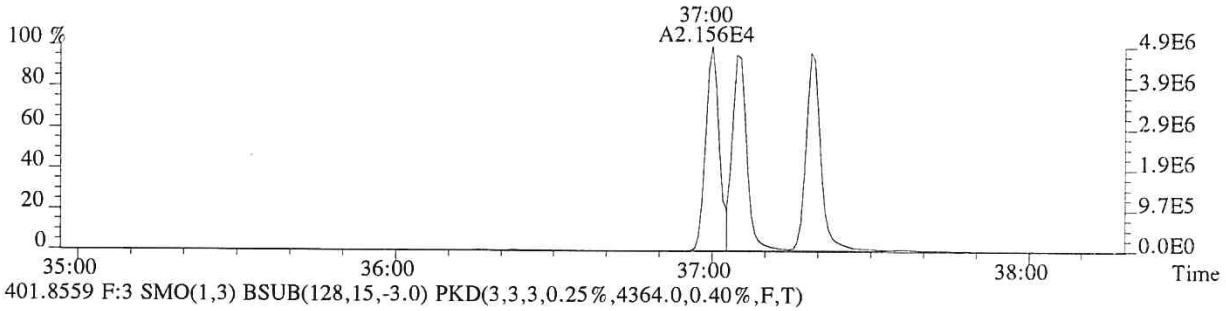


010161

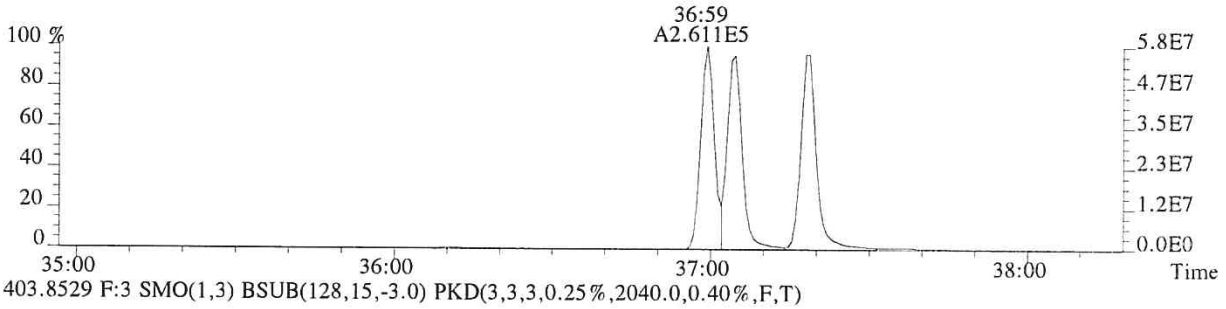
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



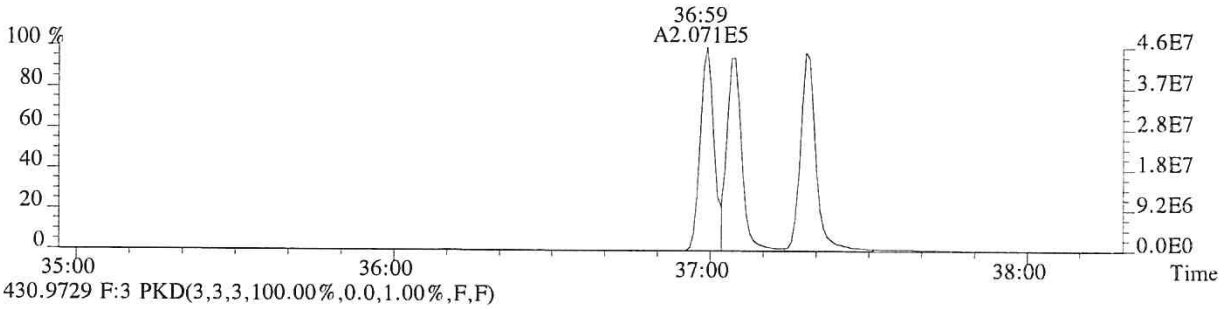
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



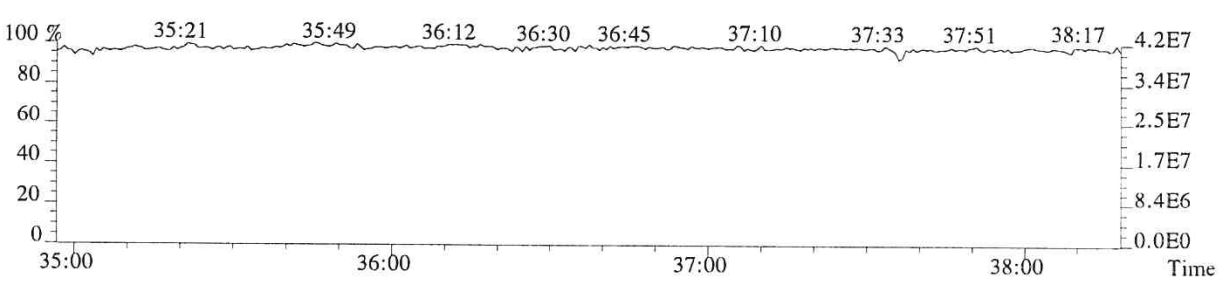
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)

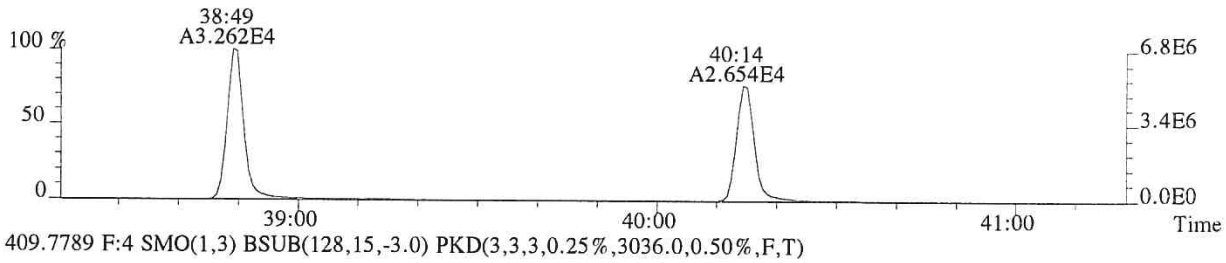


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

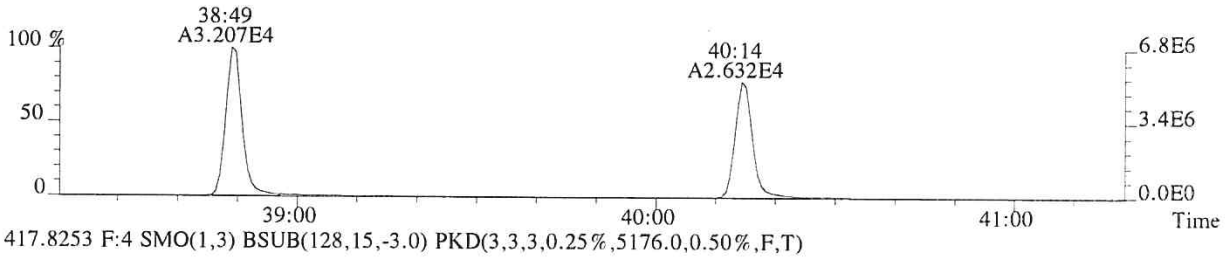


010162

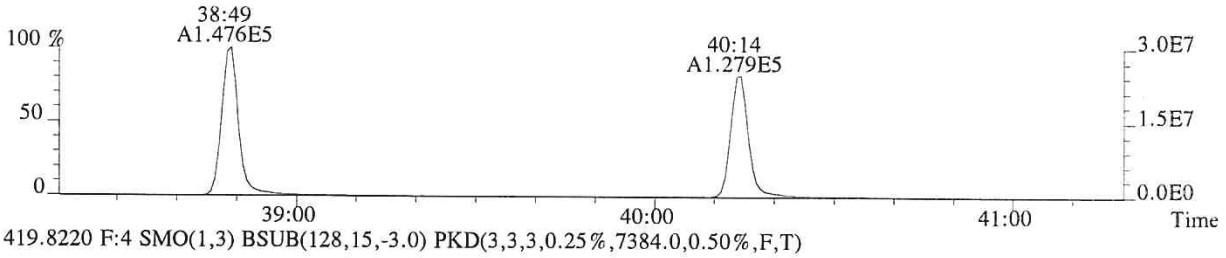
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



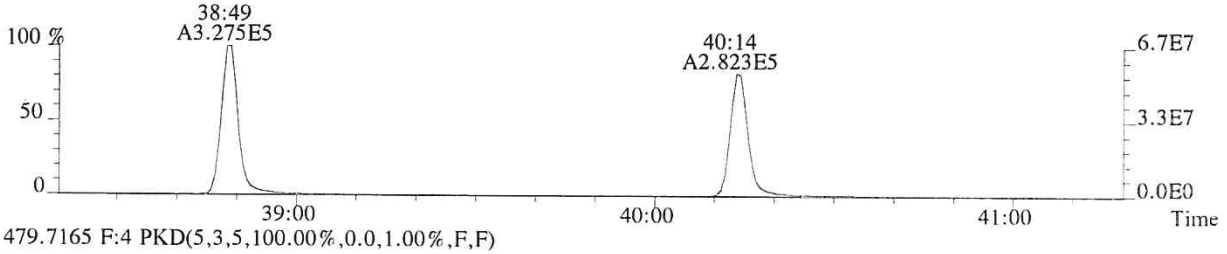
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



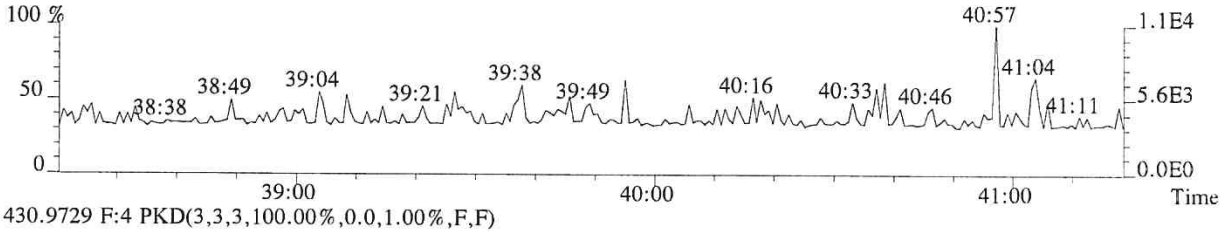
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



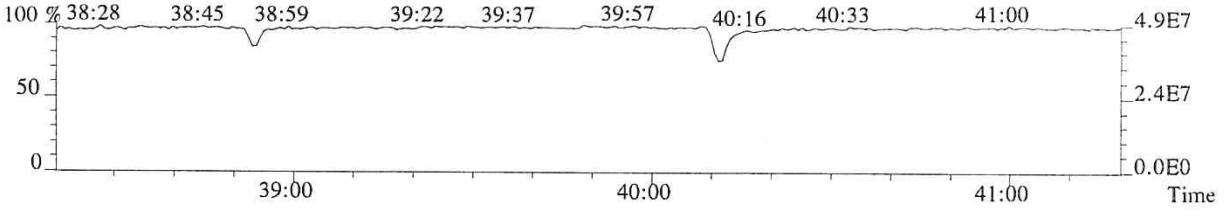
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

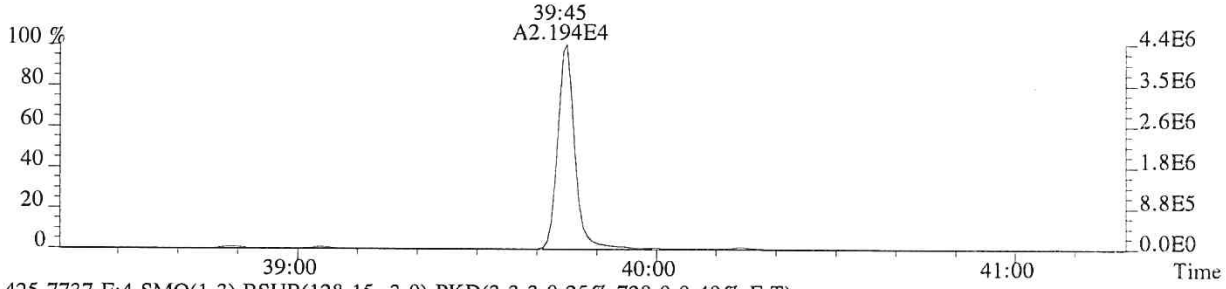


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

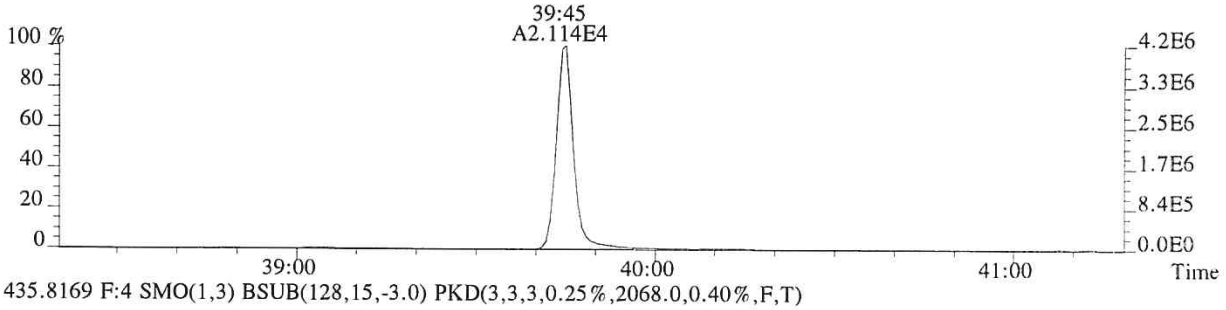


010163

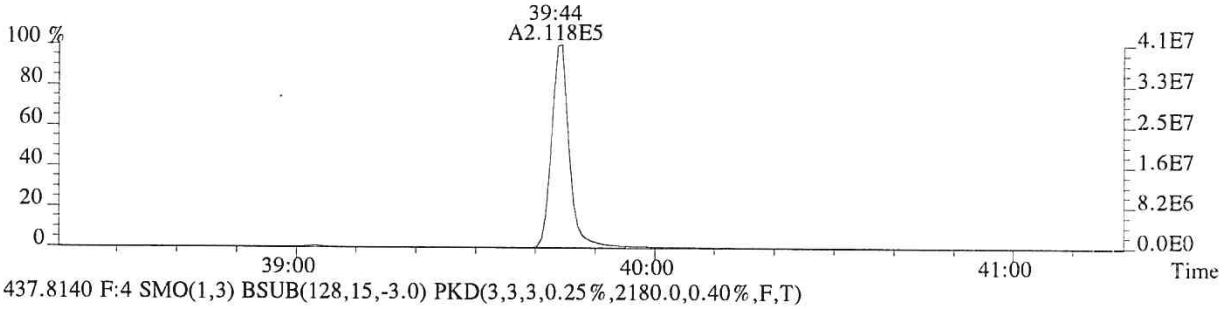
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



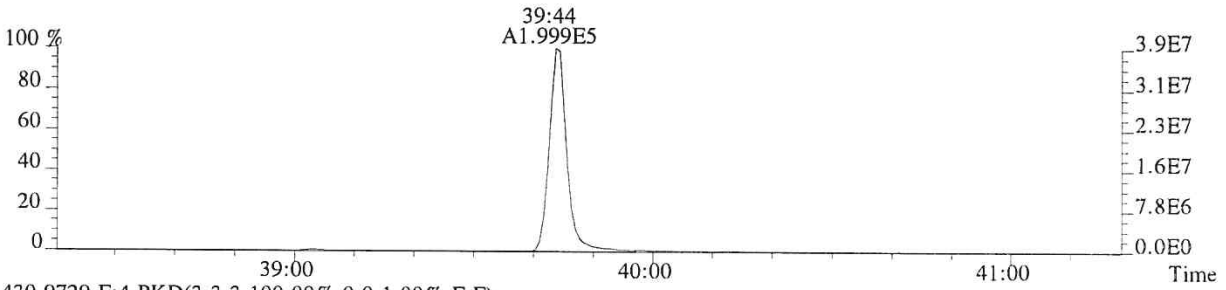
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



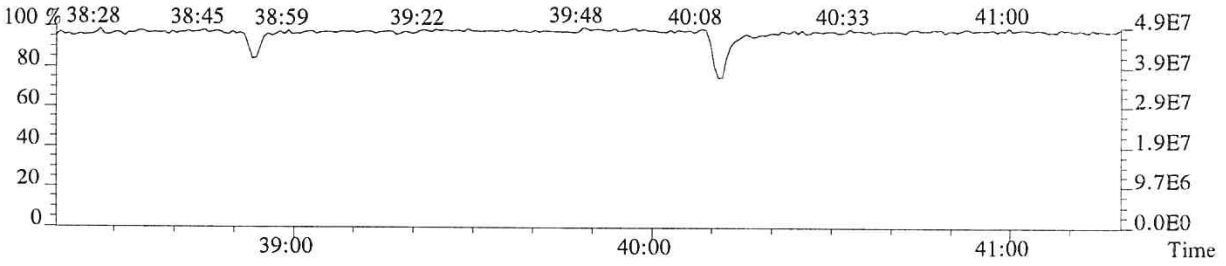
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)

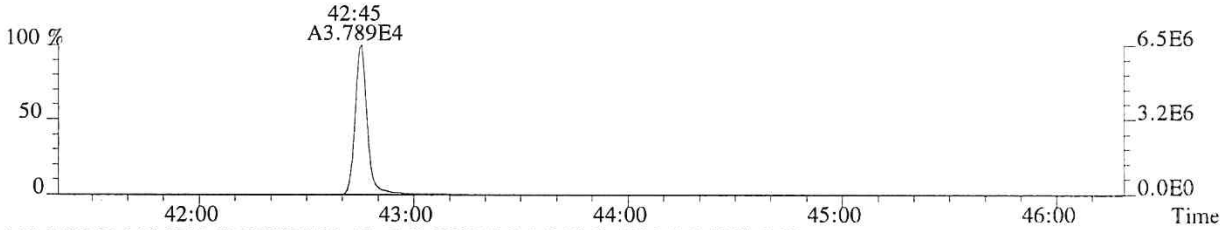


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

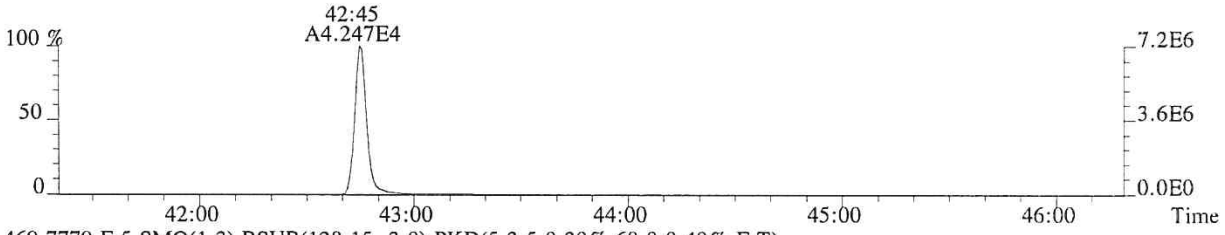


010164

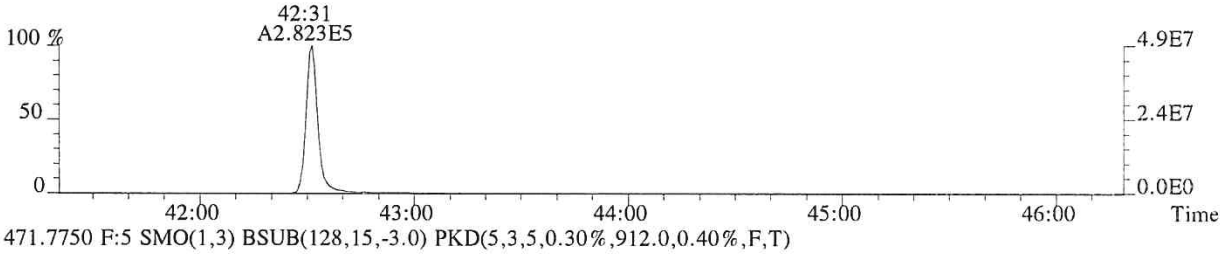
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



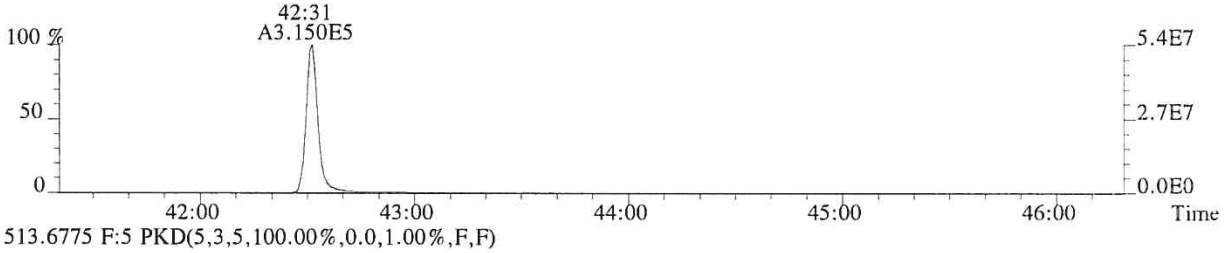
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



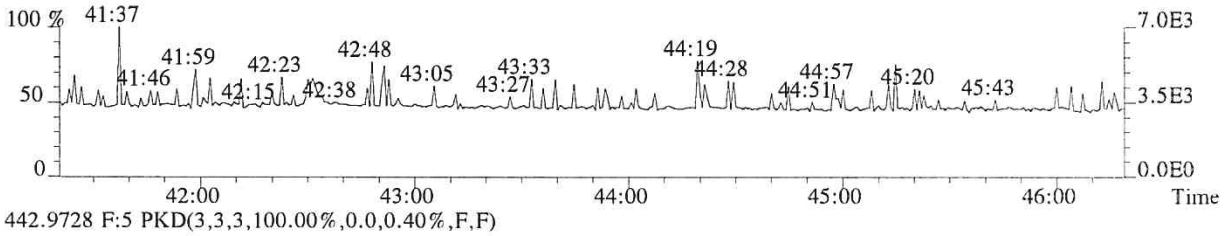
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



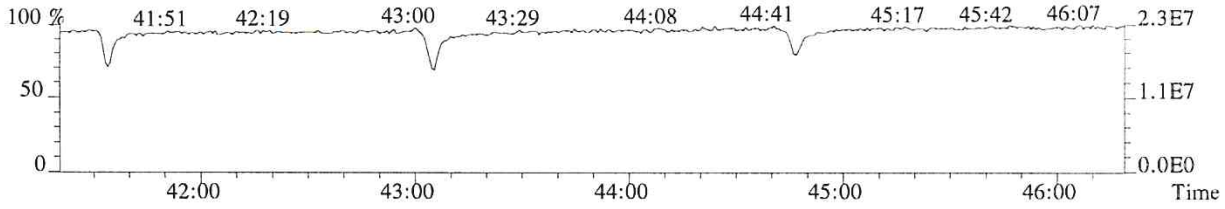
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

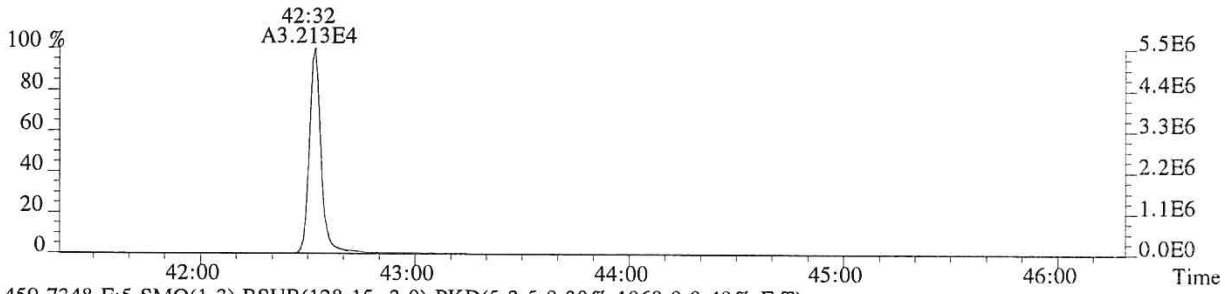


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

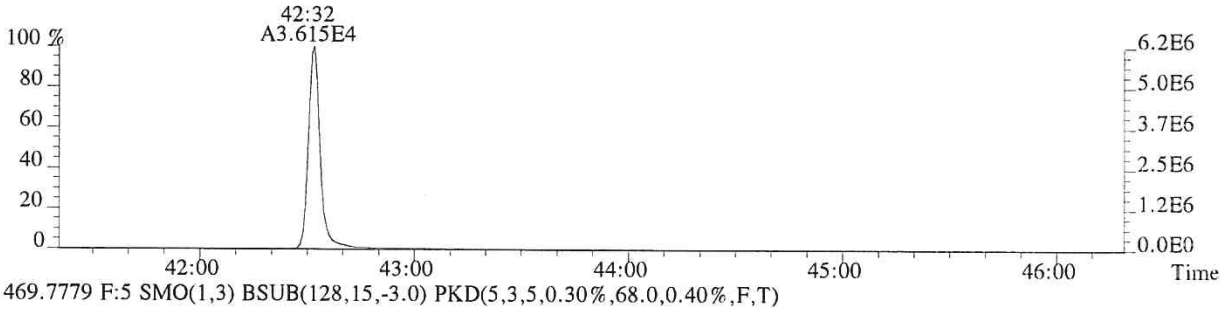


010165

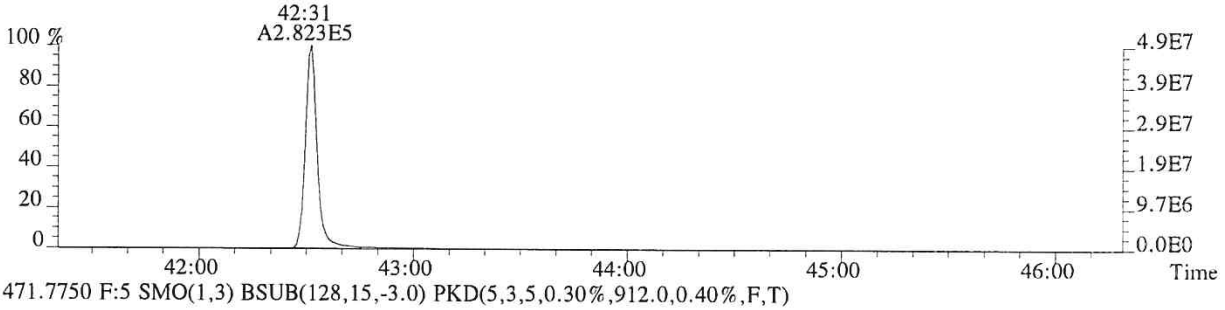
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



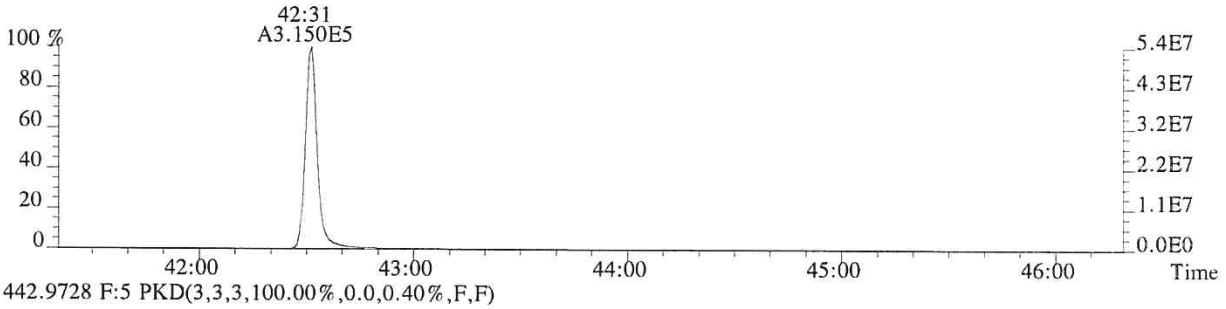
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



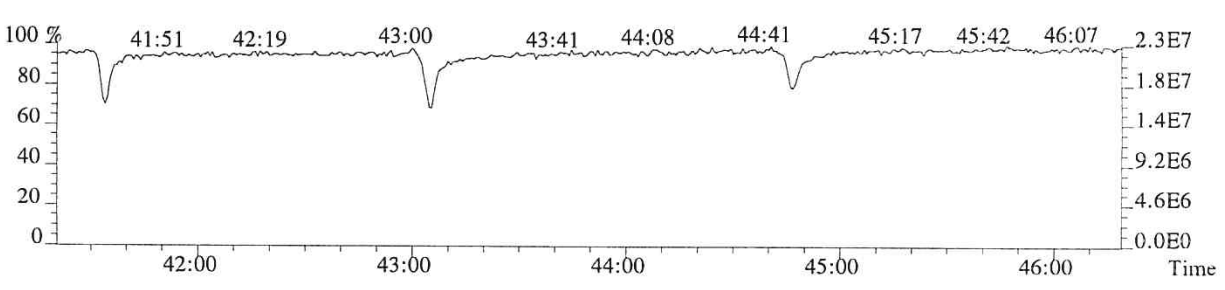
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010166

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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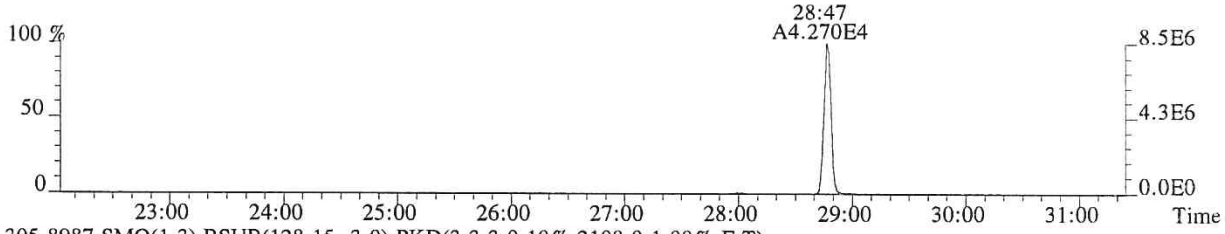
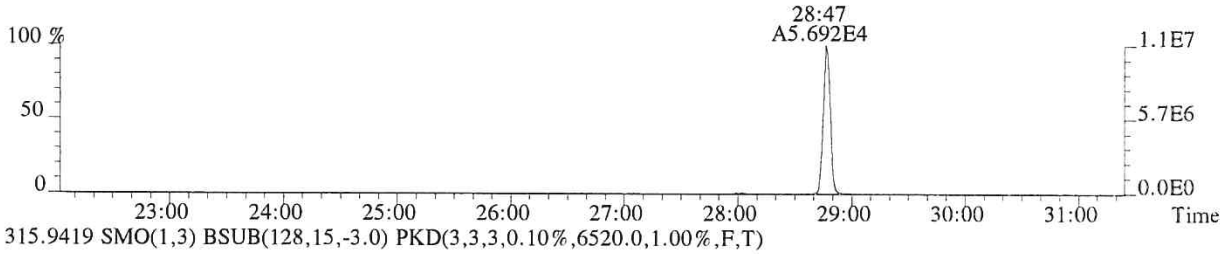
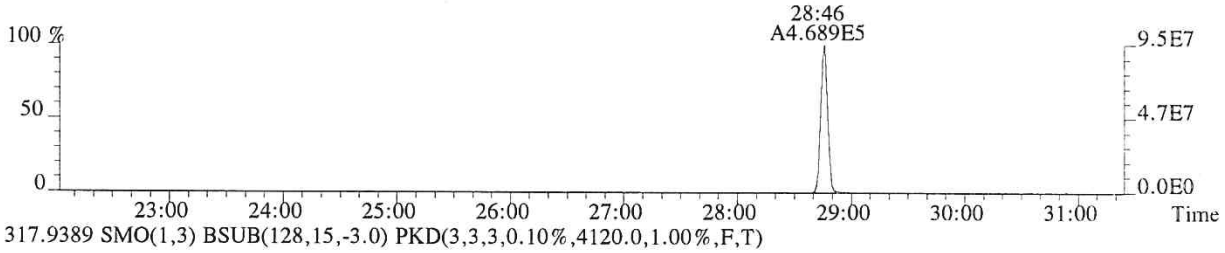
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



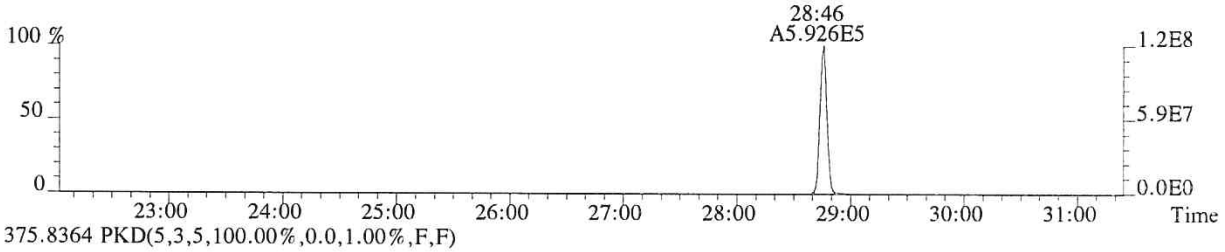
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



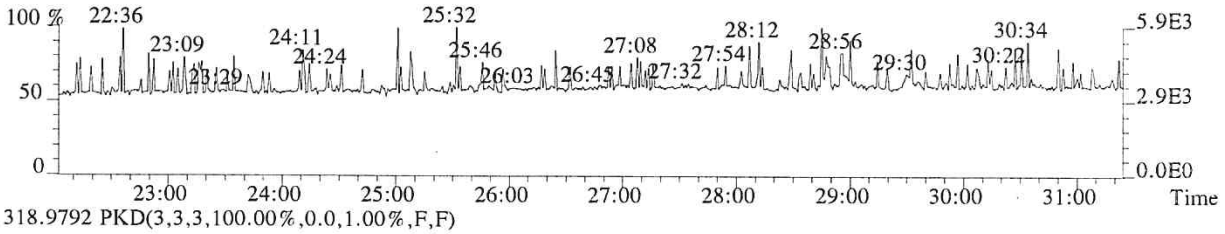
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



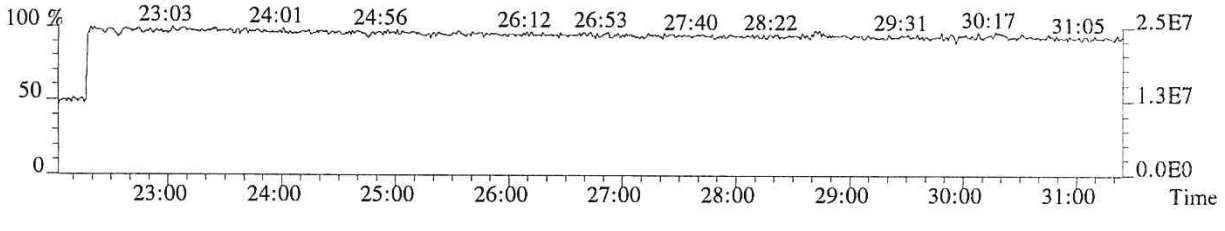
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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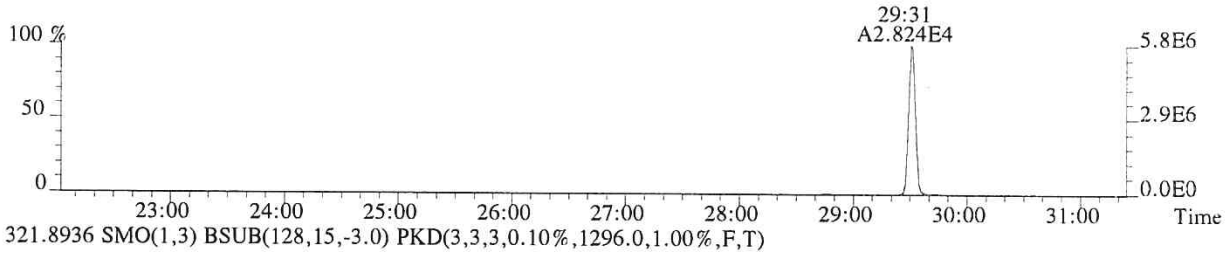
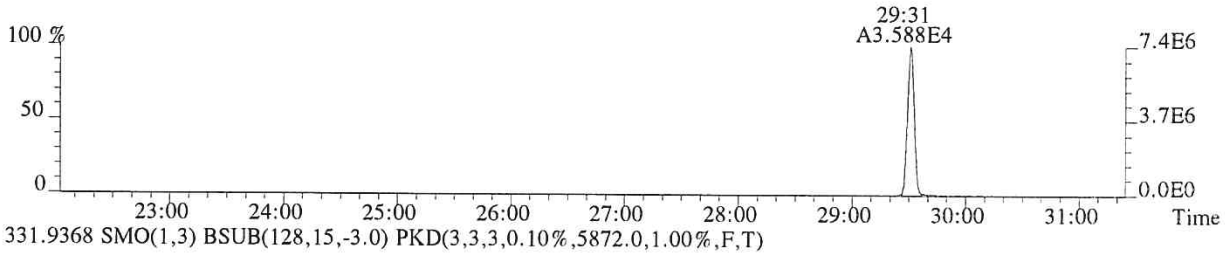
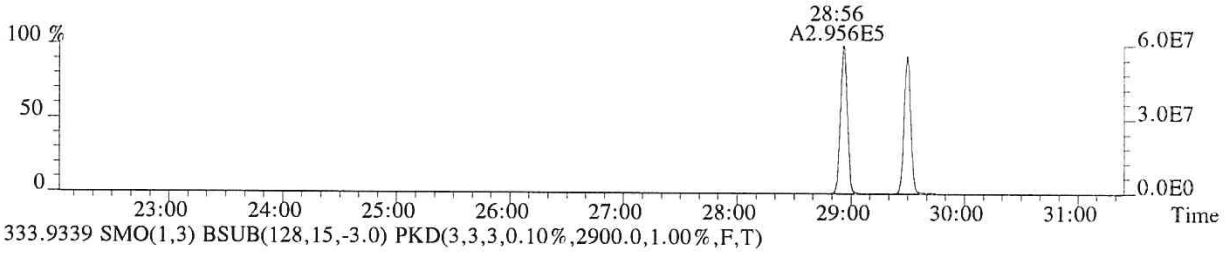
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



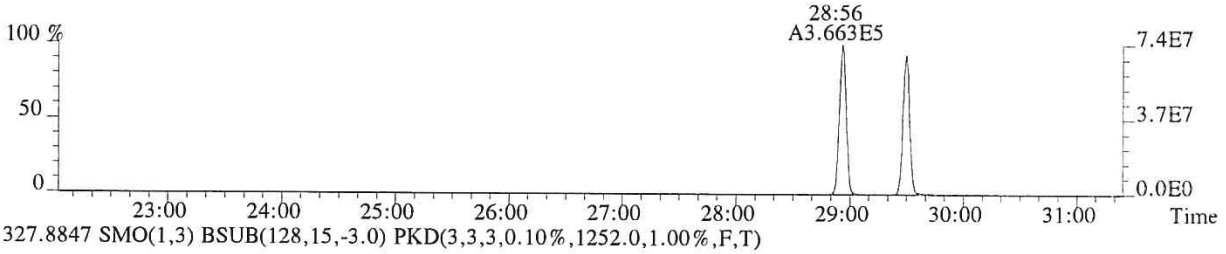
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



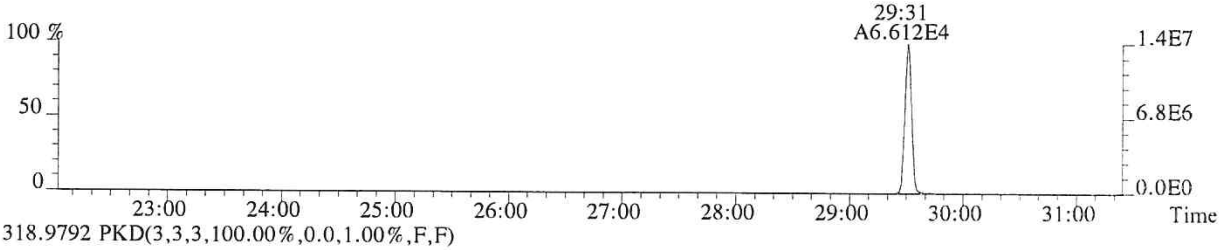
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



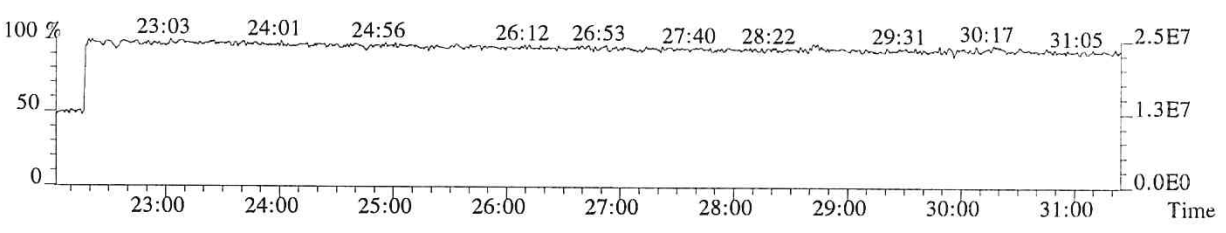
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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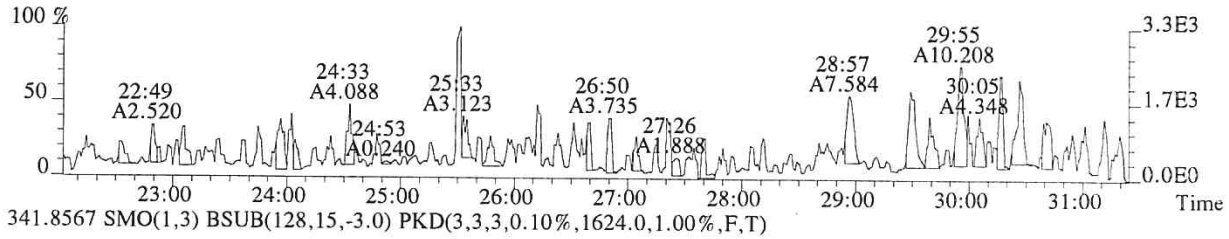
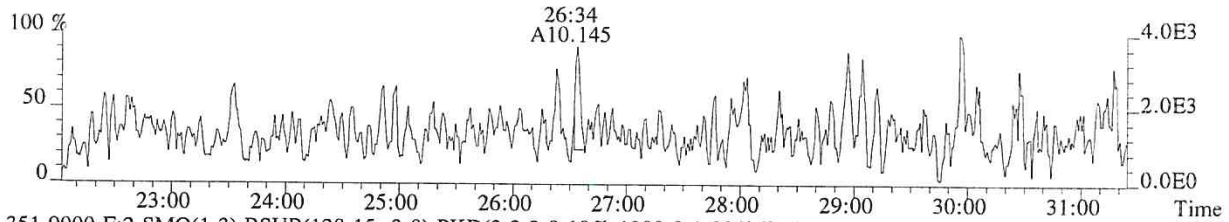
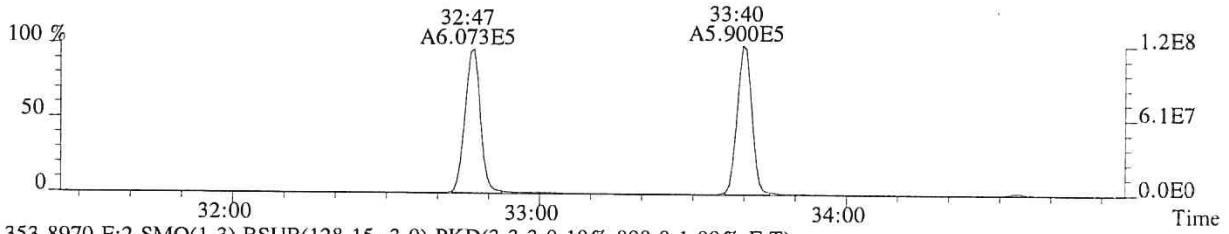
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



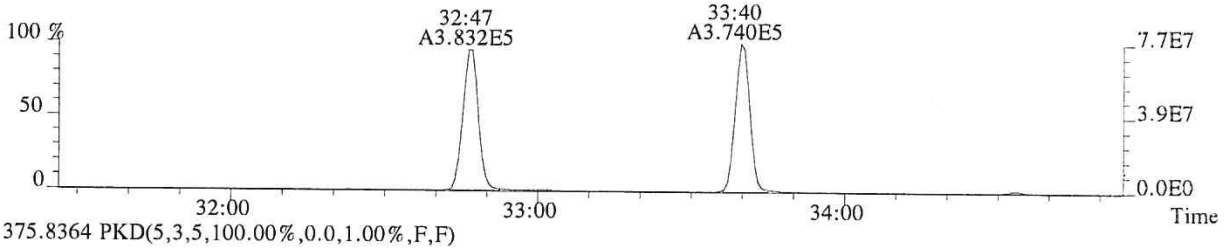
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



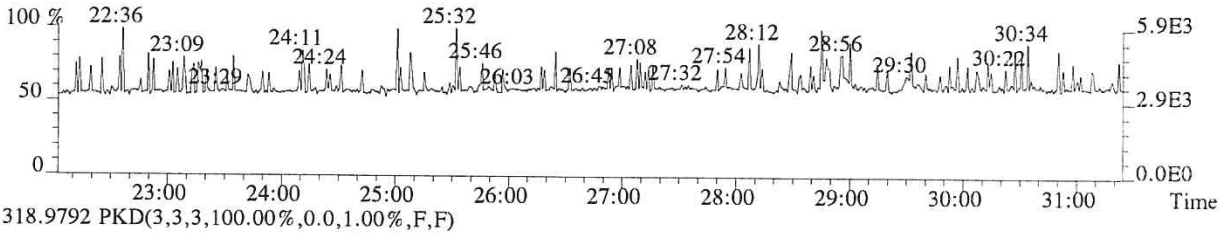
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



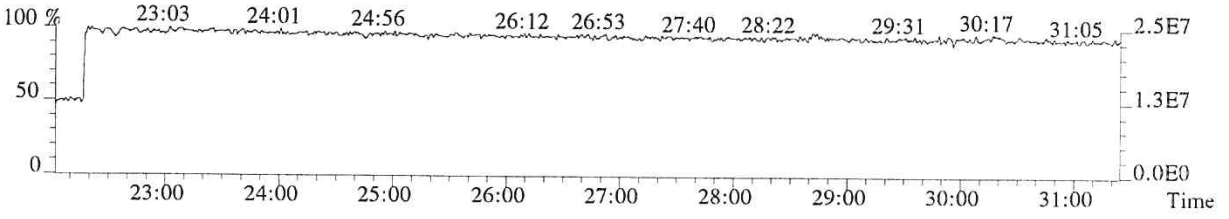
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

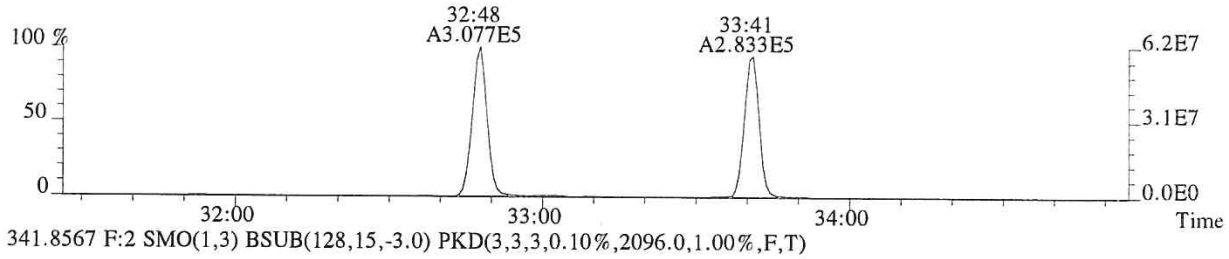


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

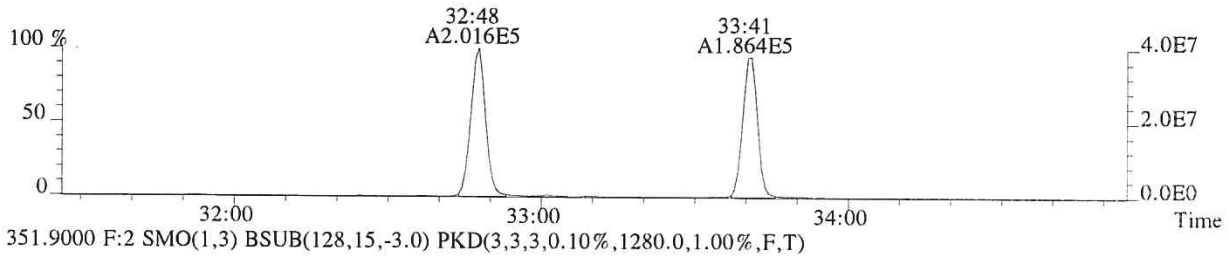


010171

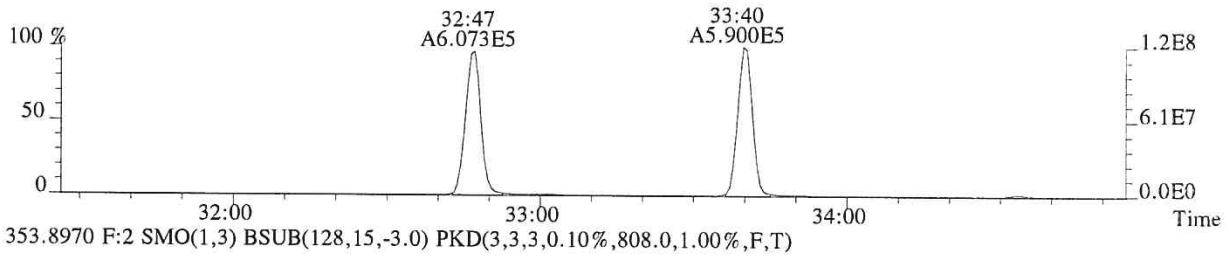
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



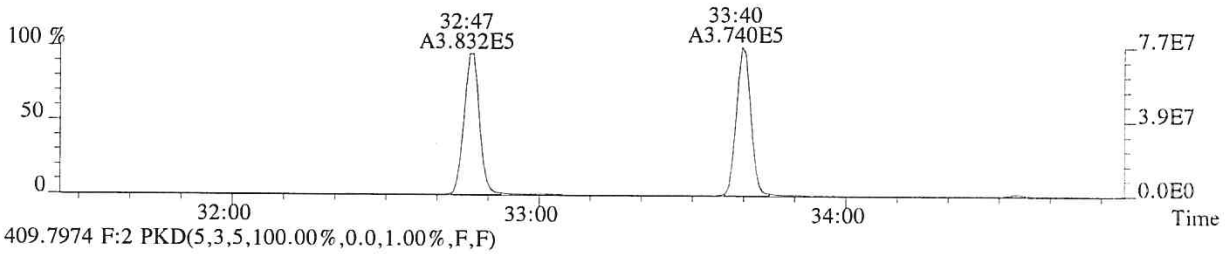
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



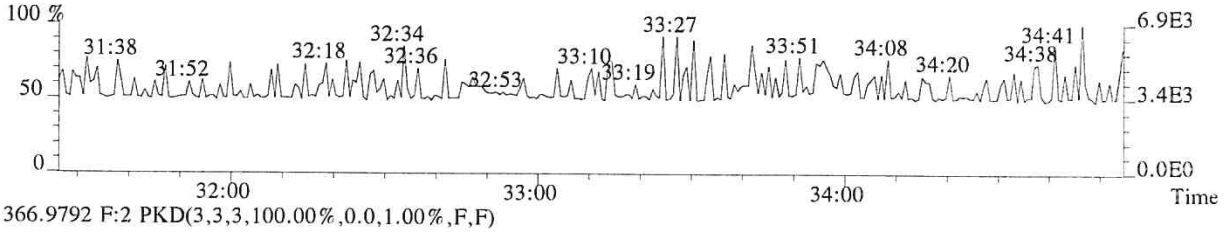
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



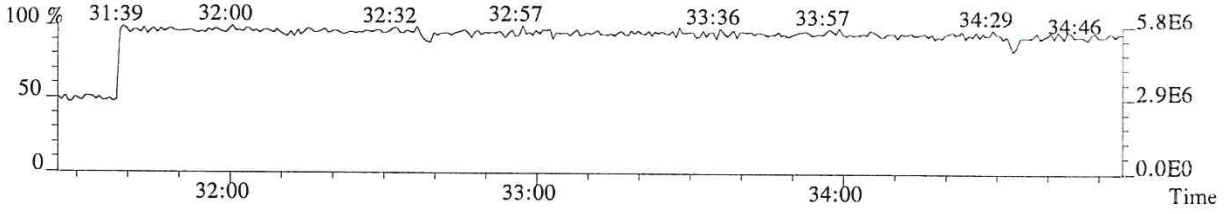
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

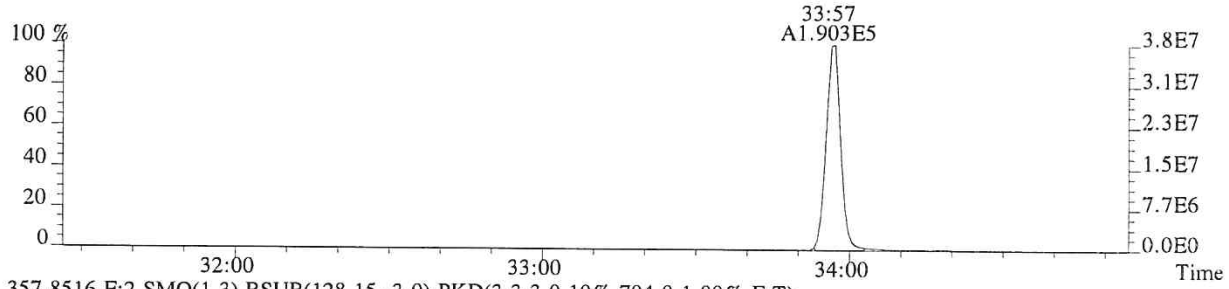


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

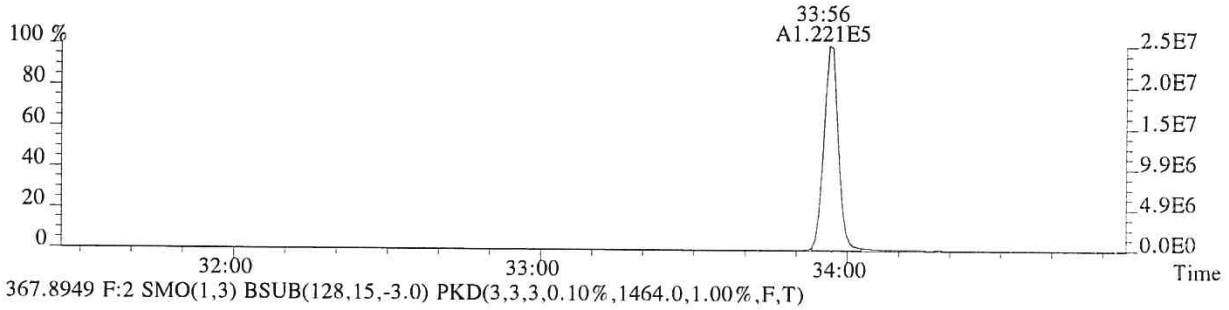


010172

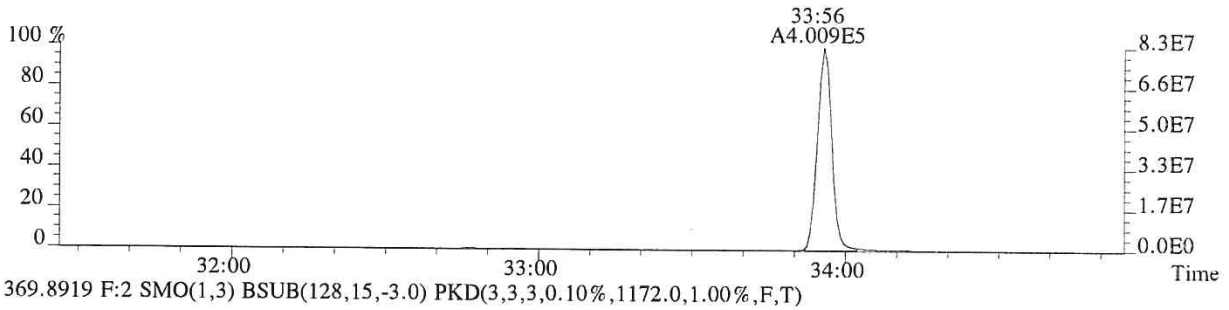
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



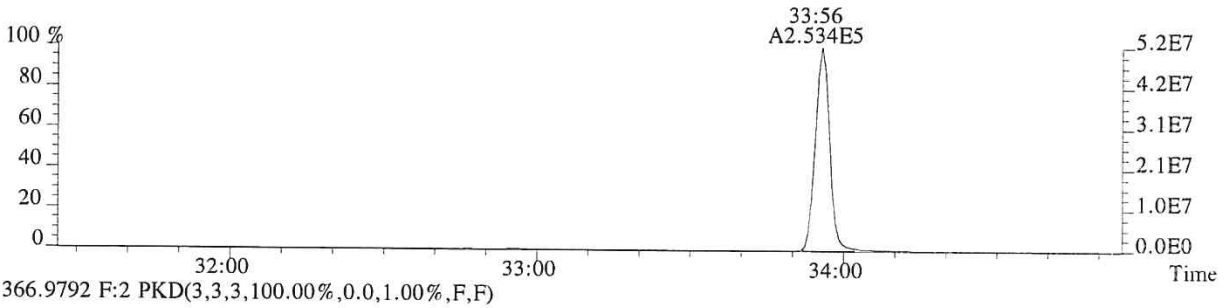
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



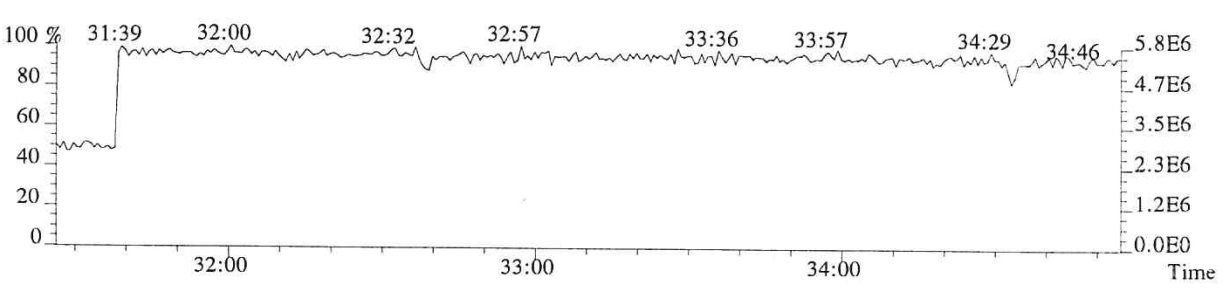
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



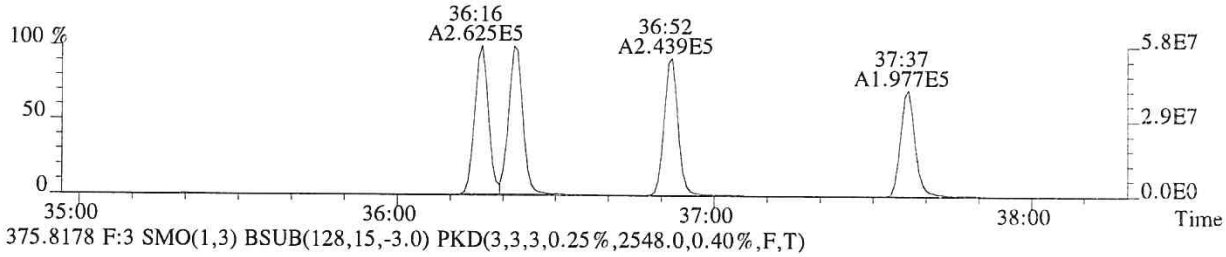
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



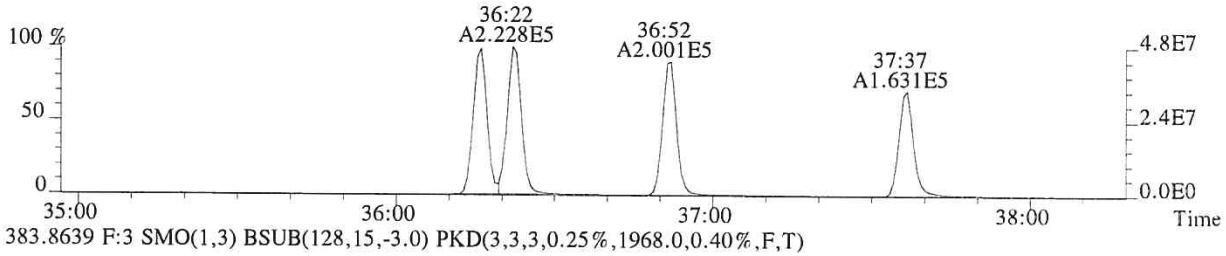
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



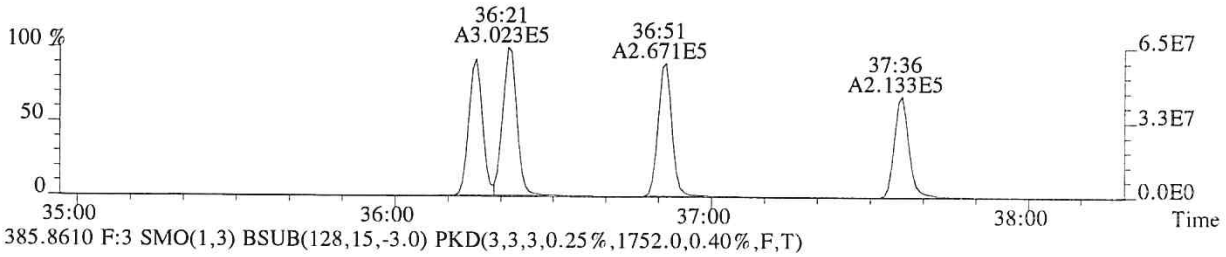
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



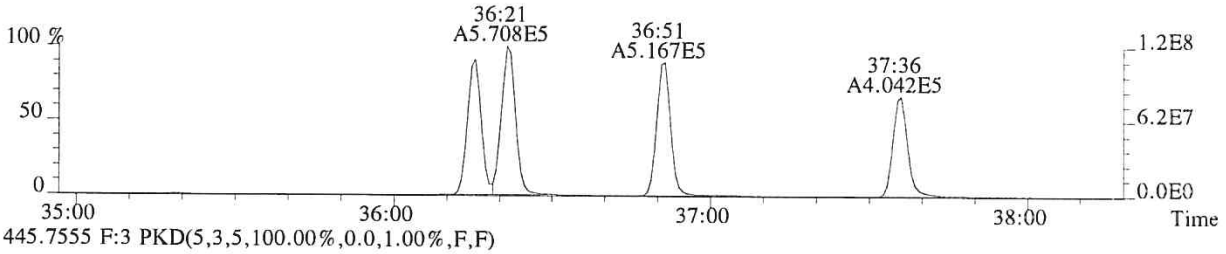
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



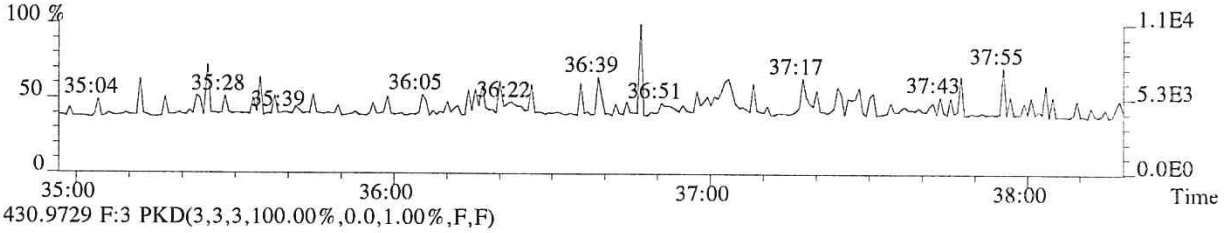
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



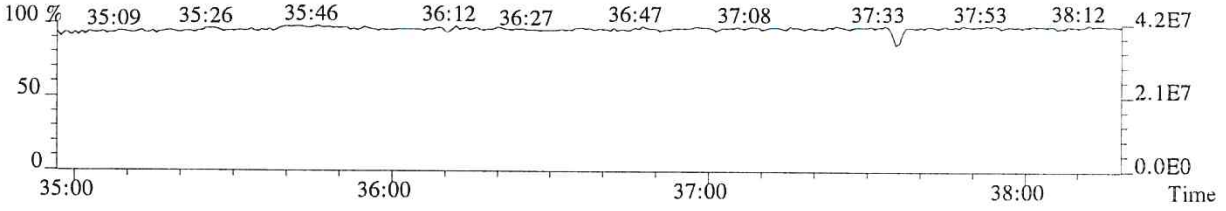
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

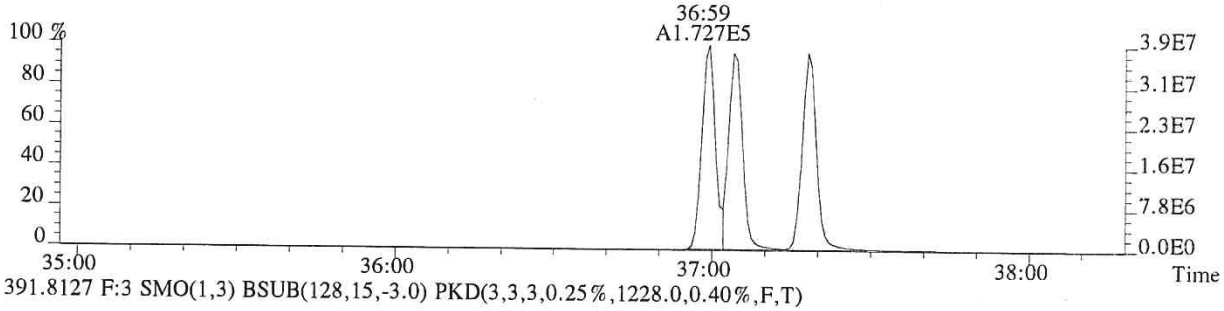


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

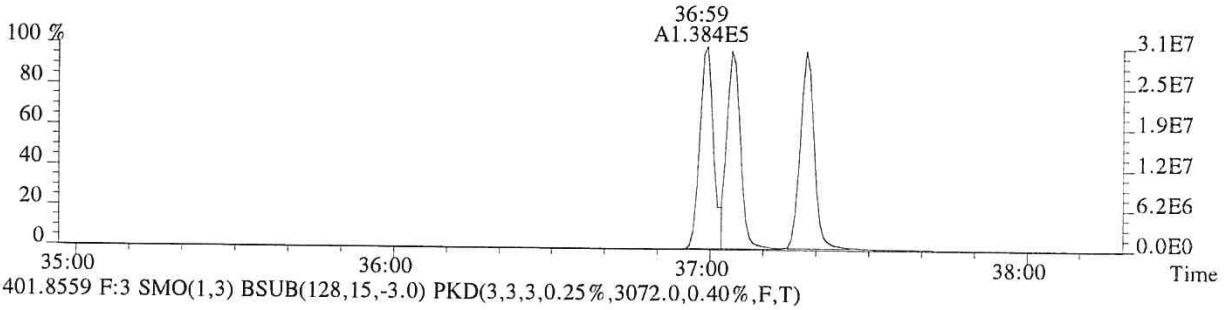


010174

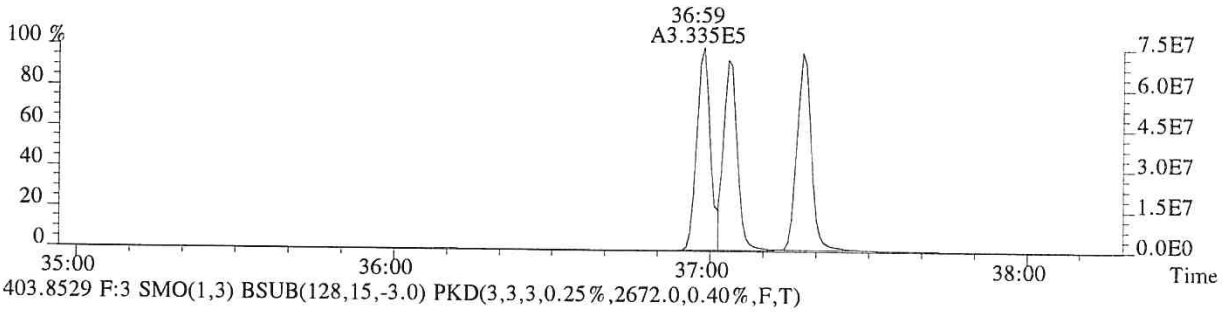
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



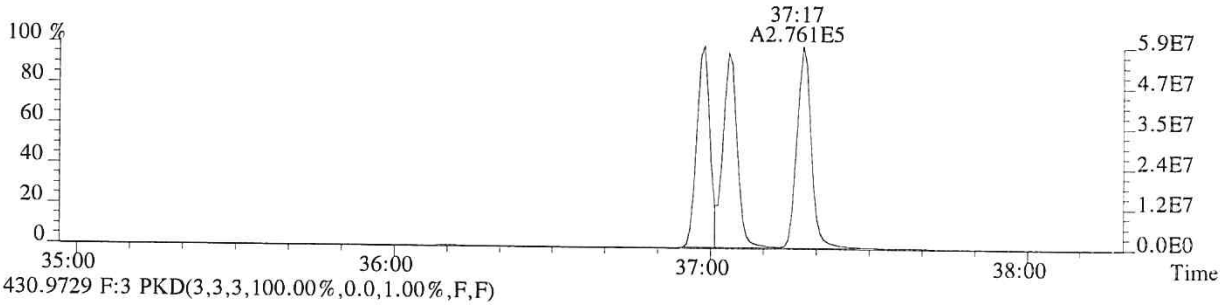
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



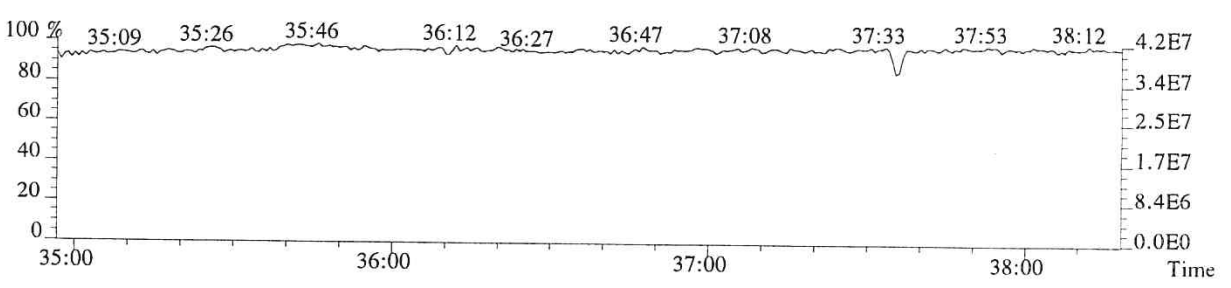
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)

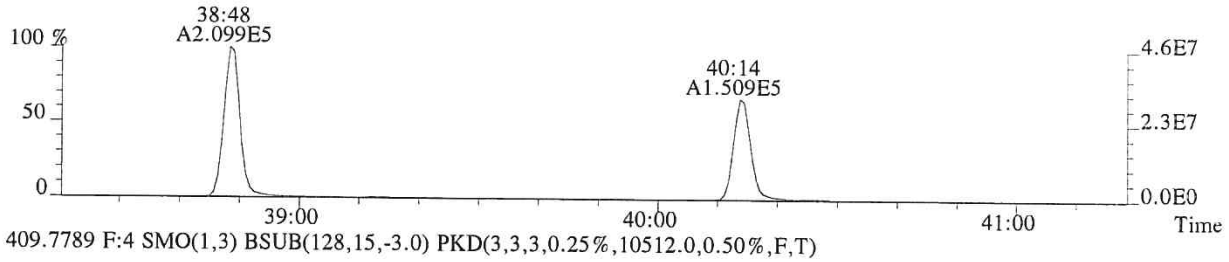


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

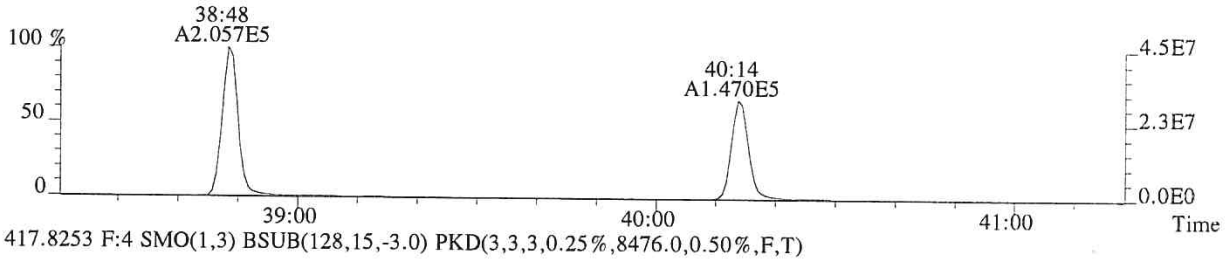


010175

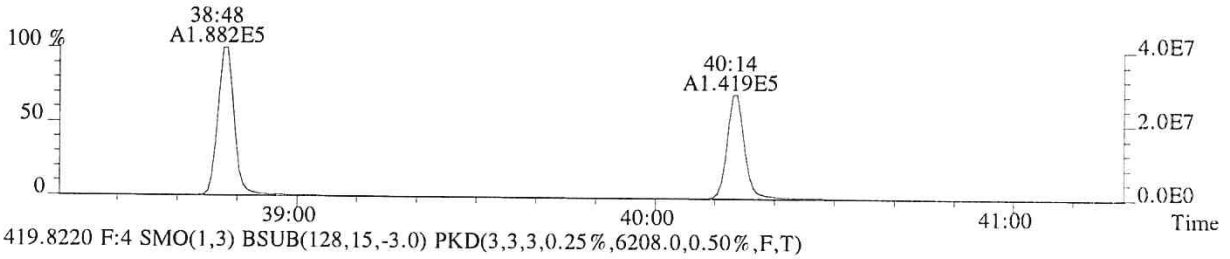
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



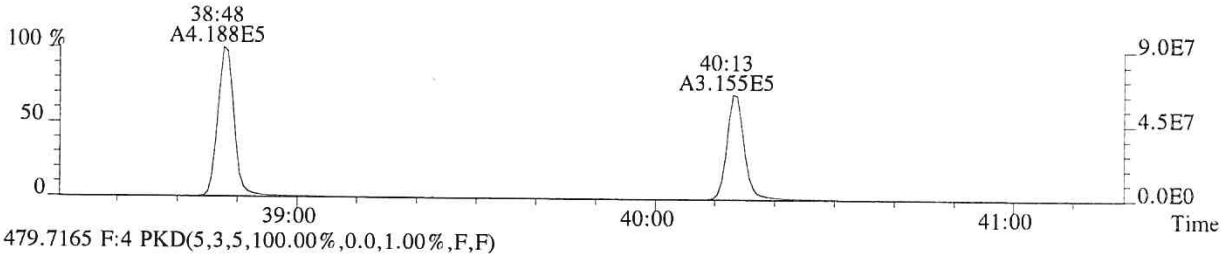
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



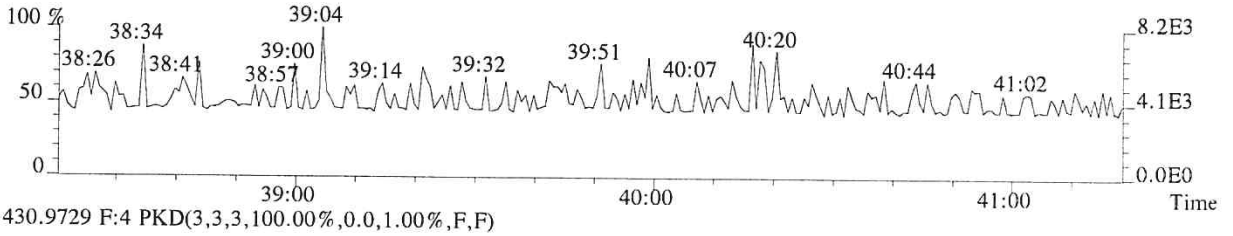
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



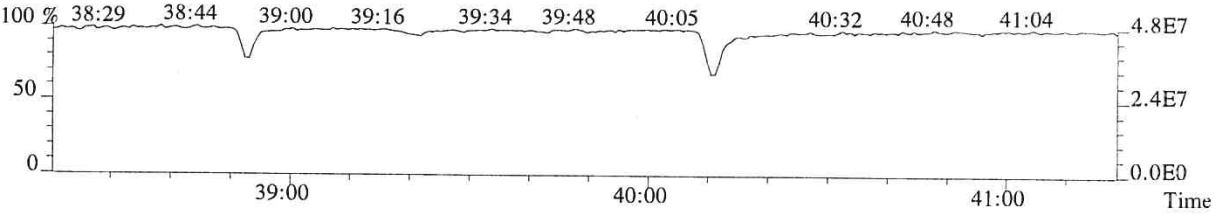
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

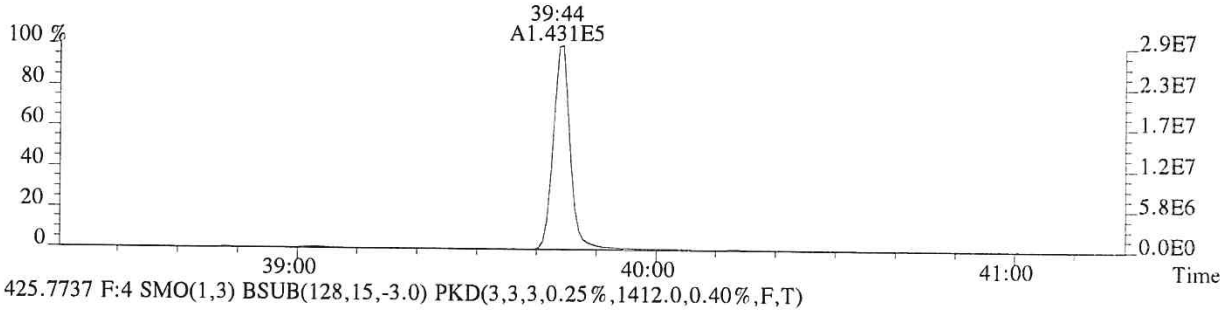


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

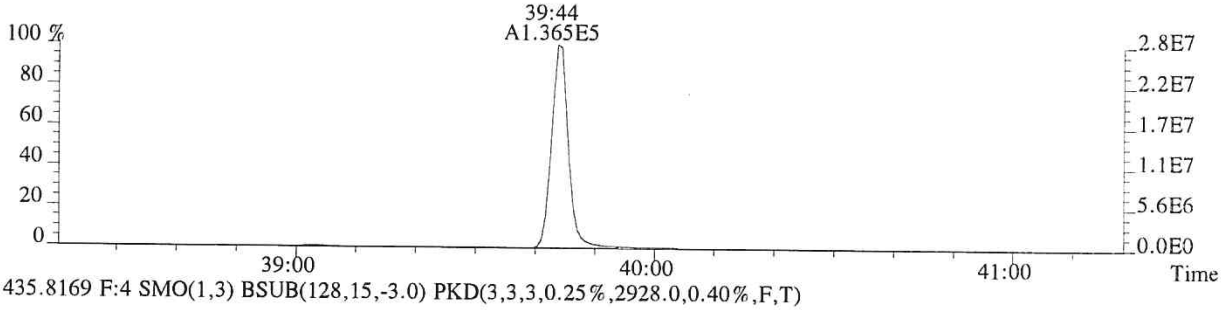


010176

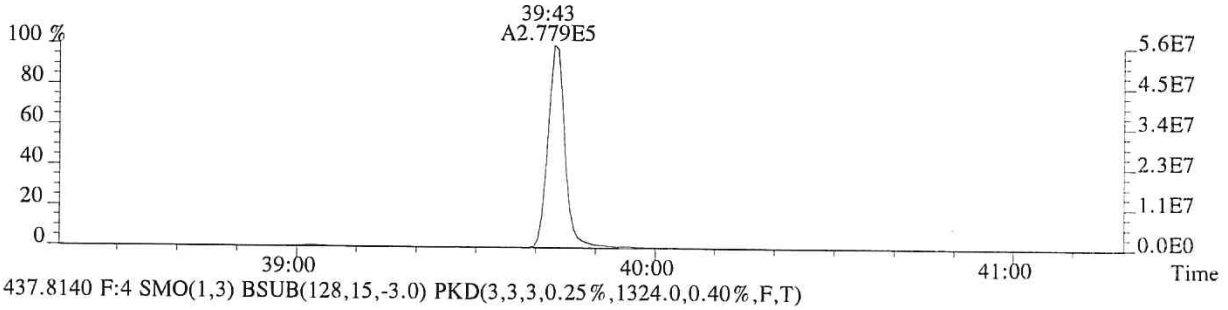
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



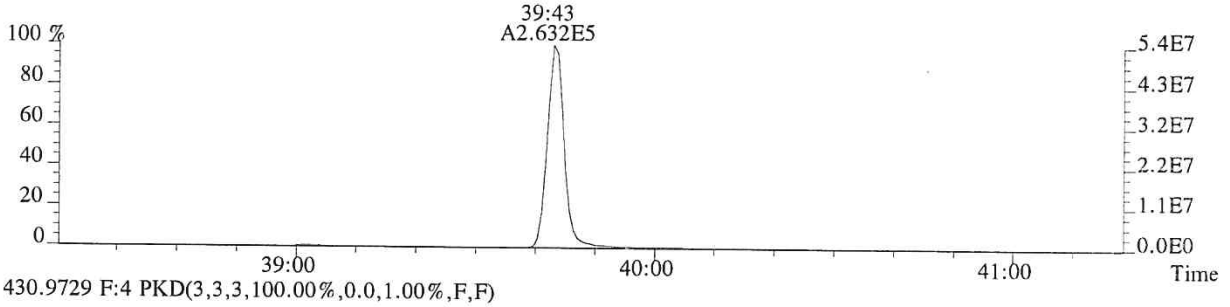
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



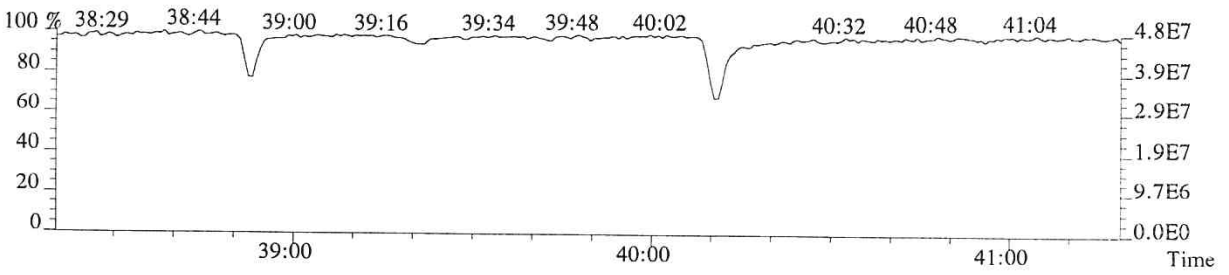
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)

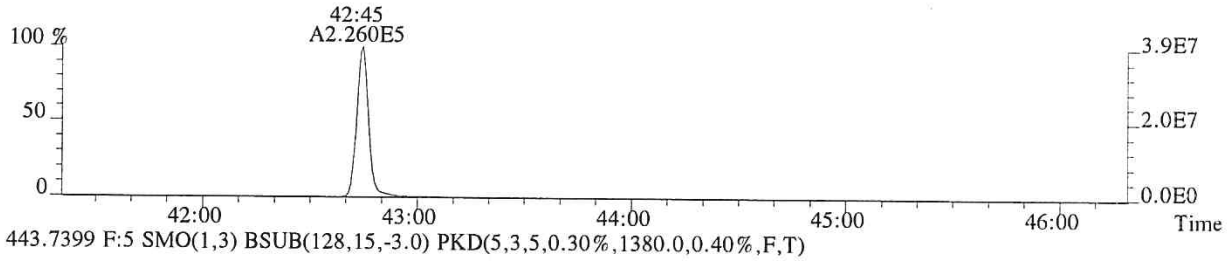


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

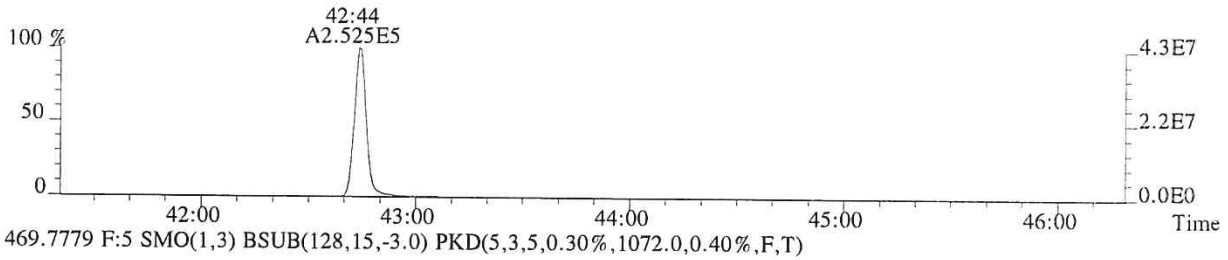


010177

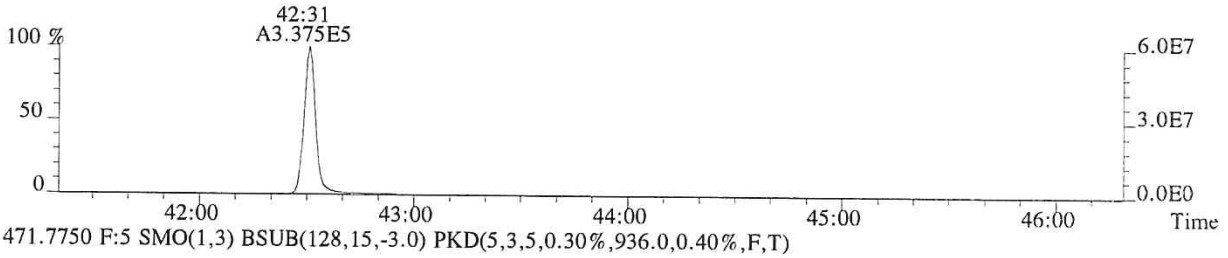
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



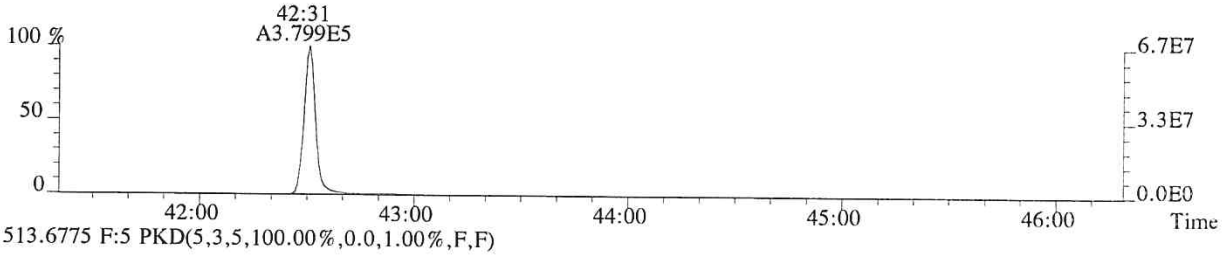
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



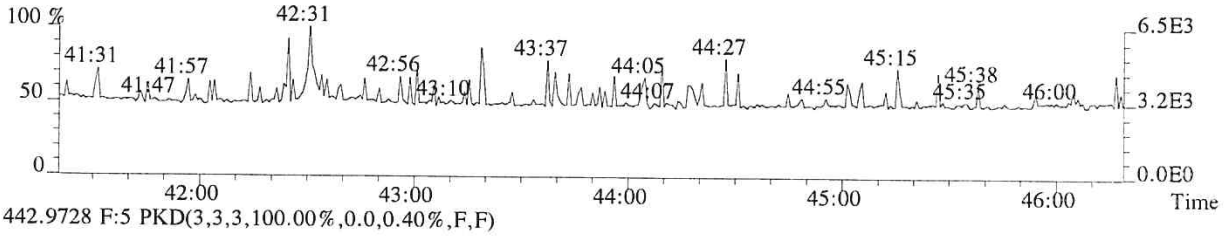
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



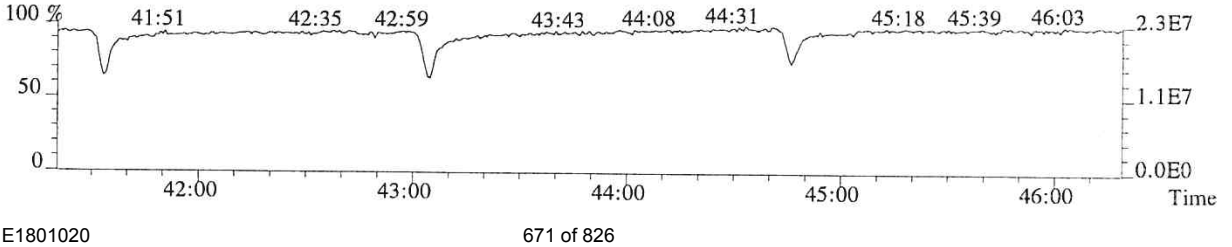
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

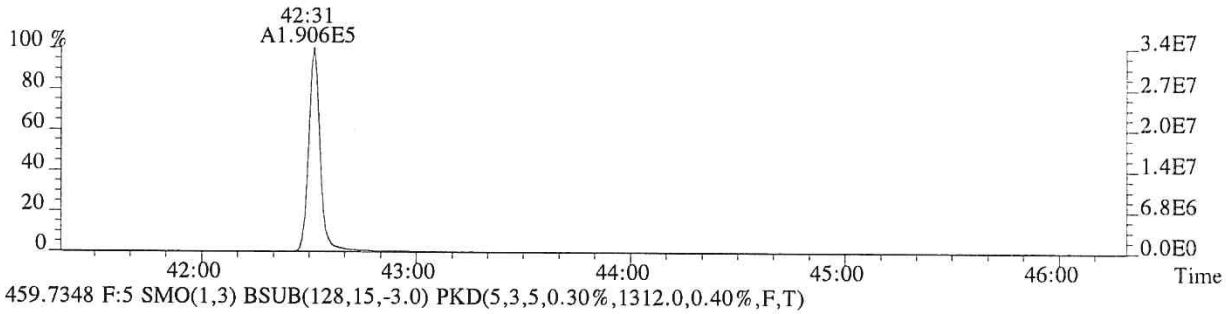


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

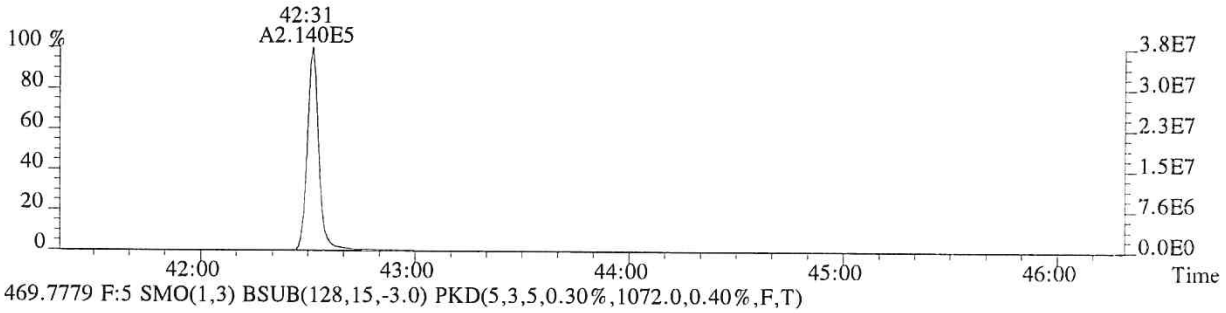


010178

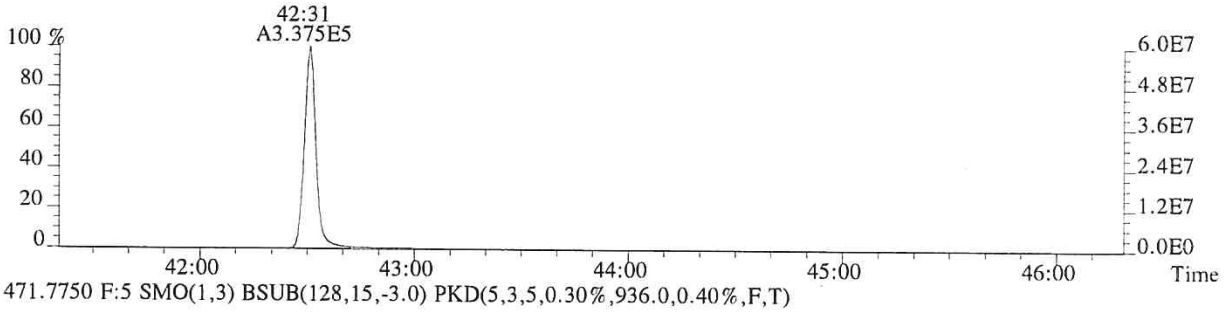
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



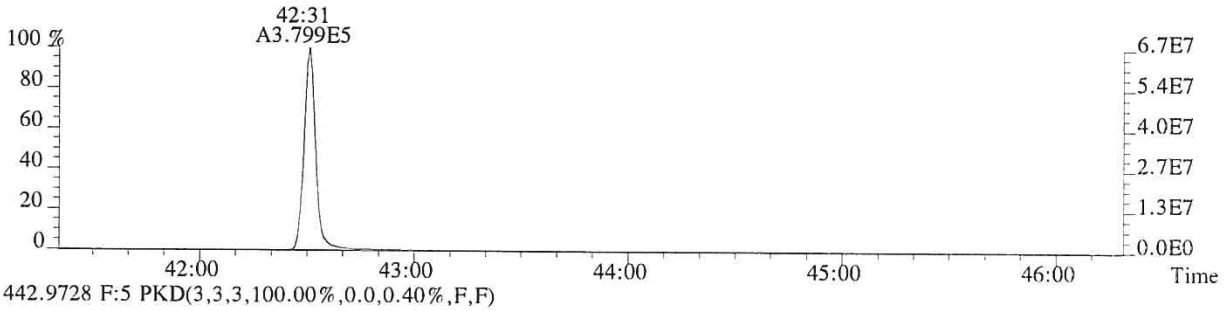
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



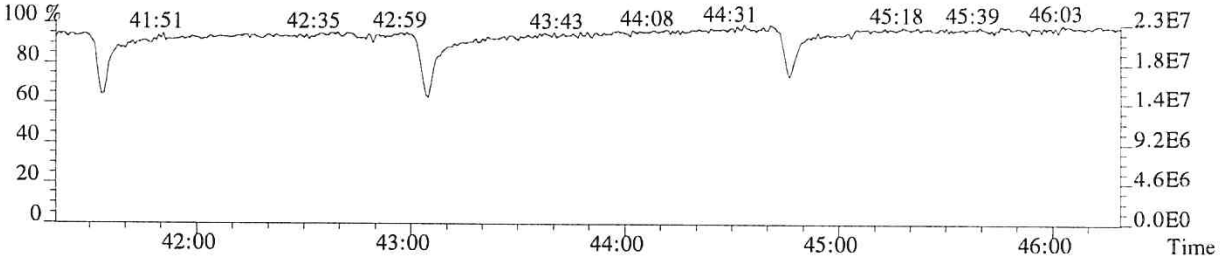
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010179

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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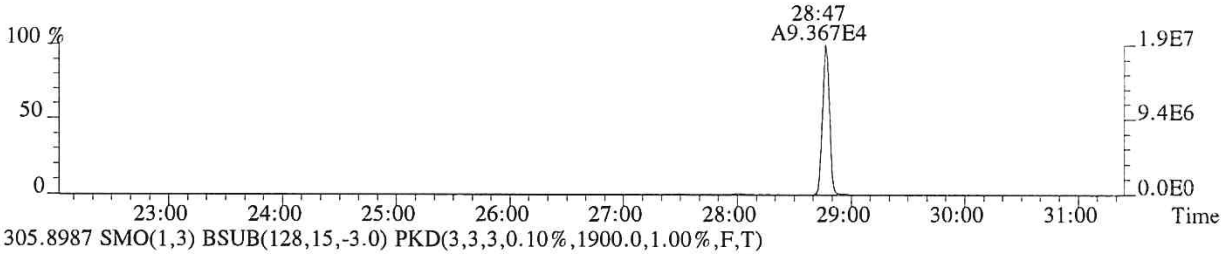
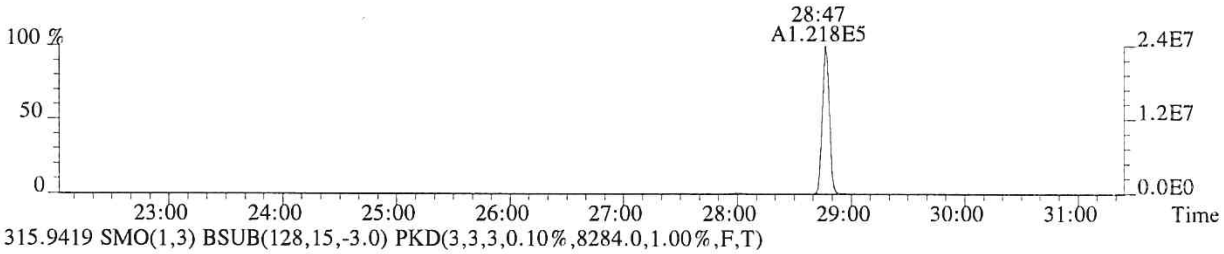
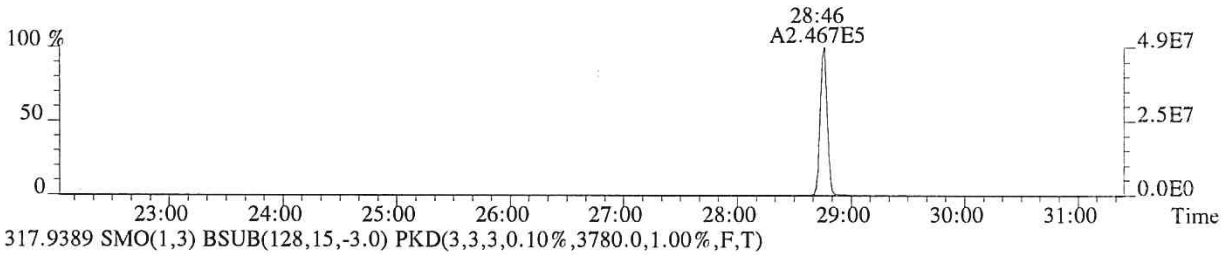
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



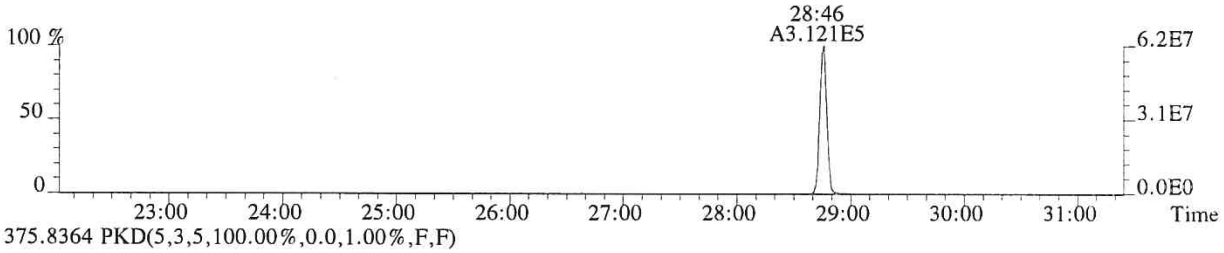
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



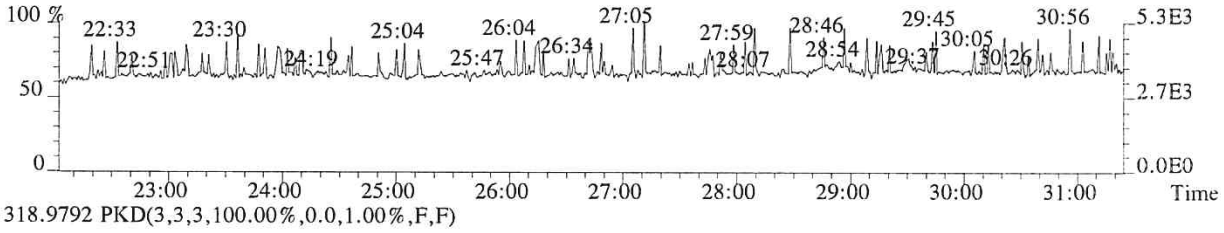
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



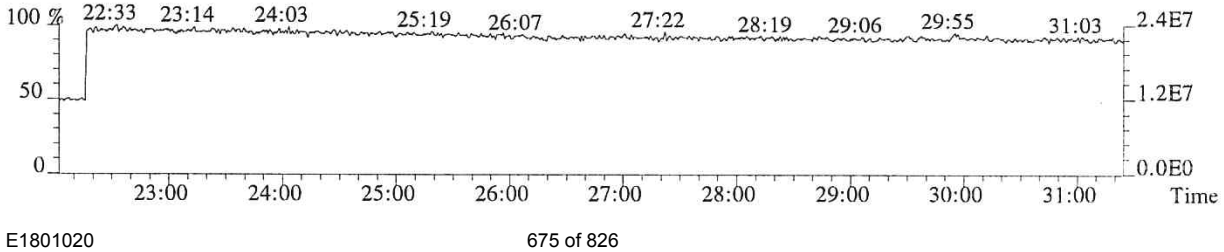
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

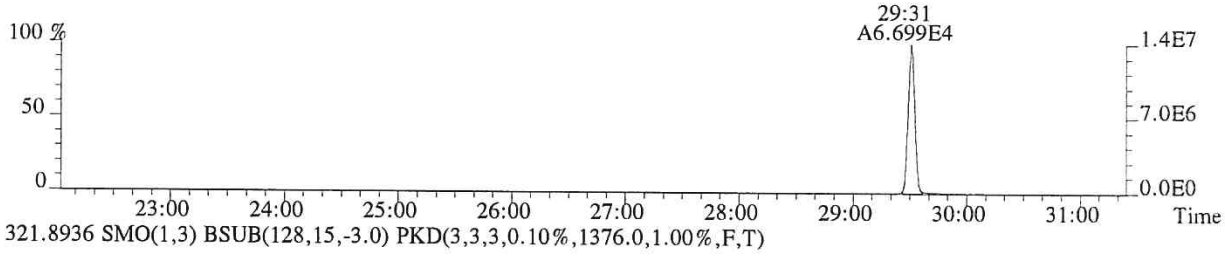


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

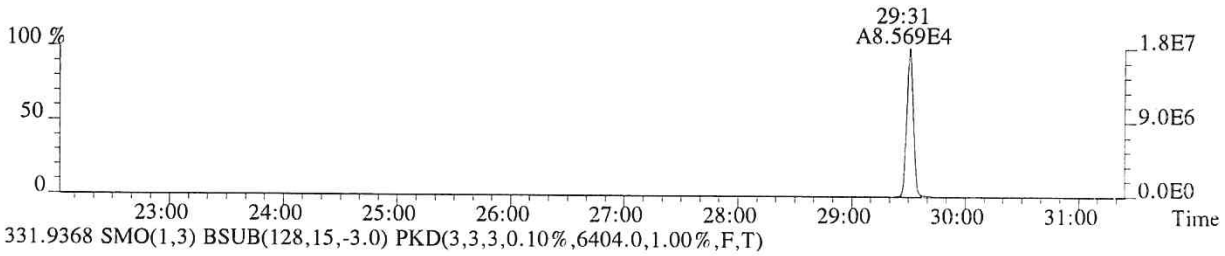


010182

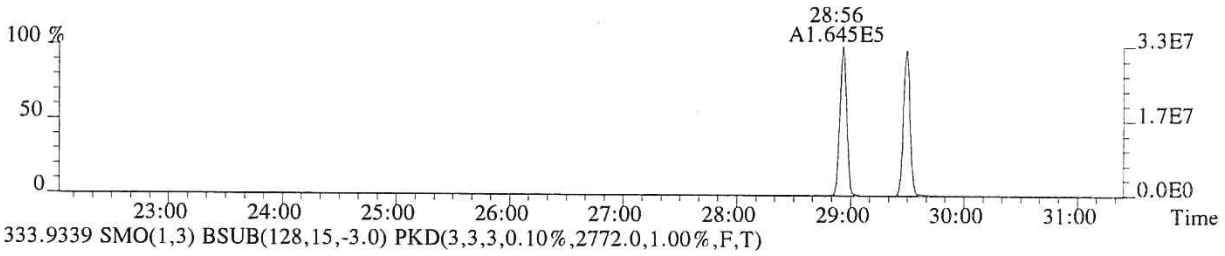
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



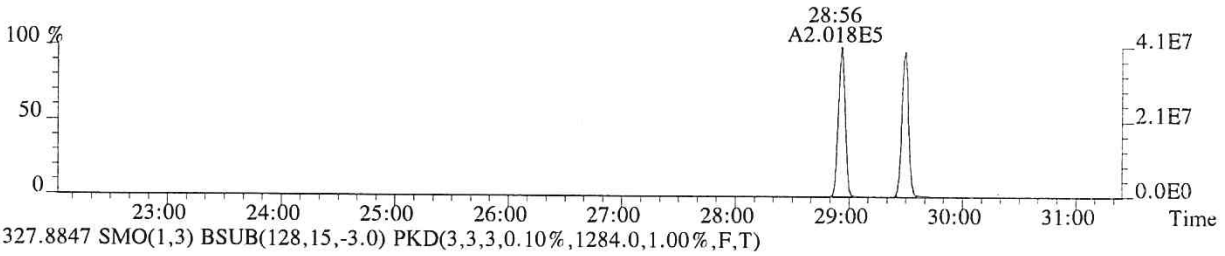
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



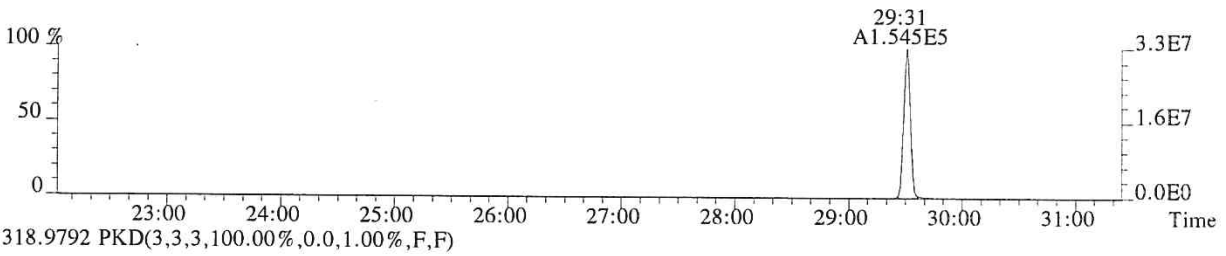
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



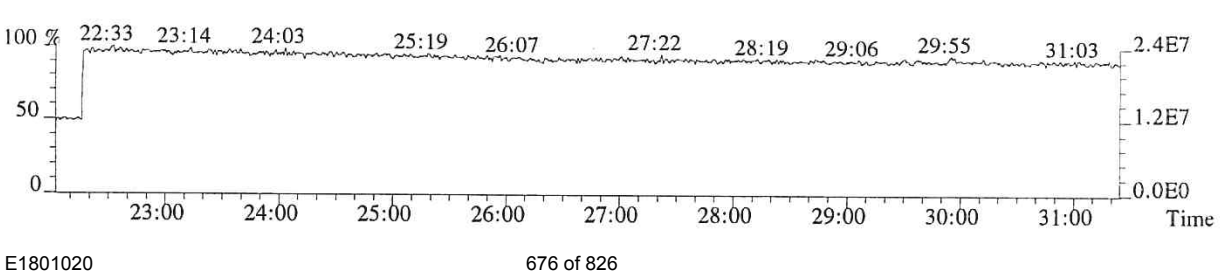
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)

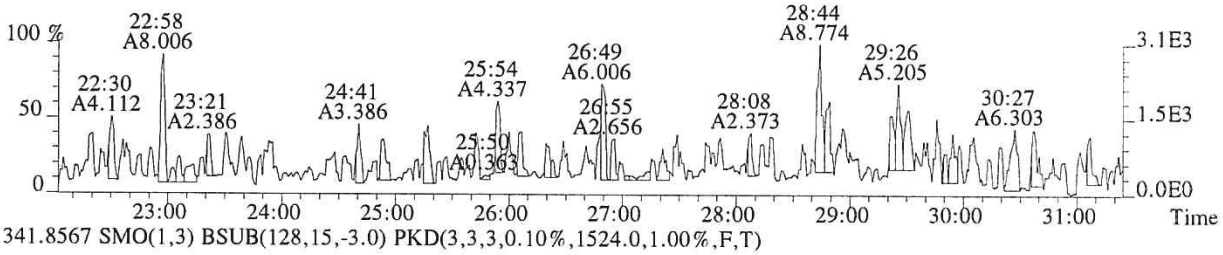


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

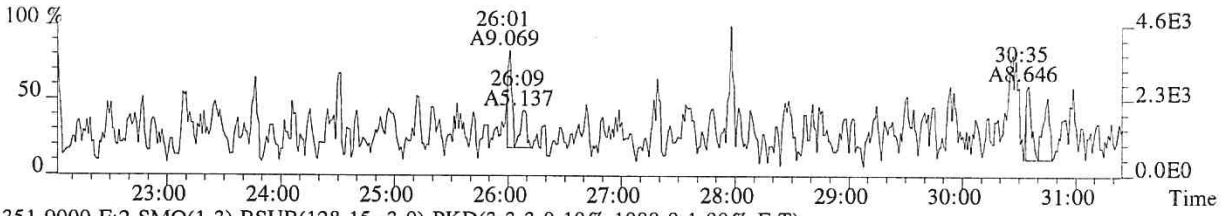


010183

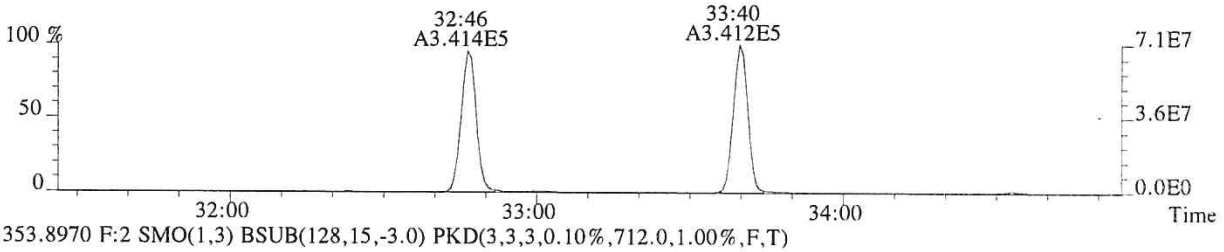
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



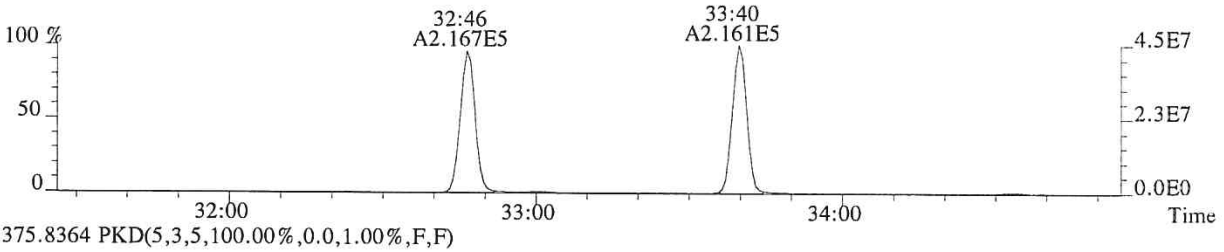
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



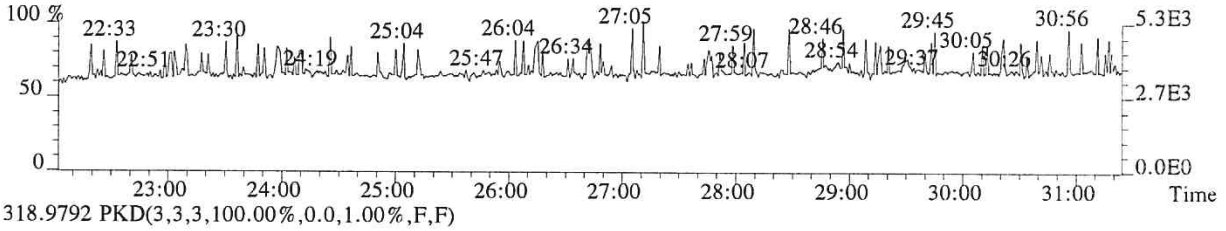
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



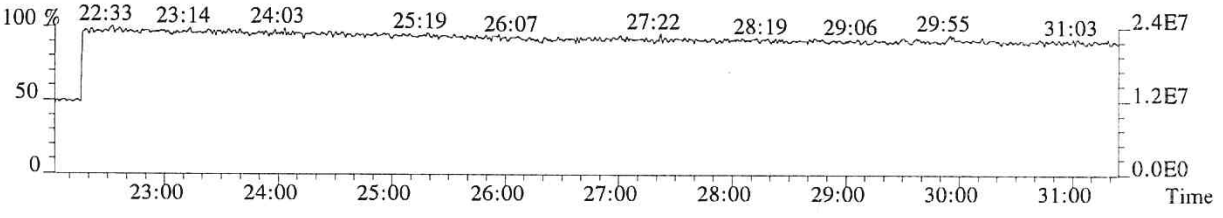
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

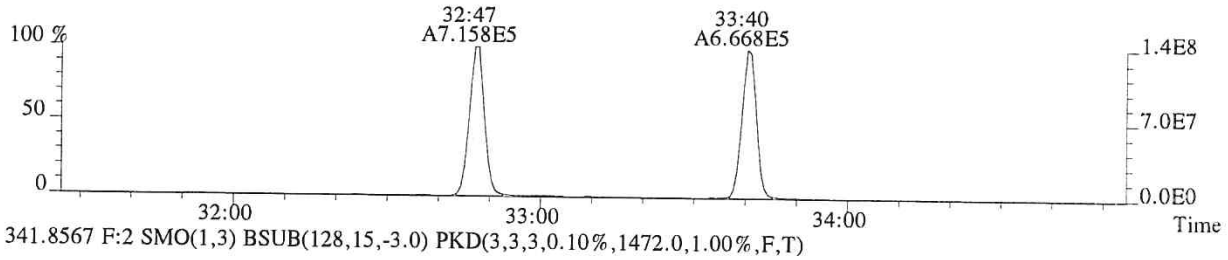


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

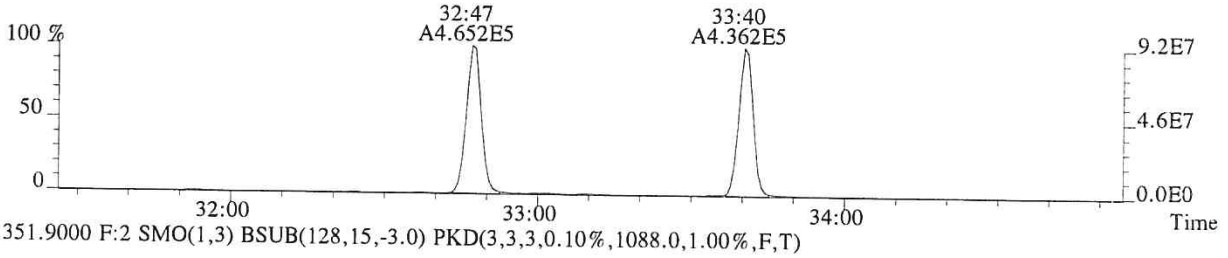


010184

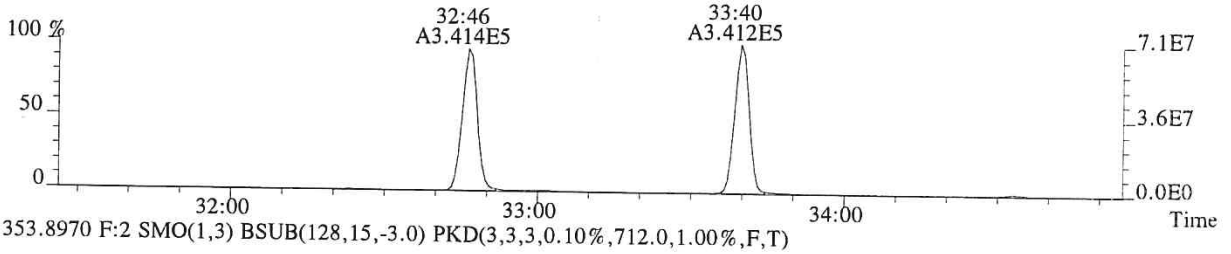
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



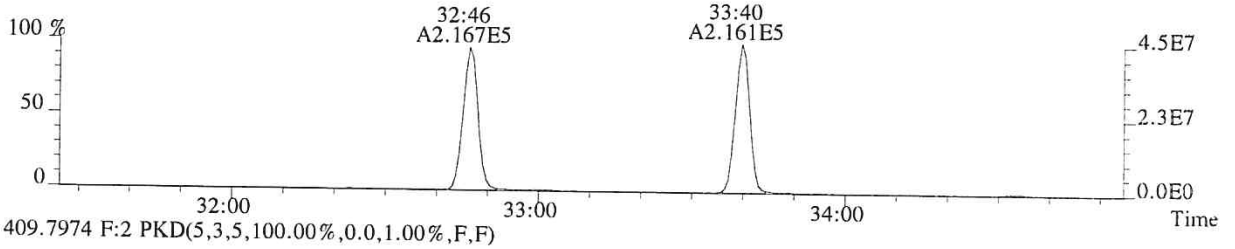
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



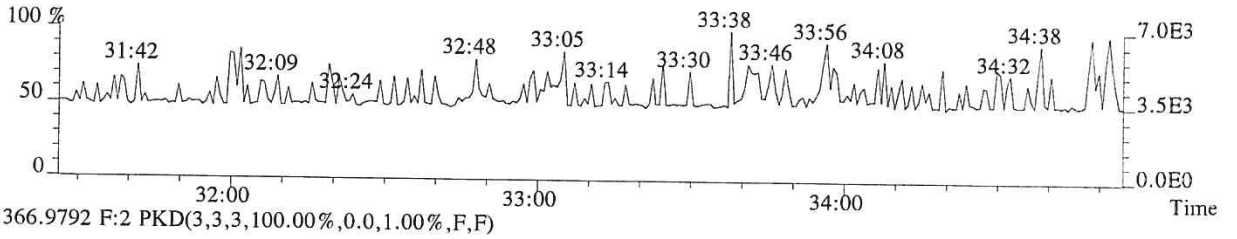
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



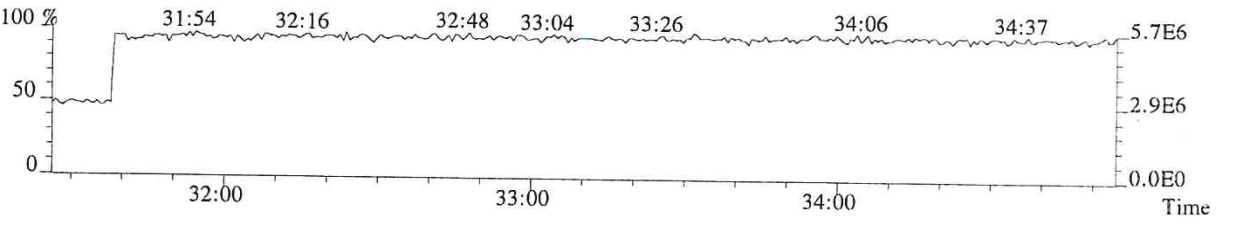
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

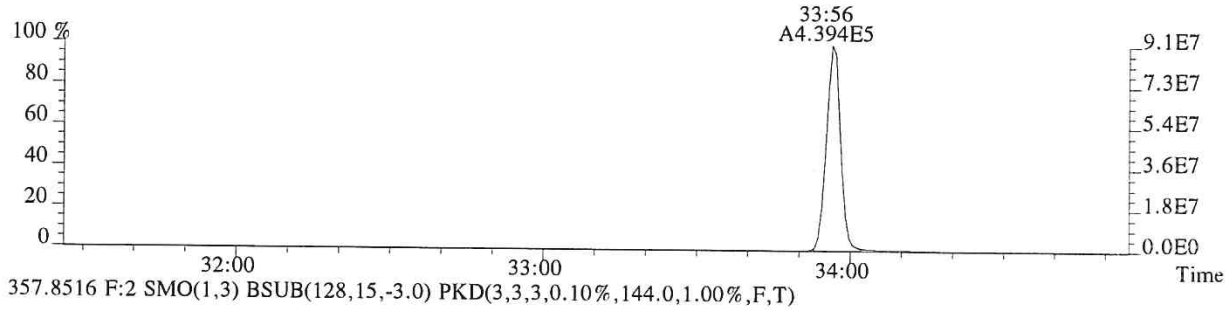


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

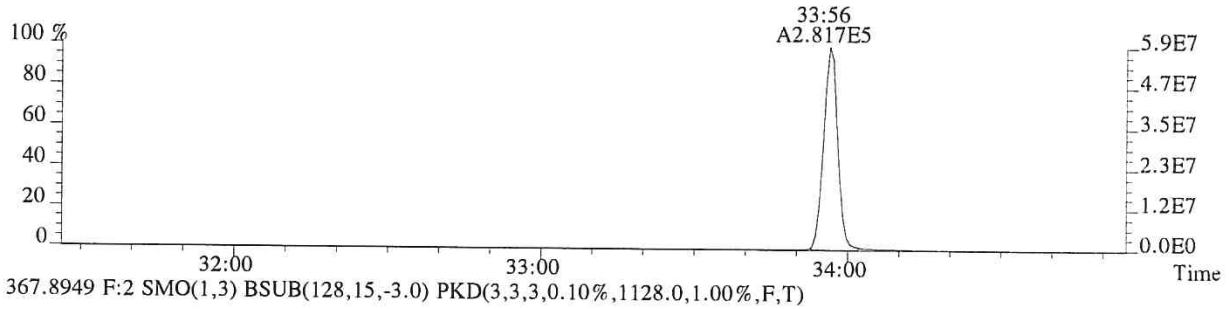


010185

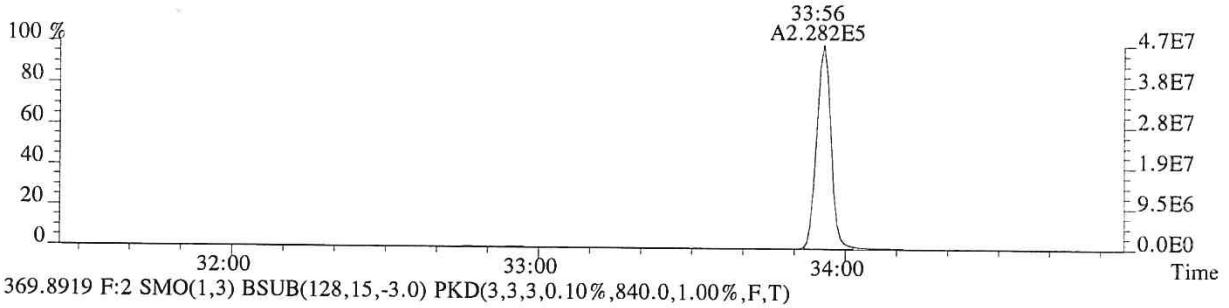
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



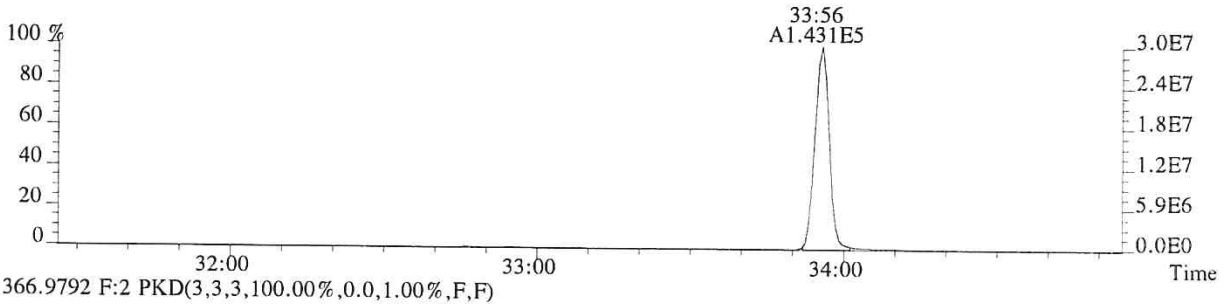
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



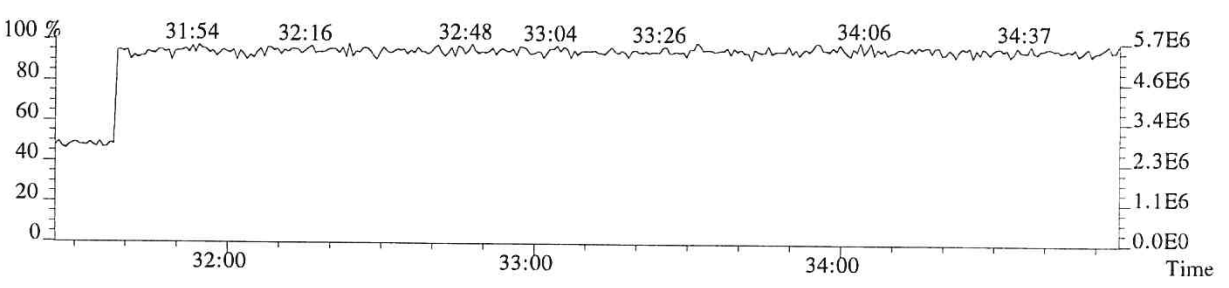
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



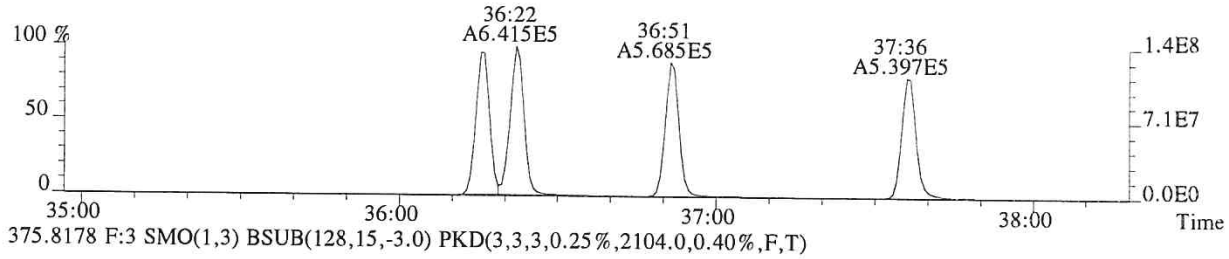
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



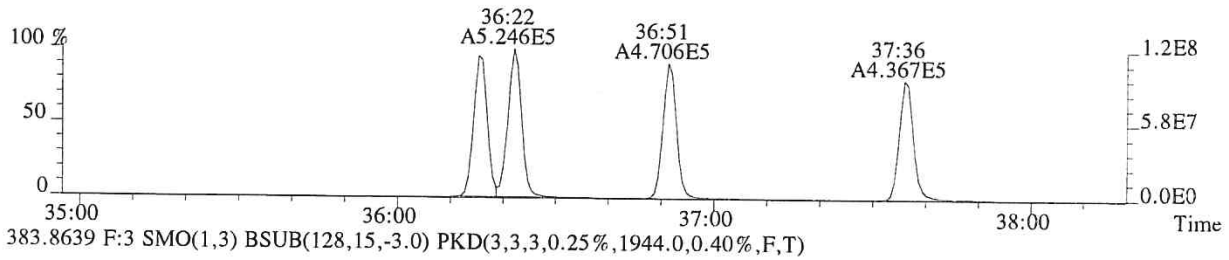
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



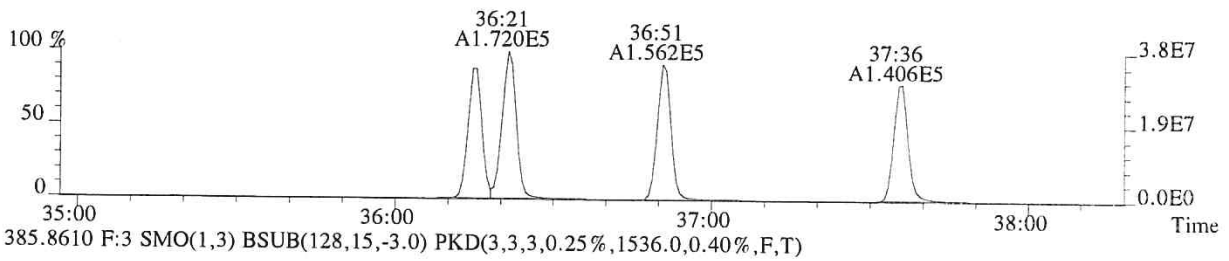
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



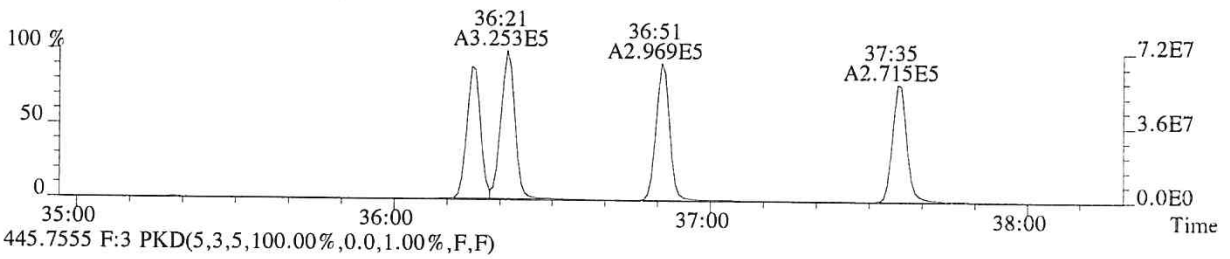
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



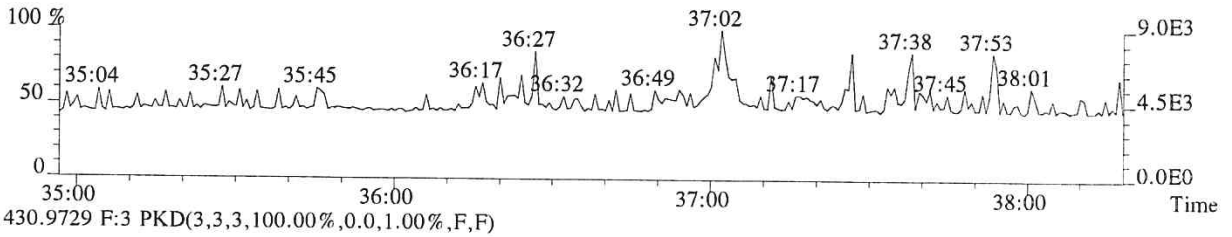
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



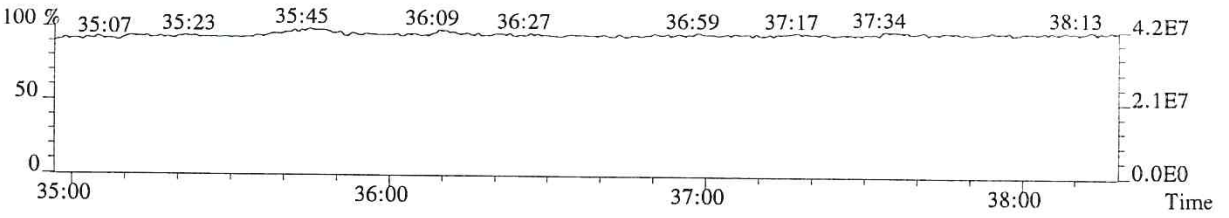
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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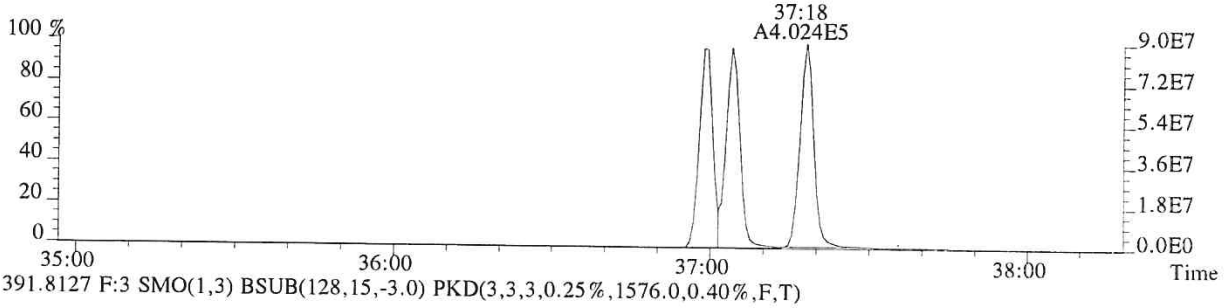
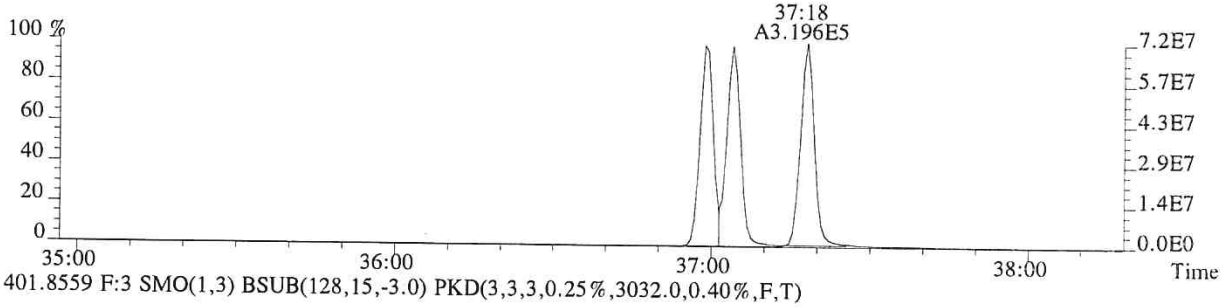
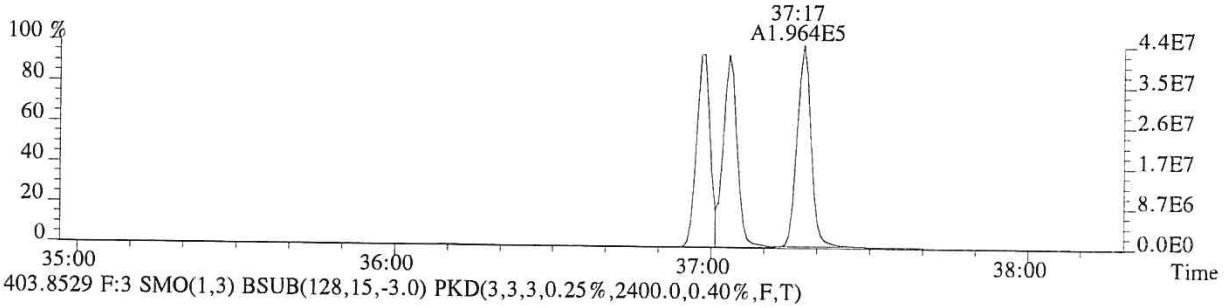
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



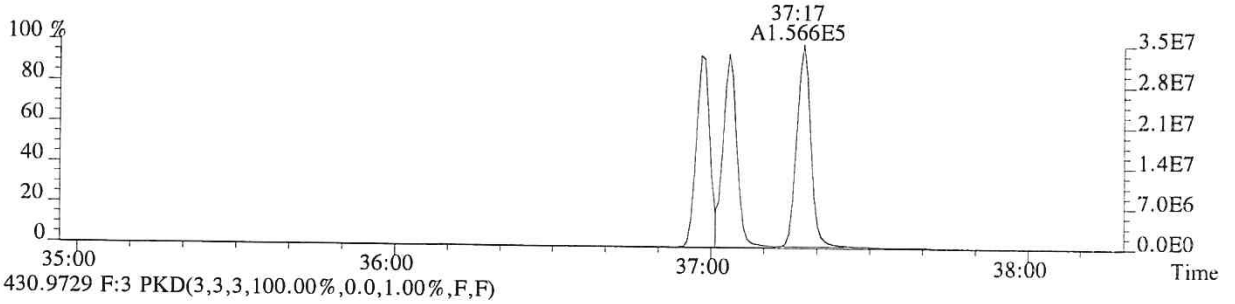
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



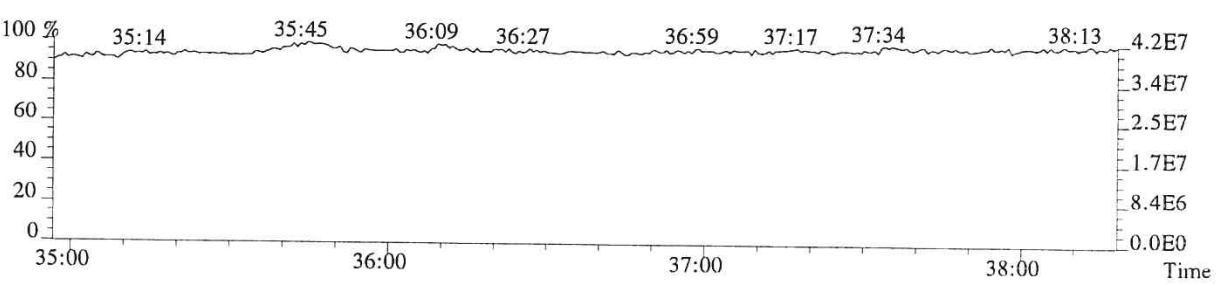
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)

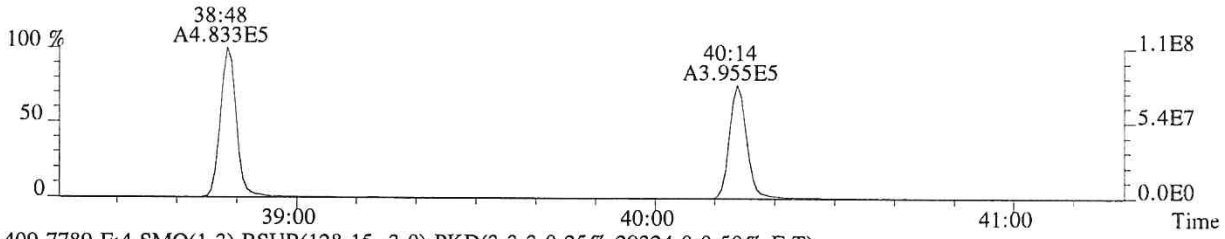


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

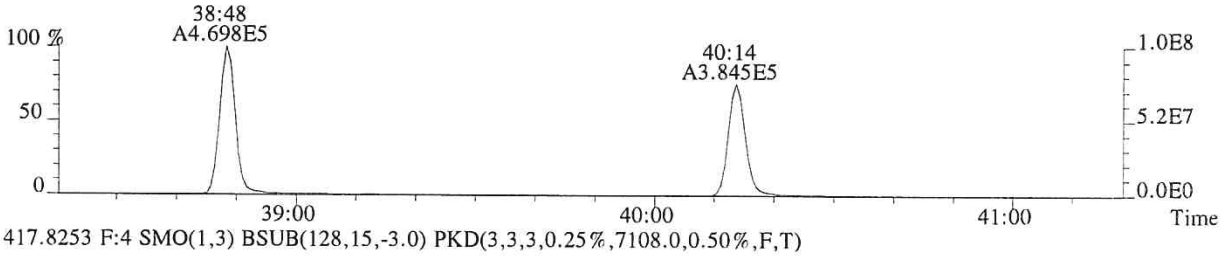


010188

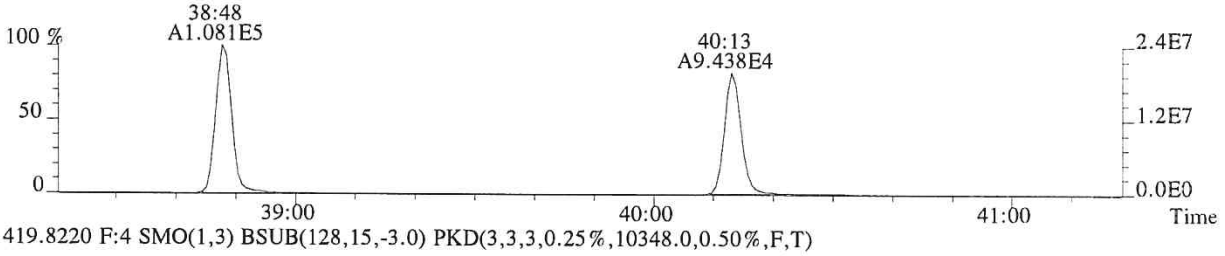
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



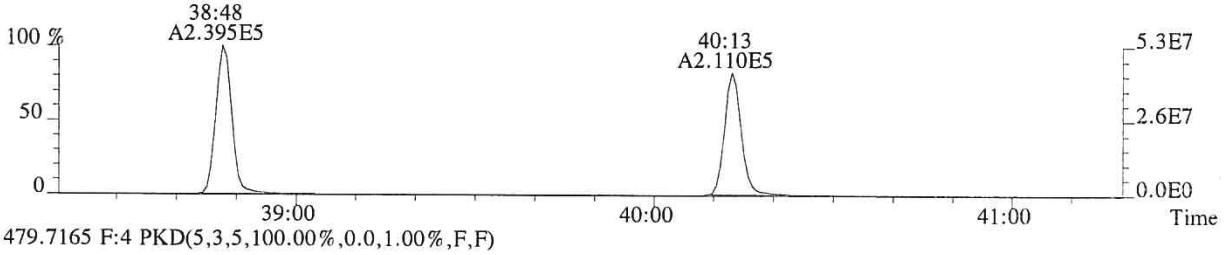
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



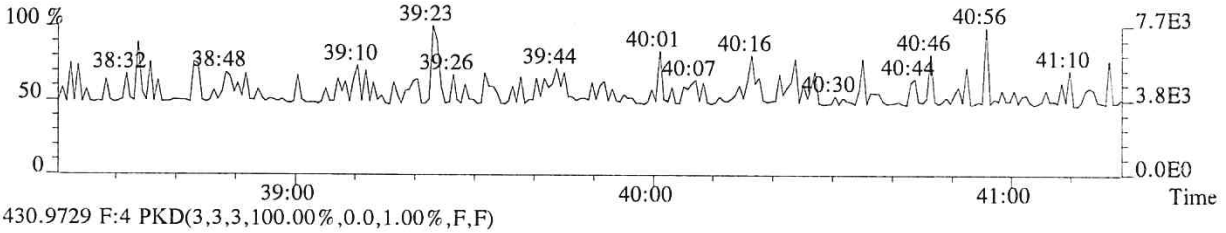
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



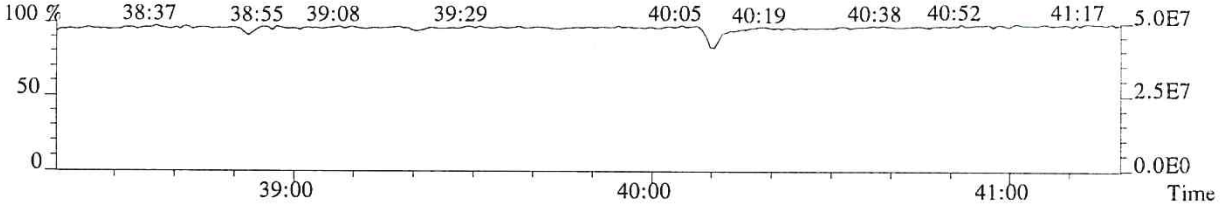
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

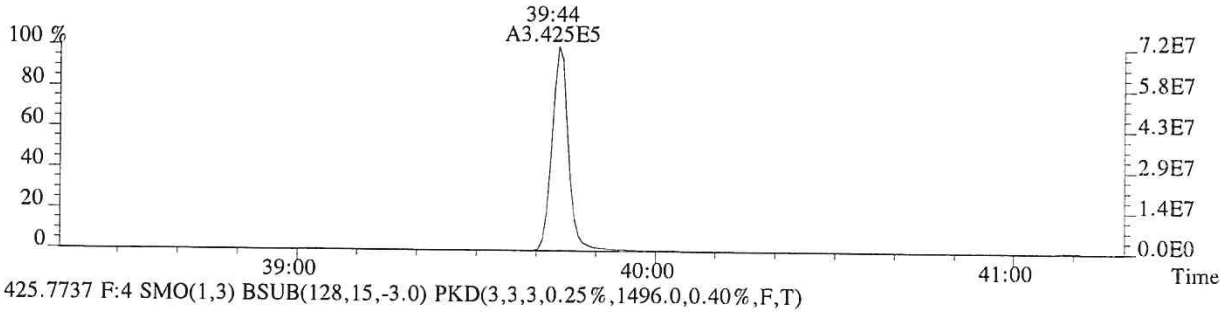


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

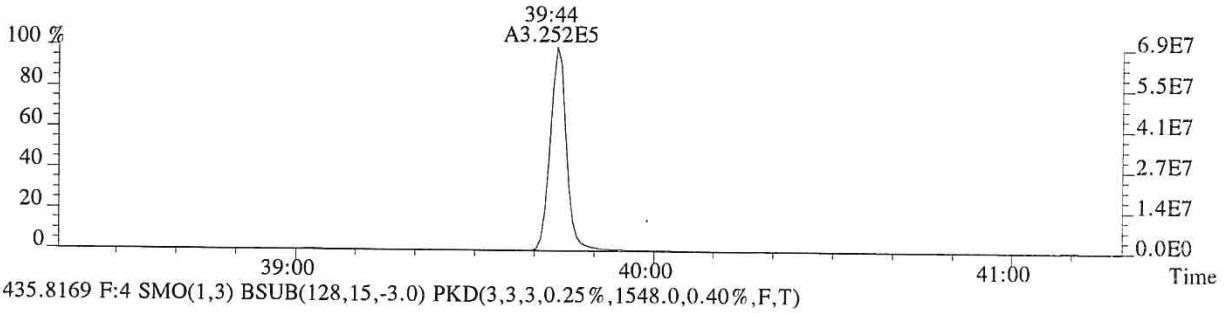


010189

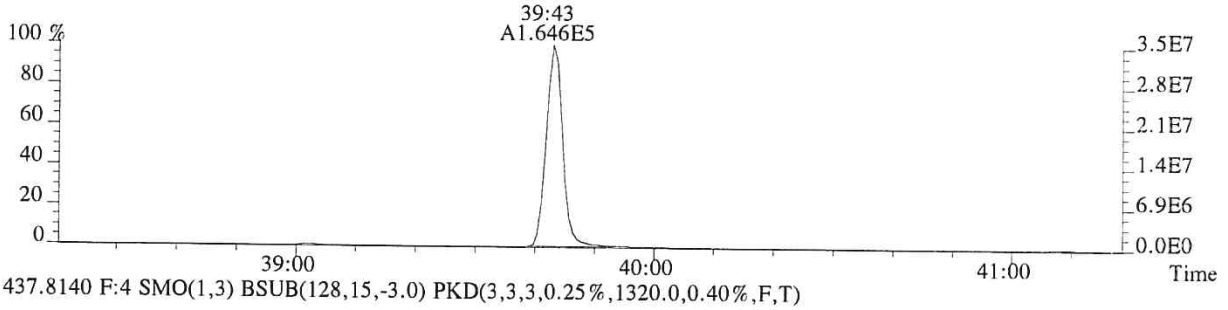
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



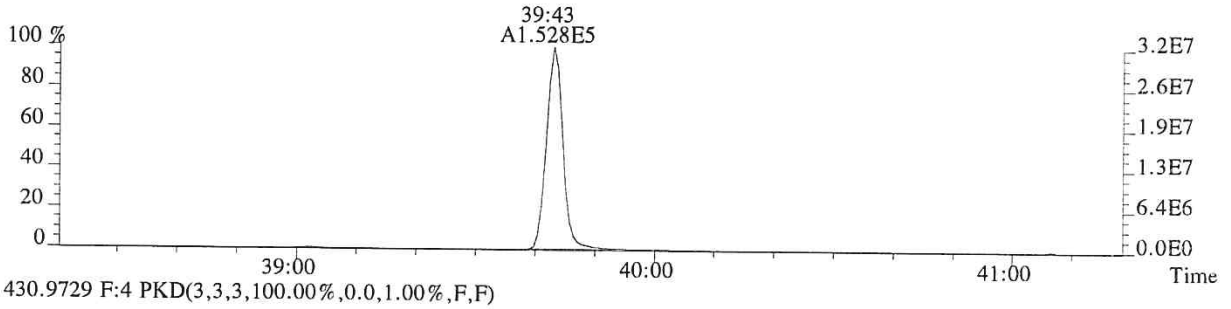
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



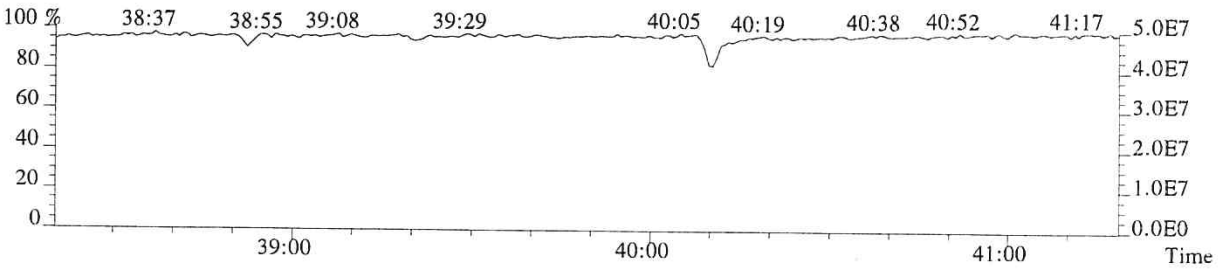
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)

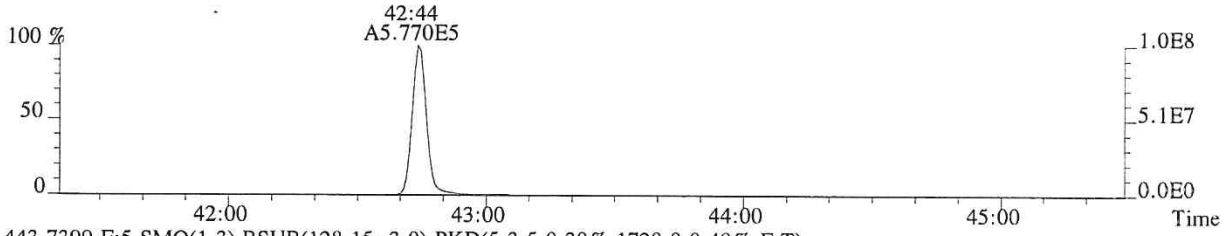


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

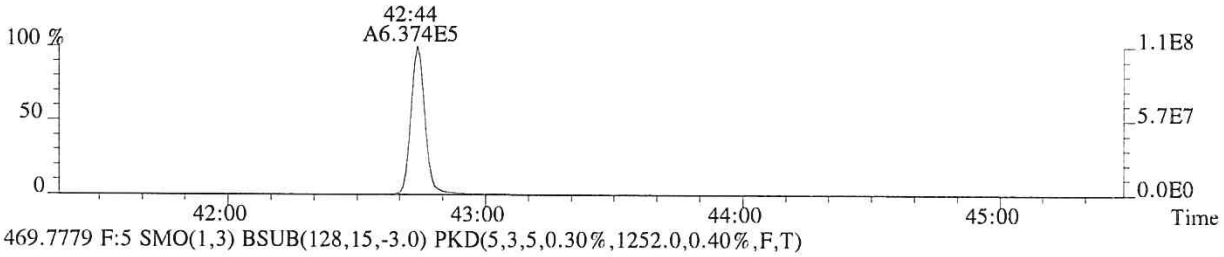


010190

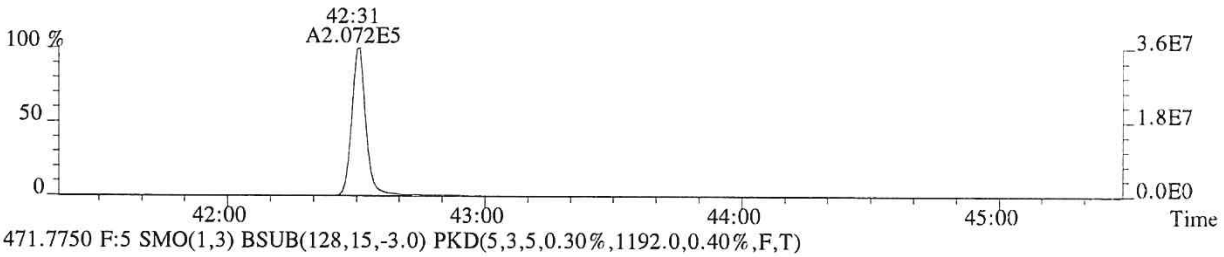
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



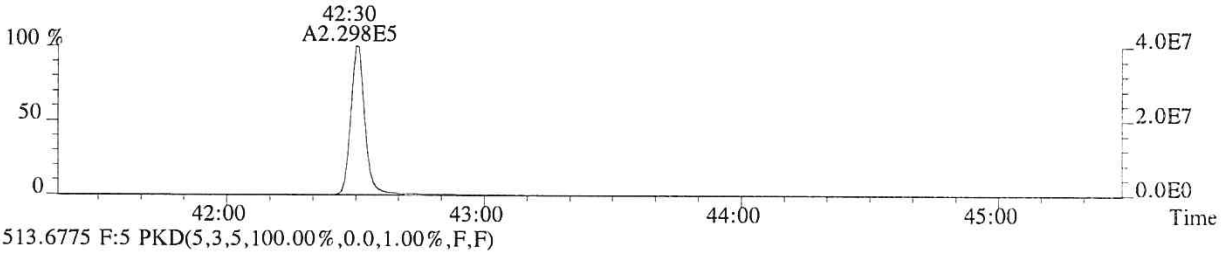
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



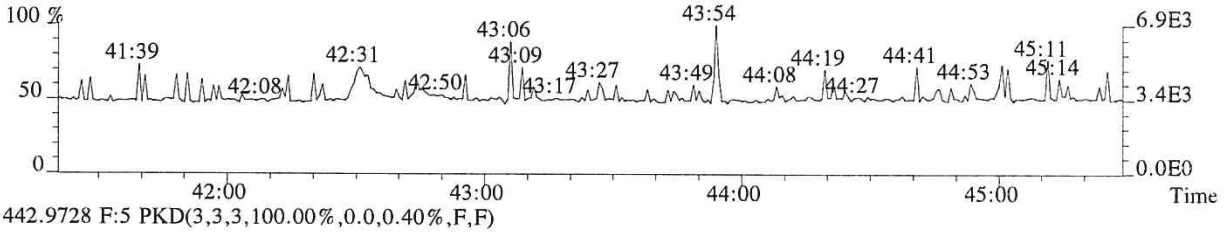
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



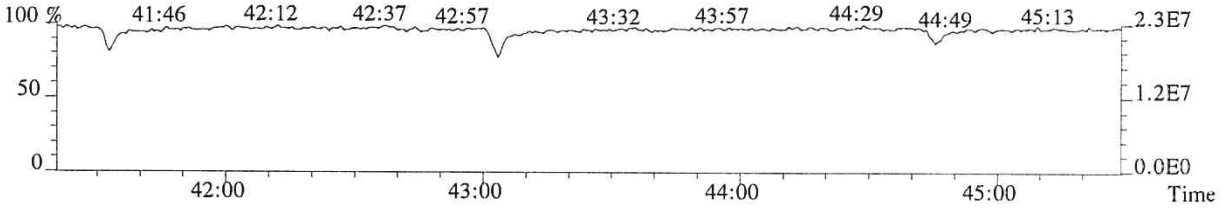
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

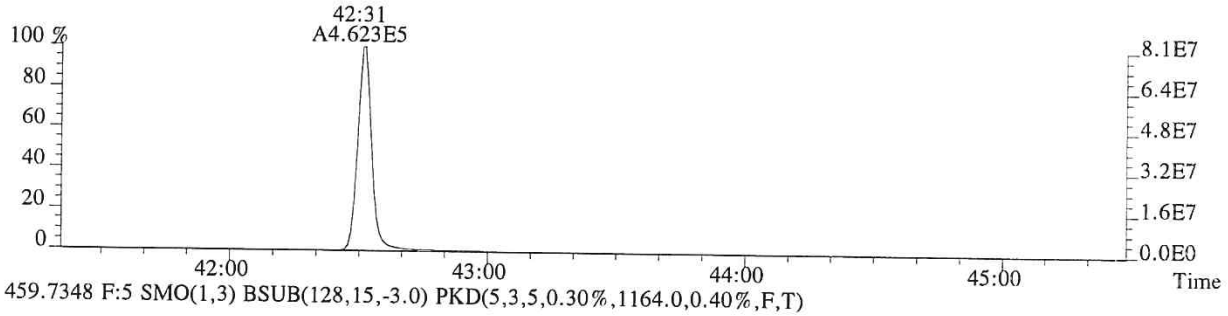


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

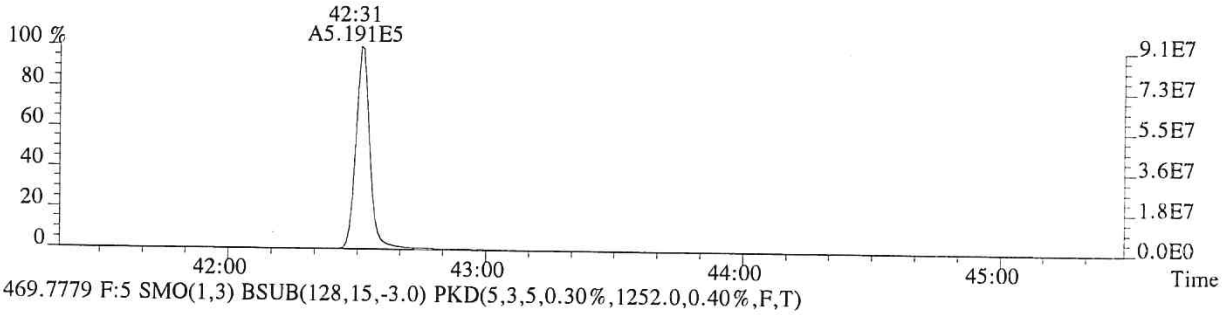


010191

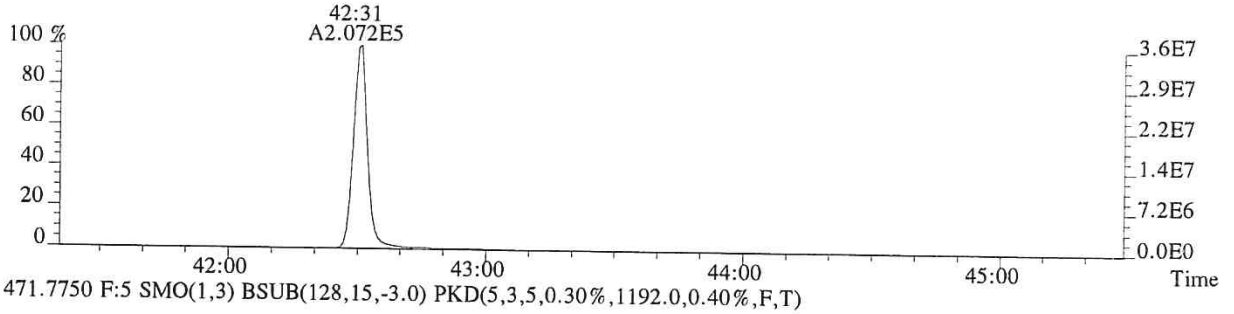
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



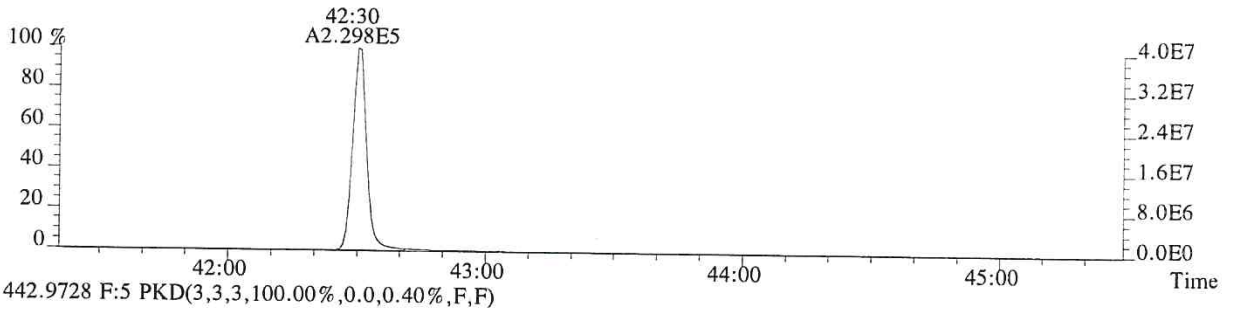
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



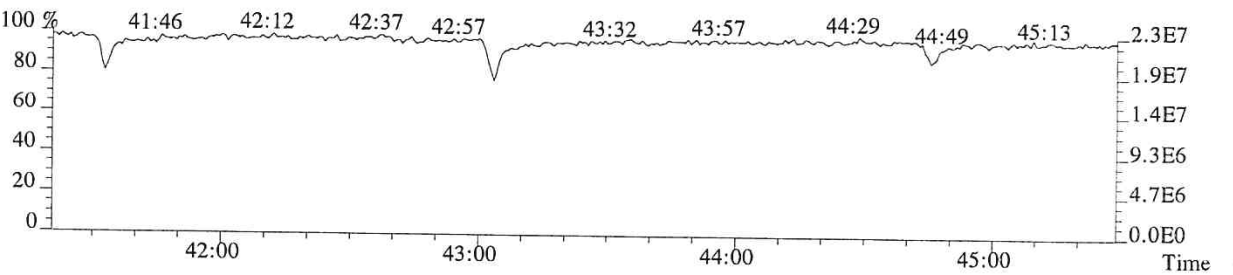
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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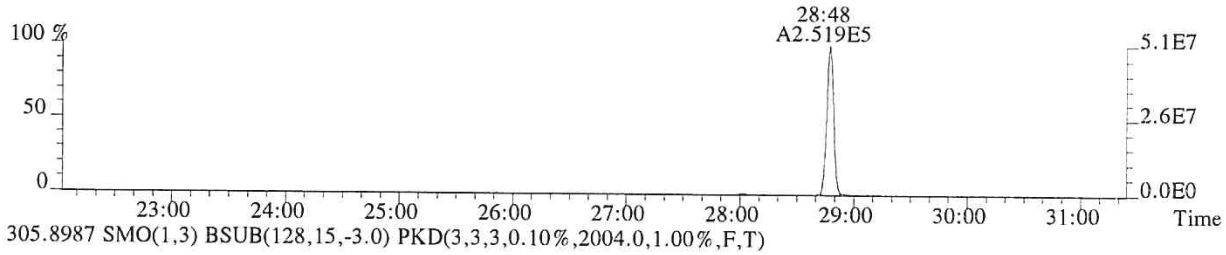
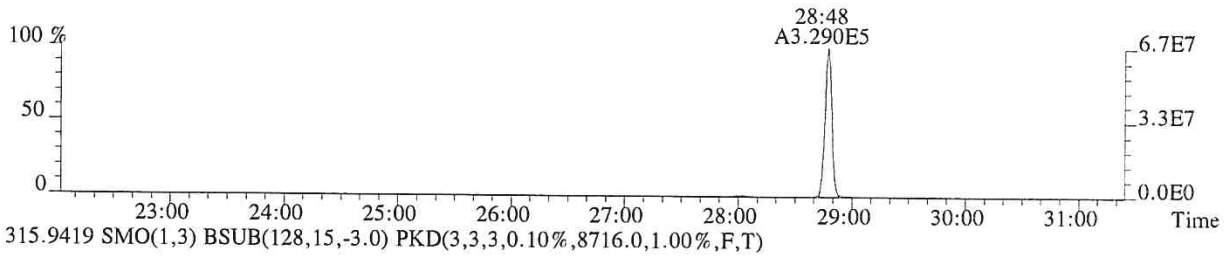
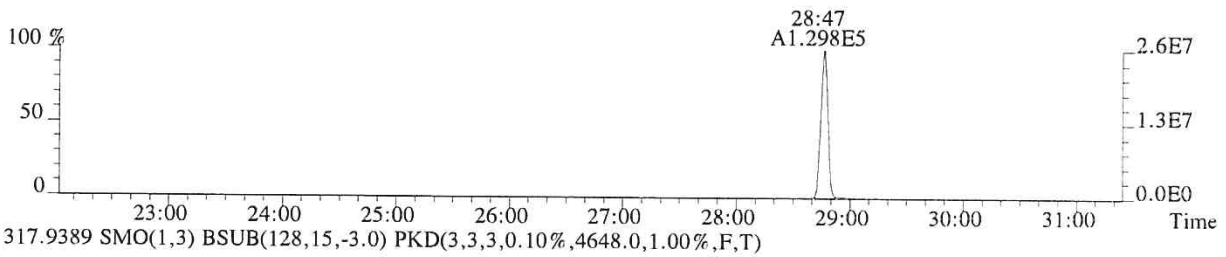
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



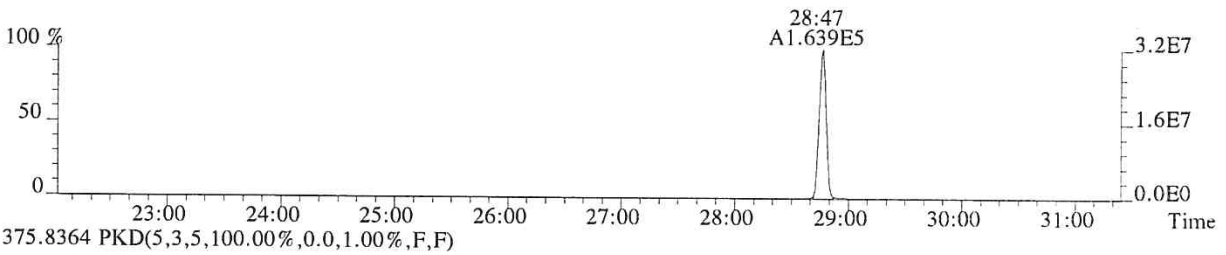
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



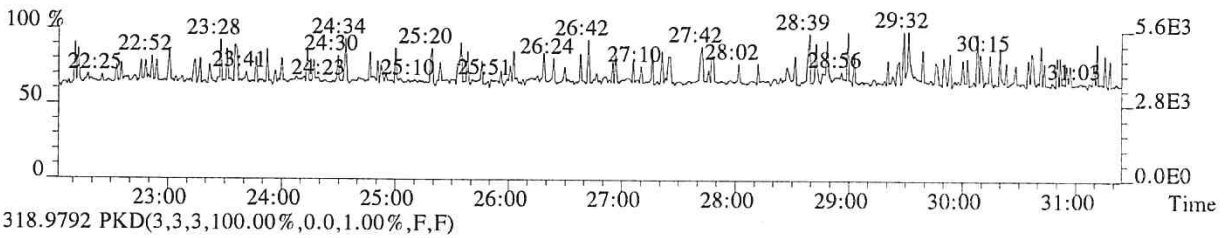
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



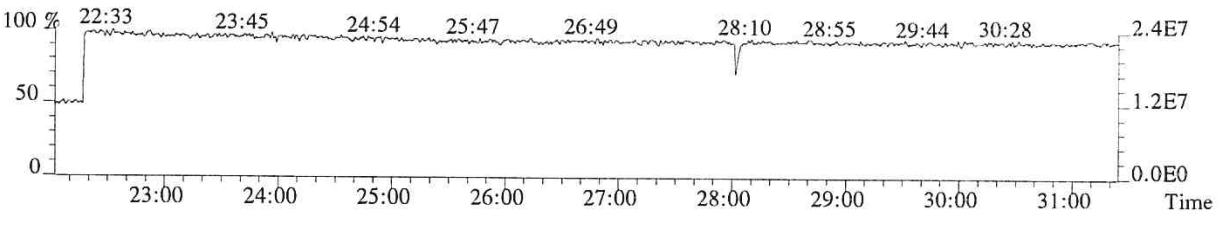
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

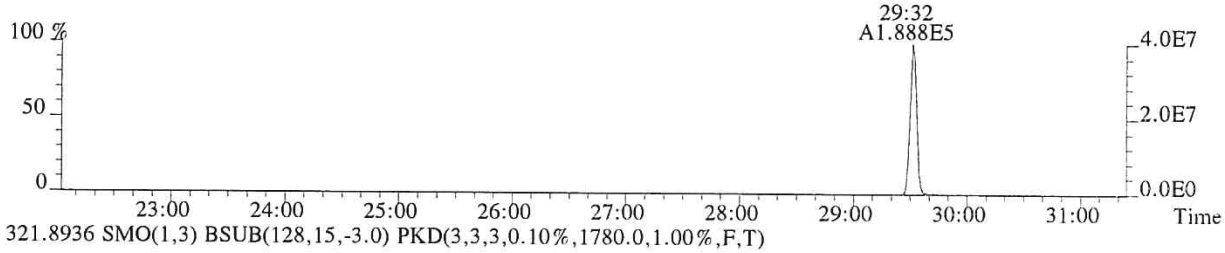


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

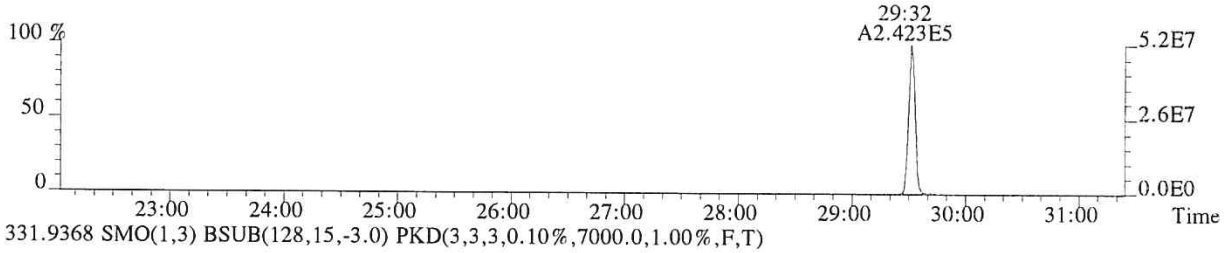


010195

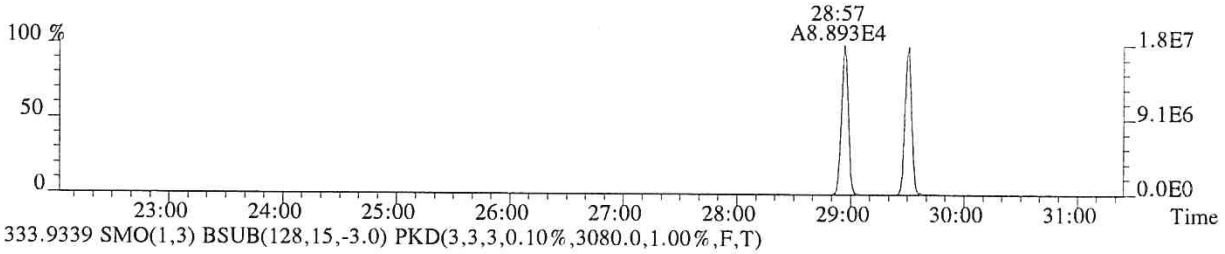
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



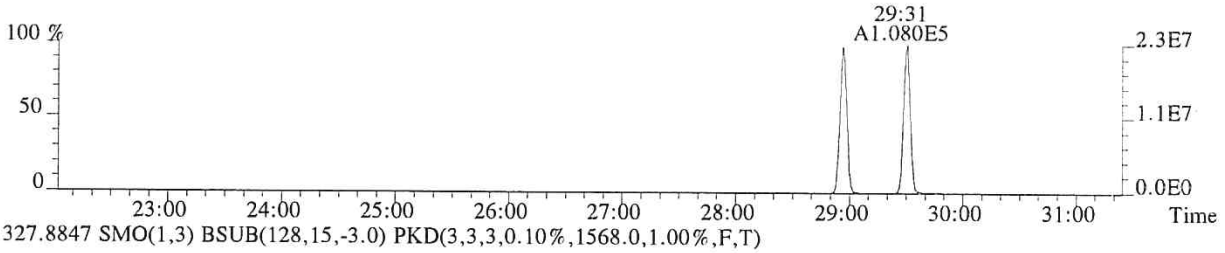
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



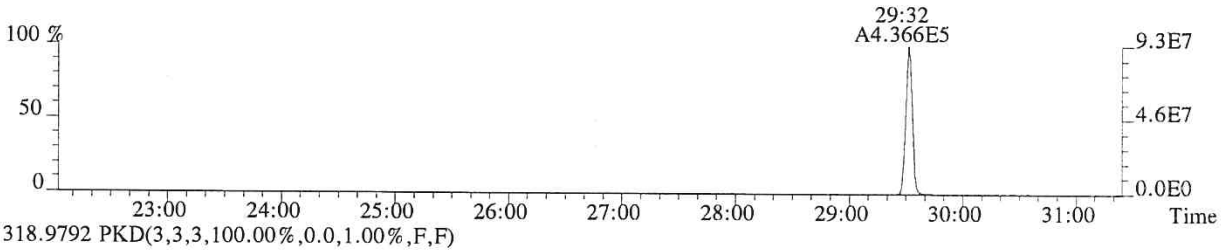
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



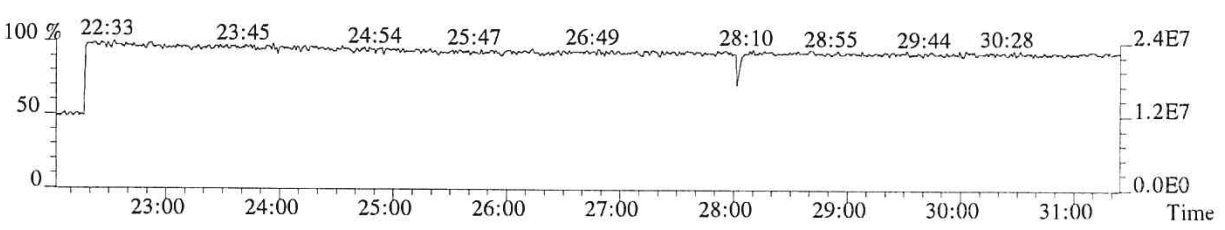
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)

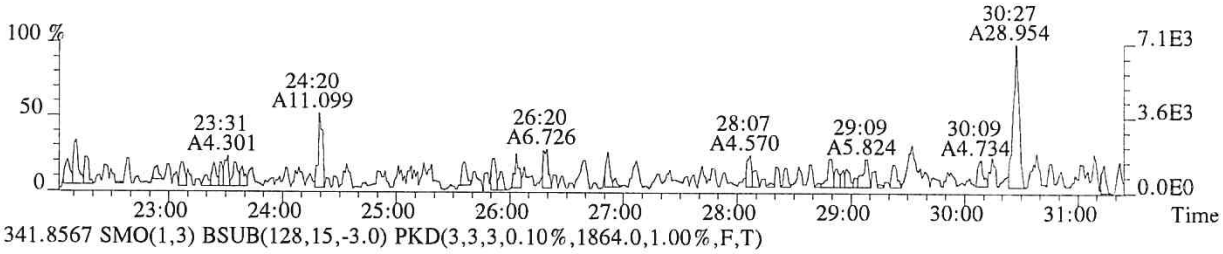


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

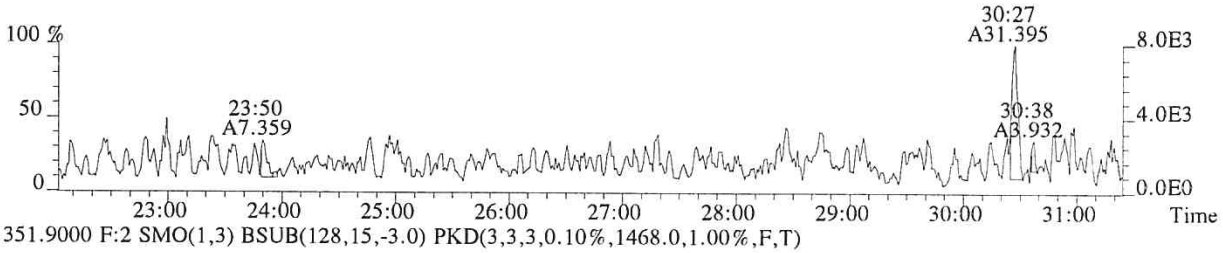


010196

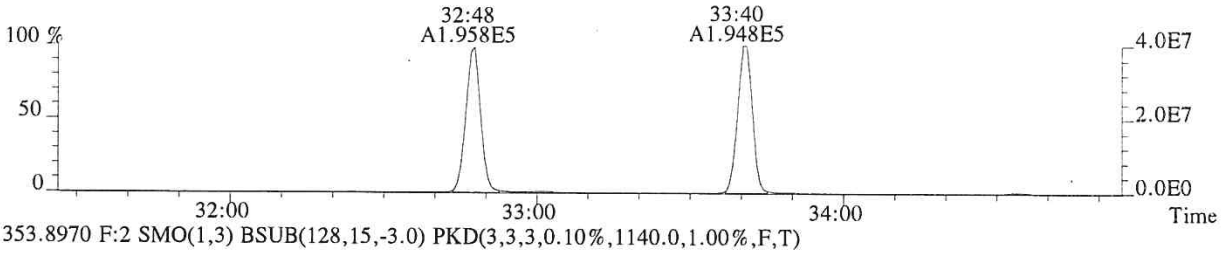
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



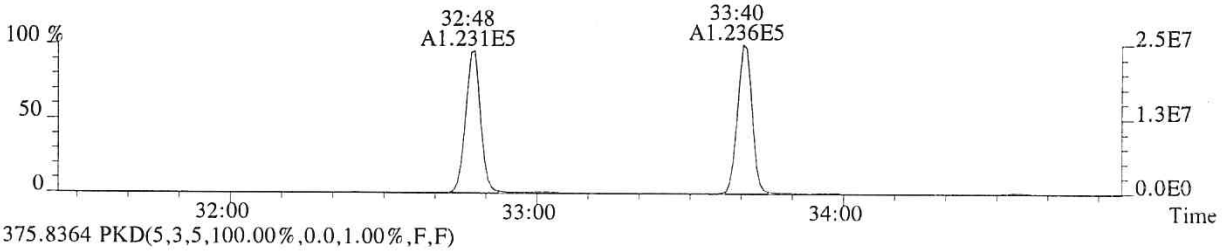
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



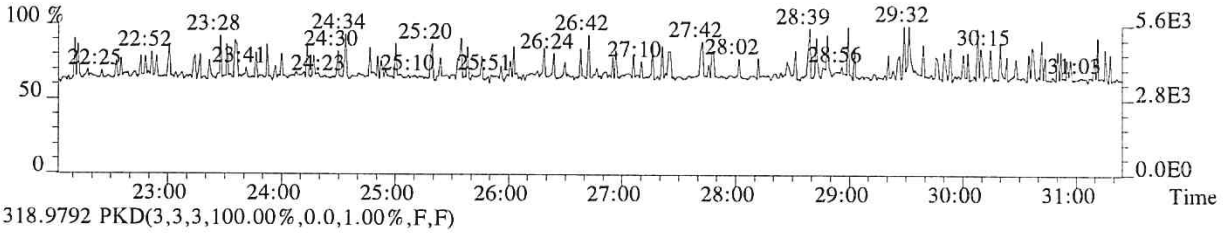
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



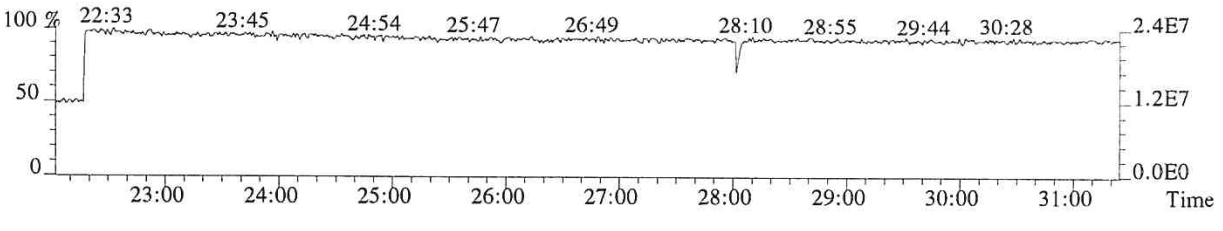
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



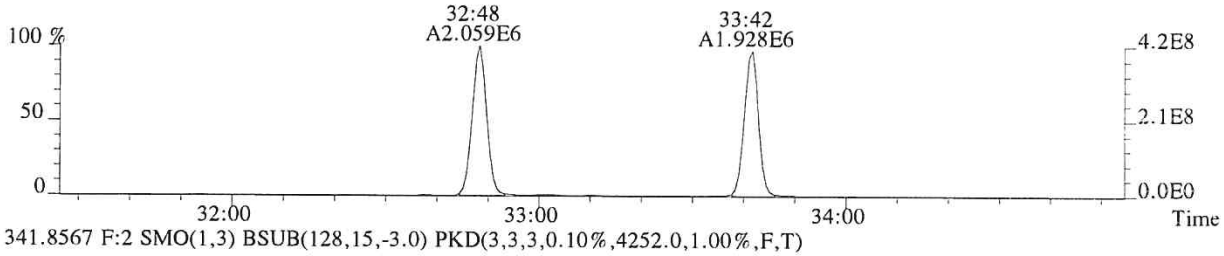
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



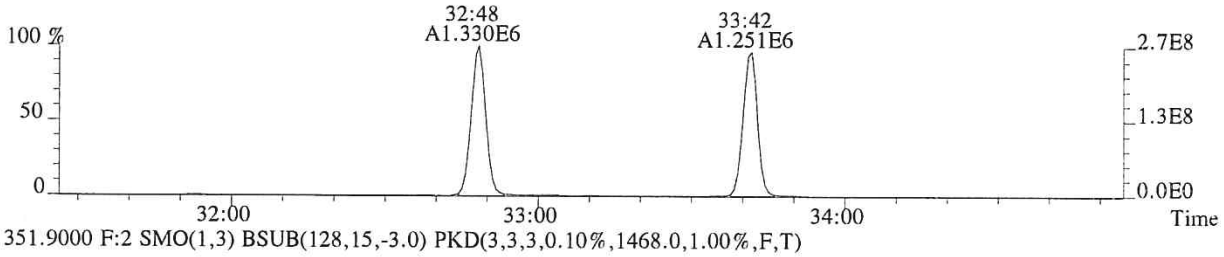
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



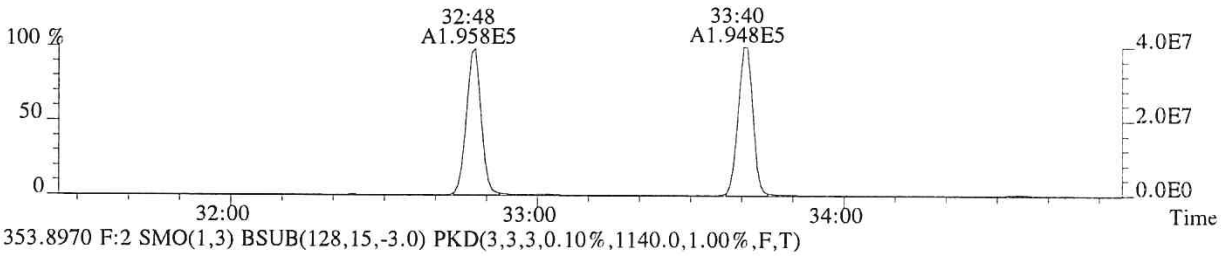
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



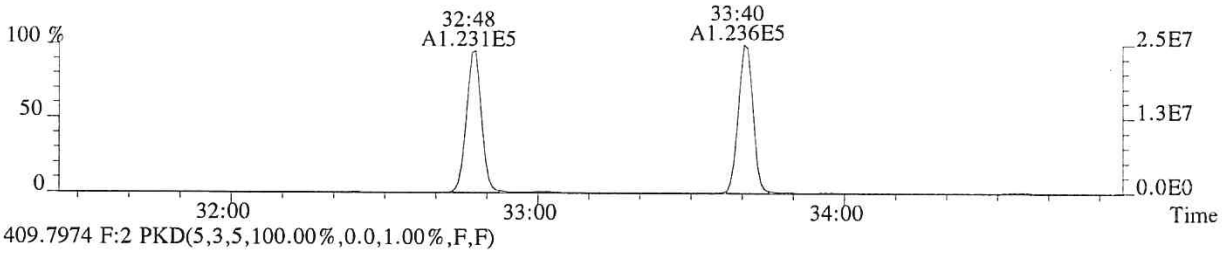
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



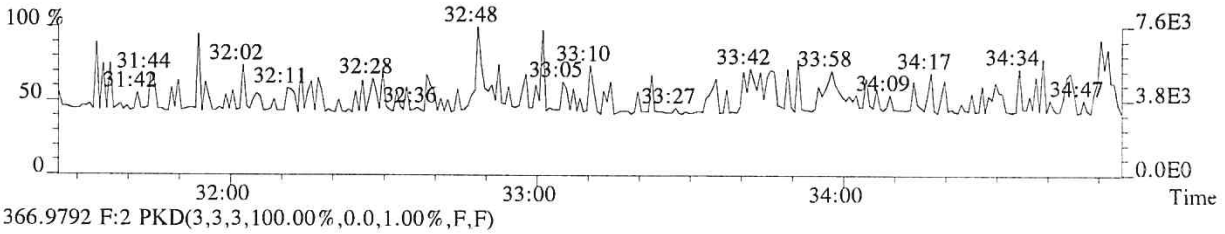
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



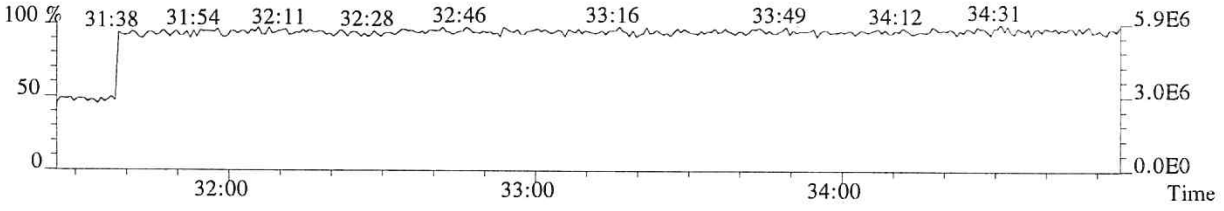
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

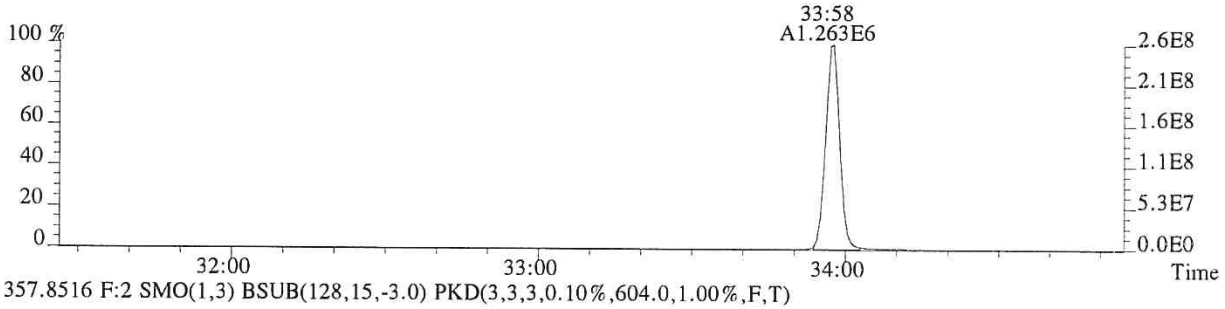


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

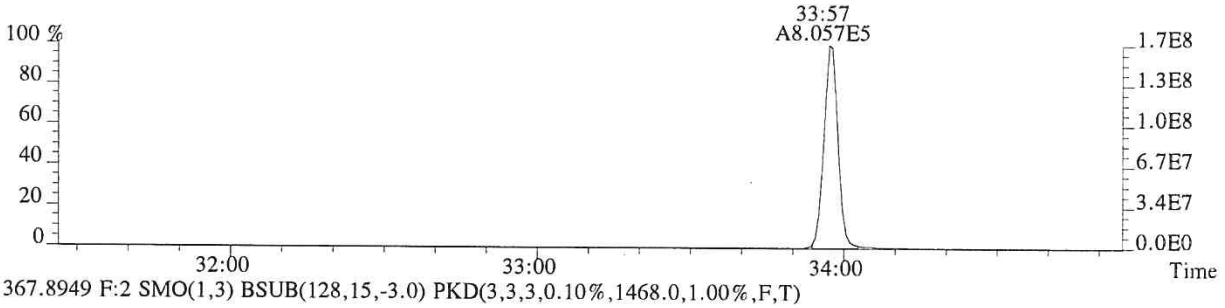


010198

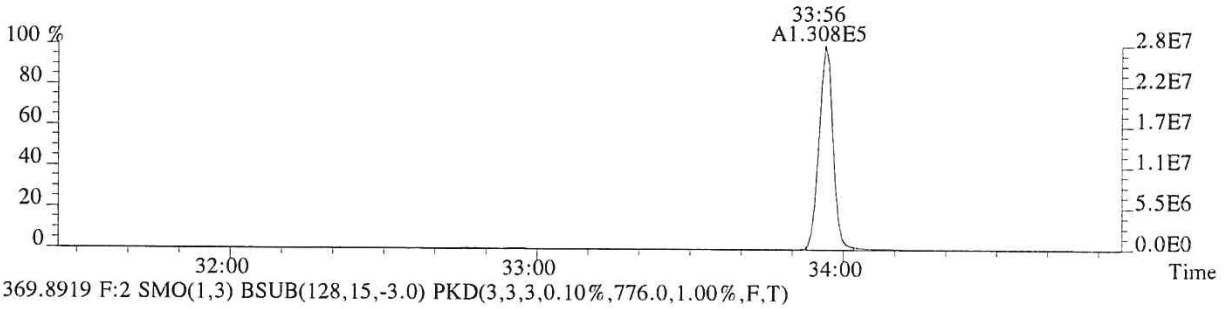
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



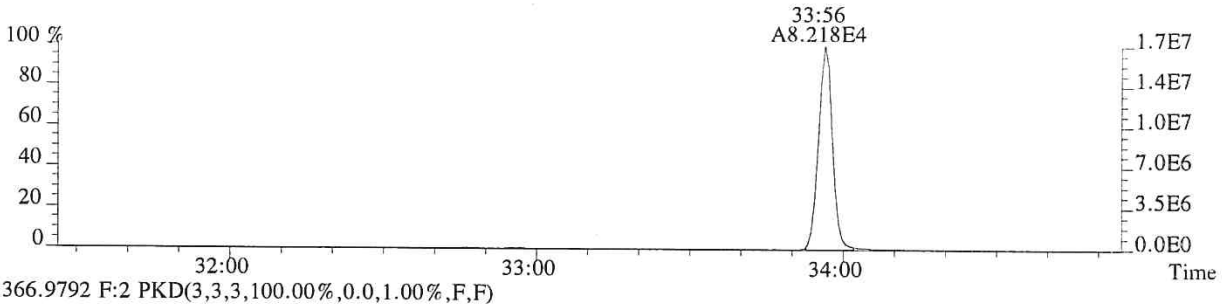
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



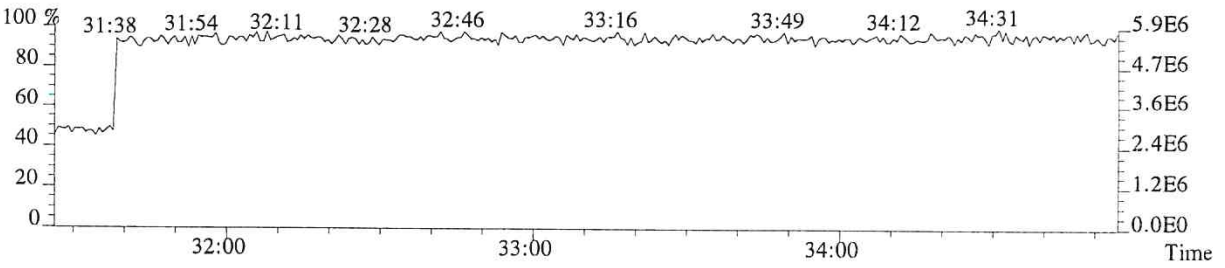
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



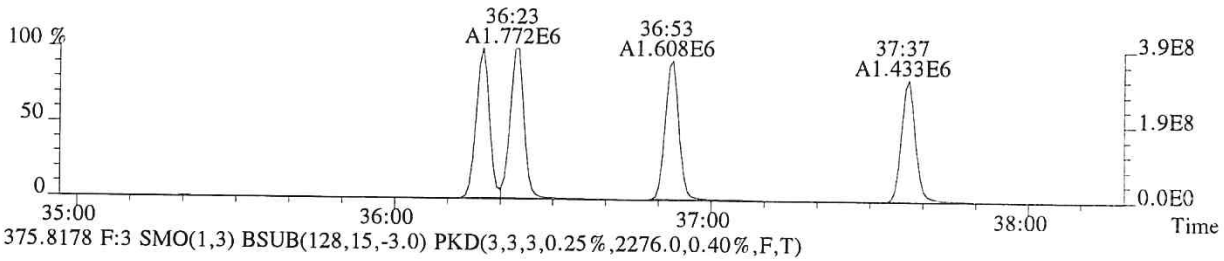
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



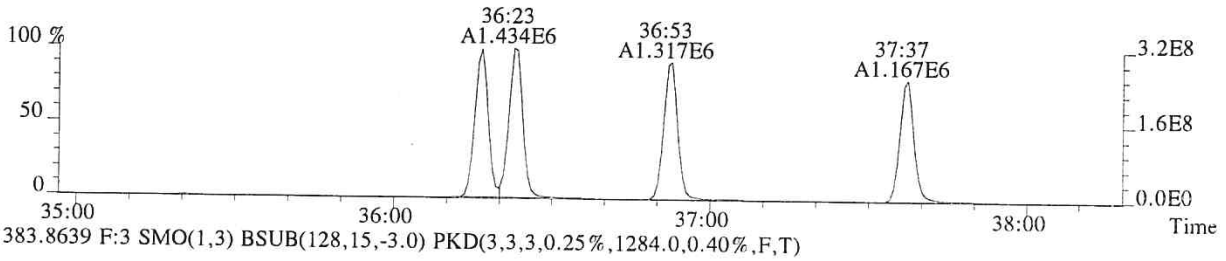
010199

File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657

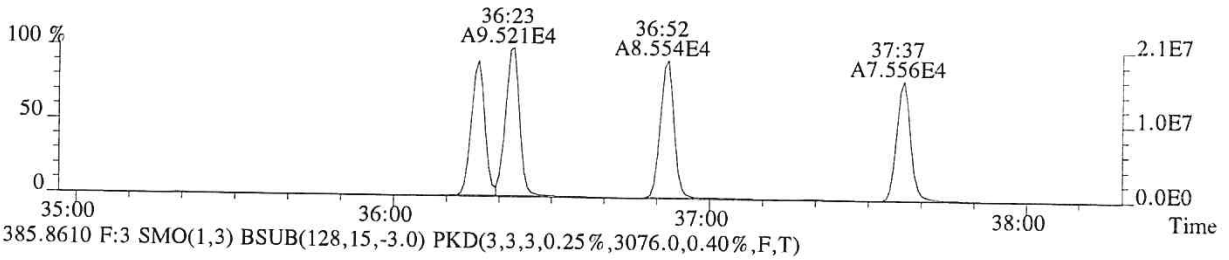
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



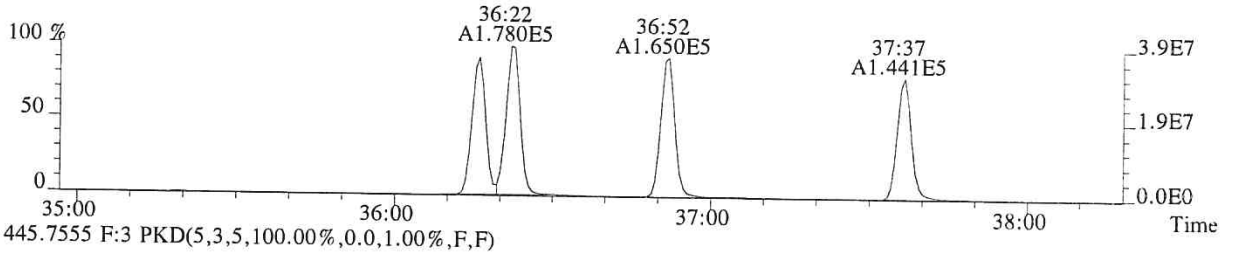
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



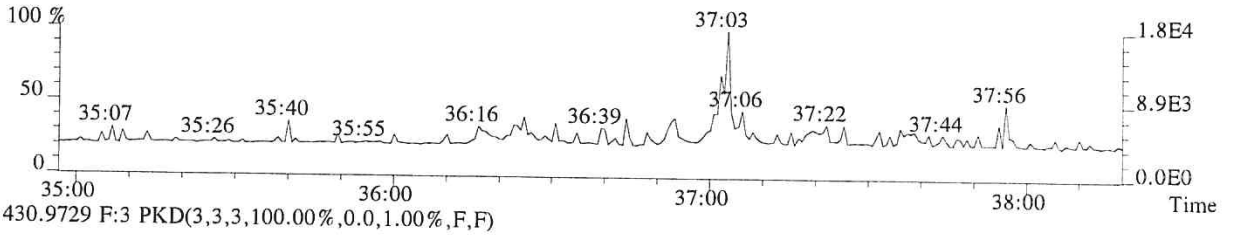
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



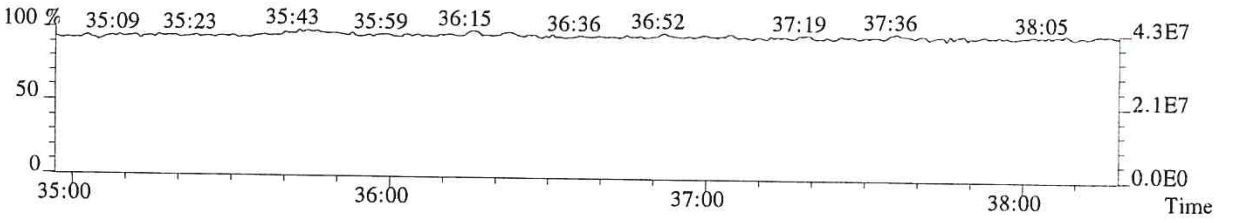
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



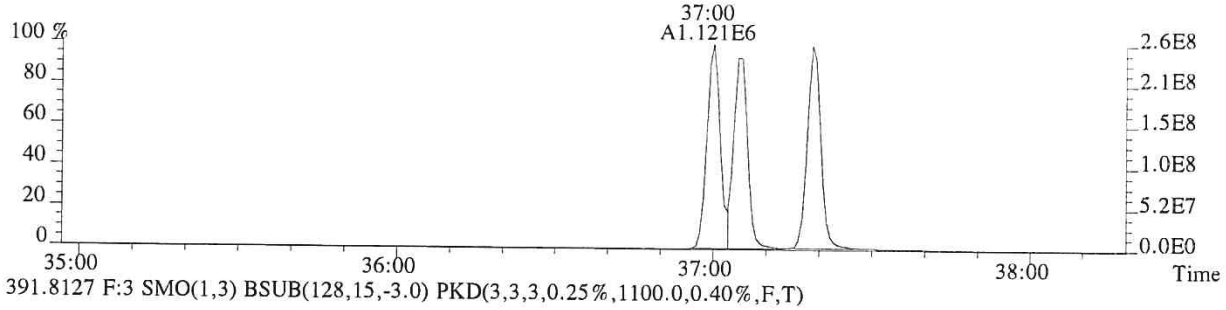
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



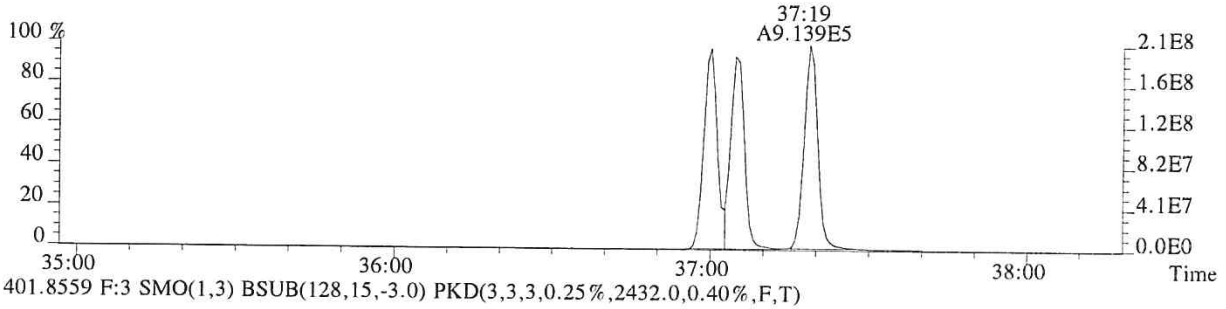
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



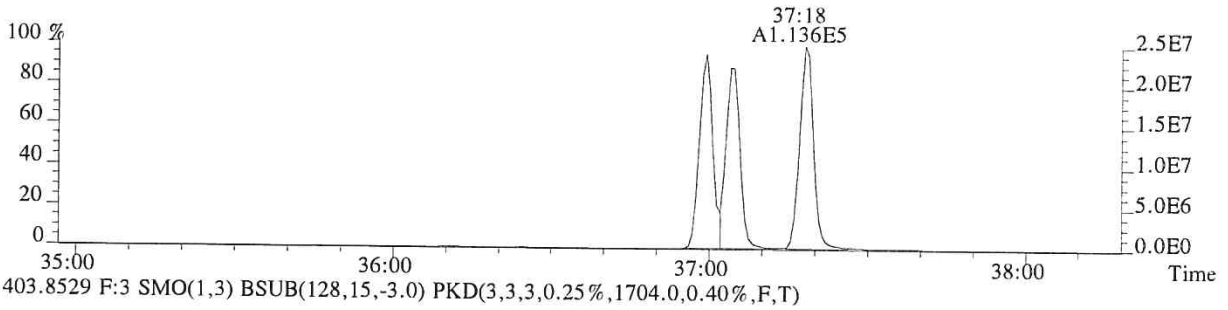
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



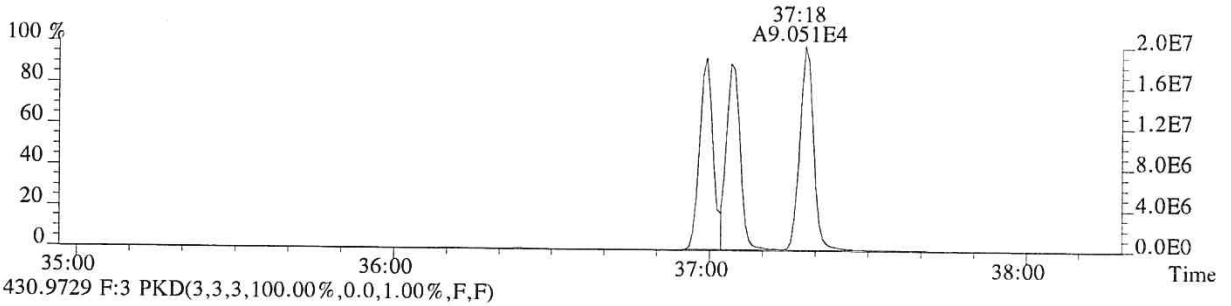
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



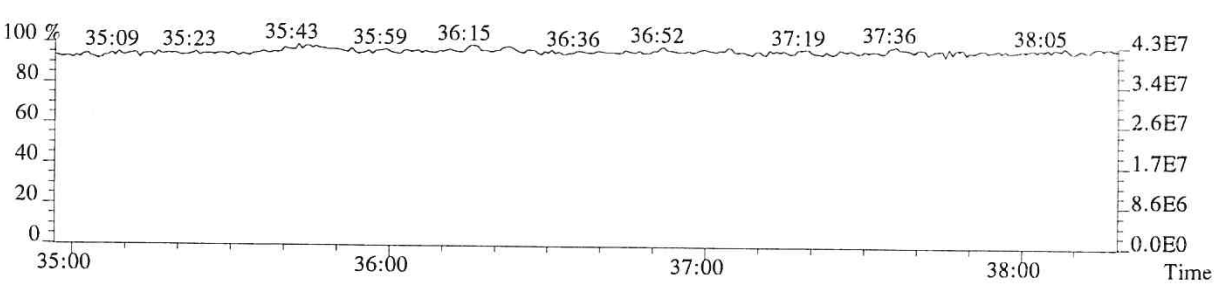
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)

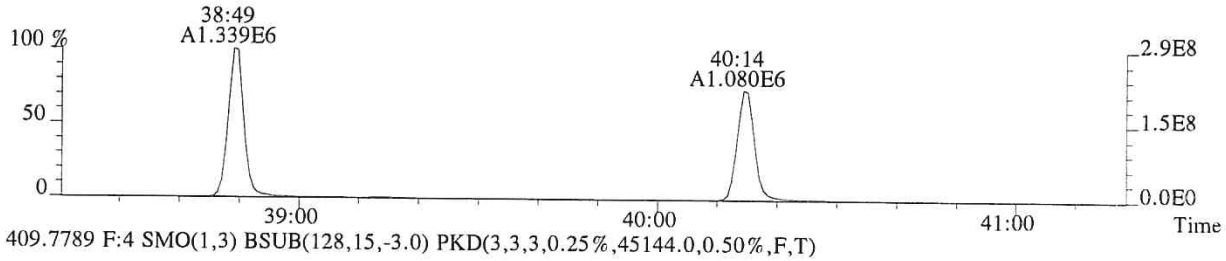


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

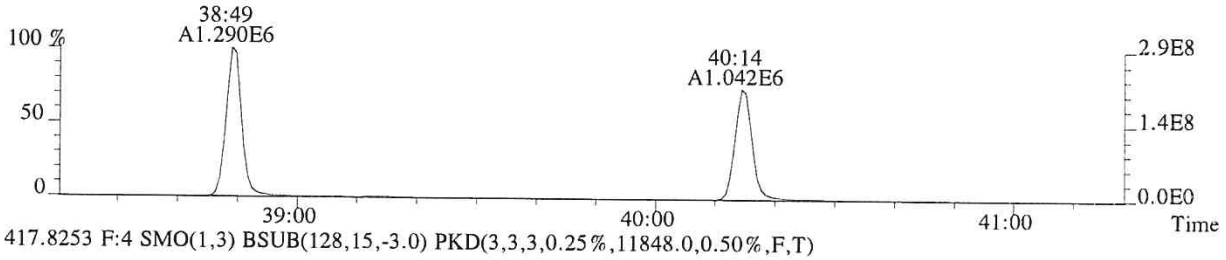


010201

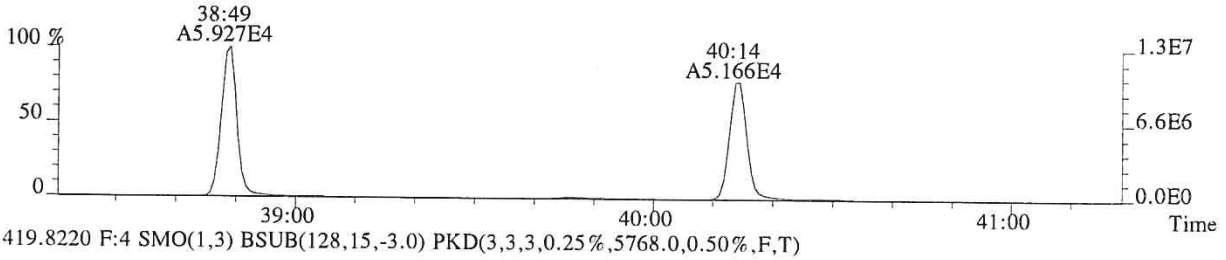
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



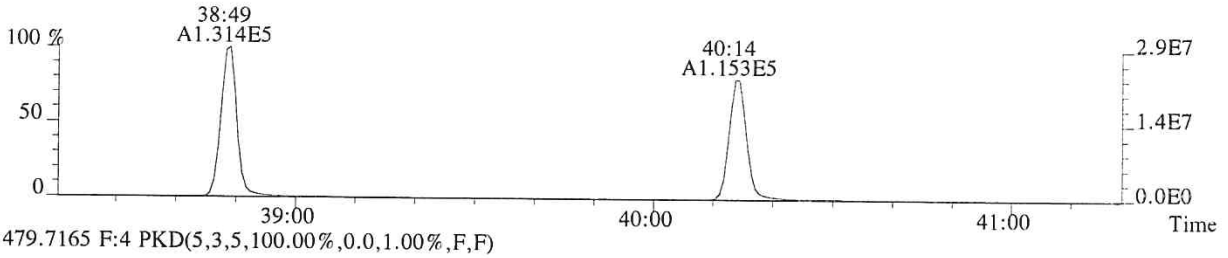
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



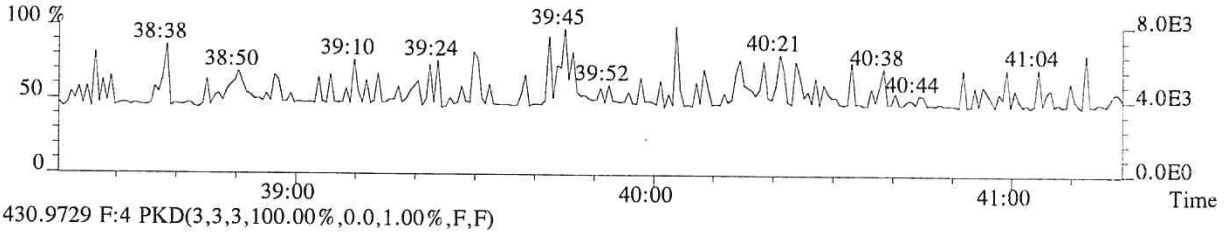
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



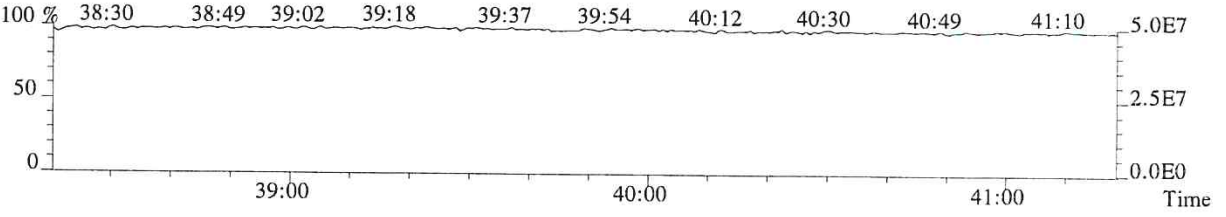
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

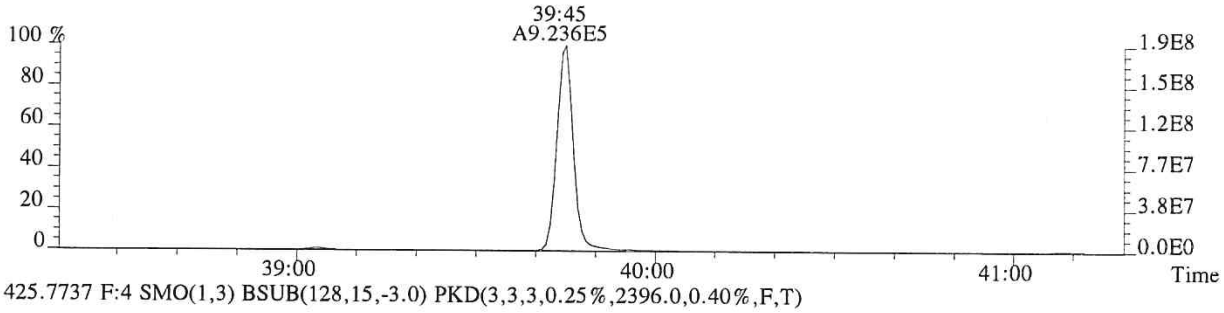


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

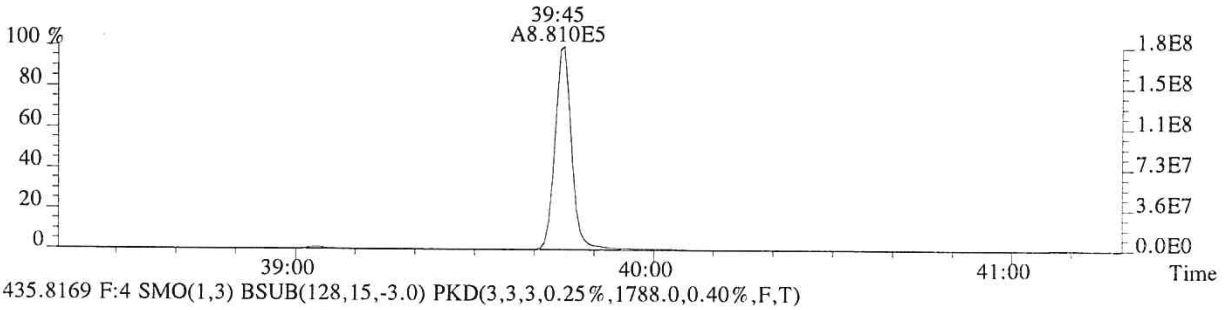


010202

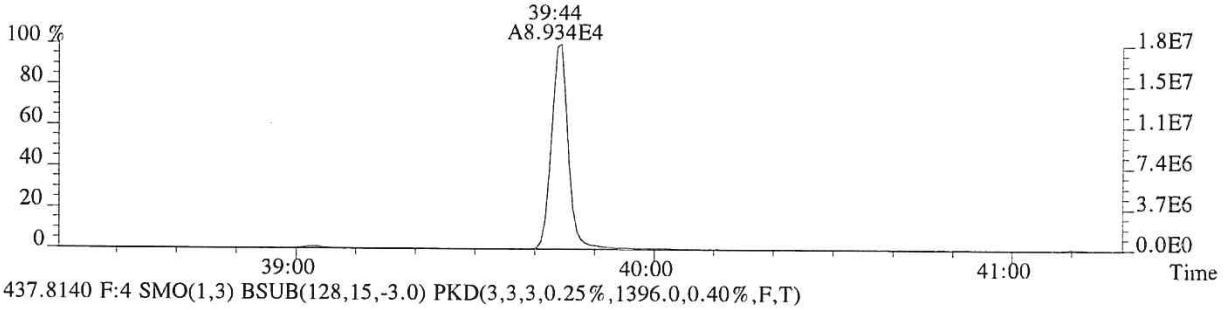
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



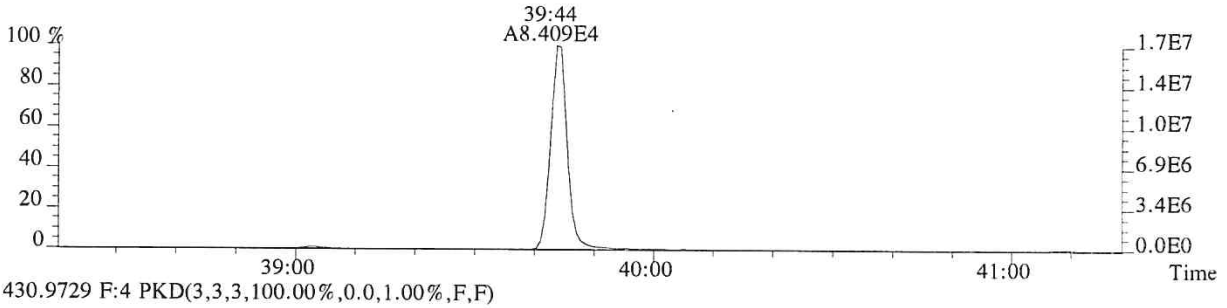
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



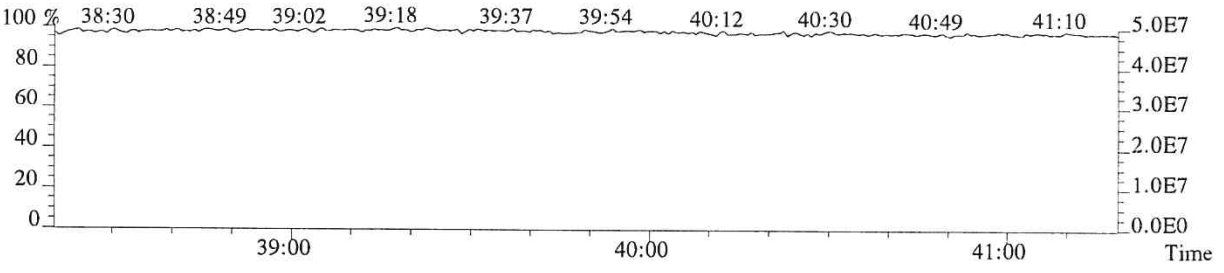
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)

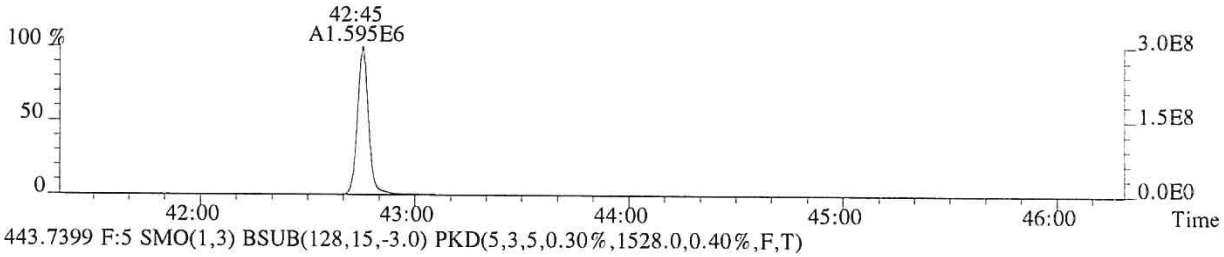


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

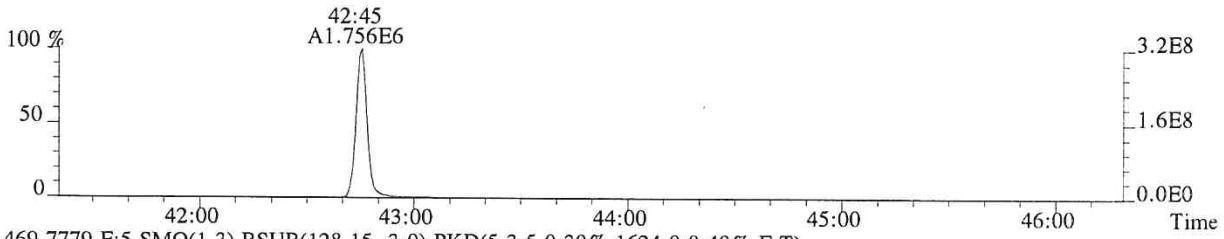


010203

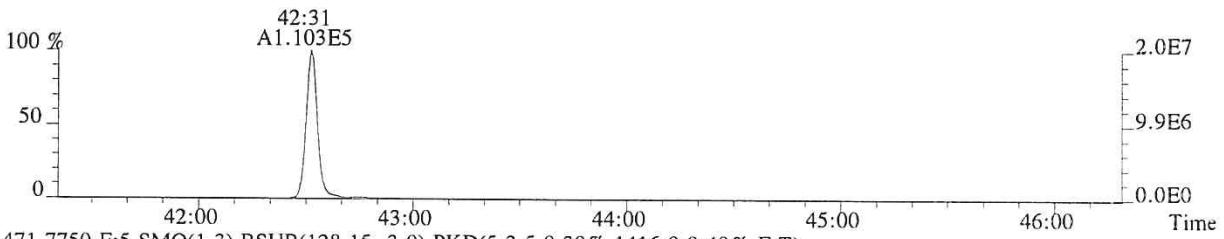
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



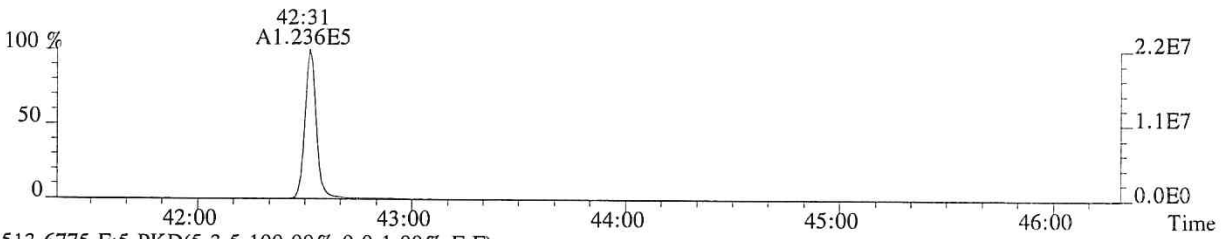
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



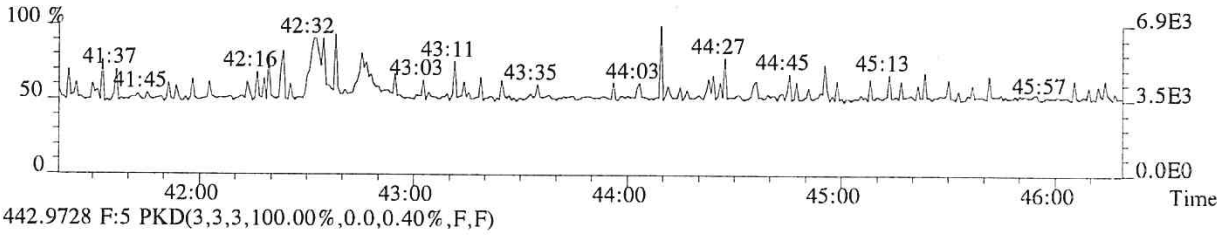
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



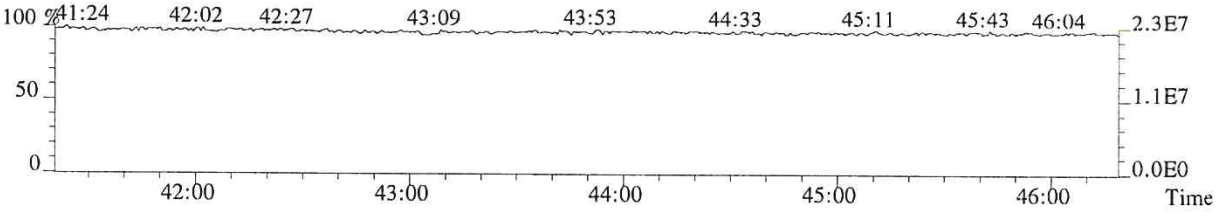
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

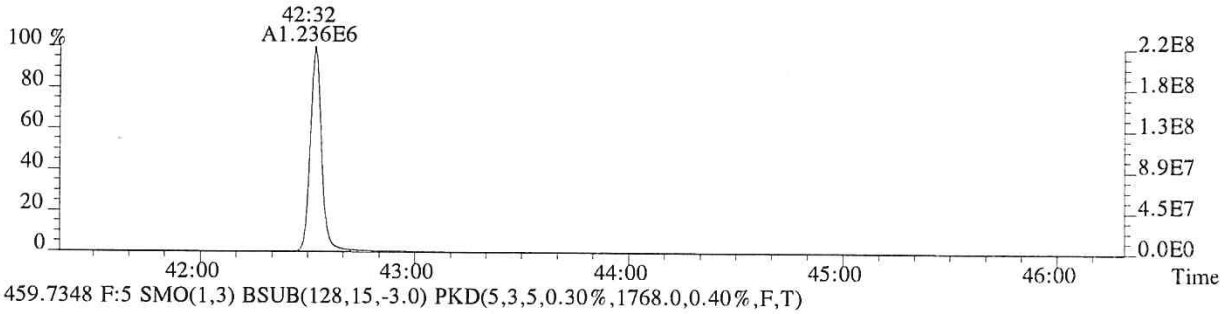


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

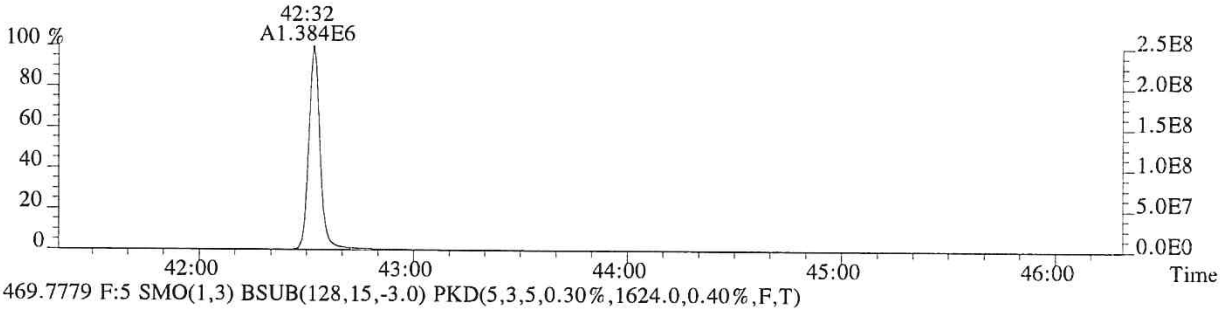


010204

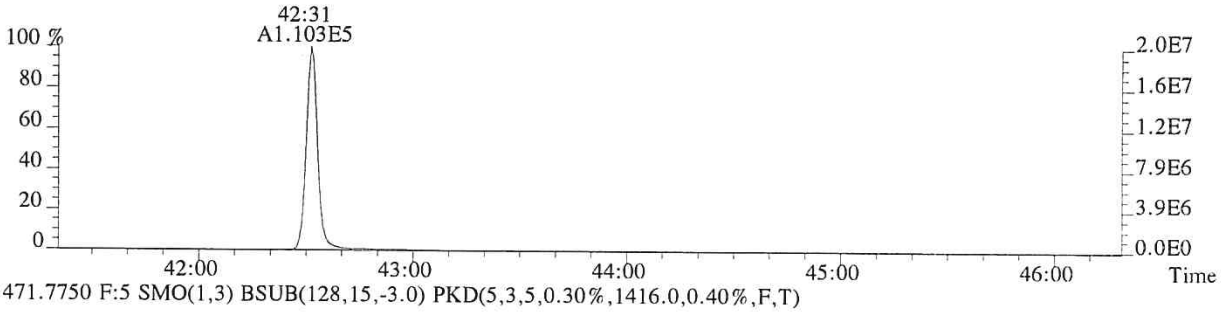
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



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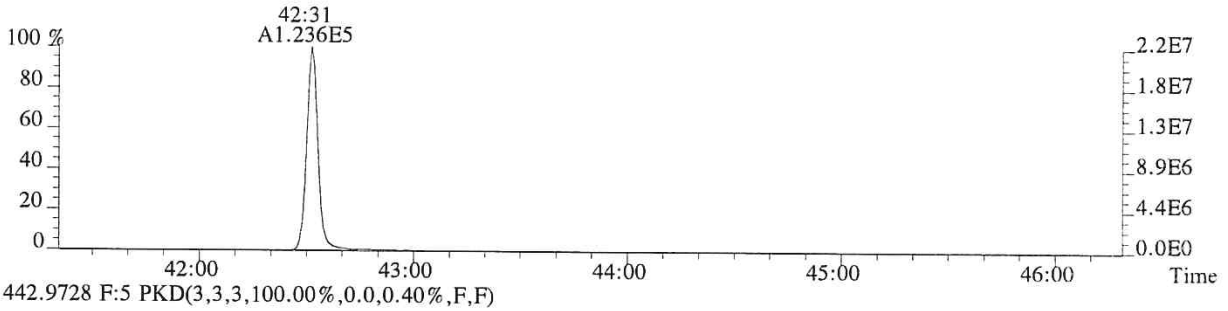
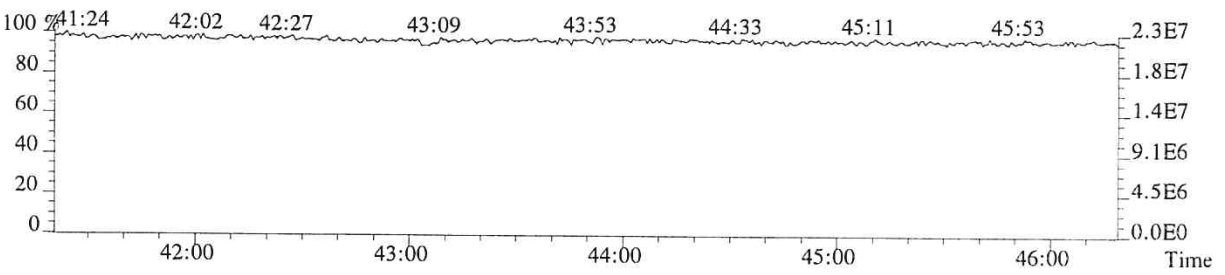


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010205

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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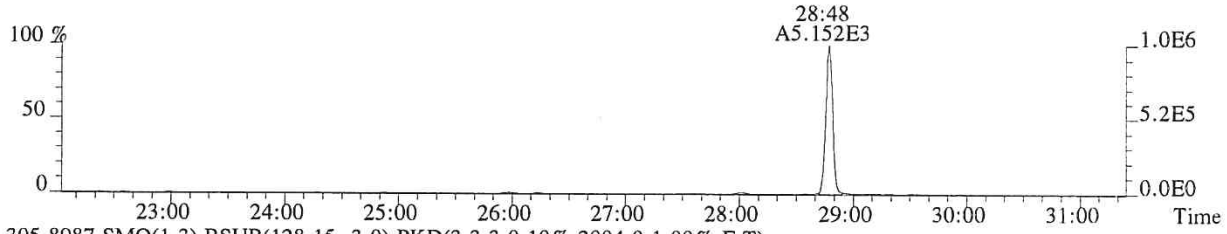
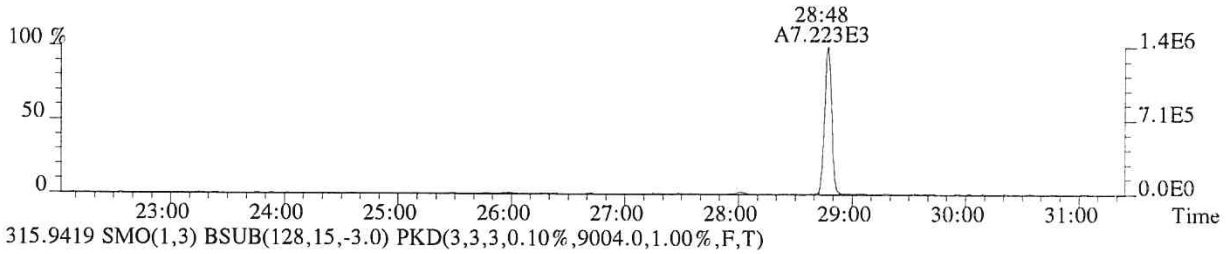
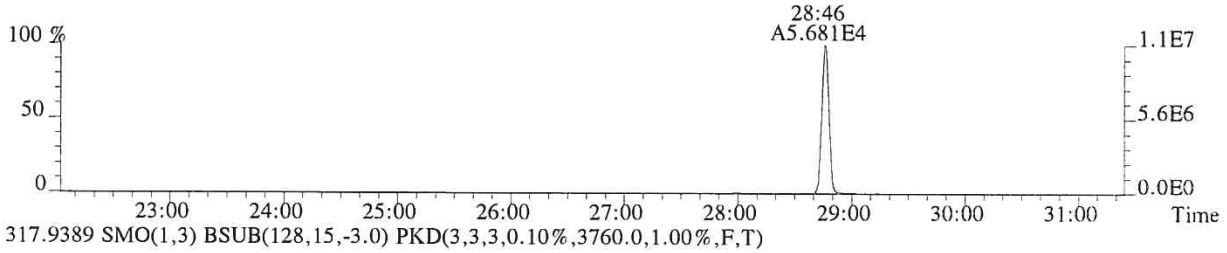
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



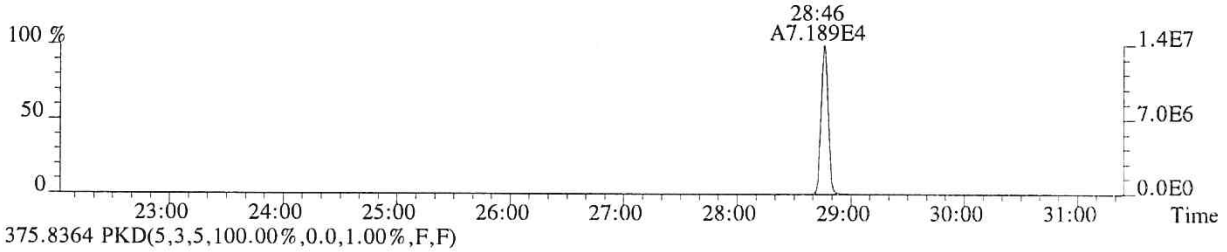
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



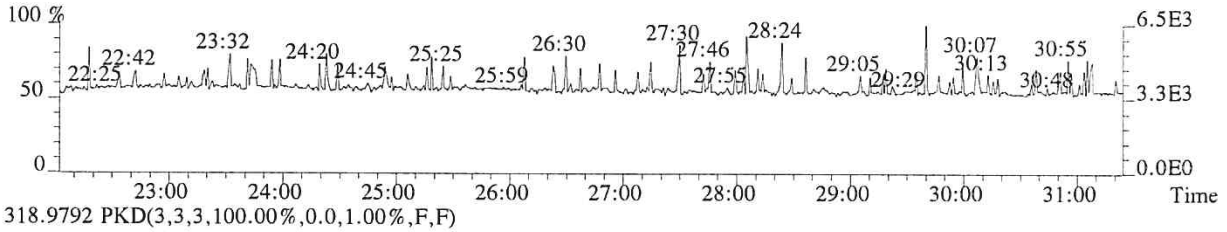
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



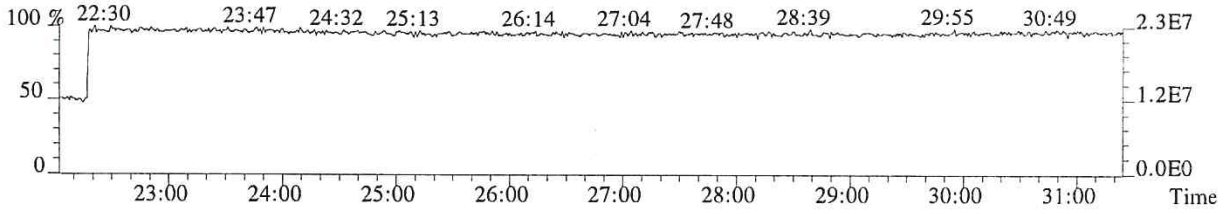
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

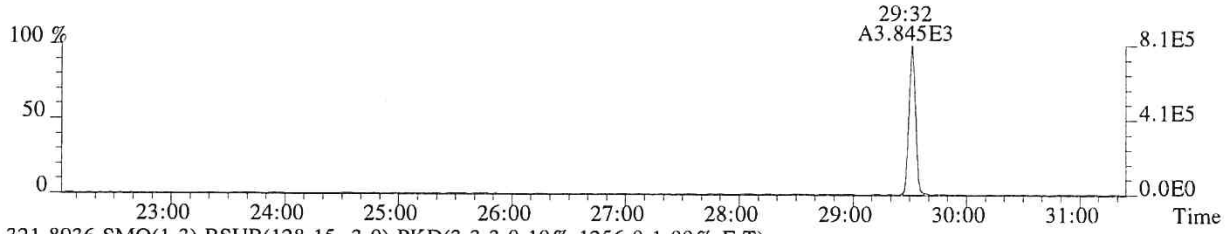


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

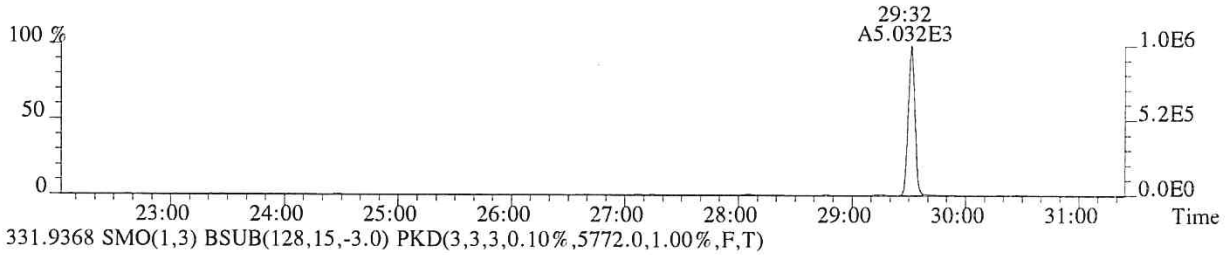


010210

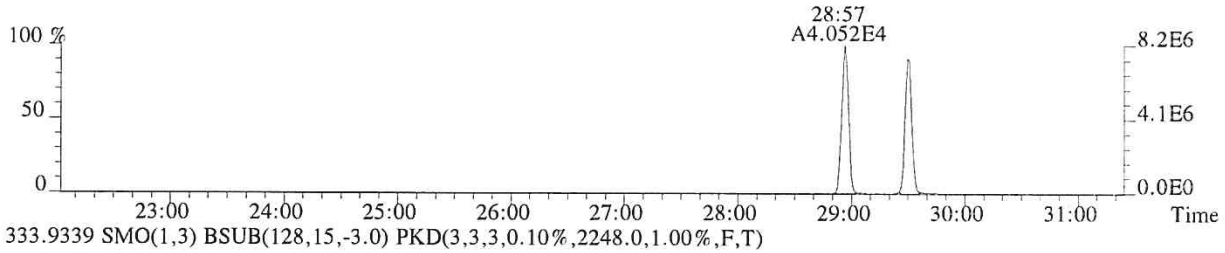
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



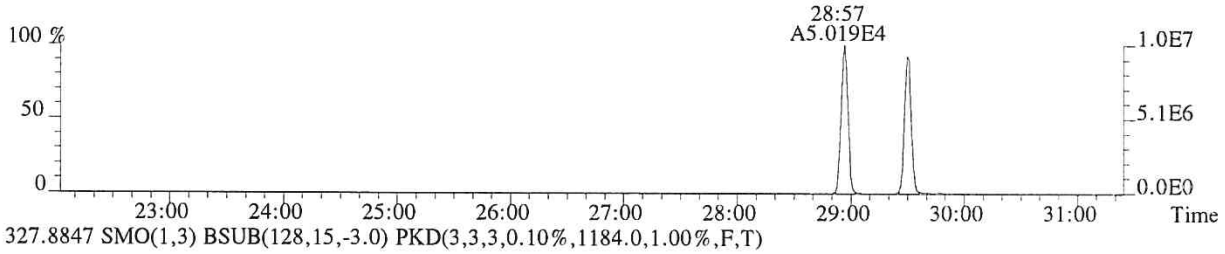
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



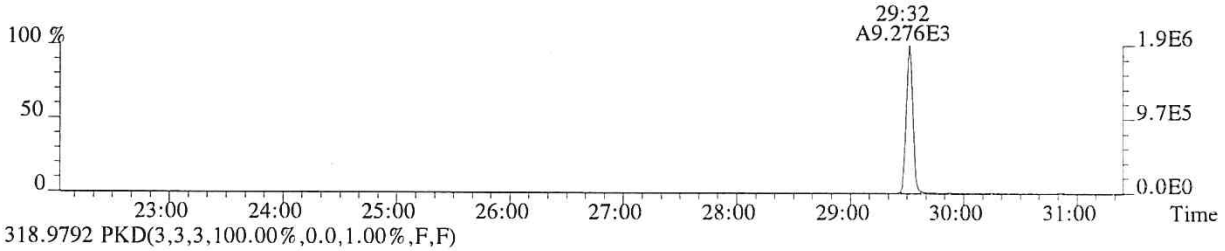
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



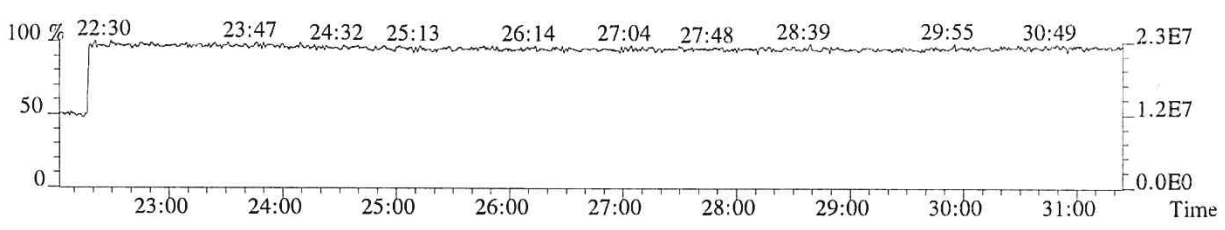
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)

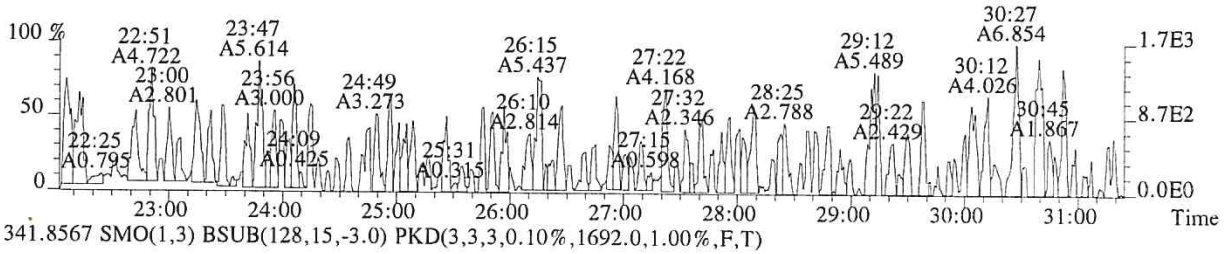


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

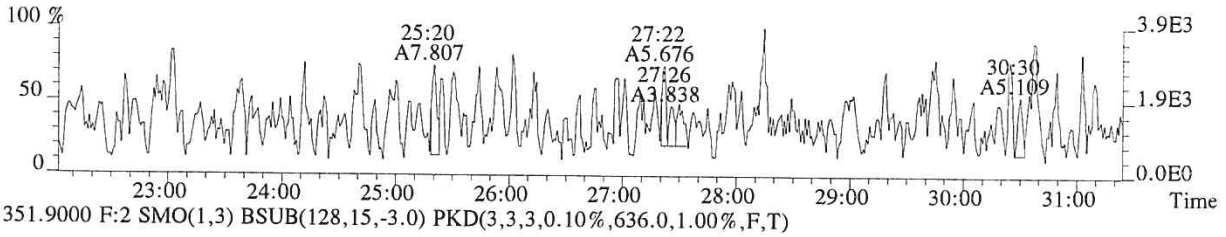


010211

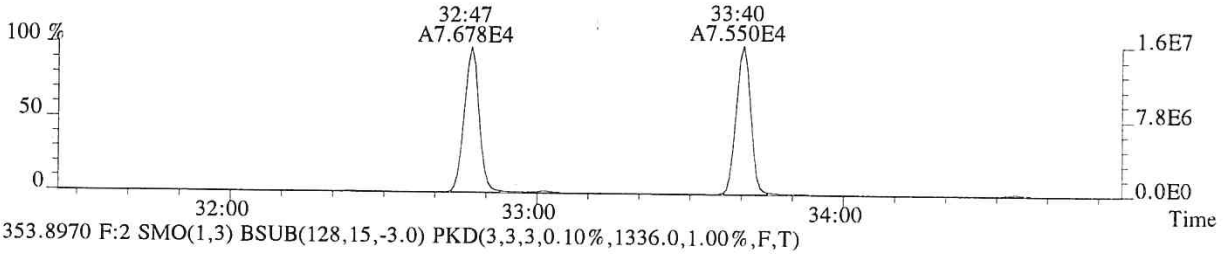
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



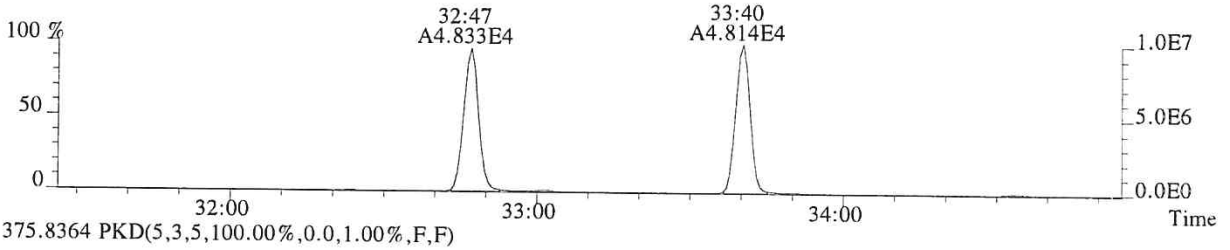
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



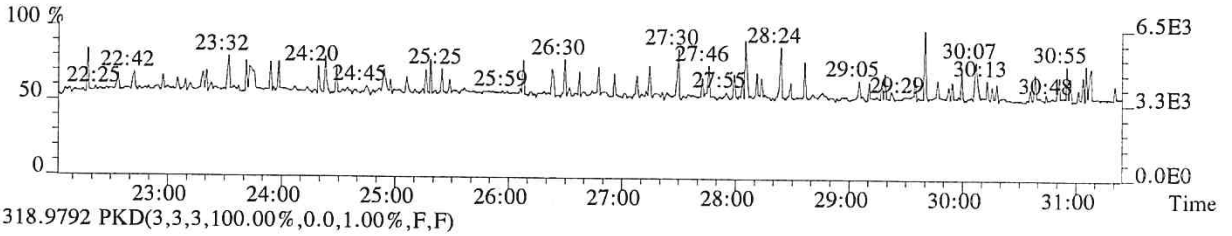
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



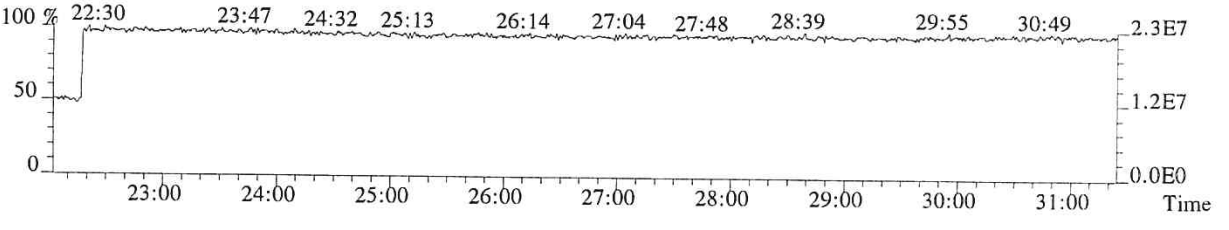
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

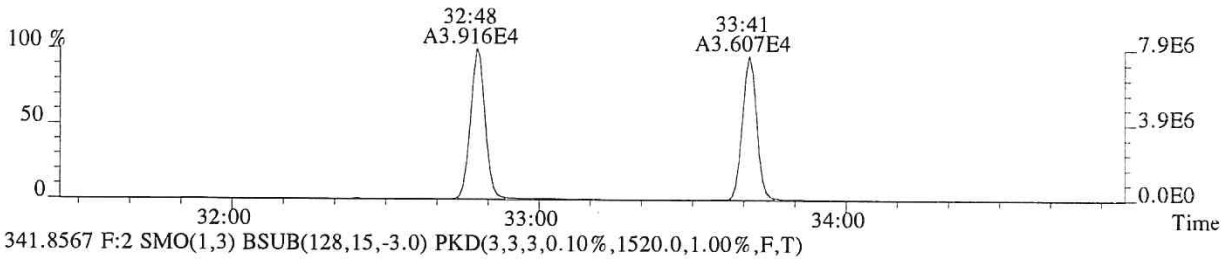


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

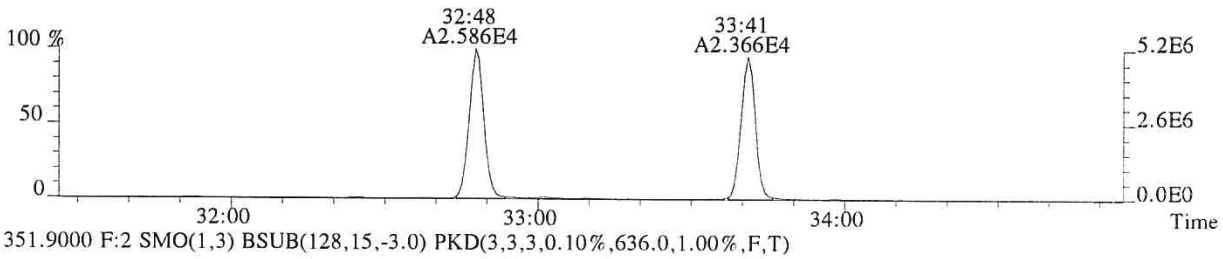


010212

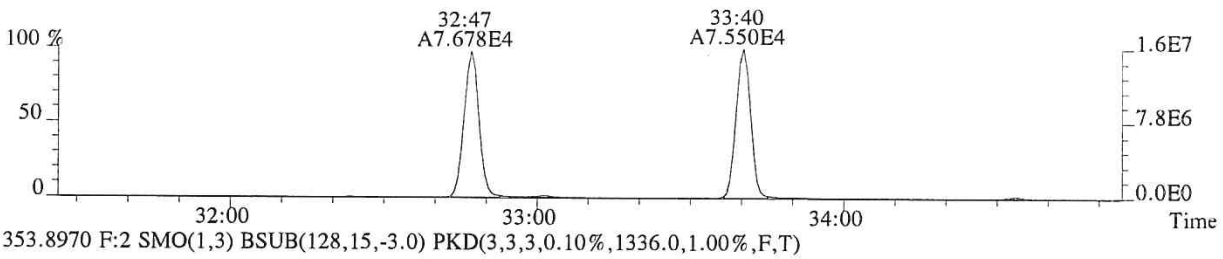
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



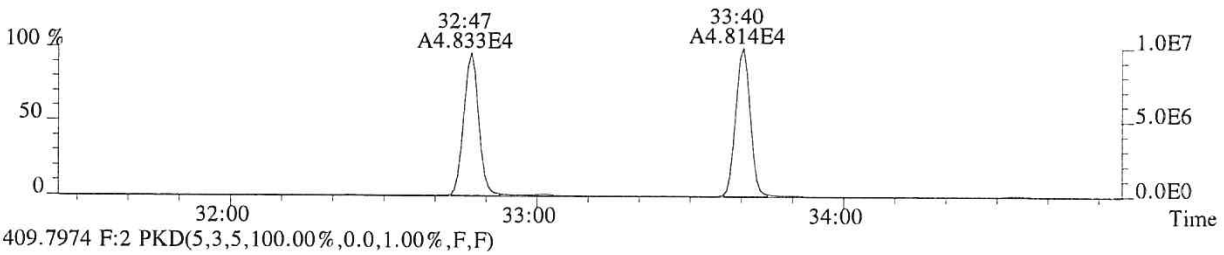
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



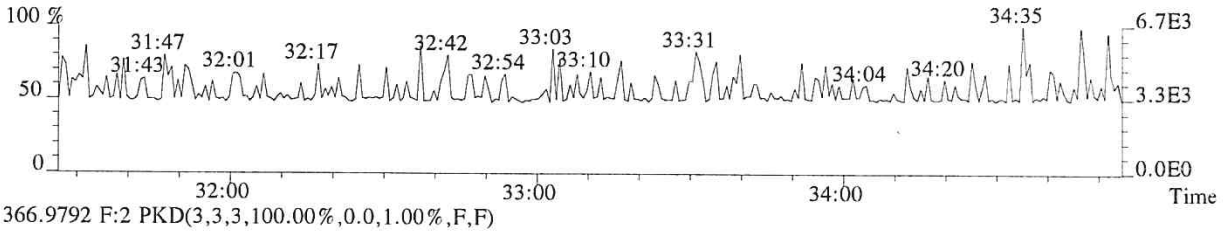
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



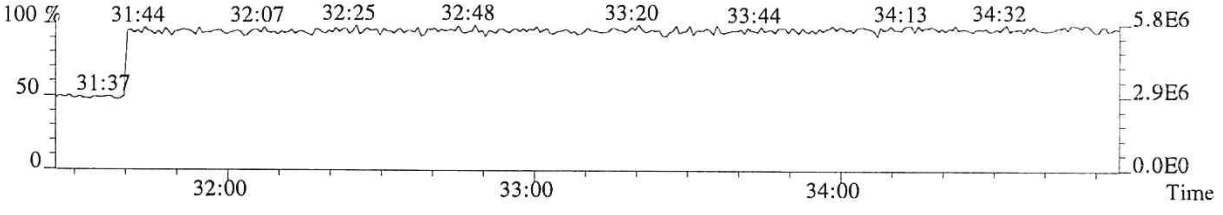
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



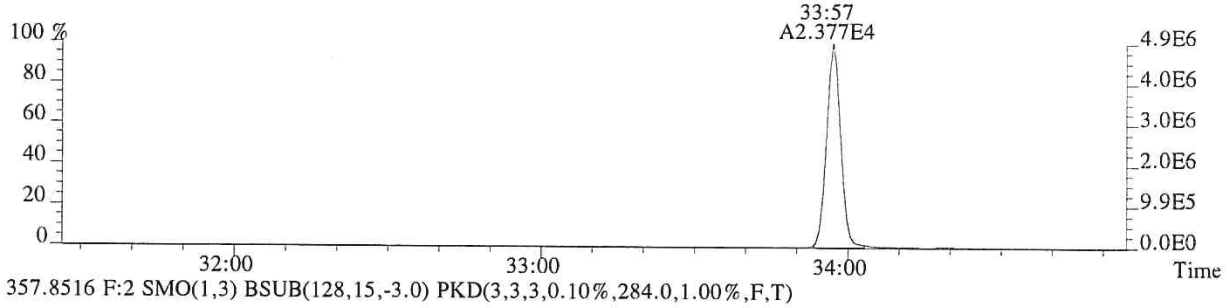
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



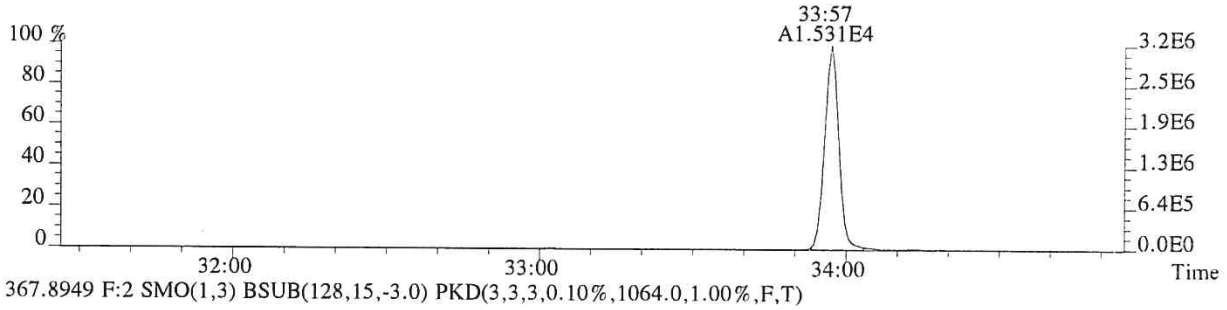
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



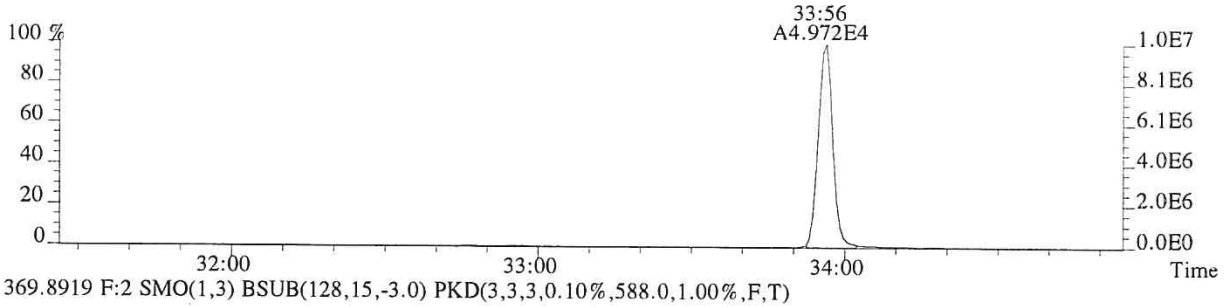
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



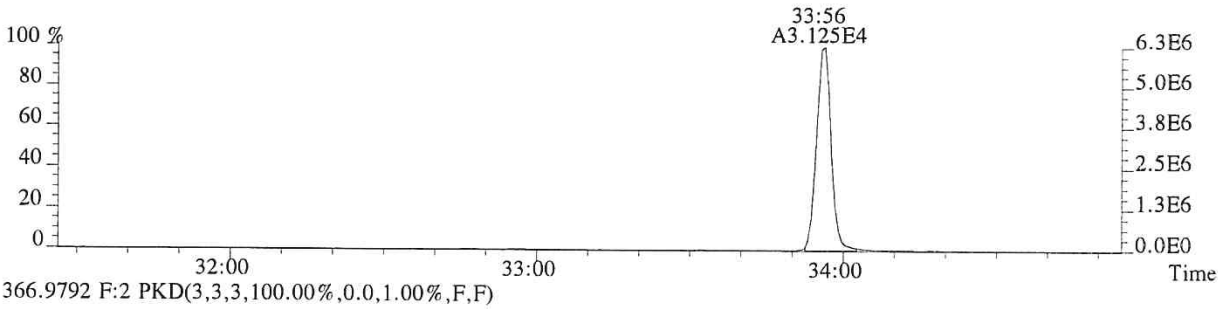
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



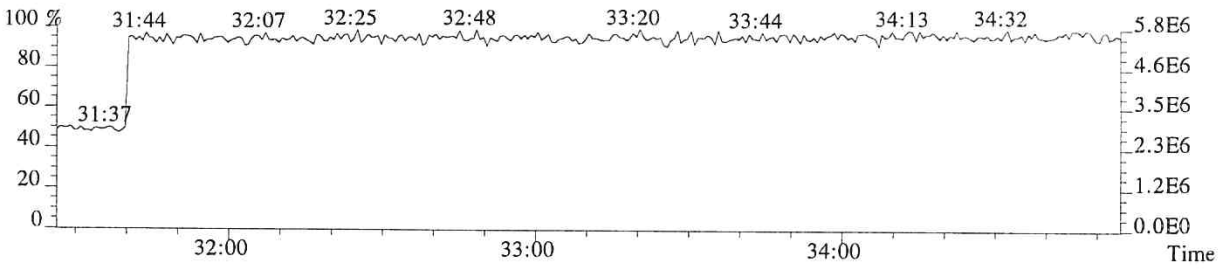
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)

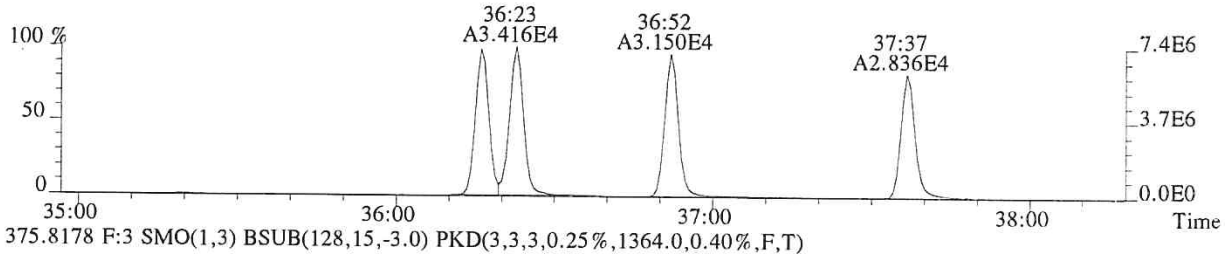


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

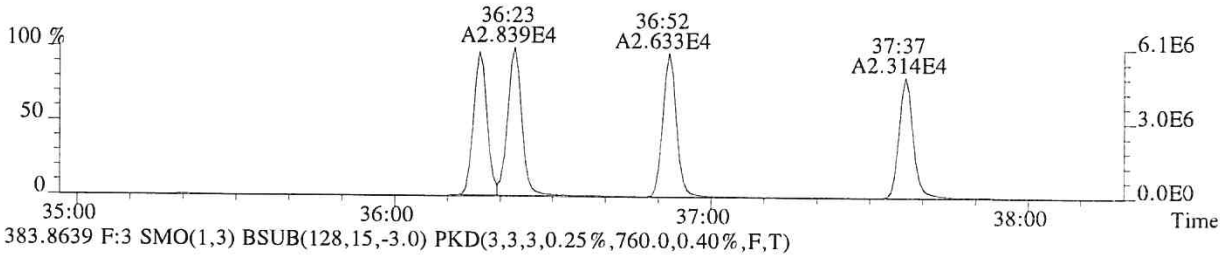


010214

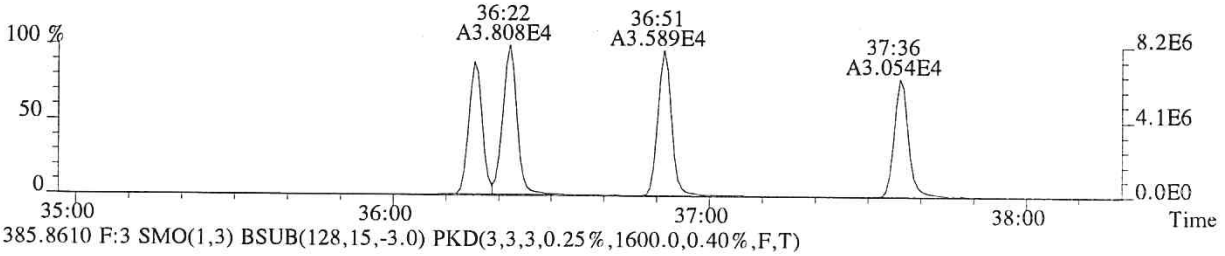
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



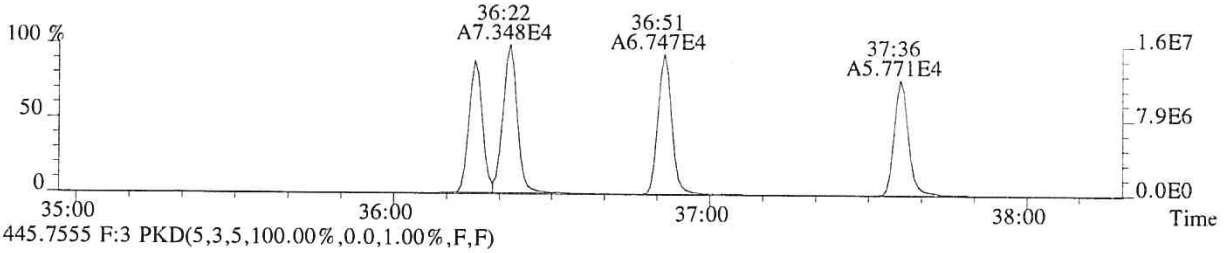
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



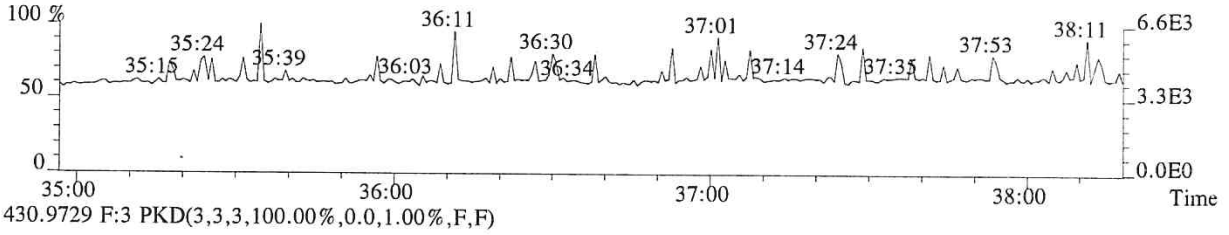
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



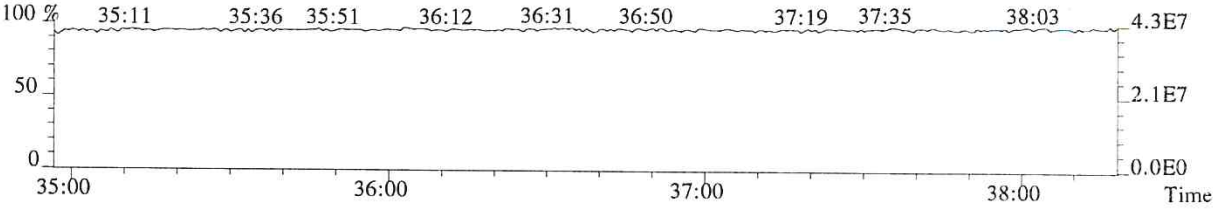
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

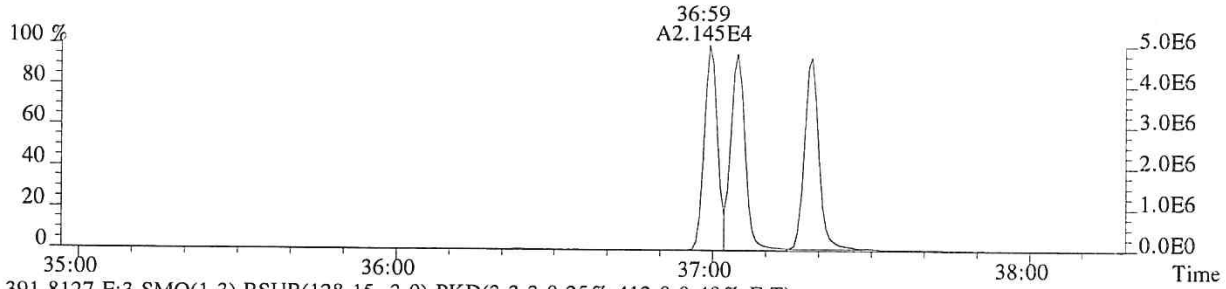


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

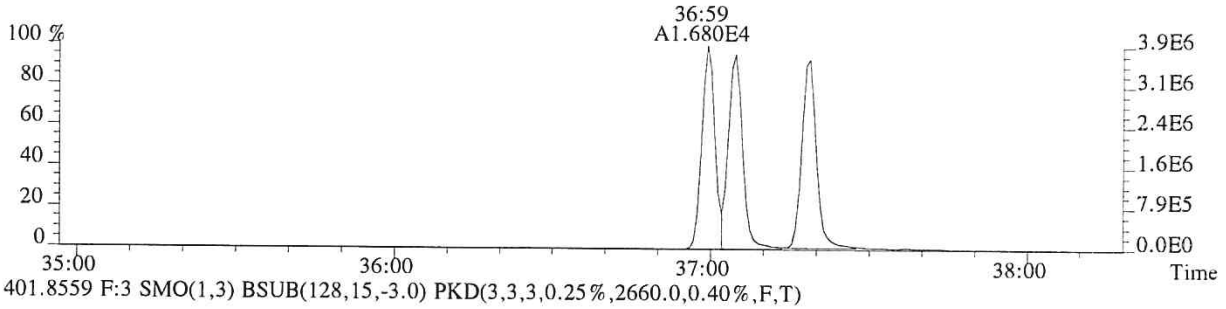


010215

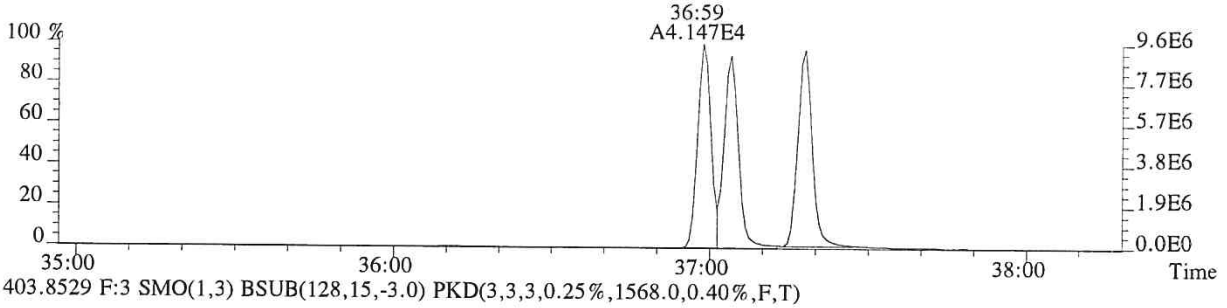
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



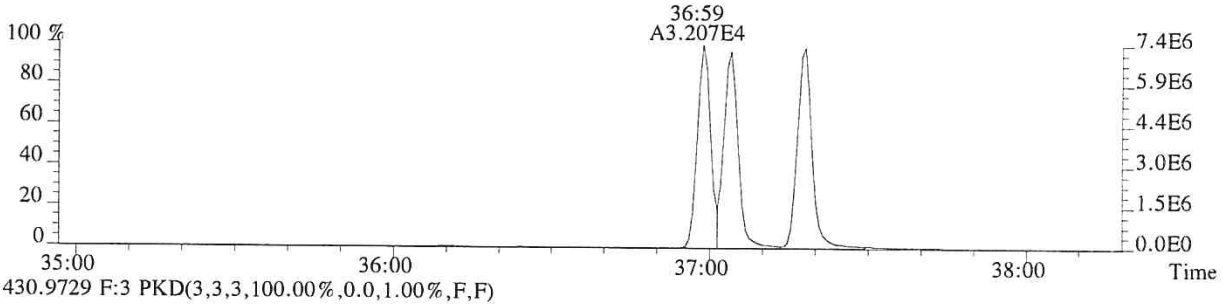
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



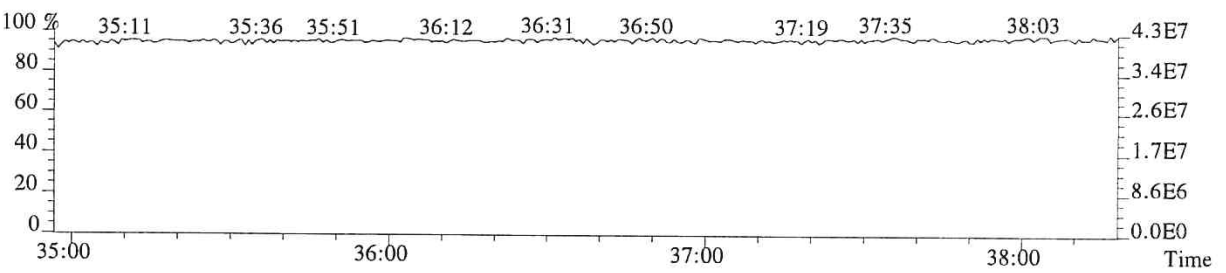
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)

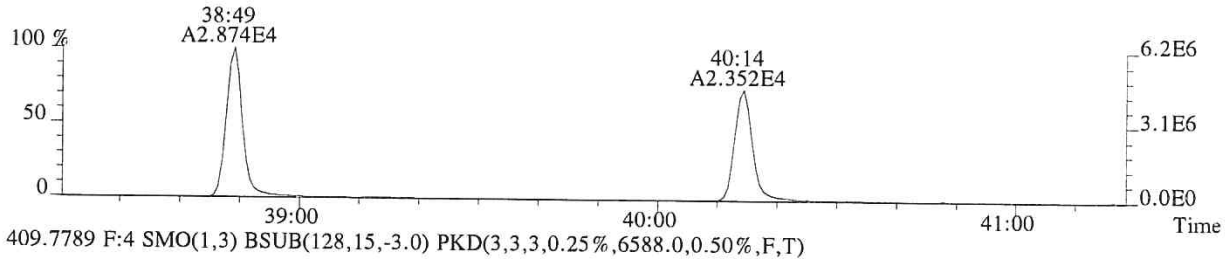


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

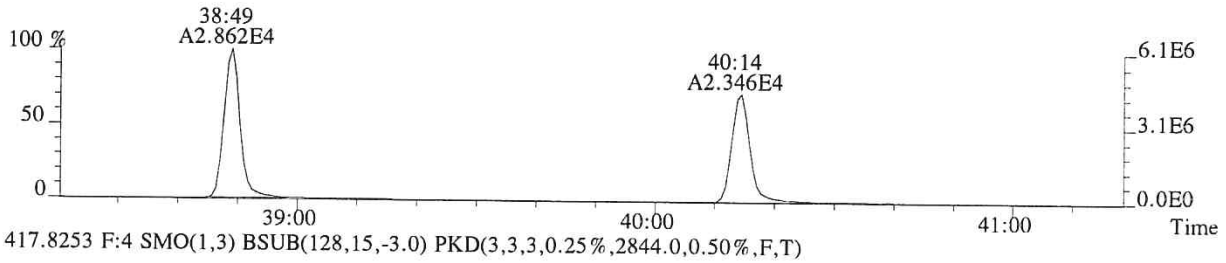


010216

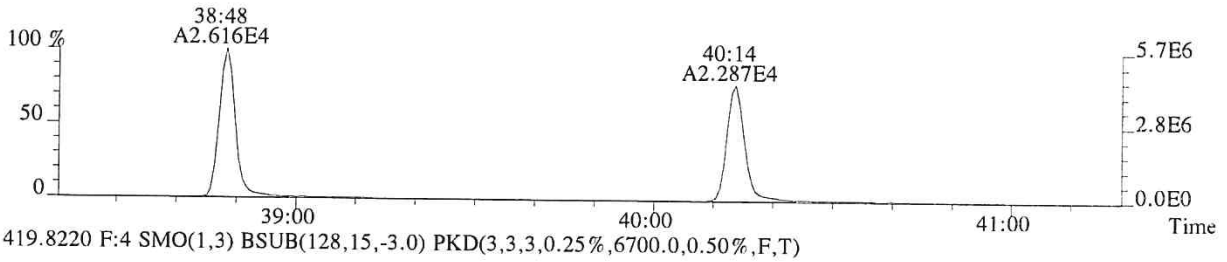
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



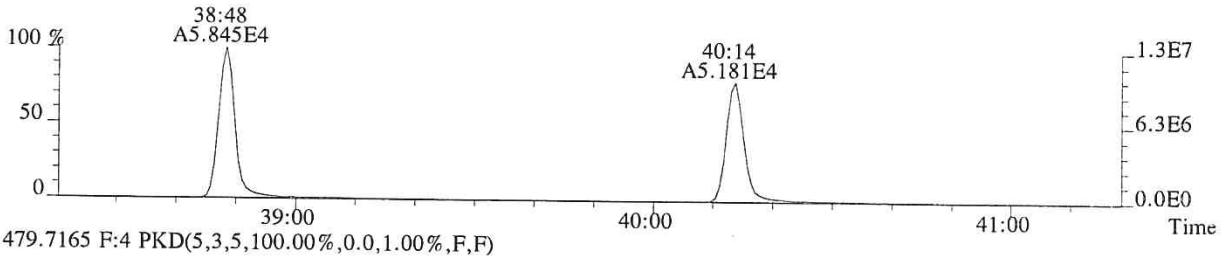
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



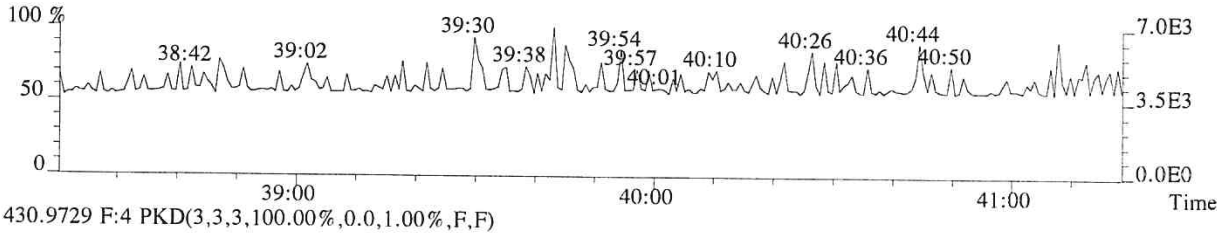
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



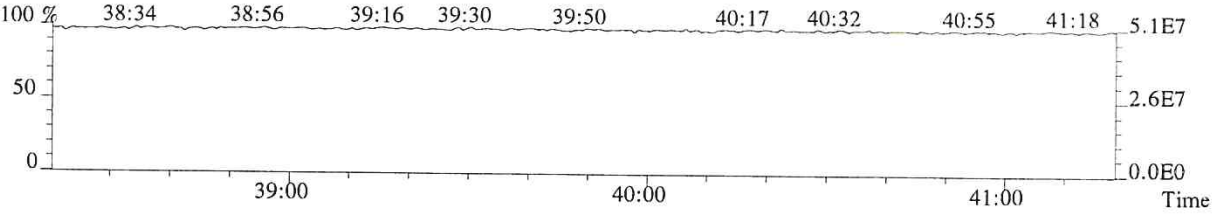
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



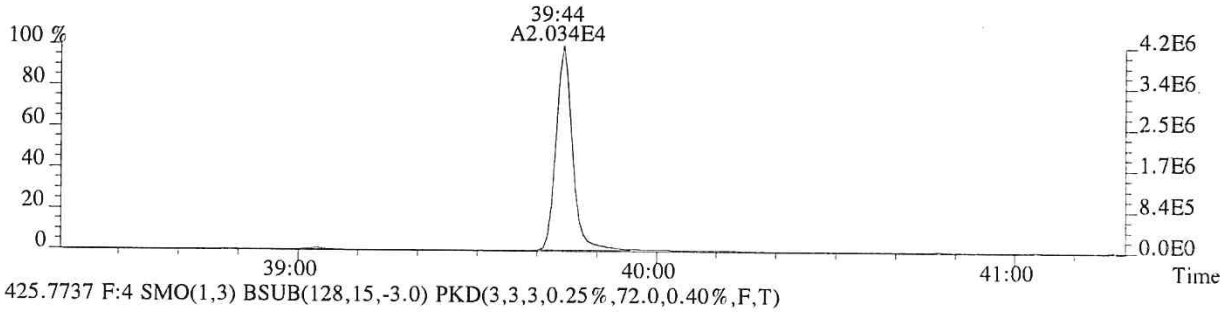
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



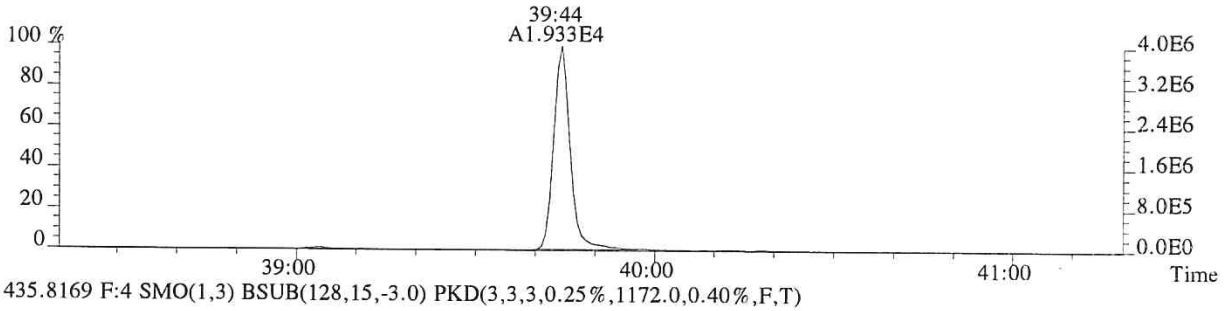
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



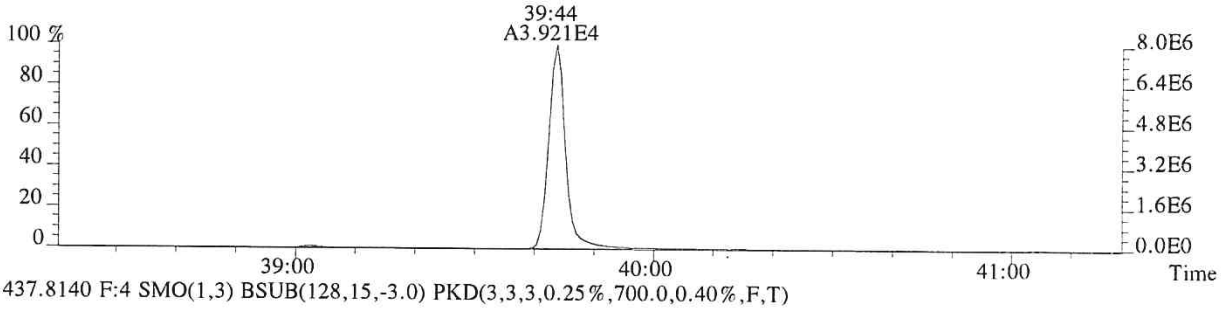
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



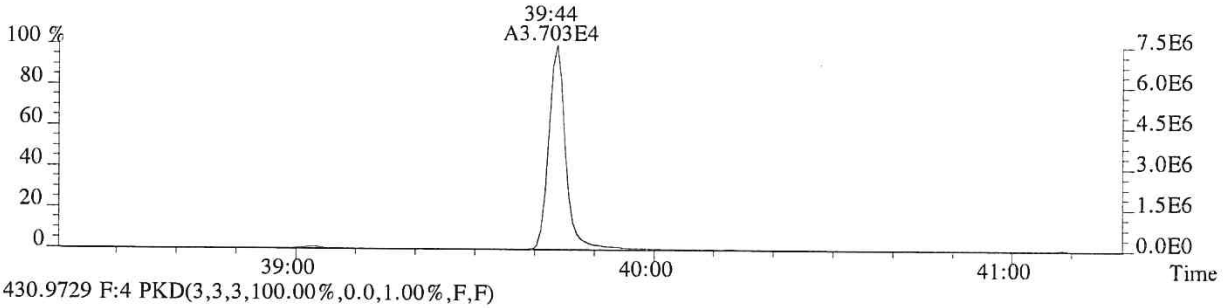
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



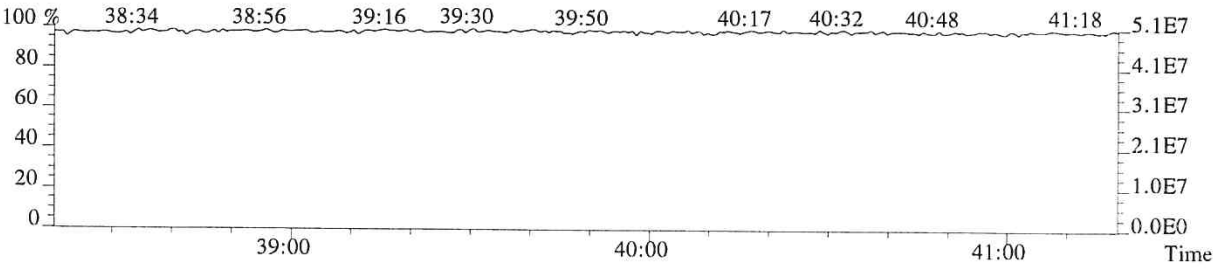
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

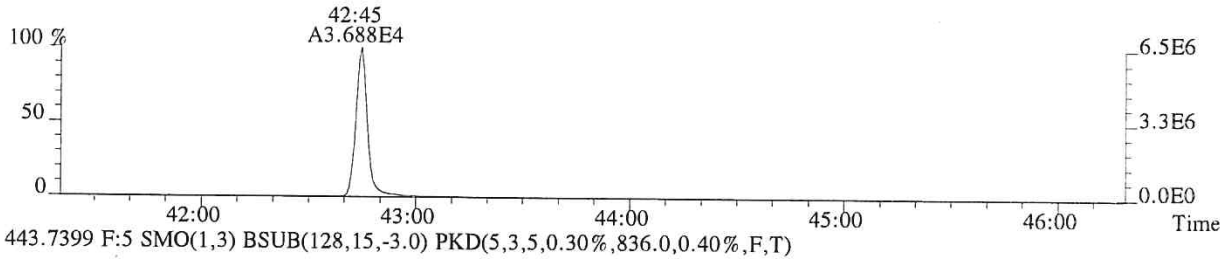


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

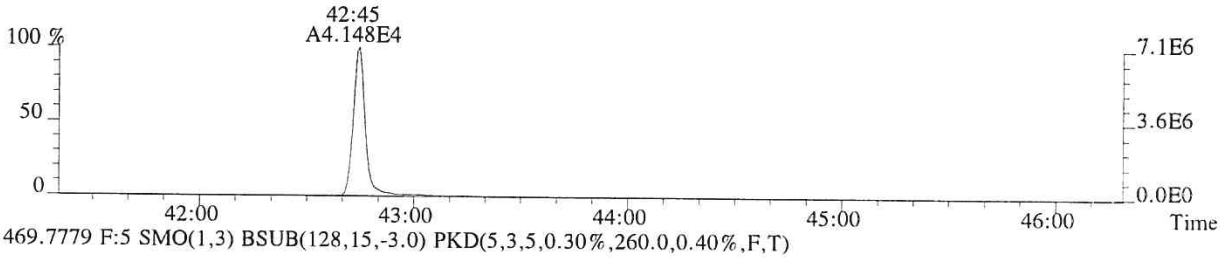


010218

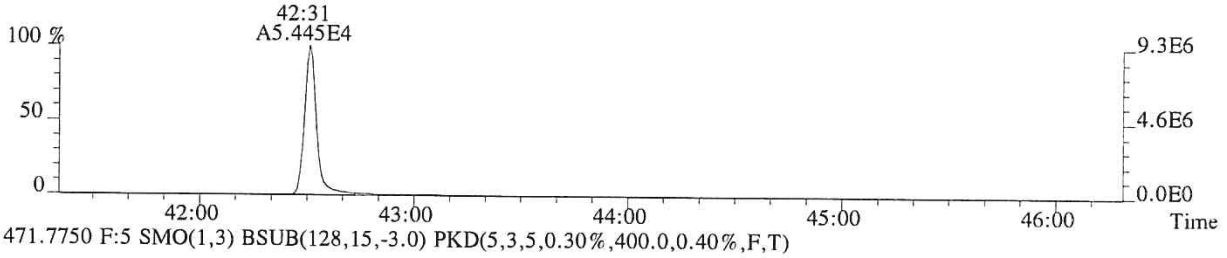
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



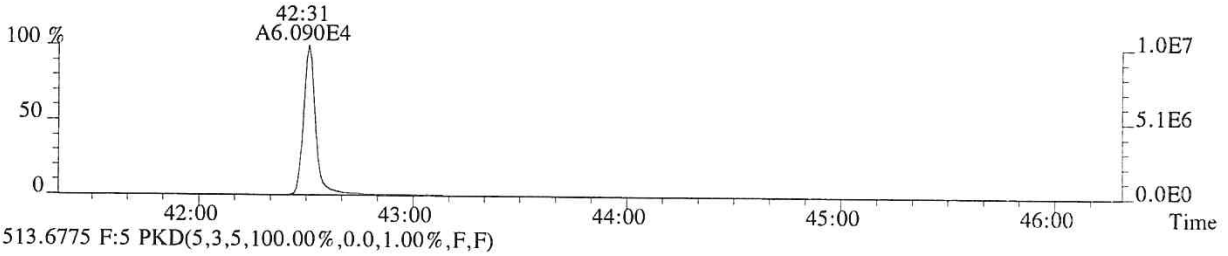
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



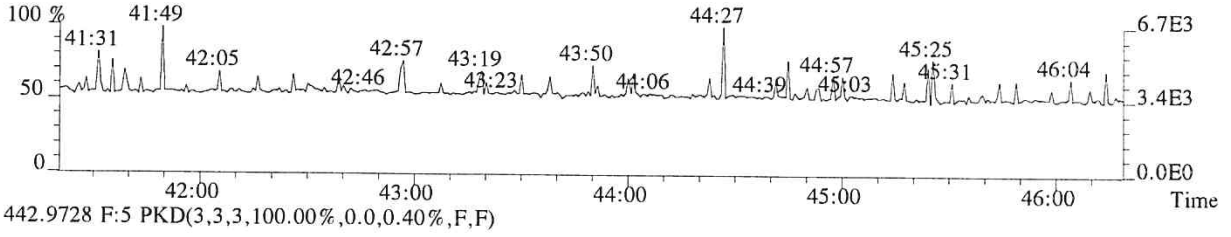
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



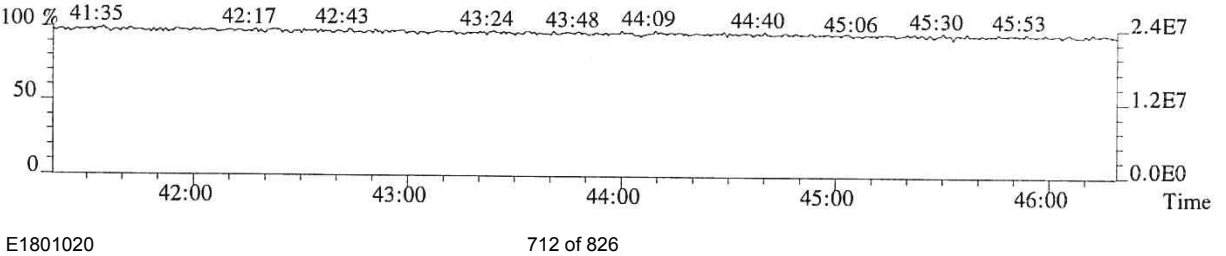
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

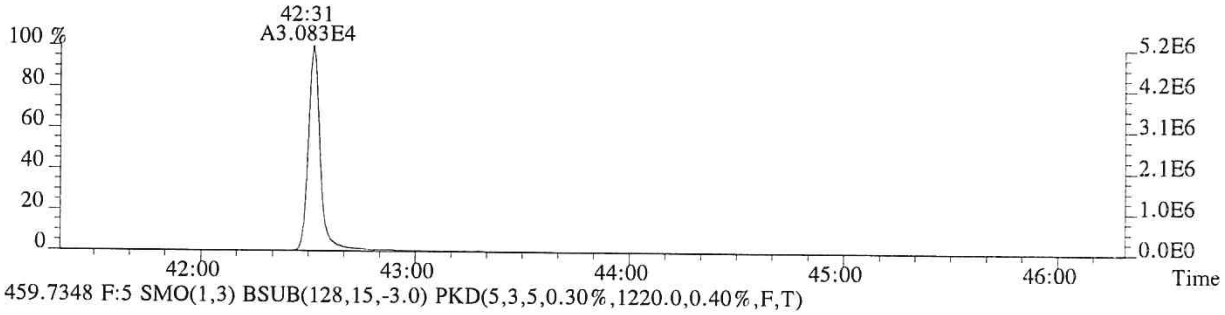


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

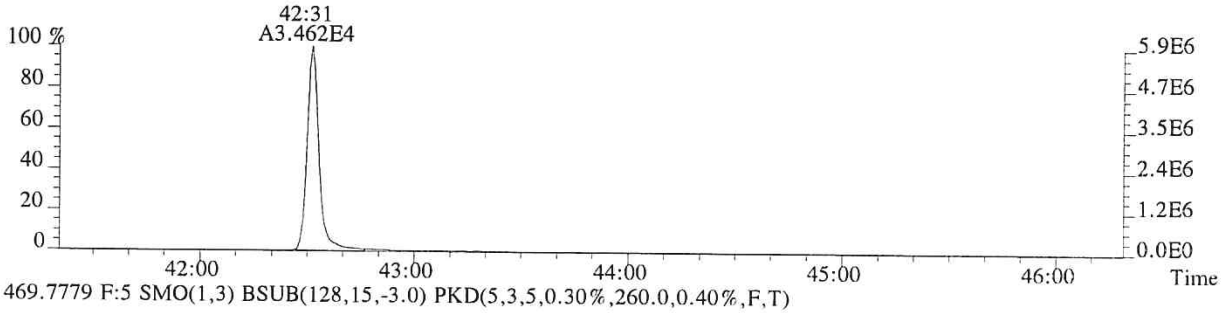


010219

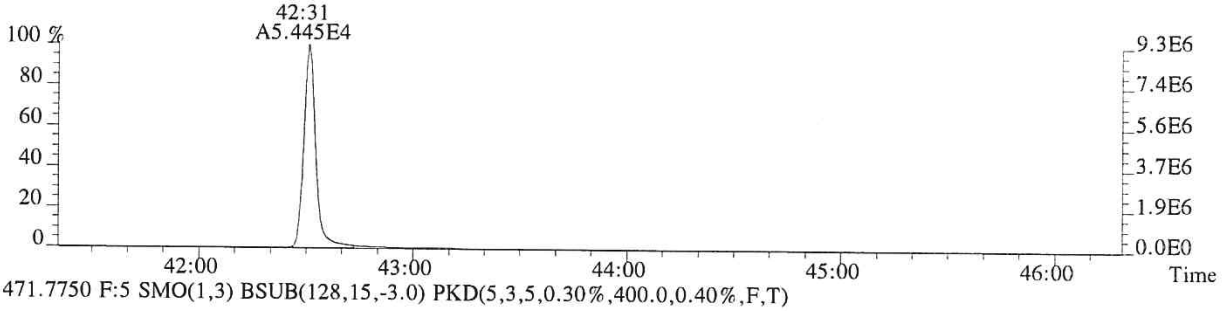
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



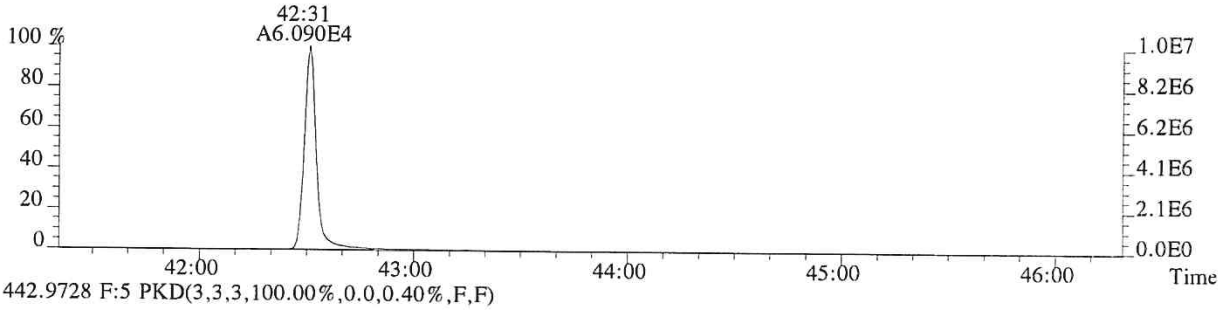
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



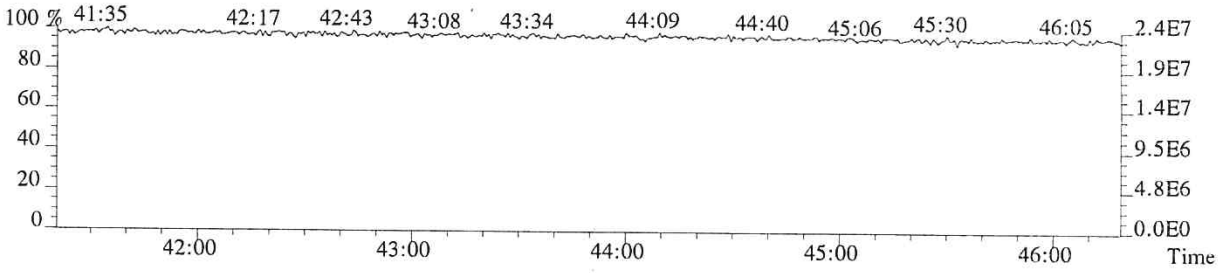
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010220

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-I809251613I				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir						
Description		**Yes**	**No**	**NA**	**NR**	**ER#**
Analytical Sequence						
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?		√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?		√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?		√				
Were all calibration standards analyzed only once?		√				
Was the ICV analyzed after the ICAL, before analyzing samples?		√				
Mass Resolution Check						
Are beginning and ending resolution checks provided and legible?		√				
Were all target masses >10,000 resolving power at the beginning of the sequence?		√				
Were all target masses >10,000 resolving power at the end of the sequence?		√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?				√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?				√		
Window Define/209						
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?		√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?		√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?		√				
Were all first and last eluters adequately resolved in each function?		√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?				√		
Was the retention time of PCB 209 >55 min?				√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182				√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?				√		
Calibration Standards						
Were there at least 5 calibration standards analyzed?		√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?				√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?		√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir		Yes	No	NA	NR	ER#
Description						
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?		√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?		√				
Were area counts for the highest calibration standard below levels of saturation?		√				
Were manual integrations technically justified to correct for poor software integration?				√		
Response Factors						
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?		√				
Were all calibration standards used in determining response factors?		√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?		√				
Did the RSD for RRFs for each native analyte meet method criteria?		√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?		√				
Were RFs for each labeled compound calculated for each calibration point?		√				
Did the RSD for RF for each labeled compound meet method criteria?		√				
Initial Calibration Verification						
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)		√				
Did all analytes meet method criteria for the ICV.		√				

Laboratory Review Checklist: Initial Calibration			
Method: 1613/8290		Process Date: 09/26/2018	
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I	
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong	
ER#[5]	**Description**		

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P614680	25-SEP-18	12:13:01
76554	CS0.5	P614682	25-SEP-18	14:18:27
82614	CS1	P614683	25-SEP-18	15:08:49
193434	CS2	P614684	25-SEP-18	15:59:37
76557	CS3	P614685	25-SEP-18	16:52:47
82167	CS4	P614686	25-SEP-18	17:41:03
185657	CS5	P614687	25-SEP-18	18:30:08
188969	2ND SOURCE	P614690	25-SEP-18	20:57:19

E1801020

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20180925A.SPL
Last Modified: Wednesday, September 26, 2018 06:14:12 Central Daylight Time
Printed: Wednesday, September 26, 2018 06:14:14 Central Daylight Time

Page Position (1, 1)

OPUS4: P6-180925161 3I
P614690res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	9/25/18	12:13	P614680	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 12:08
2		13:01	P614681	192807	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		14:18	P614682	76554	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:08	P614683	82614	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P614684	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:52	P614685	76557	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:41	P614686	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:30	P614687	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:19	P614688	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P614689	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:10		Do not use
11		20:57	P614690	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:52	P614691	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:12		HRMScheck 22:51
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

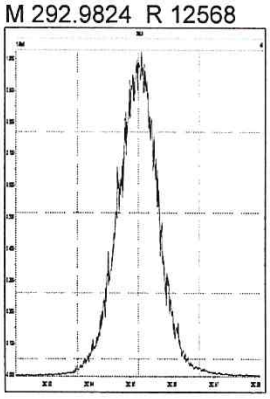
717 of 826

LG 09/26/18

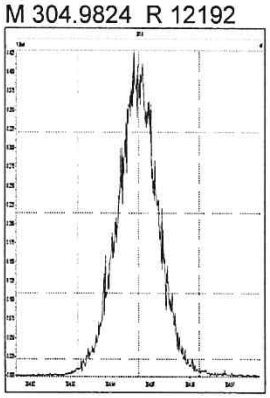
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:08:26 Central Daylight Time

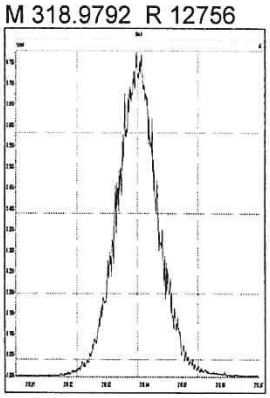
M 292.9824 R 12568



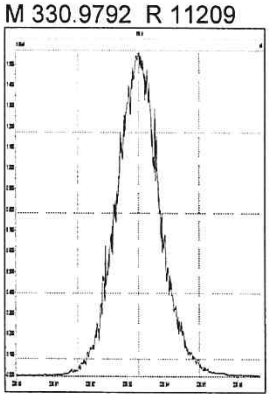
M 304.9824 R 12192



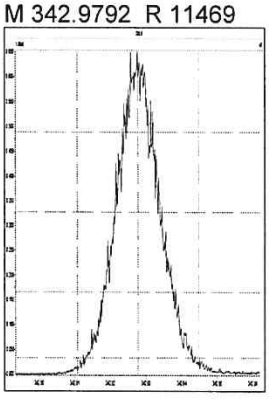
M 318.9792 R 12756



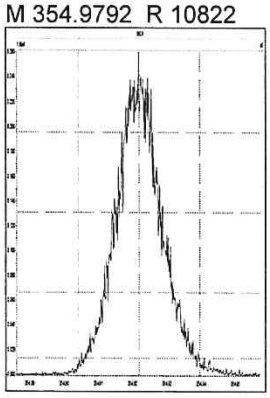
M 330.9792 R 11209



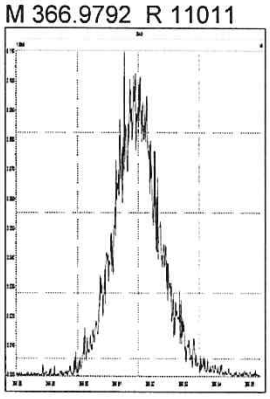
M 342.9792 R 11469



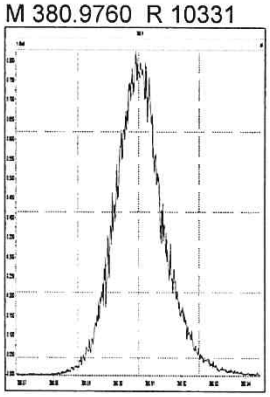
M 354.9792 R 10822



M 366.9792 R 11011



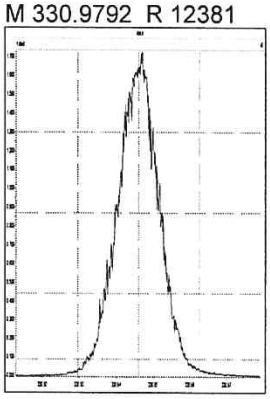
M 380.9760 R 10331



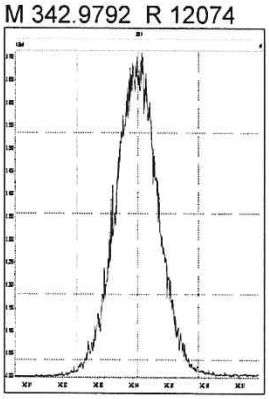
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:09:22 Central Daylight Time

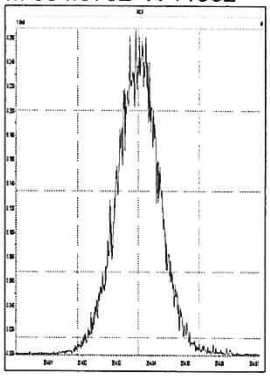
M 330.9792 R 12381



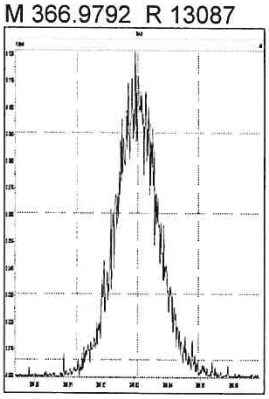
M 342.9792 R 12074



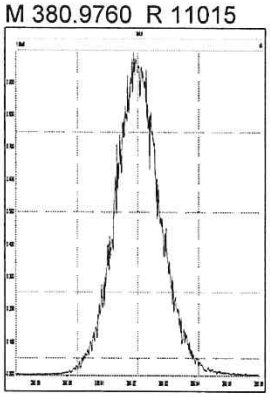
M 354.9792 R 11962



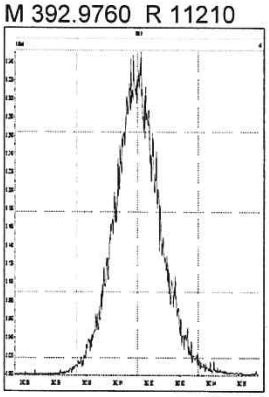
M 366.9792 R 13087



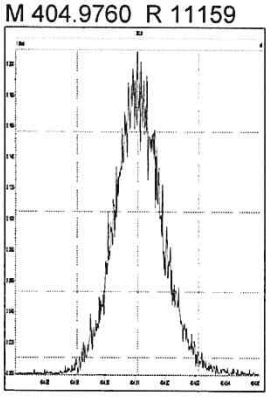
M 380.9760 R 11015



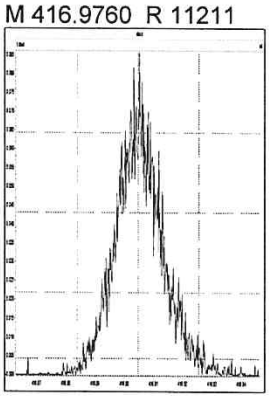
M 392.9760 R 11210



M 404.9760 R 11159



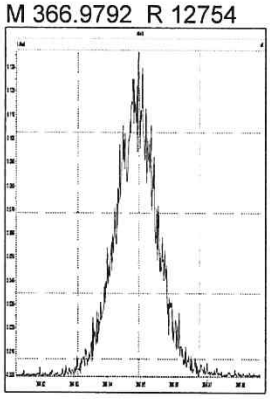
M 416.9760 R 11211



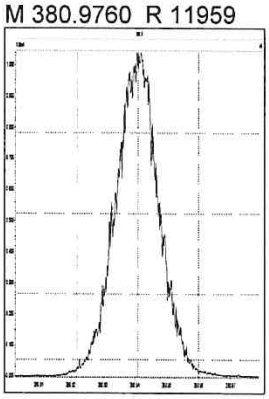
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:10 Central Daylight Time

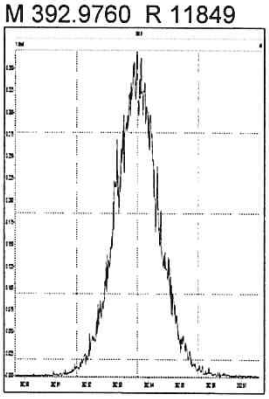
M 366.9792 R 12754



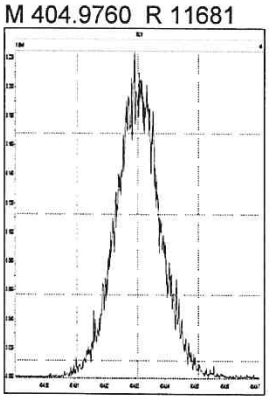
M 380.9760 R 11959



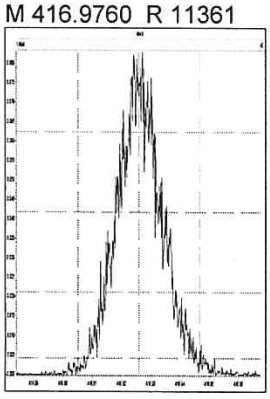
M 392.9760 R 11849



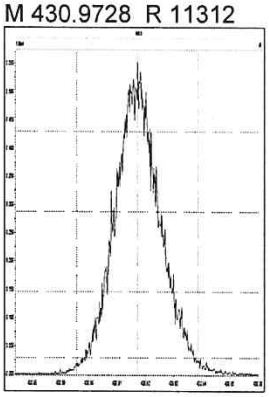
M 404.9760 R 11681



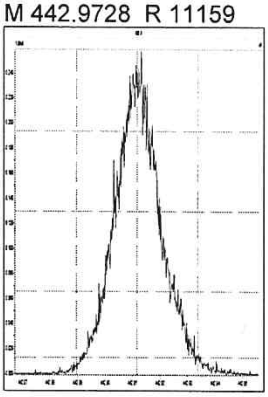
M 416.9760 R 11361



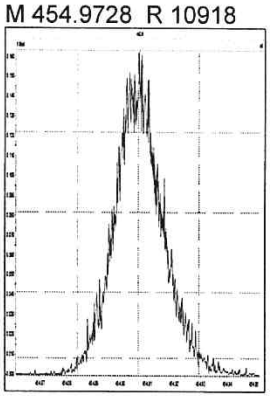
M 430.9728 R 11312



M 442.9728 R 11159



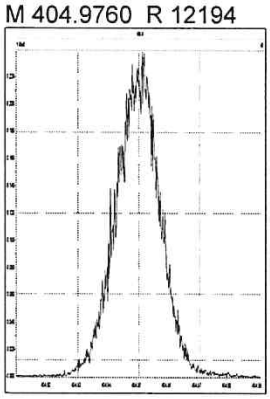
M 454.9728 R 10918



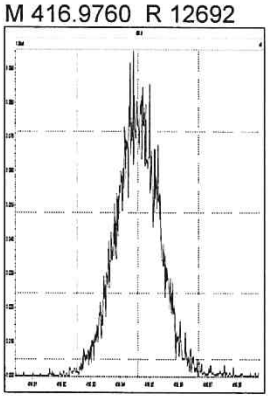
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:51 Central Daylight Time

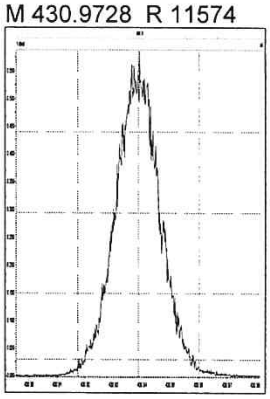
M 404.9760 R 12194



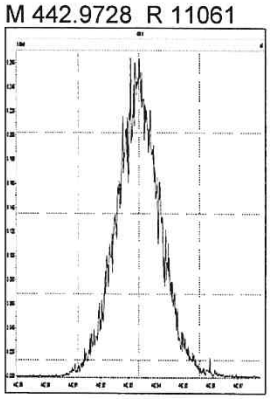
M 416.9760 R 12692



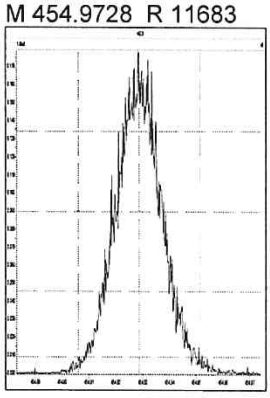
M 430.9728 R 11574



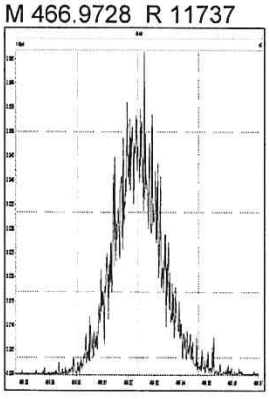
M 442.9728 R 11061



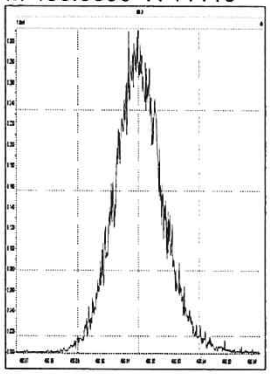
M 454.9728 R 11683



M 466.9728 R 11737



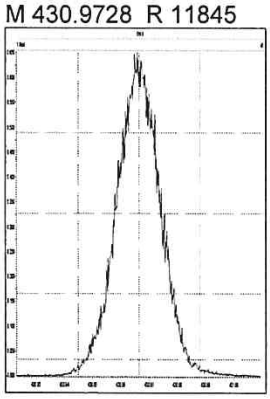
M 480.9696 R 11110



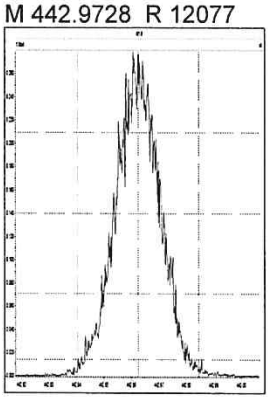
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:11:41 Central Daylight Time

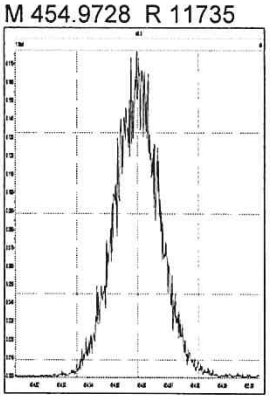
M 430.9728 R 11845



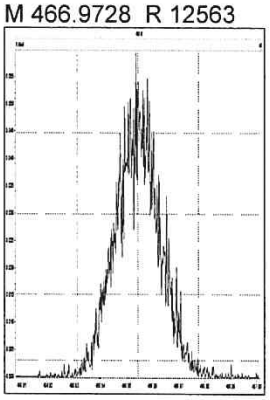
M 442.9728 R 12077



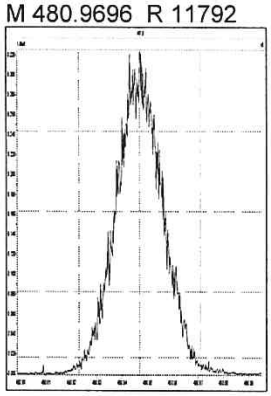
M 454.9728 R 11735



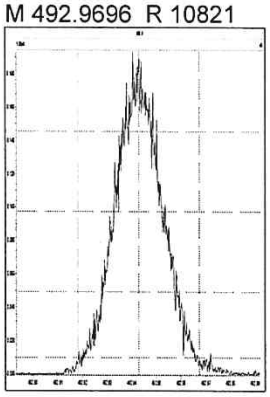
M 466.9728 R 12563



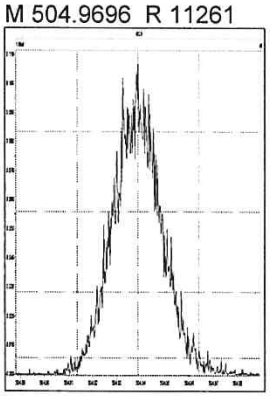
M 480.9696 R 11792



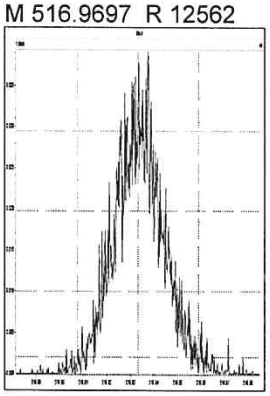
M 492.9696 R 10821



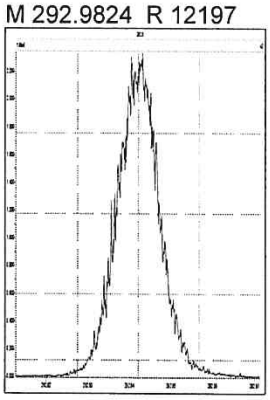
M 504.9696 R 11261



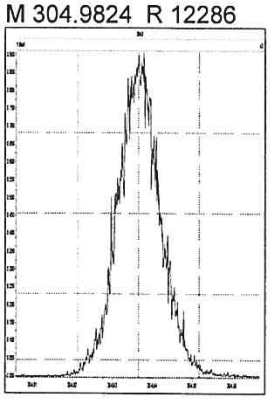
M 516.9697 R 12562



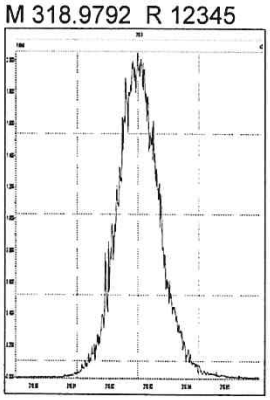
M 292.9824 R 12197



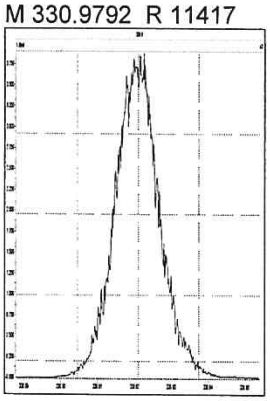
M 304.9824 R 12286



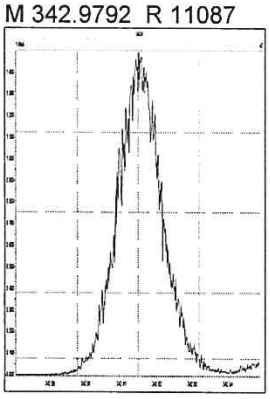
M 318.9792 R 12345



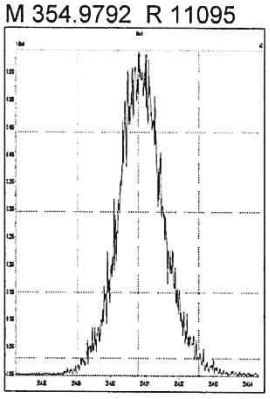
M 330.9792 R 11417



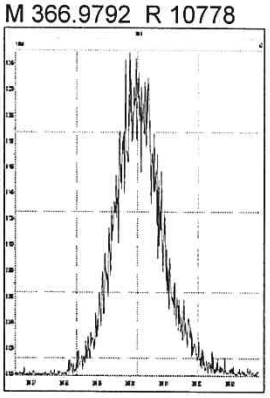
M 342.9792 R 11087



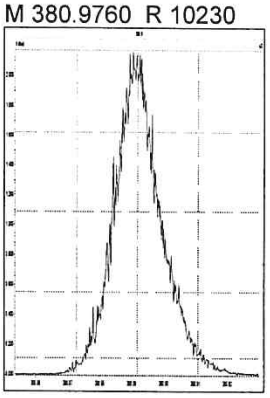
M 354.9792 R 11095



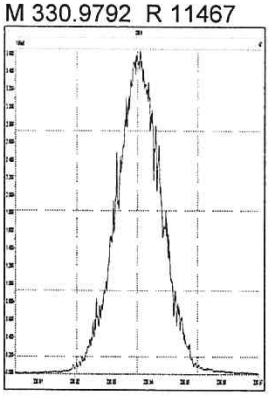
M 366.9792 R 10778



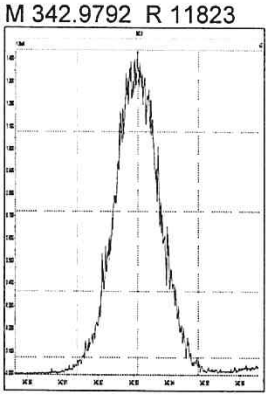
M 380.9760 R 10230



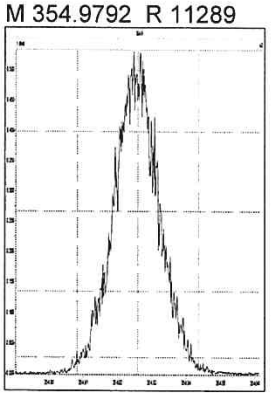
M 330.9792 R 11467



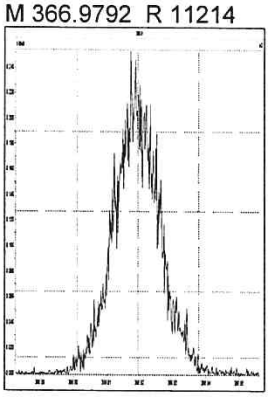
M 342.9792 R 11823



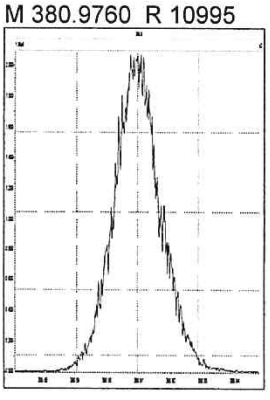
M 354.9792 R 11289



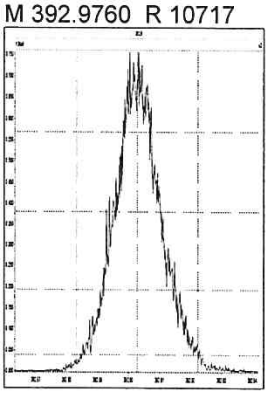
M 366.9792 R 11214



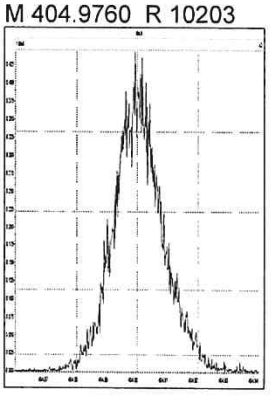
M 380.9760 R 10995



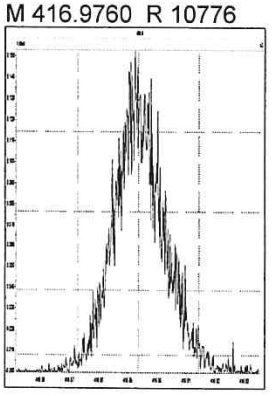
M 392.9760 R 10717



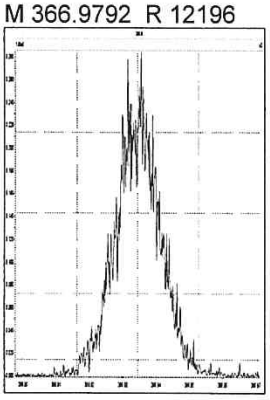
M 404.9760 R 10203



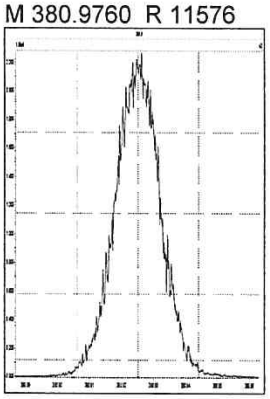
M 416.9760 R 10776



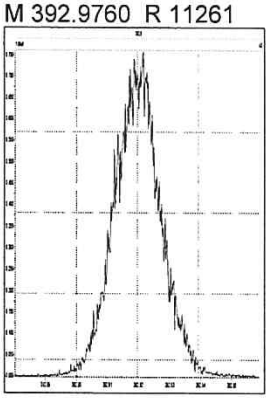
M 366.9792 R 12196



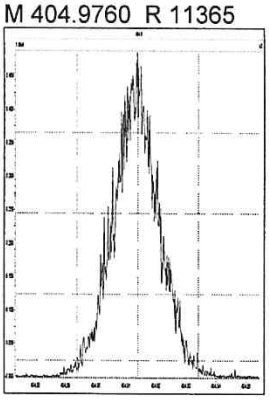
M 380.9760 R 11576



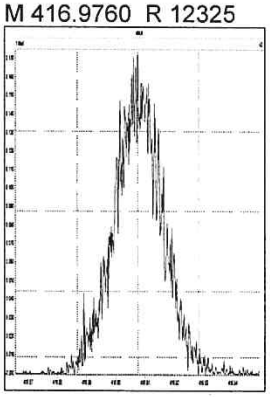
M 392.9760 R 11261



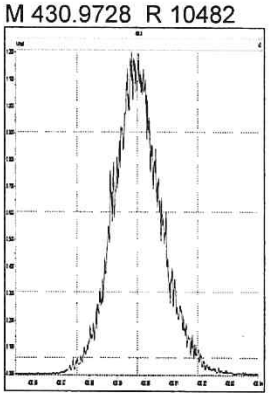
M 404.9760 R 11365



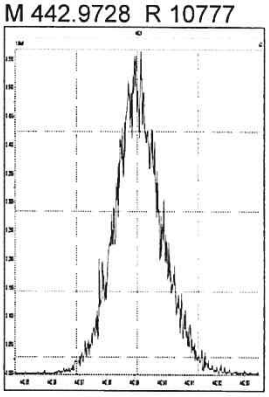
M 416.9760 R 12325



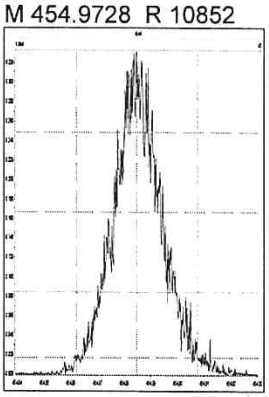
M 430.9728 R 10482



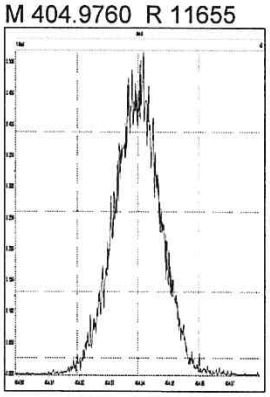
M 442.9728 R 10777



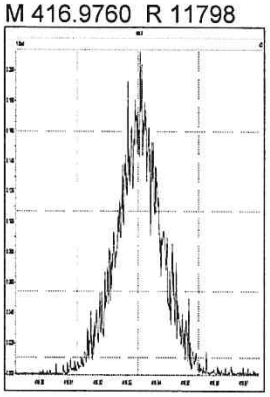
M 454.9728 R 10852



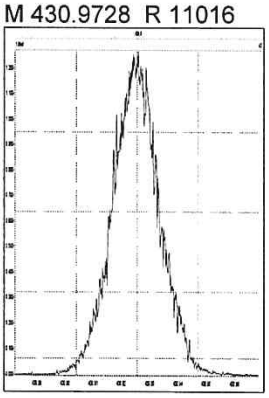
M 404.9760 R 11655



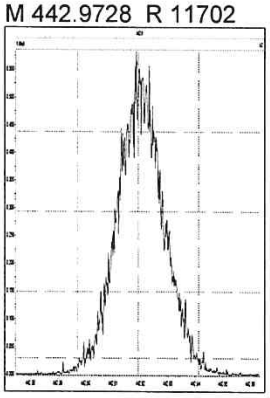
M 416.9760 R 11798



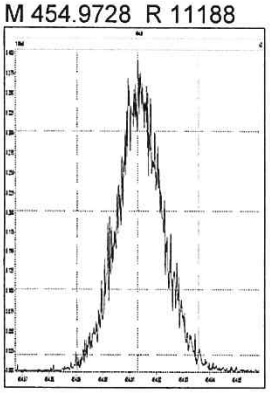
M 430.9728 R 11016



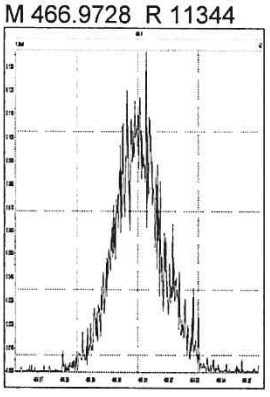
M 442.9728 R 11702



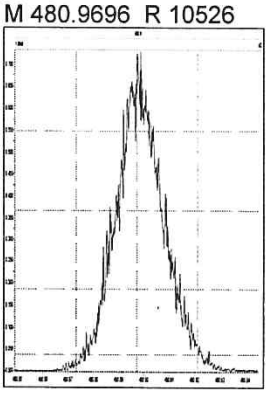
M 454.9728 R 11188



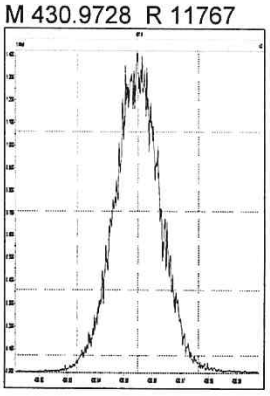
M 466.9728 R 11344



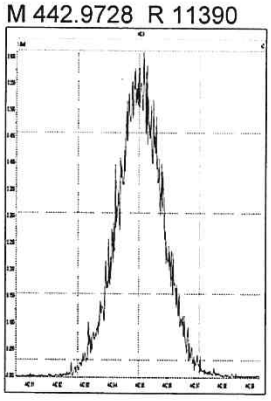
M 480.9696 R 10526



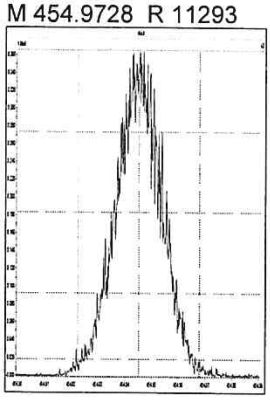
M 430.9728 R 11767



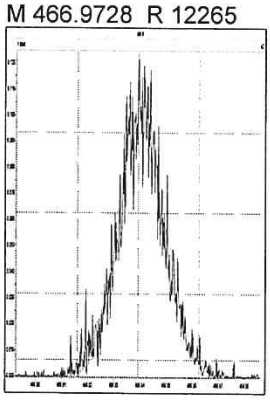
M 442.9728 R 11390



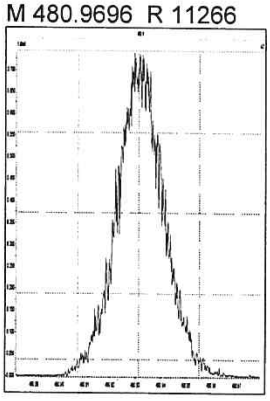
M 454.9728 R 11293



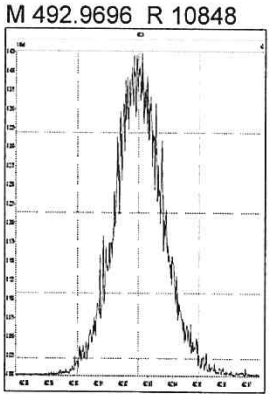
M 466.9728 R 12265



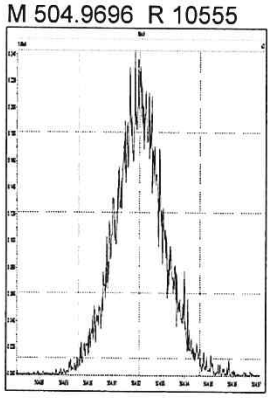
M 480.9696 R 11266



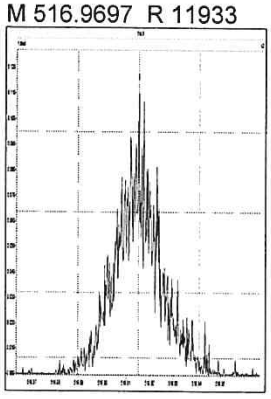
M 492.9696 R 10848



M 504.9696 R 10555



M 516.9697 R 11933



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

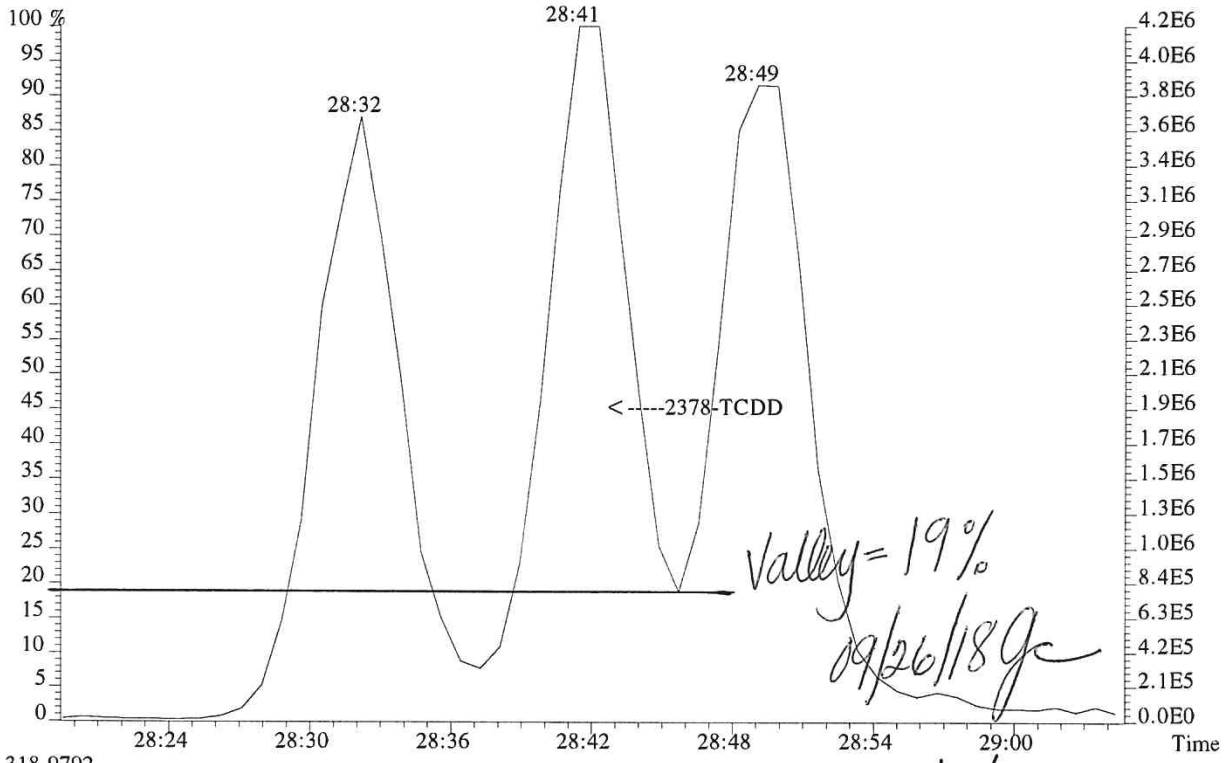
Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P614680
Date Analyzed: 25-SEP-18
Time Analyzed: 12:13:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:52
TCDD	25:18	29:42
PeCDF	29:48	34:04
PeCDD	31:21	33:49
HxCDF	34:43	37:12
HxCDD	35:14	36:49
HpCDF	38:24	39:46
HpCDD	38:39	39:18

% Valley 2378-TCDD: 19 %

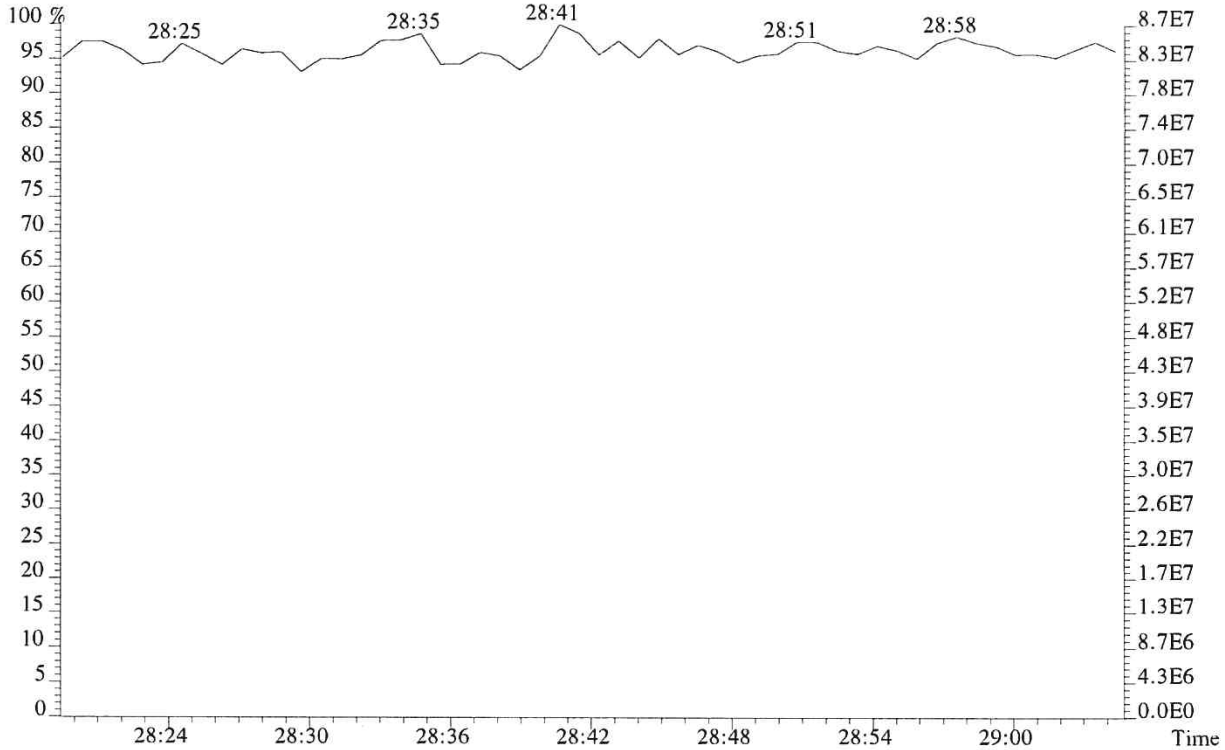
010233

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



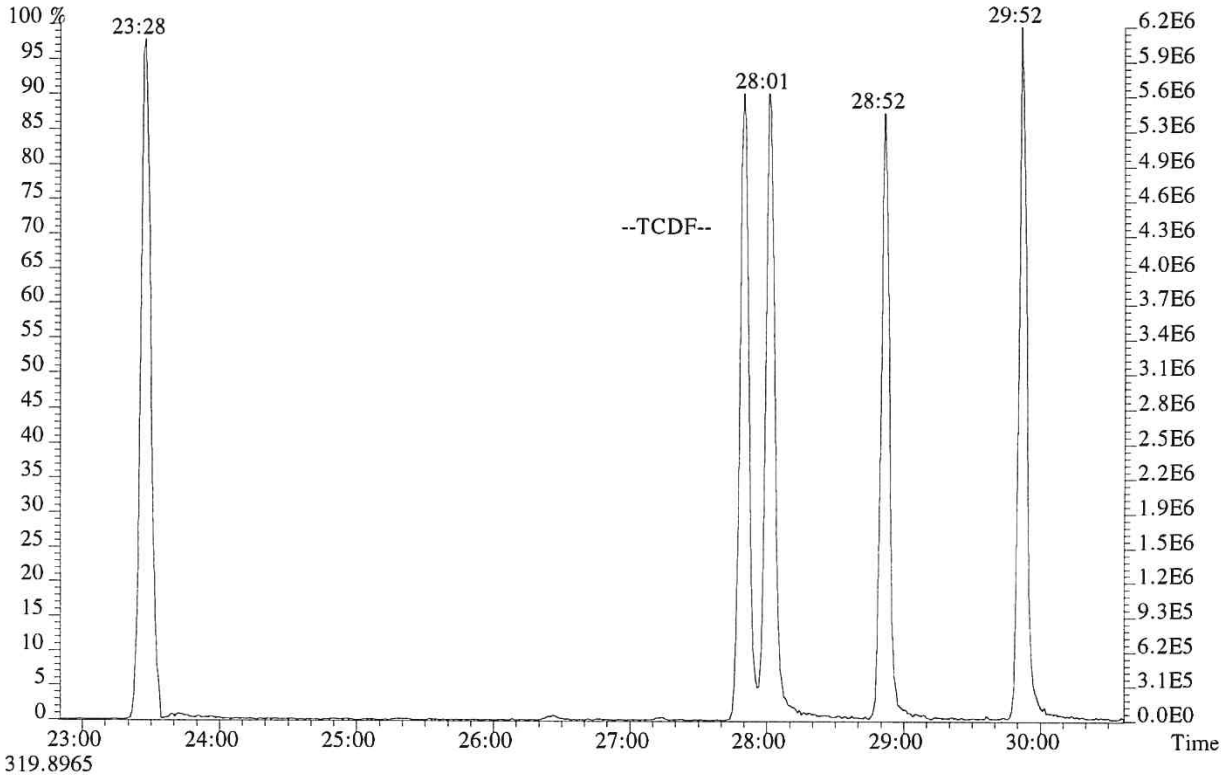
318.9792

LKL 09/26/18

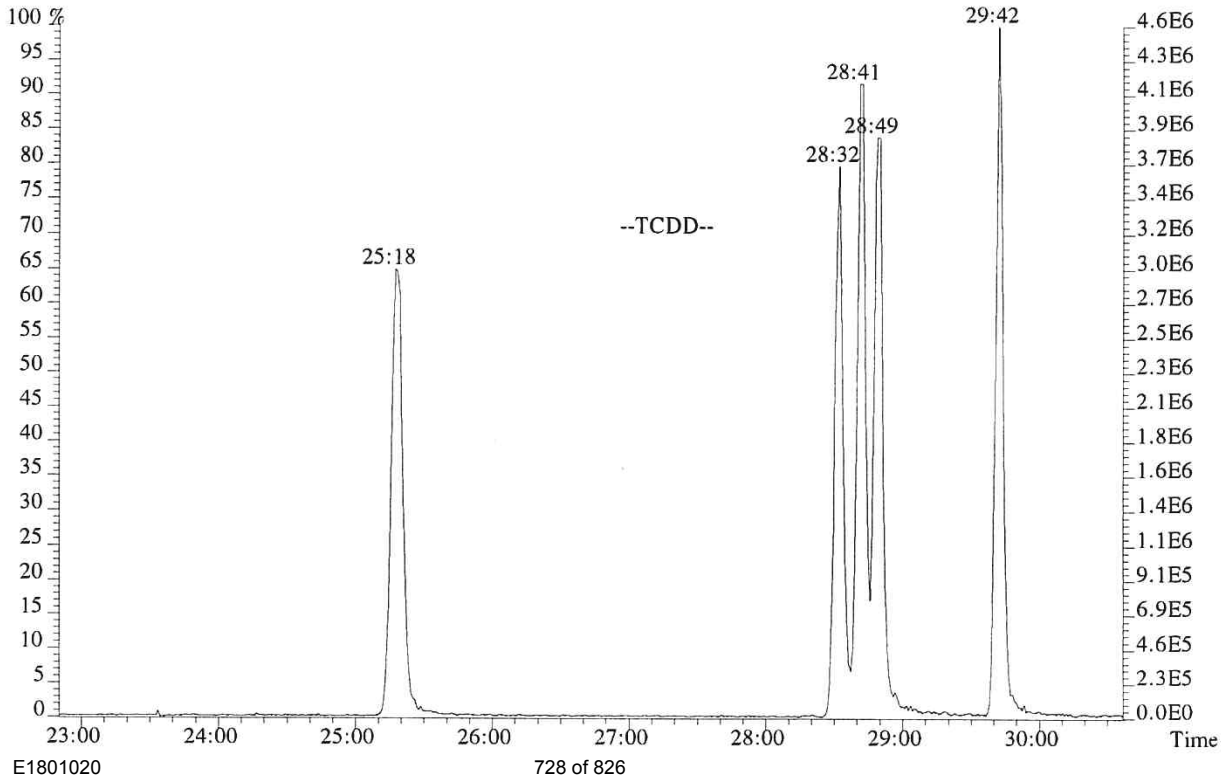


010234

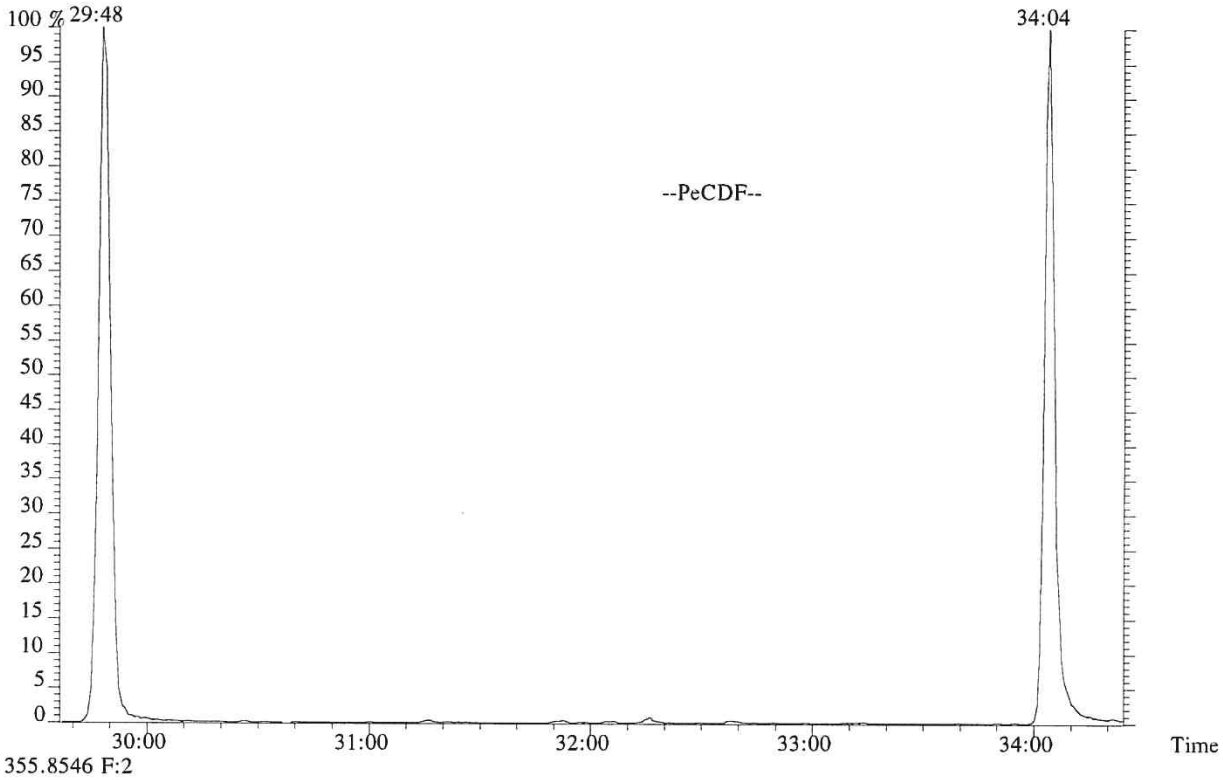
File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



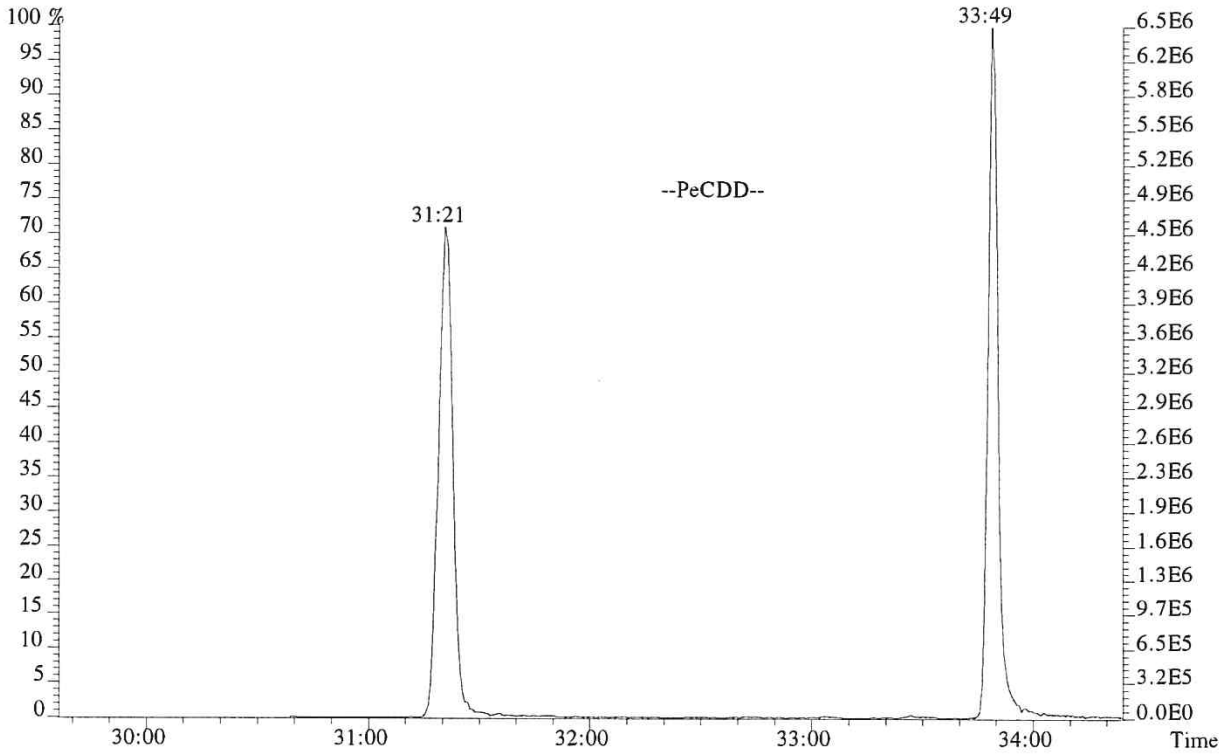
319.8965



File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

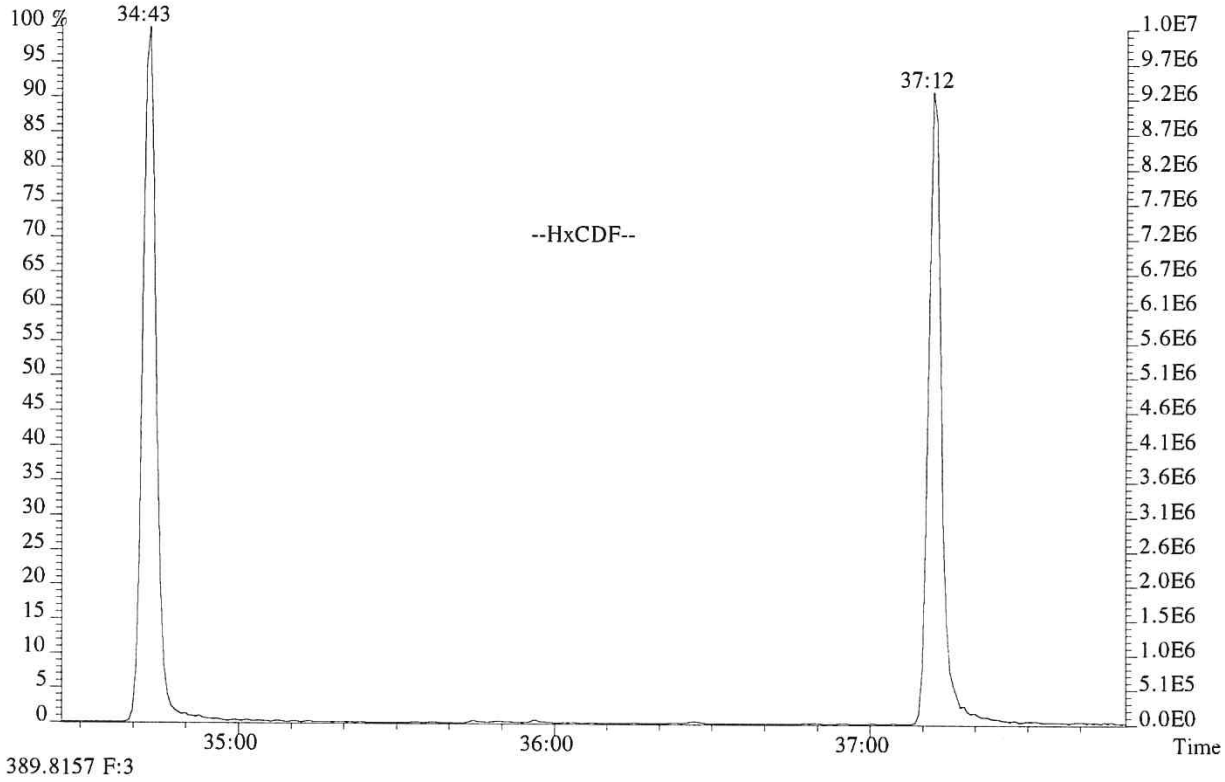


355.8546 F:2

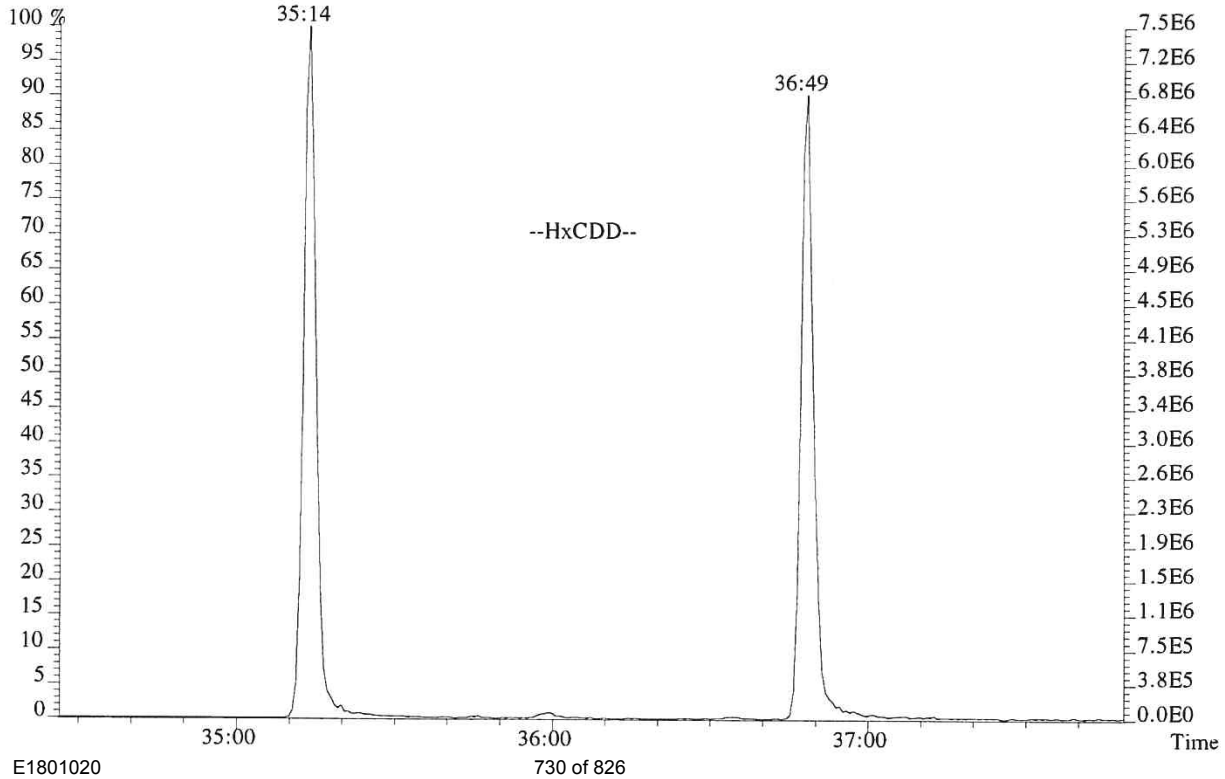


010236

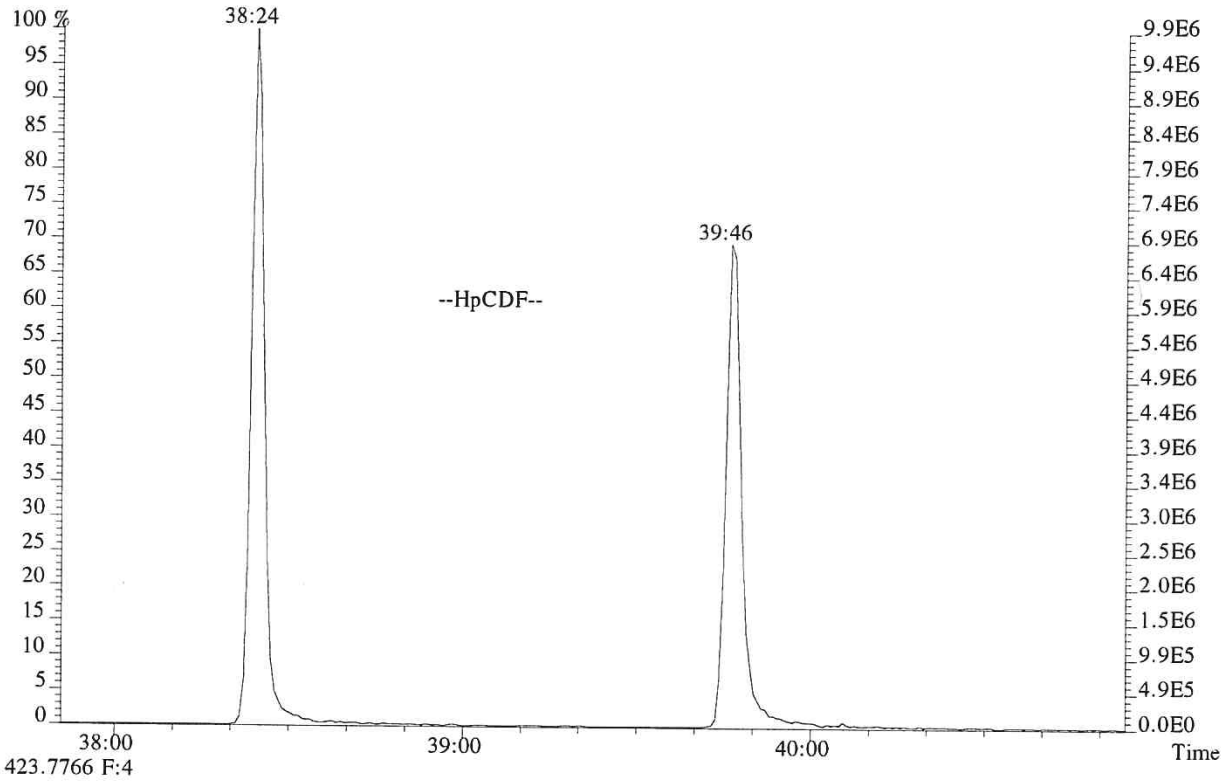
File:P614680 #1-304 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



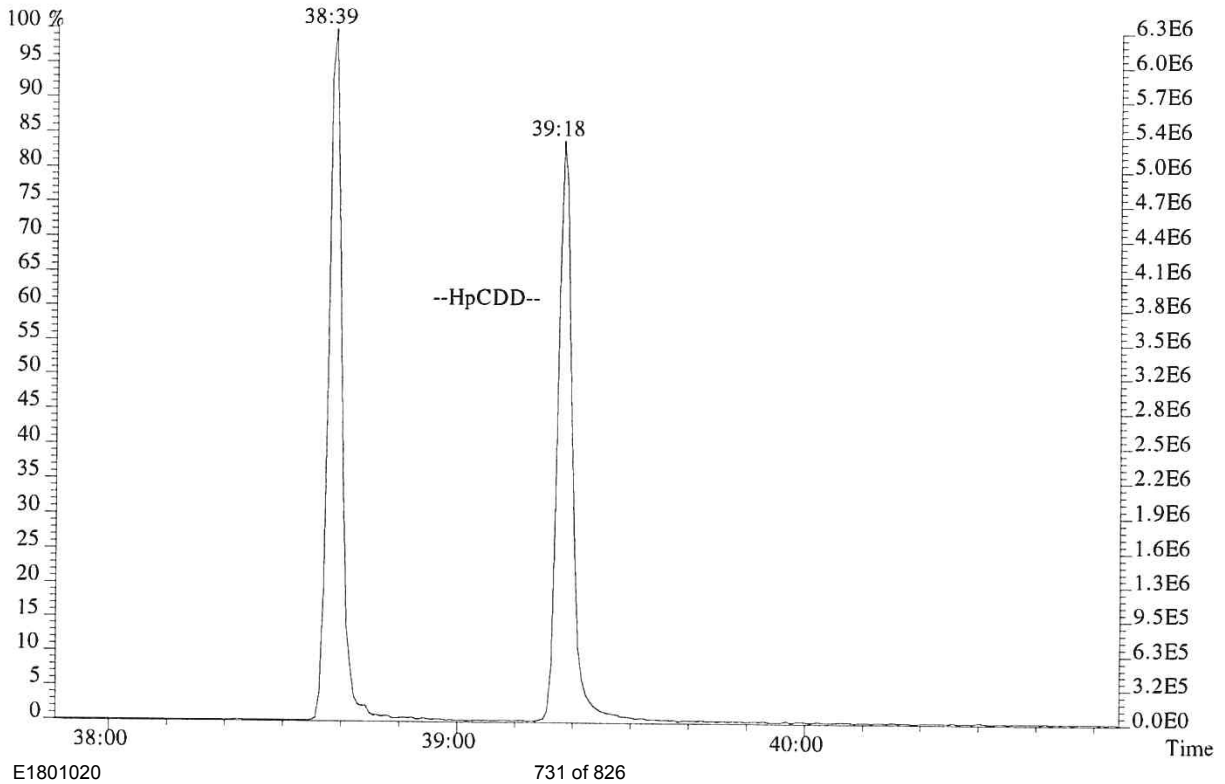
389.8157 F:3



File:P614680 #1-276 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



010238

USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

	RR/RRF						MEAN		
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.15	1.00	1.00	1.03	1.05	1.06	1.05	5.38	+/-20%
2,3,7,8-TCDF	1.13	1.08	1.12	1.05	1.06	1.05	1.08	3.07	+/-20%
1,2,3,7,8-PeCDF	1.16	1.17	1.12	1.15	1.16	1.18	1.16	1.72	+/-20%
1,2,3,7,8-PeCDD	0.89	0.95	0.95	0.91	0.93	0.93	0.93	2.61	+/-20%
2,3,4,7,8-PeCDF	1.10	1.13	1.10	1.08	1.10	1.11	1.10	1.49	+/-20%
1,2,3,4,7,8-HxCDF	1.47	1.46	1.39	1.36	1.38	1.42	1.42	3.10	+/-20%
1,2,3,6,7,8-HxCDF	1.27	1.36	1.30	1.28	1.28	1.28	1.29	2.52	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.11	1.04	1.06	1.05	1.06	1.07	3.00	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.07	1.06	1.06	1.06	1.05	1.06	0.70	+/-20%
1,2,3,7,8,9-HxCDD	1.17	1.18	1.12	1.13	1.14	1.12	1.15	2.24	+/-20%
2,3,4,6,7,8-HxCDF	1.27	1.32	1.29	1.28	1.27	1.27	1.28	1.52	+/-20%
1,2,3,7,8,9-HxCDF	1.34	1.34	1.29	1.30	1.30	1.30	1.31	1.68	+/-20%
1,2,3,4,6,7,8-HpCDF	1.56	1.60	1.46	1.50	1.51	1.51	1.52	3.15	+/-20%
1,2,3,4,6,7,8-HpCDD	1.14	1.13	1.09	1.10	1.10	1.11	1.11	1.85	+/-20%
1,2,3,4,7,8,9-HpCDF	1.47	1.54	1.46	1.45	1.43	1.43	1.46	2.80	+/-20%
OCDD	1.22	1.21	1.10	1.14	1.14	1.14	1.16	4.23	+/-20%
OCDF	1.60	1.61	1.49	1.57	1.57	1.59	1.57	2.60	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.98	0.97	0.97	1.00	1.01	0.98	2.13	+/-35%
13C-1,2,3,7,8-PeCDD	1.09	1.05	1.16	1.13	1.16	1.15	1.12	3.77	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.90	0.91	0.90	0.90	0.89	0.90	0.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.92	0.92	0.89	0.89	0.91	0.90	0.90	1.52	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.86	0.88	0.85	0.86	0.84	0.84	0.86	1.91	+/-35%
13C-OCDD	0.65	0.69	0.65	0.67	0.65	0.65	0.66	2.45	+/-35%
13C-2,3,7,8-TCDF	1.40	1.41	1.42	1.44	1.40	1.43	1.42	1.24	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.54	1.61	1.61	1.65	1.63	1.60	3.24	+/-35%
13C-2,3,4,7,8-PeCDF	1.52	1.49	1.60	1.57	1.63	1.61	1.57	3.42	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.18	1.19	1.14	1.21	1.18	1.06	1.16	4.58	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.39	1.34	1.33	1.35	1.31	1.29	1.34	2.46	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.24	1.24	1.25	1.24	1.25	1.06	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.13	1.13	1.12	1.15	1.15	1.10	1.13	1.66	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.06	1.02	1.04	1.01	1.01	1.03	1.93	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.94	0.95	0.90	0.86	0.90	0.88	0.91	3.64	+/-35%
37Cl-2,3,7,8-TCDD	1.06	1.11	1.07	1.05	1.11	1.13	1.09	3.15	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP

6DFB6

CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY

HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.75	0.75	0.83	0.80	0.79	0.80		0.65-0.89
2,3,7,8-TCDD	320/322	0.78	0.83	0.80	0.78	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.58	1.57	1.58	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.57	1.61	1.57	1.58	1.59	1.59		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.56	1.52	1.53	1.55	1.55	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.26	1.28	1.29		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.24	1.25	1.27	1.27	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.29	1.25	1.28	1.28	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.22	1.29	1.23	1.28	1.28	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.21	1.20	1.26	1.33	1.26	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.41	1.27	1.25	1.23	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.22	1.25	1.24	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.04	1.02	1.06	1.05	1.04	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.89	1.07	1.05	1.04	1.05	1.05		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.10	1.07	1.07	1.06	1.06	1.06		0.88-1.20
OCDF	442/444	0.90	0.87	0.91	0.92	0.93	0.92		0.76-1.02
OCDD	458/460	0.93	0.89	0.88	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.80	0.80	0.80	0.80	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.58	1.57	1.58	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.26	1.26	1.32	1.25	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.26	1.26	1.20	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.04	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.91	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.80	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.60	1.60	1.60	1.60		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.62	1.61	1.59	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.54	0.54	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.54	0.54	0.53	0.54	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.53	0.54	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.46	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.46	0.45	0.46	0.45	0.46		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.81	0.81	0.80	0.79	0.81		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.26	1.26	1.24	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.991e+02	5.332e+02	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.245e+03	1.970e+03	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:10	3.017e+03	1.917e+03	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.964e+03	2.360e+03	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.032e+03	2.349e+03	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.788e+03	2.154e+03	1.29	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.544e+03	2.080e+03	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.520e+03	2.421e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.988e+03	2.226e+03	0.89	yes	no	1.463
10	Unk	OCDF	42:13	3.006e+03	3.322e+03	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:49	2.873e+02	3.690e+02	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.757e+03	1.126e+03	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.695e+03	1.402e+03	1.21	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.736e+03	1.234e+03	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.790e+03	1.494e+03	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.575e+03	1.438e+03	1.10	yes	no	1.112
17	Unk	OCDD	42:01	2.333e+03	2.510e+03	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	28:00	1.453e+05	1.860e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.225e+05	1.378e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.208e+05	1.389e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	1.017e+05	1.873e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.172e+05	2.227e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.097e+05	2.020e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.463e+04	1.814e+05	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	7.990e+04	1.736e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	7.243e+04	1.569e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.005e+05	1.270e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.588e+05	1.004e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.251e+05	9.838e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.252e+05	9.893e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.083e+05	1.026e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:01	1.503e+05	1.668e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.058e+05	1.311e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.355e+05	1.094e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.272e+02				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+04	1.79e+03	3.7e+01	1.00e+05	4.41e+03	2.3e+01
2	1,2,3,7,8-PeCDF	5.99e+05	1.18e+03	5.1e+02	3.57e+05	4.28e+03	8.3e+01
3	2,3,4,7,8-PeCDF	5.69e+05	1.18e+03	4.8e+02	3.70e+05	4.28e+03	8.7e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.85e+05	1.42e+03	3.4e+02
5	1,2,3,6,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.95e+05	1.42e+03	3.5e+02
6	2,3,4,6,7,8-HxCDF	6.03e+05	3.25e+03	1.9e+02	4.83e+05	1.42e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	4.97e+05	3.25e+03	1.5e+02	4.13e+05	1.42e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.62e+05	1.66e+03	3.4e+02	5.47e+05	1.04e+03	5.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.66e+03	2.4e+02	4.51e+05	1.04e+03	4.3e+02
10	OCDF	5.23e+05	1.34e+03	3.9e+02	5.81e+05	4.02e+03	1.4e+02
11	2,3,7,8-TCDD	6.18e+04	5.07e+03	1.2e+01	6.68e+04	2.40e+03	2.8e+01
12	1,2,3,7,8-PeCDD	3.47e+05	2.36e+03	1.5e+02	2.20e+05	2.64e+02	8.3e+02
13	1,2,3,4,7,8-HxCDD	3.95e+05	1.84e+03	2.1e+02	3.18e+05	1.66e+03	1.9e+02
14	1,2,3,6,7,8-HxCDD	3.64e+05	1.84e+03	2.0e+02	2.60e+05	1.66e+03	1.6e+02
15	1,2,3,7,8,9-HxCDD	4.06e+05	1.84e+03	2.2e+02	3.23e+05	1.66e+03	1.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.19e+05	2.32e+03	1.4e+02	3.31e+05	1.19e+03	2.8e+02
17	OCDD	4.28e+05	8.48e+02	5.0e+02	4.37e+05	1.30e+03	3.4e+02
18	13C-2,3,7,8-TCDF	2.54e+07	1.52e+04	1.7e+03	3.22e+07	1.06e+04	3.1e+03
19	13C-1,2,3,7,8-PeCDF	4.04e+07	2.12e+03	1.9e+04	2.49e+07	3.13e+03	8.0e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+07	2.12e+03	2.0e+04	2.67e+07	3.13e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.18e+07	3.28e+03	6.7e+03	4.05e+07	3.71e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.40e+07	3.28e+03	7.3e+03	4.55e+07	3.71e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.42e+07	3.28e+03	7.4e+03	4.44e+07	3.71e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.91e+07	3.28e+03	5.8e+03	3.68e+07	3.71e+03	9.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+07	5.66e+03	3.2e+03	3.90e+07	2.05e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+07	5.66e+03	2.6e+03	3.15e+07	2.05e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.84e+07	1.55e+04	1.2e+03	2.34e+07	5.32e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+07	3.24e+03	9.6e+03	1.95e+07	2.82e+03	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	5.20e+03	5.5e+03	2.24e+07	3.08e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+07	5.20e+03	5.1e+03	2.10e+07	3.08e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	2.60e+03	8.7e+03	2.13e+07	2.03e+03	1.1e+04
32	13C-OCDD	2.73e+07	1.56e+03	1.8e+04	2.99e+07	4.32e+02	6.9e+04
33	13C-1,2,3,4-TCDD	1.96e+07	1.55e+04	1.3e+03	2.41e+07	5.32e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+07	5.20e+03	5.8e+03	2.40e+07	3.08e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.12e+05	4.66e+03	2.4e+01			

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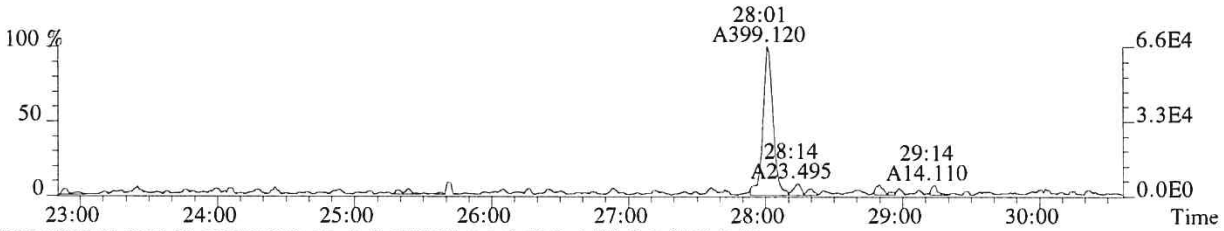
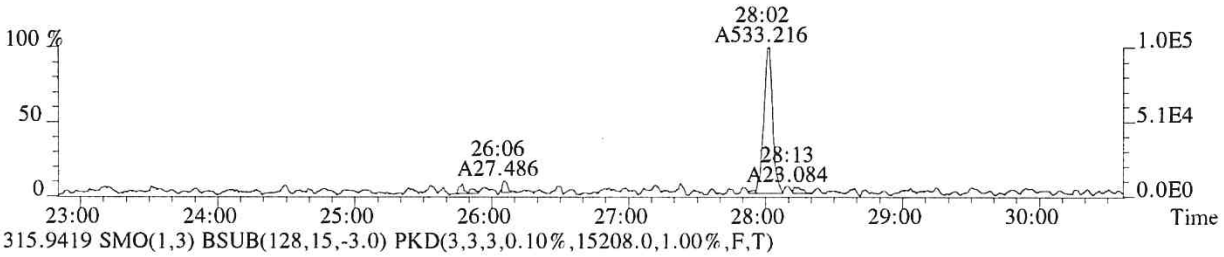
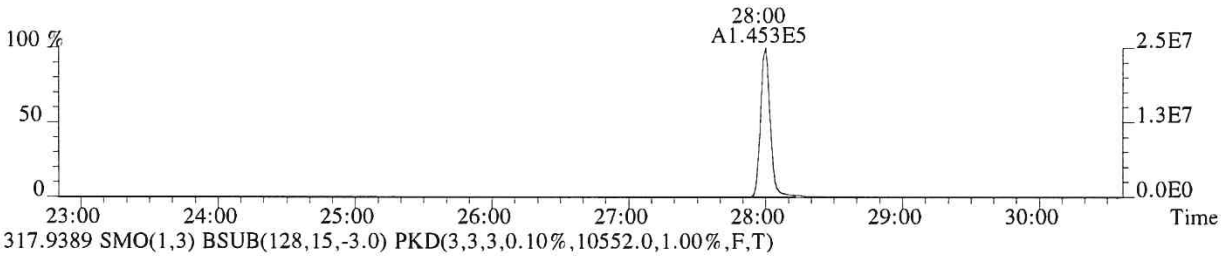
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



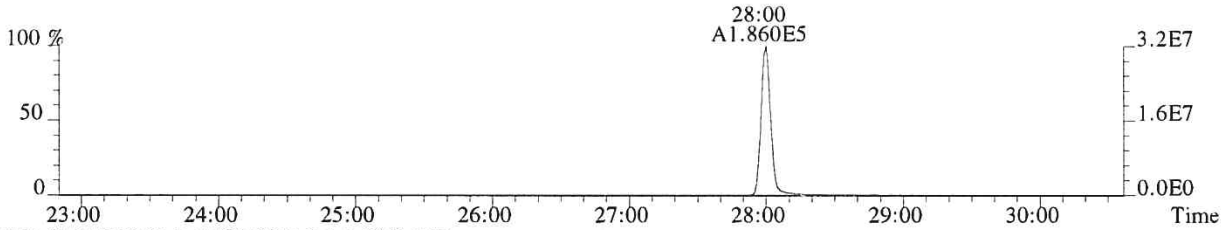
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



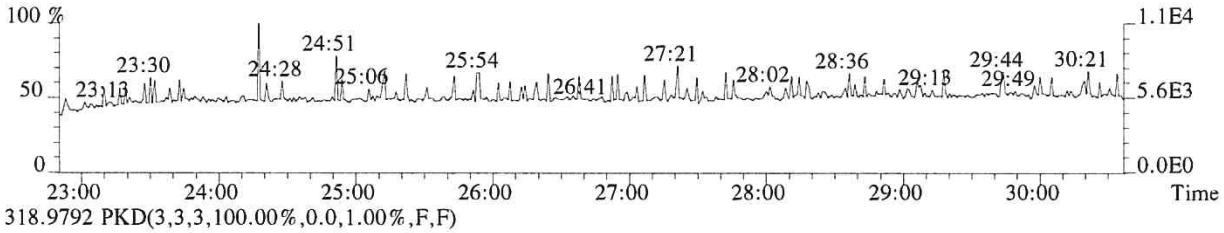
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15208.0,1.00%,F,T)



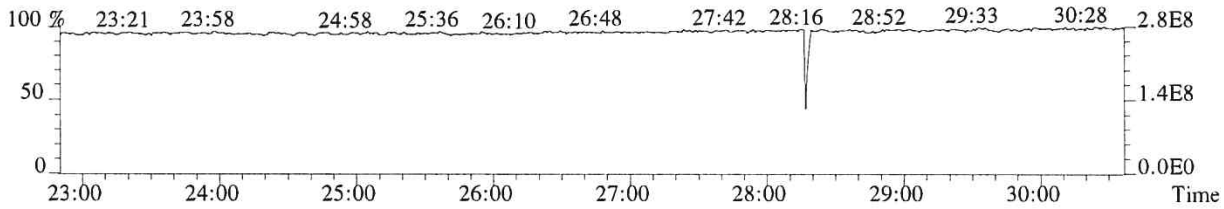
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

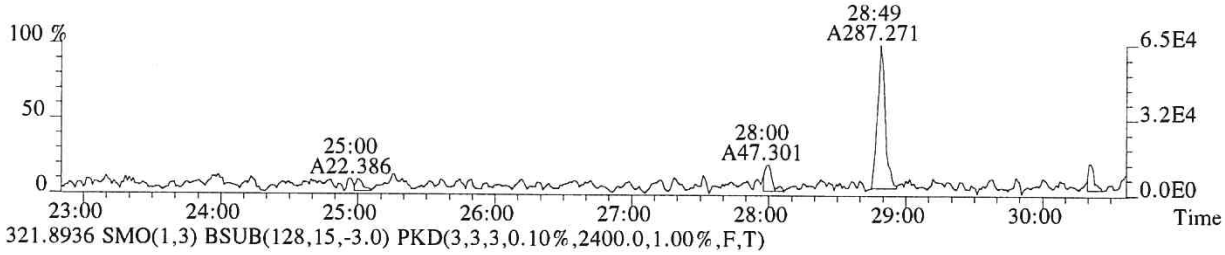


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

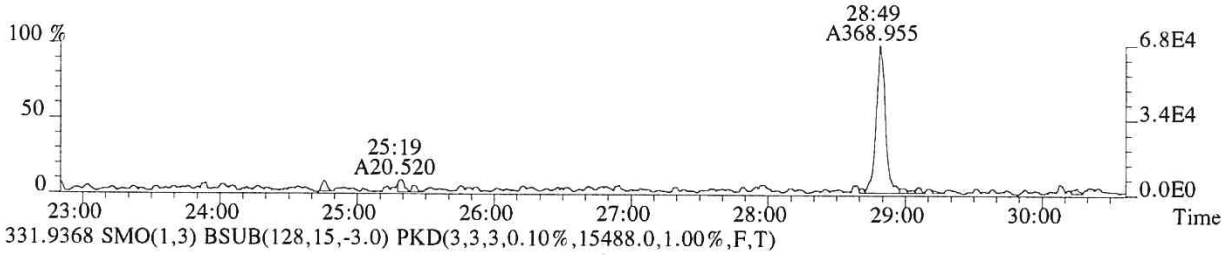


010243

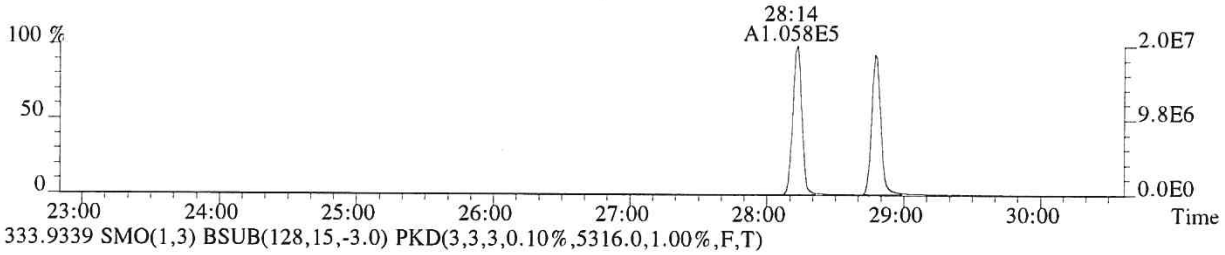
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5072.0,1.00%,F,T)



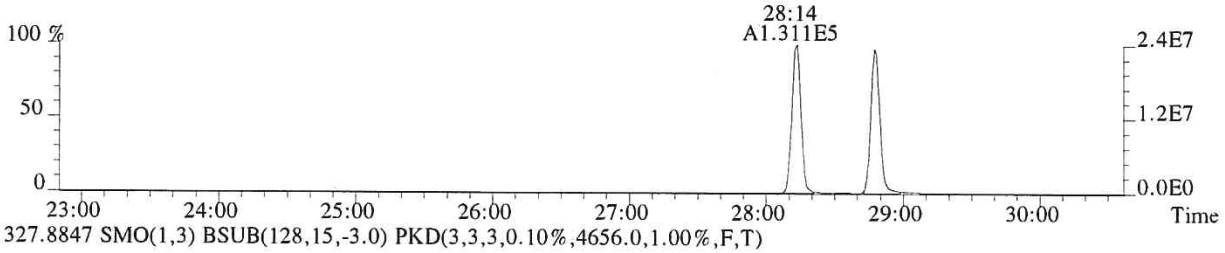
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



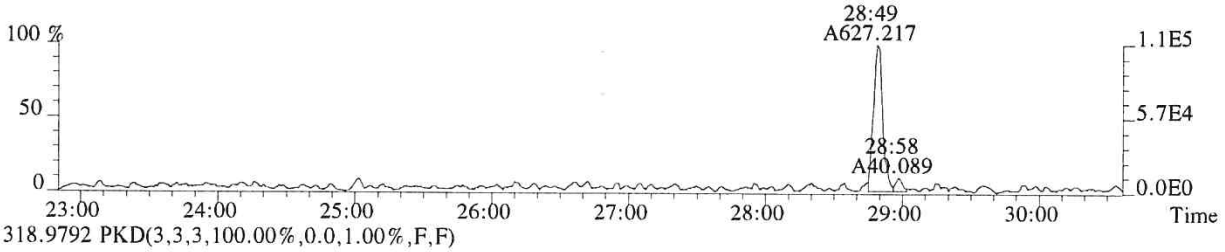
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15488.0,1.00%,F,T)



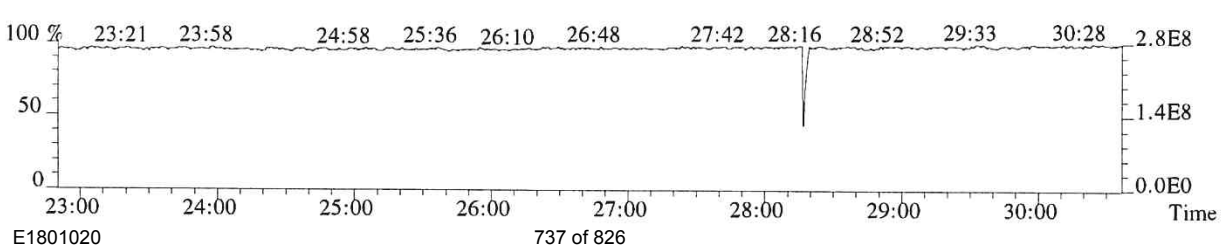
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5316.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)

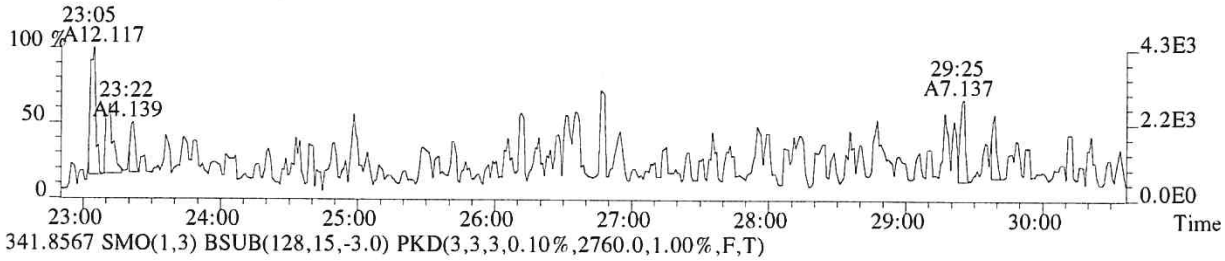


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

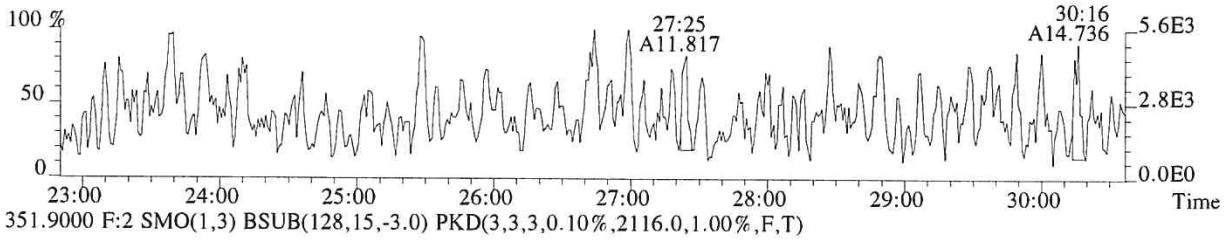


010244

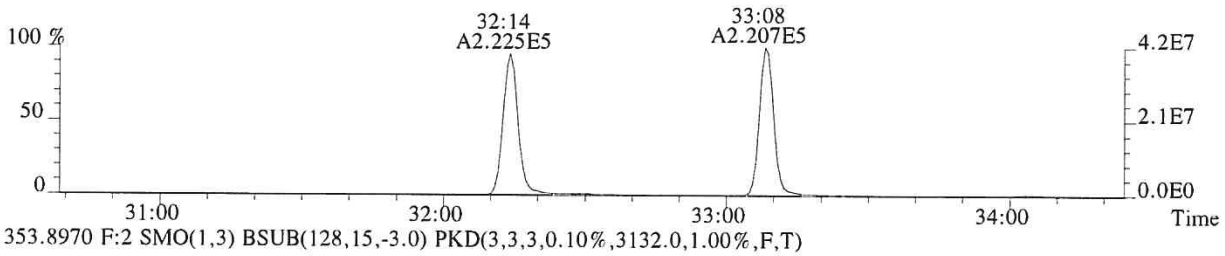
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



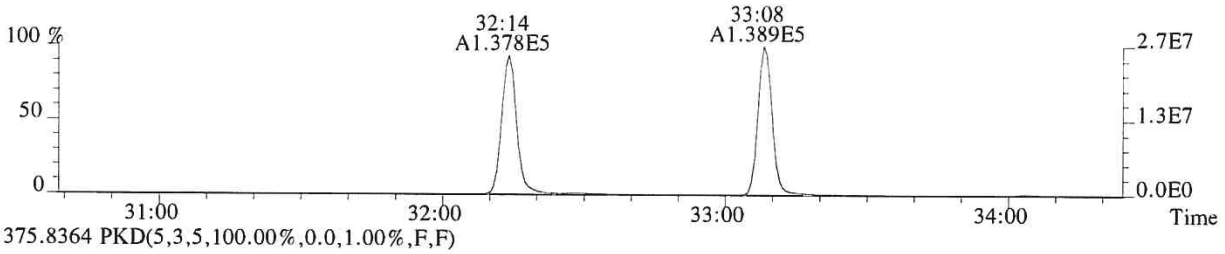
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



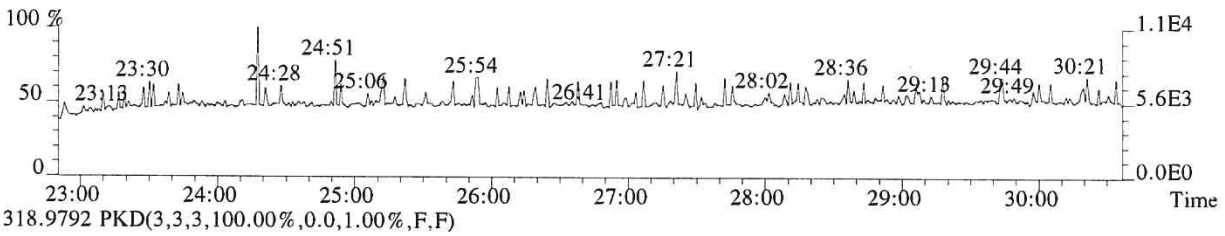
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



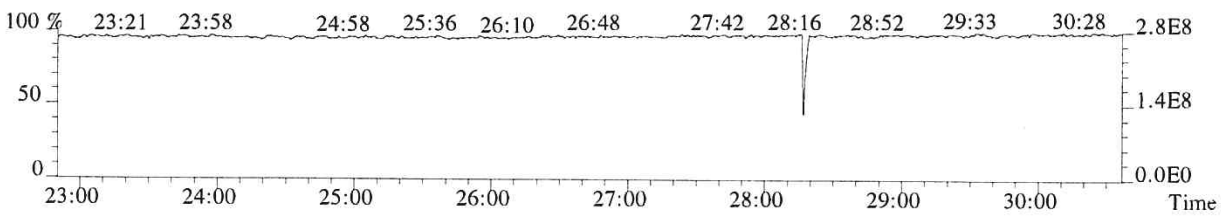
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

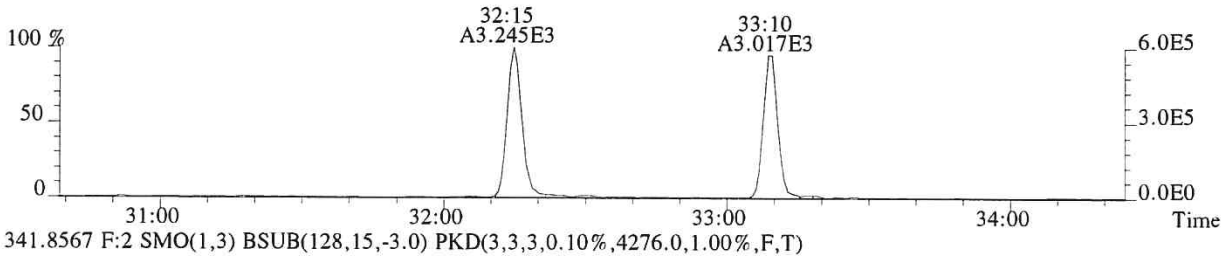


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

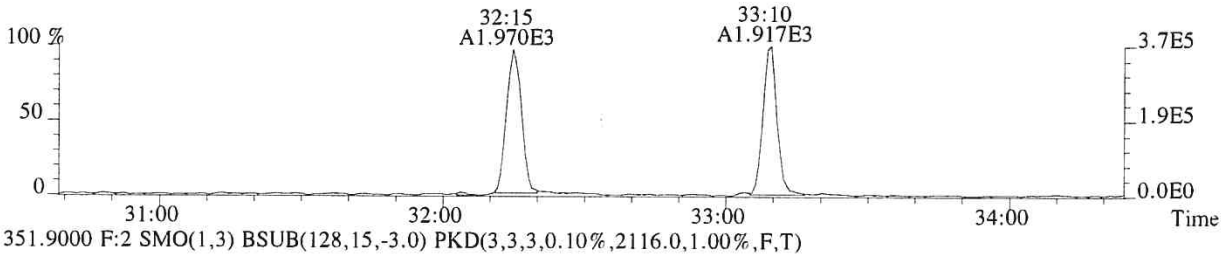


010245

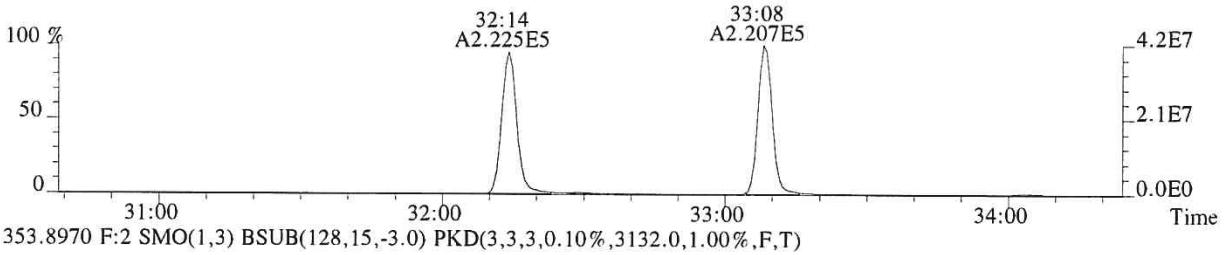
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



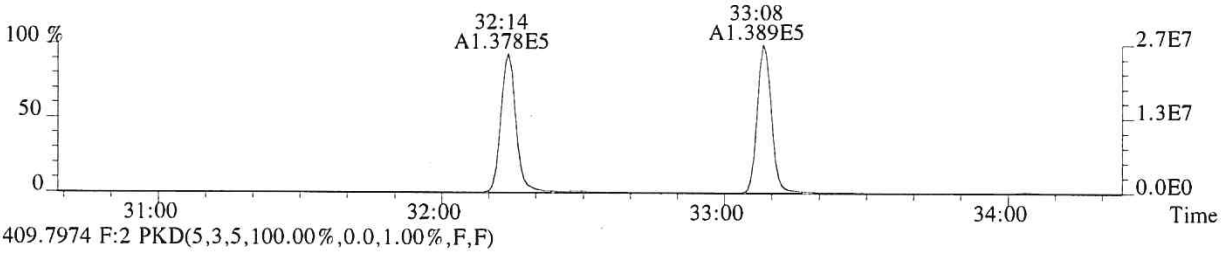
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4276.0,1.00%,F,T)



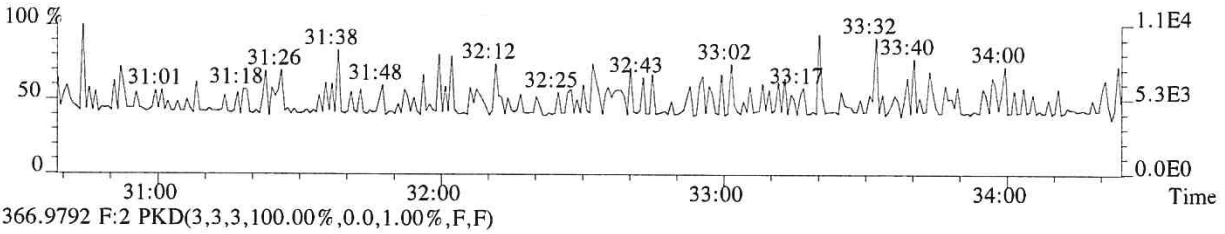
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



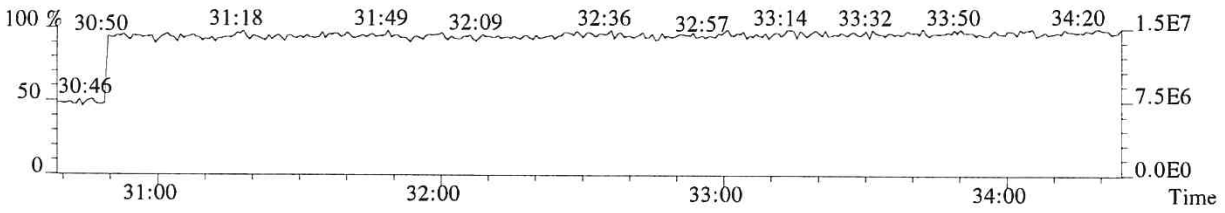
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



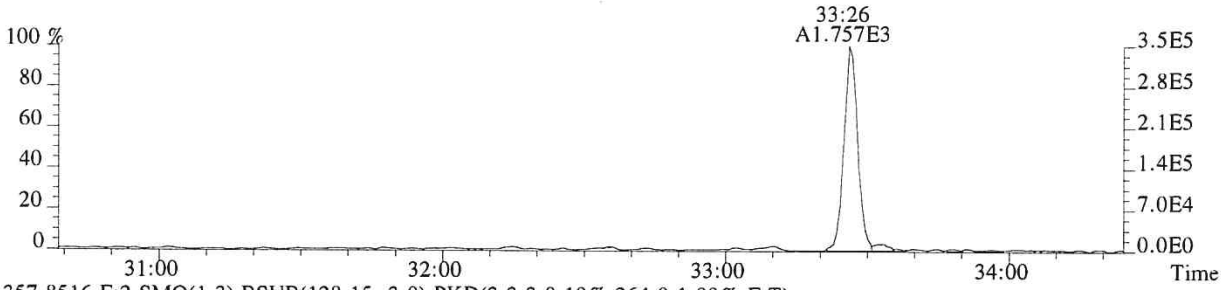
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



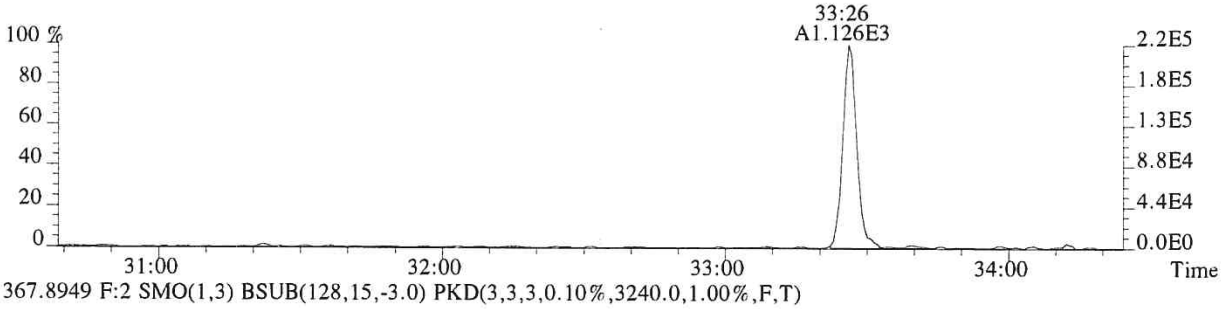
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



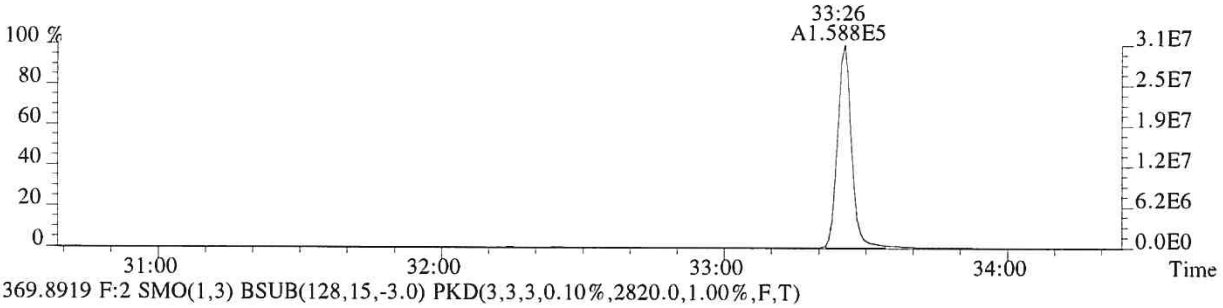
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



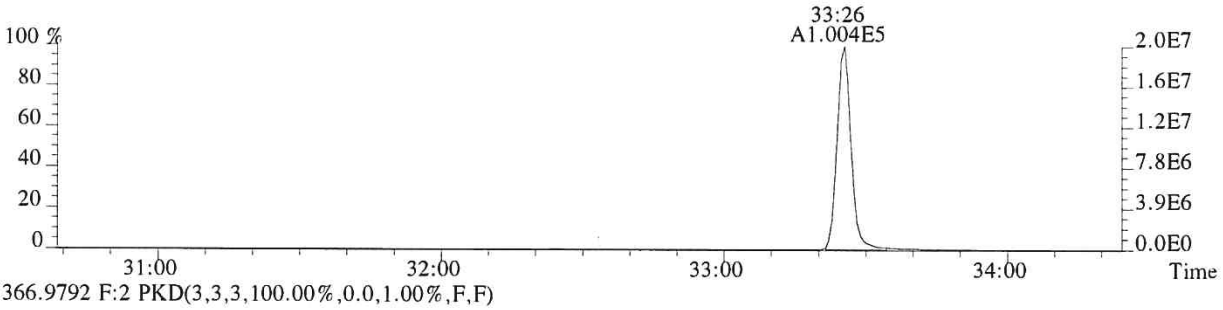
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



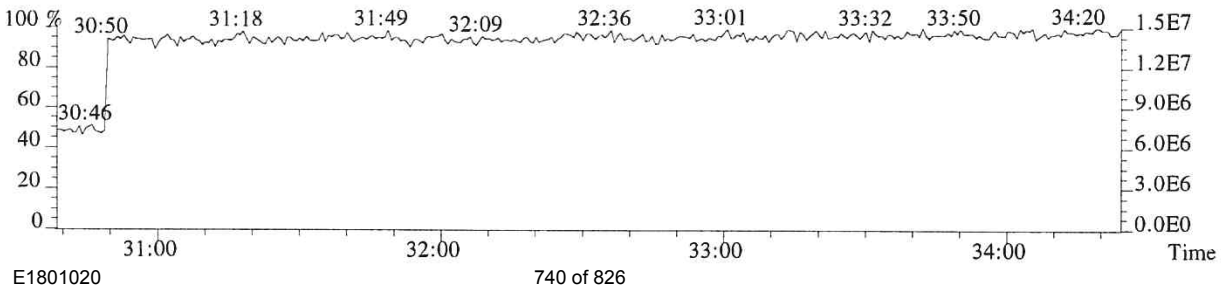
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



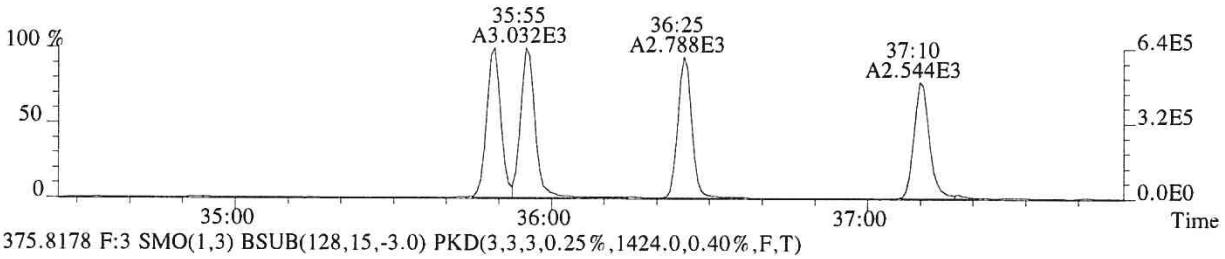
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



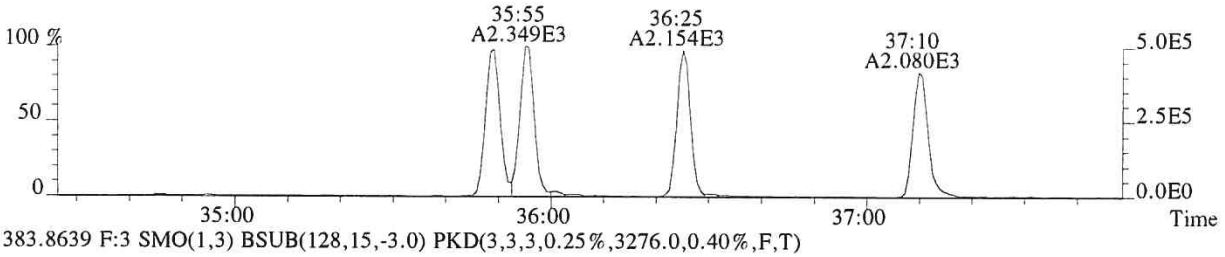
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



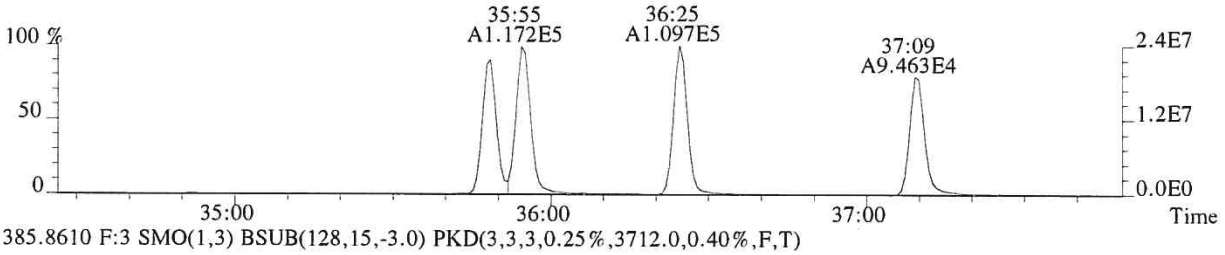
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.40%,F,T)



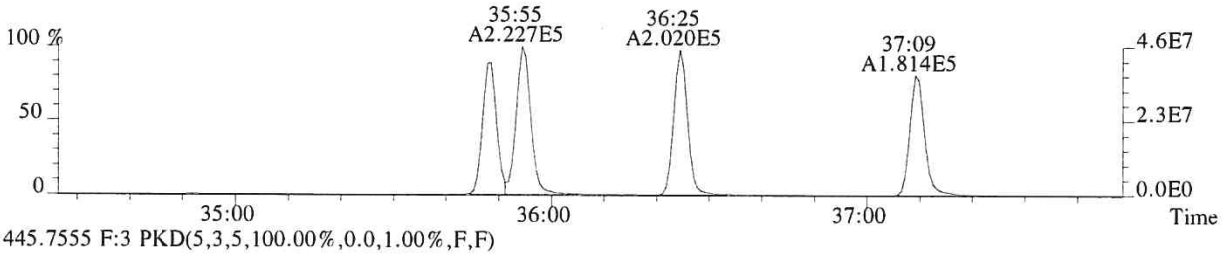
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



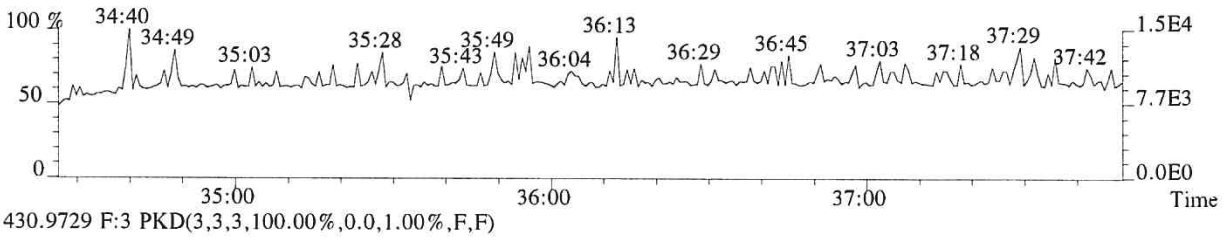
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



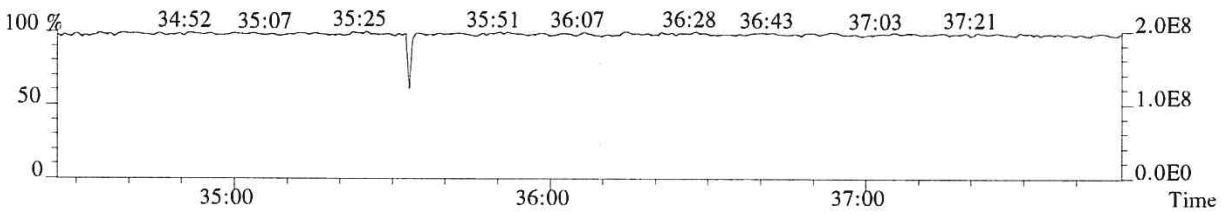
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.40%,F,T)



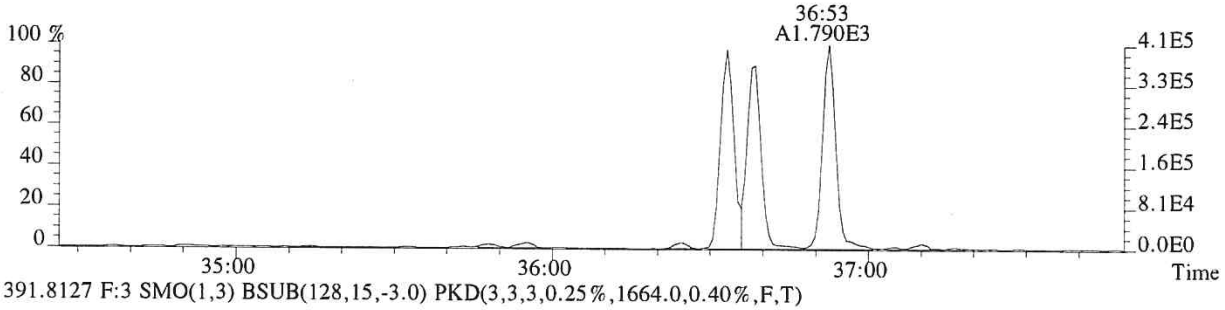
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



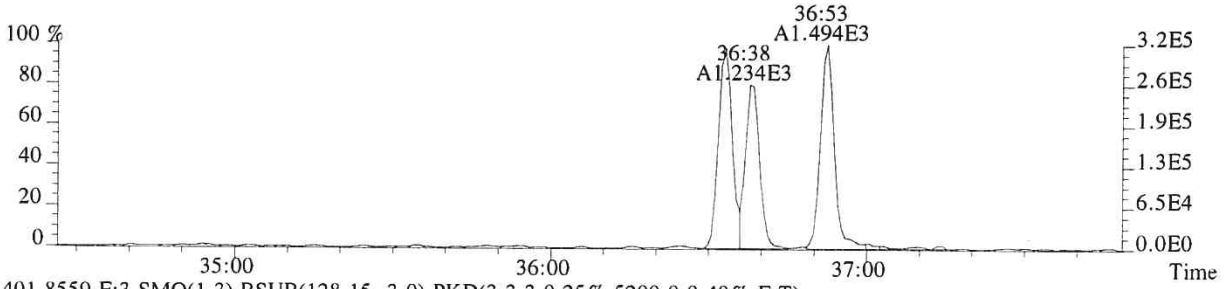
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



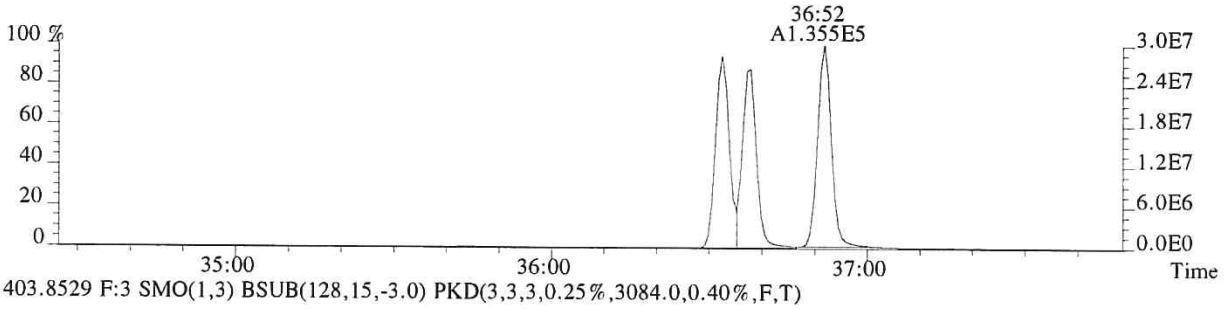
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



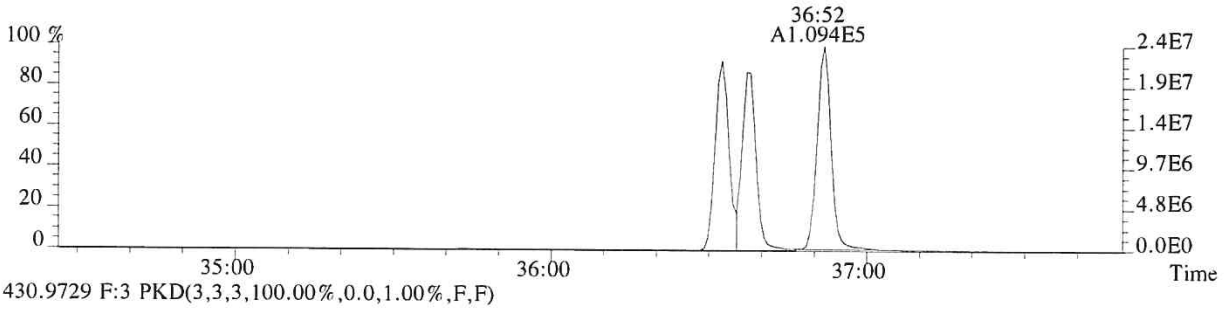
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



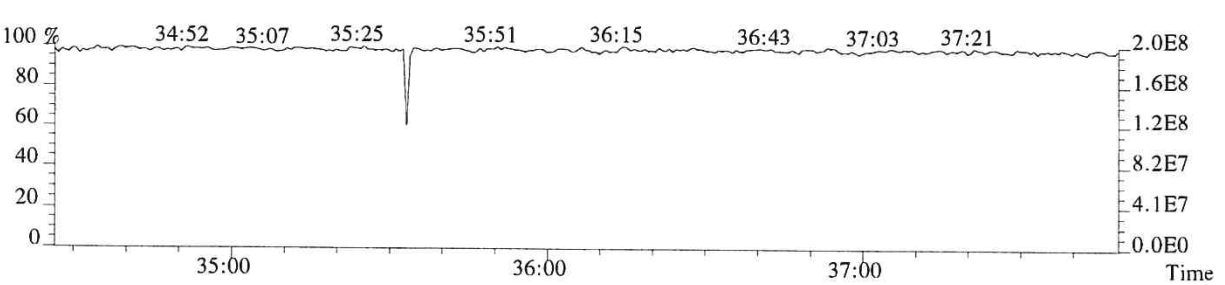
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5200.0,0.40%,F,T)



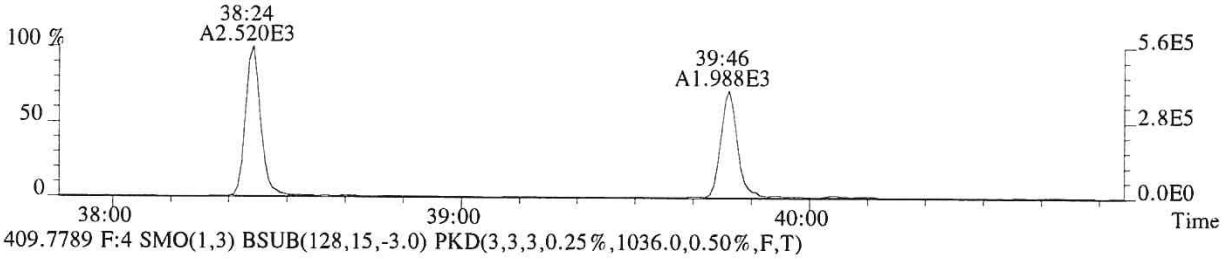
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



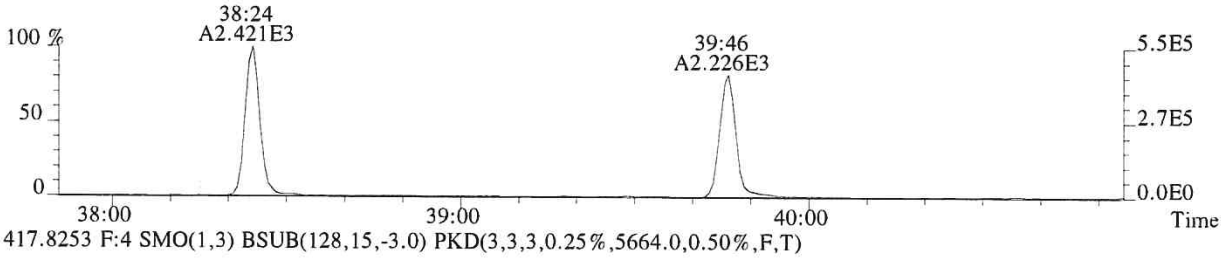
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



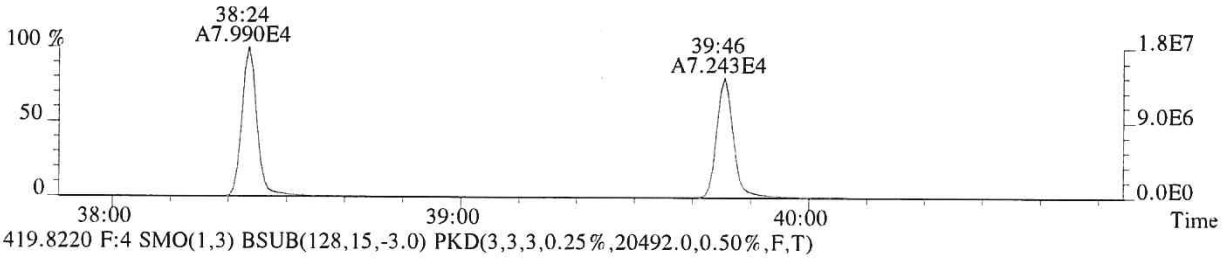
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.50%,F,T)



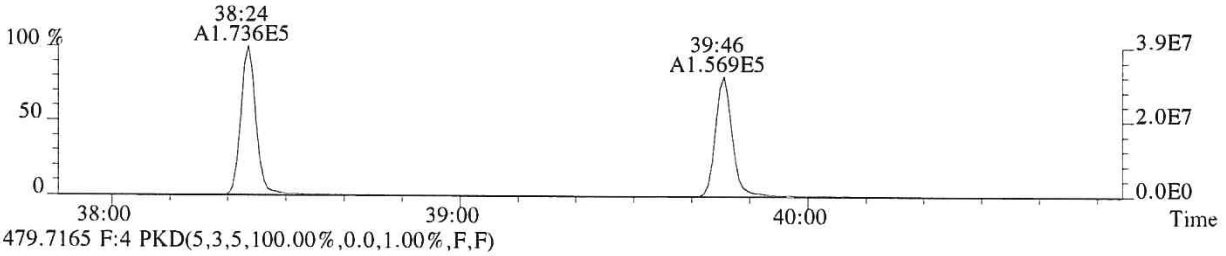
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



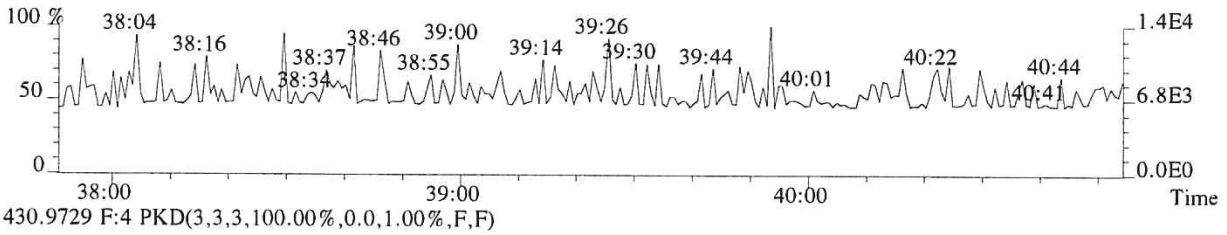
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5664.0,0.50%,F,T)



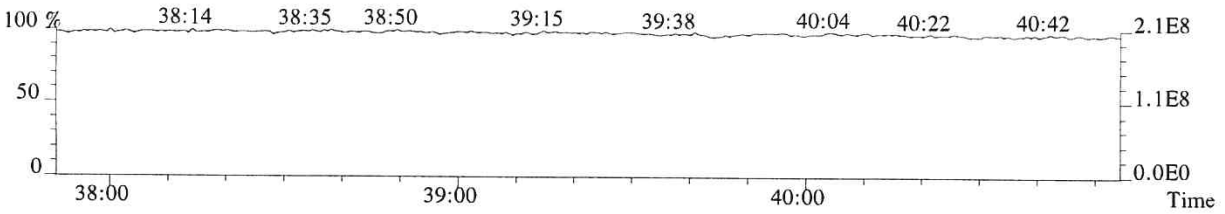
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20492.0,0.50%,F,T)



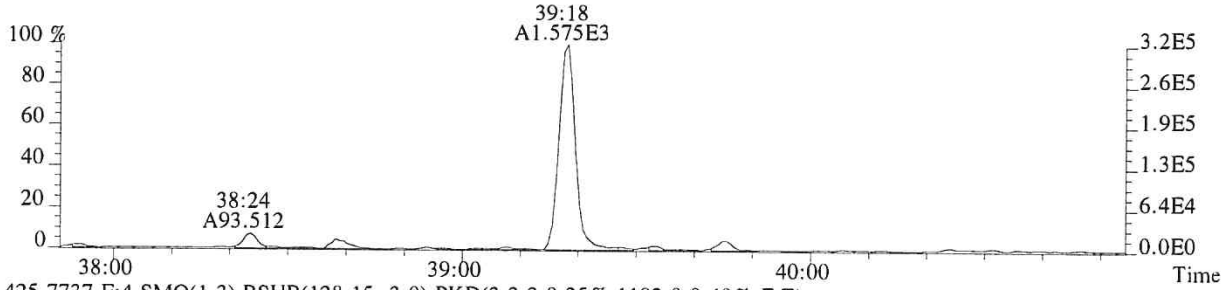
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



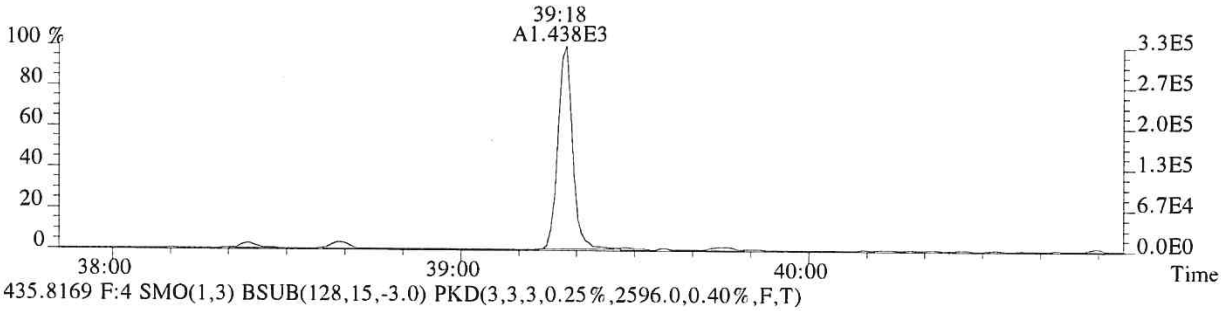
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



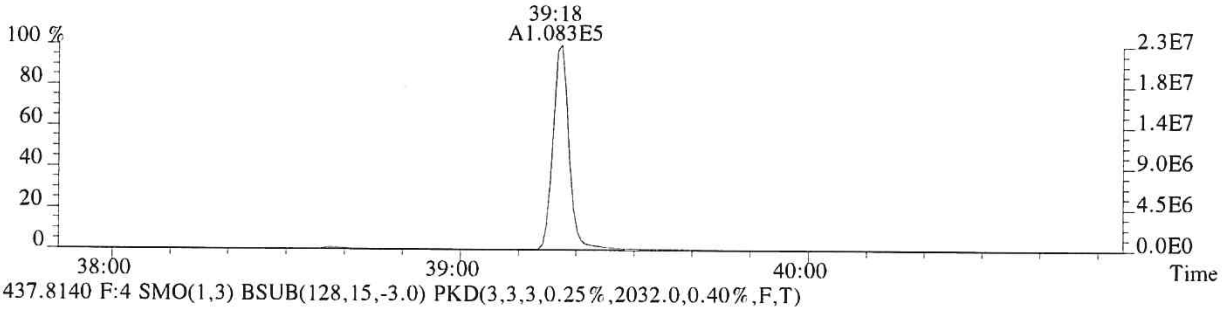
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



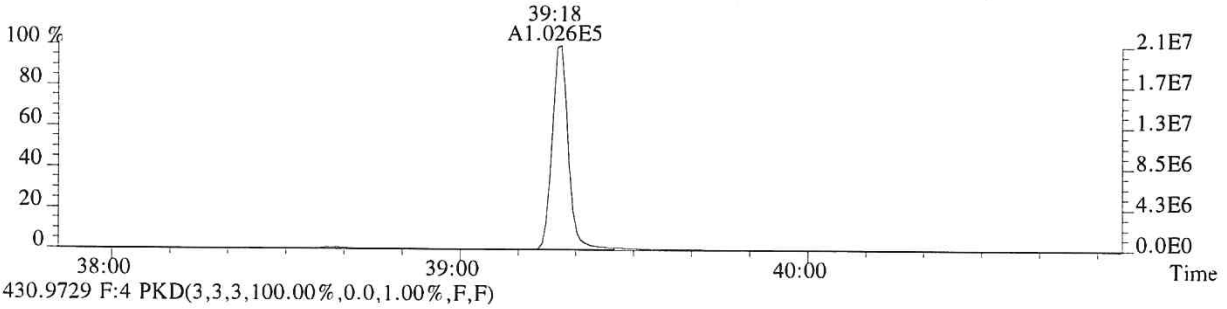
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



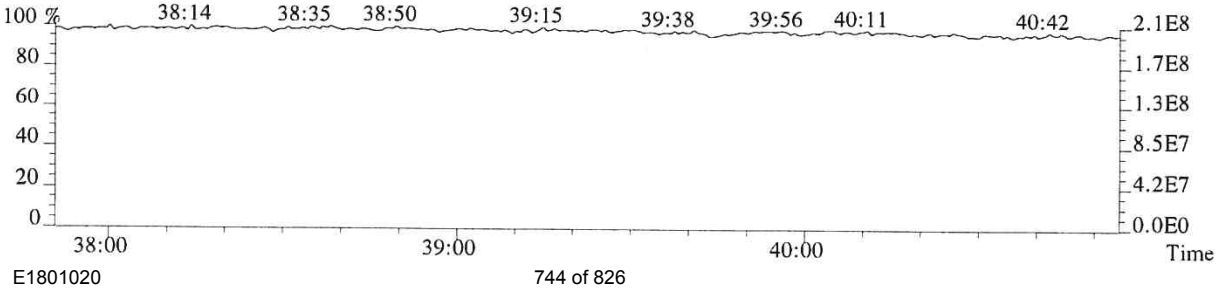
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.40%,F,T)



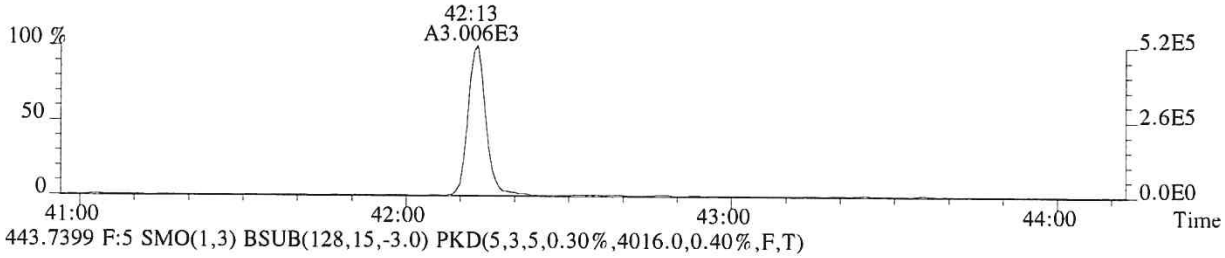
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



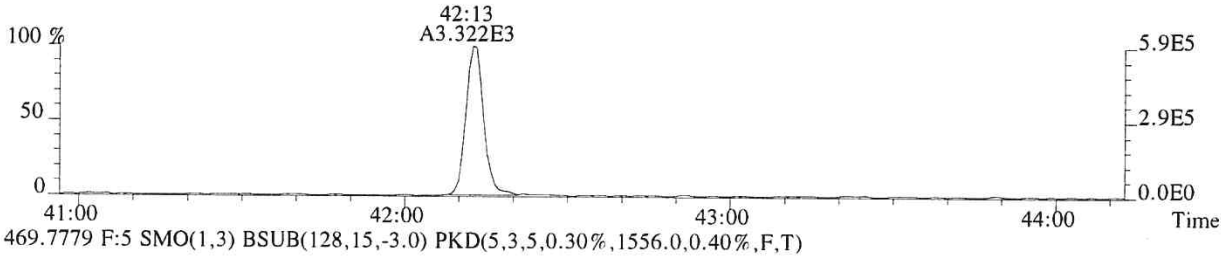
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



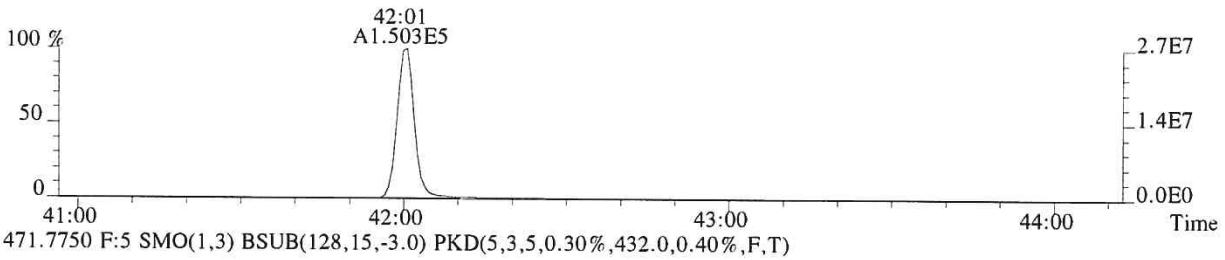
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



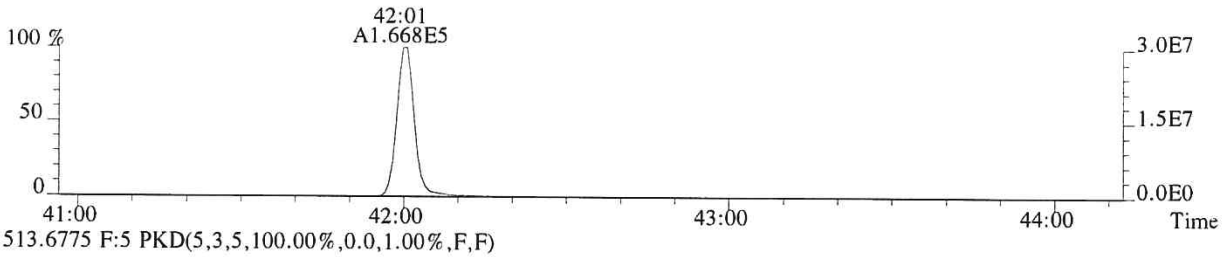
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4016.0,0.40%,F,T)



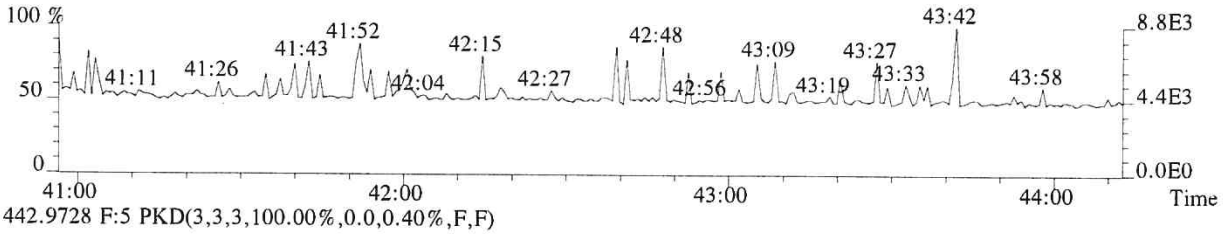
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



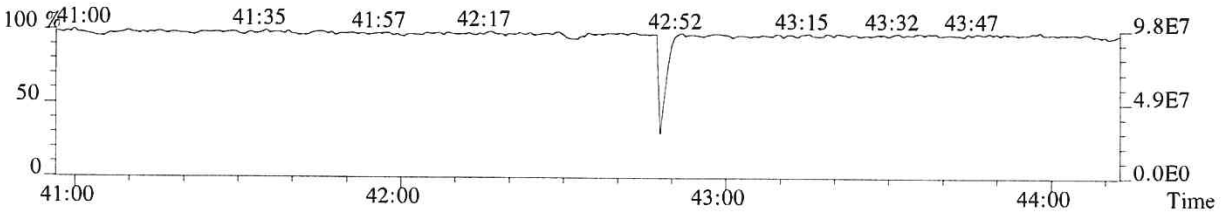
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



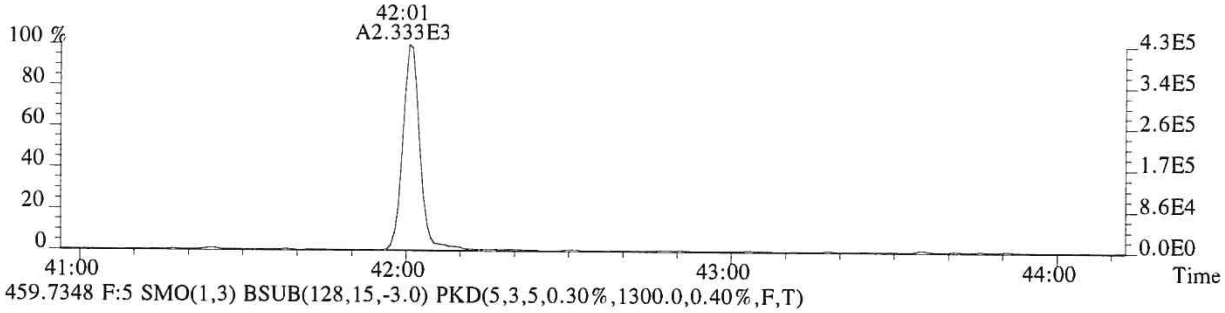
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



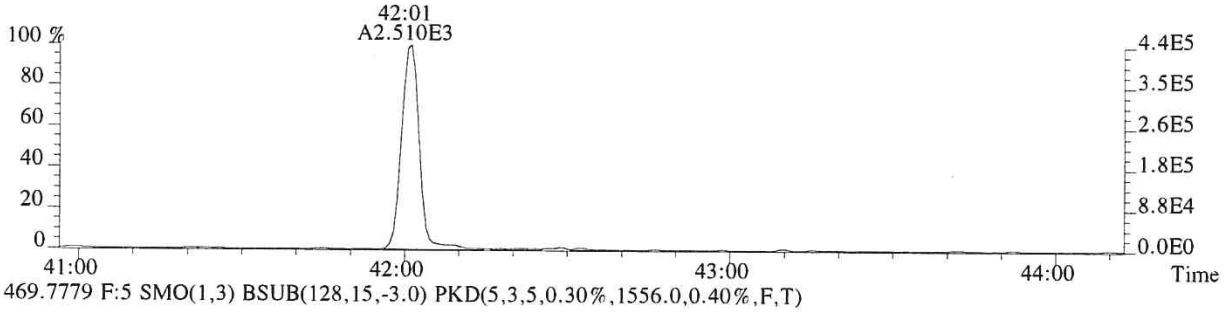
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



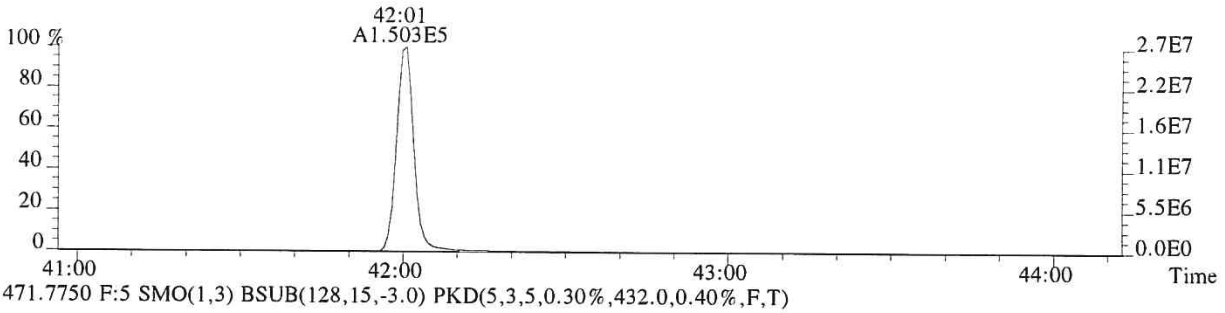
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



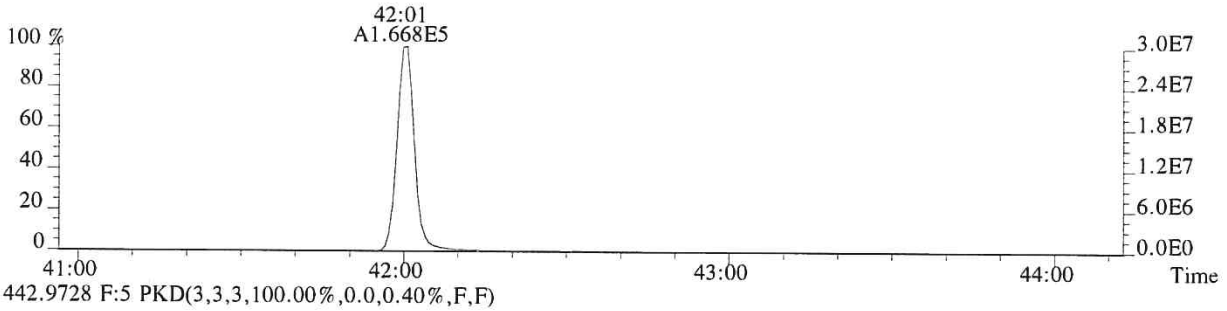
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



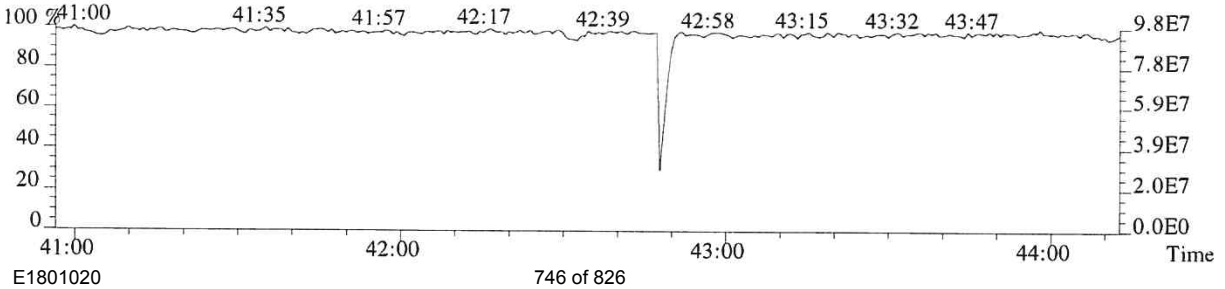
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	9.696e+02	1.301e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	8.209e+03	5.211e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	7.782e+03	4.847e+03	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.580e+03	5.860e+03	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.826e+03	6.295e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	7.149e+03	5.707e+03	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	6.633e+03	5.137e+03	1.29	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	6.668e+03	6.509e+03	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	5.874e+03	5.515e+03	1.07	yes	no	1.463
10	Unk	OCDF	42:13	7.957e+03	9.190e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	6.591e+02	7.969e+02	0.83	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	4.521e+03	2.979e+03	1.52	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	4.250e+03	3.535e+03	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	4.303e+03	3.394e+03	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	4.586e+03	3.767e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.011e+03	3.764e+03	1.07	yes	no	1.112
17	Unk	OCDD	42:01	6.097e+03	6.815e+03	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.863e+05	2.330e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.845e+05	1.757e+05	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.739e+05	1.718e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.281e+05	2.407e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.461e+05	2.703e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.362e+05	2.538e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.215e+05	2.294e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.041e+05	2.259e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	9.345e+04	2.024e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.293e+05	1.616e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.924e+05	1.218e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.556e+05	1.239e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.601e+05	1.267e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.414e+05	1.336e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.022e+05	2.237e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.337e+05	1.646e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.731e+05	1.377e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.653e+03				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.73e+05	2.52e+03	6.9e+01	2.26e+05	4.68e+03	4.8e+01
2	1,2,3,7,8-PeCDF	1.49e+06	1.07e+03	1.4e+03	9.88e+05	5.47e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.55e+06	1.07e+03	1.5e+03	9.81e+05	5.47e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	1.64e+06	3.19e+03	5.1e+02	1.29e+06	1.24e+03	1.0e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	3.19e+03	5.2e+02	1.30e+06	1.24e+03	1.0e+03
6	2,3,4,6,7,8-HxCDF	1.53e+06	3.19e+03	4.8e+02	1.19e+06	1.24e+03	9.6e+02
7	1,2,3,7,8,9-HxCDF	1.37e+06	3.19e+03	4.3e+02	1.06e+06	1.24e+03	8.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.48e+06	1.97e+03	7.5e+02	1.45e+06	1.25e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.19e+06	1.97e+03	6.0e+02	1.11e+06	1.25e+03	8.9e+02
10	OCDF	1.45e+06	1.15e+03	1.3e+03	1.64e+06	2.28e+03	7.2e+02
11	2,3,7,8-TCDD	1.20e+05	6.88e+03	1.7e+01	1.48e+05	2.99e+03	5.0e+01
12	1,2,3,7,8-PeCDD	8.64e+05	2.37e+03	3.6e+02	5.83e+05	1.39e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	9.60e+05	1.02e+03	9.4e+02	8.07e+05	1.68e+03	4.8e+02
14	1,2,3,6,7,8-HxCDD	9.46e+05	1.02e+03	9.3e+02	7.52e+05	1.68e+03	4.5e+02
15	1,2,3,7,8,9-HxCDD	1.01e+06	1.02e+03	9.9e+02	8.34e+05	1.68e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	8.38e+05	1.17e+03	7.2e+02	8.29e+05	4.84e+02	1.7e+03
17	OCDD	1.16e+06	3.14e+03	3.7e+02	1.30e+06	1.96e+03	6.6e+02
18	13C-2,3,7,8-TCDF	3.28e+07	1.64e+04	2.0e+03	4.11e+07	1.27e+04	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.29e+07	3.44e+03	1.5e+04	3.26e+07	2.57e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	3.44e+03	1.6e+04	3.38e+07	2.57e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+07	3.47e+03	8.3e+03	5.39e+07	4.48e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.07e+07	3.47e+03	8.8e+03	5.68e+07	4.48e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.95e+07	3.47e+03	8.5e+03	5.46e+07	4.48e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.51e+07	3.47e+03	7.2e+03	4.72e+07	4.48e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.29e+04	1.8e+03	4.99e+07	2.56e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+07	1.29e+04	1.5e+03	4.06e+07	2.56e+04	1.6e+03
27	13C-2,3,7,8-TCDD	2.37e+07	1.79e+04	1.3e+03	2.98e+07	7.48e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	3.81e+07	3.05e+03	1.3e+04	2.43e+07	1.79e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	3.53e+07	4.99e+03	7.1e+03	2.84e+07	2.28e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.46e+07	4.99e+03	6.9e+03	2.73e+07	2.28e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+07	3.94e+03	7.8e+03	2.93e+07	1.60e+03	1.8e+04
32	13C-OCDD	3.85e+07	1.12e+03	3.4e+04	4.22e+07	1.86e+03	2.3e+04
33	13C-1,2,3,4-TCDD	2.49e+07	1.79e+04	1.4e+03	3.07e+07	7.48e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	4.99e+03	7.5e+03	3.01e+07	2.28e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.03e+05	3.87e+03	7.8e+01			

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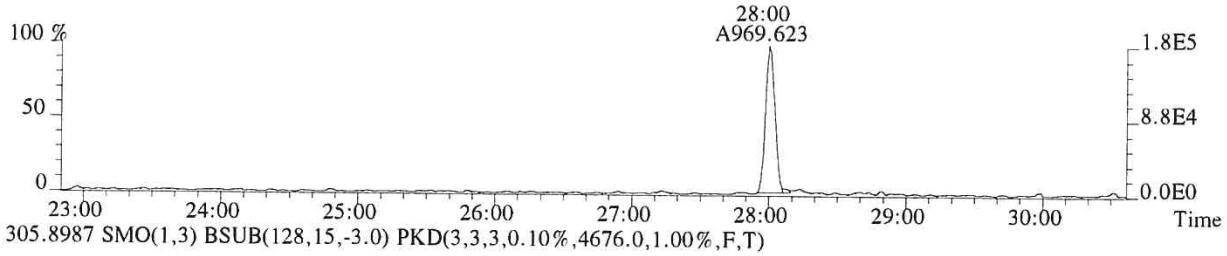
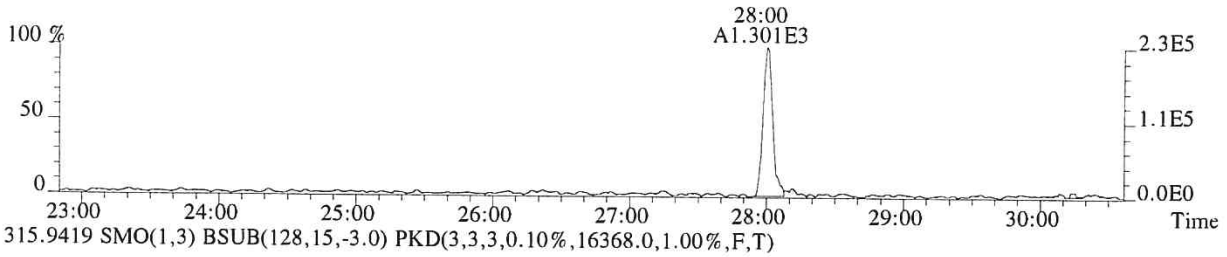
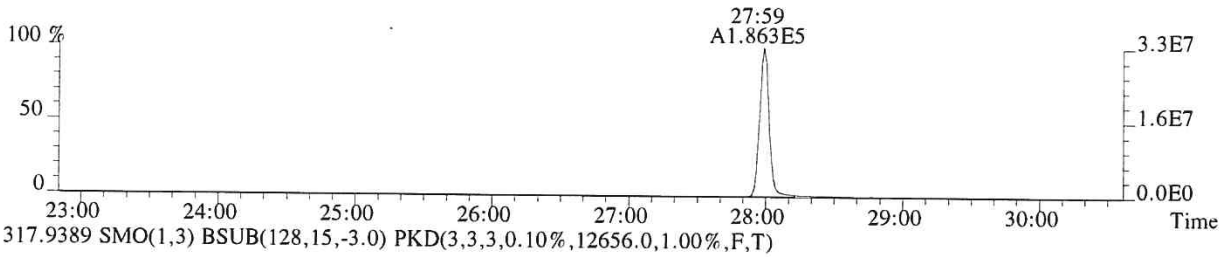
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



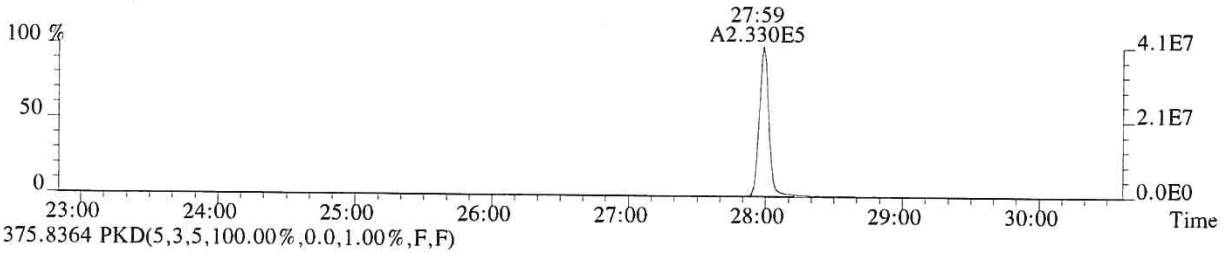
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4676.0,1.00%,F,T)



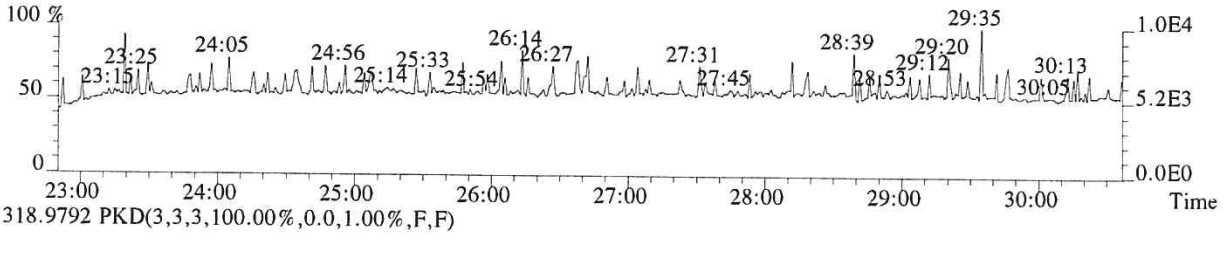
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16368.0,1.00%,F,T)



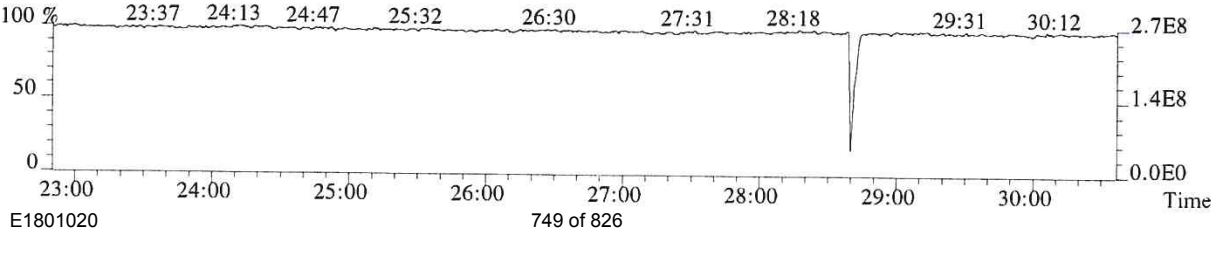
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



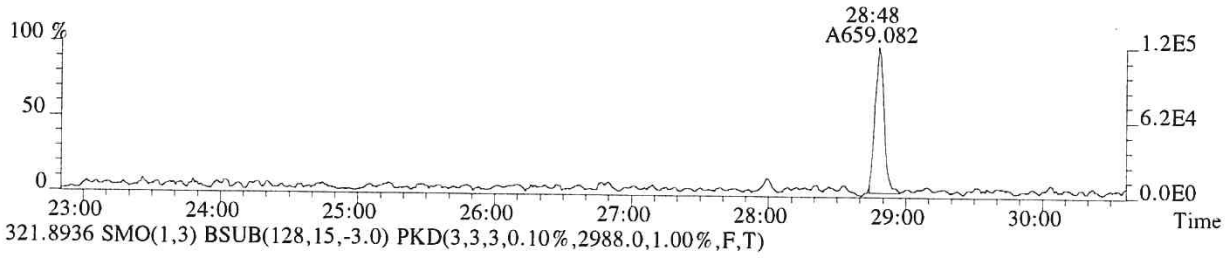
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



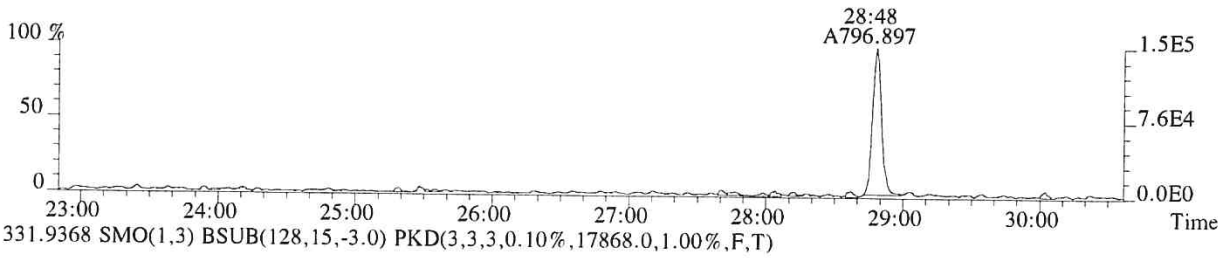
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



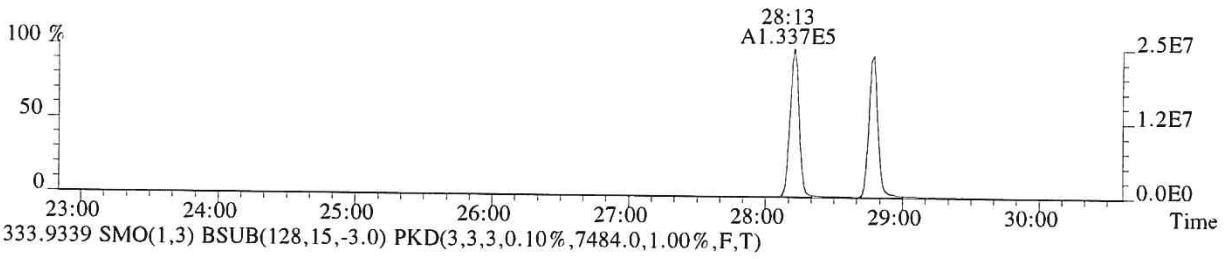
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6880.0,1.00%,F,T)



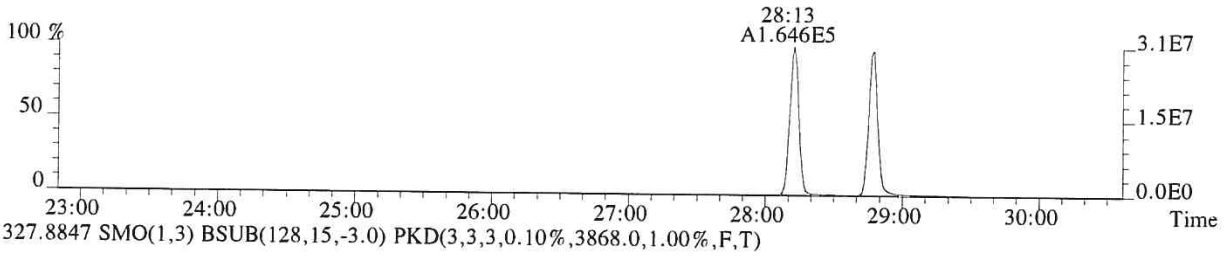
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



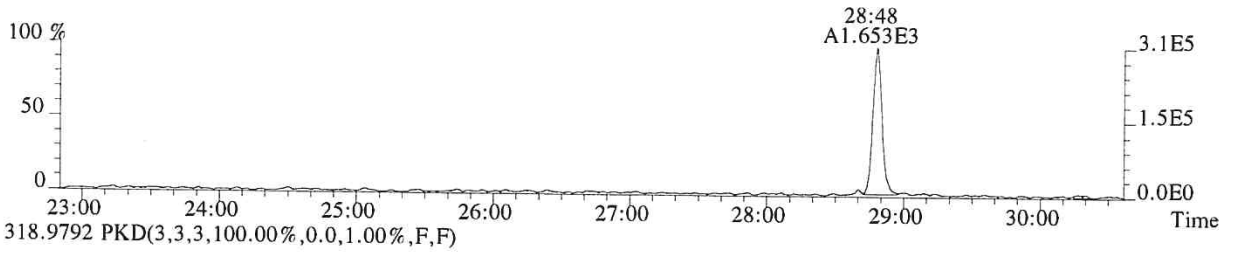
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17868.0,1.00%,F,T)



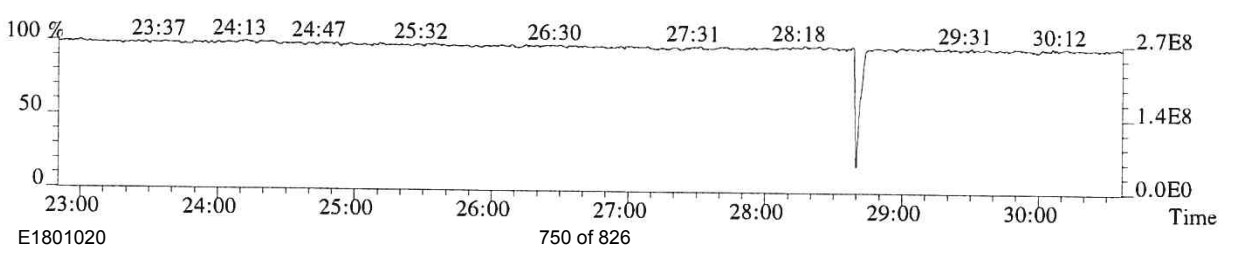
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7484.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)

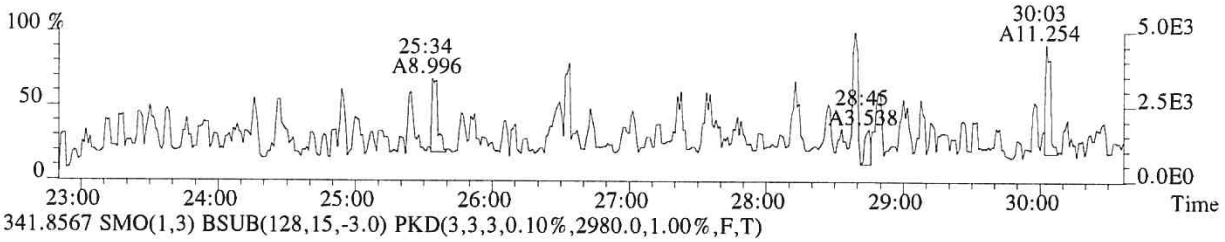


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

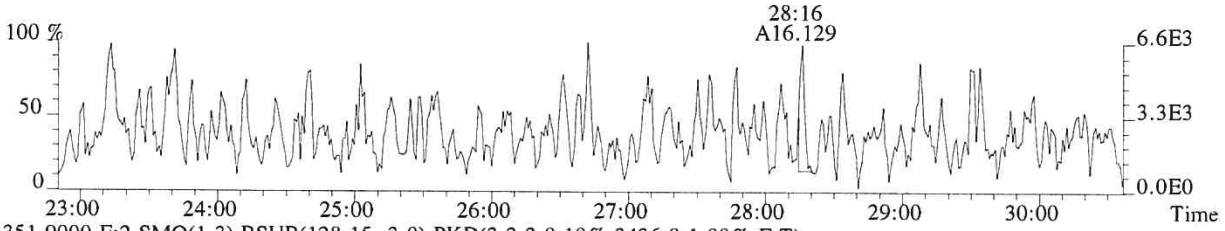


010257

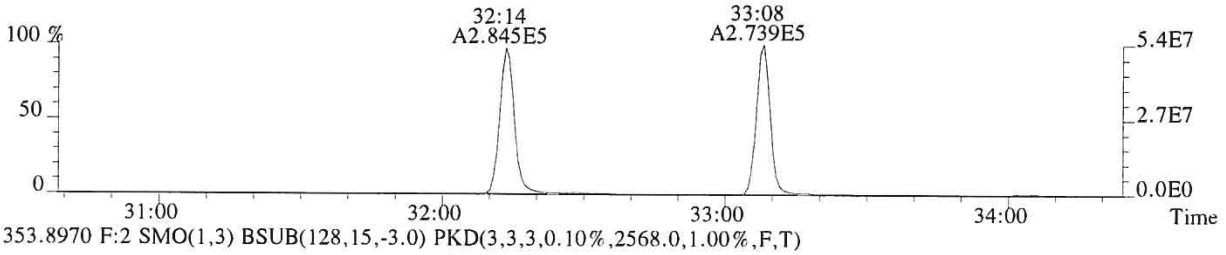
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



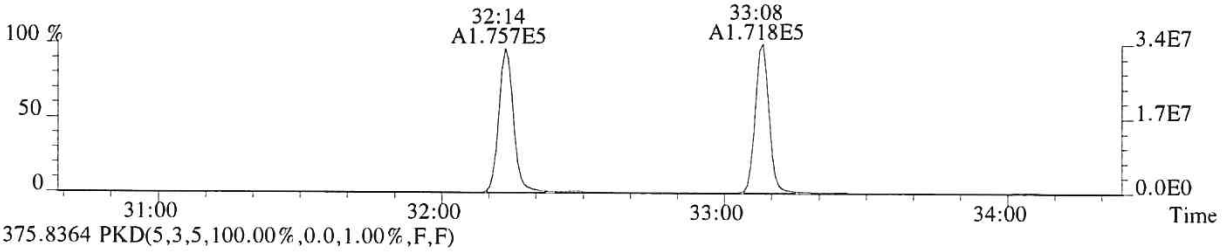
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



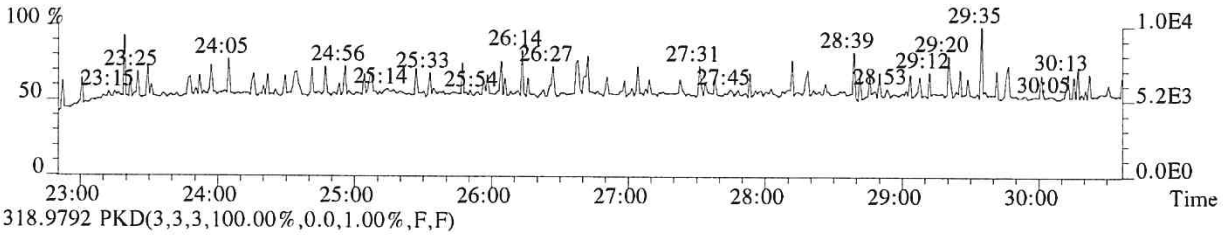
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



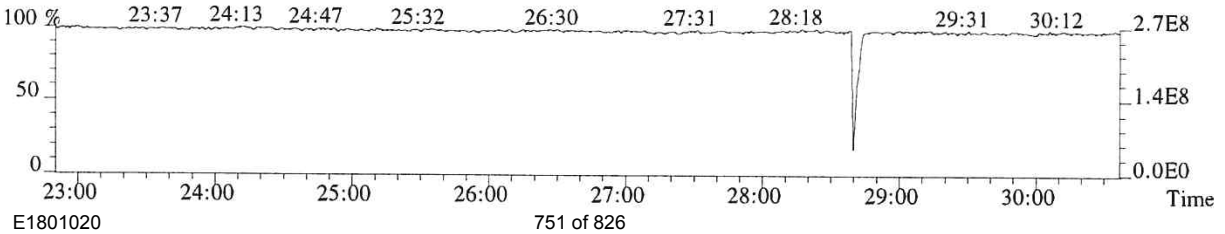
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

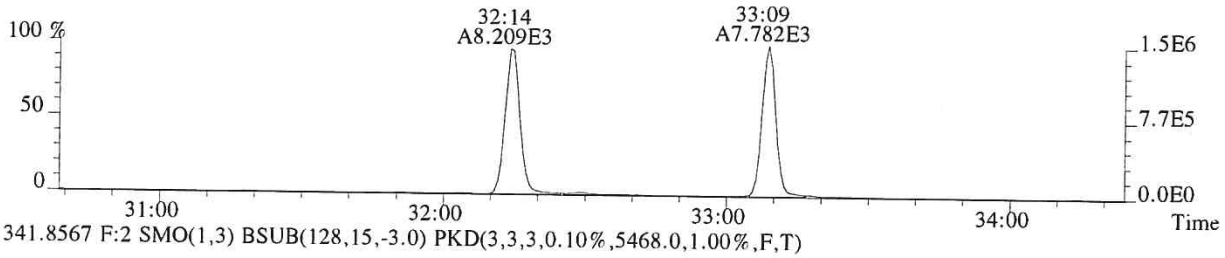


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

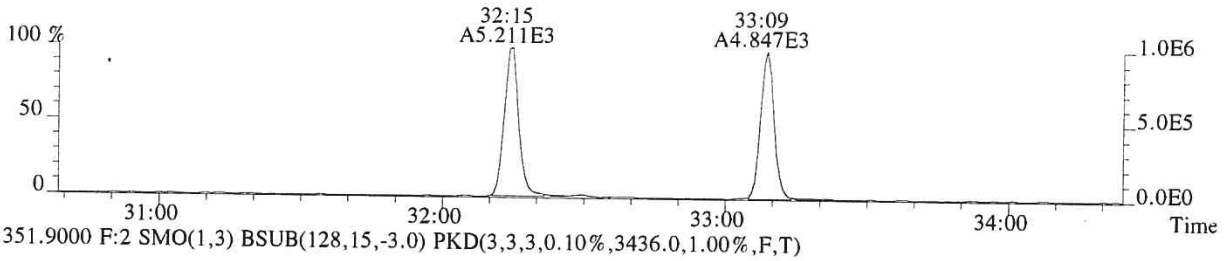


File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

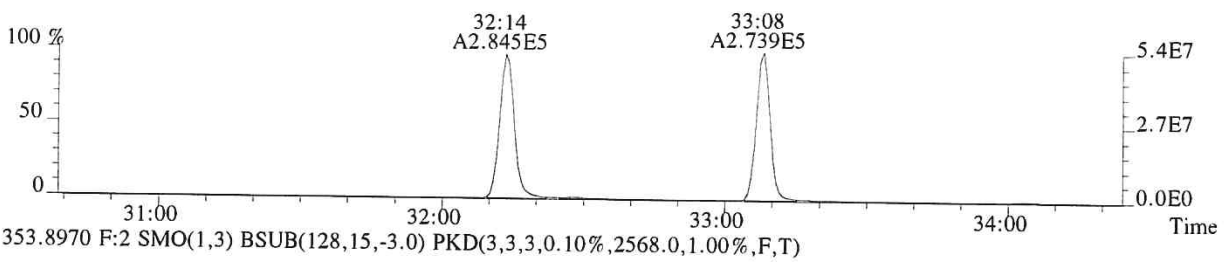
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



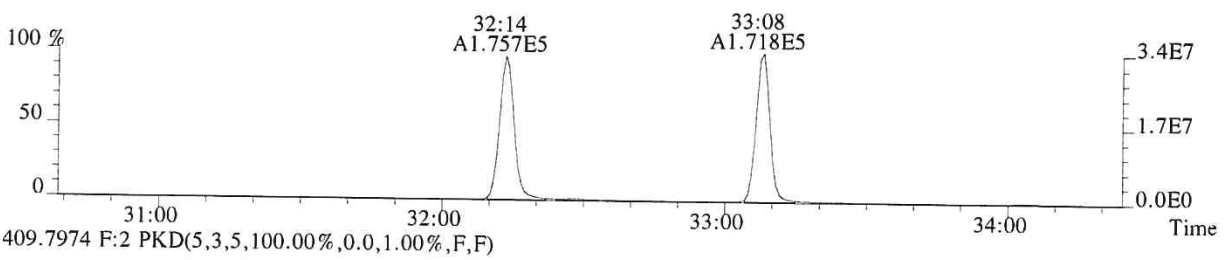
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5468.0,1.00%,F,T)



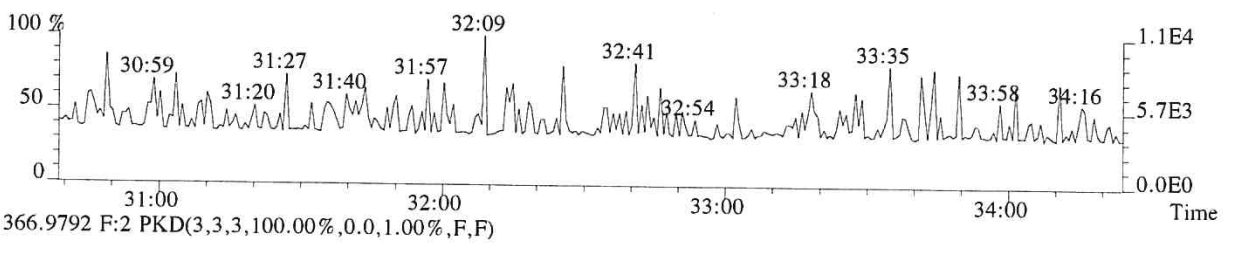
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



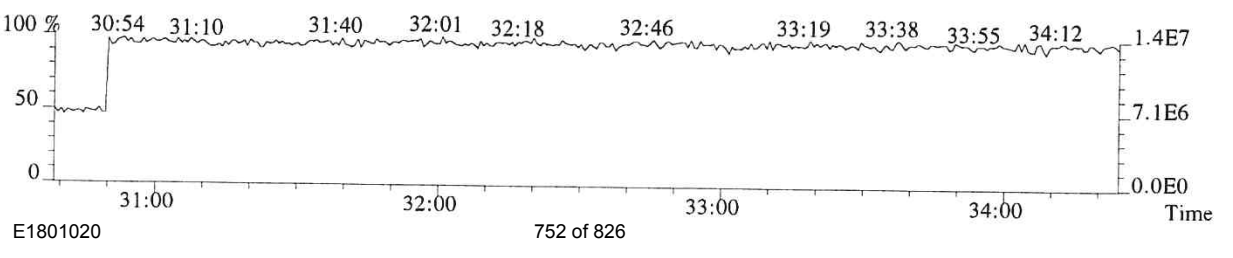
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



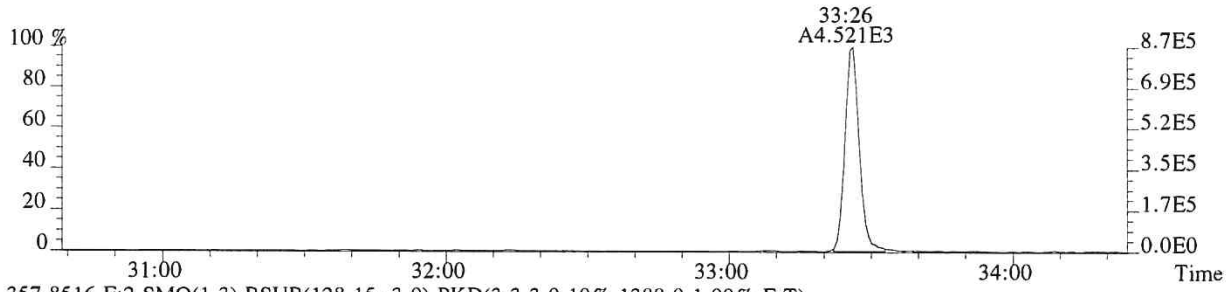
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



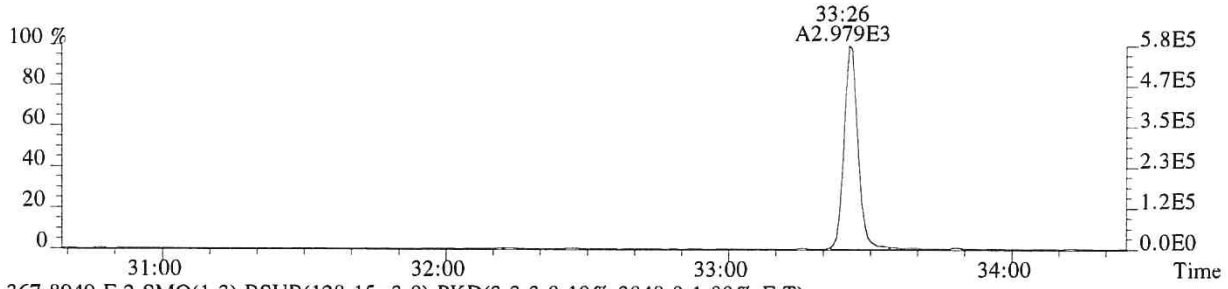
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



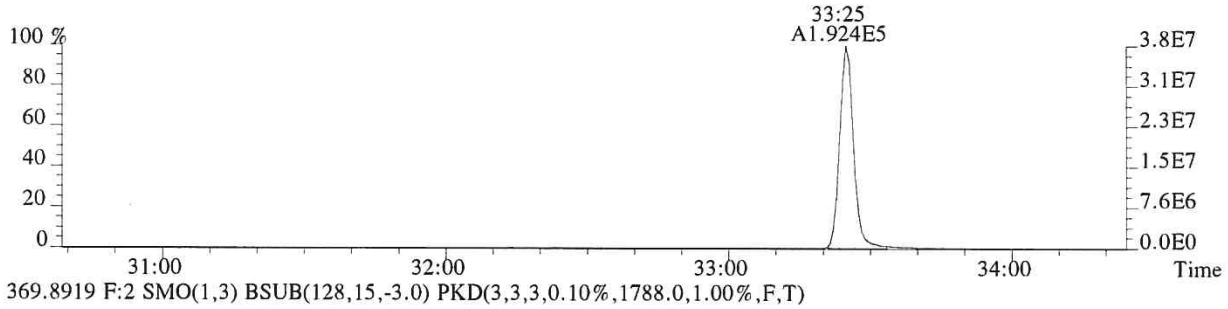
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



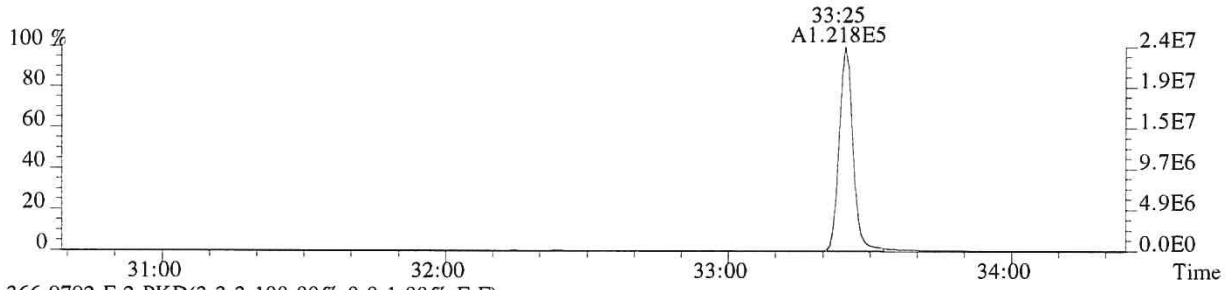
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



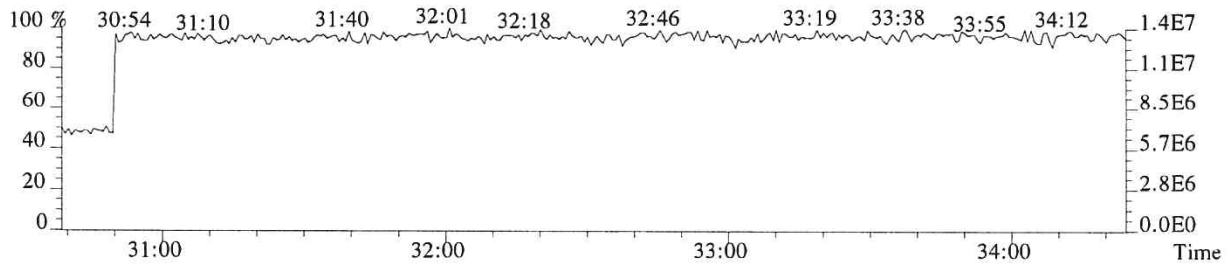
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)

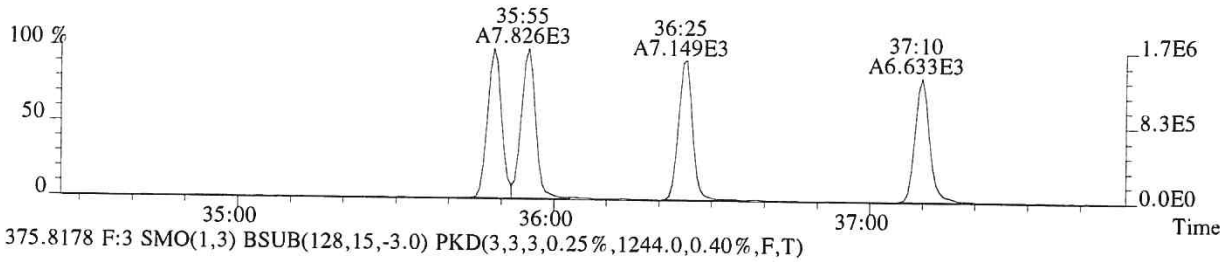


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

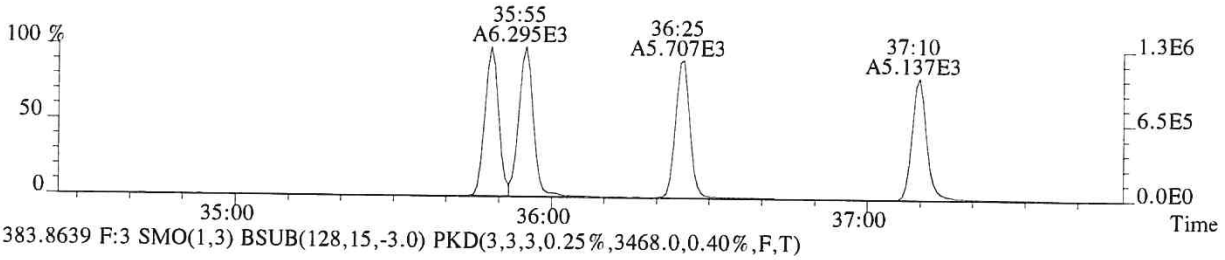


010260

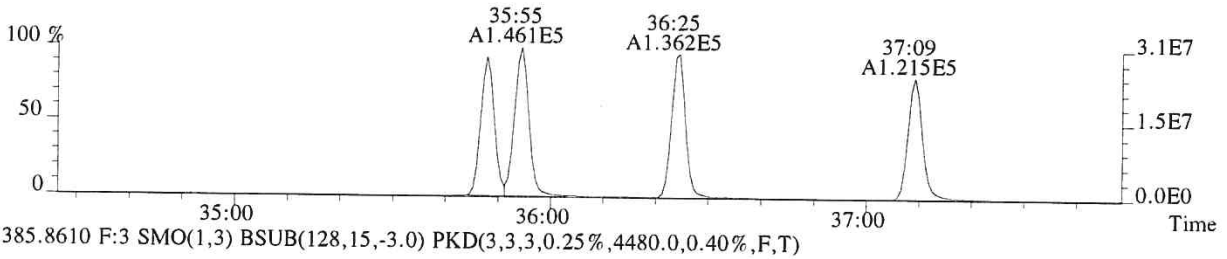
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



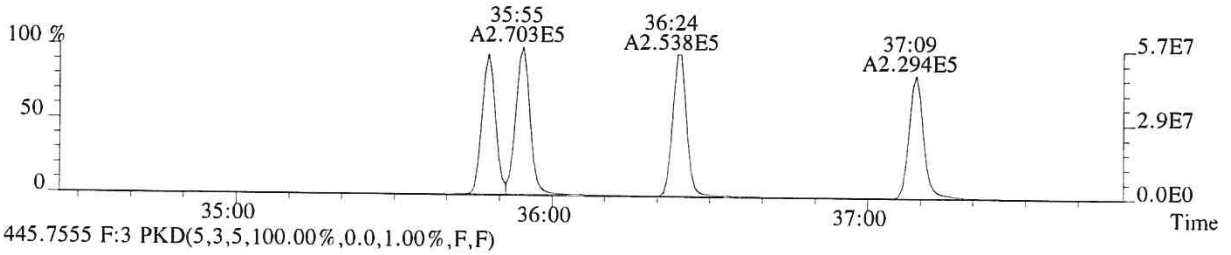
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



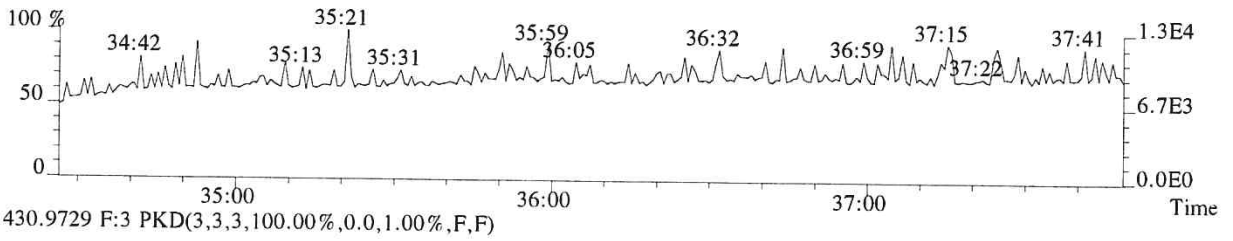
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



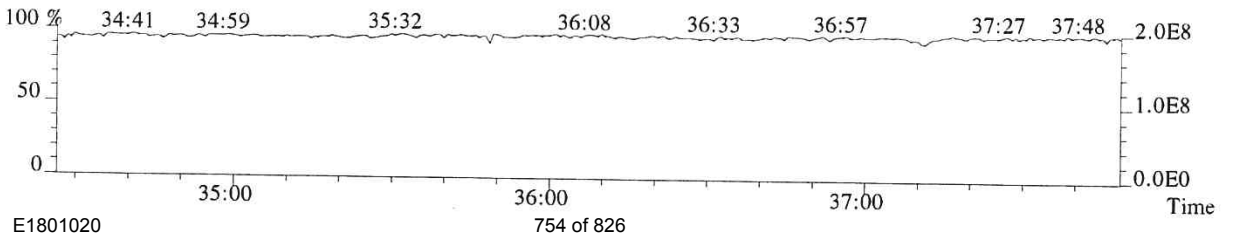
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4480.0,0.40%,F,T)



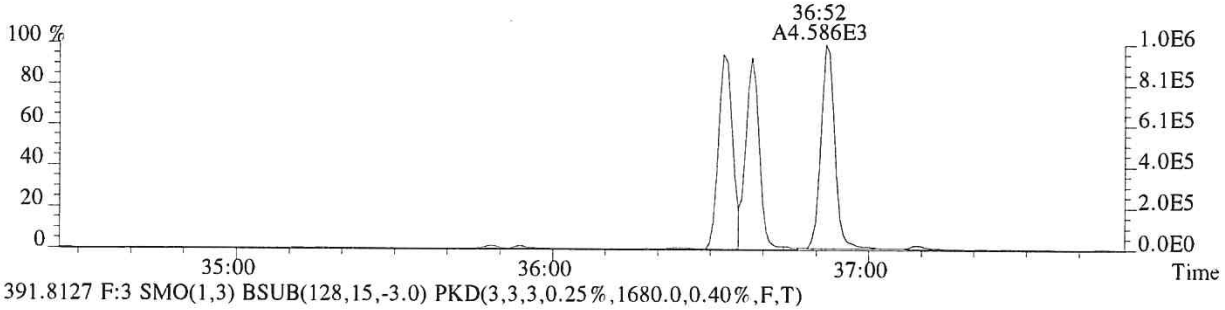
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



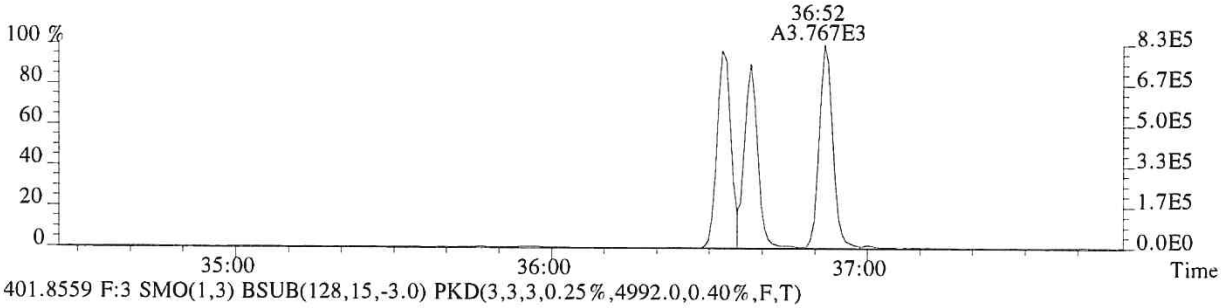
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



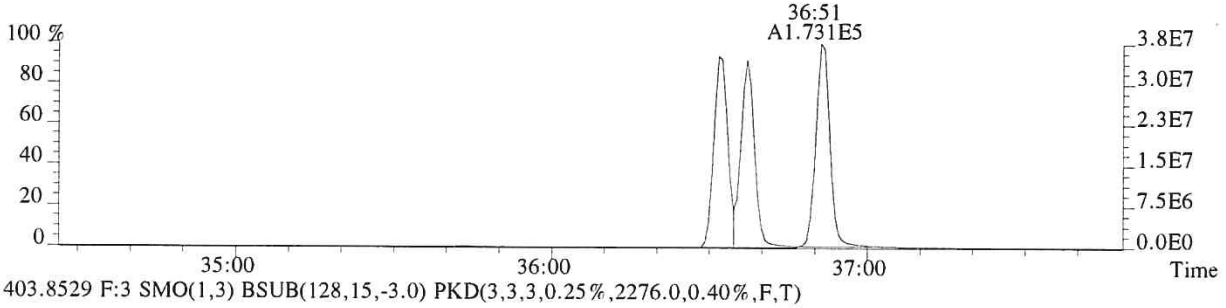
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



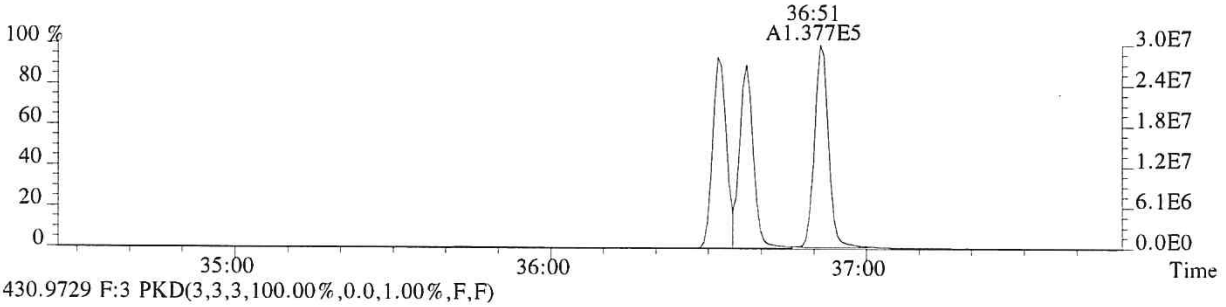
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



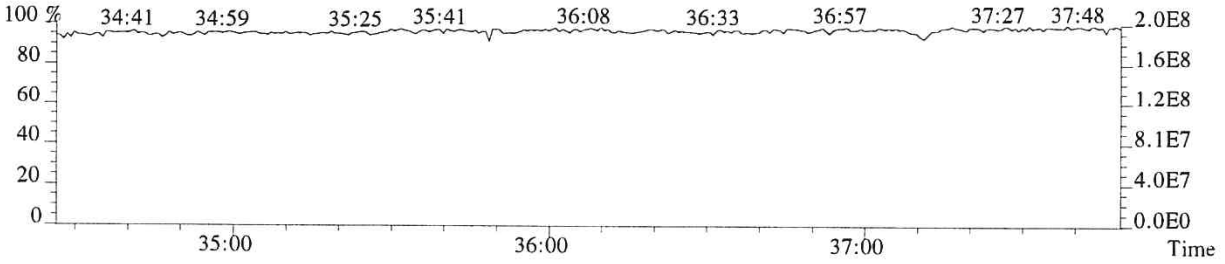
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



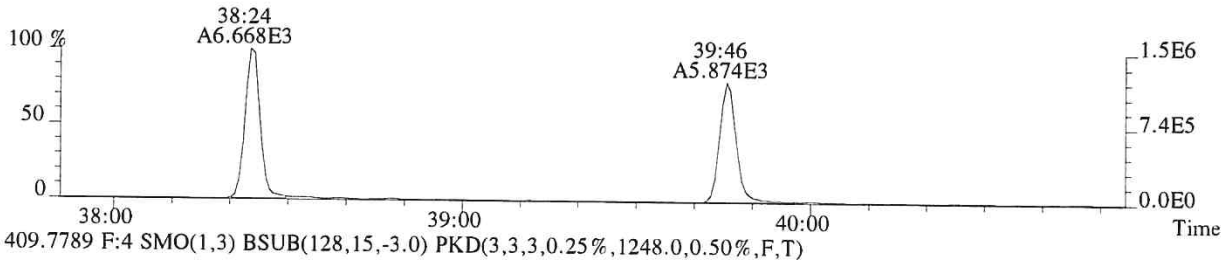
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



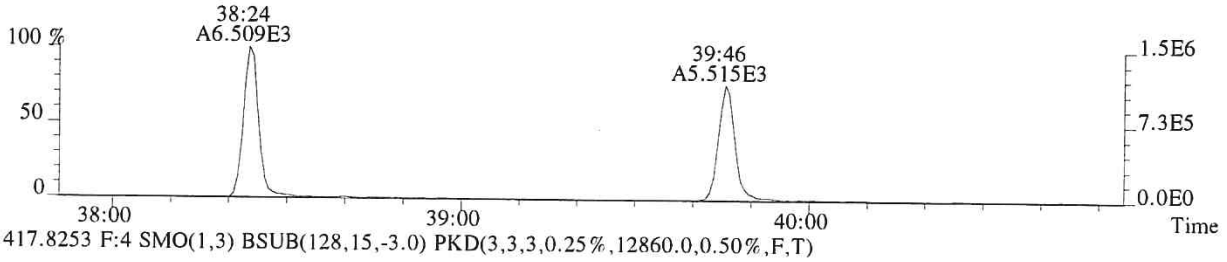
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



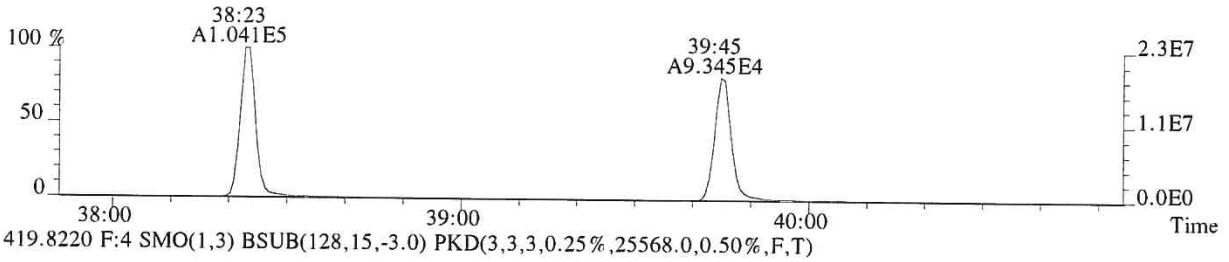
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



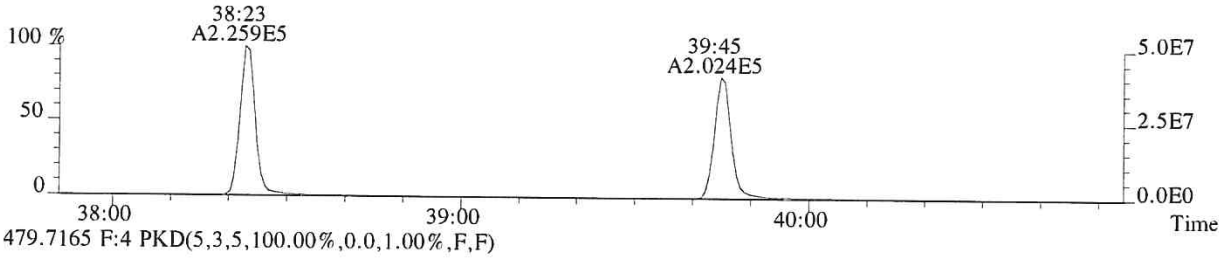
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



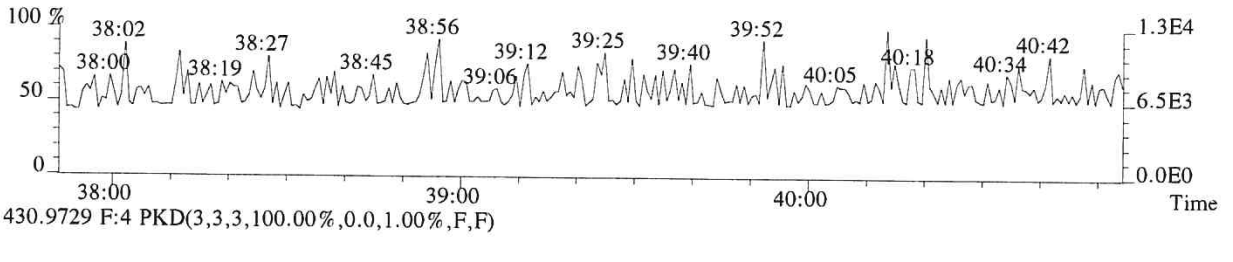
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12860.0,0.50%,F,T)



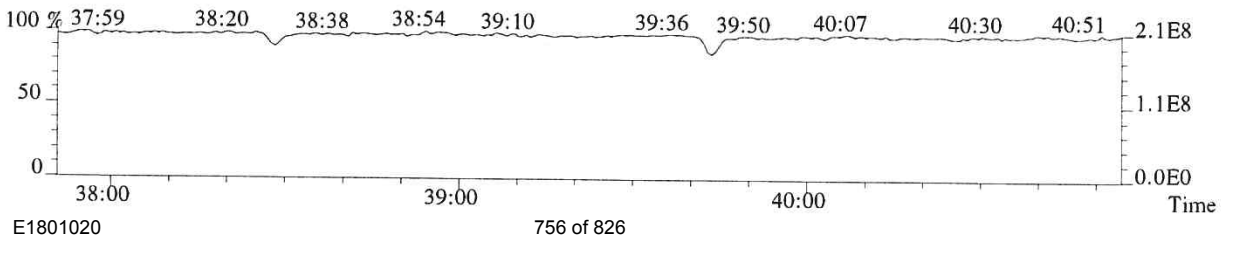
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25568.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

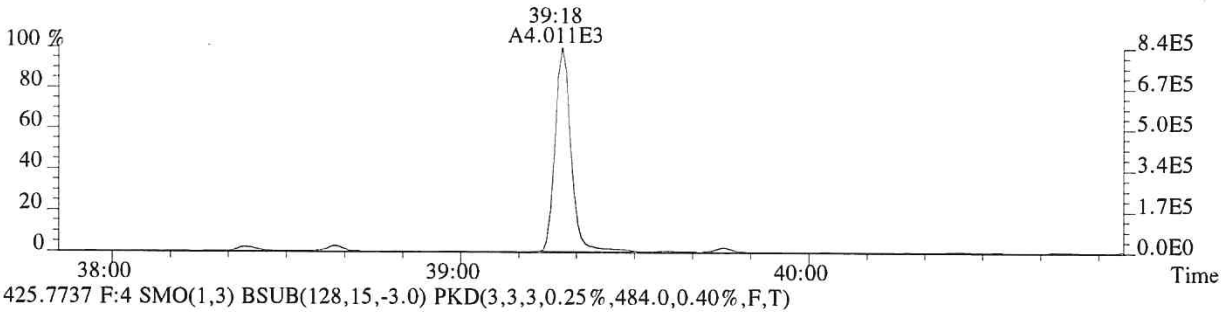


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

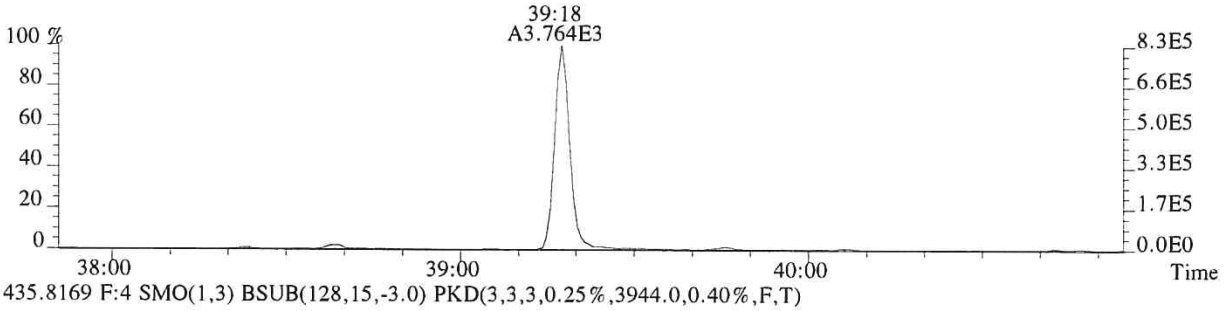


010263

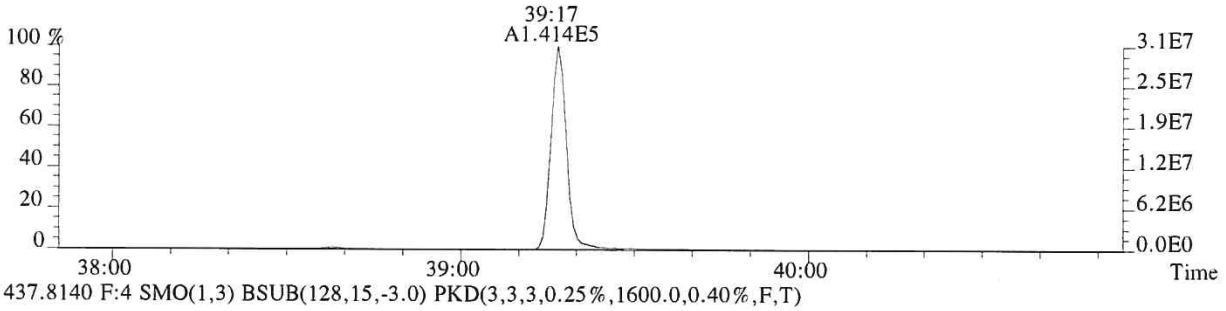
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



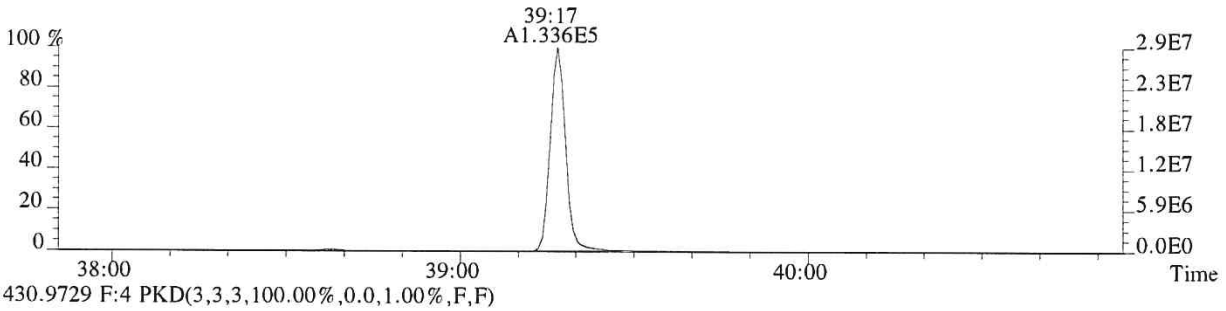
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



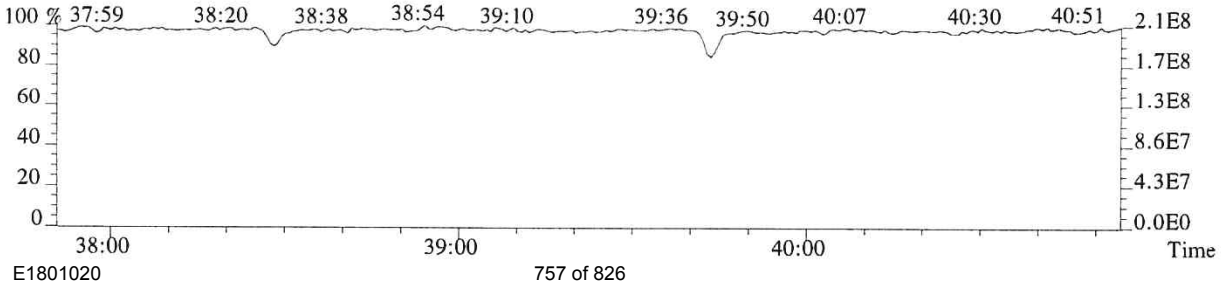
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



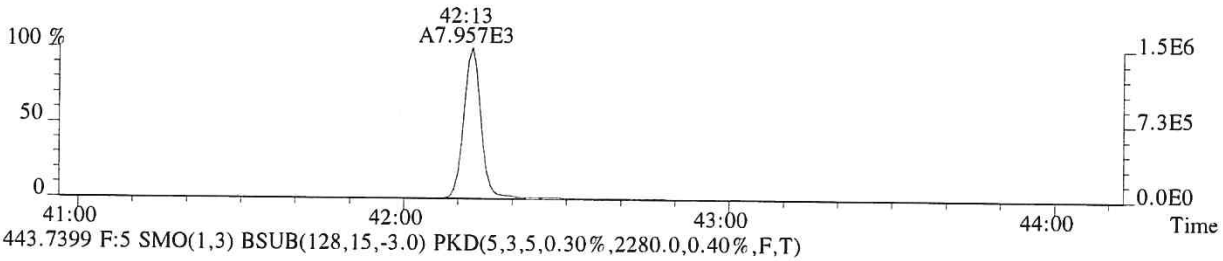
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



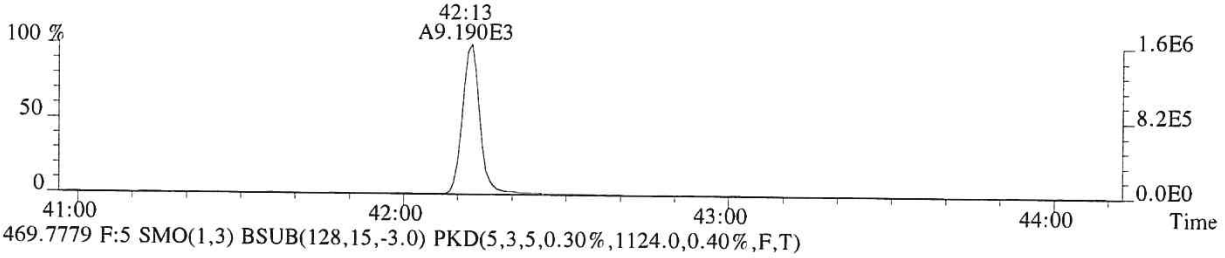
010264

File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

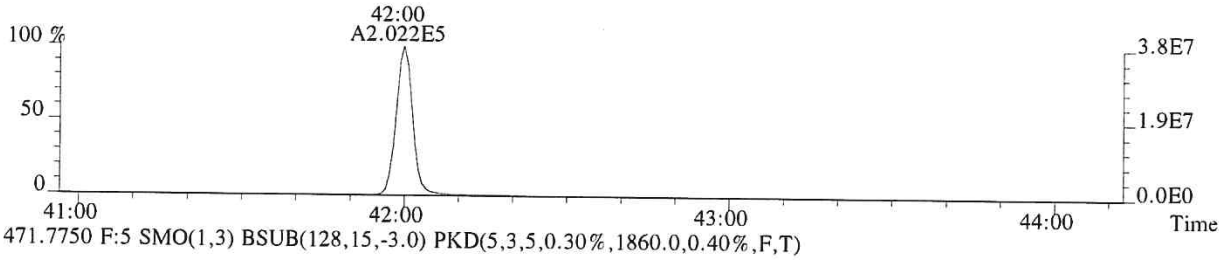
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



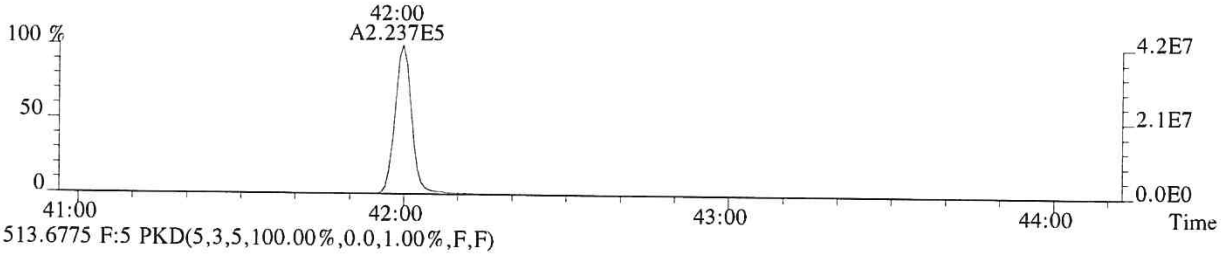
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2280.0,0.40%,F,T)



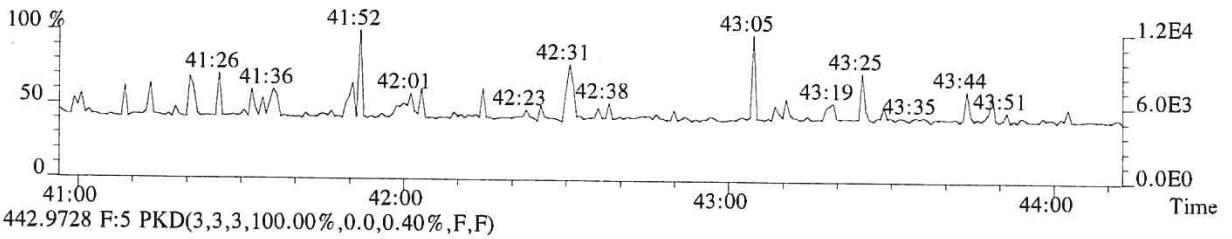
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



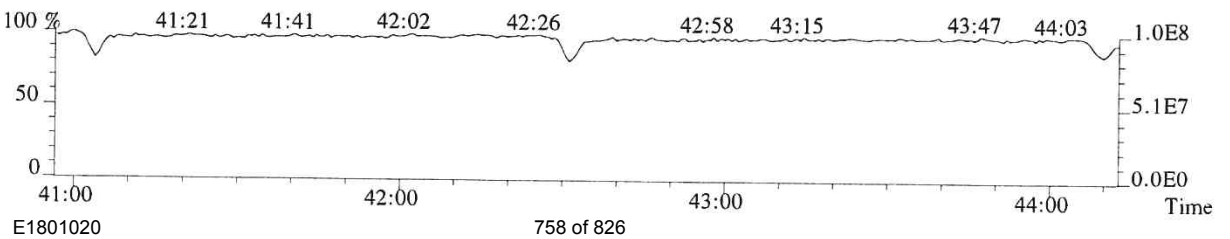
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

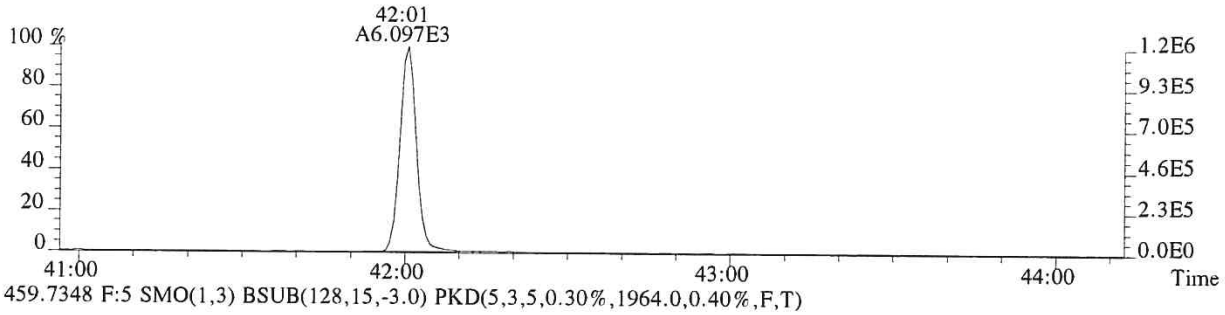


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

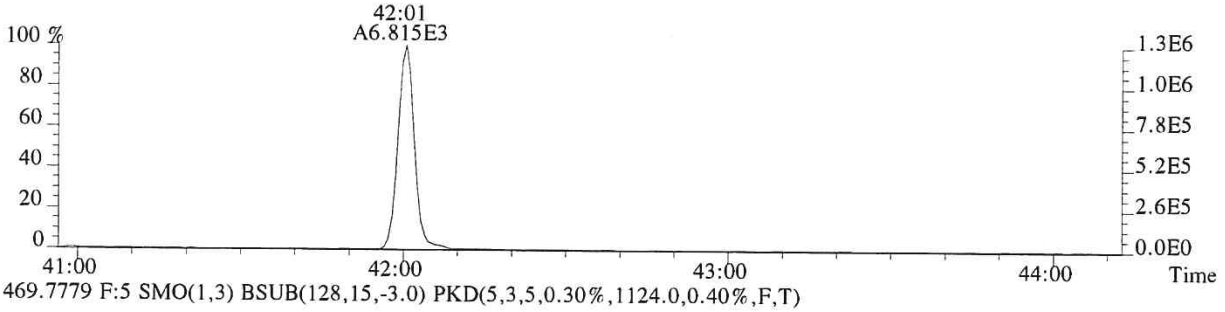


010265

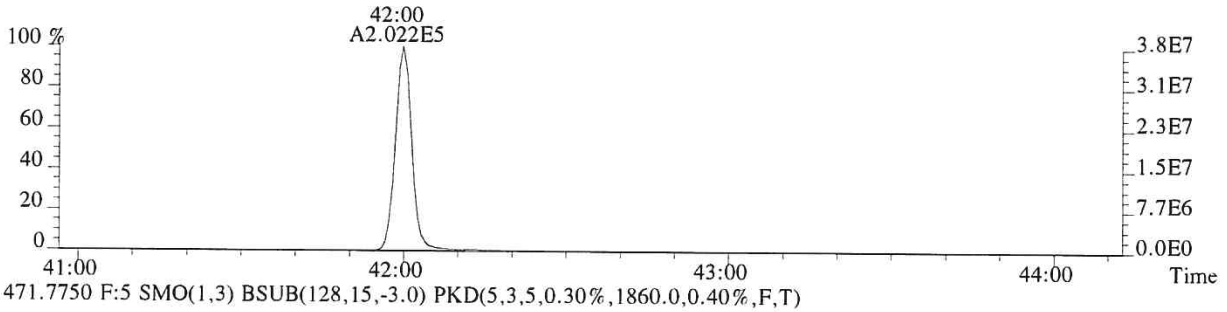
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3136.0,0.40%,F,T)



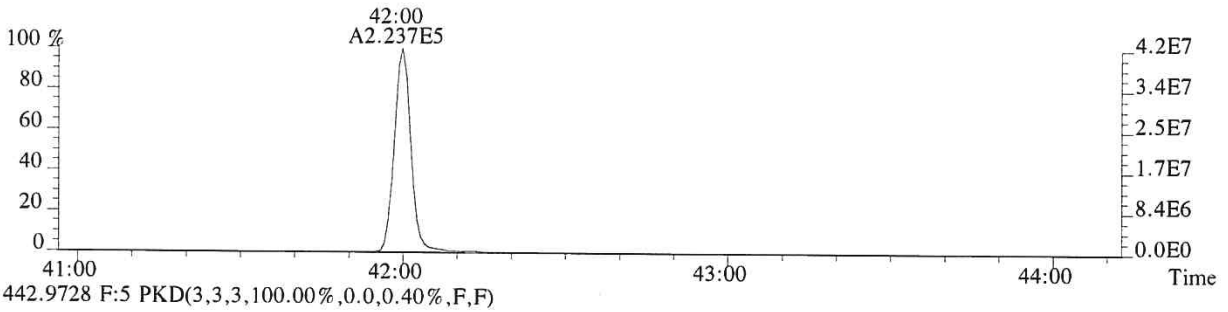
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



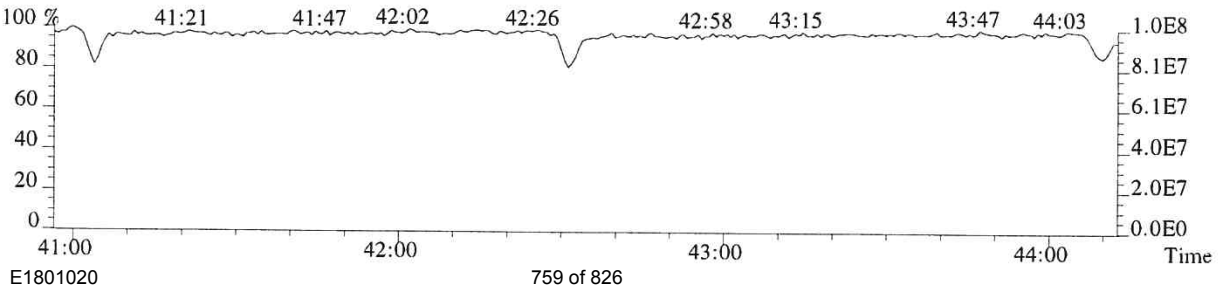
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.102e+03	3.732e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	2.387e+04	1.519e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:08	2.329e+04	1.484e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.143e+04	1.713e+04	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.340e+04	1.874e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.188e+04	1.713e+04	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.950e+04	1.588e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.863e+04	1.764e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.650e+04	1.567e+04	1.05	yes	no	1.463
10	Unk	OCDF	42:12	2.250e+04	2.478e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.874e+03	2.328e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.440e+04	9.416e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.279e+04	1.013e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.275e+04	1.020e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	1.359e+04	1.091e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.169e+04	1.088e+04	1.07	yes	no	1.112
17	Unk	OCDD	42:01	1.626e+04	1.848e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.350e+05	1.713e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.144e+05	1.340e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.142e+05	1.318e+05	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.603e+04	1.811e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.132e+05	2.120e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.055e+05	1.978e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.513e+04	1.787e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	7.767e+04	1.706e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	6.849e+04	1.521e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	9.327e+04	1.167e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.531e+05	9.729e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.232e+05	9.748e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.208e+05	9.608e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.060e+05	1.018e+05	1.04	yes	no	0.857
32	IS	13C-OCDD	42:00	1.501e+05	1.663e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:12	9.647e+04	1.194e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.360e+05	1.078e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.600e+03				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.46e+05	1.35e+03	4.0e+02	6.81e+05	4.17e+03	1.6e+02
2	1,2,3,7,8-PeCDF	4.40e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	4.45e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	4.64e+06	2.66e+03	1.7e+03	3.65e+06	1.33e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.85e+06	2.66e+03	1.8e+03	3.88e+06	1.33e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.77e+06	2.66e+03	1.8e+03	3.75e+06	1.33e+03	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.92e+06	2.66e+03	1.5e+03	3.16e+06	1.33e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	4.06e+03	1.0e+03	3.98e+06	5.19e+03	7.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.43e+06	4.06e+03	8.5e+02	3.23e+06	5.19e+03	6.2e+02
10	OCDF	4.02e+06	1.02e+03	3.9e+03	4.45e+06	3.18e+03	1.4e+03
11	2,3,7,8-TCDD	3.59e+05	5.08e+03	7.1e+01	4.49e+05	2.84e+03	1.6e+02
12	1,2,3,7,8-PeCDD	2.79e+06	2.23e+03	1.3e+03	1.83e+06	1.03e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	1.16e+03	2.5e+03	2.30e+06	2.22e+03	1.0e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	1.16e+03	2.4e+03	2.20e+06	2.22e+03	9.9e+02
15	1,2,3,7,8,9-HxCDD	2.97e+06	1.16e+03	2.6e+03	2.38e+06	2.22e+03	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.22e+03	2.0e+03	2.30e+06	1.43e+03	1.6e+03
17	OCDD	3.03e+06	8.24e+02	3.7e+03	3.48e+06	2.34e+03	1.5e+03
18	13C-2,3,7,8-TCDF	2.30e+07	1.44e+04	1.6e+03	2.91e+07	8.40e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.88e+07	2.39e+03	1.6e+04	2.43e+07	1.71e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	4.22e+07	2.39e+03	1.8e+04	2.60e+07	1.71e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.07e+07	2.16e+03	9.6e+03	3.93e+07	5.29e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.36e+07	2.16e+03	1.1e+04	4.45e+07	5.29e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.32e+07	2.16e+03	1.1e+04	4.39e+07	5.29e+03	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.16e+03	8.9e+03	3.69e+07	5.29e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+07	7.69e+03	2.3e+03	3.85e+07	2.07e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+07	7.69e+03	1.8e+03	3.12e+07	2.07e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.74e+07	1.66e+04	1.0e+03	2.17e+07	7.77e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.92e+07	3.94e+03	7.4e+03	1.87e+07	3.45e+03	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+07	5.37e+03	5.3e+03	2.21e+07	2.98e+03	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+07	5.37e+03	4.9e+03	2.11e+07	2.98e+03	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+07	3.06e+03	7.3e+03	2.12e+07	2.68e+03	7.9e+03
32	13C-OCDD	2.74e+07	2.09e+03	1.3e+04	3.02e+07	1.61e+03	1.9e+04
33	13C-1,2,3,4-TCDD	1.78e+07	1.66e+04	1.1e+03	2.20e+07	7.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.99e+07	5.37e+03	5.6e+03	2.35e+07	2.98e+03	7.9e+03
35	37Cl-2,3,7,8-TCDD	8.73e+05	3.54e+03	2.5e+02			

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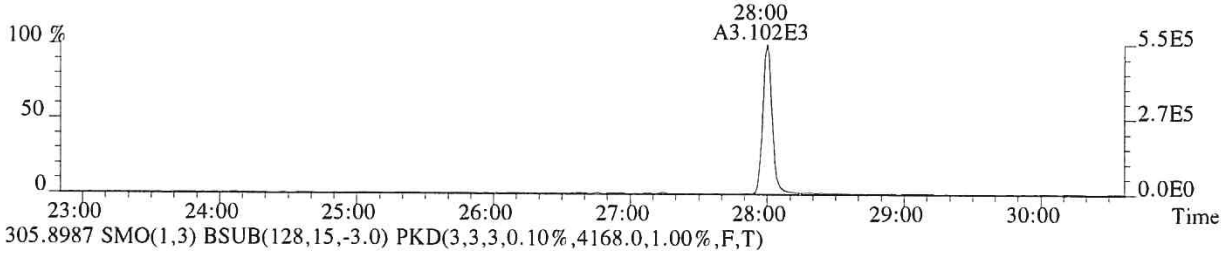
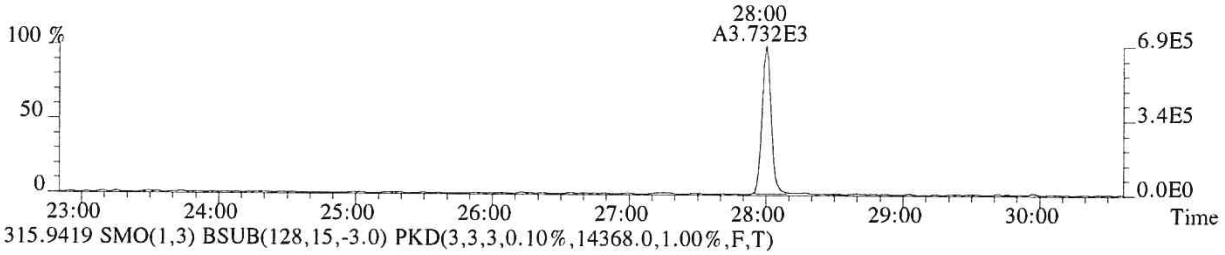
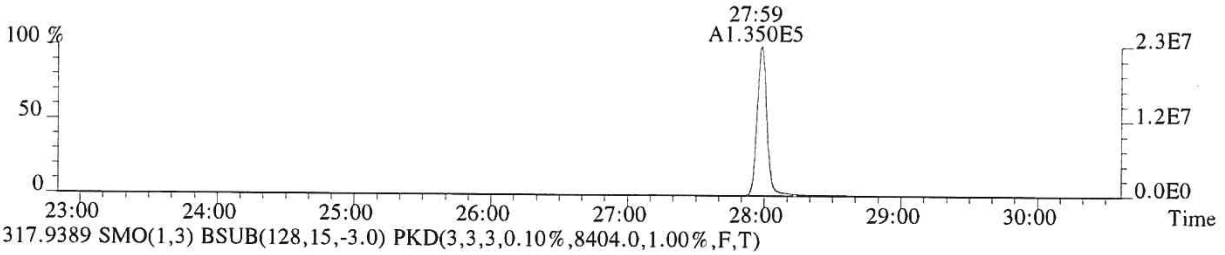
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



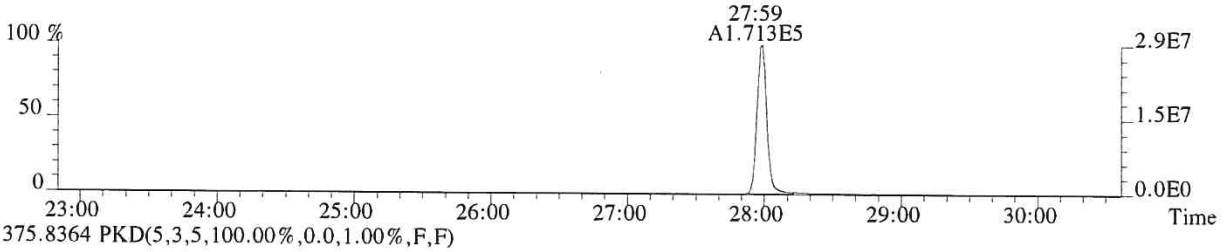
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



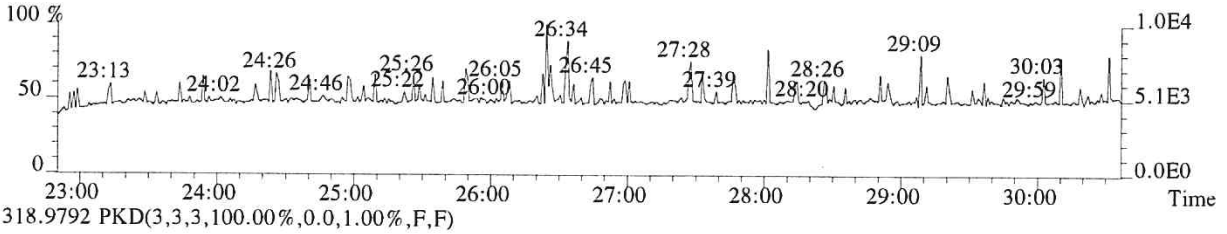
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14368.0,1.00%,F,T)



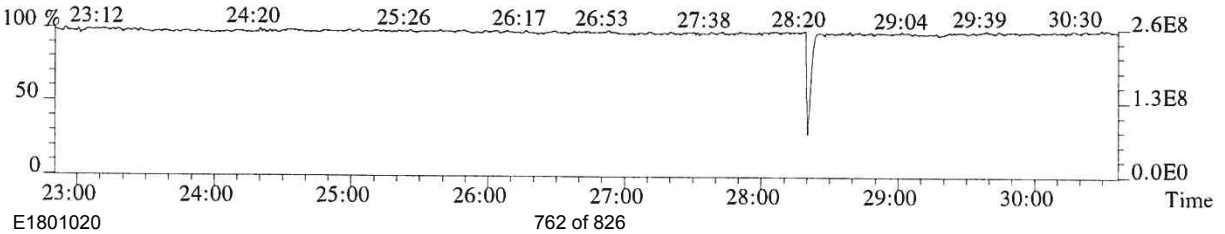
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8404.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

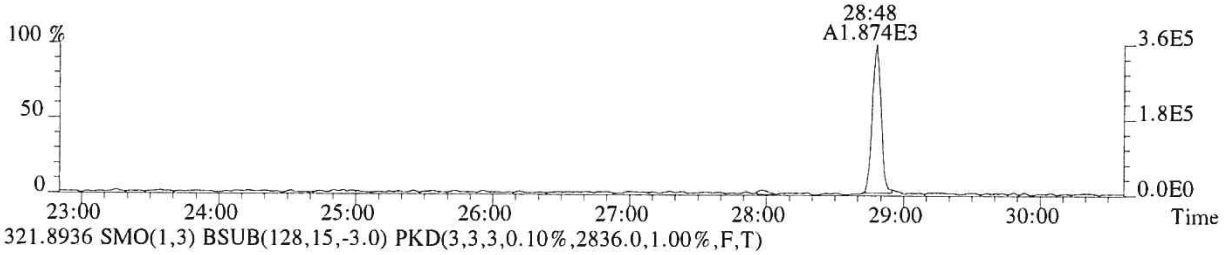


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

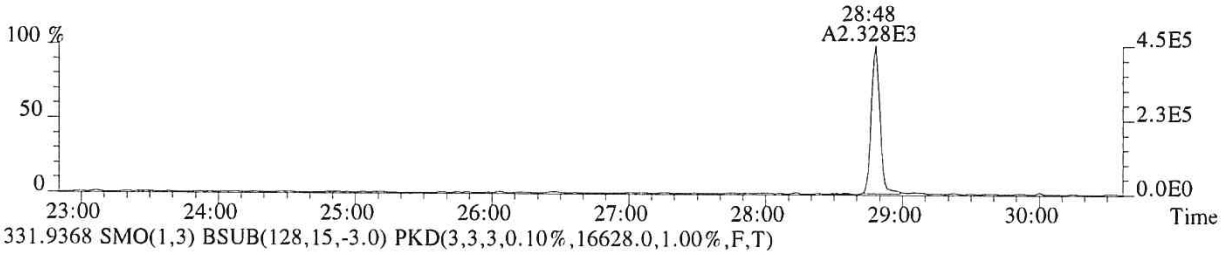


010269

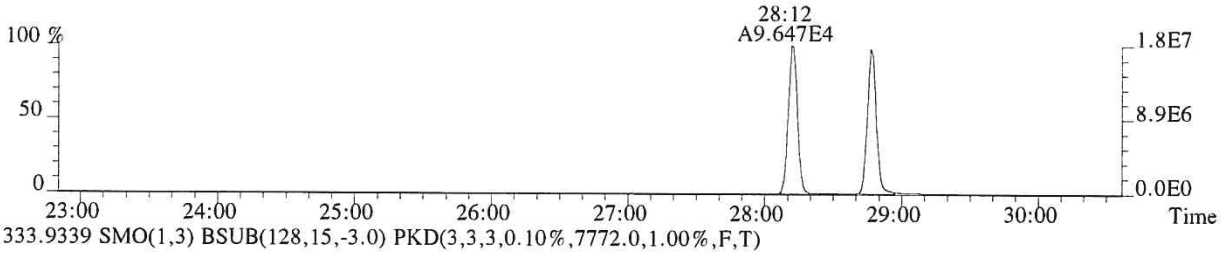
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



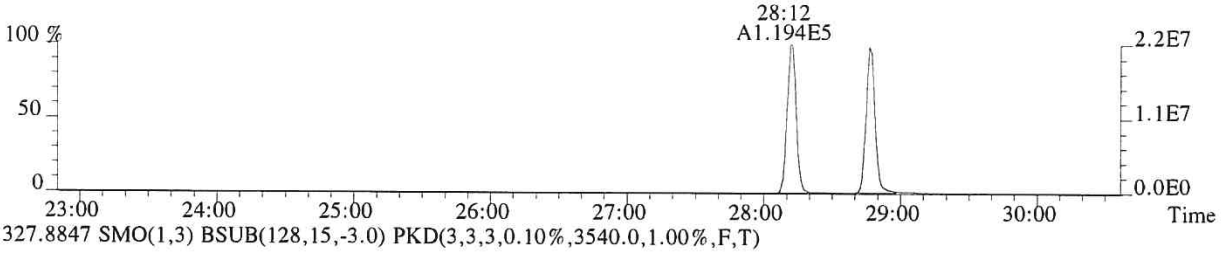
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



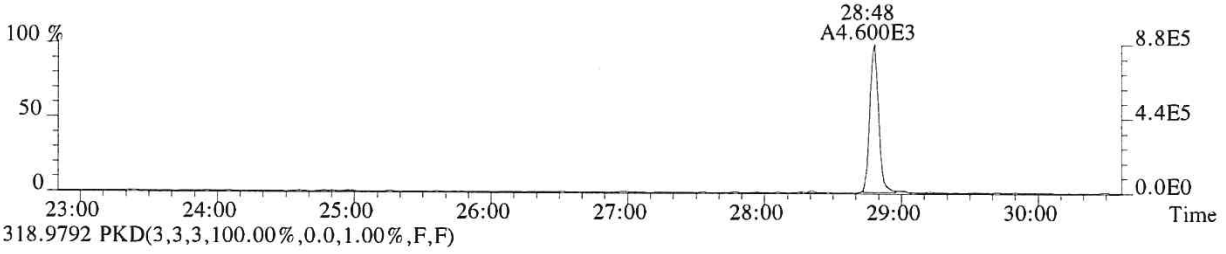
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16628.0,1.00%,F,T)



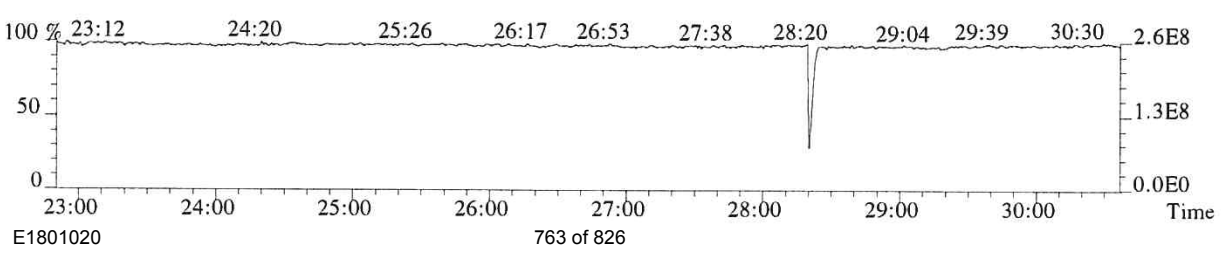
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7772.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)

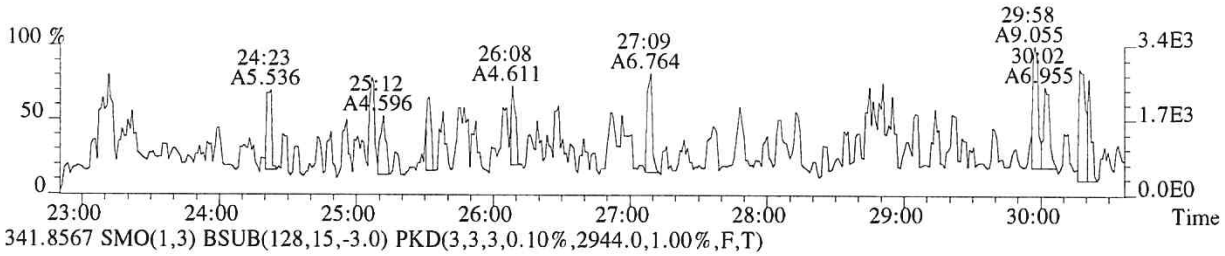


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

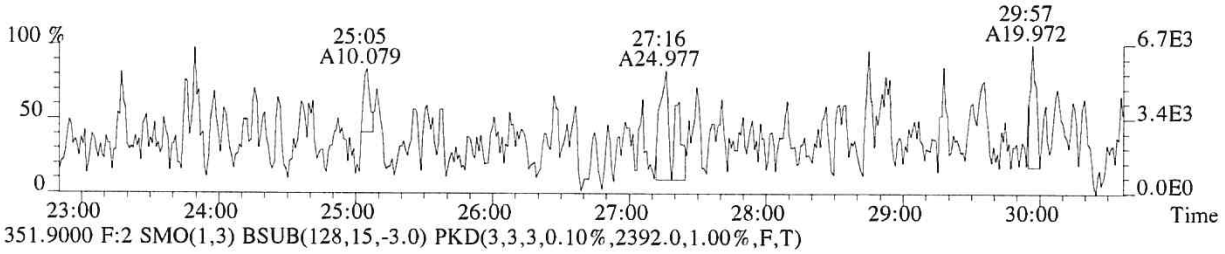


010270

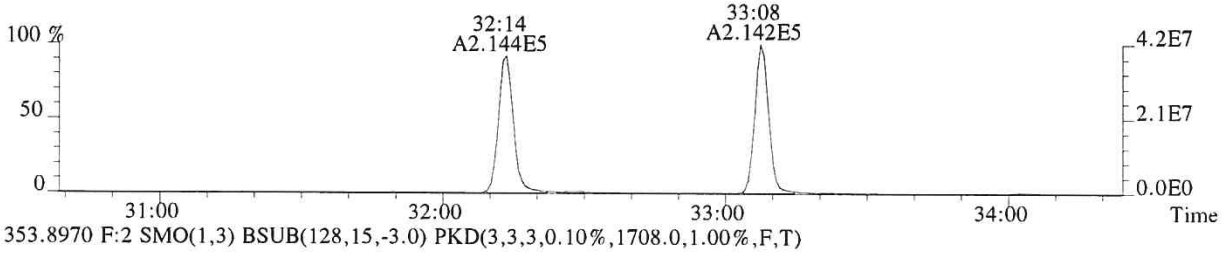
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



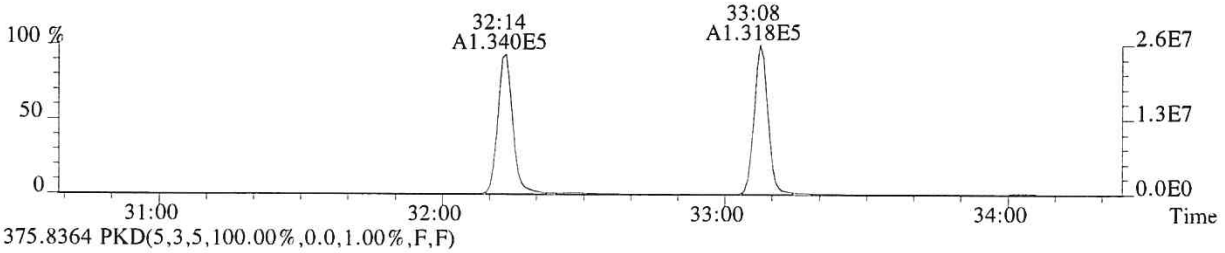
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



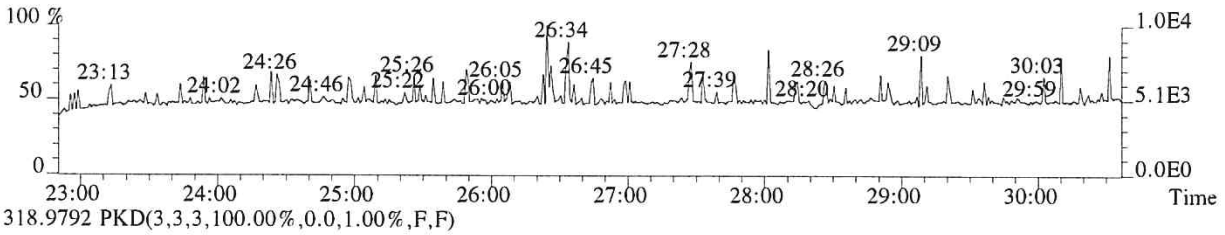
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



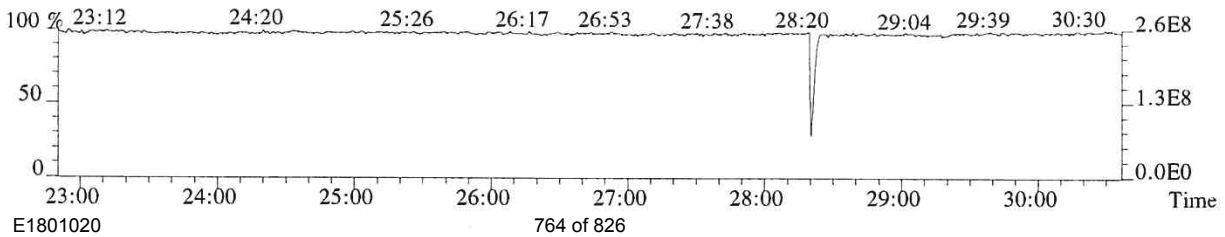
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

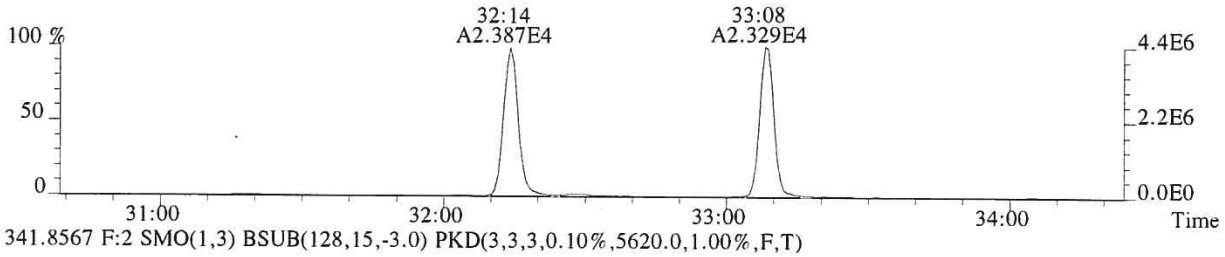


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

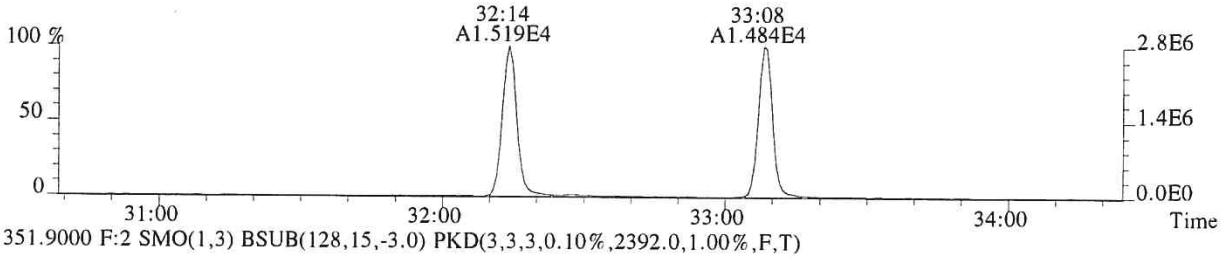


010271

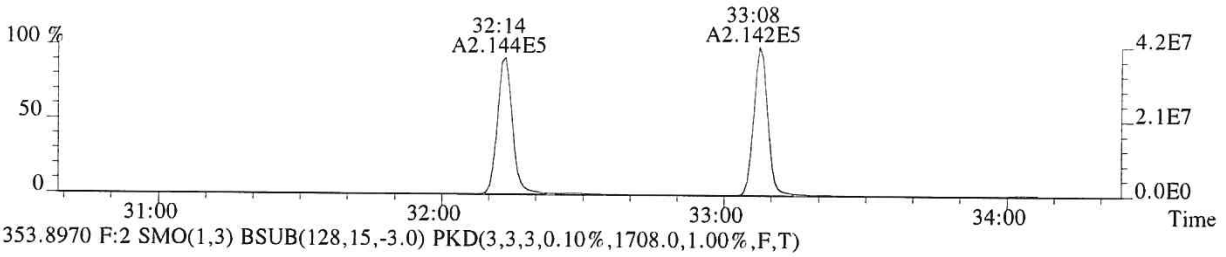
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



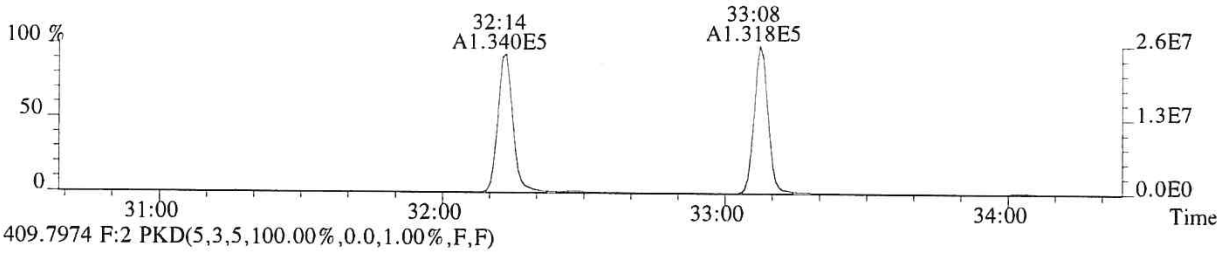
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5620.0,1.00%,F,T)



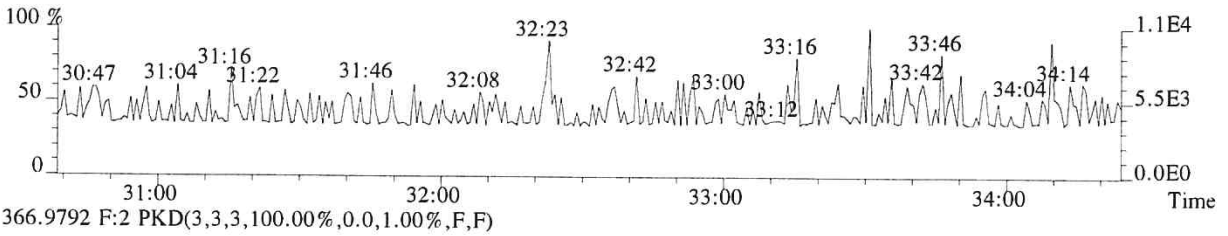
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



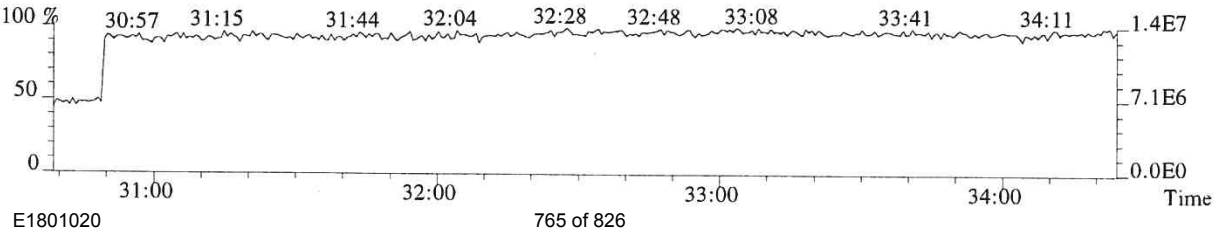
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



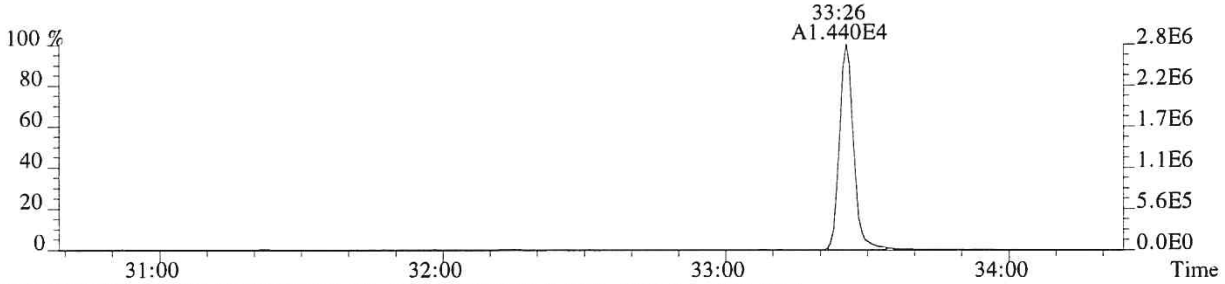
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



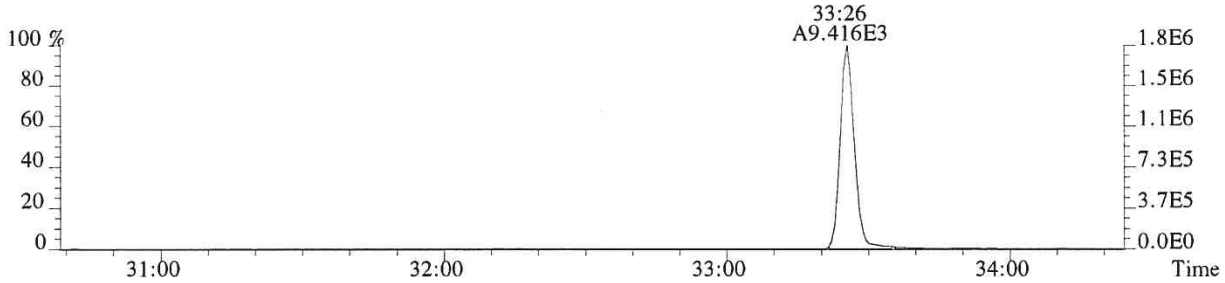
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



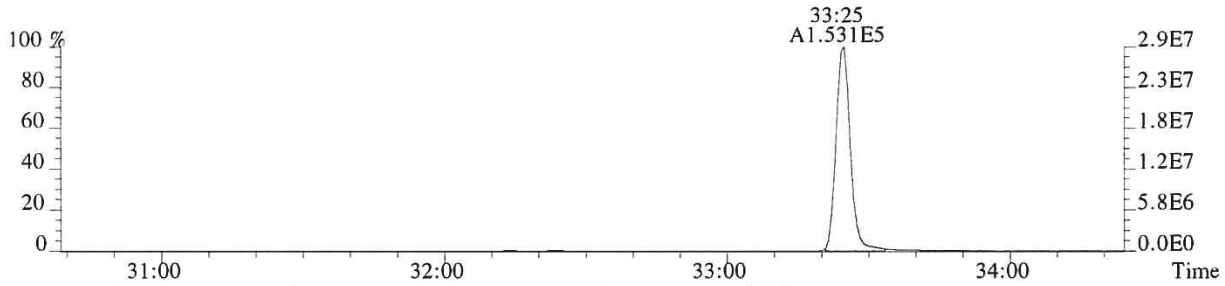
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



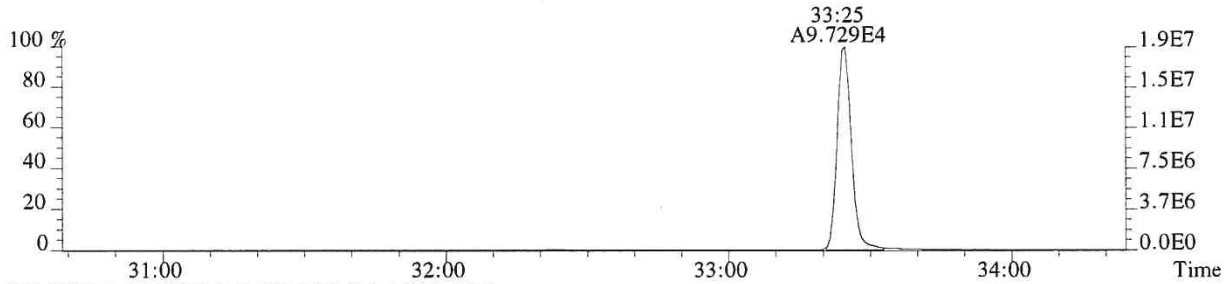
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



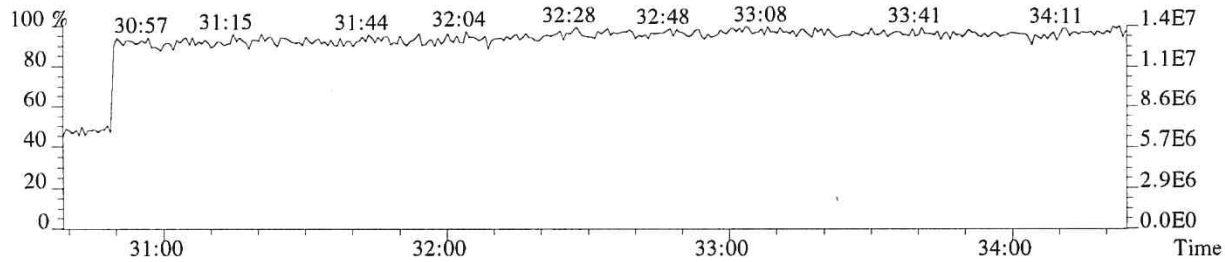
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



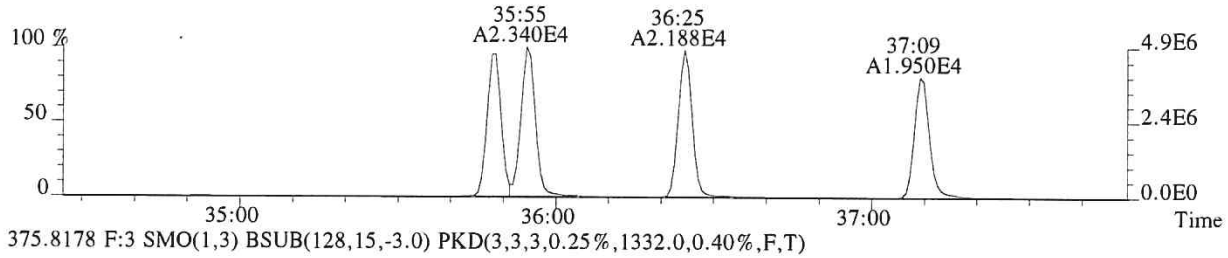
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



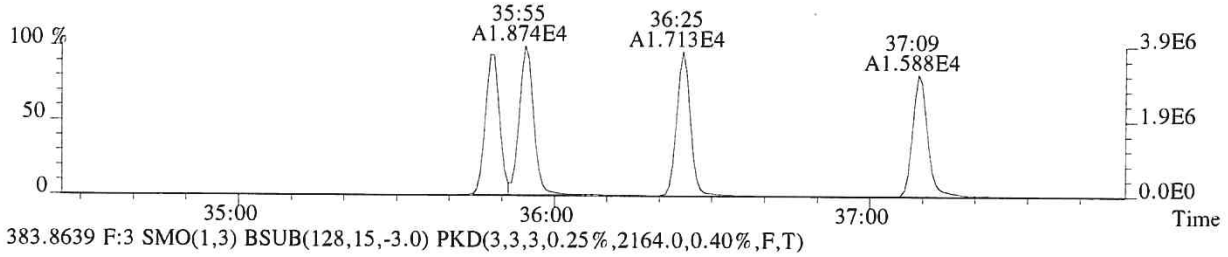
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



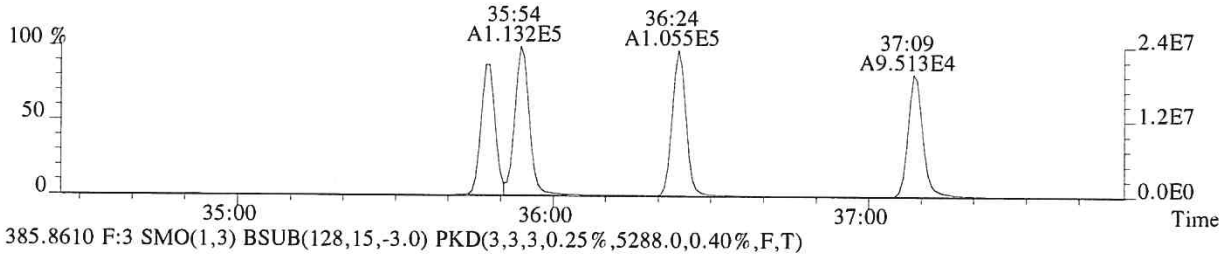
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.40%,F,T)



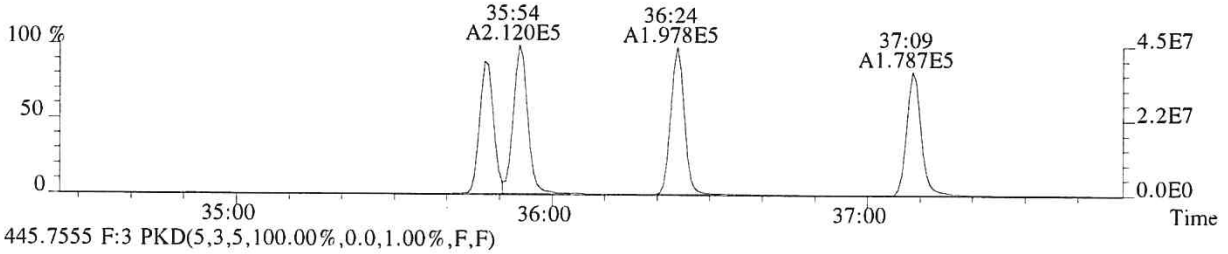
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



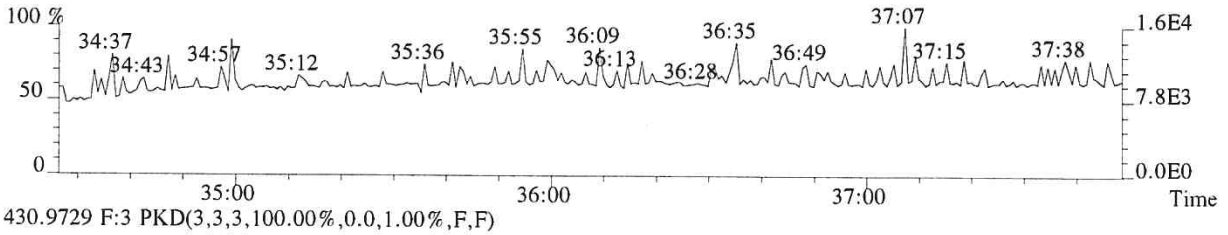
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



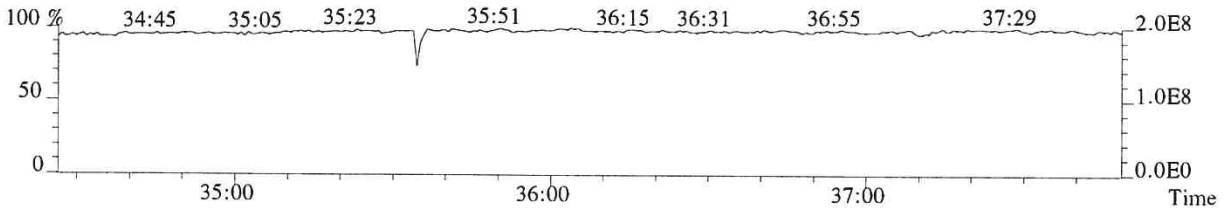
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5288.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

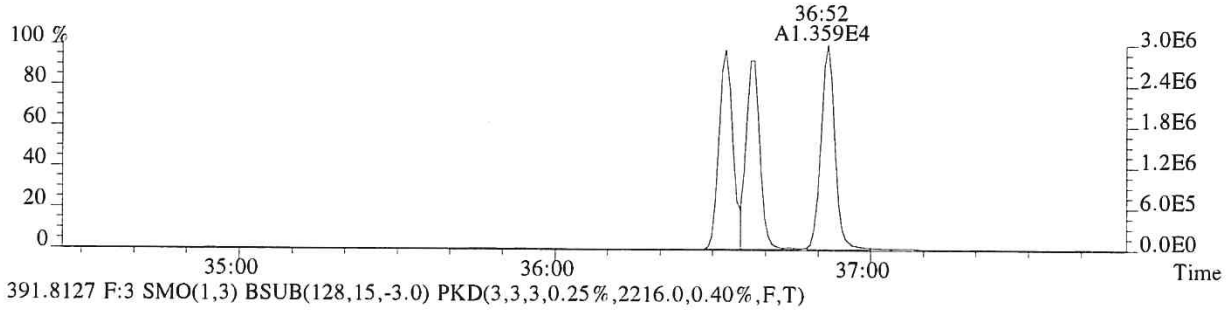


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

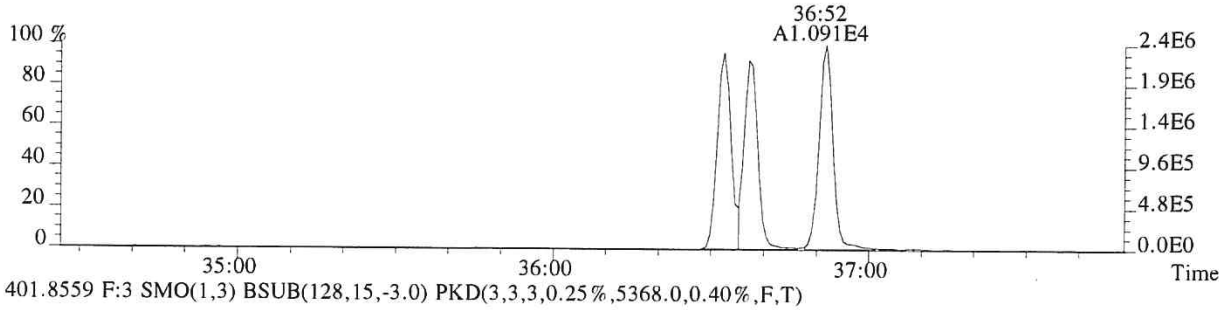


010274

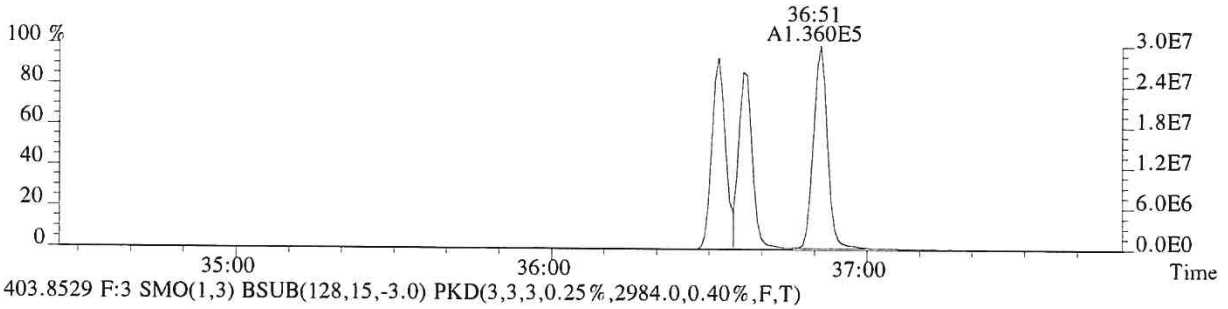
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



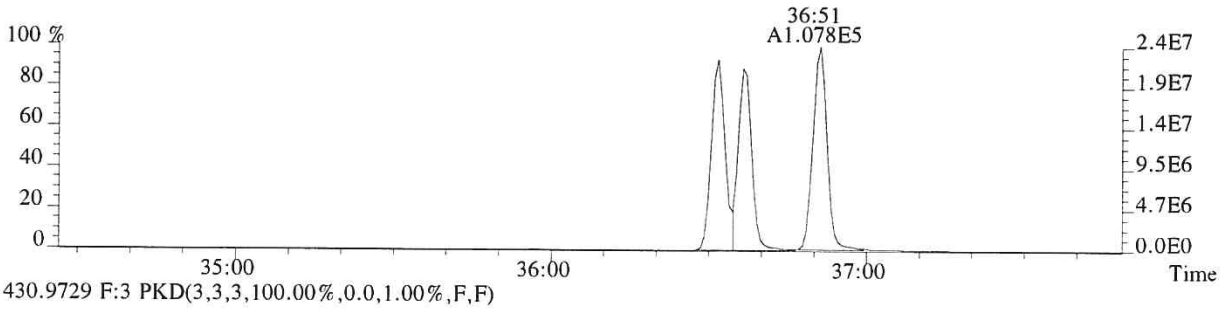
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



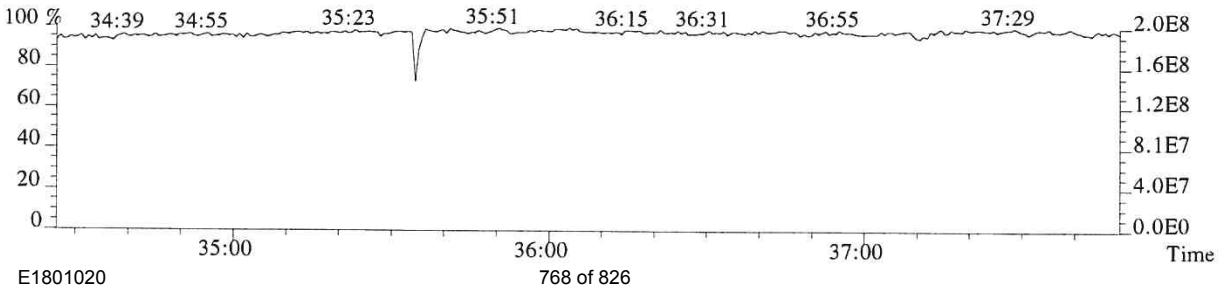
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5368.0,0.40%,F,T)



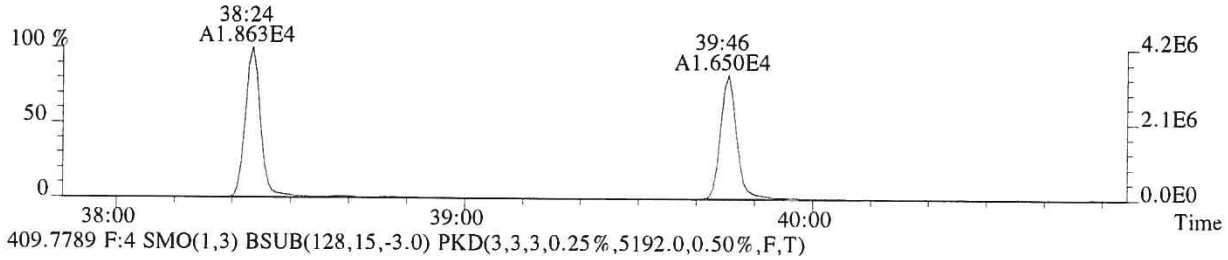
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



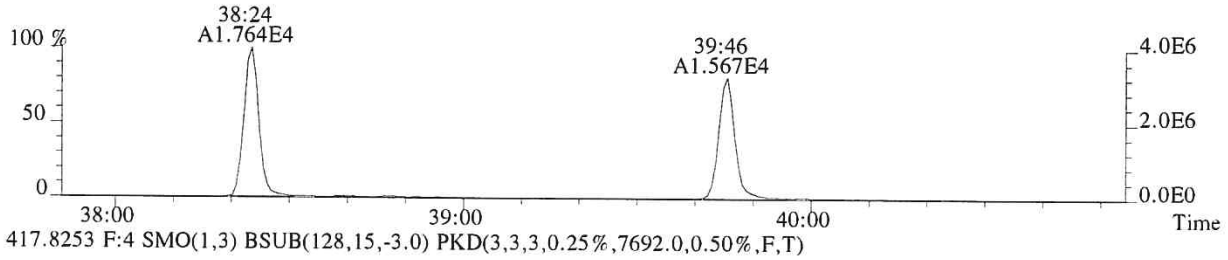
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



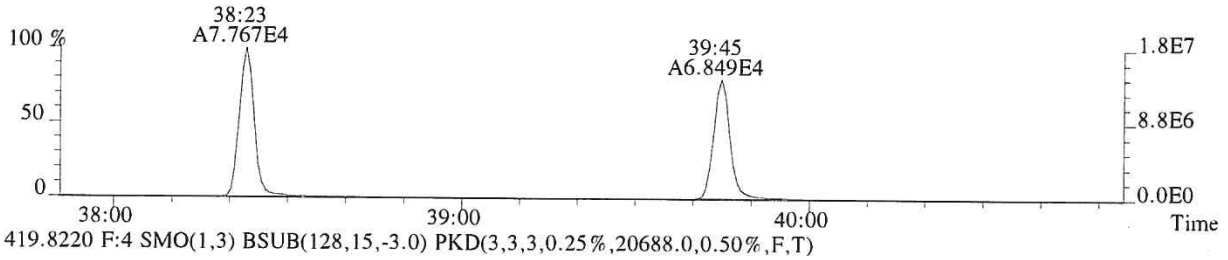
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4060.0,0.50%,F,T)



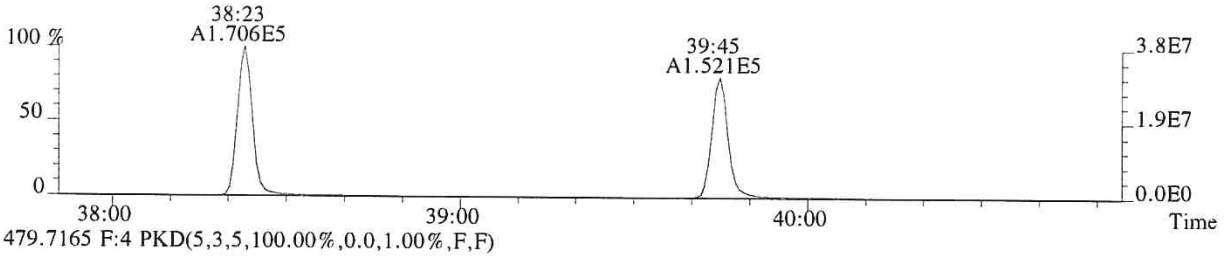
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5192.0,0.50%,F,T)



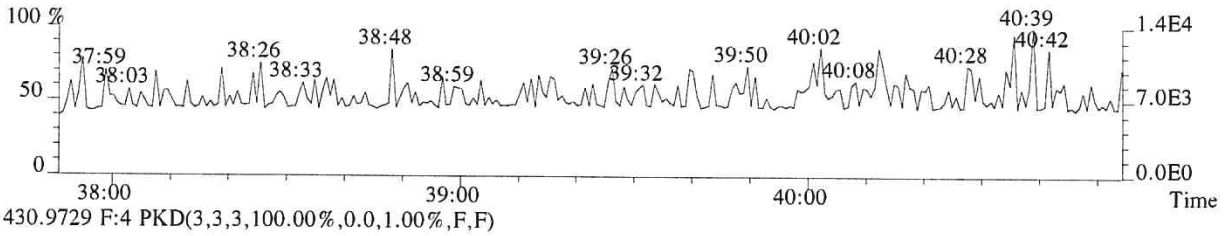
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7692.0,0.50%,F,T)



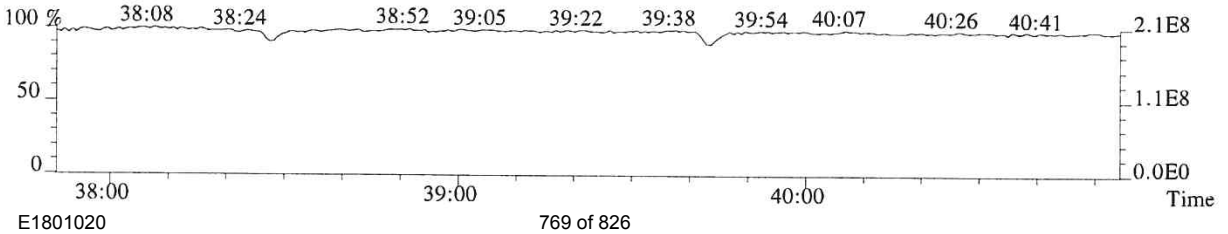
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20688.0,0.50%,F,T)



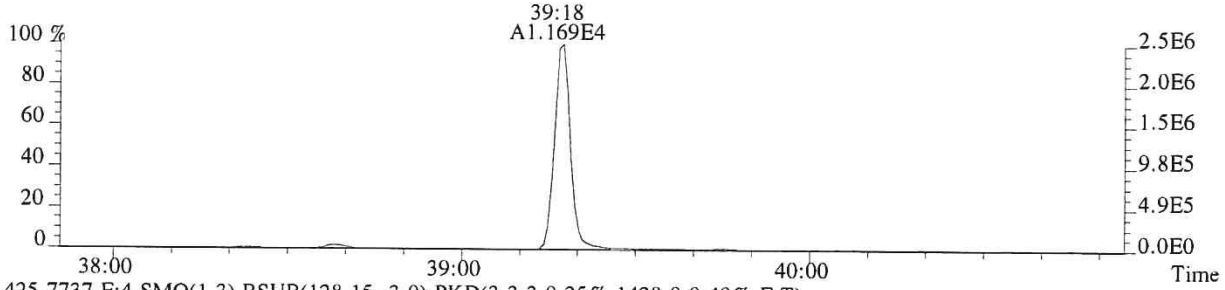
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



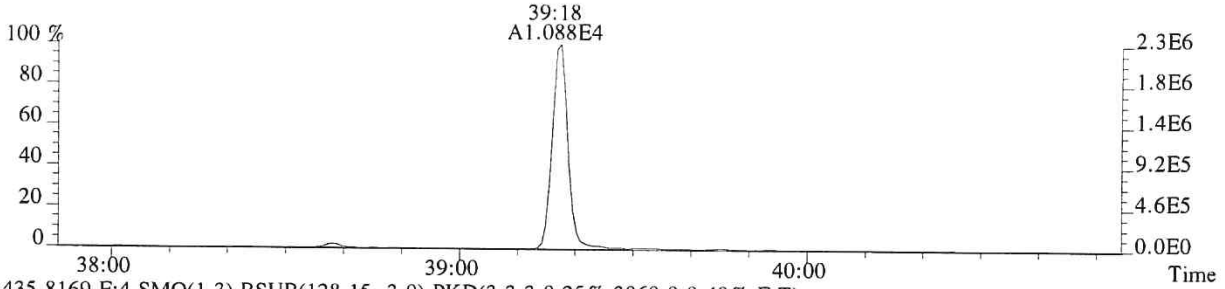
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



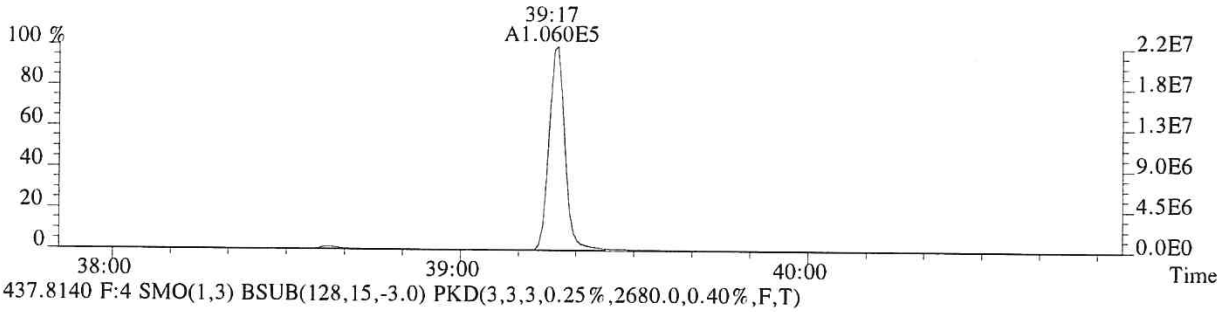
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



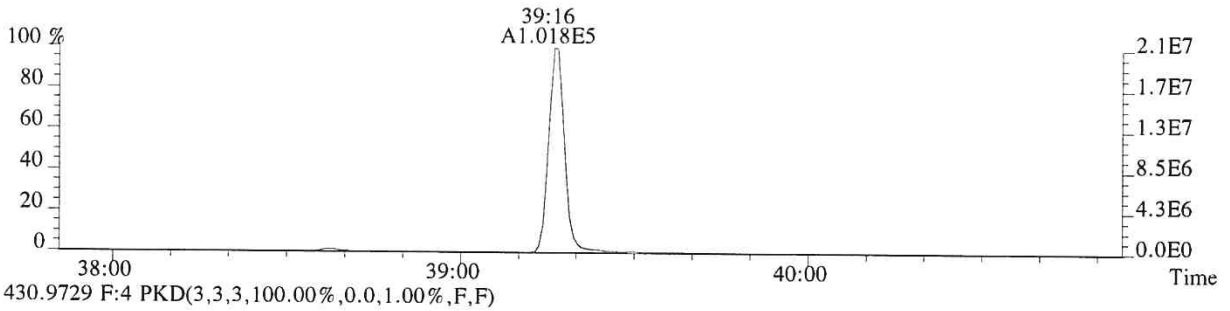
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



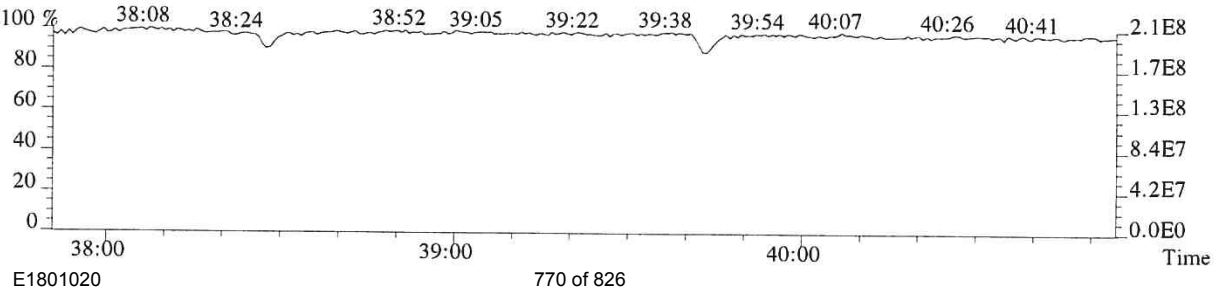
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



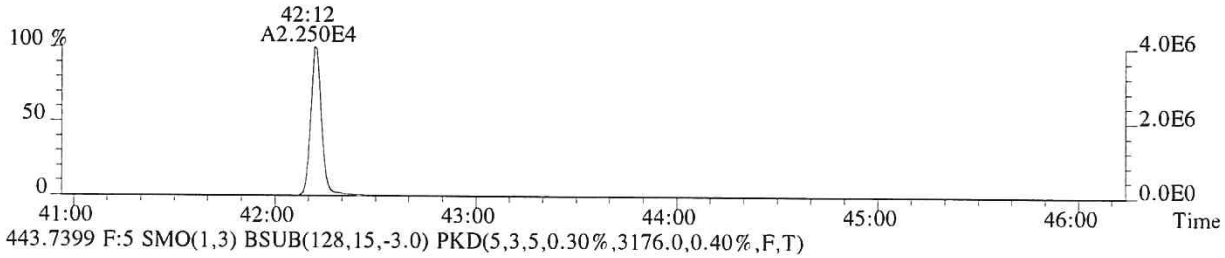
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)



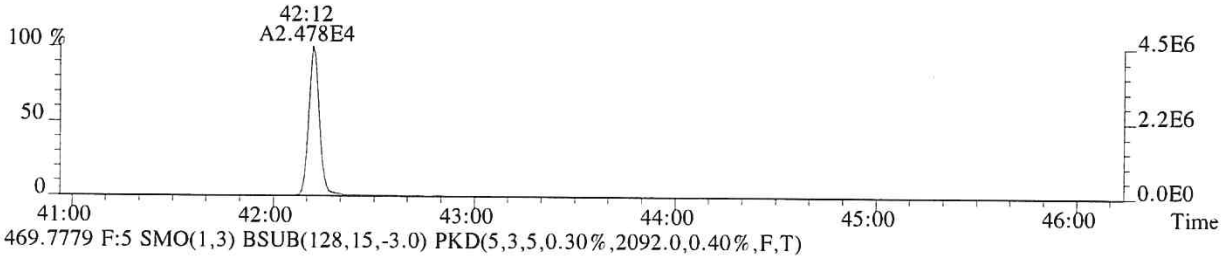
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



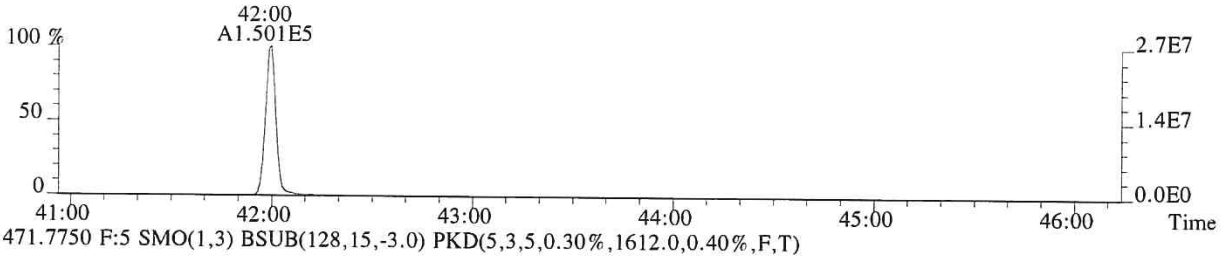
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



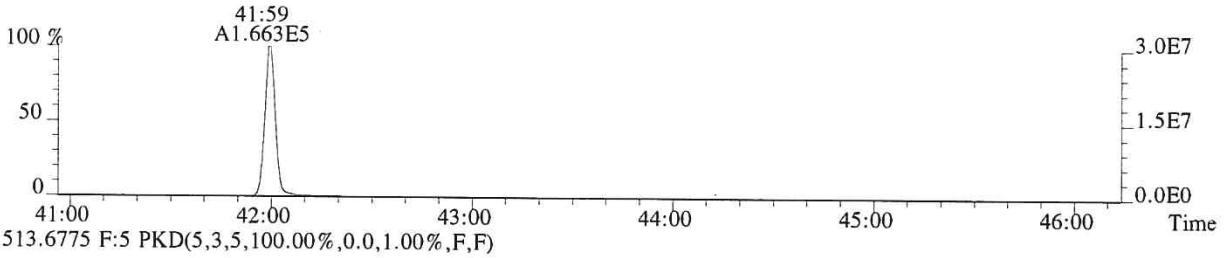
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3176.0,0.40%,F,T)



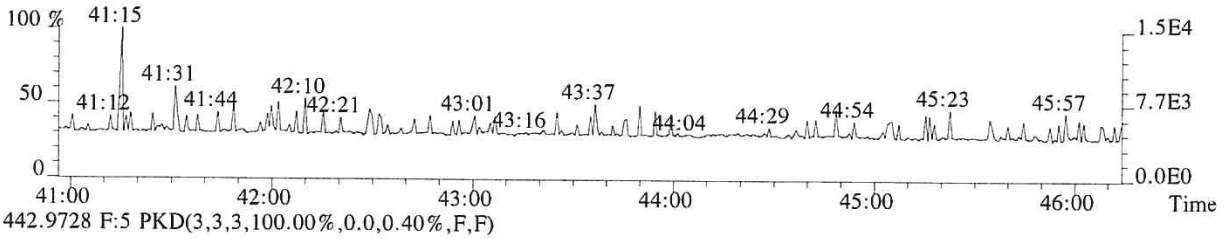
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



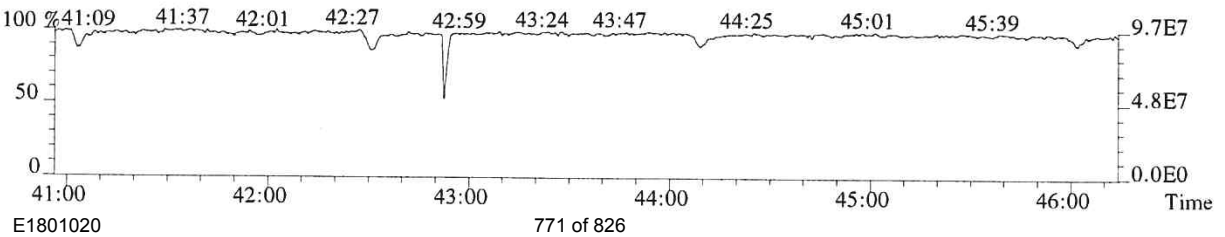
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



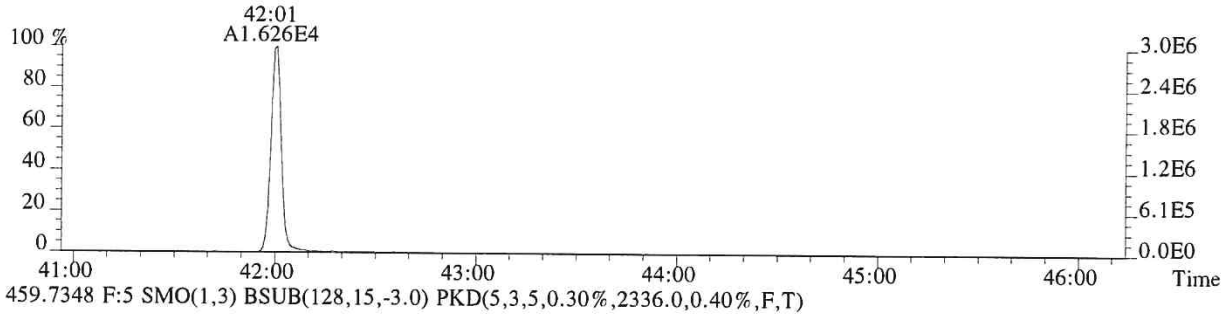
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



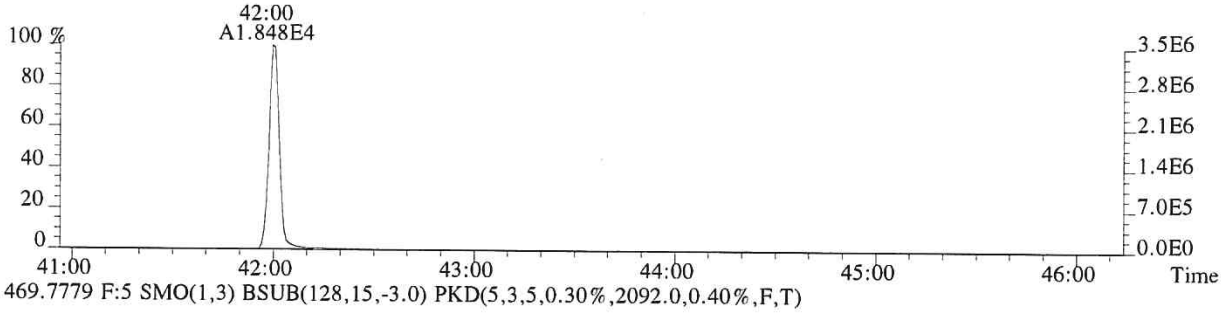
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



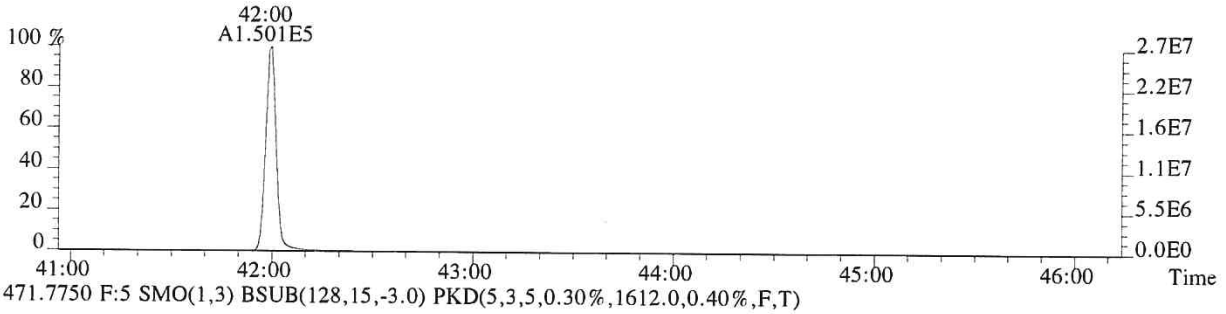
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



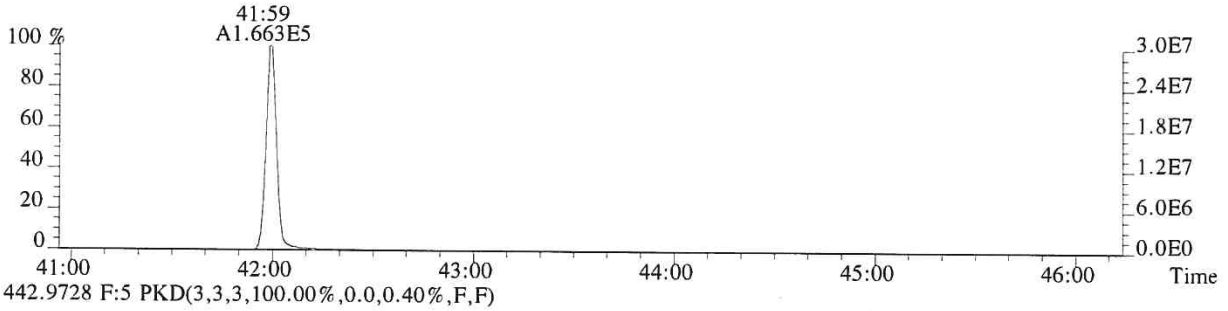
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2336.0,0.40%,F,T)



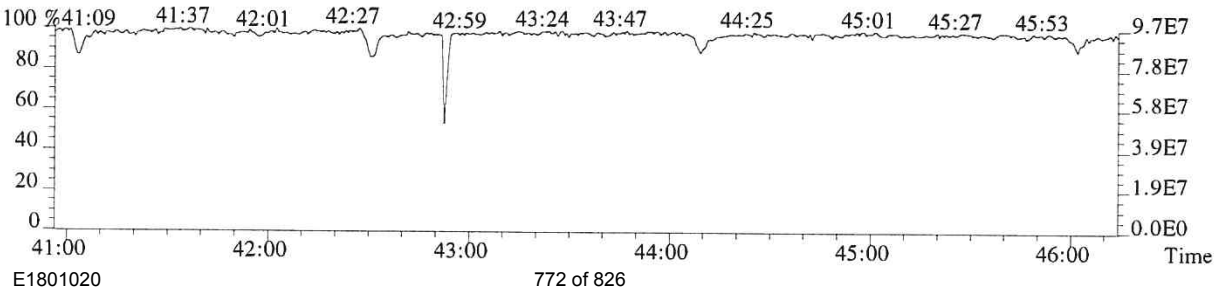
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010279

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.637e+04	4.546e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.073e+05	1.939e+05	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	2.818e+05	1.782e+05	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.774e+05	2.200e+05	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.905e+05	2.295e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.685e+05	2.105e+05	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.537e+05	1.982e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.407e+05	2.292e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.925e+05	1.847e+05	1.04	yes	no	1.463
10	Unk	OCDF	42:13	3.041e+05	3.309e+05	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	2.365e+04	3.051e+04	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.706e+05	1.098e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.645e+05	1.238e+05	1.33	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.567e+05	1.272e+05	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.702e+05	1.368e+05	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.477e+05	1.392e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.180e+05	2.422e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	3.444e+05	4.352e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	5.358e+05	3.352e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	5.234e+05	3.254e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.524e+05	4.773e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.834e+05	5.294e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.621e+05	4.867e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.431e+05	4.520e+05	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.967e+05	4.289e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.638e+05	3.571e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.330e+05	2.909e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.758e+05	2.372e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	3.106e+05	2.345e+05	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.932e+05	2.439e+05	1.20	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.673e+05	2.524e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	3.863e+05	4.247e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.395e+05	3.006e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	3.335e+05	2.694e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.645e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+06	2.18e+03	3.0e+03	8.17e+06	4.39e+03	1.9e+03
2	1,2,3,7,8-PeCDF	5.78e+07	2.87e+03	2.0e+04	3.64e+07	4.35e+03	8.4e+03
3	2,3,4,7,8-PeCDF	5.79e+07	2.87e+03	2.0e+04	3.65e+07	4.35e+03	8.4e+03
4	1,2,3,4,7,8-HxCDF	6.15e+07	2.89e+03	2.1e+04	4.93e+07	2.08e+03	2.4e+04
5	1,2,3,6,7,8-HxCDF	6.26e+07	2.89e+03	2.2e+04	4.97e+07	2.08e+03	2.4e+04
6	2,3,4,6,7,8-HxCDF	6.14e+07	2.89e+03	2.1e+04	4.79e+07	2.08e+03	2.3e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.89e+03	1.9e+04	4.26e+07	2.08e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.56e+07	1.47e+04	3.8e+03	5.23e+07	1.66e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.99e+07	1.47e+04	2.7e+03	3.80e+07	1.66e+04	2.3e+03
10	OCDF	5.72e+07	1.23e+03	4.7e+04	6.22e+07	3.01e+03	2.1e+04
11	2,3,7,8-TCDD	4.49e+06	5.36e+03	8.4e+02	5.78e+06	2.64e+03	2.2e+03
12	1,2,3,7,8-PeCDD	3.45e+07	2.46e+03	1.4e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	3.72e+07	9.04e+02	4.1e+04	2.90e+07	1.56e+03	1.9e+04
14	1,2,3,6,7,8-HxCDD	3.60e+07	9.04e+02	4.0e+04	2.81e+07	1.56e+03	1.8e+04
15	1,2,3,7,8,9-HxCDD	3.80e+07	9.04e+02	4.2e+04	3.00e+07	1.56e+03	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	3.19e+07	1.58e+03	2.0e+04	3.06e+07	1.63e+03	1.9e+04
17	OCDD	4.21e+07	1.71e+03	2.5e+04	4.66e+07	1.53e+03	3.0e+04
18	13C-2,3,7,8-TCDF	6.23e+07	1.55e+04	4.0e+03	7.90e+07	1.02e+04	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+08	2.14e+03	4.7e+04	6.28e+07	2.18e+03	2.9e+04
20	13C-2,3,4,7,8-PeCDF	1.07e+08	2.14e+03	5.0e+04	6.66e+07	2.18e+03	3.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.63e+07	2.92e+03	1.9e+04	1.07e+08	4.60e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.12e+07	2.92e+03	2.1e+04	1.15e+08	4.60e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	2.92e+03	2.0e+04	1.10e+08	4.60e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.22e+07	2.92e+03	1.8e+04	9.74e+07	4.60e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.59e+07	1.18e+04	3.9e+03	9.95e+07	3.82e+04	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	1.18e+04	2.9e+03	7.29e+07	3.82e+04	1.9e+03
27	13C-2,3,7,8-TCDD	4.45e+07	1.91e+04	2.3e+03	5.53e+07	7.70e+03	7.2e+03
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.59e+03	2.1e+04	4.74e+07	2.50e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.95e+07	5.55e+03	1.3e+04	5.43e+07	3.18e+03	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	6.70e+07	5.55e+03	1.2e+04	5.36e+07	3.18e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.80e+07	4.72e+03	1.2e+04	5.53e+07	2.63e+03	2.1e+04
32	13C-OCDD	7.33e+07	1.86e+03	4.0e+04	8.10e+07	5.92e+02	1.4e+05
33	13C-1,2,3,4-TCDD	4.48e+07	1.91e+04	2.3e+03	5.67e+07	7.70e+03	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.38e+07	5.55e+03	1.3e+04	5.89e+07	3.18e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	1.08e+07	3.52e+03	3.1e+03			

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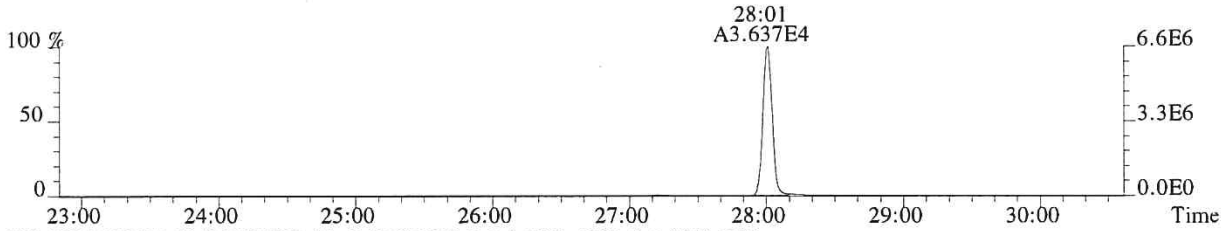
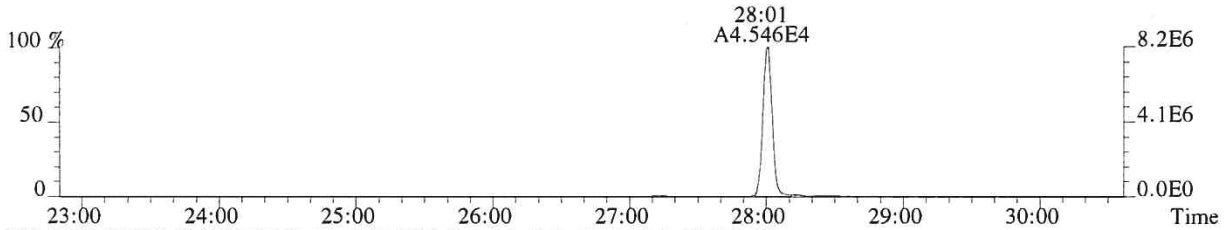
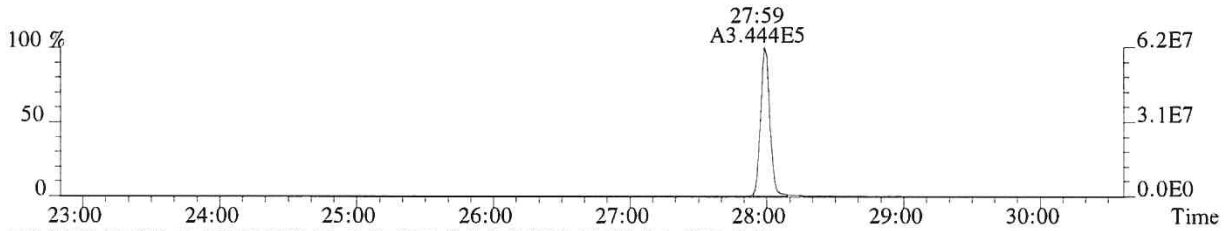
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



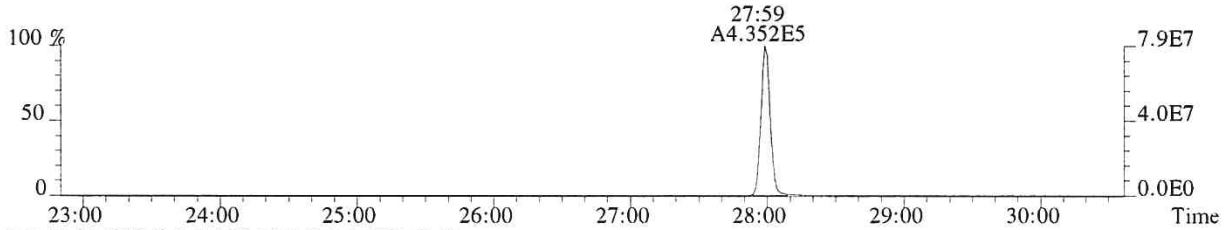
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



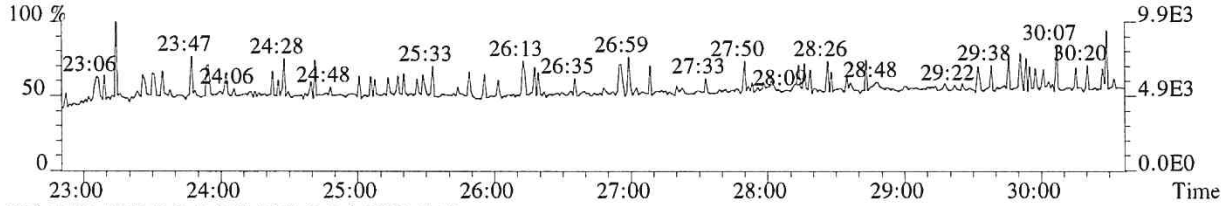
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15516.0,1.00%,F,T)



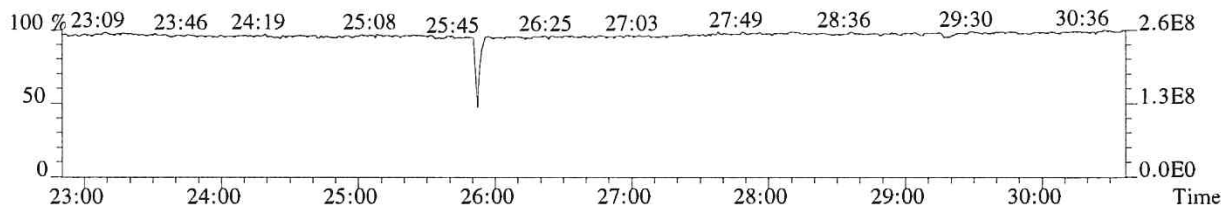
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



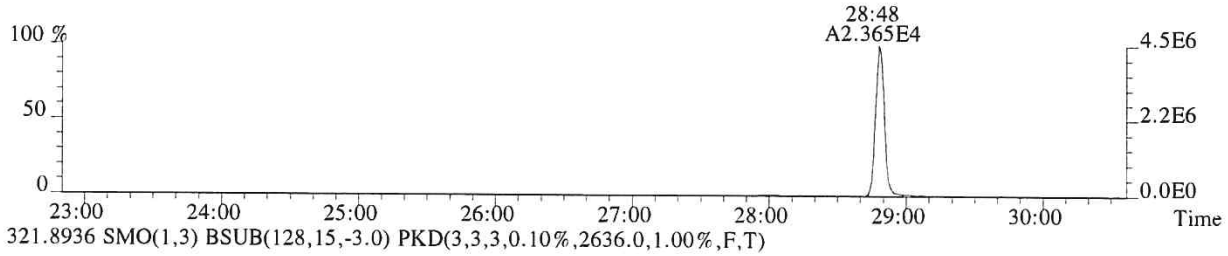
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



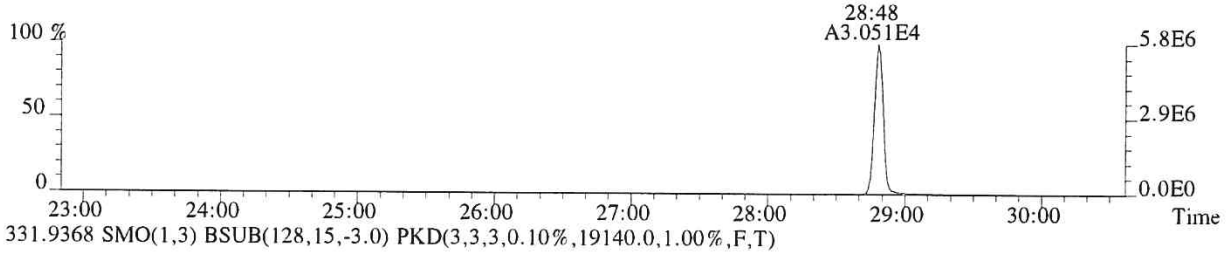
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



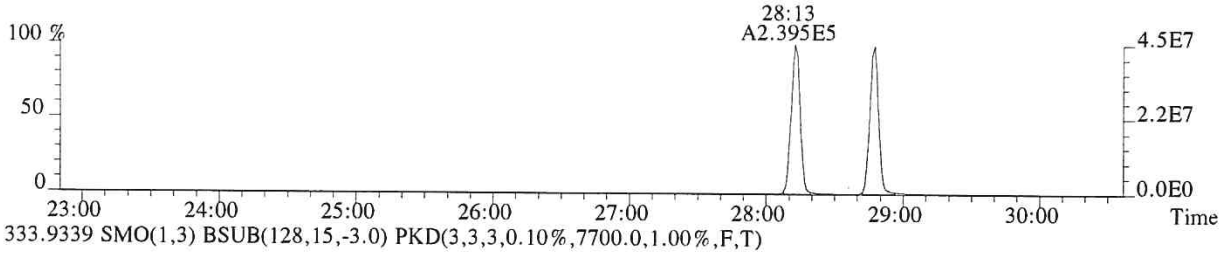
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



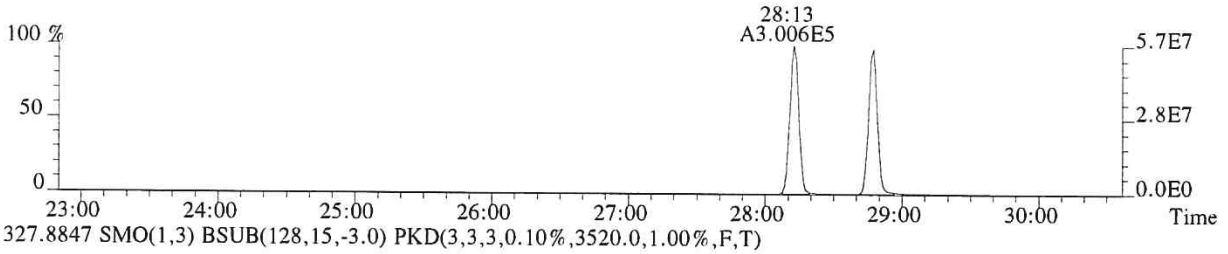
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



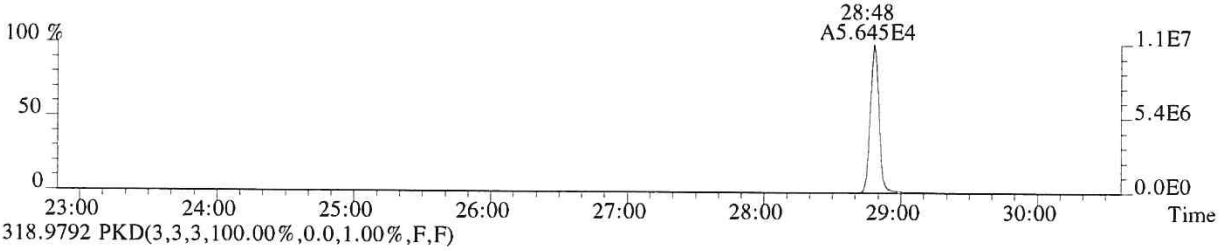
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



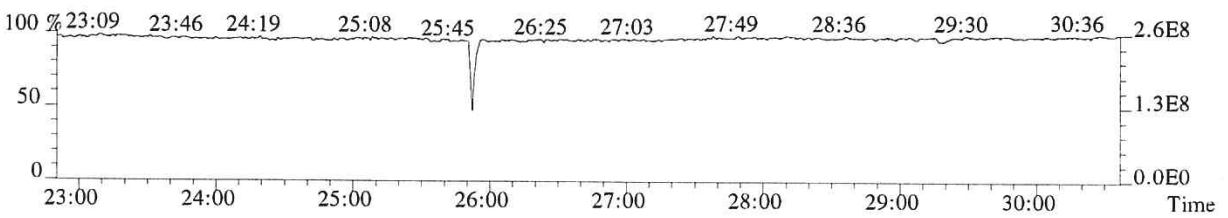
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)

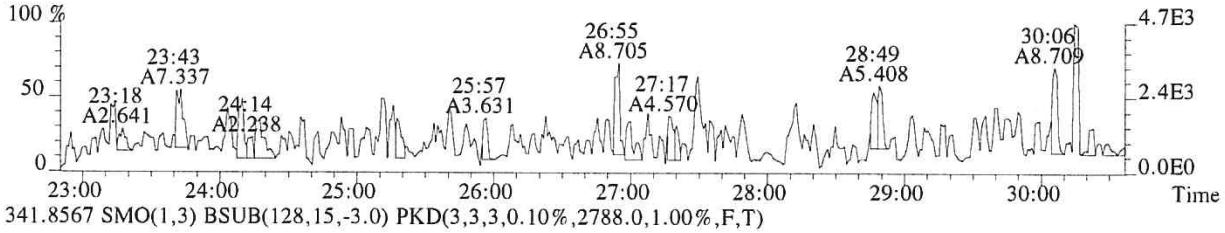


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

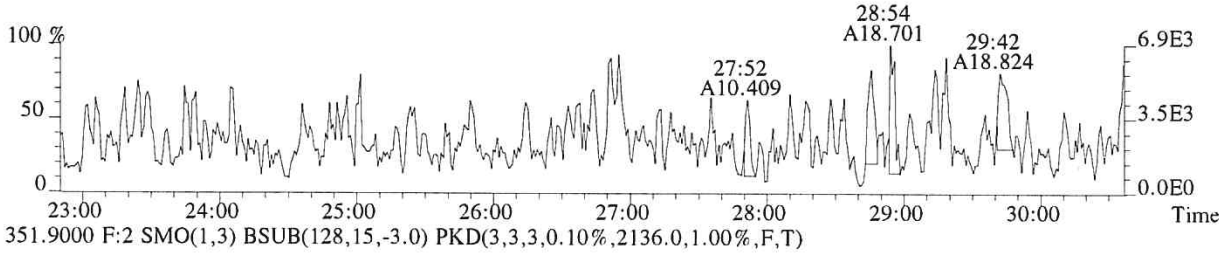


010283

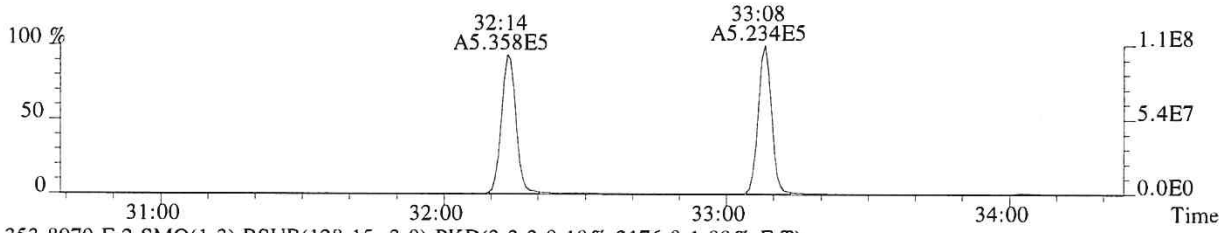
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



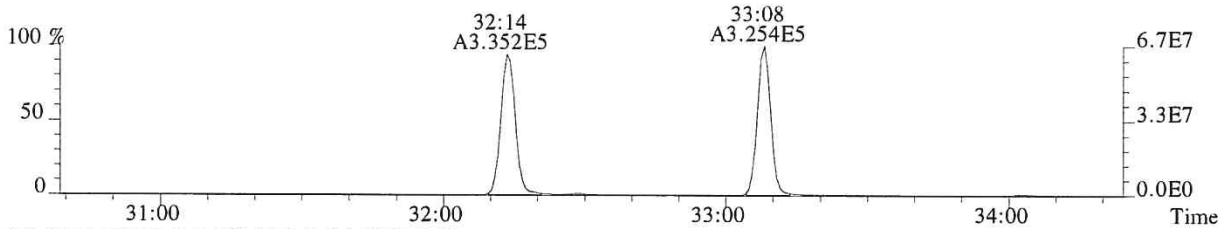
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



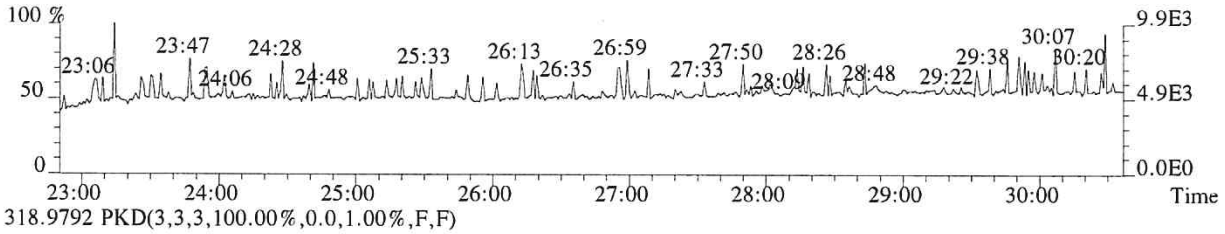
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



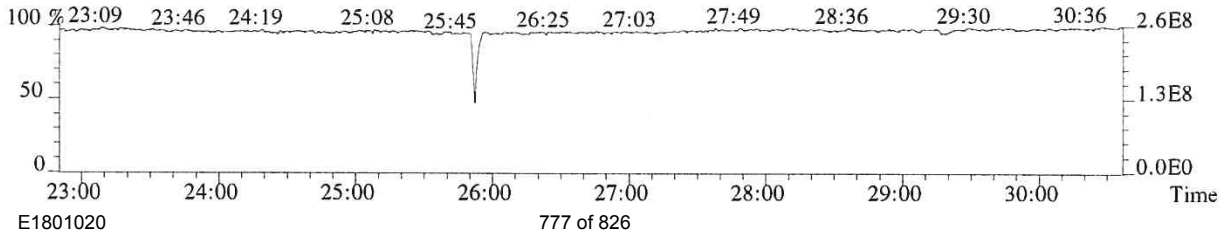
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



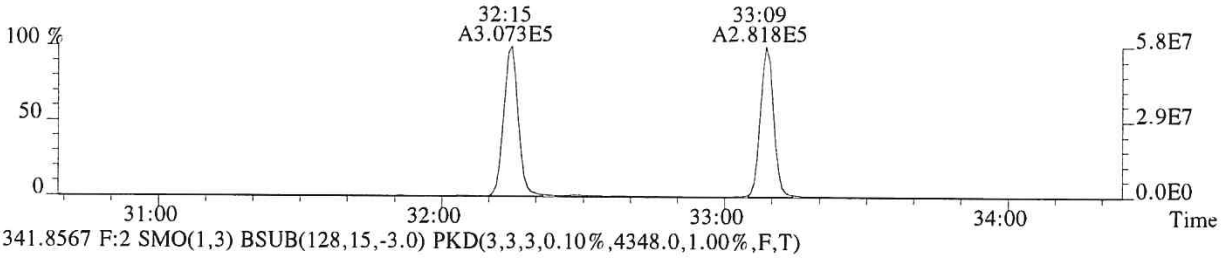
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



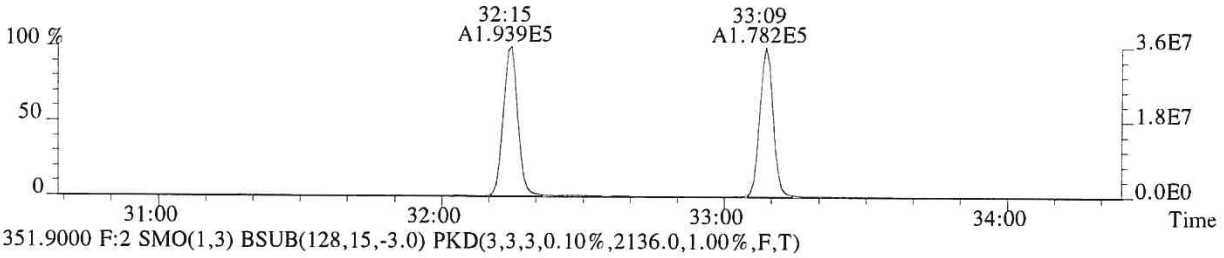
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



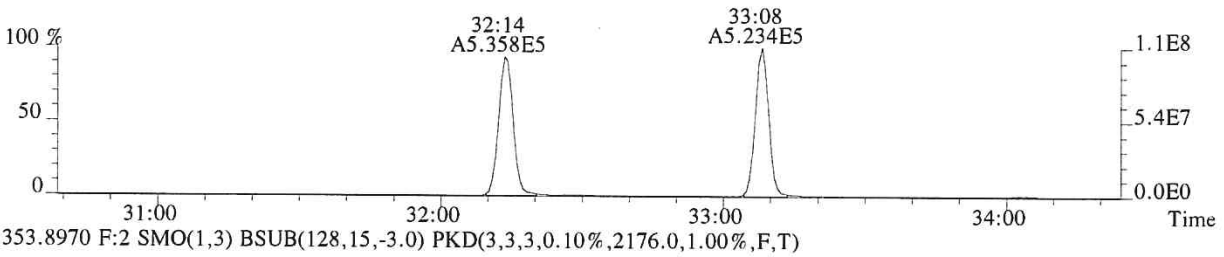
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



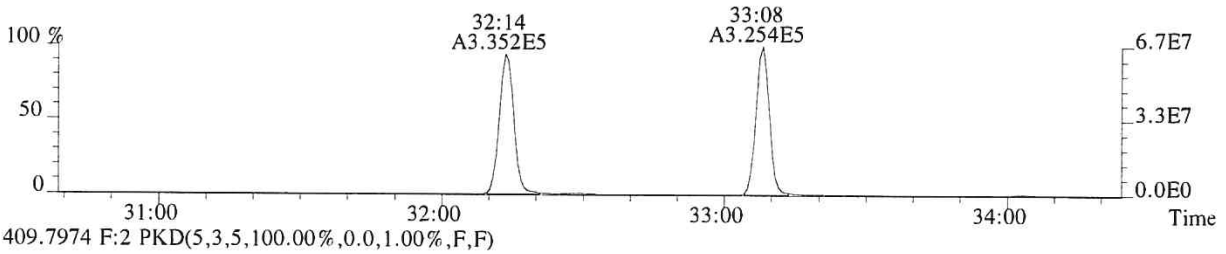
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



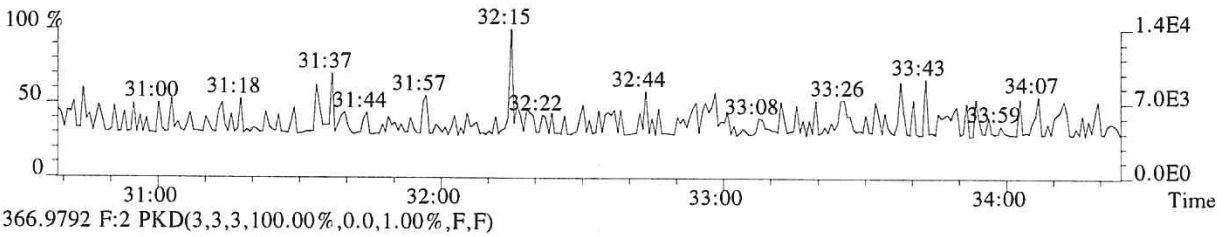
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



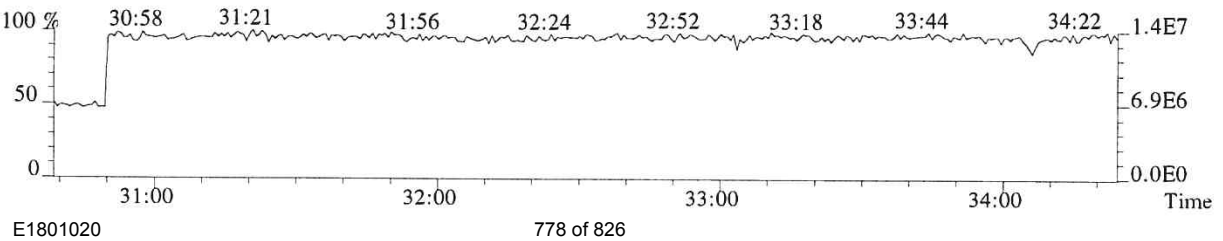
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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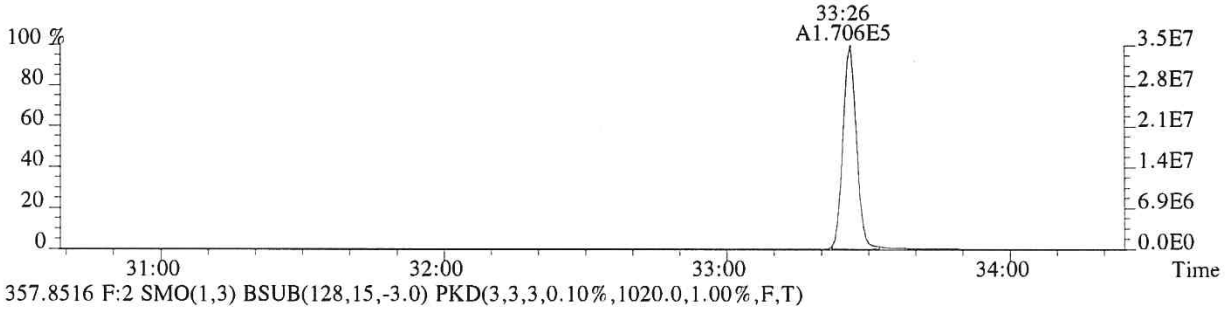
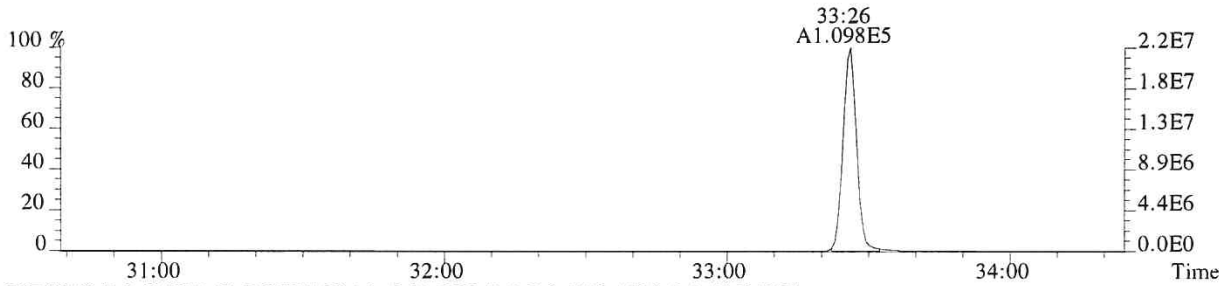
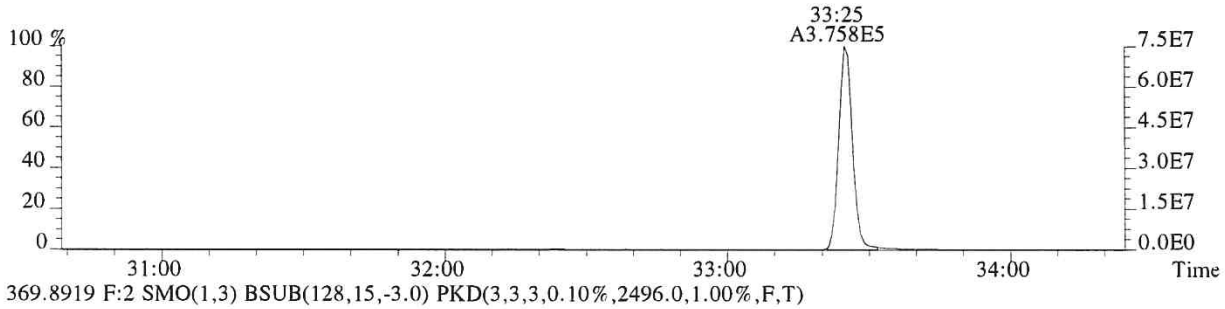
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



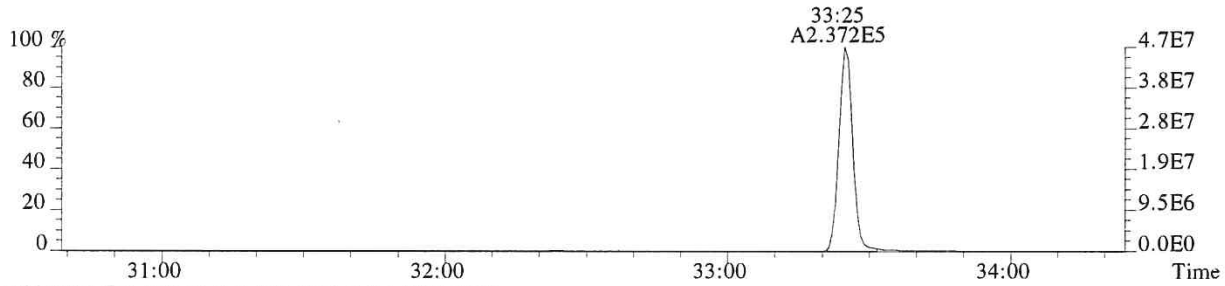
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



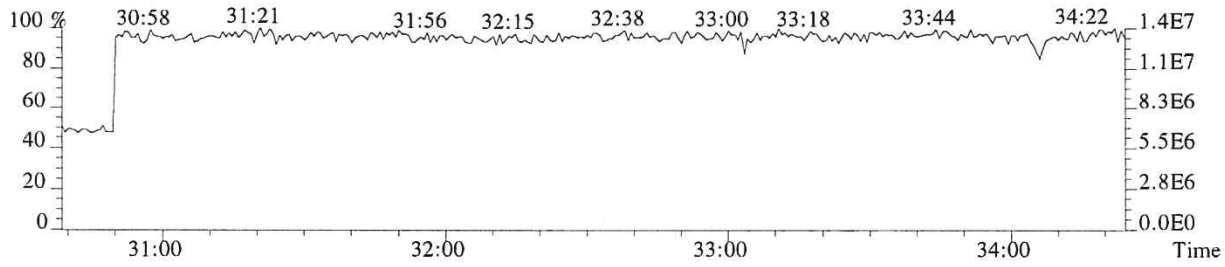
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



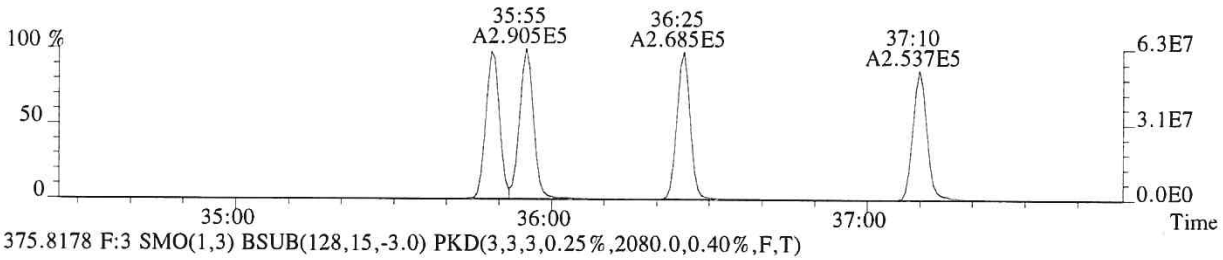
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)



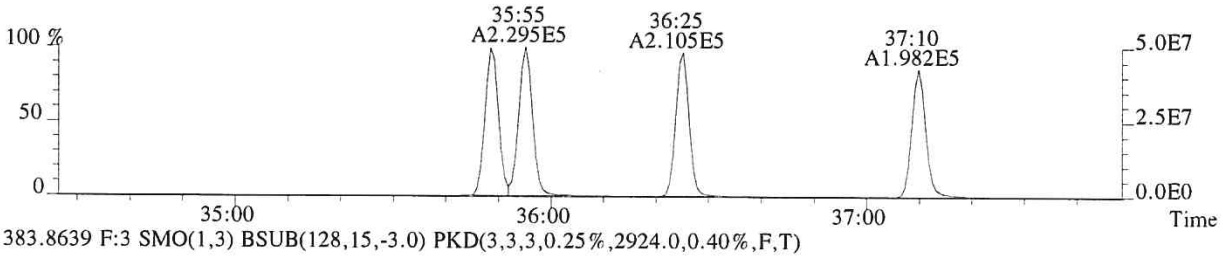
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



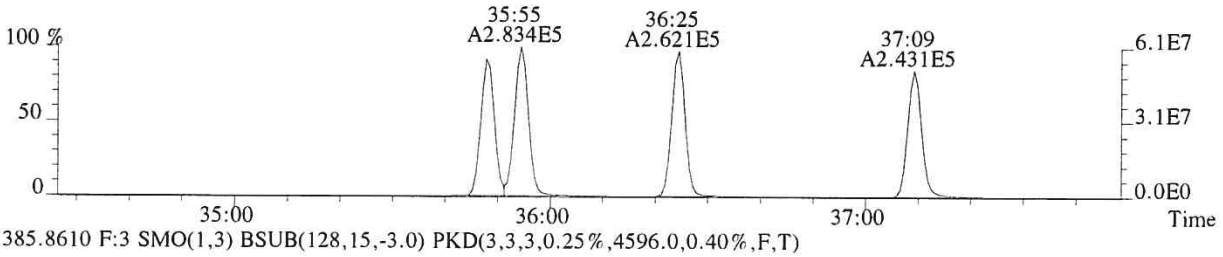
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



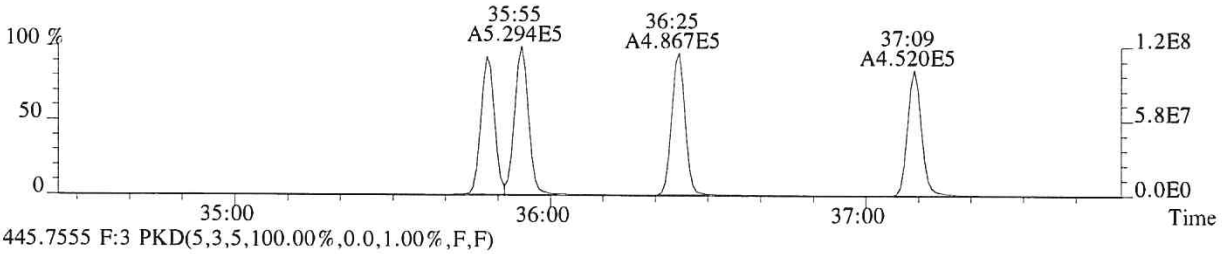
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



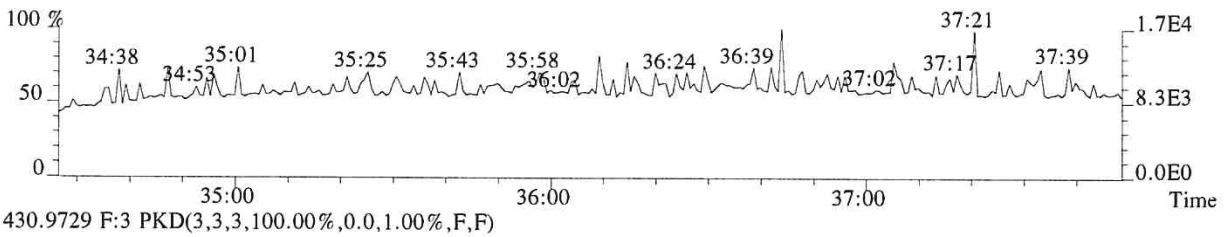
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



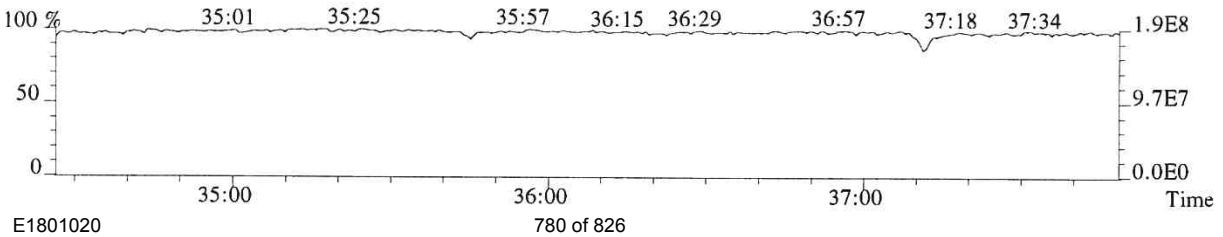
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4596.0,0.40%,F,T)



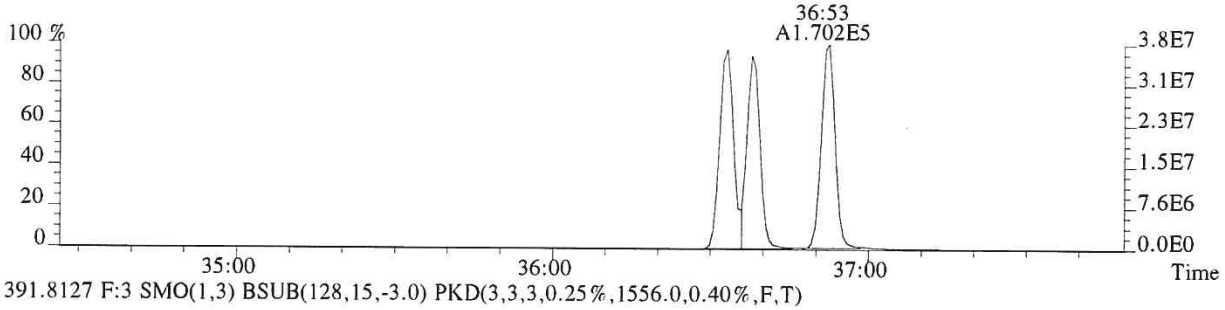
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



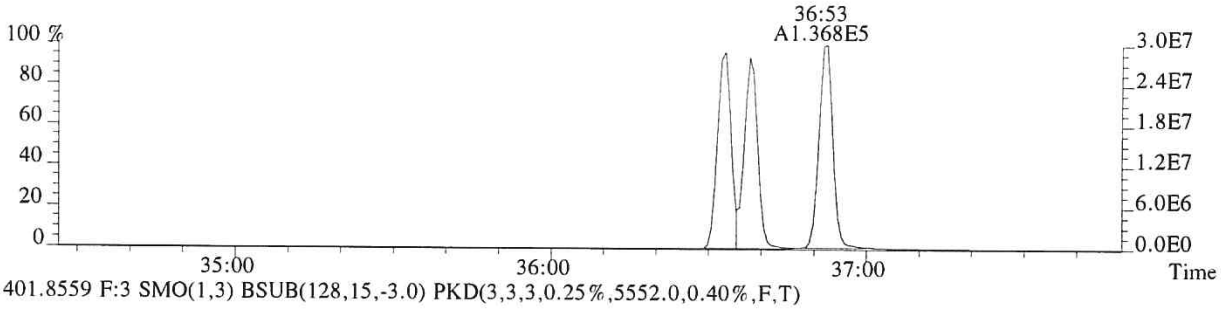
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



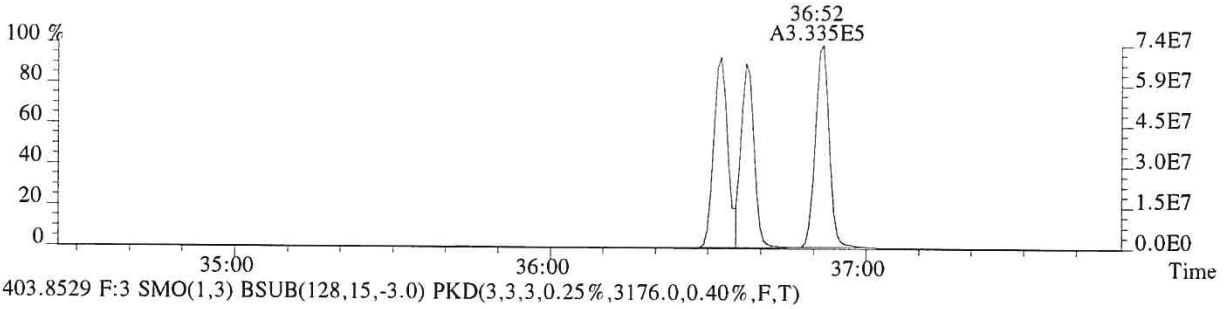
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



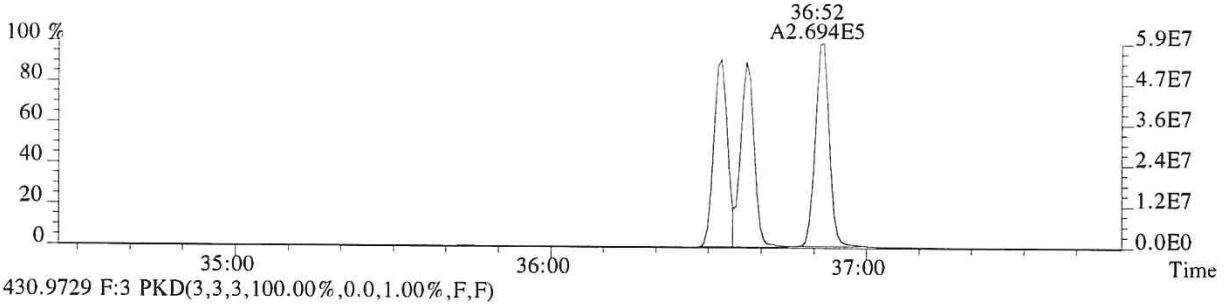
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



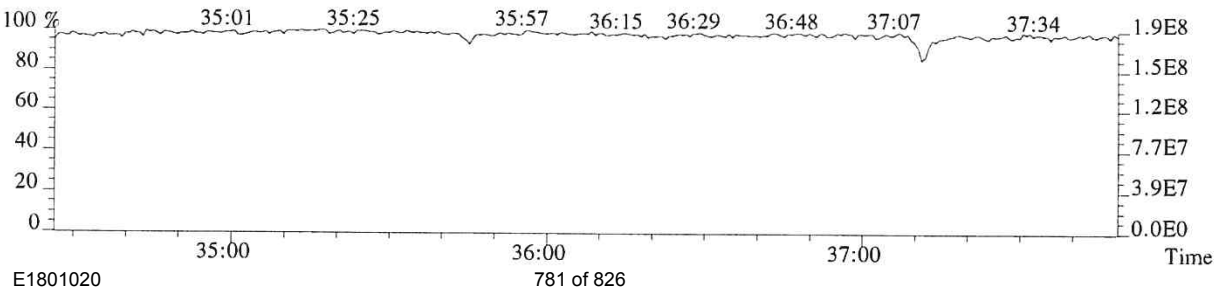
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5552.0,0.40%,F,T)



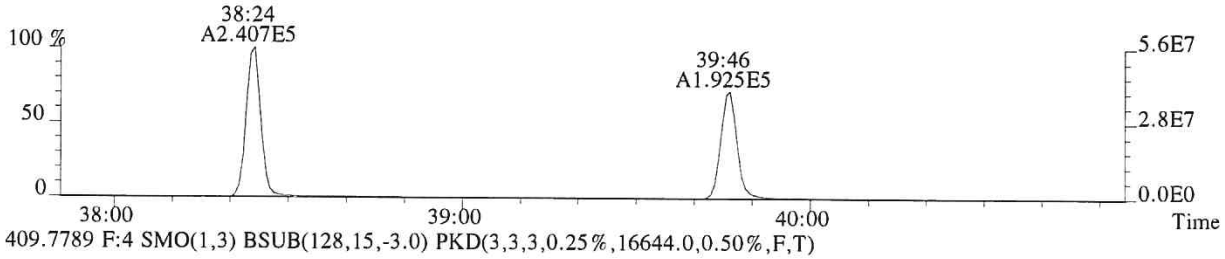
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)



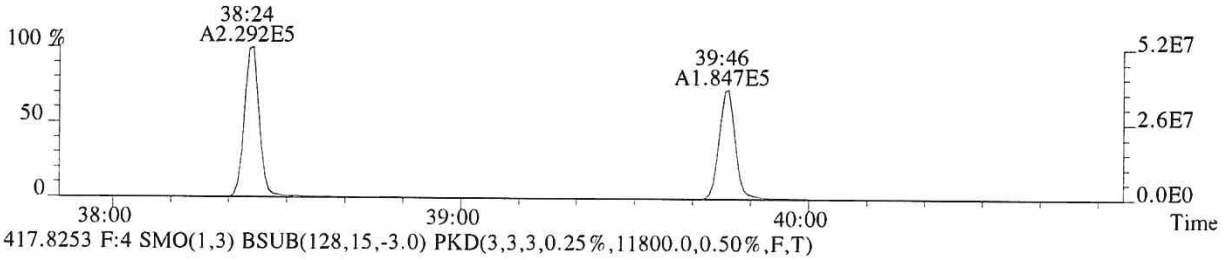
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



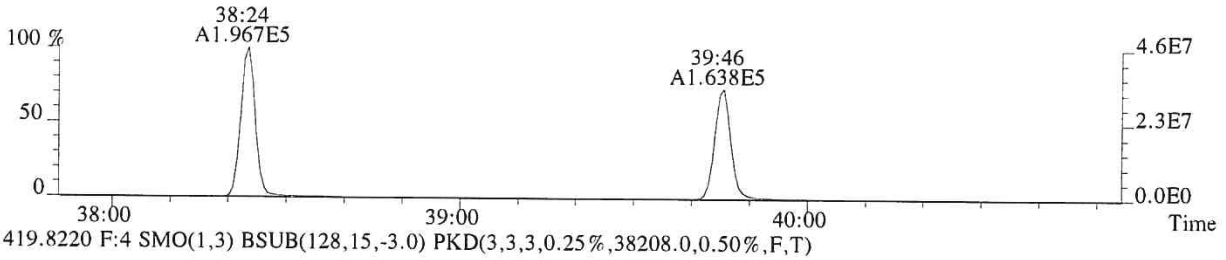
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14728.0,0.50%,F,T)



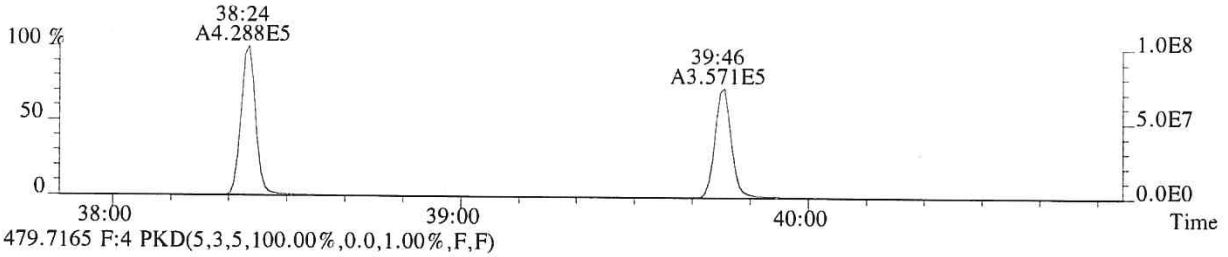
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16644.0,0.50%,F,T)



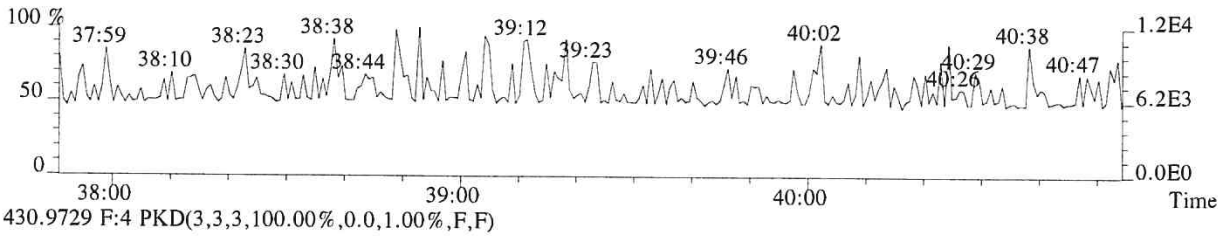
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11800.0,0.50%,F,T)



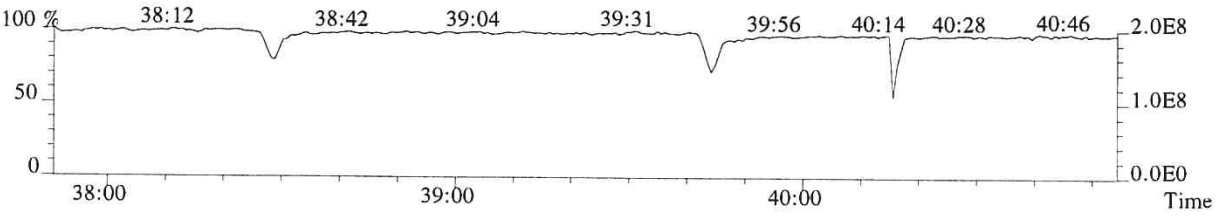
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,38208.0,0.50%,F,T)



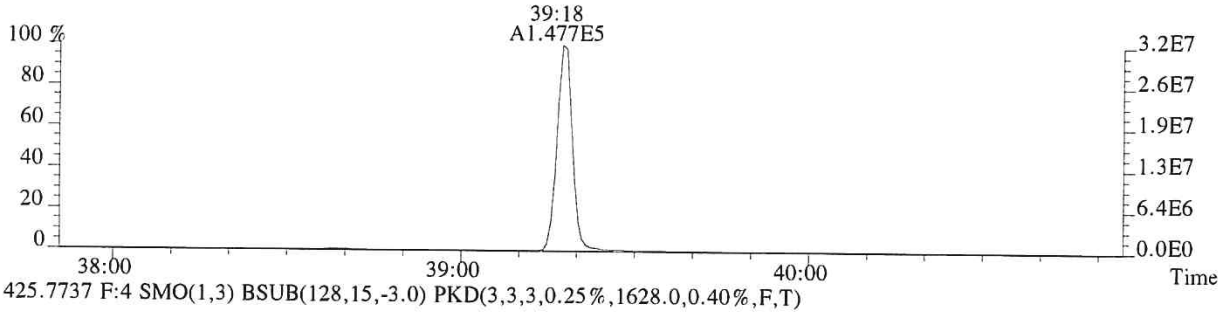
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



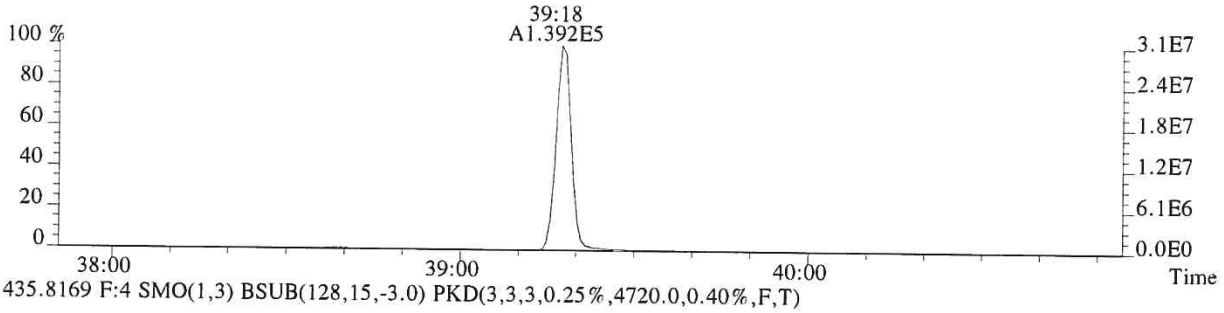
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



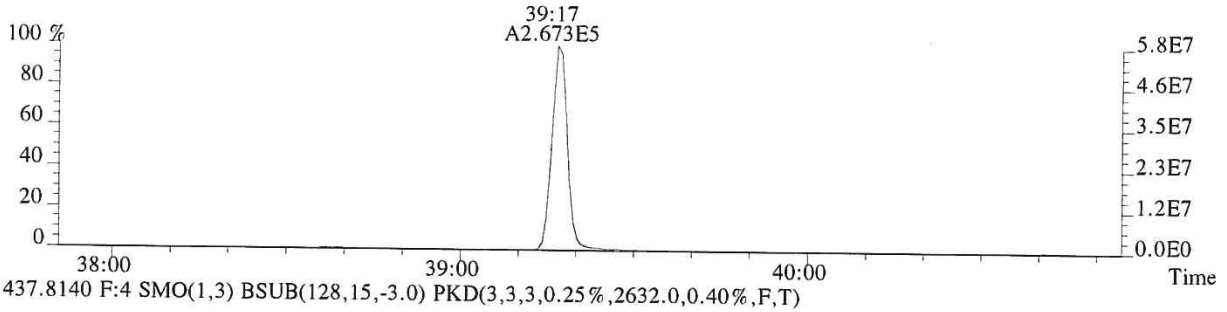
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



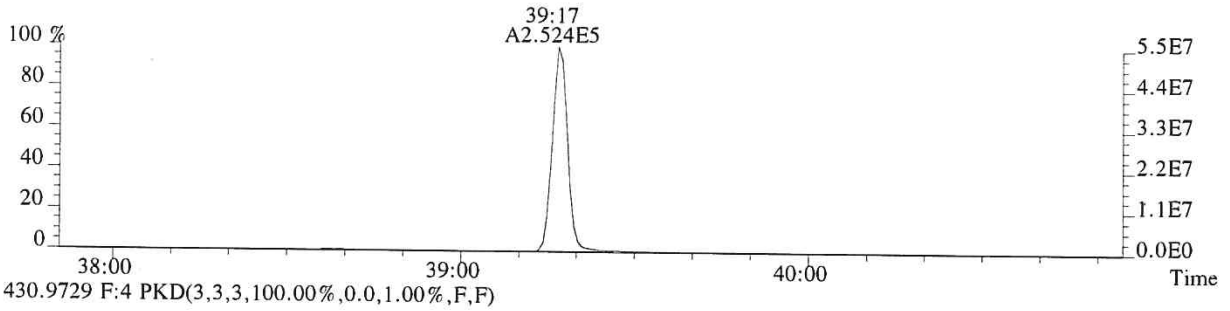
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



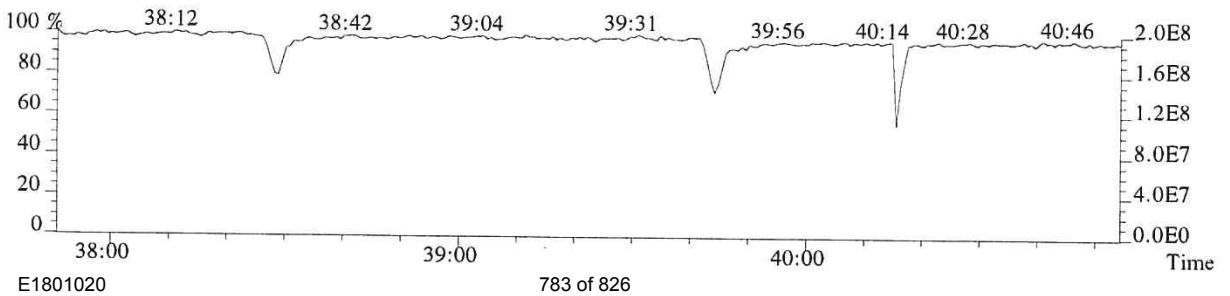
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.40%,F,T)



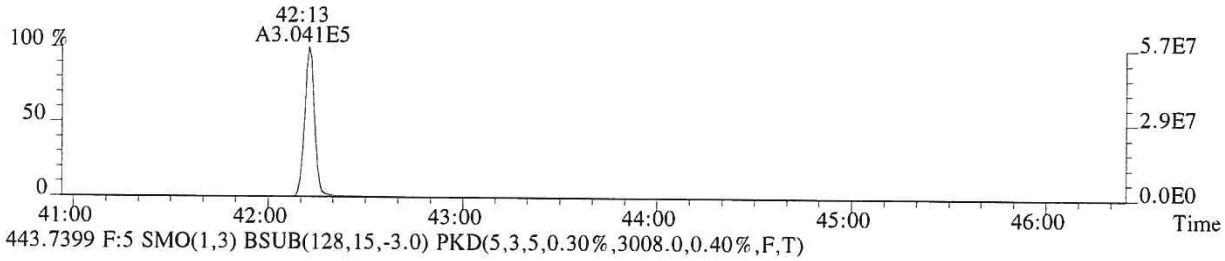
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)



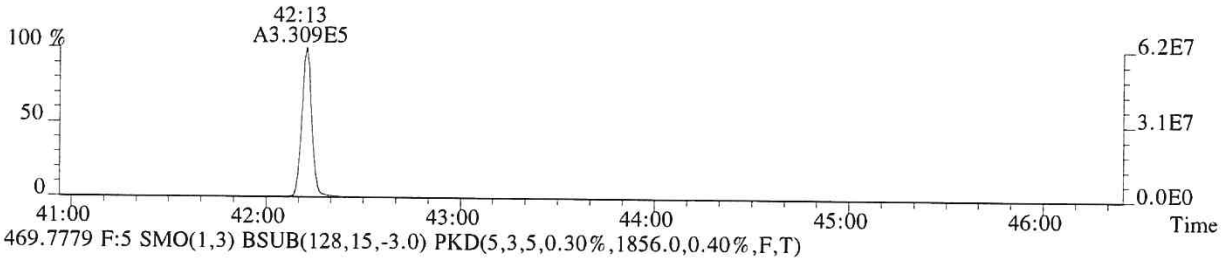
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



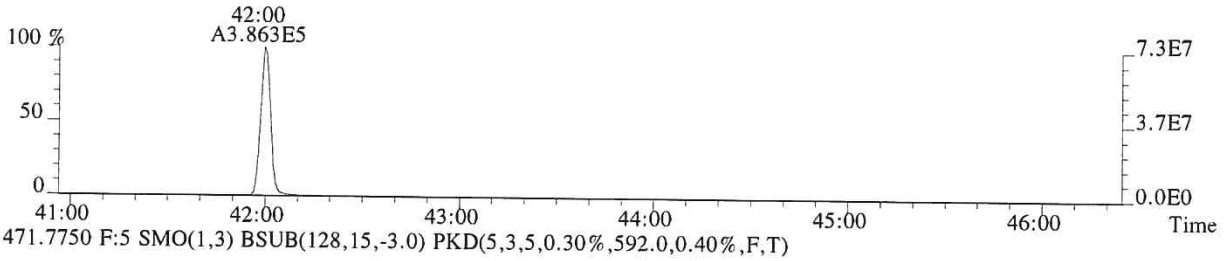
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



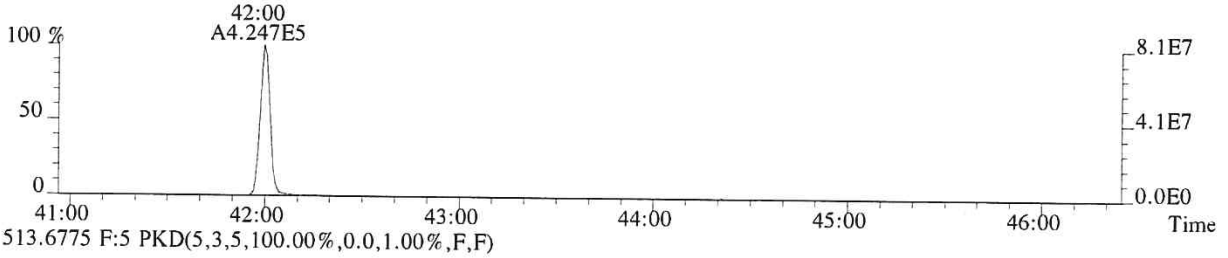
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3008.0,0.40%,F,T)



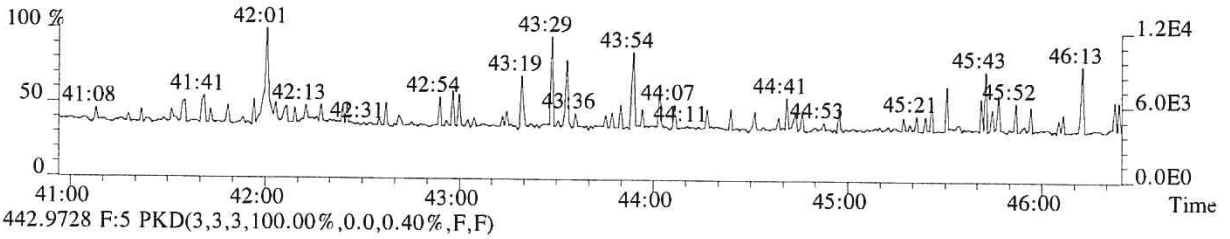
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



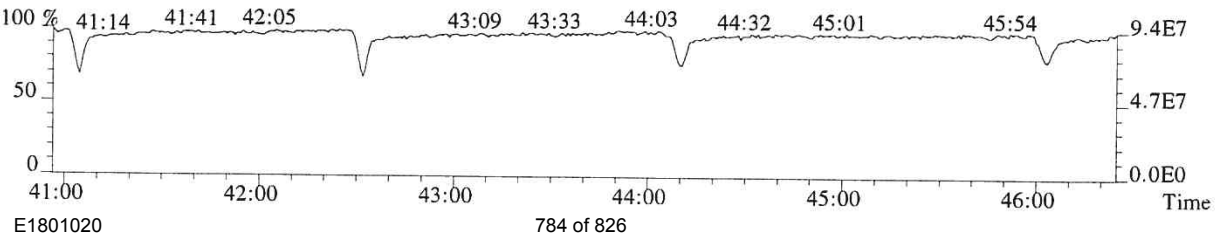
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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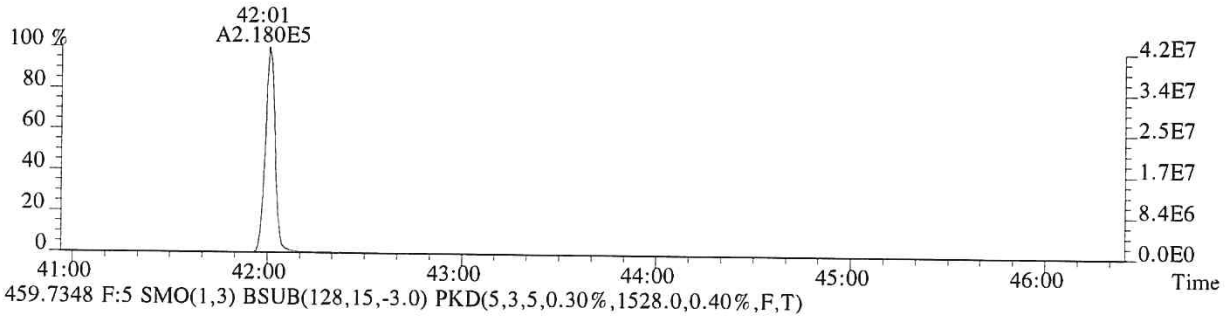
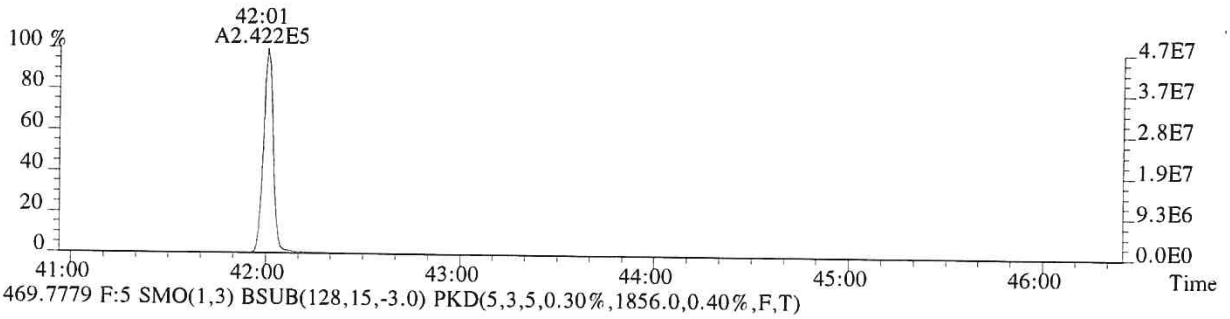
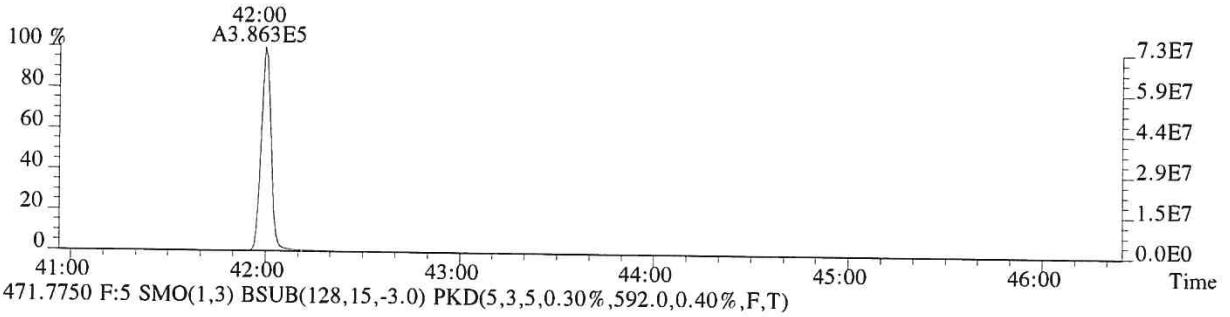
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



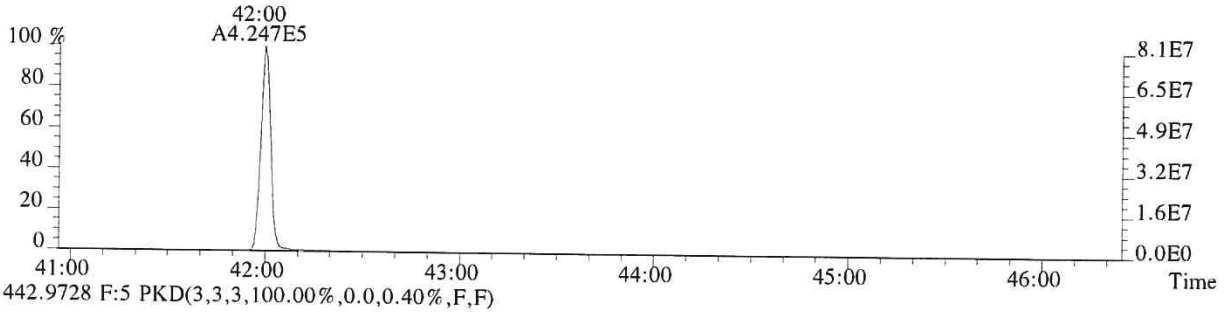
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



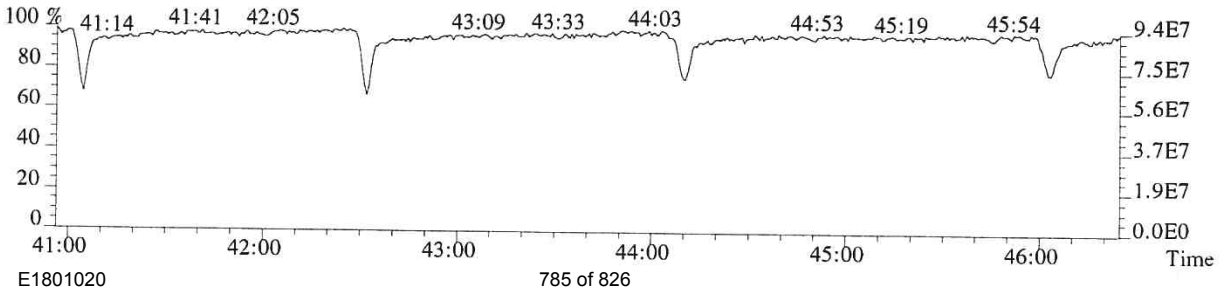
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.186e+05	1.498e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.070e+06	6.680e+05	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	9.931e+05	6.255e+05	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	9.336e+05	7.318e+05	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.546e+05	7.530e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	9.004e+05	7.134e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	8.574e+05	6.711e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	7.924e+05	7.640e+05	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	6.712e+05	6.389e+05	1.05	yes	no	1.463
10	Unk	OCDF	42:13	9.999e+05	1.075e+06	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	8.371e+04	1.065e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	5.908e+05	3.807e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.387e+05	4.268e+05	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	5.444e+05	4.299e+05	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	5.850e+05	4.610e+05	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.859e+05	4.568e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	7.127e+05	7.901e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.799e+05	3.543e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	4.595e+05	2.875e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	4.523e+05	2.842e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.092e+05	3.928e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.332e+05	4.327e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.224e+05	4.139e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.041e+05	3.825e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.626e+05	3.528e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.431e+05	3.159e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.012e+05	2.528e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.193e+05	2.044e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.552e+05	2.035e+05	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.565e+05	2.045e+05	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.187e+05	2.081e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	3.133e+05	3.464e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.000e+05	2.518e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.828e+05	2.264e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.003e+05				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.13e+07	2.15e+03	9.9e+03	2.70e+07	4.22e+03	6.4e+03
2	1,2,3,7,8-PeCDF	2.03e+08	3.06e+03	6.6e+04	1.29e+08	4.95e+03	2.6e+04
3	2,3,4,7,8-PeCDF	2.04e+08	3.06e+03	6.7e+04	1.28e+08	4.95e+03	2.6e+04
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.85e+03	1.2e+05	1.68e+08	4.92e+03	3.4e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	1.85e+03	1.1e+05	1.67e+08	4.92e+03	3.4e+04
6	2,3,4,6,7,8-HxCDF	2.02e+08	1.85e+03	1.1e+05	1.59e+08	4.92e+03	3.2e+04
7	1,2,3,7,8,9-HxCDF	1.88e+08	1.85e+03	1.0e+05	1.47e+08	4.92e+03	3.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.78e+08	2.61e+04	6.8e+03	1.72e+08	1.83e+04	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+08	2.61e+04	5.4e+03	1.35e+08	1.83e+04	7.4e+03
10	OCDF	1.94e+08	1.46e+03	1.3e+05	2.08e+08	3.00e+03	6.9e+04
11	2,3,7,8-TCDD	1.62e+07	6.38e+03	2.5e+03	2.06e+07	2.42e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.19e+08	3.22e+03	3.7e+04	7.64e+07	1.02e+03	7.5e+04
13	1,2,3,4,7,8-HxCDD	1.25e+08	9.48e+02	1.3e+05	9.78e+07	1.64e+03	5.9e+04
14	1,2,3,6,7,8-HxCDD	1.22e+08	9.48e+02	1.3e+05	9.73e+07	1.64e+03	5.9e+04
15	1,2,3,7,8,9-HxCDD	1.31e+08	9.48e+02	1.4e+05	1.04e+08	1.64e+03	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.10e+08	2.46e+03	4.5e+04	1.04e+08	2.38e+03	4.4e+04
17	OCDD	1.42e+08	1.24e+03	1.1e+05	1.57e+08	1.46e+03	1.1e+05
18	13C-2,3,7,8-TCDF	5.06e+07	1.14e+04	4.4e+03	6.41e+07	7.28e+03	8.8e+03
19	13C-1,2,3,7,8-PeCDF	8.88e+07	3.08e+03	2.9e+04	5.58e+07	3.54e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	9.15e+07	3.08e+03	3.0e+04	5.70e+07	3.54e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	4.76e+07	3.01e+03	1.6e+04	8.96e+07	4.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	5.17e+07	3.01e+03	1.7e+04	9.54e+07	4.64e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.99e+07	3.01e+03	1.7e+04	9.21e+07	4.64e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.48e+07	3.01e+03	1.5e+04	8.44e+07	4.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+07	8.80e+03	4.2e+03	8.02e+07	1.92e+04	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.97e+07	8.80e+03	3.4e+03	6.54e+07	1.92e+04	3.4e+03
27	13C-2,3,7,8-TCDD	3.77e+07	1.85e+04	2.0e+03	4.78e+07	7.81e+03	6.1e+03
28	13C-1,2,3,7,8-PeCDD	6.47e+07	3.56e+03	1.8e+04	4.18e+07	3.26e+03	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	5.86e+07	4.66e+03	1.3e+04	4.67e+07	3.04e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	5.76e+07	4.66e+03	1.2e+04	4.61e+07	3.04e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.94e+07	3.14e+03	1.6e+04	4.74e+07	1.71e+03	2.8e+04
32	13C-OCDD	6.18e+07	1.83e+03	3.4e+04	6.87e+07	9.56e+02	7.2e+04
33	13C-1,2,3,4-TCDD	3.76e+07	1.85e+04	2.0e+03	4.73e+07	7.81e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.25e+07	4.66e+03	1.3e+04	5.04e+07	3.04e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	3.86e+07	4.32e+03	9.0e+03			

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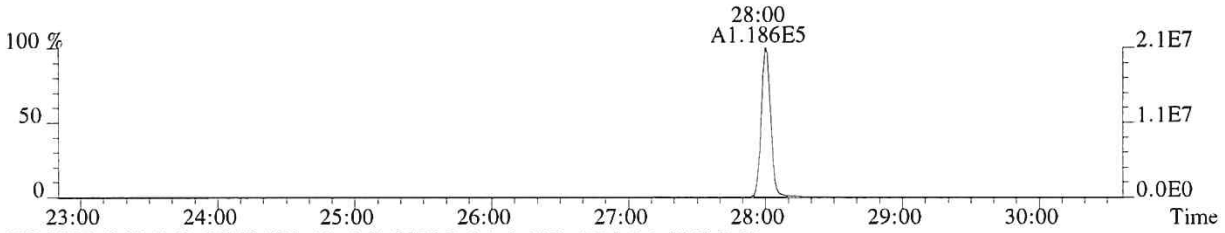
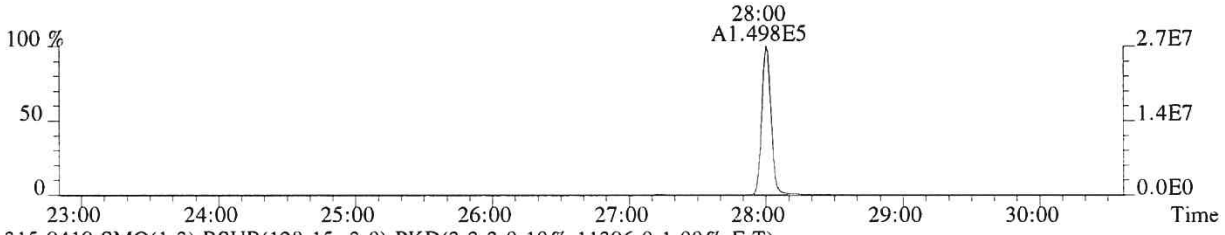
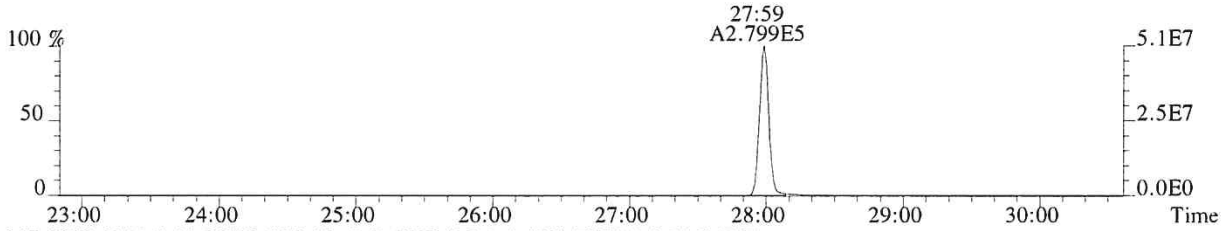
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



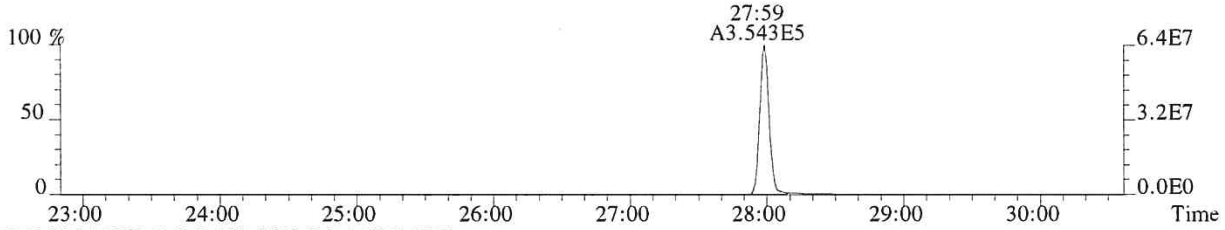
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



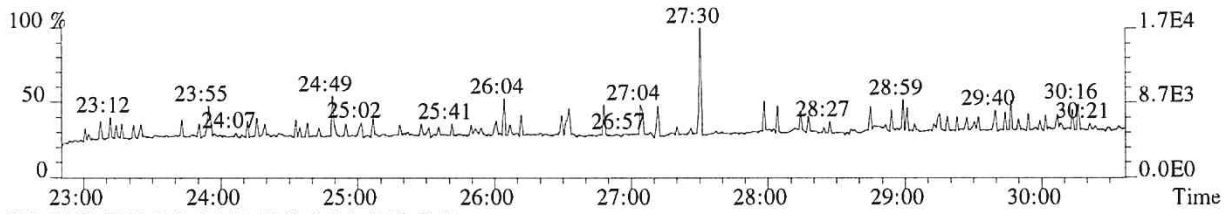
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



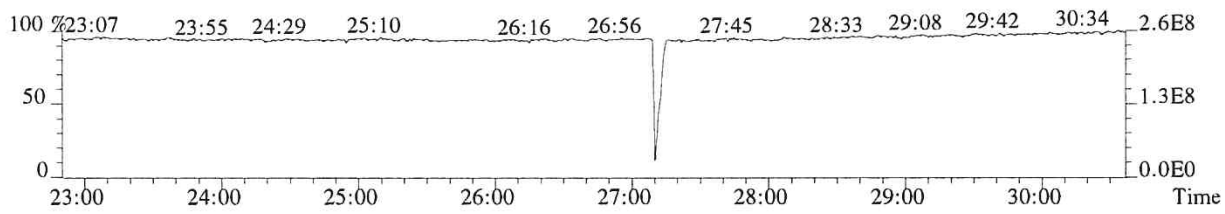
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7276.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

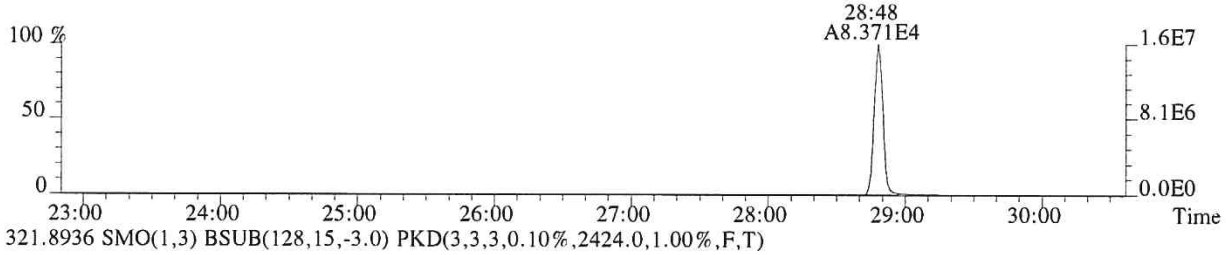


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

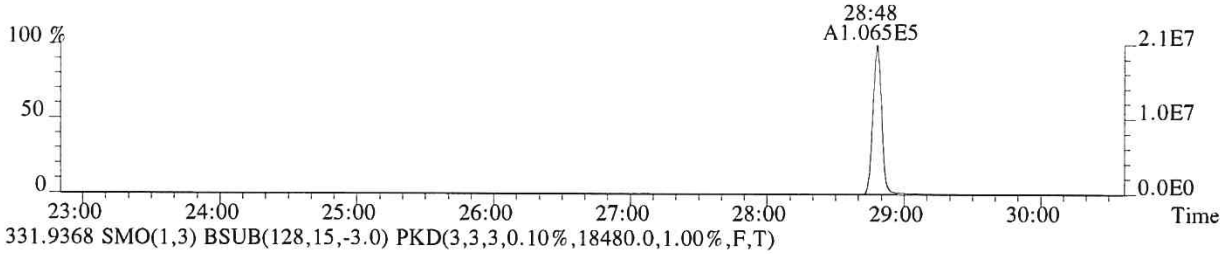


010295

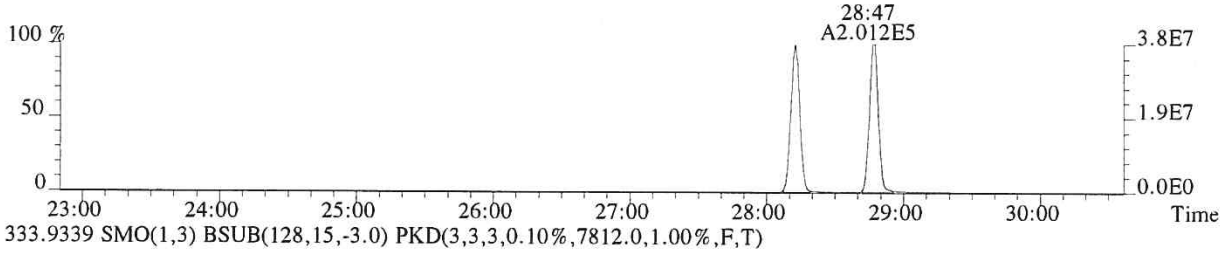
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6384.0,1.00%,F,T)



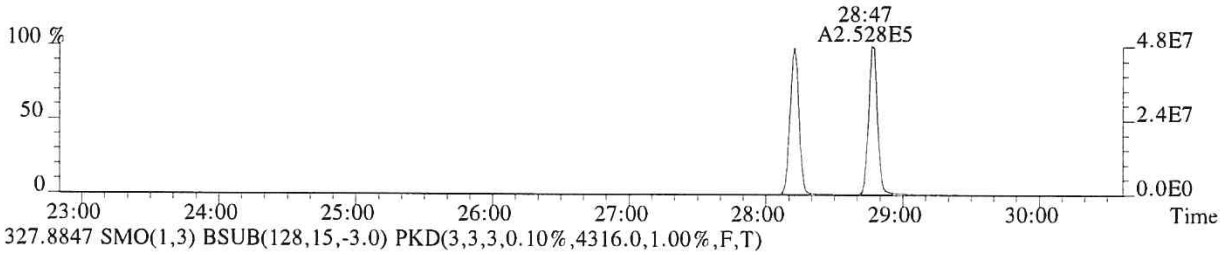
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



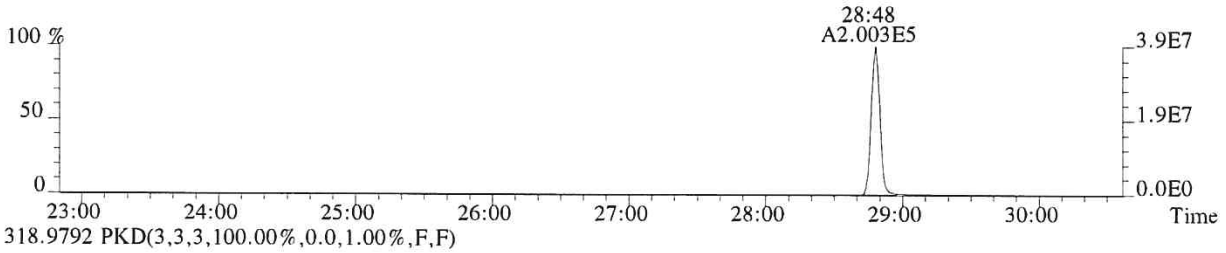
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18480.0,1.00%,F,T)



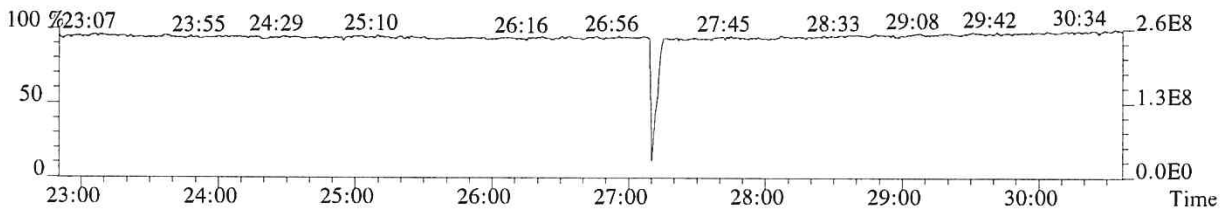
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)

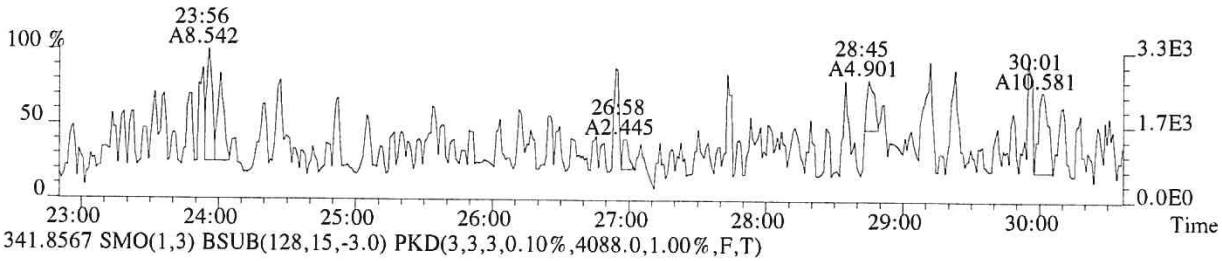


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

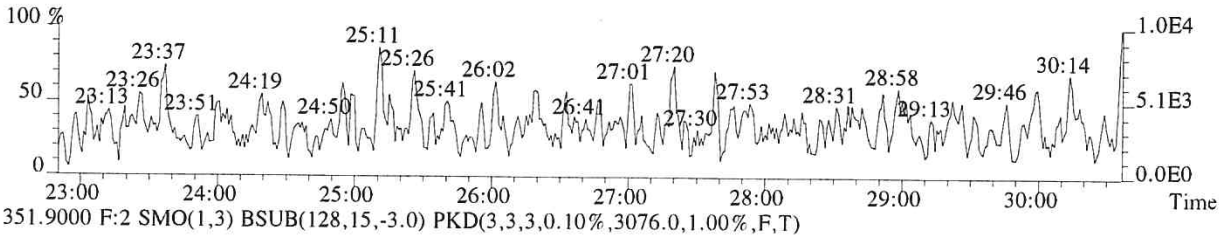


010296

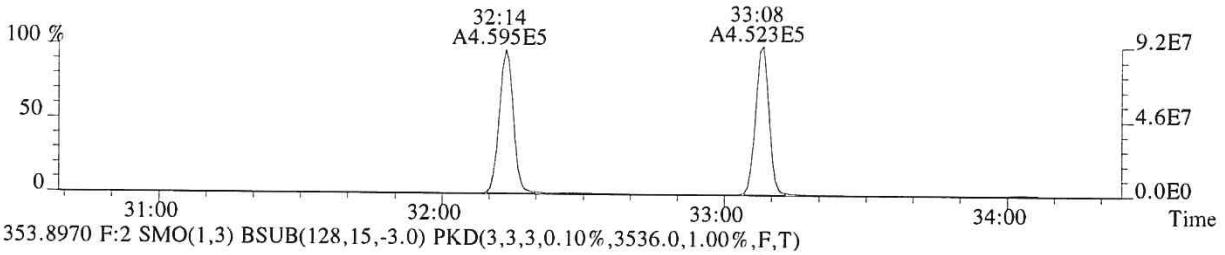
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



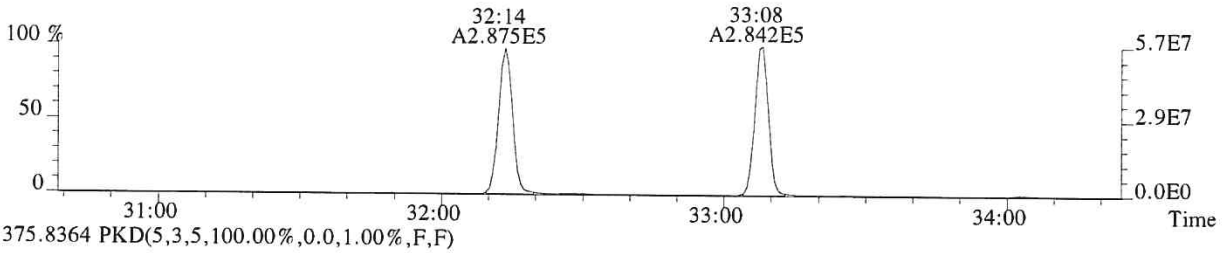
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



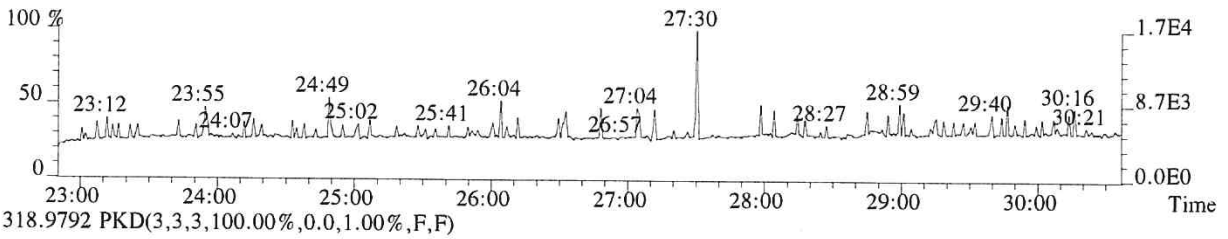
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



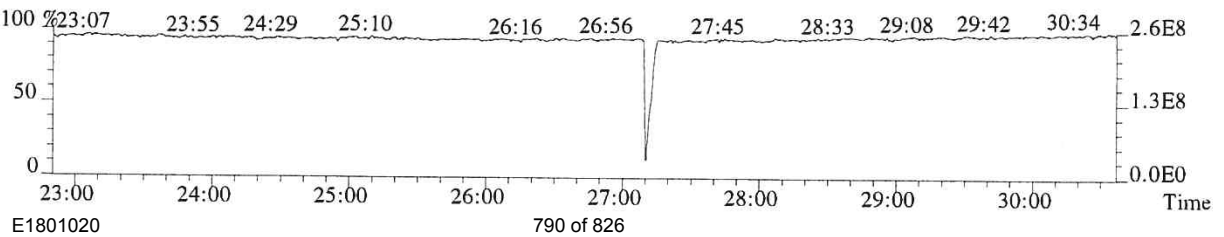
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

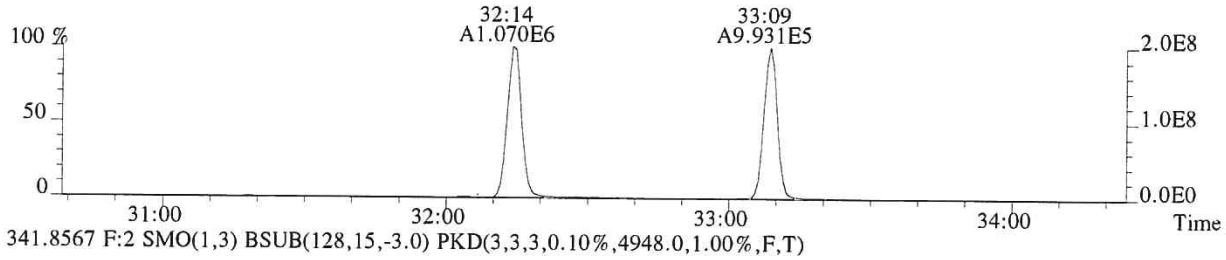


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

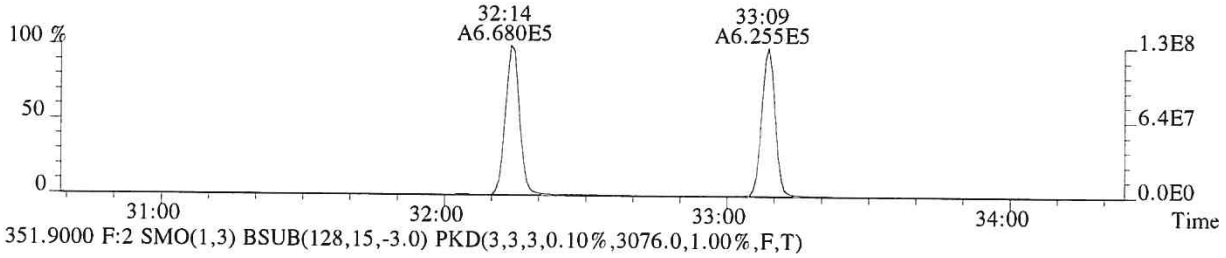


010297

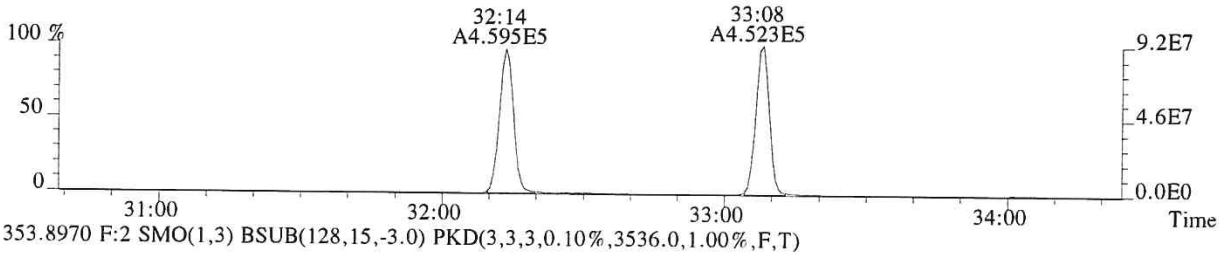
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



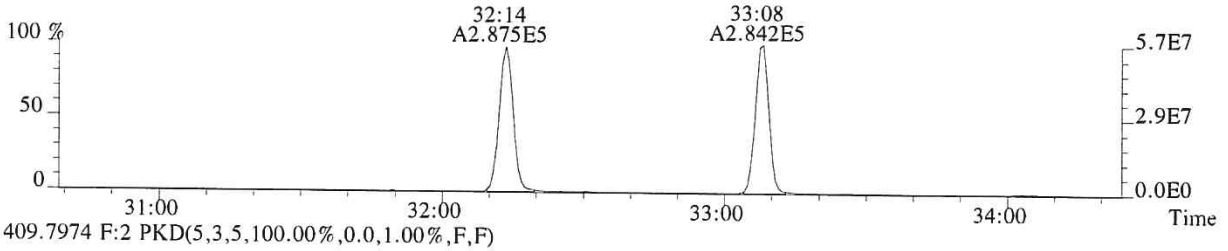
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



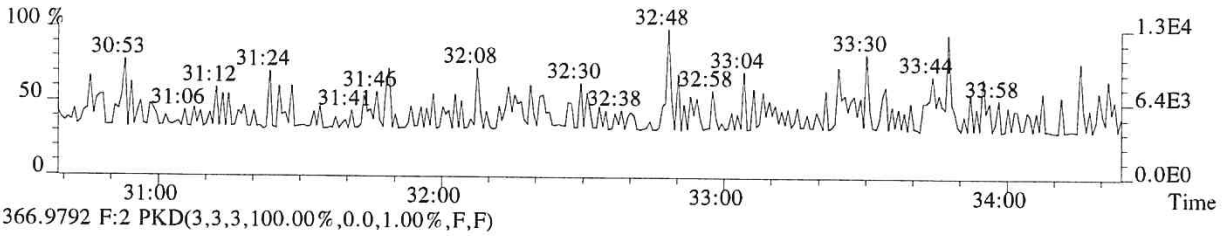
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



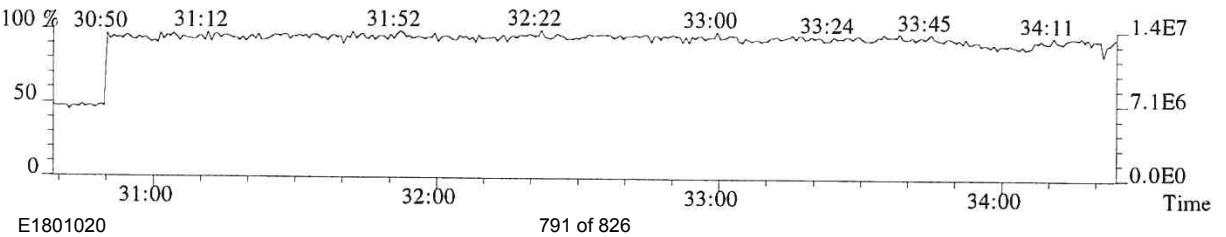
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



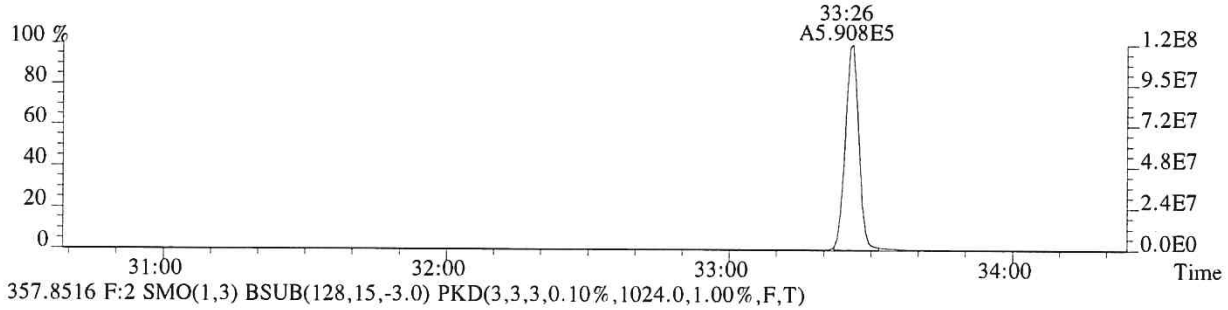
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



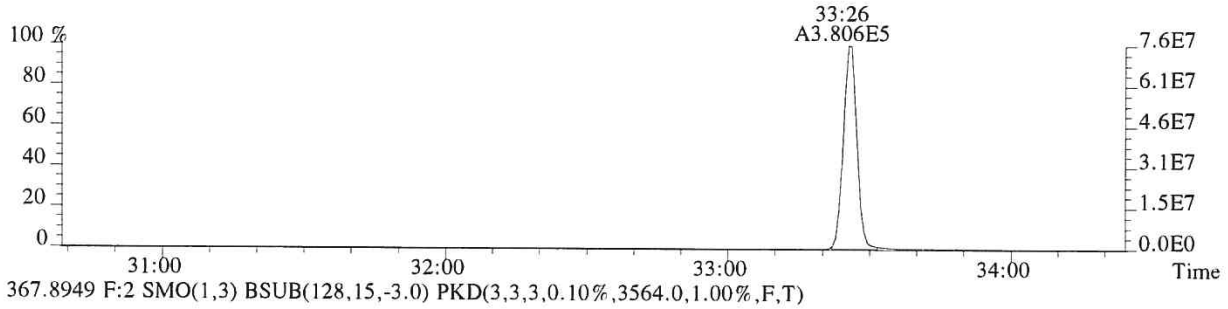
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



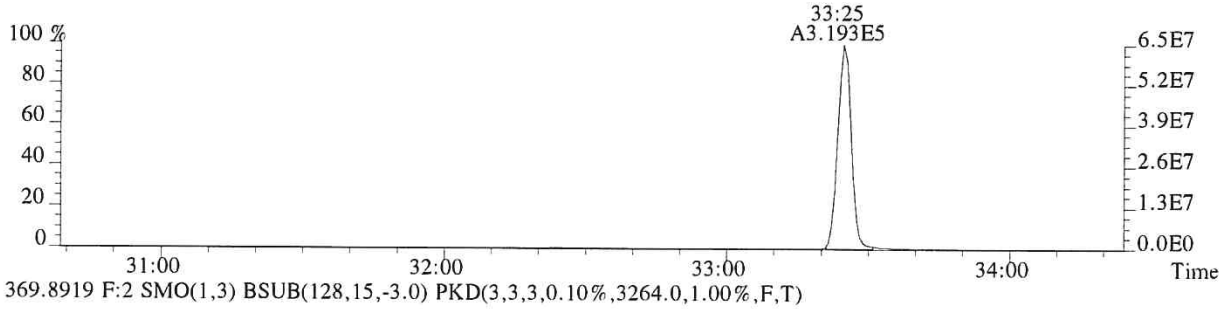
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



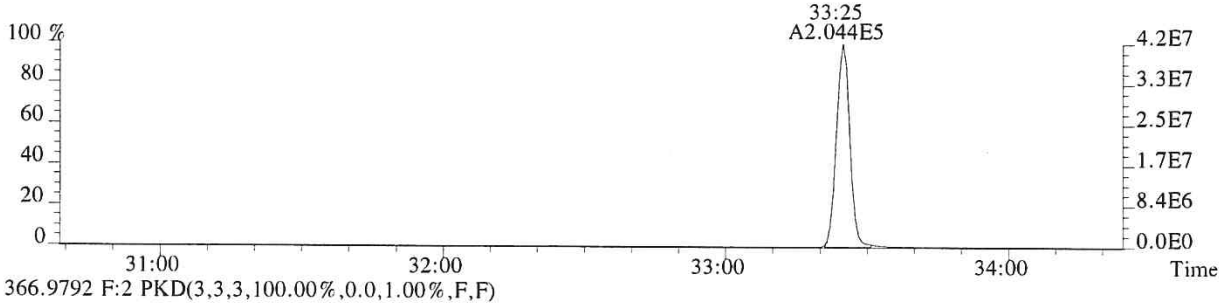
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



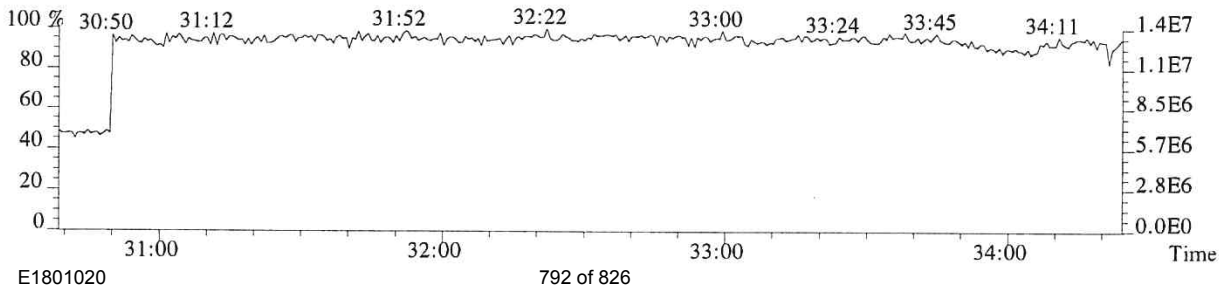
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



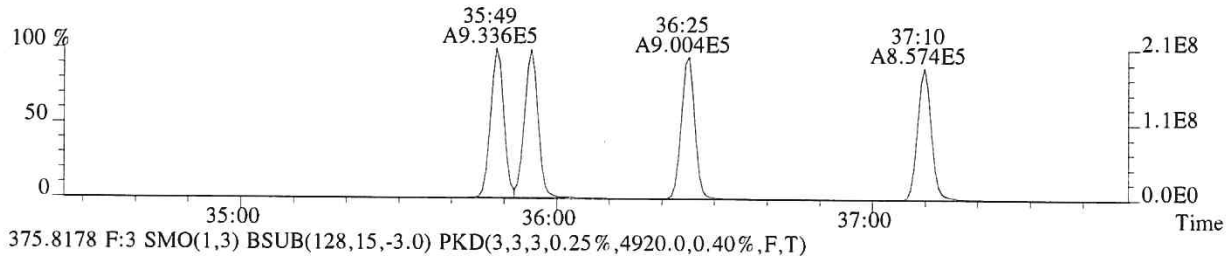
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



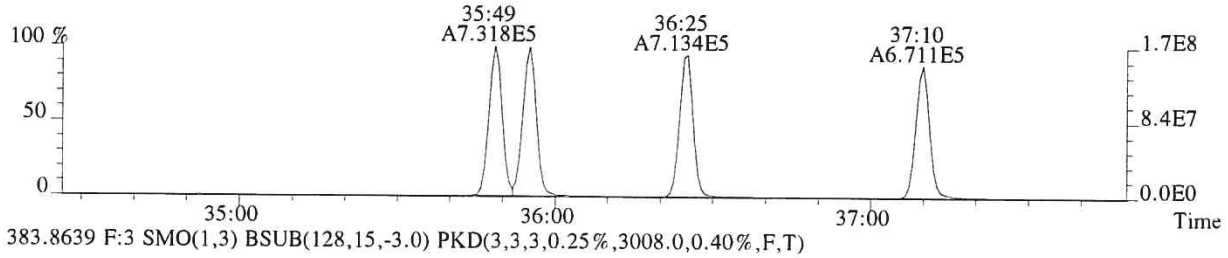
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



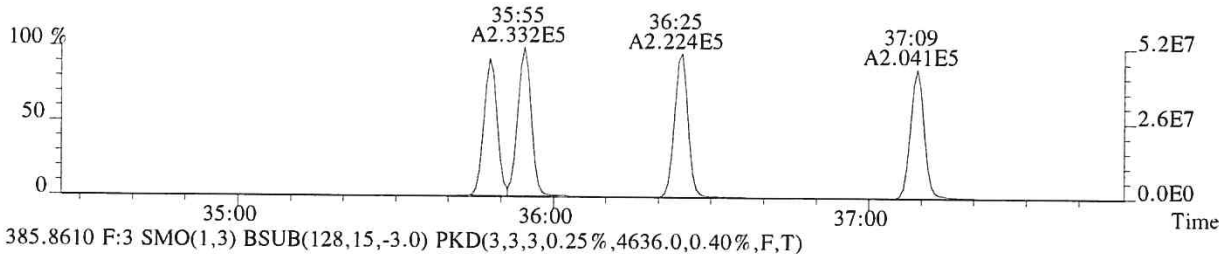
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



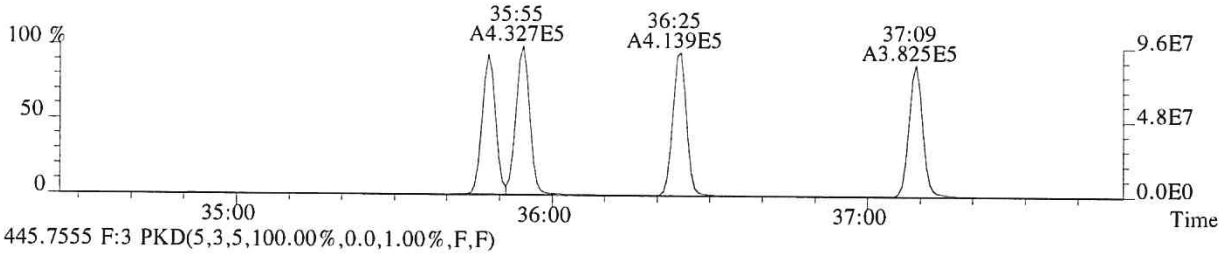
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4920.0,0.40%,F,T)



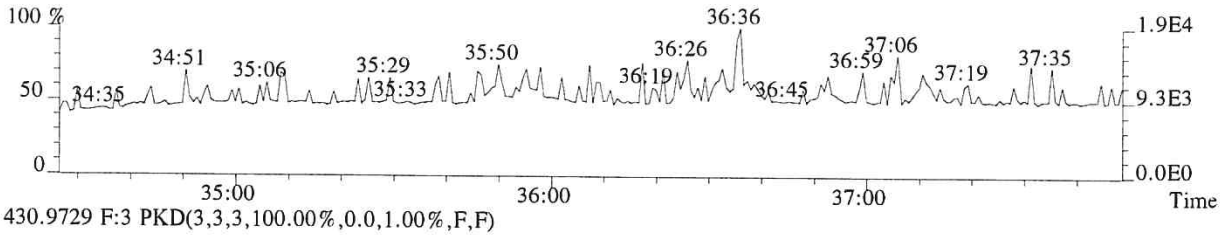
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



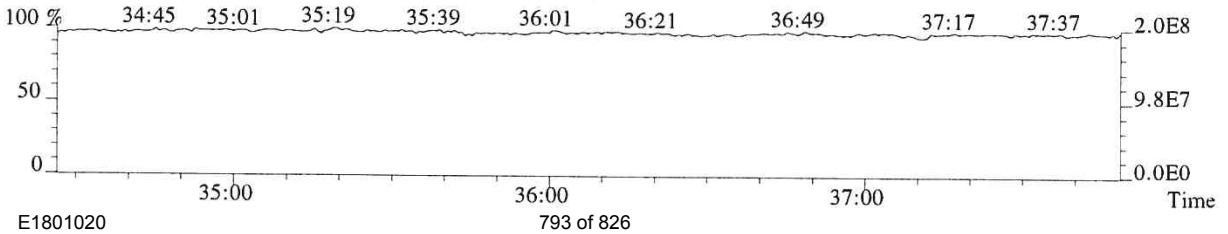
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



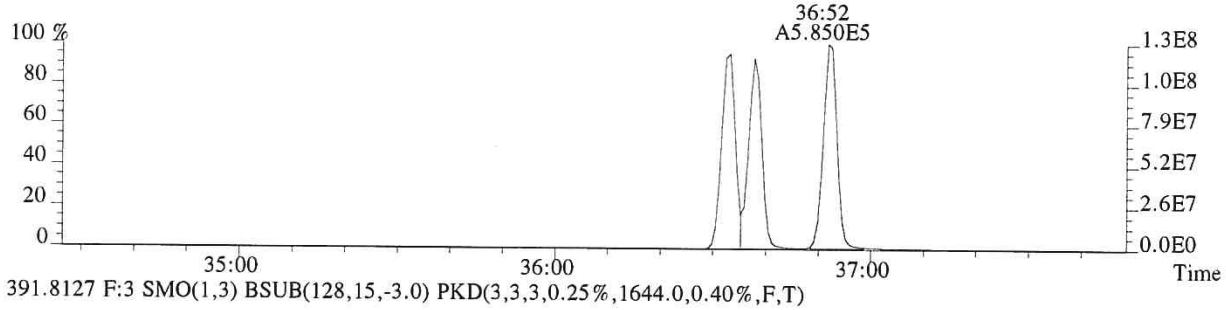
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



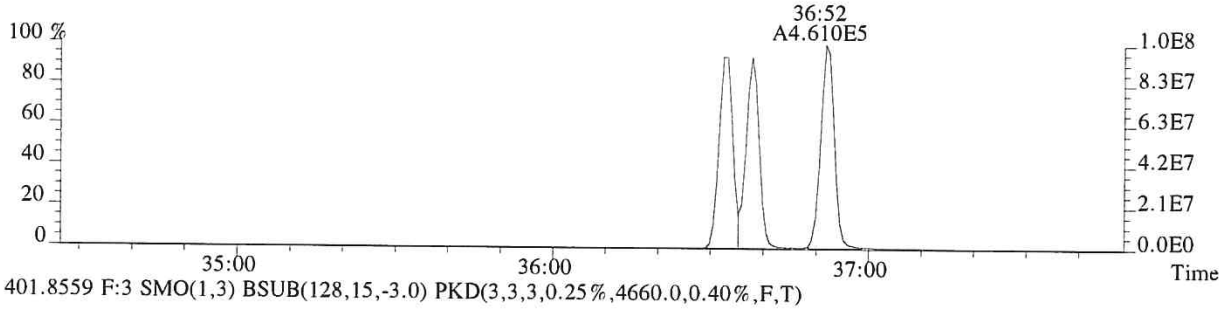
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



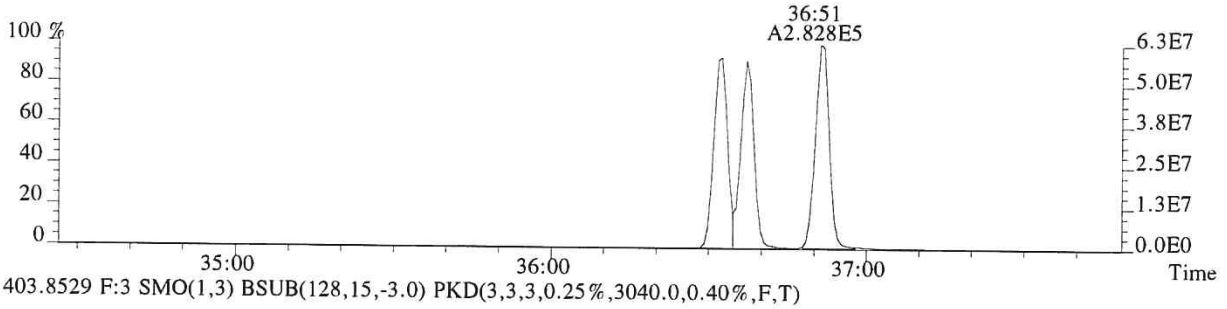
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



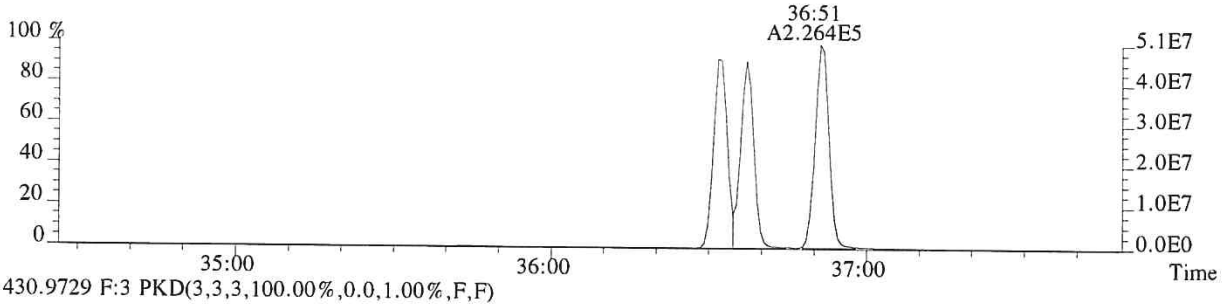
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



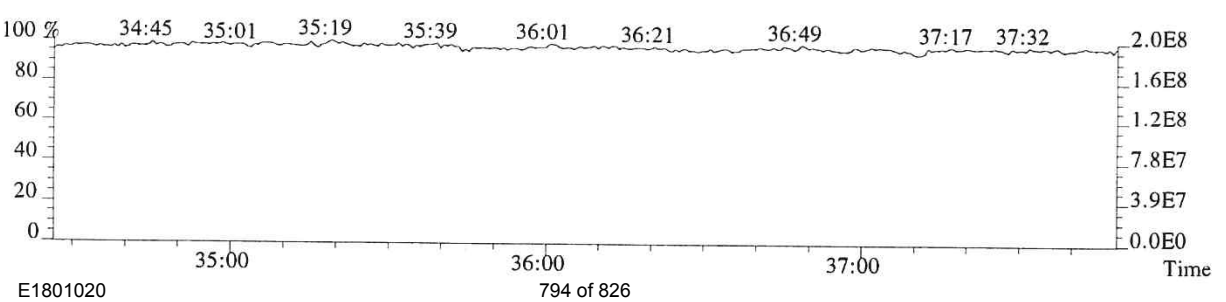
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)

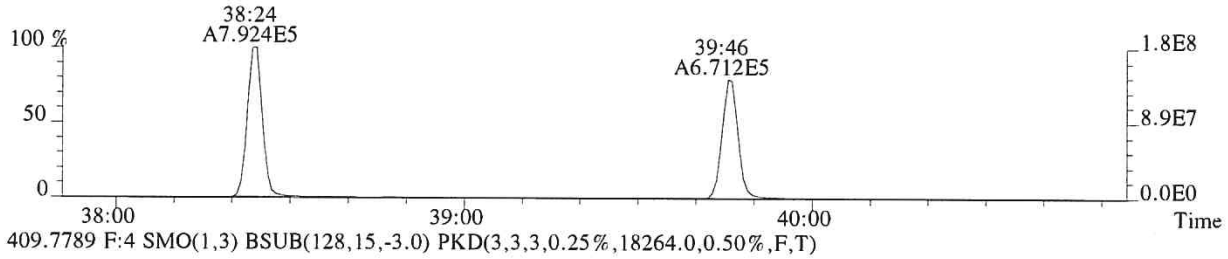


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

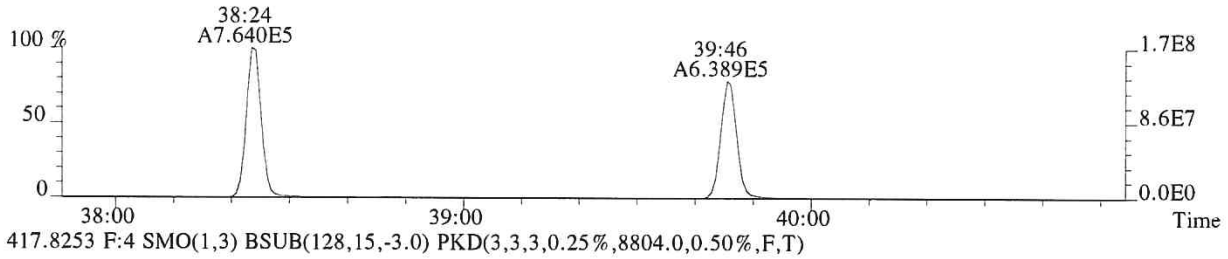


010301

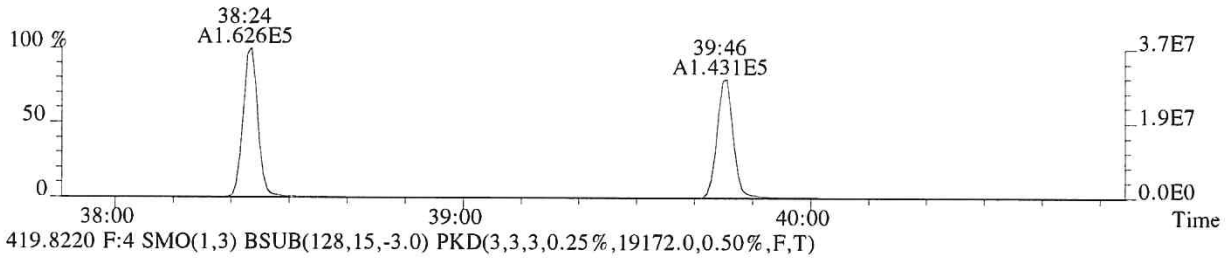
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26056.0,0.50%,F,T)



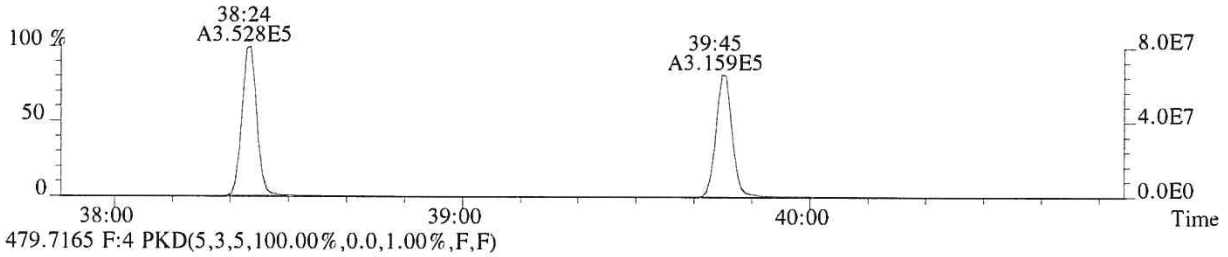
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18264.0,0.50%,F,T)



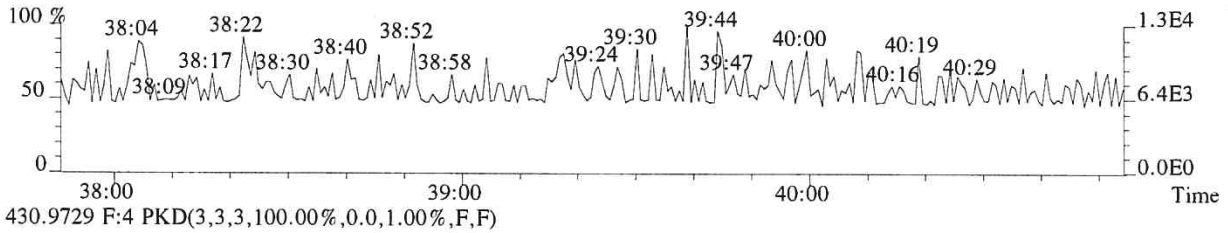
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8804.0,0.50%,F,T)



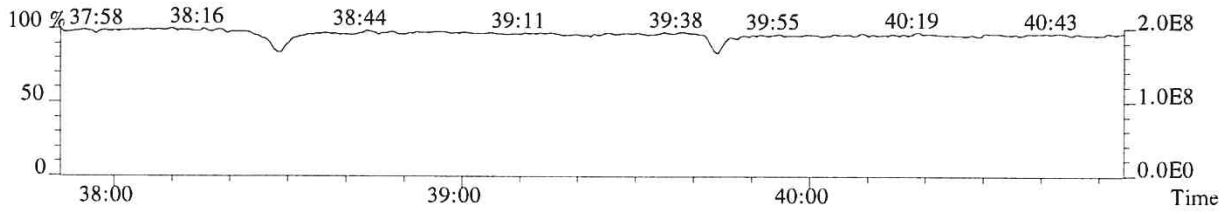
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19172.0,0.50%,F,T)



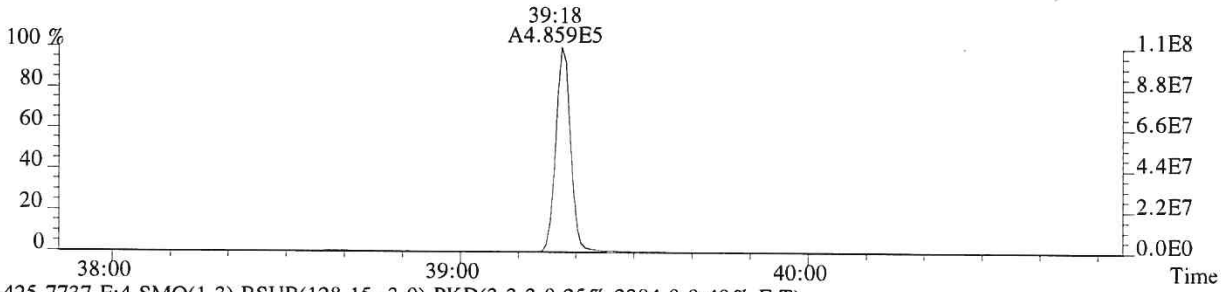
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



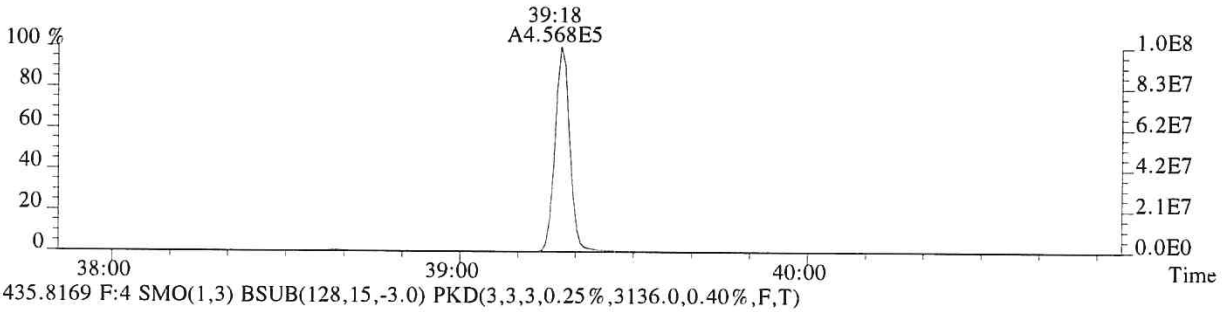
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



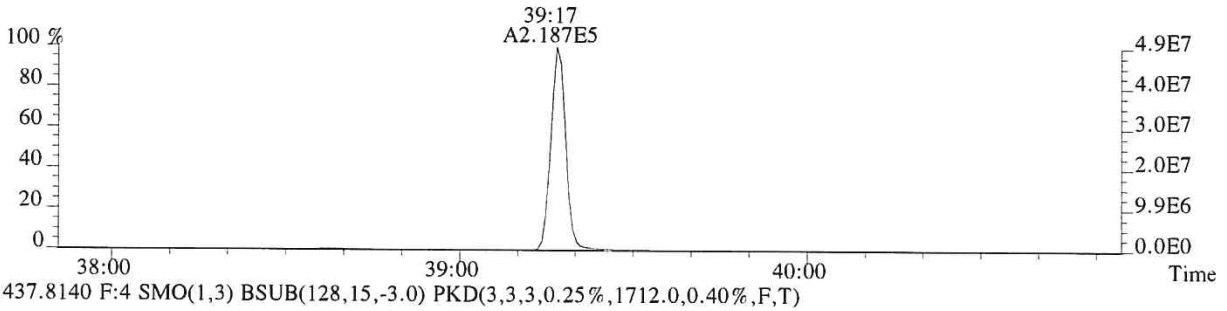
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



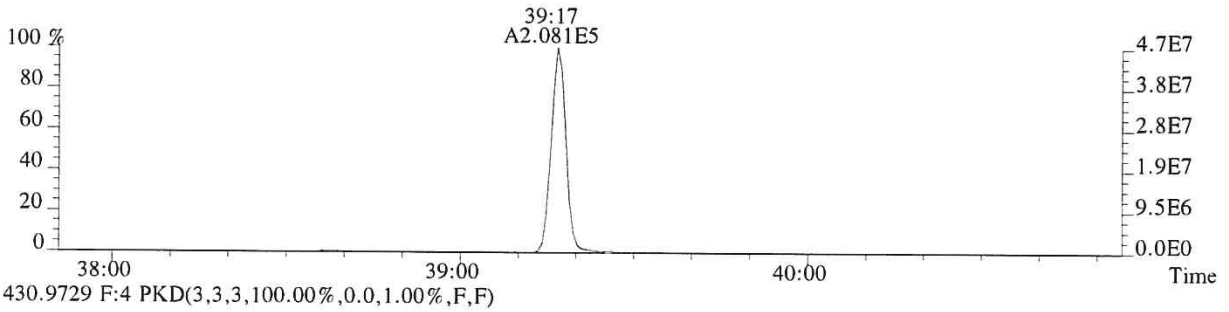
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



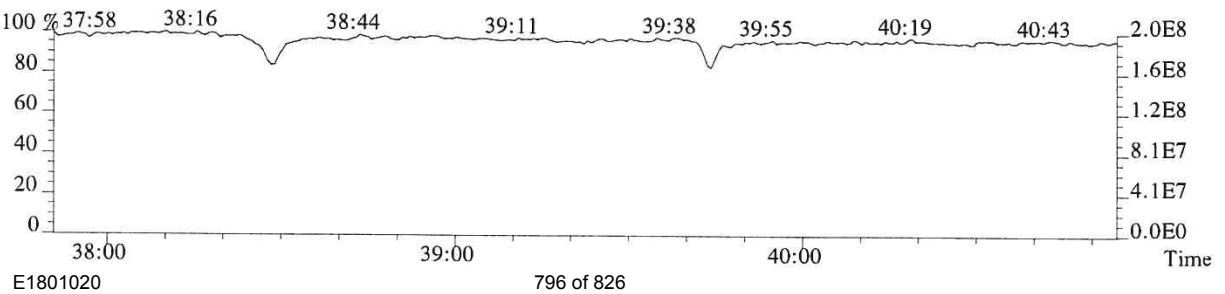
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)

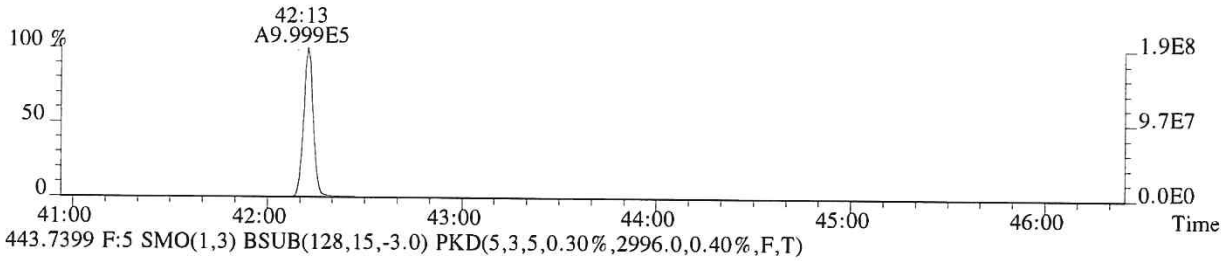


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

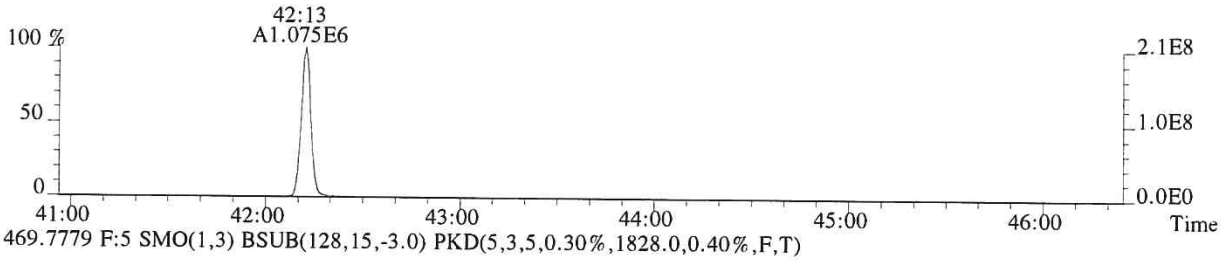


010303

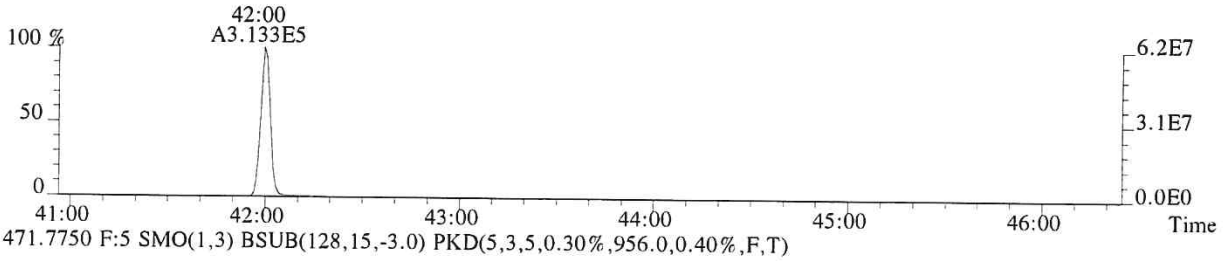
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



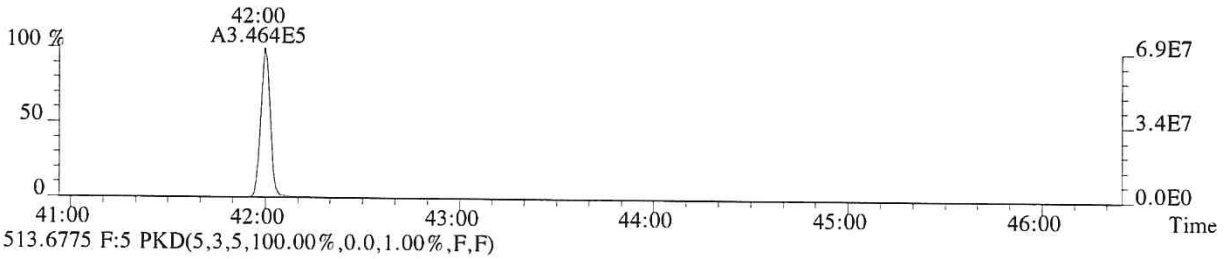
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



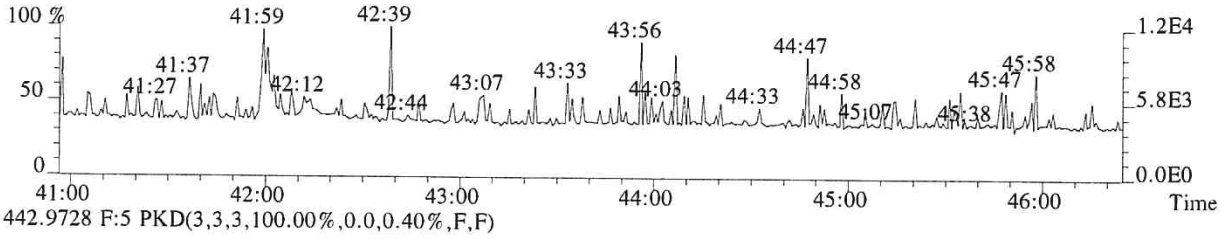
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



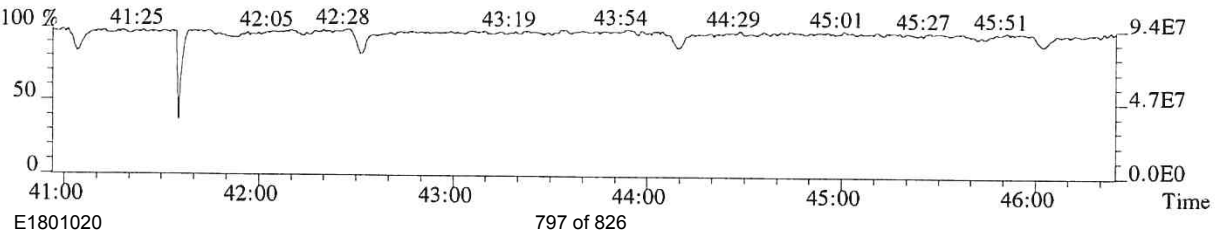
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

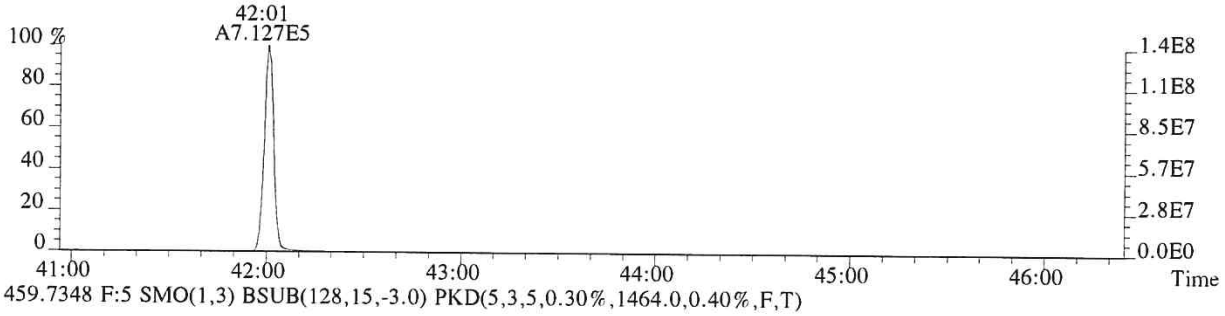


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

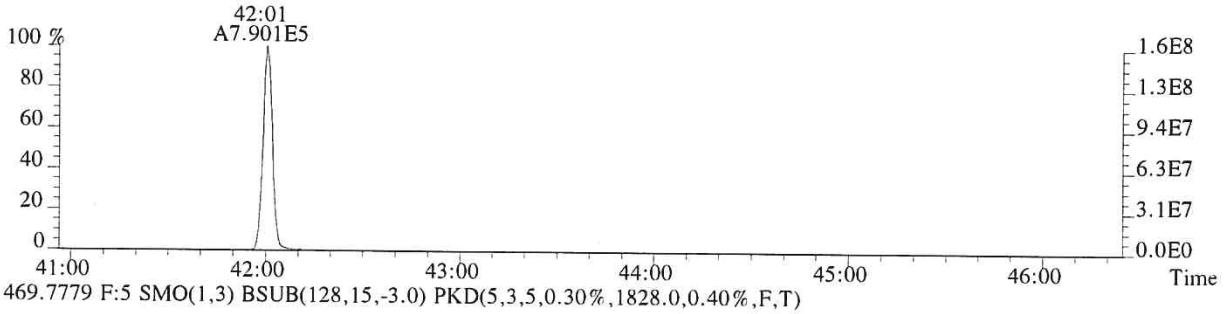


010304

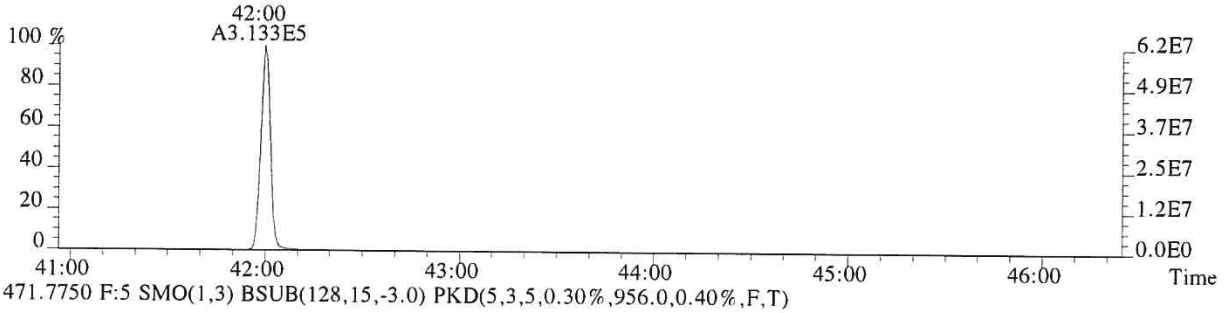
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



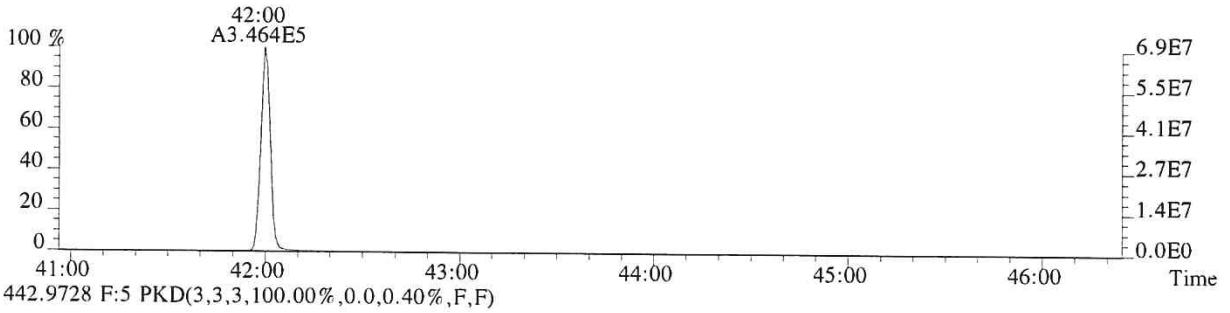
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



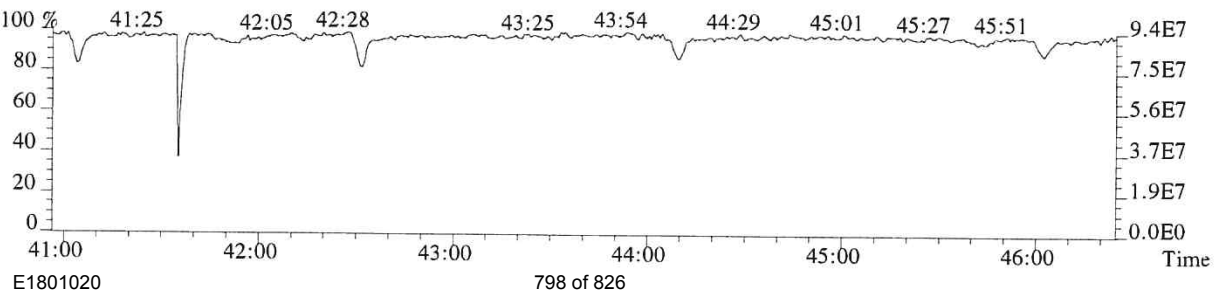
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010305

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.651e+05	5.844e+05	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	4.117e+06	2.575e+06	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	3.795e+06	2.391e+06	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.313e+06	2.571e+06	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.588e+06	2.836e+06	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	3.399e+06	2.690e+06	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	3.119e+06	2.463e+06	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.035e+06	2.883e+06	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	2.518e+06	2.388e+06	1.05	yes	no	1.463
10	Unk	OCDF	42:13	3.855e+06	4.175e+06	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	3.257e+05	4.207e+05	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	2.277e+06	1.455e+06	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.053e+06	1.616e+06	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	2.042e+06	1.617e+06	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	2.180e+06	1.732e+06	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.868e+06	1.765e+06	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.725e+06	3.028e+06	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.197e+05	2.785e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	3.496e+05	2.178e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	3.453e+05	2.138e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.447e+05	2.684e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.758e+05	3.274e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.668e+05	3.132e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.489e+05	2.799e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.241e+05	2.682e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	1.078e+05	2.346e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.558e+05	1.966e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	2.439e+05	1.553e+05	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.940e+05	1.538e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.938e+05	1.542e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.682e+05	1.601e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	2.375e+05	2.681e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.555e+05	1.925e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.160e+05	1.725e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	7.877e+05				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.41e+07	1.94e+03	4.3e+04	1.06e+08	4.26e+03	2.5e+04
2	1,2,3,7,8-PeCDF	8.11e+08	8.46e+03	9.6e+04	5.11e+08	9.13e+03	5.6e+04
3	2,3,4,7,8-PeCDF	7.87e+08	8.46e+03	9.3e+04	4.93e+08	9.13e+03	5.4e+04
4	1,2,3,4,7,8-HxCDF	7.76e+08	1.23e+04	6.3e+04	6.07e+08	9.42e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	8.10e+08	1.23e+04	6.6e+04	6.40e+08	9.42e+03	6.8e+04
6	2,3,4,6,7,8-HxCDF	7.65e+08	1.23e+04	6.2e+04	6.05e+08	9.42e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	6.96e+08	1.23e+04	5.6e+04	5.46e+08	9.42e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.09e+08	9.68e+04	7.3e+03	6.78e+08	6.15e+04	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	5.55e+08	9.68e+04	5.7e+03	5.29e+08	6.15e+04	8.6e+03
10	OCDF	7.55e+08	1.43e+03	5.3e+05	8.22e+08	2.80e+03	2.9e+05
11	2,3,7,8-TCDD	6.32e+07	4.52e+03	1.4e+04	8.21e+07	2.67e+03	3.1e+04
12	1,2,3,7,8-PeCDD	4.67e+08	3.26e+03	1.4e+05	2.98e+08	1.54e+03	1.9e+05
13	1,2,3,4,7,8-HxCDD	4.65e+08	2.34e+03	2.0e+05	3.68e+08	1.99e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	4.59e+08	2.34e+03	2.0e+05	3.67e+08	1.99e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	4.96e+08	2.34e+03	2.1e+05	3.98e+08	1.99e+03	2.0e+05
16	1,2,3,4,6,7,8-HpCDD	4.28e+08	1.10e+04	3.9e+04	4.06e+08	8.82e+03	4.6e+04
17	OCDD	5.24e+08	9.60e+02	5.5e+05	5.87e+08	1.87e+03	3.1e+05
18	13C-2,3,7,8-TCDF	3.91e+07	1.53e+04	2.6e+03	4.94e+07	1.22e+04	4.0e+03
19	13C-1,2,3,7,8-PeCDF	6.89e+07	2.06e+03	3.3e+04	4.27e+07	4.55e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	6.95e+07	2.06e+03	3.4e+04	4.34e+07	4.55e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.33e+07	2.62e+03	1.3e+04	6.22e+07	4.07e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	3.91e+07	2.62e+03	1.5e+04	7.31e+07	4.07e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.74e+07	2.62e+03	1.4e+04	6.98e+07	4.07e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.36e+07	2.62e+03	1.3e+04	6.29e+07	4.07e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.82e+07	6.76e+03	4.2e+03	6.20e+07	1.14e+04	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.34e+07	6.76e+03	3.5e+03	5.11e+07	1.14e+04	4.5e+03
27	13C-2,3,7,8-TCDD	3.04e+07	1.91e+04	1.6e+03	3.86e+07	8.85e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	5.04e+07	1.98e+03	2.5e+04	3.21e+07	2.85e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	4.39e+07	4.70e+03	9.3e+03	3.50e+07	2.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	4.37e+07	4.70e+03	9.3e+03	3.49e+07	2.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.82e+07	2.97e+03	1.3e+04	3.65e+07	2.54e+03	1.4e+04
32	13C-OCDD	4.50e+07	3.46e+03	1.3e+04	5.10e+07	1.82e+03	2.8e+04
33	13C-1,2,3,4-TCDD	2.93e+07	1.91e+04	1.5e+03	3.60e+07	8.85e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.90e+07	4.70e+03	1.0e+04	3.94e+07	2.24e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.54e+08	4.95e+03	3.1e+04			

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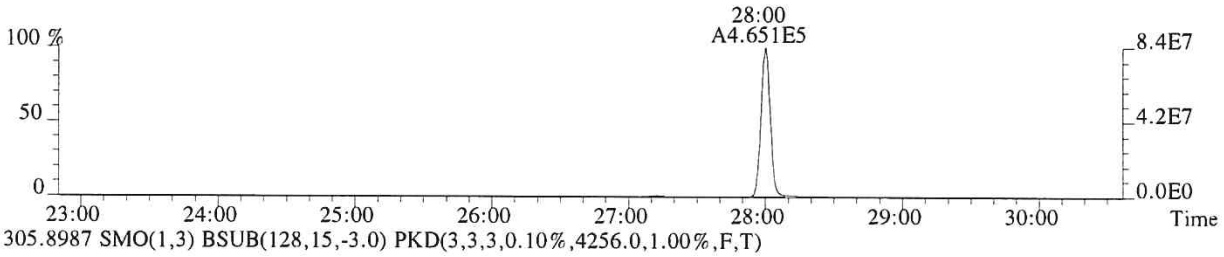
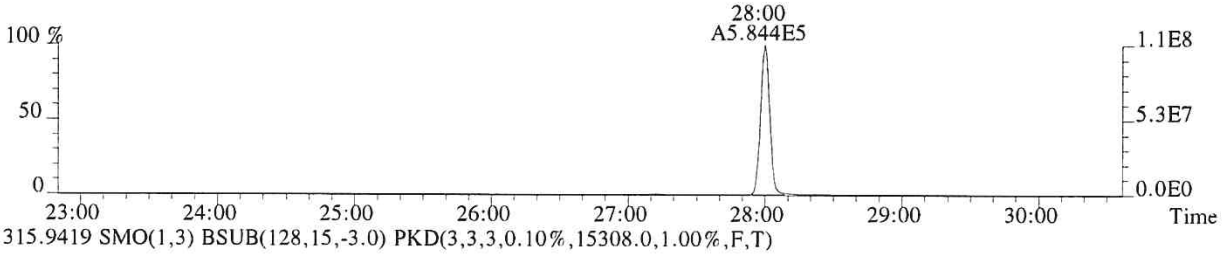
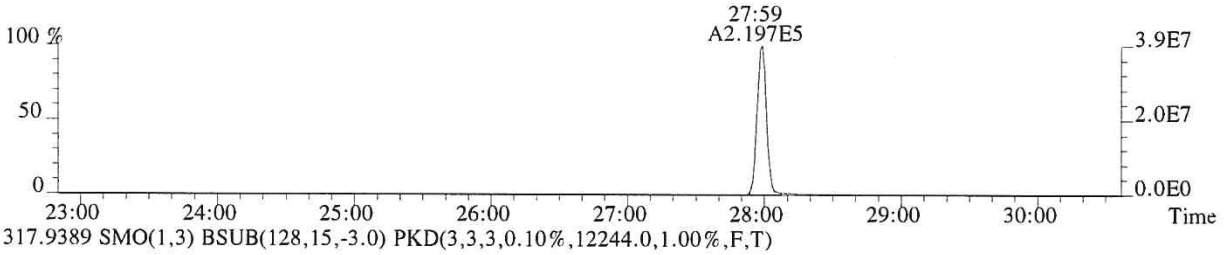
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



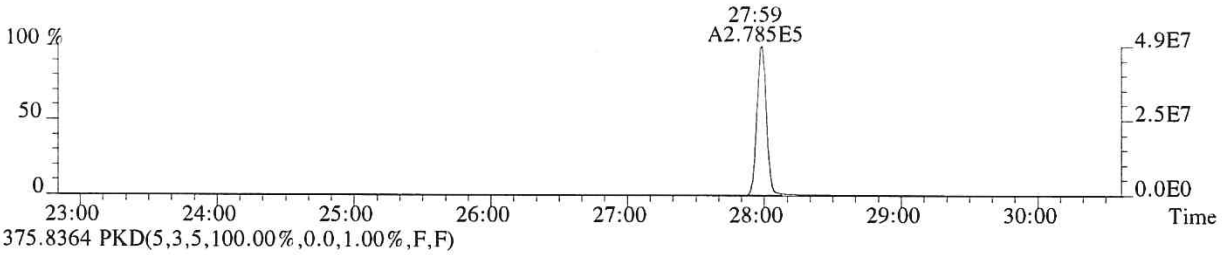
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



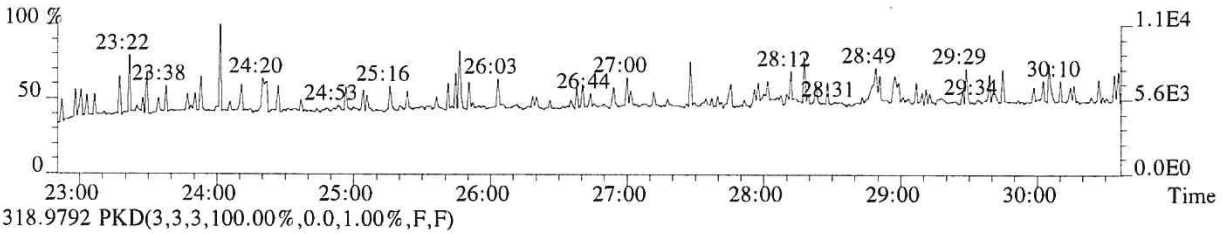
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15308.0,1.00%,F,T)



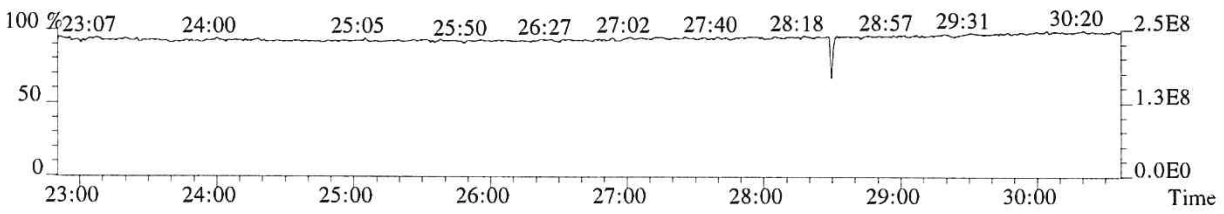
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12244.0,1.00%,F,T)



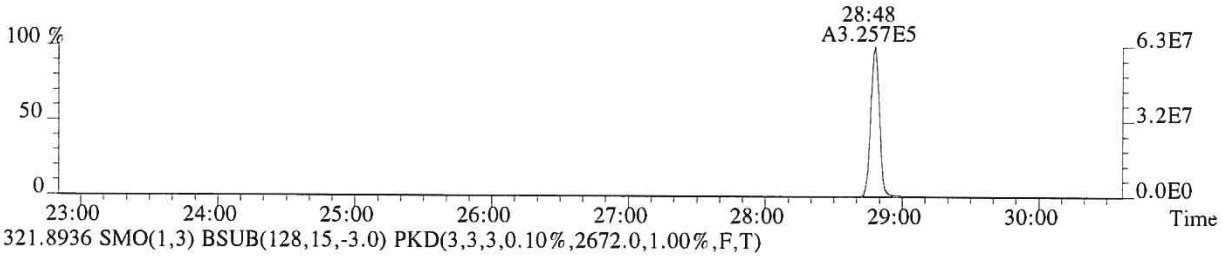
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



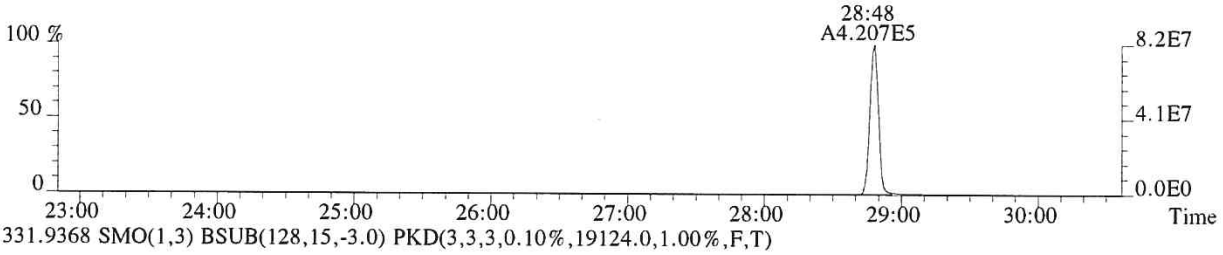
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



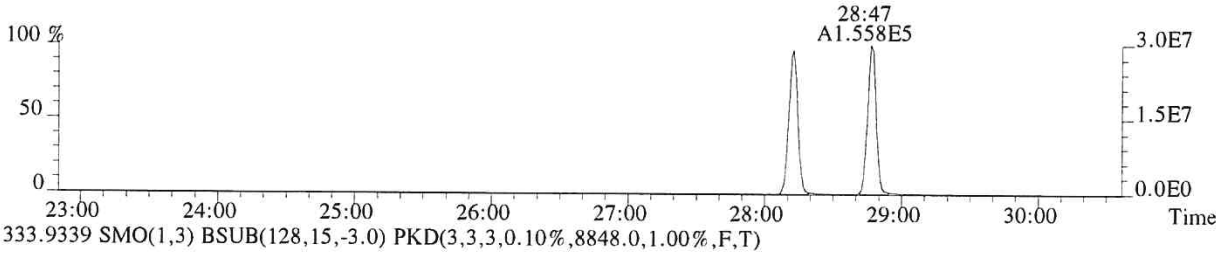
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



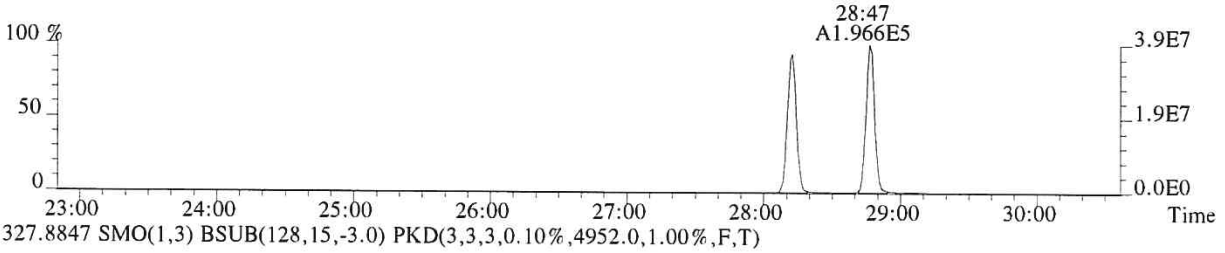
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



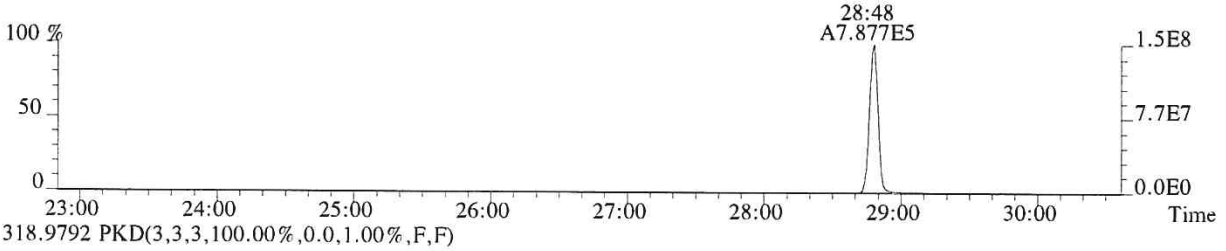
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19124.0,1.00%,F,T)



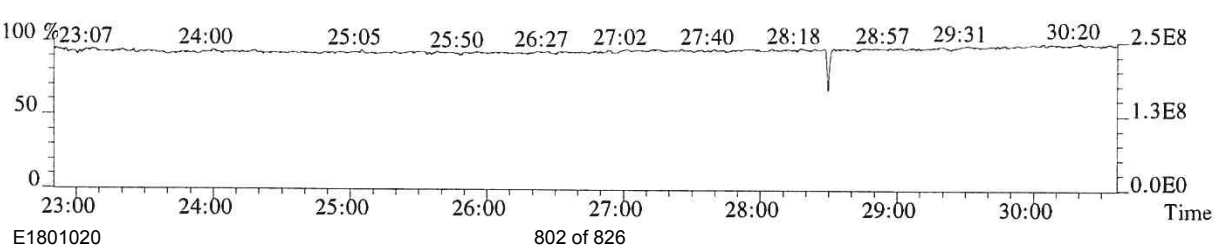
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8848.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)

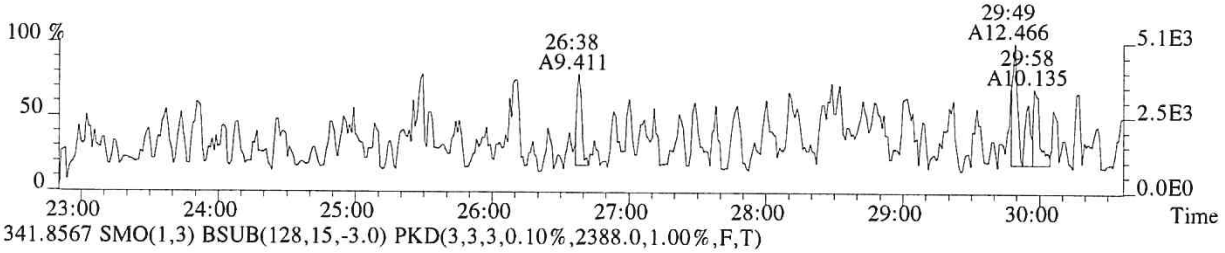


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

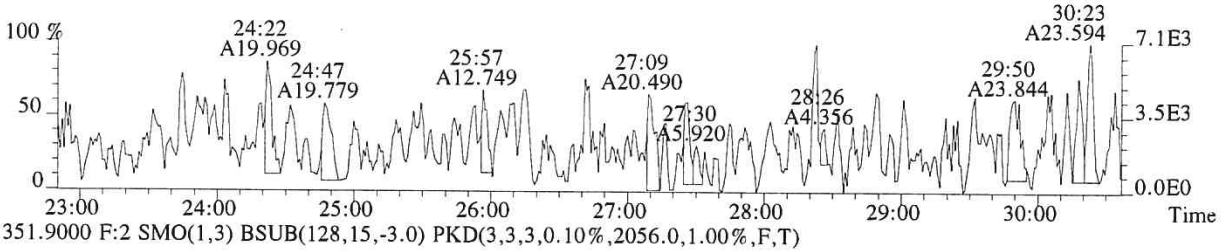


010309

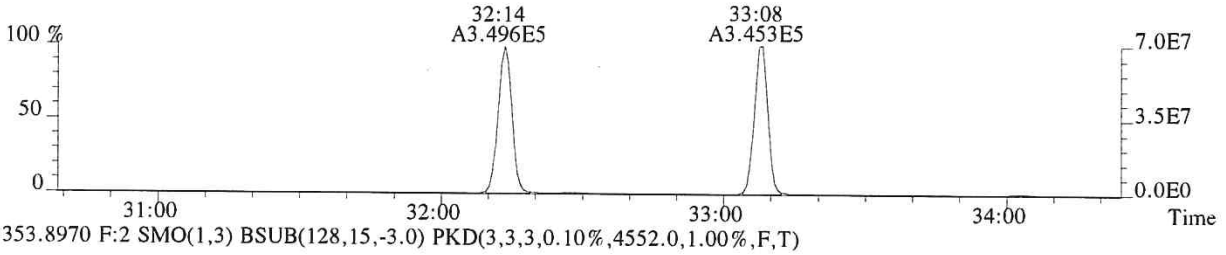
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



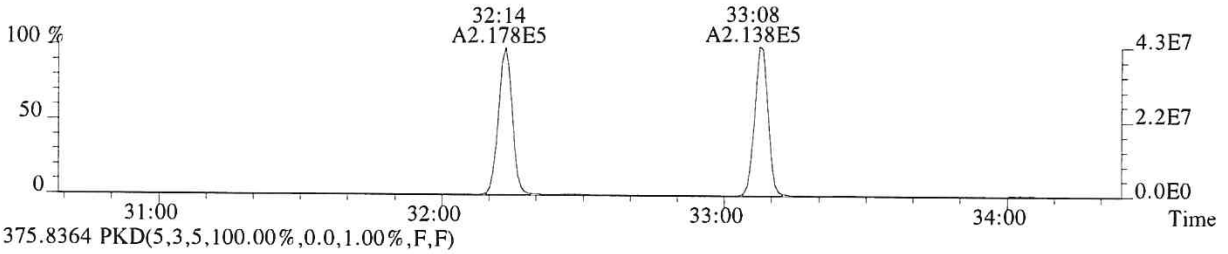
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



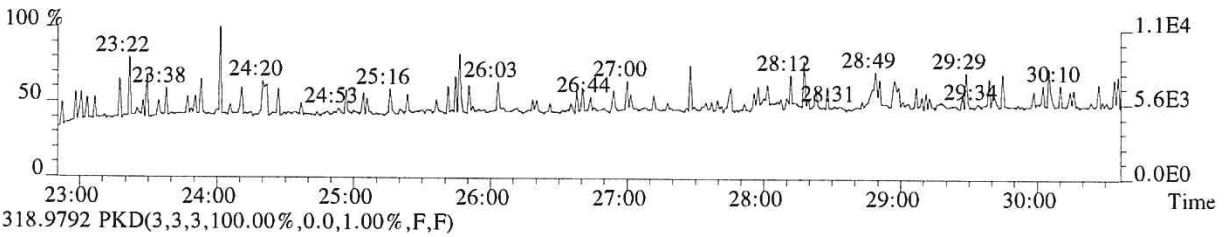
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



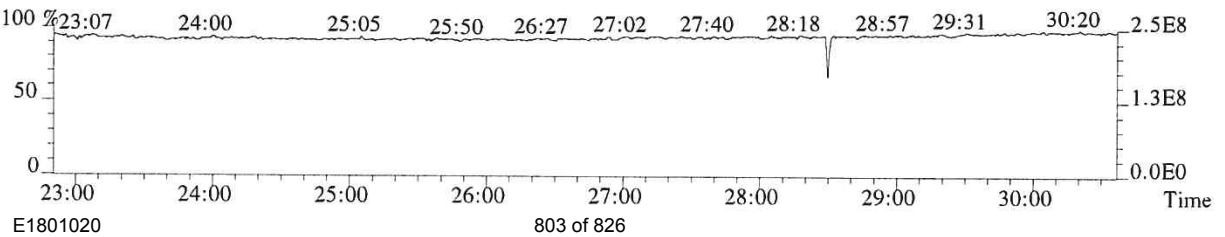
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



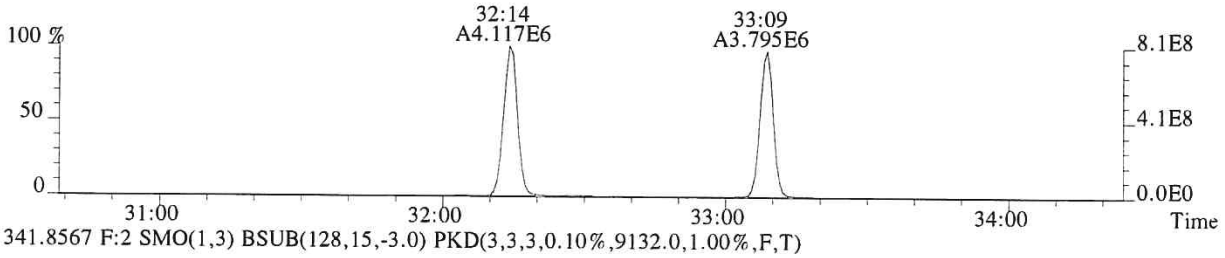
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



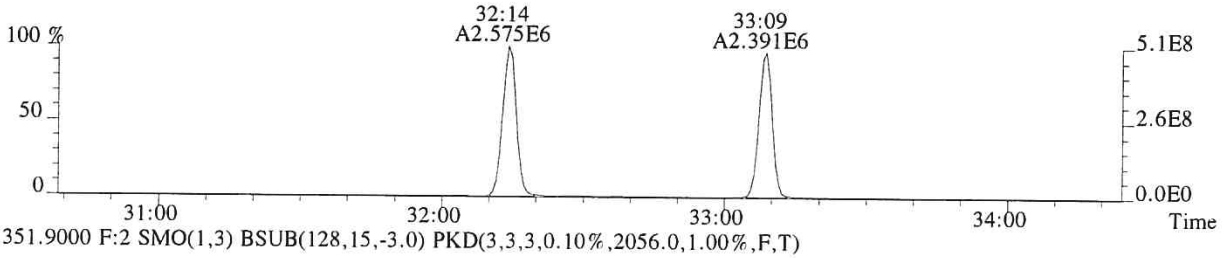
010310

File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

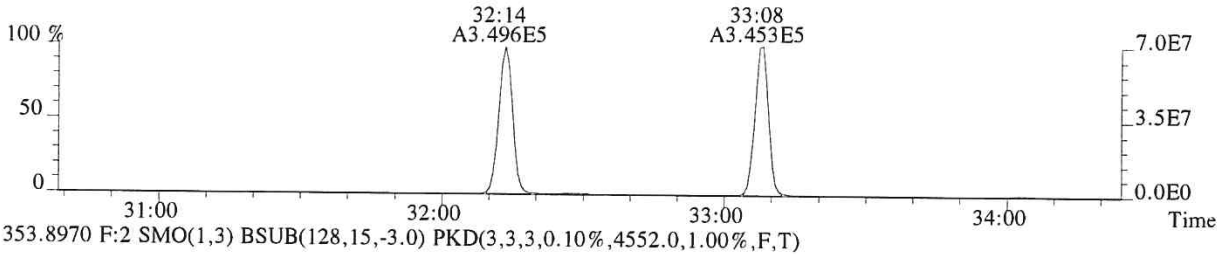
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8456.0,1.00%,F,T)



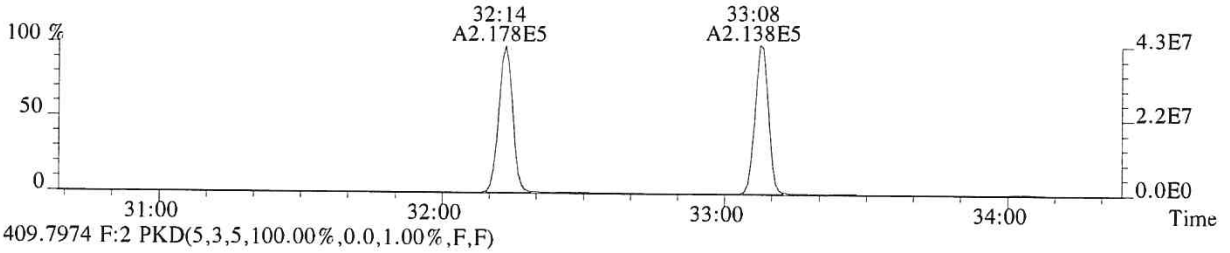
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9132.0,1.00%,F,T)



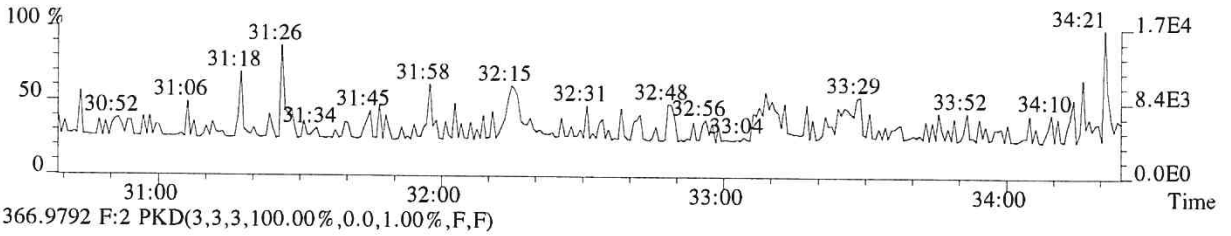
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



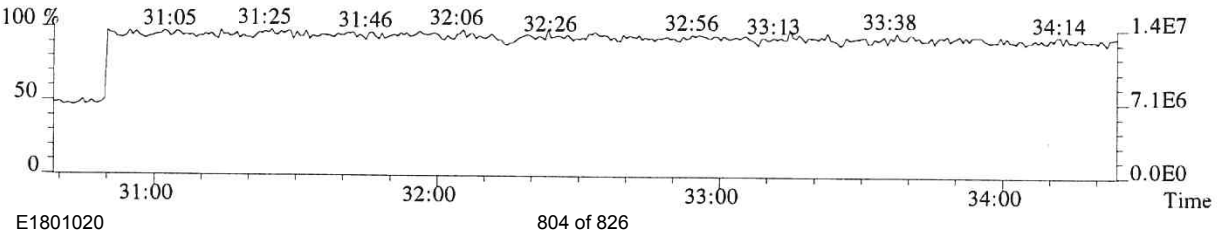
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

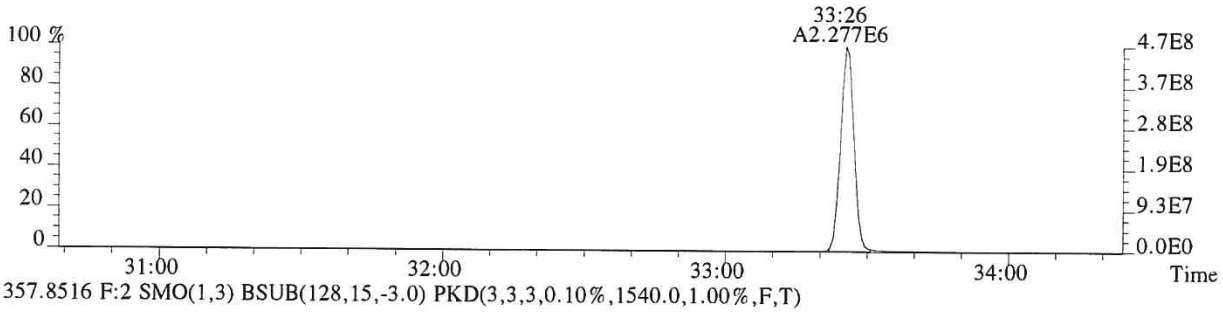


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

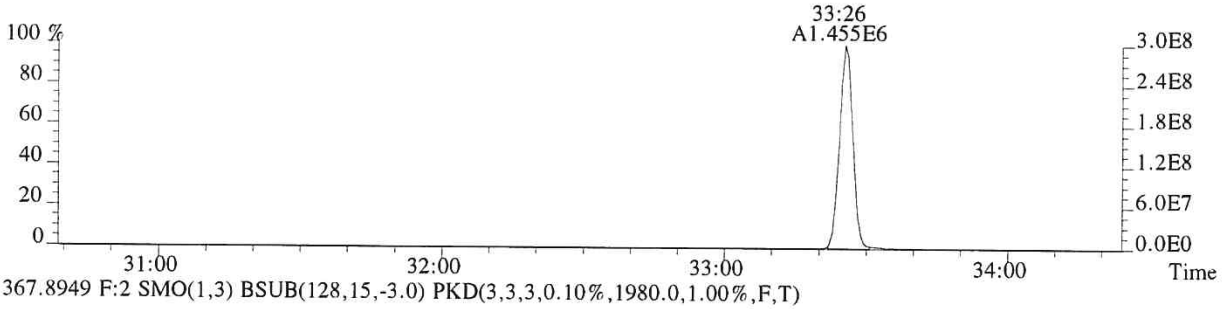


010311

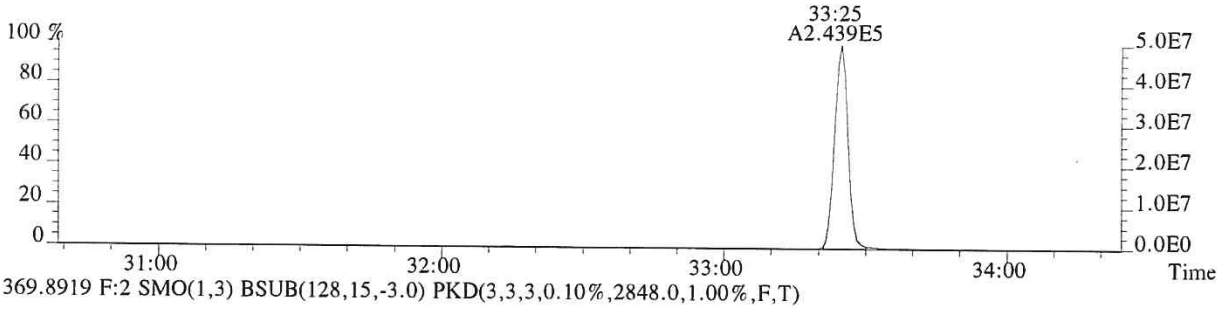
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



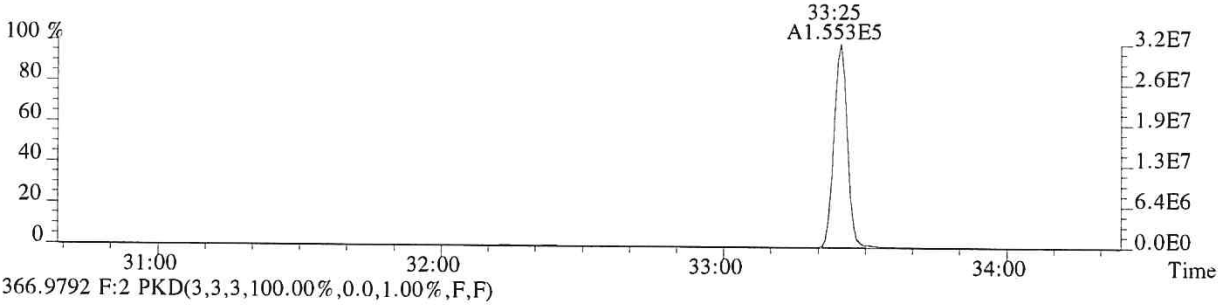
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



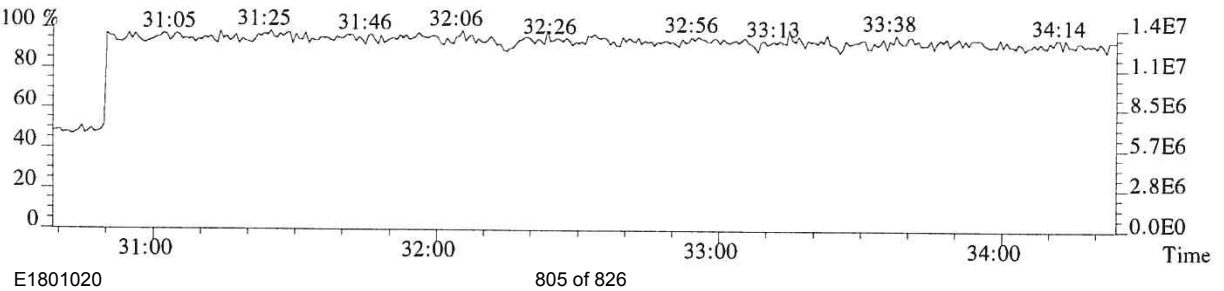
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)

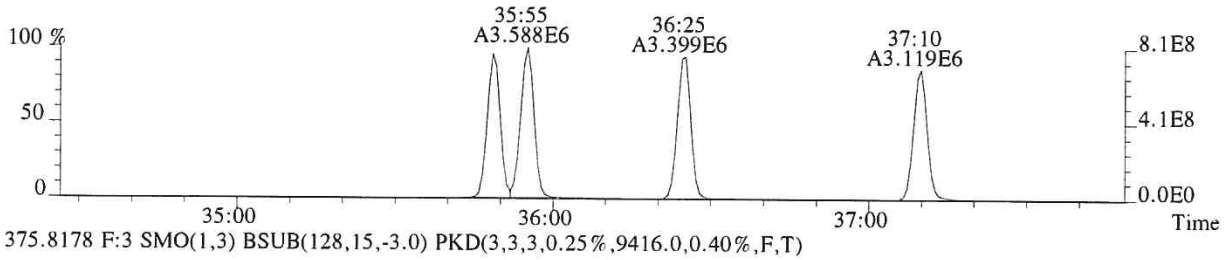


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

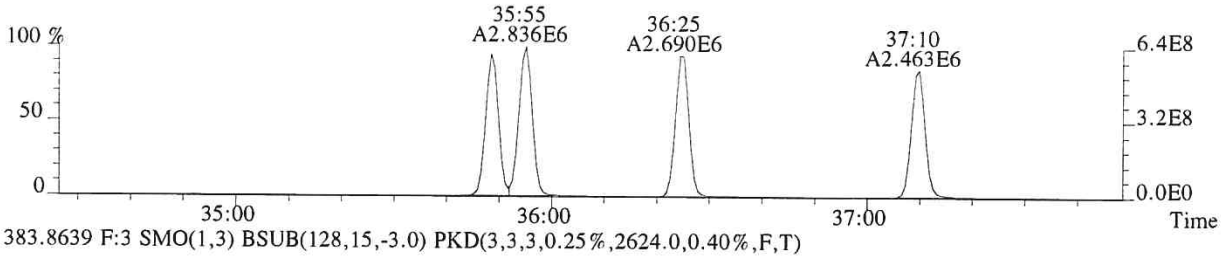


File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

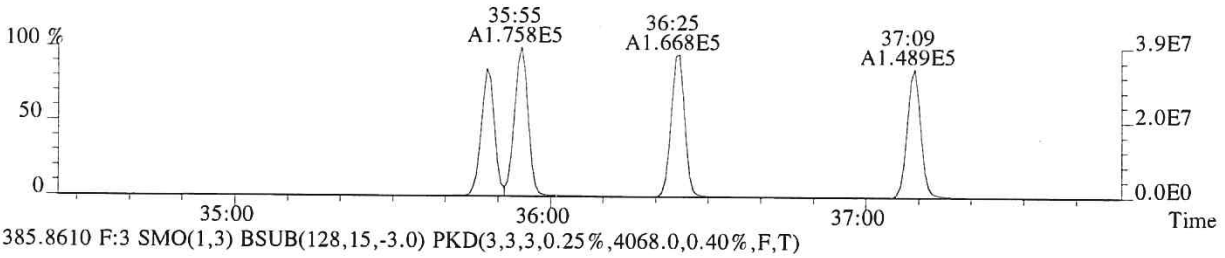
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12332.0,0.40%,F,T)



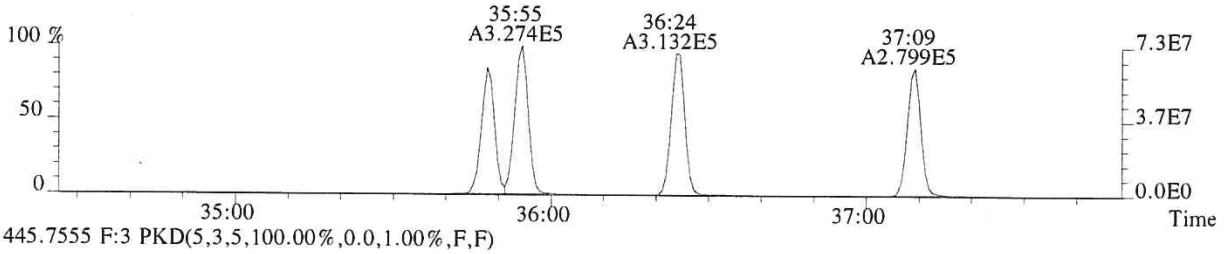
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9416.0,0.40%,F,T)



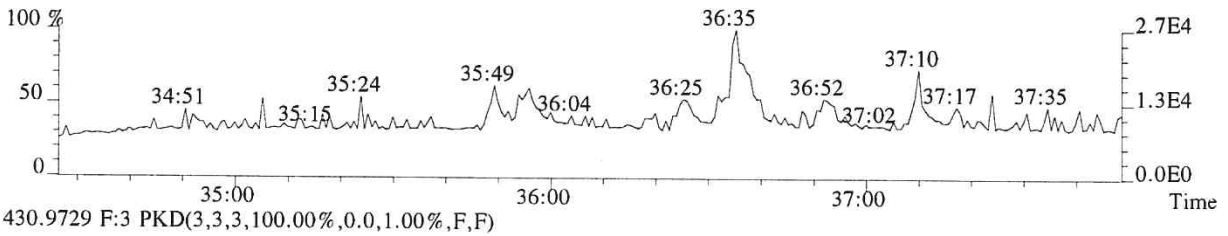
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.40%,F,T)



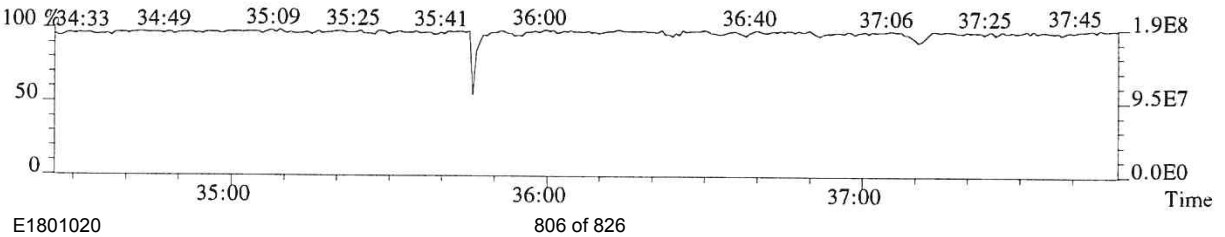
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4068.0,0.40%,F,T)



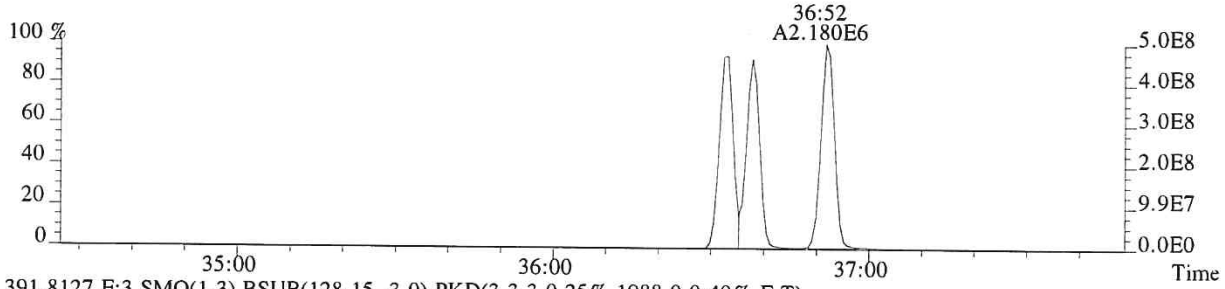
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



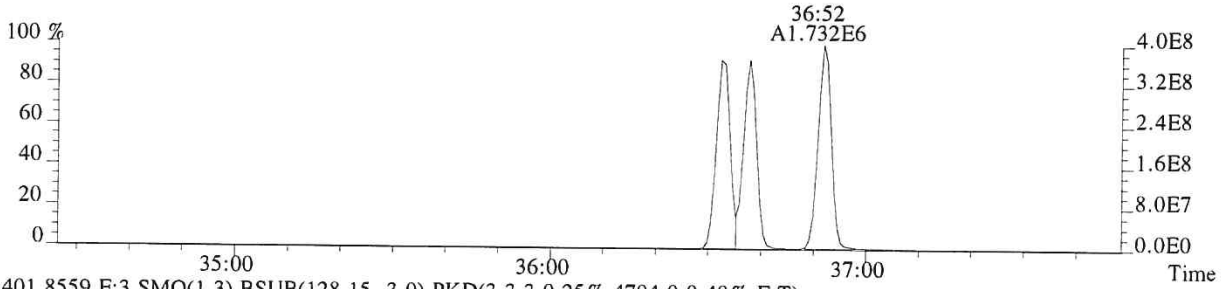
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



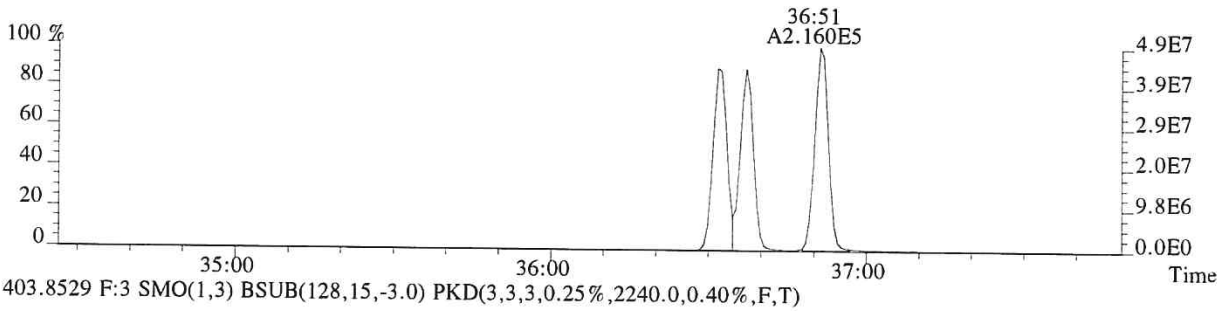
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



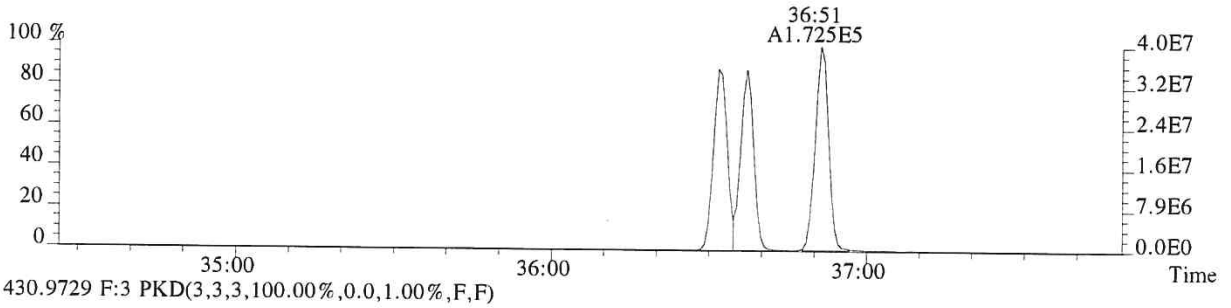
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



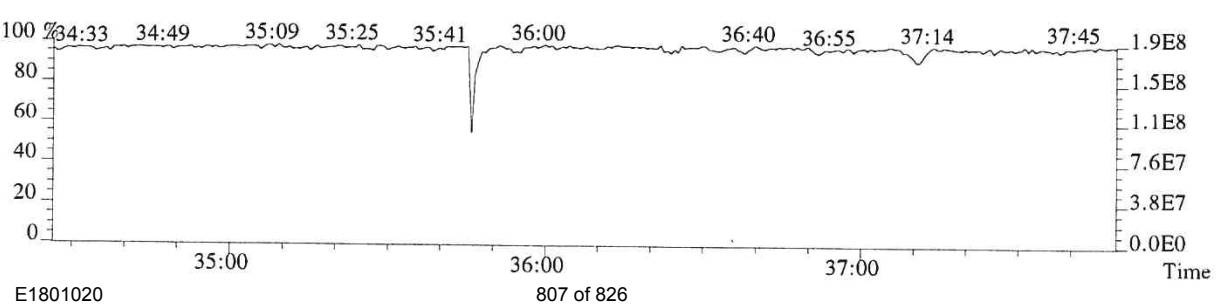
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)

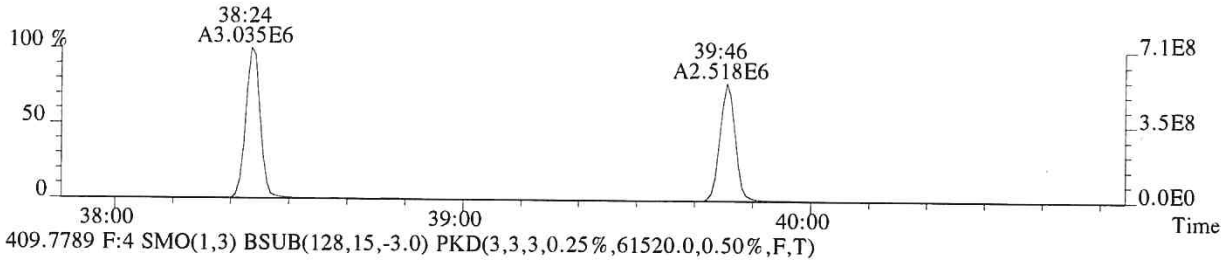


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

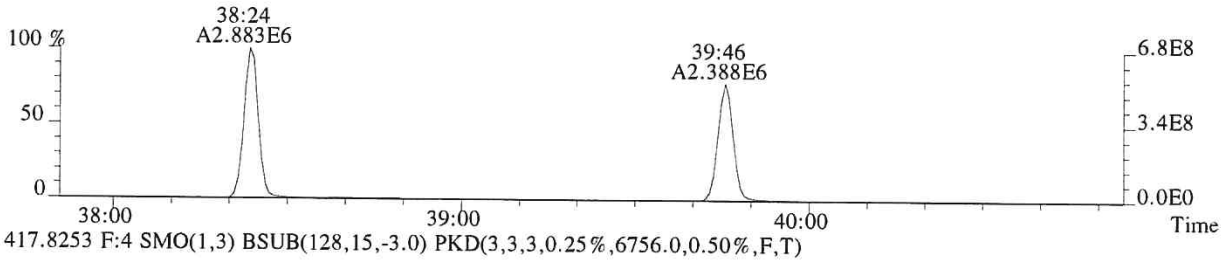


010314

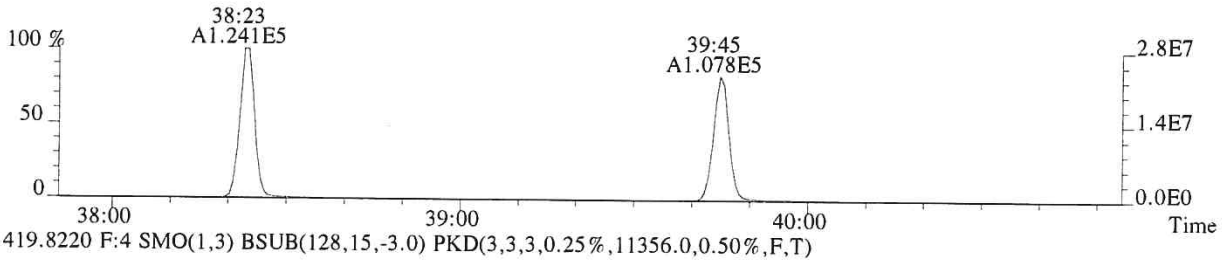
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96804.0,0.50%,F,T)



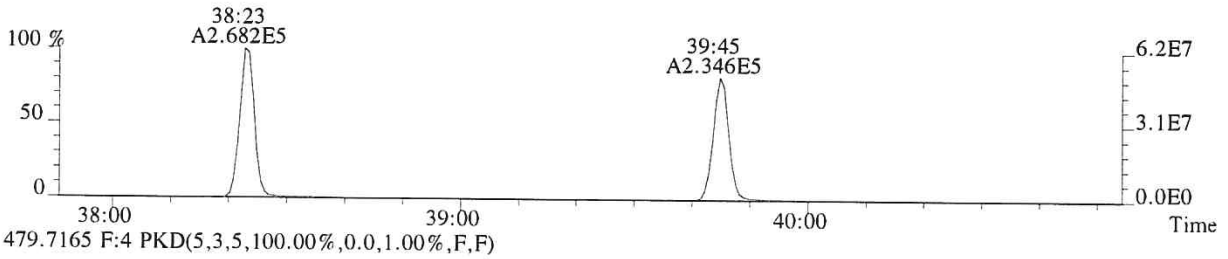
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61520.0,0.50%,F,T)



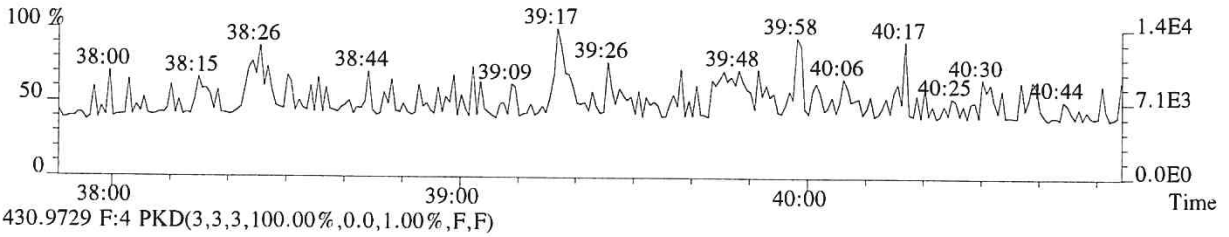
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)



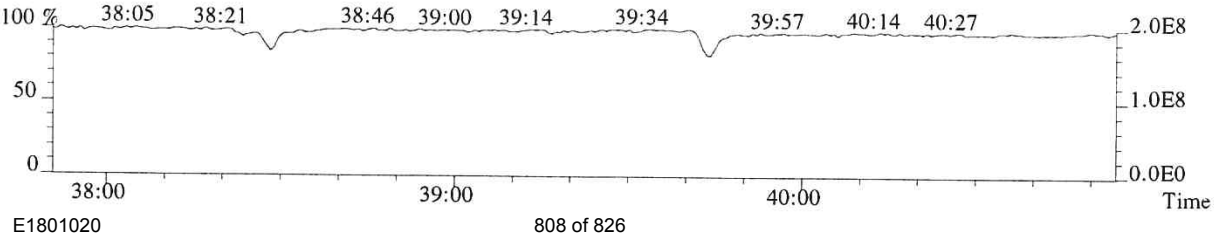
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11356.0,0.50%,F,T)



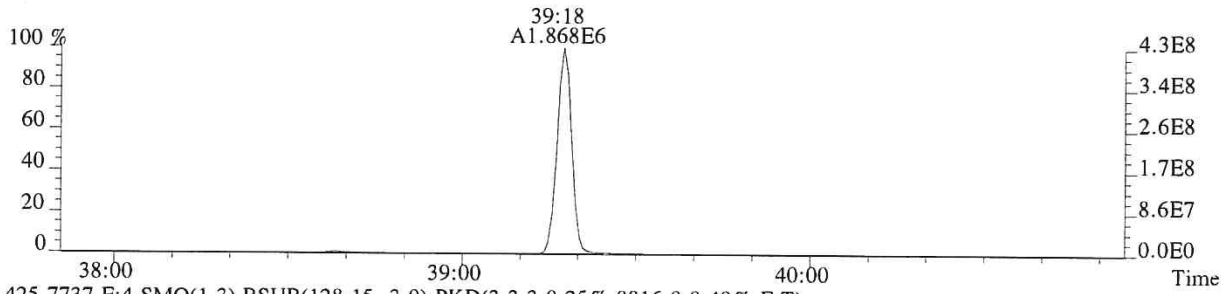
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



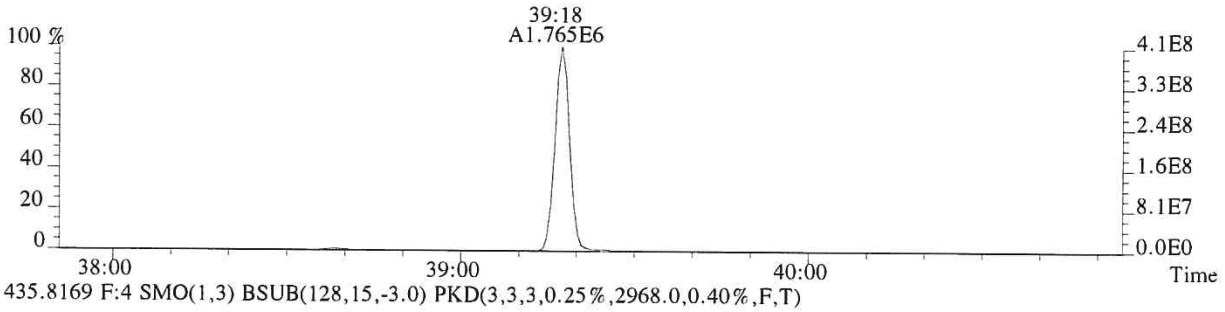
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



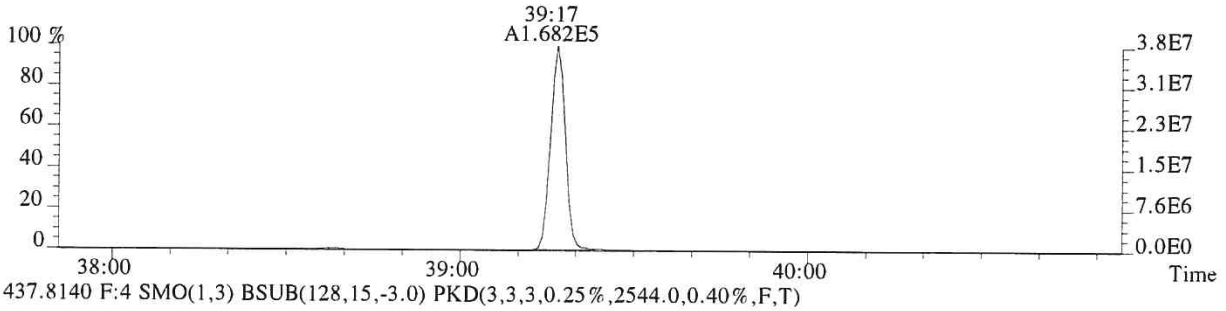
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11044.0,0.40%,F,T)



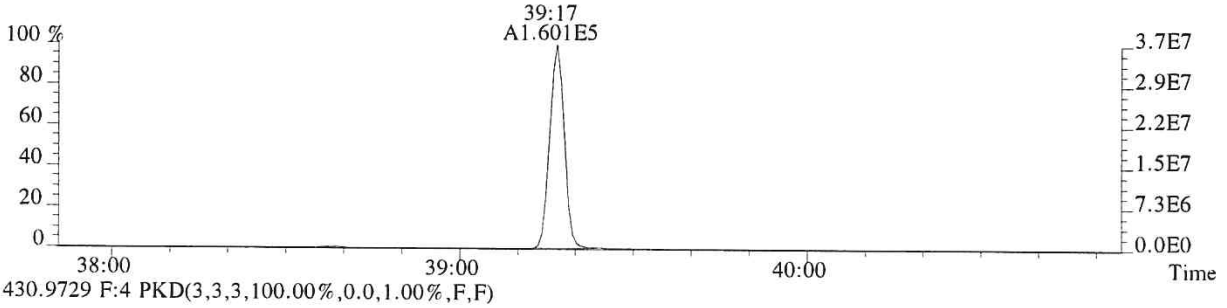
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8816.0,0.40%,F,T)



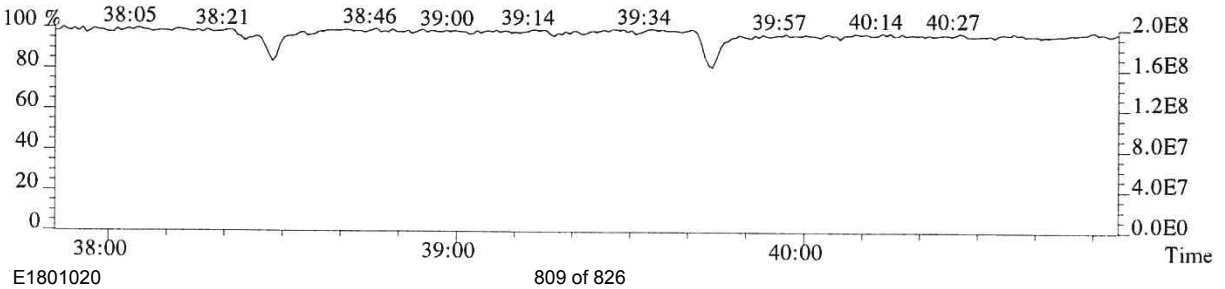
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2968.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2544.0,0.40%,F,T)

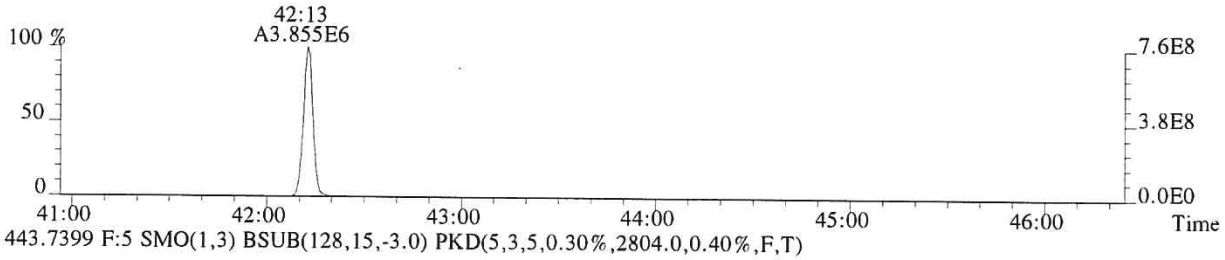


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

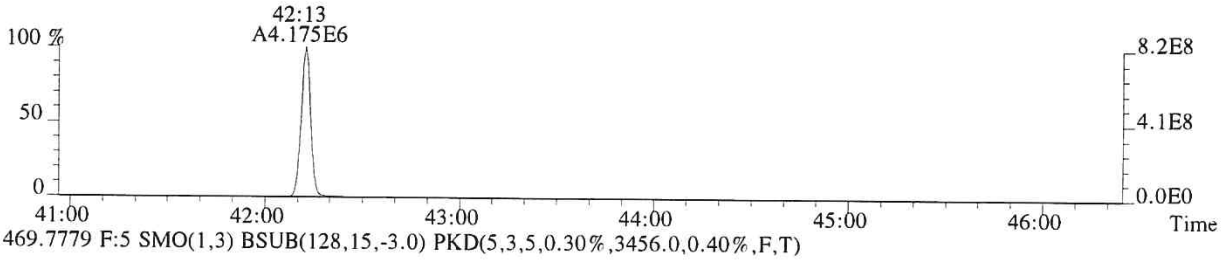


010316

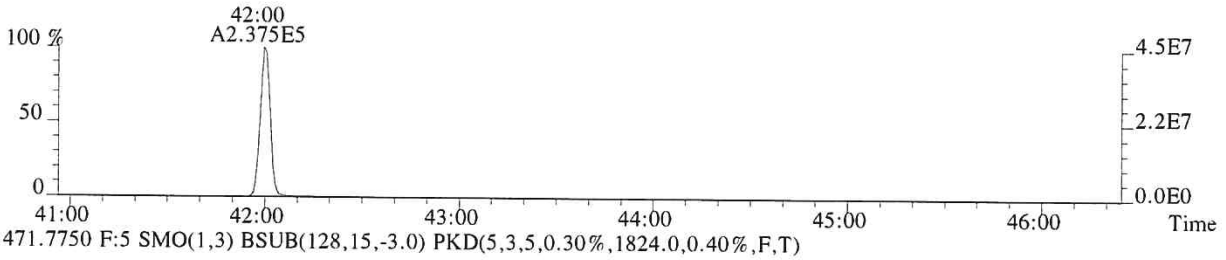
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



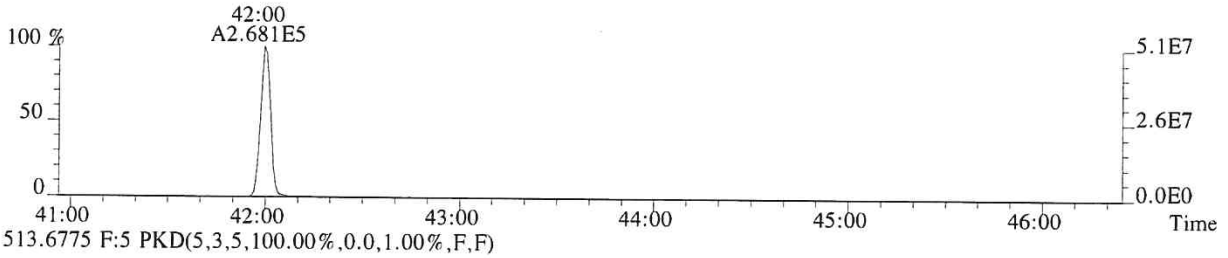
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2804.0,0.40%,F,T)



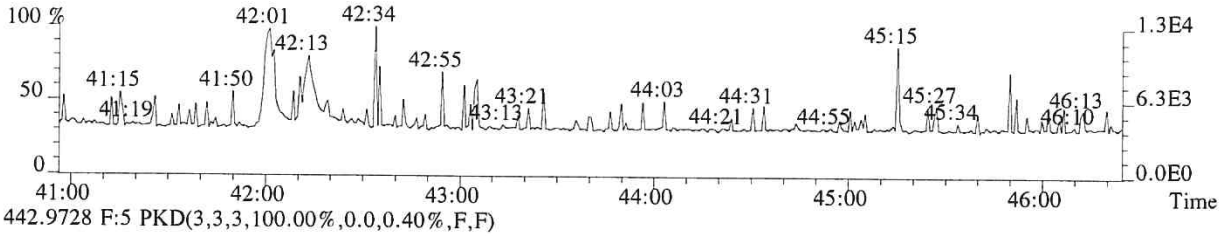
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



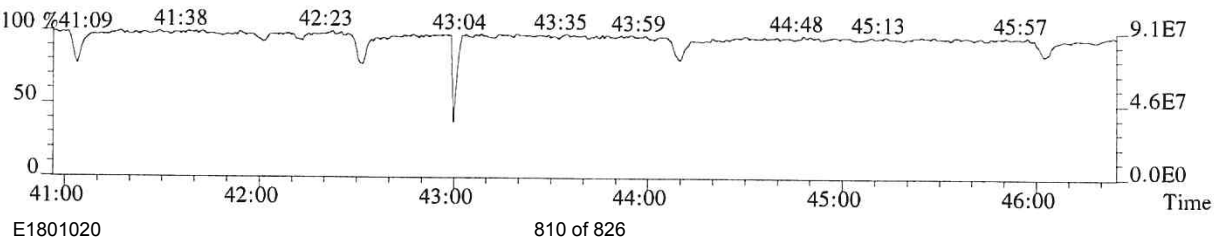
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



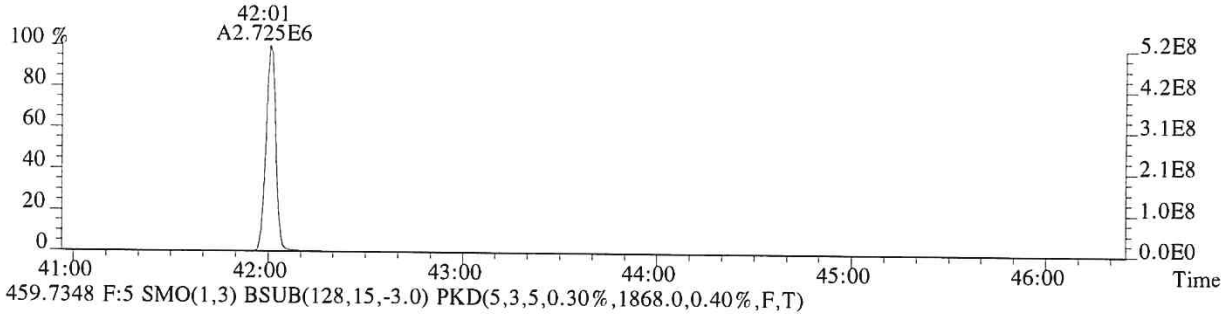
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



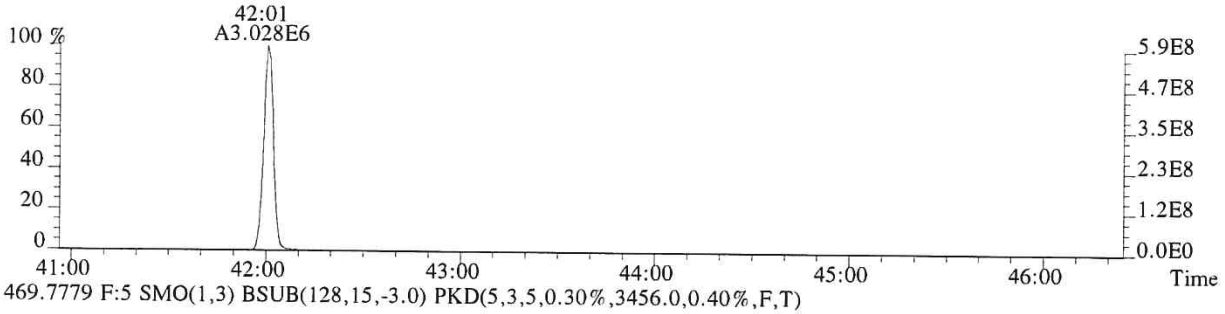
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



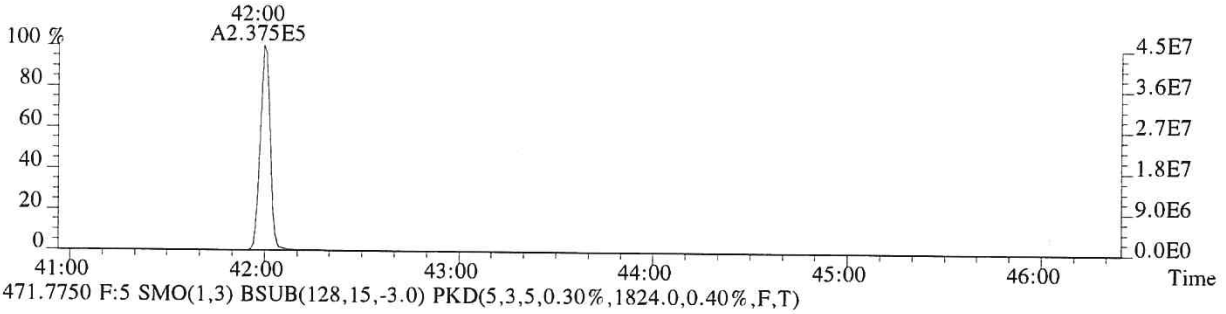
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



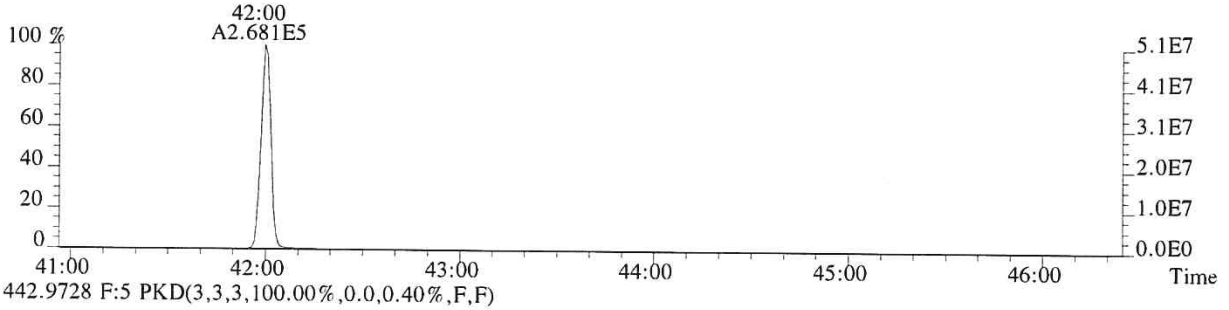
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1868.0,0.40%,F,T)



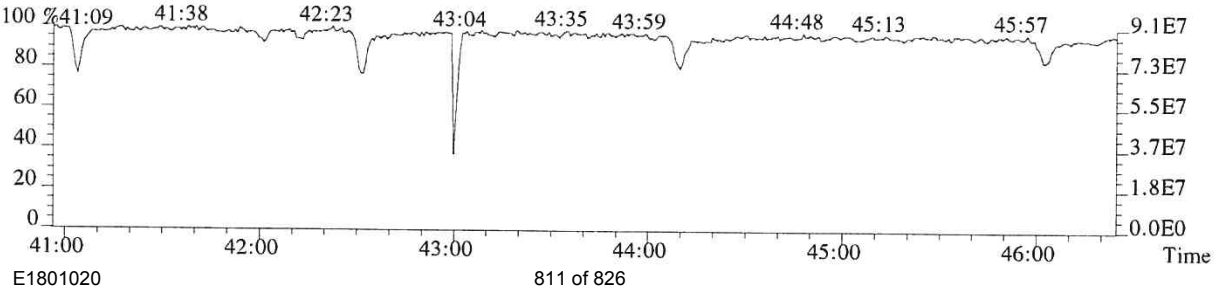
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010318

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-2.1
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.7	8.4 - 12.0	-2.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.5
OCDF	M+2/M+4	0.93	0.76-1.02	100	63 - 159	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	99	82 - 121	-0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	97	62 - 160	-2.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	224	96 - 415	11.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	98	76 - 130	-2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	96	77 - 130	-3.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	102	76 - 131	2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	109	77 - 129	9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.742e+04	2.239e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.470e+05	9.342e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	1.362e+05	8.490e+04	1.60	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.308e+05	1.044e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.371e+05	1.074e+05	1.28	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.285e+05	1.018e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.211e+05	9.459e+04	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.180e+05	1.126e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.018e+05	9.931e+04	1.02	yes	no	1.463
10	Unk	OCDF	42:12	1.605e+05	1.721e+05	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.193e+04	1.490e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	8.164e+04	5.215e+04	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	7.752e+04	6.082e+04	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	7.678e+04	6.066e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	8.213e+04	6.494e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	7.382e+04	6.944e+04	1.06	yes	no	1.112
17	Unk	OCDD	42:01	1.146e+05	1.261e+05	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.682e+05	2.104e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.590e+05	1.613e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.497e+05	1.565e+05	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.202e+05	2.212e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.342e+05	2.529e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.258e+05	2.350e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.132e+05	2.142e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	9.579e+04	2.089e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	8.964e+04	1.952e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.166e+05	1.457e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.797e+05	1.149e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.476e+05	1.165e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.453e+05	1.145e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.336e+05	1.263e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.007e+05	2.242e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.202e+05	1.487e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.598e+05	1.284e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.893e+04				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.16e+03	1.4e+03	3.95e+06	5.67e+03	7.0e+02
2	1,2,3,7,8-PeCDF	2.75e+07	1.50e+03	1.8e+04	1.74e+07	8.24e+03	2.1e+03
3	2,3,4,7,8-PeCDF	2.67e+07	1.50e+03	1.8e+04	1.67e+07	8.24e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.29e+07	2.48e+03	9.3e+03
5	1,2,3,6,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.30e+07	2.48e+03	9.3e+03
6	2,3,4,6,7,8-HxCDF	2.86e+07	2.35e+03	1.2e+04	2.28e+07	2.48e+03	9.2e+03
7	1,2,3,7,8,9-HxCDF	2.47e+07	2.35e+03	1.1e+04	1.95e+07	2.48e+03	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.70e+07	4.46e+03	6.0e+03	2.58e+07	1.29e+04	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	4.46e+03	4.8e+03	2.03e+07	1.29e+04	1.6e+03
10	OCDF	3.01e+07	1.50e+03	2.0e+04	3.28e+07	3.09e+03	1.1e+04
11	2,3,7,8-TCDD	2.20e+06	4.04e+03	5.4e+02	2.73e+06	2.27e+03	1.2e+03
12	1,2,3,7,8-PeCDD	1.64e+07	3.14e+03	5.2e+03	1.06e+07	2.92e+02	3.6e+04
13	1,2,3,4,7,8-HxCDD	1.79e+07	1.59e+03	1.1e+04	1.41e+07	2.43e+03	5.8e+03
14	1,2,3,6,7,8-HxCDD	1.70e+07	1.59e+03	1.1e+04	1.34e+07	2.43e+03	5.5e+03
15	1,2,3,7,8,9-HxCDD	1.85e+07	1.59e+03	1.2e+04	1.48e+07	2.43e+03	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+07	2.28e+03	7.0e+03	1.49e+07	8.84e+02	1.7e+04
17	OCDD	2.16e+07	1.17e+03	1.8e+04	2.38e+07	1.31e+03	1.8e+04
18	13C-2,3,7,8-TCDF	2.88e+07	1.57e+04	1.8e+03	3.60e+07	9.18e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	4.01e+03	1.2e+04	3.00e+07	3.41e+03	8.8e+03
20	13C-2,3,4,7,8-PeCDF	4.95e+07	4.01e+03	1.2e+04	3.12e+07	3.41e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+07	2.99e+03	8.9e+03	4.93e+07	3.83e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.83e+07	2.99e+03	9.5e+03	5.32e+07	3.83e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.80e+07	2.99e+03	9.4e+03	5.25e+07	3.83e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.35e+07	2.99e+03	7.9e+03	4.43e+07	3.83e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+07	7.32e+03	3.0e+03	4.77e+07	1.38e+04	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.88e+07	7.32e+03	2.6e+03	4.06e+07	1.38e+04	2.9e+03
27	13C-2,3,7,8-TCDD	2.17e+07	2.56e+04	8.4e+02	2.71e+07	6.97e+03	3.9e+03
28	13C-1,2,3,7,8-PeCDD	3.57e+07	3.26e+03	1.1e+04	2.28e+07	2.28e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.37e+07	5.66e+03	6.0e+03	2.64e+07	3.42e+03	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.18e+07	5.66e+03	5.6e+03	2.51e+07	3.42e+03	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+07	3.13e+03	9.1e+03	2.68e+07	1.88e+03	1.4e+04
32	13C-OCDD	3.77e+07	2.72e+03	1.4e+04	4.17e+07	9.60e+02	4.3e+04
33	13C-1,2,3,4-TCDD	2.21e+07	2.56e+04	8.6e+02	2.72e+07	6.97e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+07	5.66e+03	6.4e+03	2.92e+07	3.42e+03	8.5e+03
35	37Cl-2,3,7,8-TCDD	5.28e+06	4.24e+03	1.2e+03			

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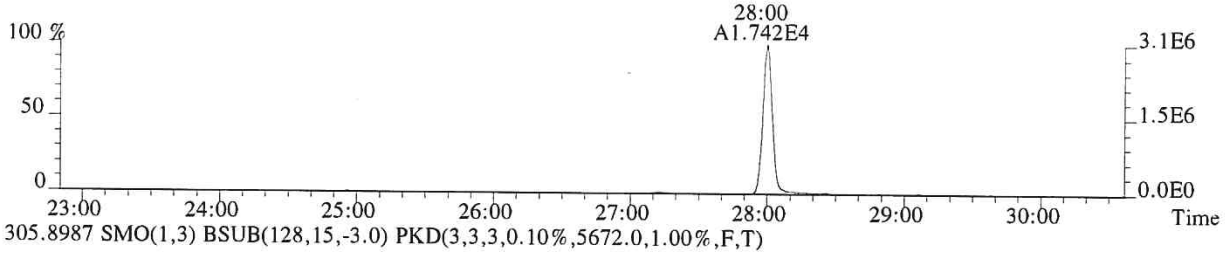
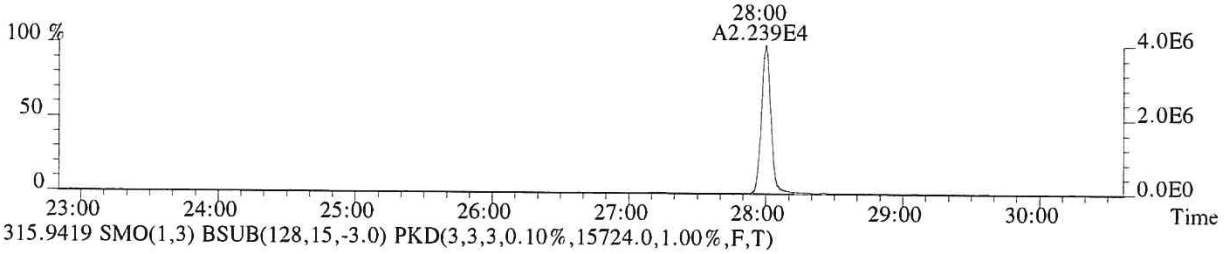
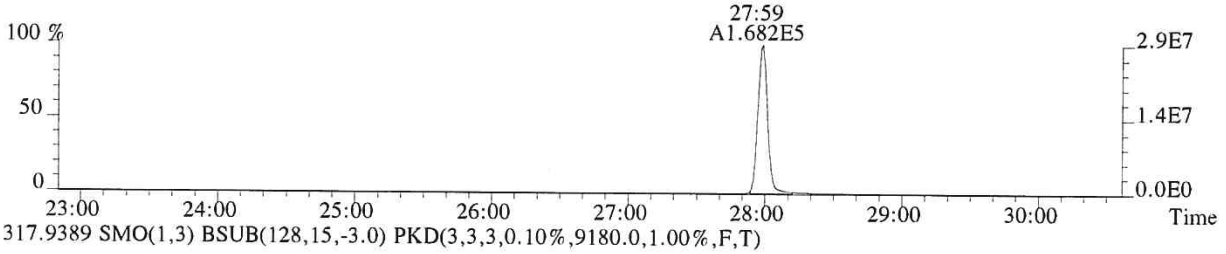
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



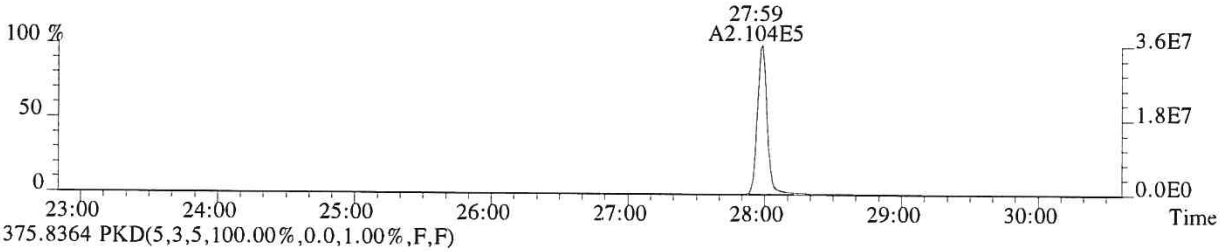
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5672.0,1.00%,F,T)



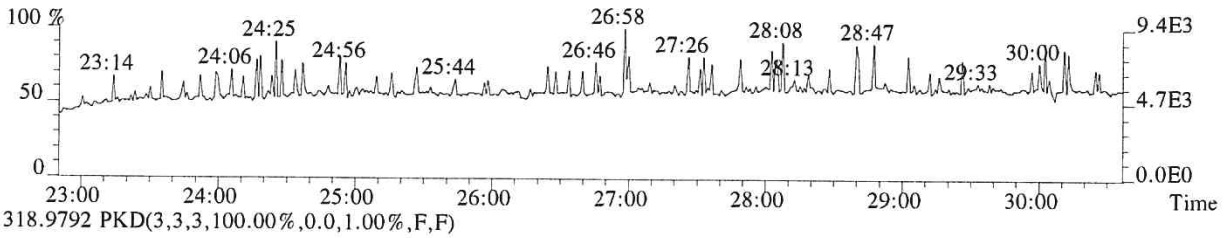
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15724.0,1.00%,F,T)



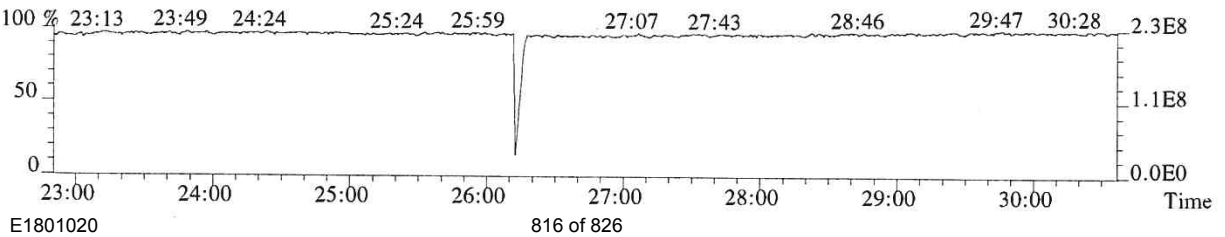
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9180.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

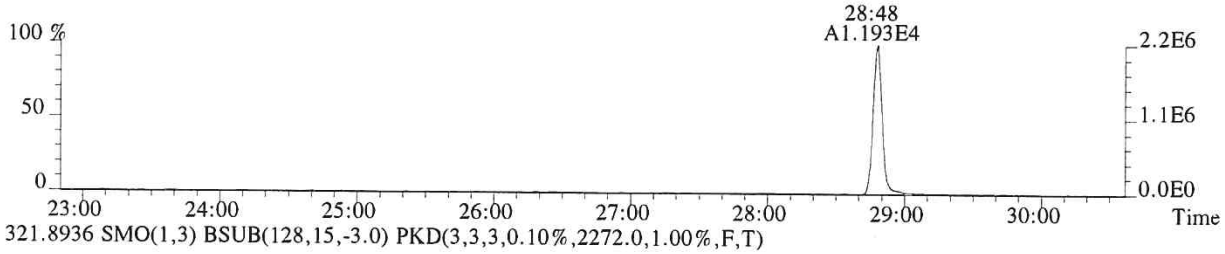


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

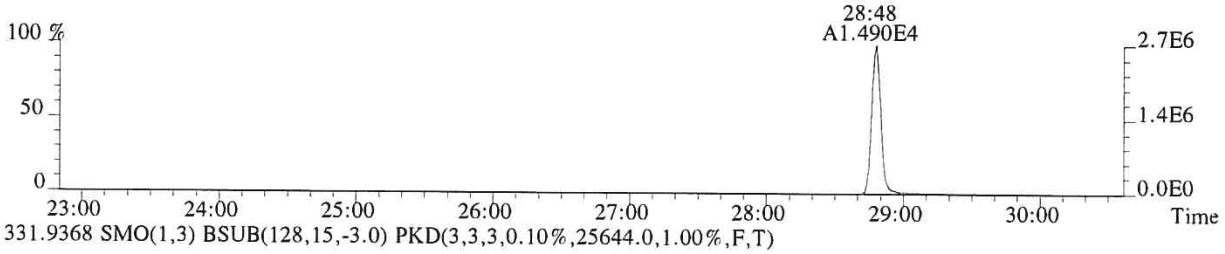


010323

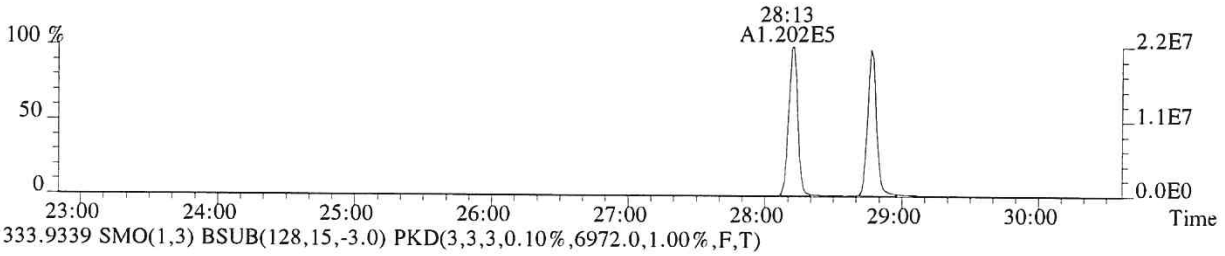
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



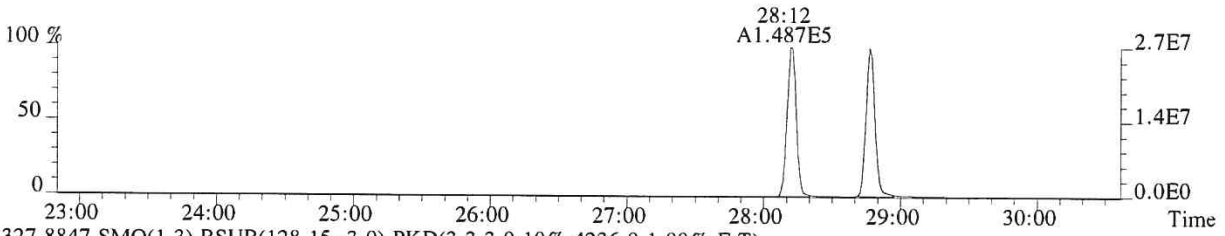
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



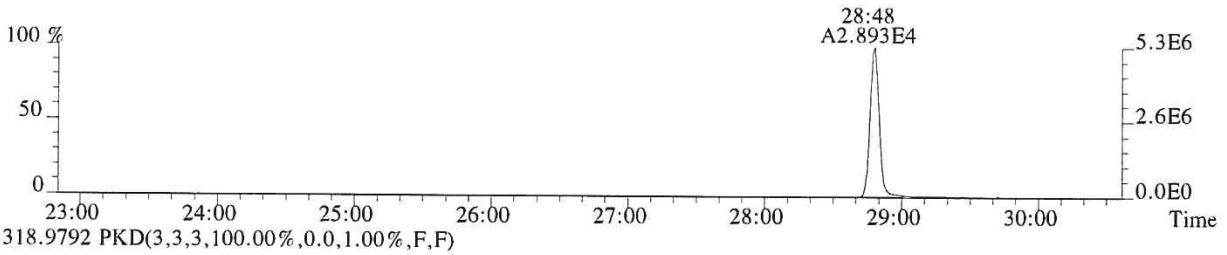
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25644.0,1.00%,F,T)



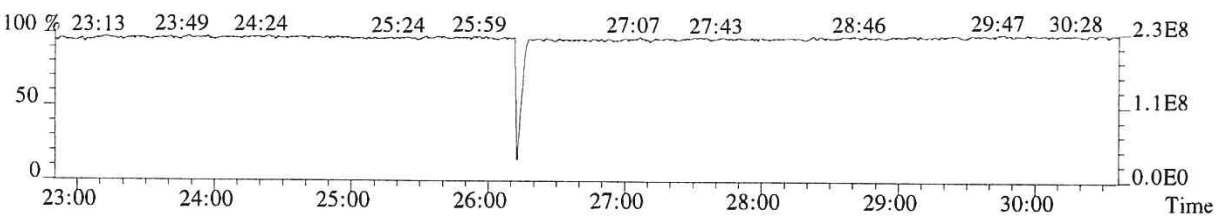
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4236.0,1.00%,F,T)

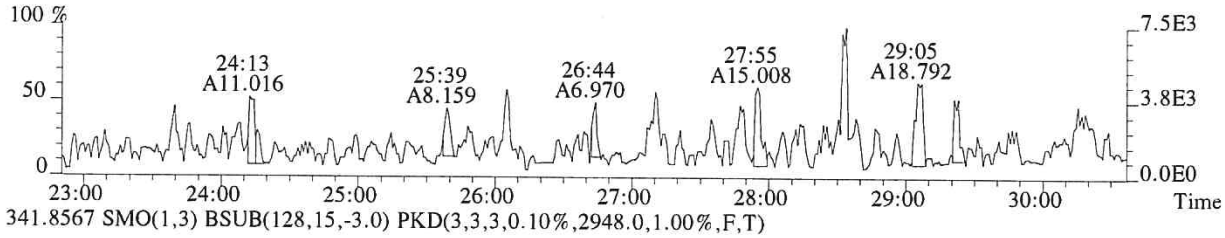


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

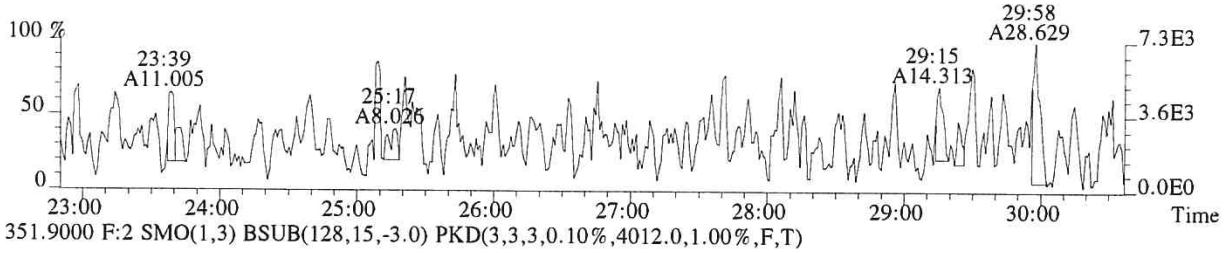


010324

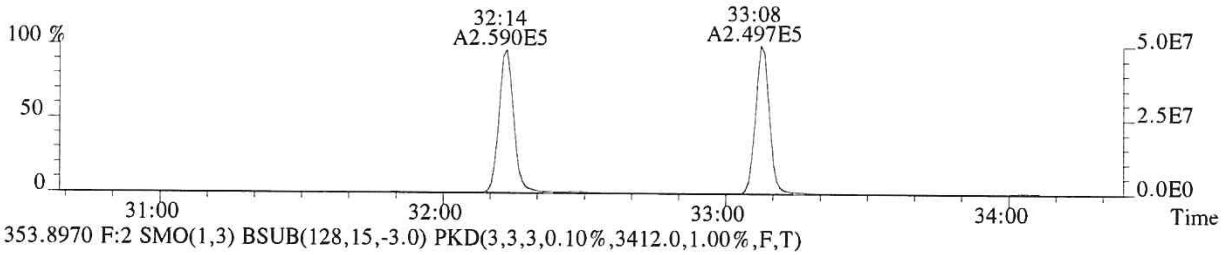
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



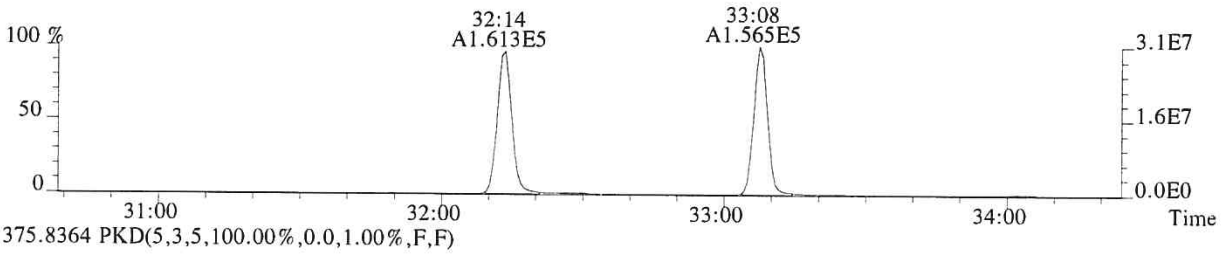
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



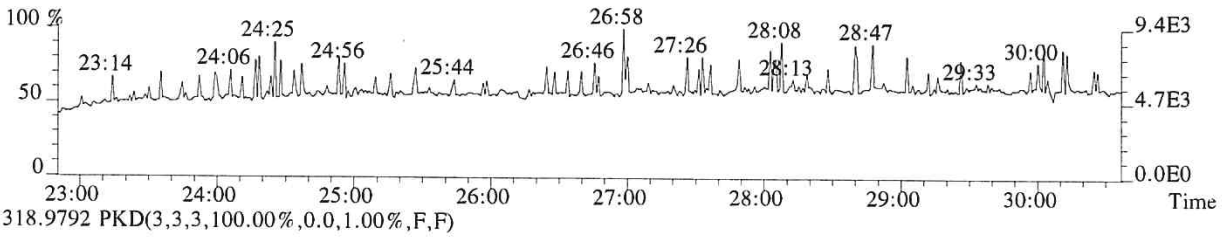
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



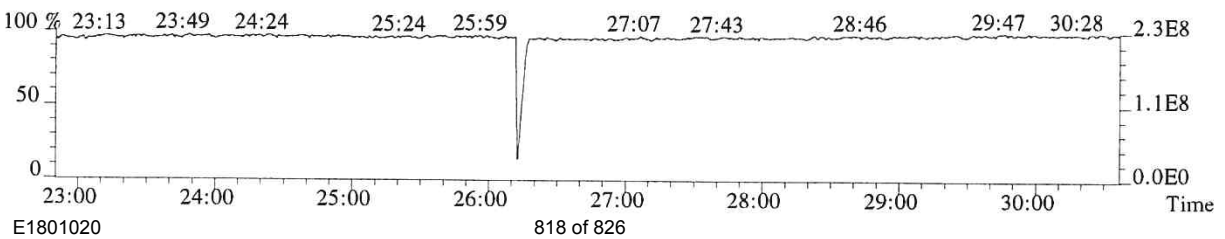
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

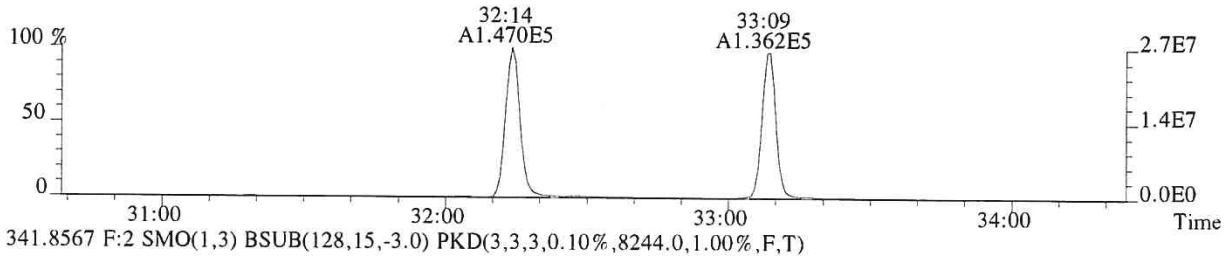


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

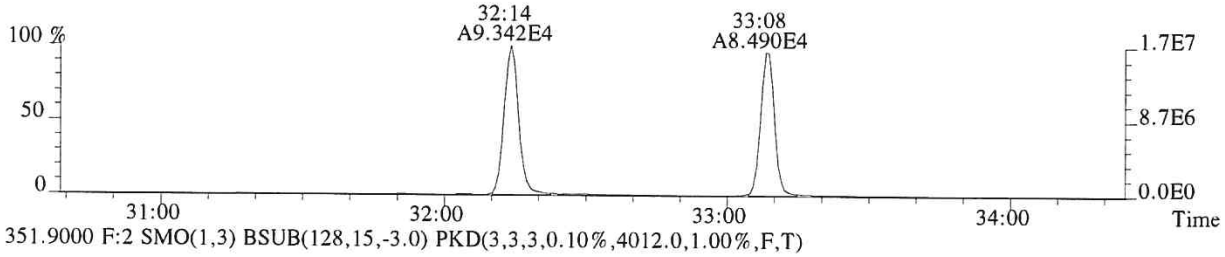


010325

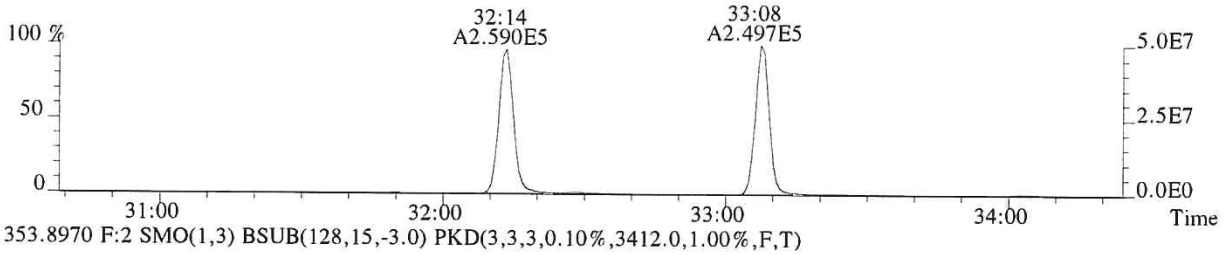
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



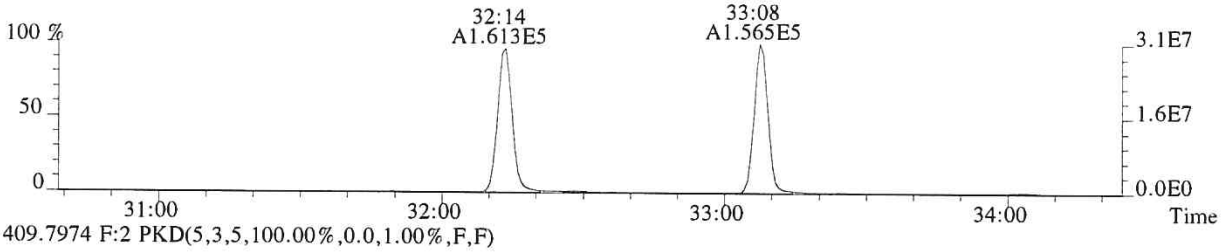
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8244.0,1.00%,F,T)



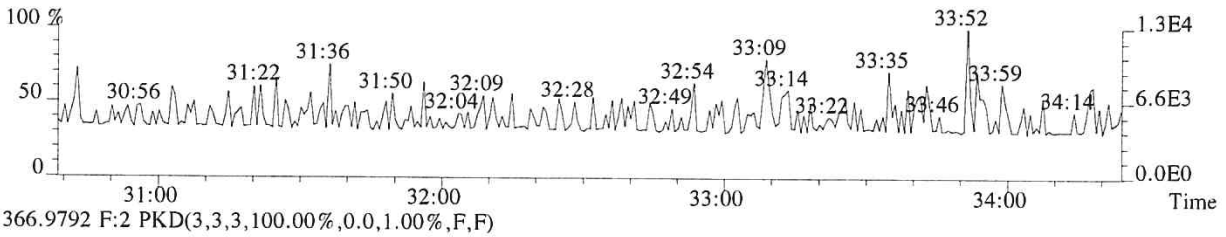
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



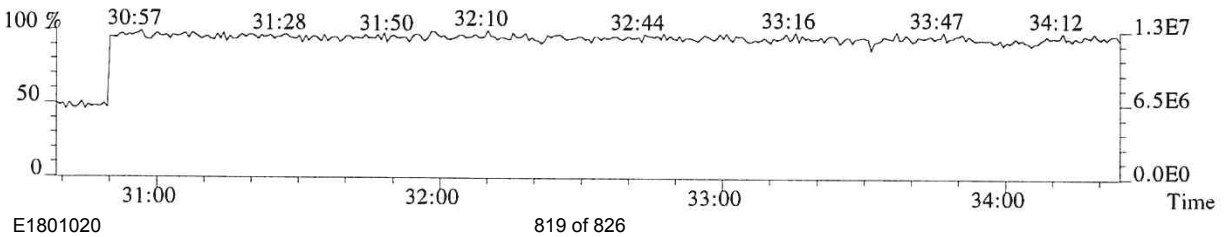
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

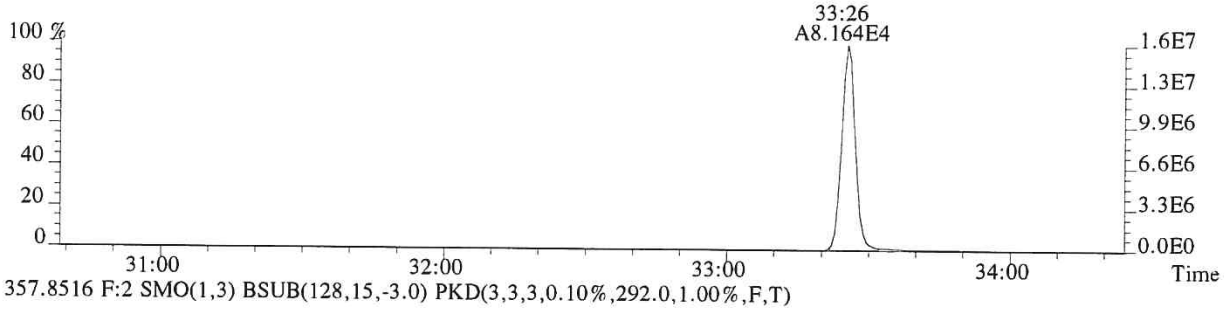


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

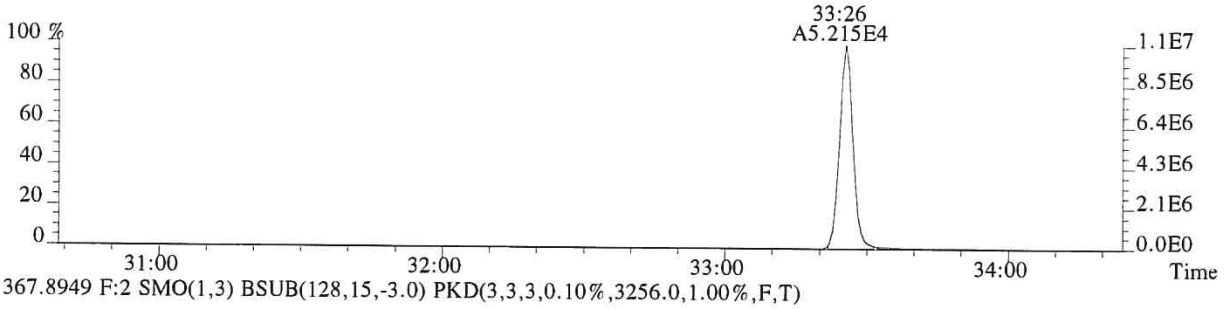


010326

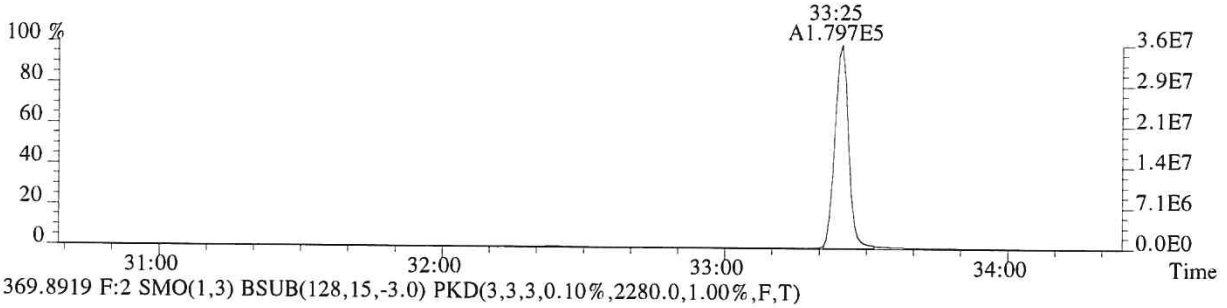
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



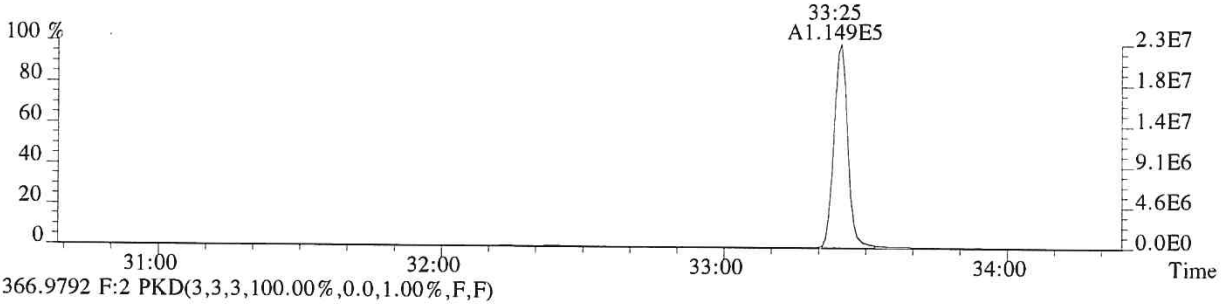
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



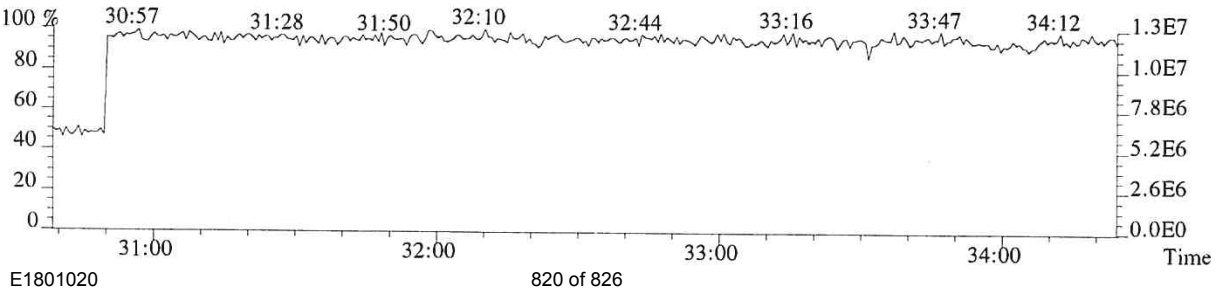
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)

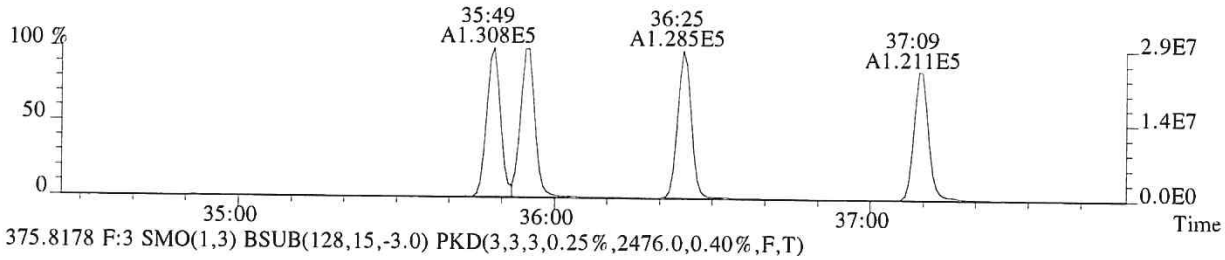


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

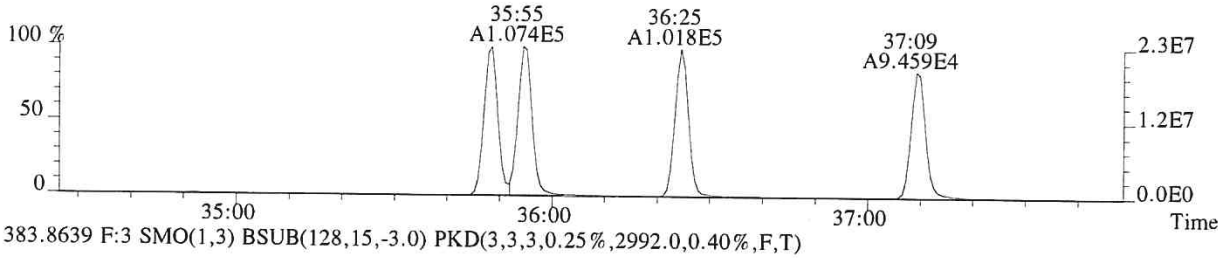


010327

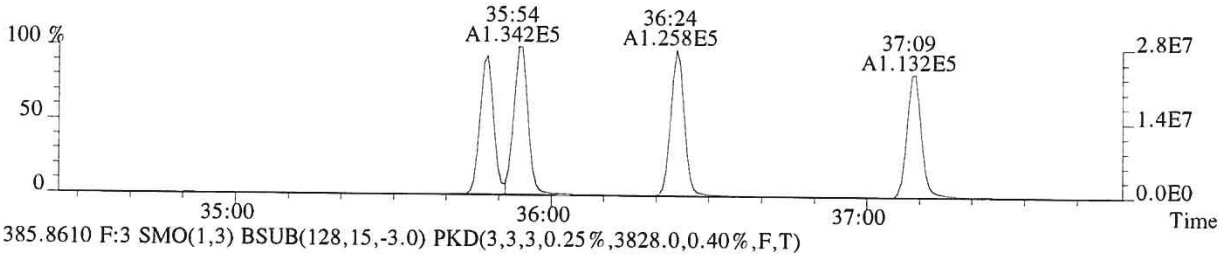
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



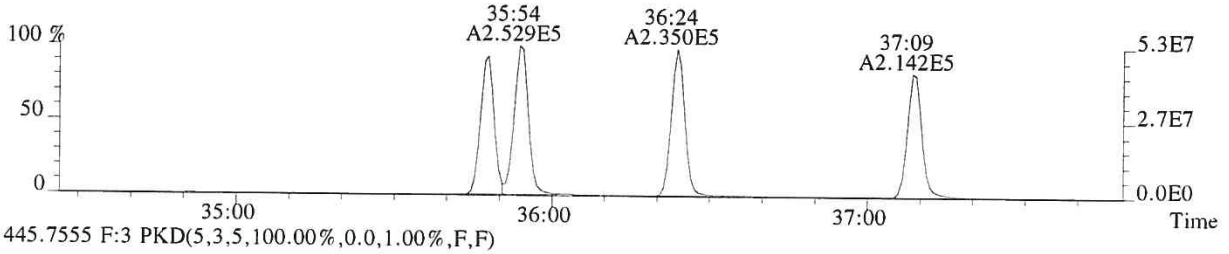
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



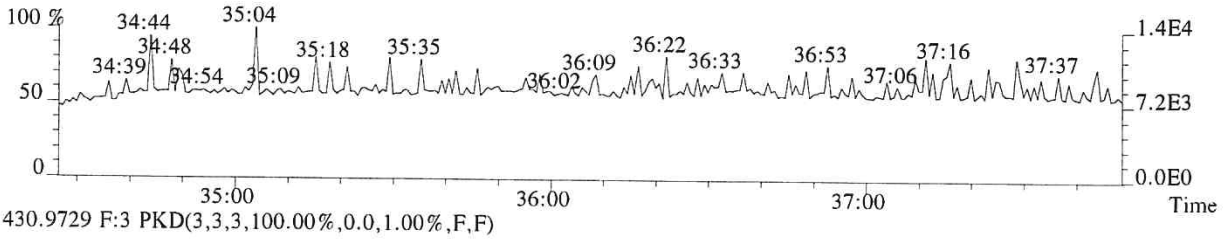
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



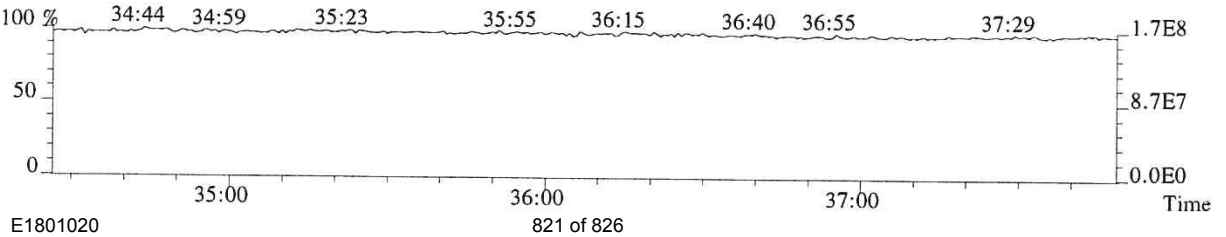
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3828.0,0.40%,F,T)



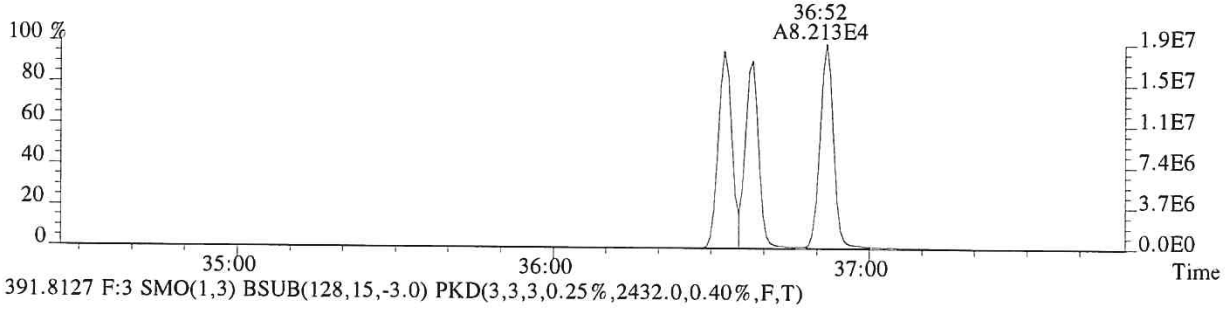
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



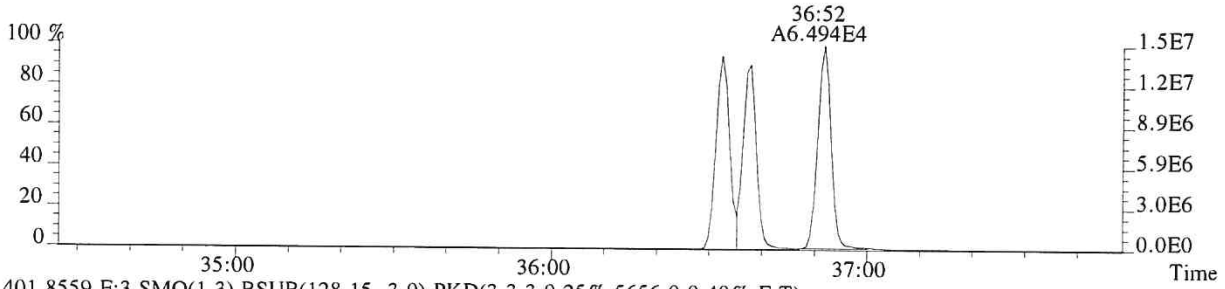
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



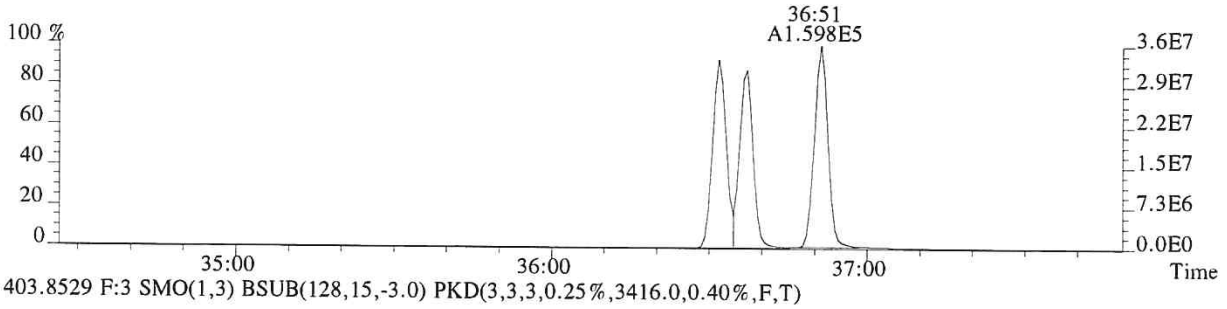
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



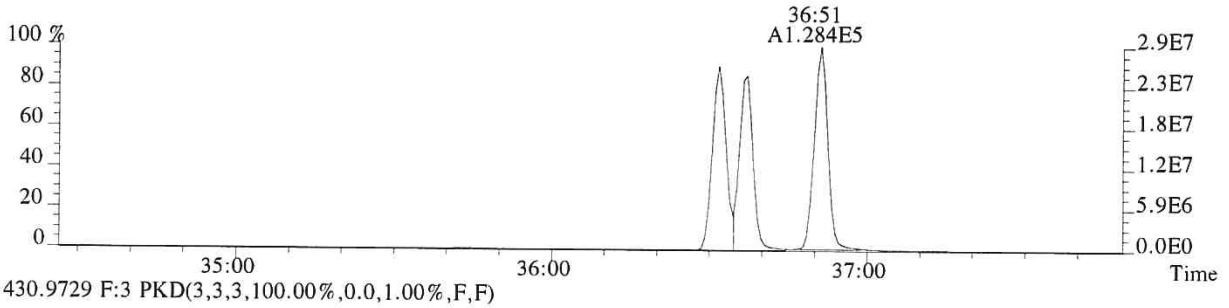
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



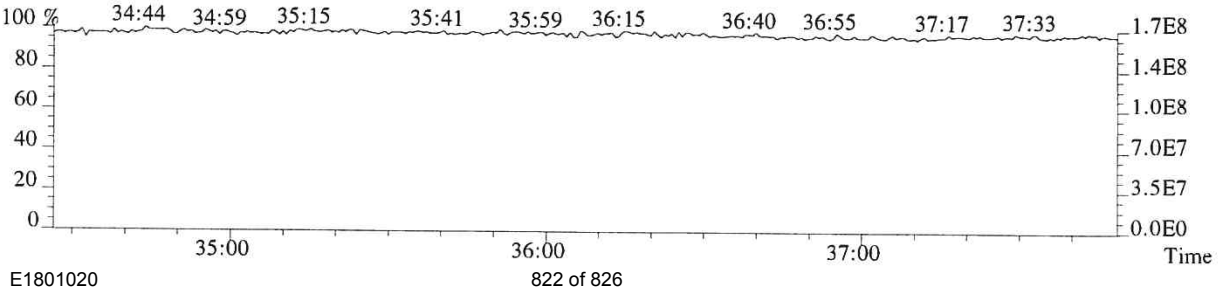
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.40%,F,T)



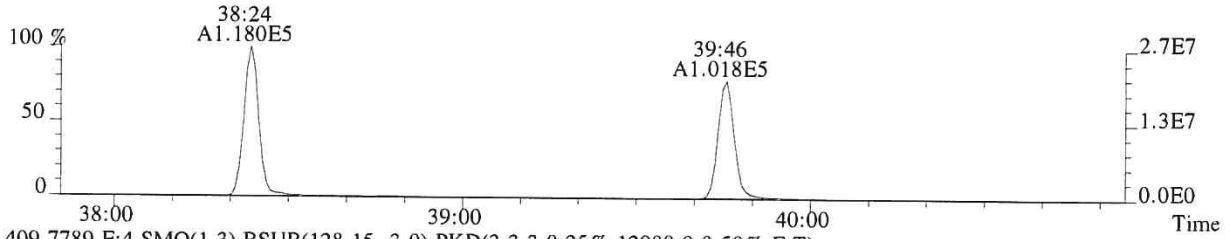
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3416.0,0.40%,F,T)



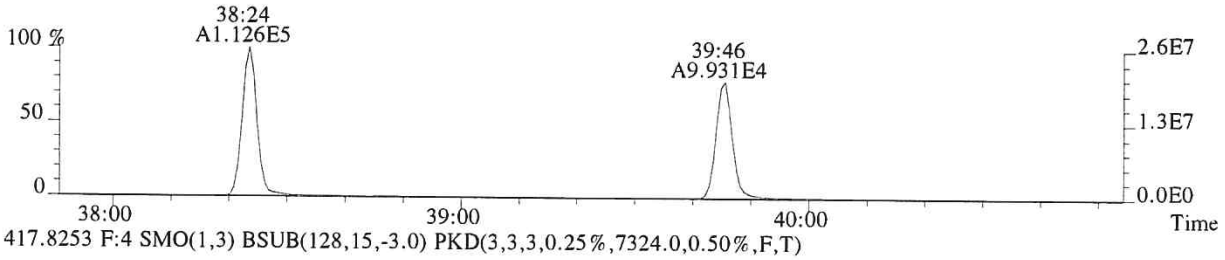
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



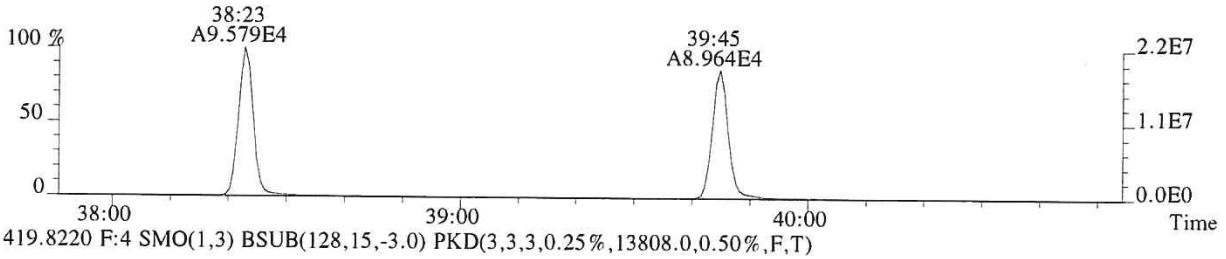
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



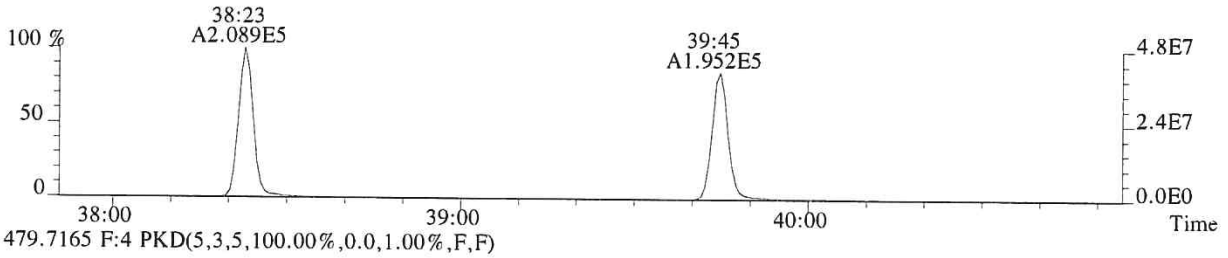
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12908.0,0.50%,F,T)



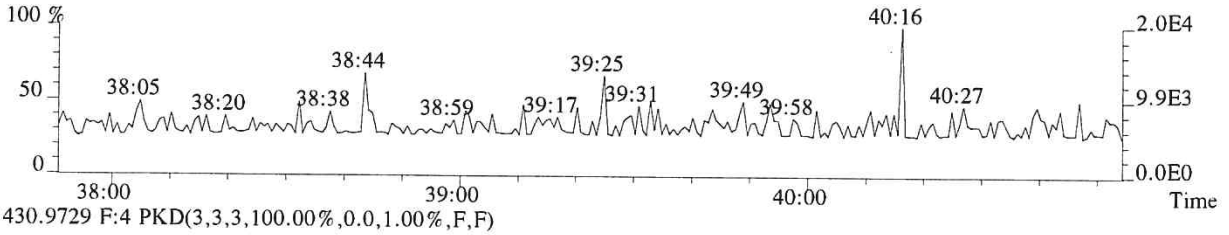
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7324.0,0.50%,F,T)



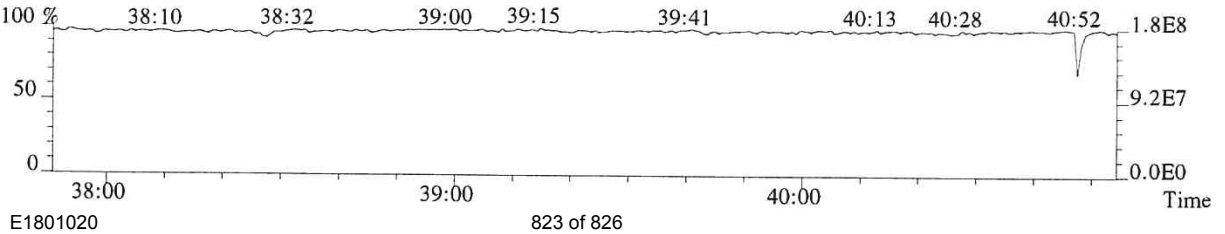
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13808.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

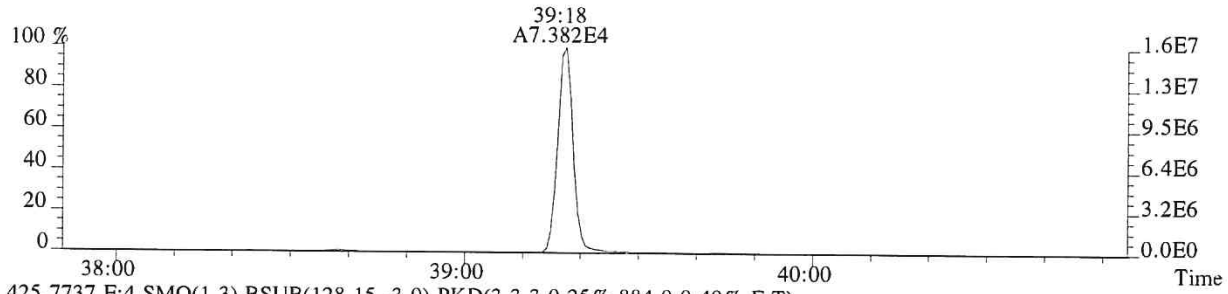


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

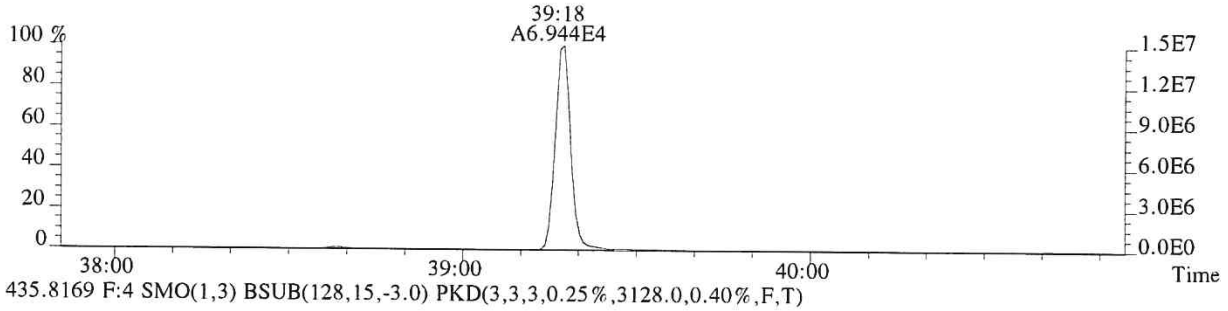


010330

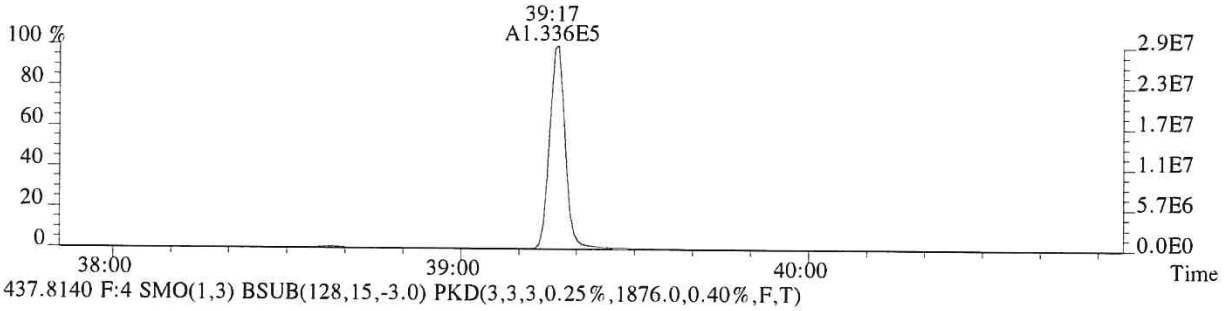
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



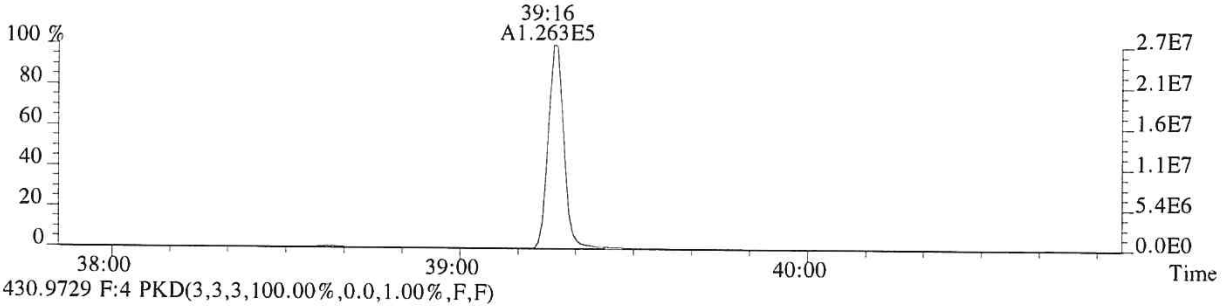
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



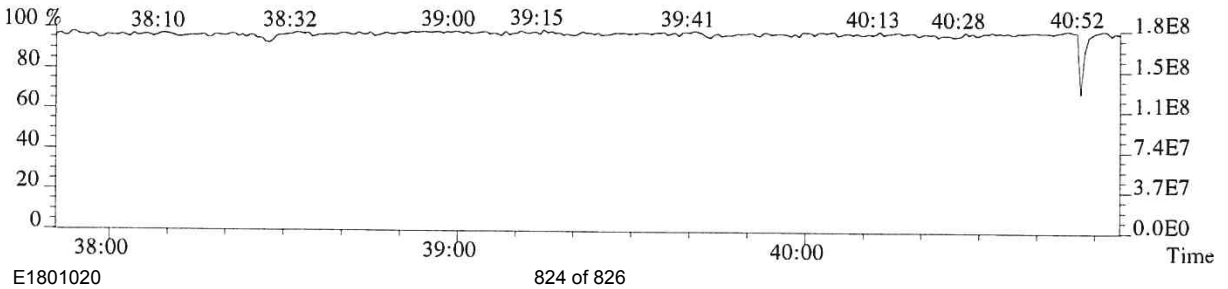
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



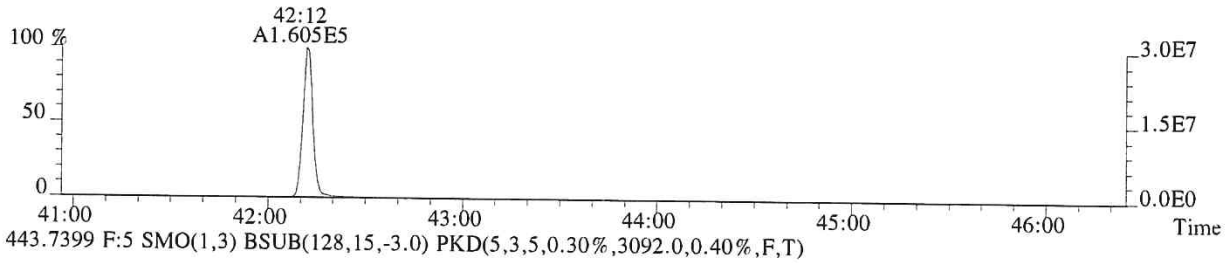
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



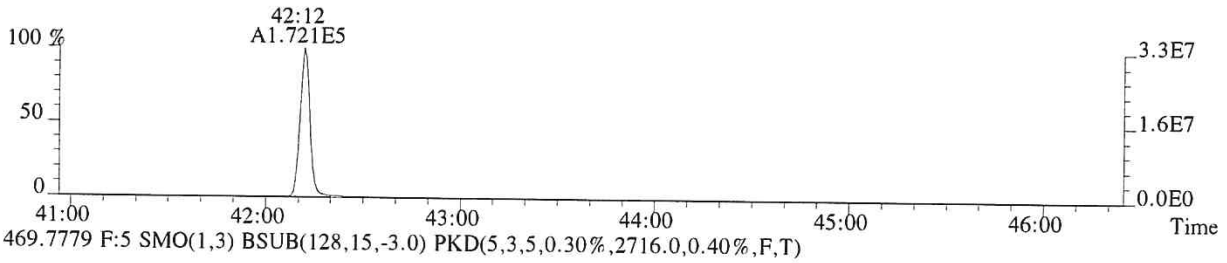
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



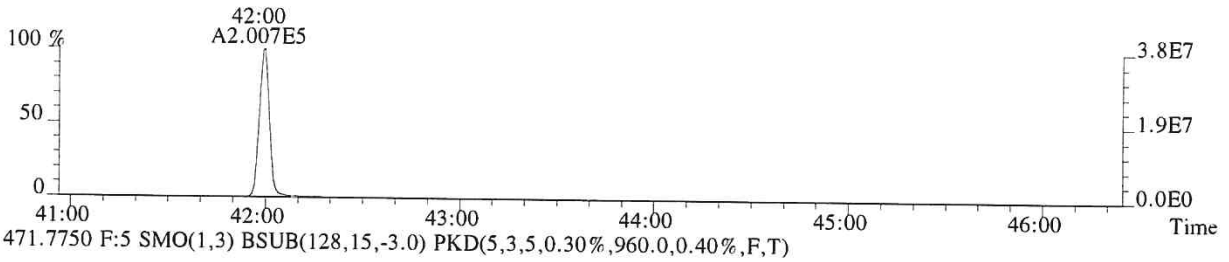
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



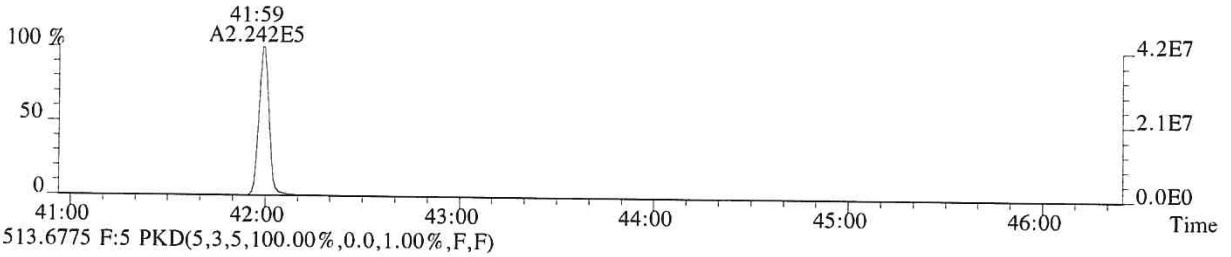
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



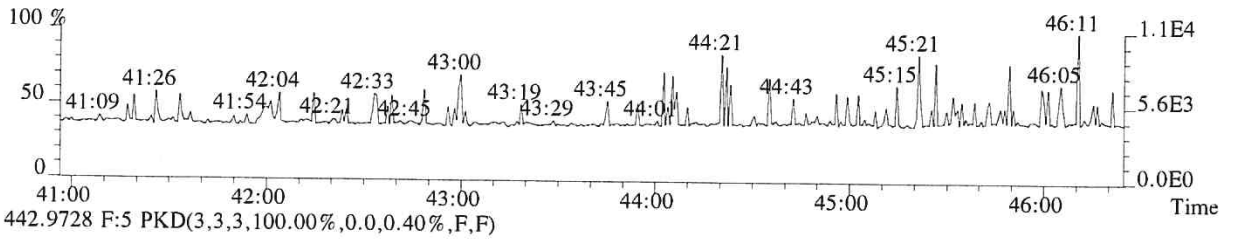
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



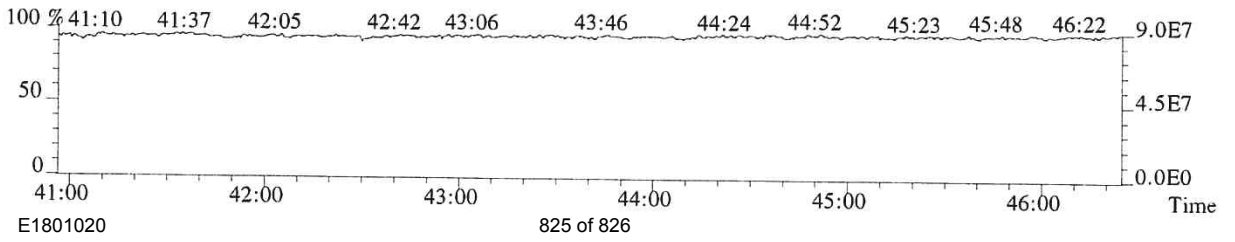
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



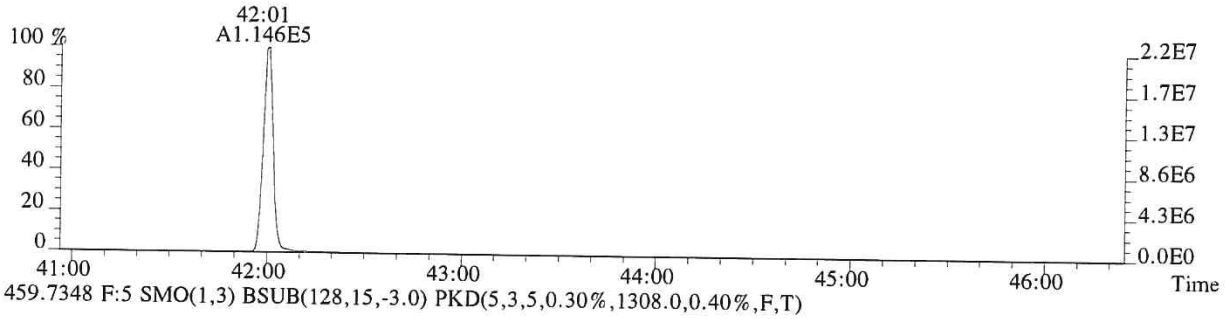
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



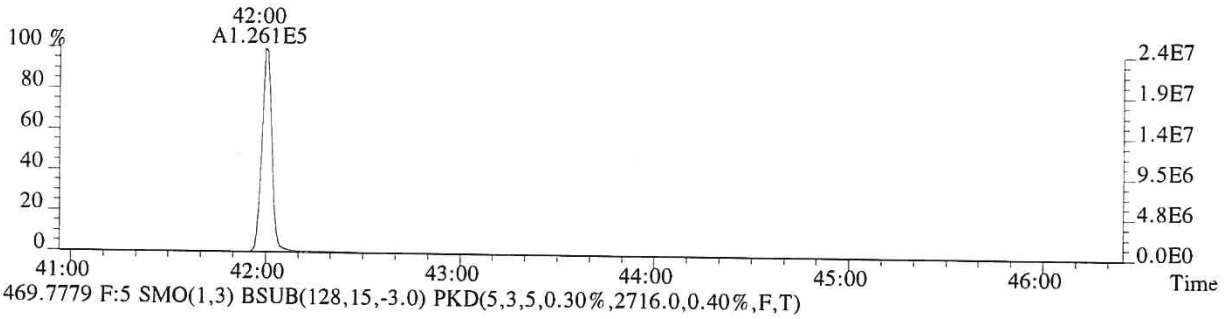
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



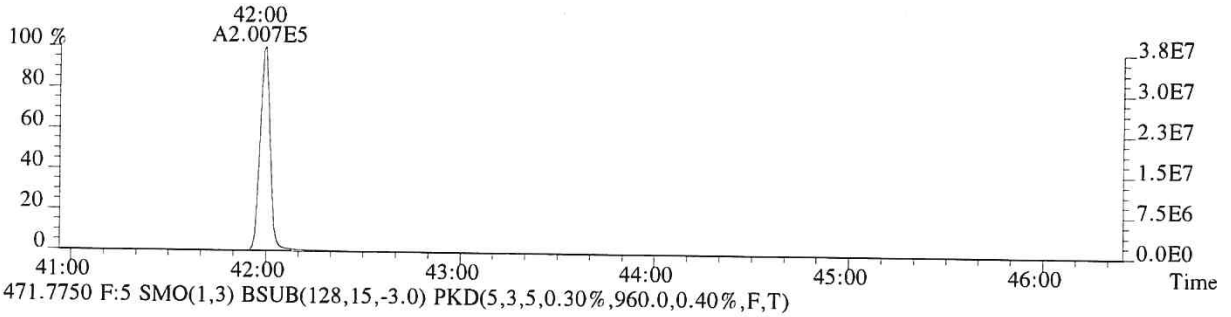
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



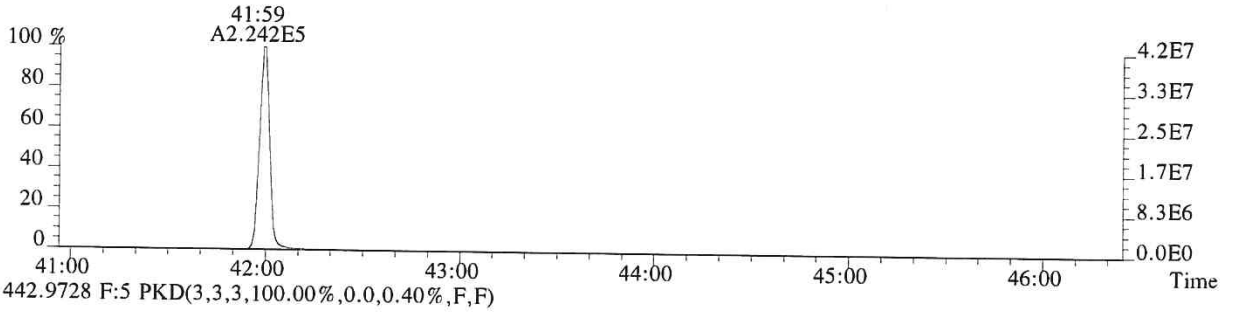
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



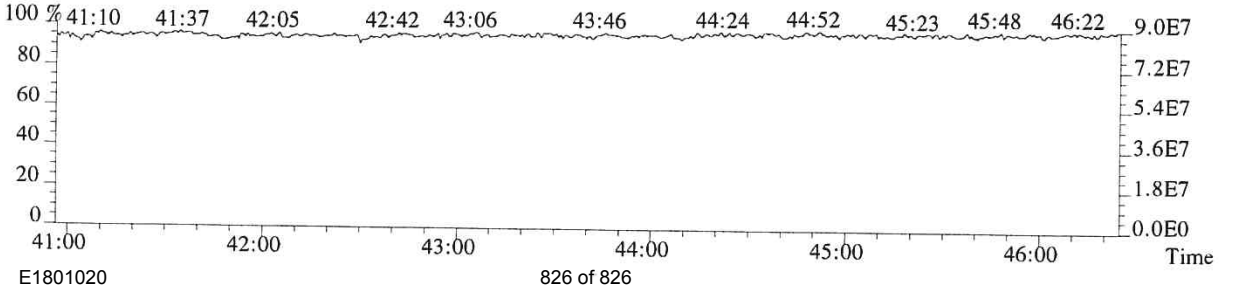
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



December 11, 2018 Service Request No:E1801035

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for:C1844-0501

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 09, 2018
For your reference, these analyses have been assigned our service request number **E1801035.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Integral Consulting, Incorporated	**Service Request No.:**	E1801035
Project:	C1844-0501	**Date Received:**	11/09/18
Sample Matrix:	Sediment		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Seventeen samples were received for analysis at ALS Environmental in Houston on 11/09/18.

The samples were received at 4.4 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blank EQ1800468-01 and EQ1800469-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

LCS/DLCS

EQ1800468-02: OCDF recovered slightly high in the LCS. The DLCS is within control limits.

MS/MSD

EQ1800468 and EQ1800469: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

Y flags – Labeled Standards

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801035-001	SL0079	11/8/2018	0845
E1801035-002	SL0080	11/8/2018	0850
E1801035-003	SL0081	11/8/2018	0855
E1801035-004	SL0082	11/8/2018	0900
E1801035-005	SL0083	11/8/2018	0905
E1801035-006	SL0084	11/8/2018	0910
E1801035-007	SL0085	11/8/2018	1050
E1801035-008	SL0086	11/8/2018	1055
E1801035-009	SL0087	11/8/2018	1100
E1801035-010	SL0088	11/8/2018	1105
E1801035-011	SL0089	11/8/2018	1110
E1801035-012	SL0073	11/7/2018	1000
E1801035-013	SL0074	11/7/2018	1004
E1801035-014	SL0075	11/7/2018	1011
E1801035-015	SL0076	11/7/2018	1017
E1801035-016	SL0077	11/7/2018	1021
E1801035-017	SL0078	11/7/2018	1027

Service Request Summary

Folder #: **E1801035**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/09/18
Internal Due Date: 12/3/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number: C1844-0501
EDD: Integral-UCR

17 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 2D
Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801035-006	SL0084	Sediment	11/08/18 0910	**IV**	**IV**
E1801035-017	SL0078	Sediment	11/07/18 1027	**IV**	**IV**

Service Request Summary

Folder #:	**E1801035**
Client Name:	Integral Consulting, Incorporated
Project Name:	C1844-0501
Project Number:	

Report To:	Craig Hutchings Integral Consulting, Inc. 1205 West Bay Drive NW Olympia, WA 98502-4670 USA
Phone Number:	360-705-3534
Cell Number:	
Fax Number:	
E-mail:	chutchings@integral-corp.com

Project Chemist:	Kristin Brown
Originating Lab:	HOUSTON
Logged By:	ALOPEZ
Date Received:	11/09/18
Internal Due Date:	12/3/2018
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	N, Y
Report to MDL?:	N, Y
P.O. Number:	C1844-0501
EDD:	Integral-UCR

17 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 2D

Pressure Gas:

Superset Summary

Service Request: E1801035 **SuperSet Reference:** 18-0000488946 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P518875	P518865	P518868	E1801035-006.R01
P519124	P519116	P519219	E1801035-017
P518868	P518865	P518868	EQ1800468-01
P518877	P518865	P518868	EQ1800468-02
P518878	P518865	P518868	EQ1800468-03
P519219	P519210	P519219	EQ1800469-01
P519143	P519131	P519219	EQ1800469-02
P519144	P519131	P519219	EQ1800469-03

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P615681	P615674	P518868	E1801035-006

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E801035 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/21/18	JC	006

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/21/18	LG	0026

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801035 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/26/18	JC	-0061

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/27/18	LKL	0061

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801035 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/04/18	JC	-017

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/05/18	KW	017

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

E1801035 5

Integral Consulting, Inc.
C1844-0501

CHAIN OF CUSTODY FORM

Page 1 of 1

Project: C1887 - 0501 South

Samplers: Stephen Sherman, Stefan Wodzicki, Sarah Kissel, Olivia Hargrave, Amber Lutey

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0079	0232	11/8/18	0845	SL										X	
SL0080	0233		0850											X	
SL0081	0234		0855											X	
SL0082	0235		0900											X	
SL0083	0236		0905											X	
SL0084	0261		0910		X	X	X	X	X*	X	X	X			0260, 0261, 0262, 0263, 0264, 0265, 0266, 0267
SL0085	0255		1050											X	
SL0086	0256		1055			-								X	
SL0087	0257		1100											X	
SL0088	0258		1105											X	
SL0089	0259		1110											X	
SL0073	0218	11/7/18	1000											X	
SL0074	0219		1004											X	
SL0075	0228		1011											X	
SL0076	0229		1017											X	
SL0077	0230		1021											X	
SL0078	0238		1027		X										
			55	11/9/18											

Analysis Turn Time: Normal ✓ Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code:
GW - Groundwater
SL - Soil SW - Surface water
SD -Sediment Other:

Relinquished by: (signature) **Date/Time:** 11/9/18 1000 **Received by:** (signature) **Date/Time:** 11/9/18 1000

Relinquished by: (signature) **Date/Time:** 11/9/18 1235 **Received by:** (signature) **Date/Time:**

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

*Terracore sample date and time: 11/8/18 0910 for SL0084

15 of 199

E1801035

010348

Cooler Receipt Form

Project Chemist HB

Client/Project INTEGRAL

Thermometer ID 4M04

Date/Time Received: 11/9/18 Initials: CG

Date/Time Logged in: 11/9/18 Initials CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ⊘ ALS Courier ○ Client

2. Samples received in: ⊘ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ⊘ Yes ○ No

Were they intact? ⊘ Yes ○ No ○ N/A

Were they signed and dated? ⊘ Yes ○ No ○ N/A

If yes, how many and where? 1 SEAL

4. Packing Material: ○ Inserts ⊘ Baggies ⊘ Bubble Wrap ○ Gel Packs ⊘ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ⊘ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
—		11/9/18	1240	PS	4.4/4.8	☑
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ⊘ Yes ○ No

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ⊘ Yes ○ No

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ⊘ Yes ○ No

9. Were appropriate bottles/containers and volumes received for the requested tests? ⊘ Yes ○ No

10. Did sample labels and tags agree with custody documents? ⊘ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 326304 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/13/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801012-020	SL0072	.01	1613B/Dioxins Furans			Sediment	10.139g	Brown Mud
2	E1801035-006	SL0084	.01	1613B/Dioxins Furans			Sediment	10.002g	Brown Mud
3	E1801038-001	SL0519	.01	1613B/Dioxins Furans			Sediment	10.361g	Brown Dirt
4	E1801038-002	SL0520	.01	1613B/Dioxins Furans			Sediment	10.833g	Brown Dirt
5	E1801038-003	SL0521	.01	1613B/Dioxins Furans			Sediment	10.412g	Brown Mud
6	E1801038-004	SL0522	.01	1613B/Dioxins Furans			Sediment	10.107g	Brown Mud
7	E1801038-005	SL0523	.01	1613B/Dioxins Furans			Sediment	10.614g	Brown Mud + Water
8	E1801038-006	SL0524	.01	1613B/Dioxins Furans			Sediment	10.369g	Brown Mud
9	E1801038-007	SL0525	.01	1613B/Dioxins Furans			Sediment	10.736g	Brown Mud
10	E1801038-008	SL0526	.01	1613B/Dioxins Furans			Sediment	10.385g	Brown Dirt
11	E1801038-009	SL0527	.01	1613B/Dioxins Furans			Sediment	10.723g	Brown Dirt
12	E1801038-010	SL0528	.01	1613B/Dioxins Furans			Sediment	10.215g	Brown Mud
13	E1801038-011	SL0529	.01	1613B/Dioxins Furans			Sediment	10.338g	Brown Mud
14	E1801038-012	SL0530	.01	1613B/Dioxins Furans			Sediment	10.493g	Brown Mud
15	E1801038-013	SL0531	.01	1613B/Dioxins Furans			Sediment	10.619g	Brown Mud
16	E1801038-014	SL0532	.01	1613B/Dioxins Furans			Sediment	10.482g	Brown Mud
17	E1801038-015	SL0533	.01	1613B/Dioxins Furans			Sediment	10.269g	Brown Mud
18	E1801038-016	SL0534	.01	1613B/Dioxins Furans			Sediment	10.797g	Moist Brown Sand
19	E1801038-017	SL0535	.01	1613B/Dioxins Furans			Sediment	10.716g	Brown Mud
20	EQ1800468-01	MB		1613B/Dioxins Furans			Solid	10.243g	
21	EQ1800468-02	LCS		1613B/Dioxins Furans			Solid	10.296g	
22	EQ1800468-03	DLCS		1613B/Dioxins Furans			Solid	10.187g	

Spiking Solutions

Name: 8290/1613B Cleanup Working Standard Inventory ID 194514 Logbook Ref: 194514 tw 10/29/18 8ng/ml Expires On: 04/27/2019

E1801012-020	100.00µL	E1801035-006	100.00µL	E1801038-001	100.00µL	E1801038-002	100.00µL	E1801038-003	100.00µL	E1801038-004	100.00µL
E1801038-005	100.00µL	E1801038-006	100.00µL	E1801038-007	100.00µL	E1801038-008	100.00µL	E1801038-009	100.00µL	E1801038-010	100.00µL
E1801038-011	100.00µL	E1801038-012	100.00µL	E1801038-013	100.00µL	E1801038-014	100.00µL	E1801038-015	100.00µL	E1801038-016	100.00µL
E1801038-017	100.00µL	EQ1800468-01	100.00µL	EQ1800468-02	100.00µL	EQ1800468-03	100.00µL				

Name: 1613B Matrix Working Standard Inventory ID 194569 Logbook Ref: 194569 AL 10/31/18 2-20 ng/mL Expires On: 04/29/2019

EQ1800468-02	100.00µL	EQ1800468-03	100.00µL

Preparation Information Benchsheet

Prep Run#: 326304 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/13/18 11:00 AM

Name:	1613B Labeled Working Standard	Inventory ID	194839	Logbook Ref:	194839 JG 11/12/18 2-4ngml	Expires On:	01/31/2019

E1801012-020	1,000.00µL	E1801035-006	1,000.00µL	E1801038-001	1,000.00µL	E1801038-002	1,000.00µL	E1801038-003	1,000.00µL	E1801038-004	1,000.00µL
E1801038-005	1,000.00µL	E1801038-006	1,000.00µL	E1801038-007	1,000.00µL	E1801038-008	1,000.00µL	E1801038-009	1,000.00µL	E1801038-010	1,000.00µL
E1801038-011	1,000.00µL	E1801038-012	1,000.00µL	E1801038-013	1,000.00µL	E1801038-014	1,000.00µL	E1801038-015	1,000.00µL	E1801038-016	1,000.00µL
E1801038-017	1,000.00µL	EQ1800468-01	1,000.00µL	EQ1800468-02	1,000.00µL	EQ1800468-03	1,000.00µL				

Preparation Materials

Carbon, High Purity	TW 11/09/18 CARBON (194871)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	AL 8/20/18 (192604)
Hexanes 95%	AL 10/11/18 (194006)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL 9/5/18 (192924)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	tw 10/31/18 toluene (194570)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/13/18 11:00	Started:	11/15/18 08:00	Started:	11/15/18 10:00	Started:	11/16/18 08:00
Finished:	11/14/18 07:30	Finished:	11/15/18 09:00	Finished:	11/15/18 13:00	Finished:	11/16/18 11:00
By:	ALOPEZ	By:	JGUIN	By:	JGUIN	By:	JGUIN
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

Prep Run#: 326368 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/14/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801035-017	SL0078	.01	1613B/Dioxins Furans			Sediment	10.536g	Brown Mud
2	E1801038-018	SL0536	.01	1613B/Dioxins Furans			Sediment	10.630g	Brown Mud
3	E1801038-019	SL0537	.01	1613B/Dioxins Furans			Sediment	10.294g	Brown Mud
4	E1801038-020	SL0515	.01	1613B/Dioxins Furans			Sediment	10.753g	Brown Mud
5	E1801038-021	SL0516	.01	1613B/Dioxins Furans			Sediment	10.207g	Brown Mud
6	E1801038-022	SL0517	.01	1613B/Dioxins Furans			Sediment	10.135g	Brown Mud
7	E1801039-006	SL0100	.02	1613B/Dioxins Furans			Sediment	10.897g	Brown Mud
8	E1801039-017	SL0107	.02	1613B/Dioxins Furans			Sediment	10.500g	Brown Mud
9	E1801039-031	SL0108	.02	1613B/Dioxins Furans			Sediment	10.385g	Brown Mud
10	E1801039-036	SL0129	.02	1613B/Dioxins Furans			Sediment	10.819g	Brown Mud
11	E1801039-037	SL0130	.02	1613B/Dioxins Furans			Sediment	10.195g	Brown Mud
12	E1801039-038	SL0101	.02	1613B/Dioxins Furans			Sediment	10.176g	Brown Mud
13	E1801040-001	SL0509	.01	1613B/Dioxins Furans			Sediment	10.852g	Moist Brown Sand
14	E1801040-002	SL0510	.01	1613B/Dioxins Furans			Sediment	10.733g	Brown Clumps of Mud
15	E1801040-003	SL0511	.01	1613B/Dioxins Furans			Sediment	10.429g	Brown Mud
16	E1801040-004	SL0512	.01	1613B/Dioxins Furans			Sediment	10.292g	Brown Mud
17	E1801040-005	SL0513	.01	1613B/Dioxins Furans			Sediment	10.260g	Brown Mud
18	E1801040-006	SL0514	.01	1613B/Dioxins Furans			Sediment	10.104g	Brown Mud
19	E1801040-007	SL0518	.01	1613B/Dioxins Furans			Sediment	10.460g	Moist Brown Sand
20	EQ1800469-01	MB		1613B/Dioxins Furans			Solid	10.246g	
21	EQ1800469-02	LCS		1613B/Dioxins Furans			Solid	10.291g	
22	EQ1800469-03	DLCS		1613B/Dioxins Furans			Solid	10.188g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 194569 Logbook Ref: 194569 AL 10/31/18 2-20 ng/mL Expires On: 04/29/2019

EQ1800469-02 100.00µL EQ1800469-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 194904 Logbook Ref: 194903 JG 11/14/18 2-4ngml Expires On: 01/31/2019

E1801035-017	1,000.00µL	E1801038-018	1,000.00µL	E1801038-019	1,000.00µL	E1801038-020	1,000.00µL	E1801038-021	1,000.00µL	E1801038-022	1,000.00µL
E1801039-006	1,000.00µL	E1801039-017	1,000.00µL	E1801039-031	1,000.00µL	E1801039-036	1,000.00µL	E1801039-037	1,000.00µL	E1801039-038	1,000.00µL
E1801040-001	1,000.00µL	E1801040-002	1,000.00µL	E1801040-003	1,000.00µL	E1801040-004	1,000.00µL	E1801040-005	1,000.00µL	E1801040-006	1,000.00µL
E1801040-007	1,000.00µL	EQ1800469-01	1,000.00µL	EQ1800469-02	1,000.00µL	EQ1800469-03	1,000.00µL				

Preparation Information Benchsheet

Prep Run#: 326368 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/14/18 11:00 AM

Name:	8290/1613B Cleanup Working Standard	Inventory ID	195006	Logbook Ref:	tw 11/1/18 8ng/ml 195006	Expires On:	04/27/2019

E1801035-017	100.00µL	E1801038-018	100.00µL	E1801038-019	100.00µL	E1801038-020	100.00µL	E1801038-021	100.00µL	E1801038-022	100.00µL
E1801039-006	100.00µL	E1801039-017	100.00µL	E1801039-031	100.00µL	E1801039-036	100.00µL	E1801039-037	100.00µL	E1801039-038	100.00µL
E1801040-001	100.00µL	E1801040-002	100.00µL	E1801040-003	100.00µL	E1801040-004	100.00µL	E1801040-005	100.00µL	E1801040-006	100.00µL
E1801040-007	100.00µL	EQ1800469-01	100.00µL	EQ1800469-02	100.00µL	EQ1800469-03	100.00µL				

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	10/31/18 tw toluene (194571)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/14/18 11:00	Started:	11/28/18 13:00	Started:	11/28/18 14:00	Started:	11/29/18 12:00
Finished:	11/15/18 07:30	Finished:	11/28/18 14:00	Finished:	11/28/18 17:00	Finished:	11/29/18 15:00
By:	ALOPEZ	By:	TWOODS	By:	TWOODS	By:	TWOODS
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	11/08/18 09:10
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0084	**Units:**	ng/Kg
Lab Code:	E1801035-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 23:09
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.002g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615681	**Blank File Name:**	P518868
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615674

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2920		9.92	32.3	0.80	1.001	50
1,2,3,7,8-PeCDD	21.8		0.183	3.23	1.59	1.001	1
1,2,3,4,7,8-HxCDD	0.506	**JK**	0.172	3.23	0.73	1.000	1
1,2,3,6,7,8-HxCDD	3.79		0.191	3.23	1.32	1.000	1
1,2,3,7,8,9-HxCDD	2.39	**J**	0.177	3.23	1.05	1.007	1
1,2,3,4,6,7,8-HpCDD	144		0.520	3.23	1.03	1.000	1
OCDD	2540		0.117	6.45	0.90	1.000	1
2,3,7,8-TCDF	7980		6.09	32.3	0.79	1.001	50
1,2,3,7,8-PeCDF	319		1.23	3.23	1.54	1.001	1
2,3,4,7,8-PeCDF	215		1.25	3.23	1.55	1.001	1
1,2,3,4,7,8-HxCDF	705		0.647	3.23	1.22	1.000	1
1,2,3,6,7,8-HxCDF	156		0.589	3.23	1.25	1.000	1
1,2,3,7,8,9-HxCDF	43.6		0.764	3.23	1.18	1.001	1
2,3,4,6,7,8-HxCDF	25.4		0.646	3.23	1.13	1.000	1
1,2,3,4,6,7,8-HpCDF	156		0.483	3.23	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	57.3		0.643	3.23	0.99	1.000	1
OCDF	91.9		0.204	6.45	0.84	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	11/08/18 09:10
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0084	**Units:**	ng/Kg
Lab Code:	E1801035-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/21/18 23:09
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.002g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615681	**Blank File Name:**	P518868
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615674

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2400		0.447	0.645	0.79		1
Total Penta-Dioxins	31.3		0.183	3.23	1.39		1
Total Hexa-Dioxins	53.2		0.180	3.23	1.28		1
Total Hepta-Dioxins	305		0.520	3.23	1.04		1
Total Tetra-Furans	11900		0.263	0.645	0.78		1
Total Penta-Furans	798		1.24	3.23	1.57		1
Total Hexa-Furans	1000		0.657	3.23	1.23		1
Total Hepta-Furans	283		0.554	3.23	1.03		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	11/08/18 09:10
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0084	**Units:**	Percent
Lab Code:	E1801035-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 09:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.002g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518875	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1083.348	54		25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1352.731	68		25-181	1.55	1.234
13C-1,2,3,4,7,8-HxCDD	2000	1125.721	56		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1150.703	58		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1140.786	57		23-140	1.06	1.071
13C-OCDD	4000	1333.411	33		17-157	0.89	1.142
13C-2,3,7,8-TCDF	2000	1003.489	50		24-169	0.80	0.988
13C-1,2,3,7,8-PeCDF	2000	1293.572	65		24-185	1.59	1.182
13C-2,3,4,7,8-PeCDF	2000	1288.650	64		21-178	1.59	1.222
13C-1,2,3,4,7,8-HxCDF	2000	1004.496	50		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	1105.006	55		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1154.882	58		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1088.173	54		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	923.166	46		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	940.005	47		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	535.602	67		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	11/08/18 09:10
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0084	**Units:**	ng/Kg
Lab Code:	E1801035-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2920**	9.92	32.3	50	1	2920
1,2,3,7,8-PeCDD	**21.8**	0.183	3.23	1	1	21.8
1,2,3,4,7,8-HxCDD	**0.506**	0.172	3.23	1	0.1	0.0506
1,2,3,6,7,8-HxCDD	**3.79**	0.191	3.23	1	0.1	0.379
1,2,3,7,8,9-HxCDD	**2.39**	0.177	3.23	1	0.1	0.239
1,2,3,4,6,7,8-HpCDD	**144**	0.520	3.23	1	0.01	1.44
OCDD	**2540**	0.117	6.45	1	0.0003	0.762
2,3,7,8-TCDF	**7980**	6.09	32.3	50	0.1	798
1,2,3,7,8-PeCDF	**319**	1.23	3.23	1	0.03	9.57
2,3,4,7,8-PeCDF	**215**	1.25	3.23	1	0.3	64.5
1,2,3,4,7,8-HxCDF	**705**	0.647	3.23	1	0.1	70.5
1,2,3,6,7,8-HxCDF	**156**	0.589	3.23	1	0.1	15.6
1,2,3,7,8,9-HxCDF	**43.6**	0.764	3.23	1	0.1	4.36
2,3,4,6,7,8-HxCDF	**25.4**	0.646	3.23	1	0.1	2.54
1,2,3,4,6,7,8-HpCDF	**156**	0.483	3.23	1	0.01	1.56
1,2,3,4,7,8,9-HpCDF	**57.3**	0.643	3.23	1	0.01	0.573
OCDF	**91.9**	0.204	6.45	1	0.0003	0.0276
		Total TEQ				3910

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	11/08/18 09:10
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0084	**Units:**	Percent
Lab Code:	E1801035-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:29
	7.682g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	77.5		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	11/07/18 10:27
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0078	**Units:**	ng/Kg
Lab Code:	E1801035-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/18 22:04
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.536g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519124	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519116

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	57.5		0.108	0.585	0.77	1.001	1
1,2,3,7,8-PeCDD	1.04	**JK**	0.144	2.93	2.18	1.001	1
1,2,3,4,7,8-HxCDD	0.772	**JK**	0.153	2.93	1.04	1.000	1
1,2,3,6,7,8-HxCDD	3.67		0.165	2.93	1.33	1.000	1
1,2,3,7,8,9-HxCDD	2.20	**J**	0.155	2.93	1.26	1.007	1
1,2,3,4,6,7,8-HpCDD	105		0.617	2.93	1.01	1.000	1
OCDD	2060		0.368	5.85	0.88	1.000	1
2,3,7,8-TCDF	189		0.114	0.585	0.74	1.001	1
1,2,3,7,8-PeCDF	7.66		0.0996	2.93	1.45	1.001	1
2,3,4,7,8-PeCDF	5.76		0.114	2.93	1.44	1.000	1
1,2,3,4,7,8-HxCDF	11.9		0.204	2.93	1.21	1.000	1
1,2,3,6,7,8-HxCDF	3.25		0.212	2.93	1.43	1.000	1
1,2,3,7,8,9-HxCDF	1.09	**J**	0.282	2.93	1.06	1.001	1
2,3,4,6,7,8-HxCDF	1.53	**JK**	0.239	2.93	1.03	1.001	1
1,2,3,4,6,7,8-HpCDF	22.3		0.402	2.93	0.94	1.000	1
1,2,3,4,7,8,9-HpCDF	2.31	**J**	0.654	2.93	0.89	1.000	1
OCDF	238		0.363	5.85	0.82	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	11/07/18 10:27
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0078	**Units:**	ng/Kg
Lab Code:	E1801035-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/18 22:04
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.536g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519124	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519116

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	66.8		0.108	0.585	0.66		1
Total Penta-Dioxins	1.85	**J**	0.144	2.93	1.43		1
Total Hexa-Dioxins	40.0		0.158	2.93	1.15		1
Total Hepta-Dioxins	292		0.617	2.93	1.08		1
Total Tetra-Furans	317		0.114	0.585	0.79		1
Total Penta-Furans	27.6		0.0733	2.93	1.34		1
Total Hexa-Furans	36.9		0.231	2.93	1.12		1
Total Hepta-Furans	74.0		0.507	2.93	0.94		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	11/07/18 10:27
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0078	**Units:**	Percent
Lab Code:	E1801035-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/18 22:04
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.536g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519124	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519116

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	851.037	43		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	829.978	41		25-181	1.57	1.182
13C-1,2,3,4,7,8-HxCDD	2000	815.770	41		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	804.490	40		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	651.982	33		23-140	1.07	1.067
13C-OCDD	4000	574.222	14	**Y**	17-157	0.92	1.143
13C-2,3,7,8-TCDF	2000	724.343	36		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	801.226	40		24-185	1.58	1.140
13C-2,3,4,7,8-PeCDF	2000	718.197	36		21-178	1.58	1.172
13C-1,2,3,4,7,8-HxCDF	2000	799.463	40		26-152	0.50	0.971
13C-1,2,3,6,7,8-HxCDF	2000	765.240	38		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	739.850	37		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	724.425	36		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	543.899	27	**Y**	28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	488.609	24	**Y**	26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	349.595	44		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	11/07/18 10:27
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0078	**Units:**	ng/Kg
Lab Code:	E1801035-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**57.5**	0.108	0.585	1	1	57.5
1,2,3,7,8-PeCDD	**1.04**	0.144	2.93	1	1	1.04
1,2,3,4,7,8-HxCDD	**0.772**	0.153	2.93	1	0.1	0.0772
1,2,3,6,7,8-HxCDD	**3.67**	0.165	2.93	1	0.1	0.367
1,2,3,7,8,9-HxCDD	**2.20**	0.155	2.93	1	0.1	0.220
1,2,3,4,6,7,8-HpCDD	**105**	0.617	2.93	1	0.01	1.05
OCDD	**2060**	0.368	5.85	1	0.0003	0.618
2,3,7,8-TCDF	**189**	0.114	0.585	1	0.1	18.9
1,2,3,7,8-PeCDF	**7.66**	0.0996	2.93	1	0.03	0.230
2,3,4,7,8-PeCDF	**5.76**	0.114	2.93	1	0.3	1.73
1,2,3,4,7,8-HxCDF	**11.9**	0.204	2.93	1	0.1	1.19
1,2,3,6,7,8-HxCDF	**3.25**	0.212	2.93	1	0.1	0.325
1,2,3,7,8,9-HxCDF	**1.09**	0.282	2.93	1	0.1	0.109
2,3,4,6,7,8-HxCDF	**1.53**	0.239	2.93	1	0.1	0.153
1,2,3,4,6,7,8-HpCDF	**22.3**	0.402	2.93	1	0.01	0.223
1,2,3,4,7,8,9-HpCDF	**2.31**	0.654	2.93	1	0.01	0.0231
OCDF	**238**	0.363	5.85	1	0.0003	0.0714
		Total TEQ				83.8

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	11/07/18 10:27
Sample Matrix:	Sediment	**Date Received:**	11/09/18 12:35
Sample Name:	SL0078	**Units:**	Percent
Lab Code:	E1801035-017	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	6.634g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.1		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800468-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 03:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.243g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518868	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.733	0.733			1
1,2,3,7,8-PeCDD	ND	U	0.0867	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0425	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0463	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0435	2.44			1
1,2,3,4,6,7,8-HpCDD	0.0706**JK**		0.0494	2.44	0.61	1.000	1
OCDD	1.47**JK**		0.0881	4.88	1.03	1.000	1
2,3,7,8-TCDF	ND	U	0.463	0.488			1
1,2,3,7,8-PeCDF	ND	U	0.138	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.120	2.44			1
1,2,3,4,7,8-HxCDF	0.0676**J**		0.0369	2.44	1.23	1.001	1
1,2,3,6,7,8-HxCDF	0.0350**JK**		0.0335	2.44	1.80	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0391	2.44			1
2,3,4,6,7,8-HxCDF	ND	U	0.0330	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0399	2.44			1
1,2,3,4,7,8,9-HpCDF	0.0586**JK**		0.0488	2.44	2.08	1.000	1
OCDF	0.219**JK**		0.0748	4.88	0.67	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800468-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 03:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.243g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518868	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.733	0.733			1
Total Penta-Dioxins	ND	U	0.0867	2.44			1
Total Hexa-Dioxins	ND	U	0.0442	2.44			1
Total Hepta-Dioxins	ND	U	0.0494	2.44			1
Total Tetra-Furans	ND	U	0.463	0.488			1
Total Penta-Furans	ND	U	0.128	2.44			1
Total Hexa-Furans	0.0676**J**		0.0354	2.44	1.23		1
Total Hepta-Furans	ND	U	0.0440	2.44			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800468-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 03:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.243g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518868	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	427.547	21	**Y**	25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	993.400	50		25-181	1.59	1.236
13C-1,2,3,4,7,8-HxCDD	2000	944.792	47		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1037.857	52		28-130	1.30	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1435.419	72		23-140	1.07	1.071
13C-OCDD	4000	2499.879	62		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	372.876	19	**Y**	24-169	0.78	0.988
13C-1,2,3,7,8-PeCDF	2000	798.413	40		24-185	1.61	1.184
13C-2,3,4,7,8-PeCDF	2000	887.787	44		21-178	1.58	1.224
13C-1,2,3,4,7,8-HxCDF	2000	777.068	39		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	883.102	44		26-123	0.53	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1001.221	50		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	958.825	48		28-136	0.51	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1064.814	53		28-143	0.45	1.046
13C-1,2,3,4,7,8,9-HpCDF	2000	1188.606	59		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	193.289	24	**Y**	35-197	NA	1.030

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800469-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/05/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519219	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519210

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.381	0.488			1
1,2,3,7,8-PeCDD	ND	U	0.0614	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0337	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0371	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0346	2.44			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.0442	2.44			1
OCDD	0.338**J**		0.0397	4.88	0.97	1.000	1
2,3,7,8-TCDF	ND	U	0.254	0.488			1
1,2,3,7,8-PeCDF	ND	U	0.0836	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.0846	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0238	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0235	2.44			1
1,2,3,7,8,9-HxCDF	ND	U	0.0252	2.44			1
2,3,4,6,7,8-HxCDF	ND	U	0.0236	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0349	2.44			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0414	2.44			1
OCDF	ND	U	0.0699	4.88			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800469-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/05/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519219	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519210

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.381	0.488			1
Total Penta-Dioxins	ND	U	0.0614	2.44			1
Total Hexa-Dioxins	ND	U	0.0352	2.44			1
Total Hepta-Dioxins	0.103**J**		0.0442	2.44	0.94		1
Total Tetra-Furans	ND	U	0.254	0.488			1
Total Penta-Furans	ND	U	0.0841	2.44			1
Total Hexa-Furans	ND	U	0.0240	2.44			1
Total Hepta-Furans	ND	U	0.0379	2.44			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800469-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/05/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519219	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519210

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1576.459	79		25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	2731.808	137		25-181	1.61	1.185
13C-1,2,3,4,7,8-HxCDD	2000	1888.275	94		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1796.326	90		28-130	1.30	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	2868.687	143	Y	23-140	1.04	1.067
13C-OCDD	4000	5666.155	142		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	1367.535	68		24-169	0.77	0.992
13C-1,2,3,7,8-PeCDF	2000	2328.489	116		24-185	1.60	1.143
13C-2,3,4,7,8-PeCDF	2000	2328.334	116		21-178	1.59	1.175
13C-1,2,3,4,7,8-HxCDF	2000	1549.864	77		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1543.115	77		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1803.889	90		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1647.245	82		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	2049.390	102		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	2391.939	120		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	663.016	83		35-197	NA	1.021

Accuracy & Precision

ALS Environmental - Houston HRMS
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ALS Group USA, Corp.
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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Analyzed:**	11/17/18
Sample Matrix:	Sediment	**Date Extracted:**	11/13/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	616215

	Lab Control Sample EQ1800468-02			Duplicate Lab Control Sample EQ1800468-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	77.8	97.1	80	79.7	98.2	81	70-140	2	50
1,2,3,4,7,8-HxCDD	89.9	97.1	93	95.5	98.2	97	70-164	6	50
1,2,3,6,7,8-HxCDD	98.0	97.1	101	96.7	98.2	99	76-134	1	50
1,2,3,7,8,9-HxCDD	96.4	97.1	99	101	98.2	103	64-162	5	50
1,2,3,7,8-PeCDD	99.9	97.1	103	104	98.2	106	70-142	4	50
2,3,7,8-TCDD	19.7	19.4	101	20.0	19.6	102	67-158	1	50
OCDD	201	194	104	197	196	100	78-144	2	50
1,2,3,4,6,7,8-HpCDF	92.4	97.1	95	94.8	98.2	97	82-122	3	50
1,2,3,4,7,8,9-HpCDF	96.8	97.1	100	96.6	98.2	98	78-138	<1	50
1,2,3,4,7,8-HxCDF	98.2	97.1	101	97.8	98.2	100	72-134	<1	50
1,2,3,6,7,8-HxCDF	97.8	97.1	101	97.1	98.2	99	84-130	<1	50
1,2,3,7,8,9-HxCDF	90.8	97.1	94	93.6	98.2	95	78-130	3	50
1,2,3,7,8-PeCDF	90.6	97.1	93	95.3	98.2	97	80-134	5	50
2,3,4,6,7,8-HxCDF	95.0	97.1	98	95.0	98.2	97	70-156	<1	50
2,3,4,7,8-PeCDF	101	97.1	104	101	98.2	102	68-160	<1	50
2,3,7,8-TCDF	20.7	19.4	107	22.4	19.6	114	75-158	8	50
OCDF	390	194	201 *	205	196	104	63-170	62 *	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Analyzed:**	11/17/18
Sample Matrix:	Sediment	**Date Extracted:**	11/13/18

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	616215

EQ1800468-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	77.8	97.1	80	70-140
1,2,3,4,7,8-HxCDD	89.9	97.1	93	70-164
1,2,3,6,7,8-HxCDD	98.0	97.1	101	76-134
1,2,3,7,8,9-HxCDD	96.4	97.1	99	64-162
1,2,3,7,8-PeCDD	99.9	97.1	103	70-142
2,3,7,8-TCDD	19.7	19.4	101	67-158
OCDD	201	194	104	78-144
1,2,3,4,6,7,8-HpCDF	92.4	97.1	95	82-122
1,2,3,4,7,8,9-HpCDF	96.8	97.1	100	78-138
1,2,3,4,7,8-HxCDF	98.2	97.1	101	72-134
1,2,3,6,7,8-HxCDF	97.8	97.1	101	84-130
1,2,3,7,8,9-HxCDF	90.8	97.1	94	78-130
1,2,3,7,8-PeCDF	90.6	97.1	93	80-134
2,3,4,6,7,8-HxCDF	95.0	97.1	98	70-156
2,3,4,7,8-PeCDF	101	97.1	104	68-160
2,3,7,8-TCDF	20.7	19.4	107	75-158
OCDF	390	194	201 *	63-170

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800468-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 10:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.296g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518877	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.7		0.238	0.486	0.76	1.001	1
1,2,3,7,8-PeCDD	99.9		0.0701	2.43	1.61	1.001	1
1,2,3,4,7,8-HxCDD	89.9		0.0280	2.43	1.23	1.000	1
1,2,3,6,7,8-HxCDD	98.0		0.0301	2.43	1.27	1.000	1
1,2,3,7,8,9-HxCDD	96.4		0.0283	2.43	1.21	1.007	1
1,2,3,4,6,7,8-HpCDD	77.8		0.0376	2.43	1.05	1.000	1
OCDD	201		0.358	4.86	0.91	1.000	1
2,3,7,8-TCDF	20.7		0.166	0.486	0.71	1.001	1
1,2,3,7,8-PeCDF	90.6		0.118	2.43	1.50	1.001	1
2,3,4,7,8-PeCDF	101		0.114	2.43	1.49	1.001	1
1,2,3,4,7,8-HxCDF	98.2		0.0175	2.43	1.24	1.000	1
1,2,3,6,7,8-HxCDF	97.8		0.0162	2.43	1.23	1.001	1
1,2,3,7,8,9-HxCDF	90.8		0.0225	2.43	1.23	1.000	1
2,3,4,6,7,8-HxCDF	95.0		0.0173	2.43	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	92.4		0.380	2.43	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	96.8		0.537	2.43	1.00	1.000	1
OCDF	390		0.523	4.86	0.90	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800468-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 10:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.296g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518877	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.8		0.238	0.486	0.76		1
Total Penta-Dioxins	100		0.0701	2.43	1.61		1
Total Hexa-Dioxins	284		0.0288	2.43	1.23		1
Total Hepta-Dioxins	77.8		0.0376	2.43	1.05		1
Total Tetra-Furans	20.8		0.166	0.486	0.71		1
Total Penta-Furans	192		0.116	2.43	1.50		1
Total Hexa-Furans	382		0.0181	2.43	1.24		1
Total Hepta-Furans	189		0.449	2.43	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800468-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 10:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.296g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518877	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	838.229	42		25-164	0.80	1.028
13C-1,2,3,7,8-PeCDD	2000	1195.940	60		25-181	1.59	1.235
13C-1,2,3,4,7,8-HxCDD	2000	1022.259	51		32-141	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	999.442	50		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1039.778	52		23-140	1.11	1.071
13C-OCDD	4000	554.862	14	**Y**	17-157	0.82	1.143
13C-2,3,7,8-TCDF	2000	800.715	40		24-169	0.77	0.988
13C-1,2,3,7,8-PeCDF	2000	1076.229	54		24-185	1.57	1.183
13C-2,3,4,7,8-PeCDF	2000	1103.259	55		21-178	1.59	1.223
13C-1,2,3,4,7,8-HxCDF	2000	854.388	43		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	973.527	49		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	913.983	46		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	951.399	48		28-136	0.50	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	859.478	43		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	856.885	43		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	385.065	48		35-197	NA	1.028

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800468-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 11:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.187g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518878	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	20.0		0.562	0.562	0.69	1.001	1
1,2,3,7,8-PeCDD	104		0.0647	2.45	1.54	1.001	1
1,2,3,4,7,8-HxCDD	95.5		0.0610	2.45	1.29	1.000	1
1,2,3,6,7,8-HxCDD	96.7		0.0690	2.45	1.29	1.000	1
1,2,3,7,8,9-HxCDD	101		0.0636	2.45	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	79.7		0.0393	2.45	1.06	1.001	1
OCDD	197		0.121	4.91	0.89	1.000	1
2,3,7,8-TCDF	22.4		0.341	0.491	0.79	1.001	1
1,2,3,7,8-PeCDF	95.3		0.212	2.45	1.57	1.001	1
2,3,4,7,8-PeCDF	101		0.191	2.45	1.52	1.001	1
1,2,3,4,7,8-HxCDF	97.8		0.0495	2.45	1.19	1.000	1
1,2,3,6,7,8-HxCDF	97.1		0.0486	2.45	1.19	1.000	1
1,2,3,7,8,9-HxCDF	93.6		0.0593	2.45	1.22	1.000	1
2,3,4,6,7,8-HxCDF	95.0		0.0491	2.45	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	94.8		0.307	2.45	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	96.6		0.403	2.45	1.02	1.000	1
OCDF	205		0.178	4.91	0.85	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800468-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 11:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.187g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518878	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	20.0		0.562	0.562	0.69		1
Total Penta-Dioxins	104		0.0647	2.45	1.54		1
Total Hexa-Dioxins	294		0.0645	2.45	1.29		1
Total Hepta-Dioxins	79.7		0.0393	2.45	1.06		1
Total Tetra-Furans	24.5		0.341	0.491	0.68		1
Total Penta-Furans	196		0.201	2.45	1.58		1
Total Hexa-Furans	384		0.0515	2.45	1.19		1
Total Hepta-Furans	191		0.351	2.45	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800468-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/17/18 11:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/13/18
Sample Amount:	10.187g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P518878	**Blank File Name:**	P518868
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P518865

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	485.529	24	**Y**	25-164	0.84	1.028
13C-1,2,3,7,8-PeCDD	2000	980.520	49		25-181	1.63	1.236
13C-1,2,3,4,7,8-HxCDD	2000	964.358	48		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	991.673	50		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1067.597	53		23-140	1.05	1.071
13C-OCDD	4000	1246.123	31		17-157	0.91	1.142
13C-2,3,7,8-TCDF	2000	437.582	22	**Y**	24-169	0.79	0.989
13C-1,2,3,7,8-PeCDF	2000	817.307	41		24-185	1.62	1.184
13C-2,3,4,7,8-PeCDF	2000	899.773	45		21-178	1.62	1.223
13C-1,2,3,4,7,8-HxCDF	2000	850.723	43		26-152	0.51	0.968
13C-1,2,3,6,7,8-HxCDF	2000	897.829	45		26-123	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	1003.134	50		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	937.242	47		28-136	0.53	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	849.514	42		28-143	0.43	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	906.801	45		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	211.061	26	**Y**	35-197	NA	1.029

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Analyzed:**	12/02/18
Sample Matrix:	Sediment	**Date Extracted:**	11/14/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	617699

	Lab Control Sample EQ1800469-02			Duplicate Lab Control Sample EQ1800469-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	76.1	97.2	78	79.2	98.2	81	70-140	4	50
1,2,3,4,7,8-HxCDD	90.9	97.2	94	90.7	98.2	92	70-164	<1	50
1,2,3,6,7,8-HxCDD	96.4	97.2	99	98.6	98.2	100	76-134	2	50
1,2,3,7,8,9-HxCDD	98.7	97.2	102	96.6	98.2	98	64-162	2	50
1,2,3,7,8-PeCDD	98.4	97.2	101	98.3	98.2	100	70-142	<1	50
2,3,7,8-TCDD	18.2	19.4	94	19.0	19.6	97	67-158	5	50
OCDD	189	194	97	189	196	96	78-144	<1	50
1,2,3,4,6,7,8-HpCDF	92.7	97.2	95	96.7	98.2	99	82-122	4	50
1,2,3,4,7,8,9-HpCDF	95.8	97.2	99	99.8	98.2	102	78-138	4	50
1,2,3,4,7,8-HxCDF	96.9	97.2	100	99.3	98.2	101	72-134	2	50
1,2,3,6,7,8-HxCDF	97.2	97.2	100	98.3	98.2	100	84-130	1	50
1,2,3,7,8,9-HxCDF	92.0	97.2	95	93.5	98.2	95	78-130	2	50
1,2,3,7,8-PeCDF	88.8	97.2	91	91.9	98.2	94	80-134	3	50
2,3,4,6,7,8-HxCDF	95.6	97.2	98	95.4	98.2	97	70-156	<1	50
2,3,4,7,8-PeCDF	99.6	97.2	102	103	98.2	105	68-160	3	50
2,3,7,8-TCDF	18.5	19.4	95	19.1	19.6	97	75-158	3	50
OCDF	176	194	91	183	196	93	63-170	4	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Analyzed:**	12/02/18
Sample Matrix:	Sediment	**Date Extracted:**	11/14/18

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	617699

EQ1800469-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	76.1	97.2	78	70-140
1,2,3,4,7,8-HxCDD	90.9	97.2	94	70-164
1,2,3,6,7,8-HxCDD	96.4	97.2	99	76-134
1,2,3,7,8,9-HxCDD	98.7	97.2	102	64-162
1,2,3,7,8-PeCDD	98.4	97.2	101	70-142
2,3,7,8-TCDD	18.2	19.4	94	67-158
OCDD	189	194	97	78-144
1,2,3,4,6,7,8-HpCDF	92.7	97.2	95	82-122
1,2,3,4,7,8,9-HpCDF	95.8	97.2	99	78-138
1,2,3,4,7,8-HxCDF	96.9	97.2	100	72-134
1,2,3,6,7,8-HxCDF	97.2	97.2	100	84-130
1,2,3,7,8,9-HxCDF	92.0	97.2	95	78-130
1,2,3,7,8-PeCDF	88.8	97.2	91	80-134
2,3,4,6,7,8-HxCDF	95.6	97.2	98	70-156
2,3,4,7,8-PeCDF	99.6	97.2	102	68-160
2,3,7,8-TCDF	18.5	19.4	95	75-158
OCDF	176	194	91	63-170

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 14:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.291g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519143	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.2		0.210	0.486	0.76	1.001	1
1,2,3,7,8-PeCDD	98.4		0.0474	2.43	1.57	1.000	1
1,2,3,4,7,8-HxCDD	90.9		0.0232	2.43	1.27	1.000	1
1,2,3,6,7,8-HxCDD	96.4		0.0252	2.43	1.25	1.000	1
1,2,3,7,8,9-HxCDD	98.7		0.0237	2.43	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	76.1		0.0626	2.43	1.06	1.000	1
OCDD	189		0.219	4.86	0.88	1.000	1
2,3,7,8-TCDF	18.5		0.126	0.486	0.75	1.001	1
1,2,3,7,8-PeCDF	88.8		0.0495	2.43	1.54	1.001	1
2,3,4,7,8-PeCDF	99.6		0.0471	2.43	1.51	1.001	1
1,2,3,4,7,8-HxCDF	96.9		0.0301	2.43	1.17	1.000	1
1,2,3,6,7,8-HxCDF	97.2		0.0294	2.43	1.20	1.000	1
1,2,3,7,8,9-HxCDF	92.0		0.0396	2.43	1.20	1.000	1
2,3,4,6,7,8-HxCDF	95.6		0.0295	2.43	1.18	1.000	1
1,2,3,4,6,7,8-HpCDF	92.7		0.192	2.43	0.96	1.000	1
1,2,3,4,7,8,9-HpCDF	95.8		0.326	2.43	0.94	1.000	1
OCDF	176		0.262	4.86	0.90	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 14:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.291g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519143	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.3		0.210	0.486	0.76		1
Total Penta-Dioxins	98.5		0.0474	2.43	1.57		1
Total Hexa-Dioxins	286		0.0240	2.43	1.27		1
Total Hepta-Dioxins	76.1		0.0626	2.43	1.06		1
Total Tetra-Furans	18.6		0.126	0.486	0.75		1
Total Penta-Furans	189		0.0482	2.43	1.54		1
Total Hexa-Furans	382		0.0317	2.43	1.17		1
Total Hepta-Furans	188		0.247	2.43	0.96		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800469-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 14:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.291g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519143	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	636.561	32		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1087.680	54		25-181	1.58	1.181
13C-1,2,3,4,7,8-HxCDD	2000	1160.893	58		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1142.394	57		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	926.595	46		23-140	1.08	1.067
13C-OCDD	4000	925.030	23		17-157	0.90	1.144
13C-2,3,7,8-TCDF	2000	548.573	27		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	918.007	46		24-185	1.57	1.139
13C-2,3,4,7,8-PeCDF	2000	956.316	48		21-178	1.58	1.171
13C-1,2,3,4,7,8-HxCDF	2000	982.761	49		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1012.451	51		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	971.970	49		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1085.164	54		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	770.074	39		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	662.545	33		26-138	0.42	1.080
37Cl-2,3,7,8-TCDD	800	270.557	34	**Y**	35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 15:05
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.188g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519144	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.0		0.137	0.491	0.75	1.001	1
1,2,3,7,8-PeCDD	98.3		0.0420	2.45	1.59	1.000	1
1,2,3,4,7,8-HxCDD	90.7		0.0392	2.45	1.25	1.000	1
1,2,3,6,7,8-HxCDD	98.6		0.0424	2.45	1.24	1.000	1
1,2,3,7,8,9-HxCDD	96.6		0.0398	2.45	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	79.2		0.0520	2.45	1.05	1.000	1
OCDD	189		0.150	4.91	0.89	1.000	1
2,3,7,8-TCDF	19.1		0.0843	0.491	0.73	1.001	1
1,2,3,7,8-PeCDF	91.9		0.0643	2.45	1.51	1.001	1
2,3,4,7,8-PeCDF	103		0.0688	2.45	1.52	1.000	1
1,2,3,4,7,8-HxCDF	99.3		0.0213	2.45	1.19	1.000	1
1,2,3,6,7,8-HxCDF	98.3		0.0207	2.45	1.21	1.000	1
1,2,3,7,8,9-HxCDF	93.5		0.0259	2.45	1.21	1.000	1
2,3,4,6,7,8-HxCDF	95.4		0.0204	2.45	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	96.7		0.189	2.45	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	99.8		0.311	2.45	0.99	1.000	1
OCDF	183		0.154	4.91	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 15:05
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.188g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519144	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.0		0.137	0.491	0.75		1
Total Penta-Dioxins	98.3		0.0420	2.45	1.59		1
Total Hexa-Dioxins	286		0.0405	2.45	1.25		1
Total Hepta-Dioxins	79.2		0.0520	2.45	1.05		1
Total Tetra-Furans	19.3		0.0843	0.491	0.81		1
Total Penta-Furans	196		0.0665	2.45	1.40		1
Total Hexa-Furans	387		0.0218	2.45	1.19		1
Total Hepta-Furans	196		0.239	2.45	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801035
Project:	C1844-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800469-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 15:05
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.188g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519144	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	968.894	48		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1290.570	65		25-181	1.60	1.181
13C-1,2,3,4,7,8-HxCDD	2000	1326.341	66		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1299.547	65		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1173.699	59		23-140	1.07	1.067
13C-OCDD	4000	1282.795	32		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	811.184	41		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1140.415	57		24-185	1.60	1.140
13C-2,3,4,7,8-PeCDF	2000	1101.113	55		21-178	1.56	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1120.401	56		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1131.321	57		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1138.142	57		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1213.244	61		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	980.545	49		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	850.443	43		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	412.171	52		35-197	NA	1.020

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0084

Run #17 Filename P518875 Samp: 1 Inj: 1 Acquired: 17-NOV-18 09:13:20
Processed: 21-NOV-18 09:19:34 Sample ID: E1801035-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	4.293e+05	5.542e+05	0.77	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	4.030e+04	2.609e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	2.544e+04	1.640e+04	1.55	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	6.567e+04	5.367e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	1.723e+04	1.384e+04	1.25	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	2.343e+03	2.075e+03	1.13	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:57	3.885e+03	3.287e+03	1.18	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	1.097e+04	1.060e+04	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	3.161e+03	3.208e+03	0.99	yes	no	1.258
10	Unk	OCDF	40:51	2.541e+03	3.018e+03	0.84	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	1.122e+05	1.421e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	1.825e+03	1.149e+03	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	3.468e+01	4.767e+01	0.73	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	2.798e+02	2.127e+02	1.32	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	1.719e+02	1.641e+02	1.05	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	8.411e+03	8.179e+03	1.03	yes	no	1.025
17	Unk	OCDD	40:42	5.993e+04	6.664e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.887e+04	2.346e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	3.259e+04	2.047e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	3.213e+04	2.020e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.251e+04	2.417e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.559e+04	3.014e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.373e+04	2.673e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.262e+04	2.448e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	8.115e+03	1.828e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	7.005e+03	1.581e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:34	1.243e+04	1.547e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	2.235e+04	1.442e+04	1.55	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.733e+04	1.347e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.818e+04	1.413e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.488e+04	1.407e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	40:41	1.080e+04	1.218e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:51	2.471e+04	3.105e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.258e+04	2.660e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	1.514e+04				no	1.014

$$\text{OCDD} = \frac{(5.993e+04 + 6.664e+04) \times 4000\ \text{pg} \times 1}{(1.080e+04 + 1.218e+04) \times 10.002\ \text{g} \times 97.5 / 100 \times 1.118} = 2542.204\ \text{ng/kg}$$

LG 11/26/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0084

Run #17 Filename P518875 Samp: 1 Inj: 1 Acquired: 17-NOV-18 09:13:20
Processed: 21-NOV-18 09:19:34 LAB. ID: E1801035-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.07e+07	6.72e+02	9.0e+04	7.83e+07	1.67e+03	4.7e+04
2	1,2,3,7,8-PeCDF	6.81e+06	1.03e+04	6.6e+02	4.44e+06	7.10e+03	6.3e+02
3	2,3,4,7,8-PeCDF	4.00e+06	1.03e+04	3.9e+02	2.54e+06	7.10e+03	3.6e+02
4	1,2,3,4,7,8-HxCDF	1.36e+07	6.57e+03	2.1e+03	1.11e+07	2.49e+03	4.5e+03
5	1,2,3,6,7,8-HxCDF	3.20e+06	6.57e+03	4.9e+02	2.67e+06	2.49e+03	1.1e+03
6	2,3,4,6,7,8-HxCDF	4.91e+05	6.57e+03	7.5e+01	4.41e+05	2.49e+03	1.8e+02
7	1,2,3,7,8,9-HxCDF	7.16e+05	6.57e+03	1.1e+02	6.03e+05	2.49e+03	2.4e+02
8	1,2,3,4,6,7,8-HpCDF	2.23e+06	2.38e+03	9.4e+02	2.11e+06	2.94e+03	7.2e+02
9	1,2,3,4,7,8,9-HpCDF	6.06e+05	2.38e+03	2.5e+02	5.85e+05	2.94e+03	2.0e+02
10	OCDF	4.05e+05	2.84e+02	1.4e+03	4.82e+05	4.88e+02	9.9e+02
11	2,3,7,8-TCDD	1.76e+07	2.42e+03	7.3e+03	2.24e+07	8.20e+02	2.7e+04
12	1,2,3,7,8-PeCDD	2.87e+05	9.32e+02	3.1e+02	1.89e+05	8.48e+02	2.2e+02
13	1,2,3,4,7,8-HxCDD	8.36e+03	5.80e+02	1.4e+01	9.50e+03	1.29e+03	7.4e+00
14	1,2,3,6,7,8-HxCDD	5.73e+04	5.80e+02	9.9e+01	4.08e+04	1.29e+03	3.2e+01
15	1,2,3,7,8,9-HxCDD	3.55e+04	5.80e+02	6.1e+01	2.65e+04	1.29e+03	2.1e+01
16	1,2,3,4,6,7,8-HpCDD	1.60e+06	3.10e+03	5.1e+02	1.51e+06	1.35e+03	1.1e+03
17	OCDD	9.32e+06	1.60e+02	5.8e+04	1.04e+07	2.04e+02	5.1e+04
18	13C-2,3,7,8-TCDF	2.69e+06	3.46e+03	7.8e+02	3.41e+06	2.53e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	5.54e+06	1.06e+03	5.2e+03	3.46e+06	9.36e+02	3.7e+03
20	13C-2,3,4,7,8-PeCDF	5.73e+06	1.06e+03	5.4e+03	3.65e+06	9.36e+02	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	2.60e+06	1.72e+03	1.5e+03	4.95e+06	1.17e+03	4.2e+03
22	13C-1,2,3,6,7,8-HxCDF	3.00e+06	1.72e+03	1.7e+03	5.82e+06	1.17e+03	5.0e+03
23	13C-2,3,4,6,7,8-HxCDF	2.76e+06	1.72e+03	1.6e+03	5.38e+06	1.17e+03	4.6e+03
24	13C-1,2,3,7,8,9-HxCDF	2.26e+06	1.72e+03	1.3e+03	4.42e+06	1.17e+03	3.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.60e+06	1.22e+03	1.3e+03	3.66e+06	2.58e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.29e+06	1.22e+03	1.1e+03	2.97e+06	2.58e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.92e+06	4.28e+03	4.5e+02	2.37e+06	2.16e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	4.04e+06	7.64e+02	5.3e+03	2.54e+06	2.84e+02	8.9e+03
29	13C-1,2,3,4,7,8-HxCDD	3.78e+06	1.24e+03	3.1e+03	2.96e+06	4.64e+02	6.4e+03
30	13C-1,2,3,6,7,8-HxCDD	3.41e+06	1.24e+03	2.8e+03	2.68e+06	4.64e+02	5.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.73e+06	3.72e+02	7.3e+03	2.64e+06	2.00e+02	1.3e+04
32	13C-OCDD	1.69e+06	1.48e+02	1.1e+04	1.90e+06	1.72e+02	1.1e+04
33	13C-1,2,3,4-TCDD	3.63e+06	4.28e+03	8.5e+02	4.60e+06	2.16e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.21e+06	1.24e+03	5.0e+03	4.91e+06	4.64e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	2.43e+06	6.16e+02	3.9e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0084

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P518875 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 09:13:20 Processed: 21-NOV-18 09:19:34

Mass: 303.9020 305.8990 Tot Response: 1.83e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:26	3.62e+03	4.62e+03	0.78	yes	8.24e+03		n	n
2	22:43	1.90e+04	2.52e+04	0.76	yes	4.42e+04		n	n
3	23:04	5.76e+03	7.55e+03	0.76	yes	1.33e+04		n	n
4	23:12	7.17e+02	8.95e+02	0.80	yes	1.61e+03		n	n
5	23:20	1.58e+04	2.09e+04	0.76	yes	3.66e+04		n	n
6	23:57	1.04e+04	1.38e+04	0.75	yes	2.43e+04		n	n
7	24:04	2.08e+04	2.81e+04	0.74	yes	4.89e+04		n	n
8	24:34	1.84e+05	2.40e+05	0.77	yes	4.24e+05		n	n
9	24:51	8.09e+03	1.12e+04	0.72	yes	1.93e+04		n	n
10	25:27	2.96e+04	4.01e+04	0.74	yes	6.97e+04		y	y
11	25:34	4.29e+05	5.54e+05	0.77	yes	9.84e+05	2,3,7,8-TCDF	y	y
12	26:00	3.10e+04	4.13e+04	0.75	yes	7.24e+04		n	n
13	26:17	4.22e+03	6.10e+03	0.69	yes	1.03e+04		n	n
14	27:50	3.40e+04	4.36e+04	0.78	yes	7.76e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0084

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P518875 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 09:13:20 Processed: 21-NOV-18 09:19:34

Mass: 319.8970 321.8940 Tot Response: 2.82e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:13	3.03e+02	3.82e+02	0.79	yes	6.85e+02		n	n
2	26:15	1.56e+03	1.86e+03	0.84	yes	3.42e+03		n	n
3	26:34	1.12e+05	1.42e+05	0.79	yes	2.54e+05	2,3,7,8-TCDD	n	n
4	26:56	1.02e+04	1.31e+04	0.78	yes	2.32e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0084

Entry: 38 Totals Name: Total Penta-Furans1

Run: 17 File: P518875 Sample:1 Injection:1 Function:1

Acquired: 17-NOV-18 09:13:20 Processed: 21-NOV-18 09:19:34

Mass: 339.8600 341.8570 Tot Response: 8.01e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:51	4.98e+02	3.03e+02 1.65	yes	8.01e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0084

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P518875 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 09:13:20 Processed: 21-NOV-18 09:19:34

Mass: 339.8600 341.8570 Tot Response: 1.61e+05 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:32	1.57e+04	1.01e+04	1.57	yes	2.58e+04		n	n
2	30:10	3.73e+02	2.29e+02	1.63	yes	6.02e+02		n	n
3	30:14	5.04e+02	3.44e+02	1.47	yes	8.48e+02		n	n
4	30:24	2.70e+03	1.80e+03	1.50	yes	4.50e+03		n	n
5	30:35	4.03e+04	2.61e+04	1.54	yes	6.64e+04	1,2,3,7,8-PeCDF	n	n
6	30:52	1.13e+04	7.25e+03	1.55	yes	1.85e+04		n	n
7	31:30	2.69e+02	1.56e+02	1.72	yes	4.25e+02		n	n
8	31:36	2.54e+04	1.64e+04	1.55	yes	4.18e+04	2,3,4,7,8-PeCDF	n	n
9	32:34	1.01e+03	7.01e+02	1.44	yes	1.71e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0084

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P518875 Sample:1 Injection:1 Function:2

Acquired: 17-NOV-18 09:13:20 Processed: 21-NOV-18 09:19:34

Mass: 355.8550 357.8520 Tot Response: 4.27e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:07	3.58e+02	2.57e+02	1.39	yes	6.15e+02		n	n
2	30:48	1.05e+02	7.90e+01	1.33	yes	1.84e+02		n	n
3	30:54	1.02e+02	6.20e+01	1.65	yes	1.64e+02		n	n
4	31:08	1.21e+02	8.29e+01	1.47	yes	2.04e+02		n	n
5	31:56	1.83e+03	1.15e+03	1.59	yes	2.97e+03	1,2,3,7,8-PeCDD	n	n
6	32:05	3.73e+01	2.75e+01	1.36	yes	6.48e+01		n	n
7	32:19	3.89e+01	2.62e+01	1.49	yes	6.51e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0084

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P518875 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 09:13:20 Processed: 21-NOV-18 09:19:34

Mass: 373.8210 375.8180 Tot Response: 1.74e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:19	3.70e+02	3.01e+02	1.23	yes	6.71e+02		n	n
2	33:29	4.28e+03	3.41e+03	1.25	yes	7.69e+03		n	n
3	34:02	2.10e+03	1.85e+03	1.14	yes	3.95e+03		n	n
4	34:29	6.57e+04	5.37e+04	1.22	yes	1.19e+05	1,2,3,4,7,8-HxCDF	n	n
5	34:36	1.72e+04	1.38e+04	1.25	yes	3.11e+04	1,2,3,6,7,8-HxCDF	n	n
6	35:09	2.34e+03	2.08e+03	1.13	yes	4.42e+03	2,3,4,6,7,8-HxCDF	n	n
7	35:57	3.89e+03	3.29e+03	1.18	yes	7.17e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0084

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P518875 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 09:13:20 Processed: 21-NOV-18 09:19:34

Mass: 389.8160 391.8130 Tot Response: 6.82e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:53	2.44e+03	1.90e+03	1.28	yes	4.34e+03		n	n
2	34:09	6.19e+00	4.81e+00	1.29	yes	1.10e+01		n	n
3	34:25	1.07e+02	8.58e+01	1.25	yes	1.93e+02		n	n
4	34:40	8.66e+02	7.53e+02	1.15	yes	1.62e+03		n	n
5	34:47	8.90e+01	6.42e+01	1.39	yes	1.53e+02		n	n
6	34:57	5.14e+00	4.75e+00	1.08	yes	9.89e+00		n	n
7	35:23	2.80e+02	2.13e+02	1.32	yes	4.93e+02	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0084

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P518875 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 09:13:20 Processed: 21-NOV-18 09:19:34

Mass: 407.7820 409.7790 Tot Response: 3.66e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:14	1.10e+04	1.06e+04	1.03	yes	2.16e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	37:38	4.36e+03	4.32e+03	1.01	yes	8.68e+03		n	n
3	38:35	3.16e+03	3.21e+03	0.99	yes	6.37e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0084

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P518875 Sample:1 Injection:1 Function:4

Acquired: 17-NOV-18 09:13:20 Processed: 21-NOV-18 09:19:34

Mass: 423.7770 425.7740 Tot Response: 3.51e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:30	9.44e+03	9.06e+03	1.04	yes	1.85e+04		n	n
2	38:10	8.41e+03	8.18e+03	1.03	yes	1.66e+04	1,2,3,4,6,7,8-HpCDD	n	n

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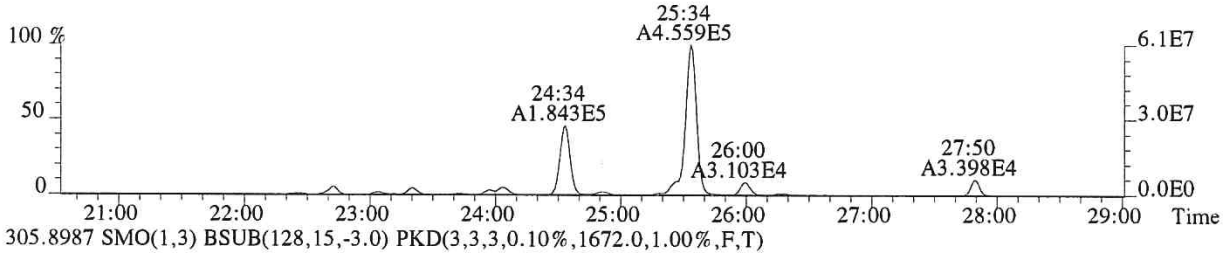
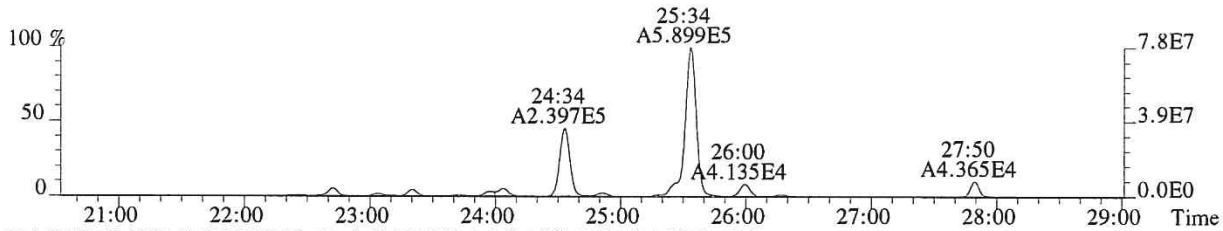
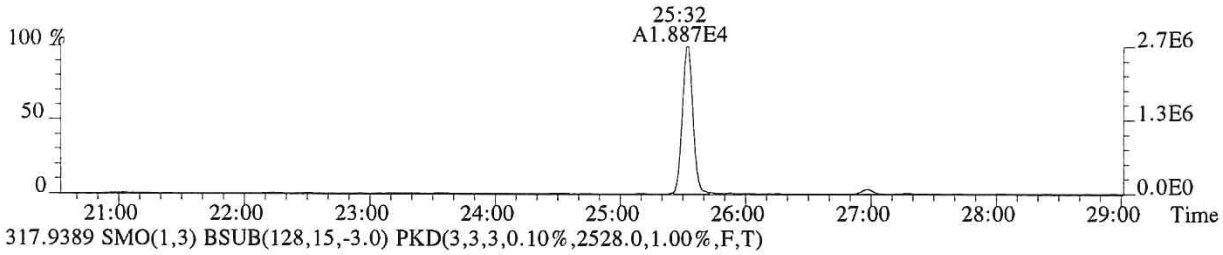
File:P518875 #1-602 Acq:17-NOV-2018 09:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



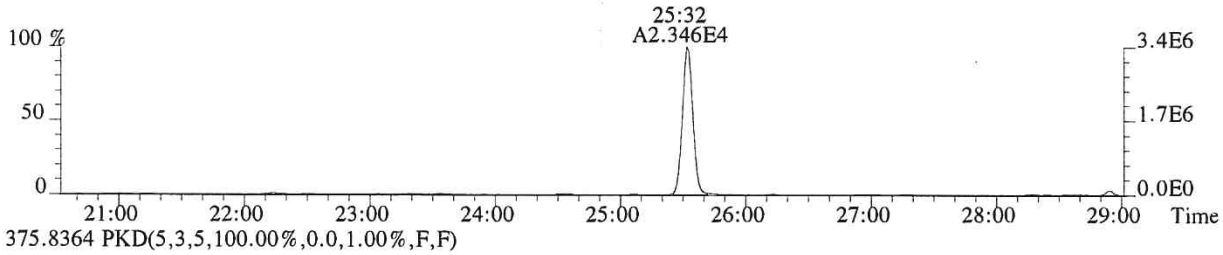
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1672.0,1.00%,F,T)



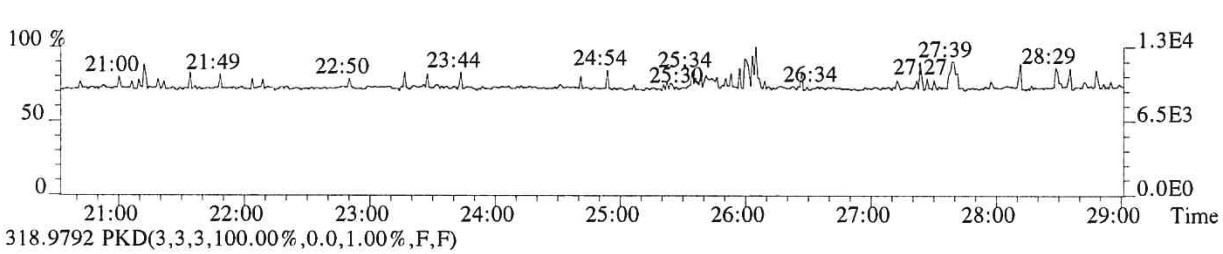
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3464.0,1.00%,F,T)



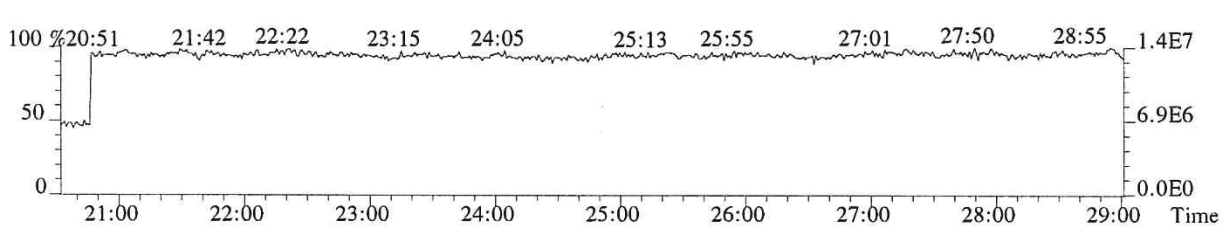
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2528.0,1.00%,F,T)



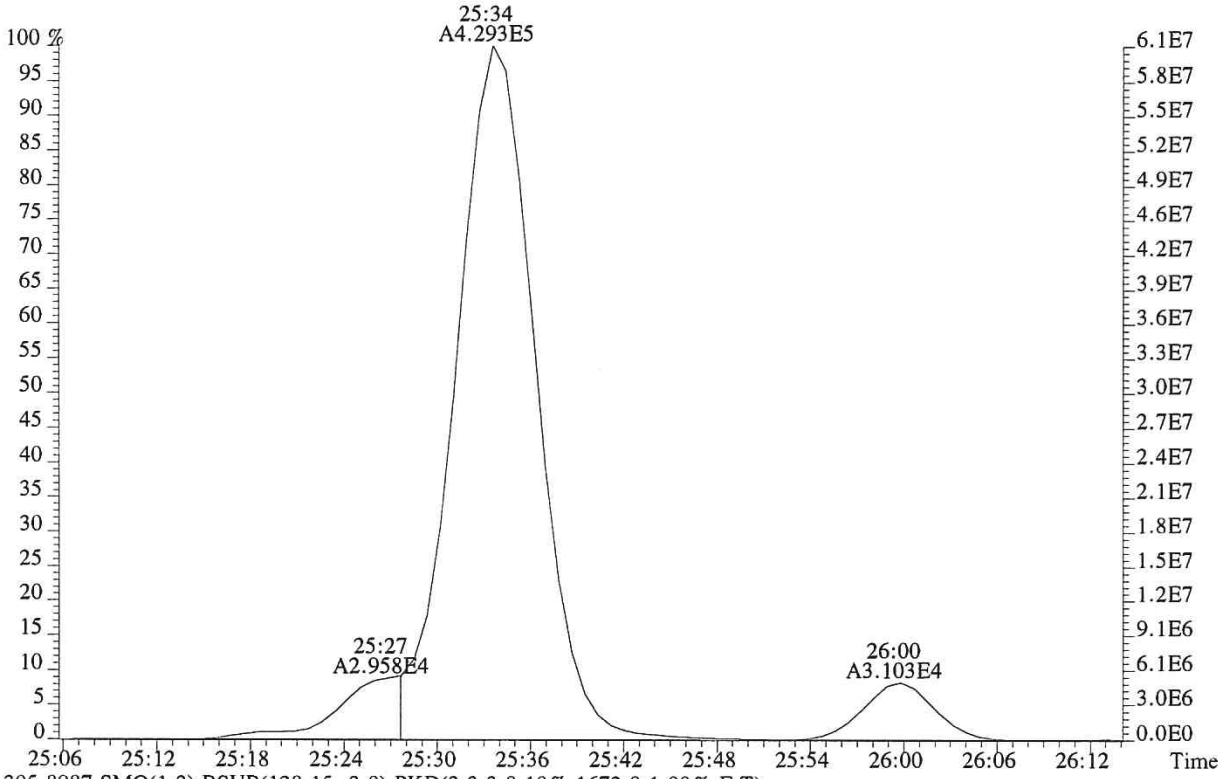
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



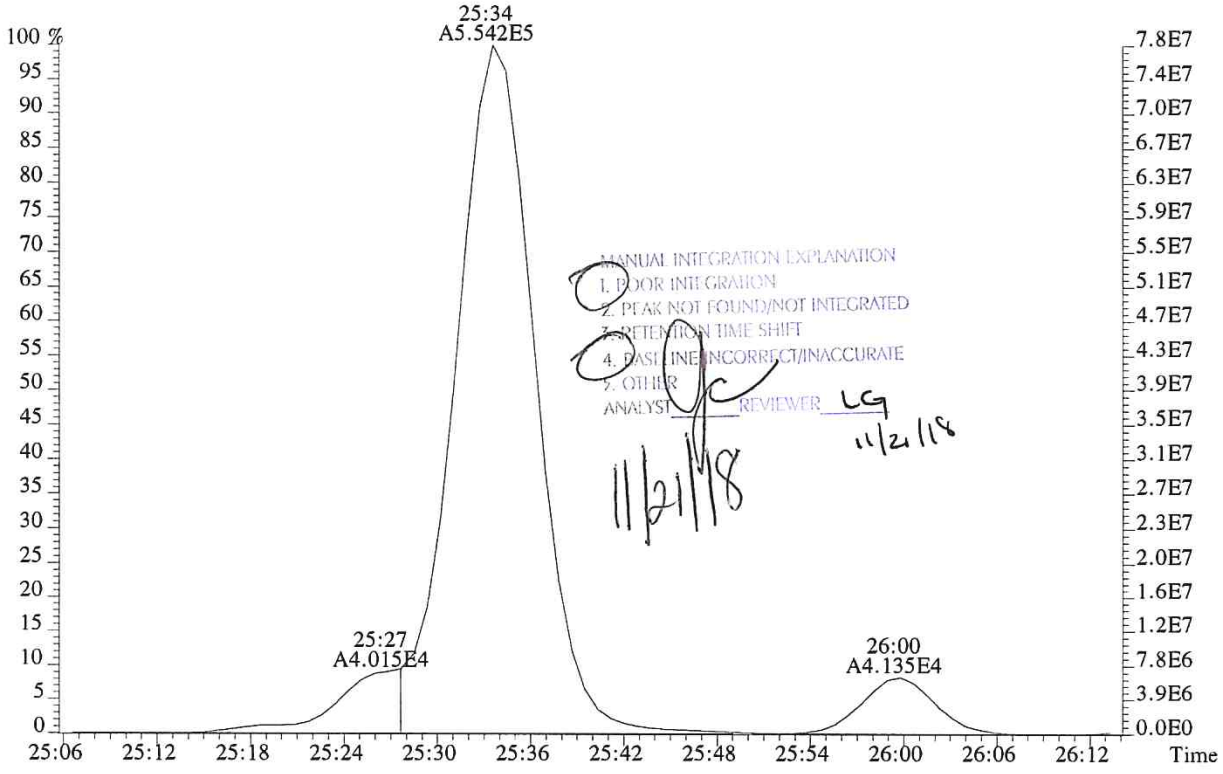
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P518875 #1-602 Acq:17-NOV-2018 09:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)

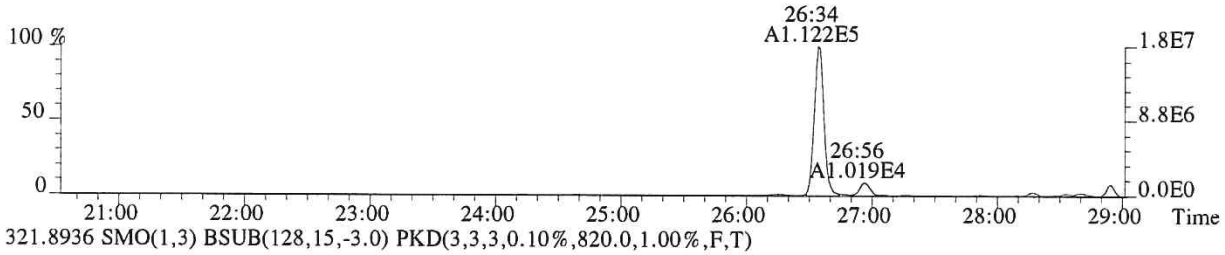


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1672.0,1.00%,F,T)

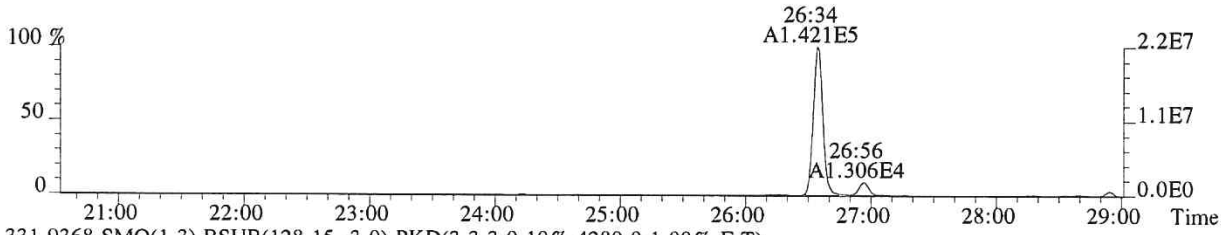


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LG 11/21/18
11/21/18

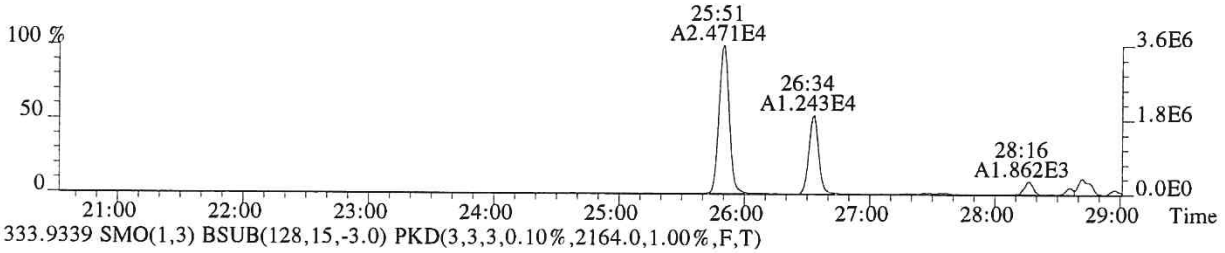
File:P518875 #1-602 Acq:17-NOV-2018 09:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2416.0,1.00%,F,T)



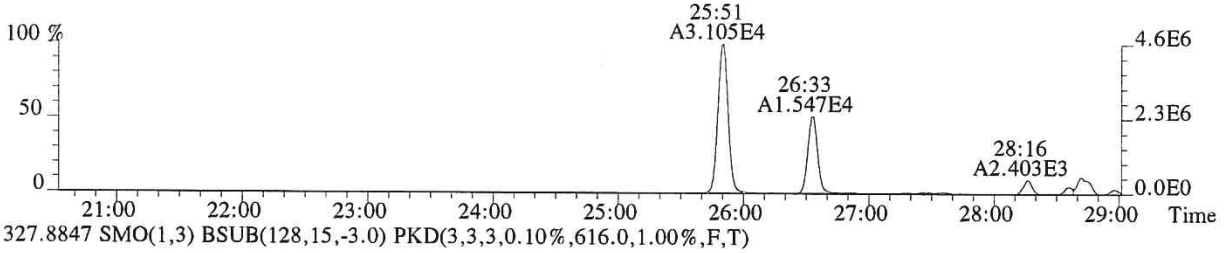
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



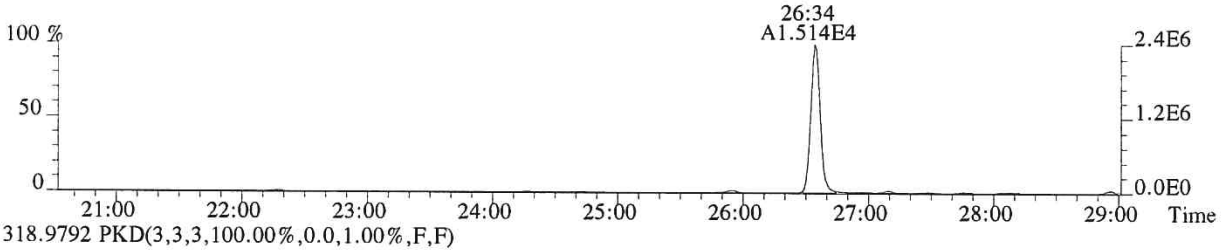
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4280.0,1.00%,F,T)



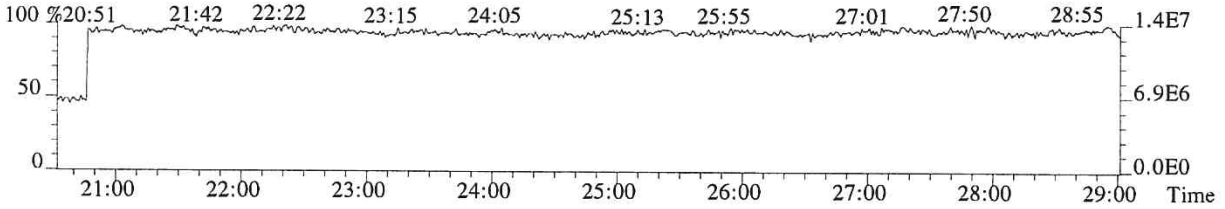
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2164.0,1.00%,F,T)



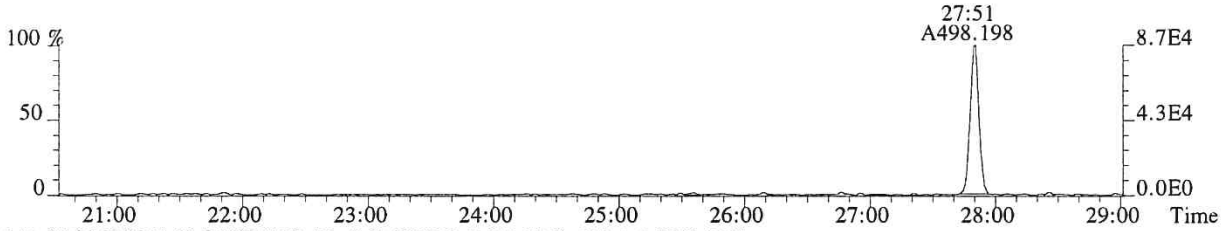
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



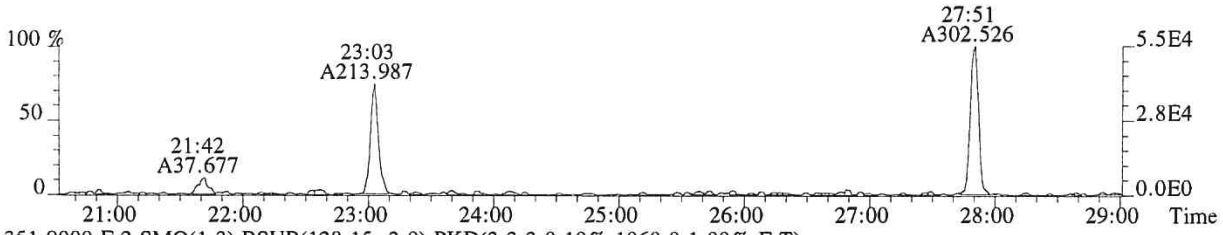
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



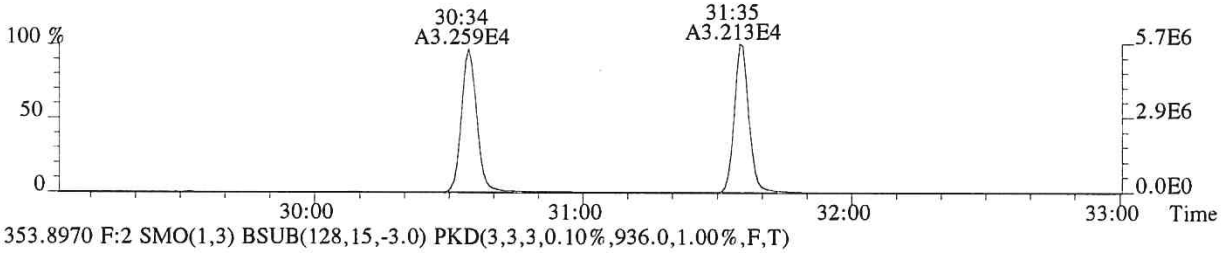
File:P518875 #1-602 Acq:17-NOV-2018 09:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



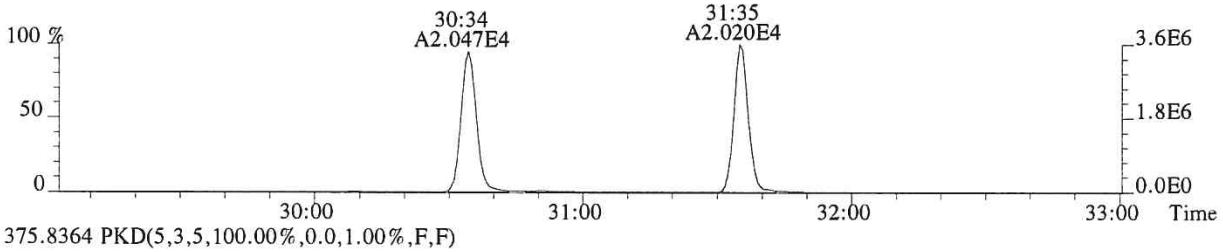
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



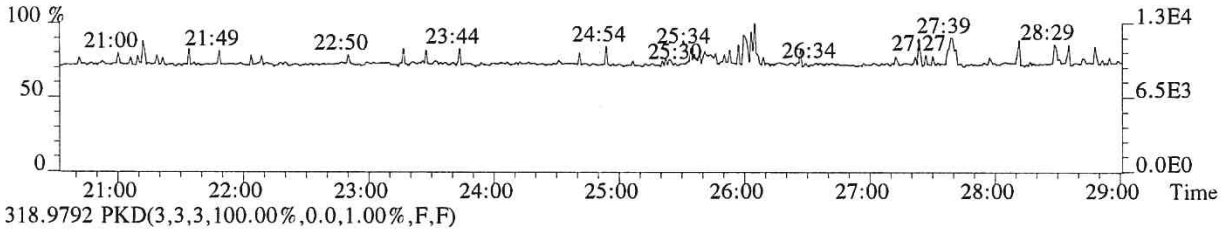
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



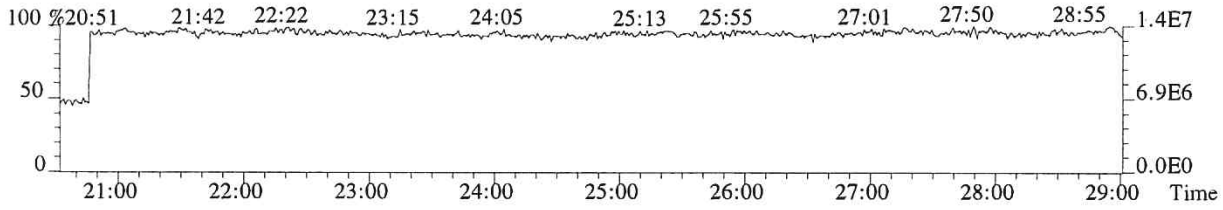
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



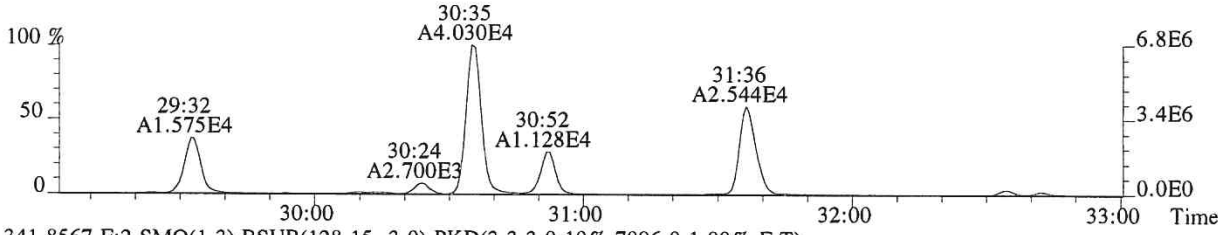
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



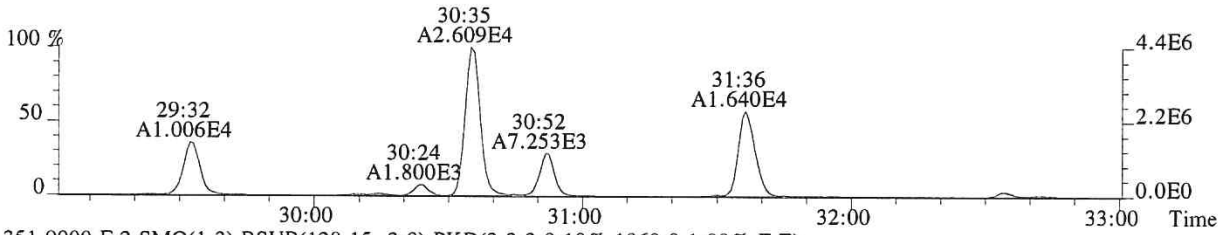
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



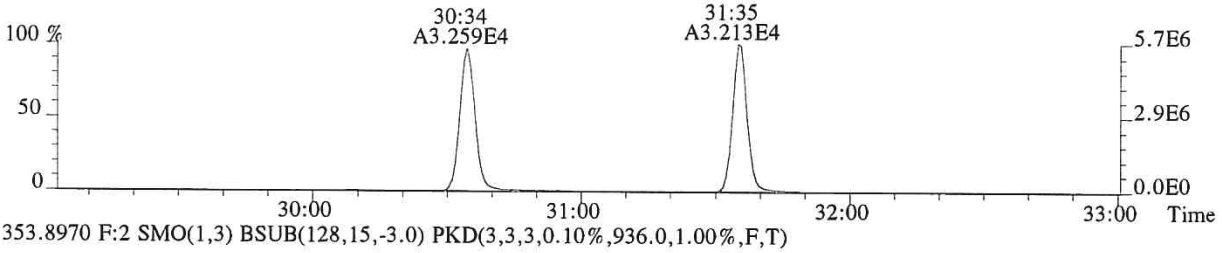
File:P518875 #1-357 Acq:17-NOV-2018 09:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10316.0,1.00%,F,T)



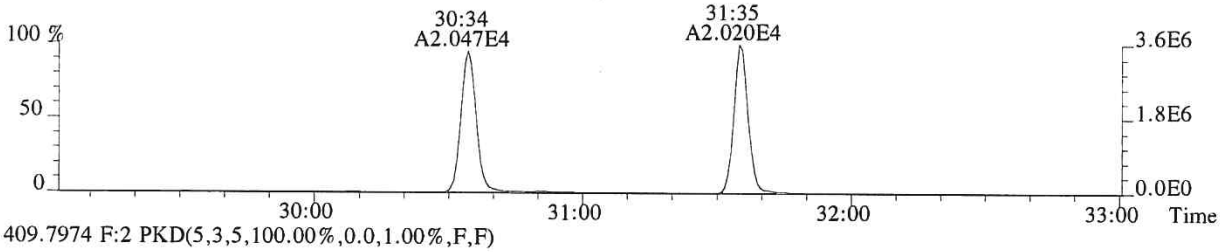
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7096.0,1.00%,F,T)



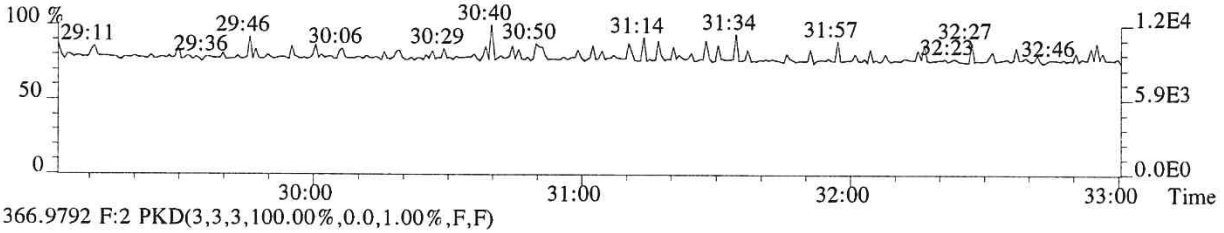
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



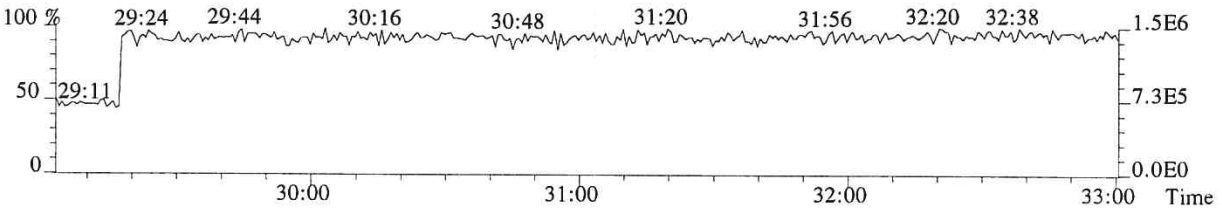
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



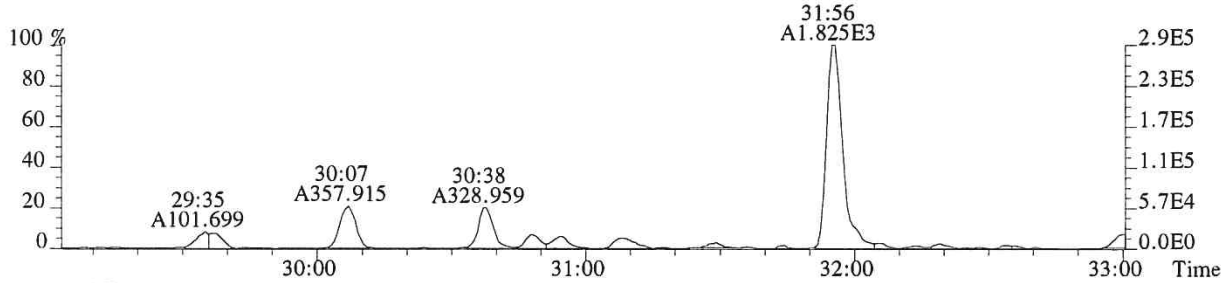
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



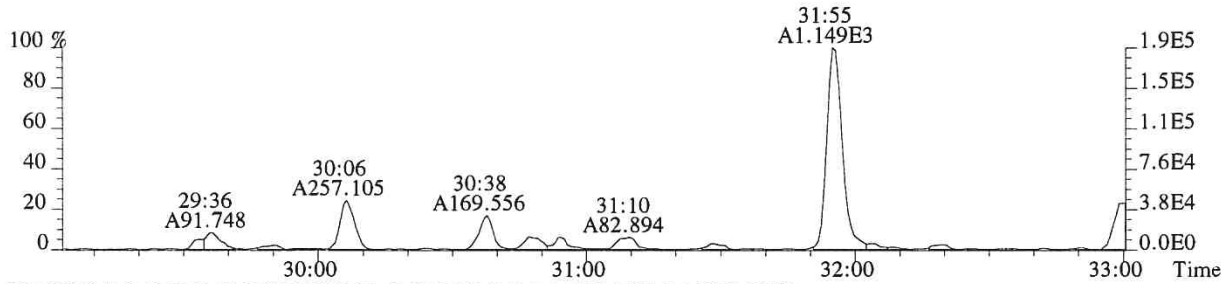
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



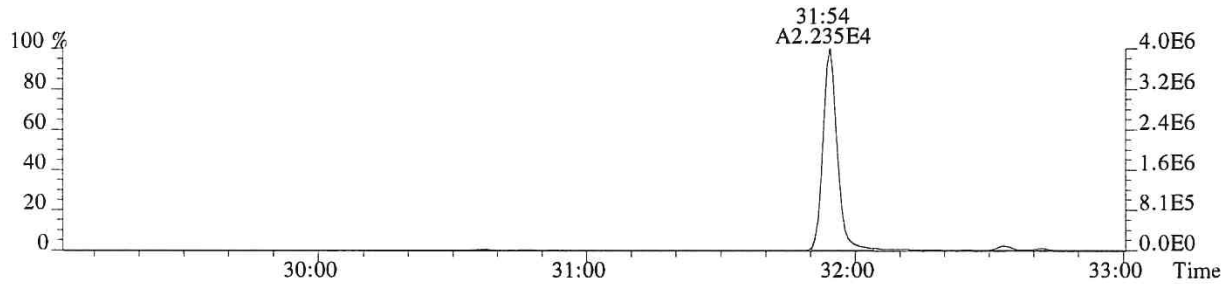
File:P518875 #1-357 Acq:17-NOV-2018 09:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



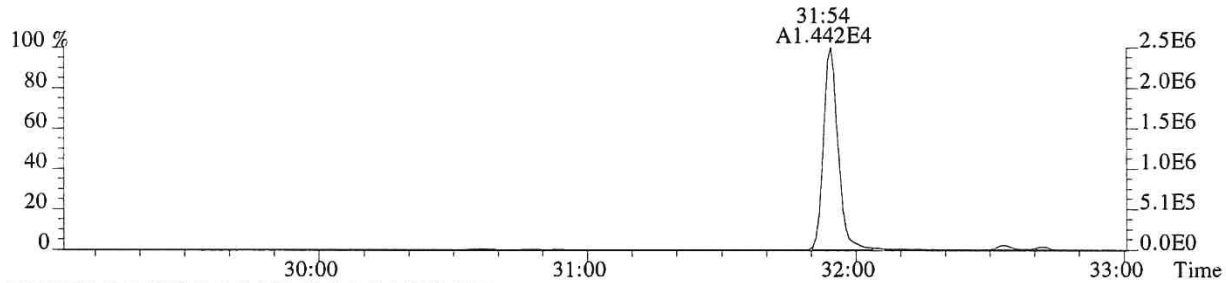
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



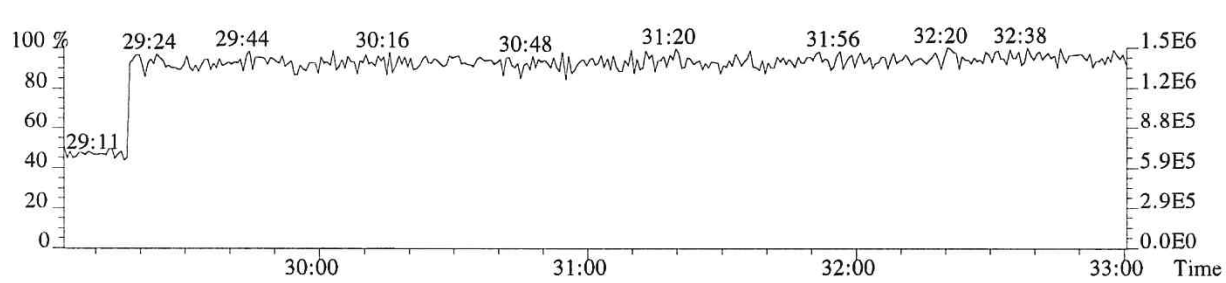
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



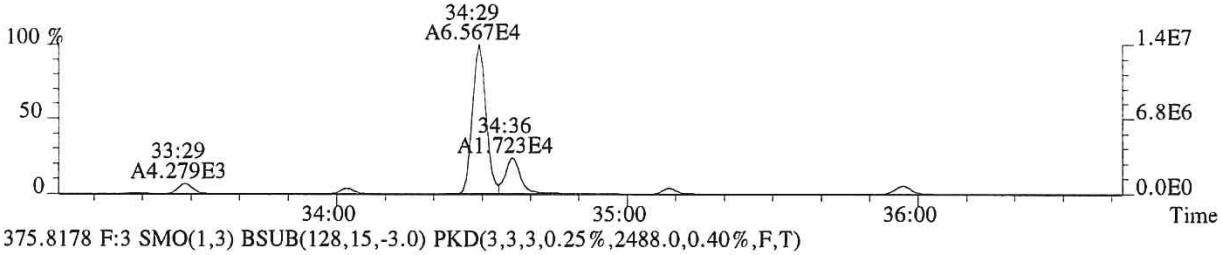
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



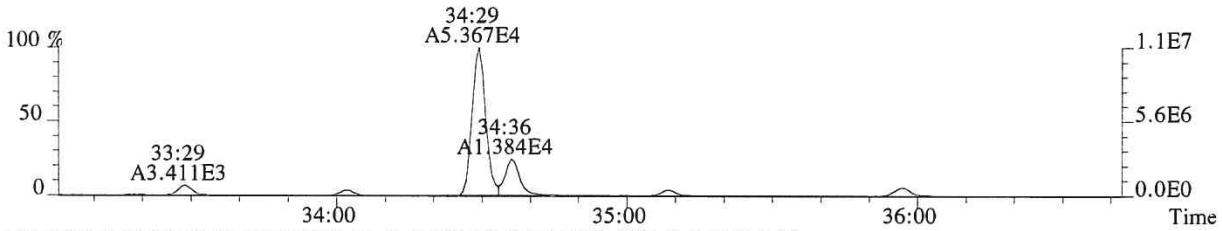
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



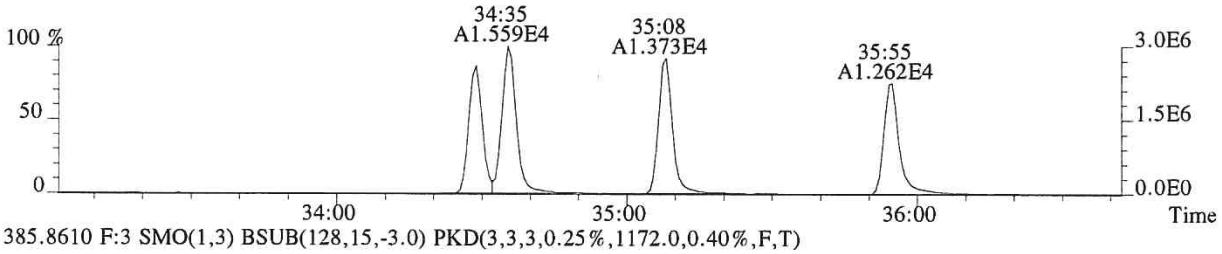
File:P518875 #1-330 Acq:17-NOV-2018 09:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6572.0,0.40%,F,T)



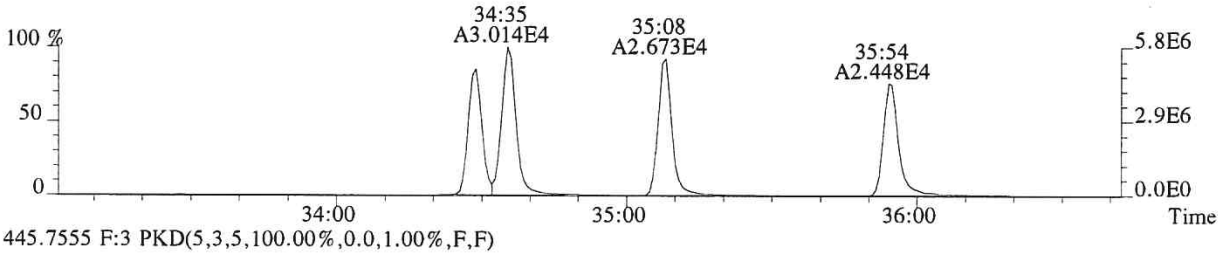
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2488.0,0.40%,F,T)



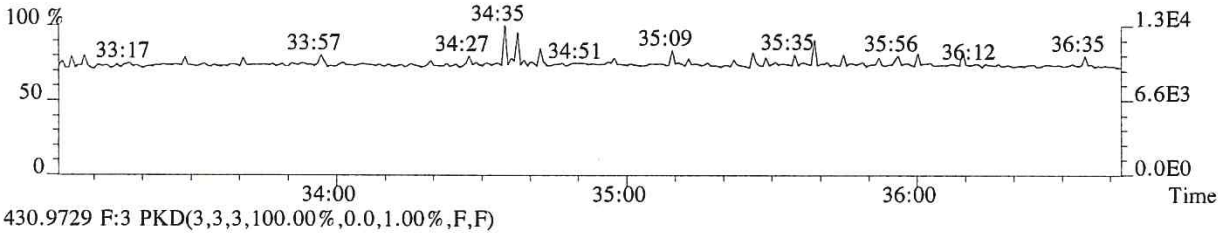
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1724.0,0.40%,F,T)



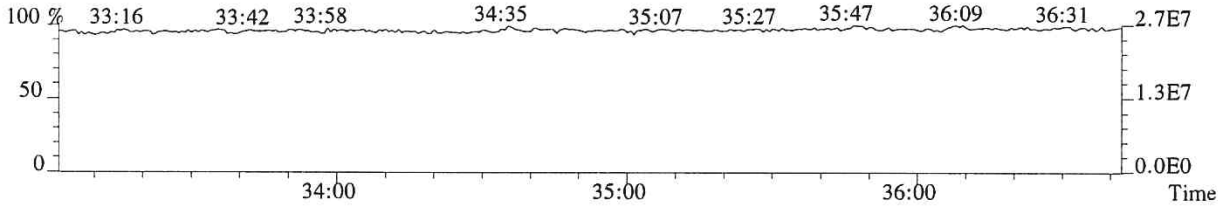
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

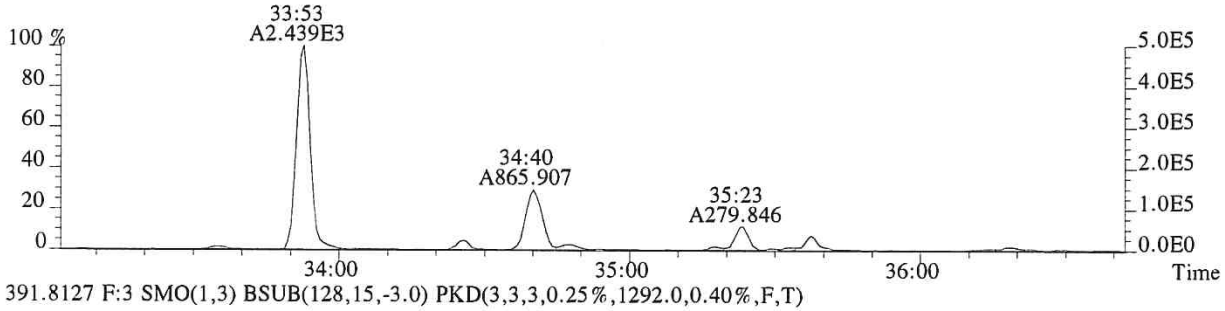


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

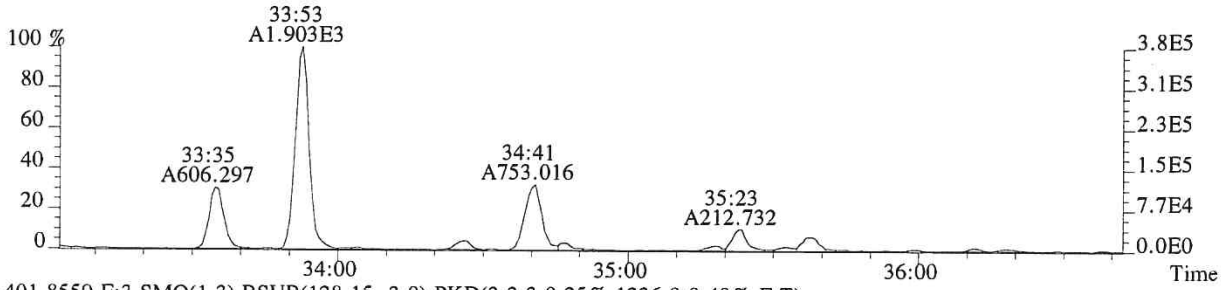


010408

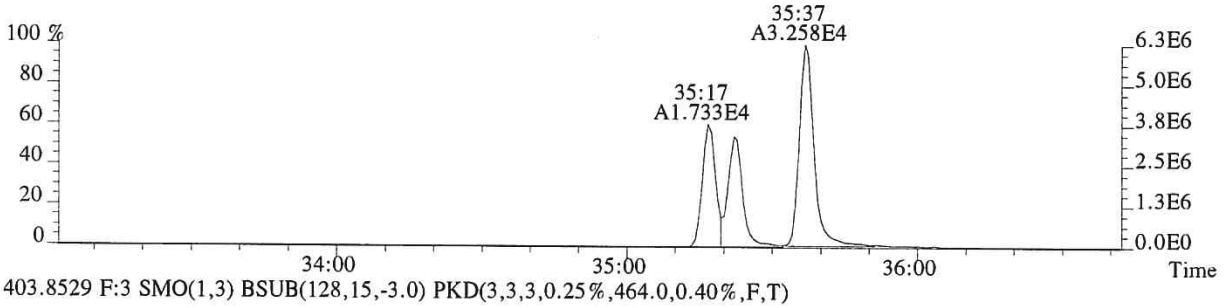
File:P518875 #1-330 Acq:17-NOV-2018 09:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



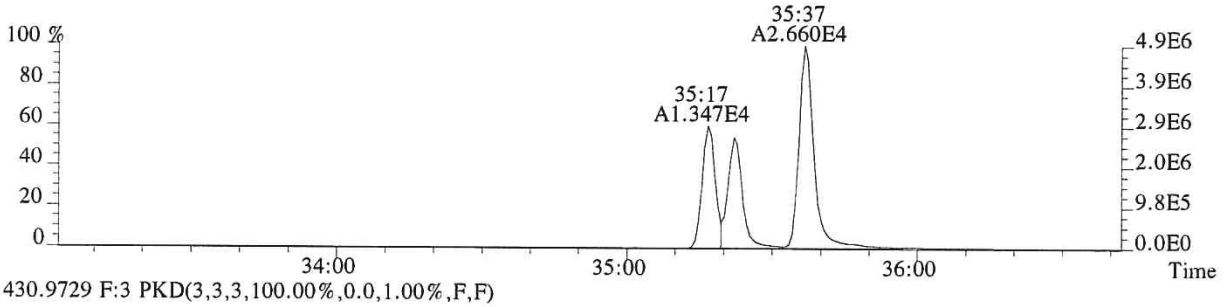
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



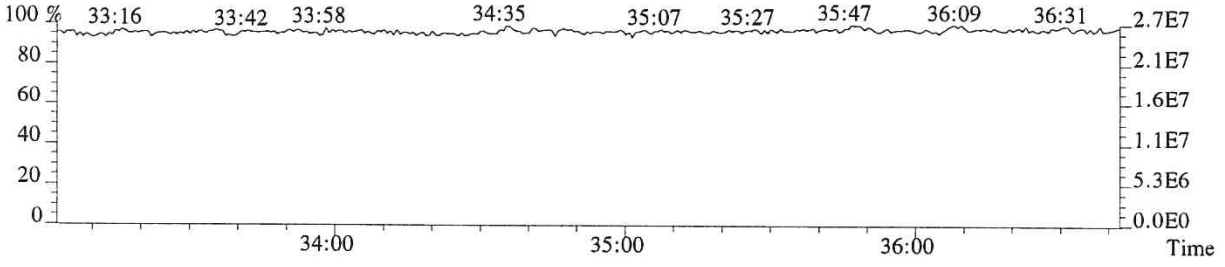
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.40%,F,T)



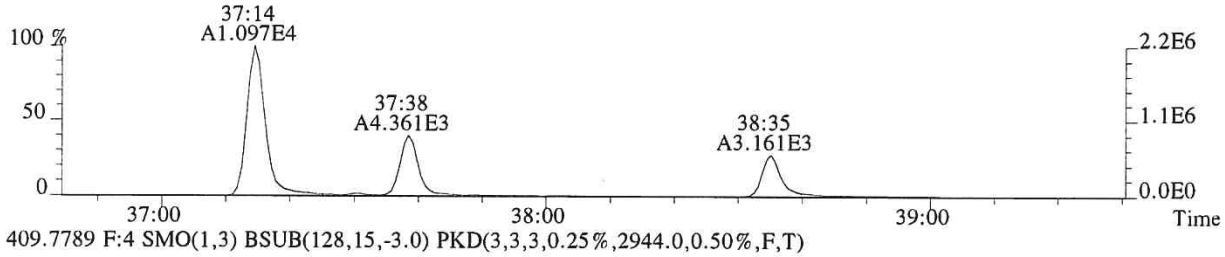
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



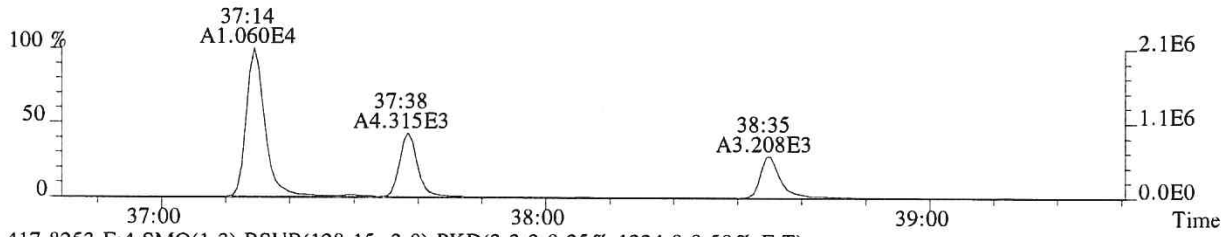
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



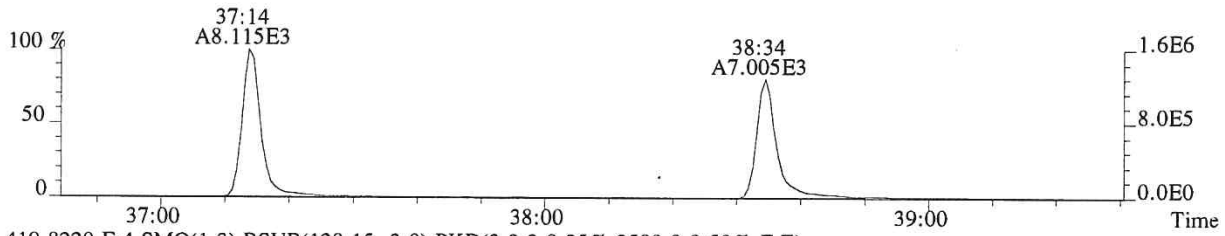
File:P518875 #1-250 Acq:17-NOV-2018 09:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2380.0,0.50%,F,T)



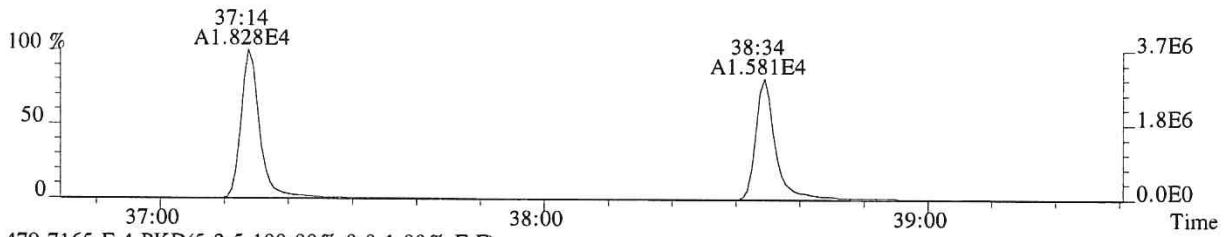
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2944.0,0.50%,F,T)



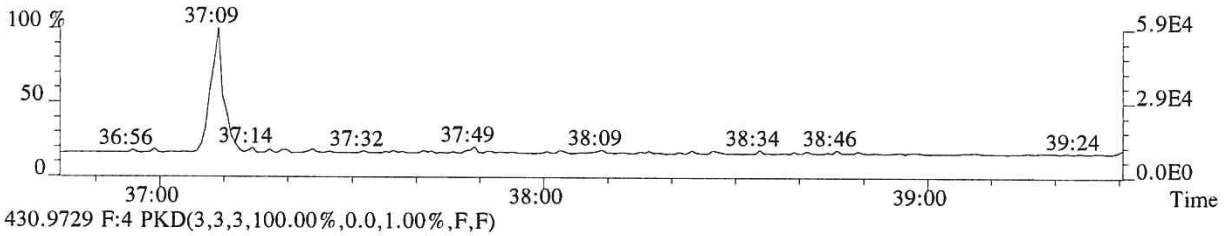
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.50%,F,T)



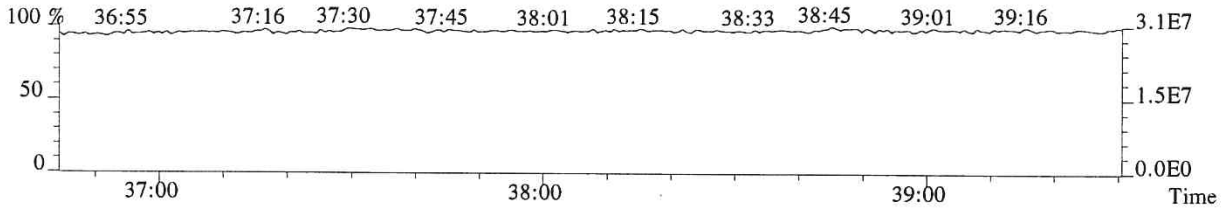
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2580.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

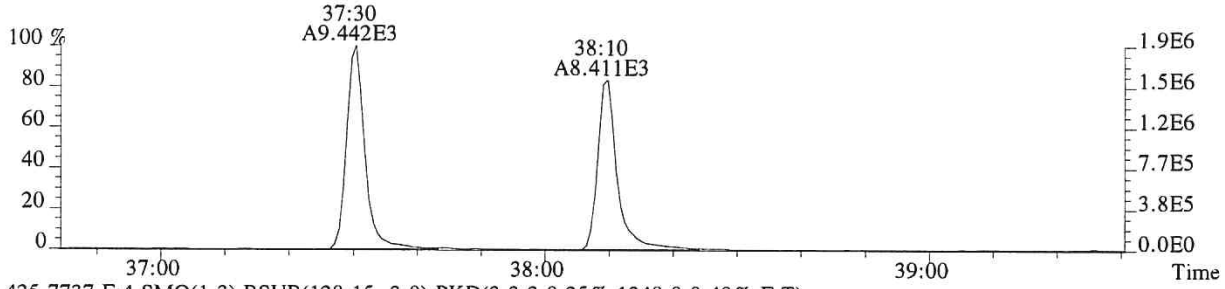


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

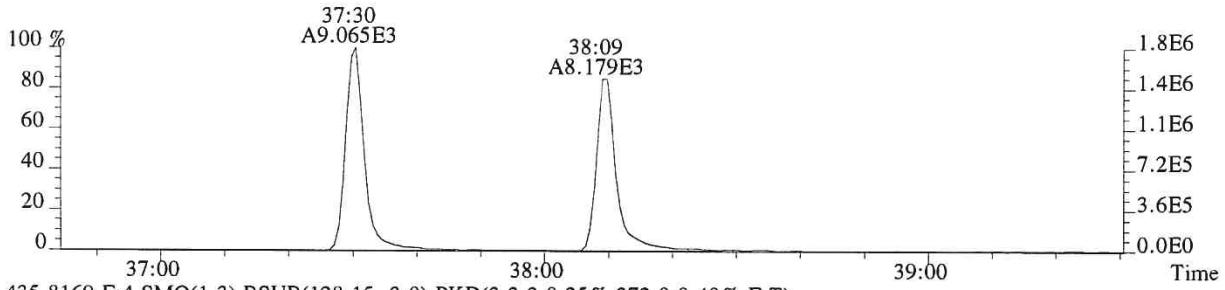


010410

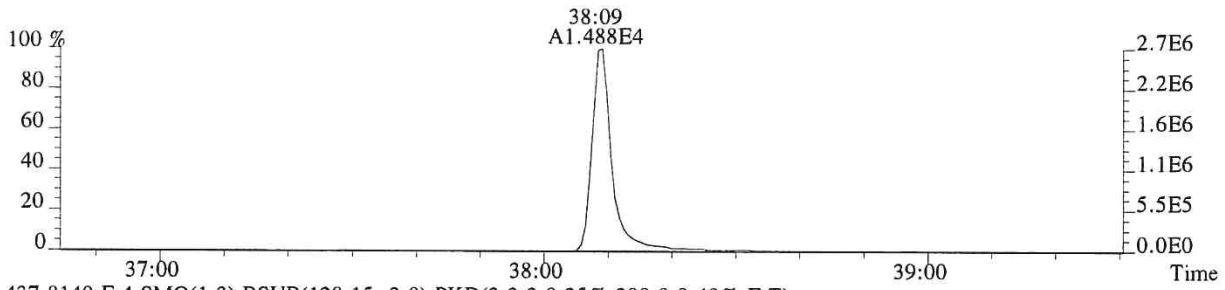
File:P518875 #1-250 Acq:17-NOV-2018 09:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3104.0,0.40%,F,T)



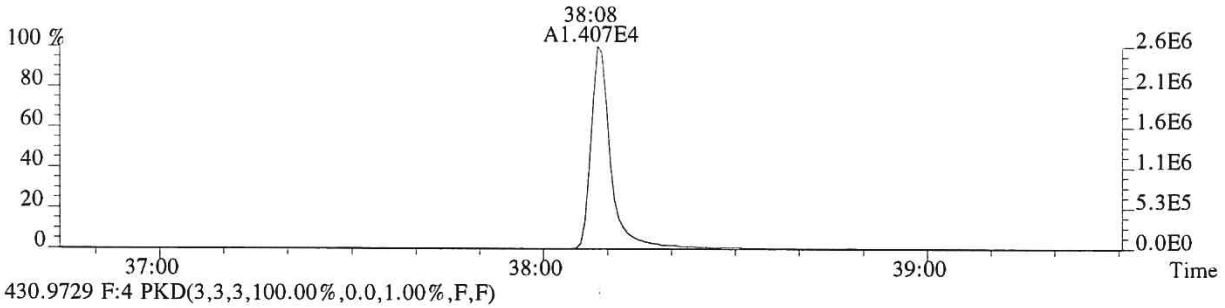
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



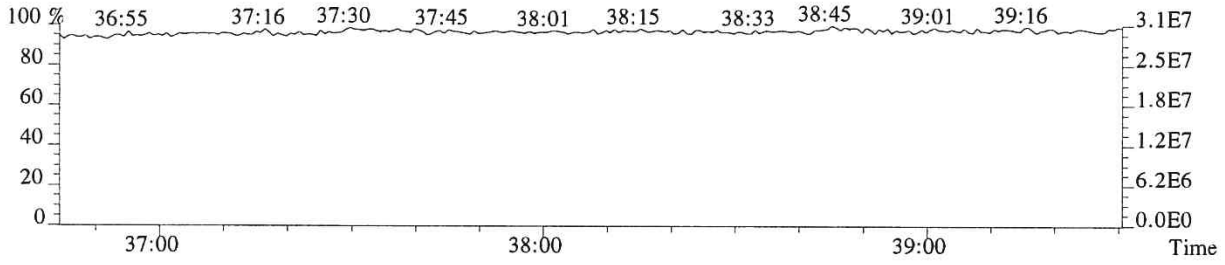
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



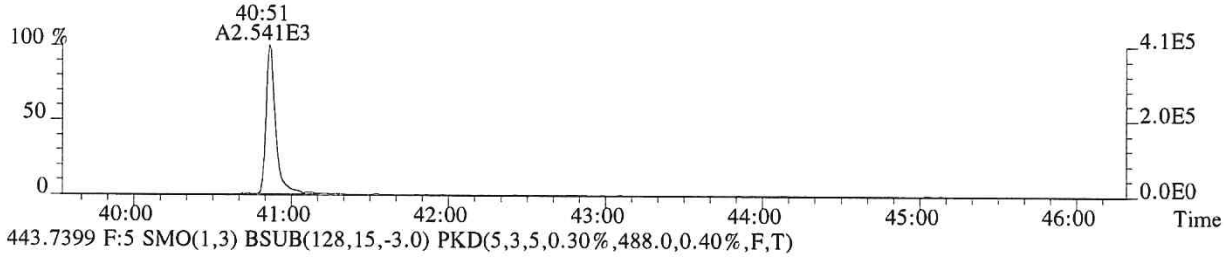
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



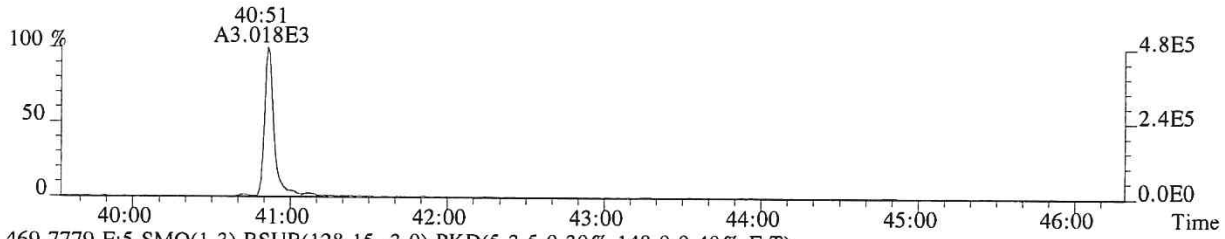
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



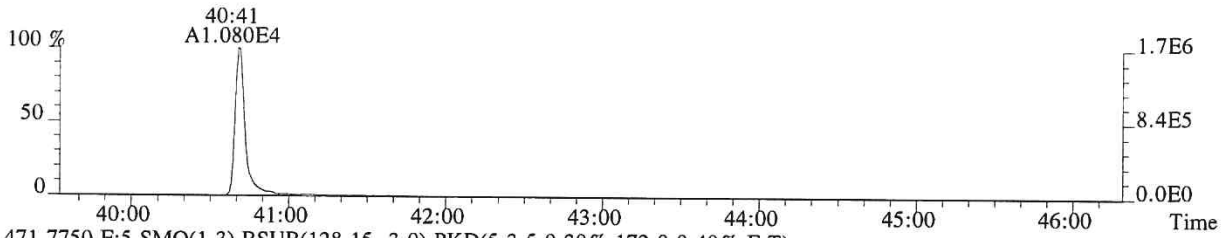
File:P518875 #1-610 Acq:17-NOV-2018 09:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



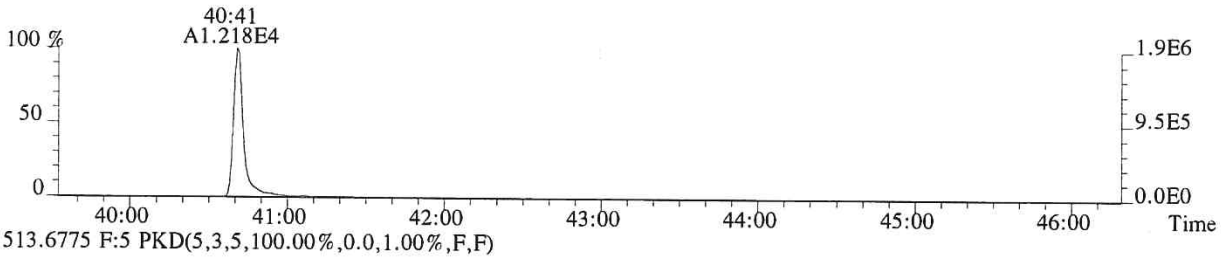
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



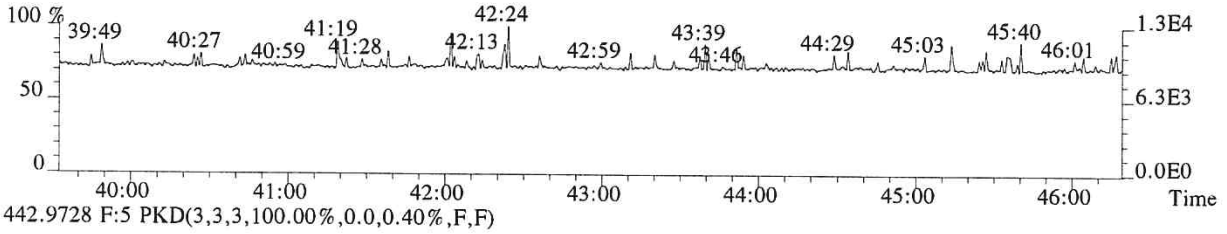
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



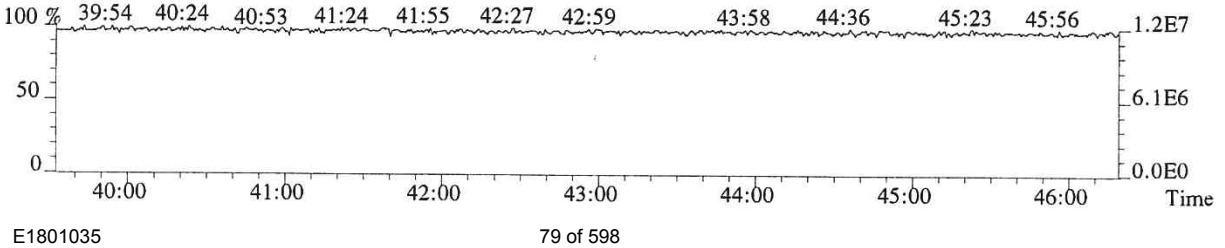
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

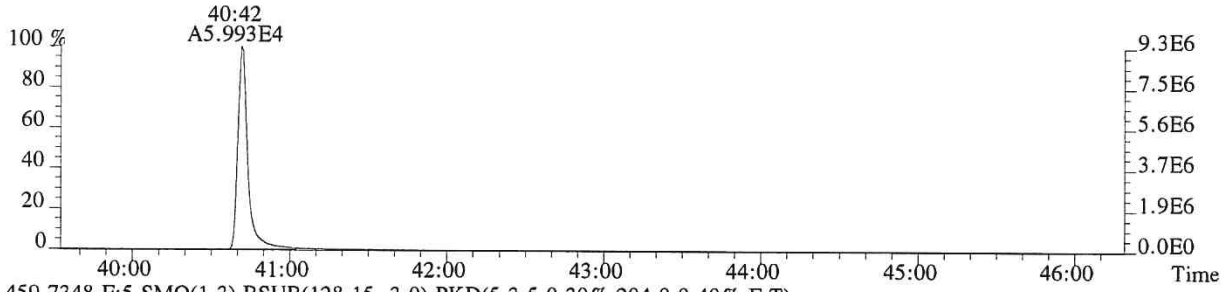


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

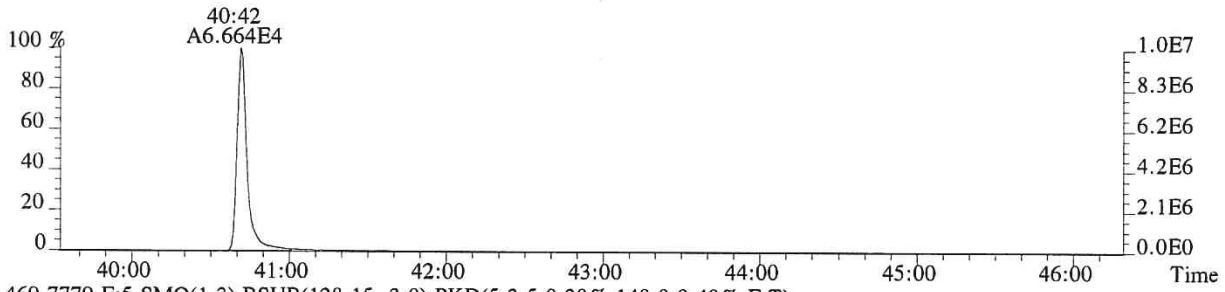


010412

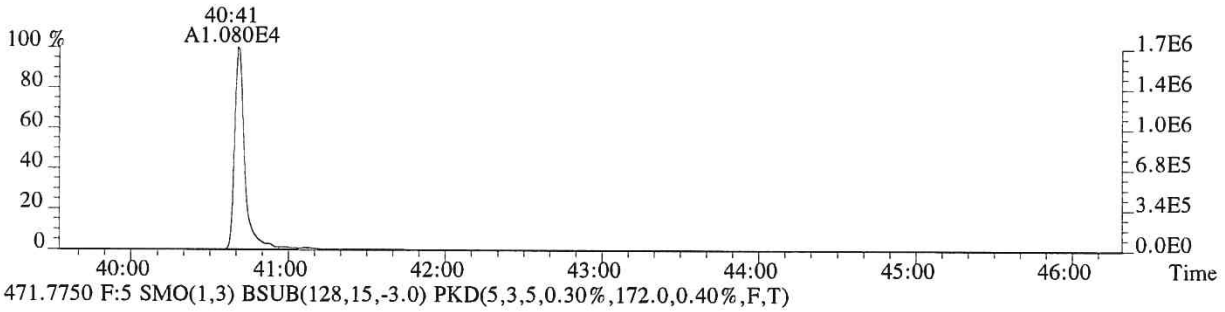
File:P518875 #1-610 Acq:17-NOV-2018 09:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



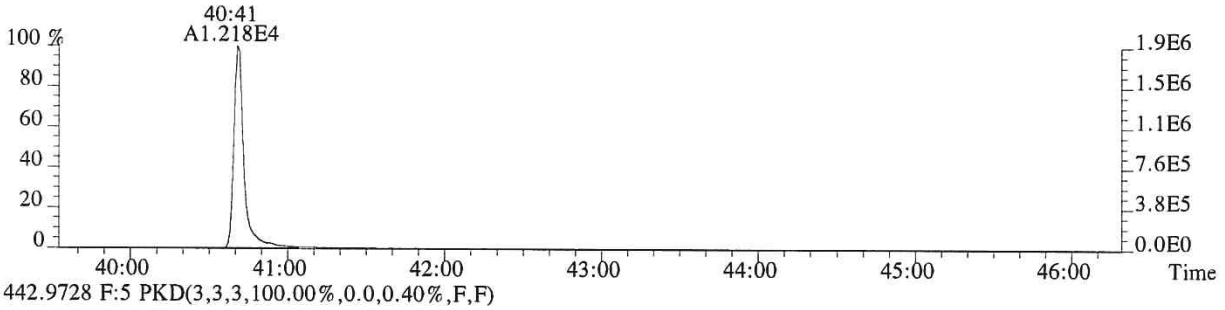
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



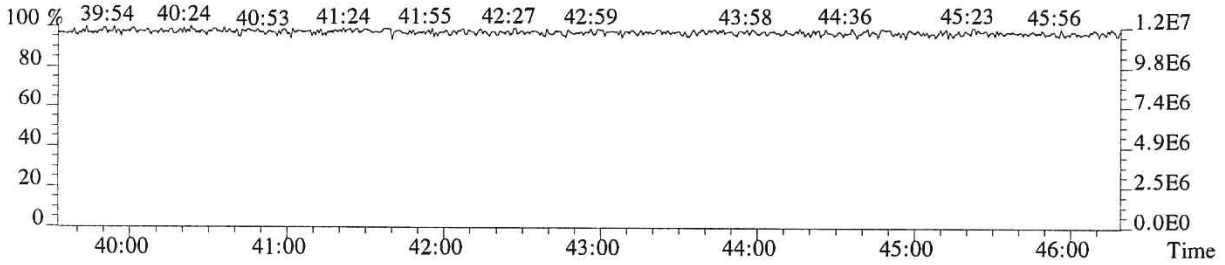
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010413

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0084

Run #14 Filename P615681 Samp: 1 Inj: 1 Acquired: 21-NOV-18 23:09:00
Processed: 26-NOV-18 15:09:47 Sample ID: E1801035-006DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:26	1.154e+04	1.462e+04	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:20	1.052e+03	7.328e+02	1.44	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:12	7.091e+02	4.735e+02	1.50	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:46	2.245e+03	1.714e+03	1.31	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:53	4.684e+02	4.247e+02	1.10	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:22	9.018e+01	9.355e+01	0.96	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:09	1.937e+02	1.711e+02	1.13	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:22	3.885e+02	3.636e+02	1.07	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:53	1.460e+02	1.726e+02	0.85	no	no	1.463
10	Unk	OCDF	43:38	1.847e+02	2.275e+02	0.81	yes	no	1.571
11	Unk	2,3,7,8-TCDD	30:08	3.239e+03	4.043e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:28	4.704e+01	2.873e+01	1.64	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:22	3.312e+02	2.760e+02	1.20	no	no	1.112
17	Unk	OCDD	43:24	2.729e+03	3.238e+03	0.84	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:25	3.448e+04	4.374e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:19	5.262e+04	3.347e+04	1.57	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:11	5.182e+04	3.280e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:45	2.284e+04	4.383e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	2.733e+04	5.135e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:21	2.941e+04	5.662e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:07	2.458e+04	4.631e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:22	2.327e+04	5.064e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:53	2.267e+04	4.963e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	30:07	2.492e+04	3.181e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:26	3.972e+04	2.566e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:29	3.049e+04	2.416e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:34	3.139e+04	2.494e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:21	2.982e+04	2.841e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	43:23	4.292e+04	4.830e+04	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:34	2.698e+04	3.472e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:48	3.734e+04	2.969e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:08	5.388e+02				no	1.086

$$\text{OCDD} = \frac{(2.729e+03 + 3.238e+03) \times 4000 \text{ pg} \times 50}{(4.292e+04 + 4.830e+04) \times 10.002 \text{ g} \times 77.5/100 \times 1.157 \times 0.33} = 4420 \text{ ng/kg}$$

LIM 11/27/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0084

Run #14 Filename P615681 Samp: 1 Inj: 1 Acquired: 21-NOV-18 23:09:00
Processed: 26-NOV-18 15:09:47 LAB. ID: E1801035-006DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.42e+06	6.76e+02	3.6e+03	3.10e+06	1.00e+03	3.1e+03
2	1,2,3,7,8-PeCDF	2.16e+05	1.14e+03	1.9e+02	1.58e+05	3.10e+03	5.1e+01
3	2,3,4,7,8-PeCDF	1.19e+05	1.14e+03	1.0e+02	8.01e+04	3.10e+03	2.6e+01
4	1,2,3,4,7,8-HxCDF	4.94e+05	9.08e+02	5.4e+02	3.84e+05	6.12e+02	6.3e+02
5	1,2,3,6,7,8-HxCDF	1.05e+05	9.08e+02	1.2e+02	8.46e+04	6.12e+02	1.4e+02
6	2,3,4,6,7,8-HxCDF	2.01e+04	9.08e+02	2.2e+01	2.22e+04	6.12e+02	3.6e+01
7	1,2,3,7,8,9-HxCDF	3.82e+04	9.08e+02	4.2e+01	3.57e+04	6.12e+02	5.8e+01
8	1,2,3,4,6,7,8-HpCDF	8.72e+04	8.68e+02	1.0e+02	7.94e+04	5.96e+02	1.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.49e+04	8.68e+02	2.9e+01	3.30e+04	5.96e+02	5.5e+01
10	OCDF	2.74e+04	4.20e+02	6.5e+01	3.18e+04	1.23e+03	2.6e+01
11	2,3,7,8-TCDD	7.27e+05	1.32e+03	5.5e+02	8.72e+05	7.80e+02	1.1e+03
12	1,2,3,7,8-PeCDD	9.39e+03	1.61e+03	5.8e+00	7.20e+03	5.52e+02	1.3e+01
13	1,2,3,4,7,8-HxCDD	*	1.05e+03	*	*	3.56e+02	*
14	1,2,3,6,7,8-HxCDD	*	1.05e+03	*	*	3.56e+02	*
15	1,2,3,7,8,9-HxCDD	*	1.05e+03	*	*	3.56e+02	*
16	1,2,3,4,6,7,8-HpCDD	6.43e+04	9.36e+02	6.9e+01	5.82e+04	5.20e+02	1.1e+02
17	OCDD	4.48e+05	5.24e+02	8.6e+02	5.23e+05	8.36e+02	6.3e+02
18	13C-2,3,7,8-TCDF	7.19e+06	9.03e+03	8.0e+02	9.22e+06	4.68e+03	2.0e+03
19	13C-1,2,3,7,8-PeCDF	1.06e+07	1.04e+03	1.0e+04	6.65e+06	9.84e+02	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.08e+07	1.04e+03	1.0e+04	6.87e+06	9.84e+02	7.0e+03
21	13C-1,2,3,4,7,8-HxCDF	5.10e+06	9.44e+02	5.4e+03	9.71e+06	1.20e+03	8.1e+03
22	13C-1,2,3,6,7,8-HxCDF	6.22e+06	9.44e+02	6.6e+03	1.15e+07	1.20e+03	9.6e+03
23	13C-2,3,4,6,7,8-HxCDF	6.72e+06	9.44e+02	7.1e+03	1.30e+07	1.20e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	5.46e+06	9.44e+02	5.8e+03	1.02e+07	1.20e+03	8.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.01e+06	4.04e+03	1.2e+03	1.10e+07	3.23e+03	3.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.26e+06	4.04e+03	1.1e+03	9.44e+06	3.23e+03	2.9e+03
27	13C-2,3,7,8-TCDD	5.27e+06	6.51e+03	8.1e+02	6.74e+06	3.38e+03	2.0e+03
28	13C-1,2,3,7,8-PeCDD	8.31e+06	8.44e+02	9.8e+03	5.46e+06	1.40e+03	3.9e+03
29	13C-1,2,3,4,7,8-HxCDD	7.05e+06	3.69e+03	1.9e+03	5.52e+06	1.62e+03	3.4e+03
30	13C-1,2,3,6,7,8-HxCDD	7.00e+06	3.69e+03	1.9e+03	5.59e+06	1.62e+03	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.02e+06	7.44e+02	8.1e+03	5.61e+06	4.96e+02	1.1e+04
32	13C-OCDD	6.83e+06	8.00e+02	8.5e+03	7.56e+06	5.28e+02	1.4e+04
33	13C-1,2,3,4-TCDD	5.56e+06	6.51e+03	8.5e+02	7.19e+06	3.38e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	8.47e+06	3.69e+03	2.3e+03	6.70e+06	1.62e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	1.14e+05	1.40e+03	8.1e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.320e+03 + 7.800e+02) \times 2000}{(5.266e+06 + 6.739e+06) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
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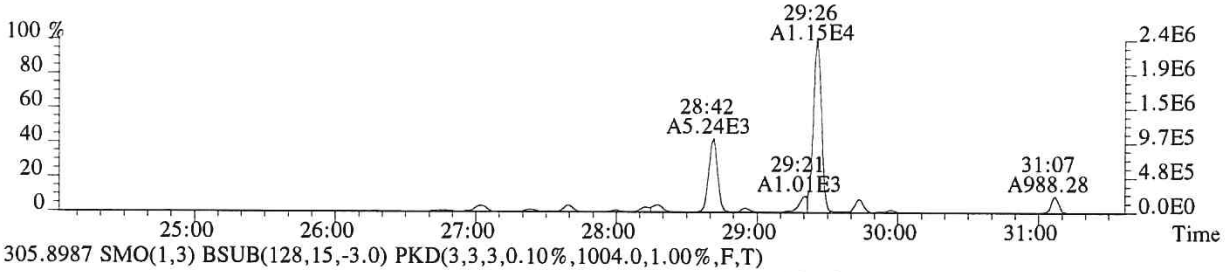
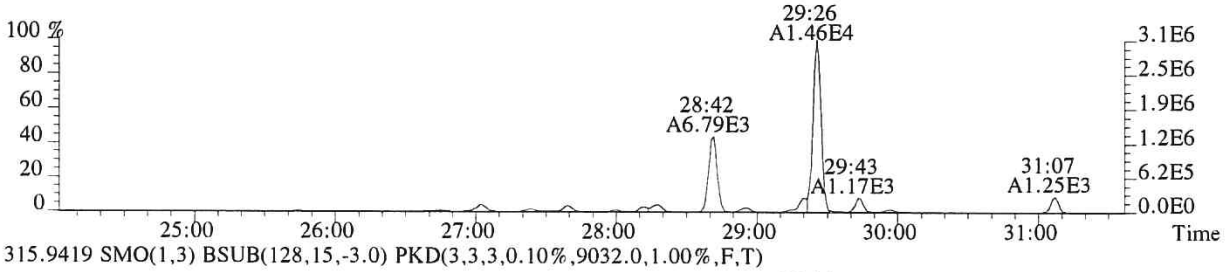
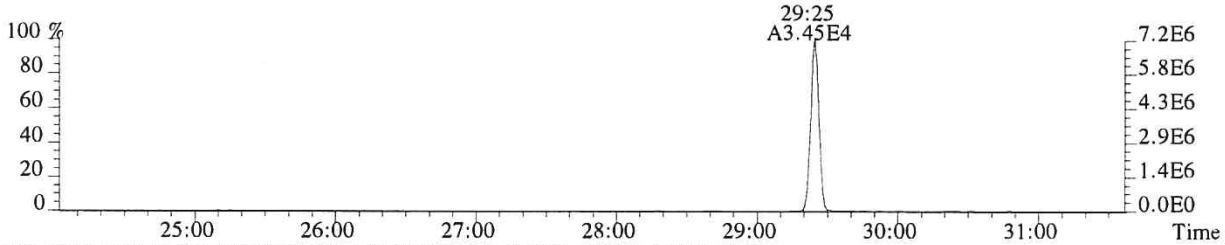
File:P615681 #1-538 Acq:21-NOV-2018 23:09:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



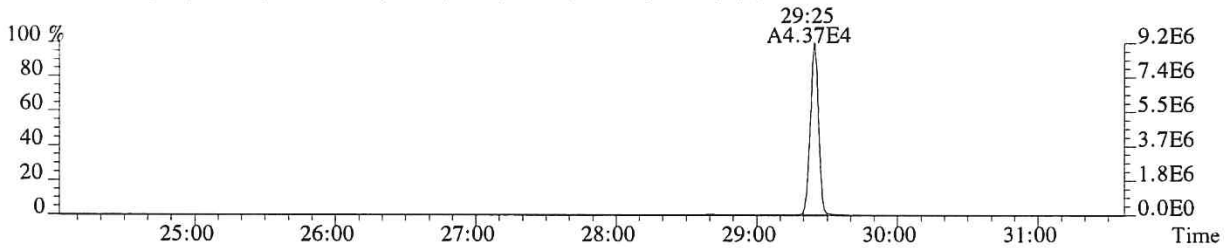
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



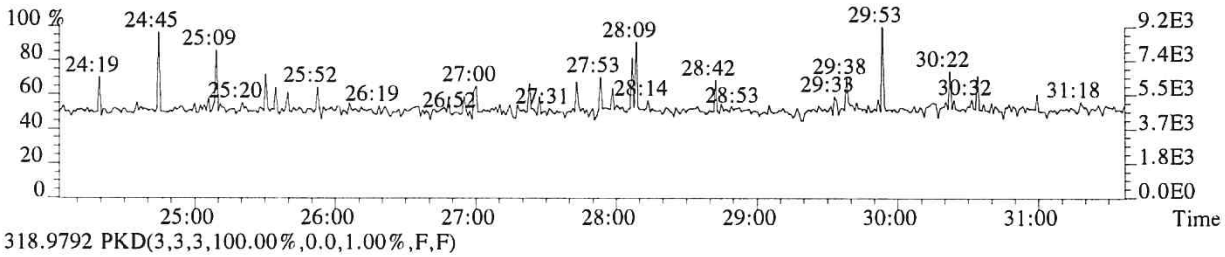
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9032.0,1.00%,F,T)



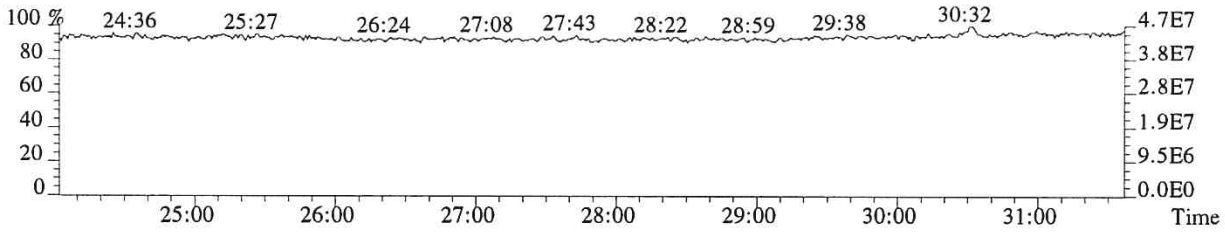
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4684.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

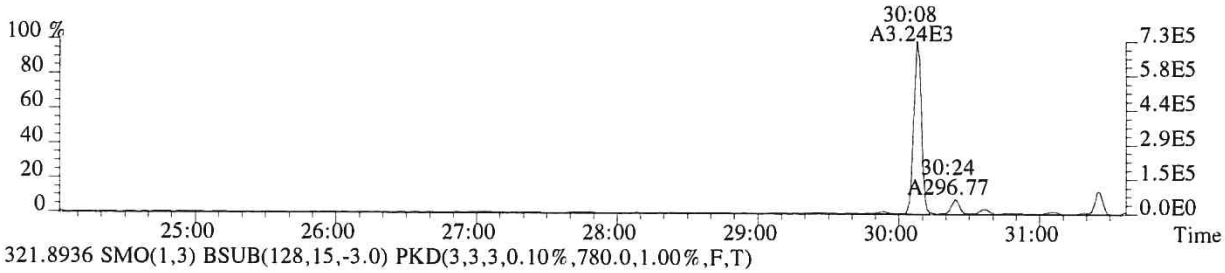


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

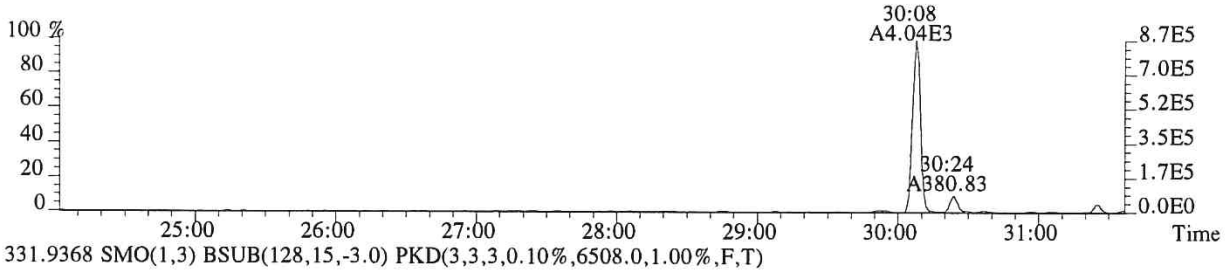


010416

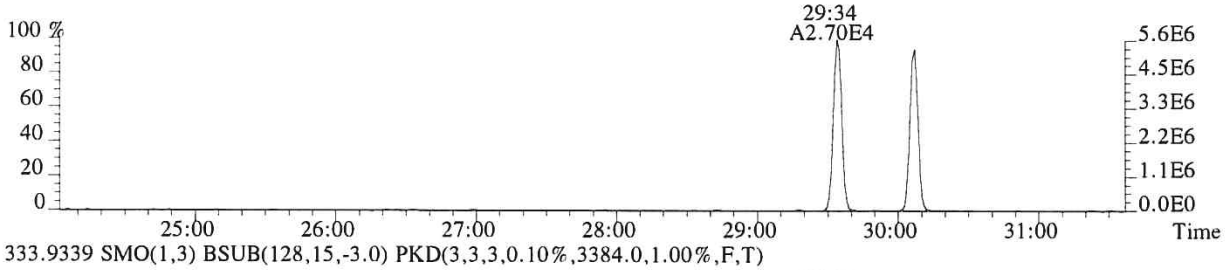
File:P615681 #1-538 Acq:21-NOV-2018 23:09:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



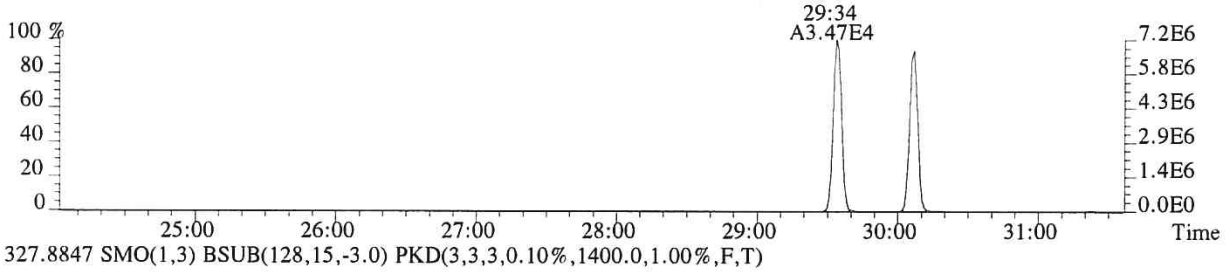
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



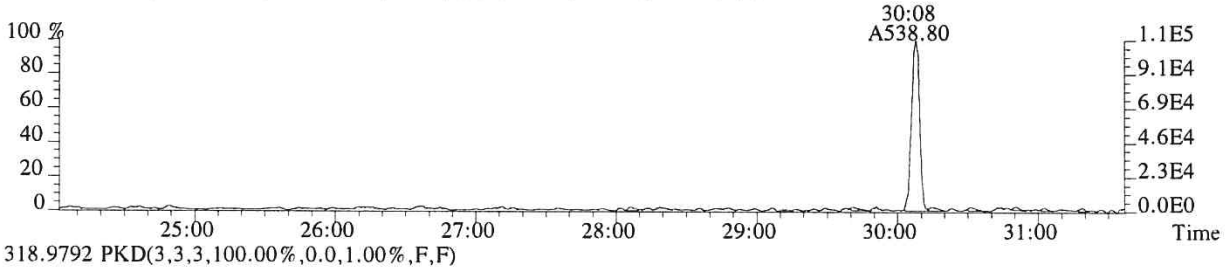
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6508.0,1.00%,F,T)



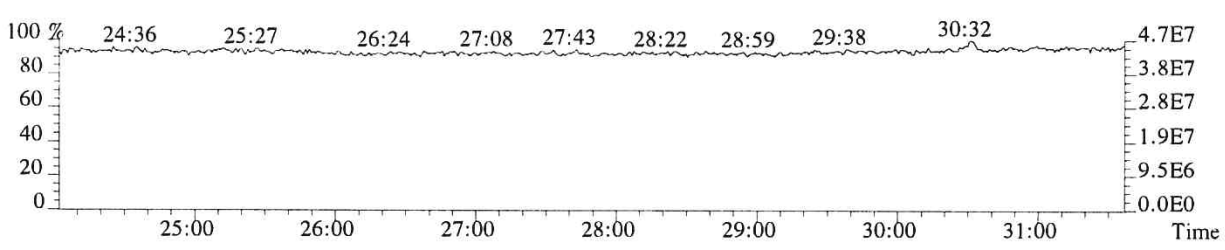
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3384.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)

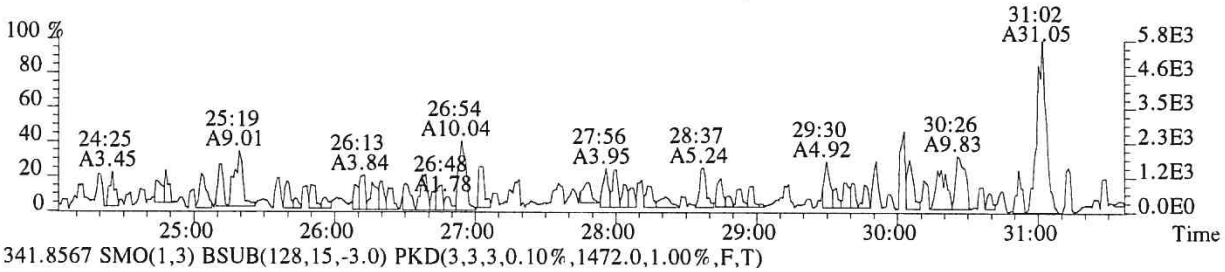


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

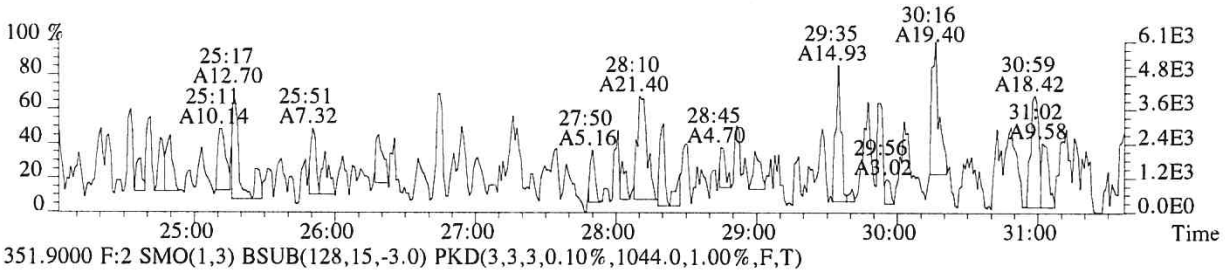


010417

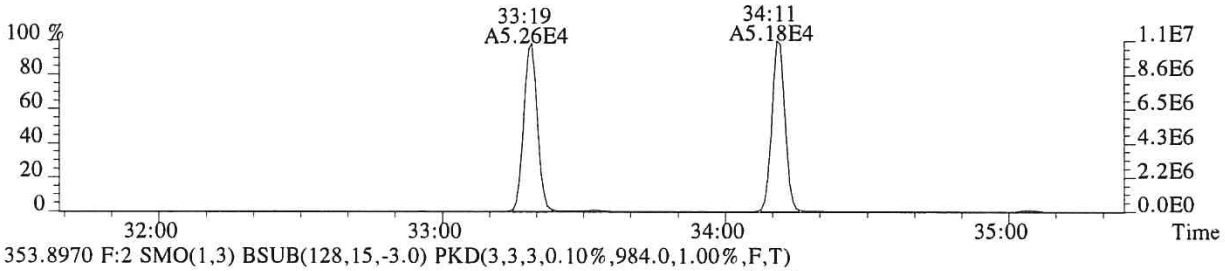
File:P615681 #1-538 Acq:21-NOV-2018 23:09:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



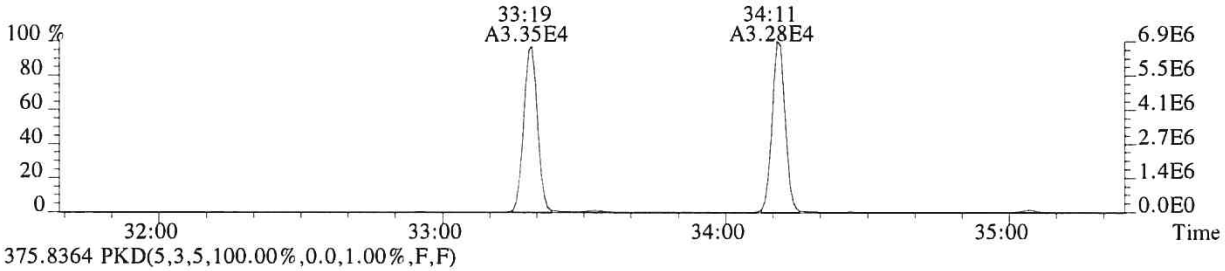
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



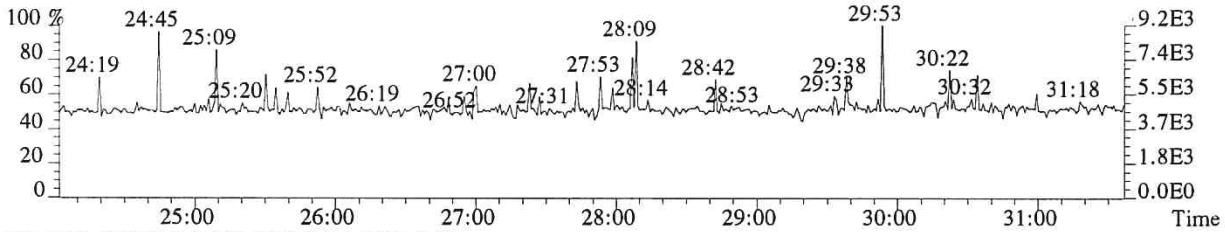
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



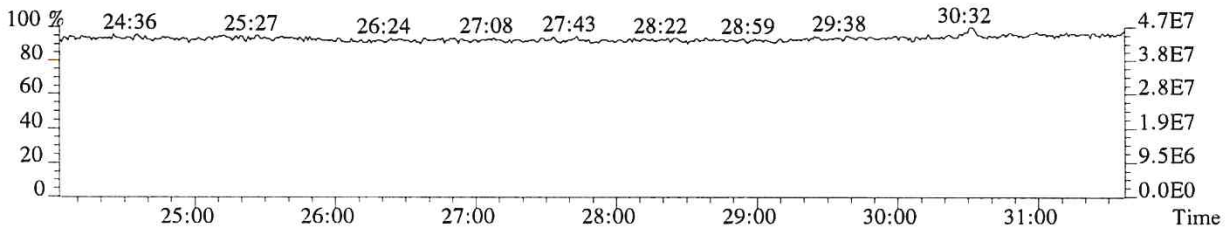
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



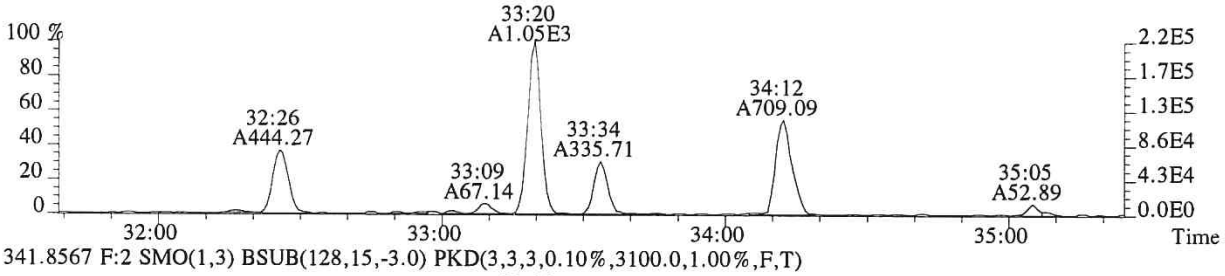
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



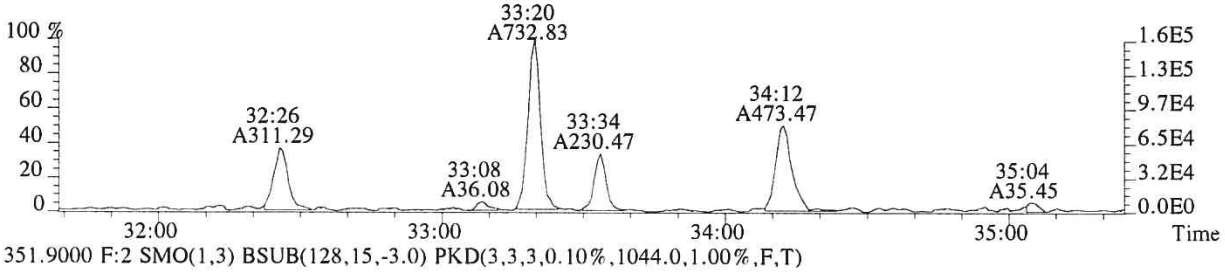
010418

File:P615681 #1-339 Acq:21-NOV-2018 23:09:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006DL

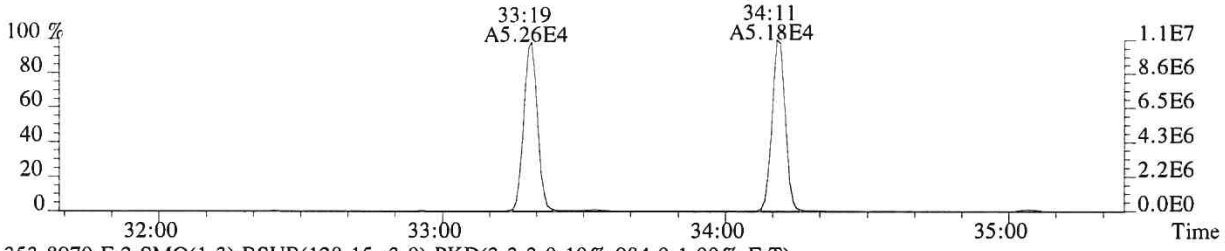
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



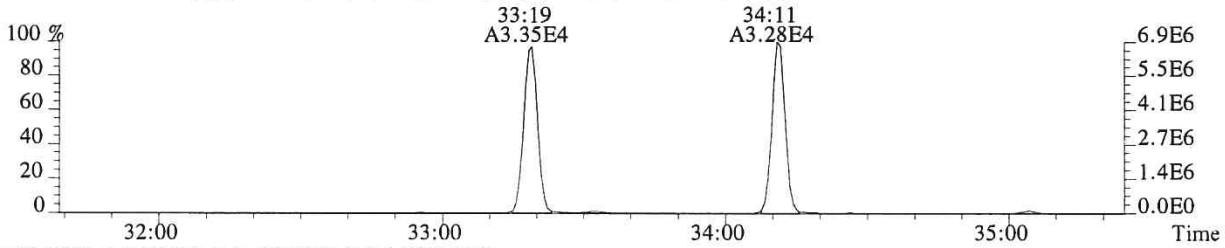
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3100.0,1.00%,F,T)



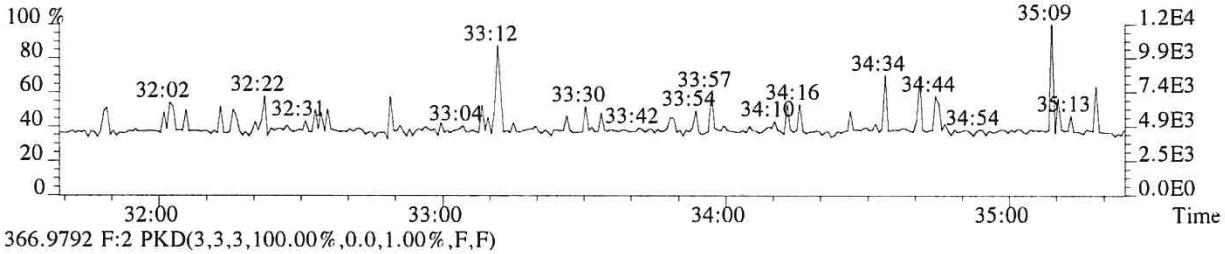
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



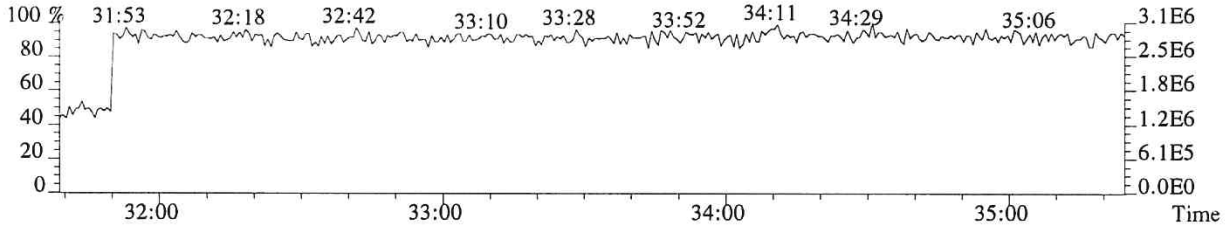
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



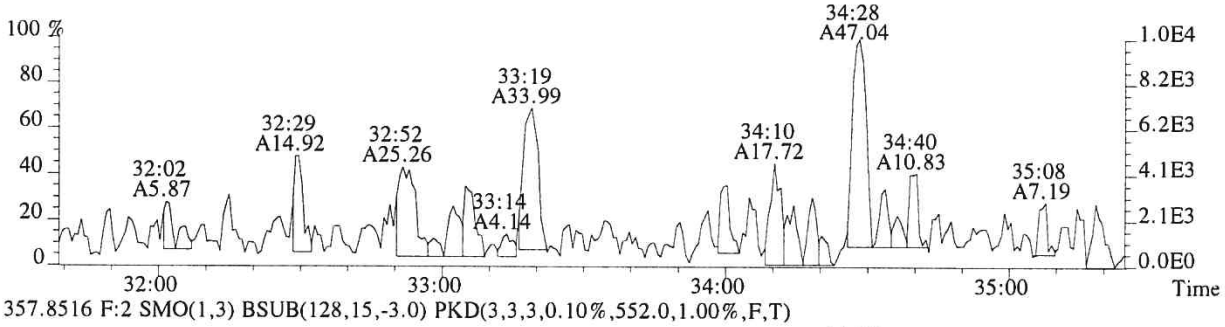
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



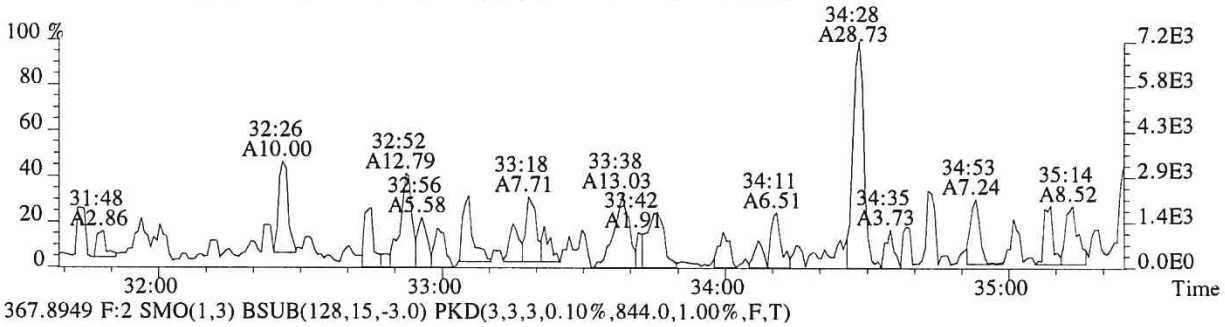
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



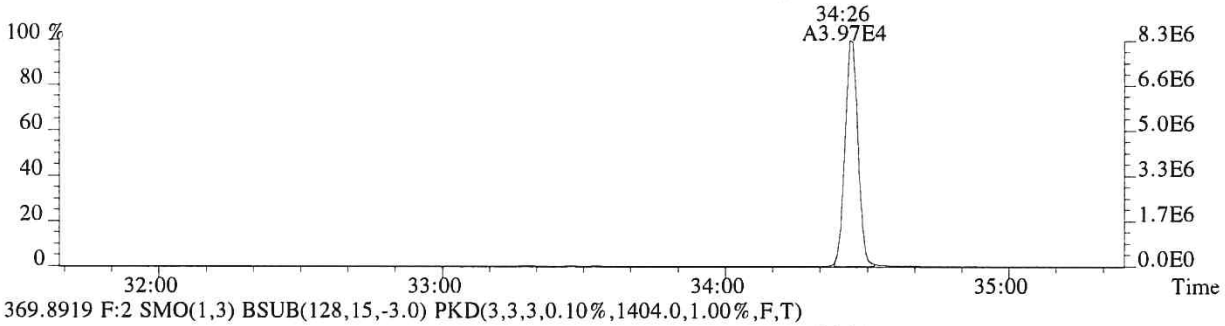
File:P615681 #1-339 Acq:21-NOV-2018 23:09:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1608.0,1.00%,F,T)



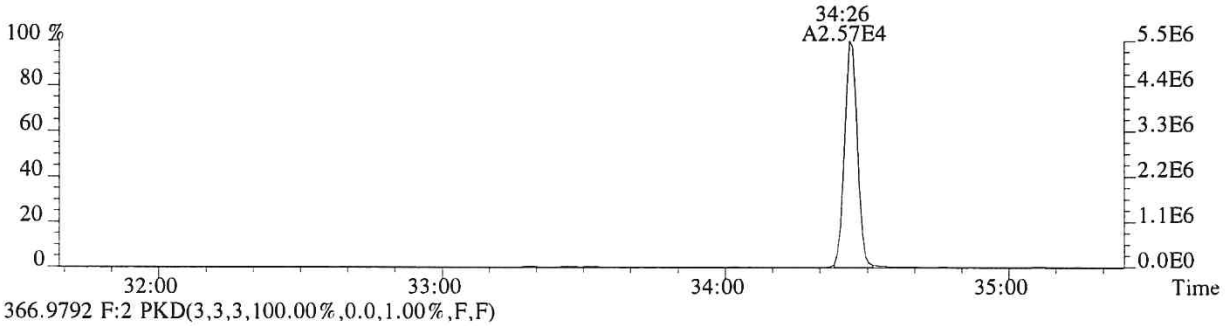
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



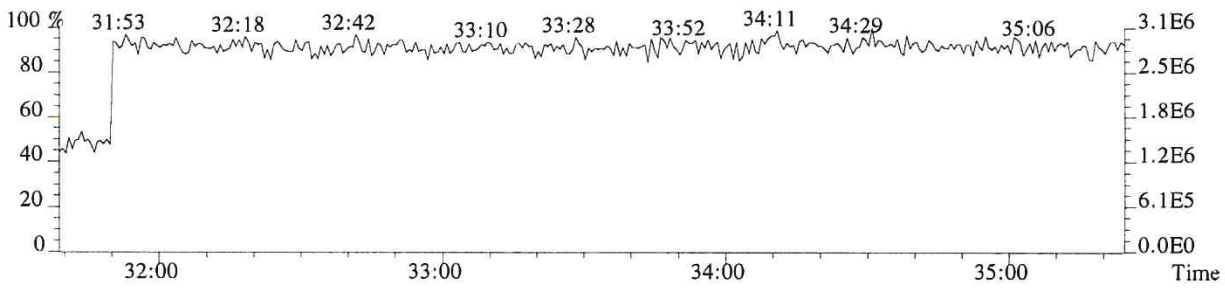
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)

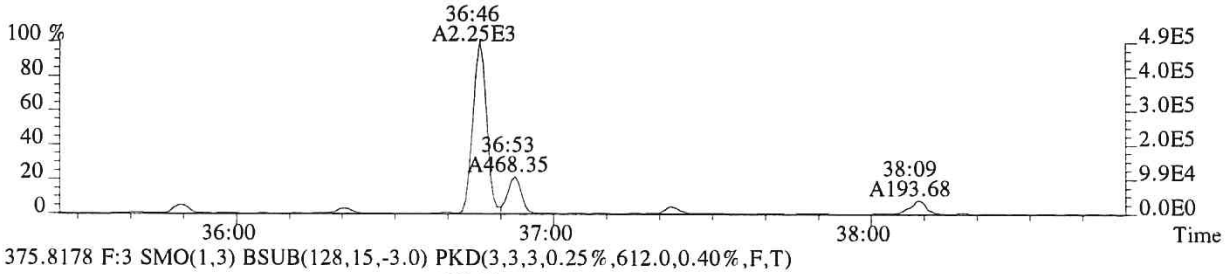


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

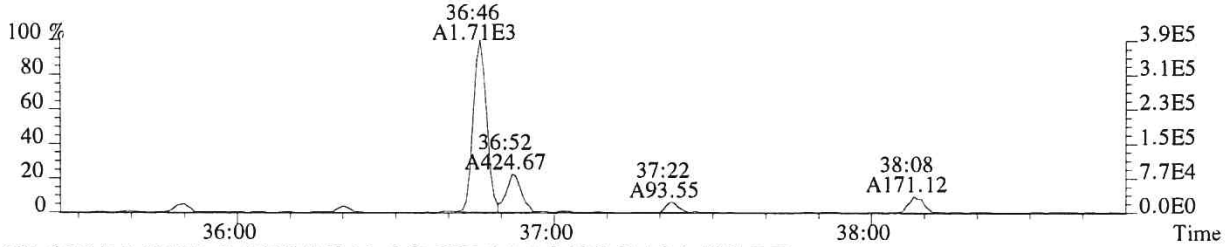


File:P615681 #1-303 Acq:21-NOV-2018 23:09:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006DL

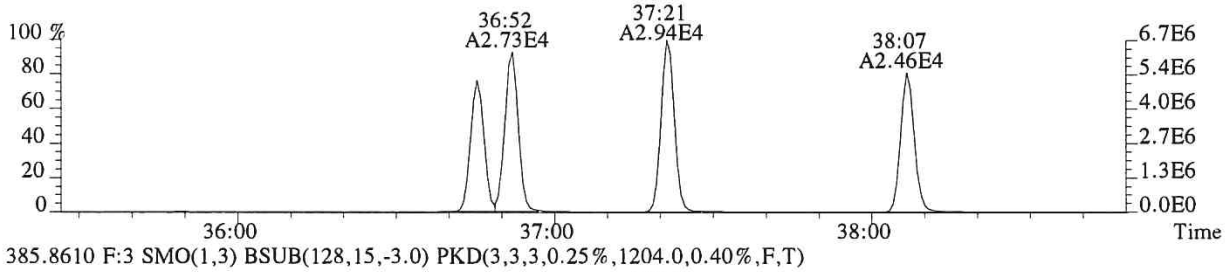
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



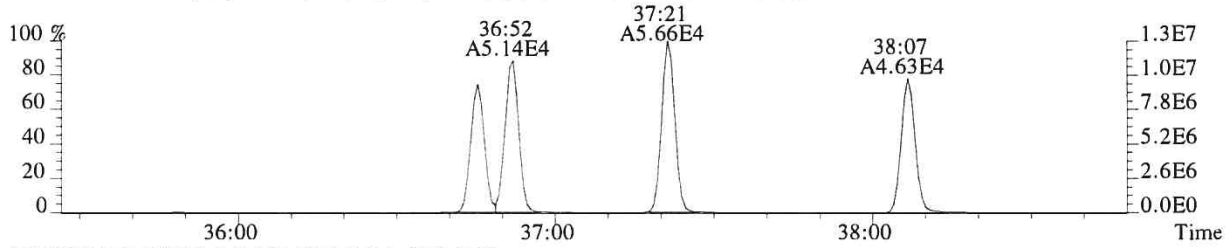
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



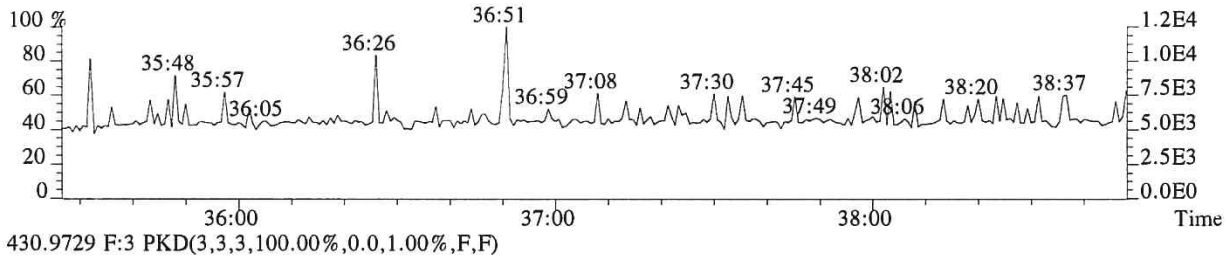
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,944.0,0.40%,F,T)



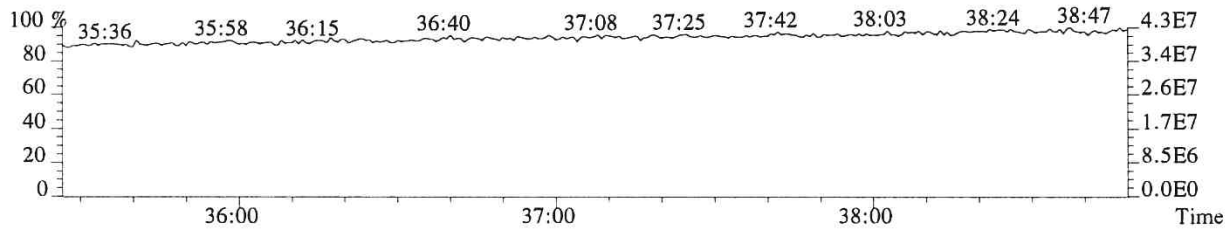
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

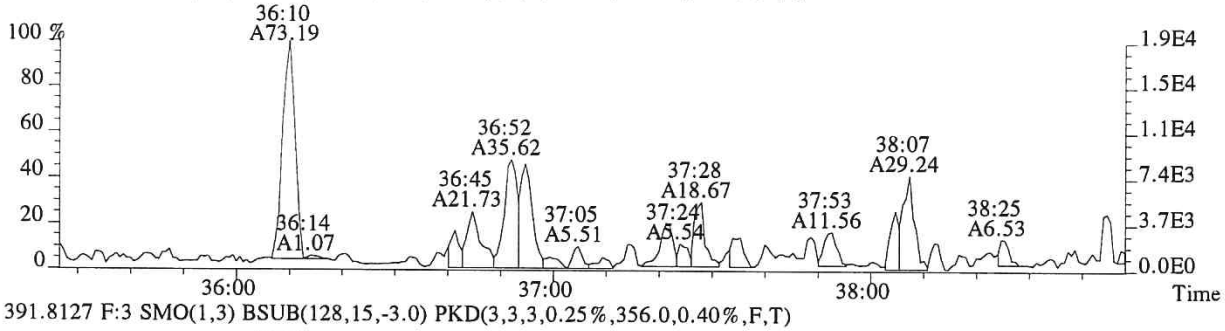


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

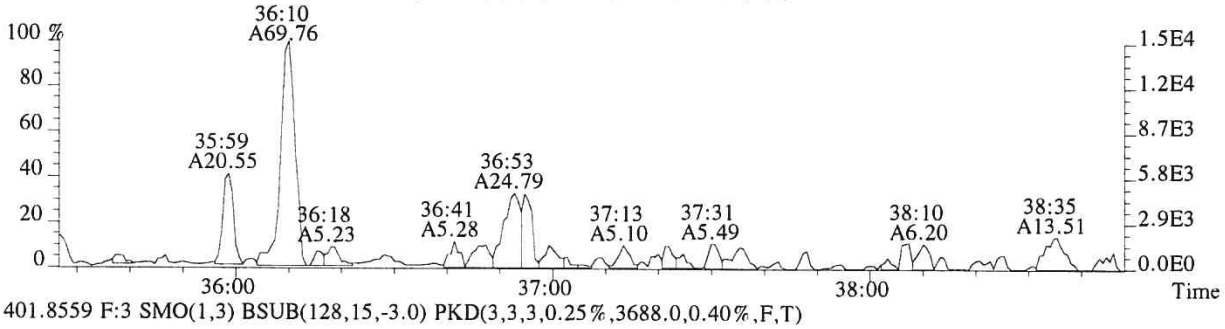


010421

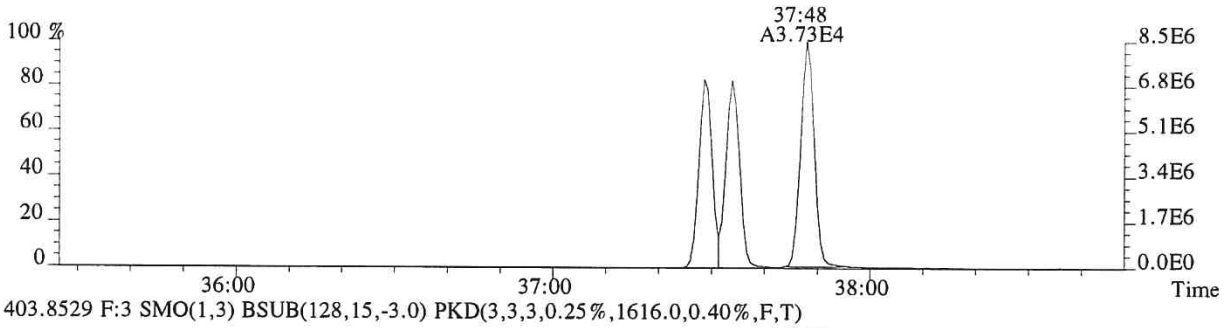
File:P615681 #1-303 Acq:21-NOV-2018 23:09:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



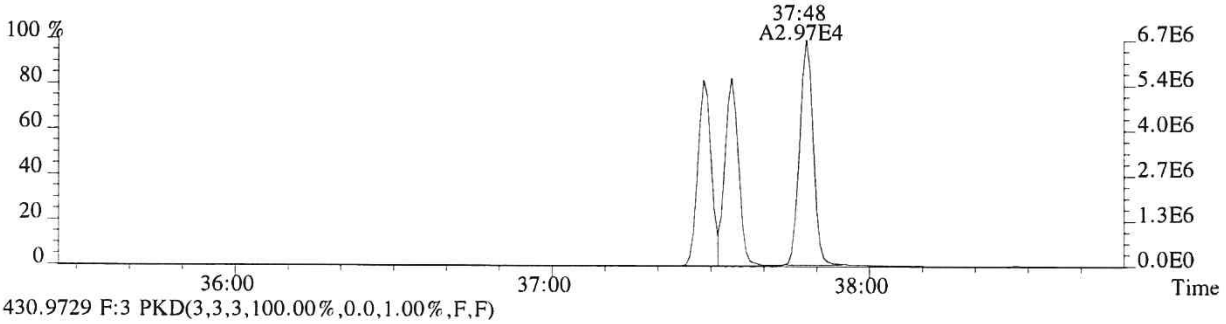
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



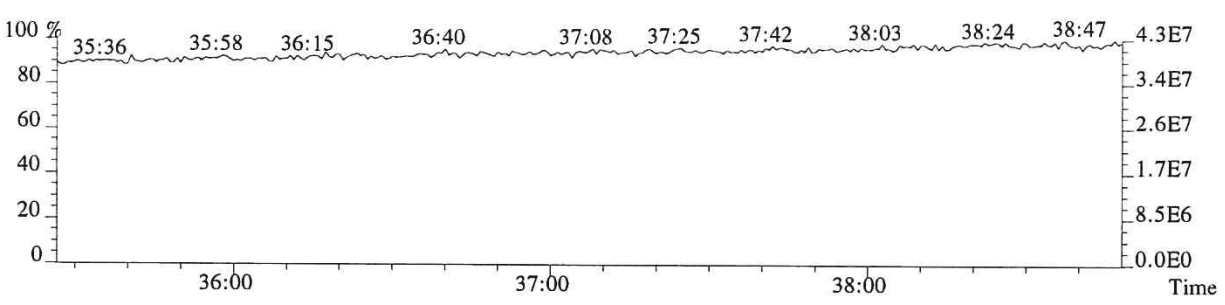
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3688.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1616.0,0.40%,F,T)



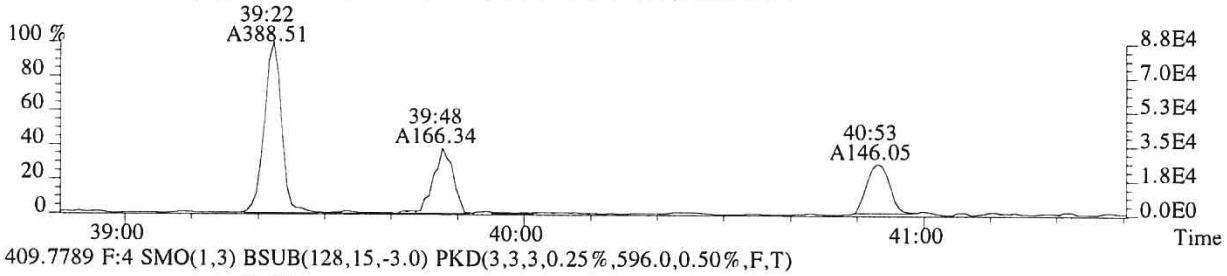
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



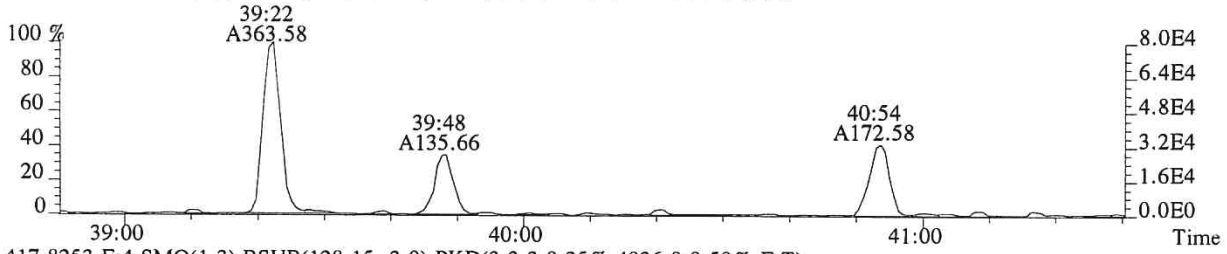
010422

File:P615681 #1-241 Acq:21-NOV-2018 23:09:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006DL

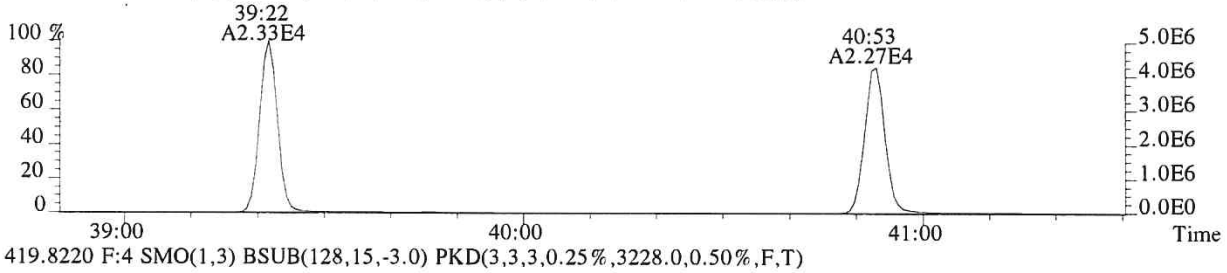
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.50%,F,T)



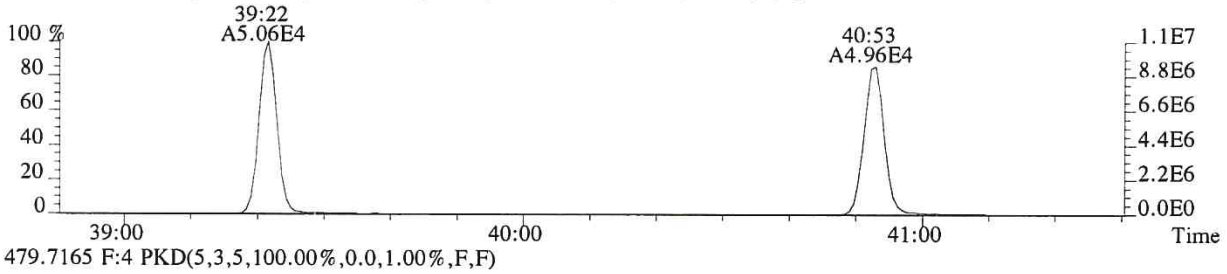
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.50%,F,T)



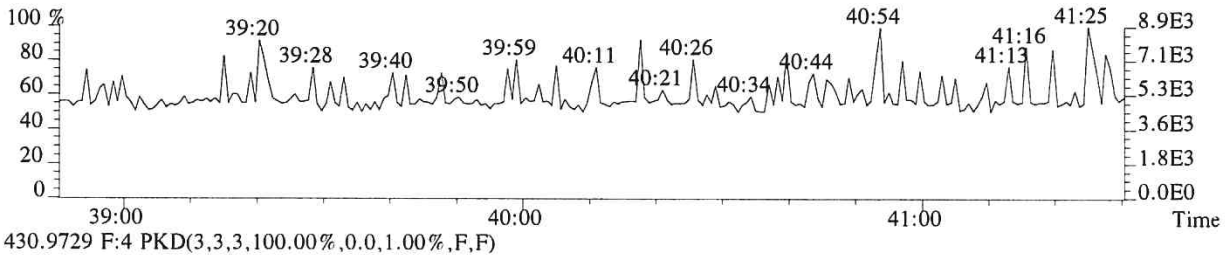
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4036.0,0.50%,F,T)



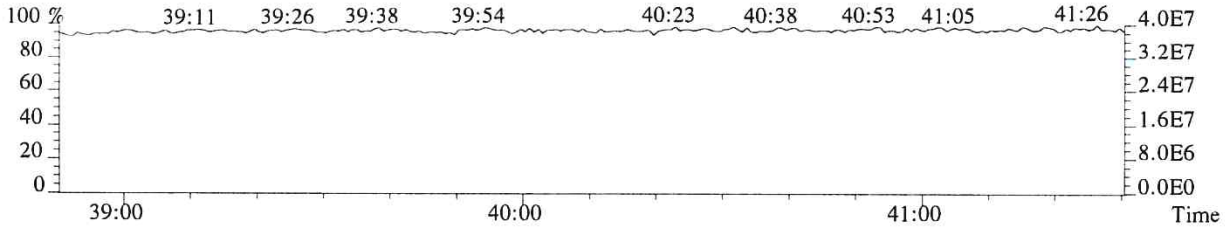
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3228.0,0.50%,F,T)



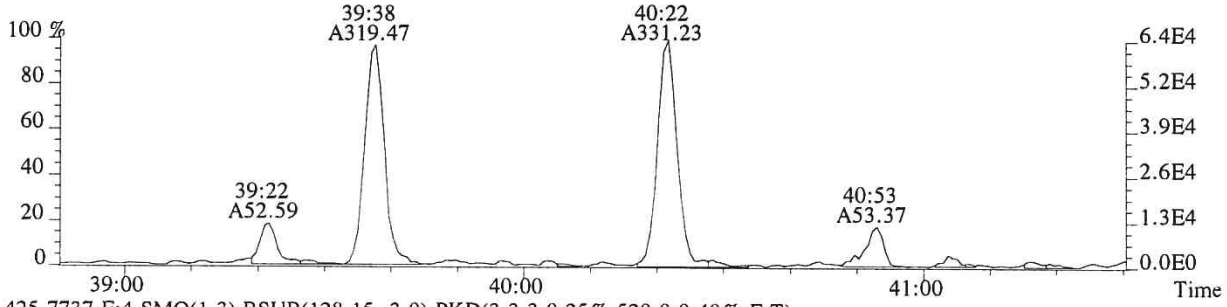
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



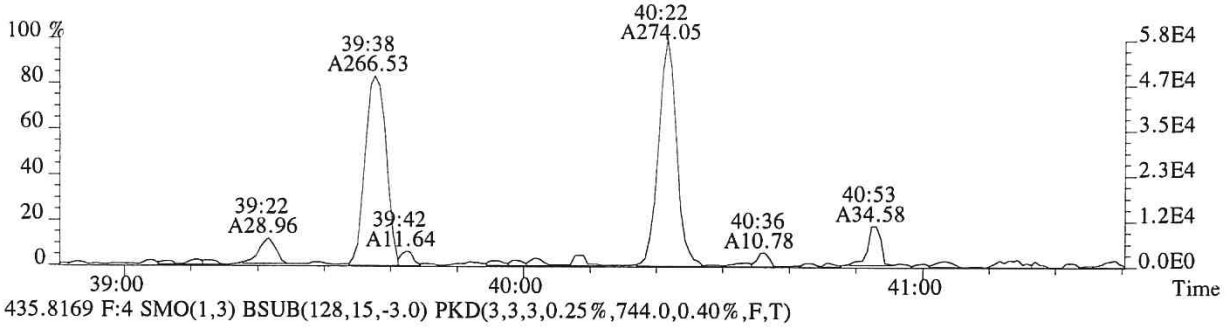
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



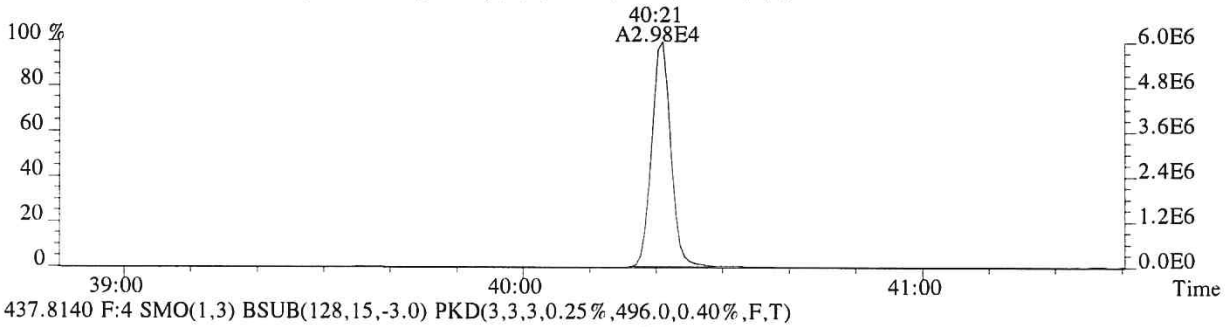
File:P615681 #1-241 Acq:21-NOV-2018 23:09:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



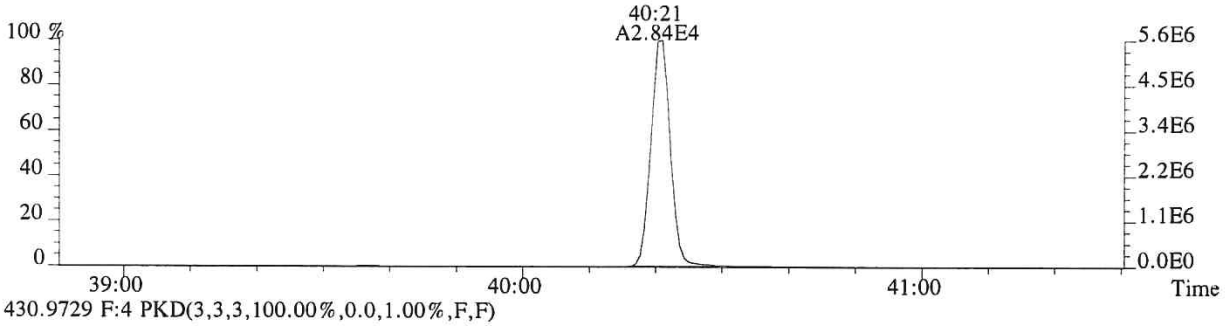
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



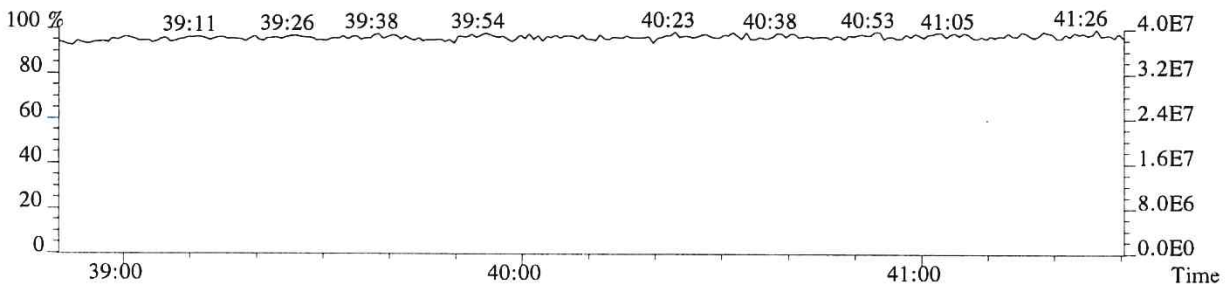
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



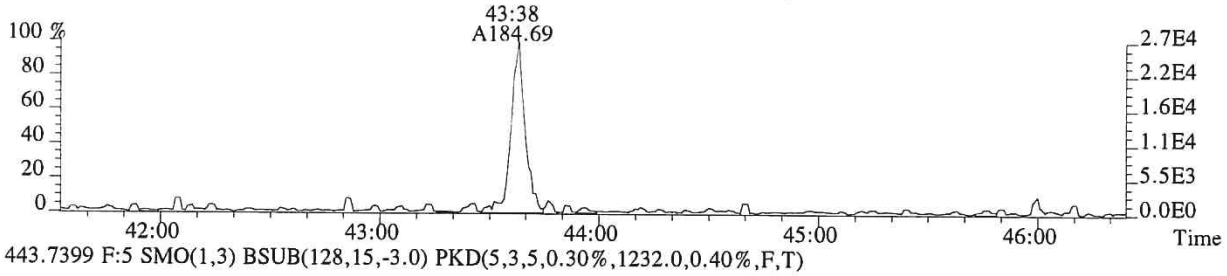
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



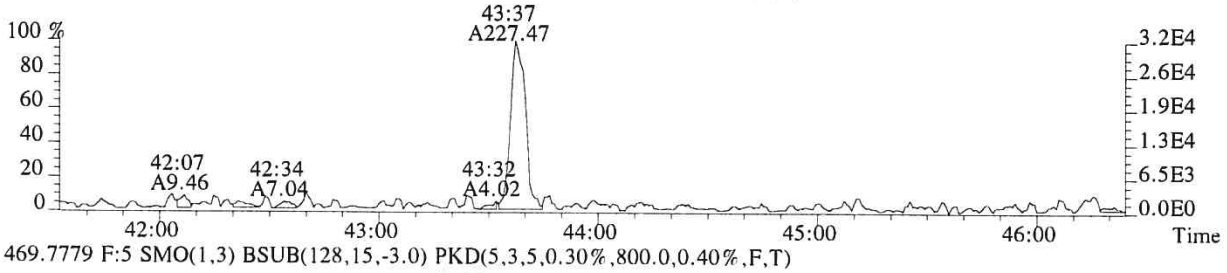
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



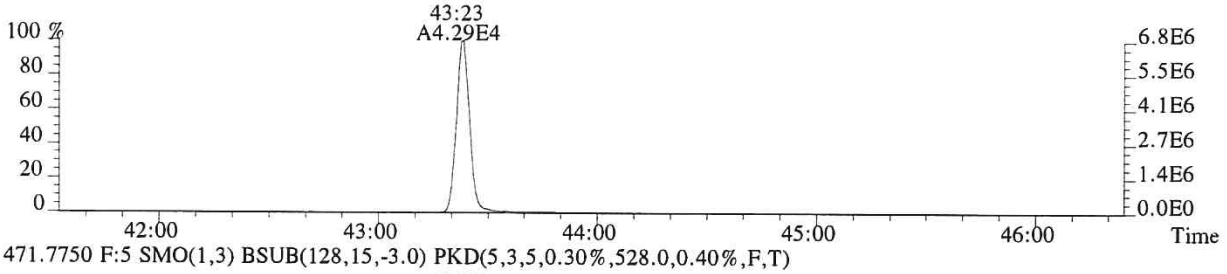
File:P615681 #1-438 Acq:21-NOV-2018 23:09:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



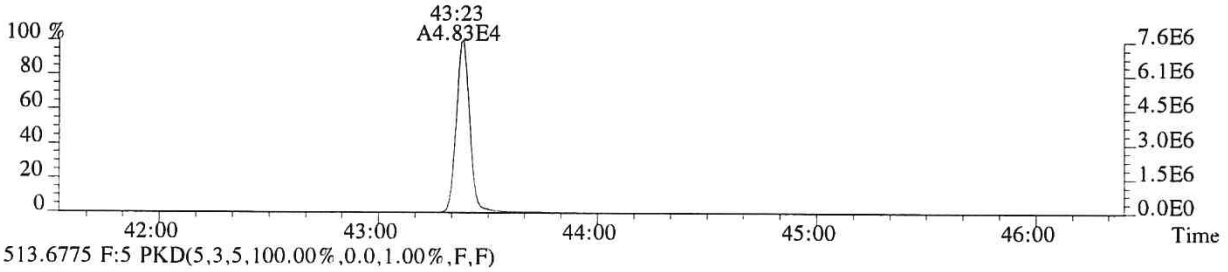
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1232.0,0.40%,F,T)



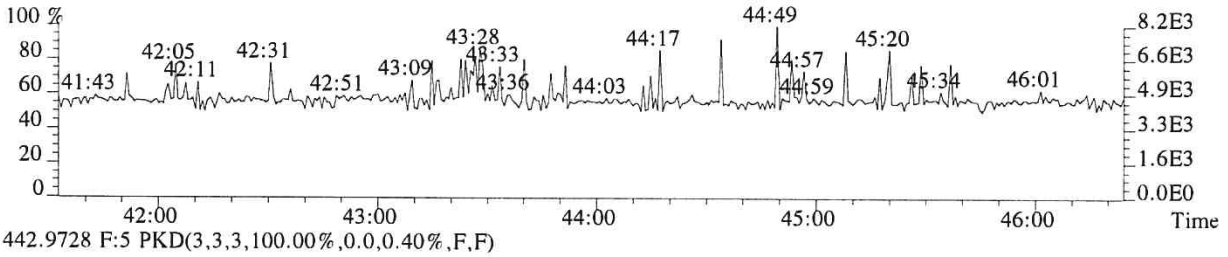
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



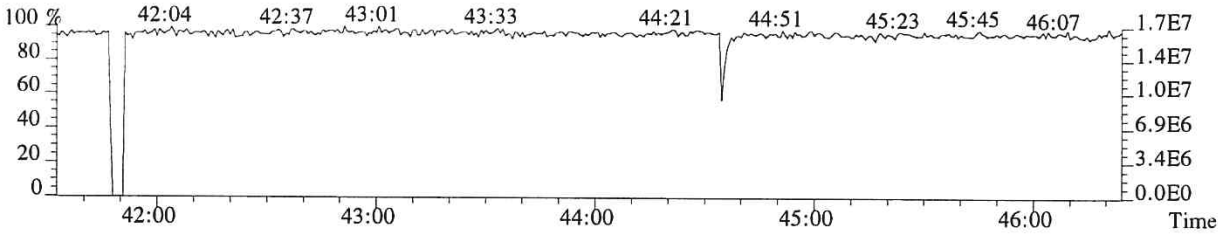
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



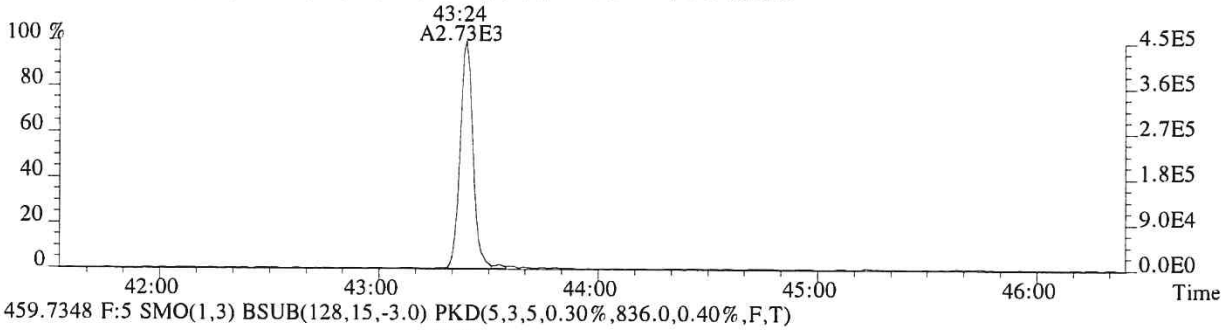
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



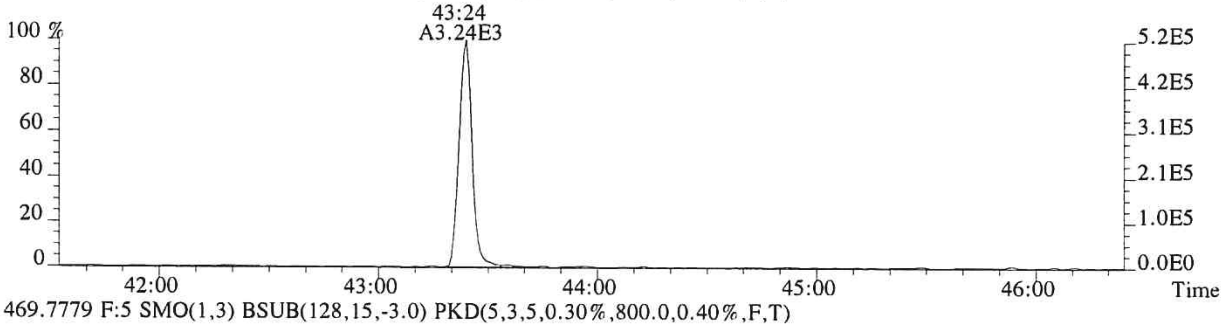
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



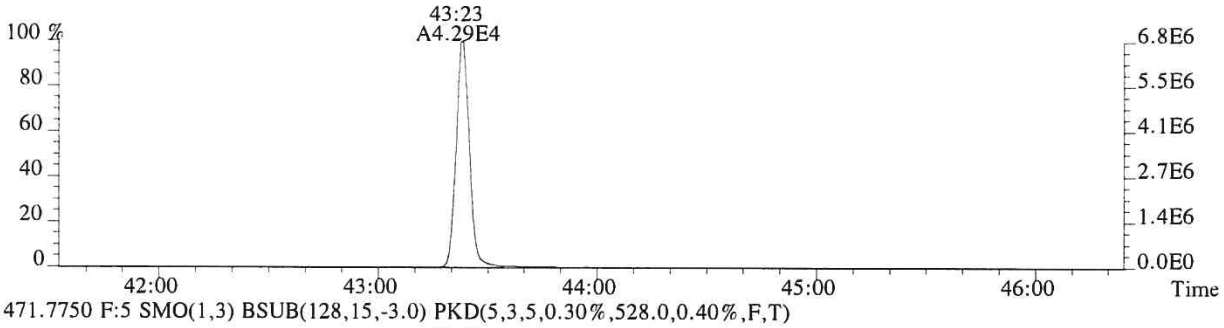
File:P615681 #1-438 Acq:21-NOV-2018 23:09:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-006DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



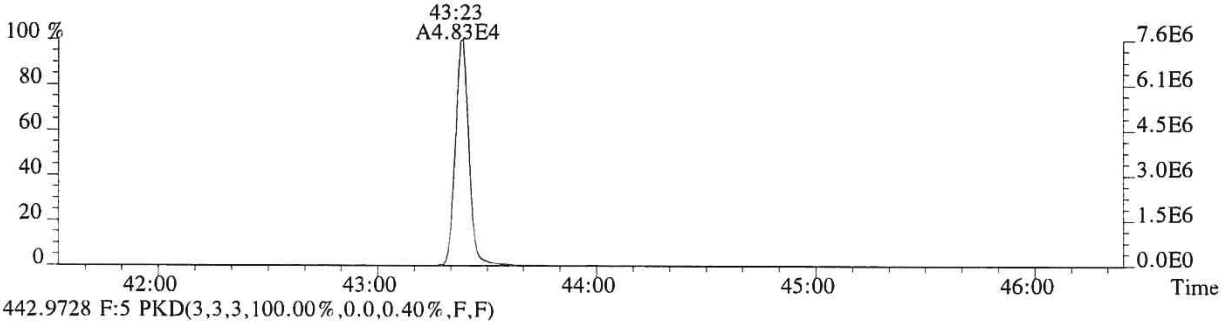
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



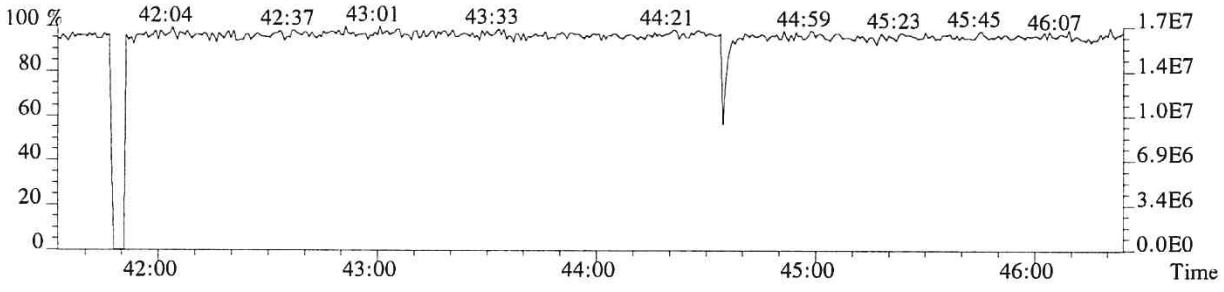
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0078

Run #13 Filename P519124 Samp: 1 Inj: 1 Acquired: 1-DEC-18 22:04:14
Processed: 4-DEC-18 18:20:48 Sample ID: E1801035-017

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	2.210e+04	2.996e+04	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:27	1.447e+03	9.969e+02	1.45	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:21	9.115e+02	6.318e+02	1.44	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:01	1.643e+03	1.362e+03	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	4.953e+02	3.474e+02	1.43	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.839e+02	1.790e+02	1.03	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:25	1.114e+02	1.052e+02	1.06	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	1.647e+03	1.761e+03	0.94	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	1.183e+02	1.325e+02	0.89	yes	no	1.258
10	Unk	OCDF	42:36	5.250e+03	6.398e+03	0.82	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	5.726e+03	7.388e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	1.844e+02	8.455e+01	2.18	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:46	7.217e+01	6.956e+01	1.04	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	3.575e+02	2.689e+02	1.33	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	2.135e+02	1.696e+02	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	6.532e+03	6.458e+03	1.01	yes	no	1.025
17	Unk	OCDD	42:24	3.895e+04	4.414e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	3.034e+04	3.826e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	4.519e+04	2.858e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.007e+04	2.540e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.664e+04	3.314e+04	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	1.852e+04	3.548e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	1.561e+04	3.032e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.368e+04	2.685e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	8.077e+03	1.844e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	6.254e+03	1.396e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	2.173e+04	2.747e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	3.096e+04	1.969e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	2.125e+04	1.680e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	2.150e+04	1.702e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.455e+04	1.366e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:23	8.091e+03	8.782e+03	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	5.517e+04	7.000e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	5.630e+04	4.460e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	2.218e+04				no	1.014

$$OCDD = \frac{(3.895e+04 + 4.414e+04) \times 4000 \text{ pg} \times 1}{(8.091e+03 + 8.782e+03) \times 10.53 \text{ g} \times 81.1 / 100 \times 1.118} = 2000 \text{ ng/kg}$$

WD 12/5/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0078

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P519124 Sample:1 Injection:1 Function:1

Acquired: 1-DEC-18 22:04:14 Processed: 4-DEC-18 18:20:48

Mass: 303.9020 305.8990 Tot Response: 8.74e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:45	2.31e+02	2.93e+02	0.79	yes	5.24e+02		n	n
2	25:18	4.67e+02	5.50e+02	0.85	yes	1.02e+03		n	n
3	25:37	1.02e+03	1.39e+03	0.74	yes	2.41e+03		n	n
4	26:55	7.83e+02	1.08e+03	0.73	yes	1.86e+03		n	n
5	27:02	8.11e+02	1.20e+03	0.68	yes	2.01e+03		n	n
6	27:27	7.67e+03	1.06e+04	0.72	yes	1.83e+04		n	n
7	27:43	4.95e+02	6.74e+02	0.73	yes	1.17e+03		n	n
8	28:15	2.21e+04	3.00e+04	0.74	yes	5.21e+04	2,3,7,8-TCDF	n	n
9	28:35	1.96e+03	2.50e+03	0.78	yes	4.45e+03		n	n
10	28:49	2.07e+02	3.07e+02	0.67	yes	5.14e+02		n	n
11	30:04	1.38e+03	1.75e+03	0.79	yes	3.13e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0078

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P519124 Sample:1 Injection:1 Function:1

Acquired: 1-DEC-18 22:04:14 Processed: 4-DEC-18 18:20:48

Mass: 319.8970 321.8940 Tot Response: 1.52e+04 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:37	9.37e+01	1.43e+02	0.66	yes	2.36e+02		n	n
2	26:01	5.23e+01	6.35e+01	0.82	yes	1.16e+02		n	n
3	27:09	5.18e+01	6.90e+01	0.75	yes	1.21e+02		n	n
4	27:32	4.89e+01	6.96e+01	0.70	yes	1.19e+02		n	n
5	28:48	1.59e+02	2.07e+02	0.77	yes	3.66e+02		n	n
6	29:02	5.73e+03	7.39e+03	0.77	yes	1.31e+04	2,3,7,8-TCDD	n	n
7	29:20	4.84e+02	6.91e+02	0.70	yes	1.18e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0078

Entry: 38 Totals Name: Total Penta-Furans1

Run: 13 File: P519124 Sample:1 Injection:1 Function:1

Acquired: 1-DEC-18 22:04:14 Processed: 4-DEC-18 18:20:48

Mass: 339.8600 341.8570 Tot Response: 1.57e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:03	9.56e+02	6.14e+02 1.56	yes	1.57e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0078

Entry: 39 Totals Name: Total Penta-Furans2

Run: 13 File: P519124 Sample:1 Injection:1 Function:2

Acquired: 1-DEC-18 22:04:14 Processed: 4-DEC-18 18:20:48

Mass: 339.8600 341.8570 Tot Response: 6.58e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:31	1.12e+03	8.41e+02	1.34	yes	1.96e+03		n	n
2	32:02	1.87e+02	1.12e+02	1.68	yes	2.99e+02		n	n
3	32:16	1.59e+02	9.28e+01	1.71	yes	2.51e+02		n	n
4	32:27	1.45e+03	9.97e+02	1.45	yes	2.44e+03	1,2,3,7,8-PeCDF	n	n
5	33:16	4.85e+01	3.13e+01	1.55	yes	7.98e+01		n	n
6	33:21	9.12e+02	6.32e+02	1.44	yes	1.54e+03	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0078

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P519124 Sample:1 Injection:1 Function:2

Acquired: 1-DEC-18 22:04:14 Processed: 4-DEC-18 18:20:48

Mass: 355.8550 357.8520 Tot Response: 3.83e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:34	2.25e+02	1.57e+02 1.43	yes	3.83e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0078

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P519124 Sample:1 Injection:1 Function:3

Acquired: 1-DEC-18 22:04:14 Processed: 4-DEC-18 18:20:48

Mass: 373.8210 375.8180 Tot Response: 8.86e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:55	2.89e+02	2.57e+02	1.12	yes	5.47e+02		n	n
2	35:05	1.04e+03	8.79e+02	1.18	yes	1.92e+03		n	n
3	35:35	1.20e+03	1.04e+03	1.15	yes	2.23e+03		n	n
4	35:57	4.97e+01	4.59e+01	1.08	yes	9.56e+01		n	n
5	36:01	1.64e+03	1.36e+03	1.21	yes	3.00e+03	1,2,3,4,7,8-HxCDF	n	n
6	36:08	4.95e+02	3.47e+02	1.43	yes	8.43e+02	1,2,3,6,7,8-HxCDF	n	n
7	37:25	1.11e+02	1.05e+02	1.06	yes	2.17e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0078

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P519124 Sample:1 Injection:1 Function:3

Acquired: 1-DEC-18 22:04:14 Processed: 4-DEC-18 18:20:48

Mass: 389.8160 391.8130 Tot Response: 6.84e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	1.58e+03	1.37e+03	1.15	yes	2.96e+03		n	n
2	35:57	2.39e+02	1.78e+02	1.35	yes	4.17e+02		n	n
3	36:11	1.29e+03	1.01e+03	1.28	yes	2.31e+03		n	n
4	36:51	3.58e+02	2.69e+02	1.33	yes	6.26e+02	1,2,3,6,7,8-HxCDD	n	n
5	37:01	8.20e+01	7.33e+01	1.12	yes	1.55e+02		n	n
6	37:06	2.14e+02	1.70e+02	1.26	yes	3.83e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0078

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P519124 Sample:1 Injection:1 Function:4

Acquired: 1-DEC-18 22:04:14 Processed: 4-DEC-18 18:20:48

Mass: 407.7820 409.7790 Tot Response: 1.01e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:39	1.65e+03	1.76e+03	0.94	yes	3.41e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	39:03	3.10e+03	3.20e+03	0.97	yes	6.30e+03		n	n
3	39:13	7.43e+01	8.24e+01	0.90	yes	1.57e+02		n	n
4	40:04	1.18e+02	1.33e+02	0.89	yes	2.51e+02	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0078

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P519124 Sample:1 Injection:1 Function:4

Acquired: 1-DEC-18 22:04:14 Processed: 4-DEC-18 18:20:48

Mass: 423.7770 425.7740 Tot Response: 3.61e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	1.20e+04	1.11e+04	1.08	yes	2.31e+04		n	n
2	39:35	6.53e+03	6.46e+03	1.01	yes	1.30e+04	1,2,3,4,6,7,8-HpCDD	n	n

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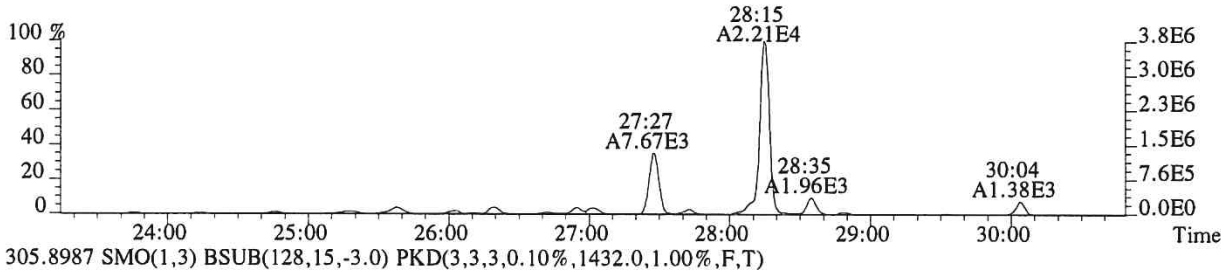
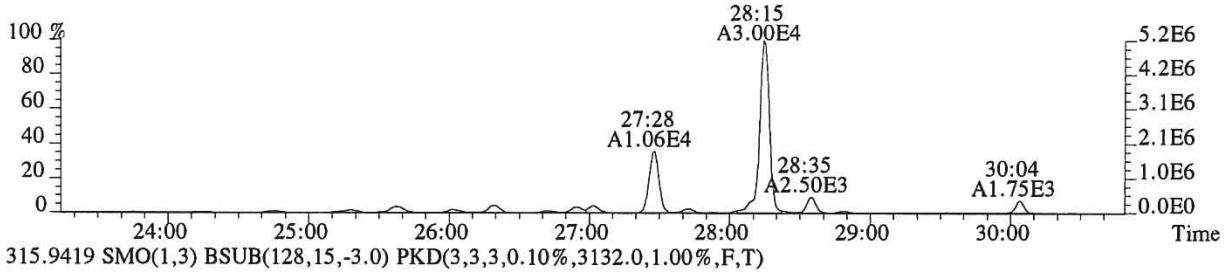
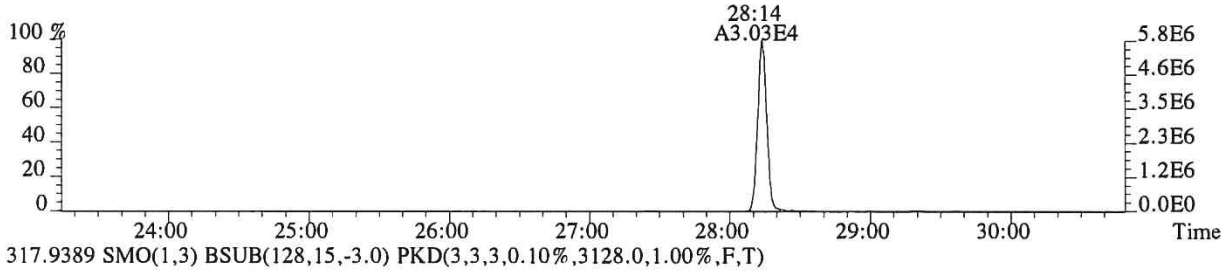
File:P519124 #1-538 Acq: 1-DEC-2018 22:04:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-017
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



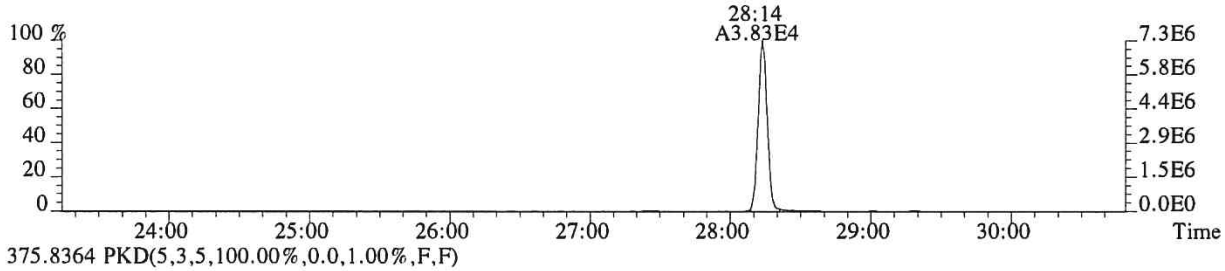
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



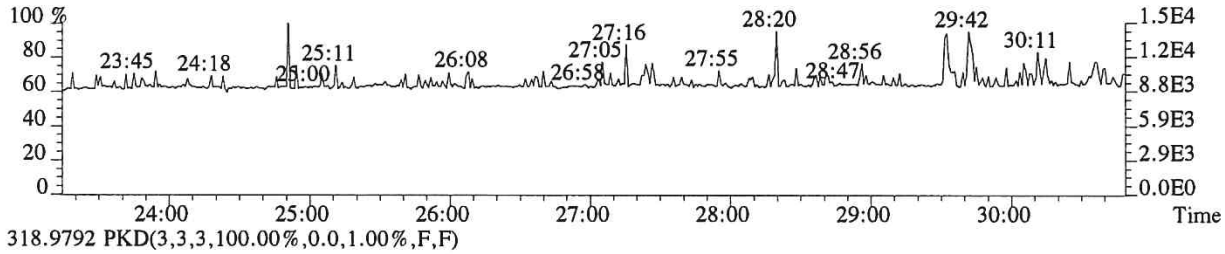
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



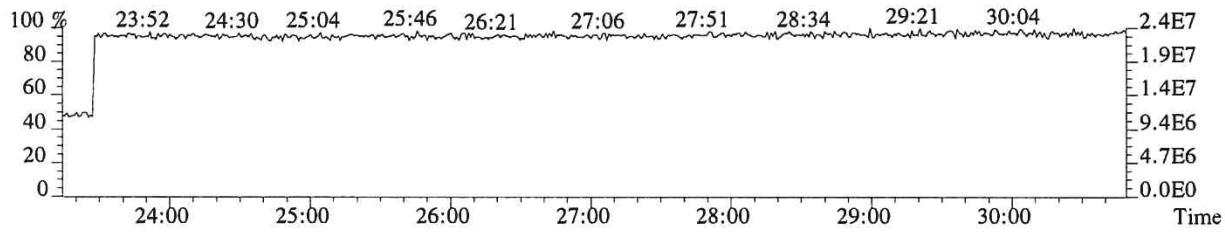
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3128.0,1.00%,F,T)



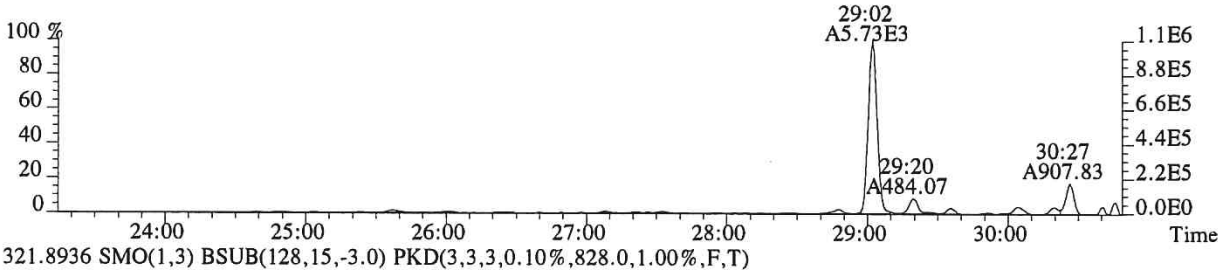
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



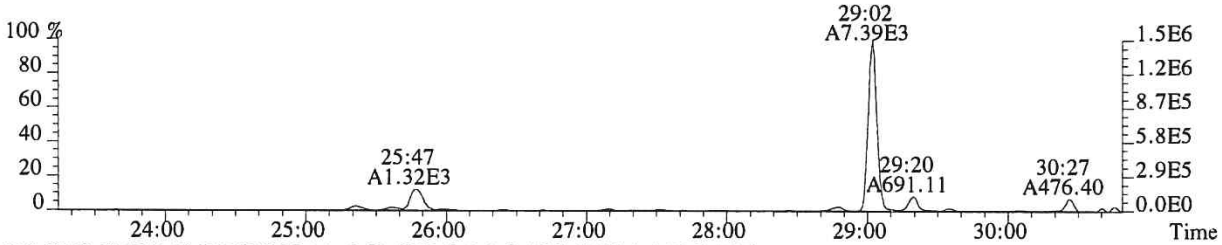
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



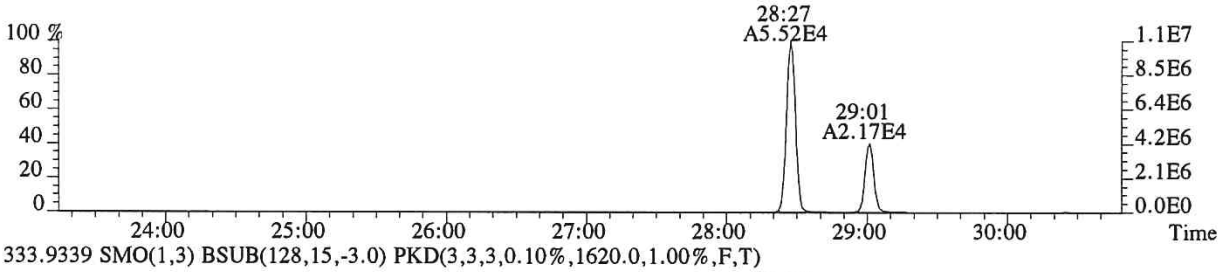
File:P519124 #1-538 Acq: 1-DEC-2018 22:04:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-017
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



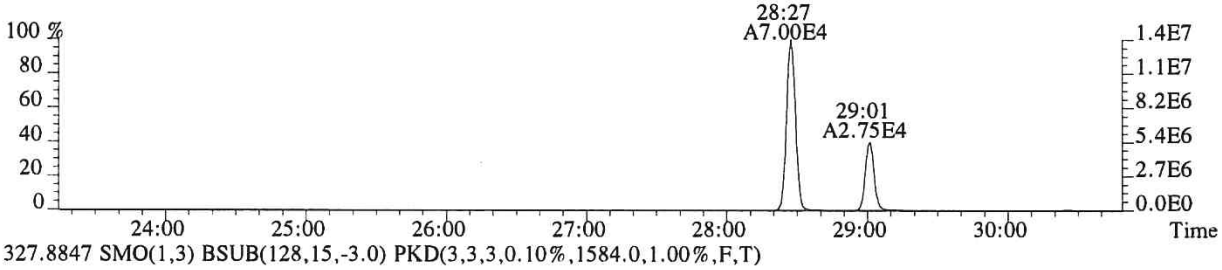
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



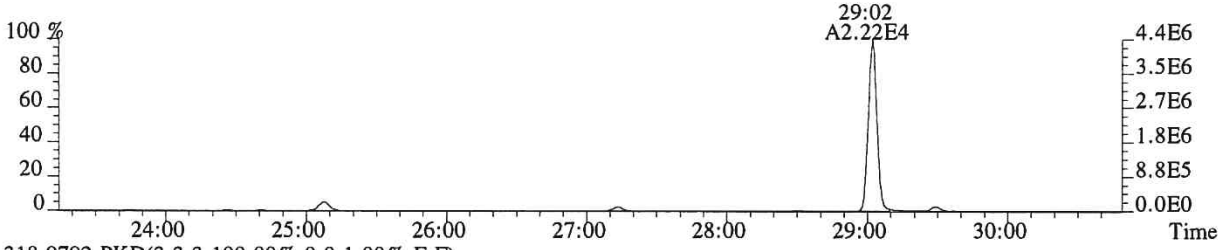
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6204.0,1.00%,F,T)



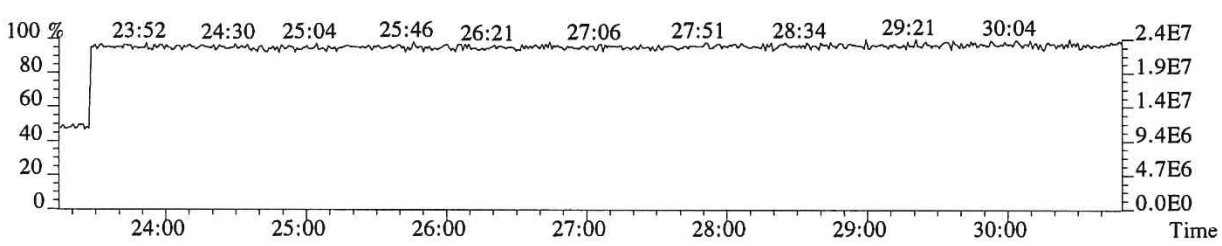
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1620.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1584.0,1.00%,F,T)

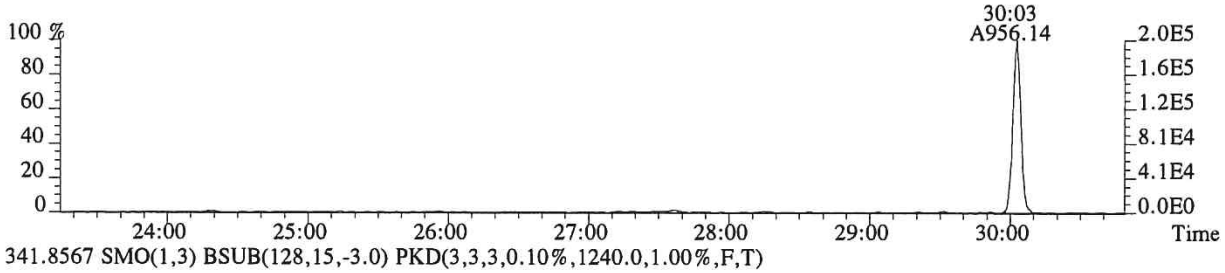


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

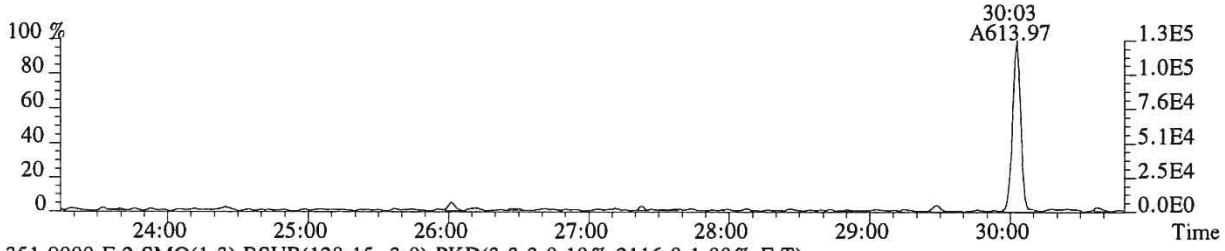


010438

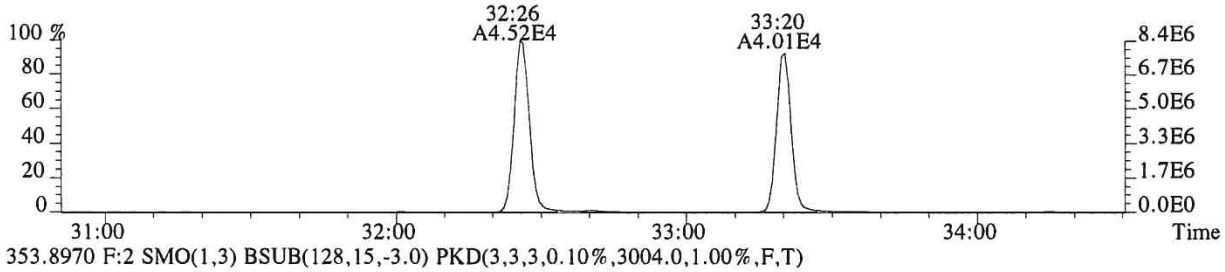
File:P519124 #1-538 Acq: 1-DEC-2018 22:04:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-017
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



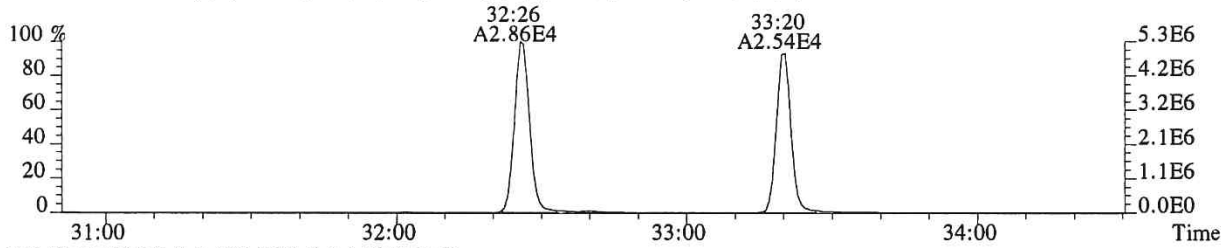
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1240.0,1.00%,F,T)



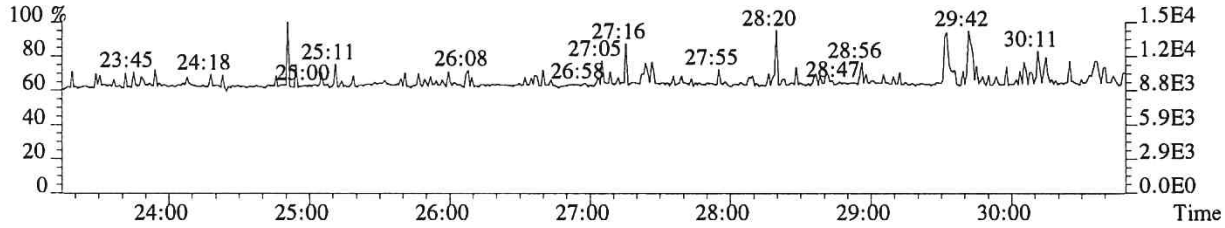
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



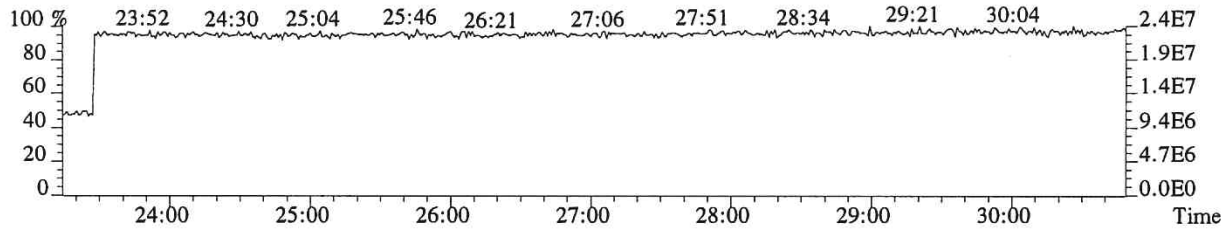
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3004.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

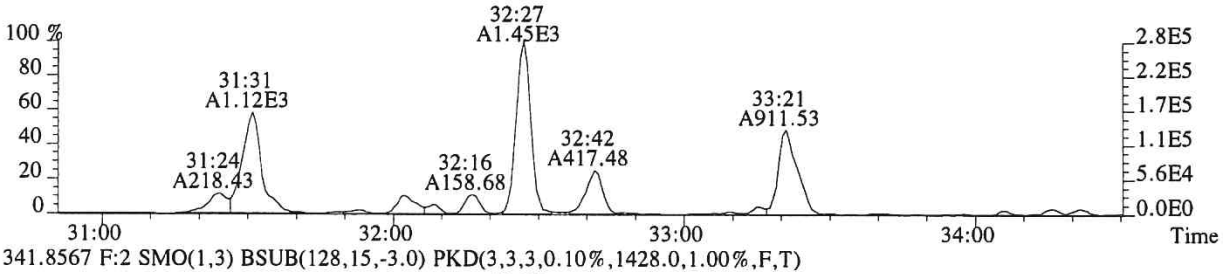


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

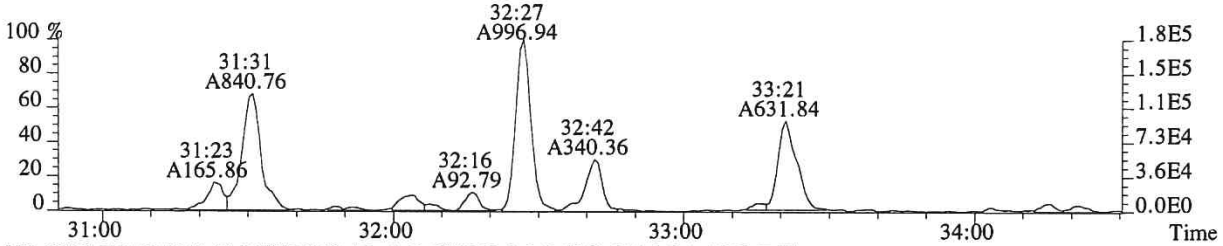


010439

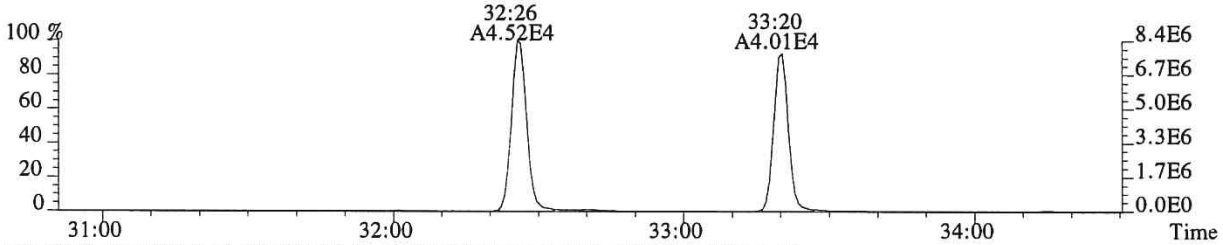
File:P519124 #1-330 Acq: 1-DEC-2018 22:04:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-017
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



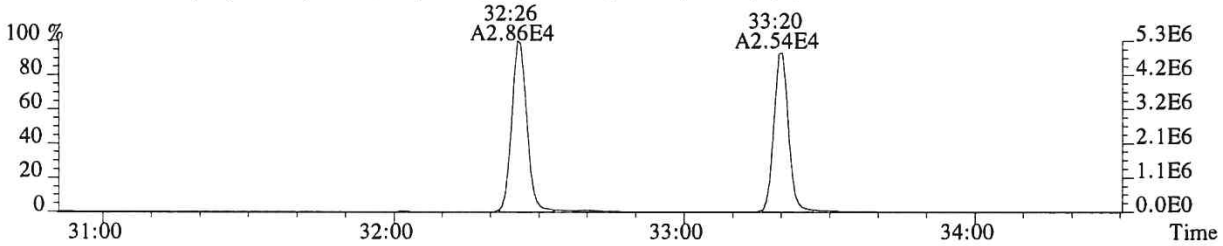
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



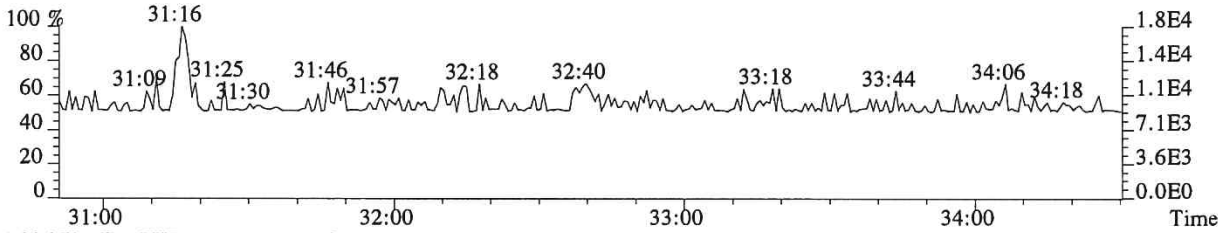
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



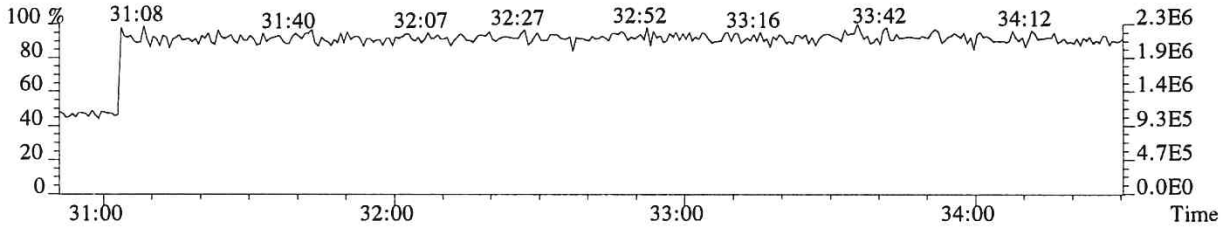
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3004.0,1.00%,F,T)



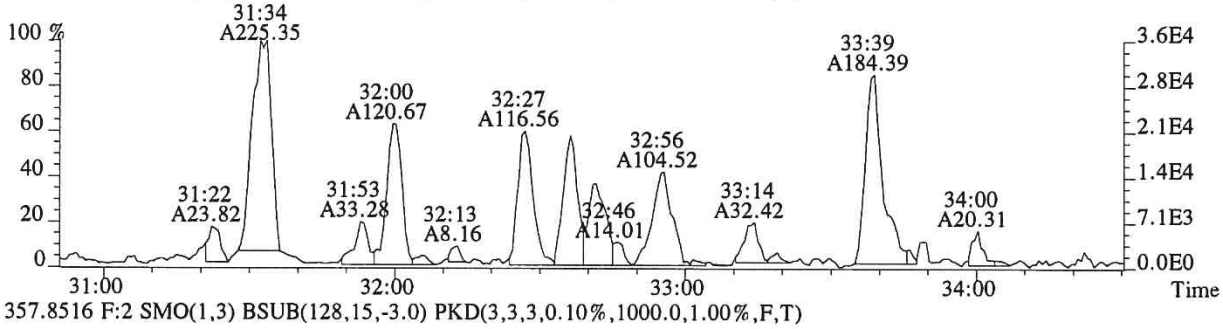
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



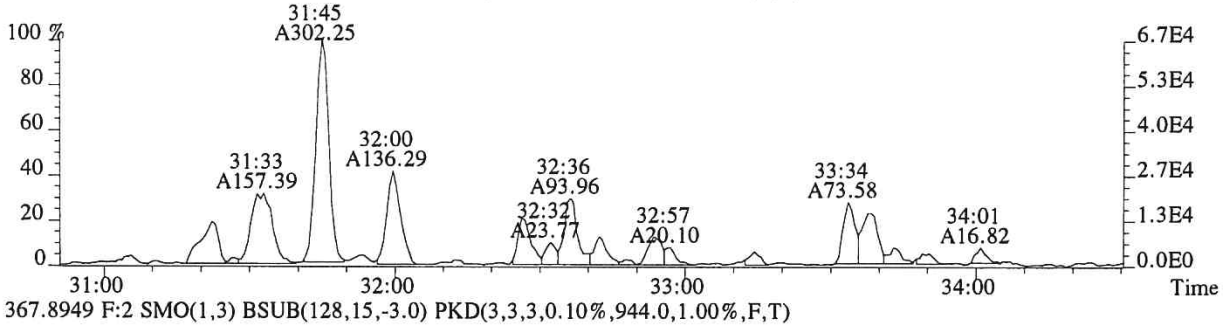
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



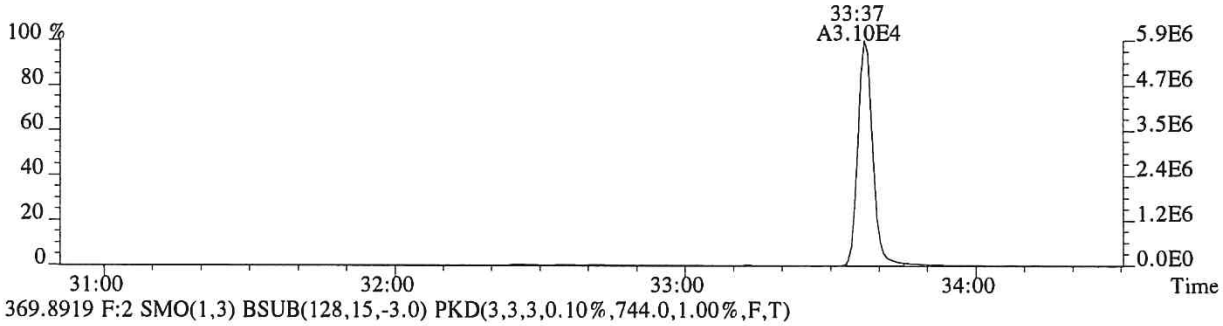
File:P519124 #1-330 Acq: 1-DEC-2018 22:04:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



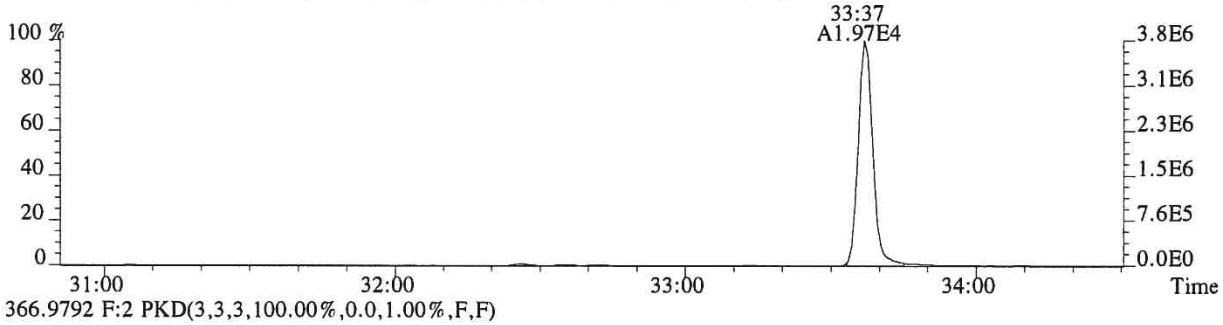
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



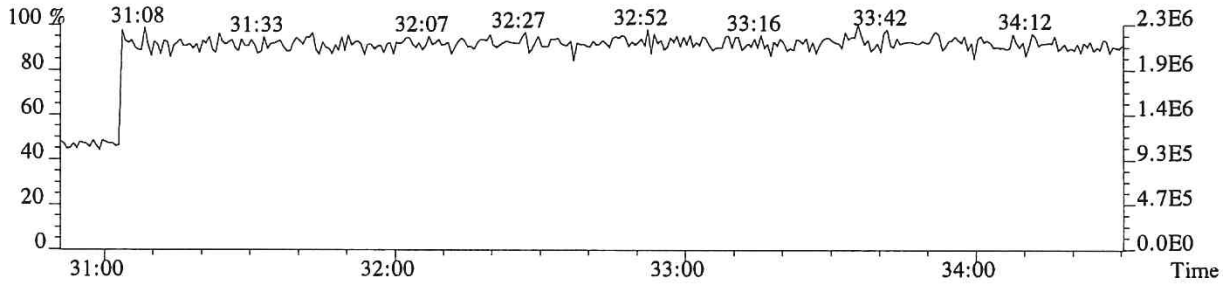
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



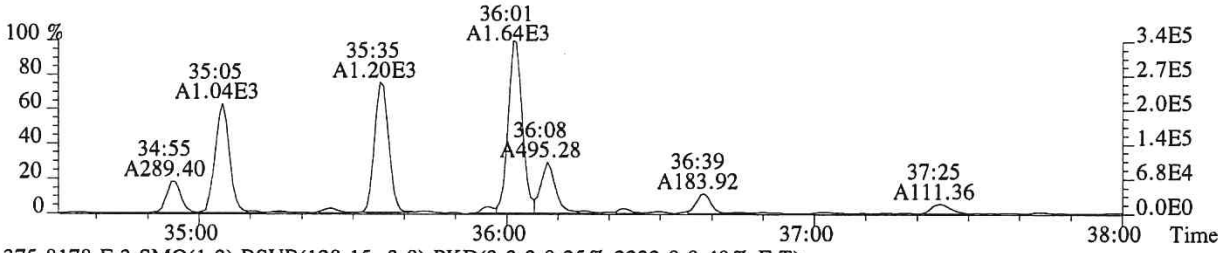
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



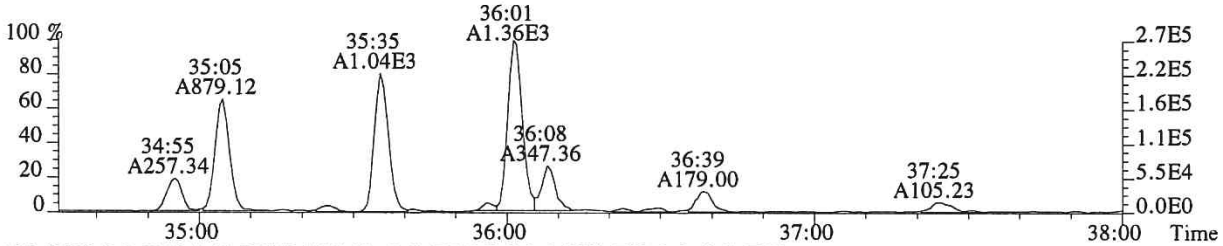
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



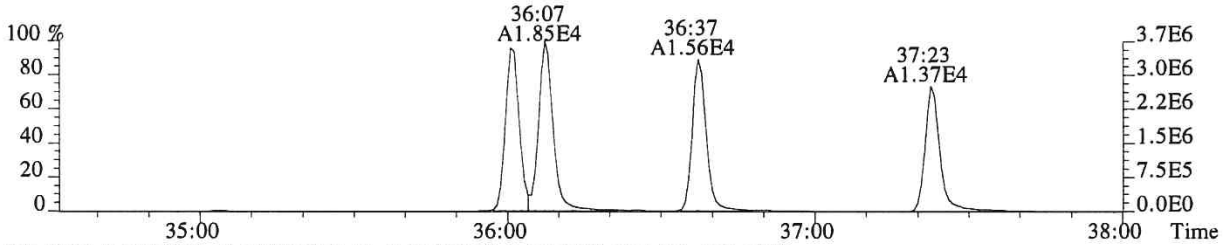
File:P519124 #1-312 Acq: 1-DEC-2018 22:04:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-017
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2196.0,0.40%,F,T)



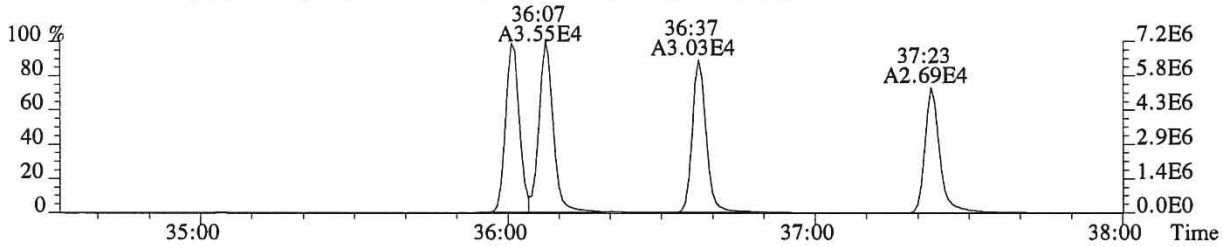
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2232.0,0.40%,F,T)



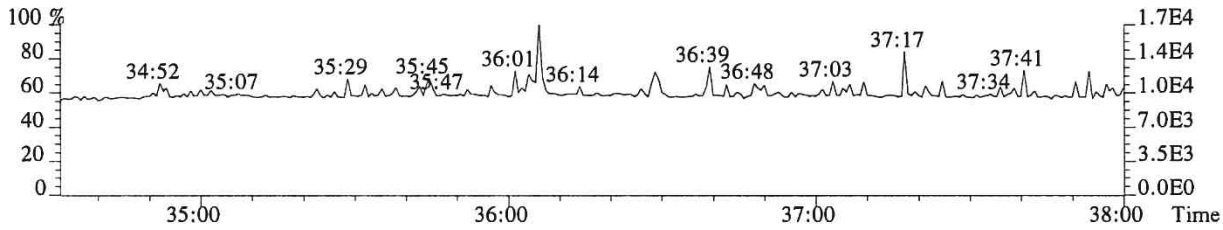
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



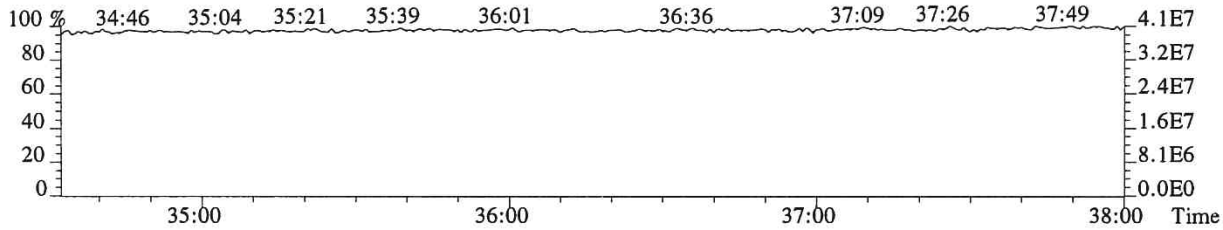
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

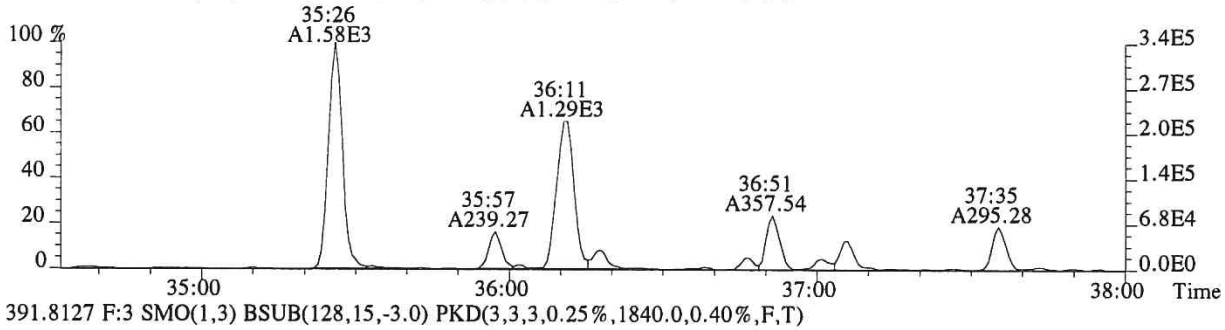


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

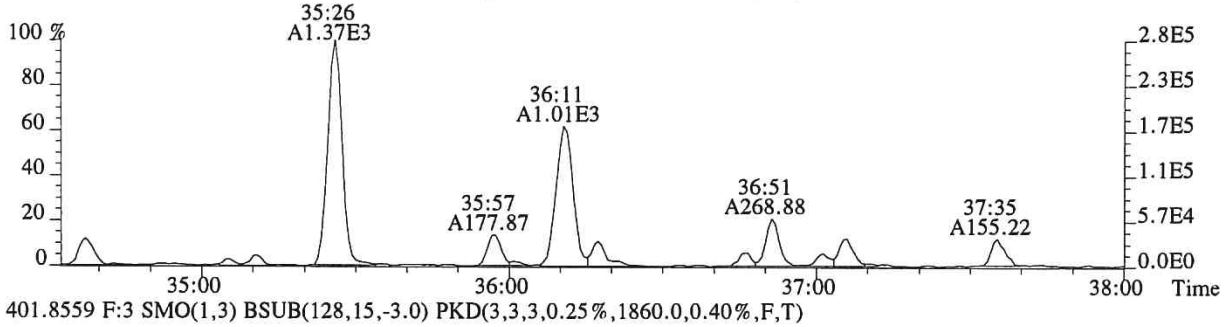


010442

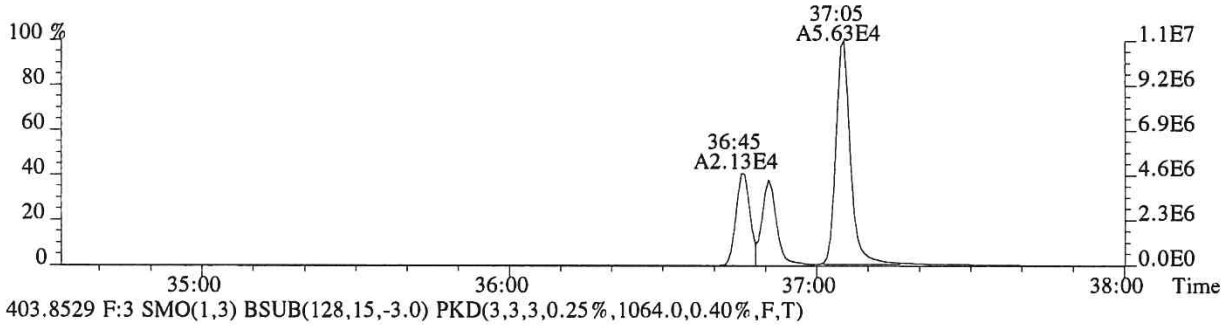
File:P519124 #1-312 Acq: 1-DEC-2018 22:04:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-017
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



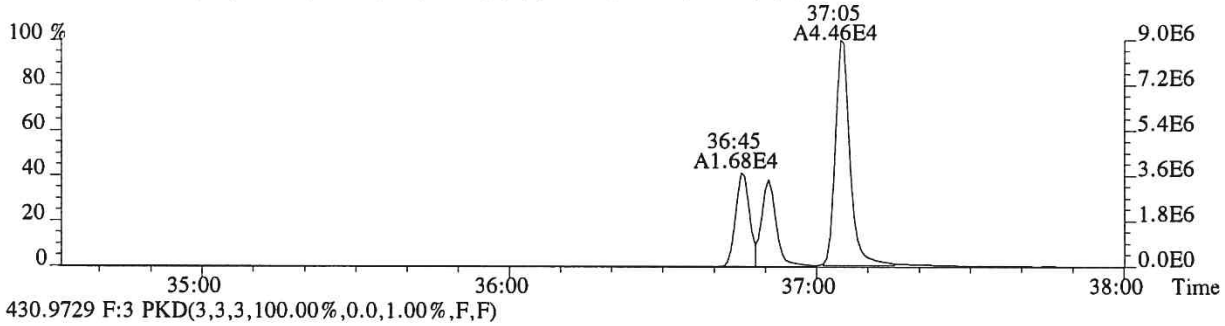
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



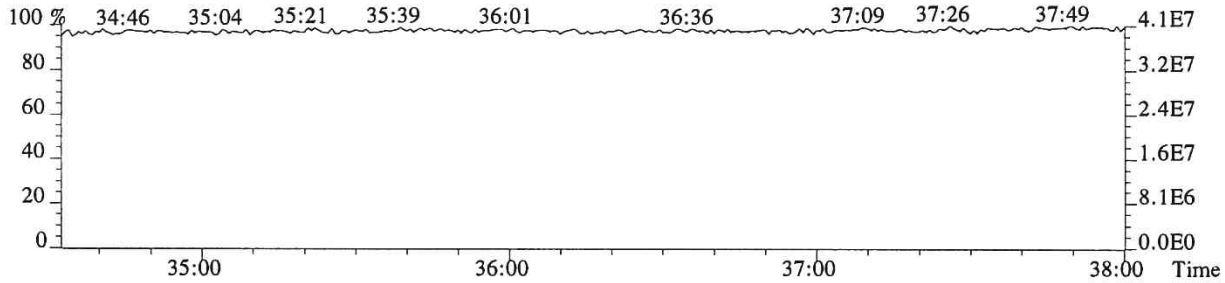
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1860.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)

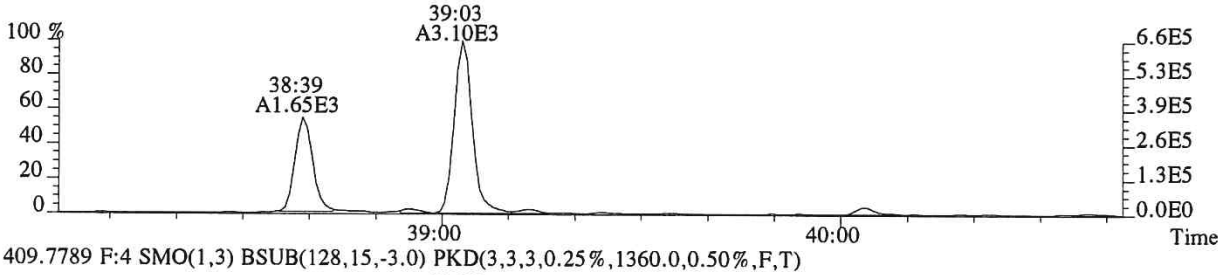


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

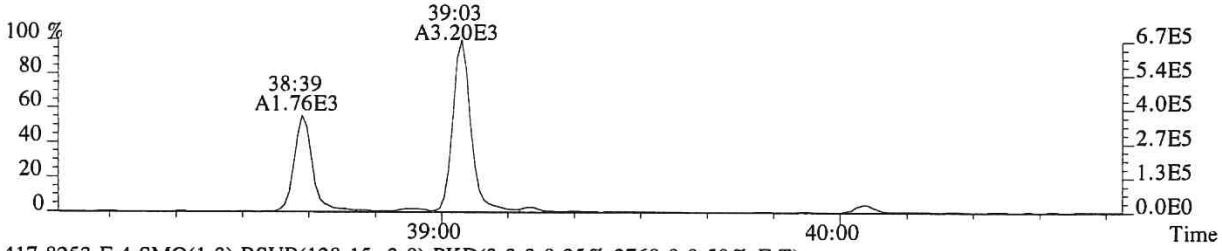


File:P519124 #1-241 Acq: 1-DEC-2018 22:04:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-017

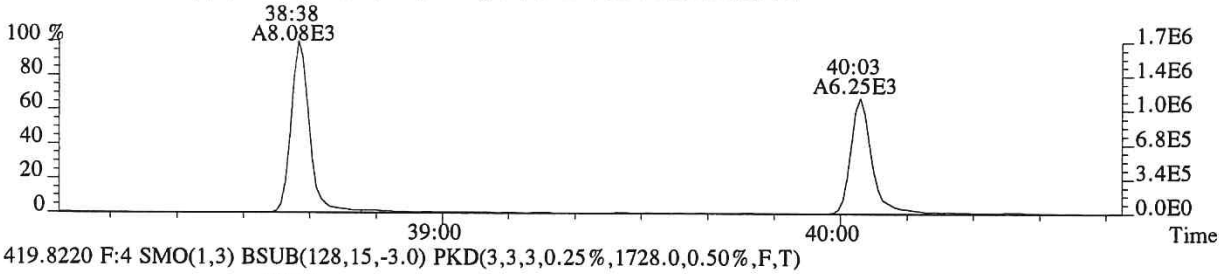
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3816.0,0.50%,F,T)



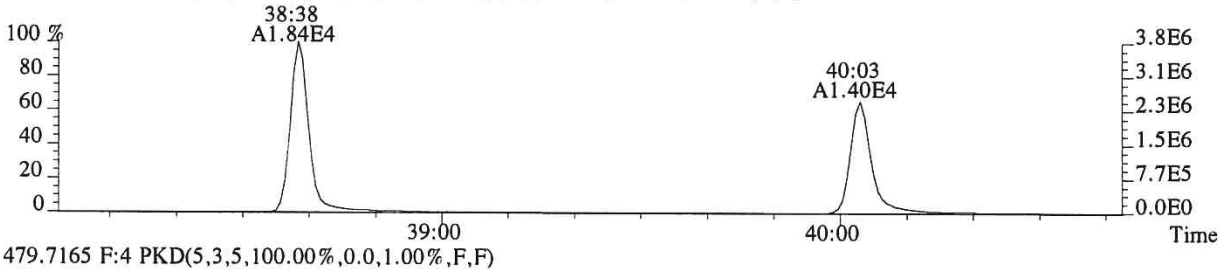
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1360.0,0.50%,F,T)



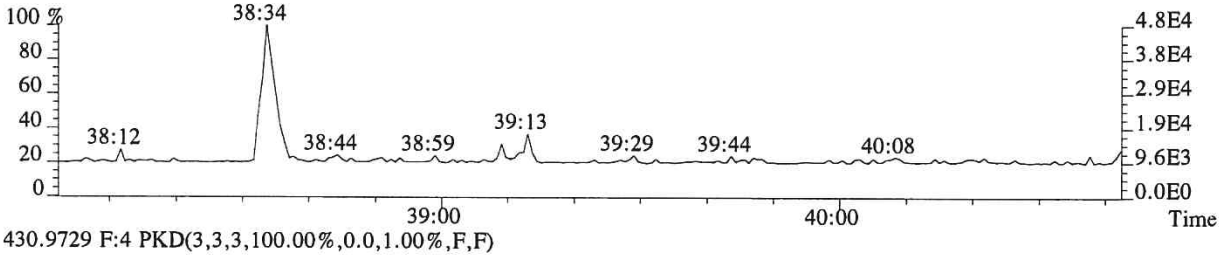
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2768.0,0.50%,F,T)



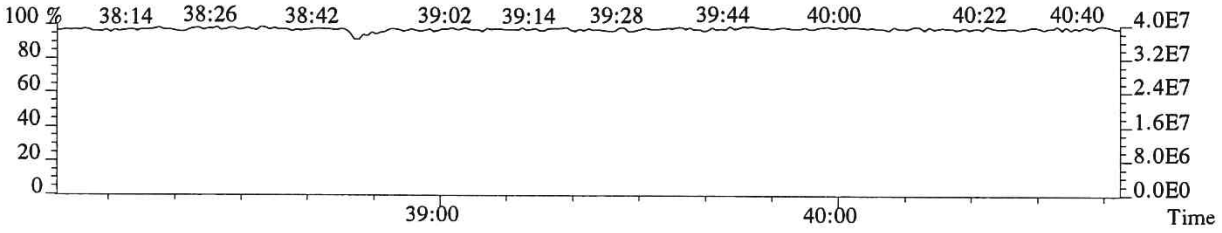
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1728.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

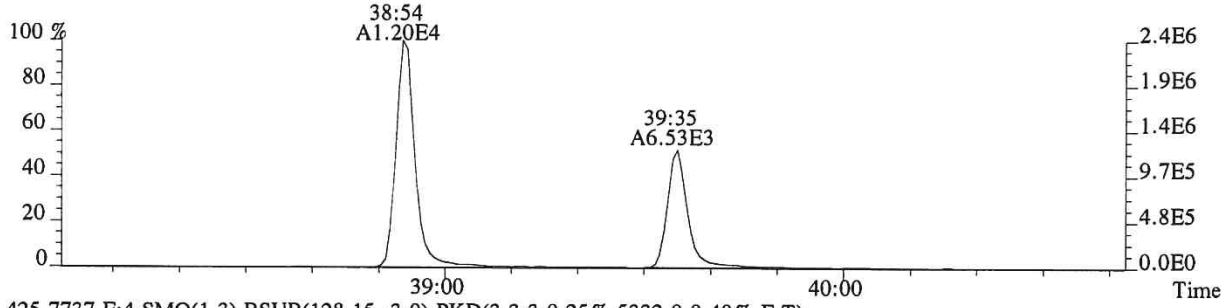


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

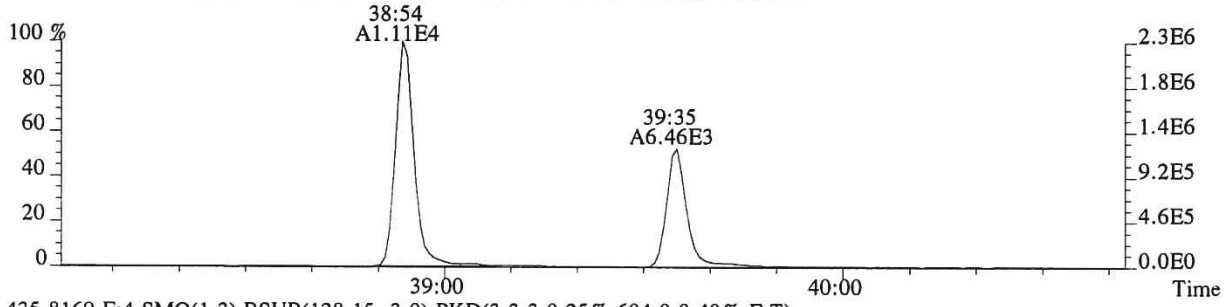


010444

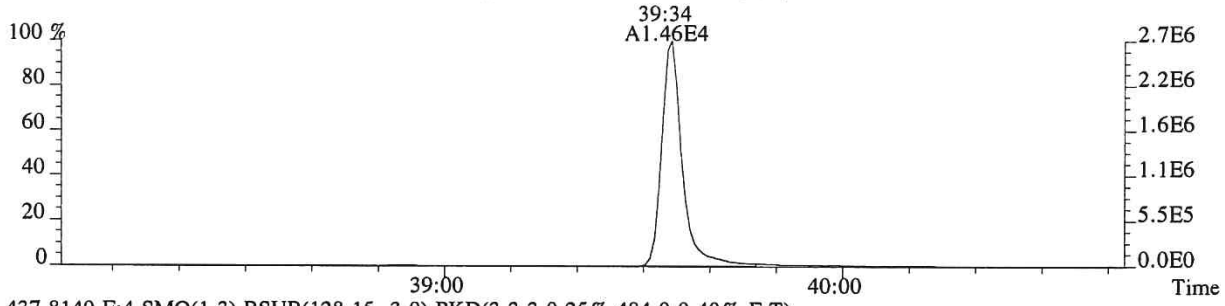
File:P519124 #1-241 Acq: 1-DEC-2018 22:04:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-017
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



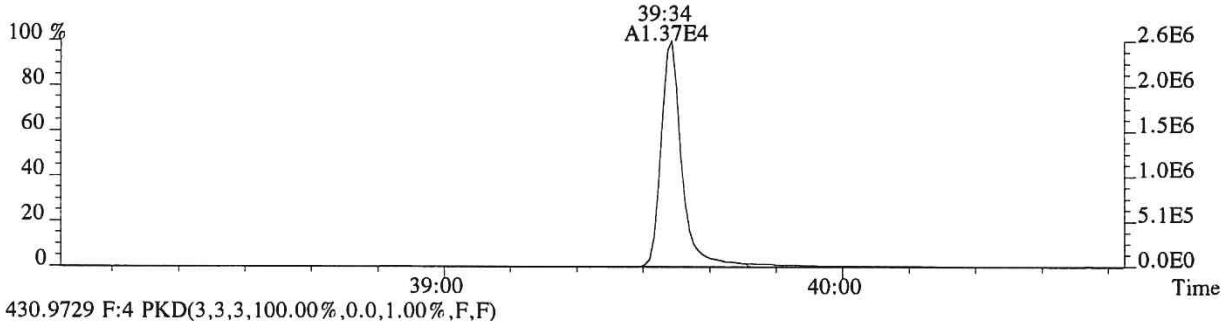
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5332.0,0.40%,F,T)



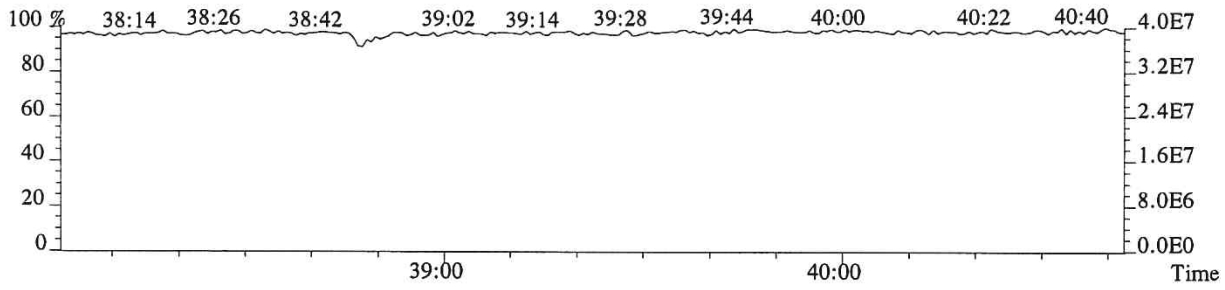
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



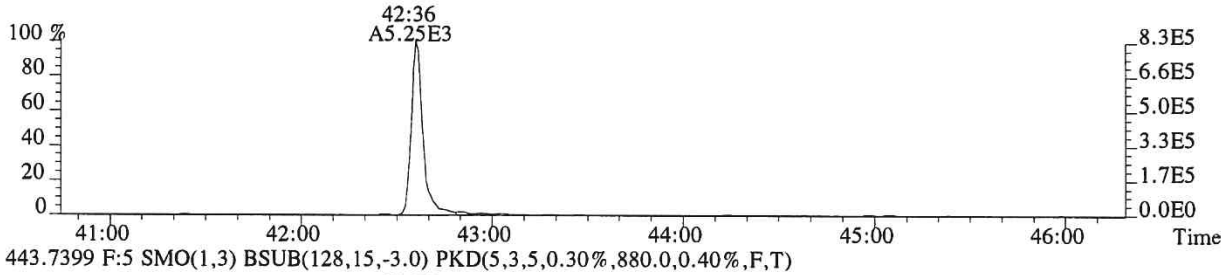
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



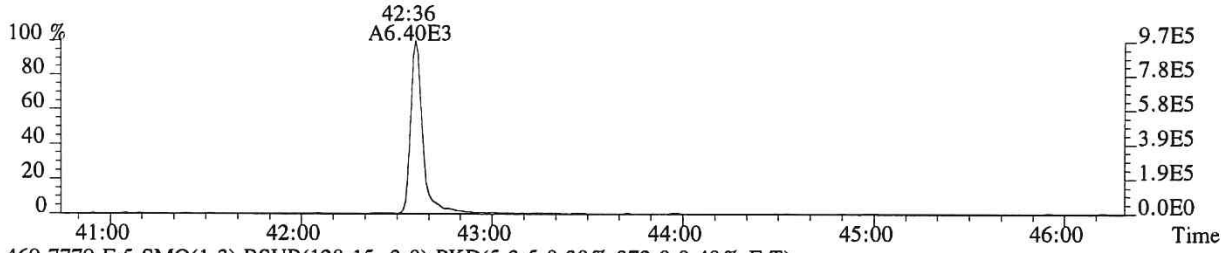
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



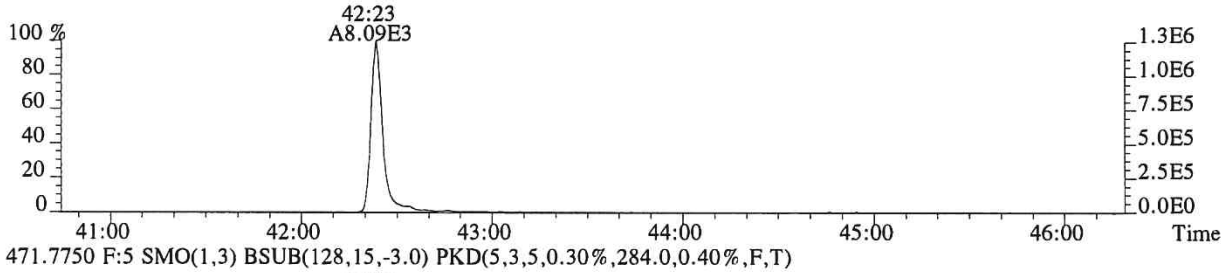
File:P519124 #1-502 Acq: 1-DEC-2018 22:04:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-017
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



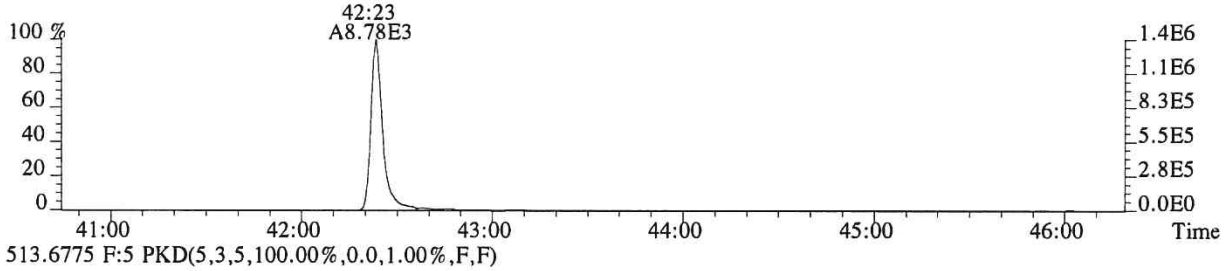
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



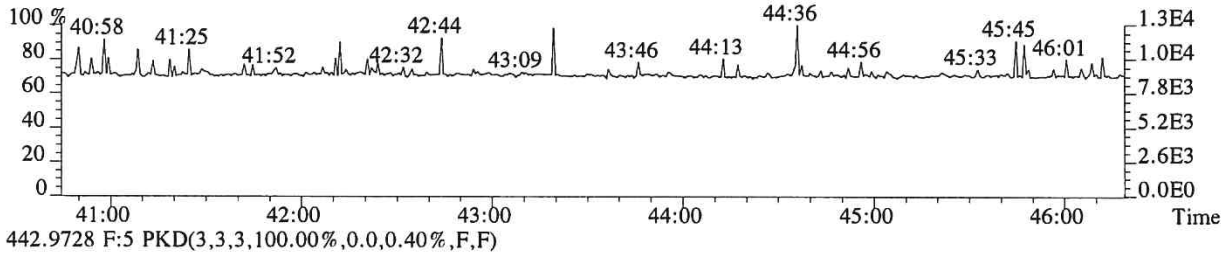
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



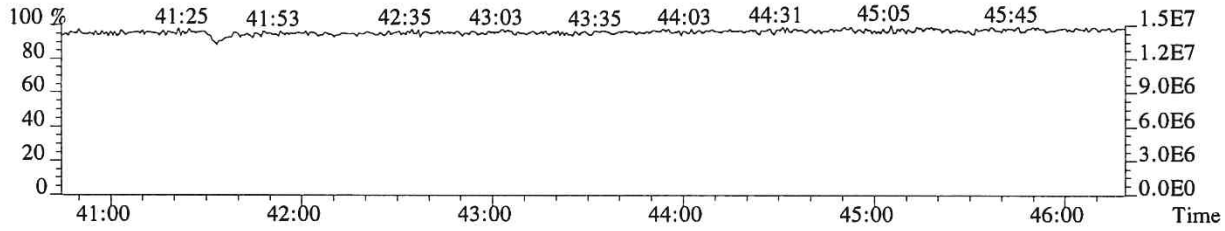
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

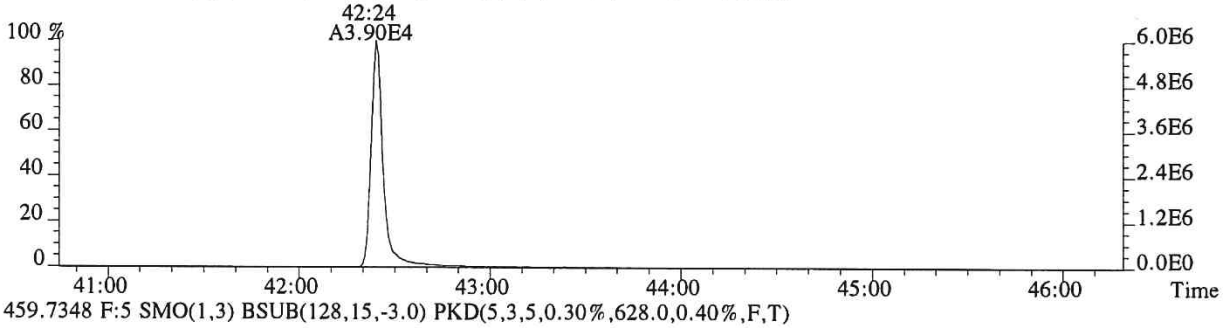


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

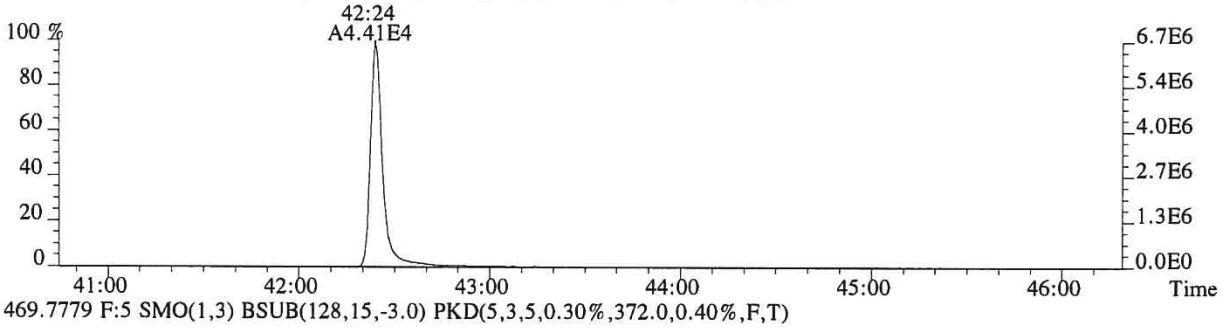


010446

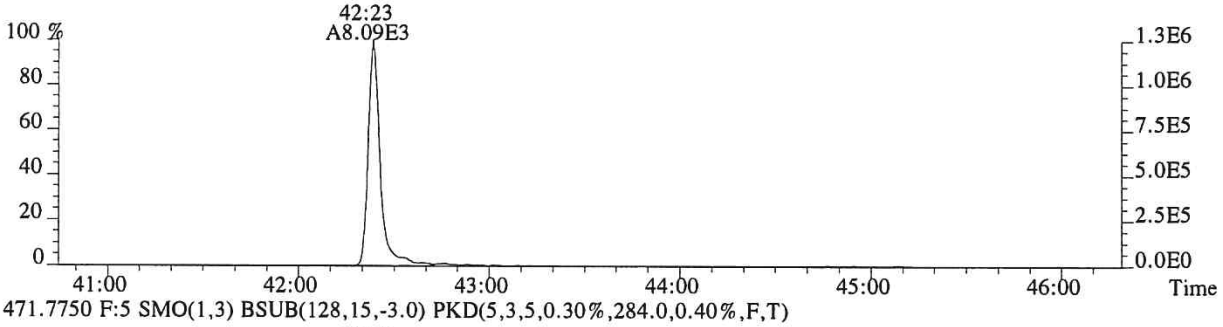
File:P519124 #1-502 Acq: 1-DEC-2018 22:04:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801035-017
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



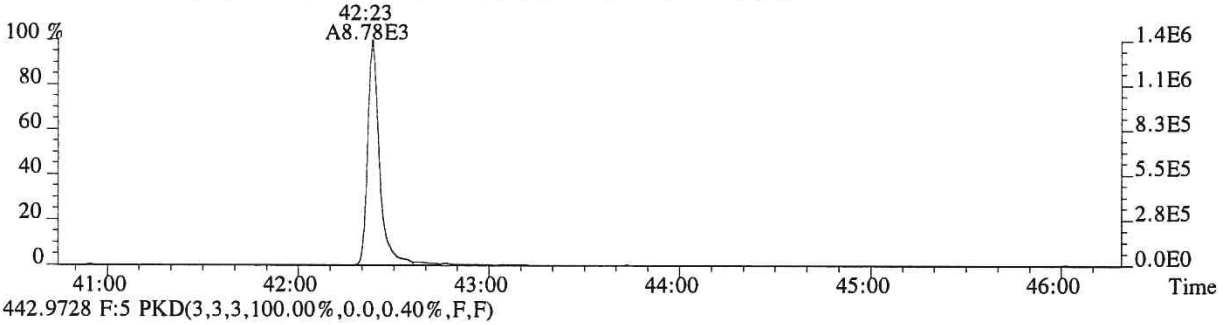
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



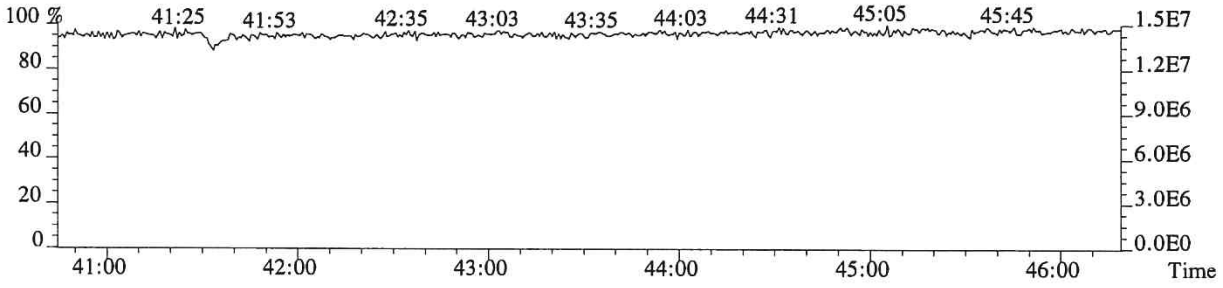
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P518868 Samp: 1 Inj: 1 Acquired: 17-NOV-18 03:32:53
Processed: 21-NOV-18 09:19:28 Sample ID: EQ1800468-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:30	6.283e+00	5.113e+00	1.23	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	5.752e+00	3.203e+00	1.80	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	1.080e+01	5.199e+00	2.08	no	yes	1.258
10	Unk	OCDF	40:51	1.505e+01	2.233e+01	0.67	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:08	6.711e+00	1.094e+01	0.61	no	yes	1.025
17	Unk	OCDD	40:42	9.653e+01	9.362e+01	1.03	no	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:30	5.586e+03	7.169e+03	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:33	1.637e+04	1.018e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:34	1.790e+04	1.133e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:28	9.492e+03	1.818e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.238e+04	2.326e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:07	1.171e+04	2.305e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.082e+04	2.055e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	9.210e+03	2.048e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.717e+03	1.941e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:32	3.964e+03	4.965e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.346e+04	8.441e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:16	1.411e+04	1.110e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:21	1.605e+04	1.237e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.836e+04	1.715e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	40:41	1.995e+04	2.206e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:48	1.989e+04	2.532e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:36	3.185e+04	2.585e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	4.430e+03				no	1.014

$$\text{OCDD} = \frac{(9.653e+01 + 9.362e+01) \times 4000\ \text{pg} \times 1}{(1.995e+04 + 2.206e+04) \times \text{g} \times / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P518868 Samp: 1 Inj: 1 Acquired: 17-NOV-18 03:32:53
Processed: 21-NOV-18 09:19:28 LAB. ID: EQ1800468-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	3.00e+02	*	*	1.12e+03	*
2	1,2,3,7,8-PeCDF	*	2.88e+02	*	*	8.92e+02	*
3	2,3,4,7,8-PeCDF	*	2.88e+02	*	*	8.92e+02	*
4	1,2,3,4,7,8-HxCDF	1.13e+03	2.24e+02	5.0e+00	1.32e+03	2.72e+02	4.9e+00
5	1,2,3,6,7,8-HxCDF	1.31e+03	2.24e+02	5.8e+00	9.24e+02	2.72e+02	3.4e+00
6	2,3,4,6,7,8-HxCDF	*	2.24e+02	*	*	2.72e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.24e+02	*	*	2.72e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	2.84e+02	*	*	3.32e+02	*
9	1,2,3,4,7,8,9-HpCDF	2.15e+03	2.84e+02	7.6e+00	1.21e+03	3.32e+02	3.6e+00
10	OCDF	2.06e+03	2.12e+02	9.7e+00	5.42e+03	4.48e+02	1.2e+01
11	2,3,7,8-TCDD	*	1.48e+03	*	*	6.64e+02	*
12	1,2,3,7,8-PeCDD	*	3.16e+02	*	*	3.00e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.84e+02	*	*	3.00e+02	*
14	1,2,3,6,7,8-HxCDD	*	1.84e+02	*	*	3.00e+02	*
15	1,2,3,7,8,9-HxCDD	*	1.84e+02	*	*	3.00e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.95e+03	3.24e+02	6.0e+00	2.03e+03	3.52e+02	5.8e+00
17	OCDD	1.33e+04	2.28e+02	5.9e+01	1.43e+04	4.12e+02	3.5e+01
18	13C-2,3,7,8-TCDF	6.86e+05	3.64e+03	1.9e+02	9.05e+05	2.20e+03	4.1e+02
19	13C-1,2,3,7,8-PeCDF	2.58e+06	2.00e+02	1.3e+04	1.56e+06	3.88e+02	4.0e+03
20	13C-2,3,4,7,8-PeCDF	3.06e+06	2.00e+02	1.5e+04	1.94e+06	3.88e+02	5.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.88e+06	7.32e+02	2.6e+03	3.64e+06	5.88e+02	6.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.23e+06	7.32e+02	3.0e+03	4.19e+06	5.88e+02	7.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.23e+06	7.32e+02	3.0e+03	4.36e+06	5.88e+02	7.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.86e+06	7.32e+02	2.5e+03	3.55e+06	5.88e+02	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.74e+06	1.48e+03	1.2e+03	3.83e+06	2.89e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.51e+06	1.48e+03	1.0e+03	3.39e+06	2.89e+03	1.2e+03
27	13C-2,3,7,8-TCDD	5.90e+05	4.67e+03	1.3e+02	7.16e+05	1.69e+03	4.2e+02
28	13C-1,2,3,7,8-PeCDD	2.20e+06	4.92e+02	4.5e+03	1.40e+06	1.06e+03	1.3e+03
29	13C-1,2,3,4,7,8-HxCDD	2.98e+06	1.21e+03	2.5e+03	2.35e+06	5.88e+02	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.74e+06	1.21e+03	2.3e+03	2.15e+06	5.88e+02	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.38e+06	5.28e+02	6.4e+03	3.14e+06	3.92e+02	8.0e+03
32	13C-OCDD	2.99e+06	5.28e+02	5.7e+03	3.33e+06	2.28e+02	1.5e+04
33	13C-1,2,3,4-TCDD	2.95e+06	4.67e+03	6.3e+02	3.67e+06	1.69e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.64e+06	1.21e+03	4.7e+03	4.42e+06	5.88e+02	7.5e+03
35	37Cl-2,3,7,8-TCDD	6.18e+05	8.44e+02	7.3e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P518868 Sample:1 Injection:1 Function:3

Acquired: 17-NOV-18 03:32:53 Processed: 21-NOV-18 09:19:28

Mass: 373.8210 375.8180 Tot Response: 1.14e+01 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:30	6.28e+00	5.11e+00	1.23	yes	1.14e+01	1,2,3,4,7,8-HxCDF	y	n

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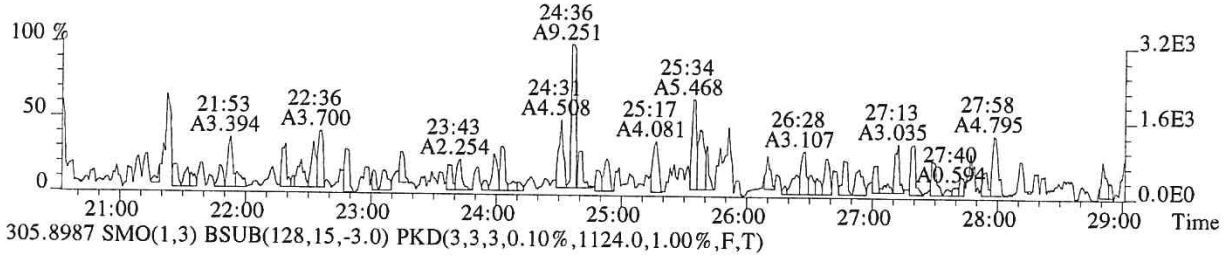
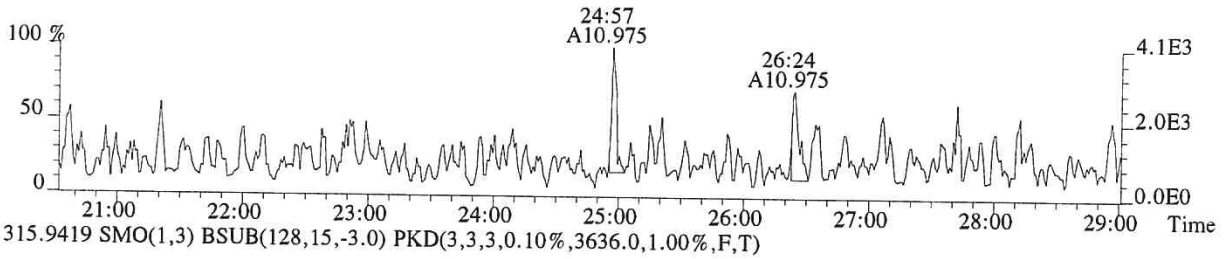
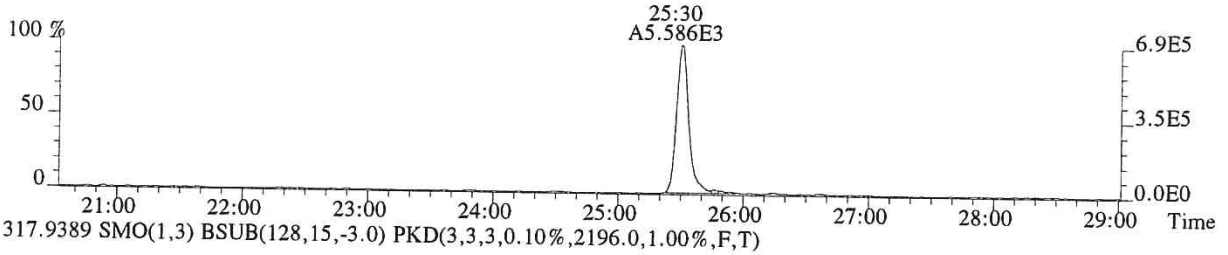
File:P518868 #1-602 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



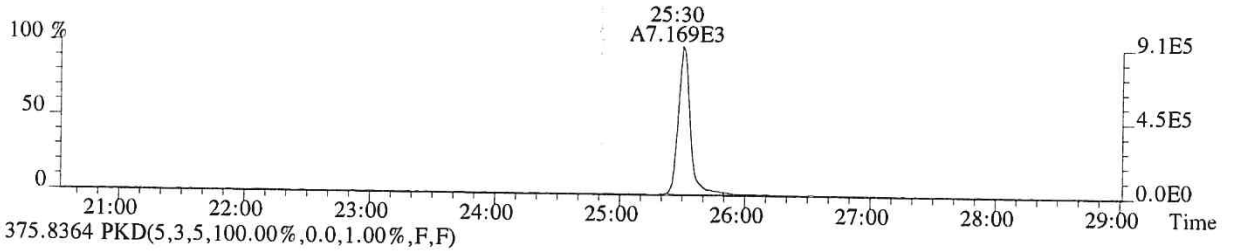
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



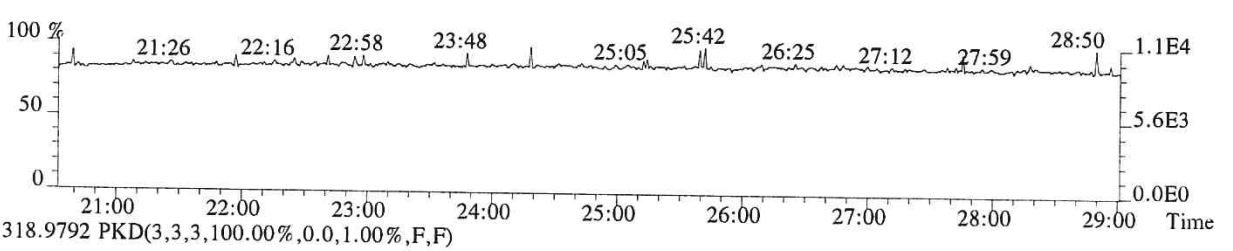
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3636.0,1.00%,F,T)



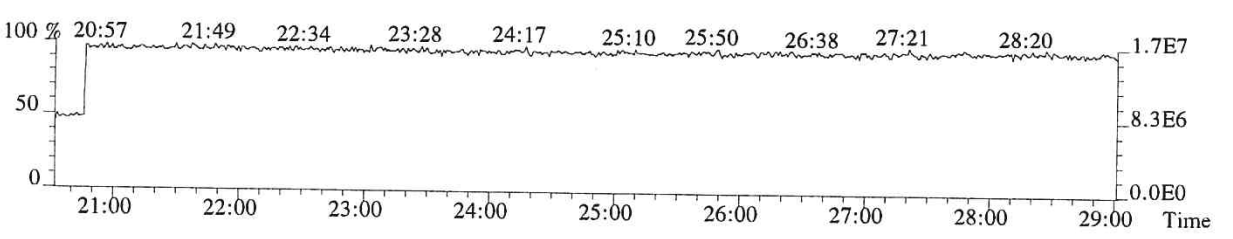
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2196.0,1.00%,F,T)



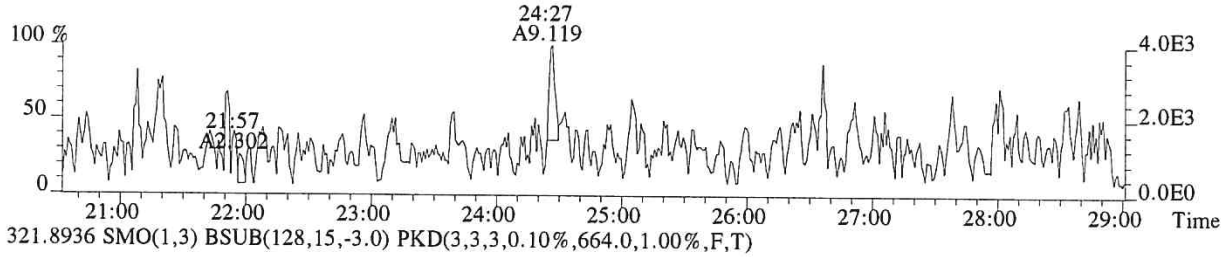
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



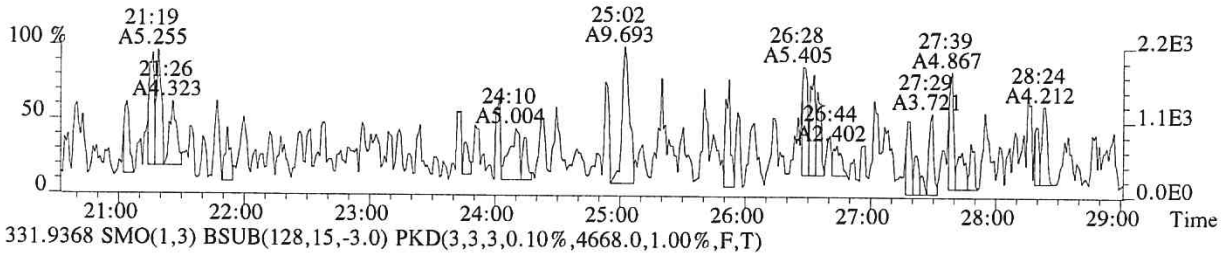
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



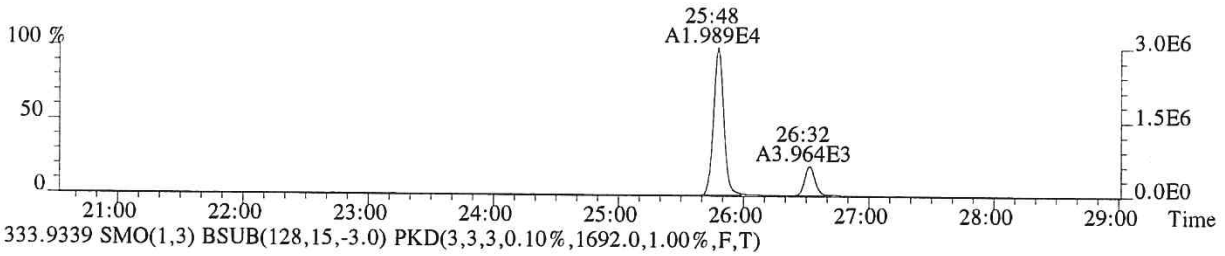
File:P518868 #1-602 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



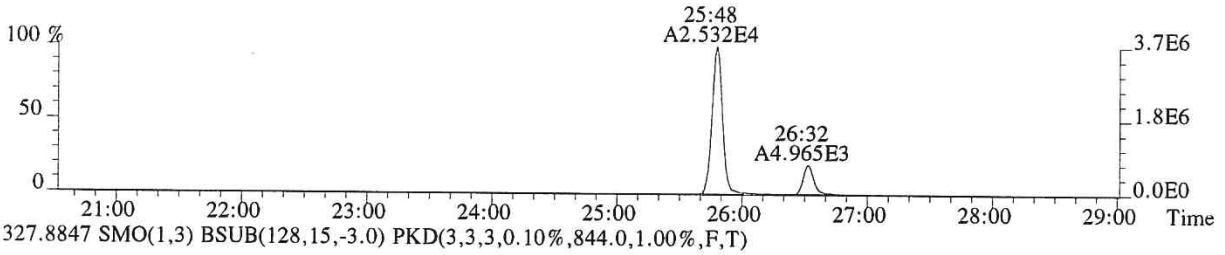
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



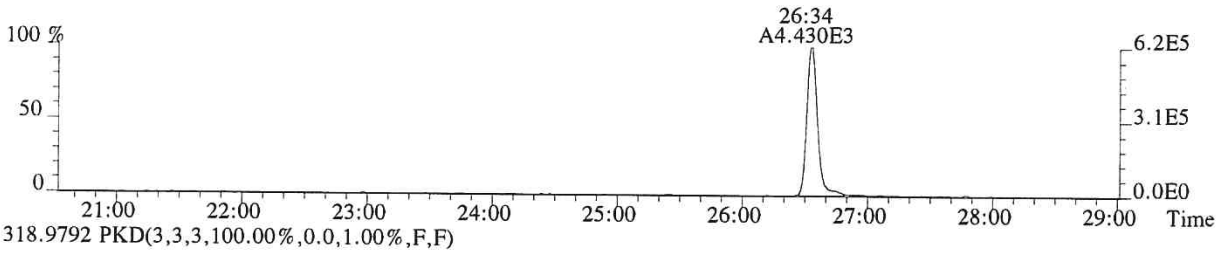
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4668.0,1.00%,F,T)



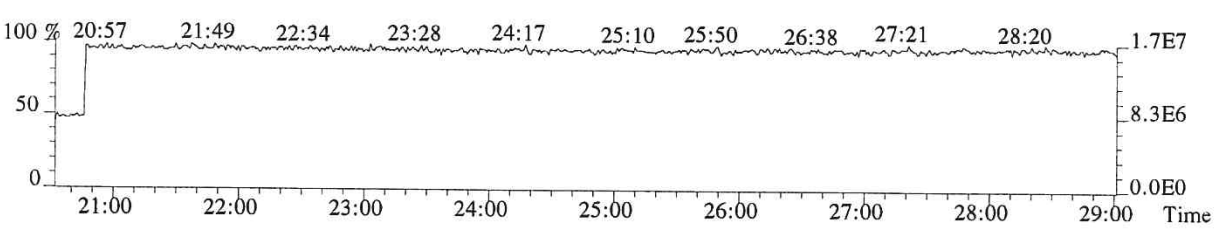
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)

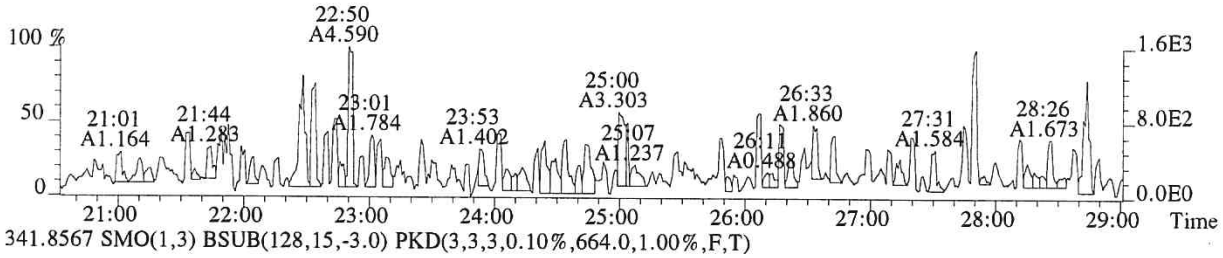


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

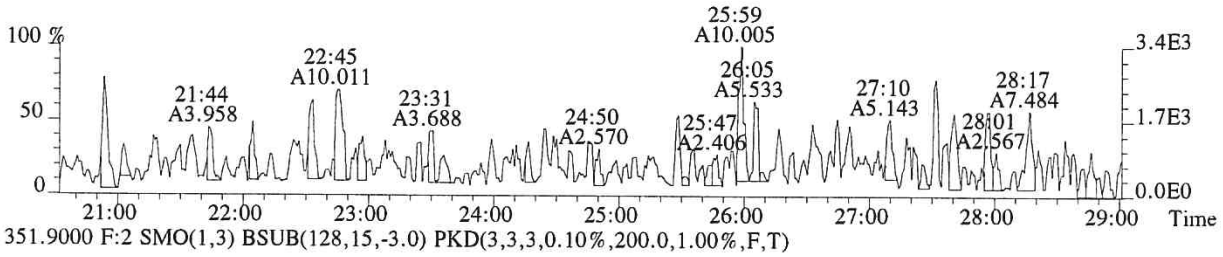


010452

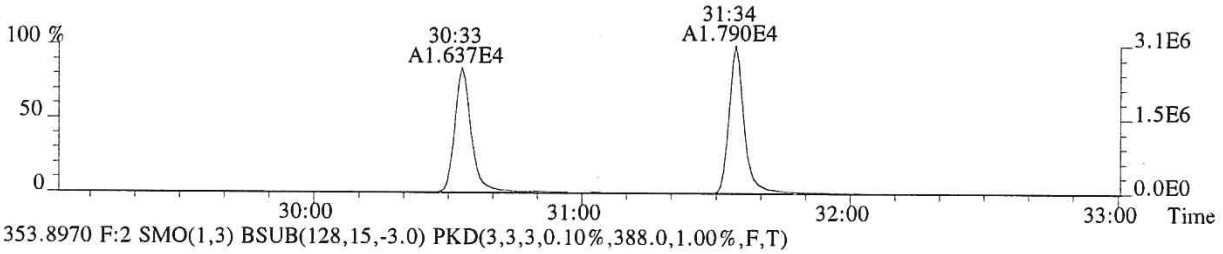
File:P518868 #1-602 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



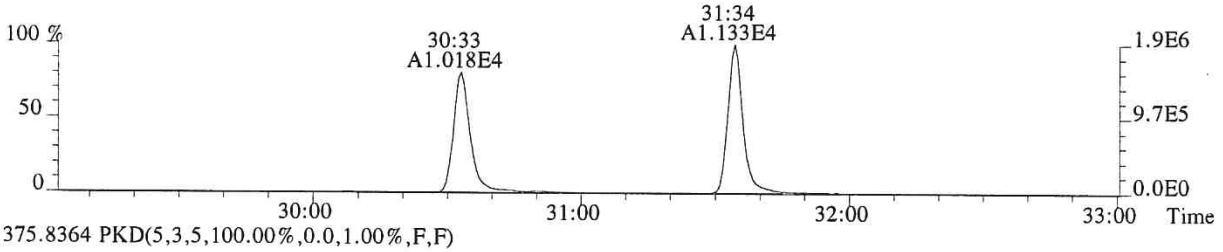
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



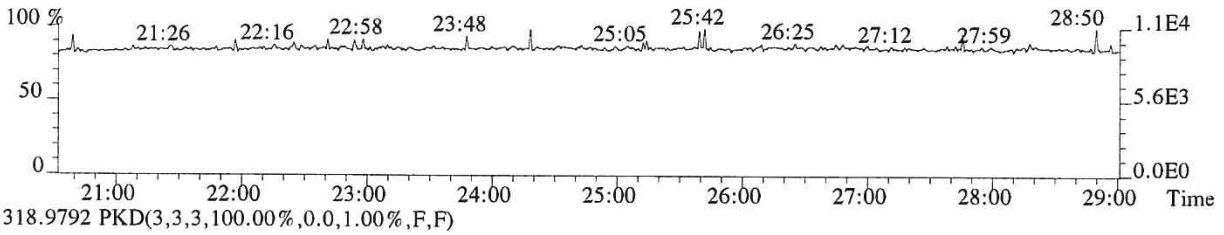
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



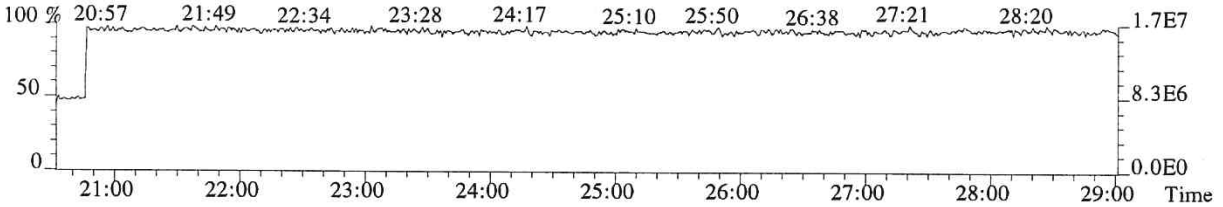
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



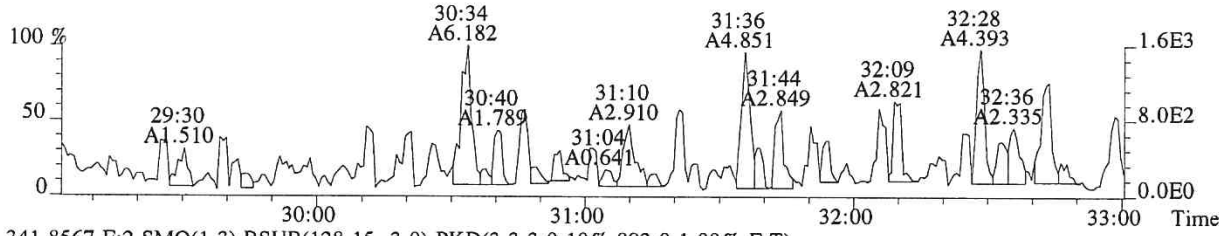
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



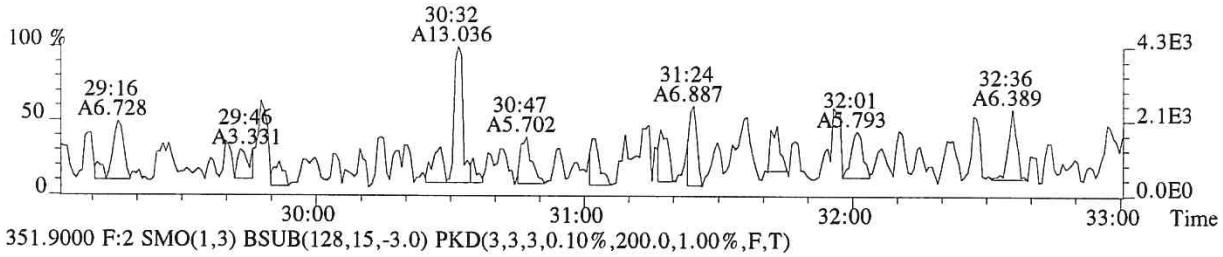
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



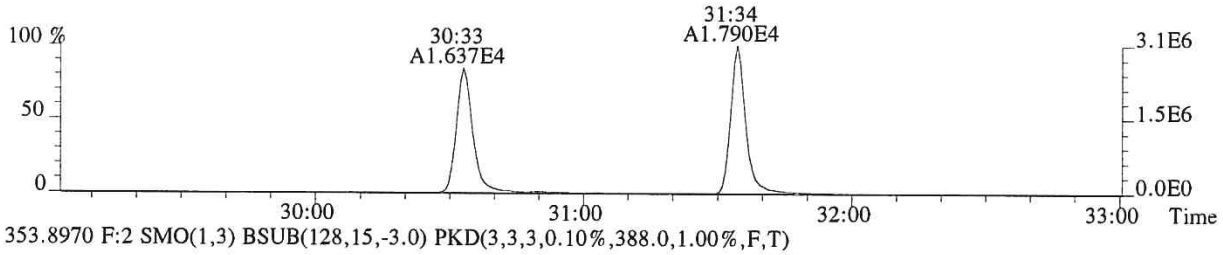
File:P518868 #1-357 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



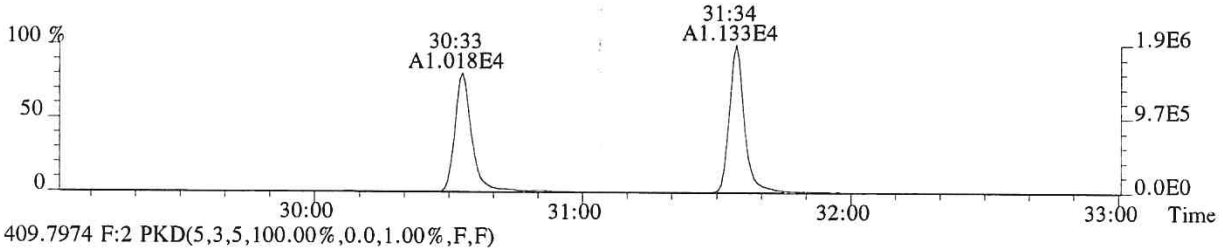
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



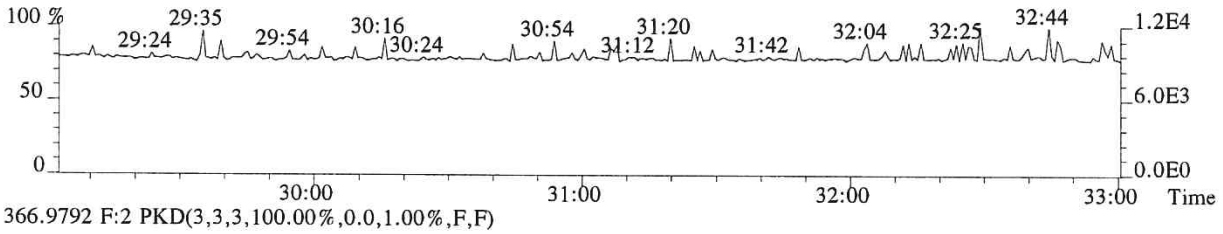
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



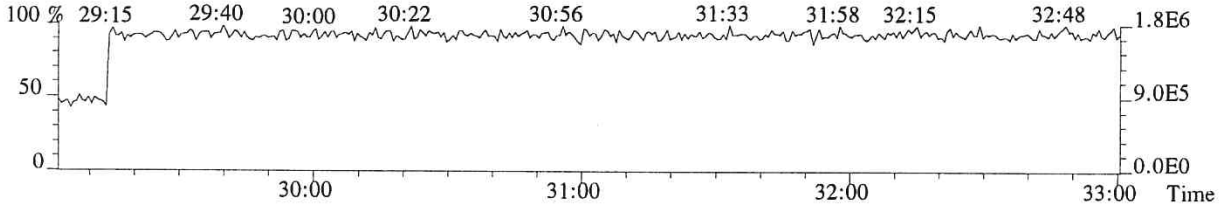
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

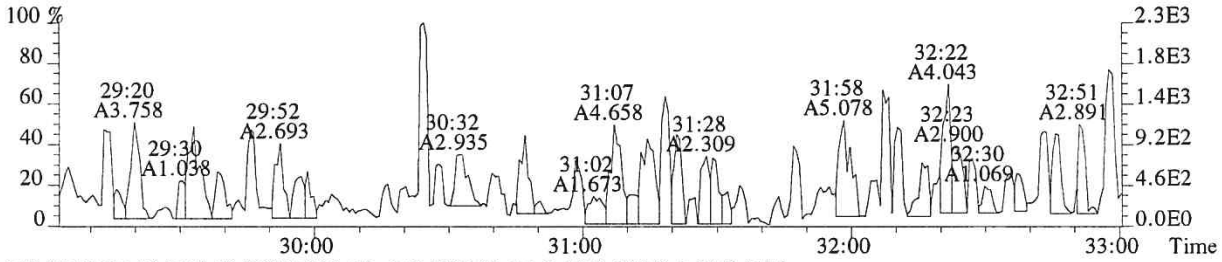


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

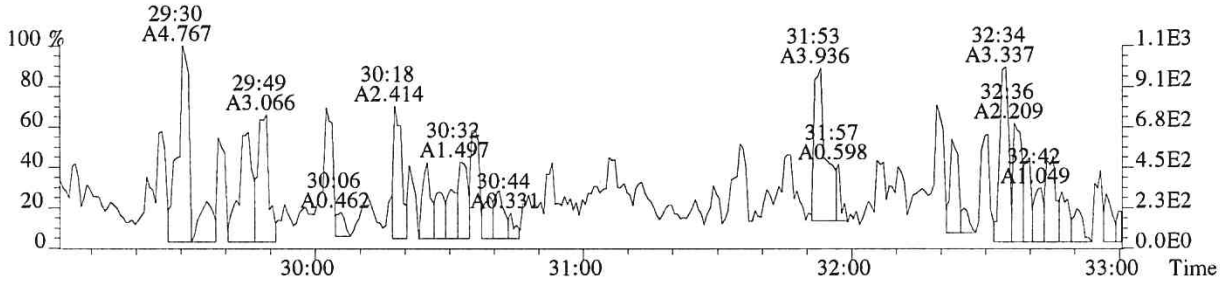


010454

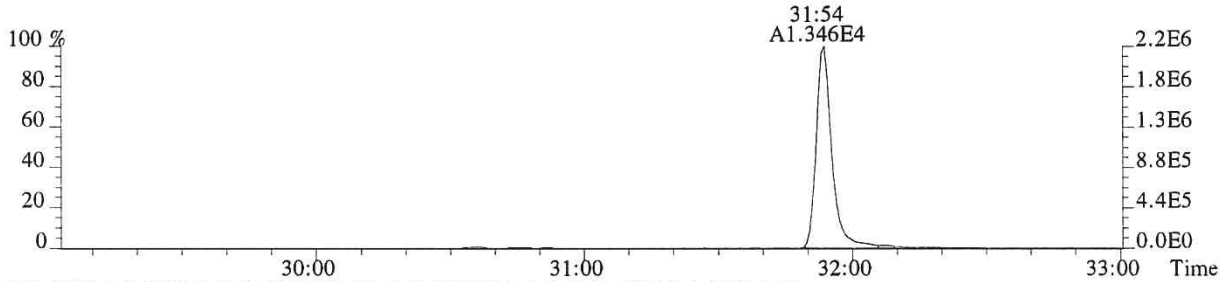
File:P518868 #1-357 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



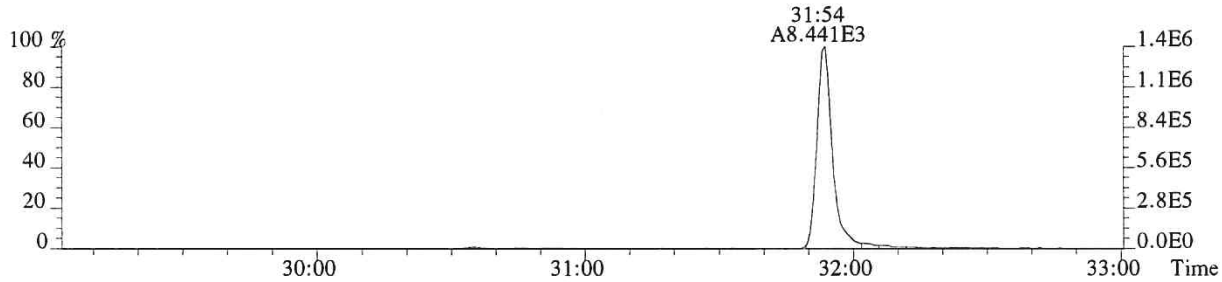
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



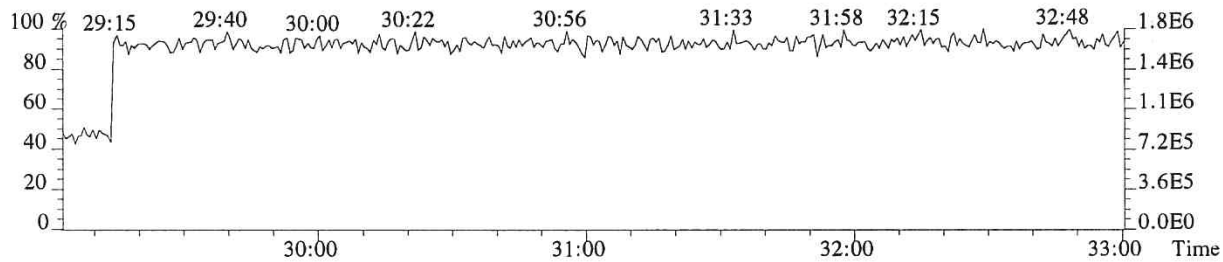
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)

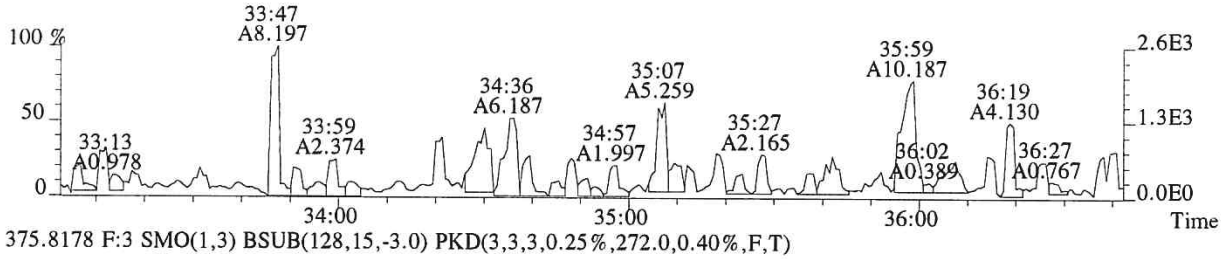


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

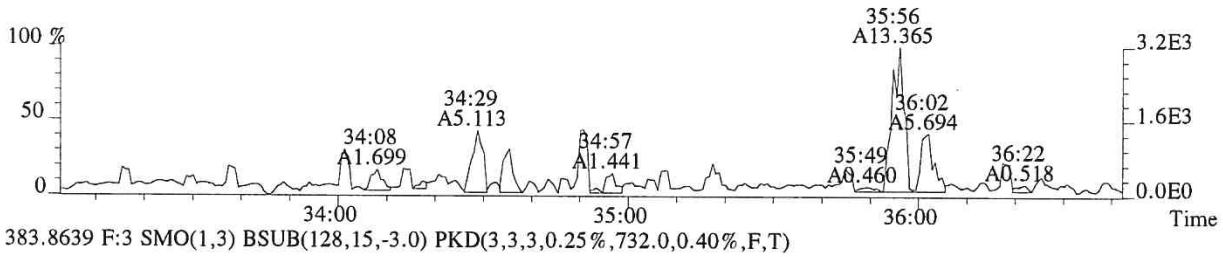


010455

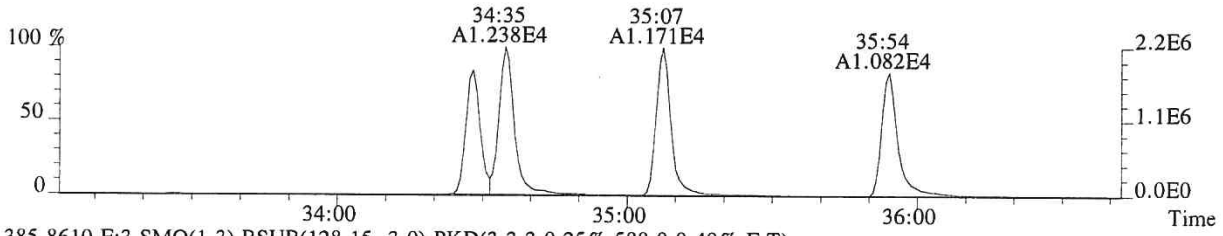
File:P518868 #1-330 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



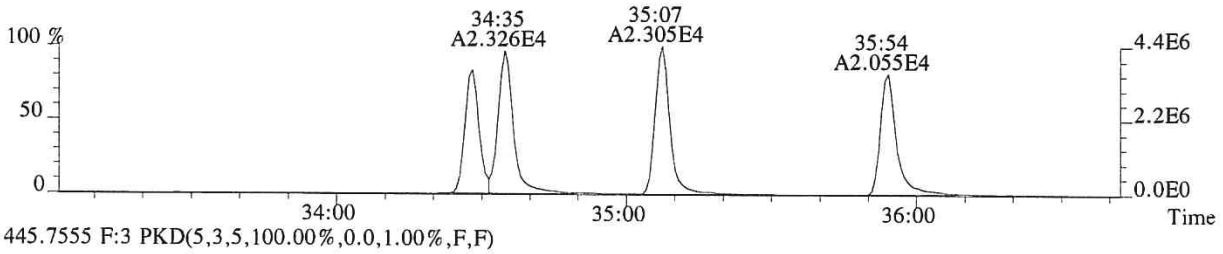
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



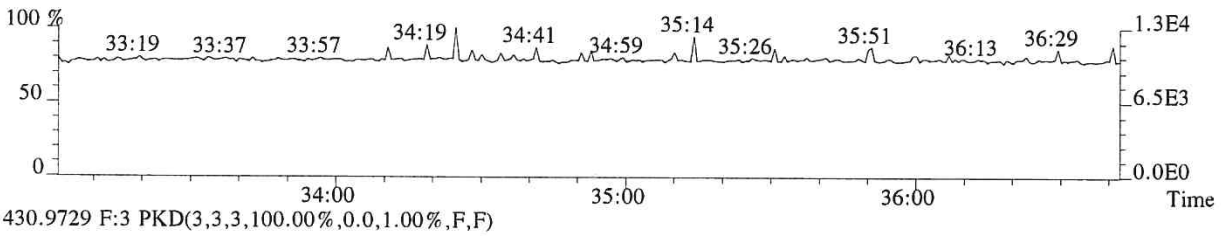
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



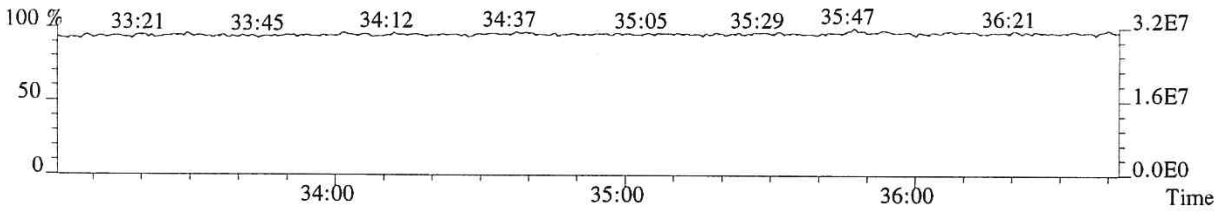
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



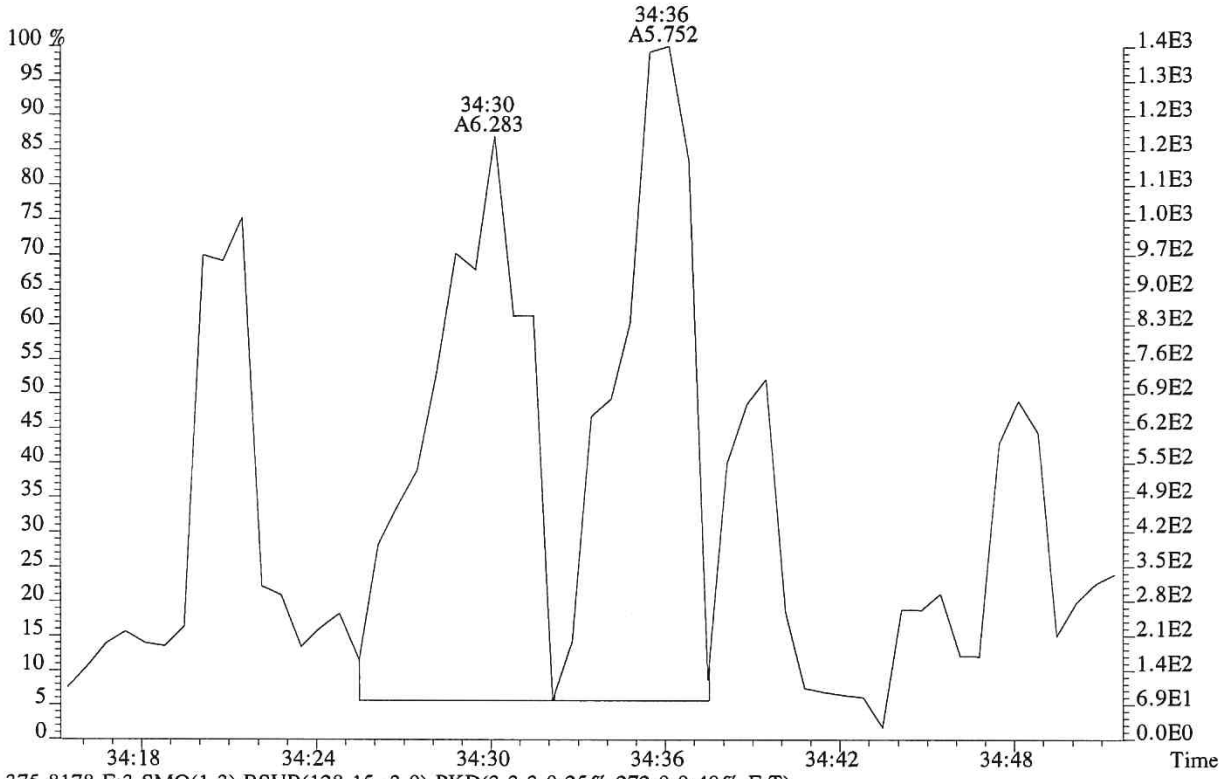
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



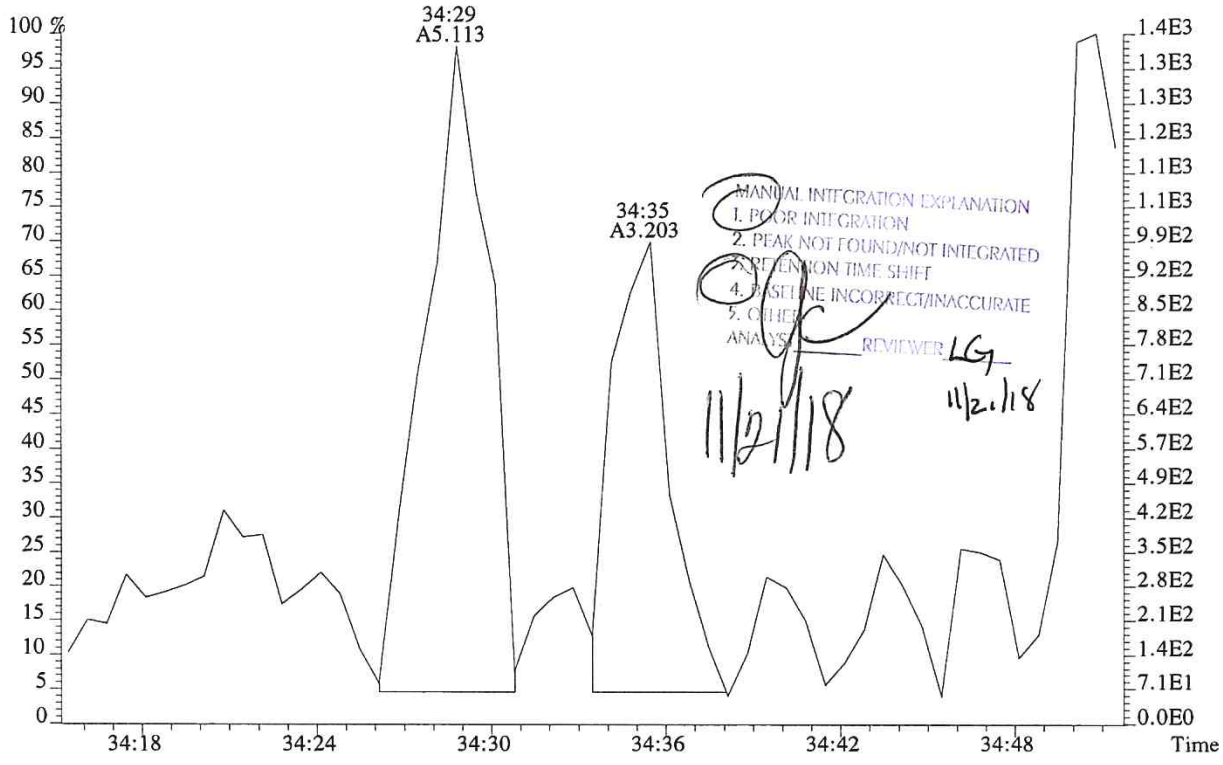
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



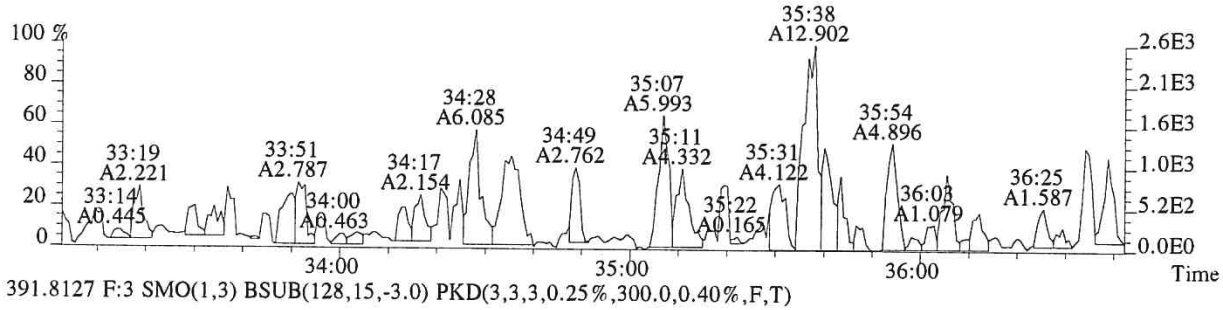
File:P518868 #1-330 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



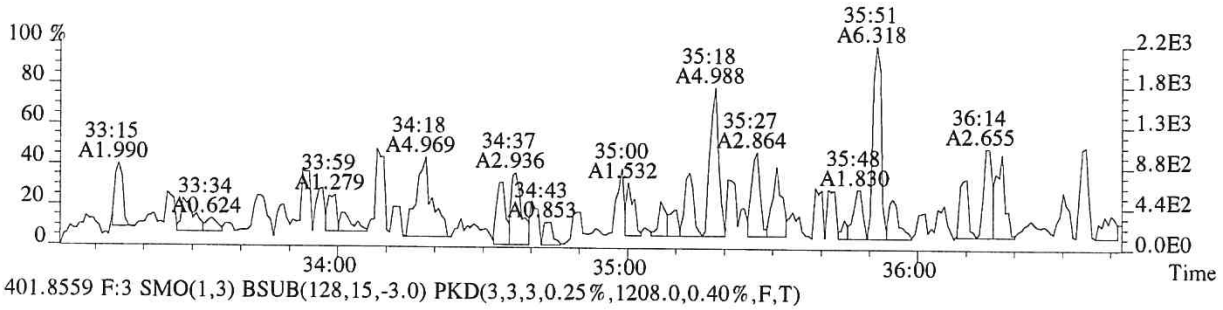
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



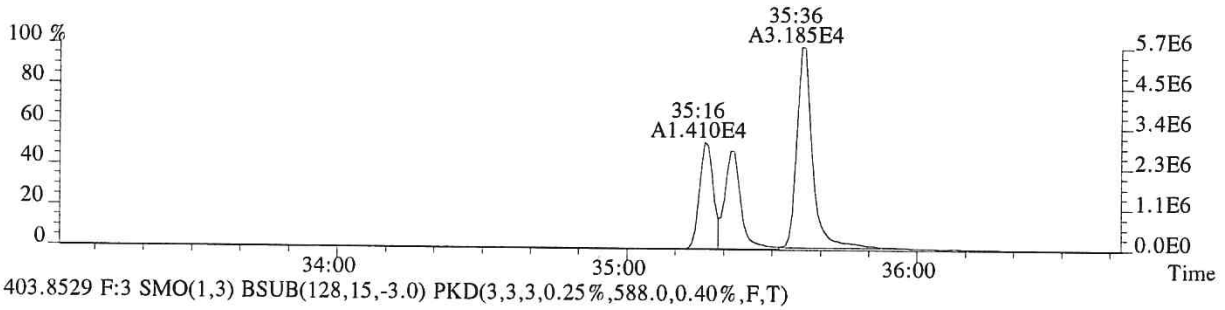
File:P518868 #1-330 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



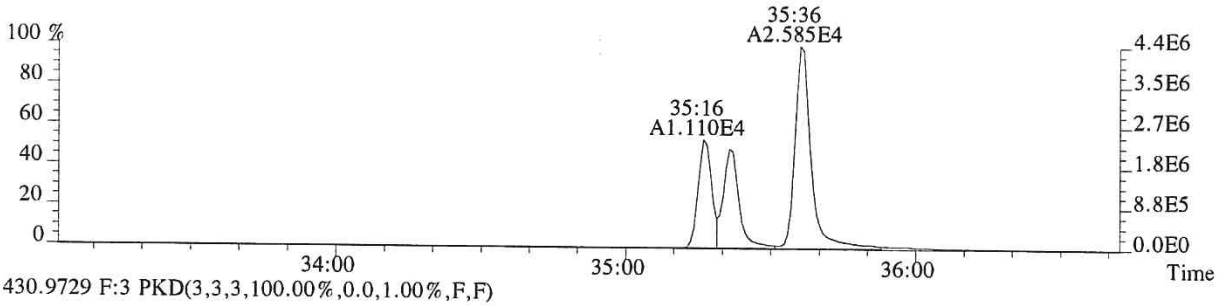
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



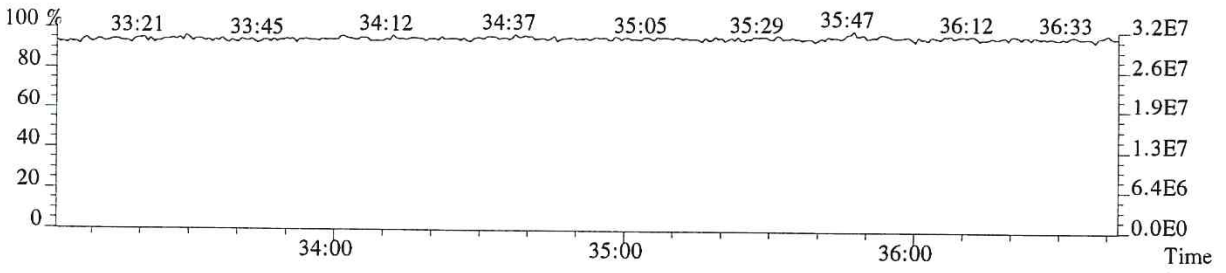
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.40%,F,T)



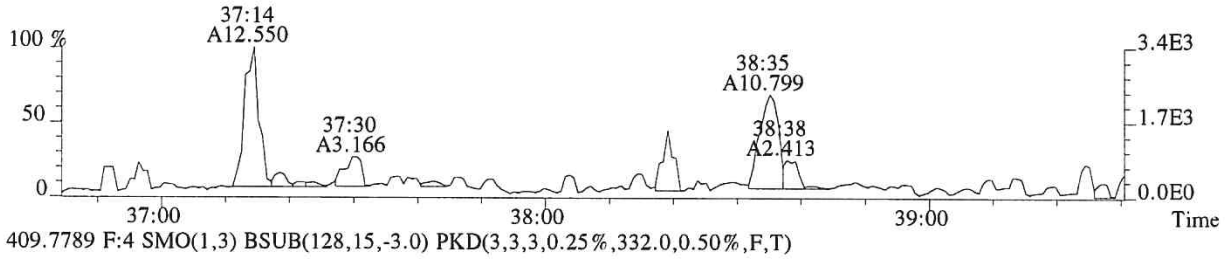
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



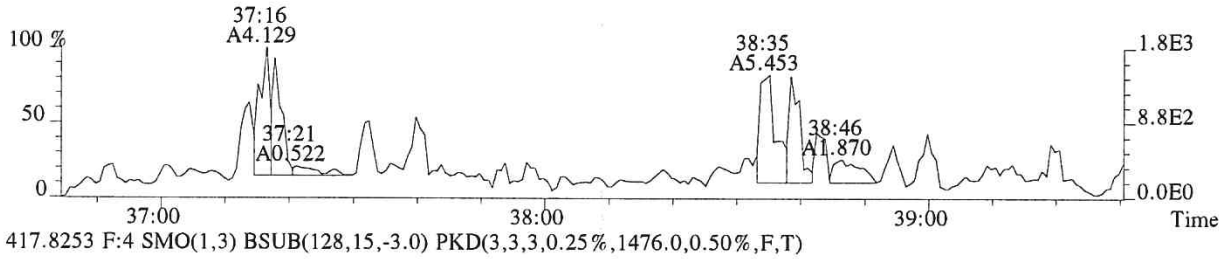
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



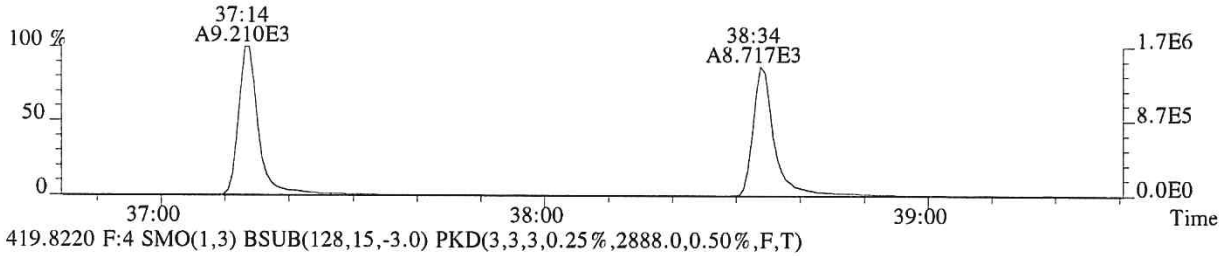
File:P518868 #1-250 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.50%,F,T)



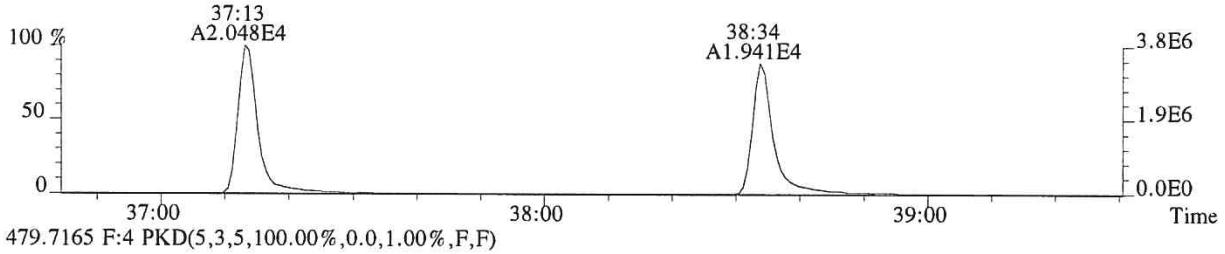
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)



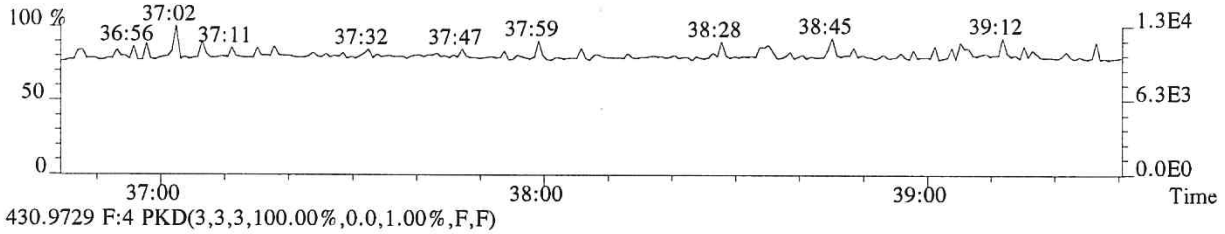
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1476.0,0.50%,F,T)



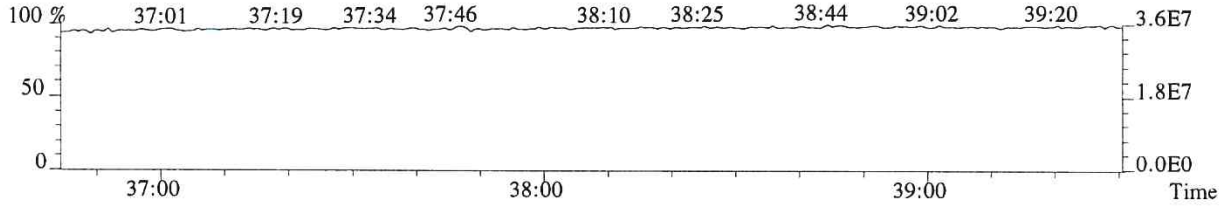
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.50%,F,T)



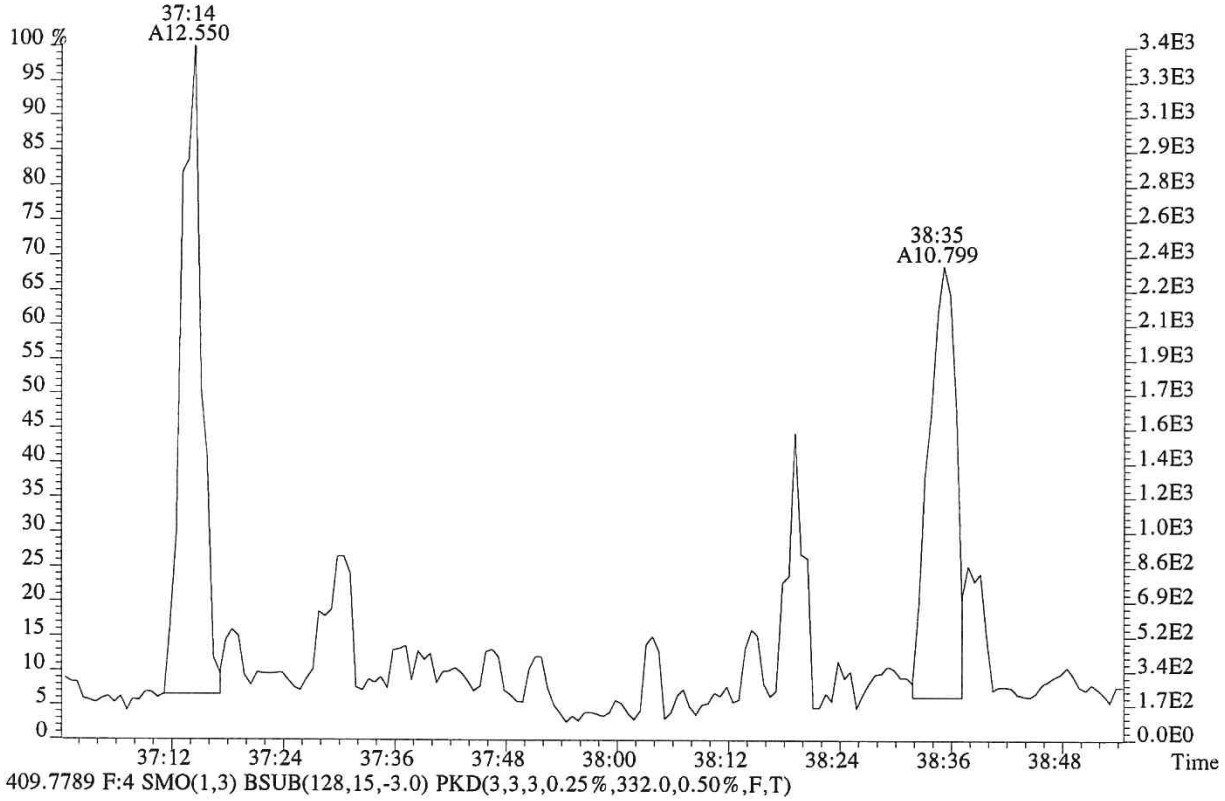
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



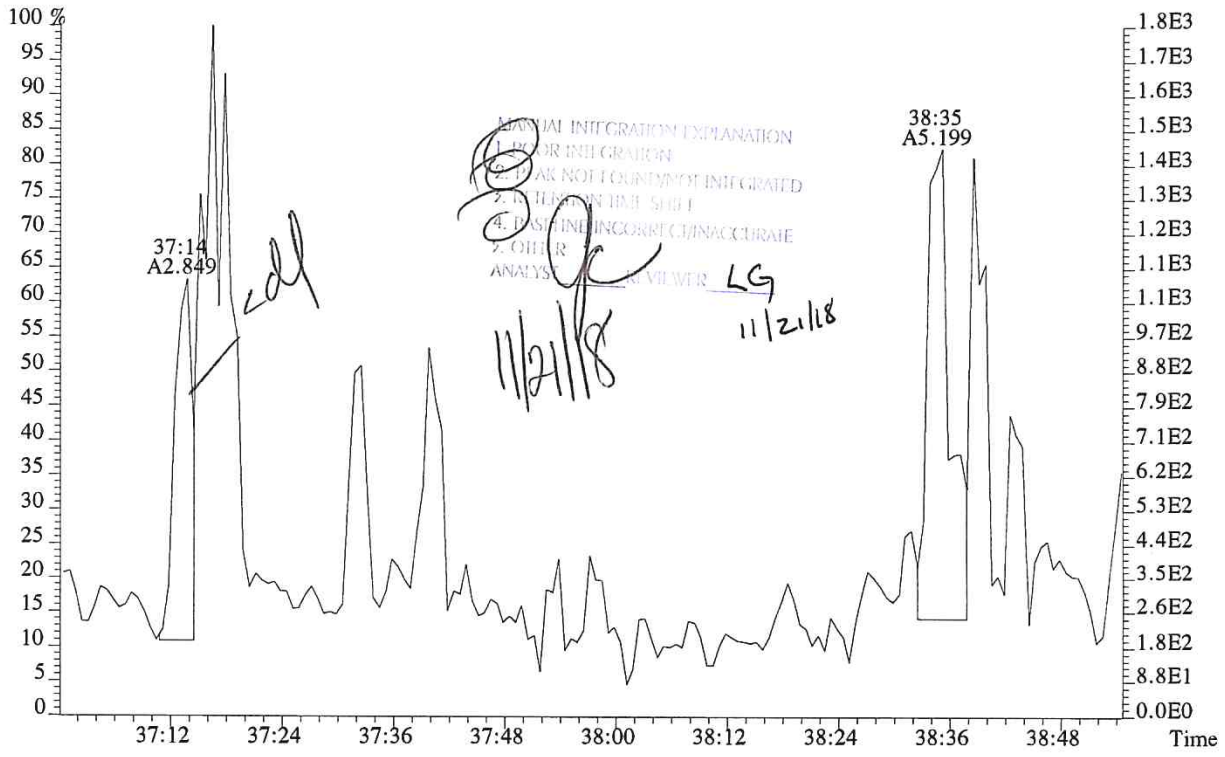
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



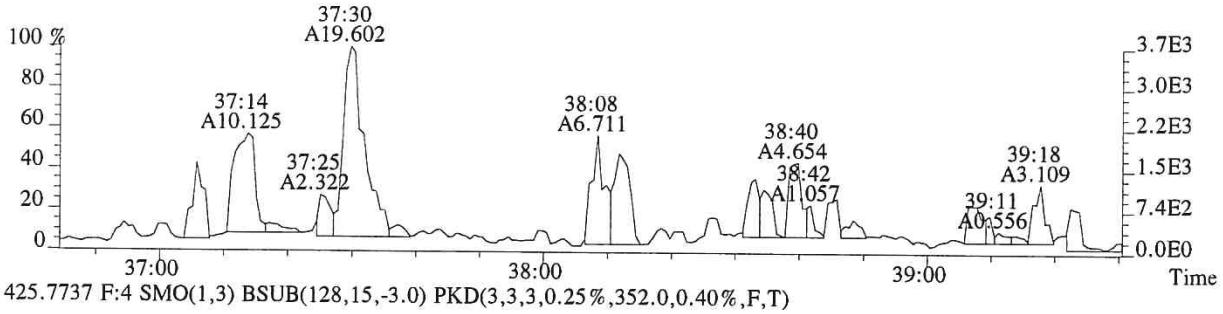
File:P518868 #1-250 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.50%,F,T)



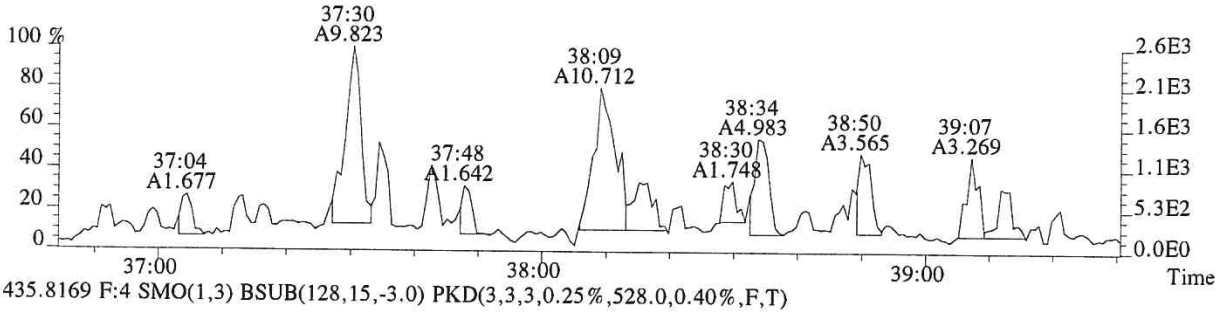
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)



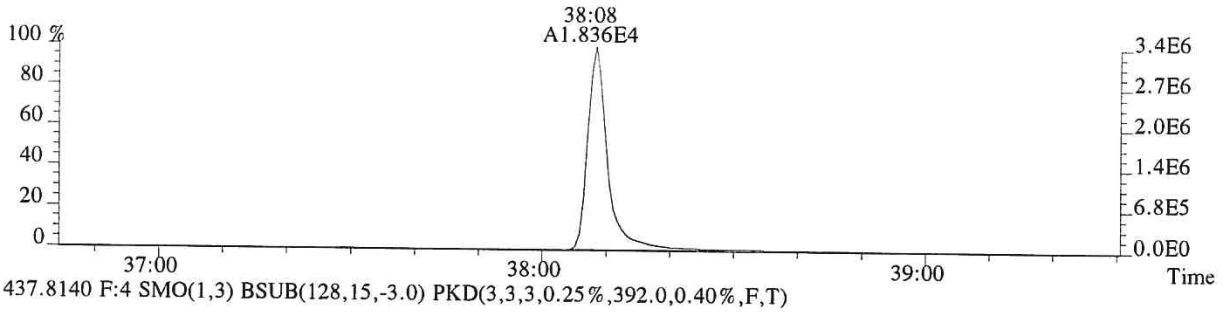
File:P518868 #1-250 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



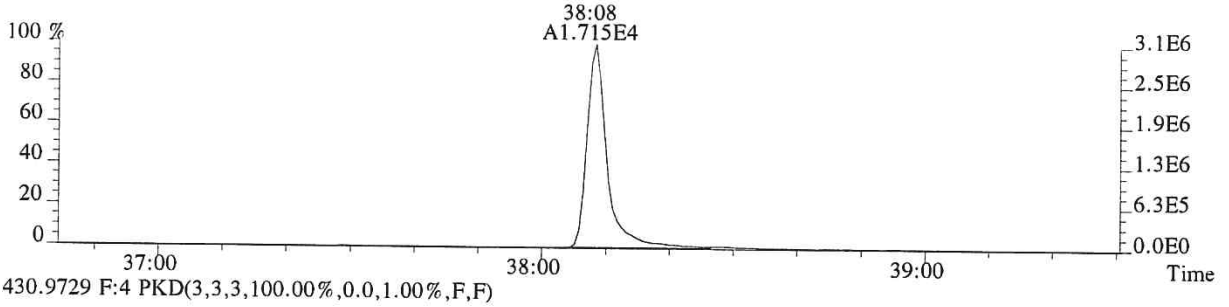
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



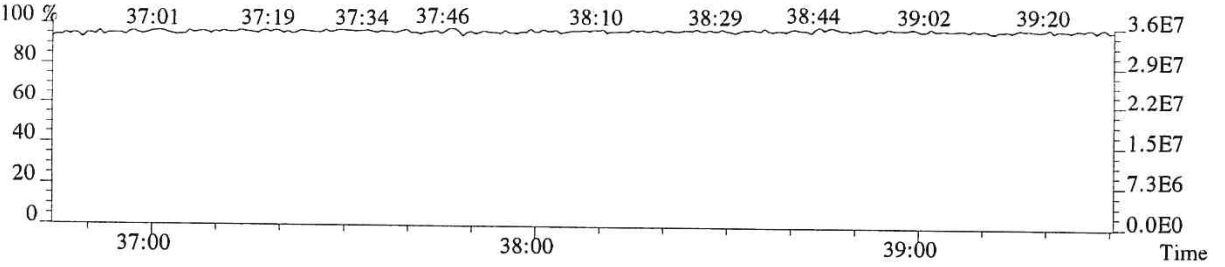
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



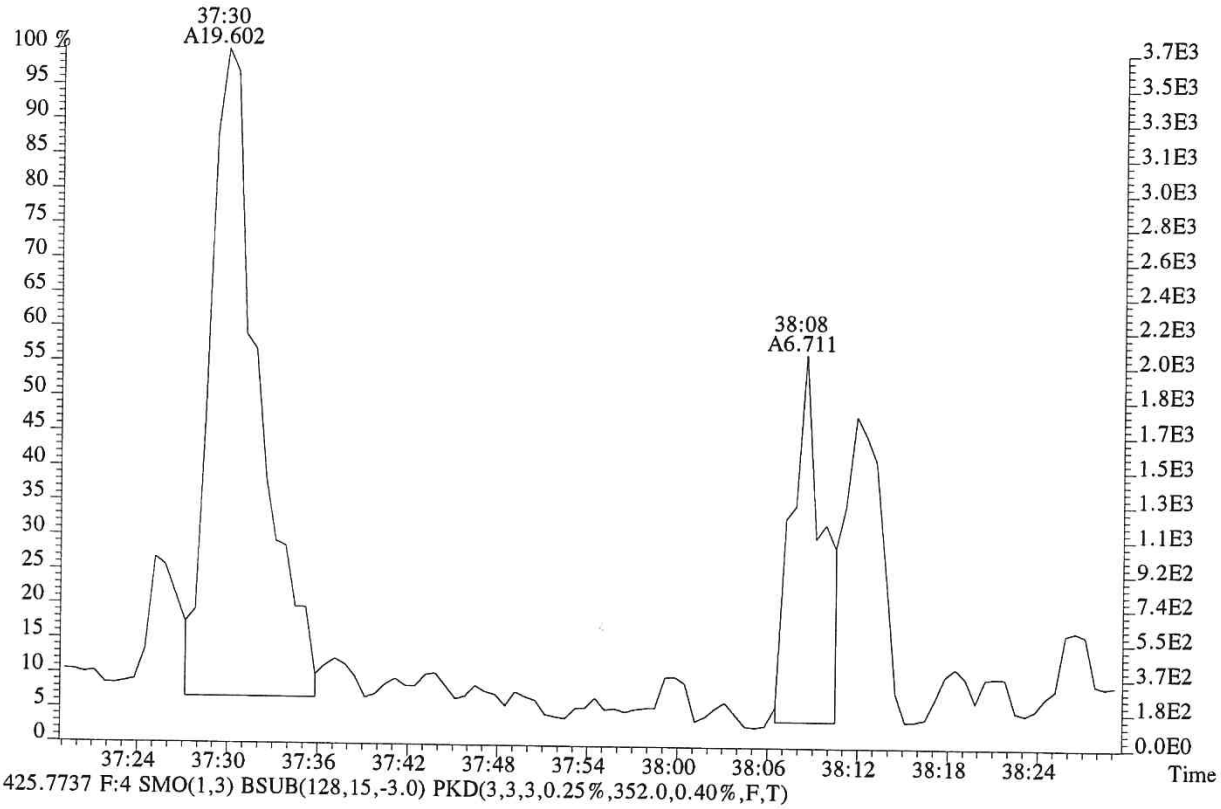
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



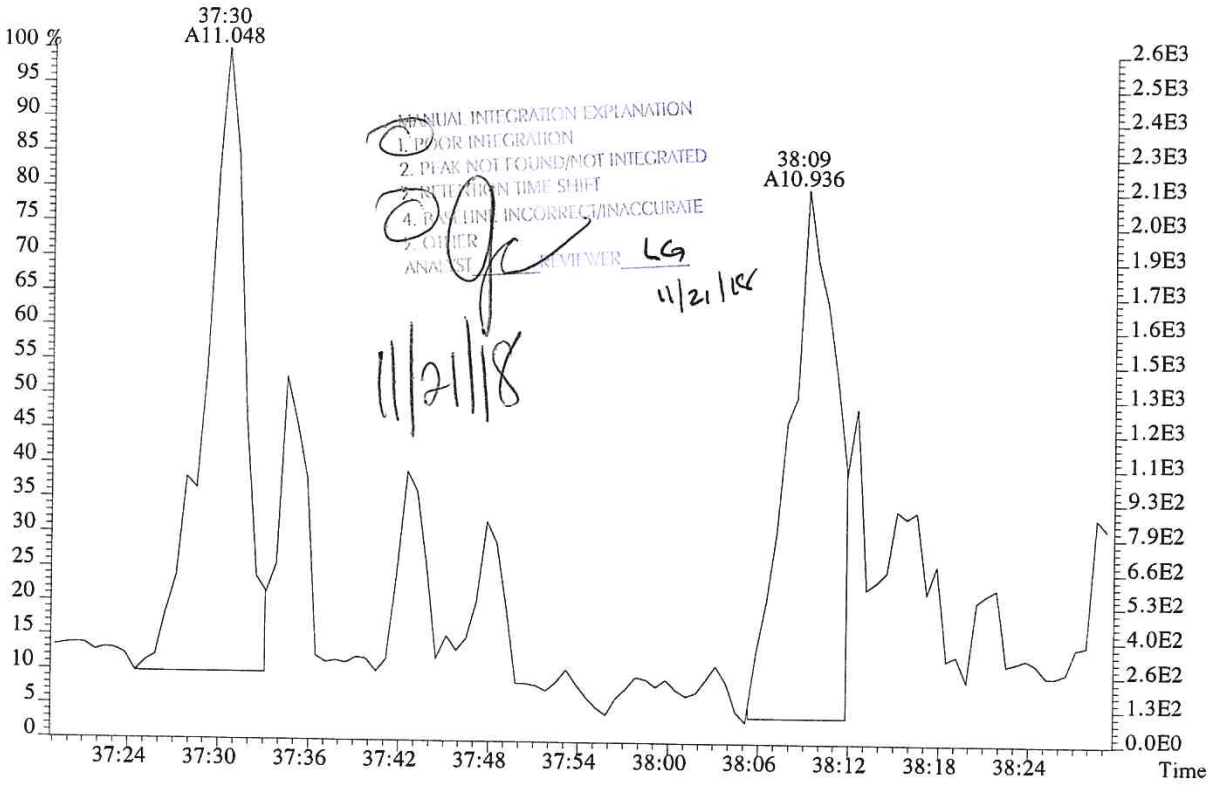
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



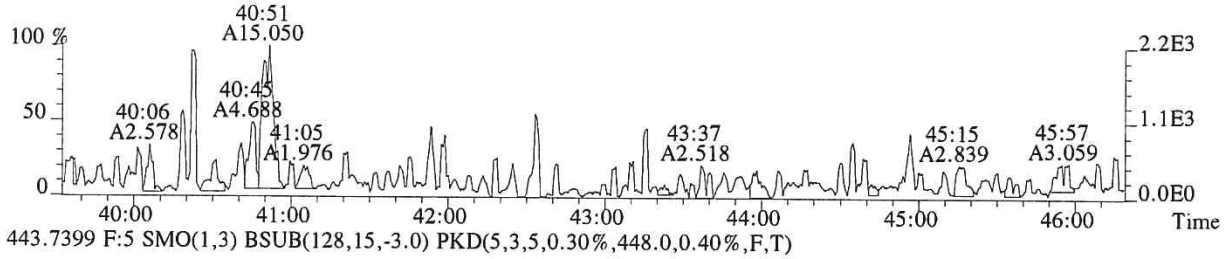
File:P518868 #1-250 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



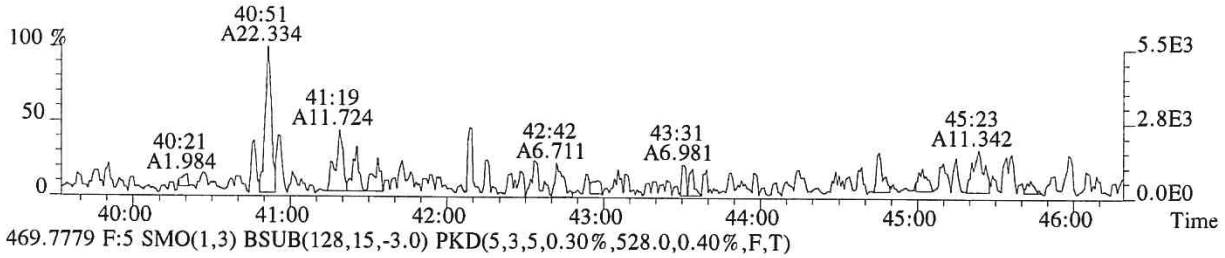
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



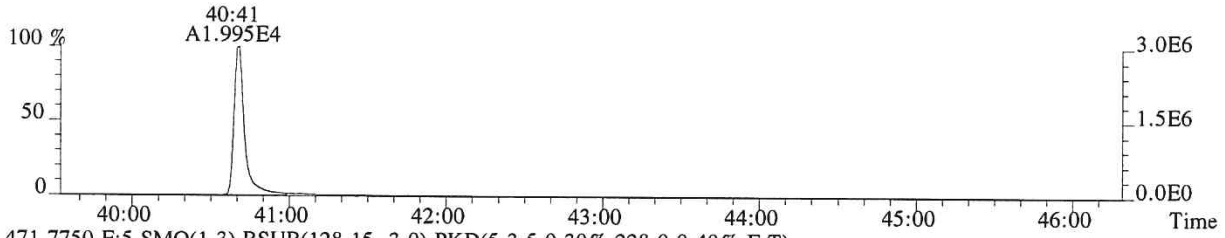
File:P518868 #1-610 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



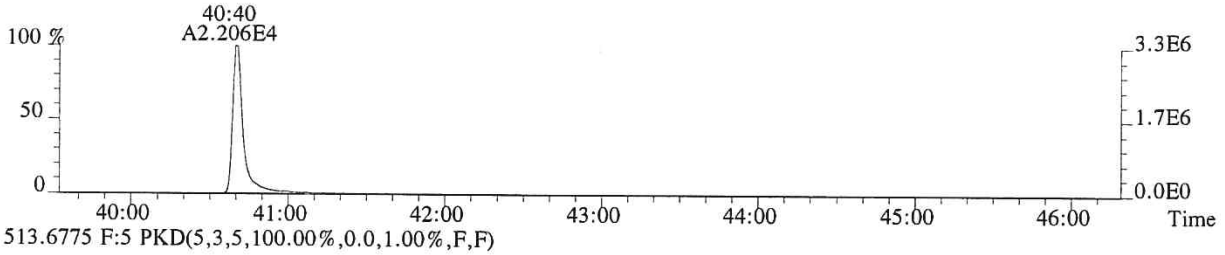
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



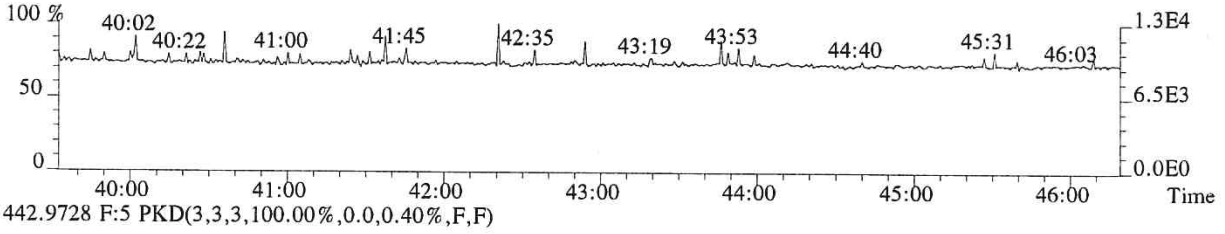
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



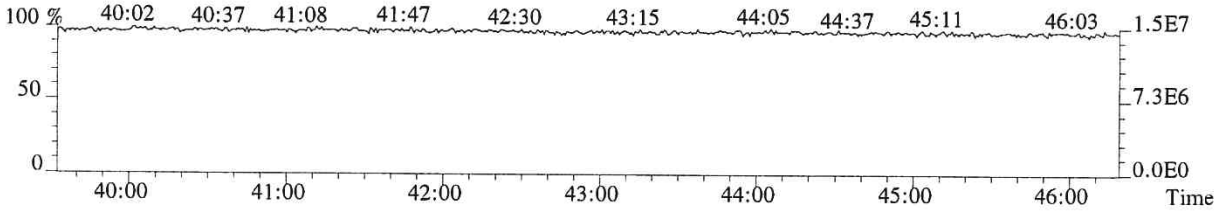
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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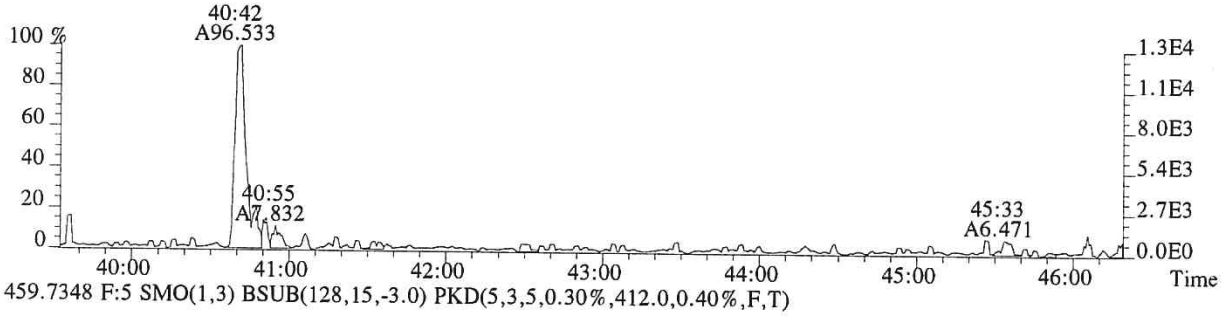
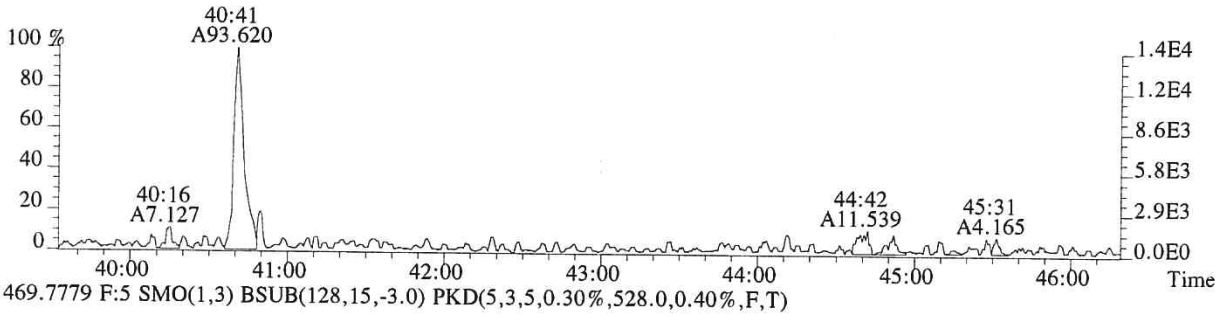
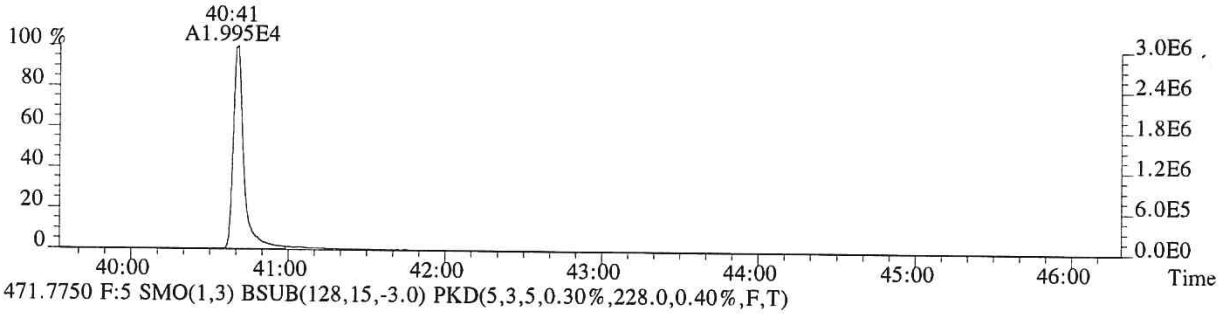
File:P518868 #1-610 Acq:17-NOV-2018 03:32:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



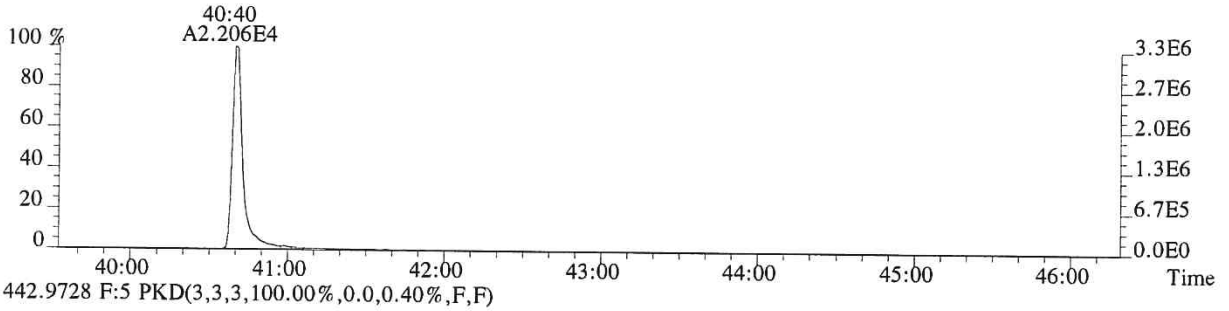
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



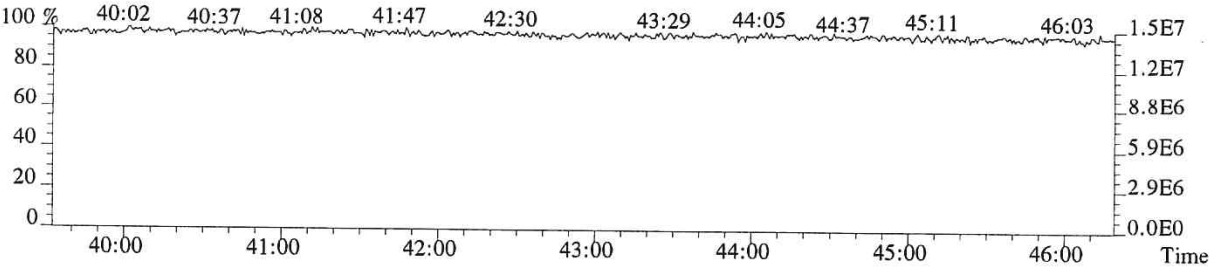
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010464

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #19 Filename P518877 Samp: 1 Inj: 1 Acquired: 17-NOV-18 10:50:36
Processed: 21-NOV-18 09:19:36 Sample ID: EQ1800468-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:34	1.261e+03	1.780e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.121e+04	7.480e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	1.193e+04	8.027e+03	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	1.054e+04	8.511e+03	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:37	1.273e+04	1.039e+04	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.062e+04	8.881e+03	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	8.802e+03	7.144e+03	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:15	8.025e+03	8.001e+03	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	6.628e+03	6.603e+03	1.00	yes	no	1.258
10	Unk	OCDF	40:52	6.257e+03	6.976e+03	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	9.199e+02	1.212e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:56	8.849e+03	5.501e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:18	7.526e+03	6.122e+03	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.342e+03	6.580e+03	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:38	8.214e+03	6.788e+03	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	5.626e+03	5.359e+03	1.05	yes	no	1.025
17	Unk	OCDD	40:43	2.679e+03	2.937e+03	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.323e+04	1.708e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.419e+04	1.541e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.467e+04	1.552e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.069e+04	2.099e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.393e+04	2.697e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.196e+04	2.395e+04	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.021e+04	1.960e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	7.725e+03	1.722e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	6.540e+03	1.457e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	8.607e+03	1.076e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.789e+04	1.128e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.573e+04	1.266e+04	1.24	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:23	1.587e+04	1.261e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.410e+04	1.268e+04	1.11	yes	no	0.858
32	IS	13C-OCDD	40:43	4.387e+03	5.320e+03	0.82	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	2.214e+04	2.788e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.389e+04	2.618e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	9.764e+03				no	1.014

$$\text{OCDD} = \frac{(2.679e+03 + 2.937e+03) \times 4000\ \text{pg} \times 1}{(4.387e+03 + 5.320e+03) \times \text{g} \times / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #19 Filename P518877 Samp: 1 Inj: 1 Acquired: 17-NOV-18 10:50:36
Processed: 21-NOV-18 09:19:36 LAB. ID: EQ1800468-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.65e+05	2.08e+02	7.9e+02	2.37e+05	1.08e+03	2.2e+02
2	1,2,3,7,8-PeCDF	1.83e+06	3.88e+02	4.7e+03	1.24e+06	1.18e+03	1.0e+03
3	2,3,4,7,8-PeCDF	2.07e+06	3.88e+02	5.3e+03	1.41e+06	1.18e+03	1.2e+03
4	1,2,3,4,7,8-HxCDF	2.09e+06	1.32e+02	1.6e+04	1.77e+06	1.48e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	2.35e+06	1.32e+02	1.8e+04	1.90e+06	1.48e+02	1.3e+04
6	2,3,4,6,7,8-HxCDF	2.13e+06	1.32e+02	1.6e+04	1.74e+06	1.48e+02	1.2e+04
7	1,2,3,7,8,9-HxCDF	1.55e+06	1.32e+02	1.2e+04	1.26e+06	1.48e+02	8.5e+03
8	1,2,3,4,6,7,8-HpCDF	1.59e+06	2.49e+03	6.4e+02	1.53e+06	2.74e+03	5.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.10e+06	2.49e+03	4.4e+02	1.16e+06	2.74e+03	4.2e+02
10	OCDF	9.83e+05	1.84e+02	5.3e+03	1.10e+06	6.12e+02	1.8e+03
11	2,3,7,8-TCDD	1.39e+05	1.13e+03	1.2e+02	1.71e+05	4.00e+02	4.3e+02
12	1,2,3,7,8-PeCDD	1.52e+06	5.00e+02	3.0e+03	9.42e+05	2.04e+02	4.6e+03
13	1,2,3,4,7,8-HxCDD	1.57e+06	1.84e+02	8.5e+03	1.22e+06	1.64e+02	7.4e+03
14	1,2,3,6,7,8-HxCDD	1.62e+06	1.84e+02	8.8e+03	1.26e+06	1.64e+02	7.7e+03
15	1,2,3,7,8,9-HxCDD	1.46e+06	1.84e+02	7.9e+03	1.17e+06	1.64e+02	7.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.05e+06	2.00e+02	5.2e+03	1.01e+06	2.00e+02	5.0e+03
17	OCDD	3.56e+05	2.64e+02	1.3e+03	3.86e+05	1.84e+02	2.1e+03
18	13C-2,3,7,8-TCDF	1.74e+06	3.09e+03	5.6e+02	2.27e+06	1.05e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	3.95e+06	3.28e+02	1.2e+04	2.48e+06	7.72e+02	3.2e+03
20	13C-2,3,4,7,8-PeCDF	4.31e+06	3.28e+02	1.3e+04	2.68e+06	7.72e+02	3.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.20e+06	3.44e+02	6.4e+03	4.29e+06	3.80e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.56e+06	3.44e+02	7.4e+03	4.94e+06	3.80e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.35e+06	3.44e+02	6.8e+03	4.71e+06	3.80e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.80e+06	3.44e+02	5.2e+03	3.49e+06	3.80e+02	9.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.55e+06	1.84e+03	8.4e+02	3.36e+06	2.08e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.17e+06	1.84e+03	6.3e+02	2.58e+06	2.08e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.27e+06	4.36e+03	2.9e+02	1.61e+06	1.76e+03	9.2e+02
28	13C-1,2,3,7,8-PeCDD	3.12e+06	6.40e+02	4.9e+03	1.96e+06	4.84e+02	4.1e+03
29	13C-1,2,3,4,7,8-HxCDD	3.25e+06	1.14e+03	2.9e+03	2.56e+06	4.60e+02	5.6e+03
30	13C-1,2,3,6,7,8-HxCDD	3.00e+06	1.14e+03	2.6e+03	2.40e+06	4.60e+02	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.62e+06	2.40e+02	1.1e+04	2.40e+06	4.80e+02	5.0e+03
32	13C-OCDD	4.73e+05	3.88e+02	1.2e+03	6.17e+05	1.76e+02	3.5e+03
33	13C-1,2,3,4-TCDD	3.26e+06	4.36e+03	7.5e+02	4.08e+06	1.76e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	6.09e+06	1.14e+03	5.4e+03	4.71e+06	4.60e+02	1.0e+04
35	37Cl-2,3,7,8-TCDD	1.42e+06	1.10e+03	1.3e+03			

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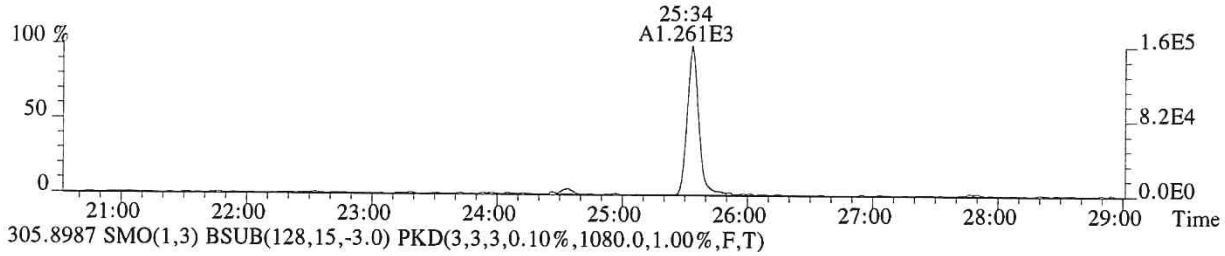
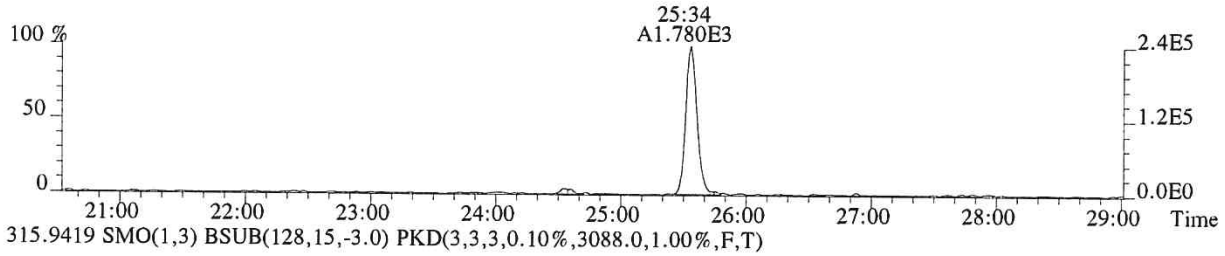
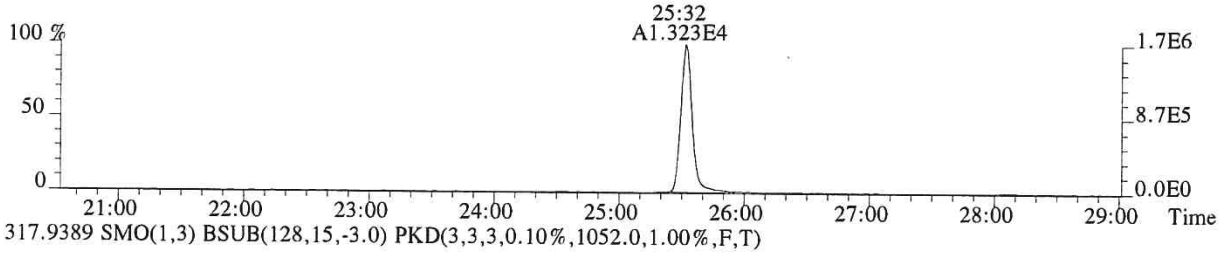
File:P518877 #1-602 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



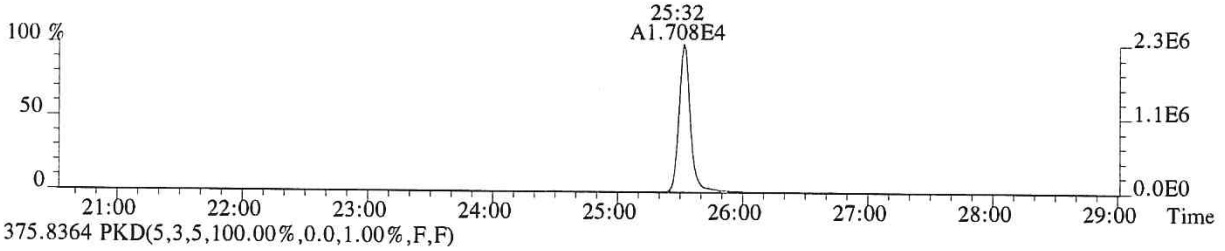
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



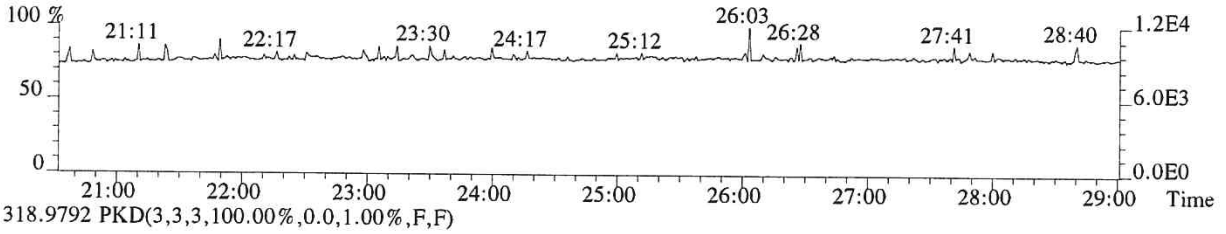
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3088.0,1.00%,F,T)



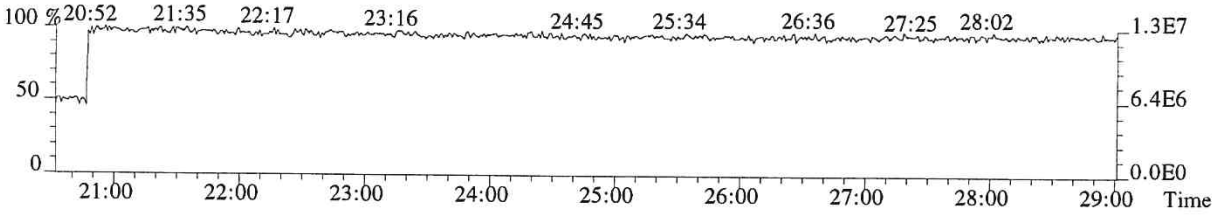
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

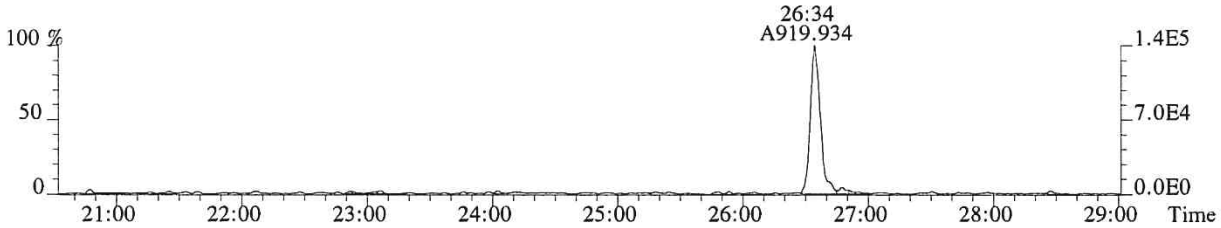


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

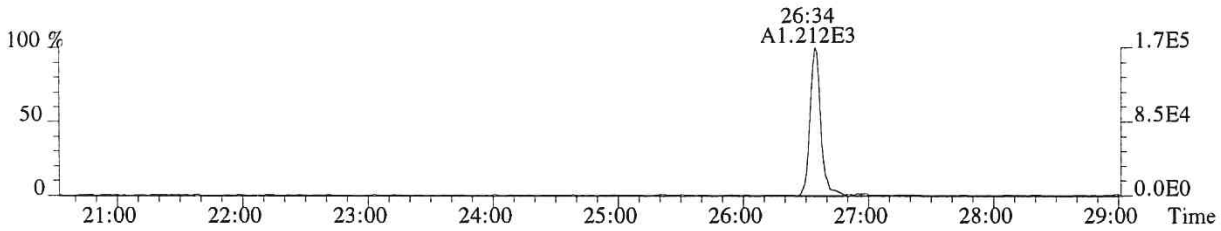


010467

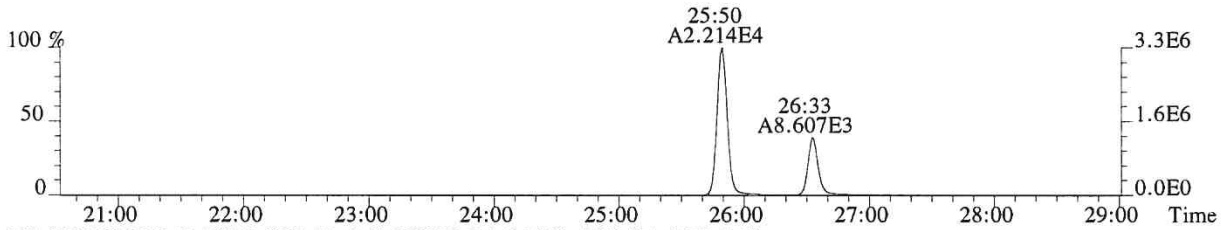
File:P518877 #1-602 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



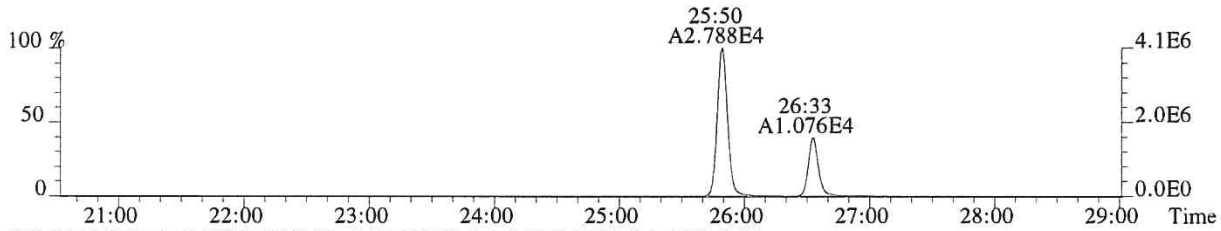
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



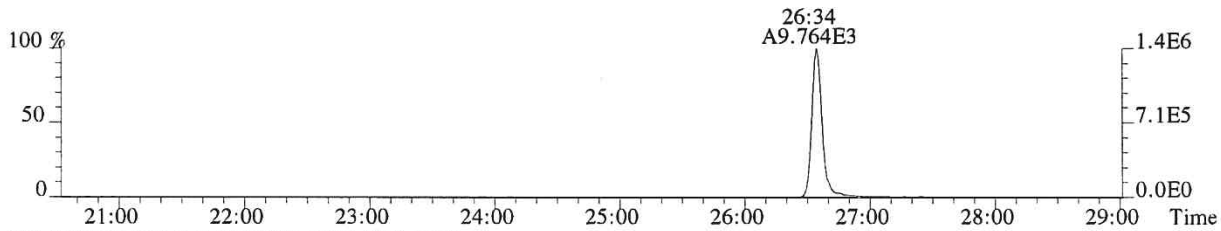
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4360.0,1.00%,F,T)



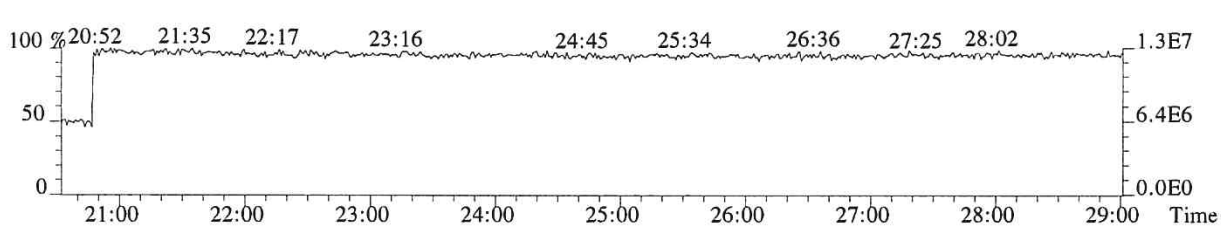
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)

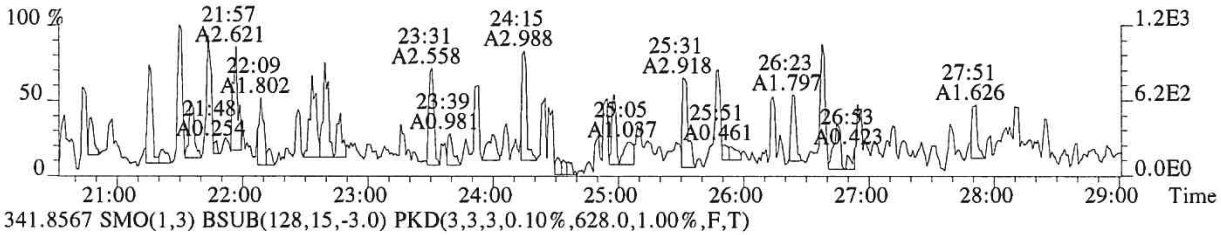


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

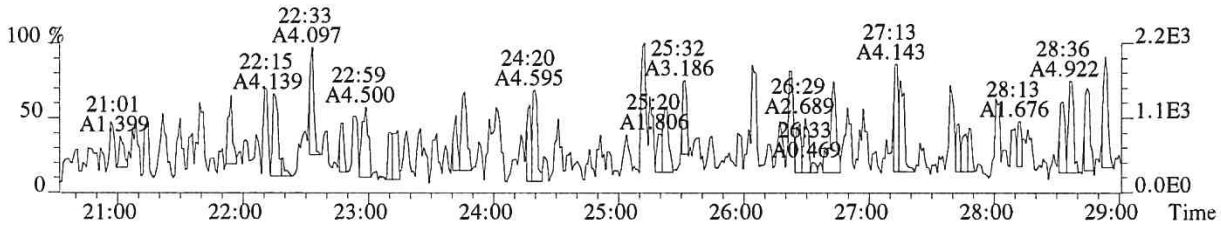


010468

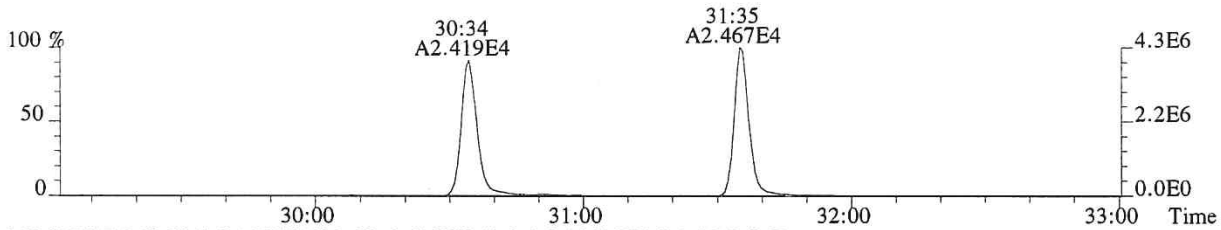
File:P518877 #1-602 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



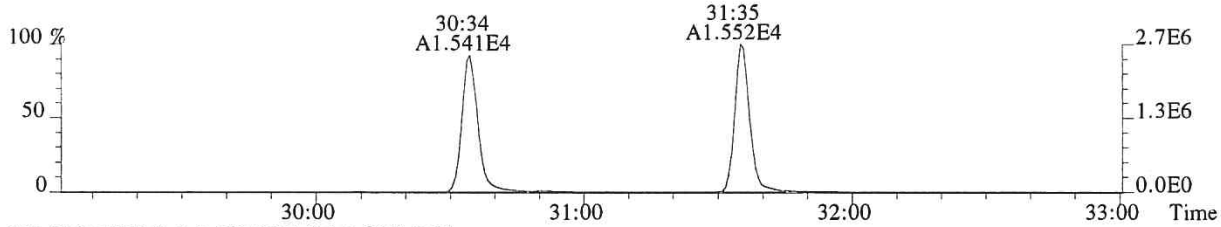
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



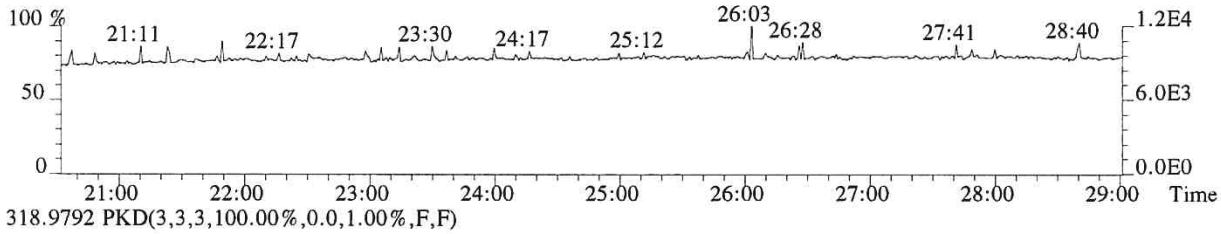
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



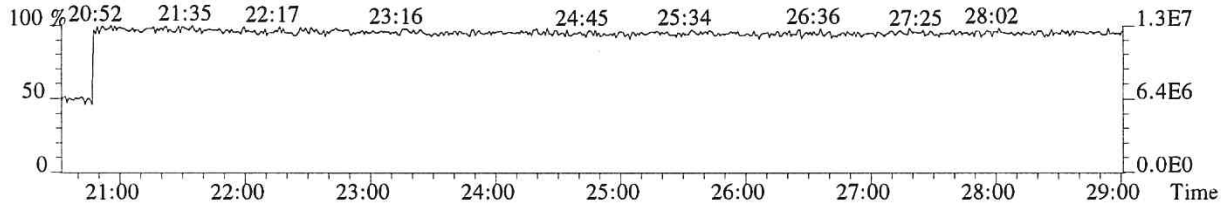
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

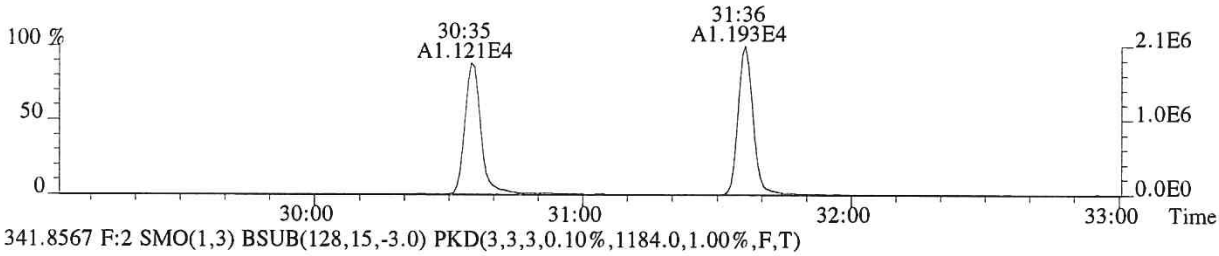


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

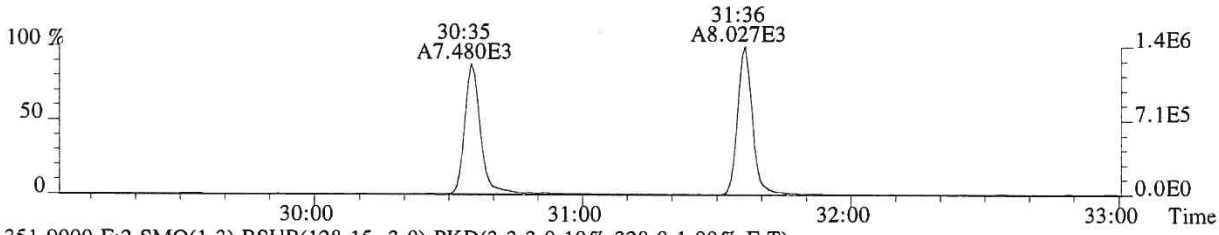


010469

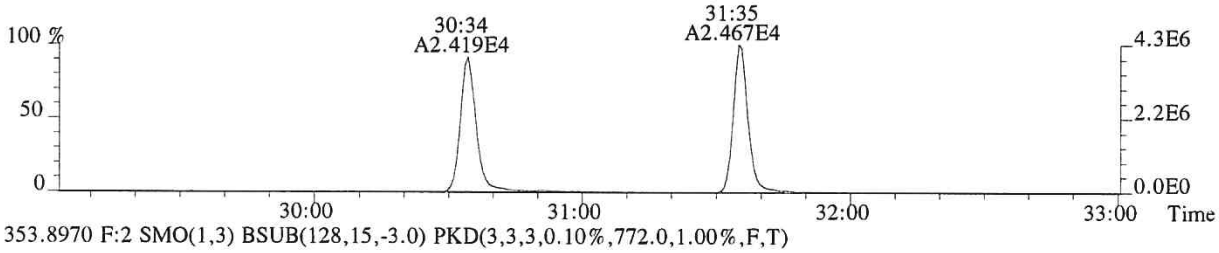
File:P518877 #1-357 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



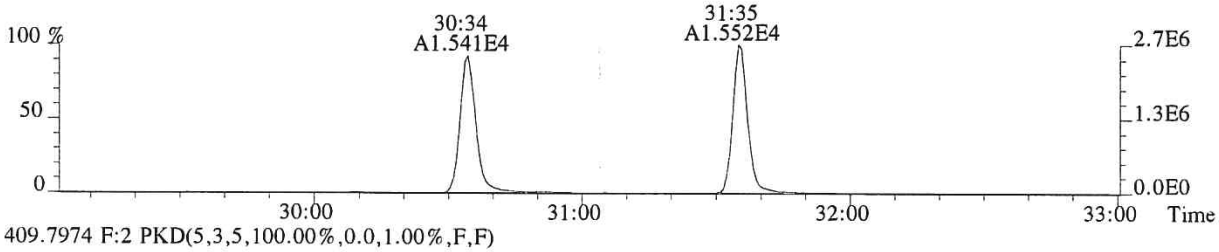
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



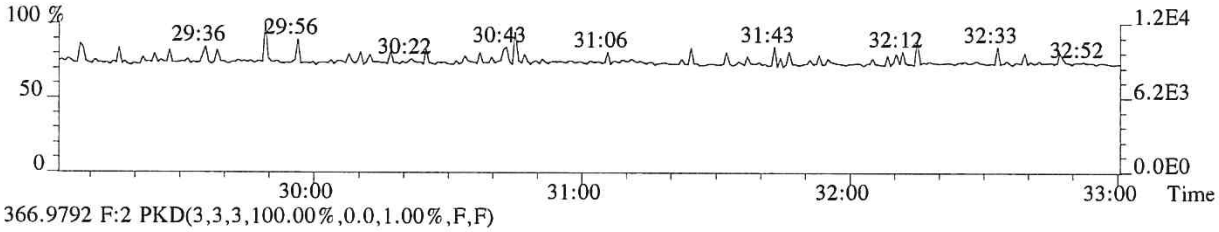
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



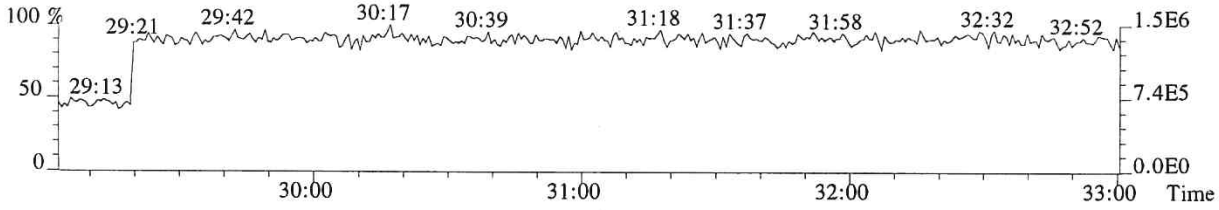
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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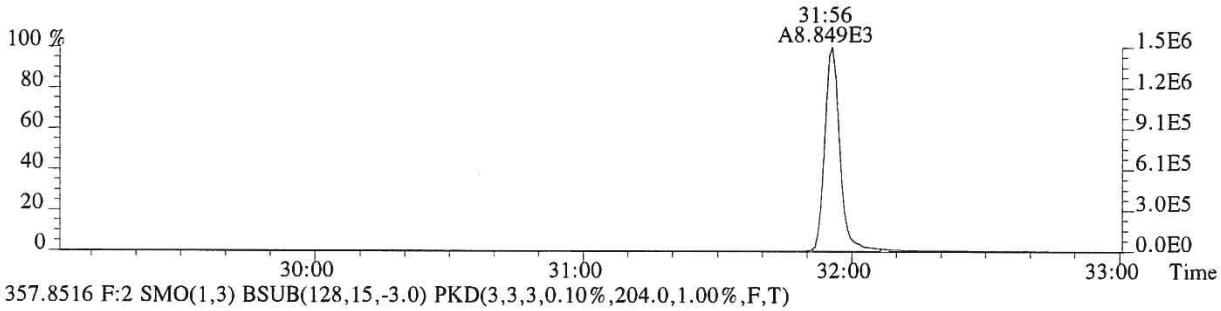
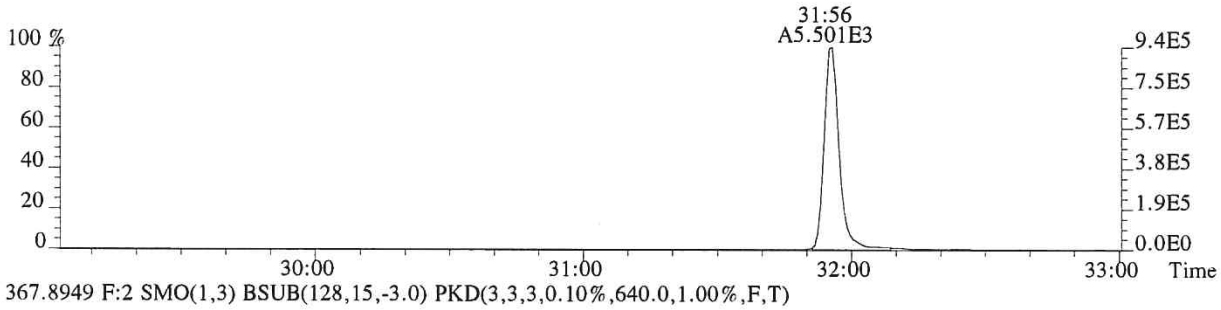
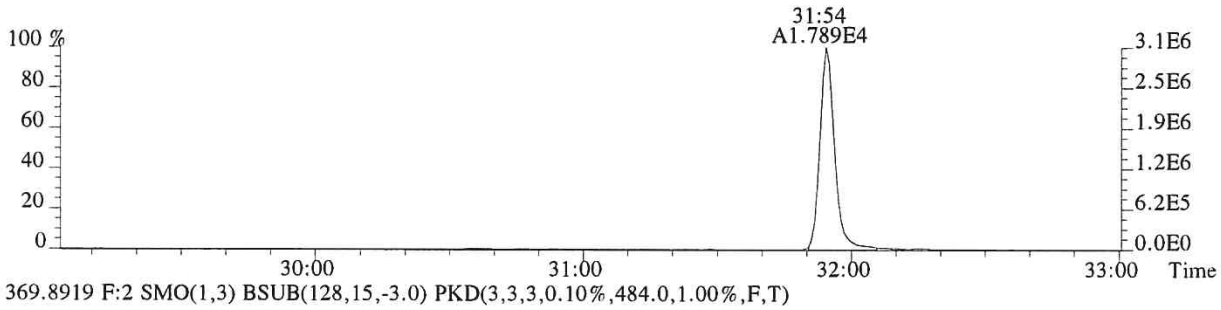
File:P518877 #1-357 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



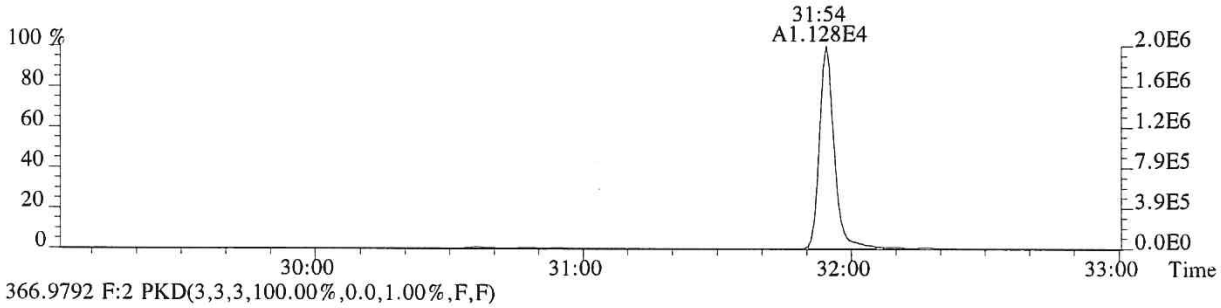
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



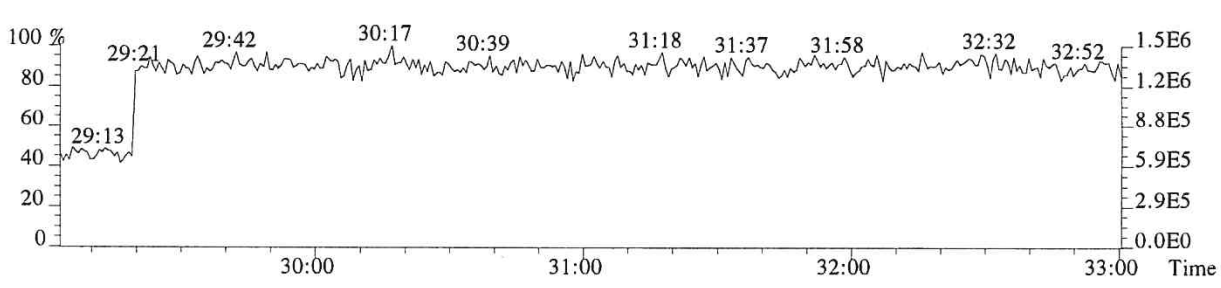
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



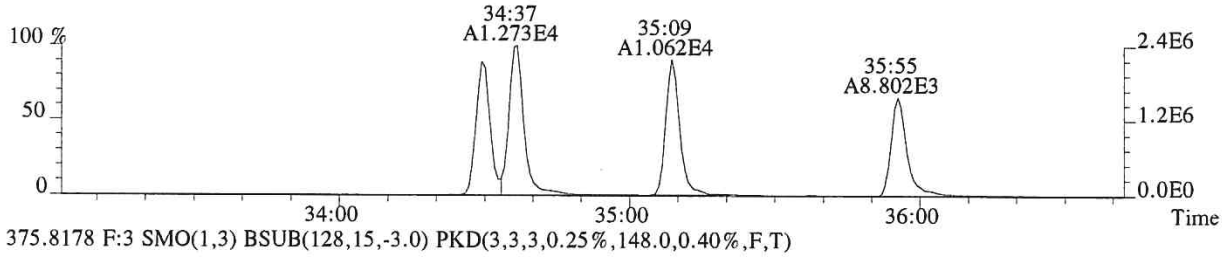
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



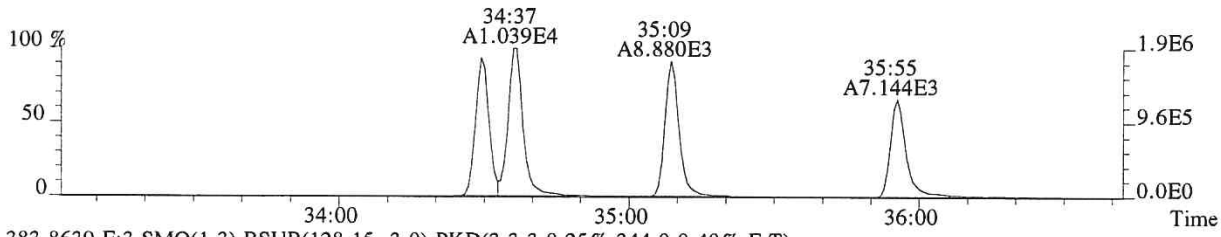
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



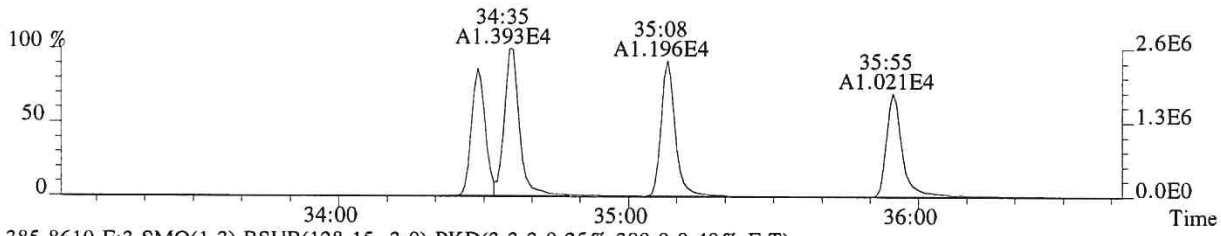
File:P518877 #1-330 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,132.0,0.40%,F,T)



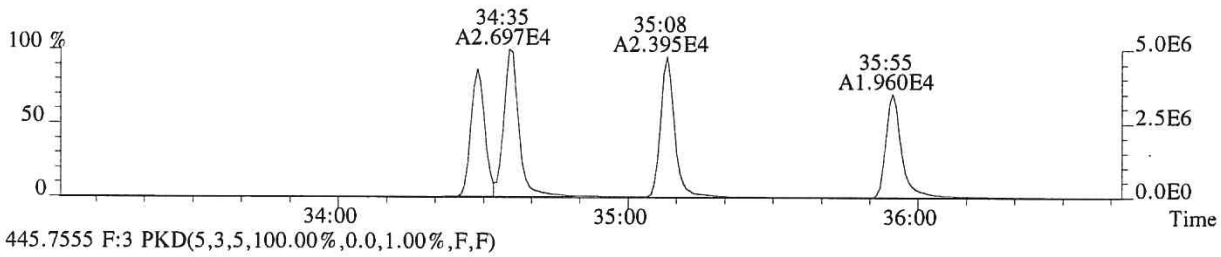
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,148.0,0.40%,F,T)



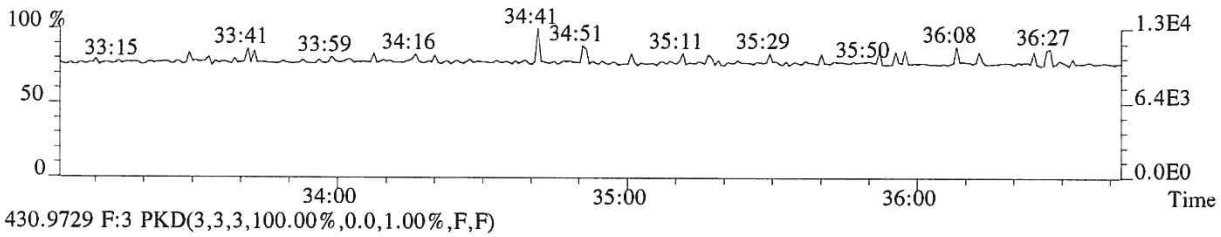
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



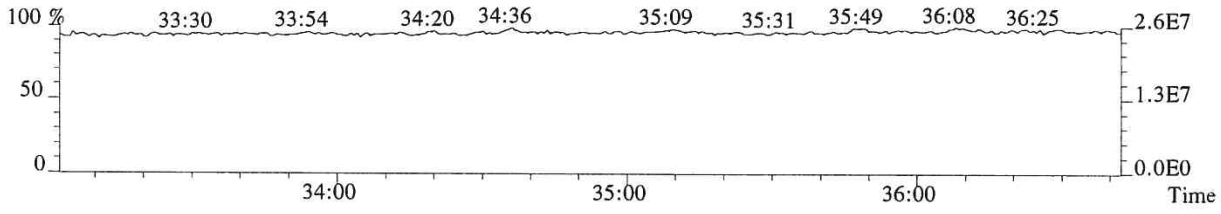
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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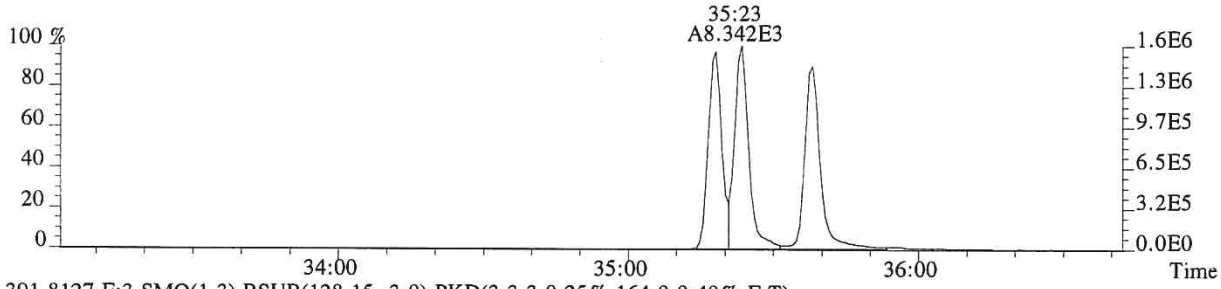
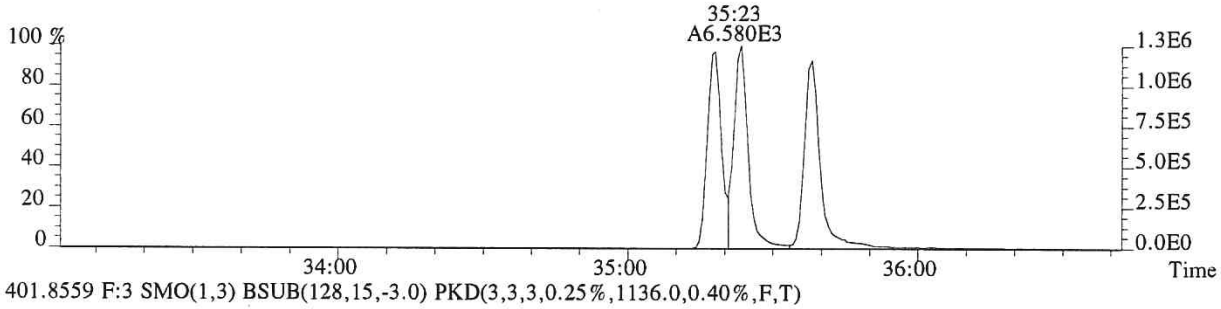
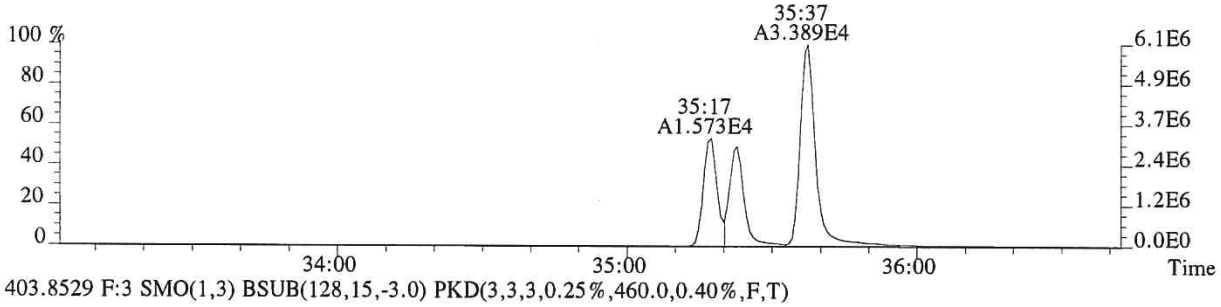
File:P518877 #1-330 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



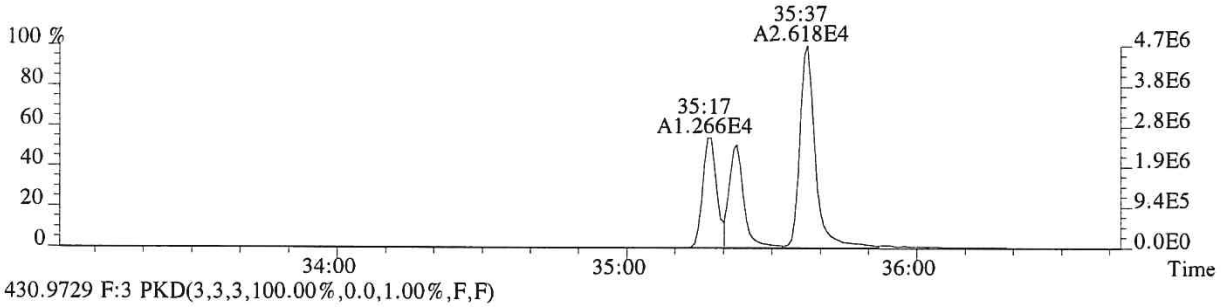
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



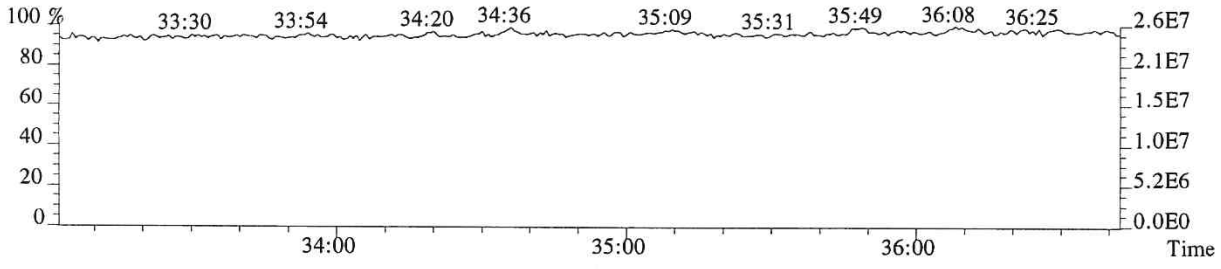
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



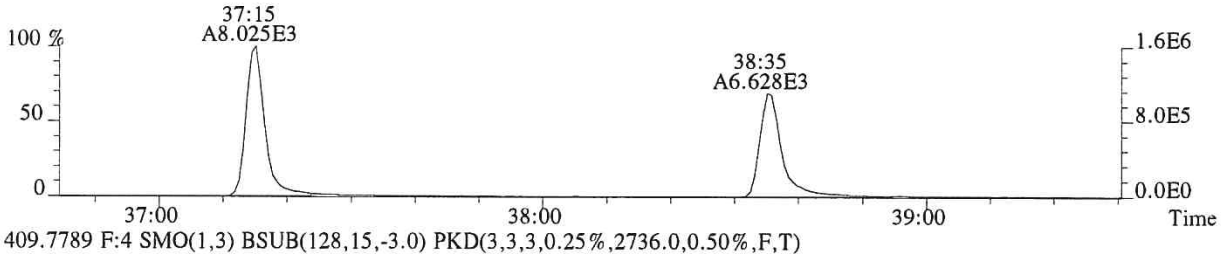
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



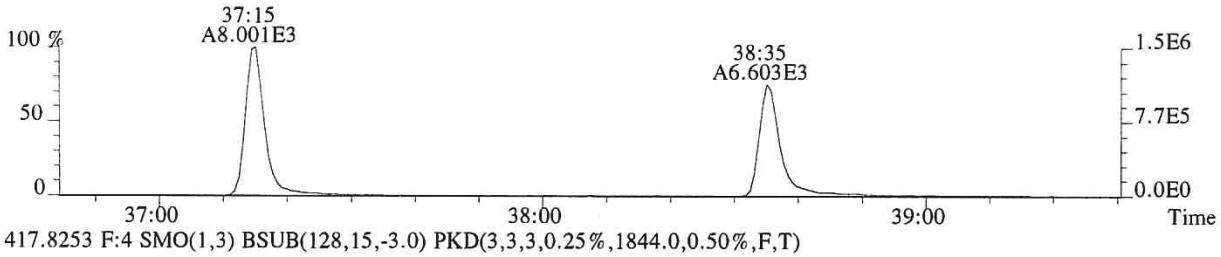
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



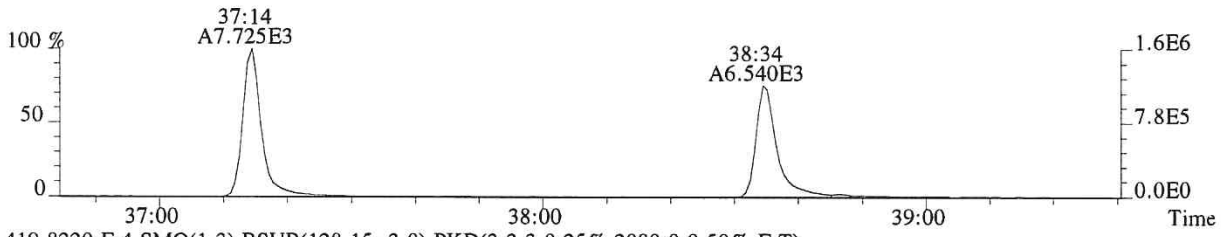
File:P518877 #1-250 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2492.0,0.50%,F,T)



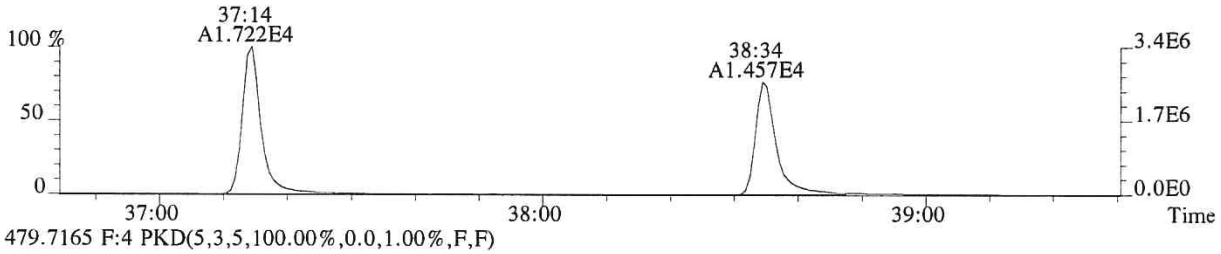
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2736.0,0.50%,F,T)



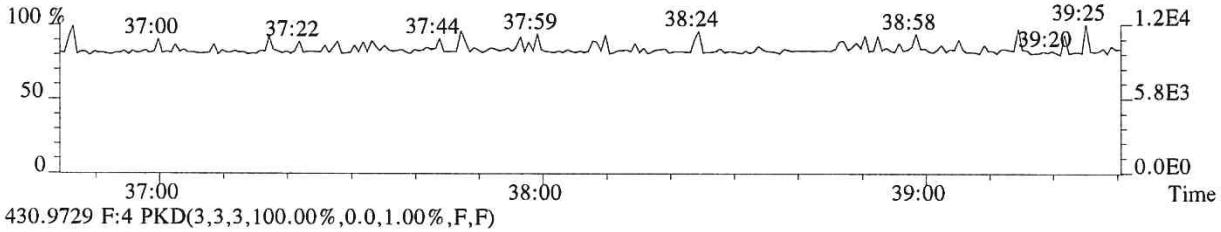
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.50%,F,T)



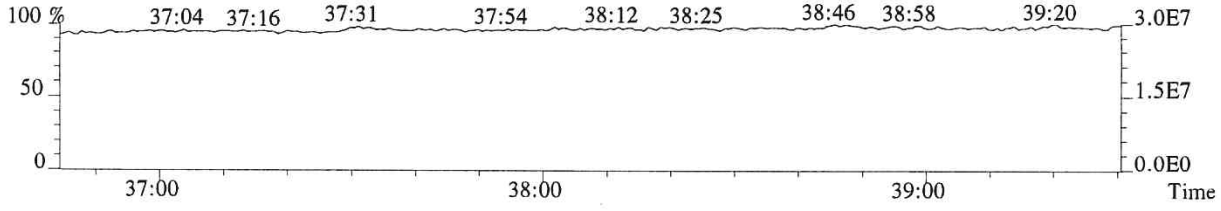
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.50%,F,T)



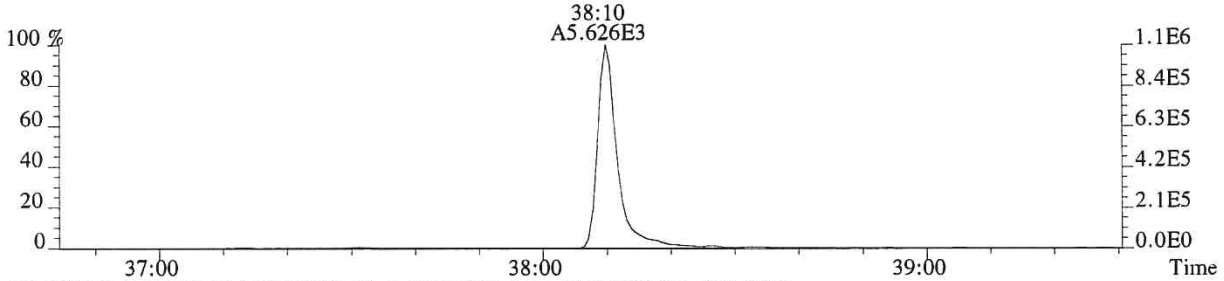
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



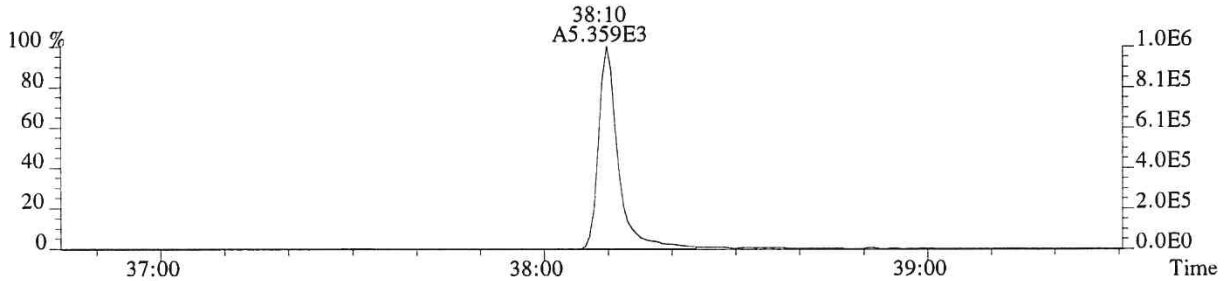
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



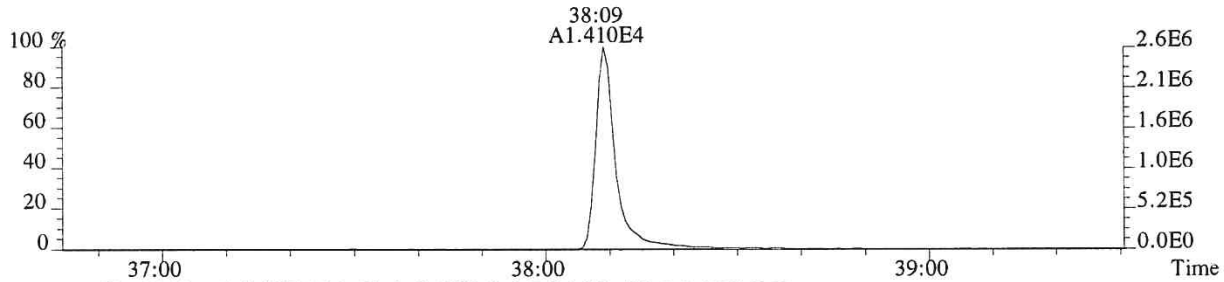
File:P518877 #1-250 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



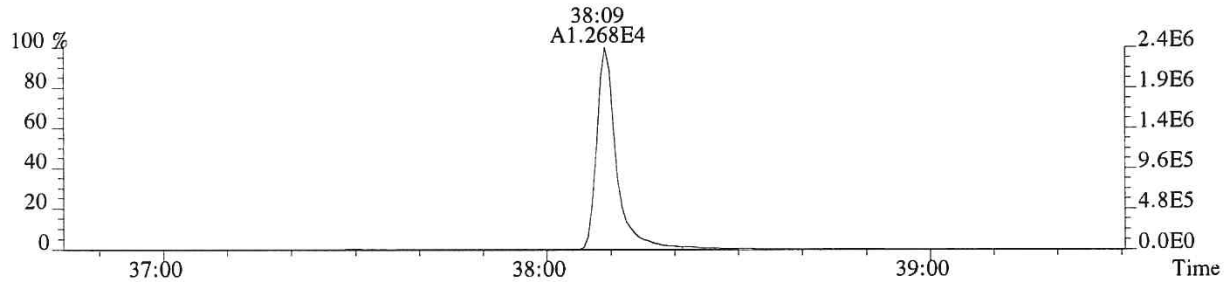
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



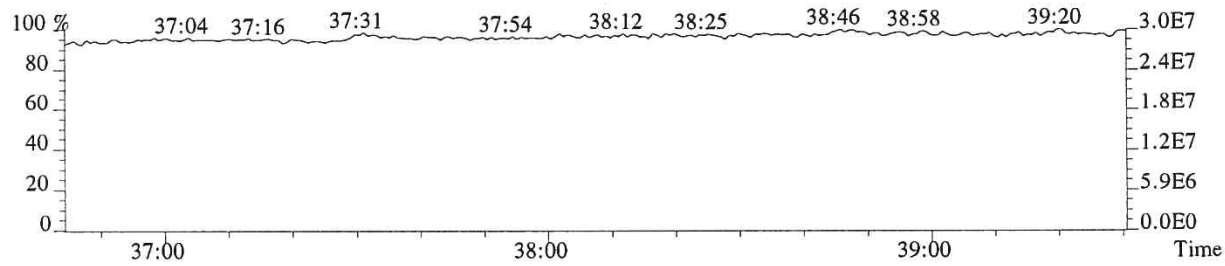
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



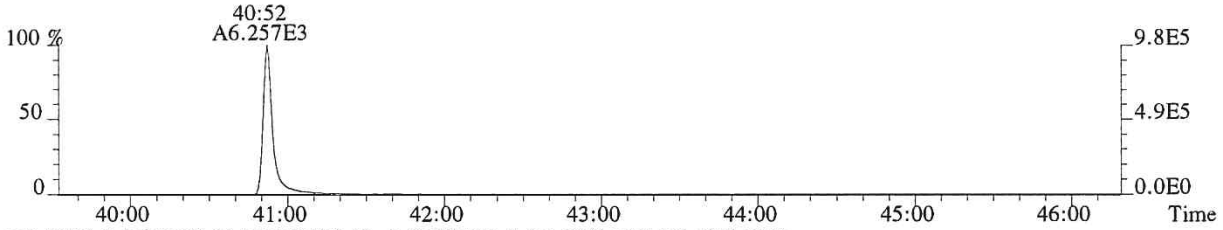
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



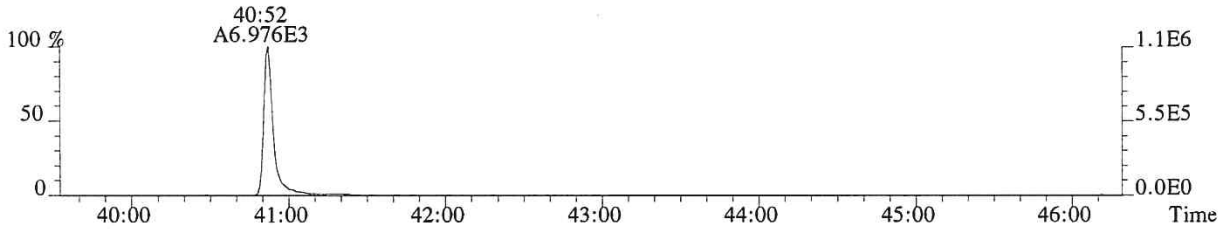
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



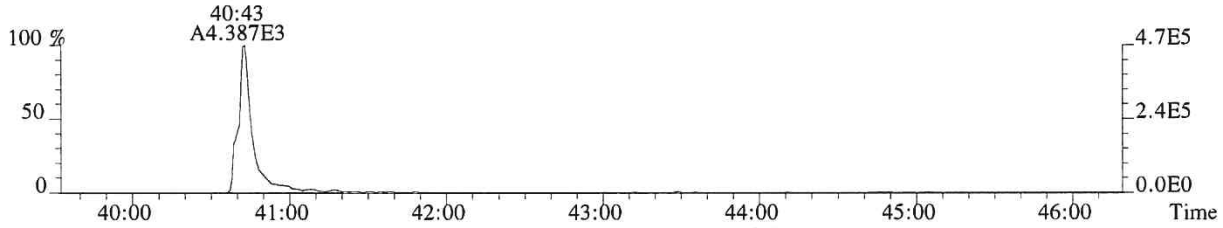
File:P518877 #1-610 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



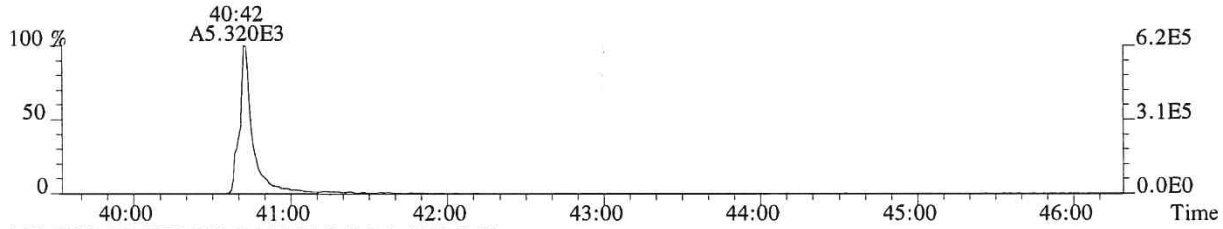
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



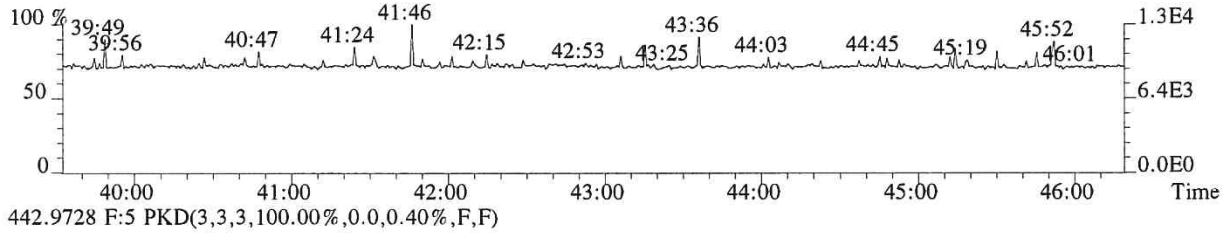
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



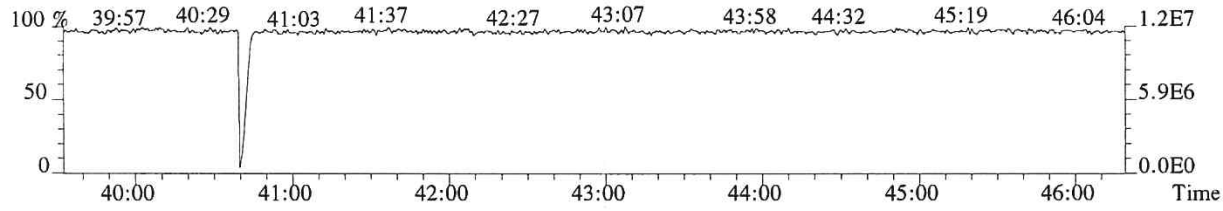
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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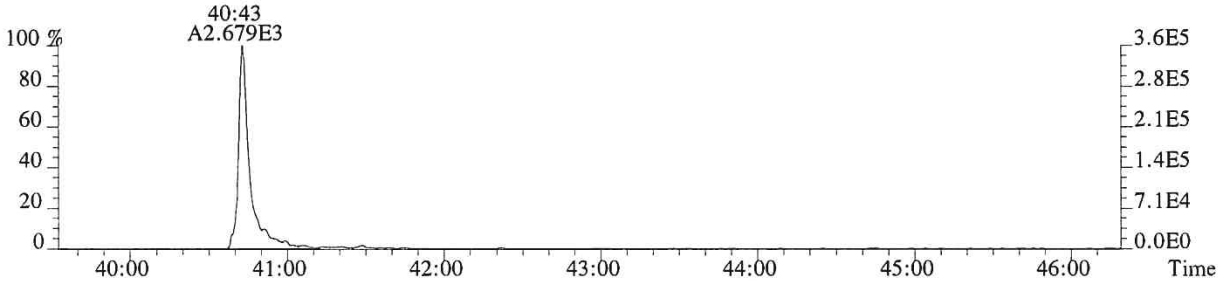
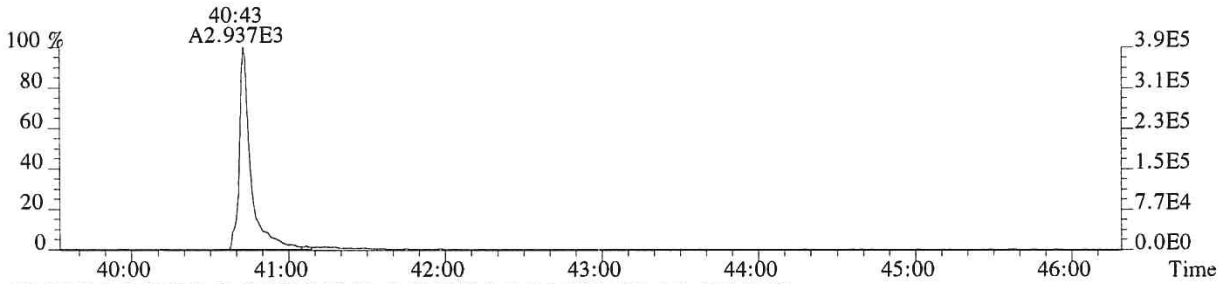
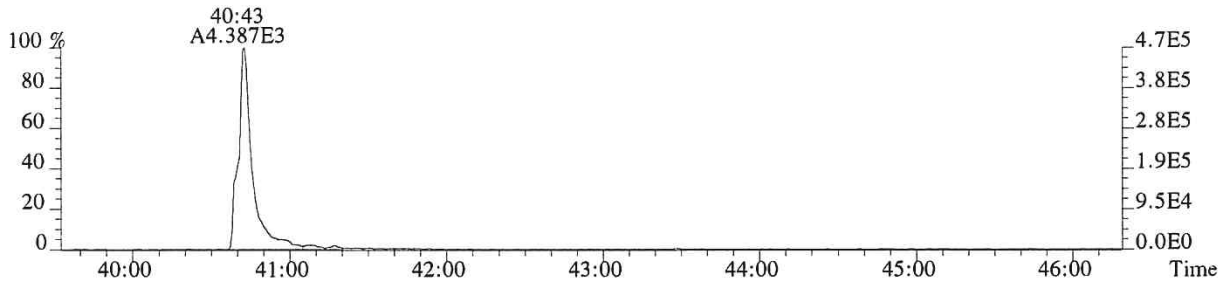
File:P518877 #1-610 Acq:17-NOV-2018 10:50:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



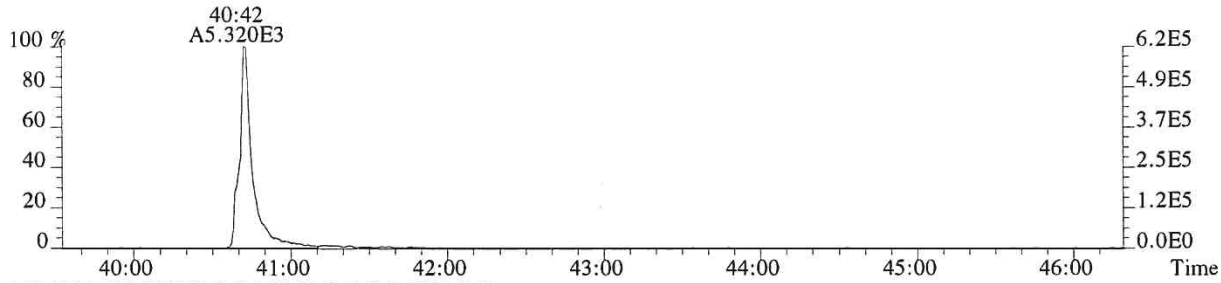
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



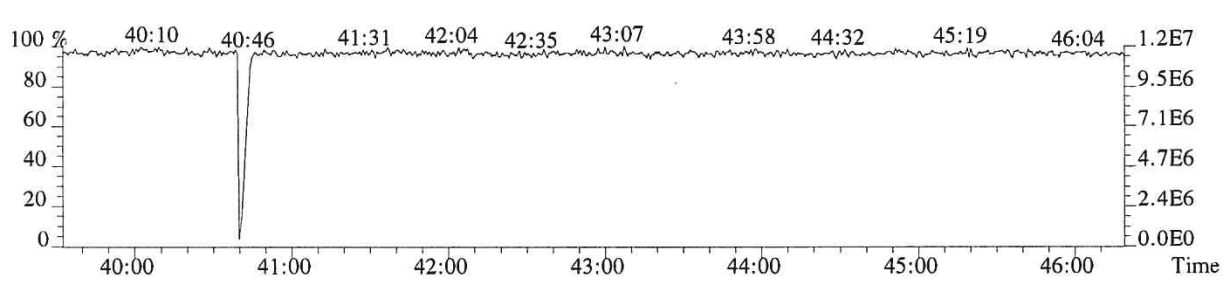
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #20 Filename P518878 Samp: 1 Inj: 1 Acquired: 17-NOV-18 11:39:16
Processed: 21-NOV-18 09:19:36 Sample ID: EQ1800468-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	7.823e+02	9.874e+02	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	8.993e+03	5.723e+03	1.57	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	9.664e+03	6.345e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	9.482e+03	7.948e+03	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	1.062e+04	8.906e+03	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	9.688e+03	8.021e+03	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	9.122e+03	7.499e+03	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	7.564e+03	7.423e+03	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	6.497e+03	6.389e+03	1.02	yes	no	1.258
10	Unk	OCDF	40:51	6.617e+03	7.801e+03	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:35	5.026e+02	7.286e+02	0.69	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	7.286e+03	4.727e+03	1.54	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	7.095e+03	5.514e+03	1.29	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	7.580e+03	5.895e+03	1.29	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	7.900e+03	6.199e+03	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	5.478e+03	5.184e+03	1.06	yes	no	1.025
17	Unk	OCDD	40:42	5.373e+03	6.023e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	7.276e+03	9.204e+03	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	1.849e+04	1.144e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.015e+04	1.247e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	9.973e+03	1.942e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.204e+04	2.312e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.140e+04	2.157e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:55	1.035e+04	2.014e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	6.941e+03	1.604e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	6.317e+03	1.450e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	5.095e+03	6.069e+03	0.84	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.474e+04	9.060e+03	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.397e+04	1.099e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.483e+04	1.151e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.311e+04	1.252e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	40:41	9.688e+03	1.063e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:49	2.195e+04	2.783e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	3.128e+04	2.471e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	5.326e+03				no	1.014

$$\text{OCDD} = \frac{(5.373e+03 + 6.023e+03) \times 4000\ \text{pg} \times 1}{(9.688e+03 + 1.063e+04) \times \text{g} \times / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #20 Filename P518878 Samp: 1 Inj: 1 Acquired: 17-NOV-18 11:39:16
Processed: 21-NOV-18 09:19:36 LAB. ID: EQ1800468-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+05	7.16e+02	1.4e+02	1.32e+05	6.76e+02	2.0e+02
2	1,2,3,7,8-PeCDF	1.47e+06	7.04e+02	2.1e+03	9.19e+05	1.42e+03	6.5e+02
3	2,3,4,7,8-PeCDF	1.68e+06	7.04e+02	2.4e+03	1.12e+06	1.42e+03	7.9e+02
4	1,2,3,4,7,8-HxCDF	1.98e+06	4.04e+02	4.9e+03	1.64e+06	3.24e+02	5.1e+03
5	1,2,3,6,7,8-HxCDF	2.01e+06	4.04e+02	5.0e+03	1.65e+06	3.24e+02	5.1e+03
6	2,3,4,6,7,8-HxCDF	1.93e+06	4.04e+02	4.8e+03	1.60e+06	3.24e+02	4.9e+03
7	1,2,3,7,8,9-HxCDF	1.55e+06	4.04e+02	3.8e+03	1.30e+06	3.24e+02	4.0e+03
8	1,2,3,4,6,7,8-HpCDF	1.51e+06	2.62e+03	5.8e+02	1.48e+06	1.28e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.15e+06	2.62e+03	4.4e+02	1.16e+06	1.28e+03	9.1e+02
10	OCDF	1.04e+06	4.44e+02	2.3e+03	1.21e+06	3.40e+02	3.6e+03
11	2,3,7,8-TCDD	7.59e+04	1.56e+03	4.9e+01	1.07e+05	4.56e+02	2.3e+02
12	1,2,3,7,8-PeCDD	1.26e+06	2.92e+02	4.3e+03	7.94e+05	2.16e+02	3.7e+03
13	1,2,3,4,7,8-HxCDD	1.47e+06	3.00e+02	4.9e+03	1.16e+06	4.00e+02	2.9e+03
14	1,2,3,6,7,8-HxCDD	1.45e+06	3.00e+02	4.8e+03	1.14e+06	4.00e+02	2.8e+03
15	1,2,3,7,8,9-HxCDD	1.44e+06	3.00e+02	4.8e+03	1.14e+06	4.00e+02	2.9e+03
16	1,2,3,4,6,7,8-HpCDD	9.75e+05	1.04e+02	9.4e+03	9.52e+05	2.88e+02	3.3e+03
17	OCDD	8.62e+05	2.36e+02	3.7e+03	9.29e+05	2.04e+02	4.6e+03
18	13C-2,3,7,8-TCDF	9.26e+05	3.75e+03	2.5e+02	1.20e+06	1.66e+03	7.3e+02
19	13C-1,2,3,7,8-PeCDF	3.01e+06	2.24e+02	1.3e+04	1.86e+06	2.40e+02	7.7e+03
20	13C-2,3,4,7,8-PeCDF	3.50e+06	2.24e+02	1.6e+04	2.18e+06	2.40e+02	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.04e+06	7.40e+02	2.8e+03	4.03e+06	4.32e+02	9.3e+03
22	13C-1,2,3,6,7,8-HxCDF	2.23e+06	7.40e+02	3.0e+03	4.31e+06	4.32e+02	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	2.24e+06	7.40e+02	3.0e+03	4.30e+06	4.32e+02	9.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.80e+06	7.40e+02	2.4e+03	3.44e+06	4.32e+02	8.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.37e+06	3.16e+03	4.3e+02	3.25e+06	8.88e+02	3.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.15e+06	3.16e+03	3.6e+02	2.61e+06	8.88e+02	2.9e+03
27	13C-2,3,7,8-TCDD	7.37e+05	3.84e+03	1.9e+02	8.85e+05	1.76e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	2.49e+06	3.48e+02	7.2e+03	1.52e+06	2.88e+02	5.3e+03
29	13C-1,2,3,4,7,8-HxCDD	3.01e+06	1.14e+03	2.6e+03	2.39e+06	2.92e+02	8.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+06	1.14e+03	2.3e+03	2.12e+06	2.92e+02	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.43e+06	2.84e+02	8.6e+03	2.33e+06	3.44e+02	6.8e+03
32	13C-OCDD	1.51e+06	2.48e+02	6.1e+03	1.68e+06	2.16e+02	7.8e+03
33	13C-1,2,3,4-TCDD	3.17e+06	3.84e+03	8.3e+02	4.01e+06	1.76e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	5.95e+06	1.14e+03	5.2e+03	4.71e+06	2.92e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	7.45e+05	8.24e+02	9.0e+02			

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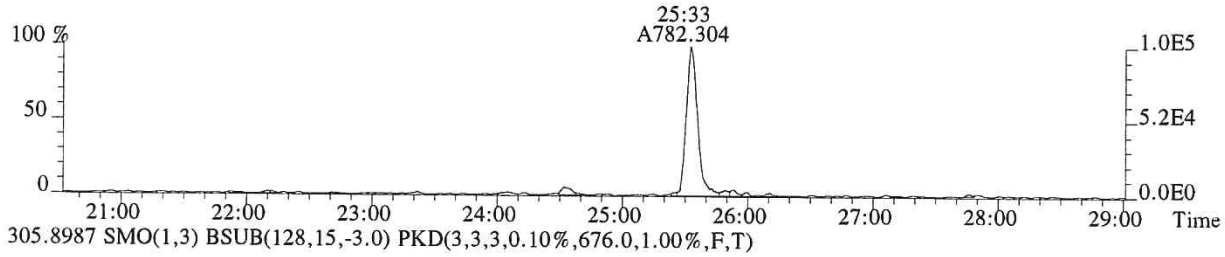
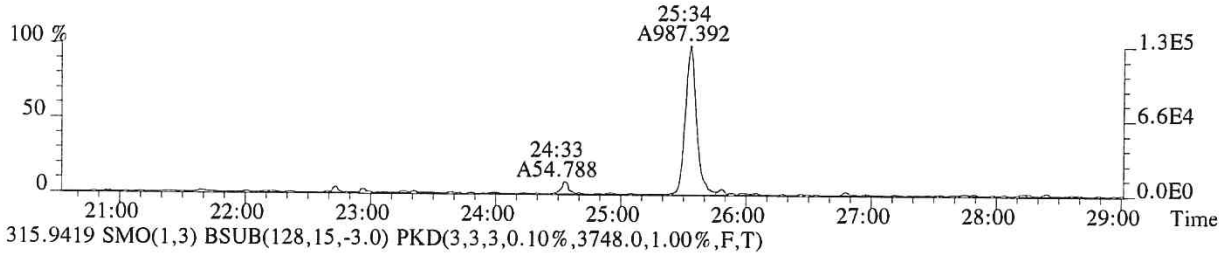
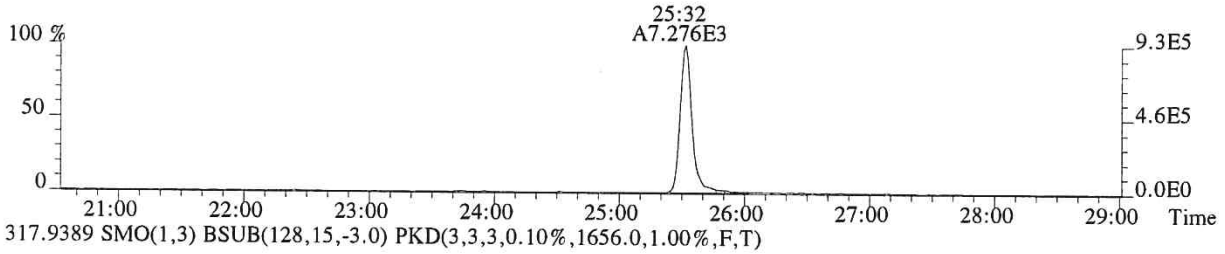
File:P518878 #1-602 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



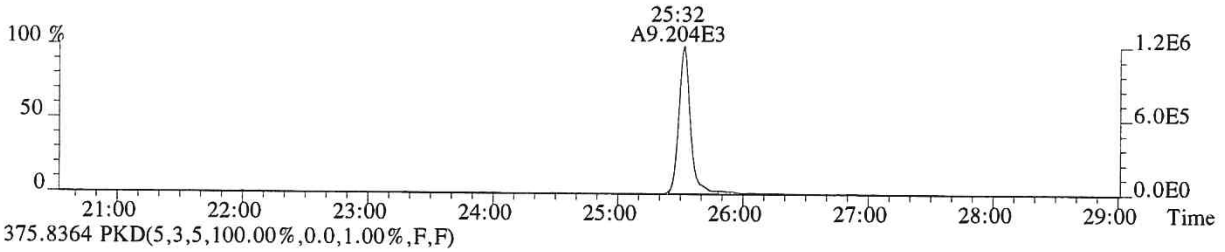
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



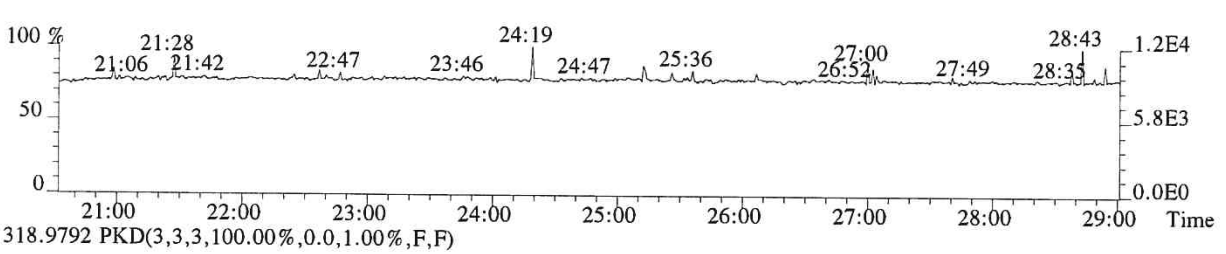
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3748.0,1.00%,F,T)



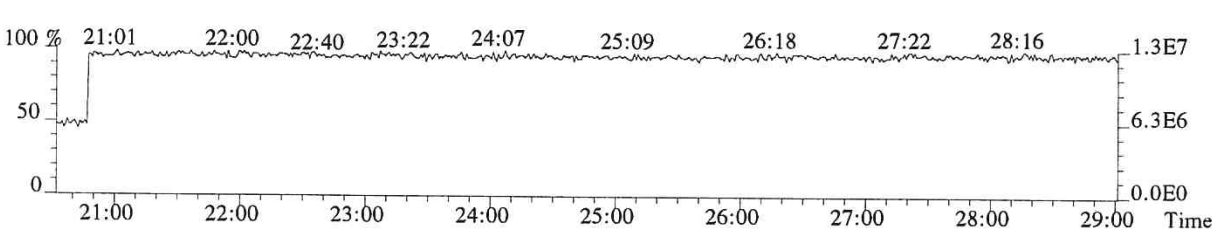
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



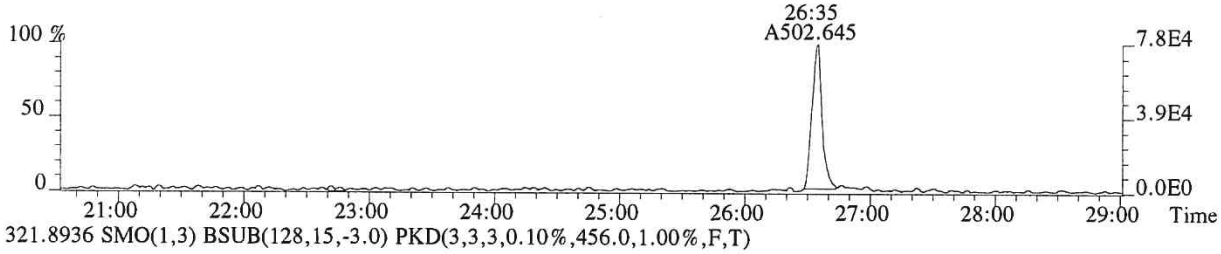
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



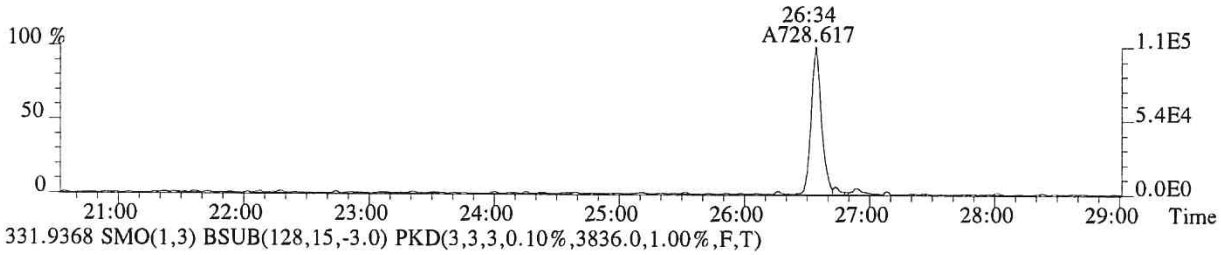
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



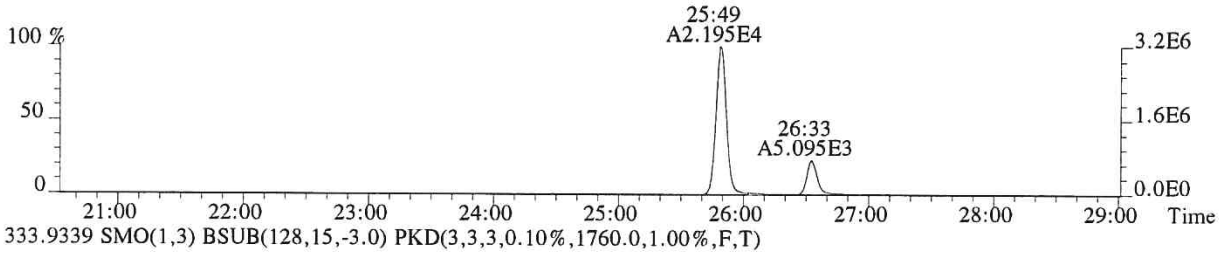
File:P518878 #1-602 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



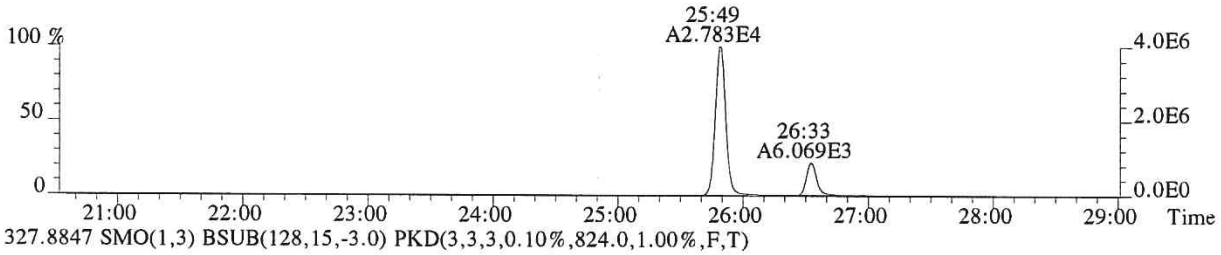
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



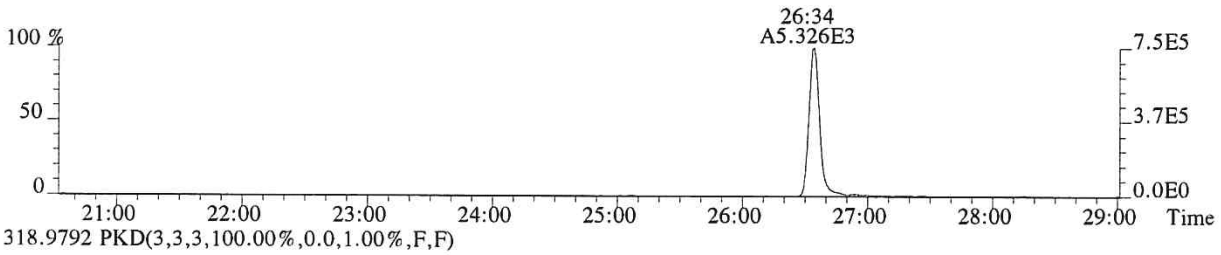
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3836.0,1.00%,F,T)



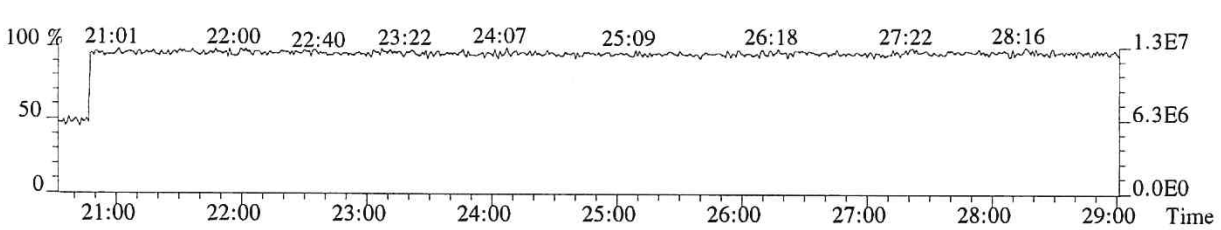
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)

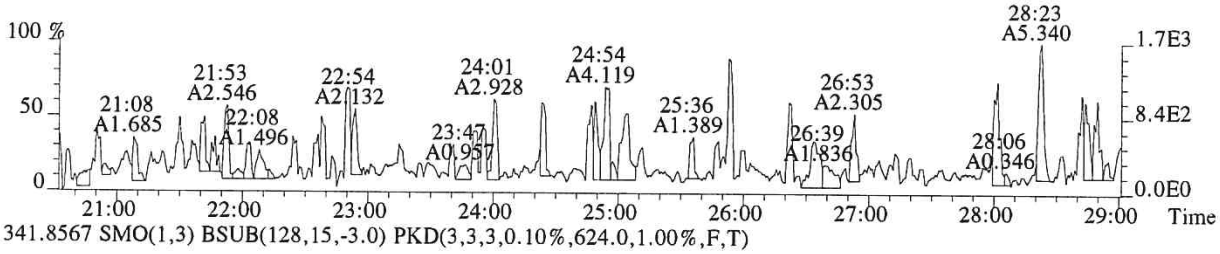


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

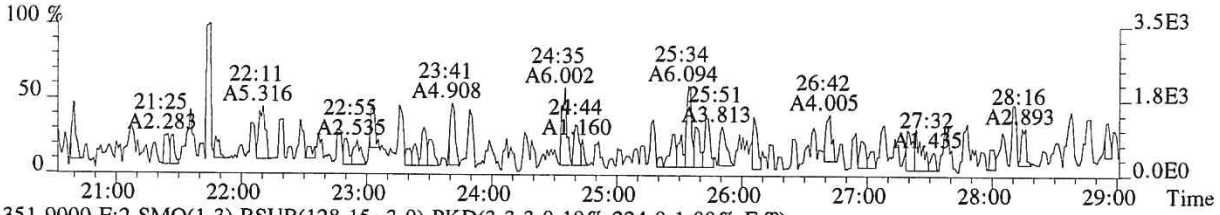


010481

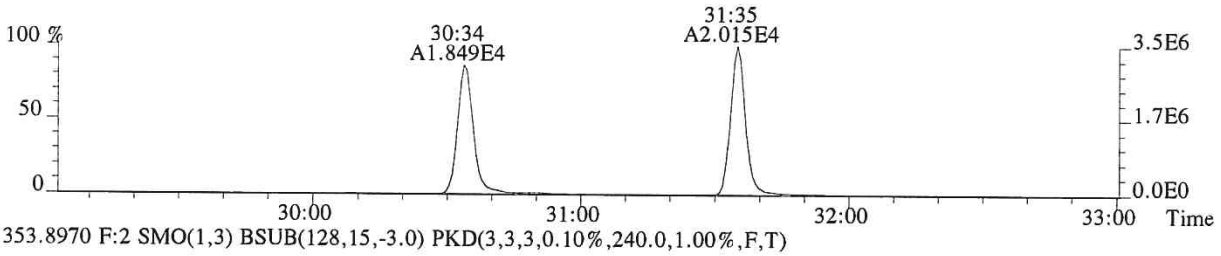
File:P518878 #1-602 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



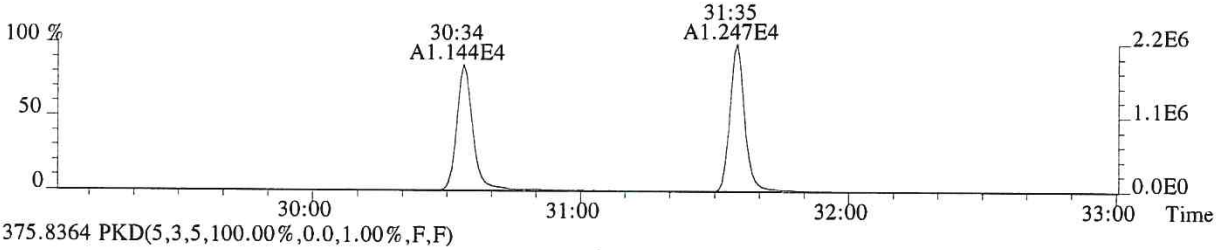
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



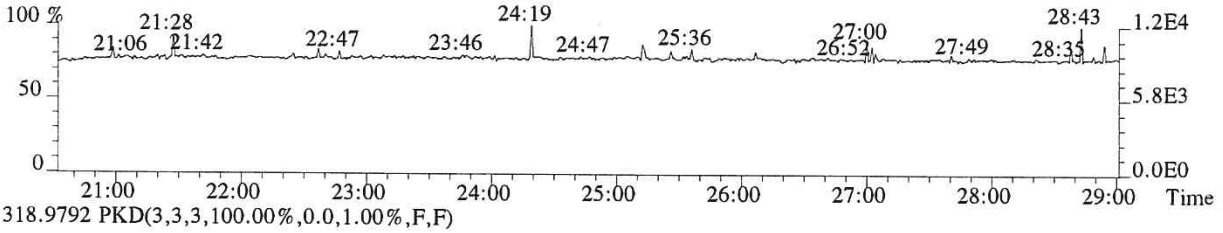
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



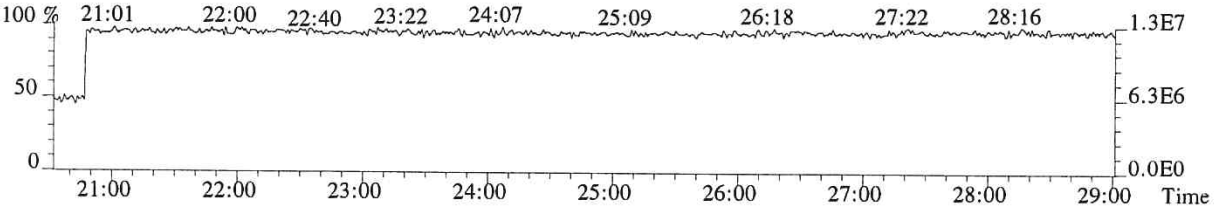
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



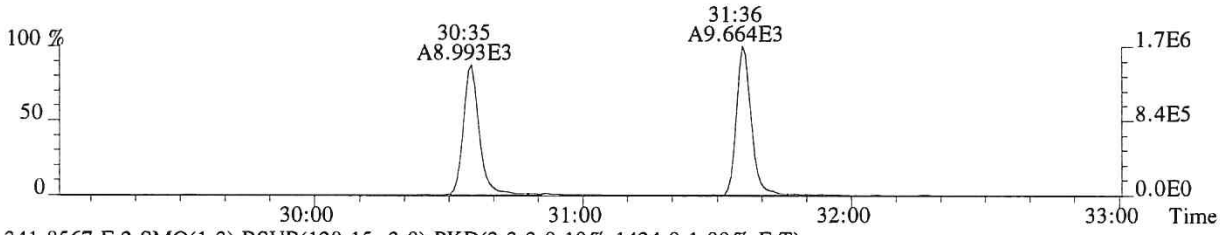
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



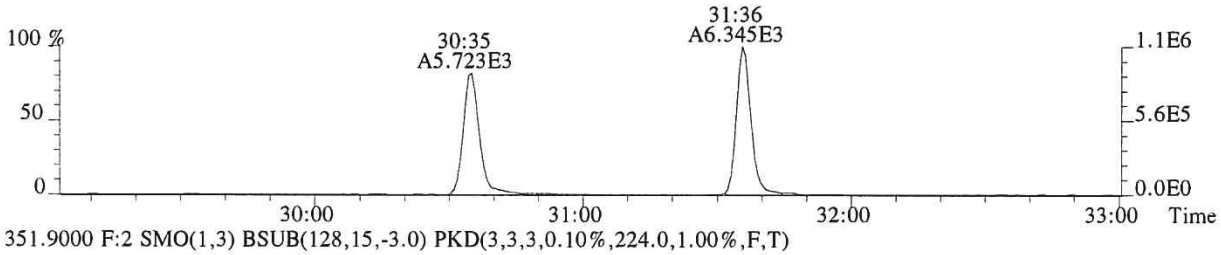
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



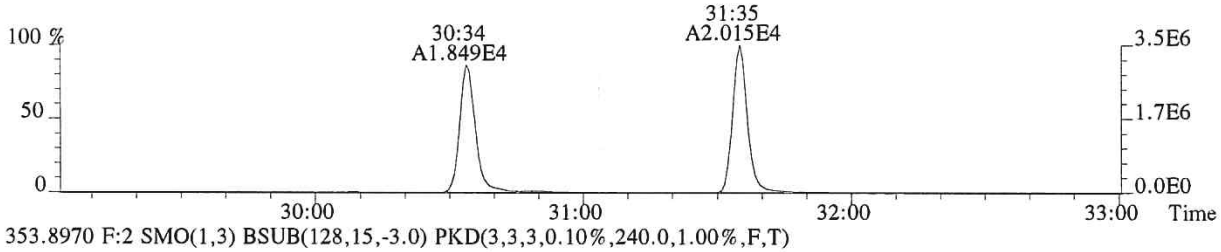
File:P518878 #1-357 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



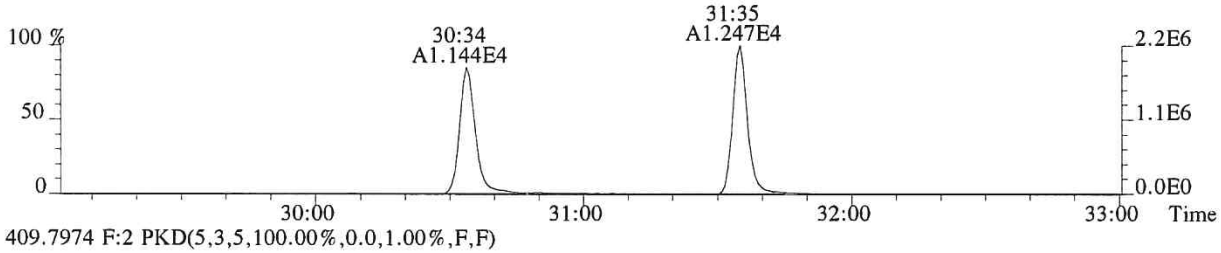
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



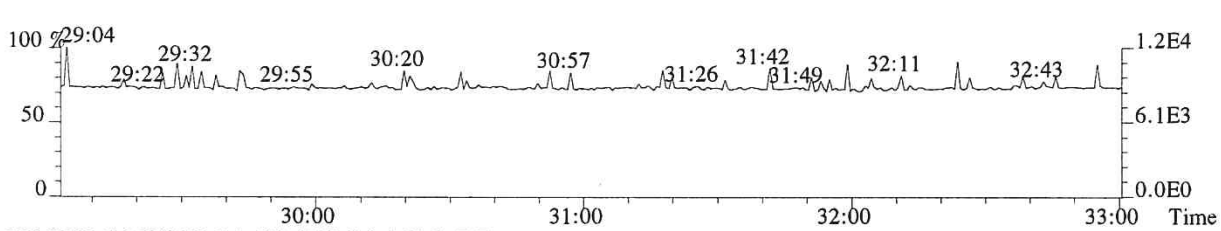
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



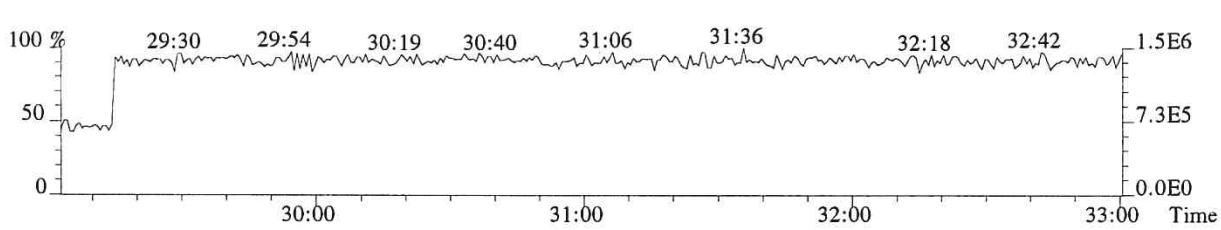
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

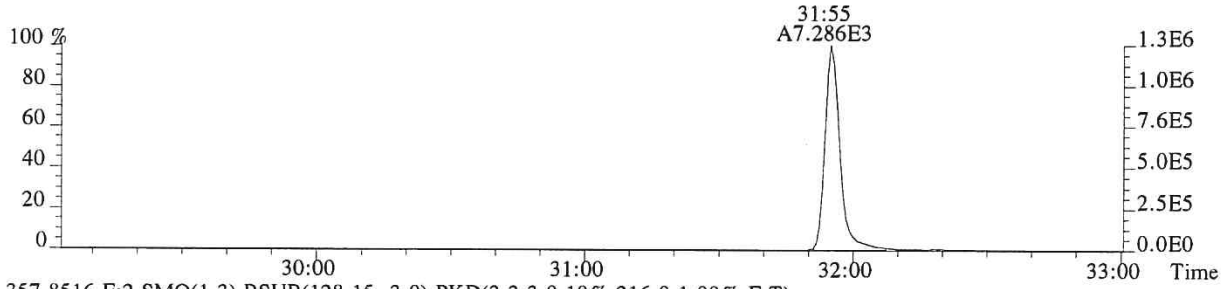


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

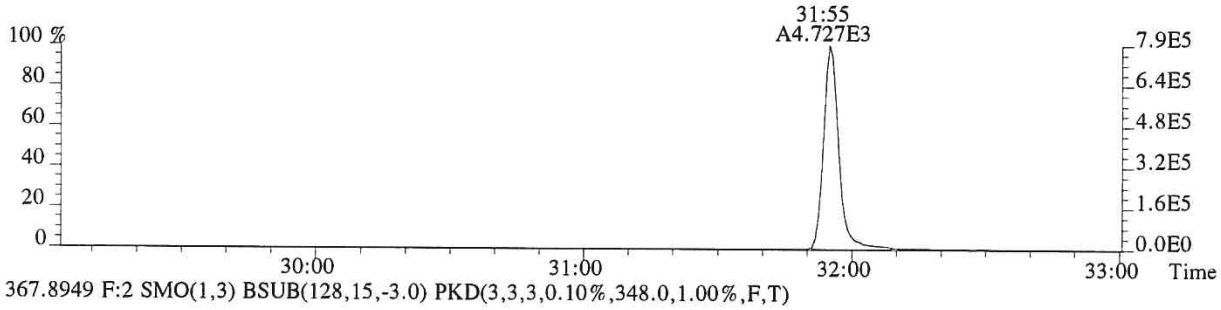


010483

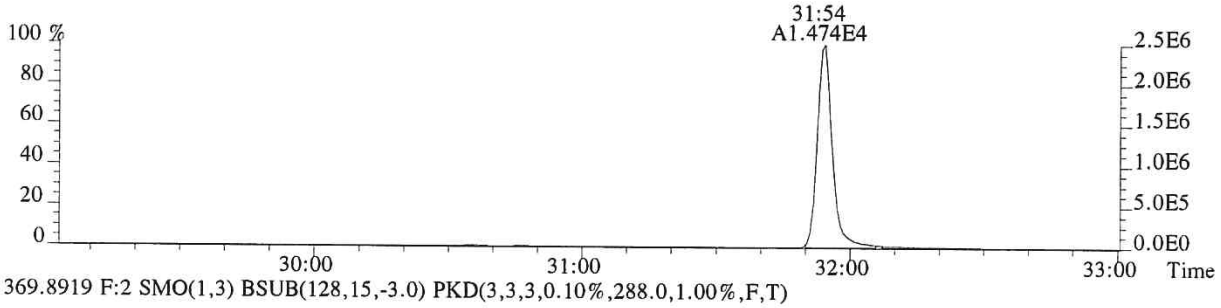
File:P518878 #1-357 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



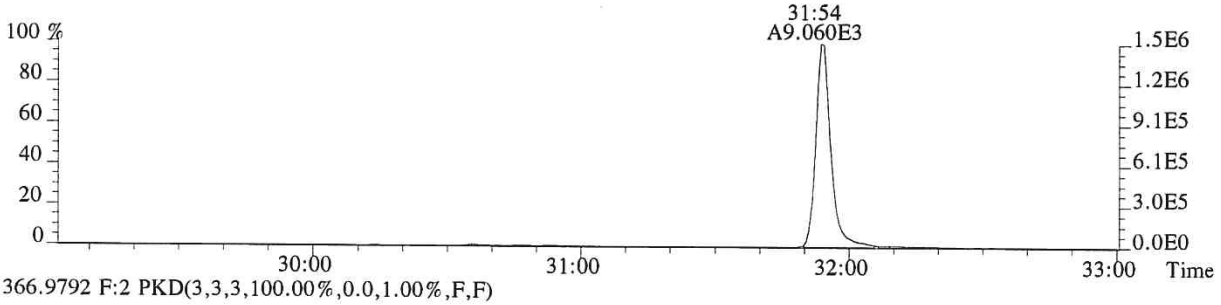
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



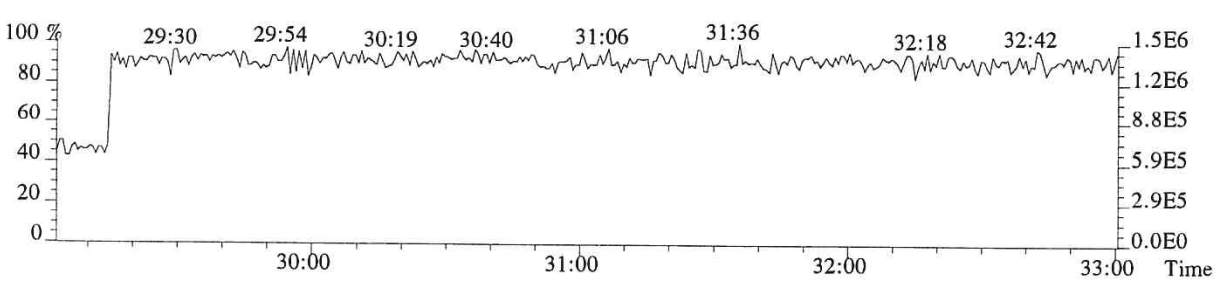
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



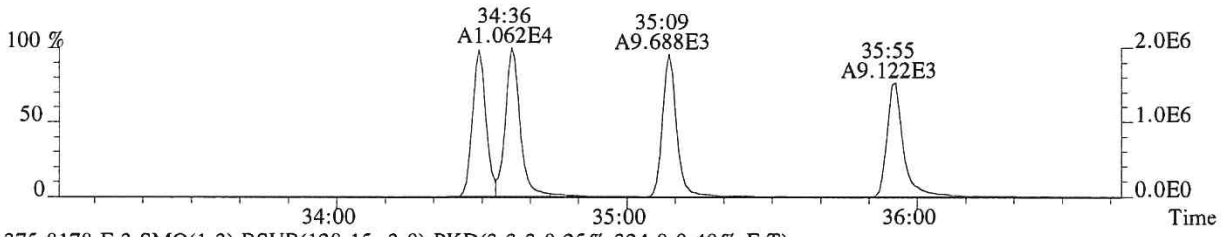
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



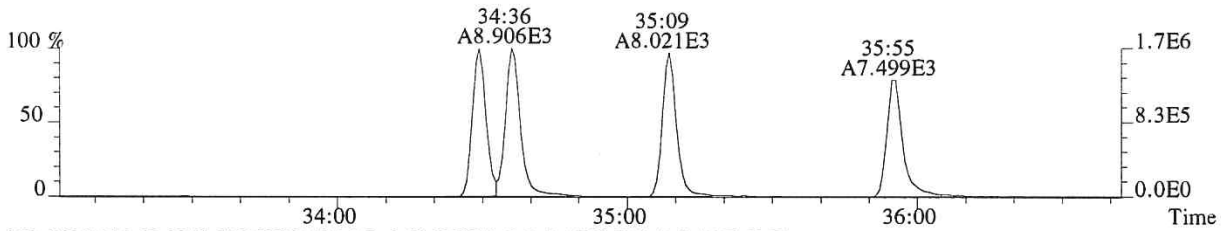
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



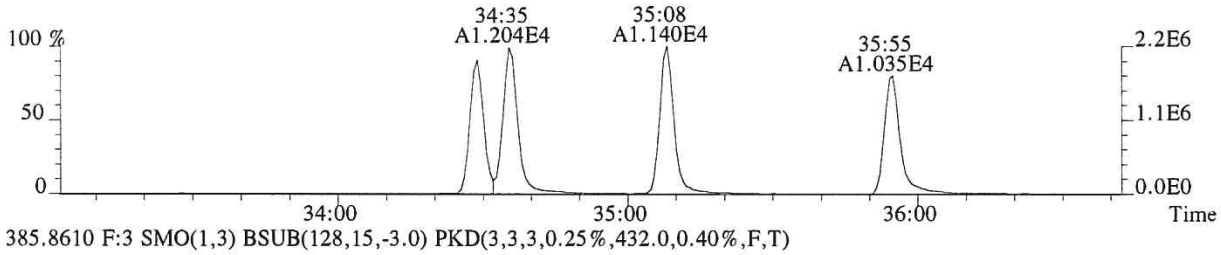
File:P518878 #1-330 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



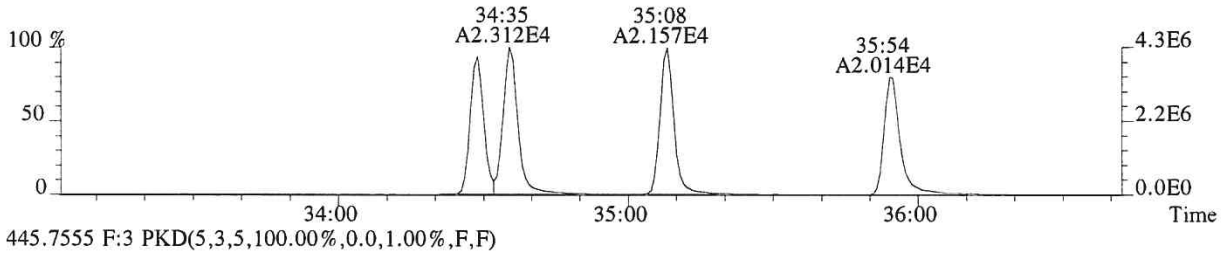
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



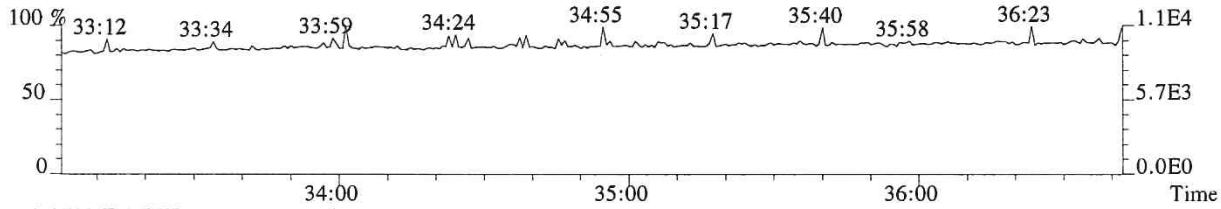
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



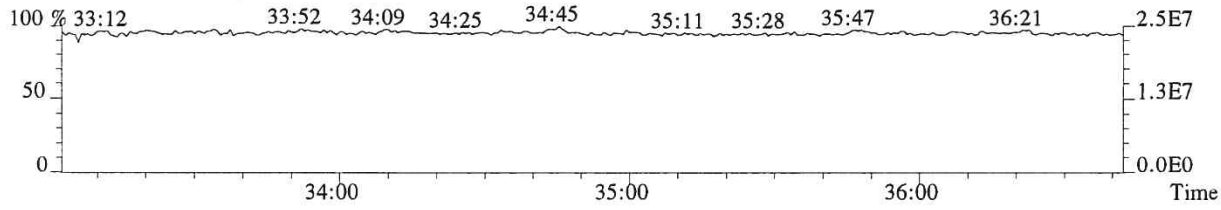
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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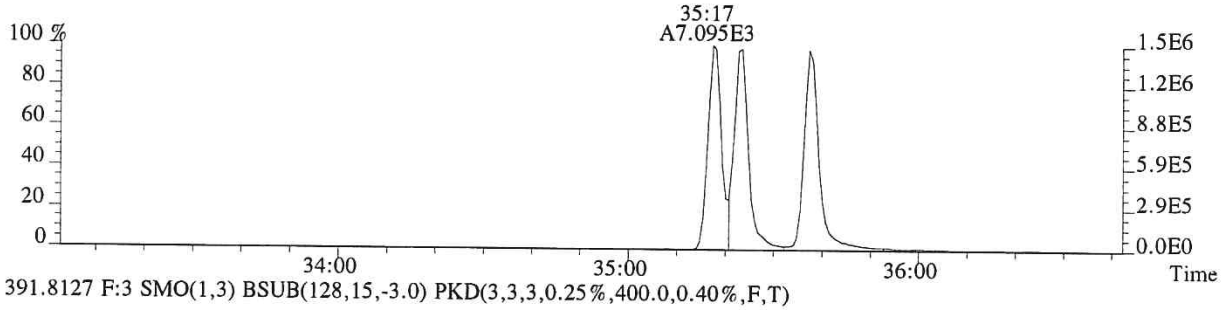
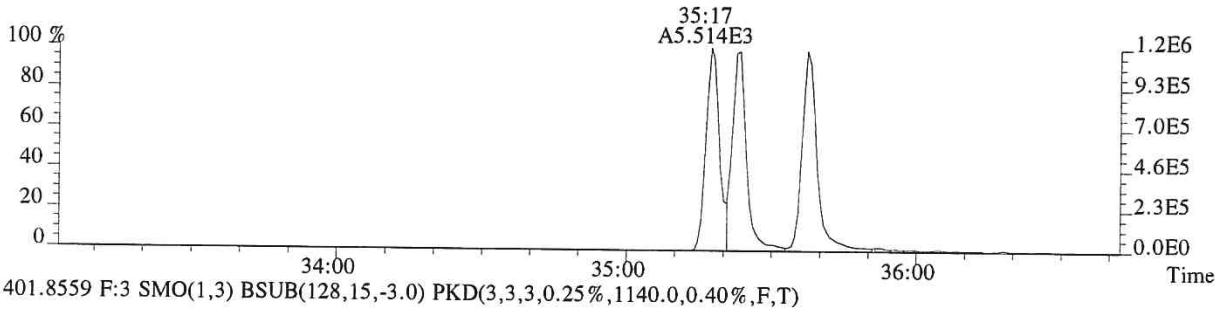
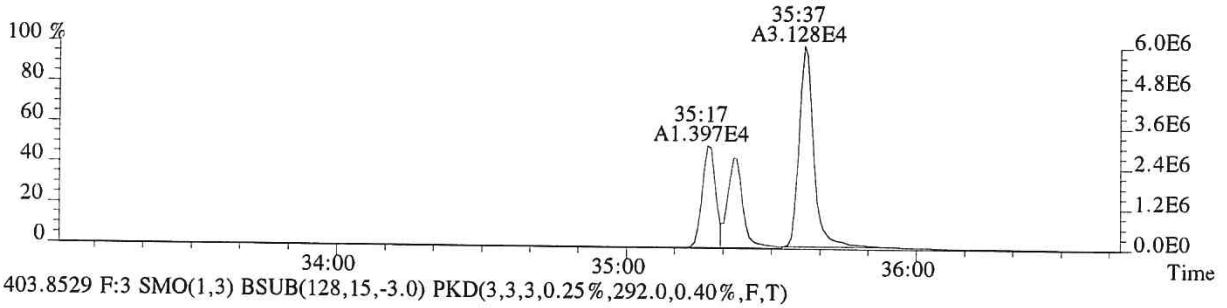
File:P518878 #1-330 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



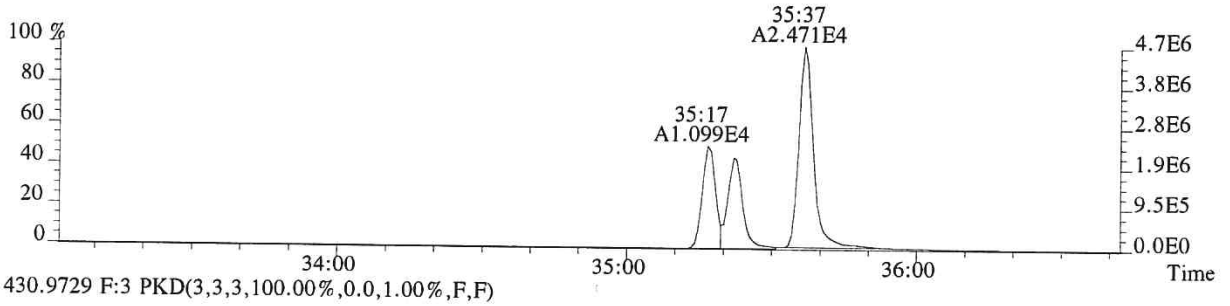
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



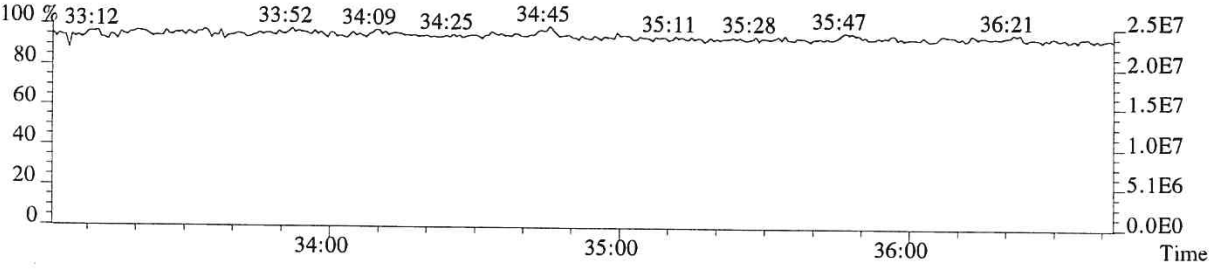
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



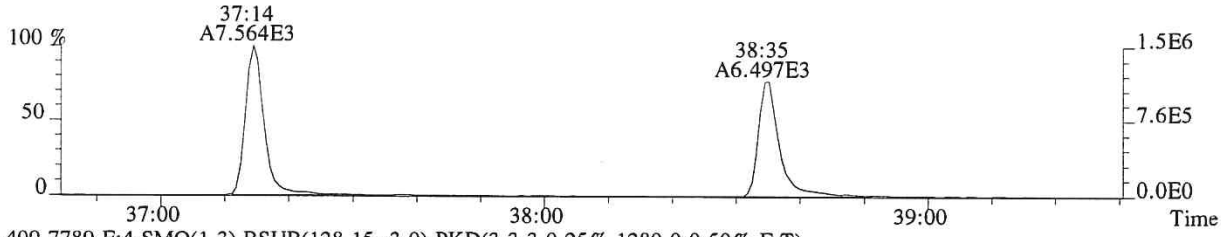
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



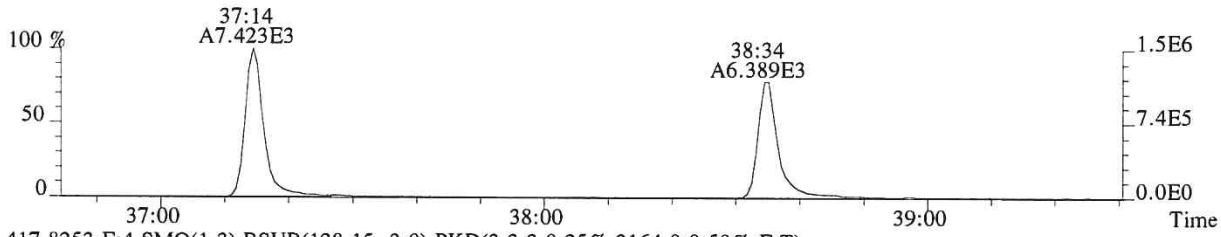
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



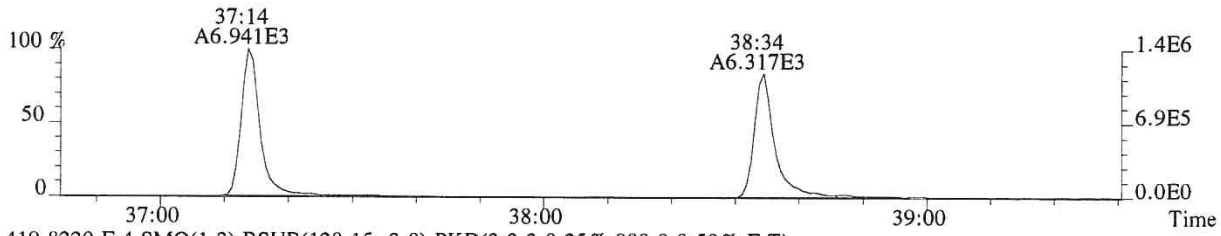
File:P518878 #1-250 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2616.0,0.50%,F,T)



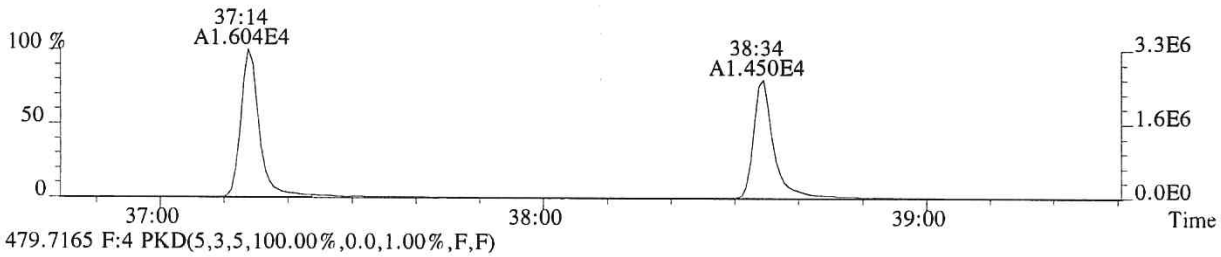
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.50%,F,T)



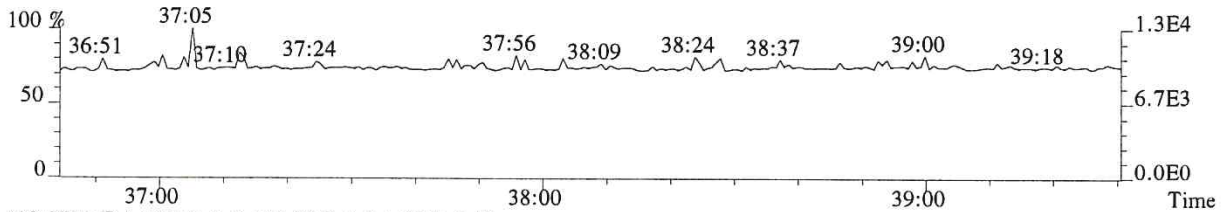
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3164.0,0.50%,F,T)



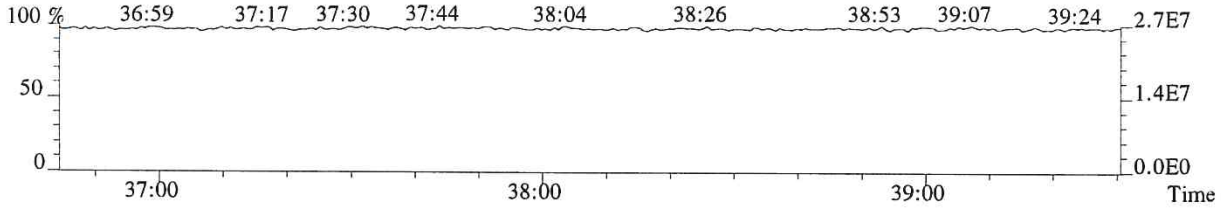
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.50%,F,T)



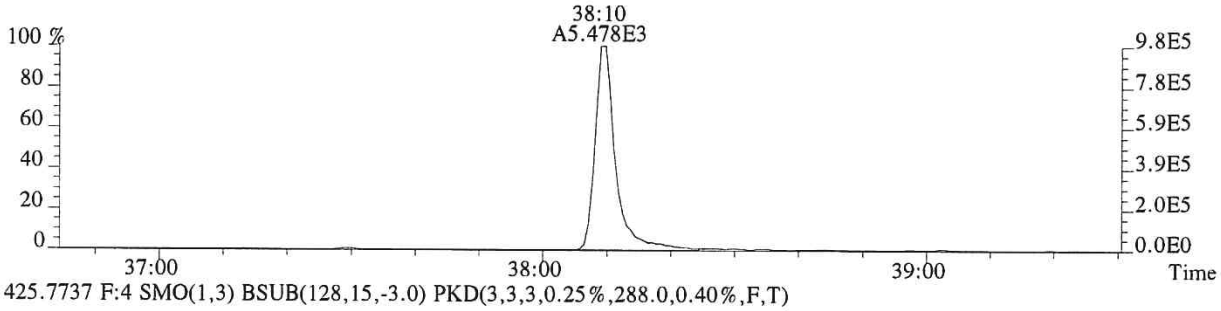
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



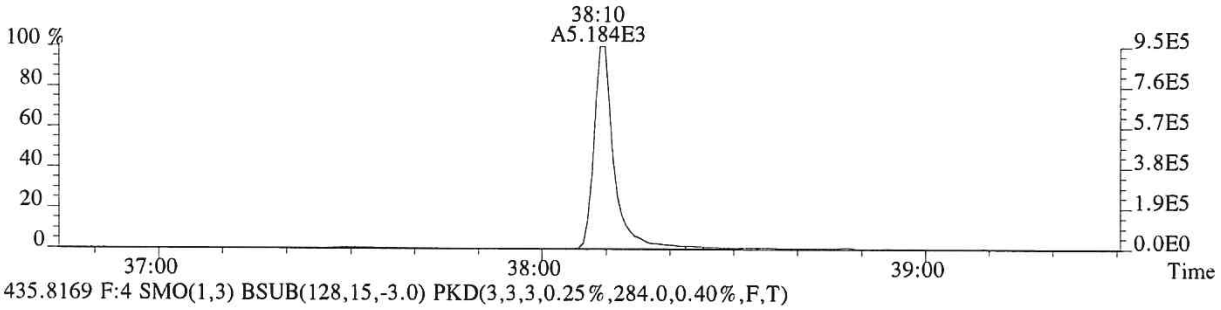
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



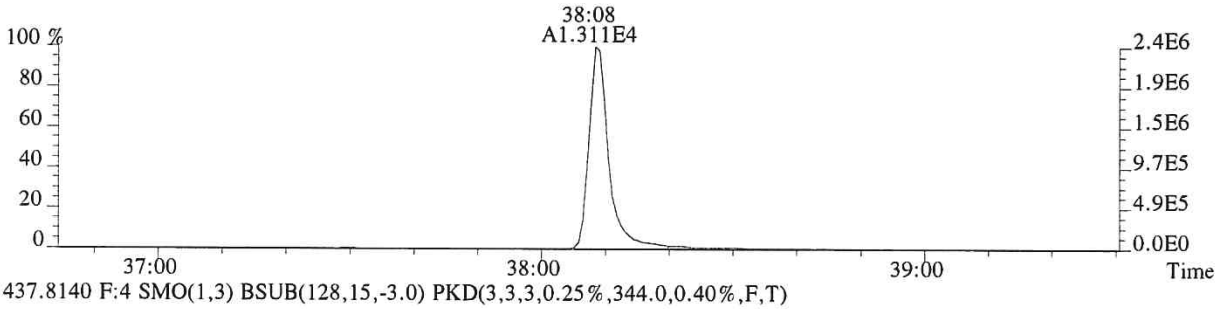
File:P518878 #1-250 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,104.0,0.40%,F,T)



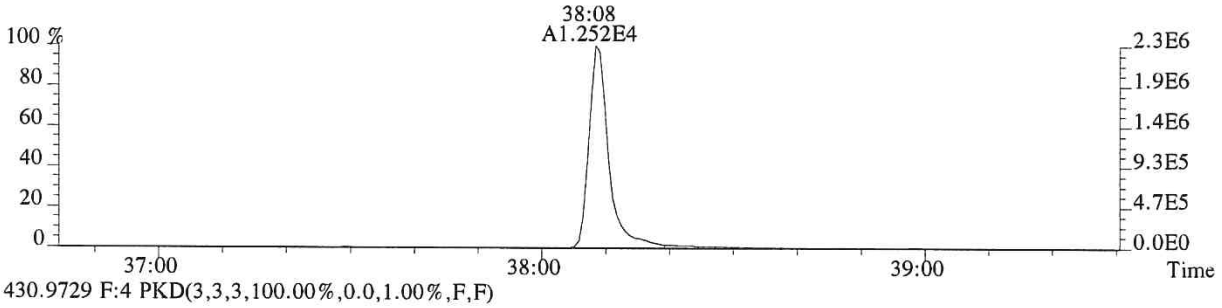
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



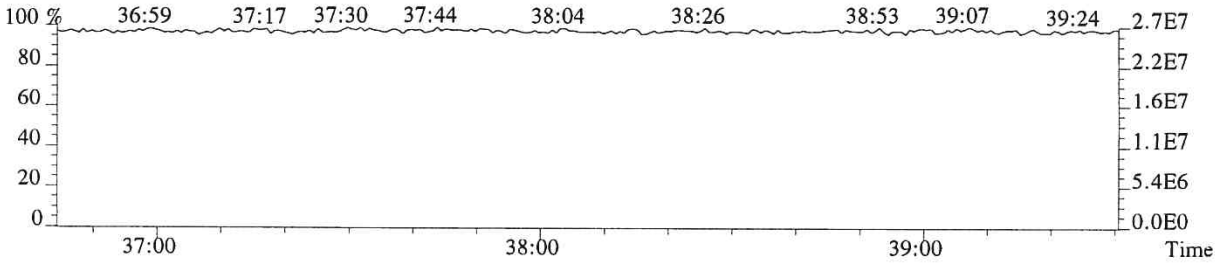
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



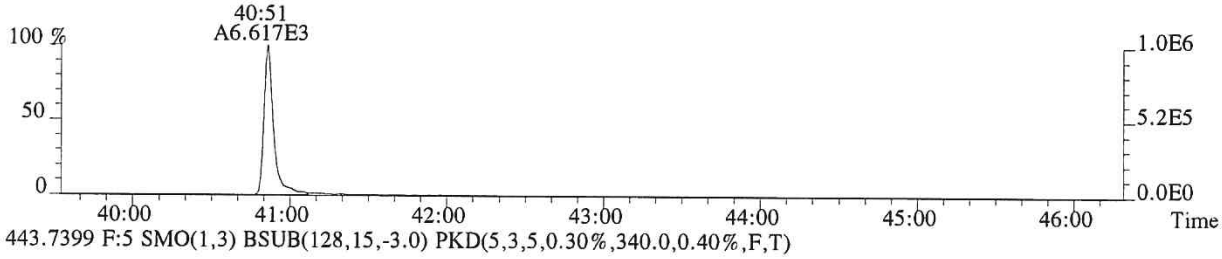
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



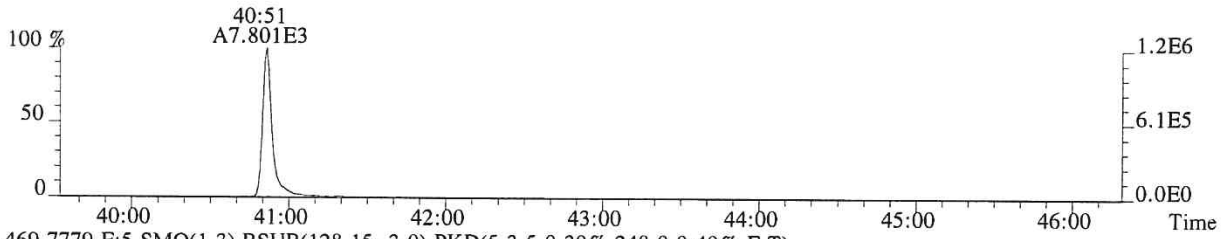
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



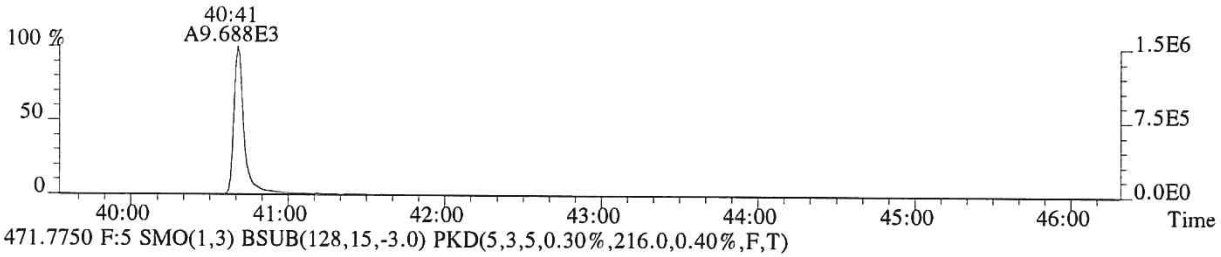
File:P518878 #1-610 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



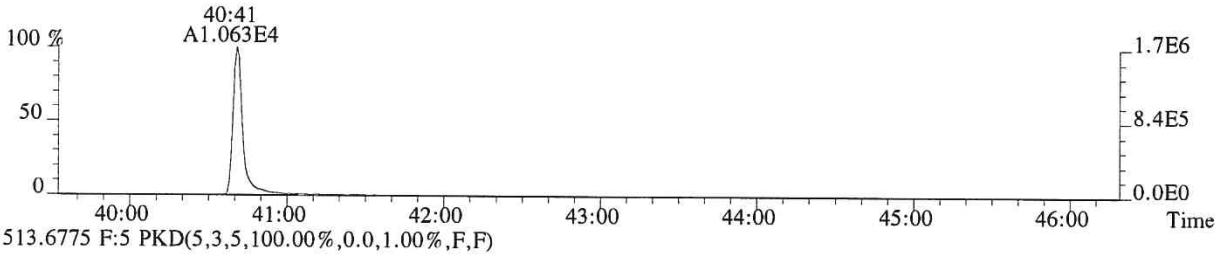
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



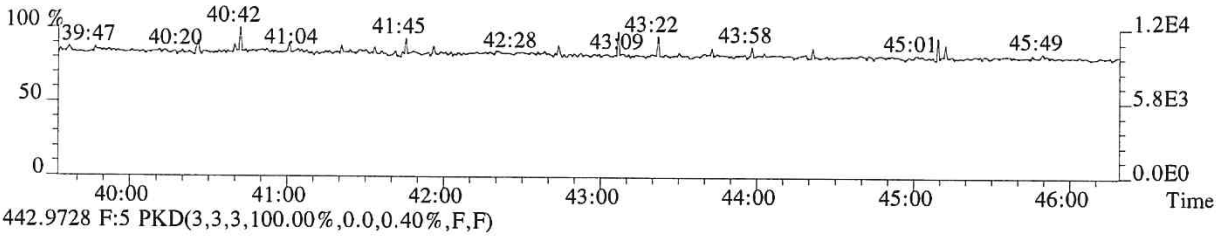
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



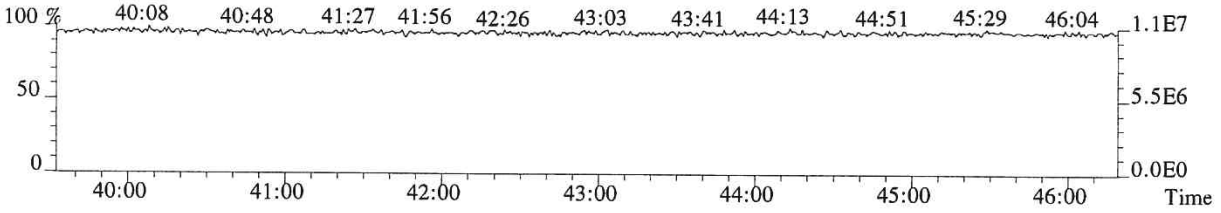
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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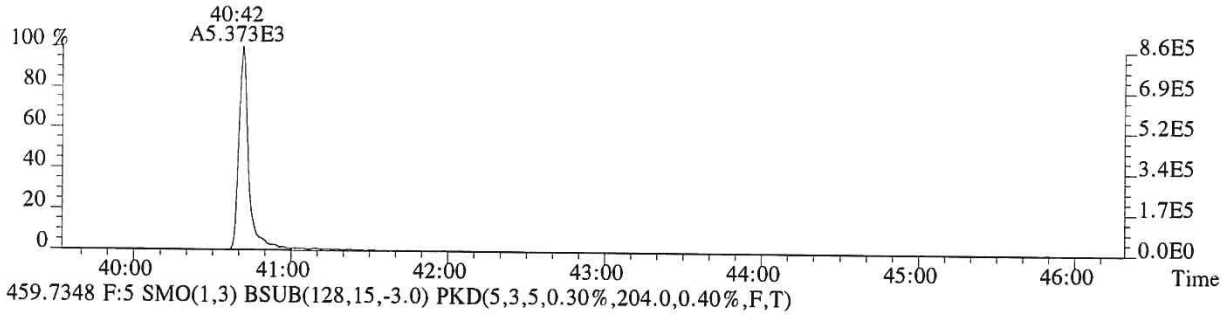
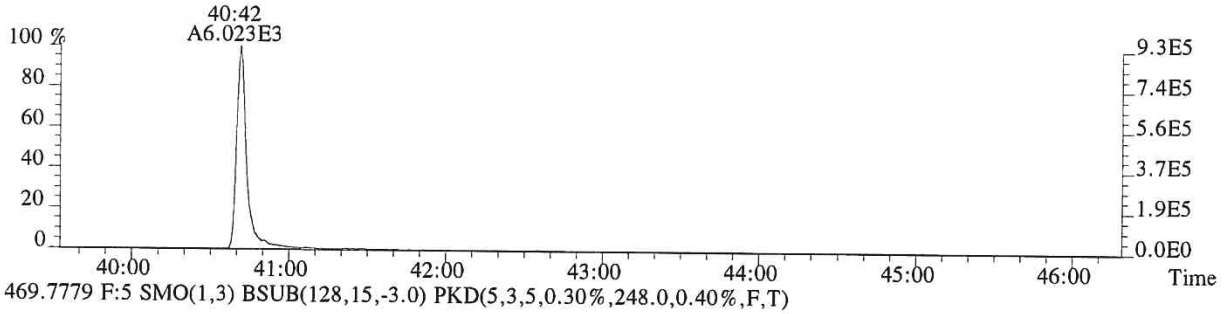
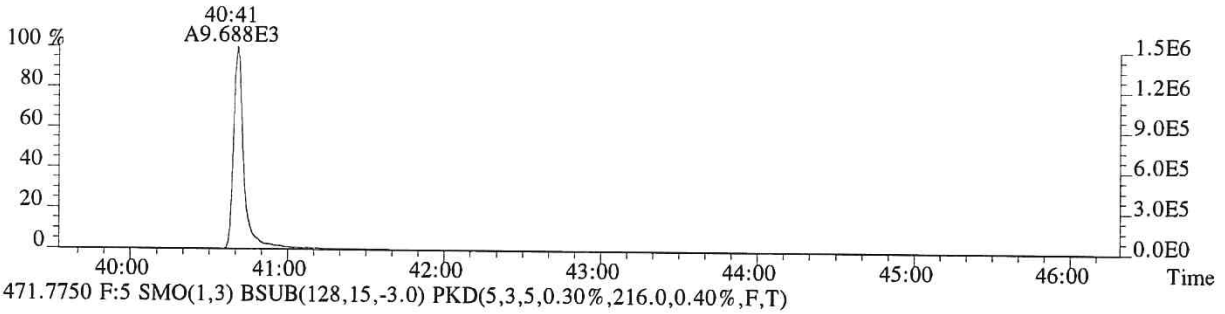
File:P518878 #1-610 Acq:17-NOV-2018 11:39:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800468-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



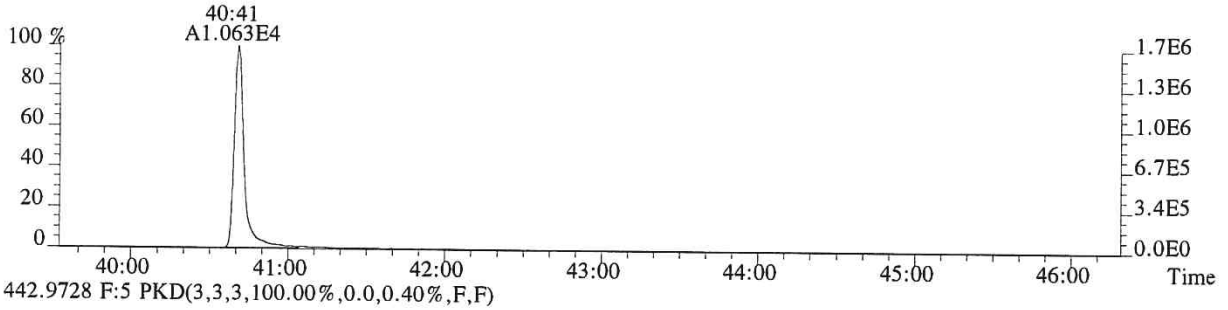
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



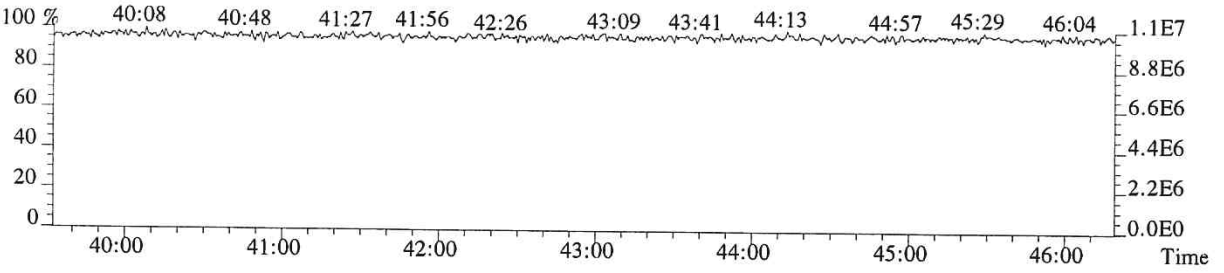
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010490

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #16 Filename P519219 Samp: 1 Inj: 1 Acquired: 5-DEC-18 08:32:35
Processed: 6-DEC-18 10:05:53 Sample ID: EQ1800469-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	yes	1.025
17	Unk	OCDD	42:14	2.891e+01	2.976e+01	0.97	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:00	8.577e+03	1.118e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:16	2.013e+04	1.258e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	1.987e+04	1.251e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	1.199e+04	2.309e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.375e+04	2.583e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.298e+04	2.498e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	1.211e+04	2.382e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	1.125e+04	2.507e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	1.099e+04	2.499e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	6.062e+03	7.842e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:28	1.567e+04	9.758e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	1.780e+04	1.422e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	1.769e+04	1.358e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	2.305e+04	2.207e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:14	2.849e+04	3.204e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:14	8.552e+03	1.054e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	2.051e+04	1.617e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.418e+03				no	1.014

$$\text{OCDD} = \frac{(2.891e+01 + 2.976e+01) \times 4000\ \text{pg} \times 1}{(2.849e+04 + 3.204e+04) \times \quad \text{g} \times \quad / 100 \times 1.118}$$

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Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #16 Filename P519219 Samp: 1 Inj: 1 Acquired: 5-DEC-18 08:32:35
Processed: 6-DEC-18 10:05:53 LAB. ID: EQ1800469-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.48e+02	*	*	1.29e+03	*
2	1,2,3,7,8-PeCDF	*	3.76e+02	*	*	6.96e+02	*
3	2,3,4,7,8-PeCDF	*	3.76e+02	*	*	6.96e+02	*
4	1,2,3,4,7,8-HxCDF	*	2.40e+02	*	*	2.12e+02	*
5	1,2,3,6,7,8-HxCDF	*	2.40e+02	*	*	2.12e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.40e+02	*	*	2.12e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.40e+02	*	*	2.12e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	3.88e+02	*	*	3.64e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.88e+02	*	*	3.64e+02	*
10	OCDF	*	2.00e+02	*	*	8.04e+02	*
11	2,3,7,8-TCDD	*	1.43e+03	*	*	8.48e+02	*
12	1,2,3,7,8-PeCDD	*	3.68e+02	*	*	2.36e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.44e+02	*	*	2.84e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.44e+02	*	*	2.84e+02	*
15	1,2,3,7,8,9-HxCDD	*	2.44e+02	*	*	2.84e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	4.52e+02	*	*	3.80e+02	*
17	OCDD	5.81e+03	2.36e+02	2.5e+01	6.08e+03	2.32e+02	2.6e+01
18	13C-2,3,7,8-TCDF	1.53e+06	4.88e+03	3.1e+02	2.00e+06	5.08e+03	3.9e+02
19	13C-1,2,3,7,8-PeCDF	3.78e+06	4.00e+02	9.4e+03	2.38e+06	8.24e+02	2.9e+03
20	13C-2,3,4,7,8-PeCDF	3.91e+06	4.00e+02	9.8e+03	2.51e+06	8.24e+02	3.0e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+06	4.00e+02	6.6e+03	5.12e+06	6.28e+02	8.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.88e+06	4.00e+02	7.2e+03	5.50e+06	6.28e+02	8.8e+03
23	13C-2,3,4,6,7,8-HxCDF	2.88e+06	4.00e+02	7.2e+03	5.53e+06	6.28e+02	8.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.60e+06	4.00e+02	6.5e+03	5.02e+06	6.28e+02	8.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.38e+06	1.70e+03	1.4e+03	5.42e+06	3.68e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.13e+06	1.70e+03	1.3e+03	4.91e+06	3.68e+03	1.3e+03
27	13C-2,3,7,8-TCDD	1.19e+06	3.89e+03	3.0e+02	1.50e+06	2.08e+03	7.2e+02
28	13C-1,2,3,7,8-PeCDD	3.11e+06	7.00e+02	4.4e+03	1.90e+06	6.48e+02	2.9e+03
29	13C-1,2,3,4,7,8-HxCDD	4.08e+06	9.60e+02	4.3e+03	3.25e+06	4.76e+02	6.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.76e+06	9.60e+02	3.9e+03	2.90e+06	4.76e+02	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.58e+06	1.37e+03	3.3e+03	4.36e+06	1.25e+03	3.5e+03
32	13C-OCDD	4.85e+06	2.64e+02	1.8e+04	5.43e+06	1.64e+02	3.3e+04
33	13C-1,2,3,4-TCDD	1.62e+06	3.89e+03	4.2e+02	1.98e+06	2.08e+03	9.5e+02
34	13C-1,2,3,7,8,9-HxCDD	4.26e+06	9.60e+02	4.4e+03	3.30e+06	4.76e+02	6.9e+03
35	37Cl-2,3,7,8-TCDD	1.24e+06	8.96e+02	1.4e+03			

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Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519219 Sample:1 Injection:1 Function:4

Acquired: 5-DEC-18 08:32:35 Processed: 6-DEC-18 10:05:53

Mass: 423.7770 425.7740 Tot Response: 2.43e+01 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	1.17e+01	1.26e+01	0.94	yes	2.43e+01	n	n

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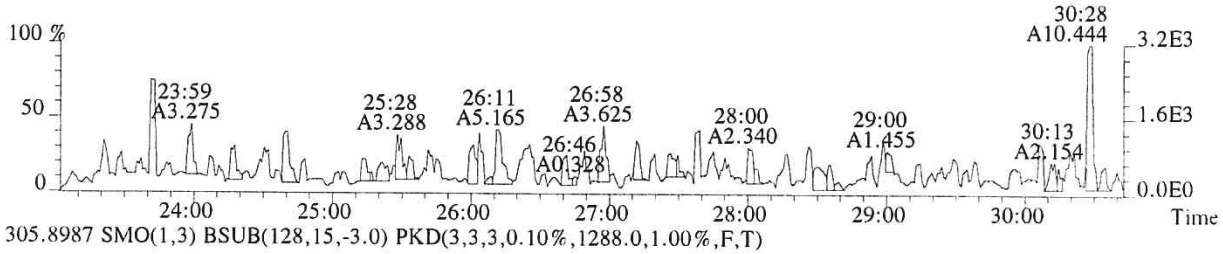
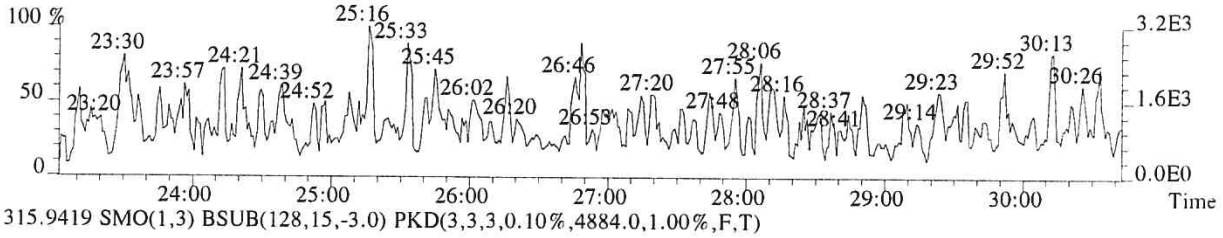
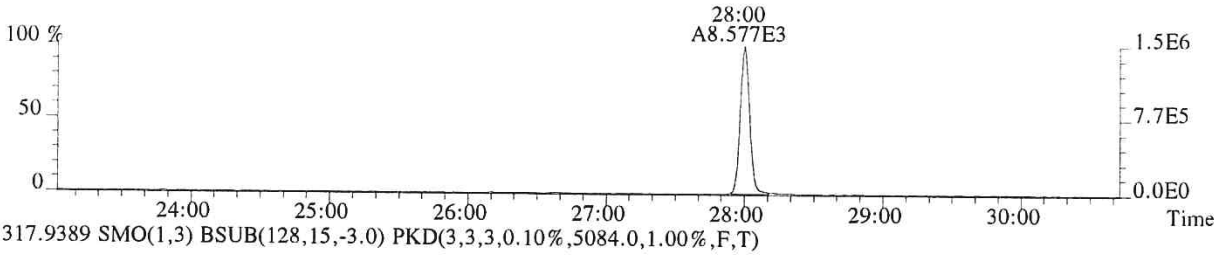
File:P519219 #1-545 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



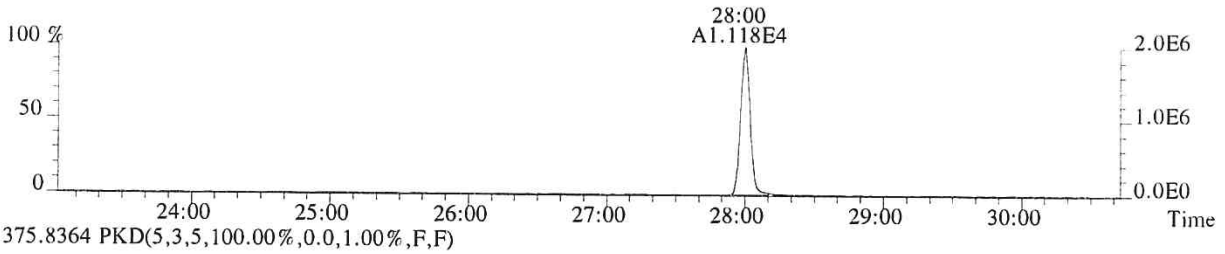
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



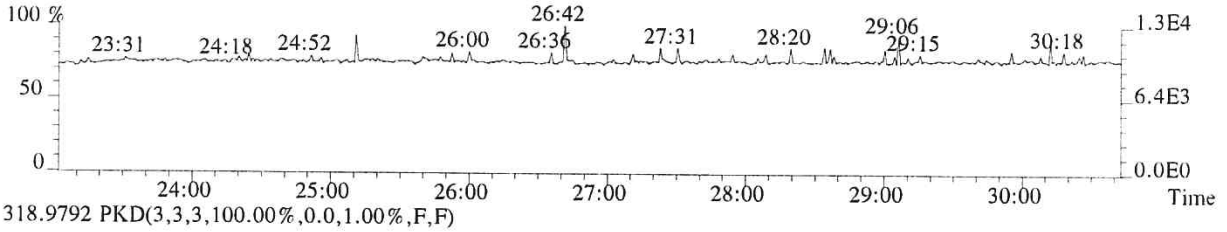
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4884.0,1.00%,F,T)



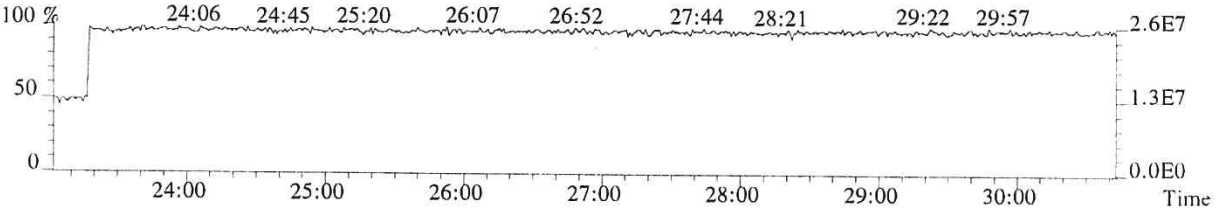
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5084.0,1.00%,F,T)



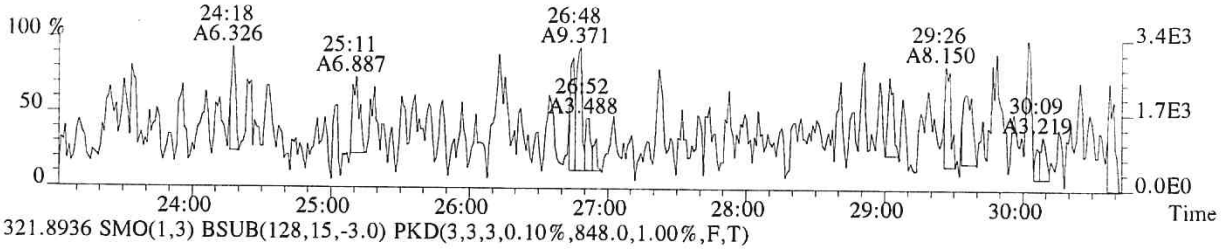
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



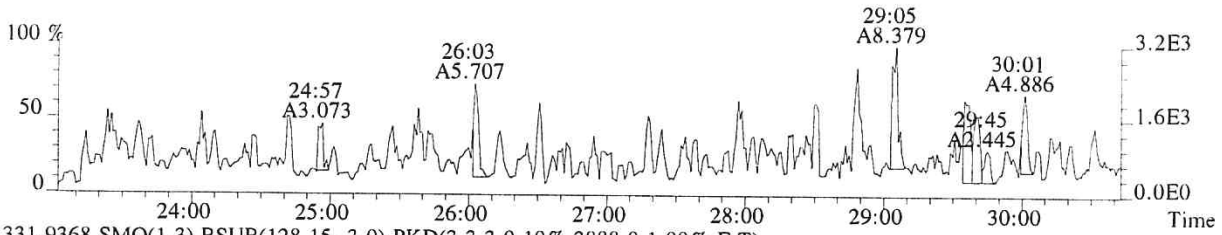
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



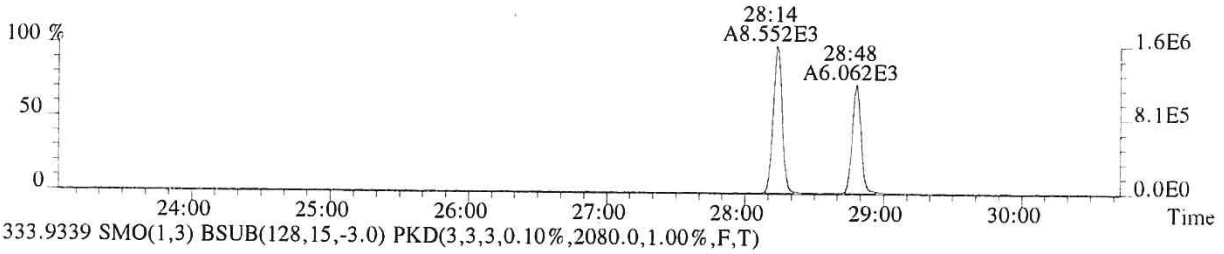
File:P519219 #1-545 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



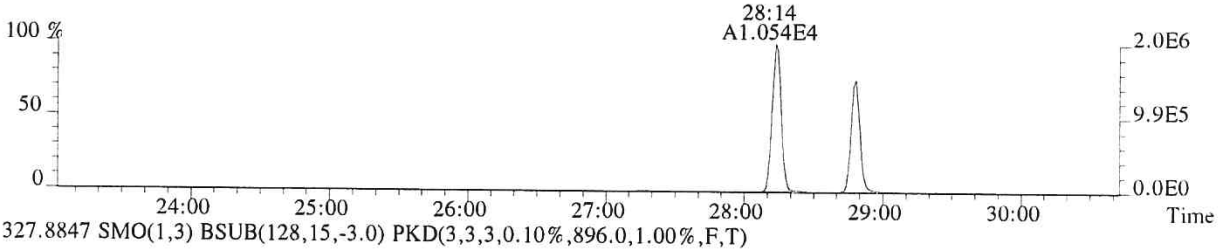
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



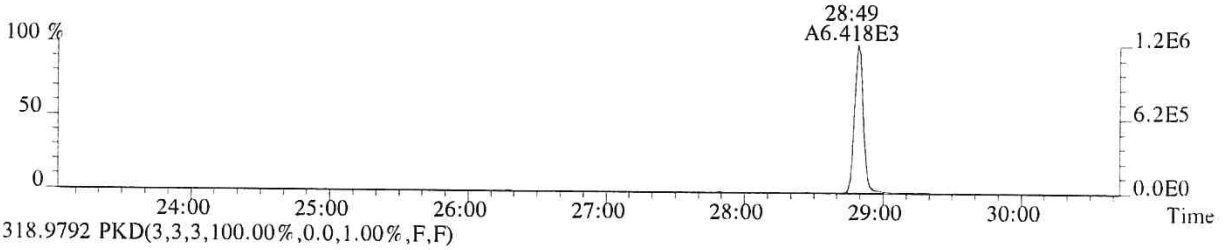
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3888.0,1.00%,F,T)



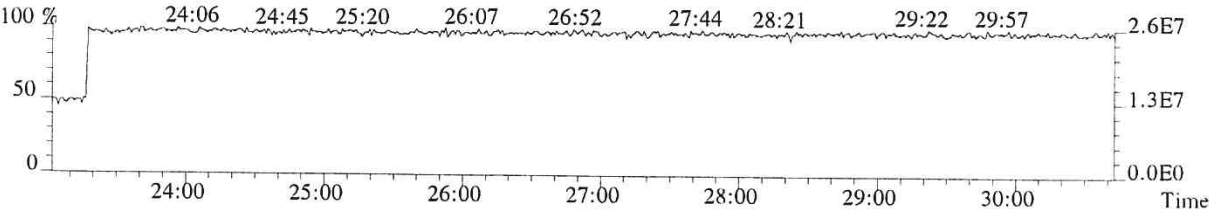
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



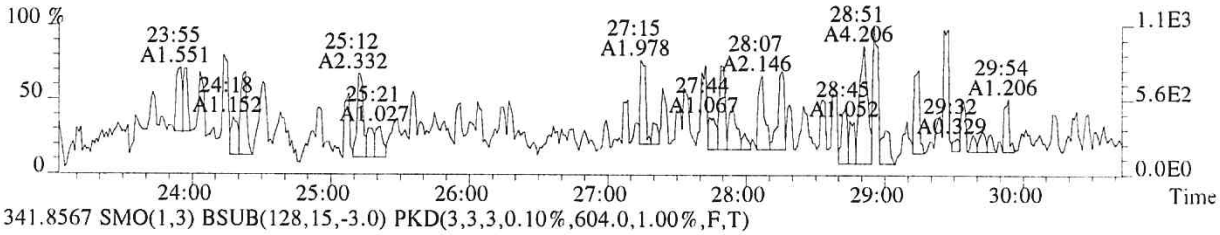
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



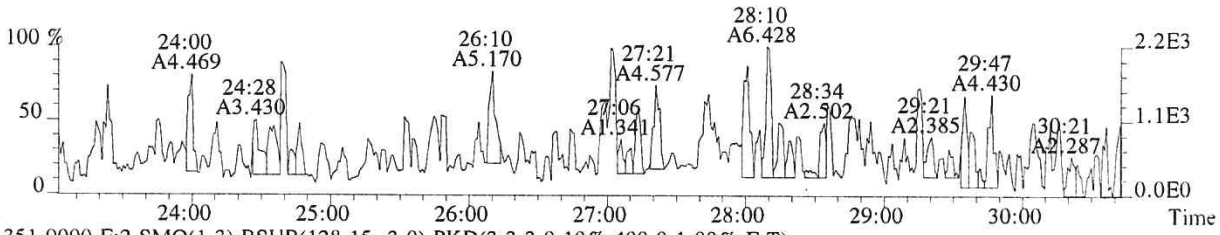
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



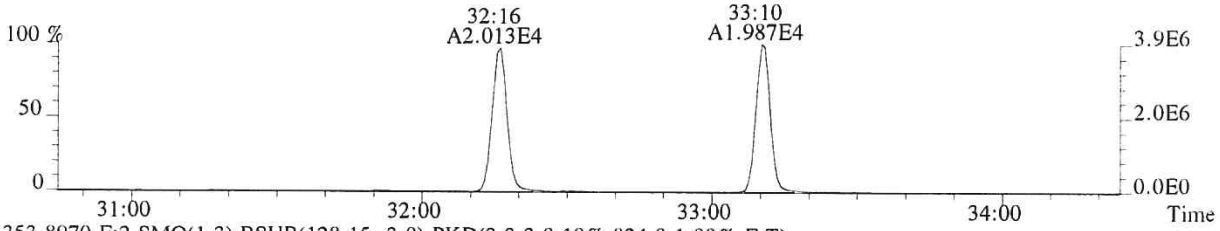
File:P519219 #1-545 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



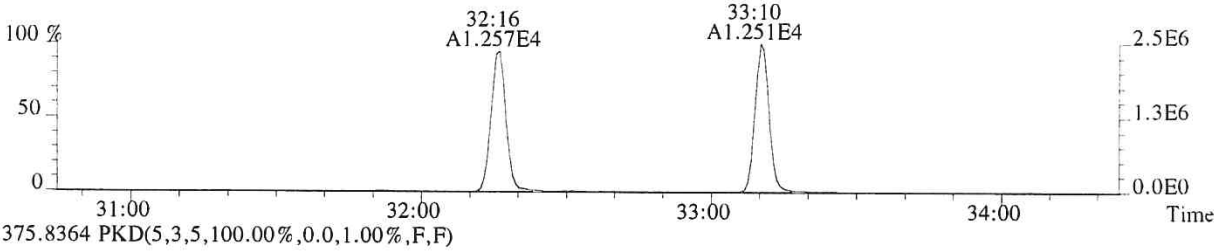
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



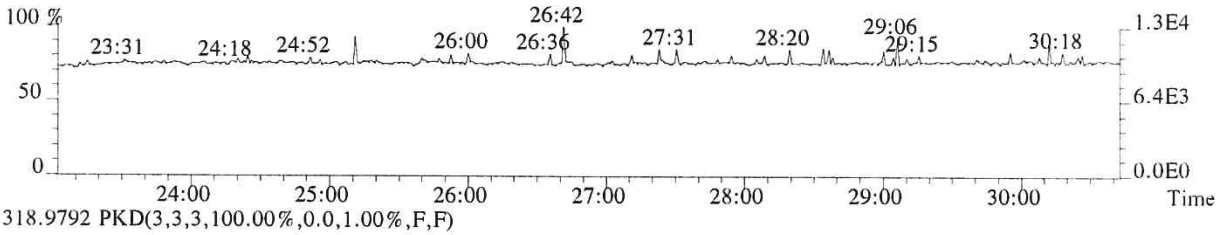
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



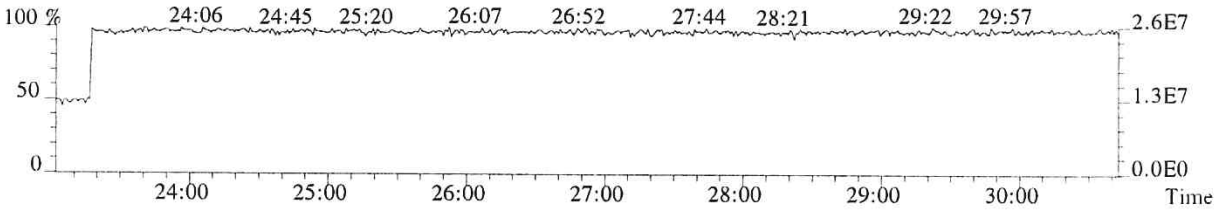
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



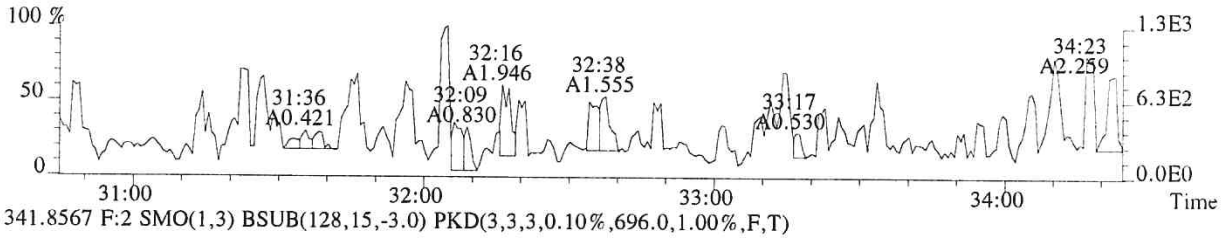
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



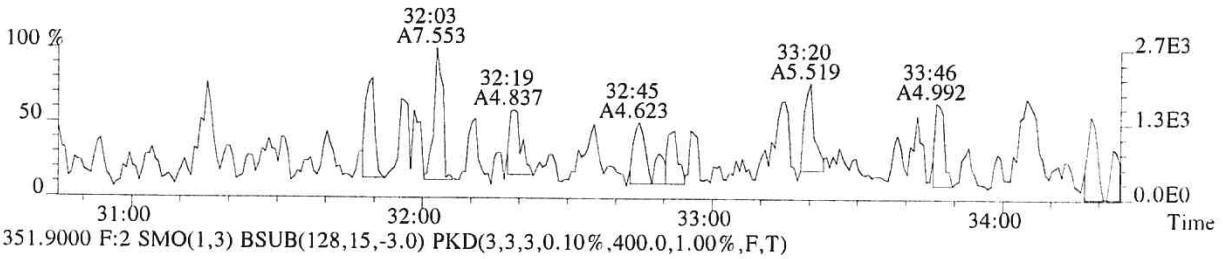
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



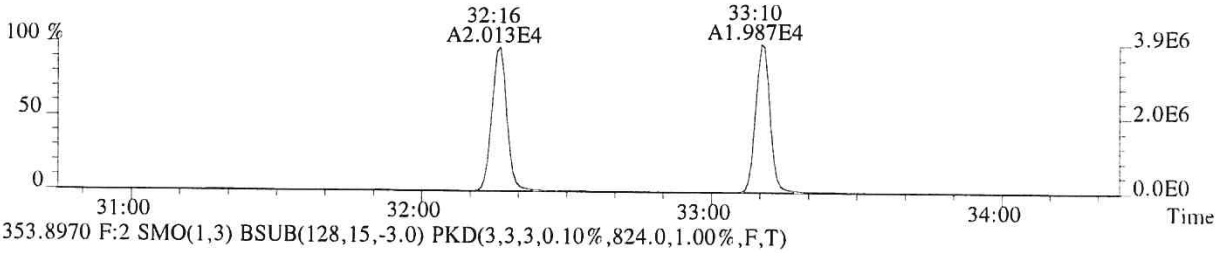
File:P519219 #1-330 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



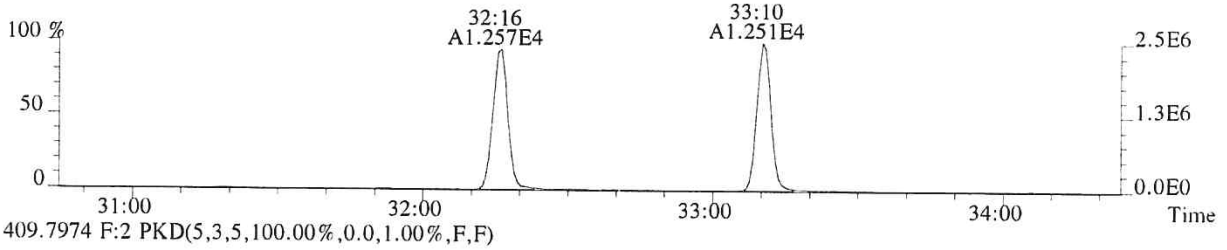
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



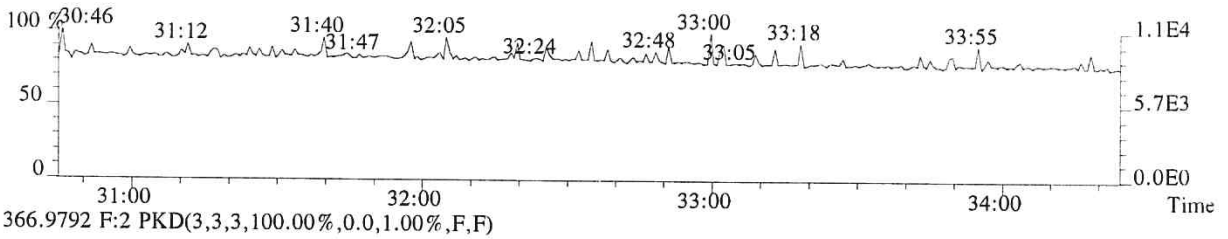
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



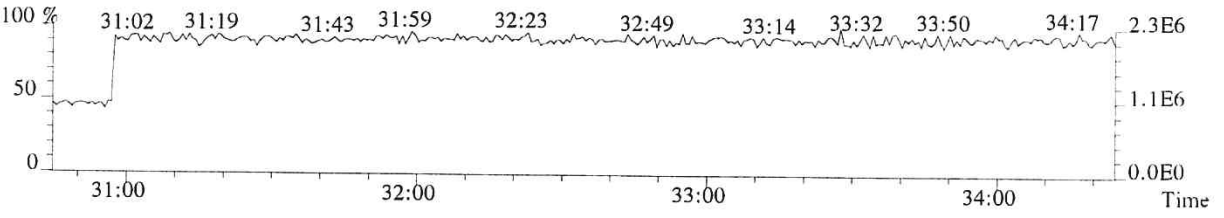
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



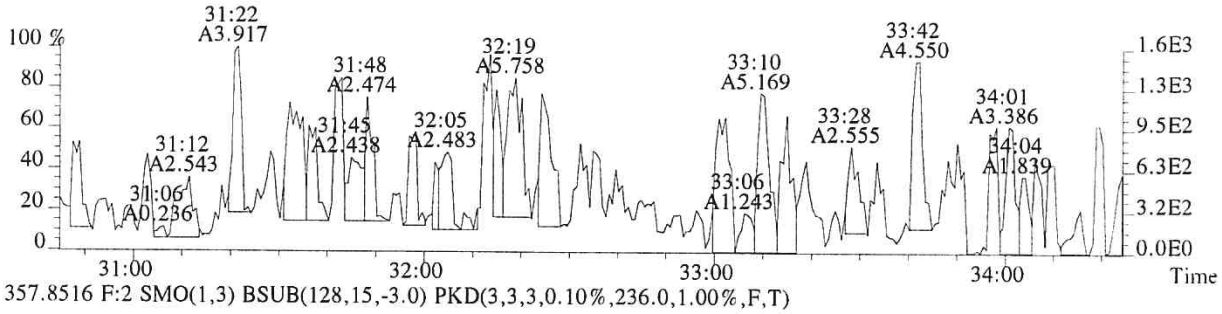
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



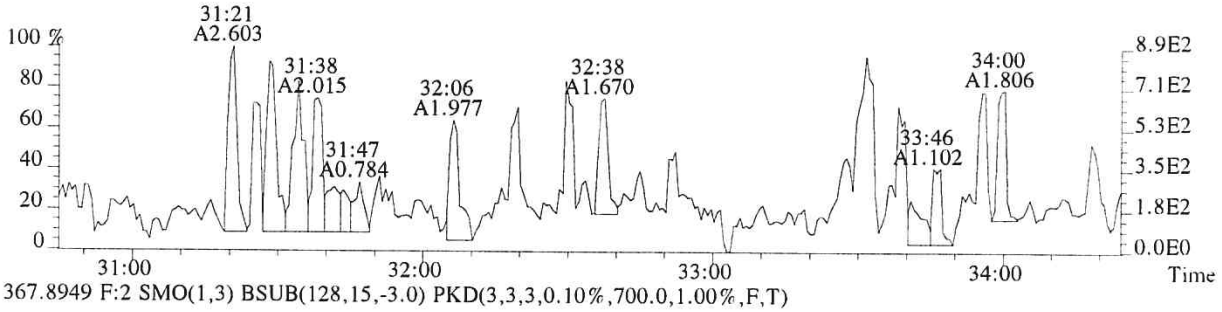
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



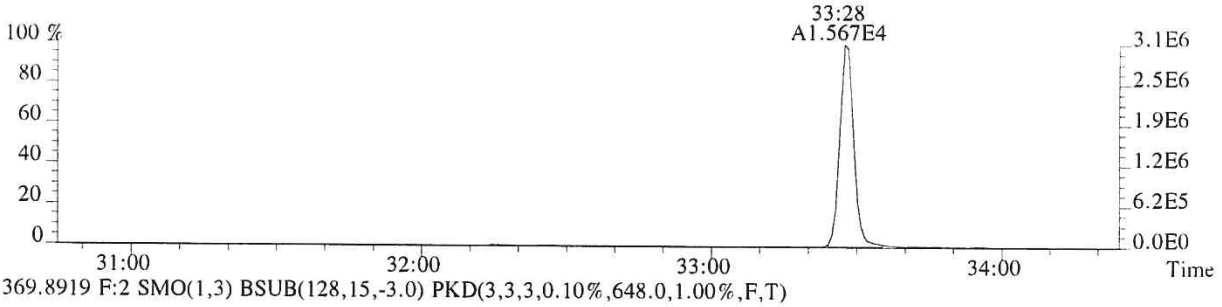
File:P519219 #1-330 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



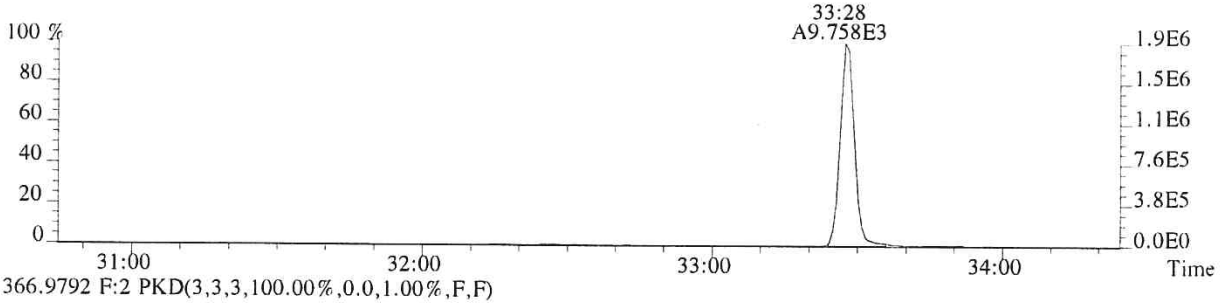
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



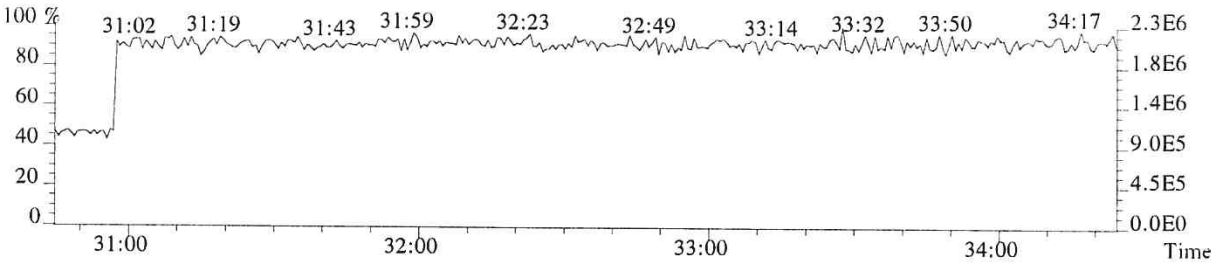
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



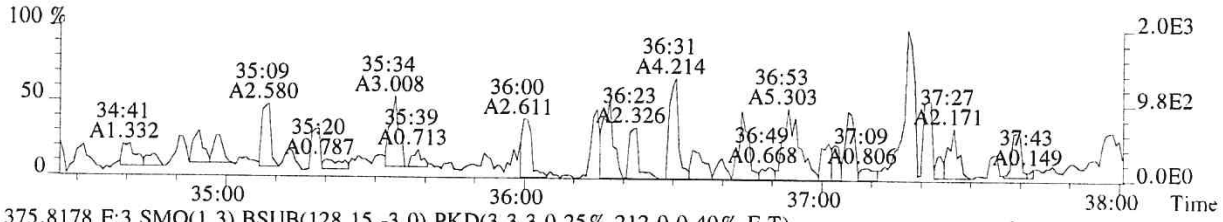
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



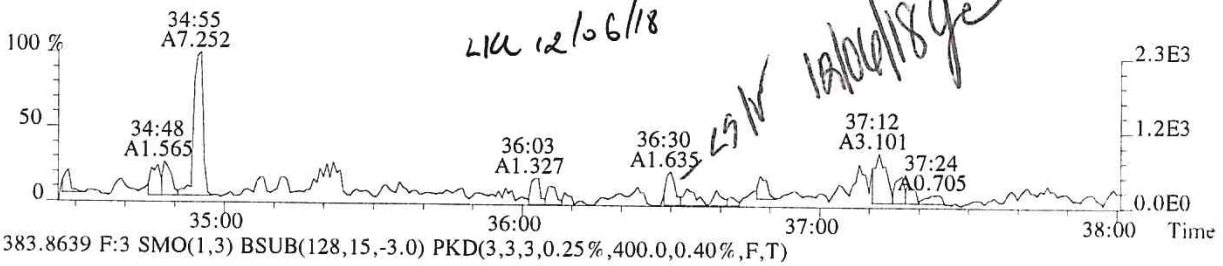
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519219 #1-322 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



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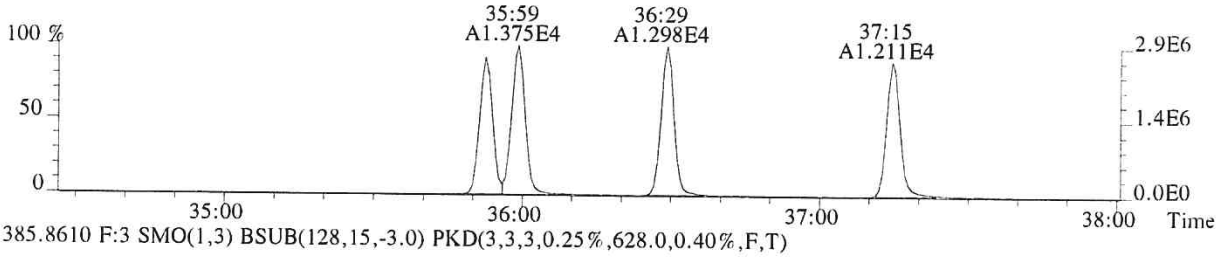
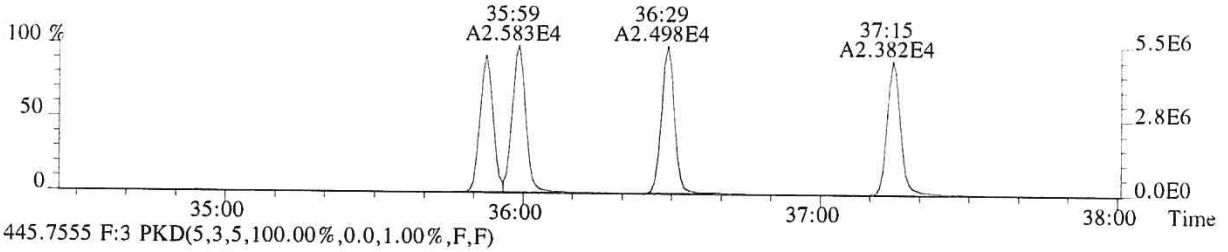
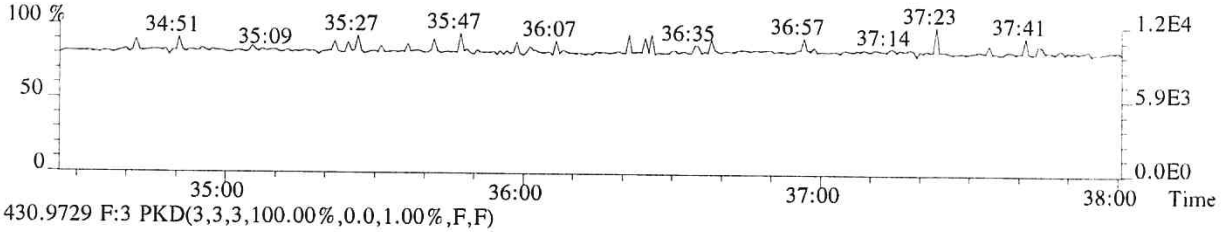
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



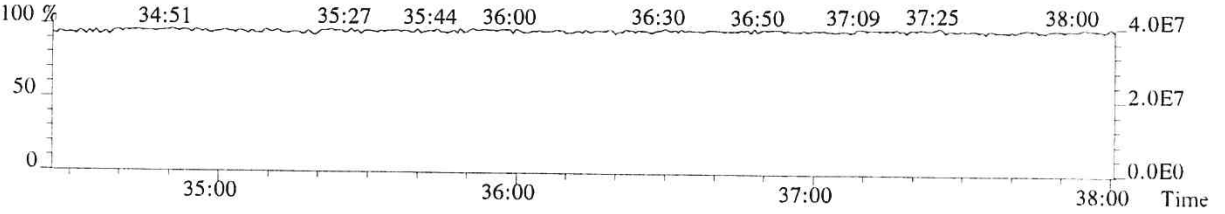
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

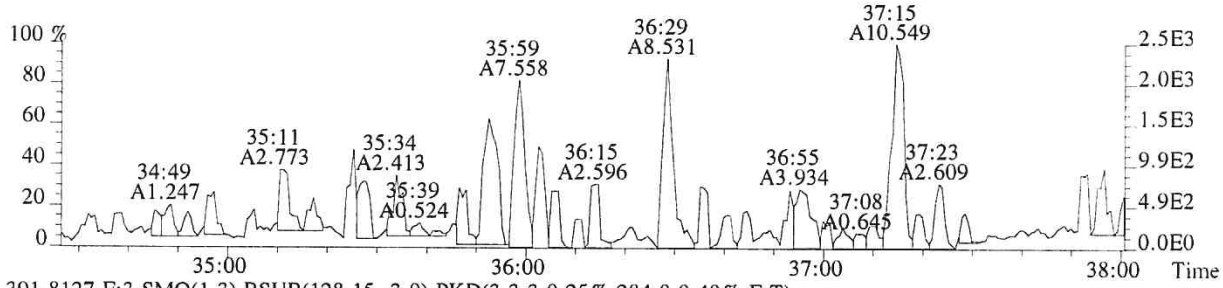


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

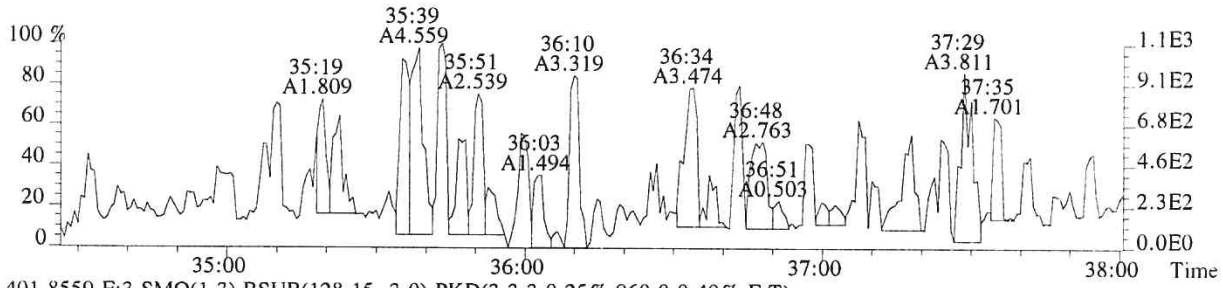


010499

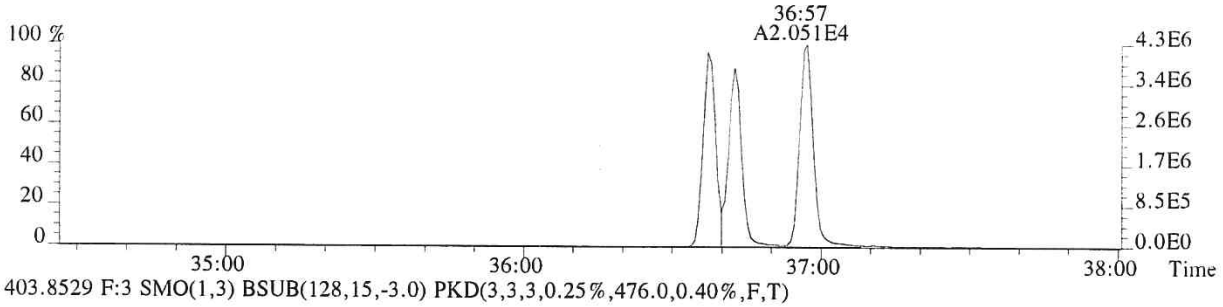
File:P519219 #1-322 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



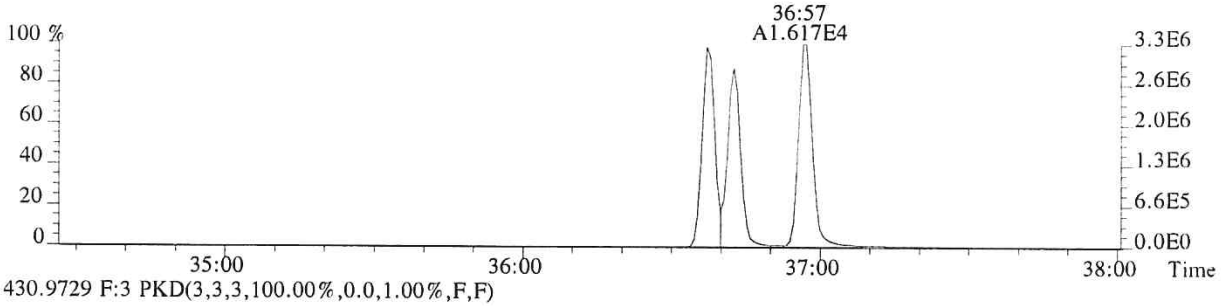
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



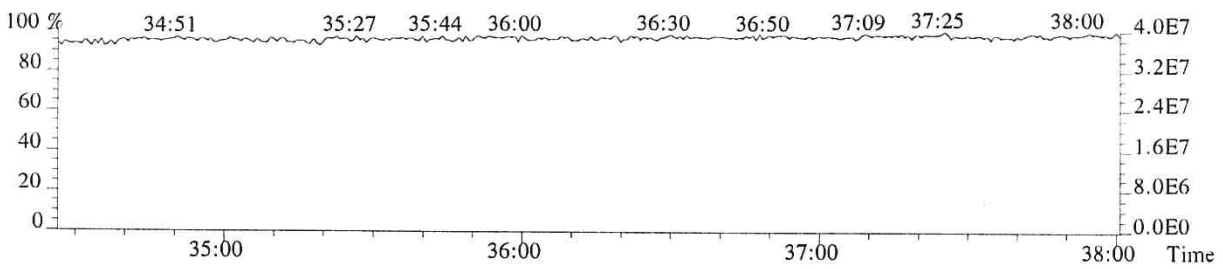
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



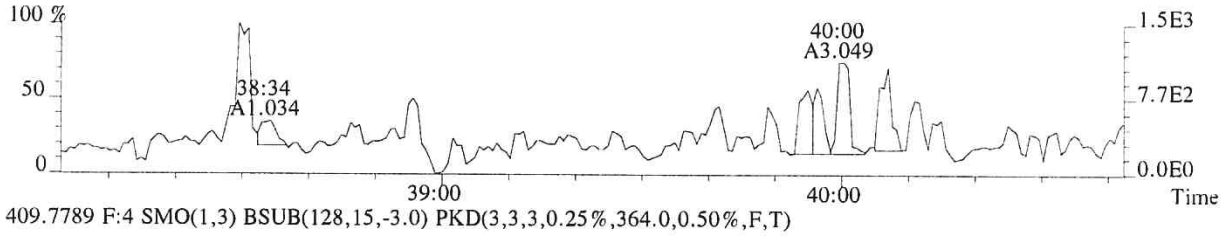
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



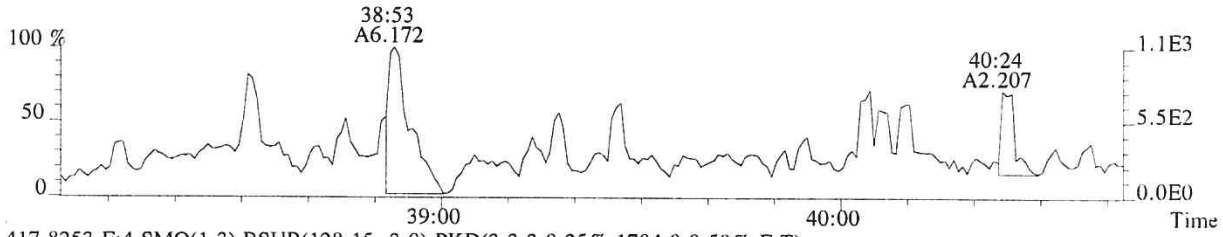
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



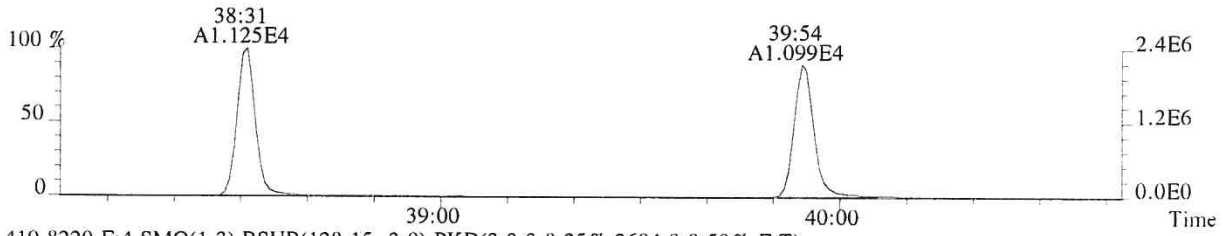
File:P519219 #1-240 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.50%,F,T)



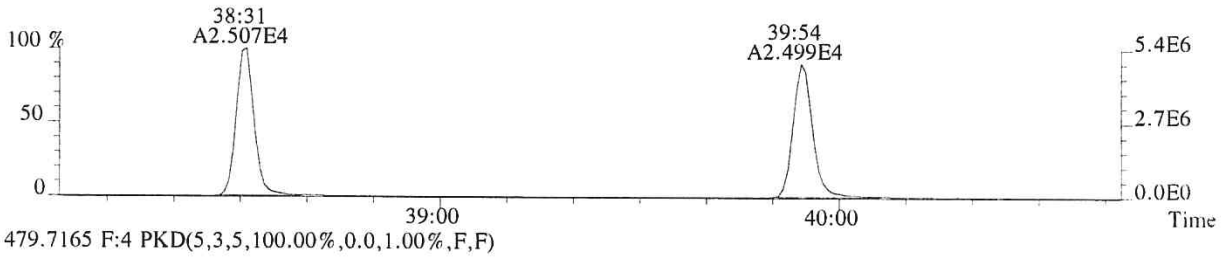
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.50%,F,T)



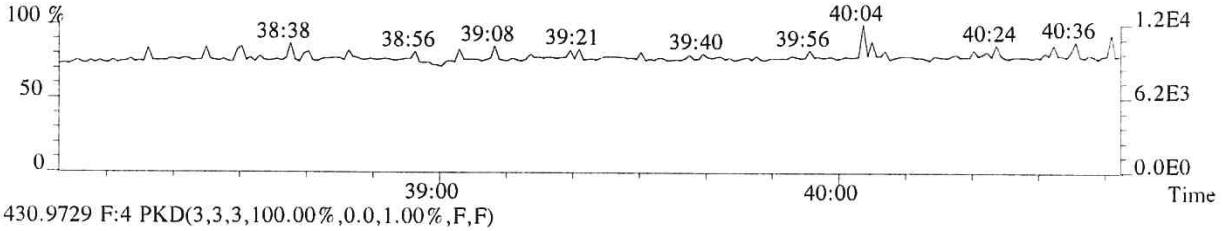
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.50%,F,T)



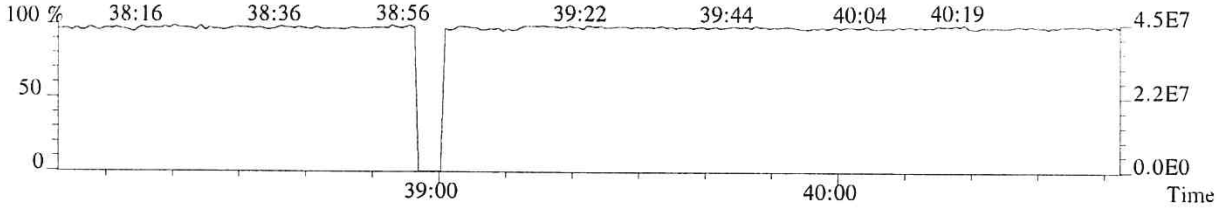
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3684.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

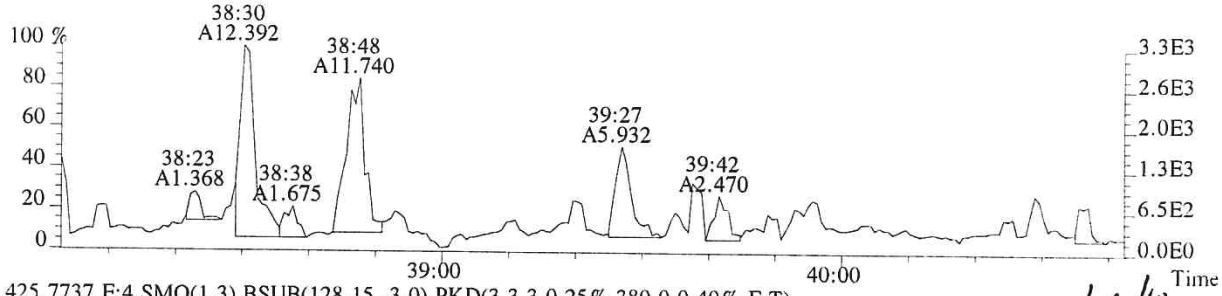


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



010501

File:P519219 #1-240 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)

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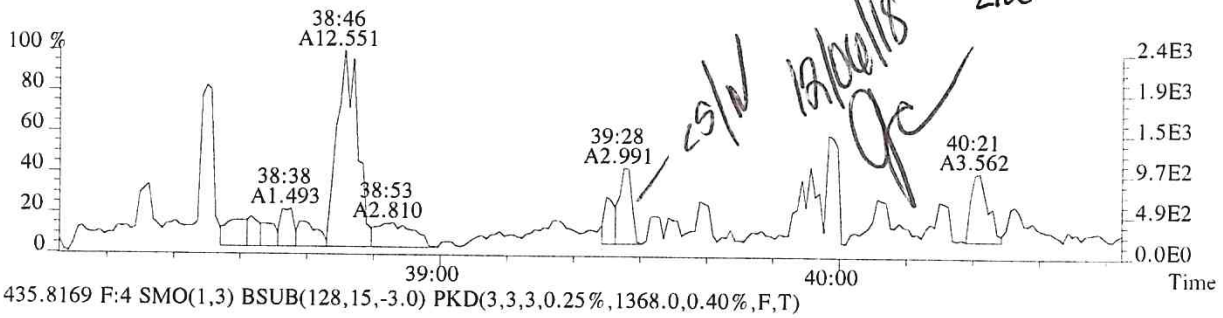
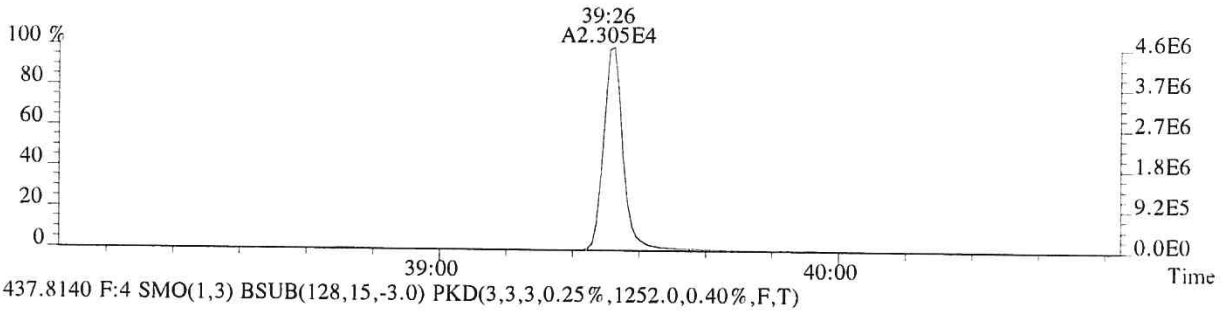
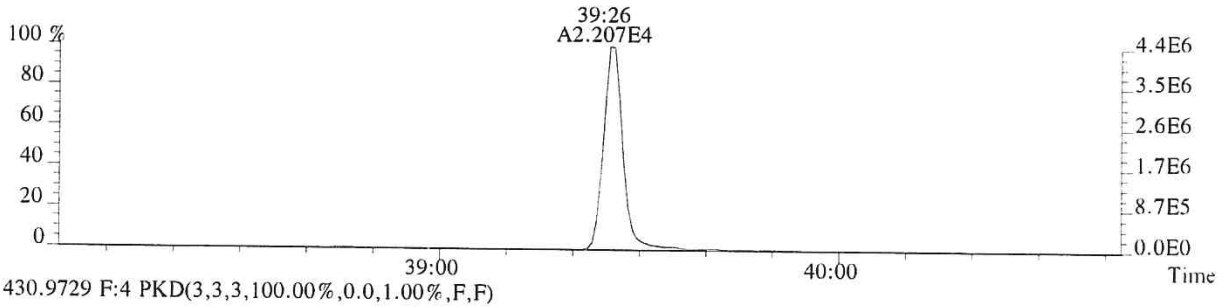


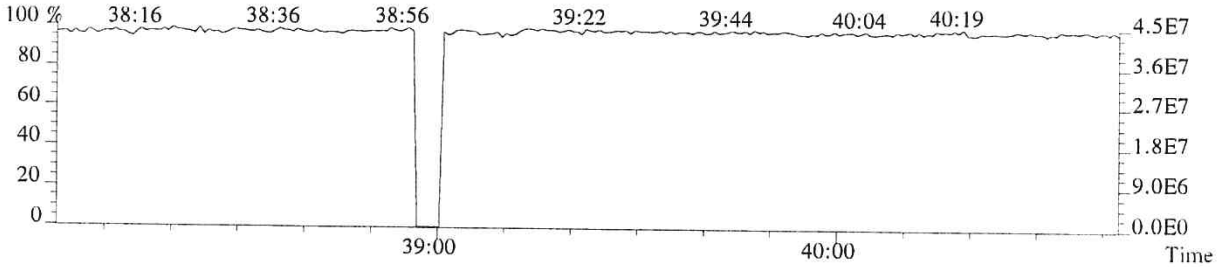
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



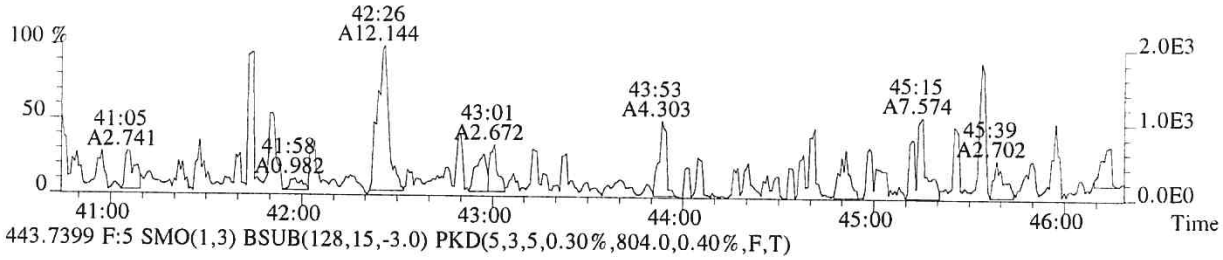
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



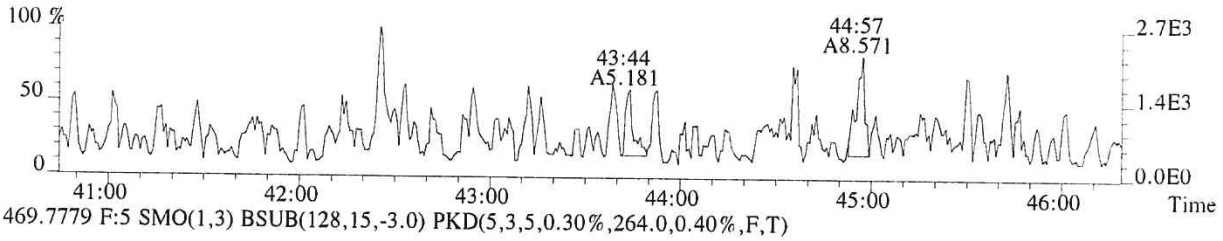
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



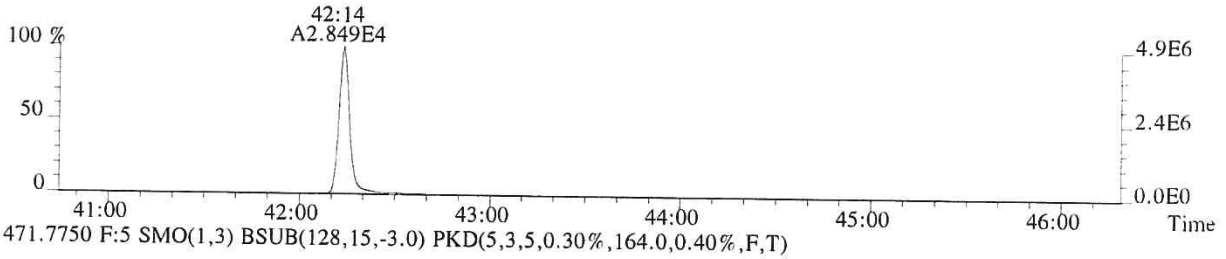
File:P519219 #1-502 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



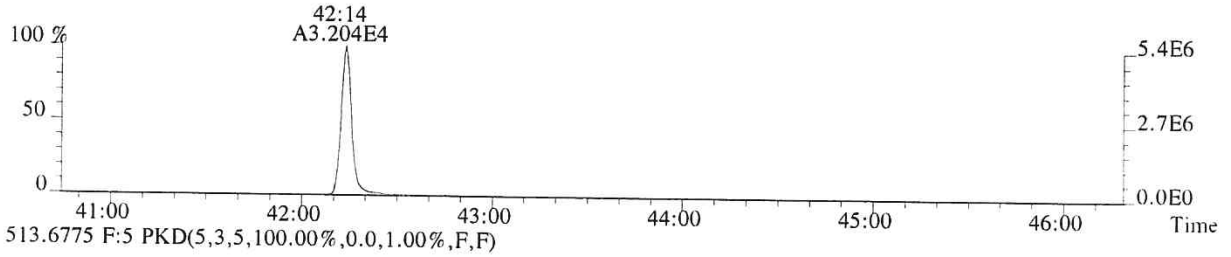
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,804.0,0.40%,F,T)



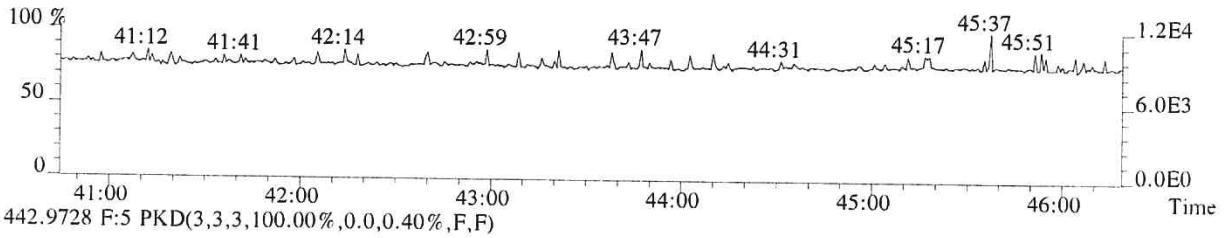
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



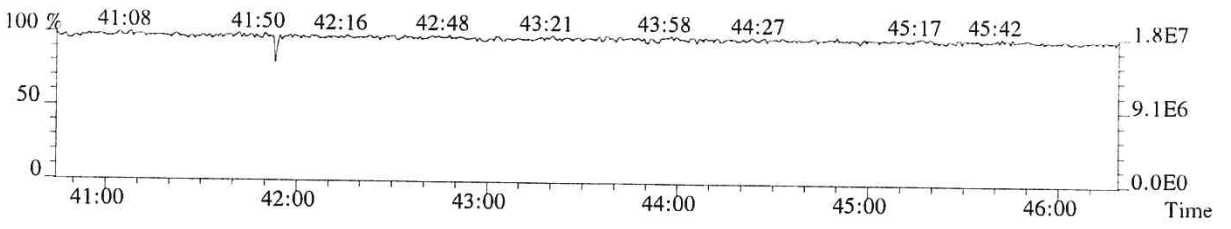
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



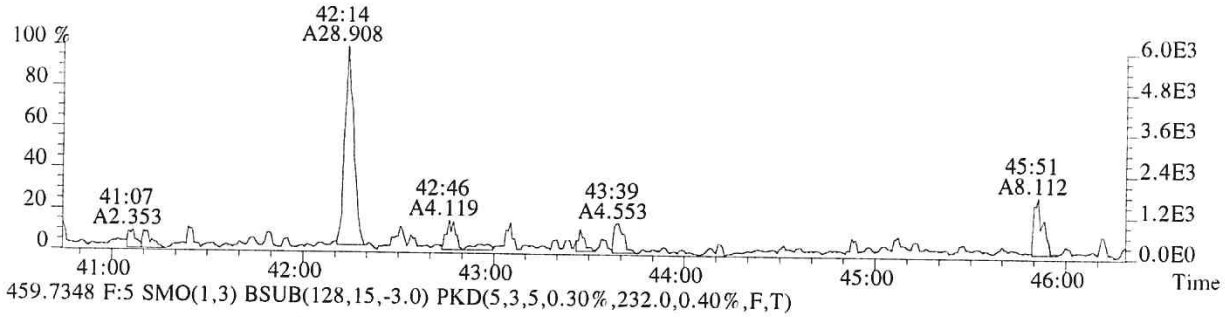
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



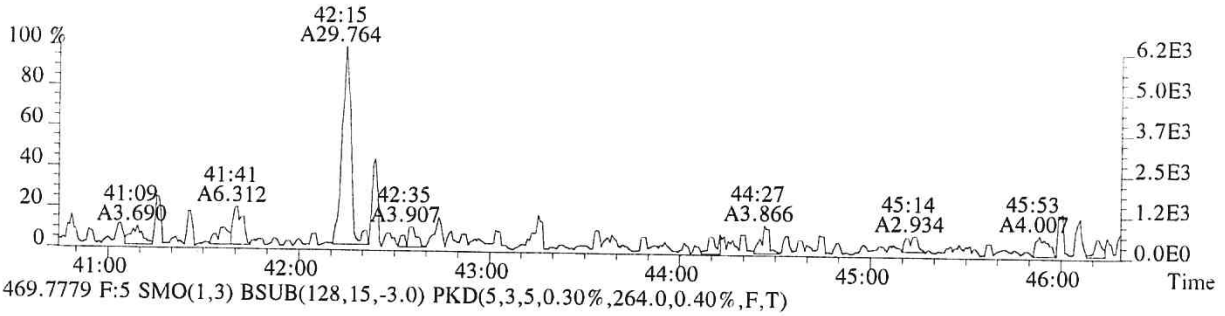
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



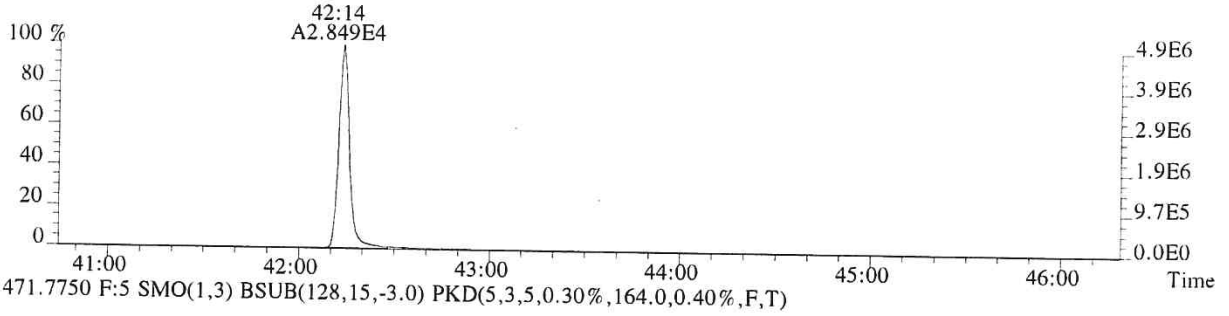
File:P519219 #1-502 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



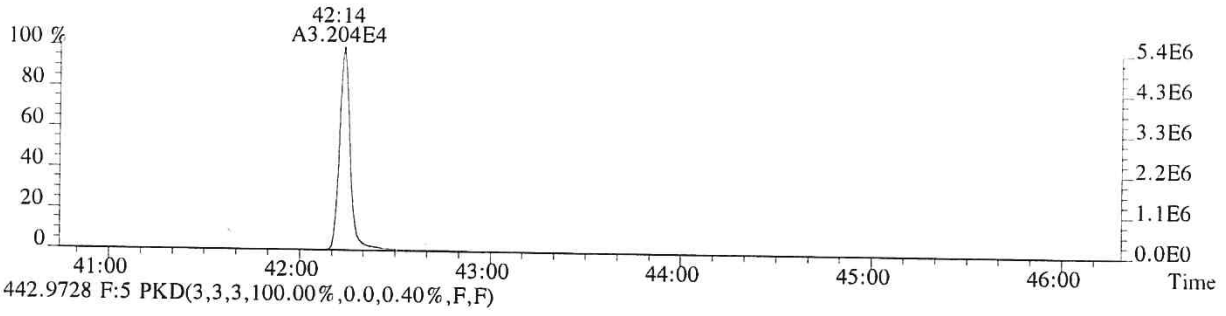
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



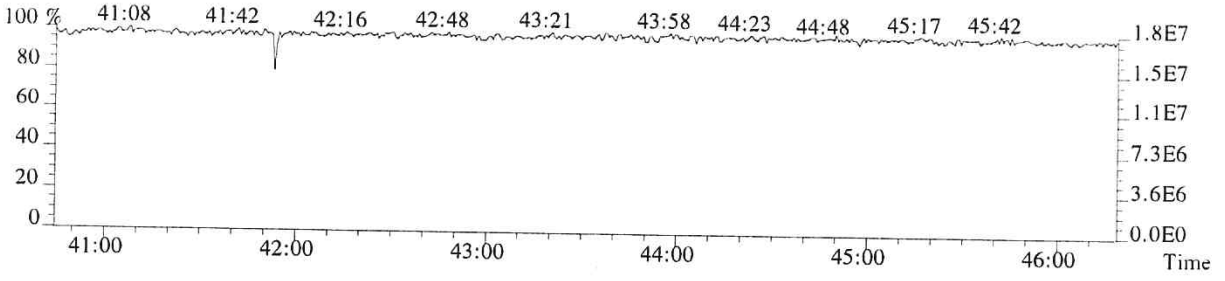
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010504

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #18 Filename P519143 Samp: 1 Inj: 1 Acquired: 2-DEC-18 14:17:05
Processed: 3-DEC-18 18:21:32 Sample ID: EQ1800469-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	1.763e+03	2.346e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:28	2.094e+04	1.361e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:22	2.275e+04	1.507e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.772e+04	1.516e+04	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:09	1.978e+04	1.654e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.842e+04	1.555e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:24	1.426e+04	1.184e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	1.075e+04	1.115e+04	0.96	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	7.465e+03	7.911e+03	0.94	yes	no	1.258
10	Unk	OCDF	42:37	7.167e+03	7.956e+03	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:03	1.426e+03	1.876e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	1.735e+04	1.105e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	1.334e+04	1.047e+04	1.27	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.416e+04	1.132e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	1.477e+04	1.184e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	7.504e+03	7.052e+03	1.06	yes	no	1.025
17	Unk	OCDD	42:25	6.267e+03	7.106e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:15	2.019e+04	2.570e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	4.560e+04	2.907e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.716e+04	2.986e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.894e+04	3.643e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	2.211e+04	4.254e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	2.122e+04	4.103e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.648e+04	3.171e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.051e+04	2.346e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	7.394e+03	1.741e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	1.424e+04	1.827e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.588e+04	2.276e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	2.746e+04	2.154e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	2.756e+04	2.193e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	1.881e+04	1.747e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:25	1.163e+04	1.296e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:28	4.873e+04	6.186e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	5.119e+04	4.012e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:03	1.517e+04				no	1.014

$$\text{OCDD} = \frac{(6.267e+03 + 7.106e+03) \times 4000 \text{ pg} \times 1}{(1.163e+04 + 1.296e+04) \times \text{g} \times / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #18 Filename P519143 Samp: 1 Inj: 1 Acquired: 2-DEC-18 14:17:05
Processed: 3-DEC-18 18:21:32 LAB. ID: EQ1800469-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.17e+05	7.52e+02	4.2e+02	4.15e+05	1.26e+03	3.3e+02
2	1,2,3,7,8-PeCDF	3.85e+06	4.92e+02	7.8e+03	2.47e+06	9.40e+02	2.6e+03
3	2,3,4,7,8-PeCDF	4.38e+06	4.92e+02	8.9e+03	2.88e+06	9.40e+02	3.1e+03
4	1,2,3,4,7,8-HxCDF	3.88e+06	4.88e+02	7.9e+03	3.33e+06	4.12e+02	8.1e+03
5	1,2,3,6,7,8-HxCDF	4.05e+06	4.88e+02	8.3e+03	3.39e+06	4.12e+02	8.2e+03
6	2,3,4,6,7,8-HxCDF	3.95e+06	4.88e+02	8.1e+03	3.29e+06	4.12e+02	8.0e+03
7	1,2,3,7,8,9-HxCDF	2.87e+06	4.88e+02	5.9e+03	2.35e+06	4.12e+02	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	2.30e+06	2.13e+03	1.1e+03	2.36e+06	1.62e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	1.40e+06	2.13e+03	6.5e+02	1.43e+06	1.62e+03	8.8e+02
10	OCDF	1.09e+06	3.36e+02	3.3e+03	1.26e+06	1.03e+03	1.2e+03
11	2,3,7,8-TCDD	2.67e+05	1.90e+03	1.4e+02	3.48e+05	9.72e+02	3.6e+02
12	1,2,3,7,8-PeCDD	3.33e+06	8.52e+02	3.9e+03	2.16e+06	2.28e+02	9.5e+03
13	1,2,3,4,7,8-HxCDD	3.00e+06	2.88e+02	1.0e+04	2.36e+06	2.56e+02	9.2e+03
14	1,2,3,6,7,8-HxCDD	2.94e+06	2.88e+02	1.0e+04	2.32e+06	2.56e+02	9.1e+03
15	1,2,3,7,8,9-HxCDD	2.89e+06	2.88e+02	1.0e+04	2.39e+06	2.56e+02	9.3e+03
16	1,2,3,4,6,7,8-HpCDD	1.40e+06	5.28e+02	2.6e+03	1.33e+06	3.60e+02	3.7e+03
17	OCDD	9.61e+05	2.60e+02	3.7e+03	1.06e+06	6.80e+02	1.6e+03
18	13C-2,3,7,8-TCDF	3.65e+06	5.41e+03	6.7e+02	4.59e+06	2.97e+03	1.5e+03
19	13C-1,2,3,7,8-PeCDF	8.33e+06	1.00e+03	8.3e+03	5.47e+06	5.88e+02	9.3e+03
20	13C-2,3,4,7,8-PeCDF	9.37e+06	1.00e+03	9.3e+03	5.99e+06	5.88e+02	1.0e+04
21	13C-1,2,3,4,7,8-HxCDF	4.16e+06	5.12e+02	8.1e+03	8.04e+06	7.20e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	4.53e+06	5.12e+02	8.8e+03	8.68e+06	7.20e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	4.53e+06	5.12e+02	8.8e+03	8.81e+06	7.20e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	3.31e+06	5.12e+02	6.5e+03	6.31e+06	7.20e+02	8.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.16e+06	1.60e+03	1.3e+03	4.89e+06	5.50e+03	8.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.32e+06	1.60e+03	8.2e+02	3.13e+06	5.50e+03	5.7e+02
27	13C-2,3,7,8-TCDD	2.67e+06	5.44e+03	4.9e+02	3.44e+06	2.73e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	7.02e+06	5.68e+02	1.2e+04	4.50e+06	6.56e+02	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	6.16e+06	1.70e+03	3.6e+03	4.80e+06	1.08e+03	4.4e+03
30	13C-1,2,3,6,7,8-HxCDD	5.64e+06	1.70e+03	3.3e+03	4.45e+06	1.08e+03	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.46e+06	5.68e+02	6.1e+03	3.24e+06	3.64e+02	8.9e+03
32	13C-OCDD	1.77e+06	2.16e+02	8.2e+03	1.96e+06	2.96e+02	6.6e+03
33	13C-1,2,3,4-TCDD	9.20e+06	5.44e+03	1.7e+03	1.17e+07	2.73e+03	4.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	1.70e+03	6.0e+03	7.99e+06	1.08e+03	7.4e+03
35	37Cl-2,3,7,8-TCDD	2.89e+06	1.83e+03	1.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.904e{+}03 + 9.720e{+}02) \times 2000}{(2.673e{+}06 + 3.443e{+}06) \times (\quad) \times 1.085} =$$

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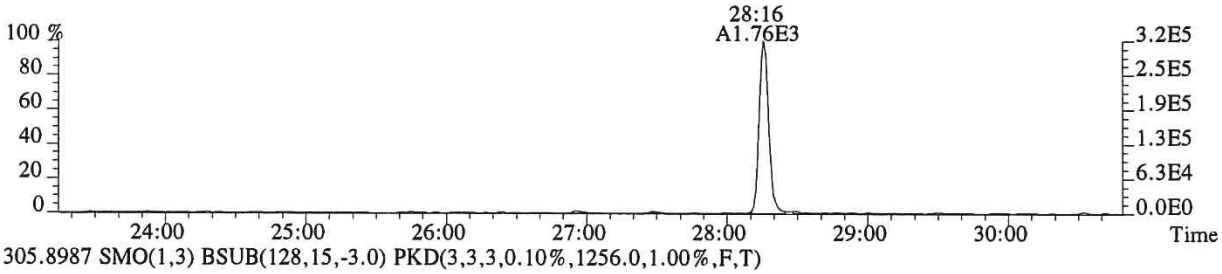
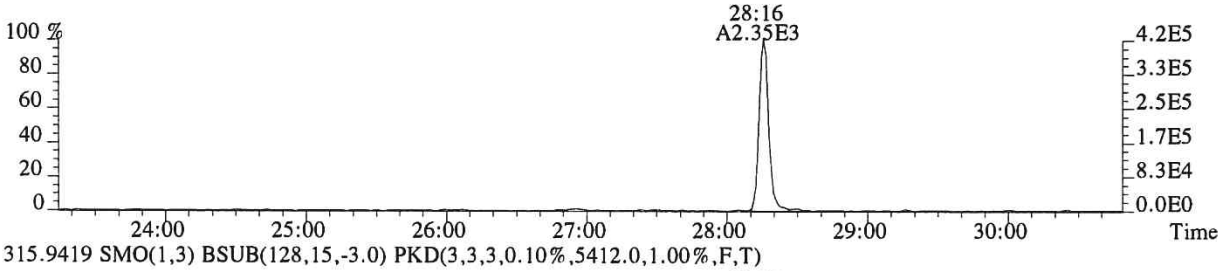
File:P519143 #1-538 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02

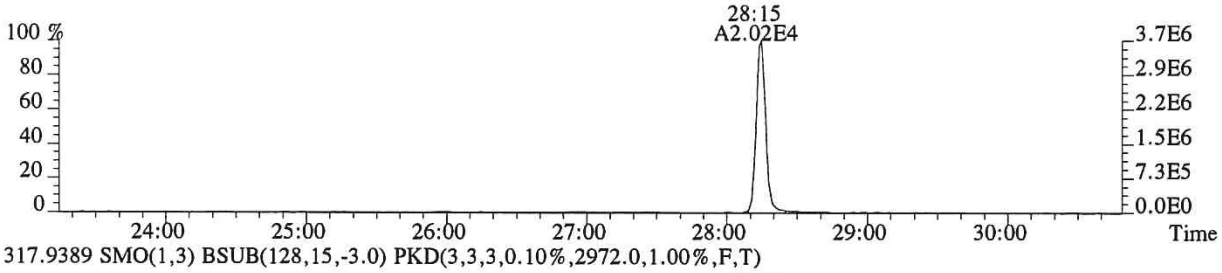
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



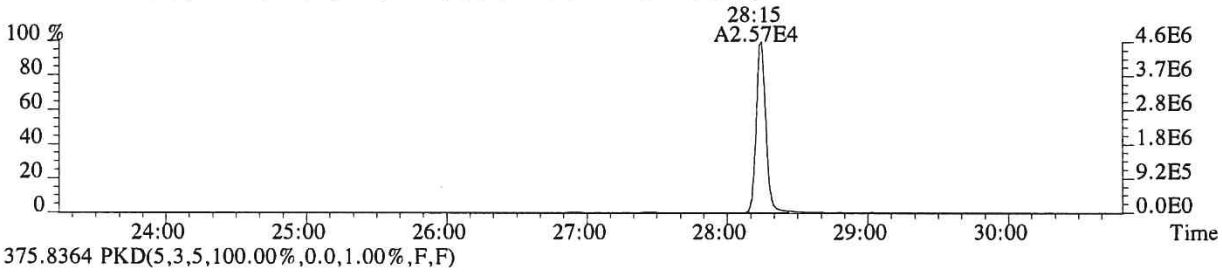
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



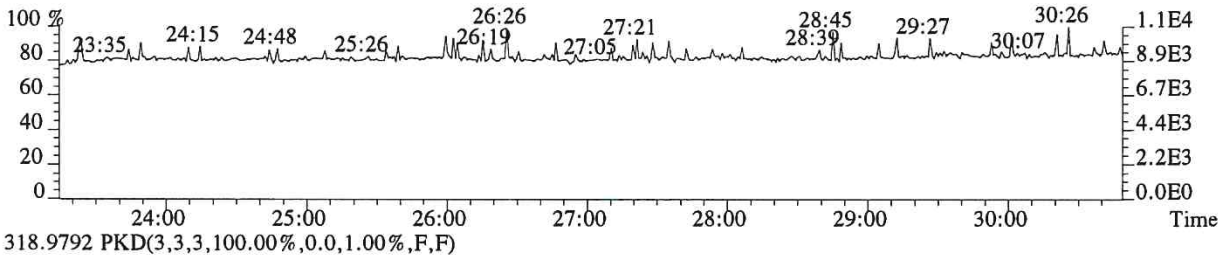
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5412.0,1.00%,F,T)



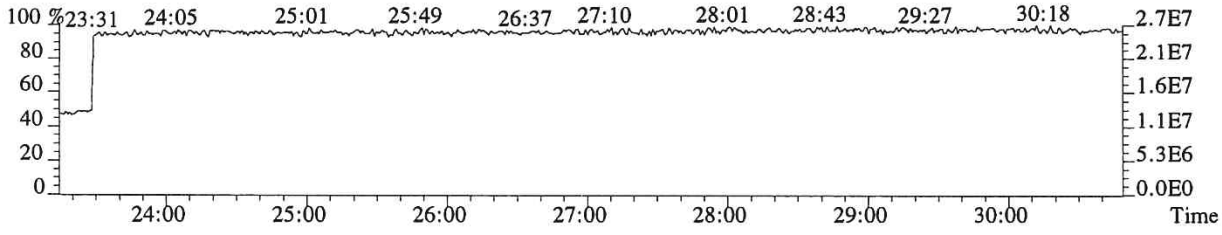
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2972.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

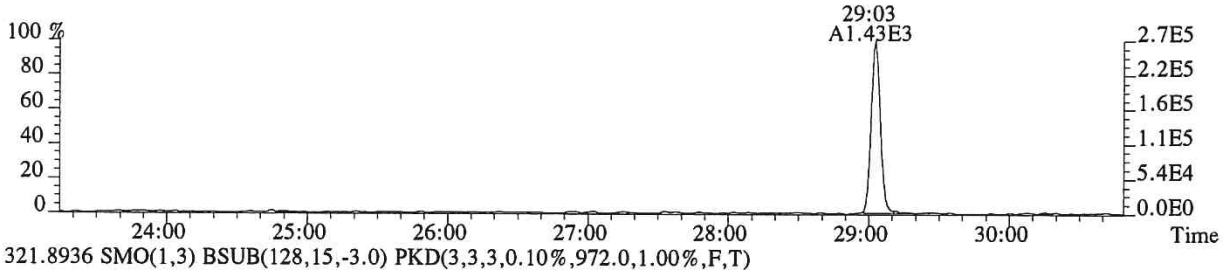


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

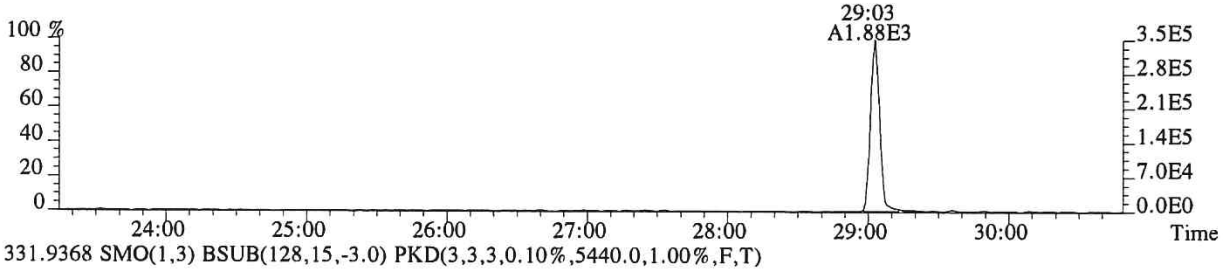


010507

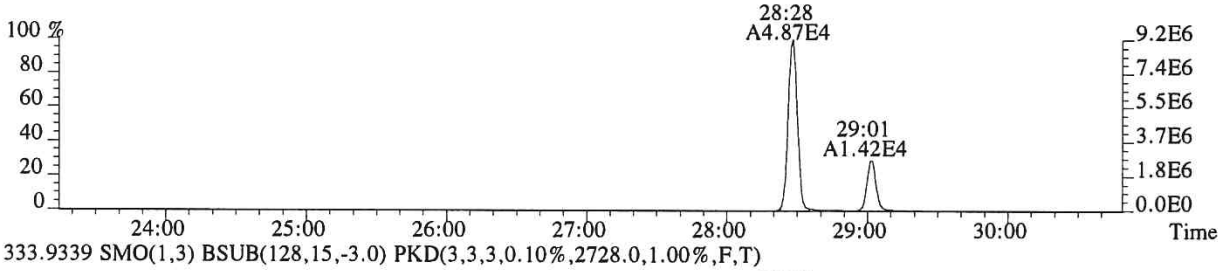
File:P519143 #1-538 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



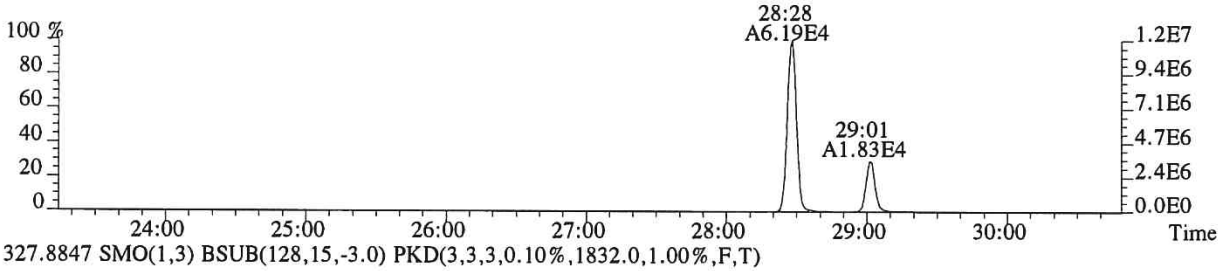
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



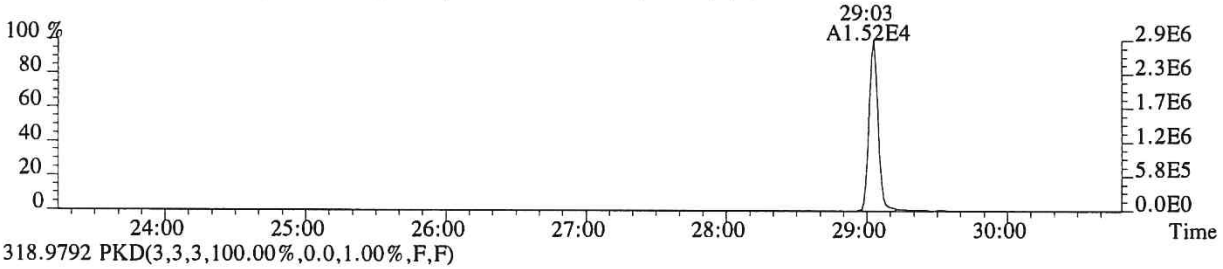
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5440.0,1.00%,F,T)



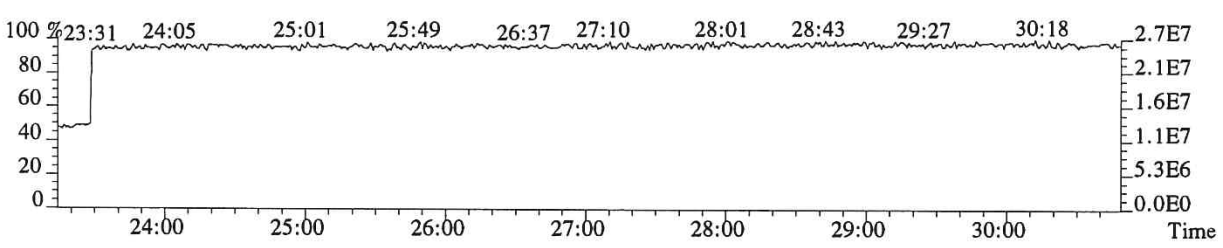
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2728.0,1.00%,F,T)



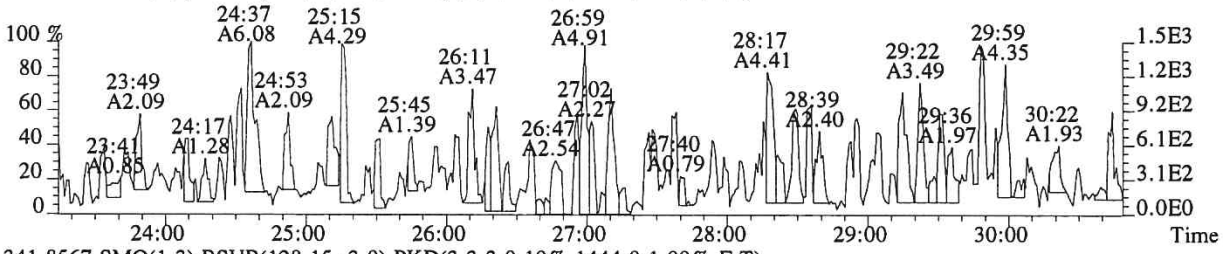
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



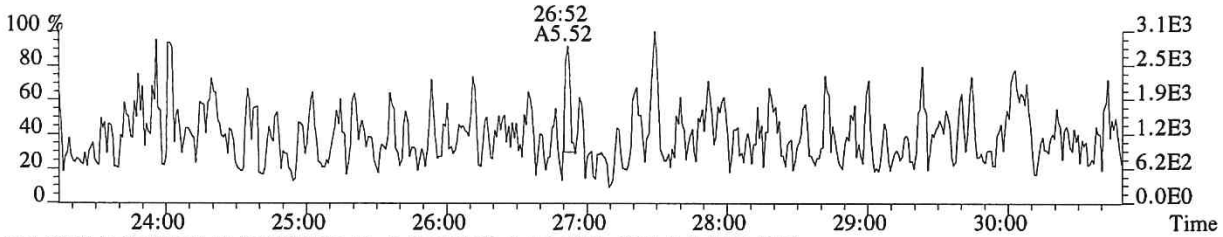
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



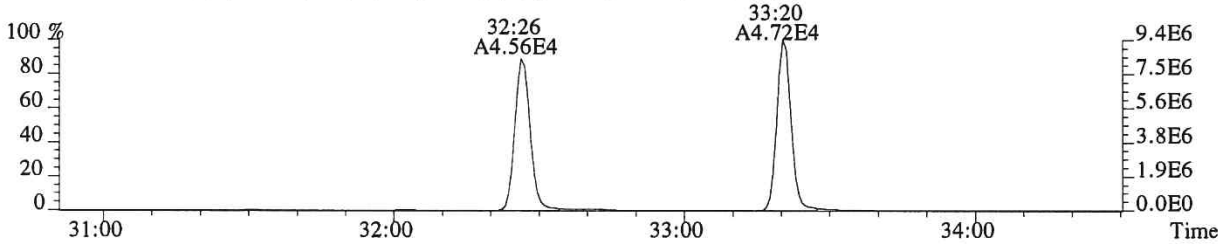
File:P519143 #1-538 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



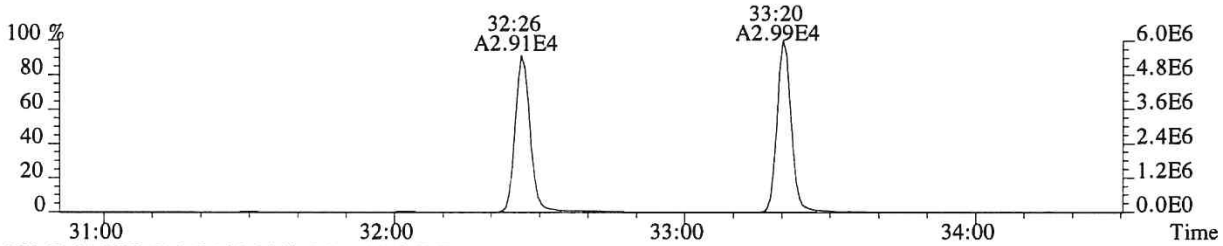
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



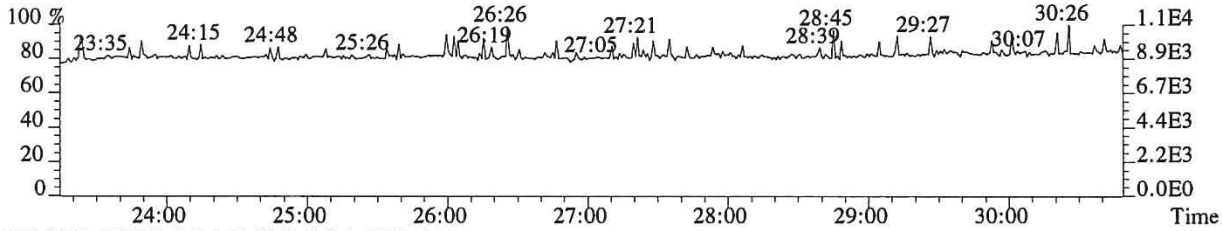
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



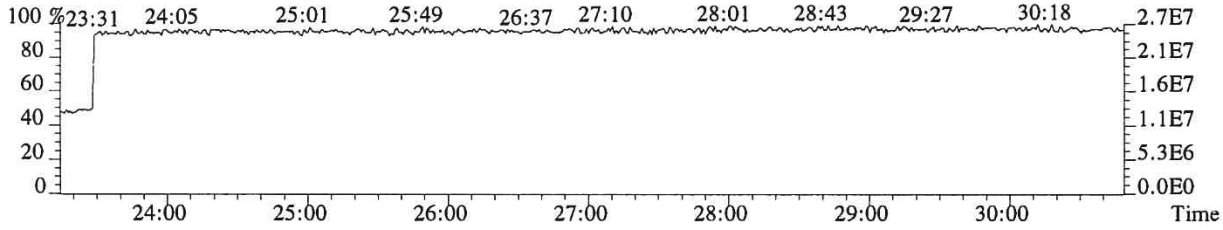
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



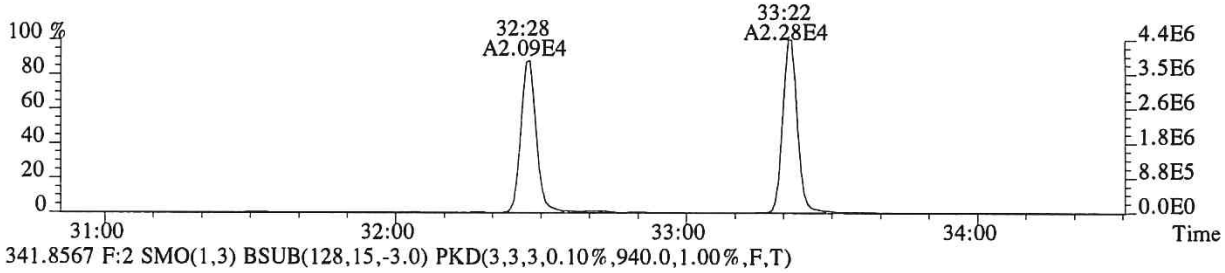
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



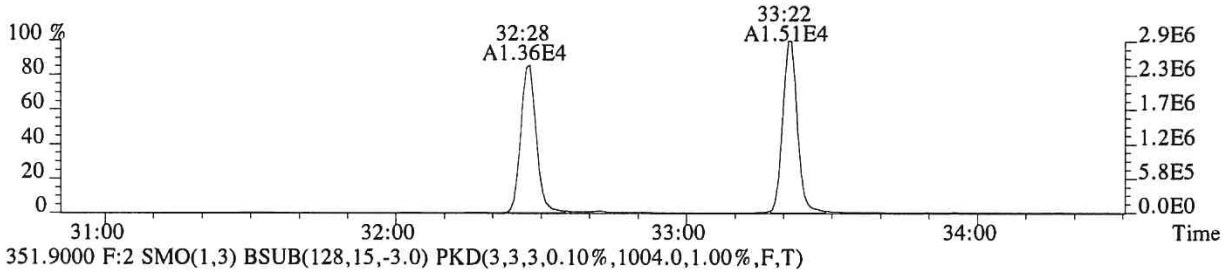
010509

File:P519143 #1-330 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02

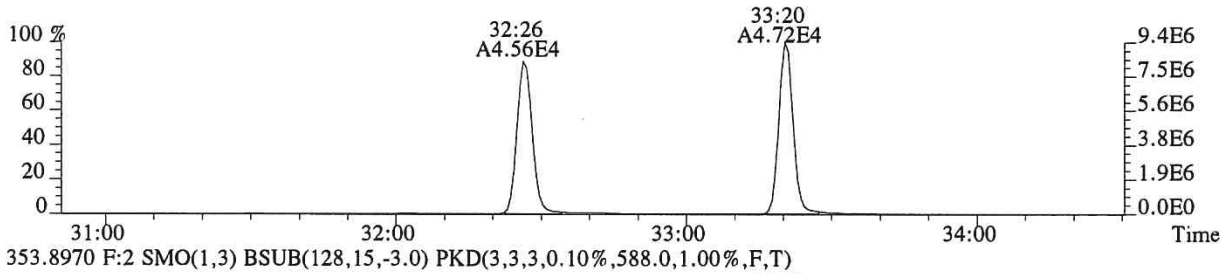
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



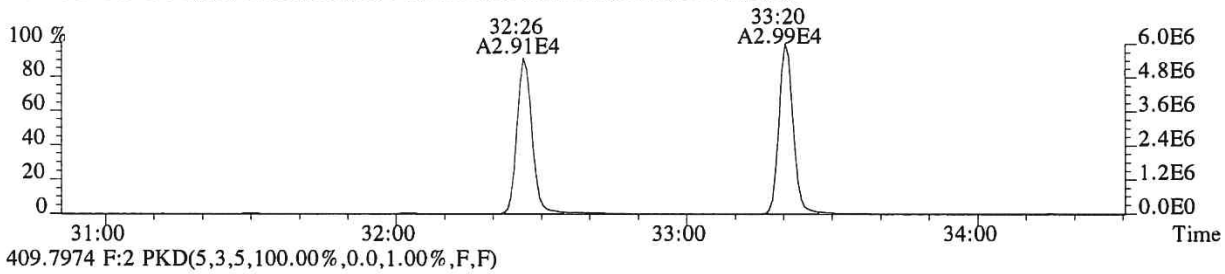
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



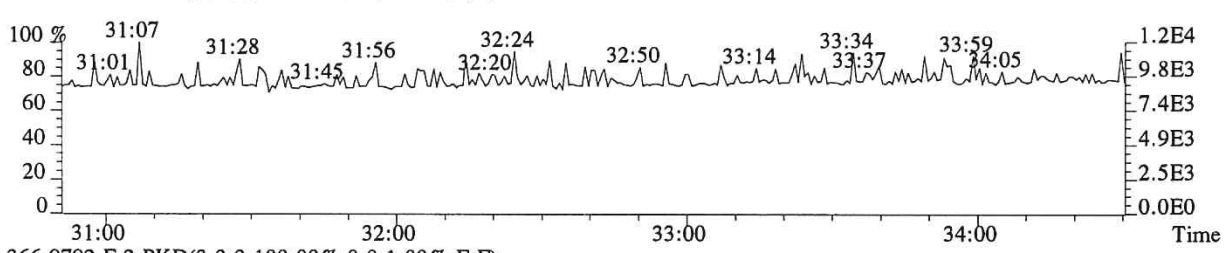
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



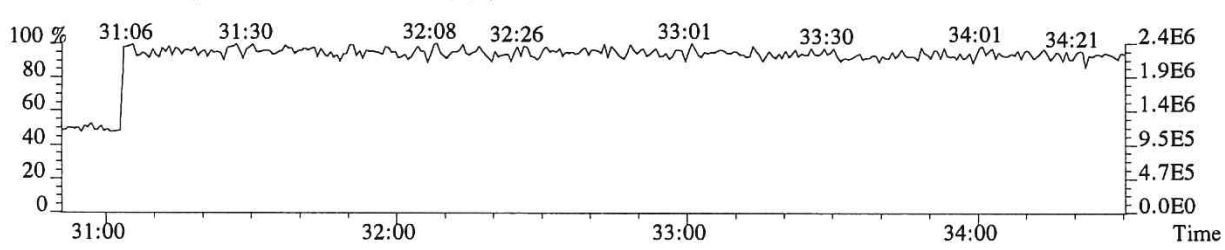
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

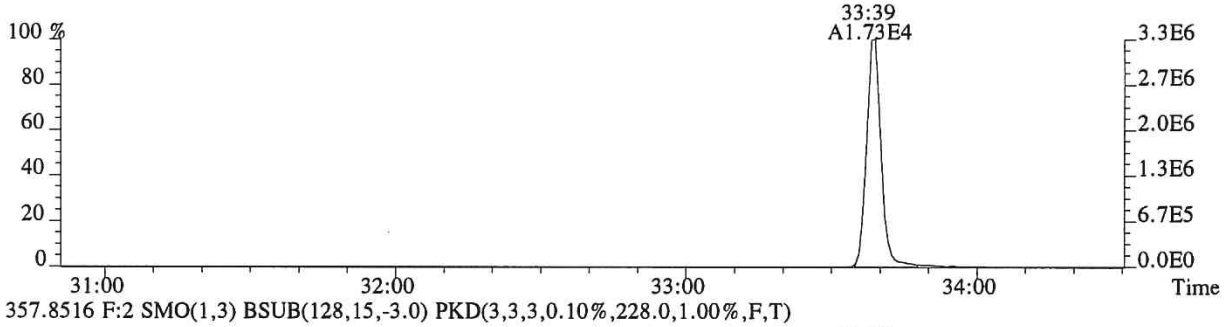


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

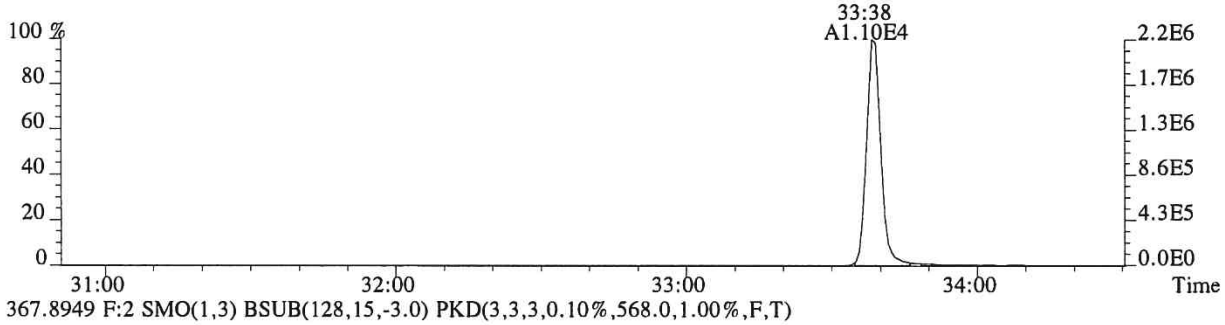


010510

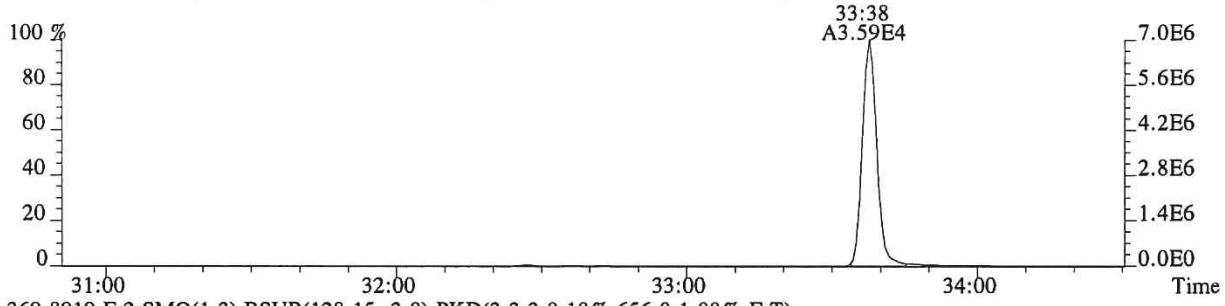
File:P519143 #1-330 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



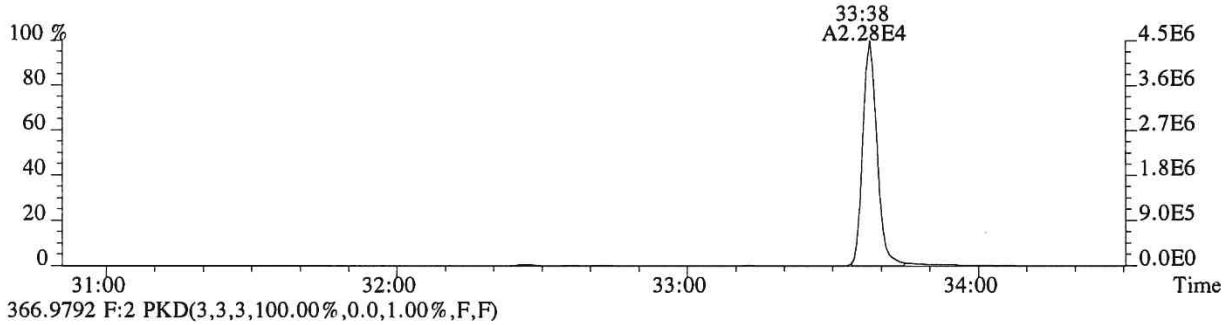
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



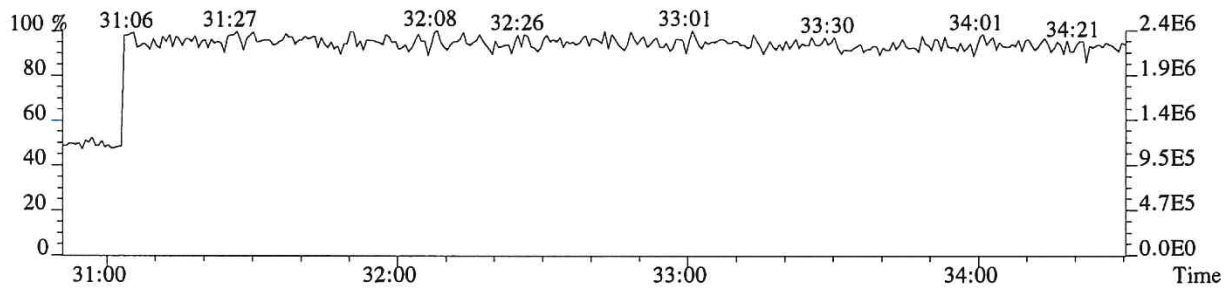
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)

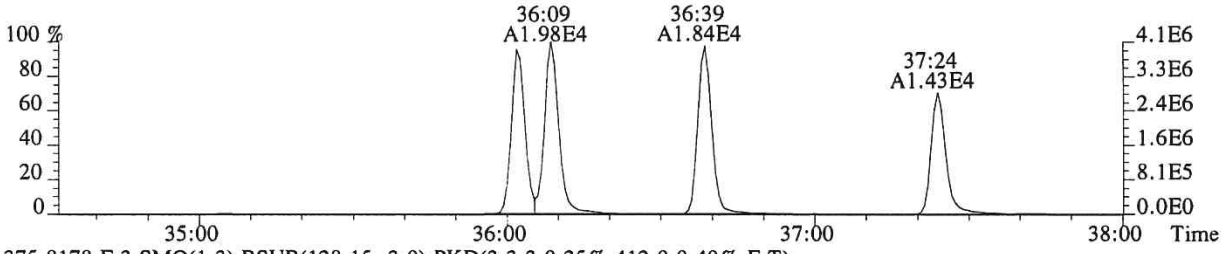


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

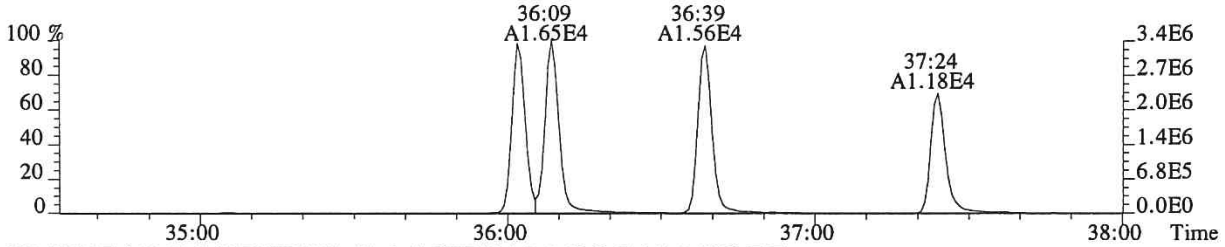


File:P519143 #1-312 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02

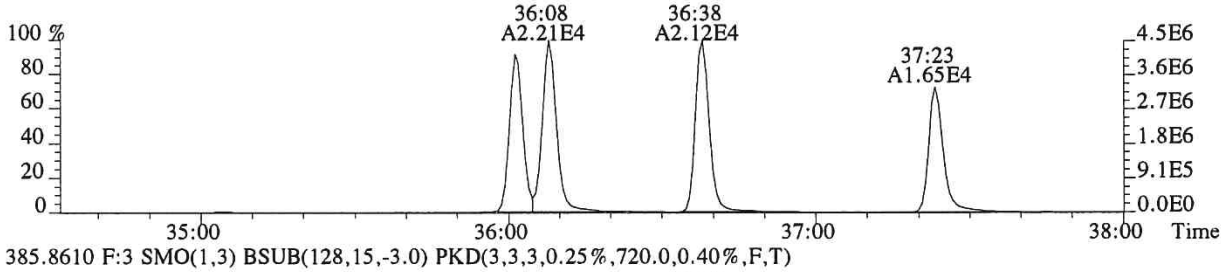
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



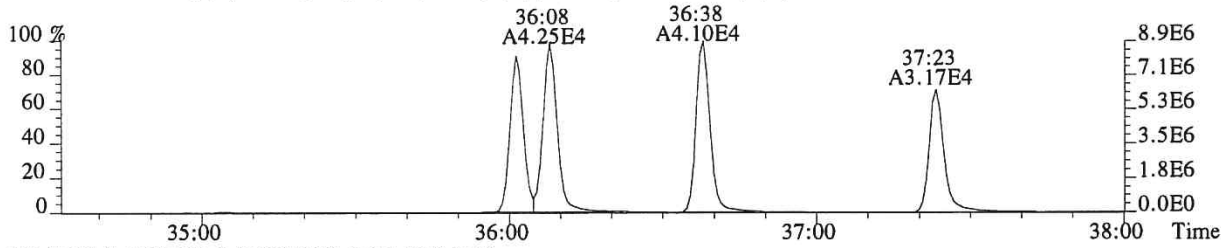
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



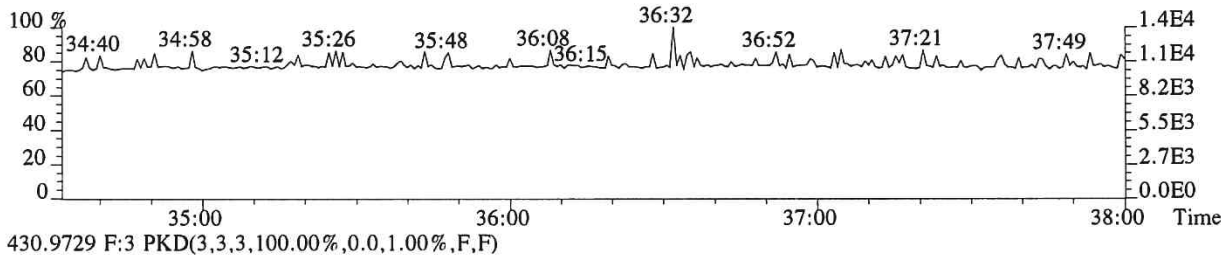
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



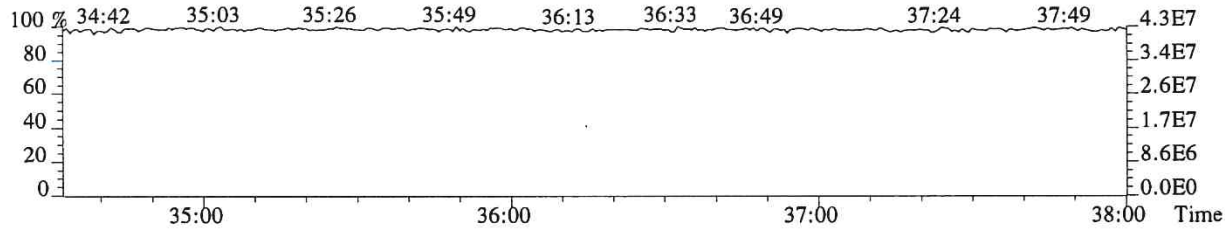
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



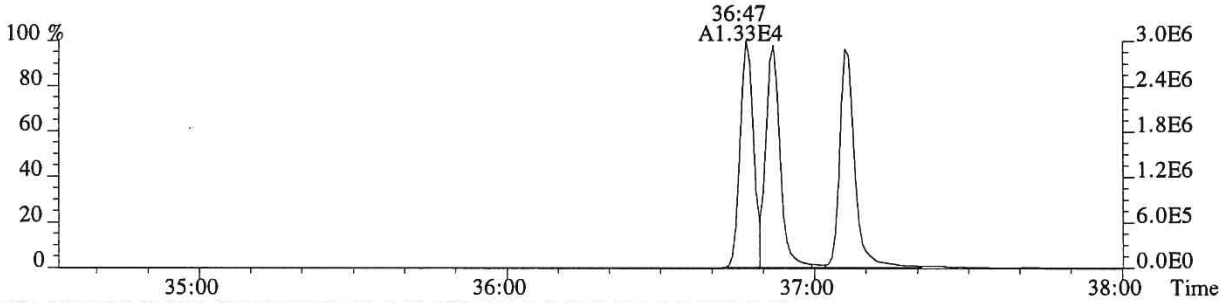
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



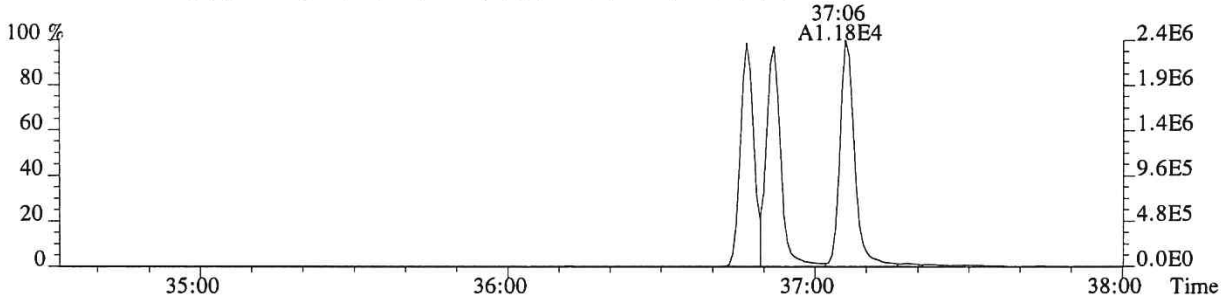
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



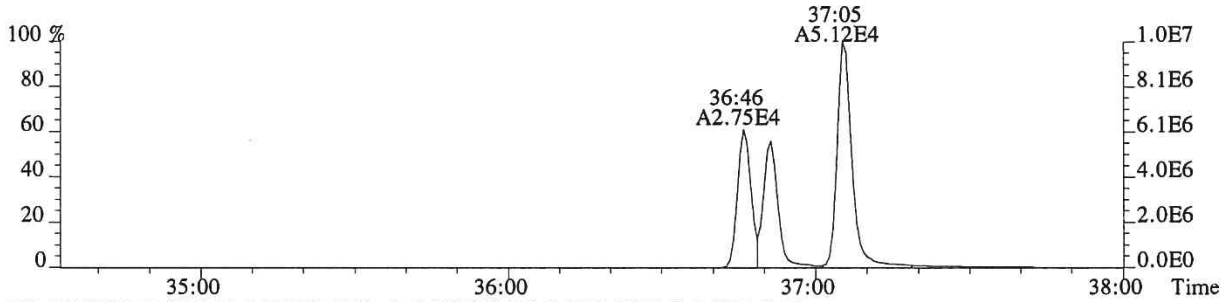
File:P519143 #1-312 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



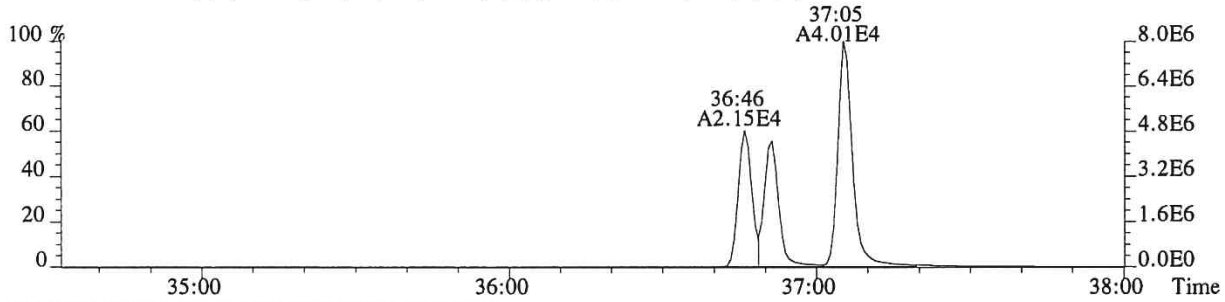
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



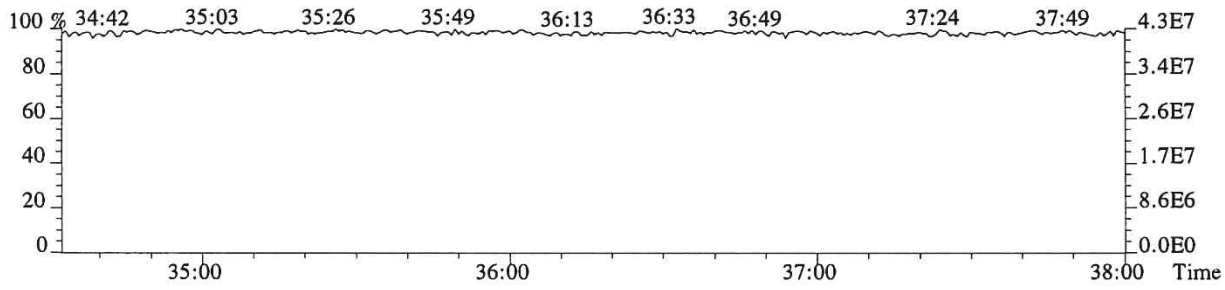
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1696.0,0.40%,F,T)



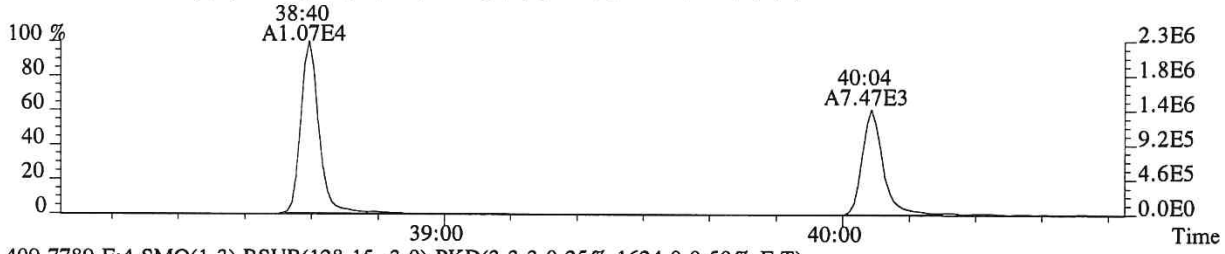
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)



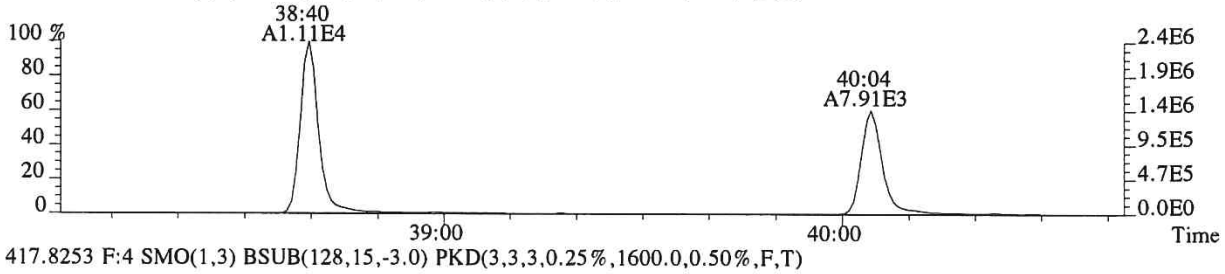
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



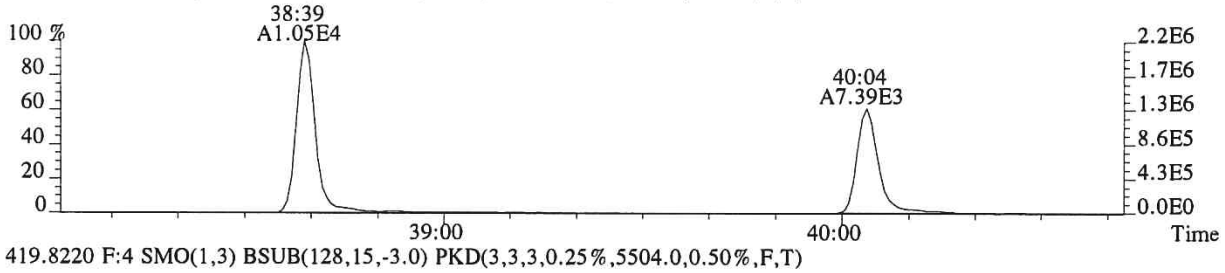
File:P519143 #1-241 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2132.0,0.50%,F,T)



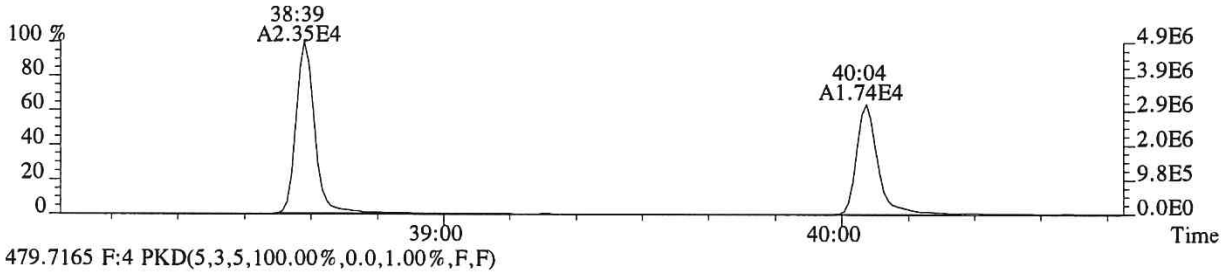
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.50%,F,T)



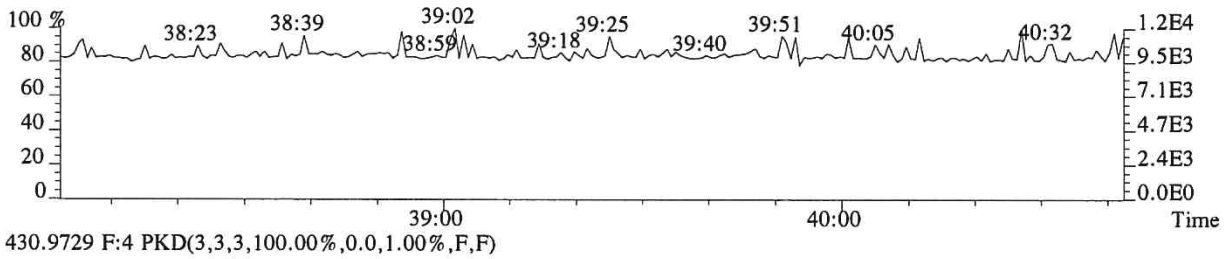
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.50%,F,T)



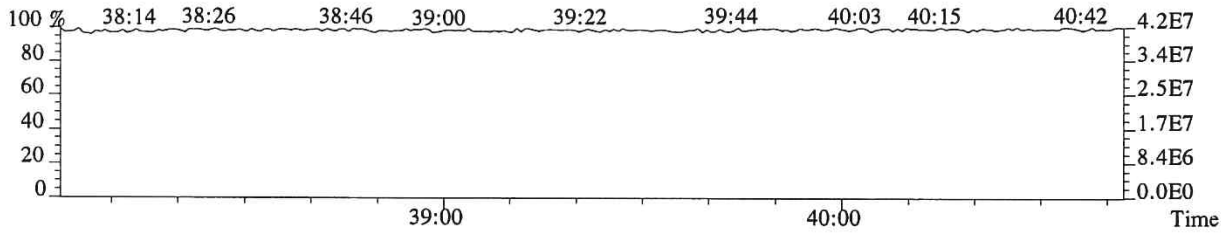
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5504.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

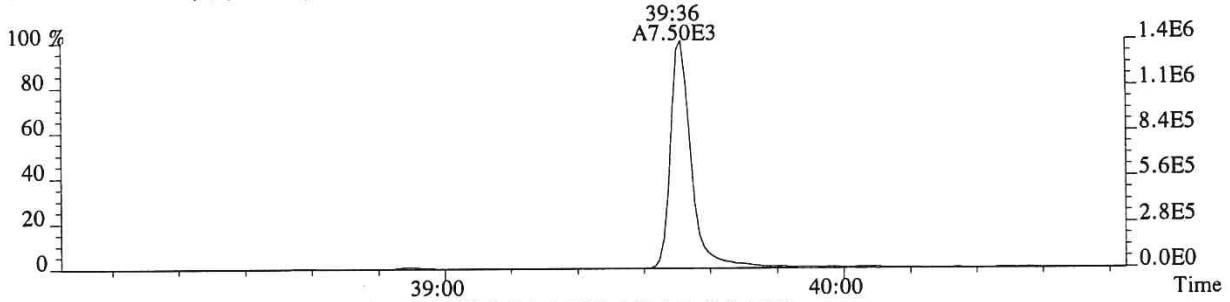


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

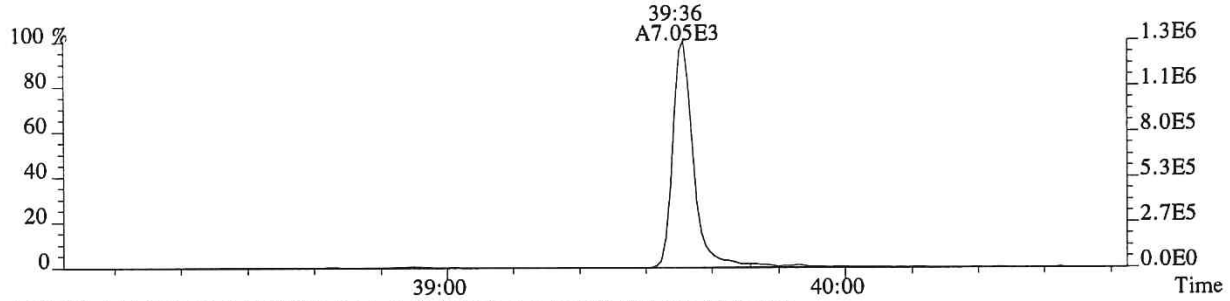


010514

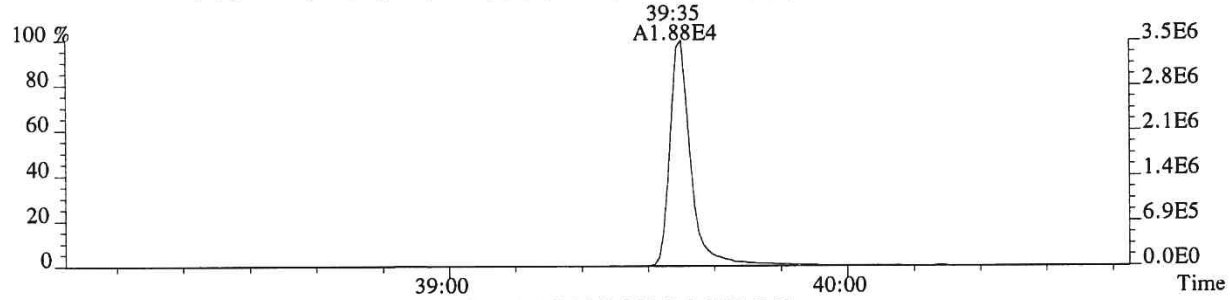
File:P519143 #1-241 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



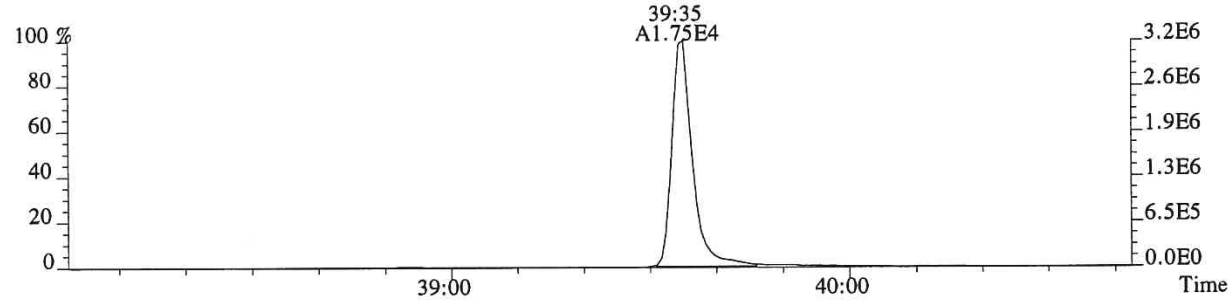
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



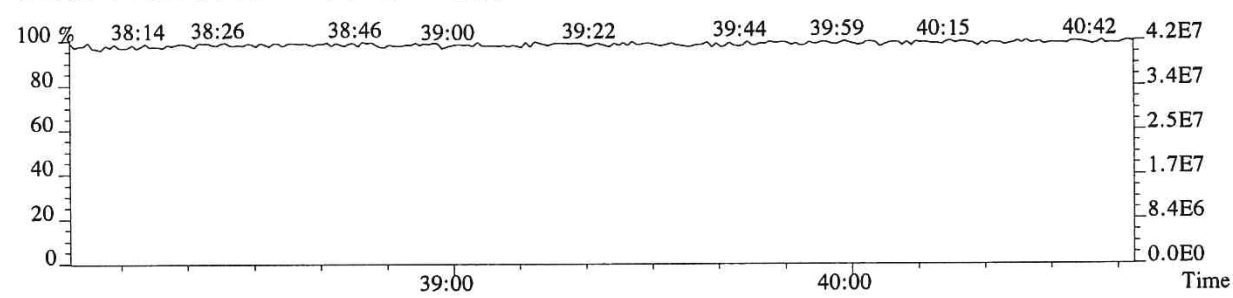
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)

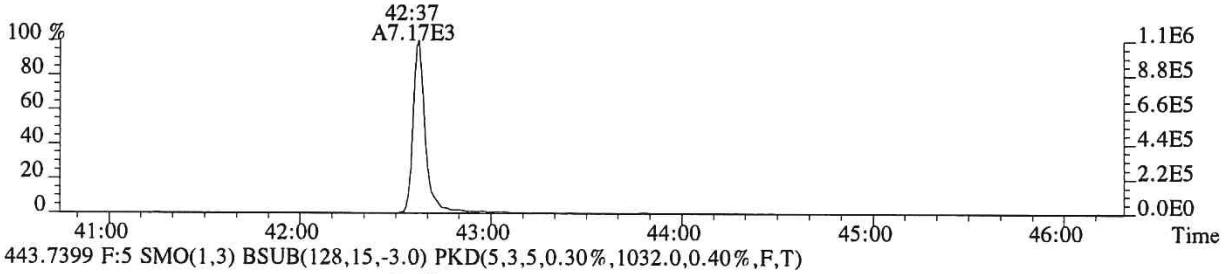


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

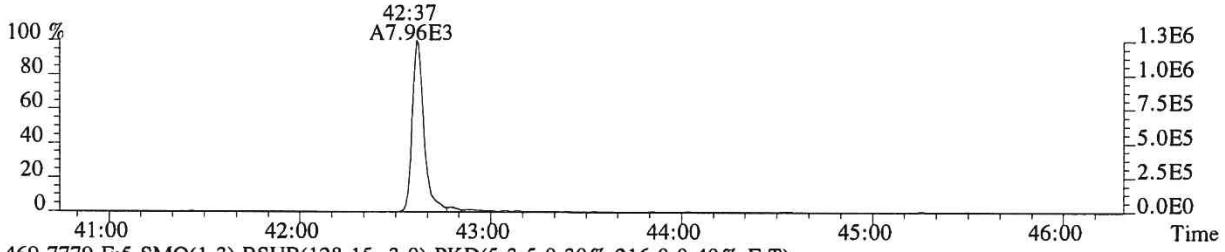


010515

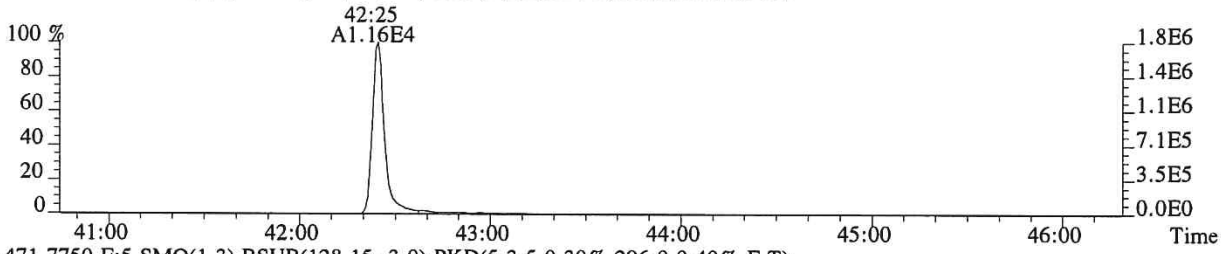
File:P519143 #1-502 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



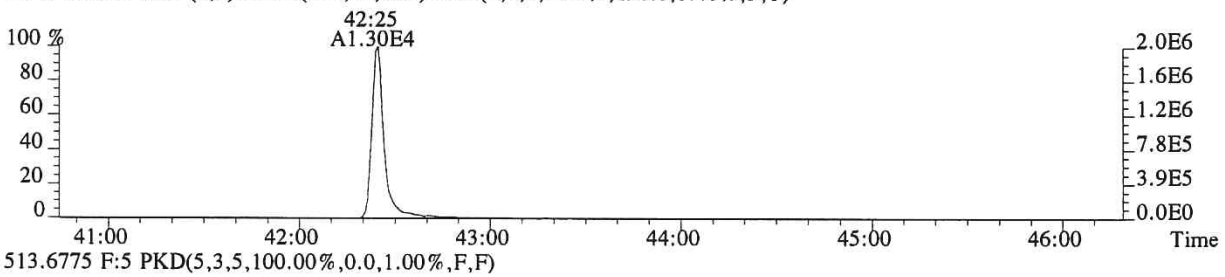
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1032.0,0.40%,F,T)



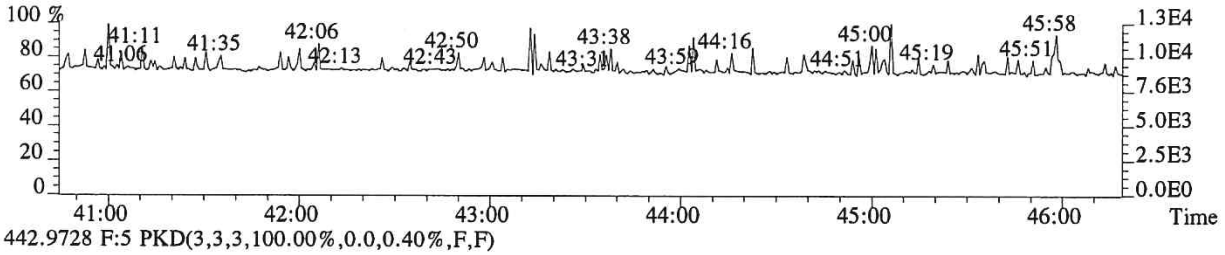
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



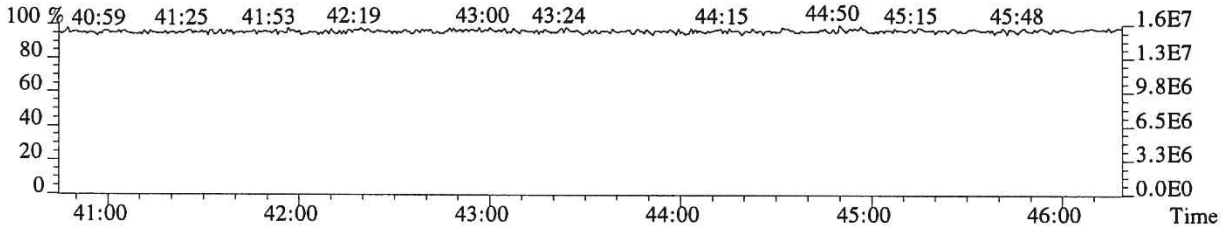
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

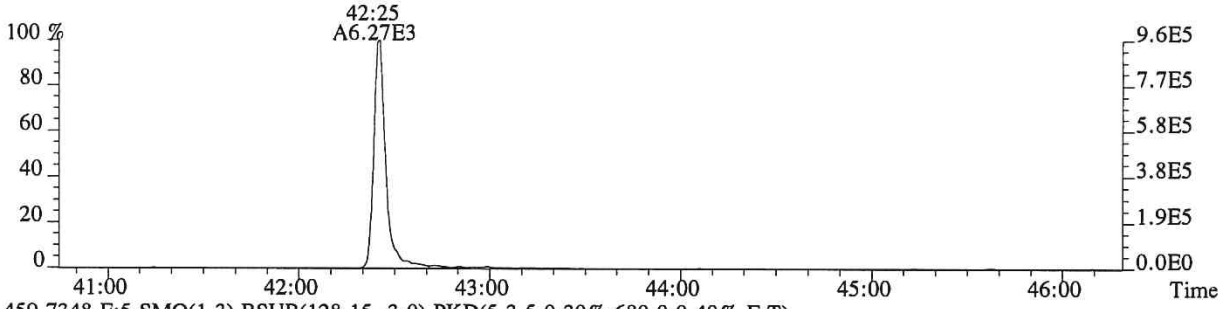


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

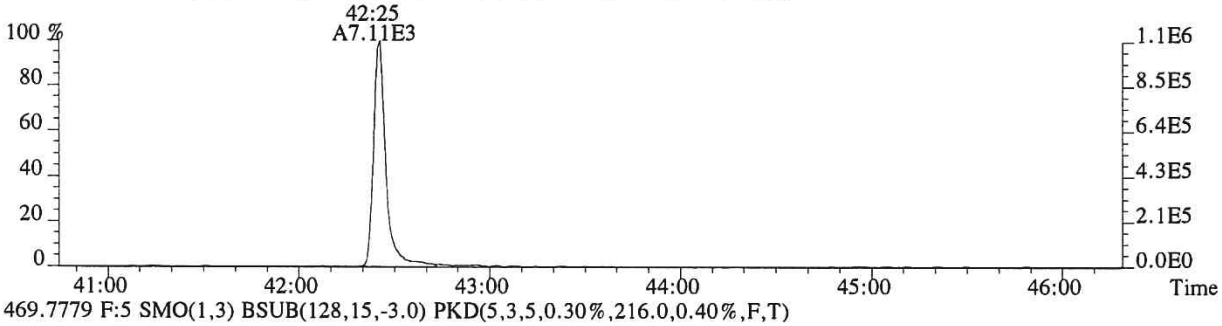


010516

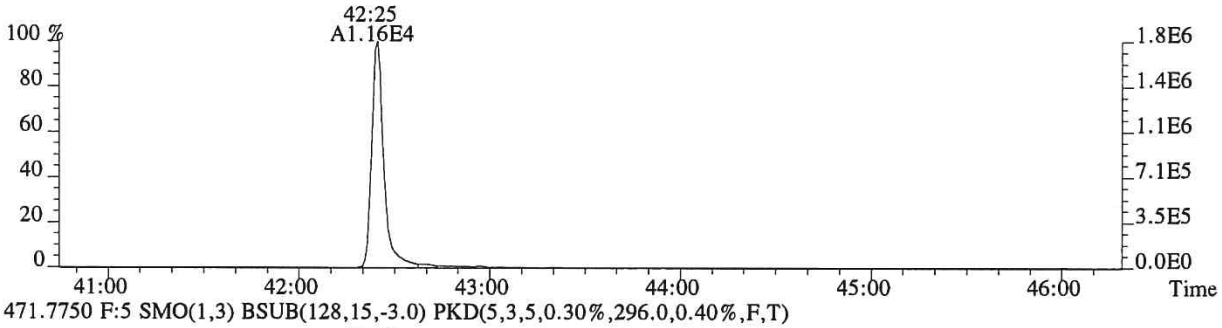
File:P519143 #1-502 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



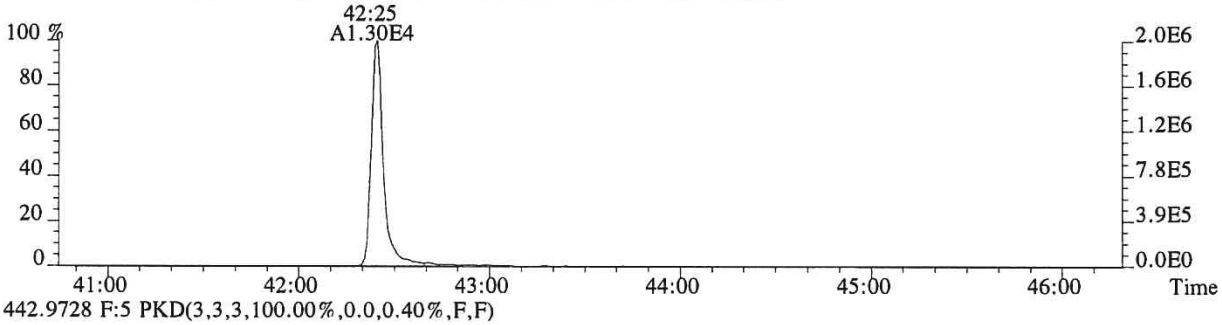
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



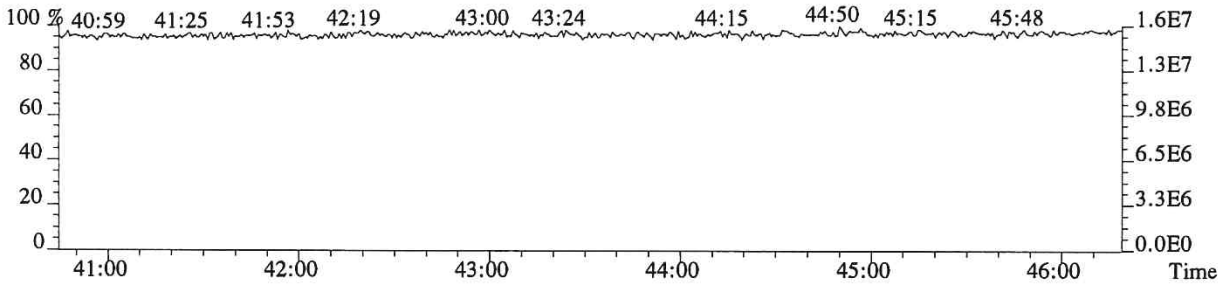
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #19 Filename P519144 Samp: 1 Inj: 1 Acquired: 2-DEC-18 15:05:44
Processed: 3-DEC-18 18:23:50 Sample ID: EQ1800469-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	2.385e+03	3.249e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:28	2.404e+04	1.587e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:22	2.431e+04	1.603e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:03	2.046e+04	1.714e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:09	2.201e+04	1.820e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	2.040e+04	1.677e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:24	1.668e+04	1.376e+04	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	1.427e+04	1.423e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	1.003e+04	1.012e+04	0.99	yes	no	1.258
10	Unk	OCDF	42:38	9.891e+03	1.144e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:03	2.031e+03	2.694e+03	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	1.855e+04	1.168e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	1.477e+04	1.181e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.611e+04	1.296e+04	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:07	1.632e+04	1.274e+04	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	9.608e+03	9.185e+03	1.05	yes	no	1.025
17	Unk	OCDD	42:25	8.572e+03	9.614e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:15	2.722e+04	3.435e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:27	5.183e+04	3.232e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:21	4.907e+04	3.137e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:02	2.149e+04	4.099e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	2.425e+04	4.726e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	2.332e+04	4.558e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.870e+04	3.714e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.316e+04	2.965e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	9.679e+03	2.184e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:02	1.981e+04	2.508e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.885e+04	2.426e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	3.120e+04	2.422e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	3.118e+04	2.454e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	2.351e+04	2.197e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:25	1.608e+04	1.768e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:28	4.411e+04	5.620e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:06	5.036e+04	4.002e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:03	2.096e+04				no	1.014

$$\text{OCDD} = \frac{(8.572e+03 + 9.614e+03) \times 4000 \text{ pg} \times 1}{(1.608e+04 + 1.768e+04) \times \text{g} \times / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #19 Filename P519144 Samp: 1 Inj: 1 Acquired: 2-DEC-18 15:05:44
Processed: 3-DEC-18 18:23:50 LAB. ID: EQ1800469-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.39e+05	6.44e+02	6.8e+02	5.82e+05	1.16e+03	5.0e+02
2	1,2,3,7,8-PeCDF	4.63e+06	6.48e+02	7.1e+03	3.07e+06	1.44e+03	2.1e+03
3	2,3,4,7,8-PeCDF	4.82e+06	6.48e+02	7.4e+03	3.17e+06	1.44e+03	2.2e+03
4	1,2,3,4,7,8-HxCDF	4.32e+06	3.84e+02	1.1e+04	3.65e+06	3.00e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	4.50e+06	3.84e+02	1.2e+04	3.75e+06	3.00e+02	1.2e+04
6	2,3,4,6,7,8-HxCDF	4.39e+06	3.84e+02	1.1e+04	3.66e+06	3.00e+02	1.2e+04
7	1,2,3,7,8,9-HxCDF	3.34e+06	3.84e+02	8.7e+03	2.75e+06	3.00e+02	9.2e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+06	1.60e+03	1.9e+03	2.95e+06	3.08e+03	9.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.87e+06	1.60e+03	1.2e+03	1.91e+06	3.08e+03	6.2e+02
10	OCDF	1.51e+06	4.28e+02	3.5e+03	1.80e+06	6.92e+02	2.6e+03
11	2,3,7,8-TCDD	4.02e+05	1.75e+03	2.3e+02	5.19e+05	8.68e+02	6.0e+02
12	1,2,3,7,8-PeCDD	3.63e+06	7.68e+02	4.7e+03	2.29e+06	2.44e+02	9.4e+03
13	1,2,3,4,7,8-HxCDD	3.30e+06	4.84e+02	6.8e+03	2.62e+06	5.40e+02	4.9e+03
14	1,2,3,6,7,8-HxCDD	3.29e+06	4.84e+02	6.8e+03	2.64e+06	5.40e+02	4.9e+03
15	1,2,3,7,8,9-HxCDD	3.22e+06	4.84e+02	6.6e+03	2.62e+06	5.40e+02	4.9e+03
16	1,2,3,4,6,7,8-HpCDD	1.87e+06	5.08e+02	3.7e+03	1.81e+06	4.64e+02	3.9e+03
17	OCDD	1.37e+06	3.40e+02	4.0e+03	1.50e+06	5.60e+02	2.7e+03
18	13C-2,3,7,8-TCDF	4.93e+06	5.69e+03	8.7e+02	6.19e+06	3.28e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	9.68e+06	3.40e+02	2.8e+04	5.99e+06	6.80e+02	8.8e+03
20	13C-2,3,4,7,8-PeCDF	9.51e+06	3.40e+02	2.8e+04	5.99e+06	6.80e+02	8.8e+03
21	13C-1,2,3,4,7,8-HxCDF	4.57e+06	6.04e+02	7.6e+03	8.70e+06	9.80e+02	8.9e+03
22	13C-1,2,3,6,7,8-HxCDF	4.93e+06	6.04e+02	8.2e+03	9.49e+06	9.80e+02	9.7e+03
23	13C-2,3,4,6,7,8-HxCDF	4.96e+06	6.04e+02	8.2e+03	9.91e+06	9.80e+02	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	3.80e+06	6.04e+02	6.3e+03	7.54e+06	9.80e+02	7.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.75e+06	1.65e+03	1.7e+03	6.25e+06	2.98e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.81e+06	1.65e+03	1.1e+03	4.06e+06	2.98e+03	1.4e+03
27	13C-2,3,7,8-TCDD	3.82e+06	4.67e+03	8.2e+02	4.84e+06	2.28e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	7.56e+06	5.96e+02	1.3e+04	4.76e+06	6.24e+02	7.6e+03
29	13C-1,2,3,4,7,8-HxCDD	6.91e+06	1.18e+03	5.9e+03	5.40e+06	6.56e+02	8.2e+03
30	13C-1,2,3,6,7,8-HxCDD	6.33e+06	1.18e+03	5.4e+03	5.05e+06	6.56e+02	7.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.67e+06	4.60e+02	1.0e+04	4.27e+06	3.32e+02	1.3e+04
32	13C-OCDD	2.48e+06	6.04e+02	4.1e+03	2.78e+06	2.88e+02	9.7e+03
33	13C-1,2,3,4-TCDD	8.63e+06	4.67e+03	1.8e+03	1.09e+07	2.28e+03	4.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.05e+07	1.18e+03	8.9e+03	8.26e+06	6.56e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	4.08e+06	1.62e+03	2.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.748e+03 + 8.680e+02) \times 2000}{(3.822e+06 + 4.841e+06) \times (\quad) \times 1.085} =$$

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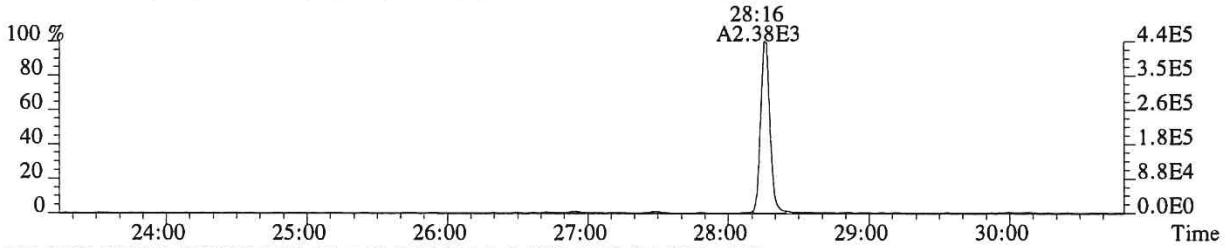
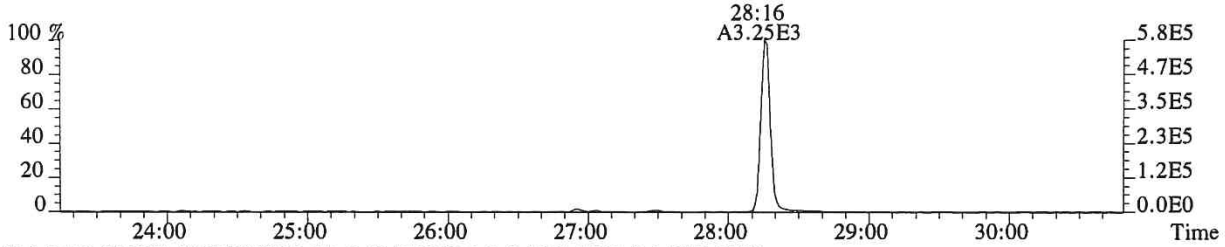
File:P519144 #1-538 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03

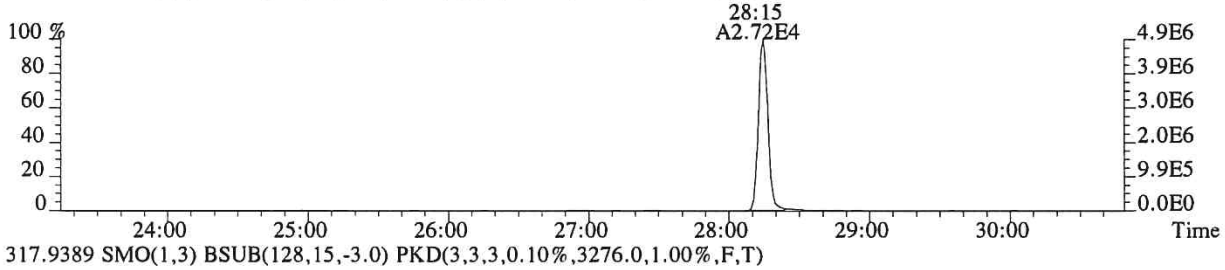
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



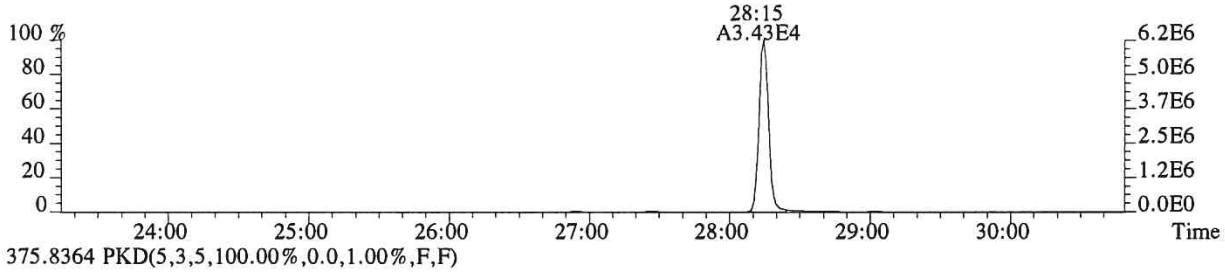
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



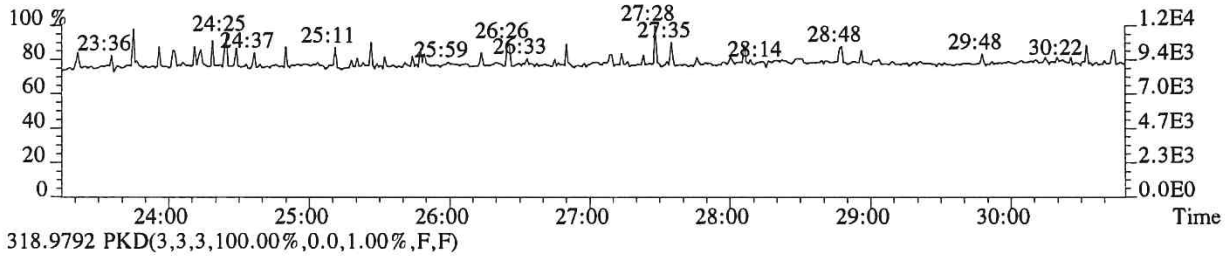
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5692.0,1.00%,F,T)



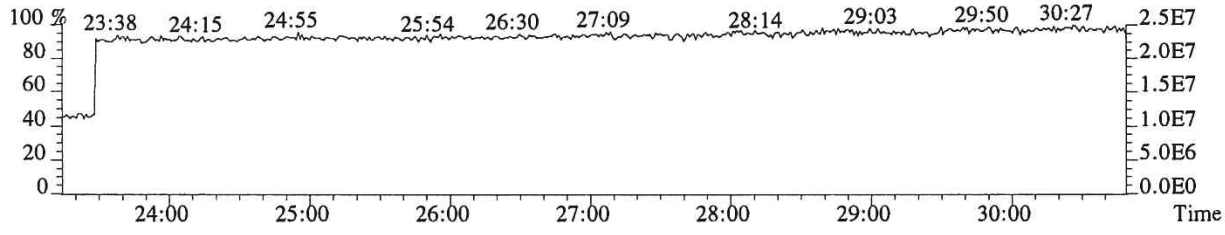
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3276.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

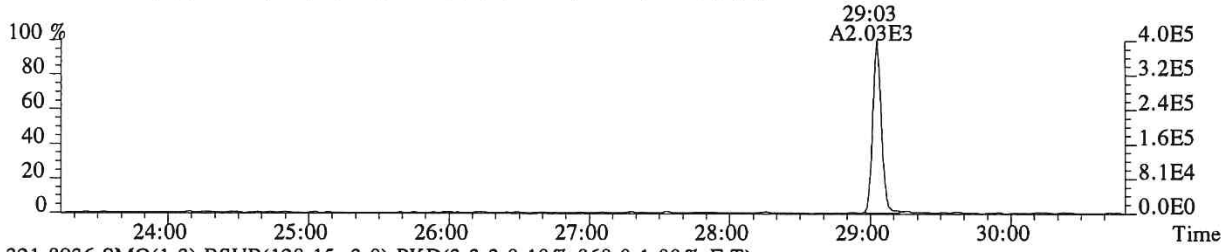


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

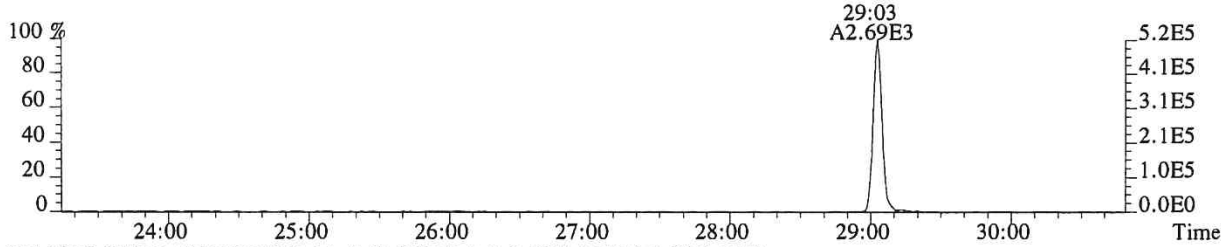


010520

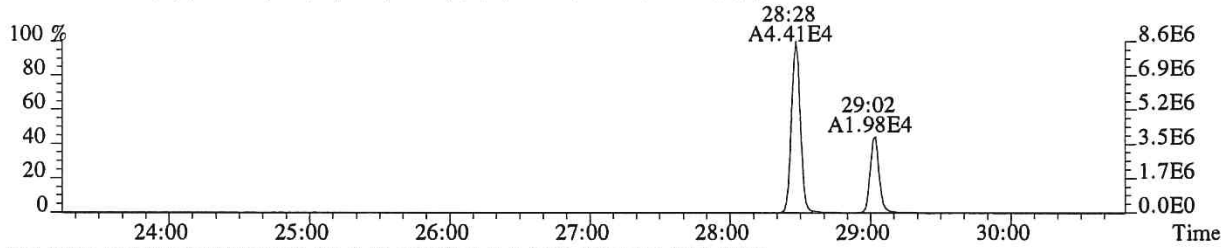
File:P519144 #1-538 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1748.0,1.00%,F,T)



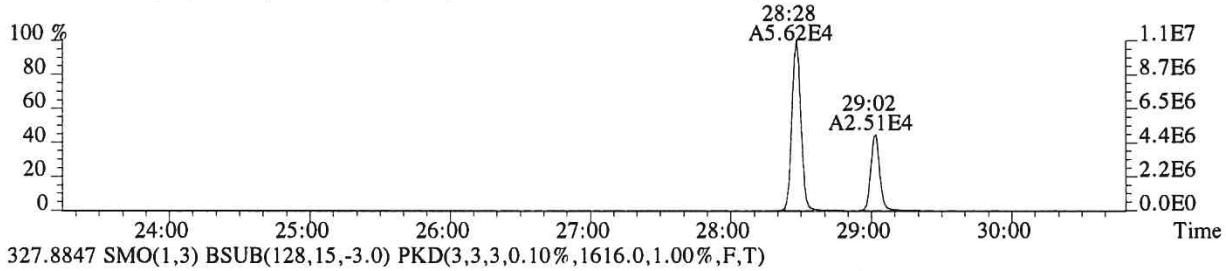
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



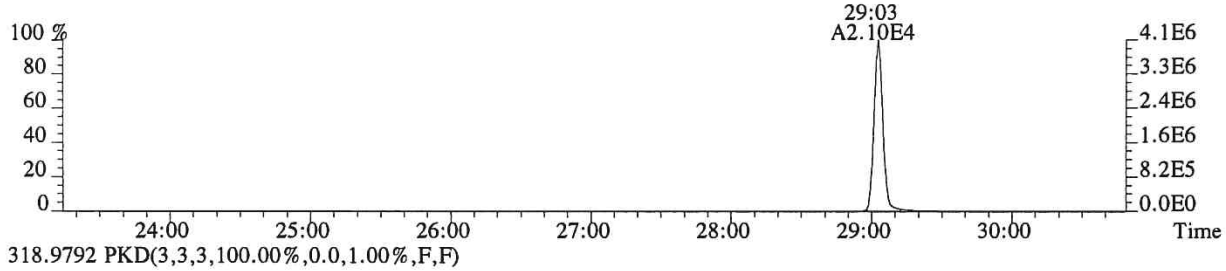
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



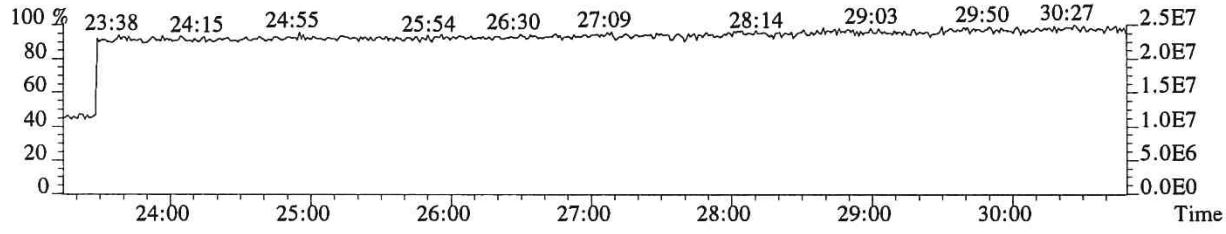
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1616.0,1.00%,F,T)

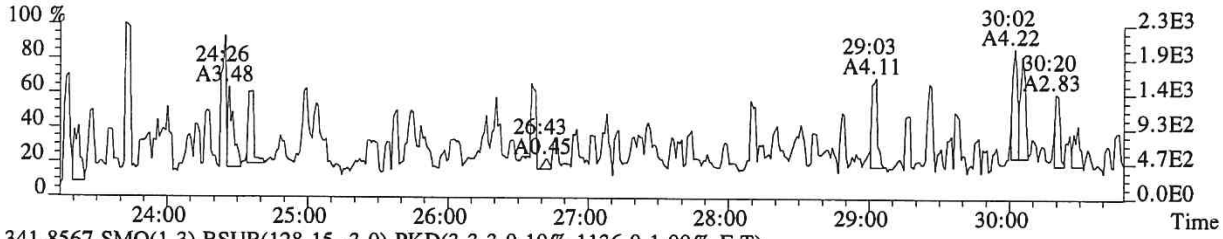


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

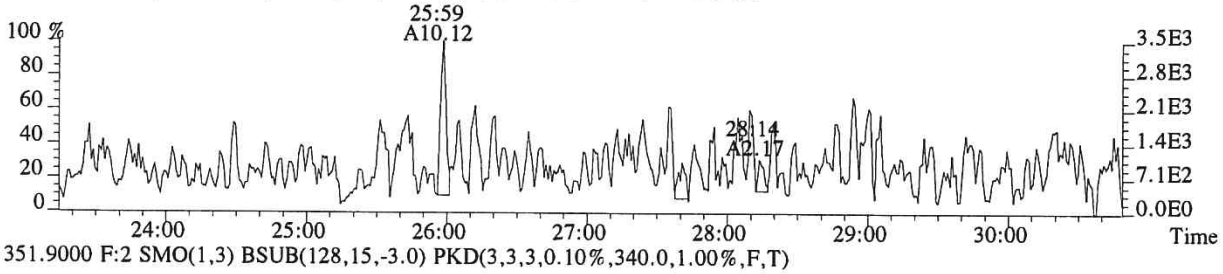


010521

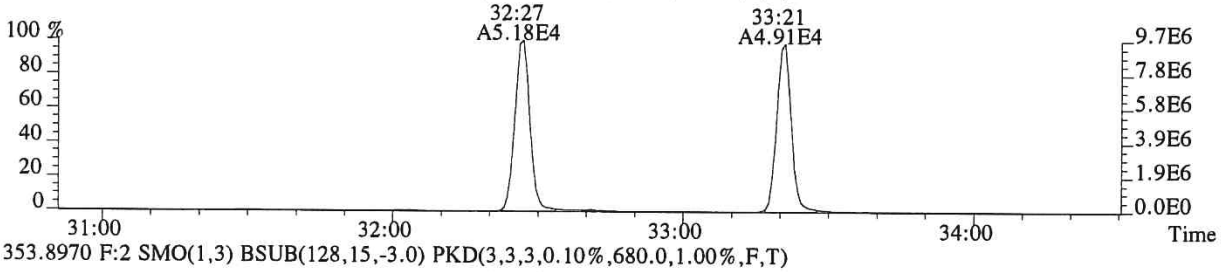
File:P519144 #1-538 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



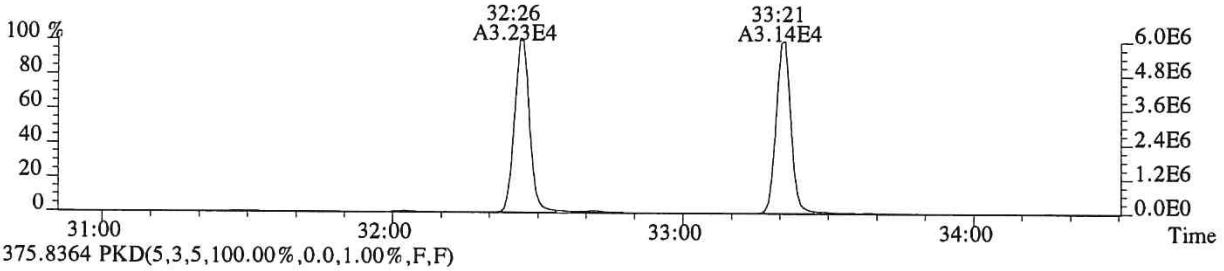
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



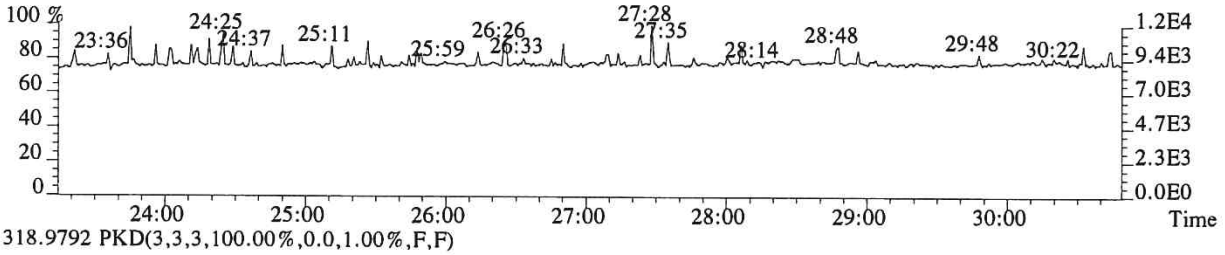
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



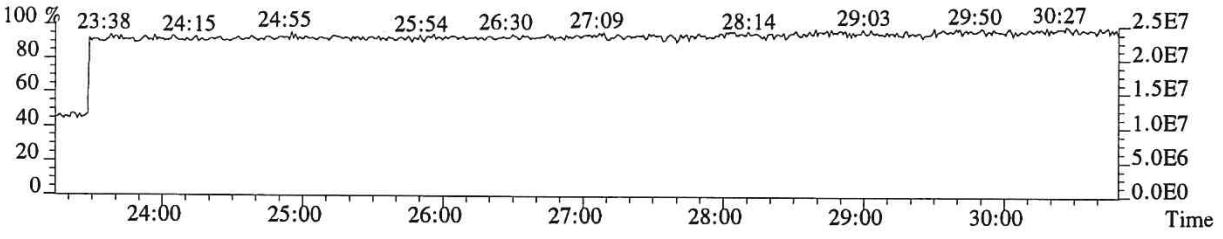
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

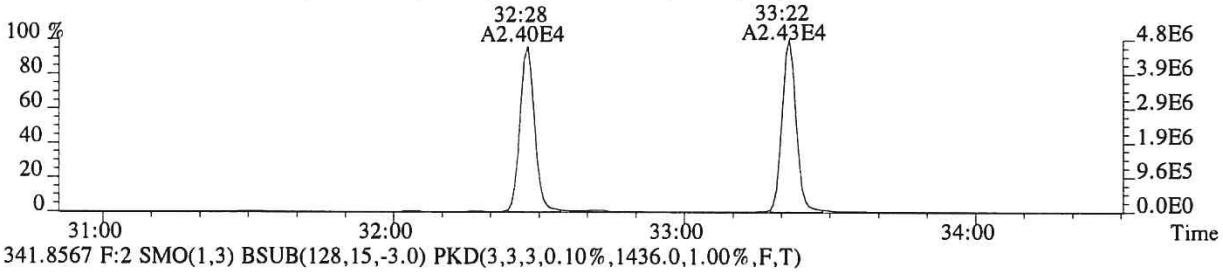


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

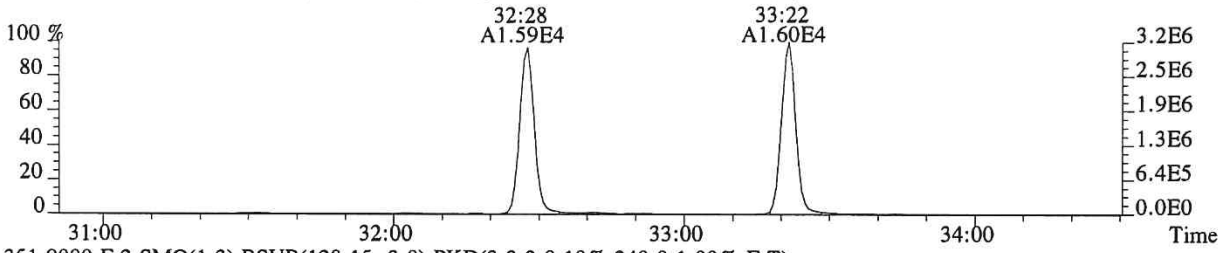


010522

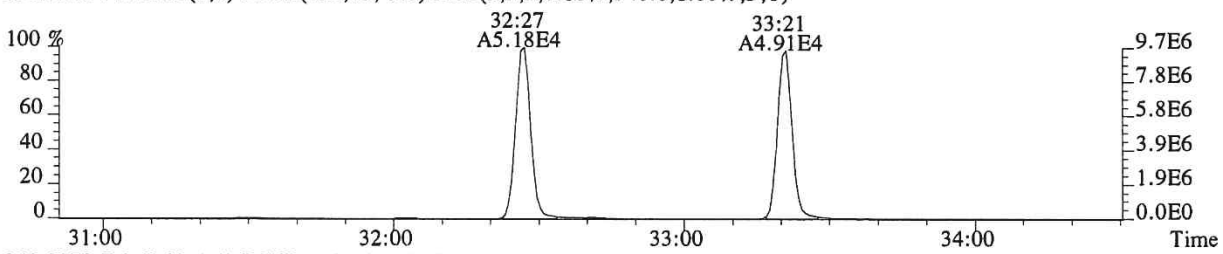
File:P519144 #1-330 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



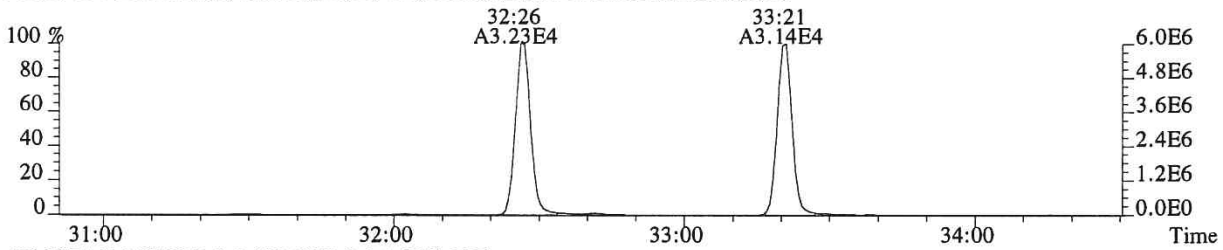
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



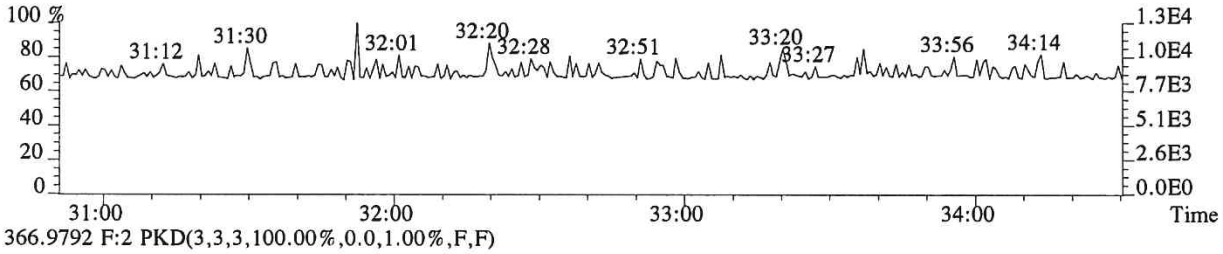
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



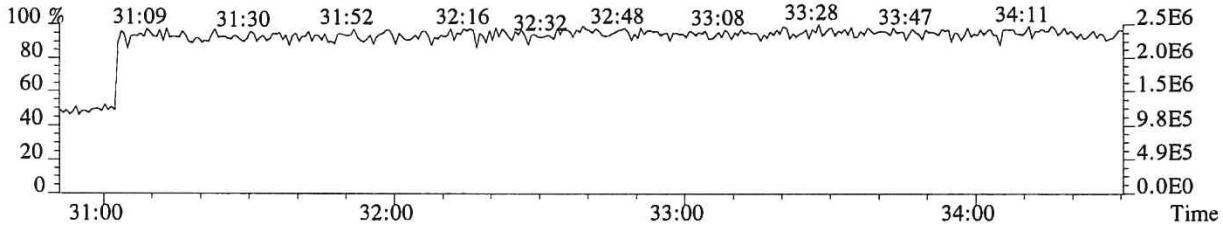
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

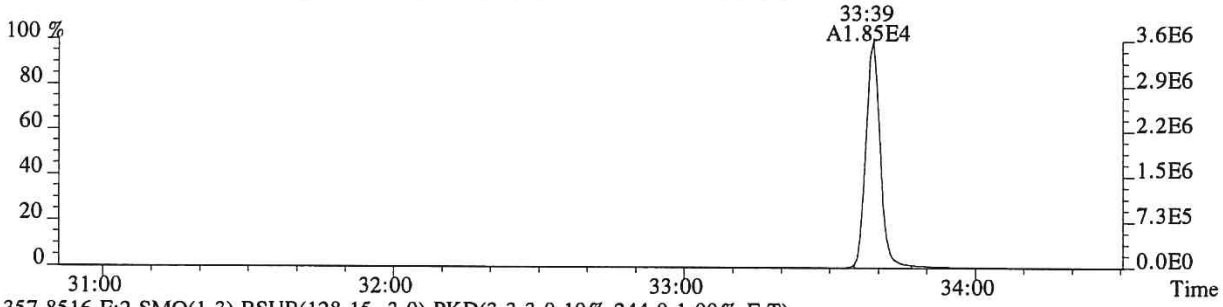


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

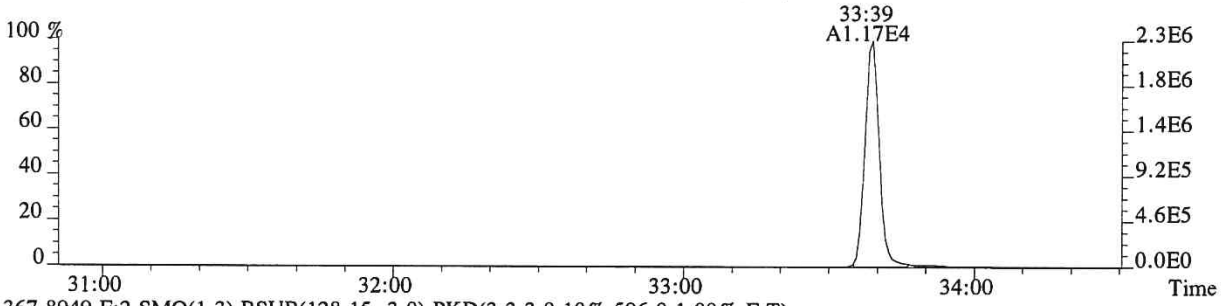


010523

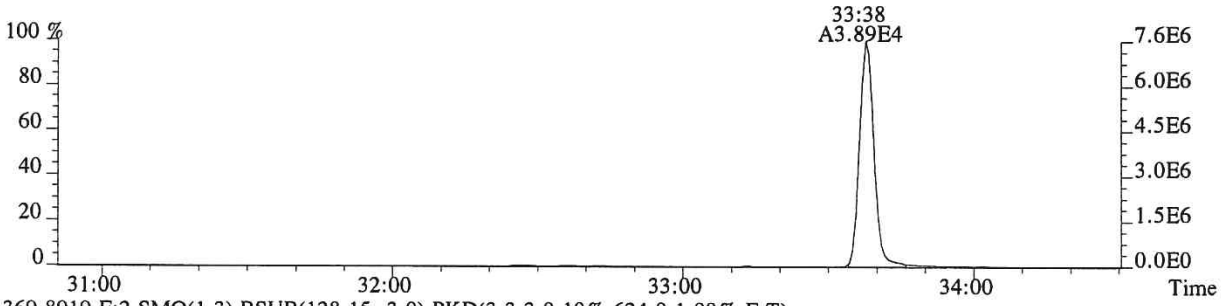
File:P519144 #1-330 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



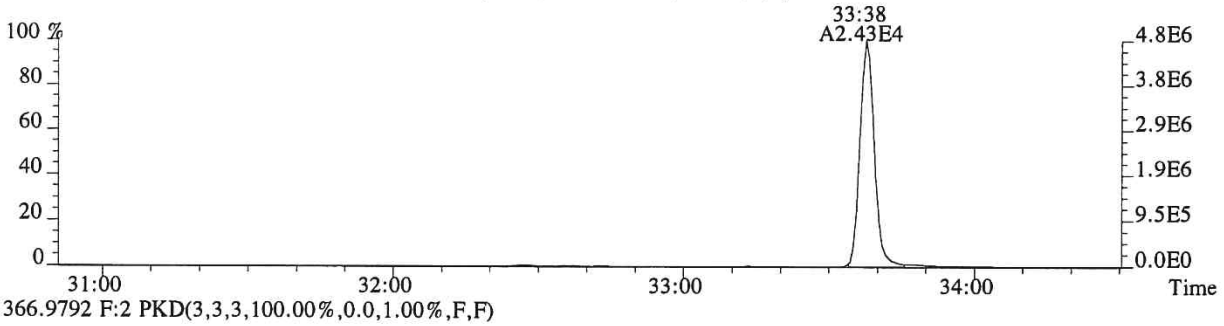
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



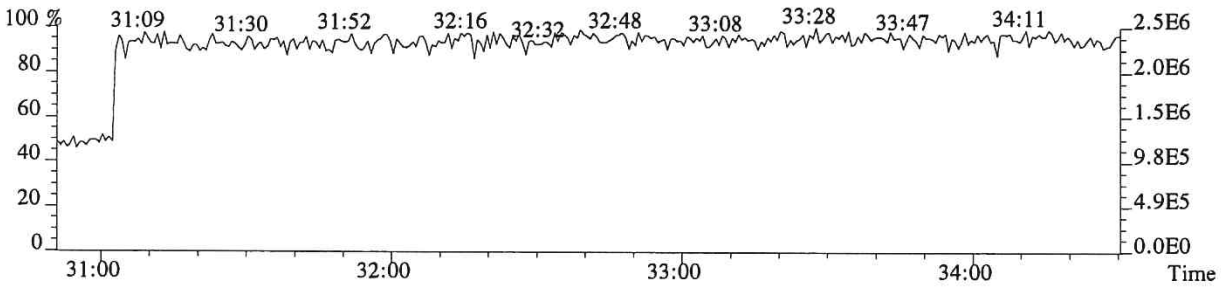
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)

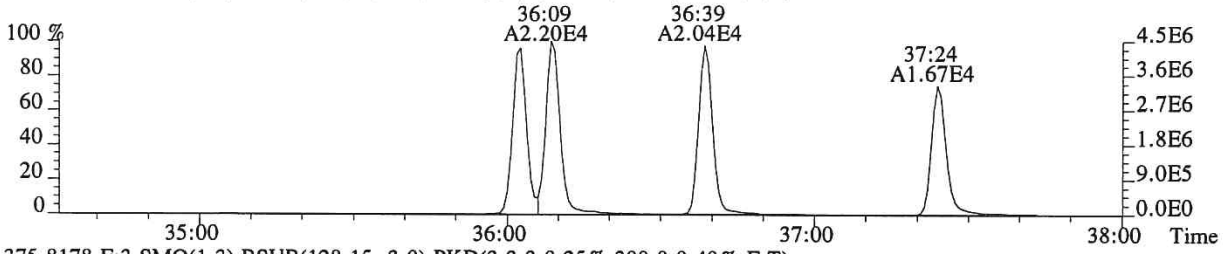


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

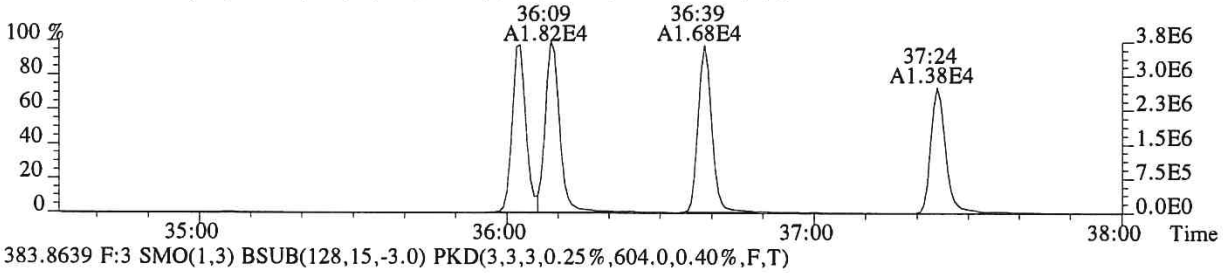


File:P519144 #1-312 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03

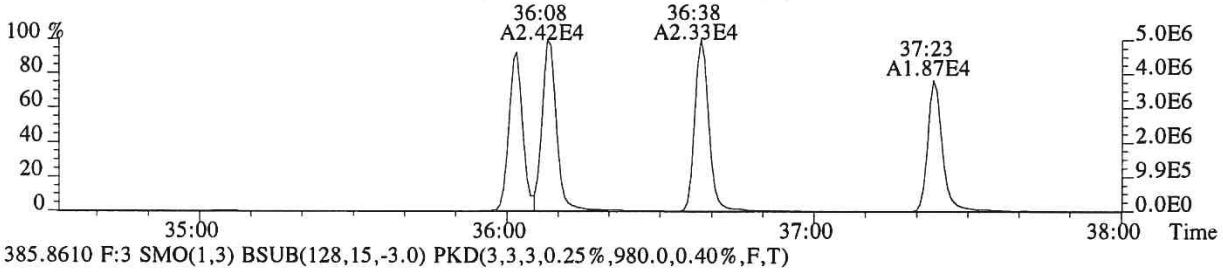
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



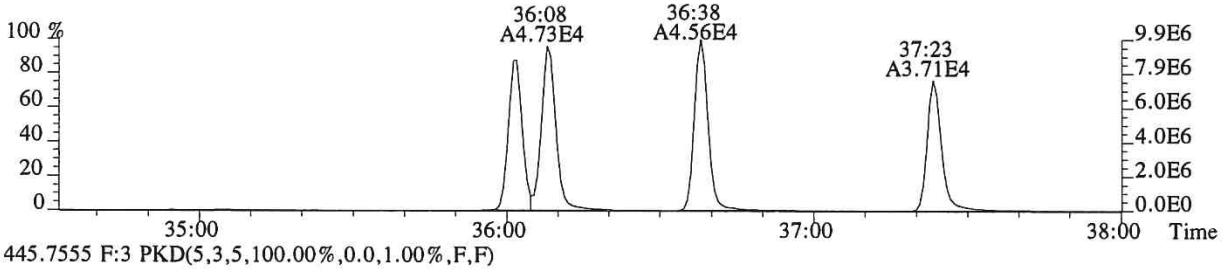
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



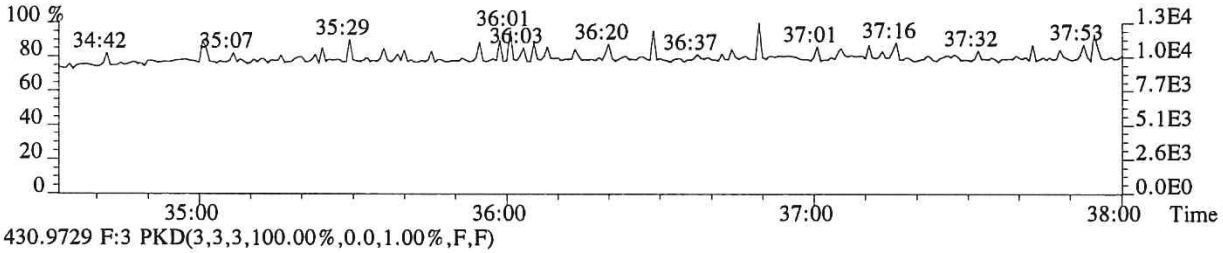
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



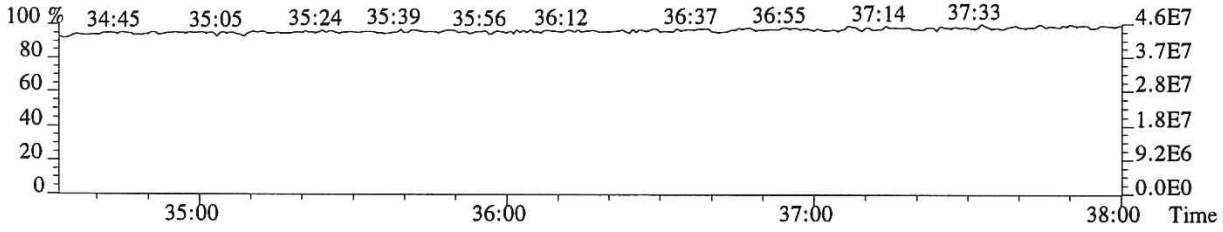
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

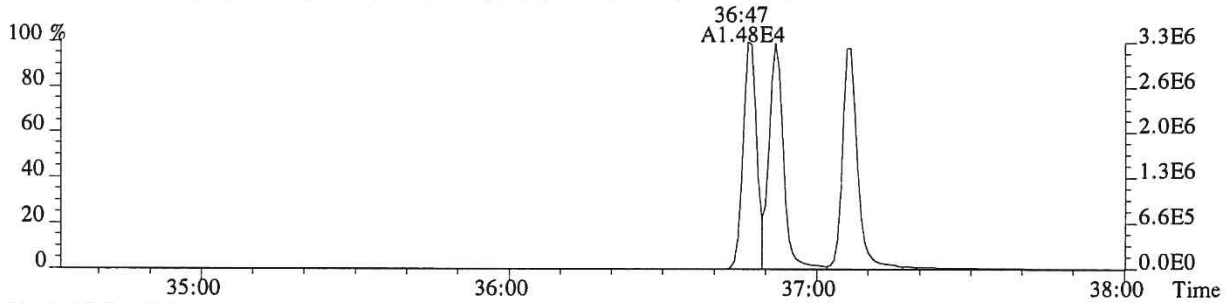


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

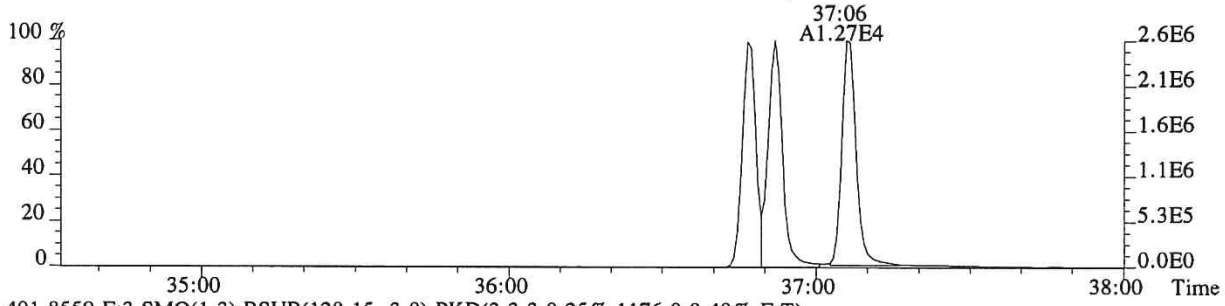


010525

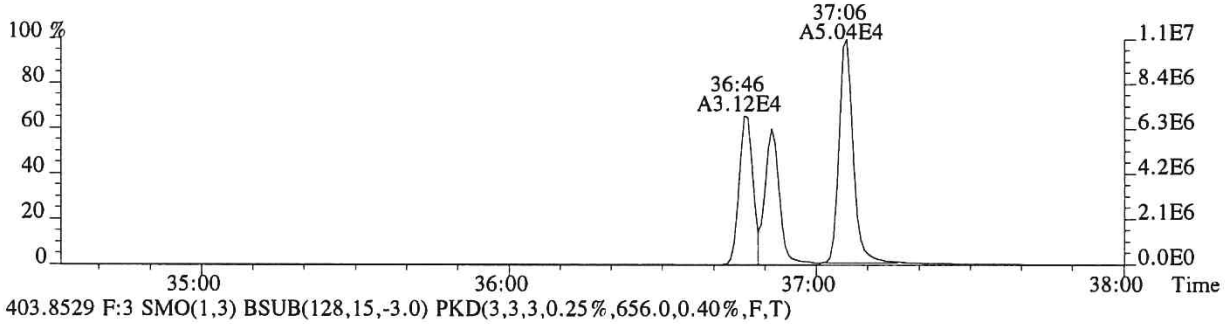
File:P519144 #1-312 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



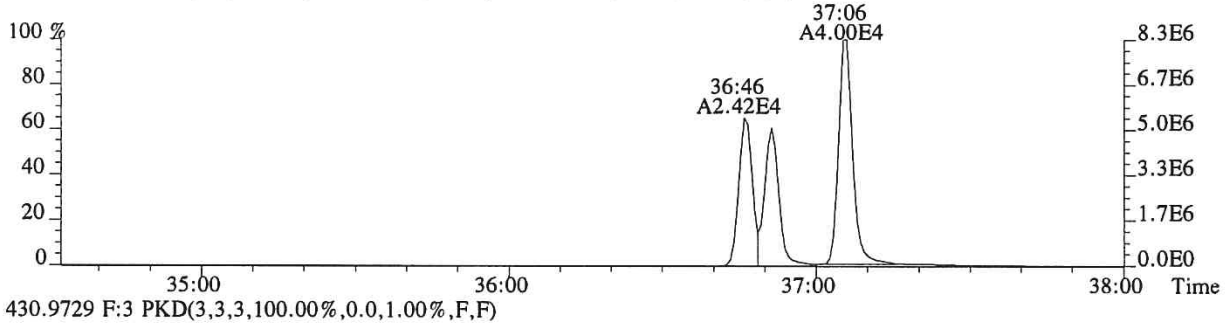
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



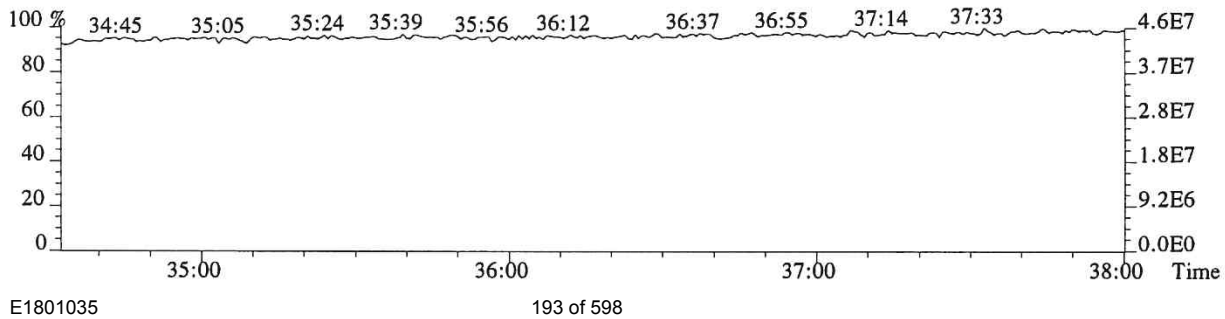
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)

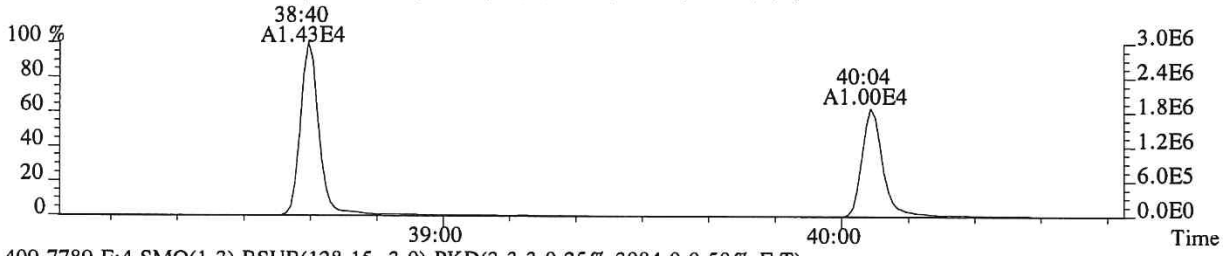


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

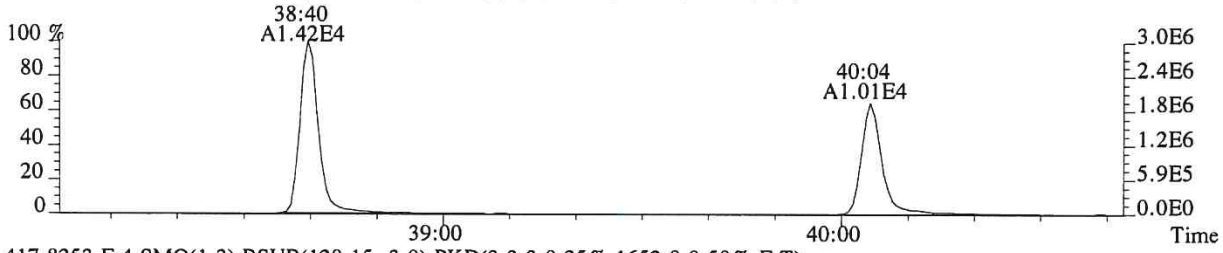


File:P519144 #1-241 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03

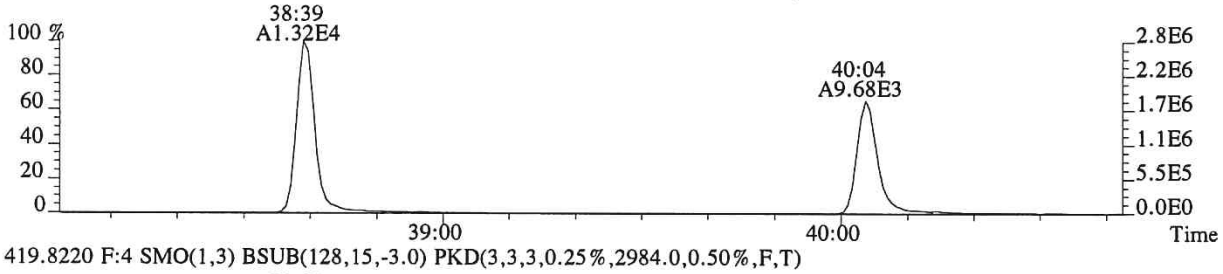
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.50%,F,T)



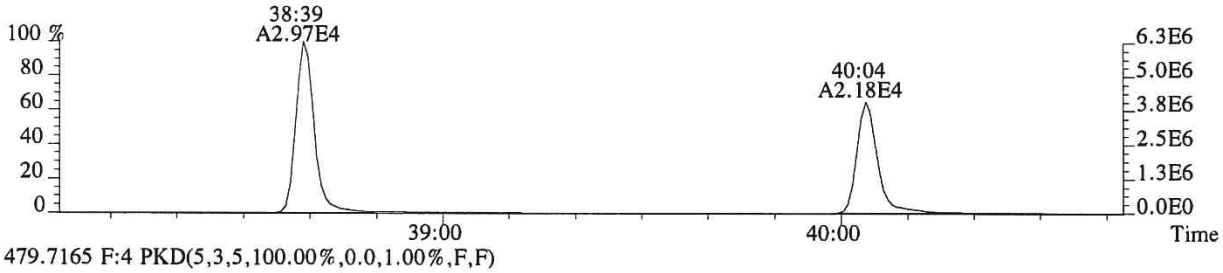
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.50%,F,T)



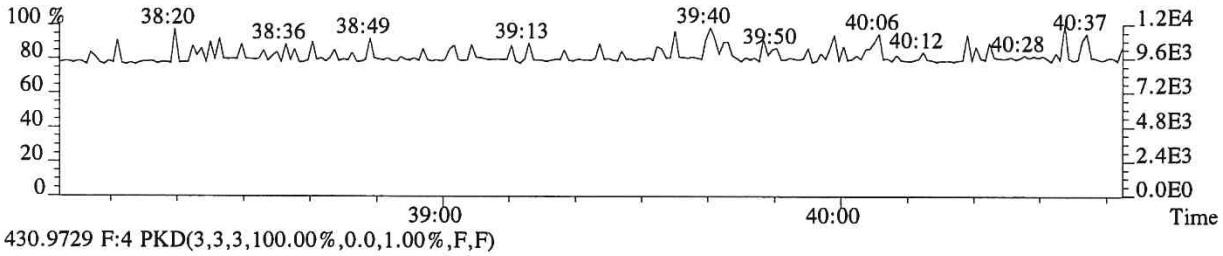
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.50%,F,T)



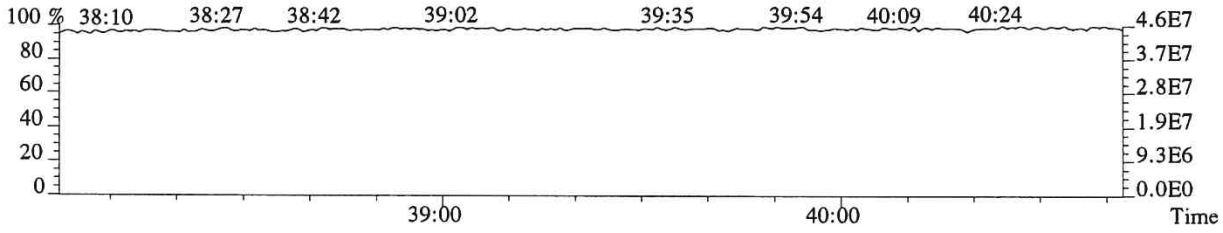
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

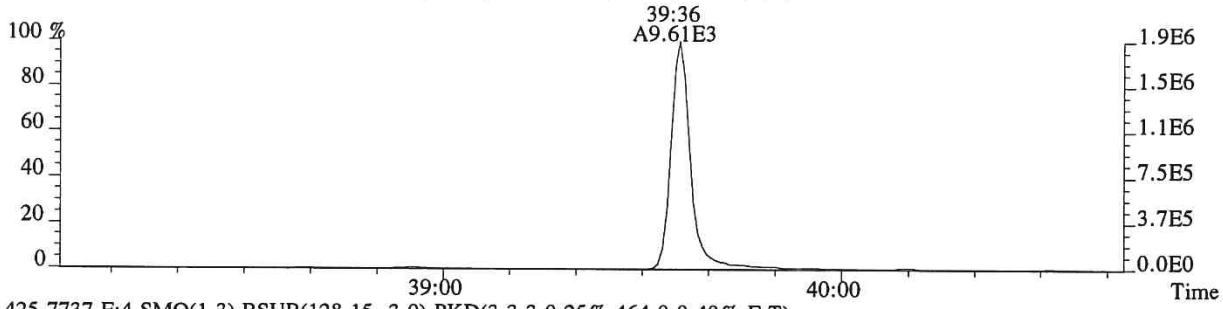


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

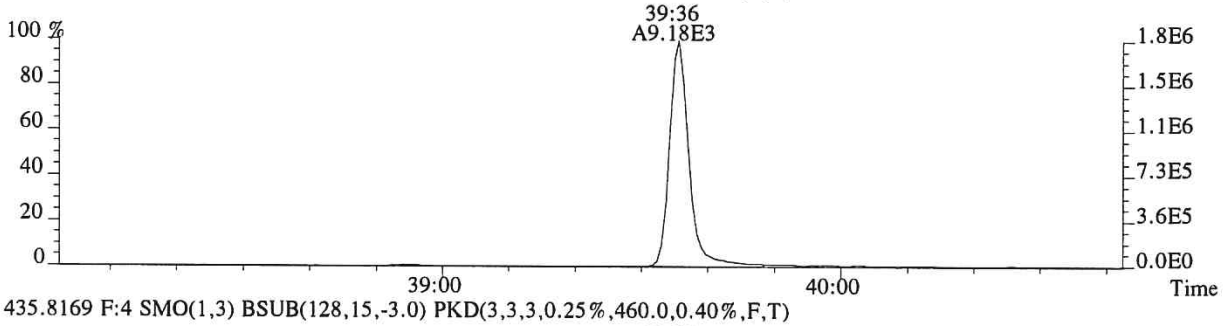


010527

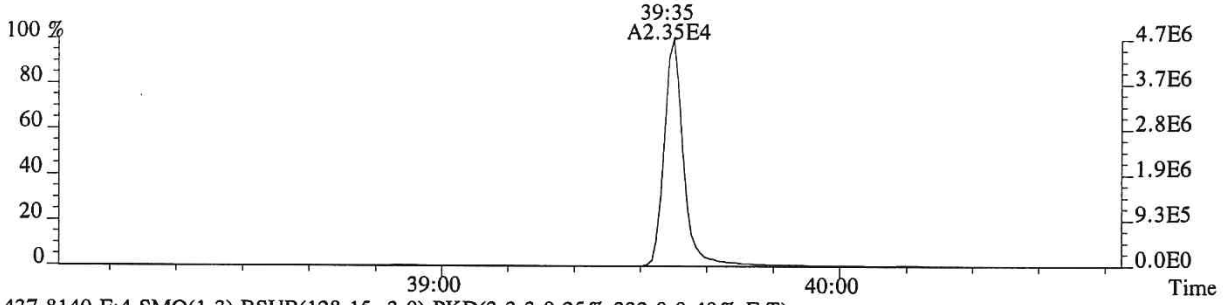
File:P519144 #1-241 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



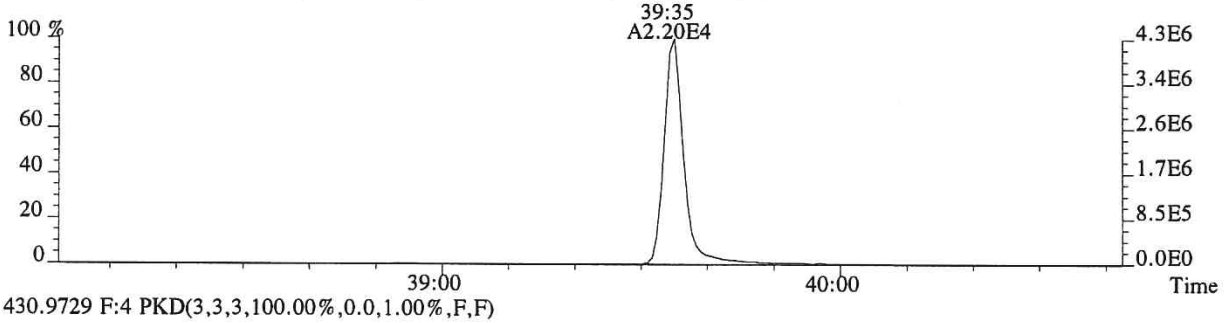
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



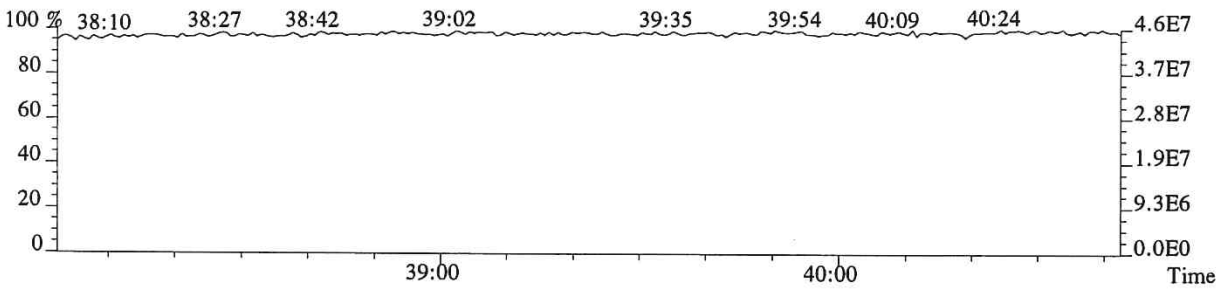
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)

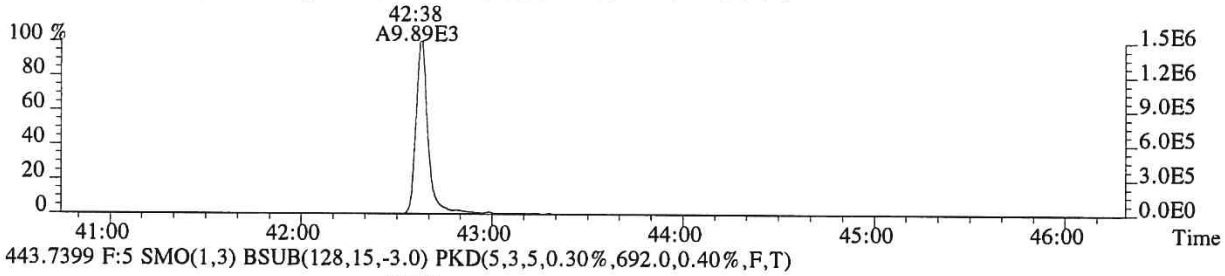


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

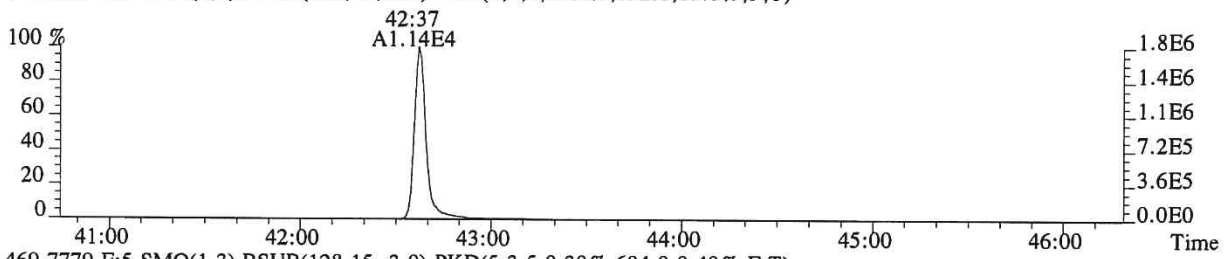


010528

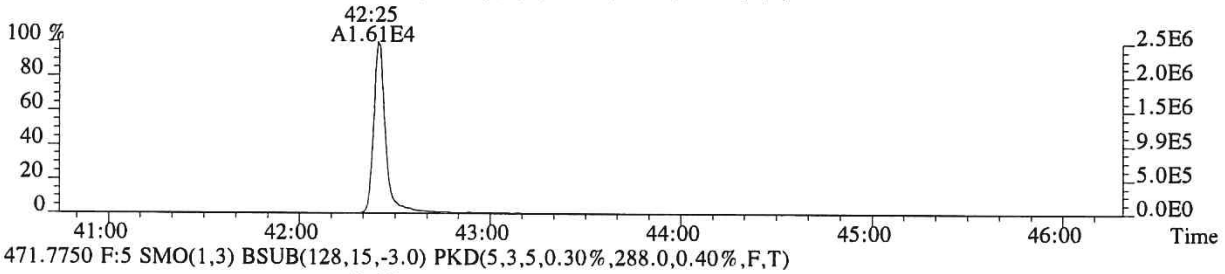
File:P519144 #1-502 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



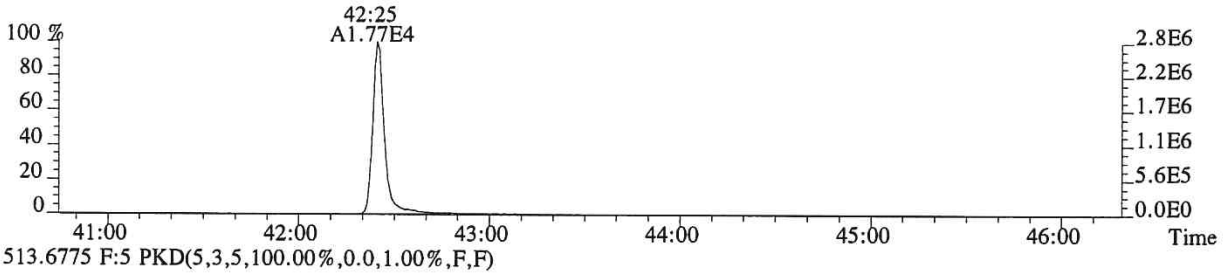
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



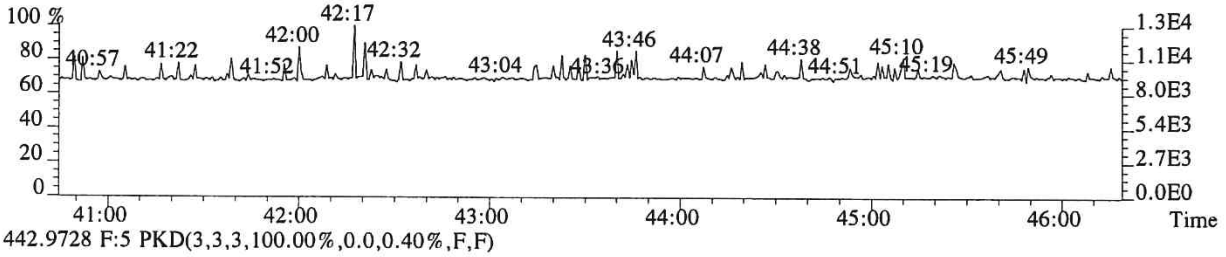
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



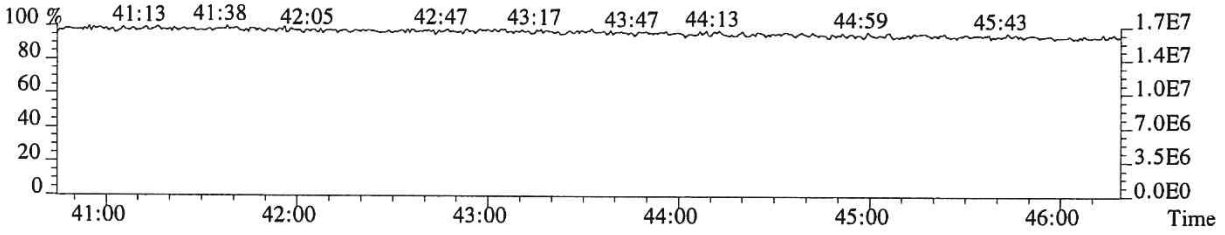
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

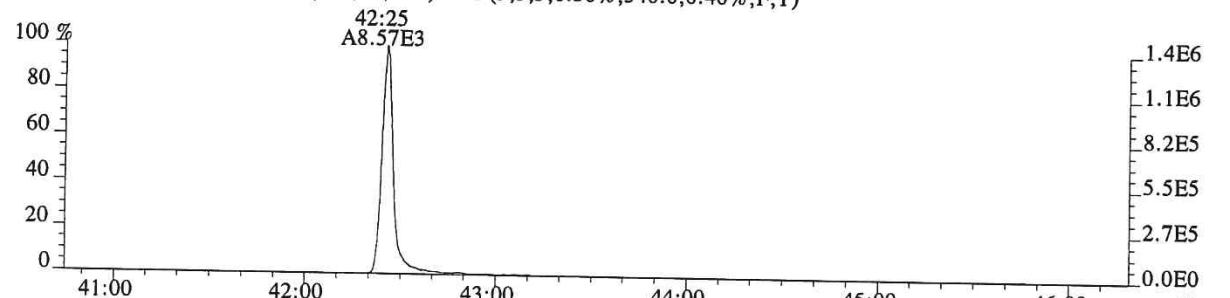


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

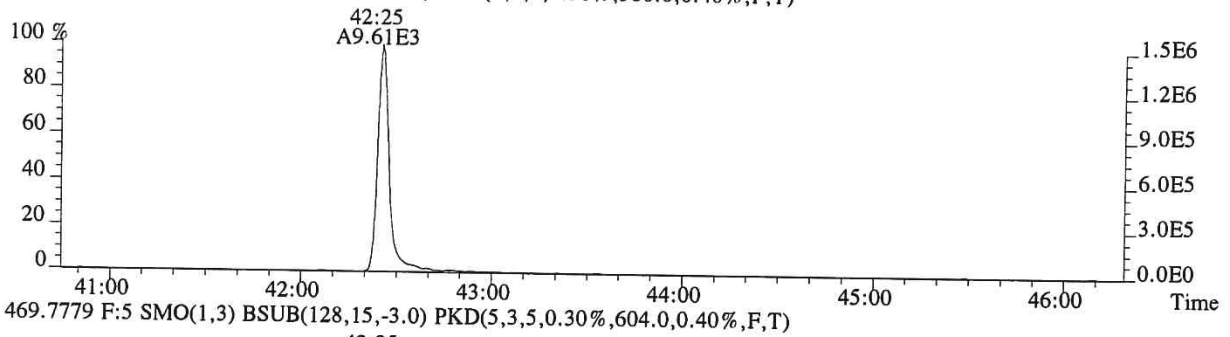


010529

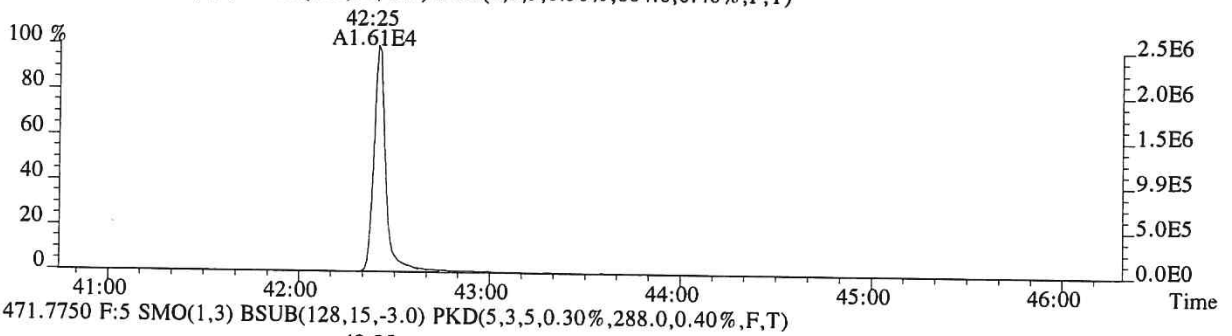
File:P519144 #1-502 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



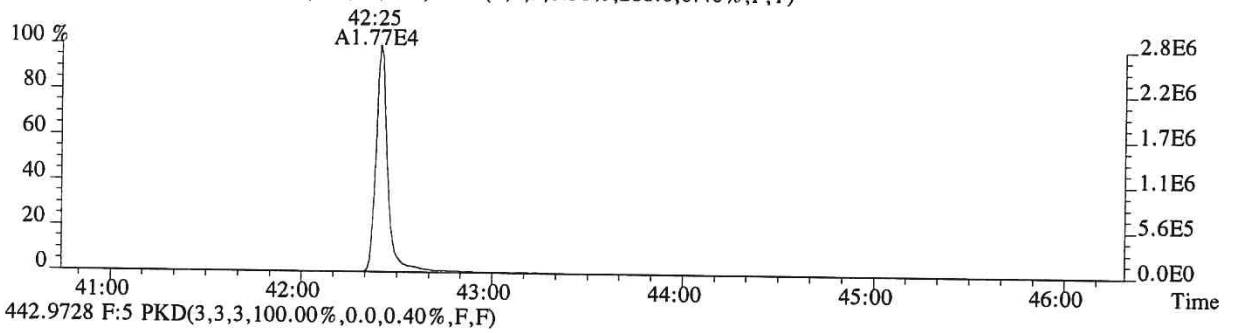
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



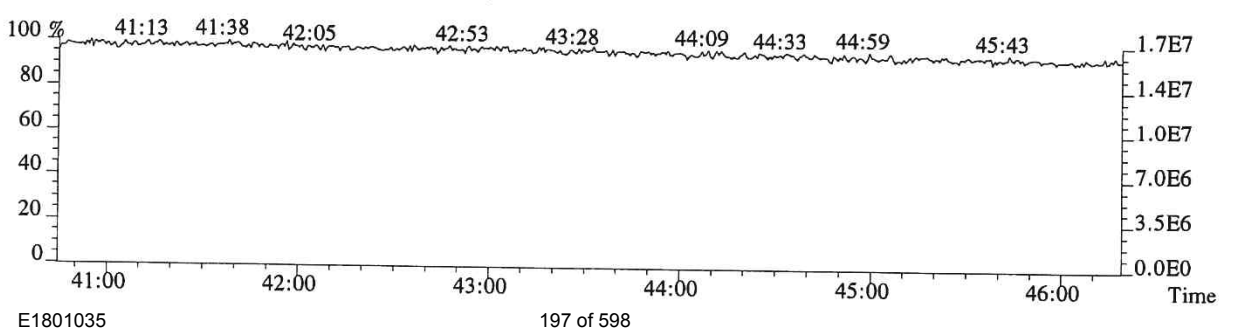
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010530

Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P5188105

Date: 11/7/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: QC

Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P518865	17-NOV-18	01:07:48
192977	WINDOW DEFINE	P518866	17-NOV-18	01:55:35
METHOD BLANK	EQ1800457-01	P518867	17-NOV-18	02:44:15
METHOD BLANK	EQ1800468-01	P518868	17-NOV-18	03:32:53
SL0022	E1801020-018	P518869	17-NOV-18	04:21:31
SL0011	E1801020-034	P518870	17-NOV-18	05:10:10
SL0033	E1801020-045	P518871	17-NOV-18	05:58:47
SL0034	E1801020-051	P518872	17-NOV-18	06:47:25
SL0046	E1801020-052	P518873	17-NOV-18	07:36:04
SL0072	E1801012-020	P518874	17-NOV-18	08:24:42
SL0084	E1801035-006	P518875	17-NOV-18	09:13:20
SL0519	E1801038-001	P518876	17-NOV-18	10:01:58
LCS	EQ1800468-02	P518877	17-NOV-18	10:50:36
DLCS	EQ1800468-03	P518878	17-NOV-18	11:39:16

E1801035

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181116B.SPL
Last Modified: Monday, November 19, 2018 07:44:12 Central Standard Time
Printed: Monday, November 19, 2018 07:44:15 Central Standard Time

Page Position (1, 1)

OPUS 4: P518865res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
									LG for	
1	4/17/18	01:07	P518865	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1	WKL	HRMScheck 01:07
2		01:55	P518866	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		02:44	P518867	MB	EQ1800457-01	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		03:33	P518868	MB	EQ1800468-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		04:21	P518869	E1801020-018	E1801020-018	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		05:10	P518870	E1801020-034	E1801020-034	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		05:58	P518871	E1801020-045	E1801020-045	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		06:47	P518872	E1801020-051	E1801020-051	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		07:36	P518873	E1801020-052	E1801020-052	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		08:24	P518874	E1801012-020	E1801012-020	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		09:13	P518875	E1801035-006	E1801035-006	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		10:01	P518876	E1801038-001	E1801038-001	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		10:50	P518877	LCS	EQ1800468-02	EPA1613_ALS	Dioxin_ALS	Tray1:2		
14		11:39	P518878	DLCS	EQ1800468-03	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15		12:36	P518879	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMScheck 12:36
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---

LG 11/21/18

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

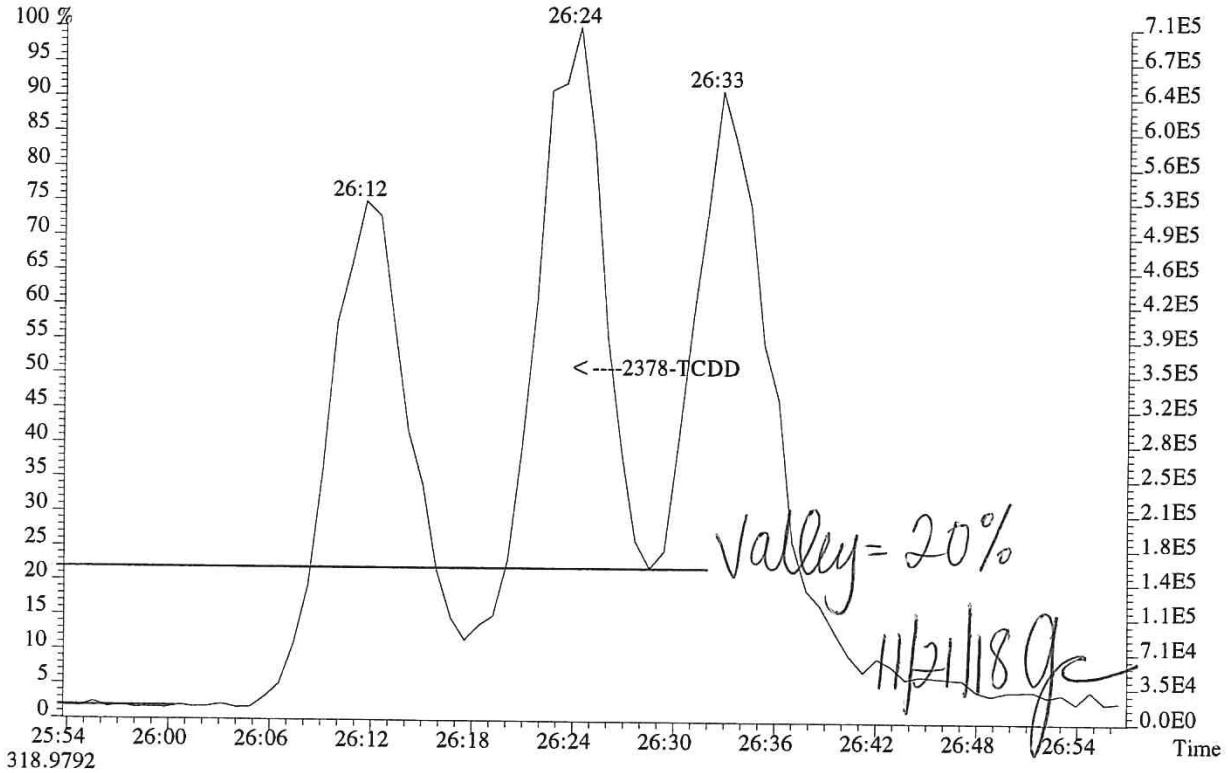
Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P518866
Date Analyzed: 17-NOV-2018
Time Analyzed: 01:55:35

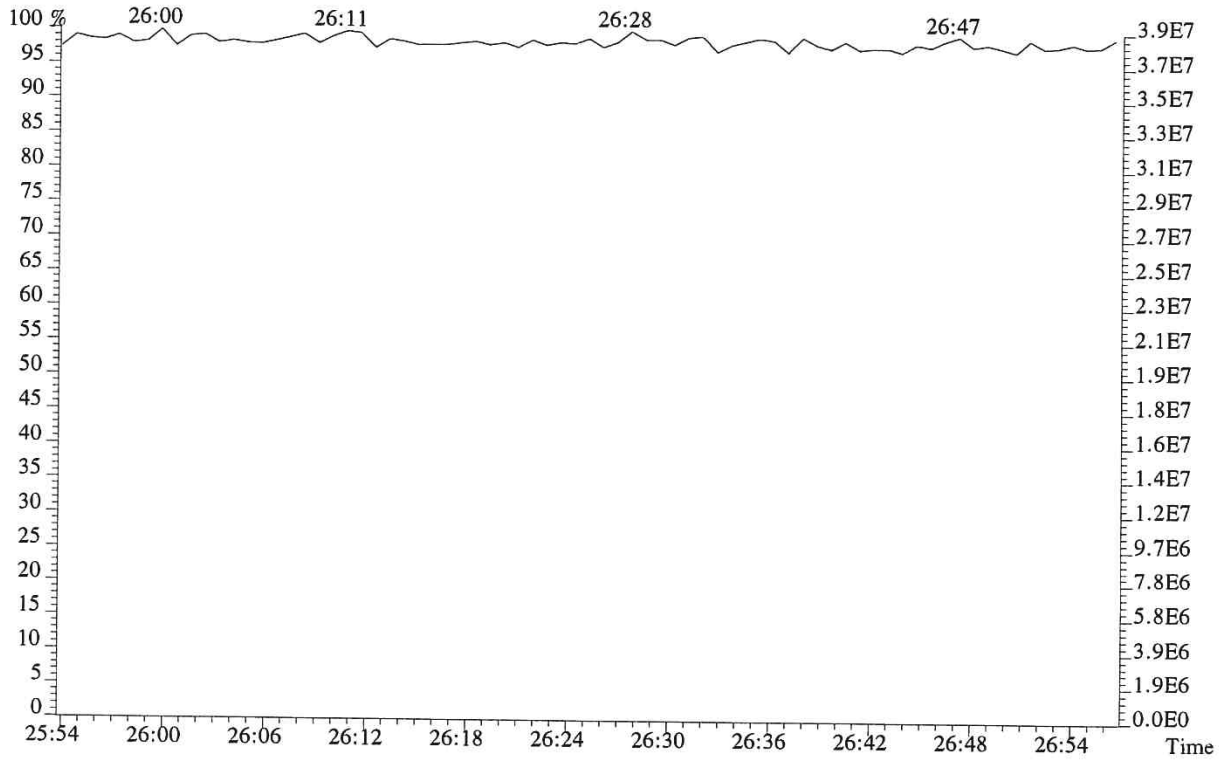
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:06	27:48
TCDD	22:40	27:38
PeCDF	27:46	32:34
PeCDD	29:35	32:18
HxCDF	33:17	35:57
HxCDD	33:51	35:32
HpCDF	37:14	38:34
HpCDD	37:30	38:08

% Valley 2378-TCDD: 20 %

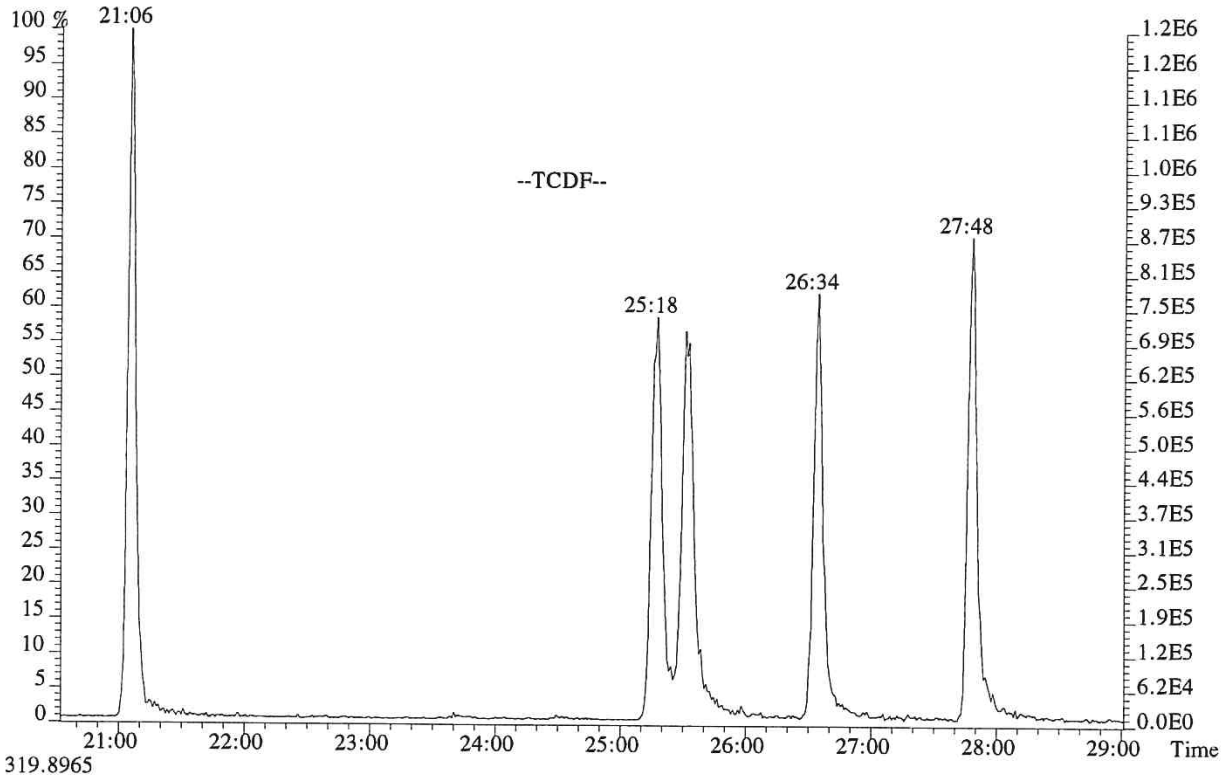
010535

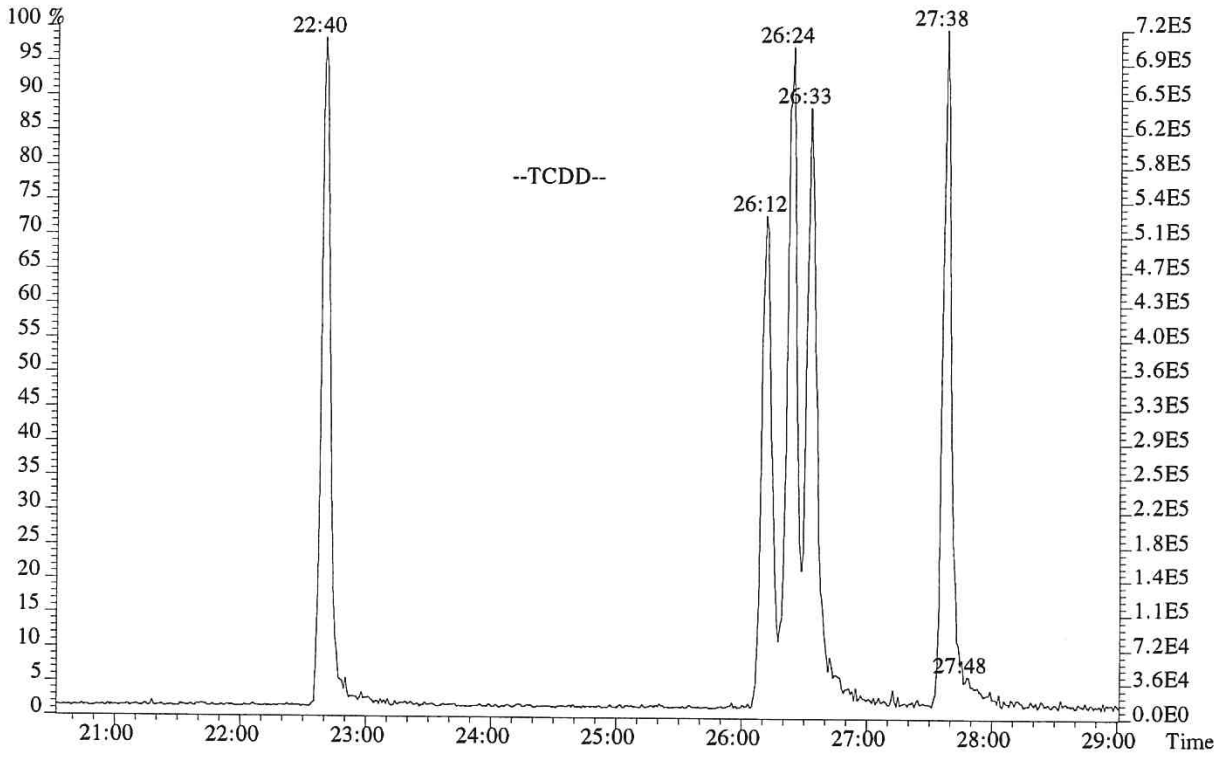
File:P518866 #1-602 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965





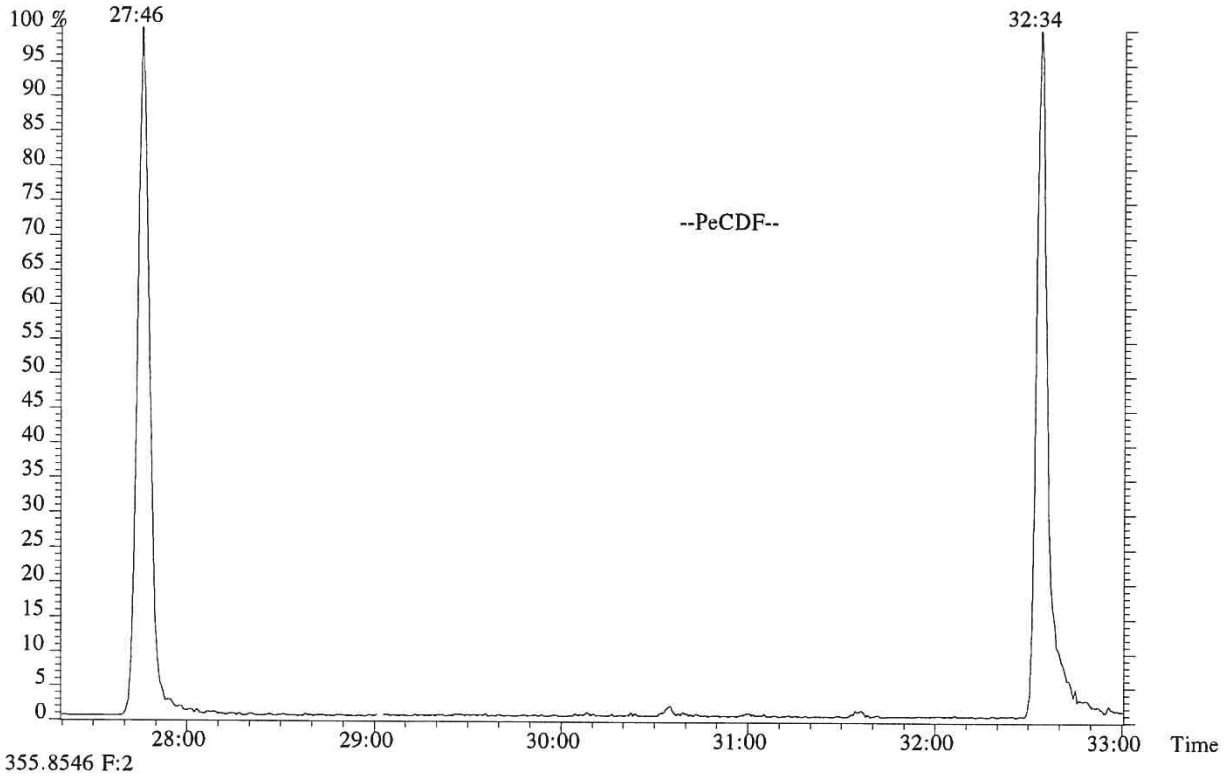
File:P518866 #1-602 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
303.9016



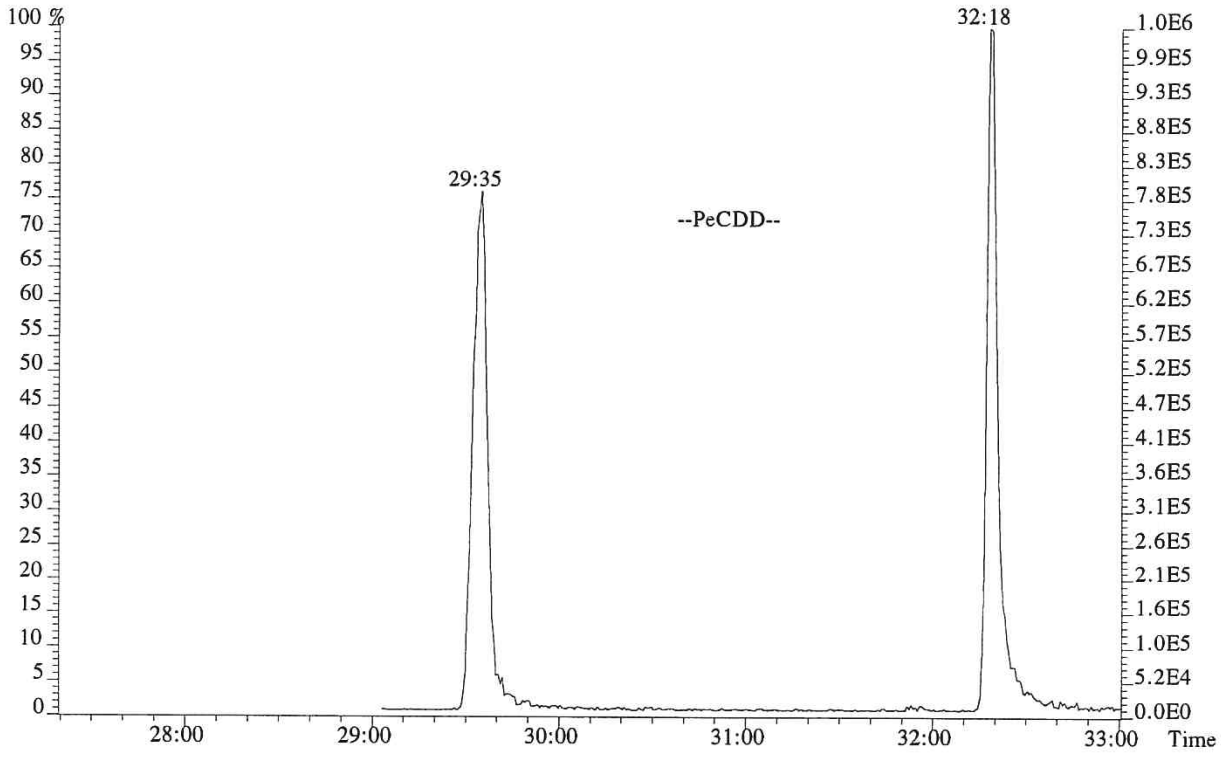


010537

File:P518866 #1-602 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2

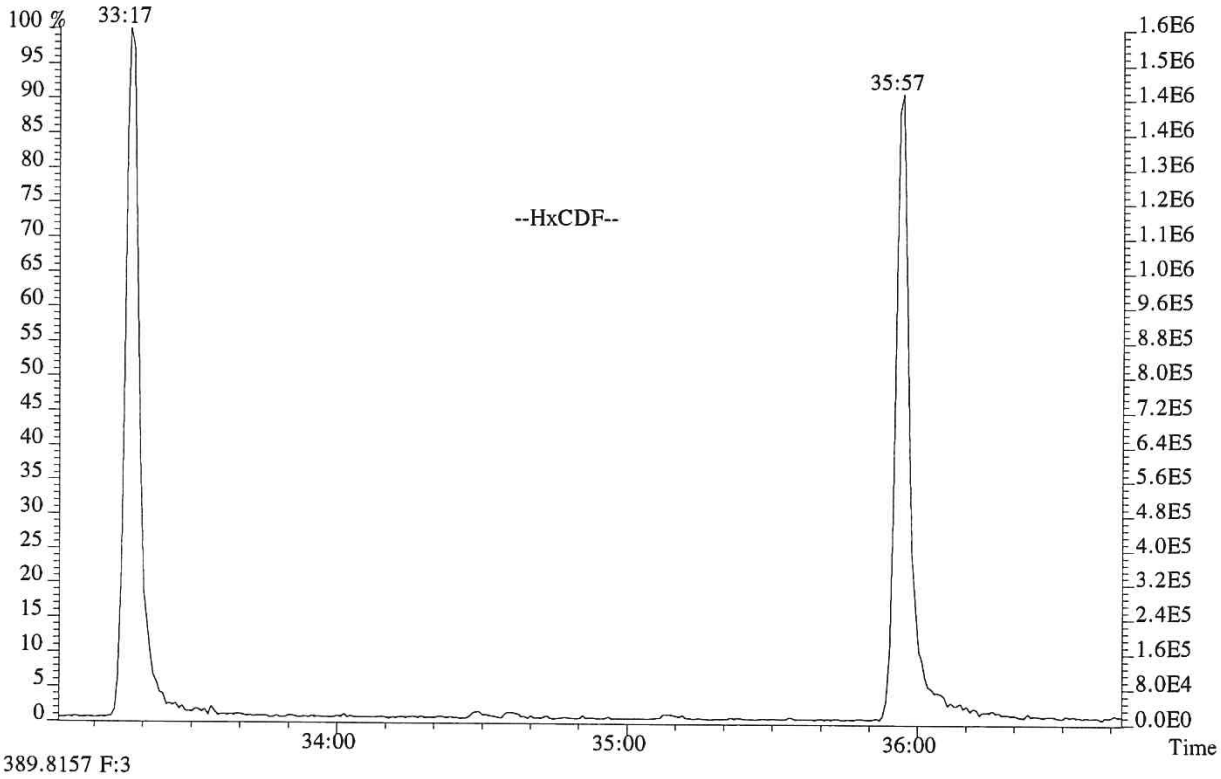


355.8546 F:2

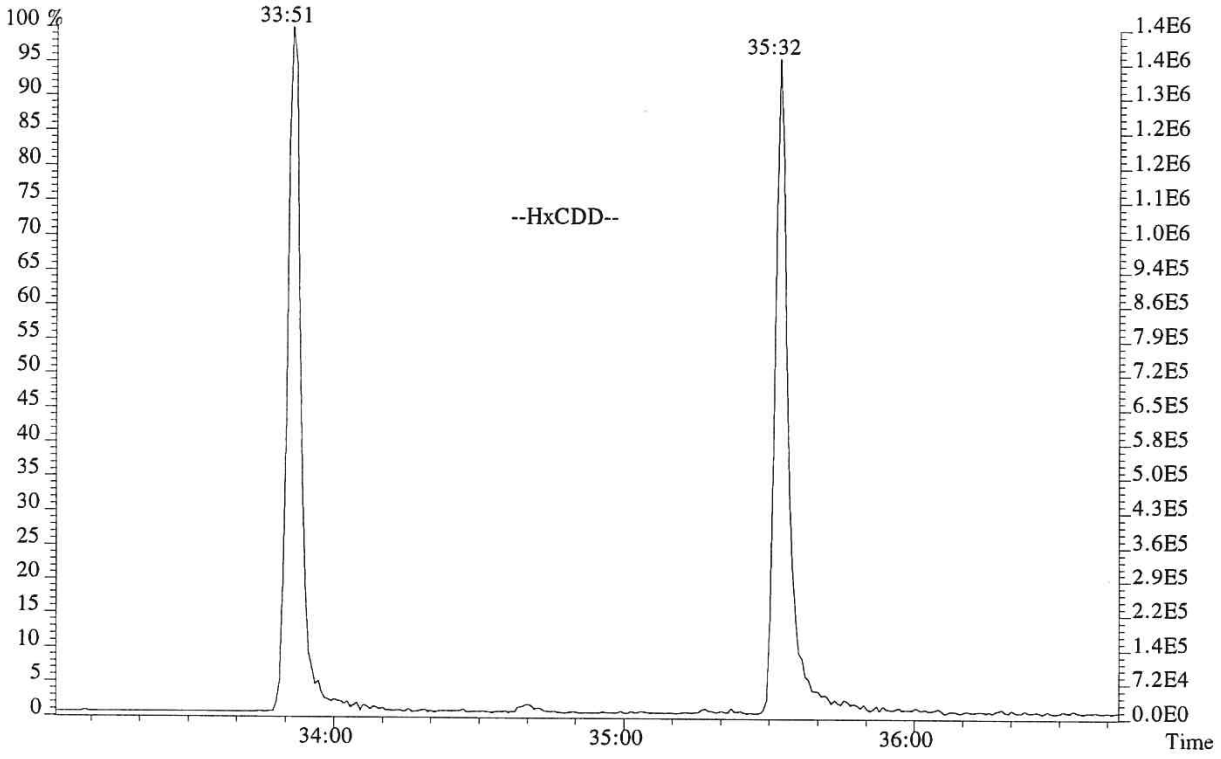


010538

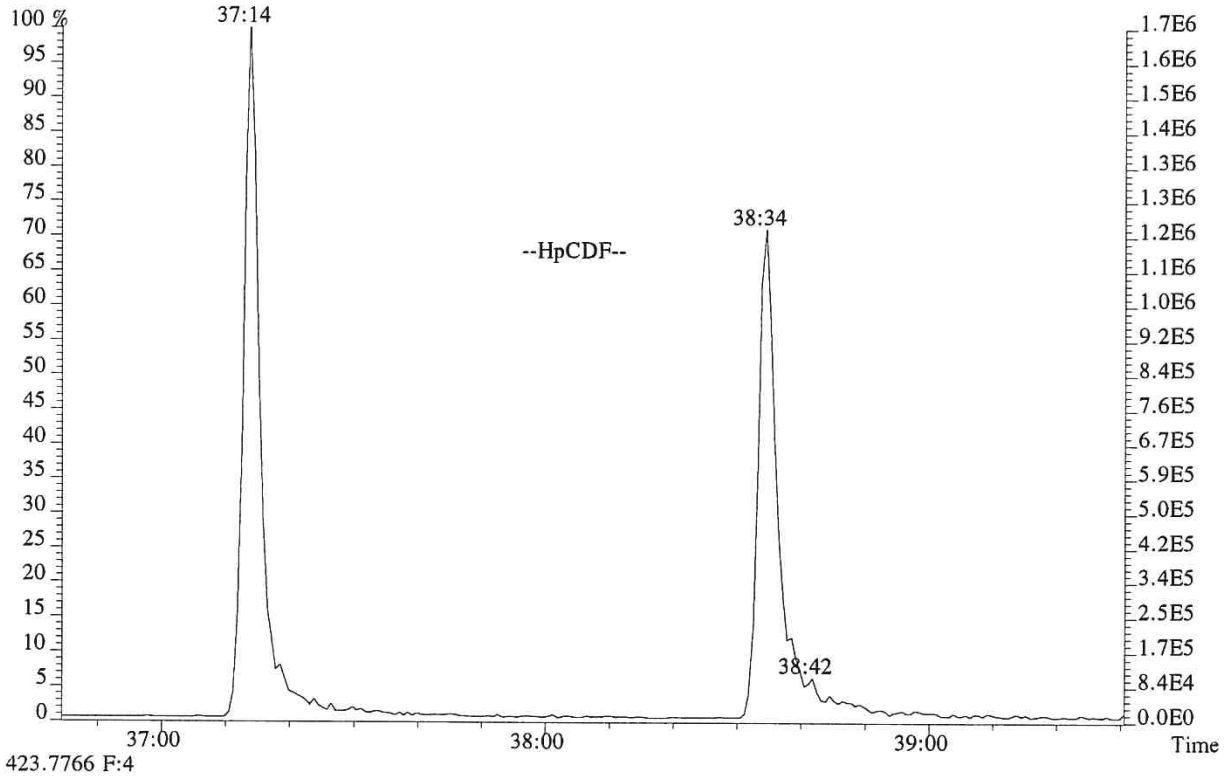
File:P518866 #1-330 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3



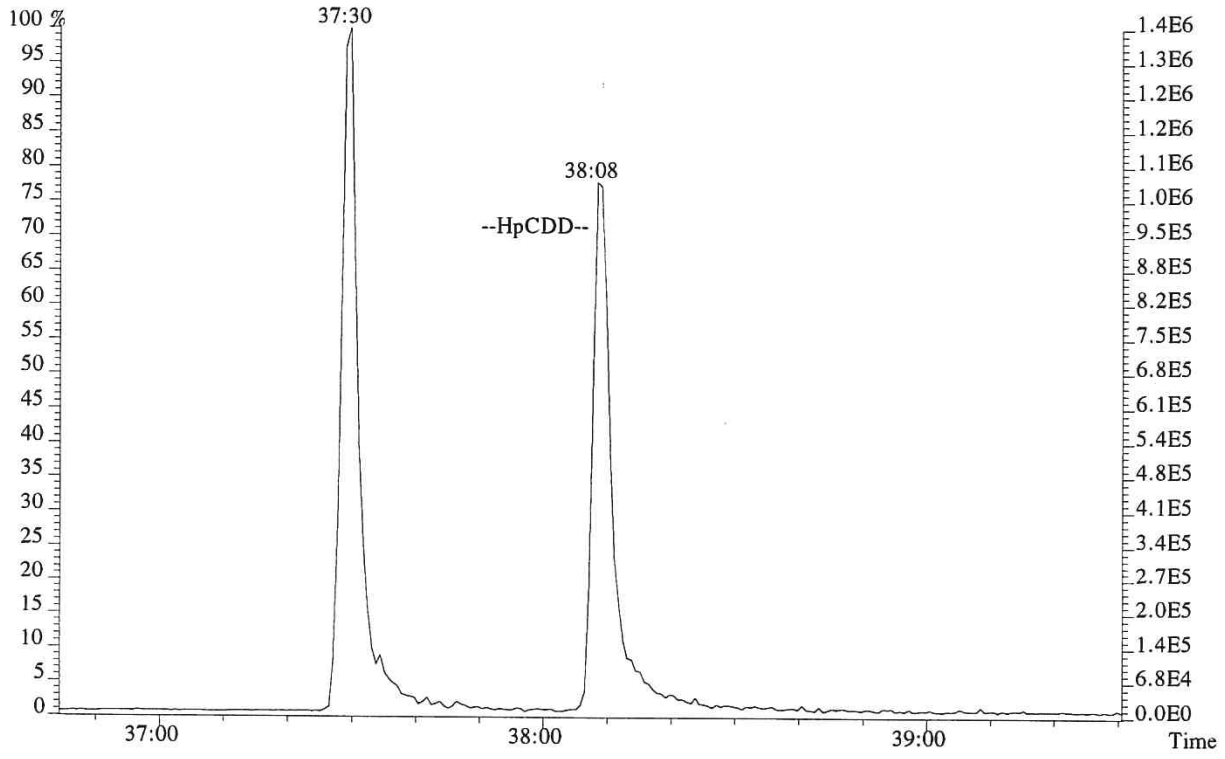
389.8157 F:3



File:P518866 #1-250 Acq:17-NOV-2018 01:55:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4

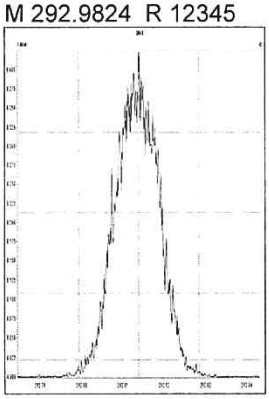


423.7766 F:4

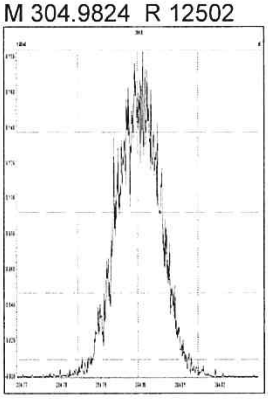


010540

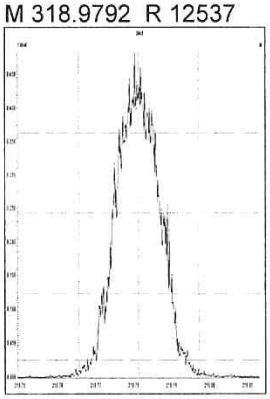
M 292.9824 R 12345



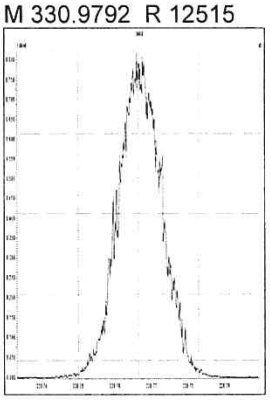
M 304.9824 R 12502



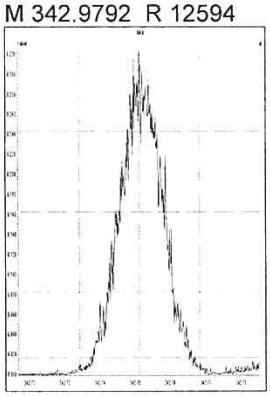
M 318.9792 R 12537



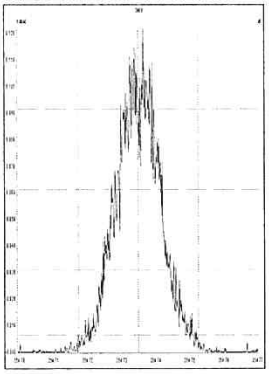
M 330.9792 R 12515



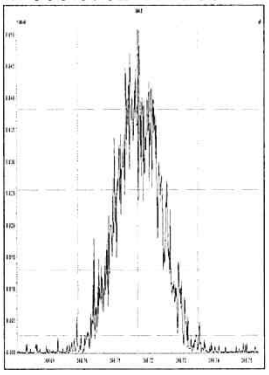
M 342.9792 R 12594



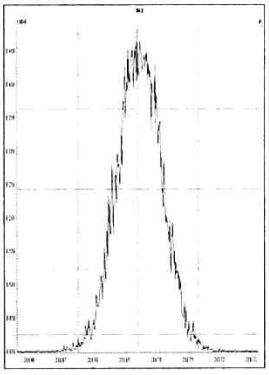
M 354.9792 R 12705



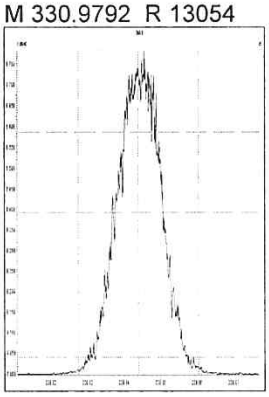
M 366.9792 R 12954



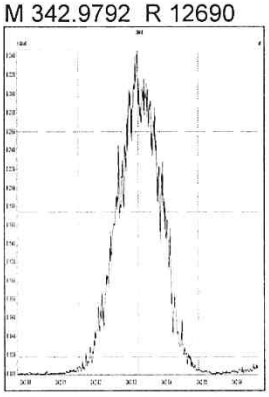
M 380.9760 R 12410



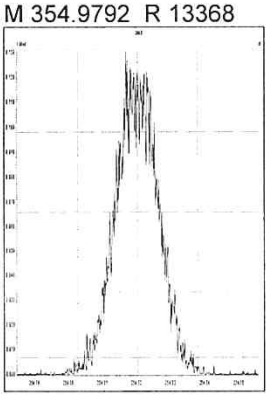
M 330.9792 R 13054



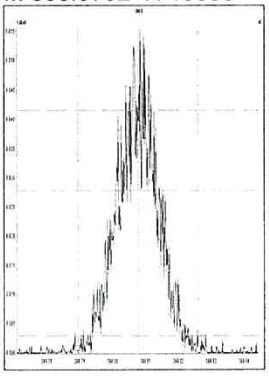
M 342.9792 R 12690



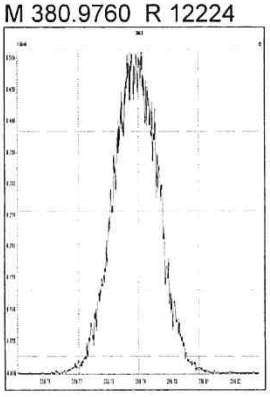
M 354.9792 R 13368



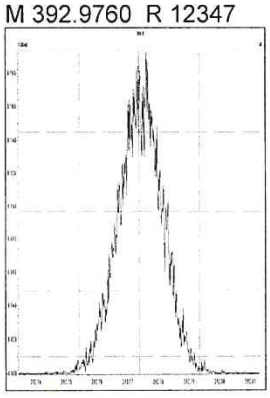
M 366.9792 R 13065



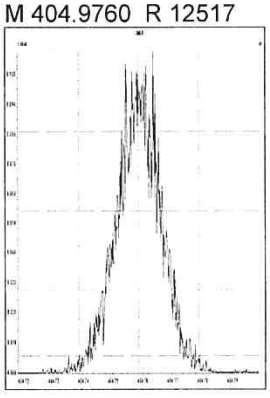
M 380.9760 R 12224



M 392.9760 R 12347



M 404.9760 R 12517



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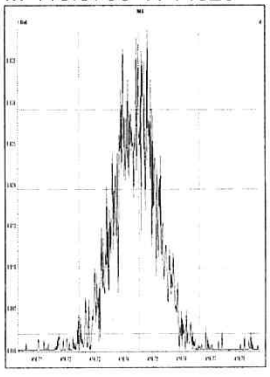
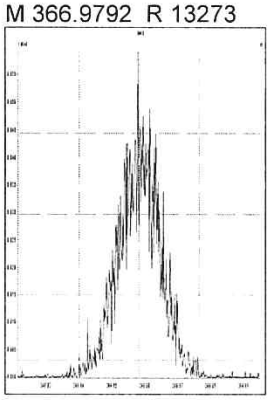
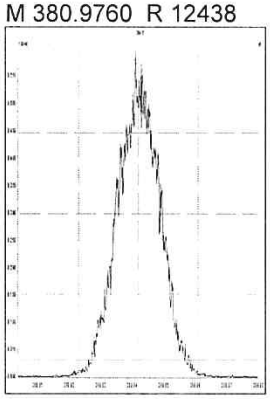


M 366.9792 R 13273



M 380.9760 R 12438



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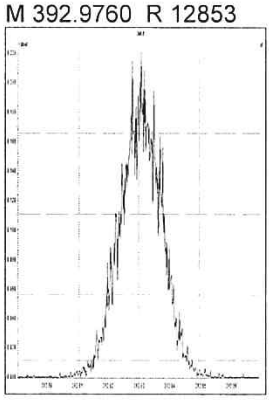

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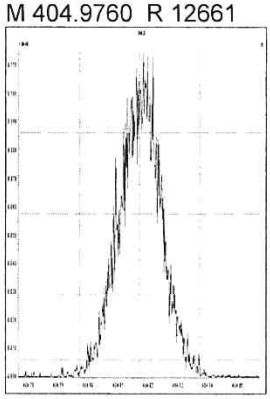
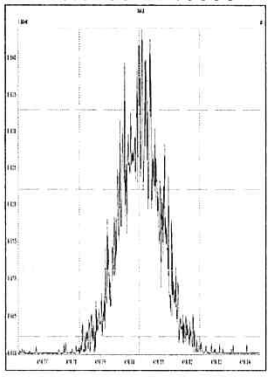
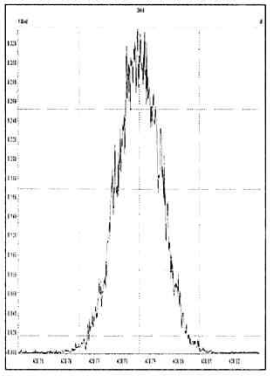


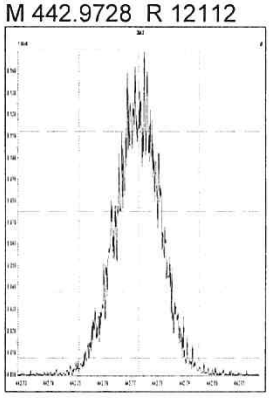
M 416.9760 R 13505



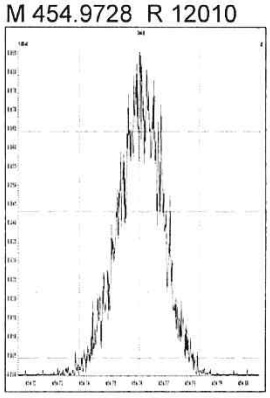
M 430.9728 R 11990



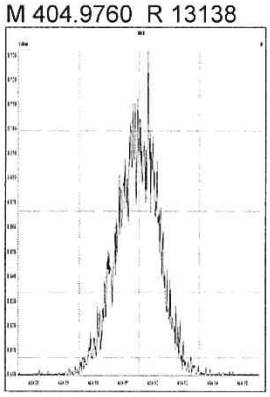
M 442.9728 R 12112



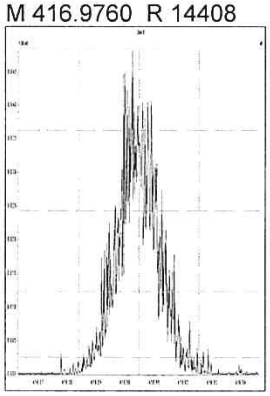
M 454.9728 R 12010



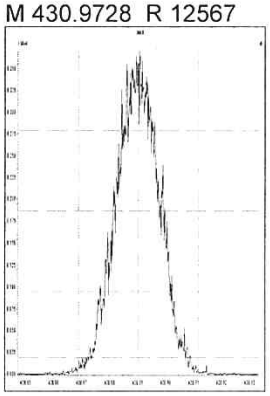
M 404.9760 R 13138



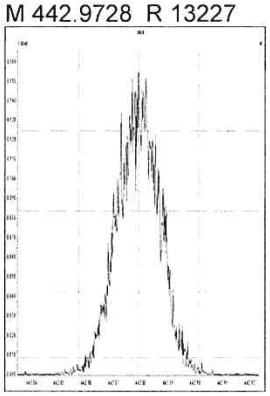
M 416.9760 R 14408



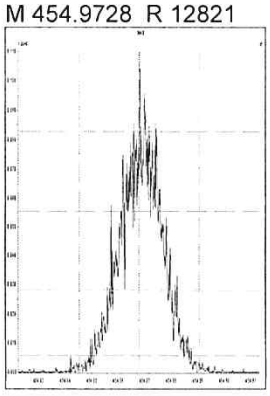
M 430.9728 R 12567



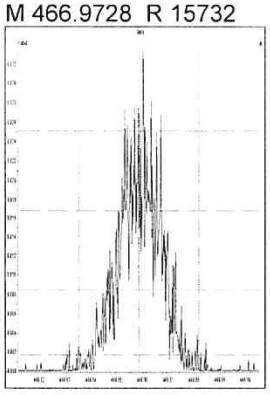
M 442.9728 R 13227



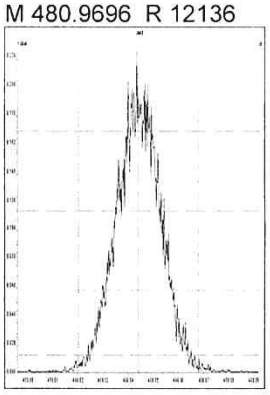
M 454.9728 R 12821



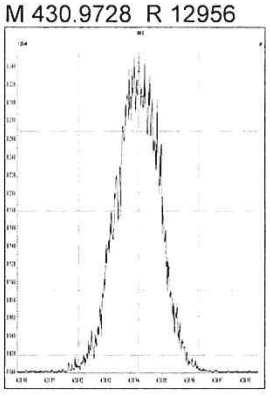
M 466.9728 R 15732



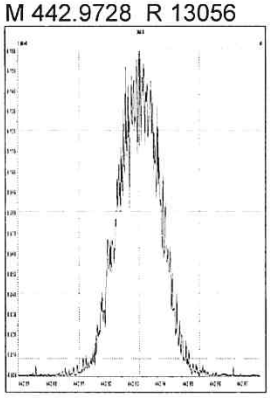
M 480.9696 R 12136



M 430.9728 R 12956



M 442.9728 R 13056



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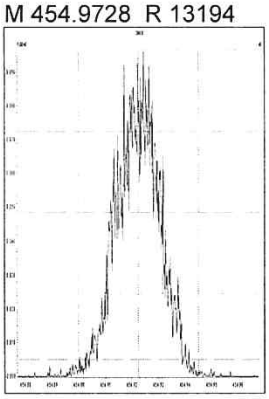

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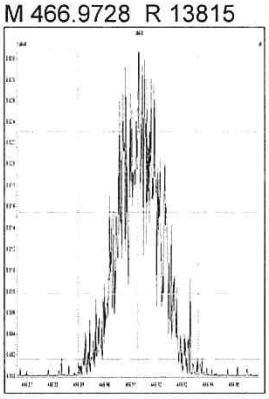

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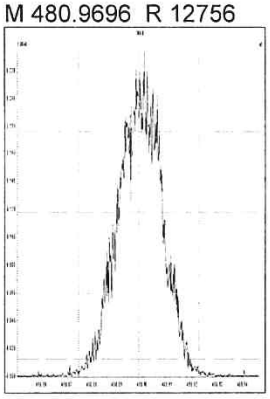

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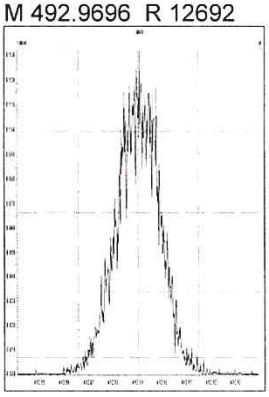
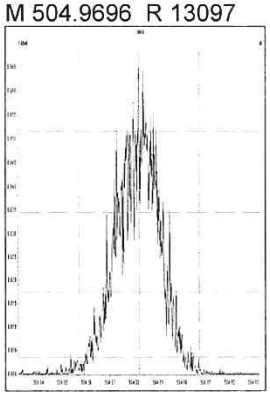


M 504.9696 R 13097



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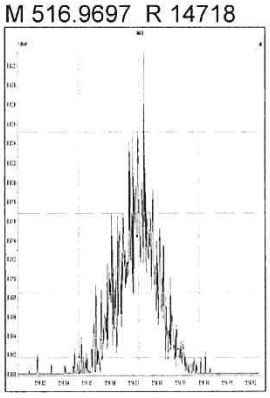
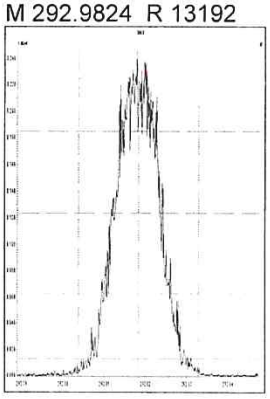
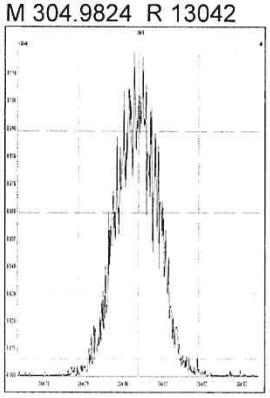


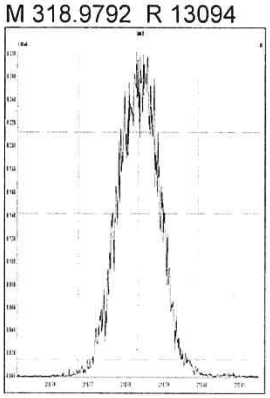
M 292.9824 R 13192



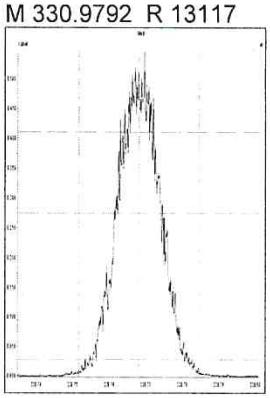
M 304.9824 R 13042



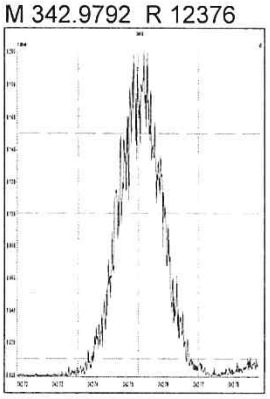
M 318.9792 R 13094



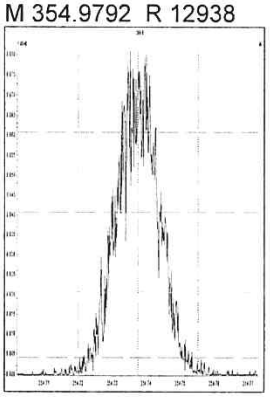
M 330.9792 R 13117



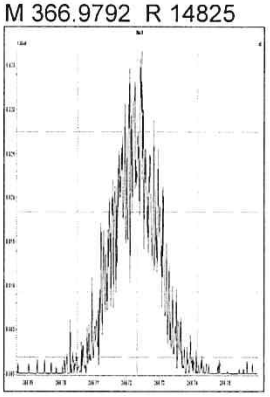
M 342.9792 R 12376



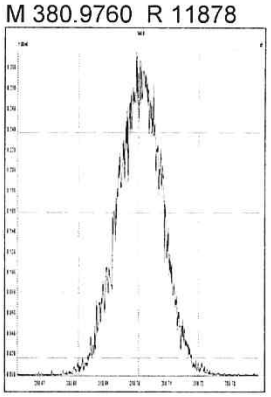
M 354.9792 R 12938



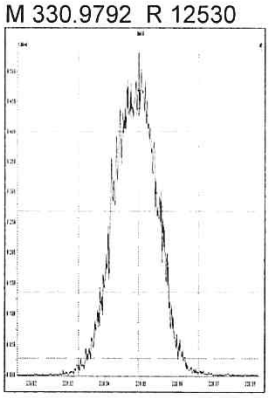
M 366.9792 R 14825



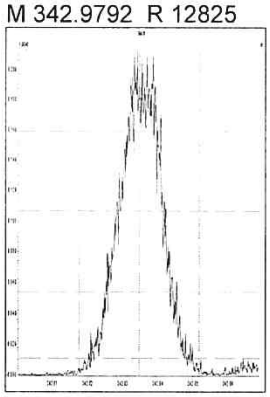
M 380.9760 R 11878



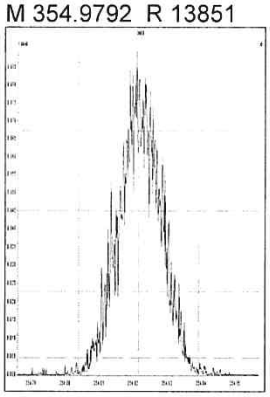
M 330.9792 R 12530



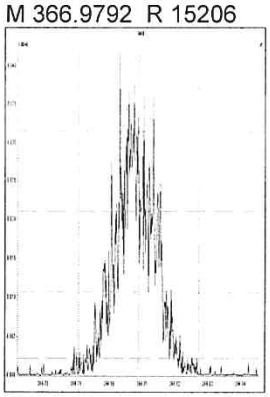
M 342.9792 R 12825



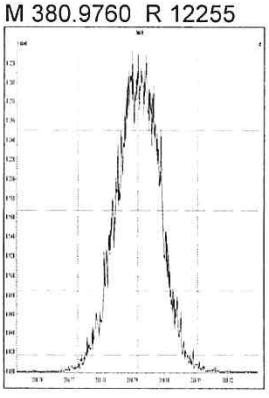
M 354.9792 R 13851



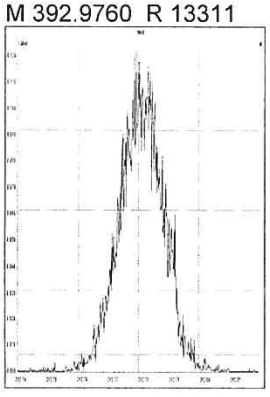
M 366.9792 R 15206



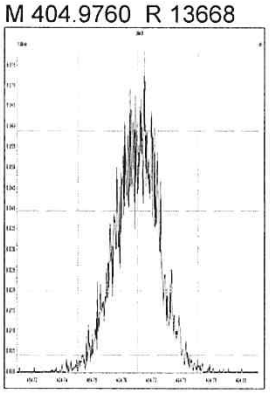
M 380.9760 R 12255



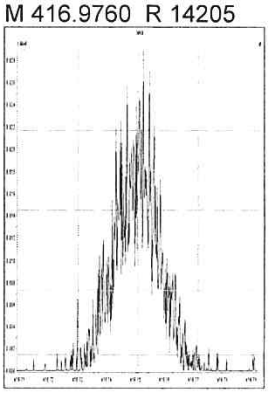
M 392.9760 R 13311



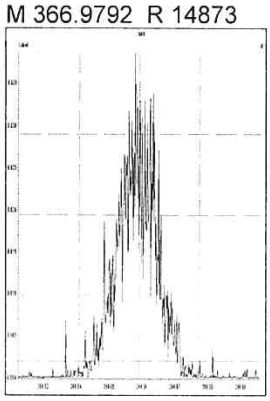
M 404.9760 R 13668



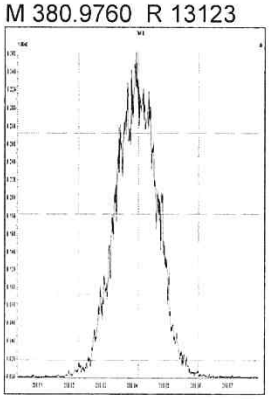
M 416.9760 R 14205



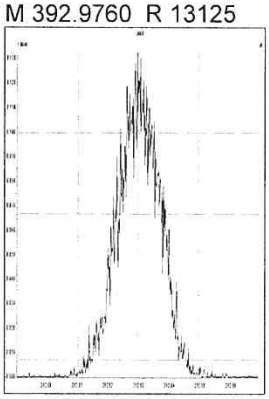
M 366.9792 R 14873



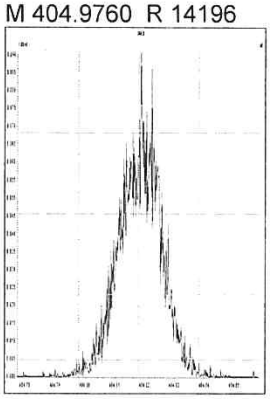
M 380.9760 R 13123



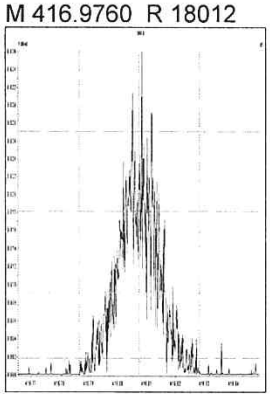
M 392.9760 R 13125



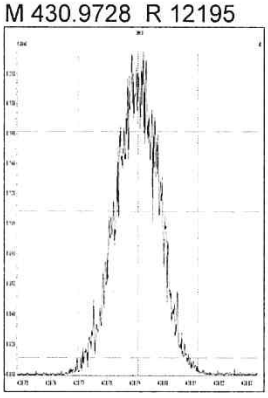
M 404.9760 R 14196



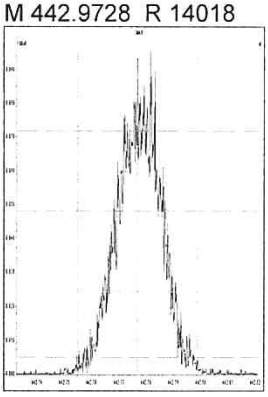
M 416.9760 R 18012



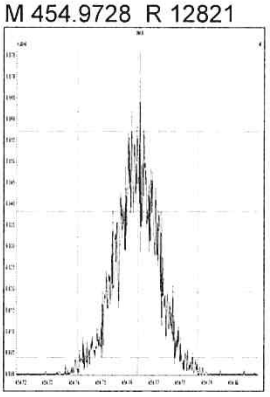
M 430.9728 R 12195



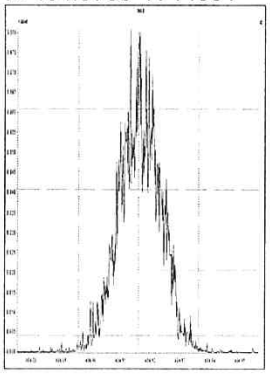
M 442.9728 R 14018



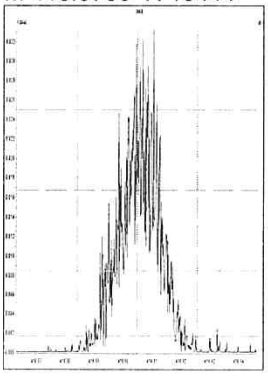
M 454.9728 R 12821



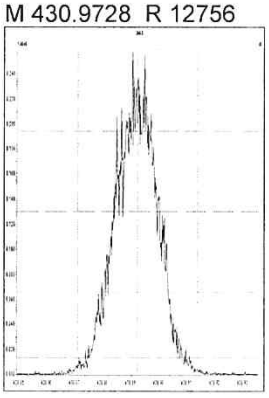
M 404.9760 R 14631



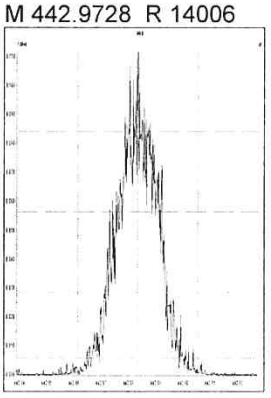
M 416.9760 R 16444



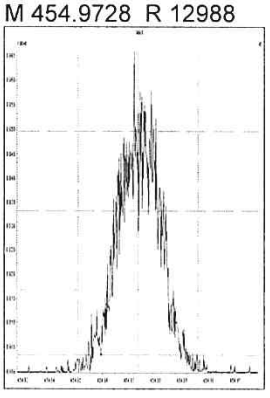
M 430.9728 R 12756



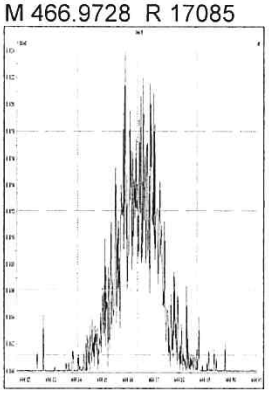
M 442.9728 R 14006



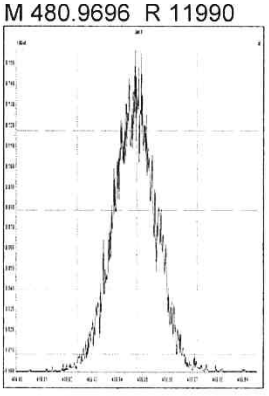
M 454.9728 R 12988



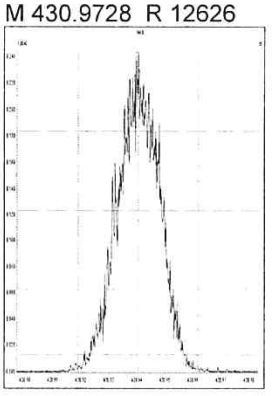
M 466.9728 R 17085



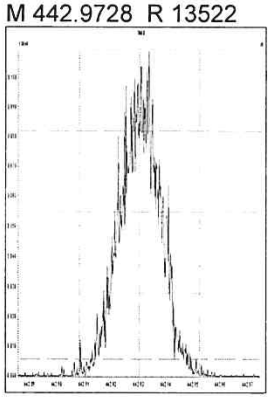
M 480.9696 R 11990



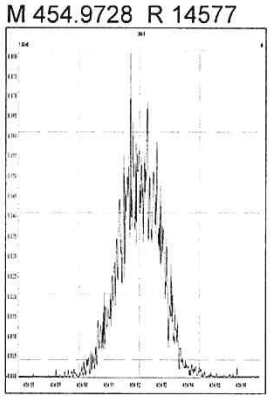
M 430.9728 R 12626



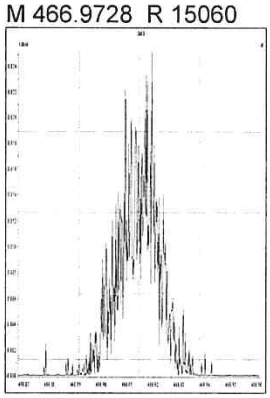
M 442.9728 R 13522



M 454.9728 R 14577



M 466.9728 R 15060



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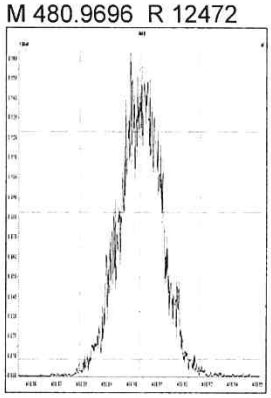
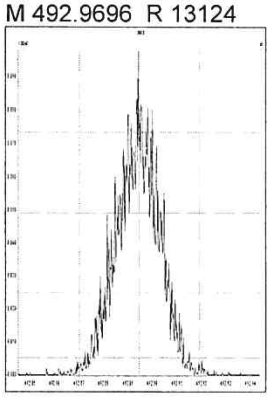
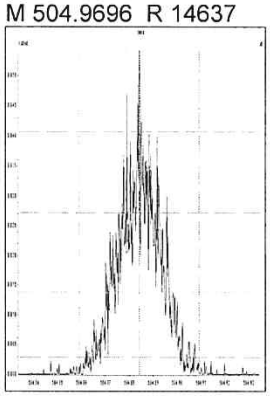


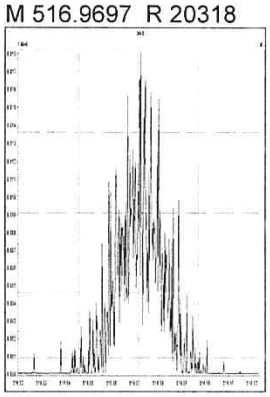
M 492.9696 R 13124



M 504.9696 R 14637



M 516.9697 R 20318



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518865 Analysis Date: 17-NOV-18 Time: 01:07:48

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	9.5	7.8 - 12.9	-5.4
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	51	39 - 65	1.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	1.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	52	39 - 64	3.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	53	41 - 61	5.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	51	43 - 58	1.2
OCDD	M+2/M+4	0.88	0.76-1.02	101	79 - 126	1.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	10.1	8.4 - 12.0	1.3
1,2,3,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	50	41 - 60	0.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 61	-2.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	2.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.19	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	51	45 - 55	1.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.4
OCDF	M+2/M+4	0.90	0.76-1.02	101	63 - 159	0.7

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P518865 Analysis Date: 17-NOV-18 Time: 01:07:48

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	92	82 - 121	-7.6
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	117	62 - 160	17.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	86	85 - 117	-13.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	98	85 - 118	-2.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	120	72 - 138	20.4
13C-OCDD	M+2/M+4	0.88	0.76-1.02	338	96 - 415	68.8
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	81	71 - 140	-18.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	110	76 - 130	9.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	114	77 - 130	14.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	78	76 - 131	-22.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	89	70 - 143	-11.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.50	0.43-0.59	90	74 - 135	-9.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	90	73 - 137	-10.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	109	78 - 129	9.4
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	123	77 - 129	22.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.1	7.8 - 12.7	-8.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P518865 Samp: 1 Inj: 1 Acquired: 17-NOV-18 01:07:48
Processed: 21-NOV-18 09:19:26 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:33	1.058e+03	1.395e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	30:35	1.035e+04	6.889e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	31:36	9.827e+03	6.465e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	34:29	9.727e+03	7.981e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	34:36	1.212e+04	9.936e+03	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	35:09	1.067e+04	8.730e+03	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	35:55	9.476e+03	7.955e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	37:14	1.128e+04	1.104e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	1.012e+04	9.667e+03	1.05	yes	no	1.258
10	Unk	OCDF	40:51	1.961e+04	2.183e+04	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	26:34	8.230e+02	1.011e+03	0.81	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	31:55	7.059e+03	4.549e+03	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	35:17	7.247e+03	5.748e+03	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	35:23	8.642e+03	6.763e+03	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	35:37	8.205e+03	6.703e+03	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	8.491e+03	8.003e+03	1.06	yes	no	1.025
17	Unk	OCDD	40:41	1.604e+04	1.828e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	25:32	1.122e+04	1.449e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	30:34	2.092e+04	1.288e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	31:35	2.131e+04	1.357e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	34:29	1.003e+04	1.945e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	34:35	1.291e+04	2.543e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	35:08	1.179e+04	2.287e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	35:54	1.014e+04	2.012e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:14	1.014e+04	2.243e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	9.382e+03	2.166e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	26:33	7.775e+03	1.008e+04	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	31:54	1.459e+04	9.324e+03	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	35:17	1.389e+04	1.069e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	35:22	1.602e+04	1.256e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.650e+04	1.531e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	40:41	2.839e+04	3.220e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	25:50	9.224e+03	1.171e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:37	1.746e+04	1.335e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:34	1.941e+03				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P518865 Samp: 1 Inj: 1 Acquired: 17-NOV-18 01:07:48
Processed: 21-NOV-18 09:19:26 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.29e+05	2.84e+02	4.5e+02	1.72e+05	7.12e+02	2.4e+02
2	1,2,3,7,8-PeCDF	1.50e+06	5.92e+02	2.5e+03	9.78e+05	1.23e+03	7.9e+02
3	2,3,4,7,8-PeCDF	1.54e+06	5.92e+02	2.6e+03	1.04e+06	1.23e+03	8.4e+02
4	1,2,3,4,7,8-HxCDF	1.92e+06	2.64e+02	7.3e+03	1.56e+06	3.96e+02	3.9e+03
5	1,2,3,6,7,8-HxCDF	2.19e+06	2.64e+02	8.3e+03	1.73e+06	3.96e+02	4.4e+03
6	2,3,4,6,7,8-HxCDF	1.90e+06	2.64e+02	7.2e+03	1.57e+06	3.96e+02	4.0e+03
7	1,2,3,7,8,9-HxCDF	1.59e+06	2.64e+02	6.0e+03	1.25e+06	3.96e+02	3.2e+03
8	1,2,3,4,6,7,8-HpCDF	2.16e+06	1.13e+03	1.9e+03	2.07e+06	2.58e+03	8.0e+02
9	1,2,3,4,7,8,9-HpCDF	1.74e+06	1.13e+03	1.5e+03	1.74e+06	2.58e+03	6.7e+02
10	OCDF	2.99e+06	2.44e+02	1.2e+04	3.38e+06	2.76e+02	1.2e+04
11	2,3,7,8-TCDD	1.10e+05	1.70e+03	6.5e+01	1.28e+05	7.56e+02	1.7e+02
12	1,2,3,7,8-PeCDD	1.09e+06	9.64e+02	1.1e+03	7.07e+05	4.16e+02	1.7e+03
13	1,2,3,4,7,8-HxCDD	1.52e+06	5.60e+02	2.7e+03	1.22e+06	4.96e+02	2.5e+03
14	1,2,3,6,7,8-HxCDD	1.52e+06	5.60e+02	2.7e+03	1.18e+06	4.96e+02	2.4e+03
15	1,2,3,7,8,9-HxCDD	1.47e+06	5.60e+02	2.6e+03	1.16e+06	4.96e+02	2.3e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+06	3.72e+02	4.3e+03	1.50e+06	5.12e+02	2.9e+03
17	OCDD	2.51e+06	2.92e+02	8.6e+03	2.91e+06	2.16e+02	1.3e+04
18	13C-2,3,7,8-TCDF	1.33e+06	4.16e+03	3.2e+02	1.68e+06	2.32e+03	7.3e+02
19	13C-1,2,3,7,8-PeCDF	3.07e+06	2.24e+02	1.4e+04	1.95e+06	3.80e+02	5.1e+03
20	13C-2,3,4,7,8-PeCDF	3.49e+06	2.24e+02	1.6e+04	2.17e+06	3.80e+02	5.7e+03
21	13C-1,2,3,4,7,8-HxCDF	1.94e+06	5.92e+02	3.3e+03	3.73e+06	1.05e+03	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.29e+06	5.92e+02	3.9e+03	4.41e+06	1.05e+03	4.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.09e+06	5.92e+02	3.5e+03	4.16e+06	1.05e+03	4.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.67e+06	5.92e+02	2.8e+03	3.35e+06	1.05e+03	3.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.97e+06	3.72e+03	5.3e+02	4.36e+06	1.27e+03	3.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.64e+06	3.72e+03	4.4e+02	3.73e+06	1.27e+03	2.9e+03
27	13C-2,3,7,8-TCDD	1.01e+06	4.52e+03	2.2e+02	1.27e+06	2.09e+03	6.1e+02
28	13C-1,2,3,7,8-PeCDD	2.32e+06	5.12e+02	4.5e+03	1.45e+06	6.28e+02	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	2.86e+06	1.30e+03	2.2e+03	2.24e+06	8.12e+02	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.81e+06	1.30e+03	2.2e+03	2.20e+06	8.12e+02	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.03e+06	3.32e+02	9.1e+03	2.84e+06	2.20e+02	1.3e+04
32	13C-OCDD	4.40e+06	6.88e+02	6.4e+03	5.01e+06	2.72e+02	1.8e+04
33	13C-1,2,3,4-TCDD	1.27e+06	4.52e+03	2.8e+02	1.61e+06	2.09e+03	7.7e+02
34	13C-1,2,3,7,8,9-HxCDD	2.91e+06	1.30e+03	2.2e+03	2.37e+06	8.12e+02	2.9e+03
35	37Cl-2,3,7,8-TCDD	2.53e+05	1.16e+03	2.2e+02			

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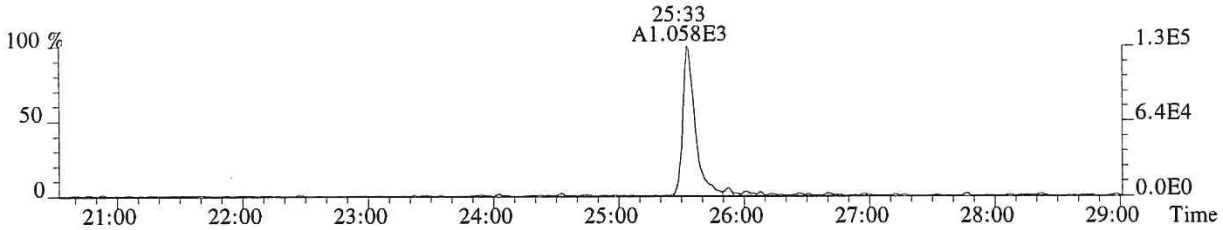
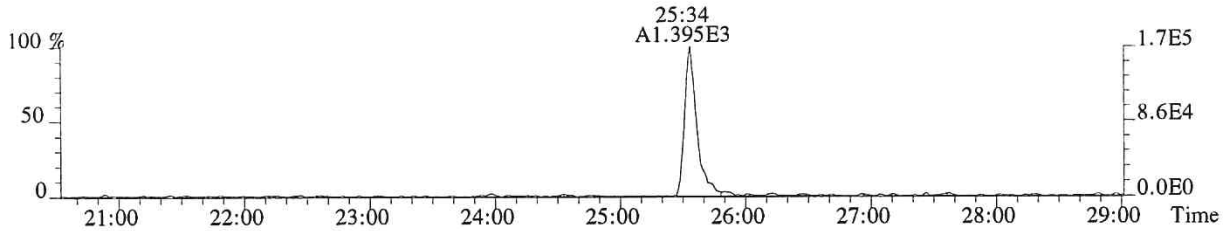
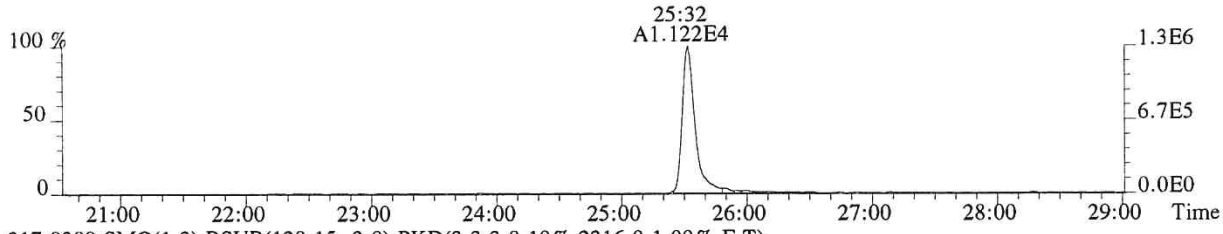
File:P518865 #1-602 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



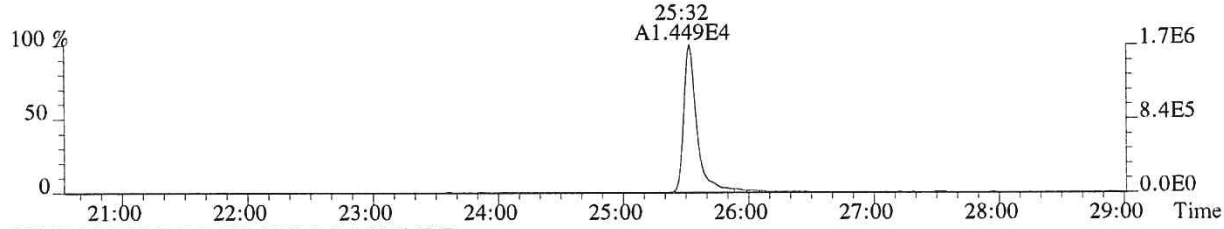
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



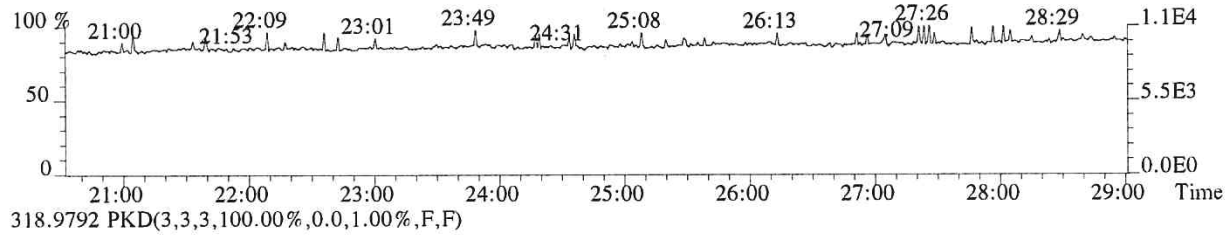
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4164.0,1.00%,F,T)



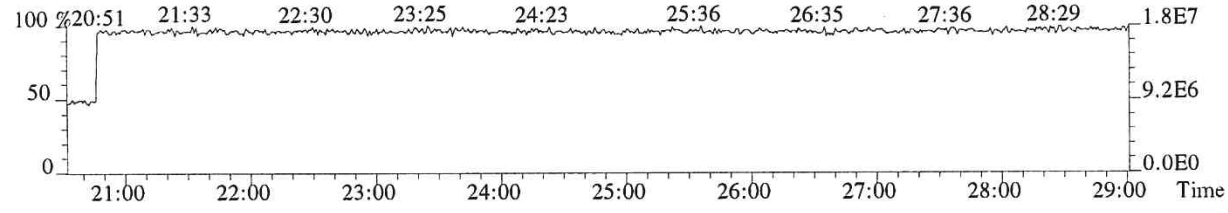
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

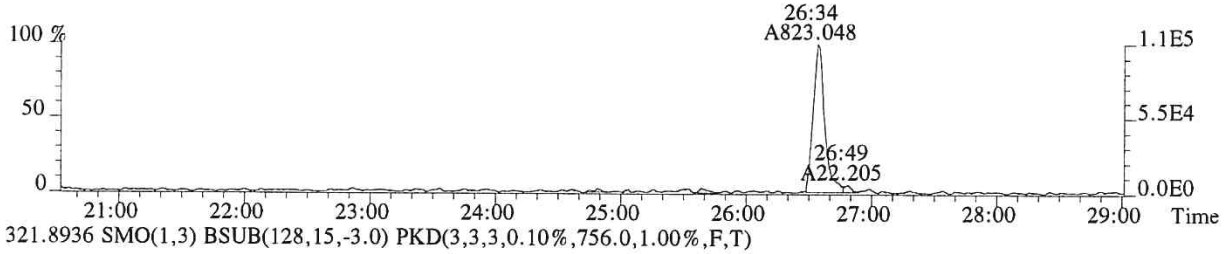


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

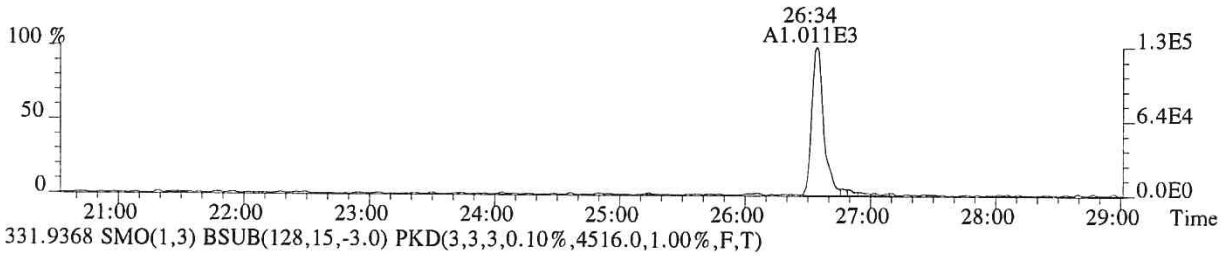


010551

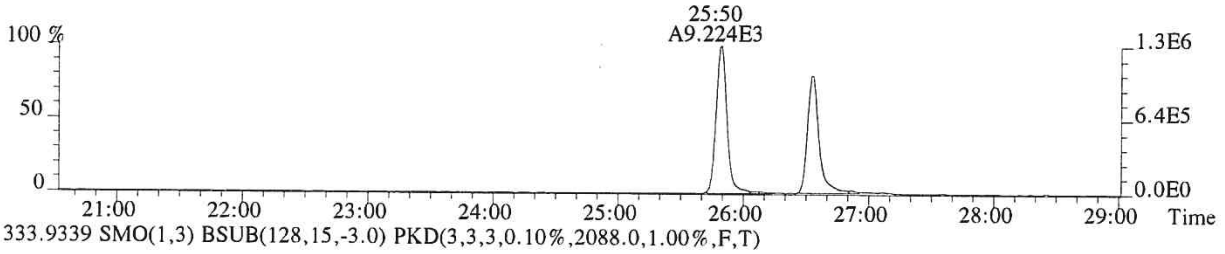
File:P518865 #1-602 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1696.0,1.00%,F,T)



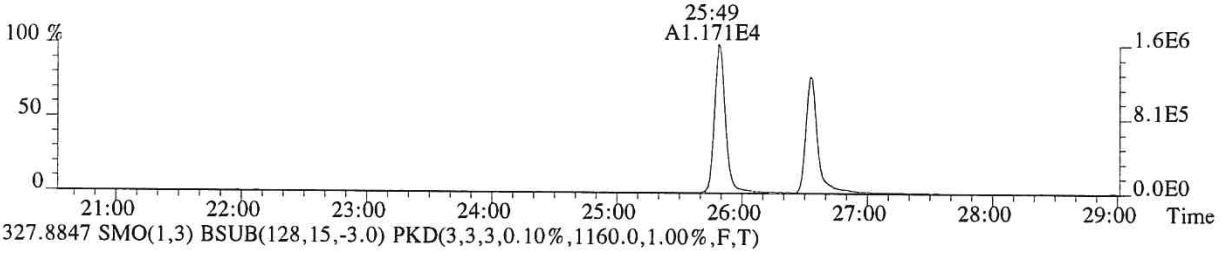
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



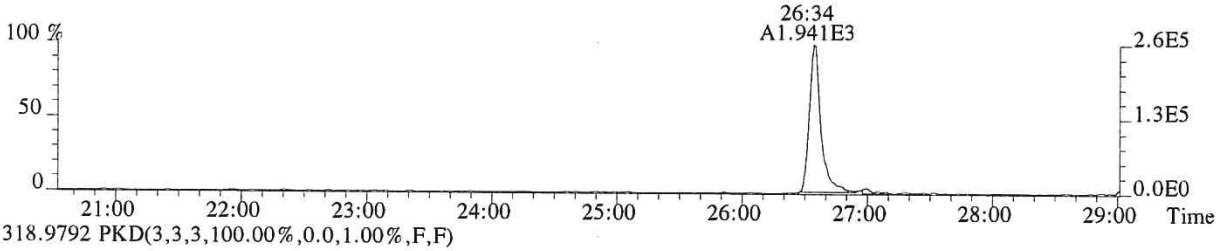
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



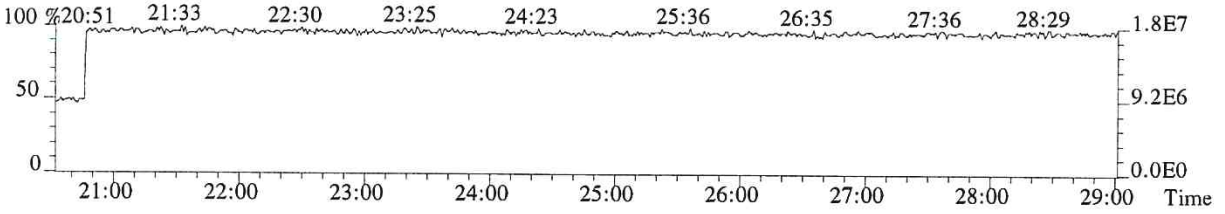
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2088.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)

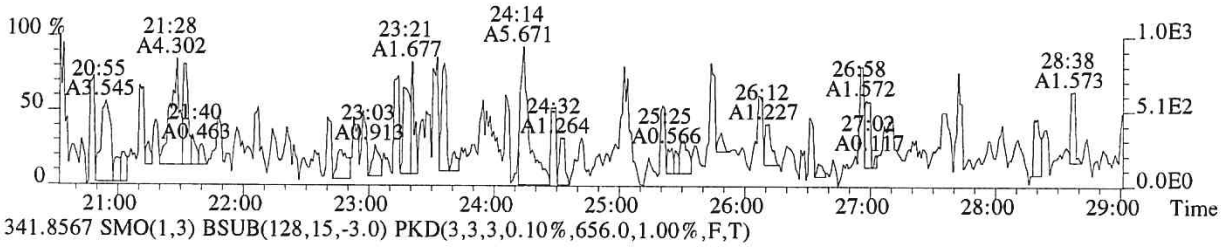


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

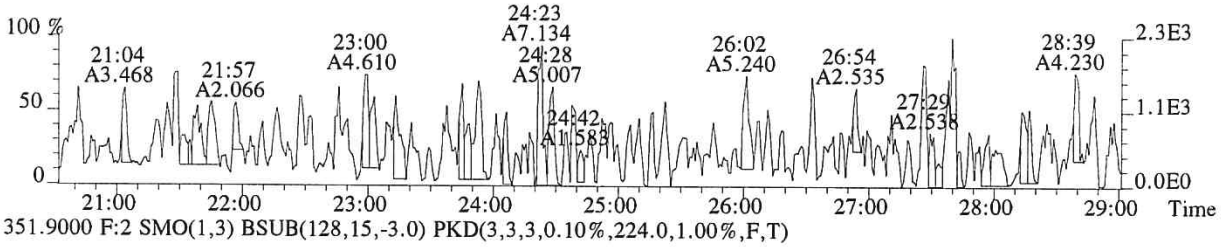


010552

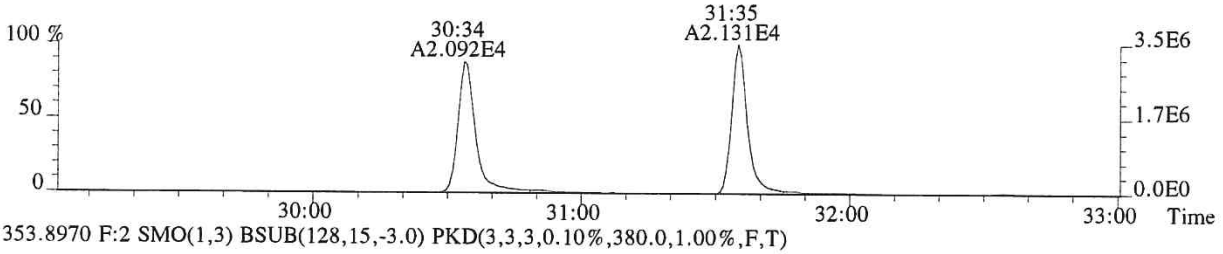
File:P518865 #1-602 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



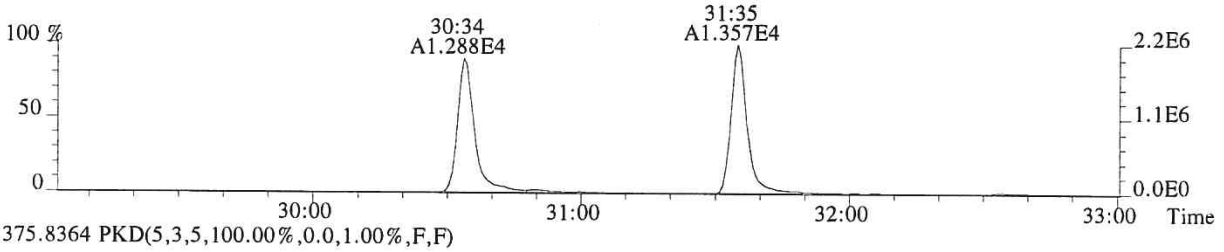
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



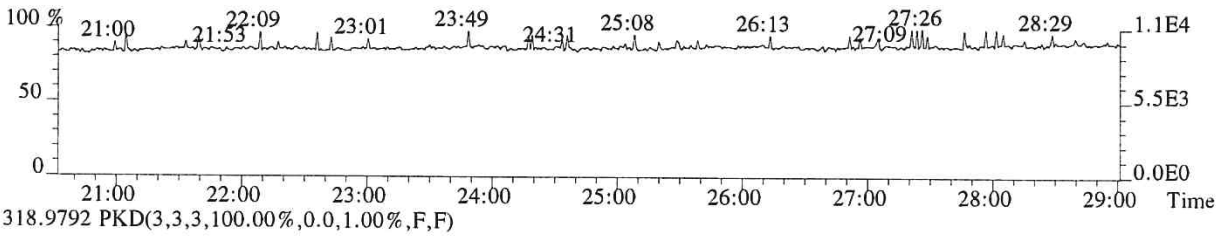
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



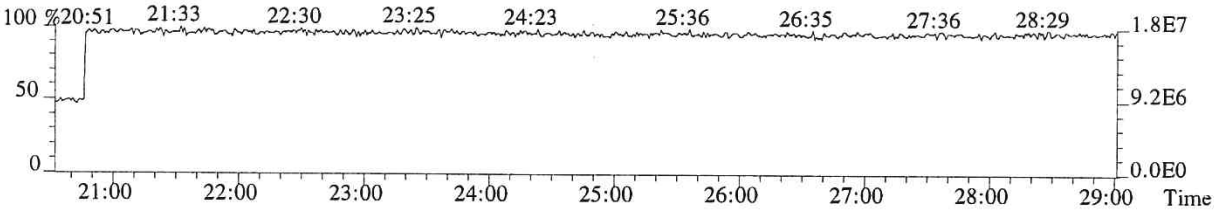
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



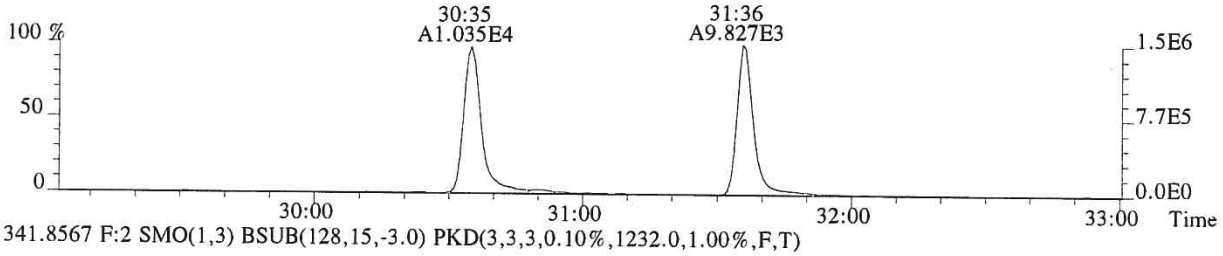
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



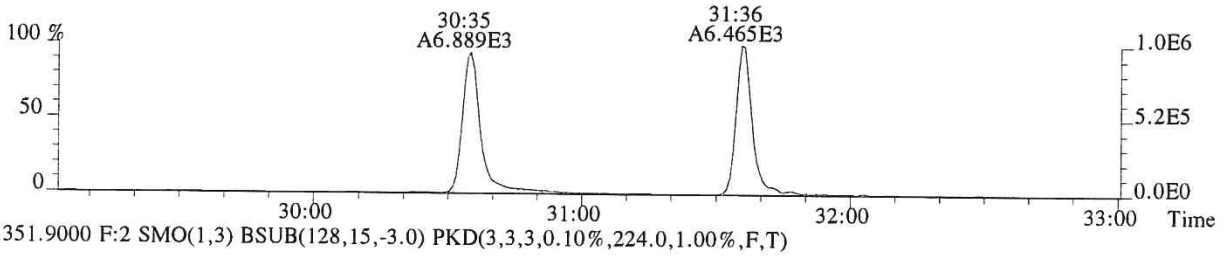
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



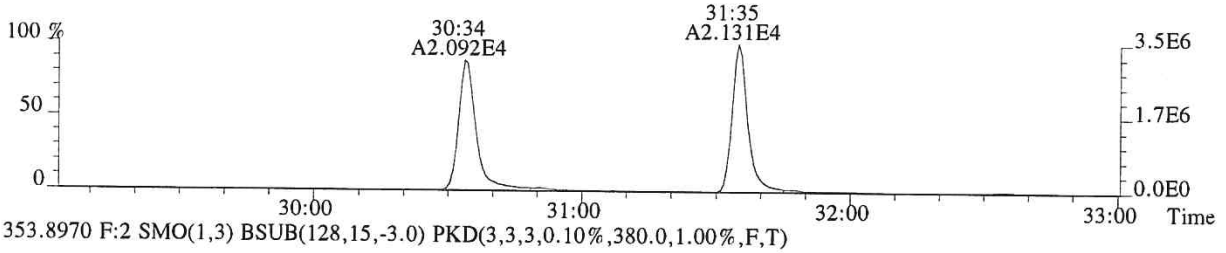
File:P518865 #1-357 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



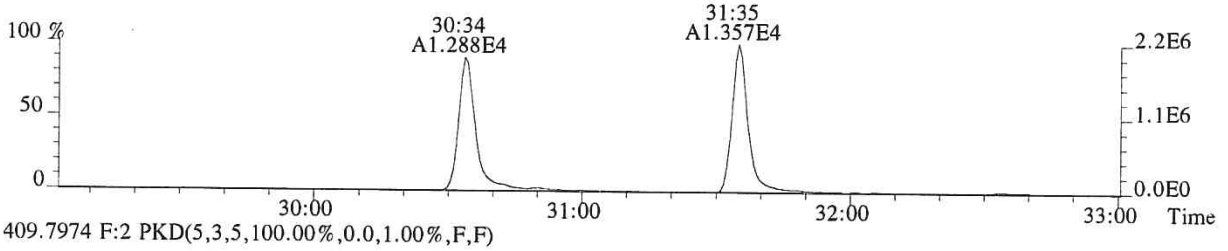
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



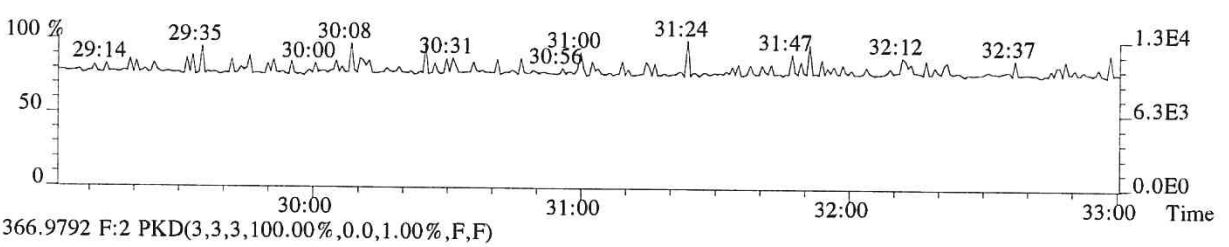
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



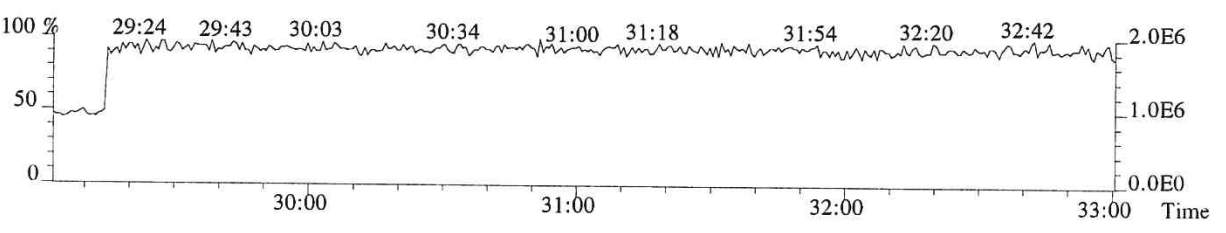
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

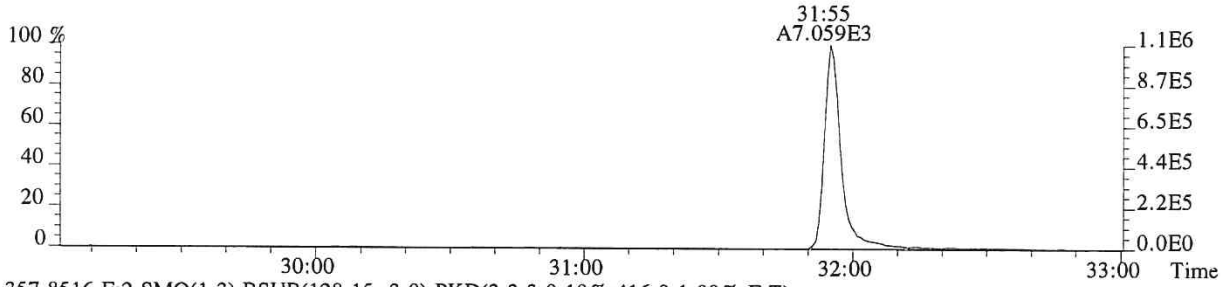


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

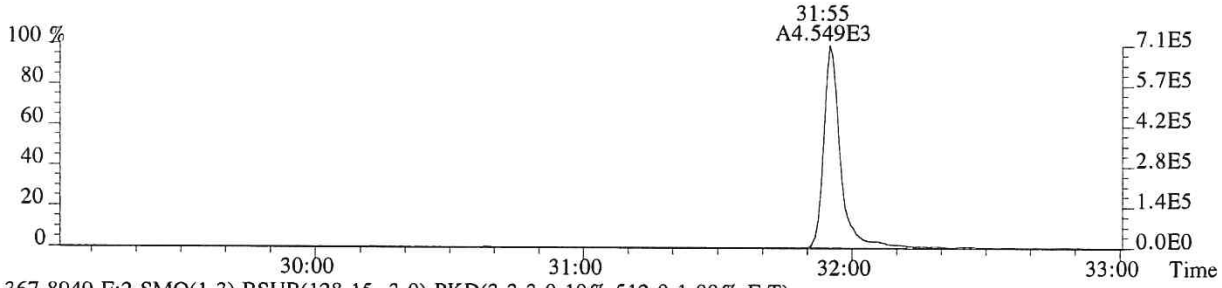


010554

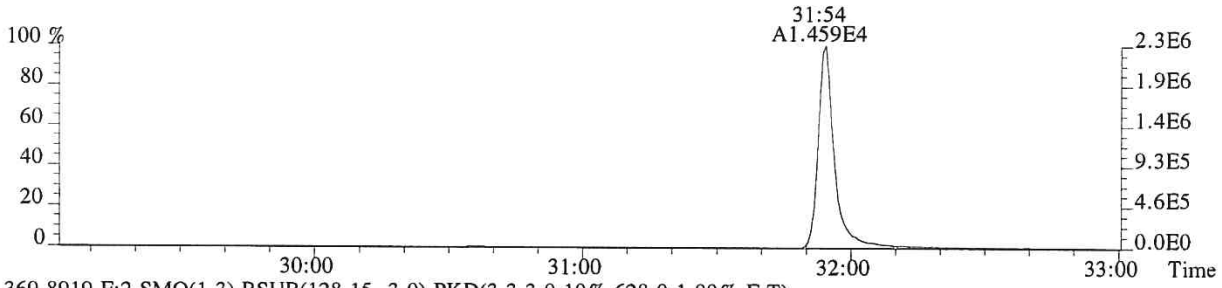
File:P518865 #1-357 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



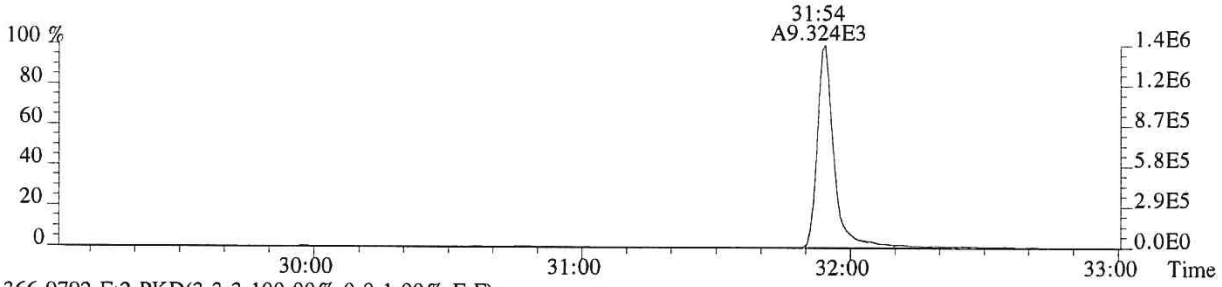
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



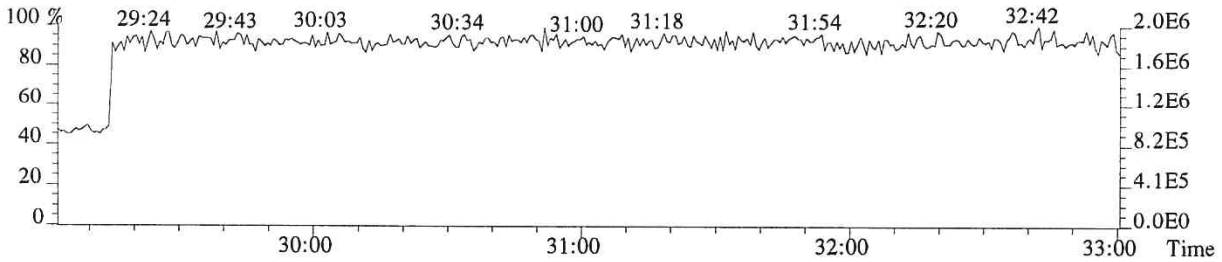
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)

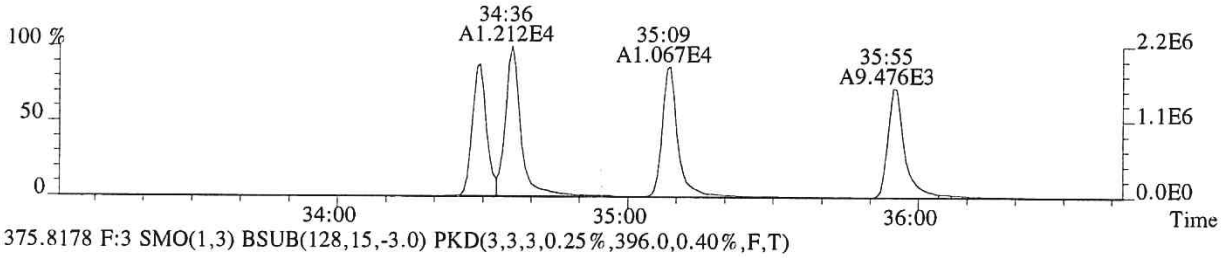


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

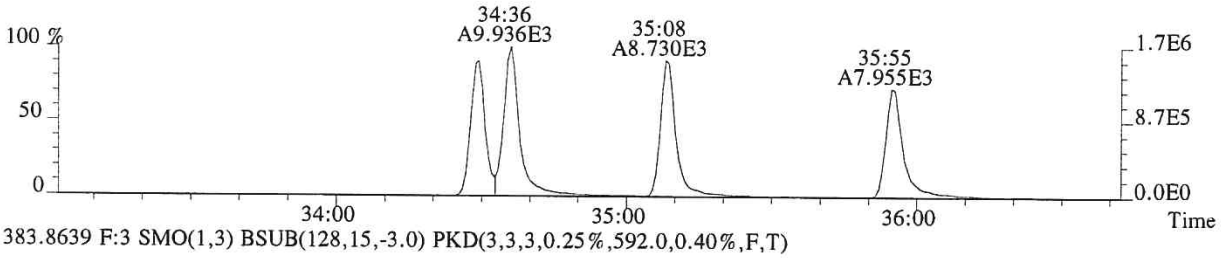


010555

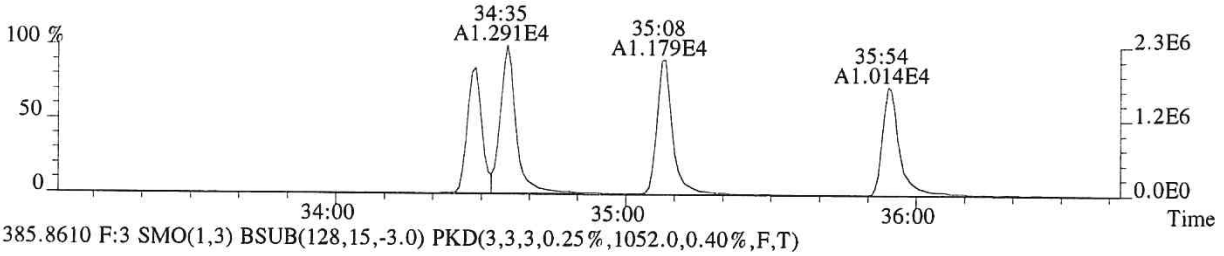
File:P518865 #1-330 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



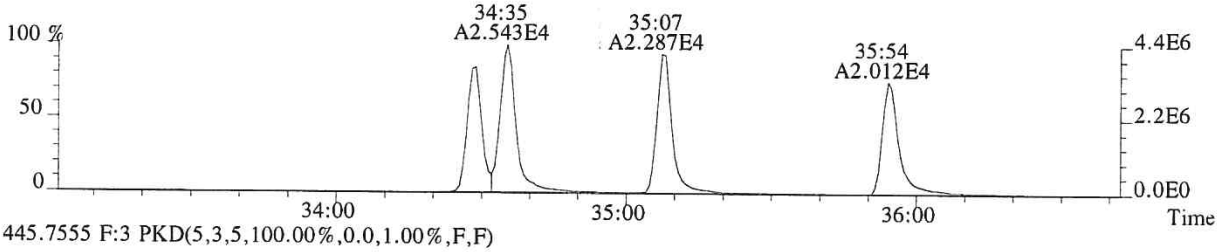
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



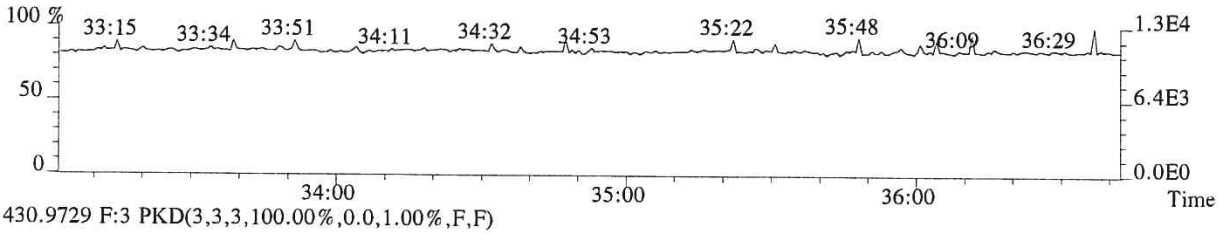
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



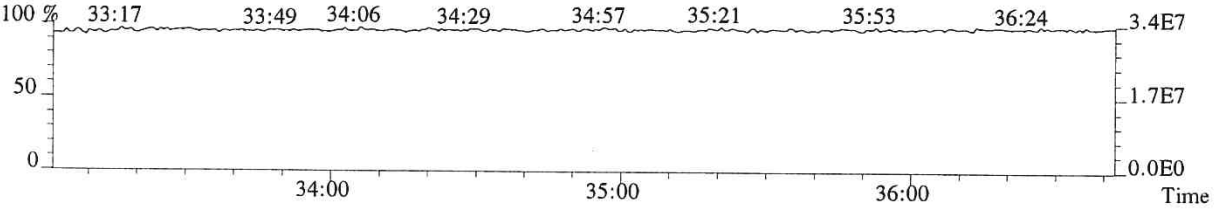
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

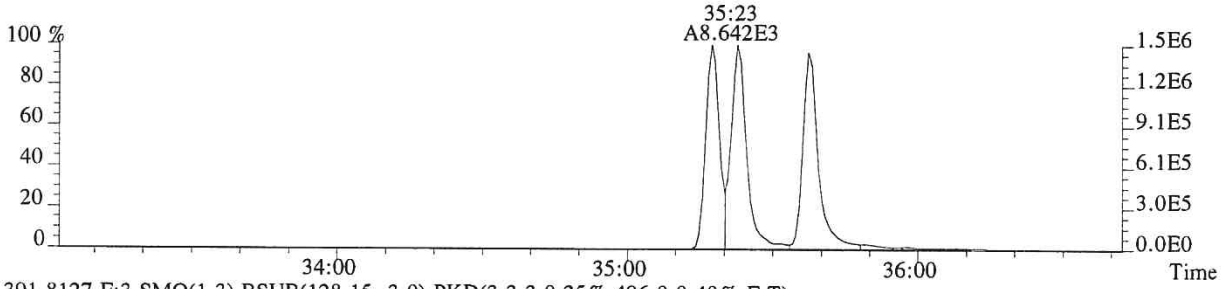


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

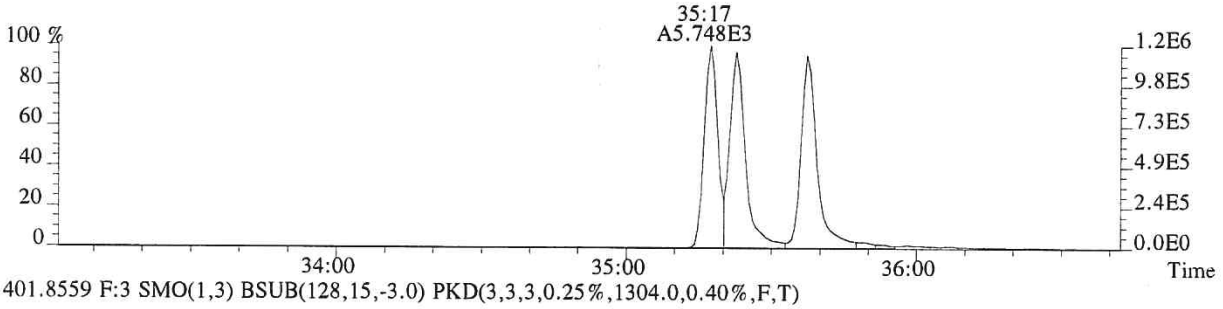


010556

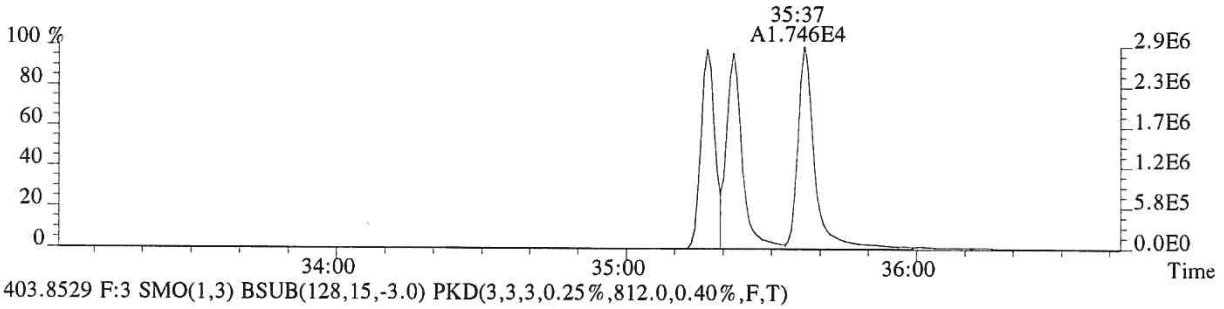
File:P518865 #1-330 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



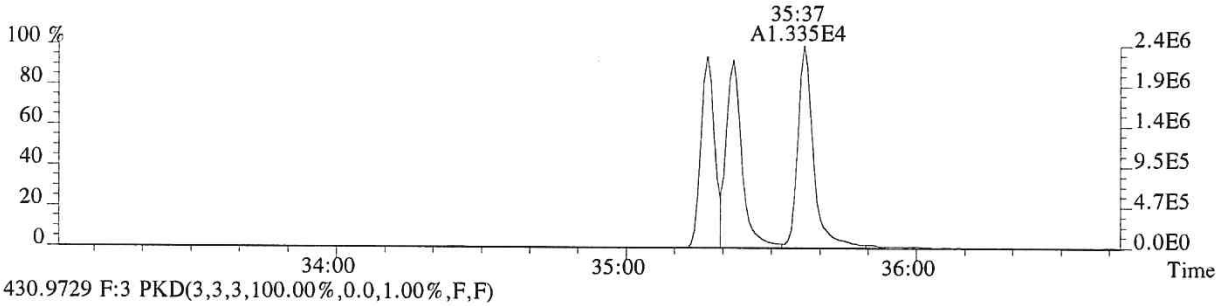
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



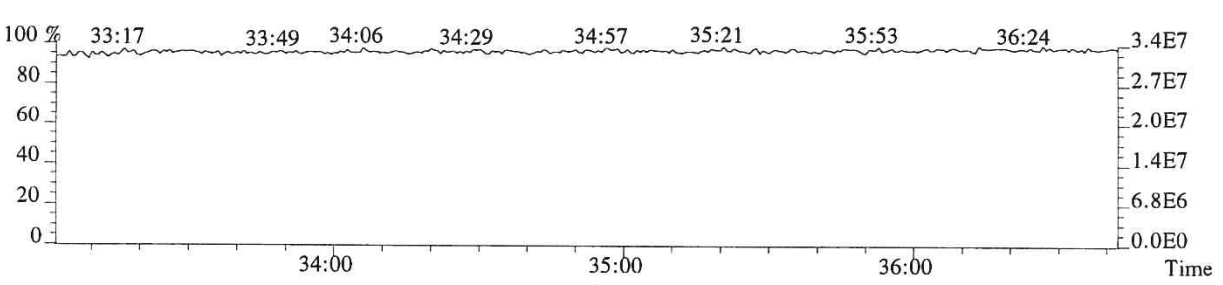
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1304.0,0.40%,F,T)



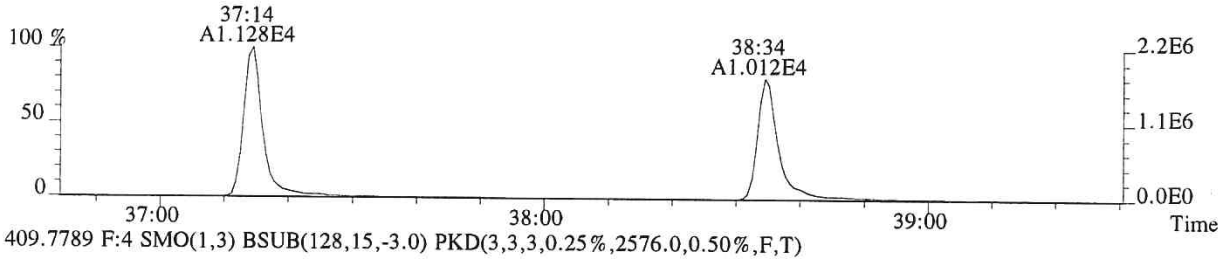
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



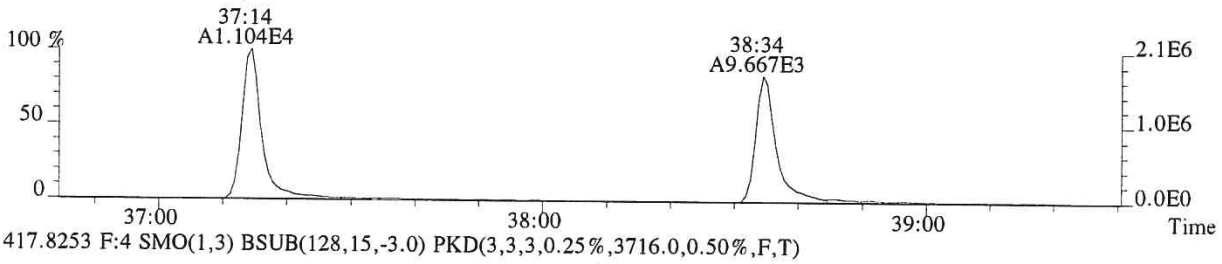
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



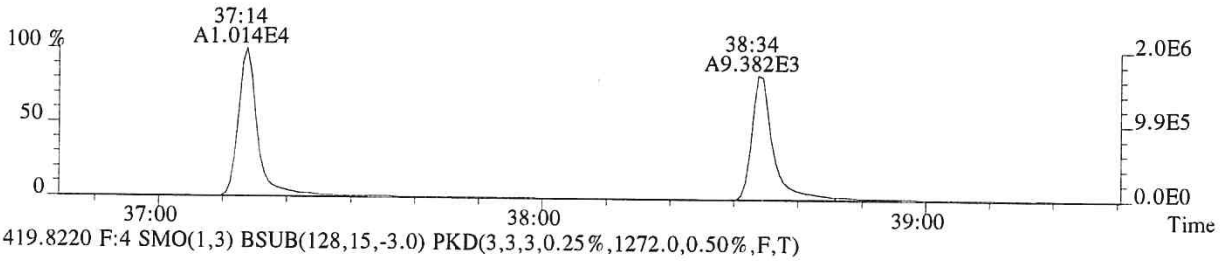
File:P518865 #1-250 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.50%,F,T)



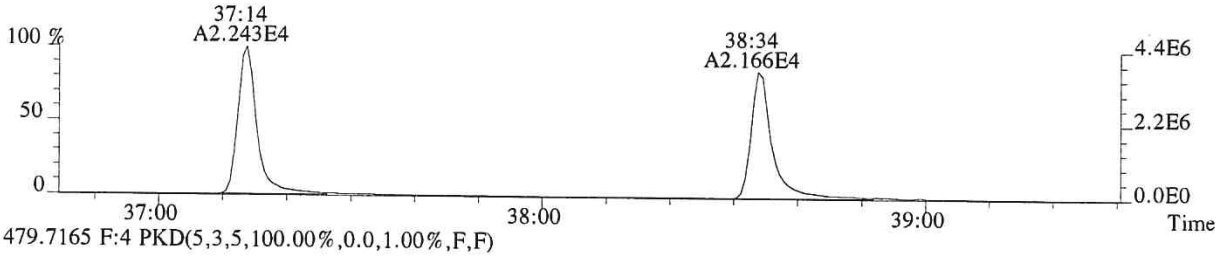
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2576.0,0.50%,F,T)



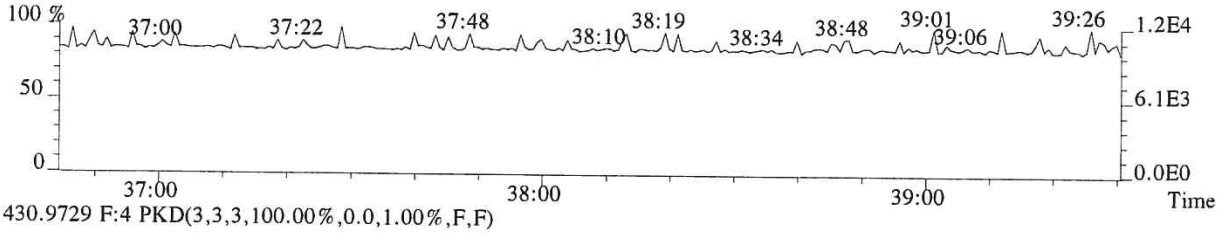
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3716.0,0.50%,F,T)



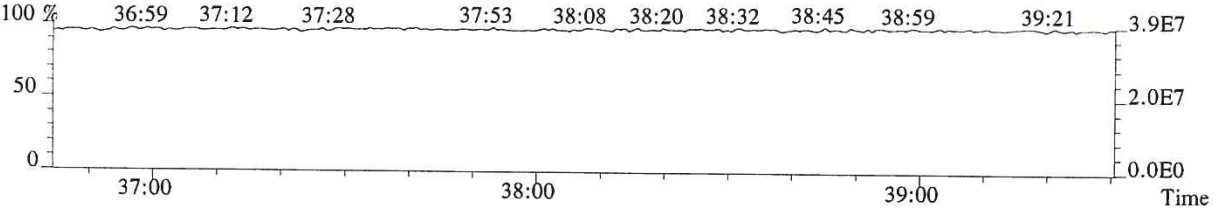
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

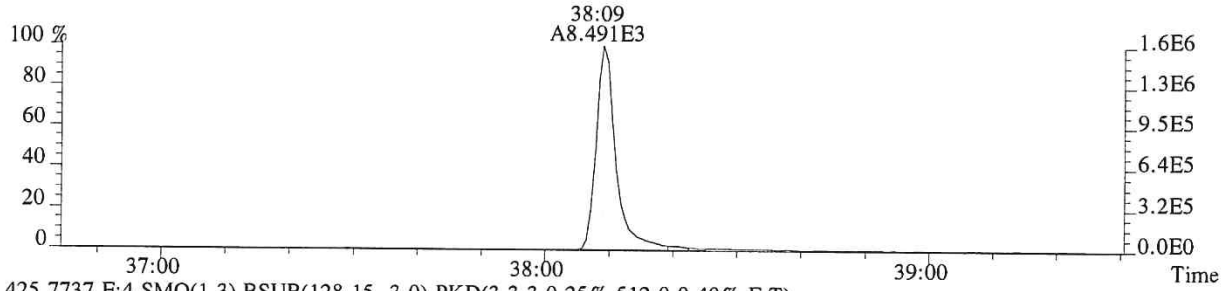


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

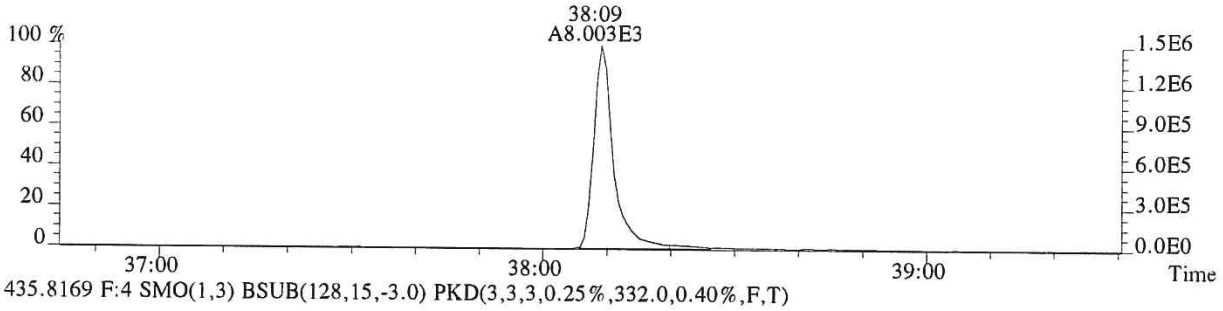


010558

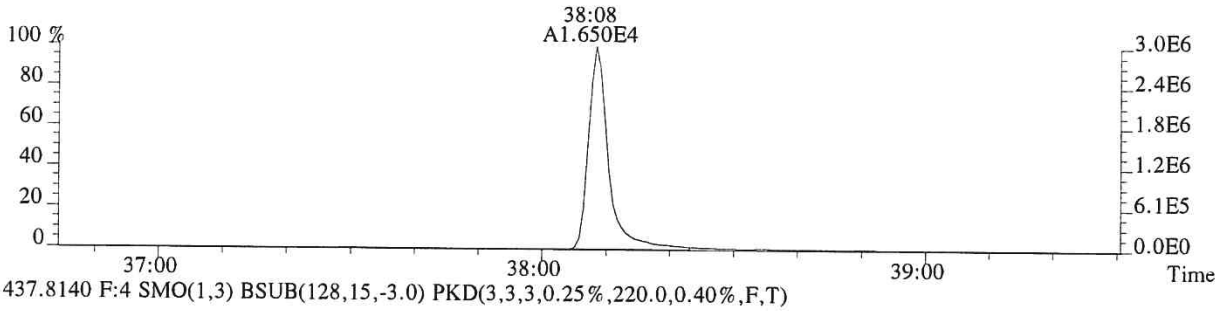
File:P518865 #1-250 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



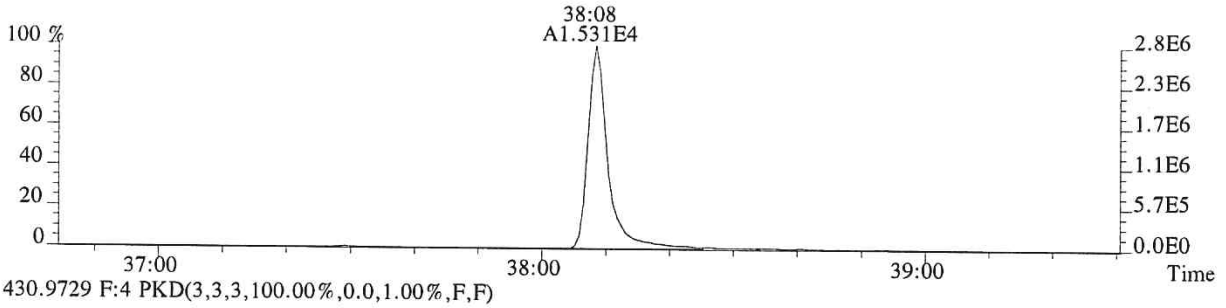
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



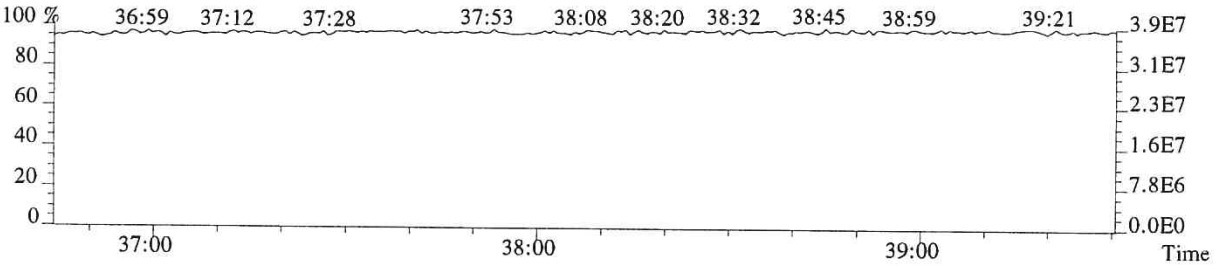
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



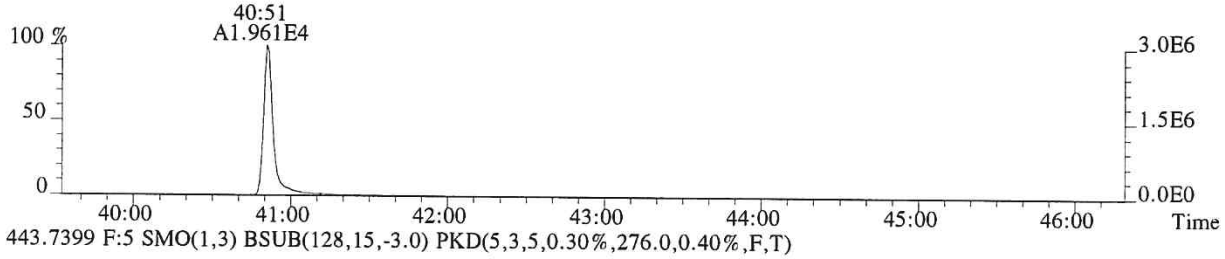
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



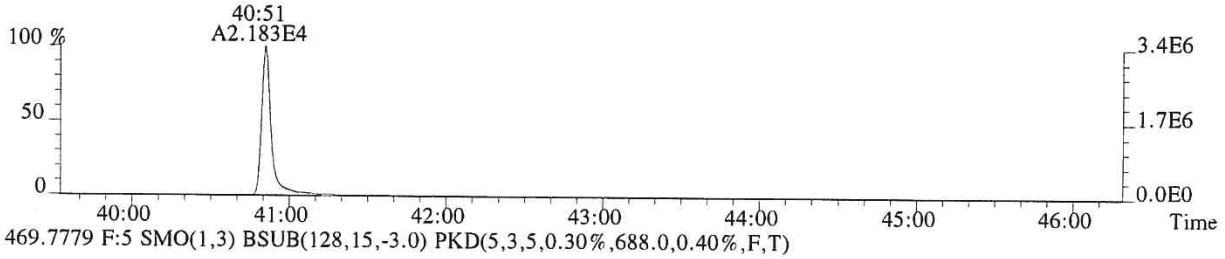
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



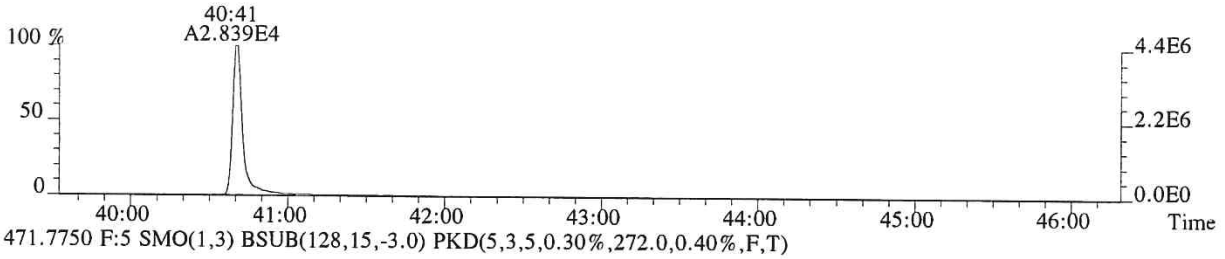
File:P518865 #1-610 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



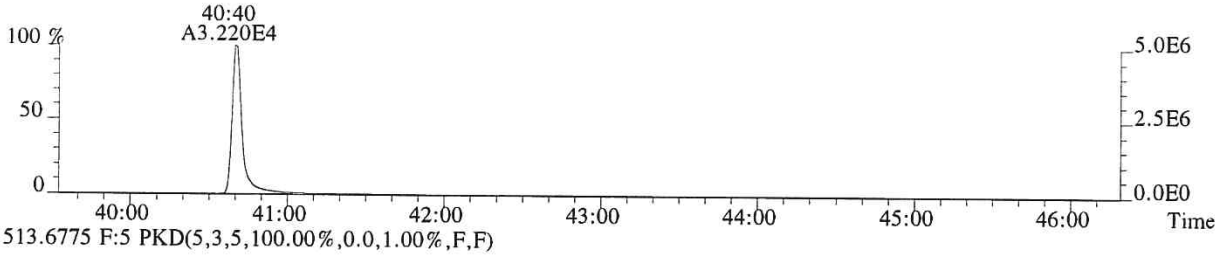
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



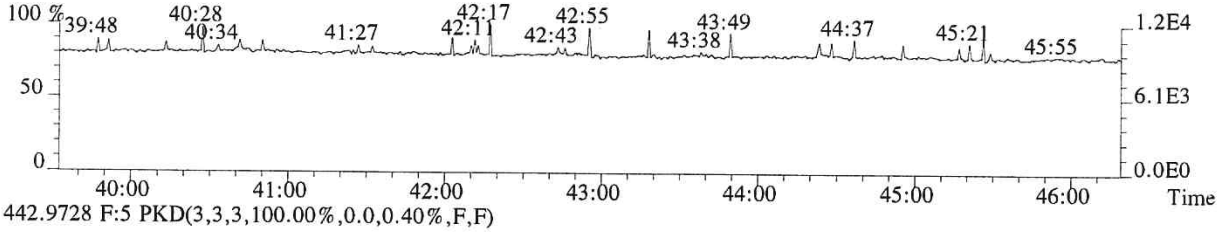
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



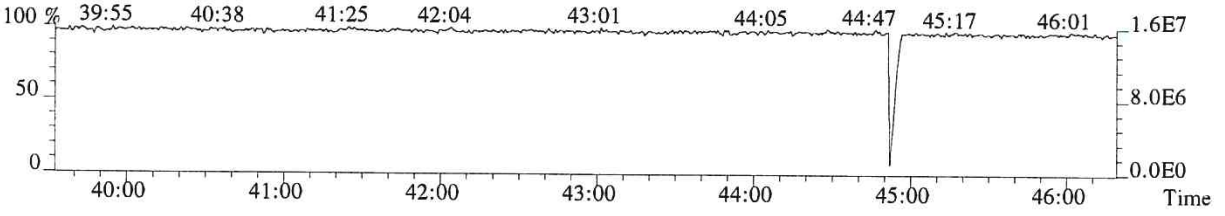
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

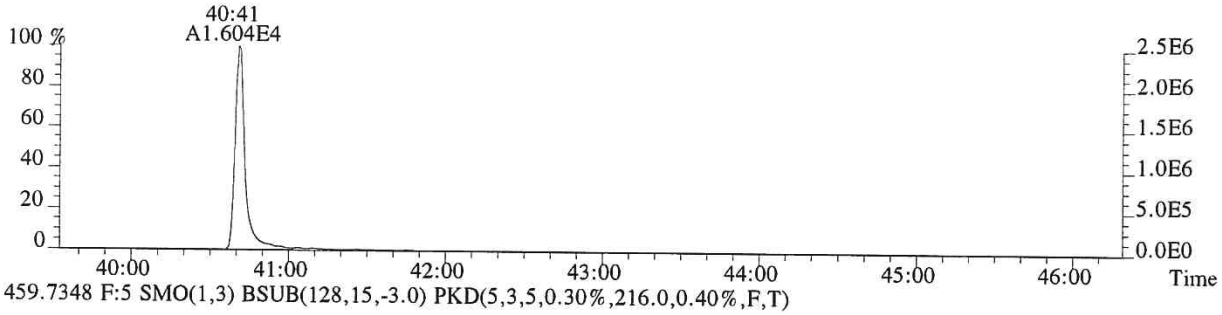


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

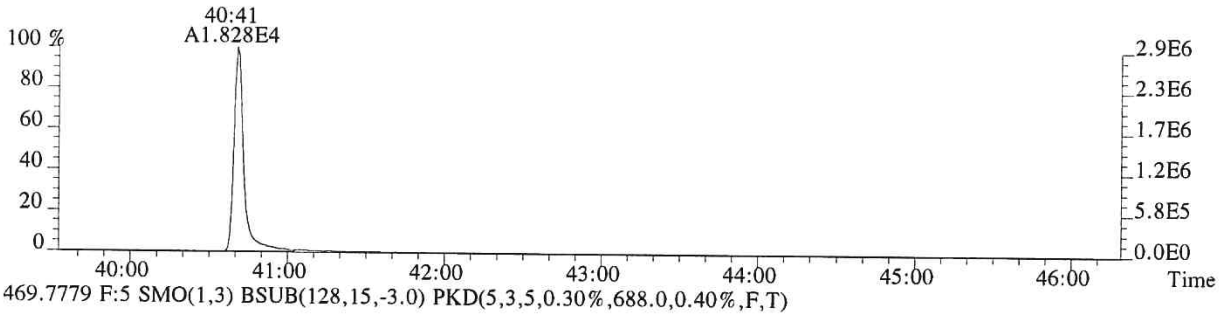


010560

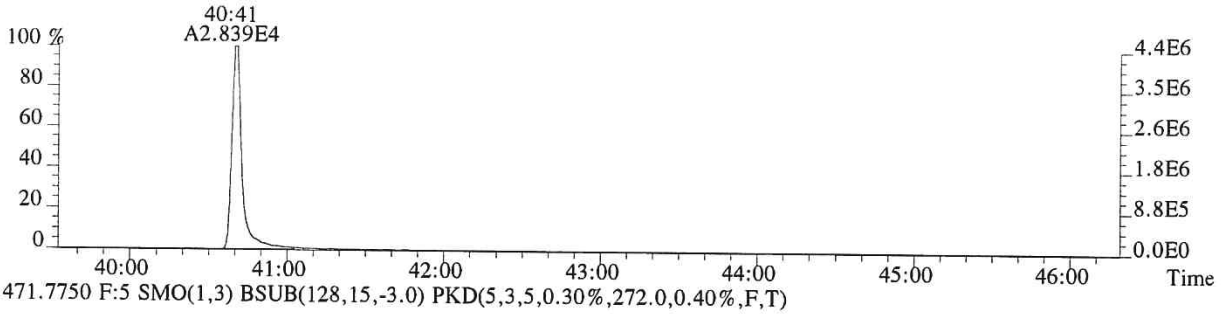
File:P518865 #1-610 Acq:17-NOV-2018 01:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



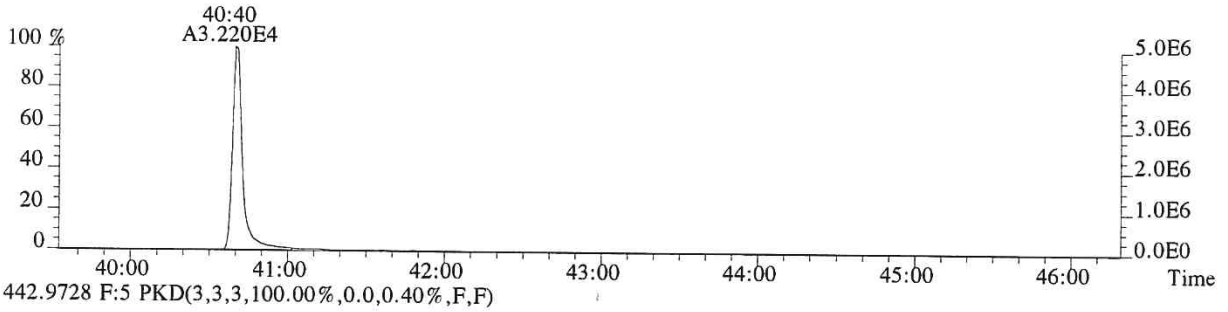
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



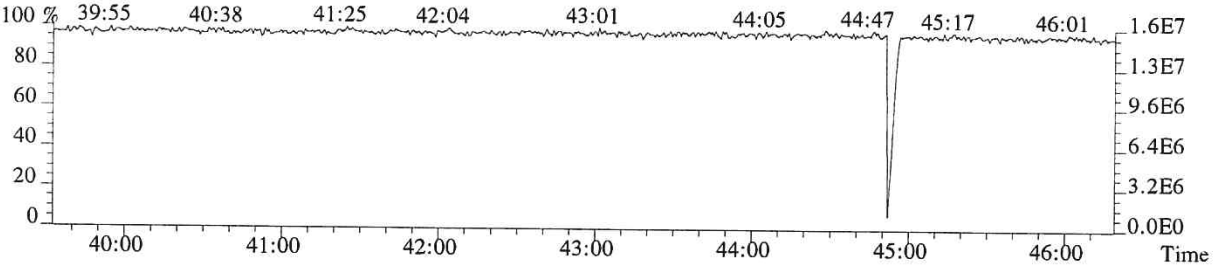
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010561

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519116

Date: 12/01/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	NA	PLA
Ending Calibration injected prior to end of 12 hour clock	NA	PLA

Analyst: TC

Second QC: MW.

ccalqc.xls 07/17/12

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181130D.SPL
Last Modified: Monday, December 03, 2018 07:45:30 Central Standard Time
Printed: Monday, December 03, 2018 07:45:32 Central Standard Time

Page Position (1, 1)

OPUS-5: P519116RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/1/18	15:35	P519116	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMSCheck 05:03
2		16:23	P519117	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		—	P519118	MB	EQ1800470-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		18:04	P519119	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		18:48	P519120	E1801048-001	E1801048-001	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		19:30	P519121	E1801049-001	E1801049-001	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		20:26	P519122	E1801051-001	E1801051-001	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		21:15	P519123	E1801052-001	E1801052-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		22:04	P519124	E1801035-017	E1801035-017	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		22:52	P519125	E1801038-018	E1801038-018	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		23:41	P519126	E1801038-019	E1801038-019	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12	12/2/18	00:30	P519127	E1801038-020	E1801038-020	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		01:18	P519128	E1801050-001	E1801050-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		02:07	P519129	K1811038-004	K1811038-004	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		02:56	P519130	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMSCheck 06:51
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---		EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	12/04/18	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JL

5DBC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: ALS-TX Case No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID:E-HRMS-07

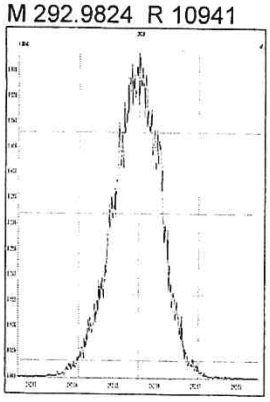
Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

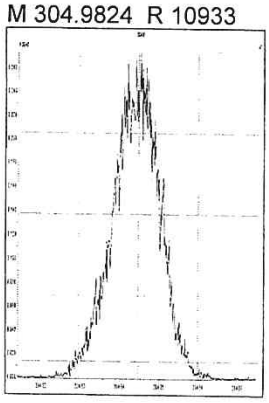
THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P519117	1-DEC-18	16:23:43
194503	CS3	P519116	1-DEC-18	15:35:05
METHOD BLANK	EQ1800469-01	P519119	1-DEC-18	18:01:01
EFF-RCL	E1801048-001	P519120	1-DEC-18	18:49:39
001A	E1801049-001	P519121	1-DEC-18	19:38:19
1K81183-01	E1801051-001	P519122	1-DEC-18	20:26:56
SCL-7644-004	E1801052-001	P519123	1-DEC-18	21:15:35
SL0078	E1801035-017	P519124	1-DEC-18	22:04:14
SL0536	E1801038-018	P519125	1-DEC-18	22:52:52
SL0537	E1801038-019	P519126	1-DEC-18	23:41:31
SL0515	E1801038-020	P519127	2-DEC-18	00:30:10
002A	E1801050-001	P519128	2-DEC-18	01:18:49
UU03602	K1811038-004	P519129	2-DEC-18	02:07:28

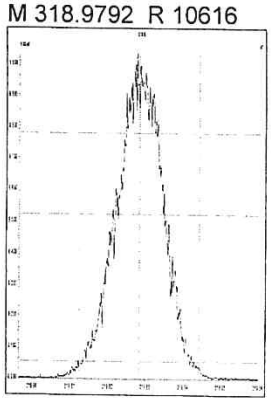
M 292.9824 R 10941



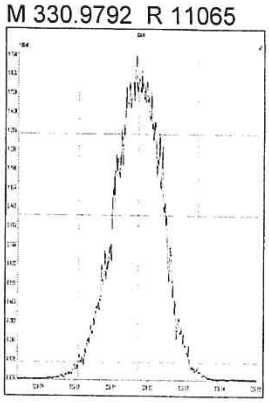
M 304.9824 R 10933



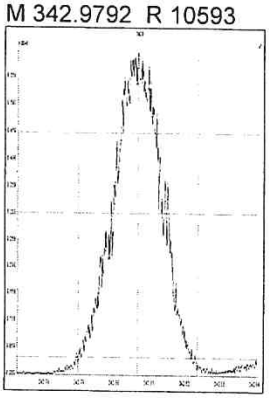
M 318.9792 R 10616



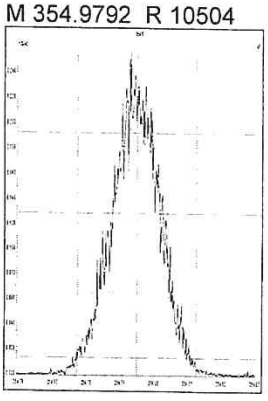
M 330.9792 R 11065



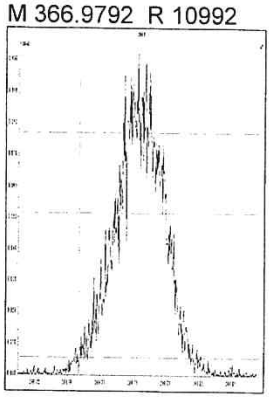
M 342.9792 R 10593



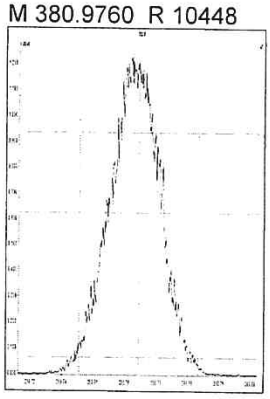
M 354.9792 R 10504



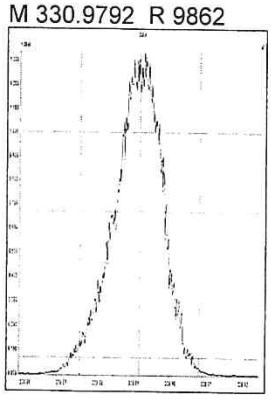
M 366.9792 R 10992



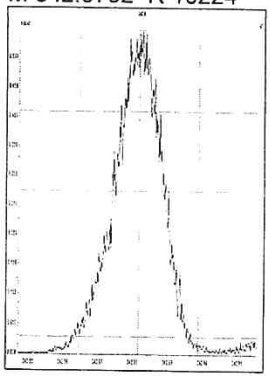
M 380.9760 R 10448



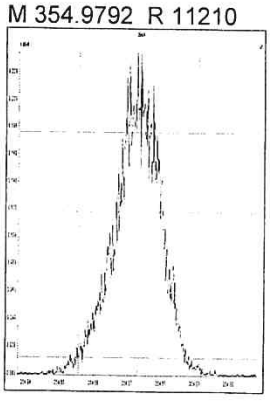
M 330.9792 R 9862



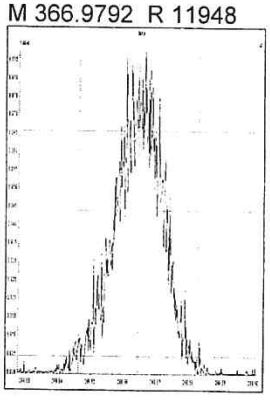
M 342.9792 R 10224



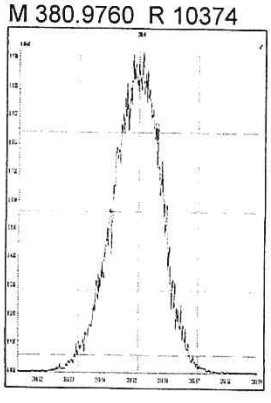
M 354.9792 R 11210



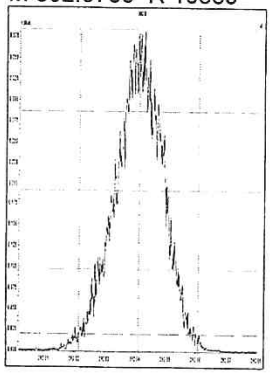
M 366.9792 R 11948



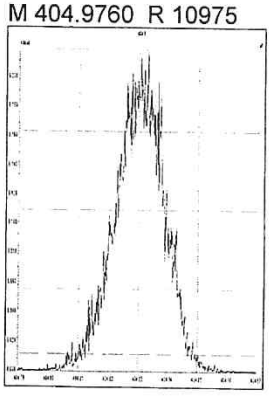
M 380.9760 R 10374



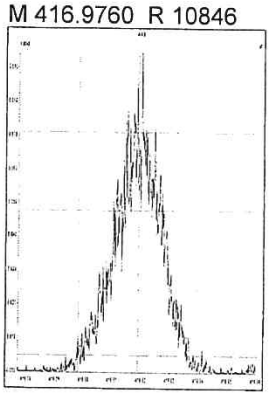
M 392.9760 R 10889



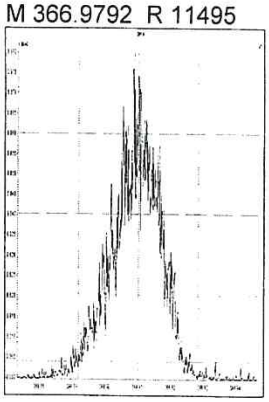
M 404.9760 R 10975



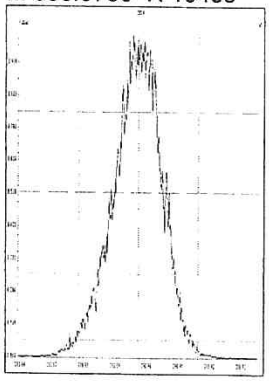
M 416.9760 R 10846



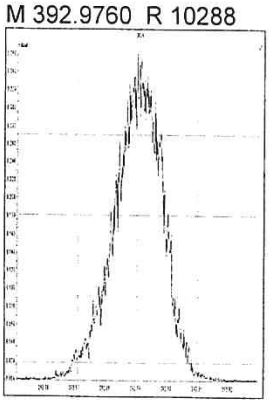
M 366.9792 R 11495



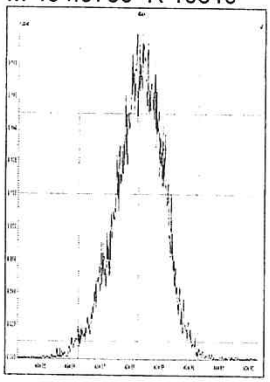
M 380.9760 R 10485



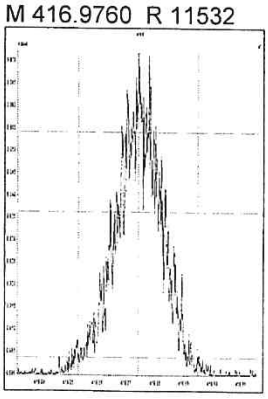
M 392.9760 R 10288



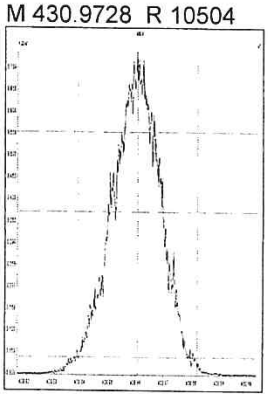
M 404.9760 R 10619



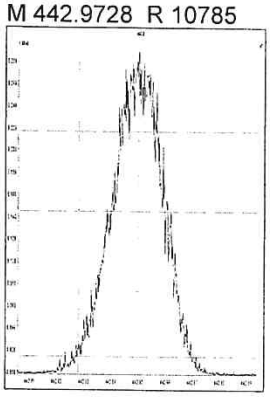
M 416.9760 R 11532



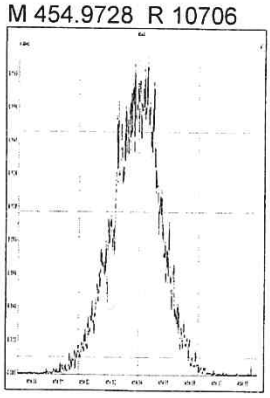
M 430.9728 R 10504



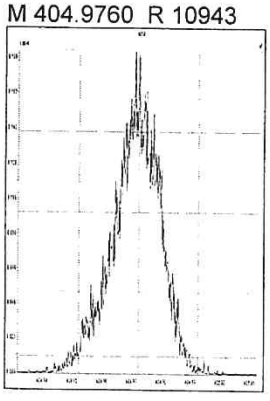
M 442.9728 R 10785



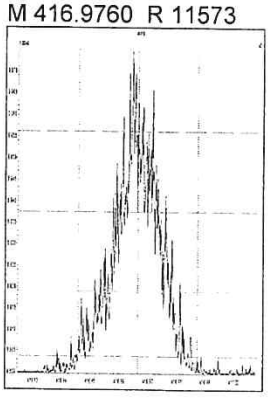
M 454.9728 R 10706



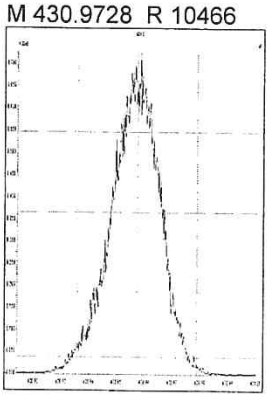
M 404.9760 R 10943



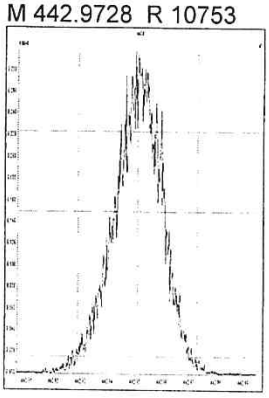
M 416.9760 R 11573



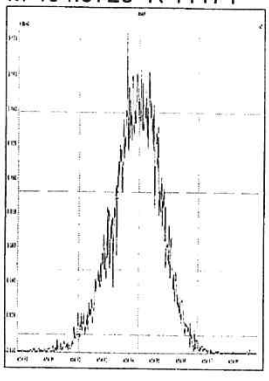
M 430.9728 R 10466



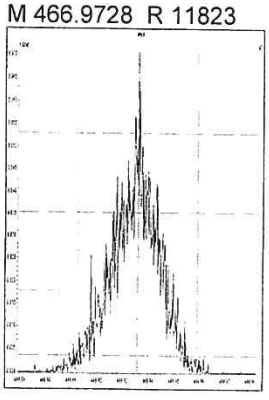
M 442.9728 R 10753



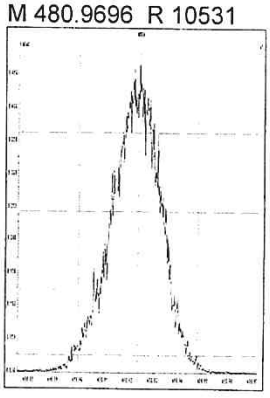
M 454.9728 R 11174



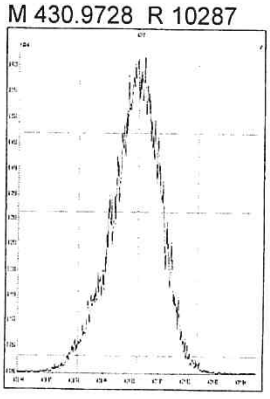
M 466.9728 R 11823



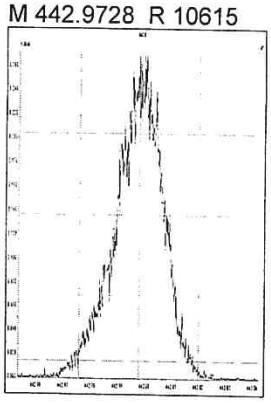
M 480.9696 R 10531



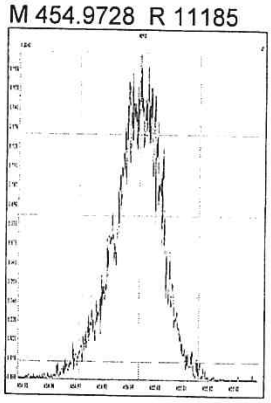
M 430.9728 R 10287



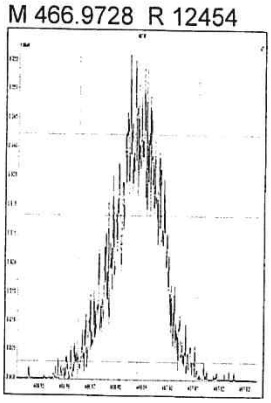
M 442.9728 R 10615



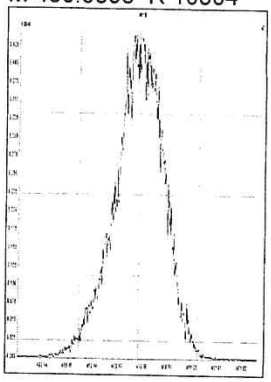
M 454.9728 R 11185



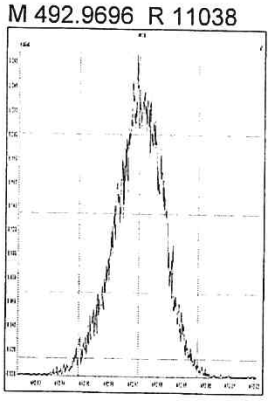
M 466.9728 R 12454



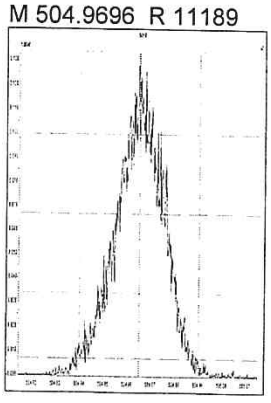
M 480.9696 R 10504



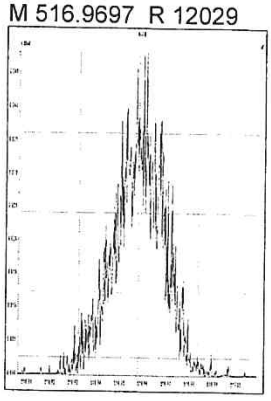
M 492.9696 R 11038



M 504.9696 R 11189



M 516.9697 R 12029

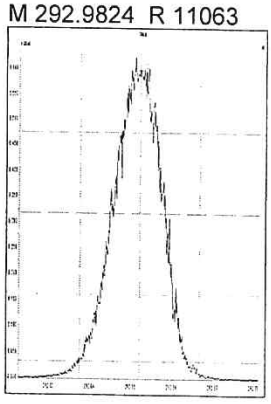


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

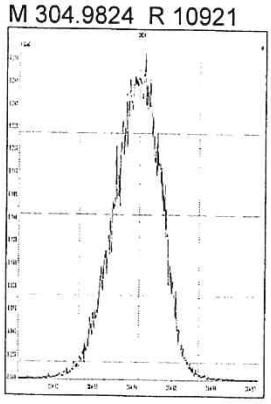
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Sunday, December 02, 2018 06:51:03 Central Standard Time

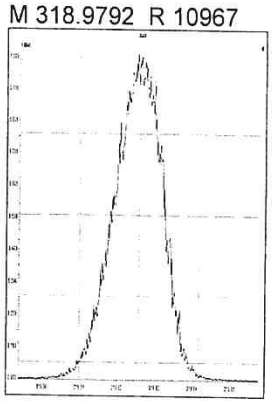
M 292.9824 R 11063



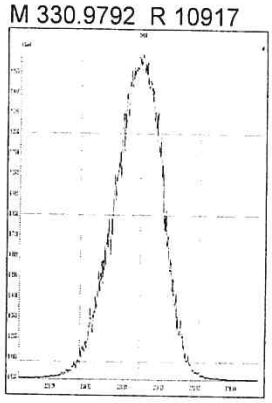
M 304.9824 R 10921



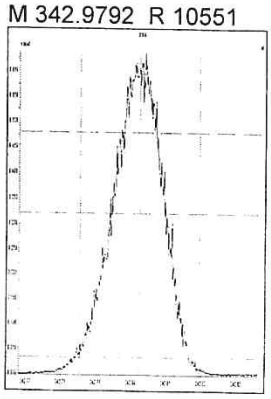
M 318.9792 R 10967



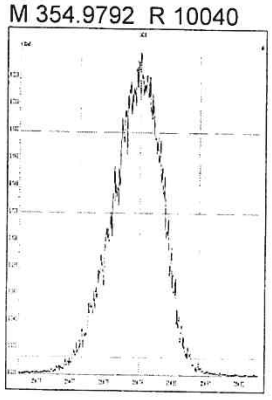
M 330.9792 R 10917



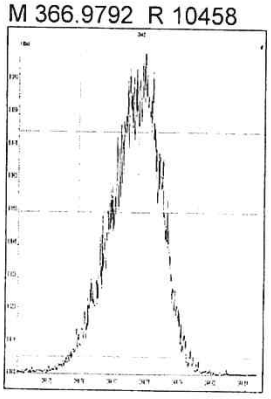
M 342.9792 R 10551



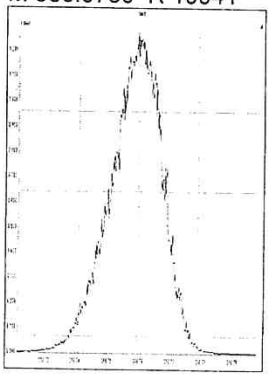
M 354.9792 R 10040



M 366.9792 R 10458



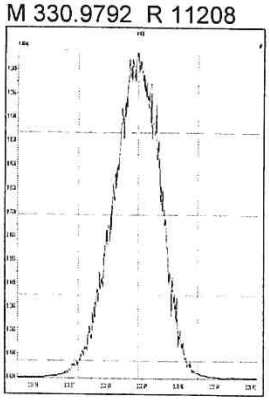
M 380.9760 R 10041



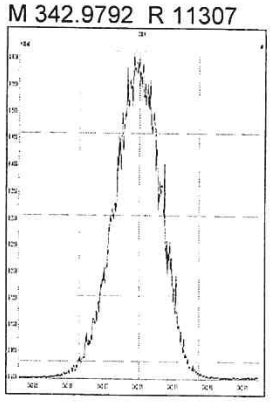
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Sunday, December 02, 2018 06:51:46 Central Standard Time

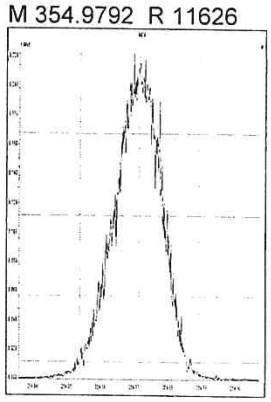
M 330.9792 R 11208



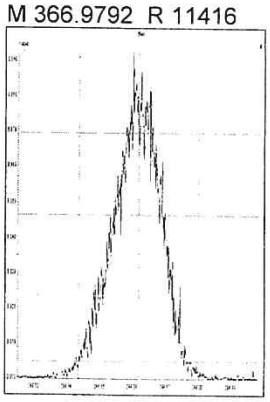
M 342.9792 R 11307



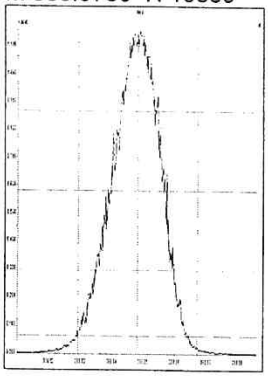
M 354.9792 R 11626



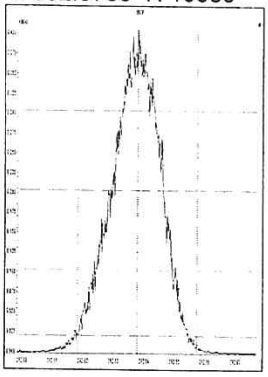
M 366.9792 R 11416



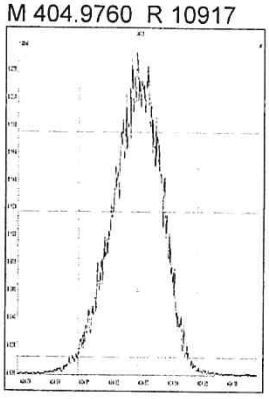
M 380.9760 R 10869



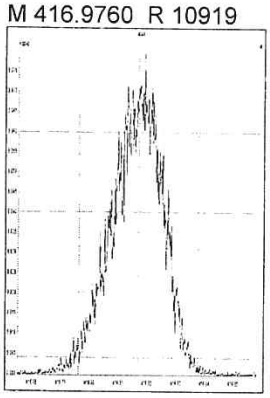
M 392.9760 R 10685



M 404.9760 R 10917



M 416.9760 R 10919

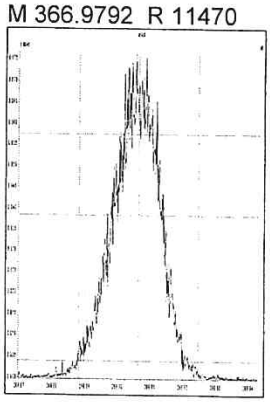


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

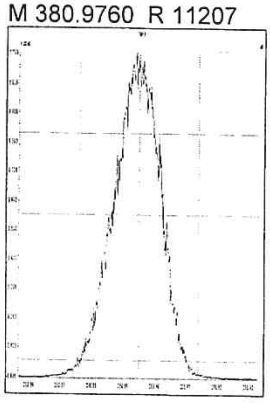
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Sunday, December 02, 2018 06:52:47 Central Standard Time

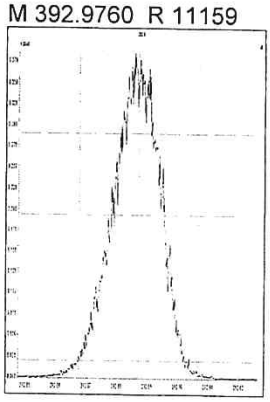
M 366.9792 R 11470



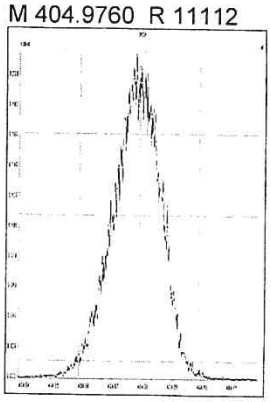
M 380.9760 R 11207



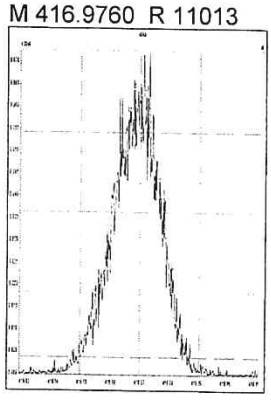
M 392.9760 R 11159



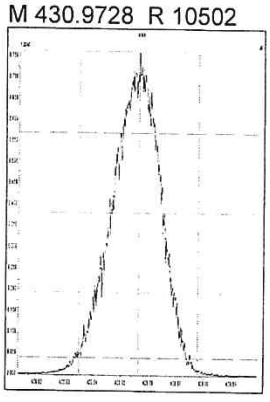
M 404.9760 R 11112



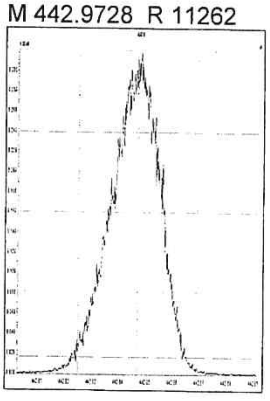
M 416.9760 R 11013



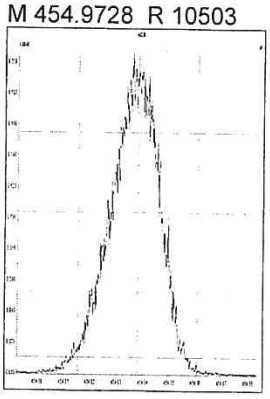
M 430.9728 R 10502



M 442.9728 R 11262



M 454.9728 R 10503

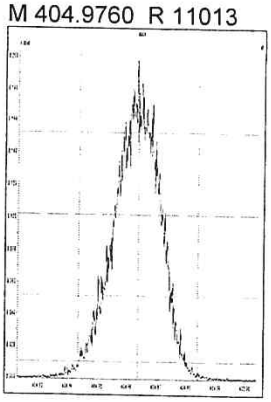


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795** Page 1 of 1

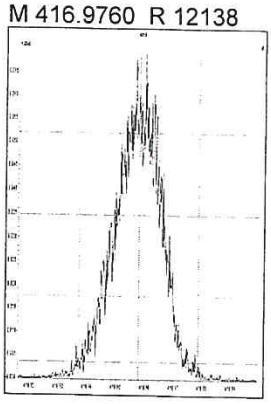
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Sunday, December 02, 2018 06:53:23 Central Standard Time

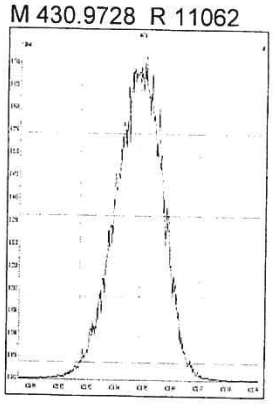
M 404.9760 R 11013



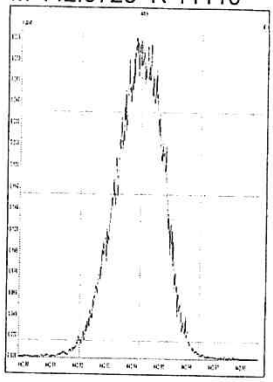
M 416.9760 R 12138



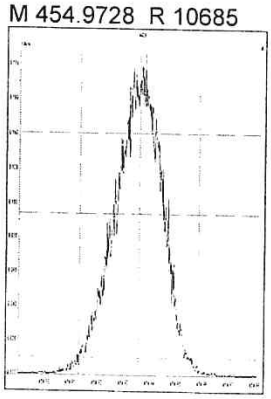
M 430.9728 R 11062



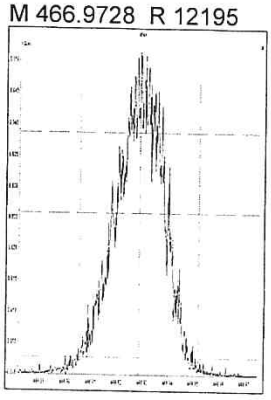
M 442.9728 R 11110



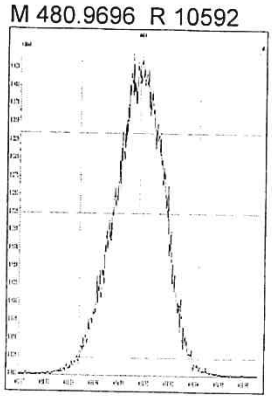
M 454.9728 R 10685



M 466.9728 R 12195



M 480.9696 R 10592

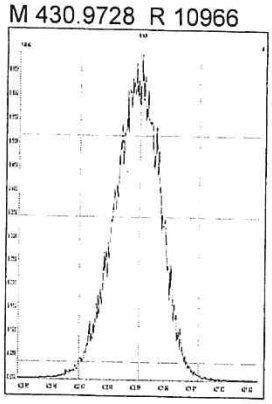


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

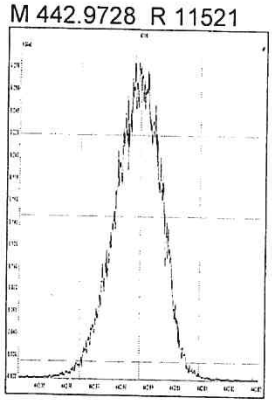
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Sunday, December 02, 2018 06:54:13 Central Standard Time

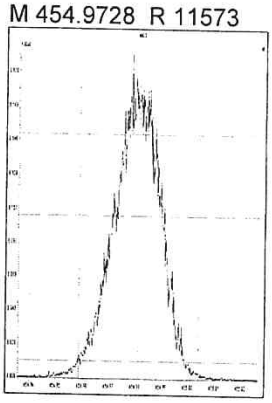
M 430.9728 R 10966



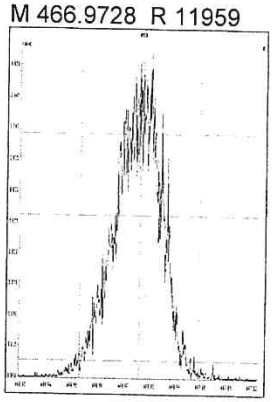
M 442.9728 R 11521



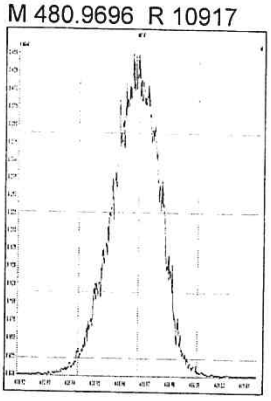
M 454.9728 R 11573



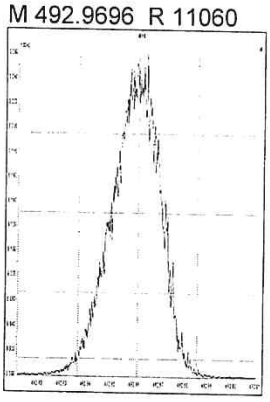
M 466.9728 R 11959



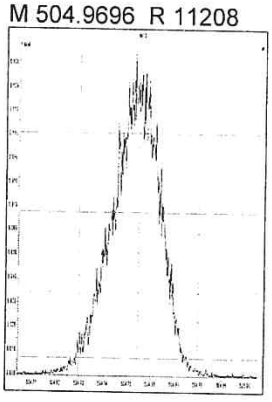
M 480.9696 R 10917



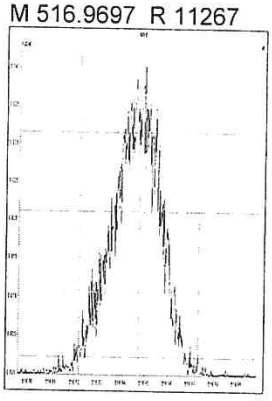
M 492.9696 R 11060



M 504.9696 R 11208



M 516.9697 R 11267



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

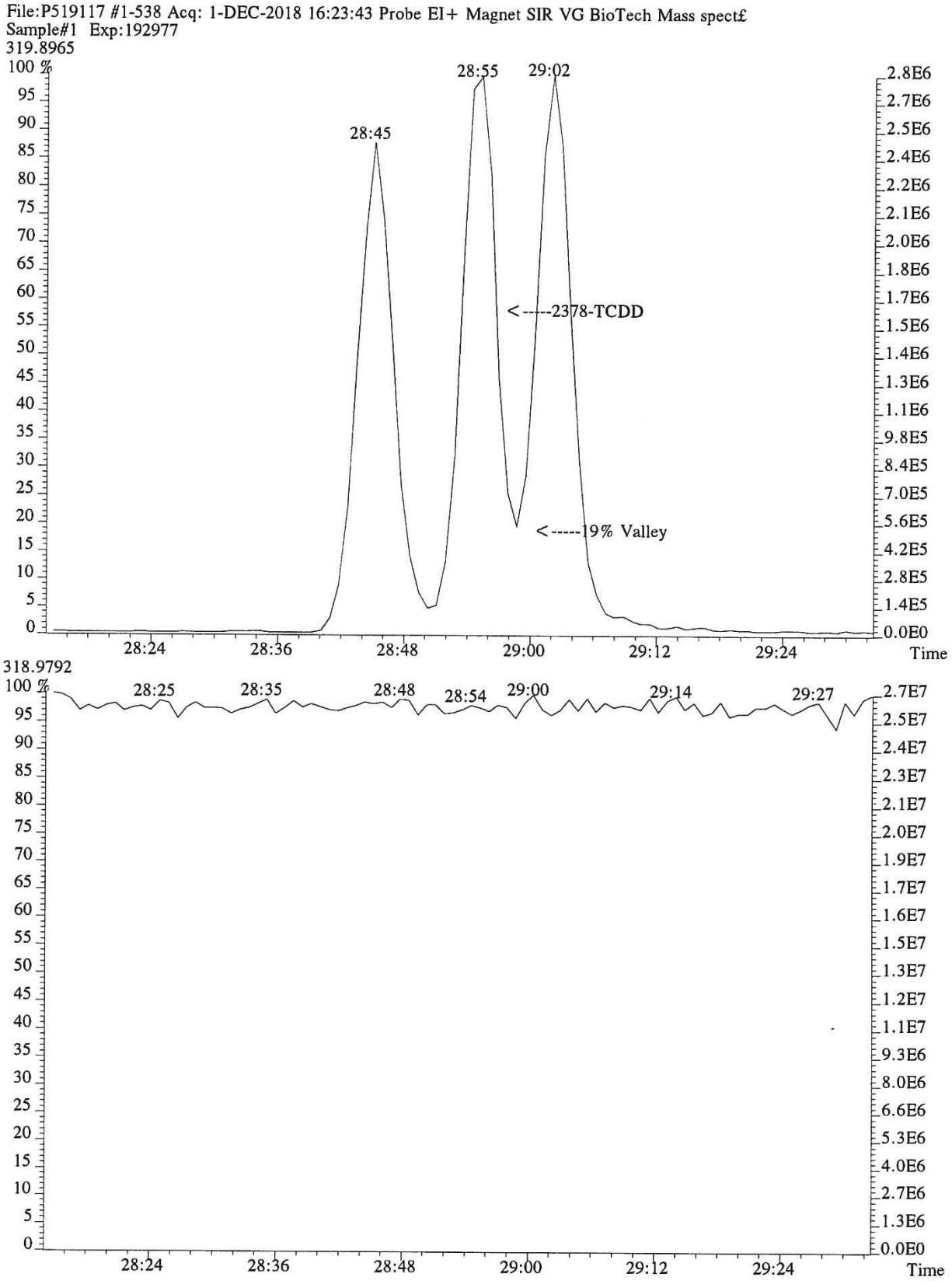
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

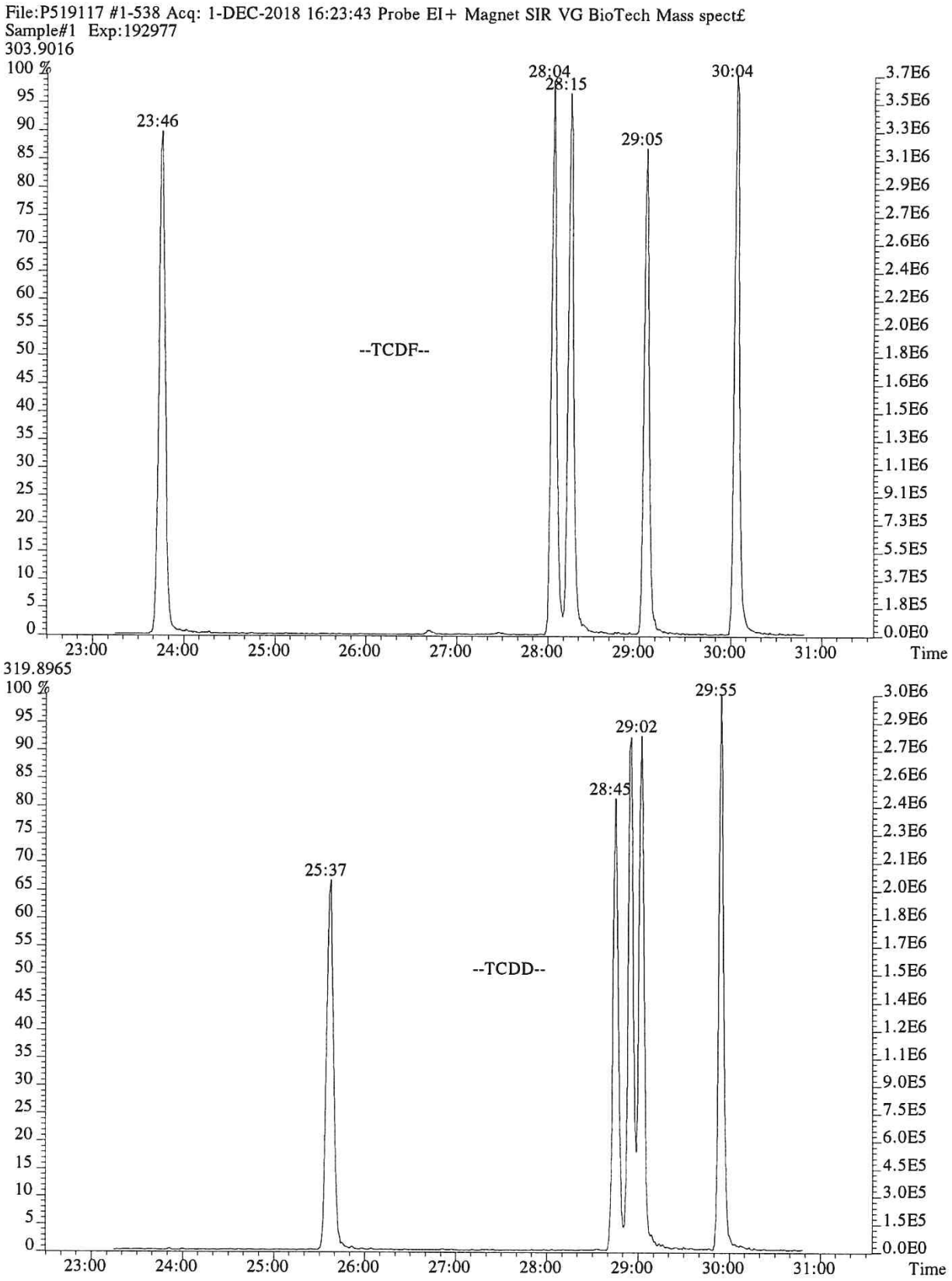
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519117
Date Analyzed: 1-DEC-2018
Time Analyzed: 16:23:43

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:46	30:04
TCDD	25:37	29:55
PeCDF	30:01	34:16
PeCDD	31:33	34:00
HxCDF	34:55	37:25
HxCDD	35:26	37:01
HpCDF	38:39	40:04
HpCDD	38:54	39:35

% Valley 2378-TCDD: 19 %


File:P519117 #1-538 Acq: 1-DEC-2018 16:23:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
28:45
28:55
29:02
<-----2378-TCDD
<-----19% Valley
Time
318.9792
28:25
28:35
28:48
28:54
29:00
29:14
29:27
Time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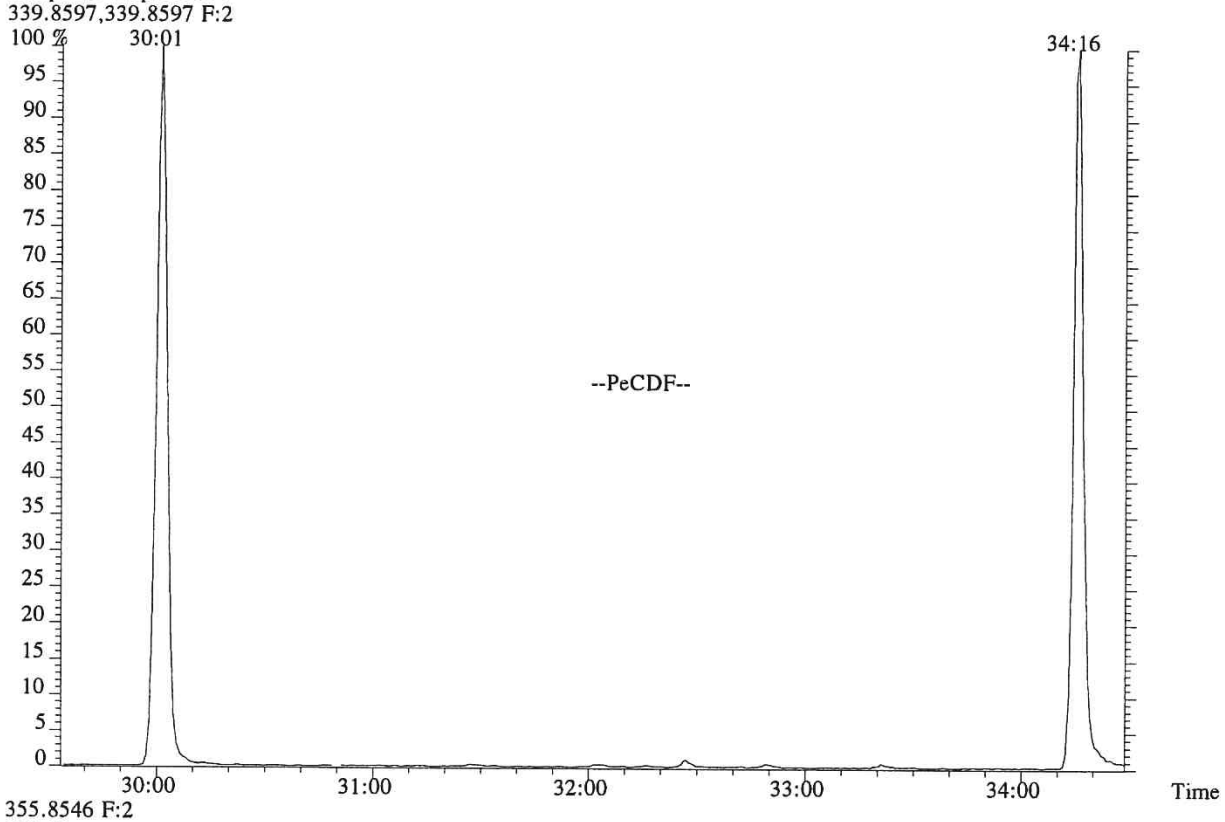
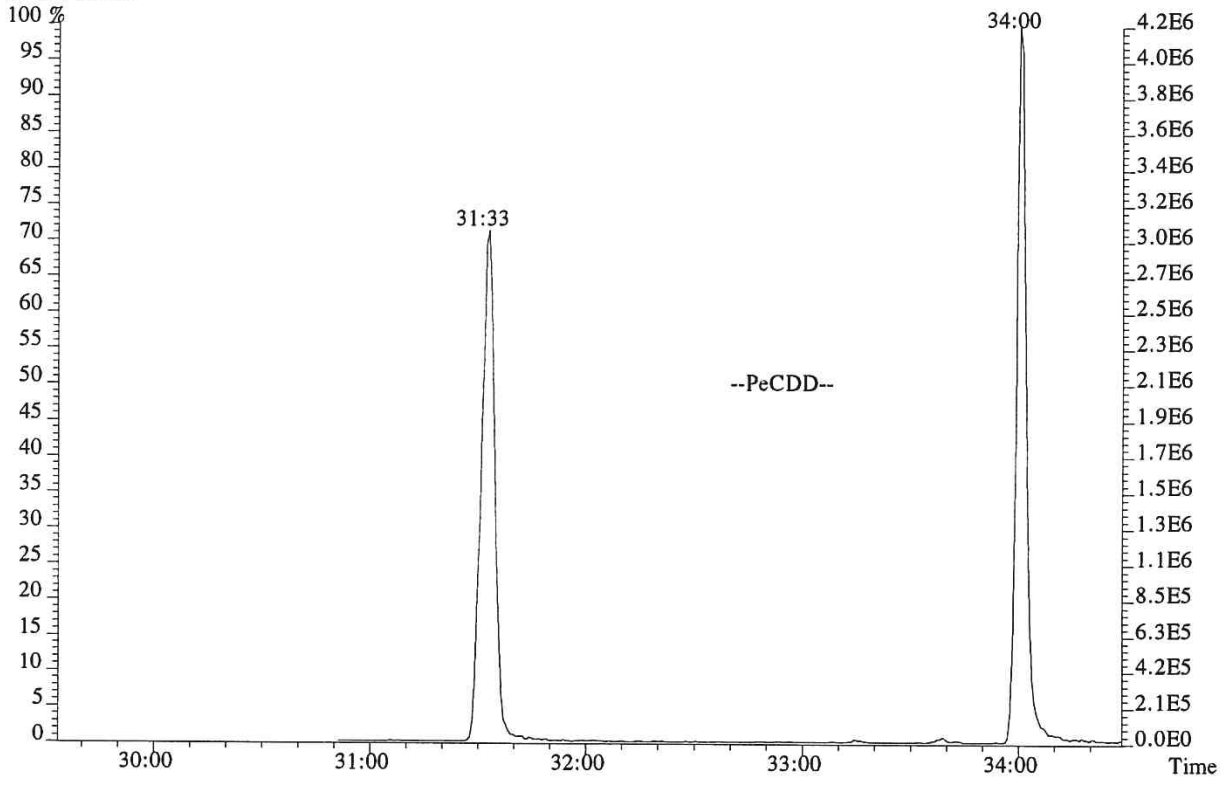
Sample#1 Exp:192977
303.9016
23:46
28:04
28:15
29:05
30:04
--TCDF--
319.8965
25:37
28:45
29:02
29:55
--TCDD--
Time

File:P519117 #1-538 Acq: 1-DEC-2018 16:23:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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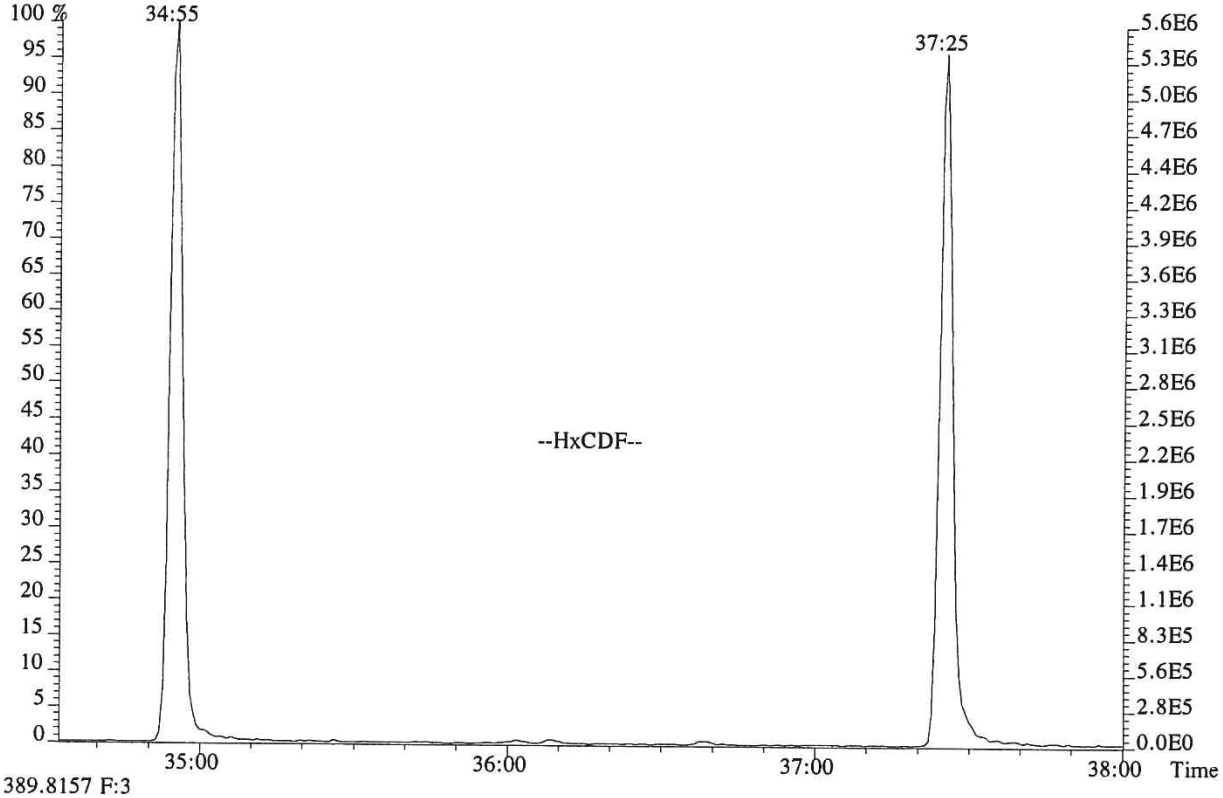
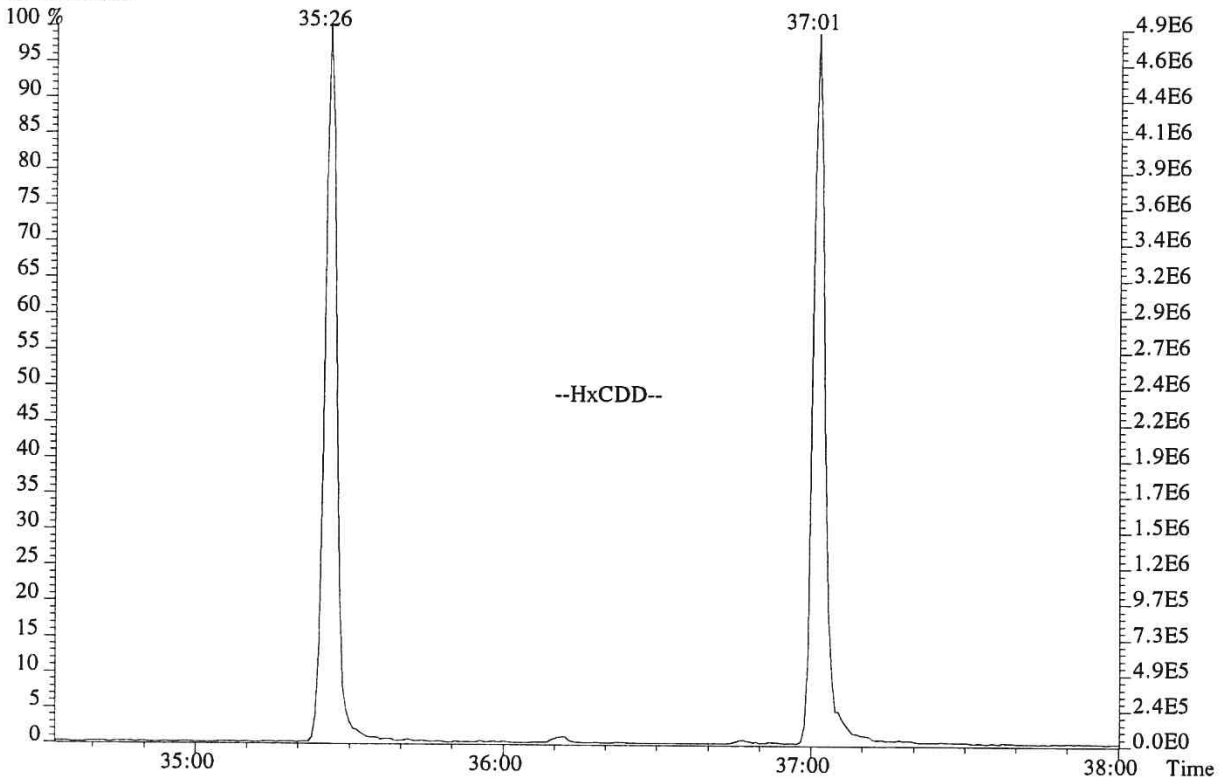
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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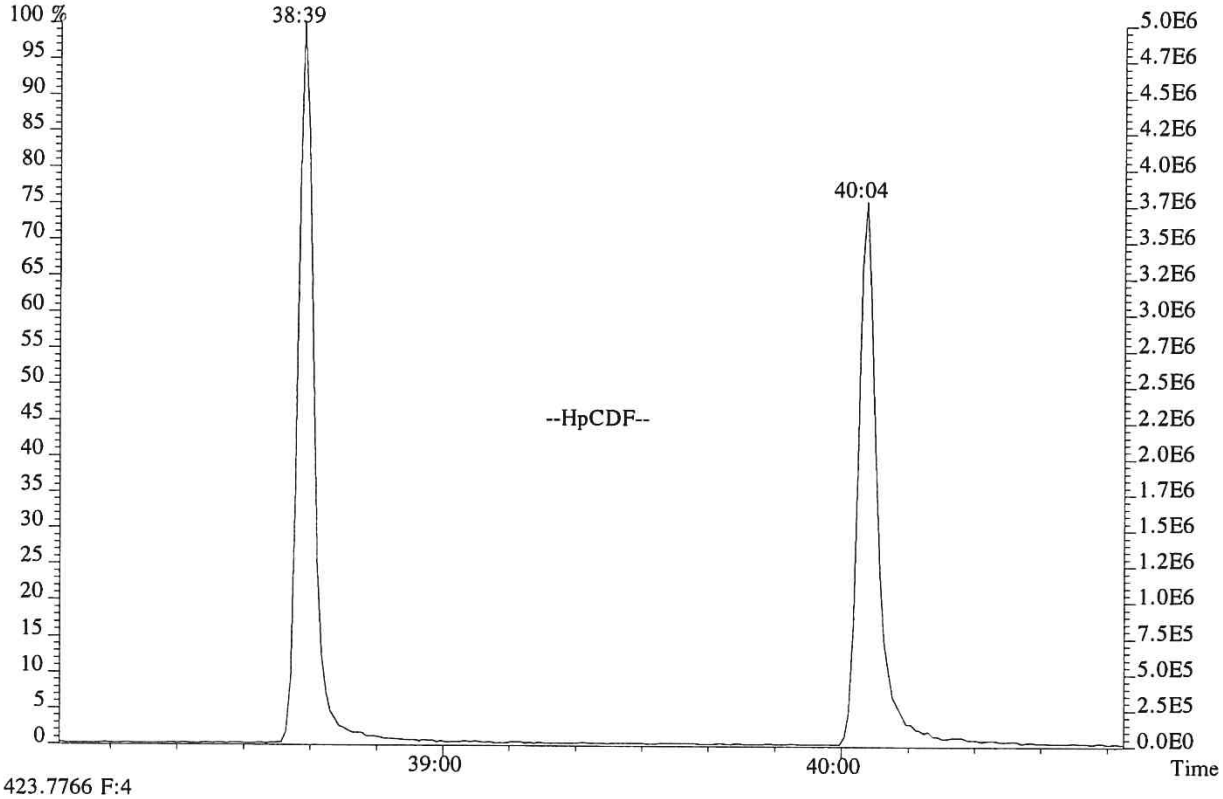
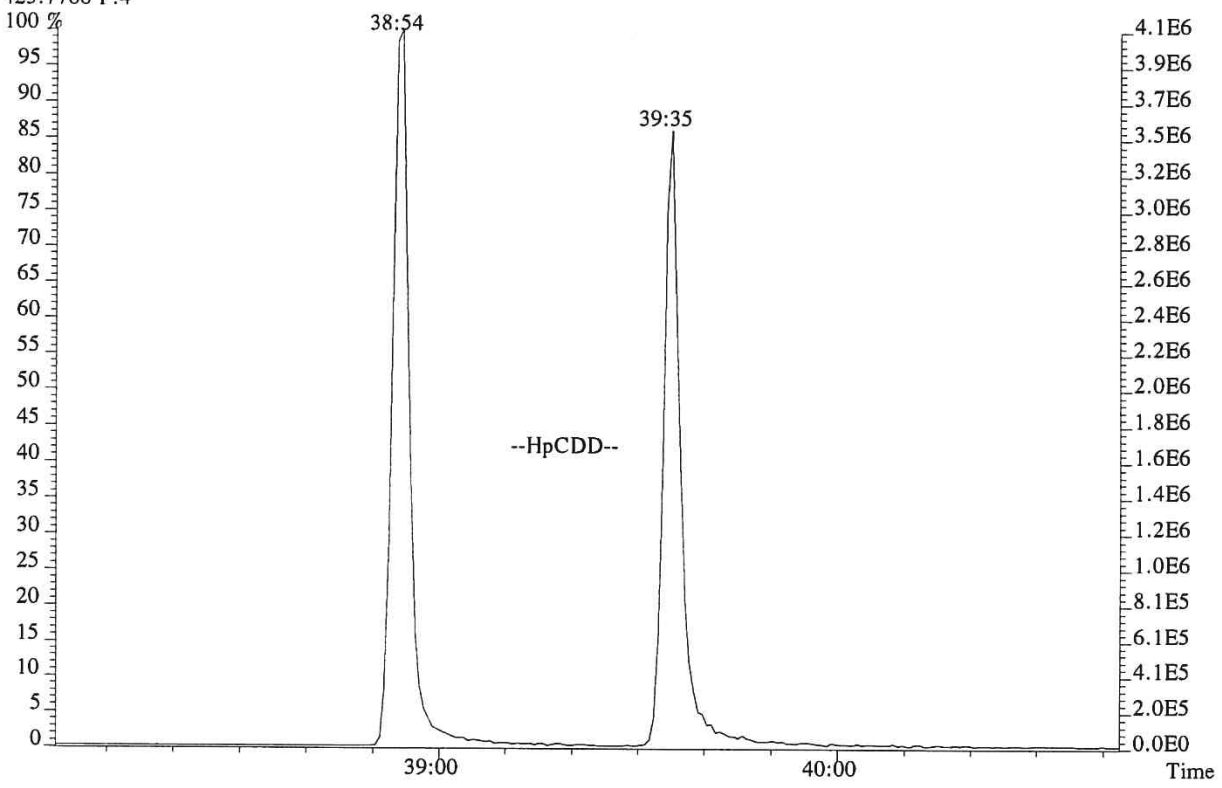
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID : DB-5MSUI

VER Data Filename: P519116 Analysis Date: 1-DEC-18 Time: 15:35:05

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.75	0.65-0.89	9.2	7.8 - 12.9	-8.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	48	39 - 65	-3.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	49	39 - 64	-2.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.19	1.05-1.43	52	41 - 61	3.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	49	43 - 58	-1.6
OCDD	M+2/M+4	0.88	0.76-1.02	99	79 - 126	-1.4
2,3,7,8-TCDF	M/M+2	0.72	0.65-0.89	9.5	8.4 - 12.0	-5.0
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	48	41 - 60	-3.5
2,3,4,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	49	41 - 61	-2.9
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	-0.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	49	44 - 57	-2.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.21	1.05-1.43	48	45 - 56	-3.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	49	44 - 57	-2.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	48	45 - 55	-3.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	49	43 - 58	-1.5
OCDF	M+2/M+4	0.89	0.76-1.02	94	63 - 159	-6.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID : DB-5MSUI

VER Data Filename: P519116 Analysis Date: 1-DEC-18 Time: 15:35:05

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	106	82 - 121	6.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	110	62 - 160	10.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	93	85 - 117	-6.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	100	85 - 118	0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	103	72 - 138	3.1
13C-OCDD	M+2/M+4	0.89	0.76-1.02	207	96 - 415	3.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	92	71 - 140	-8.3
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	101	76 - 130	1.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	102	77 - 130	1.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	87	76 - 131	-13.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	70 - 143	-12.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	96	74 - 135	-4.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	93	73 - 137	-7.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	94	78 - 129	-5.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	99	77 - 129	-1.4
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.3	7.8 - 12.7	2.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519116 Samp: 1 Inj: 1 Acquired: 1-DEC-18 15:35:05
Processed: 4-DEC-18 18:04:57 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	8.395e+03	1.170e+04	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:27	7.141e+04	4.659e+04	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:21	6.715e+04	4.474e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	6.034e+04	5.044e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	6.418e+04	5.378e+04	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:38	6.035e+04	4.931e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:23	5.518e+04	4.550e+04	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	5.225e+04	5.159e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	4.379e+04	4.353e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:36	6.297e+04	7.066e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	6.757e+03	9.019e+03	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	4.906e+04	3.134e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	4.210e+04	3.420e+04	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	4.678e+04	3.753e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	4.711e+04	3.969e+04	1.19	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	3.974e+04	3.802e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:24	5.434e+04	6.156e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	9.932e+04	1.252e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	1.478e+05	9.378e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	1.471e+05	9.323e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	6.375e+04	1.228e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	7.299e+04	1.414e+05	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	6.947e+04	1.333e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	6.173e+04	1.200e+05	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	4.938e+04	1.092e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	4.338e+04	9.766e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	7.033e+04	8.848e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	1.068e+05	6.754e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	8.397e+04	6.622e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	9.256e+04	7.318e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	7.939e+04	7.483e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:23	9.886e+04	1.115e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	7.185e+04	9.005e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	9.899e+04	7.537e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	1.683e+04				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519116 Samp: 1 Inj: 1 Acquired: 1-DEC-18 15:35:05
Processed: 4-DEC-18 18:04:57 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.57e+06	5.68e+02	2.8e+03	2.13e+06	1.21e+03	1.8e+03
2	1,2,3,7,8-PeCDF	1.32e+07	6.88e+02	1.9e+04	8.64e+06	2.16e+03	4.0e+03
3	2,3,4,7,8-PeCDF	1.32e+07	6.88e+02	1.9e+04	8.80e+06	2.16e+03	4.1e+03
4	1,2,3,4,7,8-HxCDF	1.29e+07	9.40e+02	1.4e+04	1.06e+07	4.60e+02	2.3e+04
5	1,2,3,6,7,8-HxCDF	1.30e+07	9.40e+02	1.4e+04	1.09e+07	4.60e+02	2.4e+04
6	2,3,4,6,7,8-HxCDF	1.28e+07	9.40e+02	1.4e+04	1.05e+07	4.60e+02	2.3e+04
7	1,2,3,7,8,9-HxCDF	1.09e+07	9.40e+02	1.2e+04	9.08e+06	4.60e+02	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.09e+07	6.93e+03	1.6e+03	1.08e+07	5.24e+03	2.1e+03
9	1,2,3,4,7,8,9-HpCDF	8.13e+06	6.93e+03	1.2e+03	8.05e+06	5.24e+03	1.5e+03
10	OCDF	9.75e+06	4.56e+02	2.1e+04	1.09e+07	6.08e+02	1.8e+04
11	2,3,7,8-TCDD	1.32e+06	1.85e+03	7.1e+02	1.75e+06	1.59e+03	1.1e+03
12	1,2,3,7,8-PeCDD	9.63e+06	1.15e+03	8.4e+03	6.18e+06	2.44e+02	2.5e+04
13	1,2,3,4,7,8-HxCDD	9.46e+06	3.92e+02	2.4e+04	7.62e+06	4.64e+02	1.6e+04
14	1,2,3,6,7,8-HxCDD	9.44e+06	3.92e+02	2.4e+04	7.59e+06	4.64e+02	1.6e+04
15	1,2,3,7,8,9-HxCDD	9.70e+06	3.92e+02	2.5e+04	7.93e+06	4.64e+02	1.7e+04
16	1,2,3,4,6,7,8-HpCDD	7.65e+06	8.44e+02	9.1e+03	7.37e+06	5.92e+02	1.2e+04
17	OCDD	8.32e+06	4.48e+02	1.9e+04	9.46e+06	6.48e+02	1.5e+04
18	13C-2,3,7,8-TCDF	1.85e+07	3.85e+03	4.8e+03	2.32e+07	2.37e+03	9.8e+03
19	13C-1,2,3,7,8-PeCDF	2.68e+07	7.28e+02	3.7e+04	1.68e+07	7.40e+02	2.3e+04
20	13C-2,3,4,7,8-PeCDF	2.84e+07	7.28e+02	3.9e+04	1.80e+07	7.40e+02	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.35e+07	7.56e+02	1.8e+04	2.58e+07	1.40e+03	1.8e+04
22	13C-1,2,3,6,7,8-HxCDF	1.49e+07	7.56e+02	2.0e+04	2.89e+07	1.40e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	1.46e+07	7.56e+02	1.9e+04	2.81e+07	1.40e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.21e+07	7.56e+02	1.6e+04	2.36e+07	1.40e+03	1.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.01e+07	3.86e+03	2.6e+03	2.25e+07	8.77e+03	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.93e+06	3.86e+03	2.1e+03	1.79e+07	8.77e+03	2.0e+03
27	13C-2,3,7,8-TCDD	1.34e+07	5.78e+03	2.3e+03	1.69e+07	1.94e+03	8.7e+03
28	13C-1,2,3,7,8-PeCDD	2.02e+07	6.20e+02	3.3e+04	1.29e+07	6.48e+02	2.0e+04
29	13C-1,2,3,4,7,8-HxCDD	1.89e+07	1.64e+03	1.2e+04	1.48e+07	8.64e+02	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	1.85e+07	1.64e+03	1.1e+04	1.48e+07	8.64e+02	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.51e+07	8.96e+02	1.7e+04	1.42e+07	6.92e+02	2.1e+04
32	13C-OCDD	1.51e+07	7.88e+02	1.9e+04	1.70e+07	4.28e+02	4.0e+04
33	13C-1,2,3,4-TCDD	1.38e+07	5.78e+03	2.4e+03	1.73e+07	1.94e+03	8.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.98e+07	1.64e+03	1.2e+04	1.56e+07	8.64e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	3.24e+06	1.88e+03	1.7e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.852e{+}03 + 1.588e{+}03) \times 100}{(1.342e{+}07 + 1.691e{+}07) \times (\quad) \times 1.085} =$$

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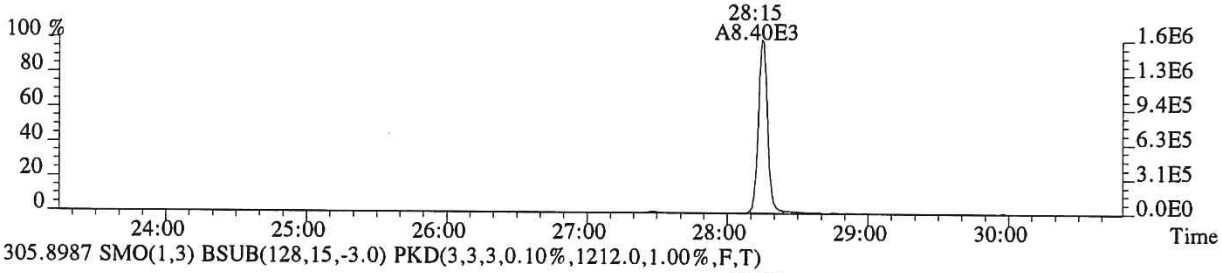
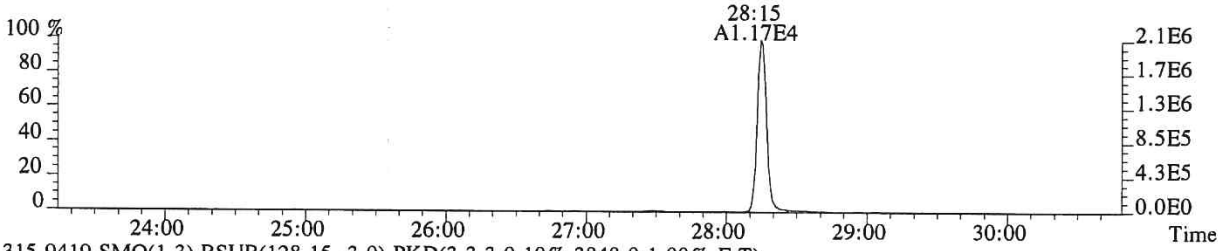
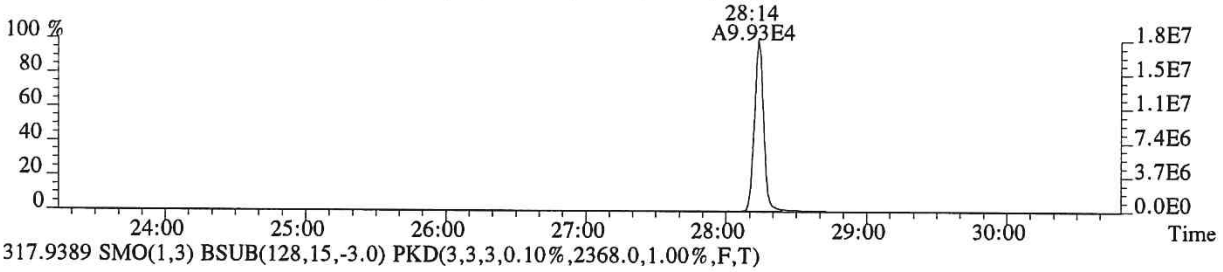
File:P519116 #1-538 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



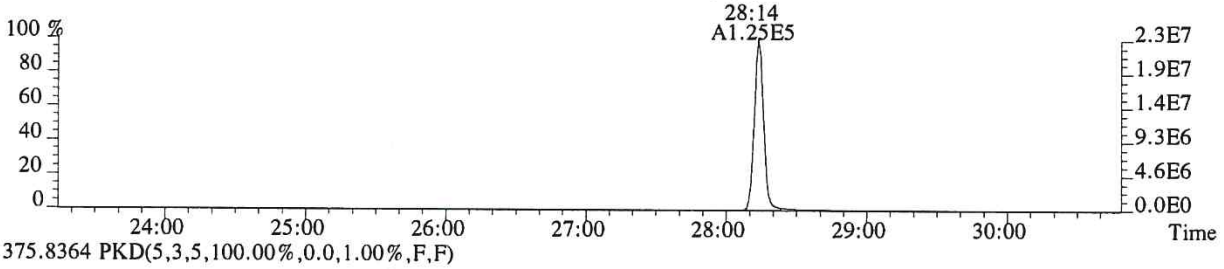
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



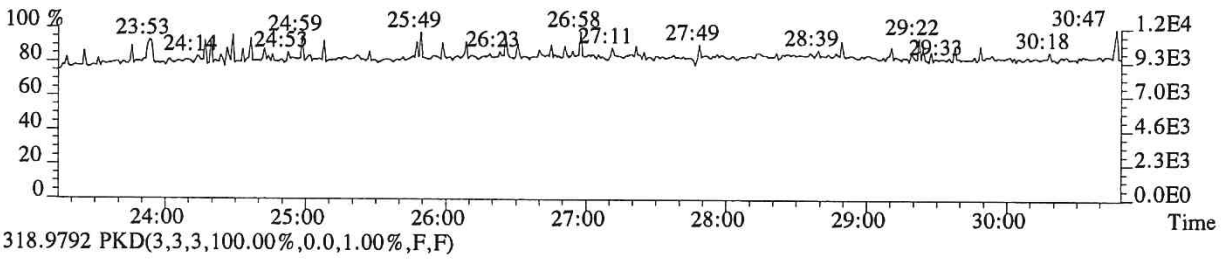
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3848.0,1.00%,F,T)



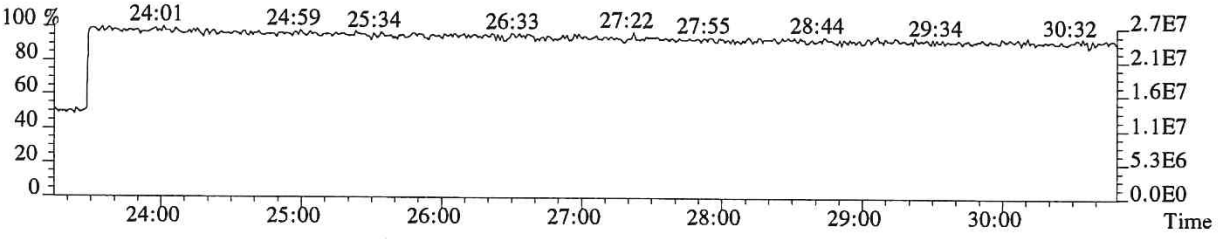
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

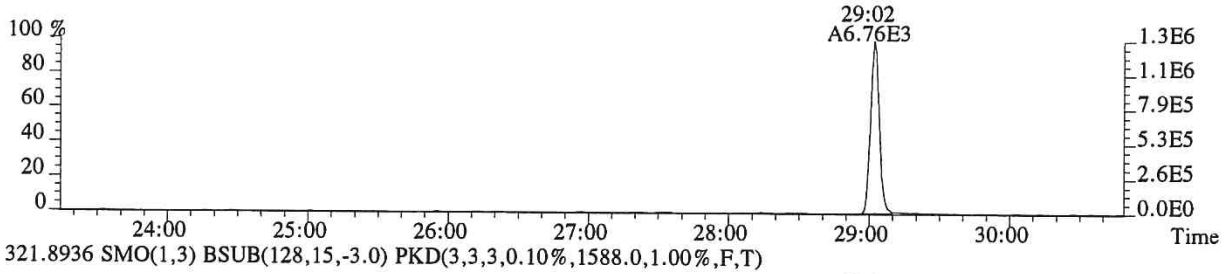


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

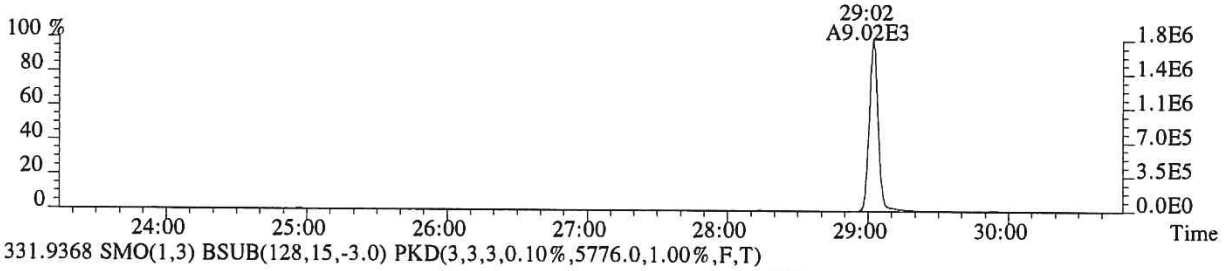


010583

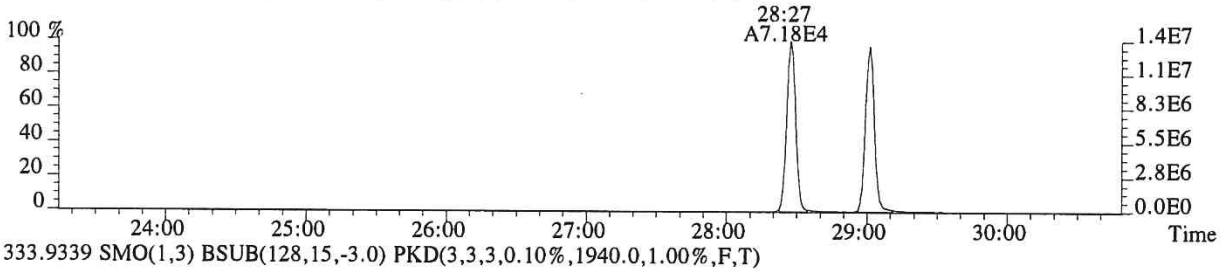
File:P519116 #1-538 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1852.0,1.00%,F,T)



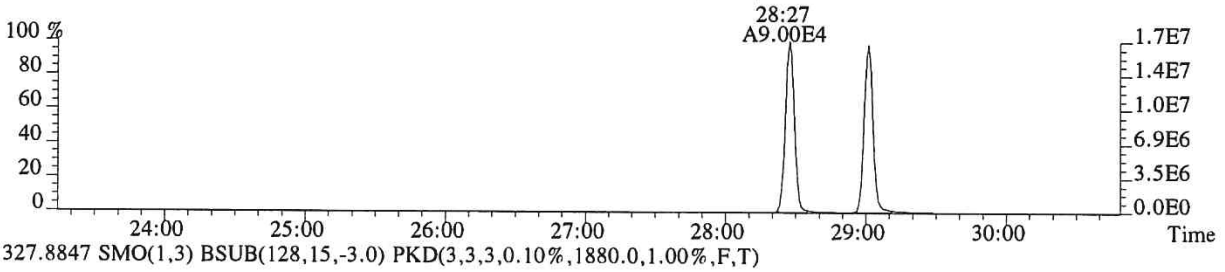
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



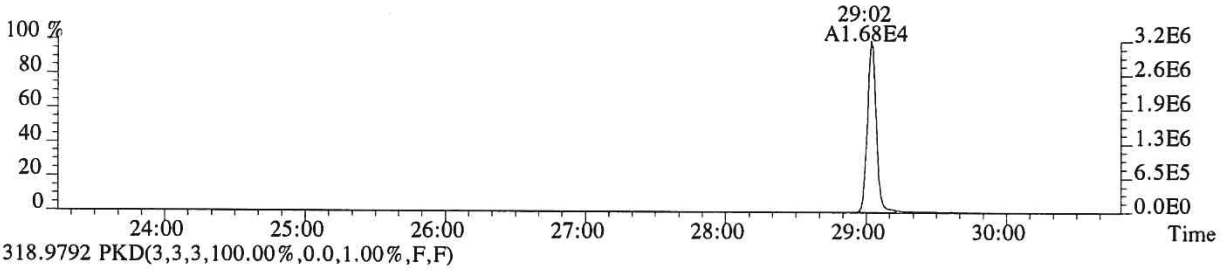
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5776.0,1.00%,F,T)



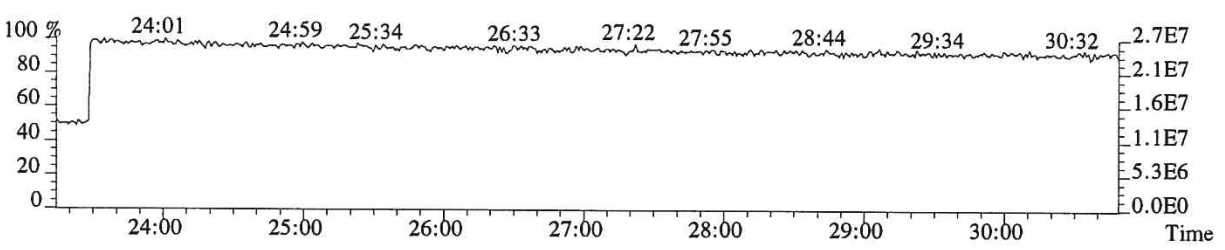
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)

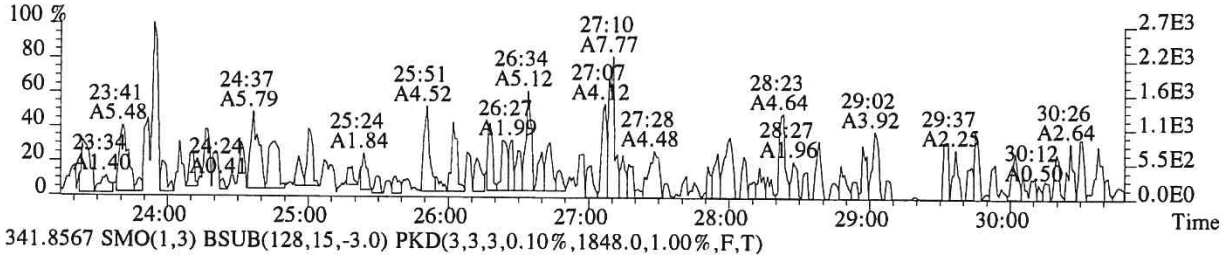


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

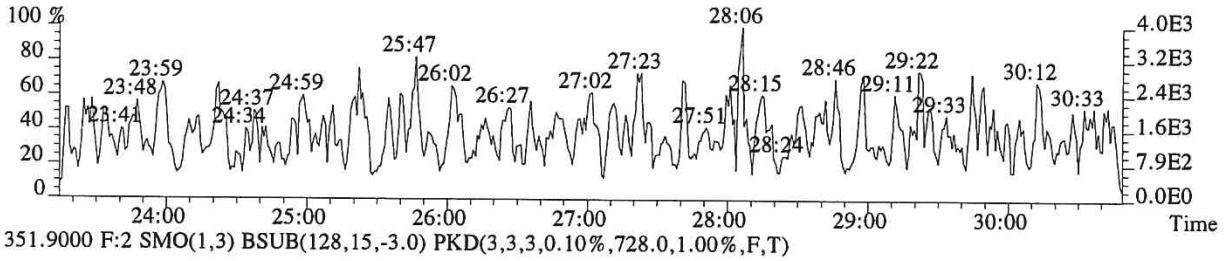


010584

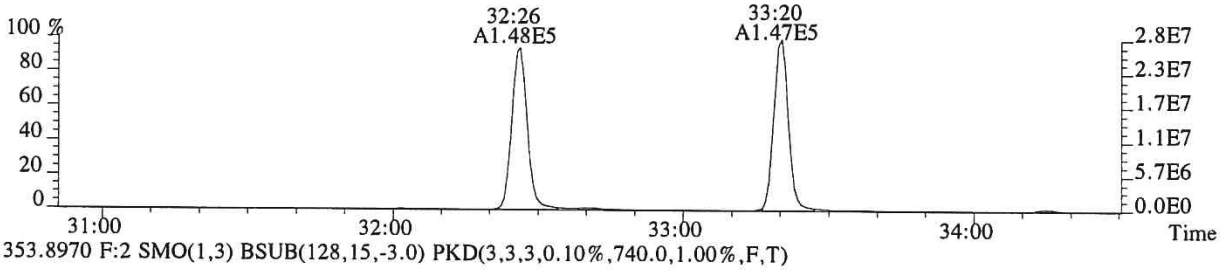
File:P519116 #1-538 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



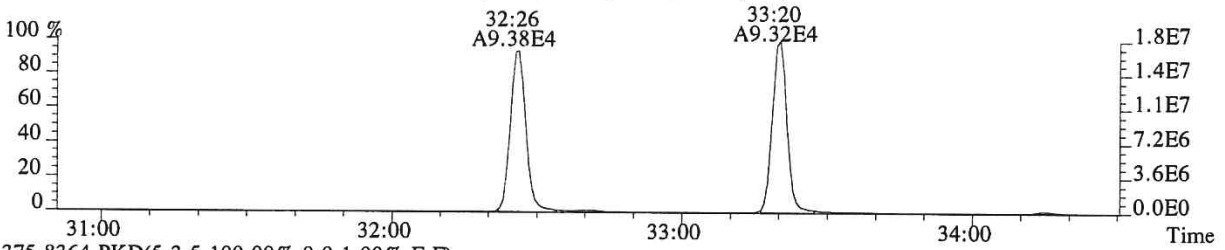
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1848.0,1.00%,F,T)



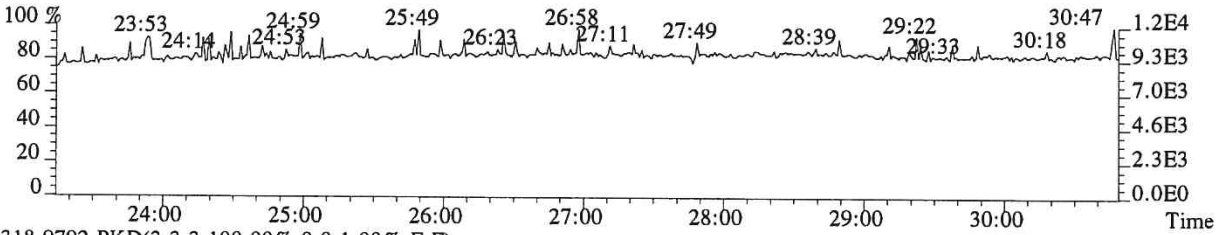
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



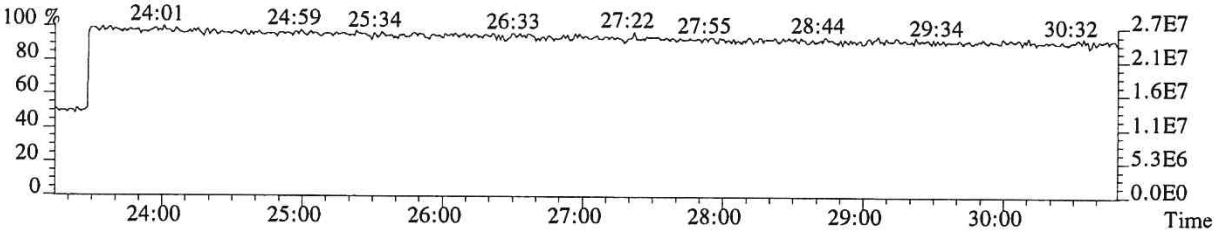
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

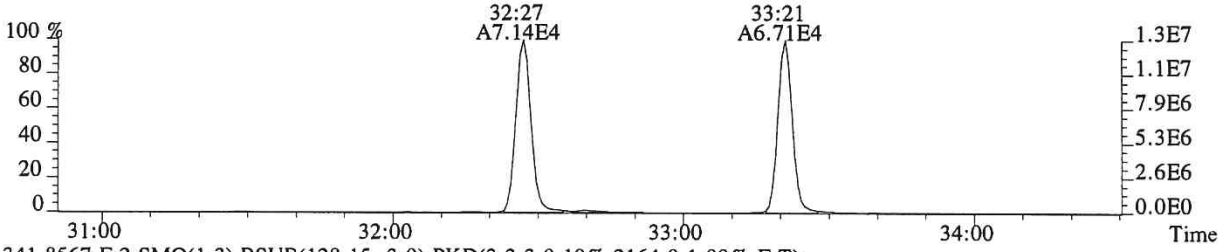


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

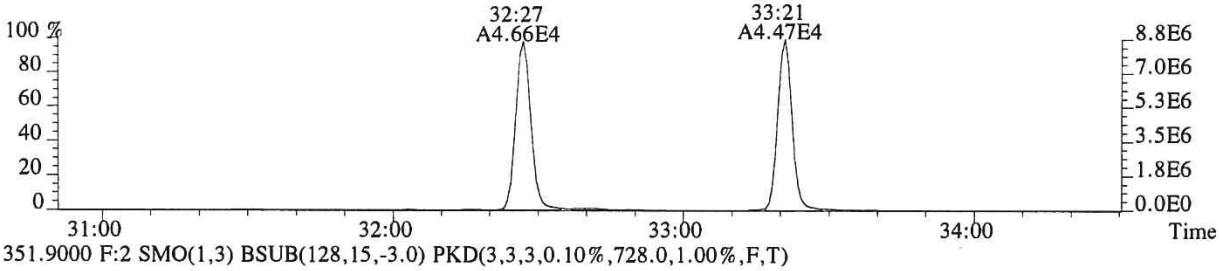


010585

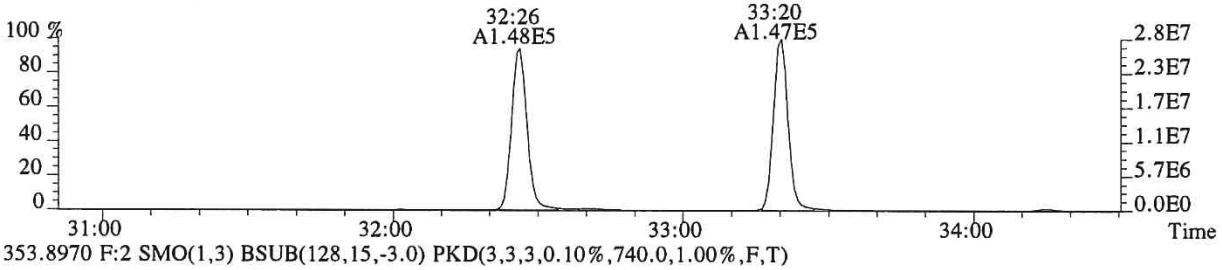
File:P519116 #1-330 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



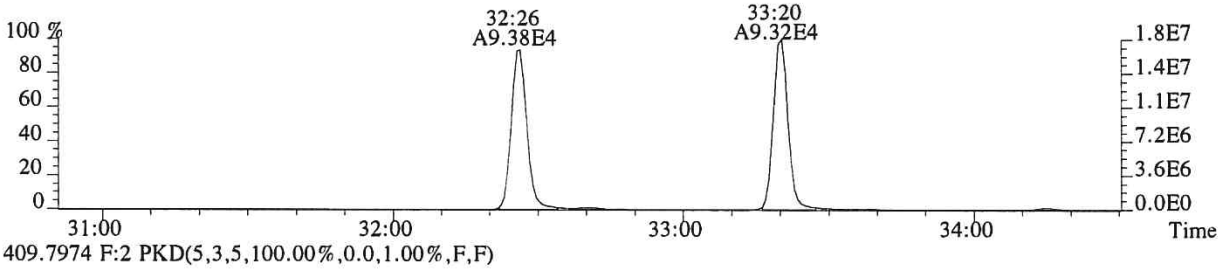
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2164.0,1.00%,F,T)



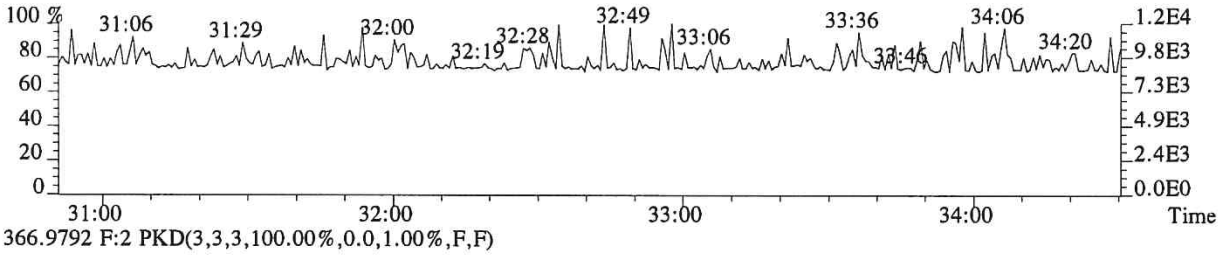
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



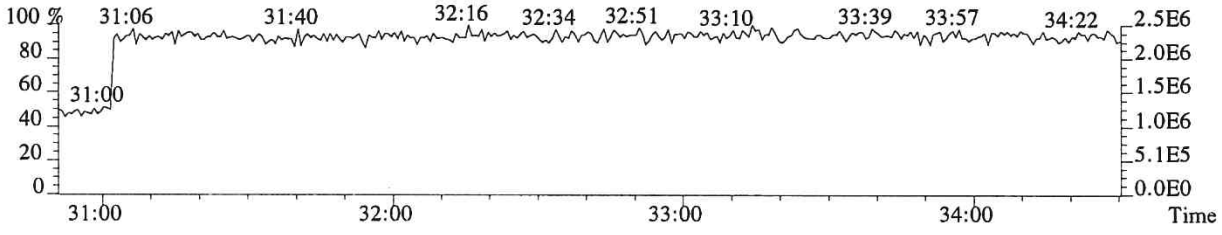
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

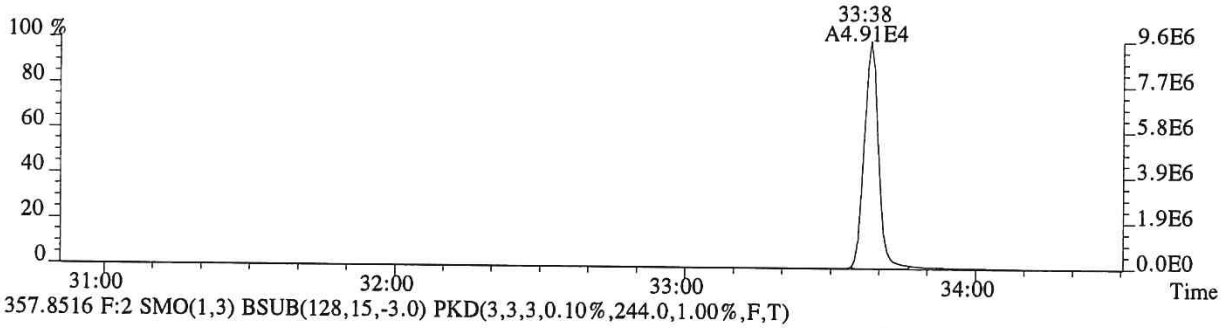


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

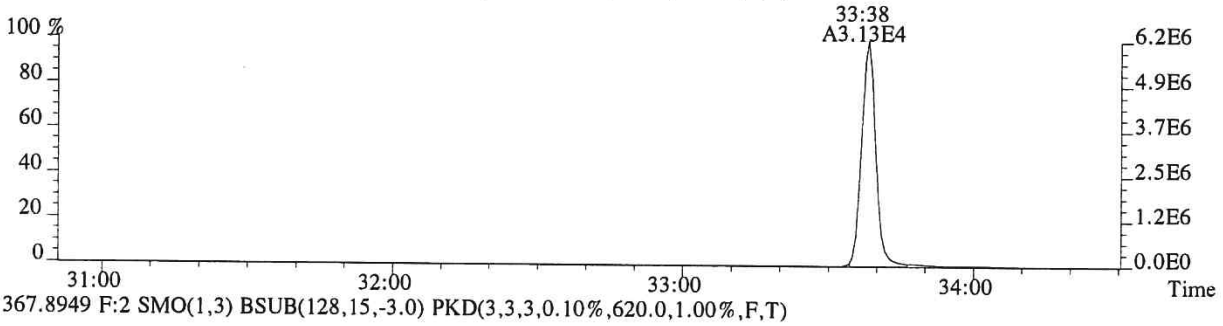


010586

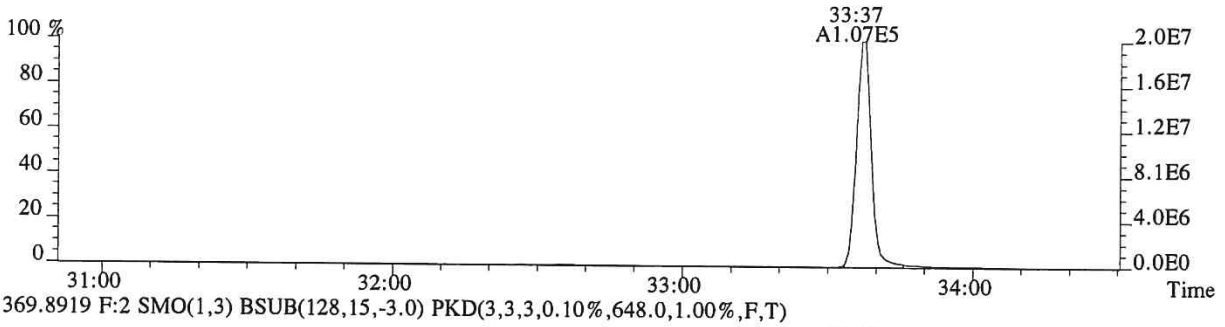
File:P519116 #1-330 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



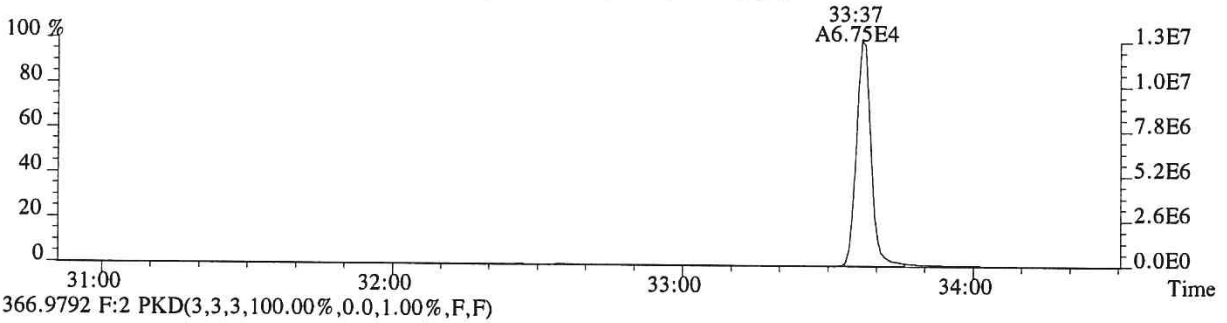
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



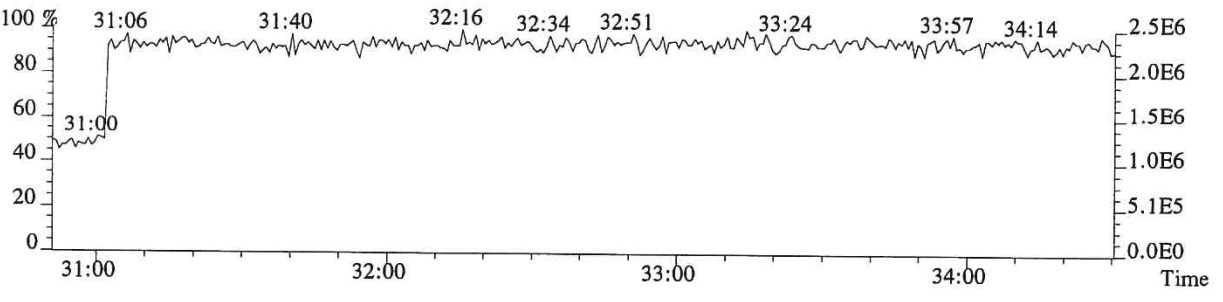
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



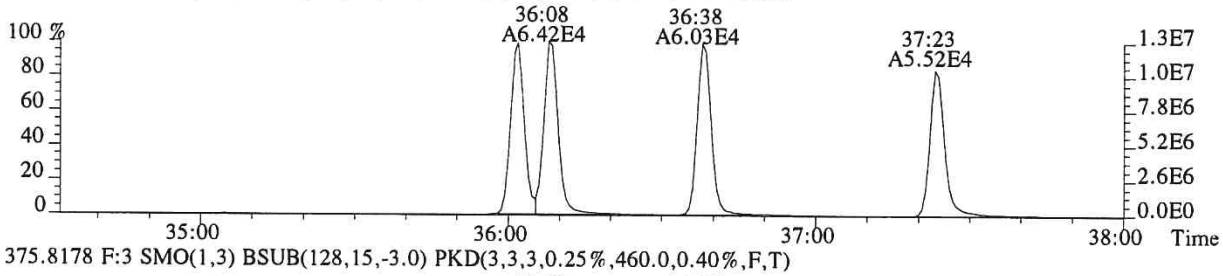
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



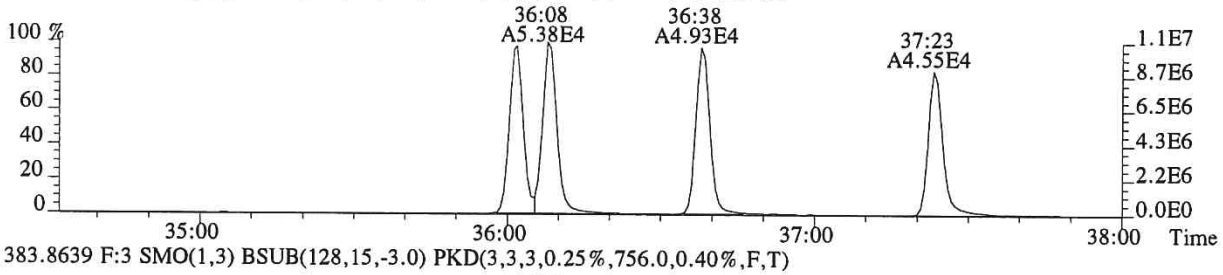
010587

File:P519116 #1-312 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

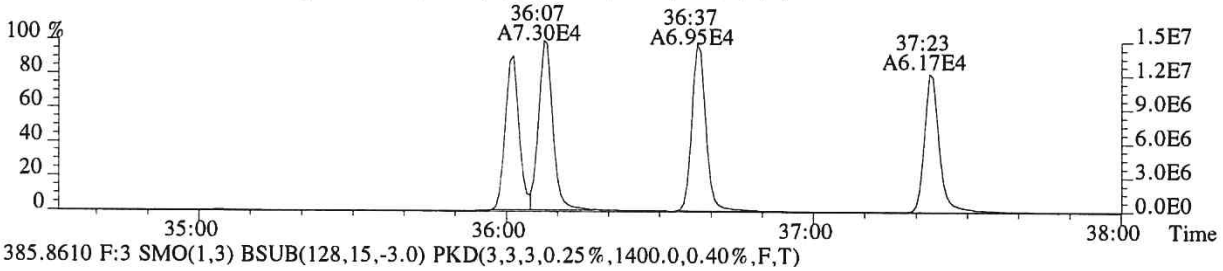
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



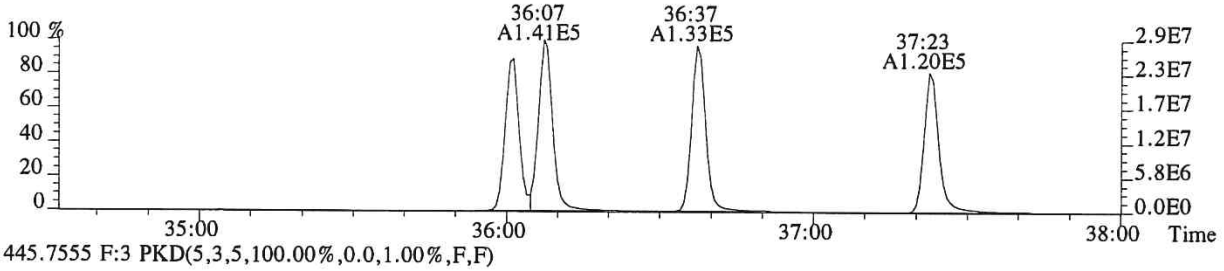
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



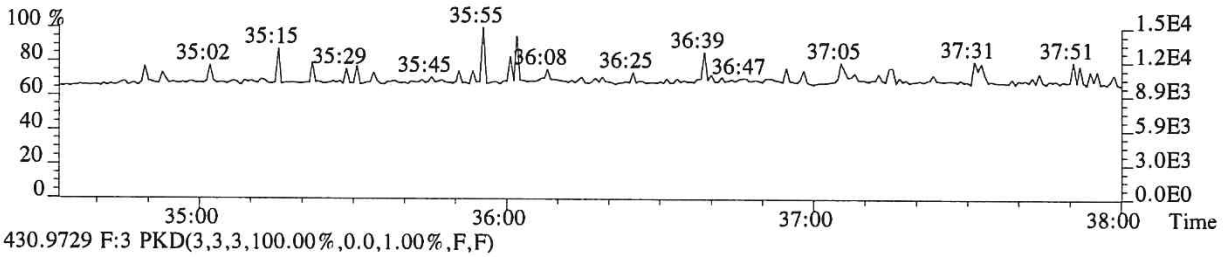
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



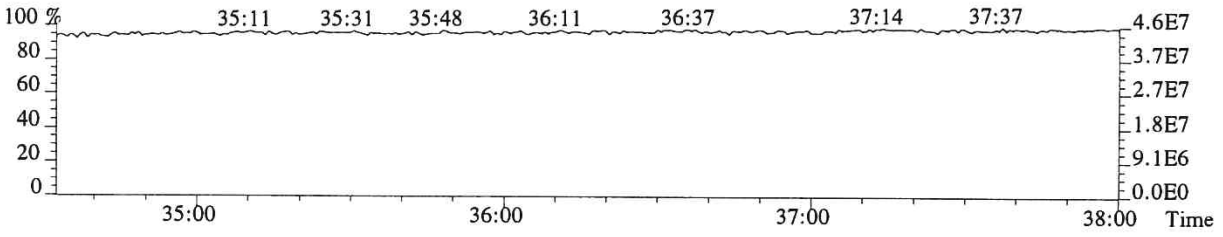
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

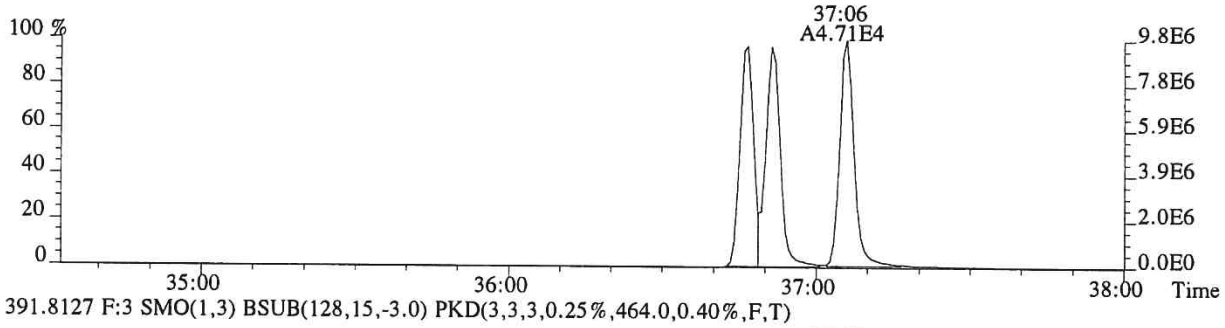


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

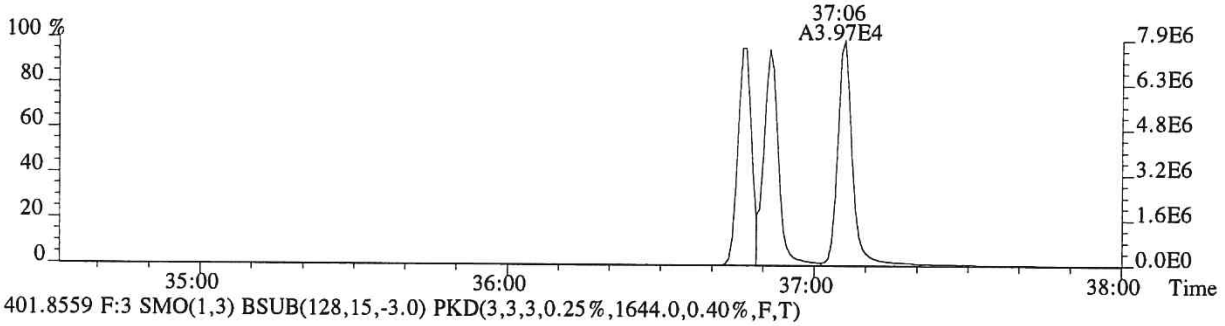


010588

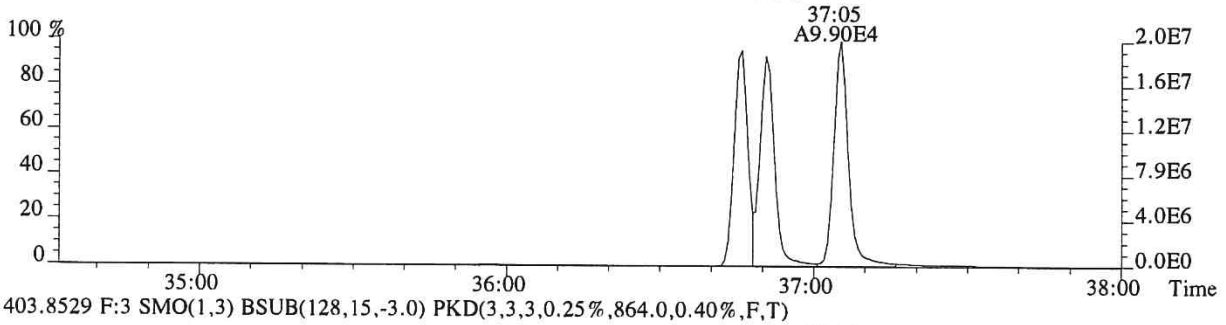
File:P519116 #1-312 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



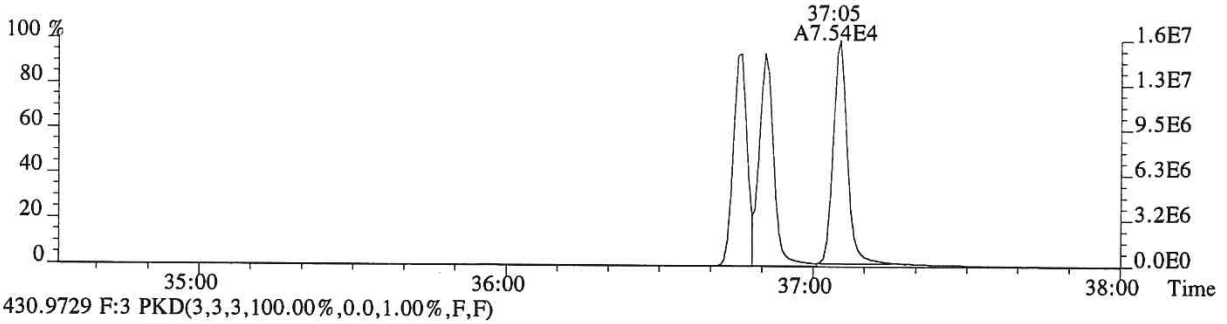
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



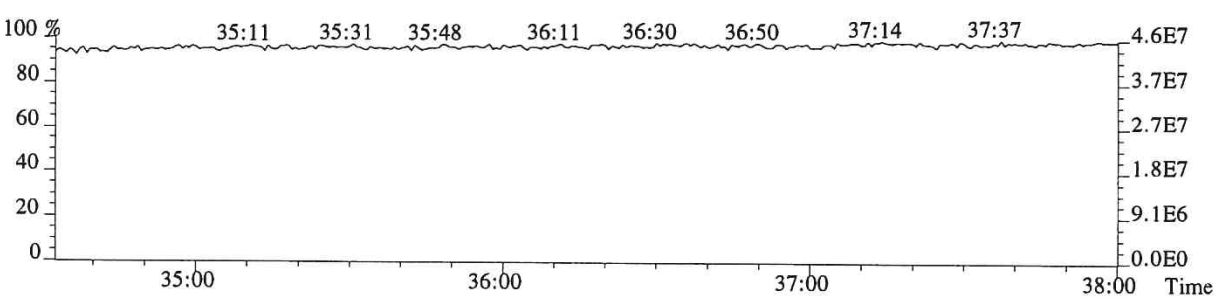
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



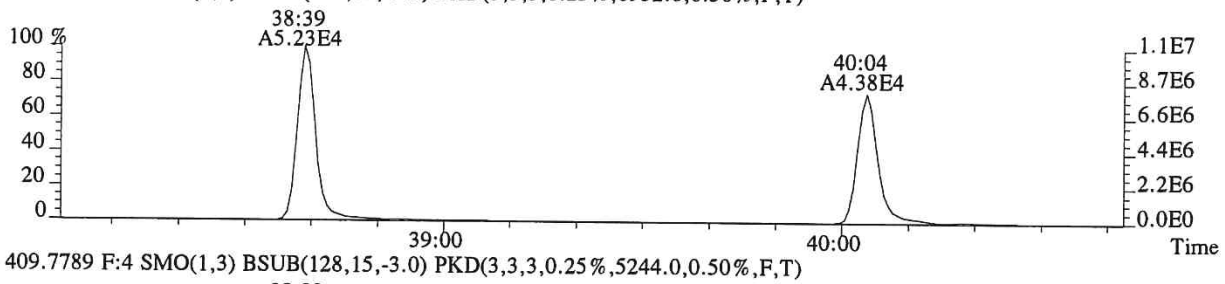
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



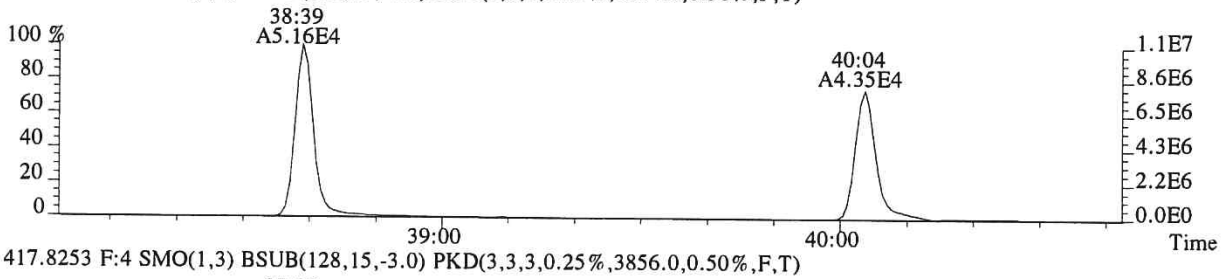
010589

File:P519116 #1-241 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

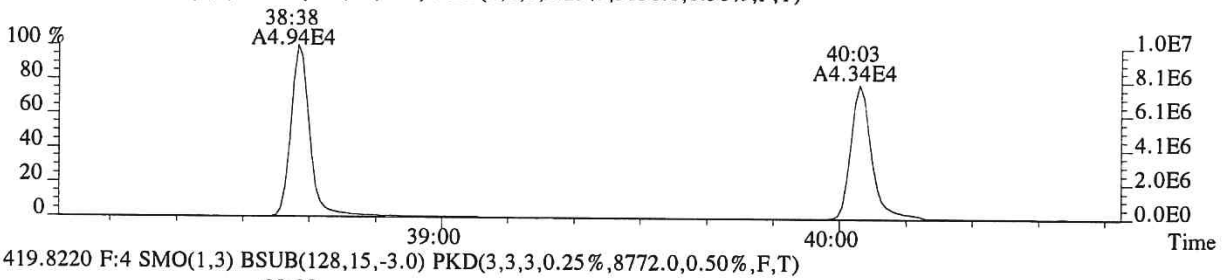
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6932.0,0.50%,F,T)



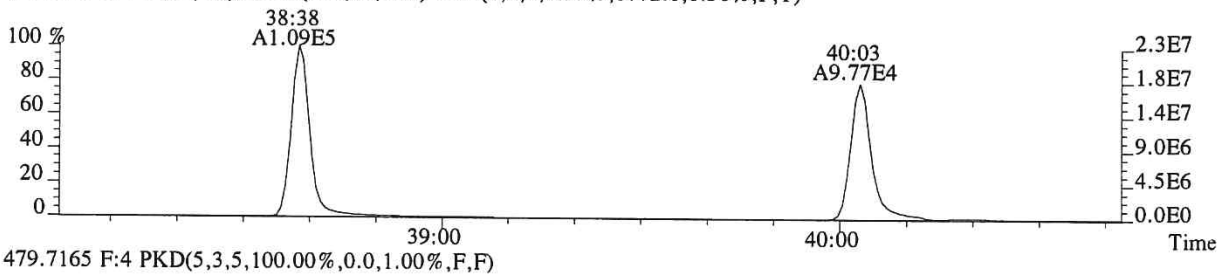
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5244.0,0.50%,F,T)



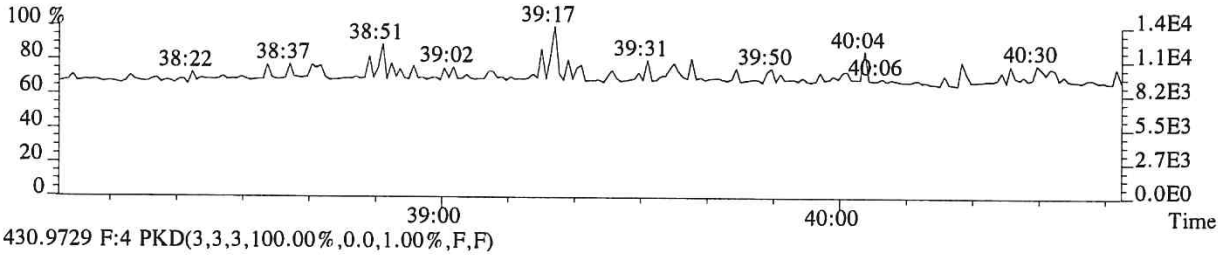
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3856.0,0.50%,F,T)



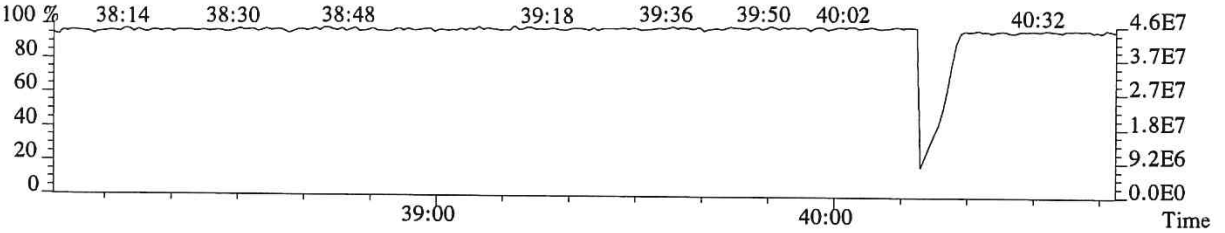
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8772.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

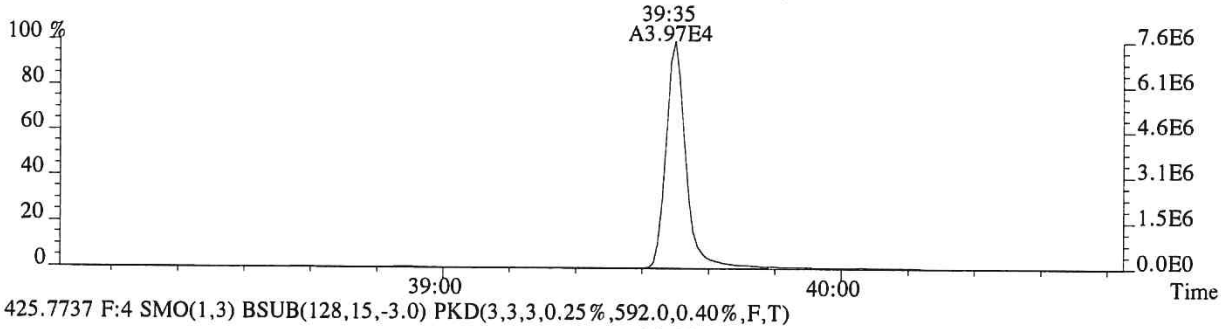


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

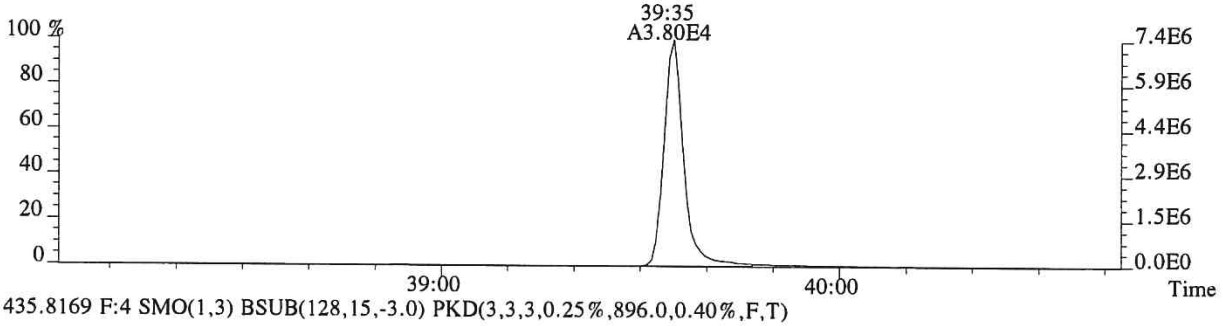


010590

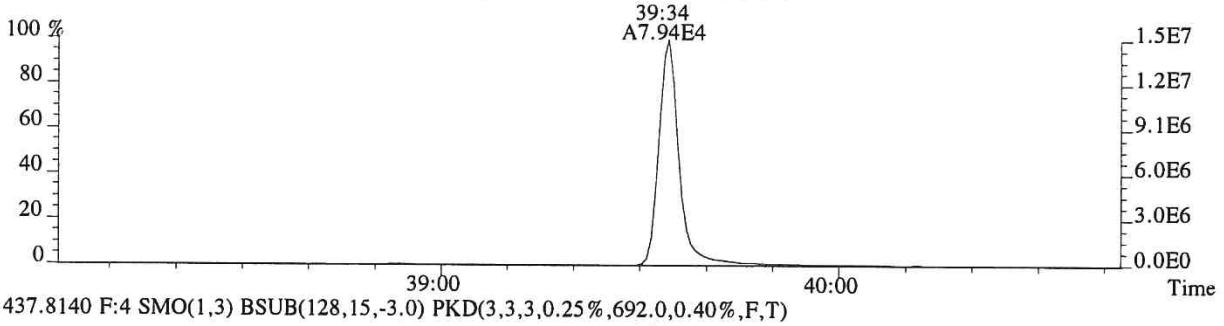
File:P519116 #1-241 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



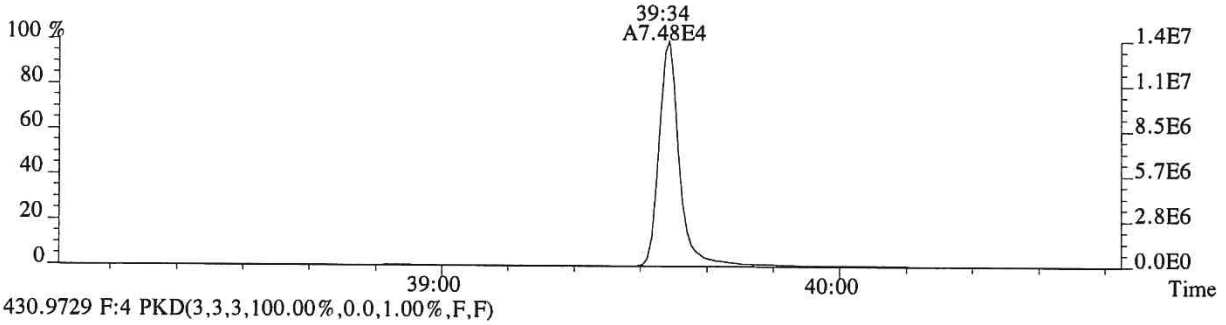
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



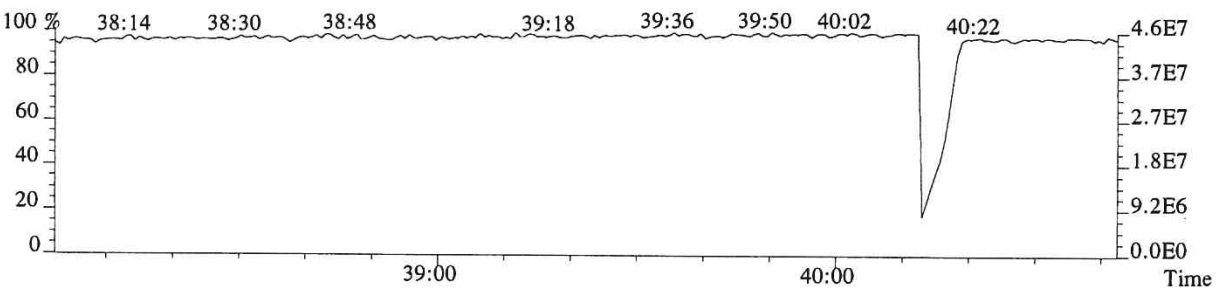
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)

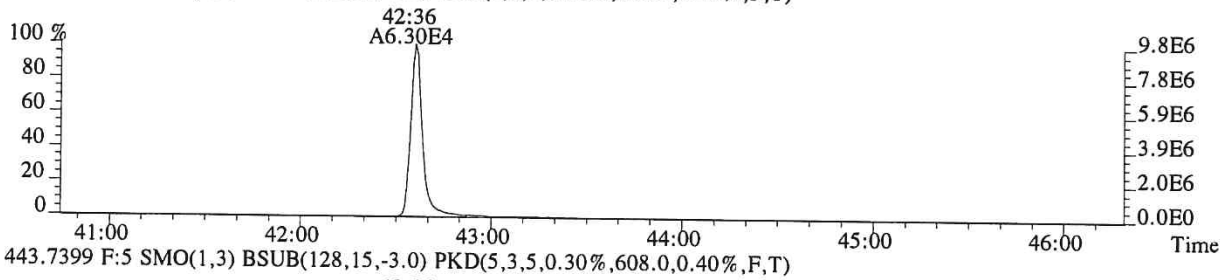


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

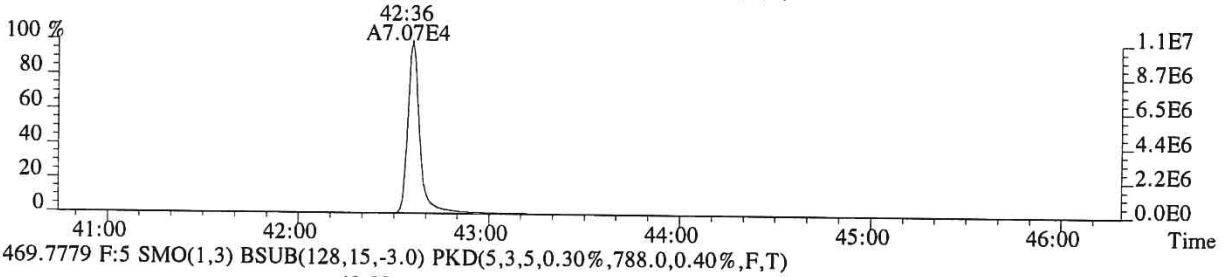


010591

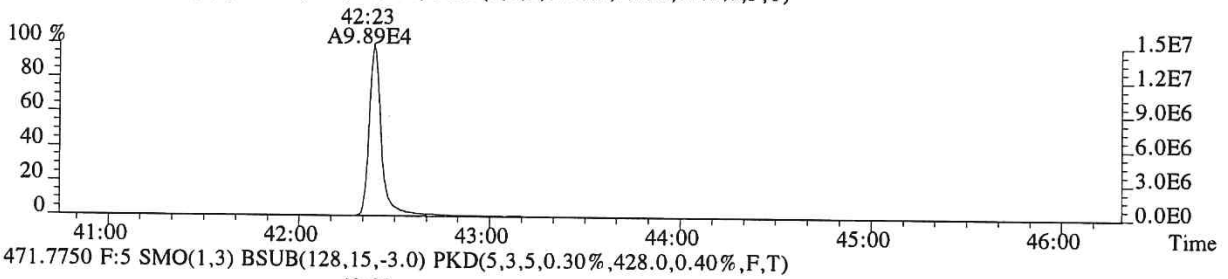
File:P519116 #1-502 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



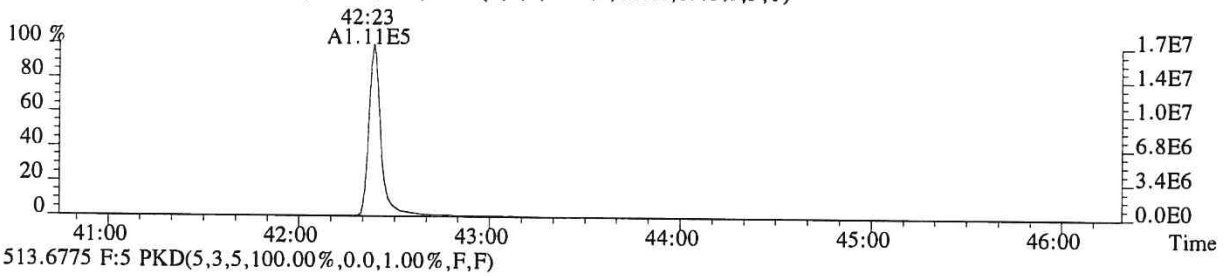
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



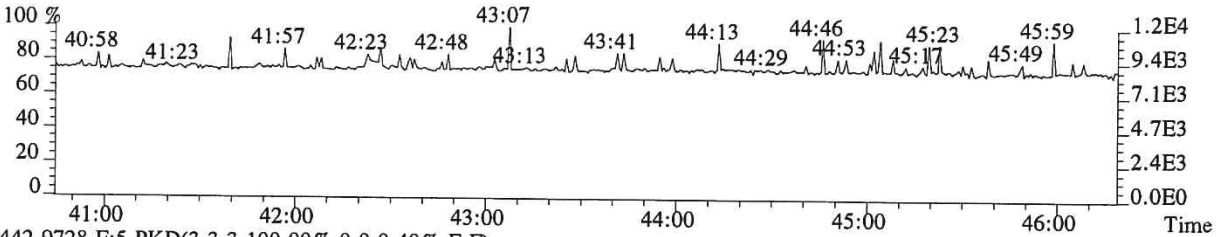
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,788.0,0.40%,F,T)



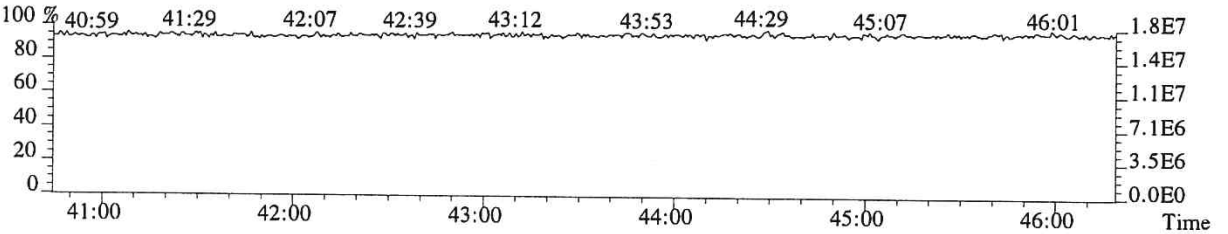
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

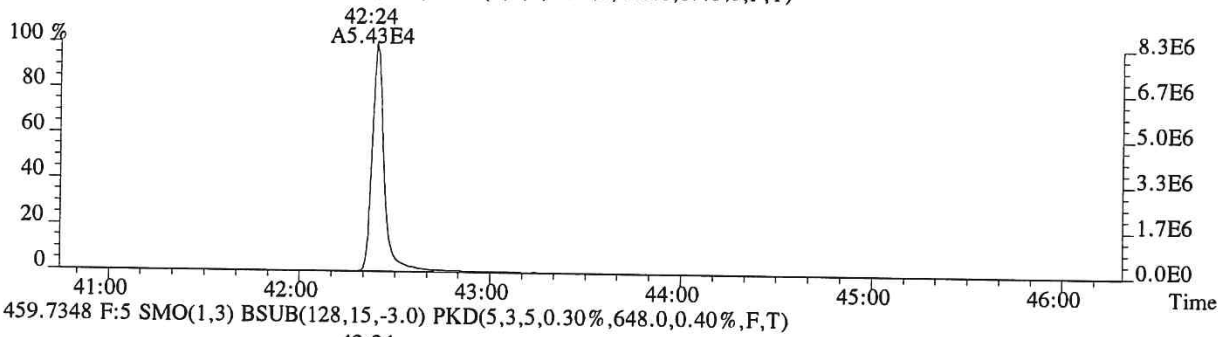


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

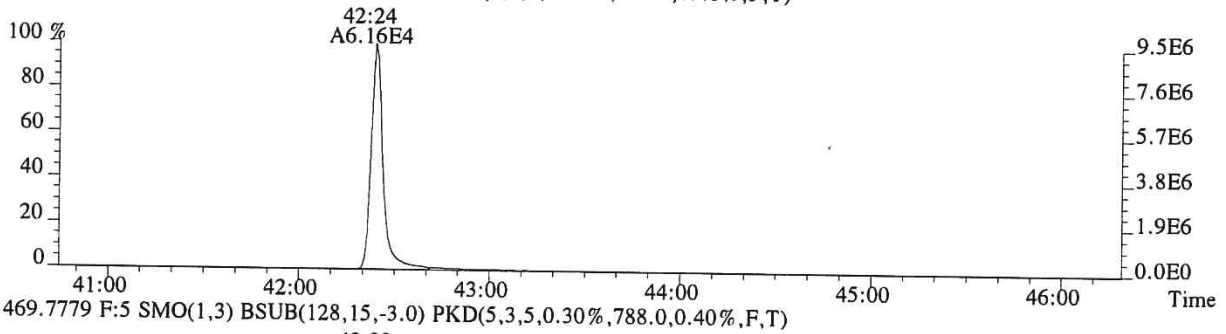


010592

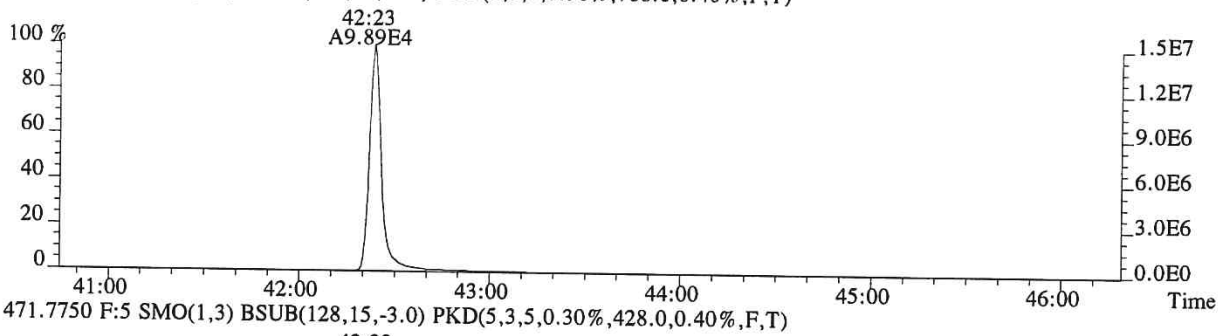
File:P519116 #1-502 Acq: 1-DEC-2018 15:35:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



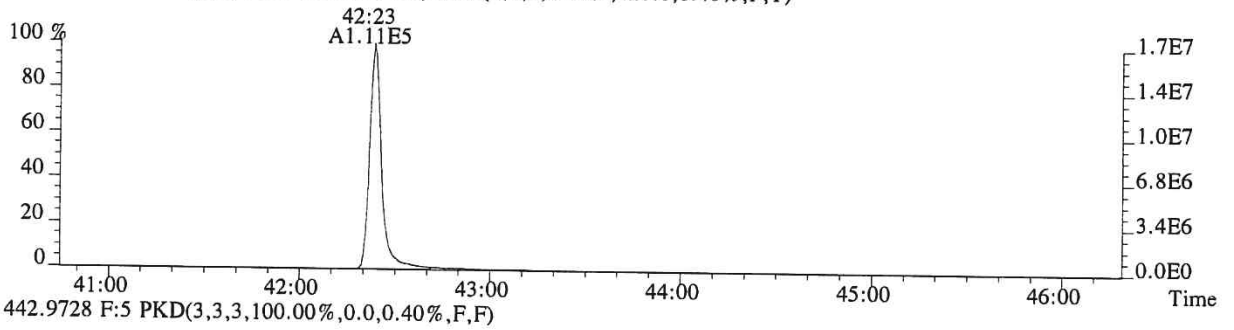
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



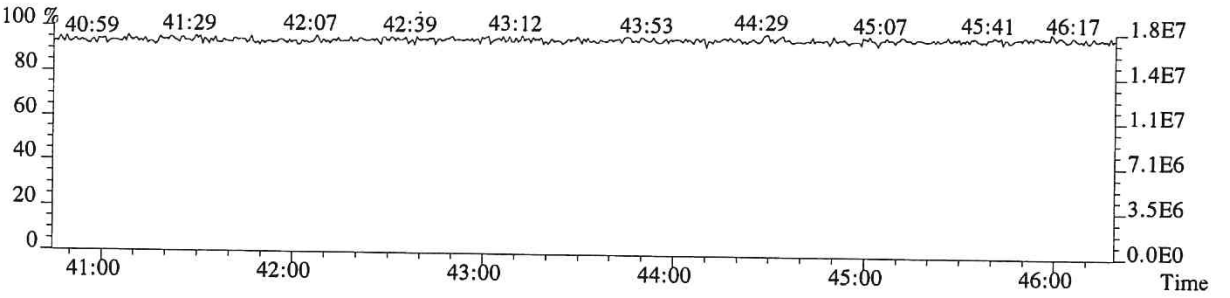
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,788.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519131

Date: 12/02/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: TC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P519132	2-DEC-18	04:33:24
194503	CS3	P519131	2-DEC-18	03:44:46
METHOD BLANK	EQ1800458-01	P519133	2-DEC-18	05:22:03
SL0108	E1801039-031	P519134	2-DEC-18	07:00:00
SL0516	E1801038-021	P519135	2-DEC-18	07:48:35
SL0517	E1801038-022	P519136	2-DEC-18	08:36:31
SL0100	E1801039-006	P519137	2-DEC-18	09:25:10
SL0107	E1801039-017	P519138	2-DEC-18	10:13:48
SL0129	E1801039-036	P519139	2-DEC-18	11:02:27
SL0130	E1801039-037	P519140	2-DEC-18	11:51:07
SL0101	E1801039-038	P519141	2-DEC-18	12:39:46
SL0509	E1801040-001	P519142	2-DEC-18	13:28:25
LCS	EQ1800469-02	P519143	2-DEC-18	14:17:05
DLCS	EQ1800469-03	P519144	2-DEC-18	15:05:44

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181202A.SPL
Last Modified: Monday, December 03, 2018 07:46:34 Central Standard Time
Printed: Monday, December 03, 2018 07:46:35 Central Standard Time

OPUS5: P519131RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/2/18	03:44	P519131	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMSCheck 05:03
2		04:35	P519132	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		12/1/18
3		05:22	P519133	MB	EQ1800458-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		07:00	P519134	E1801039-031	E1801039-031	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		07:48	P519135	E1801038-021	E1801038-021	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		08:36	P519136	E1801038-022	E1801038-022	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		09:25	P519137	E1801039-006	E1801039-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		10:13	P519138	E1801039-017	E1801039-017	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		11:02	P519139	E1801039-036	E1801039-036	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		11:51	P519140	E1801039-037	E1801039-037	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		12:39	P519141	E1801039-038	E1801039-038	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		13:28	P519142	E1801040-001	E1801040-001	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		14:17	P519143	LCS	EQ1800469-02	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		15:05	P519144	DLCS	EQ1800469-03	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		16:02	P519145	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMSCheck 16:02
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
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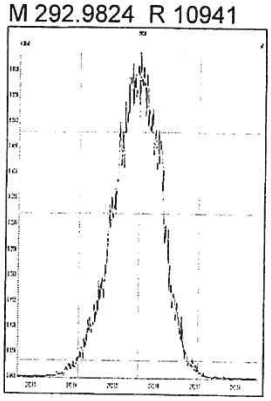
JC 12/03/18

038

M 292.9824 R 10941



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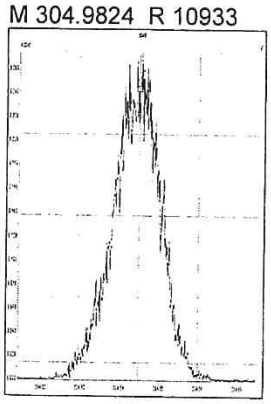

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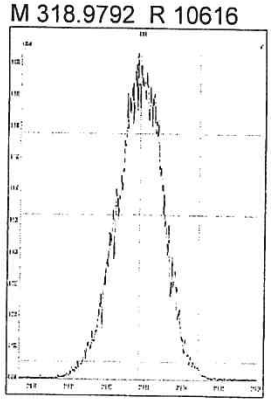
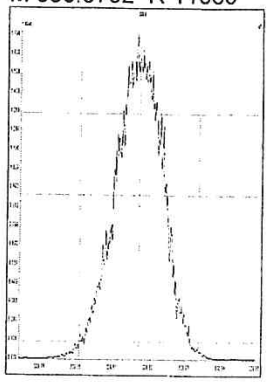


M 330.9792 R 11065



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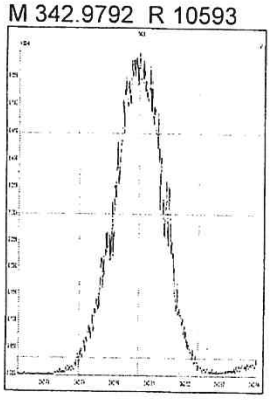
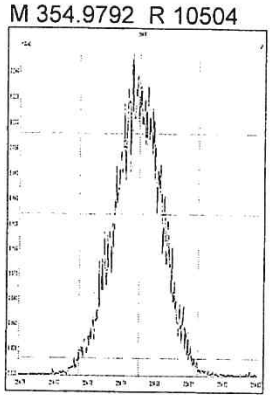


M 354.9792 R 10504



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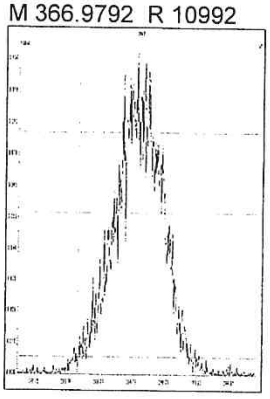

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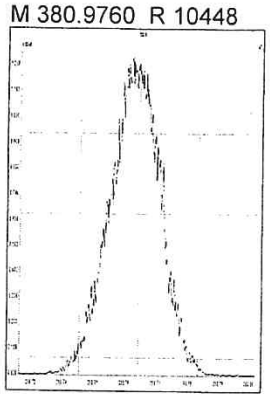

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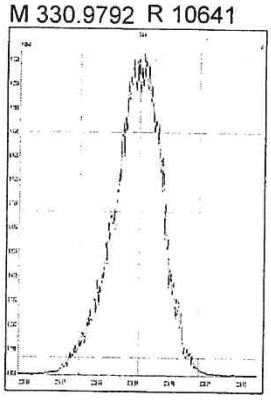

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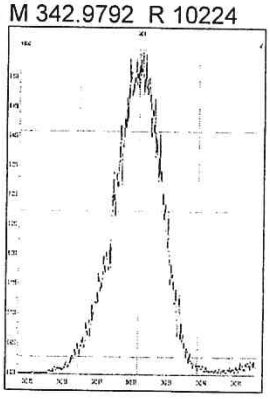

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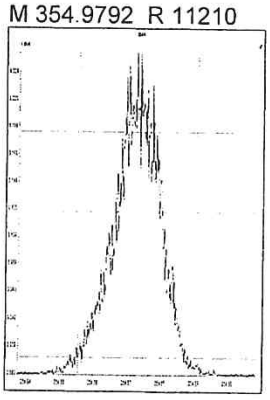

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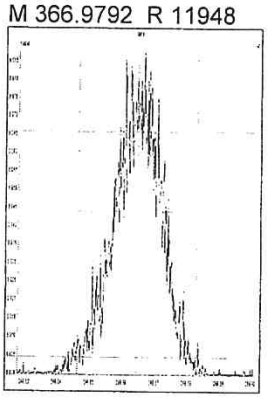

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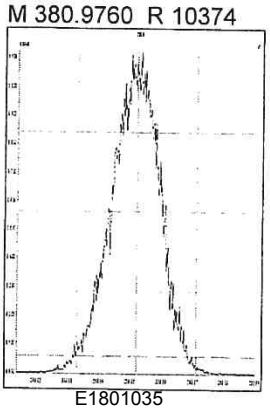

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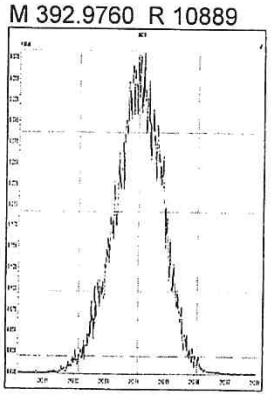

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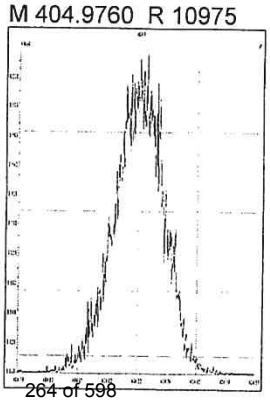

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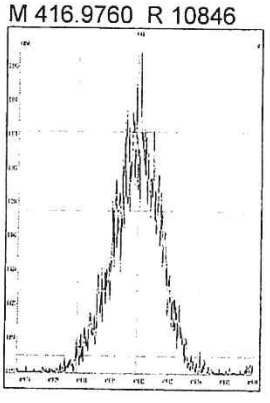

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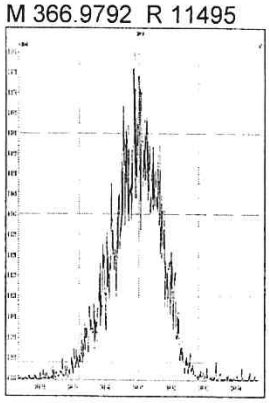

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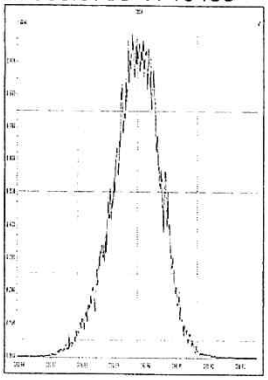

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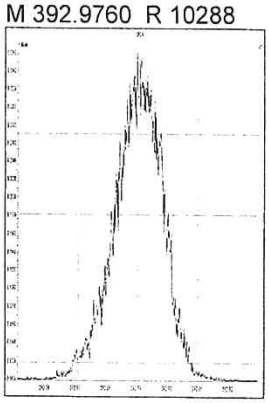

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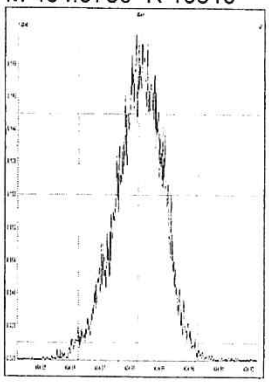

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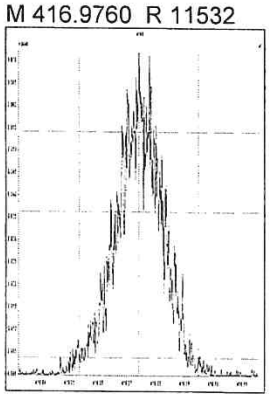
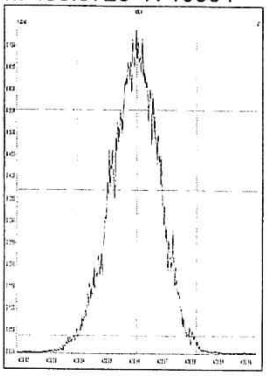


M 430.9728 R 10504



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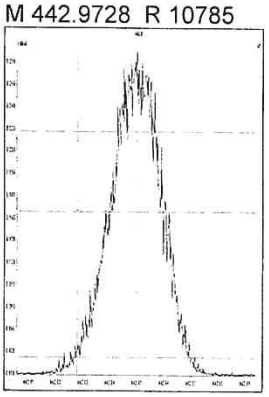

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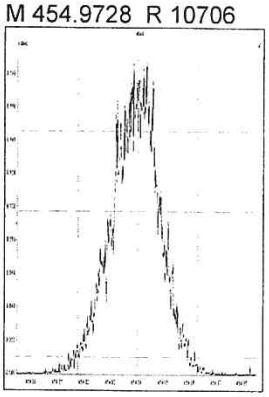

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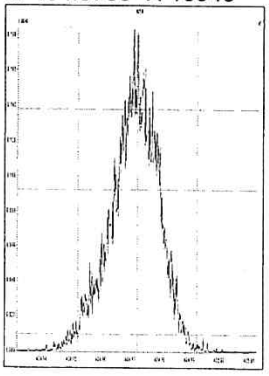

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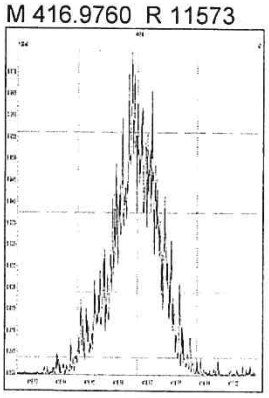

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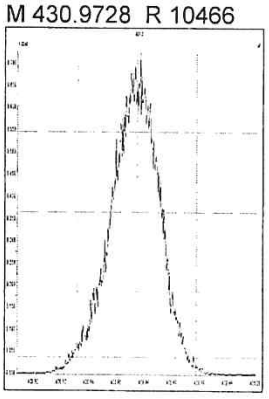

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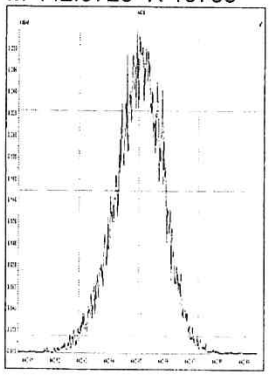

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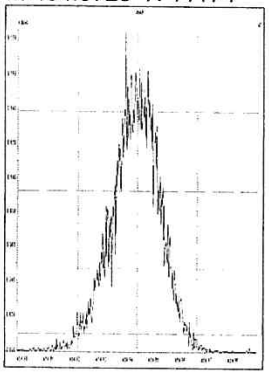

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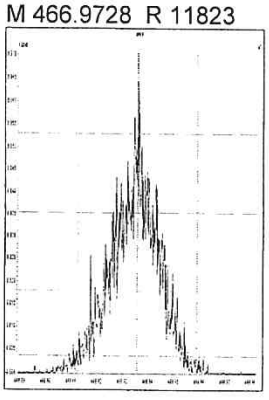

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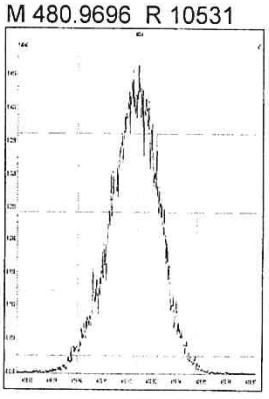
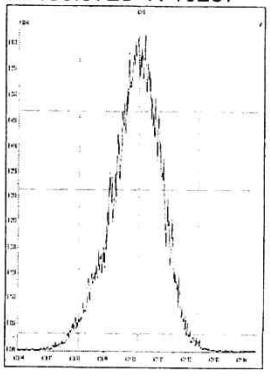


M 430.9728 R 10287



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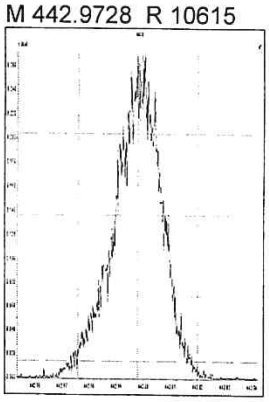

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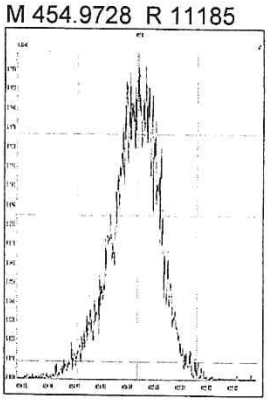

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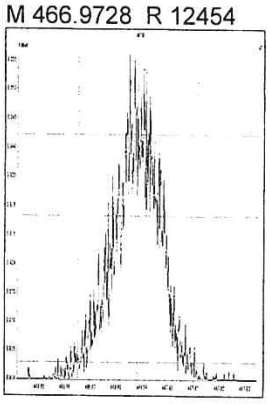

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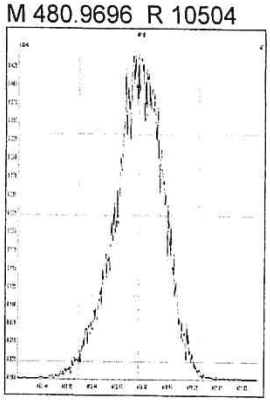

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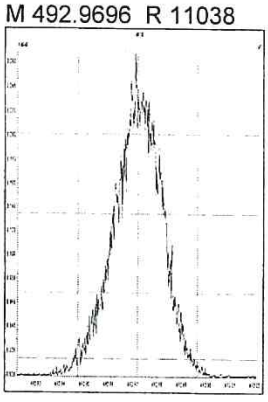

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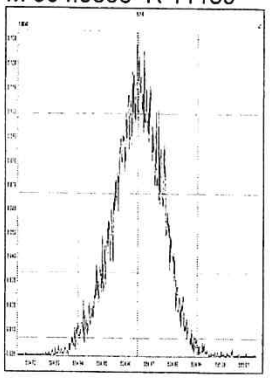

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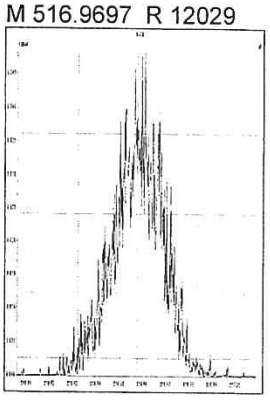

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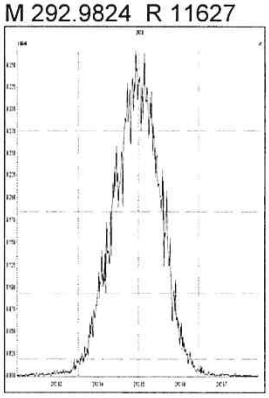

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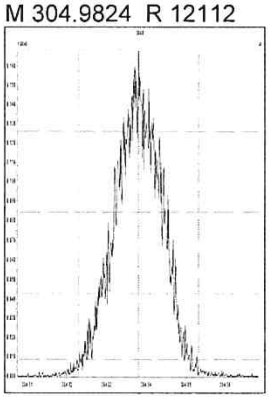

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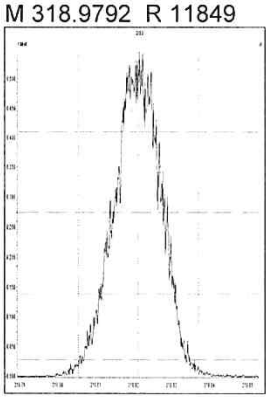

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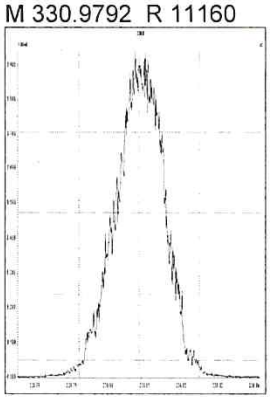
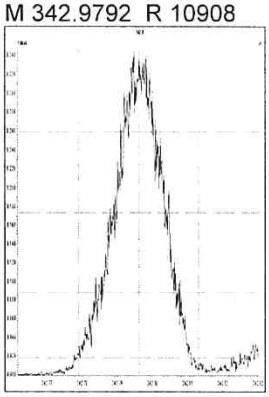


M 342.9792 R 10908



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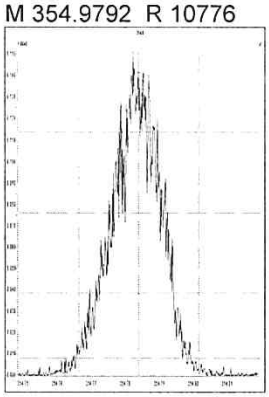

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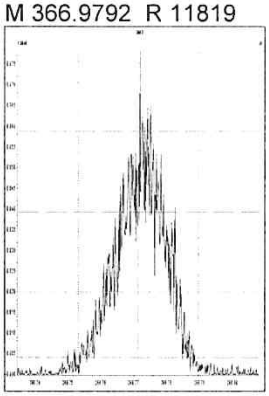

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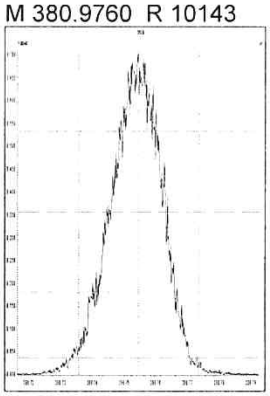
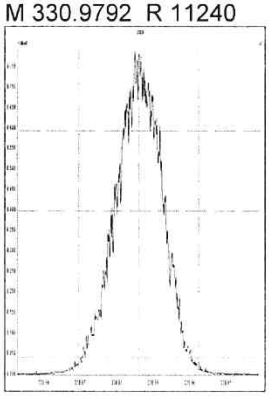
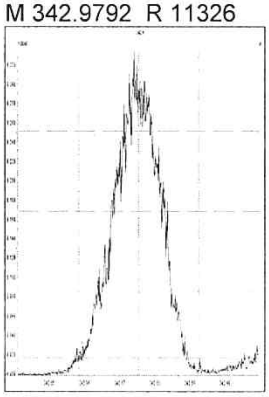


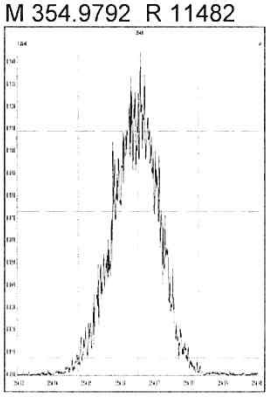
M 330.9792 R 11240



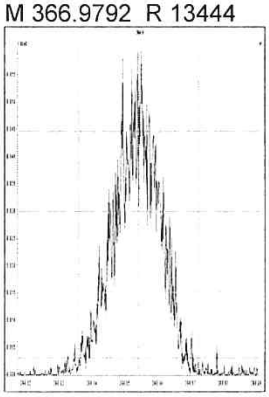
M 342.9792 R 11326



M 354.9792 R 11482



M 366.9792 R 13444



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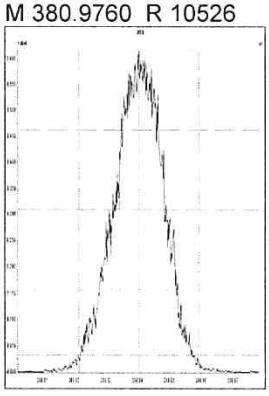

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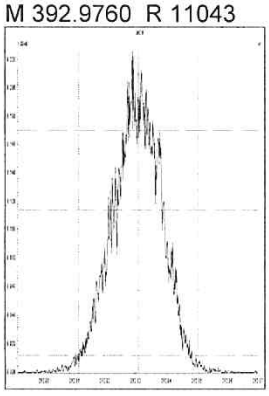

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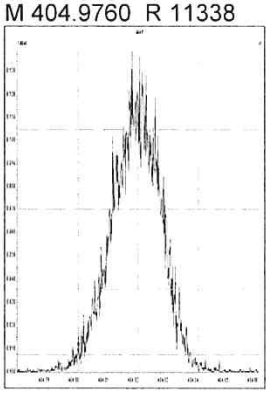

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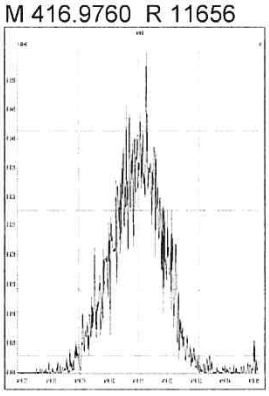

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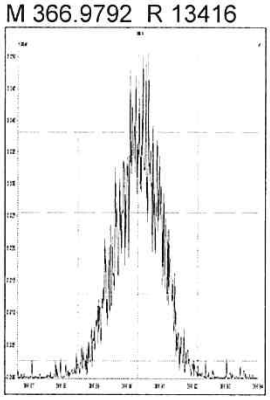

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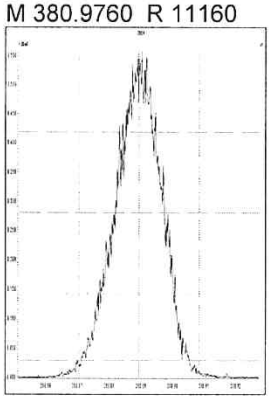

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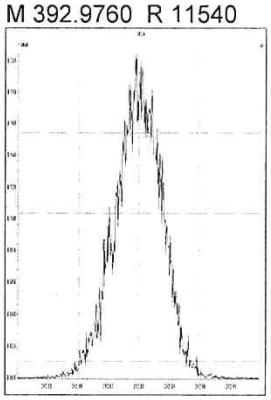

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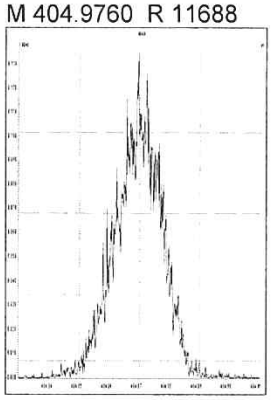

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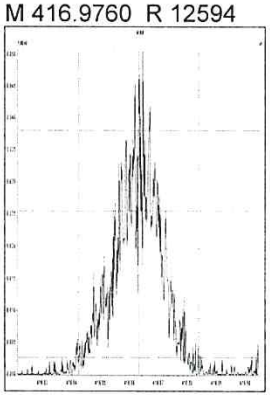

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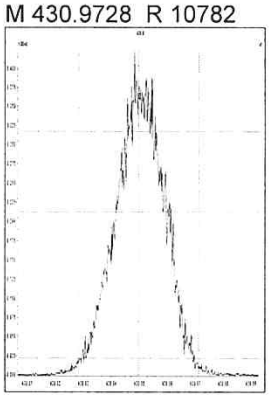

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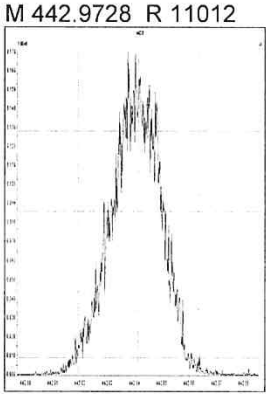

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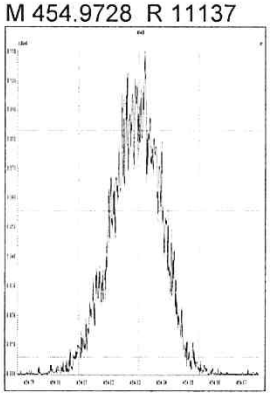

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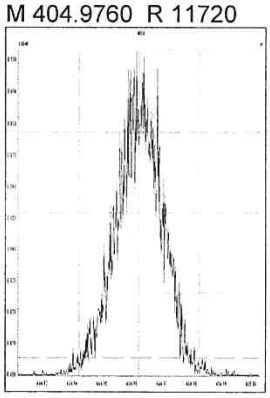

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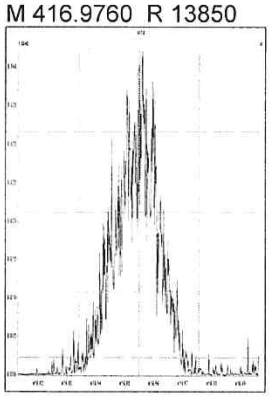

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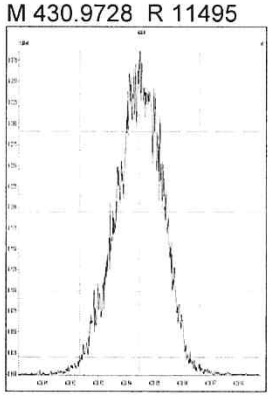

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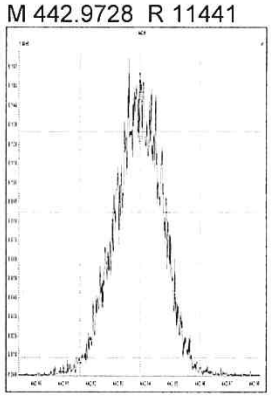
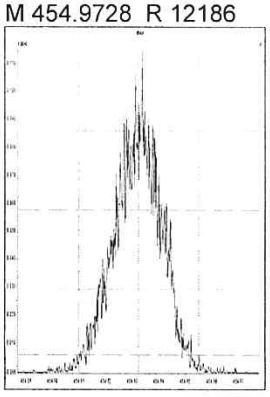
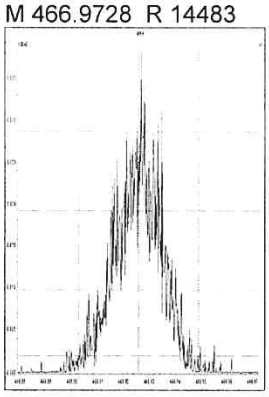


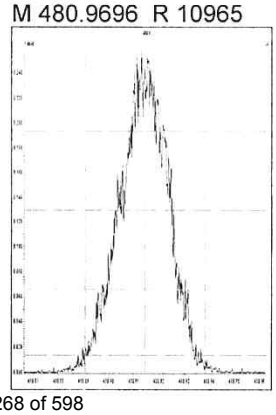
M 454.9728 R 12186



M 466.9728 R 14483



M 480.9696 R 10965



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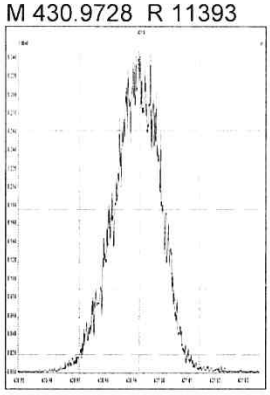

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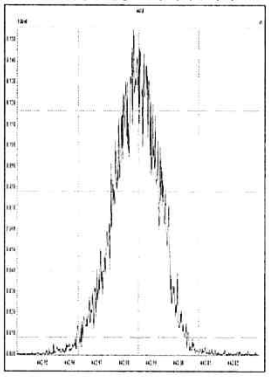
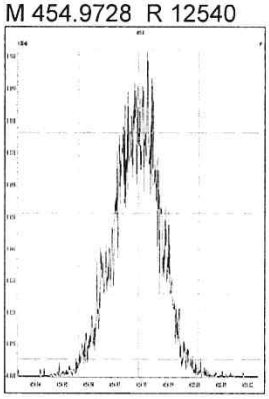
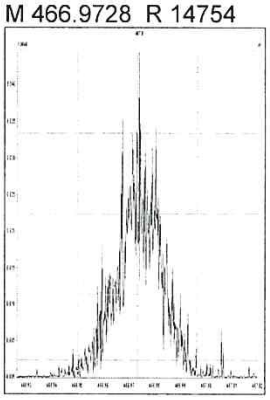


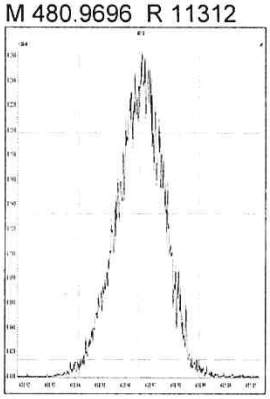
M 454.9728 R 12540



M 466.9728 R 14754



M 480.9696 R 11312



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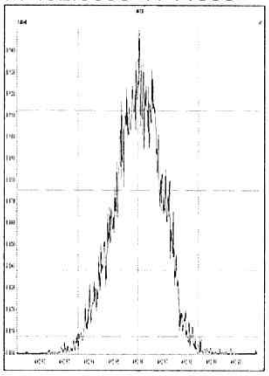

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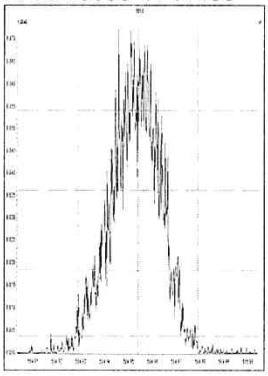

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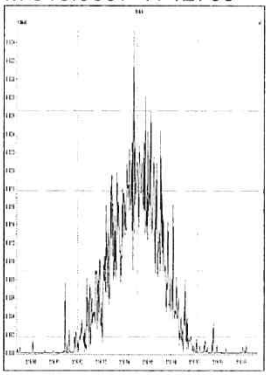


WINDOW DEFINING MIX SUMMARY

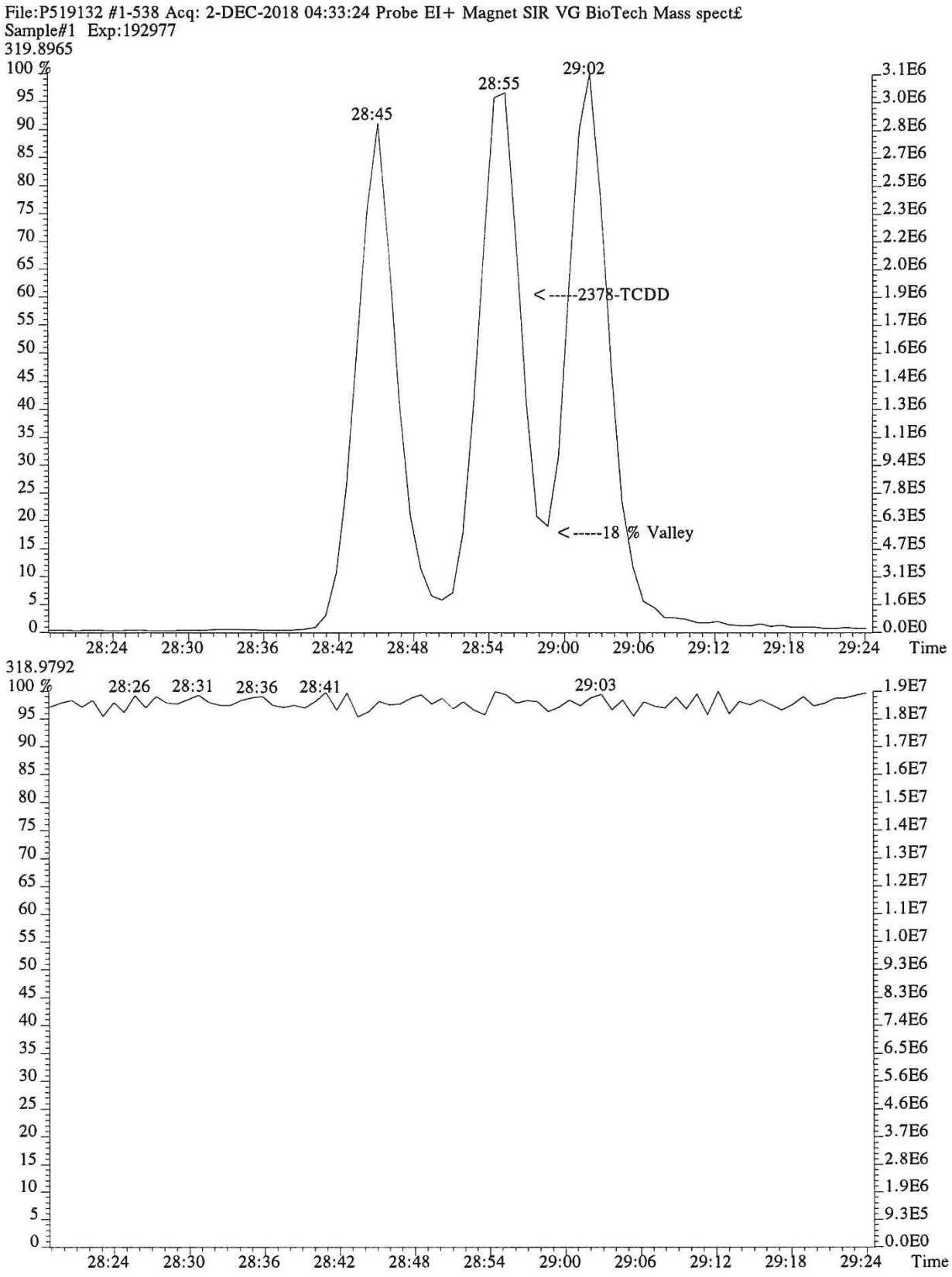
CLIENT ID:

WDM

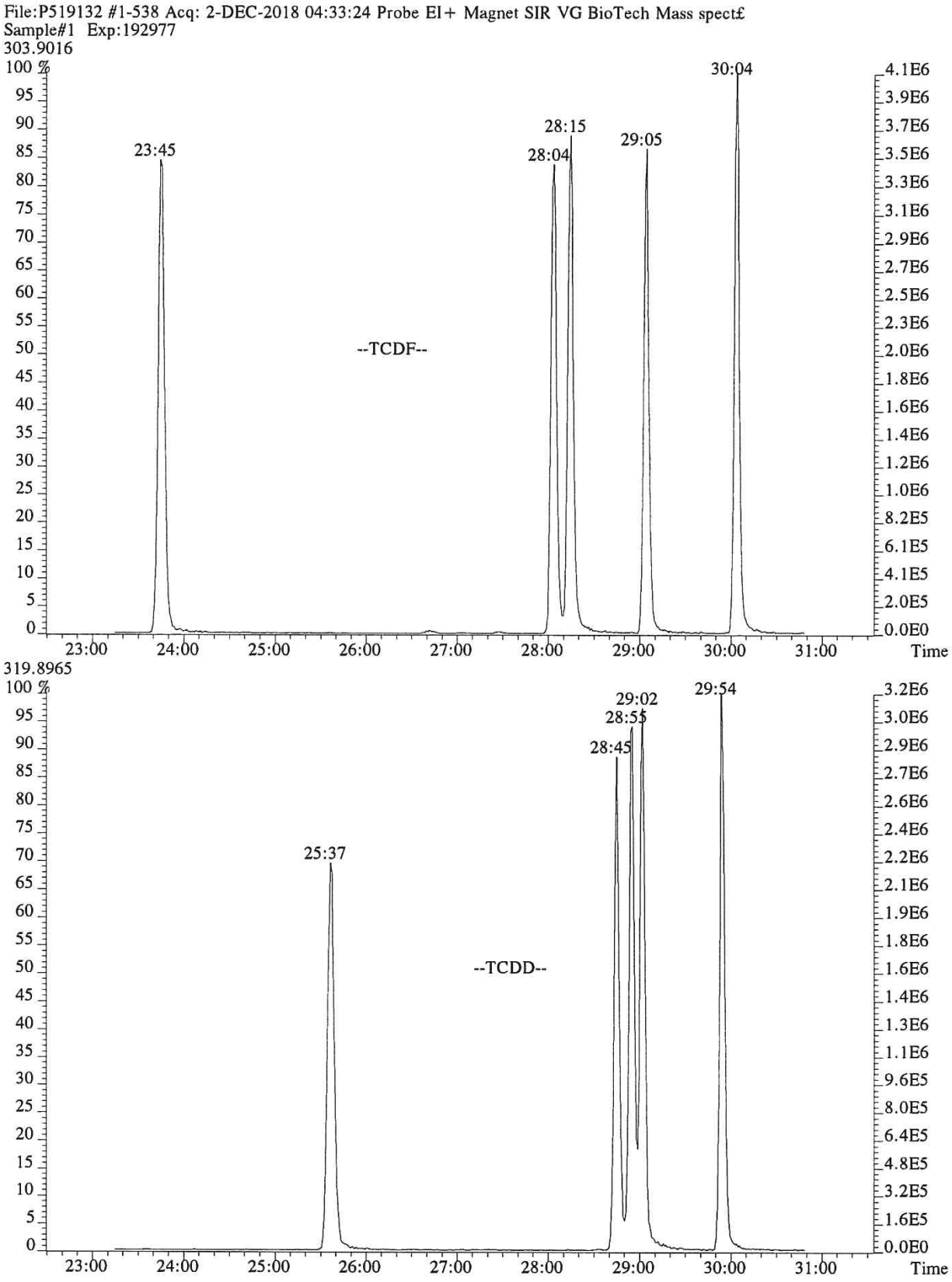
Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P519132
Date Analyzed: 2-DEC-2018
Time Analyzed: 04:33:24

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:45	30:04
TCDD	25:37	29:54
PeCDF	30:01	34:15
PeCDD	31:33	34:00
HxCDF	34:55	37:25
HxCDD	35:26	37:01
HpCDF	38:39	40:04
HpCDD	38:54	39:35

% Valley 2378-TCDD: 18 %


File:P519132 #1-538 Acq: 2-DEC-2018 04:33:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
28:45
28:55
29:02
<-----2378-TCDD
<-----18 % Valley
318.9792
28:26
28:31
28:36
28:41
29:03
Time

010604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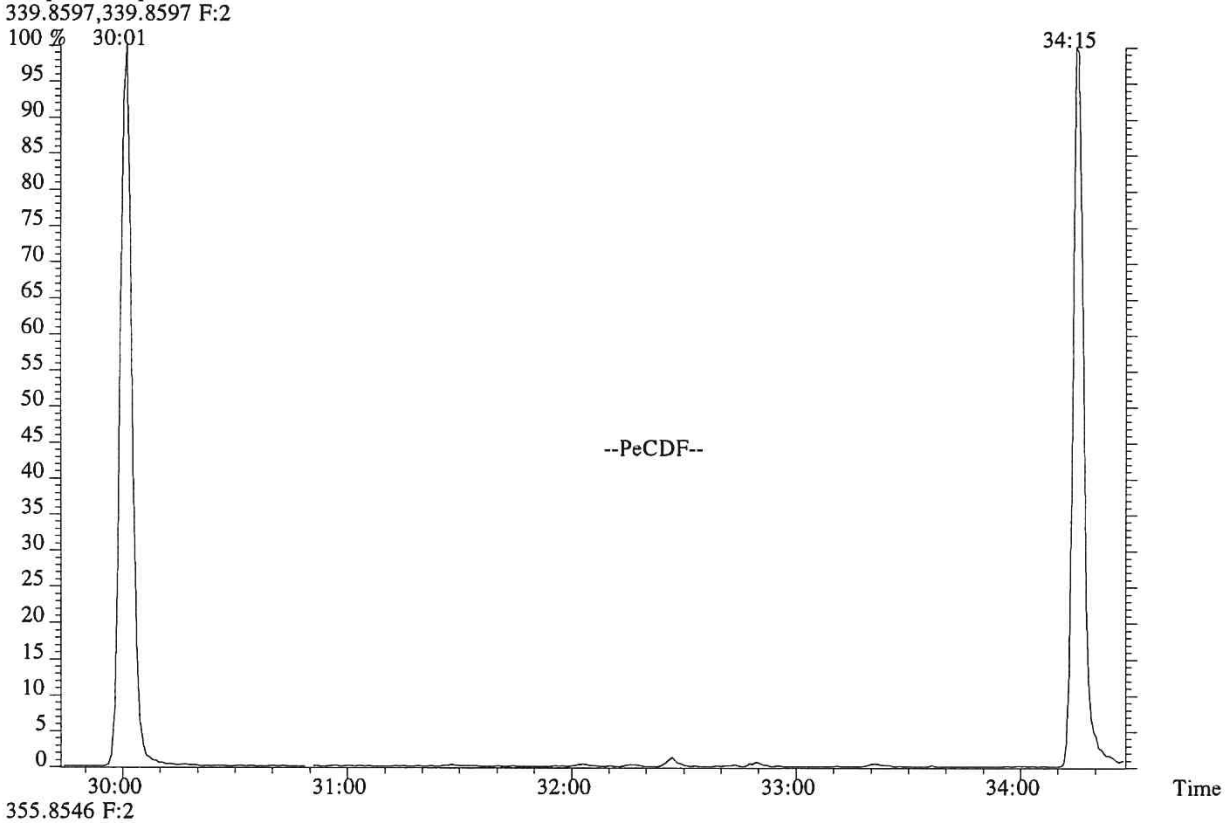
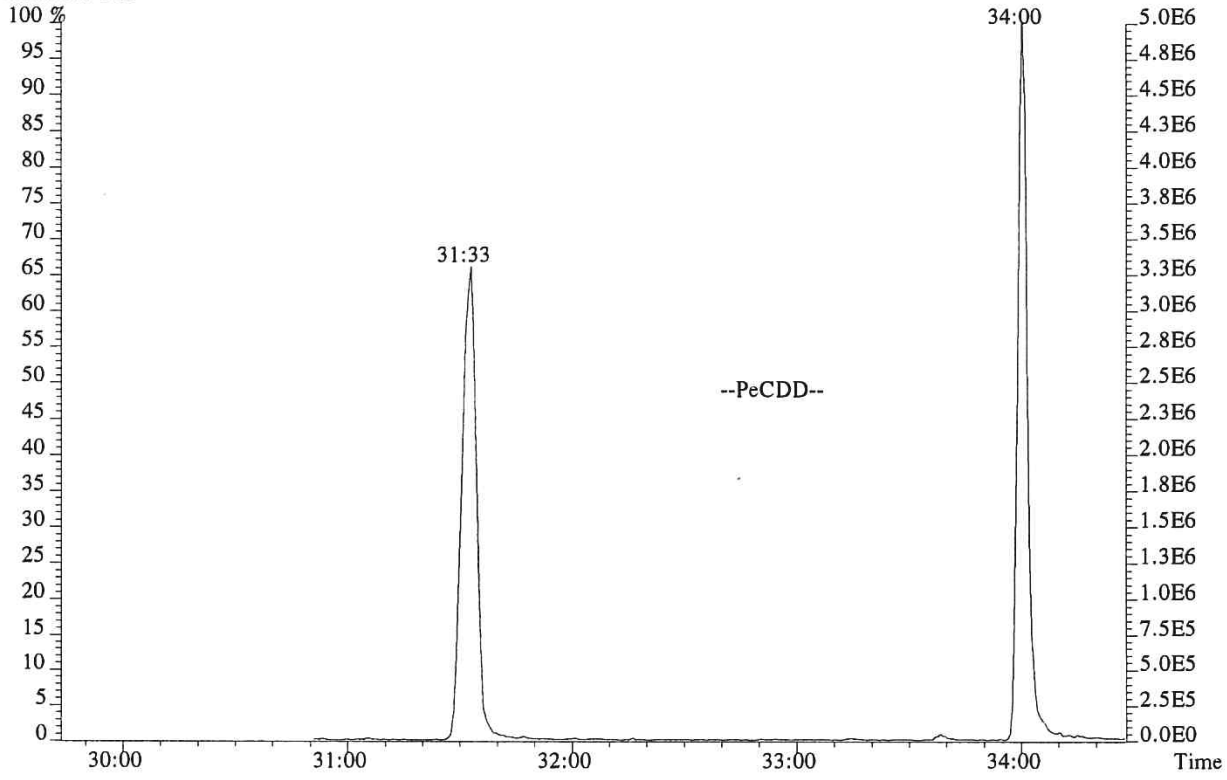
Sample#1 Exp:192977
303.9016
100 %
23:45
28:04
28:15
29:05
30:04
--TCDF--
4.1E6
3.9E6
3.7E6
3.5E6
3.3E6
3.1E6
2.9E6
2.7E6
2.5E6
2.3E6
2.0E6
1.8E6
1.6E6
1.4E6
1.2E6
1.0E6
8.2E5
6.1E5
4.1E5
2.0E5
0.0E0
23:00
24:00
25:00
26:00
27:00
28:00
29:00
30:00
31:00
Time
319.8965
100 %
25:37
28:45
28:55
29:02
29:54
--TCDD--
3.2E6
3.0E6
2.9E6
2.7E6
2.6E6
2.4E6
2.2E6
2.1E6
1.9E6
1.8E6
1.6E6
1.4E6
1.3E6
1.1E6
9.6E5
8.0E5
6.4E5
4.8E5
3.2E5
1.6E5
0.0E0
23:00
24:00
25:00
26:00
27:00
28:00
29:00
30:00
31:00
Time

File:P519132 #1-538 Acq: 2-DEC-2018 04:33:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



010606

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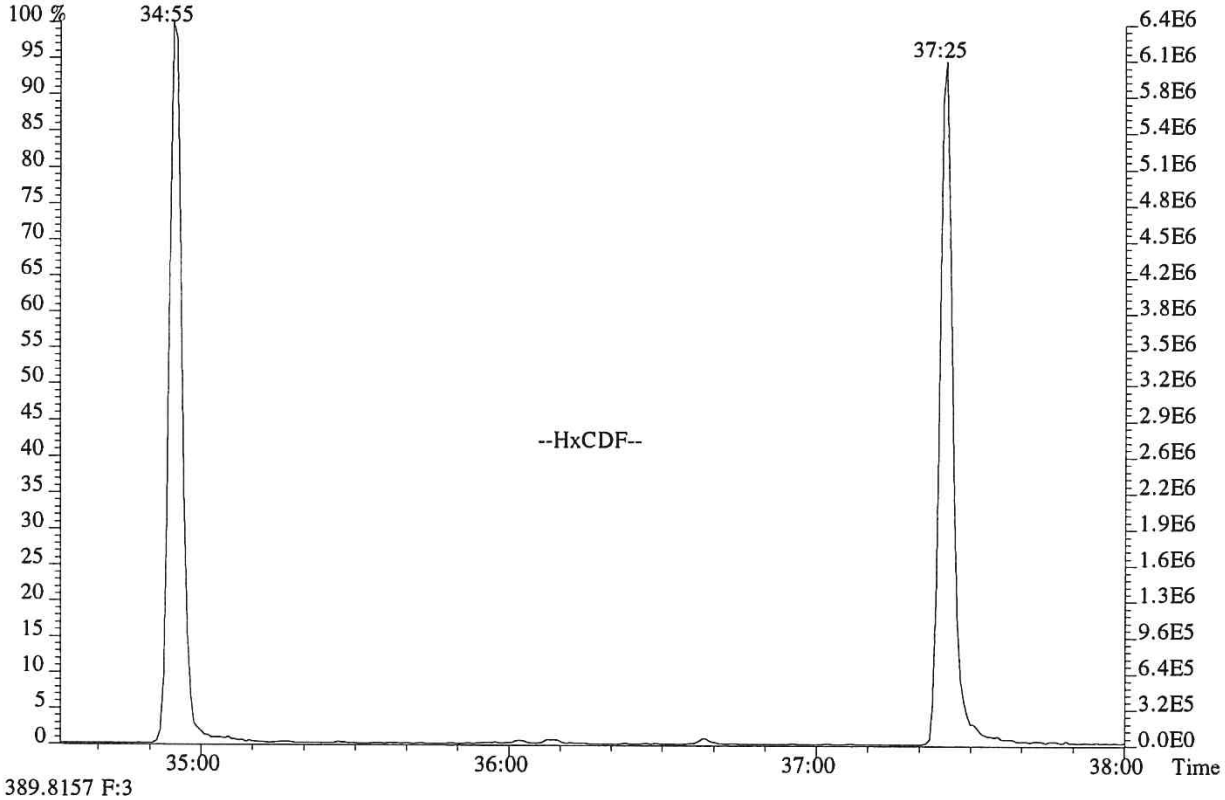
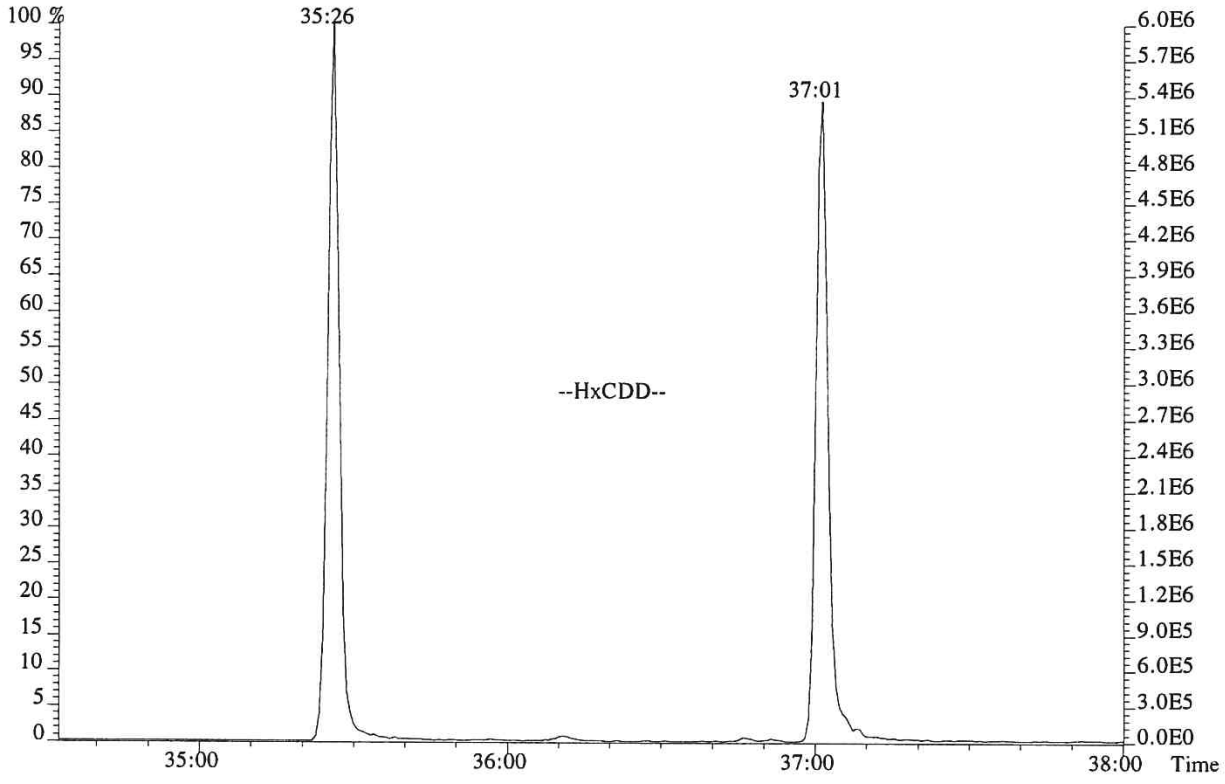


389.8157 F:3



010607

File:P519132 #1-241 Acq: 2-DEC-2018 04:33:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
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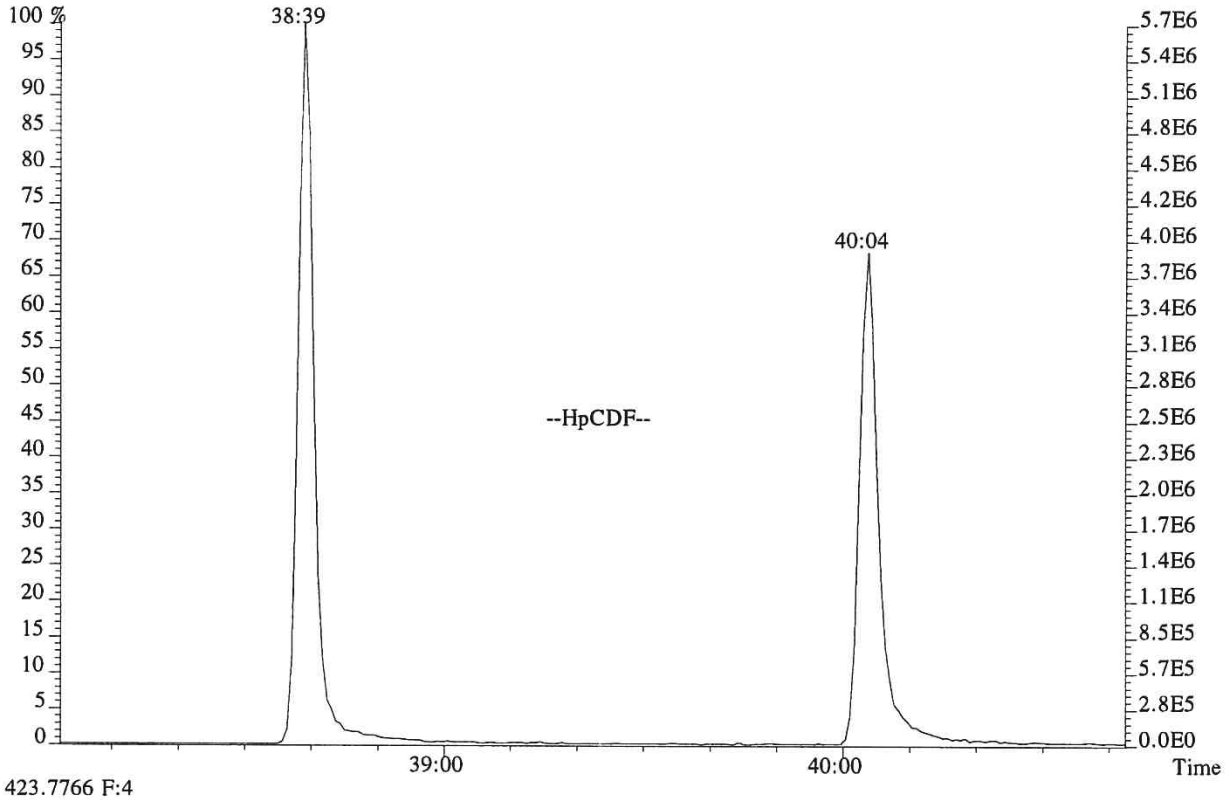
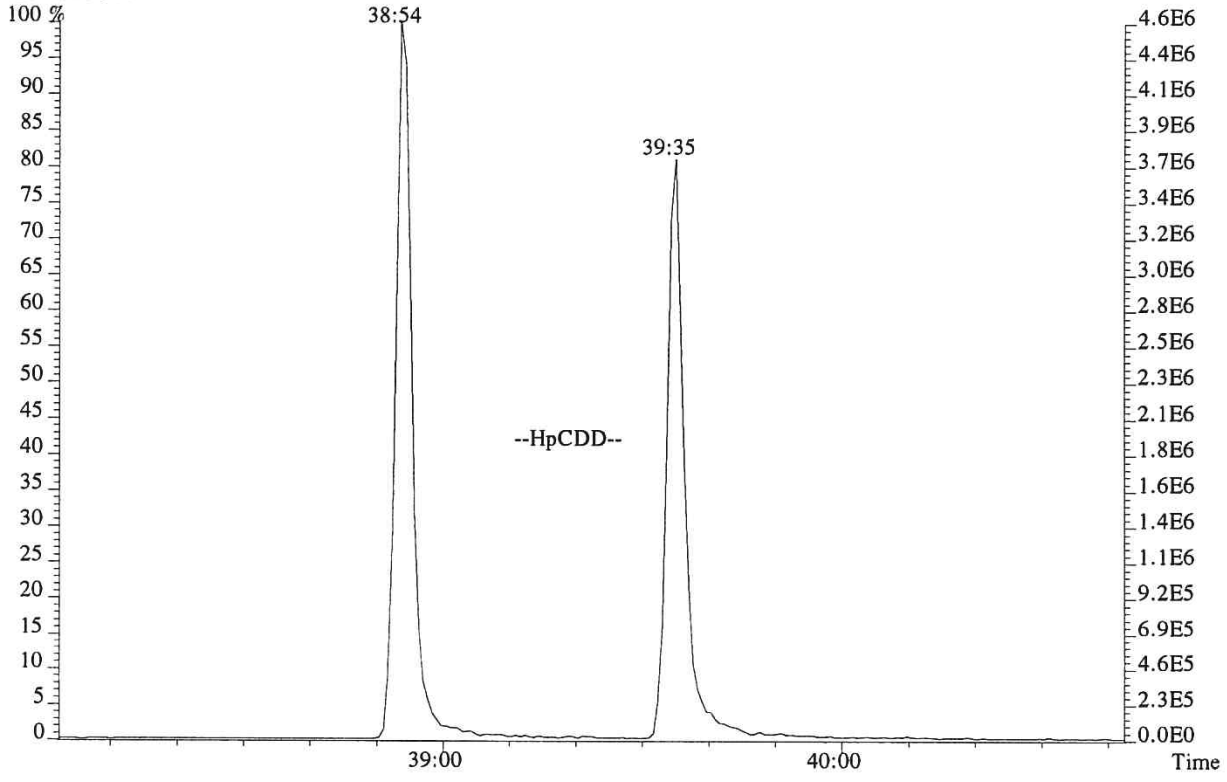
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID : DB-5MSUI

VER Data Filename: P519131 Analysis Date: 2-DEC-18 Time: 03:44:46

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.2	7.8 - 12.9	-8.2
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	49	39 - 65	-2.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-1.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-1.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	51	41 - 61	1.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	49	43 - 58	-1.8
OCDD	M+2/M+4	0.89	0.76-1.02	99	79 - 126	-1.3
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	9.4	8.4 - 12.0	-5.9
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 60	-2.5
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 61	-2.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	50	45 - 56	0.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	49	45 - 56	-2.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	49	44 - 57	-2.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	49	45 - 55	-2.7
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	49	43 - 58	-1.6
OCDF	M+2/M+4	0.89	0.76-1.02	92	63 - 159	-8.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

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1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID : DB-5MSUI

VER Data Filename: P519131 Analysis Date: 2-DEC-18 Time: 03:44:46

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	106	82 - 121	6.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	110	62 - 160	9.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	93	85 - 117	-6.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	99	85 - 118	-1.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	95	72 - 138	-4.5
13C-OCDD	M+2/M+4	0.90	0.76-1.02	176	96 - 415	-11.9
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	92	71 - 140	-8.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	100	76 - 130	0.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	102	77 - 130	1.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	86	76 - 131	-14.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	89	70 - 143	-10.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	94	74 - 135	-5.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	93	73 - 137	-7.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	89	78 - 129	-11.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	89	77 - 129	-11.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.1	7.8 - 12.7	1.3

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519131 Samp: 1 Inj: 1 Acquired: 2-DEC-18 03:44:46
Processed: 3-DEC-18 17:04:26 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	9.114e+03	1.228e+04	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:27	7.652e+04	5.000e+04	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:21	7.288e+04	4.760e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:01	6.524e+04	5.256e+04	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	6.863e+04	5.820e+04	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:38	6.353e+04	5.329e+04	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:23	5.837e+04	4.776e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	5.256e+04	5.202e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	4.159e+04	4.168e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:37	5.570e+04	6.280e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	7.411e+03	9.578e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	5.254e+04	3.365e+04	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:46	4.502e+04	3.621e+04	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	4.884e+04	3.942e+04	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	4.995e+04	4.009e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	3.902e+04	3.720e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:24	4.923e+04	5.554e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	1.063e+05	1.350e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	1.568e+05	9.968e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	1.573e+05	9.980e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	6.753e+04	1.289e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	7.935e+04	1.518e+05	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	7.340e+04	1.427e+05	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	6.478e+04	1.250e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	4.915e+04	1.100e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	4.162e+04	9.290e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:00	7.546e+04	9.506e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	1.135e+05	7.219e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	8.864e+04	7.082e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	9.671e+04	7.669e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	7.710e+04	7.436e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:23	9.016e+04	9.972e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	7.713e+04	9.656e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	1.012e+05	8.379e+04	1.21	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	1.783e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519131 Samp: 1 Inj: 1 Acquired: 2-DEC-18 03:44:46
Processed: 3-DEC-18 17:04:26 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.68e+06	4.92e+02	3.4e+03	2.29e+06	9.16e+02	2.5e+03
2	1,2,3,7,8-PeCDF	1.42e+07	6.20e+02	2.3e+04	9.25e+06	1.07e+03	8.7e+03
3	2,3,4,7,8-PeCDF	1.42e+07	6.20e+02	2.3e+04	9.24e+06	1.07e+03	8.7e+03
4	1,2,3,4,7,8-HxCDF	1.37e+07	3.36e+02	4.1e+04	1.13e+07	4.80e+02	2.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+07	3.36e+02	4.2e+04	1.18e+07	4.80e+02	2.5e+04
6	2,3,4,6,7,8-HxCDF	1.37e+07	3.36e+02	4.1e+04	1.15e+07	4.80e+02	2.4e+04
7	1,2,3,7,8,9-HxCDF	1.17e+07	3.36e+02	3.5e+04	9.65e+06	4.80e+02	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.09e+07	6.86e+03	1.6e+03	1.08e+07	4.81e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	7.62e+06	6.86e+03	1.1e+03	7.58e+06	4.81e+03	1.6e+03
10	OCDF	8.50e+06	3.32e+02	2.6e+04	9.67e+06	4.20e+02	2.3e+04
11	2,3,7,8-TCDD	1.45e+06	1.42e+03	1.0e+03	1.93e+06	6.96e+02	2.8e+03
12	1,2,3,7,8-PeCDD	1.03e+07	6.96e+02	1.5e+04	6.45e+06	1.72e+02	3.8e+04
13	1,2,3,4,7,8-HxCDD	9.89e+06	3.80e+02	2.6e+04	8.06e+06	5.48e+02	1.5e+04
14	1,2,3,6,7,8-HxCDD	9.96e+06	3.80e+02	2.6e+04	8.06e+06	5.48e+02	1.5e+04
15	1,2,3,7,8,9-HxCDD	1.03e+07	3.80e+02	2.7e+04	8.22e+06	5.48e+02	1.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.50e+06	5.20e+02	1.4e+04	7.12e+06	5.08e+02	1.4e+04
17	OCDD	7.51e+06	2.60e+02	2.9e+04	8.49e+06	4.72e+02	1.8e+04
18	13C-2,3,7,8-TCDF	1.95e+07	3.97e+03	4.9e+03	2.45e+07	2.38e+03	1.0e+04
19	13C-1,2,3,7,8-PeCDF	2.87e+07	6.32e+02	4.5e+04	1.85e+07	4.28e+02	4.3e+04
20	13C-2,3,4,7,8-PeCDF	3.00e+07	6.32e+02	4.7e+04	1.92e+07	4.28e+02	4.5e+04
21	13C-1,2,3,4,7,8-HxCDF	1.45e+07	9.64e+02	1.5e+04	2.77e+07	9.16e+02	3.0e+04
22	13C-1,2,3,6,7,8-HxCDF	1.61e+07	9.64e+02	1.7e+04	3.08e+07	9.16e+02	3.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.56e+07	9.64e+02	1.6e+04	3.04e+07	9.16e+02	3.3e+04
24	13C-1,2,3,7,8,9-HxCDF	1.29e+07	9.64e+02	1.3e+04	2.49e+07	9.16e+02	2.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.01e+07	3.27e+03	3.1e+03	2.27e+07	6.58e+03	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.60e+06	3.27e+03	2.3e+03	1.67e+07	6.58e+03	2.5e+03
27	13C-2,3,7,8-TCDD	1.42e+07	3.70e+03	3.8e+03	1.80e+07	2.32e+03	7.8e+03
28	13C-1,2,3,7,8-PeCDD	2.21e+07	7.04e+02	3.1e+04	1.40e+07	8.04e+02	1.7e+04
29	13C-1,2,3,4,7,8-HxCDD	1.95e+07	1.10e+03	1.8e+04	1.56e+07	8.36e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	1.96e+07	1.10e+03	1.8e+04	1.57e+07	8.36e+02	1.9e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.47e+07	8.56e+02	1.7e+04	1.39e+07	3.32e+02	4.2e+04
32	13C-OCDD	1.36e+07	3.68e+02	3.7e+04	1.51e+07	2.84e+02	5.3e+04
33	13C-1,2,3,4-TCDD	1.49e+07	3.70e+03	4.0e+03	1.86e+07	2.32e+03	8.0e+03
34	13C-1,2,3,7,8,9-HxCDD	2.06e+07	1.10e+03	1.9e+04	1.64e+07	8.36e+02	2.0e+04
35	37Cl-2,3,7,8-TCDD	3.51e+06	1.64e+03	2.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.420e+03 + 6.960e+02) \times 100}{(1.417e+07 + 1.799e+07) \times (\quad) \times 1.085} =$$

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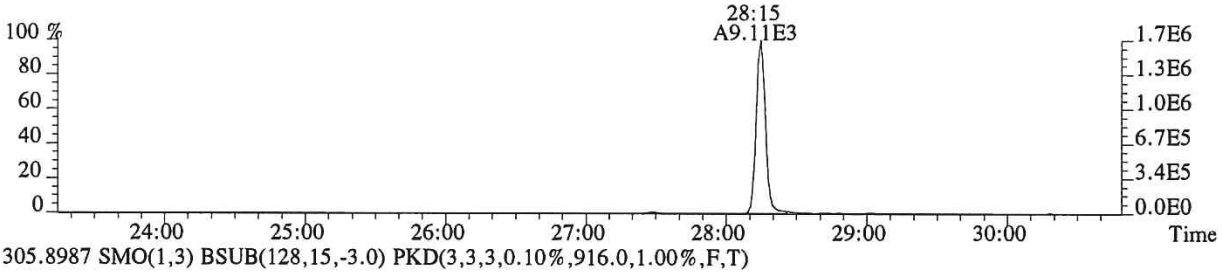
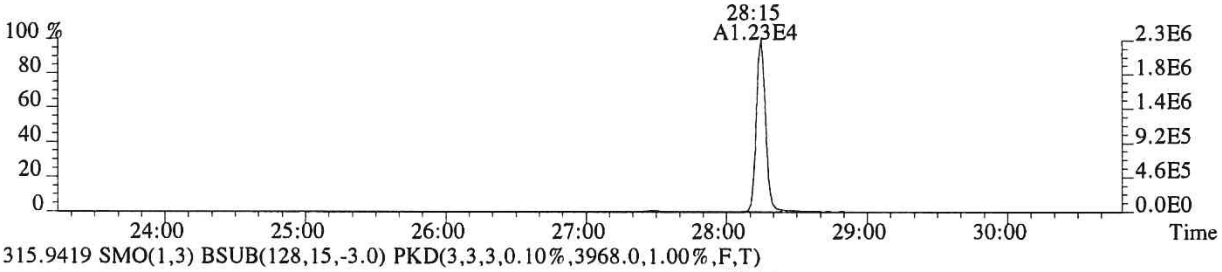
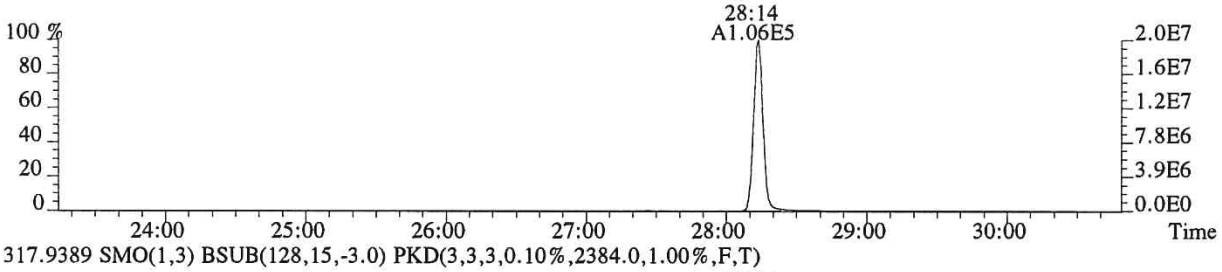
File:P519131 #1-538 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



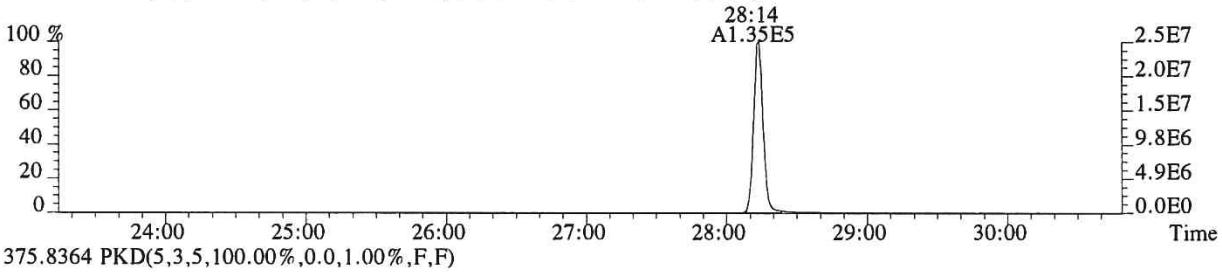
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



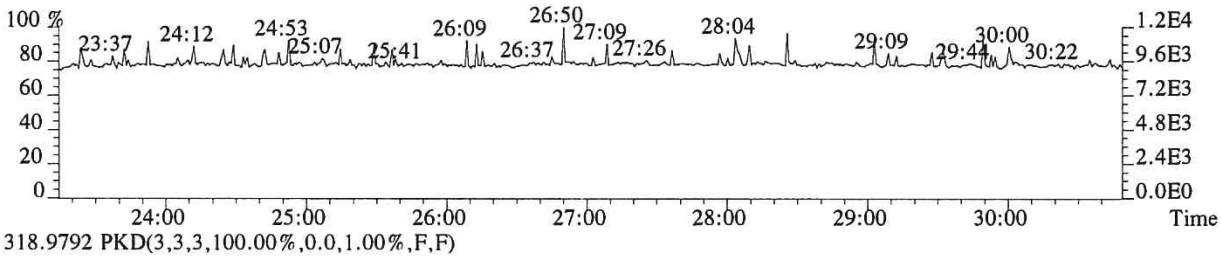
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3968.0,1.00%,F,T)



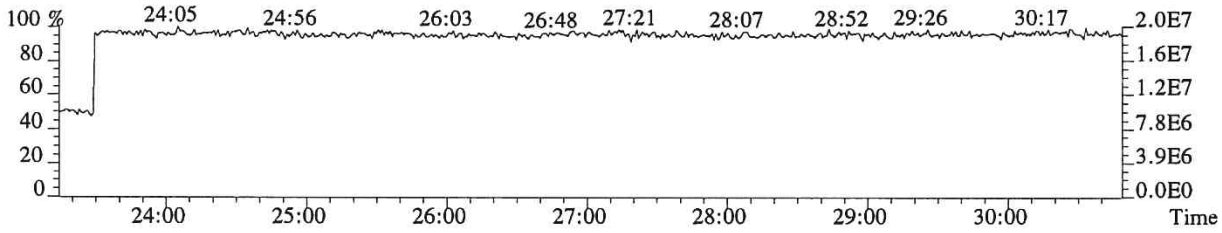
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2384.0,1.00%,F,T)



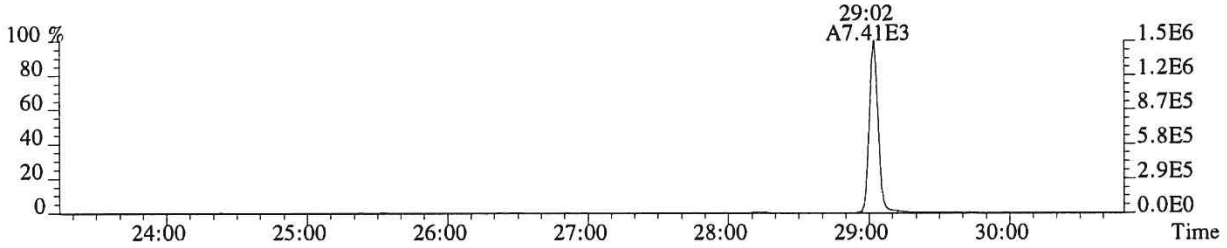
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



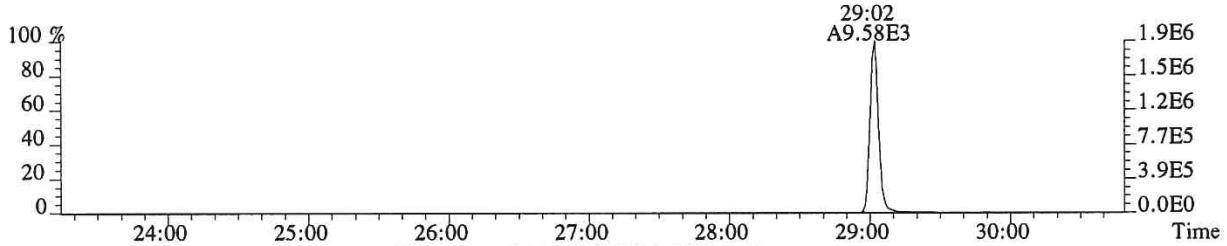
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



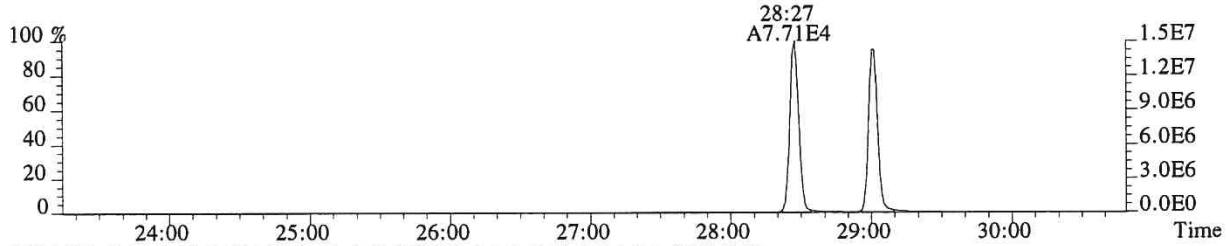
File:P519131 #1-538 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



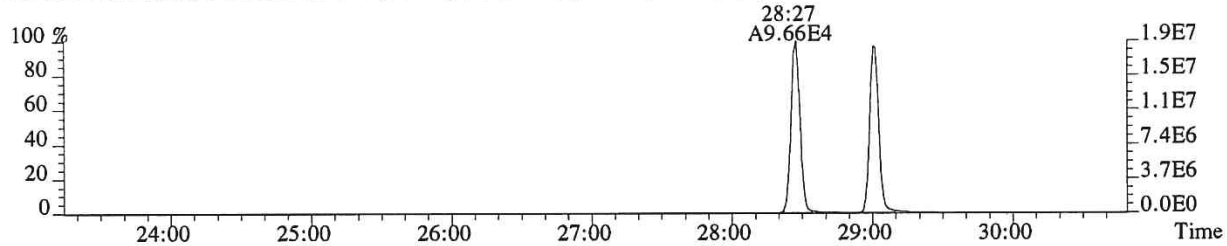
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



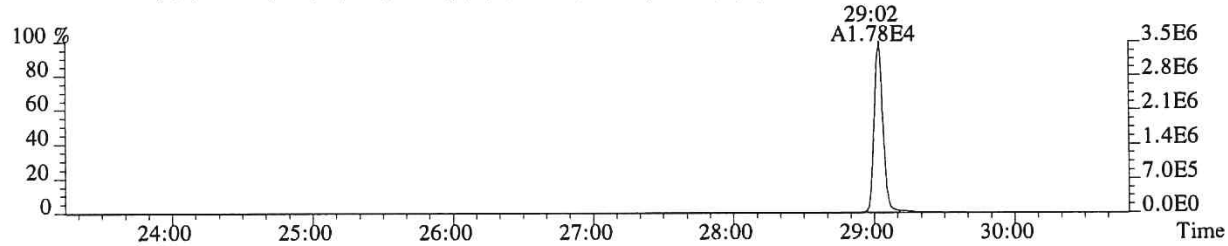
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3696.0,1.00%,F,T)



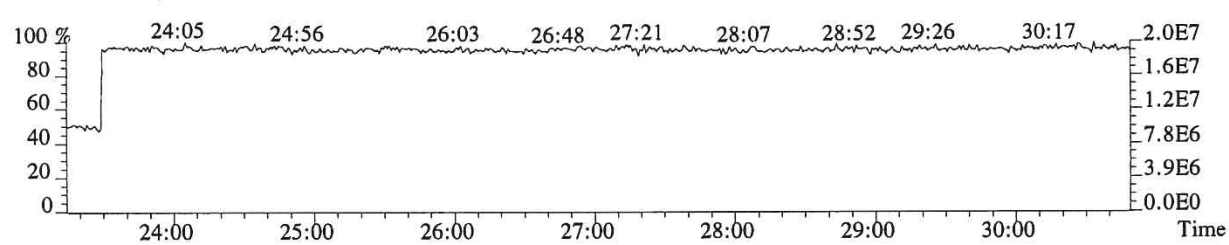
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)

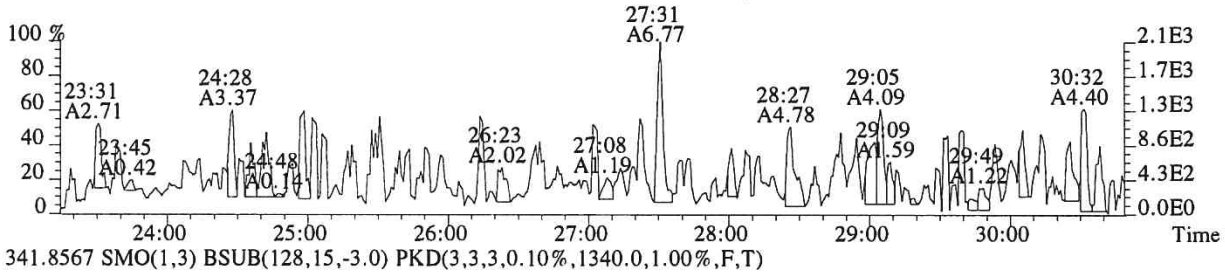


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

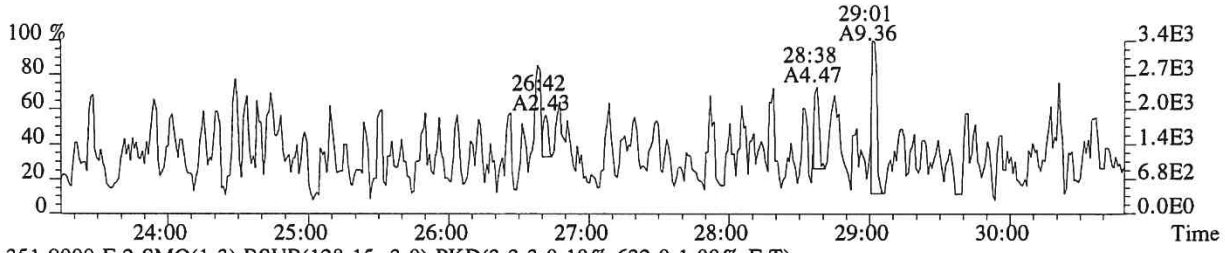


010614

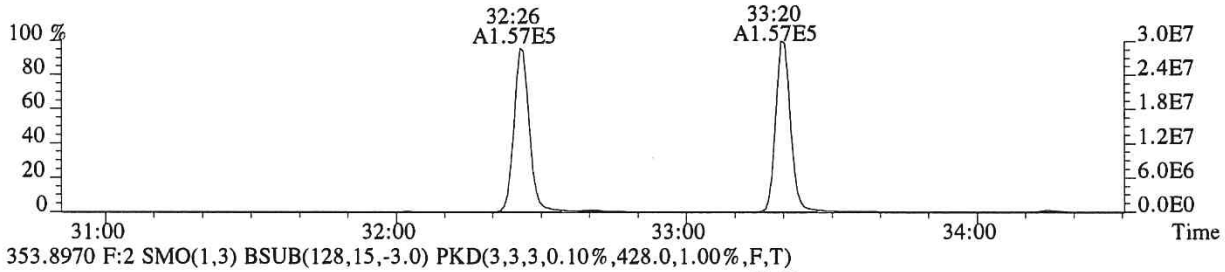
File:P519131 #1-538 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



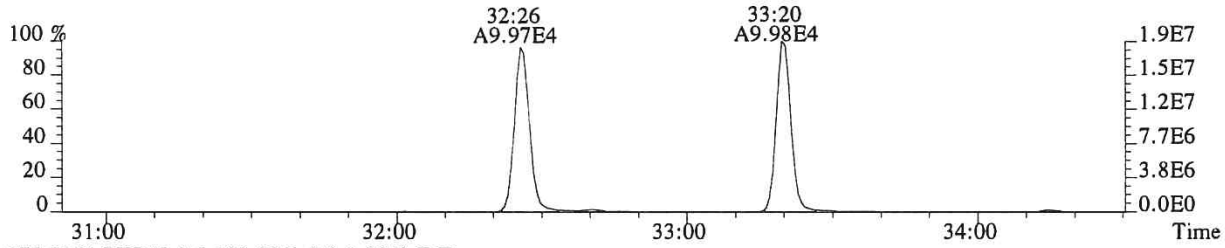
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



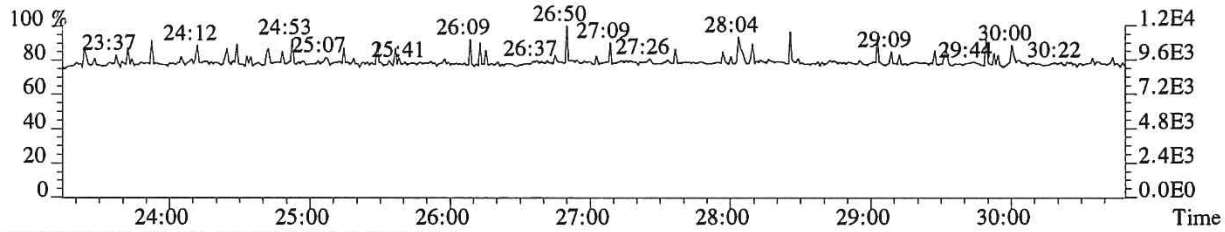
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



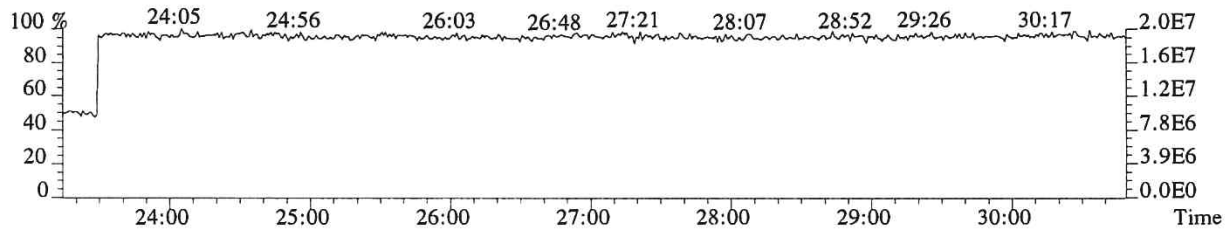
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

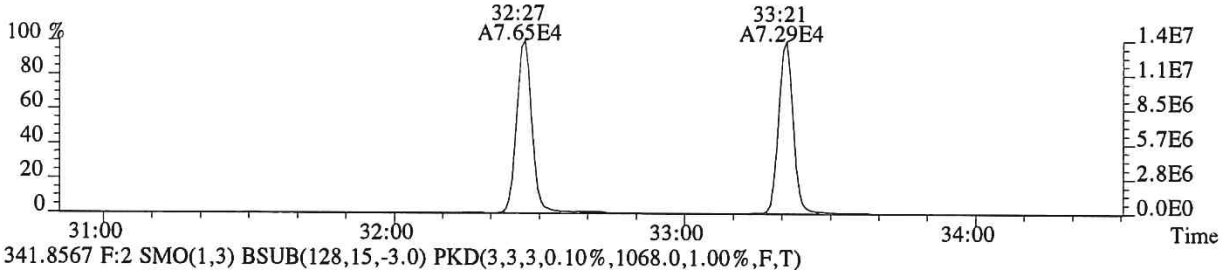


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

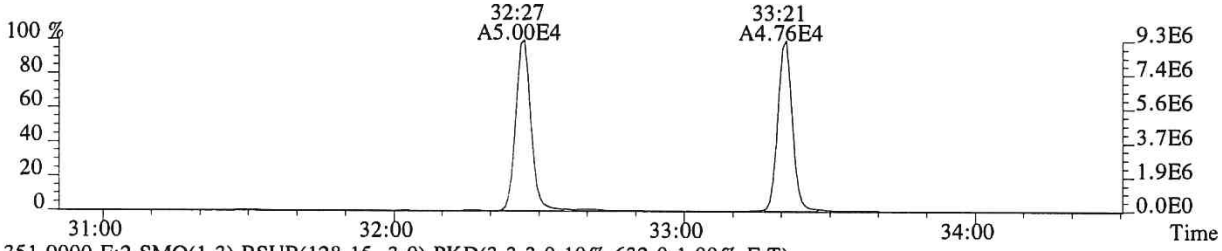


010615

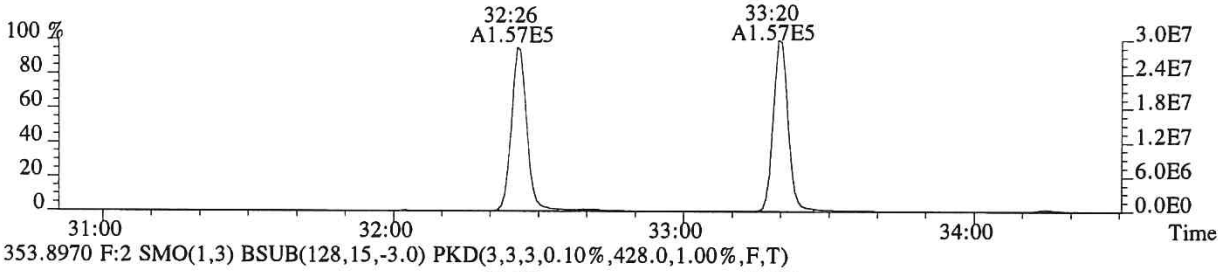
File:P519131 #1-330 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



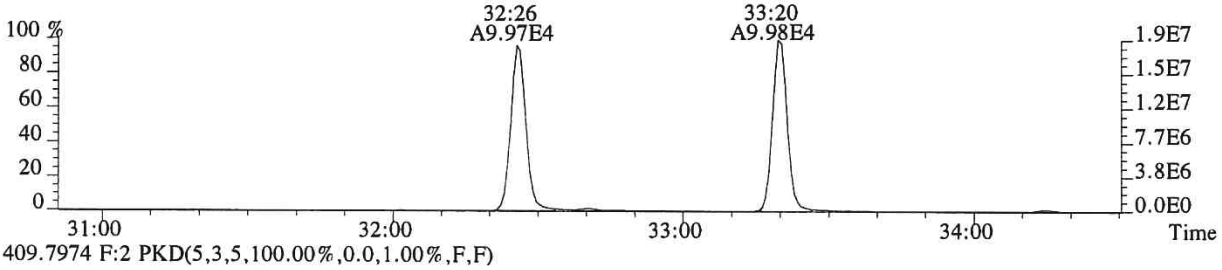
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



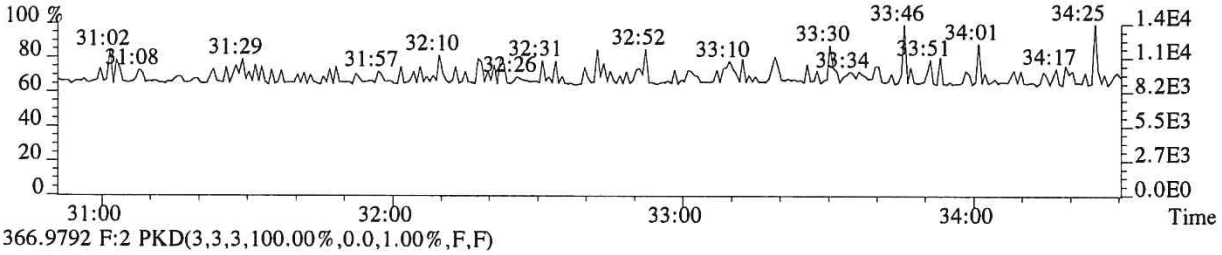
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



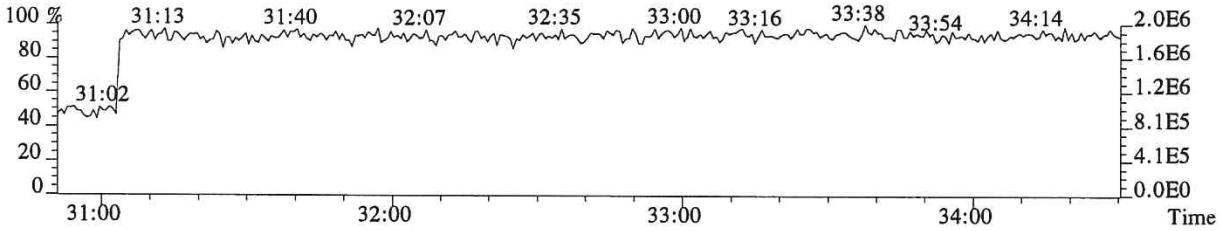
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

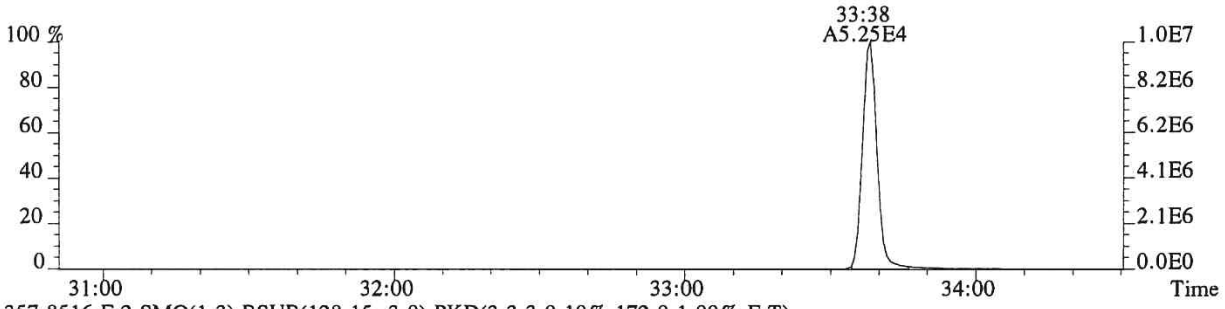


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

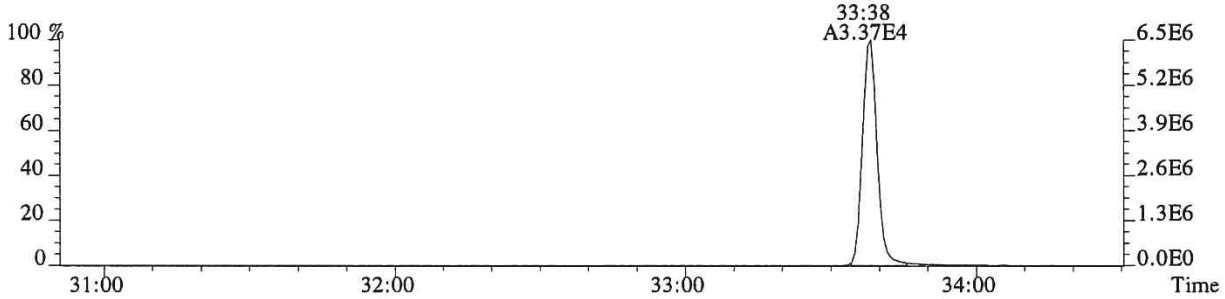


010616

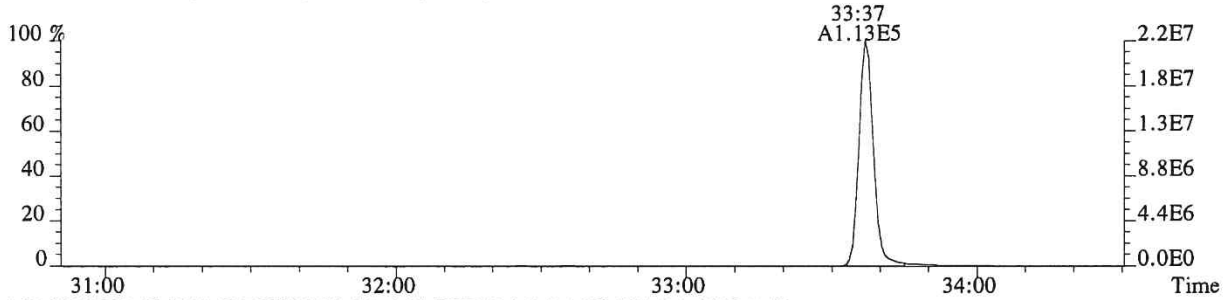
File:P519131 #1-330 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



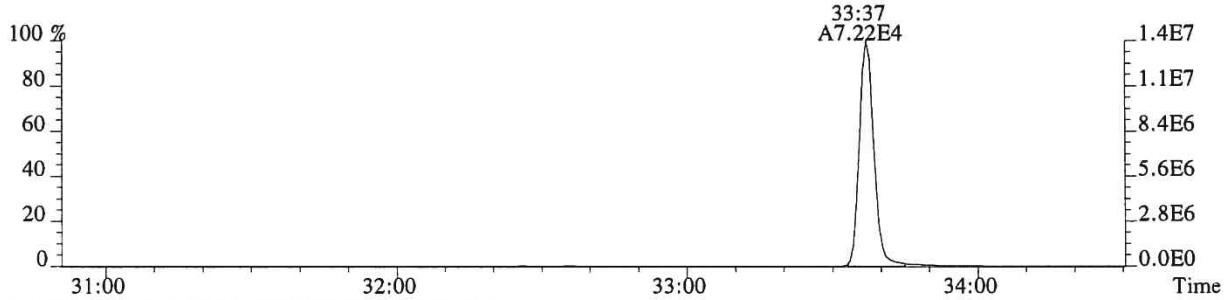
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



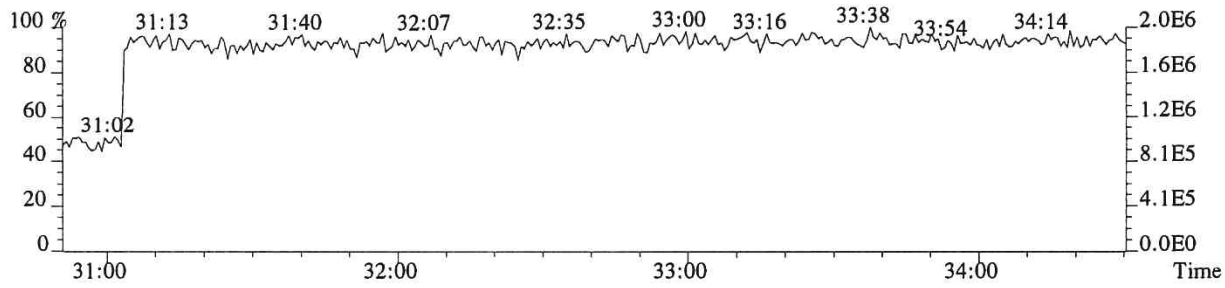
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)

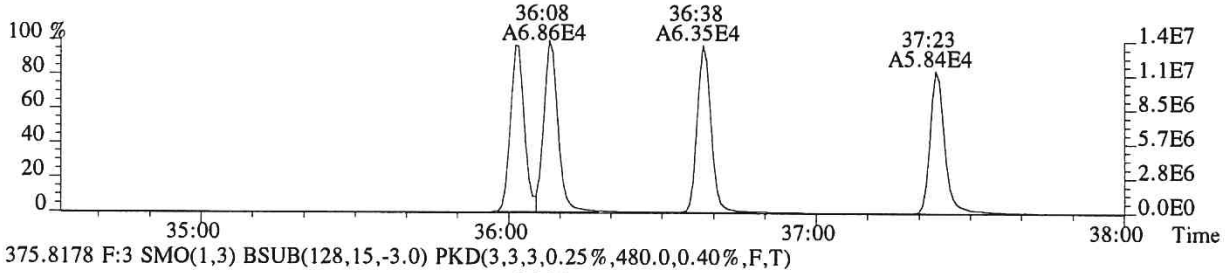


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

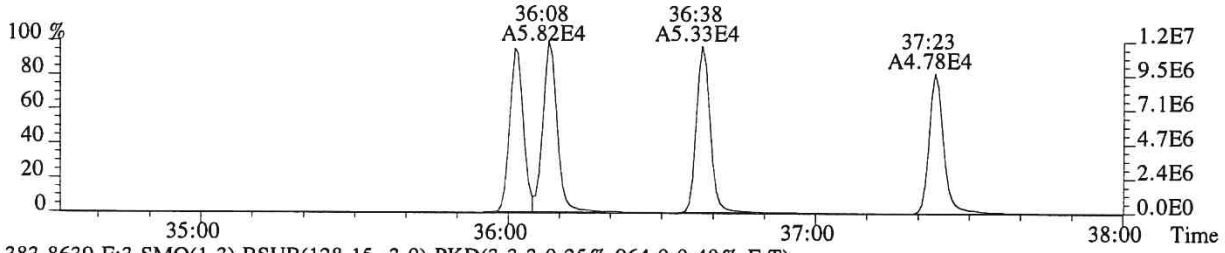


File:P519131 #1-312 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

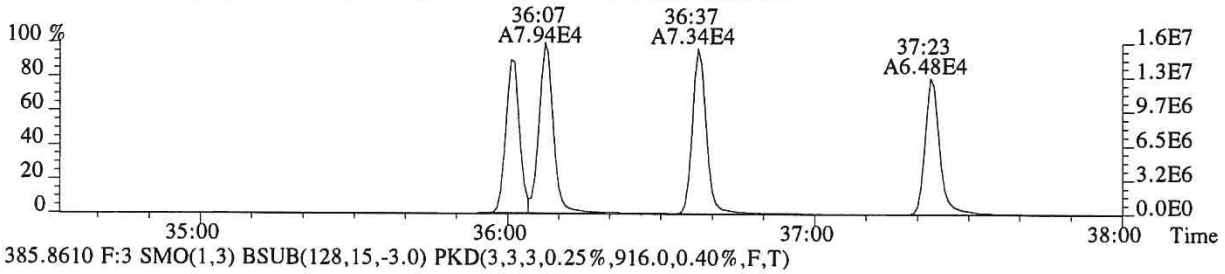
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



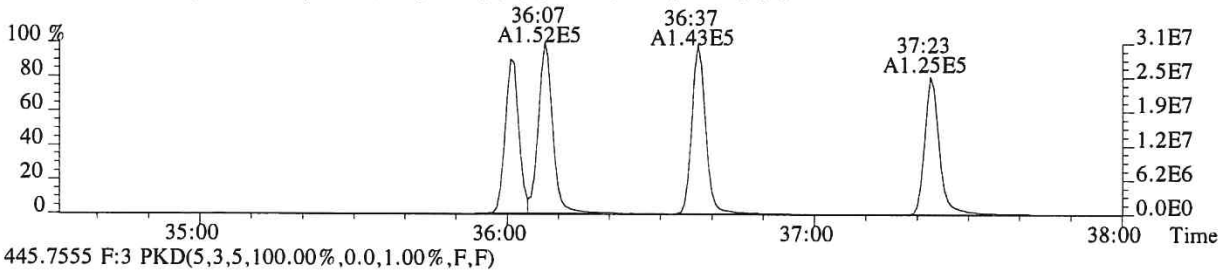
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



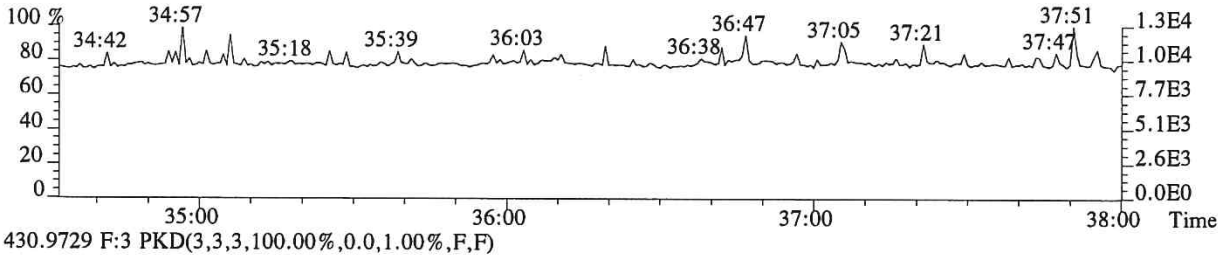
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)



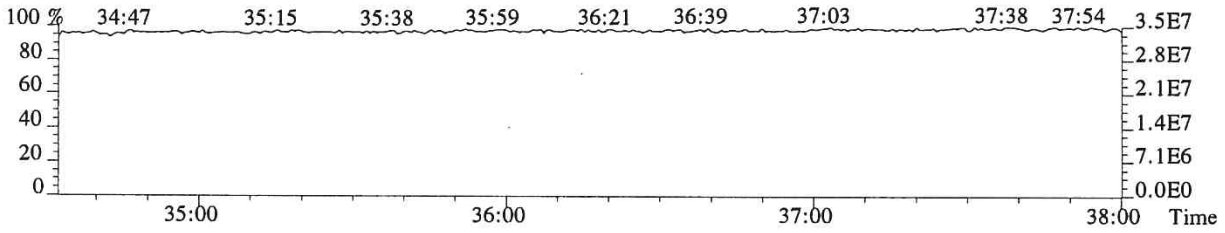
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

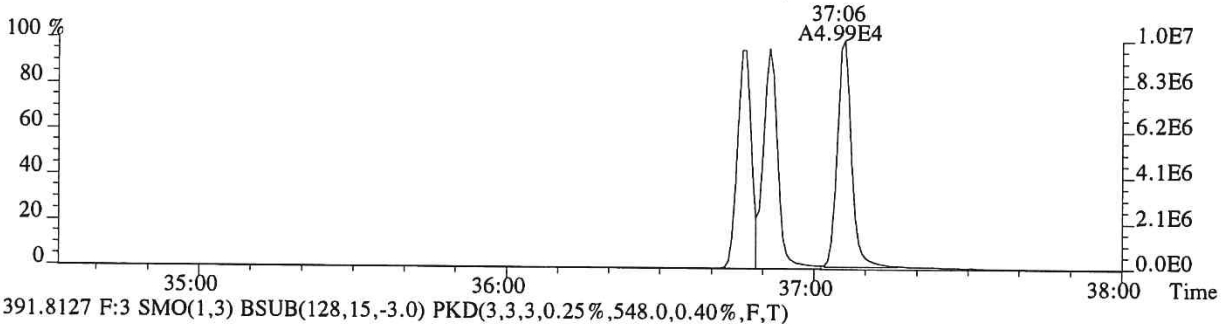


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

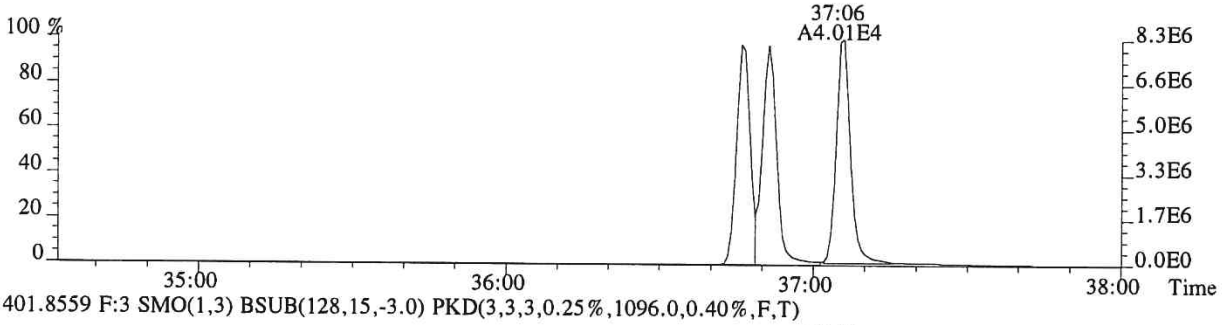


010618

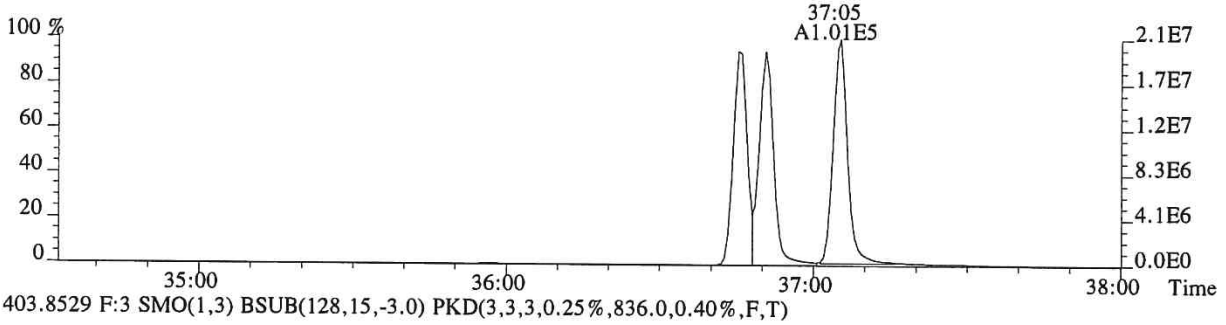
File:P519131 #1-312 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



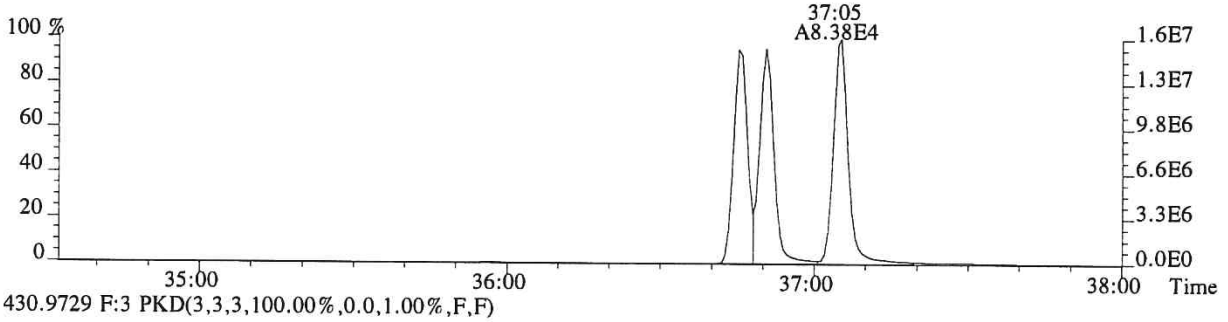
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



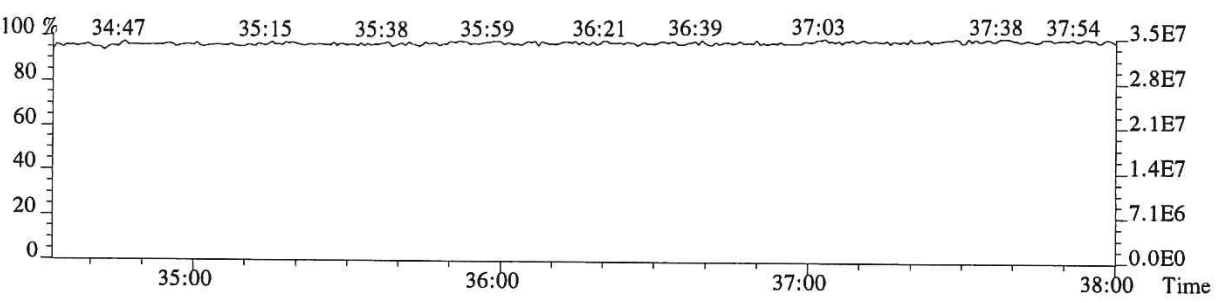
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)

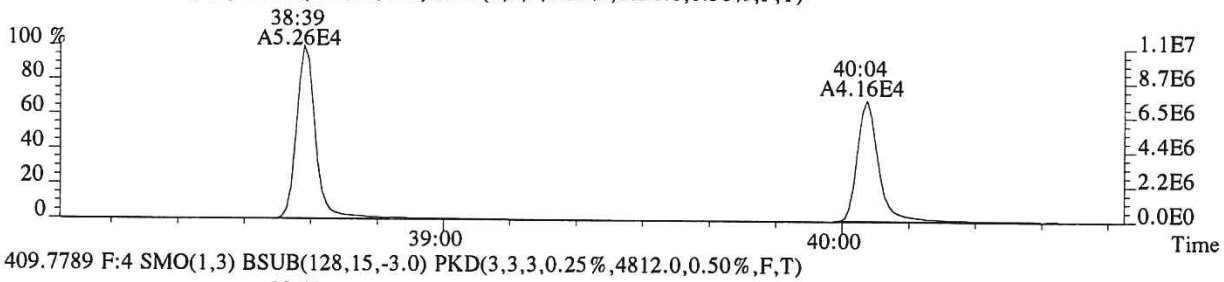


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

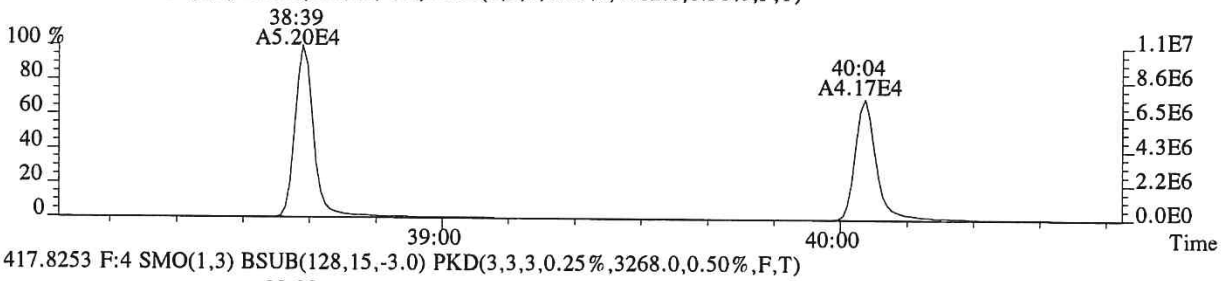


010619

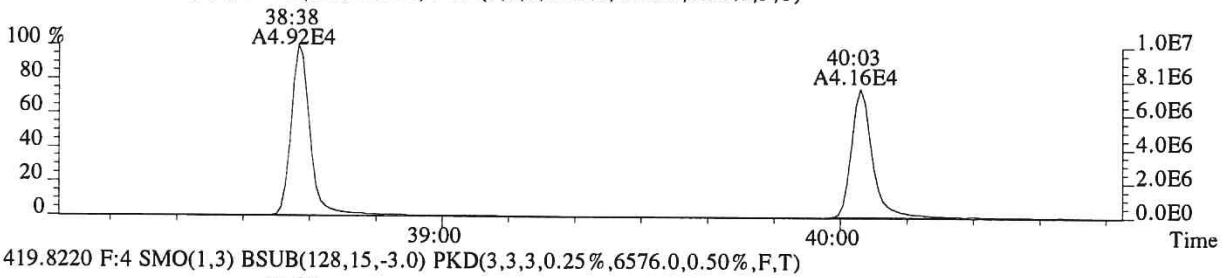
File:P519131 #1-241 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6856.0,0.50%,F,T)



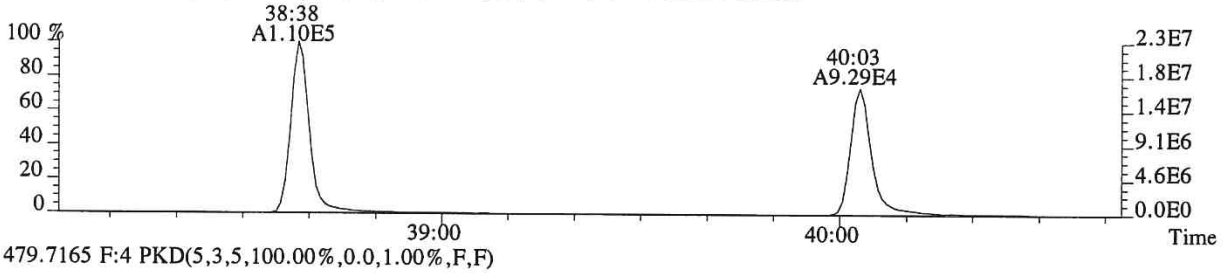
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4812.0,0.50%,F,T)



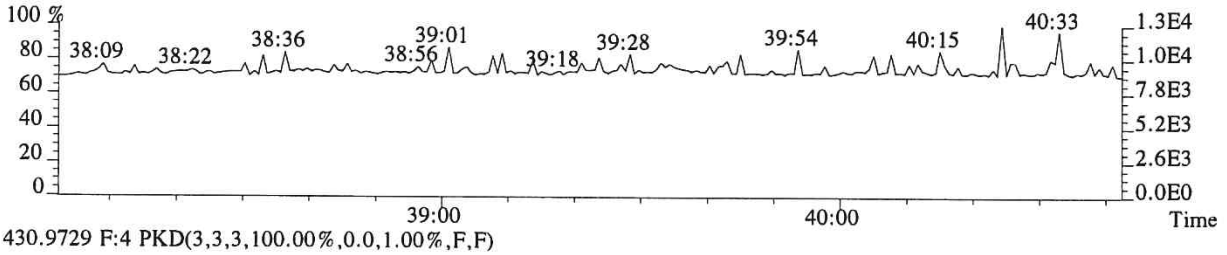
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3268.0,0.50%,F,T)



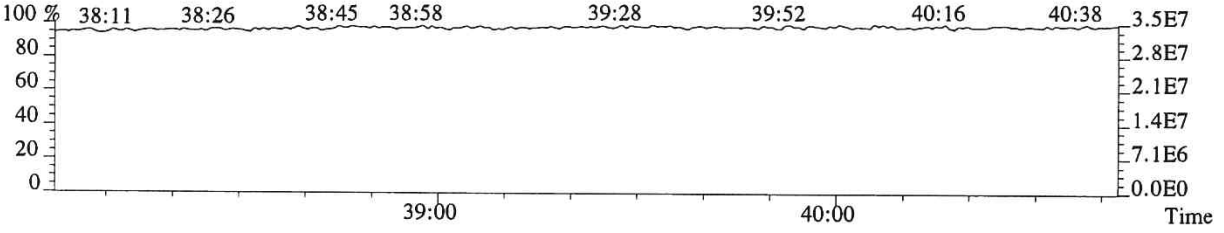
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6576.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

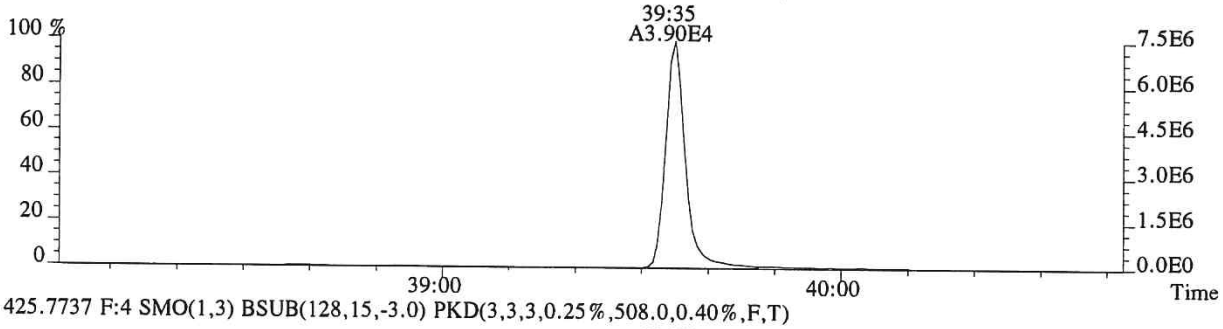


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

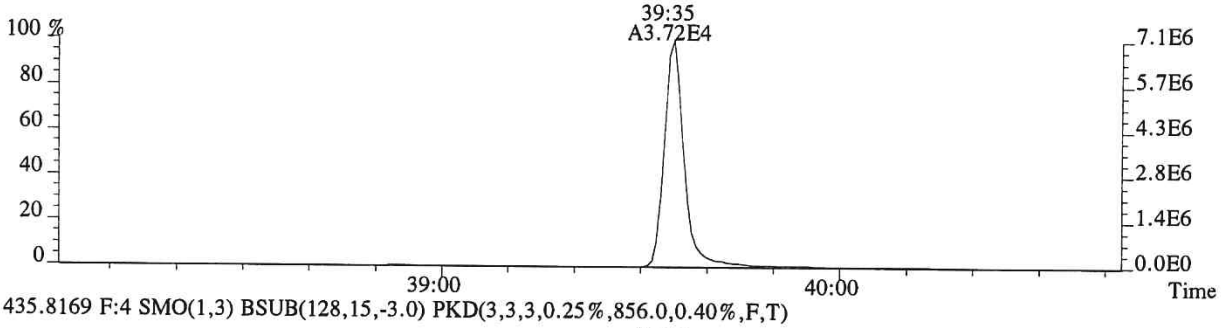


010620

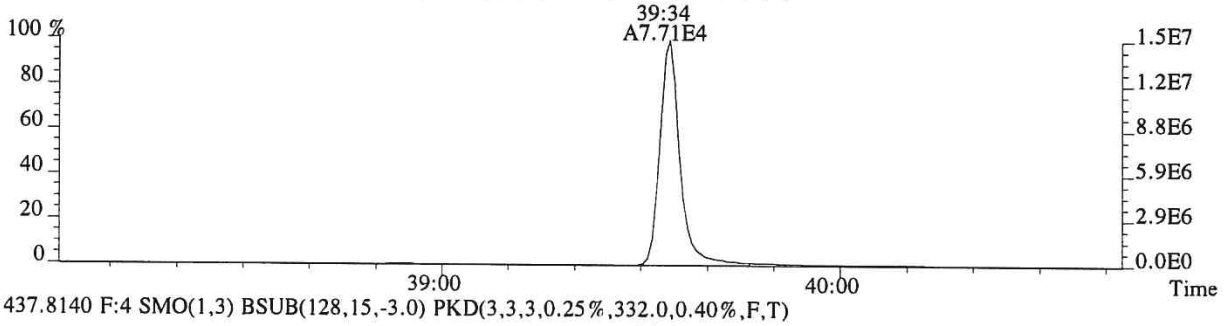
File:P519131 #1-241 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



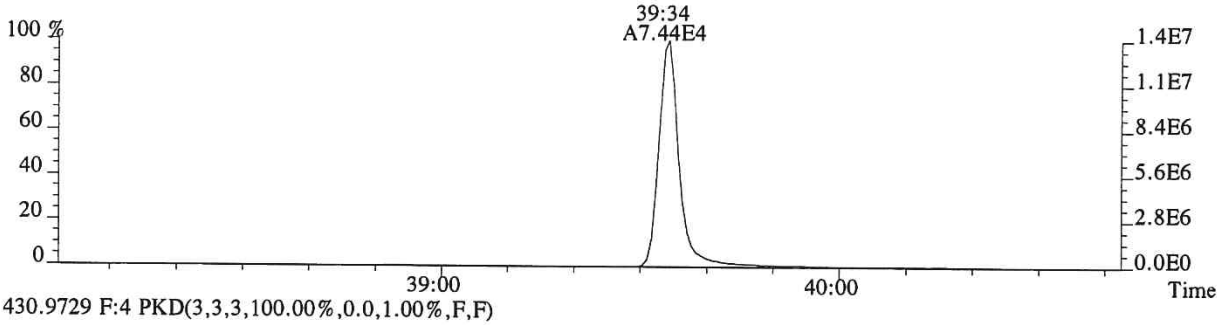
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



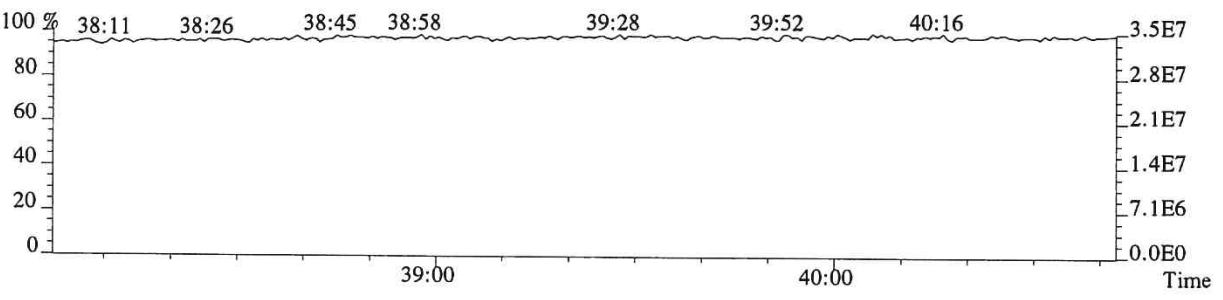
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



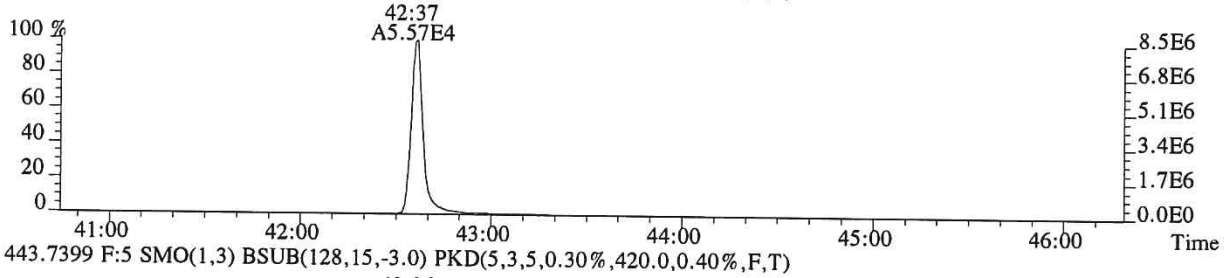
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



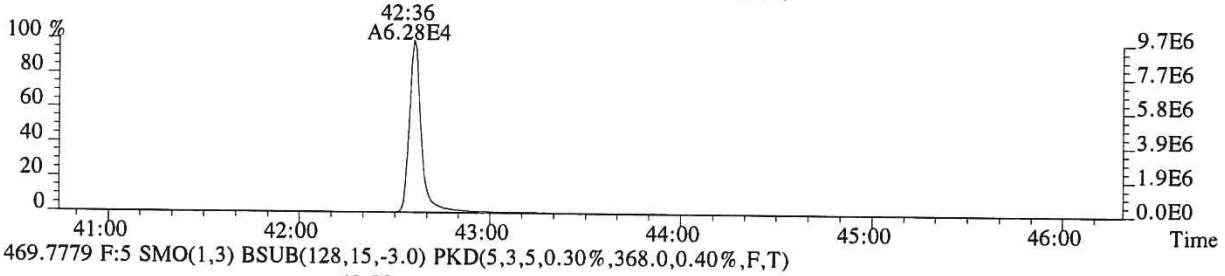
010621

File:P519131 #1-502 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

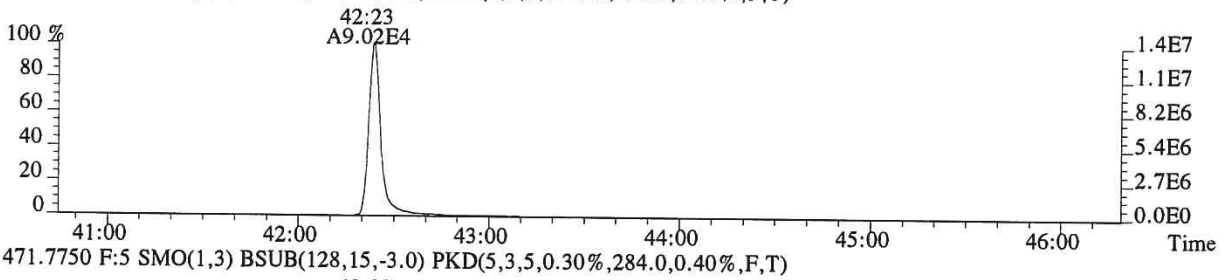
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



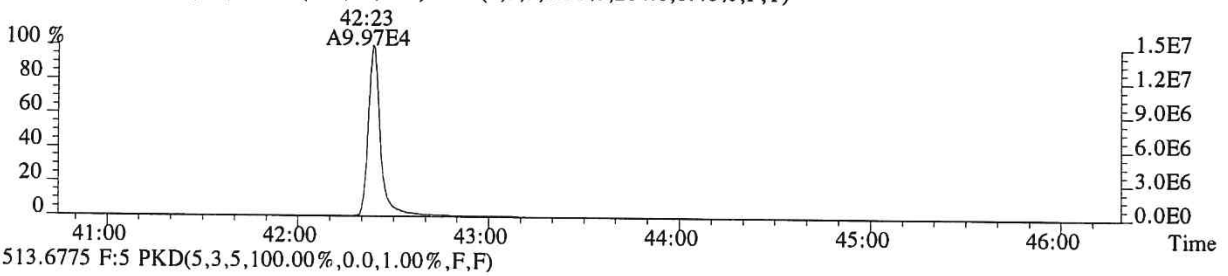
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



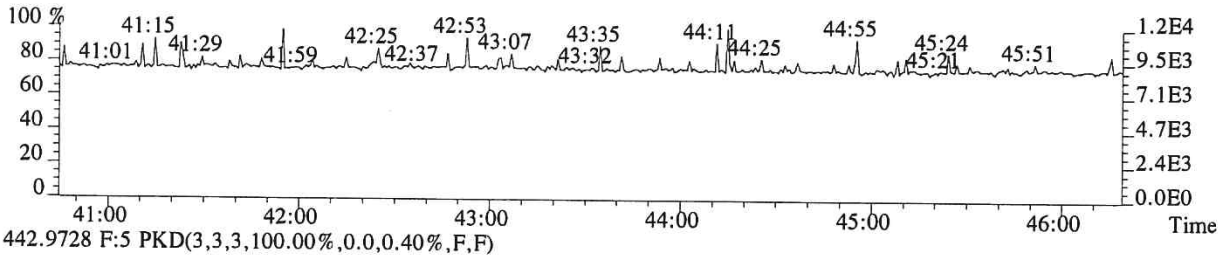
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



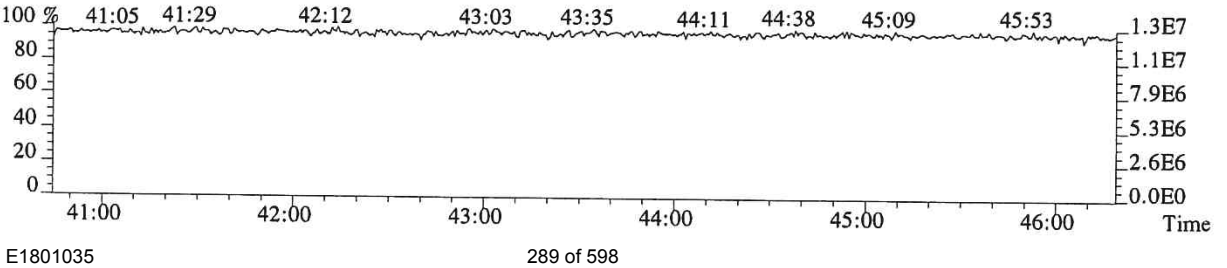
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

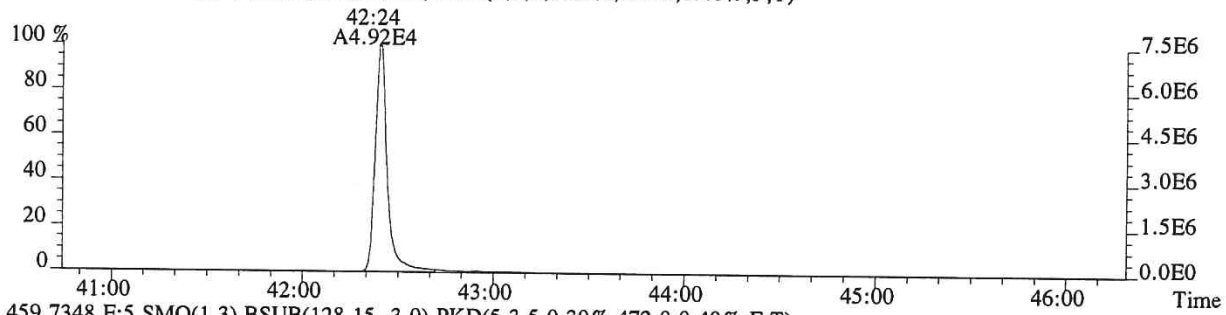


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

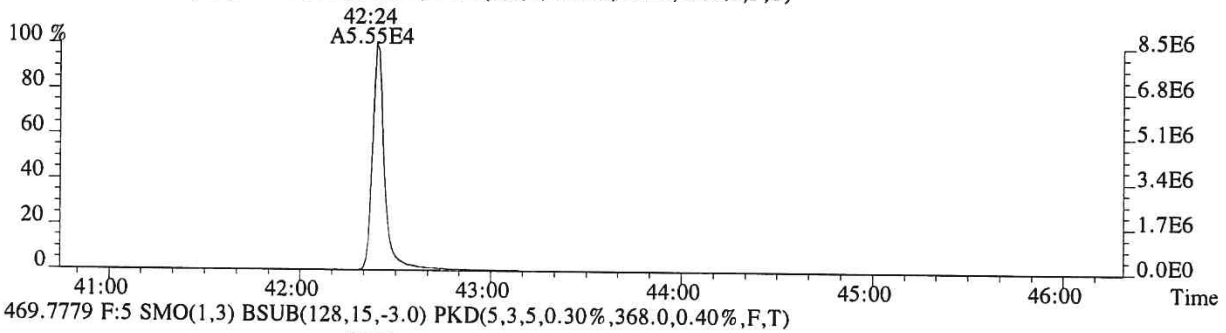


010622

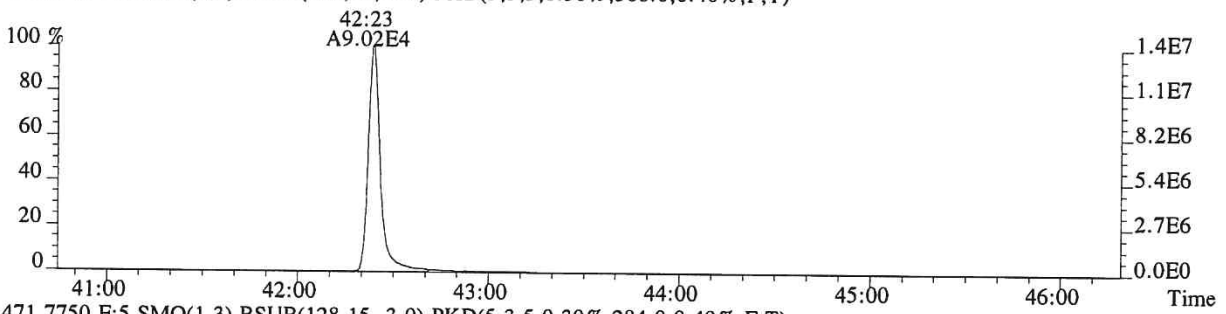
File:P519131 #1-502 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



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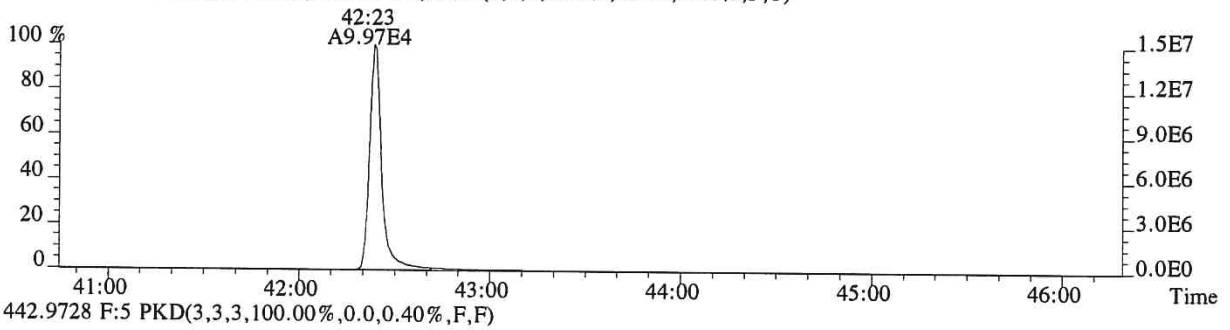
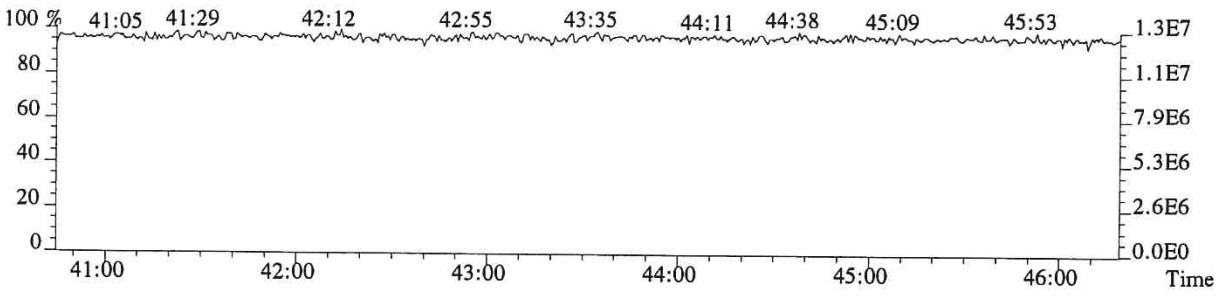


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519210

Date: 12/05/18

Circle one: (Beginning) / Ending

Method: (1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519210	5-DEC-18	01:15:25
192977	WINDOW DEFINE	P519211	5-DEC-18	02:03:12
METHOD BLANK	EQ1800481-01	P519212	5-DEC-18	02:51:49
METHOD BLANK	EQ1800487-01	P519213	5-DEC-18	03:40:26
PRIMARY SLUDGE 4Q18	E1801025-001	P519214	5-DEC-18	04:29:03
SECONDARY SLUDGE 4	E1801025-002	P519215	5-DEC-18	05:17:40
18315B01BA	E1801053-001	P519216	5-DEC-18	06:06:19
CT-09C-2018	J1807948-015	P519217	5-DEC-18	06:56:09
NONANE	NONANE	P519218	5-DEC-18	07:43:57
METHOD BLANK	EQ1800469-01	P519219	5-DEC-18	08:32:35
SL0129	E1801039-036DL	P519220	5-DEC-18	09:21:17
SL0130	E1801039-037DL	P519221	5-DEC-18	10:09:57
LCS	EQ1800485-02	P519222	5-DEC-18	10:58:35
DLCS	EQ1800485-03	P519223	5-DEC-18	11:47:11

E1801035

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Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181204B.SPL
Last Modified: Wednesday, December 05, 2018 12:27:49 Central Standard Time
Printed: Wednesday, December 05, 2018 12:27:50 Central Standard Time

Page Position (1, 1)

Opus4: P519210res

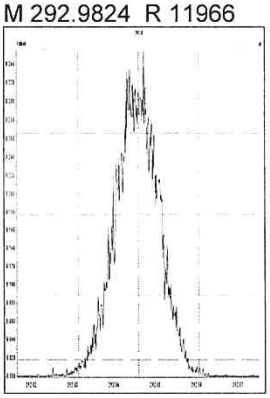
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/5/18	01:15	P519210	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	Hrmscheck 01:15
2		02:05	P519211	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		02:51	P519212	MB	EQ1800481-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		03:40	P519213	MB	EQ1800487-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		04:29	P519214	E1801025-001	E1801025-001	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		05:17	P519215	E1801025-002	E1801025-002	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		06:06	P519216	E1801053-001	E1801053-001	EPA1613_ALS	Dioxin_ALS	Tray1:7		need reinjection
8		06:56	P519217	J1807948-015	J1807948-015	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		07:43	P519218	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		08:32	P519219	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		09:21	P519220	E1801039-036DL	E1801039-036DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		10:09	P519221	E1801039-037DL	E1801039-037DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		10:55	P519222	LCS	EQ1800485-02	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		11:41	P519223	DLCS	EQ1800485-03	EPA1613_ALS	Dioxin_ALS	Tray1:14		Hrmscheck 12:41
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JC 12/06/18

010626

Printed: Wednesday, December 05, 2018 01:15:23 Central Standard Time

M 292.9824 R 11966



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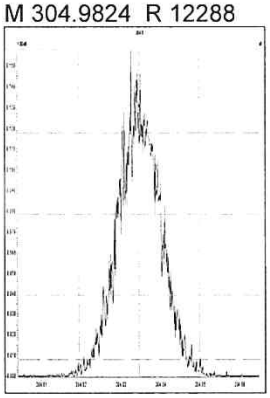

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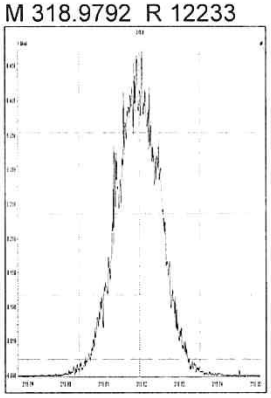

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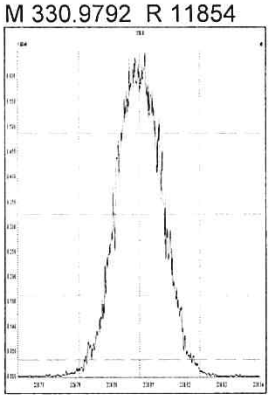

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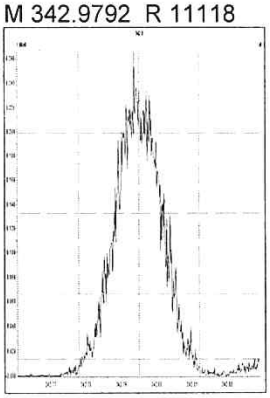

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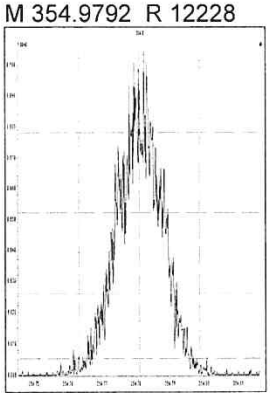

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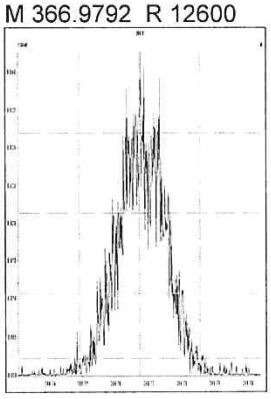

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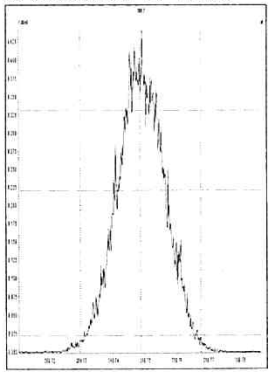

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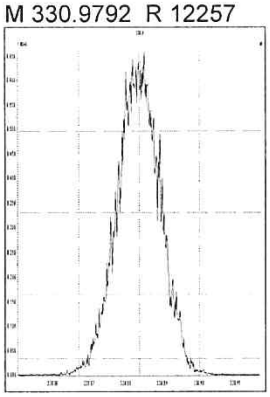

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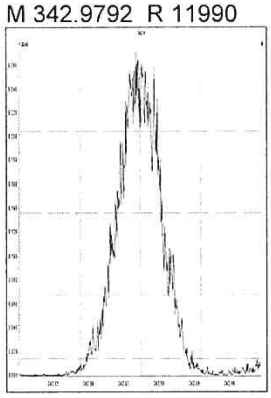

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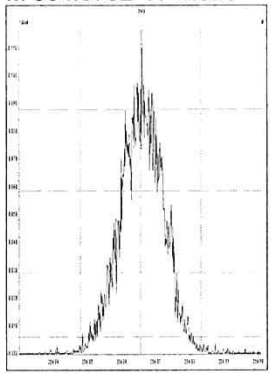

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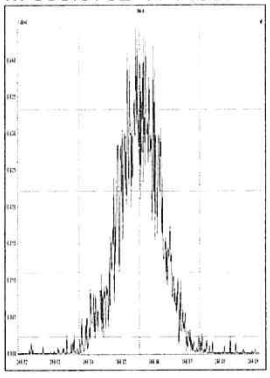

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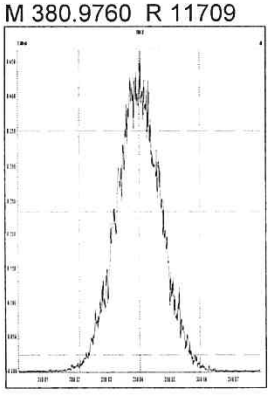

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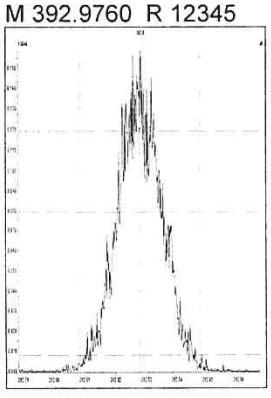

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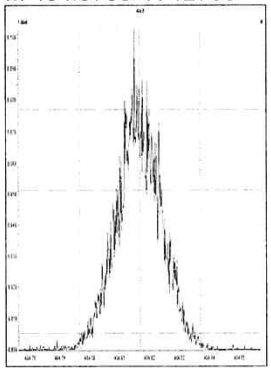

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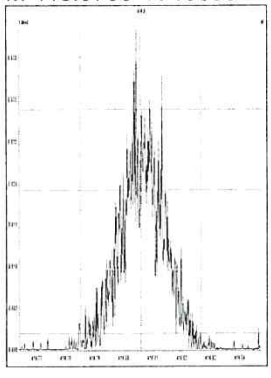
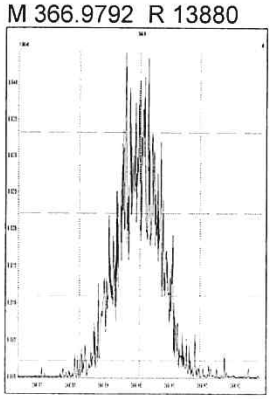


M 366.9792 R 13880



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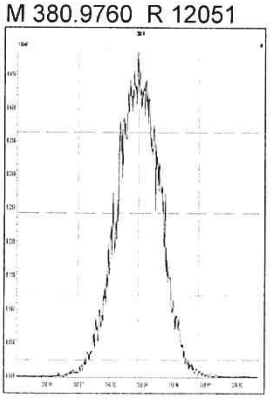

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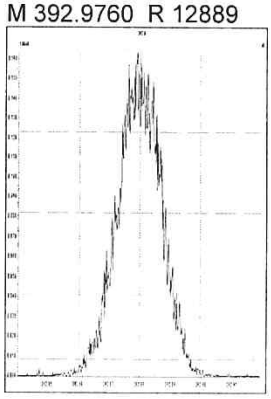

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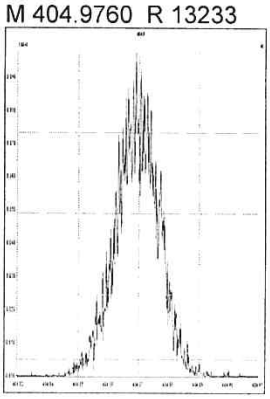

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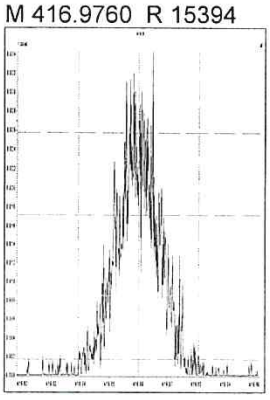
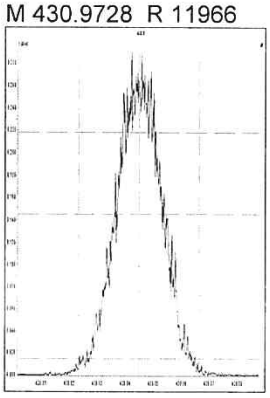


M 430.9728 R 11966



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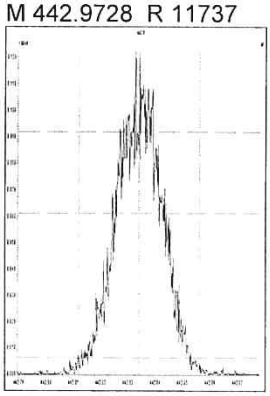

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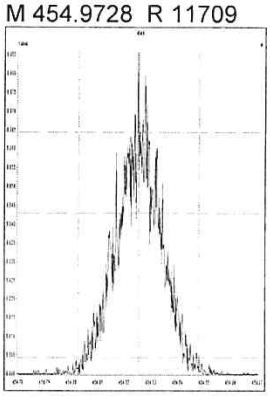

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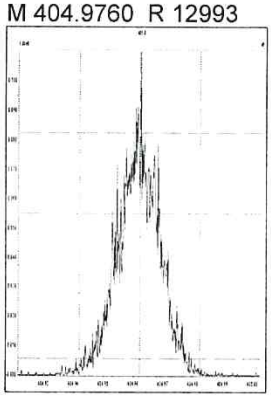

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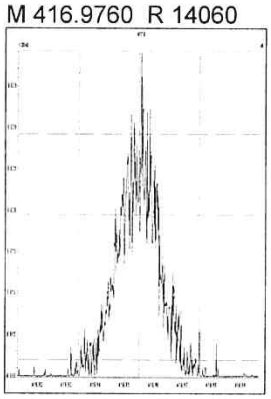

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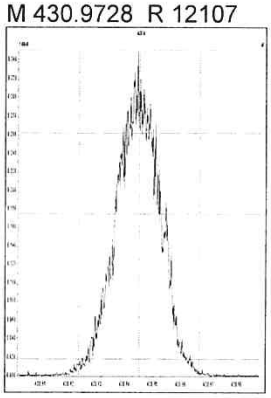

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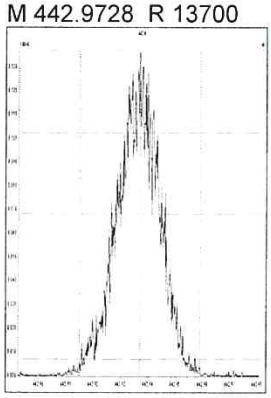

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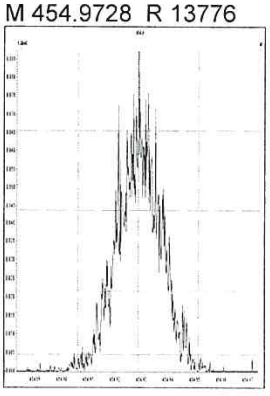

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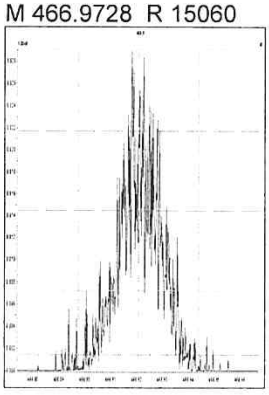

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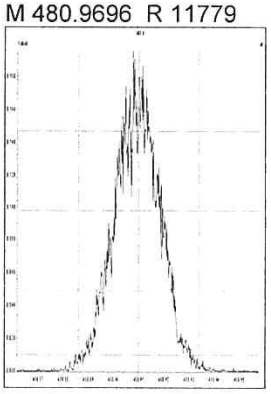

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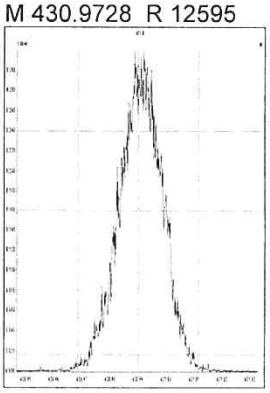

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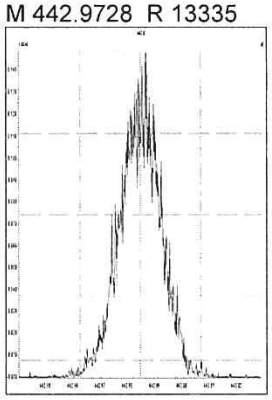

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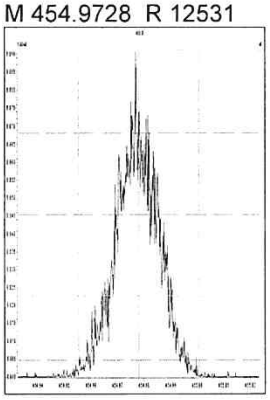

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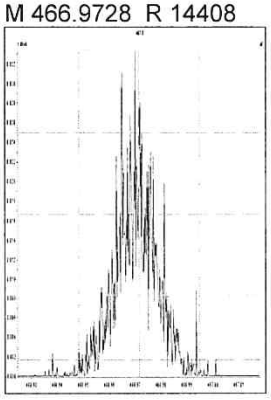

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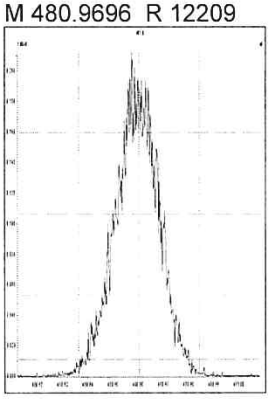

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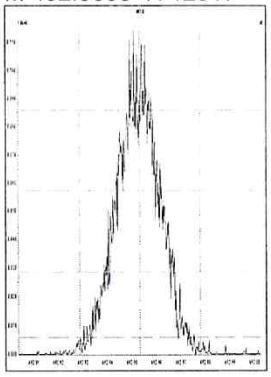
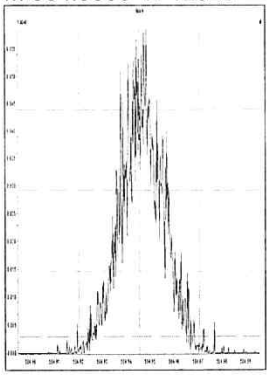
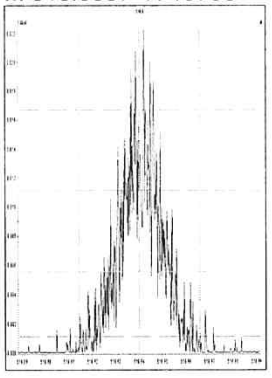


M 504.9696 R 12325



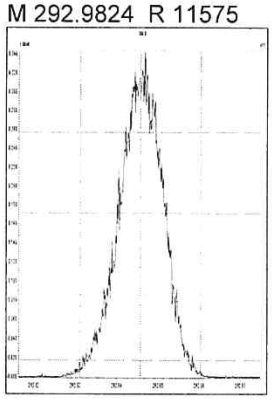
M 516.9697 R 15738



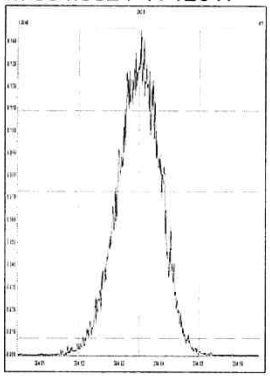
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:41:54 Central Standard Time

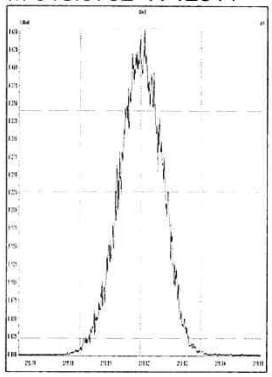
M 292.9824 R 11575



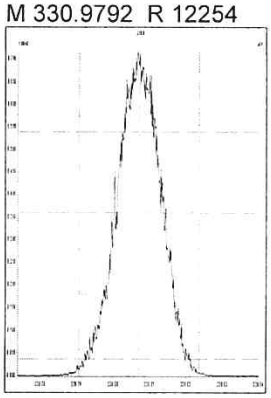
M 304.9824 R 12017



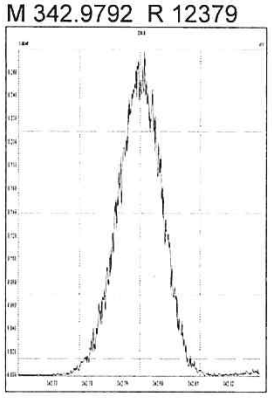
M 318.9792 R 12311



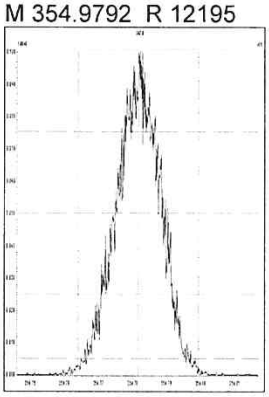
M 330.9792 R 12254



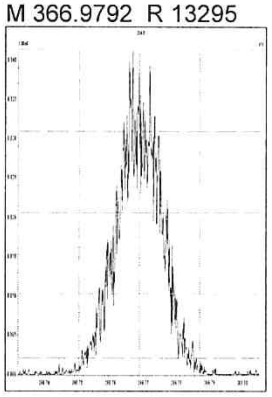
M 342.9792 R 12379



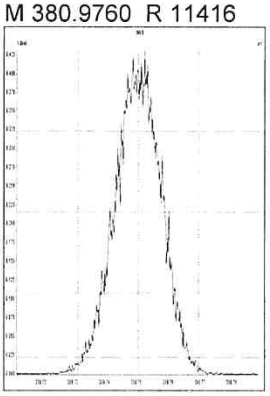
M 354.9792 R 12195



M 366.9792 R 13295



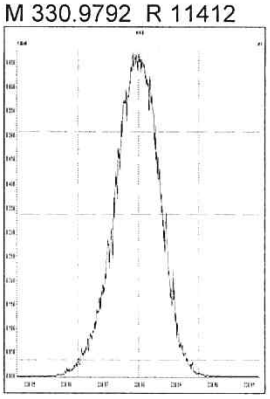
M 380.9760 R 11416



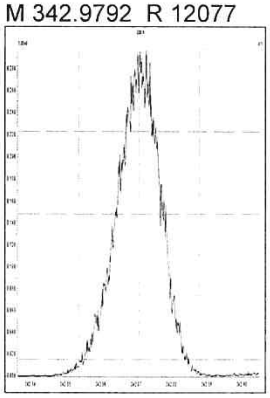
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:42:50 Central Standard Time

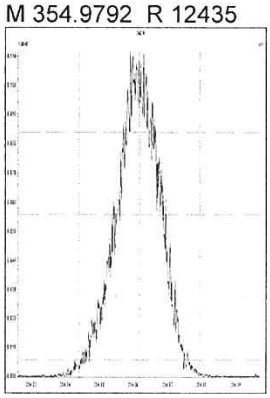
M 330.9792 R 11412



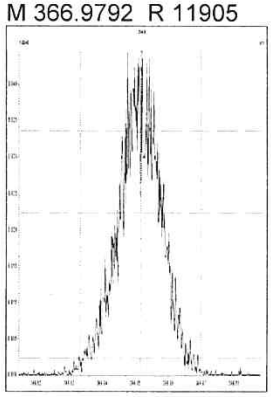
M 342.9792 R 12077



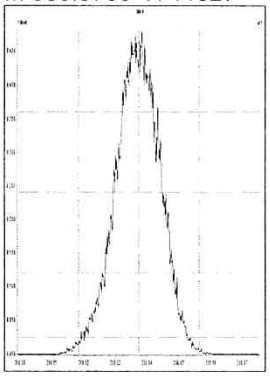
M 354.9792 R 12435



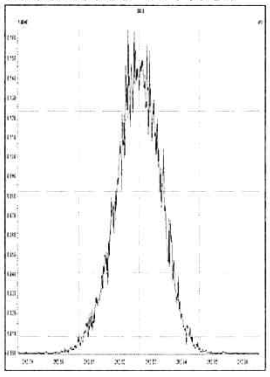
M 366.9792 R 11905



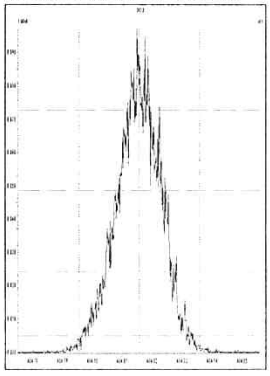
M 380.9760 R 11627



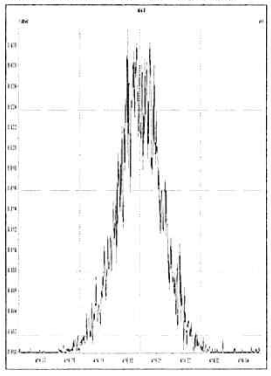
M 392.9760 R 11734



M 404.9760 R 11520



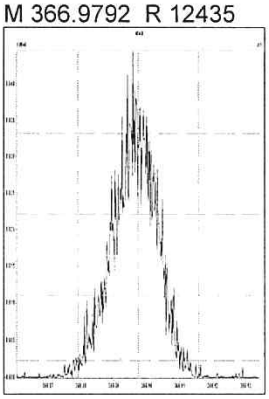
M 416.9760 R 13300



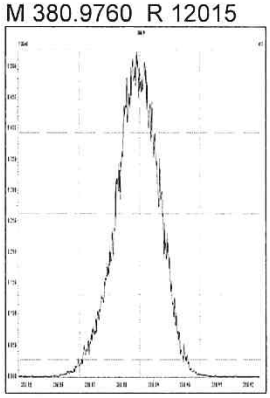
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:43:38 Central Standard Time

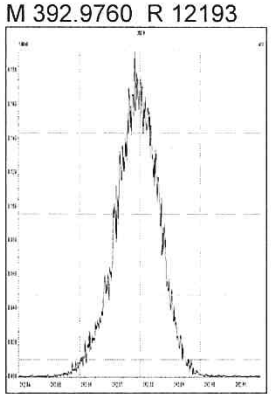
M 366.9792 R 12435



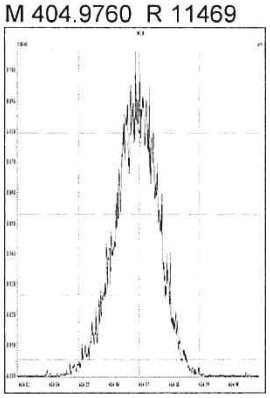
M 380.9760 R 12015



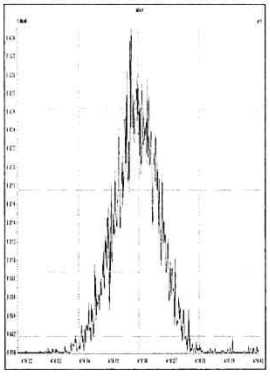
M 392.9760 R 12193



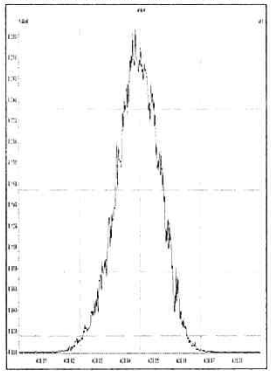
M 404.9760 R 11469



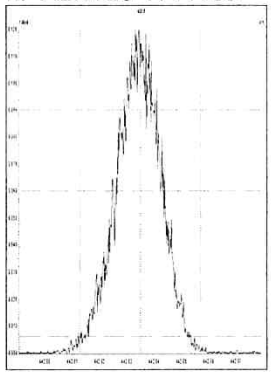
M 416.9760 R 12018



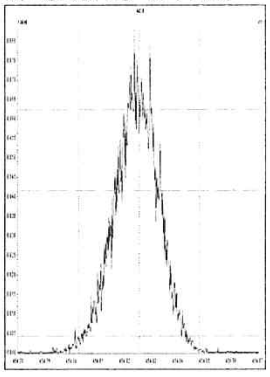
M 430.9728 R 11572



M 442.9728 R 11789



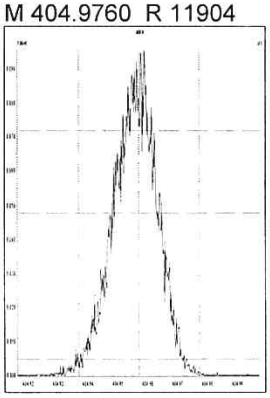
M 454.9728 R 11847



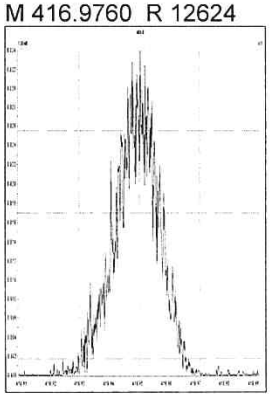
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:44:15 Central Standard Time

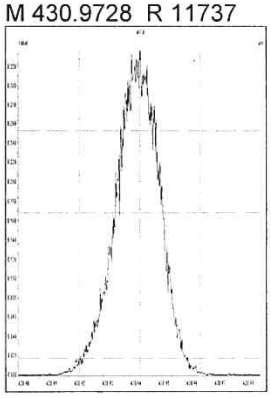
M 404.9760 R 11904



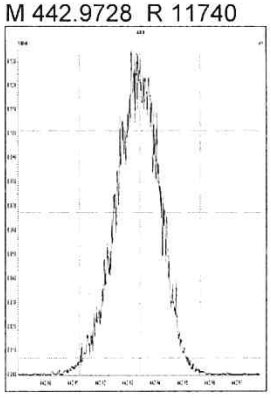
M 416.9760 R 12624



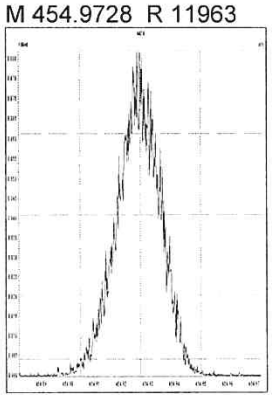
M 430.9728 R 11737



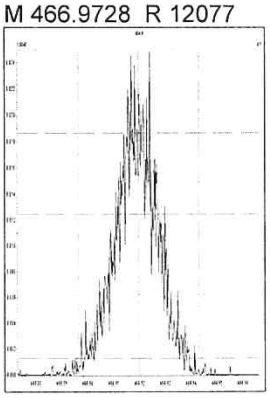
M 442.9728 R 11740



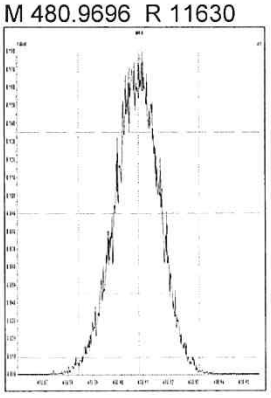
M 454.9728 R 11963



M 466.9728 R 12077



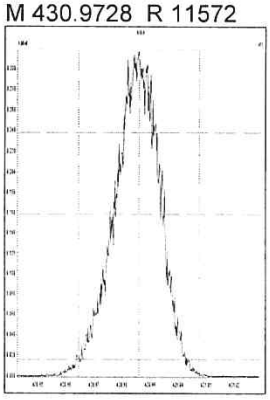
M 480.9696 R 11630



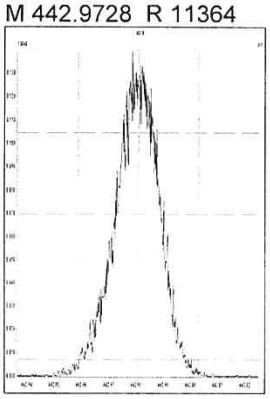
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:44:52 Central Standard Time

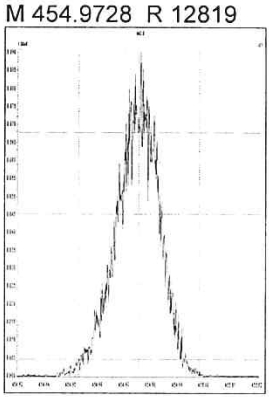
M 430.9728 R 11572



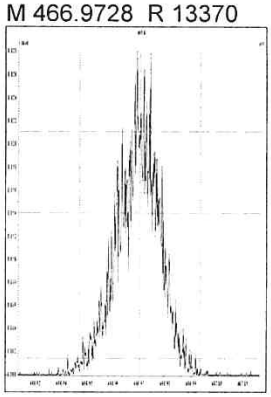
M 442.9728 R 11364



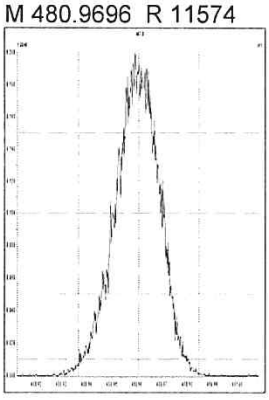
M 454.9728 R 12819



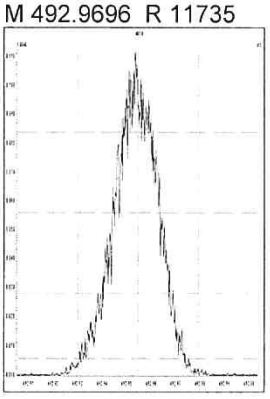
M 466.9728 R 13370



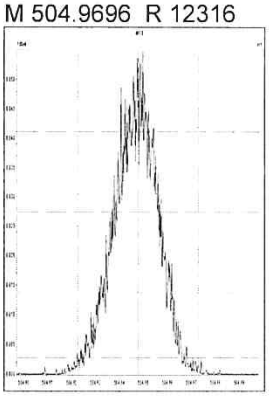
M 480.9696 R 11574



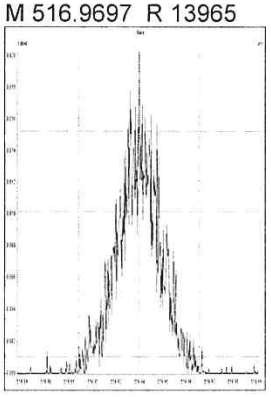
M 492.9696 R 11735



M 504.9696 R 12316



M 516.9697 R 13965



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

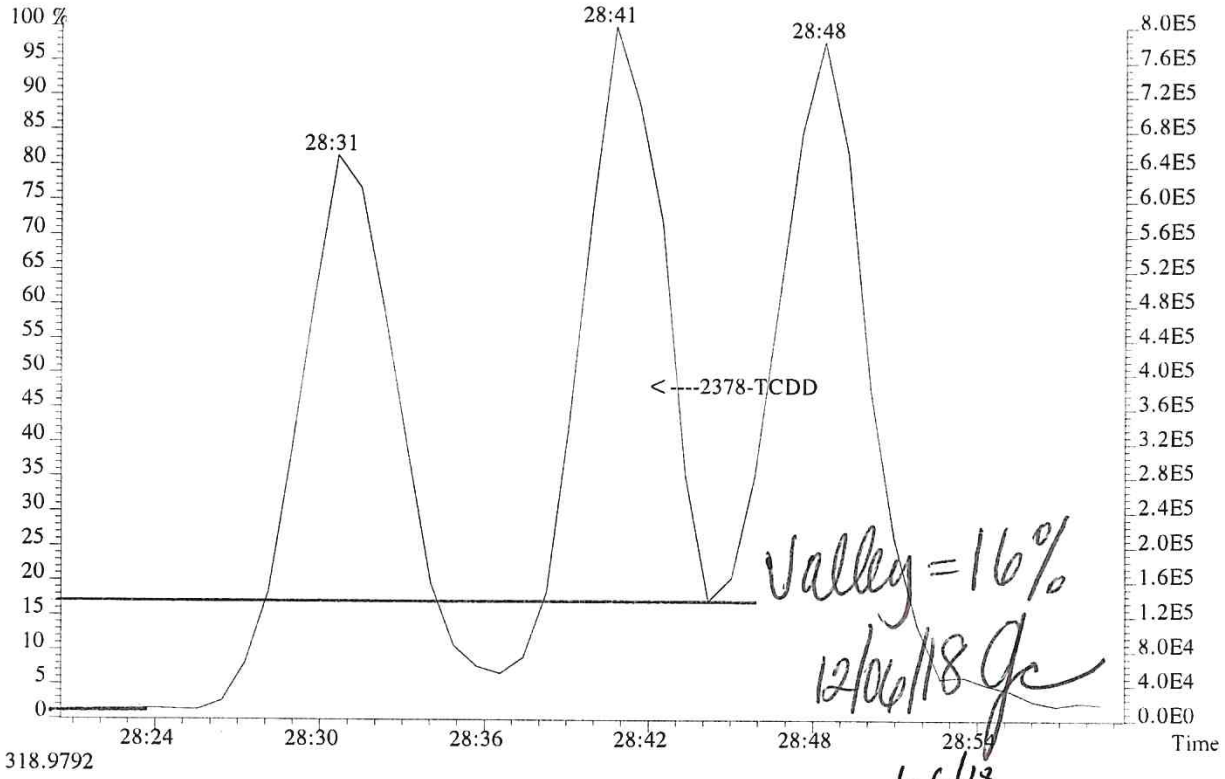
Lab File ID: P519211
Date Analyzed: 5-DEC-2018
Time Analyzed: 02:03:12

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:51
TCDD	25:18	29:42
PeCDF	29:48	34:06
PeCDD	31:21	33:50
HxCDF	34:45	37:16
HxCDD	35:17	36:53
HpCDF	38:30	39:54
HpCDD	38:45	39:26

% Valley 2378-TCDD: 16 %

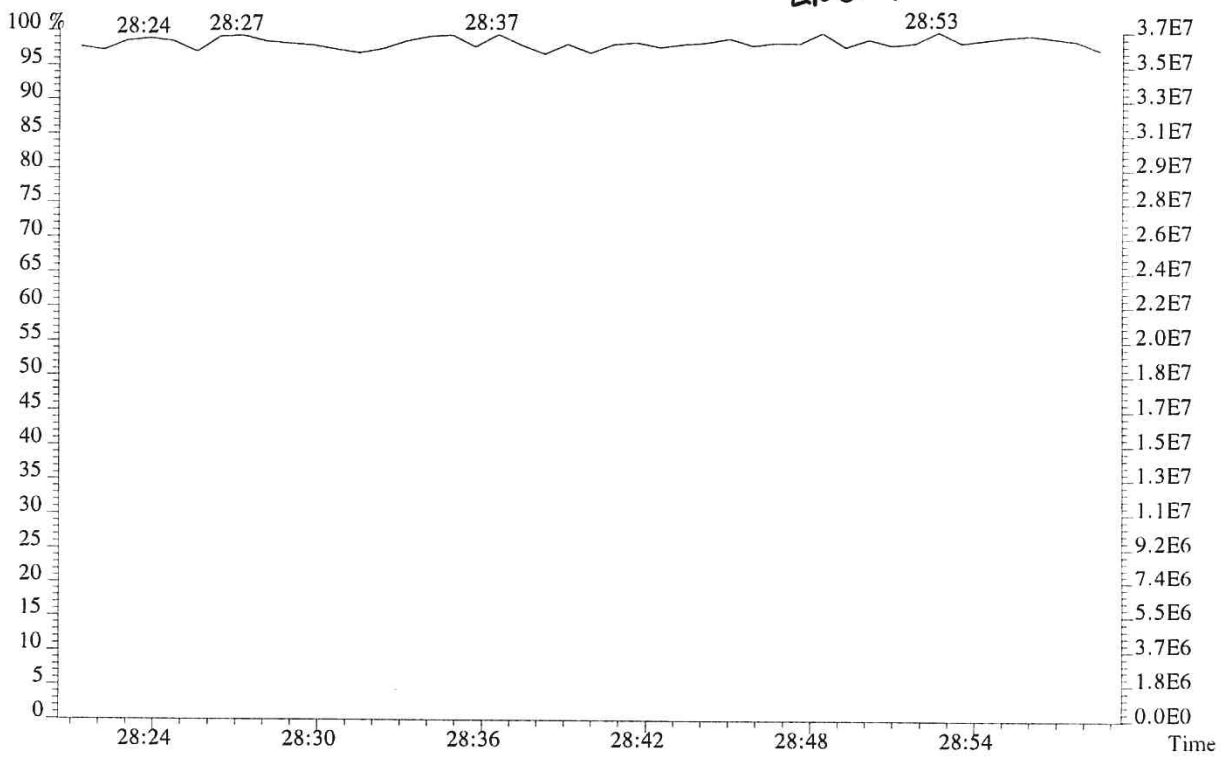
010635

File:P519211 #1-545 Acq: 5-DEC-2018 02:03:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LIL 12/06/18



010636

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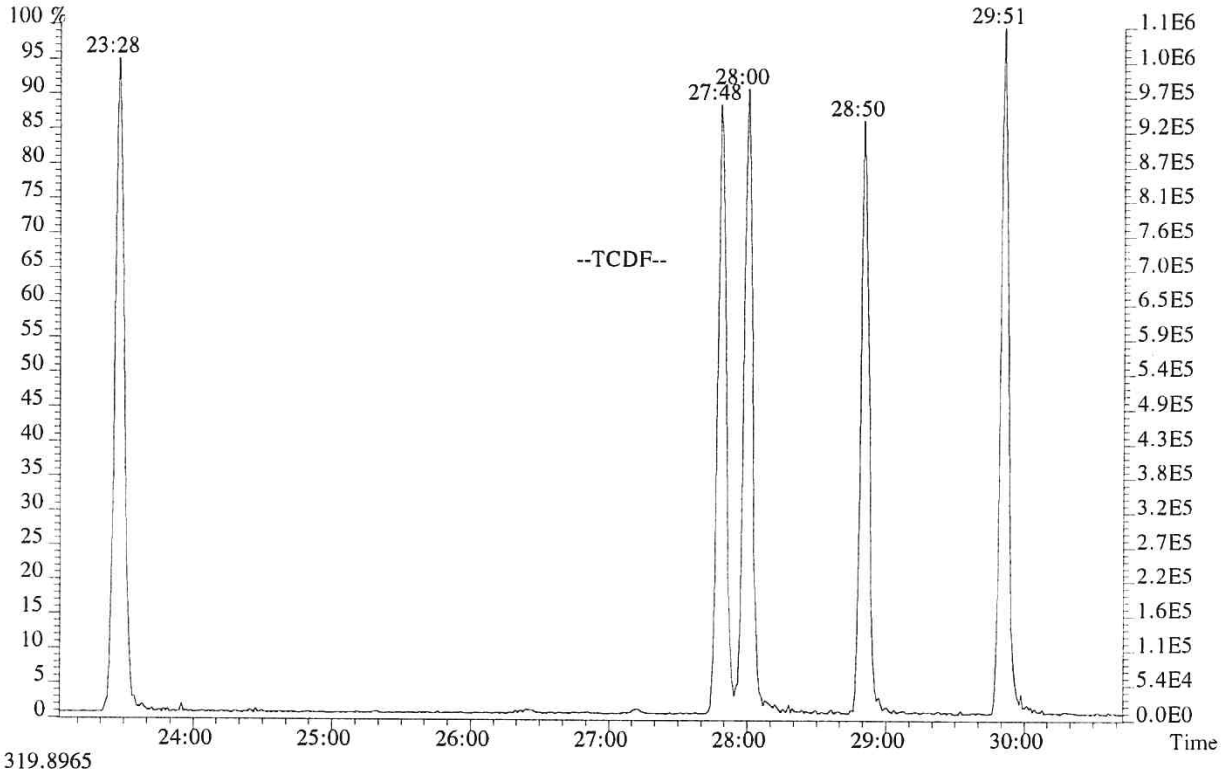
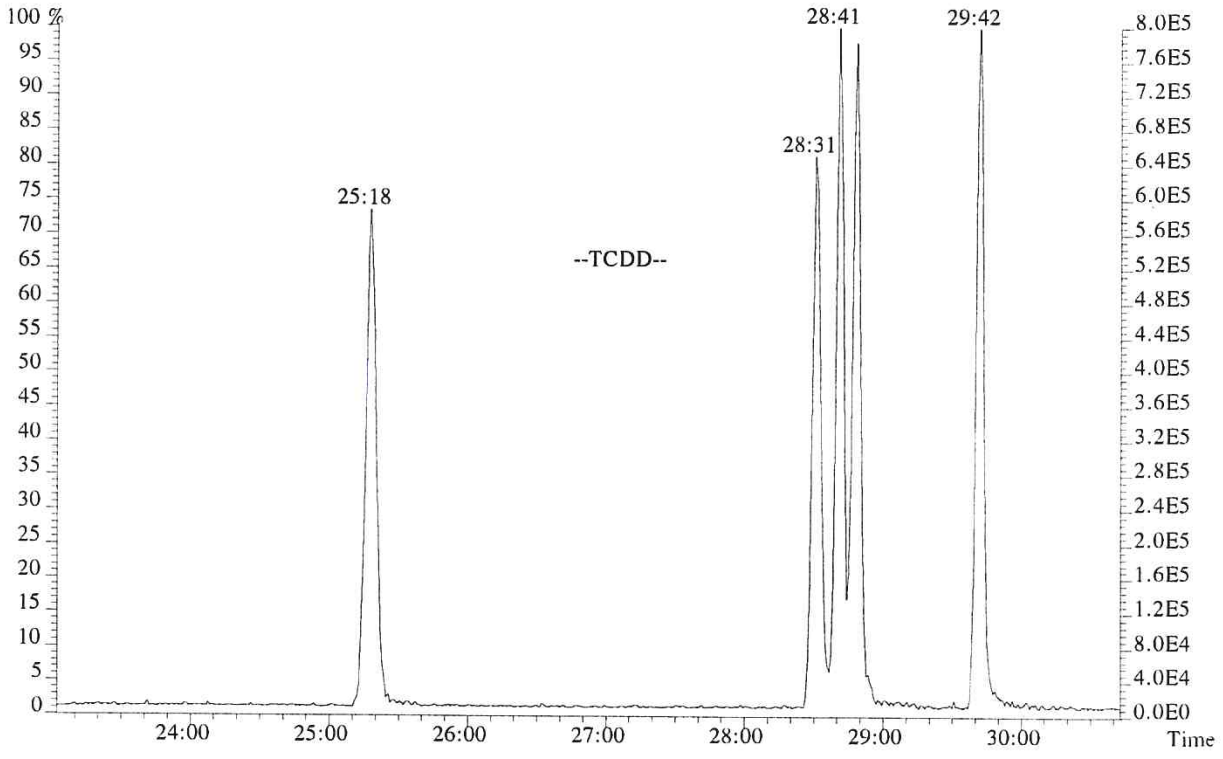
Sample#1 Exp:192977
303.9016

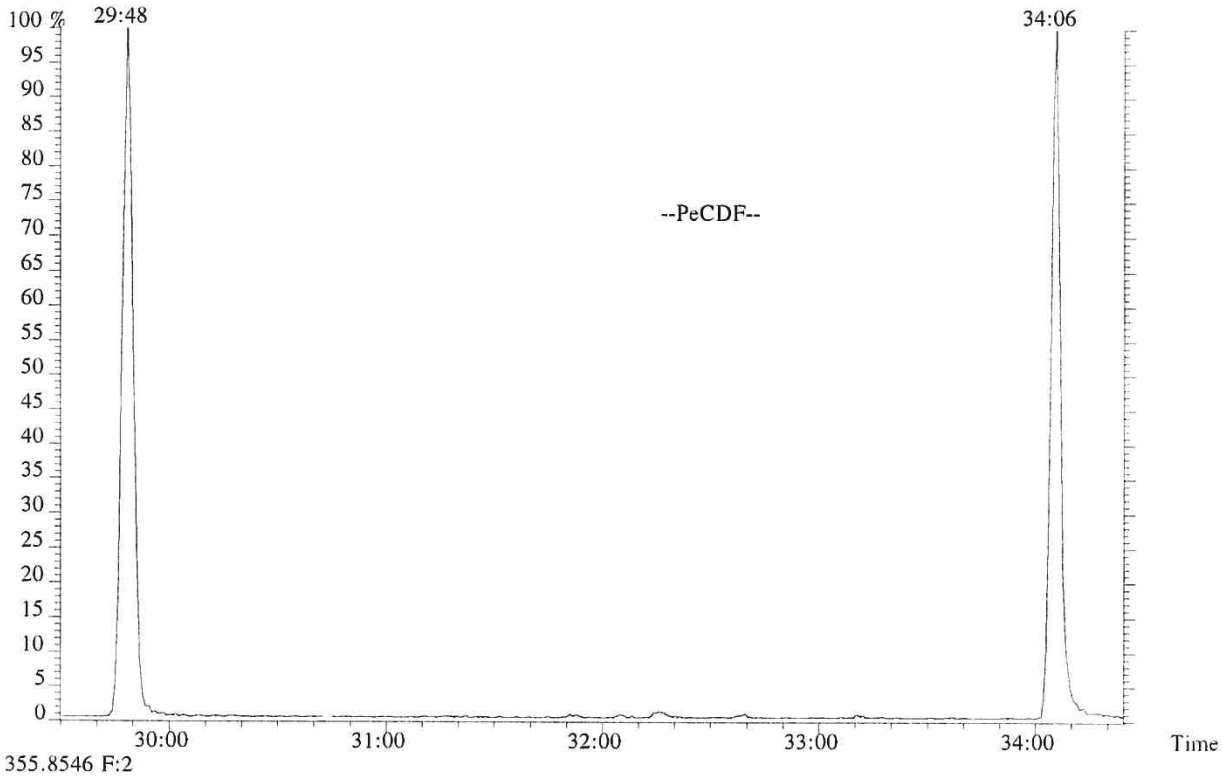


319.8965

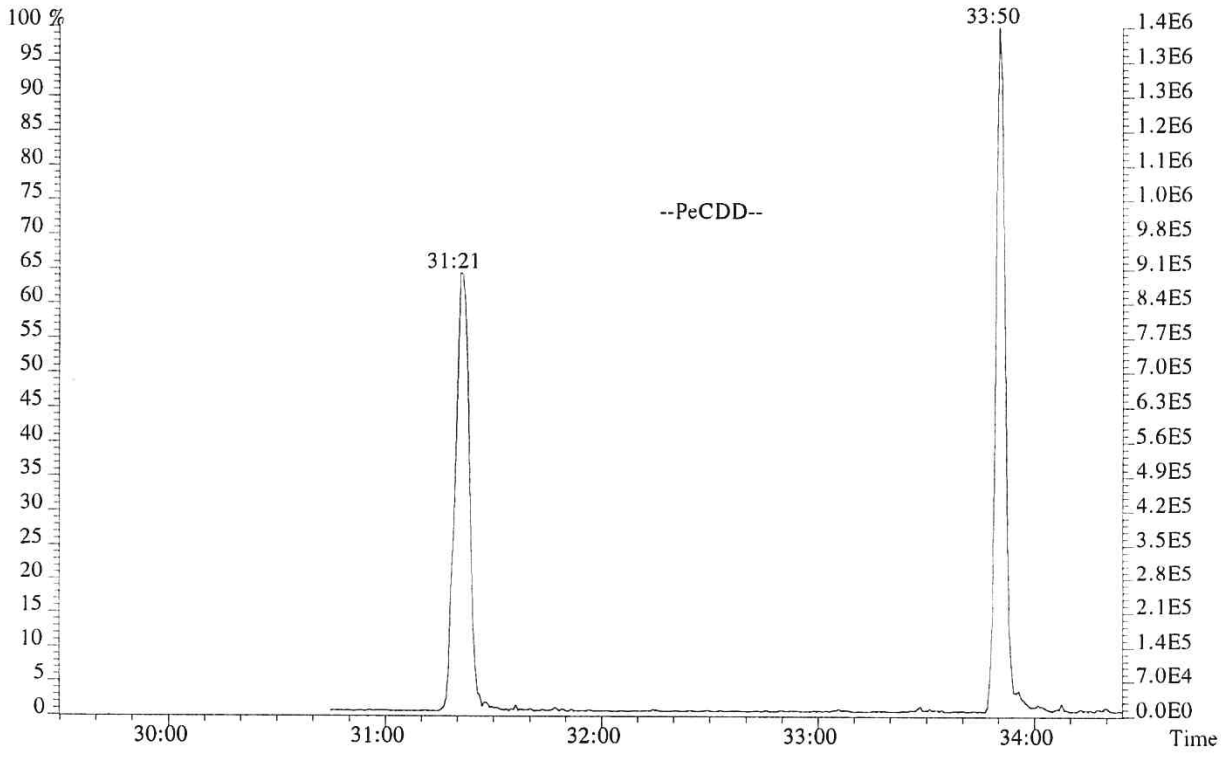


010637

File:P519211 #1-545 Acq: 5-DEC-2018 02:03:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2

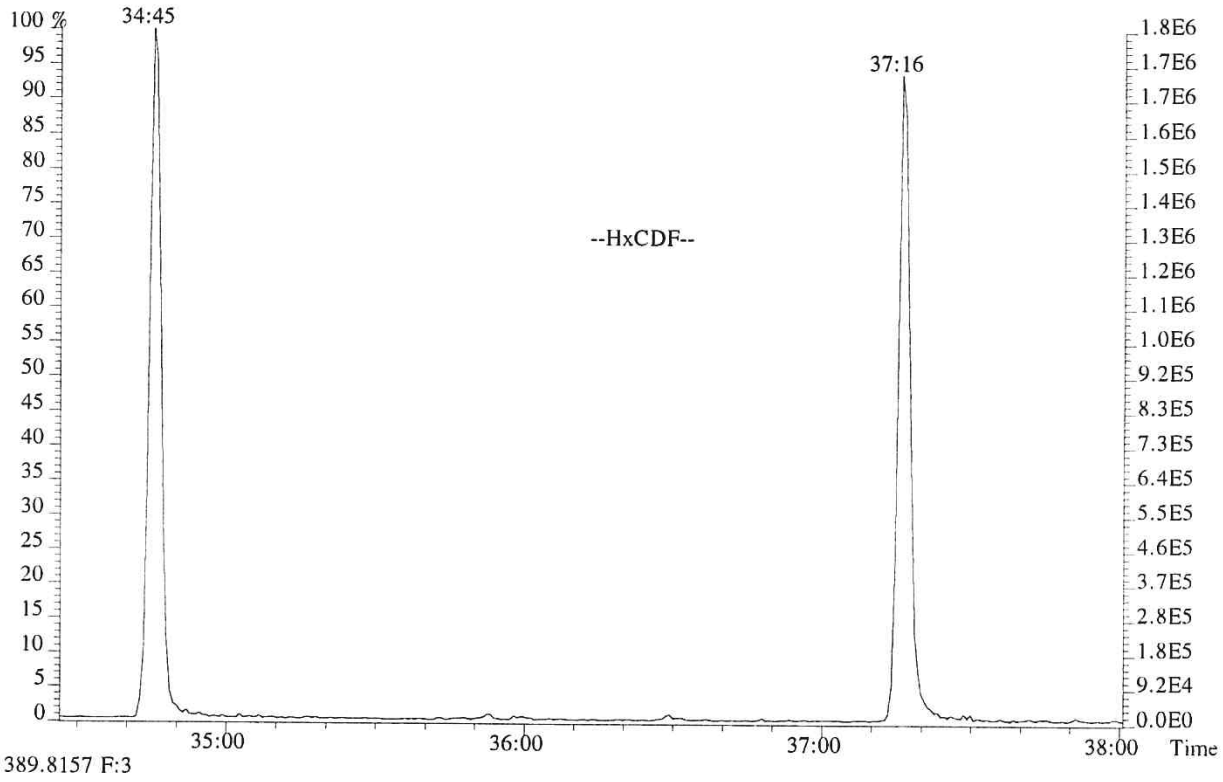


355.8546 F:2

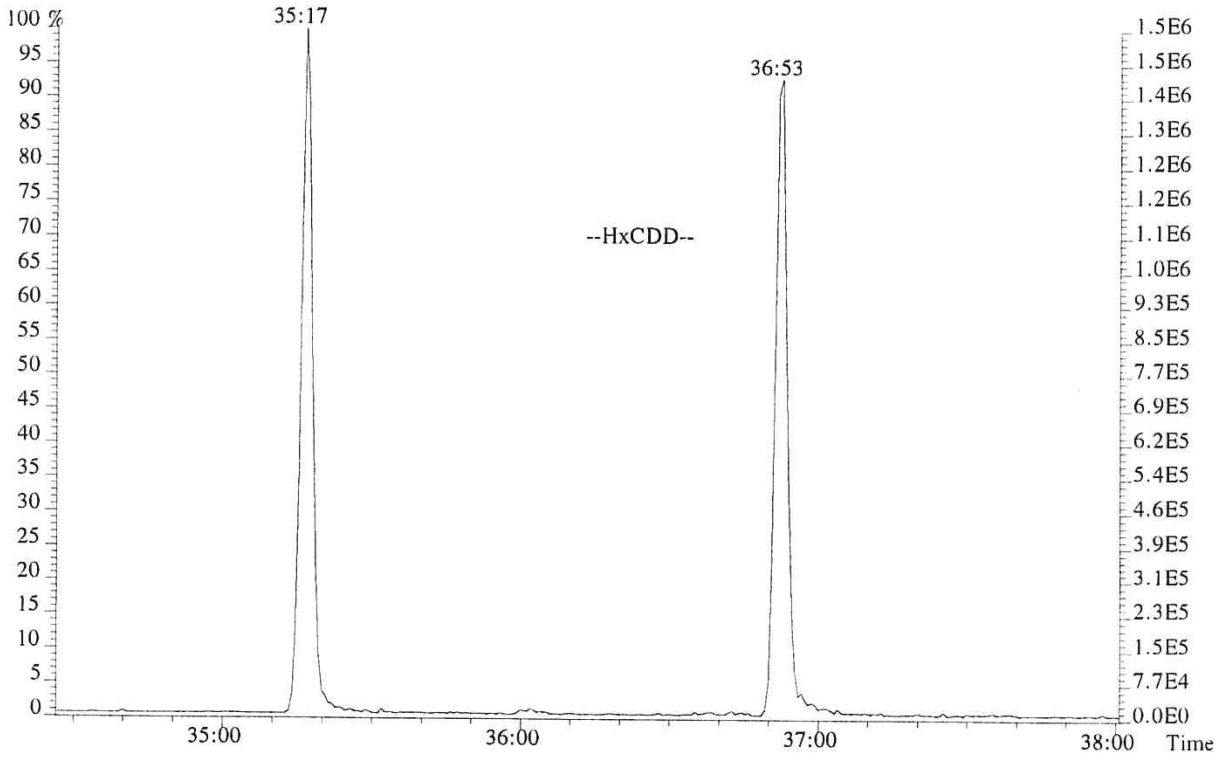


010638

File:P519211 #1-322 Acq: 5-DEC-2018 02:03:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3

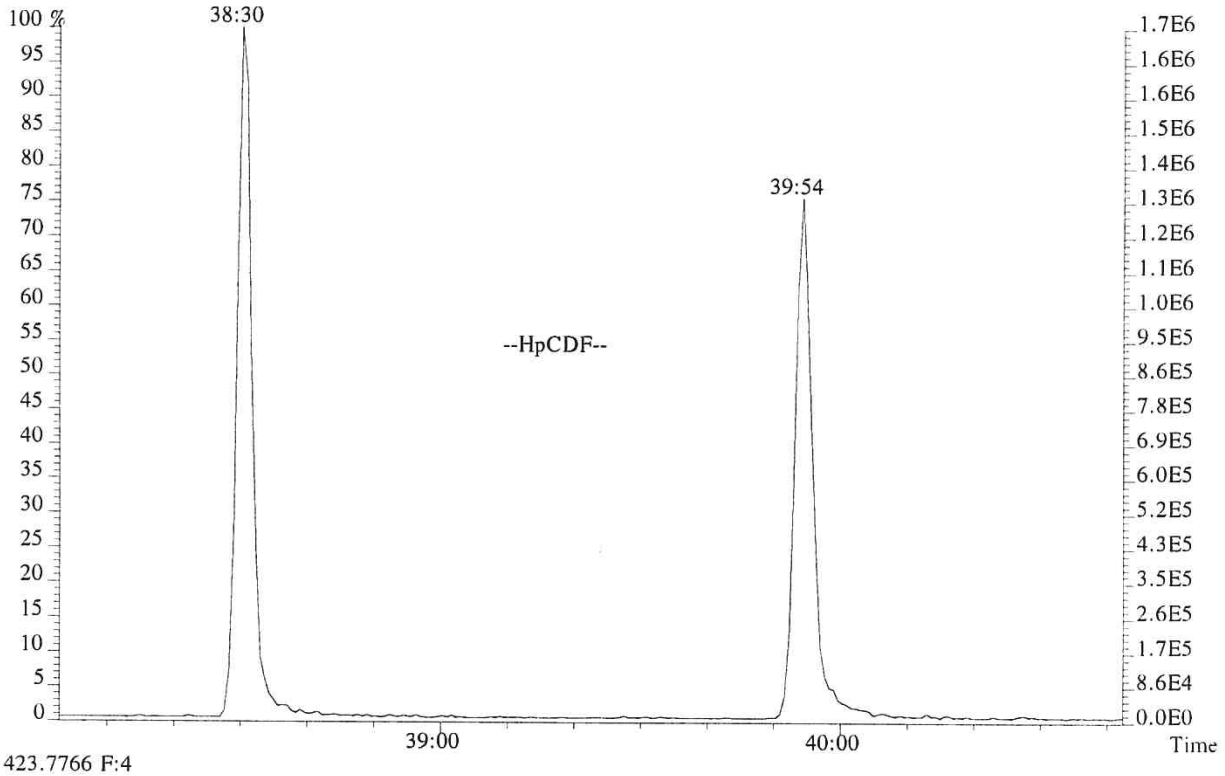


389.8157 F:3

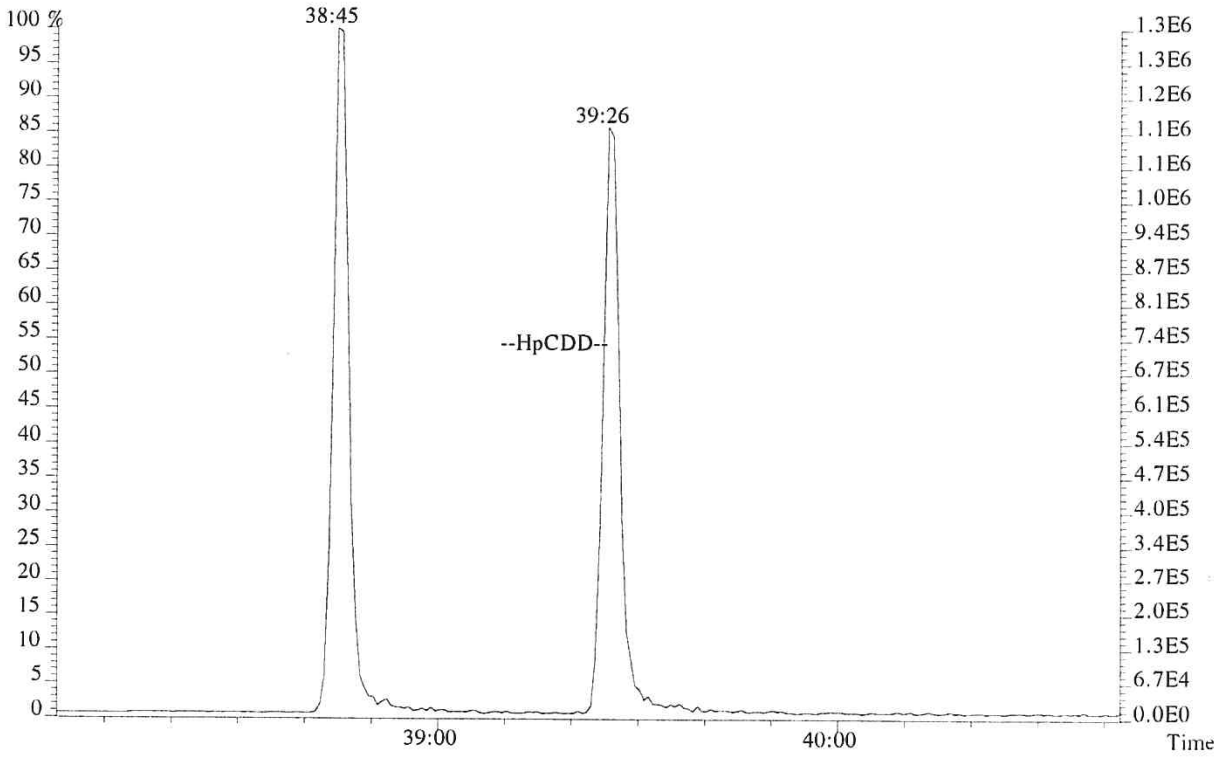


010639

File:P519211 #1-240 Acq: 5-DEC-2018 02:03:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



010640

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519210 Analysis Date: 5-DEC-18 Time: 01:15:25

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.5	7.8 - 12.9	-5.1
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	51	39 - 65	2.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	51	39 - 64	1.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	52	39 - 64	3.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.28	1.05-1.43	54	41 - 61	8.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	50	43 - 58	0.6
OCDD	M+2/M+4	0.90	0.76-1.02	101	79 - 126	1.3
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	9.9	8.4 - 12.0	-0.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	0.9
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	51	41 - 61	2.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.17	1.05-1.43	52	45 - 56	3.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	50	45 - 56	0.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	50	44 - 57	0.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	0.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	49	43 - 58	-1.2
OCDF	M+2/M+4	0.90	0.76-1.02	101	63 - 159	0.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519210 Analysis Date: 5-DEC-18 Time: 01:15:25

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	107	82 - 121	6.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	123	62 - 160	23.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	98	85 - 117	-2.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	96	85 - 118	-3.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	12.7
13C-OCDD	M+2/M+4	0.91	0.76-1.02	270	96 - 415	35.2
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-1.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	119	76 - 130	18.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	120	77 - 130	20.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	90	76 - 131	-9.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	90	70 - 143	-10.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	73 - 137	-2.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	117	77 - 129	17.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.5	7.8 - 12.7	4.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519210 Samp: 1 Inj: 1 Acquired: 5-DEC-18 01:15:25
Processed: 6-DEC-18 10:05:45 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	2.756e+03	3.737e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	2.513e+04	1.656e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:11	2.440e+04	1.601e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.185e+04	1.866e+04	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	2.313e+04	1.900e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.198e+04	1.867e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	2.056e+04	1.659e+04	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	2.101e+04	2.060e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:55	1.756e+04	1.785e+04	0.98	yes	no	1.258
10	Unk	OCDF	42:26	3.016e+04	3.369e+04	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:49	2.095e+03	2.645e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	1.679e+04	1.086e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	1.592e+04	1.245e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	1.628e+04	1.278e+04	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	1.751e+04	1.368e+04	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	1.516e+04	1.442e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:14	2.503e+04	2.792e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	3.084e+04	3.862e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:16	5.032e+04	3.128e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	5.047e+04	3.162e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	2.267e+04	4.334e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	2.537e+04	4.931e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	2.491e+04	4.766e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	2.233e+04	4.212e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	1.904e+04	4.243e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	1.768e+04	3.932e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	2.058e+04	2.546e+04	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:28	3.451e+04	2.172e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	3.032e+04	2.344e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	3.054e+04	2.374e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	2.958e+04	2.781e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:13	4.442e+04	4.904e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:14	2.079e+04	2.598e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	3.291e+04	2.646e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	4.962e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519210 Samp: 1 Inj: 1 Acquired: 5-DEC-18 01:15:25
Processed: 6-DEC-18 10:05:45 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.22e+05	1.96e+02	2.7e+03	6.82e+05	9.16e+02	7.4e+02
2	1,2,3,7,8-PeCDF	4.71e+06	2.48e+02	1.9e+04	3.12e+06	8.20e+02	3.8e+03
3	2,3,4,7,8-PeCDF	4.97e+06	2.48e+02	2.0e+04	3.23e+06	8.20e+02	3.9e+03
4	1,2,3,4,7,8-HxCDF	4.72e+06	5.32e+02	8.9e+03	4.03e+06	2.76e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	4.72e+06	5.32e+02	8.9e+03	3.98e+06	2.76e+02	1.4e+04
6	2,3,4,6,7,8-HxCDF	4.76e+06	5.32e+02	9.0e+03	3.97e+06	2.76e+02	1.4e+04
7	1,2,3,7,8,9-HxCDF	4.41e+06	5.32e+02	8.3e+03	3.41e+06	2.76e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	4.68e+06	1.79e+03	2.6e+03	4.61e+06	2.40e+03	1.9e+03
9	1,2,3,4,7,8,9-HpCDF	3.45e+06	1.79e+03	1.9e+03	3.46e+06	2.40e+03	1.4e+03
10	OCDF	5.03e+06	2.28e+02	2.2e+04	5.70e+06	4.16e+02	1.4e+04
11	2,3,7,8-TCDD	3.97e+05	1.16e+03	3.4e+02	5.22e+05	5.12e+02	1.0e+03
12	1,2,3,7,8-PeCDD	3.33e+06	3.92e+02	8.5e+03	2.15e+06	2.72e+02	7.9e+03
13	1,2,3,4,7,8-HxCDD	3.64e+06	2.64e+02	1.4e+04	2.83e+06	2.36e+02	1.2e+04
14	1,2,3,6,7,8-HxCDD	3.50e+06	2.64e+02	1.3e+04	2.75e+06	2.36e+02	1.2e+04
15	1,2,3,7,8,9-HxCDD	3.76e+06	2.64e+02	1.4e+04	2.94e+06	2.36e+02	1.2e+04
16	1,2,3,4,6,7,8-HpCDD	3.16e+06	2.80e+02	1.1e+04	3.02e+06	2.56e+02	1.2e+04
17	OCDD	4.25e+06	2.28e+02	1.9e+04	4.76e+06	2.52e+02	1.9e+04
18	13C-2,3,7,8-TCDF	5.51e+06	3.96e+03	1.4e+03	6.80e+06	2.42e+03	2.8e+03
19	13C-1,2,3,7,8-PeCDF	9.58e+06	5.48e+02	1.7e+04	5.97e+06	3.00e+02	2.0e+04
20	13C-2,3,4,7,8-PeCDF	1.02e+07	5.48e+02	1.9e+04	6.39e+06	3.00e+02	2.1e+04
21	13C-1,2,3,4,7,8-HxCDF	4.87e+06	4.64e+02	1.1e+04	9.25e+06	8.44e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	5.32e+06	4.64e+02	1.1e+04	1.04e+07	8.44e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	5.34e+06	4.64e+02	1.2e+04	1.00e+07	8.44e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	4.68e+06	4.64e+02	1.0e+04	8.77e+06	8.44e+02	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.18e+06	3.02e+03	1.4e+03	9.31e+06	6.16e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.39e+06	3.02e+03	1.1e+03	7.55e+06	6.16e+03	1.2e+03
27	13C-2,3,7,8-TCDD	3.95e+06	3.79e+03	1.0e+03	4.91e+06	1.30e+03	3.8e+03
28	13C-1,2,3,7,8-PeCDD	7.00e+06	4.64e+02	1.5e+04	4.44e+06	8.04e+02	5.5e+03
29	13C-1,2,3,4,7,8-HxCDD	6.92e+06	8.88e+02	7.8e+03	5.33e+06	2.56e+02	2.1e+04
30	13C-1,2,3,6,7,8-HxCDD	6.59e+06	8.88e+02	7.4e+03	5.11e+06	2.56e+02	2.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.98e+06	8.80e+02	6.8e+03	5.67e+06	5.08e+02	1.1e+04
32	13C-OCDD	7.60e+06	4.68e+02	1.6e+04	8.41e+06	3.28e+02	2.6e+04
33	13C-1,2,3,4-TCDD	3.97e+06	3.79e+03	1.0e+03	4.91e+06	1.30e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	7.17e+06	8.88e+02	8.1e+03	5.65e+06	2.56e+02	2.2e+04
35	37Cl-2,3,7,8-TCDD	9.46e+05	9.20e+02	1.0e+03			

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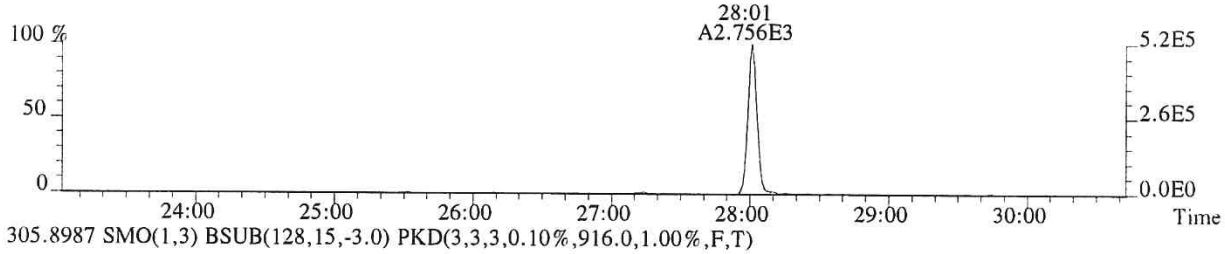
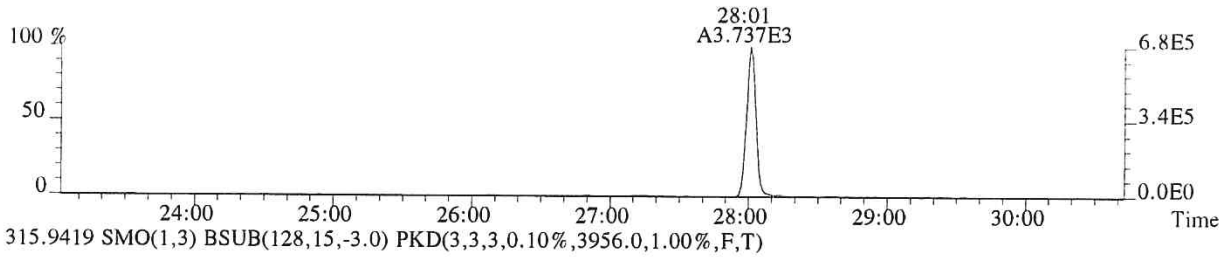
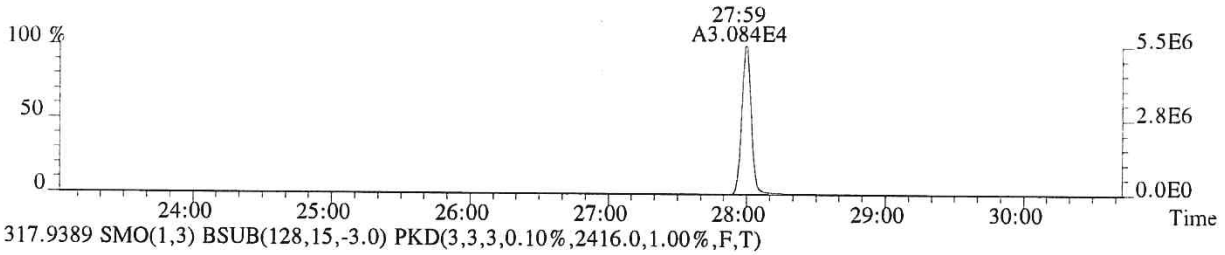
File:P519210 #1-545 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



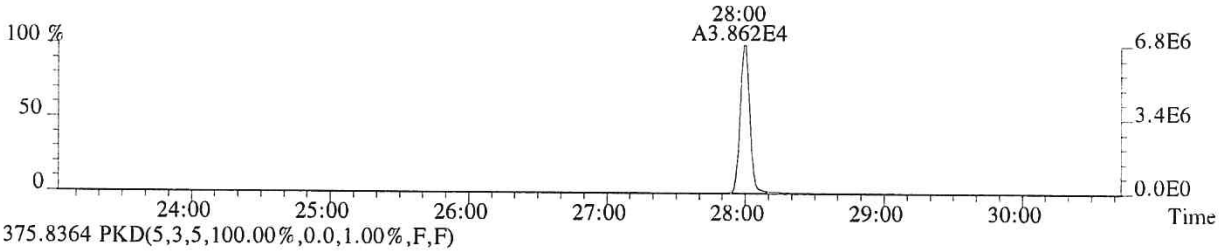
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



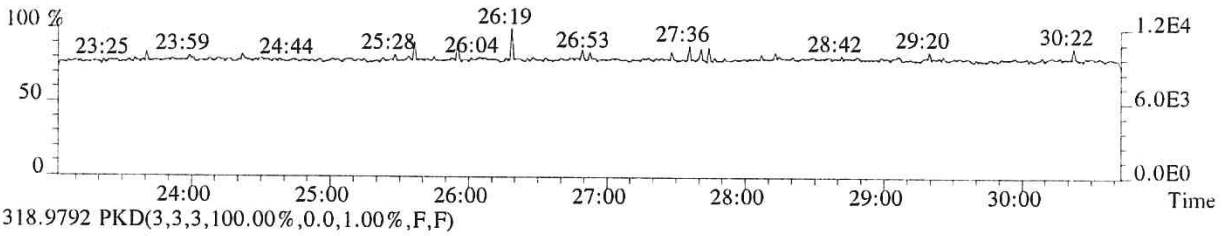
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3956.0,1.00%,F,T)



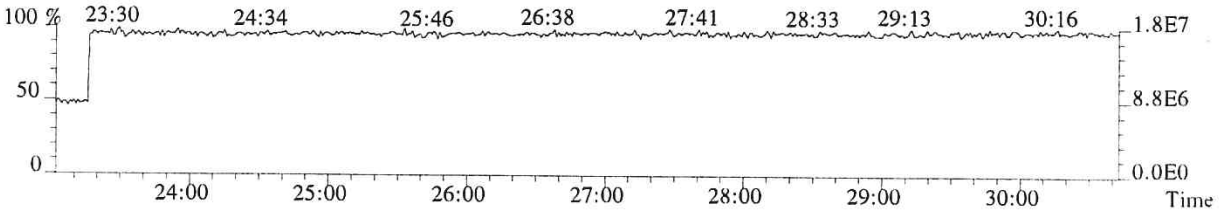
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2416.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

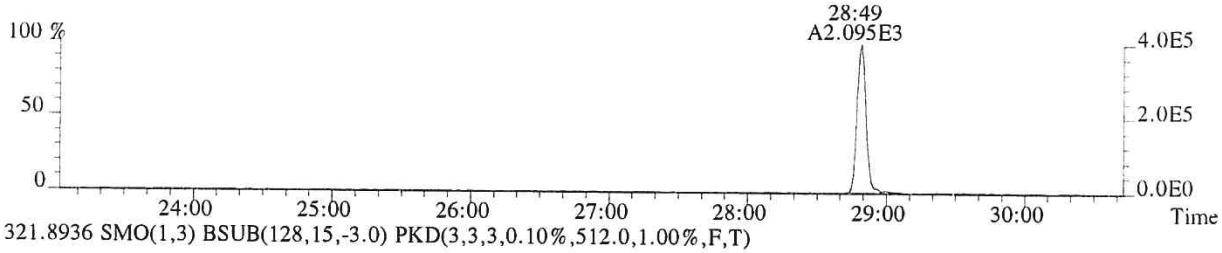


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

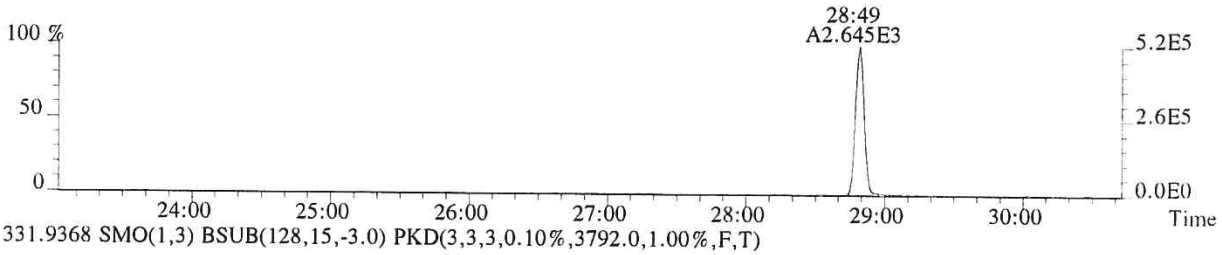


010645

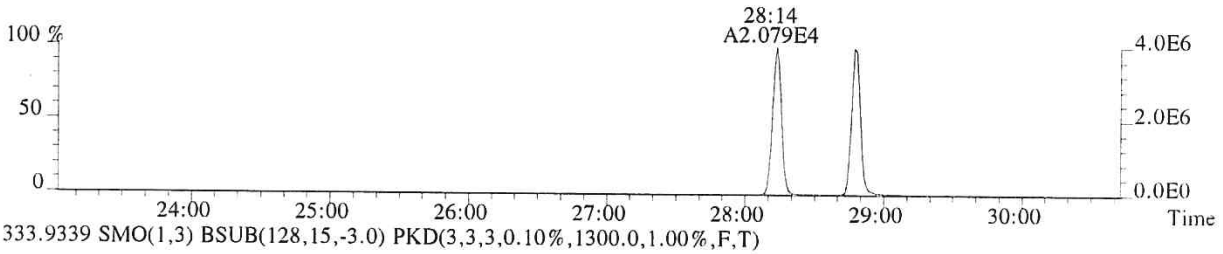
File:P519210 #1-545 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



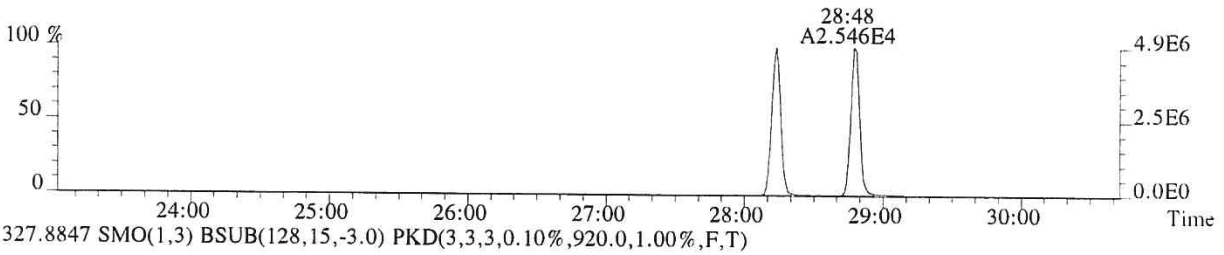
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



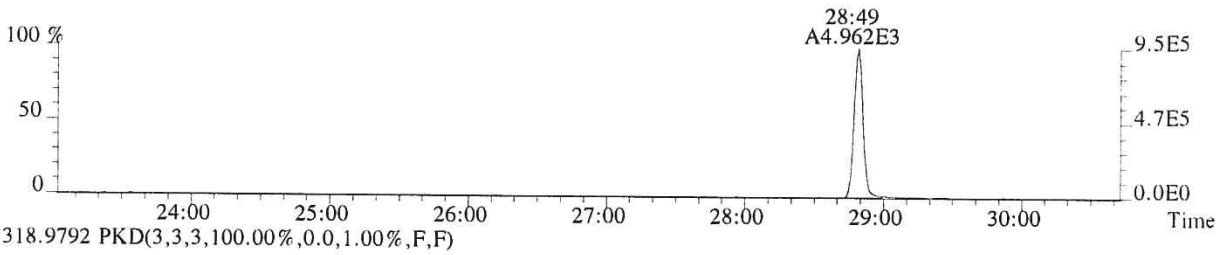
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3792.0,1.00%,F,T)



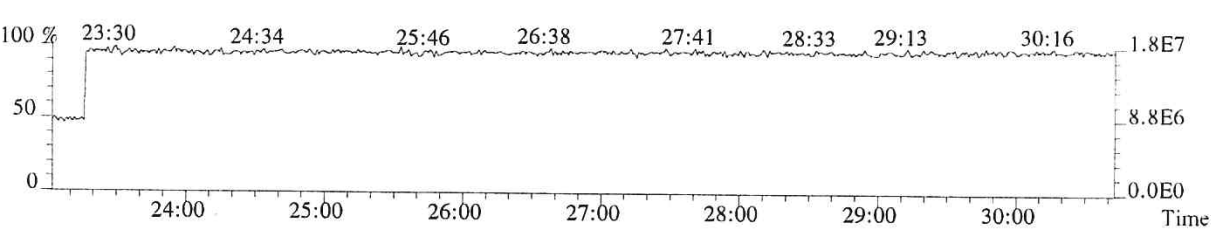
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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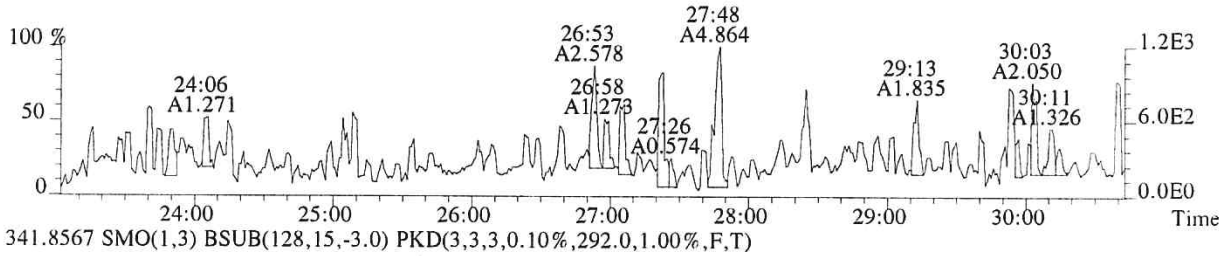
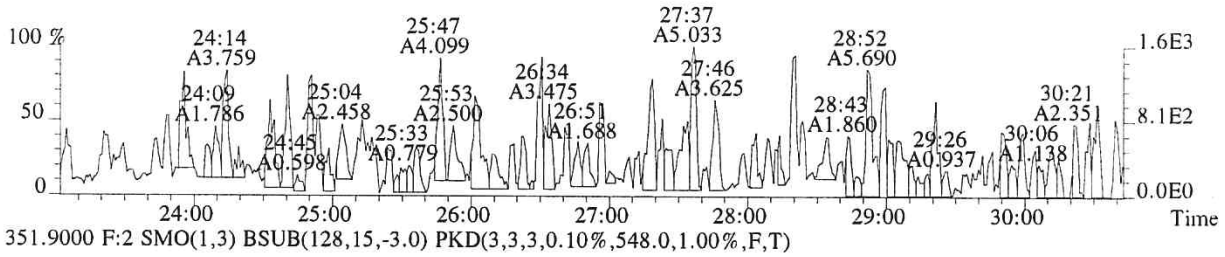
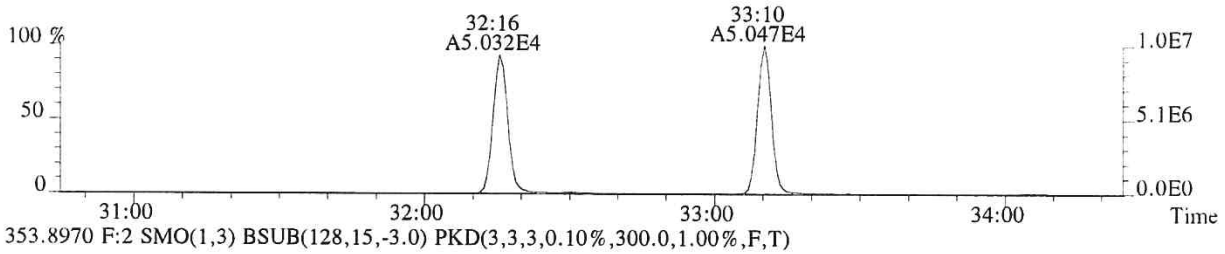
File:P519210 #1-545 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



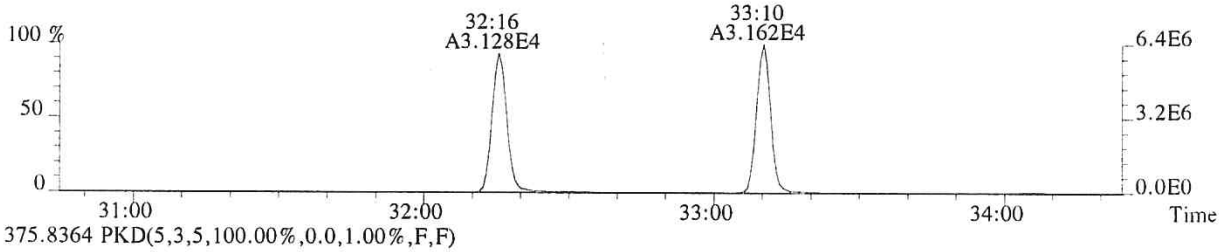
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



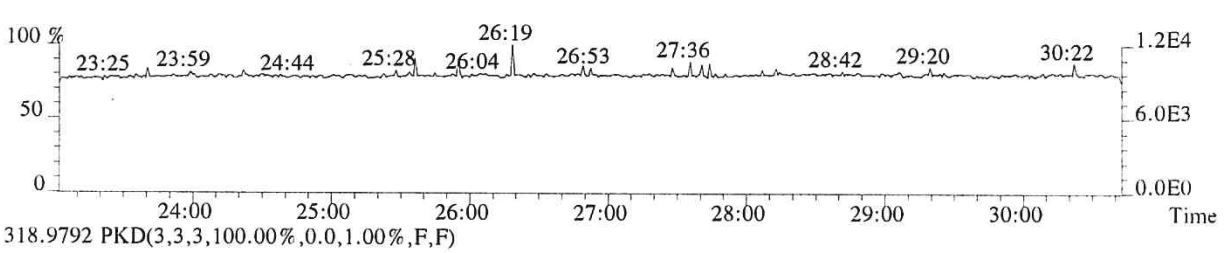
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



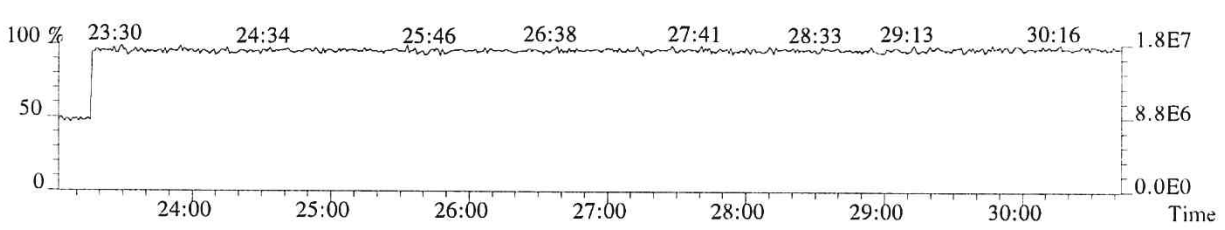
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

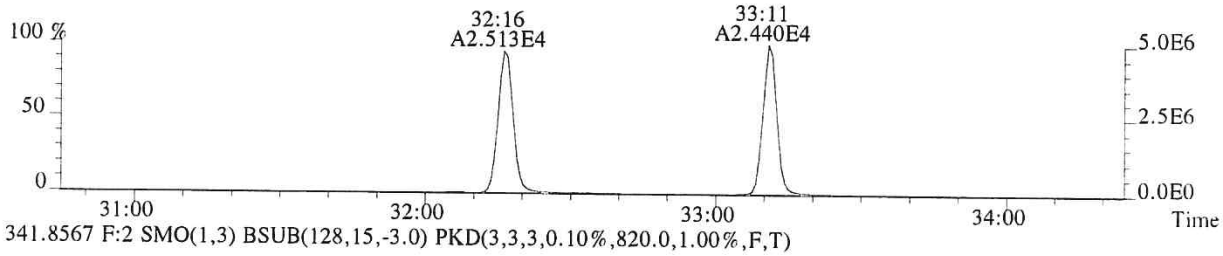


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

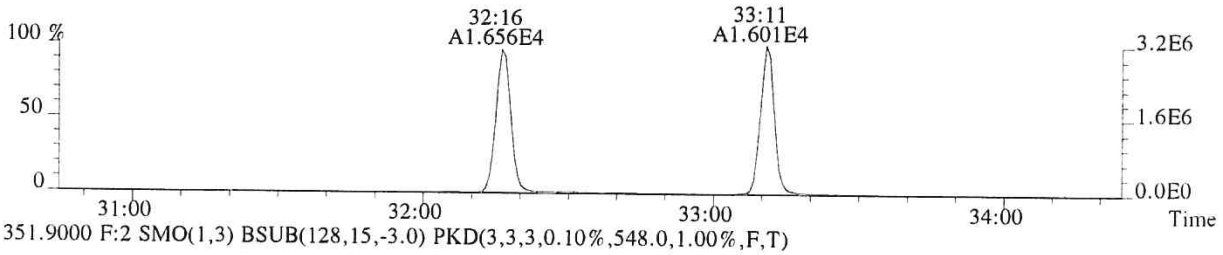


010647

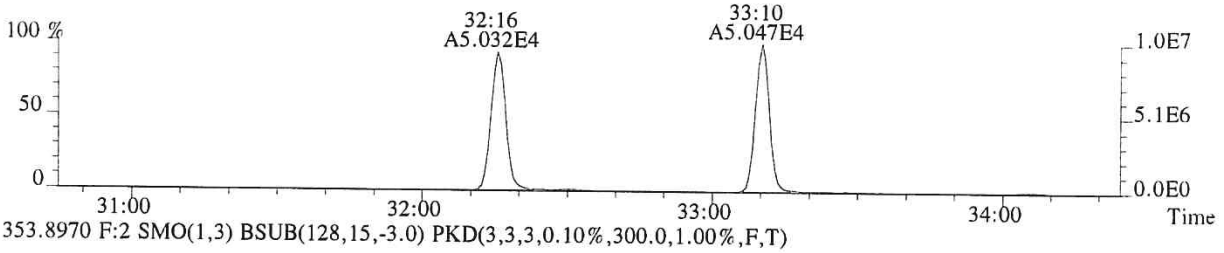
File:P519210 #1-330 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



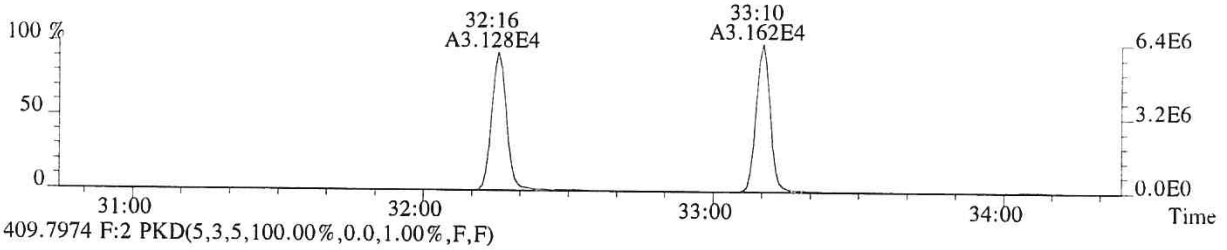
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



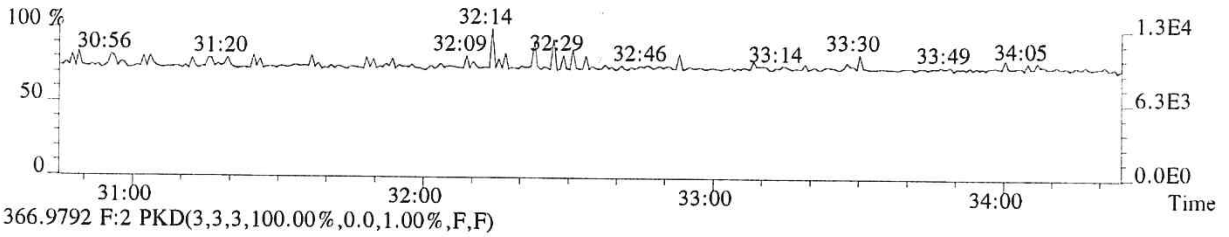
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



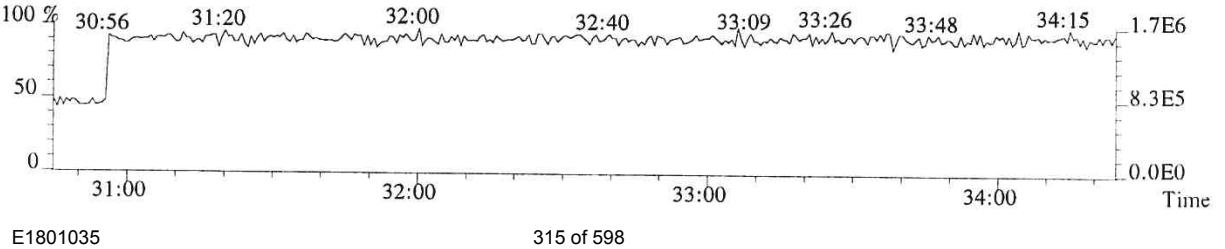
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

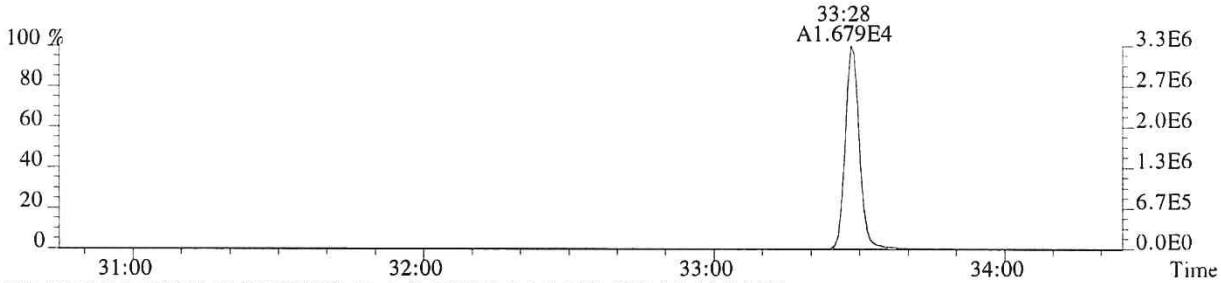


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

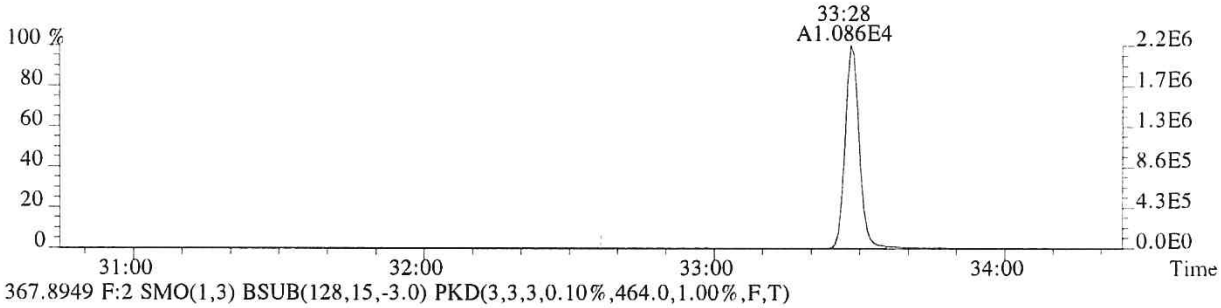


010648

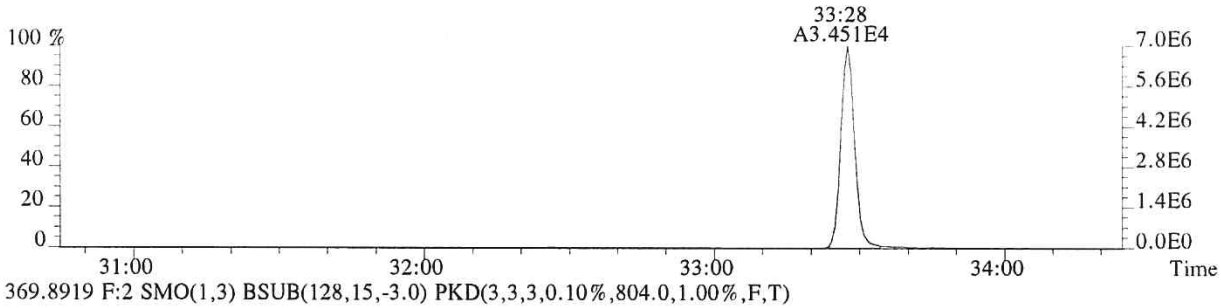
File:P519210 #1-330 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



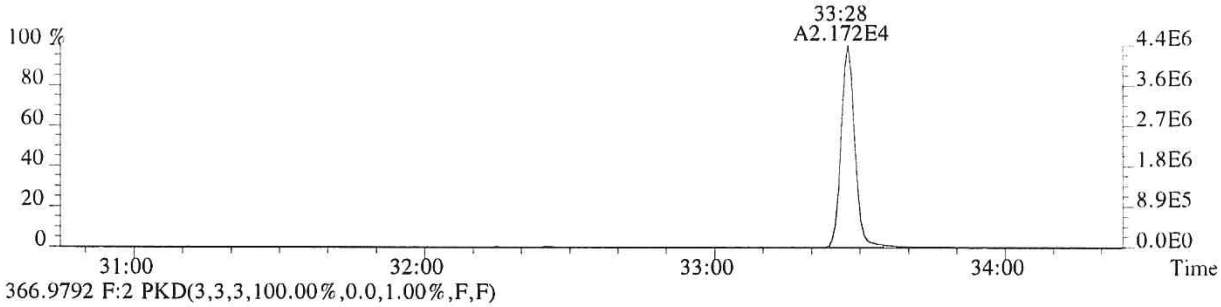
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



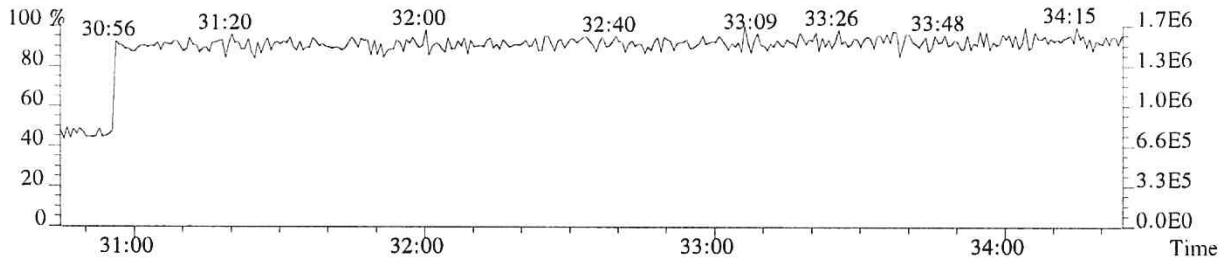
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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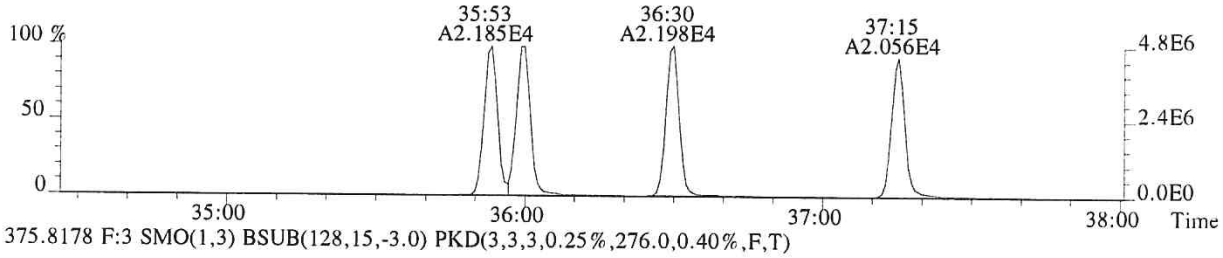
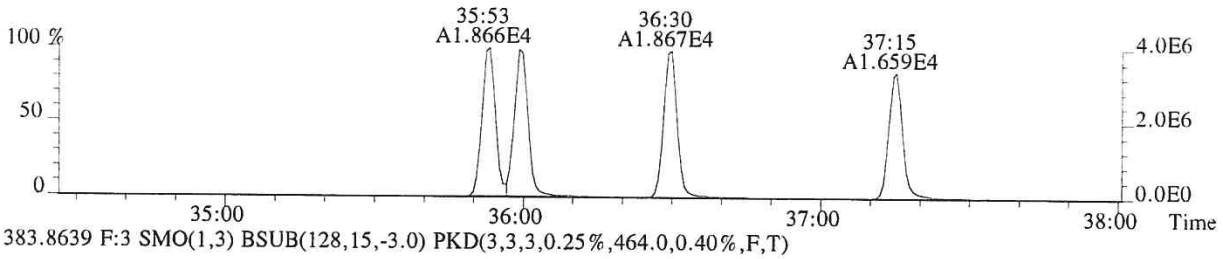
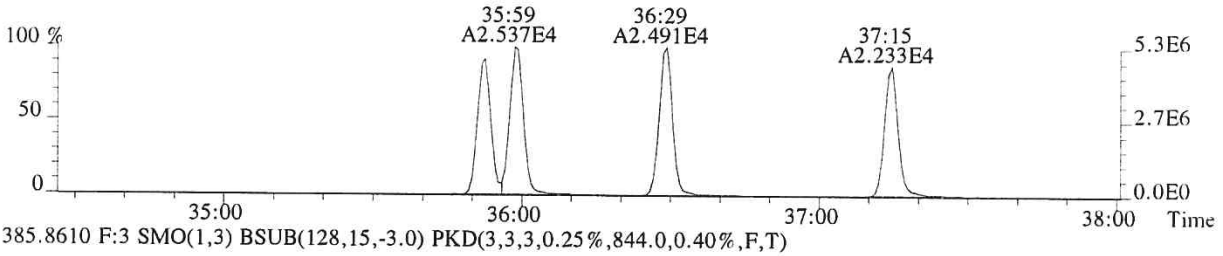
File:P519210 #1-322 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



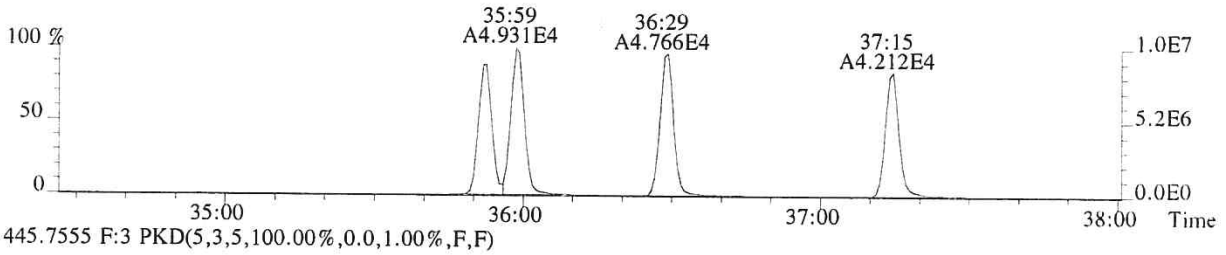
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



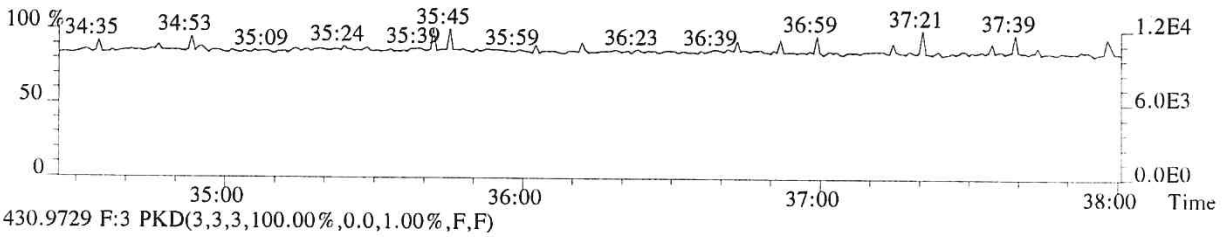
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



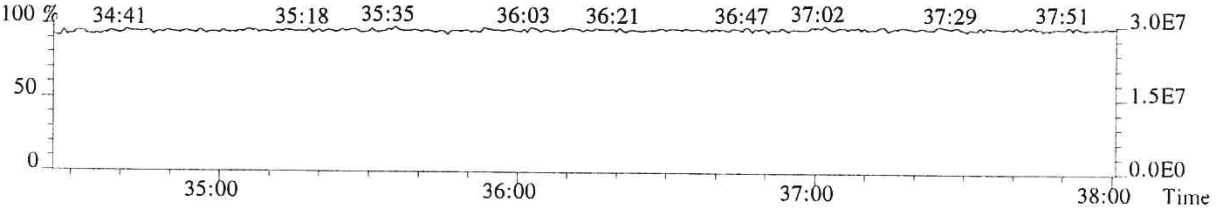
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



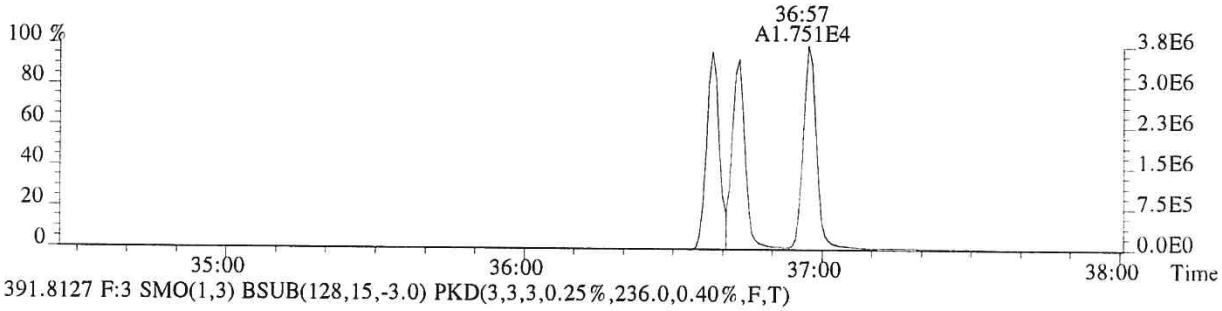
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



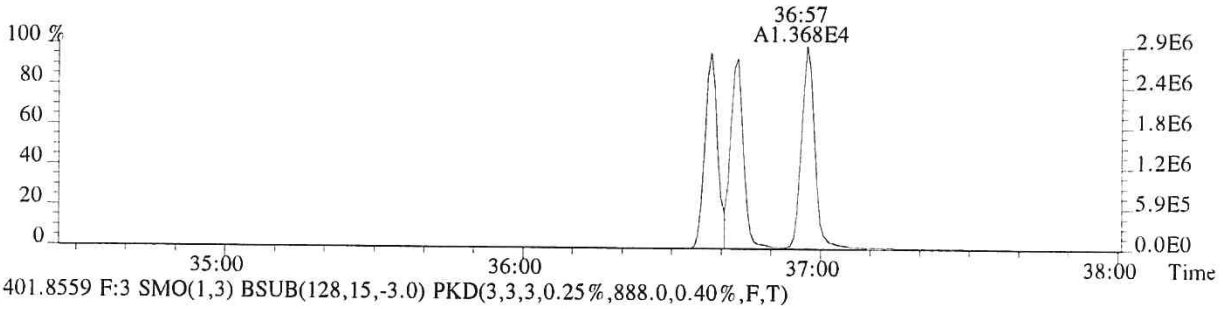
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



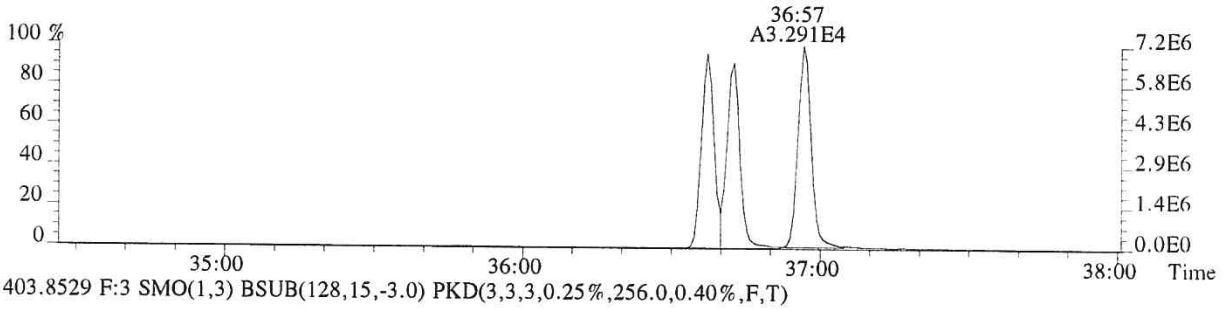
File:P519210 #1-322 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



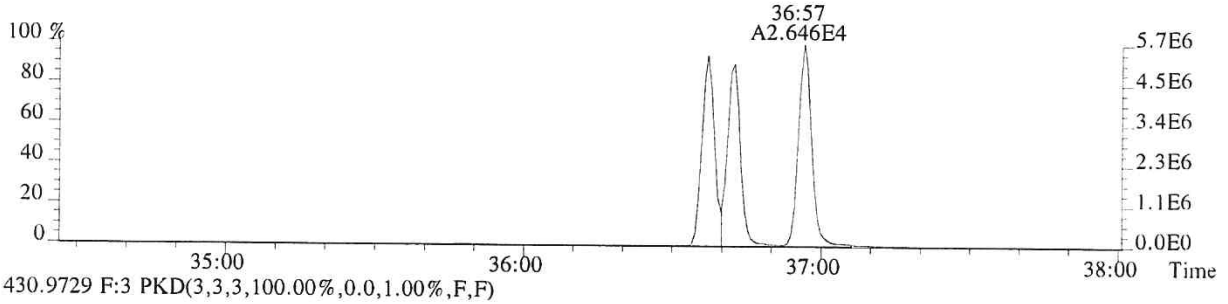
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



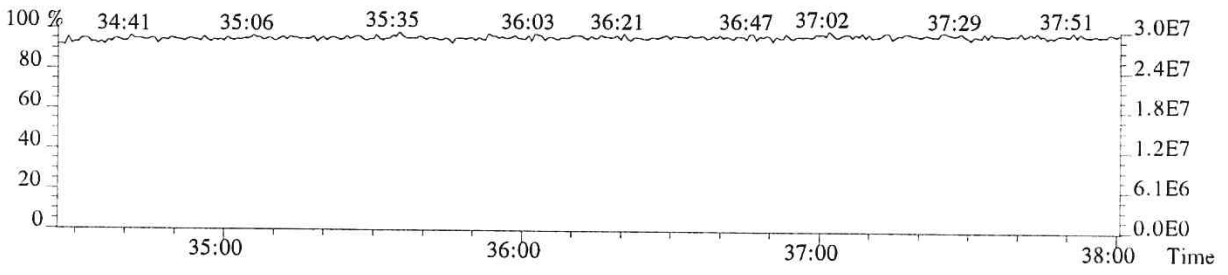
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



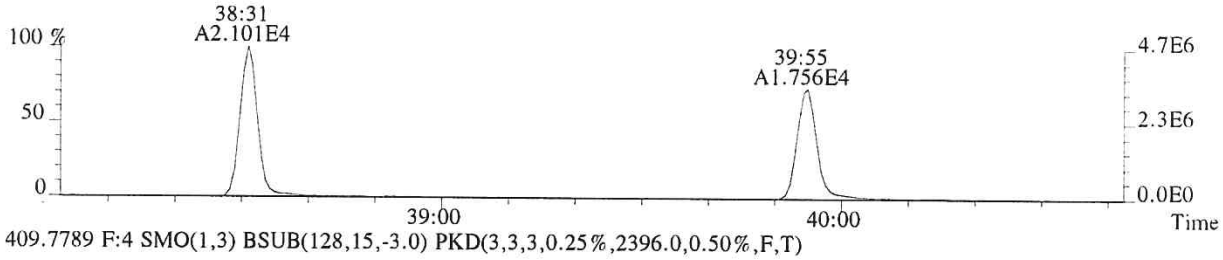
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



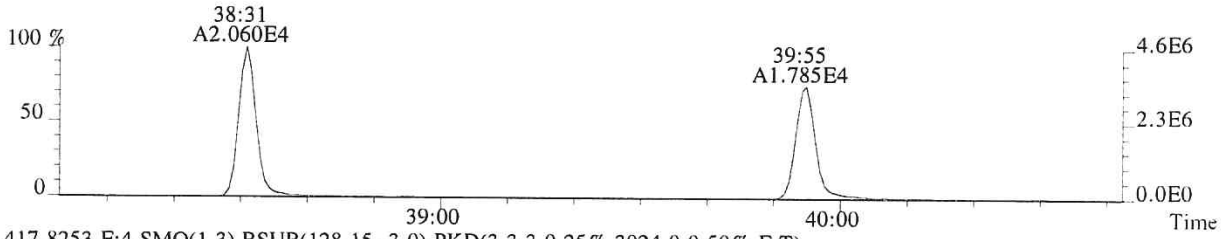
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



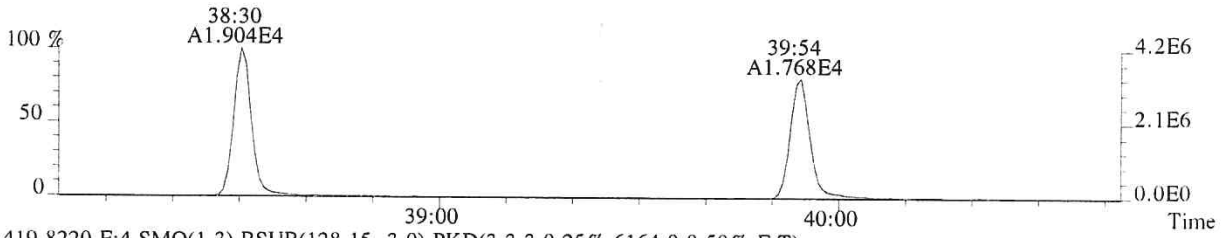
File:P519210 #1-240 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1792.0,0.50%,F,T)



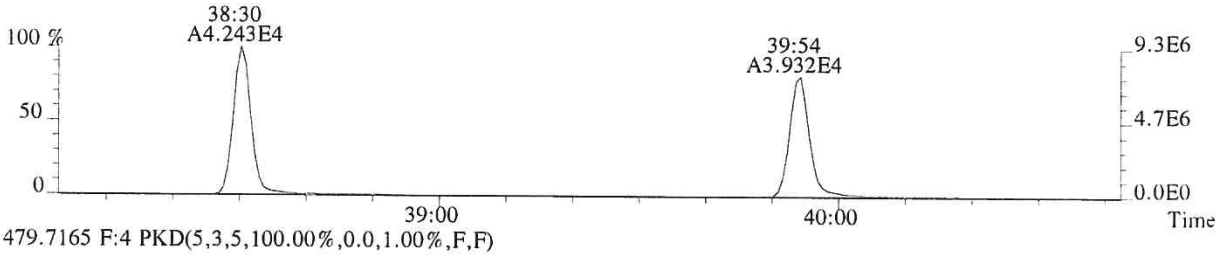
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.50%,F,T)



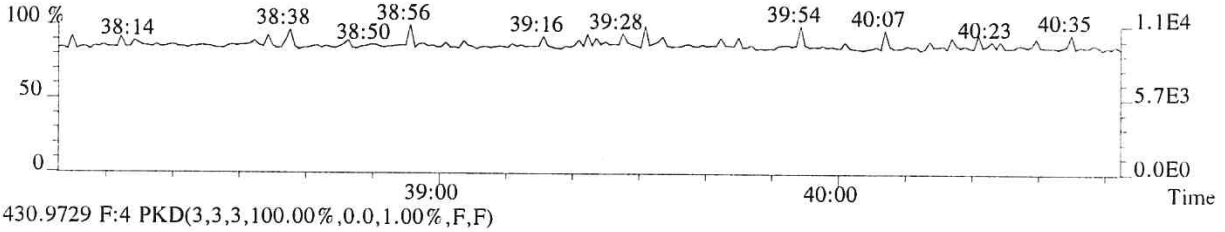
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3024.0,0.50%,F,T)



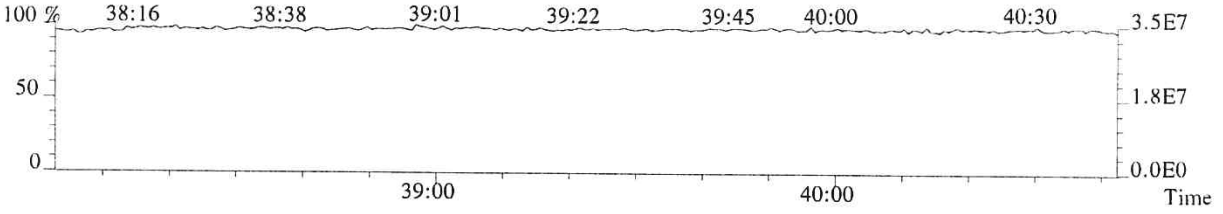
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6164.0,0.50%,F,T)



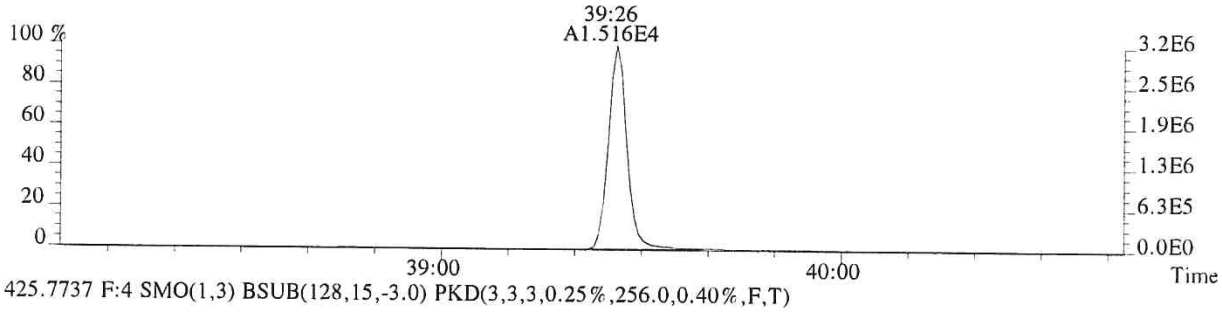
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



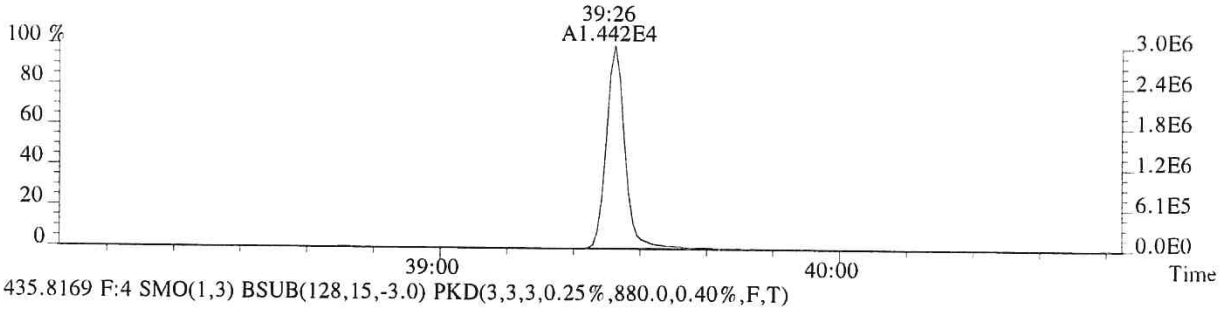
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



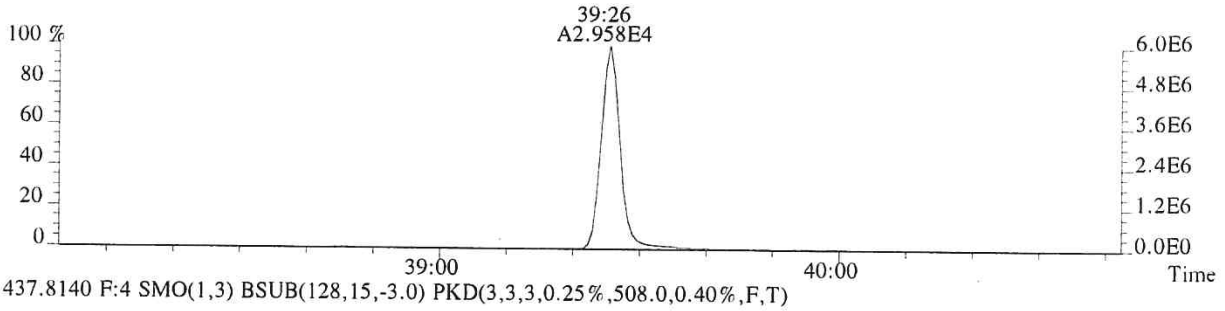
File:P519210 #1-240 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



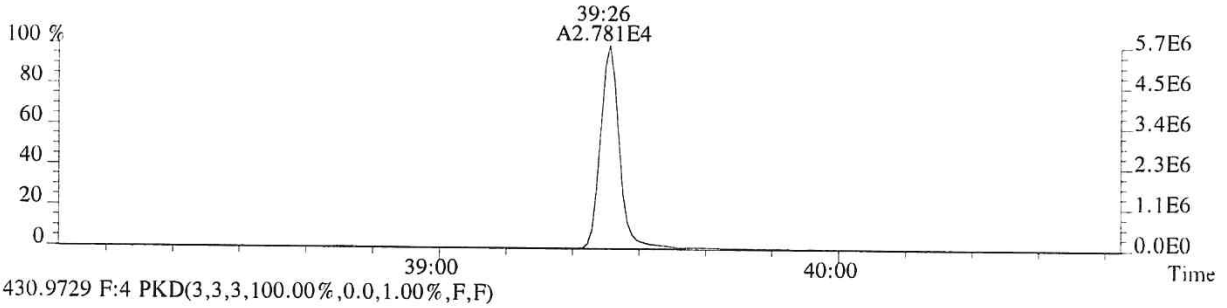
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



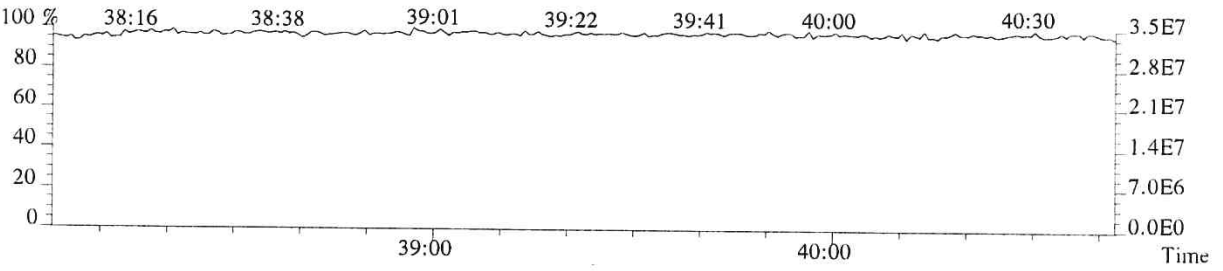
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)

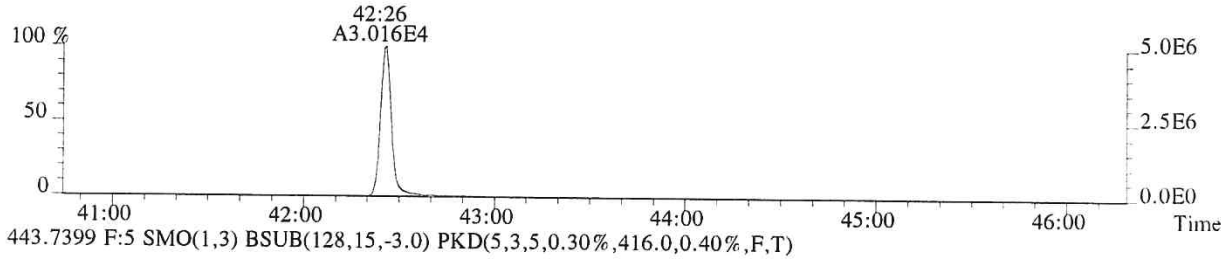


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

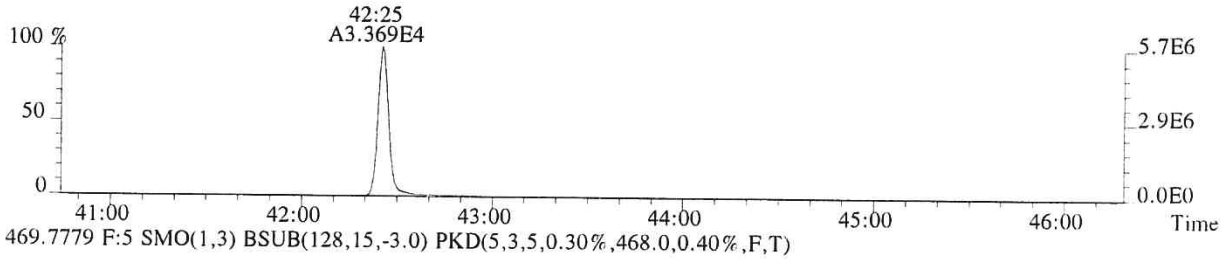


010653

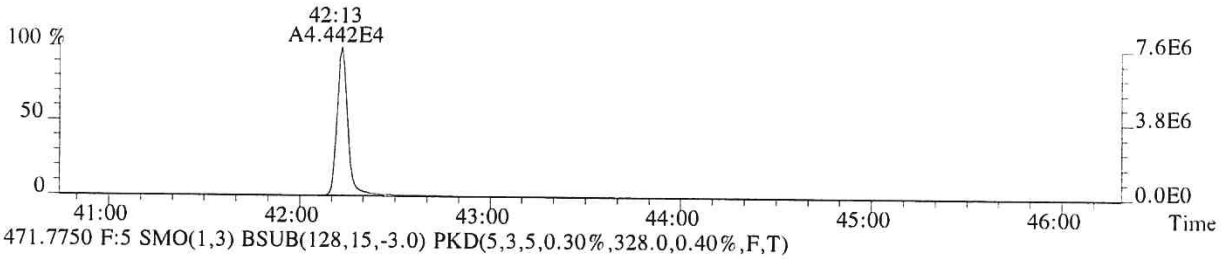
File:P519210 #1-502 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



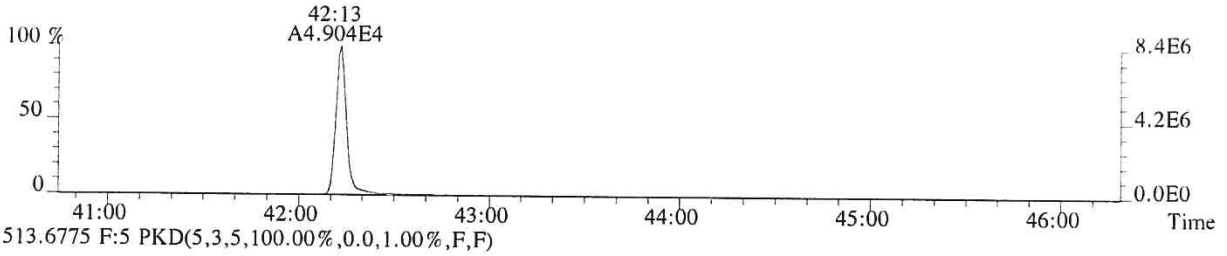
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



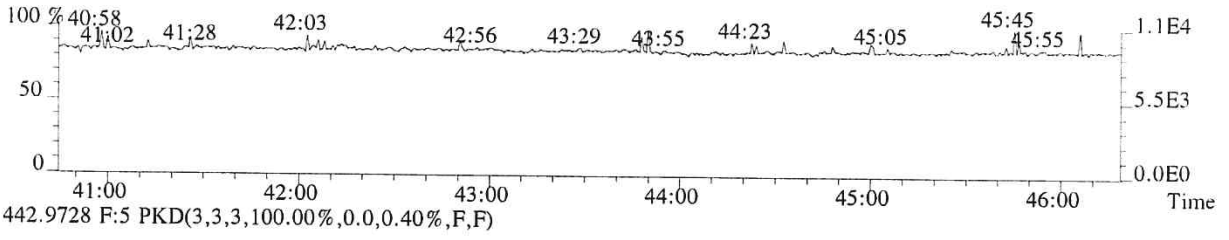
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



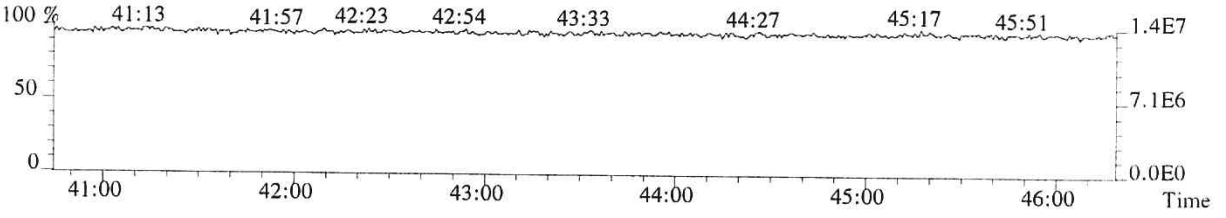
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

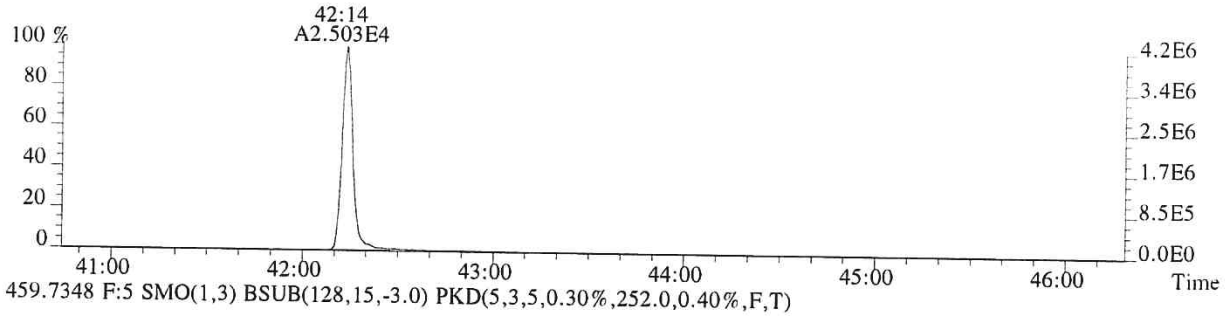


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

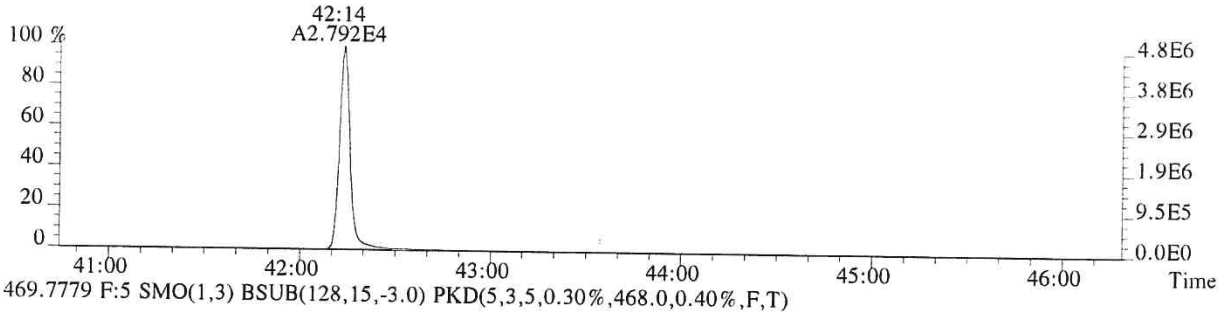


010654

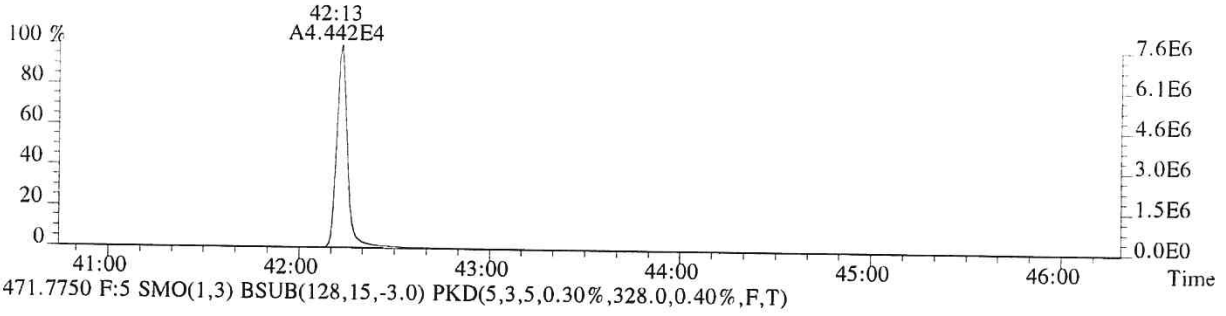
File:P519210 #1-502 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



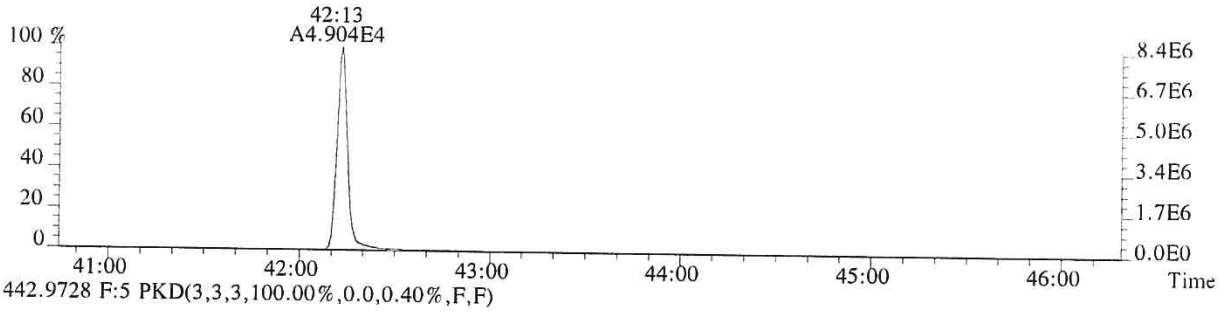
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



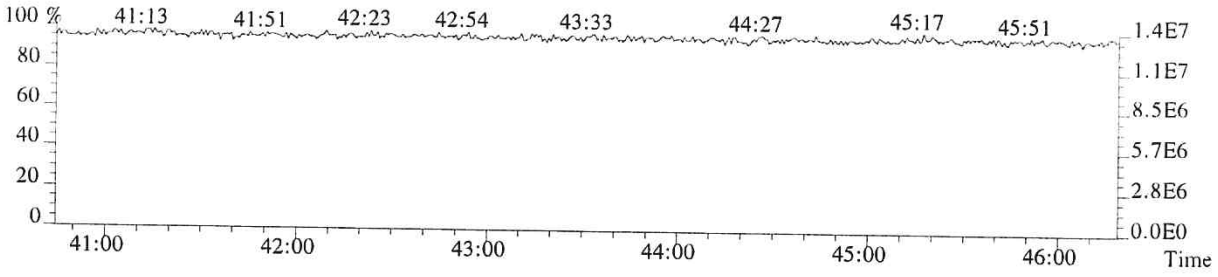
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P615674 - P615685

Date: 11/21/18 - 11/22/18 Circle one: (Beginning) / (Ending)

Method: (1613) / 1613E / (8290) / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	NA	NA
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

010656

5DBC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: ALS-TX Case No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID:E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P615675	21-NOV-18	18:14:18
194503	CS3	P615674	21-NOV-18	17:25:15
194503	CS3	P615685	22-NOV-18	02:25:25
METHOD BLANK	EQ1800468-01	P615676	21-NOV-18	19:03:23
2348627001	E1801024-001	P615677	21-NOV-18	19:52:28
2348627002	E1801024-002	P615678	21-NOV-18	20:41:39
2348627003	E1801024-003	P615679	21-NOV-18	21:30:44
SL0072	E1801012-020DL	P615680	21-NOV-18	22:19:48
SL0084	E1801035-006DL	P615681	21-NOV-18	23:09:00
PRI5-002-SW-01	E1801003-001DL	P615682	21-NOV-18	23:58:05
PRI5-002-SW-01	E1801003-001	P615683	22-NOV-18	00:47:09

E1801035

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181121B.SPL
Last Modified: Monday, November 26, 2018 06:38:15 Central Standard Time
Printed: Monday, November 26, 2018 06:38:17 Central Standard Time

Page Position (1, 1)

OPUS-T: P615674.RES

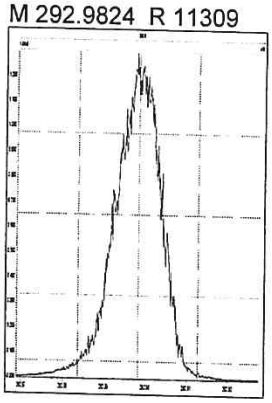
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/21/18	17:25	P615674	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	ithischeck16:32
2		18:14	P615675	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		19:03	P615676	EQ1800468-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		19:52	P615677	E1801024-001	E1801024-001	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		20:41	P615678	E1801024-002	E1801024-002	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		21:30	P615679	E1801024-003	E1801024-003	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		22:19	P615680	E1801012-020DL	E1801012-020DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		23:09	P615681	E1801035-006DL	E1801035-006DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		23:58	P615682	E1801003-001DL	E1801003-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10	11/22/18	00:47	P615683	E1801003-001	E1801003-001	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		-	P615684	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		02:25	P615685	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:12		ithischeck 04:19
13		03:22	P615686	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:13		not used
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JC 11/26/18

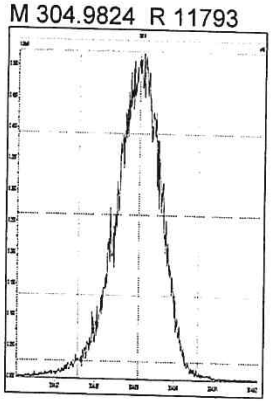
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 16:32:21 Central Standard Time

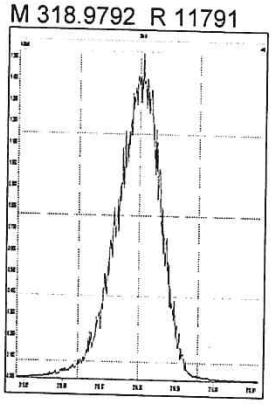
M 292.9824 R 11309



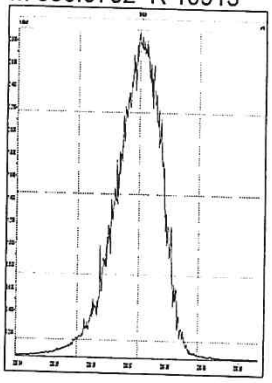
M 304.9824 R 11793



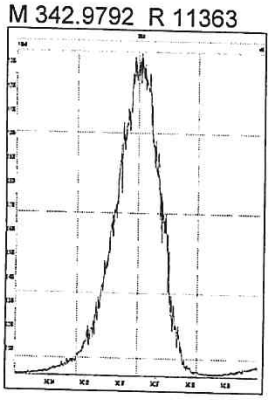
M 318.9792 R 11791



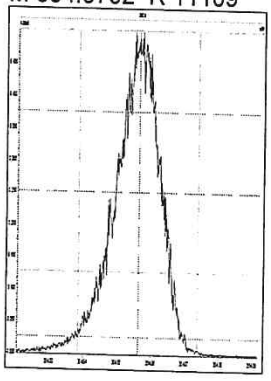
M 330.9792 R 10913



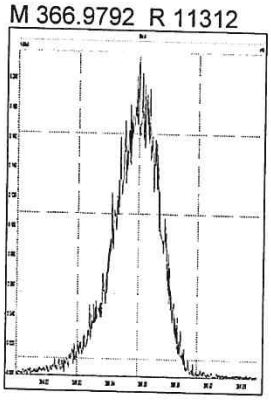
M 342.9792 R 11363



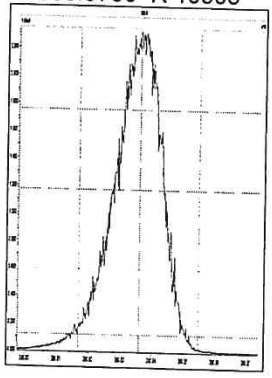
M 354.9792 R 11109



M 366.9792 R 11312



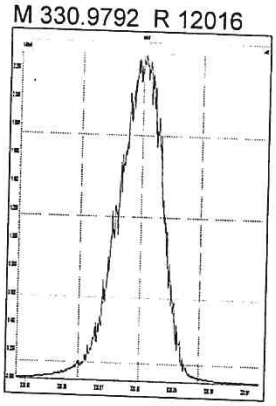
M 380.9760 R 10503



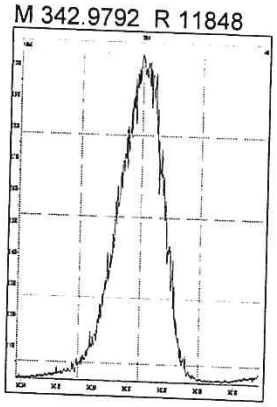
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 16:33:00 Central Standard Time

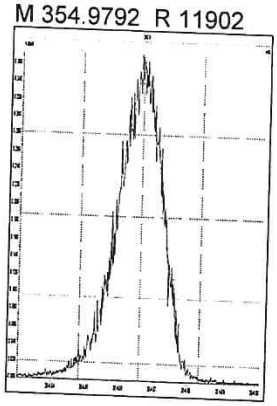
M 330.9792 R 12016



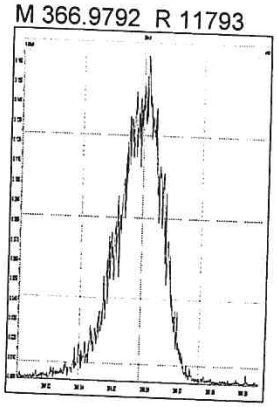
M 342.9792 R 11848



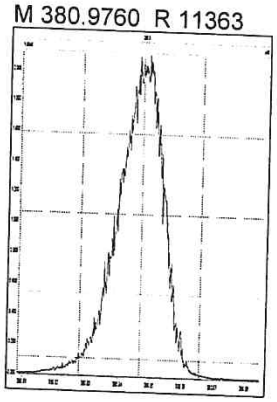
M 354.9792 R 11902



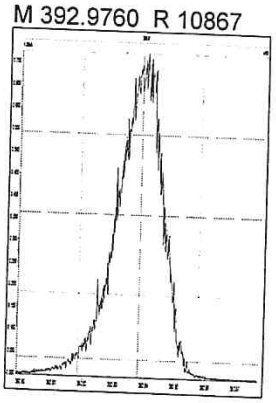
M 366.9792 R 11793



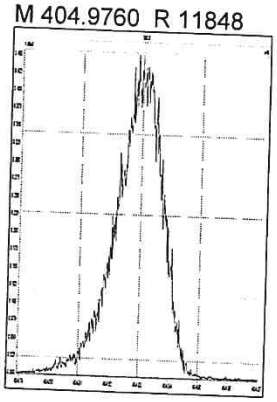
M 380.9760 R 11363



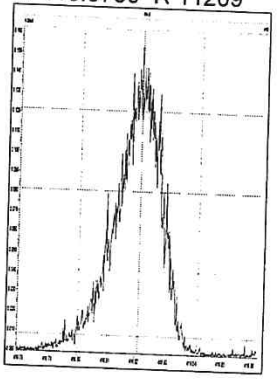
M 392.9760 R 10867



M 404.9760 R 11848



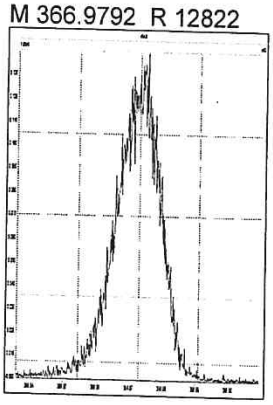
M 416.9760 R 11209



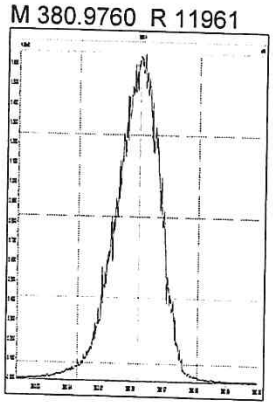
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 16:33:27 Central Standard Time

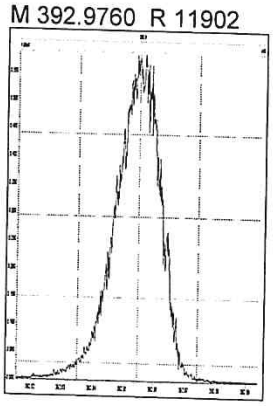
M 366.9792 R 12822



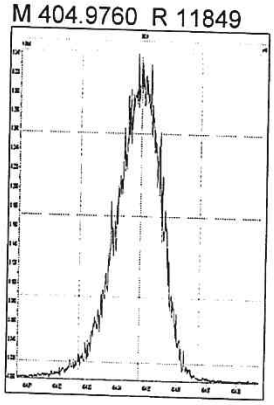
M 380.9760 R 11961



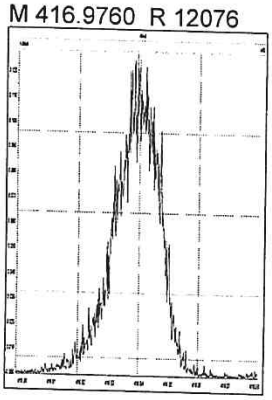
M 392.9760 R 11902



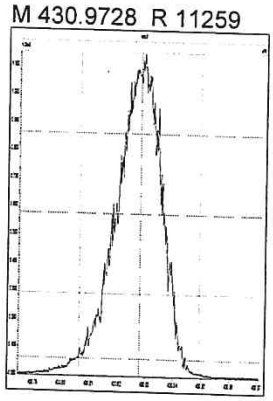
M 404.9760 R 11849



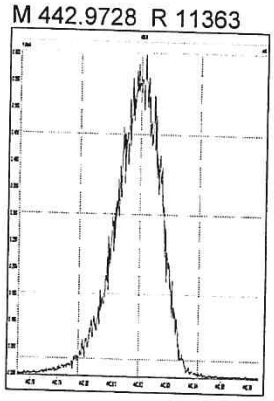
M 416.9760 R 12076



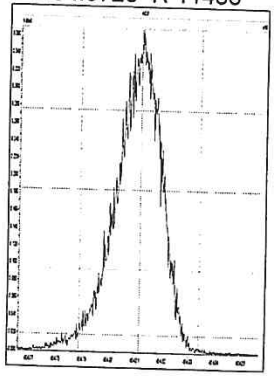
M 430.9728 R 11259



M 442.9728 R 11363



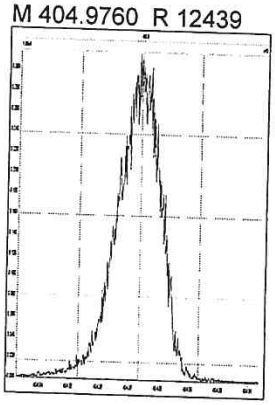
M 454.9728 R 11466



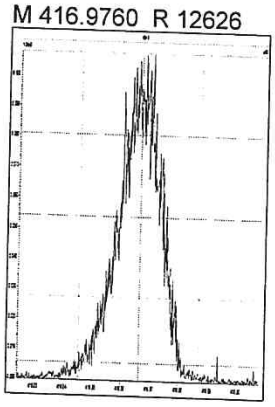
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 16:34:10 Central Standard Time

M 404.9760 R 12439



M 416.9760 R 12626



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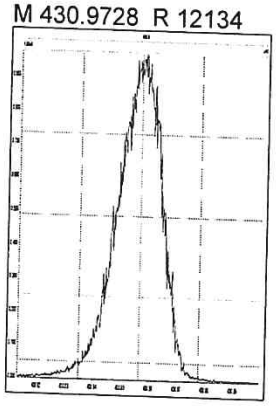
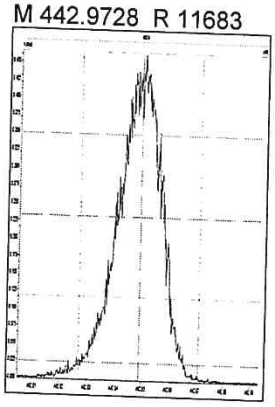
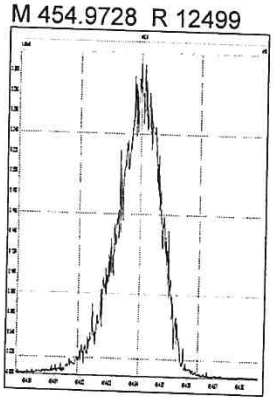


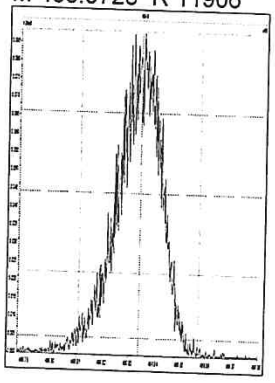
M 442.9728 R 11683



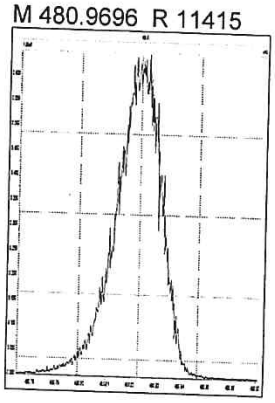
M 454.9728 R 12499



M 466.9728 R 11906



M 480.9696 R 11415



Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, November 21, 2018 16:34:41 Central Standard Time

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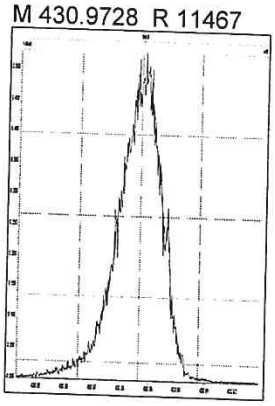

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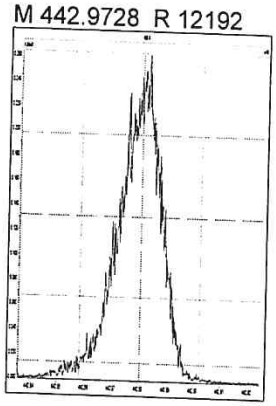

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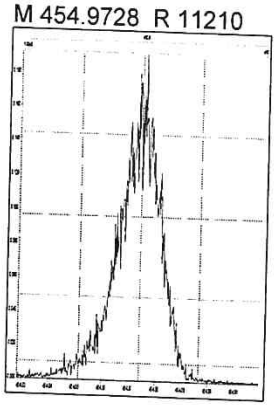

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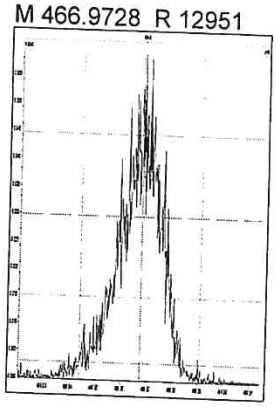
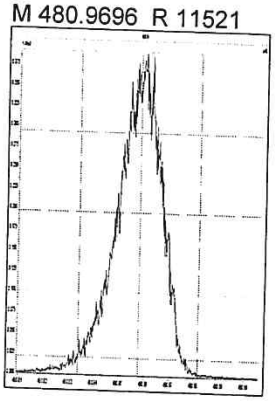
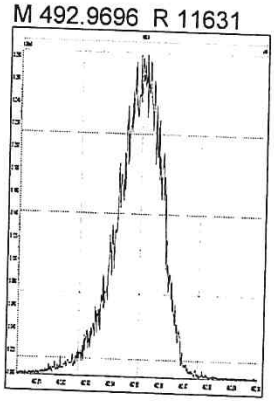


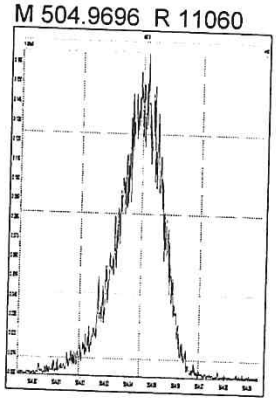
M 480.9696 R 11521



M 492.9696 R 11631



M 504.9696 R 11060



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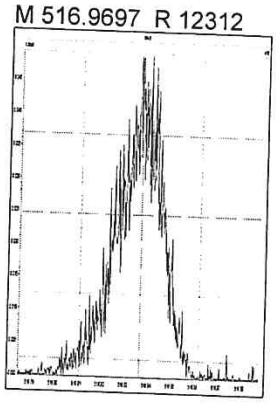

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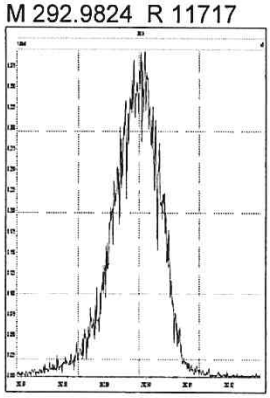
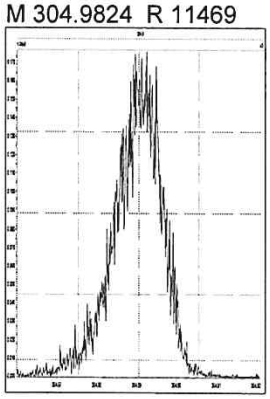
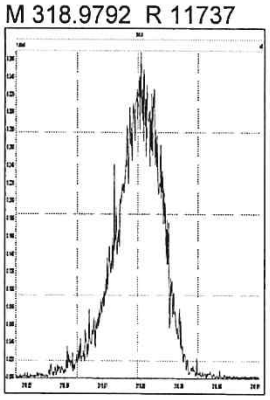


M 304.9824 R 11469



M 318.9792 R 11737



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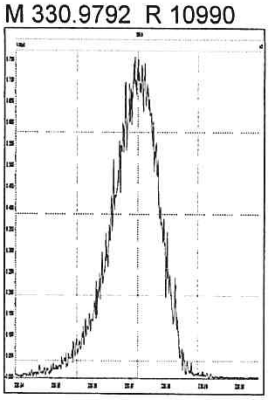

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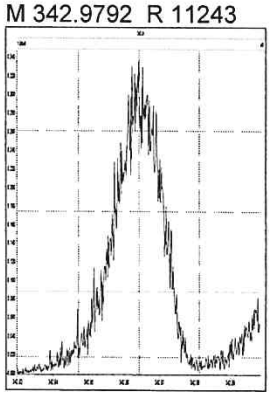

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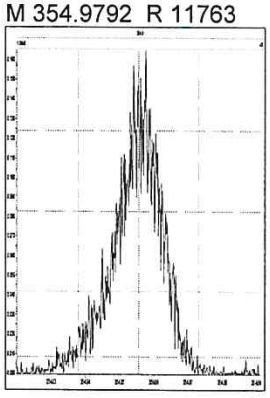
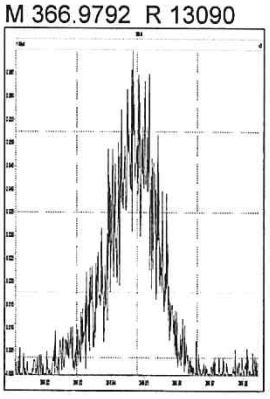
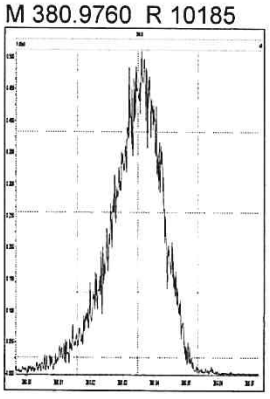


M 366.9792 R 13090



M 380.9760 R 10185



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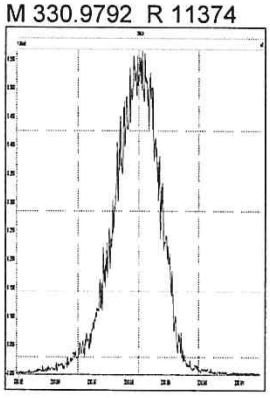

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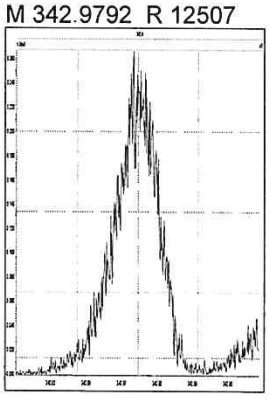

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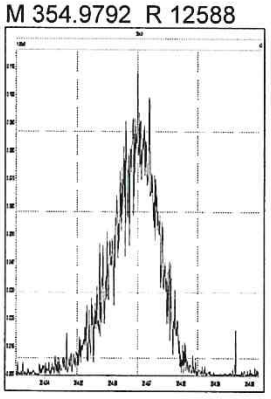

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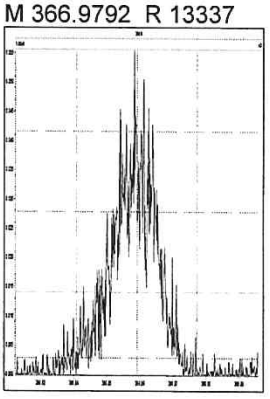
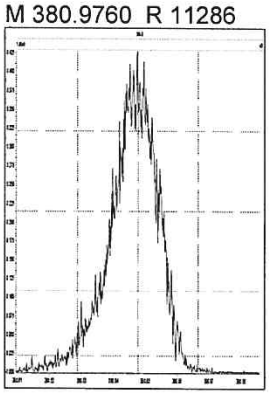
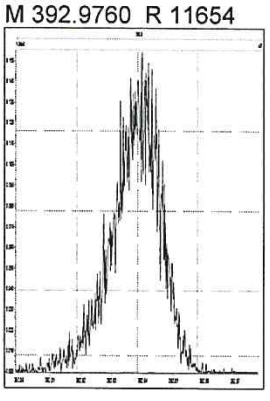


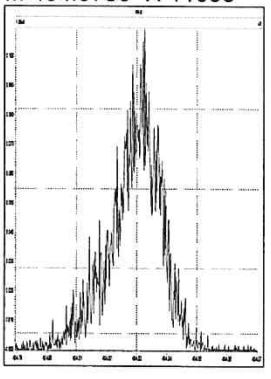
M 380.9760 R 11286



M 392.9760 R 11654



M 404.9760 R 11063



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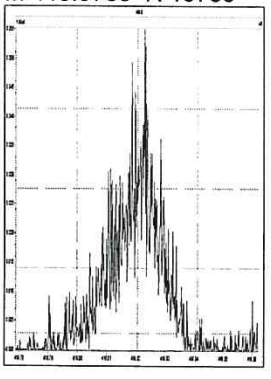

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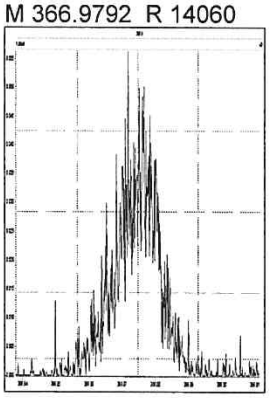

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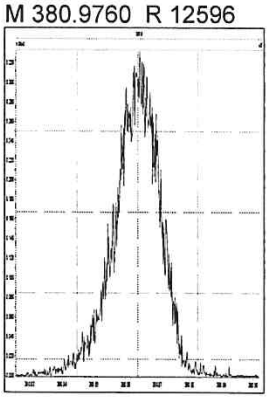

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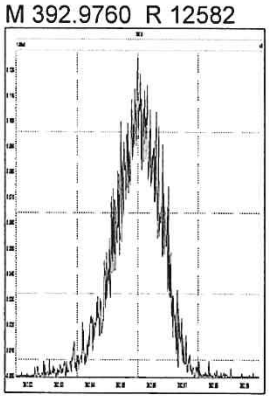

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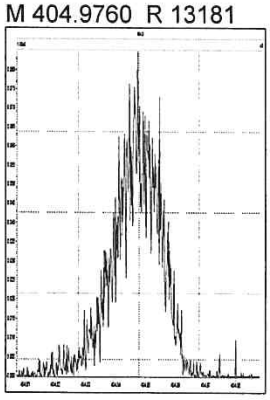
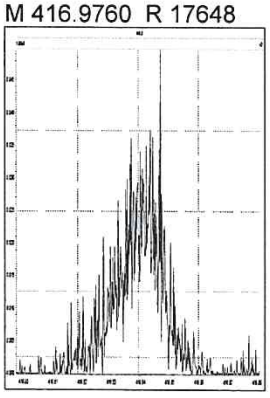


M 416.9760 R 17648



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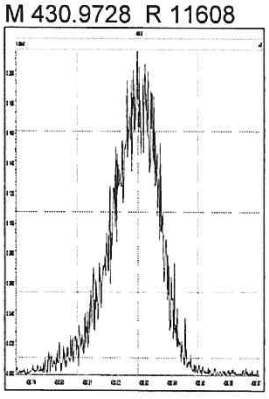

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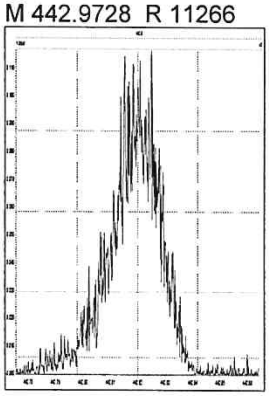
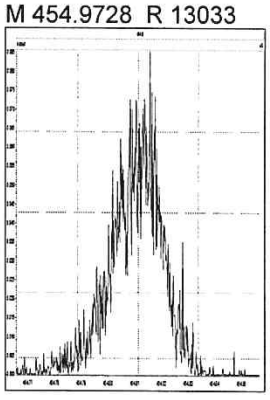


M 454.9728 R 13033



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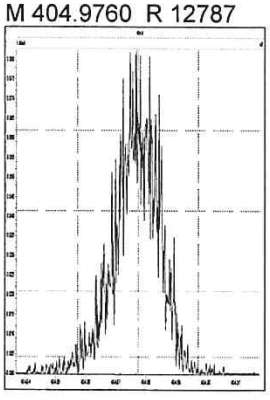

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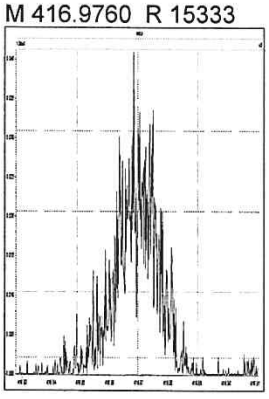

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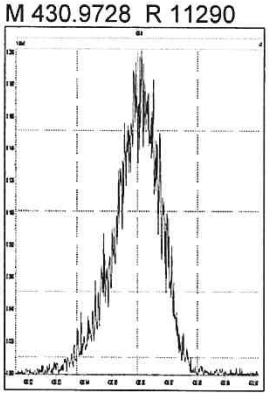

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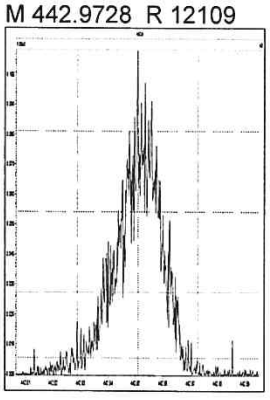

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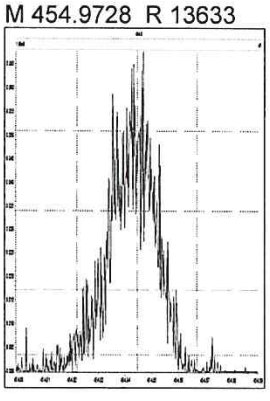
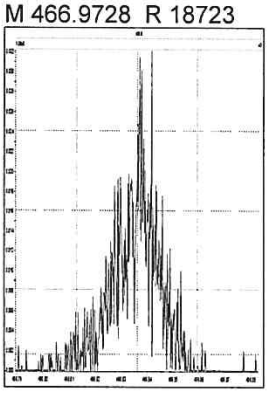
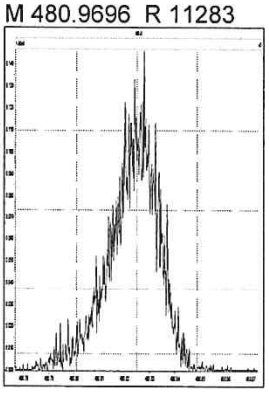


M 466.9728 R 18723



M 480.9696 R 11283



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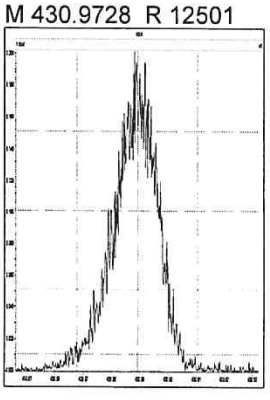

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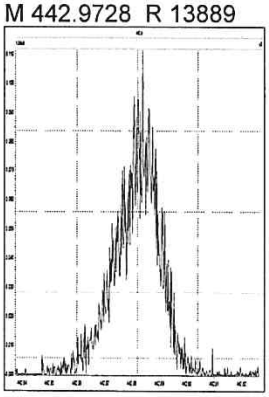

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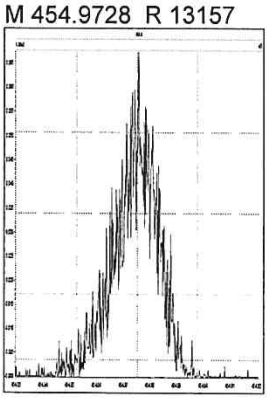

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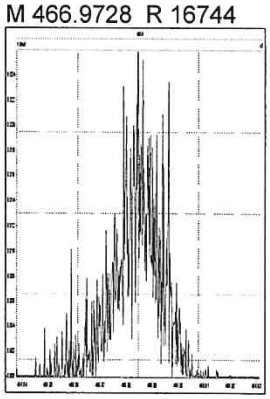
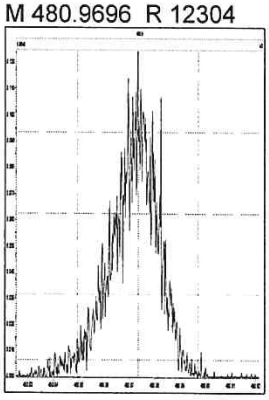
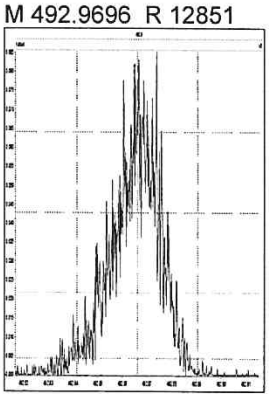


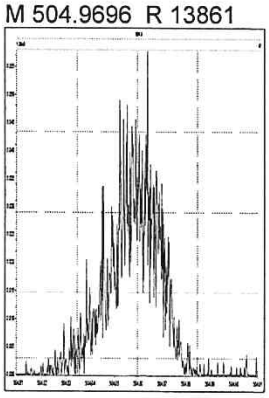
M 480.9696 R 12304



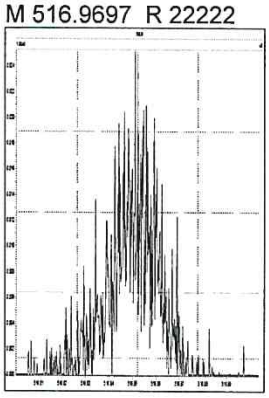
M 492.9696 R 12851



M 504.9696 R 13861



M 516.9697 R 22222



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

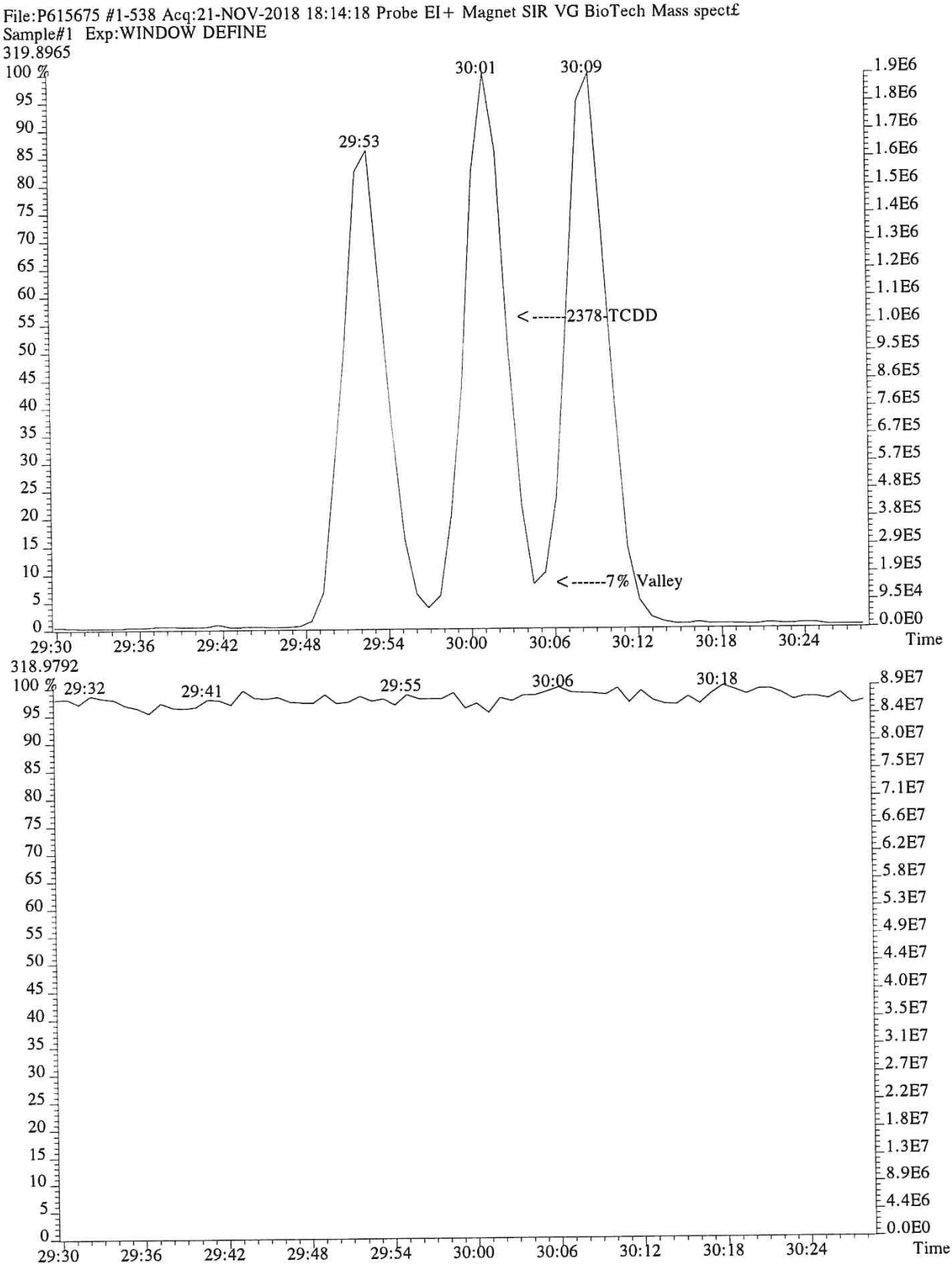
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P615675
Date Analyzed: 21-NOV-18
Time Analyzed: 18:14:18

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	25:13	31:08
TCDD	27:02	30:57
PeCDF	31:01	35:05
PeCDD	32:27	34:50
HxCDF	35:41	38:10
HxCDD	36:11	37:45
HpCDF	39:23	40:54
HpCDD	39:38	40:22

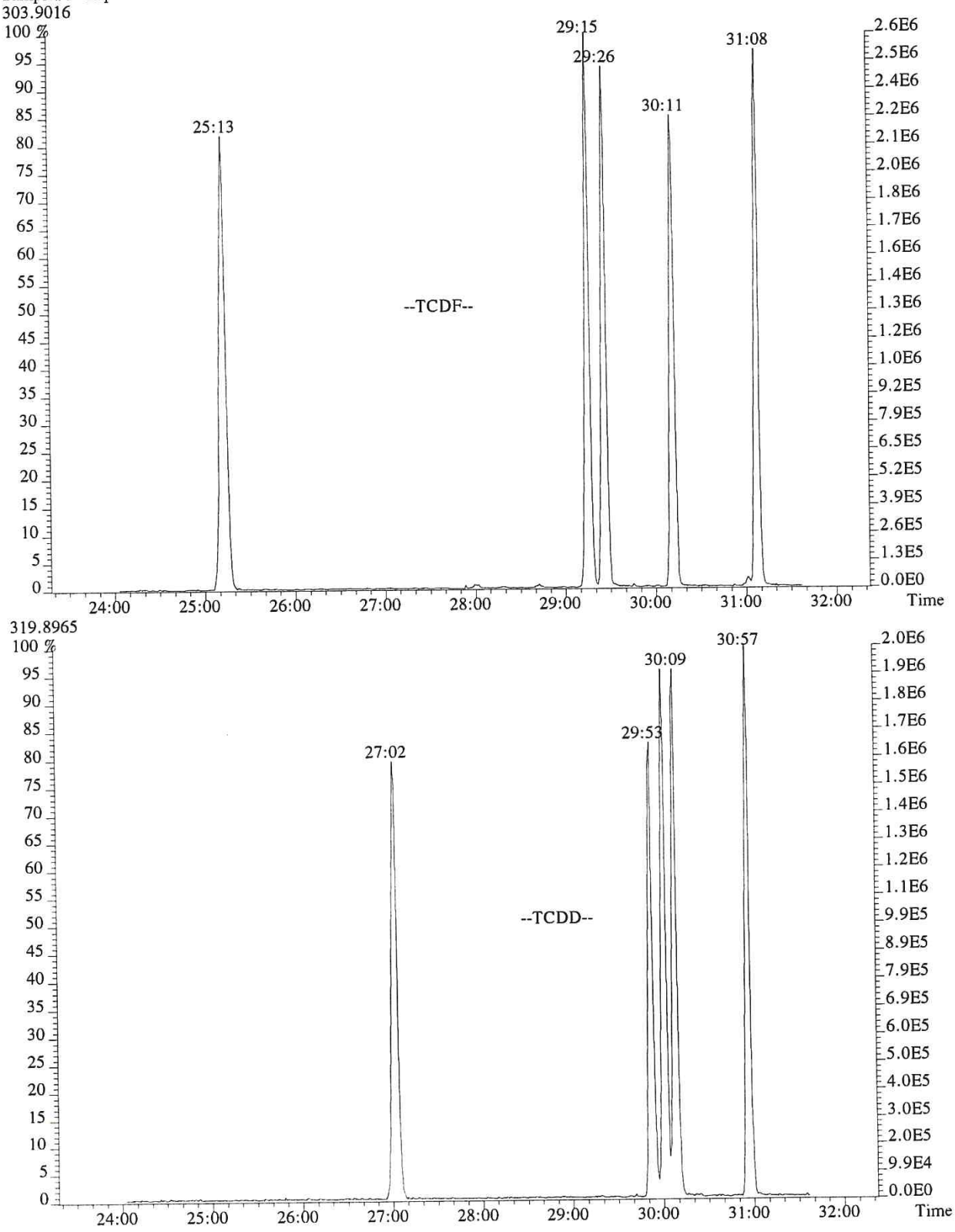
% Valley 2378-TCDD: 7 %

010667


File:P615675 #1-538 Acq:21-NOV-2018 18:14:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965
100 %
30:01
30:09
29:53
<------2378-TCDD
<------7% Valley
Time
318.9792
100 %
29:32
29:41
29:55
30:06
30:18
Time

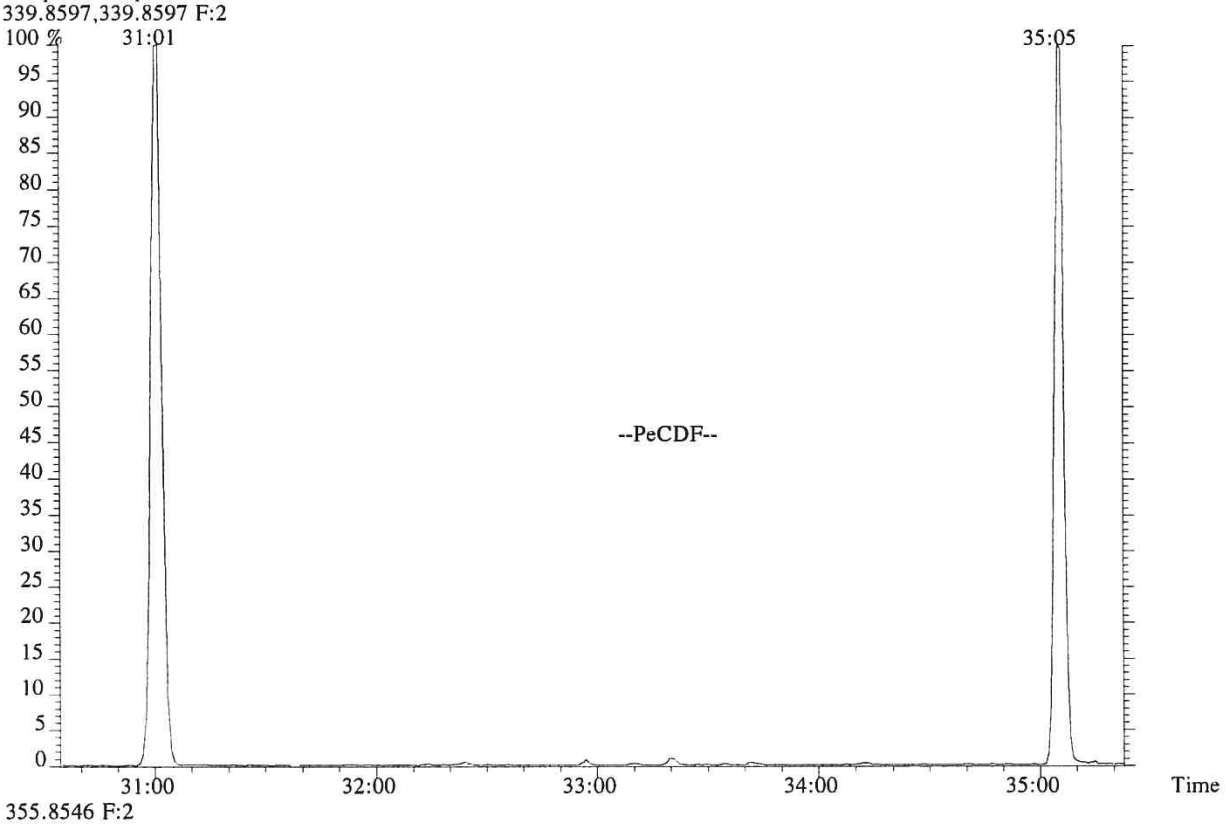
010668

File:P615675 #1-538 Acq:21-NOV-2018 18:14:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

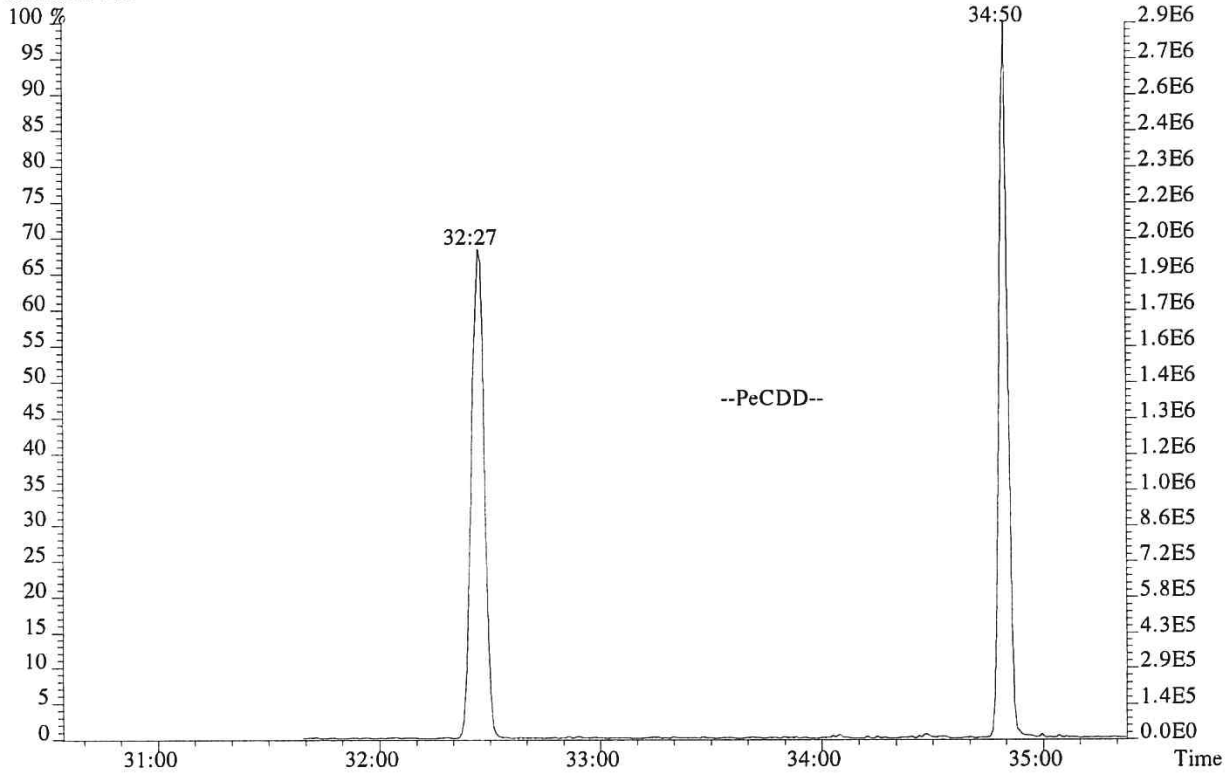


010669

File:P615675 #1-538 Acq:21-NOV-2018 18:14:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

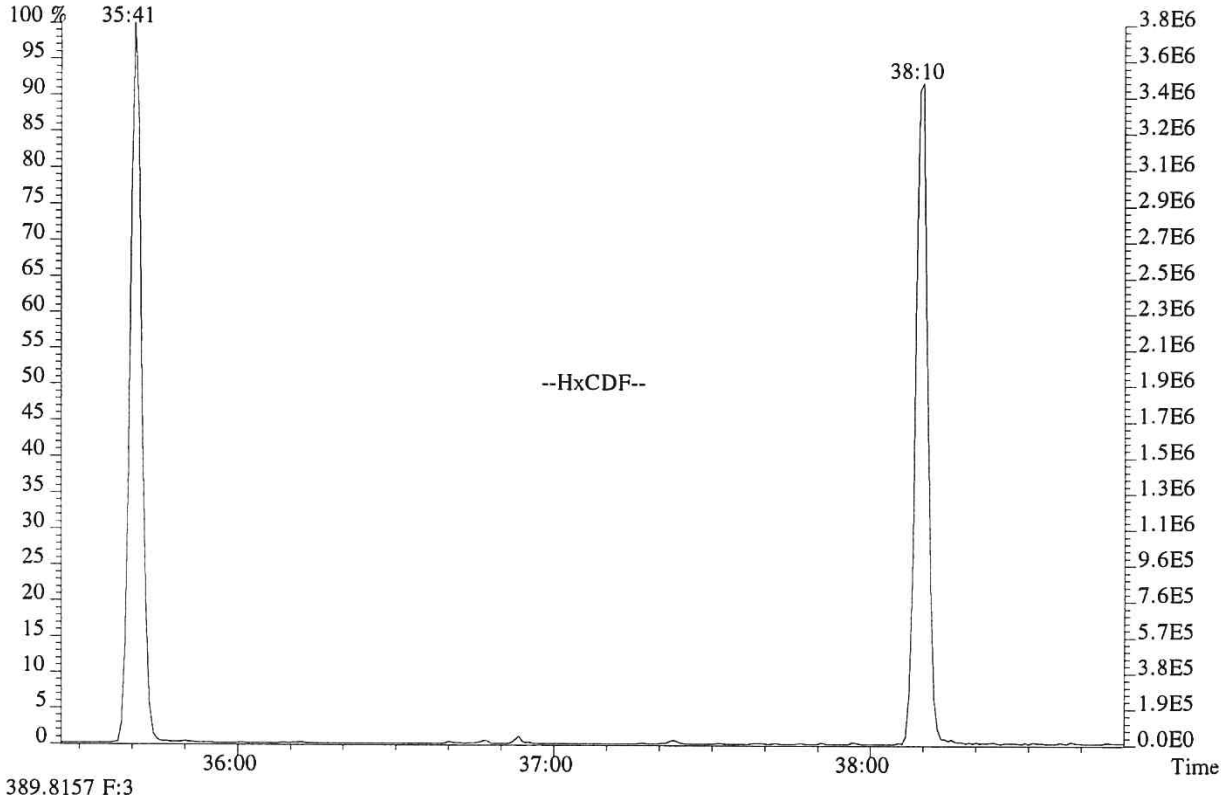


355.8546 F:2

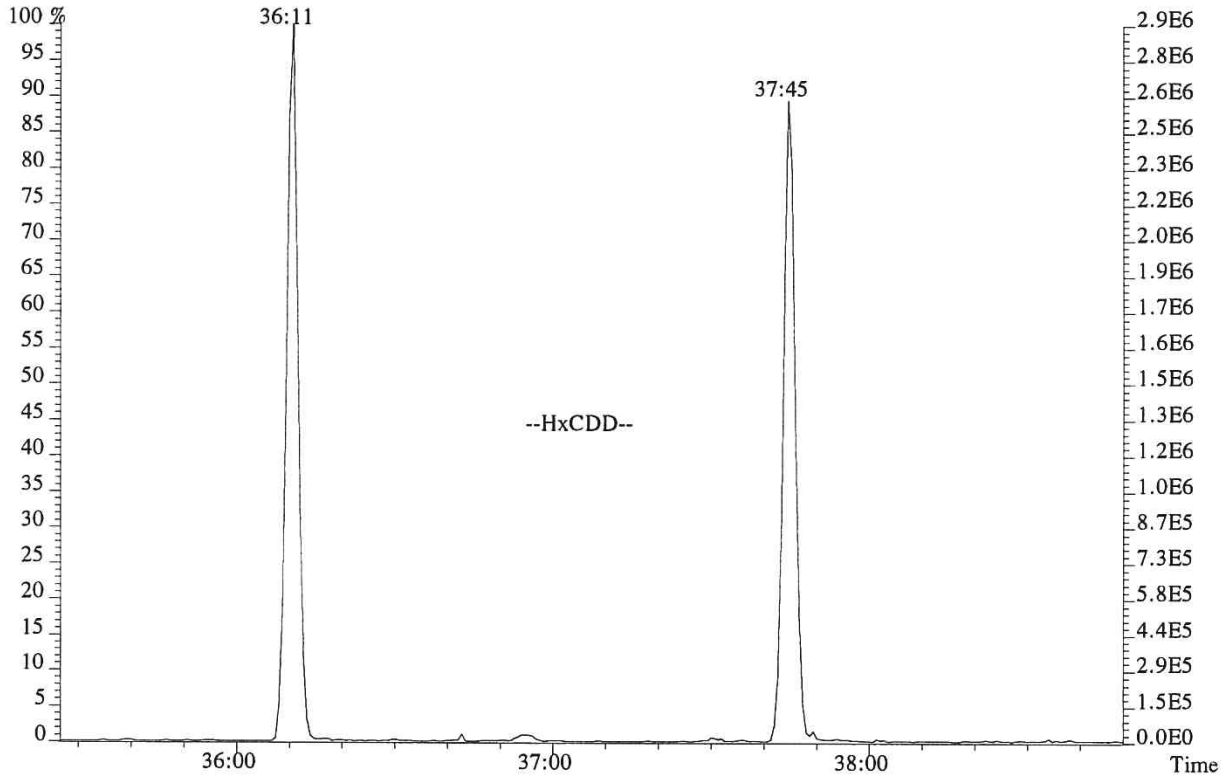


010670

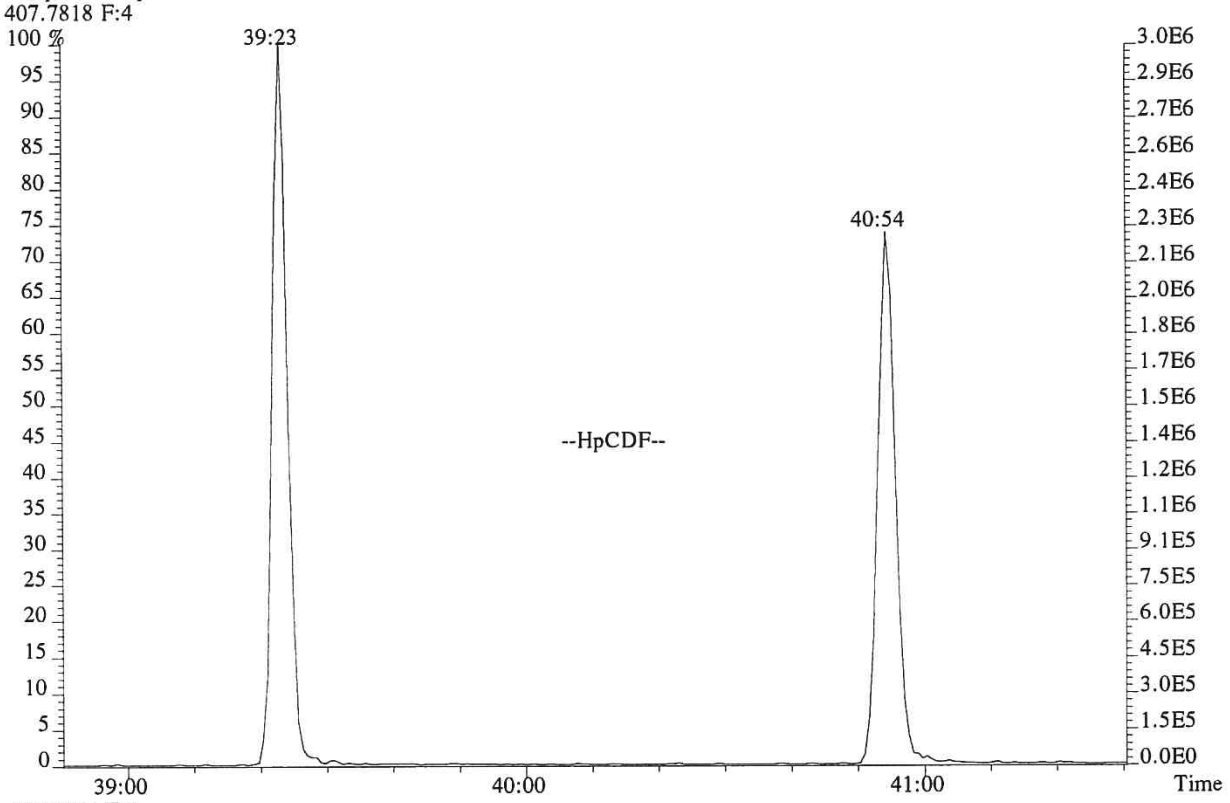
File:P615675 #1-303 Acq:21-NOV-2018 18:14:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

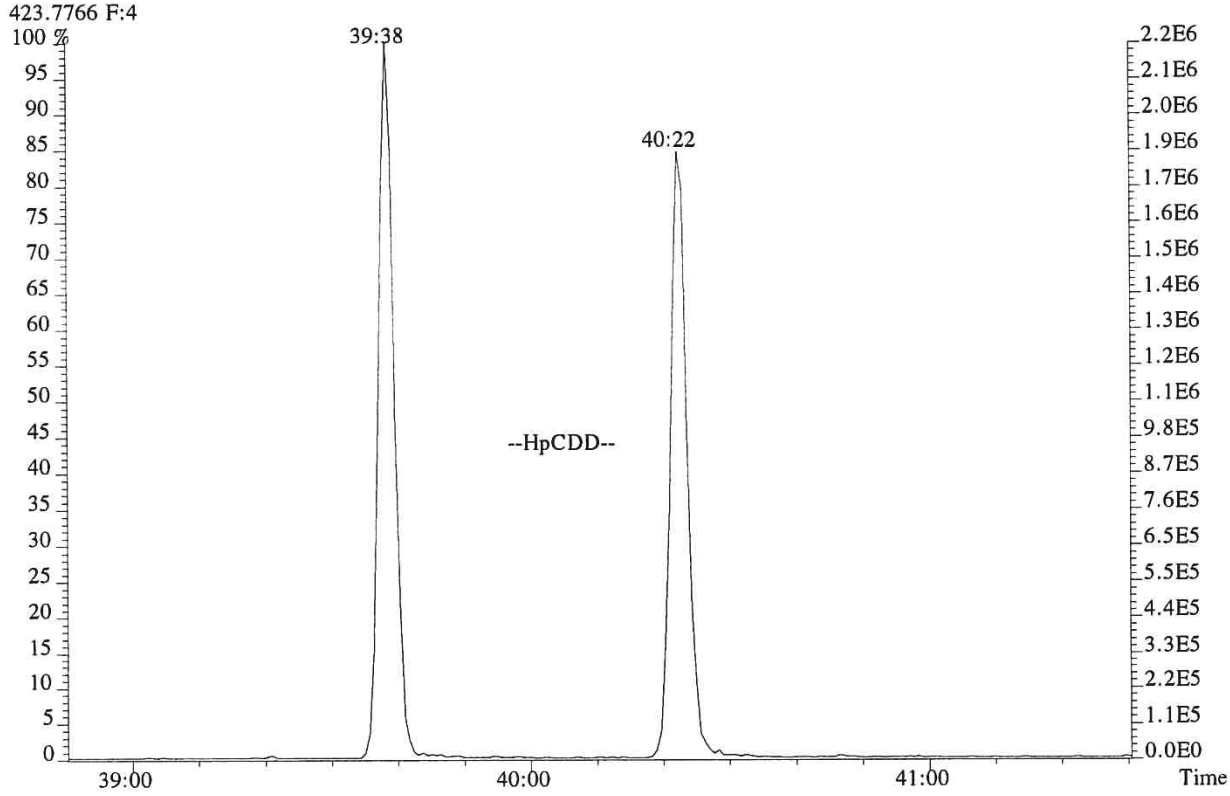


389.8157 F:3



File:P615675 #1-241 Acq:21-NOV-2018 18:14:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID : DB-5MSUI

VER Data Filename: P615674 Analysis Date: 21-NOV-18 Time: 17:25:15

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.87	0.65-0.89	9.3	7.8 - 12.9	-7.4
1,2,3,7,8-PeCDD	M+2/M+4	1.53	1.32-1.78	51	39 - 65	1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-1.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	50	41 - 61	-1.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.01	0.88-1.20	47	43 - 58	-6.9
OCDD	M+2/M+4	0.87	0.76-1.02	99	79 - 126	-1.3
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	9.5	8.4 - 12.0	-5.1
1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	46	41 - 60	-8.7
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	46	41 - 61	-7.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	45 - 56	-7.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	45	44 - 57	-9.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	47	45 - 56	-6.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	45	44 - 57	-9.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.08	0.88-1.20	46	45 - 55	-7.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	45	43 - 58	-9.3
OCDF	M+2/M+4	0.90	0.76-1.02	85	63 - 159	-15.2

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID : DB-5MSUI

VER Data Filename: P615674 Analysis Date: 21-NOV-18 Time: 17:25:15

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	103	82 - 121	3.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.53	1.32-1.78	94	62 - 160	-6.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	101	85 - 117	1.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.21	1.05-1.43	98	85 - 118	-2.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	101	72 - 138	1.4
13C-OCDD	M+2/M+4	0.90	0.76-1.02	188	96 - 415	-6.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	91	71 - 140	-9.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	89	76 - 130	-11.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	89	77 - 130	-11.1
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.55	0.43-0.59	92	76 - 131	-7.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.55	0.43-0.59	89	70 - 143	-11.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	93	74 - 135	-7.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	92	73 - 137	-7.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	87	78 - 129	-13.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	89	77 - 129	-10.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.9	7.8 - 12.7	-0.8

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P615674 Samp: 1 Inj: 1 Acquired: 21-NOV-18 17:25:15
Processed: 26-NOV-18 14:21:59 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:27	1.798e+03	2.265e+03	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:21	1.414e+04	8.895e+03	1.59	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:13	1.334e+04	8.571e+03	1.56	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:47	1.244e+04	1.004e+04	1.24	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:53	1.233e+04	9.956e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:23	1.183e+04	9.673e+03	1.22	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:09	1.157e+04	9.227e+03	1.25	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:23	1.056e+04	9.811e+03	1.08	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:54	8.823e+03	8.479e+03	1.04	yes	no	1.463
10	Unk	OCDF	43:39	1.258e+04	1.399e+04	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	30:09	1.413e+03	1.621e+03	0.87	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:29	9.200e+03	6.030e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:31	8.598e+03	6.931e+03	1.24	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:36	8.274e+03	6.550e+03	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:50	9.028e+03	7.413e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:23	7.303e+03	7.214e+03	1.01	yes	no	1.112
17	Unk	OCDD	43:25	1.061e+04	1.219e+04	0.87	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:26	1.747e+04	2.216e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:20	2.649e+04	1.714e+04	1.55	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:12	2.644e+04	1.658e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:47	1.219e+04	2.228e+04	0.55	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:53	1.352e+04	2.477e+04	0.55	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:23	1.278e+04	2.442e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:08	1.165e+04	2.217e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:22	8.993e+03	1.987e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:54	8.194e+03	1.788e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	30:08	1.371e+04	1.751e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:28	1.961e+04	1.285e+04	1.53	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:30	1.653e+04	1.298e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:35	1.561e+04	1.288e+04	1.21	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:22	1.446e+04	1.358e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	43:24	1.887e+04	2.103e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:36	1.347e+04	1.735e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:49	1.795e+04	1.431e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:09	3.321e+03				no	1.086

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P615674 Samp: 1 Inj: 1 Acquired: 21-NOV-18 17:25:15
Processed: 26-NOV-18 14:21:59 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.74e+05	6.88e+02	5.4e+02	4.66e+05	1.00e+03	4.7e+02
2	1,2,3,7,8-PeCDF	2.81e+06	6.00e+02	4.7e+03	1.78e+06	9.40e+02	1.9e+03
3	2,3,4,7,8-PeCDF	2.83e+06	6.00e+02	4.7e+03	1.83e+06	9.40e+02	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.77e+06	4.32e+02	6.4e+03	2.21e+06	4.64e+02	4.8e+03
5	1,2,3,6,7,8-HxCDF	2.76e+06	4.32e+02	6.4e+03	2.19e+06	4.64e+02	4.7e+03
6	2,3,4,6,7,8-HxCDF	2.65e+06	4.32e+02	6.1e+03	2.17e+06	4.64e+02	4.7e+03
7	1,2,3,7,8,9-HxCDF	2.54e+06	4.32e+02	5.9e+03	2.02e+06	4.64e+02	4.3e+03
8	1,2,3,4,6,7,8-HpCDF	2.29e+06	1.03e+03	2.2e+03	2.10e+06	1.24e+03	1.7e+03
9	1,2,3,4,7,8,9-HpCDF	1.70e+06	1.03e+03	1.6e+03	1.62e+06	1.24e+03	1.3e+03
10	OCDF	2.01e+06	4.04e+02	5.0e+03	2.26e+06	1.35e+03	1.7e+03
11	2,3,7,8-TCDD	3.05e+05	2.61e+03	1.2e+02	3.38e+05	7.68e+02	4.4e+02
12	1,2,3,7,8-PeCDD	1.95e+06	4.00e+02	4.9e+03	1.28e+06	4.08e+02	3.1e+03
13	1,2,3,4,7,8-HxCDD	1.96e+06	2.64e+02	7.4e+03	1.57e+06	3.28e+02	4.8e+03
14	1,2,3,6,7,8-HxCDD	1.87e+06	2.64e+02	7.1e+03	1.48e+06	3.28e+02	4.5e+03
15	1,2,3,7,8,9-HxCDD	1.99e+06	2.64e+02	7.6e+03	1.63e+06	3.28e+02	5.0e+03
16	1,2,3,4,6,7,8-HpCDD	1.49e+06	3.60e+02	4.1e+03	1.47e+06	4.80e+02	3.1e+03
17	OCDD	1.74e+06	5.60e+02	3.1e+03	1.98e+06	6.16e+02	3.2e+03
18	13C-2,3,7,8-TCDF	3.55e+06	7.42e+03	4.8e+02	4.58e+06	5.20e+03	8.8e+02
19	13C-1,2,3,7,8-PeCDF	5.39e+06	4.36e+02	1.2e+04	3.52e+06	8.96e+02	3.9e+03
20	13C-2,3,4,7,8-PeCDF	5.60e+06	4.36e+02	1.3e+04	3.53e+06	8.96e+02	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	2.66e+06	7.72e+02	3.4e+03	4.89e+06	9.12e+02	5.4e+03
22	13C-1,2,3,6,7,8-HxCDF	3.00e+06	7.72e+02	3.9e+03	5.48e+06	9.12e+02	6.0e+03
23	13C-2,3,4,6,7,8-HxCDF	2.93e+06	7.72e+02	3.8e+03	5.39e+06	9.12e+02	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	2.55e+06	7.72e+02	3.3e+03	4.82e+06	9.12e+02	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.89e+06	1.54e+03	1.2e+03	4.13e+06	1.96e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.60e+06	1.54e+03	1.0e+03	3.48e+06	1.96e+03	1.8e+03
27	13C-2,3,7,8-TCDD	2.99e+06	1.16e+04	2.6e+02	3.73e+06	2.03e+03	1.8e+03
28	13C-1,2,3,7,8-PeCDD	4.27e+06	6.48e+02	6.6e+03	2.76e+06	1.58e+03	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	3.74e+06	5.16e+02	7.2e+03	2.94e+06	2.76e+02	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	3.52e+06	5.16e+02	6.8e+03	2.87e+06	2.76e+02	1.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.88e+06	6.16e+02	4.7e+03	2.77e+06	2.88e+02	9.6e+03
32	13C-OCDD	3.06e+06	5.96e+02	5.1e+03	3.43e+06	4.16e+02	8.2e+03
33	13C-1,2,3,4-TCDD	2.75e+06	1.16e+04	2.4e+02	3.53e+06	2.03e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	3.94e+06	5.16e+02	7.6e+03	3.14e+06	2.76e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	7.18e+05	8.20e+02	8.8e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.612e{+}03 + 7.680e{+}02) \times 100}{(2.988e{+}06 + 3.726e{+}06) \times (\quad) \times 1.049} =$$

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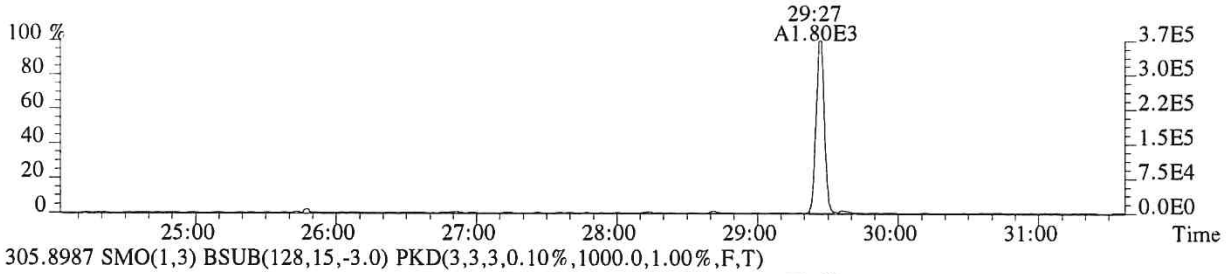
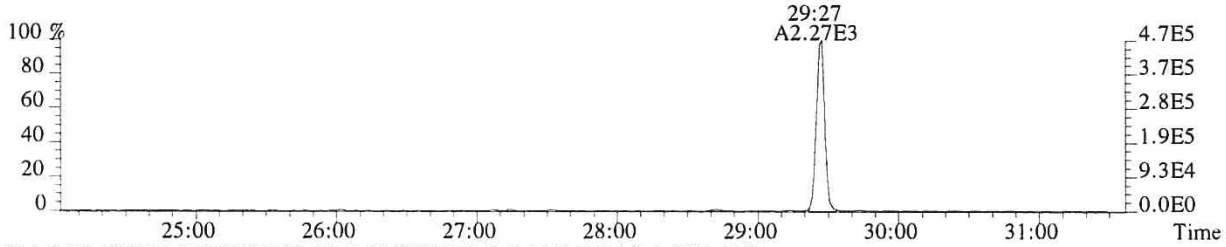
File:P615674 #1-538 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

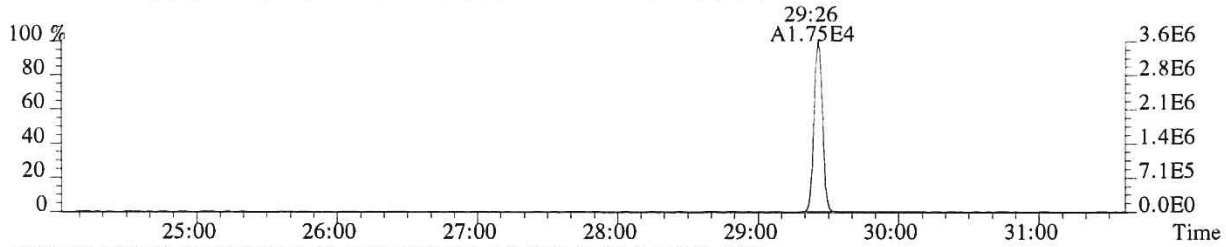
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



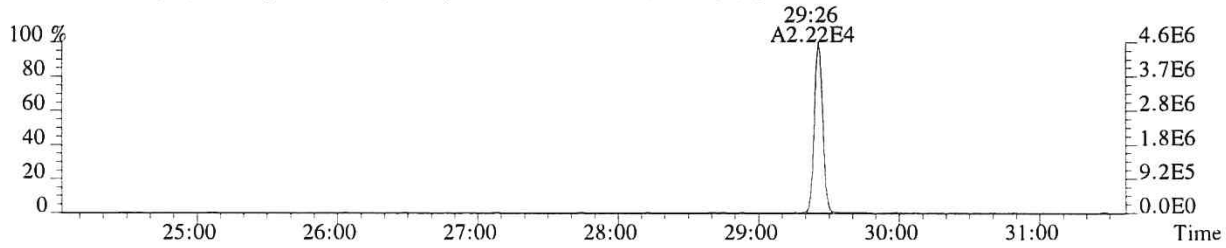
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



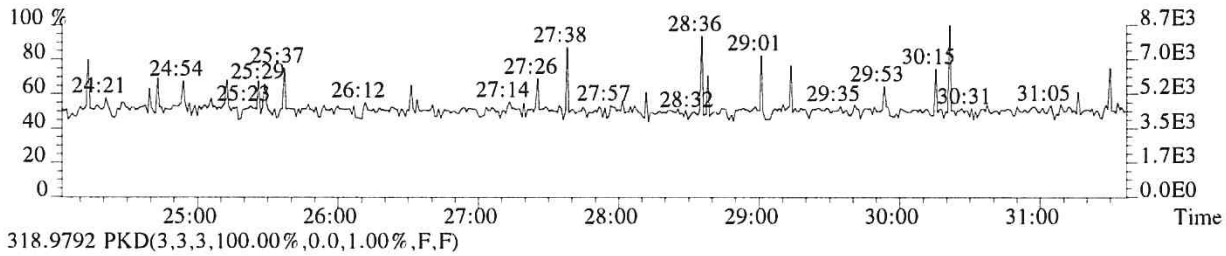
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7424.0,1.00%,F,T)



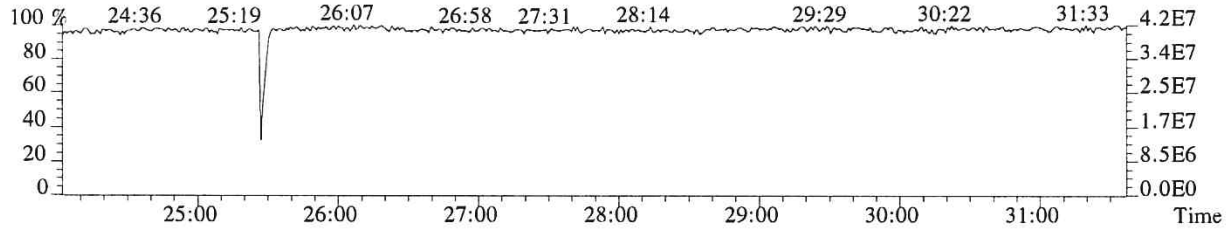
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5196.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



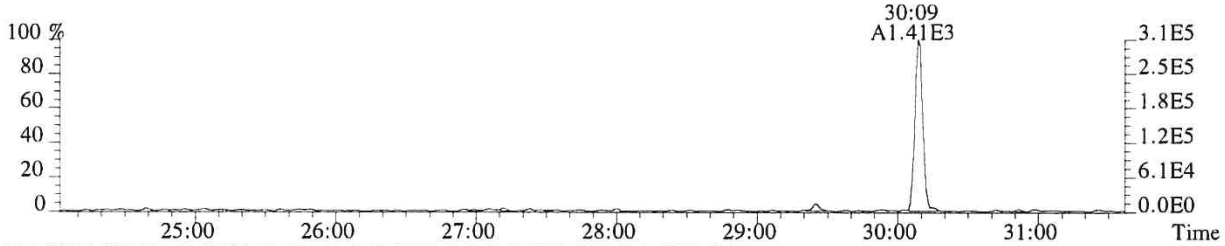
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



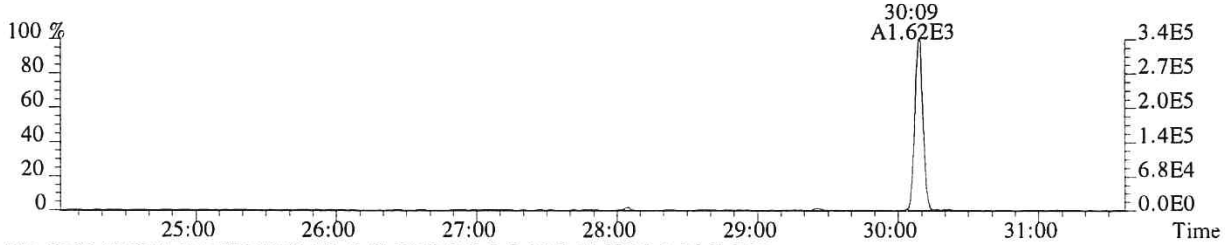
010677

File:P615674 #1-538 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

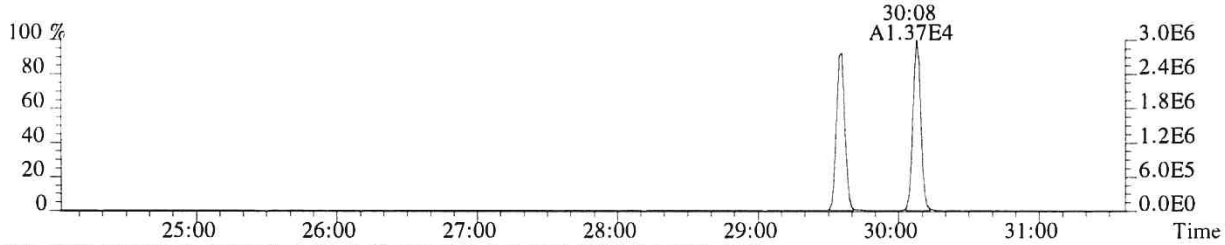
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2612.0,1.00%,F,T)



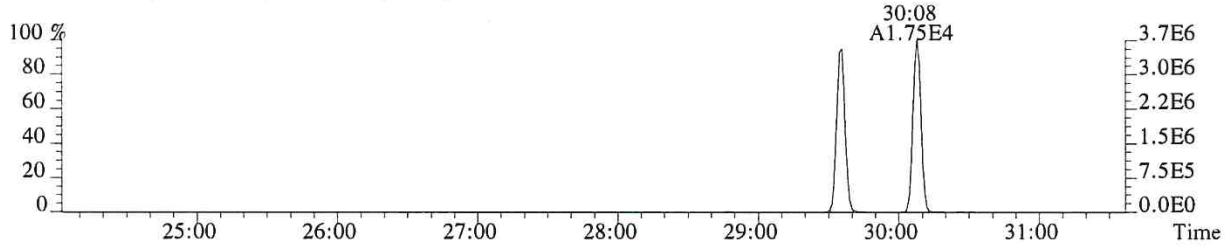
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



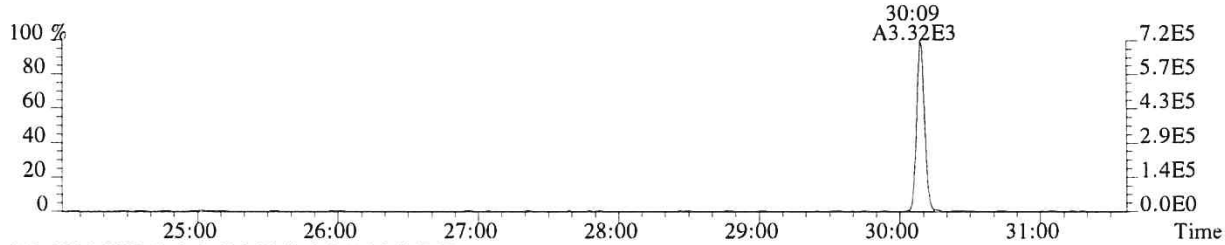
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11608.0,1.00%,F,T)



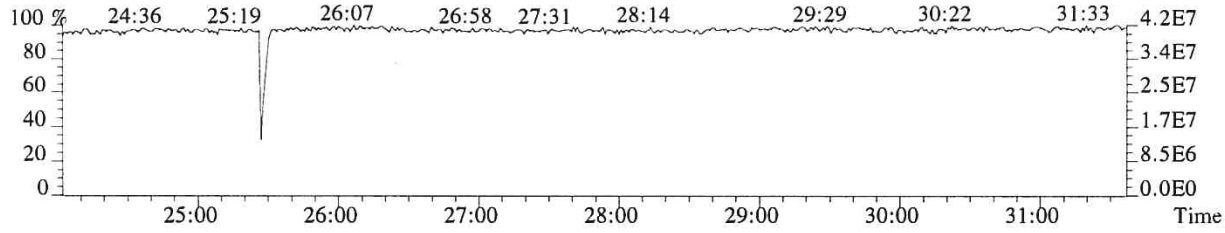
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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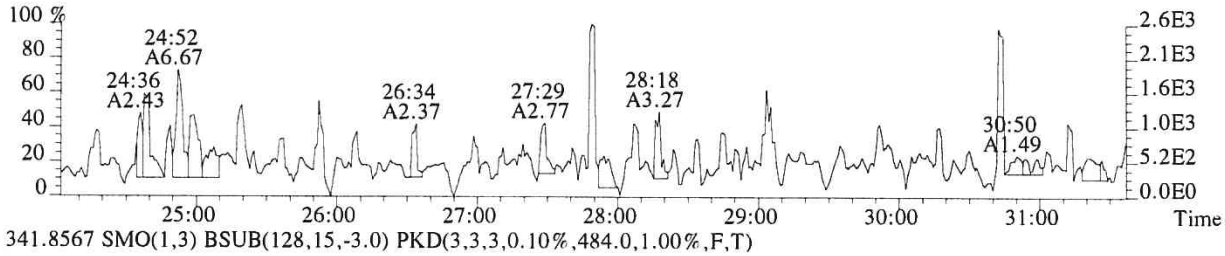
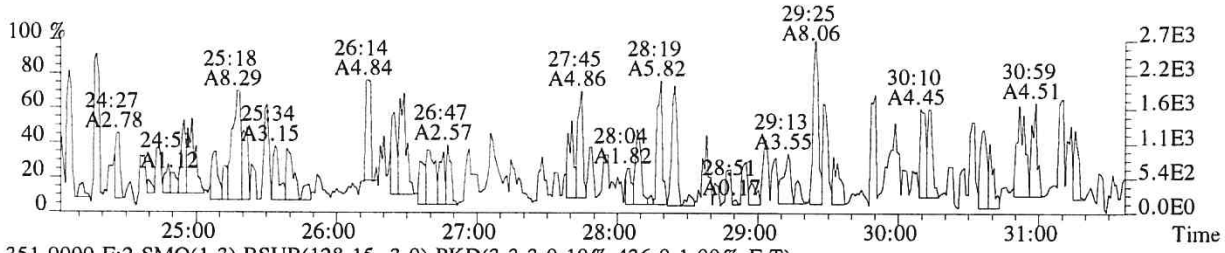
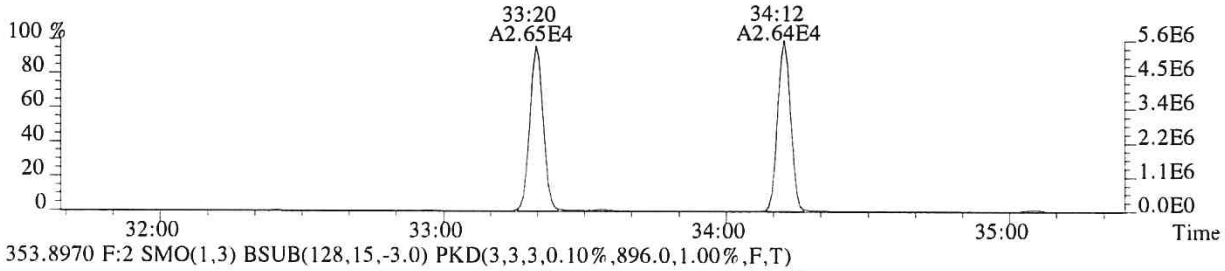
File:P615674 #1-538 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



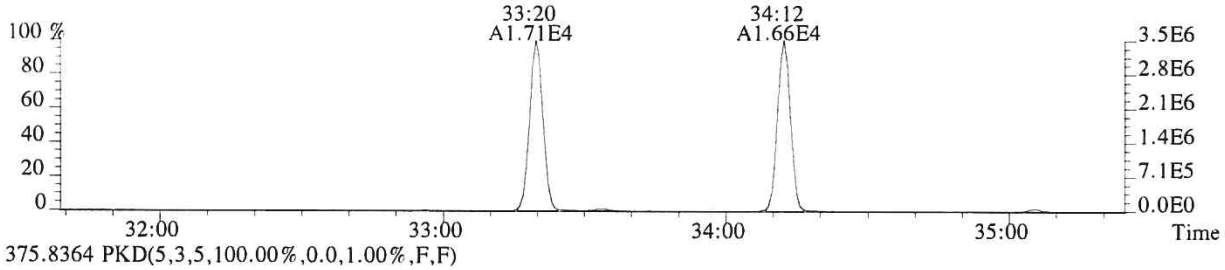
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



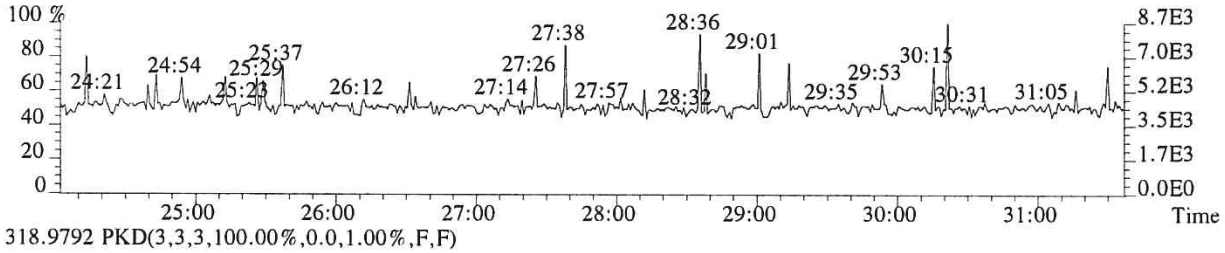
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



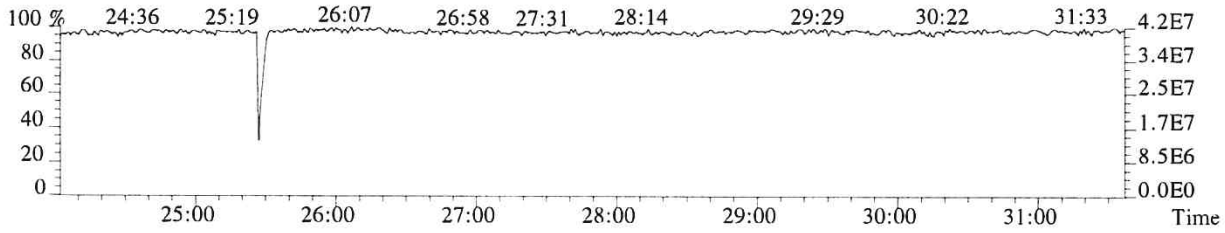
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



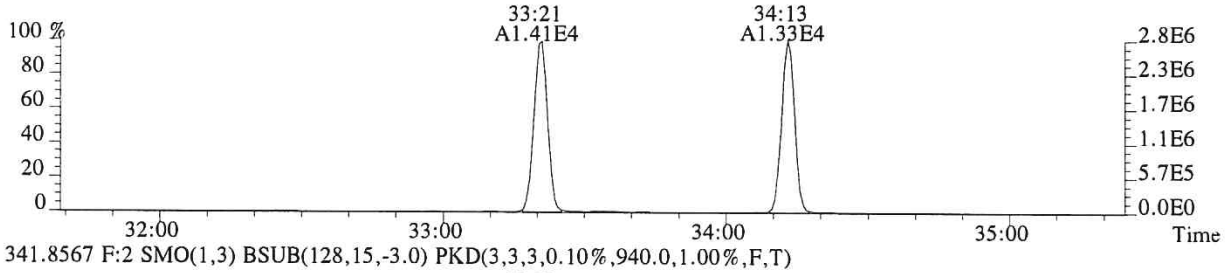
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



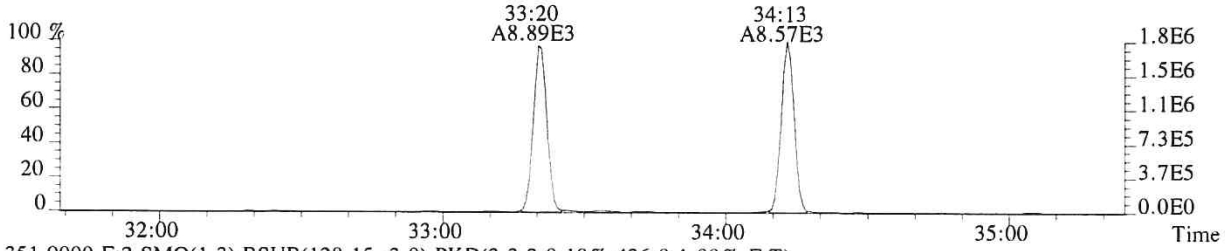
010679

File:P615674 #1-339 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

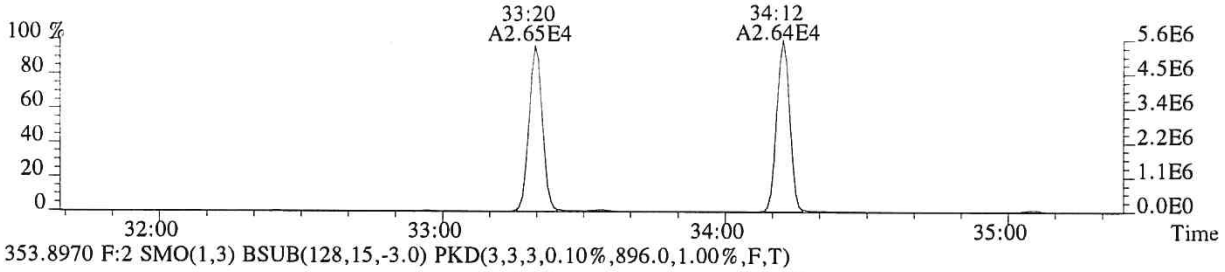
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



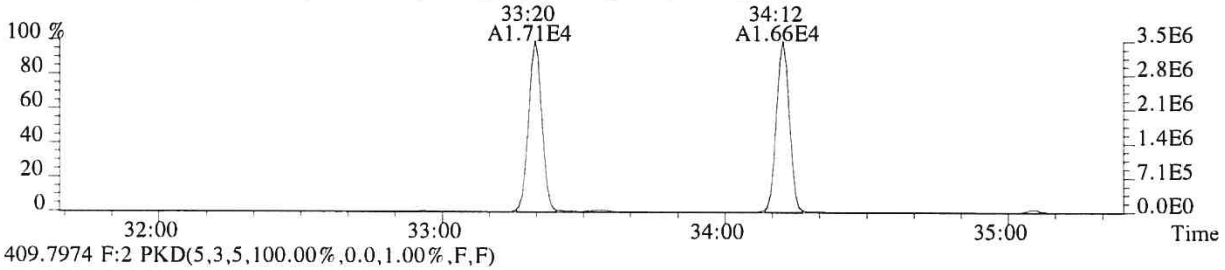
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



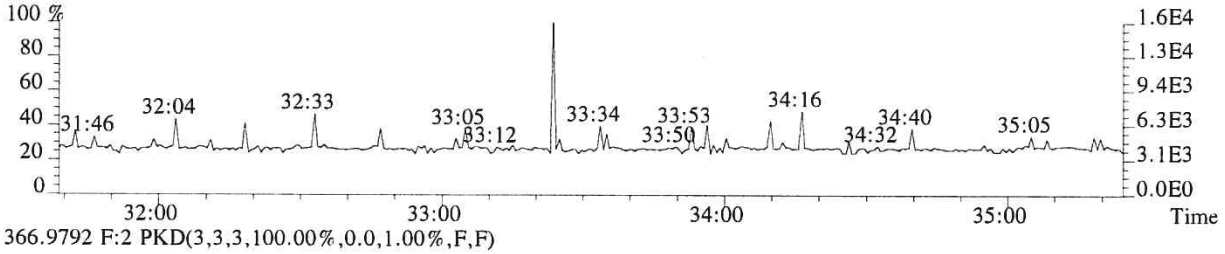
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



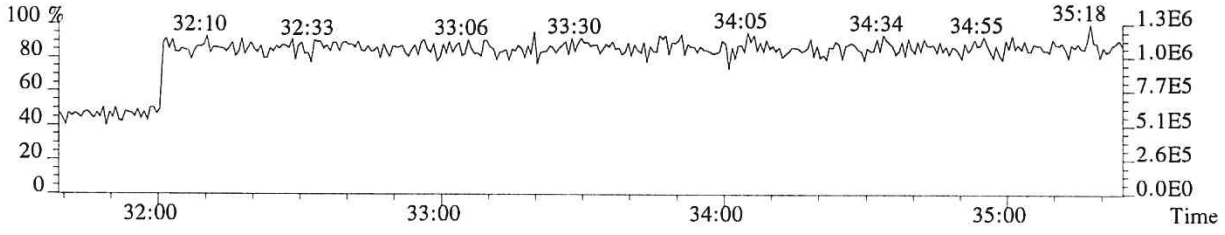
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



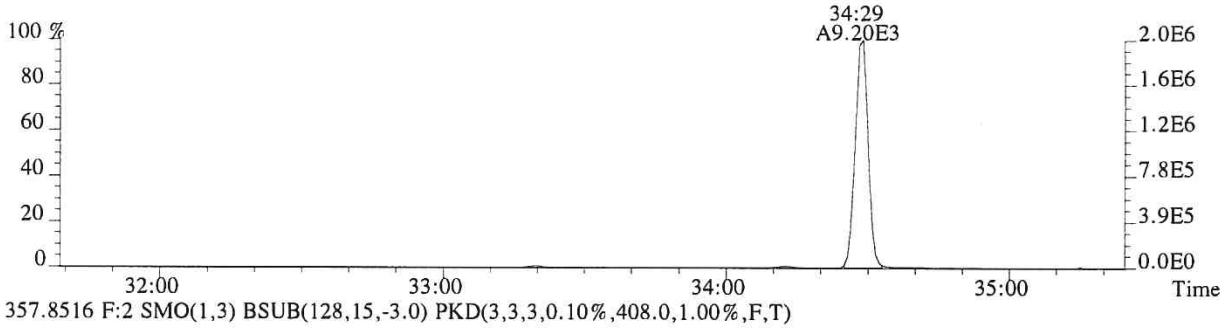
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



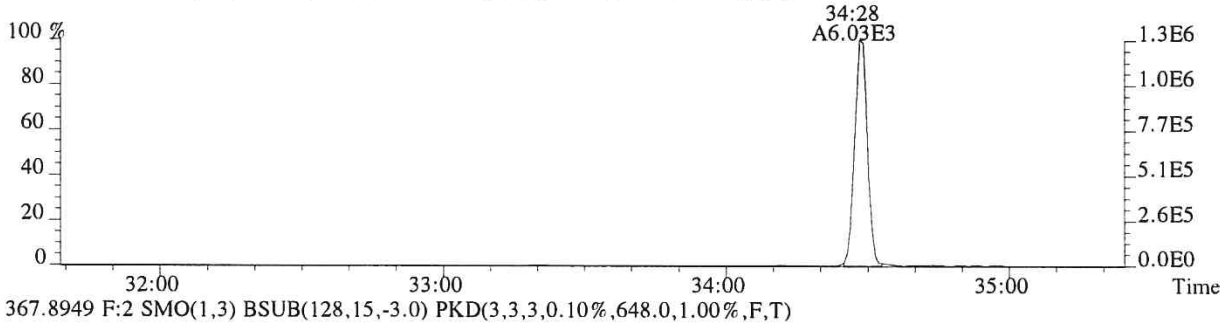
010680

File:P615674 #1-339 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

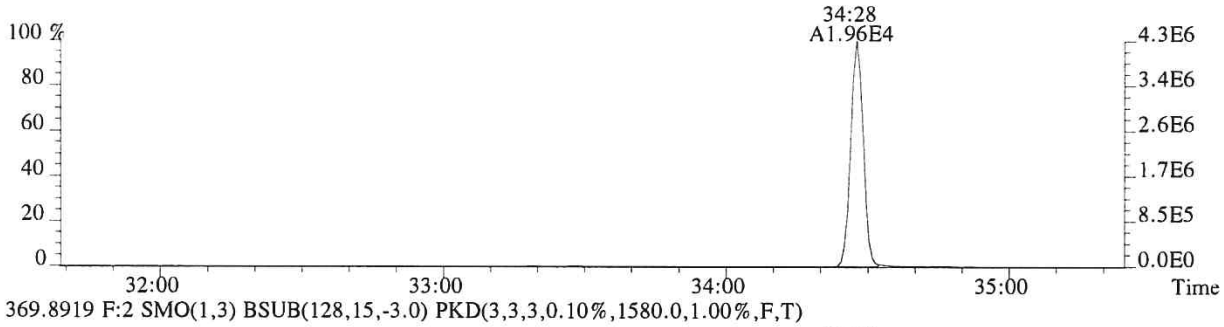
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



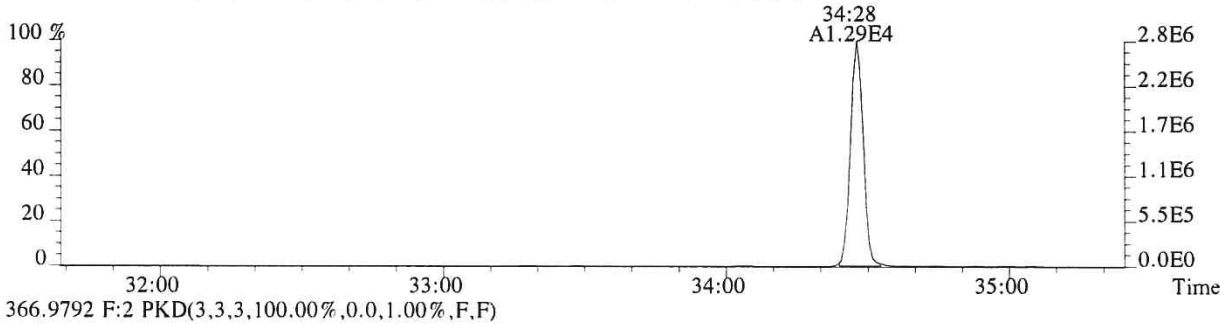
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



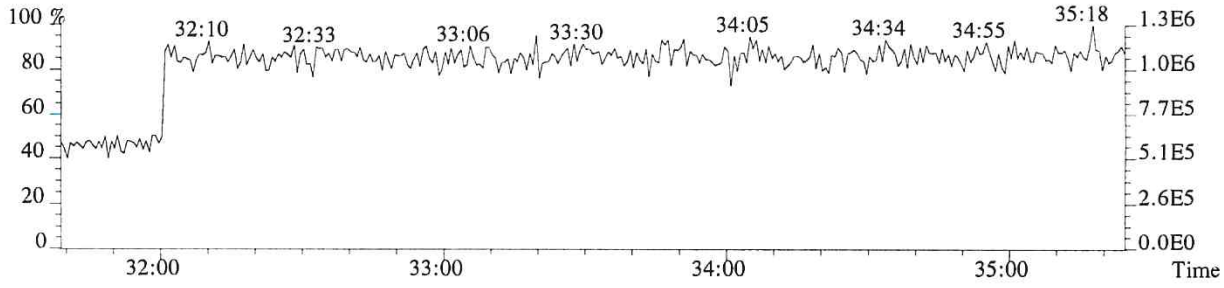
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)

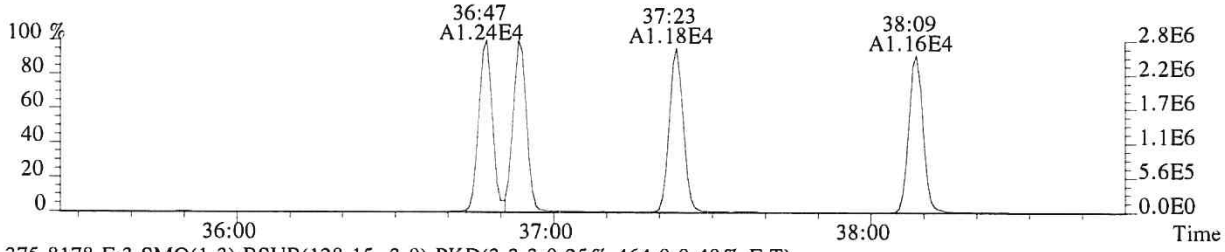


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

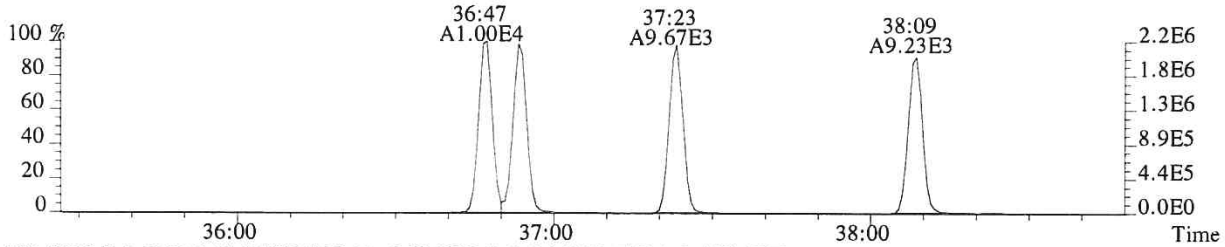


File:P615674 #1-303 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

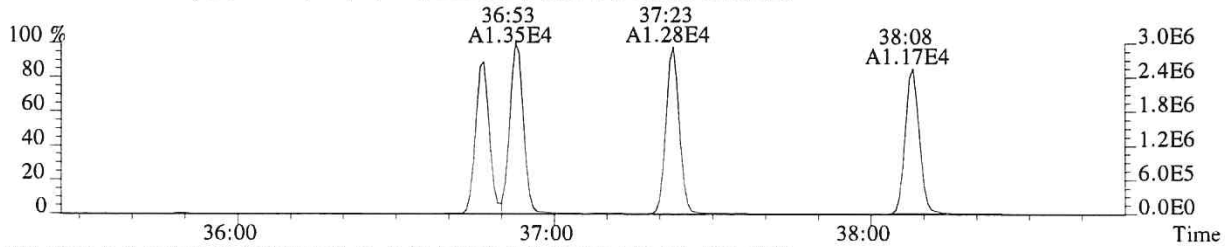
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



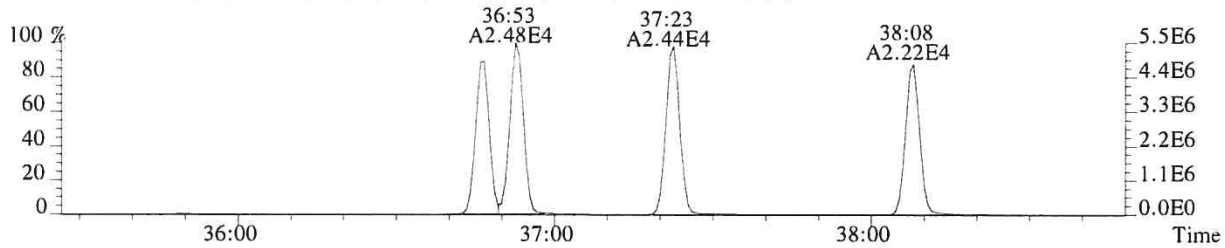
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



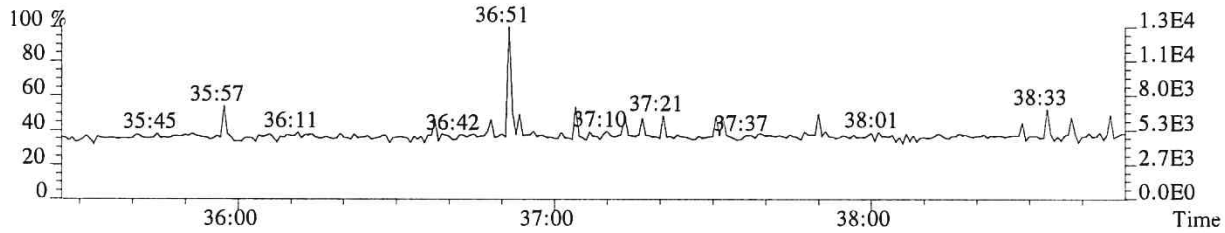
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



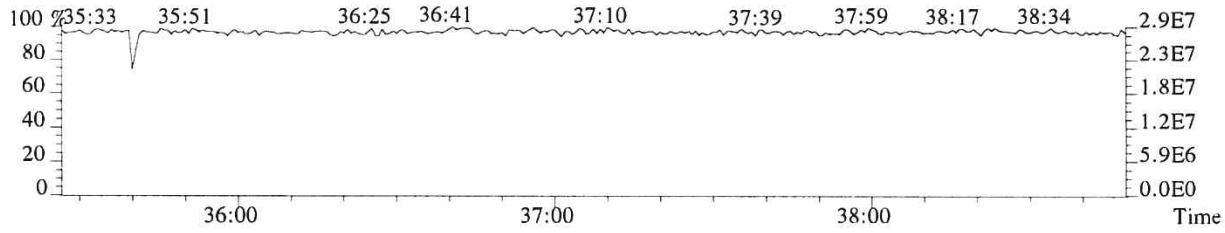
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



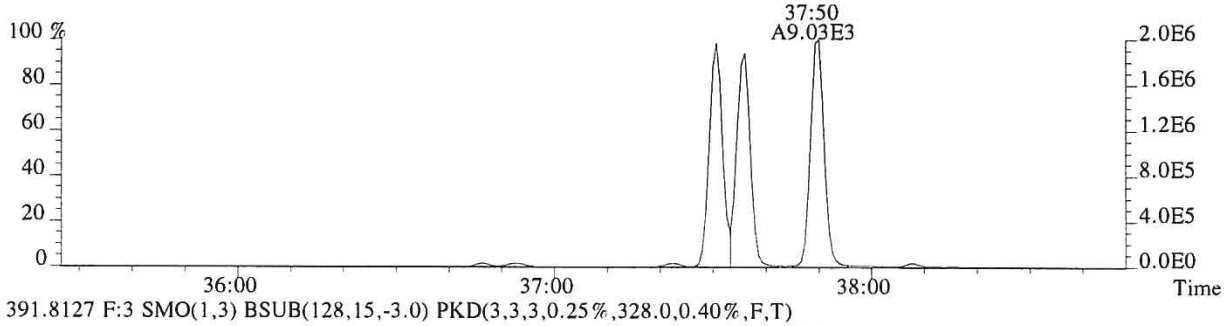
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



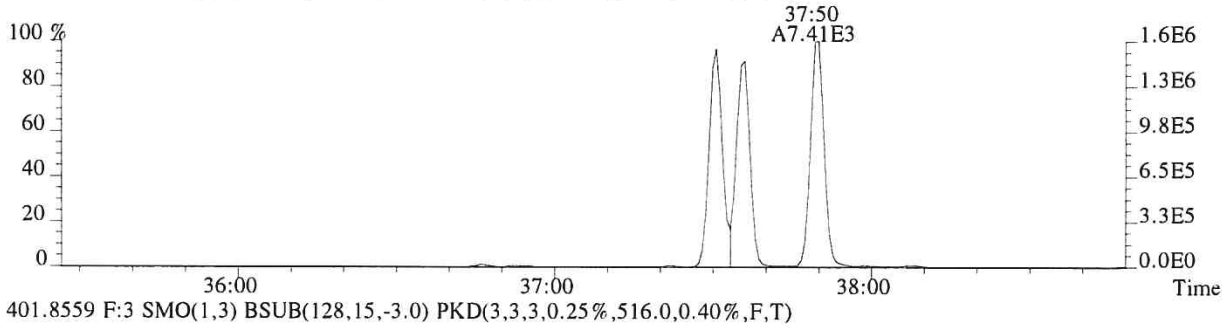
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



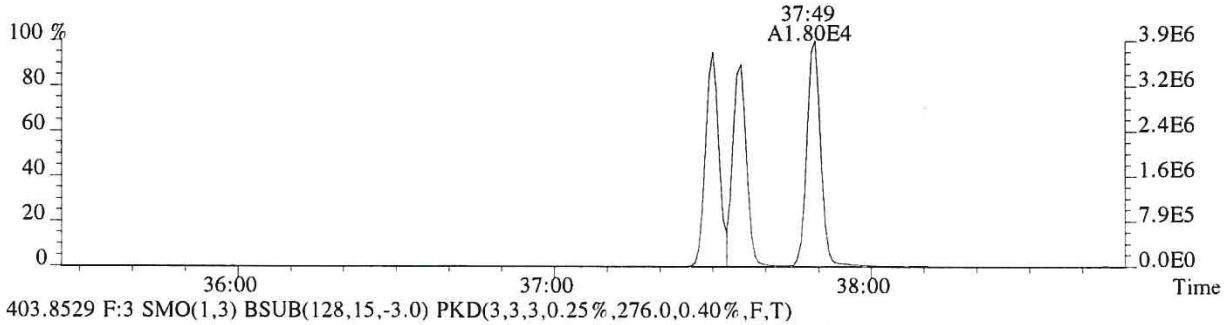
File:P615674 #1-303 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



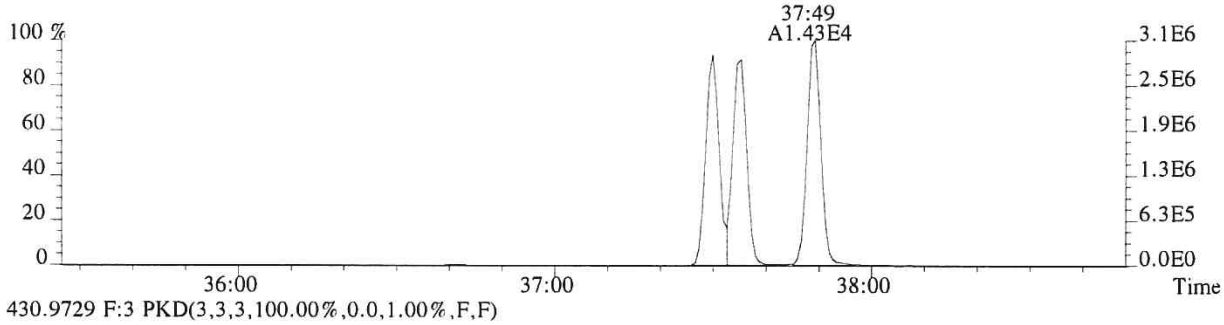
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



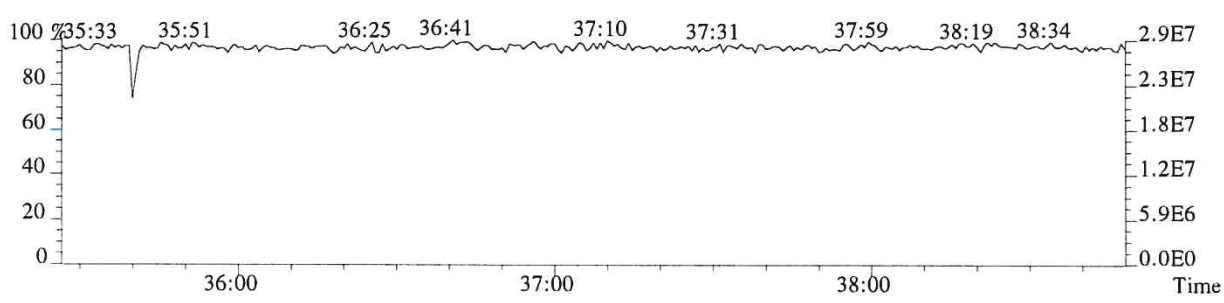
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)

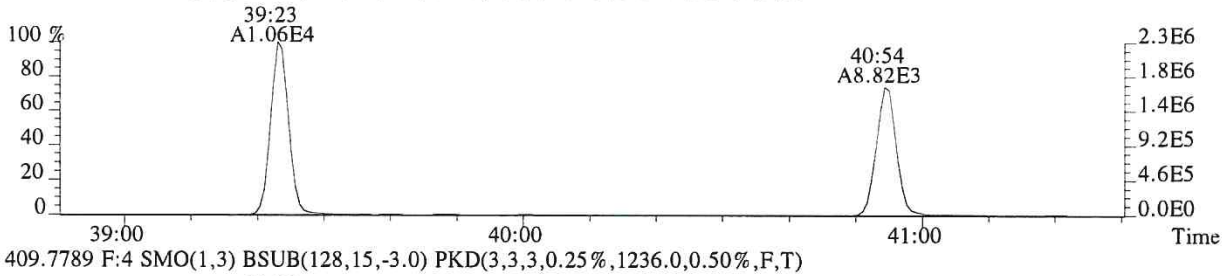


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

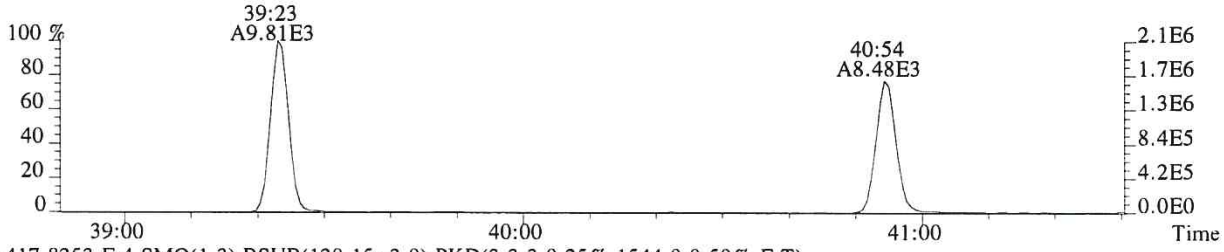


File:P615674 #1-241 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

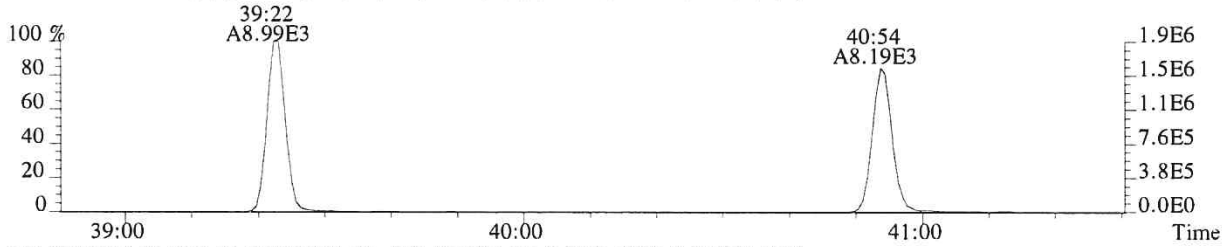
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1028.0,0.50%,F,T)



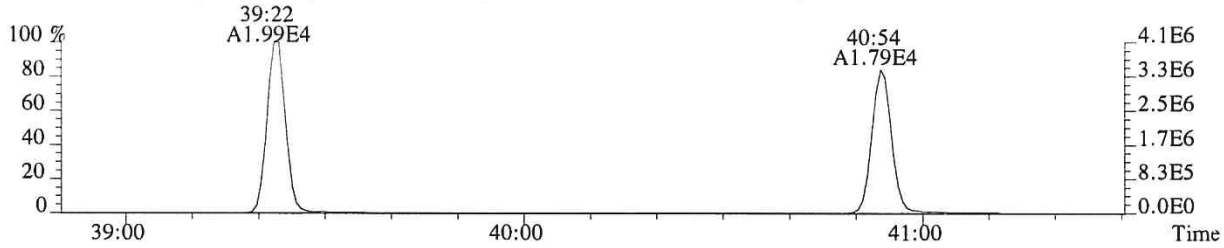
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.50%,F,T)



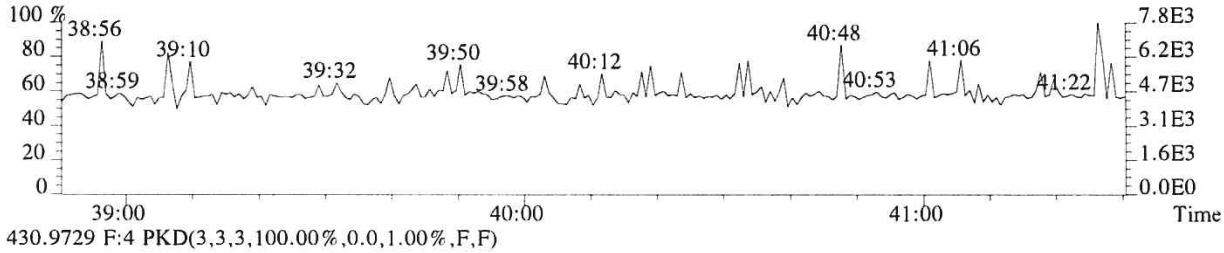
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.50%,F,T)



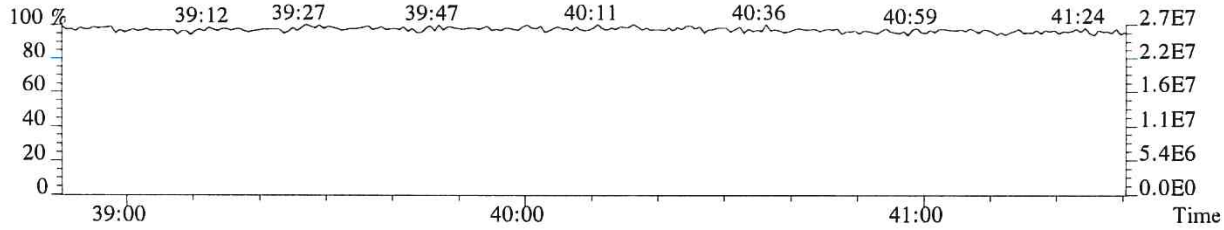
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1960.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

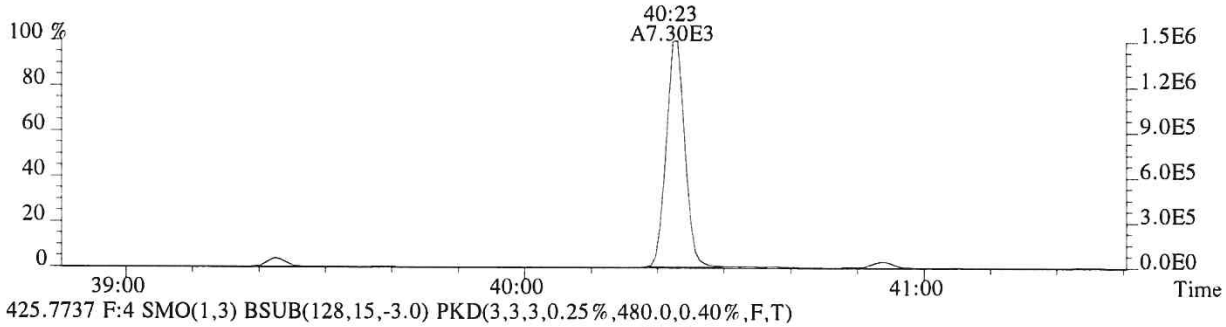


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

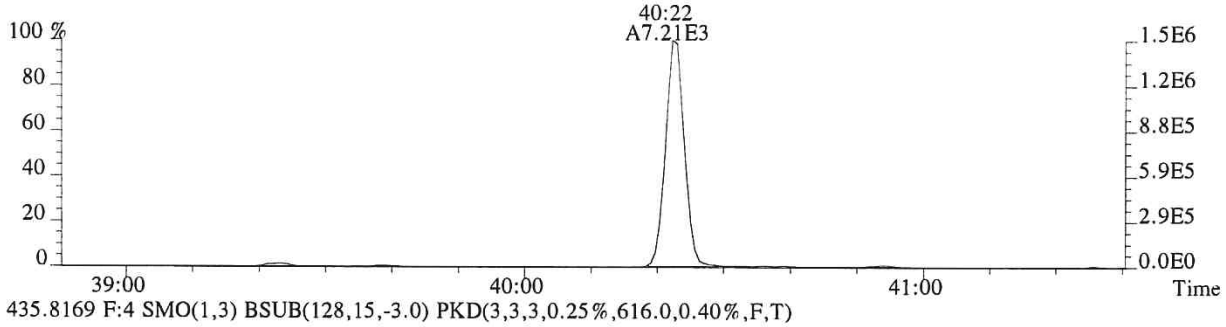


010684

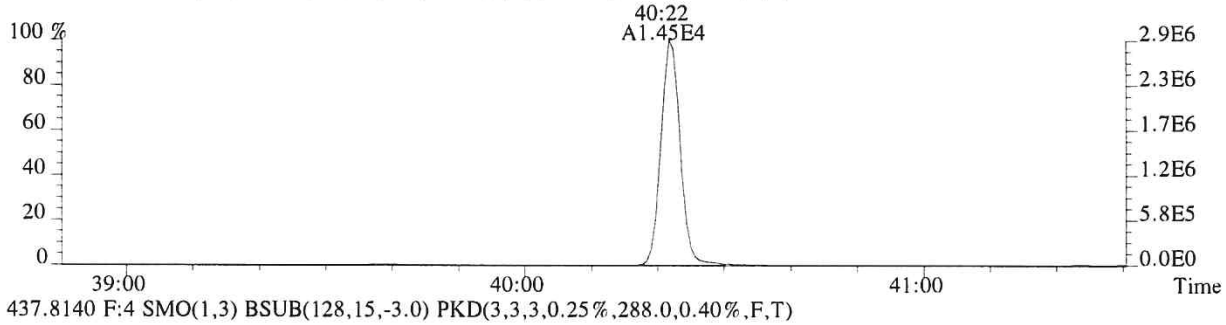
File:P615674 #1-241 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



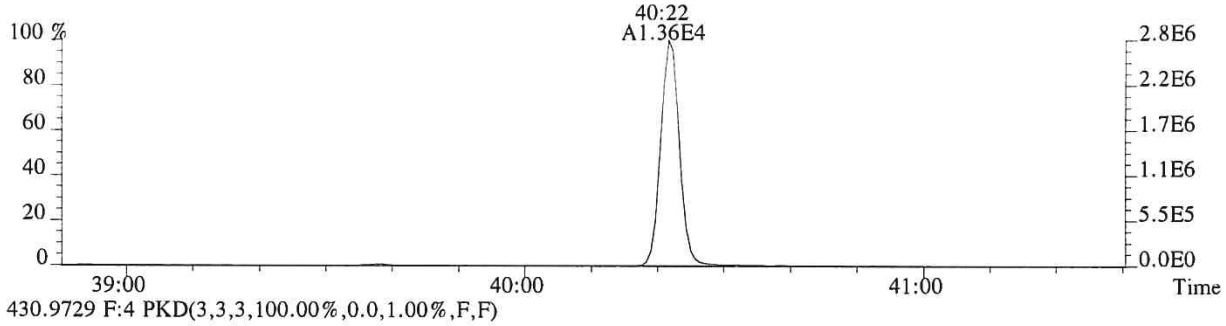
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



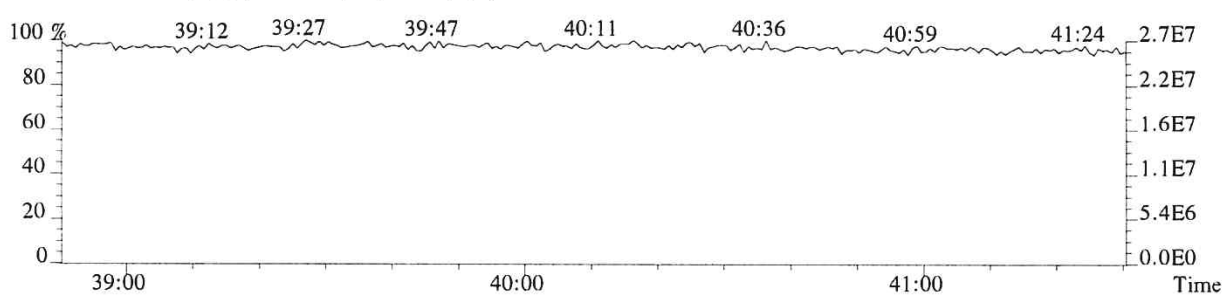
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)

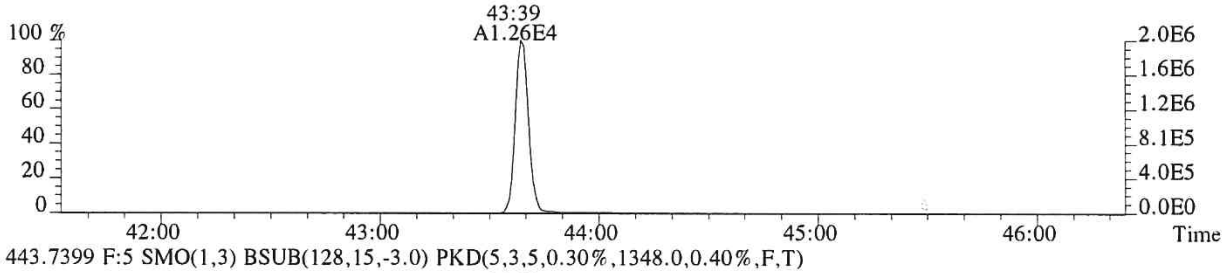


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

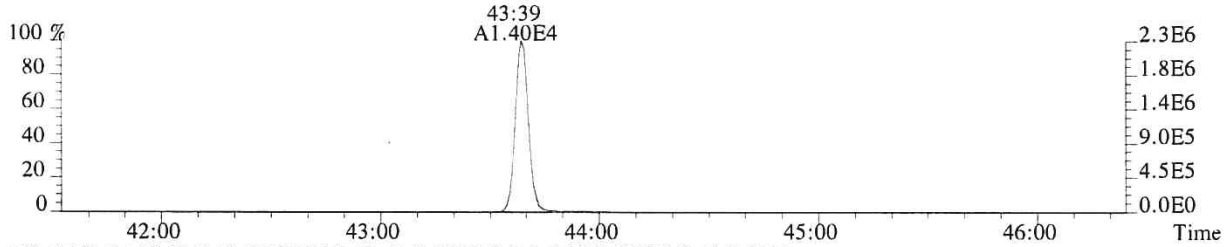


File:P615674 #1-438 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

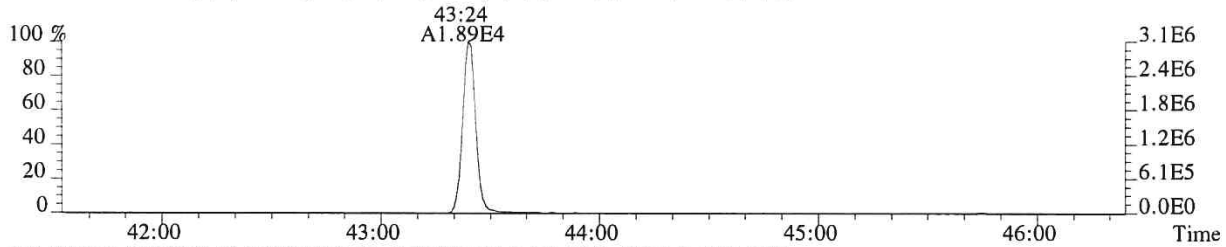
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



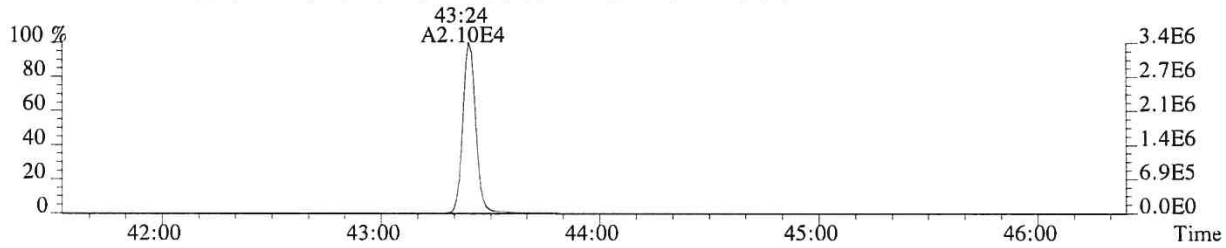
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1348.0,0.40%,F,T)



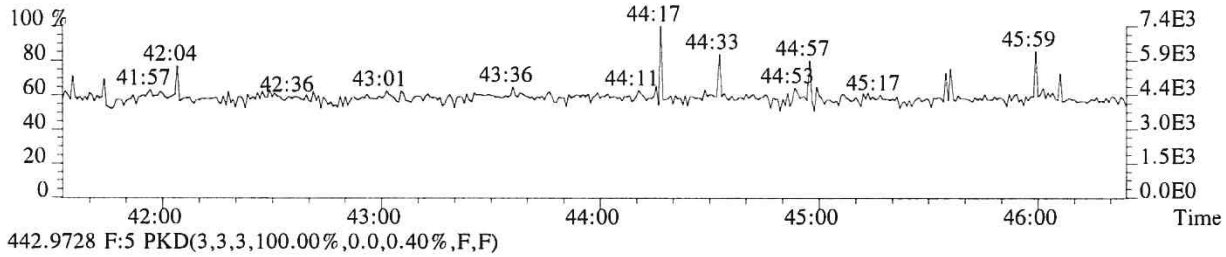
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



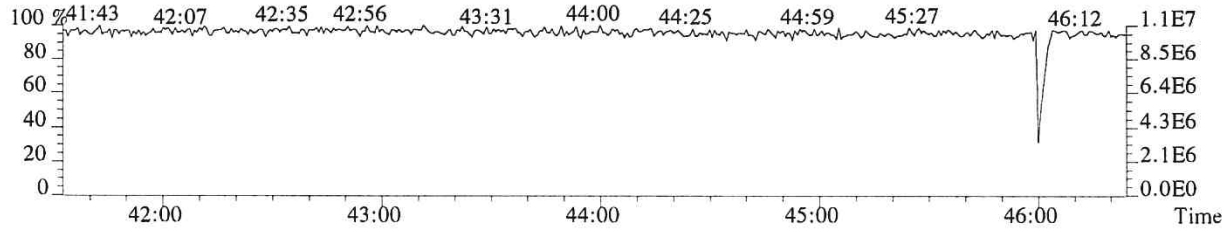
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

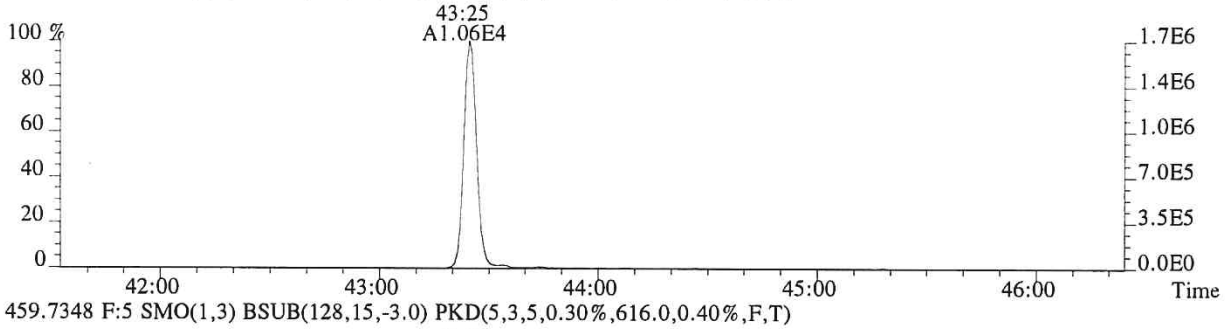


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

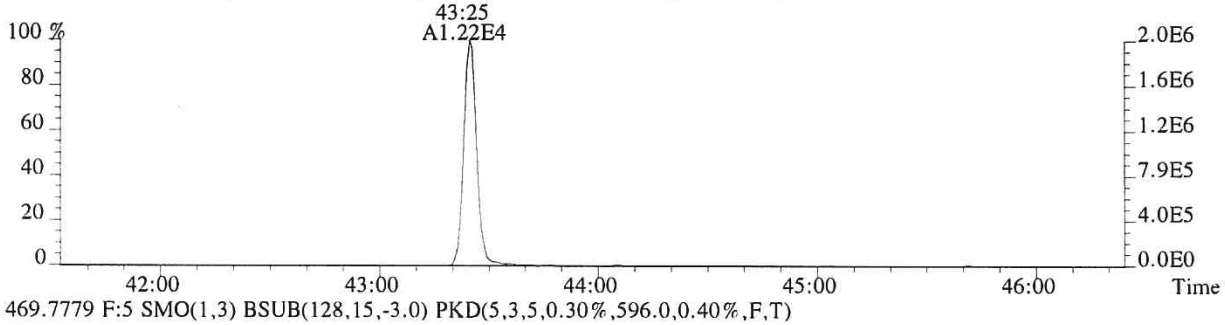


010686

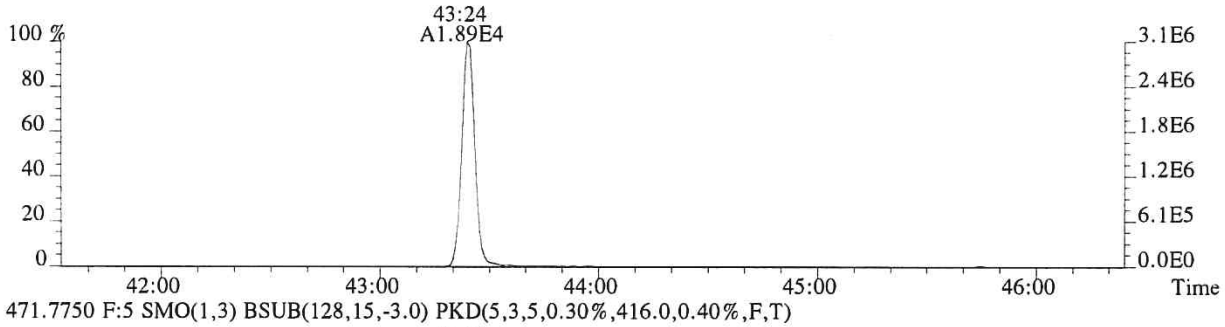
File:P615674 #1-438 Acq:21-NOV-2018 17:25:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



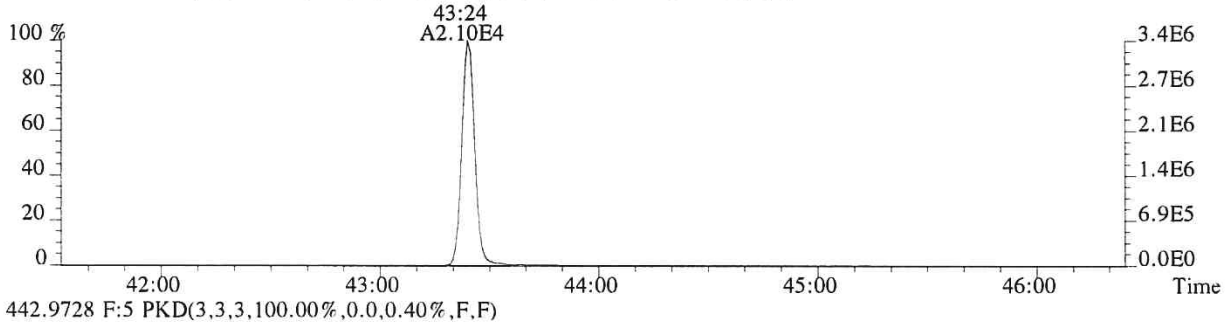
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



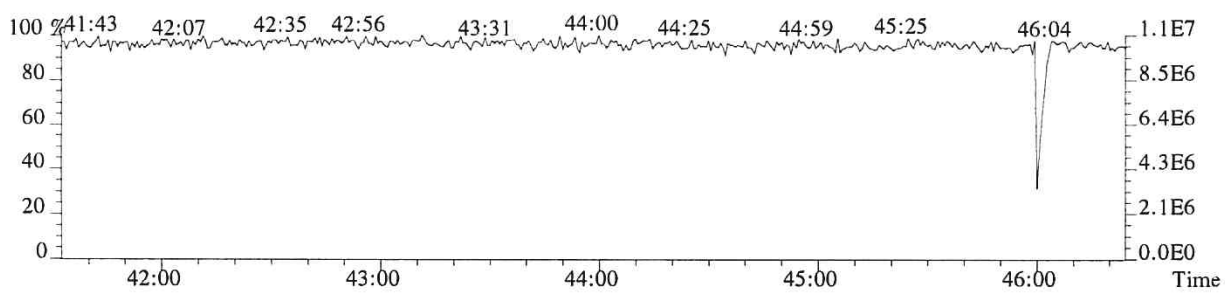
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010687

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID : DB-5MSUI

VER Data Filename: P615685 Analysis Date: 22-NOV-18 Time: 02:25:25

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.2	7.8 - 12.9	-8.0
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	-1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	48	39 - 64	-4.5
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-1.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	51	41 - 61	2.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.02	0.88-1.20	46	43 - 58	-7.0
OCDD	M+2/M+4	0.90	0.76-1.02	95	79 - 126	-4.6
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.1	8.4 - 12.0	-8.9
1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	45	41 - 60	-10.3
2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	45	41 - 61	-10.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	44	45 - 56	-11.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	44	44 - 57	-11.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	45	45 - 56	-9.9
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	45	44 - 57	-10.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.06	0.88-1.20	45	45 - 55	-9.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	45	43 - 58	-10.4
OCDF	M+2/M+4	0.91	0.76-1.02	89	63 - 159	-11.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID : DB-5MSUI

VER Data Filename: P615685 Analysis Date: 22-NOV-18 Time: 02:25:25

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	103	82 - 121	2.8
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	94	62 - 160	-5.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	96	85 - 117	-3.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	97	85 - 118	-3.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	207	96 - 415	3.4
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	95	71 - 140	-4.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	93	76 - 130	-6.7
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	96	77 - 130	-4.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	76 - 131	-5.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	91	70 - 143	-9.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	93	73 - 137	-6.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	95	78 - 129	-5.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	99	77 - 129	-1.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.6	7.8 - 12.7	-4.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #8 Filename P615685 Samp: 1 Inj: 1 Acquired: 22-NOV-18 02:25:25
Processed: 26-NOV-18 14:25:11 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:26	6.417e+03	8.207e+03	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:20	5.210e+04	3.283e+04	1.59	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:13	5.016e+04	3.192e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:47	4.831e+04	3.849e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:53	4.843e+04	3.937e+04	1.23	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:23	4.731e+04	3.778e+04	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:08	4.695e+04	3.776e+04	1.24	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:23	4.391e+04	4.161e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:54	3.796e+04	3.635e+04	1.04	yes	no	1.463
10	Unk	OCDF	43:39	5.724e+04	6.323e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	30:09	4.758e+03	5.977e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:28	3.268e+04	2.102e+04	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:30	3.130e+04	2.502e+04	1.25	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:35	3.208e+04	2.574e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:49	3.594e+04	2.915e+04	1.23	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:22	2.980e+04	2.921e+04	1.02	yes	no	1.112
17	Unk	OCDD	43:25	4.499e+04	5.012e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:26	6.507e+04	8.337e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:20	1.006e+05	6.318e+04	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:12	1.018e+05	6.426e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	4.761e+04	9.130e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:53	5.299e+04	1.001e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:22	5.090e+04	9.674e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:07	4.940e+04	9.373e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:22	3.874e+04	8.469e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:54	3.558e+04	7.780e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	30:07	4.867e+04	6.250e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:27	7.107e+04	4.569e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:29	6.159e+04	4.849e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:35	6.140e+04	4.937e+04	1.24	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:22	5.837e+04	5.575e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	43:25	8.184e+04	9.051e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:35	4.870e+04	6.134e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:49	7.037e+04	5.612e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:09	1.145e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #8 Filename P615685 Samp: 1 Inj: 1 Acquired: 22-NOV-18 02:25:25
Processed: 26-NOV-18 14:25:11 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.32e+06	1.34e+03	9.9e+02	1.73e+06	1.68e+03	1.0e+03
2	1,2,3,7,8-PeCDF	1.09e+07	1.38e+03	7.9e+03	6.89e+06	1.33e+04	5.2e+02
3	2,3,4,7,8-PeCDF	1.06e+07	1.38e+03	7.7e+03	6.69e+06	1.33e+04	5.0e+02
4	1,2,3,4,7,8-HxCDF	1.10e+07	4.93e+03	2.2e+03	8.83e+06	2.89e+04	3.1e+02
5	1,2,3,6,7,8-HxCDF	1.09e+07	4.93e+03	2.2e+03	8.96e+06	2.89e+04	3.1e+02
6	2,3,4,6,7,8-HxCDF	1.05e+07	4.93e+03	2.1e+03	8.36e+06	2.89e+04	2.9e+02
7	1,2,3,7,8,9-HxCDF	1.05e+07	4.93e+03	2.1e+03	8.45e+06	2.89e+04	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	9.56e+06	1.22e+04	7.8e+02	9.02e+06	1.03e+04	8.7e+02
9	1,2,3,4,7,8,9-HpCDF	7.31e+06	1.22e+04	6.0e+02	7.07e+06	1.03e+04	6.8e+02
10	OCDF	8.94e+06	1.27e+03	7.0e+03	1.00e+07	1.41e+03	7.1e+03
11	2,3,7,8-TCDD	1.01e+06	1.36e+03	7.4e+02	1.27e+06	1.11e+03	1.1e+03
12	1,2,3,7,8-PeCDD	6.99e+06	1.41e+03	5.0e+03	4.54e+06	1.73e+03	2.6e+03
13	1,2,3,4,7,8-HxCDD	7.26e+06	1.36e+03	5.3e+03	5.85e+06	2.41e+03	2.4e+03
14	1,2,3,6,7,8-HxCDD	7.10e+06	1.36e+03	5.2e+03	5.71e+06	2.41e+03	2.4e+03
15	1,2,3,7,8,9-HxCDD	8.04e+06	1.36e+03	5.9e+03	6.55e+06	2.41e+03	2.7e+03
16	1,2,3,4,6,7,8-HpCDD	6.05e+06	1.56e+03	3.9e+03	5.87e+06	1.42e+03	4.1e+03
17	OCDD	7.25e+06	3.03e+03	2.4e+03	8.11e+06	2.08e+03	3.9e+03
18	13C-2,3,7,8-TCDF	1.34e+07	5.34e+03	2.5e+03	1.71e+07	3.98e+03	4.3e+03
19	13C-1,2,3,7,8-PeCDF	2.07e+07	2.69e+03	7.7e+03	1.29e+07	1.72e+03	7.5e+03
20	13C-2,3,4,7,8-PeCDF	2.13e+07	2.69e+03	7.9e+03	1.37e+07	1.72e+03	8.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.10e+07	1.72e+03	6.4e+03	2.11e+07	3.68e+03	5.7e+03
22	13C-1,2,3,6,7,8-HxCDF	1.22e+07	1.72e+03	7.1e+03	2.30e+07	3.68e+03	6.2e+03
23	13C-2,3,4,6,7,8-HxCDF	1.13e+07	1.72e+03	6.5e+03	2.16e+07	3.68e+03	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.11e+07	1.72e+03	6.4e+03	2.10e+07	3.68e+03	5.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.39e+06	1.67e+03	5.0e+03	1.84e+07	6.69e+03	2.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.93e+06	1.67e+03	4.1e+03	1.51e+07	6.69e+03	2.3e+03
27	13C-2,3,7,8-TCDD	1.03e+07	5.04e+03	2.0e+03	1.32e+07	3.02e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	1.50e+07	1.12e+03	1.3e+04	9.66e+06	1.57e+03	6.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.42e+07	2.82e+03	5.0e+03	1.13e+07	2.17e+03	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.37e+07	2.82e+03	4.8e+03	1.11e+07	2.17e+03	5.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.18e+07	3.29e+03	3.6e+03	1.15e+07	5.52e+03	2.1e+03
32	13C-OCDD	1.32e+07	4.27e+03	3.1e+03	1.47e+07	8.80e+03	1.7e+03
33	13C-1,2,3,4-TCDD	1.02e+07	5.04e+03	2.0e+03	1.30e+07	3.02e+03	4.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.58e+07	2.82e+03	5.6e+03	1.29e+07	2.17e+03	5.9e+03
35	37Cl-2,3,7,8-TCDD	2.48e+06	7.28e+02	3.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.356e{+}03 + 1.108e{+}03) \times 100}{(1.025e{+}07 + 1.324e{+}07) \times (\quad) \times 1.049} =$$

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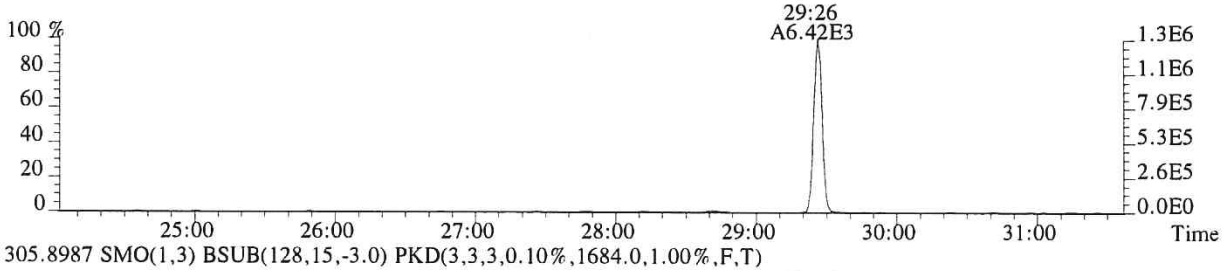
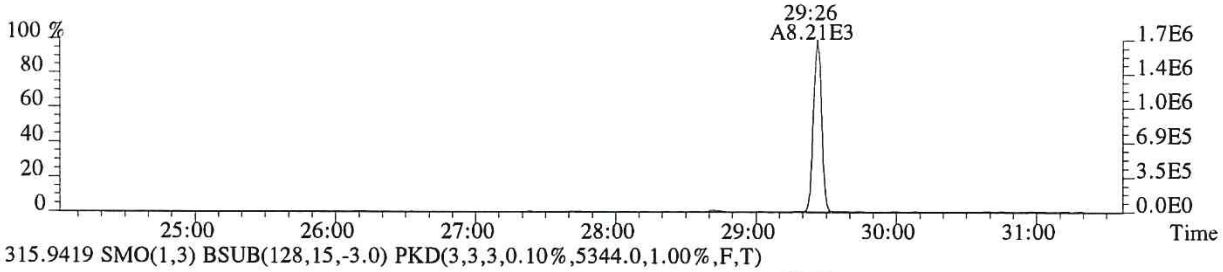
File:P615685 #1-538 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

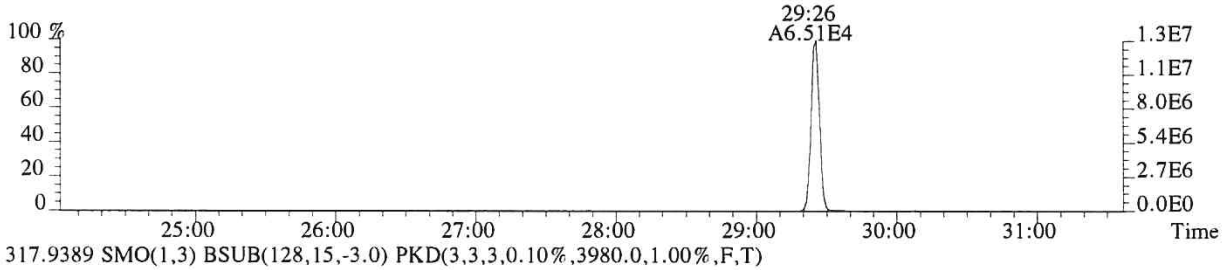
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



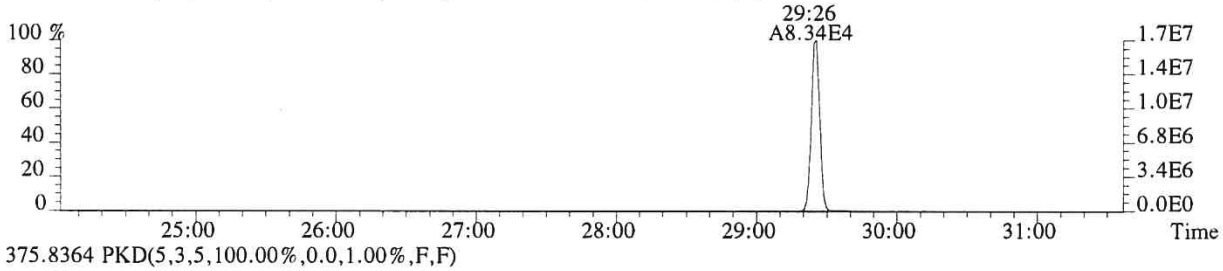
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



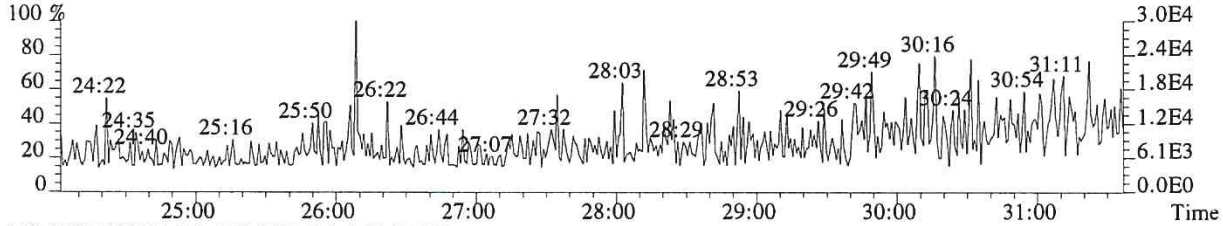
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5344.0,1.00%,F,T)



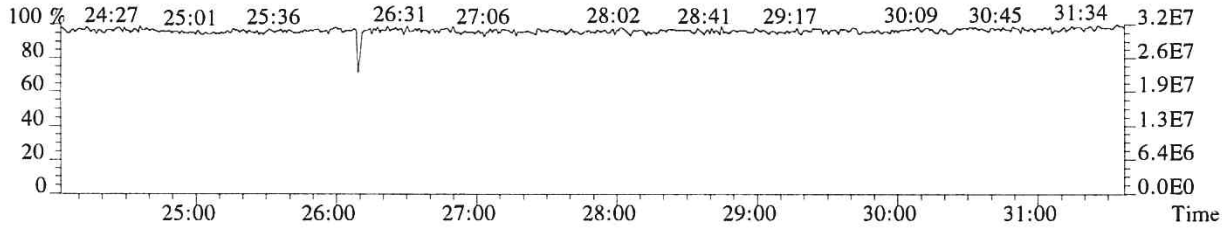
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3980.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

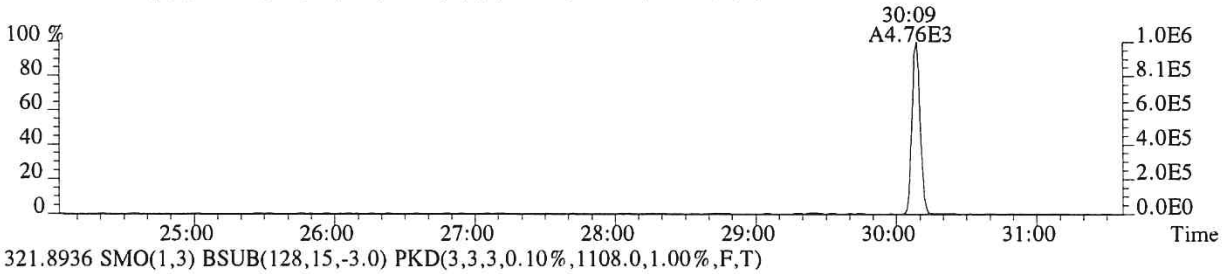


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

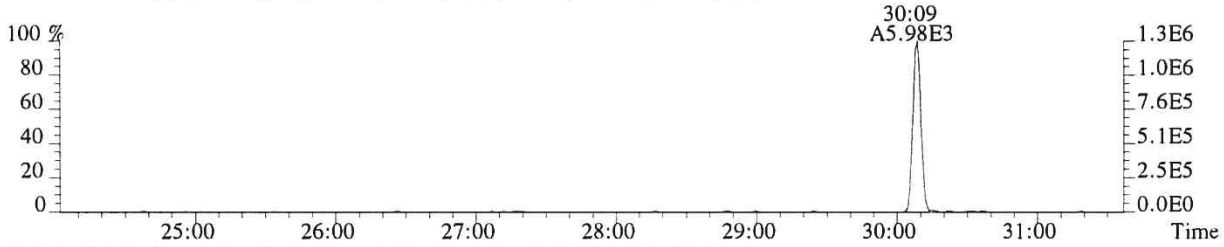


File:P615685 #1-538 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

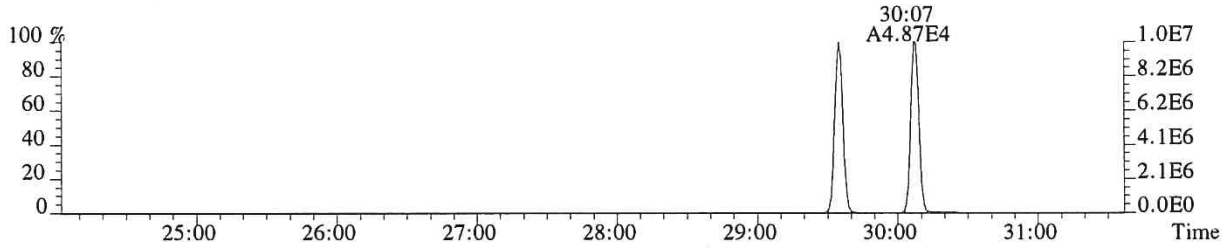
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



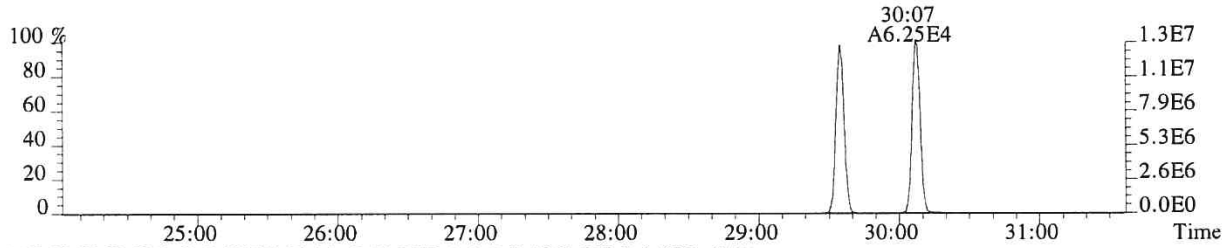
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



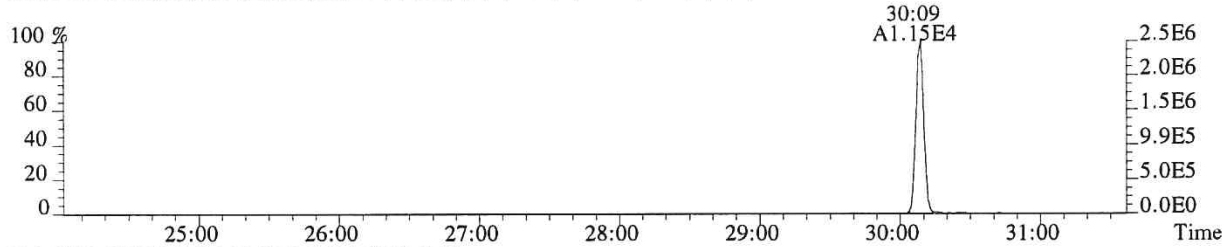
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5044.0,1.00%,F,T)



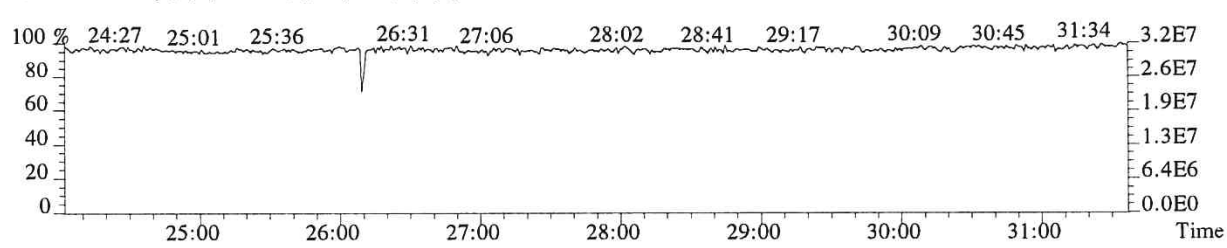
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3020.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



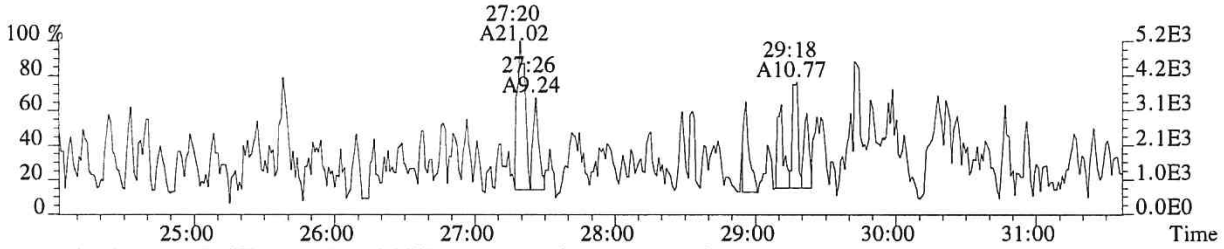
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



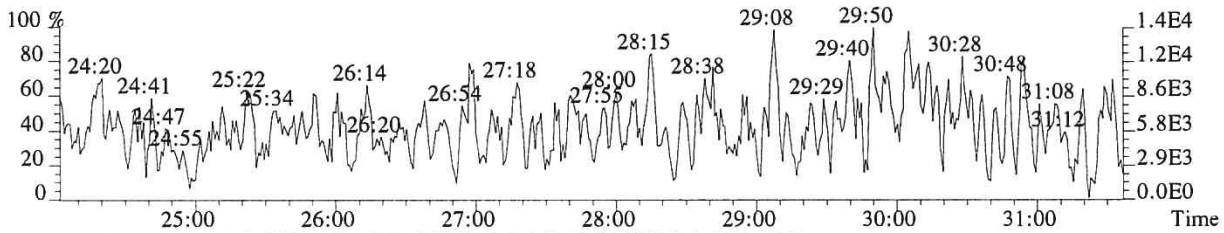
010693

File:P615685 #1-538 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

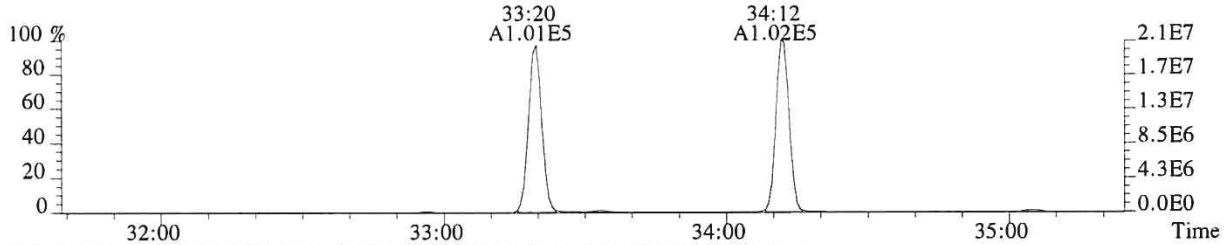
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



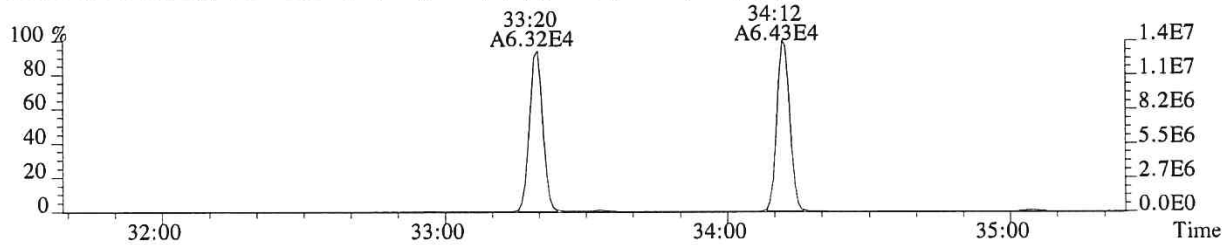
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7360.0,1.00%,F,T)



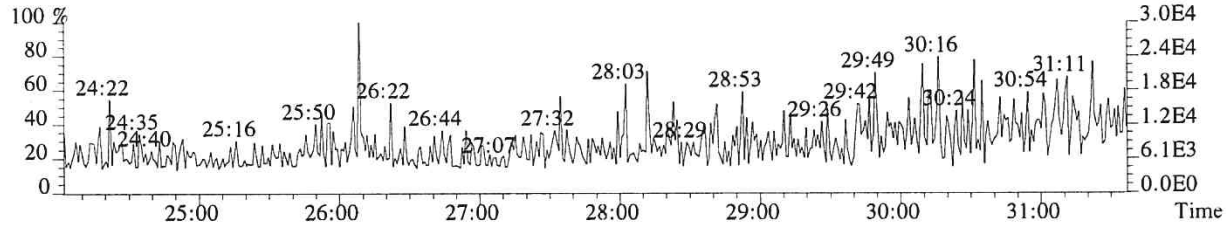
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2688.0,1.00%,F,T)



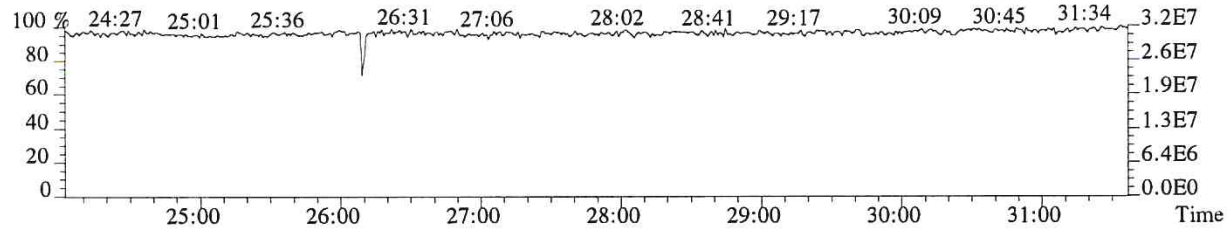
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1716.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



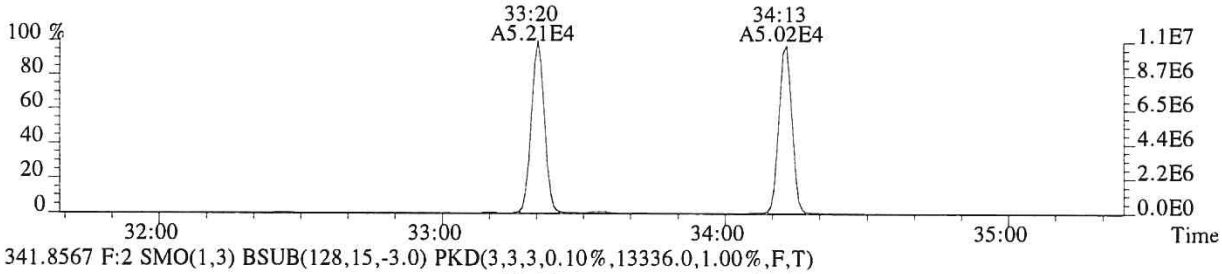
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



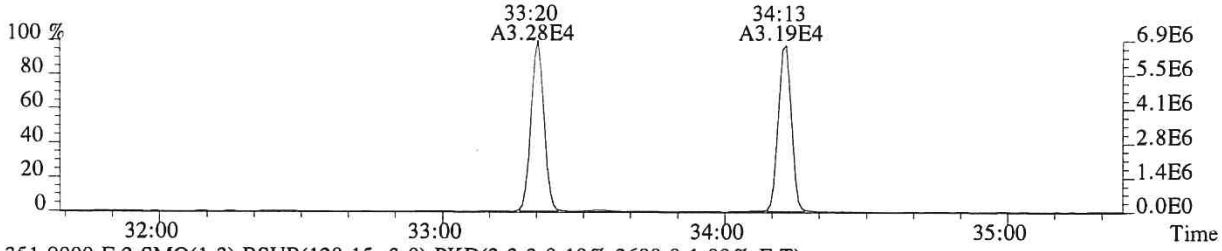
010694

File:P615685 #1-339 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

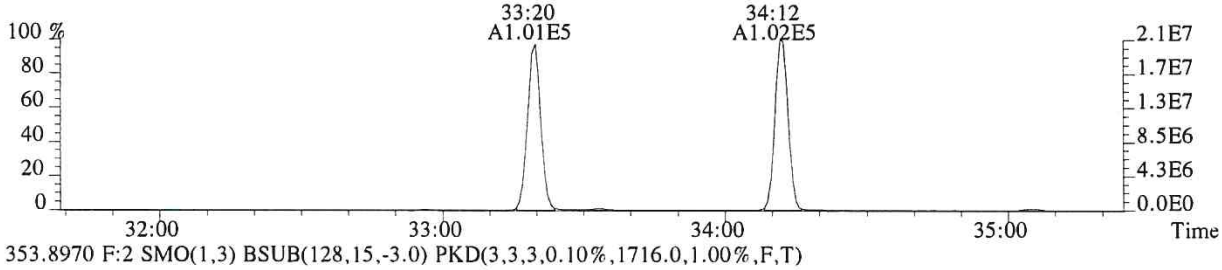
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



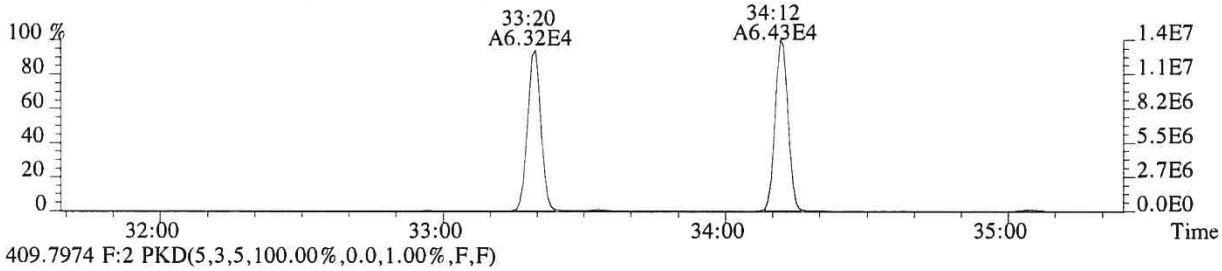
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13336.0,1.00%,F,T)



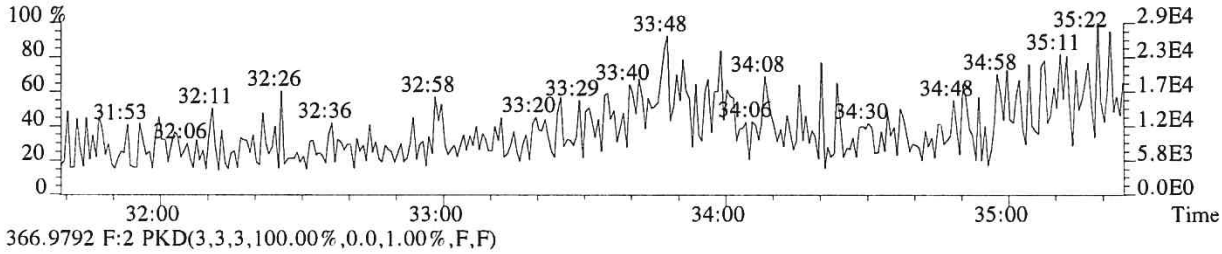
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2688.0,1.00%,F,T)



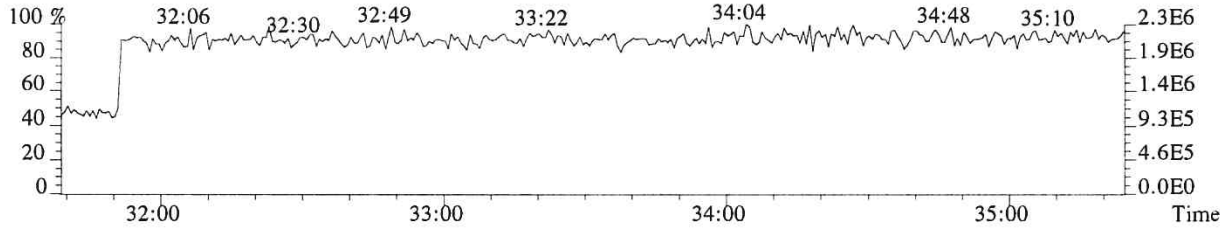
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1716.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

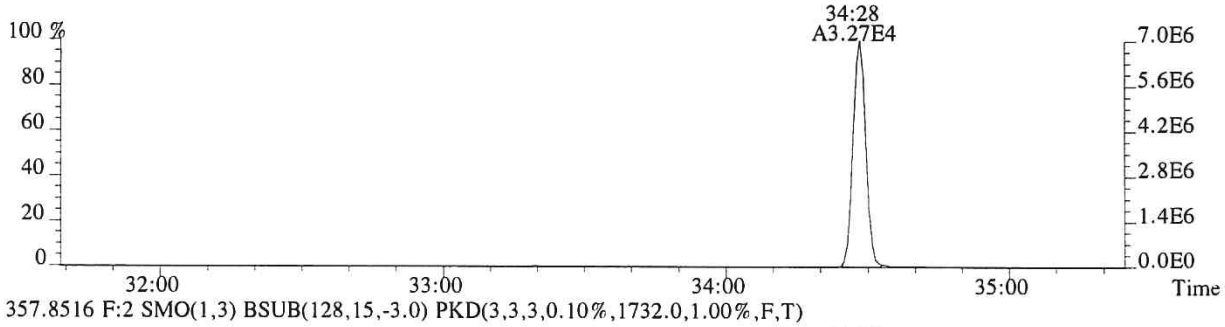


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

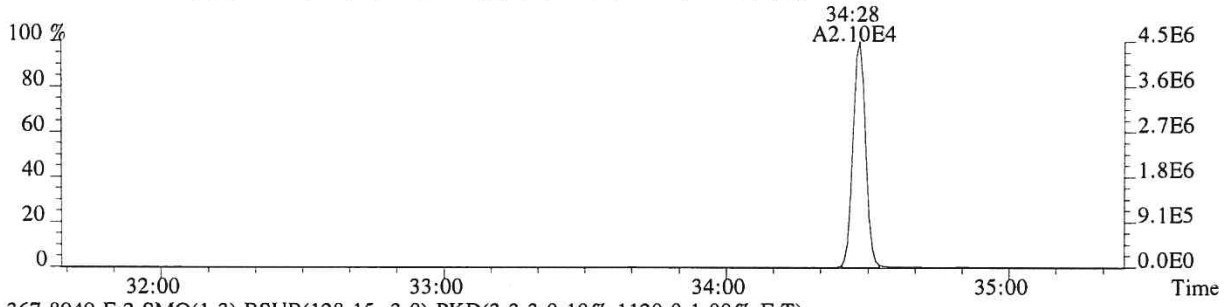


010695

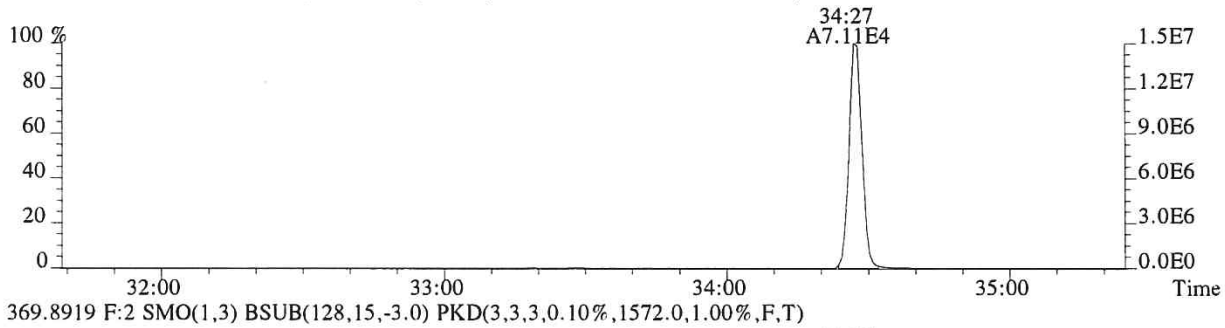
File:P615685 #1-339 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



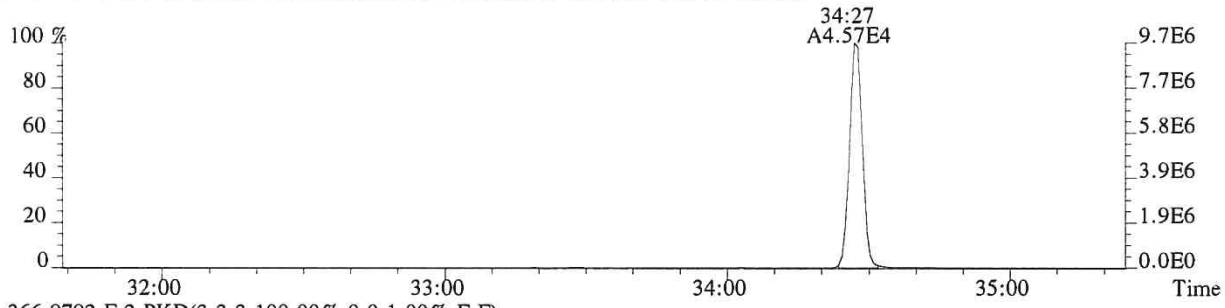
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1732.0,1.00%,F,T)



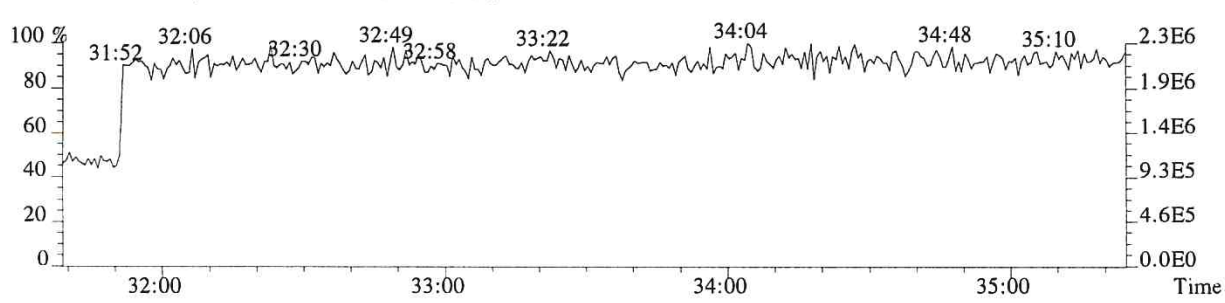
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1572.0,1.00%,F,T)

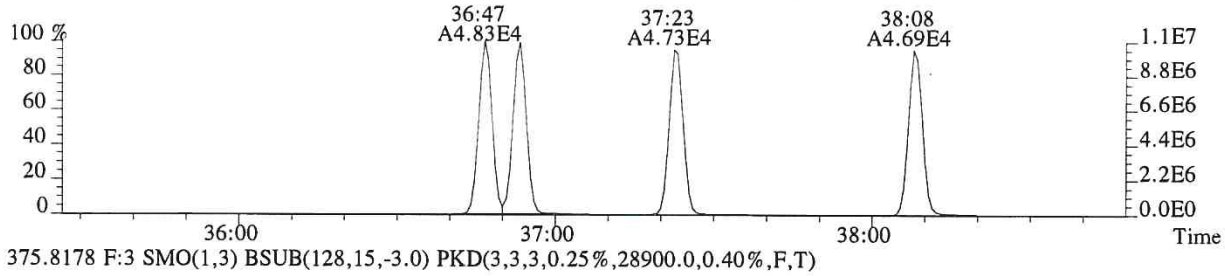


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

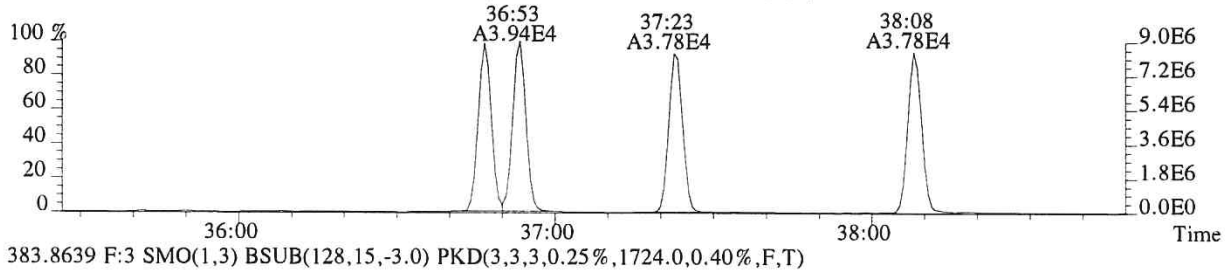


File:P615685 #1-303 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

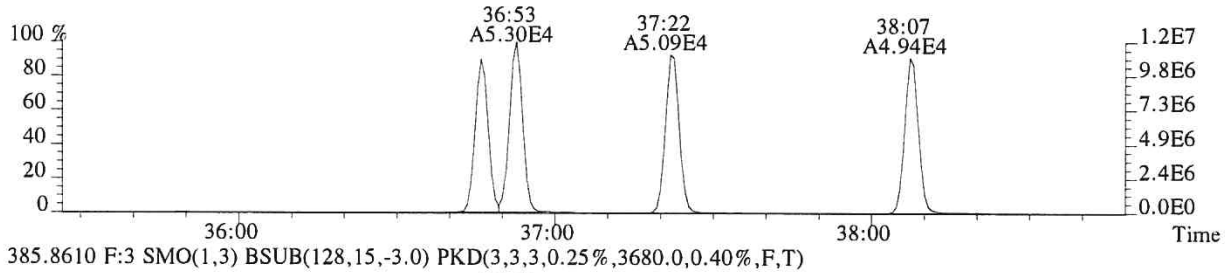
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4932.0,0.40%,F,T)



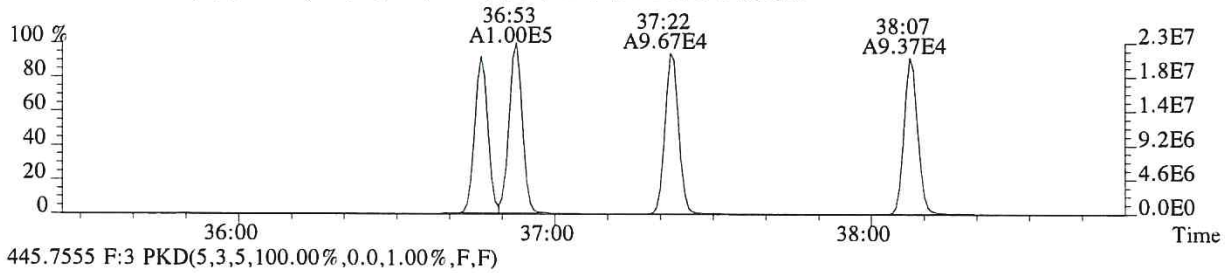
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,28900.0,0.40%,F,T)



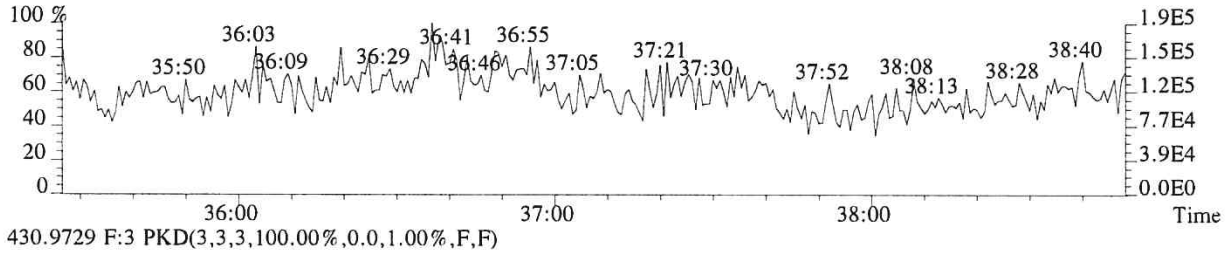
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1724.0,0.40%,F,T)



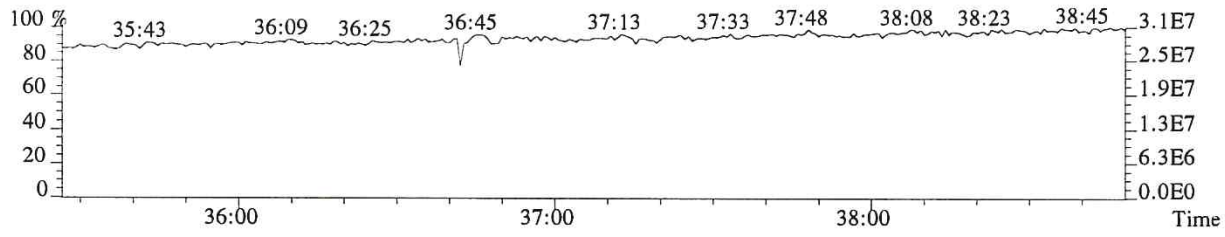
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3680.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



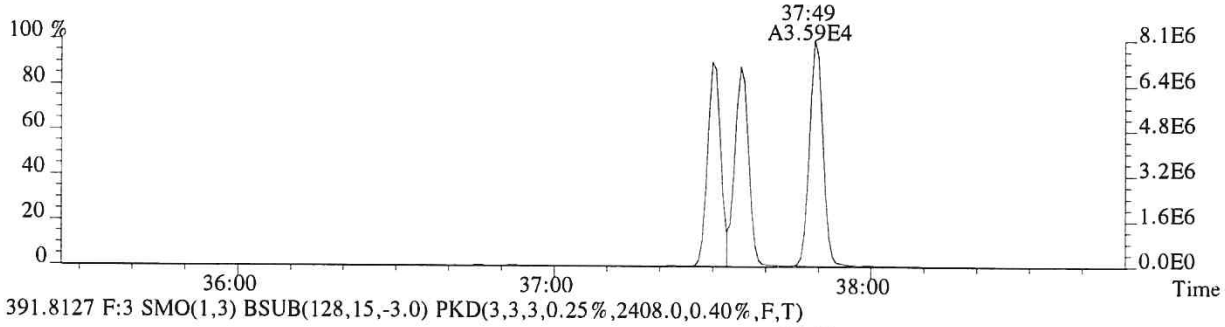
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



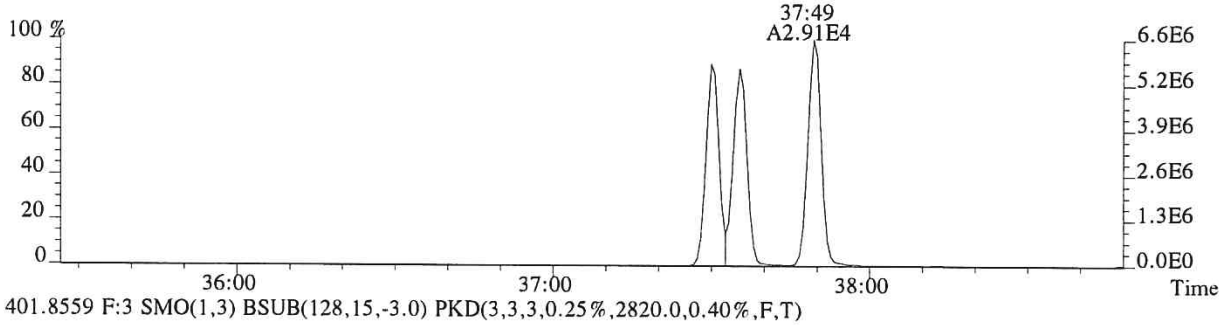
010697

File:P615685 #1-303 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

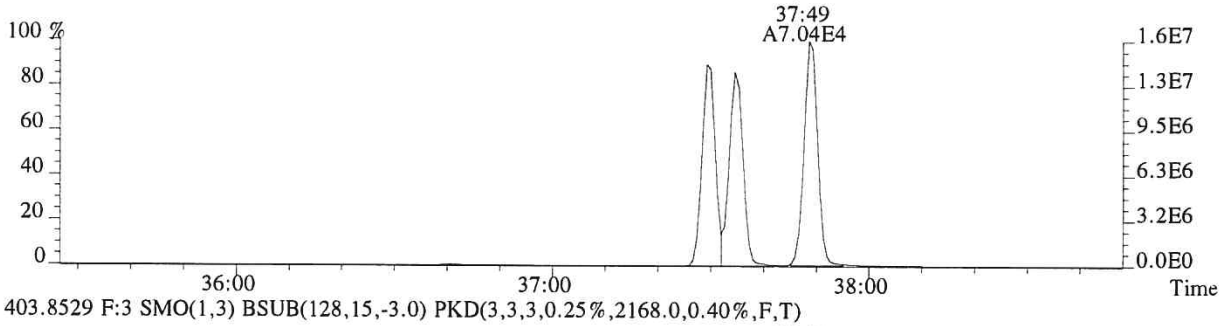
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1360.0,0.40%,F,T)



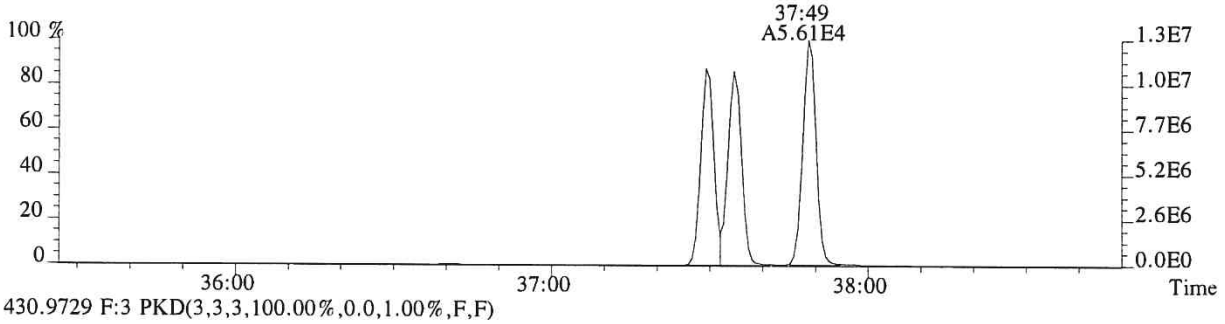
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2408.0,0.40%,F,T)



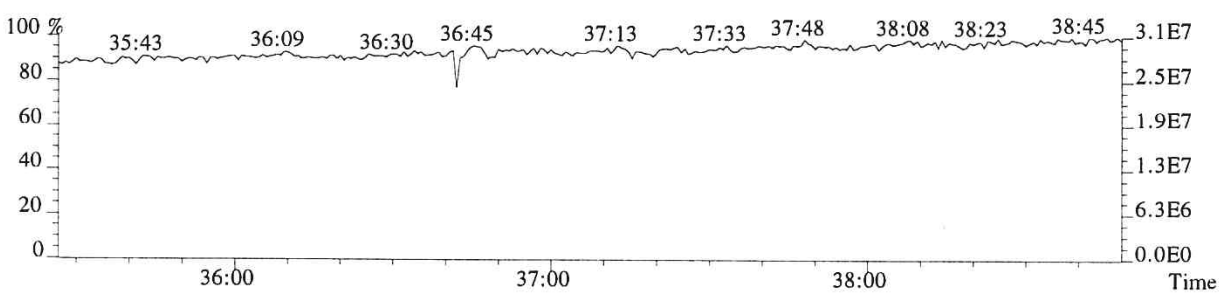
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2820.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2168.0,0.40%,F,T)



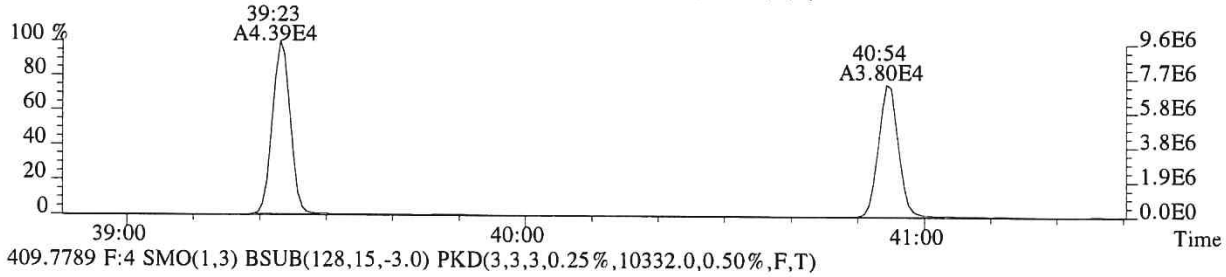
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



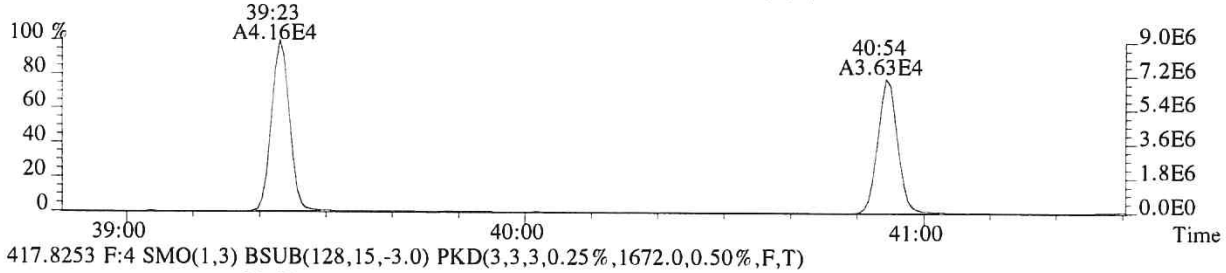
010698

File:P615685 #1-241 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

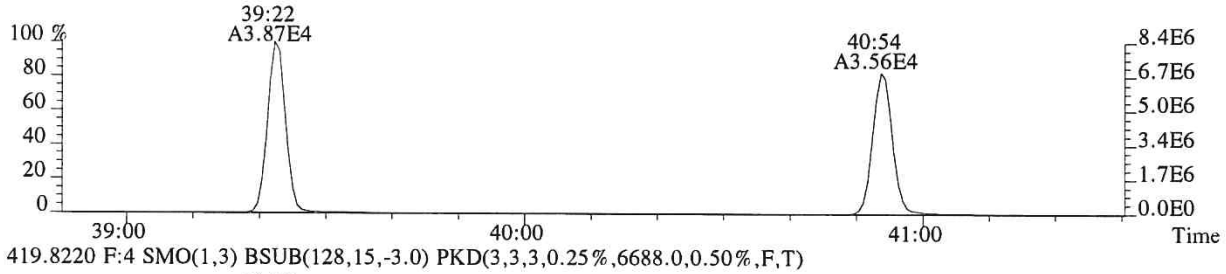
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12248.0,0.50%,F,T)



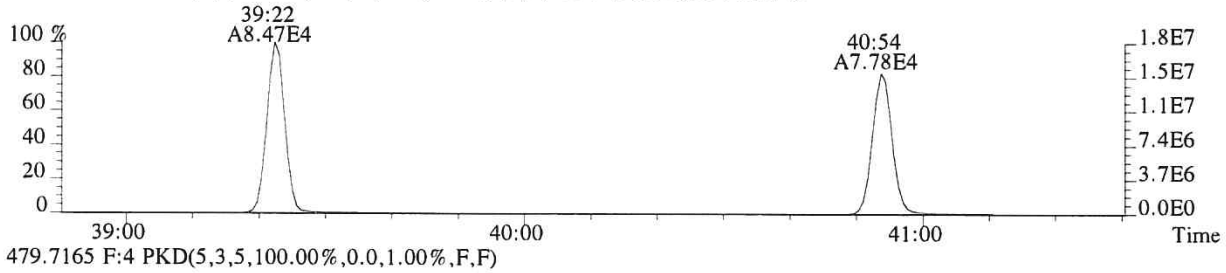
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10332.0,0.50%,F,T)



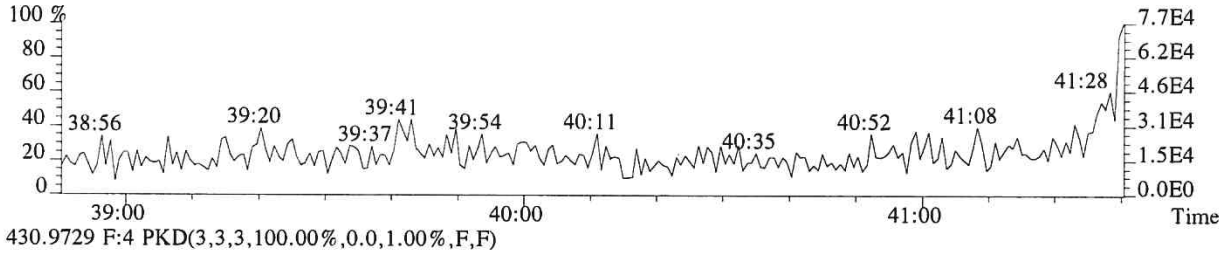
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1672.0,0.50%,F,T)



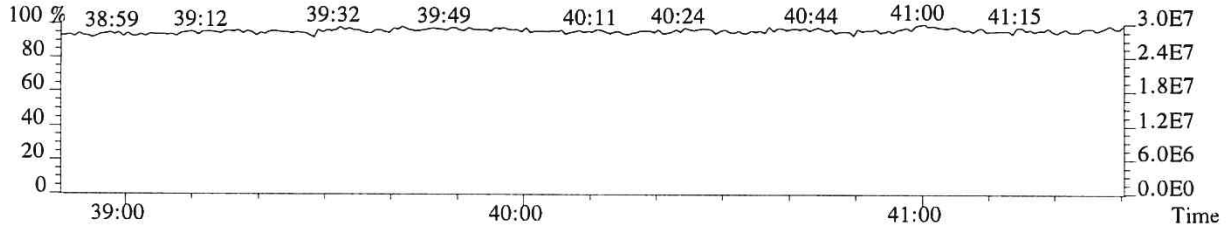
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6688.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

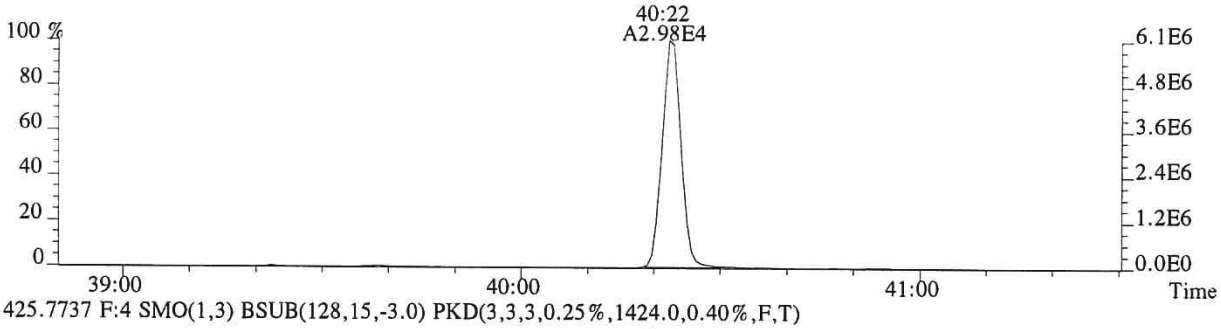


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

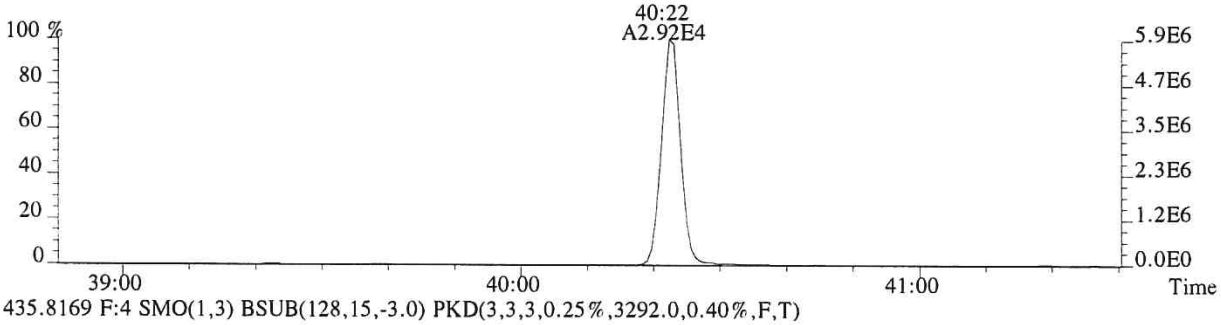


File:P615685 #1-241 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

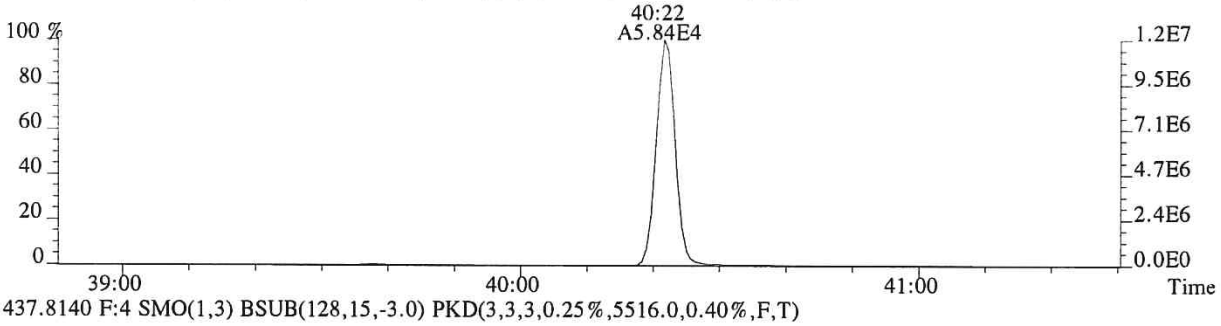
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1560.0,0.40%,F,T)



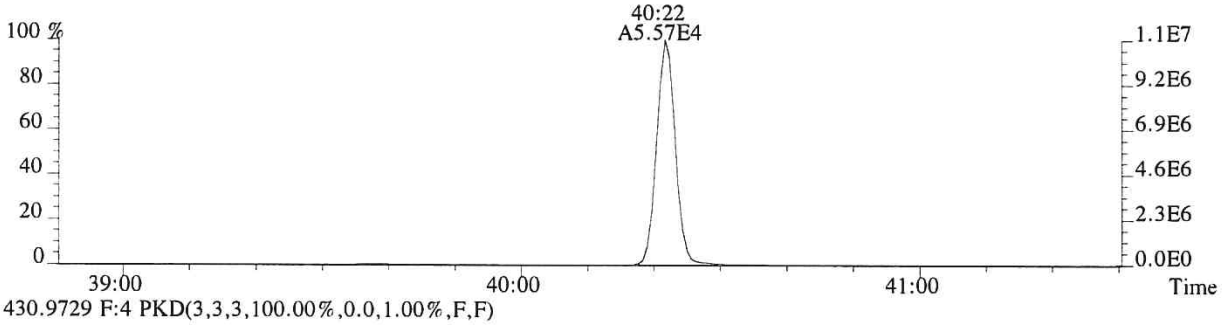
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



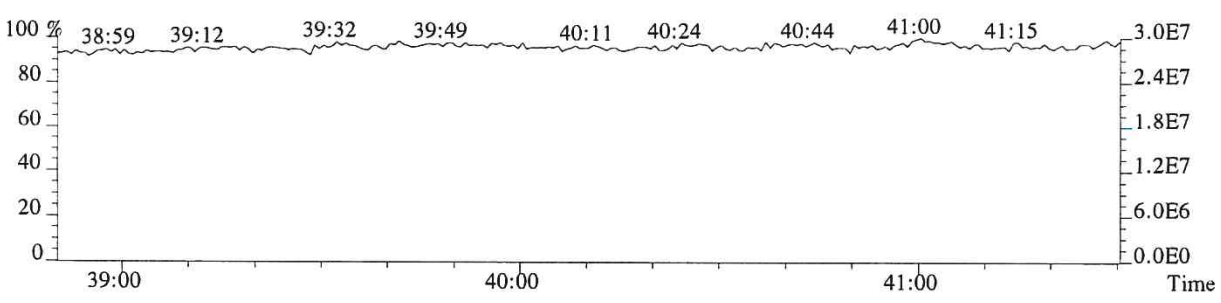
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3292.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5516.0,0.40%,F,T)



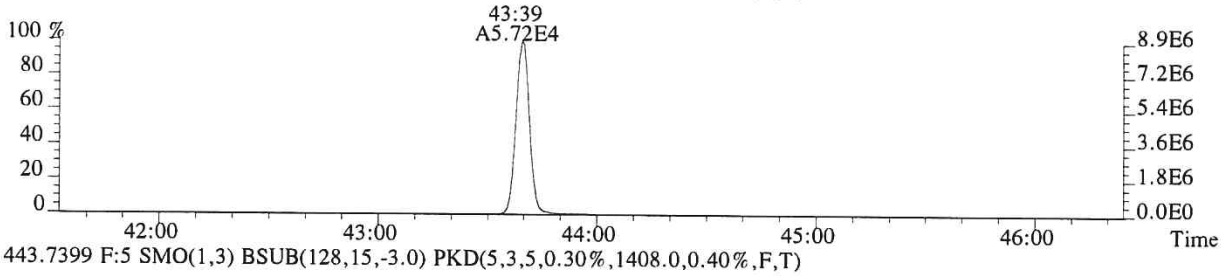
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



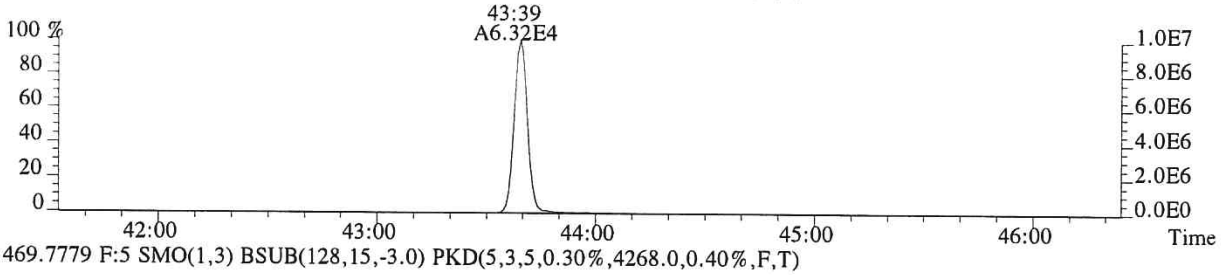
010700

File:P615685 #1-438 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

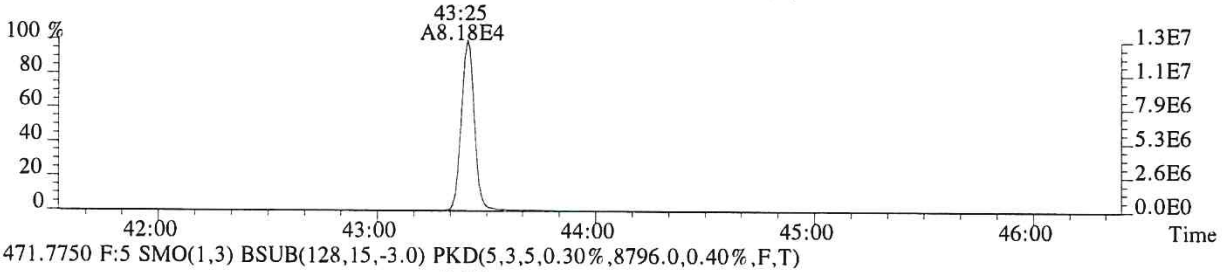
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1272.0,0.40%,F,T)



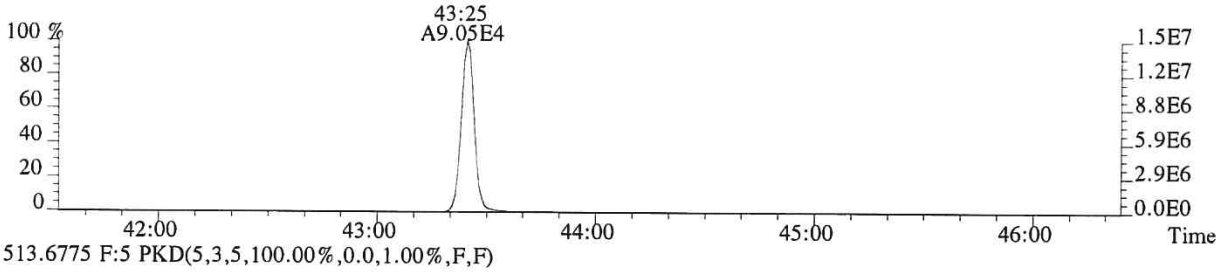
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1408.0,0.40%,F,T)



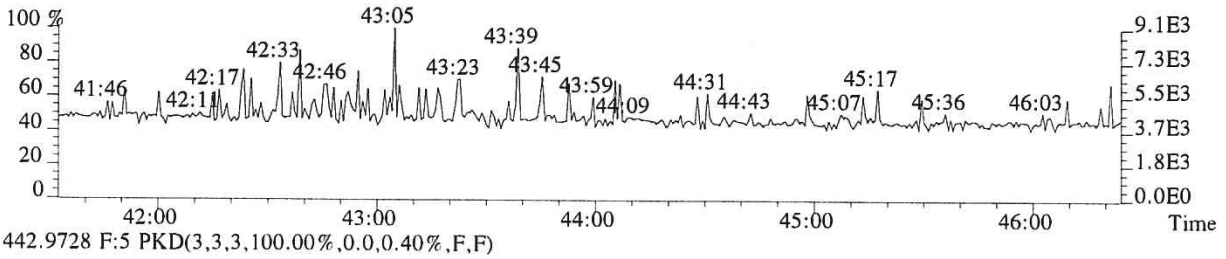
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4268.0,0.40%,F,T)



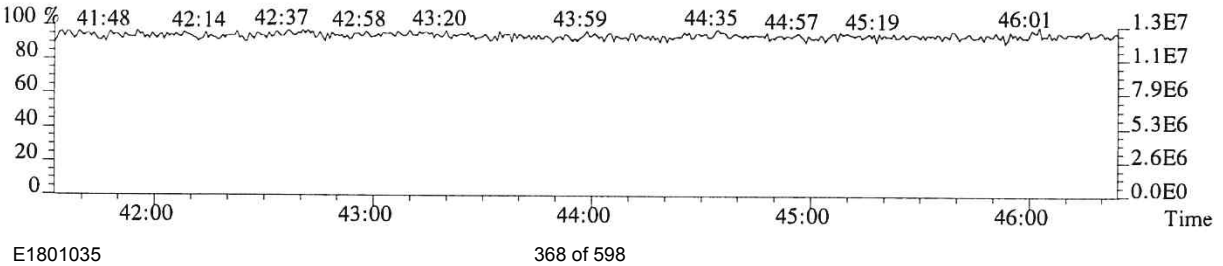
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8796.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



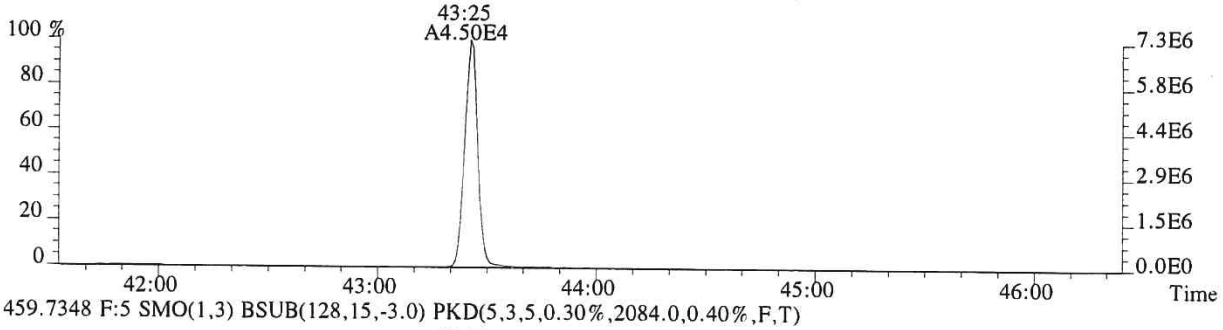
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



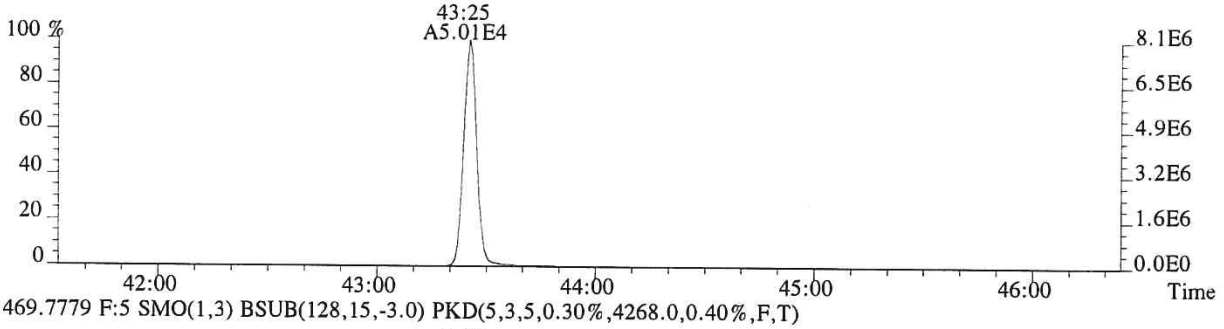
010701

File:P615685 #1-438 Acq:22-NOV-2018 02:25:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

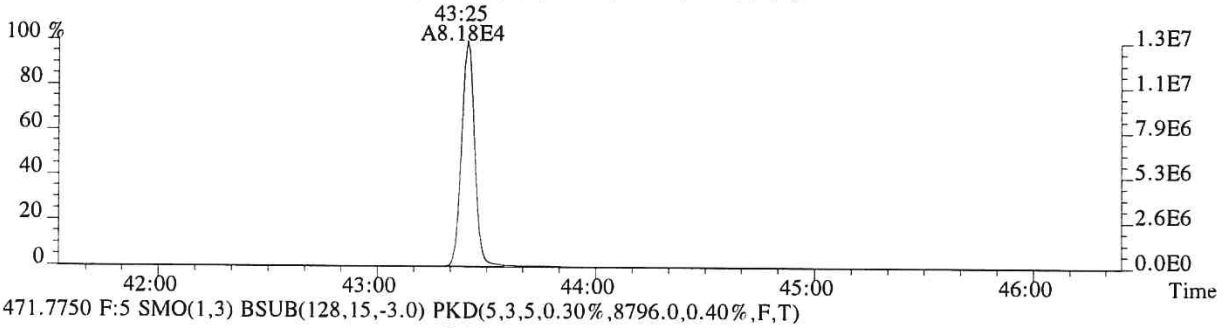
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3032.0,0.40%,F,T)



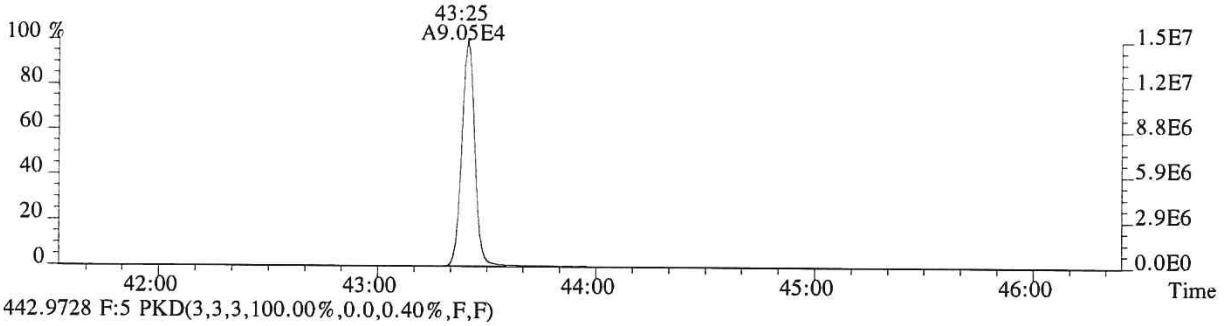
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2084.0,0.40%,F,T)



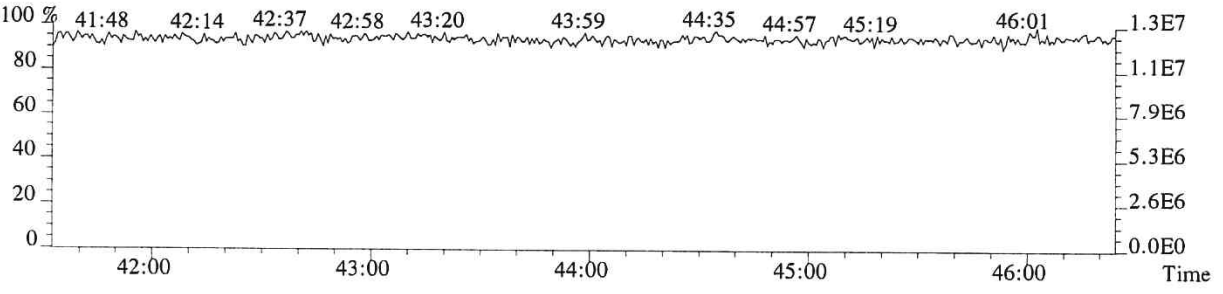
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4268.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8796.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010702

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Leung
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:39	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	YY	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ YB 1/25/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

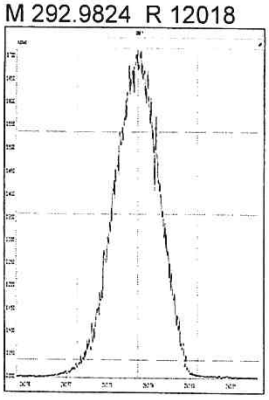
gc 01/25/18

* gc 01/25/18

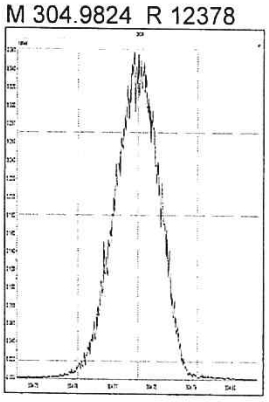
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

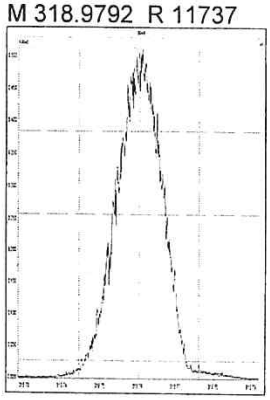
M 292.9824 R 12018



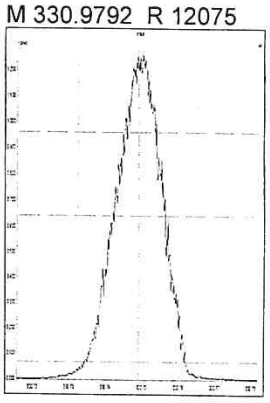
M 304.9824 R 12378



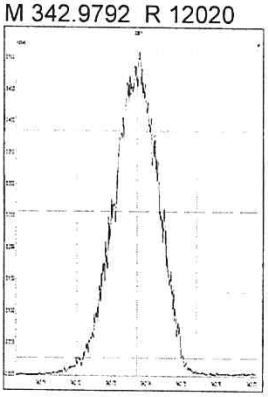
M 318.9792 R 11737



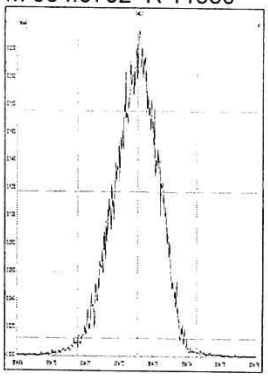
M 330.9792 R 12075



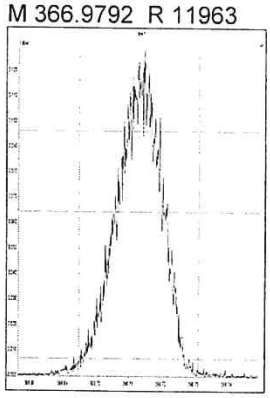
M 342.9792 R 12020



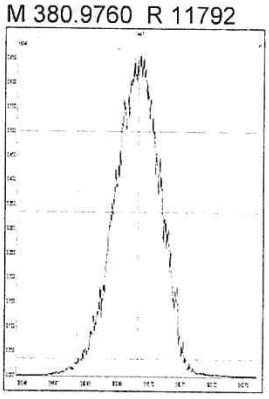
M 354.9792 R 11680



M 366.9792 R 11963



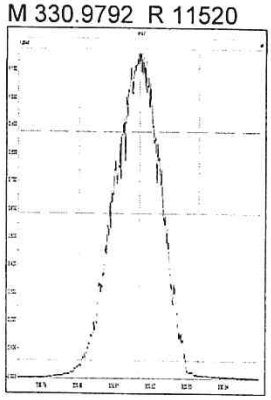
M 380.9760 R 11792



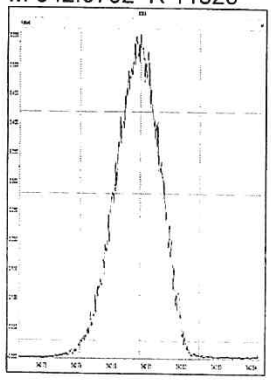
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

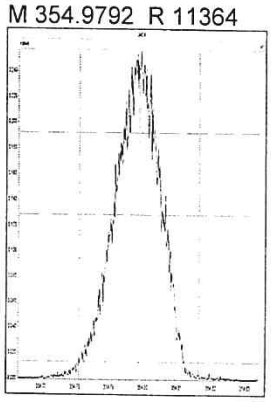
M 330.9792 R 11520



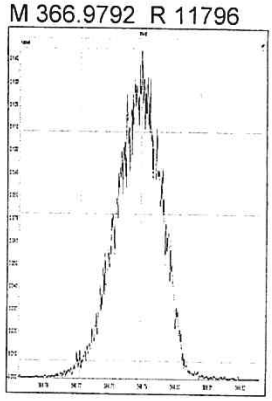
M 342.9792 R 11625



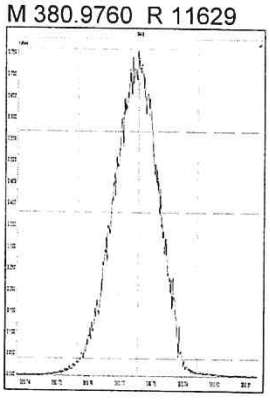
M 354.9792 R 11364



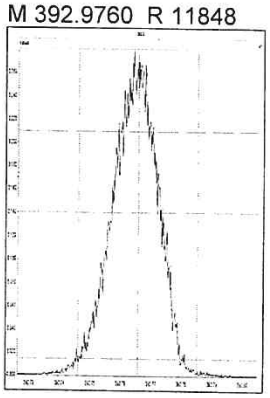
M 366.9792 R 11796



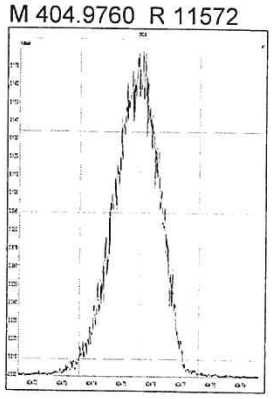
M 380.9760 R 11629



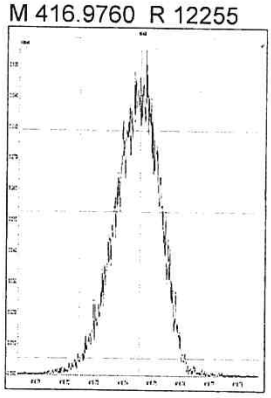
M 392.9760 R 11848



M 404.9760 R 11572



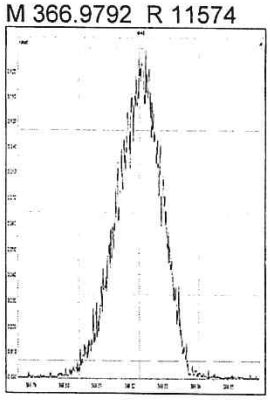
M 416.9760 R 12255



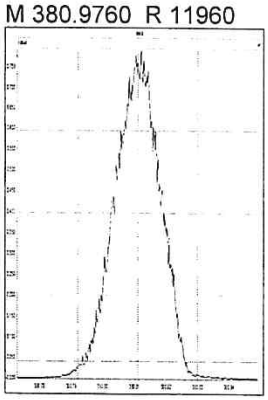
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

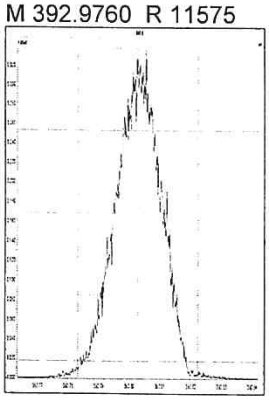
M 366.9792 R 11574



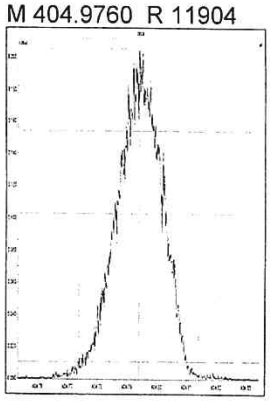
M 380.9760 R 11960



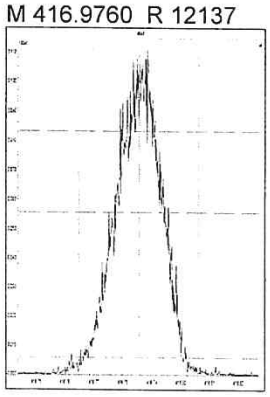
M 392.9760 R 11575



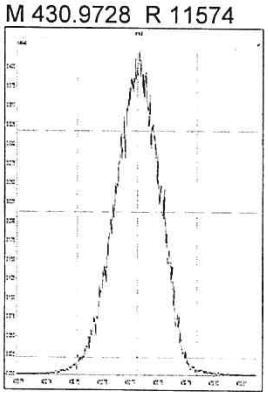
M 404.9760 R 11904



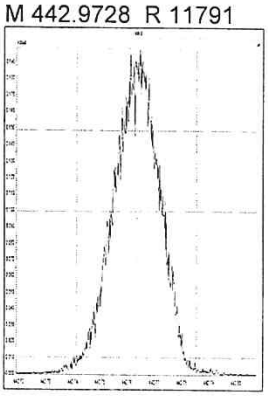
M 416.9760 R 12137



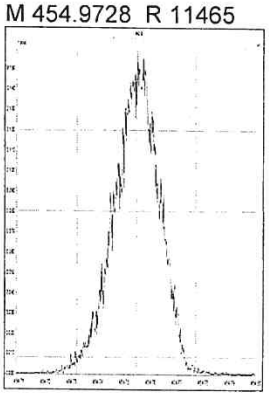
M 430.9728 R 11574



M 442.9728 R 11791



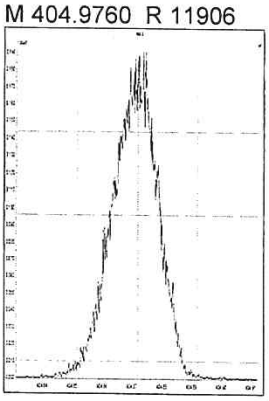
M 454.9728 R 11465



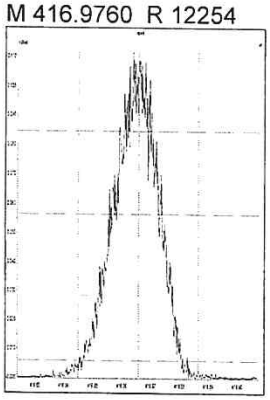
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

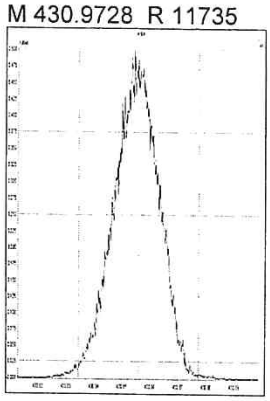
M 404.9760 R 11906



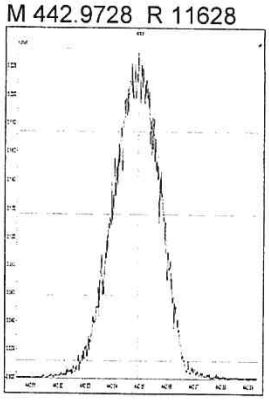
M 416.9760 R 12254



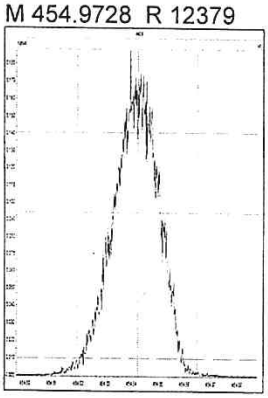
M 430.9728 R 11735



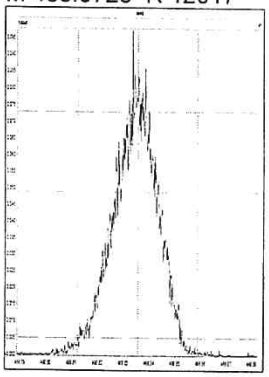
M 442.9728 R 11628



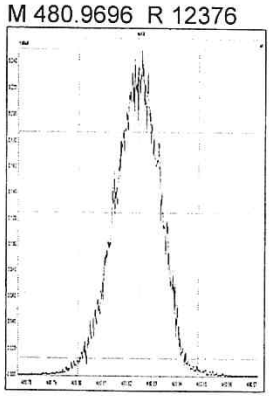
M 454.9728 R 12379



M 466.9728 R 12017



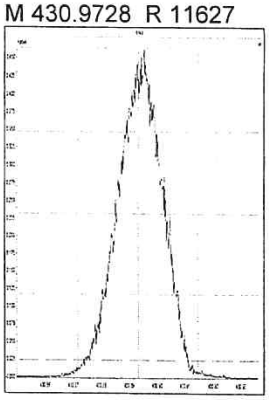
M 480.9696 R 12376



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

M 430.9728 R 11627



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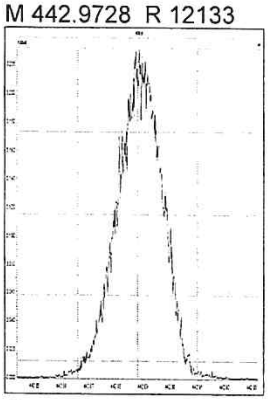
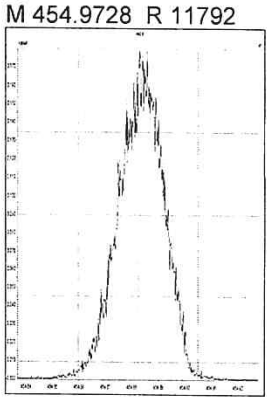
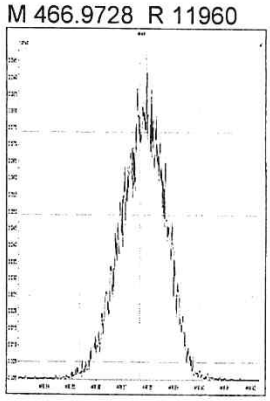


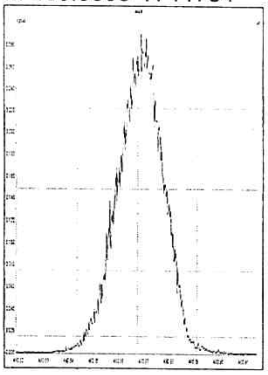
M 454.9728 R 11792



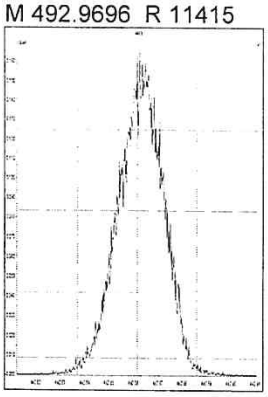
M 466.9728 R 11960



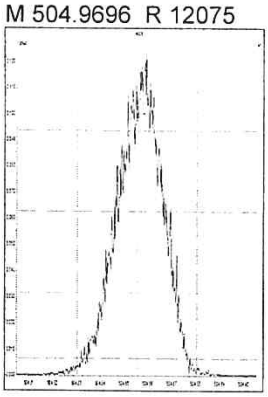
M 480.9696 R 11734



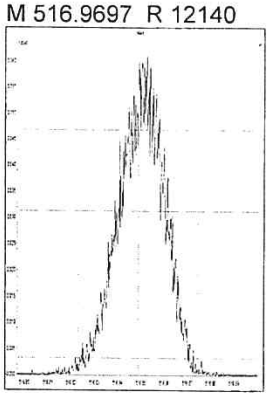
M 492.9696 R 11415



M 504.9696 R 12075



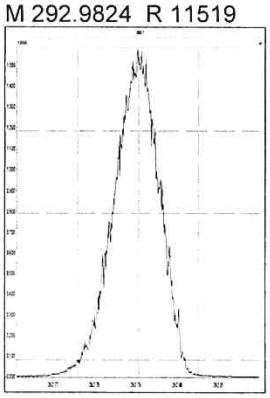
M 516.9697 R 12140



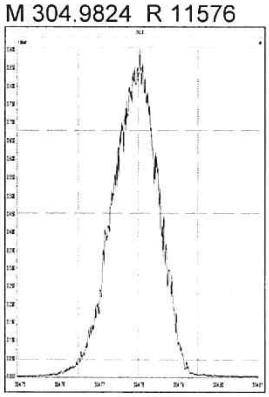
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

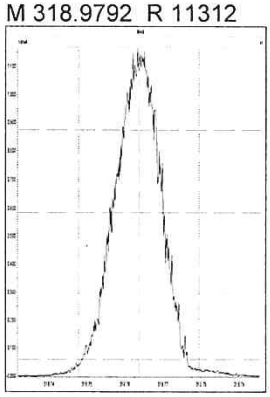
M 292.9824 R 11519



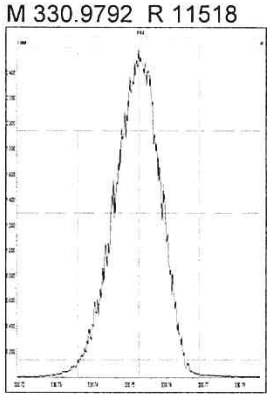
M 304.9824 R 11576



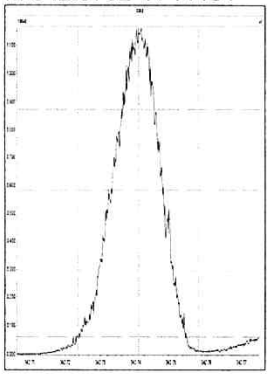
M 318.9792 R 11312



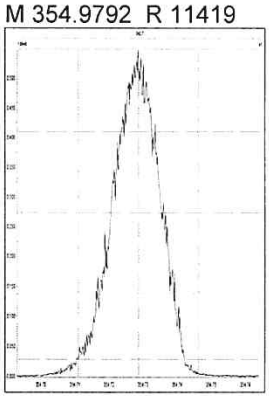
M 330.9792 R 11518



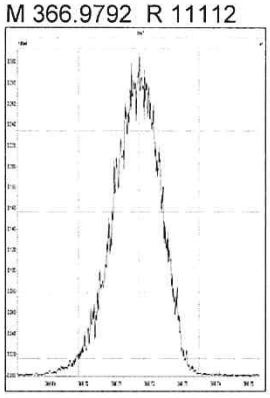
M 342.9792 R 11161



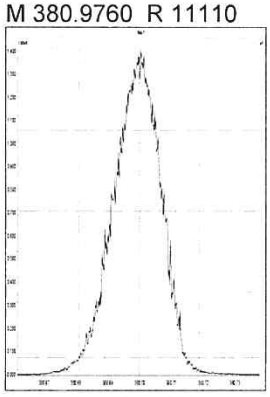
M 354.9792 R 11419



M 366.9792 R 11112



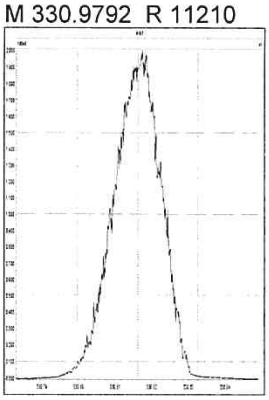
M 380.9760 R 11110



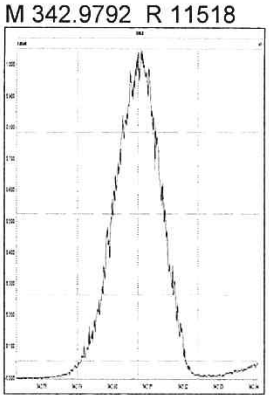
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

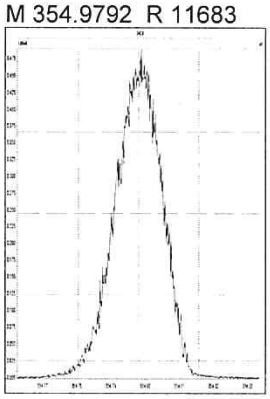
M 330.9792 R 11210



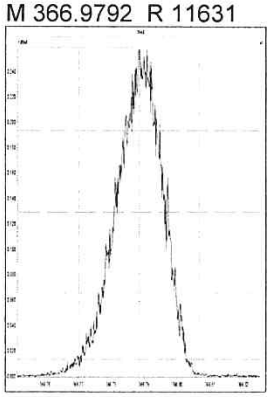
M 342.9792 R 11518



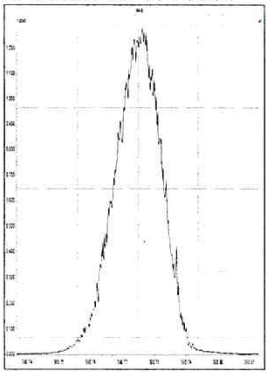
M 354.9792 R 11683



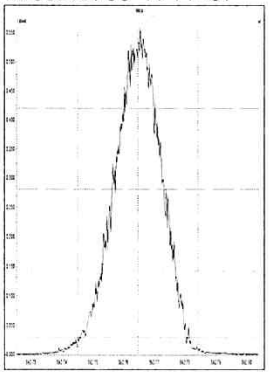
M 366.9792 R 11631



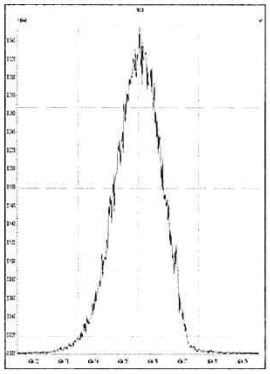
M 380.9760 R 11314



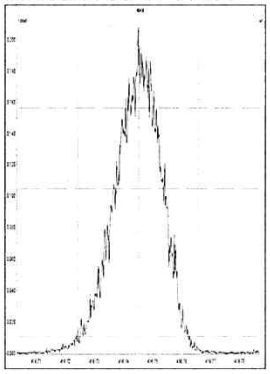
M 392.9760 R 11467



M 404.9760 R 11518



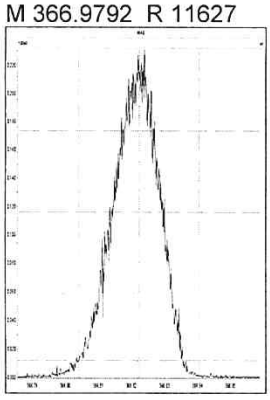
M 416.9760 R 11161



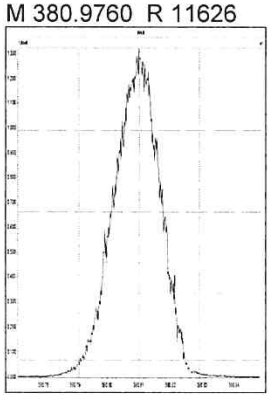
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

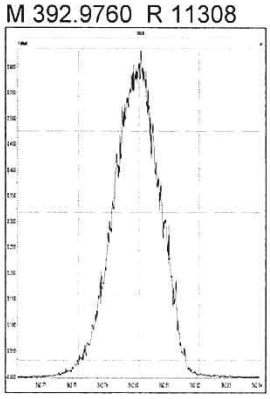
M 366.9792 R 11627



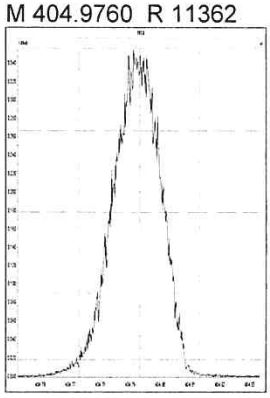
M 380.9760 R 11626



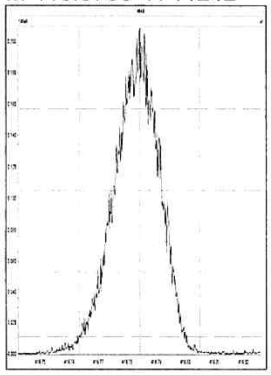
M 392.9760 R 11308



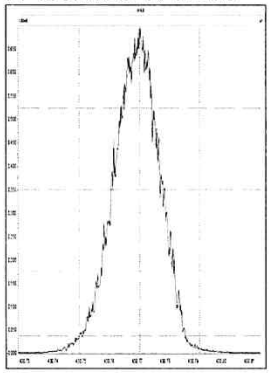
M 404.9760 R 11362



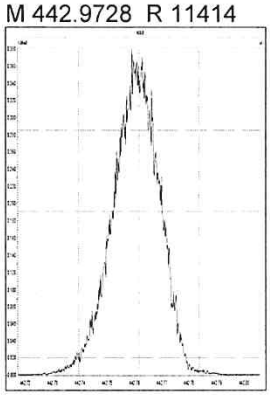
M 416.9760 R 11212



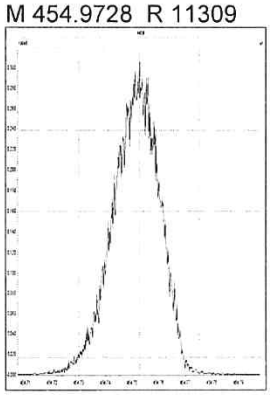
M 430.9728 R 11363



M 442.9728 R 11414



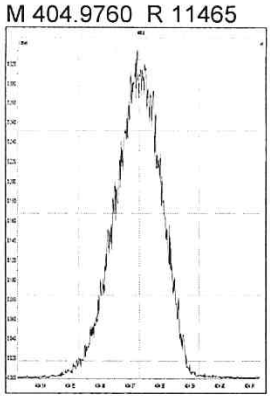
M 454.9728 R 11309



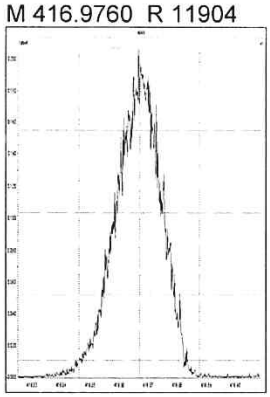
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

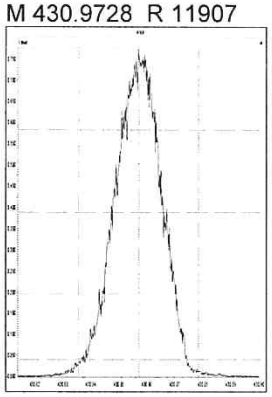
M 404.9760 R 11465



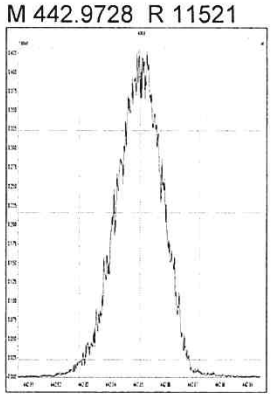
M 416.9760 R 11904



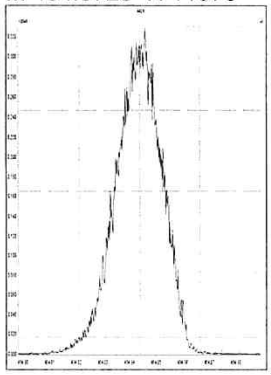
M 430.9728 R 11907



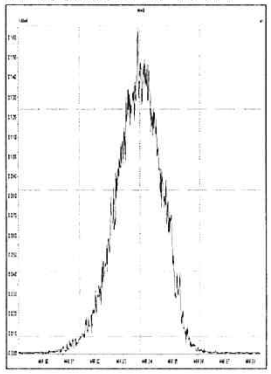
M 442.9728 R 11521



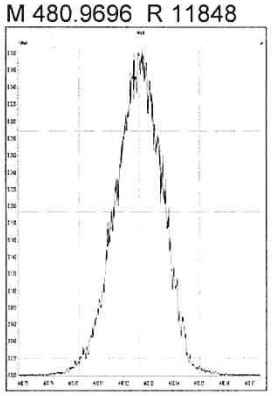
M 454.9728 R 11573



M 466.9728 R 11417



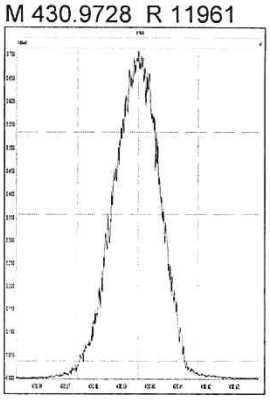
M 480.9696 R 11848



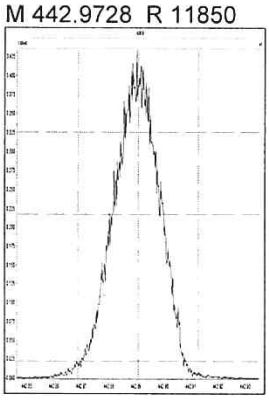
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

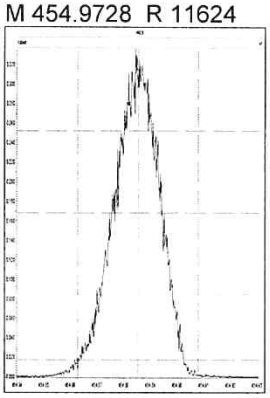
M 430.9728 R 11961



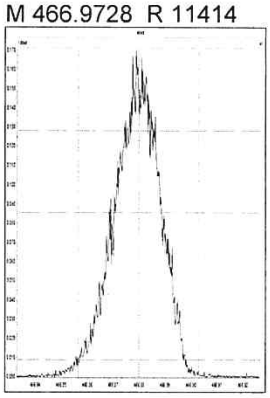
M 442.9728 R 11850



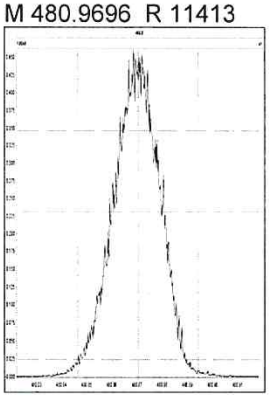
M 454.9728 R 11624



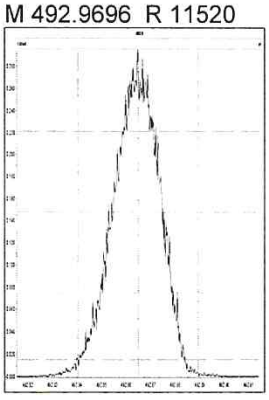
M 466.9728 R 11414



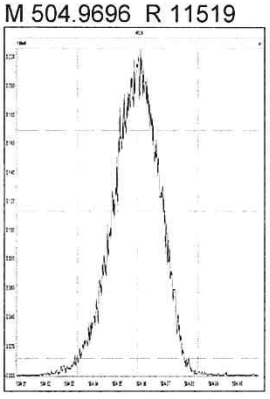
M 480.9696 R 11413



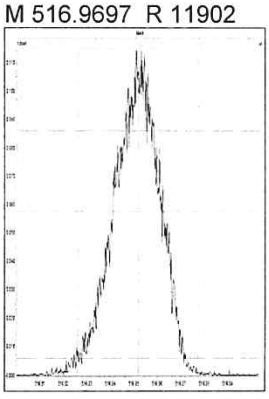
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

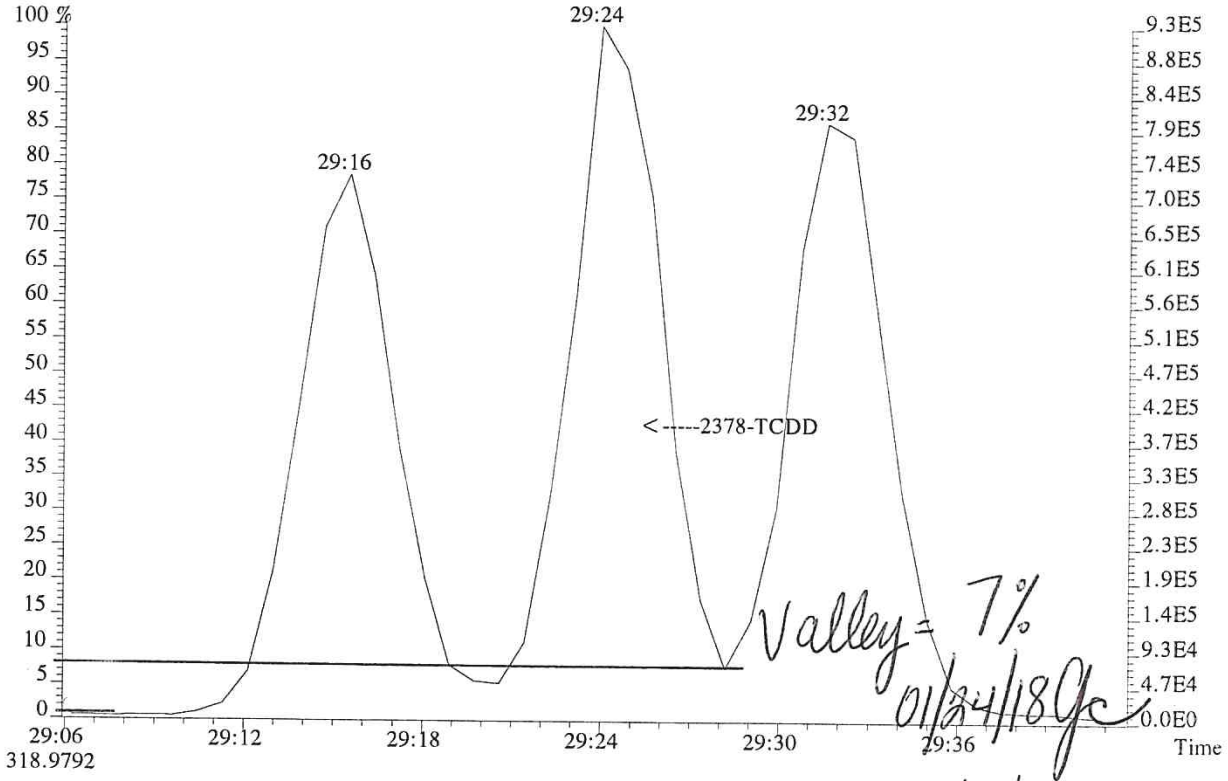
Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

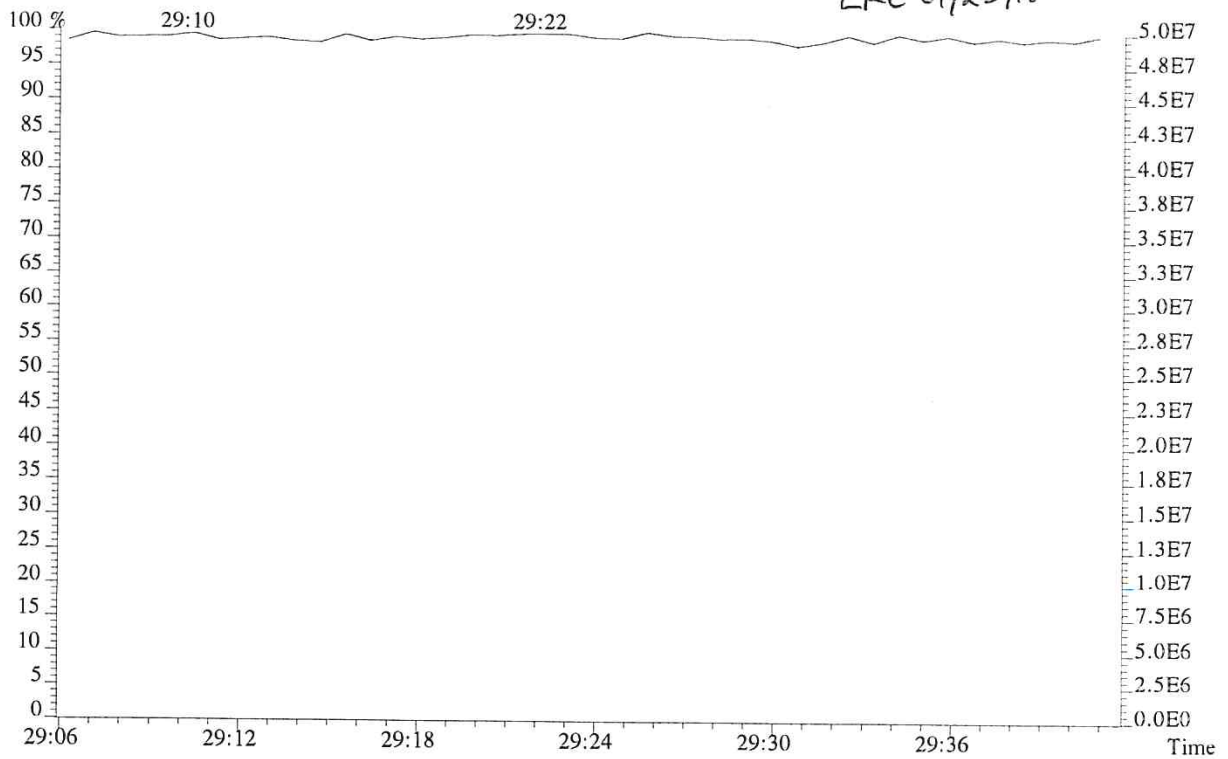
% Valley 2378-TCDD: 7 %

010718

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965



LKL 01/25/18



010719

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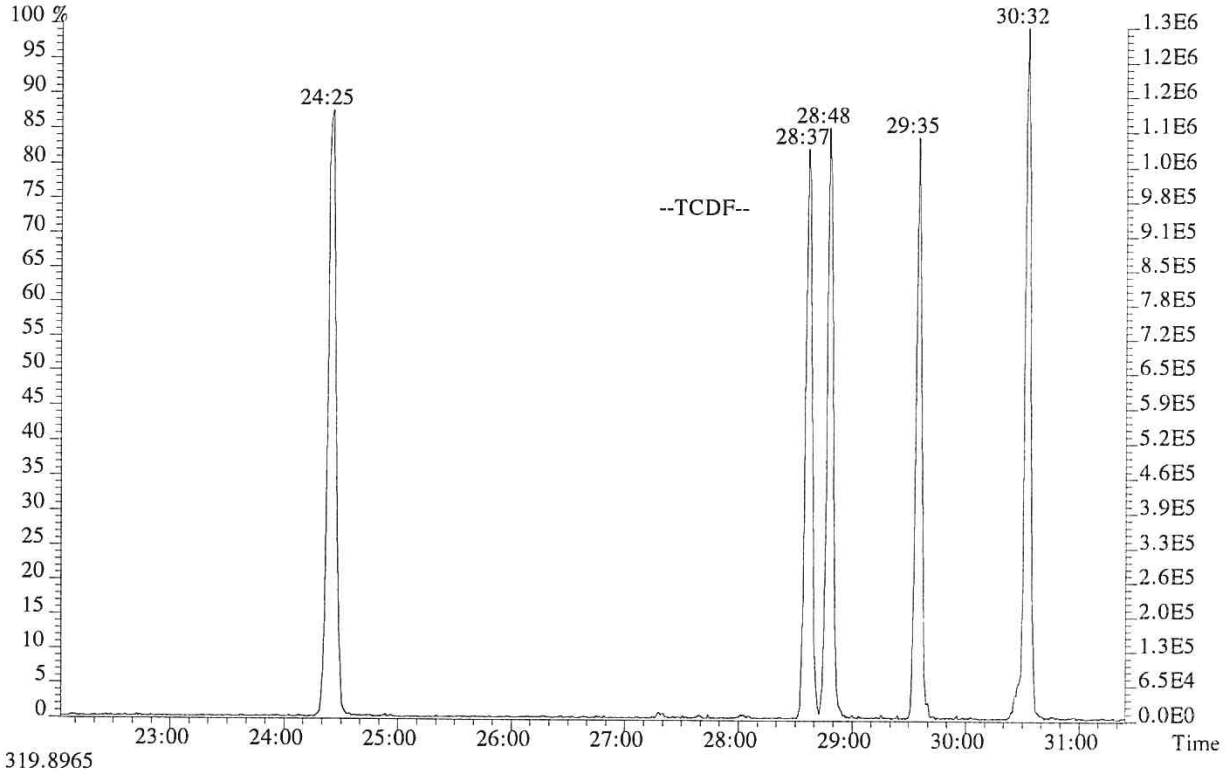
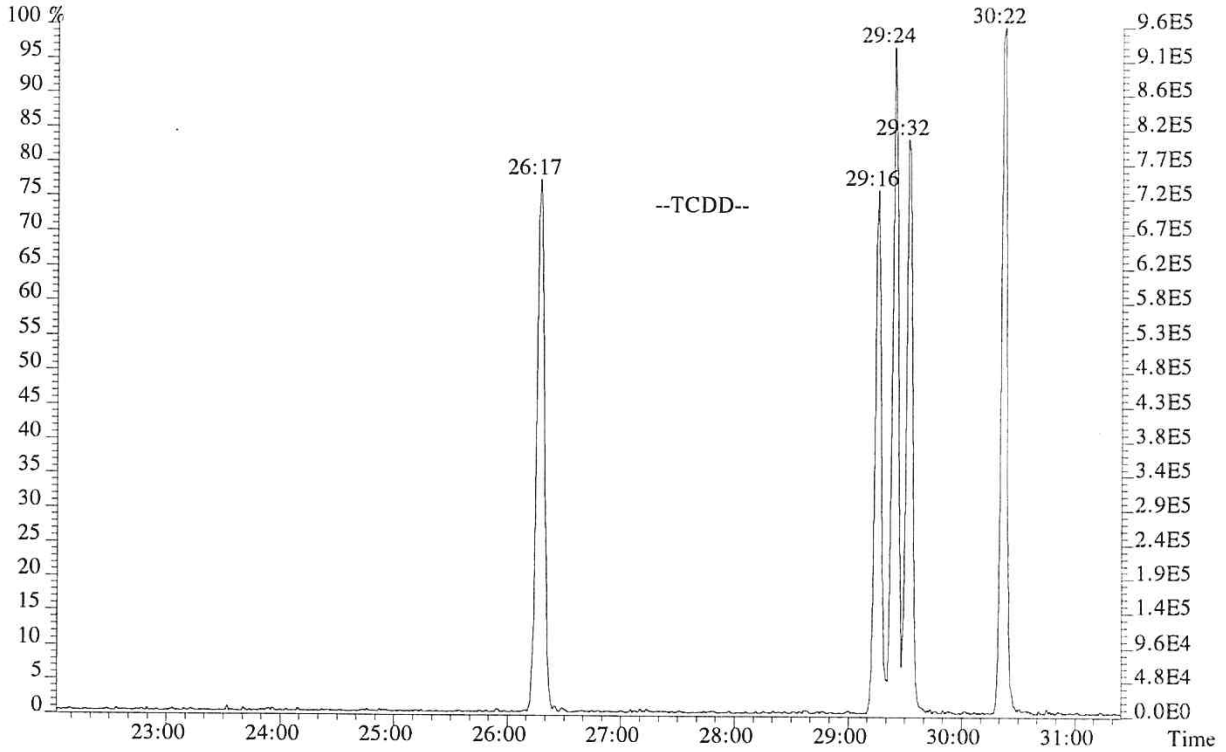
Sample#1 Exp:183360
303.9016

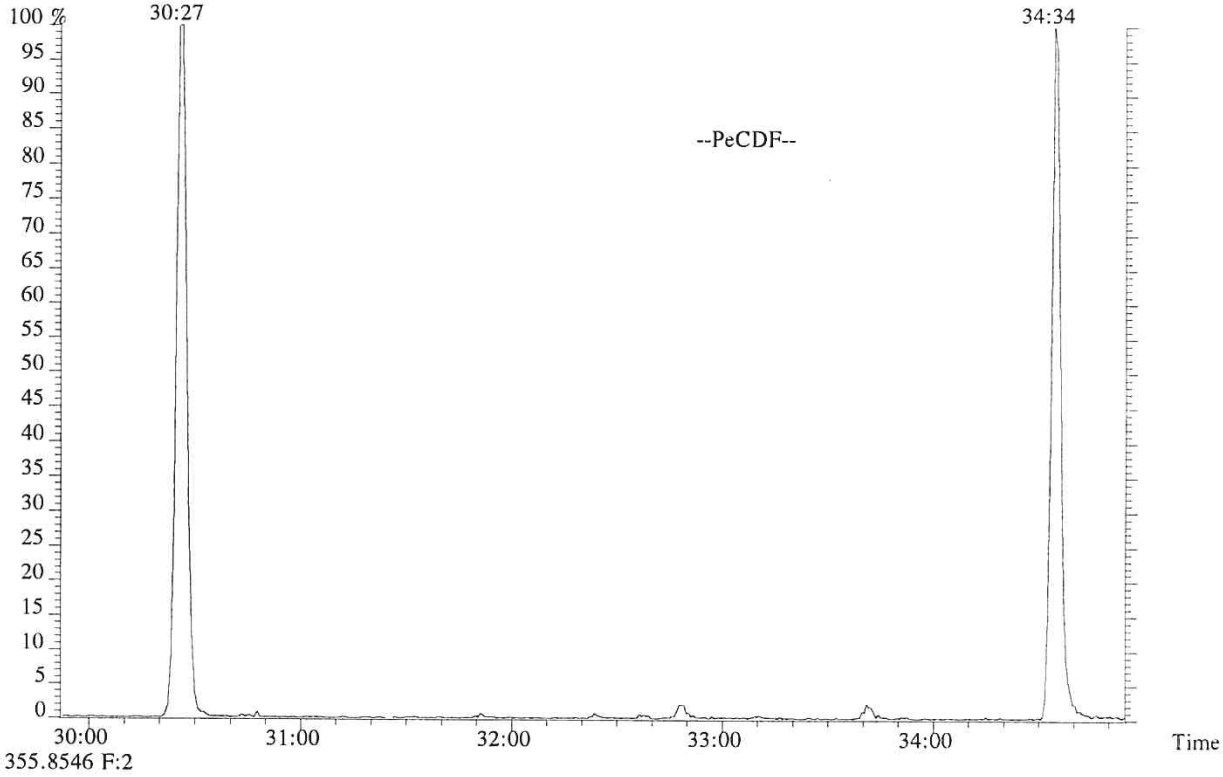


319.8965

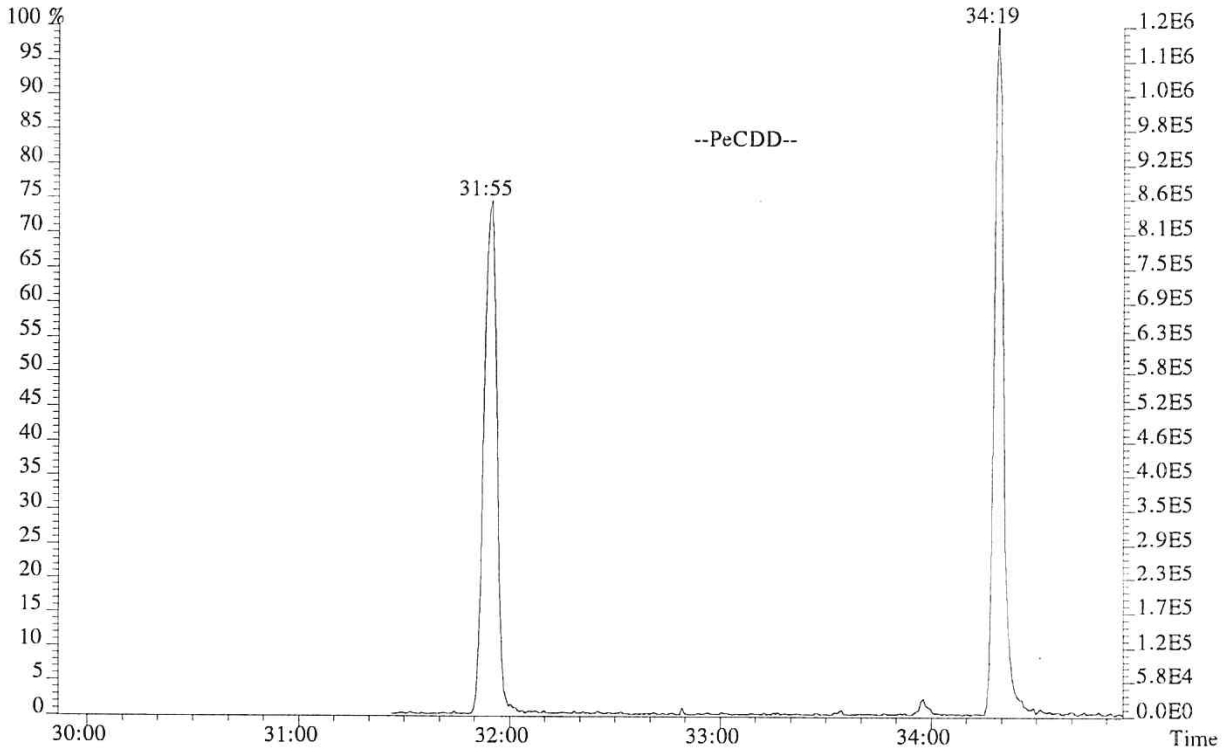


010720

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2

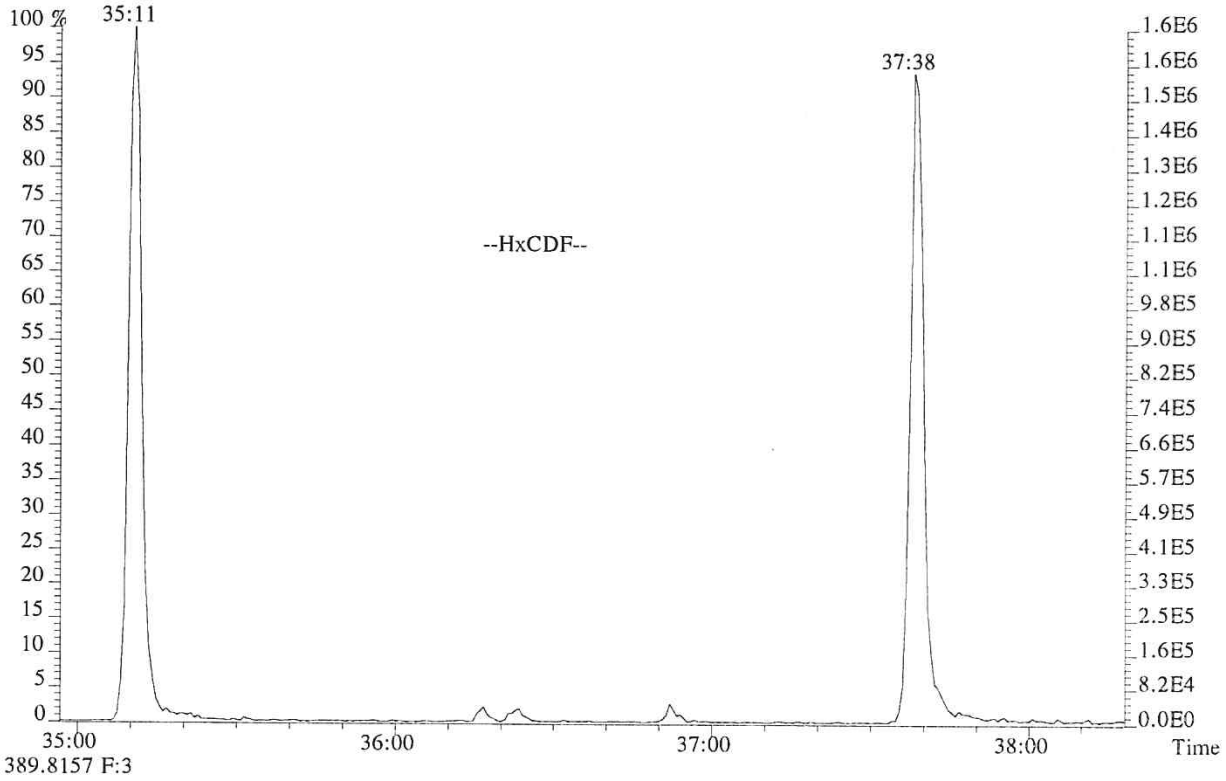


355.8546 F:2

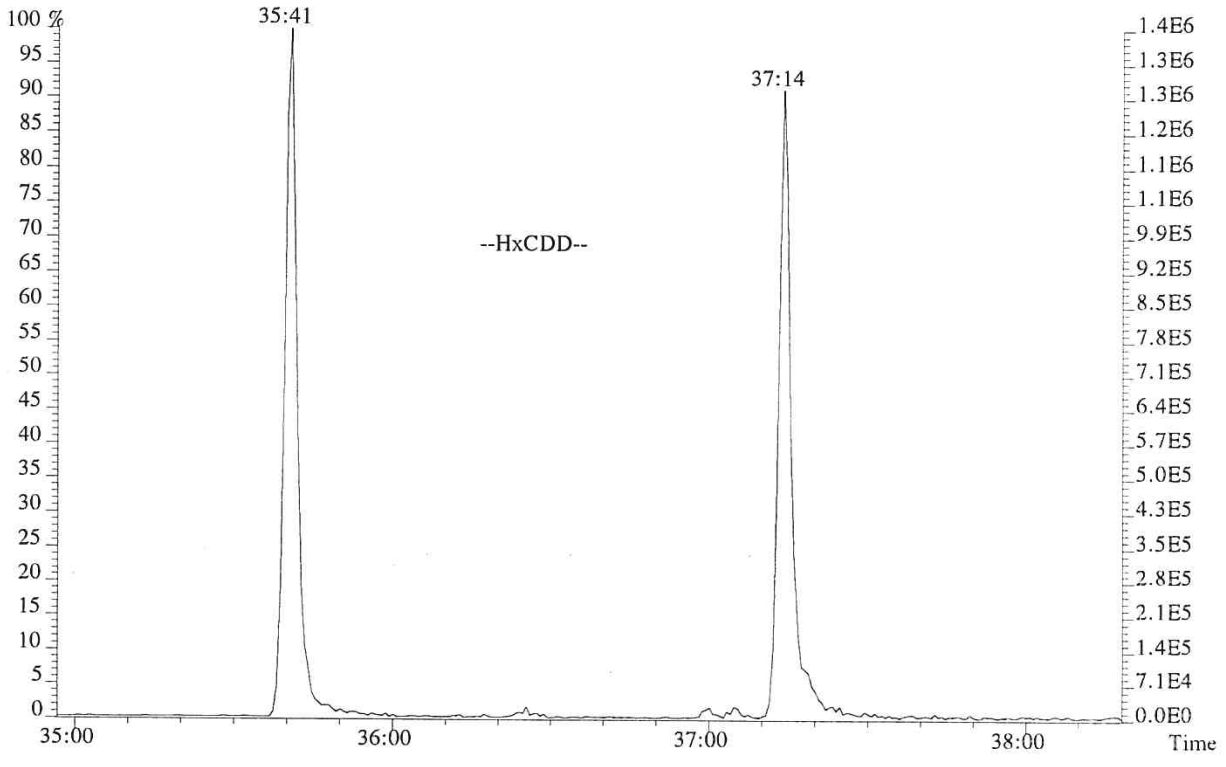


010721

File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3

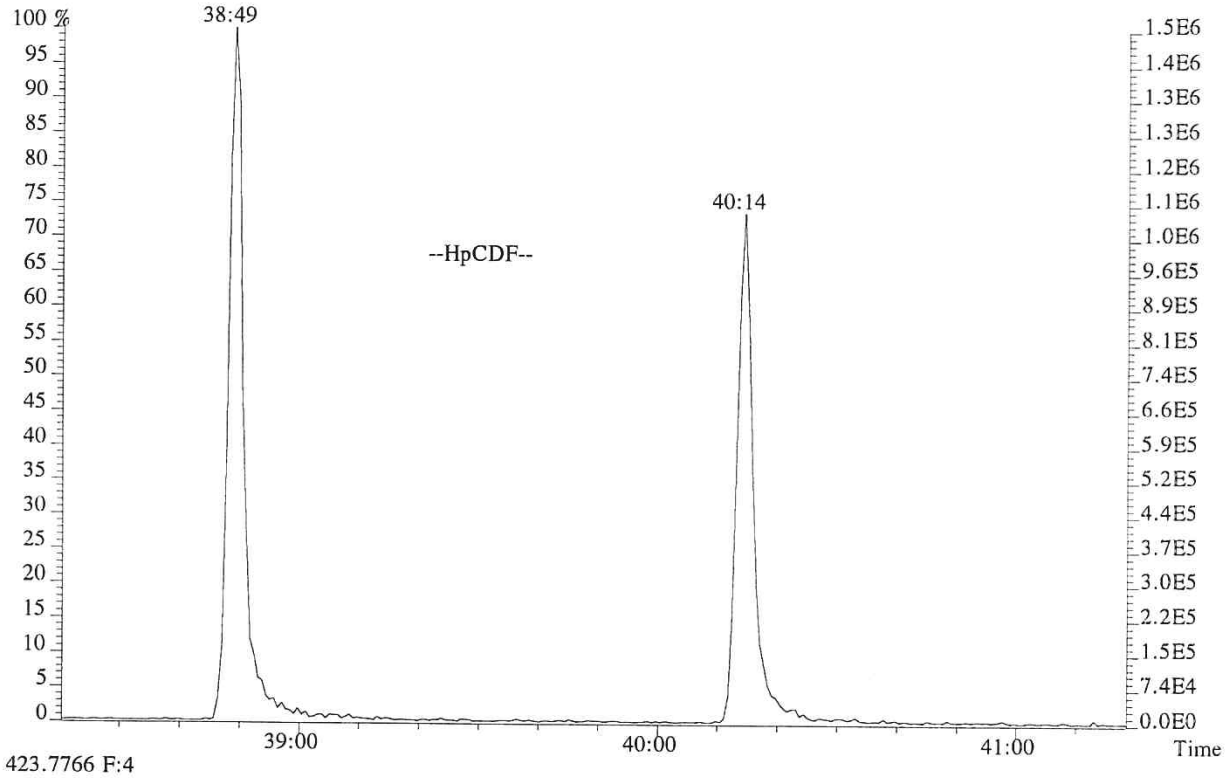


389.8157 F:3

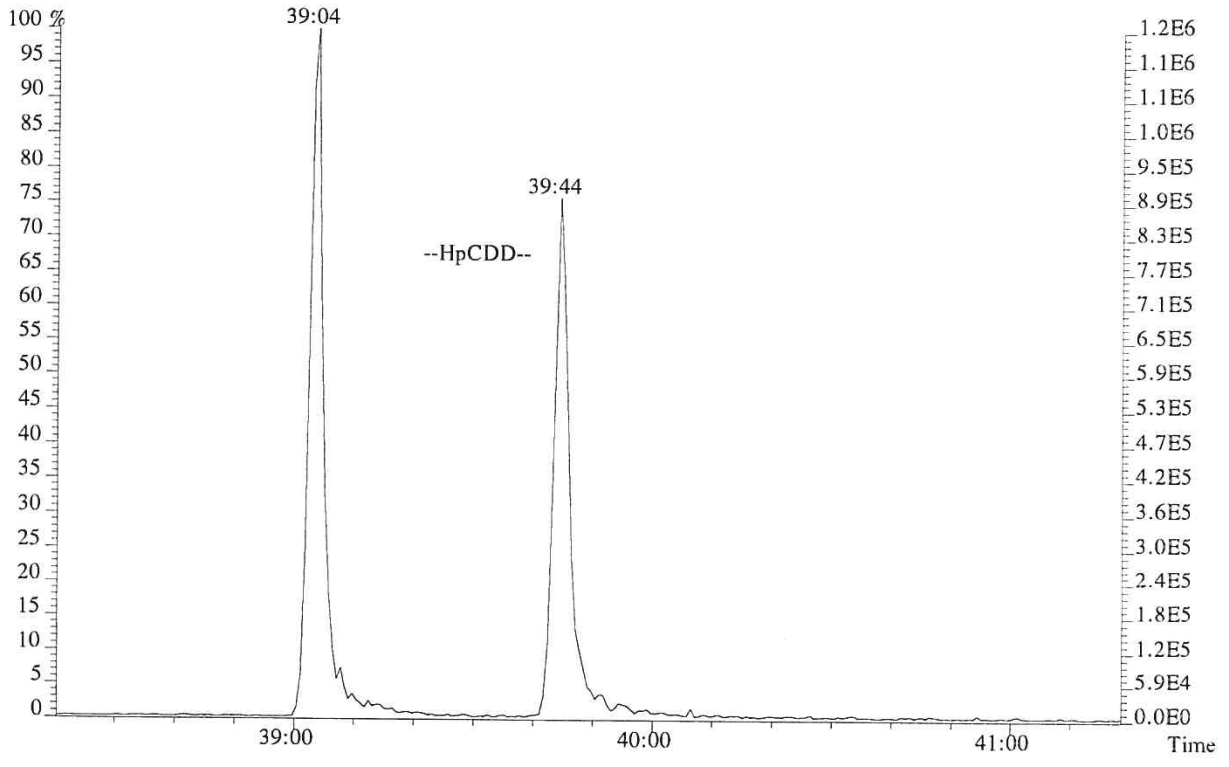


010722

File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



010723

USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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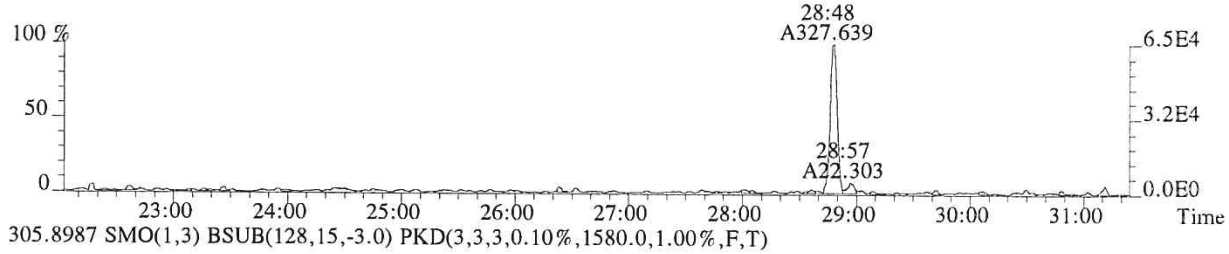
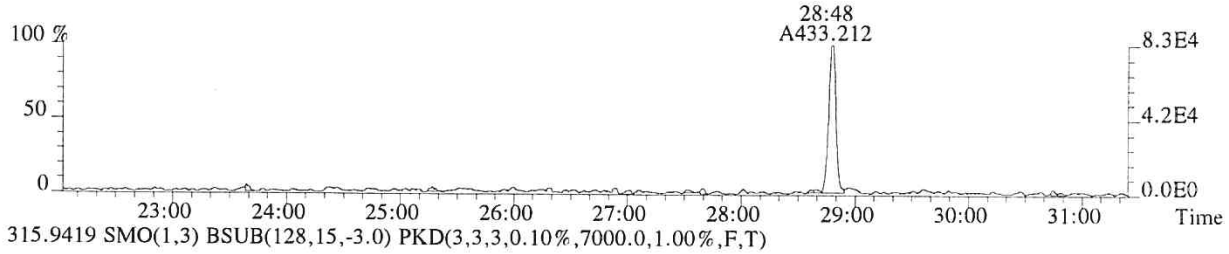
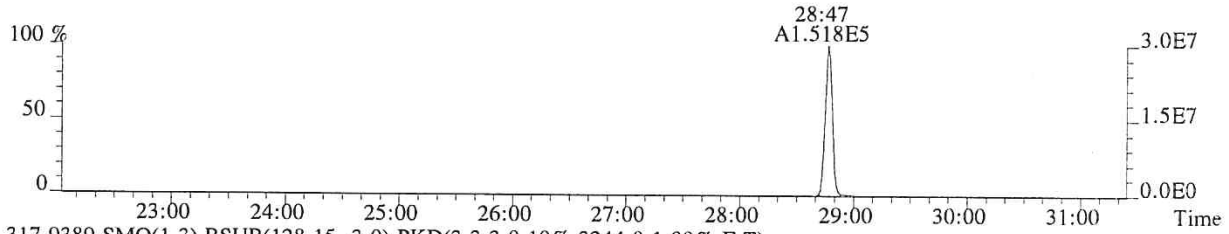
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



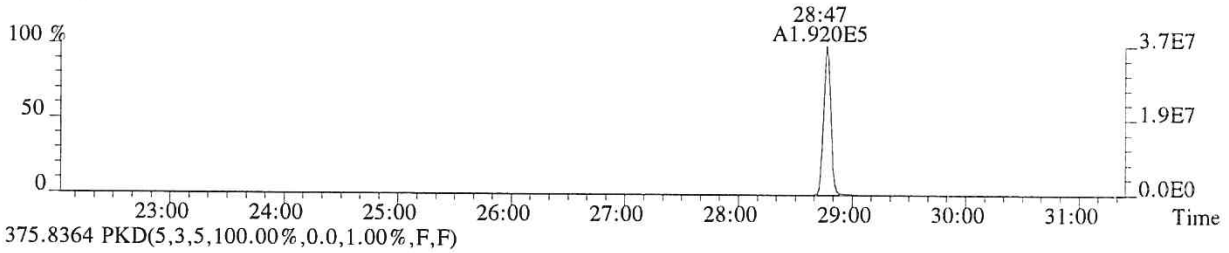
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



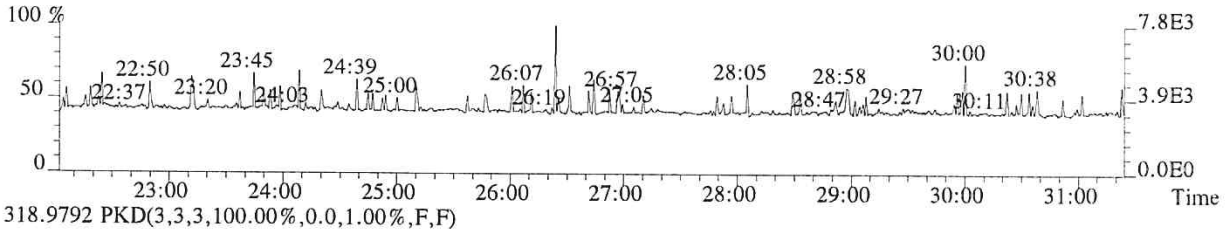
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



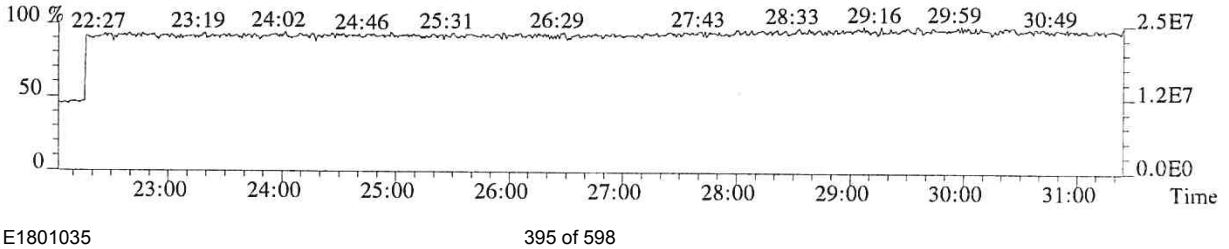
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

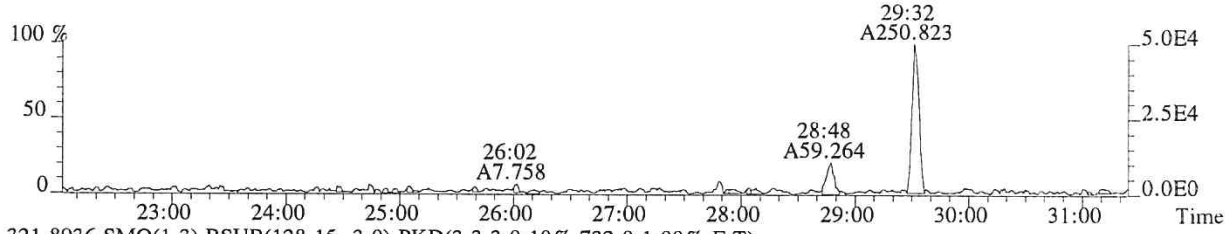


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

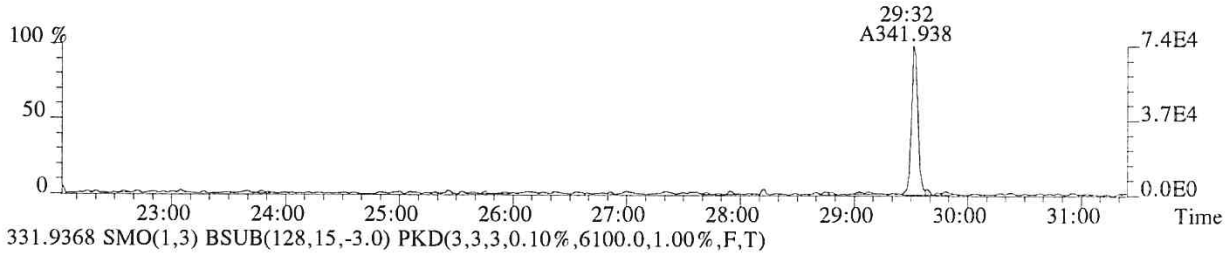


010728

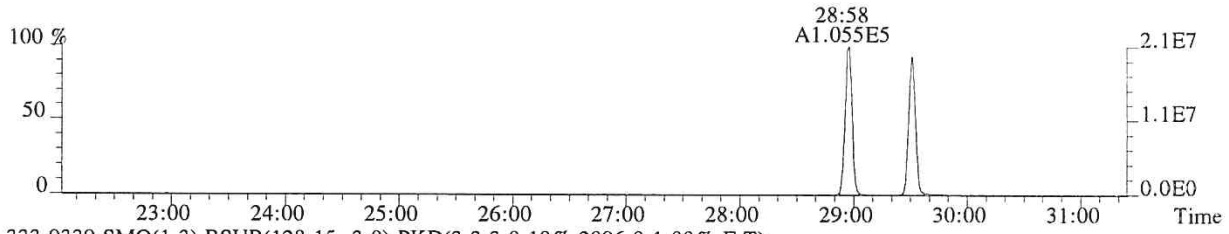
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



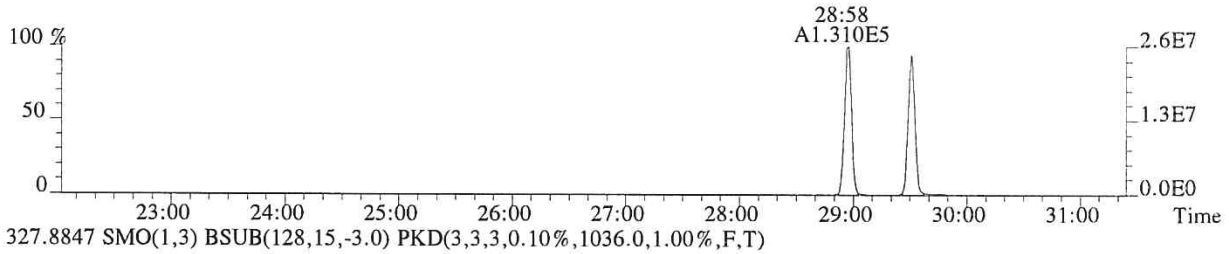
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



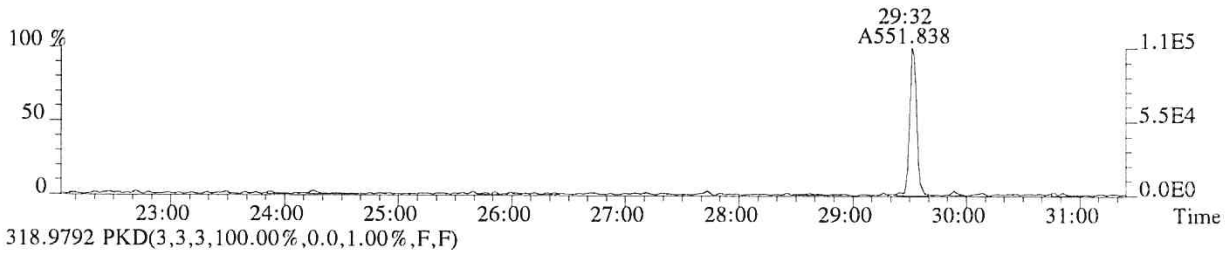
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



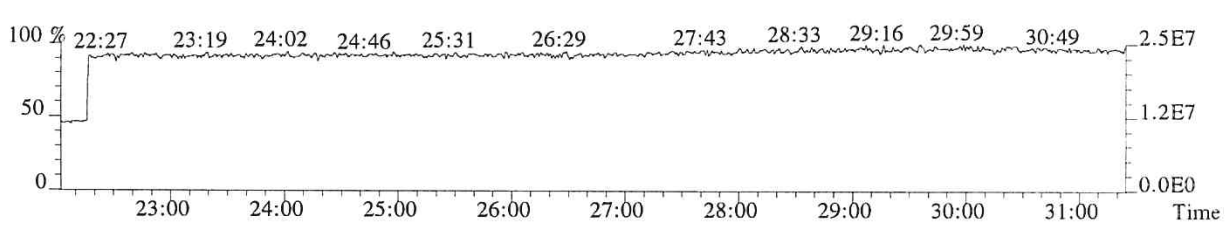
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

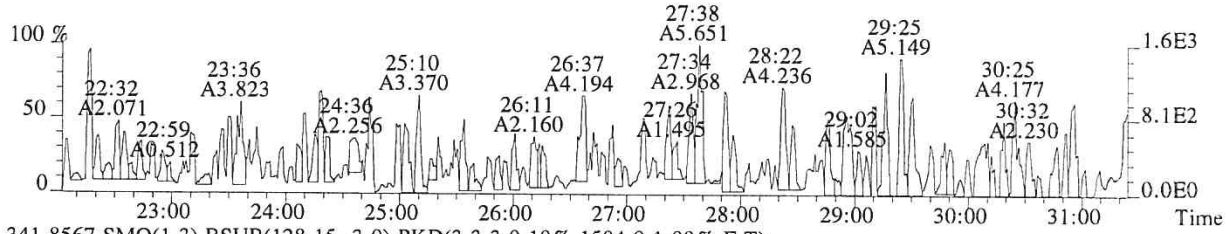


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

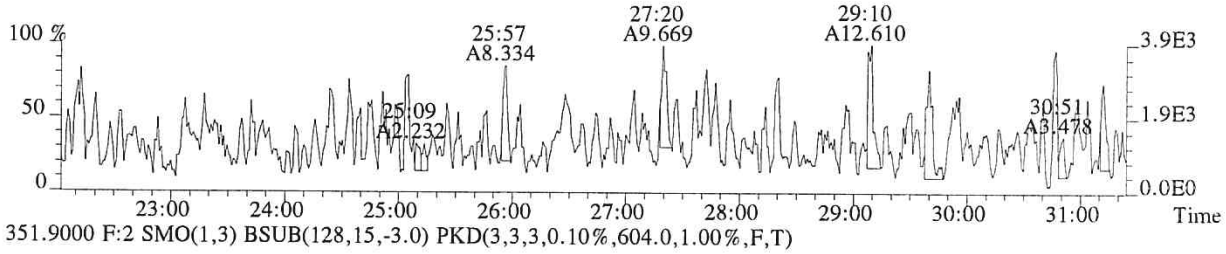


010729

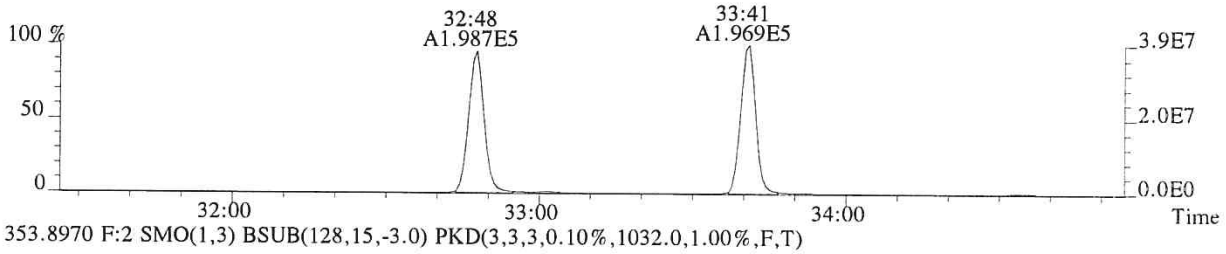
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



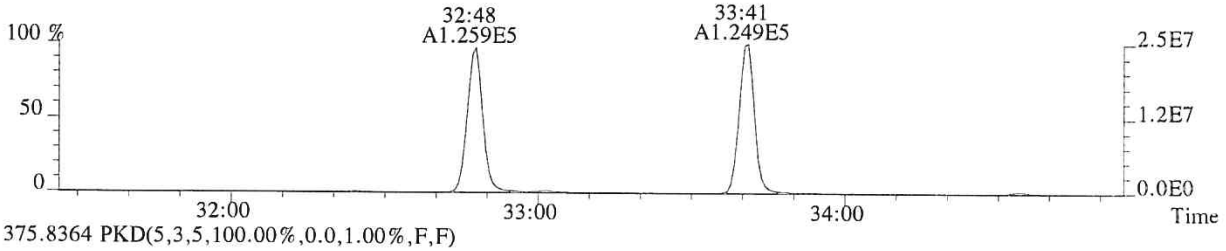
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



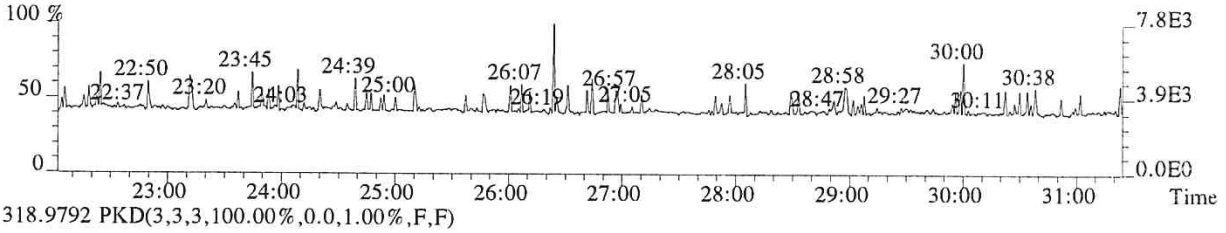
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



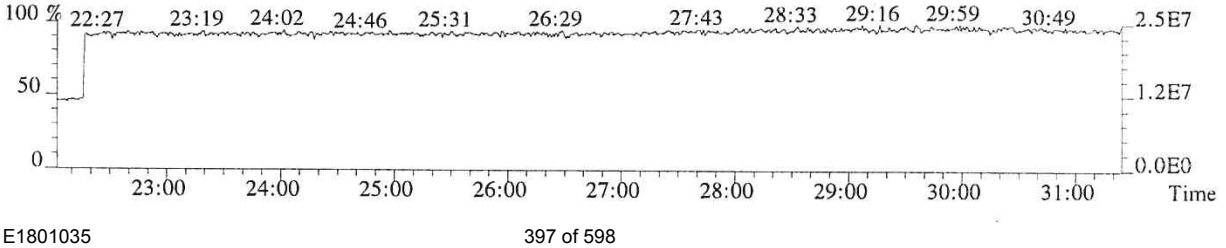
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

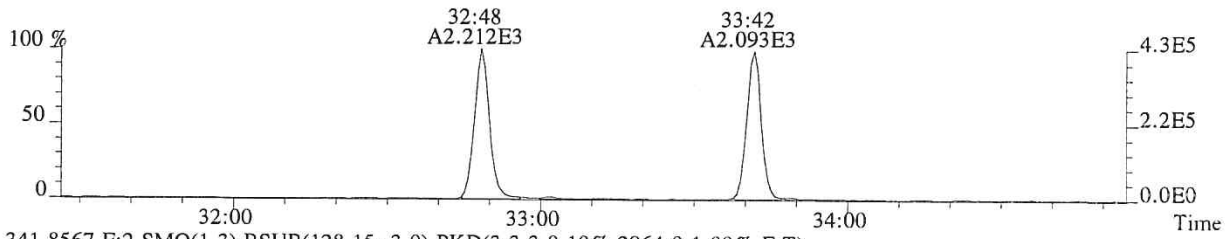


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

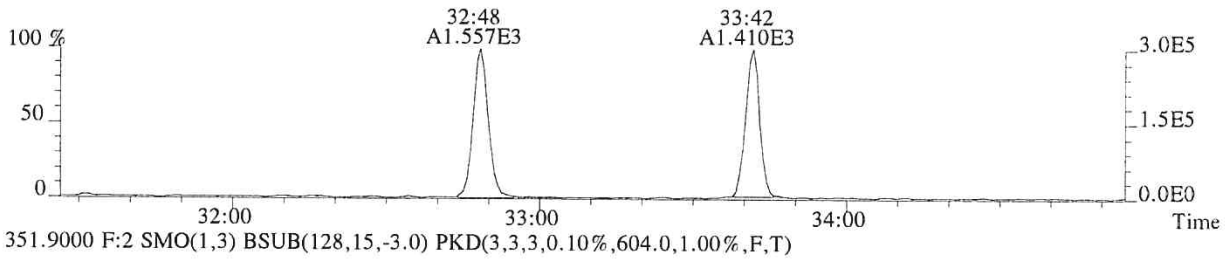


010730

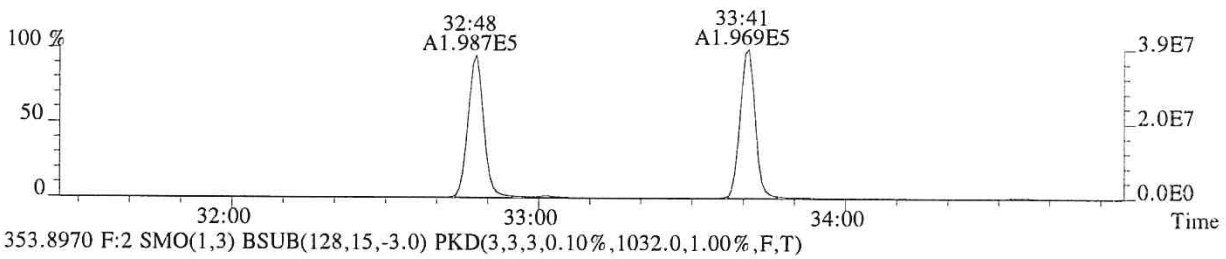
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



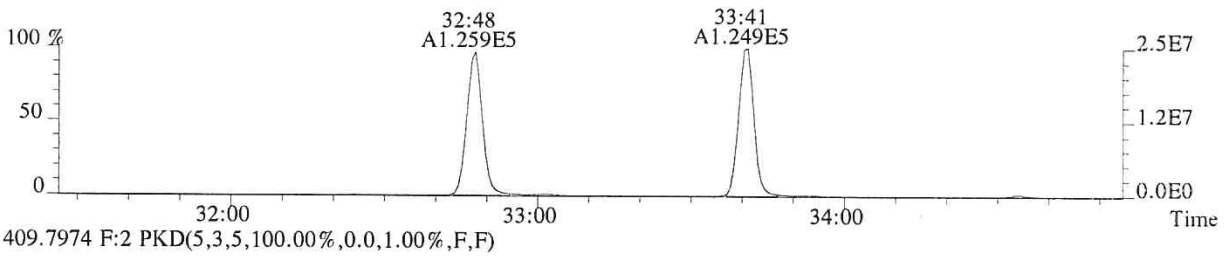
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



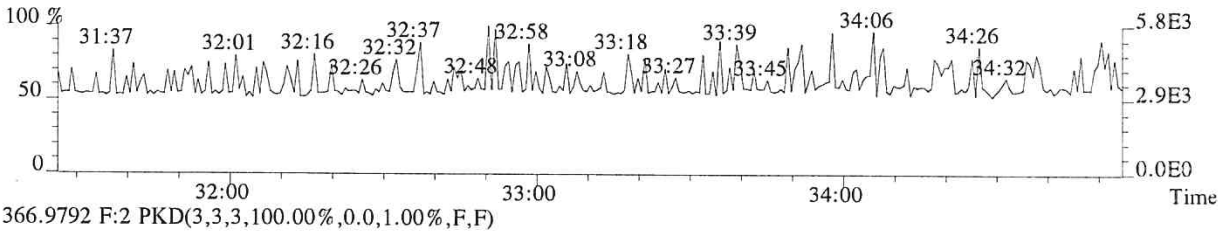
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



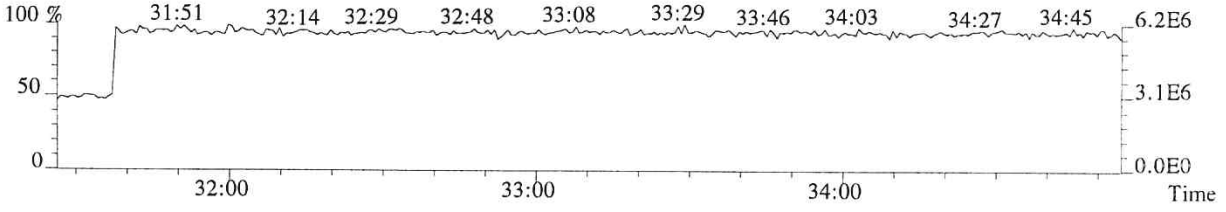
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

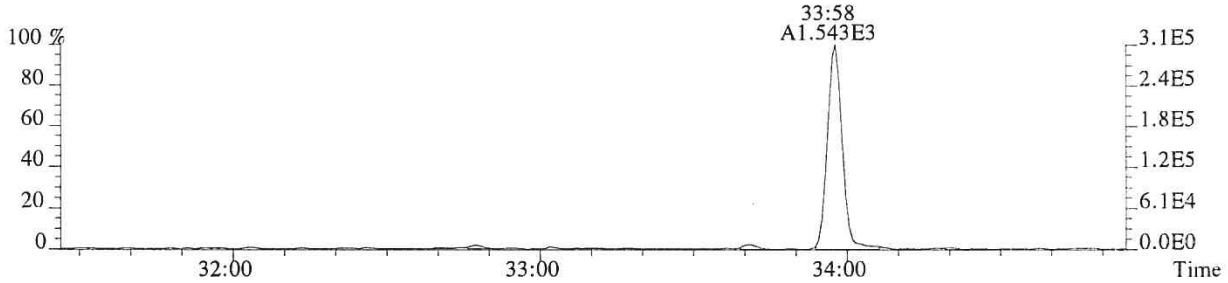


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

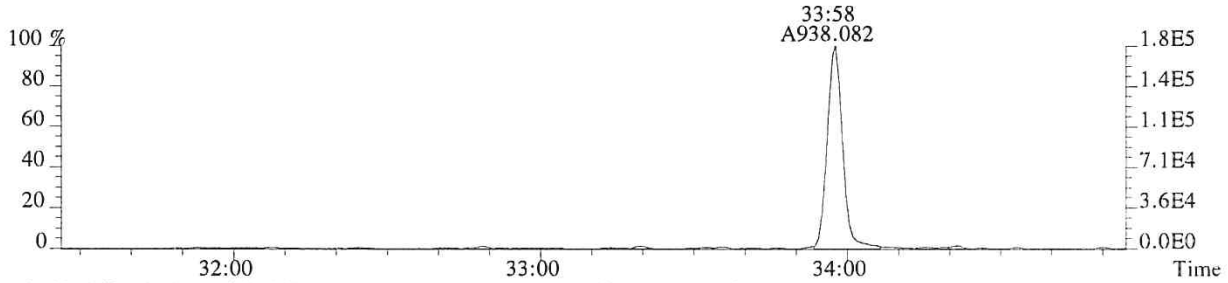


010731

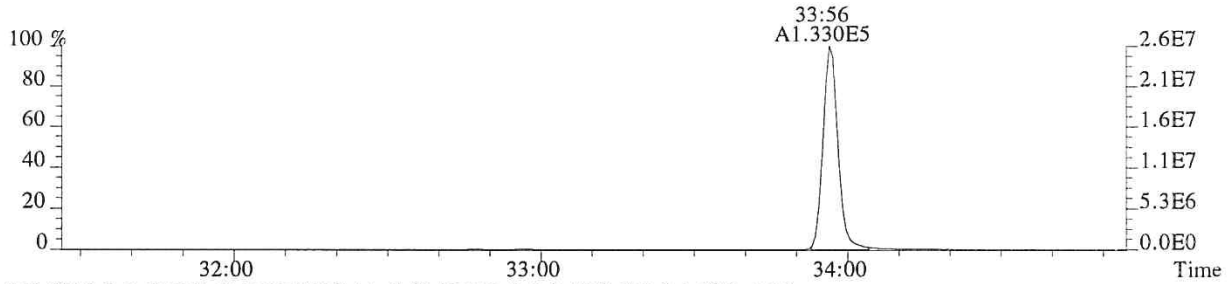
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



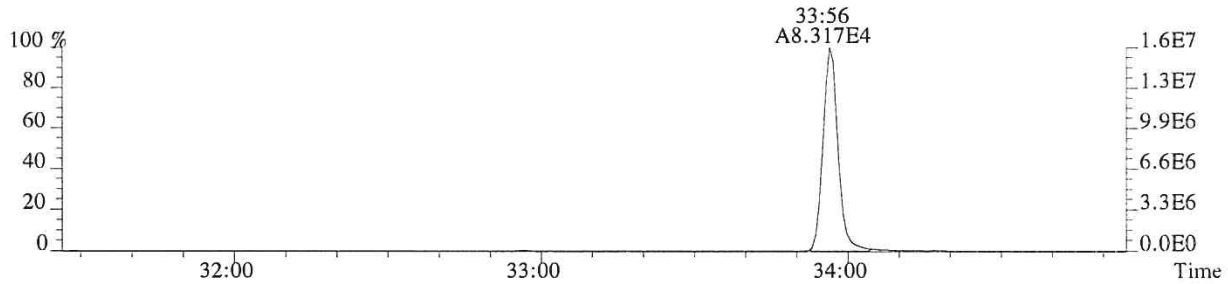
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



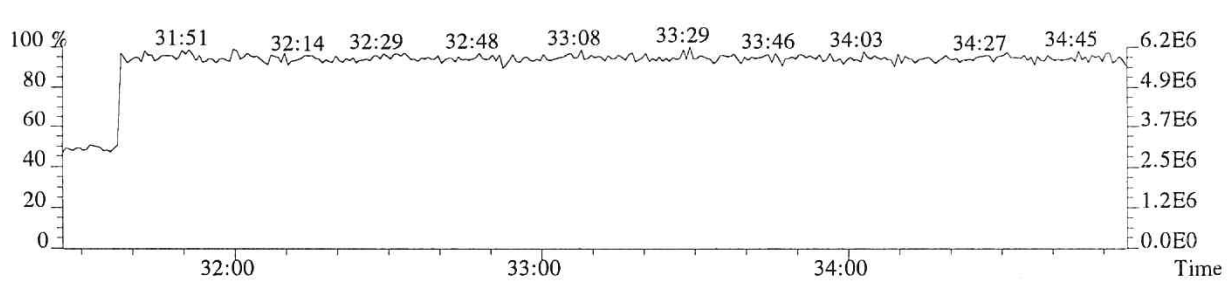
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)

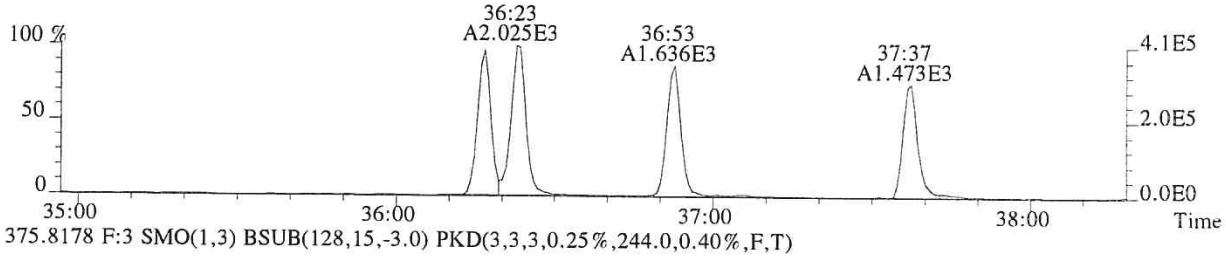


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

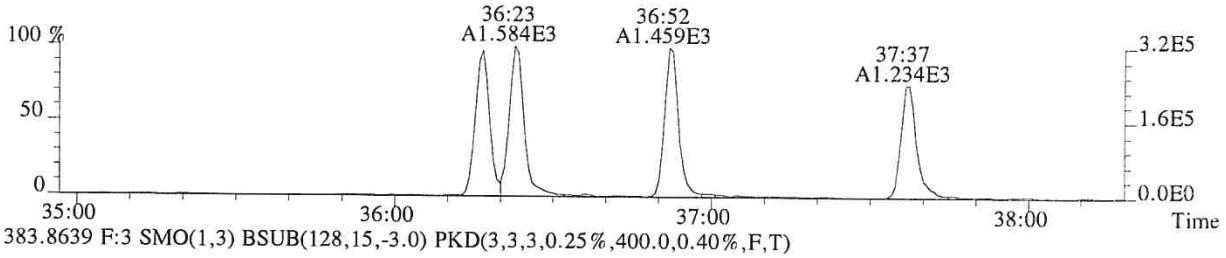


010732

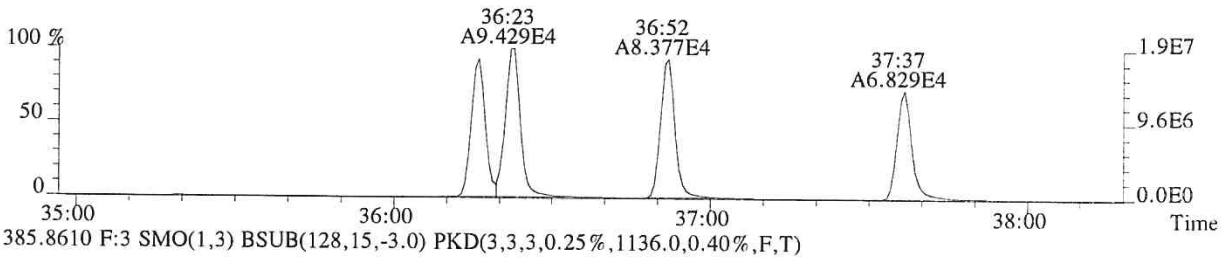
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



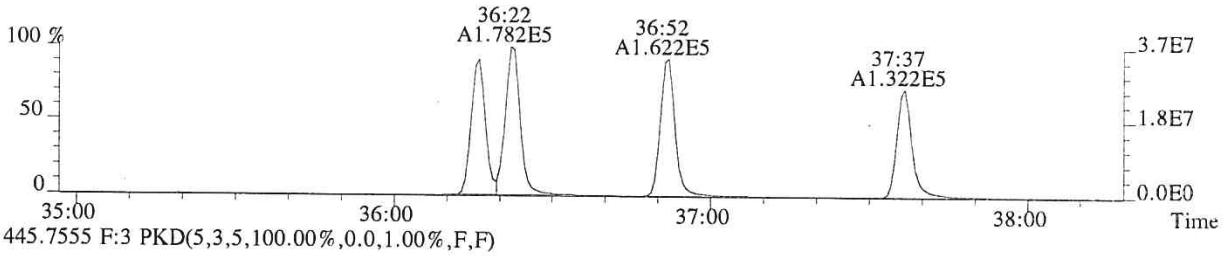
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



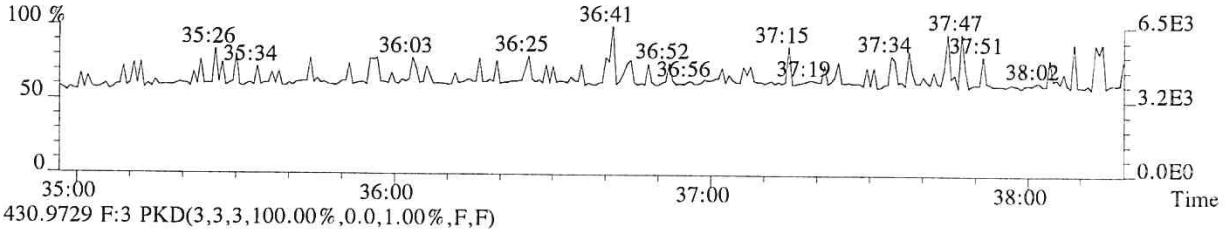
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



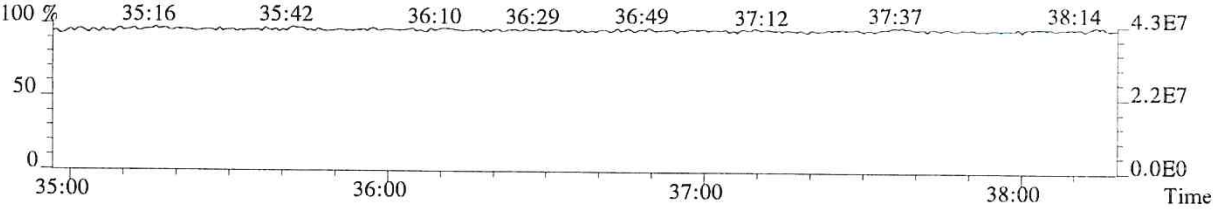
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

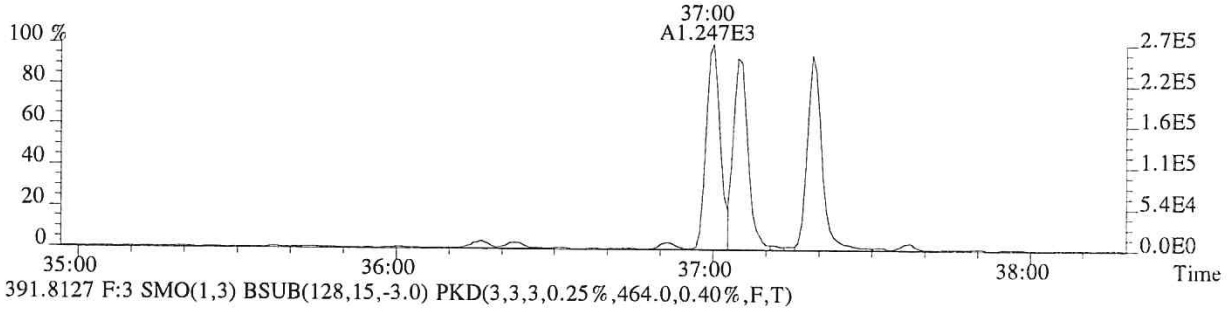


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

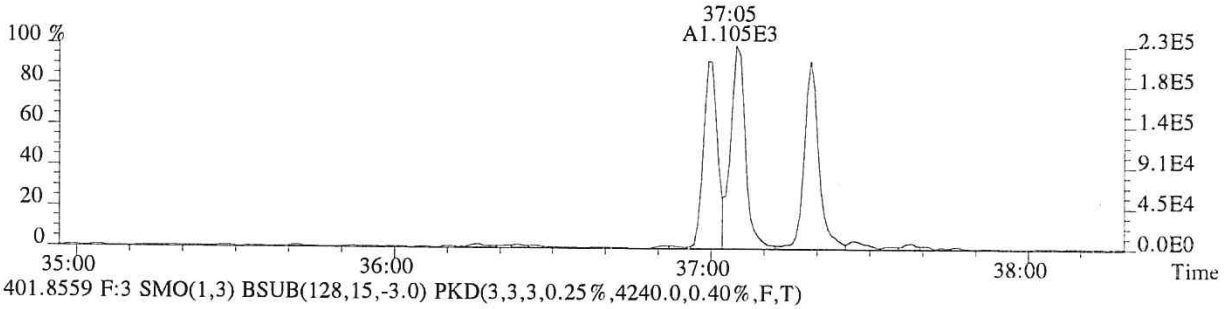


010733

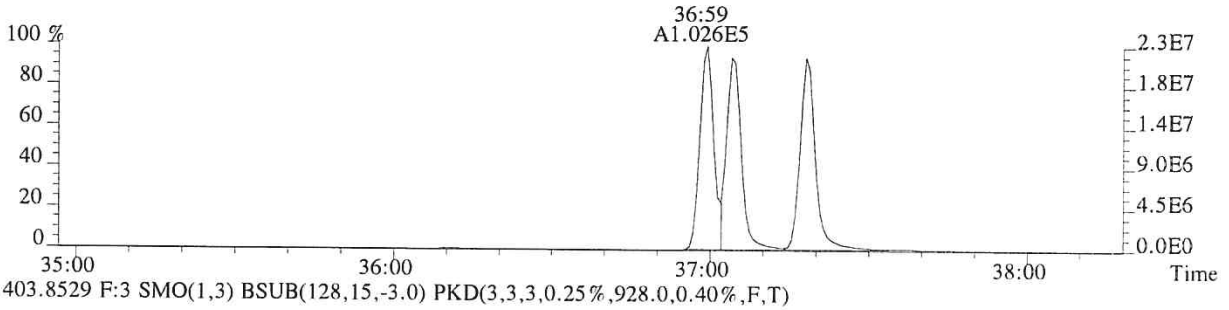
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



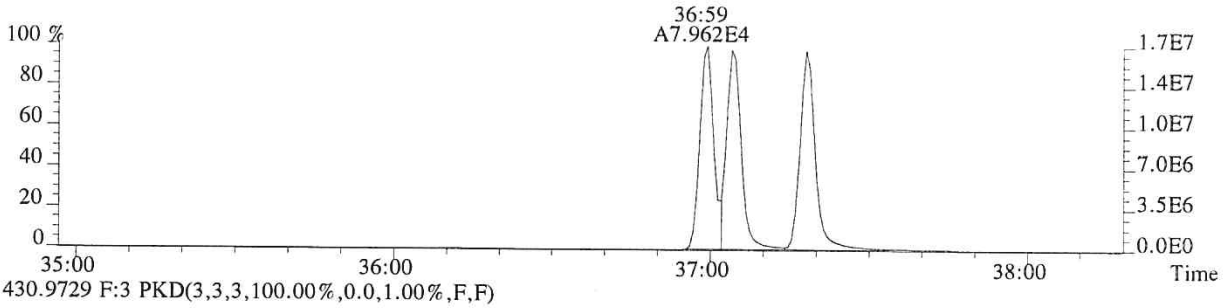
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



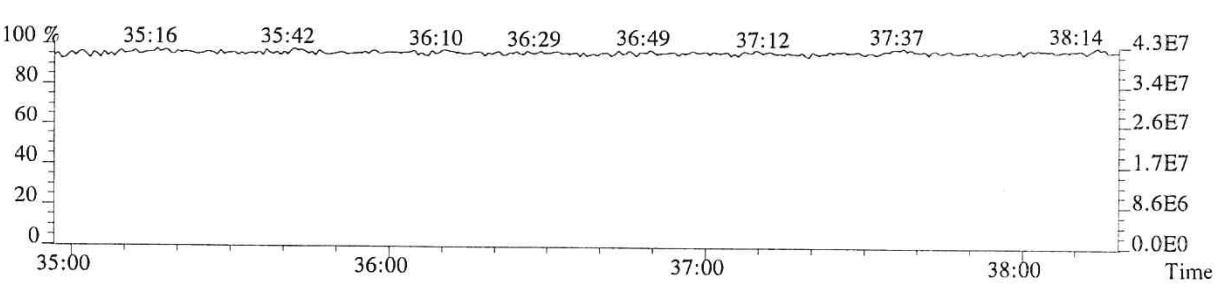
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)

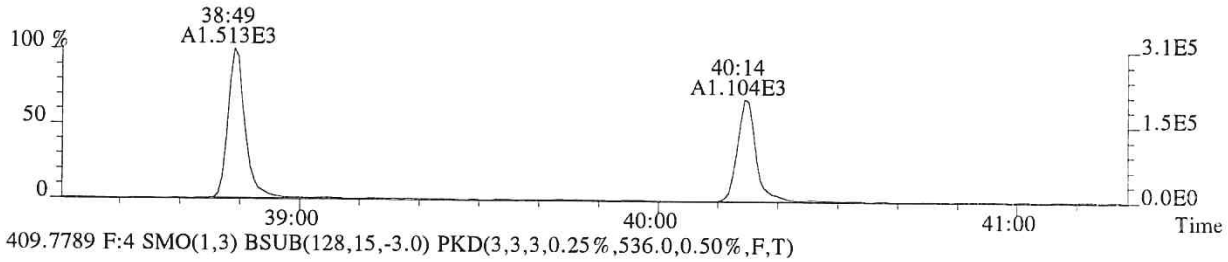


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

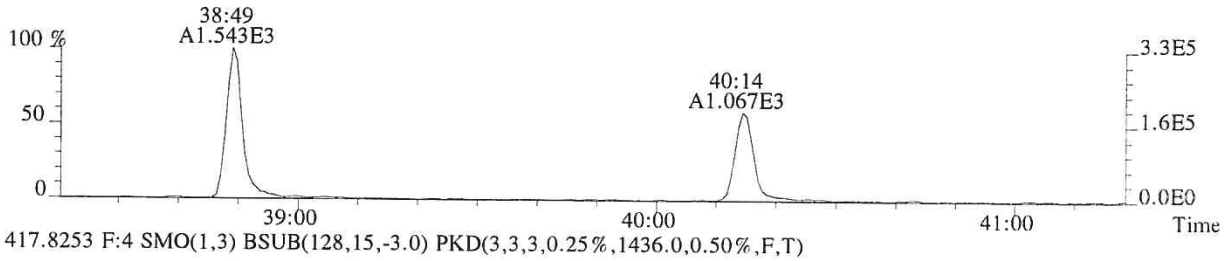


010734

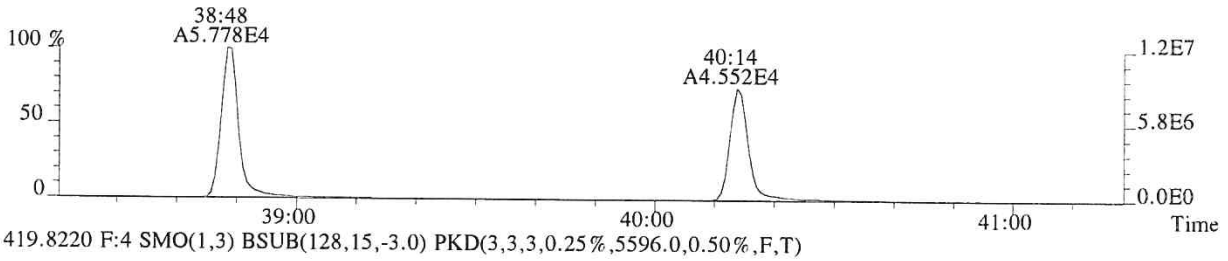
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



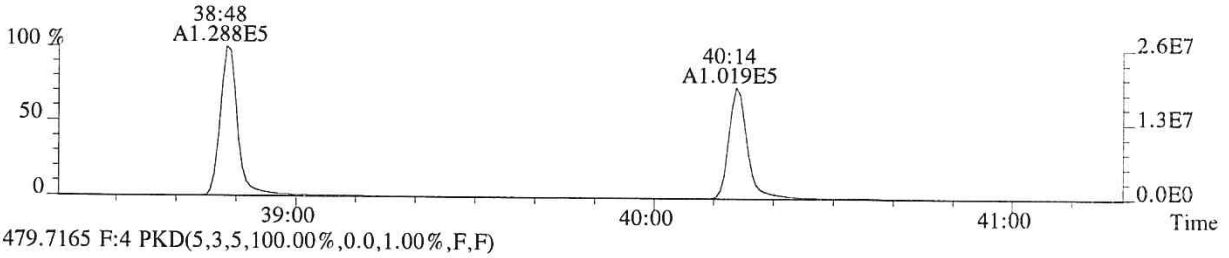
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



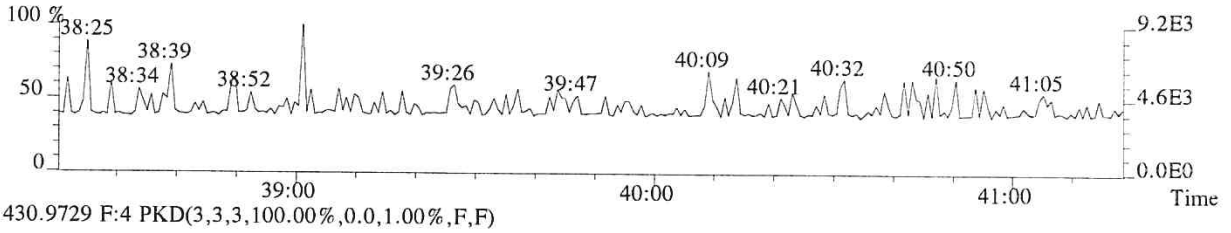
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



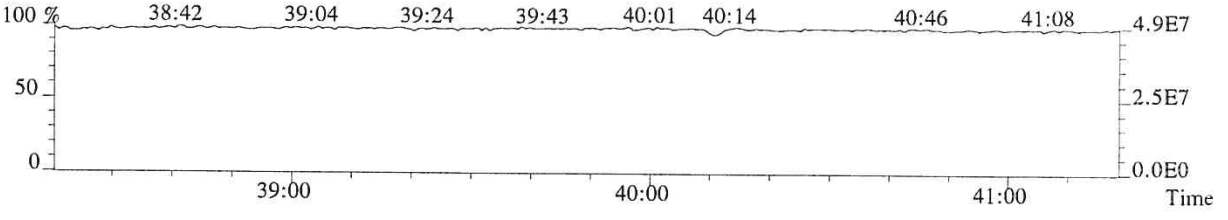
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

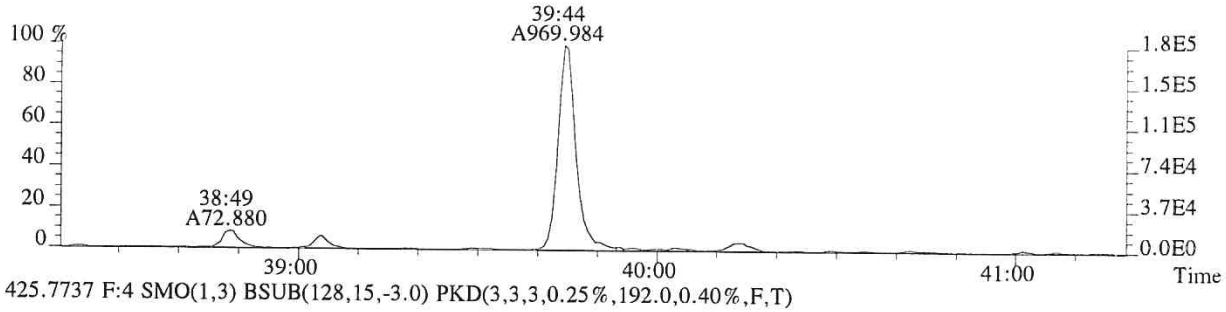


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

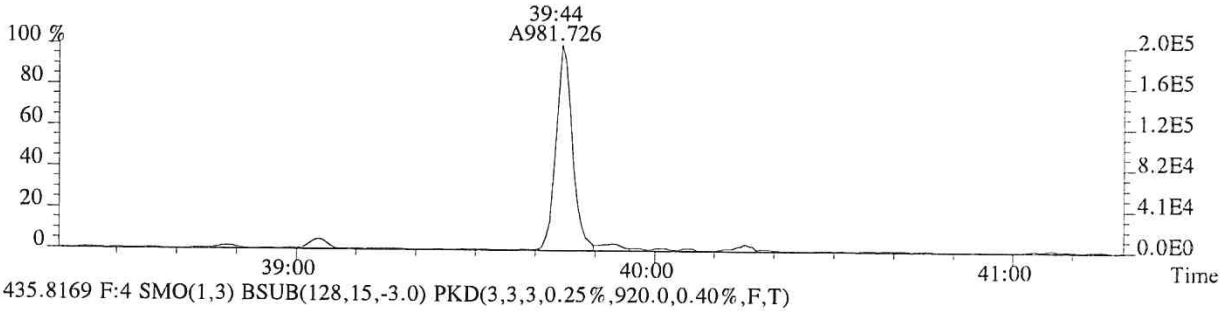


010735

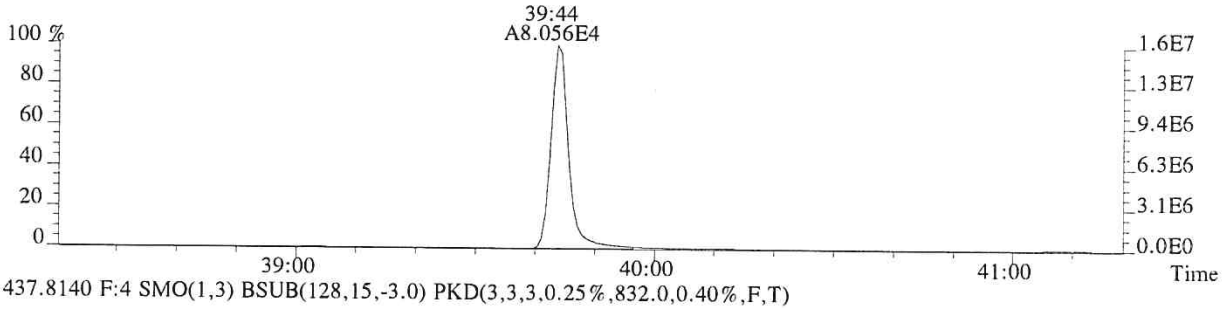
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



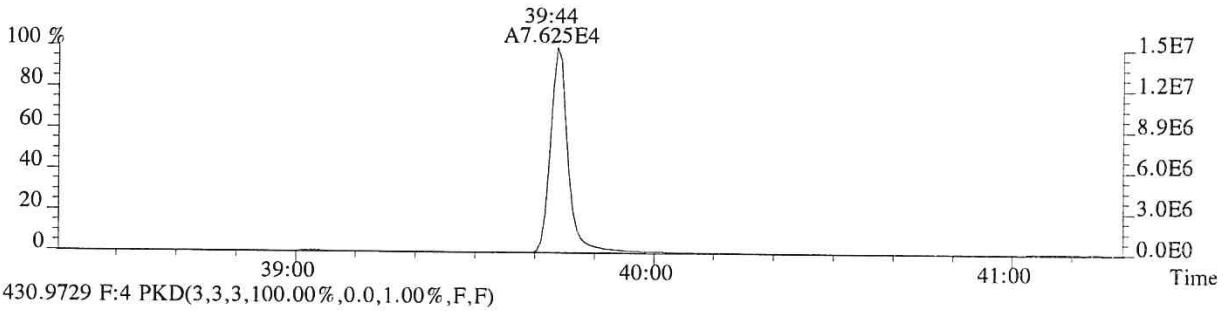
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



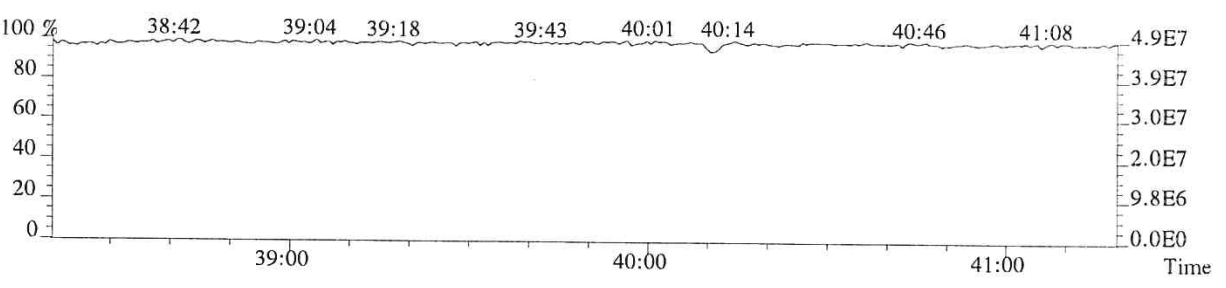
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)

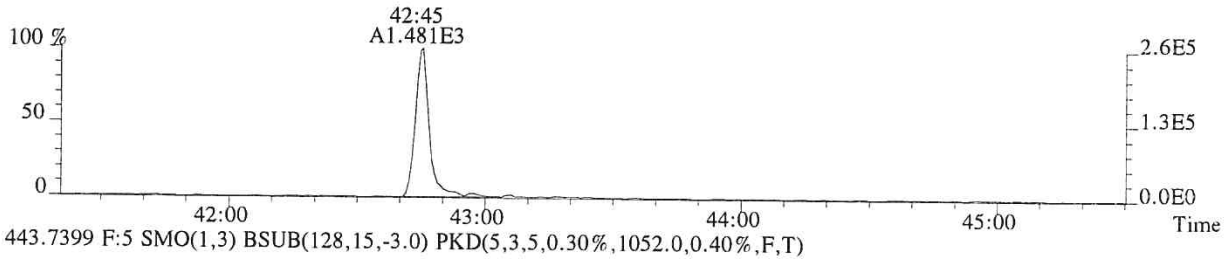


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

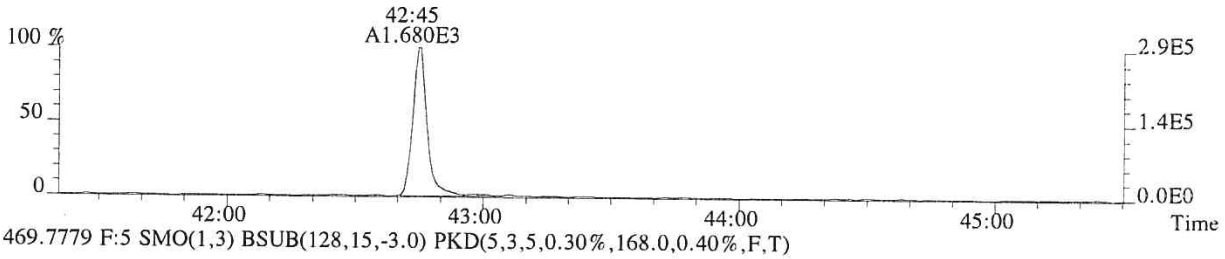


010736

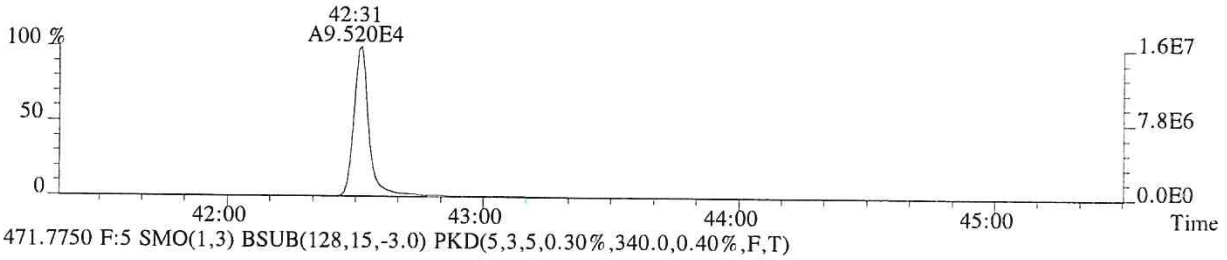
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



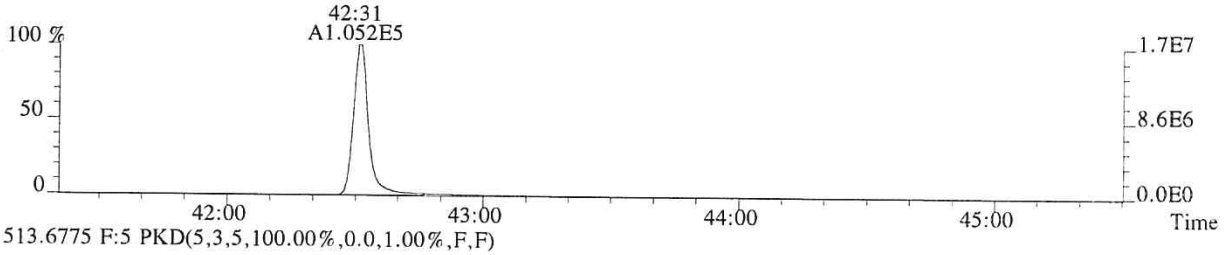
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



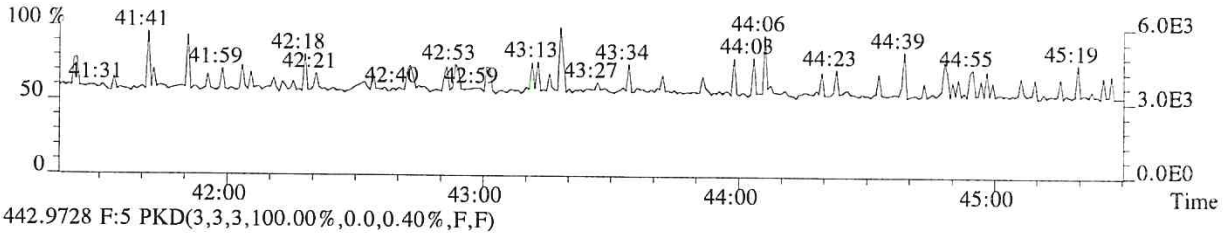
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



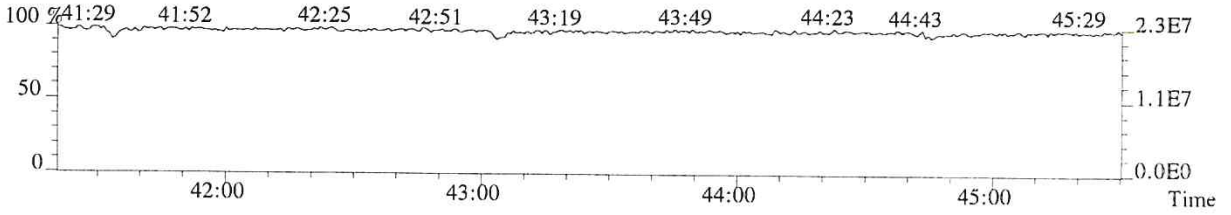
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

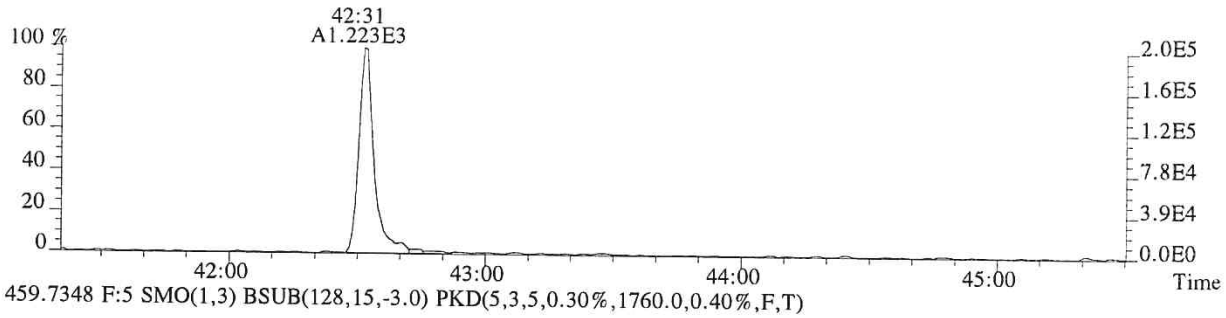


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

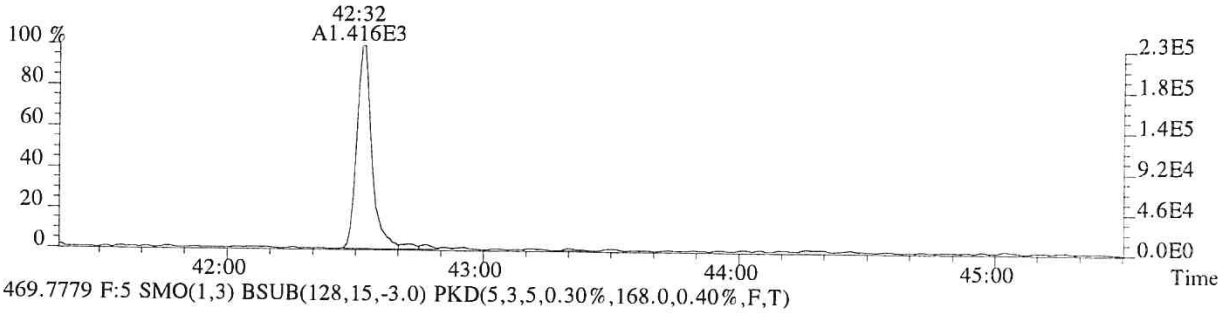


010737

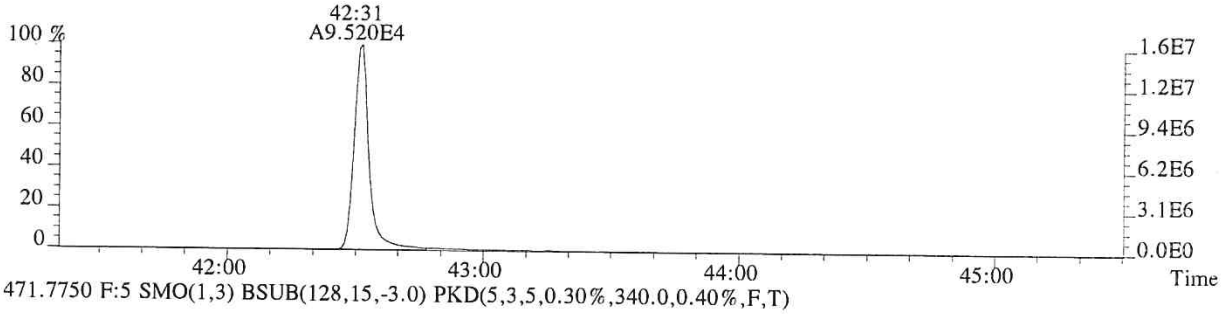
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



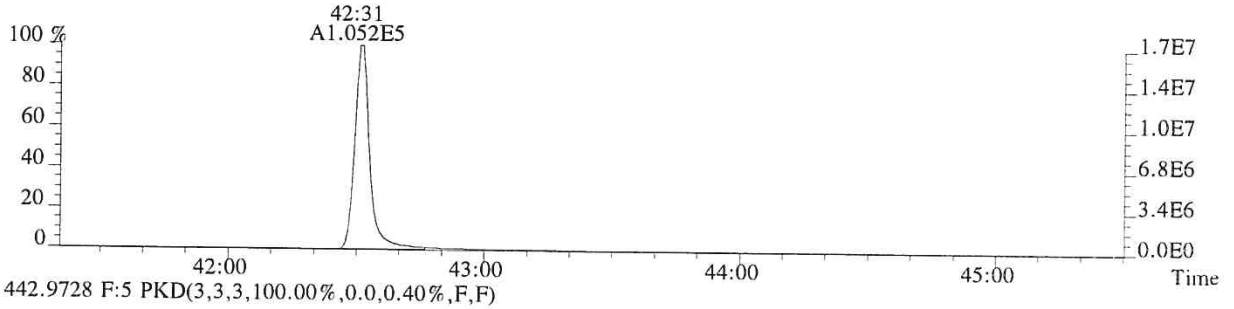
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



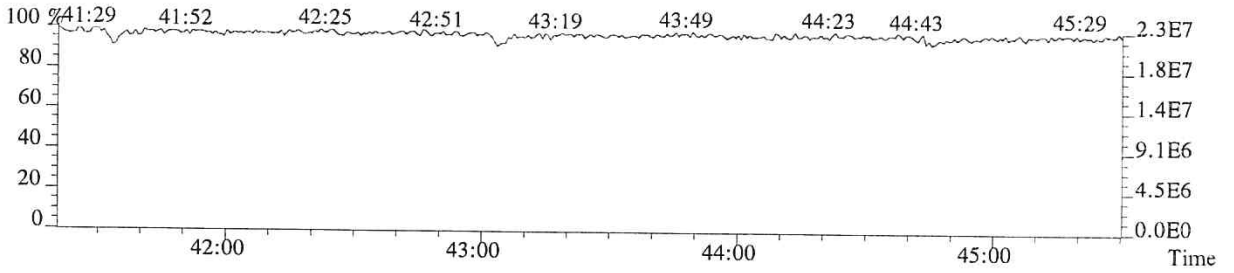
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010738

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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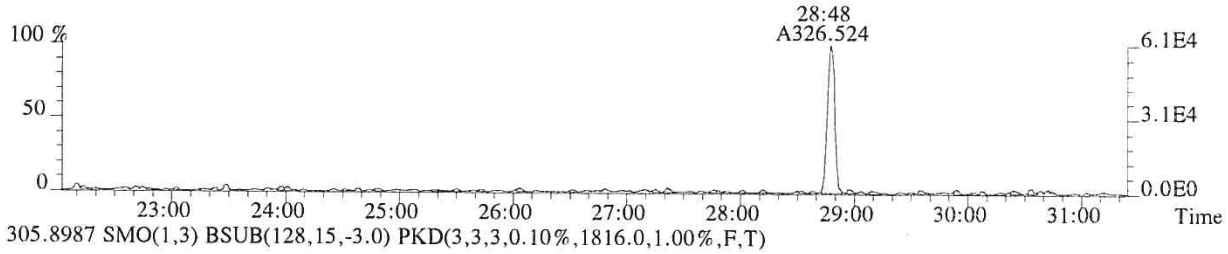
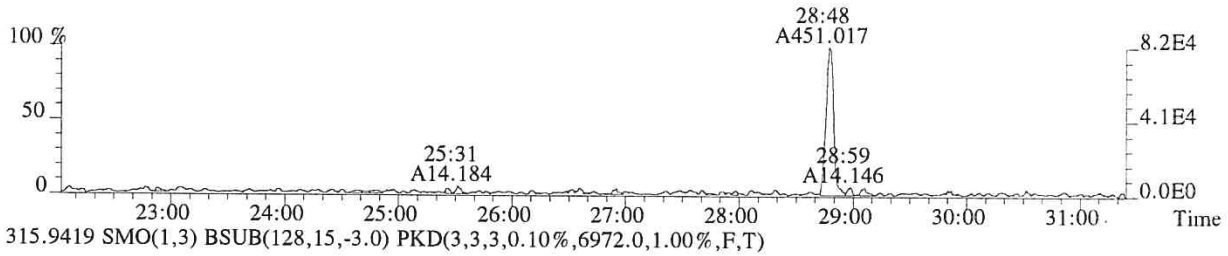
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

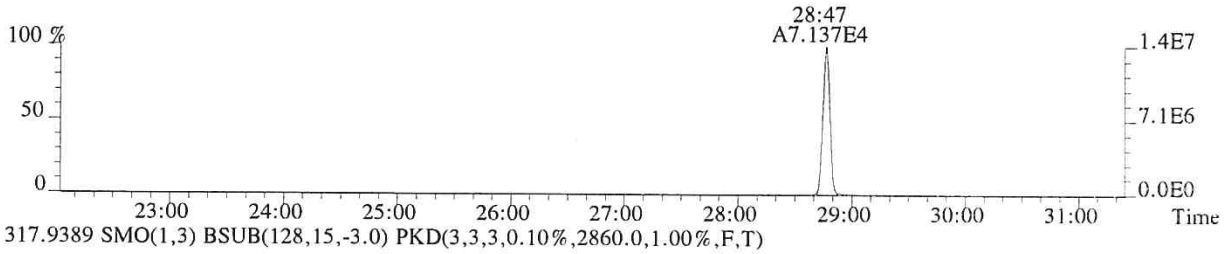
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



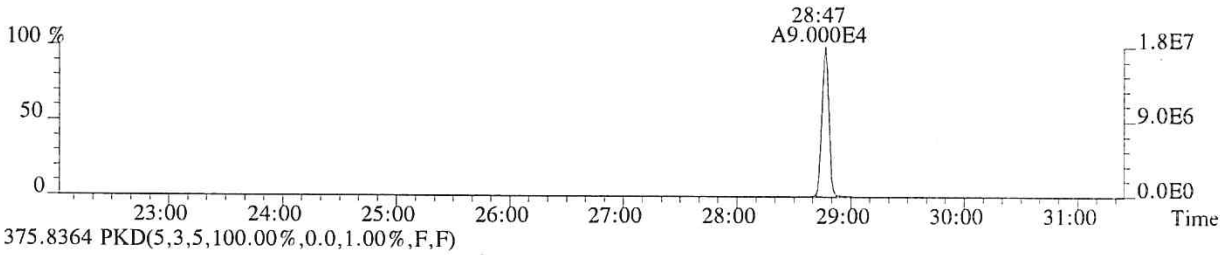
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



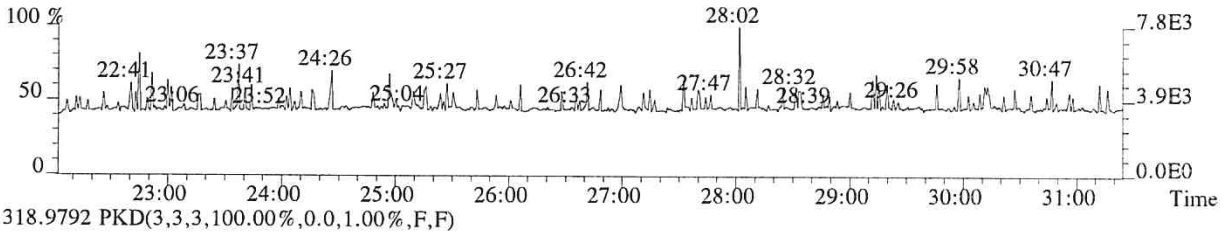
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



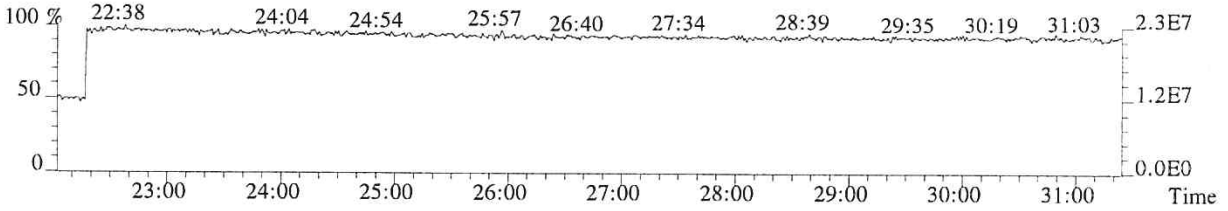
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

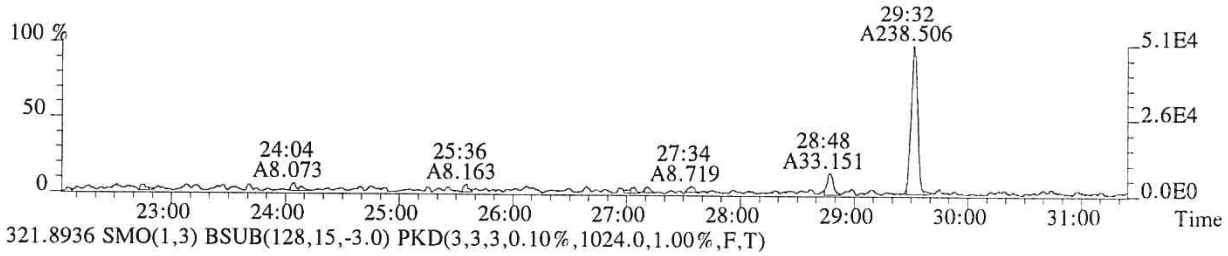


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

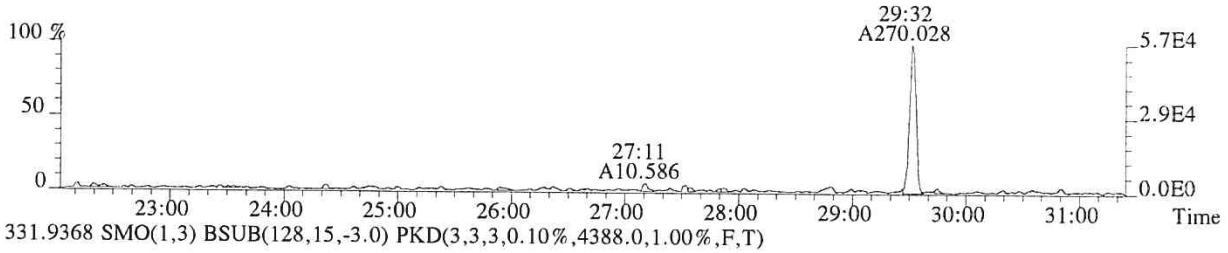


010741

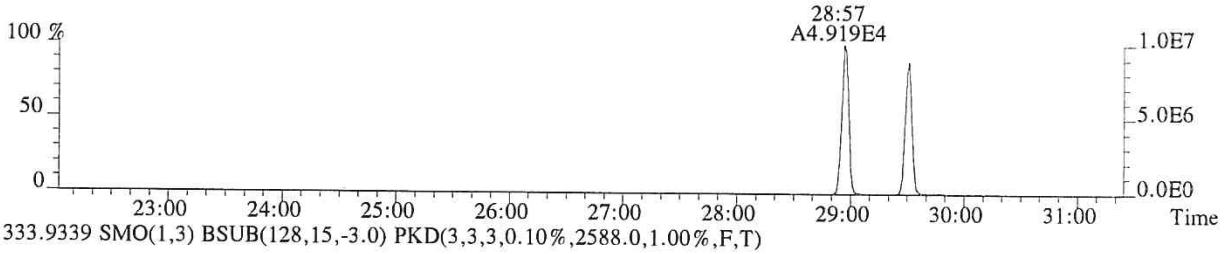
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



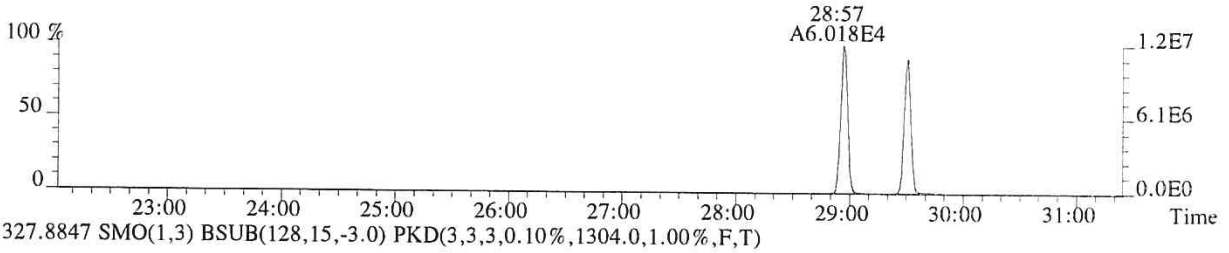
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



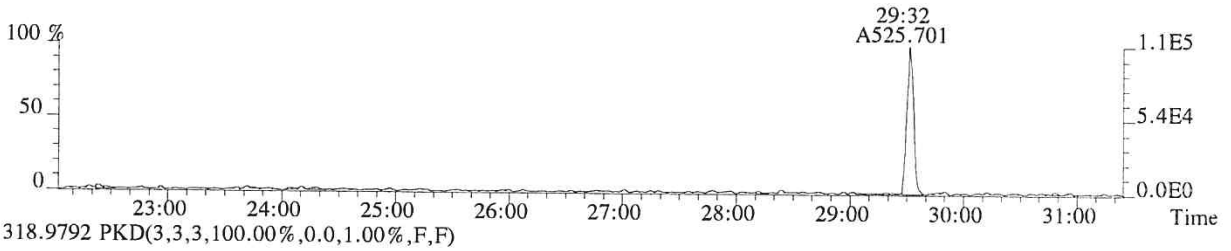
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



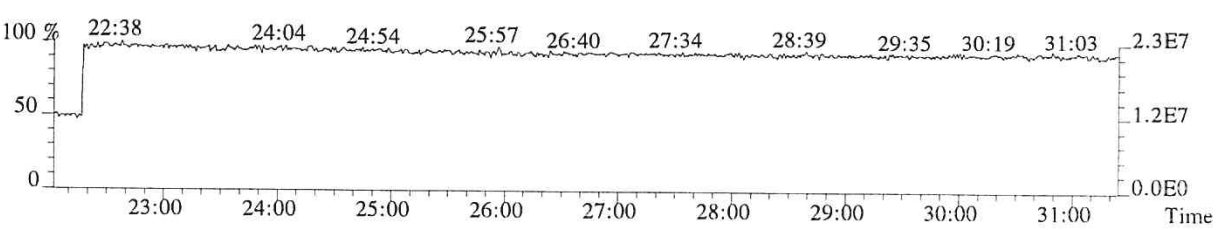
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)

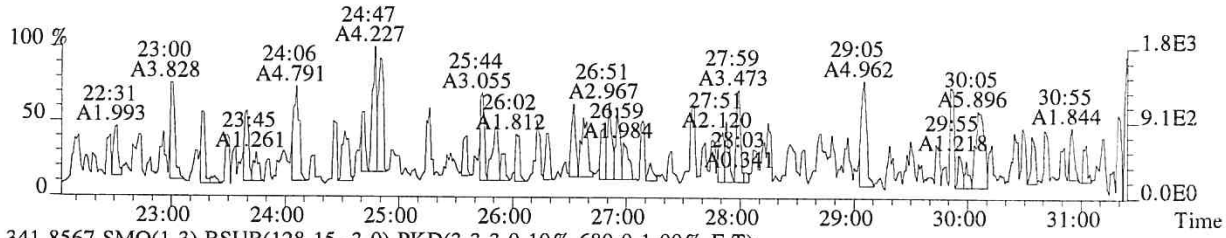


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

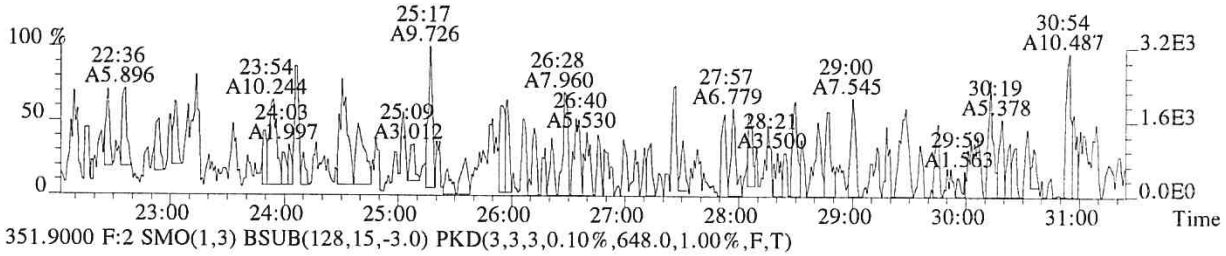


010742

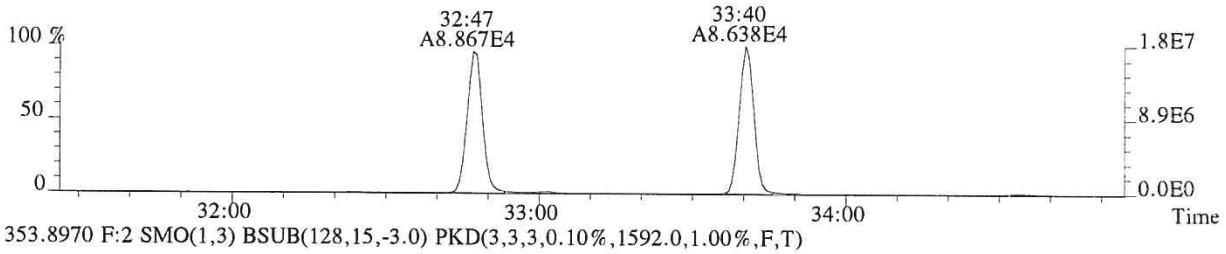
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



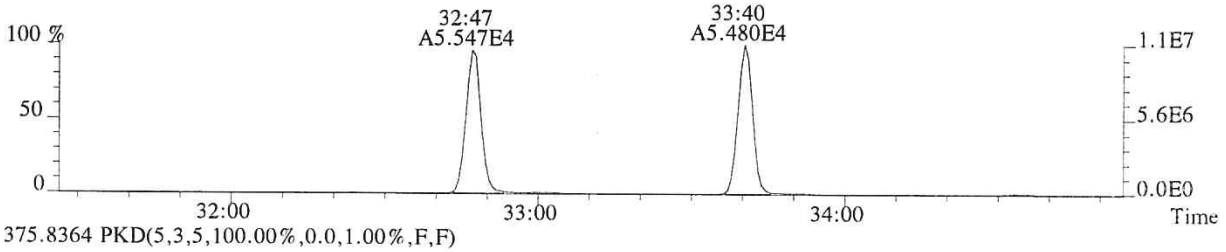
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



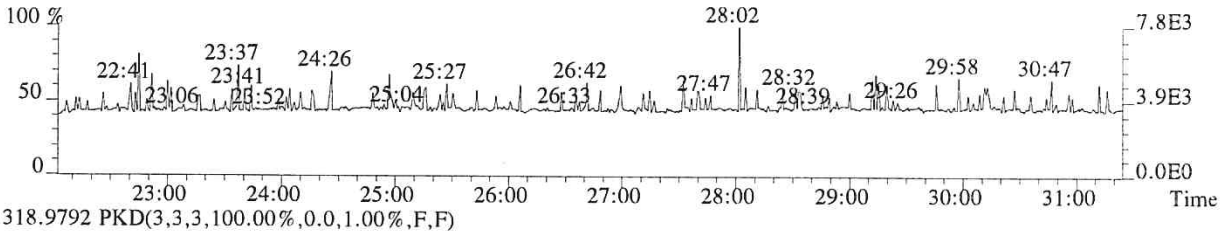
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



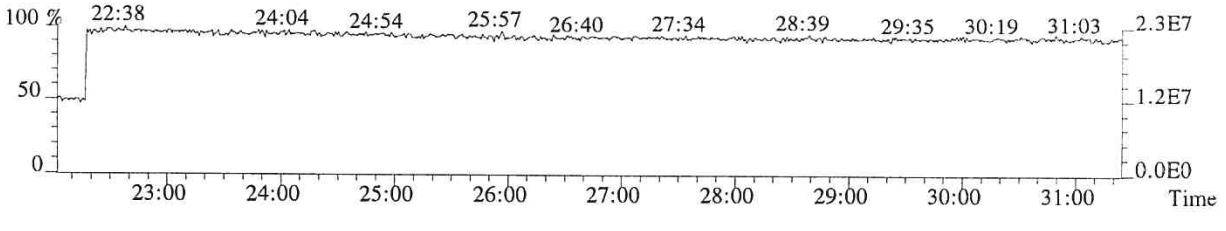
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

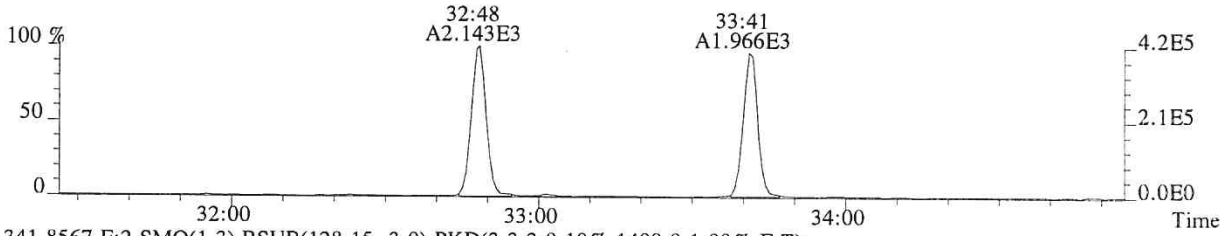


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

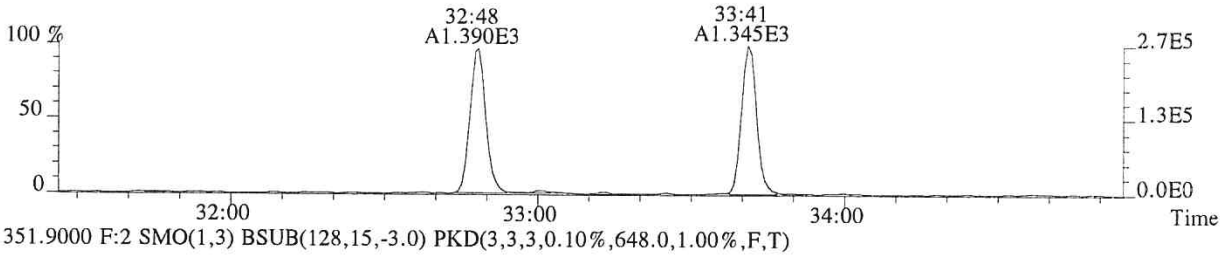


010743

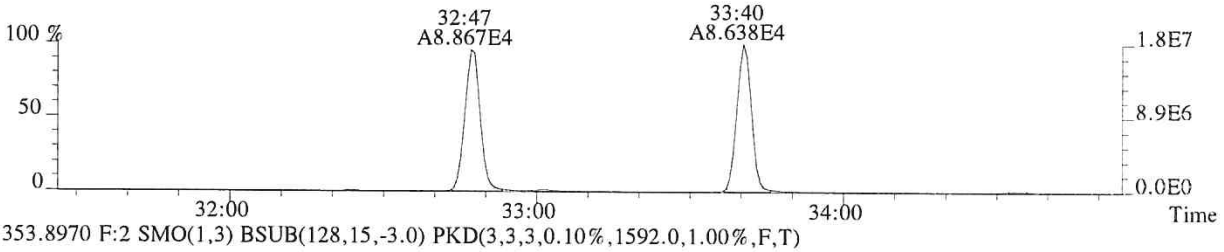
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



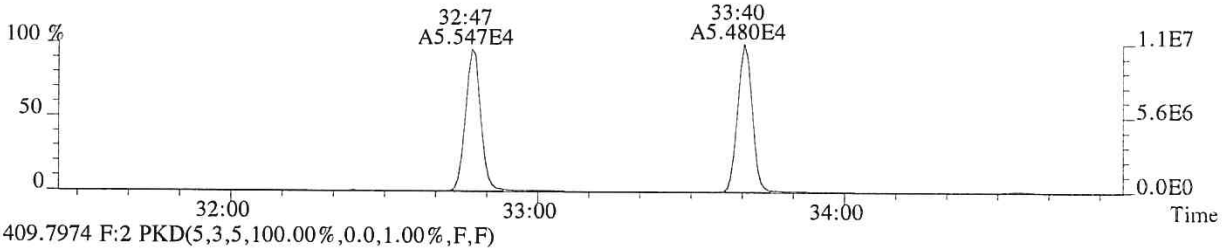
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



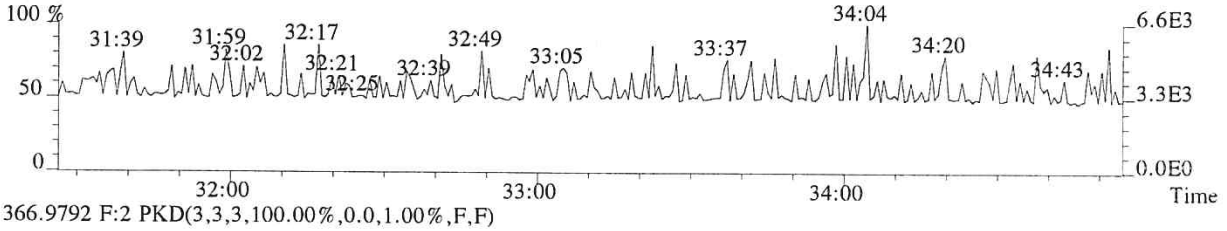
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



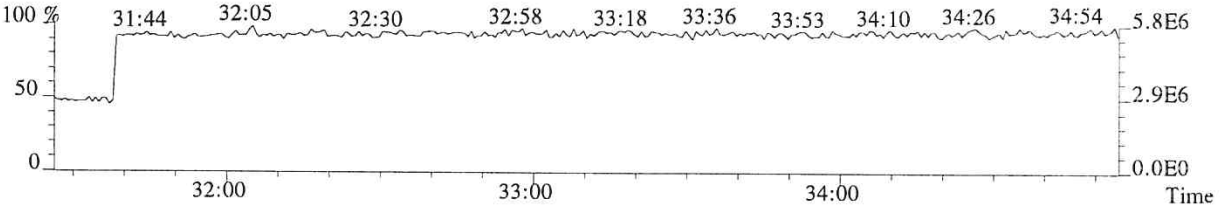
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

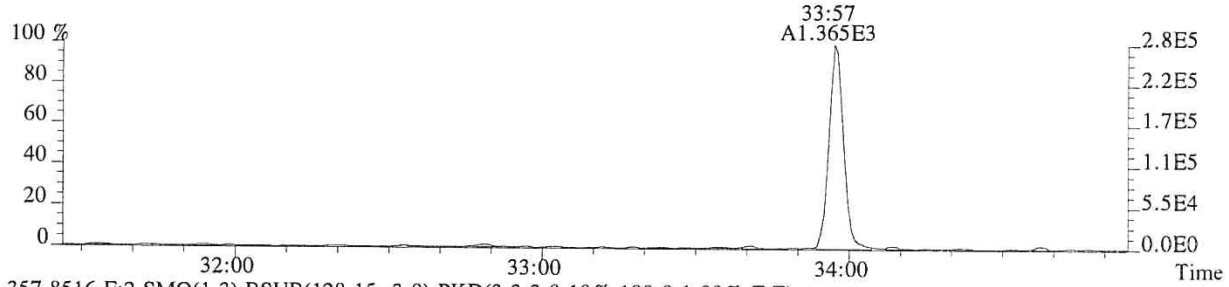


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

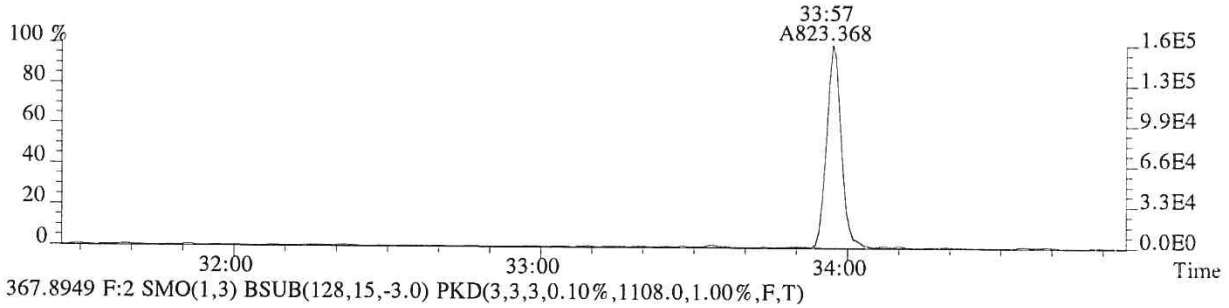


010744

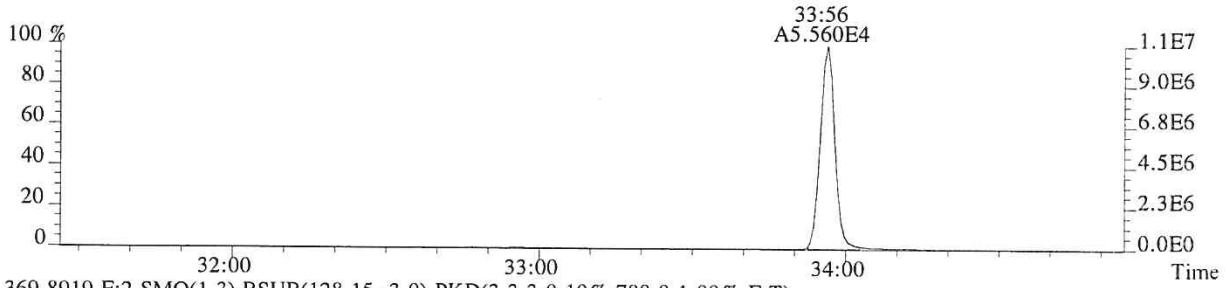
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



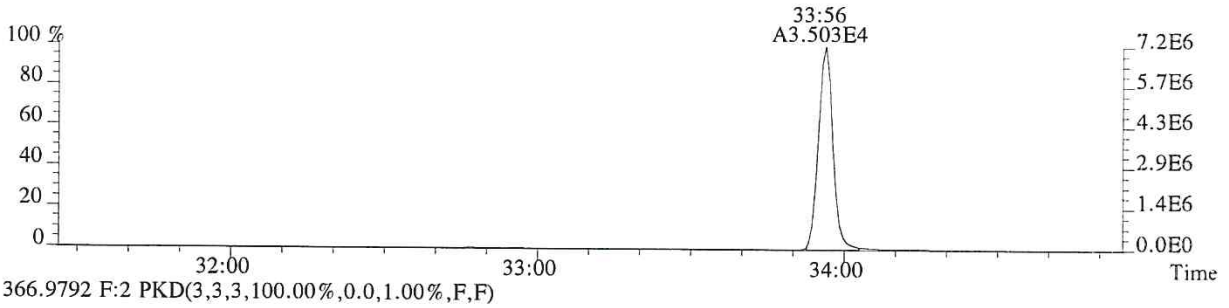
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



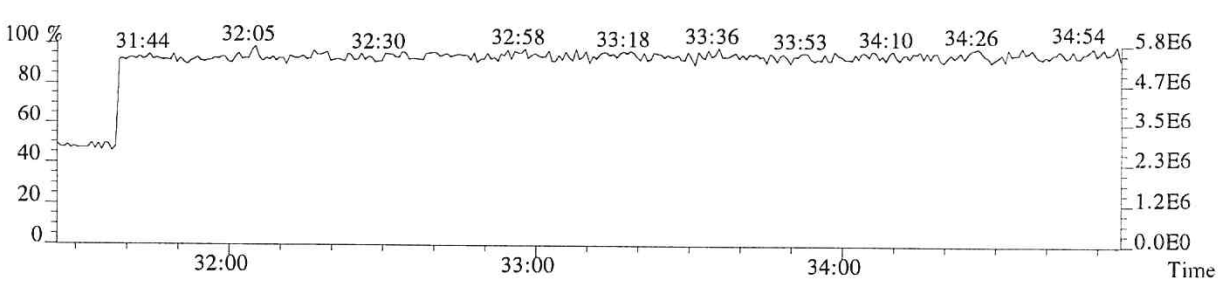
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



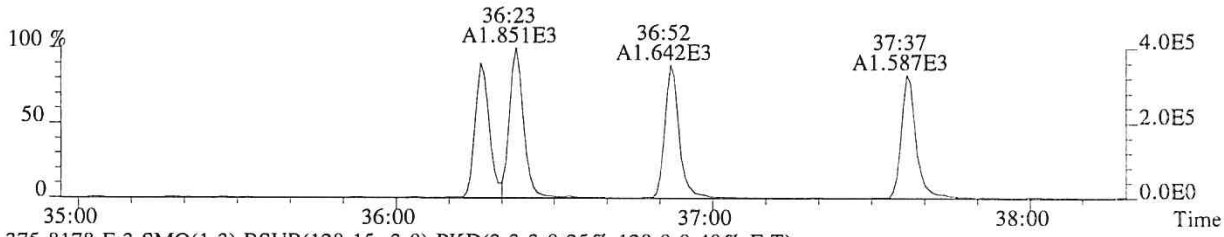
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



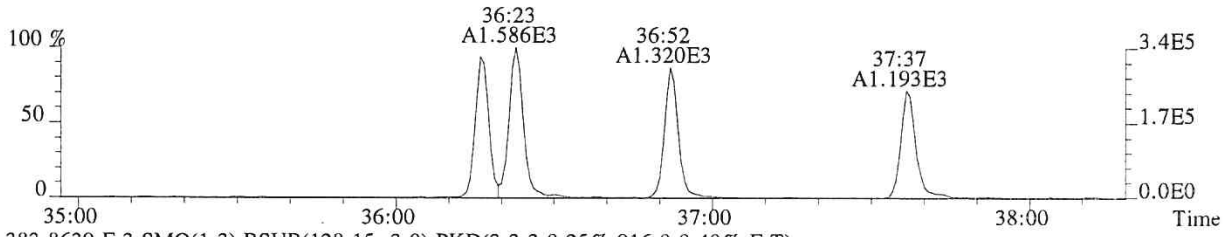
010745

File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

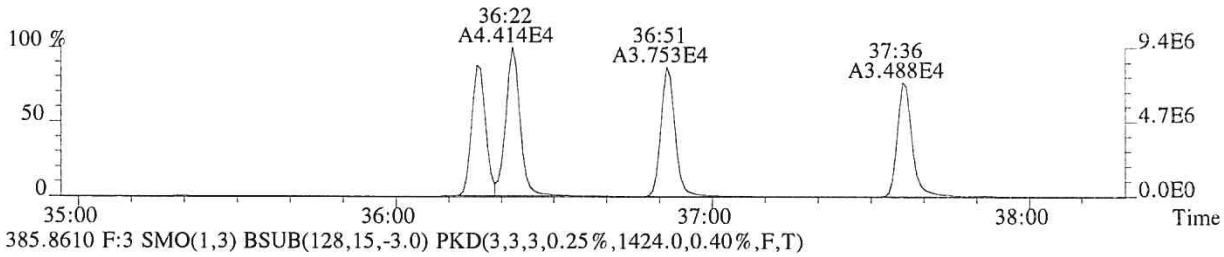
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



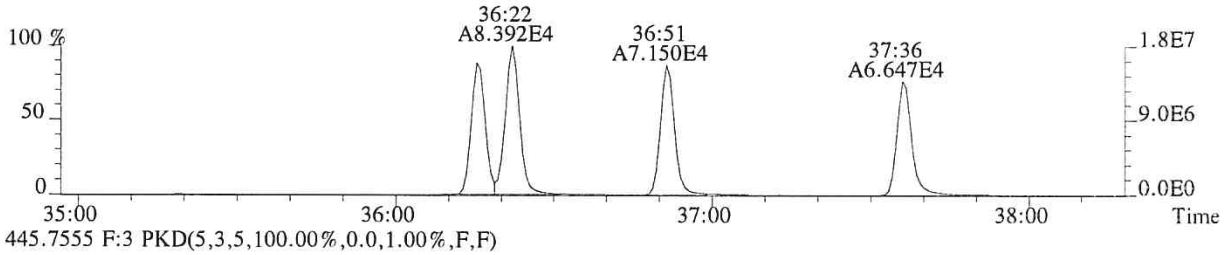
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



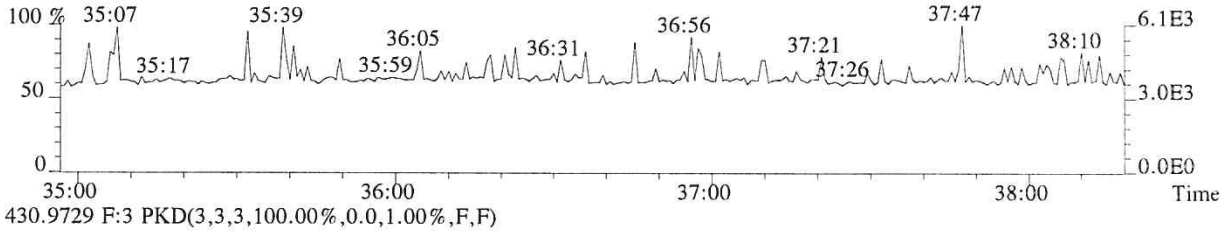
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



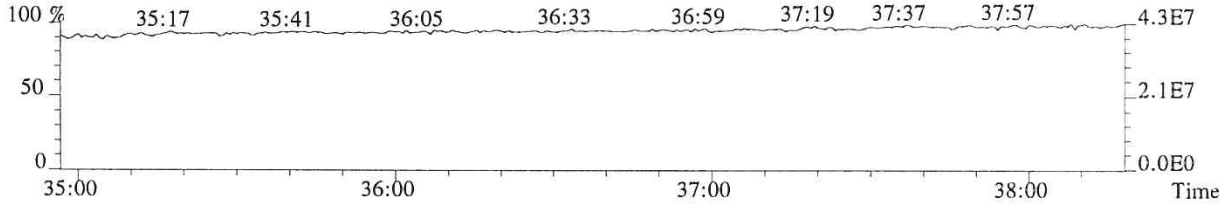
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

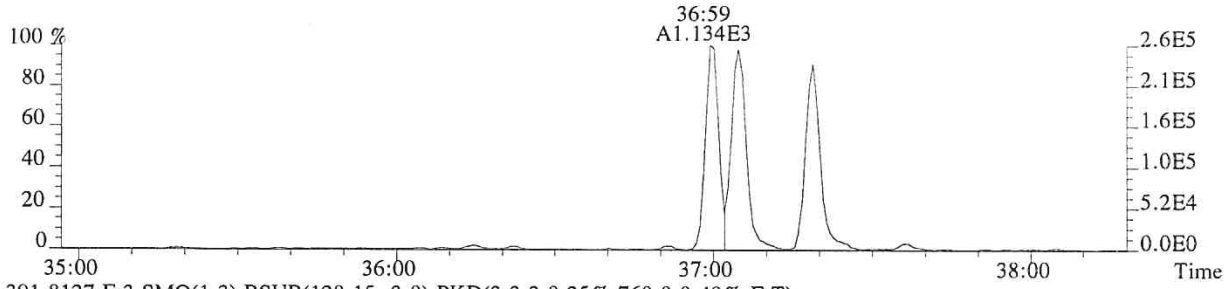


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

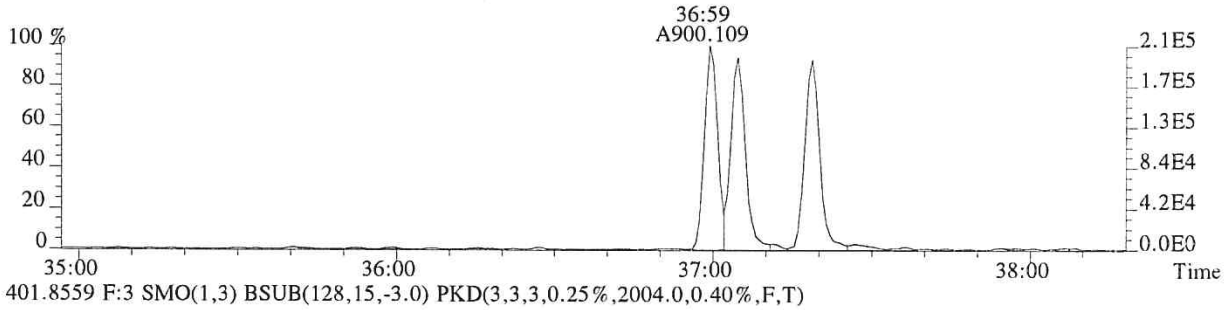


010746

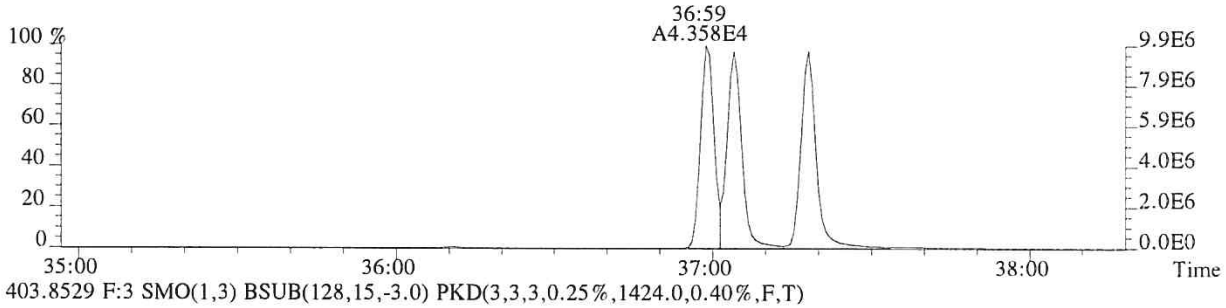
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



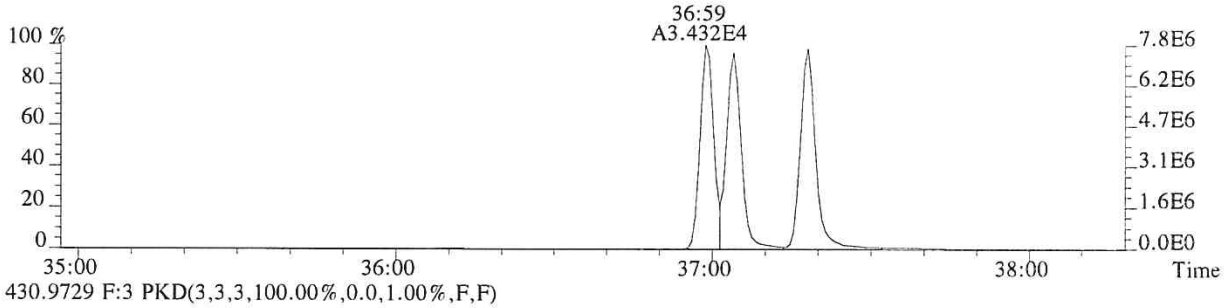
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



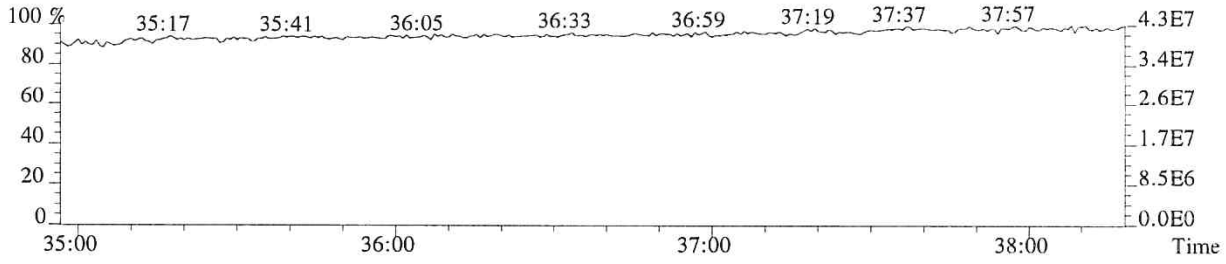
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)

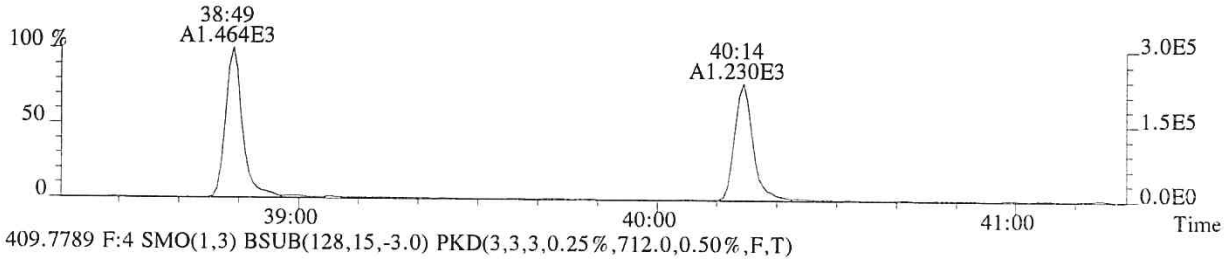


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

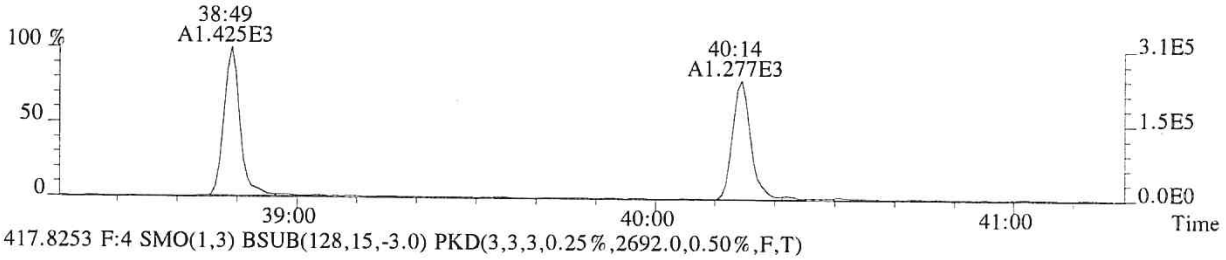


010747

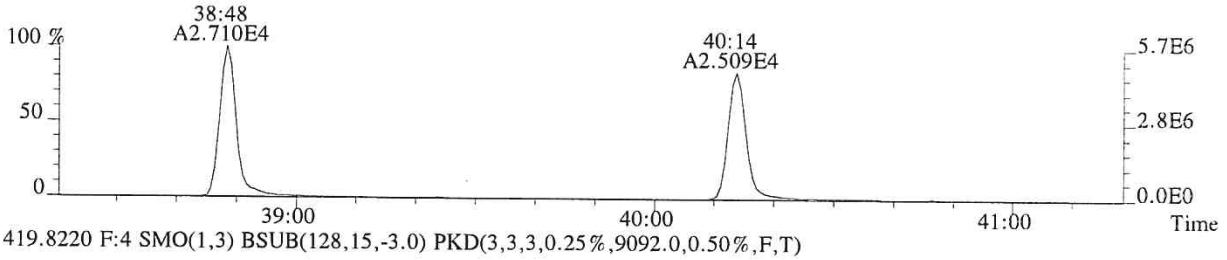
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



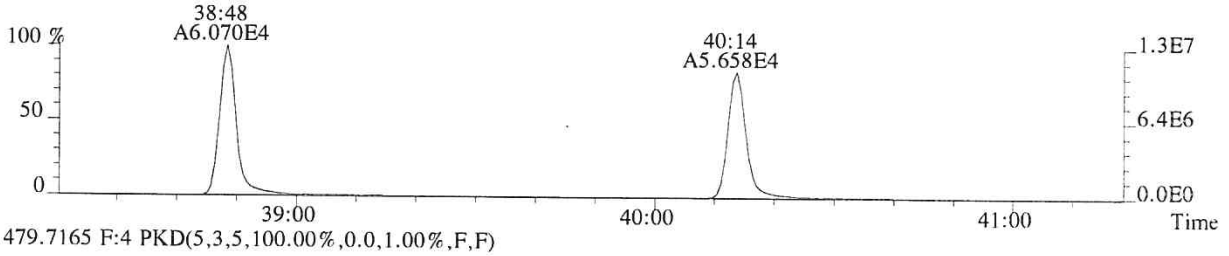
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



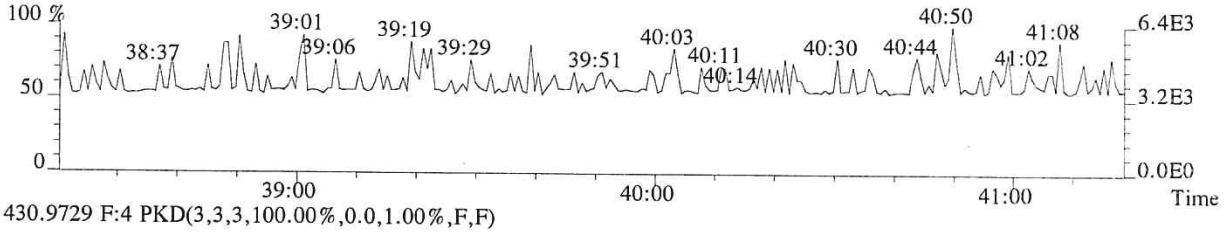
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



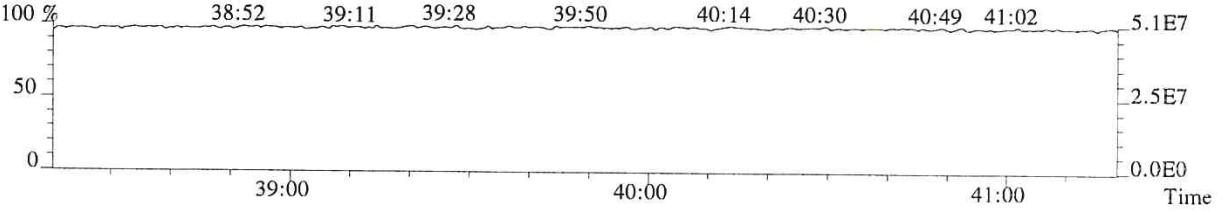
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

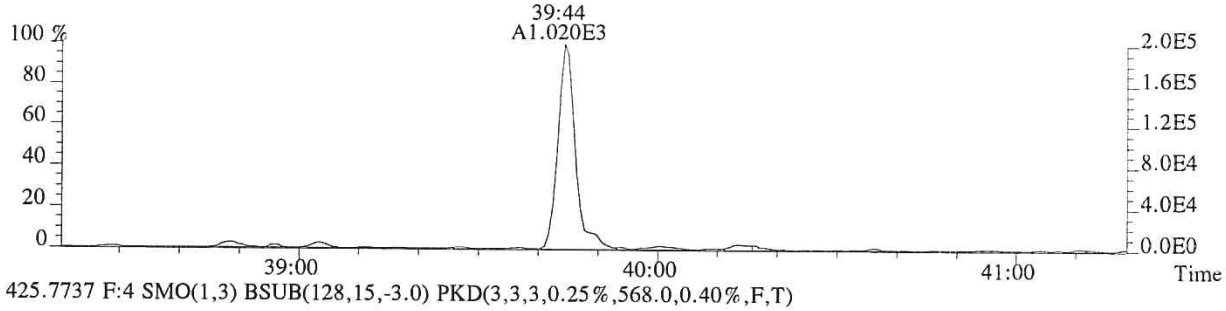


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

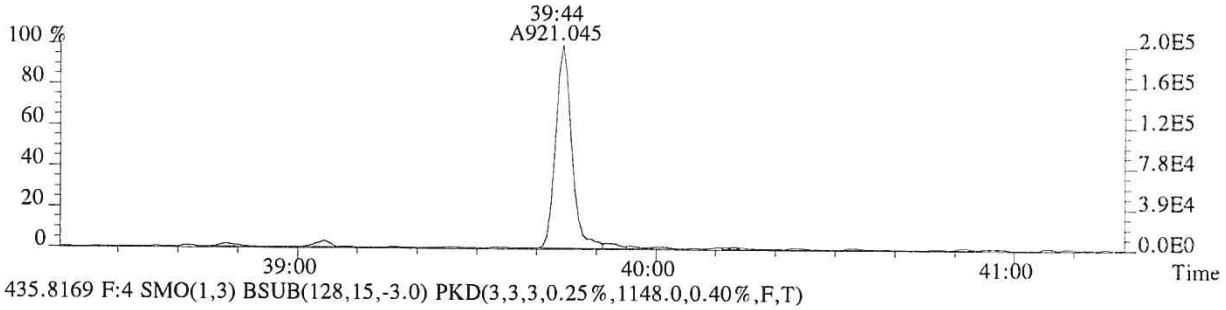


010748

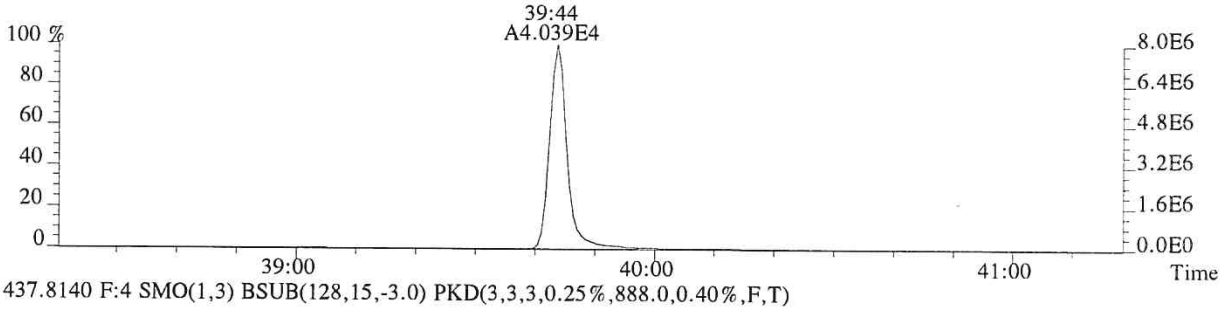
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



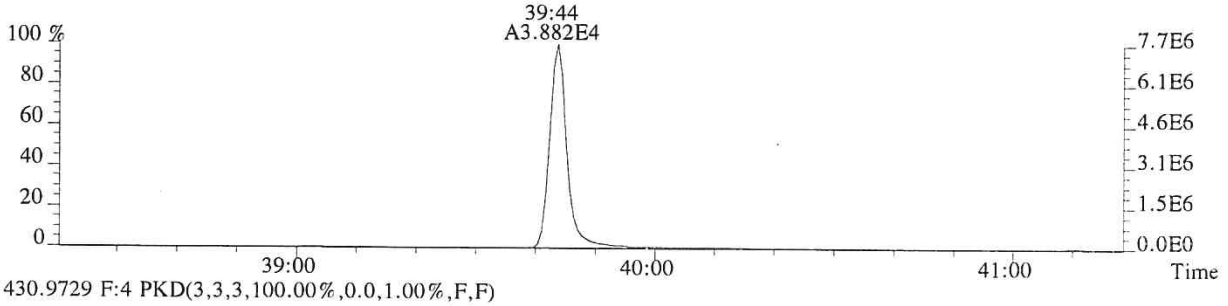
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



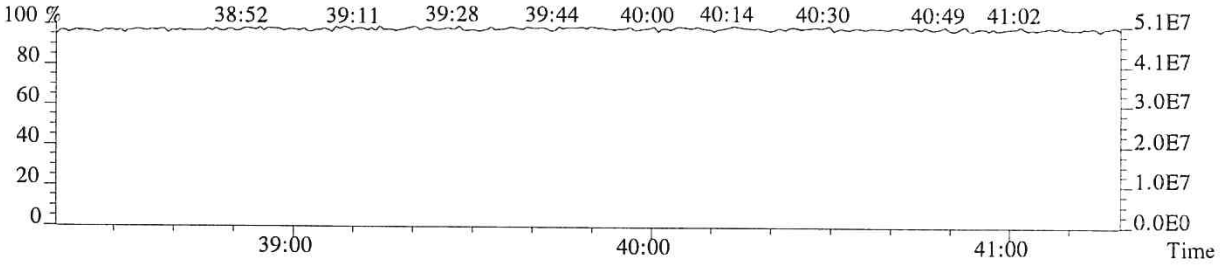
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)

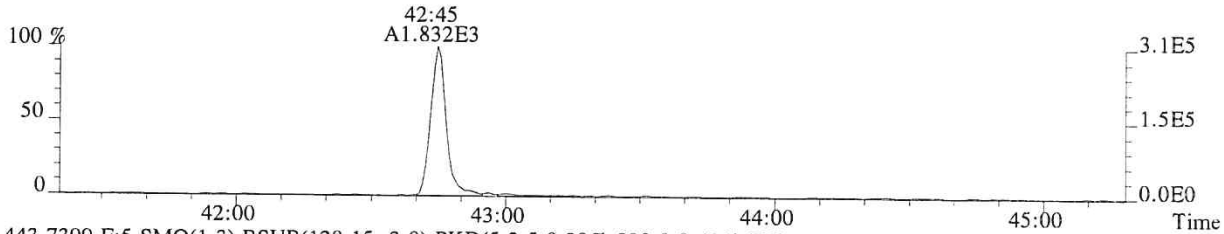


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

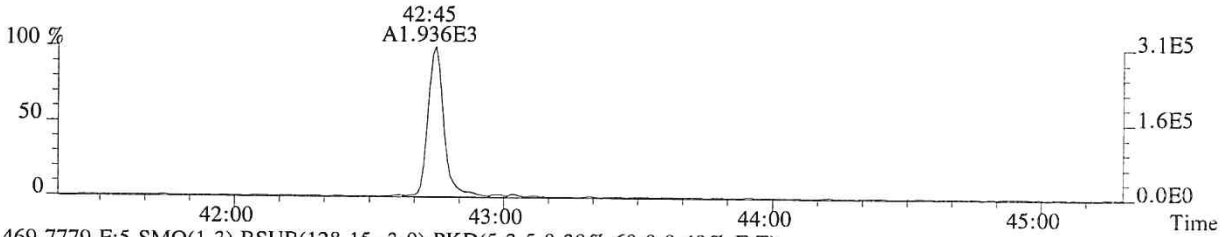


010749

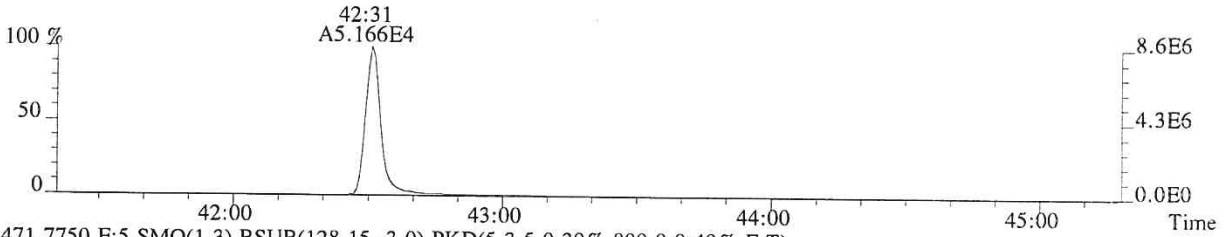
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



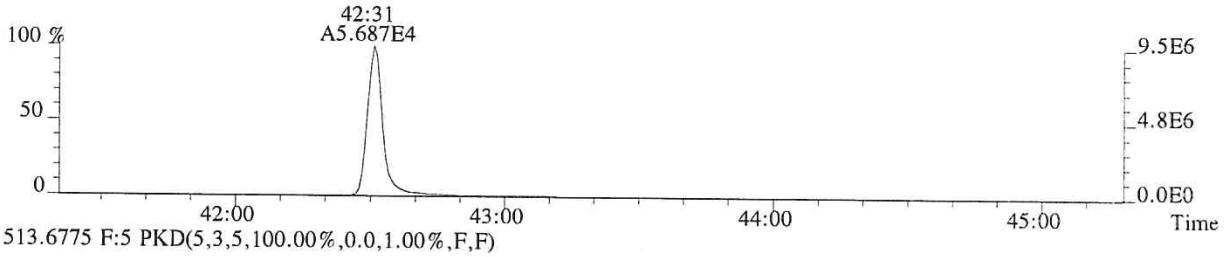
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



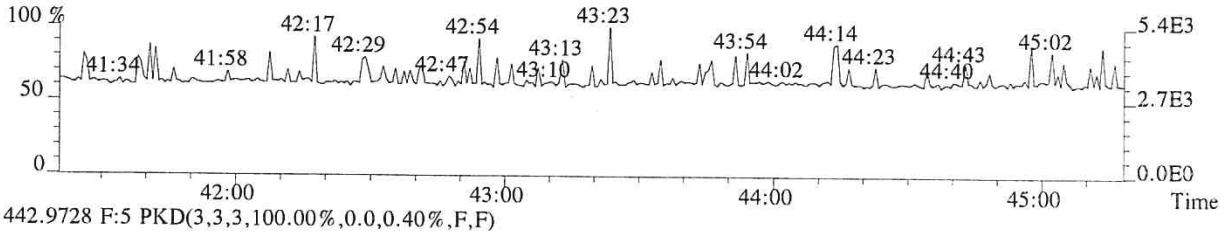
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



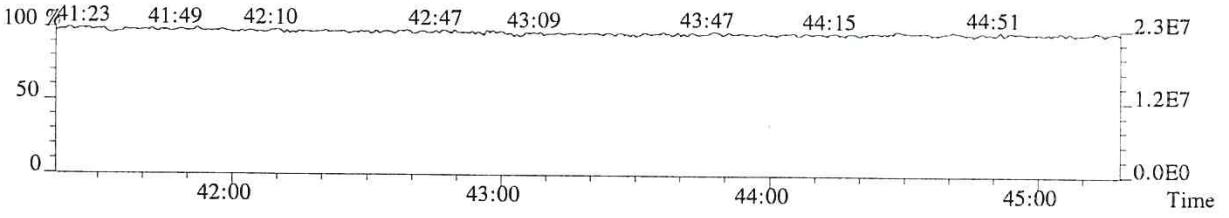
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

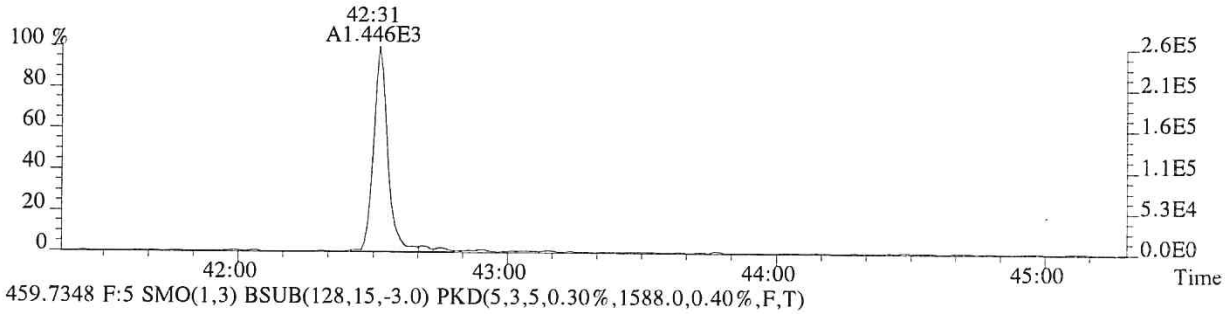


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

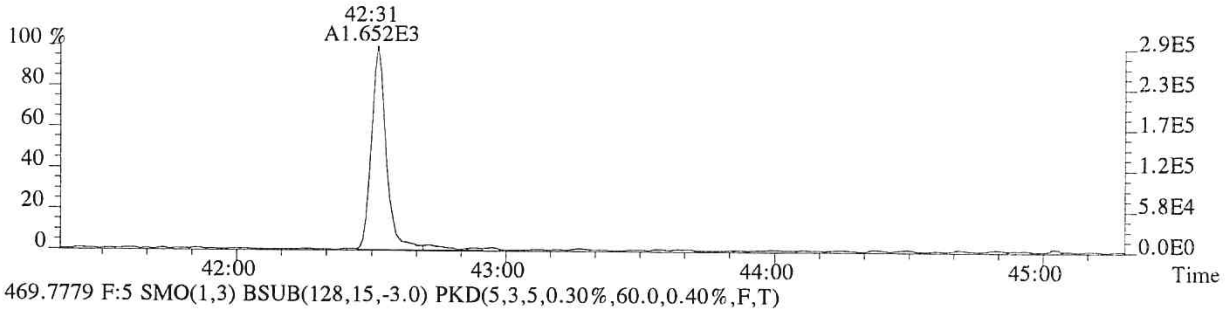


010750

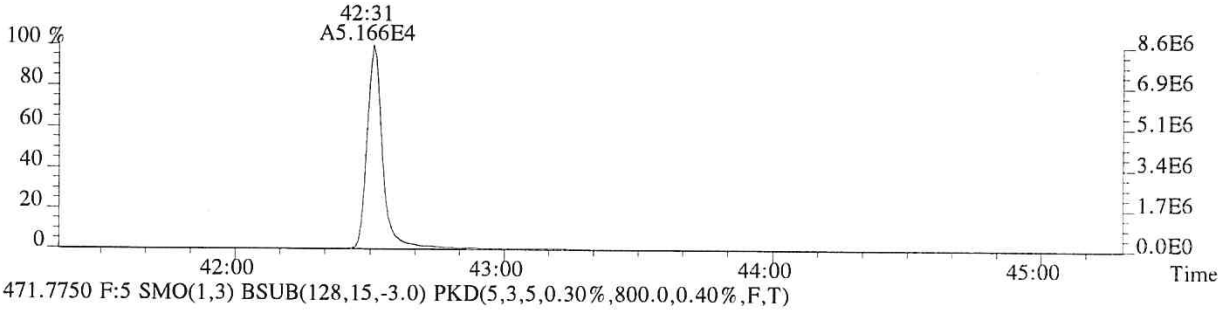
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



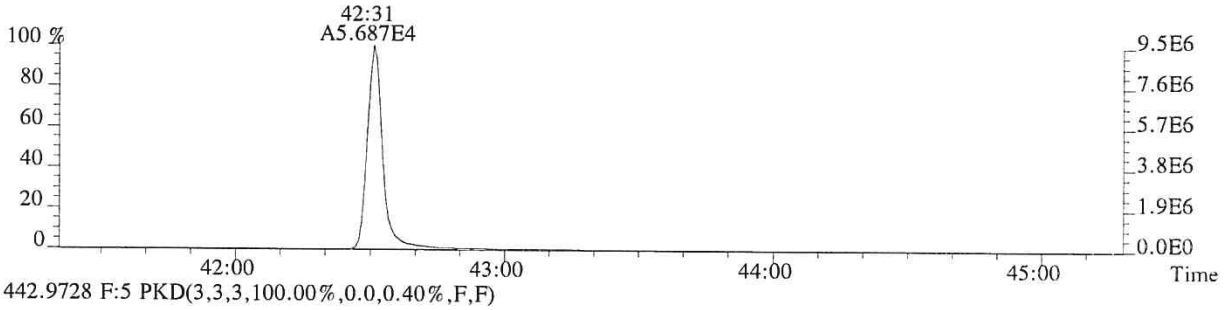
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



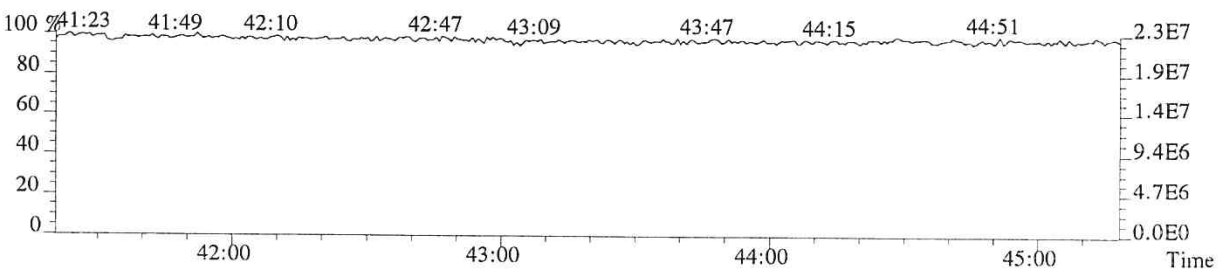
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010751

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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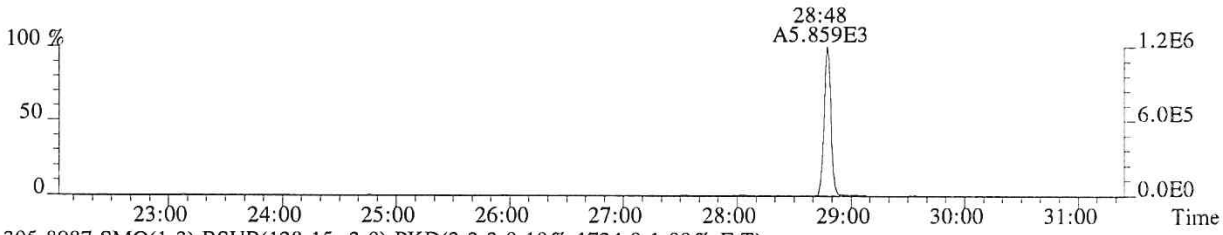
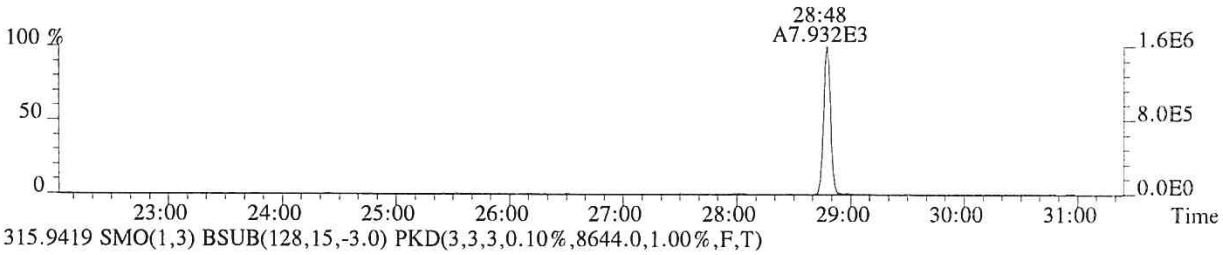
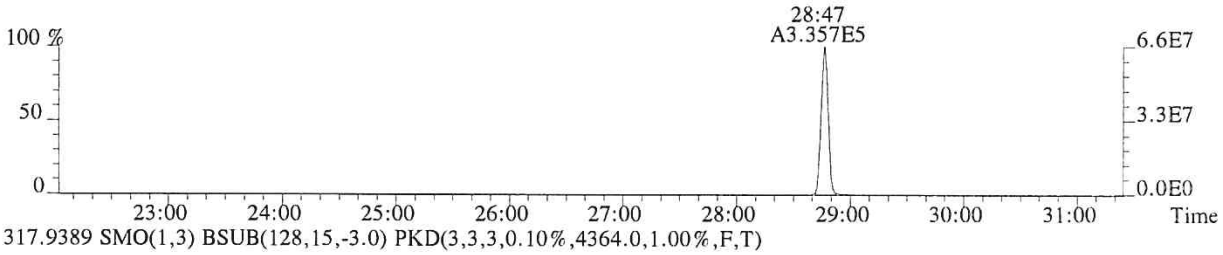
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



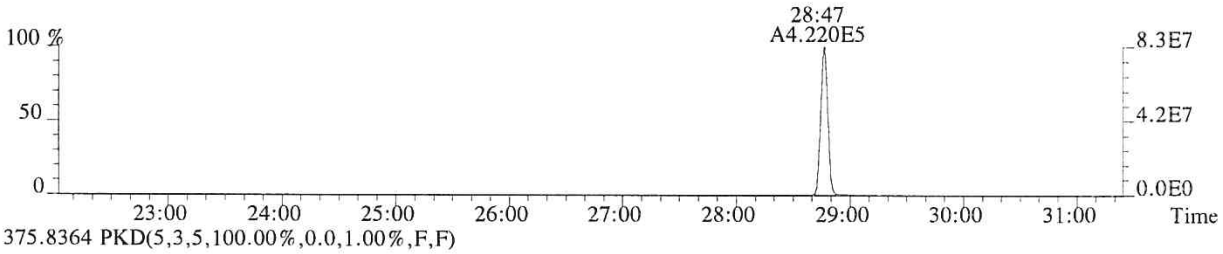
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



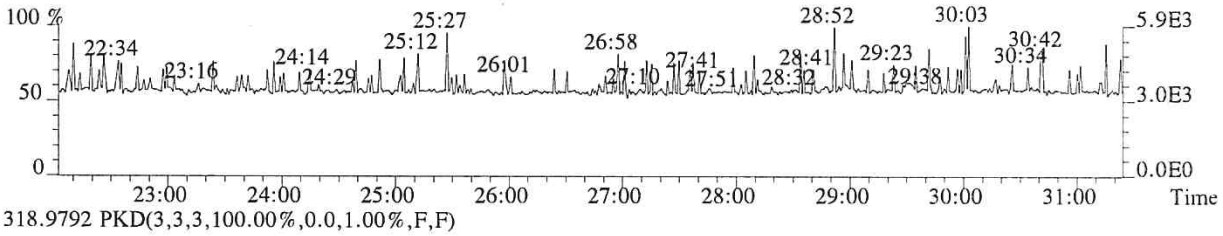
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



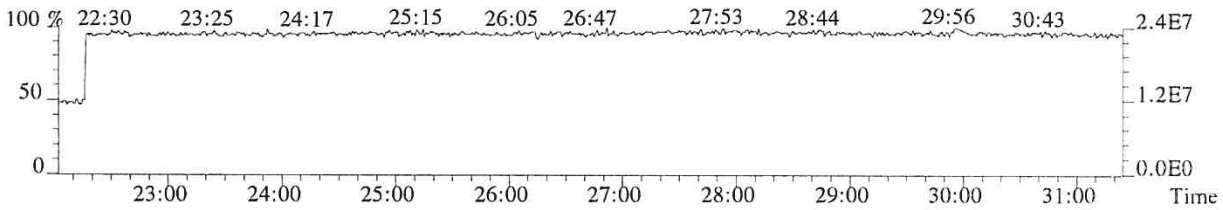
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

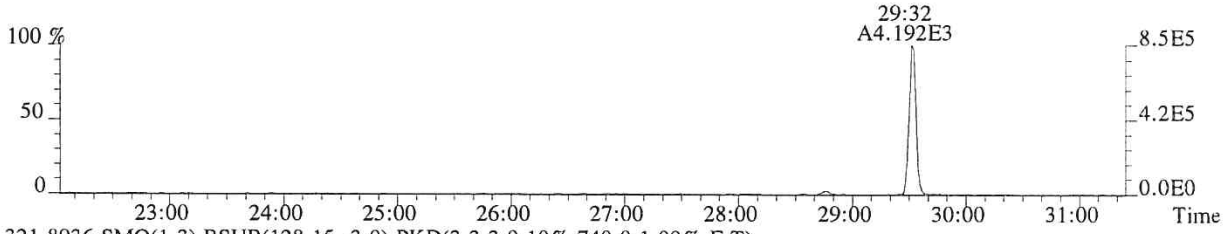


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

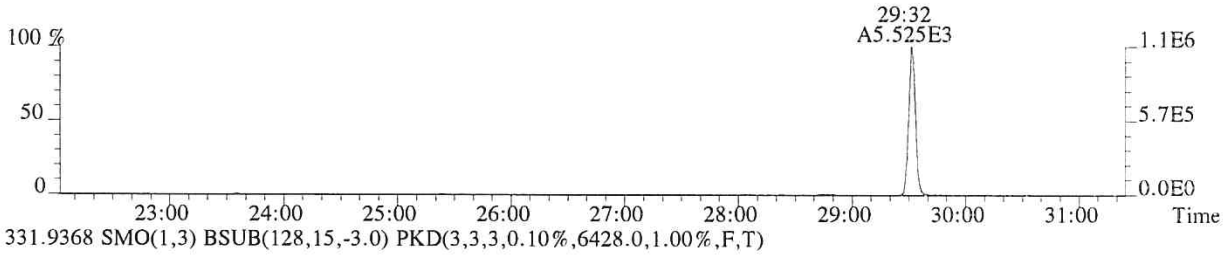


010754

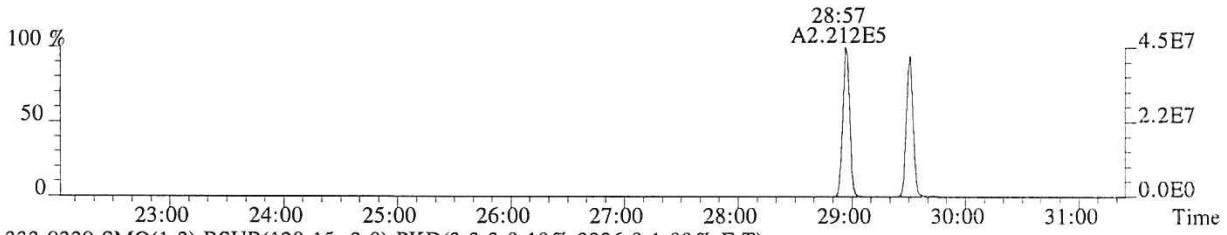
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



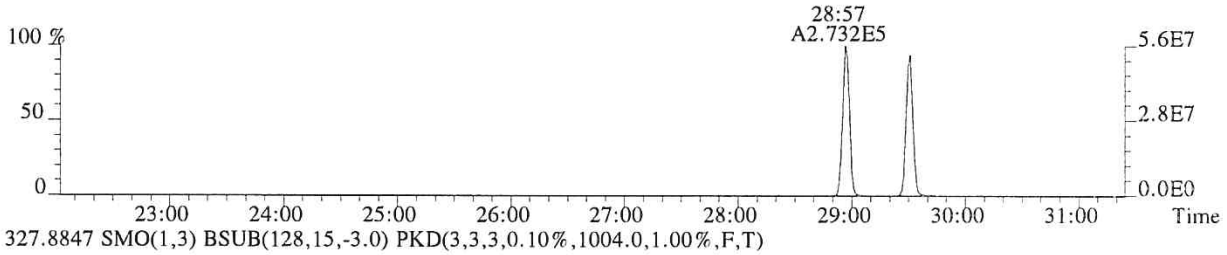
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



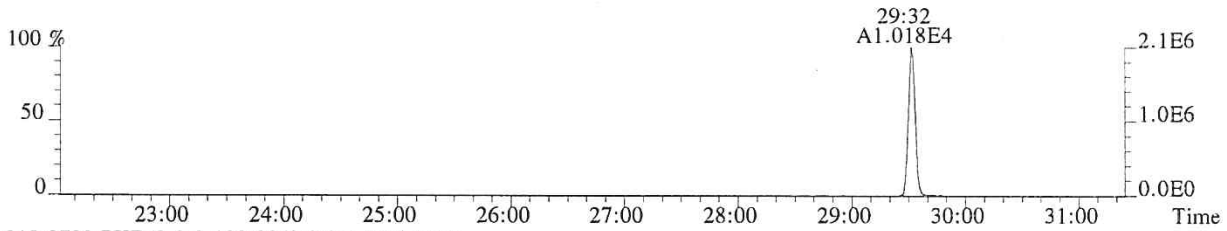
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



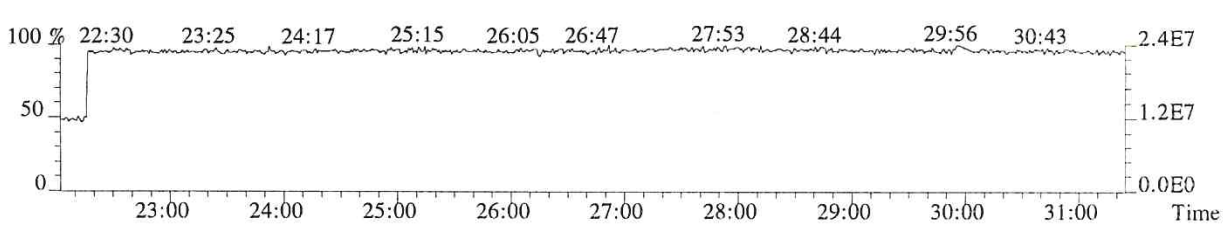
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

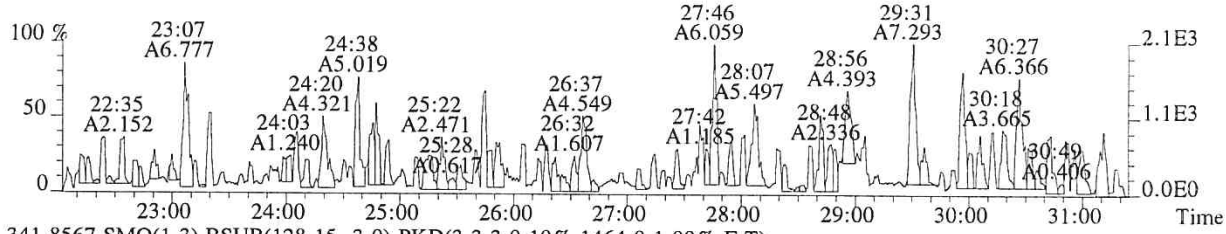


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

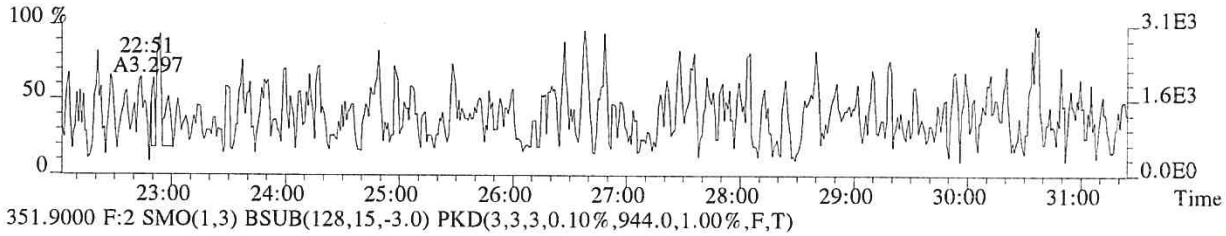


010755

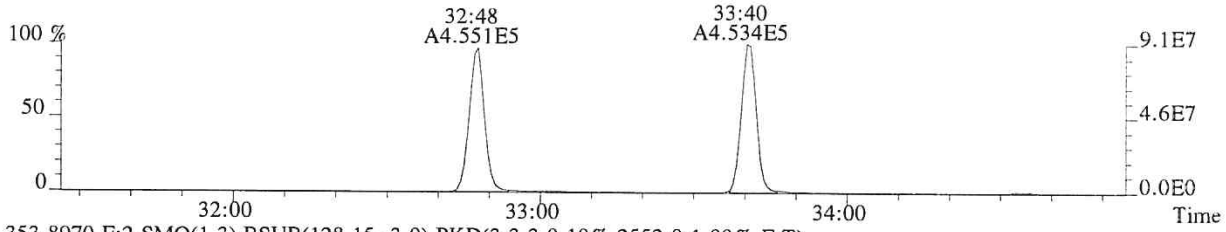
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



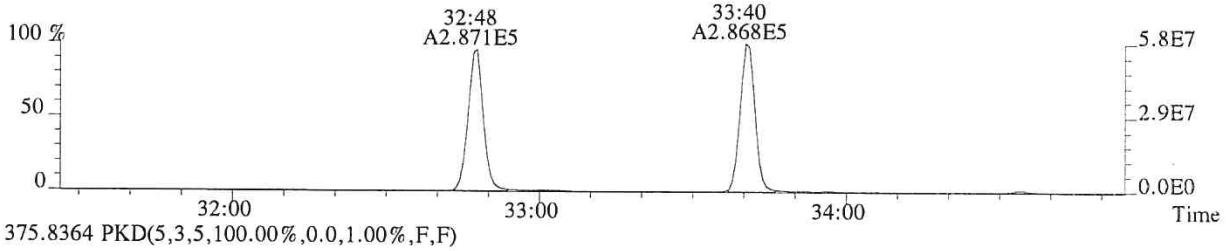
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



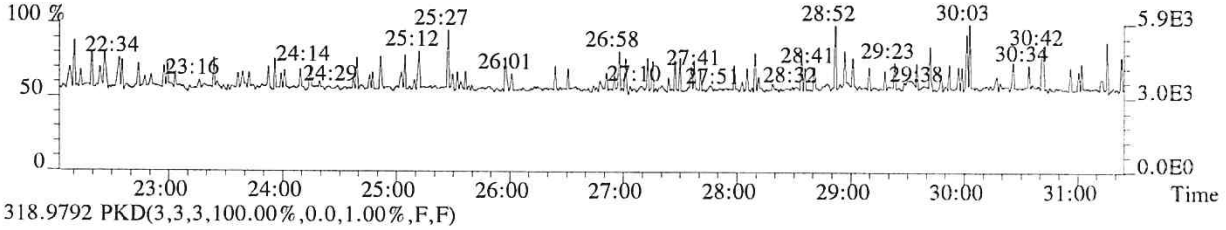
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



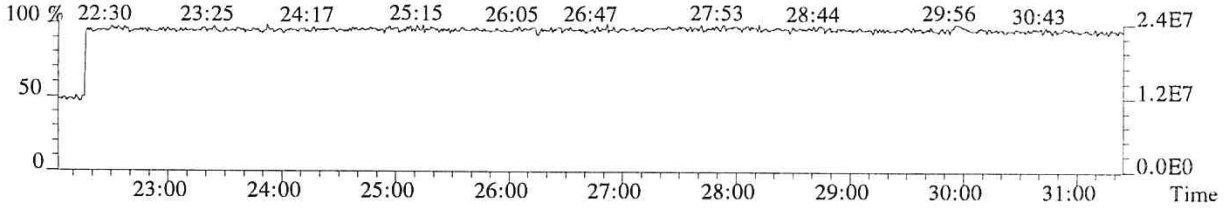
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

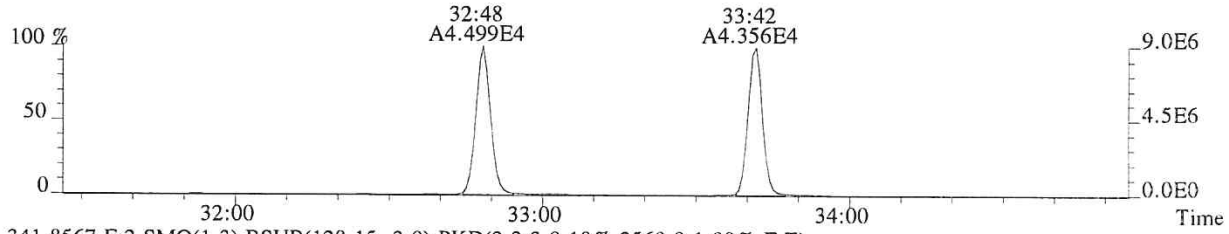


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

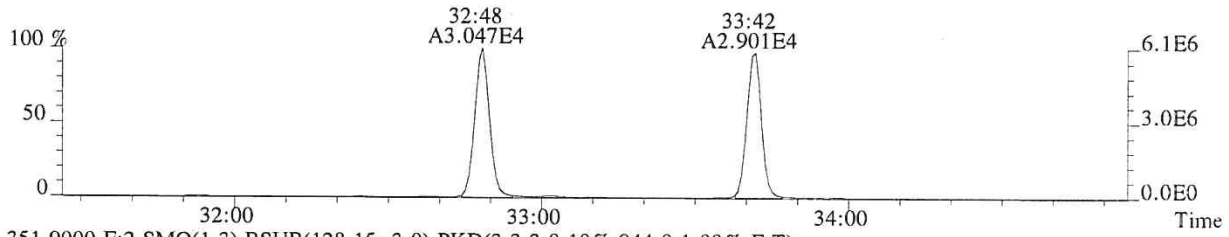


010756

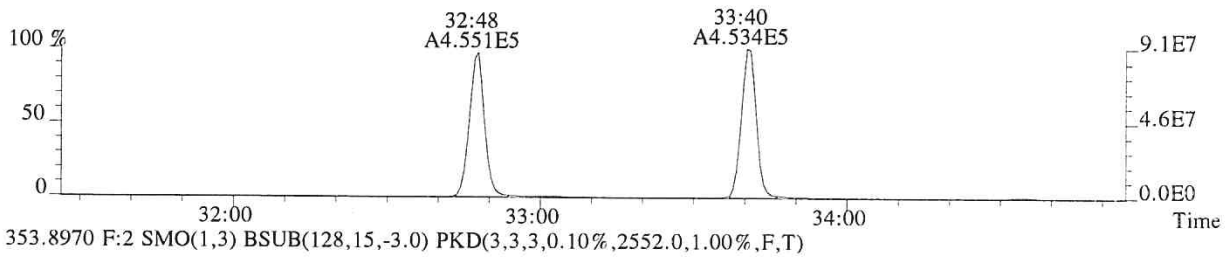
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



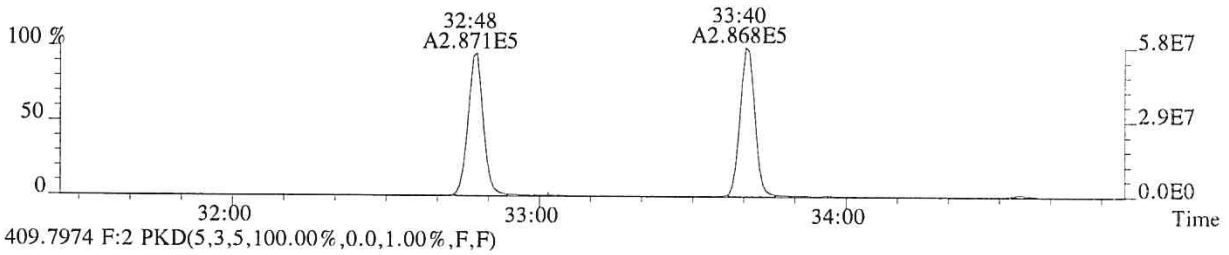
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



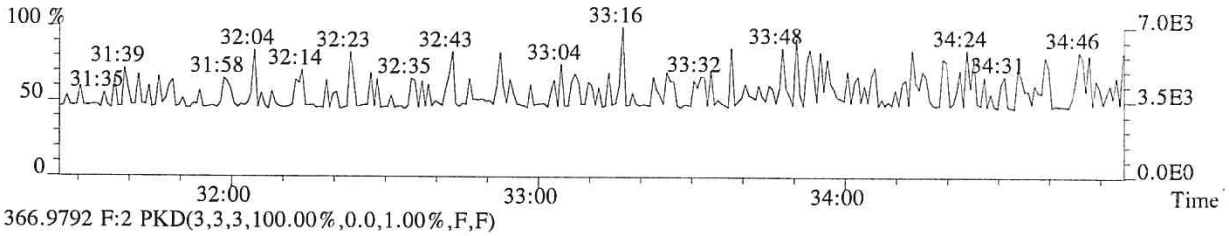
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



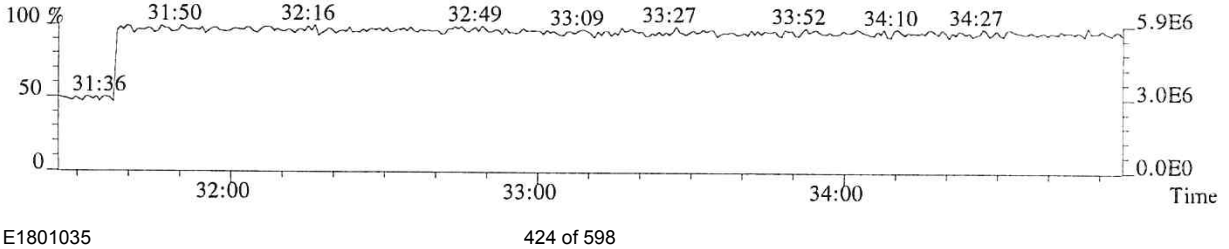
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

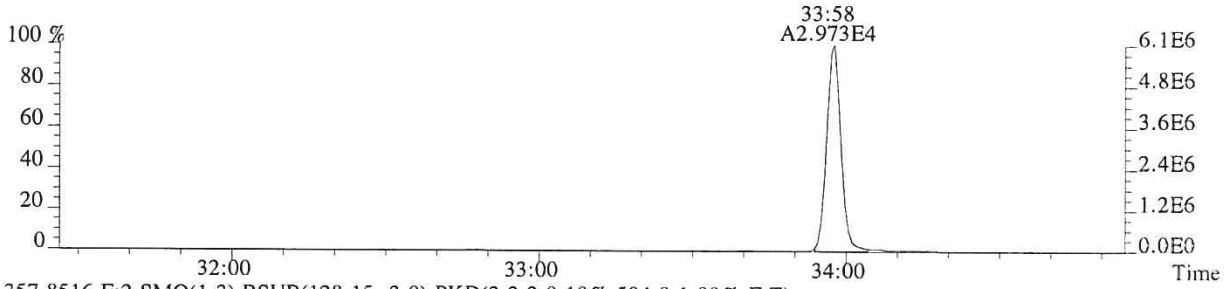


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

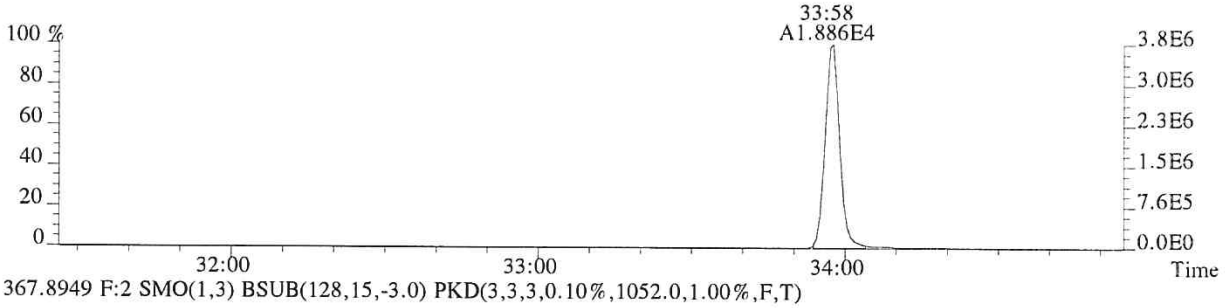


010757

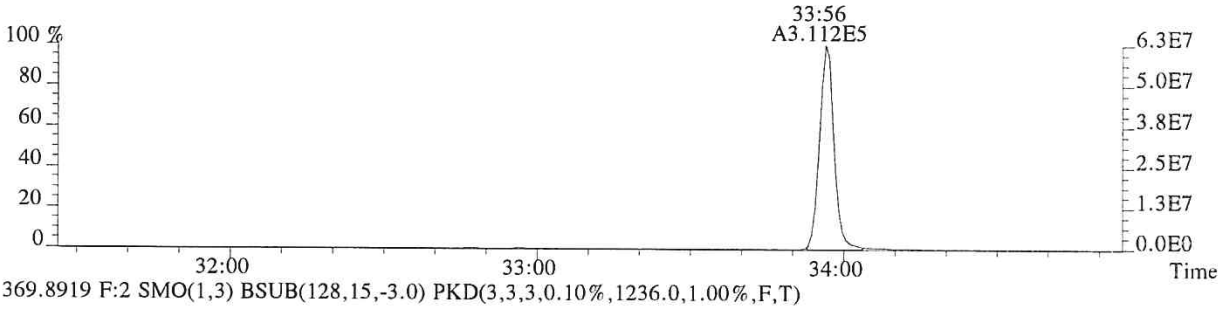
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



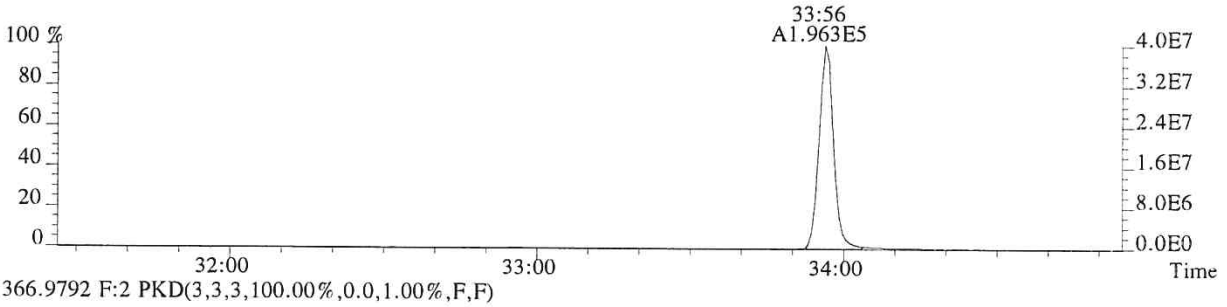
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



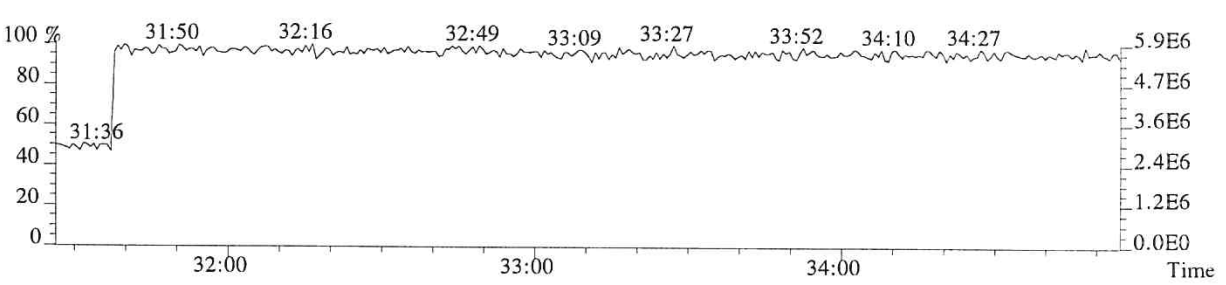
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)

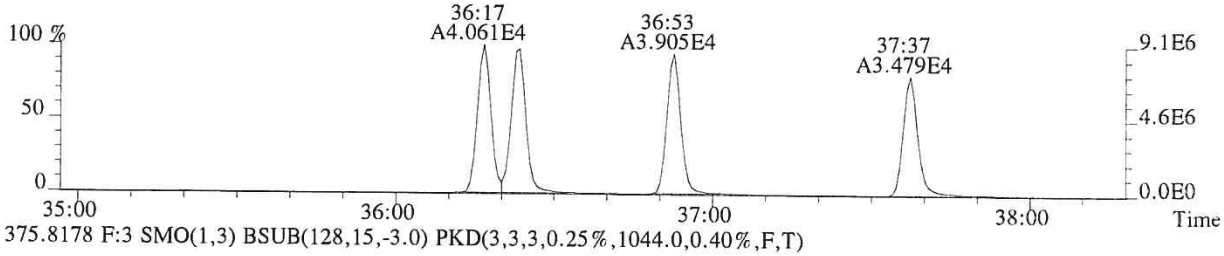


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

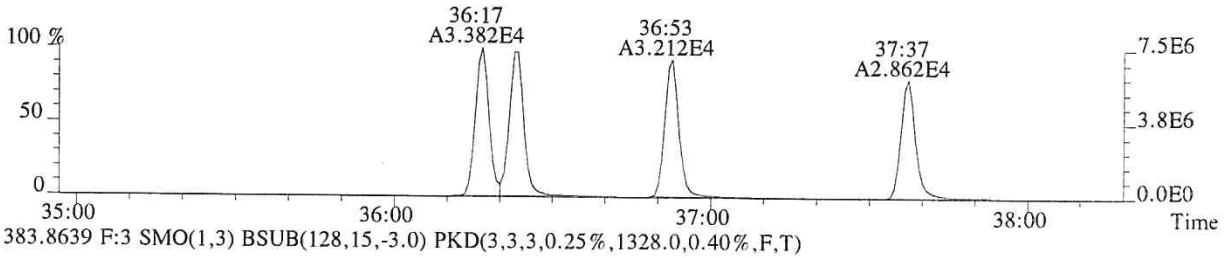


010758

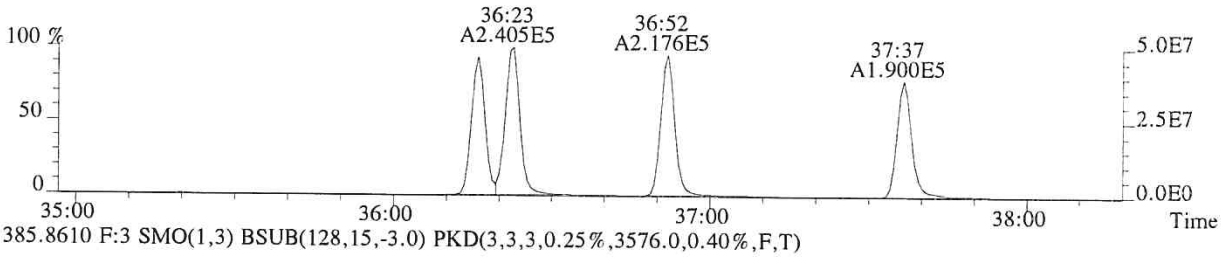
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



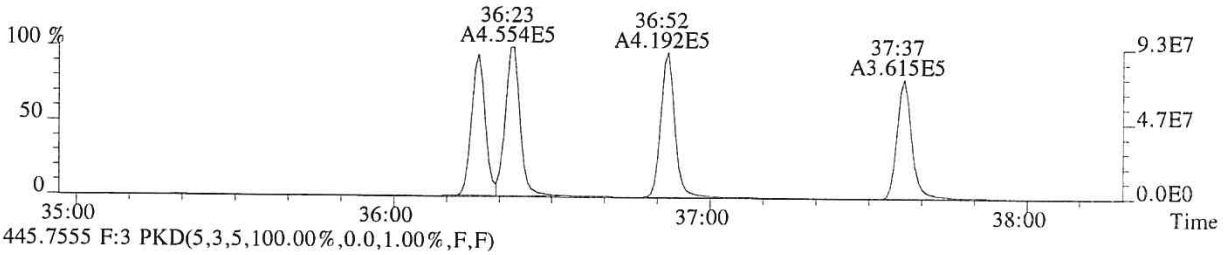
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



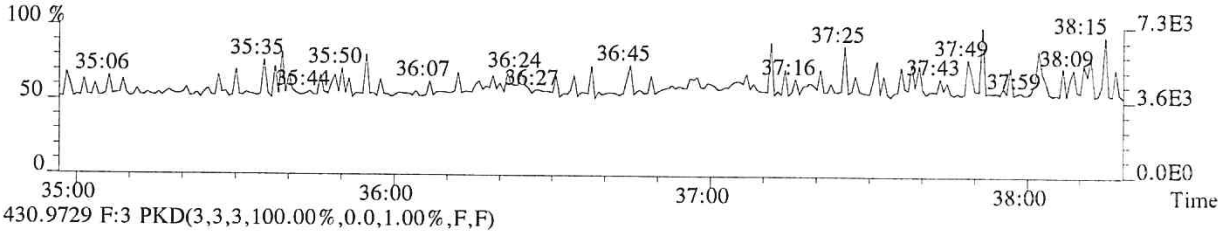
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



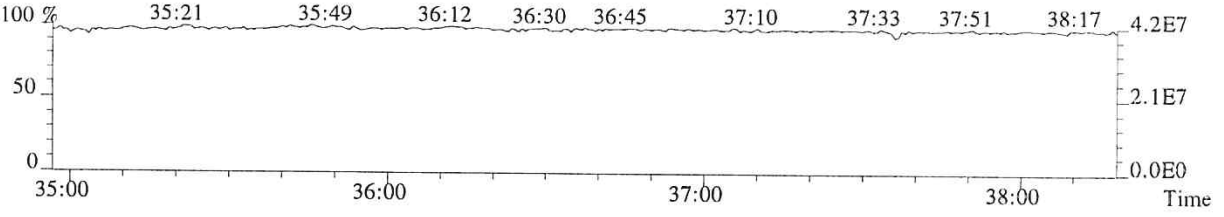
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

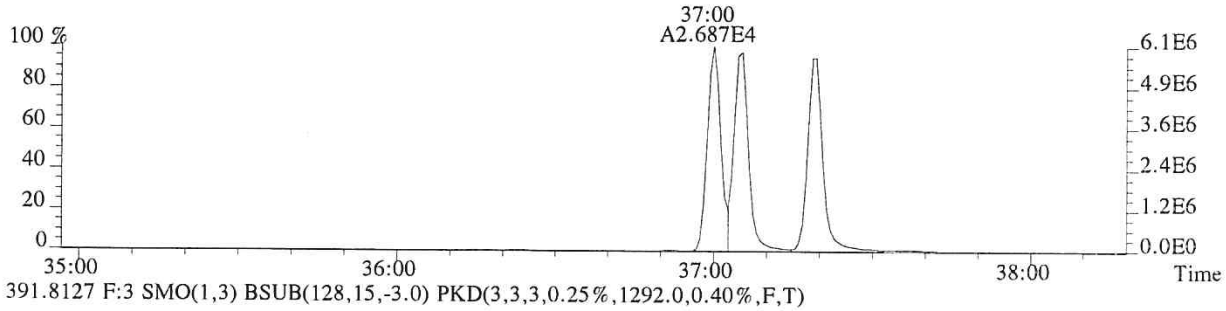


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

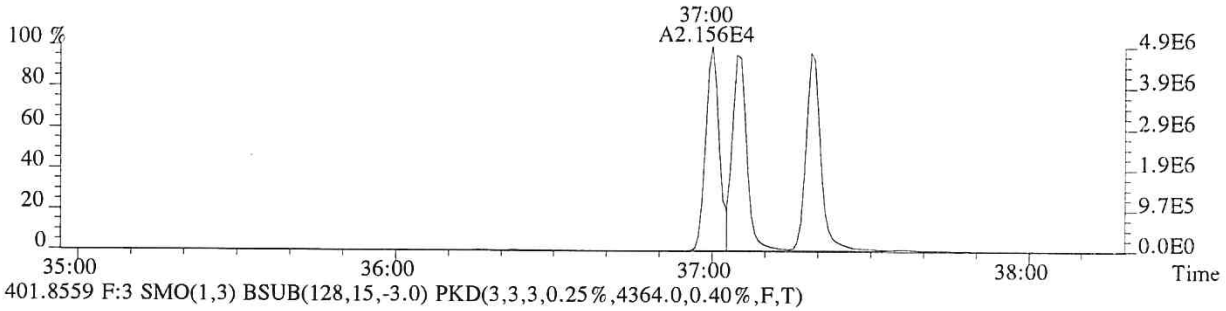


010759

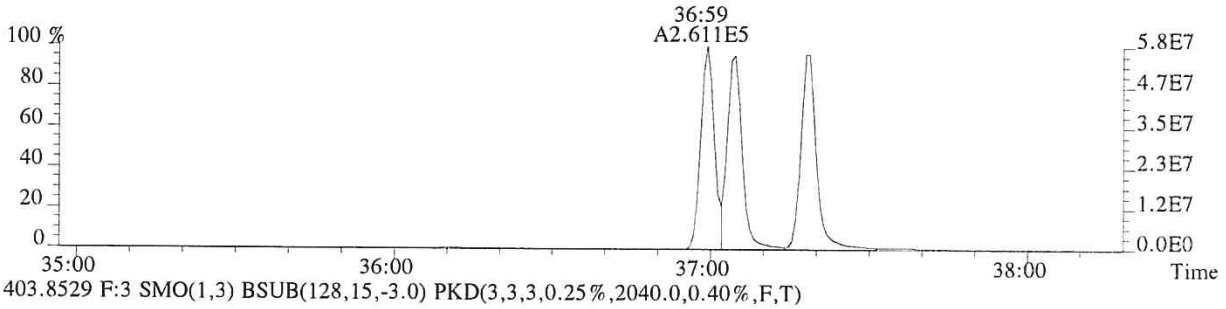
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



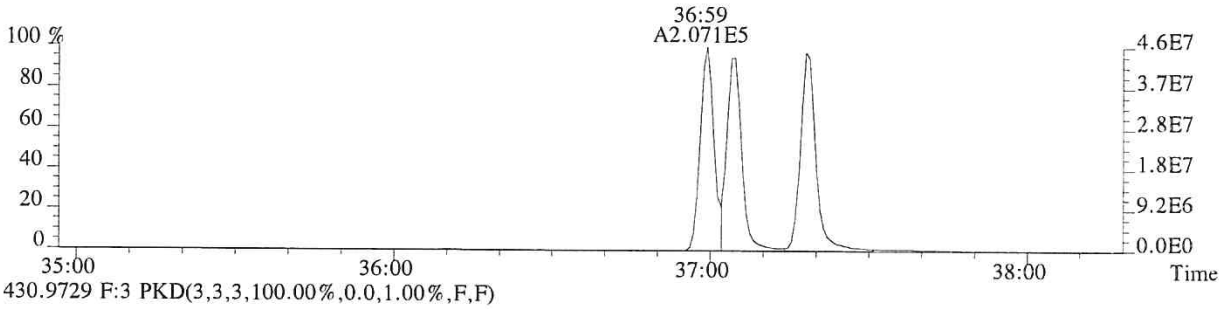
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



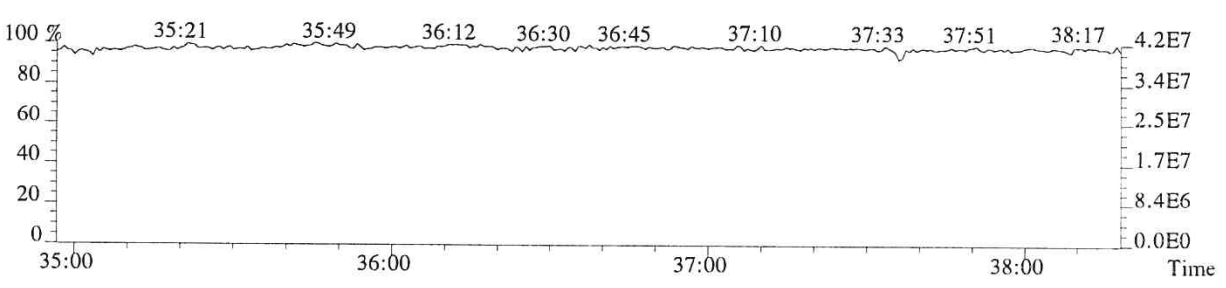
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)

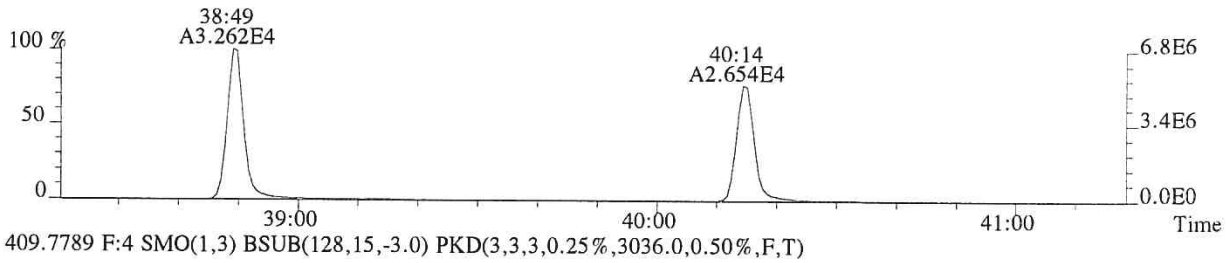


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

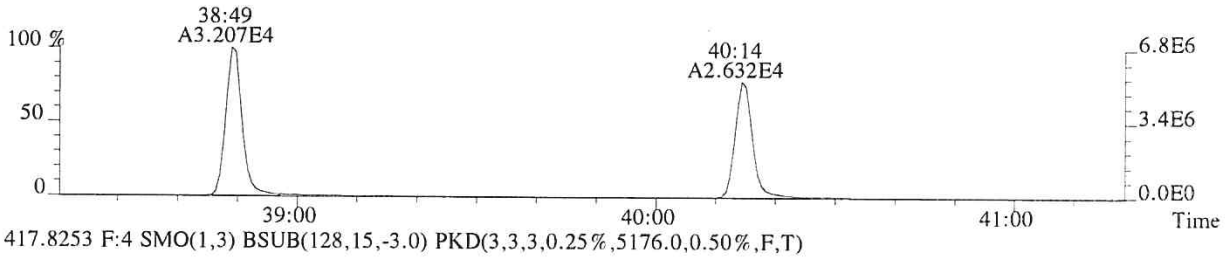


010760

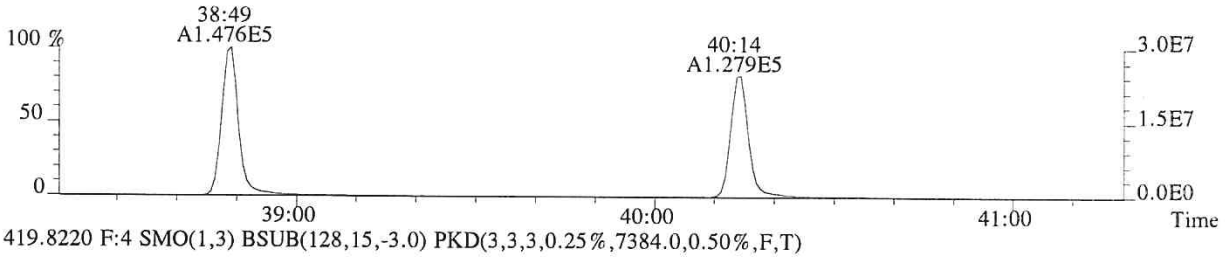
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



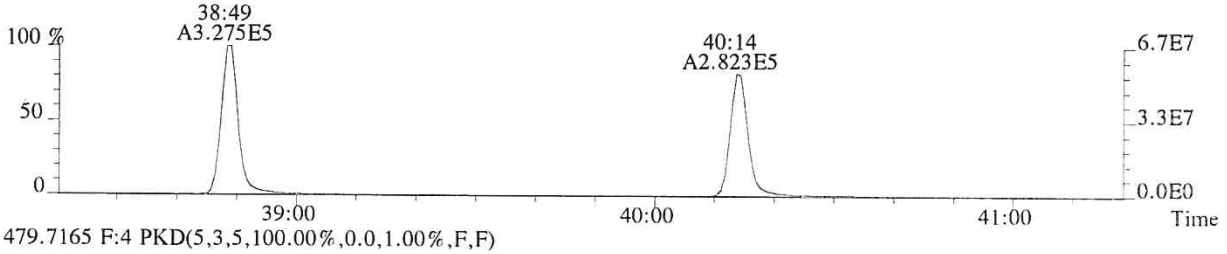
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



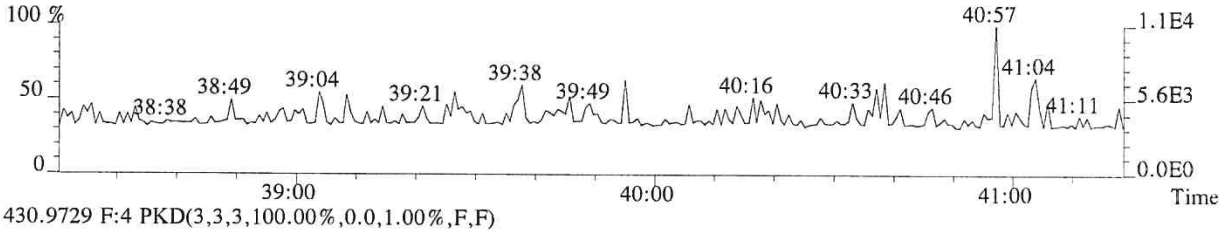
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



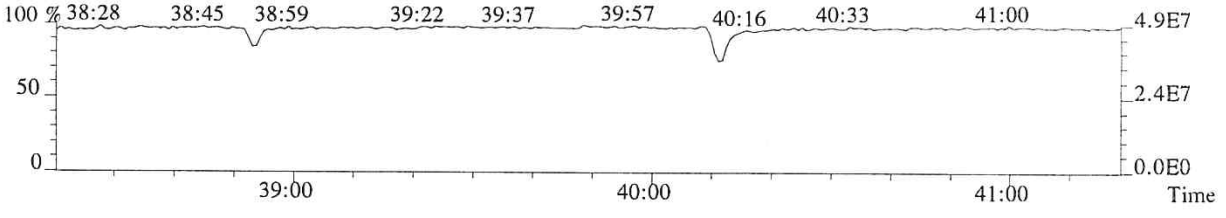
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

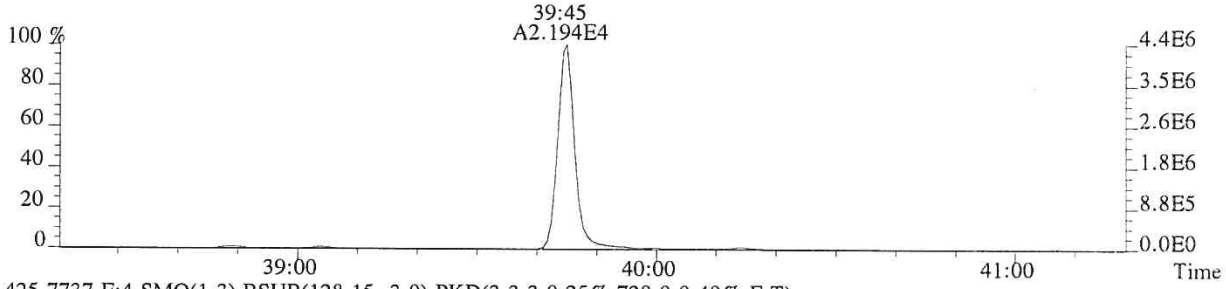


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

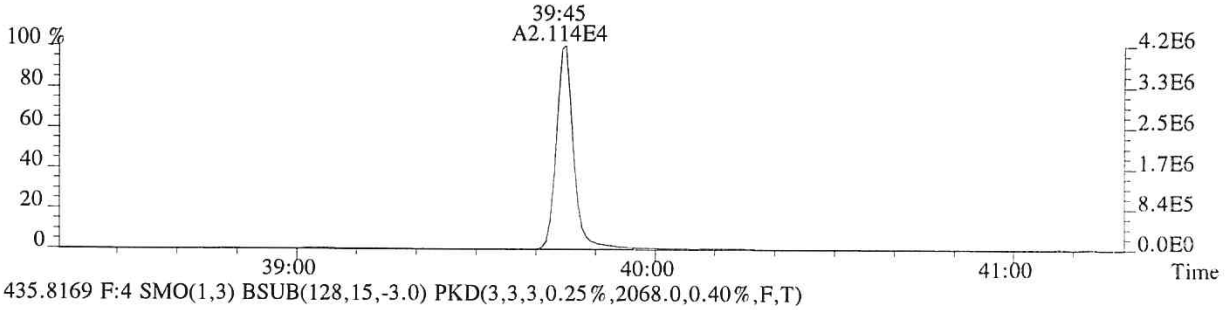


010761

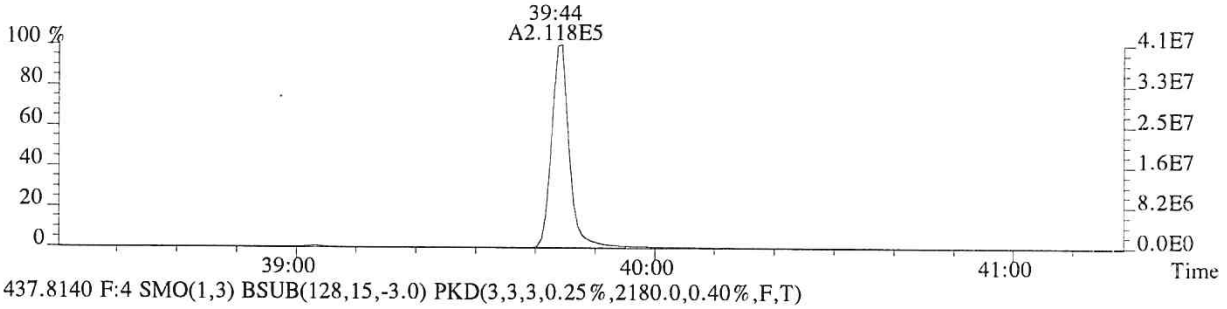
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



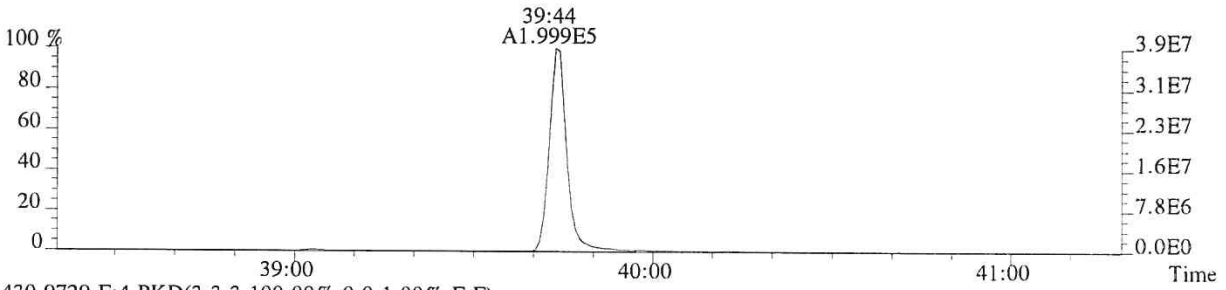
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



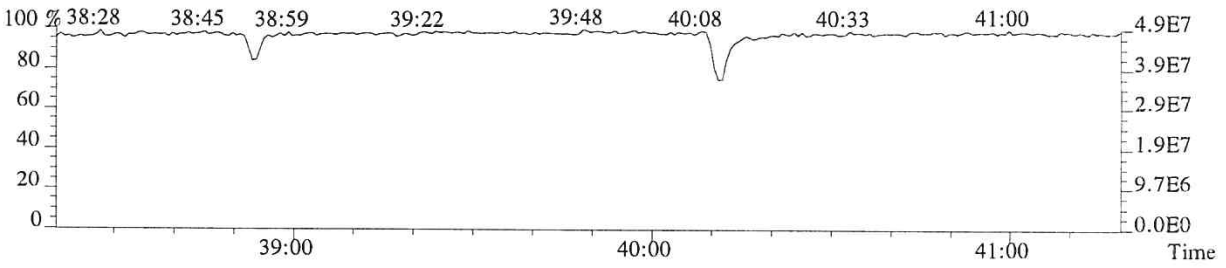
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)

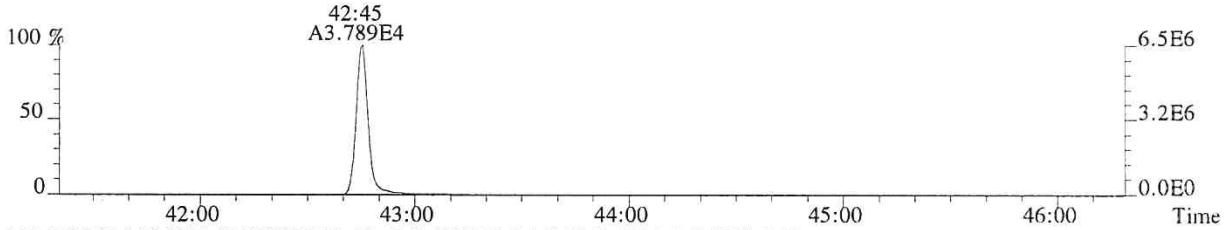


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

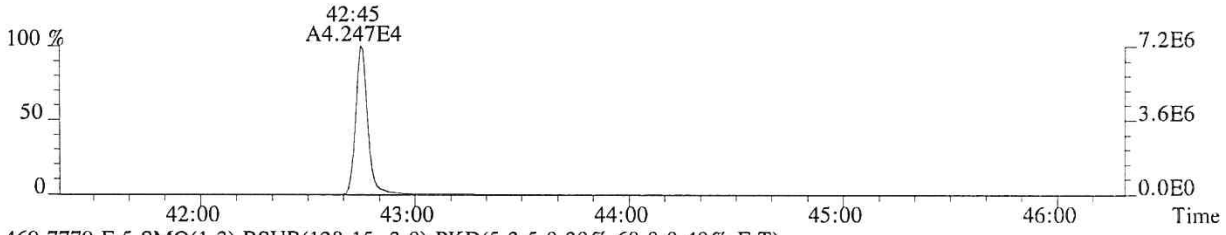


010762

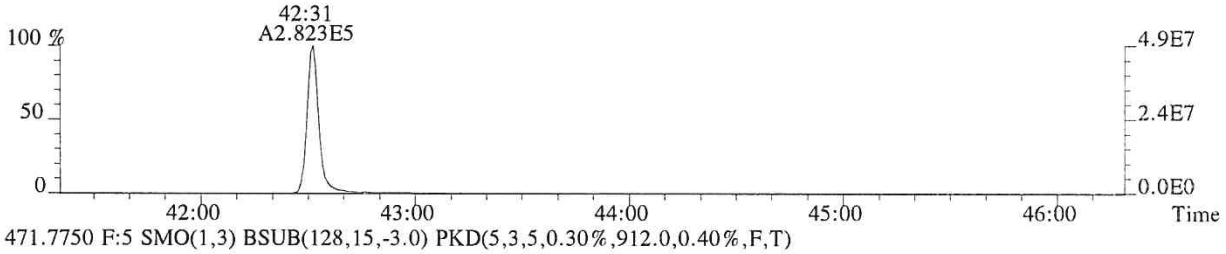
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



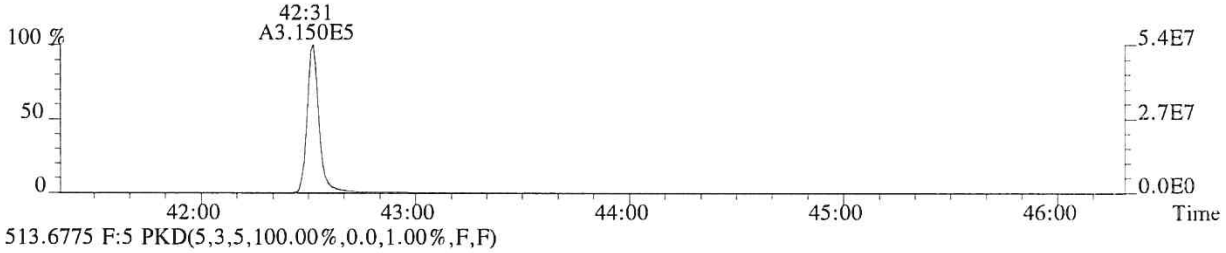
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



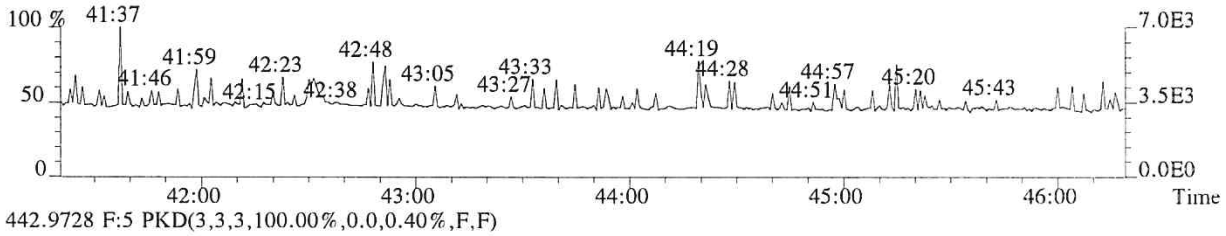
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



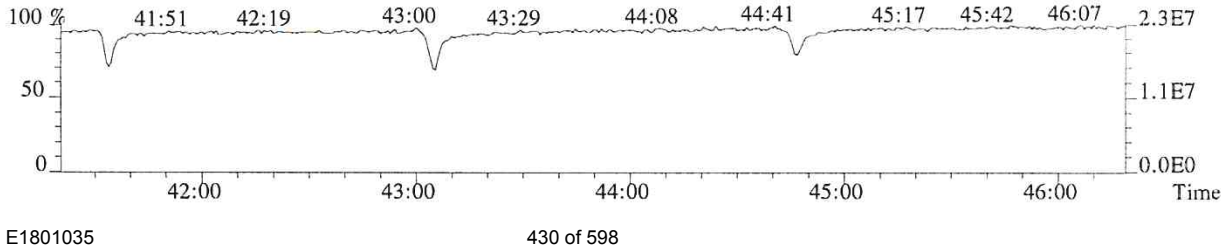
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

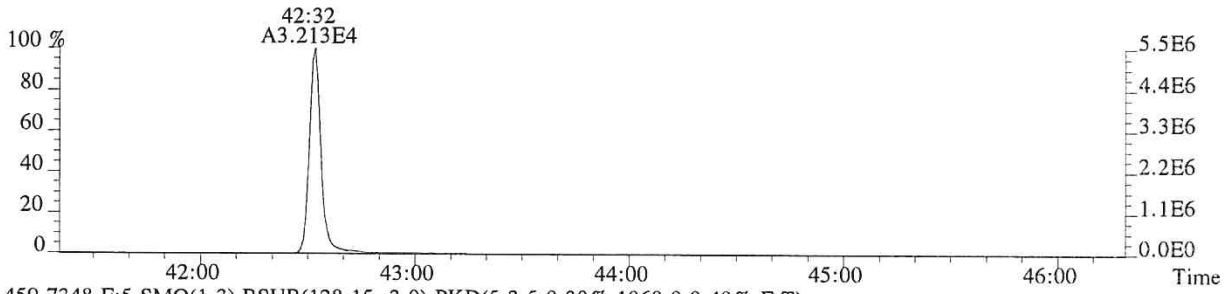


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

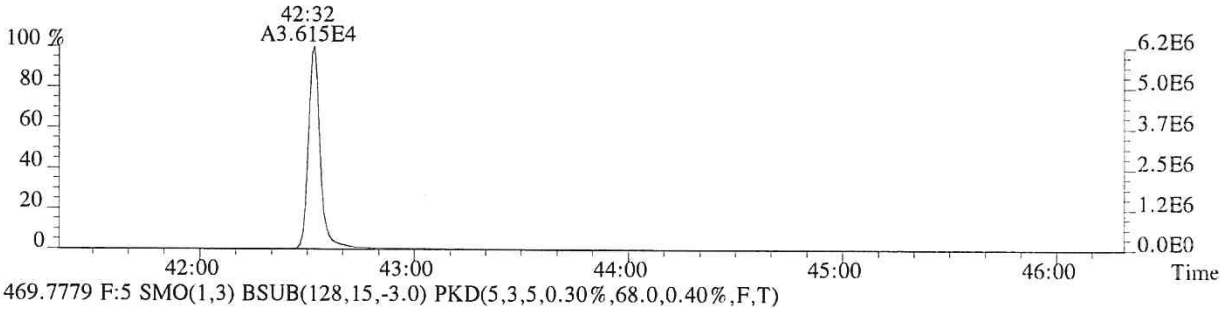


010763

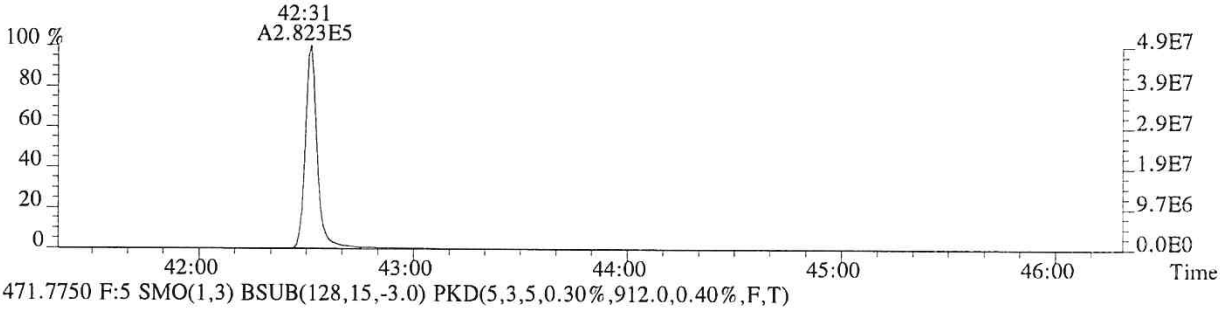
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



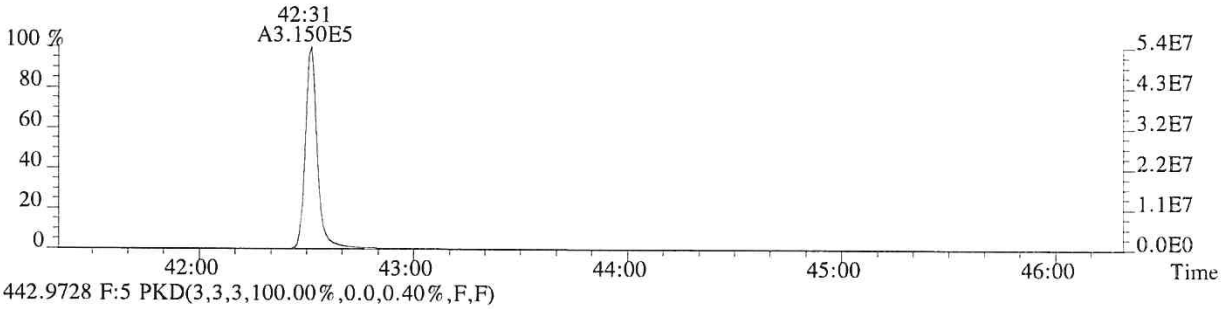
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



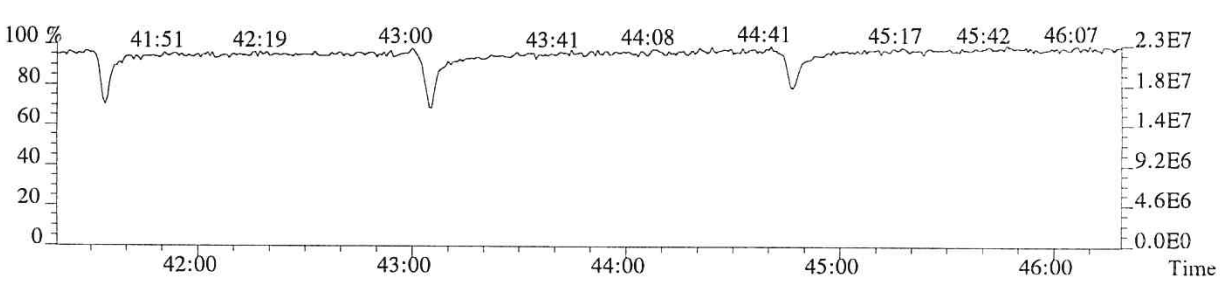
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010764

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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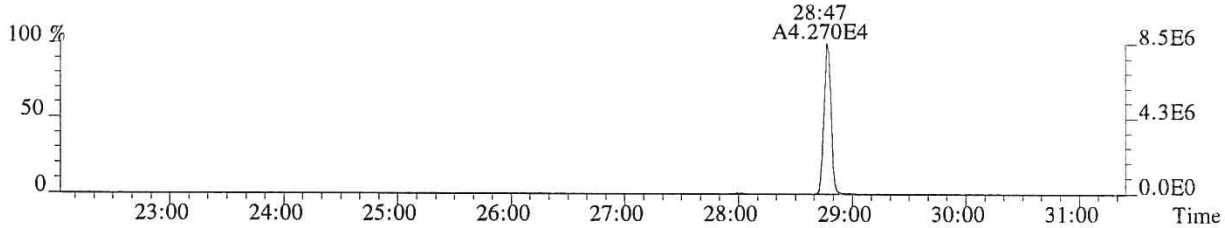
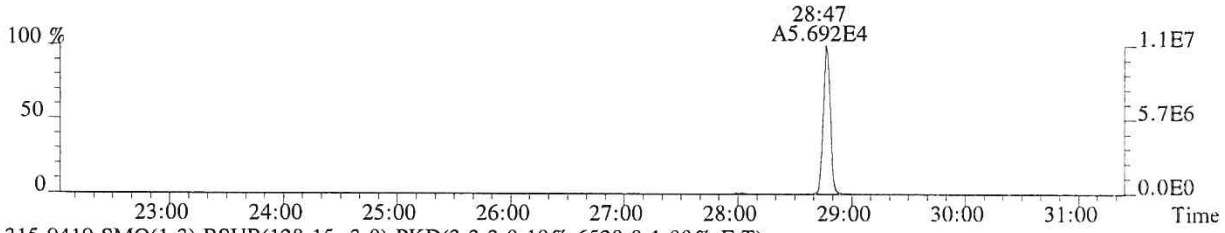
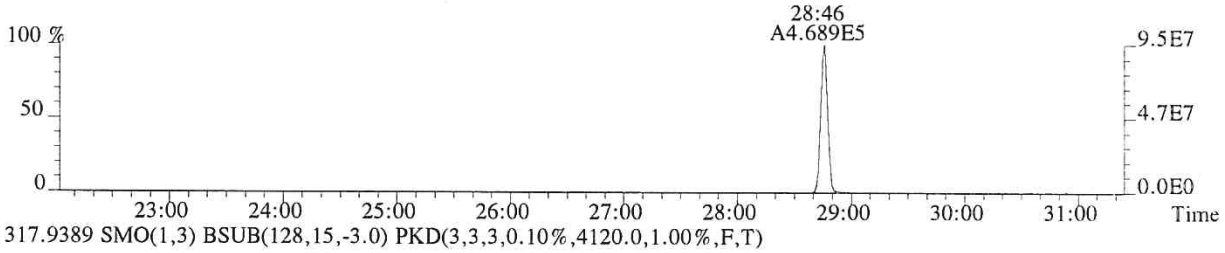
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



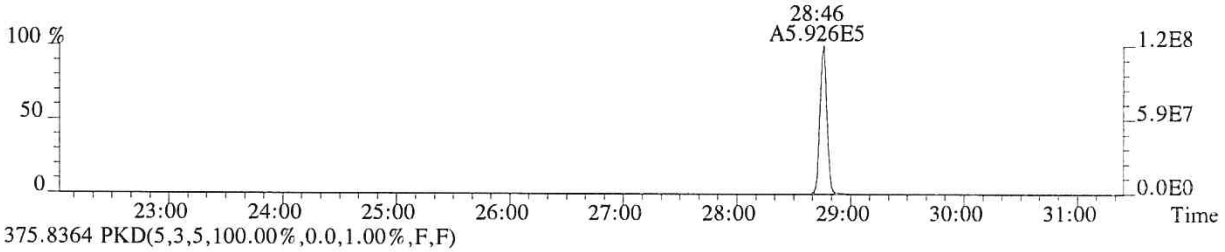
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



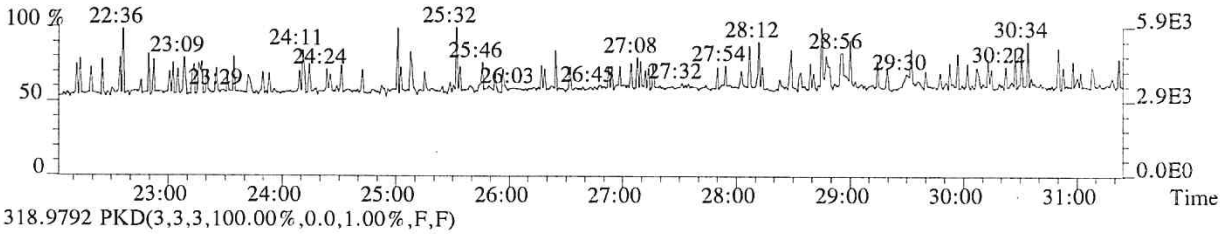
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



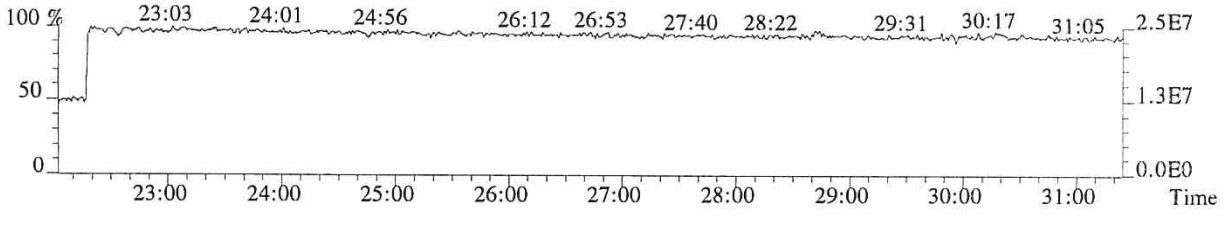
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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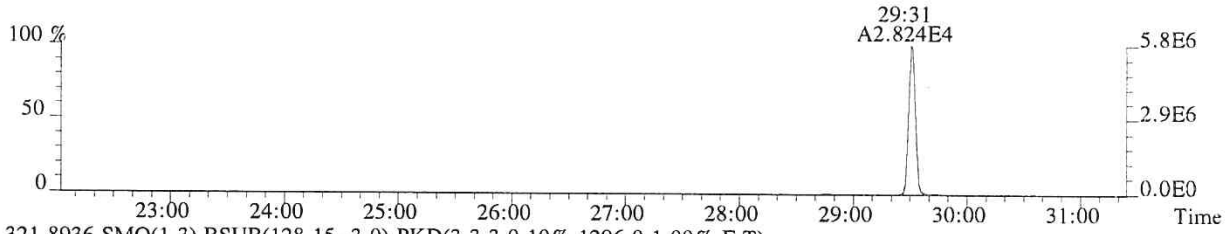
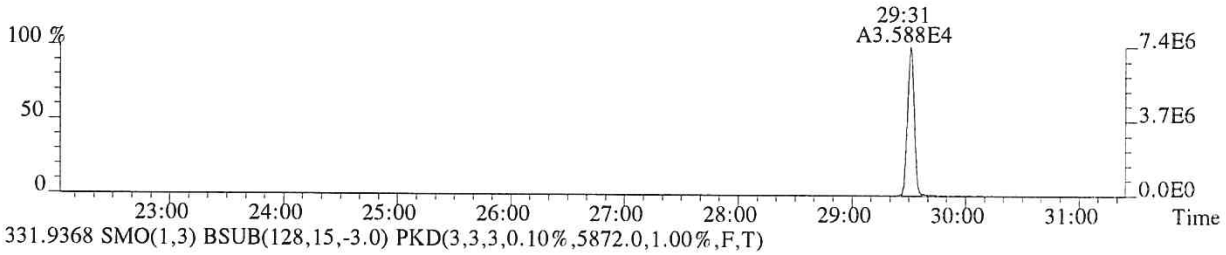
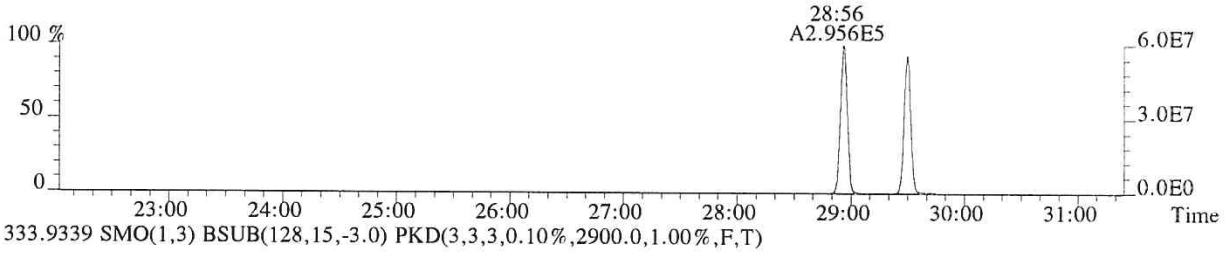
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



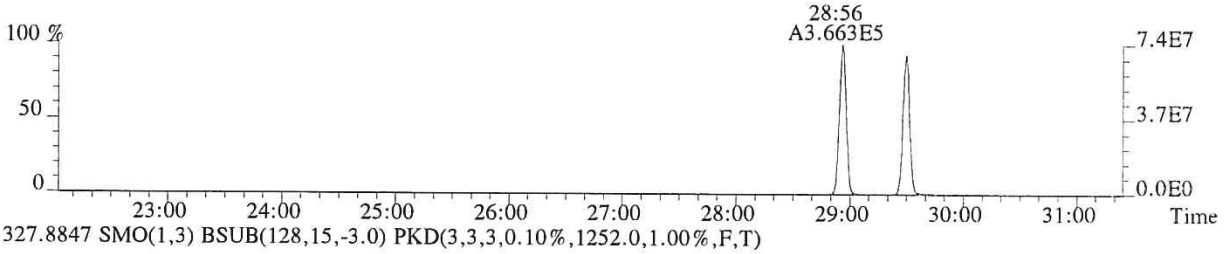
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



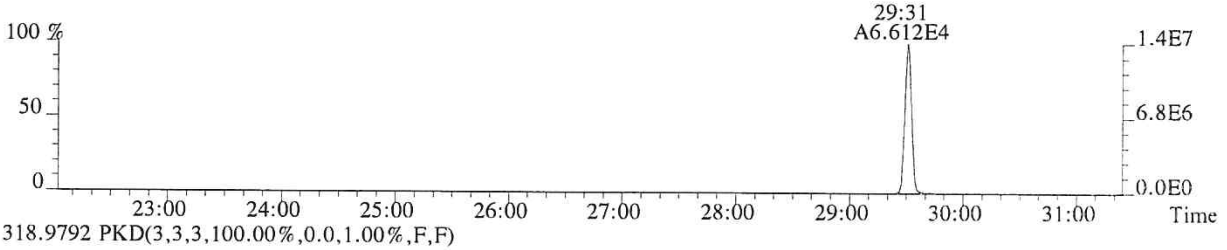
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



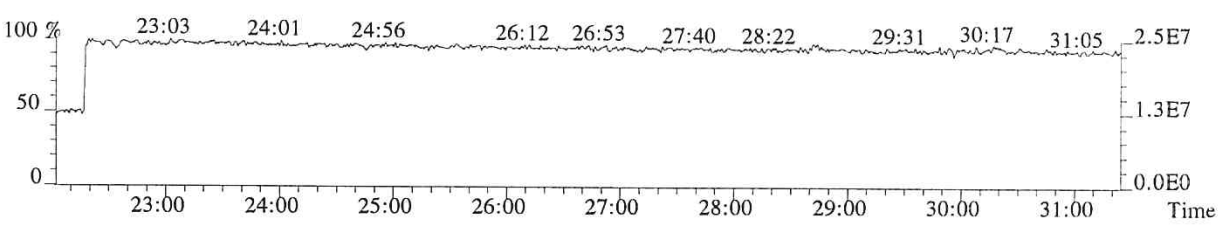
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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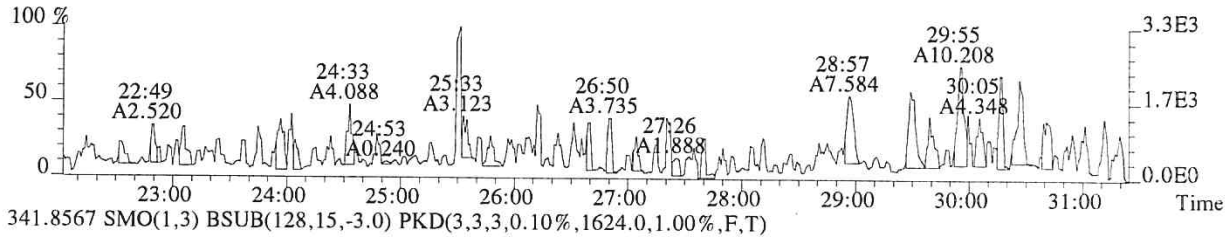
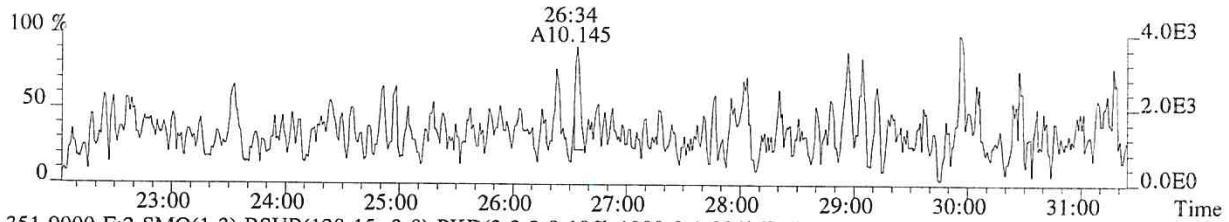
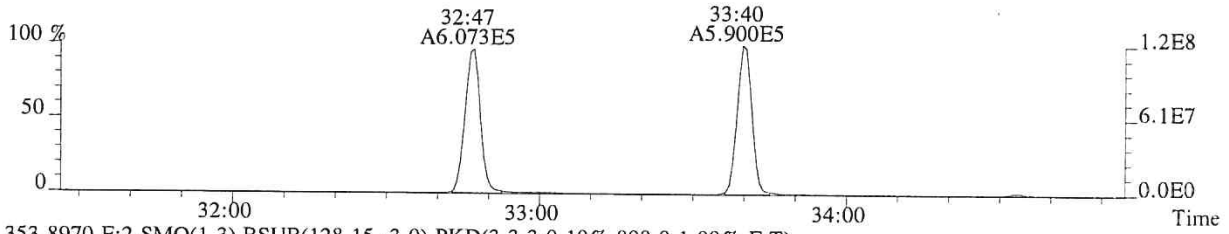
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



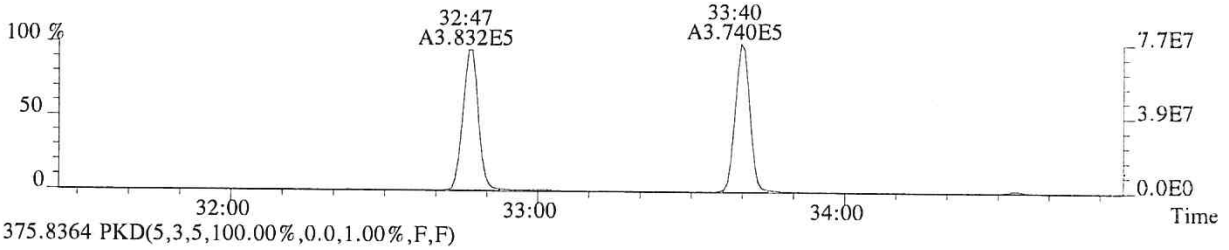
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



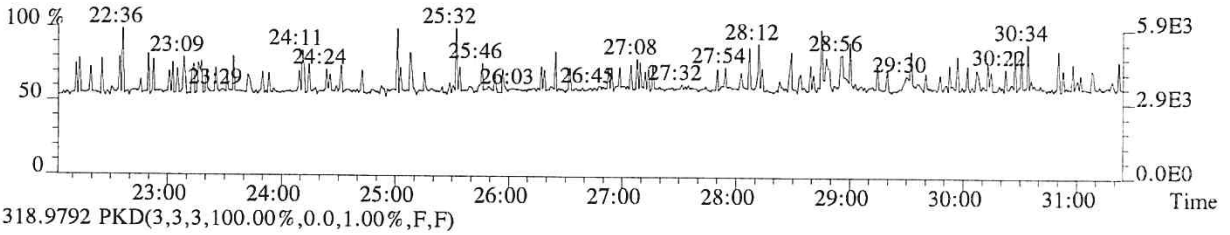
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



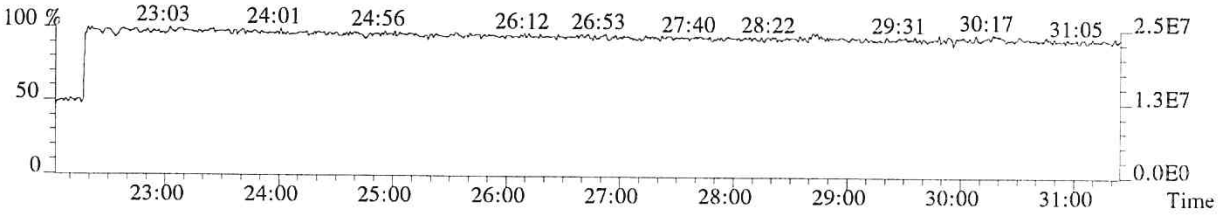
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

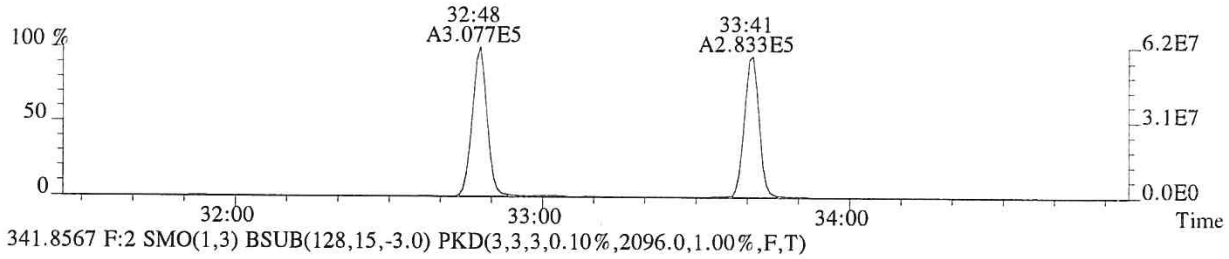


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

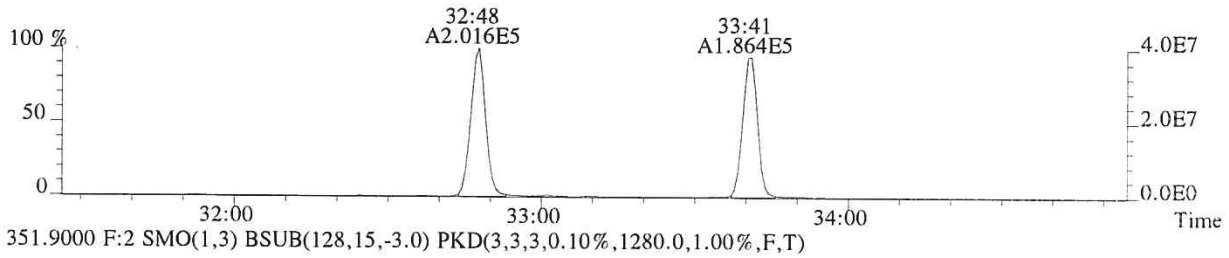


010769

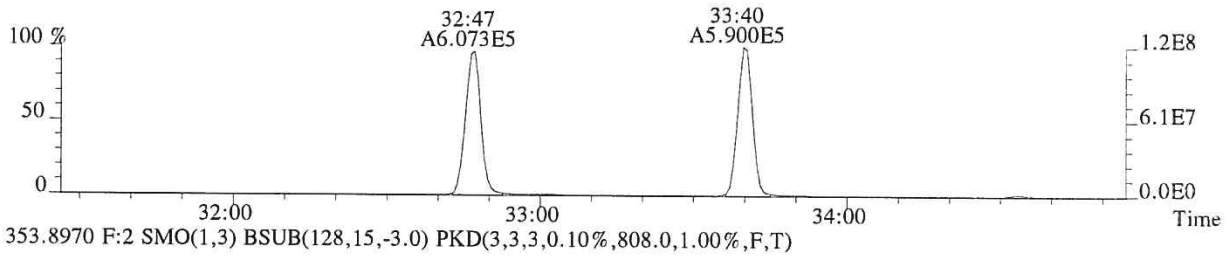
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



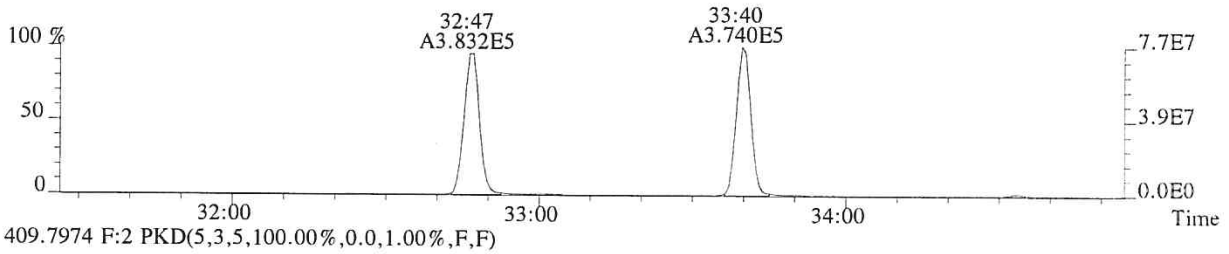
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



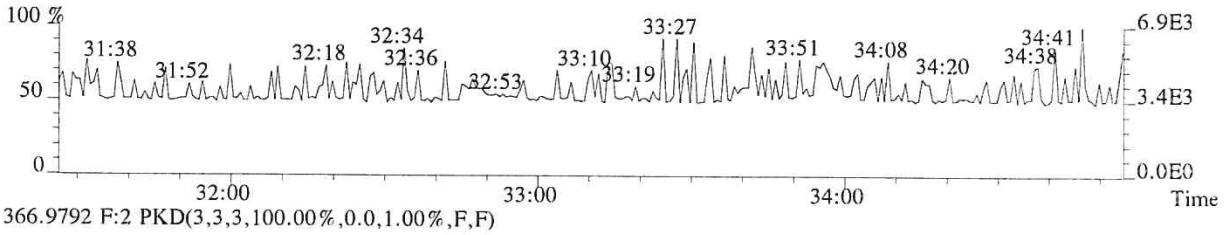
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



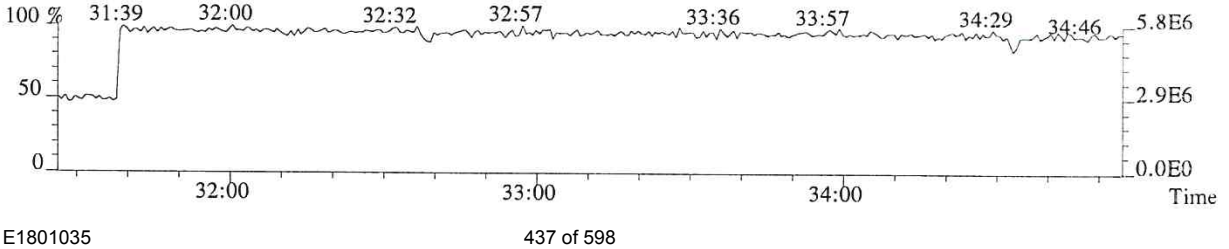
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

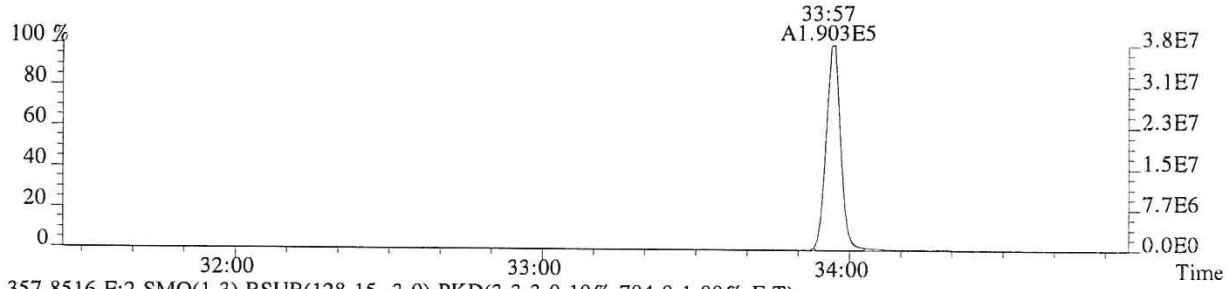


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

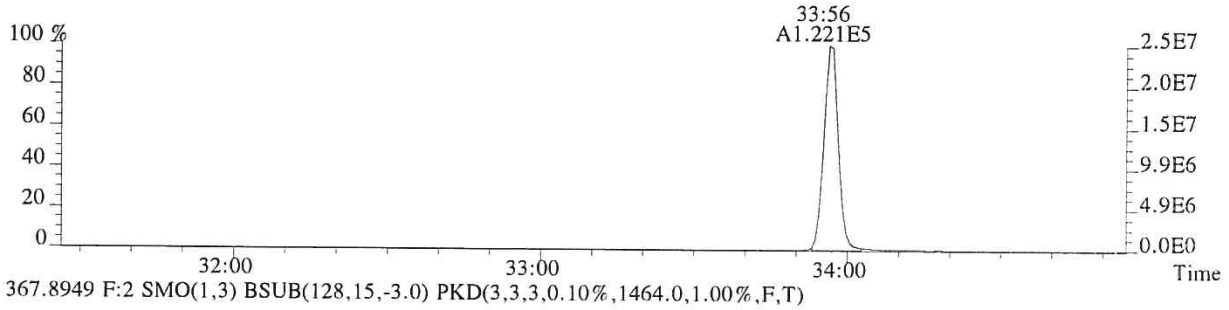


010770

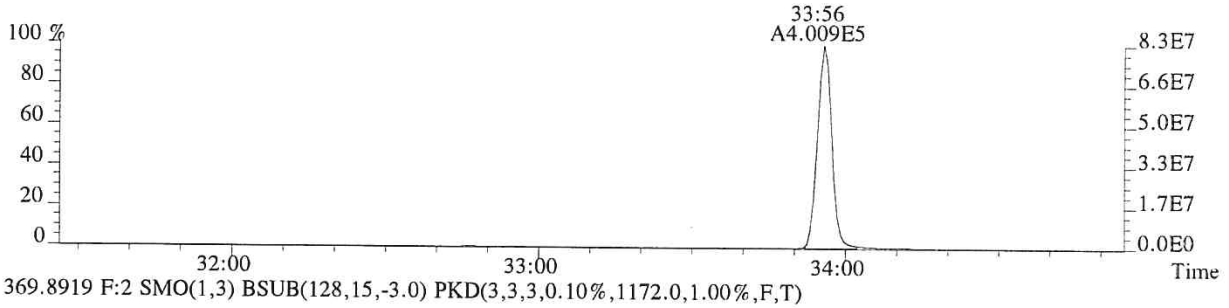
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



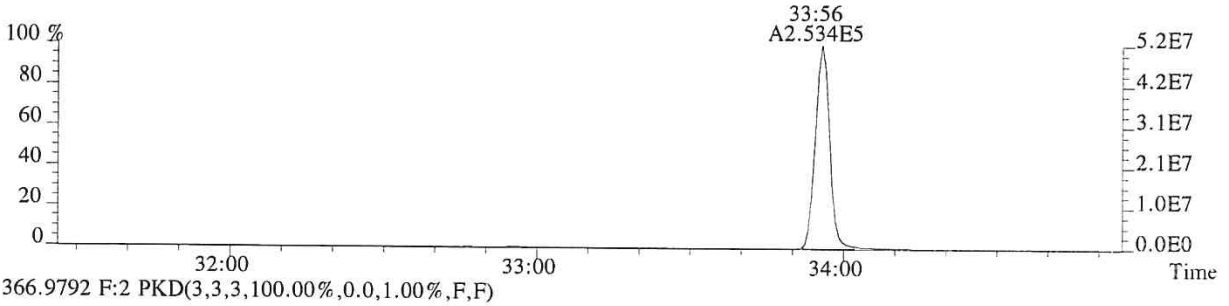
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



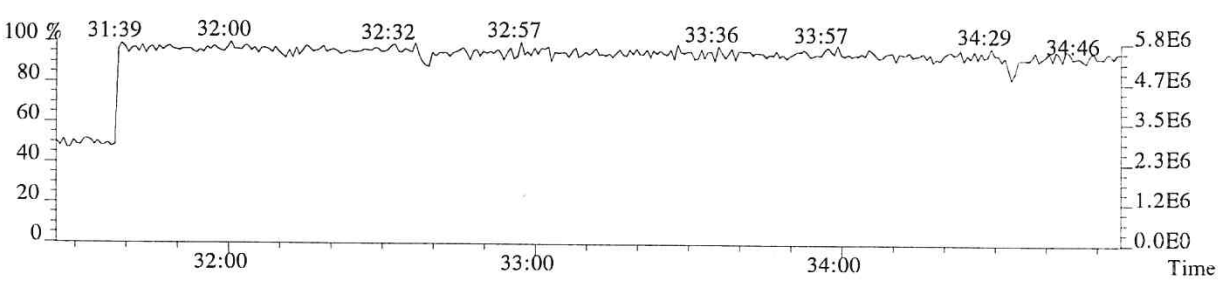
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



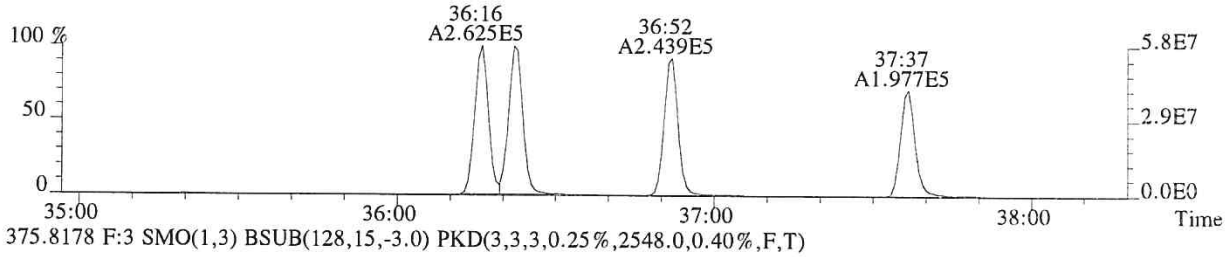
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



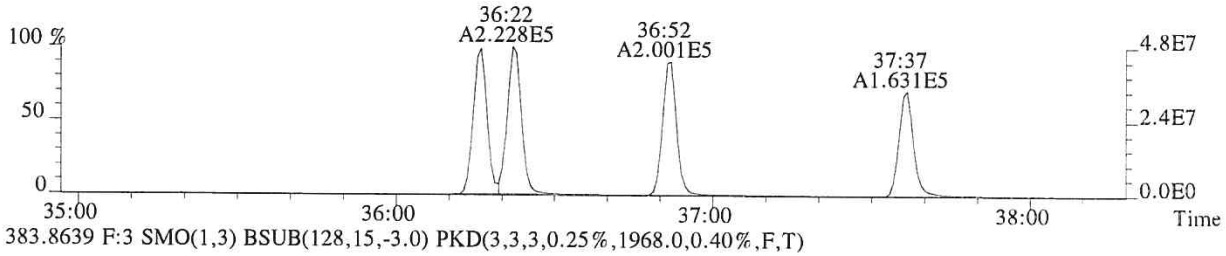
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



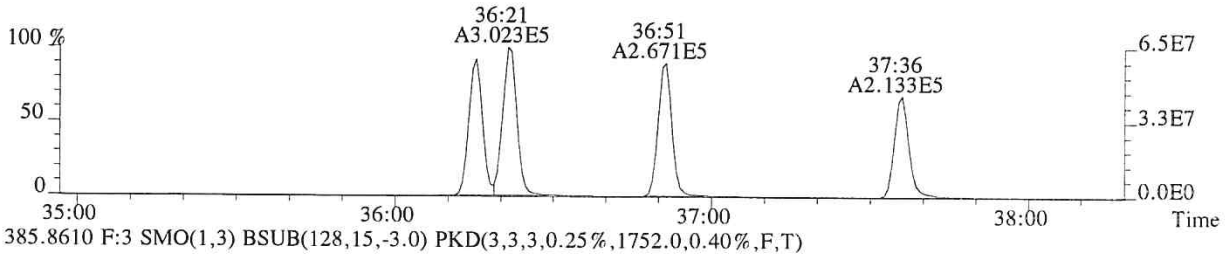
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



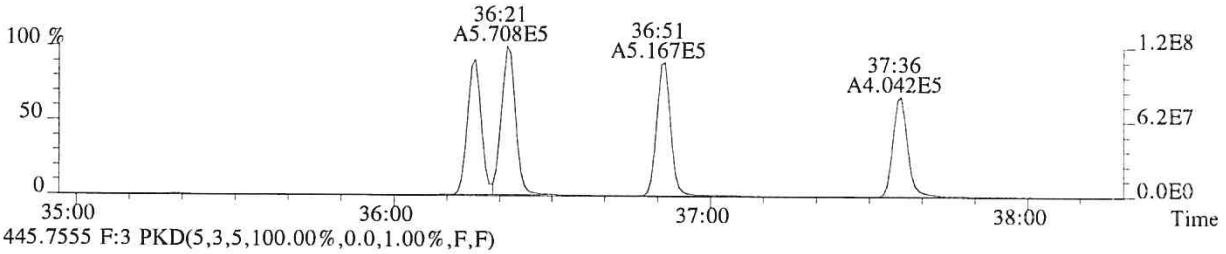
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



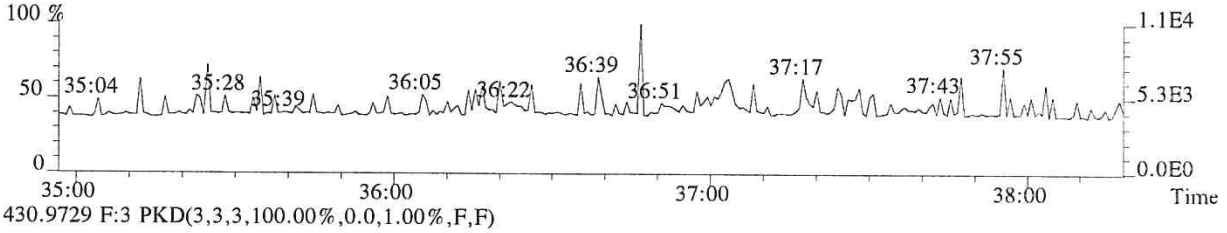
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



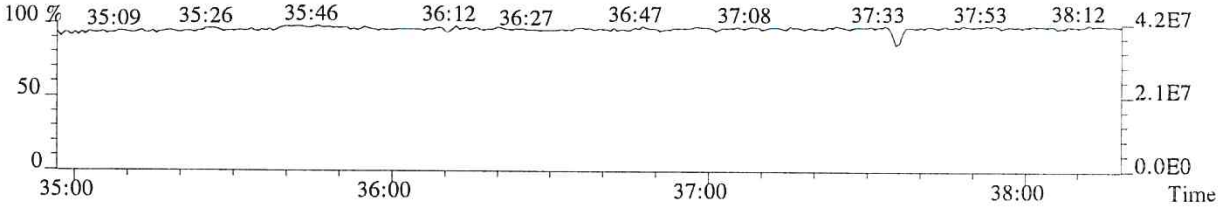
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

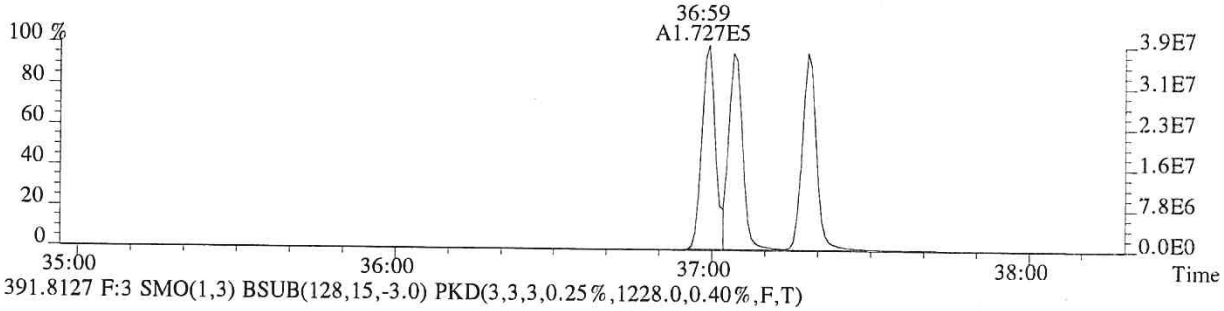


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

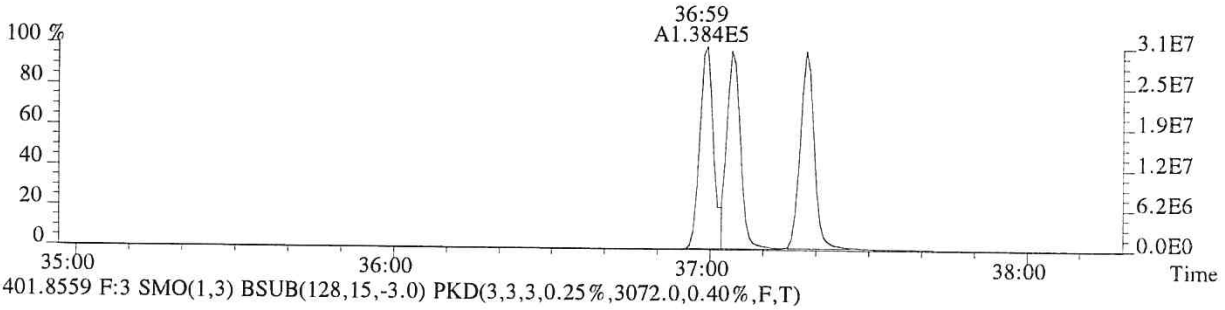


010772

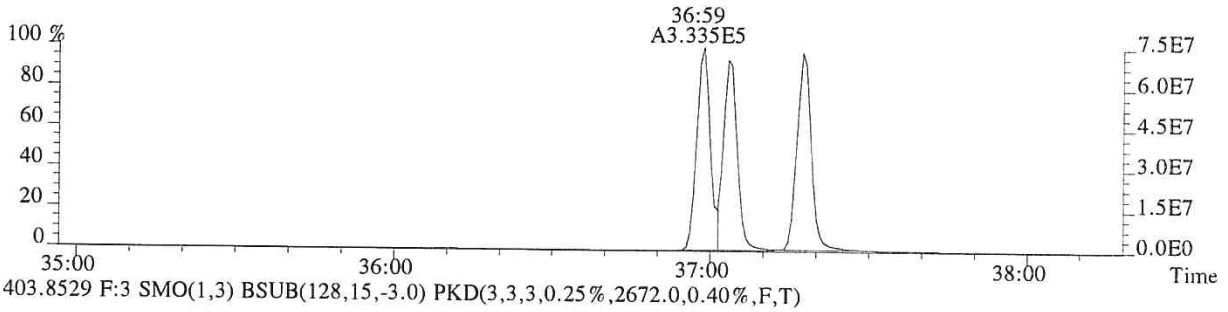
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



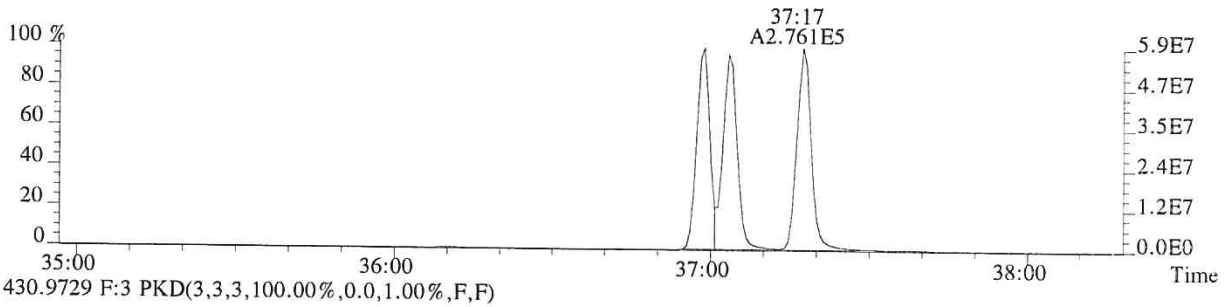
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



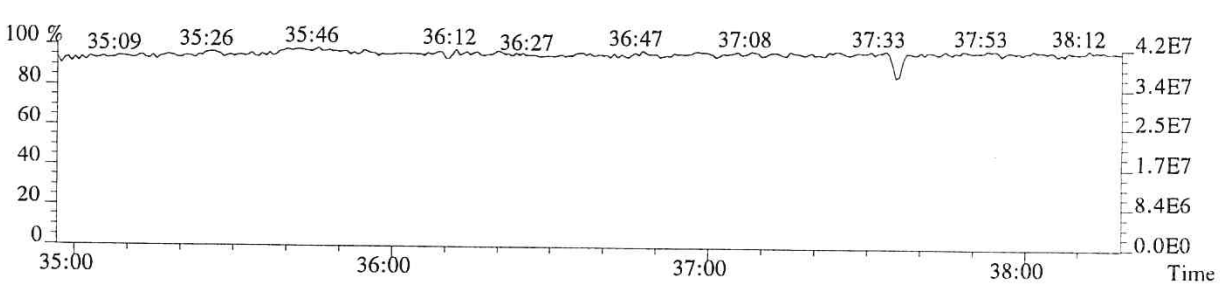
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)

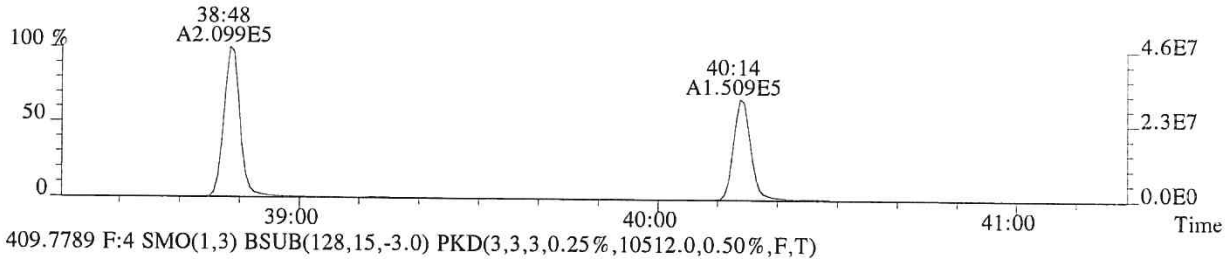


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

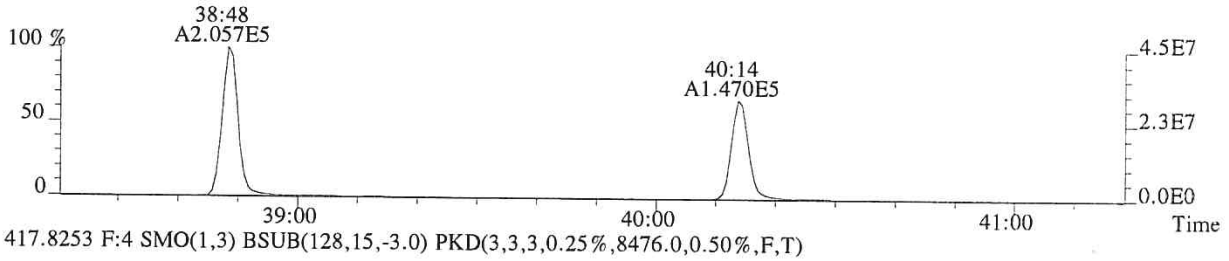


010773

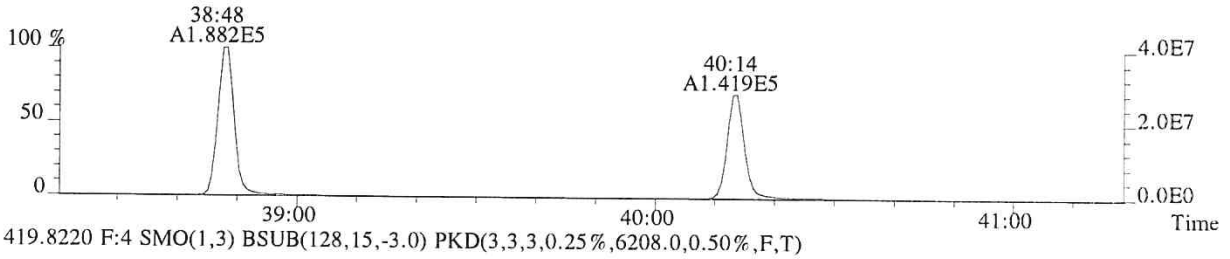
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



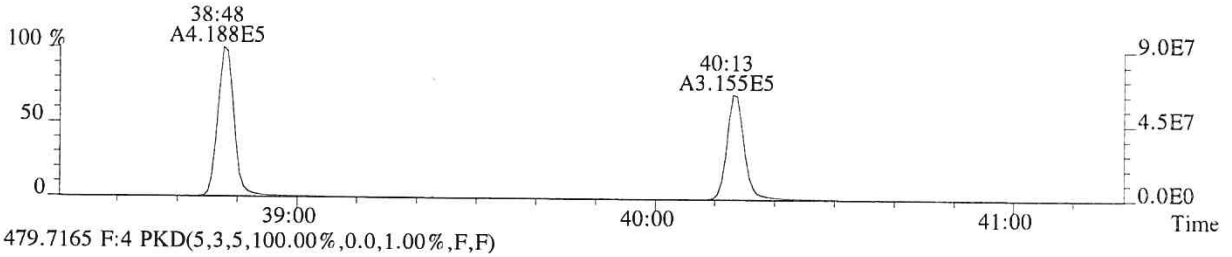
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



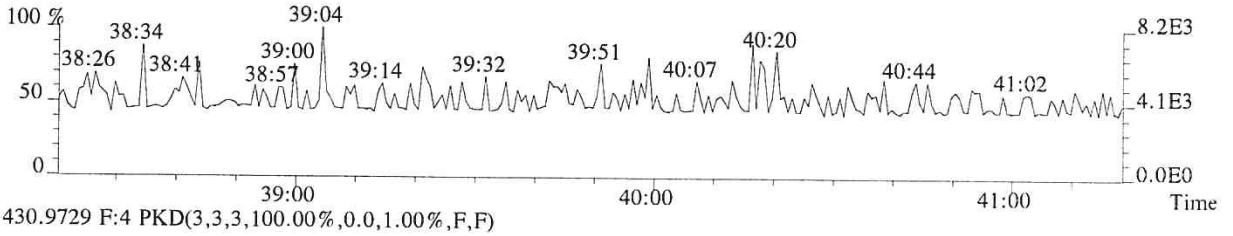
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



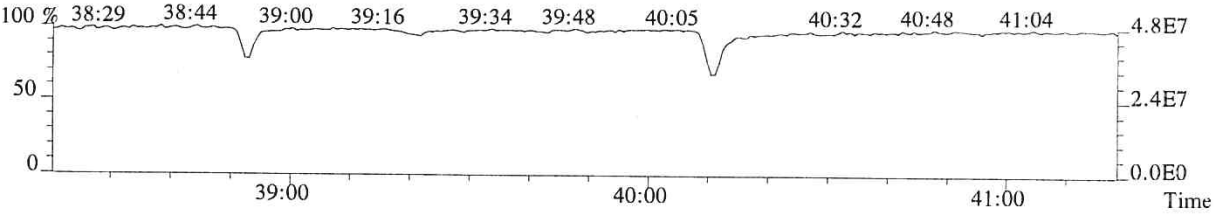
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

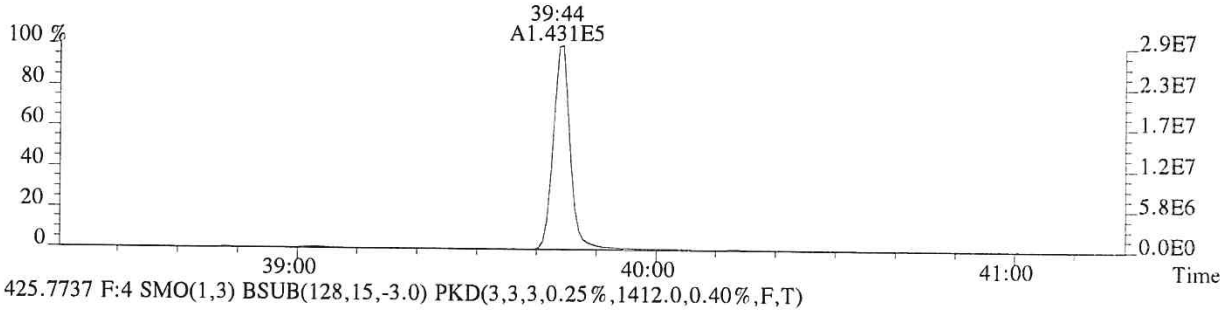


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

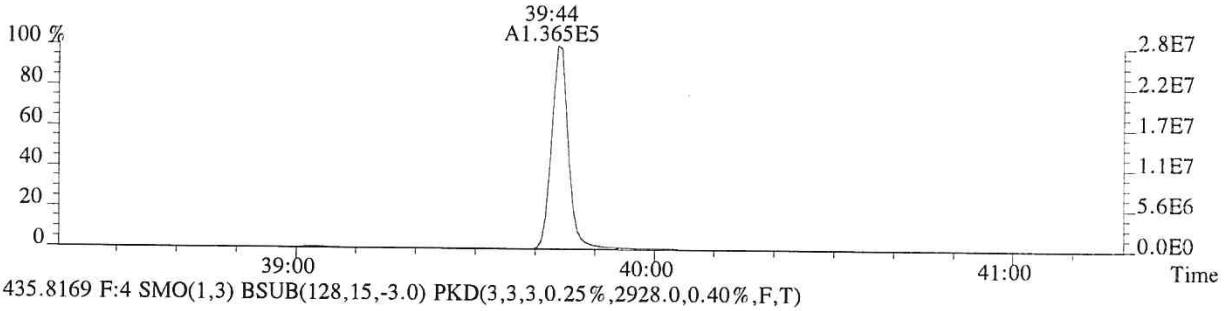


010774

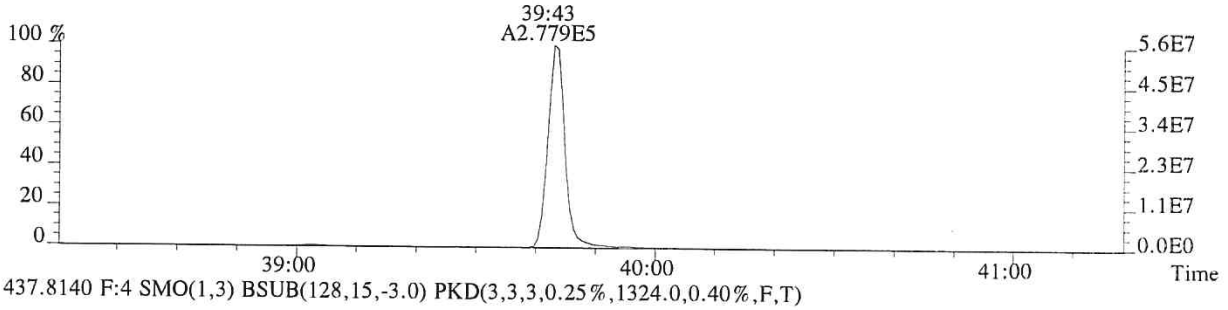
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



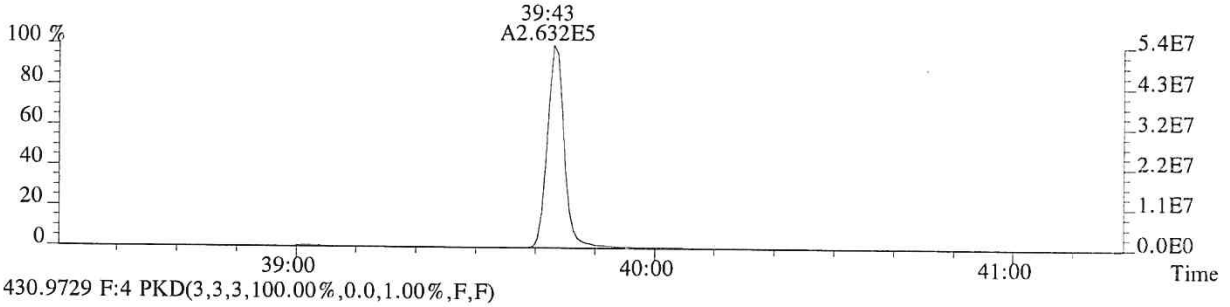
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



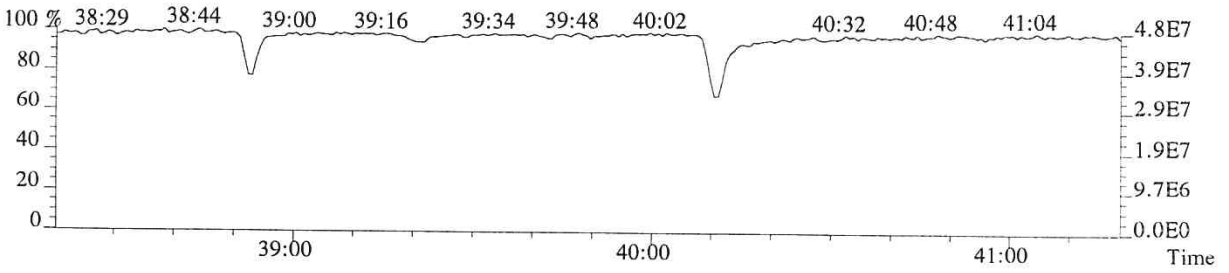
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)

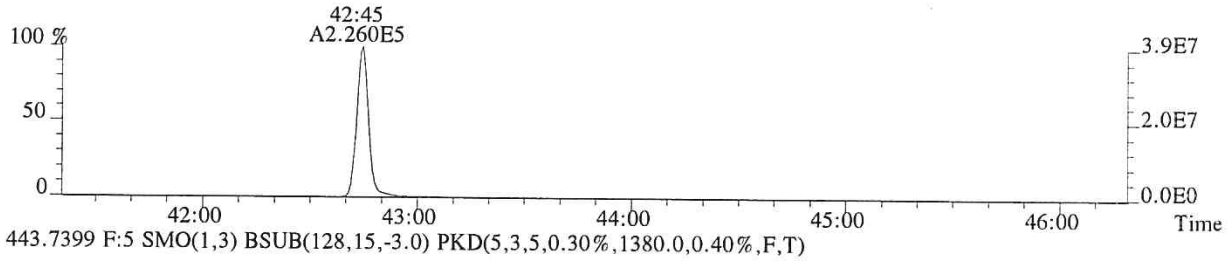


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

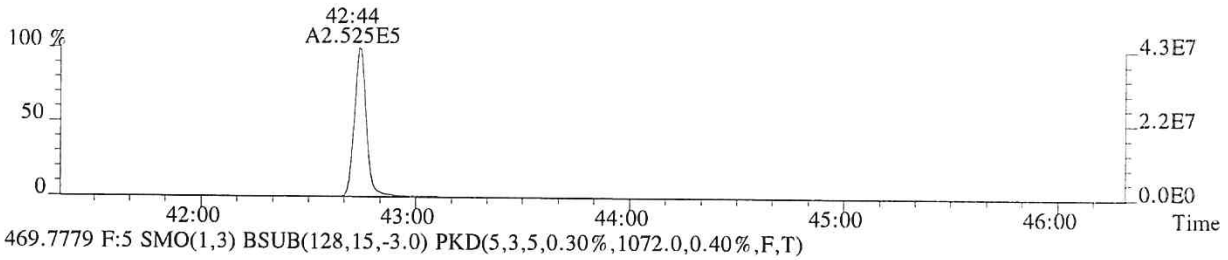


010775

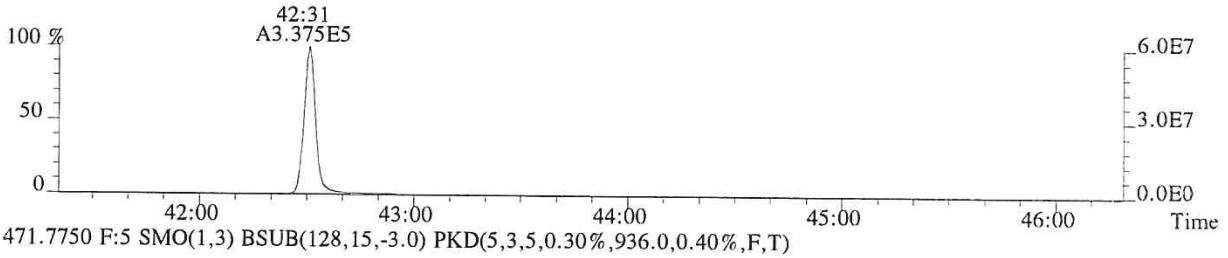
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



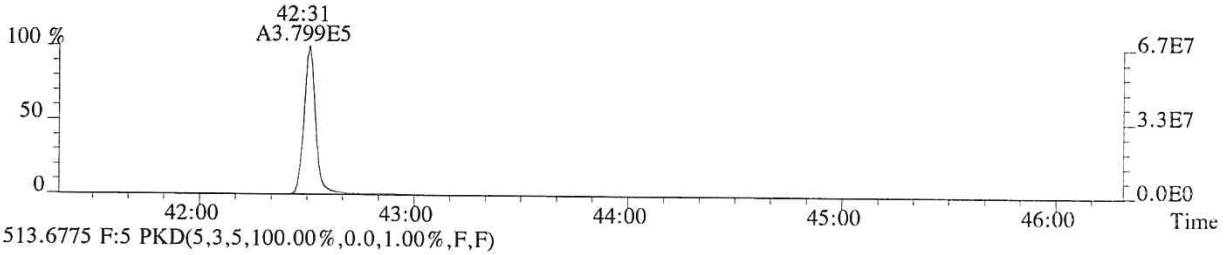
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



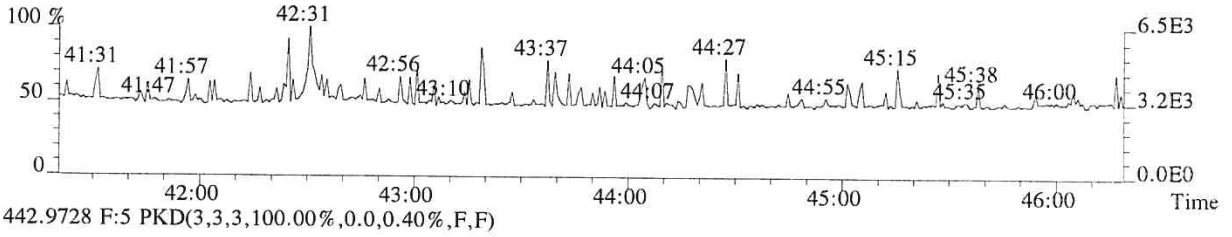
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



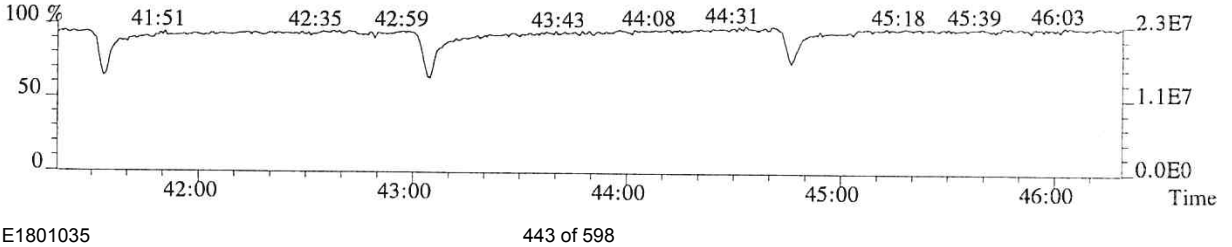
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

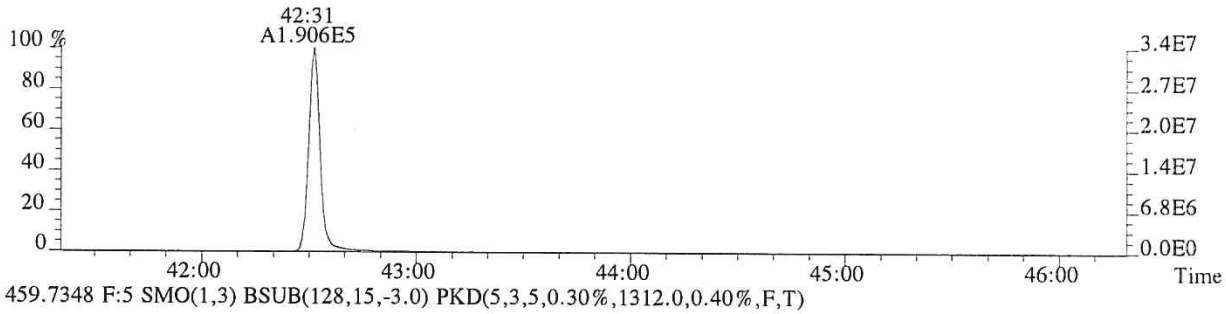


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

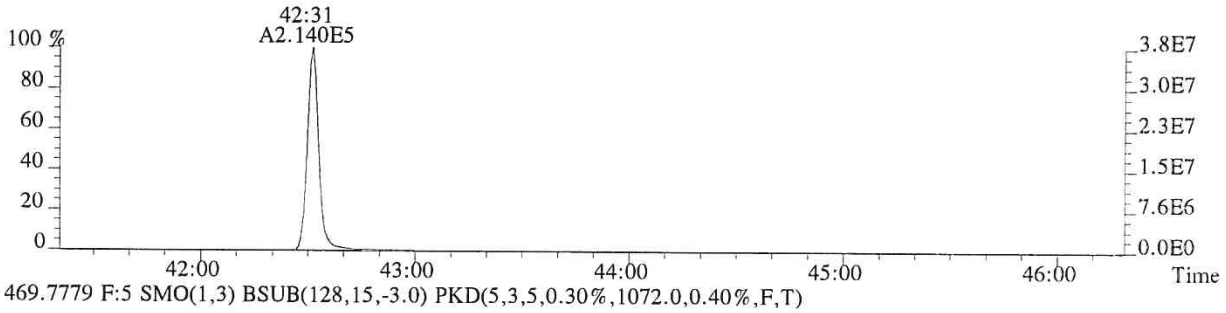


010776

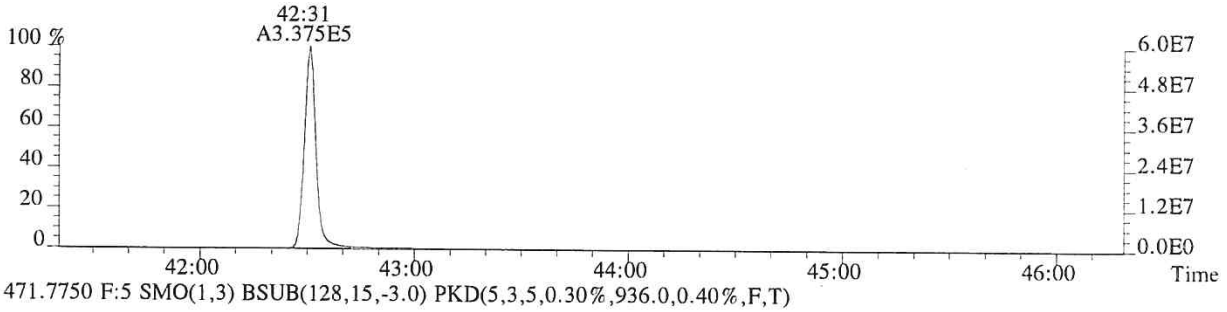
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



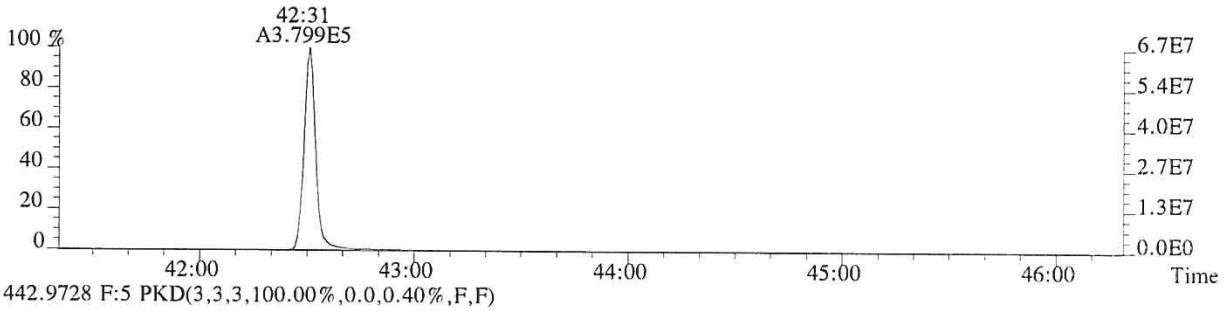
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



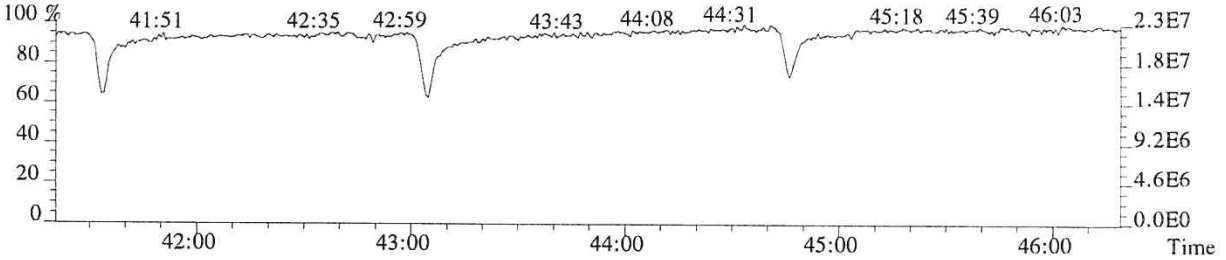
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010777

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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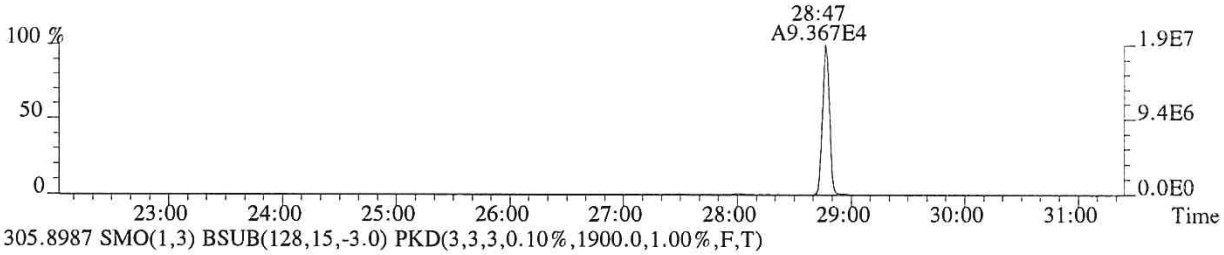
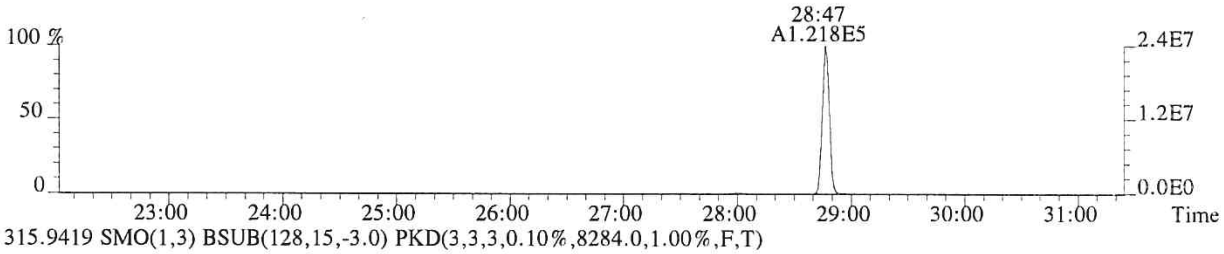
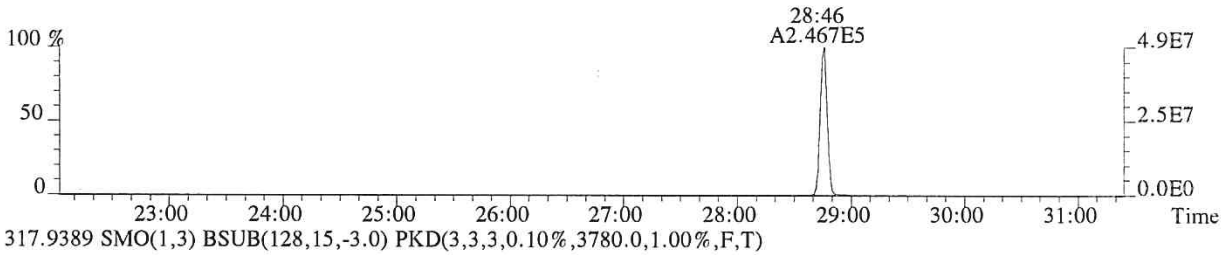
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



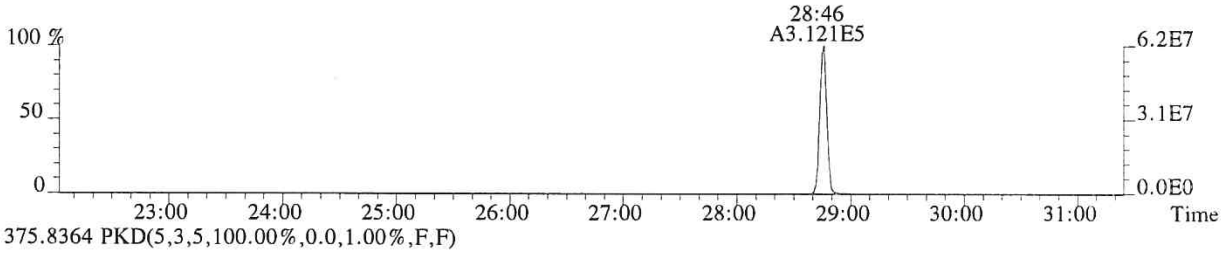
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



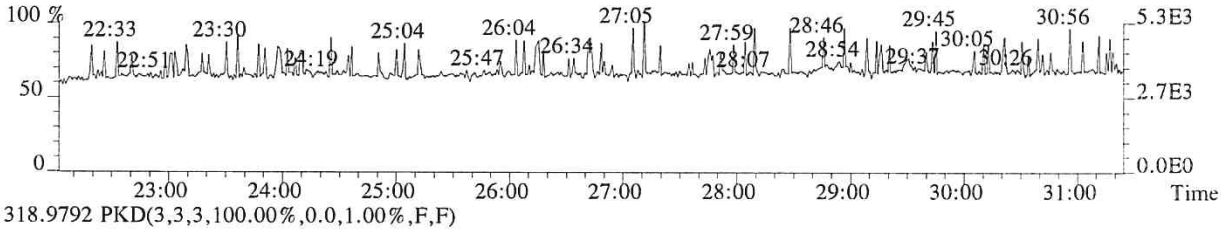
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



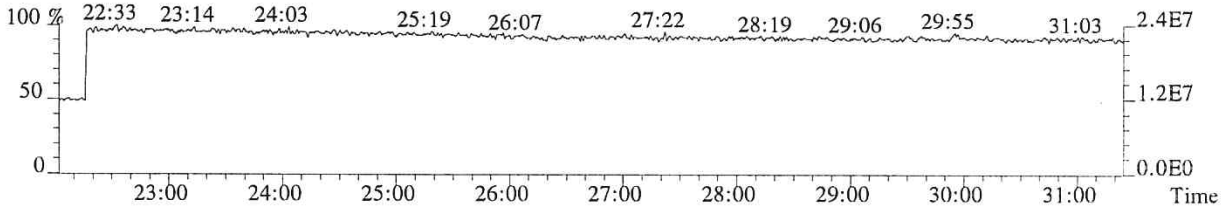
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

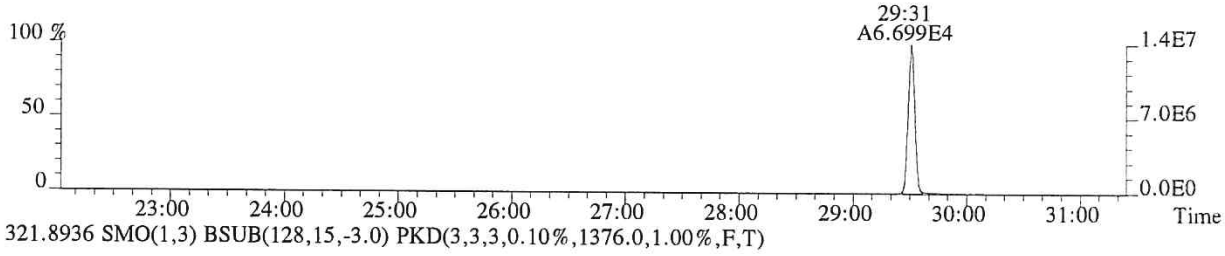


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

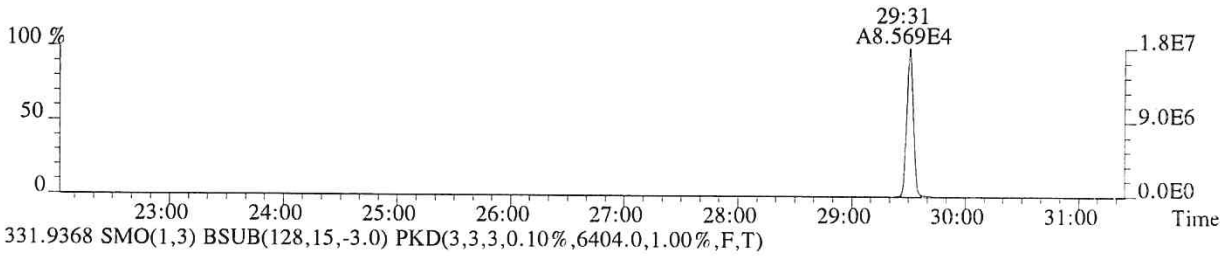


010780

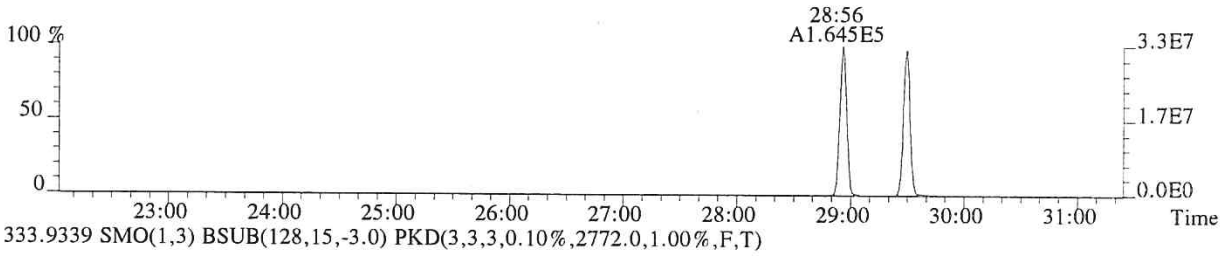
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



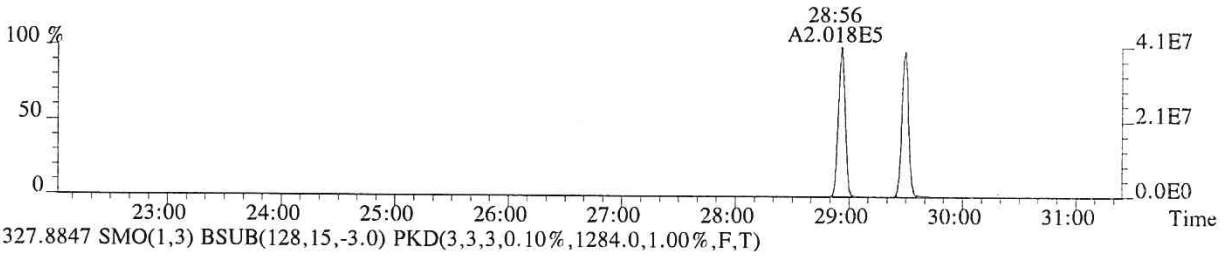
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



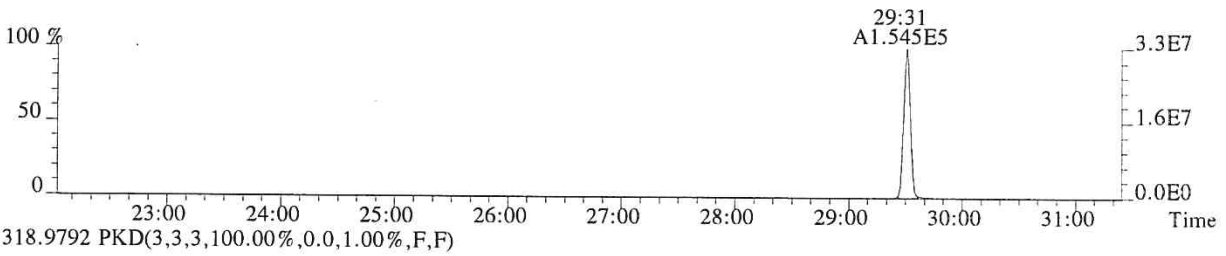
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



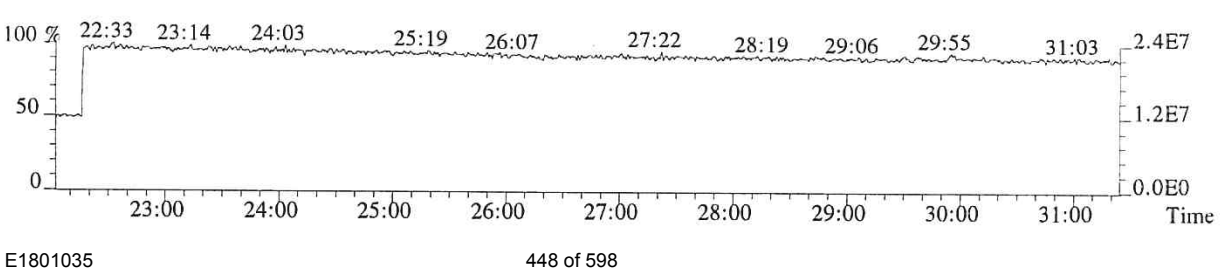
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)

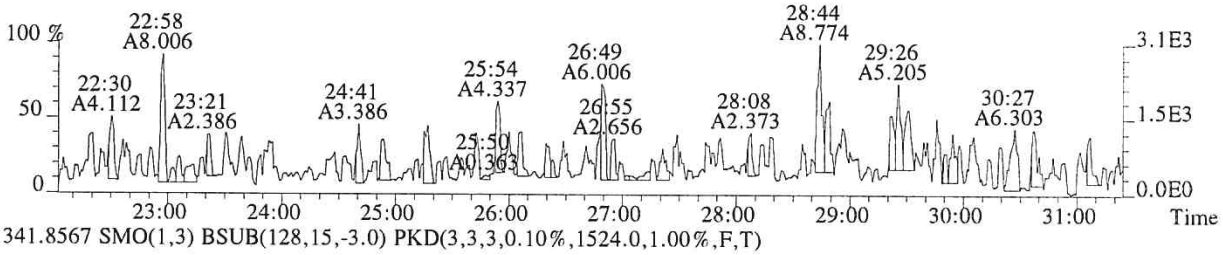


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

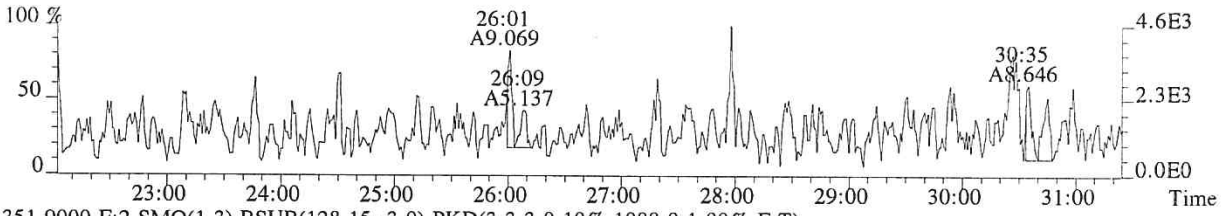


010781

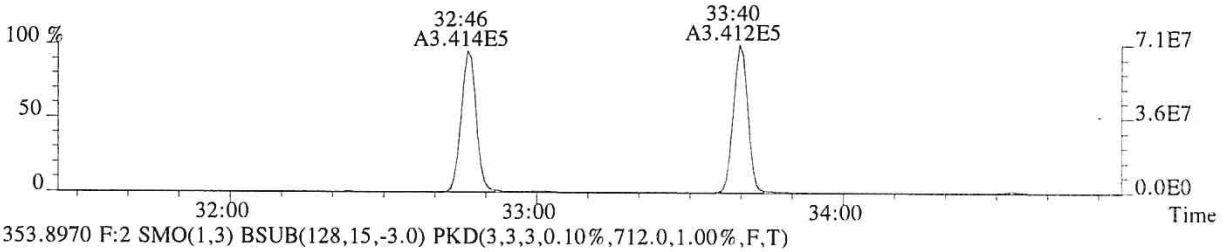
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



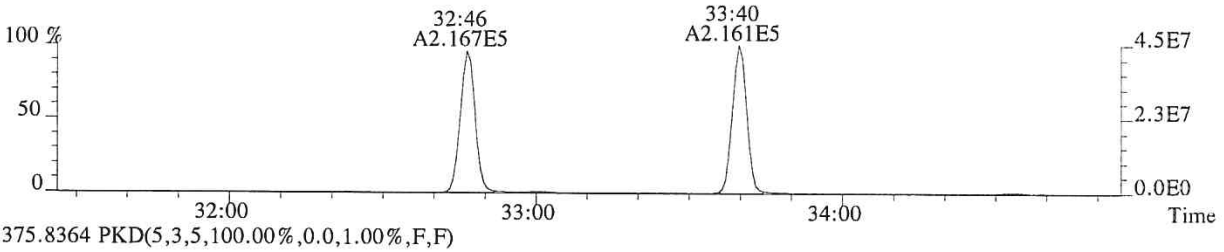
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



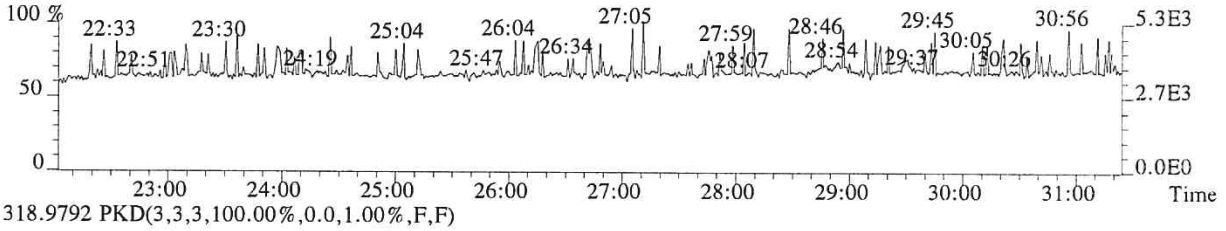
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



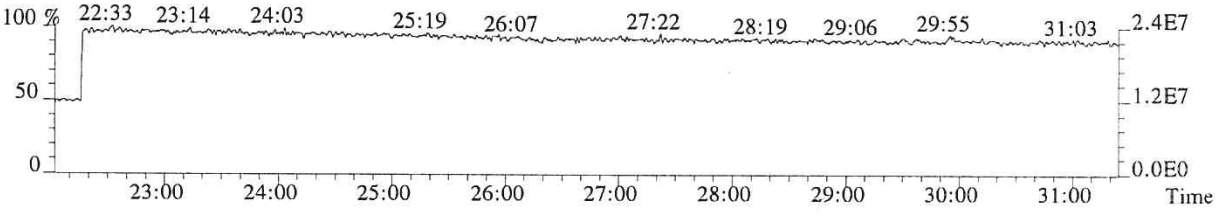
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

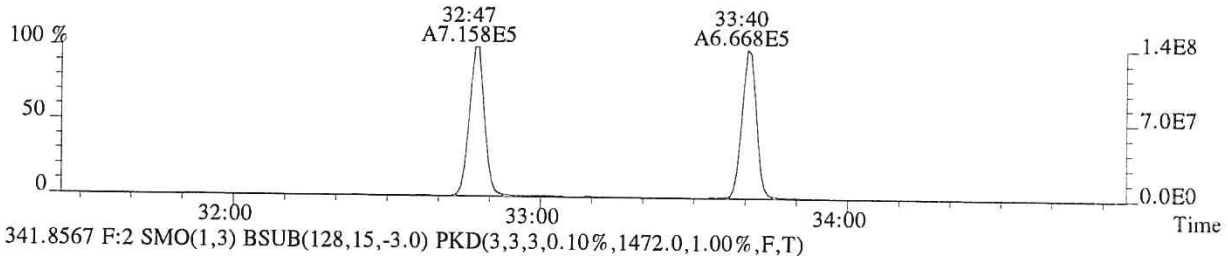


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

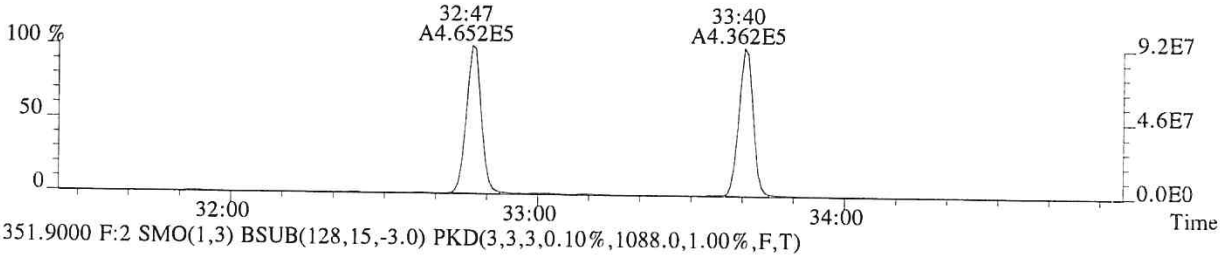


010782

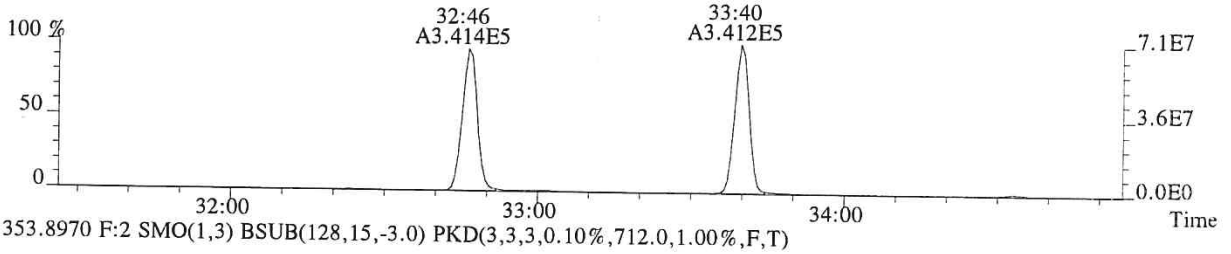
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



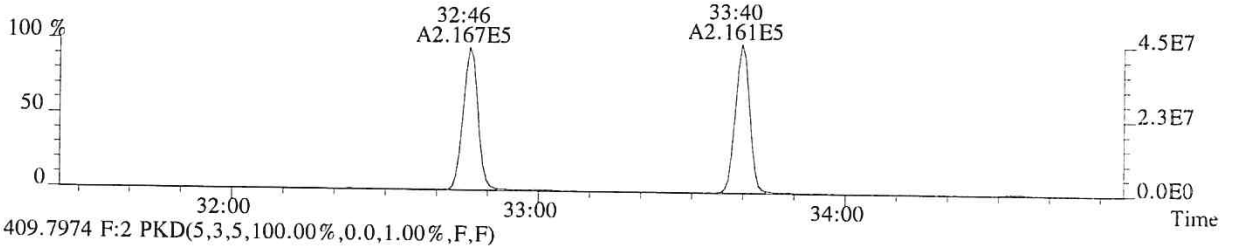
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



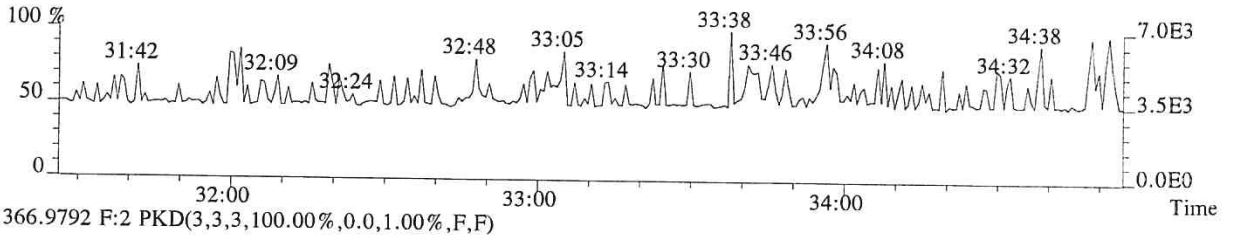
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



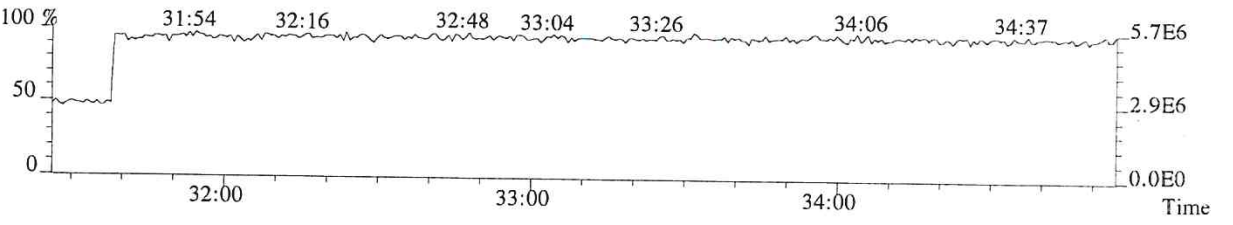
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

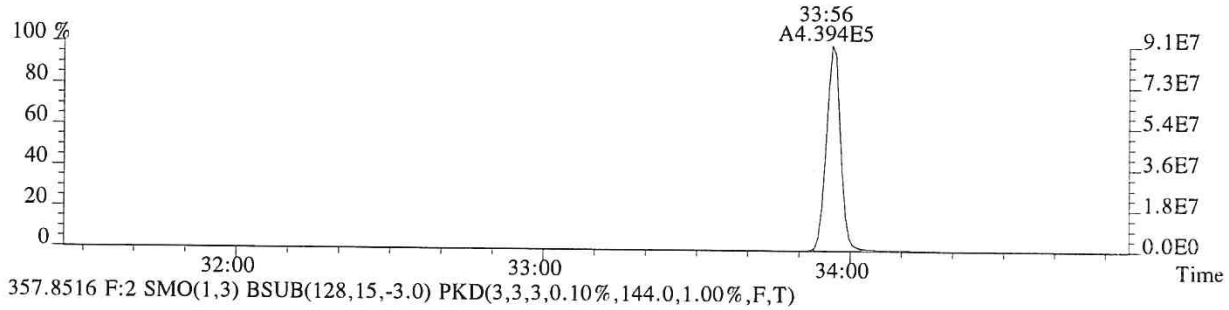


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

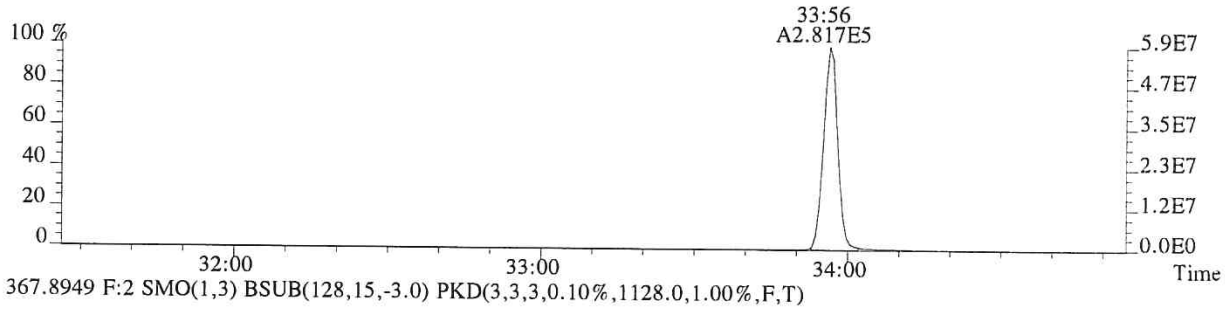


010783

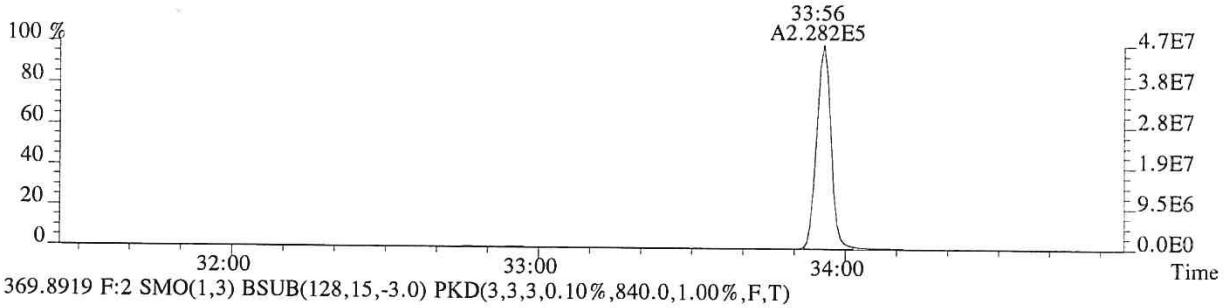
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



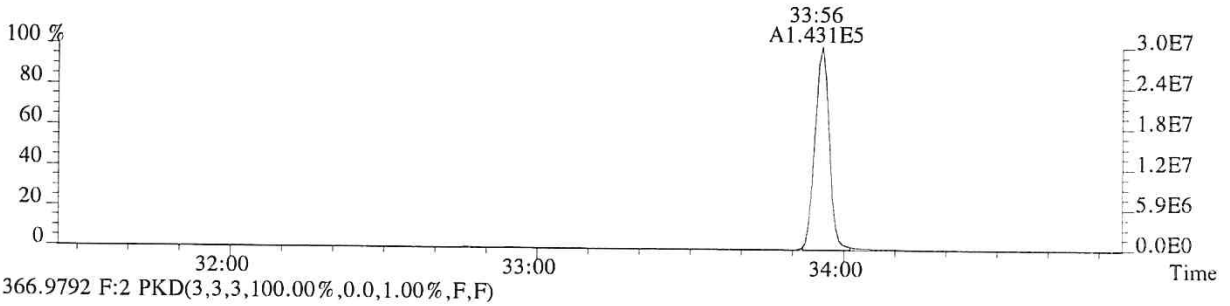
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



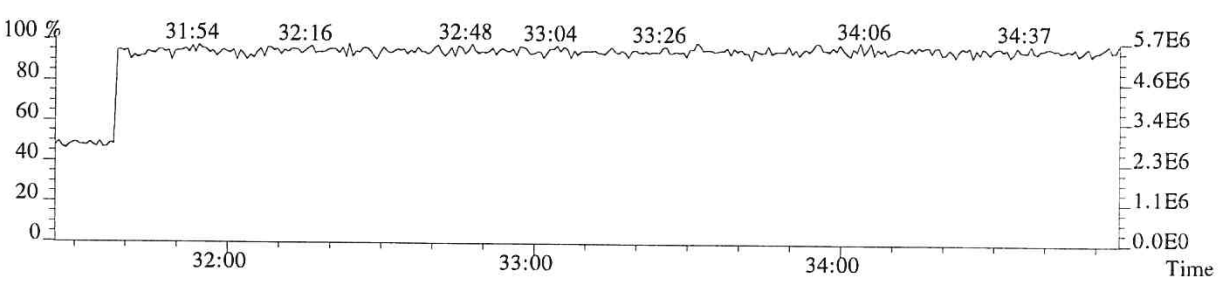
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



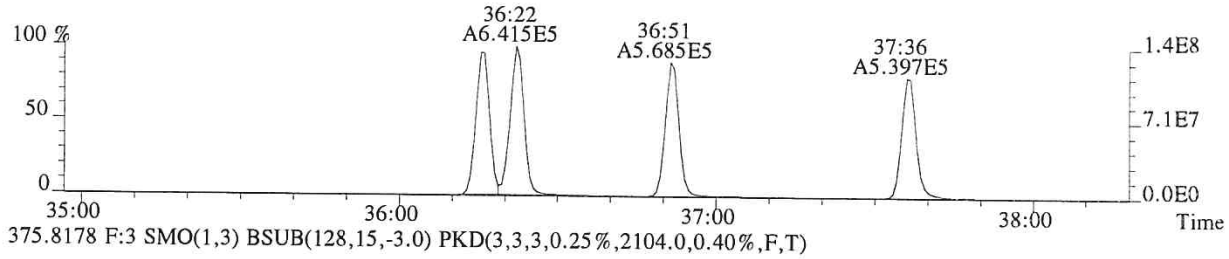
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



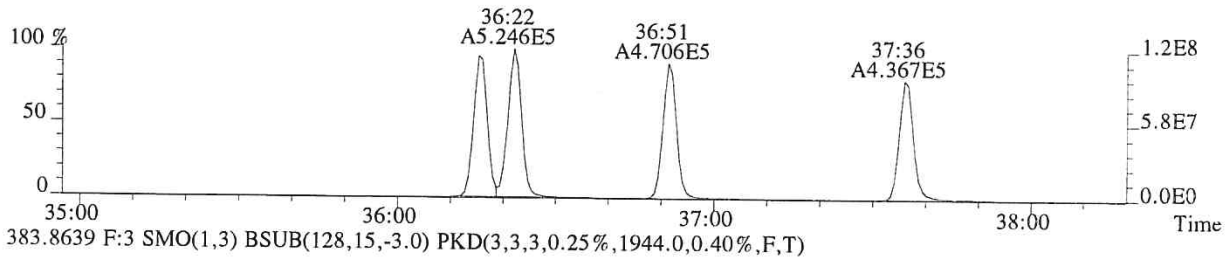
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



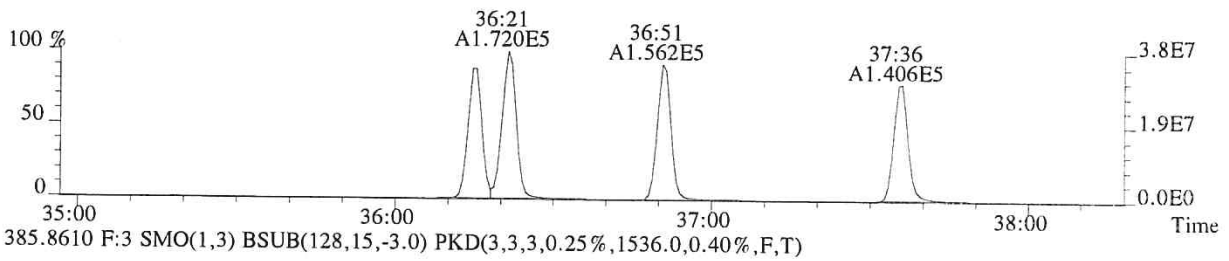
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



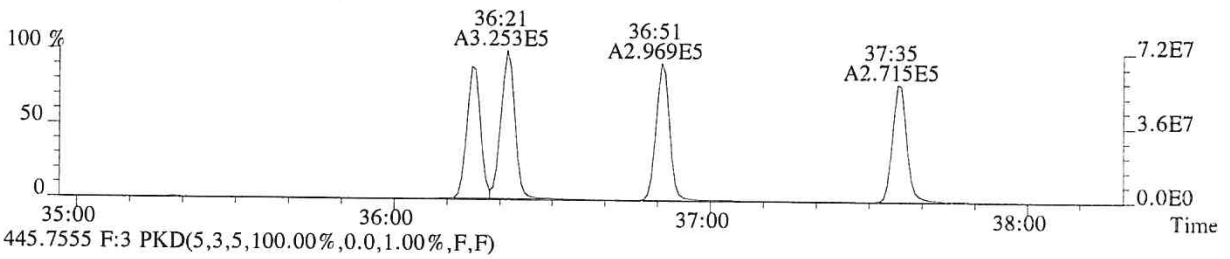
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



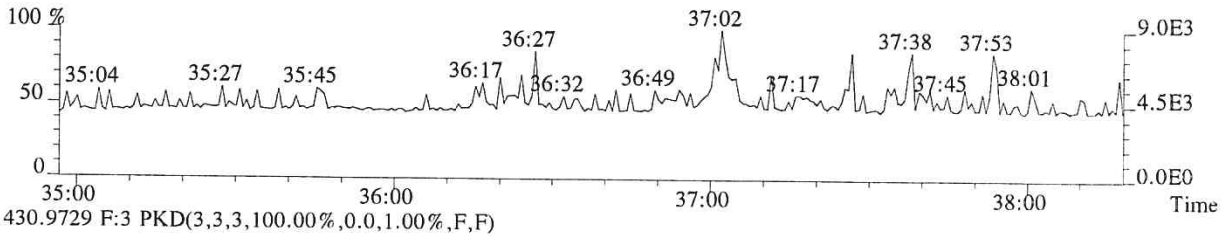
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



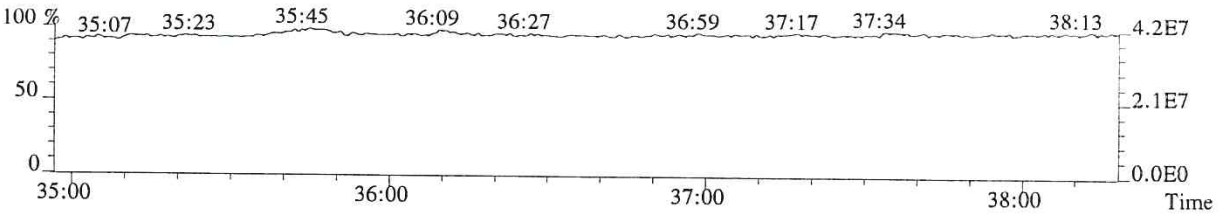
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

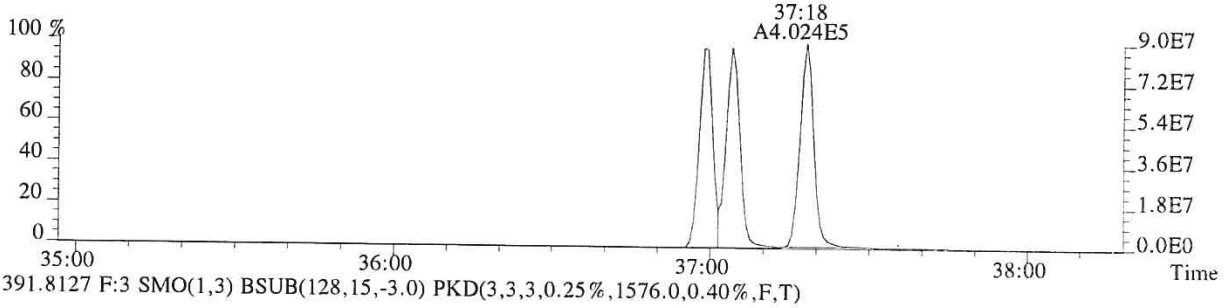


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

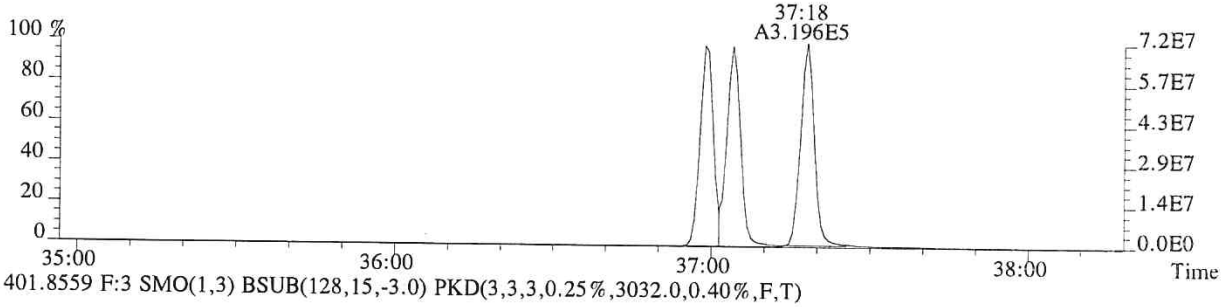


010785

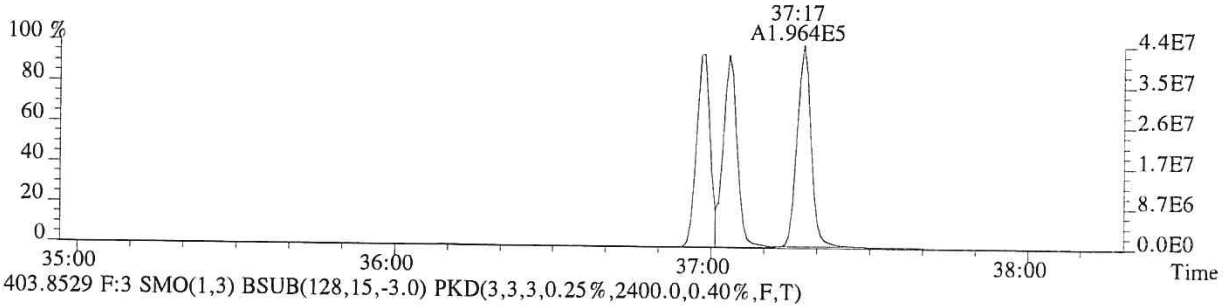
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



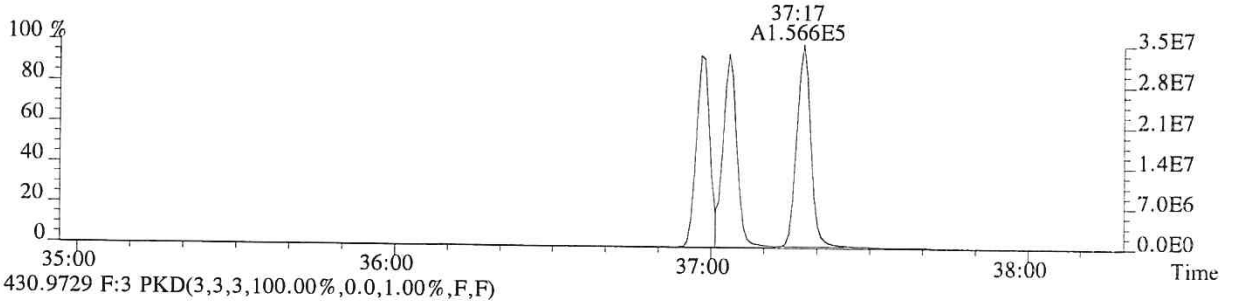
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



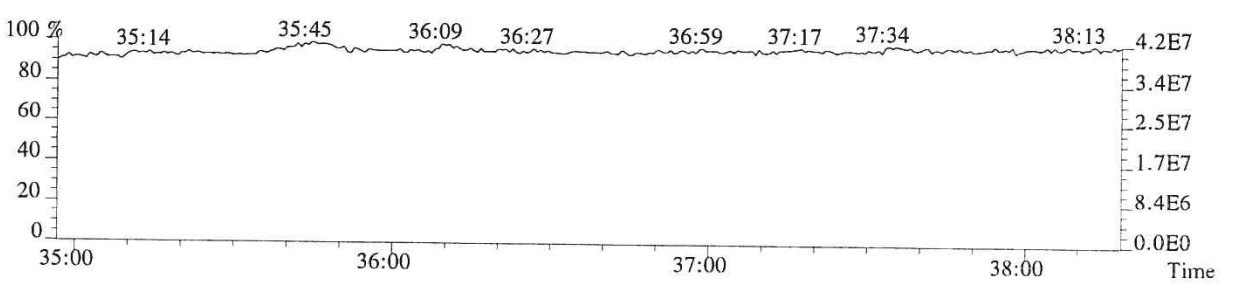
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)

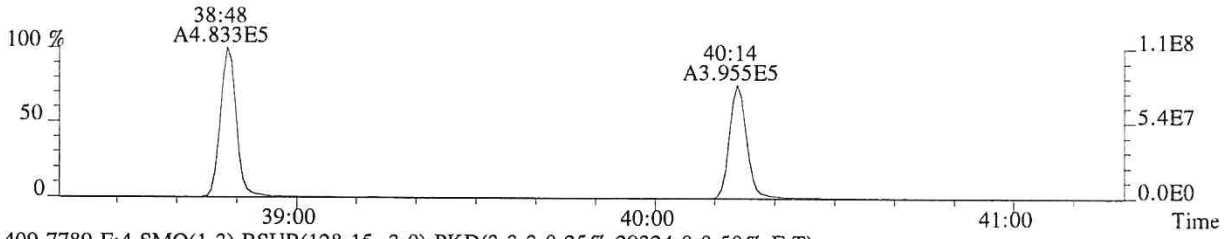


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

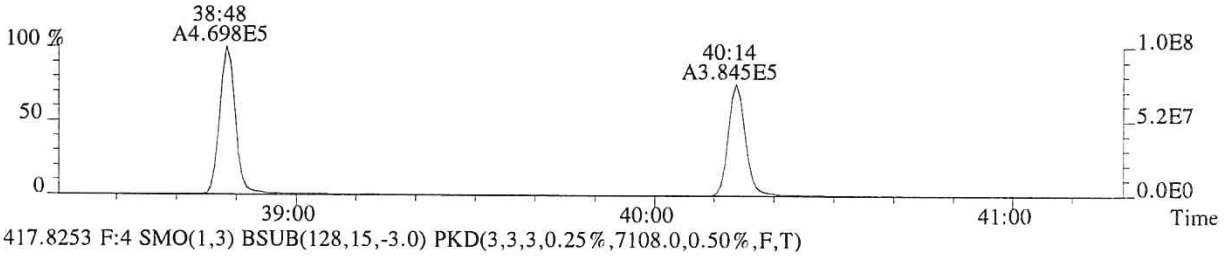


010786

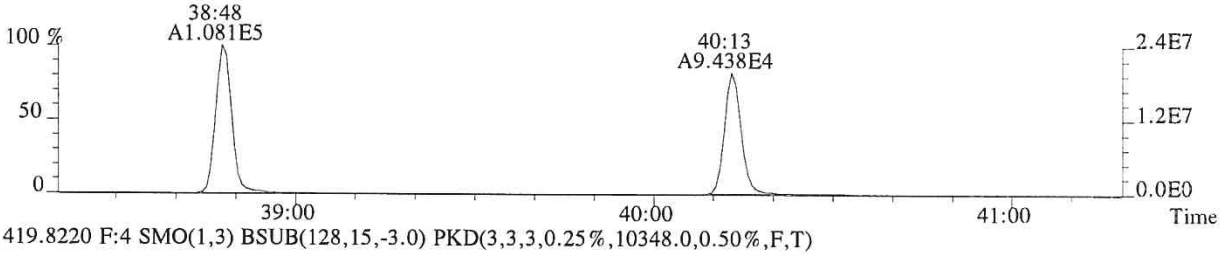
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



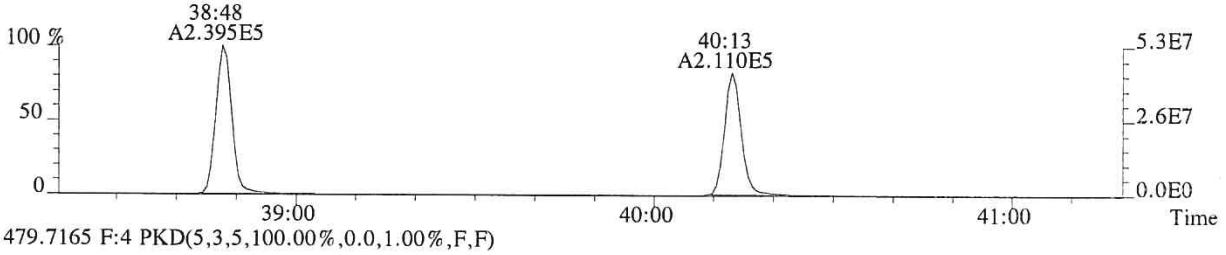
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



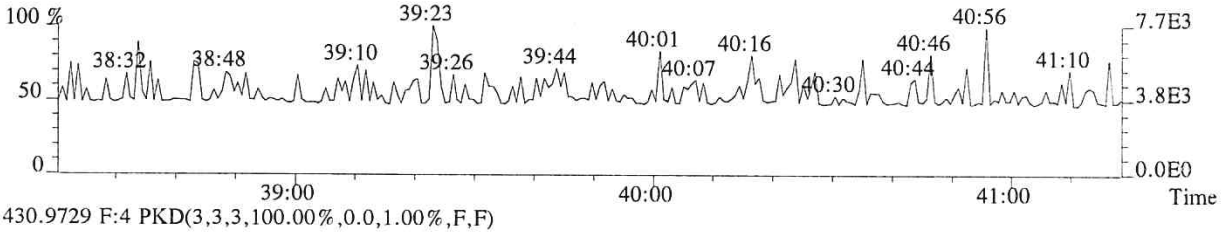
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



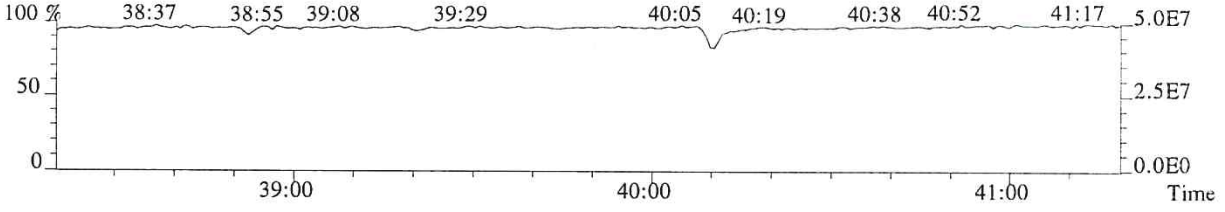
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

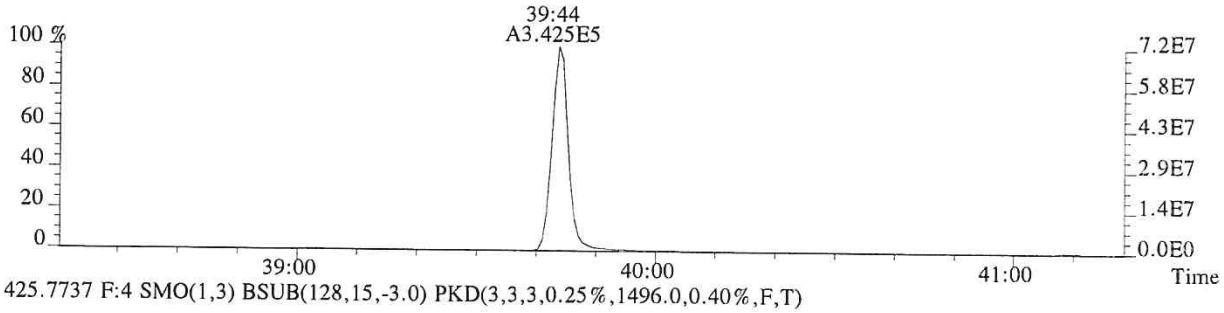


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

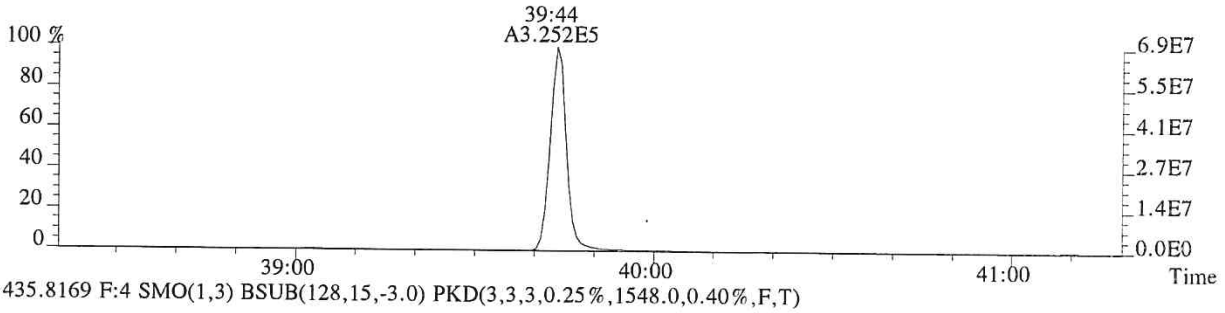


010787

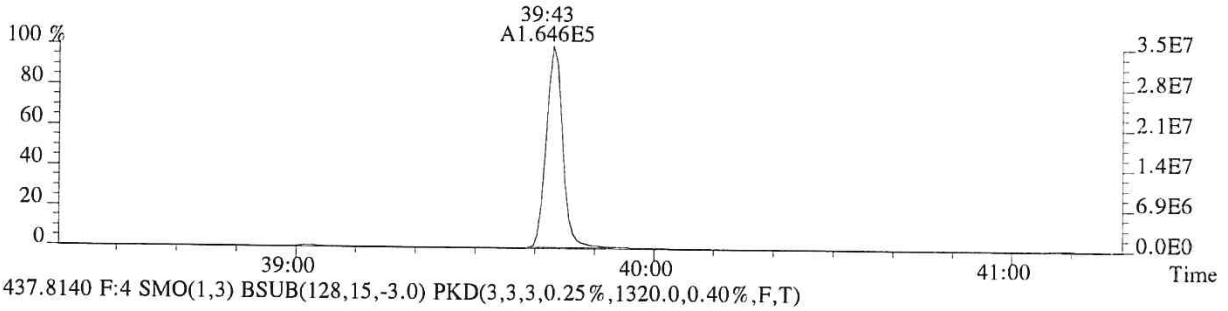
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



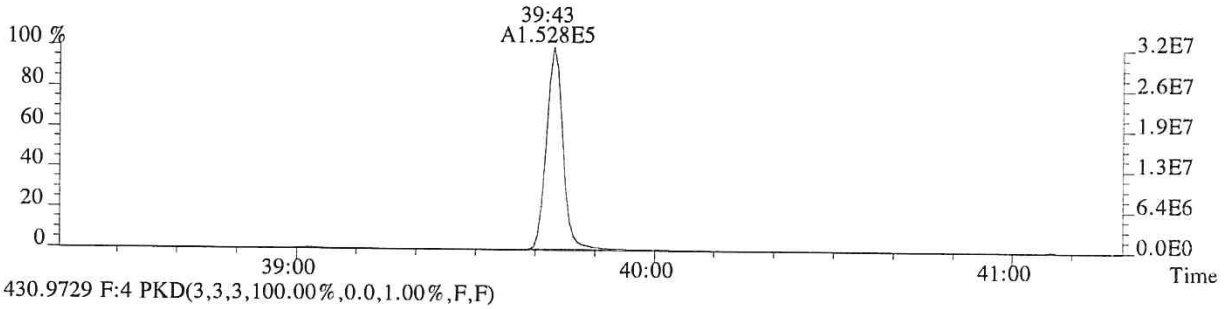
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



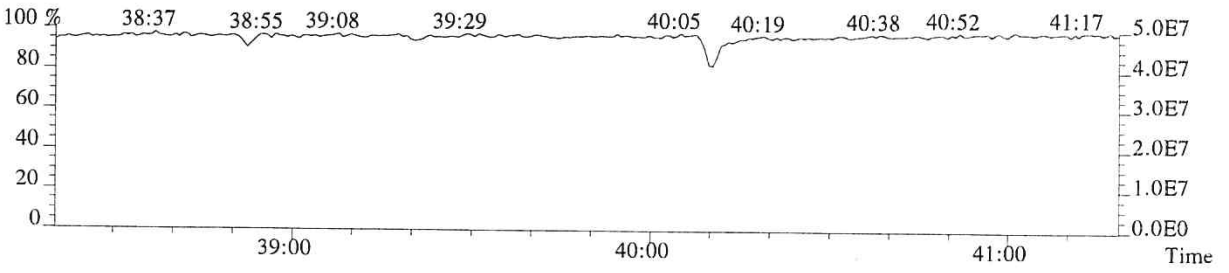
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)

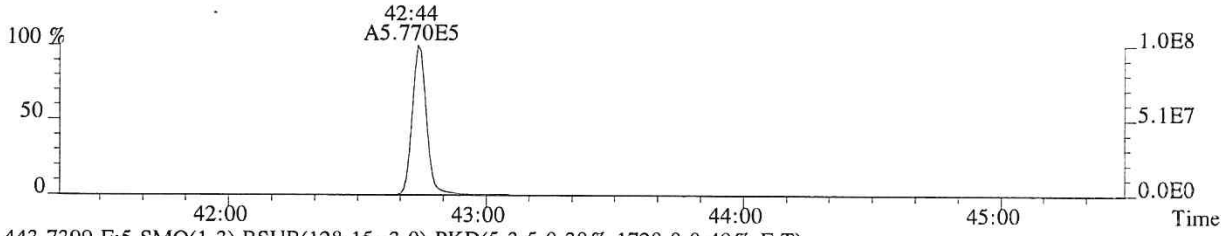


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

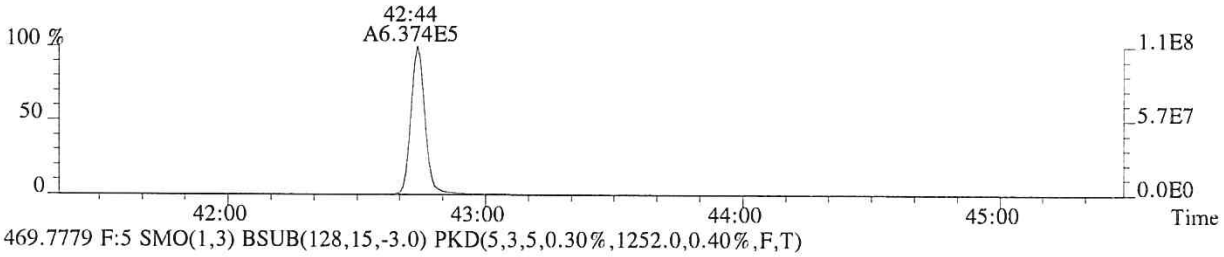


010788

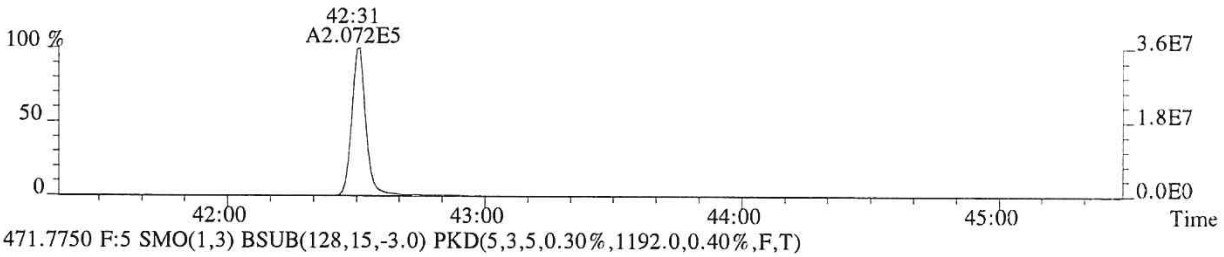
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



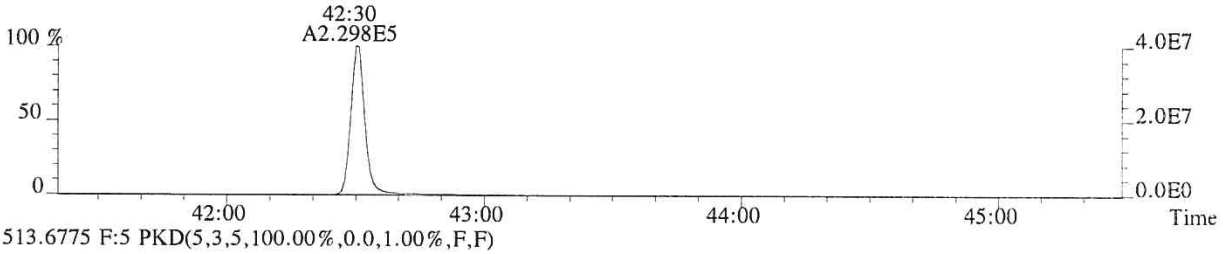
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



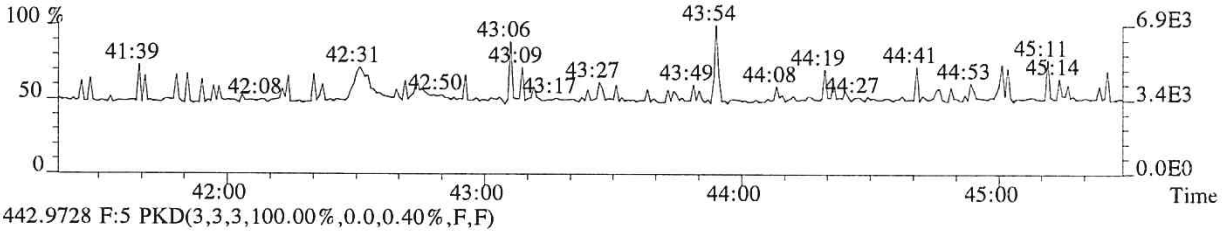
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



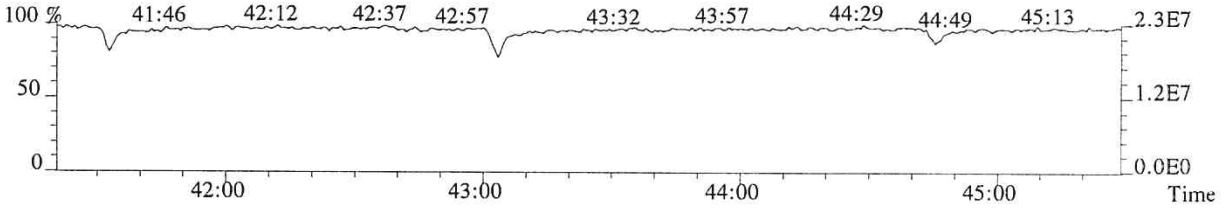
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

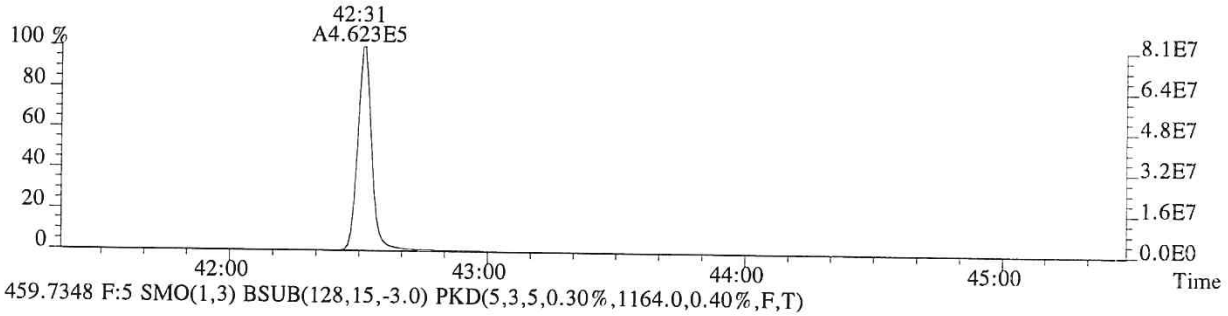


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

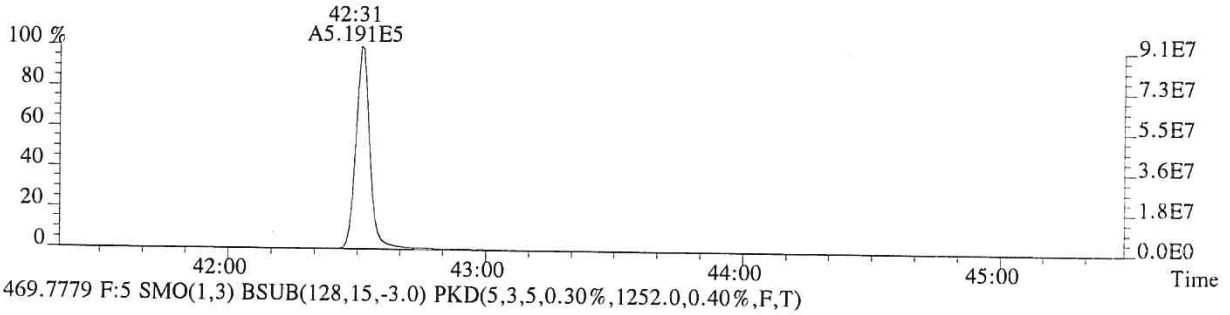


010789

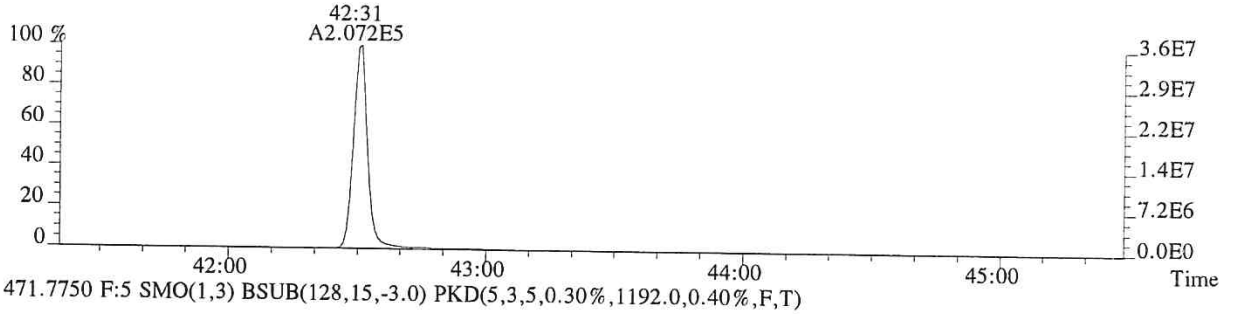
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



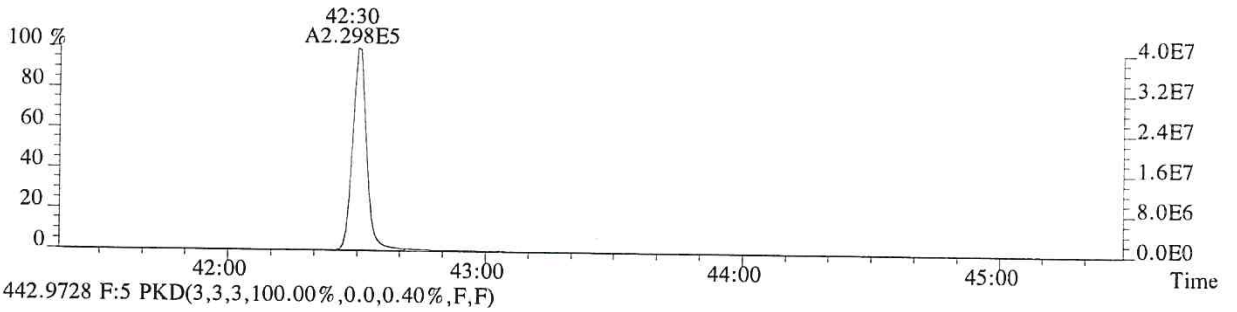
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



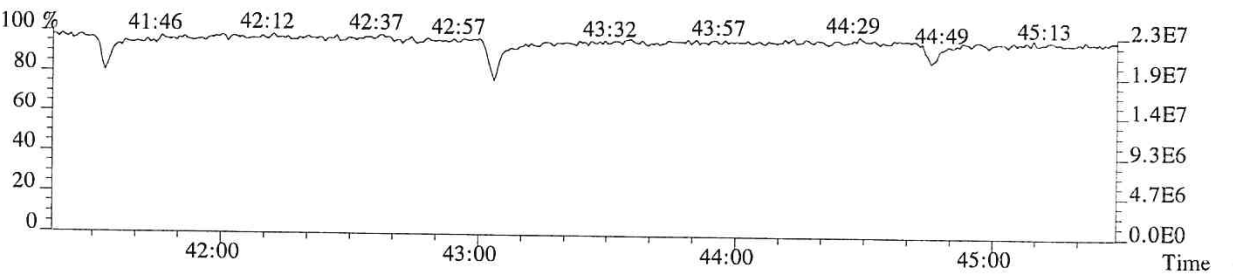
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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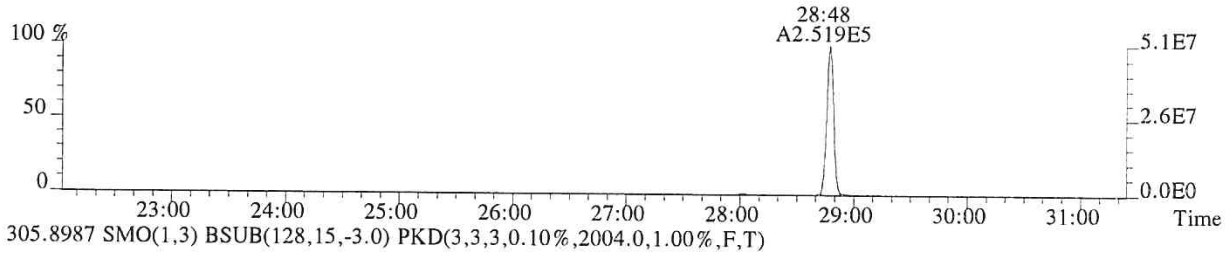
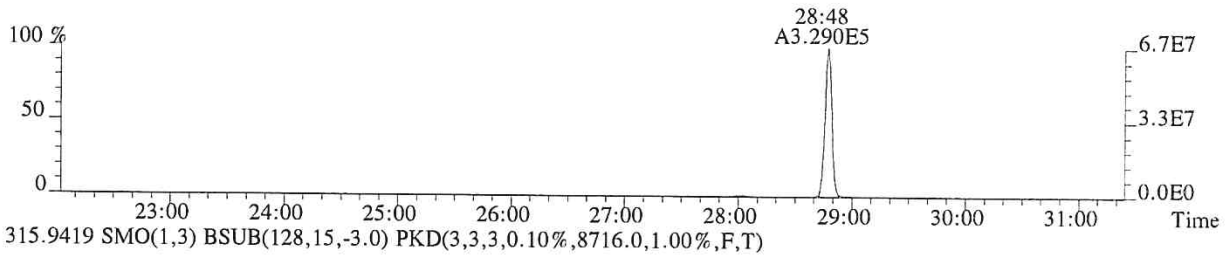
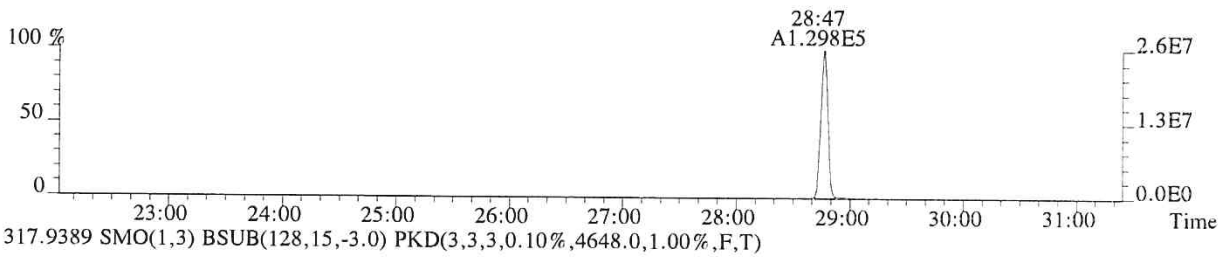
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



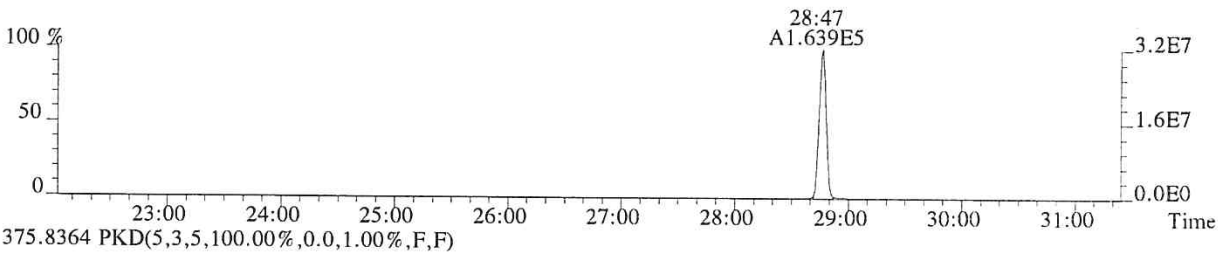
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



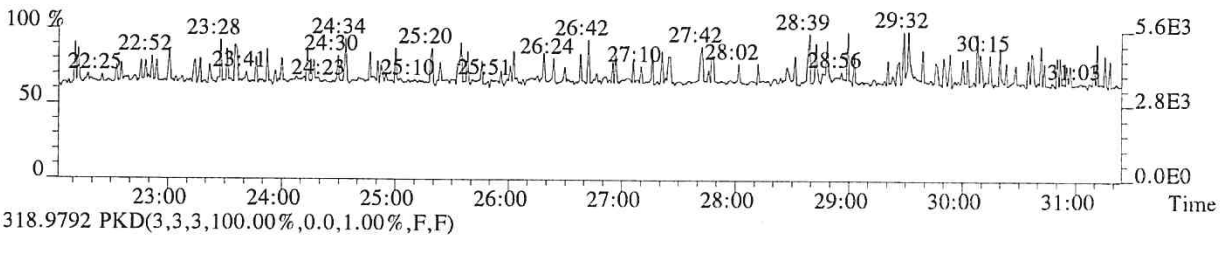
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



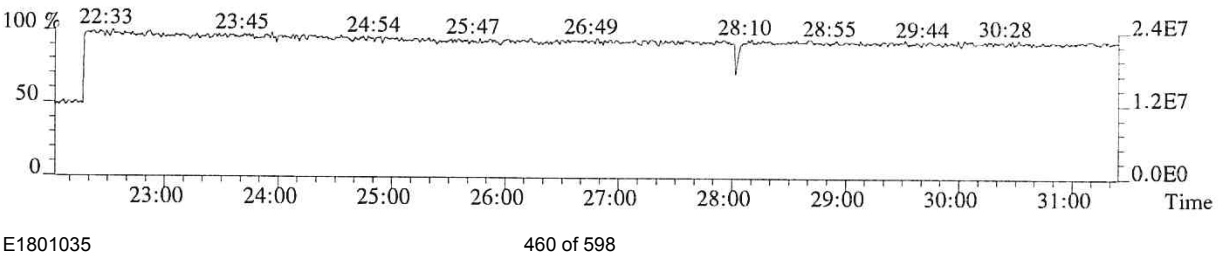
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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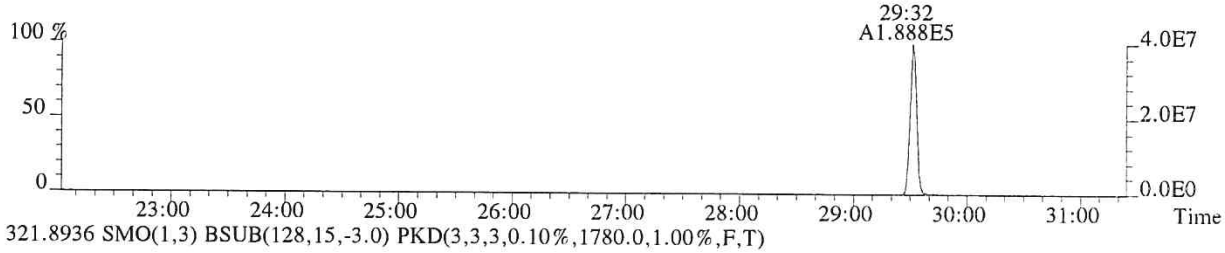
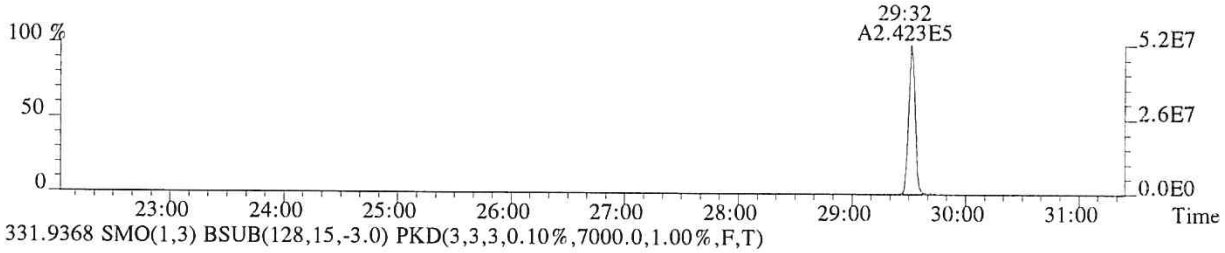
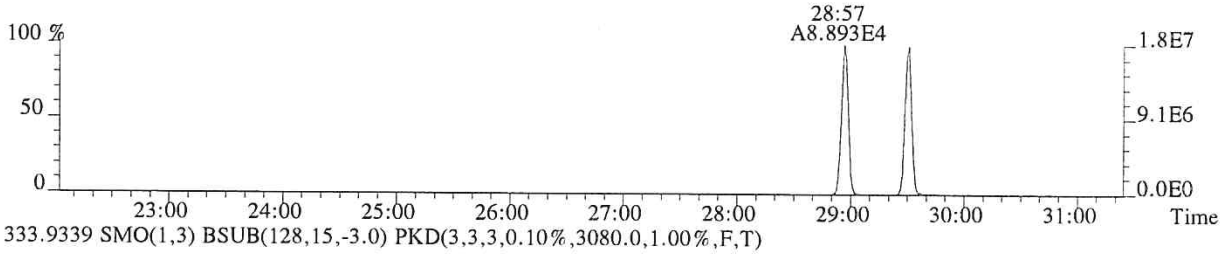
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



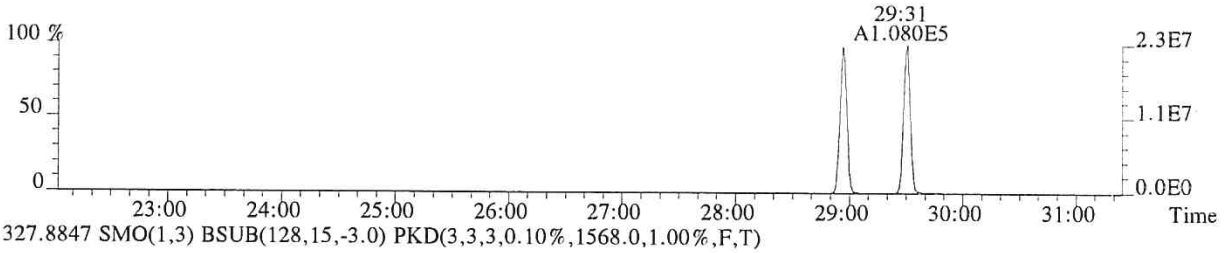
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



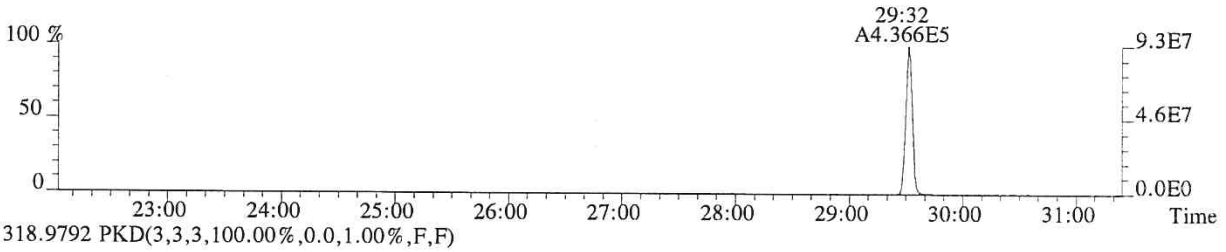
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



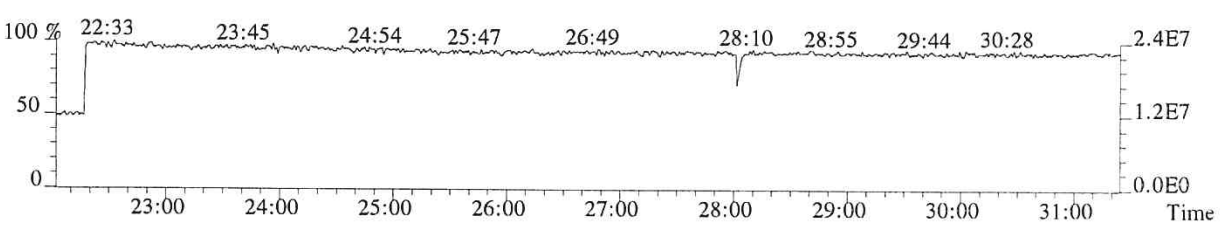
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)

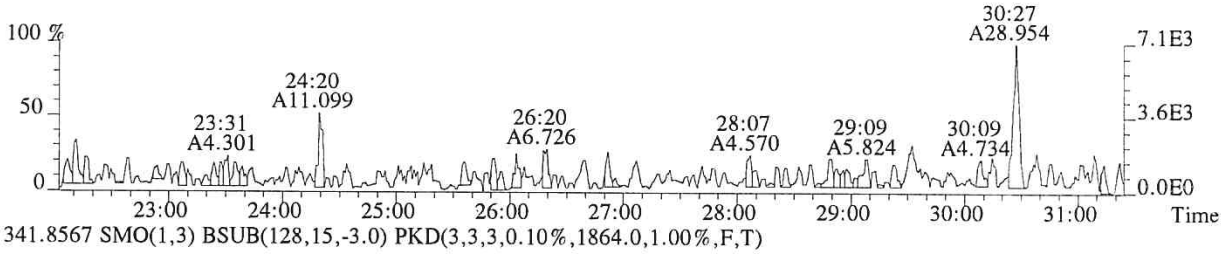


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

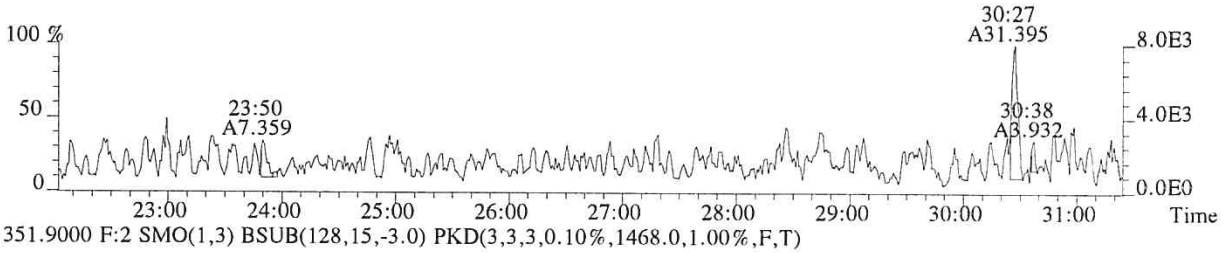


010794

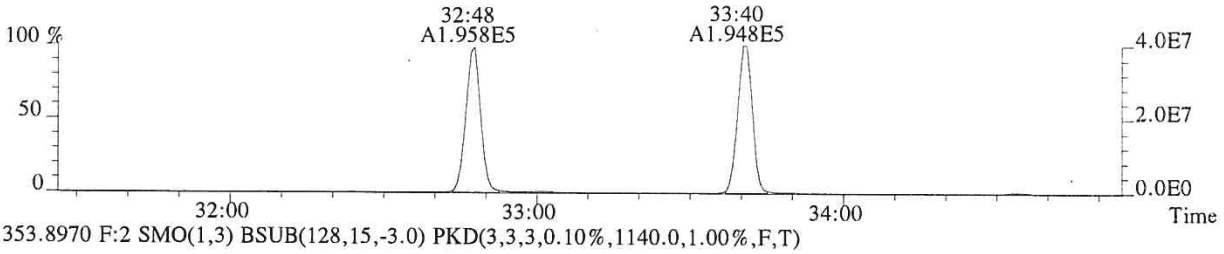
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



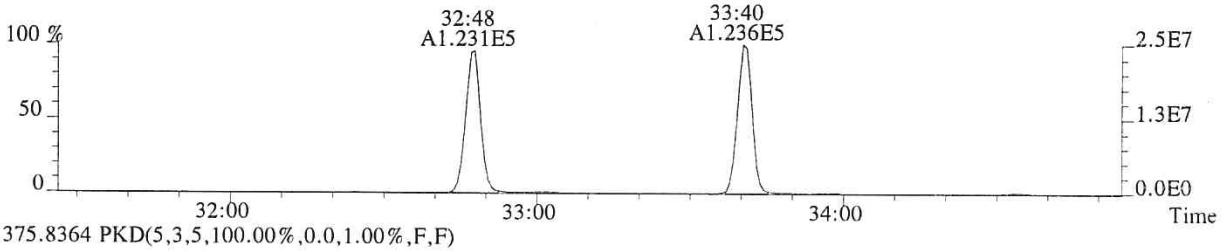
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



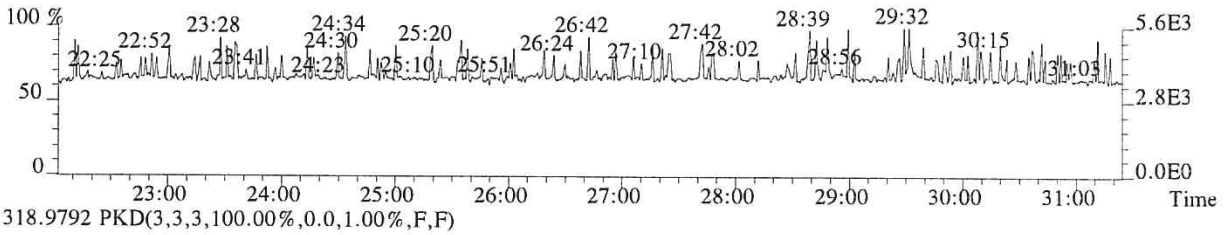
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



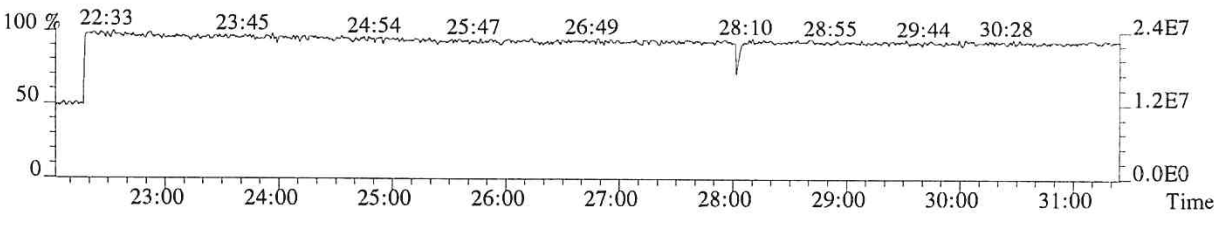
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

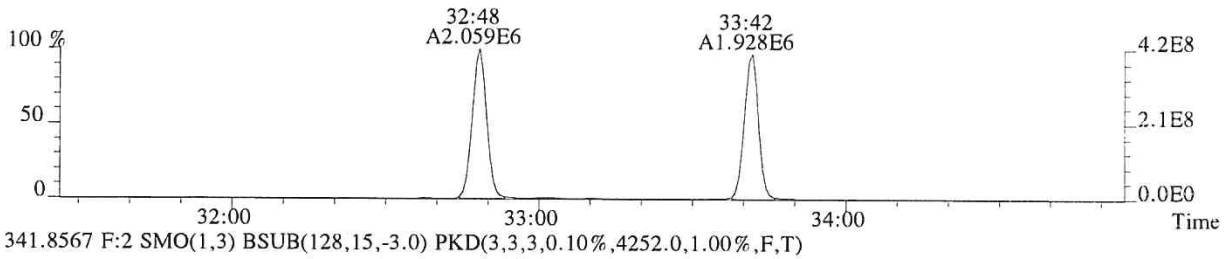


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

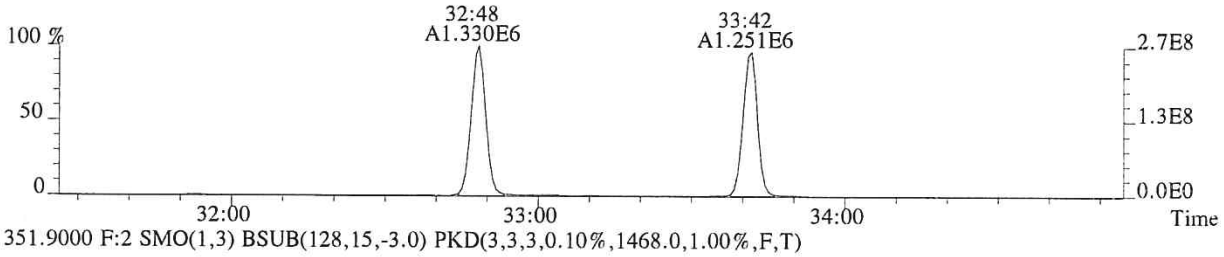


010795

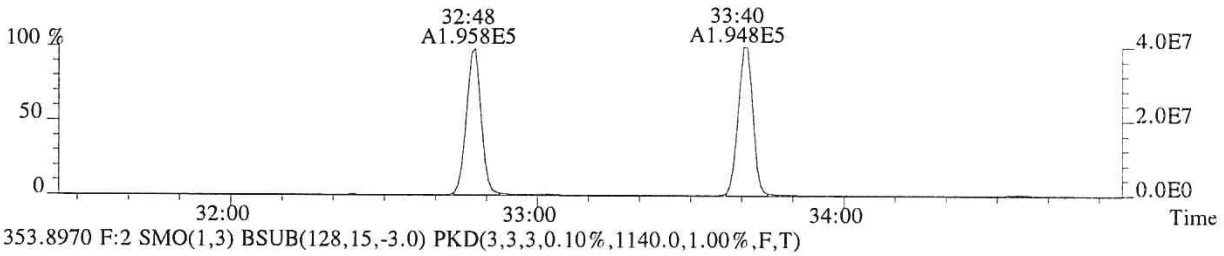
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



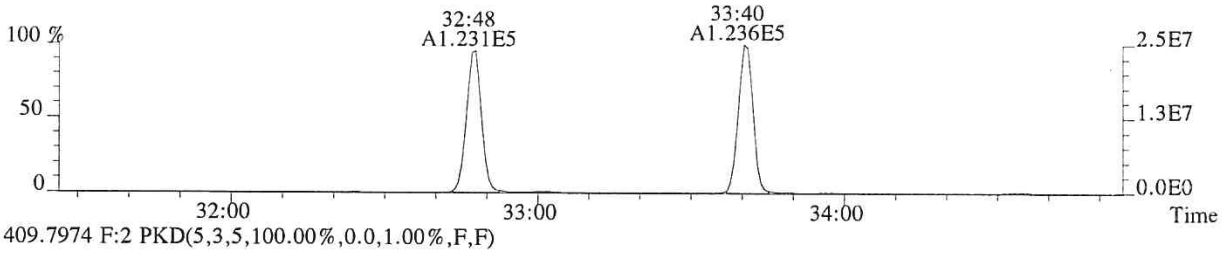
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



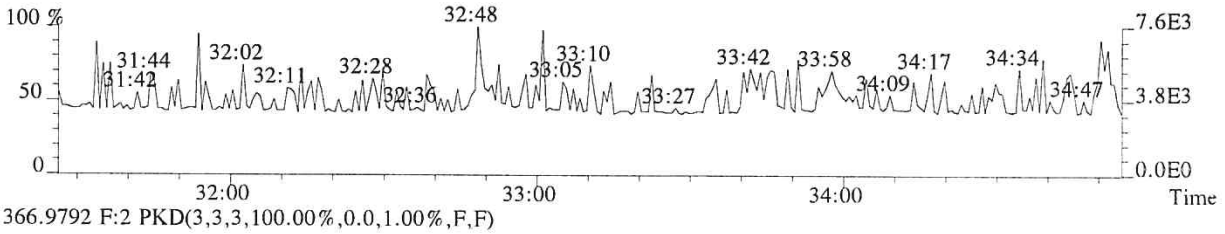
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



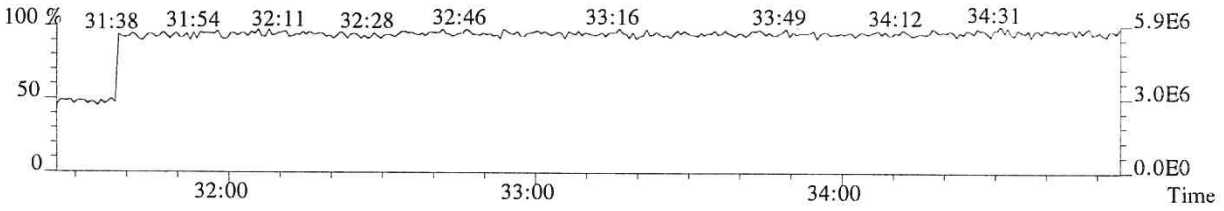
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

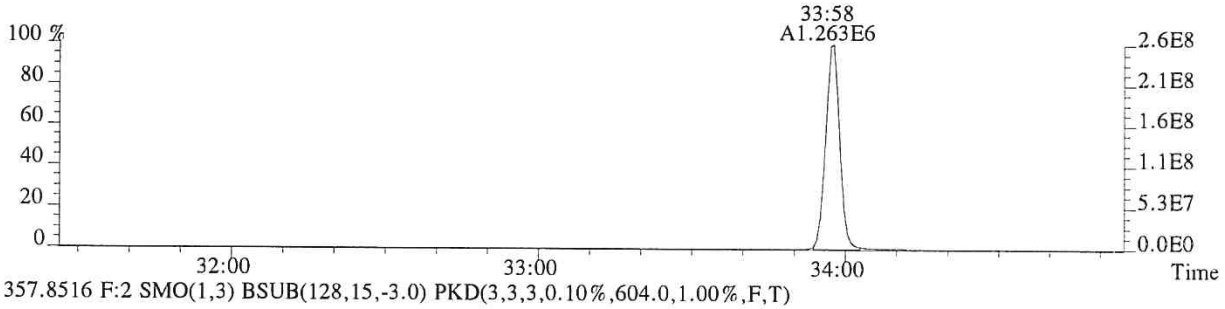


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

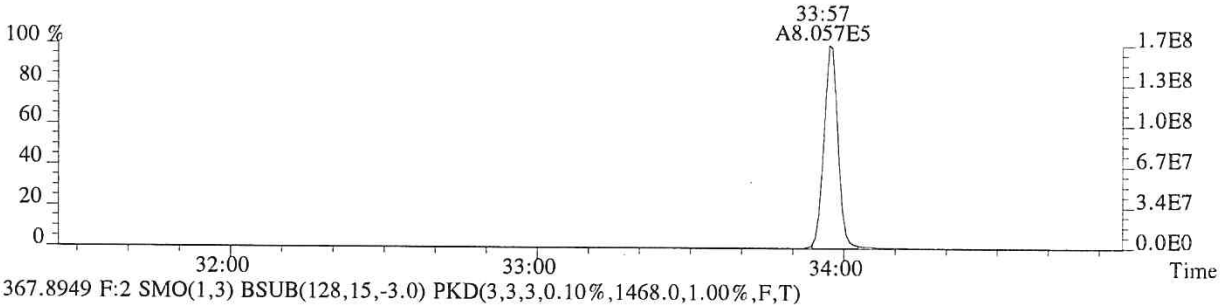


010796

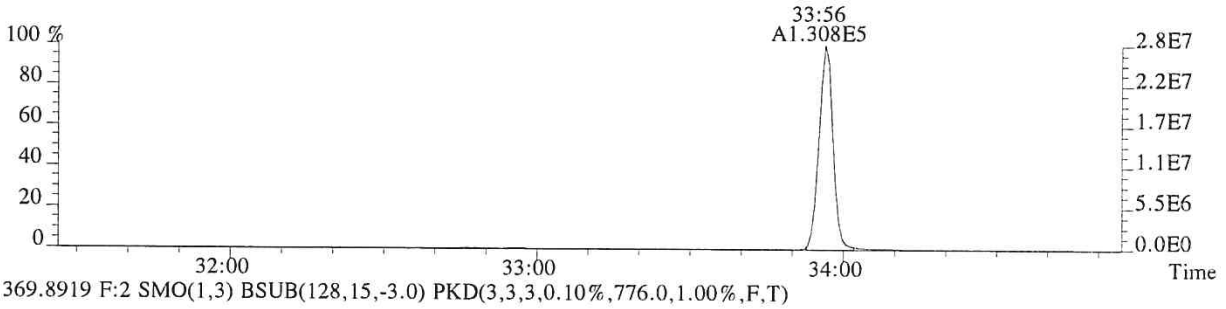
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



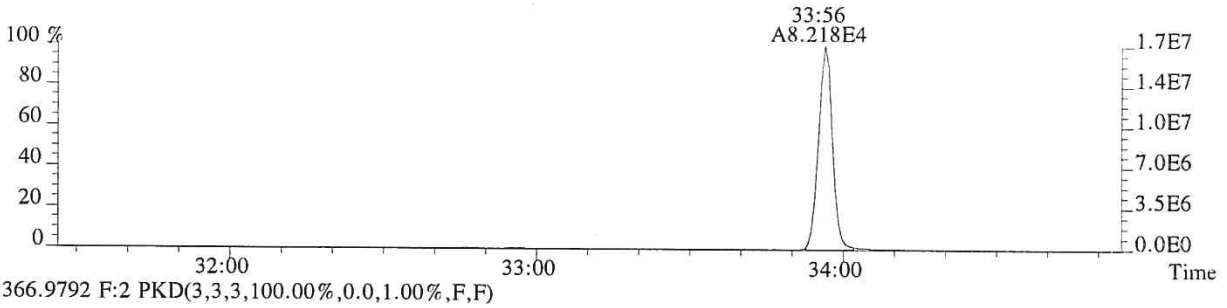
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



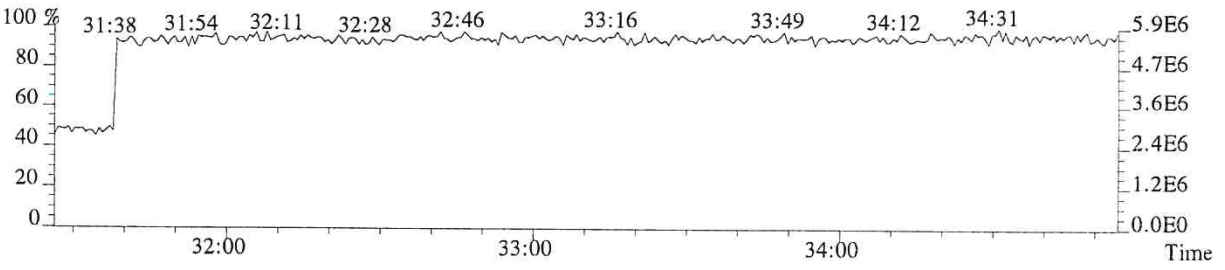
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



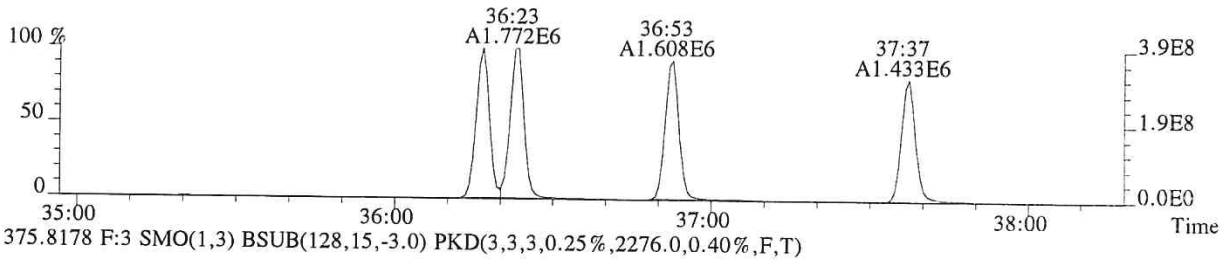
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



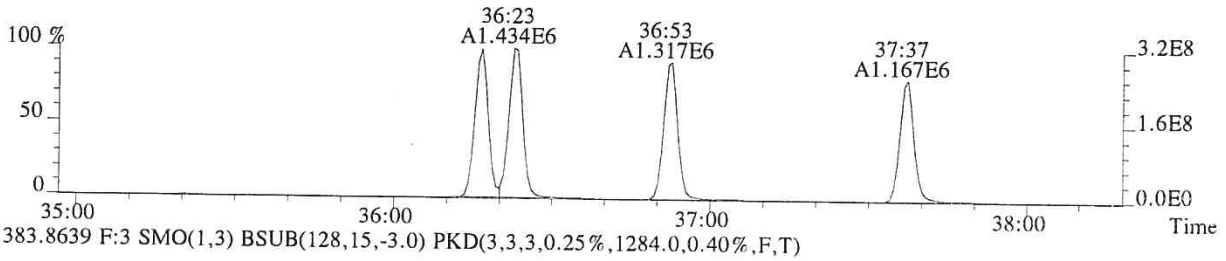
010797

File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657

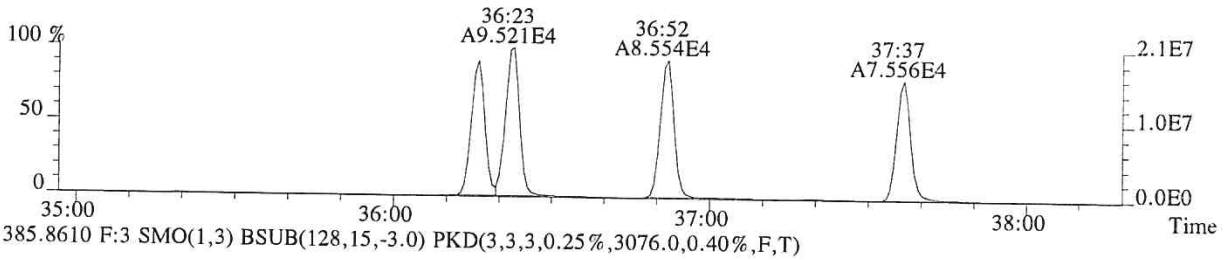
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



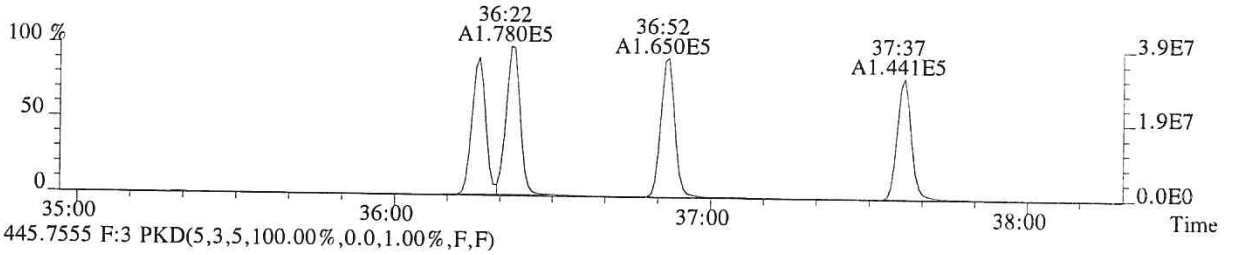
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



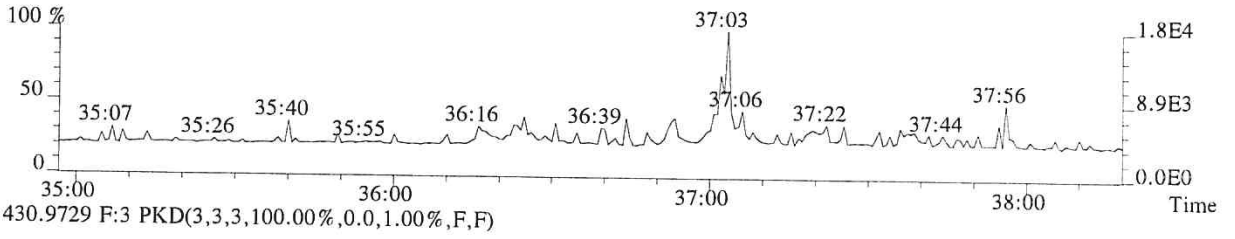
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



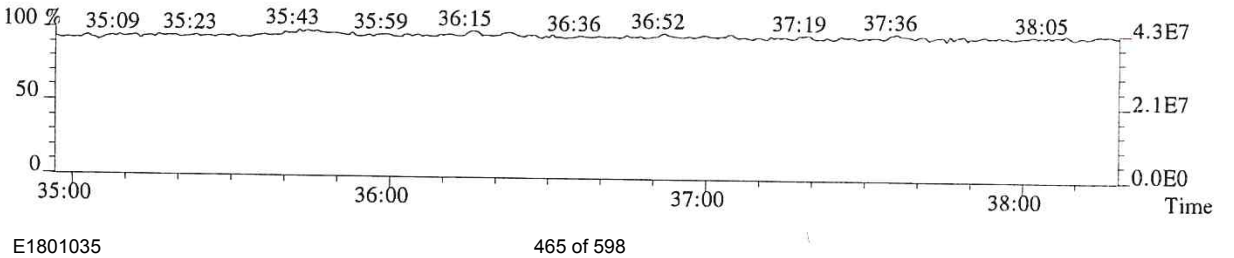
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

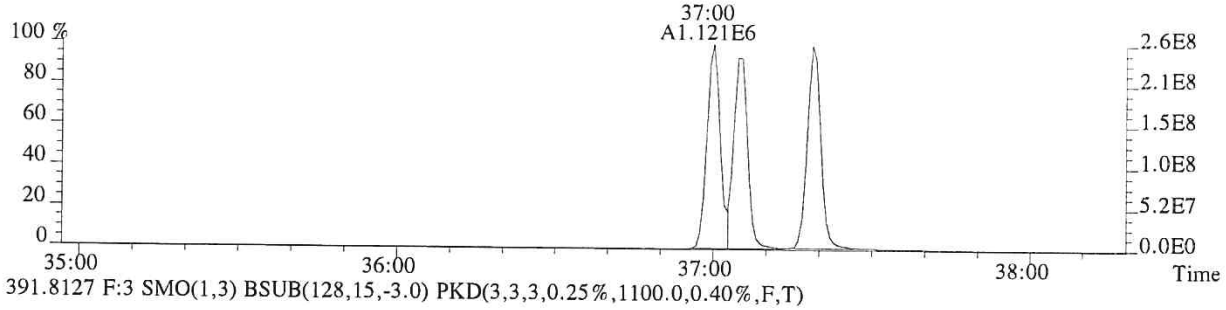


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

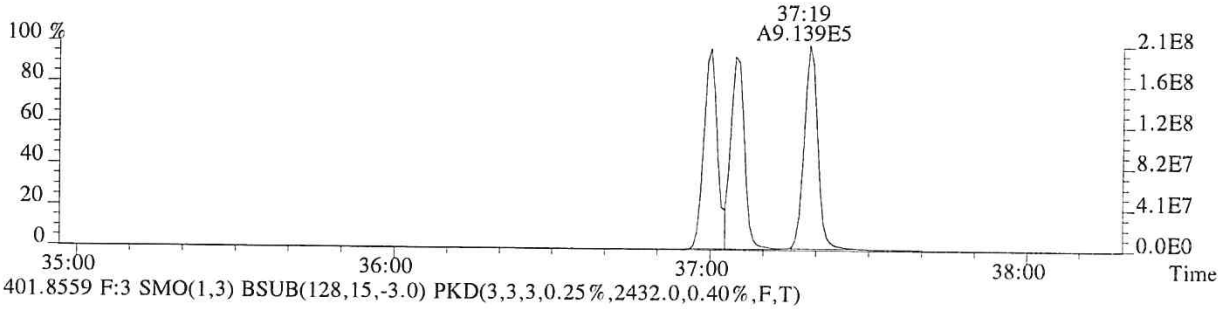


010798

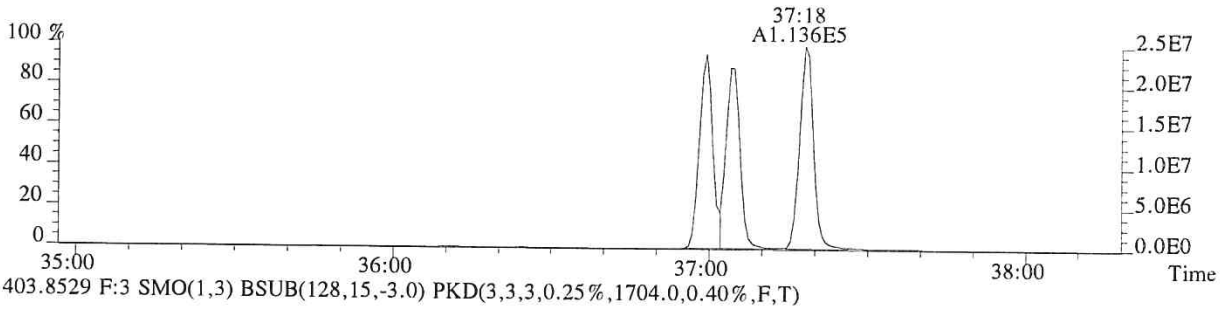
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



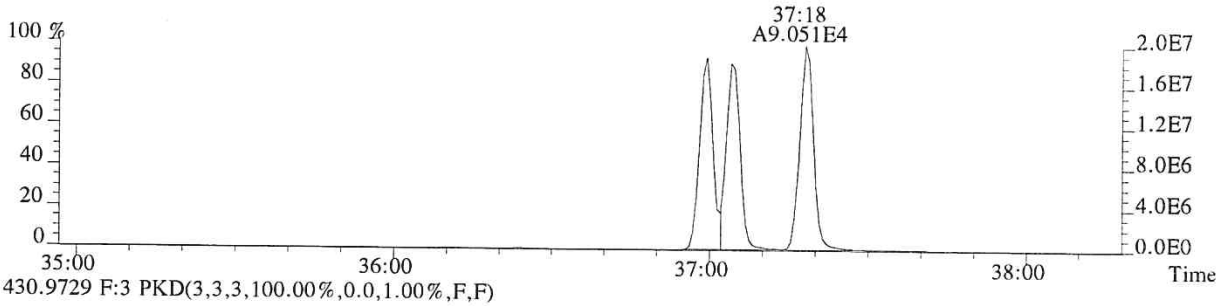
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



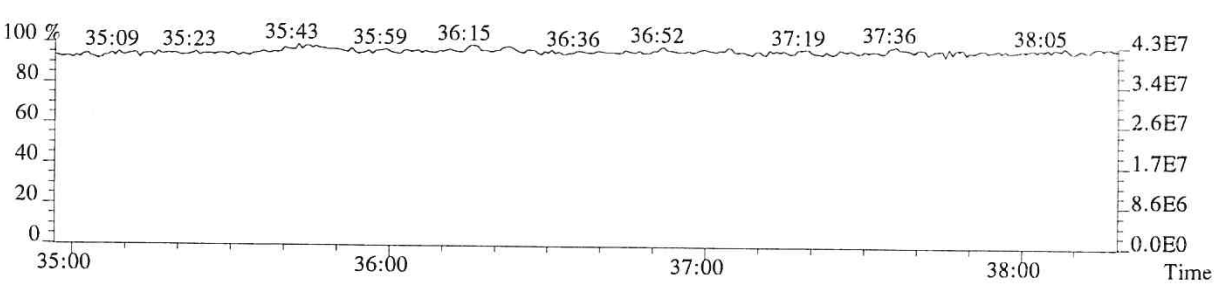
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)

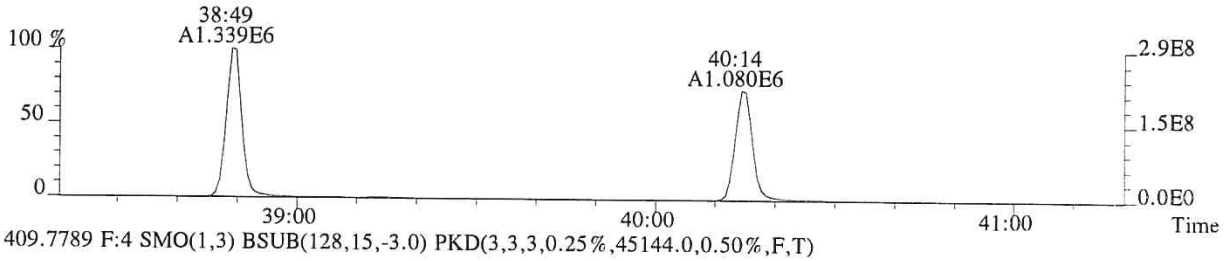


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

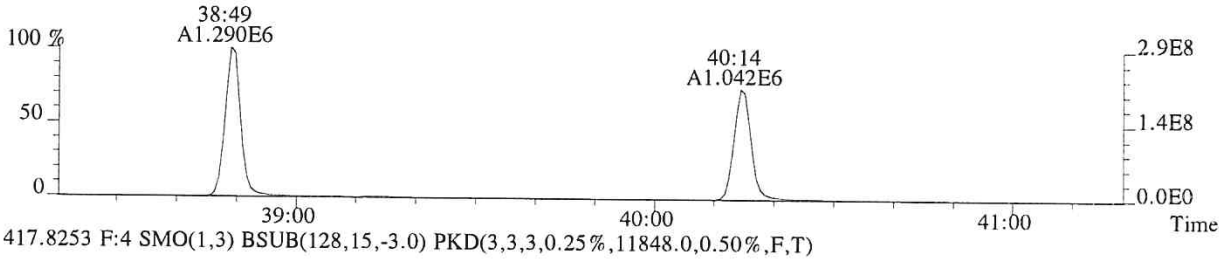


010799

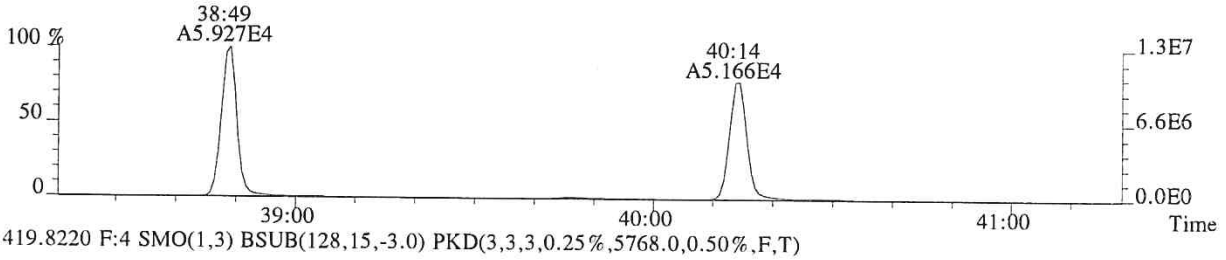
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



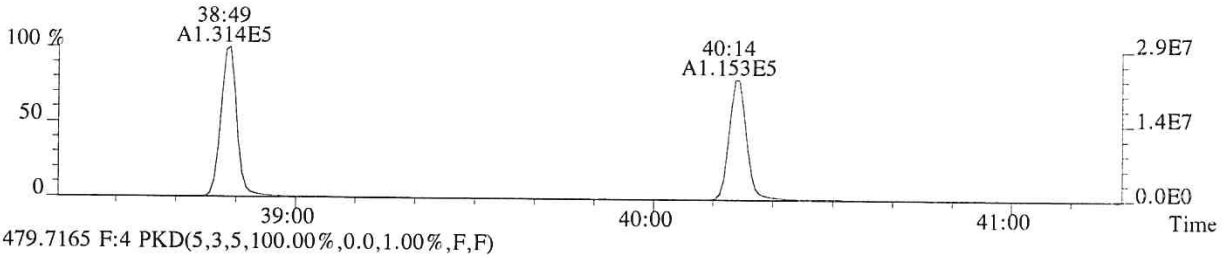
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



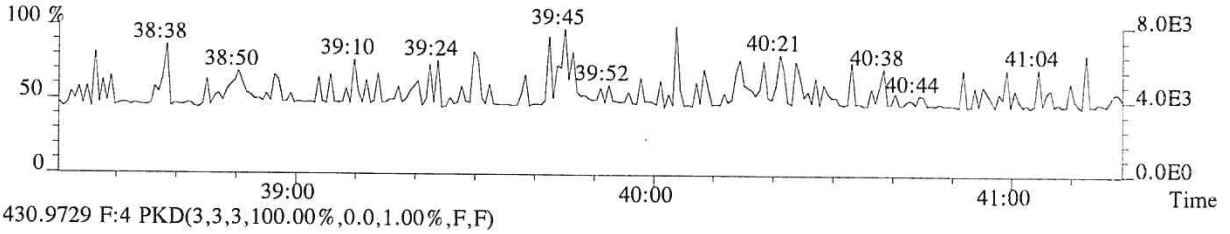
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



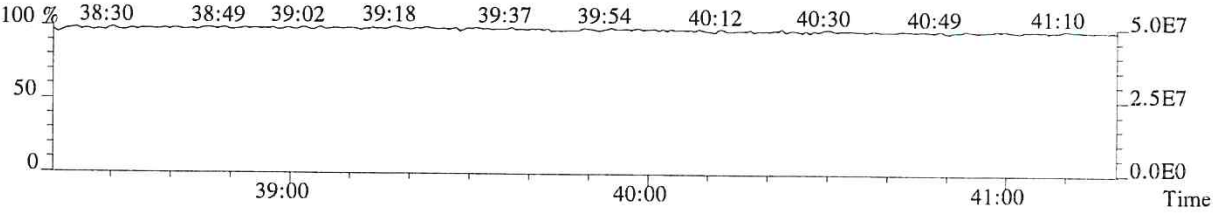
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

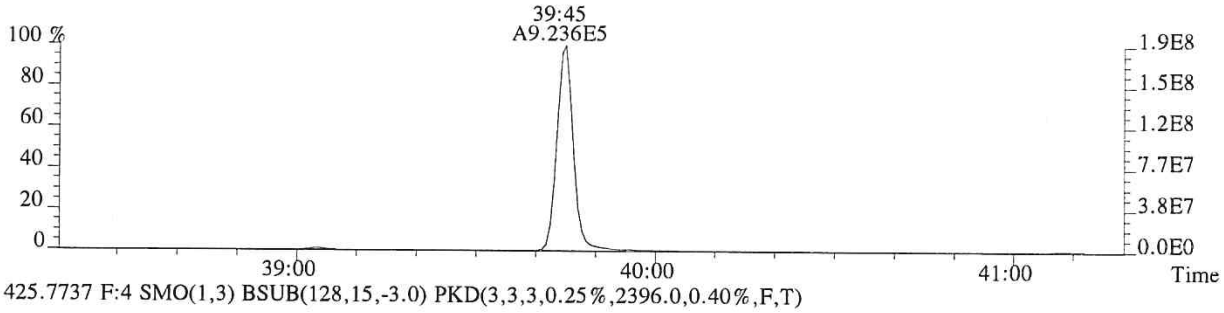


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

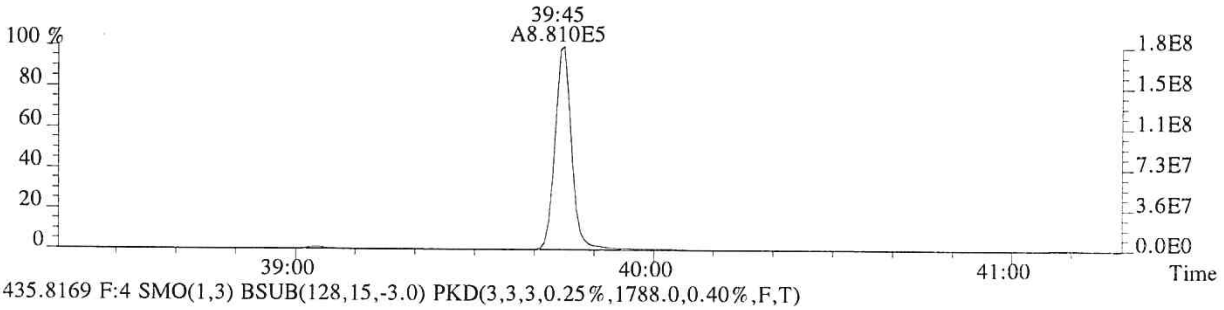


010800

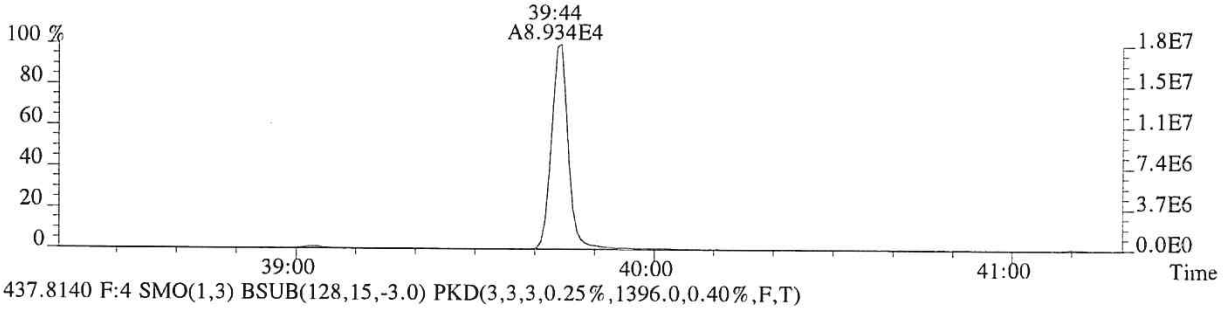
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



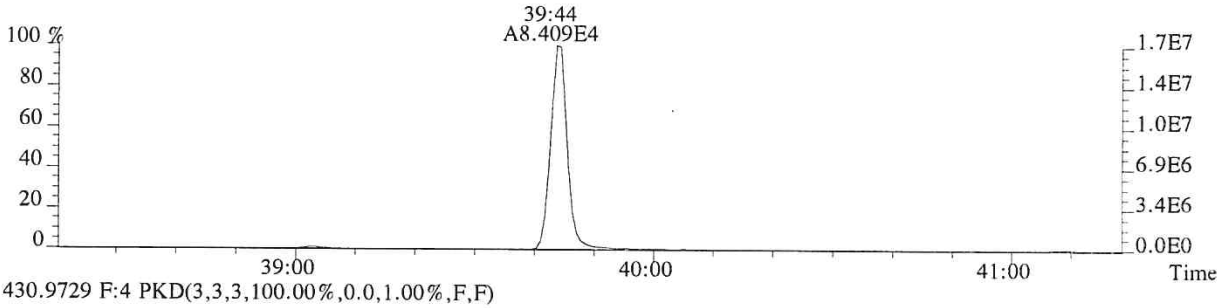
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



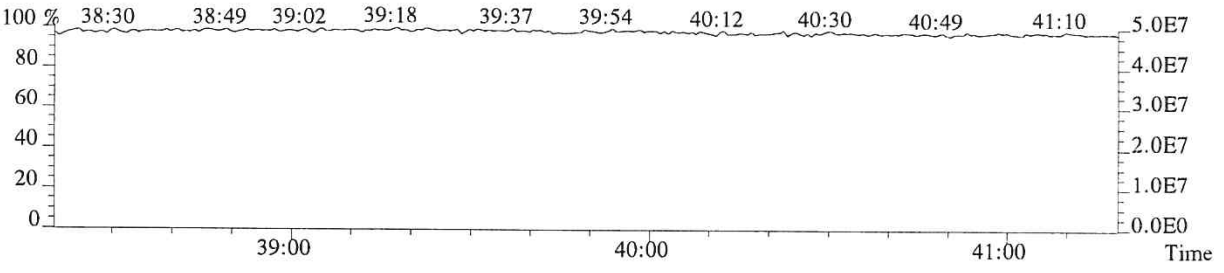
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)

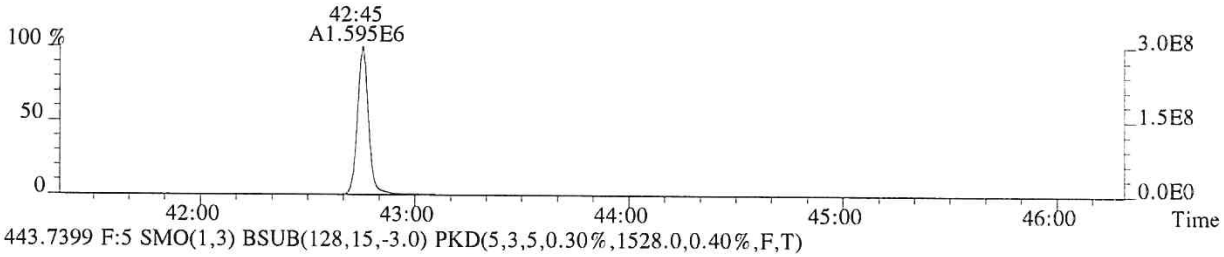


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

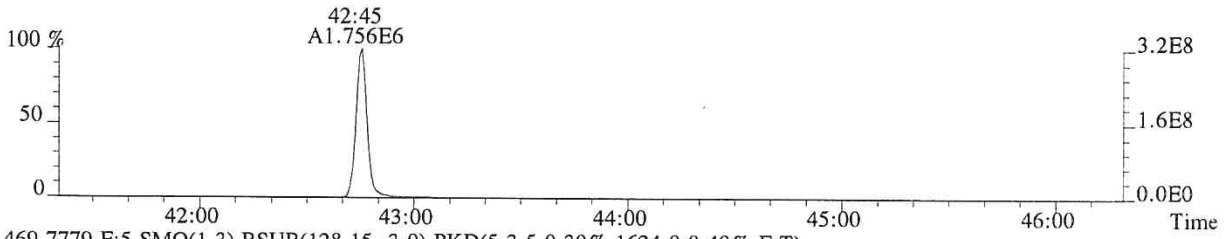


010801

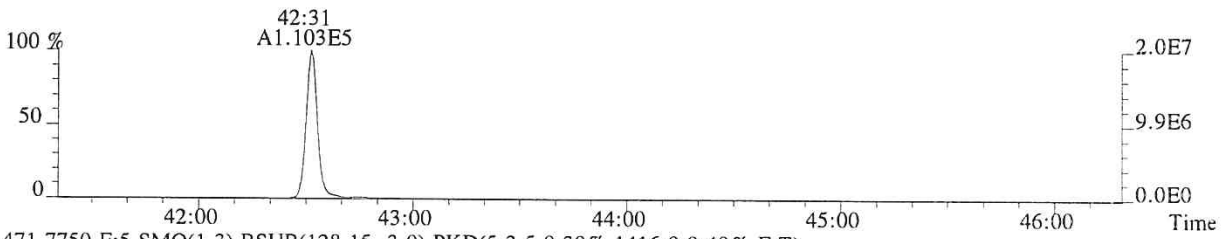
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



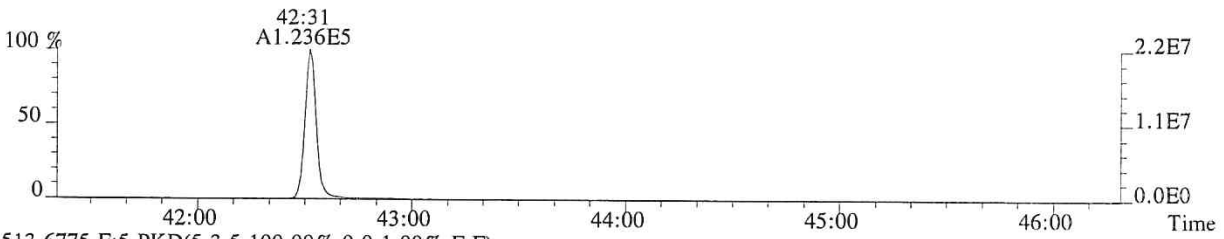
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



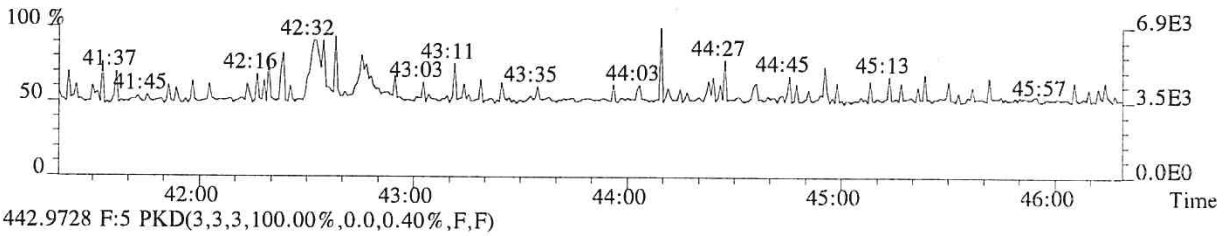
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



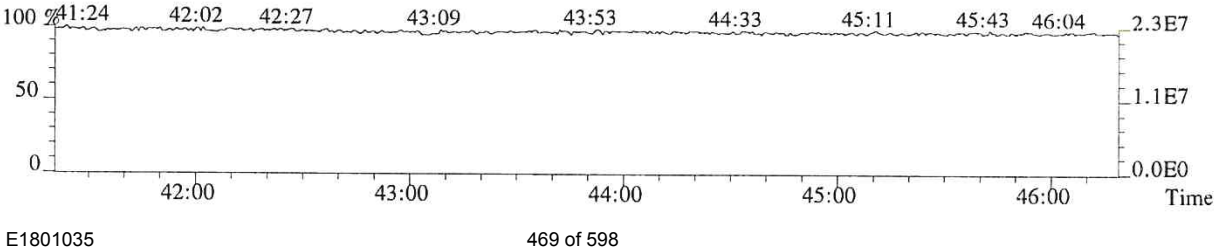
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

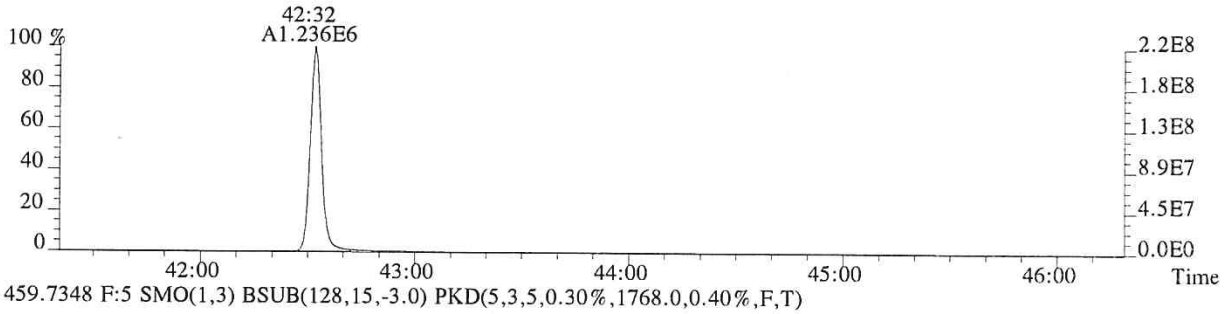


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

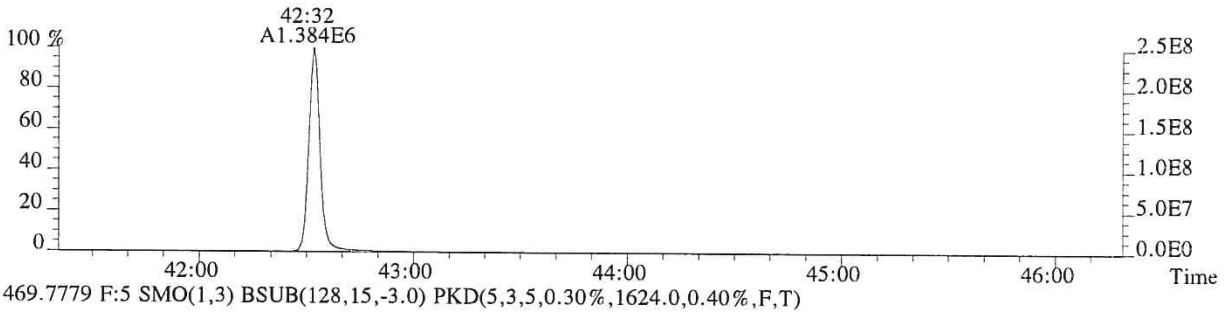


010802

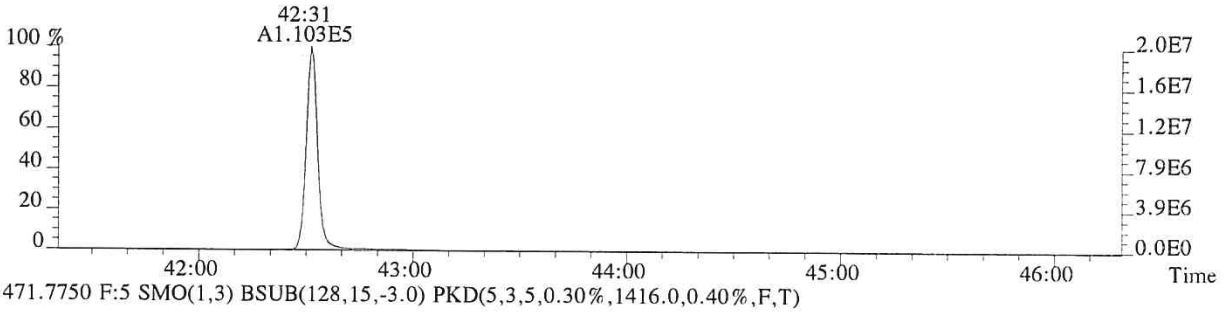
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



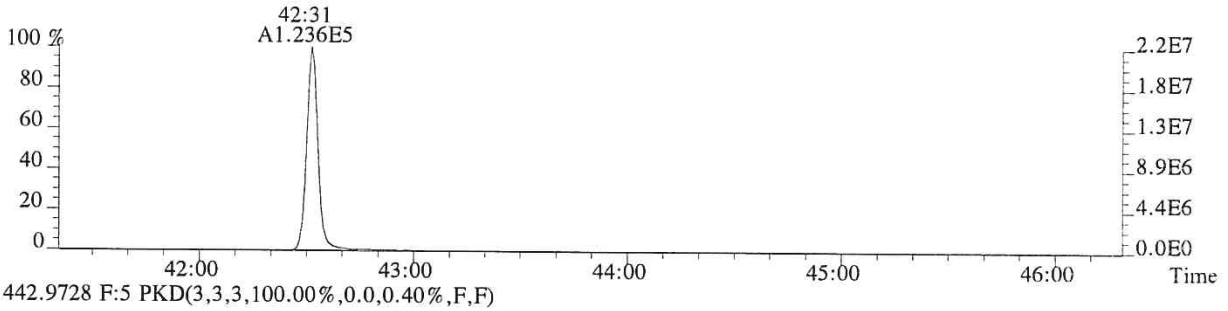
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



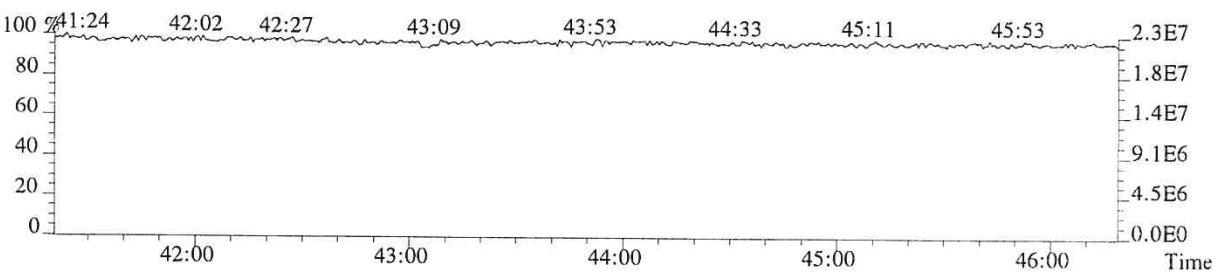
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010803

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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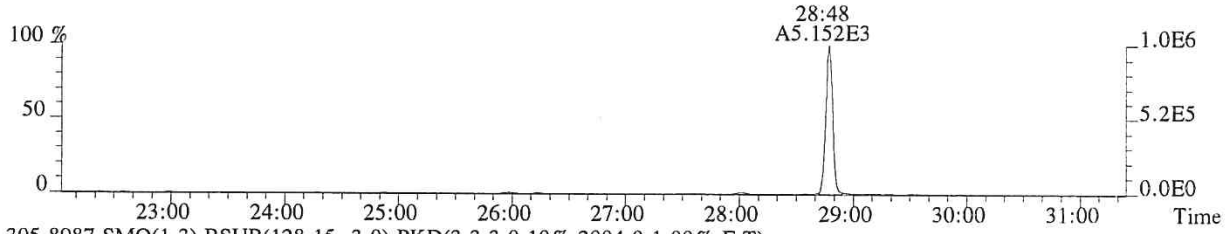
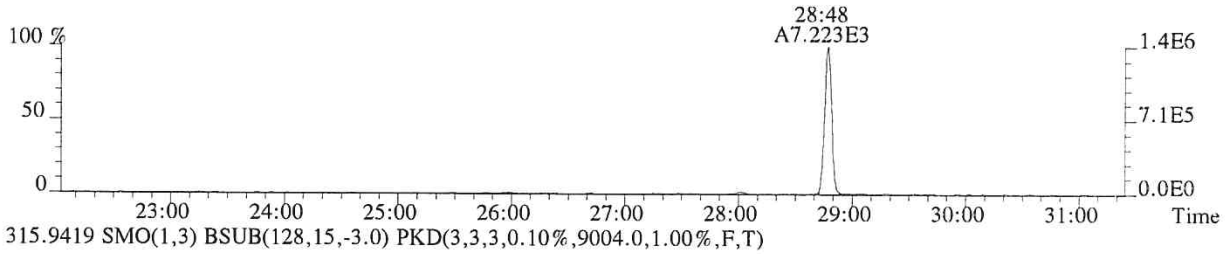
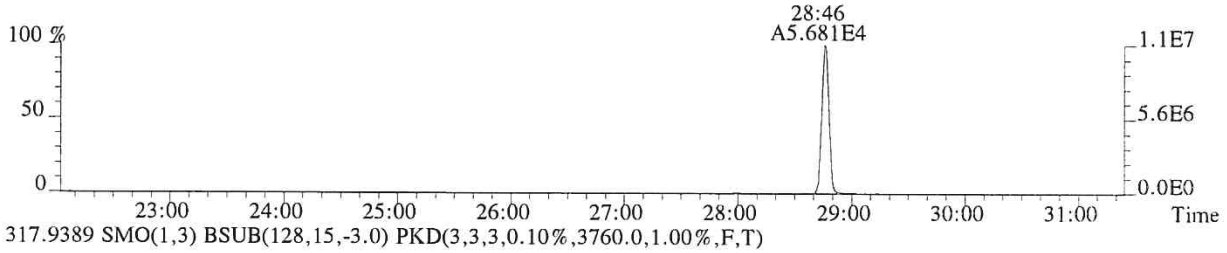
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



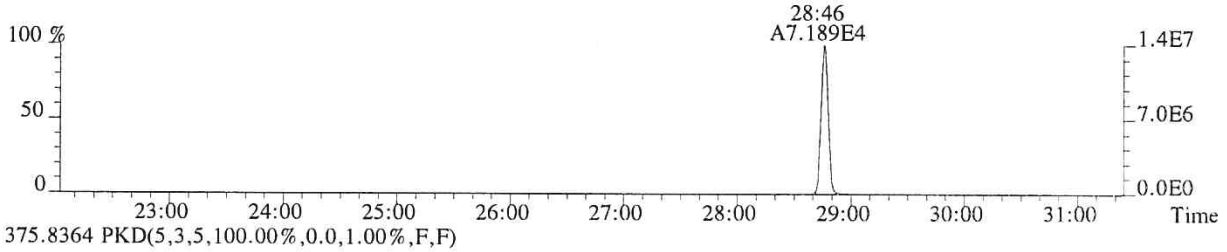
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



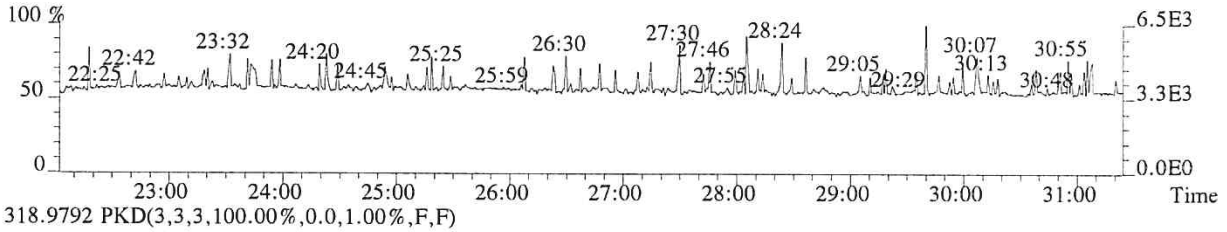
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



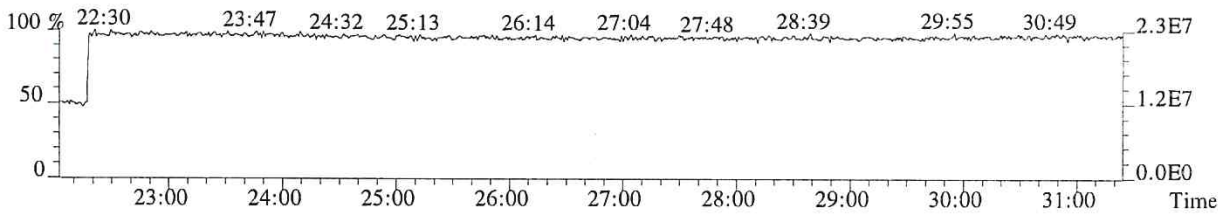
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

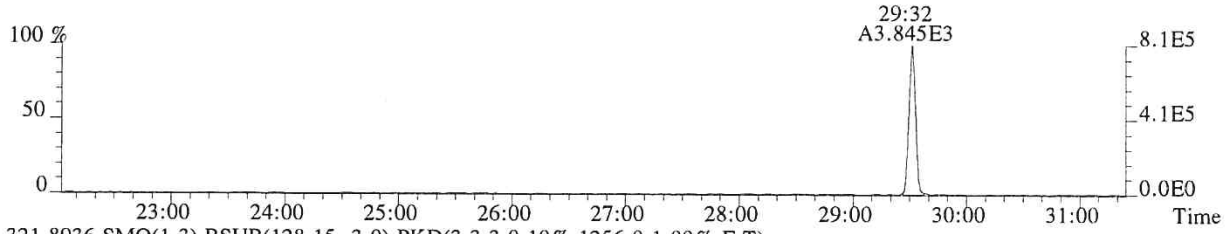


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

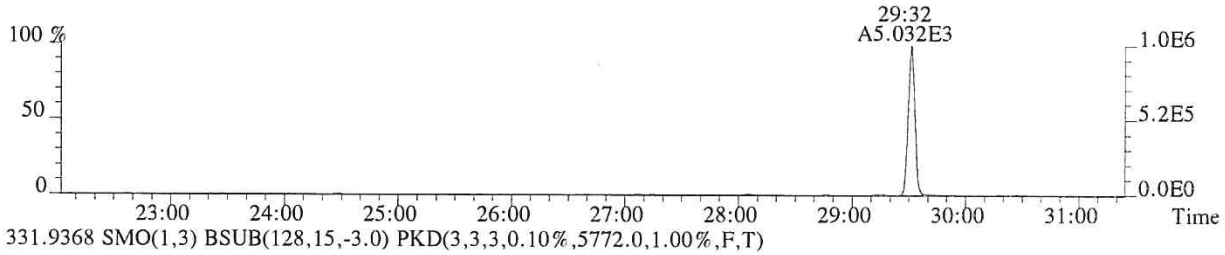


010808

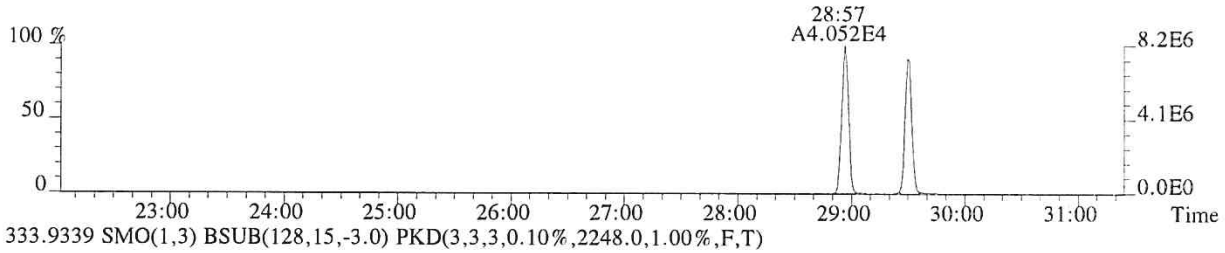
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



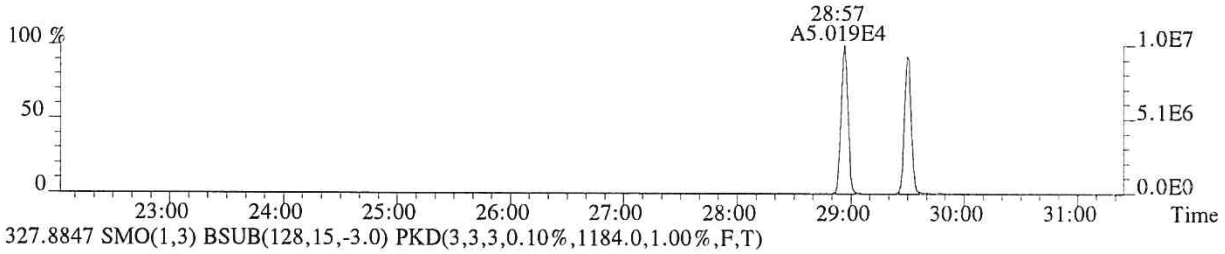
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



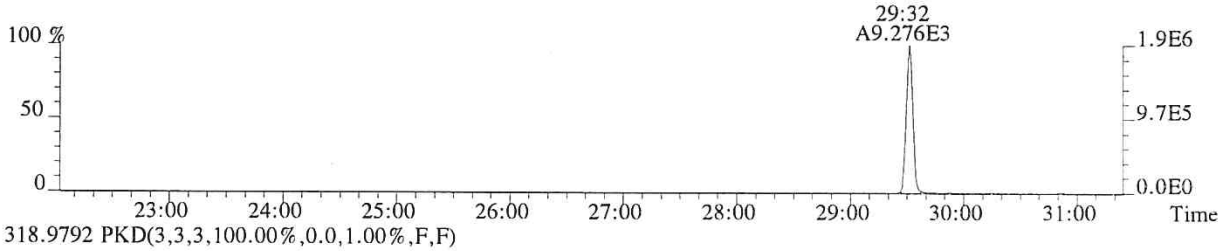
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



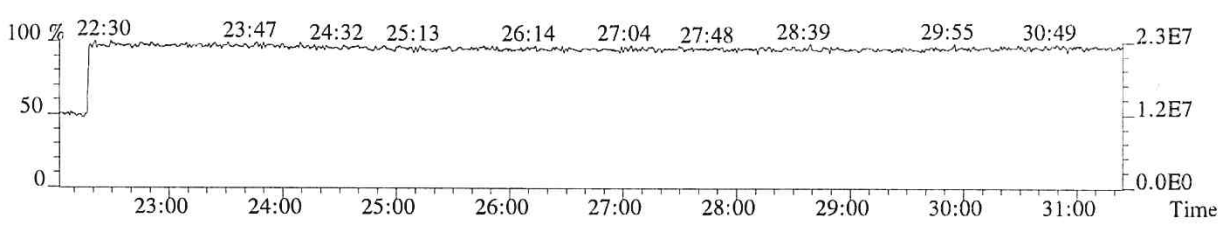
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)

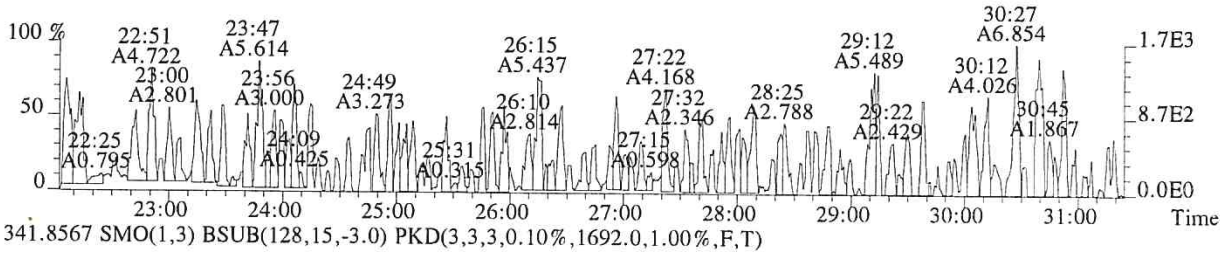


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

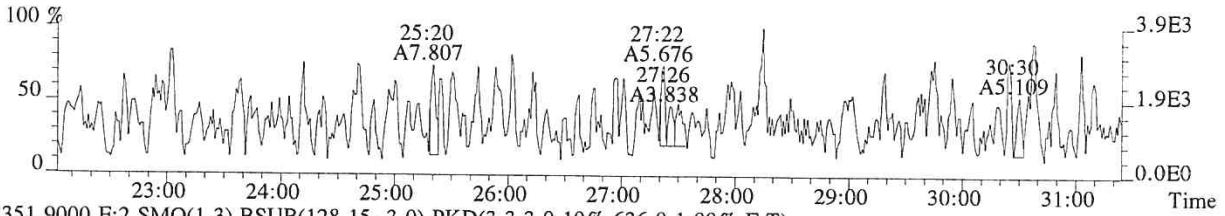


010809

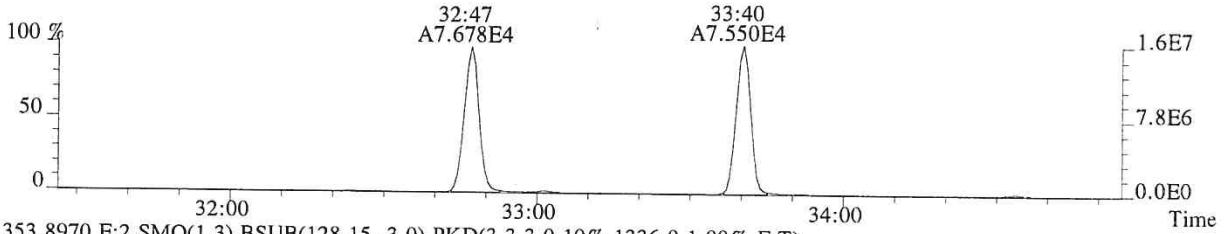
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



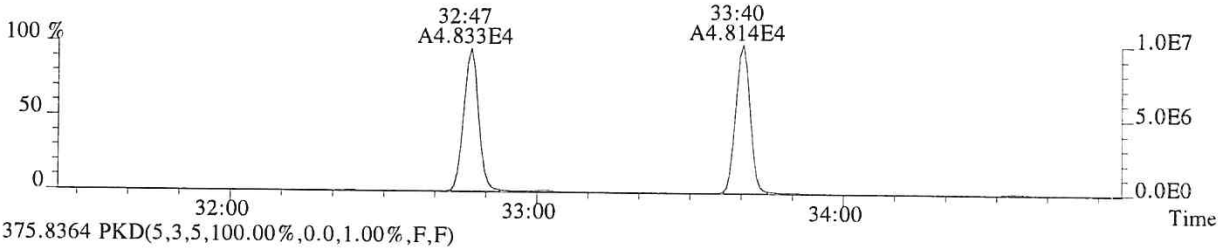
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



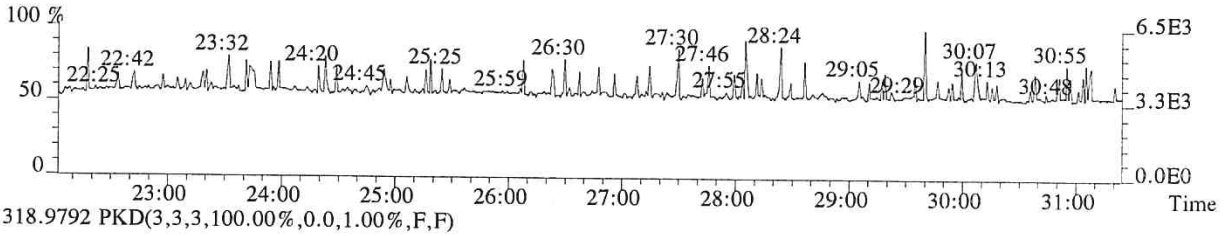
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



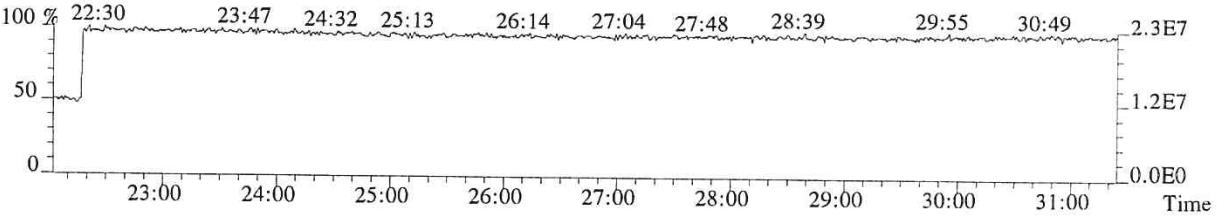
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

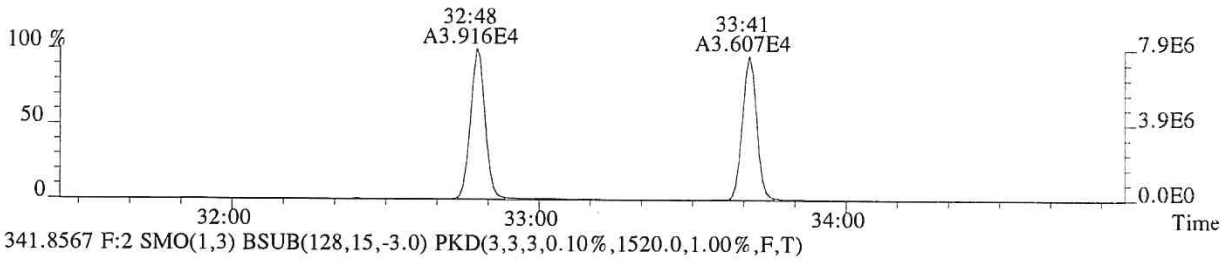


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

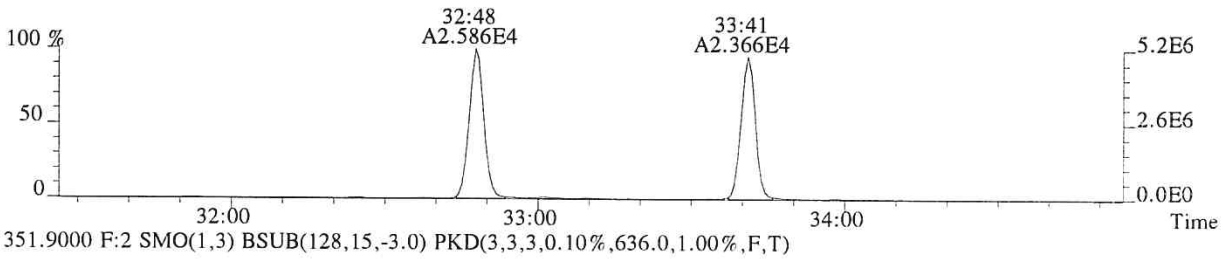


010810

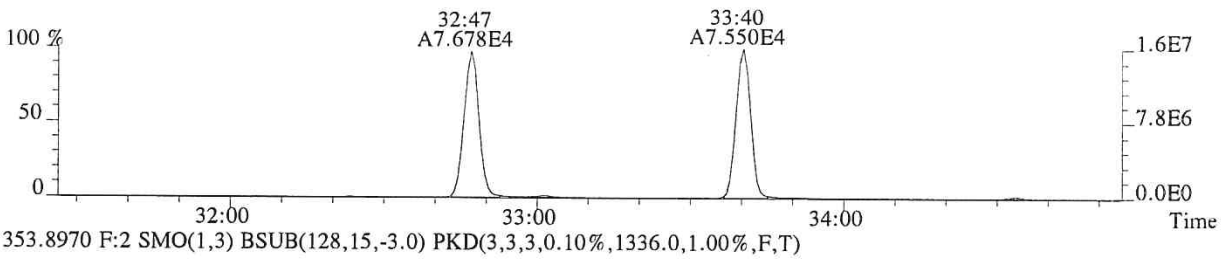
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



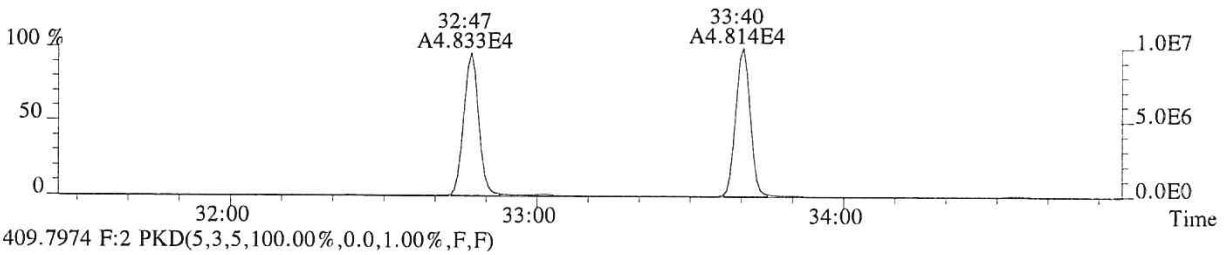
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



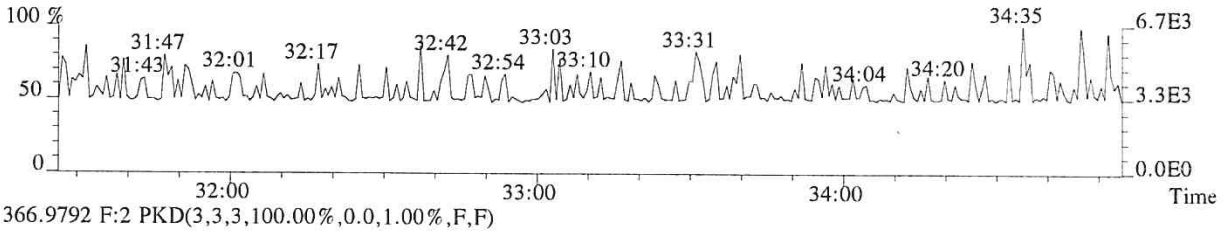
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



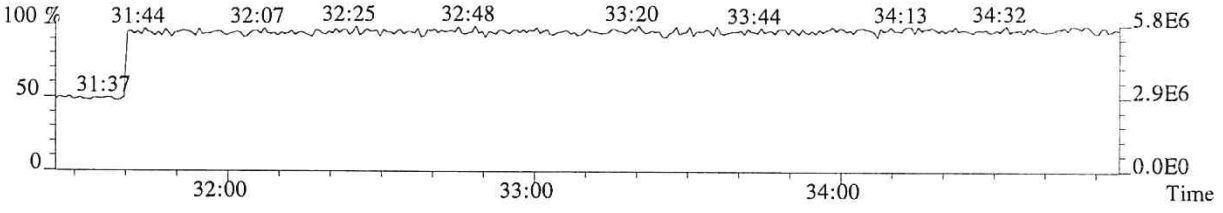
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

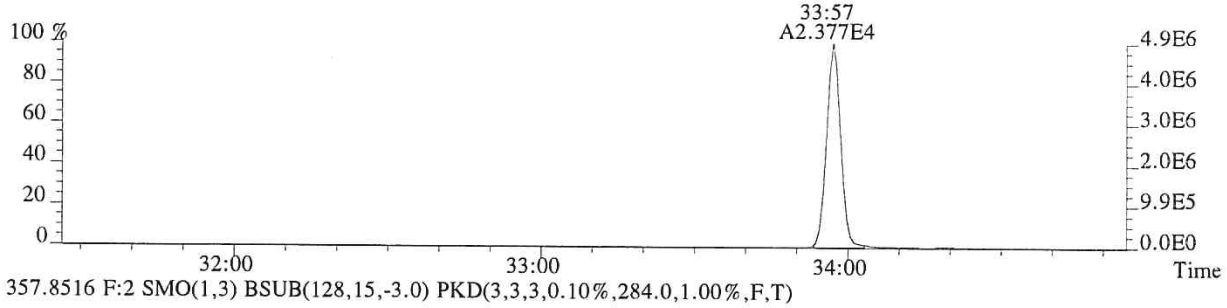


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

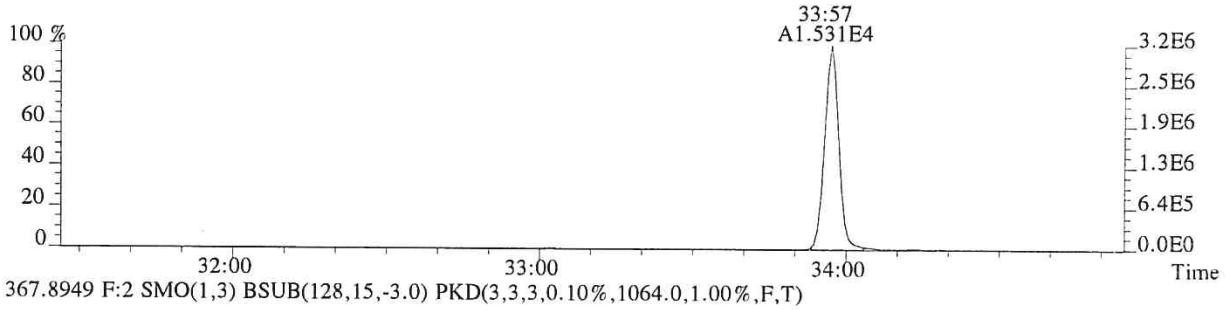


010811

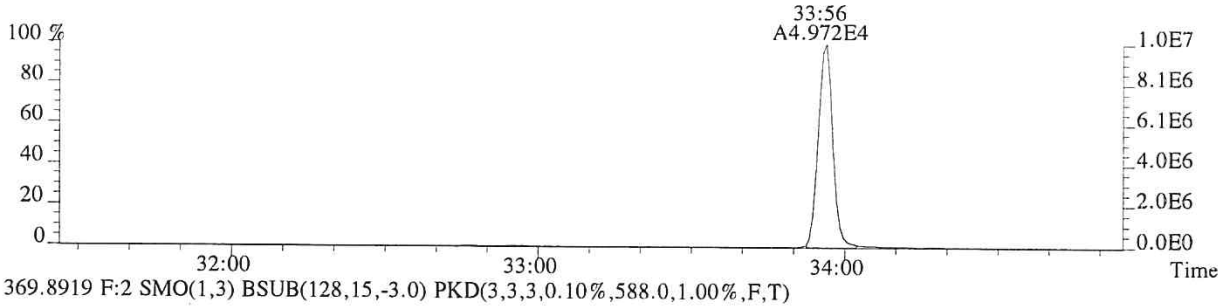
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



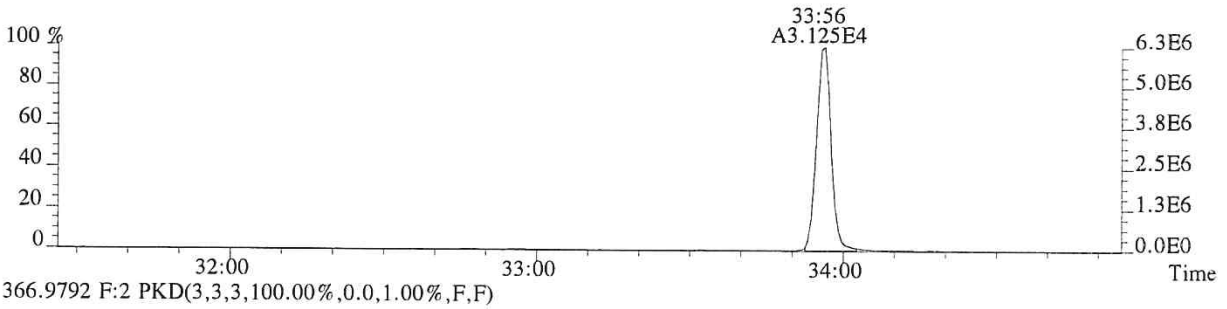
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



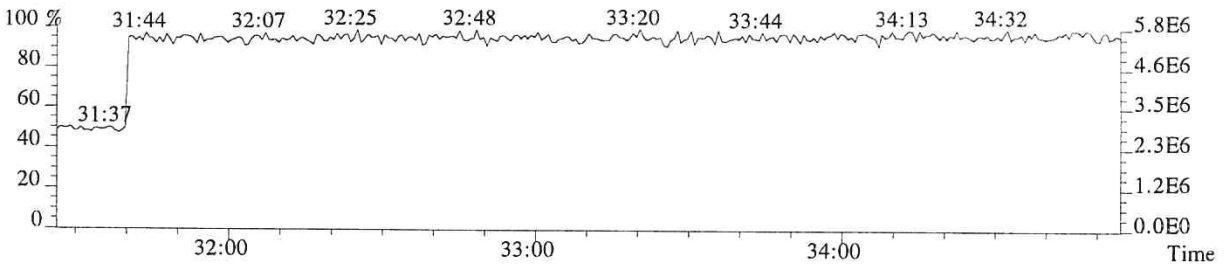
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)

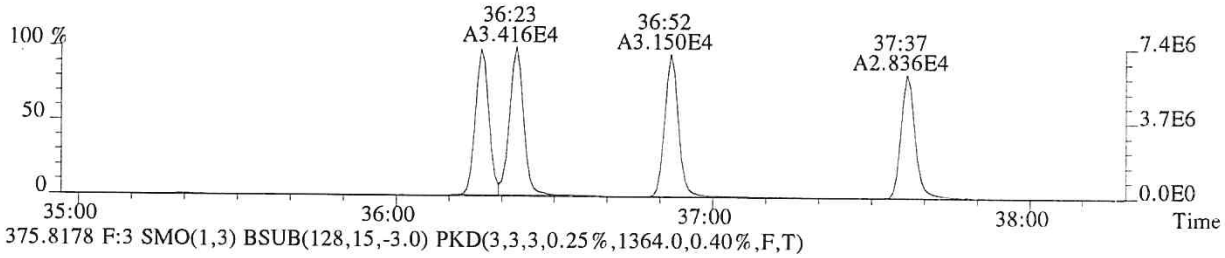


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

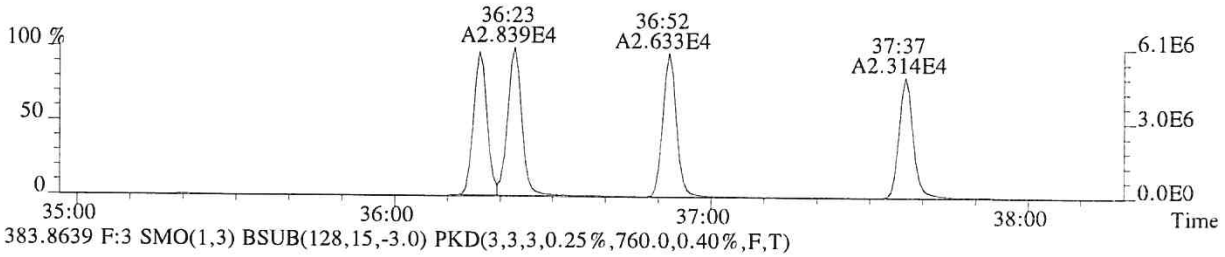


010812

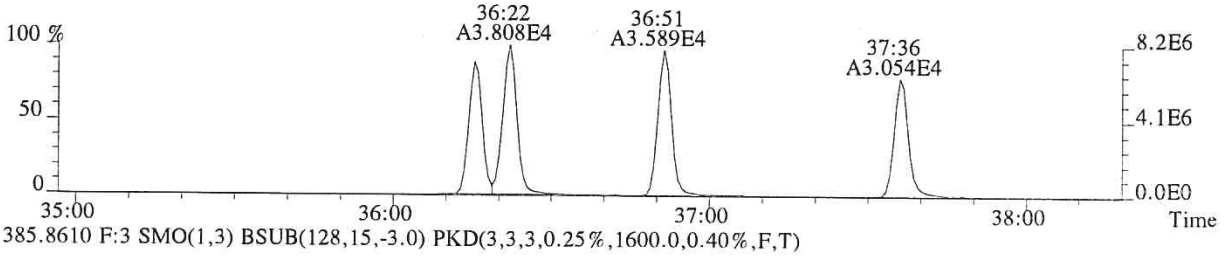
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



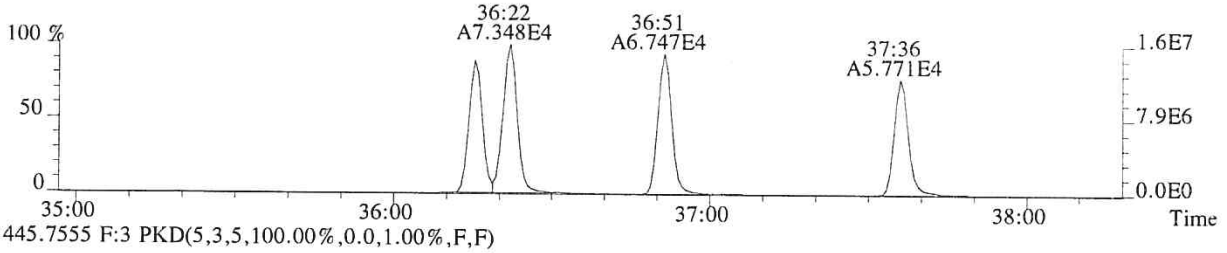
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



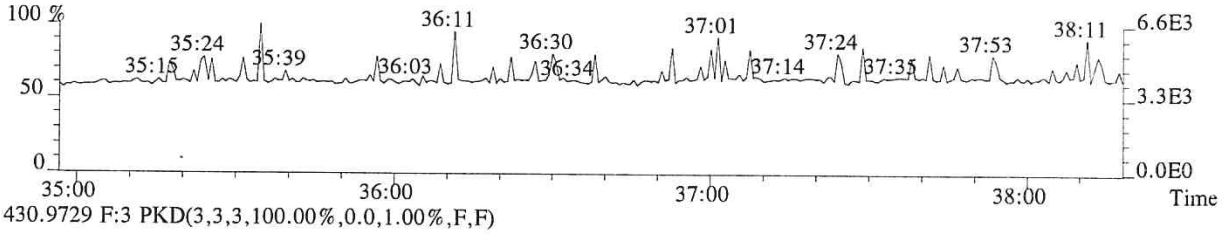
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



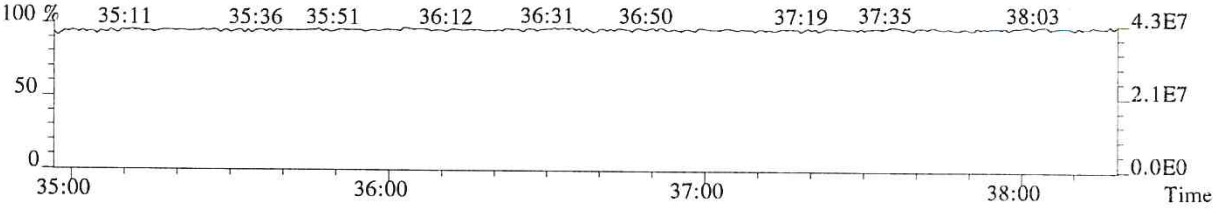
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

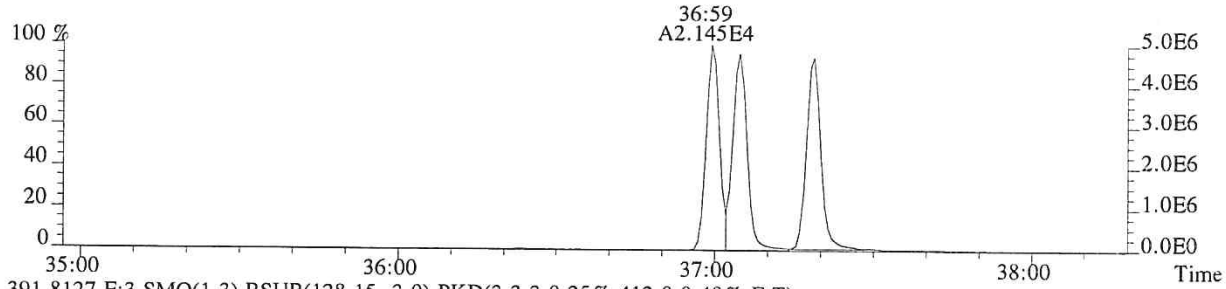


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

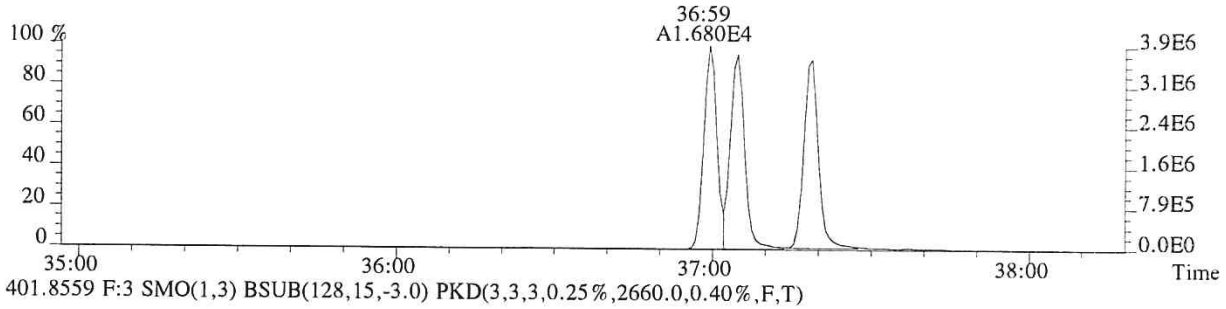


010813

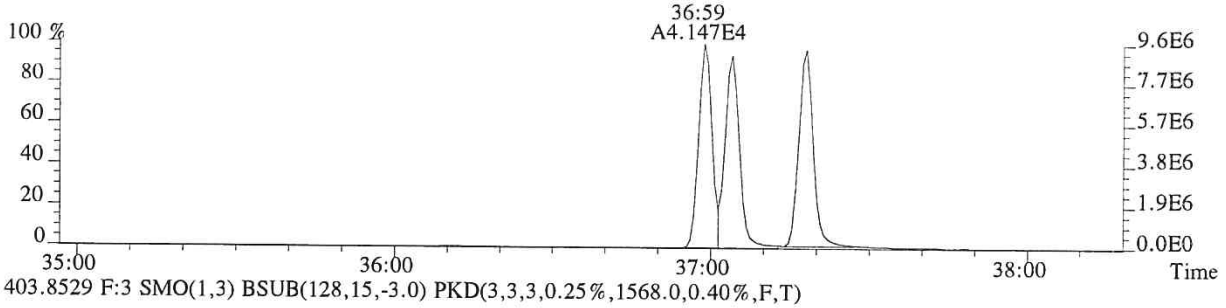
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



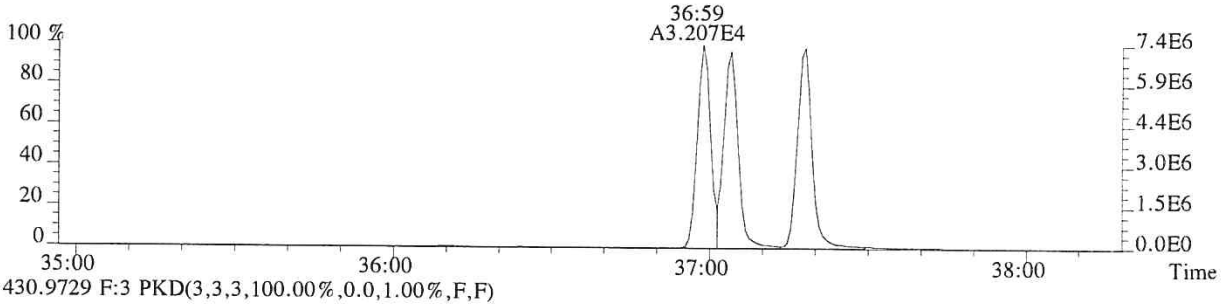
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



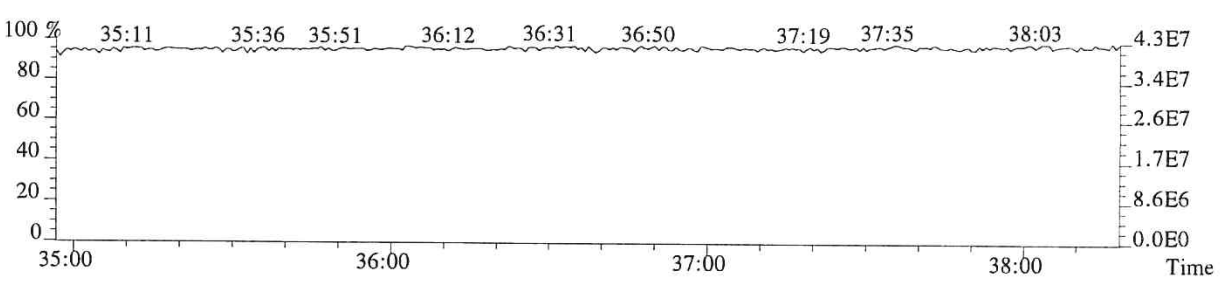
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)

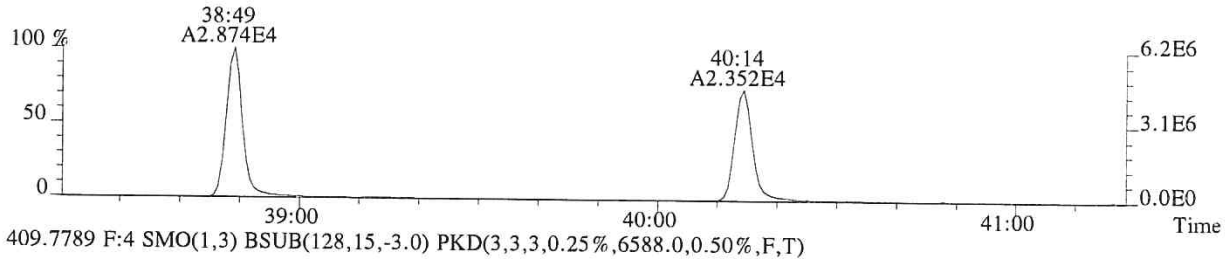


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

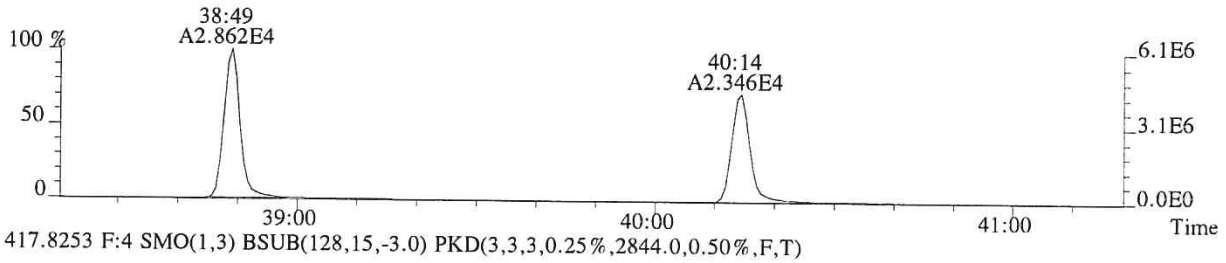


010814

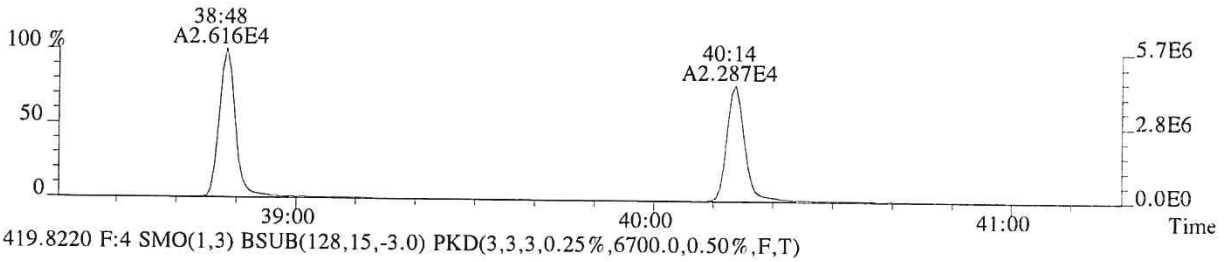
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



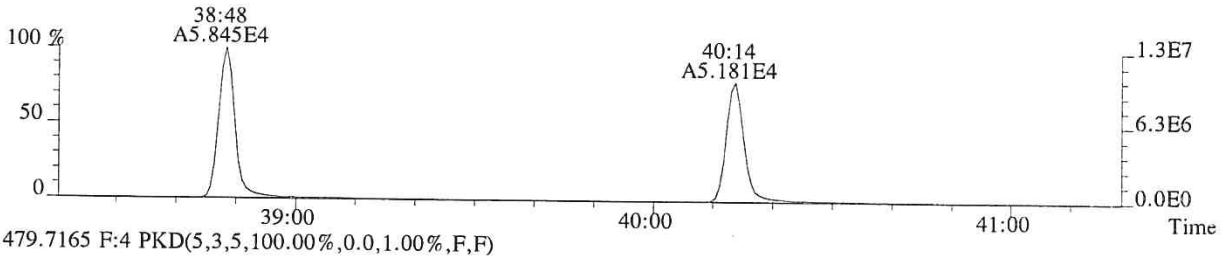
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



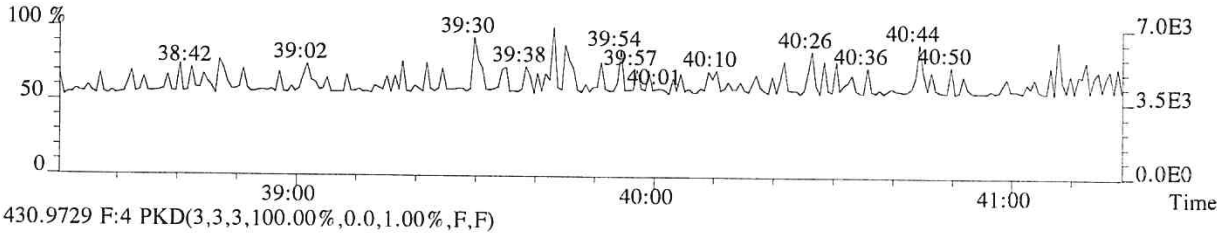
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



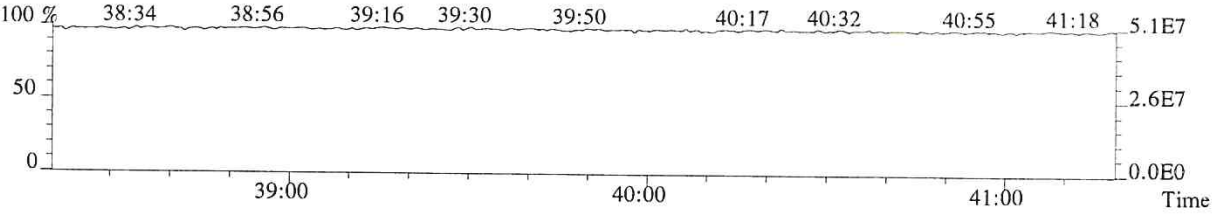
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

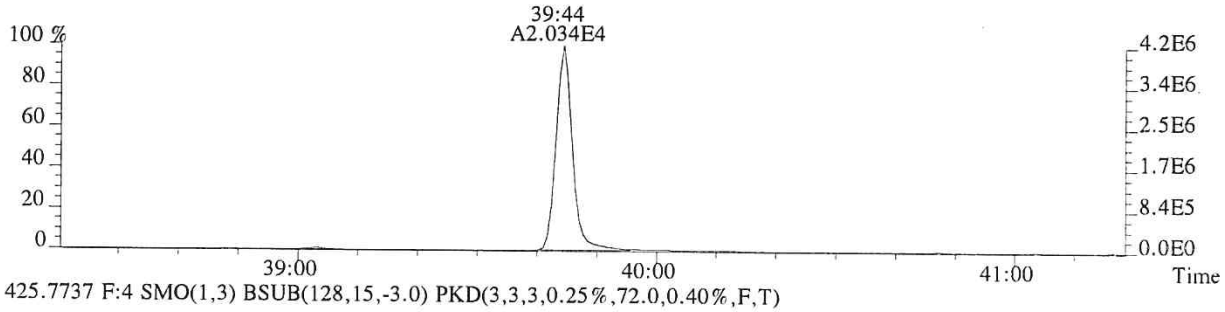


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

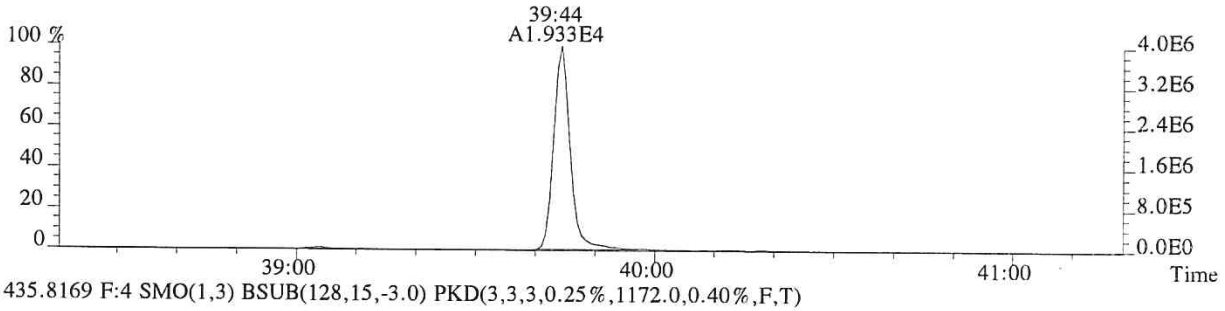


010815

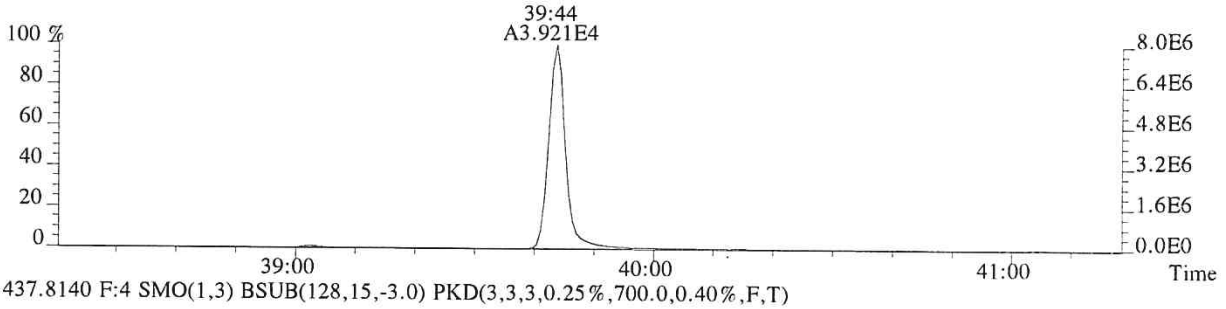
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



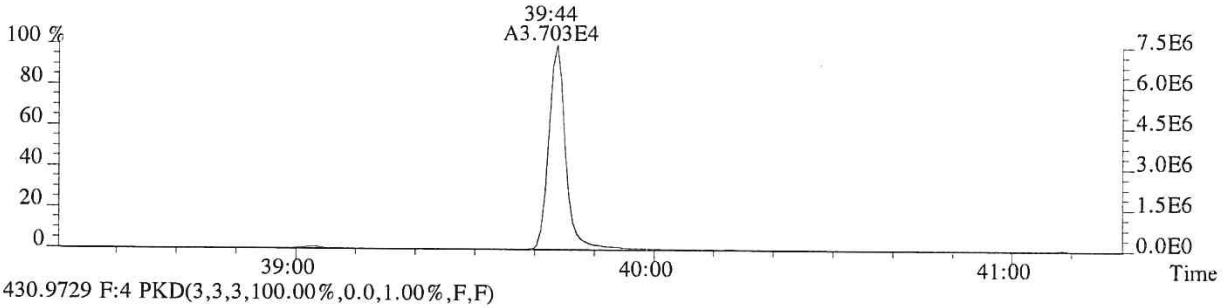
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



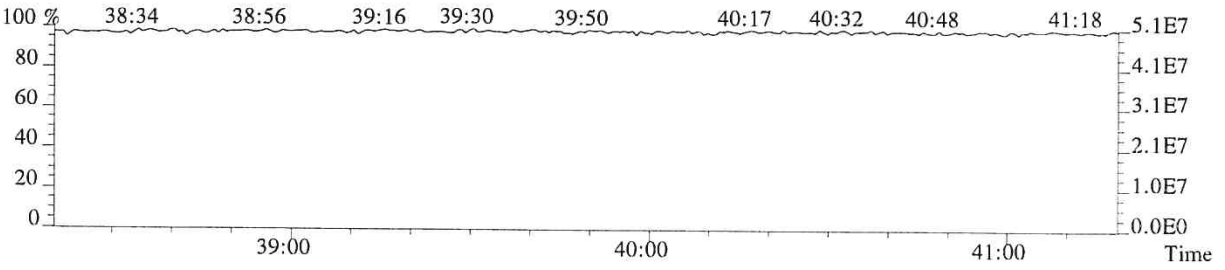
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

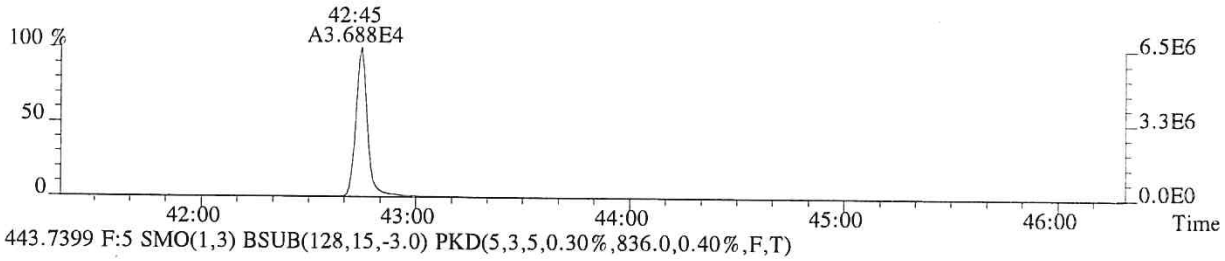


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

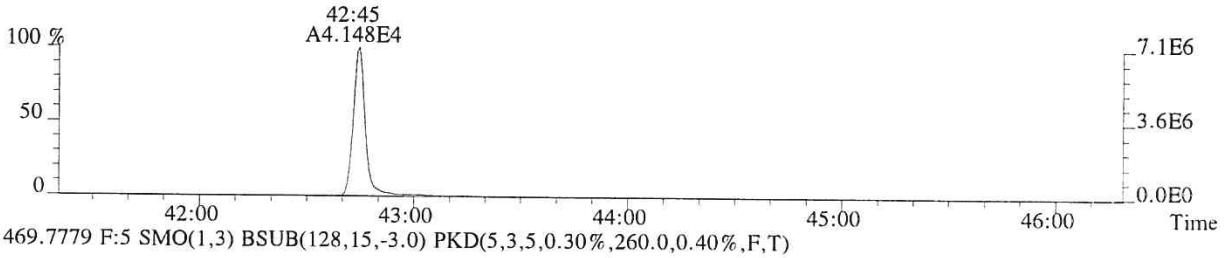


010816

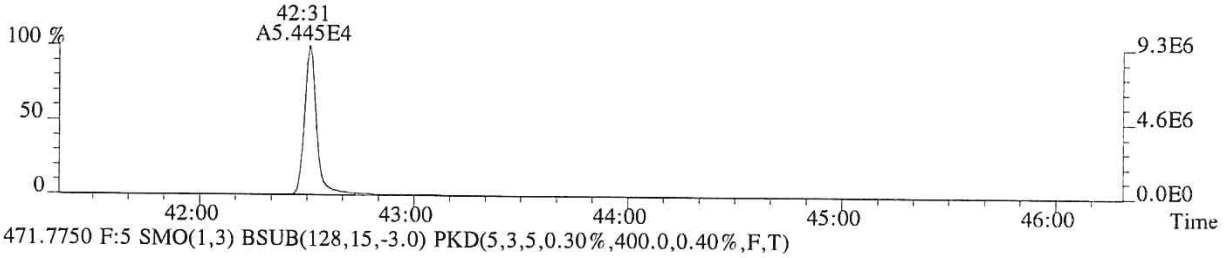
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



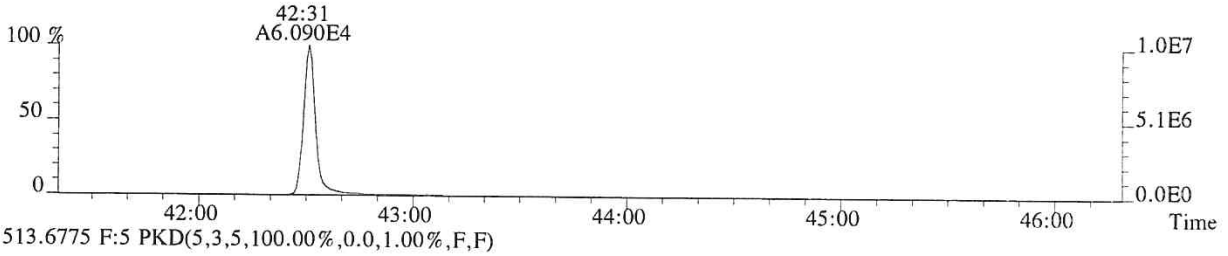
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



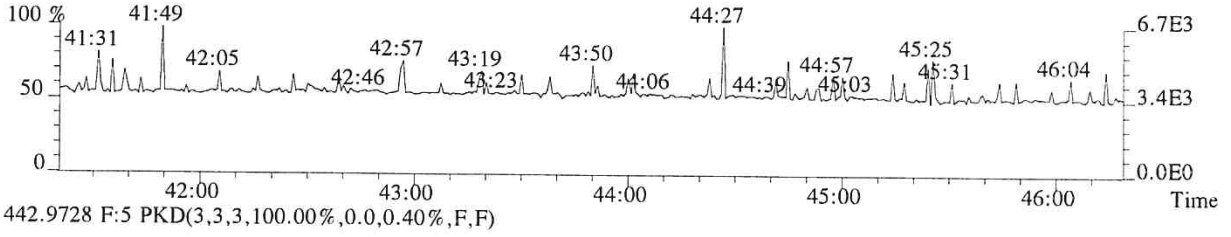
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



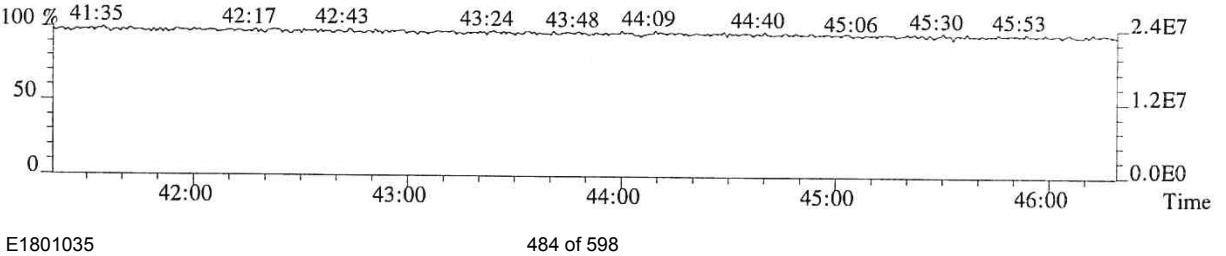
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

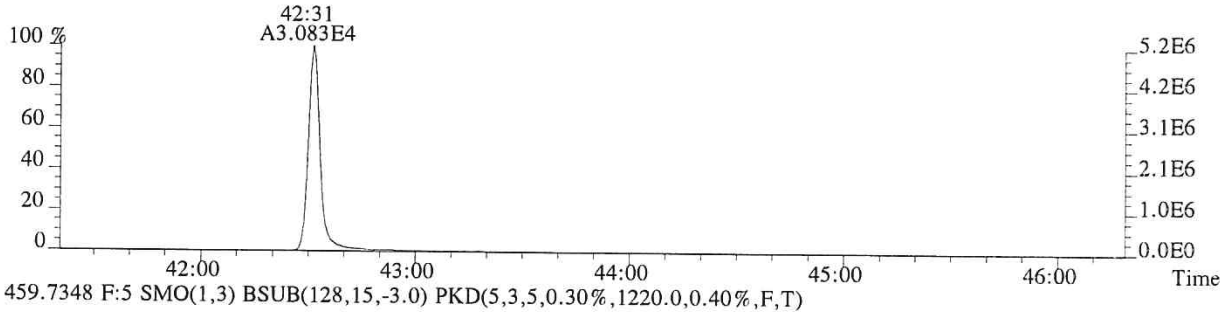


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

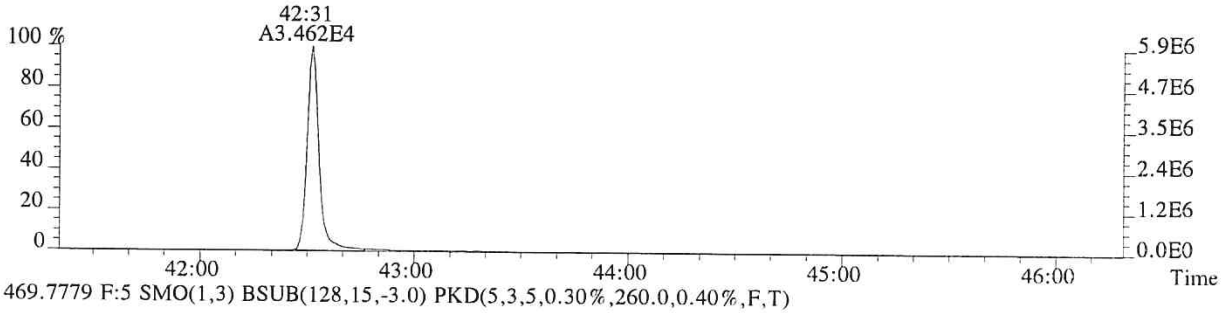


010817

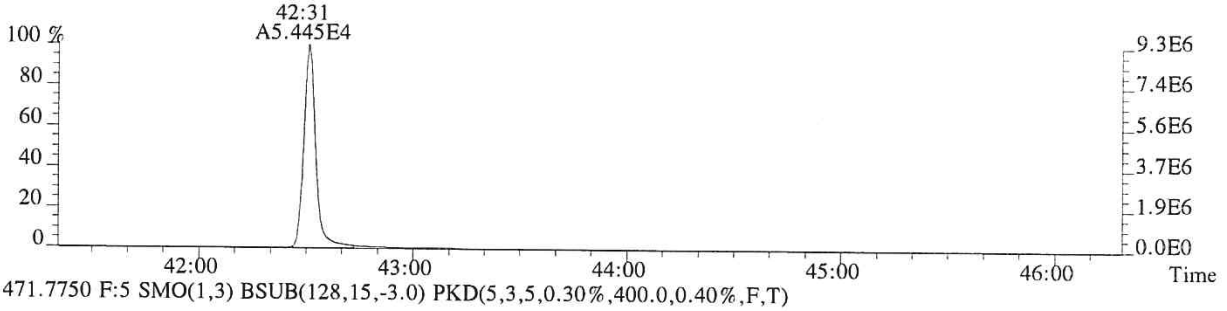
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



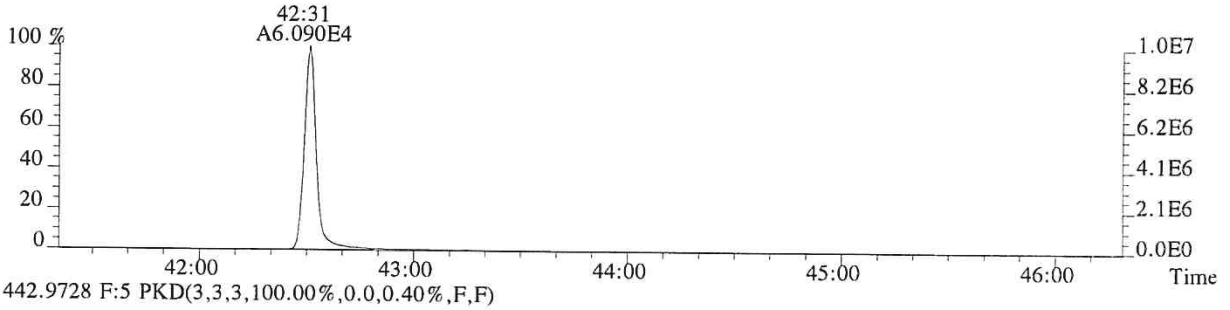
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



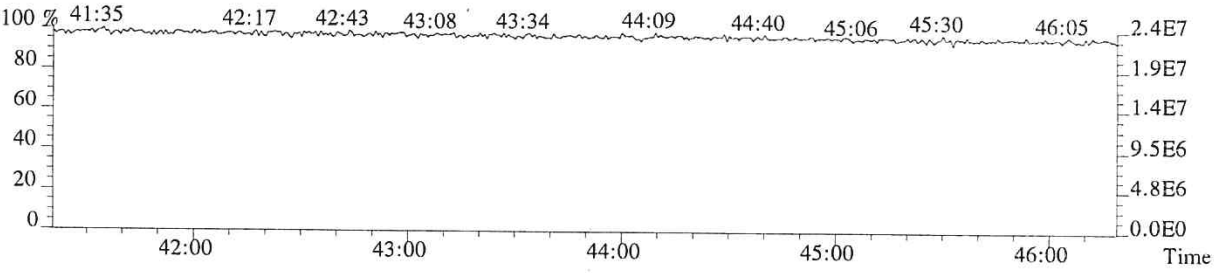
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010818

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-18092516131				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir						
Description		**Yes**	**No**	**NA**	**NR**	**ER#**
Analytical Sequence						
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?		√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?		√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?		√				
Were all calibration standards analyzed only once?		√				
Was the ICV analyzed after the ICAL, before analyzing samples?		√				
Mass Resolution Check						
Are beginning and ending resolution checks provided and legible?		√				
Were all target masses >10,000 resolving power at the beginning of the sequence?		√				
Were all target masses >10,000 resolving power at the end of the sequence?		√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?				√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?				√		
Window Define/209						
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?		√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?		√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?		√				
Were all first and last eluters adequately resolved in each function?		√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?				√		
Was the retention time of PCB 209 >55 min?				√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182				√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?				√		
Calibration Standards						
Were there at least 5 calibration standards analyzed?		√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?				√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?		√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir		Yes	No	NA	NR	ER#
Description						
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?		√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?		√				
Were area counts for the highest calibration standard below levels of saturation?		√				
Were manual integrations technically justified to correct for poor software integration?				√		
Response Factors						
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?		√				
Were all calibration standards used in determining response factors?		√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?		√				
Did the RSD for RRFs for each native analyte meet method criteria?		√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?		√				
Were RFs for each labeled compound calculated for each calibration point?		√				
Did the RSD for RF for each labeled compound meet method criteria?		√				
Initial Calibration Verification						
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)		√				
Did all analytes meet method criteria for the ICV.		√				

Laboratory Review Checklist: Initial Calibration			
Method: 1613/8290		Process Date: 09/26/2018	
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I	
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong	
ER#[5]	**Description**		

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P614680	25-SEP-18	12:13:01
76554	CS0.5	P614682	25-SEP-18	14:18:27
82614	CS1	P614683	25-SEP-18	15:08:49
193434	CS2	P614684	25-SEP-18	15:59:37
76557	CS3	P614685	25-SEP-18	16:52:47
82167	CS4	P614686	25-SEP-18	17:41:03
185657	CS5	P614687	25-SEP-18	18:30:08
188969	2ND SOURCE	P614690	25-SEP-18	20:57:19

E1801035

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20180925A.SPL
Last Modified: Wednesday, September 26, 2018 06:14:12 Central Daylight Time
Printed: Wednesday, September 26, 2018 06:14:14 Central Daylight Time

Page Position (1, 1)

OPUS4: P6-180925161 3I
P614690res

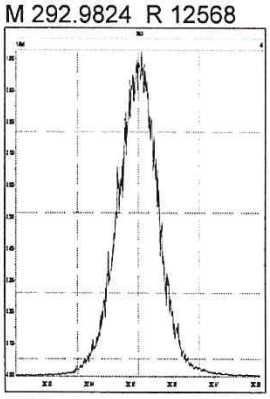
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	9/25/18	12:13	P614680	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 12:08
2		13:01	P614681	192807	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		14:18	P614682	76554	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:08	P614683	82614	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P614684	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:52	P614685	76557	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:41	P614686	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:30	P614687	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:19	P614688	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P614689	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:10		Do not use
11		20:57	P614690	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:52	P614691	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:12		HRMScheck 22:51
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LG 09/26/18

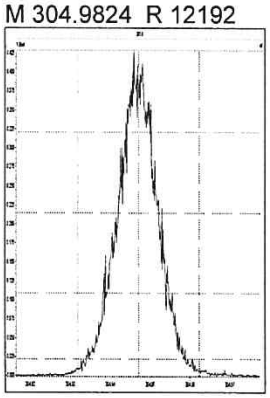
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:08:26 Central Daylight Time

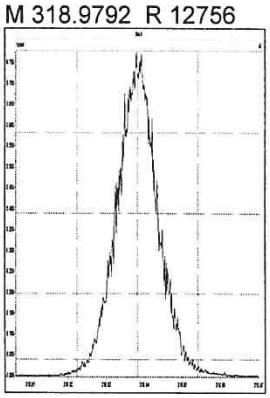
M 292.9824 R 12568



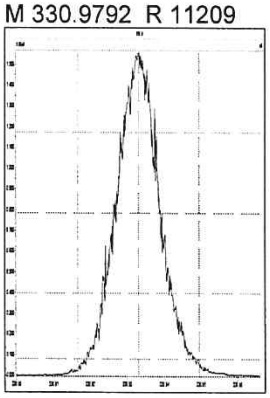
M 304.9824 R 12192



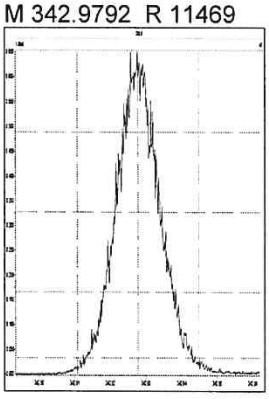
M 318.9792 R 12756



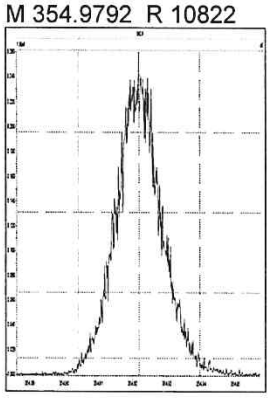
M 330.9792 R 11209



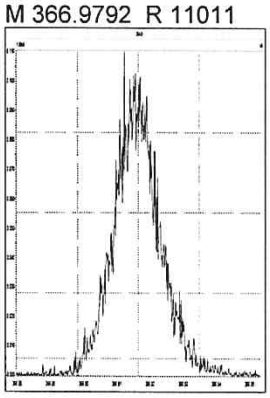
M 342.9792 R 11469



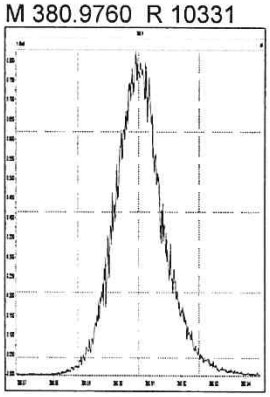
M 354.9792 R 10822



M 366.9792 R 11011



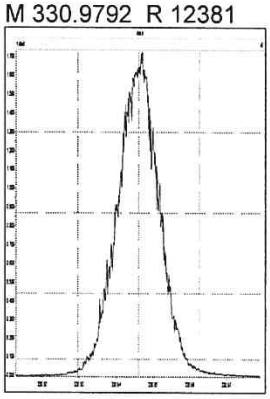
M 380.9760 R 10331



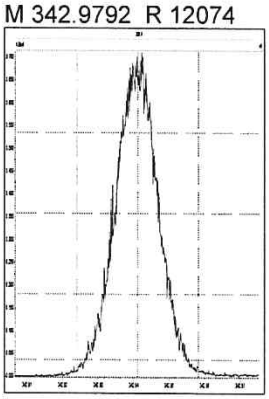
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:09:22 Central Daylight Time

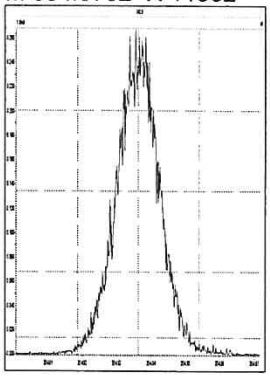
M 330.9792 R 12381



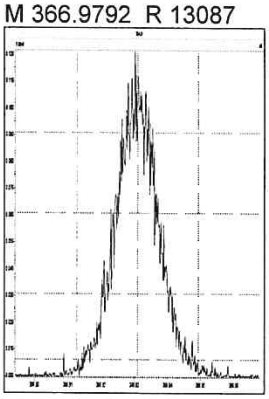
M 342.9792 R 12074



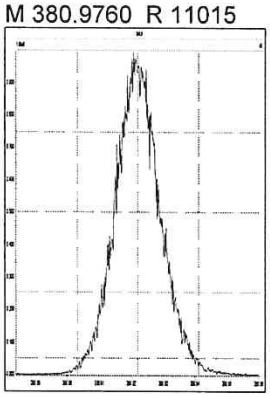
M 354.9792 R 11962



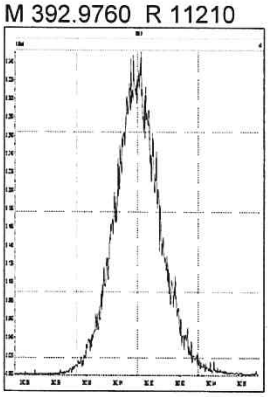
M 366.9792 R 13087



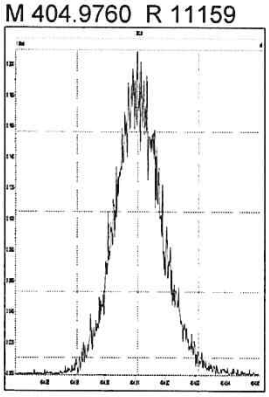
M 380.9760 R 11015



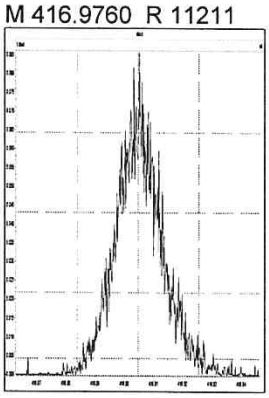
M 392.9760 R 11210



M 404.9760 R 11159



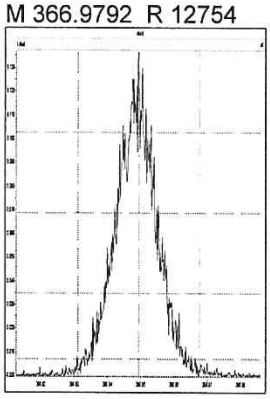
M 416.9760 R 11211



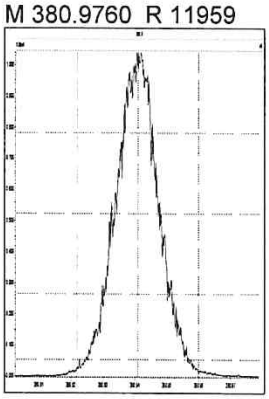
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:10 Central Daylight Time

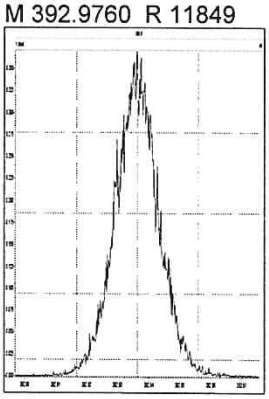
M 366.9792 R 12754



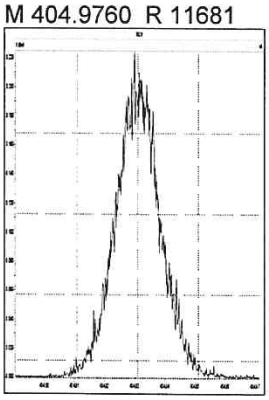
M 380.9760 R 11959



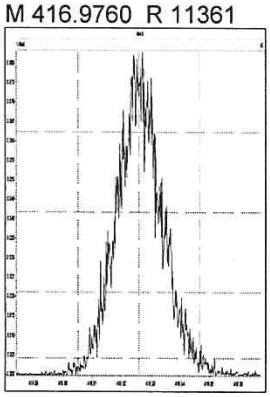
M 392.9760 R 11849



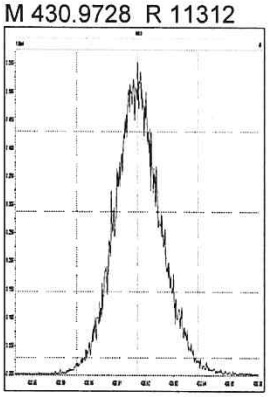
M 404.9760 R 11681



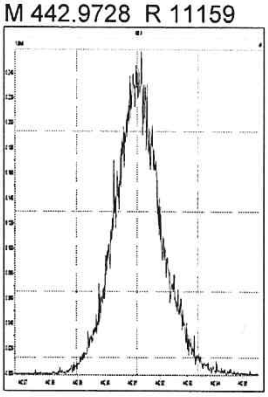
M 416.9760 R 11361



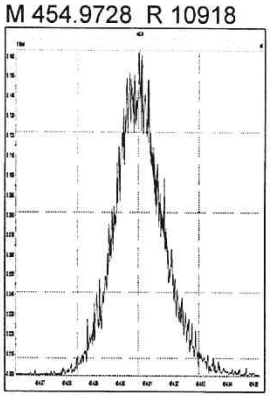
M 430.9728 R 11312



M 442.9728 R 11159



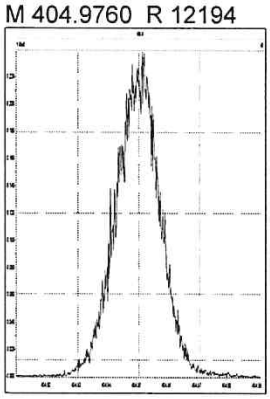
M 454.9728 R 10918



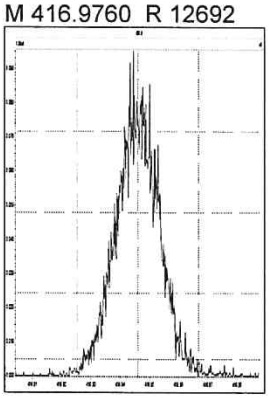
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:51 Central Daylight Time

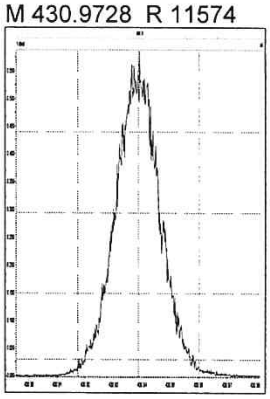
M 404.9760 R 12194



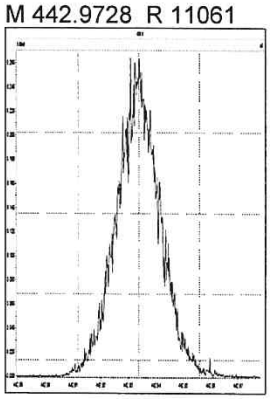
M 416.9760 R 12692



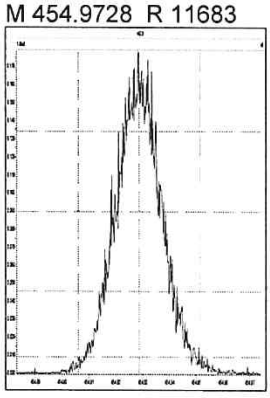
M 430.9728 R 11574



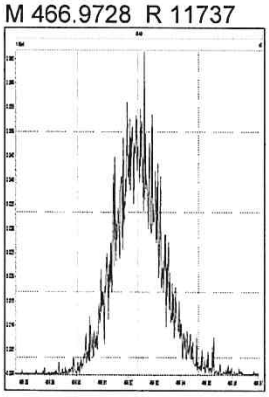
M 442.9728 R 11061



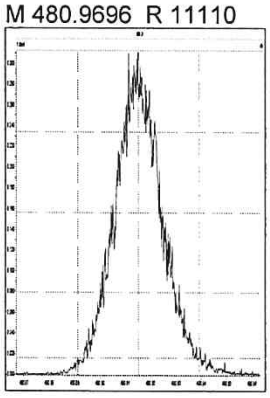
M 454.9728 R 11683



M 466.9728 R 11737



M 480.9696 R 11110



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Printed: Tuesday, September 25, 2018 12:11:41 Central Daylight Time

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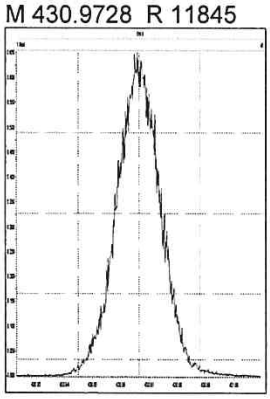

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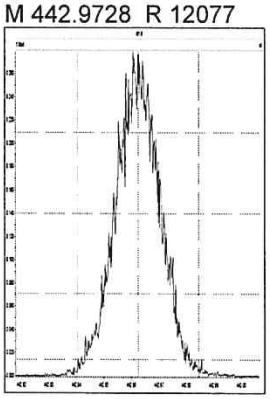

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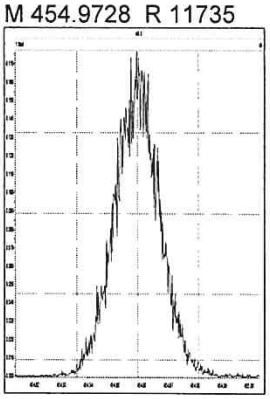

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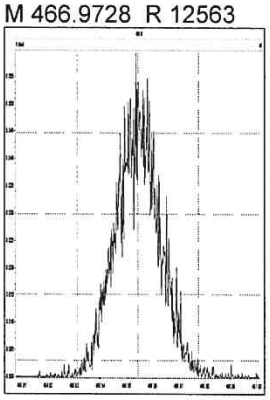

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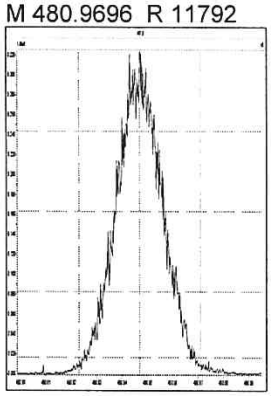

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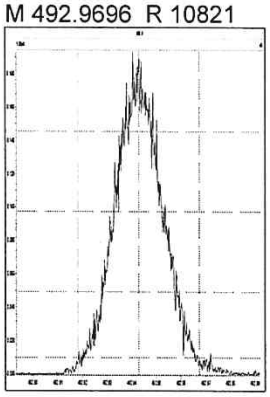

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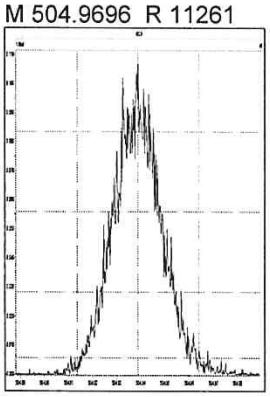

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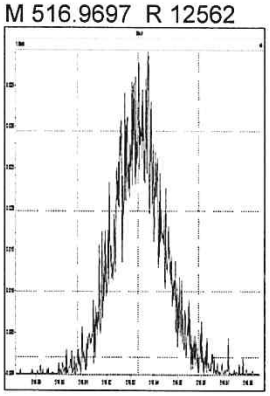

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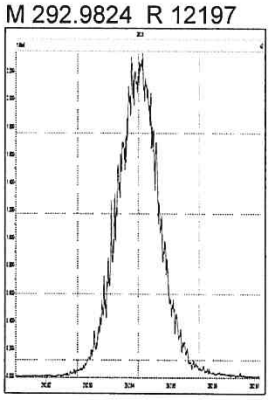

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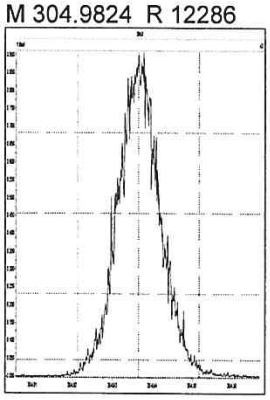

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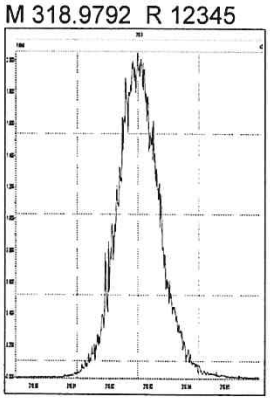

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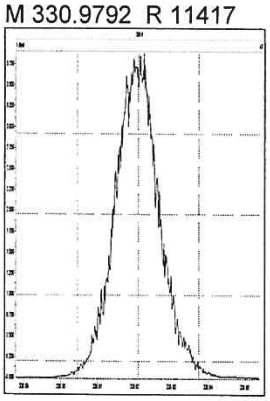

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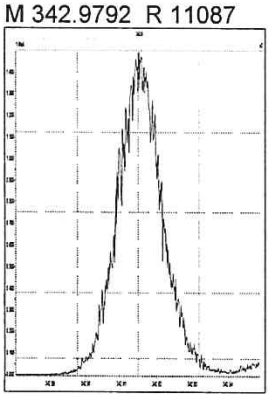

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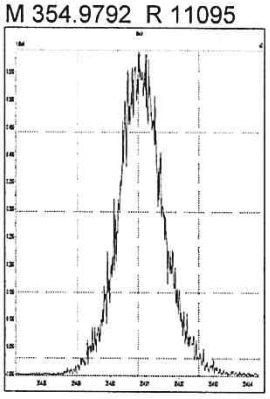

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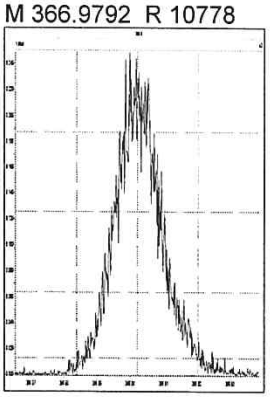

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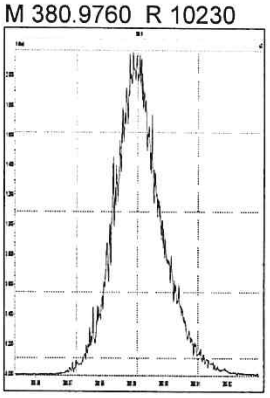

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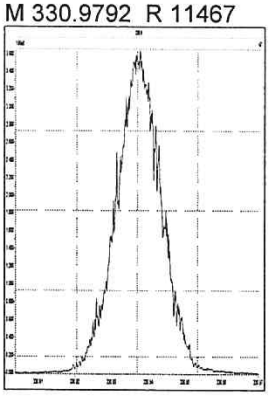

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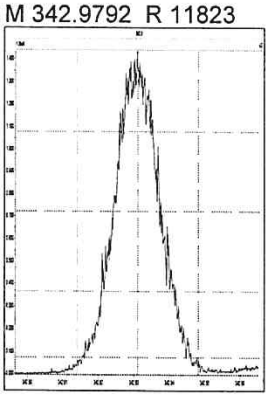

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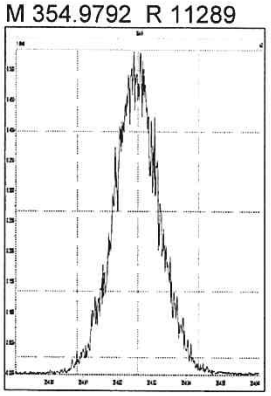

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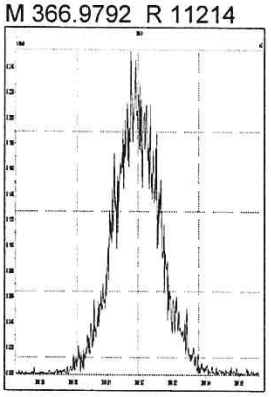

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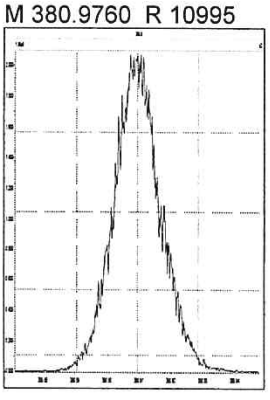

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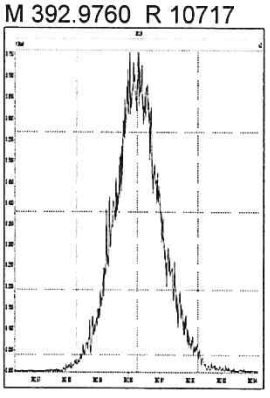

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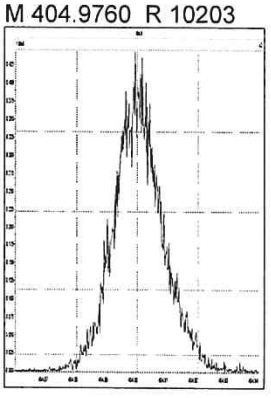

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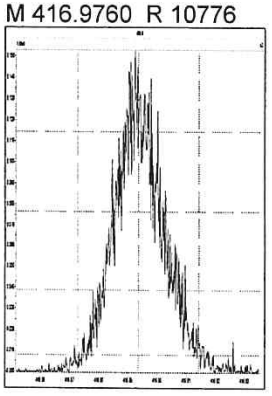

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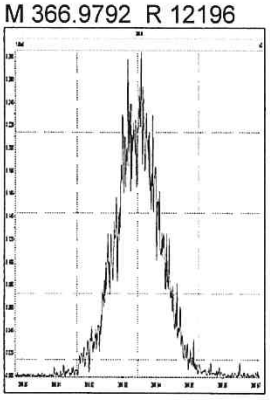

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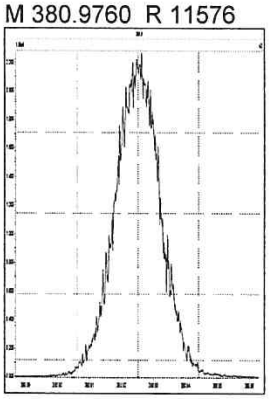

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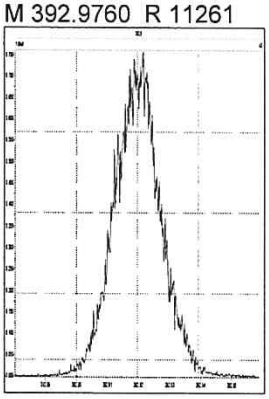

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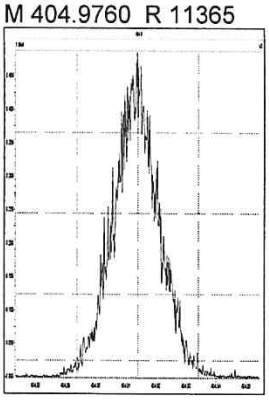

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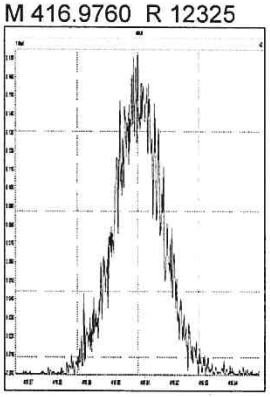

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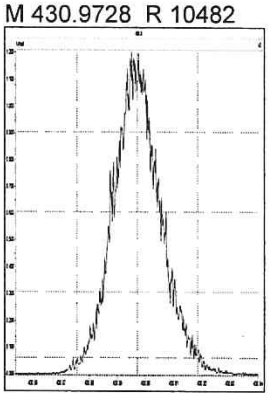

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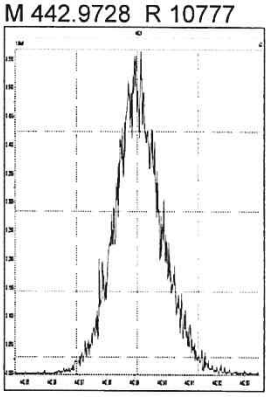

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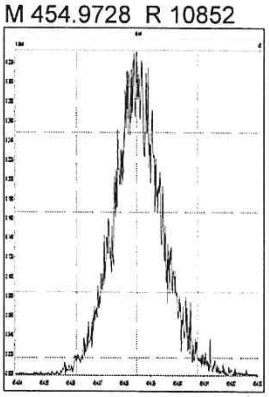

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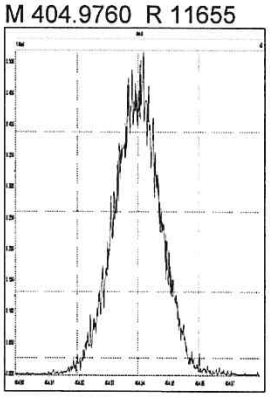

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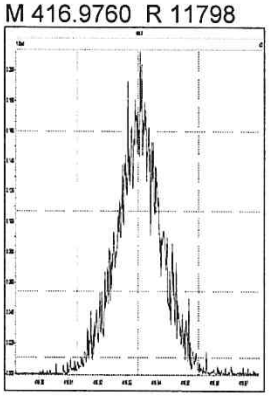

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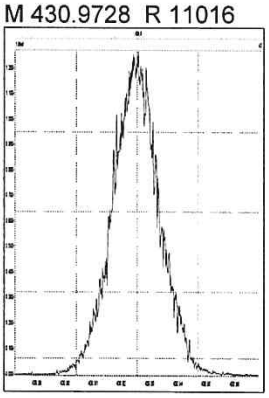

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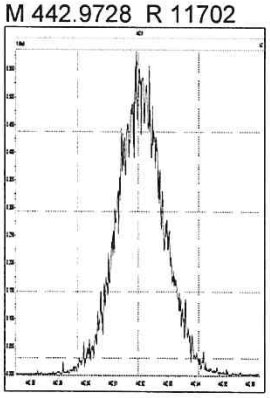

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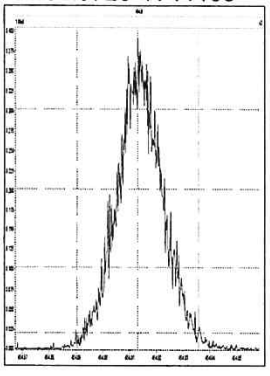

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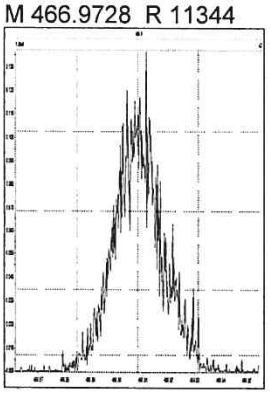

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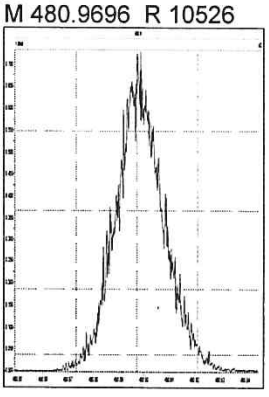

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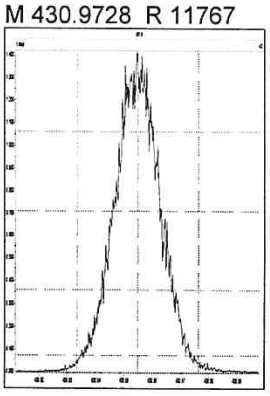

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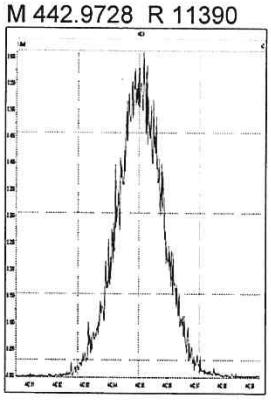

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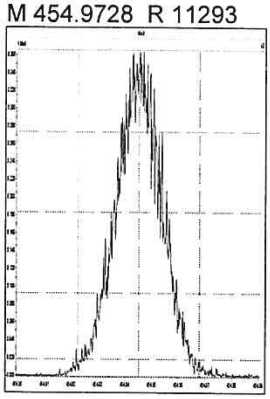

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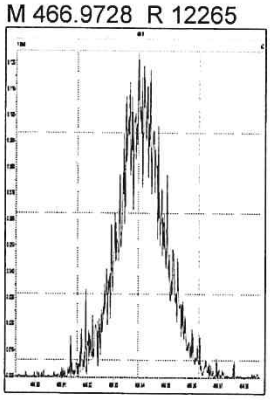

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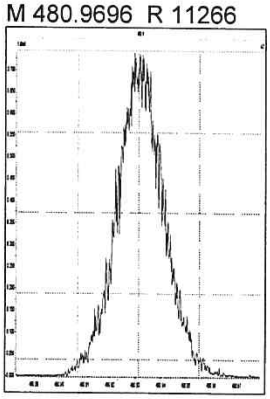

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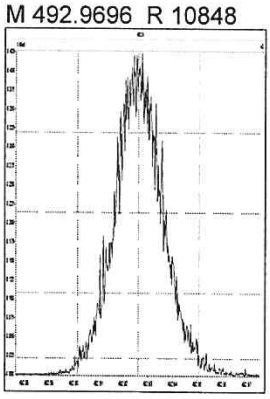

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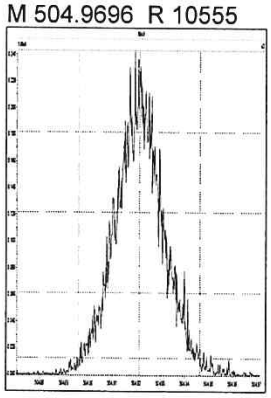

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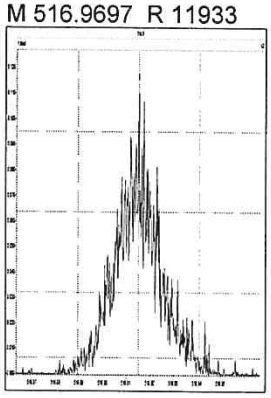


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

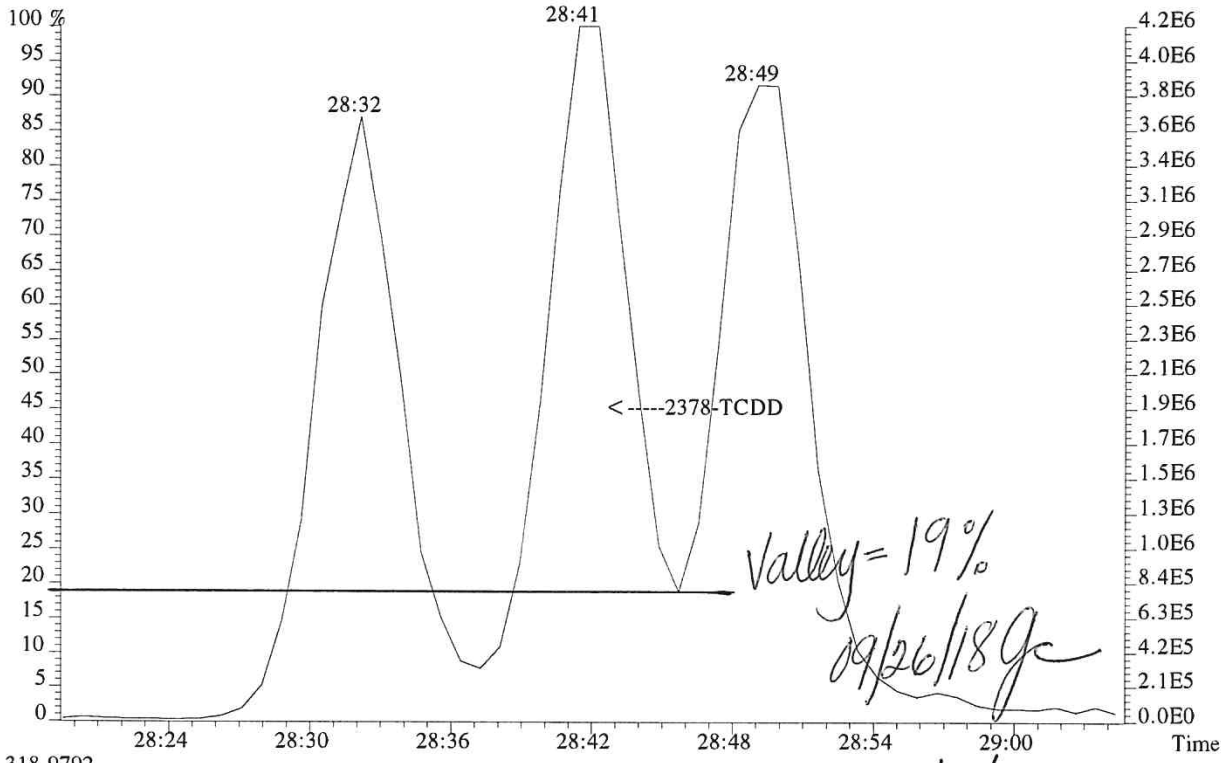
Lab File ID: P614680
Date Analyzed: 25-SEP-18
Time Analyzed: 12:13:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:52
TCDD	25:18	29:42
PeCDF	29:48	34:04
PeCDD	31:21	33:49
HxCDF	34:43	37:12
HxCDD	35:14	36:49
HpCDF	38:24	39:46
HpCDD	38:39	39:18

% Valley 2378-TCDD: 19 %

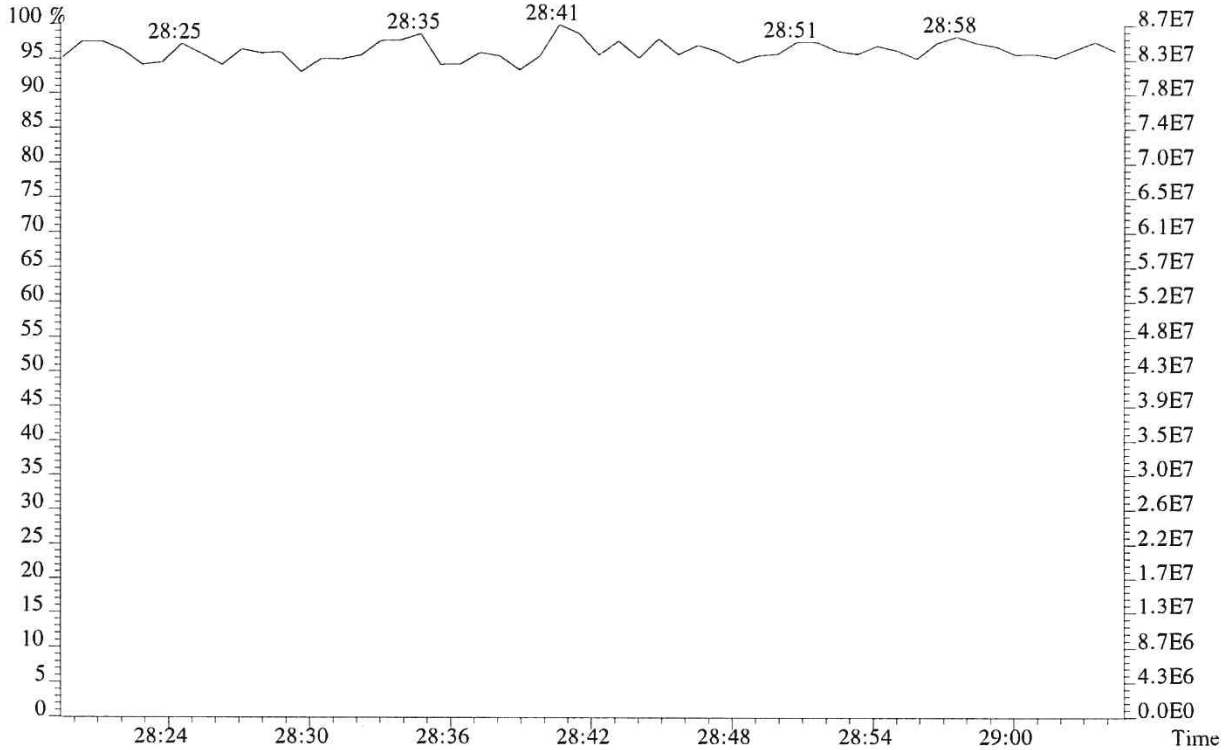
010831

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792

LKL 09/26/18



010832

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
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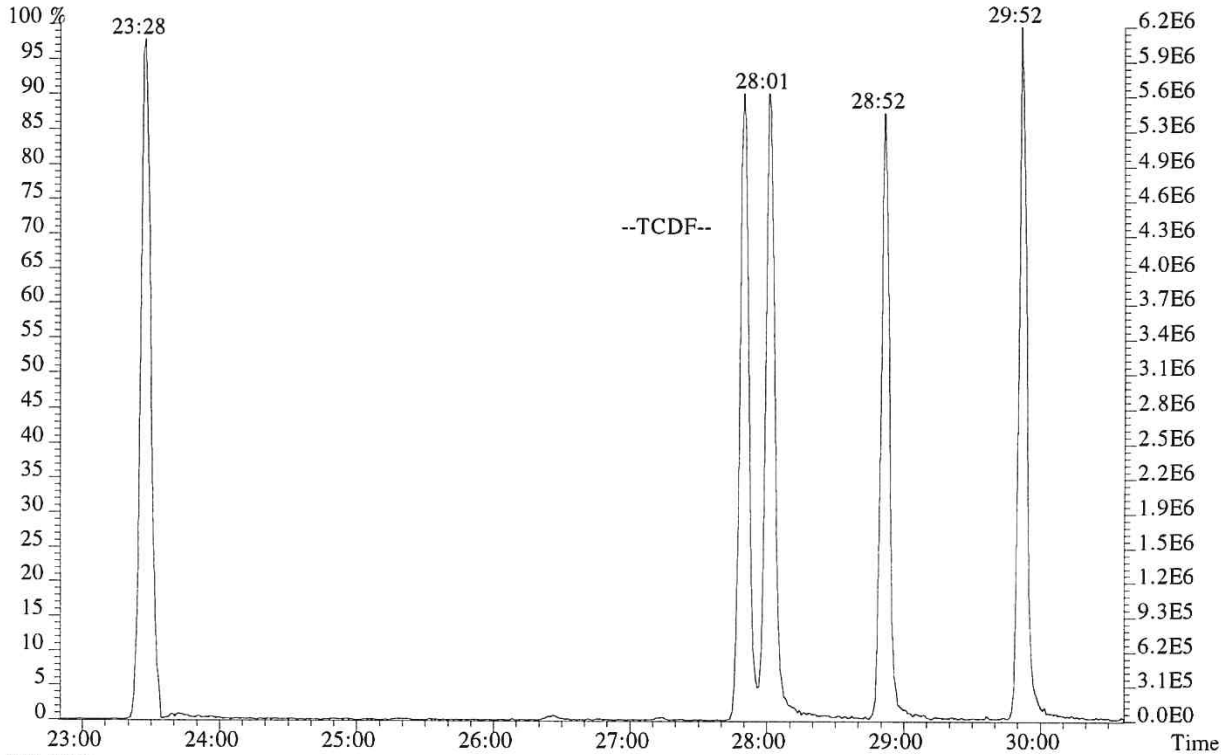
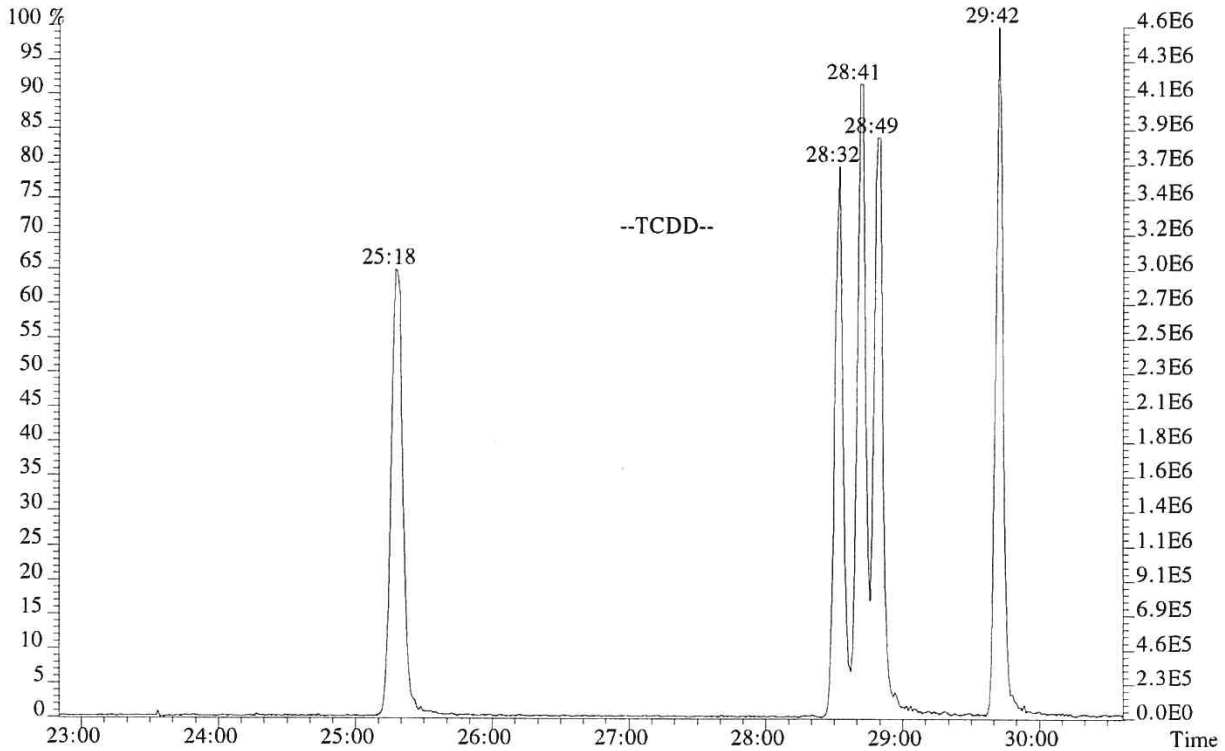
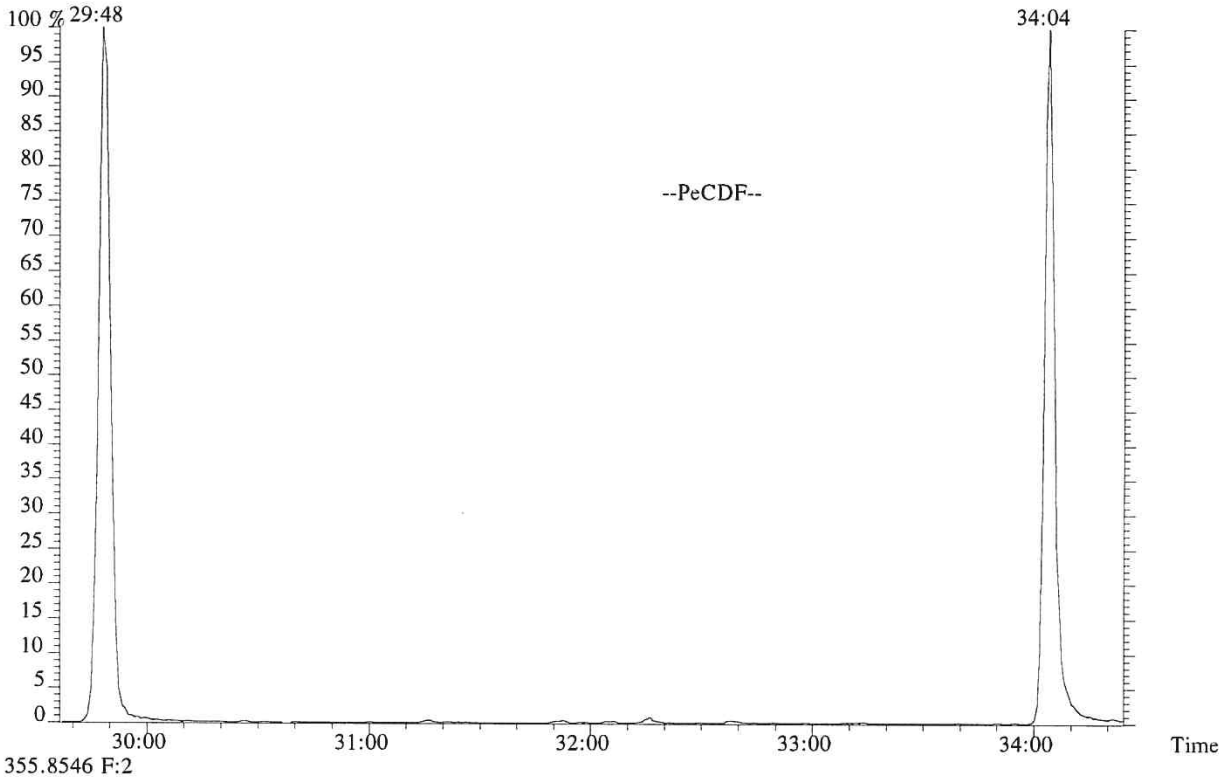
303.9016



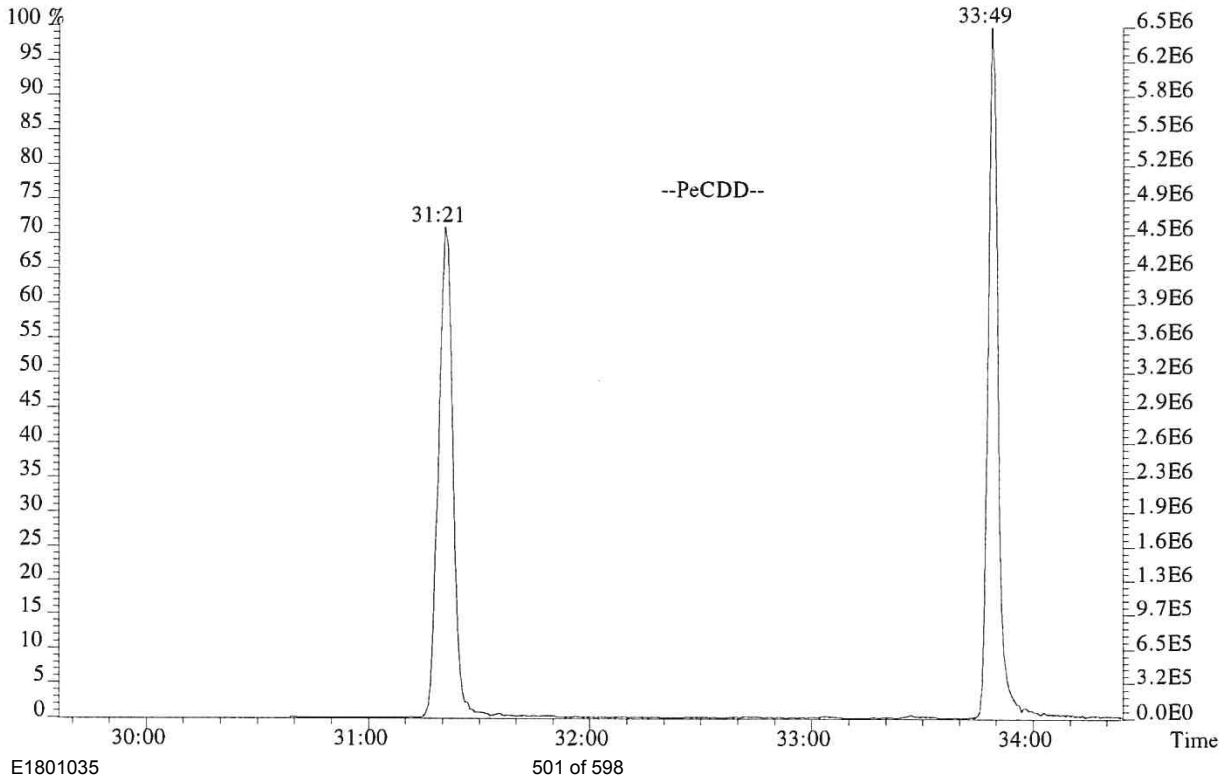
319.8965



File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

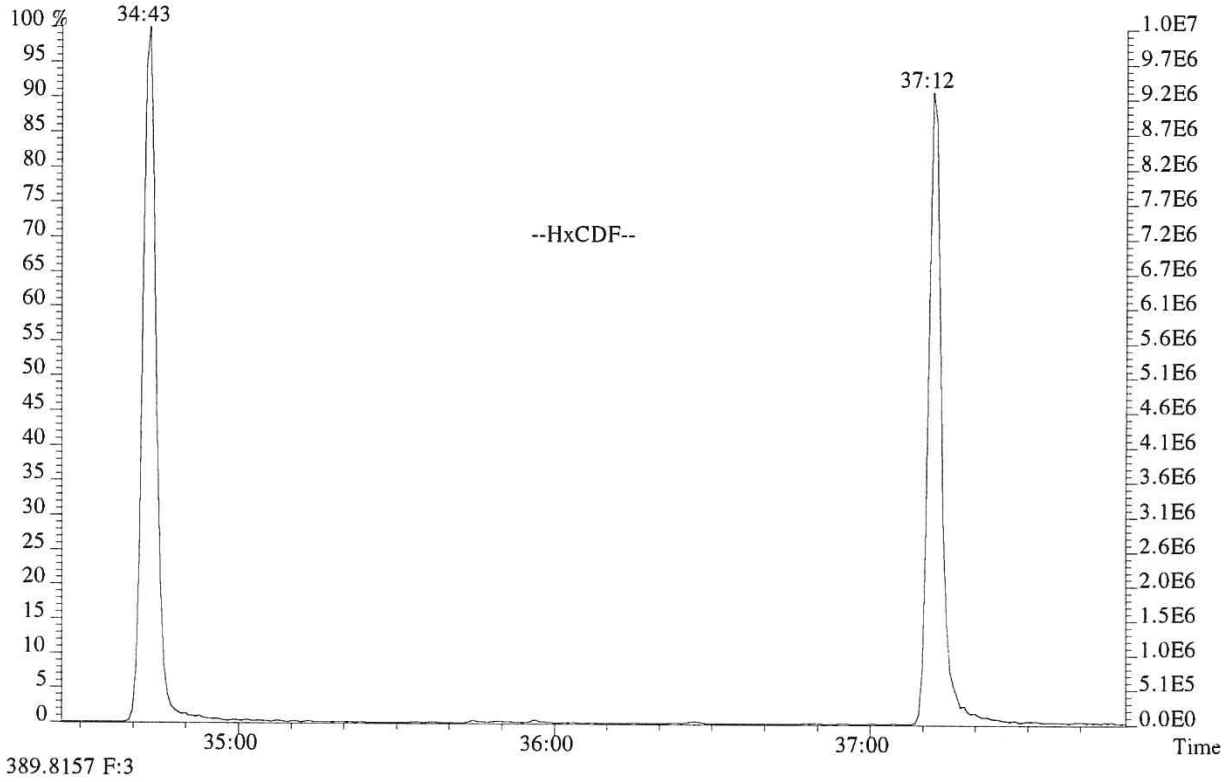


355.8546 F:2

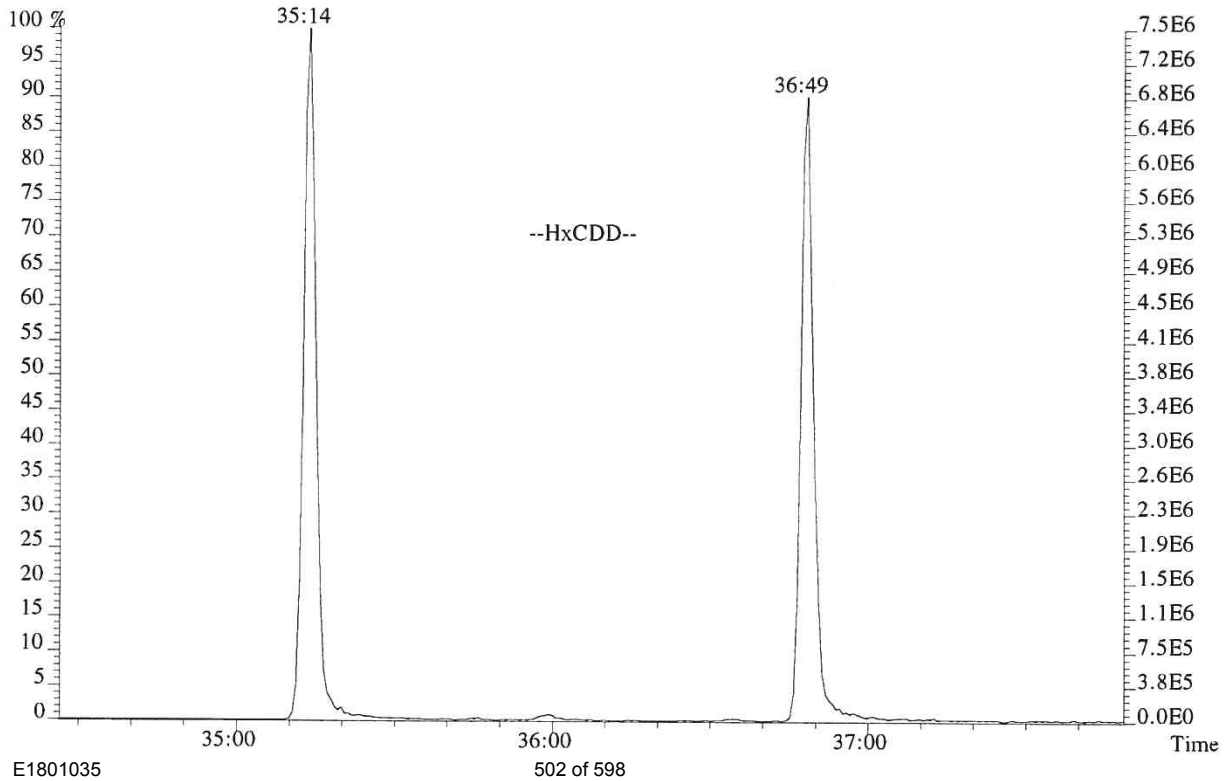


010834

File:P614680 #1-304 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

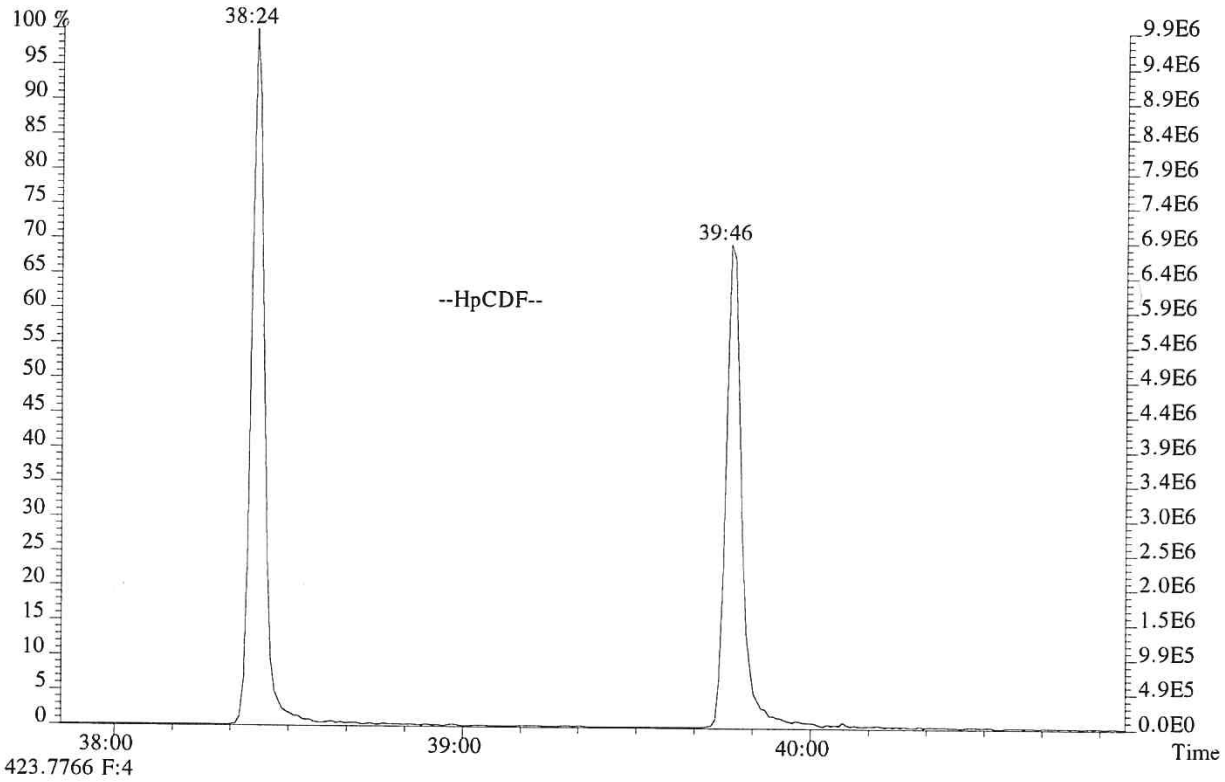


389.8157 F:3

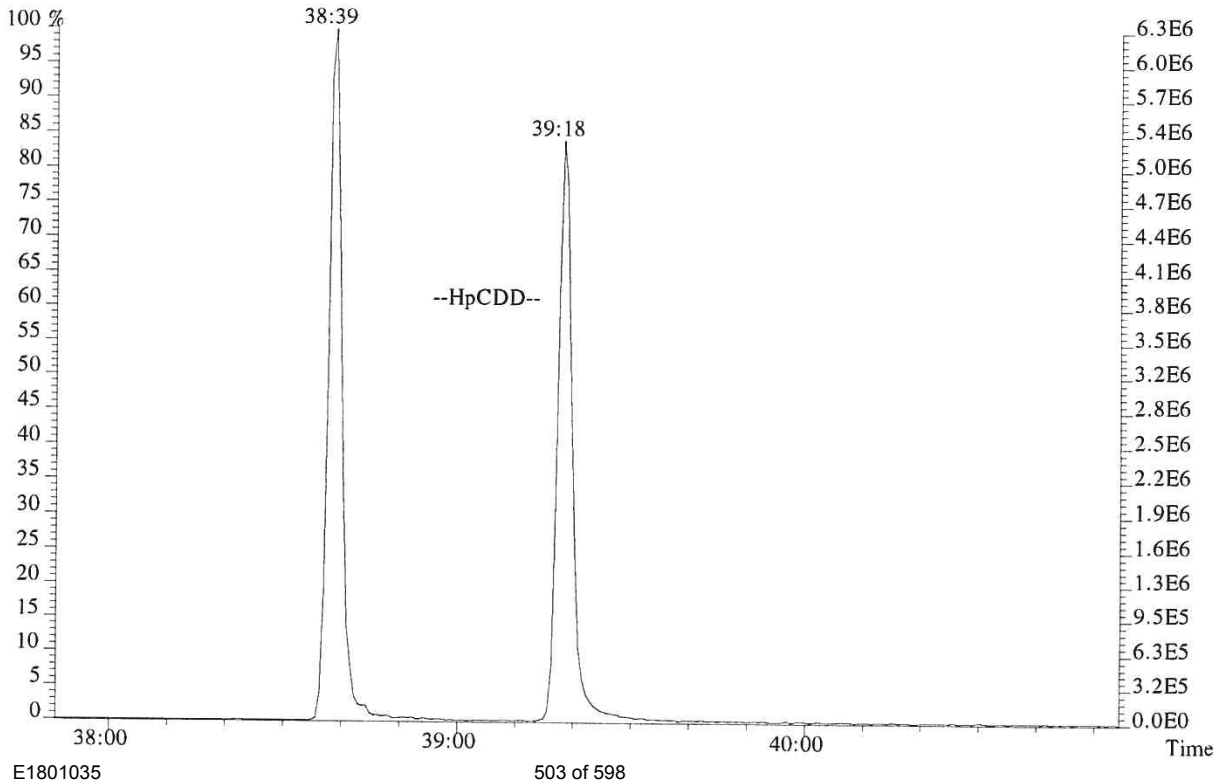


010835

File:P614680 #1-276 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



010836

USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

	RR/RRF						MEAN		
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.15	1.00	1.00	1.03	1.05	1.06	1.05	5.38	+/-20%
2,3,7,8-TCDF	1.13	1.08	1.12	1.05	1.06	1.05	1.08	3.07	+/-20%
1,2,3,7,8-PeCDF	1.16	1.17	1.12	1.15	1.16	1.18	1.16	1.72	+/-20%
1,2,3,7,8-PeCDD	0.89	0.95	0.95	0.91	0.93	0.93	0.93	2.61	+/-20%
2,3,4,7,8-PeCDF	1.10	1.13	1.10	1.08	1.10	1.11	1.10	1.49	+/-20%
1,2,3,4,7,8-HxCDF	1.47	1.46	1.39	1.36	1.38	1.42	1.42	3.10	+/-20%
1,2,3,6,7,8-HxCDF	1.27	1.36	1.30	1.28	1.28	1.28	1.29	2.52	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.11	1.04	1.06	1.05	1.06	1.07	3.00	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.07	1.06	1.06	1.06	1.05	1.06	0.70	+/-20%
1,2,3,7,8,9-HxCDD	1.17	1.18	1.12	1.13	1.14	1.12	1.15	2.24	+/-20%
2,3,4,6,7,8-HxCDF	1.27	1.32	1.29	1.28	1.27	1.27	1.28	1.52	+/-20%
1,2,3,7,8,9-HxCDF	1.34	1.34	1.29	1.30	1.30	1.30	1.31	1.68	+/-20%
1,2,3,4,6,7,8-HpCDF	1.56	1.60	1.46	1.50	1.51	1.51	1.52	3.15	+/-20%
1,2,3,4,6,7,8-HpCDD	1.14	1.13	1.09	1.10	1.10	1.11	1.11	1.85	+/-20%
1,2,3,4,7,8,9-HpCDF	1.47	1.54	1.46	1.45	1.43	1.43	1.46	2.80	+/-20%
OCDD	1.22	1.21	1.10	1.14	1.14	1.14	1.16	4.23	+/-20%
OCDF	1.60	1.61	1.49	1.57	1.57	1.59	1.57	2.60	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.98	0.97	0.97	1.00	1.01	0.98	2.13	+/-35%
13C-1,2,3,7,8-PeCDD	1.09	1.05	1.16	1.13	1.16	1.15	1.12	3.77	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.90	0.91	0.90	0.90	0.89	0.90	0.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.92	0.92	0.89	0.89	0.91	0.90	0.90	1.52	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.86	0.88	0.85	0.86	0.84	0.84	0.86	1.91	+/-35%
13C-OCDD	0.65	0.69	0.65	0.67	0.65	0.65	0.66	2.45	+/-35%
13C-2,3,7,8-TCDF	1.40	1.41	1.42	1.44	1.40	1.43	1.42	1.24	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.54	1.61	1.61	1.65	1.63	1.60	3.24	+/-35%
13C-2,3,4,7,8-PeCDF	1.52	1.49	1.60	1.57	1.63	1.61	1.57	3.42	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.18	1.19	1.14	1.21	1.18	1.06	1.16	4.58	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.39	1.34	1.33	1.35	1.31	1.29	1.34	2.46	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.24	1.24	1.25	1.24	1.25	1.06	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.13	1.13	1.12	1.15	1.15	1.10	1.13	1.66	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.06	1.02	1.04	1.01	1.01	1.03	1.93	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.94	0.95	0.90	0.86	0.90	0.88	0.91	3.64	+/-35%
37Cl-2,3,7,8-TCDD	1.06	1.11	1.07	1.05	1.11	1.13	1.09	3.15	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP

6DFB6

CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY

HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC lIMITS
2,3,7,8-TCDF	304/306	0.75	0.75	0.83	0.80	0.79	0.80		0.65-0.89
2,3,7,8-TCDD	320/322	0.78	0.83	0.80	0.78	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.58	1.57	1.58	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.57	1.61	1.57	1.58	1.59	1.59		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.56	1.52	1.53	1.55	1.55	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.26	1.28	1.29		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.24	1.25	1.27	1.27	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.29	1.25	1.28	1.28	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.22	1.29	1.23	1.28	1.28	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.21	1.20	1.26	1.33	1.26	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.41	1.27	1.25	1.23	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.22	1.25	1.24	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.04	1.02	1.06	1.05	1.04	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.89	1.07	1.05	1.04	1.05	1.05		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.10	1.07	1.07	1.06	1.06	1.06		0.88-1.20
OCDF	442/444	0.90	0.87	0.91	0.92	0.93	0.92		0.76-1.02
OCDD	458/460	0.93	0.89	0.88	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.80	0.80	0.80	0.80	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.58	1.57	1.58	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.26	1.26	1.32	1.25	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.26	1.26	1.20	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.04	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.91	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.80	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.60	1.60	1.60	1.60		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.62	1.61	1.59	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.54	0.54	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.54	0.54	0.53	0.54	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.53	0.54	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.46	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.46	0.45	0.46	0.45	0.46		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.81	0.81	0.80	0.79	0.81		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.26	1.26	1.24	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.991e+02	5.332e+02	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.245e+03	1.970e+03	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:10	3.017e+03	1.917e+03	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.964e+03	2.360e+03	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.032e+03	2.349e+03	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.788e+03	2.154e+03	1.29	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.544e+03	2.080e+03	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.520e+03	2.421e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.988e+03	2.226e+03	0.89	yes	no	1.463
10	Unk	OCDF	42:13	3.006e+03	3.322e+03	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:49	2.873e+02	3.690e+02	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.757e+03	1.126e+03	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.695e+03	1.402e+03	1.21	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.736e+03	1.234e+03	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.790e+03	1.494e+03	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.575e+03	1.438e+03	1.10	yes	no	1.112
17	Unk	OCDD	42:01	2.333e+03	2.510e+03	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	28:00	1.453e+05	1.860e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.225e+05	1.378e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.208e+05	1.389e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	1.017e+05	1.873e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.172e+05	2.227e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.097e+05	2.020e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.463e+04	1.814e+05	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	7.990e+04	1.736e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	7.243e+04	1.569e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.005e+05	1.270e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.588e+05	1.004e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.251e+05	9.838e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.252e+05	9.893e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.083e+05	1.026e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:01	1.503e+05	1.668e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.058e+05	1.311e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.355e+05	1.094e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.272e+02				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+04	1.79e+03	3.7e+01	1.00e+05	4.41e+03	2.3e+01
2	1,2,3,7,8-PeCDF	5.99e+05	1.18e+03	5.1e+02	3.57e+05	4.28e+03	8.3e+01
3	2,3,4,7,8-PeCDF	5.69e+05	1.18e+03	4.8e+02	3.70e+05	4.28e+03	8.7e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.85e+05	1.42e+03	3.4e+02
5	1,2,3,6,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.95e+05	1.42e+03	3.5e+02
6	2,3,4,6,7,8-HxCDF	6.03e+05	3.25e+03	1.9e+02	4.83e+05	1.42e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	4.97e+05	3.25e+03	1.5e+02	4.13e+05	1.42e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.62e+05	1.66e+03	3.4e+02	5.47e+05	1.04e+03	5.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.66e+03	2.4e+02	4.51e+05	1.04e+03	4.3e+02
10	OCDF	5.23e+05	1.34e+03	3.9e+02	5.81e+05	4.02e+03	1.4e+02
11	2,3,7,8-TCDD	6.18e+04	5.07e+03	1.2e+01	6.68e+04	2.40e+03	2.8e+01
12	1,2,3,7,8-PeCDD	3.47e+05	2.36e+03	1.5e+02	2.20e+05	2.64e+02	8.3e+02
13	1,2,3,4,7,8-HxCDD	3.95e+05	1.84e+03	2.1e+02	3.18e+05	1.66e+03	1.9e+02
14	1,2,3,6,7,8-HxCDD	3.64e+05	1.84e+03	2.0e+02	2.60e+05	1.66e+03	1.6e+02
15	1,2,3,7,8,9-HxCDD	4.06e+05	1.84e+03	2.2e+02	3.23e+05	1.66e+03	1.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.19e+05	2.32e+03	1.4e+02	3.31e+05	1.19e+03	2.8e+02
17	OCDD	4.28e+05	8.48e+02	5.0e+02	4.37e+05	1.30e+03	3.4e+02
18	13C-2,3,7,8-TCDF	2.54e+07	1.52e+04	1.7e+03	3.22e+07	1.06e+04	3.1e+03
19	13C-1,2,3,7,8-PeCDF	4.04e+07	2.12e+03	1.9e+04	2.49e+07	3.13e+03	8.0e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+07	2.12e+03	2.0e+04	2.67e+07	3.13e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.18e+07	3.28e+03	6.7e+03	4.05e+07	3.71e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.40e+07	3.28e+03	7.3e+03	4.55e+07	3.71e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.42e+07	3.28e+03	7.4e+03	4.44e+07	3.71e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.91e+07	3.28e+03	5.8e+03	3.68e+07	3.71e+03	9.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+07	5.66e+03	3.2e+03	3.90e+07	2.05e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+07	5.66e+03	2.6e+03	3.15e+07	2.05e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.84e+07	1.55e+04	1.2e+03	2.34e+07	5.32e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+07	3.24e+03	9.6e+03	1.95e+07	2.82e+03	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	5.20e+03	5.5e+03	2.24e+07	3.08e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+07	5.20e+03	5.1e+03	2.10e+07	3.08e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	2.60e+03	8.7e+03	2.13e+07	2.03e+03	1.1e+04
32	13C-OCDD	2.73e+07	1.56e+03	1.8e+04	2.99e+07	4.32e+02	6.9e+04
33	13C-1,2,3,4-TCDD	1.96e+07	1.55e+04	1.3e+03	2.41e+07	5.32e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+07	5.20e+03	5.8e+03	2.40e+07	3.08e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.12e+05	4.66e+03	2.4e+01			

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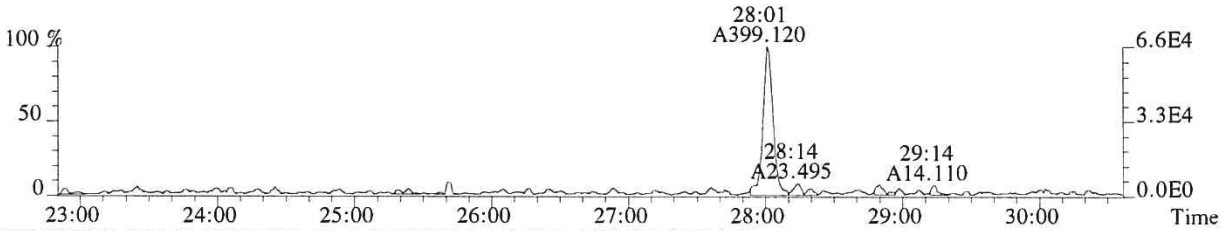
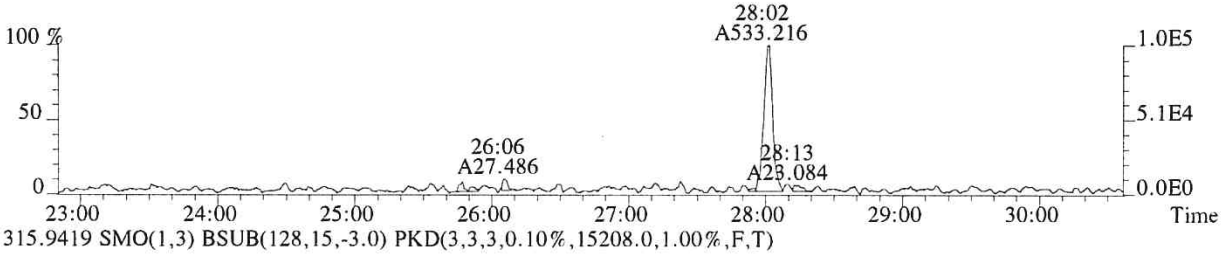
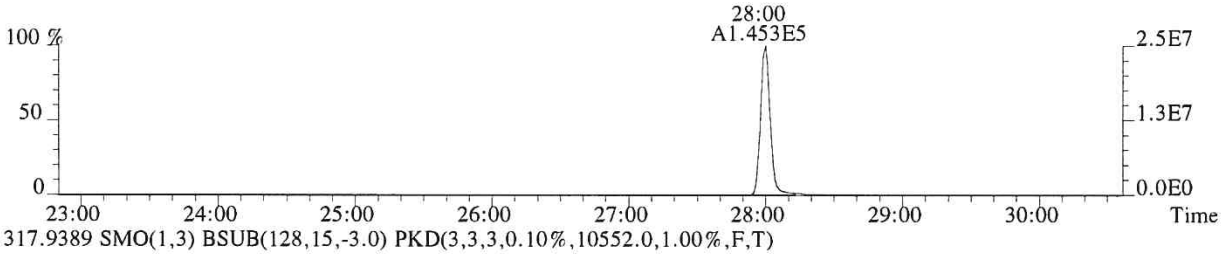
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



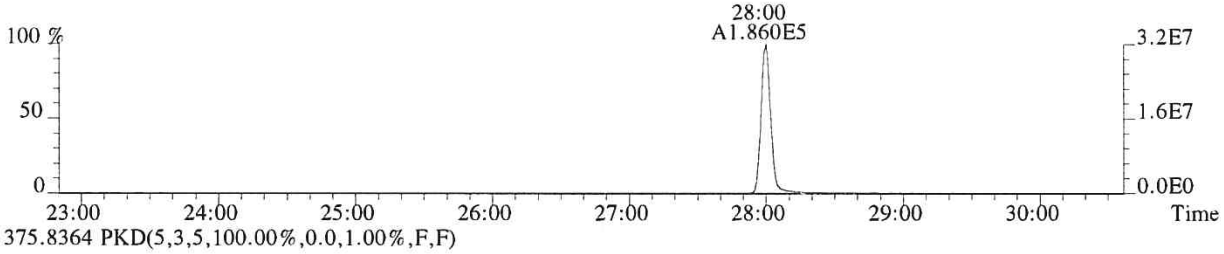
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



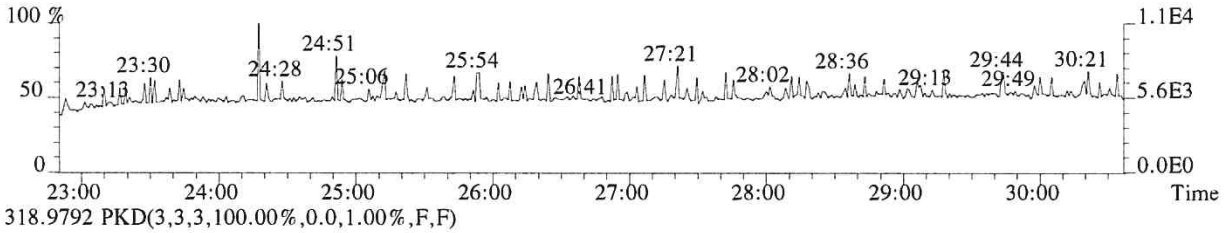
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15208.0,1.00%,F,T)



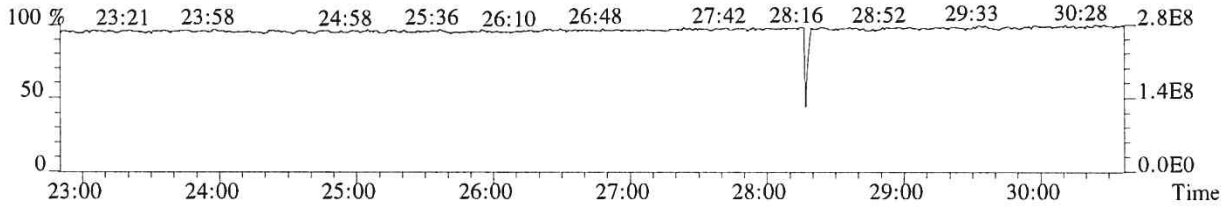
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

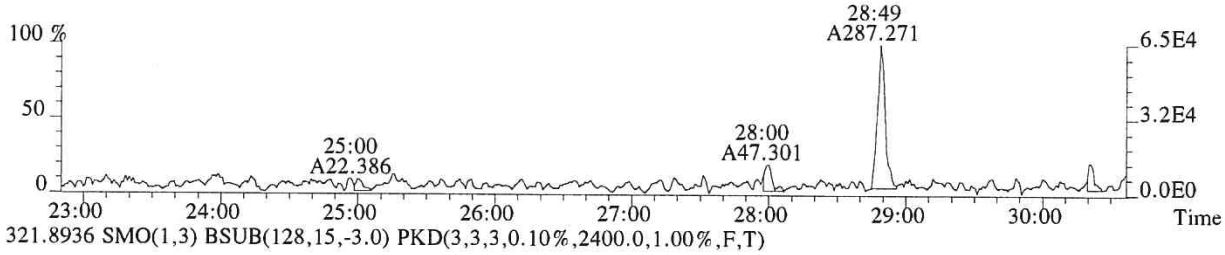


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

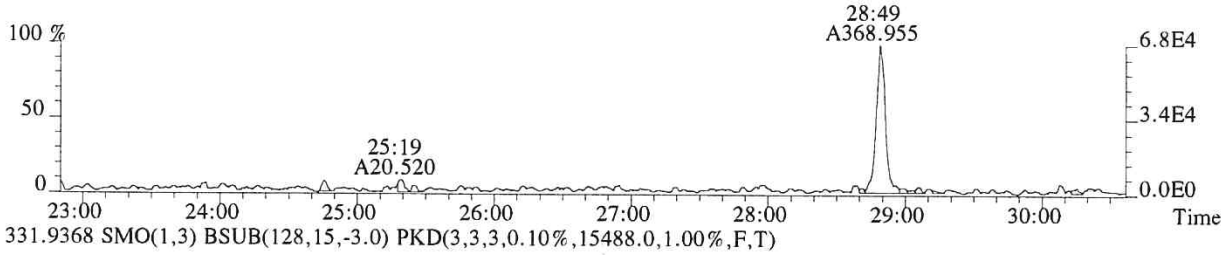


010841

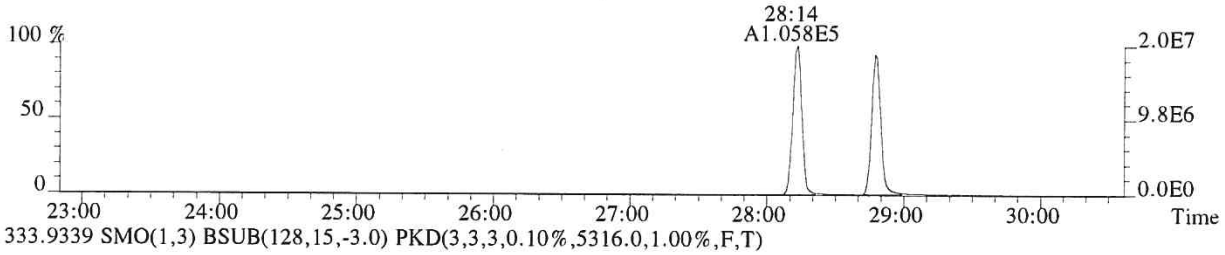
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5072.0,1.00%,F,T)



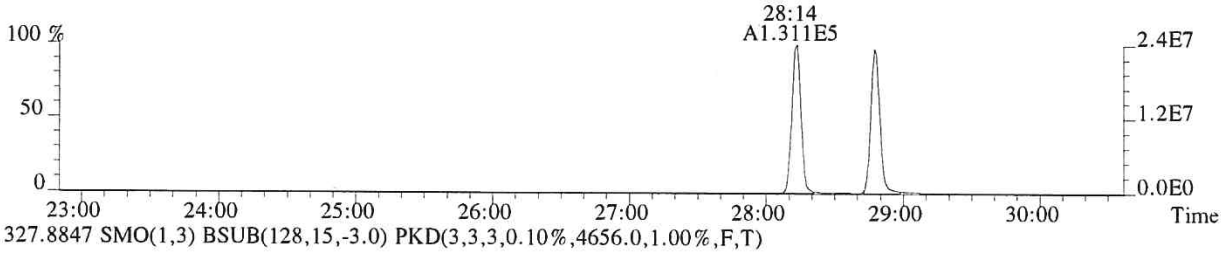
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



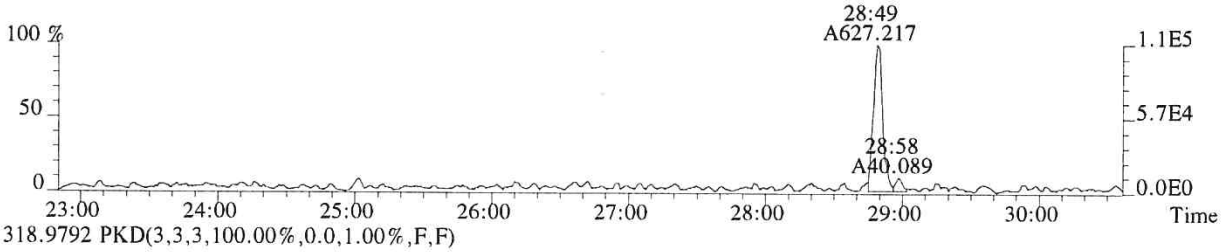
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15488.0,1.00%,F,T)



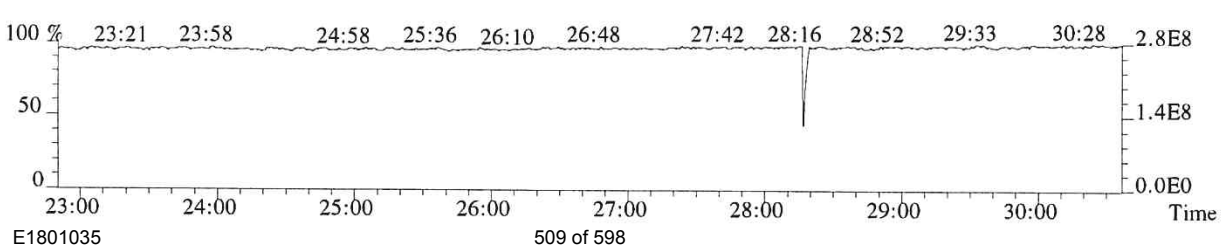
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5316.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)

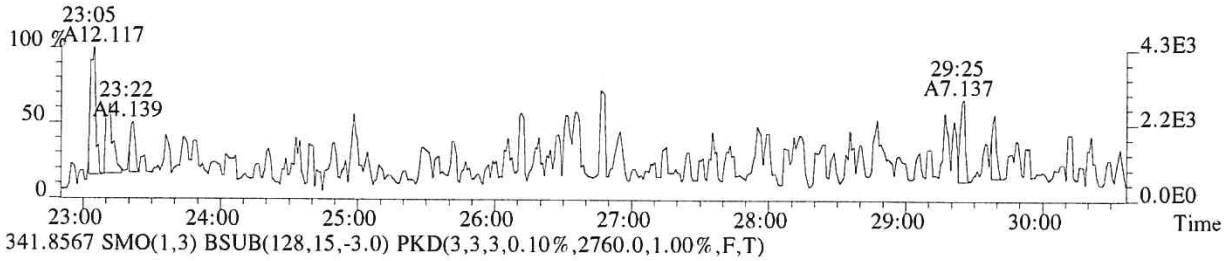


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

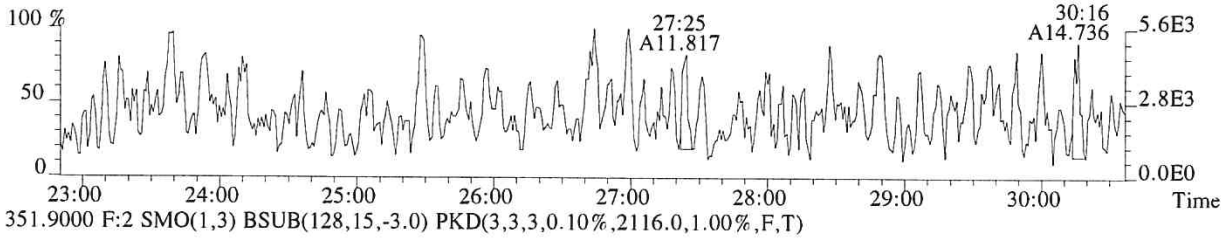


010842

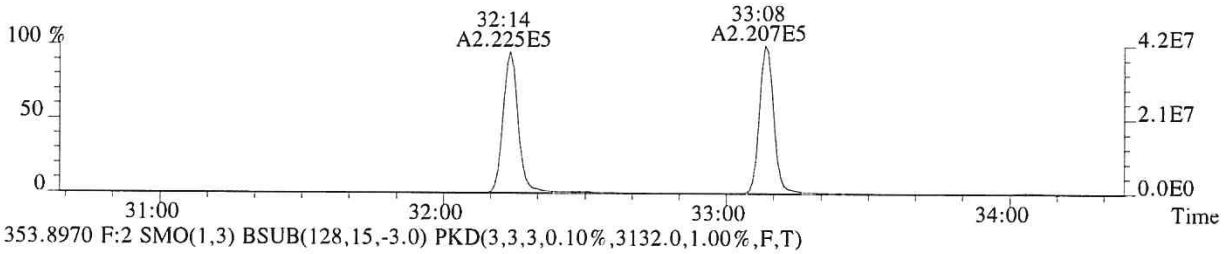
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



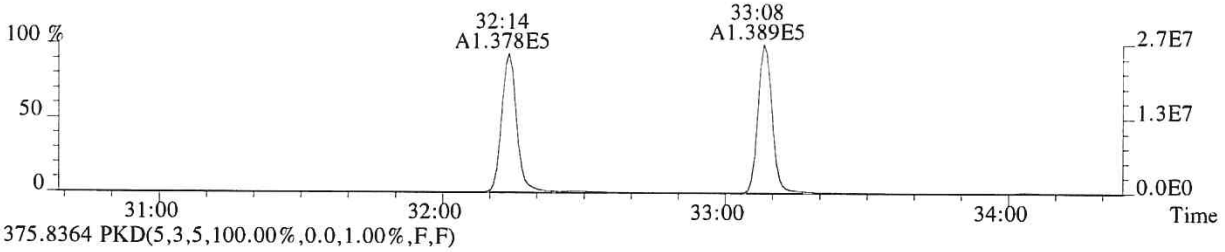
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



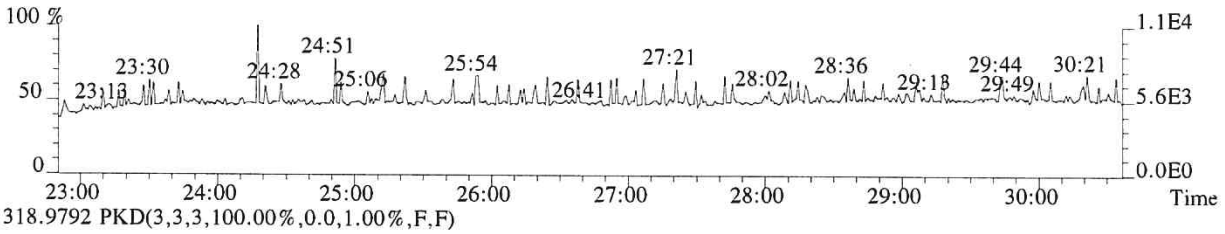
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



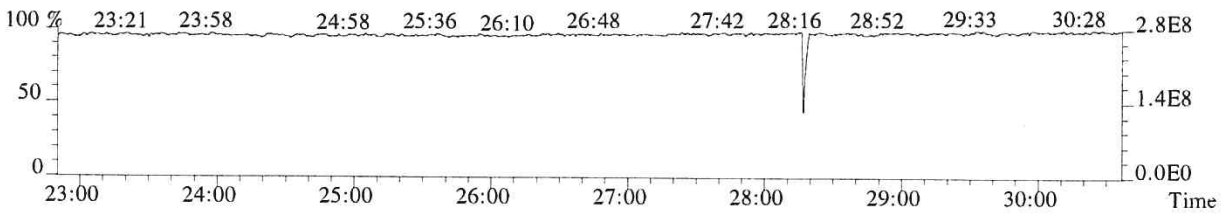
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

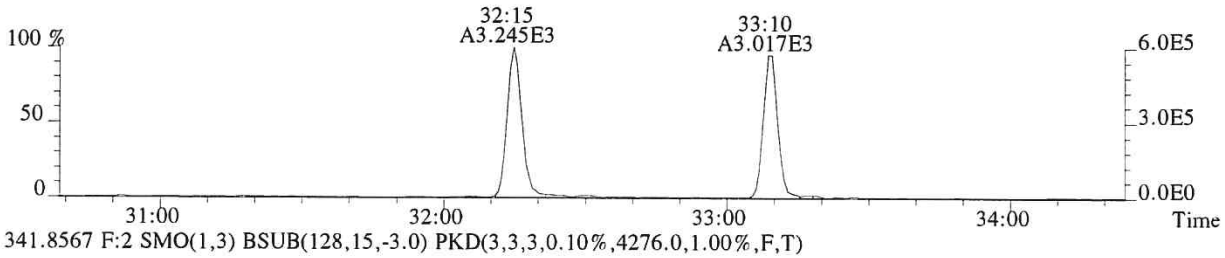


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

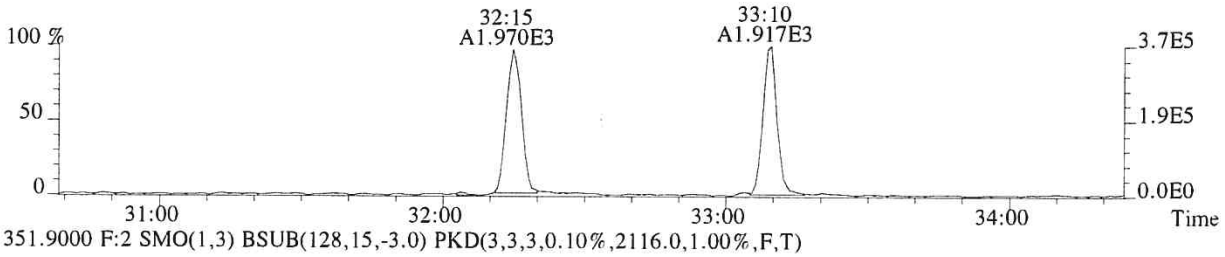


010843

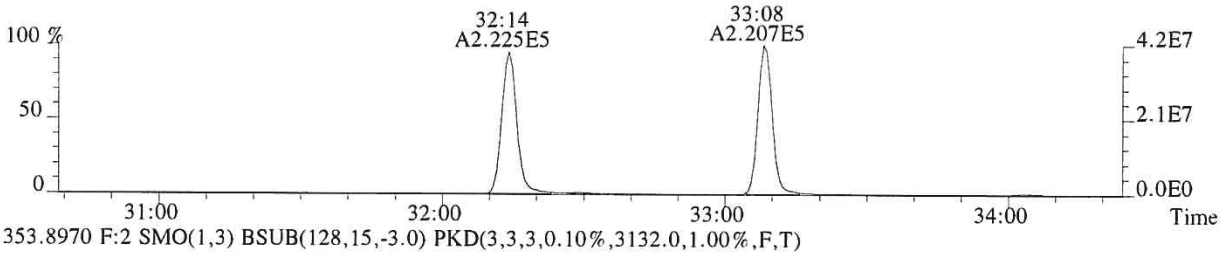
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



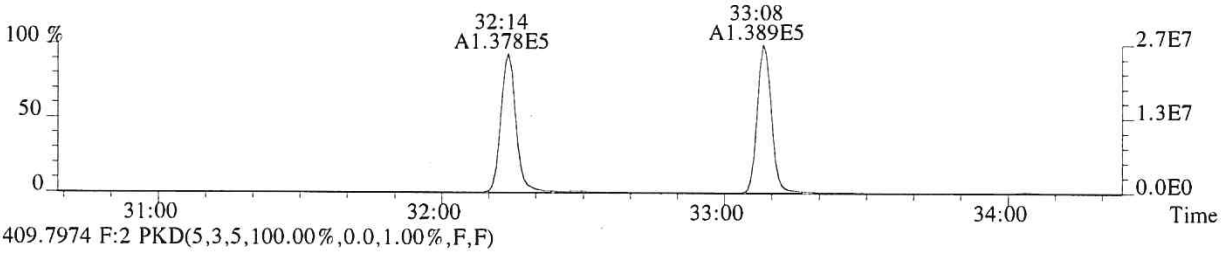
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4276.0,1.00%,F,T)



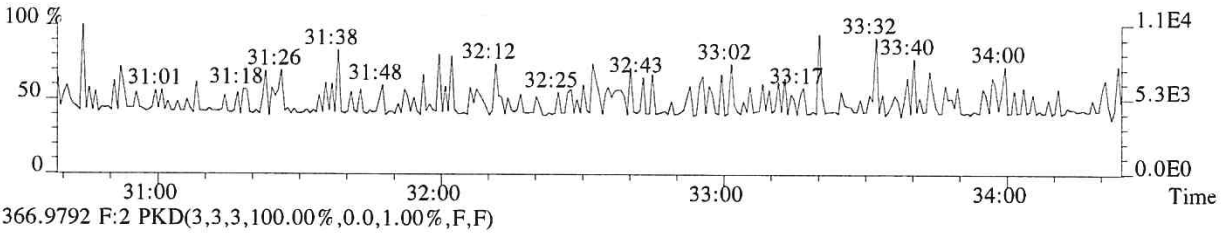
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



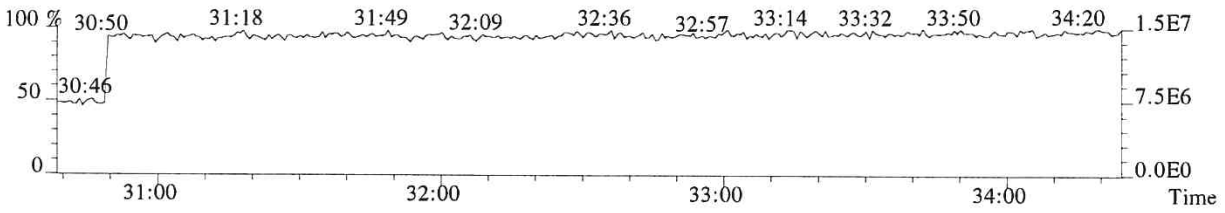
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

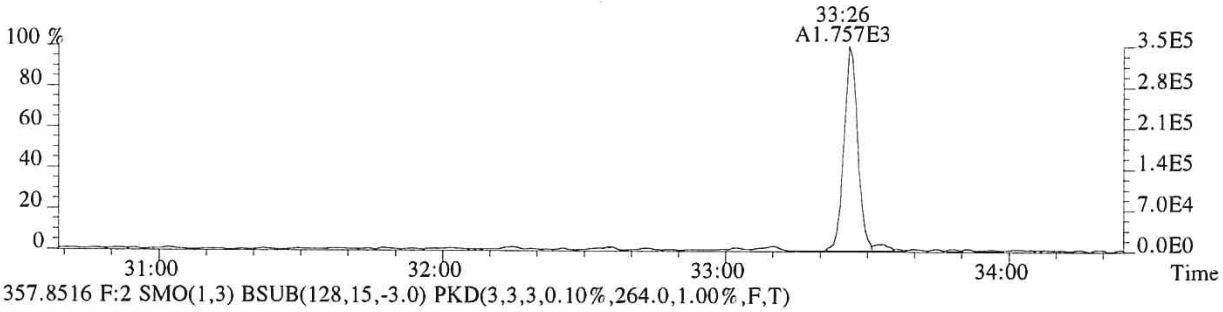


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

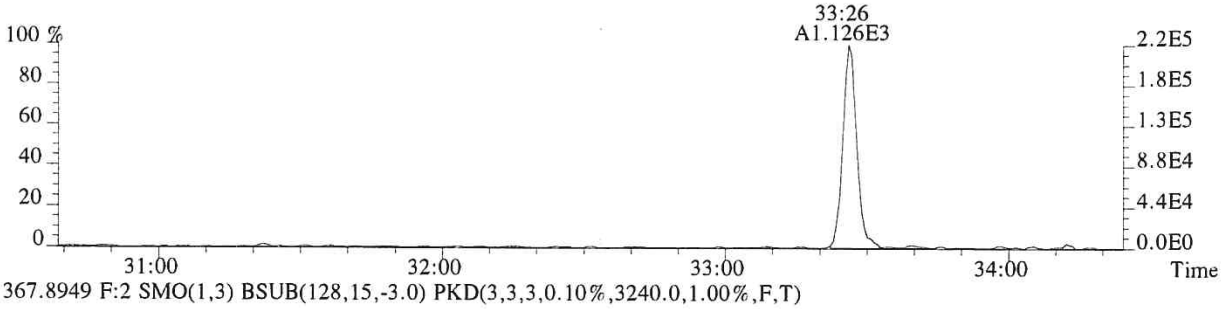


010844

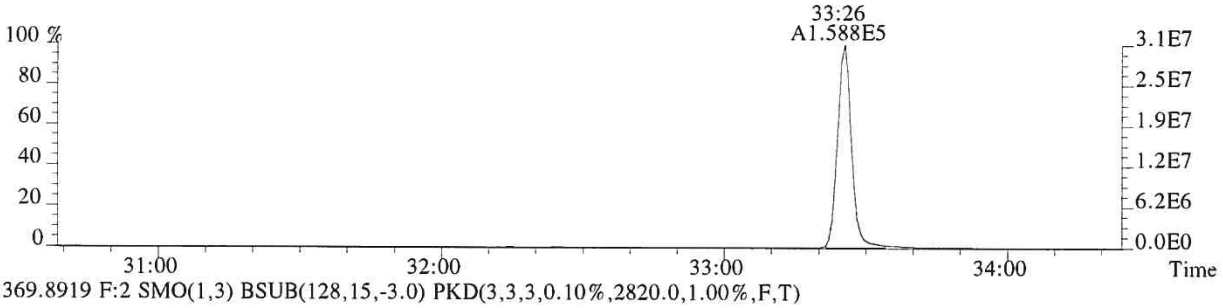
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



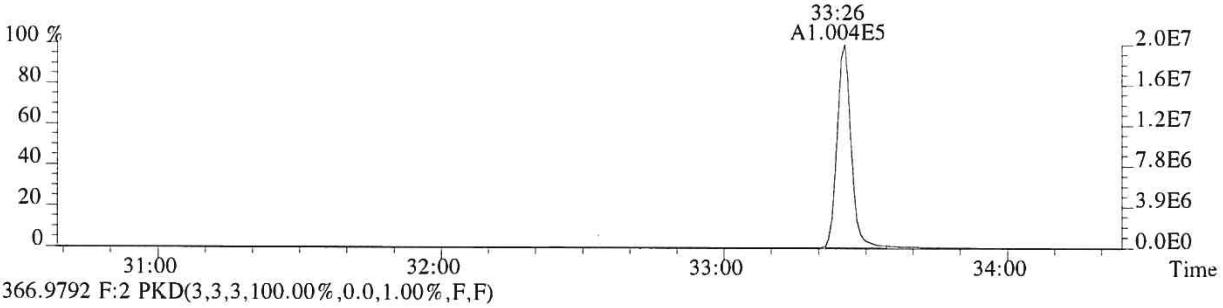
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



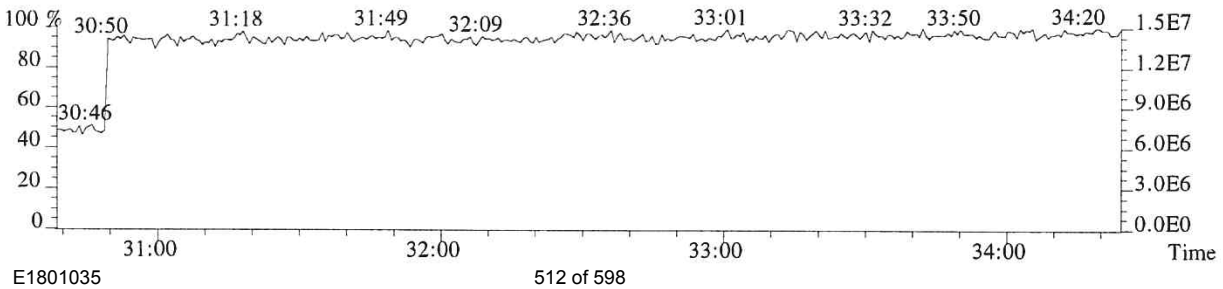
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



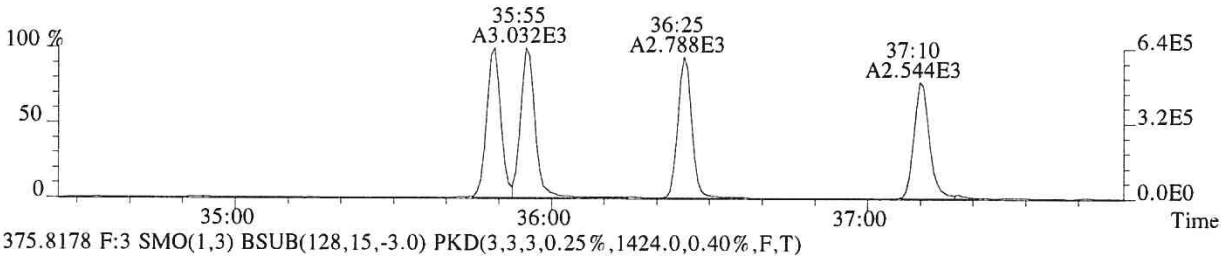
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



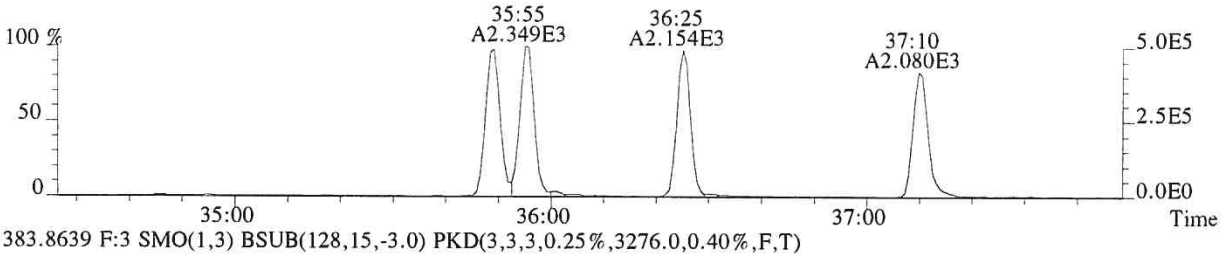
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



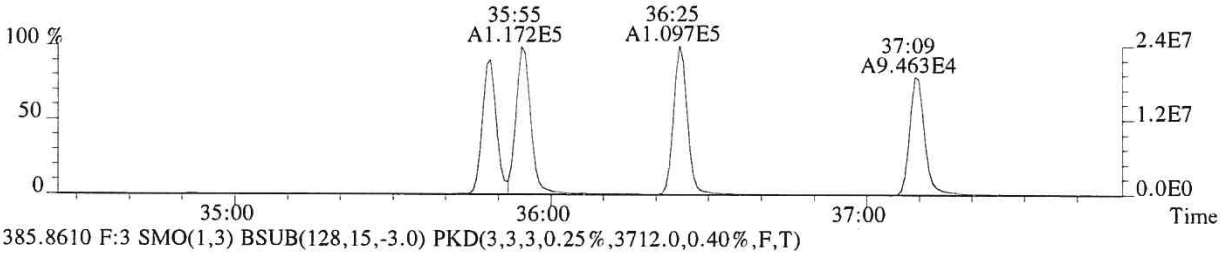
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.40%,F,T)



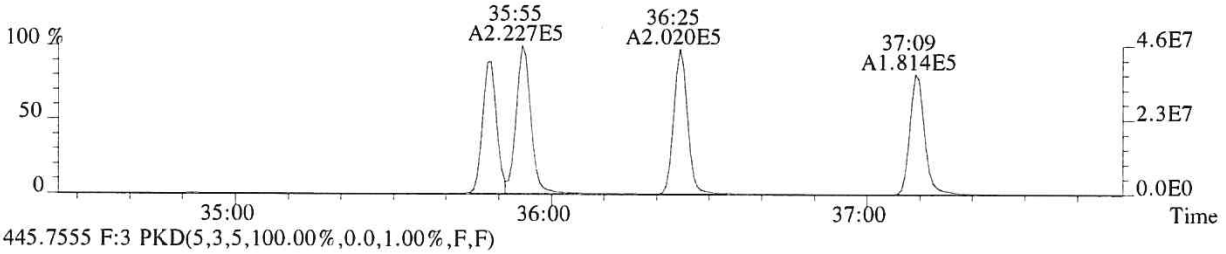
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



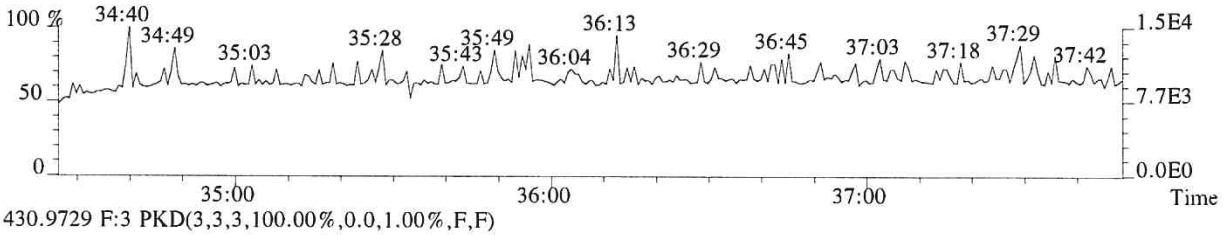
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



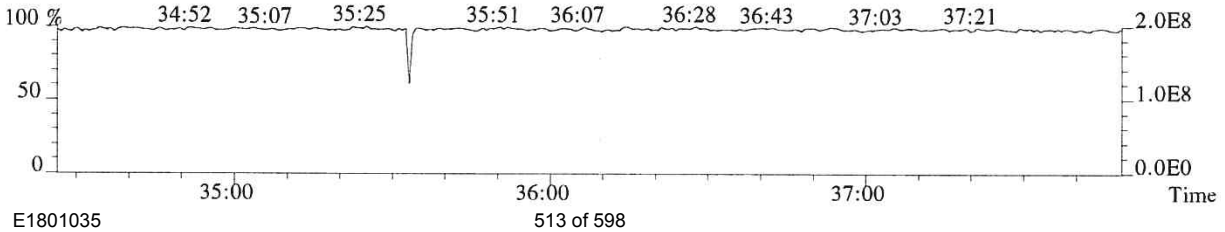
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.40%,F,T)



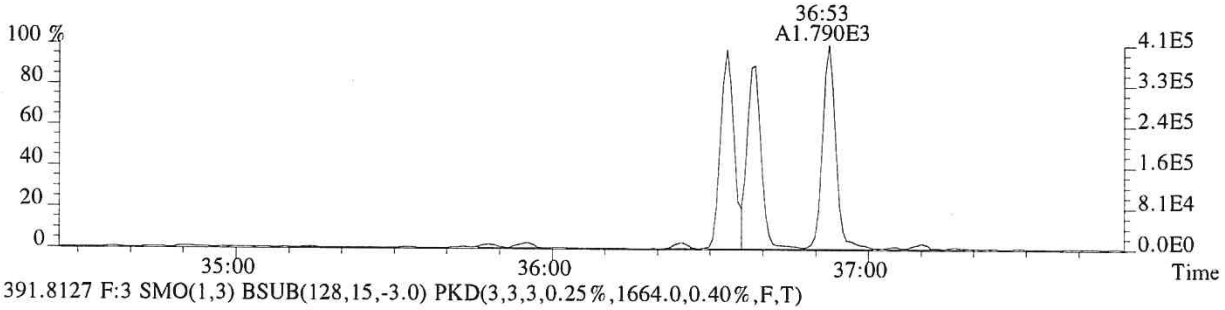
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



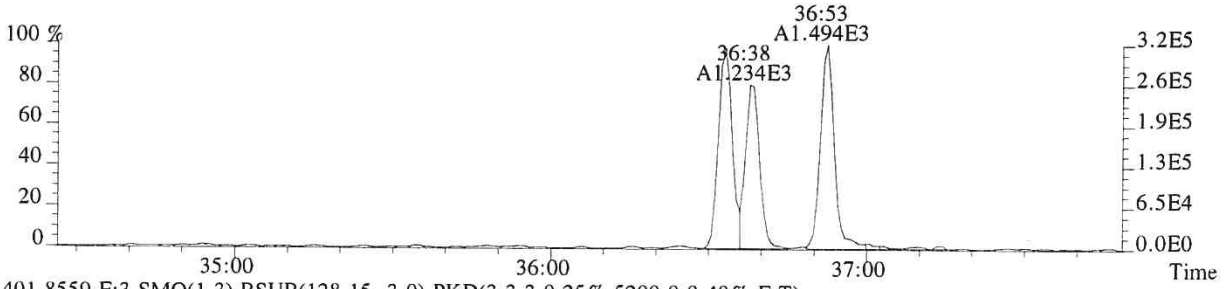
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



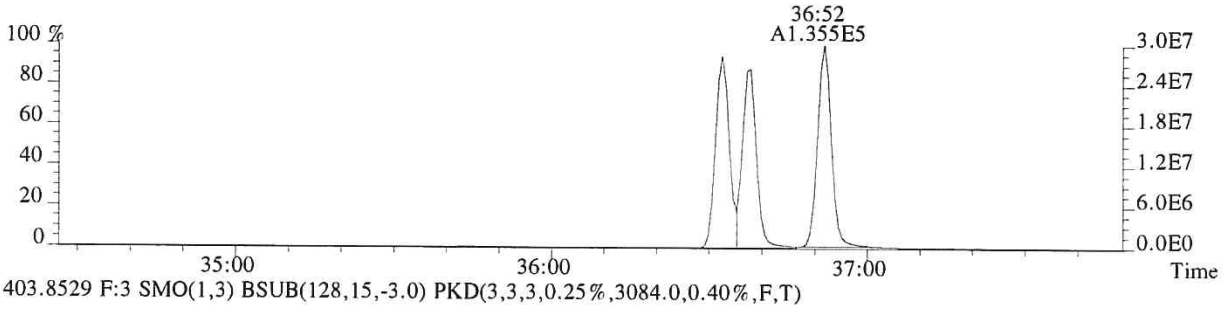
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



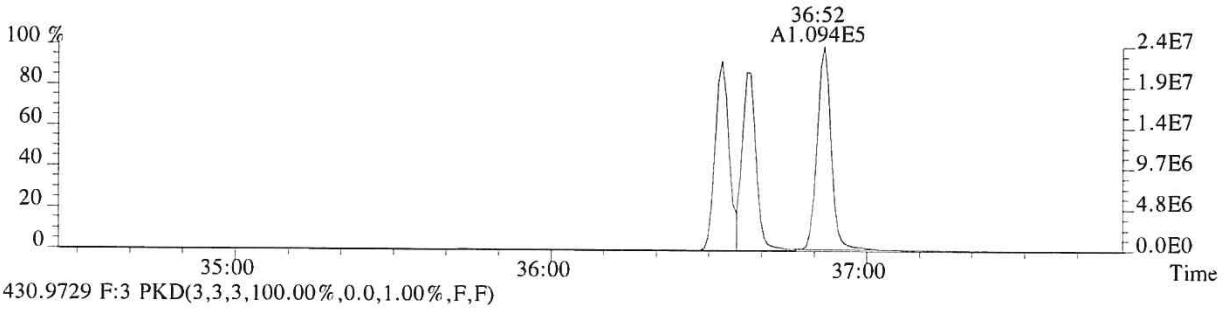
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



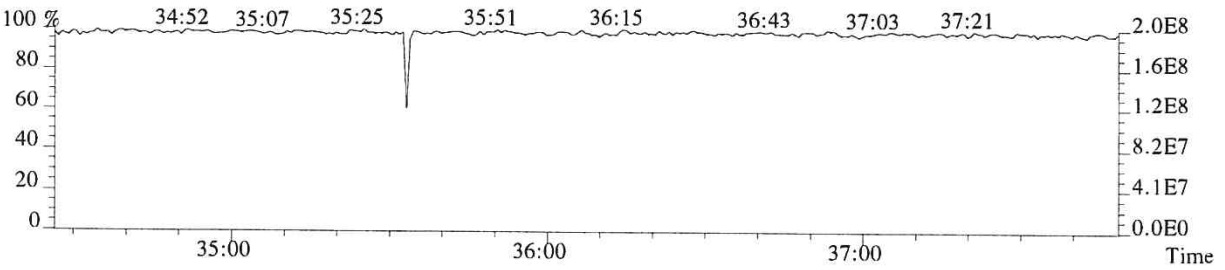
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5200.0,0.40%,F,T)



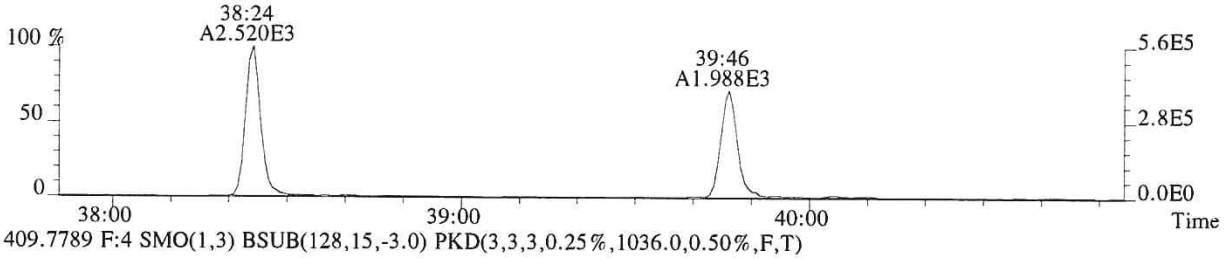
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



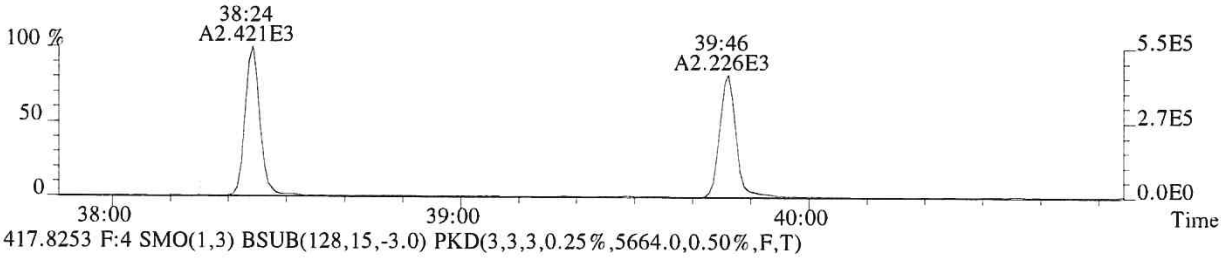
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



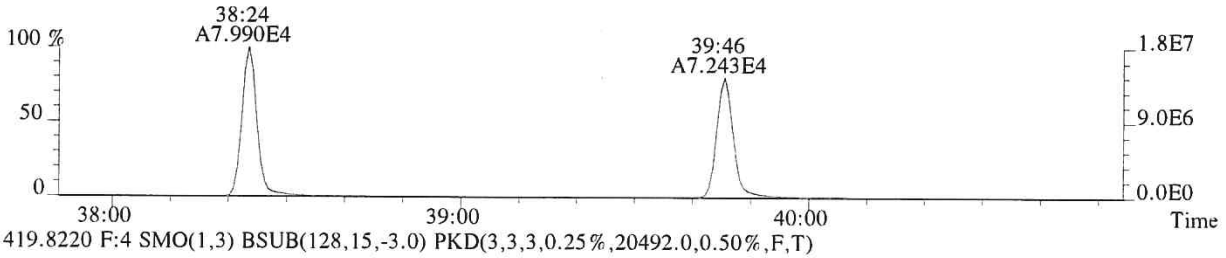
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.50%,F,T)



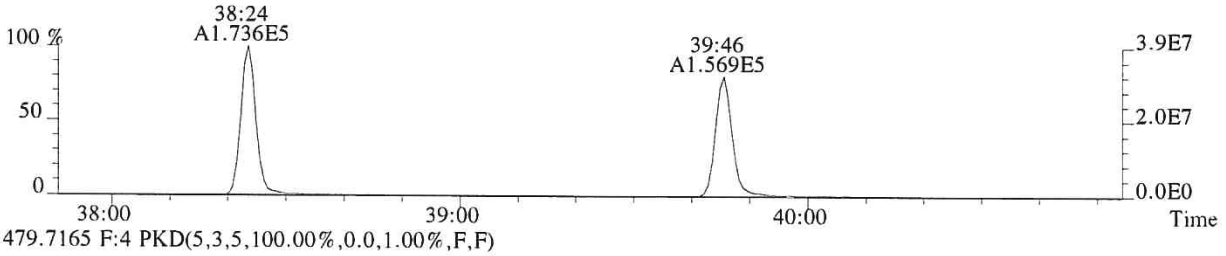
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



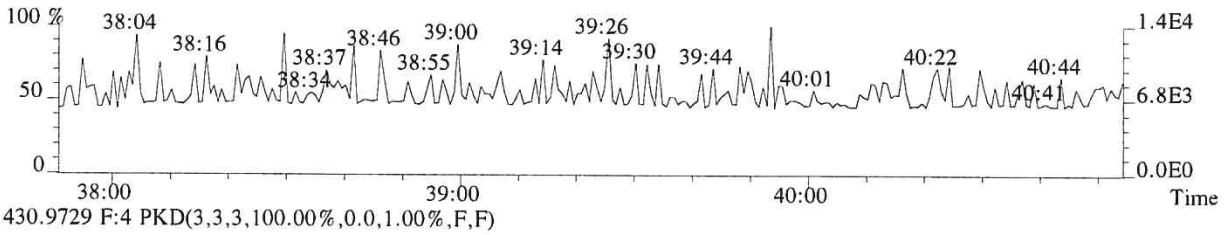
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5664.0,0.50%,F,T)



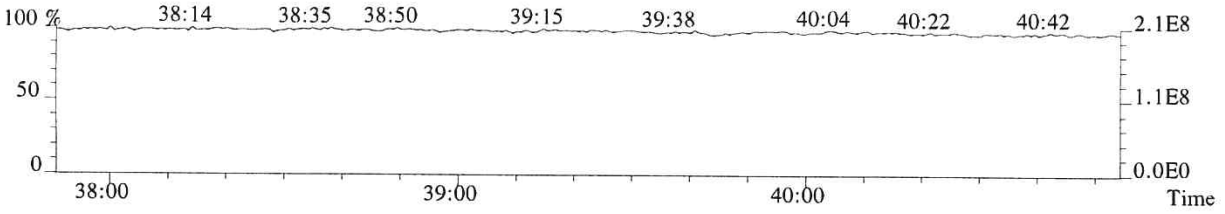
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20492.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

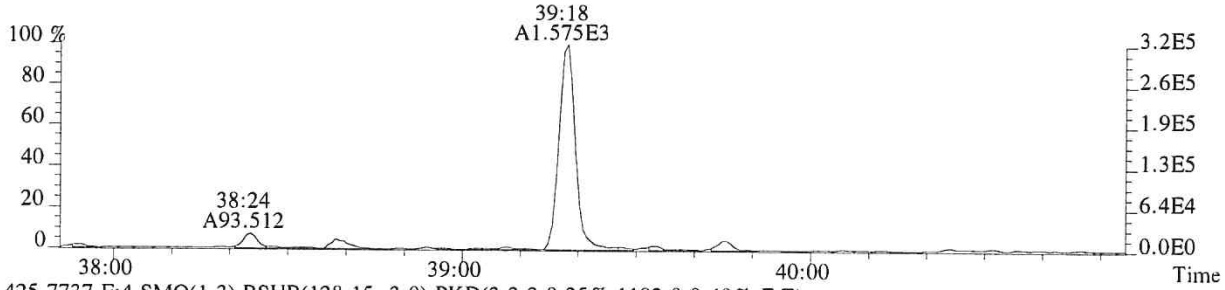


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

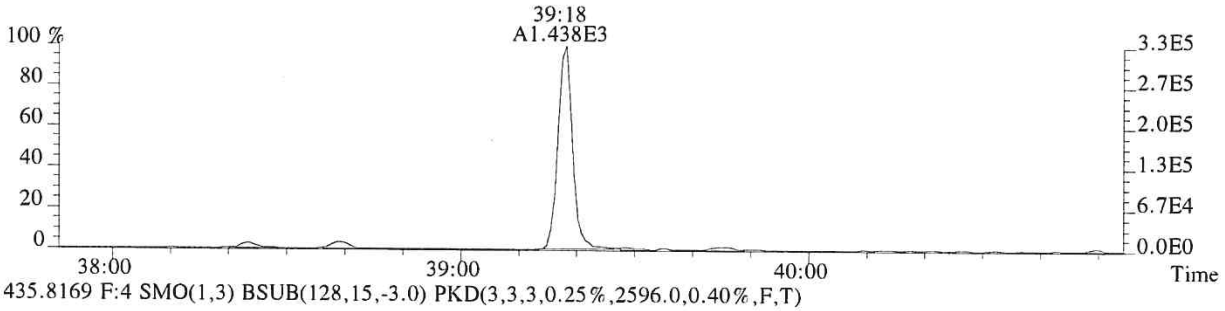


010848

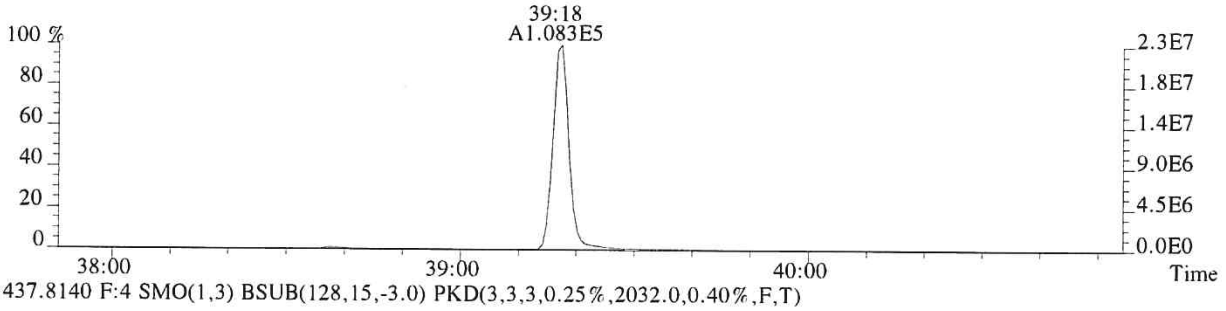
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



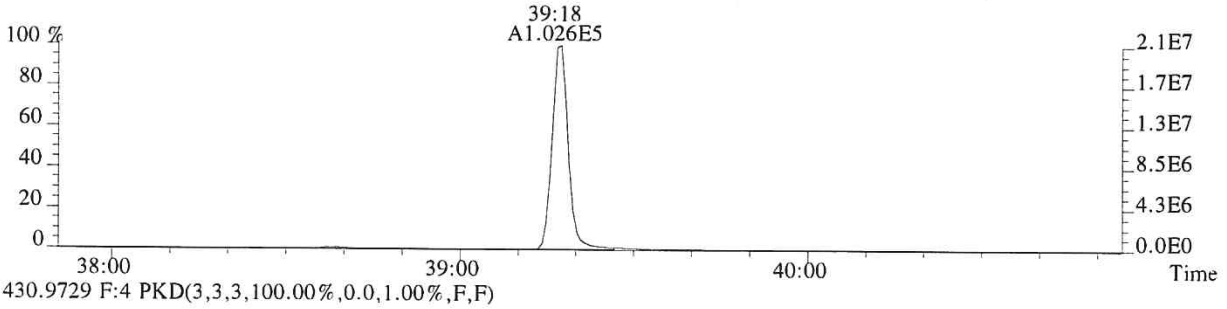
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



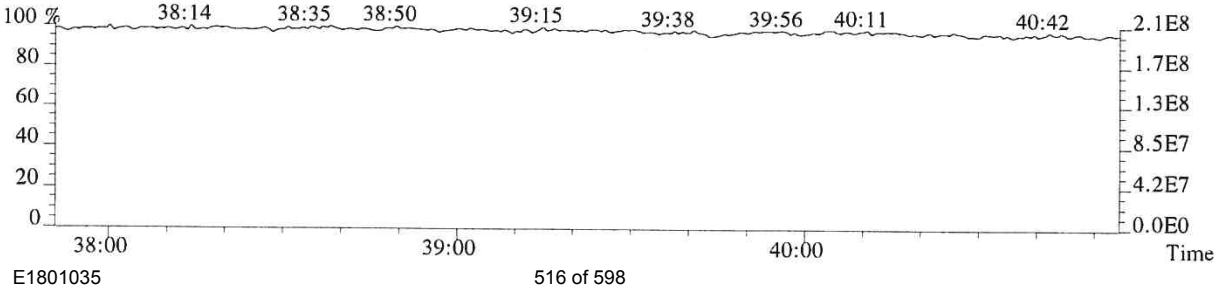
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.40%,F,T)



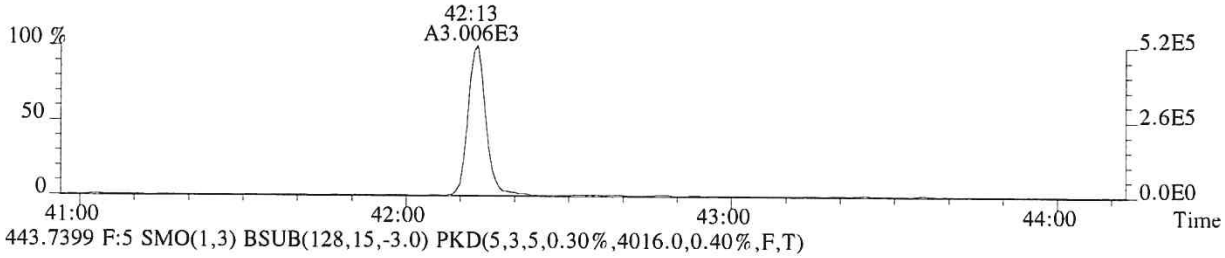
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



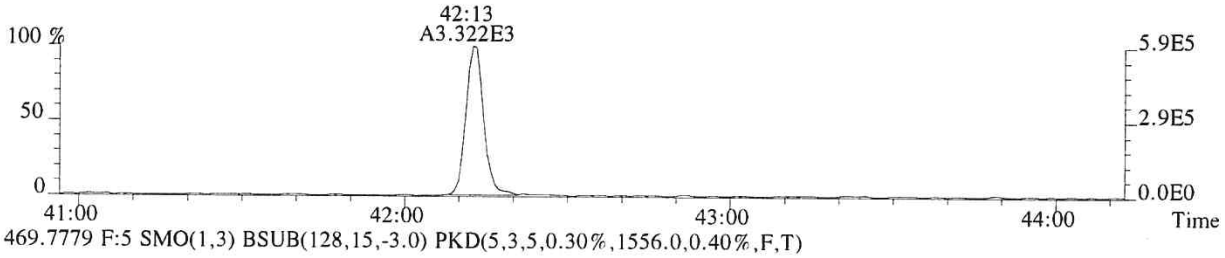
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



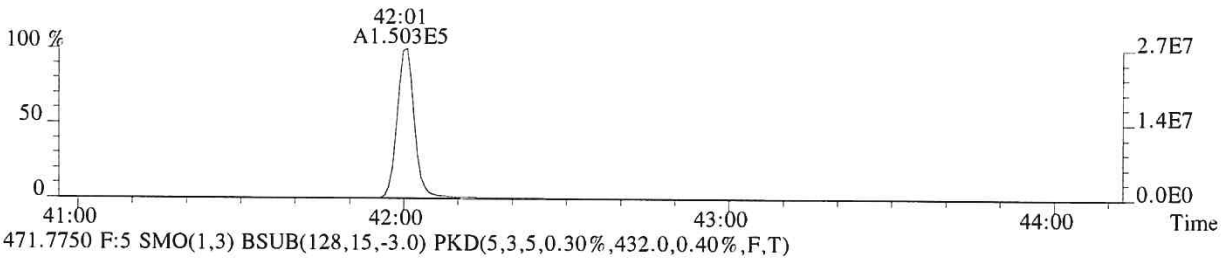
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



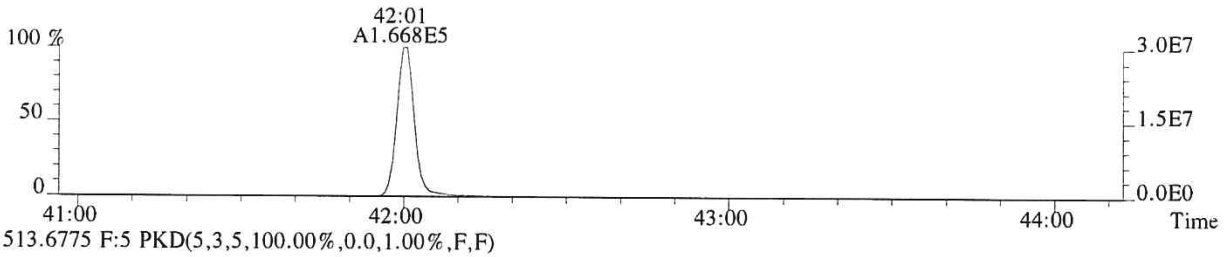
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4016.0,0.40%,F,T)



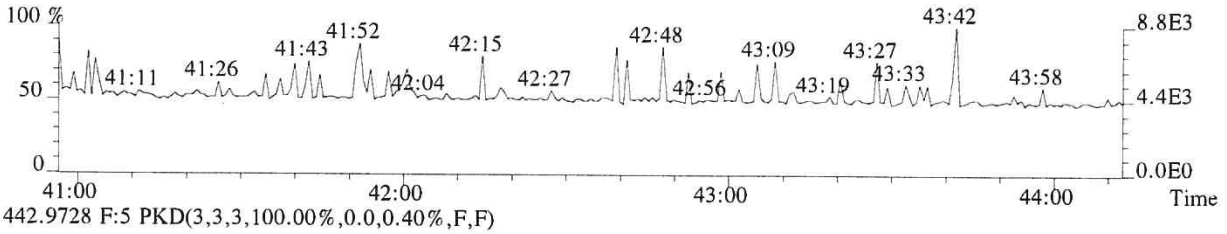
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



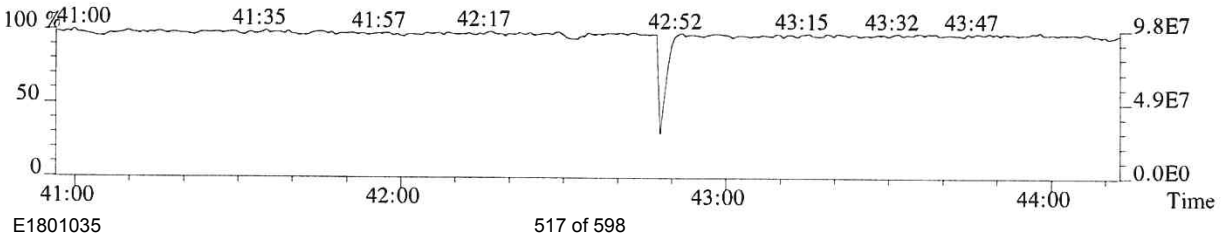
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

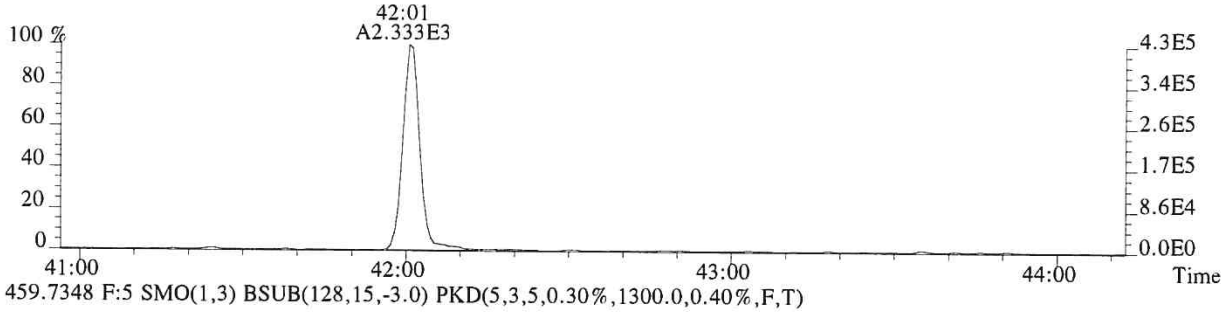


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

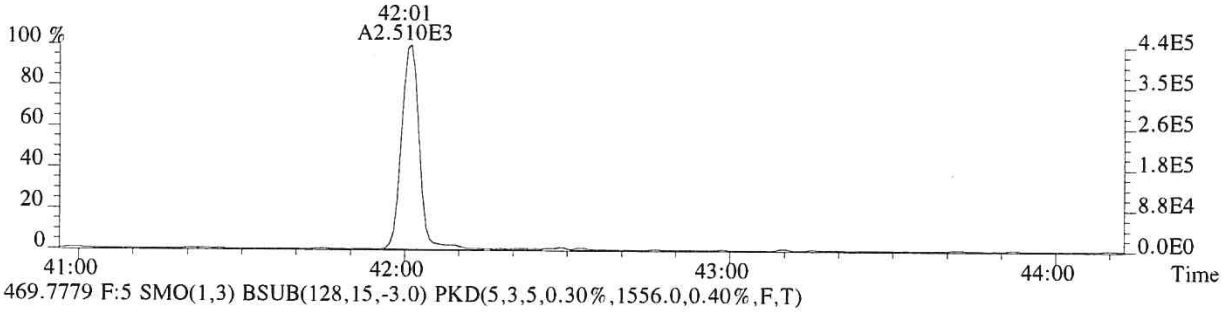


010850

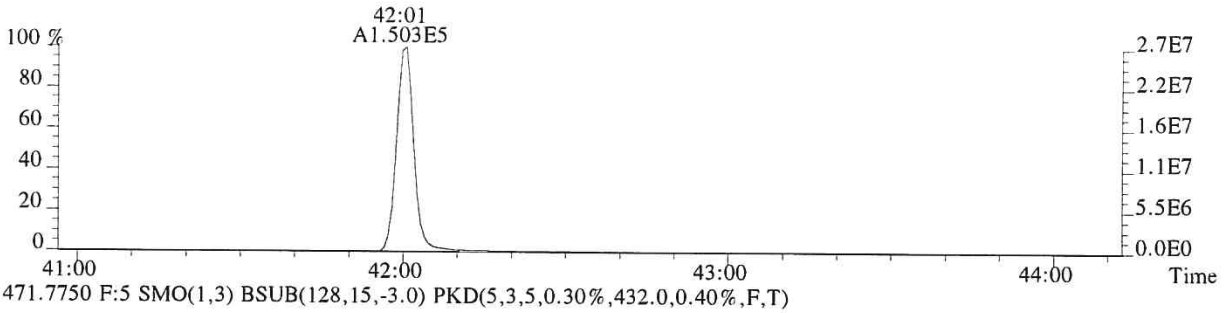
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



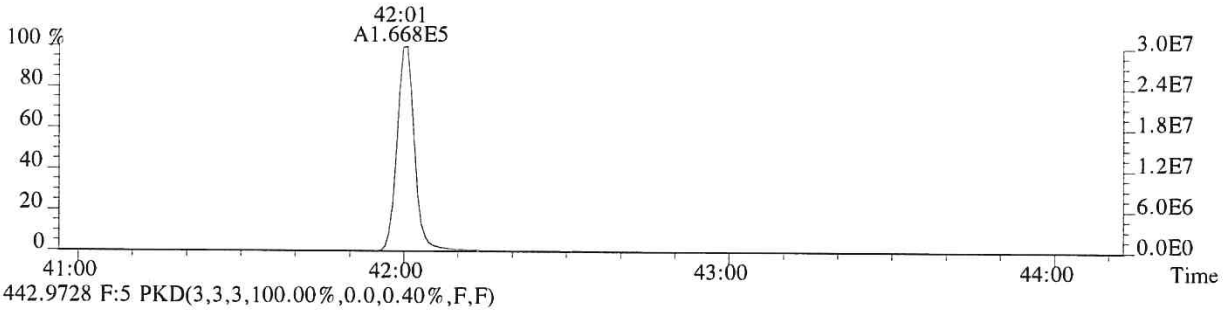
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



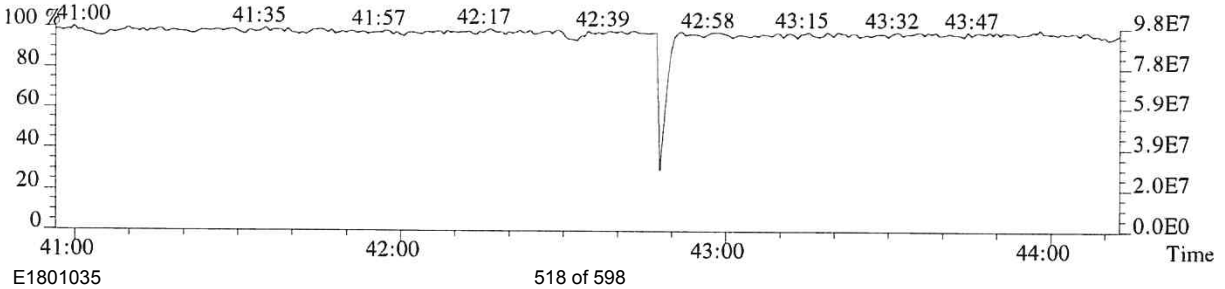
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	9.696e+02	1.301e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	8.209e+03	5.211e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	7.782e+03	4.847e+03	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.580e+03	5.860e+03	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.826e+03	6.295e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	7.149e+03	5.707e+03	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	6.633e+03	5.137e+03	1.29	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	6.668e+03	6.509e+03	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	5.874e+03	5.515e+03	1.07	yes	no	1.463
10	Unk	OCDF	42:13	7.957e+03	9.190e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	6.591e+02	7.969e+02	0.83	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	4.521e+03	2.979e+03	1.52	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	4.250e+03	3.535e+03	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	4.303e+03	3.394e+03	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	4.586e+03	3.767e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.011e+03	3.764e+03	1.07	yes	no	1.112
17	Unk	OCDD	42:01	6.097e+03	6.815e+03	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.863e+05	2.330e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.845e+05	1.757e+05	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.739e+05	1.718e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.281e+05	2.407e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.461e+05	2.703e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.362e+05	2.538e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.215e+05	2.294e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.041e+05	2.259e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	9.345e+04	2.024e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.293e+05	1.616e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.924e+05	1.218e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.556e+05	1.239e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.601e+05	1.267e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.414e+05	1.336e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.022e+05	2.237e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.337e+05	1.646e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.731e+05	1.377e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.653e+03				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.73e+05	2.52e+03	6.9e+01	2.26e+05	4.68e+03	4.8e+01
2	1,2,3,7,8-PeCDF	1.49e+06	1.07e+03	1.4e+03	9.88e+05	5.47e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.55e+06	1.07e+03	1.5e+03	9.81e+05	5.47e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	1.64e+06	3.19e+03	5.1e+02	1.29e+06	1.24e+03	1.0e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	3.19e+03	5.2e+02	1.30e+06	1.24e+03	1.0e+03
6	2,3,4,6,7,8-HxCDF	1.53e+06	3.19e+03	4.8e+02	1.19e+06	1.24e+03	9.6e+02
7	1,2,3,7,8,9-HxCDF	1.37e+06	3.19e+03	4.3e+02	1.06e+06	1.24e+03	8.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.48e+06	1.97e+03	7.5e+02	1.45e+06	1.25e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.19e+06	1.97e+03	6.0e+02	1.11e+06	1.25e+03	8.9e+02
10	OCDF	1.45e+06	1.15e+03	1.3e+03	1.64e+06	2.28e+03	7.2e+02
11	2,3,7,8-TCDD	1.20e+05	6.88e+03	1.7e+01	1.48e+05	2.99e+03	5.0e+01
12	1,2,3,7,8-PeCDD	8.64e+05	2.37e+03	3.6e+02	5.83e+05	1.39e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	9.60e+05	1.02e+03	9.4e+02	8.07e+05	1.68e+03	4.8e+02
14	1,2,3,6,7,8-HxCDD	9.46e+05	1.02e+03	9.3e+02	7.52e+05	1.68e+03	4.5e+02
15	1,2,3,7,8,9-HxCDD	1.01e+06	1.02e+03	9.9e+02	8.34e+05	1.68e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	8.38e+05	1.17e+03	7.2e+02	8.29e+05	4.84e+02	1.7e+03
17	OCDD	1.16e+06	3.14e+03	3.7e+02	1.30e+06	1.96e+03	6.6e+02
18	13C-2,3,7,8-TCDF	3.28e+07	1.64e+04	2.0e+03	4.11e+07	1.27e+04	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.29e+07	3.44e+03	1.5e+04	3.26e+07	2.57e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	3.44e+03	1.6e+04	3.38e+07	2.57e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+07	3.47e+03	8.3e+03	5.39e+07	4.48e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.07e+07	3.47e+03	8.8e+03	5.68e+07	4.48e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.95e+07	3.47e+03	8.5e+03	5.46e+07	4.48e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.51e+07	3.47e+03	7.2e+03	4.72e+07	4.48e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.29e+04	1.8e+03	4.99e+07	2.56e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+07	1.29e+04	1.5e+03	4.06e+07	2.56e+04	1.6e+03
27	13C-2,3,7,8-TCDD	2.37e+07	1.79e+04	1.3e+03	2.98e+07	7.48e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	3.81e+07	3.05e+03	1.3e+04	2.43e+07	1.79e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	3.53e+07	4.99e+03	7.1e+03	2.84e+07	2.28e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.46e+07	4.99e+03	6.9e+03	2.73e+07	2.28e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+07	3.94e+03	7.8e+03	2.93e+07	1.60e+03	1.8e+04
32	13C-OCDD	3.85e+07	1.12e+03	3.4e+04	4.22e+07	1.86e+03	2.3e+04
33	13C-1,2,3,4-TCDD	2.49e+07	1.79e+04	1.4e+03	3.07e+07	7.48e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	4.99e+03	7.5e+03	3.01e+07	2.28e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.03e+05	3.87e+03	7.8e+01			

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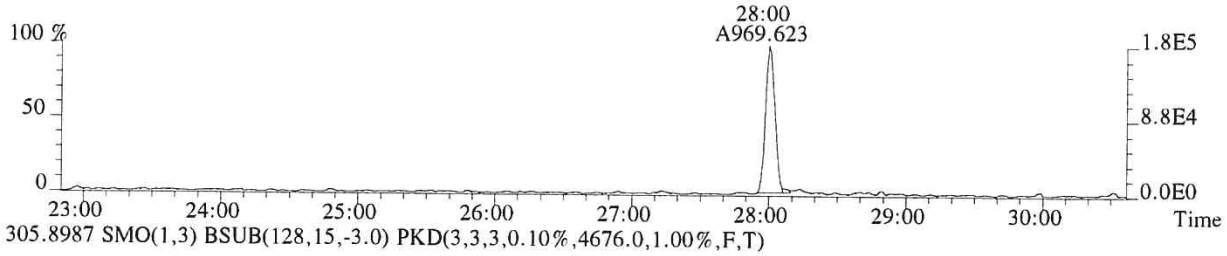
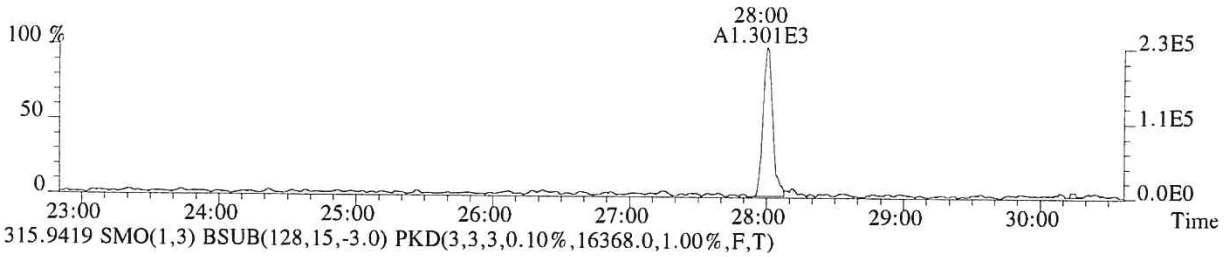
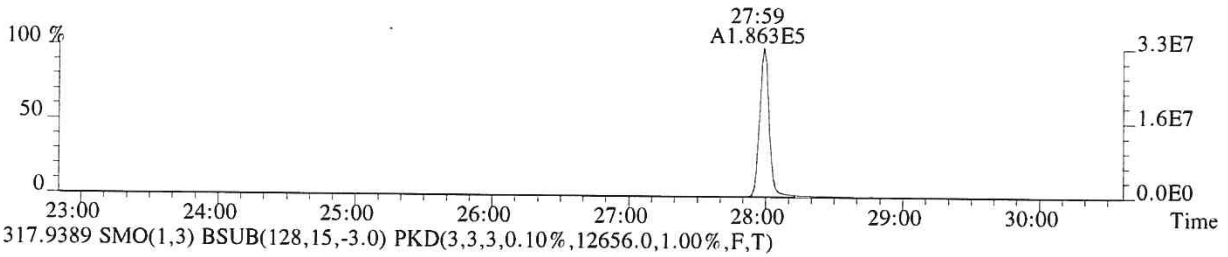
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



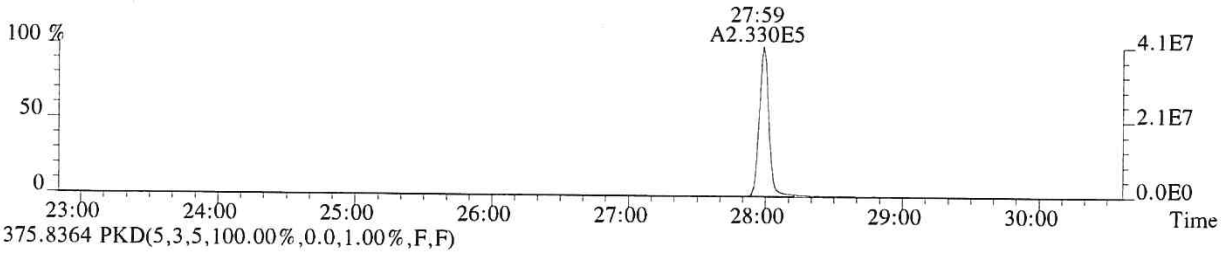
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4676.0,1.00%,F,T)



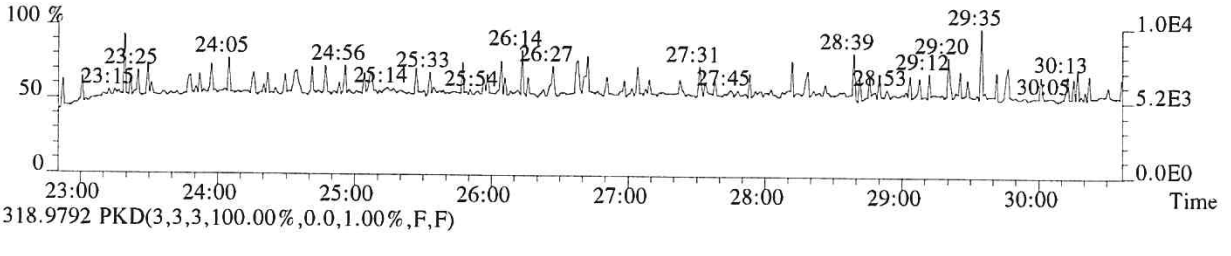
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16368.0,1.00%,F,T)



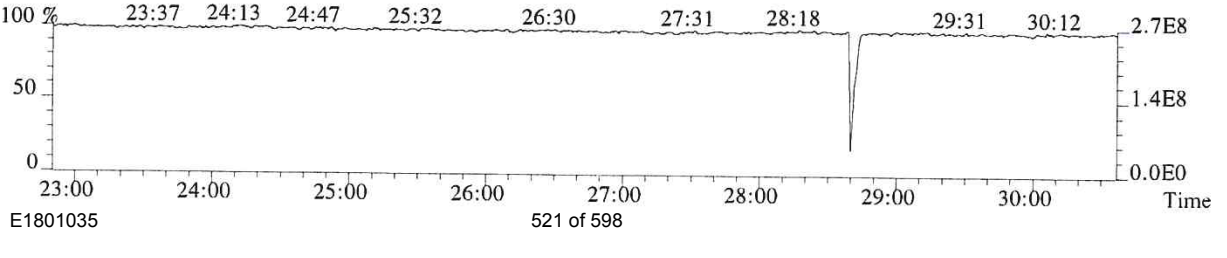
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



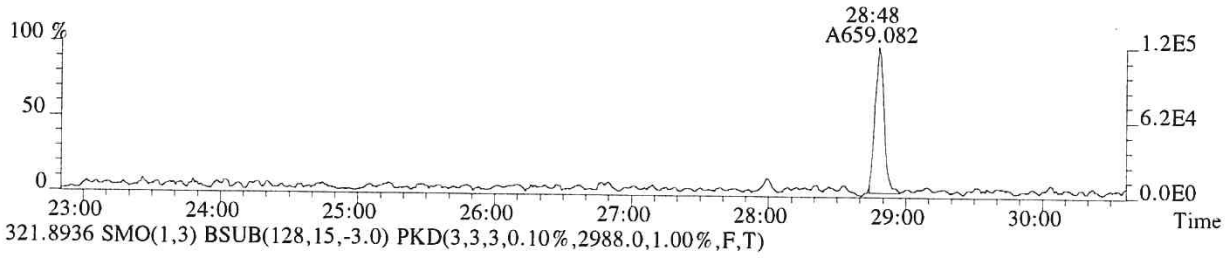
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



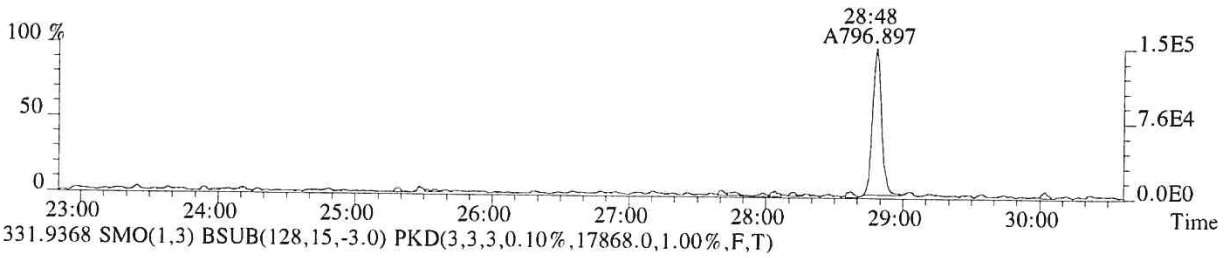
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



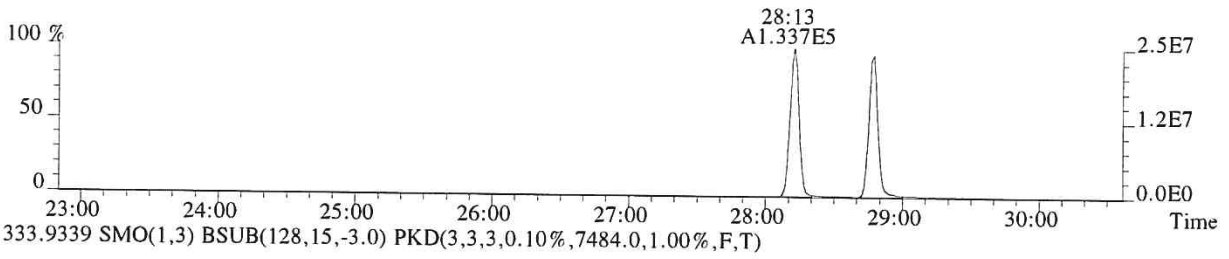
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6880.0,1.00%,F,T)



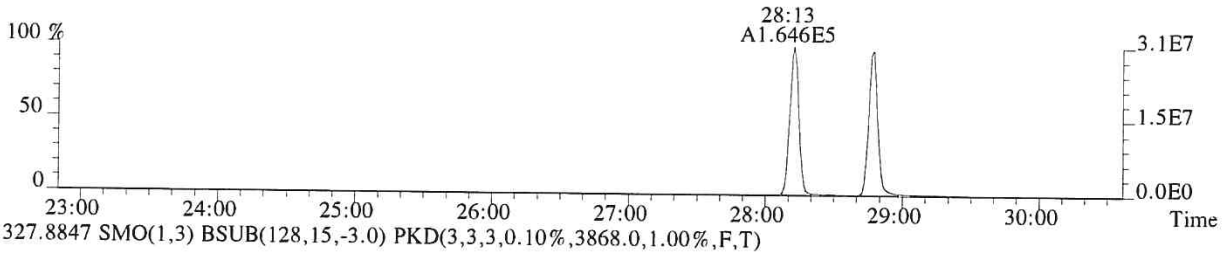
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



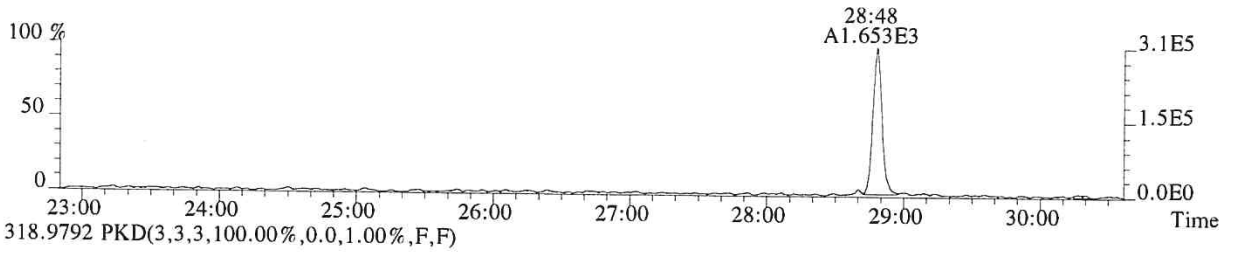
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17868.0,1.00%,F,T)



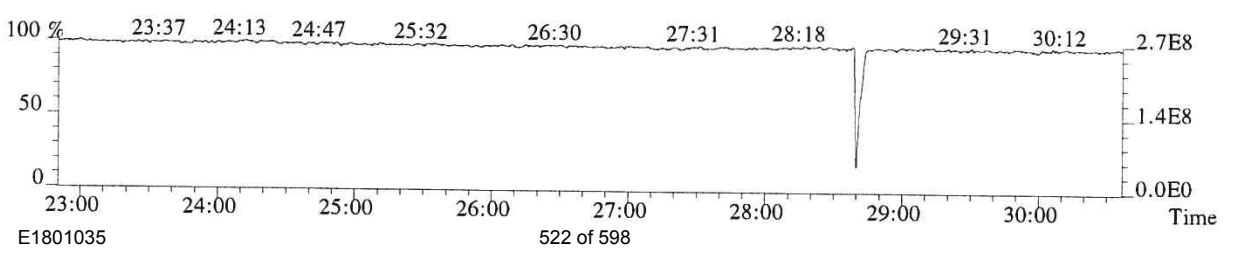
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7484.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)

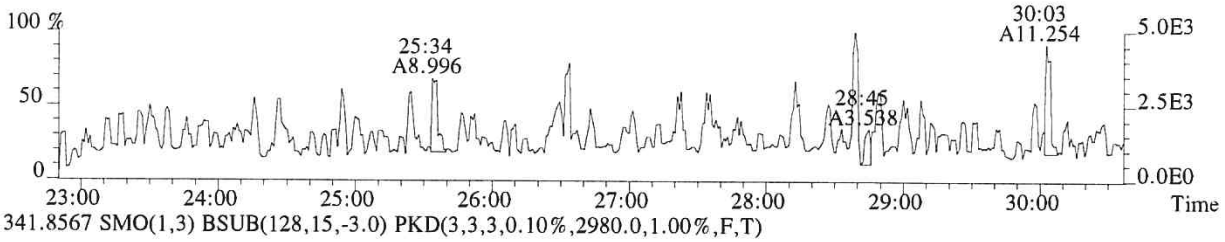


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

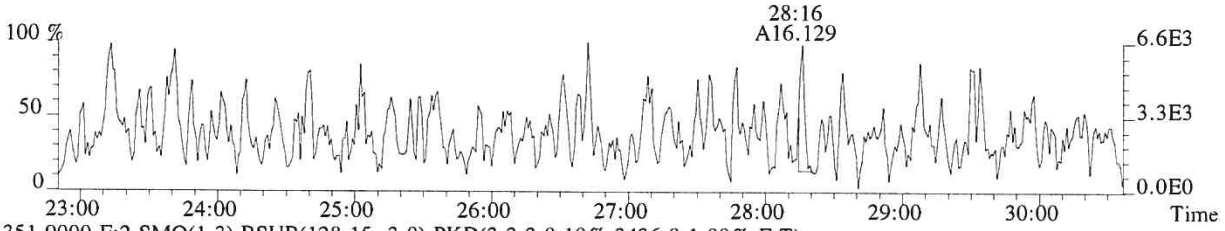


010855

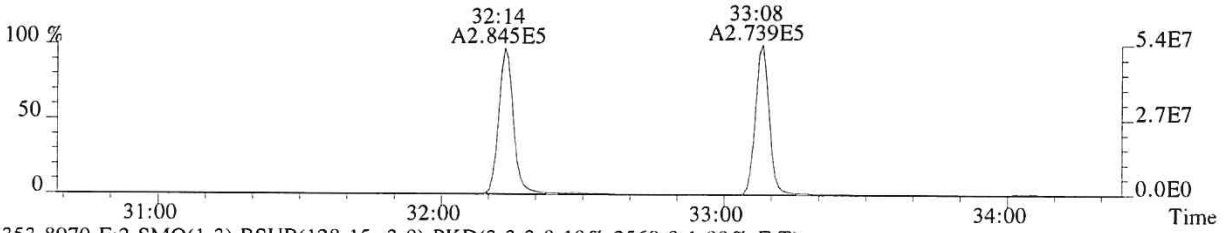
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



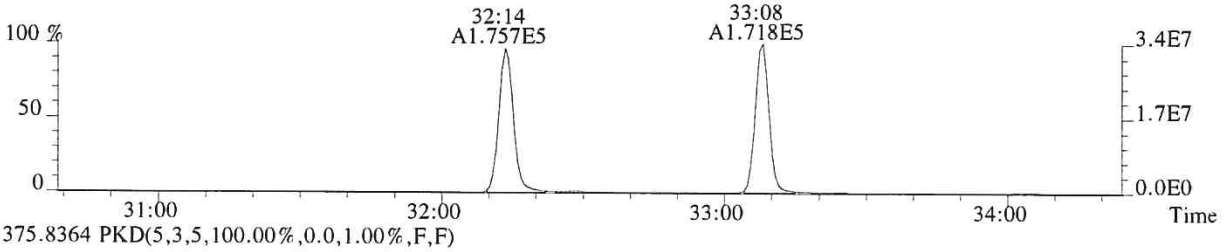
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



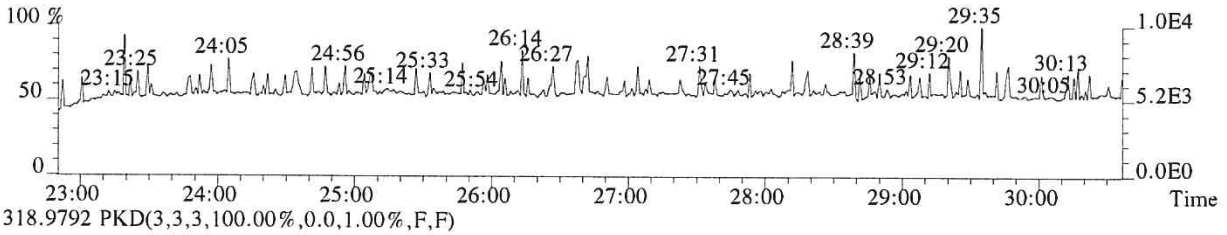
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



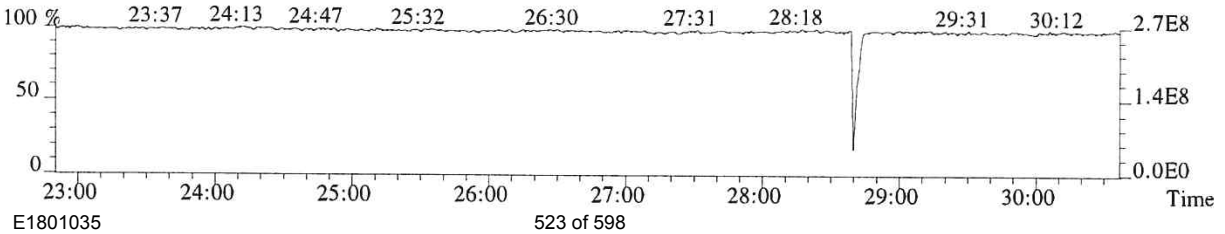
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



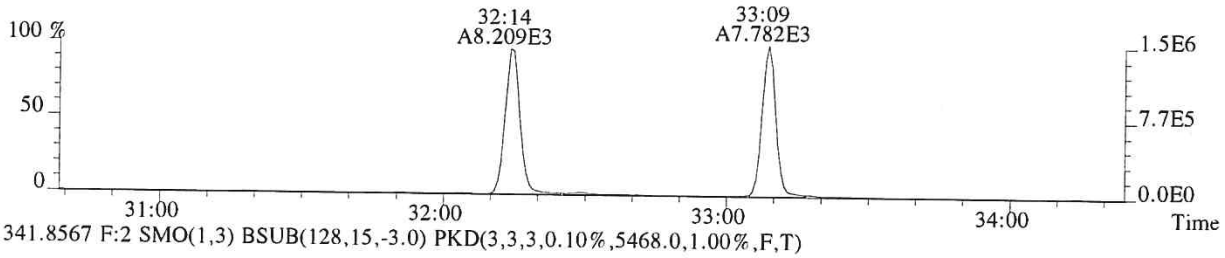
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



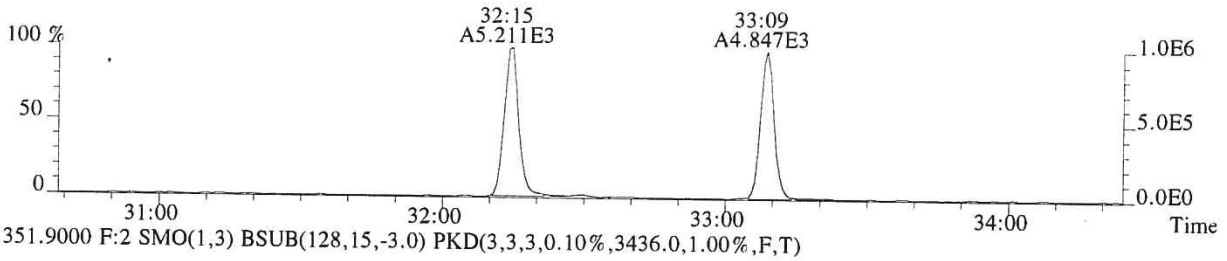
010856

File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

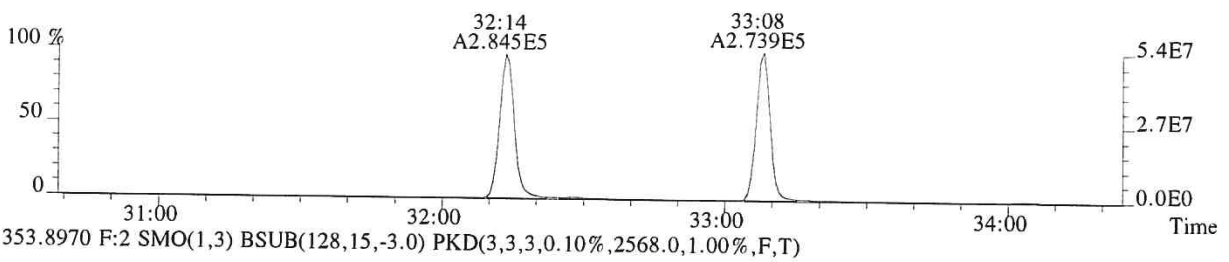
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



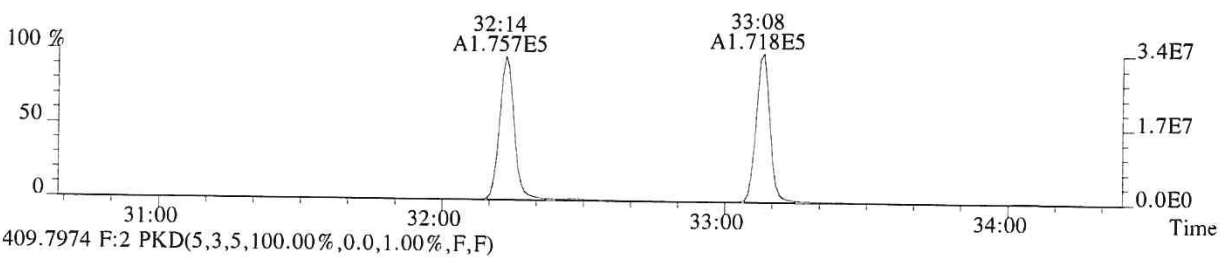
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5468.0,1.00%,F,T)



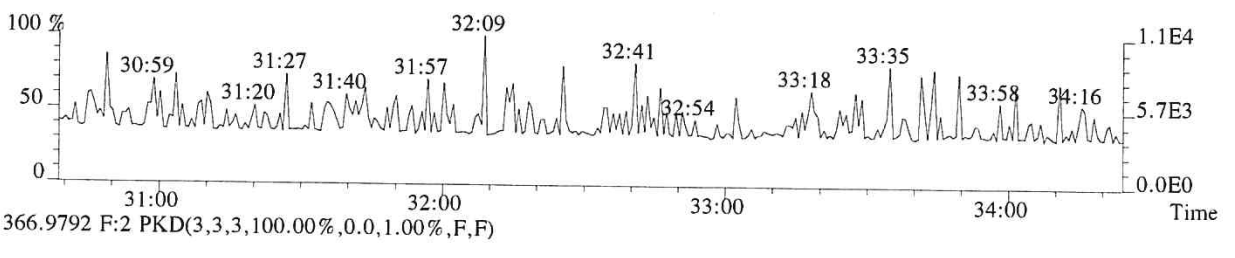
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



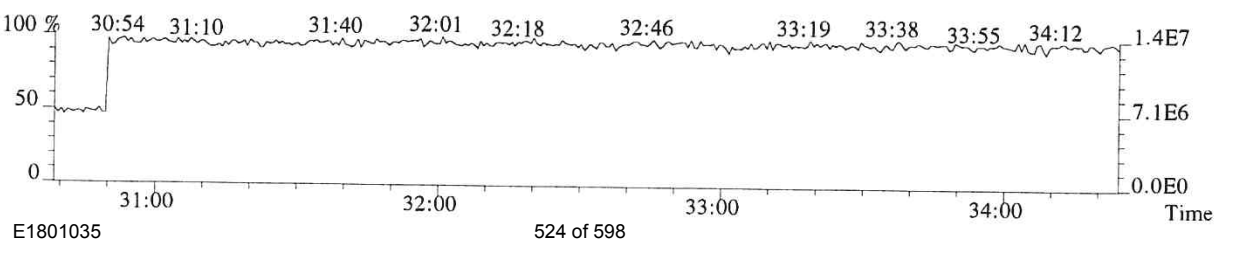
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

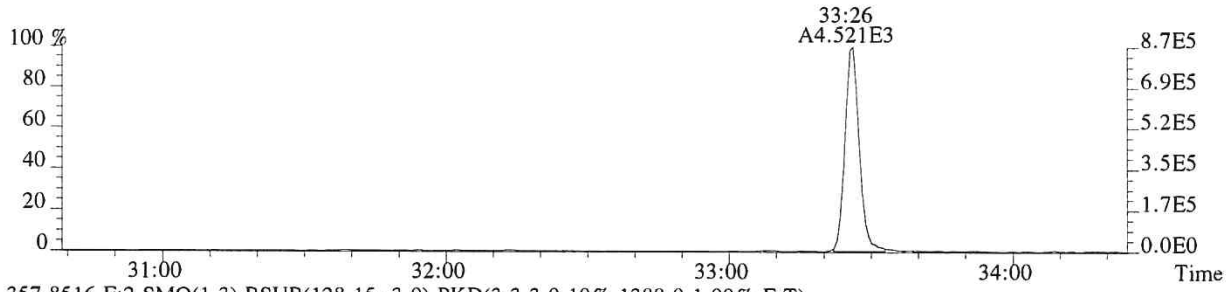


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

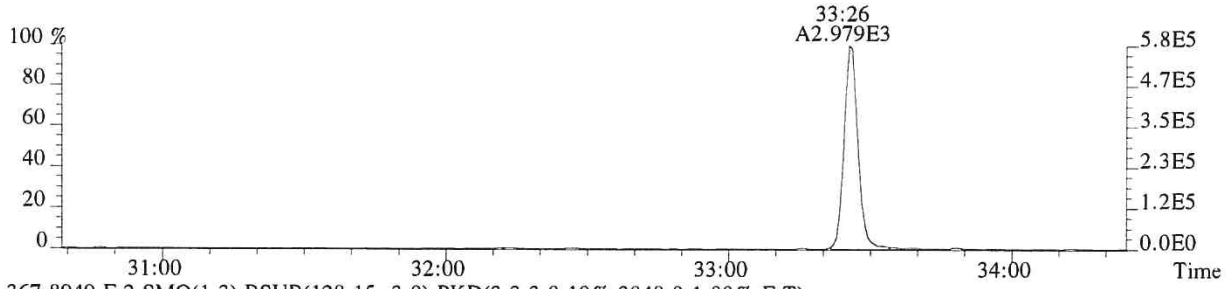


010857

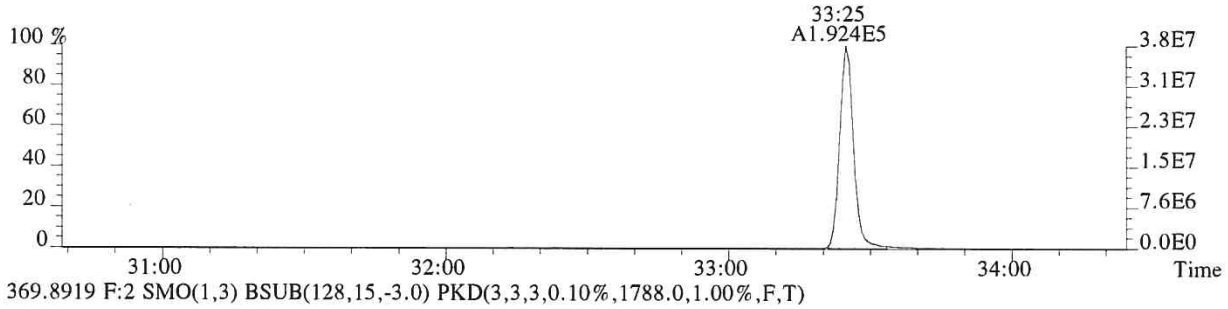
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



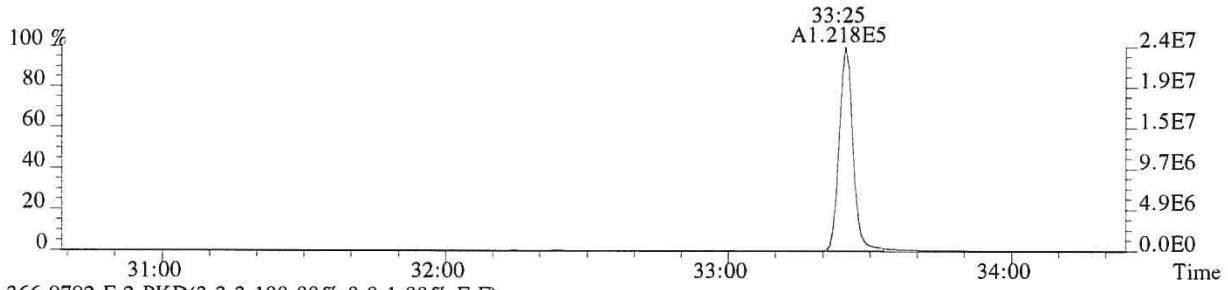
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



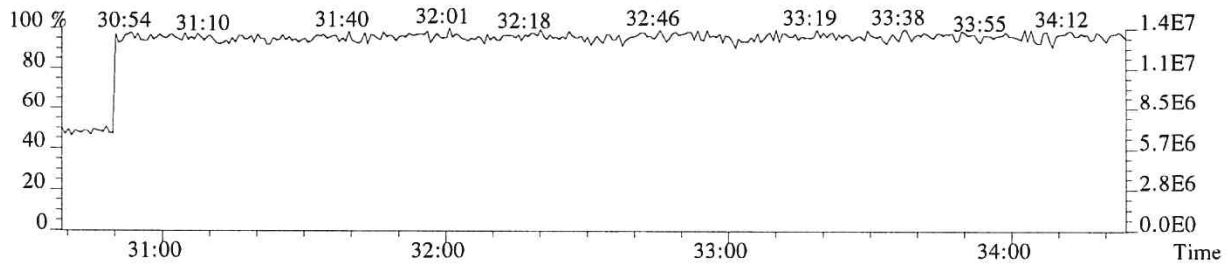
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)

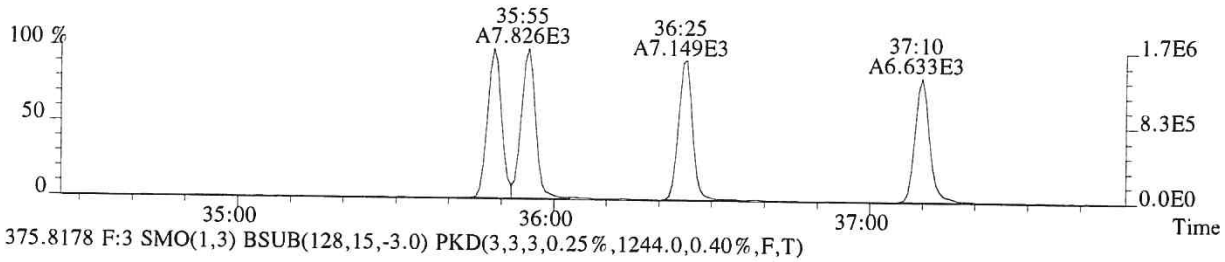


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

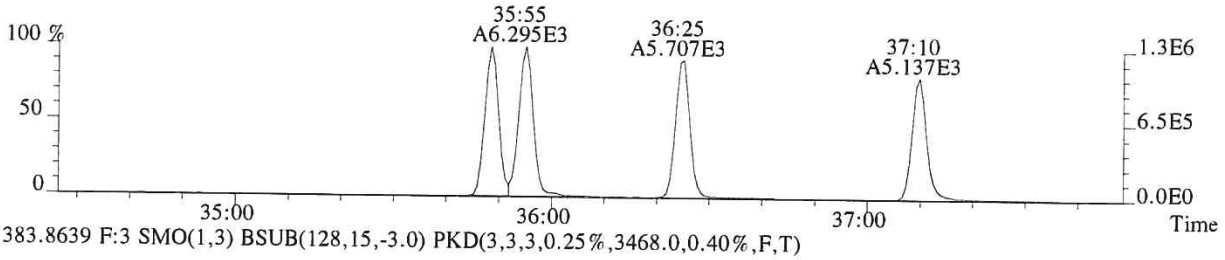


010858

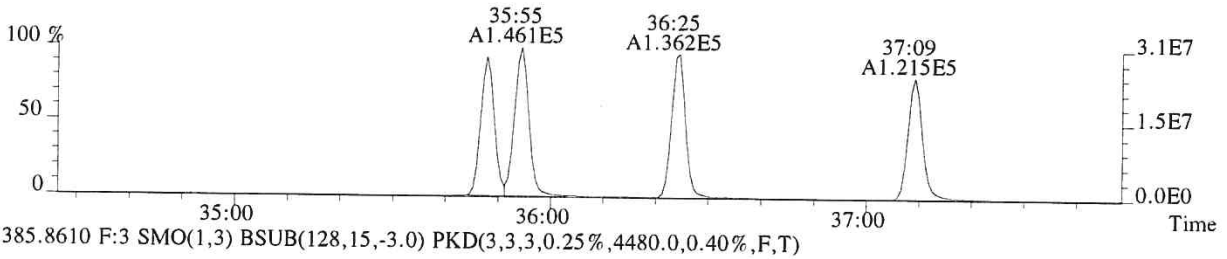
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



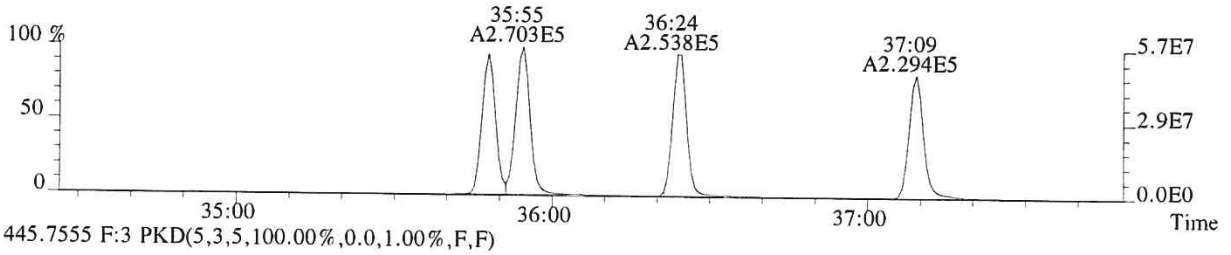
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



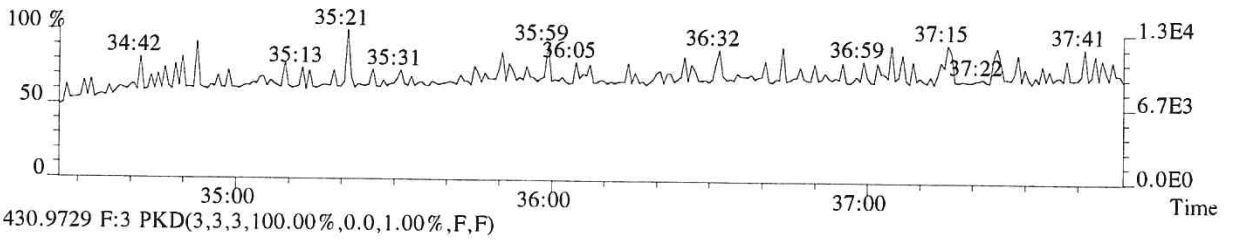
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



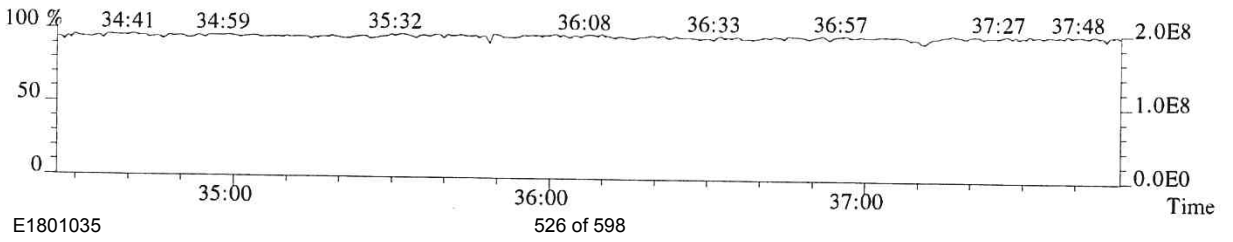
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4480.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

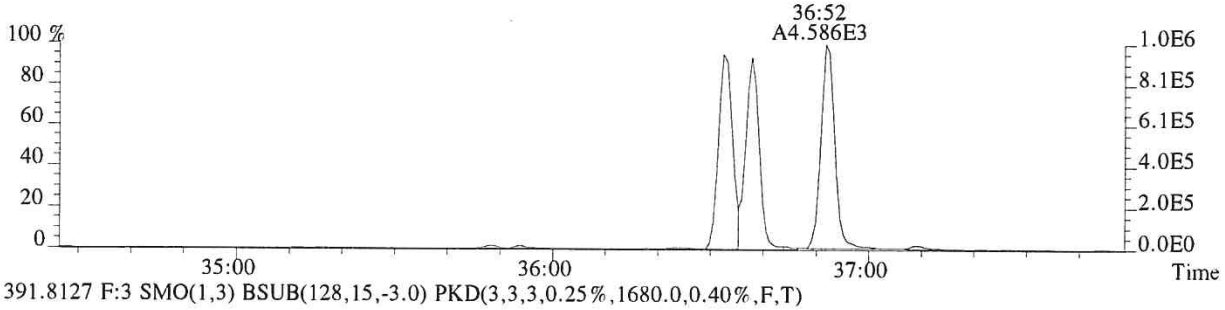


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

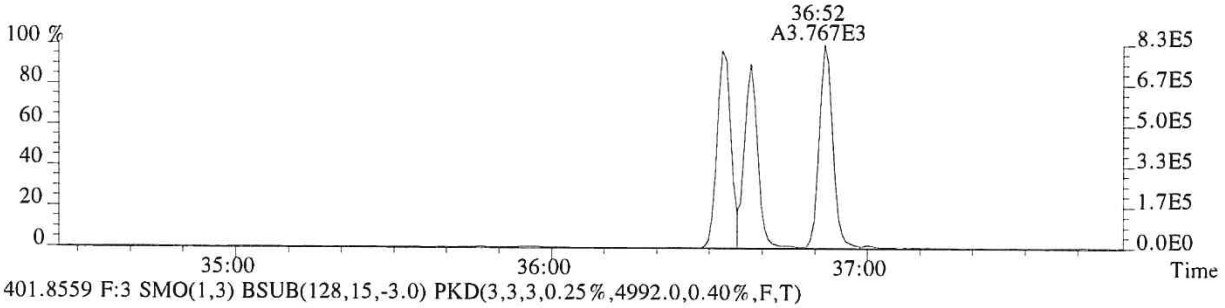


010859

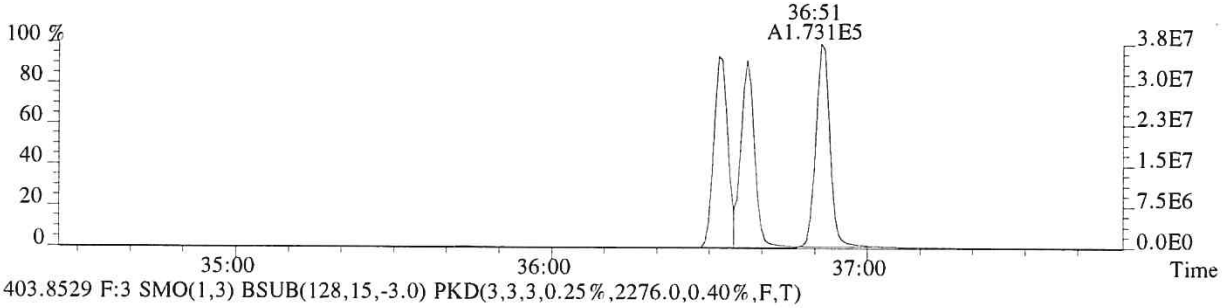
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



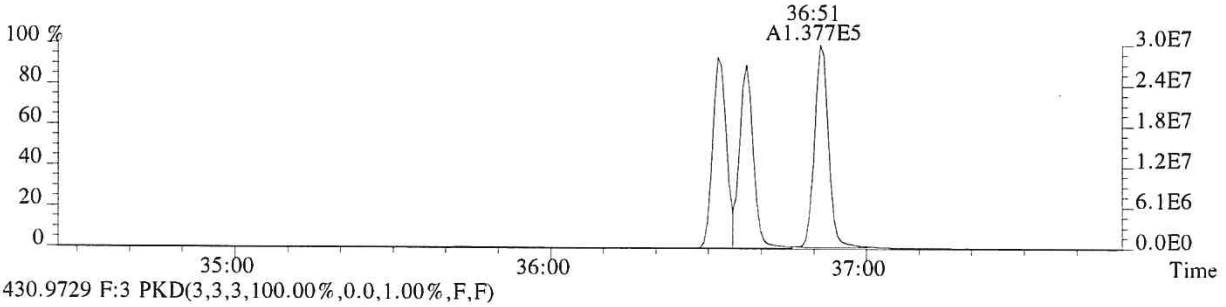
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



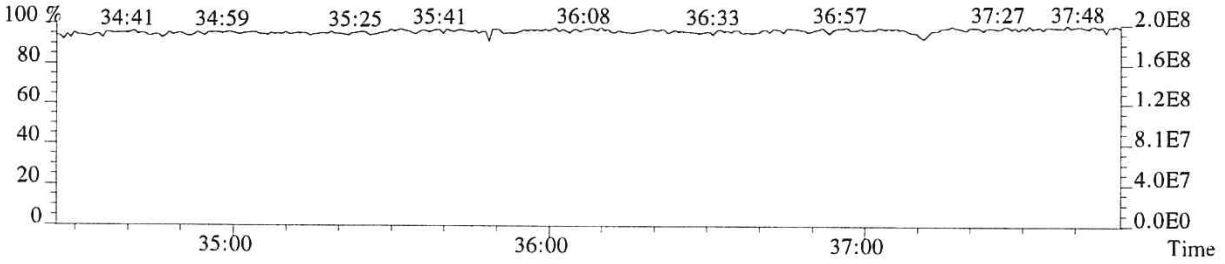
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



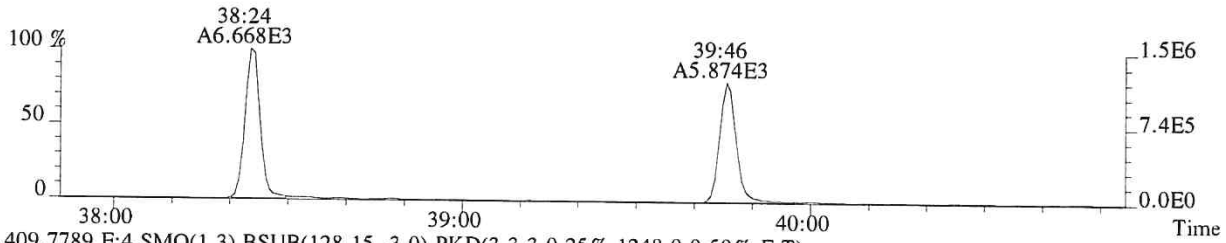
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



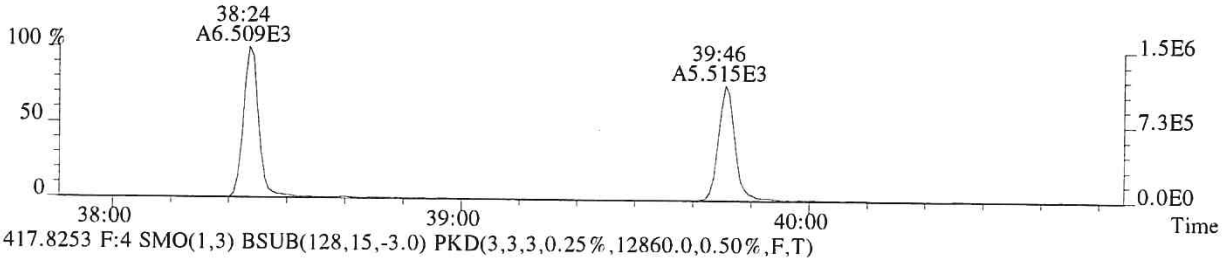
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



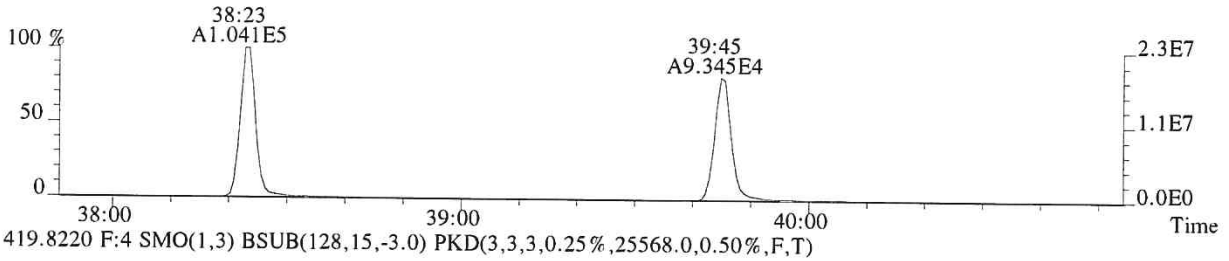
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



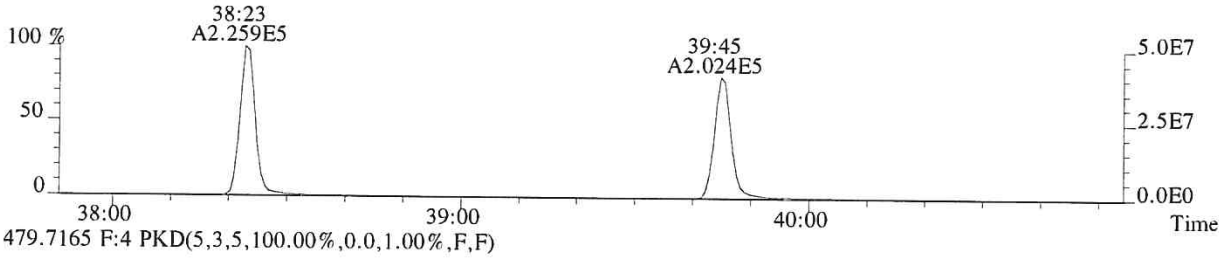
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



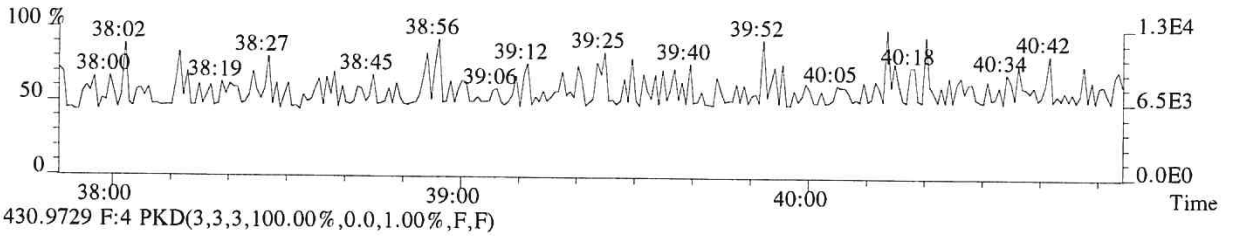
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12860.0,0.50%,F,T)



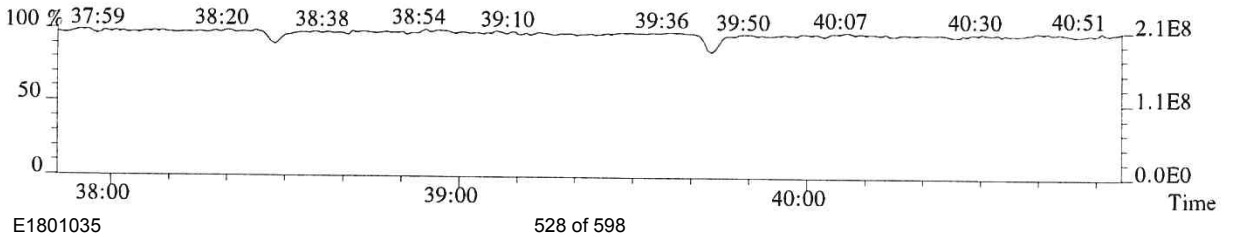
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25568.0,0.50%,F,T)



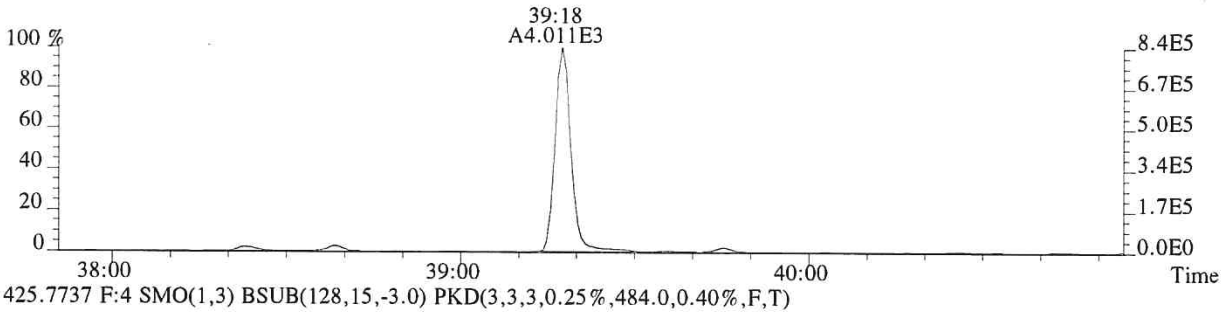
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



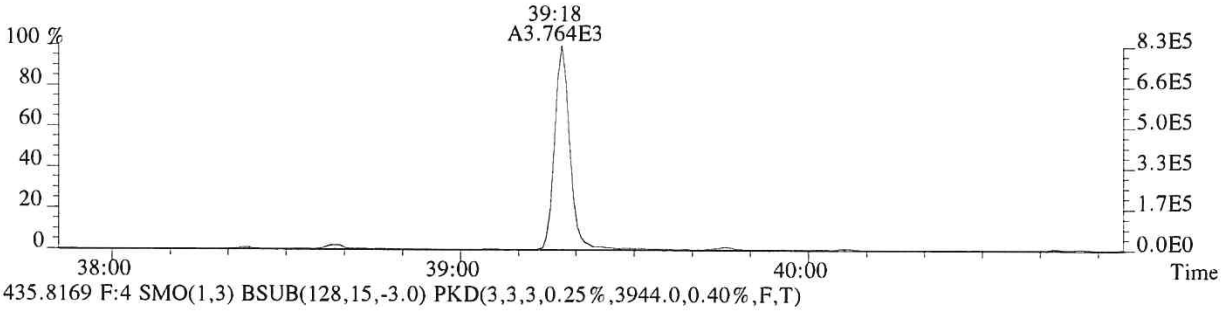
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



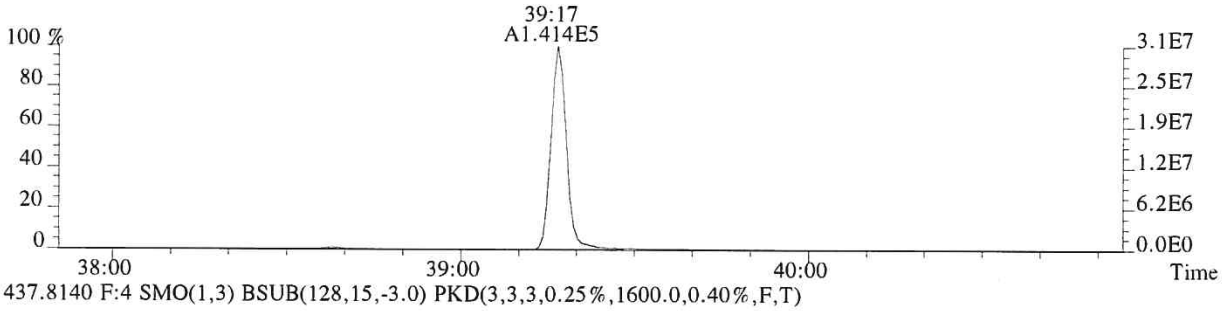
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



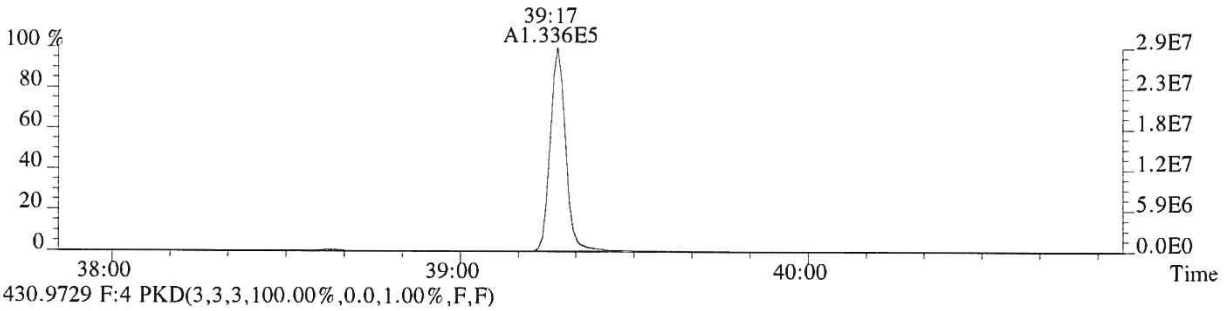
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



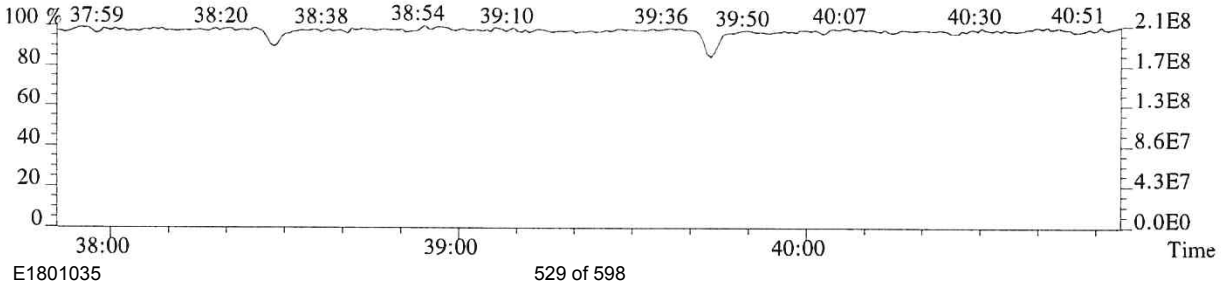
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



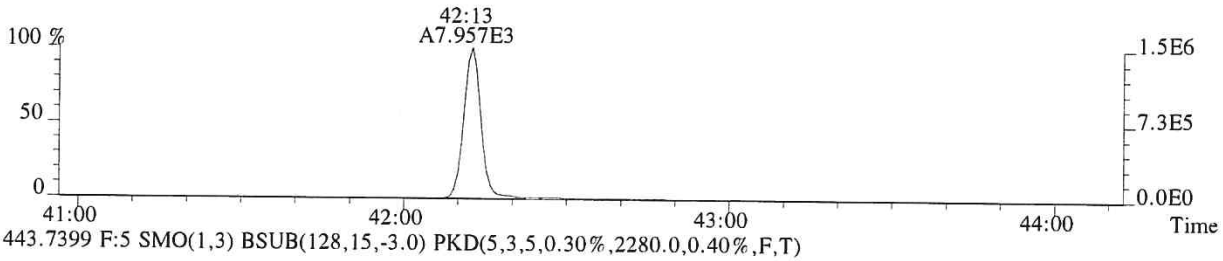
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



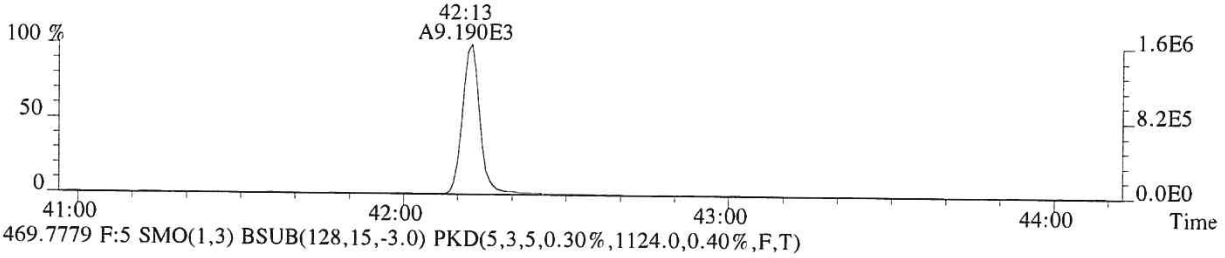
010862

File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

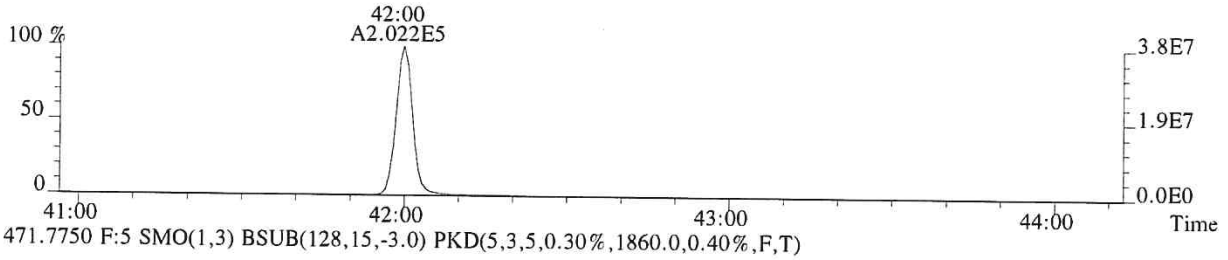
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



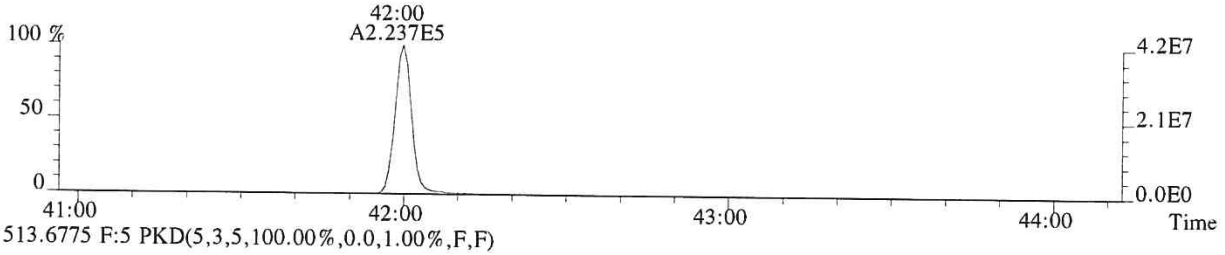
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2280.0,0.40%,F,T)



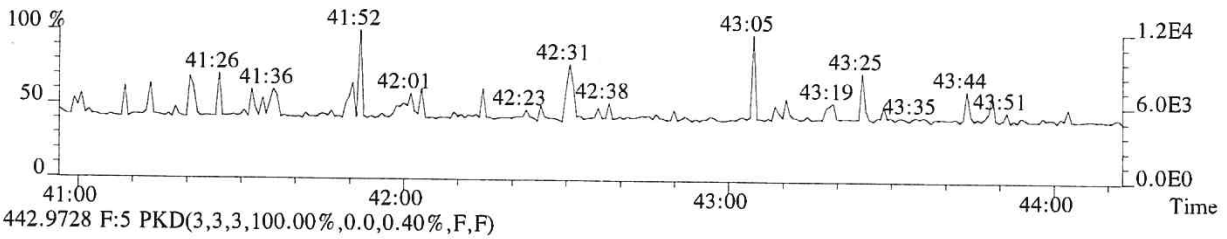
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



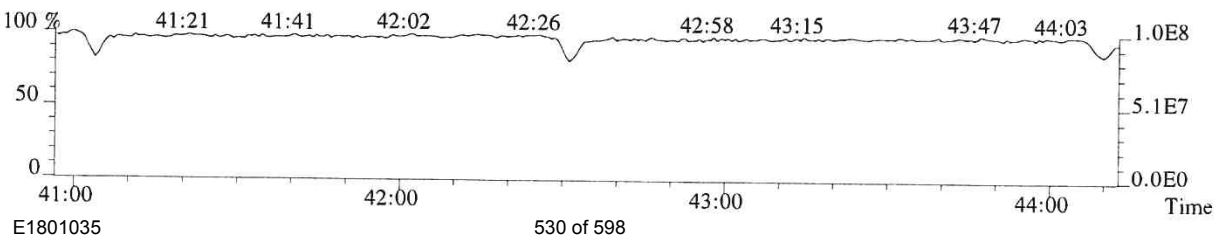
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

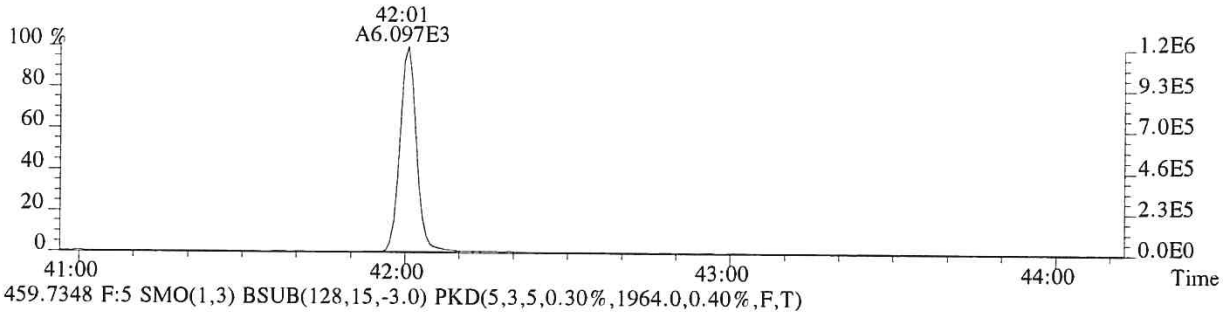


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

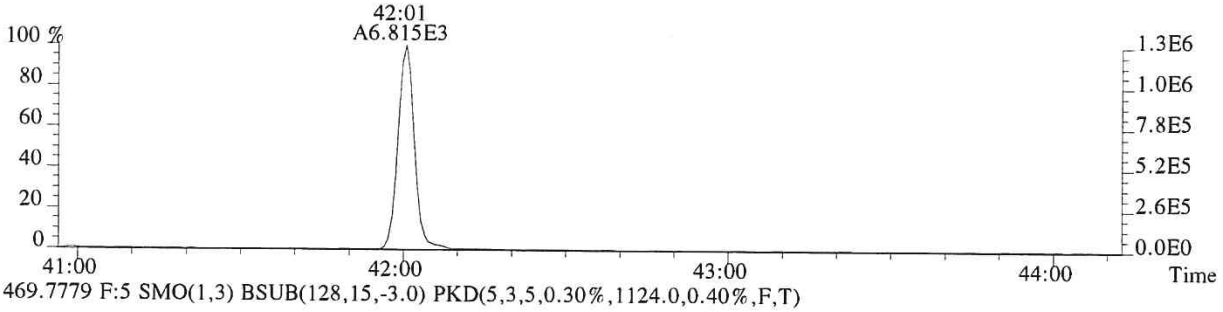


010863

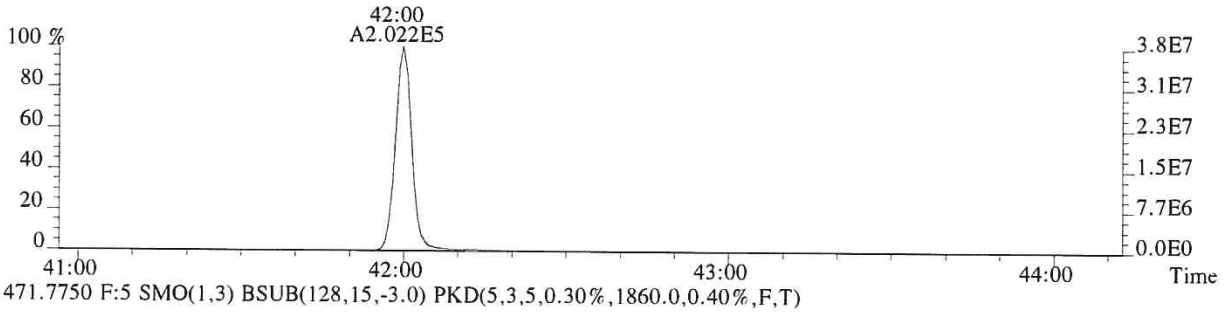
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3136.0,0.40%,F,T)



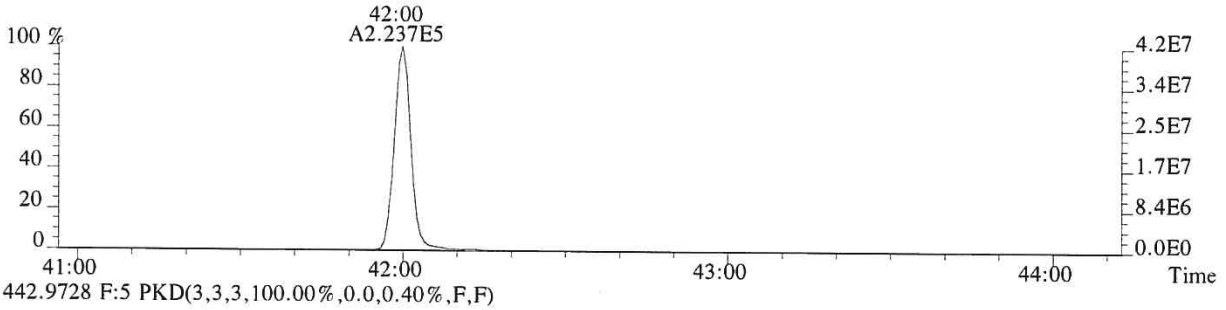
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



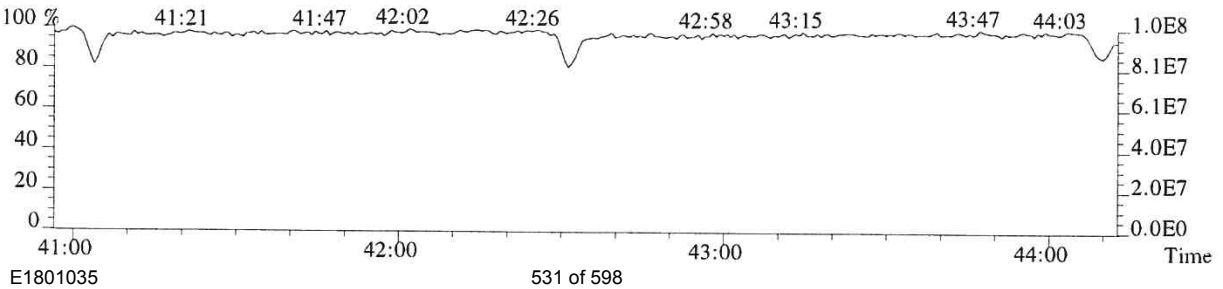
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010864

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.102e+03	3.732e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	2.387e+04	1.519e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:08	2.329e+04	1.484e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.143e+04	1.713e+04	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.340e+04	1.874e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.188e+04	1.713e+04	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.950e+04	1.588e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.863e+04	1.764e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.650e+04	1.567e+04	1.05	yes	no	1.463
10	Unk	OCDF	42:12	2.250e+04	2.478e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.874e+03	2.328e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.440e+04	9.416e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.279e+04	1.013e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.275e+04	1.020e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	1.359e+04	1.091e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.169e+04	1.088e+04	1.07	yes	no	1.112
17	Unk	OCDD	42:01	1.626e+04	1.848e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.350e+05	1.713e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.144e+05	1.340e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.142e+05	1.318e+05	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.603e+04	1.811e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.132e+05	2.120e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.055e+05	1.978e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.513e+04	1.787e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	7.767e+04	1.706e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	6.849e+04	1.521e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	9.327e+04	1.167e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.531e+05	9.729e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.232e+05	9.748e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.208e+05	9.608e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.060e+05	1.018e+05	1.04	yes	no	0.857
32	IS	13C-OCDD	42:00	1.501e+05	1.663e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:12	9.647e+04	1.194e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.360e+05	1.078e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.600e+03				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.46e+05	1.35e+03	4.0e+02	6.81e+05	4.17e+03	1.6e+02
2	1,2,3,7,8-PeCDF	4.40e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	4.45e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	4.64e+06	2.66e+03	1.7e+03	3.65e+06	1.33e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.85e+06	2.66e+03	1.8e+03	3.88e+06	1.33e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.77e+06	2.66e+03	1.8e+03	3.75e+06	1.33e+03	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.92e+06	2.66e+03	1.5e+03	3.16e+06	1.33e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	4.06e+03	1.0e+03	3.98e+06	5.19e+03	7.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.43e+06	4.06e+03	8.5e+02	3.23e+06	5.19e+03	6.2e+02
10	OCDF	4.02e+06	1.02e+03	3.9e+03	4.45e+06	3.18e+03	1.4e+03
11	2,3,7,8-TCDD	3.59e+05	5.08e+03	7.1e+01	4.49e+05	2.84e+03	1.6e+02
12	1,2,3,7,8-PeCDD	2.79e+06	2.23e+03	1.3e+03	1.83e+06	1.03e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	1.16e+03	2.5e+03	2.30e+06	2.22e+03	1.0e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	1.16e+03	2.4e+03	2.20e+06	2.22e+03	9.9e+02
15	1,2,3,7,8,9-HxCDD	2.97e+06	1.16e+03	2.6e+03	2.38e+06	2.22e+03	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.22e+03	2.0e+03	2.30e+06	1.43e+03	1.6e+03
17	OCDD	3.03e+06	8.24e+02	3.7e+03	3.48e+06	2.34e+03	1.5e+03
18	13C-2,3,7,8-TCDF	2.30e+07	1.44e+04	1.6e+03	2.91e+07	8.40e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.88e+07	2.39e+03	1.6e+04	2.43e+07	1.71e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	4.22e+07	2.39e+03	1.8e+04	2.60e+07	1.71e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.07e+07	2.16e+03	9.6e+03	3.93e+07	5.29e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.36e+07	2.16e+03	1.1e+04	4.45e+07	5.29e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.32e+07	2.16e+03	1.1e+04	4.39e+07	5.29e+03	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.16e+03	8.9e+03	3.69e+07	5.29e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+07	7.69e+03	2.3e+03	3.85e+07	2.07e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+07	7.69e+03	1.8e+03	3.12e+07	2.07e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.74e+07	1.66e+04	1.0e+03	2.17e+07	7.77e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.92e+07	3.94e+03	7.4e+03	1.87e+07	3.45e+03	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+07	5.37e+03	5.3e+03	2.21e+07	2.98e+03	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+07	5.37e+03	4.9e+03	2.11e+07	2.98e+03	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+07	3.06e+03	7.3e+03	2.12e+07	2.68e+03	7.9e+03
32	13C-OCDD	2.74e+07	2.09e+03	1.3e+04	3.02e+07	1.61e+03	1.9e+04
33	13C-1,2,3,4-TCDD	1.78e+07	1.66e+04	1.1e+03	2.20e+07	7.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.99e+07	5.37e+03	5.6e+03	2.35e+07	2.98e+03	7.9e+03
35	37Cl-2,3,7,8-TCDD	8.73e+05	3.54e+03	2.5e+02			

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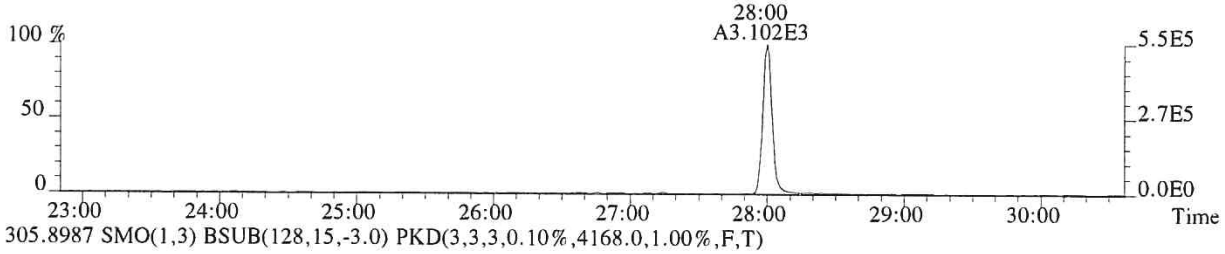
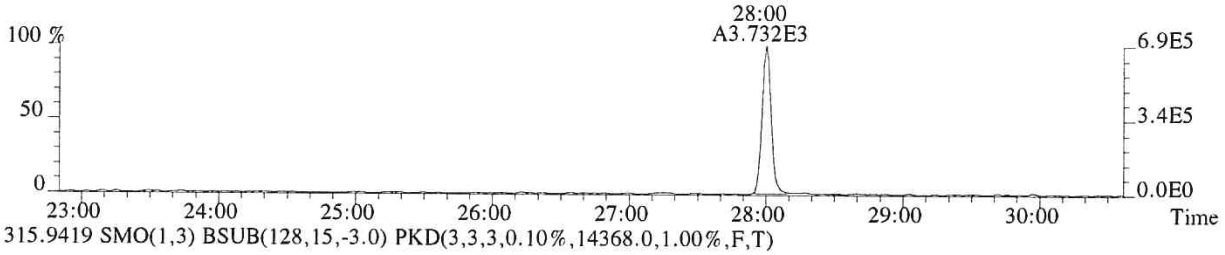
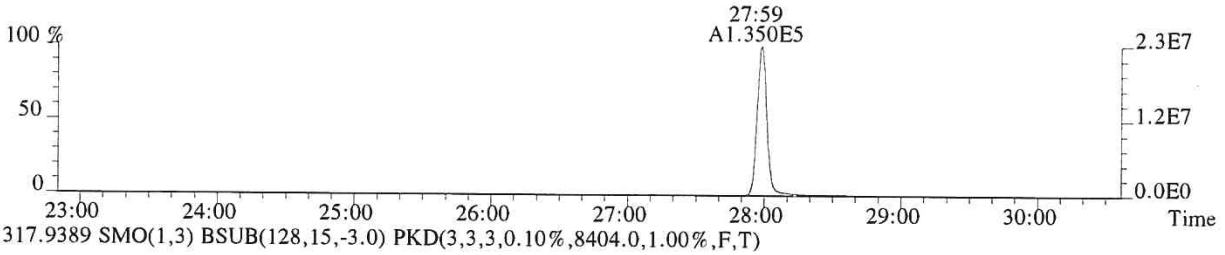
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



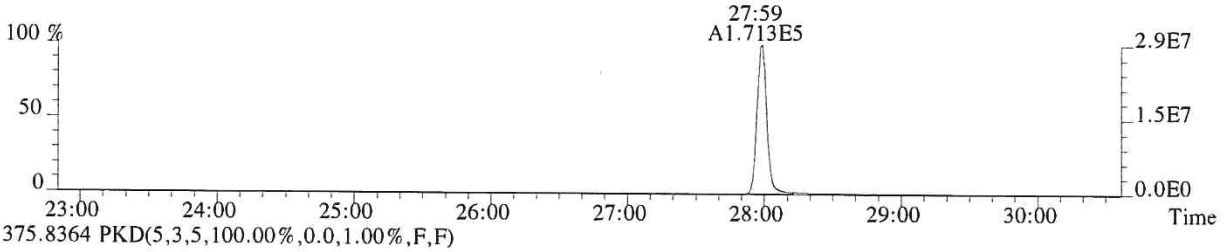
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



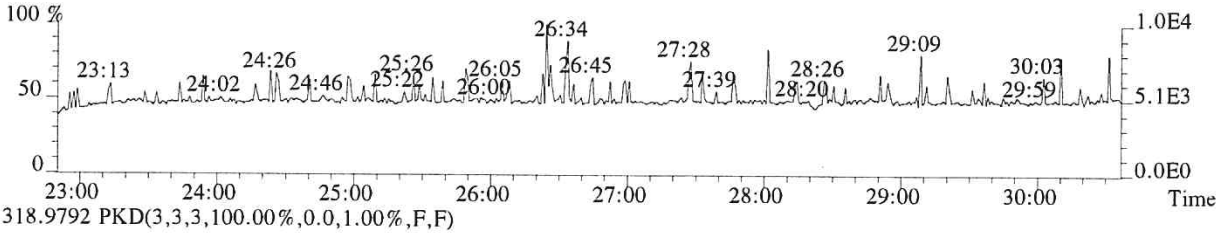
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14368.0,1.00%,F,T)



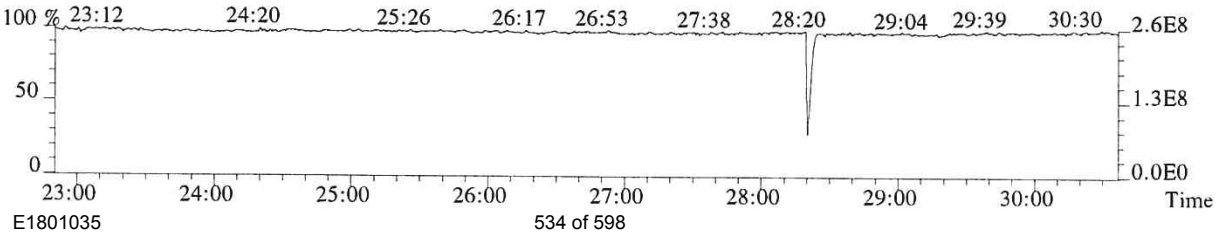
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8404.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

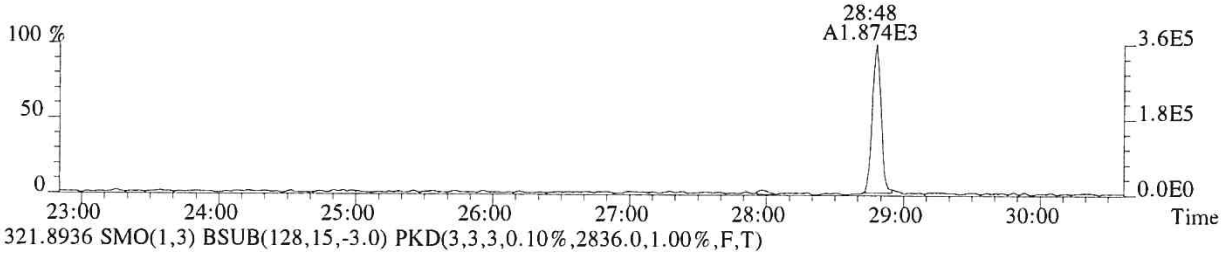


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

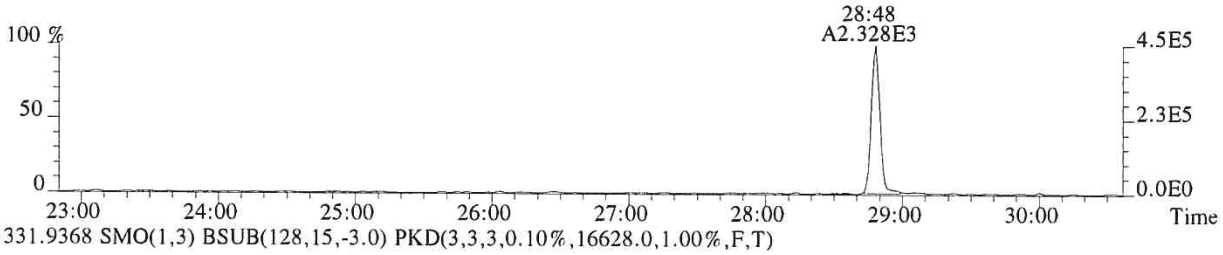


010867

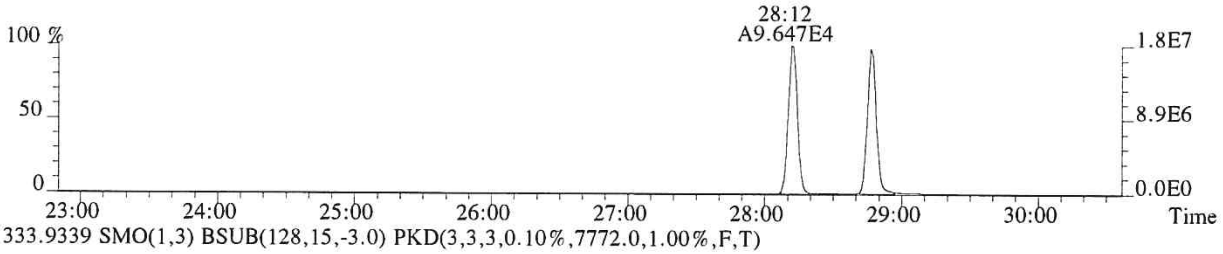
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



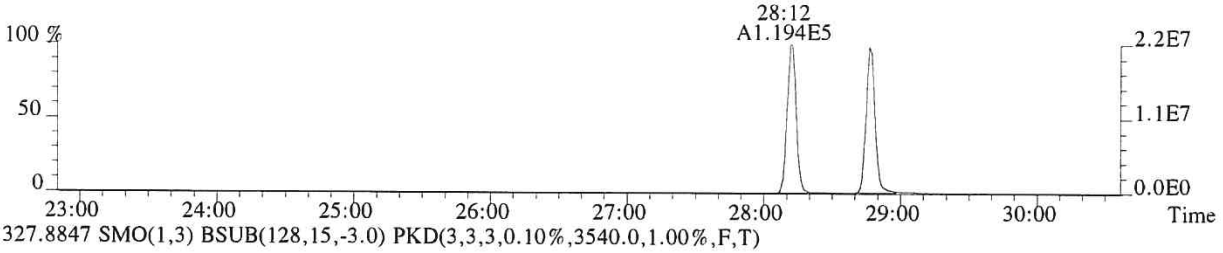
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



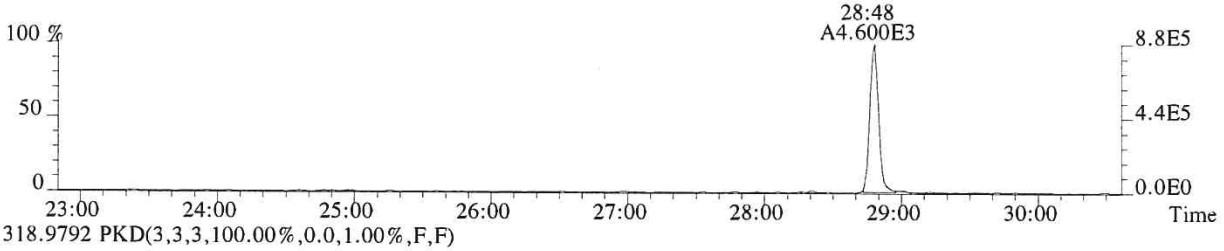
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16628.0,1.00%,F,T)



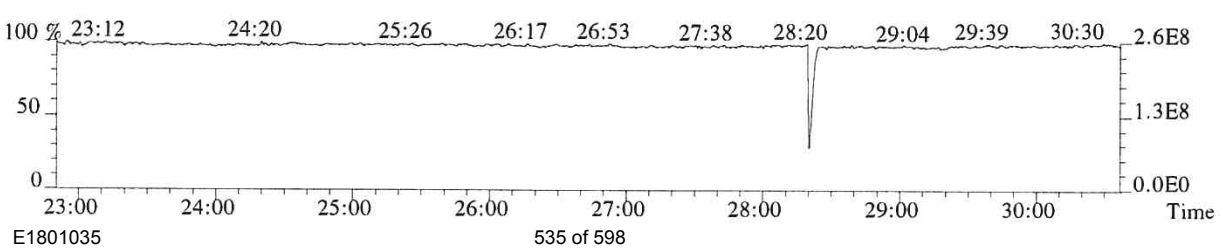
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7772.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)

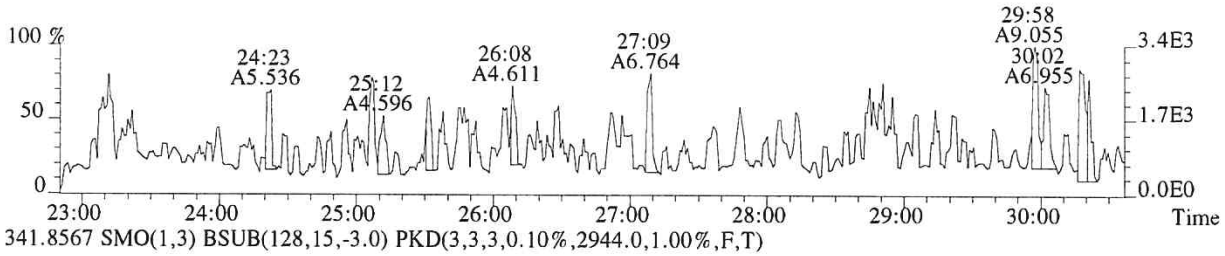


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

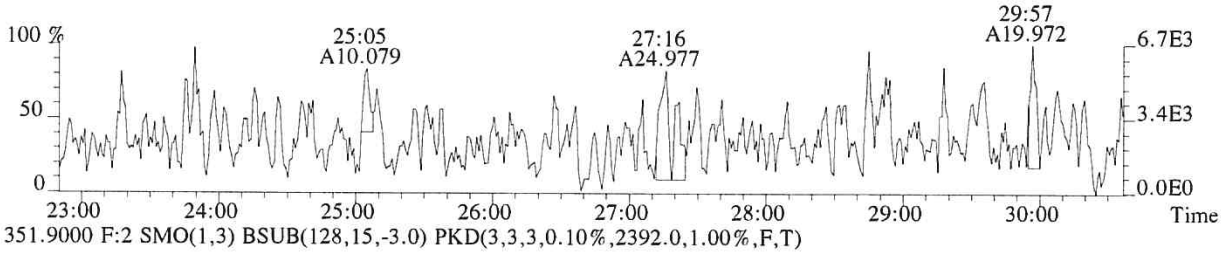


010868

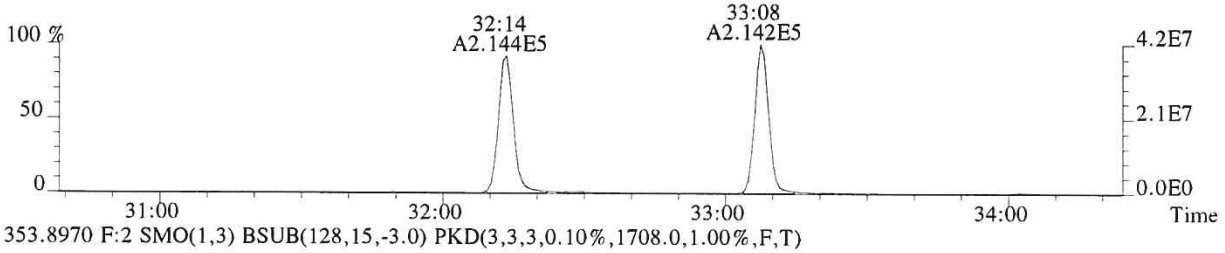
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



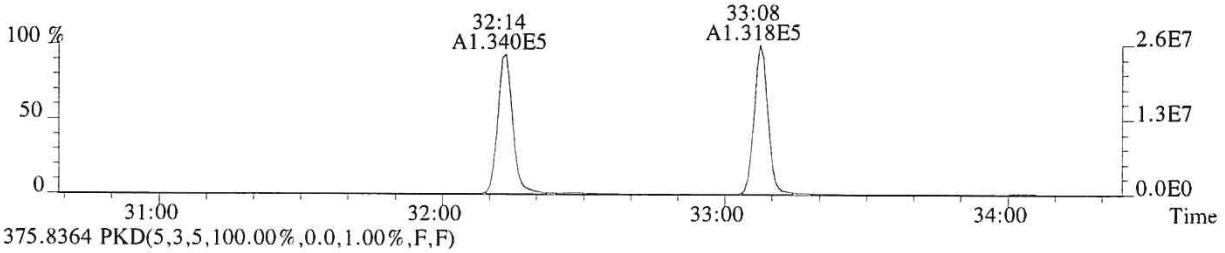
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



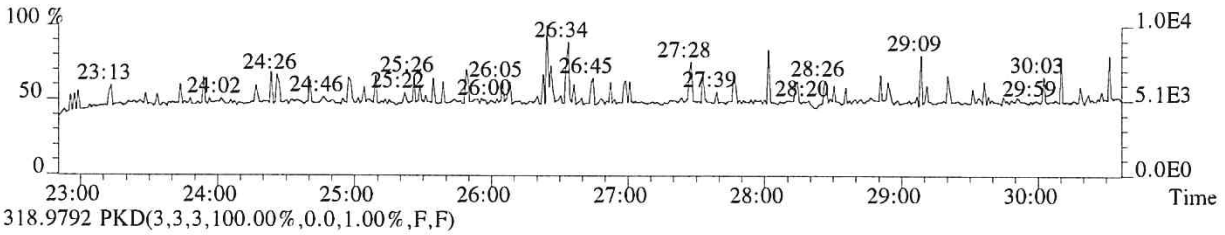
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



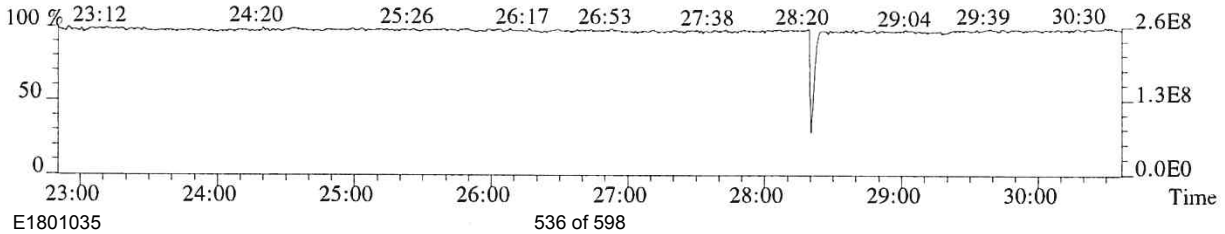
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

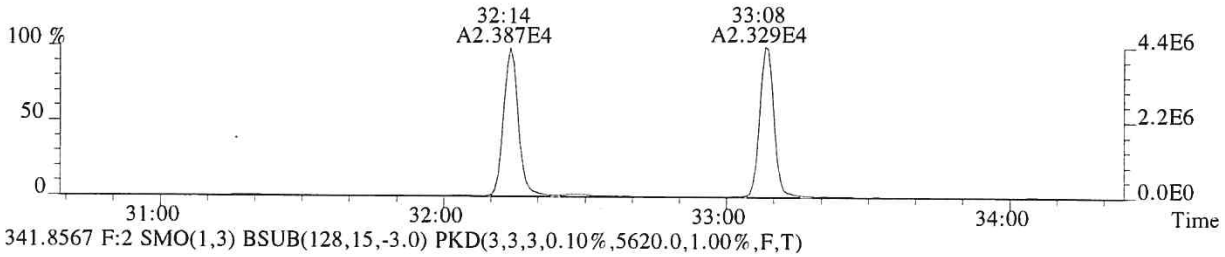


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

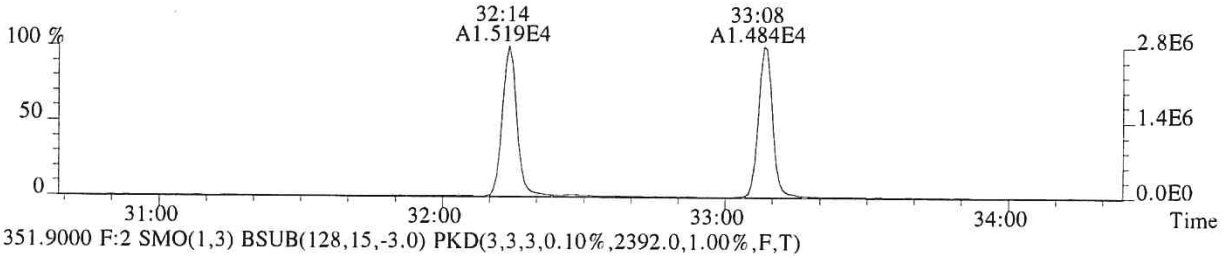


010869

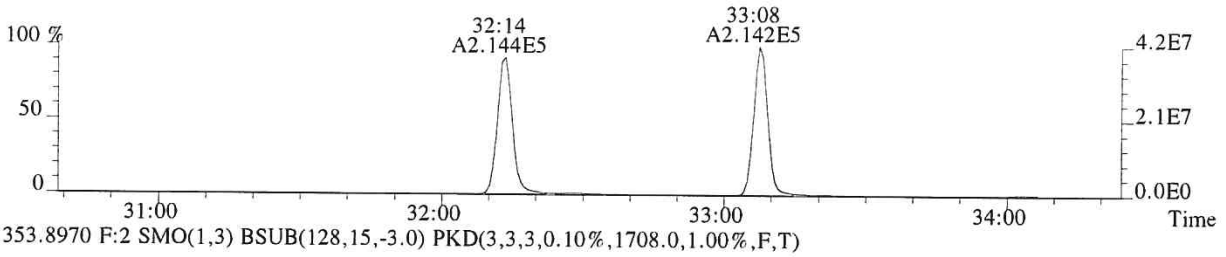
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



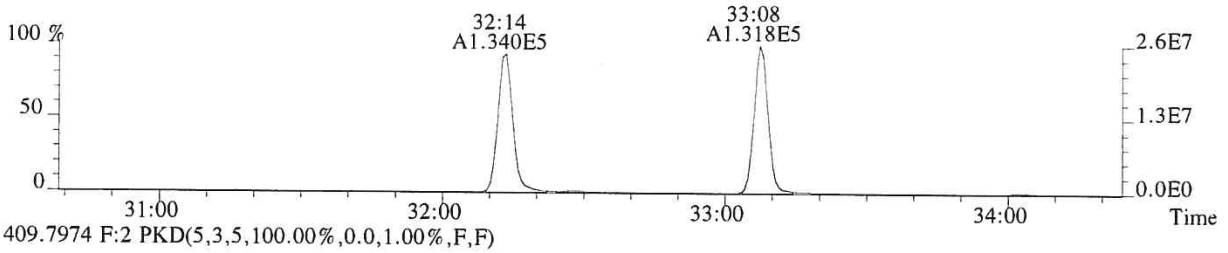
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5620.0,1.00%,F,T)



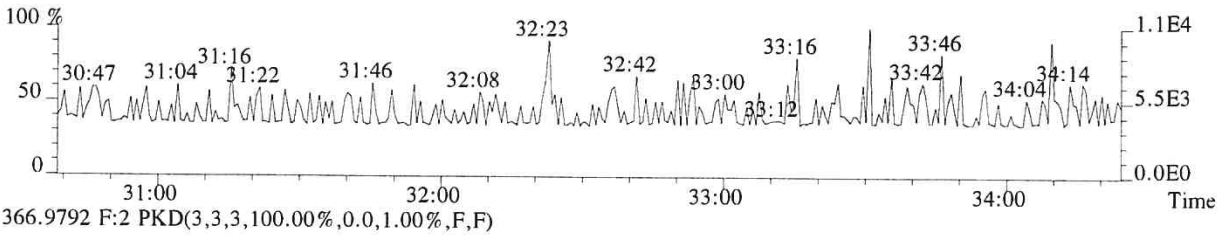
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



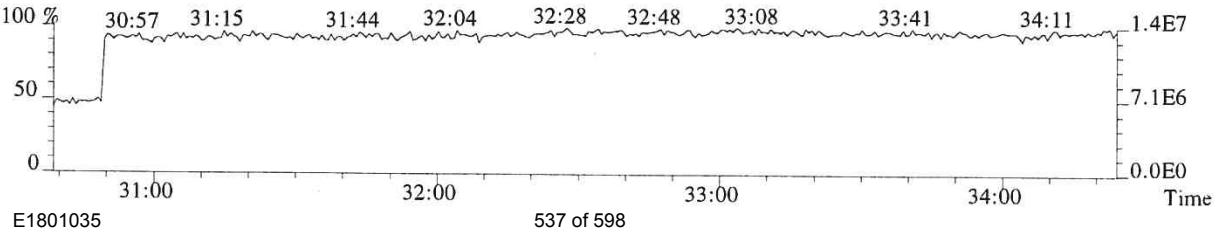
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

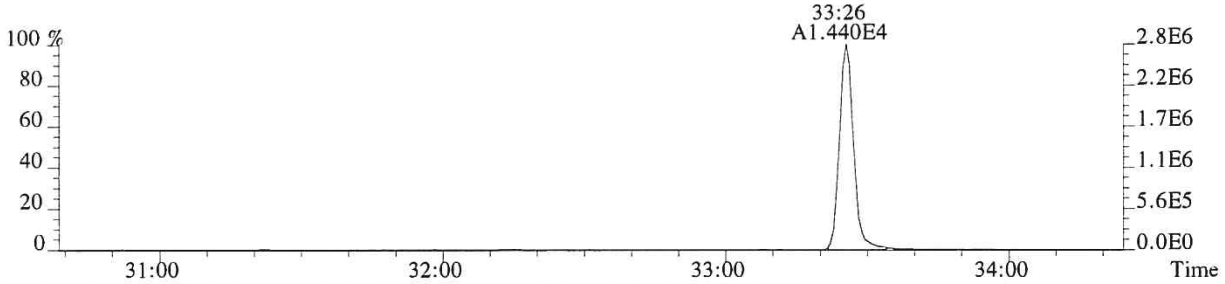


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

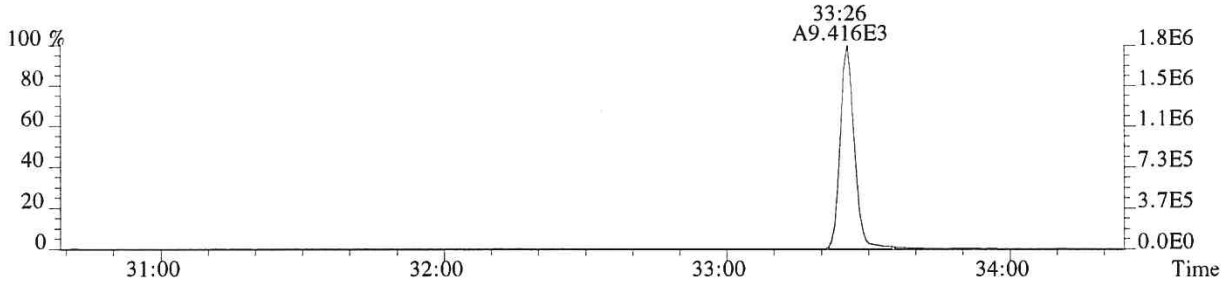


010870

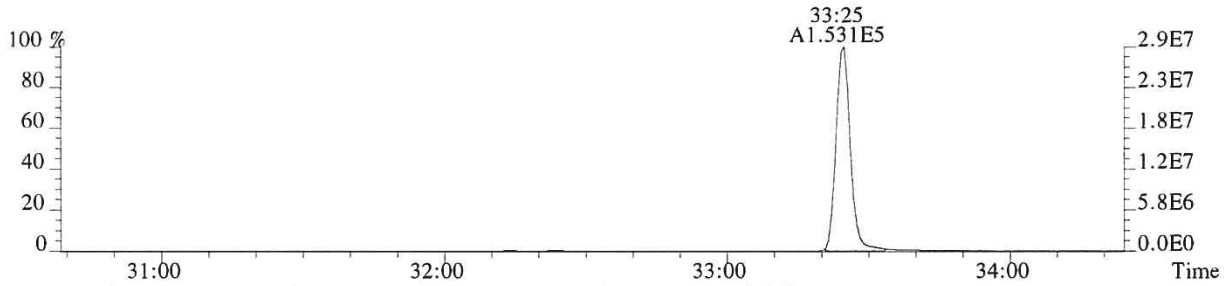
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



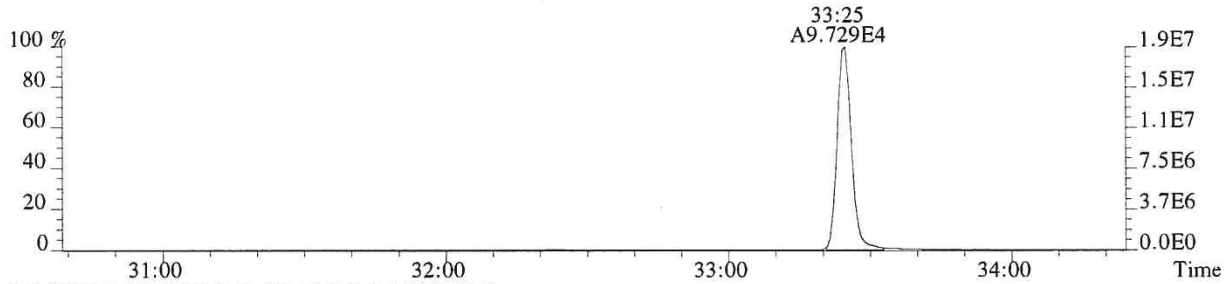
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



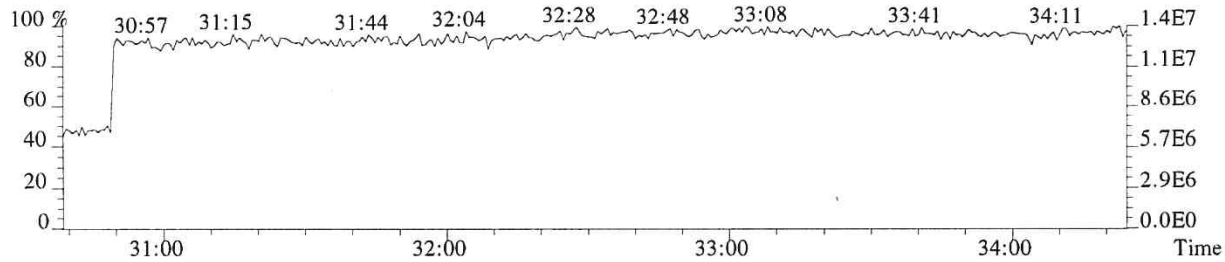
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



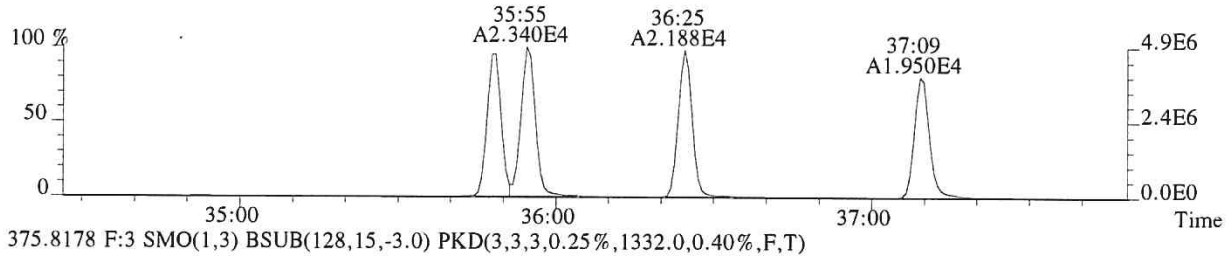
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



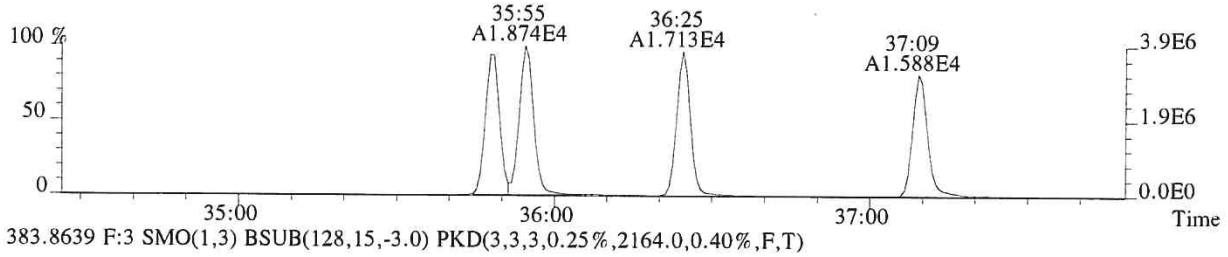
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



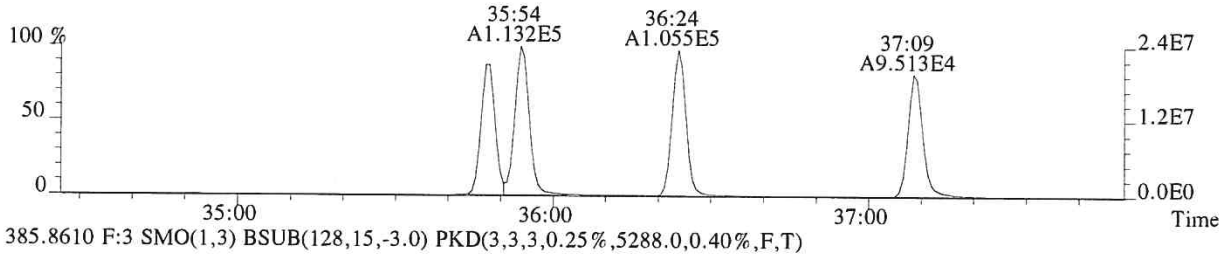
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.40%,F,T)



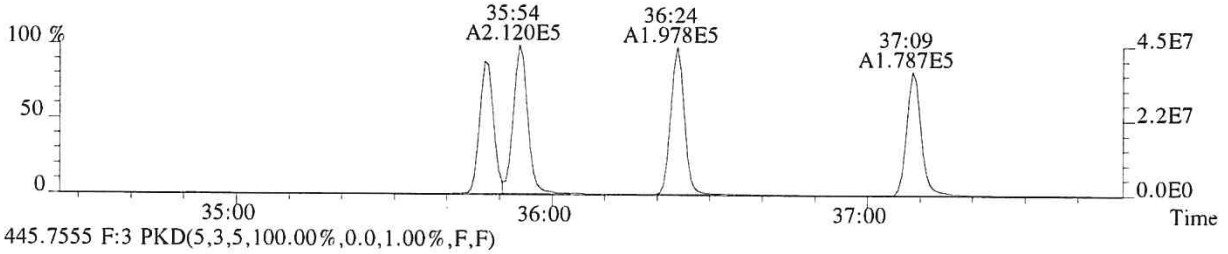
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



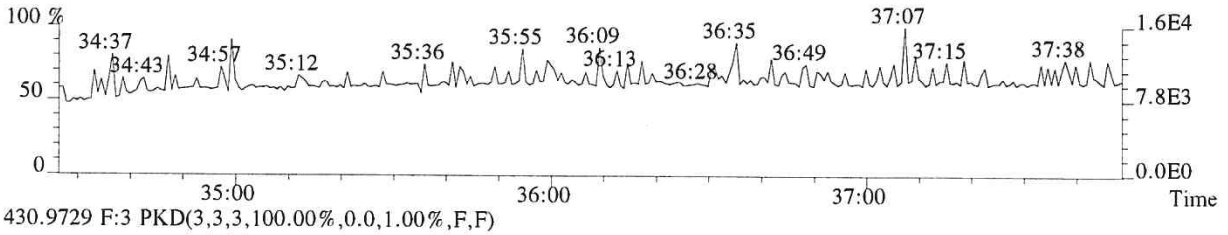
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



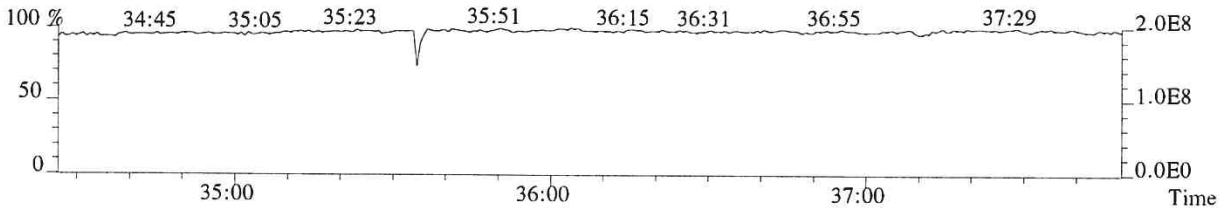
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5288.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

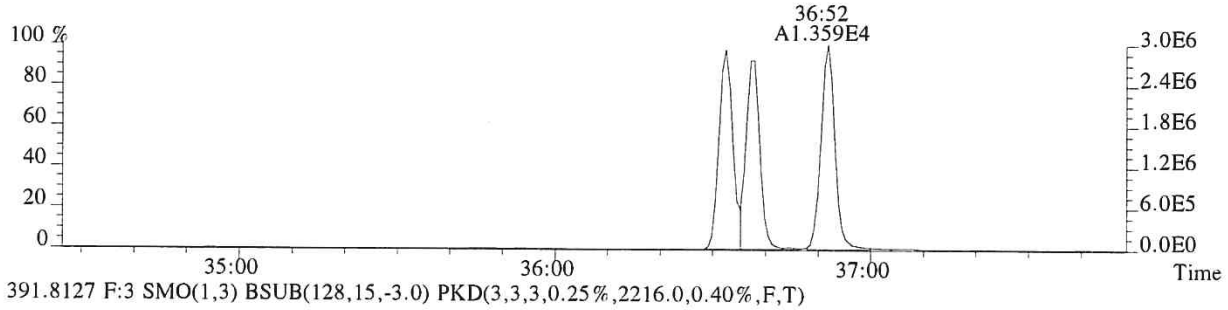


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

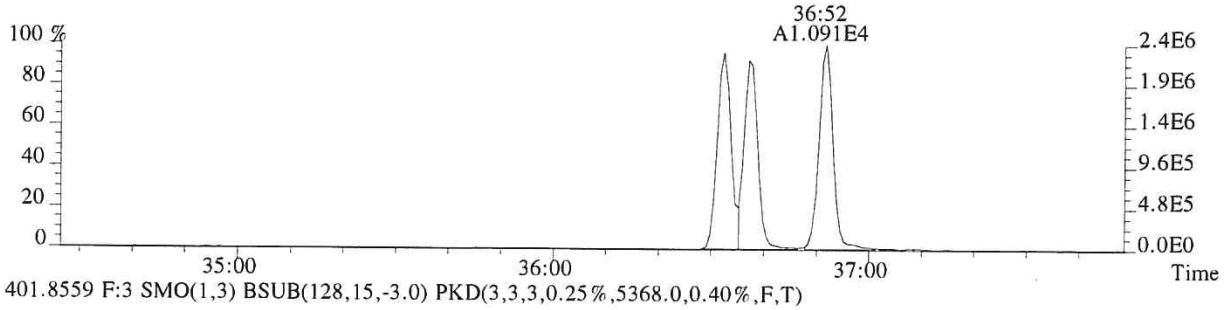


010872

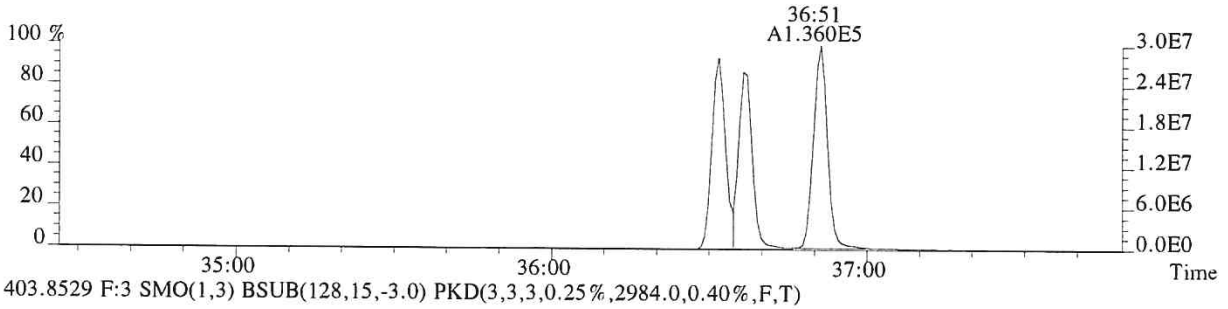
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



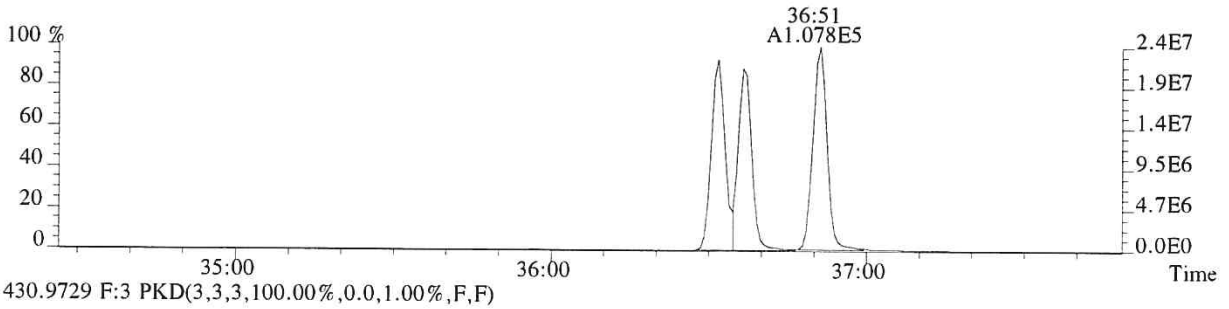
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



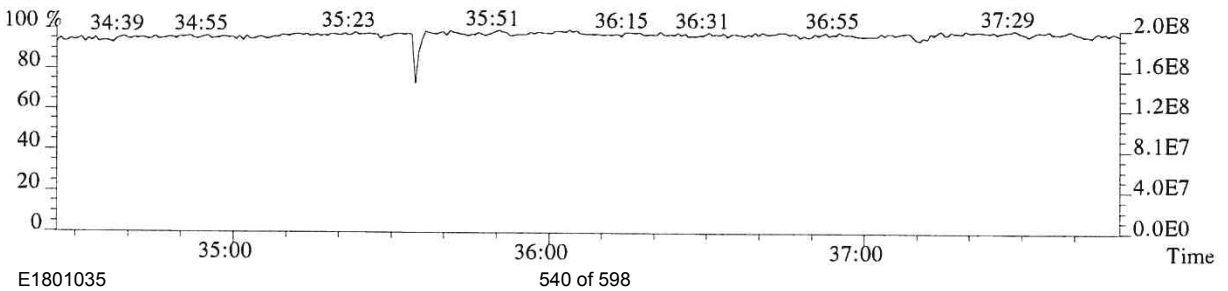
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5368.0,0.40%,F,T)



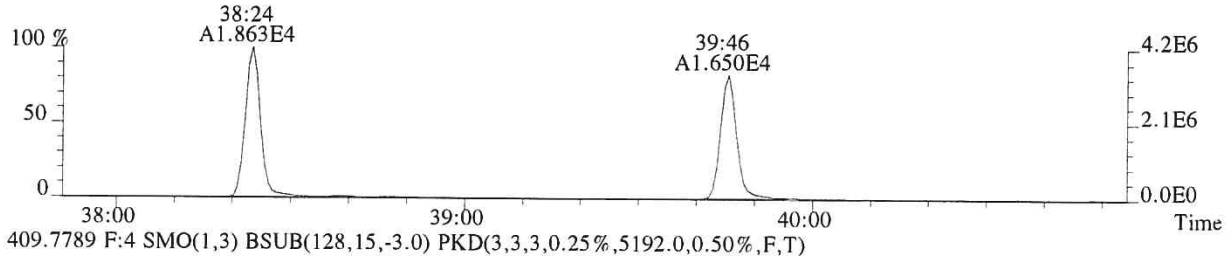
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



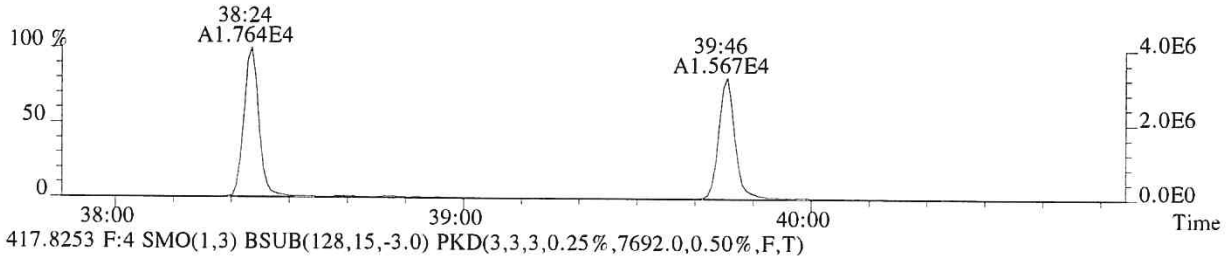
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



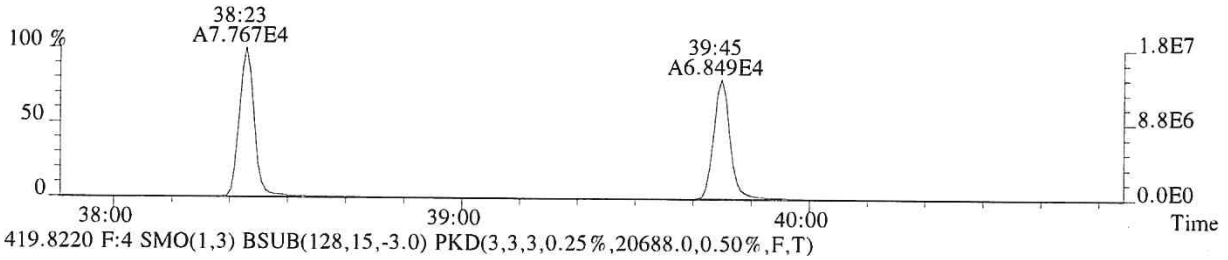
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4060.0,0.50%,F,T)



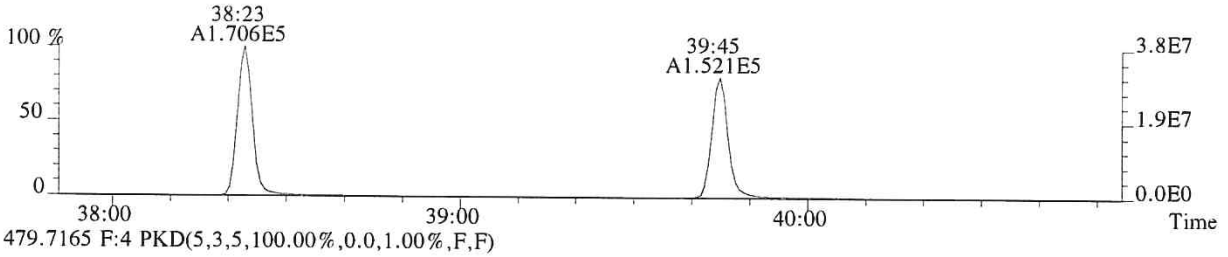
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5192.0,0.50%,F,T)



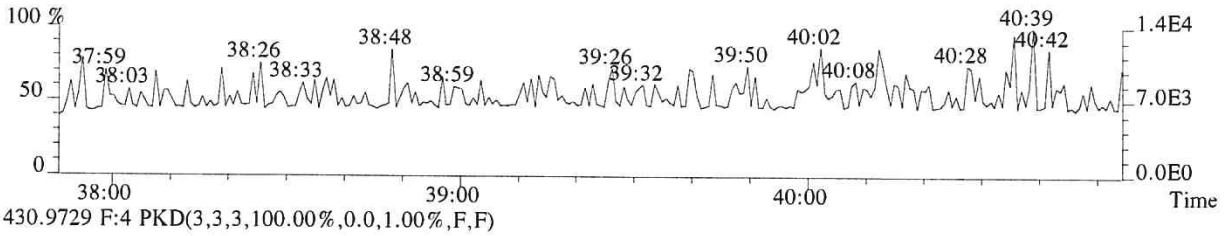
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7692.0,0.50%,F,T)



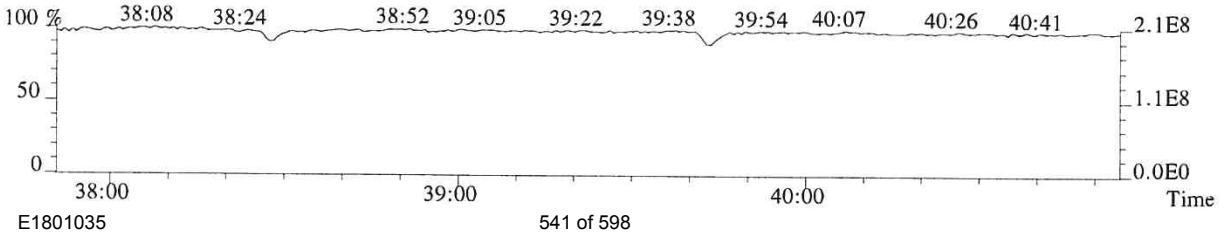
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20688.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

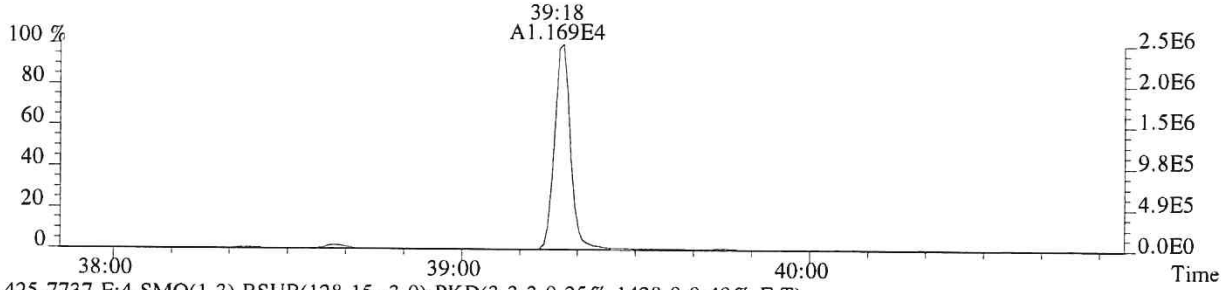


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

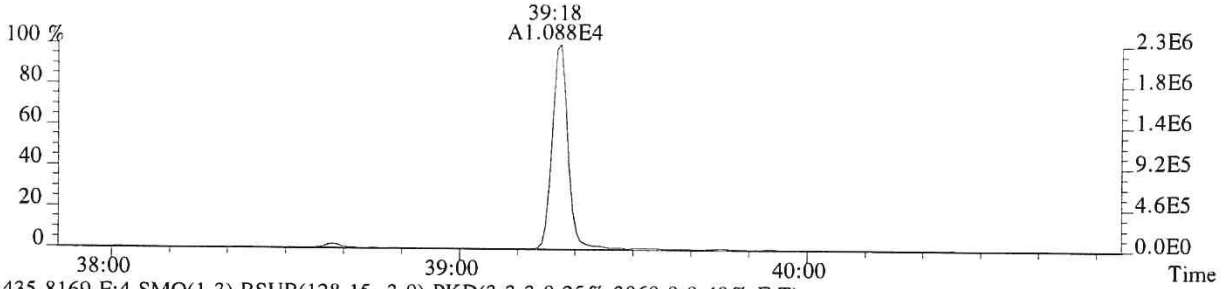


010874

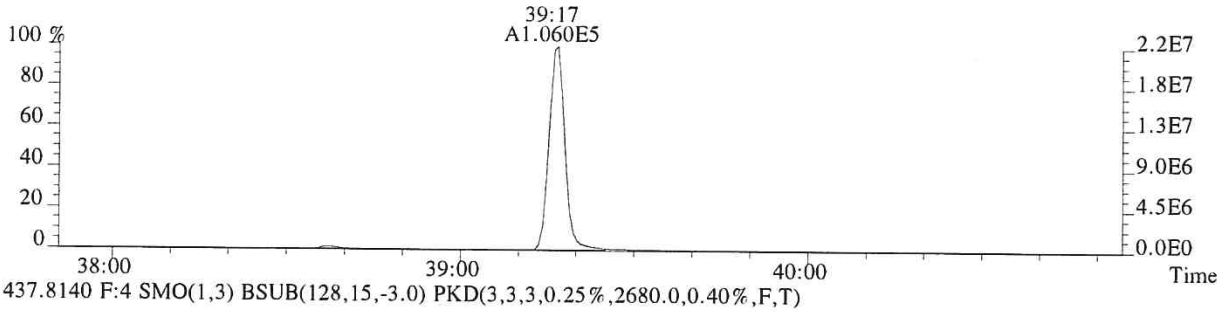
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



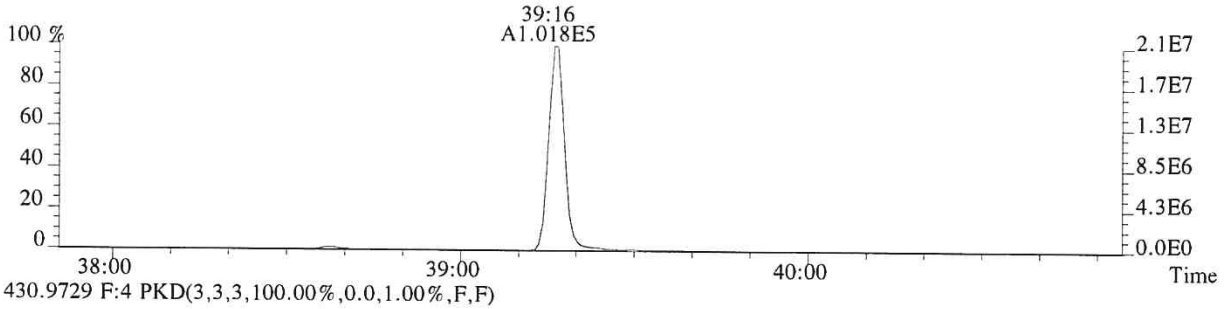
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



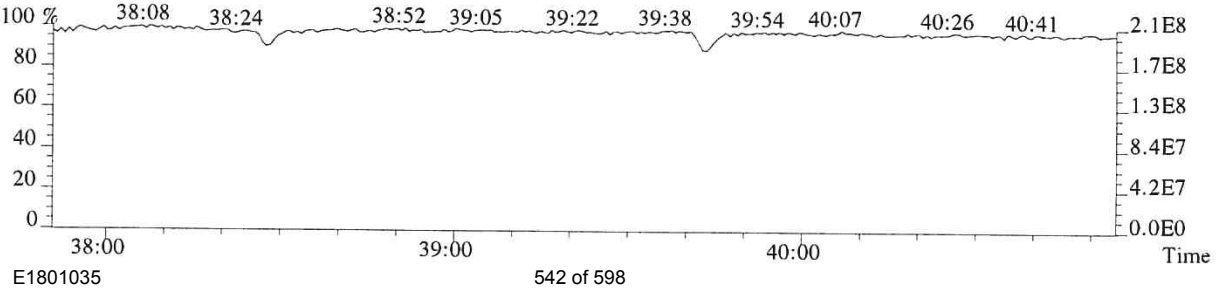
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



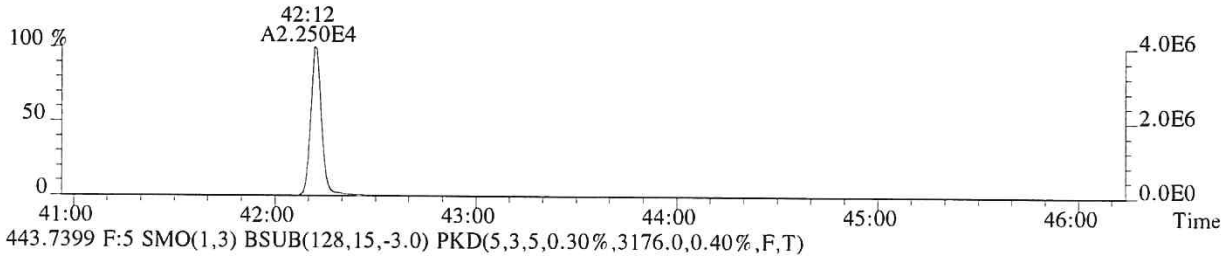
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)



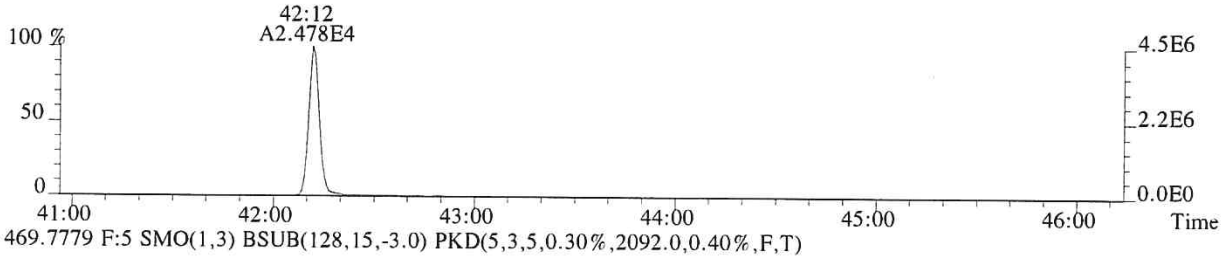
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



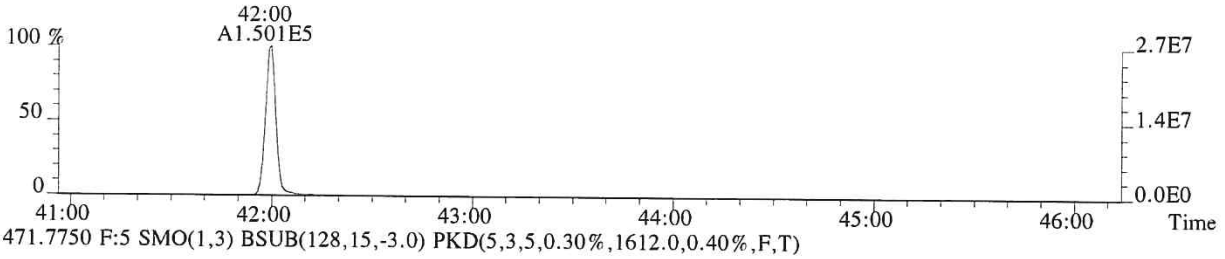
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



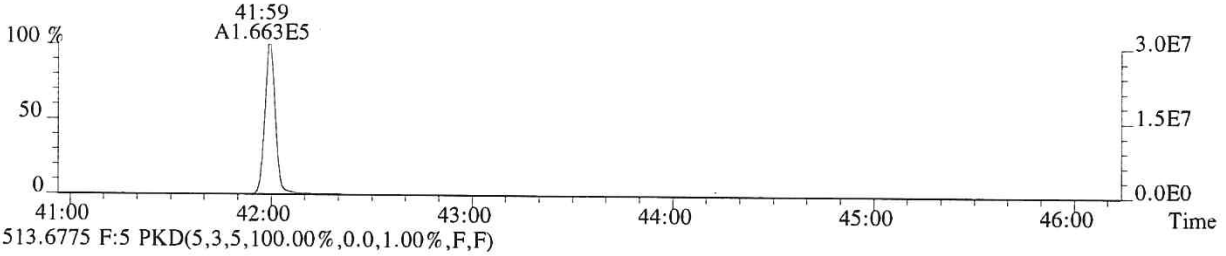
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3176.0,0.40%,F,T)



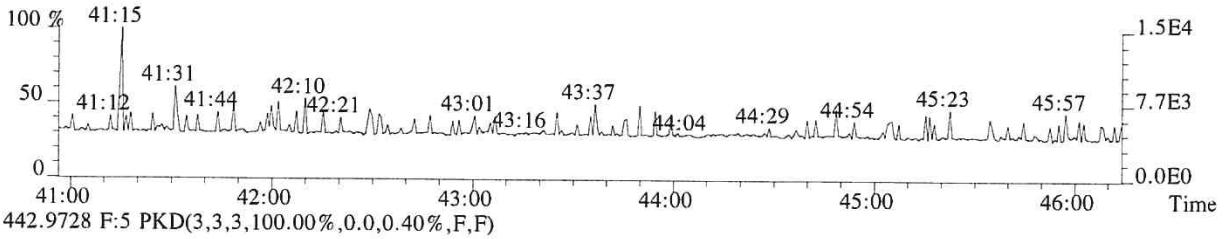
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



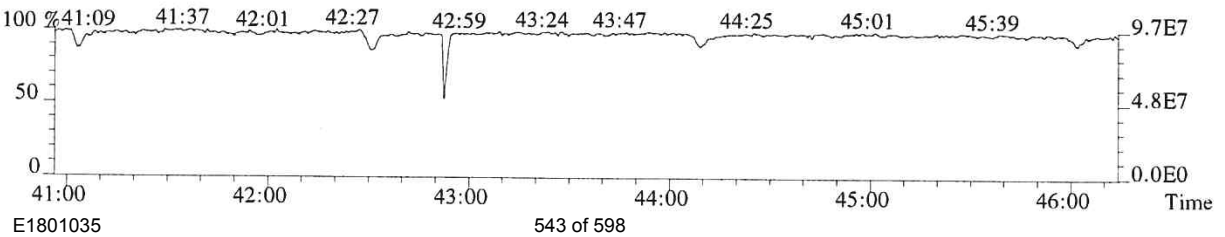
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

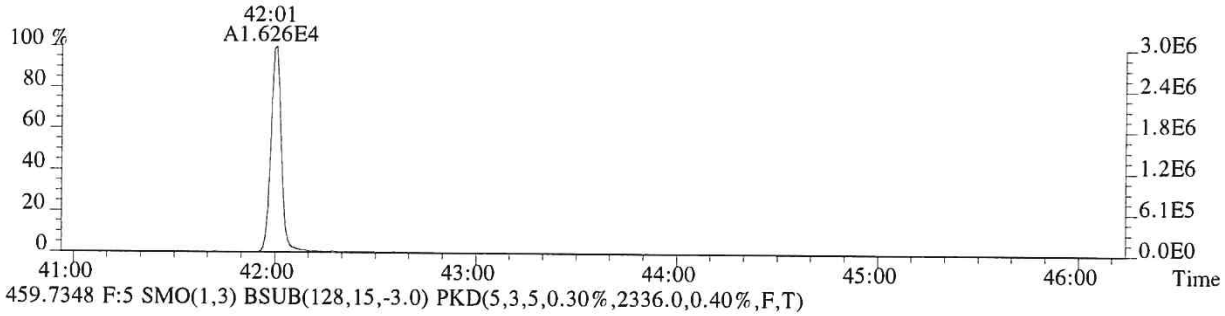


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

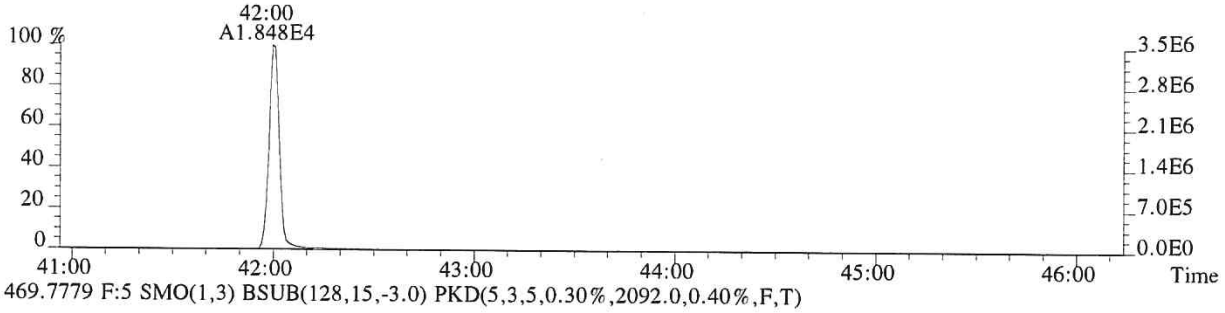


010876

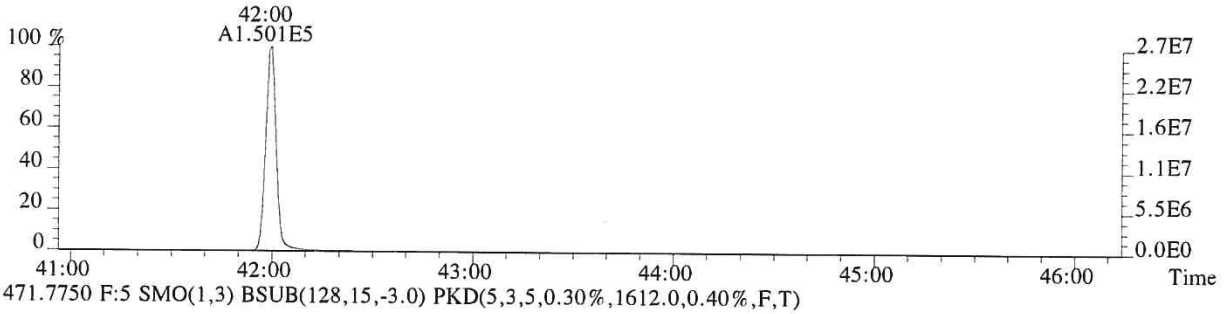
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



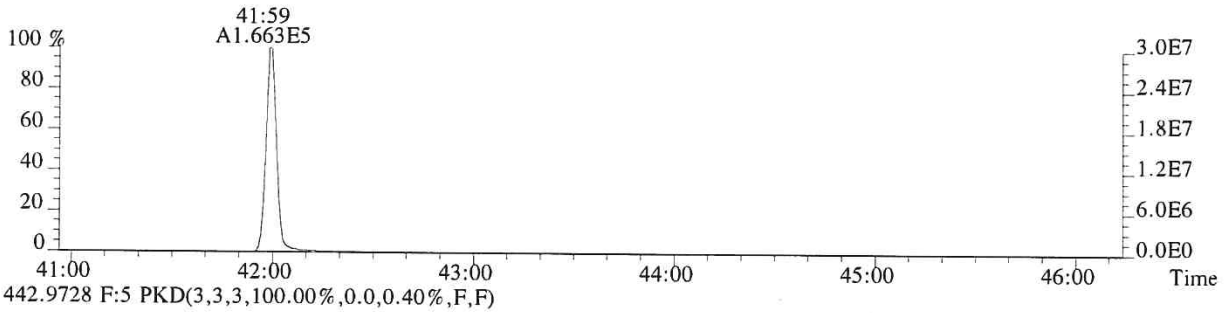
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2336.0,0.40%,F,T)



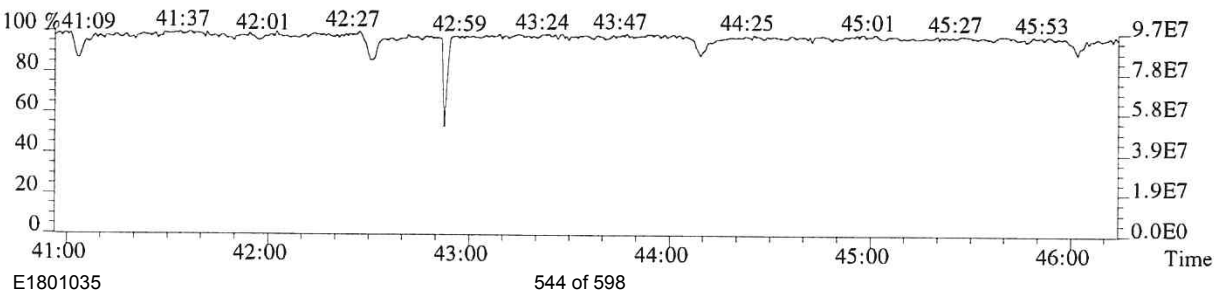
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.637e+04	4.546e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.073e+05	1.939e+05	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	2.818e+05	1.782e+05	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.774e+05	2.200e+05	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.905e+05	2.295e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.685e+05	2.105e+05	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.537e+05	1.982e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.407e+05	2.292e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.925e+05	1.847e+05	1.04	yes	no	1.463
10	Unk	OCDF	42:13	3.041e+05	3.309e+05	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	2.365e+04	3.051e+04	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.706e+05	1.098e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.645e+05	1.238e+05	1.33	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.567e+05	1.272e+05	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.702e+05	1.368e+05	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.477e+05	1.392e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.180e+05	2.422e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	3.444e+05	4.352e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	5.358e+05	3.352e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	5.234e+05	3.254e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.524e+05	4.773e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.834e+05	5.294e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.621e+05	4.867e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.431e+05	4.520e+05	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.967e+05	4.289e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.638e+05	3.571e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.330e+05	2.909e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.758e+05	2.372e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	3.106e+05	2.345e+05	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.932e+05	2.439e+05	1.20	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.673e+05	2.524e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	3.863e+05	4.247e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.395e+05	3.006e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	3.335e+05	2.694e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.645e+04				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+06	2.18e+03	3.0e+03	8.17e+06	4.39e+03	1.9e+03
2	1,2,3,7,8-PeCDF	5.78e+07	2.87e+03	2.0e+04	3.64e+07	4.35e+03	8.4e+03
3	2,3,4,7,8-PeCDF	5.79e+07	2.87e+03	2.0e+04	3.65e+07	4.35e+03	8.4e+03
4	1,2,3,4,7,8-HxCDF	6.15e+07	2.89e+03	2.1e+04	4.93e+07	2.08e+03	2.4e+04
5	1,2,3,6,7,8-HxCDF	6.26e+07	2.89e+03	2.2e+04	4.97e+07	2.08e+03	2.4e+04
6	2,3,4,6,7,8-HxCDF	6.14e+07	2.89e+03	2.1e+04	4.79e+07	2.08e+03	2.3e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.89e+03	1.9e+04	4.26e+07	2.08e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.56e+07	1.47e+04	3.8e+03	5.23e+07	1.66e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.99e+07	1.47e+04	2.7e+03	3.80e+07	1.66e+04	2.3e+03
10	OCDF	5.72e+07	1.23e+03	4.7e+04	6.22e+07	3.01e+03	2.1e+04
11	2,3,7,8-TCDD	4.49e+06	5.36e+03	8.4e+02	5.78e+06	2.64e+03	2.2e+03
12	1,2,3,7,8-PeCDD	3.45e+07	2.46e+03	1.4e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	3.72e+07	9.04e+02	4.1e+04	2.90e+07	1.56e+03	1.9e+04
14	1,2,3,6,7,8-HxCDD	3.60e+07	9.04e+02	4.0e+04	2.81e+07	1.56e+03	1.8e+04
15	1,2,3,7,8,9-HxCDD	3.80e+07	9.04e+02	4.2e+04	3.00e+07	1.56e+03	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	3.19e+07	1.58e+03	2.0e+04	3.06e+07	1.63e+03	1.9e+04
17	OCDD	4.21e+07	1.71e+03	2.5e+04	4.66e+07	1.53e+03	3.0e+04
18	13C-2,3,7,8-TCDF	6.23e+07	1.55e+04	4.0e+03	7.90e+07	1.02e+04	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+08	2.14e+03	4.7e+04	6.28e+07	2.18e+03	2.9e+04
20	13C-2,3,4,7,8-PeCDF	1.07e+08	2.14e+03	5.0e+04	6.66e+07	2.18e+03	3.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.63e+07	2.92e+03	1.9e+04	1.07e+08	4.60e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.12e+07	2.92e+03	2.1e+04	1.15e+08	4.60e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	2.92e+03	2.0e+04	1.10e+08	4.60e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.22e+07	2.92e+03	1.8e+04	9.74e+07	4.60e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.59e+07	1.18e+04	3.9e+03	9.95e+07	3.82e+04	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	1.18e+04	2.9e+03	7.29e+07	3.82e+04	1.9e+03
27	13C-2,3,7,8-TCDD	4.45e+07	1.91e+04	2.3e+03	5.53e+07	7.70e+03	7.2e+03
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.59e+03	2.1e+04	4.74e+07	2.50e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.95e+07	5.55e+03	1.3e+04	5.43e+07	3.18e+03	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	6.70e+07	5.55e+03	1.2e+04	5.36e+07	3.18e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.80e+07	4.72e+03	1.2e+04	5.53e+07	2.63e+03	2.1e+04
32	13C-OCDD	7.33e+07	1.86e+03	4.0e+04	8.10e+07	5.92e+02	1.4e+05
33	13C-1,2,3,4-TCDD	4.48e+07	1.91e+04	2.3e+03	5.67e+07	7.70e+03	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.38e+07	5.55e+03	1.3e+04	5.89e+07	3.18e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	1.08e+07	3.52e+03	3.1e+03			

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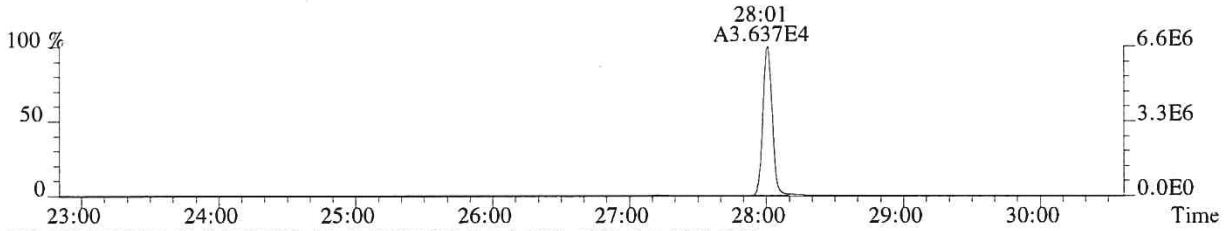
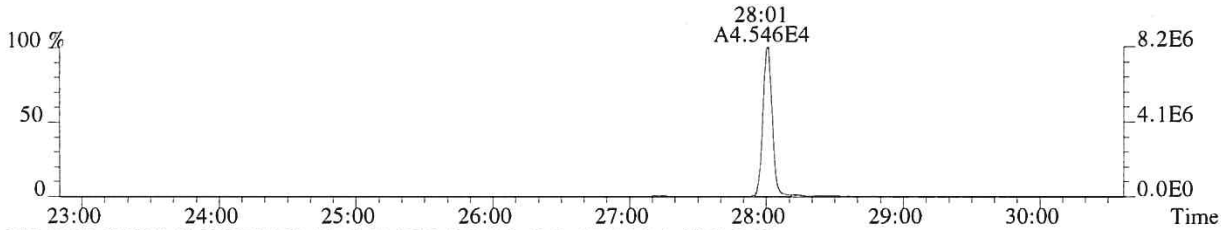
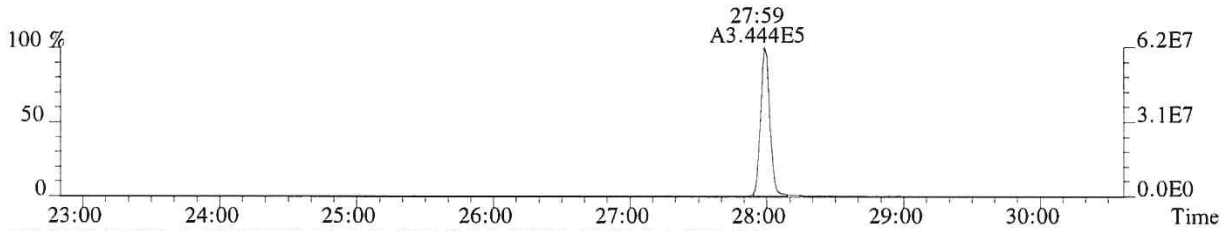
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



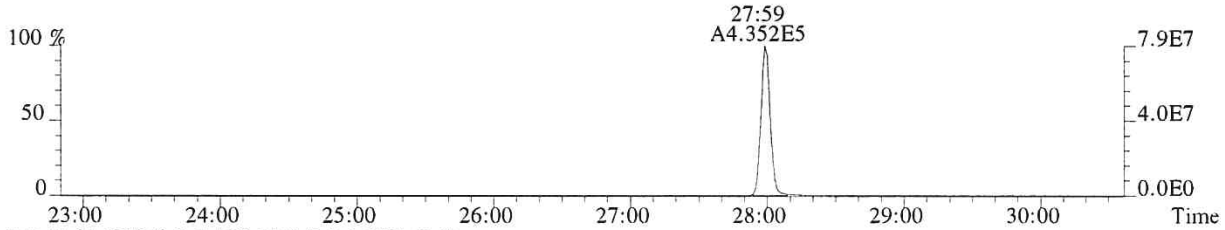
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



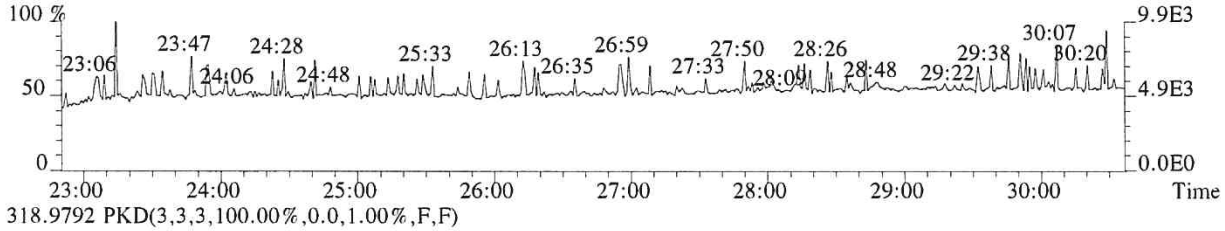
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15516.0,1.00%,F,T)



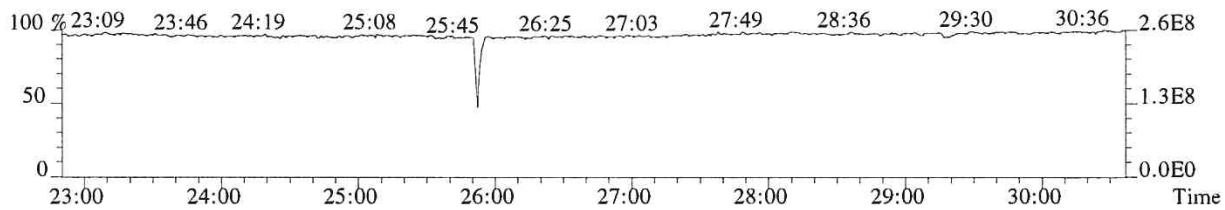
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

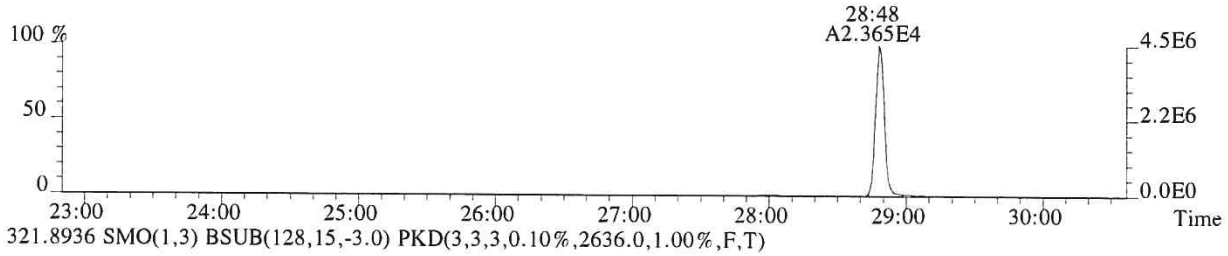


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

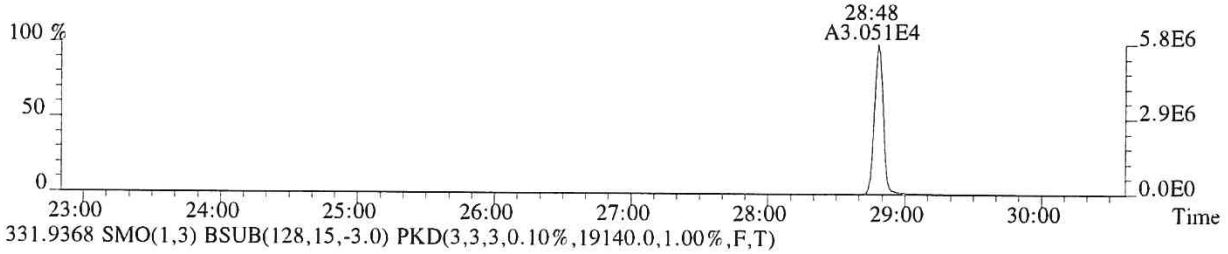


010880

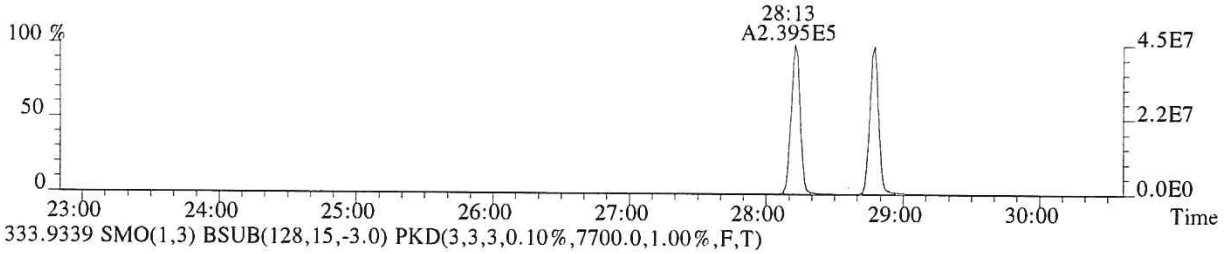
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



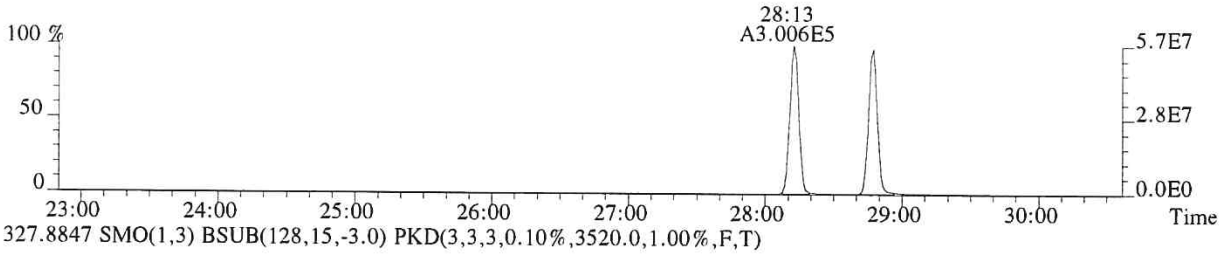
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



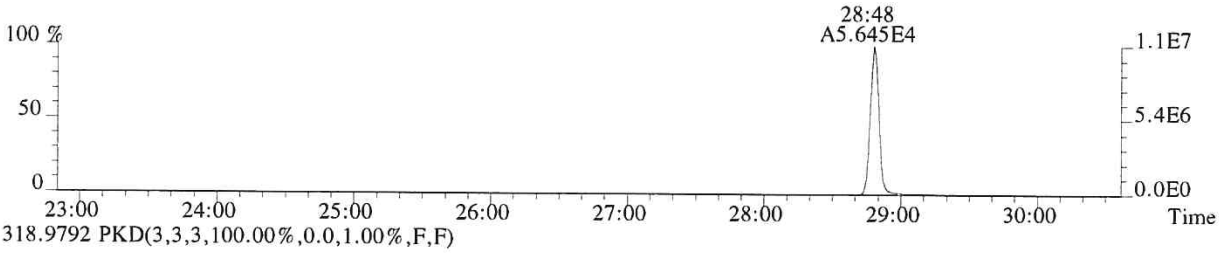
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



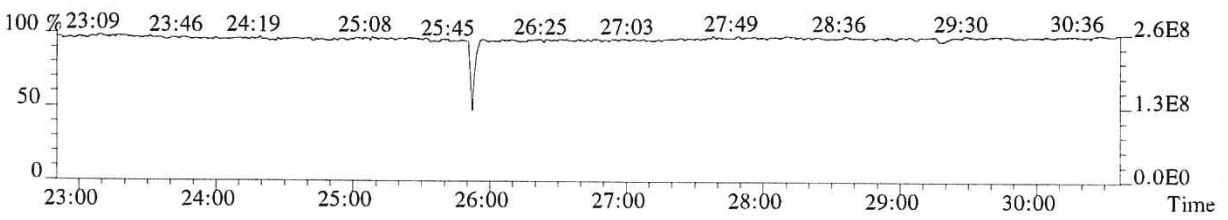
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)

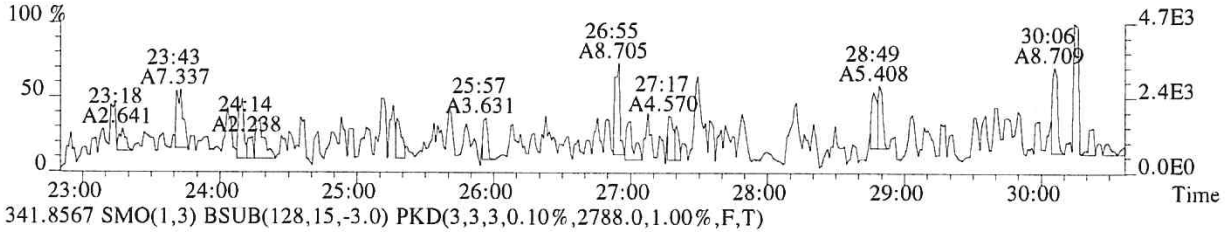


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

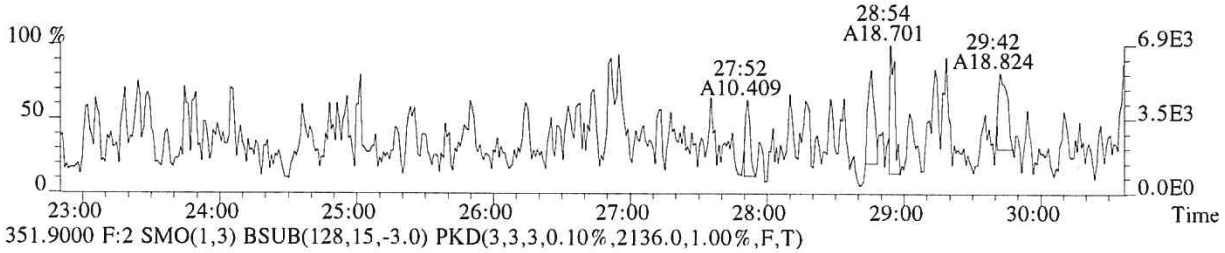


010881

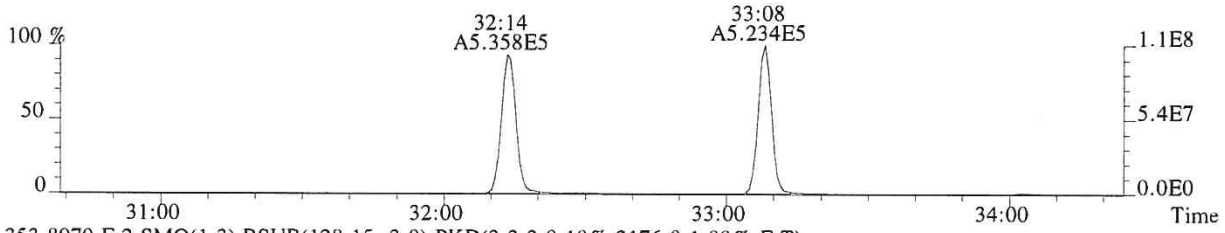
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



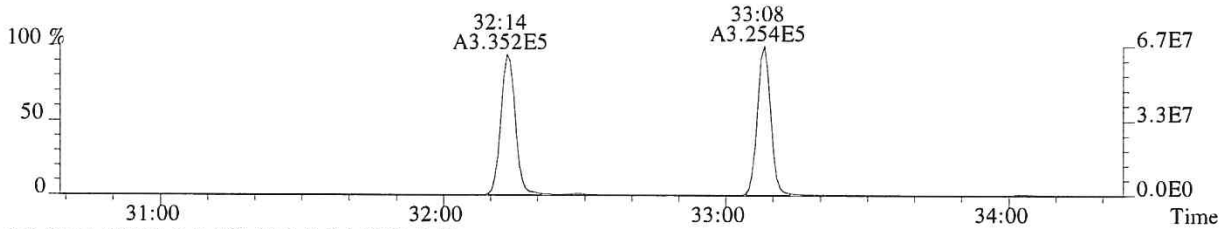
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



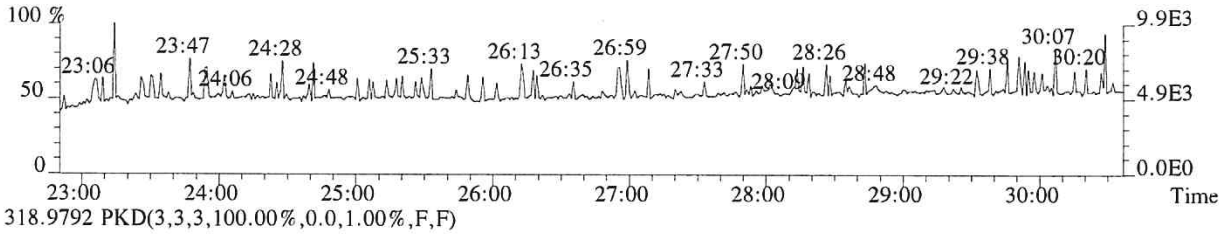
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



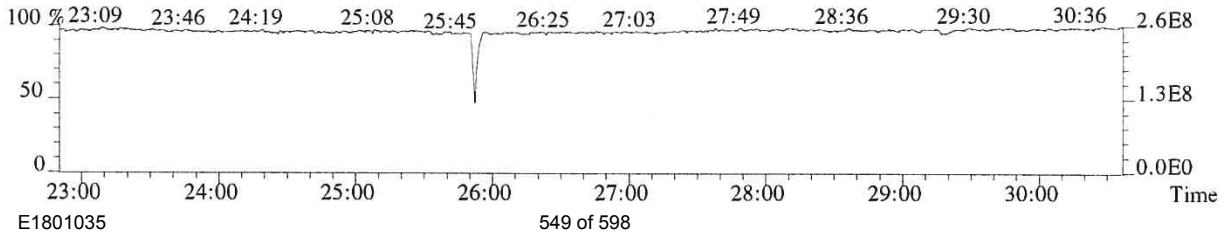
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

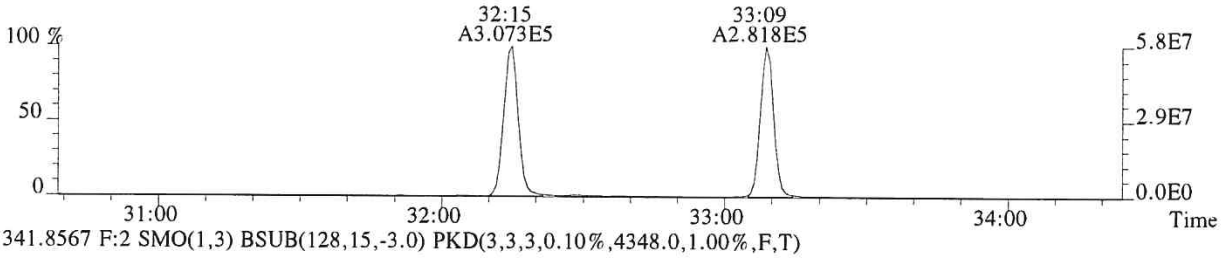


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

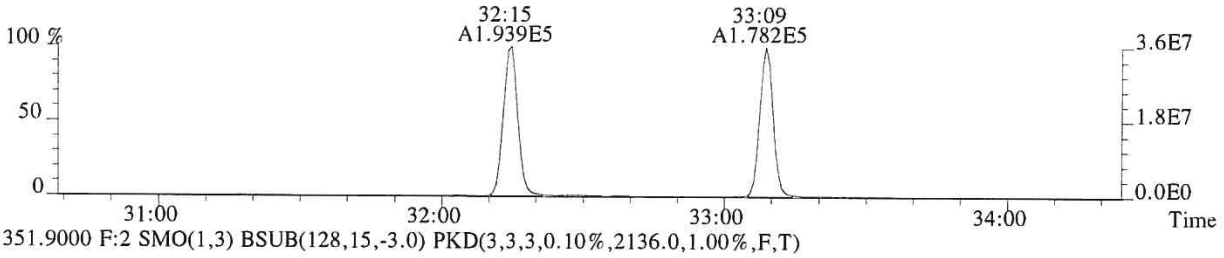


010882

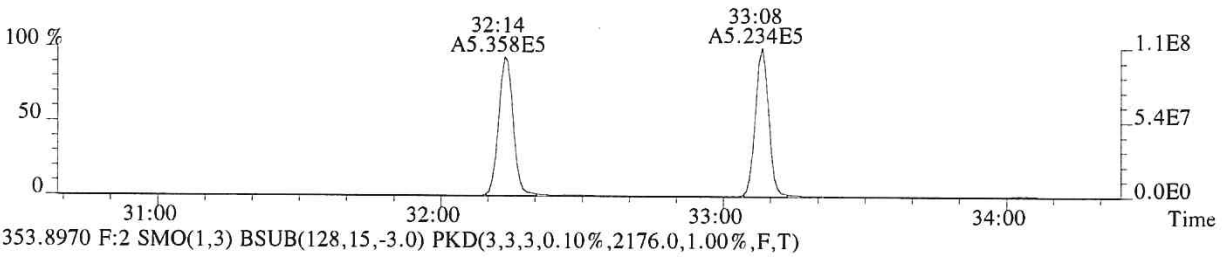
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



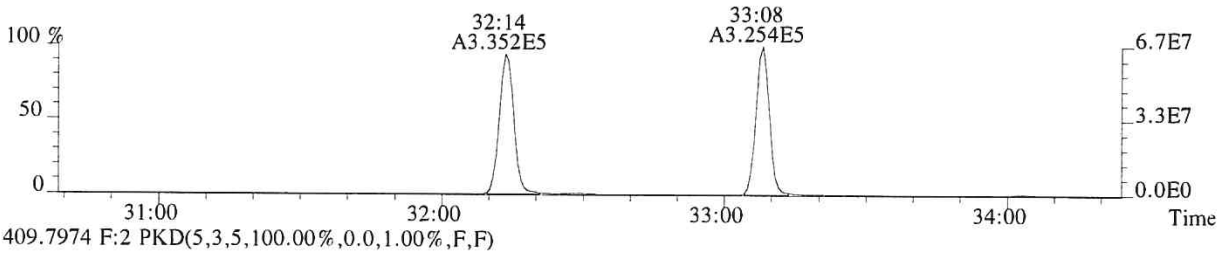
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



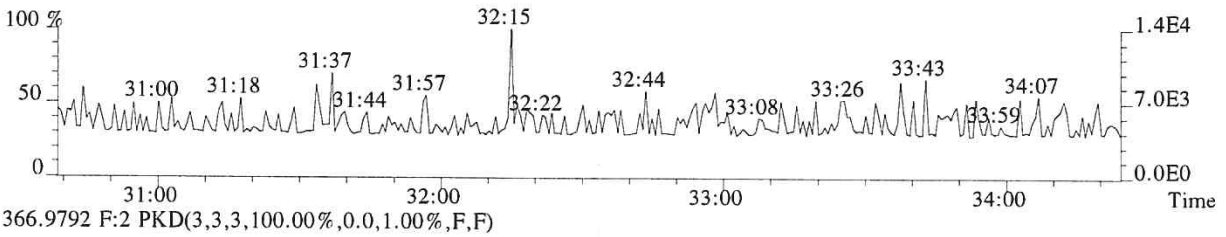
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



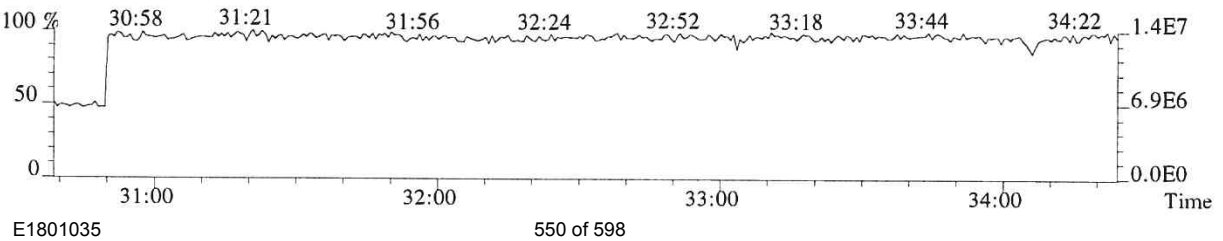
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

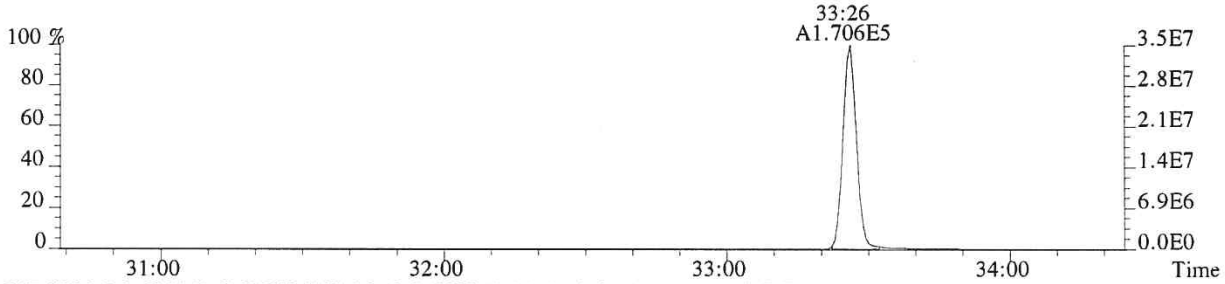


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

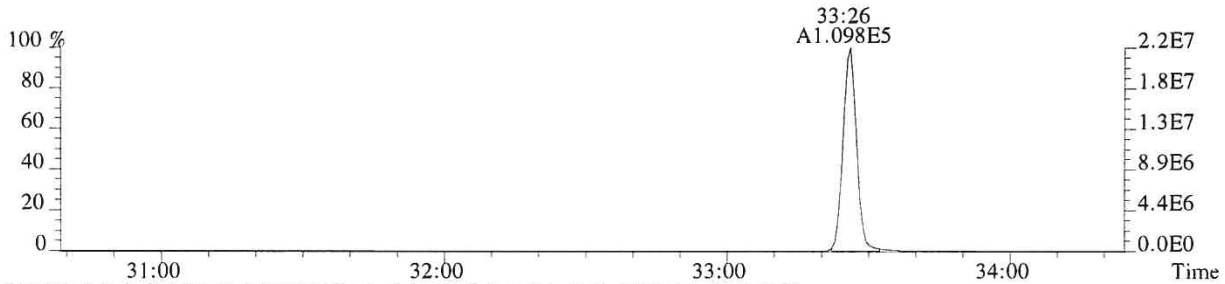


010883

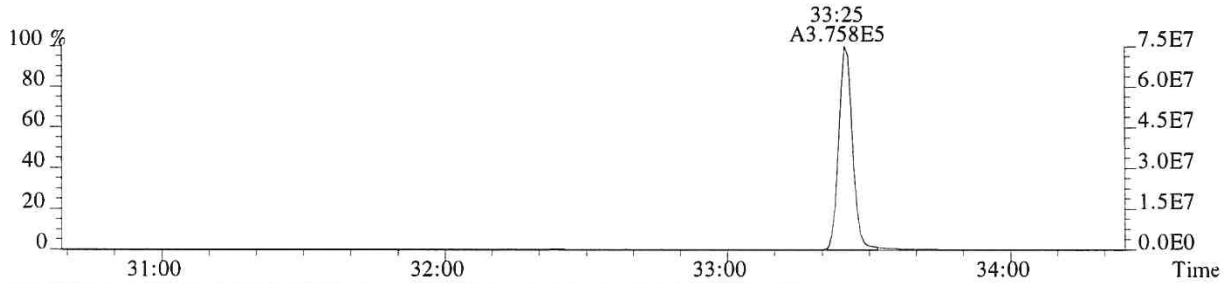
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



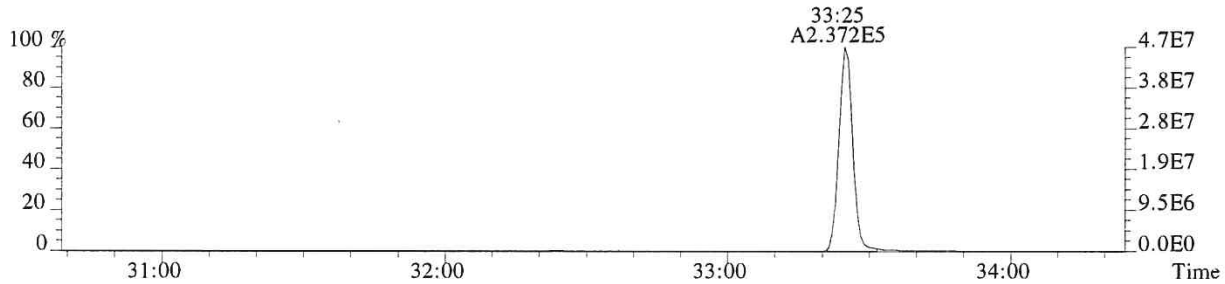
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



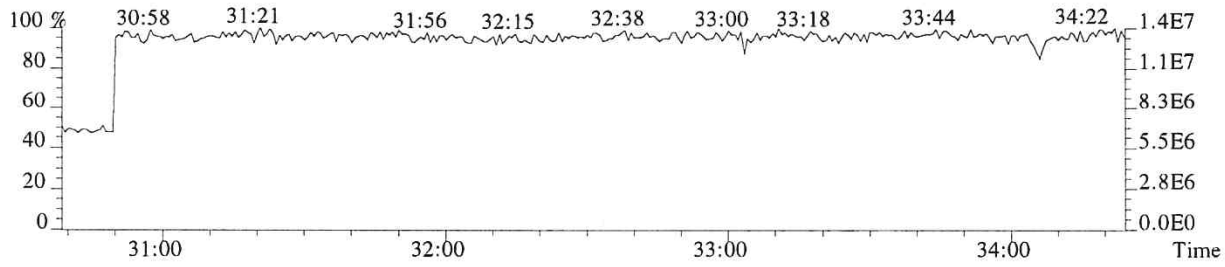
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)

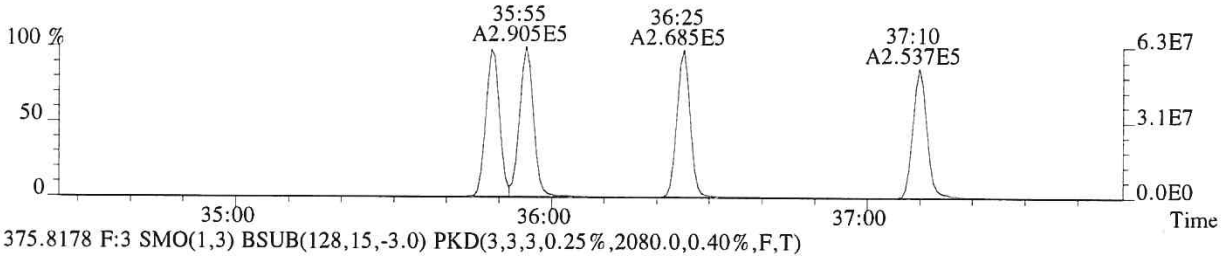


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

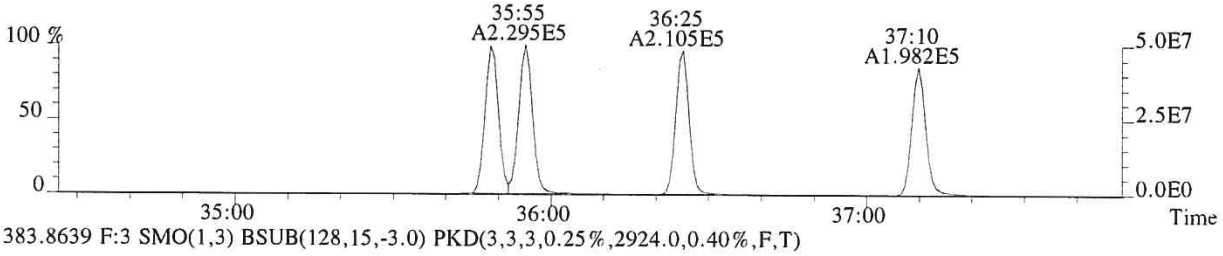


010884

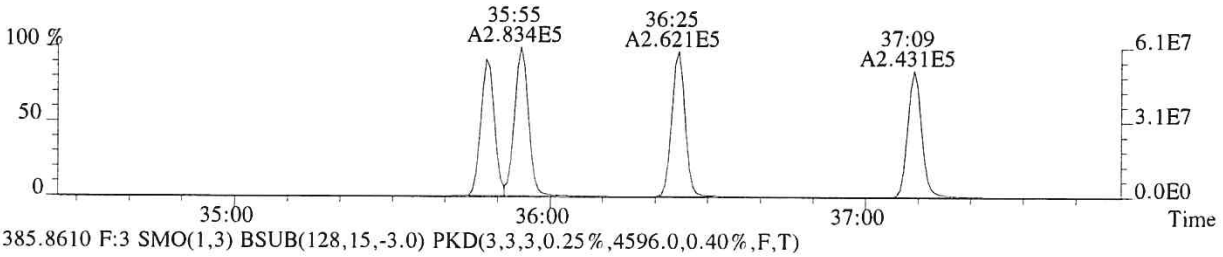
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



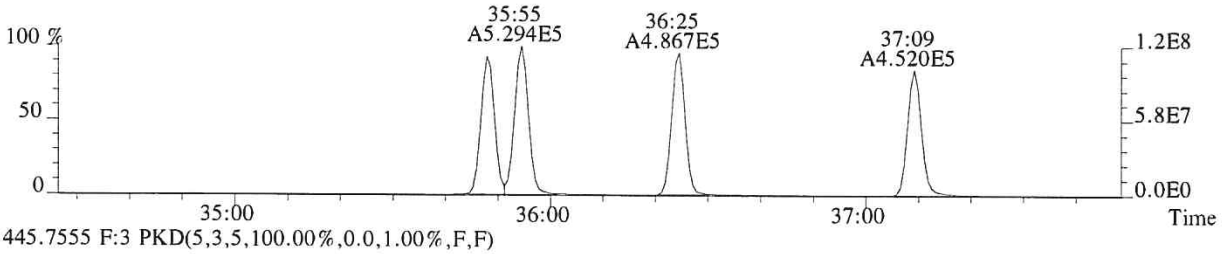
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



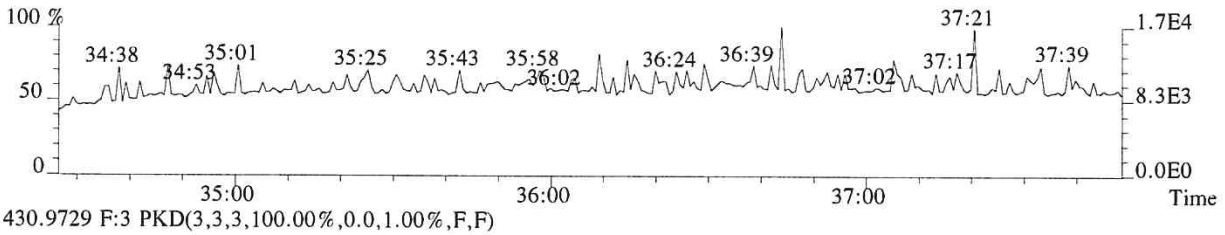
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



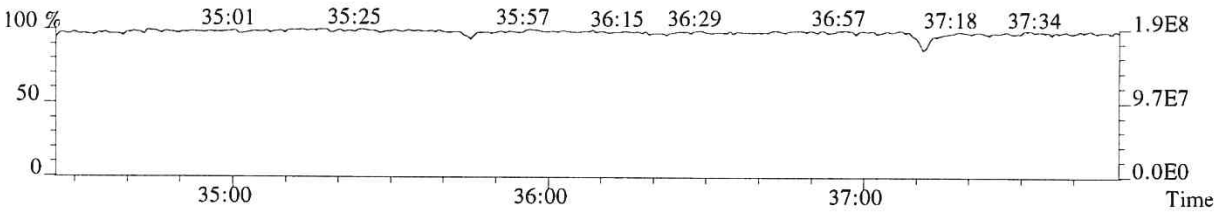
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4596.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

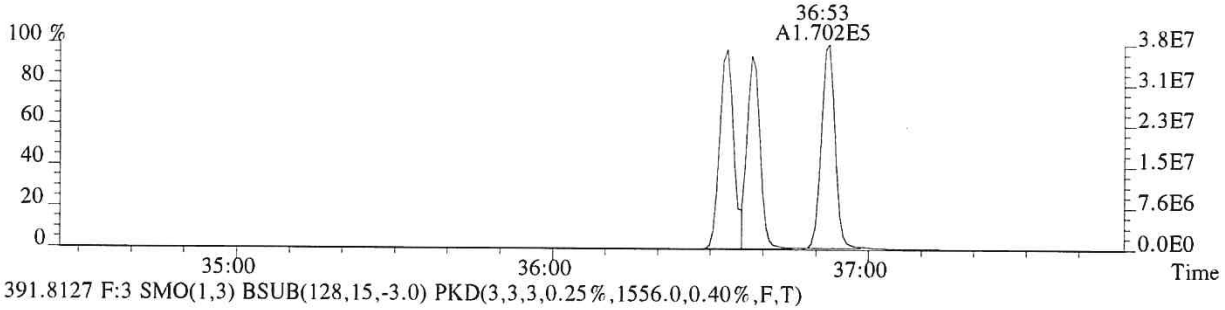


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

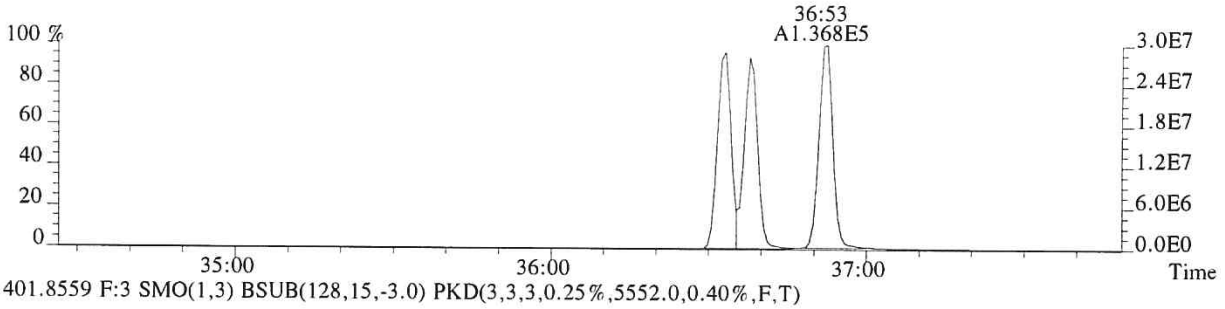


010885

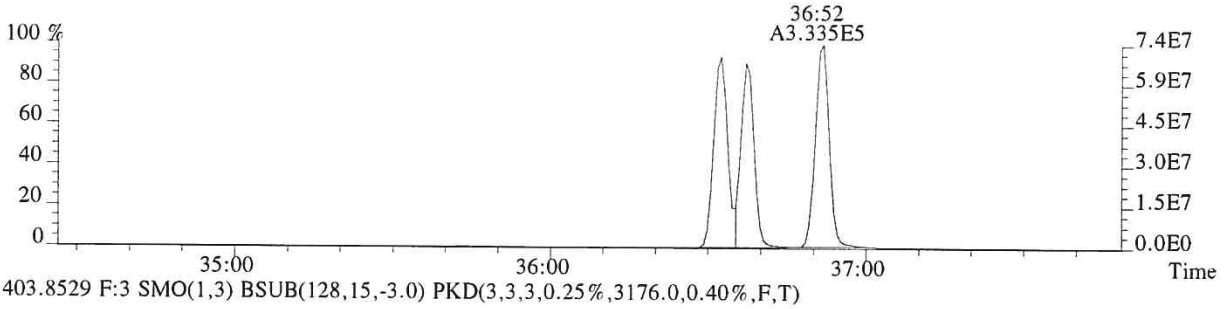
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



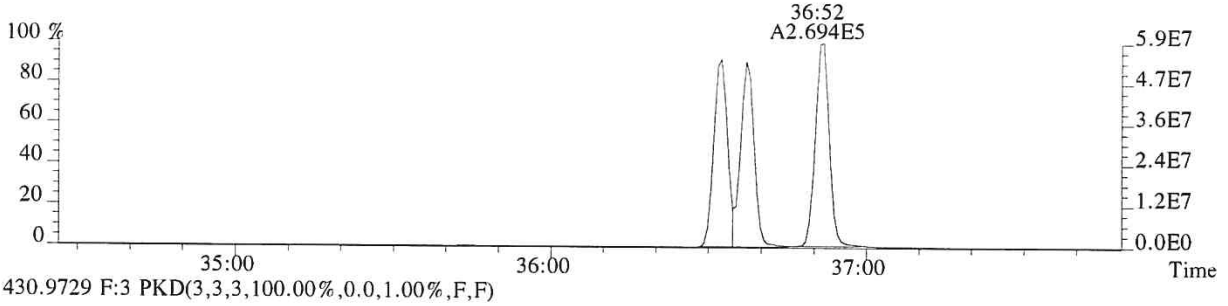
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



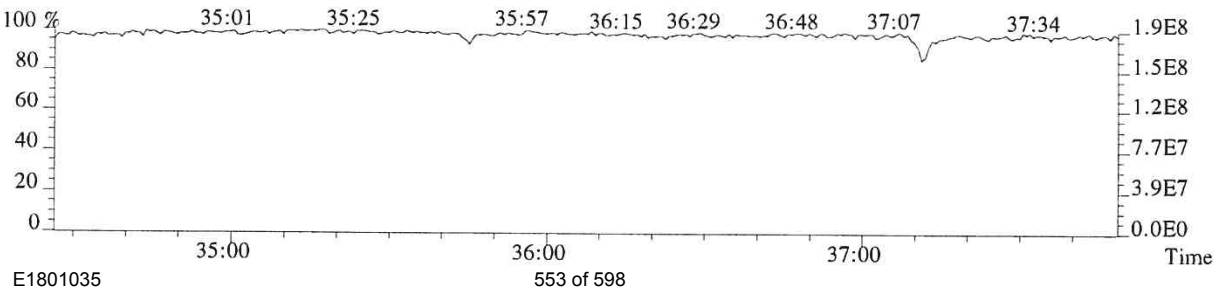
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5552.0,0.40%,F,T)



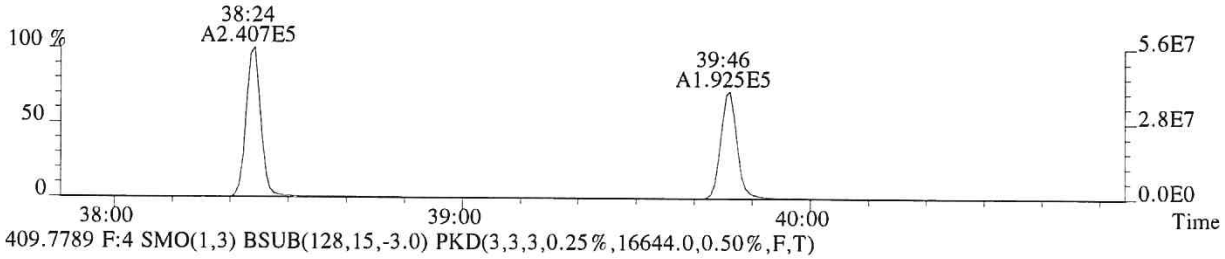
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)



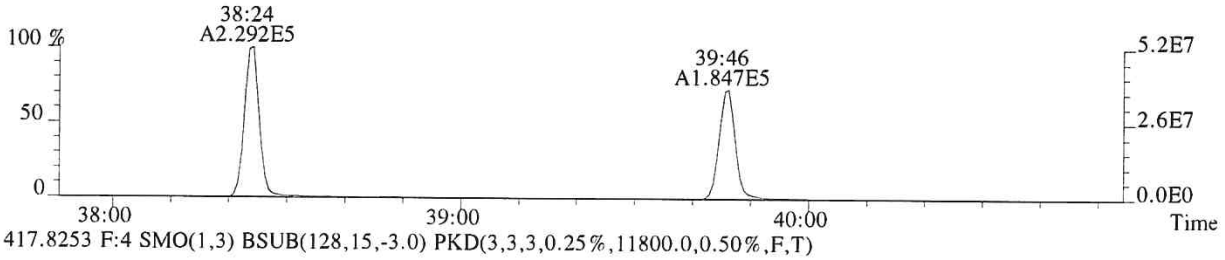
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



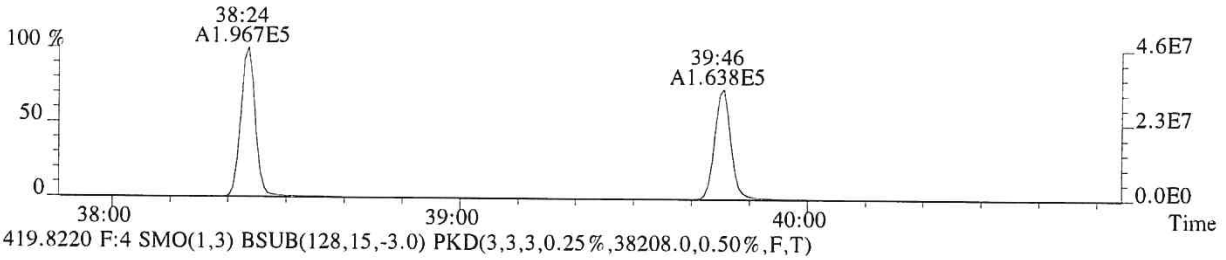
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14728.0,0.50%,F,T)



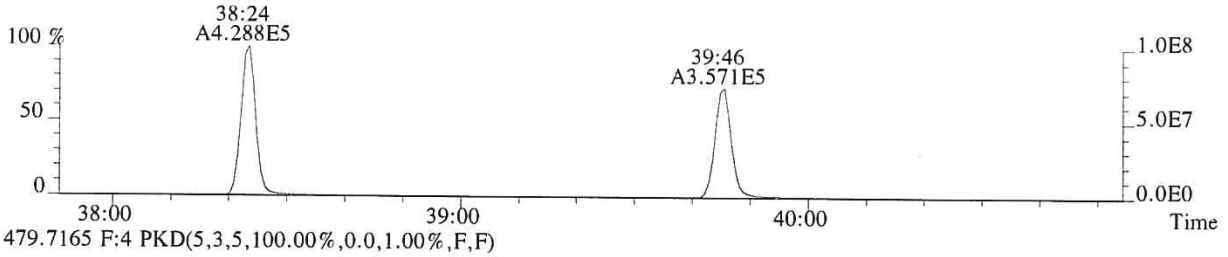
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16644.0,0.50%,F,T)



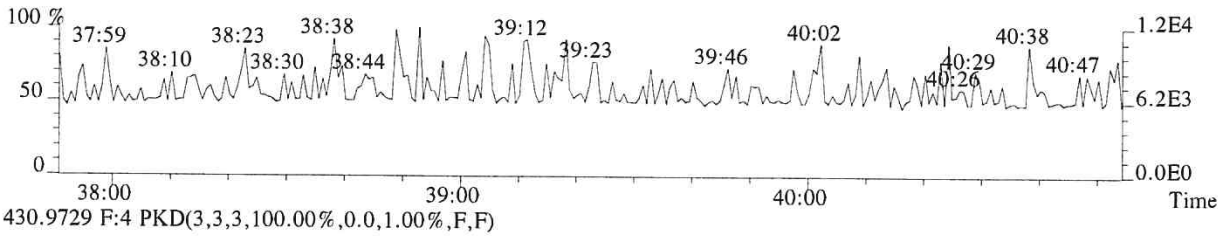
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11800.0,0.50%,F,T)



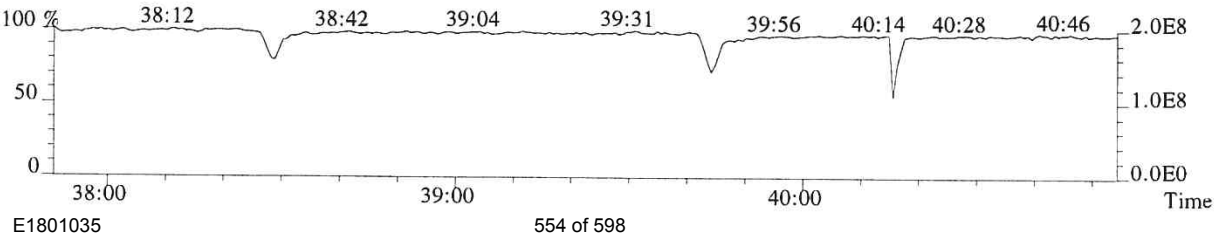
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,38208.0,0.50%,F,T)



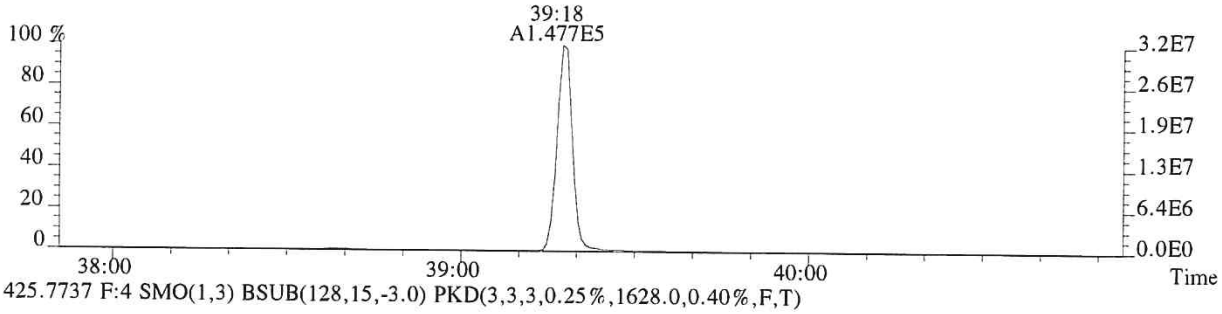
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



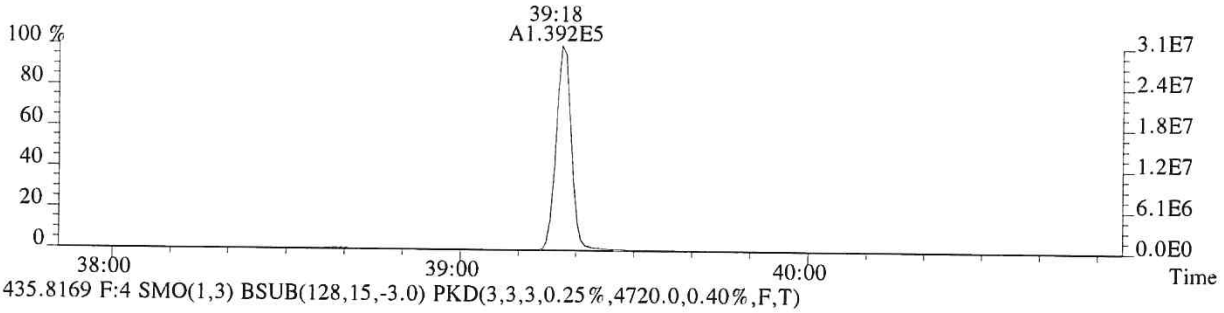
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



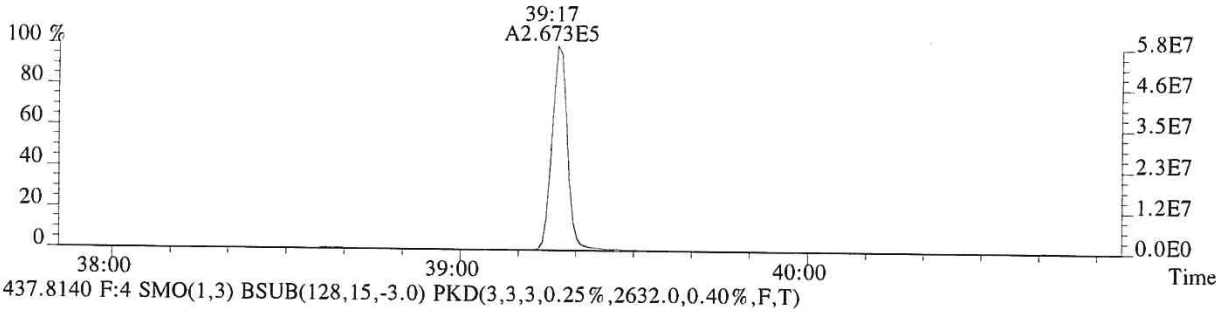
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



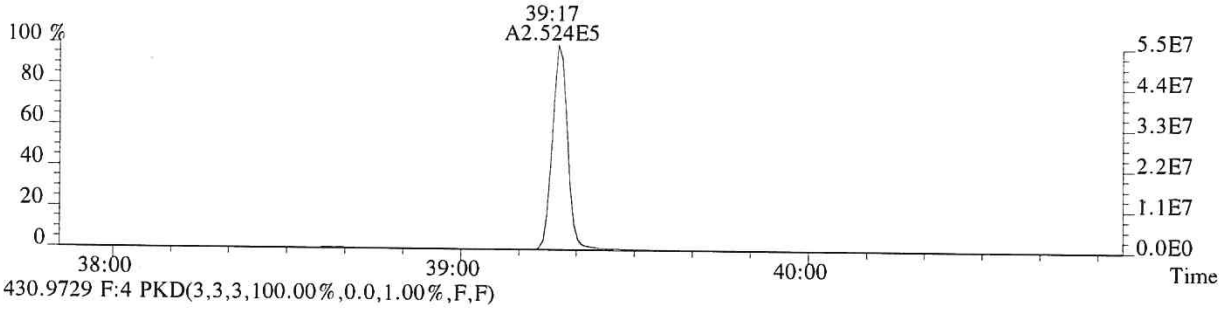
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



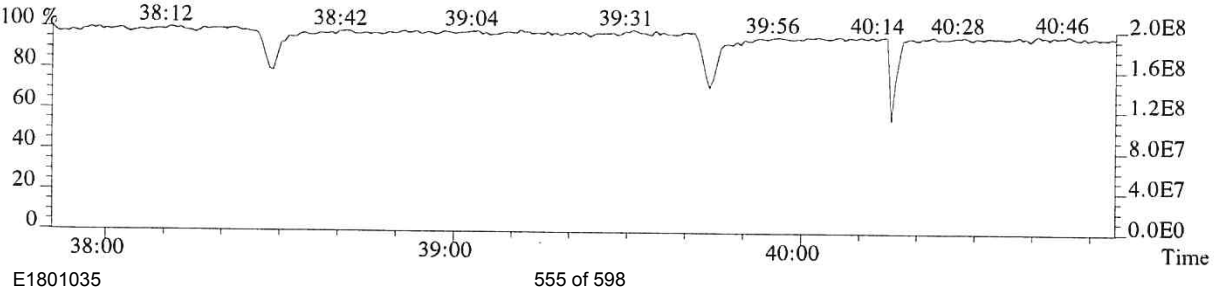
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.40%,F,T)



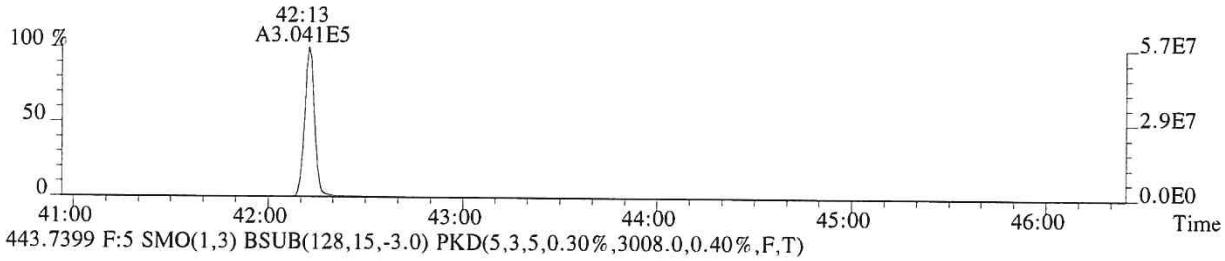
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)



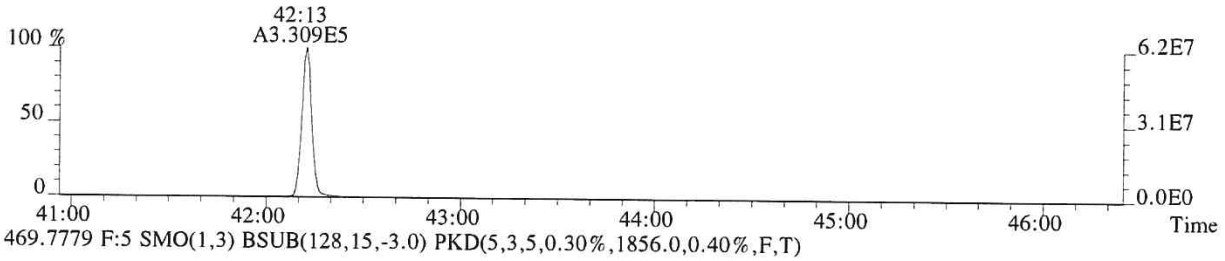
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



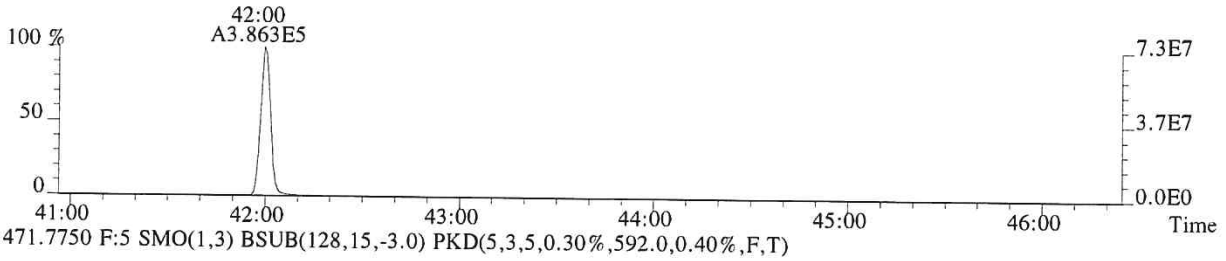
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



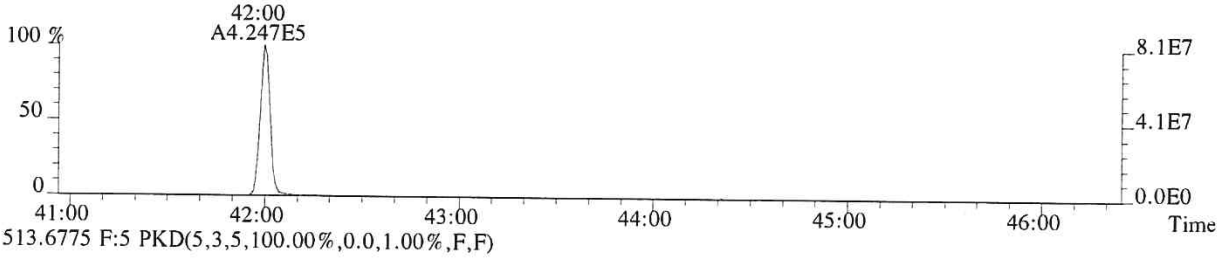
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3008.0,0.40%,F,T)



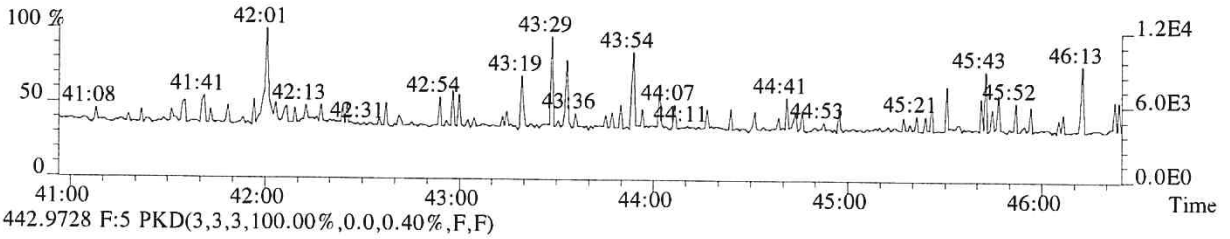
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



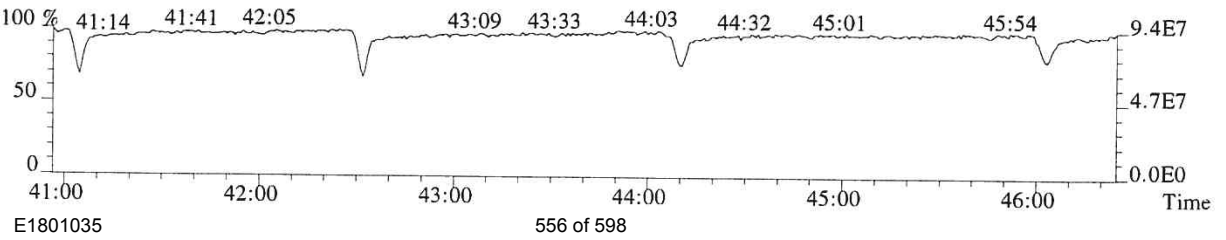
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



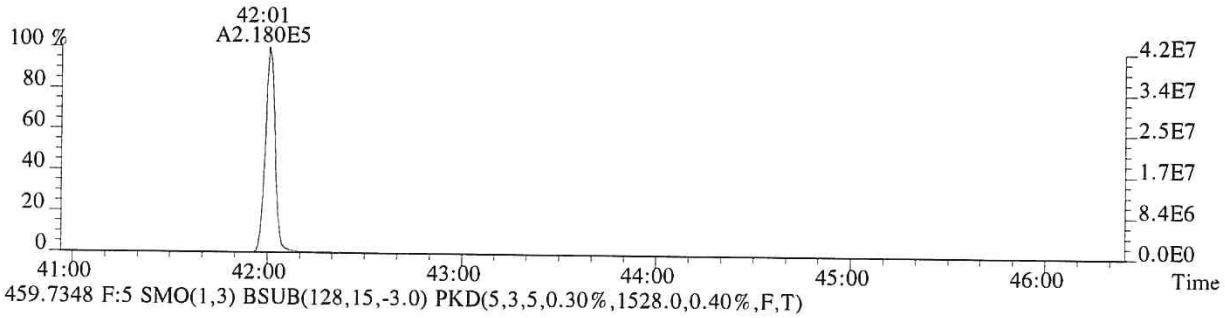
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



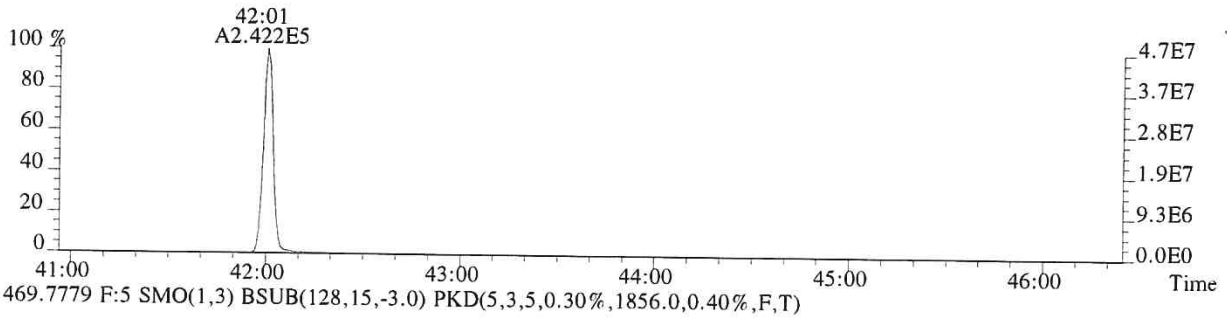
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



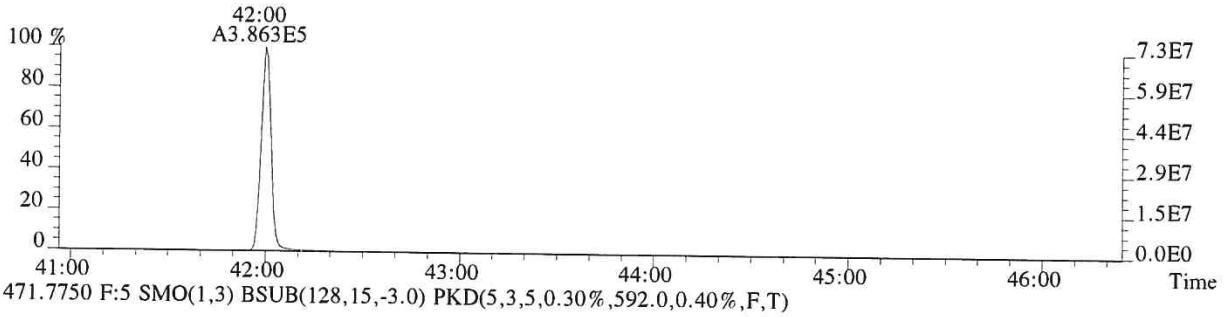
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



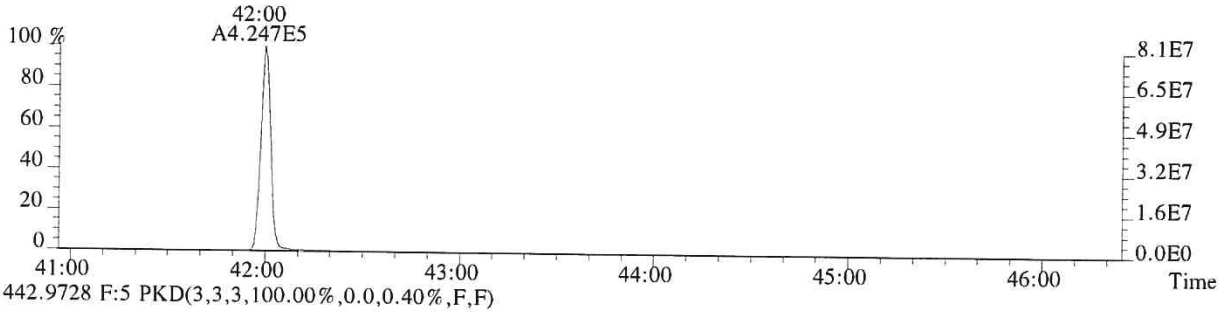
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



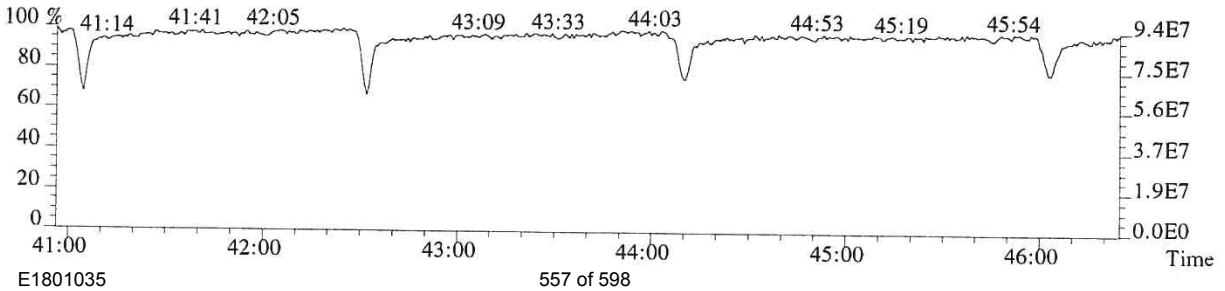
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010890

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.186e+05	1.498e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.070e+06	6.680e+05	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	9.931e+05	6.255e+05	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	9.336e+05	7.318e+05	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.546e+05	7.530e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	9.004e+05	7.134e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	8.574e+05	6.711e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	7.924e+05	7.640e+05	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	6.712e+05	6.389e+05	1.05	yes	no	1.463
10	Unk	OCDF	42:13	9.999e+05	1.075e+06	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	8.371e+04	1.065e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	5.908e+05	3.807e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.387e+05	4.268e+05	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	5.444e+05	4.299e+05	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	5.850e+05	4.610e+05	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.859e+05	4.568e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	7.127e+05	7.901e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.799e+05	3.543e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	4.595e+05	2.875e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	4.523e+05	2.842e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.092e+05	3.928e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.332e+05	4.327e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.224e+05	4.139e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.041e+05	3.825e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.626e+05	3.528e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.431e+05	3.159e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.012e+05	2.528e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.193e+05	2.044e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.552e+05	2.035e+05	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.565e+05	2.045e+05	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.187e+05	2.081e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	3.133e+05	3.464e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.000e+05	2.518e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.828e+05	2.264e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.003e+05				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.13e+07	2.15e+03	9.9e+03	2.70e+07	4.22e+03	6.4e+03
2	1,2,3,7,8-PeCDF	2.03e+08	3.06e+03	6.6e+04	1.29e+08	4.95e+03	2.6e+04
3	2,3,4,7,8-PeCDF	2.04e+08	3.06e+03	6.7e+04	1.28e+08	4.95e+03	2.6e+04
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.85e+03	1.2e+05	1.68e+08	4.92e+03	3.4e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	1.85e+03	1.1e+05	1.67e+08	4.92e+03	3.4e+04
6	2,3,4,6,7,8-HxCDF	2.02e+08	1.85e+03	1.1e+05	1.59e+08	4.92e+03	3.2e+04
7	1,2,3,7,8,9-HxCDF	1.88e+08	1.85e+03	1.0e+05	1.47e+08	4.92e+03	3.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.78e+08	2.61e+04	6.8e+03	1.72e+08	1.83e+04	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+08	2.61e+04	5.4e+03	1.35e+08	1.83e+04	7.4e+03
10	OCDF	1.94e+08	1.46e+03	1.3e+05	2.08e+08	3.00e+03	6.9e+04
11	2,3,7,8-TCDD	1.62e+07	6.38e+03	2.5e+03	2.06e+07	2.42e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.19e+08	3.22e+03	3.7e+04	7.64e+07	1.02e+03	7.5e+04
13	1,2,3,4,7,8-HxCDD	1.25e+08	9.48e+02	1.3e+05	9.78e+07	1.64e+03	5.9e+04
14	1,2,3,6,7,8-HxCDD	1.22e+08	9.48e+02	1.3e+05	9.73e+07	1.64e+03	5.9e+04
15	1,2,3,7,8,9-HxCDD	1.31e+08	9.48e+02	1.4e+05	1.04e+08	1.64e+03	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.10e+08	2.46e+03	4.5e+04	1.04e+08	2.38e+03	4.4e+04
17	OCDD	1.42e+08	1.24e+03	1.1e+05	1.57e+08	1.46e+03	1.1e+05
18	13C-2,3,7,8-TCDF	5.06e+07	1.14e+04	4.4e+03	6.41e+07	7.28e+03	8.8e+03
19	13C-1,2,3,7,8-PeCDF	8.88e+07	3.08e+03	2.9e+04	5.58e+07	3.54e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	9.15e+07	3.08e+03	3.0e+04	5.70e+07	3.54e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	4.76e+07	3.01e+03	1.6e+04	8.96e+07	4.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	5.17e+07	3.01e+03	1.7e+04	9.54e+07	4.64e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.99e+07	3.01e+03	1.7e+04	9.21e+07	4.64e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.48e+07	3.01e+03	1.5e+04	8.44e+07	4.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+07	8.80e+03	4.2e+03	8.02e+07	1.92e+04	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.97e+07	8.80e+03	3.4e+03	6.54e+07	1.92e+04	3.4e+03
27	13C-2,3,7,8-TCDD	3.77e+07	1.85e+04	2.0e+03	4.78e+07	7.81e+03	6.1e+03
28	13C-1,2,3,7,8-PeCDD	6.47e+07	3.56e+03	1.8e+04	4.18e+07	3.26e+03	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	5.86e+07	4.66e+03	1.3e+04	4.67e+07	3.04e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	5.76e+07	4.66e+03	1.2e+04	4.61e+07	3.04e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.94e+07	3.14e+03	1.6e+04	4.74e+07	1.71e+03	2.8e+04
32	13C-OCDD	6.18e+07	1.83e+03	3.4e+04	6.87e+07	9.56e+02	7.2e+04
33	13C-1,2,3,4-TCDD	3.76e+07	1.85e+04	2.0e+03	4.73e+07	7.81e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.25e+07	4.66e+03	1.3e+04	5.04e+07	3.04e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	3.86e+07	4.32e+03	9.0e+03			

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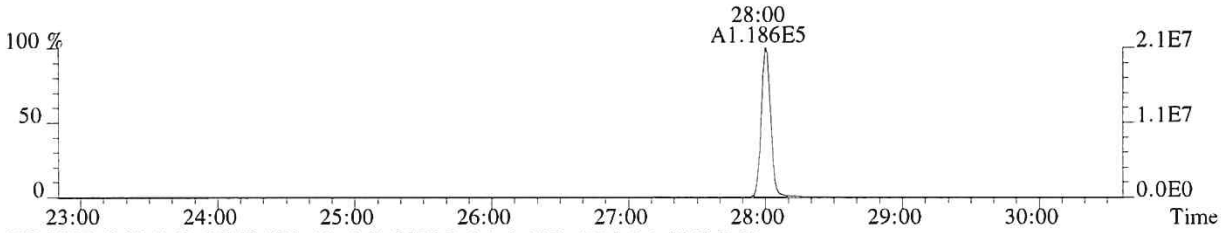
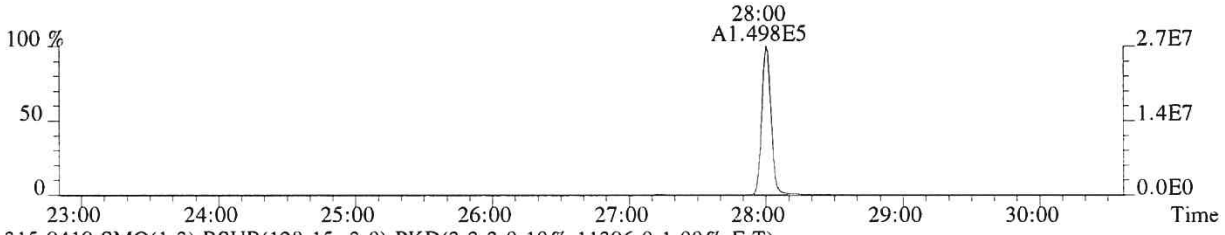
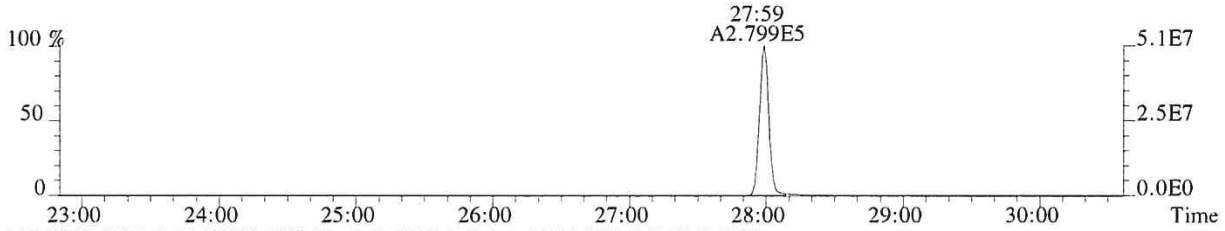
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



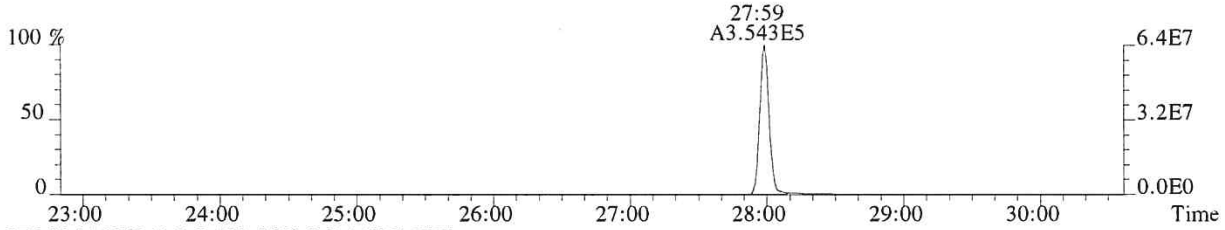
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



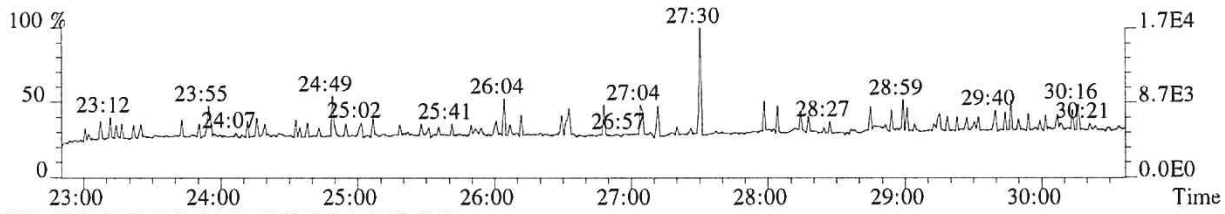
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



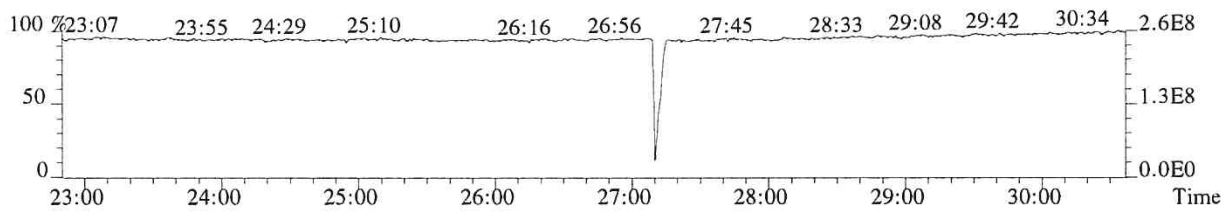
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7276.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

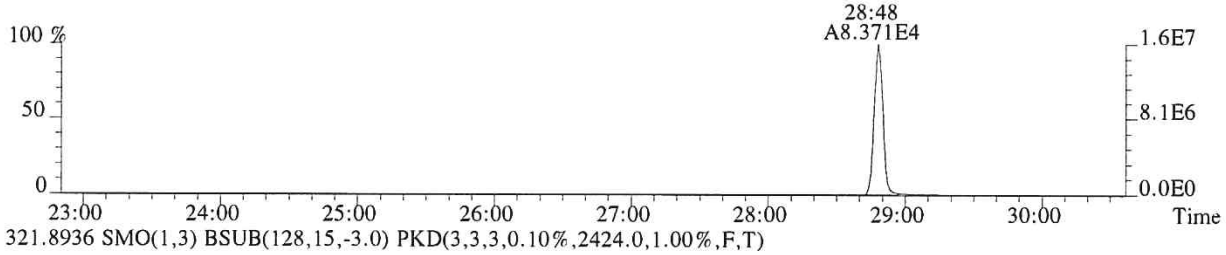


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

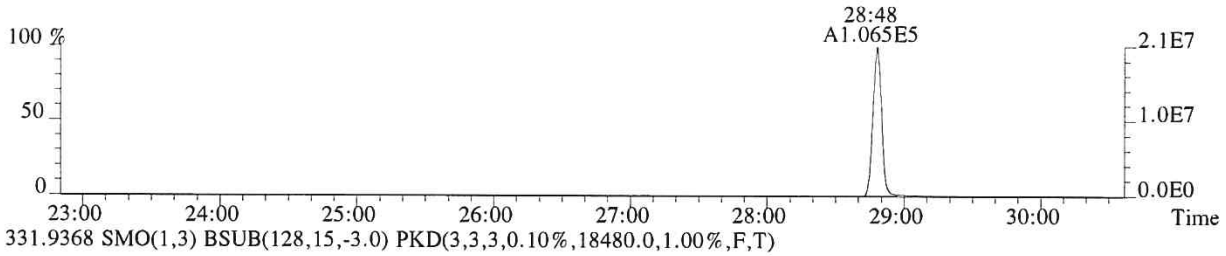


010893

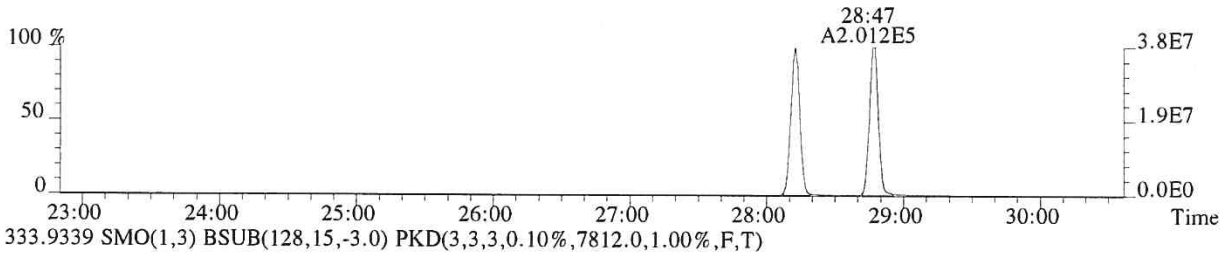
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6384.0,1.00%,F,T)



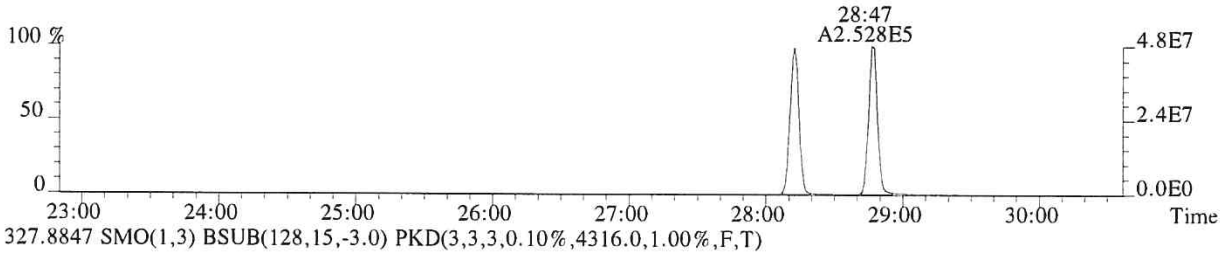
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



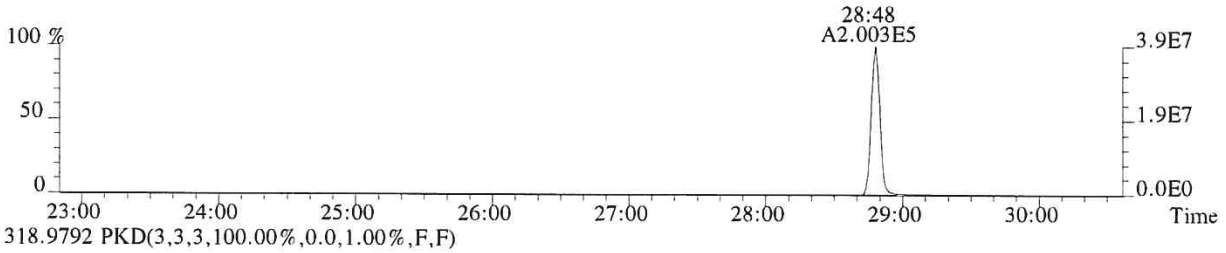
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18480.0,1.00%,F,T)



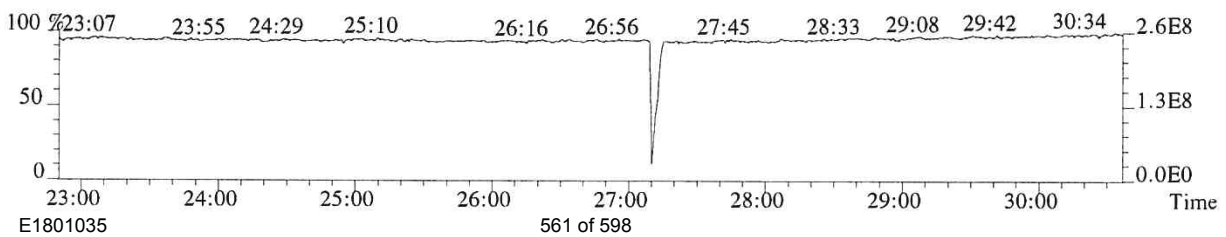
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)

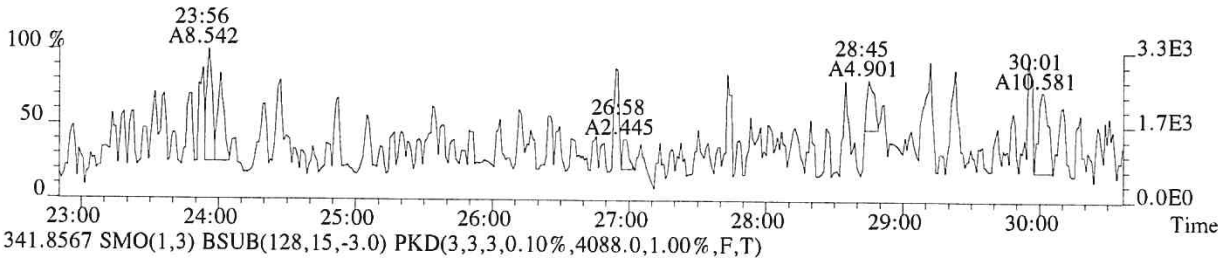


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

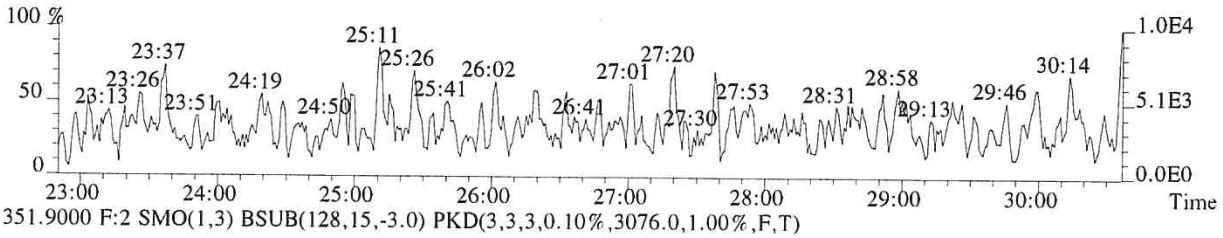


010894

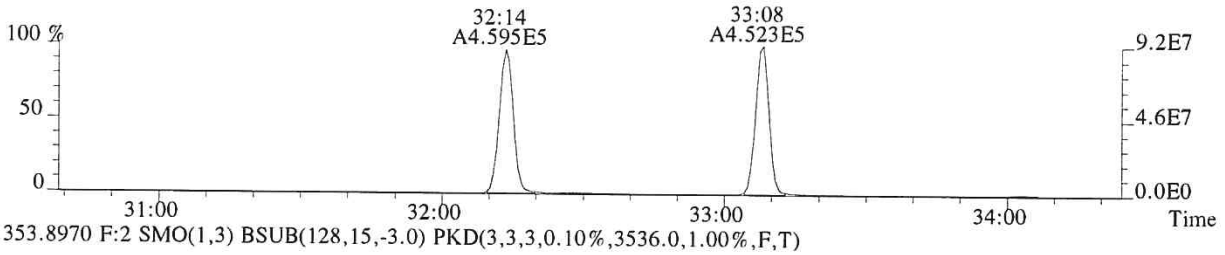
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



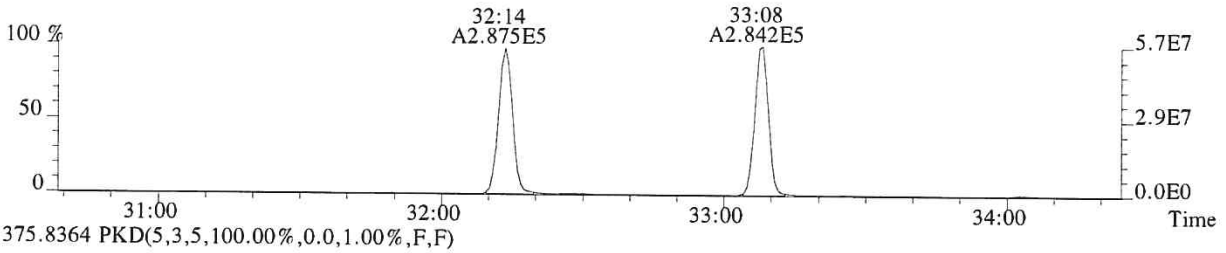
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



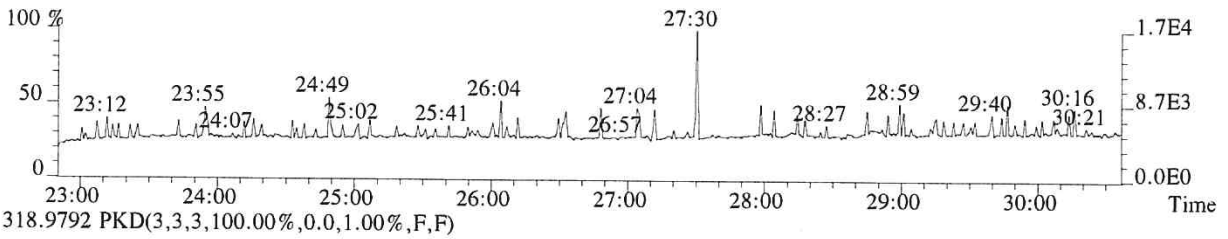
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



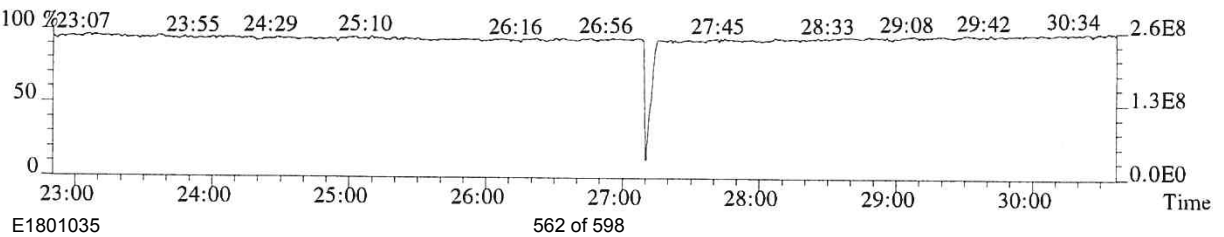
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

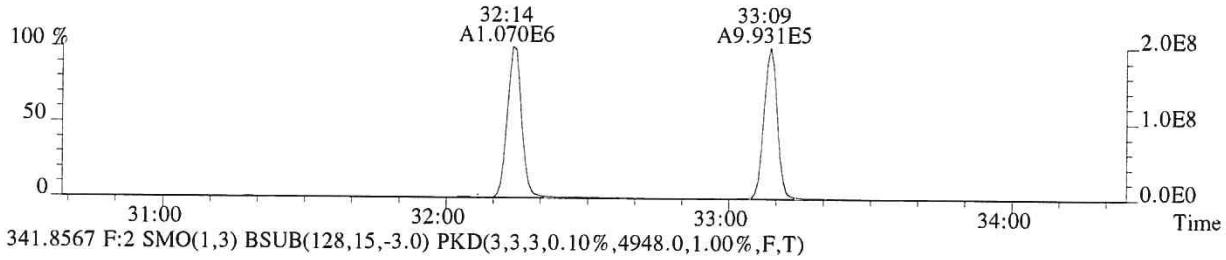


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

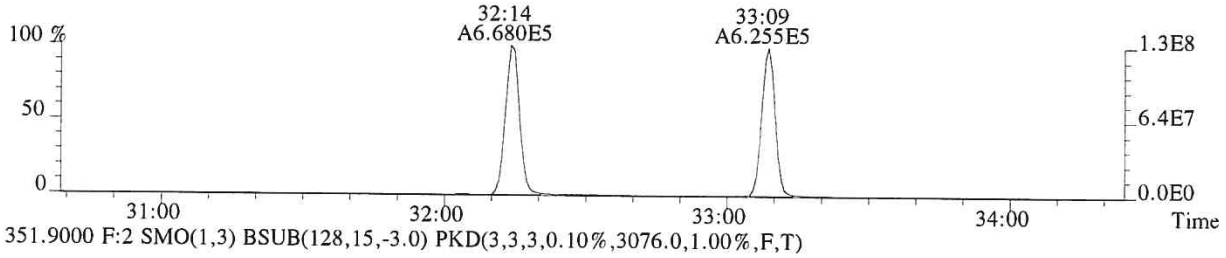


010895

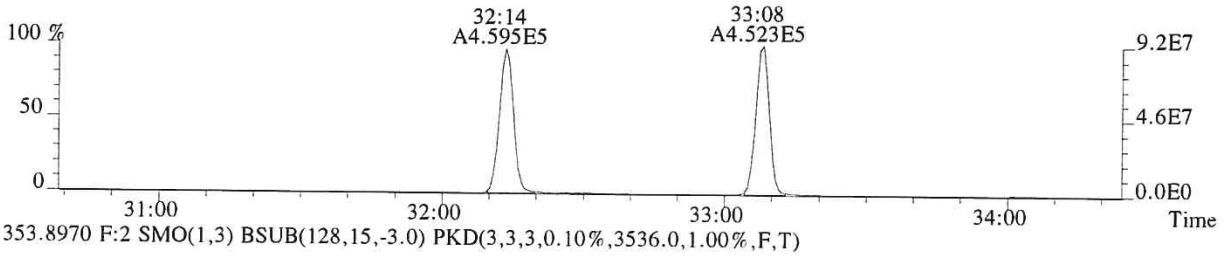
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



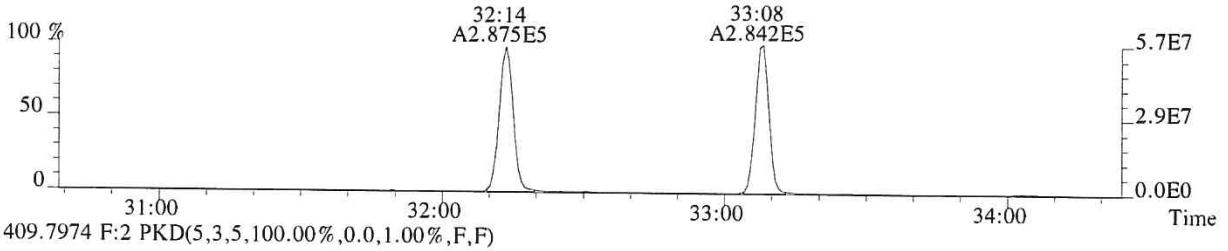
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



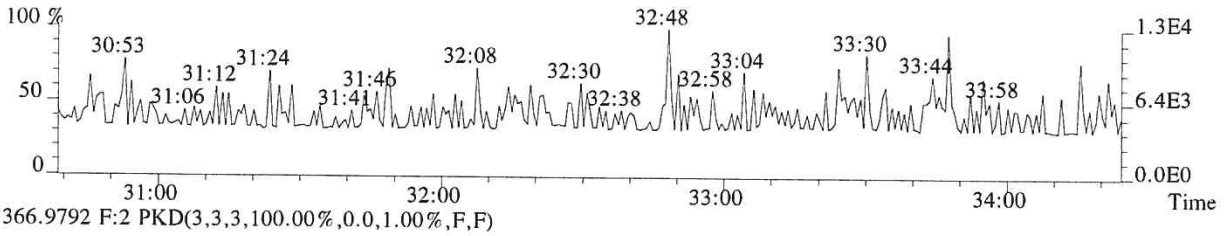
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



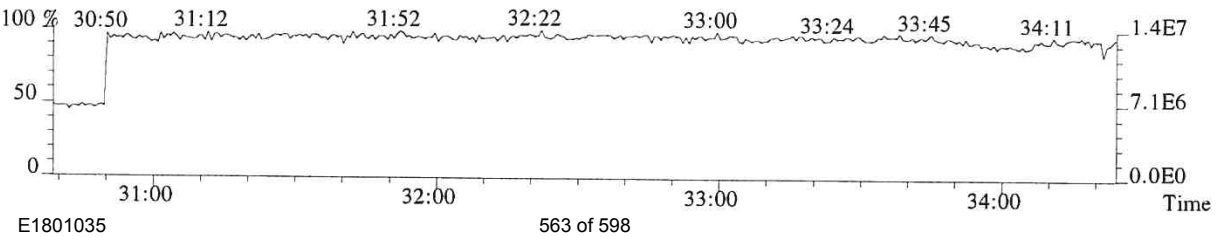
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

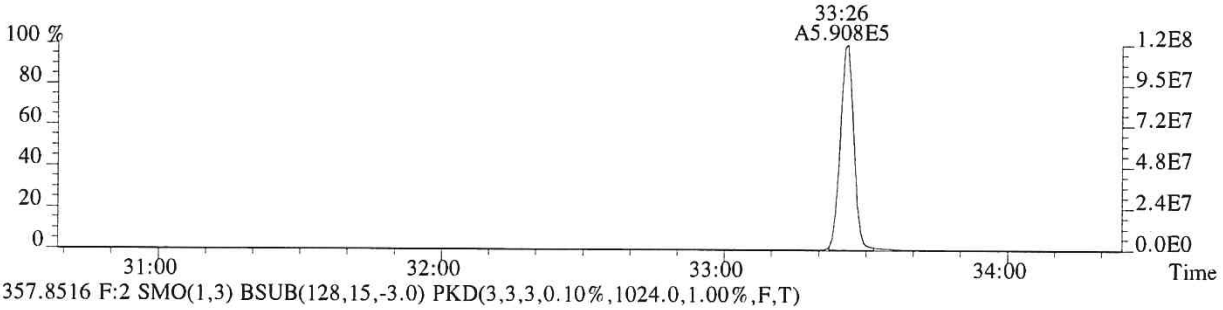


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

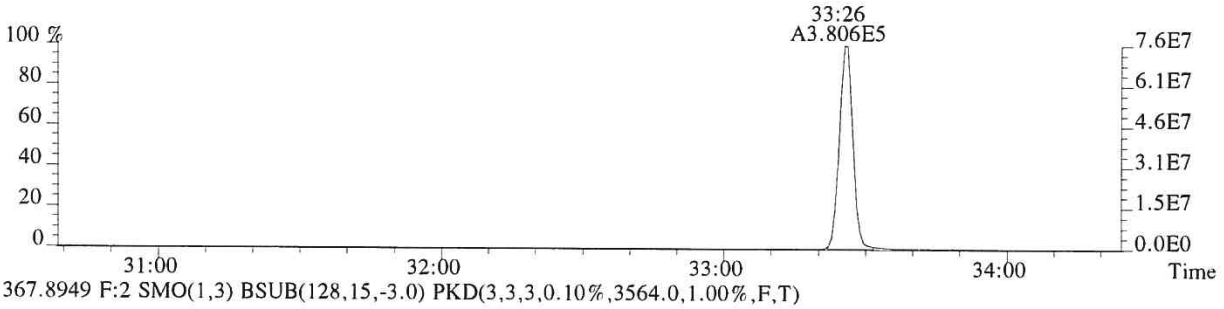


010896

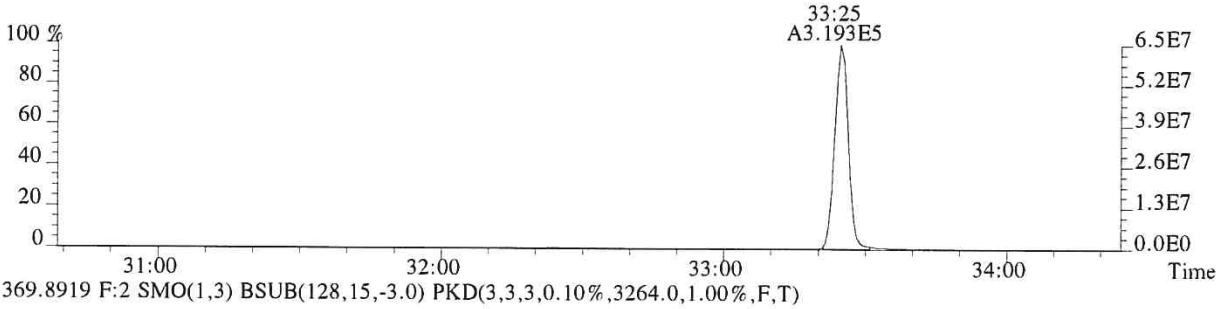
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



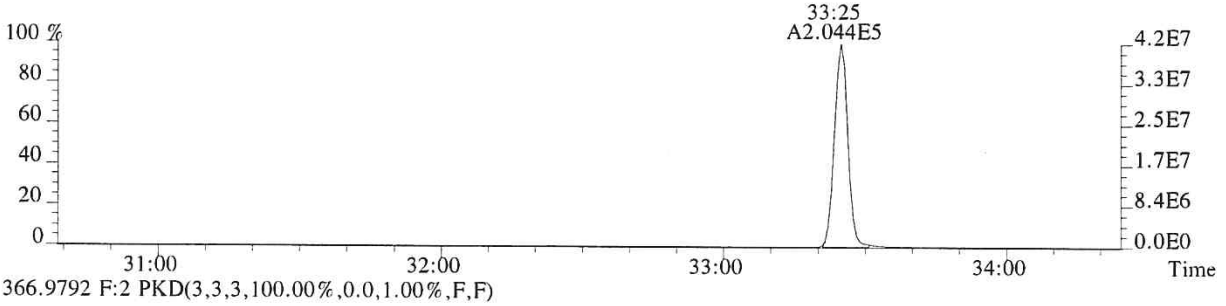
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



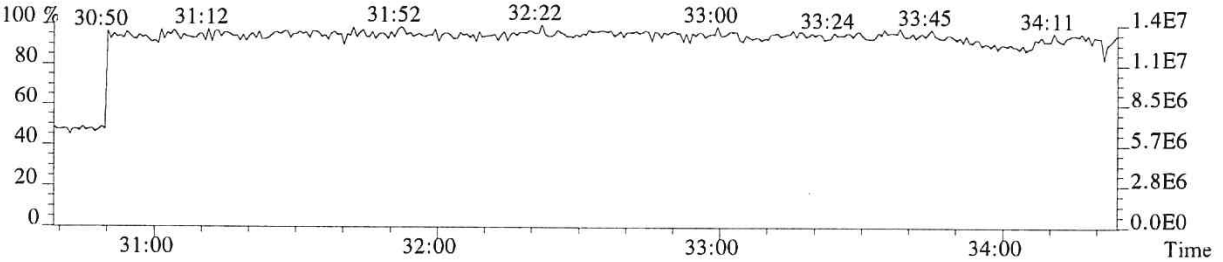
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)

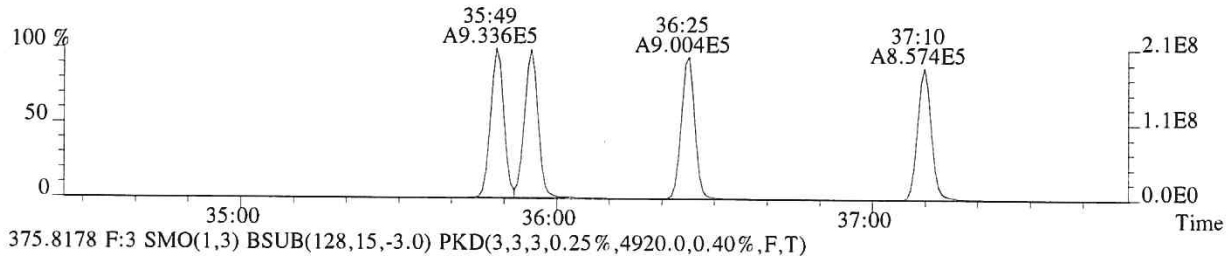


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

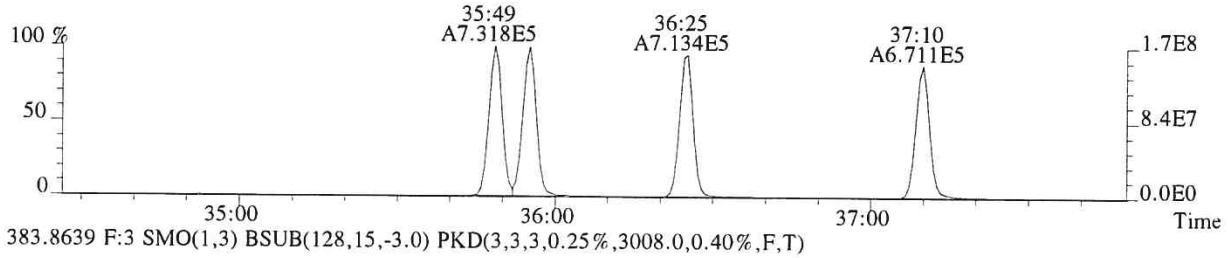


File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

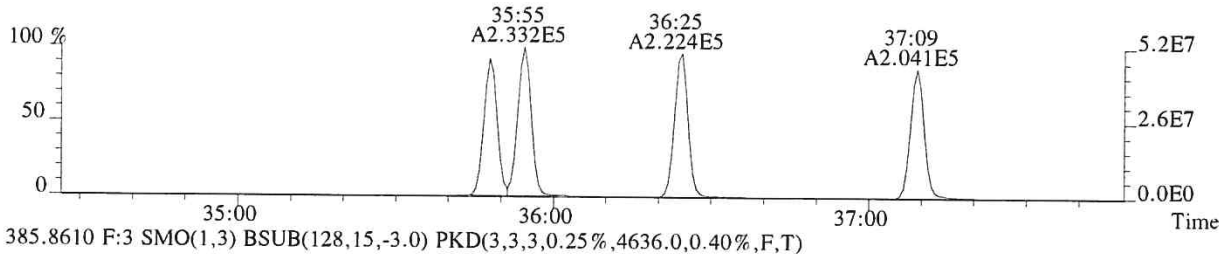
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



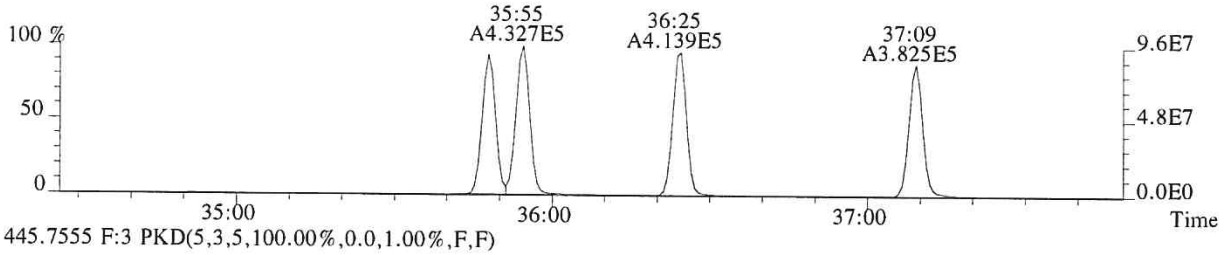
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4920.0,0.40%,F,T)



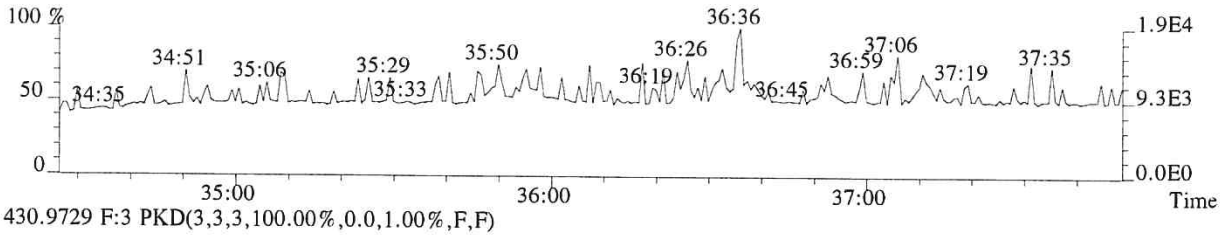
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



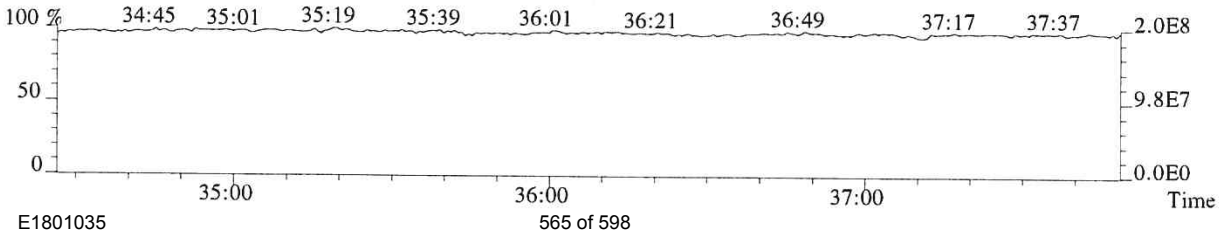
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

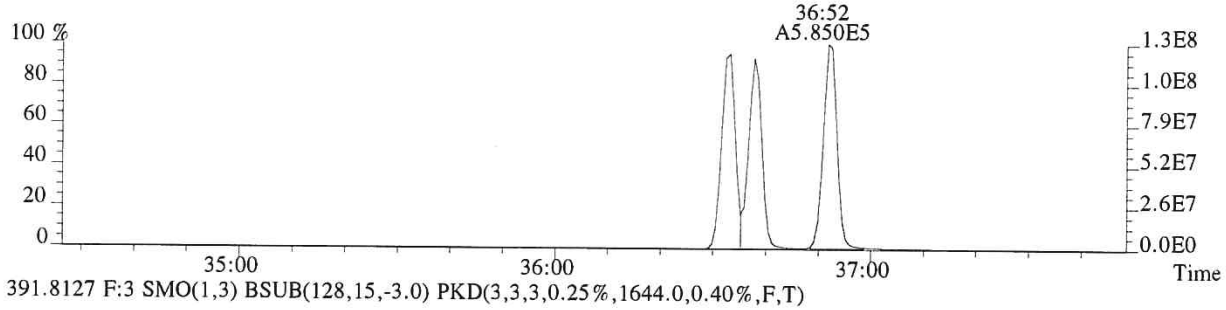


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

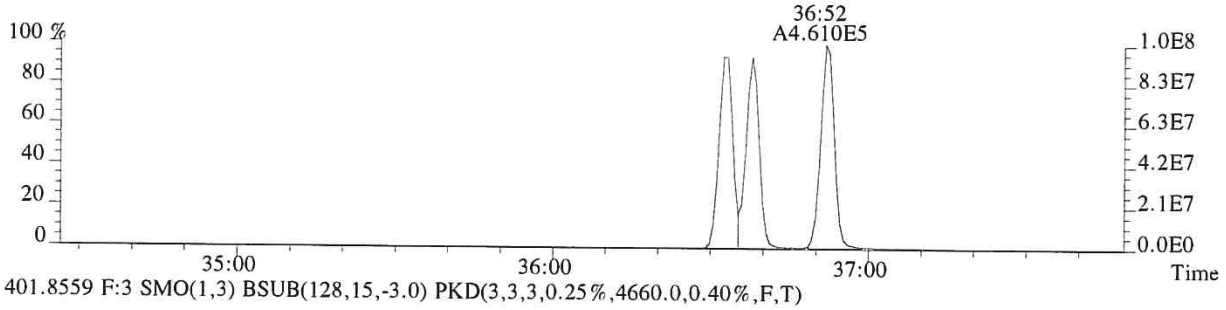


010898

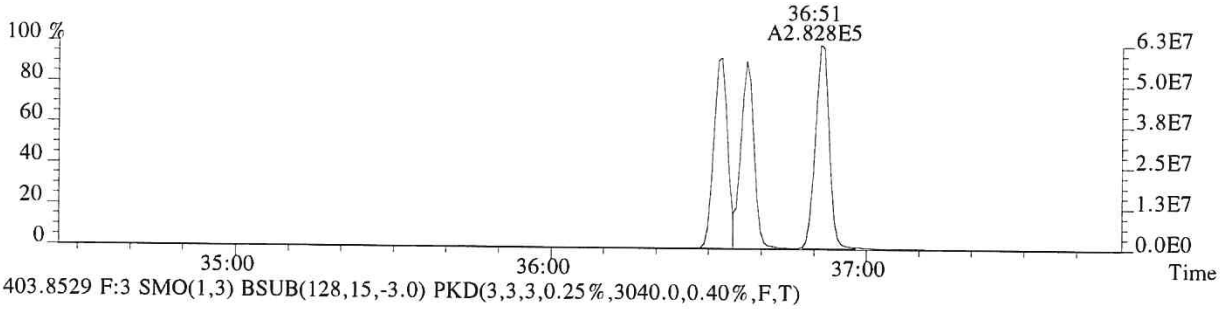
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



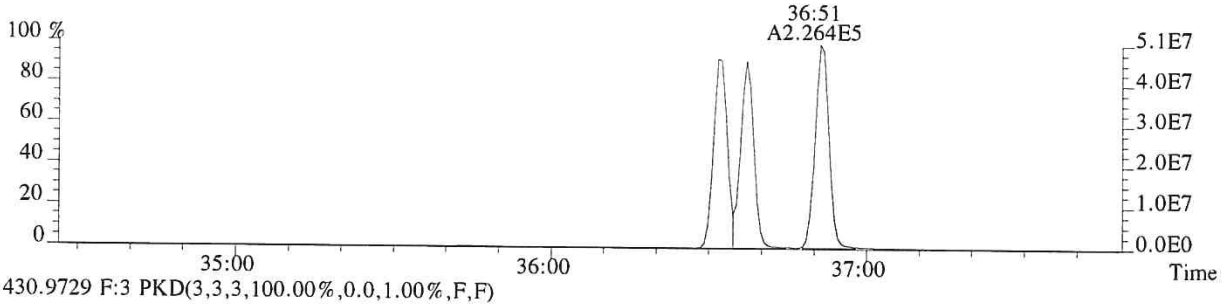
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



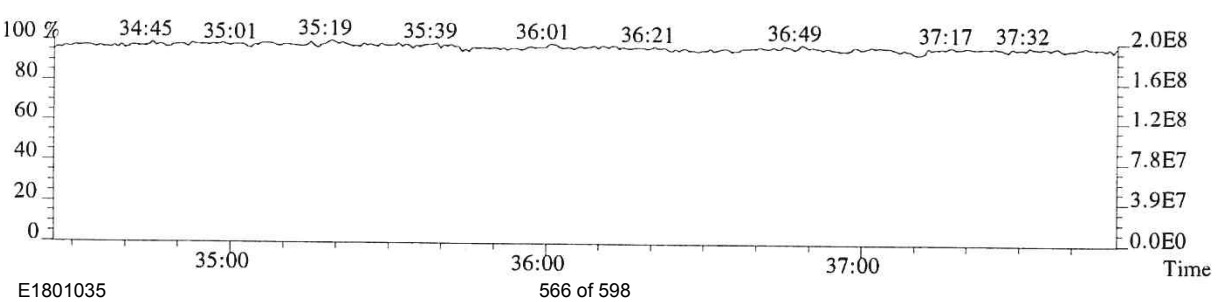
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4660.0,0.40%,F,T)



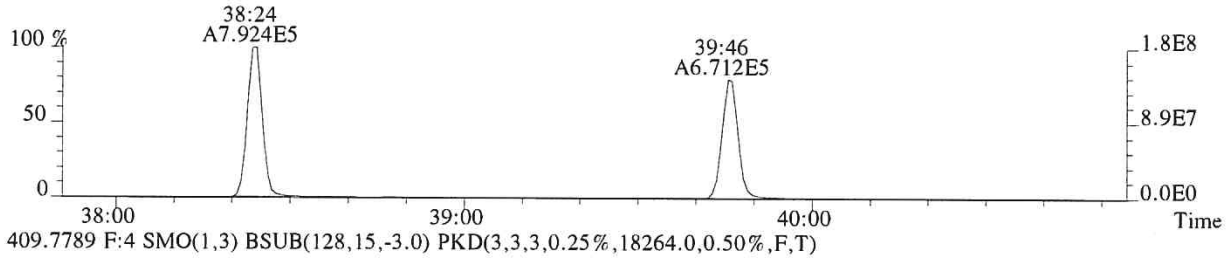
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)



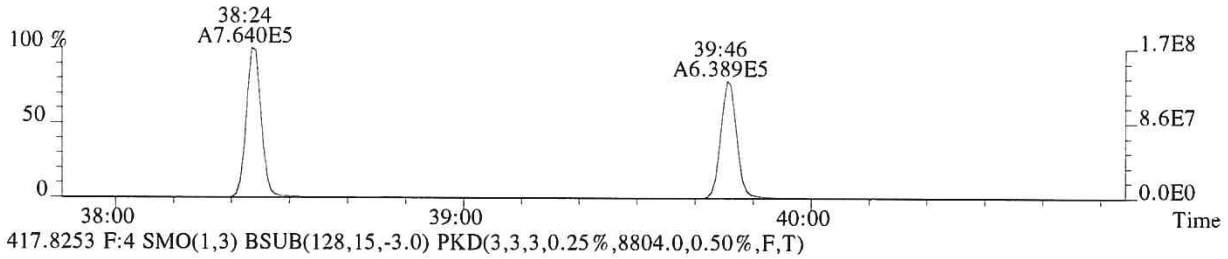
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



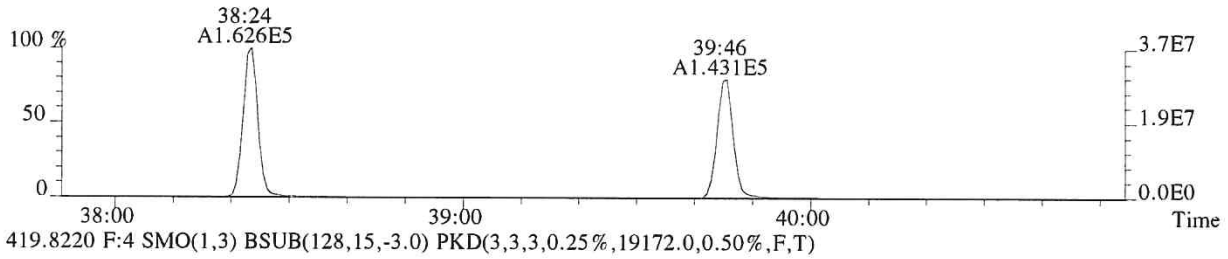
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26056.0,0.50%,F,T)



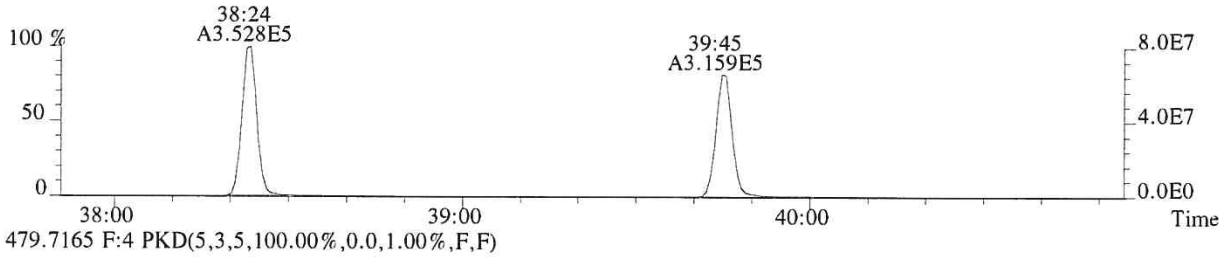
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18264.0,0.50%,F,T)



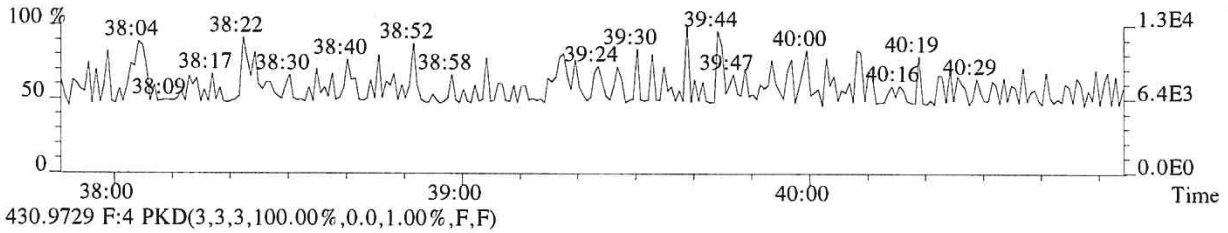
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8804.0,0.50%,F,T)



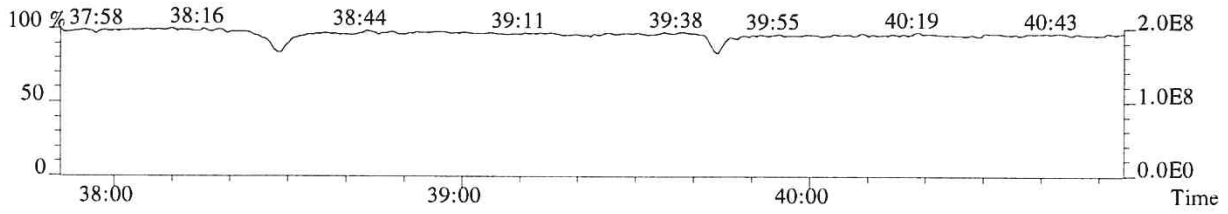
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19172.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

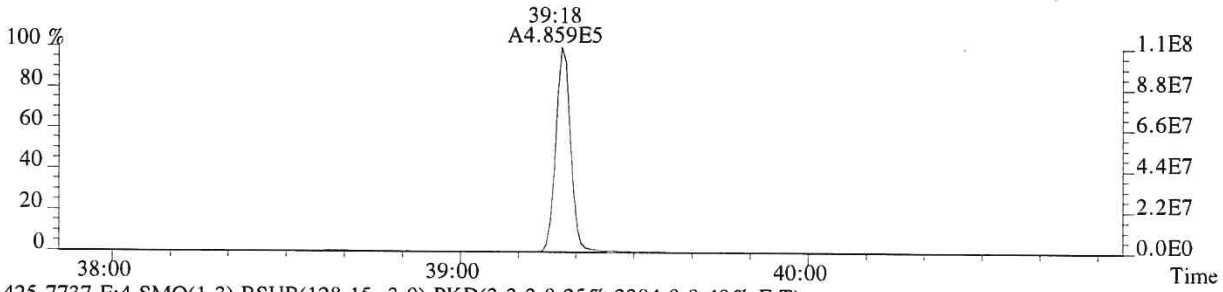


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

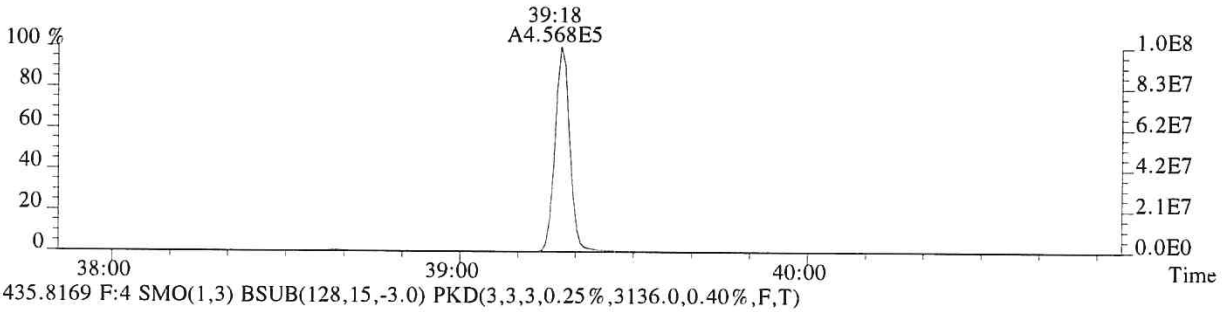


010900

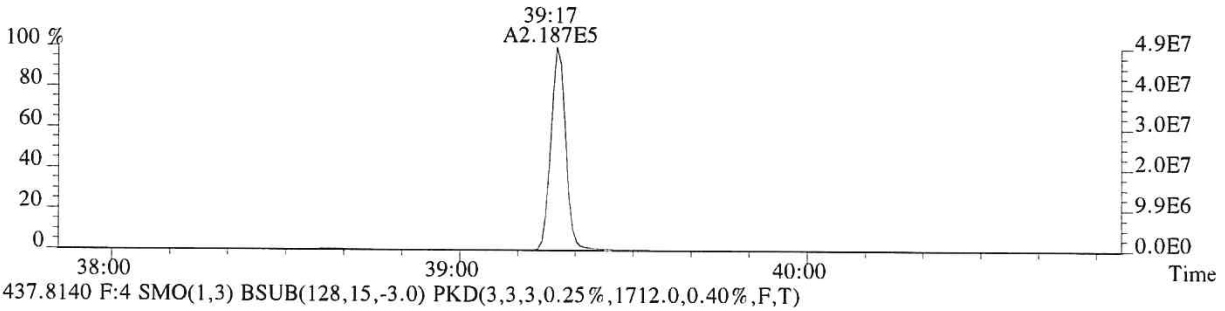
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



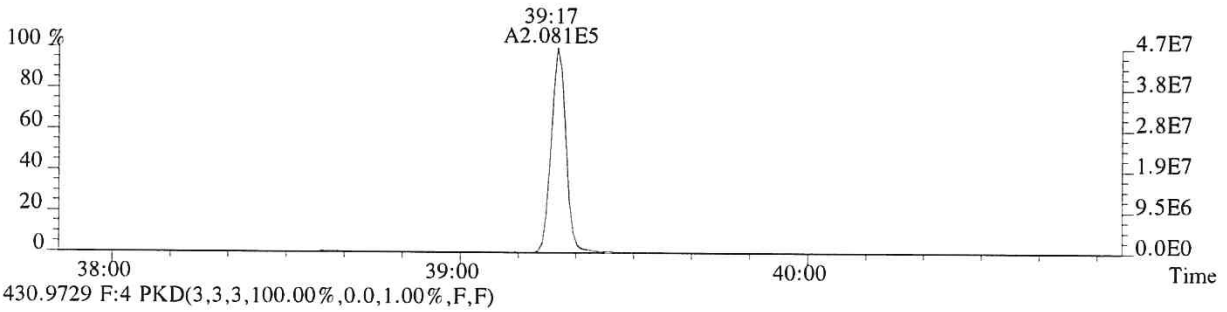
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



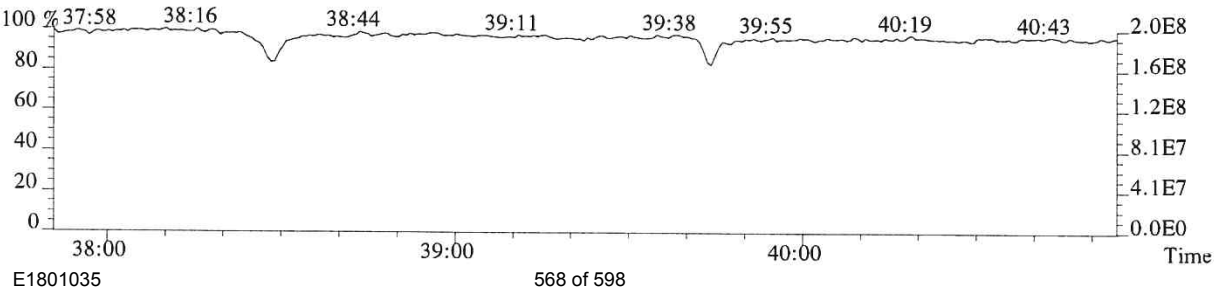
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)

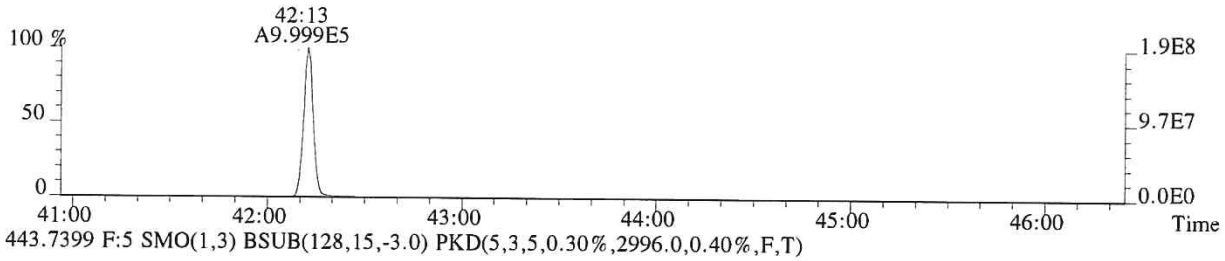


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

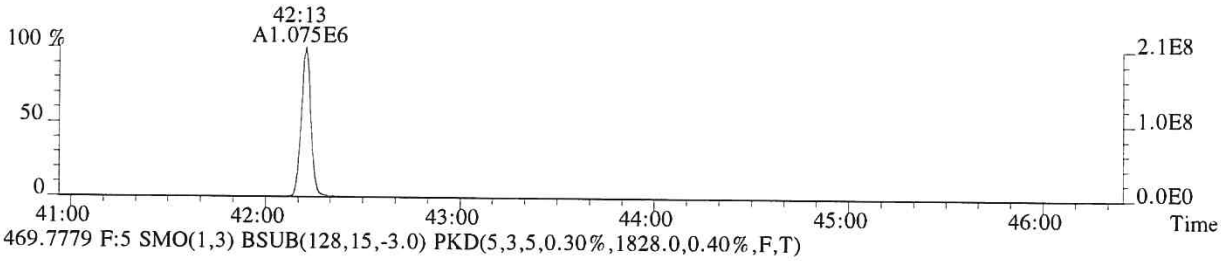


010901

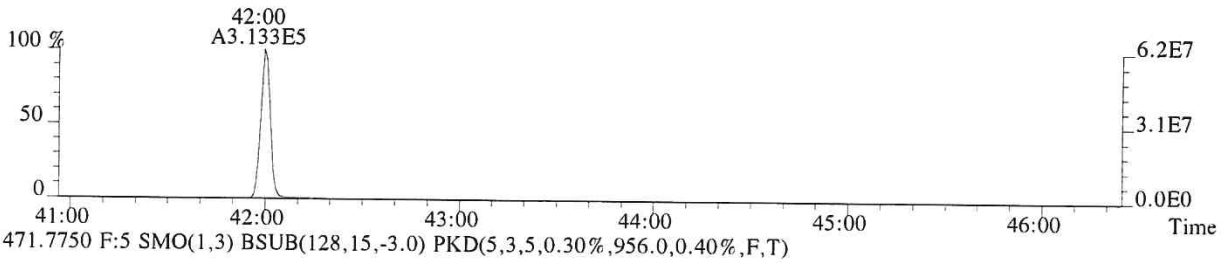
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



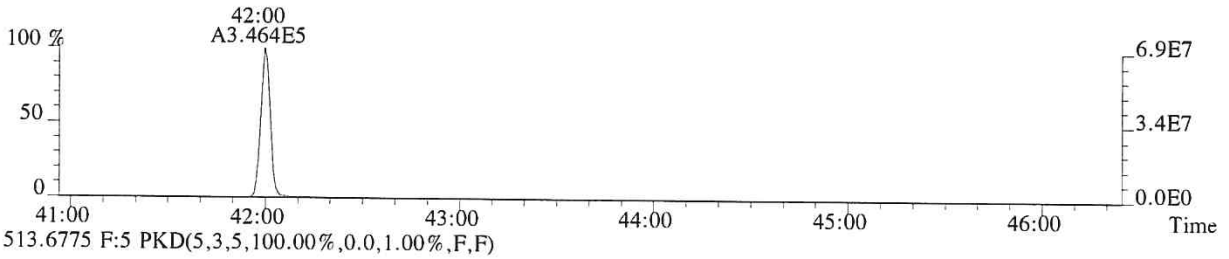
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



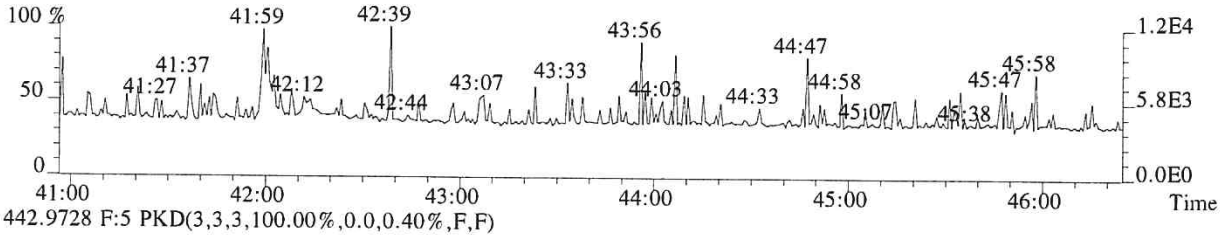
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



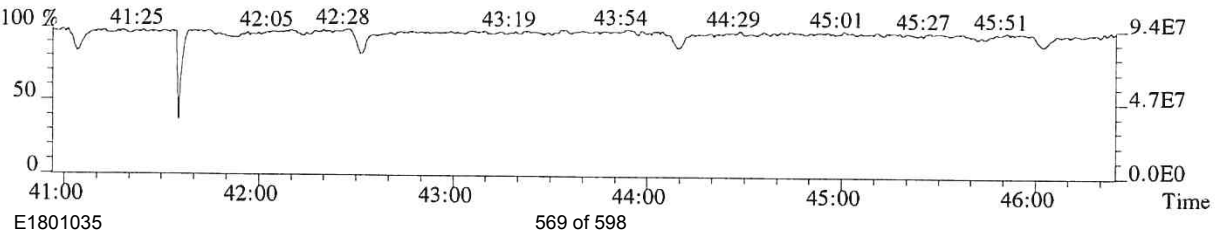
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

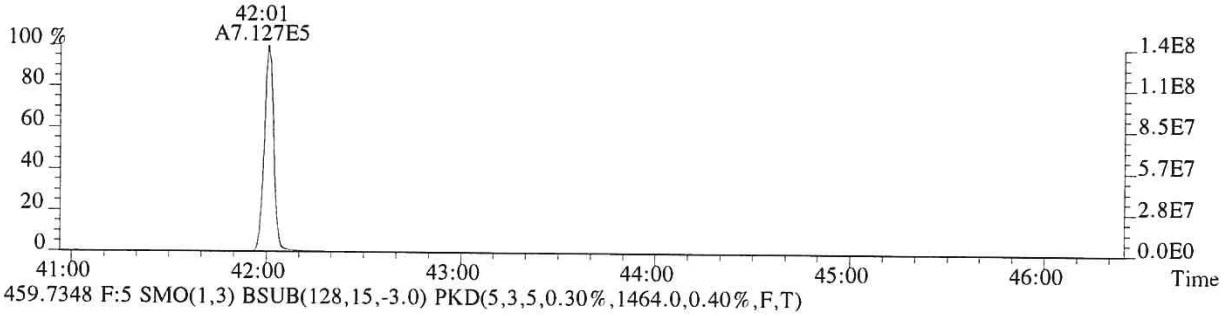


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

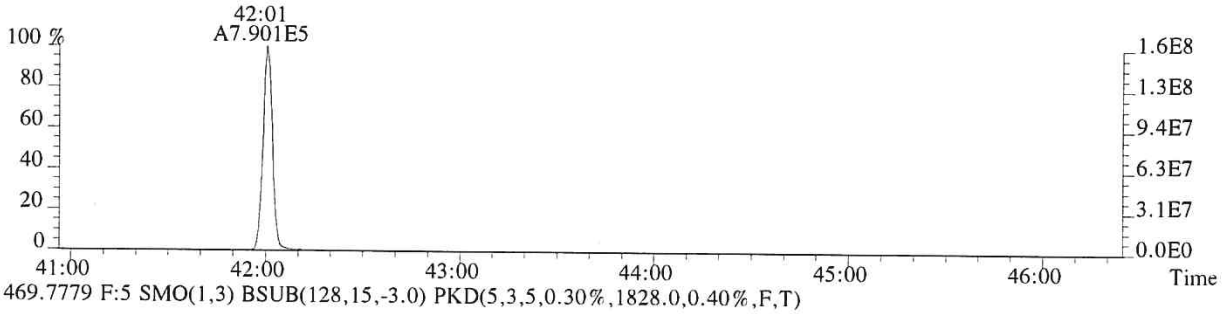


010902

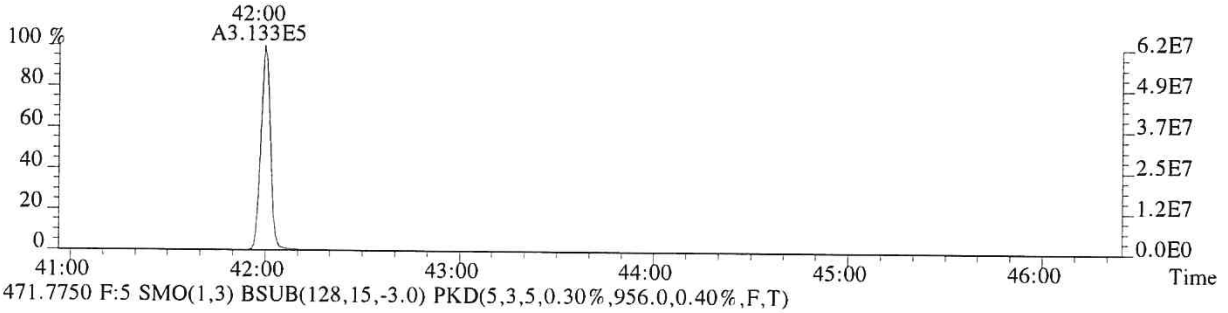
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



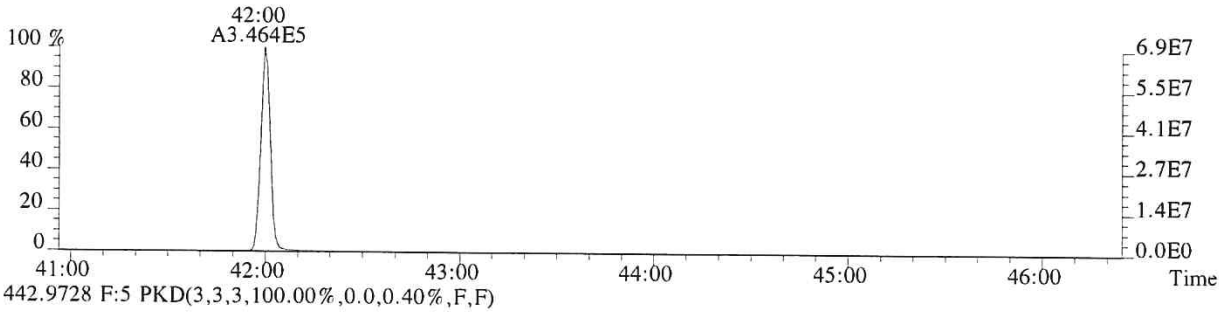
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



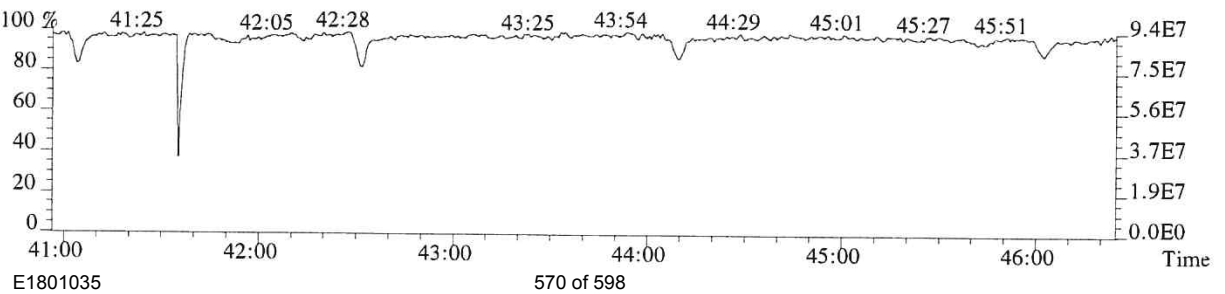
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010903

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.651e+05	5.844e+05	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	4.117e+06	2.575e+06	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	3.795e+06	2.391e+06	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.313e+06	2.571e+06	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.588e+06	2.836e+06	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	3.399e+06	2.690e+06	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	3.119e+06	2.463e+06	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.035e+06	2.883e+06	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	2.518e+06	2.388e+06	1.05	yes	no	1.463
10	Unk	OCDF	42:13	3.855e+06	4.175e+06	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	3.257e+05	4.207e+05	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	2.277e+06	1.455e+06	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.053e+06	1.616e+06	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	2.042e+06	1.617e+06	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	2.180e+06	1.732e+06	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.868e+06	1.765e+06	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.725e+06	3.028e+06	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.197e+05	2.785e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	3.496e+05	2.178e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	3.453e+05	2.138e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.447e+05	2.684e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.758e+05	3.274e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.668e+05	3.132e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.489e+05	2.799e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.241e+05	2.682e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	1.078e+05	2.346e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.558e+05	1.966e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	2.439e+05	1.553e+05	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.940e+05	1.538e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.938e+05	1.542e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.682e+05	1.601e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	2.375e+05	2.681e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.555e+05	1.925e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.160e+05	1.725e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	7.877e+05				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.41e+07	1.94e+03	4.3e+04	1.06e+08	4.26e+03	2.5e+04
2	1,2,3,7,8-PeCDF	8.11e+08	8.46e+03	9.6e+04	5.11e+08	9.13e+03	5.6e+04
3	2,3,4,7,8-PeCDF	7.87e+08	8.46e+03	9.3e+04	4.93e+08	9.13e+03	5.4e+04
4	1,2,3,4,7,8-HxCDF	7.76e+08	1.23e+04	6.3e+04	6.07e+08	9.42e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	8.10e+08	1.23e+04	6.6e+04	6.40e+08	9.42e+03	6.8e+04
6	2,3,4,6,7,8-HxCDF	7.65e+08	1.23e+04	6.2e+04	6.05e+08	9.42e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	6.96e+08	1.23e+04	5.6e+04	5.46e+08	9.42e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.09e+08	9.68e+04	7.3e+03	6.78e+08	6.15e+04	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	5.55e+08	9.68e+04	5.7e+03	5.29e+08	6.15e+04	8.6e+03
10	OCDF	7.55e+08	1.43e+03	5.3e+05	8.22e+08	2.80e+03	2.9e+05
11	2,3,7,8-TCDD	6.32e+07	4.52e+03	1.4e+04	8.21e+07	2.67e+03	3.1e+04
12	1,2,3,7,8-PeCDD	4.67e+08	3.26e+03	1.4e+05	2.98e+08	1.54e+03	1.9e+05
13	1,2,3,4,7,8-HxCDD	4.65e+08	2.34e+03	2.0e+05	3.68e+08	1.99e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	4.59e+08	2.34e+03	2.0e+05	3.67e+08	1.99e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	4.96e+08	2.34e+03	2.1e+05	3.98e+08	1.99e+03	2.0e+05
16	1,2,3,4,6,7,8-HpCDD	4.28e+08	1.10e+04	3.9e+04	4.06e+08	8.82e+03	4.6e+04
17	OCDD	5.24e+08	9.60e+02	5.5e+05	5.87e+08	1.87e+03	3.1e+05
18	13C-2,3,7,8-TCDF	3.91e+07	1.53e+04	2.6e+03	4.94e+07	1.22e+04	4.0e+03
19	13C-1,2,3,7,8-PeCDF	6.89e+07	2.06e+03	3.3e+04	4.27e+07	4.55e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	6.95e+07	2.06e+03	3.4e+04	4.34e+07	4.55e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.33e+07	2.62e+03	1.3e+04	6.22e+07	4.07e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	3.91e+07	2.62e+03	1.5e+04	7.31e+07	4.07e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.74e+07	2.62e+03	1.4e+04	6.98e+07	4.07e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.36e+07	2.62e+03	1.3e+04	6.29e+07	4.07e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.82e+07	6.76e+03	4.2e+03	6.20e+07	1.14e+04	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.34e+07	6.76e+03	3.5e+03	5.11e+07	1.14e+04	4.5e+03
27	13C-2,3,7,8-TCDD	3.04e+07	1.91e+04	1.6e+03	3.86e+07	8.85e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	5.04e+07	1.98e+03	2.5e+04	3.21e+07	2.85e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	4.39e+07	4.70e+03	9.3e+03	3.50e+07	2.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	4.37e+07	4.70e+03	9.3e+03	3.49e+07	2.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.82e+07	2.97e+03	1.3e+04	3.65e+07	2.54e+03	1.4e+04
32	13C-OCDD	4.50e+07	3.46e+03	1.3e+04	5.10e+07	1.82e+03	2.8e+04
33	13C-1,2,3,4-TCDD	2.93e+07	1.91e+04	1.5e+03	3.60e+07	8.85e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.90e+07	4.70e+03	1.0e+04	3.94e+07	2.24e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.54e+08	4.95e+03	3.1e+04			

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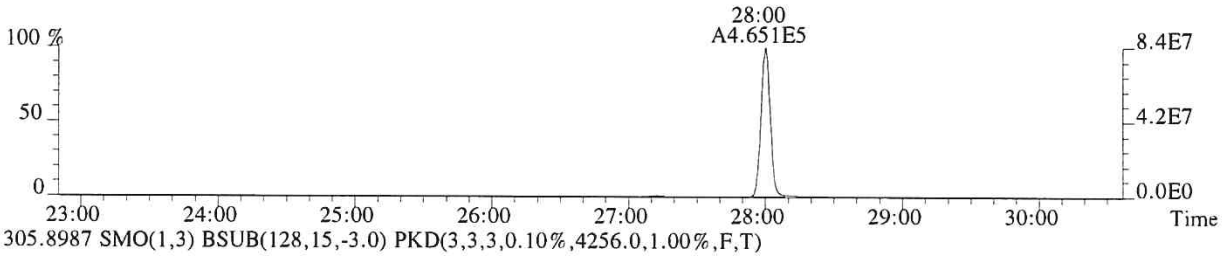
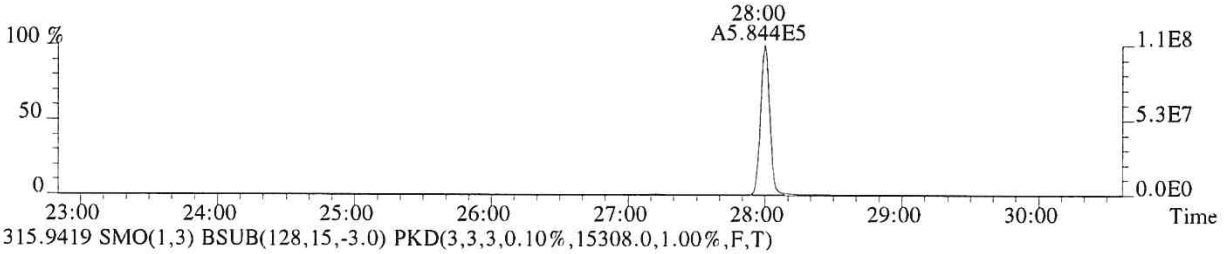
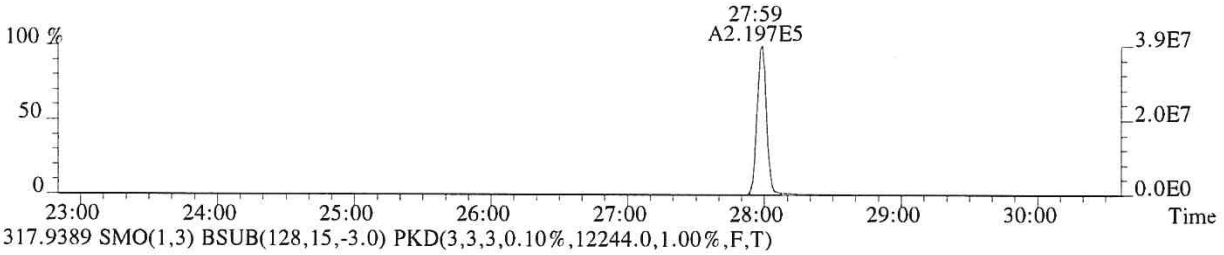
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



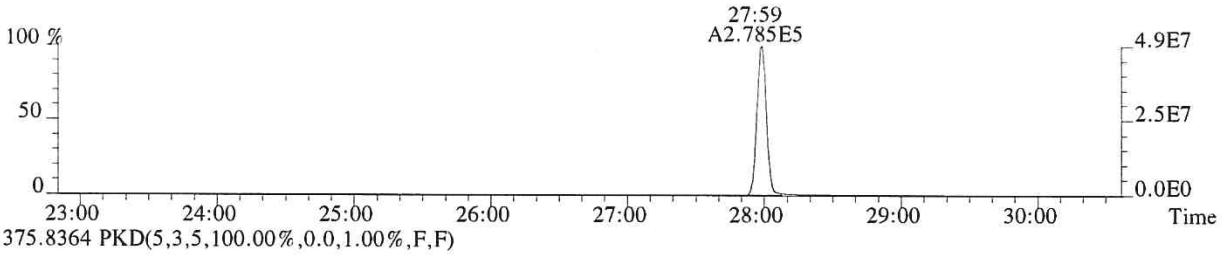
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



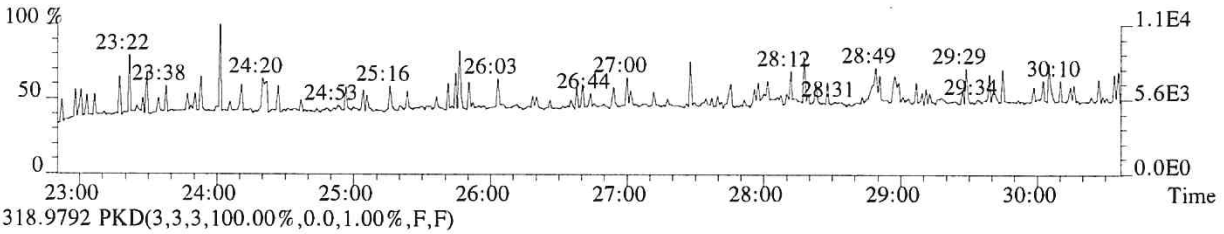
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15308.0,1.00%,F,T)



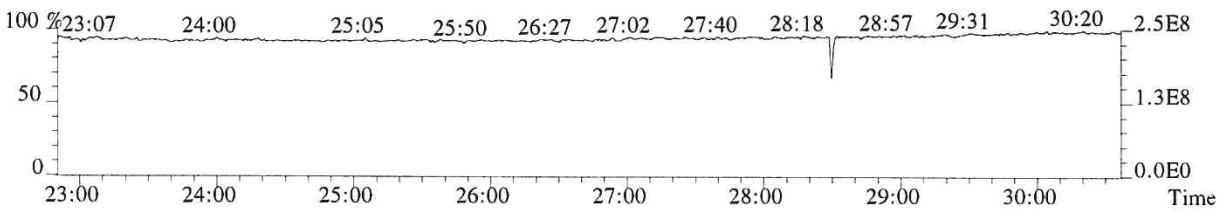
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

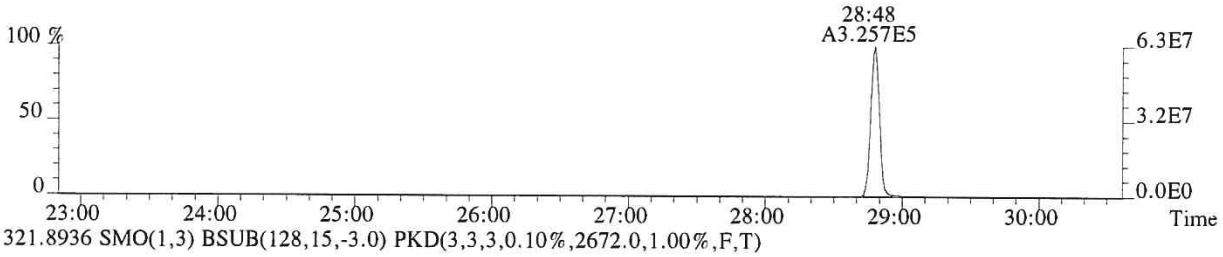


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

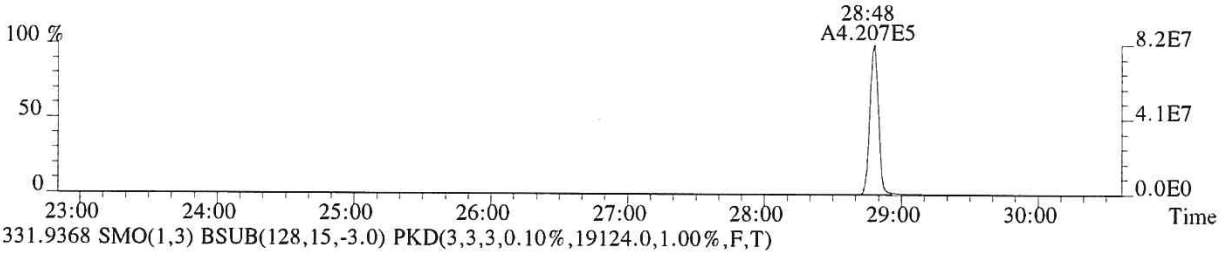


010906

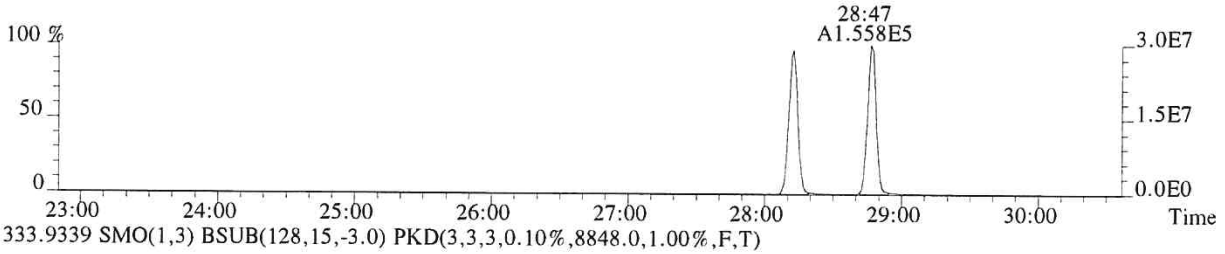
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



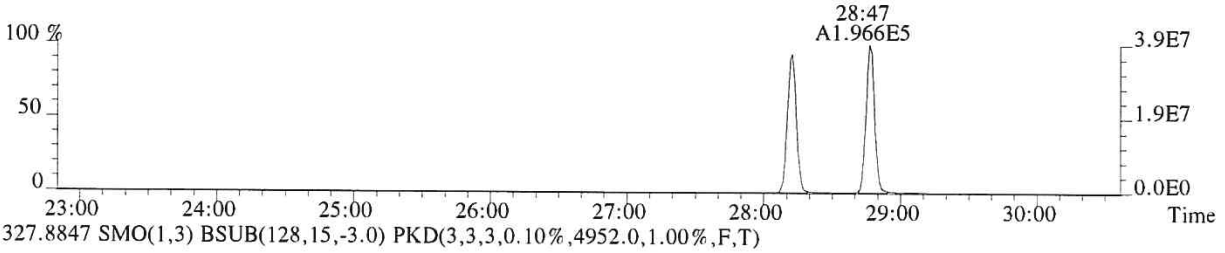
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



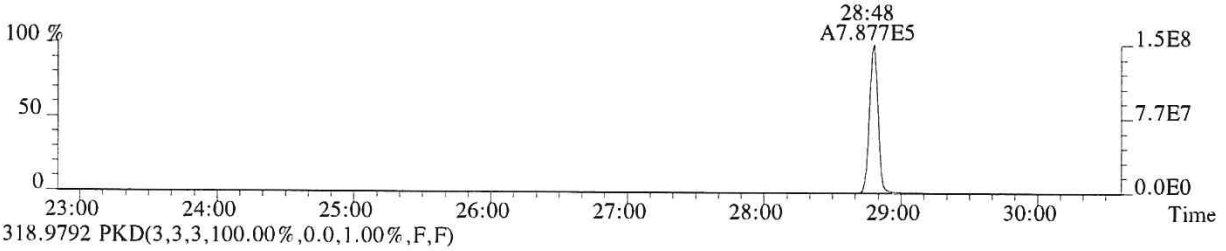
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19124.0,1.00%,F,T)



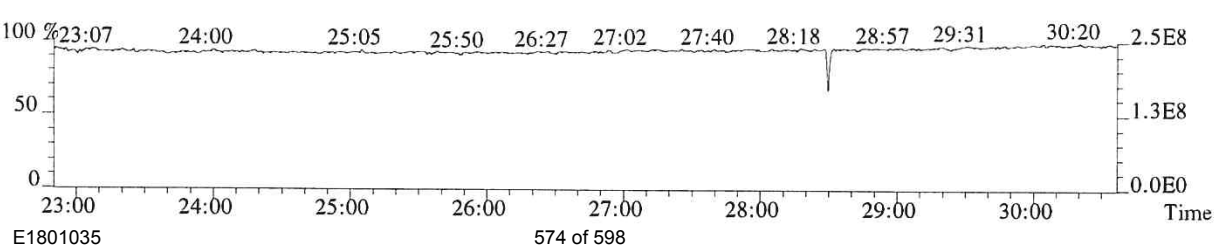
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8848.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)

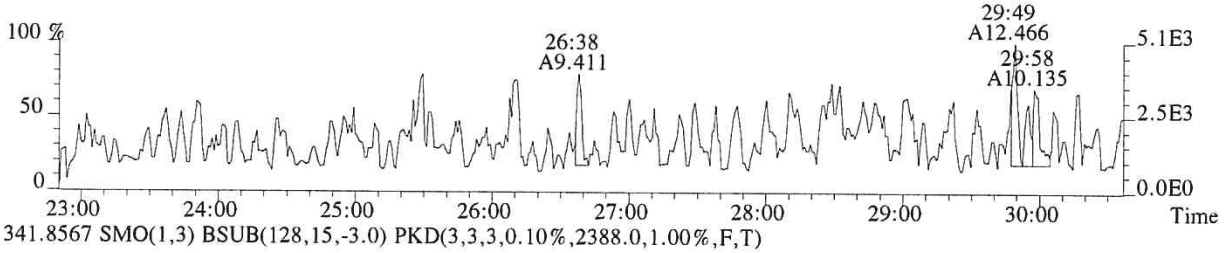


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

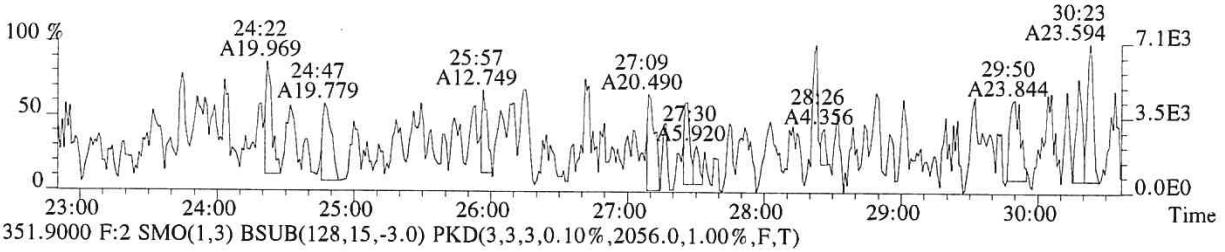


010907

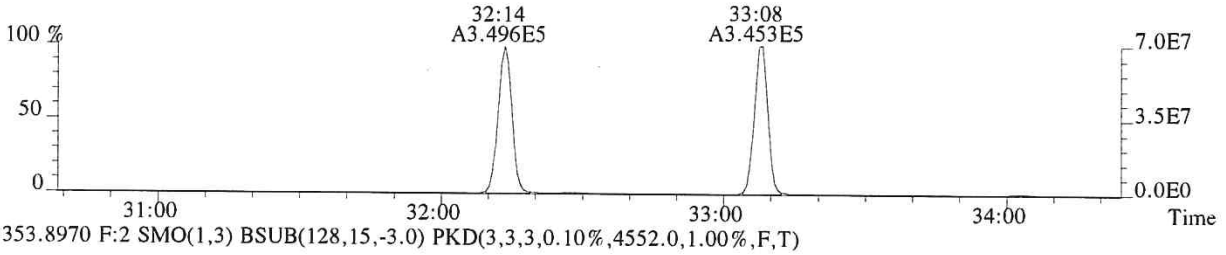
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



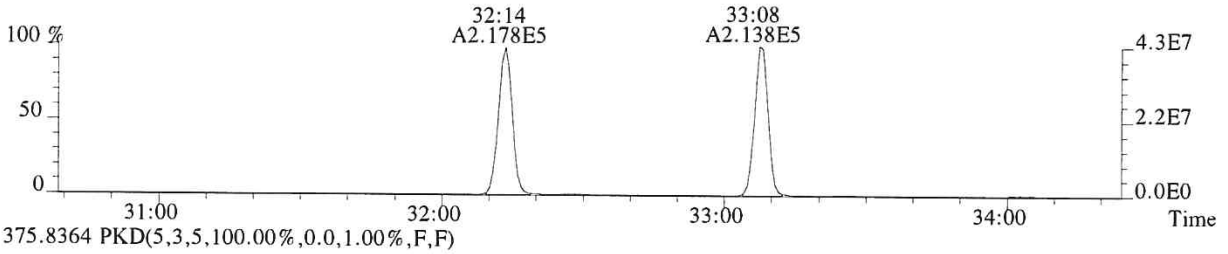
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



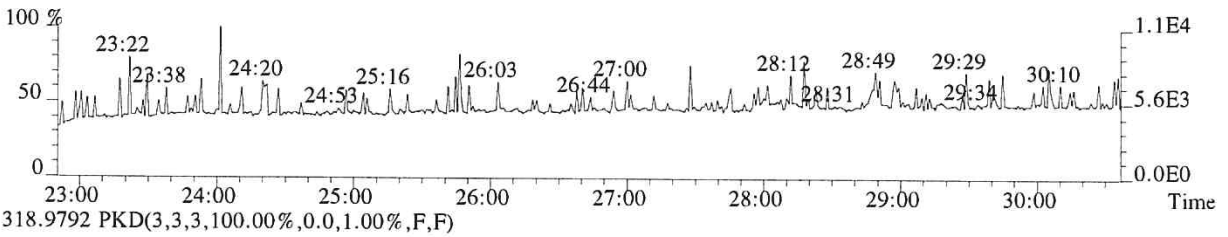
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



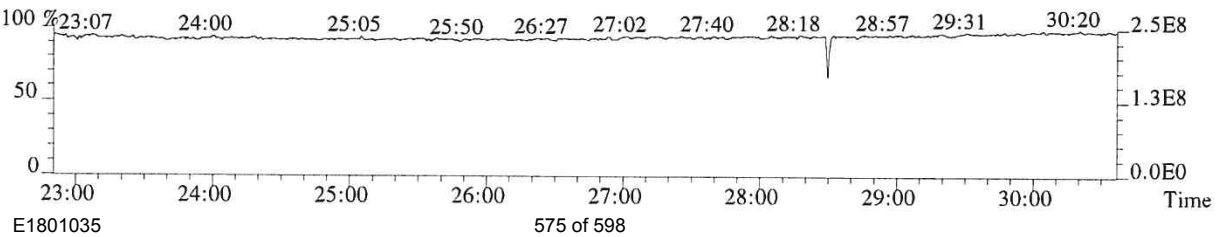
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



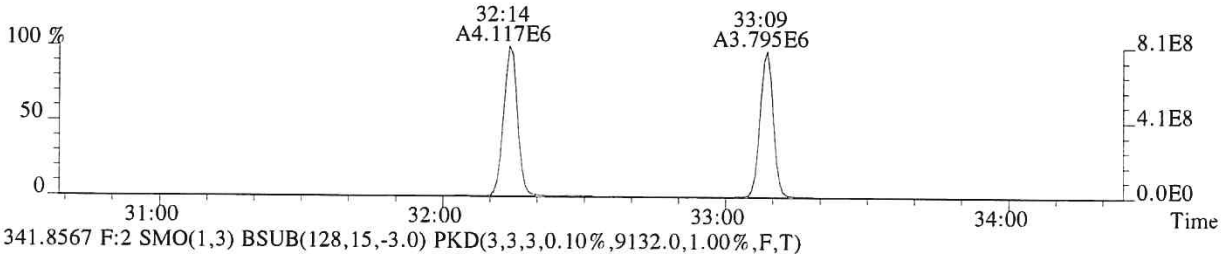
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



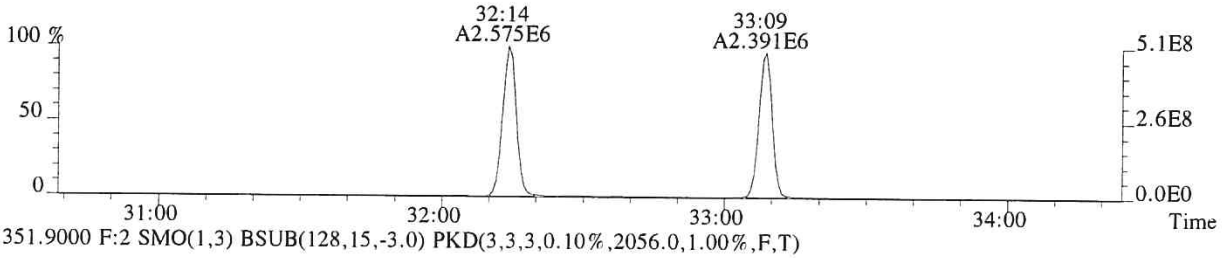
010908

File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

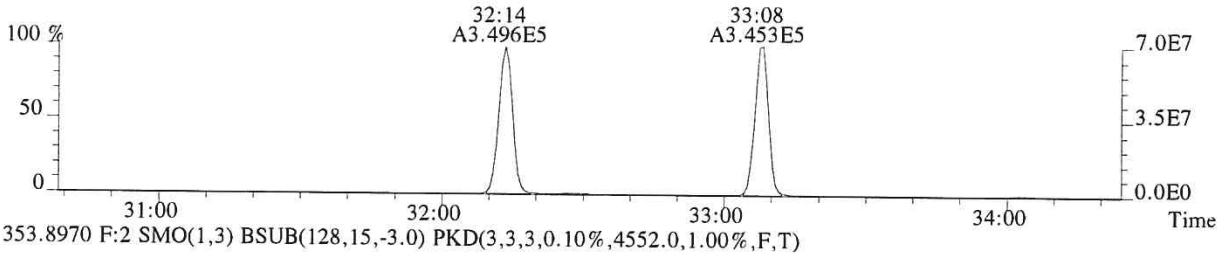
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8456.0,1.00%,F,T)



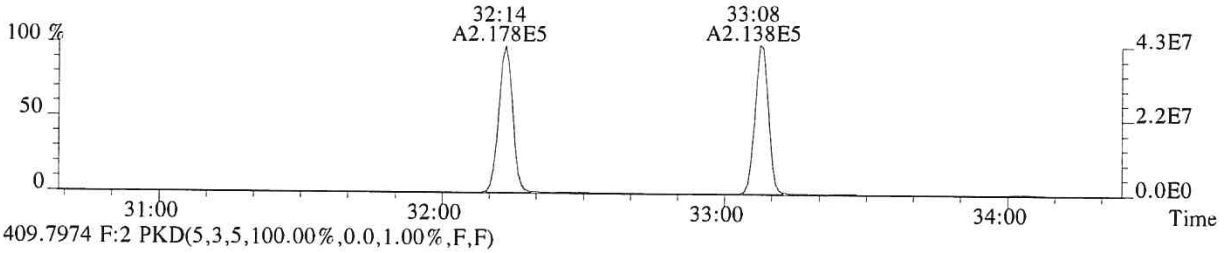
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9132.0,1.00%,F,T)



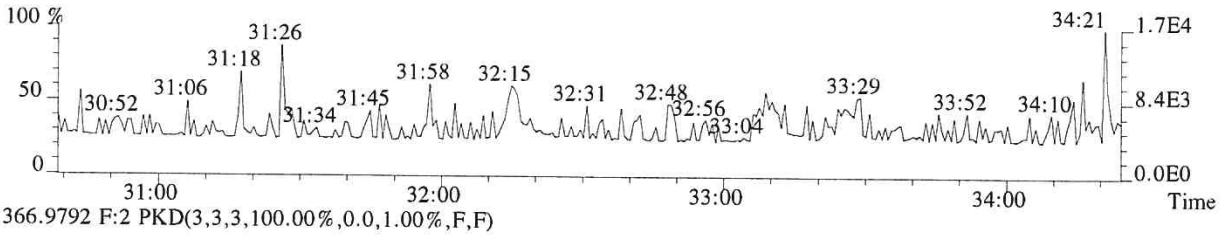
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



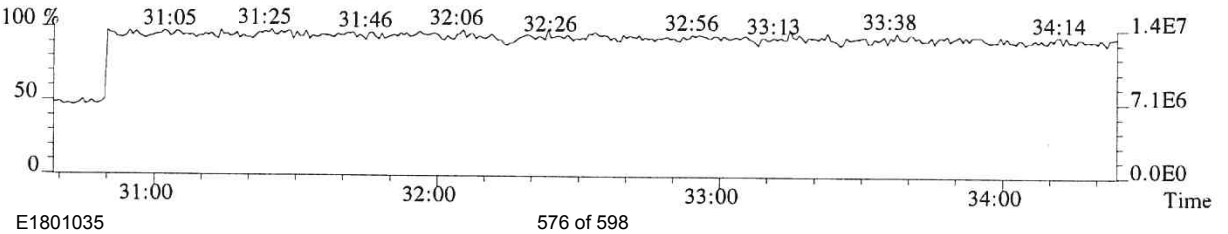
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

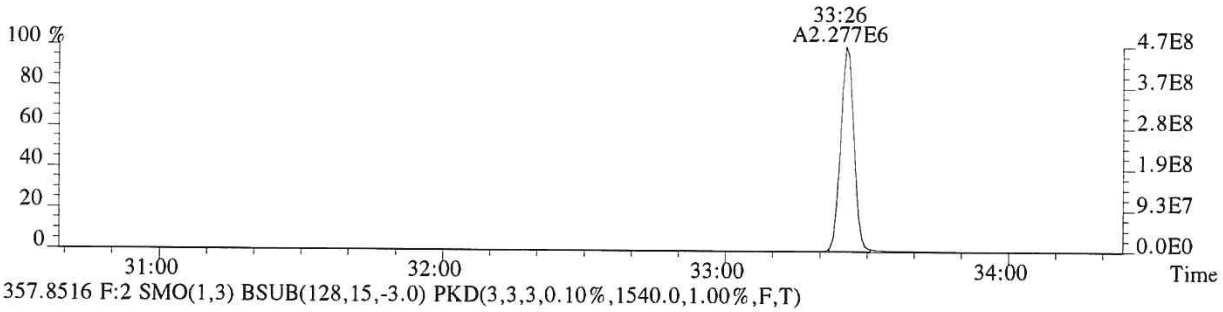


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

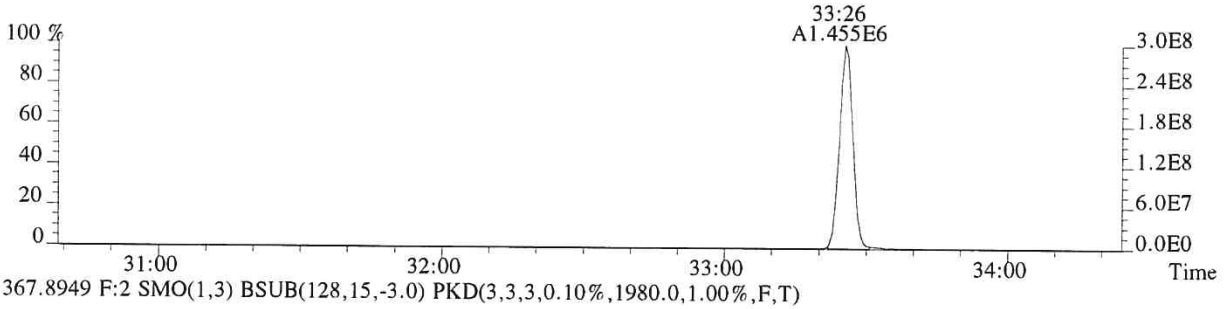


010909

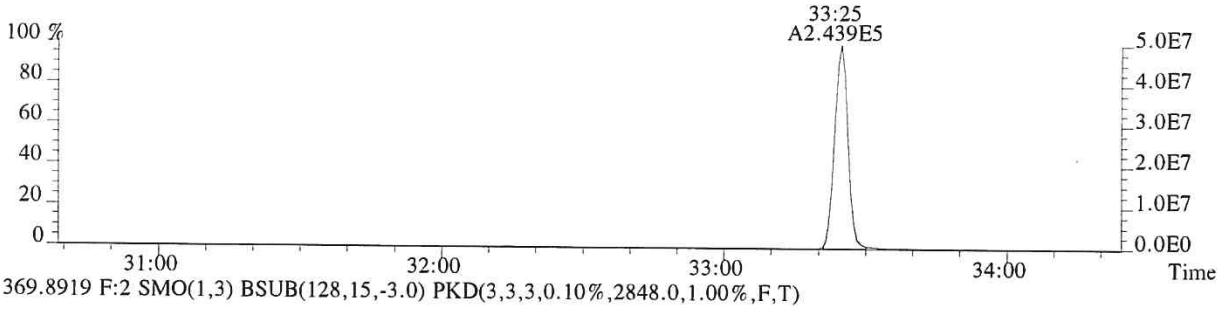
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



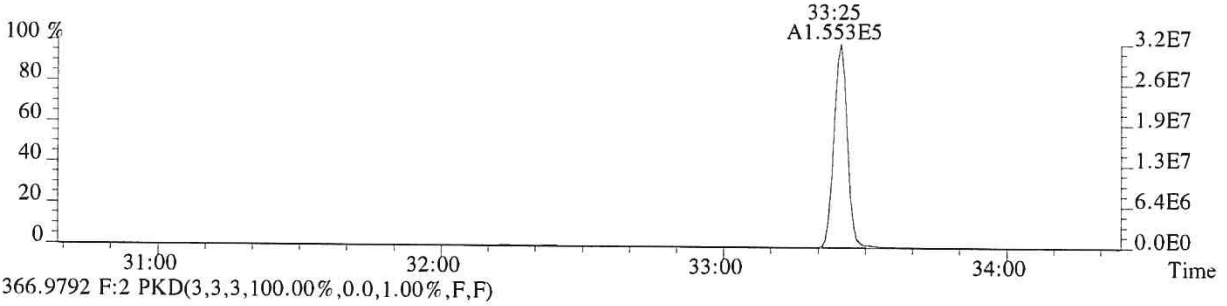
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



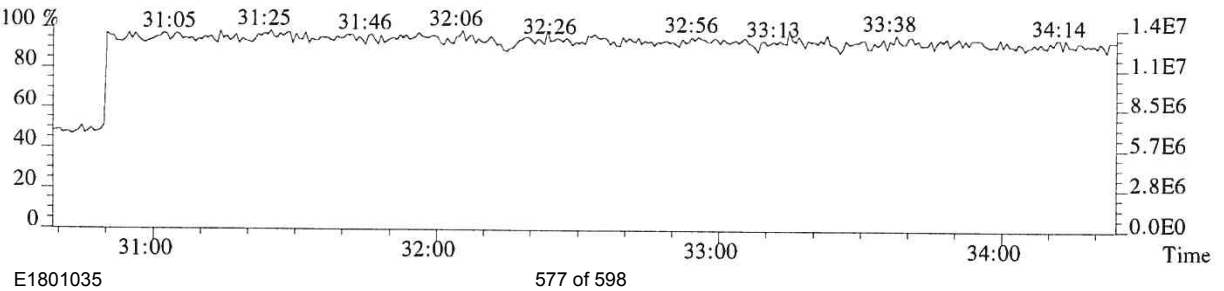
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)



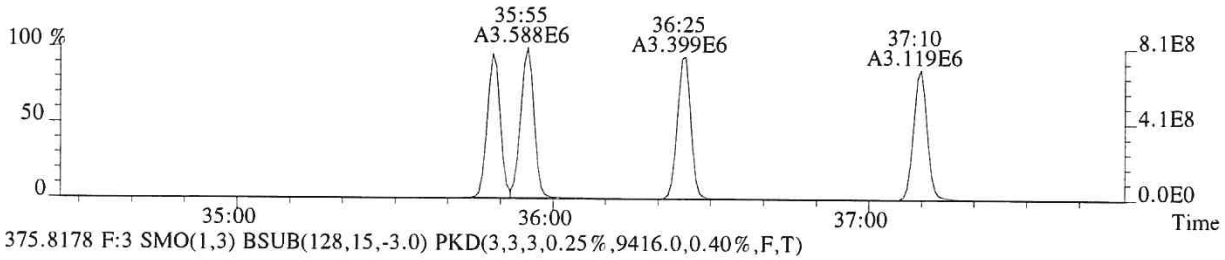
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



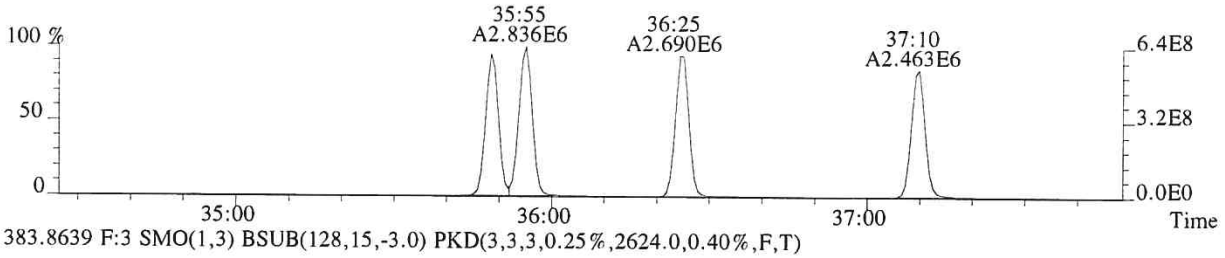
010910

File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

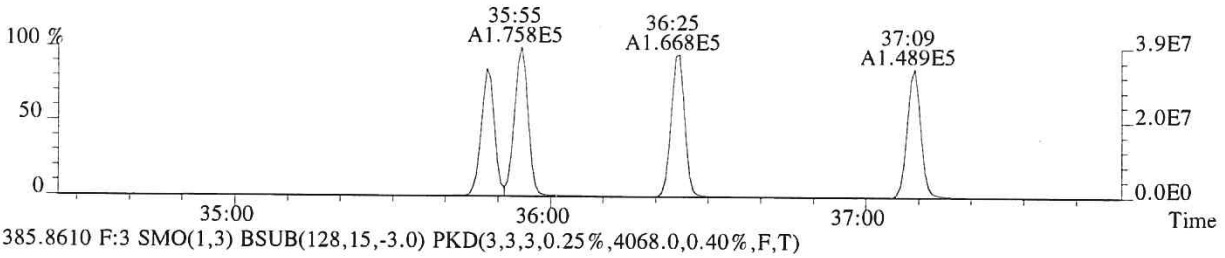
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12332.0,0.40%,F,T)



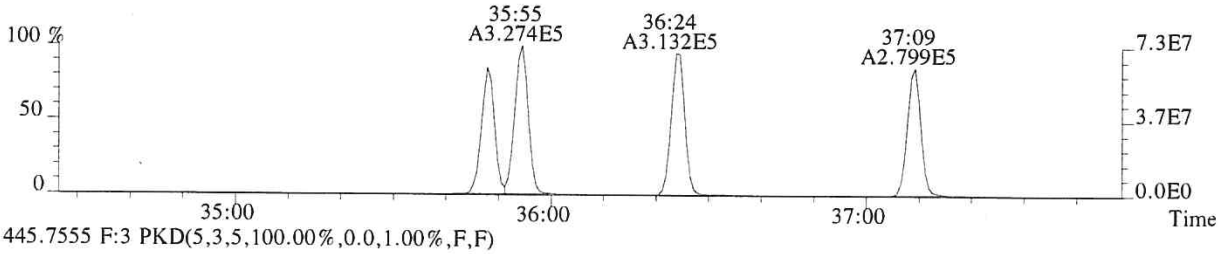
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9416.0,0.40%,F,T)



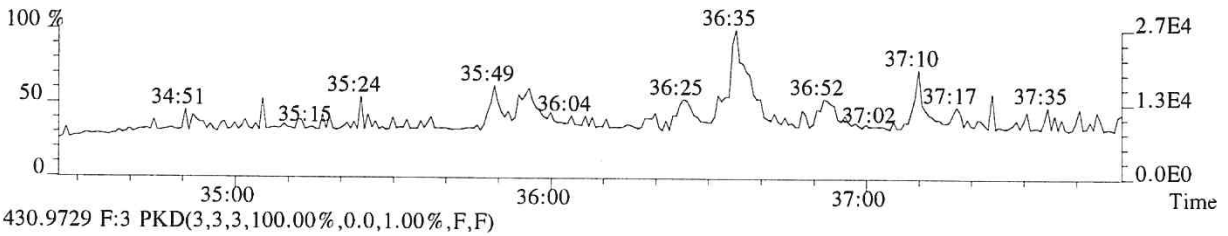
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.40%,F,T)



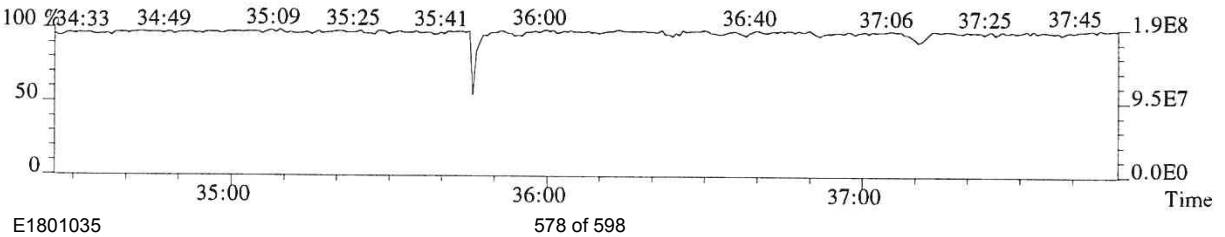
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4068.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

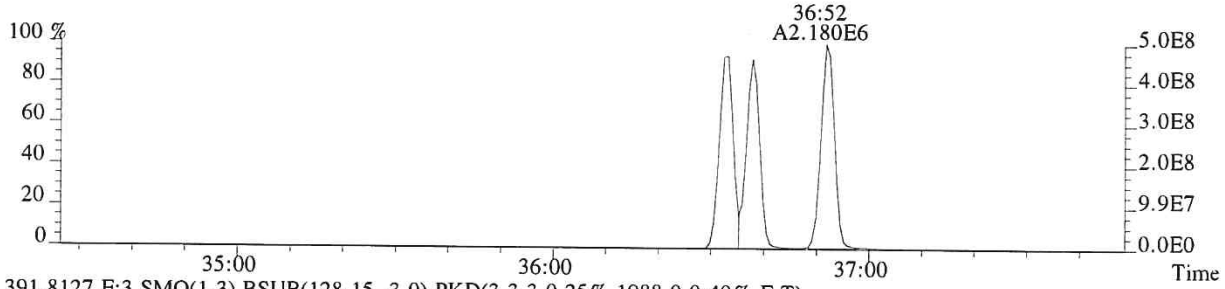


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

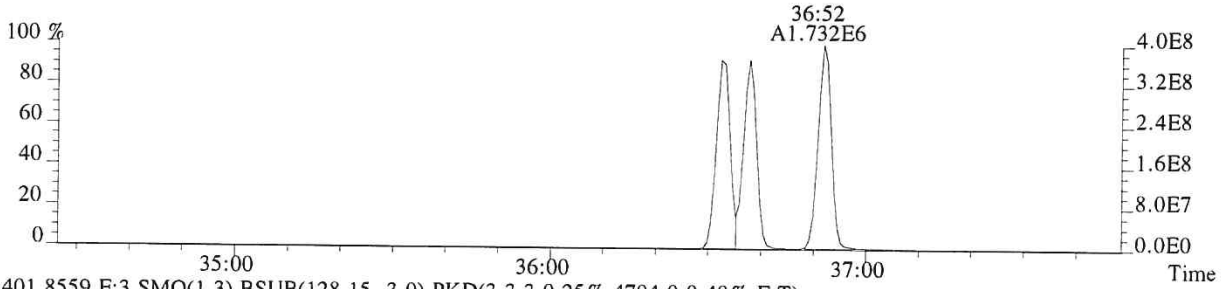


010911

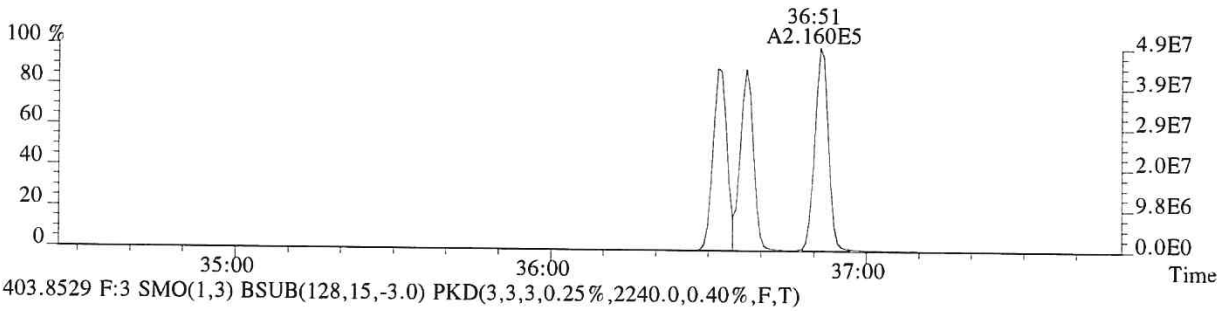
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



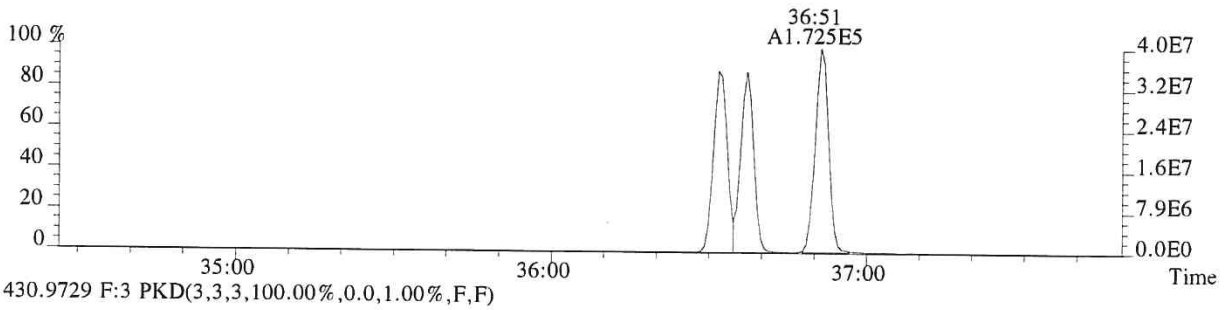
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



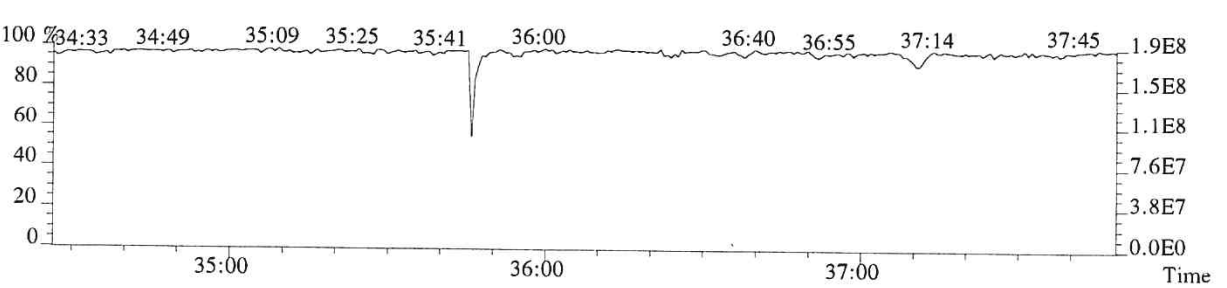
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)

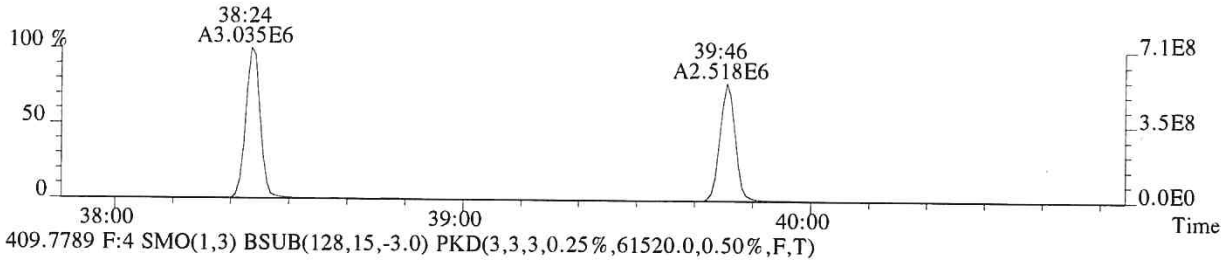


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

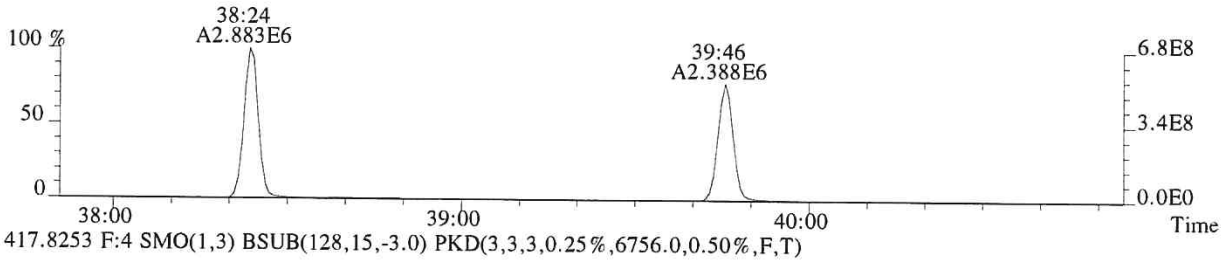


010912

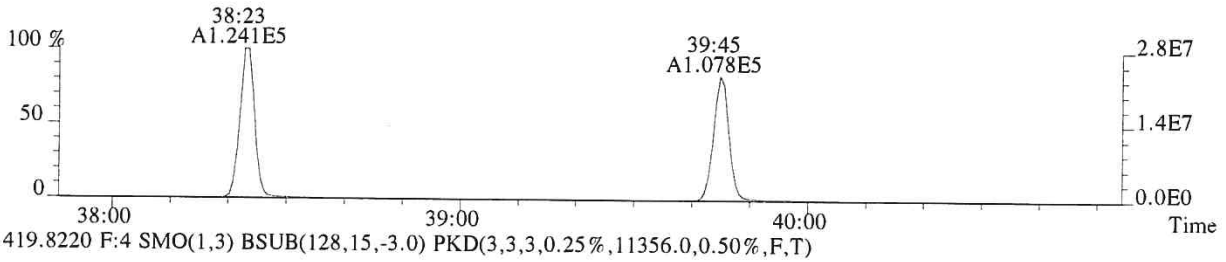
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96804.0,0.50%,F,T)



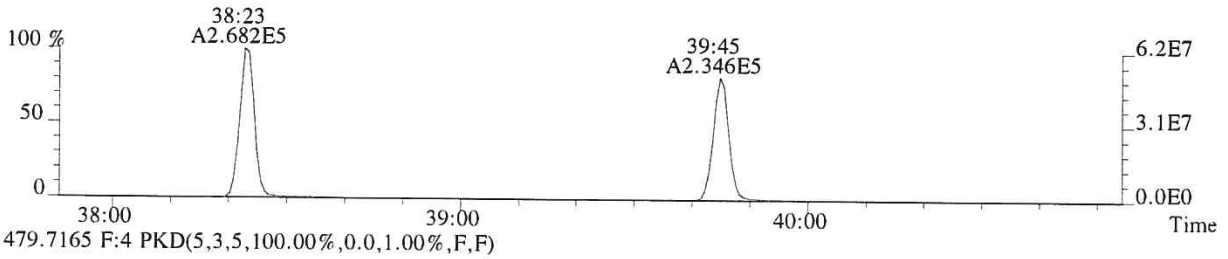
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61520.0,0.50%,F,T)



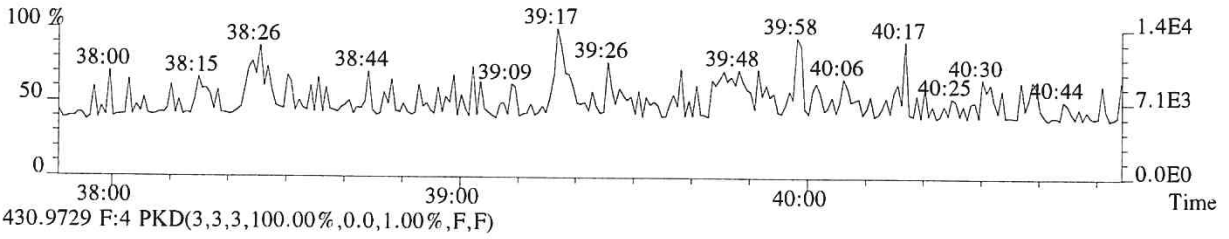
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)



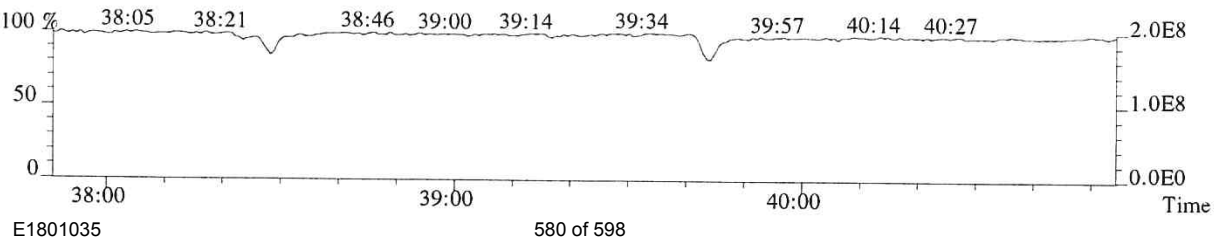
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11356.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

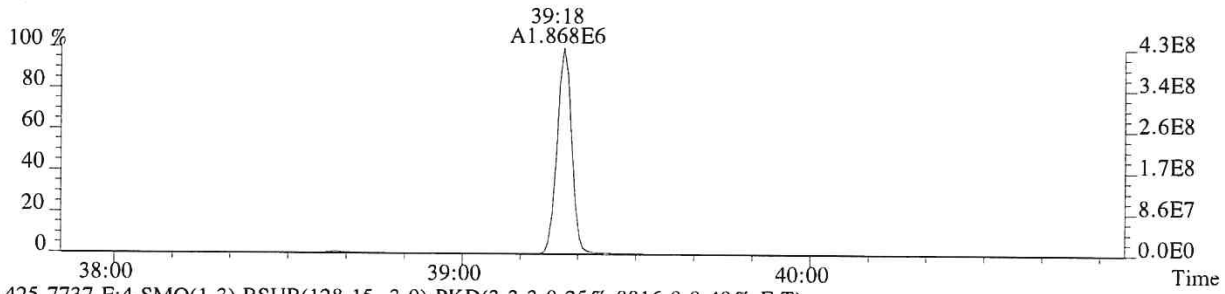


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

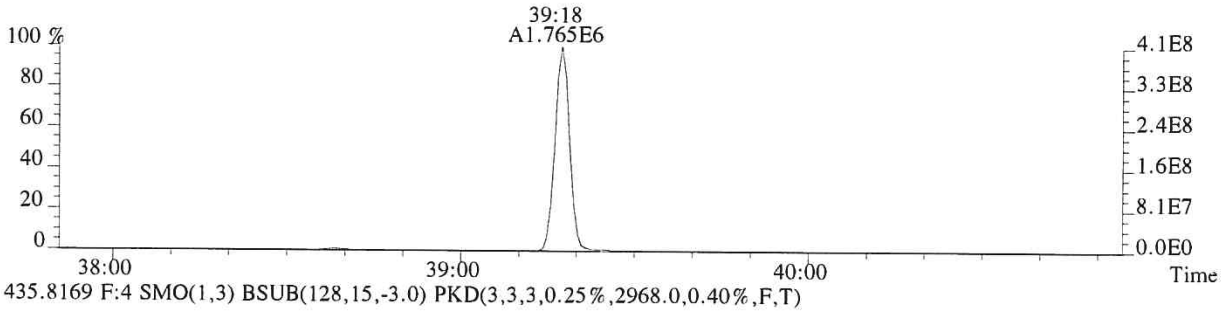


010913

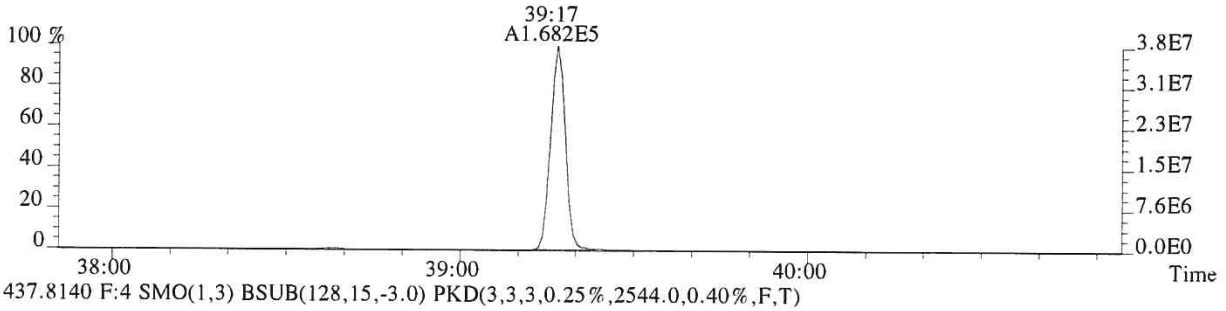
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11044.0,0.40%,F,T)



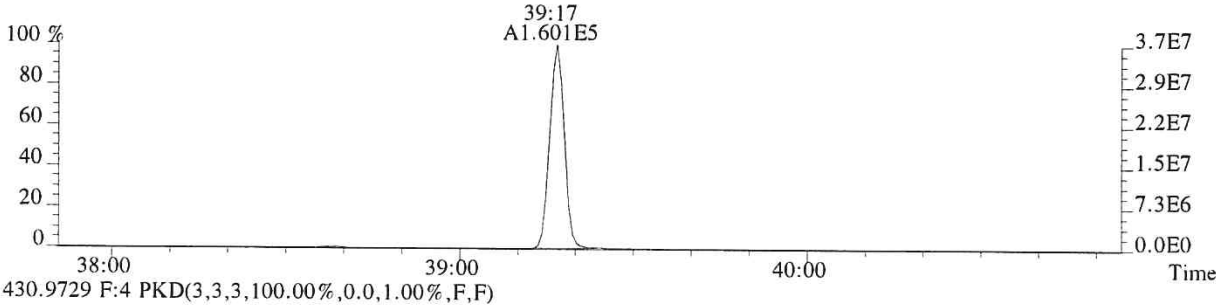
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8816.0,0.40%,F,T)



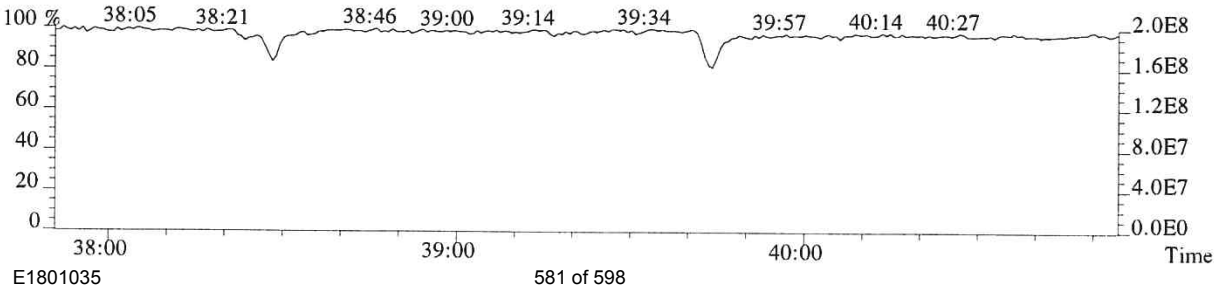
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2968.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2544.0,0.40%,F,T)

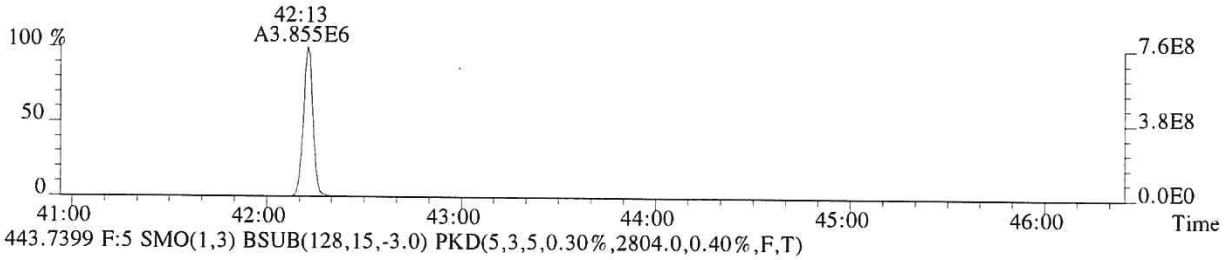


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

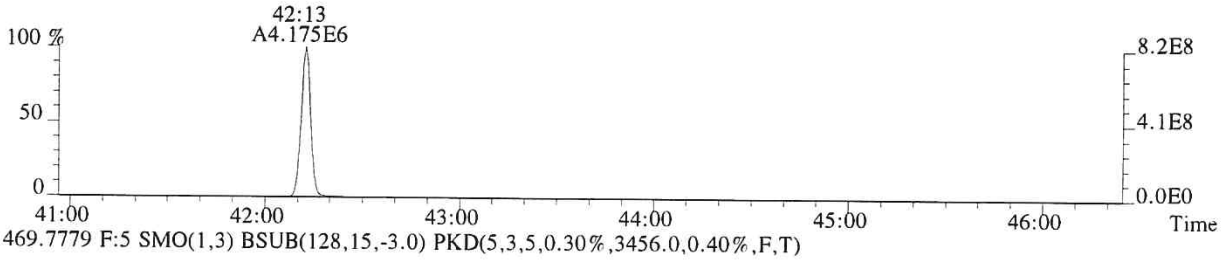


010914

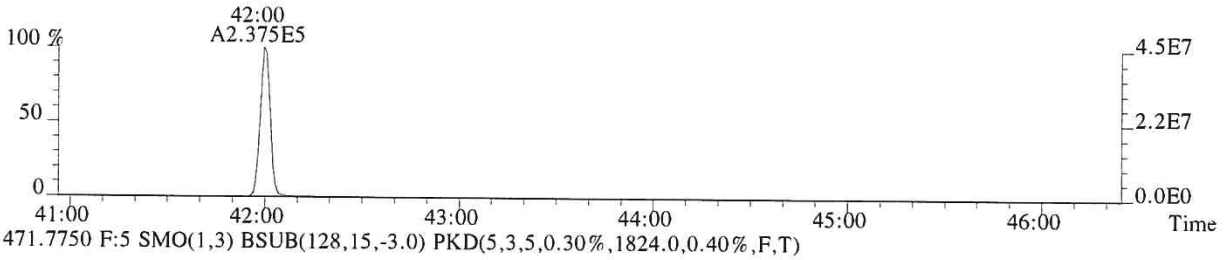
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



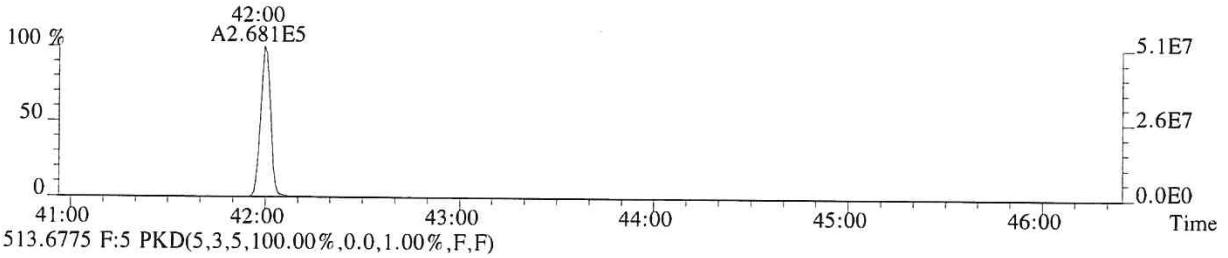
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2804.0,0.40%,F,T)



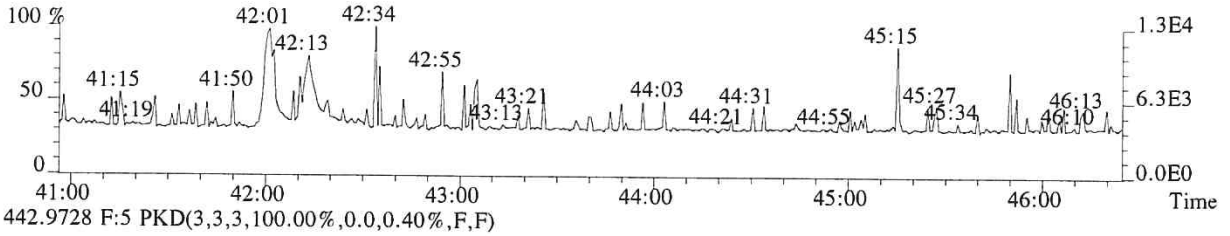
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



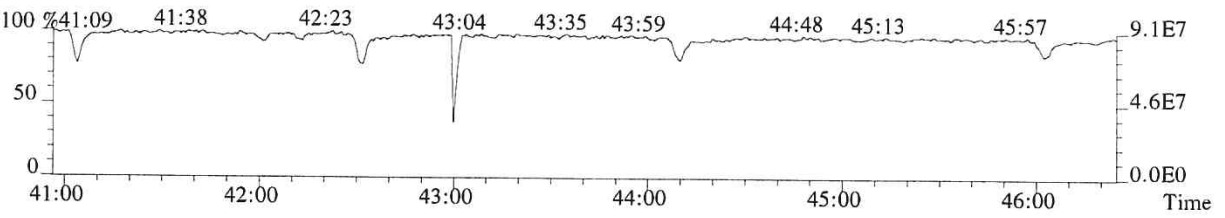
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

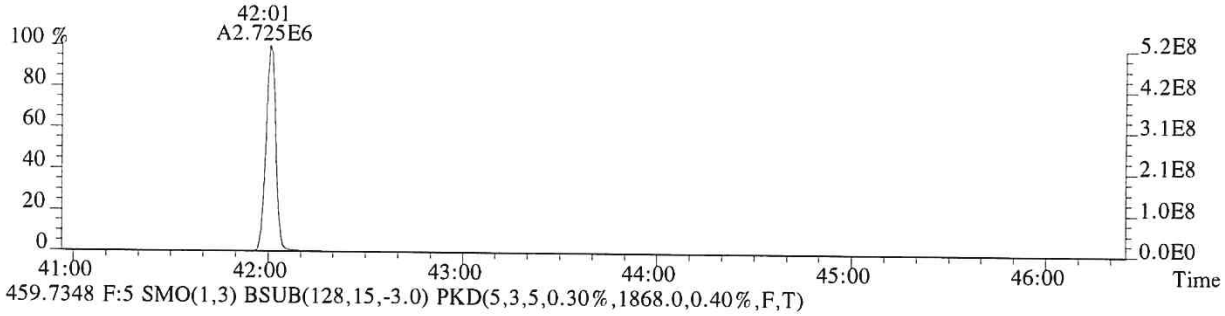


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

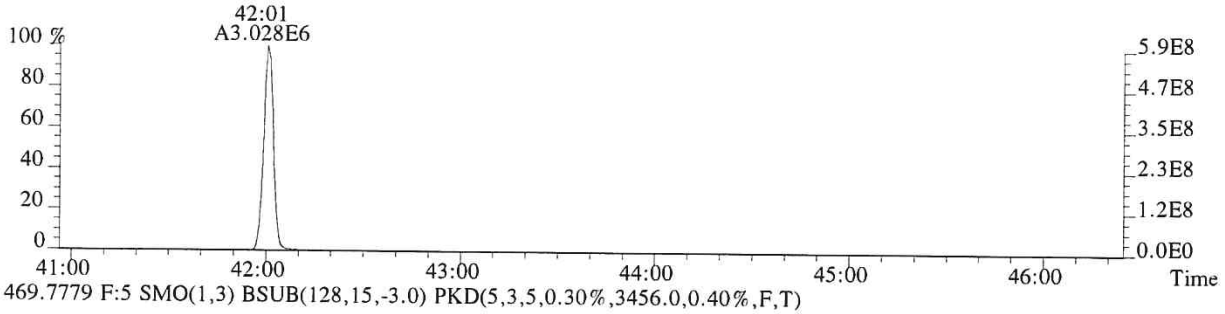


010915

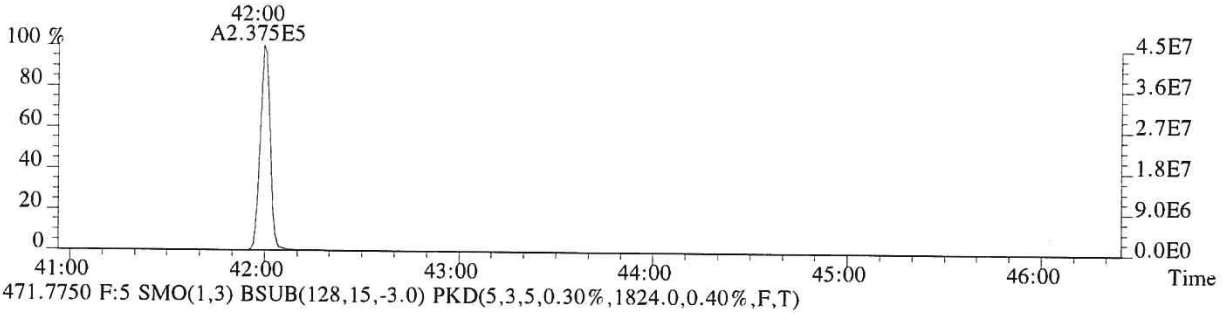
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



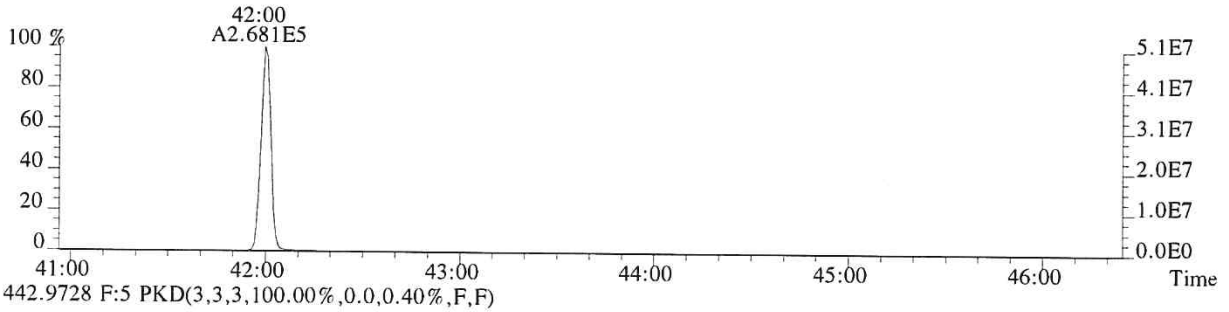
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1868.0,0.40%,F,T)



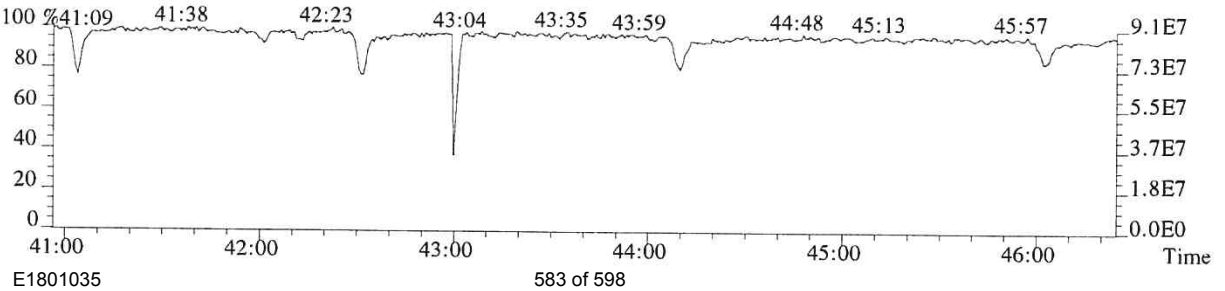
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010916

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-2.1
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.7	8.4 - 12.0	-2.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.5
OCDF	M+2/M+4	0.93	0.76-1.02	100	63 - 159	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	99	82 - 121	-0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	97	62 - 160	-2.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	224	96 - 415	11.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	98	76 - 130	-2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	96	77 - 130	-3.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	102	76 - 131	2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	109	77 - 129	9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.742e+04	2.239e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.470e+05	9.342e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	1.362e+05	8.490e+04	1.60	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.308e+05	1.044e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.371e+05	1.074e+05	1.28	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.285e+05	1.018e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.211e+05	9.459e+04	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.180e+05	1.126e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.018e+05	9.931e+04	1.02	yes	no	1.463
10	Unk	OCDF	42:12	1.605e+05	1.721e+05	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.193e+04	1.490e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	8.164e+04	5.215e+04	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	7.752e+04	6.082e+04	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	7.678e+04	6.066e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	8.213e+04	6.494e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	7.382e+04	6.944e+04	1.06	yes	no	1.112
17	Unk	OCDD	42:01	1.146e+05	1.261e+05	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.682e+05	2.104e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.590e+05	1.613e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.497e+05	1.565e+05	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.202e+05	2.212e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.342e+05	2.529e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.258e+05	2.350e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.132e+05	2.142e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	9.579e+04	2.089e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	8.964e+04	1.952e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.166e+05	1.457e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.797e+05	1.149e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.476e+05	1.165e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.453e+05	1.145e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.336e+05	1.263e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.007e+05	2.242e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.202e+05	1.487e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.598e+05	1.284e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.893e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.16e+03	1.4e+03	3.95e+06	5.67e+03	7.0e+02
2	1,2,3,7,8-PeCDF	2.75e+07	1.50e+03	1.8e+04	1.74e+07	8.24e+03	2.1e+03
3	2,3,4,7,8-PeCDF	2.67e+07	1.50e+03	1.8e+04	1.67e+07	8.24e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.29e+07	2.48e+03	9.3e+03
5	1,2,3,6,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.30e+07	2.48e+03	9.3e+03
6	2,3,4,6,7,8-HxCDF	2.86e+07	2.35e+03	1.2e+04	2.28e+07	2.48e+03	9.2e+03
7	1,2,3,7,8,9-HxCDF	2.47e+07	2.35e+03	1.1e+04	1.95e+07	2.48e+03	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.70e+07	4.46e+03	6.0e+03	2.58e+07	1.29e+04	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	4.46e+03	4.8e+03	2.03e+07	1.29e+04	1.6e+03
10	OCDF	3.01e+07	1.50e+03	2.0e+04	3.28e+07	3.09e+03	1.1e+04
11	2,3,7,8-TCDD	2.20e+06	4.04e+03	5.4e+02	2.73e+06	2.27e+03	1.2e+03
12	1,2,3,7,8-PeCDD	1.64e+07	3.14e+03	5.2e+03	1.06e+07	2.92e+02	3.6e+04
13	1,2,3,4,7,8-HxCDD	1.79e+07	1.59e+03	1.1e+04	1.41e+07	2.43e+03	5.8e+03
14	1,2,3,6,7,8-HxCDD	1.70e+07	1.59e+03	1.1e+04	1.34e+07	2.43e+03	5.5e+03
15	1,2,3,7,8,9-HxCDD	1.85e+07	1.59e+03	1.2e+04	1.48e+07	2.43e+03	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+07	2.28e+03	7.0e+03	1.49e+07	8.84e+02	1.7e+04
17	OCDD	2.16e+07	1.17e+03	1.8e+04	2.38e+07	1.31e+03	1.8e+04
18	13C-2,3,7,8-TCDF	2.88e+07	1.57e+04	1.8e+03	3.60e+07	9.18e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	4.01e+03	1.2e+04	3.00e+07	3.41e+03	8.8e+03
20	13C-2,3,4,7,8-PeCDF	4.95e+07	4.01e+03	1.2e+04	3.12e+07	3.41e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+07	2.99e+03	8.9e+03	4.93e+07	3.83e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.83e+07	2.99e+03	9.5e+03	5.32e+07	3.83e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.80e+07	2.99e+03	9.4e+03	5.25e+07	3.83e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.35e+07	2.99e+03	7.9e+03	4.43e+07	3.83e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+07	7.32e+03	3.0e+03	4.77e+07	1.38e+04	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.88e+07	7.32e+03	2.6e+03	4.06e+07	1.38e+04	2.9e+03
27	13C-2,3,7,8-TCDD	2.17e+07	2.56e+04	8.4e+02	2.71e+07	6.97e+03	3.9e+03
28	13C-1,2,3,7,8-PeCDD	3.57e+07	3.26e+03	1.1e+04	2.28e+07	2.28e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.37e+07	5.66e+03	6.0e+03	2.64e+07	3.42e+03	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.18e+07	5.66e+03	5.6e+03	2.51e+07	3.42e+03	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+07	3.13e+03	9.1e+03	2.68e+07	1.88e+03	1.4e+04
32	13C-OCDD	3.77e+07	2.72e+03	1.4e+04	4.17e+07	9.60e+02	4.3e+04
33	13C-1,2,3,4-TCDD	2.21e+07	2.56e+04	8.6e+02	2.72e+07	6.97e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+07	5.66e+03	6.4e+03	2.92e+07	3.42e+03	8.5e+03
35	37Cl-2,3,7,8-TCDD	5.28e+06	4.24e+03	1.2e+03			

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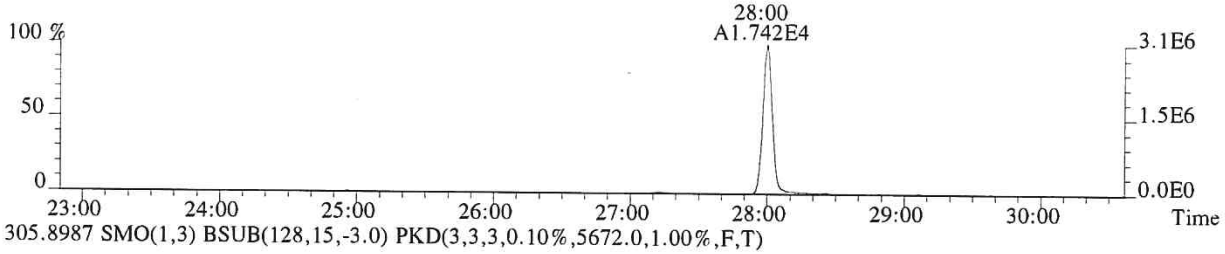
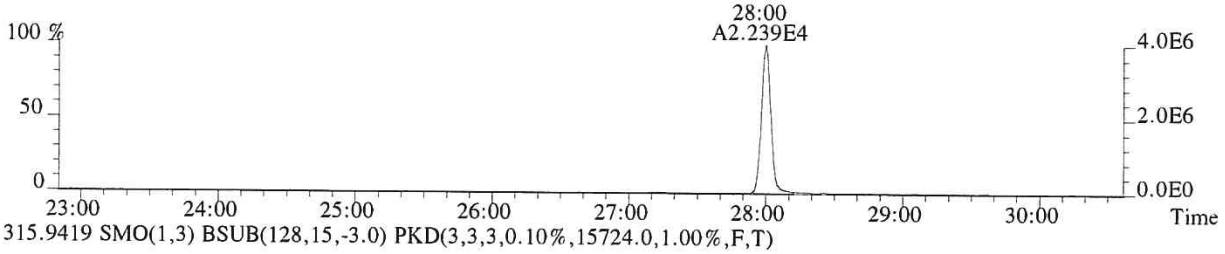
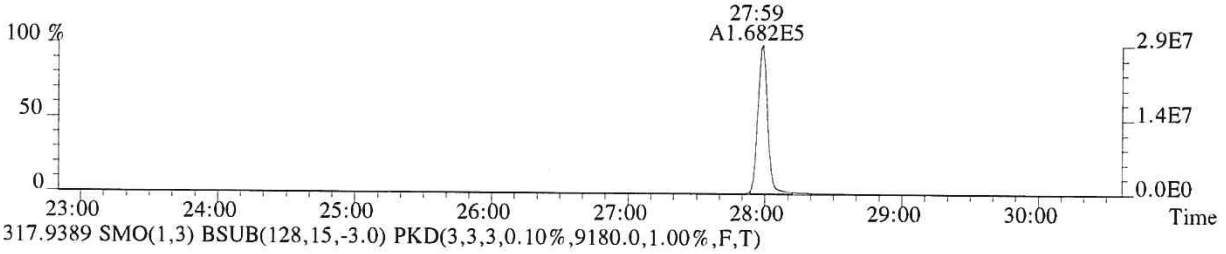
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



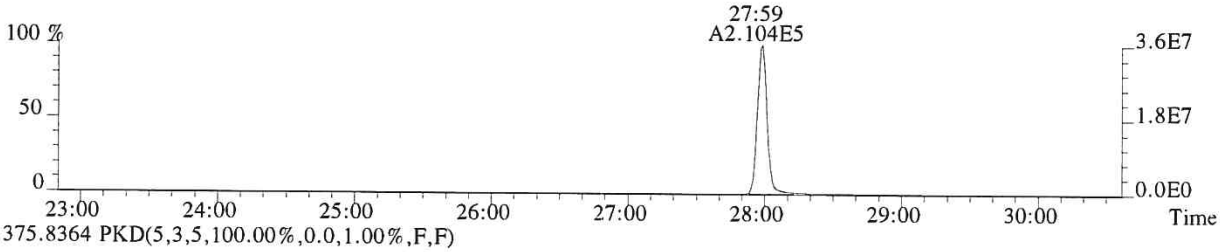
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5672.0,1.00%,F,T)



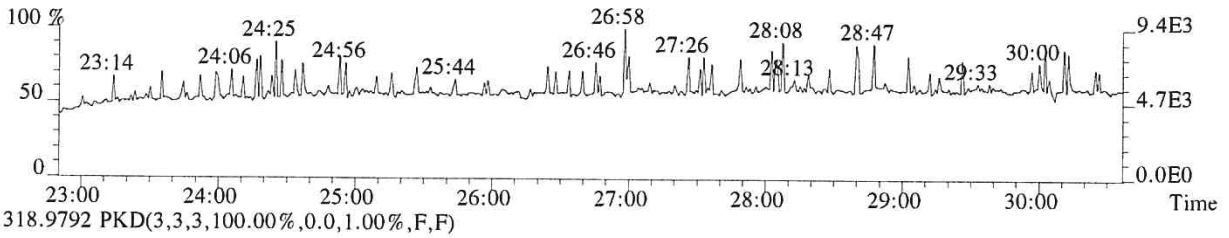
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15724.0,1.00%,F,T)



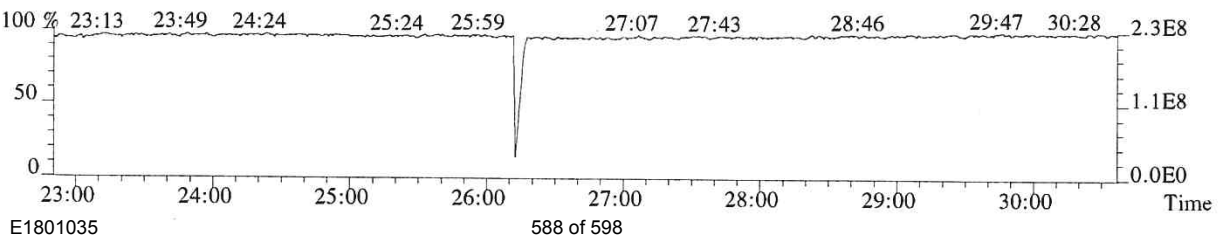
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9180.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

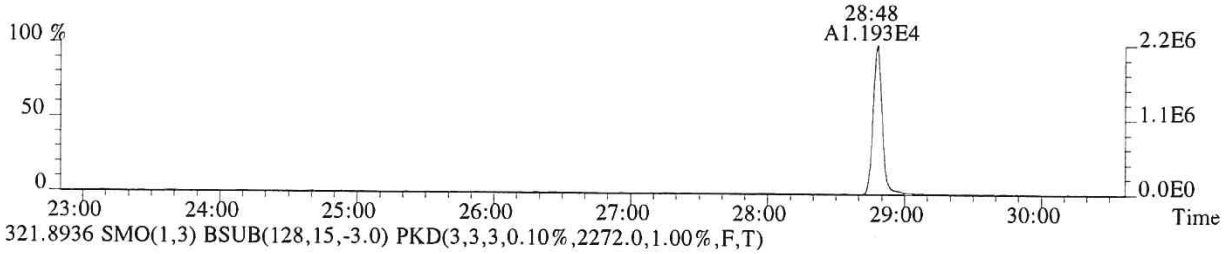


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

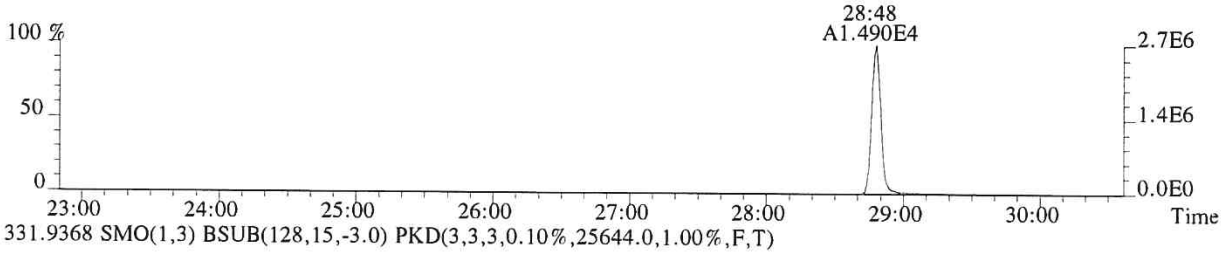


010921

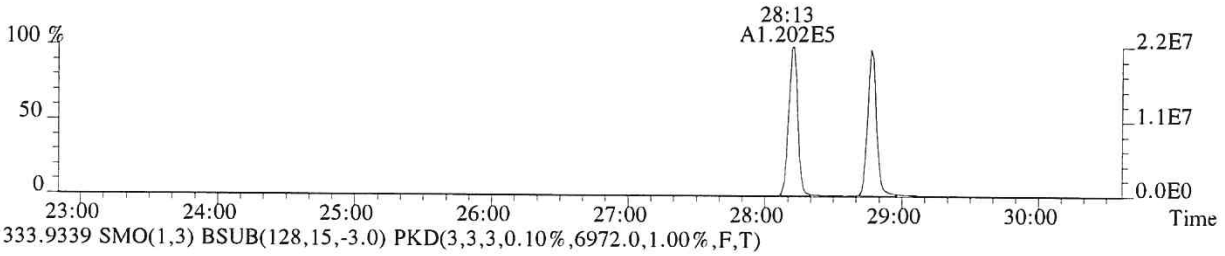
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



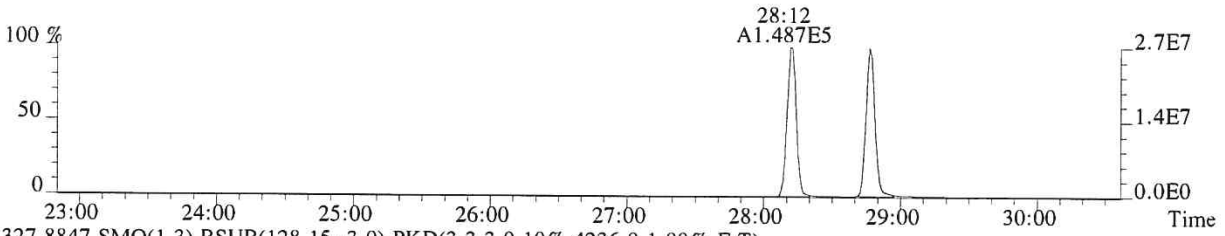
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



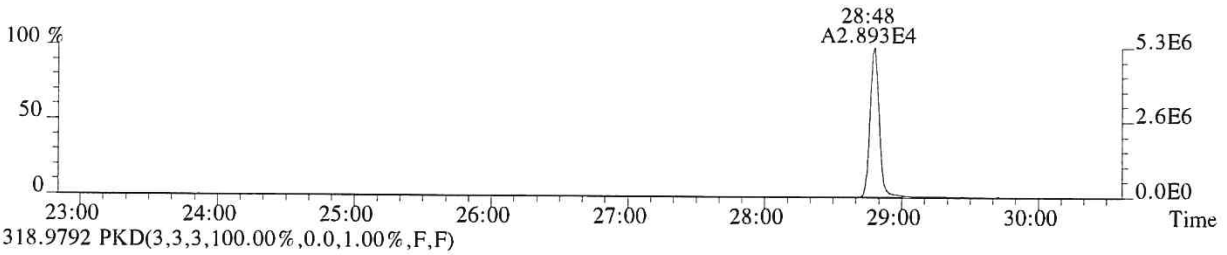
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25644.0,1.00%,F,T)



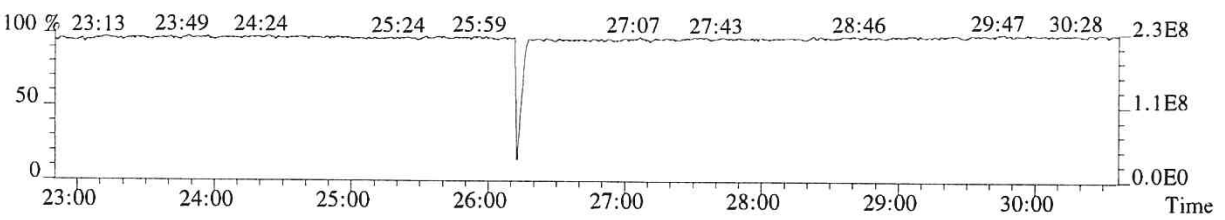
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4236.0,1.00%,F,T)

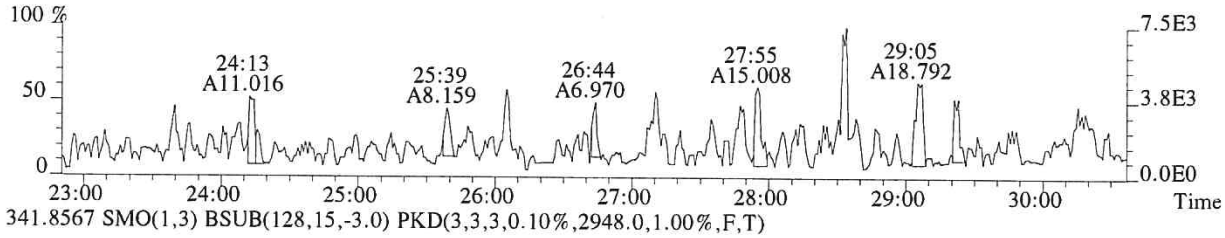


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

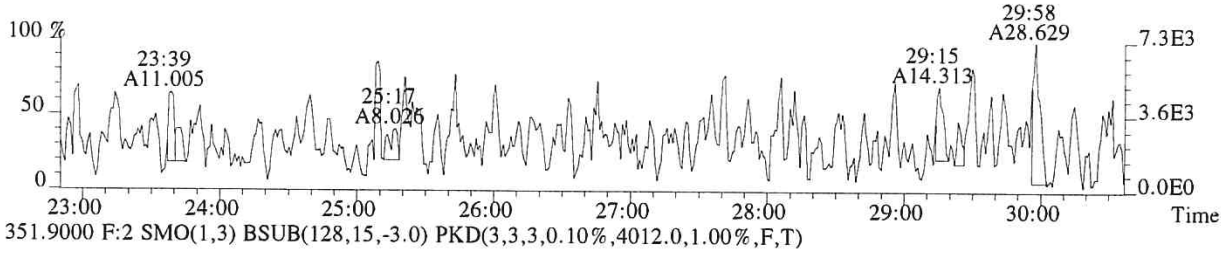


010922

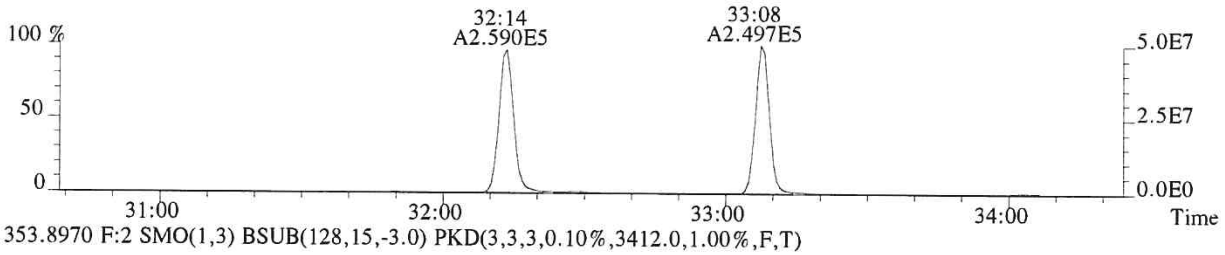
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



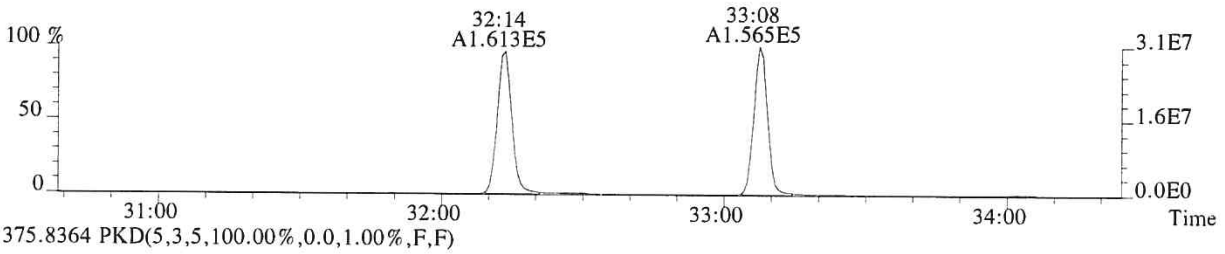
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



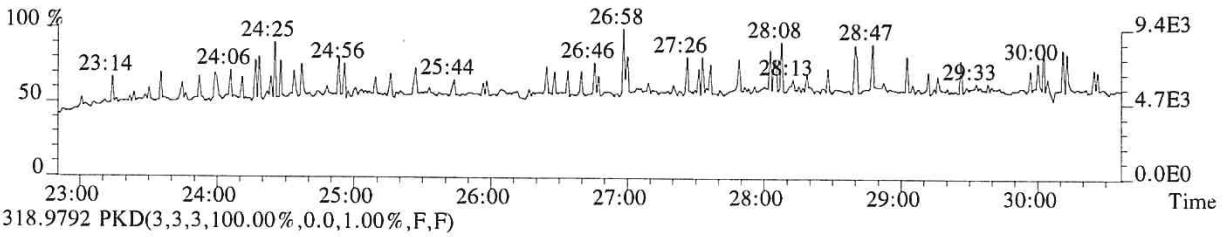
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



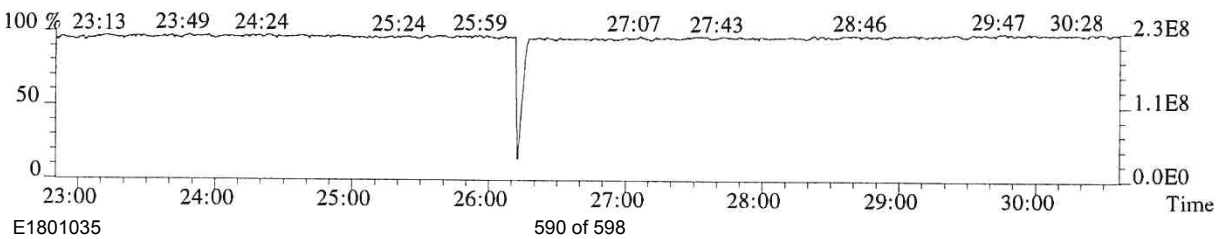
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

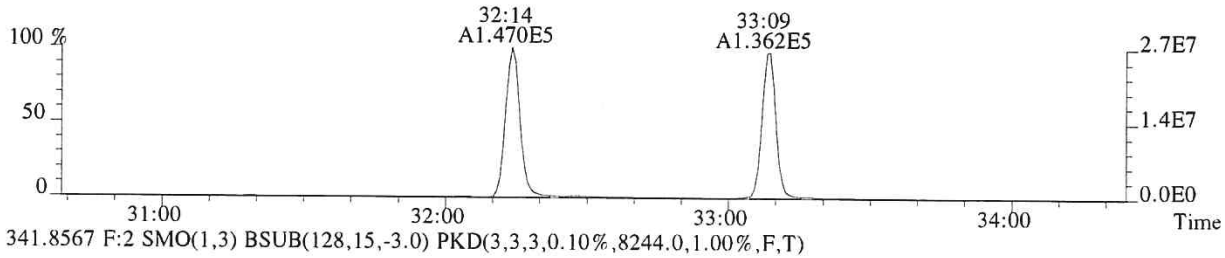


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

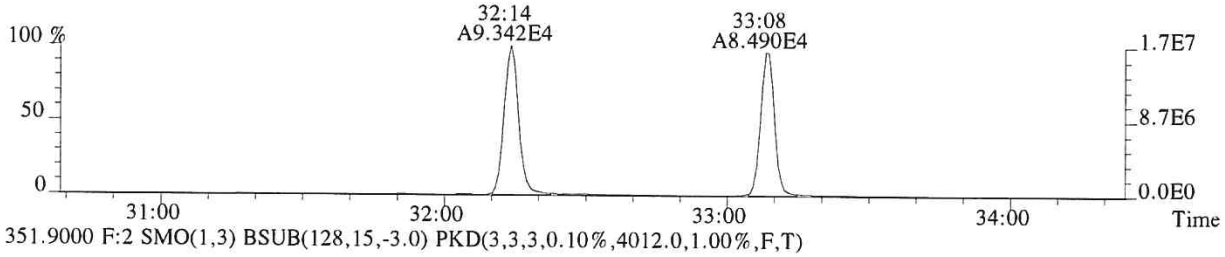


010923

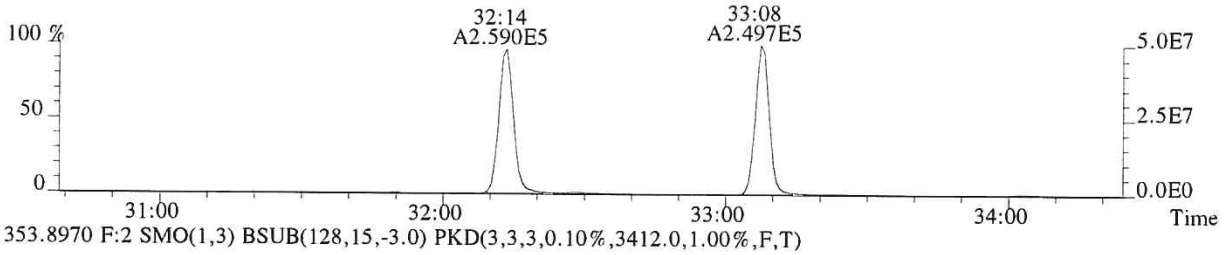
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



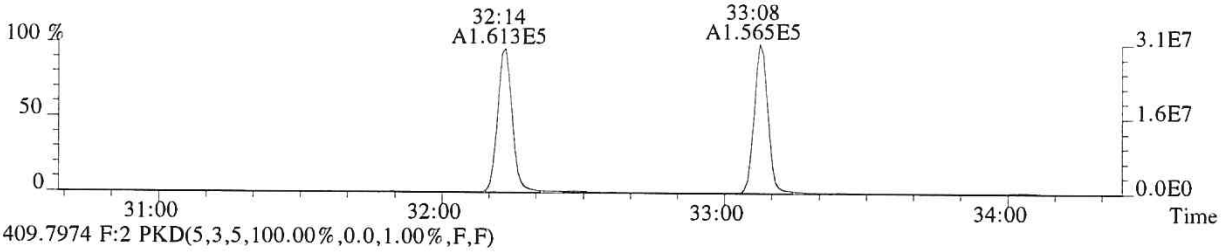
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8244.0,1.00%,F,T)



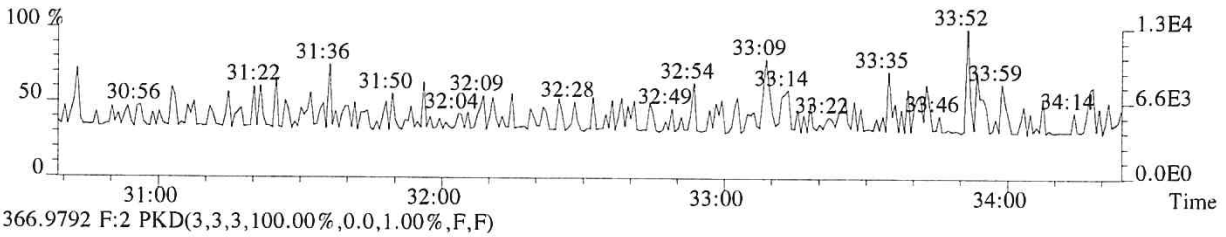
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



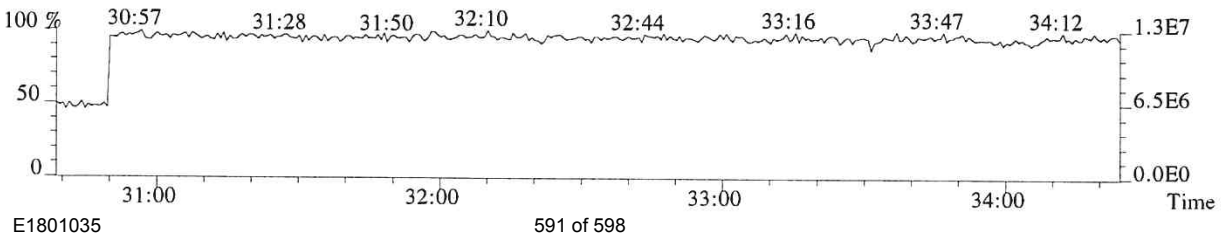
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

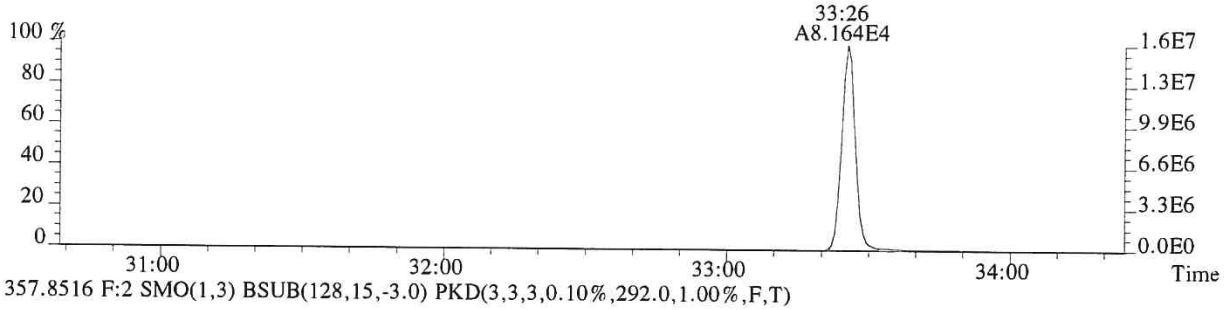


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

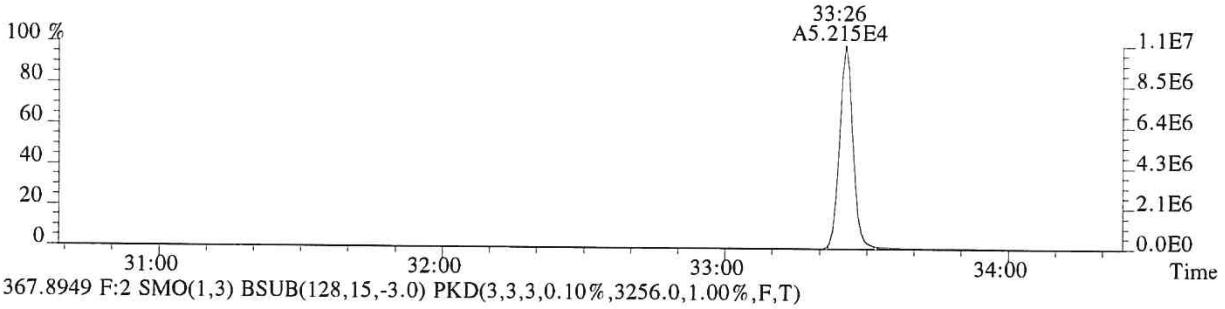


010924

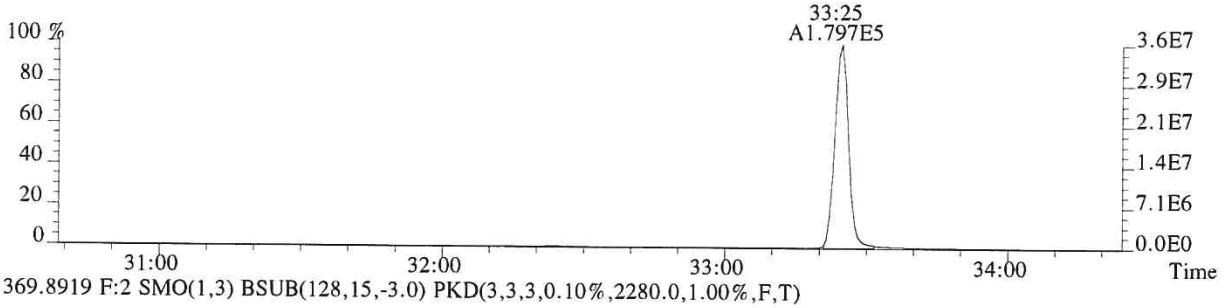
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



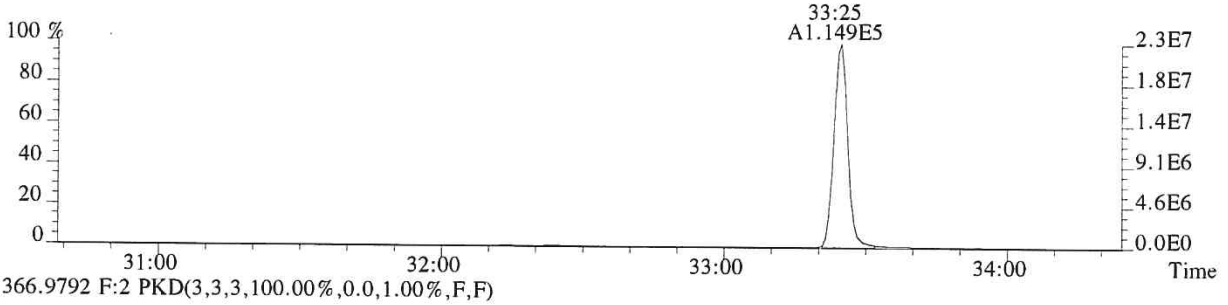
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



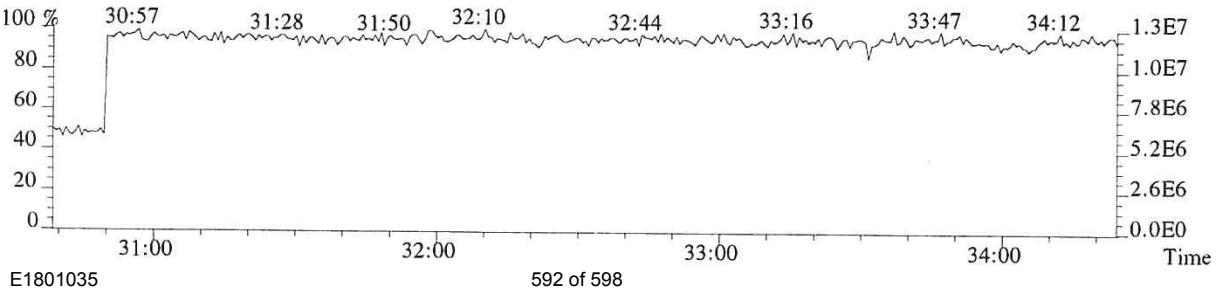
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)

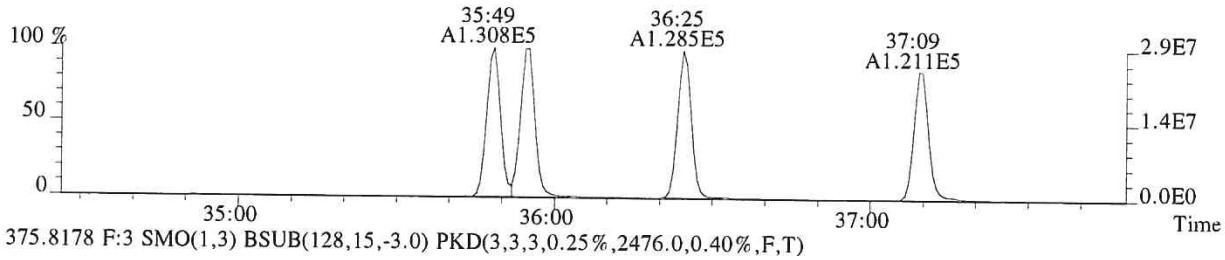


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

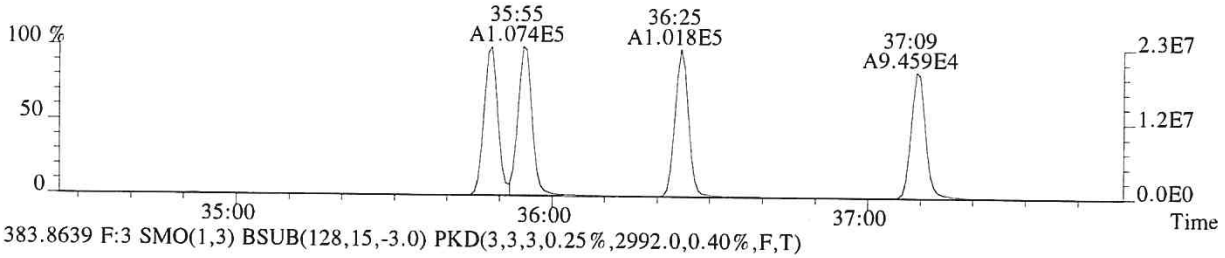


010925

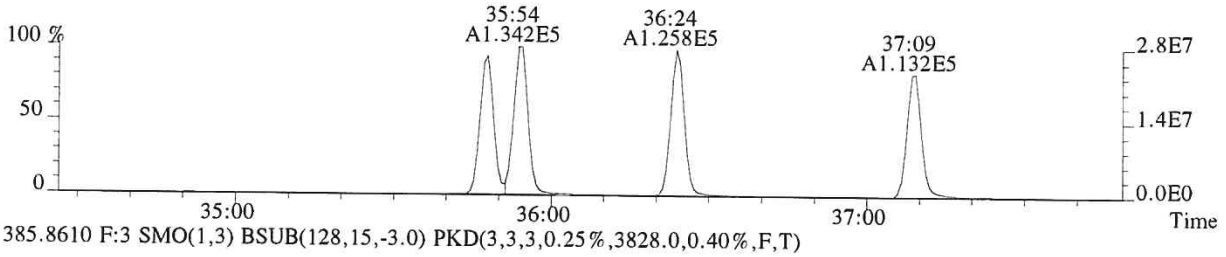
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



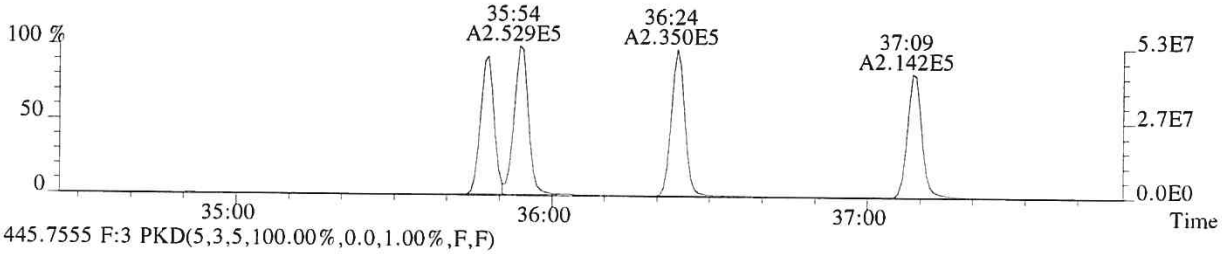
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



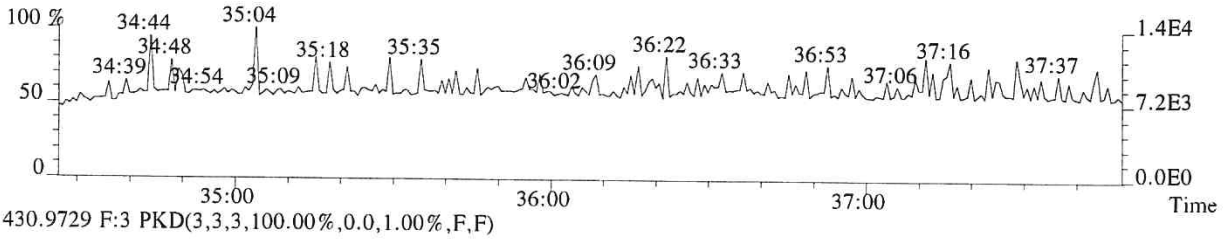
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



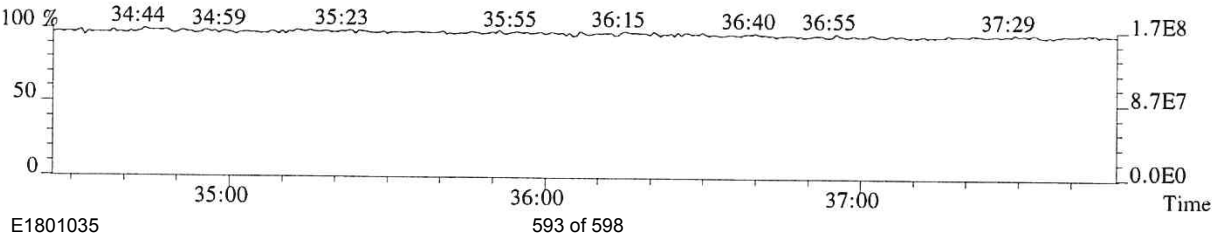
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3828.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

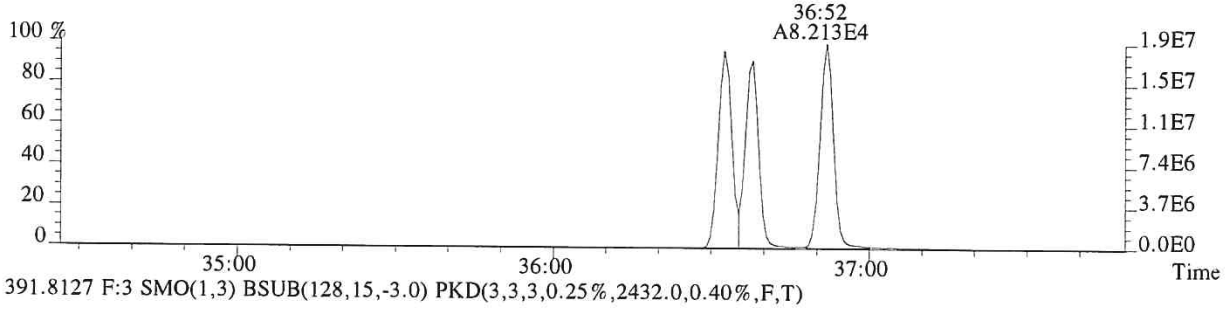


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

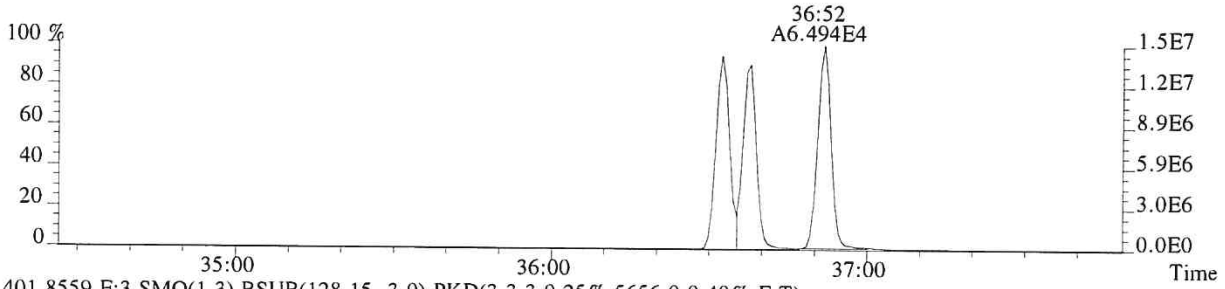


010926

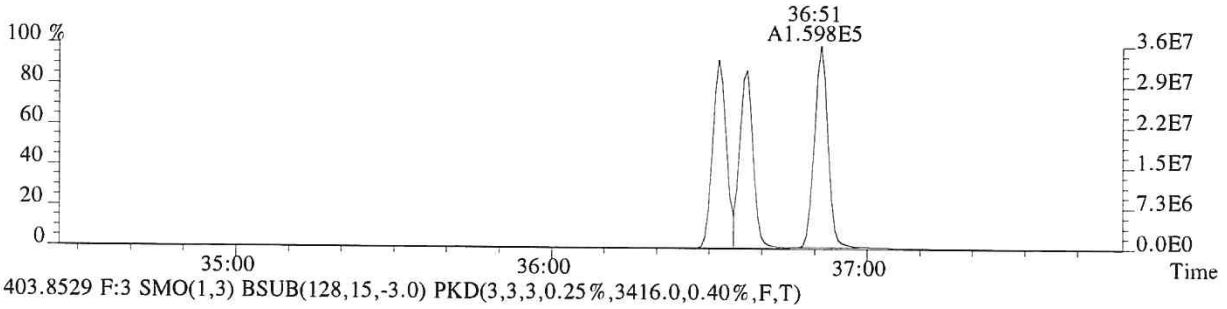
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



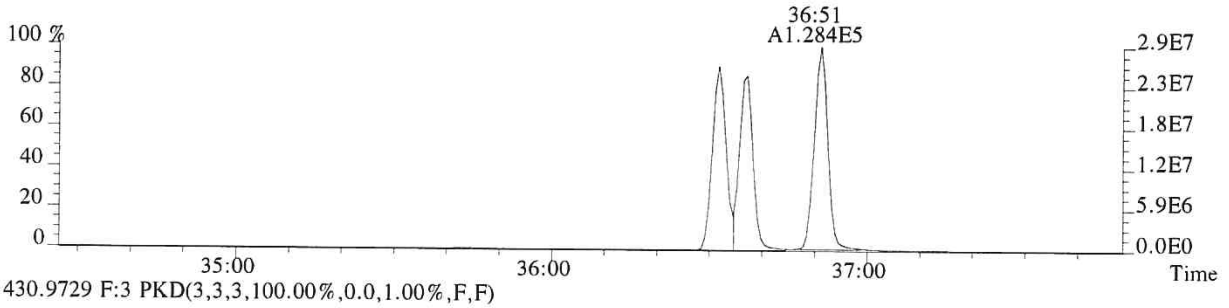
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



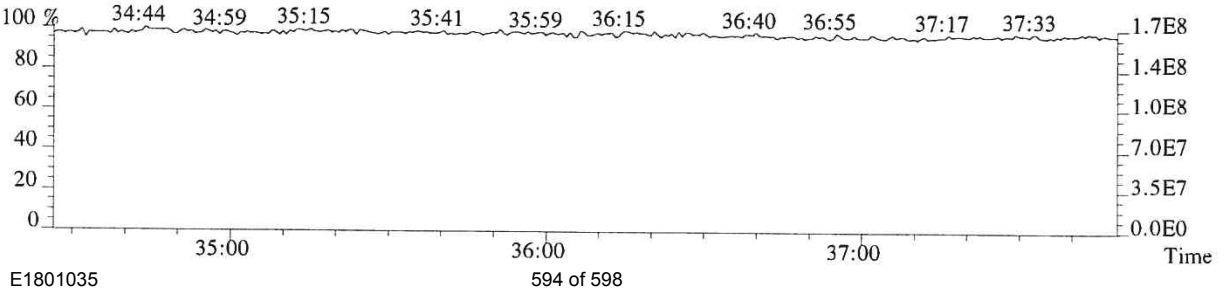
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3416.0,0.40%,F,T)

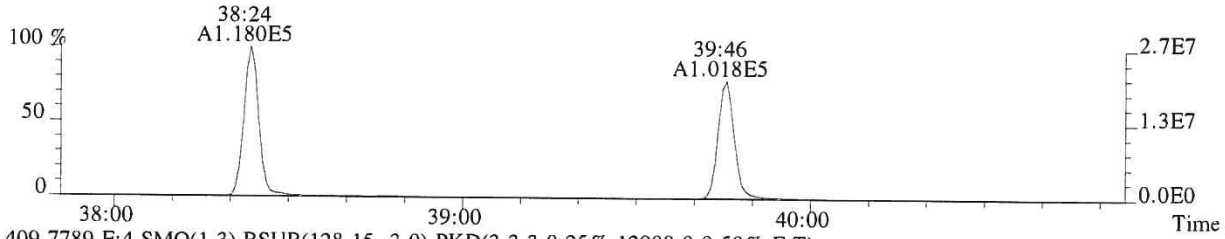


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

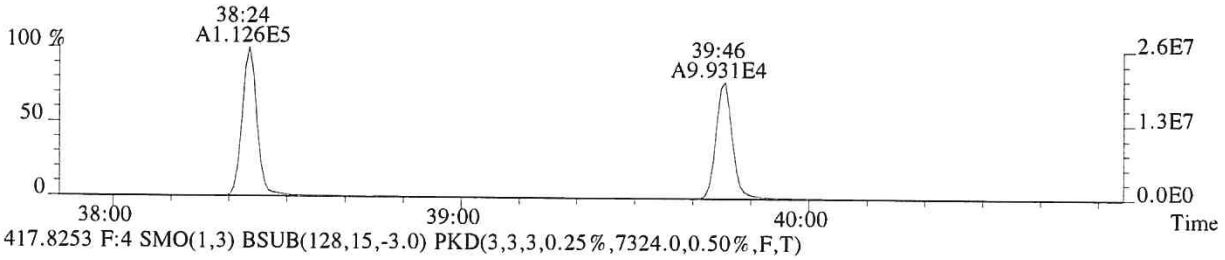


010927

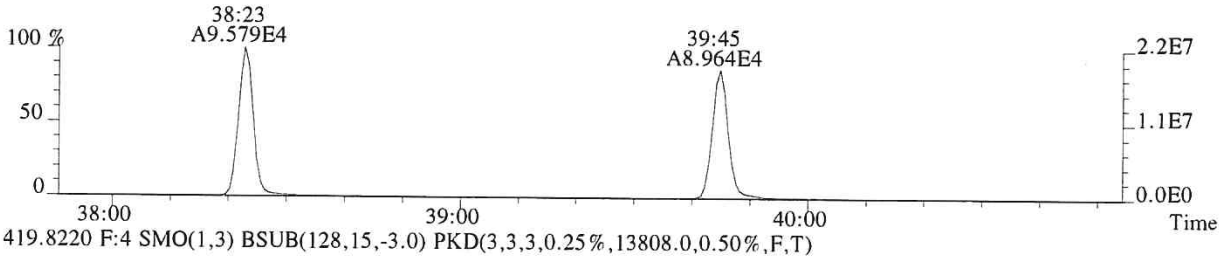
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



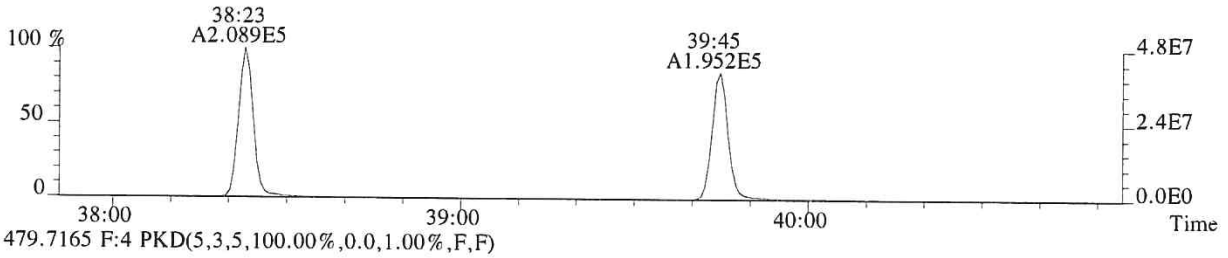
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12908.0,0.50%,F,T)



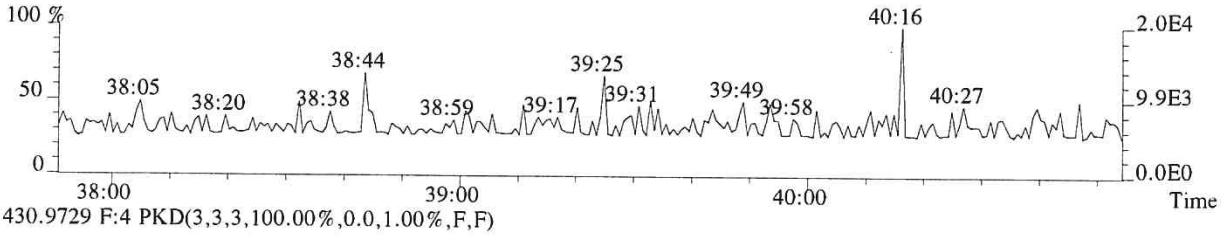
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7324.0,0.50%,F,T)



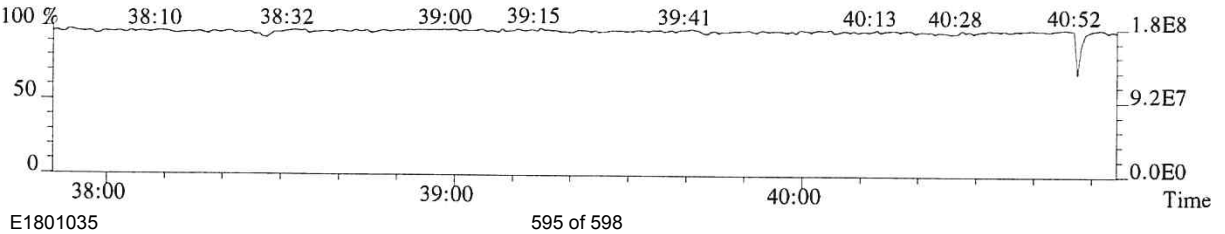
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13808.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

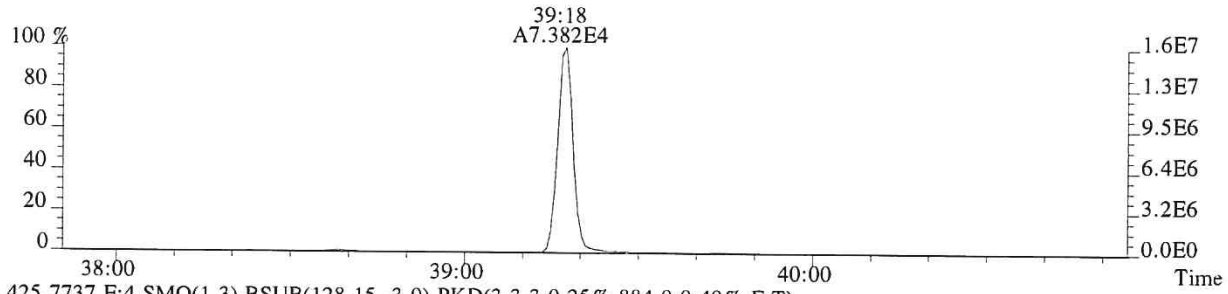


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

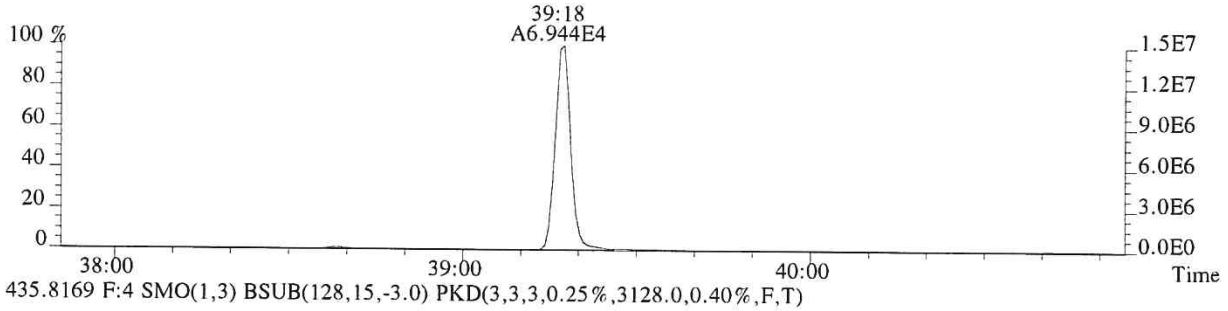


010928

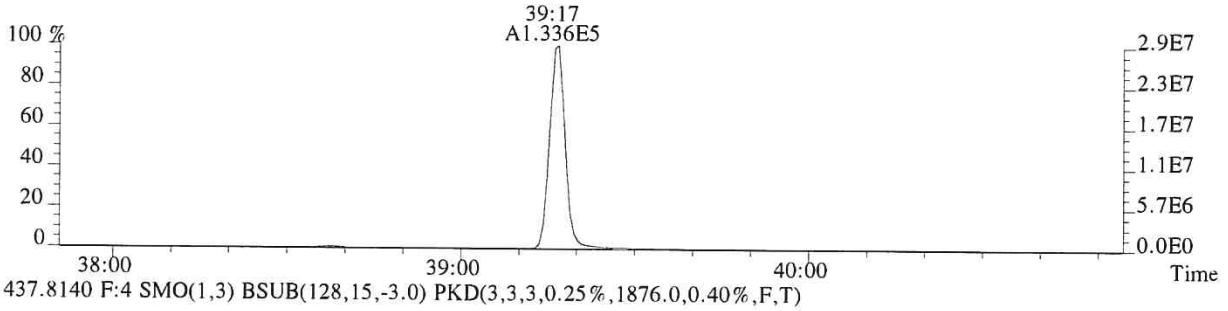
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



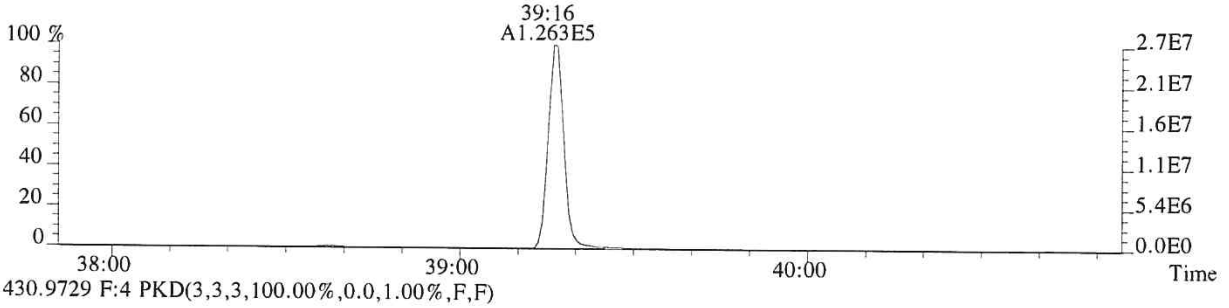
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



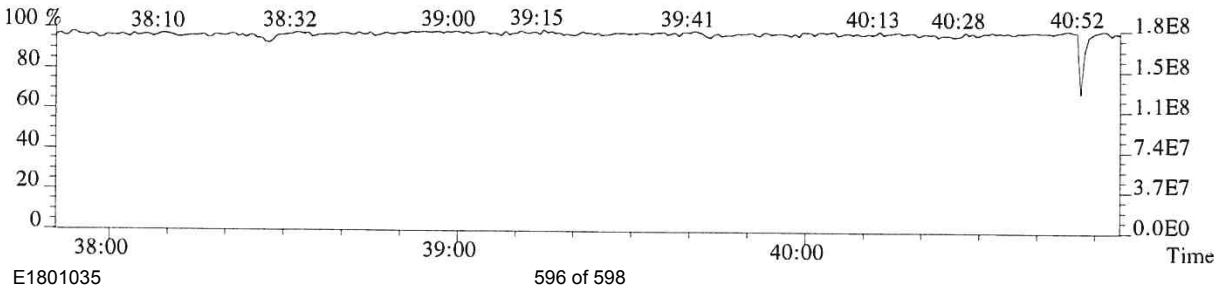
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)

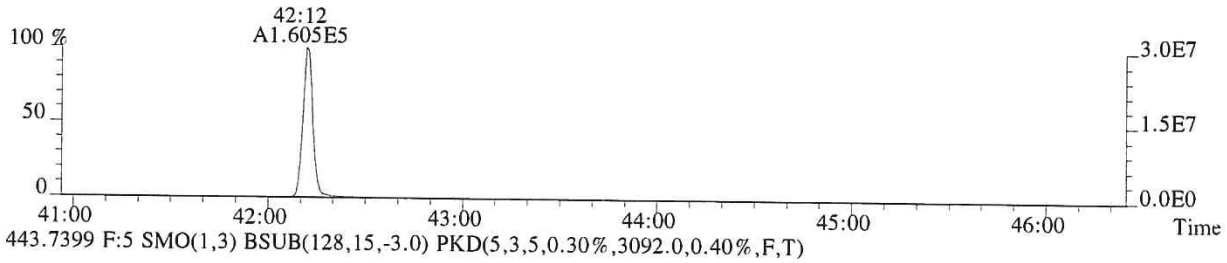


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

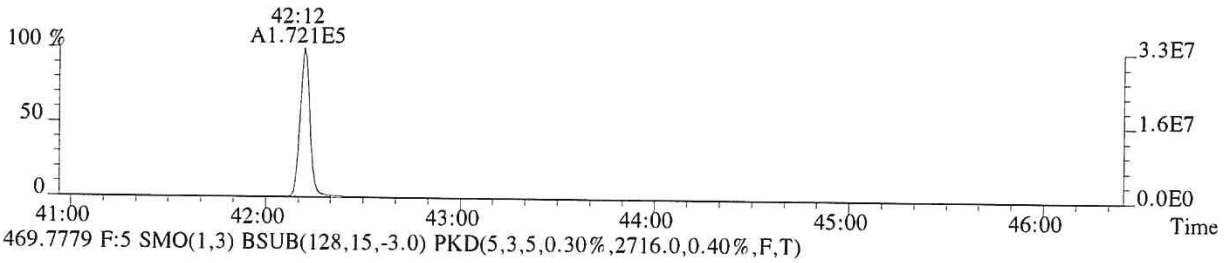


010929

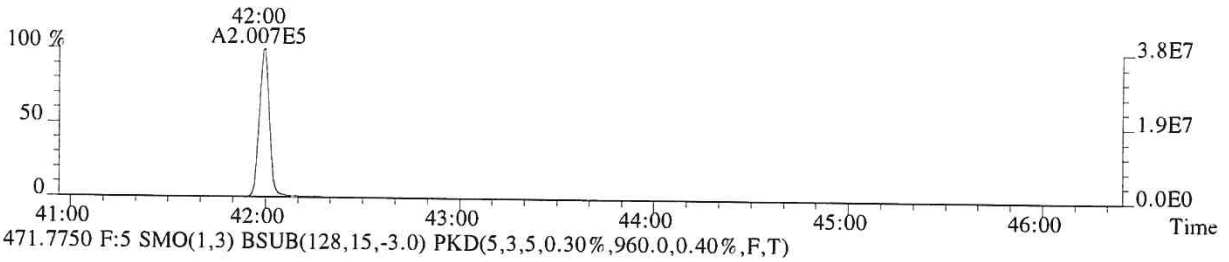
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



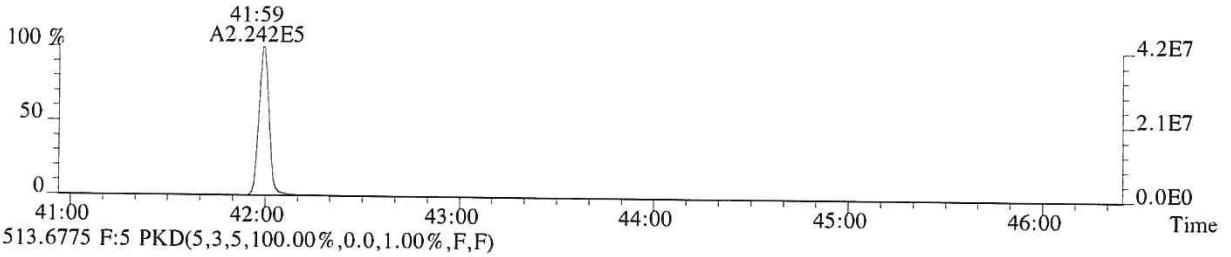
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



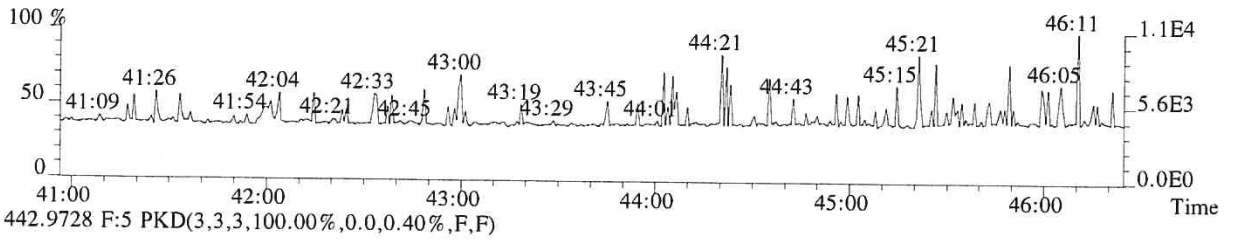
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



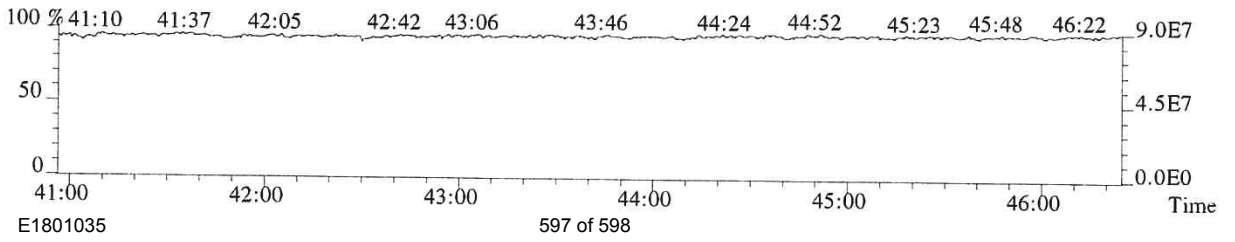
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

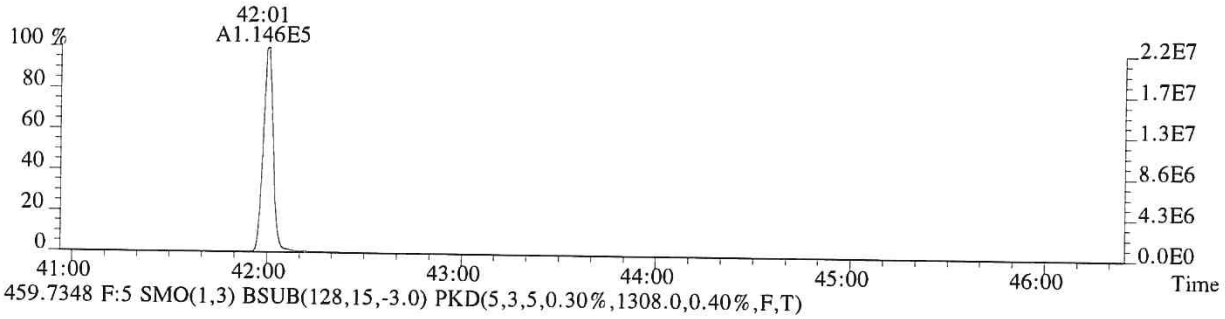


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

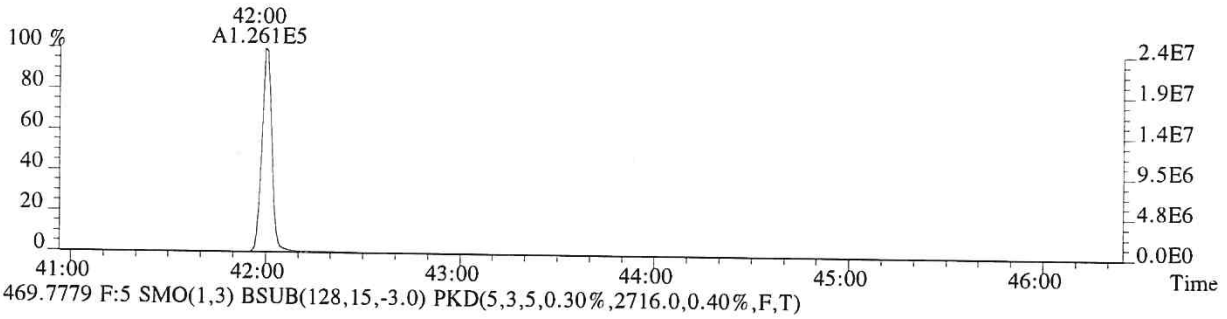


010930

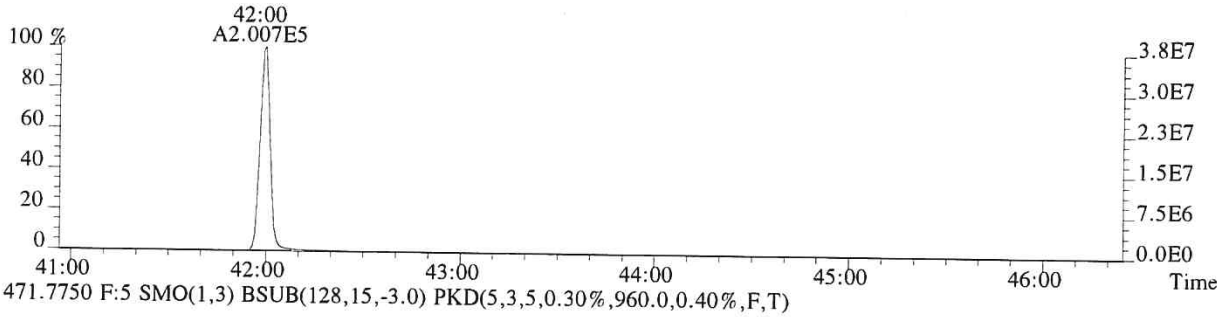
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



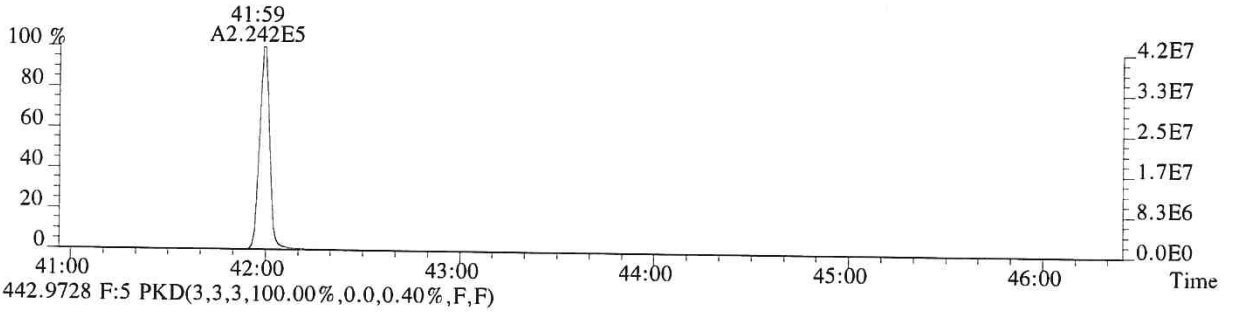
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



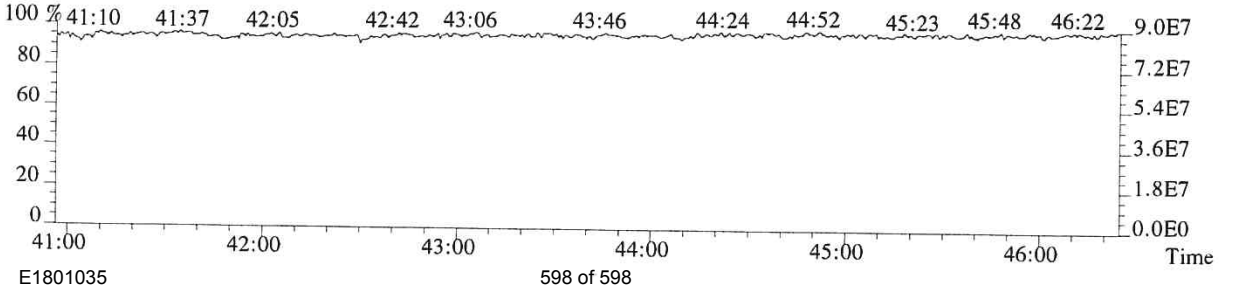
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



010931

December 14, 2018 Service Request No:E1801039

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for:C1887-0501 Southern Impoundment

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 12, 2018
For your reference, these analyses have been assigned our service request number **E1801039.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Integral Consulting, Inc.	**Service Request No.:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Received:**	11/12/18
Sample Matrix:	Soil/Wipe		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Forty-one samples were received for analysis at ALS Environmental in Houston on 11/12/18.

The samples were received at 1.1°C, 0.9°C, 3.6°C, and 1.7 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Composite

Sample "Comp-SL0119-0123" was created after receipt and includes an equal portion from samples SL0119, SL0120, SL0121, SL0122, and SL0123 and composited at the request of the client.

B flags – Method Blanks

The Method Blank EQ1800467-01, EQ1800469-01, EQ1800498-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

MS/MSD

EQ1800467, EQ1800469, EQ1800498: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

Y flags – Labeled Standards

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801039-001	SL0095	11/10/2018	1345
E1801039-002	SL0096	11/10/2018	1350
E1801039-003	SL0097	11/10/2018	1355
E1801039-004	SL0098	11/10/2018	1400
E1801039-005	SL0099	11/10/2018	1405
E1801039-006	SL0100	11/10/2018	1410
E1801039-007	SL0090	11/10/2018	1105
E1801039-008	SL0091	11/10/2018	1110
E1801039-009	SL0092	11/10/2018	1115
E1801039-010	SL0093	11/10/2018	1120
E1801039-011	SL0094	11/10/2018	1125
E1801039-012	SL0102	11/10/2018	1420
E1801039-013	SL0103	11/10/2018	1425
E1801039-014	SL0104	11/10/2018	1430
E1801039-015	SL0105	11/10/2018	1435
E1801039-016	SL0106	11/10/2018	1440
E1801039-017	SL0107	11/10/2018	1445
E1801039-018	SL0109	11/10/2018	1700
E1801039-019	SL0110	11/10/2018	1705
E1801039-020	SL0111	11/10/2018	1710
E1801039-021	SL0112	11/10/2018	1715
E1801039-022	SL0113	11/10/2018	1720
E1801039-023	SL0116	11/11/2018	1025
E1801039-024	SL0117	11/11/2018	1030
E1801039-025	SL0118	11/11/2018	1035
E1801039-026	SL0119	11/11/2018	1125
E1801039-027	SL0120	11/11/2018	1130
E1801039-028	SL0121	11/11/2018	1135
E1801039-029	SL0122	11/11/2018	1140
E1801039-030	SL0123	11/11/2018	1145
E1801039-031	SL0108	11/10/2018	1450
E1801039-032	SL0124	11/11/2018	1525
E1801039-033	SL0126	11/11/2018	1535
E1801039-034	SL0127	11/11/2018	1540
E1801039-035	SL0128	11/11/2018	1545
E1801039-036	SL0129	11/11/2018	1550
E1801039-037	SL0130	11/11/2018	1555
E1801039-038	SL0101	11/10/2018	1415
E1801039-039	FW0005	11/10/2018	1600
E1801039-040	FW0006	11/11/2018	1615
E1801039-041	FW0004	11/9/2018	1400
E1801039-042	Comp-SL0119-0123	11/11/2018	1125

Service Request Summary

Folder #: **E1801039**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501 Southern Impoundment
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/12/18
Internal Due Date: 12/3/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number: C1887-0501
EDD: Integral-UCR

33 -N/A N/A
7 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
4 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 2A, E-Disposed, SMO

Pressure Gas:

				HOUSTON	
				Dioxins Furans/1613B	Total Solids/ALS SOP
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**		
E1801039-006	SL0100	Sediment	11/10/18 1410	**IV**	**IV**
E1801039-017	SL0107	Sediment	11/10/18 1445	**IV**	**IV**
E1801039-031	SL0108	Sediment	11/10/18 1450	**IV**	**IV**
E1801039-036	SL0129	Sediment	11/11/18 1550	**IV**	**IV**
E1801039-037	SL0130	Sediment	11/11/18 1555	**IV**	**IV**
E1801039-038	SL0101	Sediment	11/10/18 1415	**IV**	**IV**
E1801039-039	FW0005	Wipe	11/10/18 1600	**IV**	
E1801039-040	FW0006	Wipe	11/11/18 1615	**IV**	
E1801039-041	FW0004	Wipe	11/09/18 1400	**IV**	
E1801039-042	Comp-SL0119-0123	Sediment	11/11/18 1125	**IV**	**IV**

Service Request Summary

Folder #: **E1801039**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501 Southern Impoundment
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/12/18
Internal Due Date: 12/3/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number: C1887-0501
EDD: Integral-UCR

33 -N/A N/A
7 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
4 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 2A, E-Disposed, SMO

Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	Dioxins Furans/1613B	1	Composite E1801039-026,027,028,029,030. Take equal parts of each sample and homogenize well. Keep portion of individual sample and retain enough for future analysis of individual sample. See KN

Superset Summary

Service Request: E1801039 **SuperSet Reference:** 18-0000488950 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P519137	P519131	P519219	E1801039-006
P519138	P519131	P519219	E1801039-017
P519134	P519131	P519219	E1801039-031
P519139	P519131	P519219	E1801039-036.R01
P519140	P519131	P519219	E1801039-037.R01
P519141	P519131	P519219	E1801039-038
P519018	P519009	P615718	E1801039-039
P519019	P519009	P615718	E1801039-040
P519020	P519009	P615718	E1801039-041
P519311	P519303	P519371	E1801039-042
P519219	P519210	P519219	EQ1800469-01
P519143	P519131	P519219	EQ1800469-02
P519144	P519131	P519219	EQ1800469-03
P519371	P519366	P519371	EQ1800498-01
P519332	P519319	P519371	EQ1800498-02
P519333	P519319	P519371	EQ1800498-03

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P615942	P615940	P519219	E1801039-036
P615943	P615940	P519219	E1801039-037
P615718	P615714	P615718	EQ1800467-01
P615727	P615714	P615718	EQ1800467-02
P615728	P615714	P615718	EQ1800467-03

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801039 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/03/18	JC	031, 006, 017, 036-038

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/05/18	LKL	031, 006, 017, 036-038

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801039 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/10/18	[signature]	036DL, 037DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/11/18	LKL	036DL, 037DL

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E180103[9]

(DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/28/18	[illegible]	039-041

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/29/18	LKL	039-041

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801039 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/12/18	LKL	042

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/12/18	LG	042

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

E1801039 5

Integral Consulting, Inc.
C1887-0501 Southern Impoundment

CHAIN OF CUSTODY FORM

Project: C1887 - 0501 Southern Impoundment

Samplers: S. Sherman, A. Lutey, B. Petri, C. Shaw, O. Hargrave

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0095	0241	11/10/18	1345	SL										X	
SL0096	0242	"	1350	"										X	
SL0097	0243	"	1355	"										X	
SL0098	0244	"	1400	"										X	
SL0099	0245	"	1405	"										X	
SL0100	0249	"	1410	"	X										
SL0090	0569	"	1105	"										X	
SL0091	0570	"	1110	"										X	
SL0092	0571	"	1115	"										X	
SL0093	0573	"	1120	"										X	
SL0094	0572	"	1125	"										X	
SL0102	0247	"	1420	"										X	
SL0103	0248	"	1425	"										X	
SL0104	0250	"	1430	"										X	
SL0105	0251	"	1435	"										X	
SL0106	0252	"	1440	"										X	
SL0107	0300	"	1445	"	X										
SL0109	0253	"	1700	"										X	
SL0110	0254	"	1705	"										X	
SL0111	0268	↓	1710	↓										X	

Analysis Turn Time: Normal ✓ Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code:	
GW - Groundwater	
SL - Soil	SW - Surface water
SD -Sediment	Other:

Relinquished by: [signature] **Date/Time:** 11/12/18 1134 **Received by:** [signature] **Date/Time:** 11-12-18 1134

Relinquished by: [signature] **Date/Time:** 11-12-18 1313 **Received by:** [signature] **Date/Time:**

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

CHAIN OF CUSTODY FORM

Project: C1887 - 0501 Southern Impoundment

Samplers: S. Sherman, A. Cutler, B. Petri, C. Shaw, O. Hargrave

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0112	0269	11/10/18	1715	SL										X	
SL0113	0270	11/10/18	1720											X	
SL0116	0277	11/11/18	1025											X	
SL0117	0280		1030											X	
SL0118	0283		1035											X	
SL0119	0279		1125											X	
SL0120	0281		1130											X	
SL0121	0282		1135											X	
SL0122	0284		1140											X	
SL0123	0285	↓	1145											X	
SL0108	0278	11/10/18	1450	↓	X										
FW0005	0472	11/10/18	1600	Blank	X										
SL0124	0301	11/11/18	1525	SL										X	
SL0126	0303		1535											X	
SL0127	0304		1540											X	
SL0128	0305		1545											X	
SL0129	0062		1550		X										
SL0130	0394	↓	1555	↓	X										
FW0006	0482	11/11/18	1615	Blank	X										
FW0004	0459	11/9/18	1400	Blank	X										

Analysis Turn Time: Normal ✓ Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code: GW - Groundwater; SL - Soil; SW - Surface water; SD -Sediment; Other:

Relinquished by: Amber Cutler (signature) **Date/Time:** 11/12/18 1134 **Received by:** Kristin Brown (signature) **Date/Time:** 11/12/18 1134

Relinquished by: Evan Thom (signature) **Date/Time:** 11/12/18 1358 **Received by:** Kristin Brown (signature) **Date/Time:**

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

CHAIN OF CUSTODY FORM

Project: C1887 - 0501 Southern Impoundment

Samplers: A. Lutey, S. Sherman, B. Petri, C. Shaw, O. Hargrave

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to:
Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	ANALYSES REQUESTED: PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0101	0246	11/10/18	1415	SL	X										

Analysis Turn Time: Normal ✓ Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code: GW - Groundwater; SL - Soil; SW - Surface water; SD -Sediment; Other:

Relinquished by: Ambree Lutey (signature) **Date/Time:** 11/12/18 1134 **Received by:** (signature)

Relinquished by: (signature) **Date/Time:** 11/12/18 1534 **Received by:** (signature) **Date/Time:** 11/12/18 1134

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

Cooler Receipt Form

ALS Environmental

Project Chemist HB

Client/Project INTEGRAL

Thermometer ID SMU4

Date/Time Received: 11/12/18 Initials: CA Date/Time Logged in: 11/12/18 Initials CA

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ⊘ ALS Courier ○ Client
2. Samples received in: ⊘ Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ⊘ Yes ○ No
   Were they intact? ⊘ Yes ○ No ○ N/A
   Were they signed and dated? ⊘ Yes ○ No ○ N/A
   If yes, how many and where? 2 SEALS PER
4. Packing Material: ○ Inserts ⊘ Baggies ⊘ Bubble Wrap ○ Gel Packs ⊘ Wet Ice ○ Sleeves ○ Other
5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		11/12/18		PA	1.1/1.5	☑
-		↓		↓	0.9/1.3	☑
-					3.6/4.0	☑
-		↓		↓	1.7/2.1	☑

6. Were custody papers properly filled out (ink, signed, dated, etc)? ⊘ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ⊘ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ⊘ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ⊘ Yes ○ No
10. Did sample labels and tags agree with custody documents? ⊘ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

E1801039 5
Integral Consulting, Inc.
C1887-0501 Southern Impoundment

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 326368 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/14/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801035-017	SL0078	.01	1613B/Dioxins Furans			Sediment	10.536g	Brown Mud
2	E1801038-018	SL0536	.01	1613B/Dioxins Furans			Sediment	10.630g	Brown Mud
3	E1801038-019	SL0537	.01	1613B/Dioxins Furans			Sediment	10.294g	Brown Mud
4	E1801038-020	SL0515	.01	1613B/Dioxins Furans			Sediment	10.753g	Brown Mud
5	E1801038-021	SL0516	.01	1613B/Dioxins Furans			Sediment	10.207g	Brown Mud
6	E1801038-022	SL0517	.01	1613B/Dioxins Furans			Sediment	10.135g	Brown Mud
7	E1801039-006	SL0100	.02	1613B/Dioxins Furans			Sediment	10.897g	Brown Mud
8	E1801039-017	SL0107	.02	1613B/Dioxins Furans			Sediment	10.500g	Brown Mud
9	E1801039-031	SL0108	.02	1613B/Dioxins Furans			Sediment	10.385g	Brown Mud
10	E1801039-036	SL0129	.02	1613B/Dioxins Furans			Sediment	10.819g	Brown Mud
11	E1801039-037	SL0130	.02	1613B/Dioxins Furans			Sediment	10.195g	Brown Mud
12	E1801039-038	SL0101	.02	1613B/Dioxins Furans			Sediment	10.176g	Brown Mud
13	E1801040-001	SL0509	.01	1613B/Dioxins Furans			Sediment	10.852g	Moist Brown Sand
14	E1801040-002	SL0510	.01	1613B/Dioxins Furans			Sediment	10.733g	Brown Clumps of Mud
15	E1801040-003	SL0511	.01	1613B/Dioxins Furans			Sediment	10.429g	Brown Mud
16	E1801040-004	SL0512	.01	1613B/Dioxins Furans			Sediment	10.292g	Brown Mud
17	E1801040-005	SL0513	.01	1613B/Dioxins Furans			Sediment	10.260g	Brown Mud
18	E1801040-006	SL0514	.01	1613B/Dioxins Furans			Sediment	10.104g	Brown Mud
19	E1801040-007	SL0518	.01	1613B/Dioxins Furans			Sediment	10.460g	Moist Brown Sand
20	EQ1800469-01	MB		1613B/Dioxins Furans			Solid	10.246g	
21	EQ1800469-02	LCS		1613B/Dioxins Furans			Solid	10.291g	
22	EQ1800469-03	DLCS		1613B/Dioxins Furans			Solid	10.188g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 194569 Logbook Ref: 194569 AL 10/31/18 2-20 ng/mL Expires On: 04/29/2019

EQ1800469-02 100.00µL EQ1800469-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 194904 Logbook Ref: 194903 JG 11/14/18 2-4ngml Expires On: 01/31/2019

E1801035-017	1,000.00µL	E1801038-018	1,000.00µL	E1801038-019	1,000.00µL	E1801038-020	1,000.00µL	E1801038-021	1,000.00µL	E1801038-022	1,000.00µL
E1801039-006	1,000.00µL	E1801039-017	1,000.00µL	E1801039-031	1,000.00µL	E1801039-036	1,000.00µL	E1801039-037	1,000.00µL	E1801039-038	1,000.00µL
E1801040-001	1,000.00µL	E1801040-002	1,000.00µL	E1801040-003	1,000.00µL	E1801040-004	1,000.00µL	E1801040-005	1,000.00µL	E1801040-006	1,000.00µL
E1801040-007	1,000.00µL	EQ1800469-01	1,000.00µL	EQ1800469-02	1,000.00µL	EQ1800469-03	1,000.00µL				

Preparation Information Benchsheet

Prep Run#: 326368 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/14/18 11:00 AM

Name:	8290/1613B Cleanup Working Standard	Inventory ID	195006	Logbook Ref:	tw 11/1/18 8ng/ml 195006	Expires On:	04/27/2019

E1801035-017	100.00µL	E1801038-018	100.00µL	E1801038-019	100.00µL	E1801038-020	100.00µL	E1801038-021	100.00µL	E1801038-022	100.00µL
E1801039-006	100.00µL	E1801039-017	100.00µL	E1801039-031	100.00µL	E1801039-036	100.00µL	E1801039-037	100.00µL	E1801039-038	100.00µL
E1801040-001	100.00µL	E1801040-002	100.00µL	E1801040-003	100.00µL	E1801040-004	100.00µL	E1801040-005	100.00µL	E1801040-006	100.00µL
E1801040-007	100.00µL	EQ1800469-01	100.00µL	EQ1800469-02	100.00µL	EQ1800469-03	100.00µL				

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	10/31/18 tw toluene (194571)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/14/18 11:00	Started:	11/28/18 13:00	Started:	11/28/18 14:00	Started:	11/29/18 12:00
Finished:	11/15/18 07:30	Finished:	11/28/18 14:00	Finished:	11/28/18 17:00	Finished:	11/29/18 15:00
By:	ALOPEZ	By:	TWOODS	By:	TWOODS	By:	TWOODS
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

E1801039 23 of 921

010954

Preparation Information Benchsheet

Prep Run#: 326300 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 11/14/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801012-021	FW0002	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
2	E1801012-022	FW0003	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
3	E1801020-053	FW0001	.03	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
4	E1801020-054	FB0001	.02	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
5	E1801036-001	183384-D/F Wipe of Lab Report	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
6	E1801036-002	183391-D/F Wipe of Green Binder Papers	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
7	E1801036-003	183392-D/F Wipe of History Brook	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
8	E1801038-023	FW0050	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
9	E1801039-039	FW0005	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
10	E1801039-040	FW0006	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
11	E1801039-041	FW0004	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	white wipe
12	EQ1800467-01	MB		1613B/Dioxins Furans			Wipes	0.5000Sample	
13	EQ1800467-02	LCS		1613B/Dioxins Furans			Wipes	0.5000Sample	
14	EQ1800467-03	DLCS		1613B/Dioxins Furans			Wipes	0.5000Sample	

Spiking Solutions

Name: 1613B Labeled Working Standard Inventory ID 194889 Logbook Ref: 194889 AL 11/13/18 2-4 ng/mL Expires On: 01/31/2019

E1801039-040 1,000.00µL E1801039-041 1,000.00µL

Name: 1613B Labeled Working Standard Inventory ID 194903 Logbook Ref: 194903 JG 11/14/18 2-4ngml Expires On: 01/31/2019

E1801012-021 1,000.00µL E1801012-022 1,000.00µL E1801020-053 1,000.00µL E1801020-054 1,000.00µL E1801036-001 1,000.00µL E1801036-002 1,000.00µL
E1801036-003 1,000.00µL E1801038-023 1,000.00µL E1801039-039 1,000.00µL E1801039-040 1,000.00µL E1801039-041 1,000.00µL EQ1800467-01 1,000.00µL
EQ1800467-02 1,000.00µL EQ1800467-03 1,000.00µL

Name: 1613B Matrix Working Standard Inventory ID 194946 Logbook Ref: 194946 AL 11/14/18 2-20 ng/mL Expires On: 05/13/2019

EQ1800467-02 100.00µL EQ1800467-03 100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195006 Logbook Ref: tw 11/1/18 8ng/ml 195006 Expires On: 04/27/2019

E1801012-021 100.00µL E1801012-022 100.00µL E1801020-053 100.00µL E1801020-054 100.00µL E1801036-001 100.00µL E1801036-002 100.00µL
E1801036-003 100.00µL E1801038-023 100.00µL E1801039-039 100.00µL E1801039-040 100.00µL E1801039-041 100.00µL EQ1800467-01 100.00µL
EQ1800467-02 100.00µL EQ1800467-03 100.00µL

Preparation Information Benchsheet

Prep Run#: 326300 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 11/14/18 11:00 AM

Preparation Materials

Carbon, High Purity	TW 11/09/18 CARBON (194871)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Chloride Reagent Grade NaCl	AL 8/20/18 (192602)
Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)
Silica Gel	AL 10/11/18 (194005)	sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	10/31/18 tw toluene (194571)

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/14/18 11:00	Started:	11/20/18 11:00	Started:	11/21/18 13:30	Started:	11/26/18 13:00
Finished:	11/15/18 07:30	Finished:	11/20/18 12:00	Finished:	11/21/18 16:30	Finished:	11/26/18 14:45
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

E1801039 25 of 921

010956

Preparation Information Benchsheet

Prep Run#: 327579 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/4/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801039-042	Comp-SL0119-0123	.01	1613B/Dioxins Furans			Sediment	10.916g	Brown Mud + Rocks
2	E1801065-008	SL0587	.01	1613B/Dioxins Furans			Sediment	10.035g	Brown Mud
3	E1801065-009	SL0588	.01	1613B/Dioxins Furans			Sediment	10.726g	Brown Mud
4	E1801065-010	SL0589	.01	1613B/Dioxins Furans			Sediment	10.431g	Brown Mud
5	E1801065-011	SL0570	.01	1613B/Dioxins Furans			Sediment	10.099g	Brown Mud
6	E1801065-012	SL0561	.01	1613B/Dioxins Furans			Sediment	10.634g	Brown Mud Clumps + Rocks
7	E1801065-013	SL0562	.01	1613B/Dioxins Furans			Sediment	10.394g	Brown Mud Clumps + Rocks
8	E1801065-014	SL0563	.01	1613B/Dioxins Furans			Sediment	10.530g	Brown Mud
9	E1801065-015	SL0564	.01	1613B/Dioxins Furans			Sediment	10.662g	Brown Mud
10	E1801065-016	SL0565	.01	1613B/Dioxins Furans			Sediment	10.347g	Brown Mud
11	E1801065-017	SL0566	.01	1613B/Dioxins Furans			Sediment	10.355g	Brown Mud Clumps
12	E1801065-018	SL0567	.01	1613B/Dioxins Furans			Sediment	10.722g	Brown Mud
13	E1801065-019	SL0568	.01	1613B/Dioxins Furans			Sediment	10.822g	Brown Sand + Water
14	E1801065-020	SL0569	.01	1613B/Dioxins Furans			Sediment	10.205g	Moist Brown Sand
15	E1801065-021	SL0571	.01	1613B/Dioxins Furans			Sediment	10.039g	Brown Dirt + Rocks
16	E1801065-022	SL0572	.01	1613B/Dioxins Furans			Sediment	10.225g	Brown Dirt + Rocks
17	E1801065-023	SL0573	.01	1613B/Dioxins Furans			Sediment	10.068g	Brown Mud
18	E1801065-024	SL0574	.01	1613B/Dioxins Furans			Sediment	10.701g	Brown Mud
19	E1801065-025	SL0575	.01	1613B/Dioxins Furans			Sediment	10.815g	Brown Mud
20	E1801065-026	SL0576	.01	1613B/Dioxins Furans			Sediment	10.596g	Brown Mud
21	EQ1800498-01	MB		1613B/Dioxins Furans			Solid	10.340g	
22	EQ1800498-02	LCS		1613B/Dioxins Furans			Solid	10.382g	
23	EQ1800498-03	DLCS		1613B/Dioxins Furans			Solid	10.120g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 195317 Logbook Ref: 195317 12/3/18 2-20ngml JG Expires On: 06/01/2019

EQ1800498-02	100.00µL	EQ1800498-03	100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801039-042	100.00µL	E1801065-008	100.00µL	E1801065-009	100.00µL	E1801065-010	100.00µL	E1801065-011	100.00µL	E1801065-012	100.00µL
E1801065-013	100.00µL	E1801065-014	100.00µL	E1801065-015	100.00µL	E1801065-016	100.00µL	E1801065-017	100.00µL	E1801065-018	100.00µL
E1801065-019	100.00µL	E1801065-020	100.00µL	E1801065-021	100.00µL	E1801065-022	100.00µL	E1801065-023	100.00µL	E1801065-024	100.00µL
E1801065-025	100.00µL	E1801065-026	100.00µL	EQ1800498-01	100.00µL	EQ1800498-02	100.00µL	EQ1800498-03	100.00µL		

Preparation Information Benchsheet

Prep Run#: 327579 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/4/18 11:00 AM

Name:	1613B Labeled Working Standard	Inventory ID	195357	Logbook Ref:	195357 AL 12/4/18 2-4 ng/mL	Expires On:	01/31/2019

E1801039-042	1,000.00µL	E1801065-008	1,000.00µL	E1801065-009	1,000.00µL	E1801065-010	1,000.00µL	E1801065-011	1,000.00µL	E1801065-012	1,000.00µL
E1801065-013	1,000.00µL	E1801065-014	1,000.00µL	E1801065-015	1,000.00µL	E1801065-016	1,000.00µL	E1801065-017	1,000.00µL	E1801065-018	1,000.00µL
E1801065-019	1,000.00µL	E1801065-020	1,000.00µL	E1801065-021	1,000.00µL	E1801065-022	1,000.00µL	E1801065-023	1,000.00µL	E1801065-024	1,000.00µL
E1801065-025	1,000.00µL	E1801065-026	1,000.00µL	EQ1800498-01	1,000.00µL	EQ1800498-02	1,000.00µL	EQ1800498-03	1,000.00µL		

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Toluene 99.9% Minimum	AL 11/16/18 (195002)	sulfuric acid	AL 10/11/18 (194007)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Silica Gel	AL 10/11/18 (194005)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/4/18 11:00	Started:	12/5/18 08:00	Started:	12/5/18 10:00	Started:	12/6/18 11:00
Finished:	12/5/18 07:30	Finished:	12/5/18 09:00	Finished:	12/5/18 13:00	Finished:	12/6/18 14:00
By:	ALOPEZ	By:	JGUIN	By:	JGUIN	By:	JGUIN
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

E1801039 27 of 921

010958

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:10
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0100	**Units:**	ng/Kg
Lab Code:	E1801039-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 09:25
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.897g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519137	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	88.8		0.200	0.612	0.79	1.001	1
1,2,3,7,8-PeCDD	1.56	**J**	0.0686	3.06	1.47	1.000	1
1,2,3,4,7,8-HxCDD	0.575	**J**	0.254	3.06	1.38	1.000	1
1,2,3,6,7,8-HxCDD	2.24	**J**	0.284	3.06	1.27	1.000	1
1,2,3,7,8,9-HxCDD	1.56	**JK**	0.262	3.06	1.50	1.007	1
1,2,3,4,6,7,8-HpCDD	56.9		0.599	3.06	1.03	1.000	1
OCDD	2960		0.219	6.12	0.90	1.000	1
2,3,7,8-TCDF	271		0.132	0.612	0.76	1.001	1
1,2,3,7,8-PeCDF	6.62		0.139	3.06	1.51	1.001	1
2,3,4,7,8-PeCDF	7.24		0.147	3.06	1.49	1.000	1
1,2,3,4,7,8-HxCDF	10.3		0.142	3.06	1.21	1.000	1
1,2,3,6,7,8-HxCDF	2.82	**JK**	0.143	3.06	0.97	1.000	1
1,2,3,7,8,9-HxCDF	1.07	**JK**	0.180	3.06	0.99	1.001	1
2,3,4,6,7,8-HxCDF	1.54	**J**	0.151	3.06	1.15	1.001	1
1,2,3,4,6,7,8-HpCDF	21.4		0.183	3.06	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	2.25	**J**	0.272	3.06	0.88	1.000	1
OCDF	753		0.204	6.12	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:10
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0100	**Units:**	ng/Kg
Lab Code:	E1801039-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 09:25
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.897g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519137	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	101		0.200	0.612	0.78		1
Total Penta-Dioxins	4.68		0.0686	3.06	1.45		1
Total Hexa-Dioxins	37.4		0.266	3.06	1.21		1
Total Hepta-Dioxins	166		0.599	3.06	1.02		1
Total Tetra-Furans	478		0.132	0.612	0.78		1
Total Penta-Furans	29.7		0.143	3.06	1.61		1
Total Hexa-Furans	28.4		0.153	3.06	1.09		1
Total Hepta-Furans	47.7		0.221	3.06	1.03		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:10
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0100	**Units:**	Percent
Lab Code:	E1801039-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 09:25
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.897g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519137	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1330.957	67		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1486.393	74		25-181	1.60	1.182
13C-1,2,3,4,7,8-HxCDD	2000	1353.723	68		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1236.851	62		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1082.122	54		23-140	1.05	1.067
13C-OCDD	4000	824.475	21		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	1142.412	57		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1357.606	68		24-185	1.58	1.140
13C-2,3,4,7,8-PeCDF	2000	1289.717	64		21-178	1.56	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1120.108	56		26-152	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1108.548	55		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1139.908	57		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1135.428	57		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	901.122	45		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	857.100	43		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	574.745	72		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:10
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0100	**Units:**	ng/Kg
Lab Code:	E1801039-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**88.8**	0.200	0.612	1	1	88.8
1,2,3,7,8-PeCDD	**1.56**	0.0686	3.06	1	1	1.56
1,2,3,4,7,8-HxCDD	**0.575**	0.254	3.06	1	0.1	0.0575
1,2,3,6,7,8-HxCDD	**2.24**	0.284	3.06	1	0.1	0.224
1,2,3,7,8,9-HxCDD	**1.56**	0.262	3.06	1	0.1	0.156
1,2,3,4,6,7,8-HpCDD	**56.9**	0.599	3.06	1	0.01	0.569
OCDD	**2960**	0.219	6.12	1	0.0003	0.888
2,3,7,8-TCDF	**271**	0.132	0.612	1	0.1	27.1
1,2,3,7,8-PeCDF	**6.62**	0.139	3.06	1	0.03	0.199
2,3,4,7,8-PeCDF	**7.24**	0.147	3.06	1	0.3	2.17
1,2,3,4,7,8-HxCDF	**10.3**	0.142	3.06	1	0.1	1.03
1,2,3,6,7,8-HxCDF	**2.82**	0.143	3.06	1	0.1	0.282
1,2,3,7,8,9-HxCDF	**1.07**	0.180	3.06	1	0.1	0.107
2,3,4,6,7,8-HxCDF	**1.54**	0.151	3.06	1	0.1	0.154
1,2,3,4,6,7,8-HpCDF	**21.4**	0.183	3.06	1	0.01	0.214
1,2,3,4,7,8,9-HpCDF	**2.25**	0.272	3.06	1	0.01	0.0225
OCDF	**753**	0.204	6.12	1	0.0003	0.226
		Total TEQ				124

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:10
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0100	**Units:**	Percent
Lab Code:	E1801039-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	5.727g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	75.0		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:45
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0107	**Units:**	ng/Kg
Lab Code:	E1801039-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 10:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.500g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519138	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3.48		0.144	0.601	0.67	1.001	1
1,2,3,7,8-PeCDD	0.368**J**		0.0776	3.01	1.54	1.000	1
1,2,3,4,7,8-HxCDD	0.920**J**		0.138	3.01	1.17	1.000	1
1,2,3,6,7,8-HxCDD	1.93**J**		0.149	3.01	1.17	1.000	1
1,2,3,7,8,9-HxCDD	1.45**J**		0.140	3.01	1.10	1.007	1
1,2,3,4,6,7,8-HpCDD	59.1		0.285	3.01	1.04	1.000	1
OCDD	909		0.258	6.01	0.88	1.000	1
2,3,7,8-TCDF	11.6		0.0714	0.601	0.74	1.001	1
1,2,3,7,8-PeCDF	0.495**J**		0.0720	3.01	1.50	1.000	1
2,3,4,7,8-PeCDF	1.06**JK**		0.0795	3.01	1.17	1.001	1
1,2,3,4,7,8-HxCDF	1.51**J**		0.149	3.01	1.39	1.000	1
1,2,3,6,7,8-HxCDF	0.509**JK**		0.146	3.01	1.00	1.000	1
1,2,3,7,8,9-HxCDF	0.537**JK**		0.177	3.01	1.57	1.001	1
2,3,4,6,7,8-HxCDF	0.543**JK**		0.153	3.01	0.98	1.001	1
1,2,3,4,6,7,8-HpCDF	9.56		0.173	3.01	0.97	1.000	1
1,2,3,4,7,8,9-HpCDF	0.874**J**		0.258	3.01	1.14	1.000	1
OCDF	117		0.204	6.01	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:45
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0107	**Units:**	ng/Kg
Lab Code:	E1801039-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 10:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.500g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519138	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	6.14		0.144	0.601	0.77		1
Total Penta-Dioxins	2.88	**J**	0.0776	3.01	1.50		1
Total Hexa-Dioxins	37.4		0.142	3.01	1.29		1
Total Hepta-Dioxins	245		0.285	3.01	1.01		1
Total Tetra-Furans	19.4		0.0714	0.601	0.74		1
Total Penta-Furans	2.85	**J**	0.0756	3.01	1.50		1
Total Hexa-Furans	13.9		0.156	3.01	1.09		1
Total Hepta-Furans	26.4		0.209	3.01	0.97		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:45
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0107	**Units:**	Percent
Lab Code:	E1801039-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 10:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.500g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519138	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1336.014	67		25-164	0.79	1.019
13C-1,2,3,7,8-PeCDD	2000	1463.952	73		25-181	1.59	1.182
13C-1,2,3,4,7,8-HxCDD	2000	1275.975	64		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1268.310	63		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1211.343	61		23-140	1.06	1.067
13C-OCDD	4000	1160.157	29		17-157	0.90	1.143
13C-2,3,7,8-TCDF	2000	1136.342	57		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1343.039	67		24-185	1.58	1.140
13C-2,3,4,7,8-PeCDF	2000	1270.517	64		21-178	1.59	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1156.805	58		26-152	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1151.238	58		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1198.702	60		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1162.814	58		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	965.634	48		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	898.591	45		26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	580.939	73		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:45
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0107	**Units:**	ng/Kg
Lab Code:	E1801039-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**3.48**	0.144	0.601	1	1	3.48
1,2,3,7,8-PeCDD	**0.368**	0.0776	3.01	1	1	0.368
1,2,3,4,7,8-HxCDD	**0.920**	0.138	3.01	1	0.1	0.0920
1,2,3,6,7,8-HxCDD	**1.93**	0.149	3.01	1	0.1	0.193
1,2,3,7,8,9-HxCDD	**1.45**	0.140	3.01	1	0.1	0.145
1,2,3,4,6,7,8-HpCDD	**59.1**	0.285	3.01	1	0.01	0.591
OCDD	**909**	0.258	6.01	1	0.0003	0.273
2,3,7,8-TCDF	**11.6**	0.0714	0.601	1	0.1	1.16
1,2,3,7,8-PeCDF	**0.495**	0.0720	3.01	1	0.03	0.0149
2,3,4,7,8-PeCDF	**1.06**	0.0795	3.01	1	0.3	0.318
1,2,3,4,7,8-HxCDF	**1.51**	0.149	3.01	1	0.1	0.151
1,2,3,6,7,8-HxCDF	**0.509**	0.146	3.01	1	0.1	0.0509
1,2,3,7,8,9-HxCDF	**0.537**	0.177	3.01	1	0.1	0.0537
2,3,4,6,7,8-HxCDF	**0.543**	0.153	3.01	1	0.1	0.0543
1,2,3,4,6,7,8-HpCDF	**9.56**	0.173	3.01	1	0.01	0.0956
1,2,3,4,7,8,9-HpCDF	**0.874**	0.258	3.01	1	0.01	0.00874
OCDF	**117**	0.204	6.01	1	0.0003	0.0351
		Total TEQ				7.08

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:45
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0107	**Units:**	Percent
Lab Code:	E1801039-017	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	7.364g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.2		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0108	**Units:**	ng/Kg
Lab Code:	E1801039-031	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 07:00
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.385g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519134	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2.86		0.134	0.606	0.78	1.001	1
1,2,3,7,8-PeCDD	0.435	**J**	0.115	3.03	1.47	1.000	1
1,2,3,4,7,8-HxCDD	0.790	**J**	0.162	3.03	1.34	1.000	1
1,2,3,6,7,8-HxCDD	1.65	**J**	0.178	3.03	1.32	1.000	1
1,2,3,7,8,9-HxCDD	1.21	**JK**	0.166	3.03	1.50	1.007	1
1,2,3,4,6,7,8-HpCDD	60.4		0.0629	3.03	1.03	1.000	1
OCDD	945		0.140	6.06	0.90	1.000	1
2,3,7,8-TCDF	11.6		0.136	0.606	0.76	1.001	1
1,2,3,7,8-PeCDF	0.357	**JK**	0.0828	3.03	0.92	1.001	1
2,3,4,7,8-PeCDF	1.13	**J**	0.0897	3.03	1.55	1.002	1
1,2,3,4,7,8-HxCDF	1.48	**J**	0.0885	3.03	1.25	1.000	1
1,2,3,6,7,8-HxCDF	0.581	**J**	0.0917	3.03	1.34	1.000	1
1,2,3,7,8,9-HxCDF	0.561	**JK**	0.115	3.03	0.97	1.001	1
2,3,4,6,7,8-HxCDF	0.620	**J**	0.0960	3.03	1.19	1.001	1
1,2,3,4,6,7,8-HpCDF	9.08		0.105	3.03	1.06	1.000	1
1,2,3,4,7,8,9-HpCDF	0.640	**J**	0.156	3.03	1.09	1.000	1
OCDF	123		0.168	6.06	0.88	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0108	**Units:**	ng/Kg
Lab Code:	E1801039-031	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 07:00
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.385g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519134	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	6.04		0.134	0.606	0.82		1
Total Penta-Dioxins	3.00	**J**	0.115	3.03	1.57		1
Total Hexa-Dioxins	32.7		0.169	3.03	1.32		1
Total Hepta-Dioxins	292		0.0629	3.03	1.04		1
Total Tetra-Furans	17.8		0.136	0.606	0.73		1
Total Penta-Furans	4.59		0.0860	3.03	1.45		1
Total Hexa-Furans	15.0		0.0971	3.03	1.26		1
Total Hepta-Furans	26.7		0.127	3.03	1.06		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0108	**Units:**	Percent
Lab Code:	E1801039-031	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 07:00
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.385g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519134	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1318.709	66		25-164	0.79	1.019
13C-1,2,3,7,8-PeCDD	2000	1540.322	77		25-181	1.59	1.181
13C-1,2,3,4,7,8-HxCDD	2000	1317.462	66		32-141	1.32	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1295.419	65		28-130	1.18	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1248.296	62		23-140	1.06	1.067
13C-OCDD	4000	1314.907	33		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	1091.828	55		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1413.784	71		24-185	1.58	1.139
13C-2,3,4,7,8-PeCDF	2000	1344.608	67		21-178	1.57	1.171
13C-1,2,3,4,7,8-HxCDF	2000	1161.556	58		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1156.640	58		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1190.027	60		29-147	0.54	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1165.220	58		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	999.205	50		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	953.303	48		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	551.507	69		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0108	**Units:**	ng/Kg
Lab Code:	E1801039-031	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.86**	0.134	0.606	1	1	2.86
1,2,3,7,8-PeCDD	**0.435**	0.115	3.03	1	1	0.435
1,2,3,4,7,8-HxCDD	**0.790**	0.162	3.03	1	0.1	0.0790
1,2,3,6,7,8-HxCDD	**1.65**	0.178	3.03	1	0.1	0.165
1,2,3,7,8,9-HxCDD	**1.21**	0.166	3.03	1	0.1	0.121
1,2,3,4,6,7,8-HpCDD	**60.4**	0.0629	3.03	1	0.01	0.604
OCDD	**945**	0.140	6.06	1	0.0003	0.284
2,3,7,8-TCDF	**11.6**	0.136	0.606	1	0.1	1.16
1,2,3,7,8-PeCDF	**0.357**	0.0828	3.03	1	0.03	0.0107
2,3,4,7,8-PeCDF	**1.13**	0.0897	3.03	1	0.3	0.339
1,2,3,4,7,8-HxCDF	**1.48**	0.0885	3.03	1	0.1	0.148
1,2,3,6,7,8-HxCDF	**0.581**	0.0917	3.03	1	0.1	0.0581
1,2,3,7,8,9-HxCDF	**0.561**	0.115	3.03	1	0.1	0.0561
2,3,4,6,7,8-HxCDF	**0.620**	0.0960	3.03	1	0.1	0.0620
1,2,3,4,6,7,8-HpCDF	**9.08**	0.105	3.03	1	0.01	0.0908
1,2,3,4,7,8,9-HpCDF	**0.640**	0.156	3.03	1	0.01	0.00640
OCDF	**123**	0.168	6.06	1	0.0003	0.0369
		Total TEQ				6.52

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0108	**Units:**	Percent
Lab Code:	E1801039-031	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	7.912g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.4		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 15:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0129	**Units:**	ng/Kg
Lab Code:	E1801039-036	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 12:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.819g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615942	**Blank File Name:**	P519219
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	790		18.9	18.9	0.82	1.001	20
1,2,3,7,8-PeCDD	9.09		0.153	3.71	1.52	1.000	1
1,2,3,4,7,8-HxCDD	3.03	**J**	0.402	3.71	1.33	1.000	1
1,2,3,6,7,8-HxCDD	15.6		0.454	3.71	1.31	1.000	1
1,2,3,7,8,9-HxCDD	7.21		0.417	3.71	1.24	1.007	1
1,2,3,4,6,7,8-HpCDD	639		2.53	3.71	1.02	1.000	1
OCDD	65300		14.1	148	0.89	1.000	20
2,3,7,8-TCDF	2330		25.2	25.2	0.80	1.001	20
1,2,3,7,8-PeCDF	52.9		0.601	3.71	1.55	1.000	1
2,3,4,7,8-PeCDF	51.5		0.667	3.71	1.56	1.000	1
1,2,3,4,7,8-HxCDF	85.8		0.741	3.71	1.21	1.000	1
1,2,3,6,7,8-HxCDF	23.6	**P**	0.761	3.71	1.21	1.000	1
1,2,3,7,8,9-HxCDF	7.59		1.05	3.71	1.16	1.001	1
2,3,4,6,7,8-HxCDF	9.40		0.884	3.71	1.15	1.000	1
1,2,3,4,6,7,8-HpCDF	128		1.03	3.71	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	14.6		1.91	3.71	1.05	1.000	1
OCDF	2650		0.722	7.42	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 15:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0129	**Units:**	ng/Kg
Lab Code:	E1801039-036	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 12:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.819g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615942	**Blank File Name:**	P519219
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	710		0.319	0.742	0.83		1
Total Penta-Dioxins	25.1		0.153	3.71	1.47		1
Total Hexa-Dioxins	174		0.423	3.71	1.25		1
Total Hepta-Dioxins	1510		2.53	3.71	1.05		1
Total Tetra-Furans	3410		0.163	0.742	0.85		1
Total Penta-Furans	232		0.632	3.71	1.66		1
Total Hexa-Furans	247		0.846	3.71	1.18		1
Total Hepta-Furans	427		1.38	3.71	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 15:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0129	**Units:**	Percent
Lab Code:	E1801039-036	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 11:02
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.819g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519139	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	926.499	46		25-164	0.80	1.019
13C-1,2,3,7,8-PeCDD	2000	923.863	46		25-181	1.60	1.182
13C-1,2,3,4,7,8-HxCDD	2000	924.223	46		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	836.401	42		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	626.246	31		23-140	1.05	1.067
13C-OCDD	4000	489.406	12	**Y**	17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	773.241	39		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	875.999	44		24-185	1.56	1.140
13C-2,3,4,7,8-PeCDF	2000	791.632	40		21-178	1.61	1.172
13C-1,2,3,4,7,8-HxCDF	2000	842.738	42		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	808.505	40		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	784.545	39		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	774.250	39		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	575.936	29		28-143	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	453.843	23	**Y**	26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	399.188	50		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 15:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0129	**Units:**	ng/Kg
Lab Code:	E1801039-036	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**790**	18.9	18.9	20	1	790
1,2,3,7,8-PeCDD	**9.09**	0.153	3.71	1	1	9.09
1,2,3,4,7,8-HxCDD	**3.03**	0.402	3.71	1	0.1	0.303
1,2,3,6,7,8-HxCDD	**15.6**	0.454	3.71	1	0.1	1.56
1,2,3,7,8,9-HxCDD	**7.21**	0.417	3.71	1	0.1	0.721
1,2,3,4,6,7,8-HpCDD	**639**	2.53	3.71	1	0.01	6.39
OCDD	**65300**	14.1	148	20	0.0003	19.6
2,3,7,8-TCDF	**2330**	25.2	25.2	20	0.1	233
1,2,3,7,8-PeCDF	**52.9**	0.601	3.71	1	0.03	1.59
2,3,4,7,8-PeCDF	**51.5**	0.667	3.71	1	0.3	15.5
1,2,3,4,7,8-HxCDF	**85.8**	0.741	3.71	1	0.1	8.58
1,2,3,6,7,8-HxCDF	**23.6**	0.761	3.71	1	0.1	2.36
1,2,3,7,8,9-HxCDF	**7.59**	1.05	3.71	1	0.1	0.759
2,3,4,6,7,8-HxCDF	**9.40**	0.884	3.71	1	0.1	0.940
1,2,3,4,6,7,8-HpCDF	**128**	1.03	3.71	1	0.01	1.28
1,2,3,4,7,8,9-HpCDF	**14.6**	1.91	3.71	1	0.01	0.146
OCDF	**2650**	0.722	7.42	1	0.0003	0.795
		Total TEQ				1090

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 15:50
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0129	**Units:**	Percent
Lab Code:	E1801039-036	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	6.151g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	62.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 15:55
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0130	**Units:**	ng/Kg
Lab Code:	E1801039-037	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 13:06
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.195g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615943	**Blank File Name:**	P519219
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1750		15.0	15.6	0.76	1.001	20
1,2,3,7,8-PeCDD	19.6		0.538	3.91	1.58	1.000	1
1,2,3,4,7,8-HxCDD	3.74	**J**	0.596	3.91	1.40	1.001	1
1,2,3,6,7,8-HxCDD	20.2		0.649	3.91	1.31	1.000	1
1,2,3,7,8,9-HxCDD	10.0		0.608	3.91	1.37	1.007	1
1,2,3,4,6,7,8-HpCDD	739		0.491	3.91	1.06	1.000	1
OCDD	87000		24.9	156	0.88	1.000	20
2,3,7,8-TCDF	5090		15.0	15.6	0.78	1.001	20
1,2,3,7,8-PeCDF	126		0.659	3.91	1.50	1.001	1
2,3,4,7,8-PeCDF	123		0.752	3.91	1.51	1.000	1
1,2,3,4,7,8-HxCDF	204		0.358	3.91	1.22	1.000	1
1,2,3,6,7,8-HxCDF	55.5		0.364	3.91	1.25	1.001	1
1,2,3,7,8,9-HxCDF	16.9		0.520	3.91	1.21	1.001	1
2,3,4,6,7,8-HxCDF	16.8		0.401	3.91	1.14	1.001	1
1,2,3,4,6,7,8-HpCDF	189		1.41	3.91	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	30.2		2.64	3.91	0.89	1.000	1
OCDF	3420		0.571	7.82	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 15:55
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0130	**Units:**	ng/Kg
Lab Code:	E1801039-037	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 13:06
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.195g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615943	**Blank File Name:**	P519219
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1720		0.285	0.782	0.66		1
Total Penta-Dioxins	29.2		0.538	3.91	1.40		1
Total Hexa-Dioxins	244		0.617	3.91	1.32		1
Total Hepta-Dioxins	1780		0.491	3.91	1.02		1
Total Tetra-Furans	7700		0.187	0.782	0.74		1
Total Penta-Furans	490		0.702	3.91	1.43		1
Total Hexa-Furans	475		0.403	3.91	1.15		1
Total Hepta-Furans	602		1.89	3.91	1.03		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 15:55
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0130	**Units:**	Percent
Lab Code:	E1801039-037	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 11:51
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.195g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519140	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1059.933	53		25-164	0.79	1.019
13C-1,2,3,7,8-PeCDD	2000	951.226	48		25-181	1.59	1.181
13C-1,2,3,4,7,8-HxCDD	2000	993.533	50		32-141	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	959.445	48		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	555.590	28		23-140	1.06	1.067
13C-OCDD	4000	420.554	11	**Y**	17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	928.038	46		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	920.240	46		24-185	1.59	1.139
13C-2,3,4,7,8-PeCDF	2000	832.720	42		21-178	1.59	1.171
13C-1,2,3,4,7,8-HxCDF	2000	954.423	48		26-152	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	925.553	46		26-123	0.50	0.974
13C-1,2,3,7,8,9-HxCDF	2000	832.924	42		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	898.581	45		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	518.697	26	**Y**	28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	397.733	20	**Y**	26-138	0.42	1.080
37Cl-2,3,7,8-TCDD	800	460.865	58		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 15:55
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0130	**Units:**	ng/Kg
Lab Code:	E1801039-037	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1750**	15.0	15.6	20	1	1750
1,2,3,7,8-PeCDD	**19.6**	0.538	3.91	1	1	19.6
1,2,3,4,7,8-HxCDD	**3.74**	0.596	3.91	1	0.1	0.374
1,2,3,6,7,8-HxCDD	**20.2**	0.649	3.91	1	0.1	2.02
1,2,3,7,8,9-HxCDD	**10.0**	0.608	3.91	1	0.1	1.00
1,2,3,4,6,7,8-HpCDD	**739**	0.491	3.91	1	0.01	7.39
OCDD	**87000**	24.9	156	20	0.0003	26.1
2,3,7,8-TCDF	**5090**	15.0	15.6	20	0.1	509
1,2,3,7,8-PeCDF	**126**	0.659	3.91	1	0.03	3.78
2,3,4,7,8-PeCDF	**123**	0.752	3.91	1	0.3	36.9
1,2,3,4,7,8-HxCDF	**204**	0.358	3.91	1	0.1	20.4
1,2,3,6,7,8-HxCDF	**55.5**	0.364	3.91	1	0.1	5.55
1,2,3,7,8,9-HxCDF	**16.9**	0.520	3.91	1	0.1	1.69
2,3,4,6,7,8-HxCDF	**16.8**	0.401	3.91	1	0.1	1.68
1,2,3,4,6,7,8-HpCDF	**189**	1.41	3.91	1	0.01	1.89
1,2,3,4,7,8,9-HpCDF	**30.2**	2.64	3.91	1	0.01	0.302
OCDF	**3420**	0.571	7.82	1	0.0003	1.03
		Total TEQ				2390

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 15:55
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0130	**Units:**	Percent
Lab Code:	E1801039-037	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	6.184g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	62.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0101	**Units:**	ng/Kg
Lab Code:	E1801039-038	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 12:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.176g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519141	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	70.9		0.205	0.651	0.78	1.001	1
1,2,3,7,8-PeCDD	1.09**JK**		0.162	3.25	1.27	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.224	3.25			1
1,2,3,6,7,8-HxCDD	1.14**JK**		0.245	3.25	1.02	1.000	1
1,2,3,7,8,9-HxCDD	0.814**JK**		0.229	3.25	0.84	1.007	1
1,2,3,4,6,7,8-HpCDD	33.9		0.373	3.25	1.05	1.000	1
OCDD	1380		0.656	6.51	0.90	1.000	1
2,3,7,8-TCDF	208		0.126	0.651	0.74	1.001	1
1,2,3,7,8-PeCDF	5.41		0.158	3.25	1.56	1.001	1
2,3,4,7,8-PeCDF	5.39		0.176	3.25	1.46	1.000	1
1,2,3,4,7,8-HxCDF	9.28		0.143	3.25	1.14	1.000	1
1,2,3,6,7,8-HxCDF	2.45**JK**		0.148	3.25	1.04	1.000	1
1,2,3,7,8,9-HxCDF	1.03**J**		0.208	3.25	1.38	1.000	1
2,3,4,6,7,8-HxCDF	0.969**J**		0.157	3.25	1.07	1.000	1
1,2,3,4,6,7,8-HpCDF	12.5		0.145	3.25	0.99	1.001	1
1,2,3,4,7,8,9-HpCDF	2.03**J**		0.256	3.25	0.90	1.000	1
OCDF	337		0.390	6.51	0.84	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0101	**Units:**	ng/Kg
Lab Code:	E1801039-038	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 12:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.176g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519141	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	77.4		0.205	0.651	0.78		1
Total Penta-Dioxins	1.48	**J**	0.162	3.25	1.67		1
Total Hexa-Dioxins	17.1		0.233	3.25	1.27		1
Total Hepta-Dioxins	92.7		0.373	3.25	1.01		1
Total Tetra-Furans	367		0.126	0.651	0.68		1
Total Penta-Furans	21.5		0.166	3.25	1.44		1
Total Hexa-Furans	16.0		0.161	3.25	1.14		1
Total Hepta-Furans	27.6		0.189	3.25	0.99		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0101	**Units:**	Percent
Lab Code:	E1801039-038	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 12:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.176g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519141	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1042.693	52		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1046.651	52		25-181	1.56	1.182
13C-1,2,3,4,7,8-HxCDD	2000	1095.757	55		32-141	1.34	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1060.135	53		28-130	1.20	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	773.319	39		23-140	1.03	1.067
13C-OCDD	4000	687.435	17		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	889.892	44		24-169	0.78	0.992
13C-1,2,3,7,8-PeCDF	2000	1019.418	51		24-185	1.58	1.140
13C-2,3,4,7,8-PeCDF	2000	920.100	46		21-178	1.58	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1040.068	52		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1005.853	50		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	913.723	46		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1007.511	50		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	700.685	35		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	564.455	28		26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	453.493	57		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0101	**Units:**	ng/Kg
Lab Code:	E1801039-038	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**70.9**	0.205	0.651	1	1	70.9
1,2,3,7,8-PeCDD	**1.09**	0.162	3.25	1	1	1.09
1,2,3,4,7,8-HxCDD	ND	0.224	3.25	1	0.1	
1,2,3,6,7,8-HxCDD	**1.14**	0.245	3.25	1	0.1	0.114
1,2,3,7,8,9-HxCDD	**0.814**	0.229	3.25	1	0.1	0.0814
1,2,3,4,6,7,8-HpCDD	**33.9**	0.373	3.25	1	0.01	0.339
OCDD	**1380**	0.656	6.51	1	0.0003	0.414
2,3,7,8-TCDF	**208**	0.126	0.651	1	0.1	20.8
1,2,3,7,8-PeCDF	**5.41**	0.158	3.25	1	0.03	0.162
2,3,4,7,8-PeCDF	**5.39**	0.176	3.25	1	0.3	1.62
1,2,3,4,7,8-HxCDF	**9.28**	0.143	3.25	1	0.1	0.928
1,2,3,6,7,8-HxCDF	**2.45**	0.148	3.25	1	0.1	0.245
1,2,3,7,8,9-HxCDF	**1.03**	0.208	3.25	1	0.1	0.103
2,3,4,6,7,8-HxCDF	**0.969**	0.157	3.25	1	0.1	0.0969
1,2,3,4,6,7,8-HpCDF	**12.5**	0.145	3.25	1	0.01	0.125
1,2,3,4,7,8,9-HpCDF	**2.03**	0.256	3.25	1	0.01	0.0203
OCDF	**337**	0.390	6.51	1	0.0003	0.101
		Total TEQ				97.1

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 14:15
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	SL0101	**Units:**	Percent
Lab Code:	E1801039-038	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/26/18 08:38
	5.356g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	75.5		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 16:00
Sample Matrix:	Wipe	**Date Received:**	11/12/18 11:34
Sample Name:	FW0005	**Units:**	pg
Lab Code:	E1801039-039	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:26
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519018	**Blank File Name:**	P615718
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519009

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	3.03	10.0			1
1,2,3,7,8-PeCDD	ND	U	2.75	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	0.898	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.02	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	0.936	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	1.18	50.0			1
OCDD	8.24**BJK**		3.83	100	0.58	1.001	1
2,3,7,8-TCDF	ND	U	1.99	10.0			1
1,2,3,7,8-PeCDF	ND	U	1.70	50.0			1
2,3,4,7,8-PeCDF	ND	U	1.79	50.0			1
1,2,3,4,7,8-HxCDF	2.86**J**		0.768	50.0	1.23	1.000	1
1,2,3,6,7,8-HxCDF	1.31**JK**		0.786	50.0	0.91	1.001	1
1,2,3,7,8,9-HxCDF	ND	U	1.15	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	0.814	50.0			1
1,2,3,4,6,7,8-HpCDF	4.29**JK**		0.644	50.0	0.68	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	1.07	50.0			1
OCDF	75.3**BJ**		3.42	100	0.88	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 16:00
Sample Matrix:	Wipe	**Date Received:**	11/12/18 11:34
Sample Name:	FW0005	**Units:**	pg
Lab Code:	E1801039-039	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:26
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519018	**Blank File Name:**	P615718
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519009

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	3.03	10.0			1
Total Penta-Dioxins	ND	U	2.75	50.0			1
Total Hexa-Dioxins	ND	U	0.950	50.0			1
Total Hepta-Dioxins	ND	U	1.18	50.0			1
Total Tetra-Furans	ND	U	1.99	10.0			1
Total Penta-Furans	ND	U	1.74	50.0			1
Total Hexa-Furans	2.86**J**		0.862	50.0	1.23		1
Total Hepta-Furans	ND	U	0.820	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 16:00
Sample Matrix:	Wipe	**Date Received:**	11/12/18 11:34
Sample Name:	FW0005	**Units:**	Percent
Lab Code:	E1801039-039	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:26
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519018	**Blank File Name:**	P615718
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519009

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	863.787	43		25-164	0.81	1.019
13C-1,2,3,7,8-PeCDD	2000	988.214	49		25-181	1.59	1.177
13C-1,2,3,4,7,8-HxCDD	2000	1088.248	54		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1067.537	53		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1006.163	50		23-140	1.05	1.067
13C-OCDD	4000	1242.612	31		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	796.583	40		24-169	0.78	0.992
13C-1,2,3,7,8-PeCDF	2000	965.444	48		24-185	1.58	1.136
13C-2,3,4,7,8-PeCDF	2000	924.239	46		21-178	1.60	1.168
13C-1,2,3,4,7,8-HxCDF	2000	1038.783	52		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1026.273	51		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	950.178	48		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1061.140	53		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	849.260	42		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	766.675	38		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	382.765	48		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/10/18 16:00
Sample Matrix:	Wipe	**Date Received:**	11/12/18 11:34
Sample Name:	FW0005	**Units:**	pg
Lab Code:	E1801039-039	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	3.03	10.0	1	1	1.52
1,2,3,7,8-PeCDD	ND	2.75	50.0	1	1	1.38
1,2,3,4,7,8-HxCDD	ND	0.898	50.0	1	0.1	0.0449
1,2,3,6,7,8-HxCDD	ND	1.02	50.0	1	0.1	0.0510
1,2,3,7,8,9-HxCDD	ND	0.936	50.0	1	0.1	0.0468
1,2,3,4,6,7,8-HpCDD	ND	1.18	50.0	1	0.01	0.00590
OCDD	**8.24**	3.83	100	1	0.0003	0.00247
2,3,7,8-TCDF	ND	1.99	10.0	1	0.1	0.0995
1,2,3,7,8-PeCDF	ND	1.70	50.0	1	0.03	0.0255
2,3,4,7,8-PeCDF	ND	1.79	50.0	1	0.3	0.269
1,2,3,4,7,8-HxCDF	**2.86**	0.768	50.0	1	0.1	0.286
1,2,3,6,7,8-HxCDF	**1.31**	0.786	50.0	1	0.1	0.131
1,2,3,7,8,9-HxCDF	ND	1.15	50.0	1	0.1	0.0575
2,3,4,6,7,8-HxCDF	ND	0.814	50.0	1	0.1	0.0407
1,2,3,4,6,7,8-HpCDF	**4.29**	0.644	50.0	1	0.01	0.0429
1,2,3,4,7,8,9-HpCDF	ND	1.07	50.0	1	0.01	0.00535
OCDF	**75.3**	3.42	100	1	0.0003	0.0226
		Total TEQ				4.03

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 16:15
Sample Matrix:	Wipe	**Date Received:**	11/12/18 11:34
Sample Name:	FW0006	**Units:**	pg
Lab Code:	E1801039-040	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 21:14
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519019	**Blank File Name:**	P615718
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519009

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	4.13	10.0			1
1,2,3,7,8-PeCDD	ND	U	0.770	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.23	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.34	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	1.25	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.970	50.0			1
OCDD	9.88**BJK**		2.35	100	1.03	1.000	1
2,3,7,8-TCDF	ND	U	2.09	10.0			1
1,2,3,7,8-PeCDF	2.17**JK**		1.40	50.0	1.83	1.001	1
2,3,4,7,8-PeCDF	ND	U	1.51	50.0			1
1,2,3,4,7,8-HxCDF	2.85**J**		1.07	50.0	1.20	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	1.11	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.63	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	1.14	50.0			1
1,2,3,4,6,7,8-HpCDF	4.65**J**		0.492	50.0	1.03	1.001	1
1,2,3,4,7,8,9-HpCDF	1.59**JK**		0.836	50.0	0.69	1.000	1
OCDF	64.3**BJK**		2.36	100	0.73	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 16:15
Sample Matrix:	Wipe	**Date Received:**	11/12/18 11:34
Sample Name:	FW0006	**Units:**	pg
Lab Code:	E1801039-040	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 21:14
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519019	**Blank File Name:**	P615718
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519009

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	4.13	10.0			1
Total Penta-Dioxins	ND	U	0.770	50.0			1
Total Hexa-Dioxins	ND	U	1.27	50.0			1
Total Hepta-Dioxins	2.55**J**		0.970	50.0	1.09		1
Total Tetra-Furans	ND	U	2.09	10.0			1
Total Penta-Furans	ND	U	1.45	50.0			1
Total Hexa-Furans	2.85**J**		1.22	50.0	1.20		1
Total Hepta-Furans	4.65**J**		0.638	50.0	1.03		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 16:15
Sample Matrix:	Wipe	**Date Received:**	11/12/18 11:34
Sample Name:	FW0006	**Units:**	Percent
Lab Code:	E1801039-040	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 21:14
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519019	**Blank File Name:**	P615718
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519009

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	773.804	39		25-164	0.80	1.019
13C-1,2,3,7,8-PeCDD	2000	981.200	49		25-181	1.58	1.177
13C-1,2,3,4,7,8-HxCDD	2000	1147.307	57		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1168.463	58		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1172.761	59		23-140	1.06	1.067
13C-OCDD	4000	1546.243	39		17-157	0.92	1.143
13C-2,3,7,8-TCDF	2000	673.073	34		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	950.589	48		24-185	1.58	1.136
13C-2,3,4,7,8-PeCDF	2000	877.250	44		21-178	1.59	1.167
13C-1,2,3,4,7,8-HxCDF	2000	1139.253	57		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1124.260	56		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1063.034	53		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1146.703	57		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	989.443	49		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	899.504	45		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	317.451	40		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 16:15
Sample Matrix:	Wipe	**Date Received:**	11/12/18 11:34
Sample Name:	FW0006	**Units:**	pg
Lab Code:	E1801039-040	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	4.13	10.0	1	1	2.07
1,2,3,7,8-PeCDD	ND	0.770	50.0	1	1	0.385
1,2,3,4,7,8-HxCDD	ND	1.23	50.0	1	0.1	0.0615
1,2,3,6,7,8-HxCDD	ND	1.34	50.0	1	0.1	0.0670
1,2,3,7,8,9-HxCDD	ND	1.25	50.0	1	0.1	0.0625
1,2,3,4,6,7,8-HpCDD	ND	0.970	50.0	1	0.01	0.00485
OCDD	**9.88**	2.35	100	1	0.0003	0.00296
2,3,7,8-TCDF	ND	2.09	10.0	1	0.1	0.105
1,2,3,7,8-PeCDF	**2.17**	1.40	50.0	1	0.03	0.0651
2,3,4,7,8-PeCDF	ND	1.51	50.0	1	0.3	0.227
1,2,3,4,7,8-HxCDF	**2.85**	1.07	50.0	1	0.1	0.285
1,2,3,6,7,8-HxCDF	ND	1.11	50.0	1	0.1	0.0555
1,2,3,7,8,9-HxCDF	ND	1.63	50.0	1	0.1	0.0815
2,3,4,6,7,8-HxCDF	ND	1.14	50.0	1	0.1	0.0570
1,2,3,4,6,7,8-HpCDF	**4.65**	0.492	50.0	1	0.01	0.0465
1,2,3,4,7,8,9-HpCDF	**1.59**	0.836	50.0	1	0.01	0.0159
OCDF	**64.3**	2.36	100	1	0.0003	0.0193
		Total TEQ				3.61

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/09/18 14:00
Sample Matrix:	Wipe	**Date Received:**	11/12/18 11:34
Sample Name:	FW0004	**Units:**	pg
Lab Code:	E1801039-041	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 22:03
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519020	**Blank File Name:**	P615718
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519009

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	4.77	10.0			1
1,2,3,7,8-PeCDD	ND	U	1.01	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	0.856	50.0			1
1,2,3,6,7,8-HxCDD	1.94**BJ**		0.892	50.0	1.12	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.854	50.0			1
1,2,3,4,6,7,8-HpCDD	2.04**BJK**		1.12	50.0	1.23	1.001	1
OCDD	13.3**BJ**		3.43	100	0.90	1.001	1
2,3,7,8-TCDF	ND	U	3.38	10.0			1
1,2,3,7,8-PeCDF	ND	U	1.30	50.0			1
2,3,4,7,8-PeCDF	ND	U	1.42	50.0			1
1,2,3,4,7,8-HxCDF	2.68**JK**		0.586	50.0	1.67	1.001	1
1,2,3,6,7,8-HxCDF	ND	U	0.584	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	0.812	50.0			1
2,3,4,6,7,8-HxCDF	0.740**J**		0.622	50.0	1.33	1.000	1
1,2,3,4,6,7,8-HpCDF	4.24**J**		0.460	50.0	1.11	1.000	1
1,2,3,4,7,8,9-HpCDF	1.71**JK**		0.724	50.0	0.79	1.000	1
OCDF	59.2**BJK**		1.69	100	0.67	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/09/18 14:00
Sample Matrix:	Wipe	**Date Received:**	11/12/18 11:34
Sample Name:	FW0004	**Units:**	pg
Lab Code:	E1801039-041	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 22:03
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519020	**Blank File Name:**	P615718
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519009

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	4.77	10.0			1
Total Penta-Dioxins	ND	U	1.01	50.0			1
Total Hexa-Dioxins	1.94**J**		0.868	50.0	1.12		1
Total Hepta-Dioxins	ND	U	1.12	50.0			1
Total Tetra-Furans	ND	U	3.38	10.0			1
Total Penta-Furans	ND	U	1.36	50.0			1
Total Hexa-Furans	0.740**J**		0.642	50.0	1.33		1
Total Hepta-Furans	4.24**J**		0.574	50.0	1.11		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/09/18 14:00
Sample Matrix:	Wipe	**Date Received:**	11/12/18 11:34
Sample Name:	FW0004	**Units:**	Percent
Lab Code:	E1801039-041	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 22:03
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519020	**Blank File Name:**	P615718
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519009

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	762.722	38		25-164	0.80	1.019
13C-1,2,3,7,8-PeCDD	2000	1018.564	51		25-181	1.60	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1029.946	51		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1133.393	57		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1142.226	57		23-140	1.06	1.067
13C-OCDD	4000	1607.207	40		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	659.271	33		24-169	0.78	0.992
13C-1,2,3,7,8-PeCDF	2000	980.735	49		24-185	1.58	1.136
13C-2,3,4,7,8-PeCDF	2000	924.632	46		21-178	1.57	1.168
13C-1,2,3,4,7,8-HxCDF	2000	966.486	48		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1013.208	51		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1003.204	50		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1068.543	53		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	953.826	48		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	918.662	46		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	321.257	40		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/09/18 14:00
Sample Matrix:	Wipe	**Date Received:**	11/12/18 11:34
Sample Name:	FW0004	**Units:**	pg
Lab Code:	E1801039-041	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	4.77	10.0	1	1	2.39
1,2,3,7,8-PeCDD	ND	1.01	50.0	1	1	0.505
1,2,3,4,7,8-HxCDD	ND	0.856	50.0	1	0.1	0.0428
1,2,3,6,7,8-HxCDD	**1.94**	0.892	50.0	1	0.1	0.194
1,2,3,7,8,9-HxCDD	ND	0.854	50.0	1	0.1	0.0427
1,2,3,4,6,7,8-HpCDD	**2.04**	1.12	50.0	1	0.01	0.0204
OCDD	**13.3**	3.43	100	1	0.0003	0.00399
2,3,7,8-TCDF	ND	3.38	10.0	1	0.1	0.169
1,2,3,7,8-PeCDF	ND	1.30	50.0	1	0.03	0.0195
2,3,4,7,8-PeCDF	ND	1.42	50.0	1	0.3	0.213
1,2,3,4,7,8-HxCDF	**2.68**	0.586	50.0	1	0.1	0.268
1,2,3,6,7,8-HxCDF	ND	0.584	50.0	1	0.1	0.0292
1,2,3,7,8,9-HxCDF	ND	0.812	50.0	1	0.1	0.0406
2,3,4,6,7,8-HxCDF	**0.740**	0.622	50.0	1	0.1	0.0740
1,2,3,4,6,7,8-HpCDF	**4.24**	0.460	50.0	1	0.01	0.0424
1,2,3,4,7,8,9-HpCDF	**1.71**	0.724	50.0	1	0.01	0.0171
OCDF	**59.2**	1.69	100	1	0.0003	0.0178
		Total TEQ				4.09

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 11:25
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	Comp-SL0119-0123	**Units:**	ng/Kg
Lab Code:	E1801039-042	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 14:49
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.916g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519311	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	10.7		0.330	0.587	0.77	1.001	1
1,2,3,7,8-PeCDD	0.276	**BJK**	0.122	2.94	1.07	1.000	1
1,2,3,4,7,8-HxCDD	0.336	**J**	0.0560	2.94	1.37	1.000	1
1,2,3,6,7,8-HxCDD	0.620	**JK**	0.0661	2.94	1.77	1.000	1
1,2,3,7,8,9-HxCDD	0.670	**J**	0.0594	2.94	1.20	1.006	1
1,2,3,4,6,7,8-HpCDD	15.7		0.139	2.94	1.04	1.000	1
OCDD	396		0.165	5.87	0.91	1.000	1
2,3,7,8-TCDF	23.9		0.0780	0.587	0.77	1.001	1
1,2,3,7,8-PeCDF	0.857	**JK**	0.112	2.94	1.91	1.001	1
2,3,4,7,8-PeCDF	0.811	**JK**	0.116	2.94	0.95	1.001	1
1,2,3,4,7,8-HxCDF	1.98	**J**	0.0222	2.94	1.22	1.000	1
1,2,3,6,7,8-HxCDF	0.470	**JK**	0.0192	2.94	1.00	1.000	1
1,2,3,7,8,9-HxCDF	0.160	**JK**	0.0233	2.94	0.58	1.001	1
2,3,4,6,7,8-HxCDF	0.151	**JK**	0.0233	2.94	0.93	1.000	1
1,2,3,4,6,7,8-HpCDF	2.04	**J**	0.0927	2.94	1.08	1.000	1
1,2,3,4,7,8,9-HpCDF	0.319	**J**	0.129	2.94	1.01	1.000	1
OCDF	5.07	**J**	0.143	5.87	0.89	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 11:25
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	Comp-SL0119-0123	**Units:**	ng/Kg
Lab Code:	E1801039-042	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 14:49
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.916g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519311	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	14.7		0.330	0.587	0.84		1
Total Penta-Dioxins	2.25**J**		0.122	2.94	1.56		1
Total Hexa-Dioxins	17.4		0.0603	2.94	1.24		1
Total Hepta-Dioxins	59.3		0.139	2.94	1.04		1
Total Tetra-Furans	42.8		0.0780	0.587	0.68		1
Total Penta-Furans	0.963**J**		0.114	2.94	1.32		1
Total Hexa-Furans	2.59**J**		0.0219	2.94	1.32		1
Total Hepta-Furans	4.72		0.109	2.94	1.08		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 11:25
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	Comp-SL0119-0123	**Units:**	Percent
Lab Code:	E1801039-042	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 14:49
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.916g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519311	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	633.944	32		25-164	0.79	1.021
13C-1,2,3,7,8-PeCDD	2000	1303.214	65		25-181	1.66	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1170.353	59		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1064.473	53		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1498.000	75		23-140	1.04	1.071
13C-OCDD	4000	2033.156	51		17-157	0.91	1.153
13C-2,3,7,8-TCDF	2000	816.758	41		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1223.861	61		24-185	1.63	1.146
13C-2,3,4,7,8-PeCDF	2000	1194.074	60		21-178	1.60	1.179
13C-1,2,3,4,7,8-HxCDF	2000	994.142	50		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1095.392	55		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1201.772	60		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1017.986	51		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1085.864	54		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1208.729	60		26-138	0.45	1.084
37Cl-2,3,7,8-TCDD	800	384.916	48		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 11:25
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	Comp-SL0119-0123	**Units:**	ng/Kg
Lab Code:	E1801039-042	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**10.7**	0.330	0.587	1	1	10.7
1,2,3,7,8-PeCDD	**0.276**	0.122	2.94	1	1	0.276
1,2,3,4,7,8-HxCDD	**0.336**	0.0560	2.94	1	0.1	0.0336
1,2,3,6,7,8-HxCDD	**0.620**	0.0661	2.94	1	0.1	0.0620
1,2,3,7,8,9-HxCDD	**0.670**	0.0594	2.94	1	0.1	0.0670
1,2,3,4,6,7,8-HpCDD	**15.7**	0.139	2.94	1	0.01	0.157
OCDD	**396**	0.165	5.87	1	0.0003	0.119
2,3,7,8-TCDF	**23.9**	0.0780	0.587	1	0.1	2.39
1,2,3,7,8-PeCDF	**0.857**	0.112	2.94	1	0.03	0.0257
2,3,4,7,8-PeCDF	**0.811**	0.116	2.94	1	0.3	0.243
1,2,3,4,7,8-HxCDF	**1.98**	0.0222	2.94	1	0.1	0.198
1,2,3,6,7,8-HxCDF	**0.470**	0.0192	2.94	1	0.1	0.0470
1,2,3,7,8,9-HxCDF	**0.160**	0.0233	2.94	1	0.1	0.0160
2,3,4,6,7,8-HxCDF	**0.151**	0.0233	2.94	1	0.1	0.0151
1,2,3,4,6,7,8-HpCDF	**2.04**	0.0927	2.94	1	0.01	0.0204
1,2,3,4,7,8,9-HpCDF	**0.319**	0.129	2.94	1	0.01	0.00319
OCDF	**5.07**	0.143	5.87	1	0.0003	0.00152
		Total TEQ				14.4

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/11/18 11:25
Sample Matrix:	Sediment	**Date Received:**	11/12/18 11:34
Sample Name:	Comp-SL0119-0123	**Units:**	Percent
Lab Code:	E1801039-042	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	6.286g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	78.0		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800467-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 13:29
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615718	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	4.27	10.0			1
1,2,3,7,8-PeCDD	ND	U	1.85	50.0			1
1,2,3,4,7,8-HxCDD	1.14**JK**		0.810	50.0	0.69	1.000	1
1,2,3,6,7,8-HxCDD	1.59**JK**		0.922	50.0	0.84	1.000	1
1,2,3,7,8,9-HxCDD	1.99**J**		0.804	50.0	1.12	1.006	1
1,2,3,4,6,7,8-HpCDD	2.20**JK**		1.17	50.0	1.44	1.001	1
OCDD	28.8**JK**		2.97	100	1.07	1.000	1
2,3,7,8-TCDF	ND	U	2.60	10.0			1
1,2,3,7,8-PeCDF	ND	U	1.97	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.07	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	3.60	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	3.61	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	4.01	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	3.70	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	5.41	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	6.02	50.0			1
OCDF	22.7**J**		3.47	100	0.80	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800467-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 13:29
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615718	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	4.27	10.0			1
Total Penta-Dioxins	ND	U	1.85	50.0			1
Total Hexa-Dioxins	1.99**J**		0.842	50.0	1.12		1
Total Hepta-Dioxins	ND	U	1.17	50.0			1
Total Tetra-Furans	ND	U	2.60	10.0			1
Total Penta-Furans	ND	U	2.02	50.0			1
Total Hexa-Furans	ND	U	3.72	50.0			1
Total Hepta-Furans	ND	U	5.70	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800467-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 13:29
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615718	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	949.516	95		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	1000	958.356	96		25-181	1.56	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1122.846	112		32-141	1.26	0.992
13C-1,2,3,6,7,8-HxCDD	1000	1028.676	103		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	1000	1081.689	108		23-140	1.06	1.067
13C-OCDD	2000	1240.779	62		17-157	0.89	1.148
13C-2,3,7,8-TCDF	1000	867.537	87		24-169	0.78	0.995
13C-1,2,3,7,8-PeCDF	1000	934.266	93		24-185	1.59	1.129
13C-2,3,4,7,8-PeCDF	1000	896.332	90		21-178	1.61	1.159
13C-1,2,3,4,7,8-HxCDF	1000	970.380	97		26-152	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	1000	928.302	93		26-123	0.55	0.975
13C-1,2,3,7,8,9-HxCDF	1000	973.549	97		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	1000	981.780	98		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	1000	789.790	79		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	1000	899.253	90		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	362.236	45		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800469-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/05/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519219	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519210

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.381	0.488			1
1,2,3,7,8-PeCDD	ND	U	0.0614	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0337	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0371	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0346	2.44			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.0442	2.44			1
OCDD	0.338**J**		0.0397	4.88	0.97	1.000	1
2,3,7,8-TCDF	ND	U	0.254	0.488			1
1,2,3,7,8-PeCDF	ND	U	0.0836	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.0846	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0238	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0235	2.44			1
1,2,3,7,8,9-HxCDF	ND	U	0.0252	2.44			1
2,3,4,6,7,8-HxCDF	ND	U	0.0236	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0349	2.44			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0414	2.44			1
OCDF	ND	U	0.0699	4.88			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800469-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/05/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519219	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519210

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.381	0.488			1
Total Penta-Dioxins	ND	U	0.0614	2.44			1
Total Hexa-Dioxins	ND	U	0.0352	2.44			1
Total Hepta-Dioxins	0.103**J**		0.0442	2.44	0.94		1
Total Tetra-Furans	ND	U	0.254	0.488			1
Total Penta-Furans	ND	U	0.0841	2.44			1
Total Hexa-Furans	ND	U	0.0240	2.44			1
Total Hepta-Furans	ND	U	0.0379	2.44			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800469-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/05/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519219	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519210

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1576.459	79		25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	2731.808	137		25-181	1.61	1.185
13C-1,2,3,4,7,8-HxCDD	2000	1888.275	94		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1796.326	90		28-130	1.30	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	2868.687	143	Y	23-140	1.04	1.067
13C-OCDD	4000	5666.155	142		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	1367.535	68		24-169	0.77	0.992
13C-1,2,3,7,8-PeCDF	2000	2328.489	116		24-185	1.60	1.143
13C-2,3,4,7,8-PeCDF	2000	2328.334	116		21-178	1.59	1.175
13C-1,2,3,4,7,8-HxCDF	2000	1549.864	77		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1543.115	77		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1803.889	90		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1647.245	82		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	2049.390	102		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	2391.939	120		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	663.016	83		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800498-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 03:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.340g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519371	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.183	0.484			1
1,2,3,7,8-PeCDD	0.0485**J**		0.0386	2.42	1.50	1.001	1
1,2,3,4,7,8-HxCDD	ND	U	0.0166	2.42			1
1,2,3,6,7,8-HxCDD	ND	U	0.0179	2.42			1
1,2,3,7,8,9-HxCDD	ND	U	0.0169	2.42			1
1,2,3,4,6,7,8-HpCDD	0.0476**J**		0.0177	2.42	1.02	1.001	1
OCDD	0.190**J**		0.0784	4.84	0.99	1.000	1
2,3,7,8-TCDF	ND	U	0.0567	0.484			1
1,2,3,7,8-PeCDF	ND	U	0.0353	2.42			1
2,3,4,7,8-PeCDF	ND	U	0.0352	2.42			1
1,2,3,4,7,8-HxCDF	ND	U	0.0175	2.42			1
1,2,3,6,7,8-HxCDF	ND	U	0.0168	2.42			1
1,2,3,7,8,9-HxCDF	ND	U	0.0204	2.42			1
2,3,4,6,7,8-HxCDF	ND	U	0.0181	2.42			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0171	2.42			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0231	2.42			1
OCDF	ND	U	0.0558	4.84			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800498-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 03:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.340g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519371	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.183	0.484			1
Total Penta-Dioxins	0.0485**J**		0.0386	2.42	1.50		1
Total Hexa-Dioxins	ND	U	0.0171	2.42			1
Total Hepta-Dioxins	0.0476**J**		0.0177	2.42	1.02		1
Total Tetra-Furans	ND	U	0.0567	0.484			1
Total Penta-Furans	ND	U	0.0353	2.42			1
Total Hexa-Furans	ND	U	0.0181	2.42			1
Total Hepta-Furans	ND	U	0.0199	2.42			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800498-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 03:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.340g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519371	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	849.177	42		25-164	0.77	1.021
13C-1,2,3,7,8-PeCDD	2000	2091.475	105		25-181	1.63	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1886.530	94		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1803.185	90		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	2441.416	122		23-140	1.06	1.070
13C-OCDD	4000	3321.340	83		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	1090.599	55		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1861.216	93		24-185	1.60	1.147
13C-2,3,4,7,8-PeCDF	2000	1899.788	95		21-178	1.61	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1588.705	79		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1706.146	85		26-123	0.50	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1901.330	95		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1674.858	84		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1782.298	89		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1969.640	98		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	272.958	34	**Y**	35-197	NA	1.021

Accuracy & Precision

ALS Environmental - Houston HRMS
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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Analyzed:**	11/27/18
Sample Matrix:	Wipe	**Date Extracted:**	11/14/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	pg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	616654

	Lab Control Sample EQ1800467-02			Duplicate Lab Control Sample EQ1800467-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	1400	2000	70	1450	2000	73	70-140	4	50
1,2,3,4,7,8-HxCDD	1720	2000	86	1740	2000	87	70-164	<1	50
1,2,3,6,7,8-HxCDD	1840	2000	92	1920	2000	96	76-134	4	50
1,2,3,7,8,9-HxCDD	1730	2000	86	1910	2000	95	64-162	10	50
1,2,3,7,8-PeCDD	1860	2000	93	1910	2000	96	70-142	3	50
2,3,7,8-TCDD	374	400	94	359	400	90	67-158	4	50
OCDD	3430	4000	86	3570	4000	89	78-144	4	50
1,2,3,4,6,7,8-HpCDF	1670	2000	84	1750	2000	87	82-122	4	50
1,2,3,4,7,8,9-HpCDF	1660	2000	83	1690	2000	84	78-138	2	50
1,2,3,4,7,8-HxCDF	1630	2000	81	1720	2000	86	72-134	6	50
1,2,3,6,7,8-HxCDF	1690	2000	84	1750	2000	87	84-130	3	50
1,2,3,7,8,9-HxCDF	1640	2000	82	1730	2000	87	78-130	5	50
1,2,3,7,8-PeCDF	1600	2000	80	1660	2000	83	80-134	4	50
2,3,4,6,7,8-HxCDF	1690	2000	84	1740	2000	87	70-156	3	50
2,3,4,7,8-PeCDF	1720	2000	86	1800	2000	90	68-160	4	50
2,3,7,8-TCDF	361	400	90	359	400	90	75-158	<1	50
OCDF	3470	4000	87	3780	4000	94	63-170	9	50

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Analyzed:**	11/27/18
Sample Matrix:	Wipe	**Date Extracted:**	11/14/18

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	pg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	616654

EQ1800467-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	1400	2000	70	70-140
1,2,3,4,7,8-HxCDD	1720	2000	86	70-164
1,2,3,6,7,8-HxCDD	1840	2000	92	76-134
1,2,3,7,8,9-HxCDD	1730	2000	86	64-162
1,2,3,7,8-PeCDD	1860	2000	93	70-142
2,3,7,8-TCDD	374	400	94	67-158
OCDD	3430	4000	86	78-144
1,2,3,4,6,7,8-HpCDF	1670	2000	84	82-122
1,2,3,4,7,8,9-HpCDF	1660	2000	83	78-138
1,2,3,4,7,8-HxCDF	1630	2000	81	72-134
1,2,3,6,7,8-HxCDF	1690	2000	84	84-130
1,2,3,7,8,9-HxCDF	1640	2000	82	78-130
1,2,3,7,8-PeCDF	1600	2000	80	80-134
2,3,4,6,7,8-HxCDF	1690	2000	84	70-156
2,3,4,7,8-PeCDF	1720	2000	86	68-160
2,3,7,8-TCDF	361	400	90	75-158
OCDF	3470	4000	87	63-170

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:53
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615727	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	374		4.86	10.0	0.81	1.001	1
1,2,3,7,8-PeCDD	1860		1.72	50.0	1.58	1.000	1
1,2,3,4,7,8-HxCDD	1720		0.840	50.0	1.23	1.000	1
1,2,3,6,7,8-HxCDD	1840		0.946	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDD	1730		0.830	50.0	1.24	1.007	1
1,2,3,4,6,7,8-HpCDD	1400		1.08	50.0	1.06	1.000	1
OCDD	3430		3.05	100	0.90	1.000	1
2,3,7,8-TCDF	361		3.01	10.0	0.76	1.001	1
1,2,3,7,8-PeCDF	1600		2.11	50.0	1.56	1.001	1
2,3,4,7,8-PeCDF	1720		2.09	50.0	1.55	1.000	1
1,2,3,4,7,8-HxCDF	1630		1.78	50.0	1.24	1.000	1
1,2,3,6,7,8-HxCDF	1690		1.82	50.0	1.24	1.000	1
1,2,3,7,8,9-HxCDF	1640		2.05	50.0	1.22	1.000	1
2,3,4,6,7,8-HxCDF	1690		1.82	50.0	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	1670		3.07	50.0	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	1660		3.96	50.0	1.06	1.000	1
OCDF	3470		3.08	100	0.91	1.006	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:53
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615727	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	374		4.86	10.0	0.81		1
Total Penta-Dioxins	1870		1.72	50.0	1.58		1
Total Hexa-Dioxins	5290		0.870	50.0	1.23		1
Total Hepta-Dioxins	1400		1.08	50.0	1.06		1
Total Tetra-Furans	370		3.01	10.0	0.80		1
Total Penta-Furans	3360		2.10	50.0	1.59		1
Total Hexa-Furans	6640		1.86	50.0	1.24		1
Total Hepta-Furans	3330		3.49	50.0	1.03		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800467-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 20:53
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615727	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	660.335	66		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	1000	920.408	92		25-181	1.56	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1054.347	105		32-141	1.34	0.992
13C-1,2,3,6,7,8-HxCDD	1000	980.692	98		28-130	1.21	0.993
13C-1,2,3,4,6,7,8-HpCDD	1000	1158.013	116		23-140	1.04	1.067
13C-OCDD	2000	1607.740	80		17-157	0.91	1.147
13C-2,3,7,8-TCDF	1000	610.393	61		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	1000	835.498	84		24-185	1.60	1.129
13C-2,3,4,7,8-PeCDF	1000	848.533	85		21-178	1.60	1.159
13C-1,2,3,4,7,8-HxCDF	1000	925.804	93		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	1000	866.870	87		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	1000	936.187	94		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	1000	916.446	92		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	1000	846.066	85		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	1000	877.956	88		26-138	0.46	1.081
37Cl-2,3,7,8-TCDD	800	259.109	32	**Y**	35-197	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 21:43
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615728	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	359		5.02	10.0	0.75	1.001	1
1,2,3,7,8-PeCDD	1910		3.05	50.0	1.53	1.000	1
1,2,3,4,7,8-HxCDD	1740		1.59	50.0	1.29	1.000	1
1,2,3,6,7,8-HxCDD	1920		1.85	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDD	1910		1.59	50.0	1.26	1.007	1
1,2,3,4,6,7,8-HpCDD	1450		1.43	50.0	1.04	1.000	1
OCDD	3570		1.97	100	0.89	1.000	1
2,3,7,8-TCDF	359		3.37	10.0	0.79	1.001	1
1,2,3,7,8-PeCDF	1660		3.07	50.0	1.59	1.000	1
2,3,4,7,8-PeCDF	1800		3.27	50.0	1.57	1.000	1
1,2,3,4,7,8-HxCDF	1720		1.16	50.0	1.26	1.000	1
1,2,3,6,7,8-HxCDF	1750		1.18	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDF	1730		1.22	50.0	1.23	1.000	1
2,3,4,6,7,8-HxCDF	1740		1.10	50.0	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	1750		2.93	50.0	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	1690		3.55	50.0	1.02	1.000	1
OCDF	3780		2.74	100	0.88	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800467-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 21:43
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615728	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	359		5.02	10.0	0.75		1
Total Penta-Dioxins	1910		3.05	50.0	1.53		1
Total Hexa-Dioxins	5560		1.67	50.0	1.29		1
Total Hepta-Dioxins	1450		1.43	50.0	1.04		1
Total Tetra-Furans	359		3.37	10.0	0.79		1
Total Penta-Furans	3480		3.17	50.0	1.59		1
Total Hexa-Furans	6950		1.16	50.0	1.17		1
Total Hepta-Furans	3440		3.23	50.0	1.03		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800467-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/27/18 21:43
Prep Method:	Method	**Date Extracted:**	11/14/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615728	**Blank File Name:**	P615718
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615714

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	1000	548.649	55		25-164	0.80	1.019
13C-1,2,3,7,8-PeCDD	1000	691.869	69		25-181	1.55	1.168
13C-1,2,3,4,7,8-HxCDD	1000	1005.111	101		32-141	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	1000	918.899	92		28-130	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	1000	1220.514	122		23-140	1.06	1.068
13C-OCDD	2000	1766.243	88		17-157	0.91	1.148
13C-2,3,7,8-TCDF	1000	497.659	50		24-169	0.80	0.994
13C-1,2,3,7,8-PeCDF	1000	659.461	66		24-185	1.58	1.129
13C-2,3,4,7,8-PeCDF	1000	652.101	65		21-178	1.60	1.159
13C-1,2,3,4,7,8-HxCDF	1000	839.434	84		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	1000	816.265	82		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	1000	924.236	92		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	1000	923.073	92		28-136	0.51	0.989
13C-1,2,3,4,6,7,8-HpCDF	1000	889.156	89		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	1000	958.622	96		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	222.895	28	**Y**	35-197	NA	1.019

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Analyzed:**	12/02/18
Sample Matrix:	Sediment	**Date Extracted:**	11/14/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	617699

	Lab Control Sample EQ1800469-02			Duplicate Lab Control Sample EQ1800469-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	76.1	97.2	78	79.2	98.2	81	70-140	4	50
1,2,3,4,7,8-HxCDD	90.9	97.2	94	90.7	98.2	92	70-164	<1	50
1,2,3,6,7,8-HxCDD	96.4	97.2	99	98.6	98.2	100	76-134	2	50
1,2,3,7,8,9-HxCDD	98.7	97.2	102	96.6	98.2	98	64-162	2	50
1,2,3,7,8-PeCDD	98.4	97.2	101	98.3	98.2	100	70-142	<1	50
2,3,7,8-TCDD	18.2	19.4	94	19.0	19.6	97	67-158	5	50
OCDD	189	194	97	189	196	96	78-144	<1	50
1,2,3,4,6,7,8-HpCDF	92.7	97.2	95	96.7	98.2	99	82-122	4	50
1,2,3,4,7,8,9-HpCDF	95.8	97.2	99	99.8	98.2	102	78-138	4	50
1,2,3,4,7,8-HxCDF	96.9	97.2	100	99.3	98.2	101	72-134	2	50
1,2,3,6,7,8-HxCDF	97.2	97.2	100	98.3	98.2	100	84-130	1	50
1,2,3,7,8,9-HxCDF	92.0	97.2	95	93.5	98.2	95	78-130	2	50
1,2,3,7,8-PeCDF	88.8	97.2	91	91.9	98.2	94	80-134	3	50
2,3,4,6,7,8-HxCDF	95.6	97.2	98	95.4	98.2	97	70-156	<1	50
2,3,4,7,8-PeCDF	99.6	97.2	102	103	98.2	105	68-160	3	50
2,3,7,8-TCDF	18.5	19.4	95	19.1	19.6	97	75-158	3	50
OCDF	176	194	91	183	196	93	63-170	4	50

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Analyzed:**	12/02/18
Sample Matrix:	Sediment	**Date Extracted:**	11/14/18

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	617699

EQ1800469-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	76.1	97.2	78	70-140
1,2,3,4,7,8-HxCDD	90.9	97.2	94	70-164
1,2,3,6,7,8-HxCDD	96.4	97.2	99	76-134
1,2,3,7,8,9-HxCDD	98.7	97.2	102	64-162
1,2,3,7,8-PeCDD	98.4	97.2	101	70-142
2,3,7,8-TCDD	18.2	19.4	94	67-158
OCDD	189	194	97	78-144
1,2,3,4,6,7,8-HpCDF	92.7	97.2	95	82-122
1,2,3,4,7,8,9-HpCDF	95.8	97.2	99	78-138
1,2,3,4,7,8-HxCDF	96.9	97.2	100	72-134
1,2,3,6,7,8-HxCDF	97.2	97.2	100	84-130
1,2,3,7,8,9-HxCDF	92.0	97.2	95	78-130
1,2,3,7,8-PeCDF	88.8	97.2	91	80-134
2,3,4,6,7,8-HxCDF	95.6	97.2	98	70-156
2,3,4,7,8-PeCDF	99.6	97.2	102	68-160
2,3,7,8-TCDF	18.5	19.4	95	75-158
OCDF	176	194	91	63-170

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 14:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.291g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519143	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.2		0.210	0.486	0.76	1.001	1
1,2,3,7,8-PeCDD	98.4		0.0474	2.43	1.57	1.000	1
1,2,3,4,7,8-HxCDD	90.9		0.0232	2.43	1.27	1.000	1
1,2,3,6,7,8-HxCDD	96.4		0.0252	2.43	1.25	1.000	1
1,2,3,7,8,9-HxCDD	98.7		0.0237	2.43	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	76.1		0.0626	2.43	1.06	1.000	1
OCDD	189		0.219	4.86	0.88	1.000	1
2,3,7,8-TCDF	18.5		0.126	0.486	0.75	1.001	1
1,2,3,7,8-PeCDF	88.8		0.0495	2.43	1.54	1.001	1
2,3,4,7,8-PeCDF	99.6		0.0471	2.43	1.51	1.001	1
1,2,3,4,7,8-HxCDF	96.9		0.0301	2.43	1.17	1.000	1
1,2,3,6,7,8-HxCDF	97.2		0.0294	2.43	1.20	1.000	1
1,2,3,7,8,9-HxCDF	92.0		0.0396	2.43	1.20	1.000	1
2,3,4,6,7,8-HxCDF	95.6		0.0295	2.43	1.18	1.000	1
1,2,3,4,6,7,8-HpCDF	92.7		0.192	2.43	0.96	1.000	1
1,2,3,4,7,8,9-HpCDF	95.8		0.326	2.43	0.94	1.000	1
OCDF	176		0.262	4.86	0.90	1.005	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 14:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.291g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519143	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.3		0.210	0.486	0.76		1
Total Penta-Dioxins	98.5		0.0474	2.43	1.57		1
Total Hexa-Dioxins	286		0.0240	2.43	1.27		1
Total Hepta-Dioxins	76.1		0.0626	2.43	1.06		1
Total Tetra-Furans	18.6		0.126	0.486	0.75		1
Total Penta-Furans	189		0.0482	2.43	1.54		1
Total Hexa-Furans	382		0.0317	2.43	1.17		1
Total Hepta-Furans	188		0.247	2.43	0.96		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800469-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 14:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.291g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519143	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	636.561	32		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1087.680	54		25-181	1.58	1.181
13C-1,2,3,4,7,8-HxCDD	2000	1160.893	58		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1142.394	57		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	926.595	46		23-140	1.08	1.067
13C-OCDD	4000	925.030	23		17-157	0.90	1.144
13C-2,3,7,8-TCDF	2000	548.573	27		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	918.007	46		24-185	1.57	1.139
13C-2,3,4,7,8-PeCDF	2000	956.316	48		21-178	1.58	1.171
13C-1,2,3,4,7,8-HxCDF	2000	982.761	49		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1012.451	51		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	971.970	49		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1085.164	54		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	770.074	39		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	662.545	33		26-138	0.42	1.080
37Cl-2,3,7,8-TCDD	800	270.557	34	**Y**	35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 15:05
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.188g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519144	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.0		0.137	0.491	0.75	1.001	1
1,2,3,7,8-PeCDD	98.3		0.0420	2.45	1.59	1.000	1
1,2,3,4,7,8-HxCDD	90.7		0.0392	2.45	1.25	1.000	1
1,2,3,6,7,8-HxCDD	98.6		0.0424	2.45	1.24	1.000	1
1,2,3,7,8,9-HxCDD	96.6		0.0398	2.45	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	79.2		0.0520	2.45	1.05	1.000	1
OCDD	189		0.150	4.91	0.89	1.000	1
2,3,7,8-TCDF	19.1		0.0843	0.491	0.73	1.001	1
1,2,3,7,8-PeCDF	91.9		0.0643	2.45	1.51	1.001	1
2,3,4,7,8-PeCDF	103		0.0688	2.45	1.52	1.000	1
1,2,3,4,7,8-HxCDF	99.3		0.0213	2.45	1.19	1.000	1
1,2,3,6,7,8-HxCDF	98.3		0.0207	2.45	1.21	1.000	1
1,2,3,7,8,9-HxCDF	93.5		0.0259	2.45	1.21	1.000	1
2,3,4,6,7,8-HxCDF	95.4		0.0204	2.45	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	96.7		0.189	2.45	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	99.8		0.311	2.45	0.99	1.000	1
OCDF	183		0.154	4.91	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800469-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 15:05
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.188g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519144	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.0		0.137	0.491	0.75		1
Total Penta-Dioxins	98.3		0.0420	2.45	1.59		1
Total Hexa-Dioxins	286		0.0405	2.45	1.25		1
Total Hepta-Dioxins	79.2		0.0520	2.45	1.05		1
Total Tetra-Furans	19.3		0.0843	0.491	0.81		1
Total Penta-Furans	196		0.0665	2.45	1.40		1
Total Hexa-Furans	387		0.0218	2.45	1.19		1
Total Hepta-Furans	196		0.239	2.45	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800469-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/18 15:05
Prep Method:	Method Soxhlet	**Date Extracted:**	11/14/18
Sample Amount:	10.188g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519144	**Blank File Name:**	P519219
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519131

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	968.894	48		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1290.570	65		25-181	1.60	1.181
13C-1,2,3,4,7,8-HxCDD	2000	1326.341	66		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1299.547	65		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1173.699	59		23-140	1.07	1.067
13C-OCDD	4000	1282.795	32		17-157	0.91	1.143
13C-2,3,7,8-TCDF	2000	811.184	41		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1140.415	57		24-185	1.60	1.140
13C-2,3,4,7,8-PeCDF	2000	1101.113	55		21-178	1.56	1.172
13C-1,2,3,4,7,8-HxCDF	2000	1120.401	56		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1131.321	57		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1138.142	57		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1213.244	61		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	980.545	49		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	850.443	43		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	412.171	52		35-197	NA	1.020

ALS Group USA, Corp.
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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Analyzed:**	12/10/18
Sample Matrix:	Sediment	**Date Extracted:**	12/04/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618423

	Lab Control Sample EQ1800498-02			Duplicate Lab Control Sample EQ1800498-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	71.9	96.3	75	74.0	98.8	75	70-140	3	50
1,2,3,4,7,8-HxCDD	90.7	96.3	94	94.6	98.8	96	70-164	4	50
1,2,3,6,7,8-HxCDD	96.1	96.3	100	97.2	98.8	98	76-134	1	50
1,2,3,7,8,9-HxCDD	100	96.3	104	94.1	98.8	95	64-162	6	50
1,2,3,7,8-PeCDD	96.7	96.3	100	99.2	98.8	100	70-142	3	50
2,3,7,8-TCDD	27.3	19.3	142	30.2	19.8	153	67-158	10	50
OCDD	197	193	102	206	198	104	78-144	4	50
1,2,3,4,6,7,8-HpCDF	92.4	96.3	96	96.6	98.8	98	82-122	4	50
1,2,3,4,7,8,9-HpCDF	95.1	96.3	99	97.5	98.8	99	78-138	2	50
1,2,3,4,7,8-HxCDF	97.5	96.3	101	98.5	98.8	100	72-134	1	50
1,2,3,6,7,8-HxCDF	96.6	96.3	100	95.8	98.8	97	84-130	<1	50
1,2,3,7,8,9-HxCDF	94.5	96.3	98	96.9	98.8	98	78-130	3	50
1,2,3,7,8-PeCDF	90.1	96.3	94	92.5	98.8	94	80-134	3	50
2,3,4,6,7,8-HxCDF	98.6	96.3	102	101	98.8	102	70-156	2	50
2,3,4,7,8-PeCDF	98.6	96.3	102	102	98.8	103	68-160	3	50
2,3,7,8-TCDF	18.1	19.3	94	19.1	19.8	96	75-158	5	50
OCDF	209	193	108	246	198	124	63-170	16	50

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Analyzed:**	12/10/18
Sample Matrix:	Sediment	**Date Extracted:**	12/04/18

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618423

EQ1800498-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	71.9	96.3	75	70-140
1,2,3,4,7,8-HxCDD	90.7	96.3	94	70-164
1,2,3,6,7,8-HxCDD	96.1	96.3	100	76-134
1,2,3,7,8,9-HxCDD	100	96.3	104	64-162
1,2,3,7,8-PeCDD	96.7	96.3	100	70-142
2,3,7,8-TCDD	27.3	19.3	142	67-158
OCDD	197	193	102	78-144
1,2,3,4,6,7,8-HpCDF	92.4	96.3	96	82-122
1,2,3,4,7,8,9-HpCDF	95.1	96.3	99	78-138
1,2,3,4,7,8-HxCDF	97.5	96.3	101	72-134
1,2,3,6,7,8-HxCDF	96.6	96.3	100	84-130
1,2,3,7,8,9-HxCDF	94.5	96.3	98	78-130
1,2,3,7,8-PeCDF	90.1	96.3	94	80-134
2,3,4,6,7,8-HxCDF	98.6	96.3	102	70-156
2,3,4,7,8-PeCDF	98.6	96.3	102	68-160
2,3,7,8-TCDF	18.1	19.3	94	75-158
OCDF	209	193	108	63-170

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800498-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 19:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.382g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519332	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	27.3		0.213	0.482	0.74	1.001	1
1,2,3,7,8-PeCDD	96.7		0.0498	2.41	1.56	1.000	1
1,2,3,4,7,8-HxCDD	90.7		0.0184	2.41	1.29	1.000	1
1,2,3,6,7,8-HxCDD	96.1		0.0200	2.41	1.27	1.000	1
1,2,3,7,8,9-HxCDD	100		0.0187	2.41	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	71.9		0.0373	2.41	1.08	1.000	1
OCDD	197		0.0950	4.82	0.87	1.001	1
2,3,7,8-TCDF	18.1		0.0382	0.482	0.79	1.001	1
1,2,3,7,8-PeCDF	90.1		0.0624	2.41	1.56	1.001	1
2,3,4,7,8-PeCDF	98.6		0.0633	2.41	1.51	1.001	1
1,2,3,4,7,8-HxCDF	97.5		0.0288	2.41	1.21	1.000	1
1,2,3,6,7,8-HxCDF	96.6		0.0274	2.41	1.24	1.000	1
1,2,3,7,8,9-HxCDF	94.5		0.0355	2.41	1.19	1.000	1
2,3,4,6,7,8-HxCDF	98.6		0.0316	2.41	1.17	1.000	1
1,2,3,4,6,7,8-HpCDF	92.4		0.131	2.41	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	95.1		0.176	2.41	1.04	1.000	1
OCDF	209		0.135	4.82	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800498-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 19:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.382g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519332	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	27.3		0.213	0.482	0.74		1
Total Penta-Dioxins	96.7		0.0498	2.41	1.56		1
Total Hexa-Dioxins	287		0.0191	2.41	1.29		1
Total Hepta-Dioxins	71.9		0.0373	2.41	1.08		1
Total Tetra-Furans	18.6		0.0382	0.482	0.88		1
Total Penta-Furans	189		0.0629	2.41	1.56		1
Total Hexa-Furans	387		0.0307	2.41	1.21		1
Total Hepta-Furans	188		0.152	2.41	1.01		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800498-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 19:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.382g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519332	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	842.646	42		25-164	0.81	1.021
13C-1,2,3,7,8-PeCDD	2000	1612.754	81		25-181	1.60	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1280.936	64		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1303.712	65		28-130	1.32	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1543.839	77		23-140	1.08	1.070
13C-OCDD	4000	2138.222	53		17-157	0.87	1.149
13C-2,3,7,8-TCDF	2000	1178.695	59		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1488.847	74		24-185	1.60	1.146
13C-2,3,4,7,8-PeCDF	2000	1442.430	72		21-178	1.59	1.180
13C-1,2,3,4,7,8-HxCDF	2000	1157.385	58		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1258.309	63		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1320.767	66		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1168.887	58		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1160.969	58		28-143	0.43	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1255.582	63		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	485.203	61		35-197	NA	1.021

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800498-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 20:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.120g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519333	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	30.2		0.427	0.494	0.78	1.001	1
1,2,3,7,8-PeCDD	99.2		0.0595	2.47	1.57	1.000	1
1,2,3,4,7,8-HxCDD	94.6		0.0511	2.47	1.28	1.000	1
1,2,3,6,7,8-HxCDD	97.2		0.0547	2.47	1.25	1.000	1
1,2,3,7,8,9-HxCDD	94.1		0.0517	2.47	1.21	1.007	1
1,2,3,4,6,7,8-HpCDD	74.0		0.0651	2.47	1.14	1.000	1
OCDD	206		0.196	4.94	0.87	1.000	1
2,3,7,8-TCDF	19.1		0.120	0.494	0.77	1.001	1
1,2,3,7,8-PeCDF	92.5		0.0896	2.47	1.52	1.000	1
2,3,4,7,8-PeCDF	102		0.0897	2.47	1.54	1.001	1
1,2,3,4,7,8-HxCDF	98.5		0.0531	2.47	1.24	1.000	1
1,2,3,6,7,8-HxCDF	95.8		0.0510	2.47	1.21	1.000	1
1,2,3,7,8,9-HxCDF	96.9		0.0700	2.47	1.22	1.000	1
2,3,4,6,7,8-HxCDF	101		0.0603	2.47	1.16	1.000	1
1,2,3,4,6,7,8-HpCDF	96.6		0.366	2.47	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	97.5		0.508	2.47	1.03	1.000	1
OCDF	246		0.339	4.94	0.86	1.005	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800498-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 20:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.120g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519333	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	30.2		0.427	0.494	0.78		1
Total Penta-Dioxins	99.2		0.0595	2.47	1.57		1
Total Hexa-Dioxins	286		0.0525	2.47	1.28		1
Total Hepta-Dioxins	74.0		0.0651	2.47	1.14		1
Total Tetra-Furans	19.1		0.120	0.494	0.77		1
Total Penta-Furans	194		0.0896	2.47	1.34		1
Total Hexa-Furans	392		0.0580	2.47	1.24		1
Total Hepta-Furans	197		0.430	2.47	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801039
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800498-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 20:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.120g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519333	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	695.328	35		25-164	0.79	1.021
13C-1,2,3,7,8-PeCDD	2000	1227.118	61		25-181	1.64	1.191
13C-1,2,3,4,7,8-HxCDD	2000	883.589	44		32-141	1.37	0.991
13C-1,2,3,6,7,8-HxCDD	2000	903.125	45		28-130	1.21	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	868.683	43		23-140	1.08	1.070
13C-OCDD	4000	910.928	23		17-157	0.91	1.150
13C-2,3,7,8-TCDF	2000	1007.815	50		24-169	0.77	0.992
13C-1,2,3,7,8-PeCDF	2000	1129.669	56		24-185	1.59	1.148
13C-2,3,4,7,8-PeCDF	2000	1140.692	57		21-178	1.60	1.181
13C-1,2,3,4,7,8-HxCDF	2000	813.440	41		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	860.344	43		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	828.108	41		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	775.514	39		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	676.416	34		28-143	0.43	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	724.340	36		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	410.403	51		35-197	NA	1.021

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0100

Run #12 Filename P519137 Samp: 1 Inj: 1 Acquired: 2-DEC-18 09:25:10
Processed: 3-DEC-18 17:35:39 Sample ID: E1801039-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	4.356e+04	5.748e+04	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:27	1.844e+03	1.224e+03	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:21	1.786e+03	1.202e+03	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	2.132e+03	1.759e+03	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	6.217e+02	6.388e+02	0.97	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	2.993e+02	2.593e+02	1.15	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:25	1.914e+02	1.930e+02	0.99	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	2.925e+03	2.833e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	2.320e+02	2.649e+02	0.88	no	no	1.258
10	Unk	OCDF	42:37	2.616e+04	3.004e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	1.198e+04	1.518e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	2.949e+02	2.000e+02	1.47	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	9.913e+01	7.204e+01	1.38	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	3.504e+02	2.758e+02	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	3.072e+02	2.050e+02	1.50	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	6.289e+03	6.107e+03	1.03	yes	no	1.025
17	Unk	OCDD	42:25	8.599e+04	9.589e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	4.287e+04	5.411e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	6.856e+04	4.350e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	6.422e+04	4.117e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	2.633e+04	5.113e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	2.993e+04	5.694e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	2.708e+04	5.286e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	2.354e+04	4.580e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.485e+04	3.394e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	1.206e+04	2.733e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	3.074e+04	3.824e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	5.008e+04	3.123e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	3.916e+04	3.097e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	3.660e+04	2.917e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	2.666e+04	2.533e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:24	1.269e+04	1.422e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	4.983e+04	6.238e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.297e+04	4.908e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	3.269e+04				no	1.014

$$\text{OCDD} = \frac{(8.599e+04 + 9.589e+04) \times 4000 \text{ pg} \times 1}{(1.269e+04 + 1.422e+04) \times 10.897 \text{ g} \times 75.0 / 100 \times 1.118} = 2458.8 \text{ ng/kg}$$

LM 12/05/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0100

Run #12 Filename P519137 Samp: 1 Inj: 1 Acquired: 2-DEC-18 09:25:10
Processed: 3-DEC-18 17:35:39 LAB. ID: E1801039-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.60e+06	1.32e+03	5.8e+03	1.01e+07	2.40e+03	4.2e+03
2	1,2,3,7,8-PeCDF	3.49e+05	2.47e+03	1.4e+02	2.32e+05	2.29e+03	1.0e+02
3	2,3,4,7,8-PeCDF	2.61e+05	2.47e+03	1.1e+02	1.83e+05	2.29e+03	8.0e+01
4	1,2,3,4,7,8-HxCDF	4.63e+05	2.99e+03	1.5e+02	3.81e+05	1.60e+03	2.4e+02
5	1,2,3,6,7,8-HxCDF	1.23e+05	2.99e+03	4.1e+01	1.17e+05	1.60e+03	7.3e+01
6	2,3,4,6,7,8-HxCDF	6.32e+04	2.99e+03	2.1e+01	5.53e+04	1.60e+03	3.5e+01
7	1,2,3,7,8,9-HxCDF	3.79e+04	2.99e+03	1.3e+01	3.12e+04	1.60e+03	1.9e+01
8	1,2,3,4,6,7,8-HpCDF	5.93e+05	1.89e+03	3.1e+02	5.53e+05	2.04e+03	2.7e+02
9	1,2,3,4,7,8,9-HpCDF	4.70e+04	1.89e+03	2.5e+01	4.74e+04	2.04e+03	2.3e+01
10	OCDF	4.03e+06	3.56e+02	1.1e+04	4.48e+06	5.80e+02	7.7e+03
11	2,3,7,8-TCDD	2.42e+06	3.26e+03	7.4e+02	3.05e+06	1.52e+03	2.0e+03
12	1,2,3,7,8-PeCDD	5.03e+04	1.38e+03	3.6e+01	3.52e+04	3.36e+02	1.0e+02
13	1,2,3,4,7,8-HxCDD	2.62e+04	2.33e+03	1.1e+01	1.85e+04	4.28e+03	4.3e+00
14	1,2,3,6,7,8-HxCDD	7.60e+04	2.33e+03	3.3e+01	5.93e+04	4.28e+03	1.4e+01
15	1,2,3,7,8,9-HxCDD	6.06e+04	2.33e+03	2.6e+01	4.42e+04	4.28e+03	1.0e+01
16	1,2,3,4,6,7,8-HpCDD	1.21e+06	3.20e+03	3.8e+02	1.18e+06	6.68e+03	1.8e+02
17	OCDD	1.31e+07	2.44e+02	5.4e+04	1.45e+07	5.84e+02	2.5e+04
18	13C-2,3,7,8-TCDF	8.17e+06	7.70e+03	1.1e+03	1.02e+07	6.24e+03	1.6e+03
19	13C-1,2,3,7,8-PeCDF	1.27e+07	8.78e+03	1.4e+03	7.97e+06	7.23e+03	1.1e+03
20	13C-2,3,4,7,8-PeCDF	1.25e+07	8.78e+03	1.4e+03	8.06e+06	7.23e+03	1.1e+03
21	13C-1,2,3,4,7,8-HxCDF	5.69e+06	1.11e+03	5.1e+03	1.09e+07	3.44e+03	3.2e+03
22	13C-1,2,3,6,7,8-HxCDF	6.05e+06	1.11e+03	5.4e+03	1.14e+07	3.44e+03	3.3e+03
23	13C-2,3,4,6,7,8-HxCDF	5.68e+06	1.11e+03	5.1e+03	1.11e+07	3.44e+03	3.2e+03
24	13C-1,2,3,7,8,9-HxCDF	4.61e+06	1.11e+03	4.1e+03	8.97e+06	3.44e+03	2.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.98e+06	2.66e+03	1.1e+03	6.72e+06	4.07e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.14e+06	2.66e+03	8.1e+02	4.87e+06	4.07e+03	1.2e+03
27	13C-2,3,7,8-TCDD	6.00e+06	5.62e+03	1.1e+03	7.46e+06	3.07e+03	2.4e+03
28	13C-1,2,3,7,8-PeCDD	9.78e+06	1.46e+03	6.7e+03	6.18e+06	1.37e+03	4.5e+03
29	13C-1,2,3,4,7,8-HxCDD	8.60e+06	1.89e+03	4.5e+03	6.72e+06	1.14e+03	5.9e+03
30	13C-1,2,3,6,7,8-HxCDD	7.58e+06	1.89e+03	4.0e+03	6.11e+06	1.14e+03	5.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.02e+06	9.28e+02	5.4e+03	4.79e+06	6.00e+02	8.0e+03
32	13C-OCDD	1.93e+06	7.64e+02	2.5e+03	2.19e+06	6.80e+02	3.2e+03
33	13C-1,2,3,4-TCDD	9.56e+06	5.62e+03	1.7e+03	1.20e+07	3.07e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.31e+07	1.89e+03	6.9e+03	1.03e+07	1.14e+03	9.1e+03
35	37Cl-2,3,7,8-TCDD	6.55e+06	1.47e+03	4.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.256e{+}03 + 1.520e{+}03) \times 2000}{(5.997e{+}06 + 7.460e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0100

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P519137 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 09:25:10 Processed: 3-DEC-18 17:35:39

Mass: 303.9020 305.8990 Tot Response: 1.78e+05 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:45	3.09e+02	3.95e+02	0.78	yes	7.04e+02		n	n
2	25:18	4.91e+02	6.76e+02	0.73	yes	1.17e+03		n	n
3	25:37	1.94e+03	2.62e+03	0.74	yes	4.56e+03		n	n
4	26:02	6.78e+02	9.71e+02	0.70	yes	1.65e+03		n	n
5	26:11	1.35e+02	1.60e+02	0.85	yes	2.95e+02		n	n
6	26:19	1.58e+03	2.27e+03	0.70	yes	3.85e+03		n	n
7	26:42	4.95e+02	5.84e+02	0.85	yes	1.08e+03		n	n
8	26:55	1.19e+03	1.68e+03	0.71	yes	2.87e+03		n	n
9	27:02	1.70e+03	2.10e+03	0.81	yes	3.80e+03		n	n
10	27:27	1.72e+04	2.29e+04	0.75	yes	4.01e+04		n	n
11	27:43	8.72e+02	1.15e+03	0.76	yes	2.02e+03		n	n
12	28:15	4.36e+04	5.75e+04	0.76	yes	1.01e+05	2,3,7,8-TCDF	n	n
13	28:35	3.10e+03	3.89e+03	0.80	yes	6.99e+03		n	n
14	28:49	4.67e+02	6.32e+02	0.74	yes	1.10e+03		n	n
15	30:04	3.12e+03	4.00e+03	0.78	yes	7.12e+03		n	n

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Peak List Summary

CLIENT ID.
SL0100

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P519137 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 09:25:10 Processed: 3-DEC-18 17:35:39

Mass: 319.8970 321.8940 Tot Response: 3.09e+04 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:09	3.80e+02	4.87e+02	0.78	yes	8.67e+02		n	n
2	28:48	1.82e+02	2.06e+02	0.88	yes	3.88e+02		n	n
3	29:02	1.20e+04	1.52e+04	0.79	yes	2.72e+04	2,3,7,8-TCDD	n	n
4	29:19	1.11e+03	1.39e+03	0.80	yes	2.50e+03		n	n

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Peak List Summary

CLIENT ID.
SL0100

Entry: 38 Totals Name: Total Penta-Furans1

Run: 12 File: P519137 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 09:25:10 Processed: 3-DEC-18 17:35:39

Mass: 339.8600 341.8570 Tot Response: 2.41e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:03	1.52e+03	8.88e+02 1.71	yes	2.41e+03		n	n

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Peak List Summary

CLIENT ID.
SL0100

Entry: 39 Totals Name: Total Penta-Furans2

Run: 12 File: P519137 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 09:25:10 Processed: 3-DEC-18 17:35:39

Mass: 339.8600 341.8570 Tot Response: 1.06e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:31	1.77e+03	1.10e+03 1.61	yes	2.87e+03		n	n
2	32:16	2.79e+02	1.97e+02 1.41	yes	4.76e+02		n	n
3	32:27	1.84e+03	1.22e+03 1.51	yes	3.07e+03	1,2,3,7,8-PeCDF	n	n
4	32:42	6.81e+02	5.10e+02 1.34	yes	1.19e+03		n	n
5	33:21	1.79e+03	1.20e+03 1.49	yes	2.99e+03	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0100

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P519137 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 09:25:10 Processed: 3-DEC-18 17:35:39

Mass: 355.8550 357.8520 Tot Response: 1.49e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:00	4.10e+02	2.83e+02	1.45	yes	6.93e+02		n	n
2	32:27	1.50e+02	9.70e+01	1.55	yes	2.47e+02		n	n
3	33:38	2.95e+02	2.00e+02	1.47	yes	4.95e+02	1,2,3,7,8-PeCDD	n	n
4	34:00	3.08e+01	2.07e+01	1.49	yes	5.15e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0100

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P519137 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 09:25:10 Processed: 3-DEC-18 17:35:39

Mass: 373.8210 375.8180 Tot Response: 1.05e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:55	3.96e+02	3.62e+02	1.09	yes	7.58e+02		n	n
2	35:05	1.41e+03	1.16e+03	1.22	yes	2.57e+03		n	n
3	35:36	1.35e+03	1.20e+03	1.13	yes	2.55e+03		n	n
4	35:57	8.78e+01	6.98e+01	1.26	yes	1.58e+02		n	n
5	36:02	2.13e+03	1.76e+03	1.21	yes	3.89e+03	1,2,3,4,7,8-HxCDF	n	n
6	36:39	2.99e+02	2.59e+02	1.15	yes	5.59e+02	2,3,4,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0100

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P519137 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 09:25:10 Processed: 3-DEC-18 17:35:39

Mass: 389.8160 391.8130 Tot Response: 1.08e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	3.62e+03	2.98e+03	1.21	yes	6.60e+03		n	n
2	35:57	2.28e+02	2.05e+02	1.11	yes	4.33e+02		n	n
3	36:11	1.54e+03	1.28e+03	1.20	yes	2.82e+03		n	n
4	36:18	1.09e+02	7.69e+01	1.41	yes	1.85e+02		n	n
5	36:47	9.91e+01	7.20e+01	1.38	yes	1.71e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:52	3.50e+02	2.76e+02	1.27	yes	6.26e+02	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0100

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P519137 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 09:25:10 Processed: 3-DEC-18 17:35:39

Mass: 407.7820 409.7790 Tot Response: 1.20e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:39	2.92e+03	1.03	yes	5.76e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	39:04	3.16e+03	1.04	yes	6.20e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0100

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P519137 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 09:25:10 Processed: 3-DEC-18 17:35:39

Mass: 423.7770 425.7740 Tot Response: 3.62e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	1.20e+04	1.18e+04	1.02	yes	2.38e+04		n	n
2	39:35	6.29e+03	6.11e+03	1.03	yes	1.24e+04	1,2,3,4,6,7,8-HpCDD	n	n

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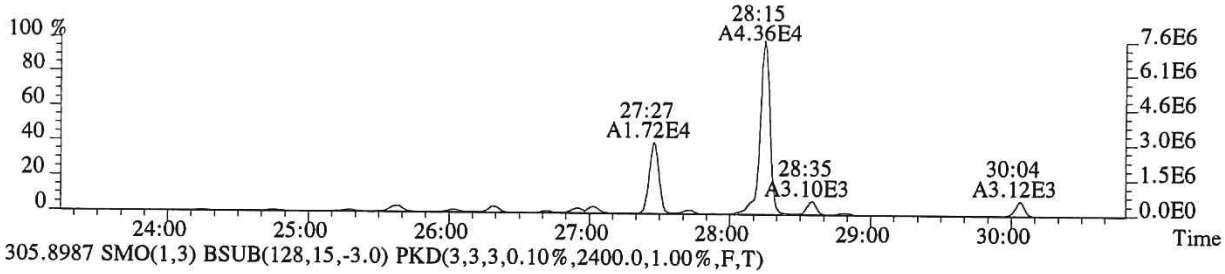
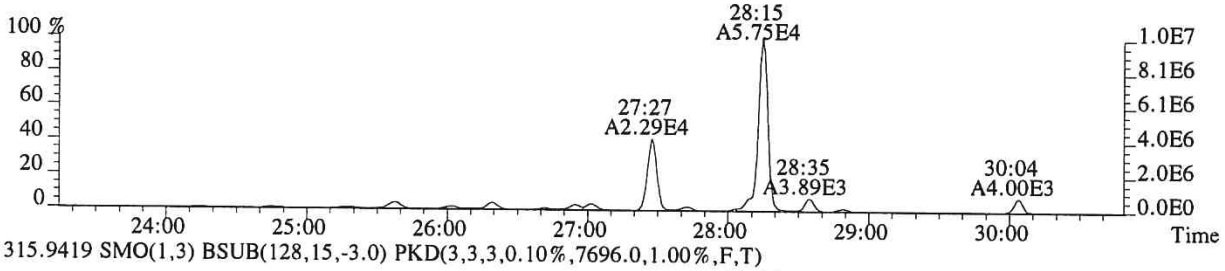
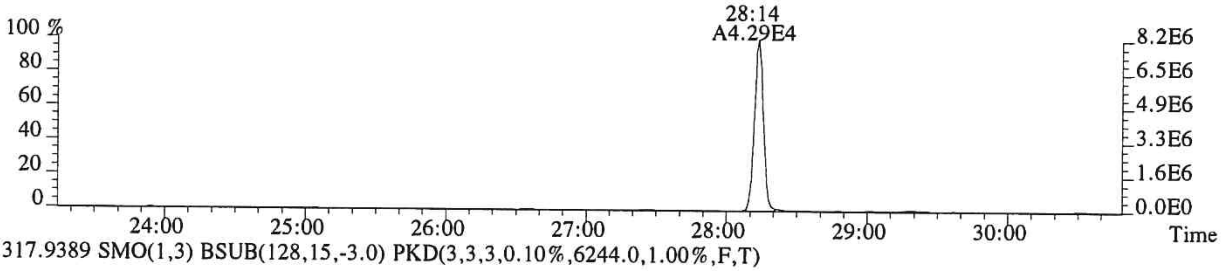
File:P519137 #1-538 Acq: 2-DEC-2018 09:25:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



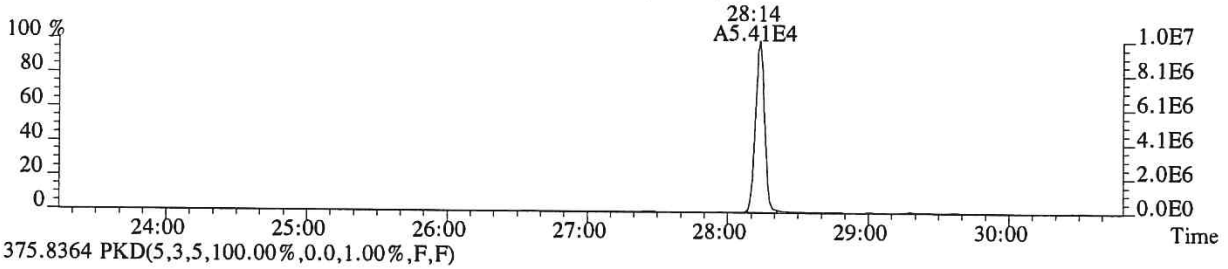
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



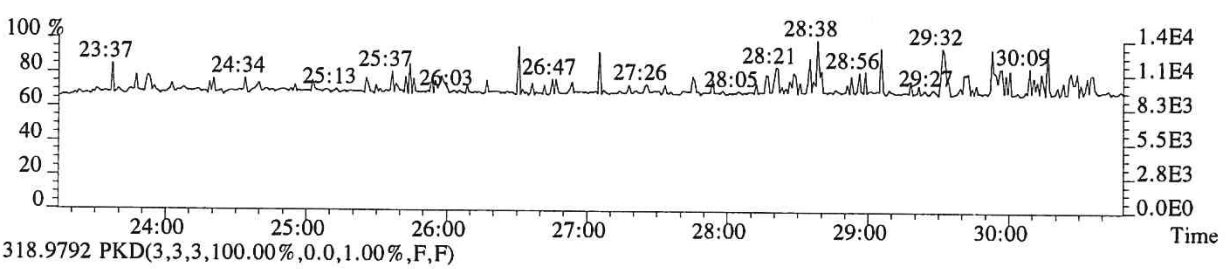
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7696.0,1.00%,F,T)



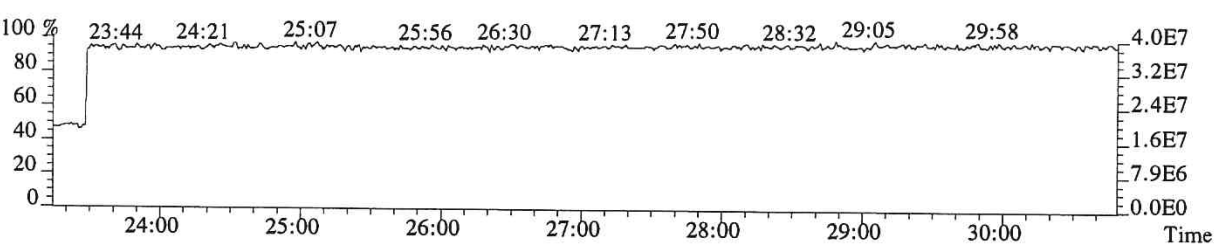
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6244.0,1.00%,F,T)



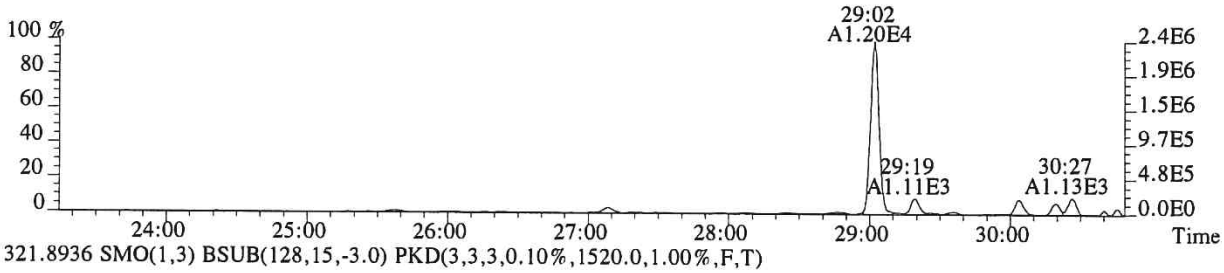
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



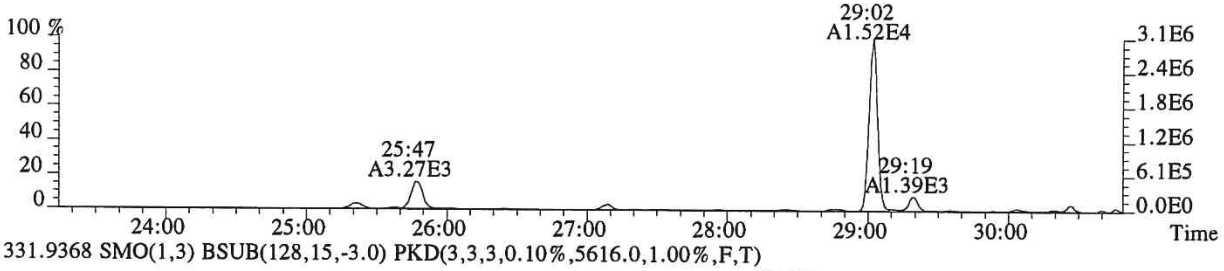
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



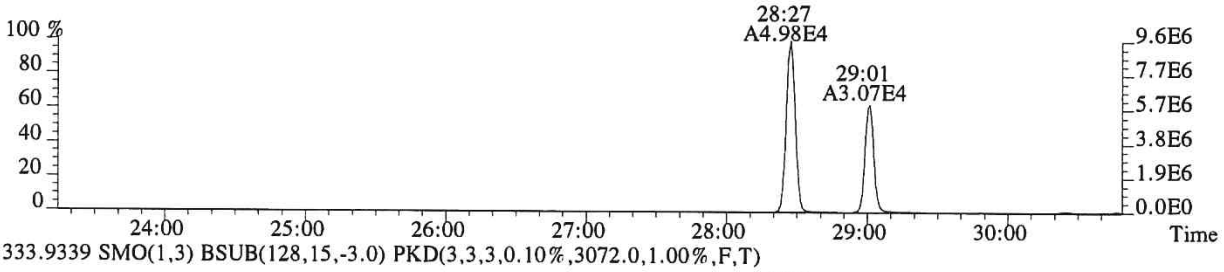
File:P519137 #1-538 Acq: 2-DEC-2018 09:25:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



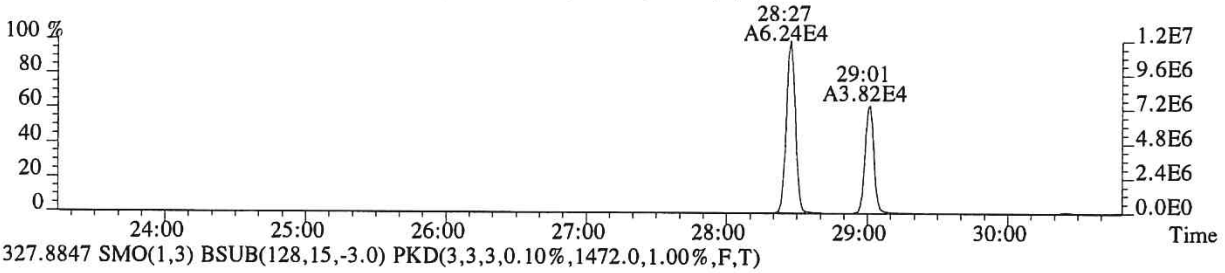
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



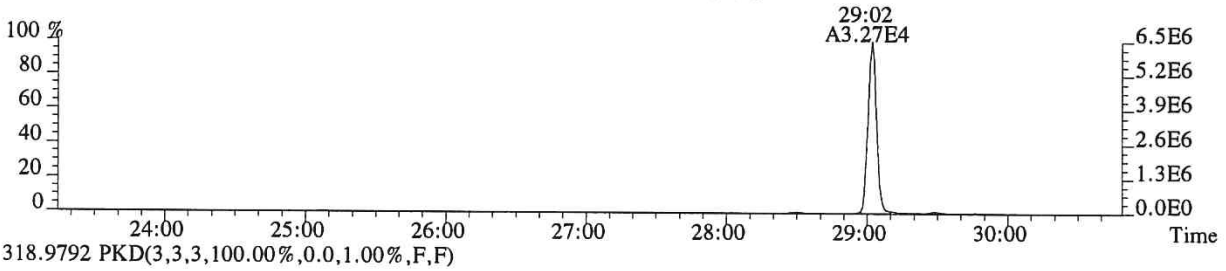
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5616.0,1.00%,F,T)



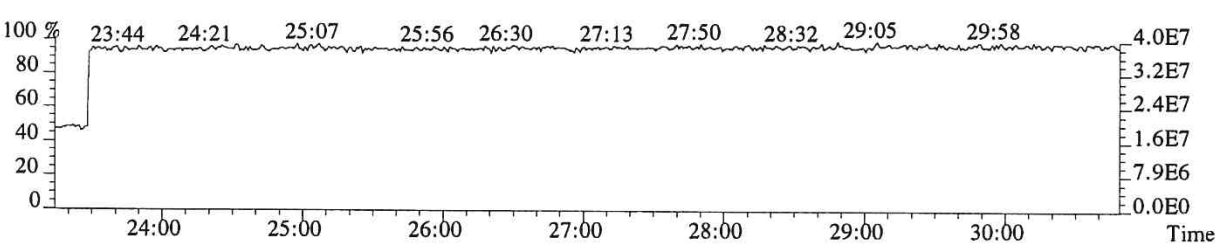
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3072.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)

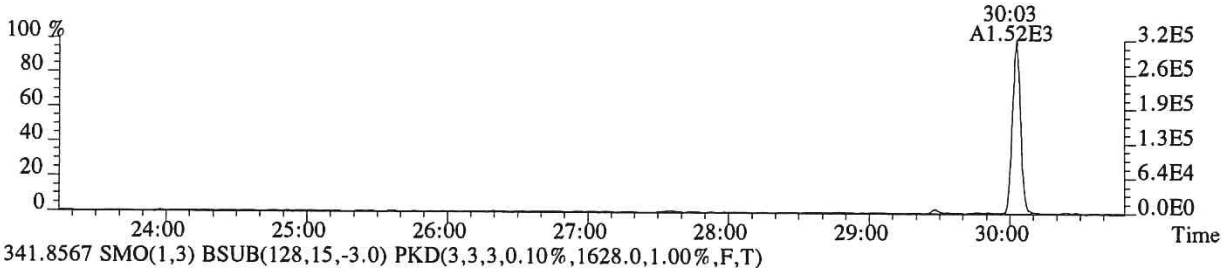


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

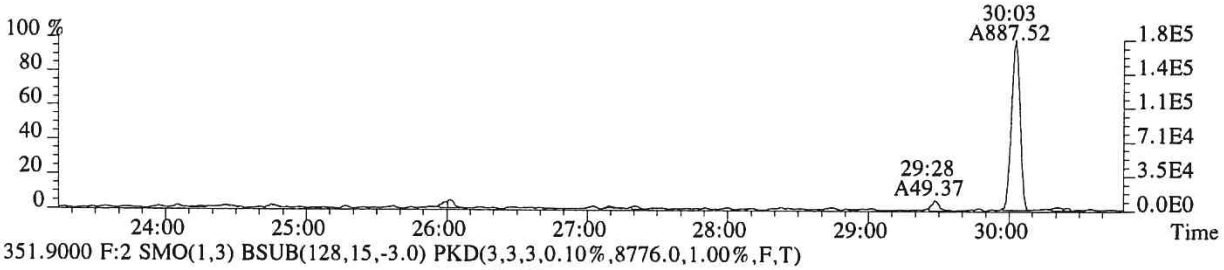


011054

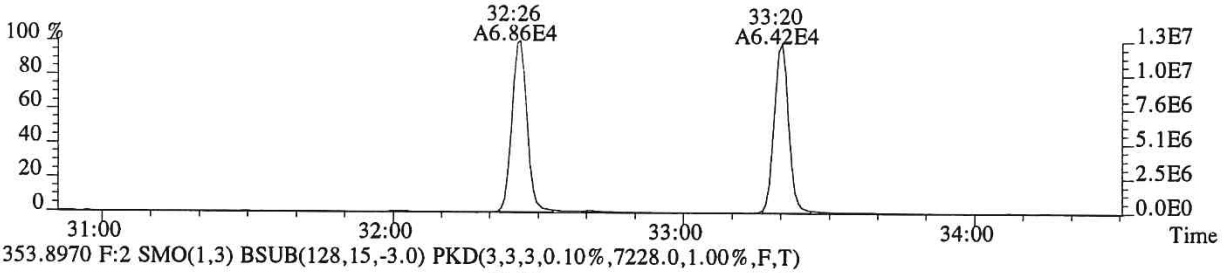
File:P519137 #1-538 Acq: 2-DEC-2018 09:25:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



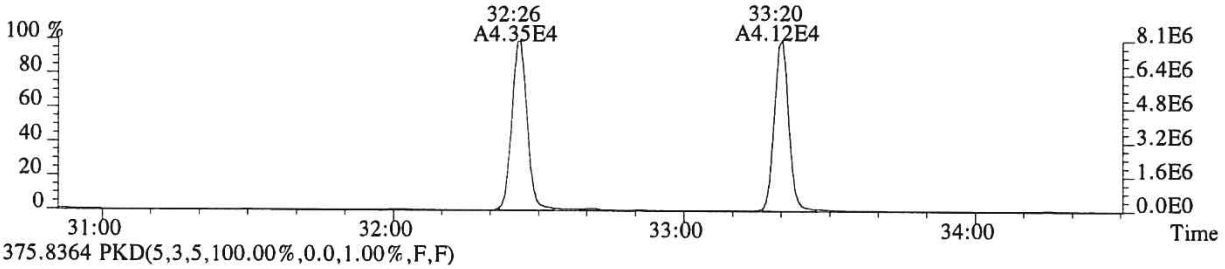
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



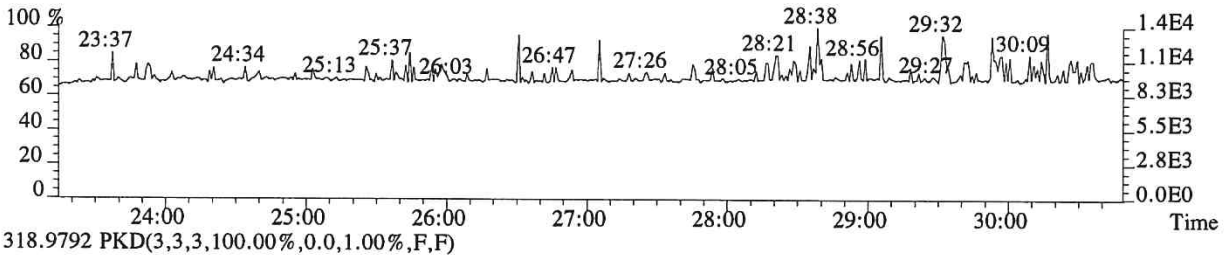
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8776.0,1.00%,F,T)



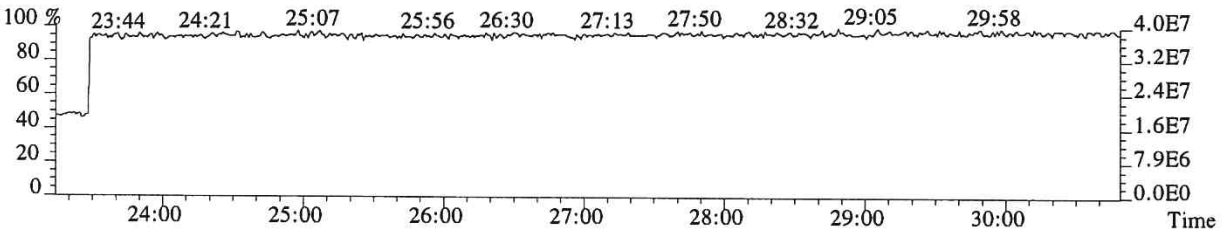
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7228.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

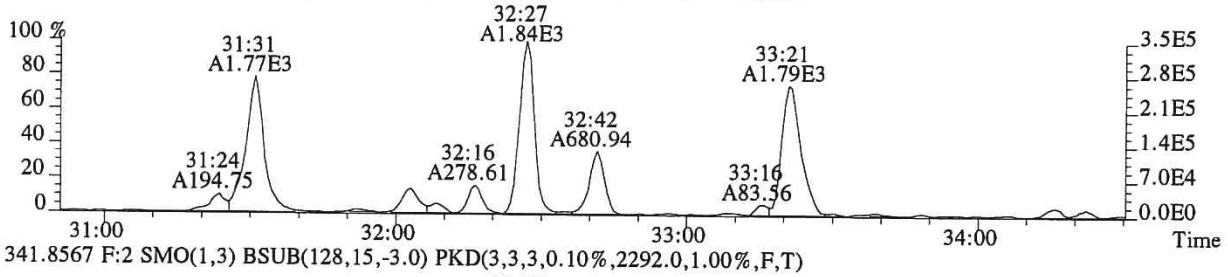


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

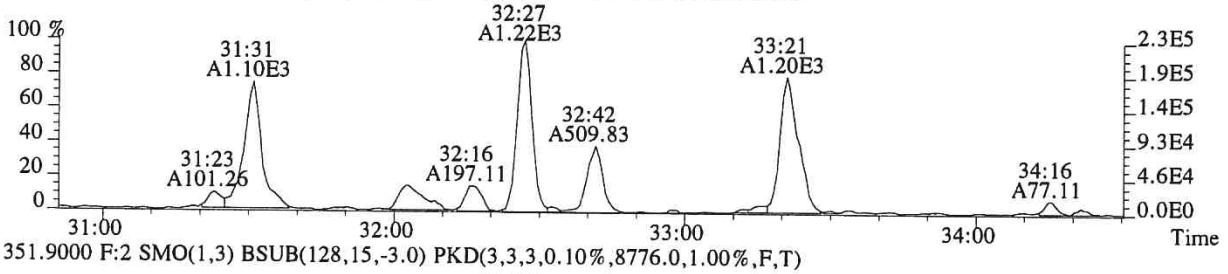


011055

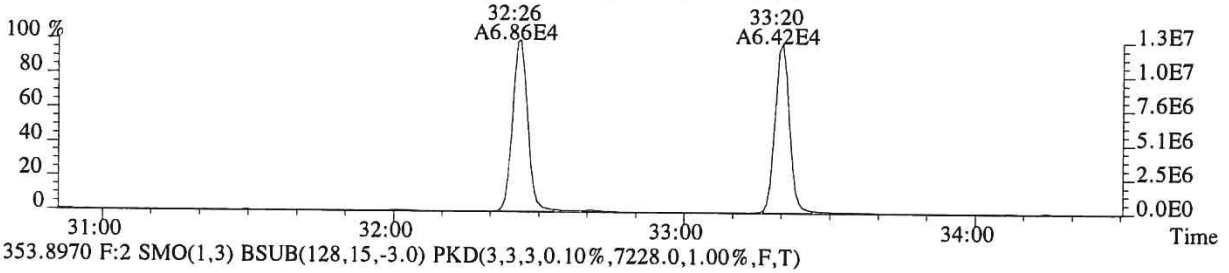
File:P519137 #1-330 Acq: 2-DEC-2018 09:25:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2468.0,1.00%,F,T)



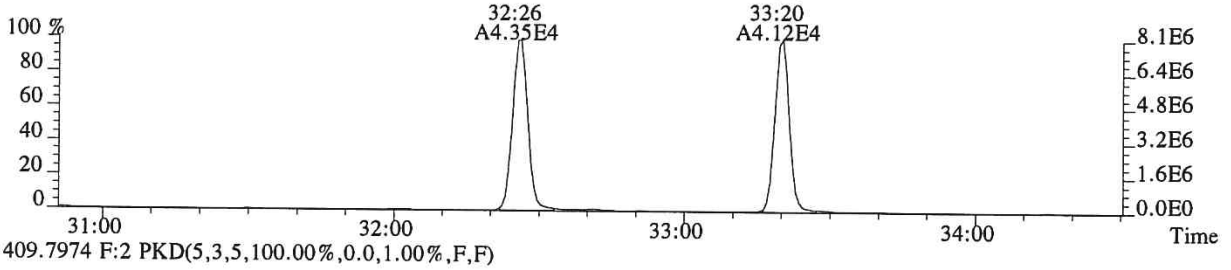
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2292.0,1.00%,F,T)



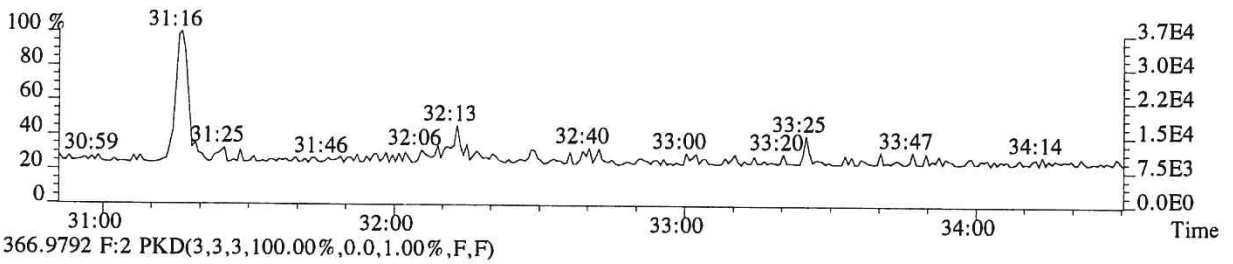
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8776.0,1.00%,F,T)



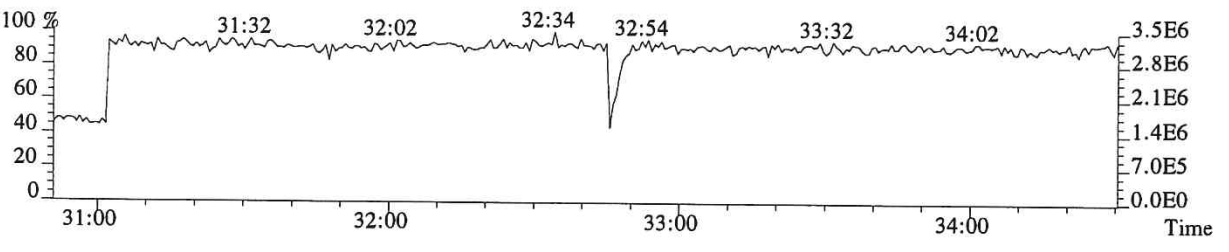
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7228.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

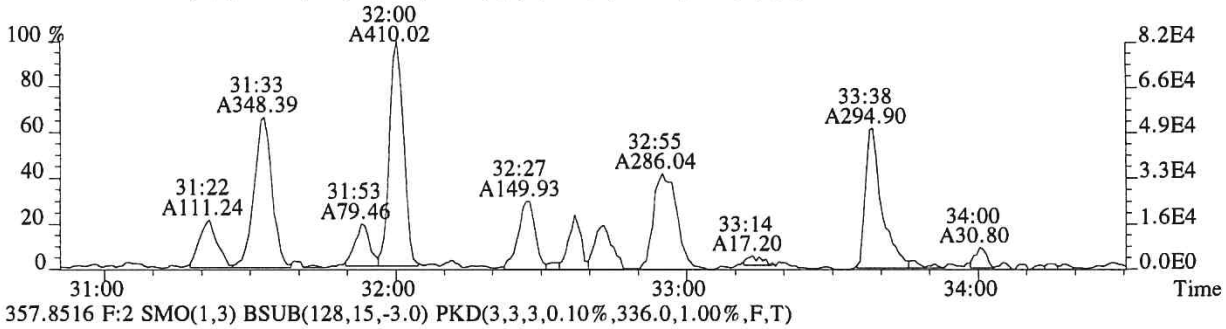


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

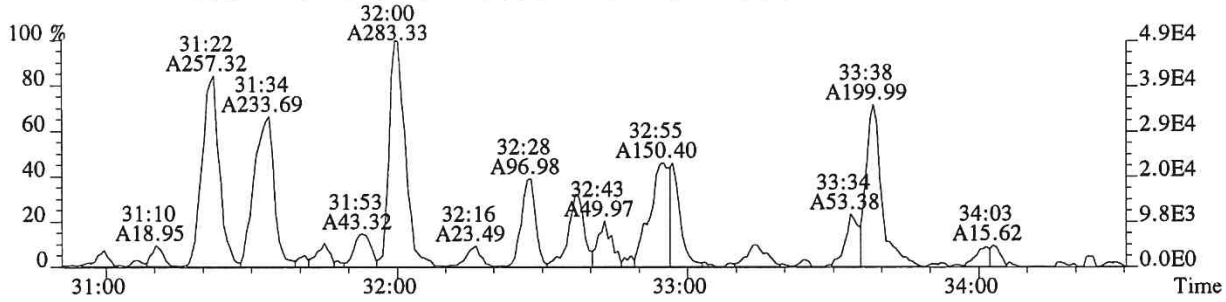


011056

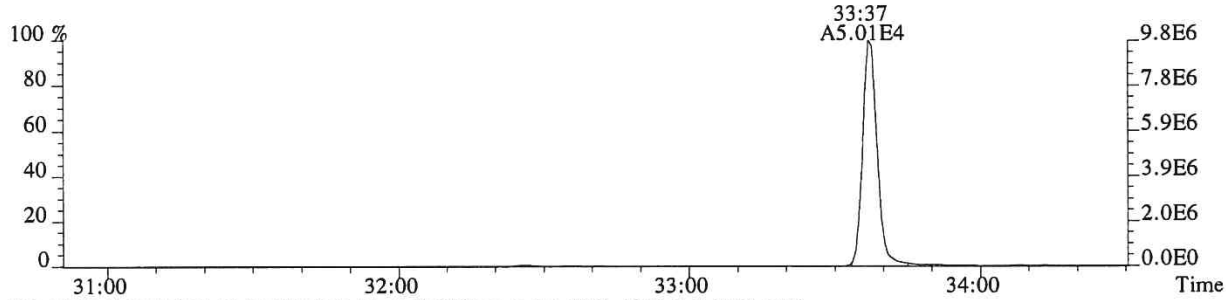
File:P519137 #1-330 Acq: 2-DEC-2018 09:25:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1384.0,1.00%,F,T)



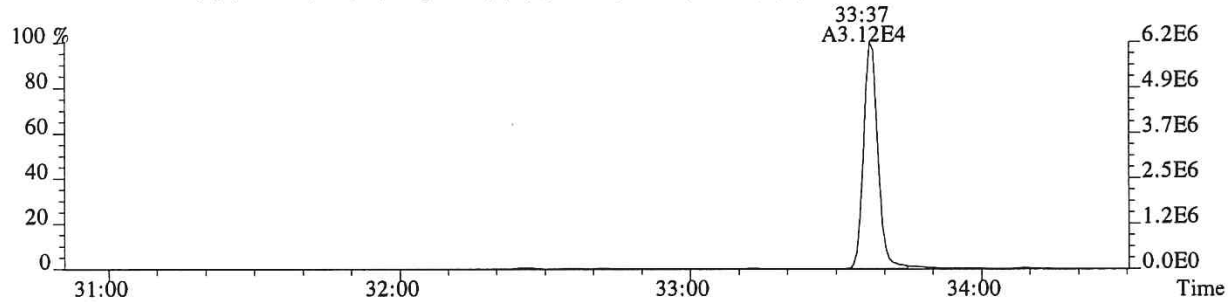
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



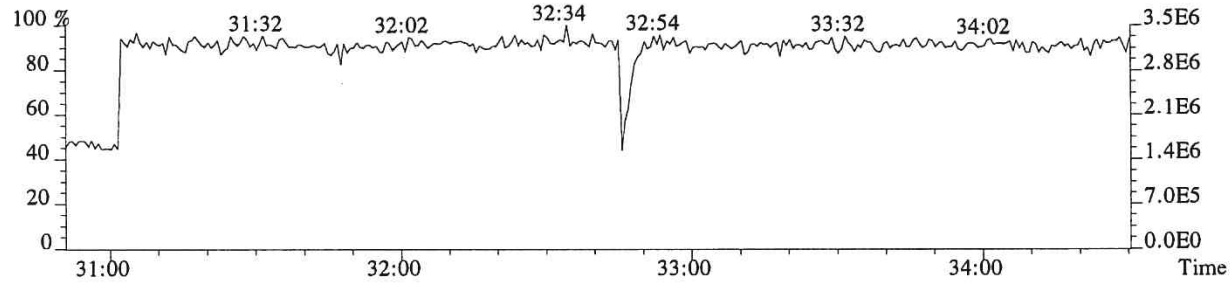
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



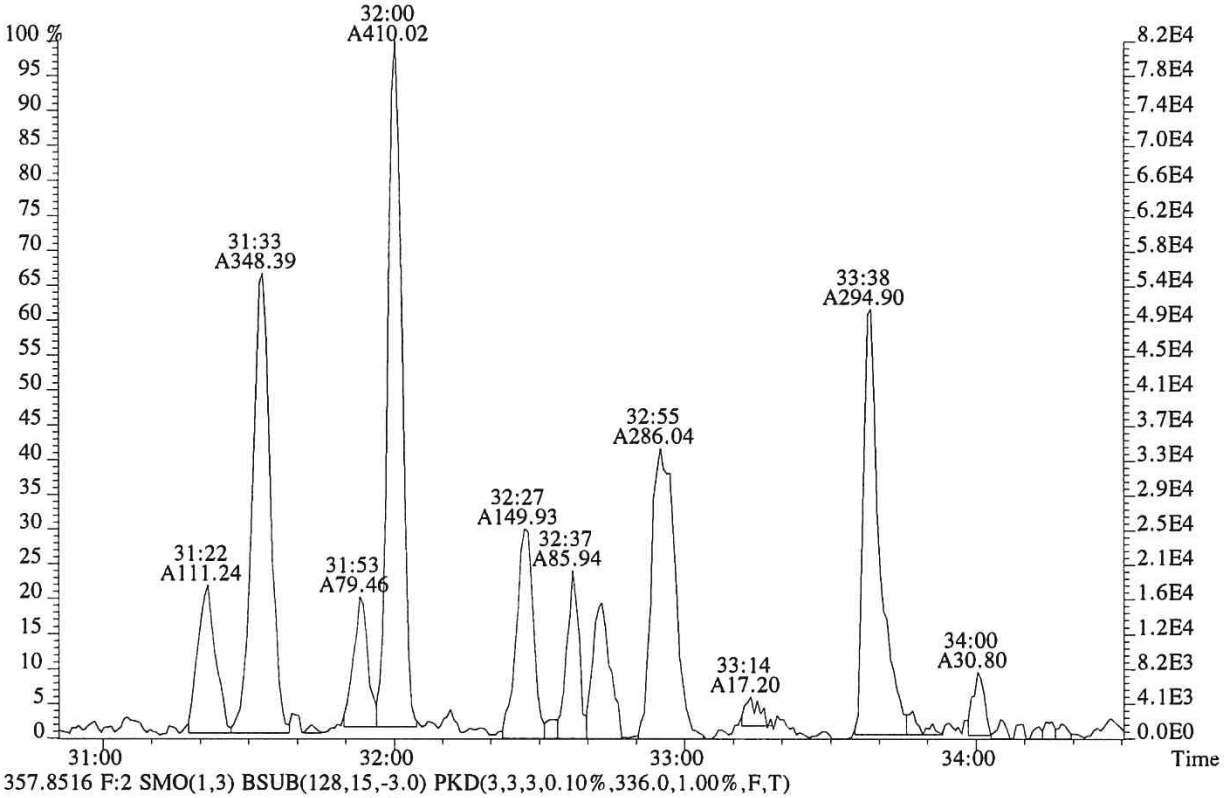
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



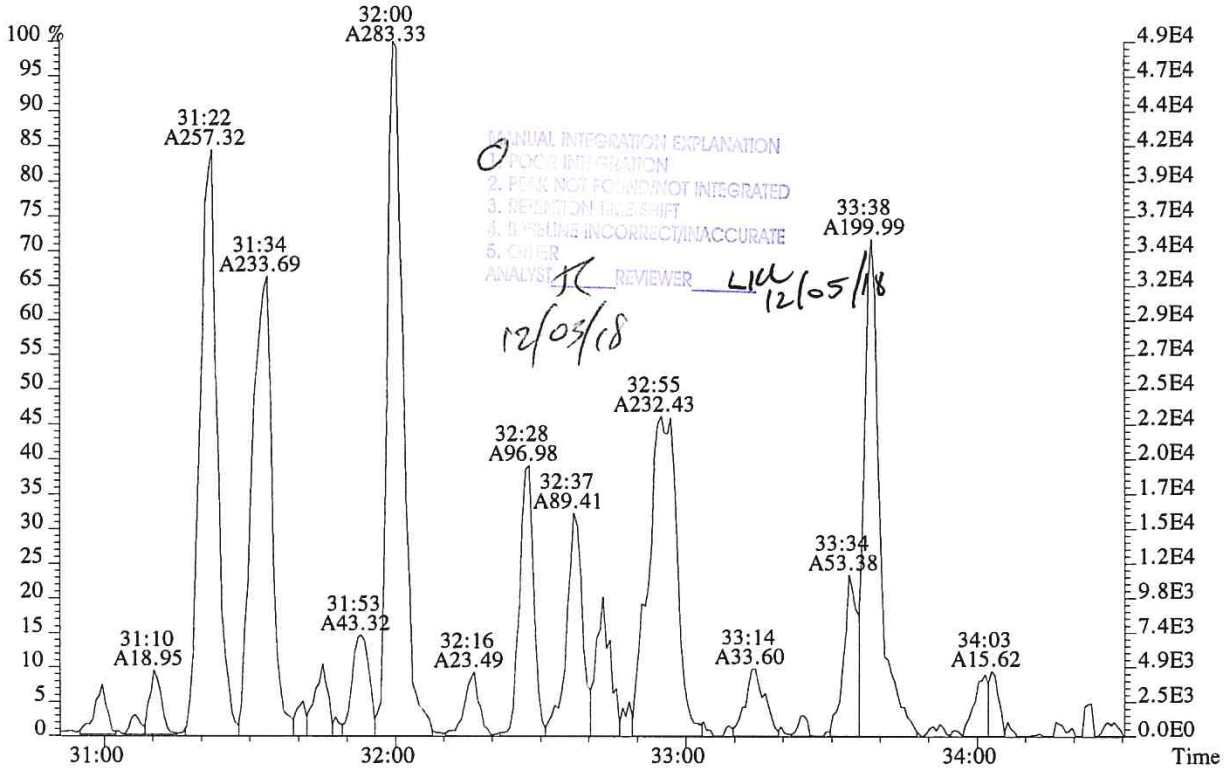
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



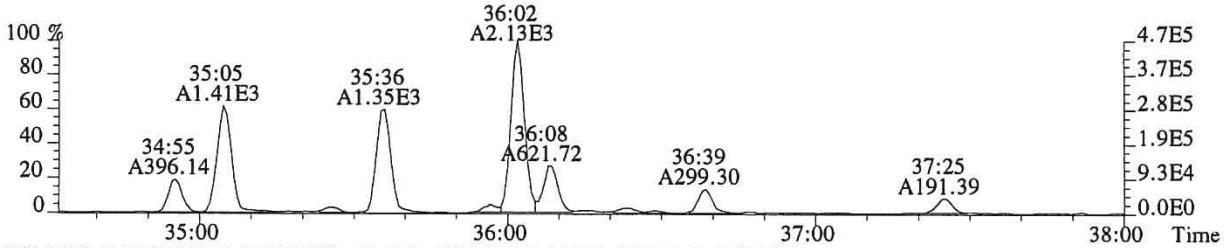
File:P519137 #1-330 Acq: 2-DEC-2018 09:25:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1384.0,1.00%,F,T)



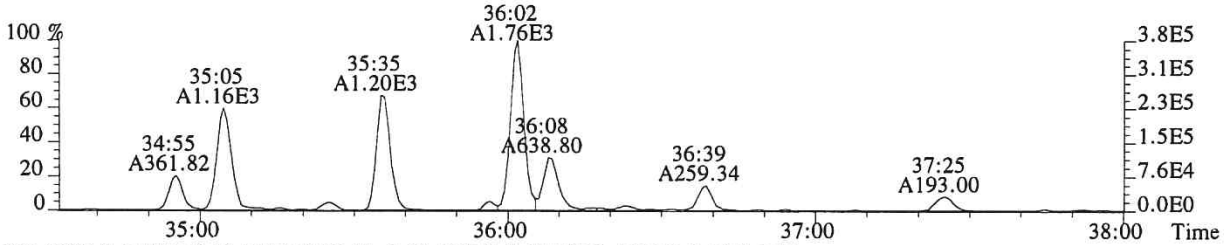
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



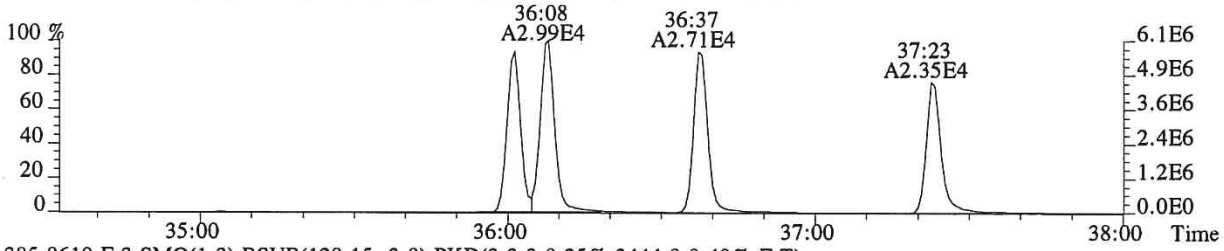
File:P519137 #1-312 Acq: 2-DEC-2018 09:25:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



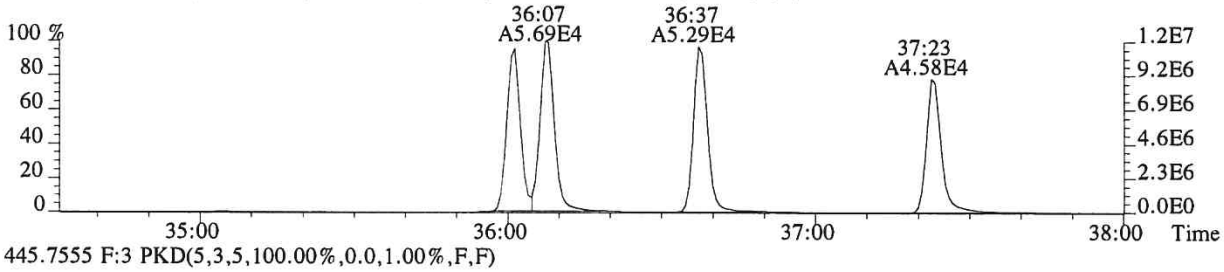
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



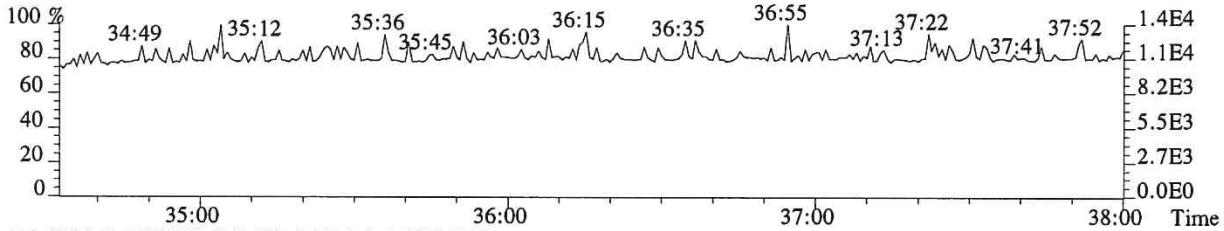
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1112.0,0.40%,F,T)



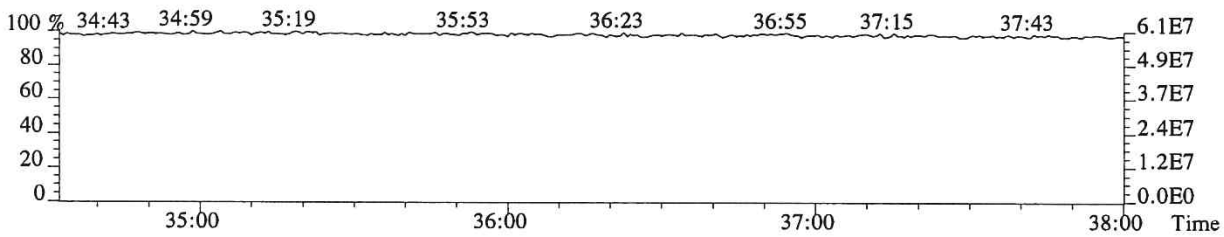
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3444.0,0.40%,F,T)



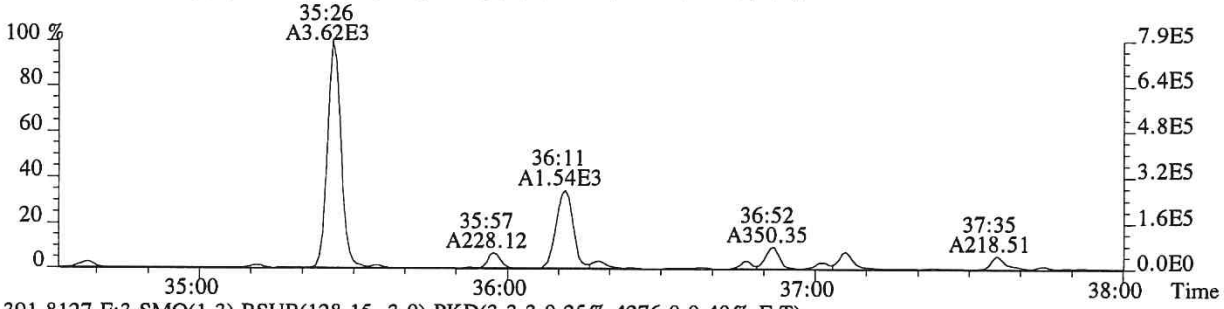
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



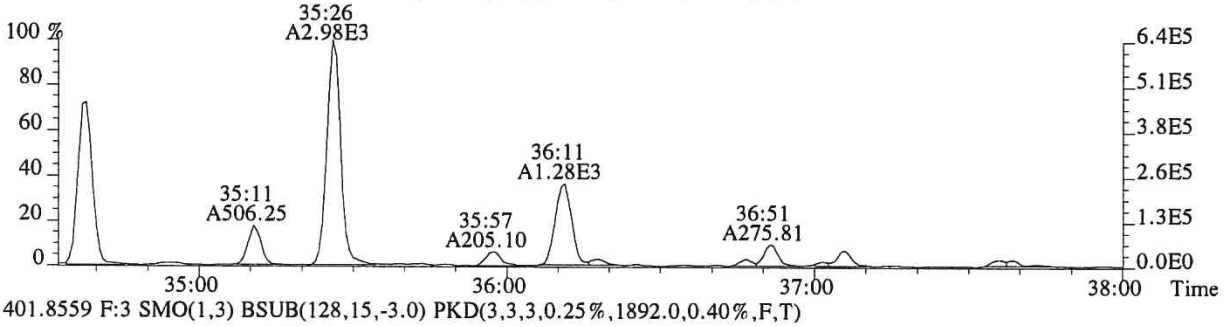
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



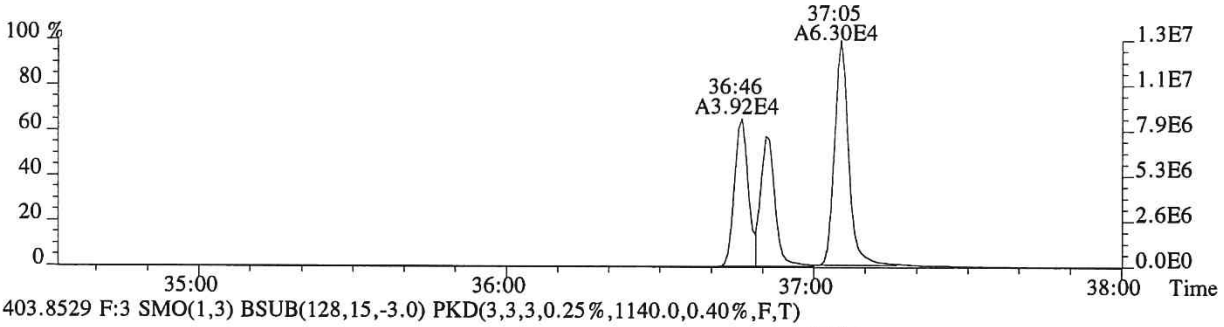
File:P519137 #1-312 Acq: 2-DEC-2018 09:25:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.40%,F,T)



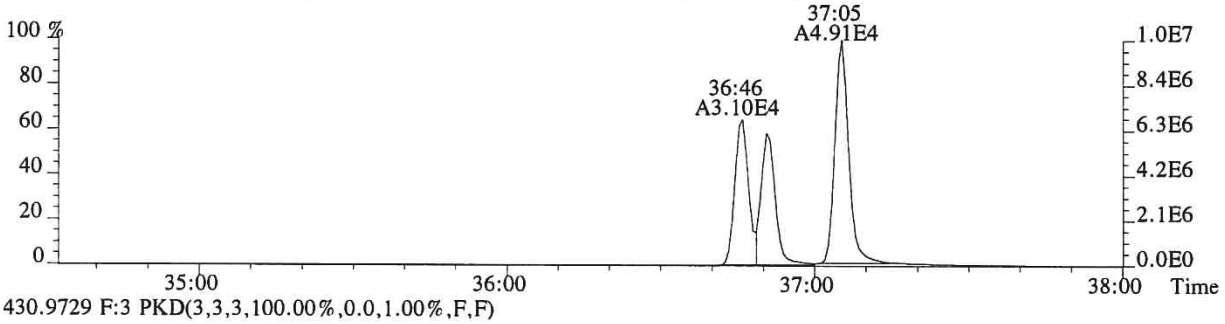
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4276.0,0.40%,F,T)



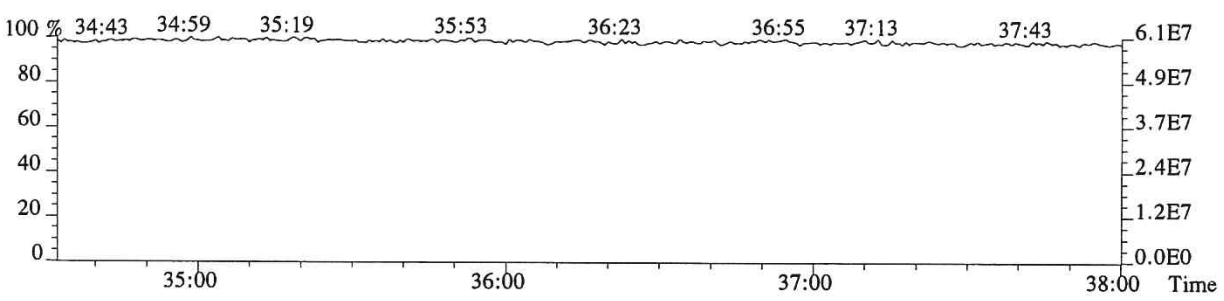
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1892.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)

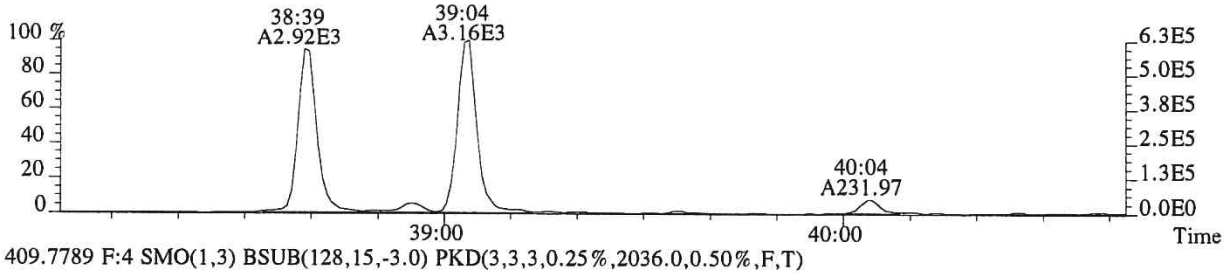


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

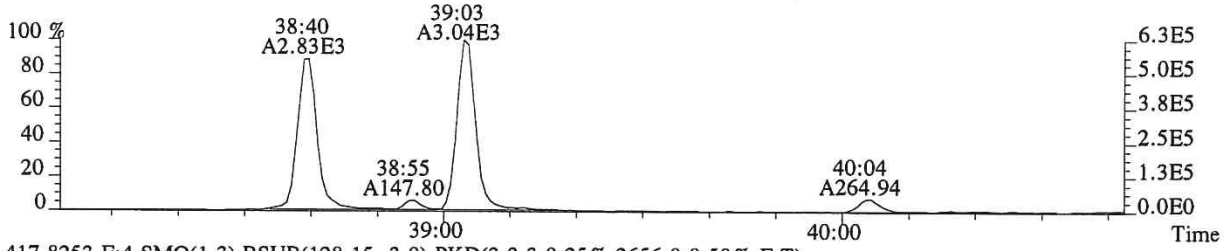


File:P519137 #1-241 Acq: 2-DEC-2018 09:25:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-006

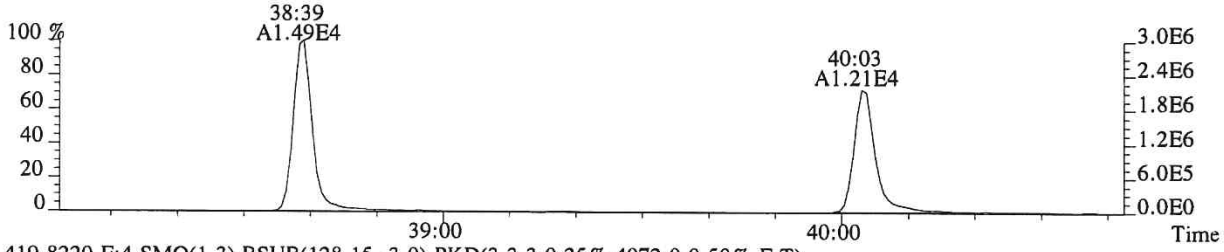
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1892.0,0.50%,F,T)



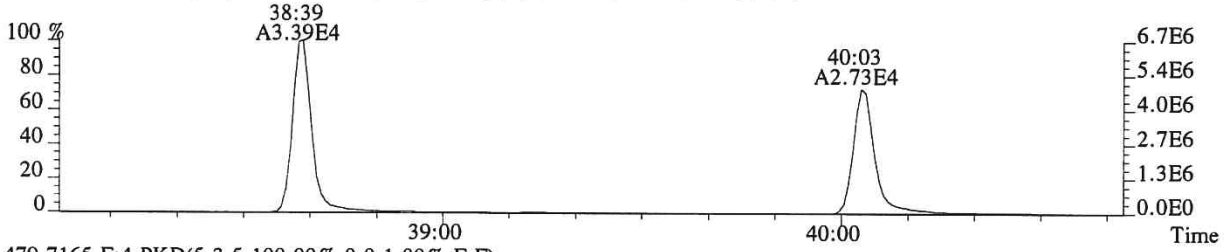
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2036.0,0.50%,F,T)



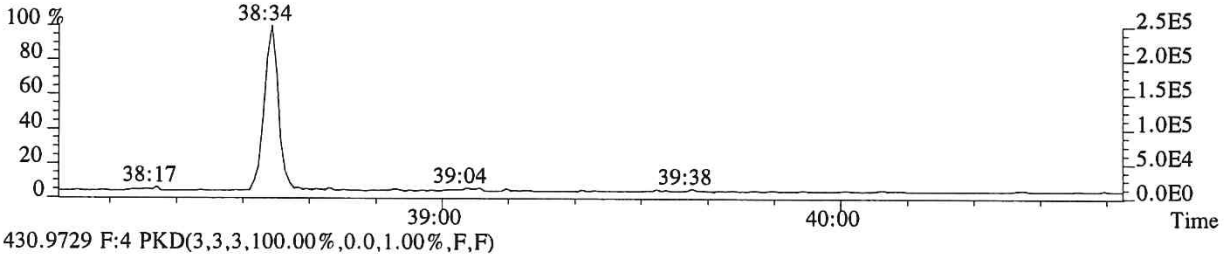
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.50%,F,T)



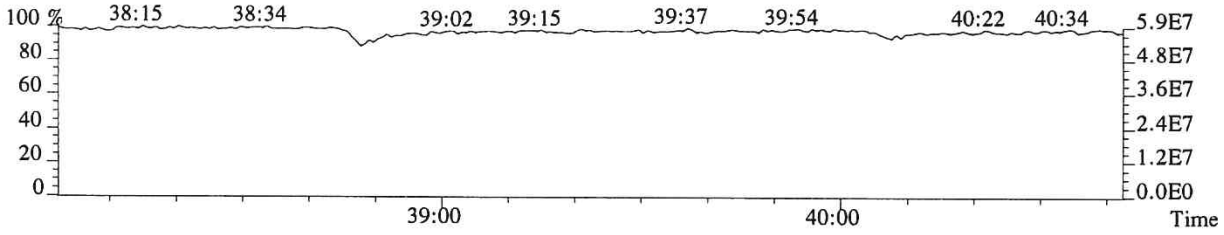
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4072.0,0.50%,F,T)



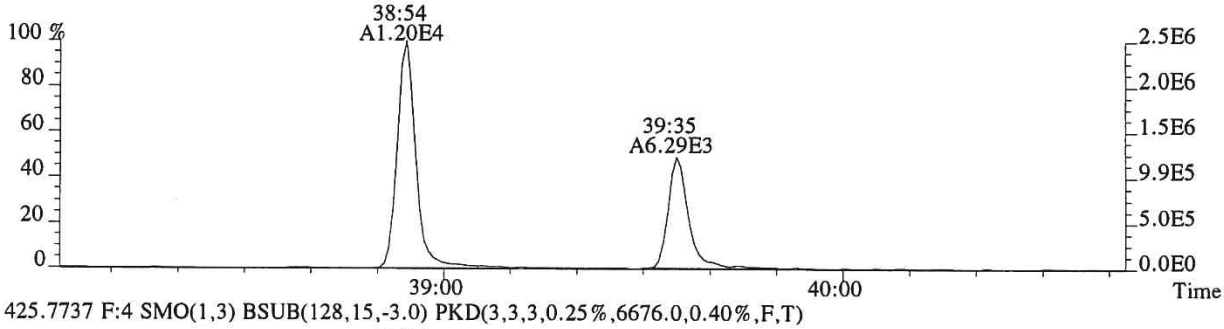
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



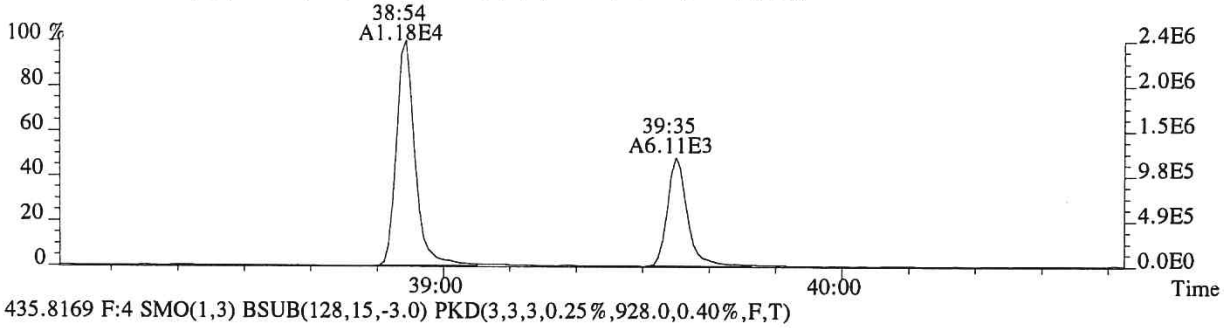
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



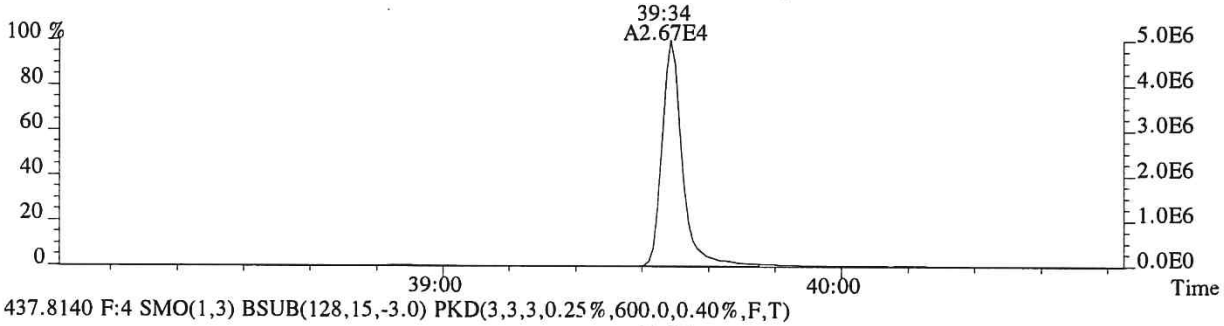
File:P519137 #1-241 Acq: 2-DEC-2018 09:25:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3200.0,0.40%,F,T)



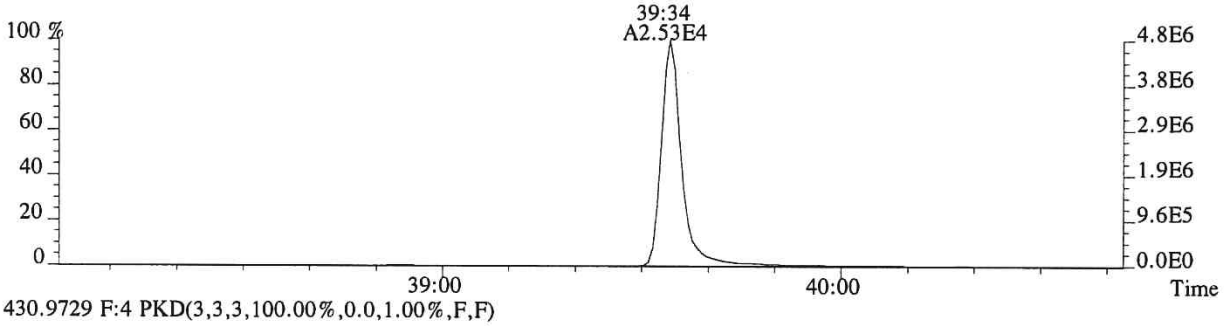
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6676.0,0.40%,F,T)



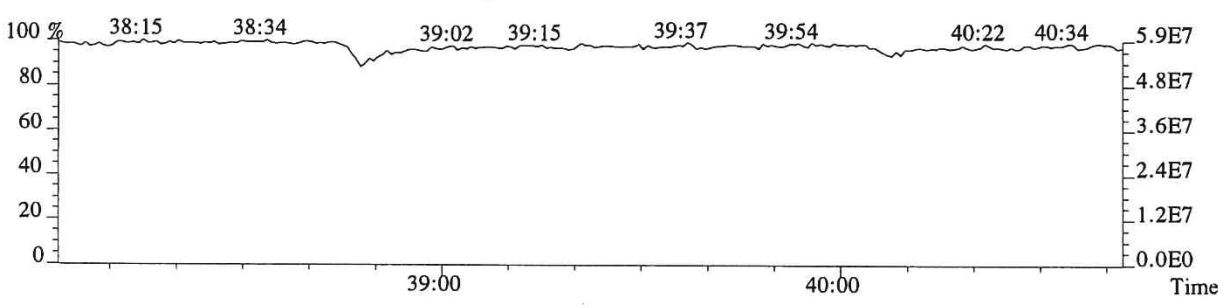
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



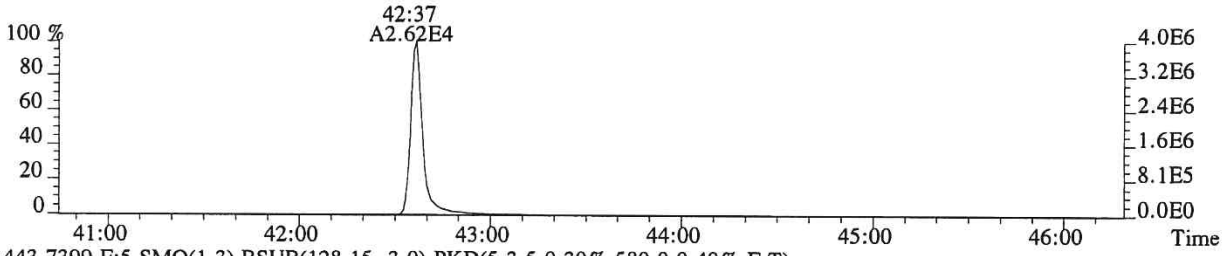
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



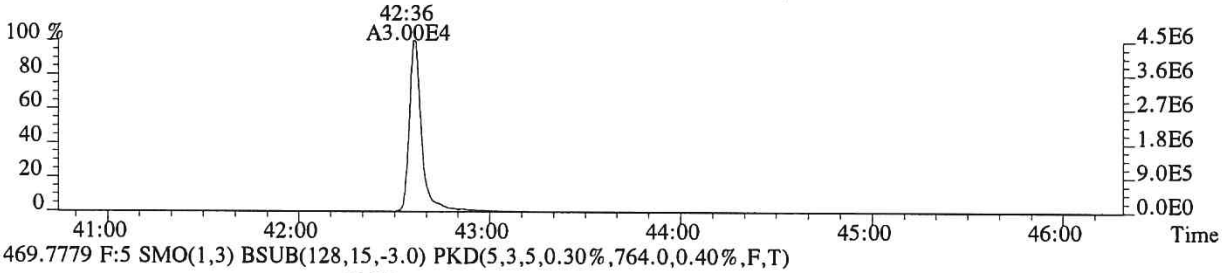
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



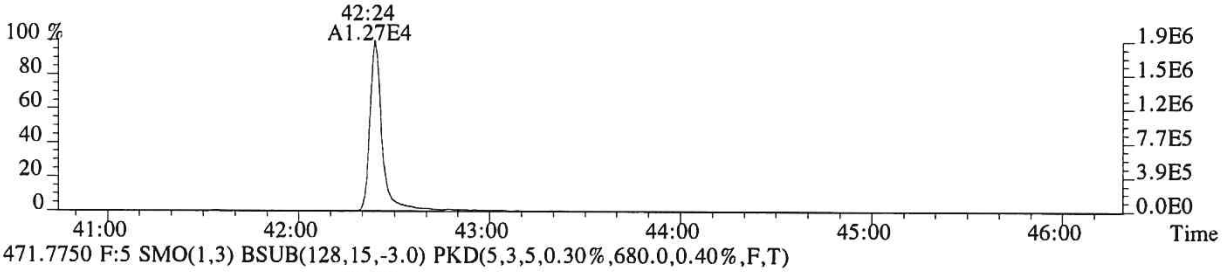
File:P519137 #1-502 Acq: 2-DEC-2018 09:25:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



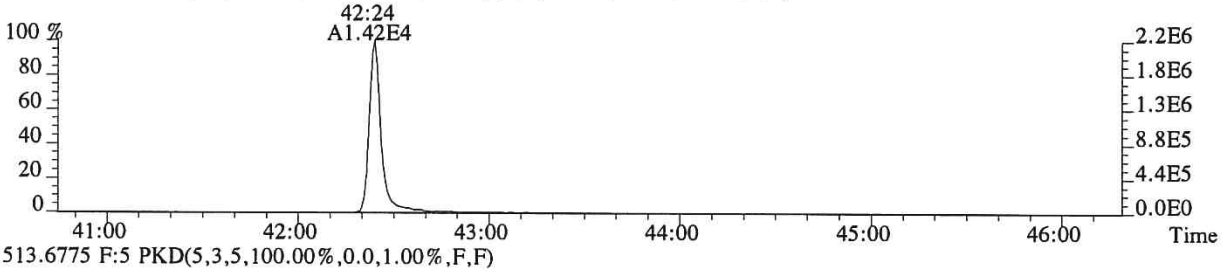
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



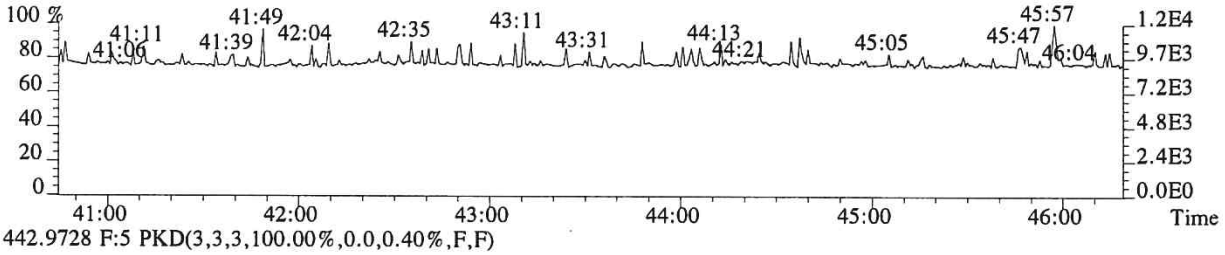
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,764.0,0.40%,F,T)



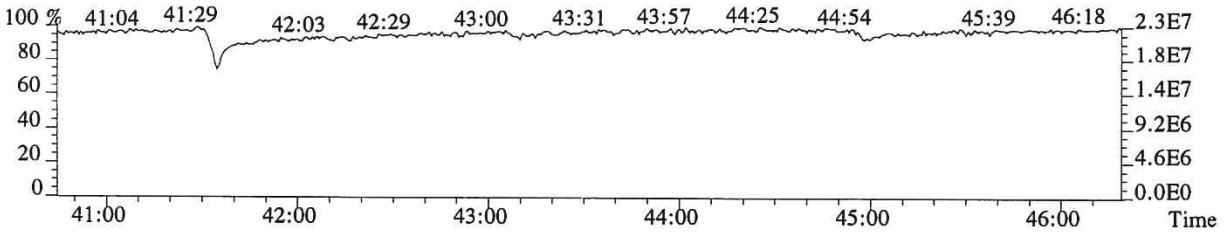
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

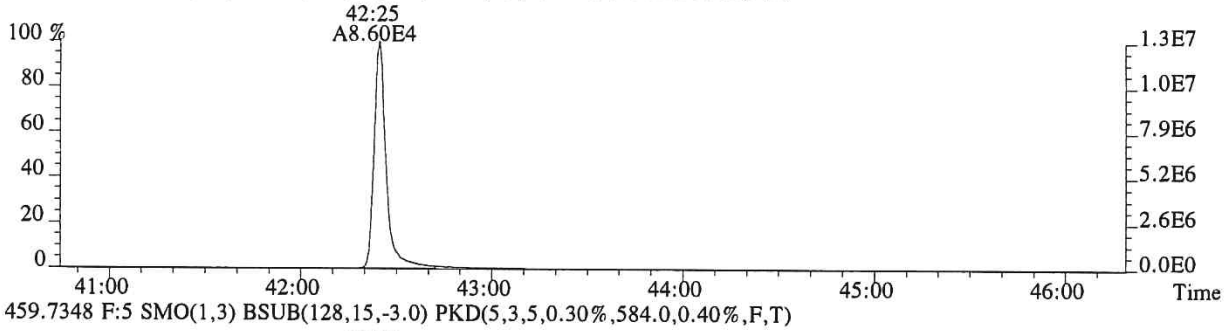


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

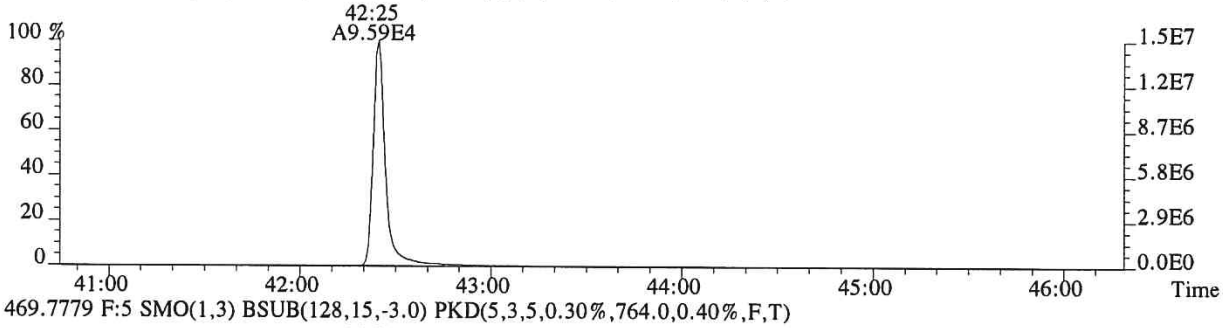


011063

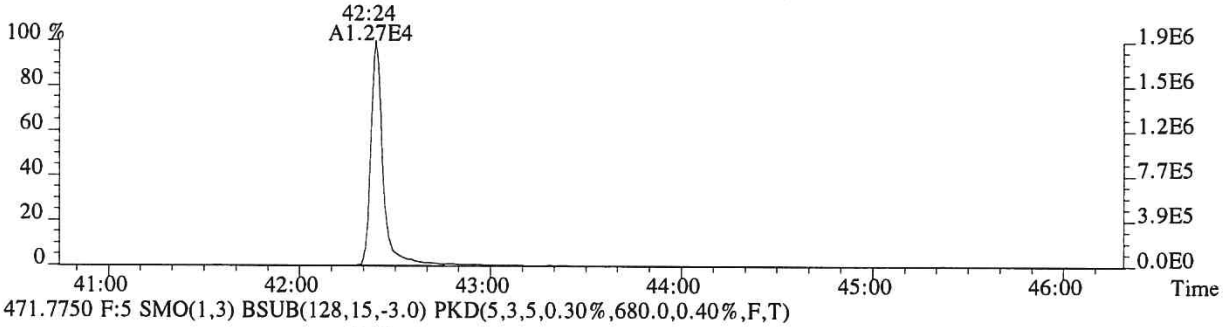
File:P519137 #1-502 Acq: 2-DEC-2018 09:25:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



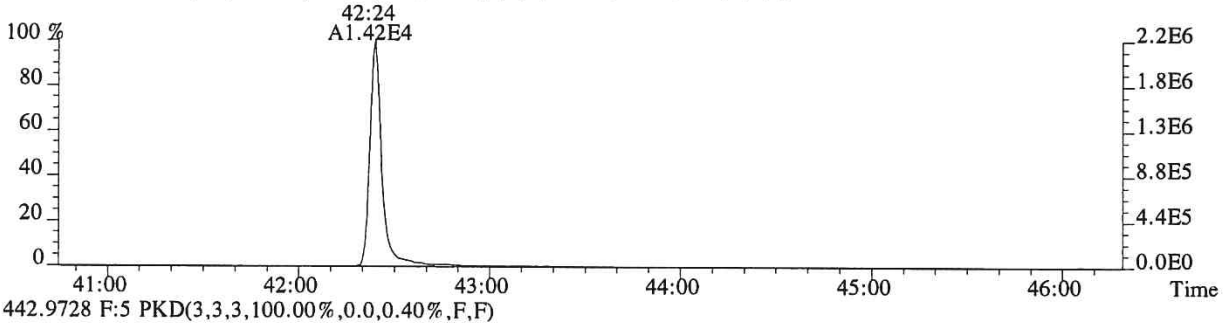
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



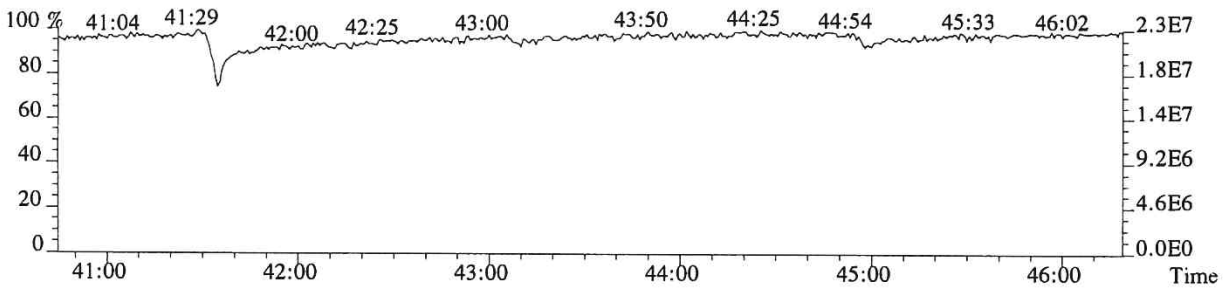
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,764.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011064

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0107

Run #13 Filename P519138 Samp: 1 Inj: 1 Acquired: 2-DEC-18 10:13:48
Processed: 3-DEC-18 17:43:02 Sample ID: E1801039-017

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	1.953e+03	2.628e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:26	1.447e+02	9.649e+01	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:22	2.783e+02	2.370e+02	1.17	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	3.751e+02	2.701e+02	1.39	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	1.284e+02	1.282e+02	1.00	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.229e+02	1.253e+02	0.98	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:25	1.410e+02	8.996e+01	1.57	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	1.498e+03	1.537e+03	0.97	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	1.088e+02	9.527e+01	1.14	yes	no	1.258
10	Unk	OCDF	42:37	6.289e+03	7.188e+03	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	4.561e+02	6.795e+02	0.67	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	7.420e+01	4.807e+01	1.54	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:46	1.533e+02	1.305e+02	1.17	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	3.268e+02	2.799e+02	1.17	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	2.424e+02	2.199e+02	1.10	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	8.081e+03	7.752e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:25	4.052e+04	4.599e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	4.436e+04	5.638e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	7.082e+04	4.494e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	6.651e+04	4.191e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	2.920e+04	5.727e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	3.313e+04	6.439e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	2.998e+04	5.852e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	2.655e+04	5.228e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.744e+04	3.908e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	1.351e+04	3.112e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:00	3.196e+04	4.034e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	5.129e+04	3.234e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	4.025e+04	3.120e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	4.074e+04	3.215e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	3.232e+04	3.060e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:24	1.941e+04	2.152e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	5.173e+04	6.544e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.754e+04	5.359e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	3.451e+04				no	1.014

$$\text{OCDD} = \frac{(4.052e+04 + 4.599e+04) \times 4000 \text{ pg} \times 1}{(1.941e+04 + 2.152e+04) \times 10.580 \text{ g} \times 79.2 / 100 \times 1.118} = 909.3 \text{ ng/kg}$$

LMK 12/05/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0107

Run #13 Filename P519138 Samp: 1 Inj: 1 Acquired: 2-DEC-18 10:13:48
Processed: 3-DEC-18 17:43:02 LAB. ID: E1801039-017

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.32e+05	7.84e+02	4.2e+02	4.81e+05	1.32e+03	3.6e+02
2	1,2,3,7,8-PeCDF	2.74e+04	6.96e+02	3.9e+01	1.90e+04	1.98e+03	9.6e+00
3	2,3,4,7,8-PeCDF	3.71e+04	6.96e+02	5.3e+01	2.99e+04	1.98e+03	1.5e+01
4	1,2,3,4,7,8-HxCDF	7.60e+04	2.76e+03	2.8e+01	5.82e+04	2.61e+03	2.2e+01
5	1,2,3,6,7,8-HxCDF	2.87e+04	2.76e+03	1.0e+01	2.45e+04	2.61e+03	9.4e+00
6	2,3,4,6,7,8-HxCDF	2.82e+04	2.76e+03	1.0e+01	2.46e+04	2.61e+03	9.4e+00
7	1,2,3,7,8,9-HxCDF	2.73e+04	2.76e+03	9.9e+00	1.75e+04	2.61e+03	6.7e+00
8	1,2,3,4,6,7,8-HpCDF	3.26e+05	3.70e+03	8.8e+01	3.35e+05	7.80e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+04	3.70e+03	6.3e+00	1.79e+04	7.80e+02	2.3e+01
10	OCDF	9.89e+05	3.48e+02	2.8e+03	1.11e+06	1.11e+03	1.0e+03
11	2,3,7,8-TCDD	8.98e+04	2.16e+03	4.2e+01	1.37e+05	1.50e+03	9.1e+01
12	1,2,3,7,8-PeCDD	1.31e+04	1.38e+03	9.5e+00	9.85e+03	6.80e+02	1.4e+01
13	1,2,3,4,7,8-HxCDD	3.32e+04	1.60e+03	2.1e+01	2.73e+04	2.21e+03	1.2e+01
14	1,2,3,6,7,8-HxCDD	6.96e+04	1.60e+03	4.3e+01	5.41e+04	2.21e+03	2.4e+01
15	1,2,3,7,8,9-HxCDD	4.78e+04	1.60e+03	3.0e+01	4.77e+04	2.21e+03	2.2e+01
16	1,2,3,4,6,7,8-HpCDD	1.57e+06	3.84e+02	4.1e+03	1.57e+06	5.60e+03	2.8e+02
17	OCDD	6.31e+06	6.32e+02	1.0e+04	7.04e+06	8.88e+02	7.9e+03
18	13C-2,3,7,8-TCDF	8.30e+06	6.41e+03	1.3e+03	1.05e+07	4.25e+03	2.5e+03
19	13C-1,2,3,7,8-PeCDF	1.34e+07	9.28e+02	1.4e+04	8.62e+06	1.00e+03	8.6e+03
20	13C-2,3,4,7,8-PeCDF	1.28e+07	9.28e+02	1.4e+04	8.16e+06	1.00e+03	8.2e+03
21	13C-1,2,3,4,7,8-HxCDF	6.17e+06	1.19e+03	5.2e+03	1.21e+07	1.66e+03	7.3e+03
22	13C-1,2,3,6,7,8-HxCDF	6.65e+06	1.19e+03	5.6e+03	1.30e+07	1.66e+03	7.8e+03
23	13C-2,3,4,6,7,8-HxCDF	6.42e+06	1.19e+03	5.4e+03	1.26e+07	1.66e+03	7.5e+03
24	13C-1,2,3,7,8,9-HxCDF	5.31e+06	1.19e+03	4.5e+03	1.07e+07	1.66e+03	6.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.55e+06	2.48e+03	1.4e+03	7.96e+06	8.43e+03	9.4e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.49e+06	2.48e+03	1.0e+03	5.81e+06	8.43e+03	6.9e+02
27	13C-2,3,7,8-TCDD	6.18e+06	6.18e+03	1.0e+03	7.87e+06	2.92e+03	2.7e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.10e+03	9.2e+03	6.49e+06	9.44e+02	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	9.04e+06	1.64e+03	5.5e+03	6.97e+06	7.76e+02	9.0e+03
30	13C-1,2,3,6,7,8-HxCDD	8.23e+06	1.64e+03	5.0e+03	6.55e+06	7.76e+02	8.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.27e+06	1.11e+03	5.7e+03	6.00e+06	4.76e+02	1.3e+04
32	13C-OCDD	2.98e+06	7.52e+02	4.0e+03	3.34e+06	2.16e+02	1.5e+04
33	13C-1,2,3,4-TCDD	1.00e+07	6.18e+03	1.6e+03	1.25e+07	2.92e+03	4.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.41e+07	1.64e+03	8.6e+03	1.12e+07	7.76e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	6.68e+06	1.73e+03	3.9e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.160e{+}03 + 1.500e{+}03) \times 2000}{(6.178e{+}06 + 7.869e{+}06) \times (\qquad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0107

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P519138 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 10:13:48 Processed: 3-DEC-18 17:43:02

Mass: 303.9020 305.8990 Tot Response: 7.64e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:32	1.59e+01	2.04e+01	0.78	yes	3.63e+01		n	n
2	25:38	1.08e+02	1.44e+02	0.75	yes	2.52e+02		n	n
3	26:02	5.53e+01	7.61e+01	0.73	yes	1.31e+02		n	n
4	26:19	1.01e+02	1.29e+02	0.78	yes	2.30e+02		n	n
5	26:54	1.02e+02	1.46e+02	0.70	yes	2.48e+02		n	n
6	27:02	9.95e+01	1.23e+02	0.81	yes	2.22e+02		n	n
7	27:27	6.19e+02	7.97e+02	0.78	yes	1.42e+03		n	n
8	28:15	1.95e+03	2.63e+03	0.74	yes	4.58e+03	2,3,7,8-TCDF	n	n
9	28:35	2.30e+02	2.97e+02	0.78	yes	5.27e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0107

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P519138 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 10:13:48 Processed: 3-DEC-18 17:43:02

Mass: 319.8970 321.8940 Tot Response: 2.00e+03 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:09	3.79e+02	4.90e+02 0.77	yes	8.69e+02		n	n
2	29:02	4.56e+02	6.80e+02 0.67	yes	1.14e+03	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0107

Entry: 38 Totals Name: Total Penta-Furans1

Run: 13 File: P519138 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 10:13:48 Processed: 3-DEC-18 17:43:02

Mass: 339.8600 341.8570 Tot Response: 8.53e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:03	5.15e+02	3.39e+02 1.52	yes	8.53e+02		n	n

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Peak List Summary

CLIENT ID.
SL0107

Entry: 39 Totals Name: Total Penta-Furans2

Run: 13 File: P519138 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 10:13:48 Processed: 3-DEC-18 17:43:02

Mass: 339.8600 341.8570 Tot Response: 4.68e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:26	1.45e+02	1.50	yes	2.41e+02	1,2,3,7,8-PeCDF	n	n
2	32:42	1.36e+02	1.49	yes	2.27e+02		n	n

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Peak List Summary

CLIENT ID.
SL0107

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P519138 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 10:13:48 Processed: 3-DEC-18 17:43:02

Mass: 355.8550 357.8520 Tot Response: 9.56e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:00	3.40e+02	2.26e+02	1.50	yes	5.66e+02		n	n
2	32:36	8.03e+01	5.59e+01	1.44	yes	1.36e+02		n	n
3	32:42	4.59e+01	2.90e+01	1.58	yes	7.50e+01		n	n
4	33:38	7.42e+01	4.81e+01	1.54	yes	1.22e+02	1,2,3,7,8-PeCDD	n	n
5	34:00	3.41e+01	2.28e+01	1.50	yes	5.69e+01		n	n

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Peak List Summary

CLIENT ID.
SL0107

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P519138 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 10:13:48 Processed: 3-DEC-18 17:43:02

Mass: 373.8210 375.8180 Tot Response: 5.82e+03 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:55	3.52e+02	3.23e+02 1.09	yes	6.75e+02		n	n
2	35:05	9.84e+02	8.48e+02 1.16	yes	1.83e+03		n	n
3	35:36	1.42e+03	1.20e+03 1.18	yes	2.61e+03		n	n
4	36:02	3.75e+02	2.70e+02 1.39	yes	6.45e+02	1,2,3,4,7,8-HxCDF	n	n
5	36:23	2.92e+01	2.52e+01 1.16	yes	5.45e+01		n	n

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Peak List Summary

CLIENT ID.
SL0107

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P519138 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 10:13:48 Processed: 3-DEC-18 17:43:02

Mass: 389.8160 391.8130 Tot Response: 1.17e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	3.54e+03	2.75e+03	1.29	yes	6.29e+03		n	n
2	35:57	2.16e+02	1.93e+02	1.12	yes	4.09e+02		n	n
3	36:11	1.70e+03	1.37e+03	1.24	yes	3.07e+03		n	n
4	36:17	3.25e+02	2.91e+02	1.12	yes	6.16e+02		n	n
5	36:46	1.53e+02	1.31e+02	1.17	yes	2.84e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:52	3.27e+02	2.80e+02	1.17	yes	6.07e+02	1,2,3,6,7,8-HxCDD	n	n
7	37:06	2.42e+02	2.20e+02	1.10	yes	4.62e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0107

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P519138 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 10:13:48 Processed: 3-DEC-18 17:43:02

Mass: 407.7820 409.7790 Tot Response: 7.63e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:39	1.50e+03	1.54e+03 0.97	yes	3.03e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:54	6.62e+01	6.12e+01 1.08	yes	1.27e+02		n	n
3	39:03	2.12e+03	2.15e+03 0.99	yes	4.26e+03		n	n
4	40:04	1.09e+02	9.53e+01 1.14	yes	2.04e+02	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0107

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P519138 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 10:13:48 Processed: 3-DEC-18 17:43:02

Mass: 423.7770 425.7740 Tot Response: 6.57e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	2.51e+04	2.47e+04 1.01	yes	4.98e+04		n	n
2	39:35	8.08e+03	7.75e+03 1.04	yes	1.58e+04	1,2,3,4,6,7,8-HpCDD	n	n

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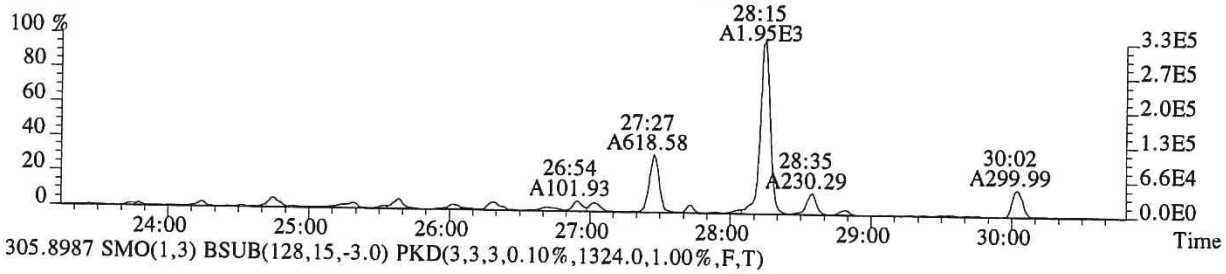
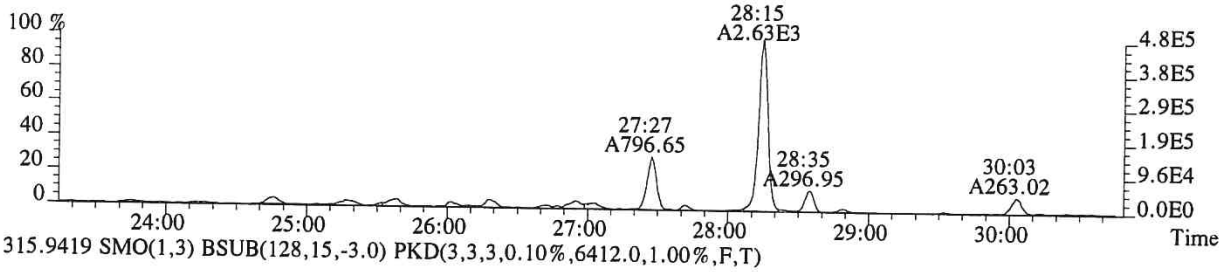
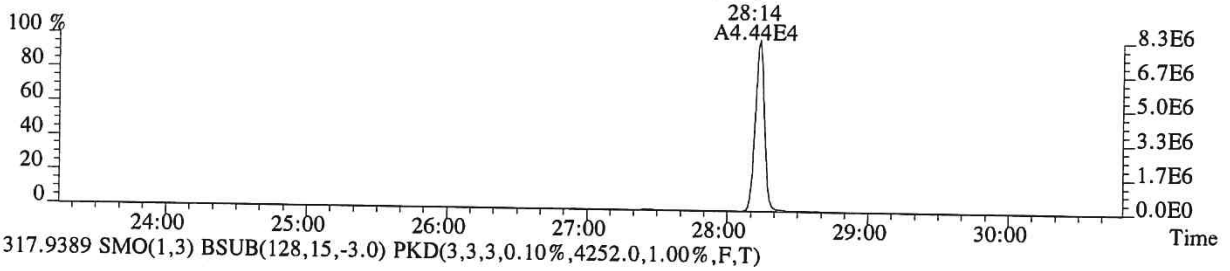
File:P519138 #1-538 Acq: 2-DEC-2018 10:13:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-017
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



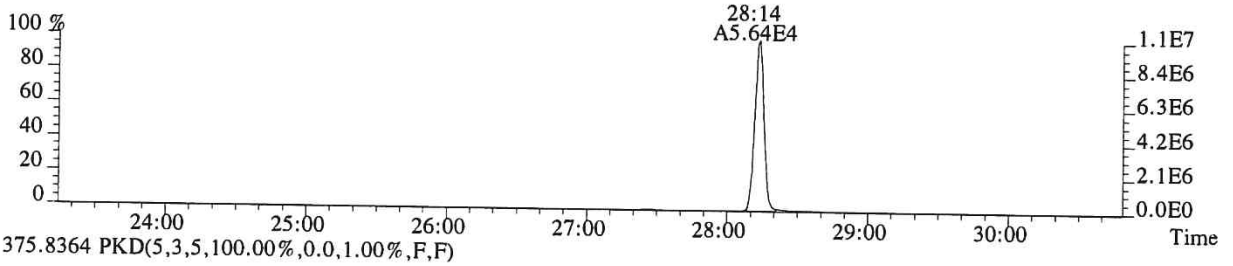
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



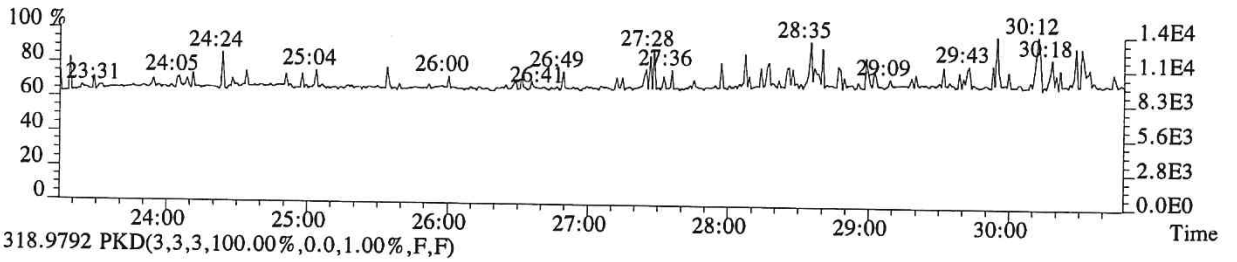
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6412.0,1.00%,F,T)



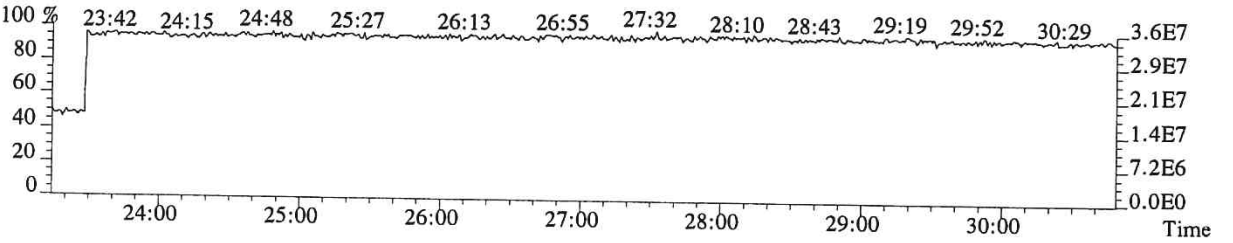
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

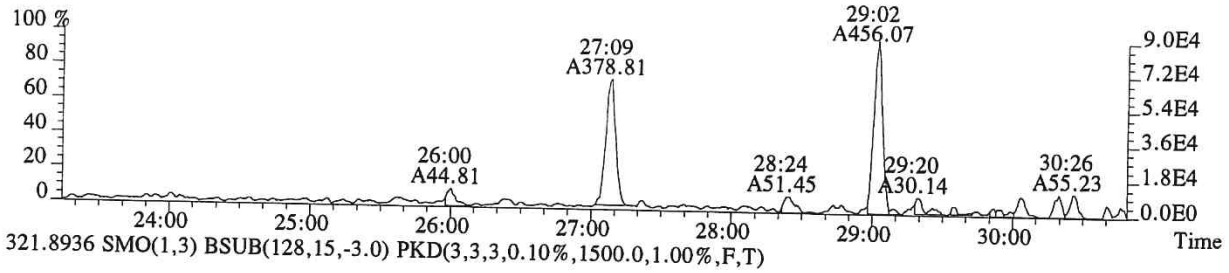


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

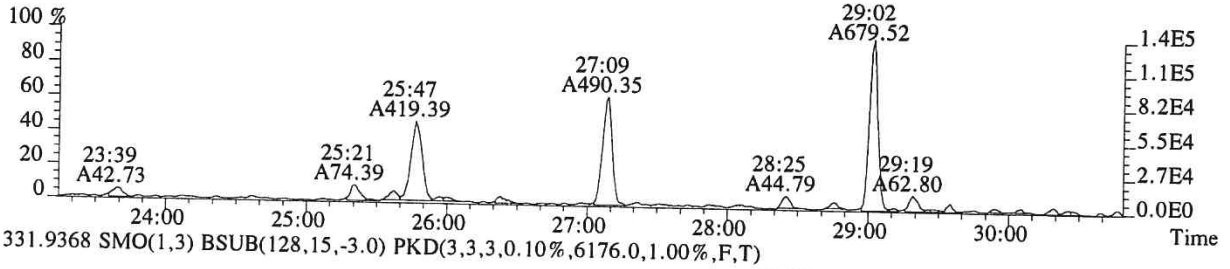


File:P519138 #1-538 Acq: 2-DEC-2018 10:13:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-017

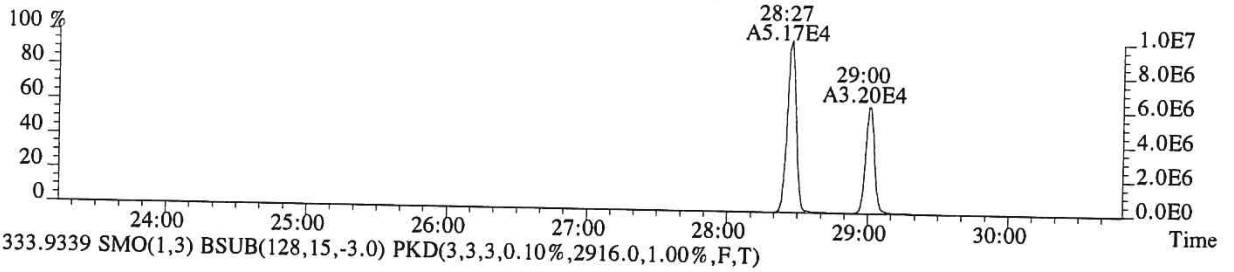
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



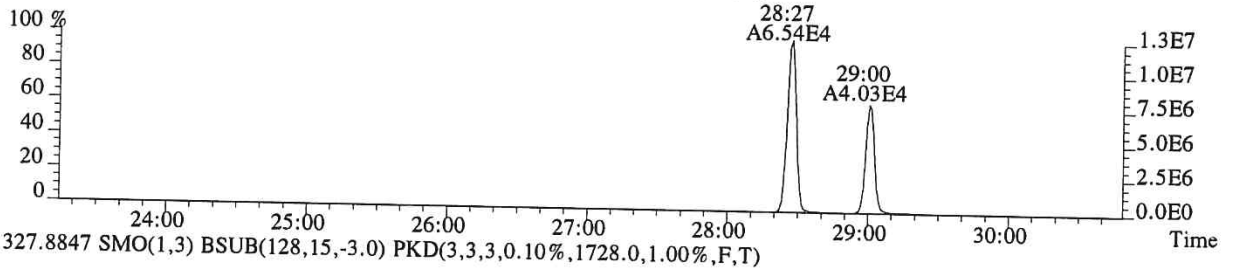
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)



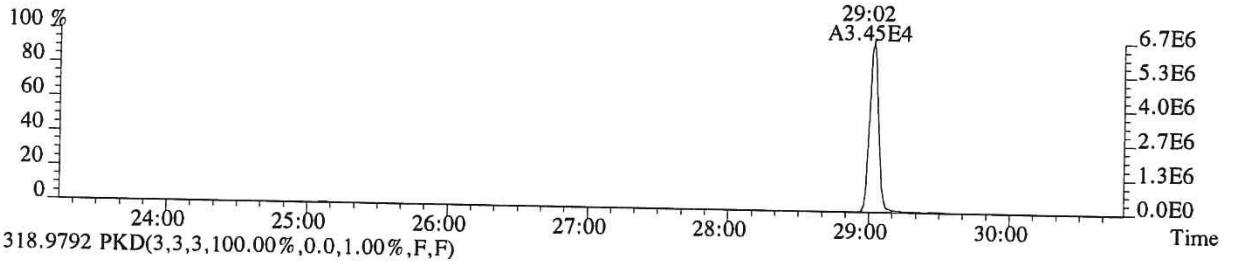
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6176.0,1.00%,F,T)



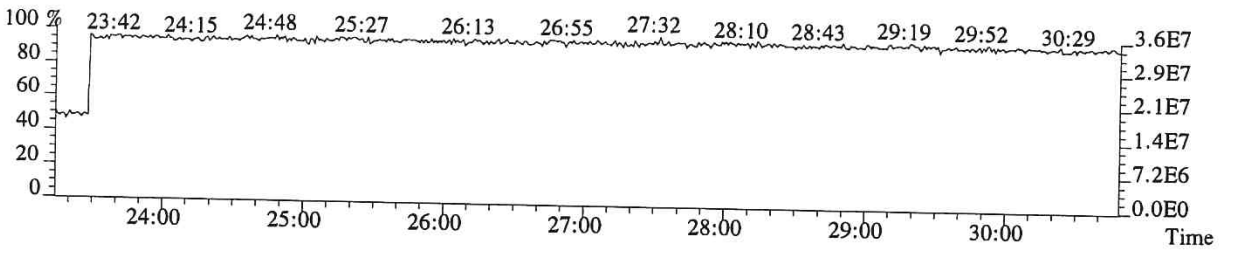
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2916.0,1.00%,F,T)



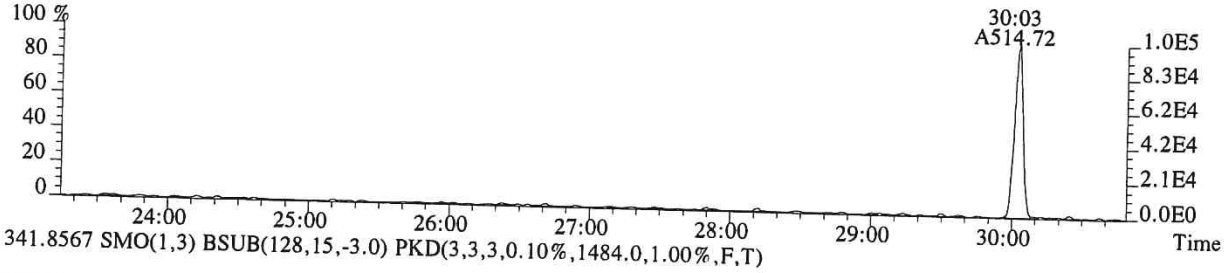
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



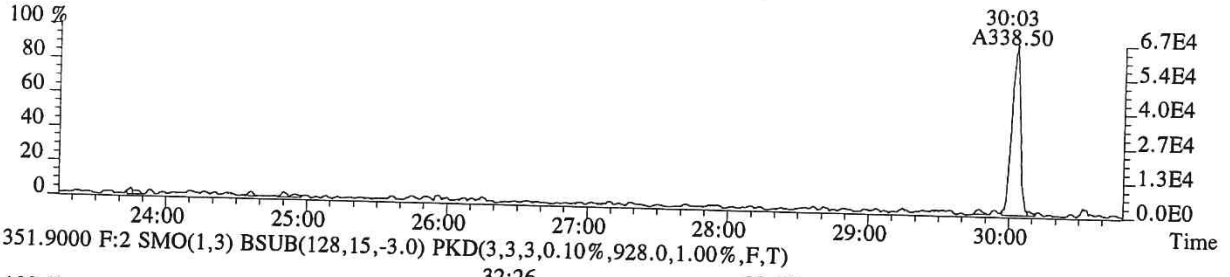
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



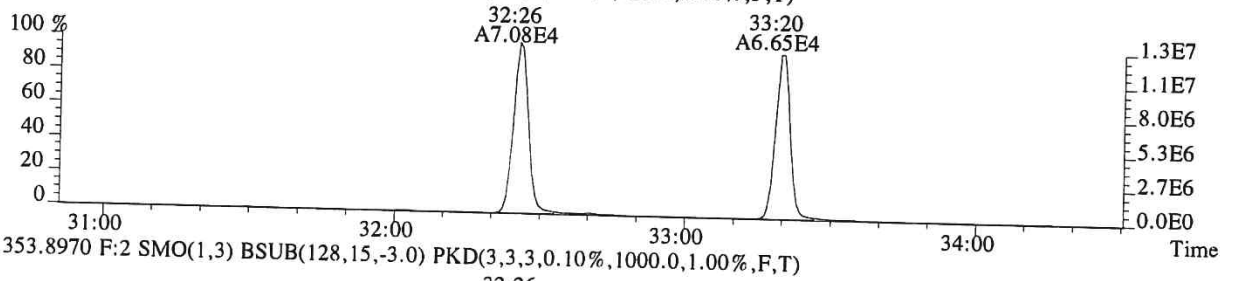
File:P519138 #1-538 Acq: 2-DEC-2018 10:13:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-017
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



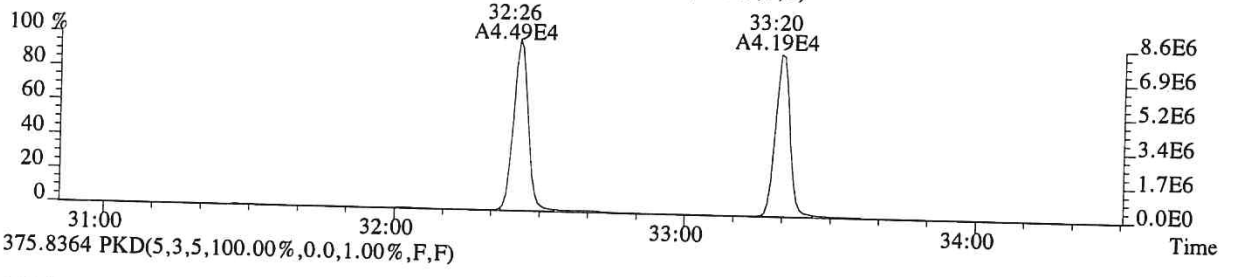
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1484.0,1.00%,F,T)



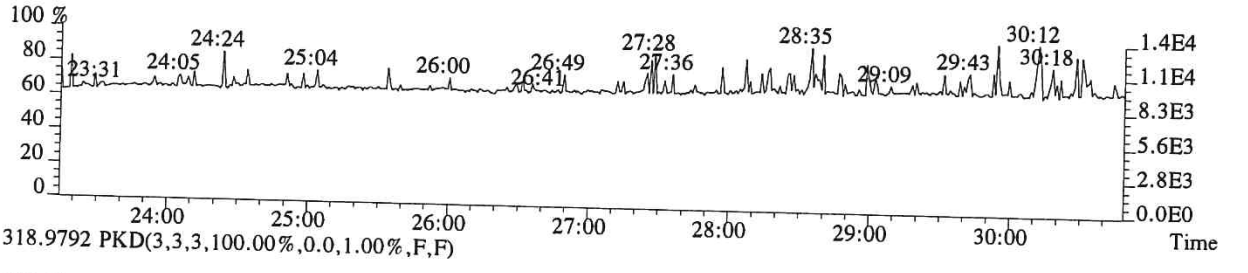
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



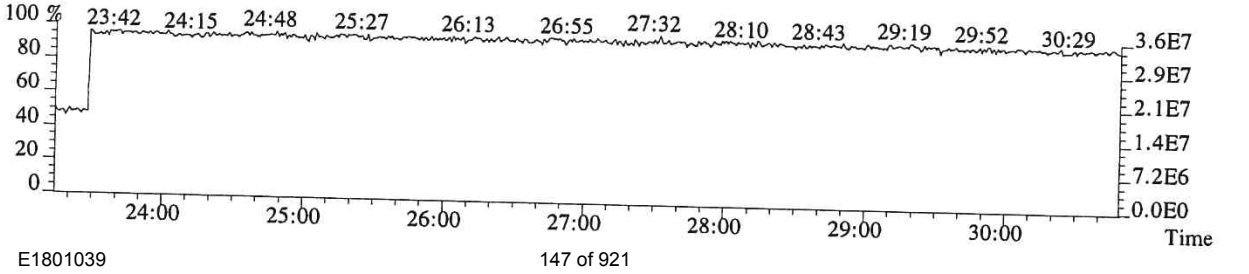
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

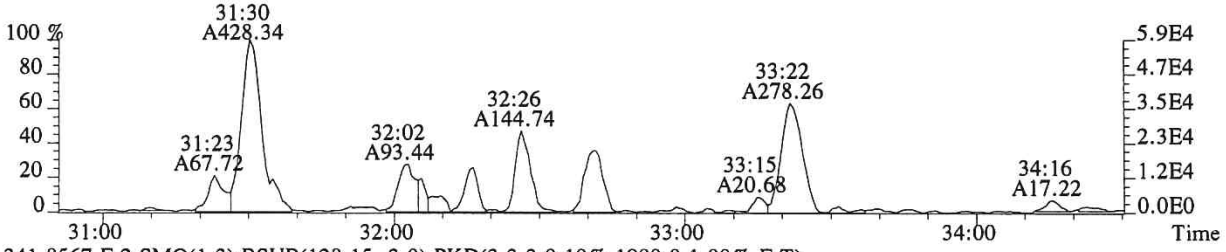


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

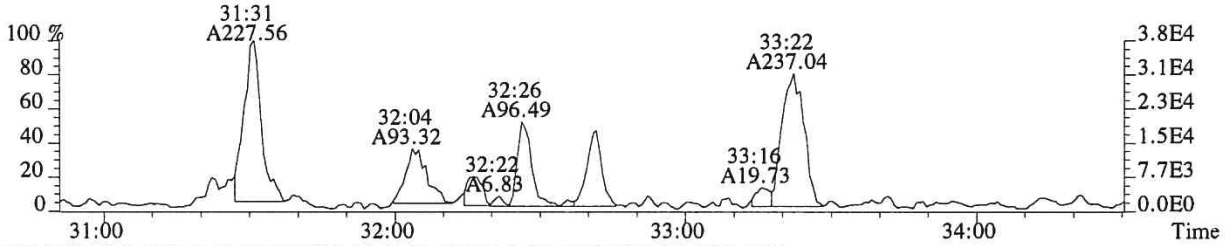


011078

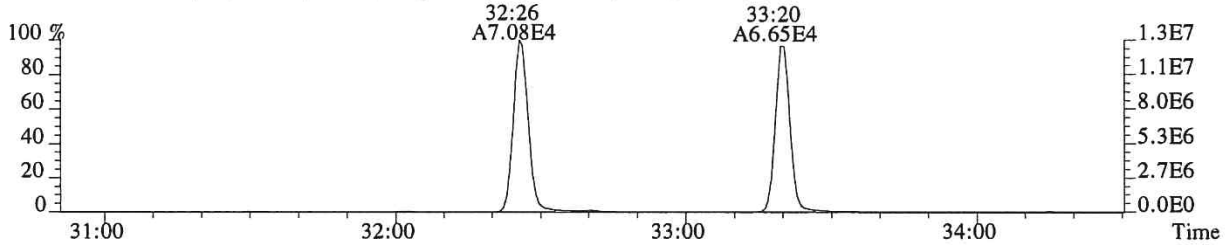
File:P519138 #1-330 Acq: 2-DEC-2018 10:13:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-017
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



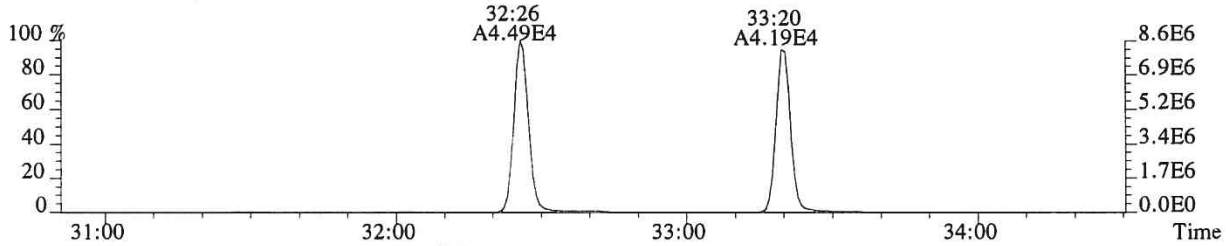
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



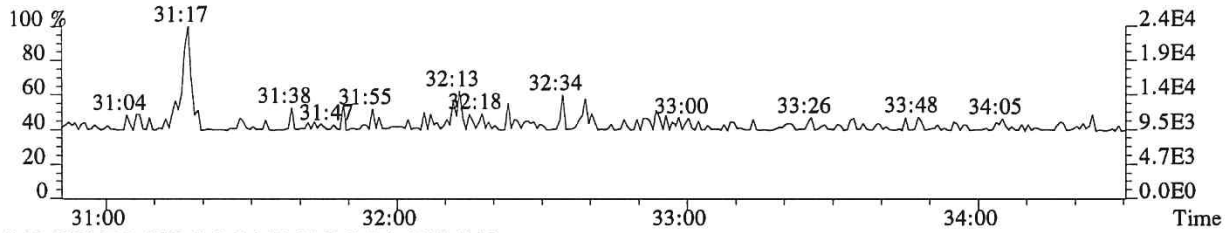
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



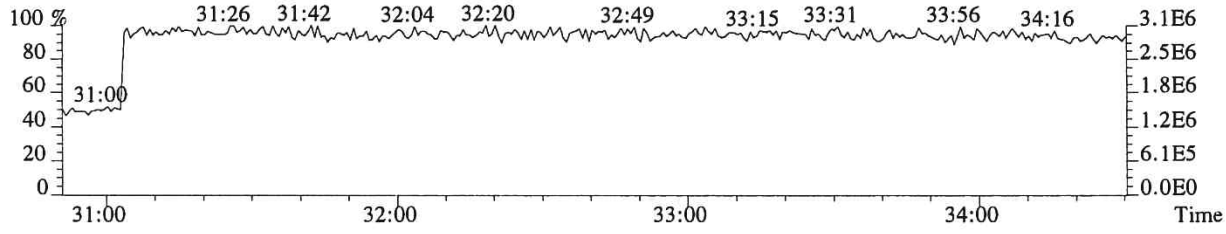
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



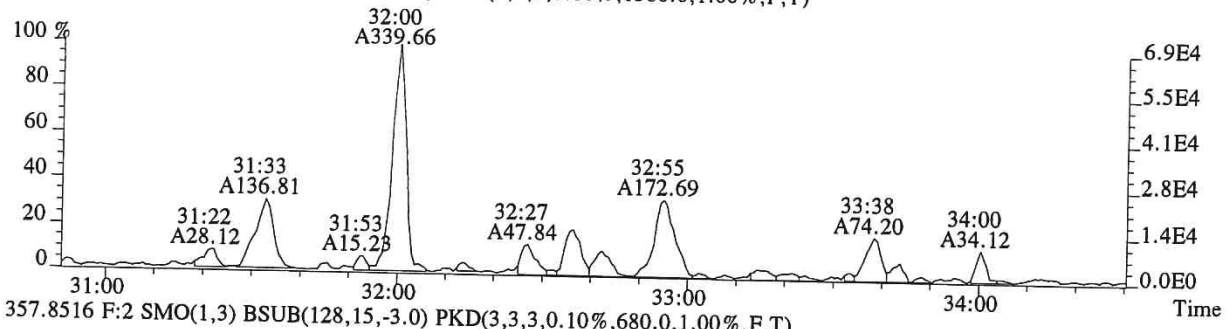
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



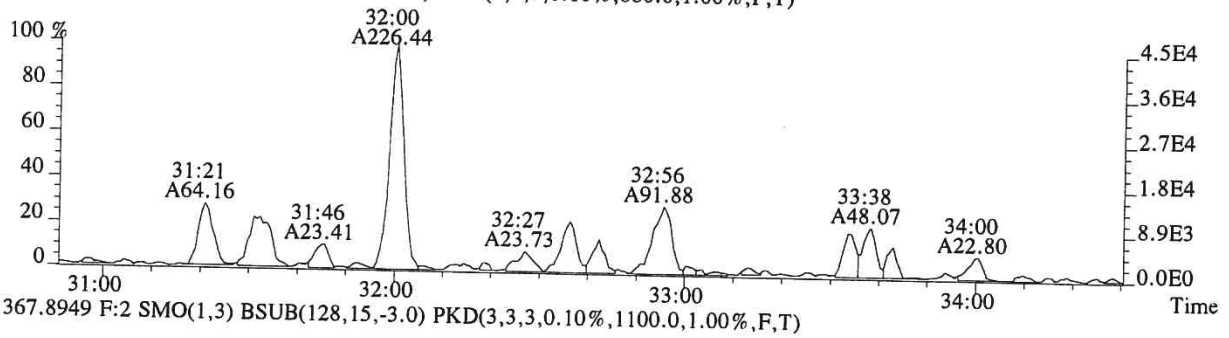
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



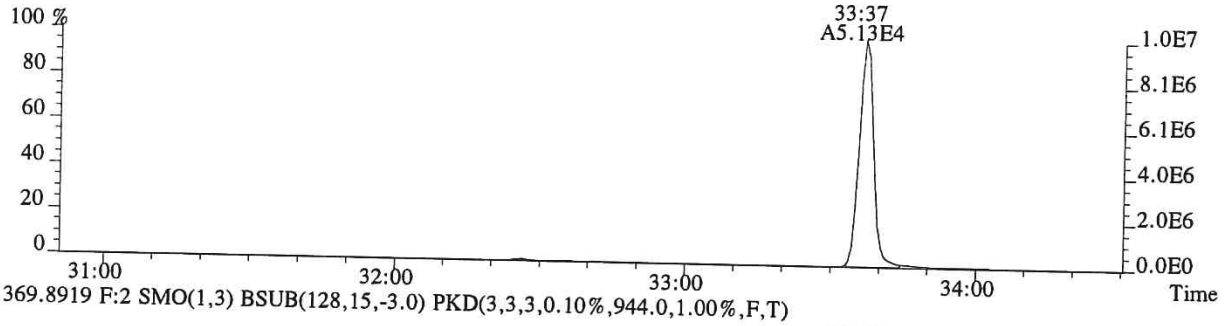
File:P519138 #1-330 Acq: 2-DEC-2018 10:13:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



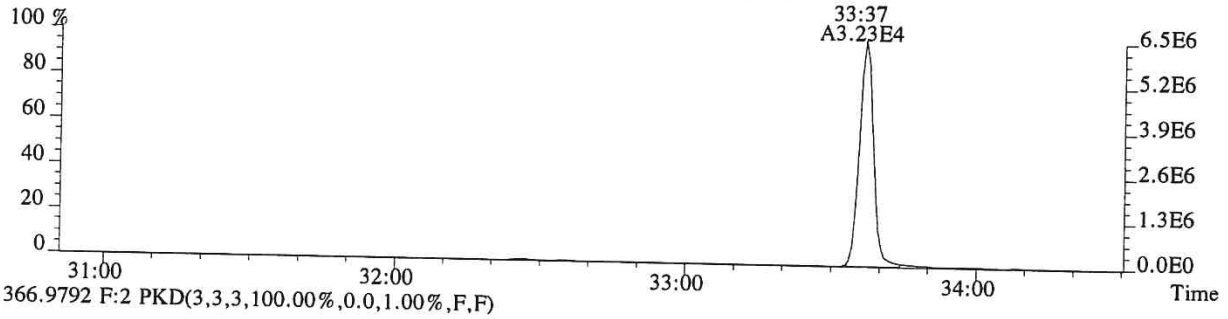
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



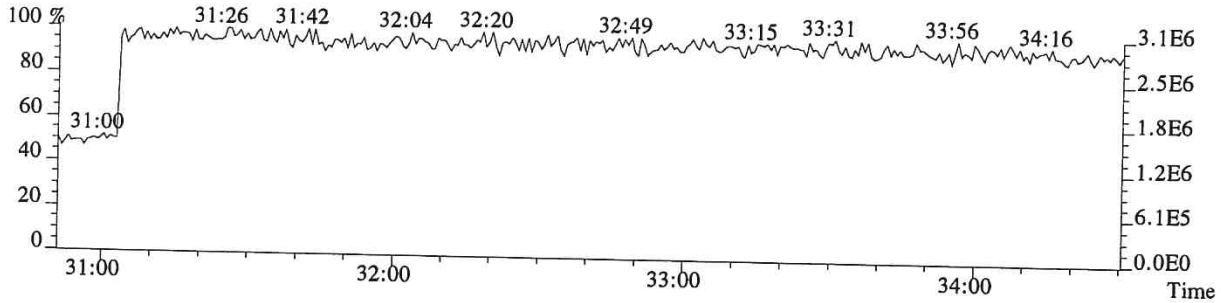
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



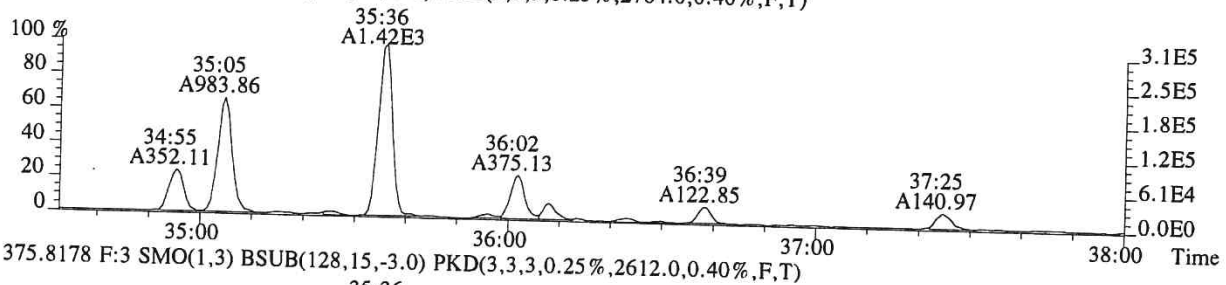
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



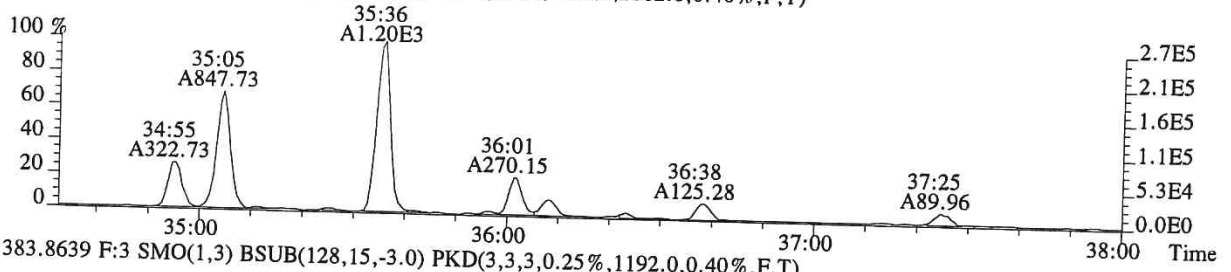
011080

File:P519138 #1-312 Acq: 2-DEC-2018 10:13:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-017

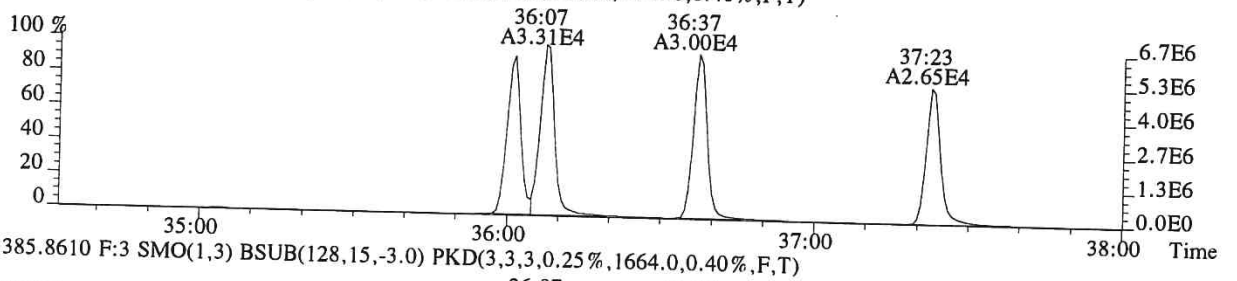
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2764.0,0.40%,F,T)



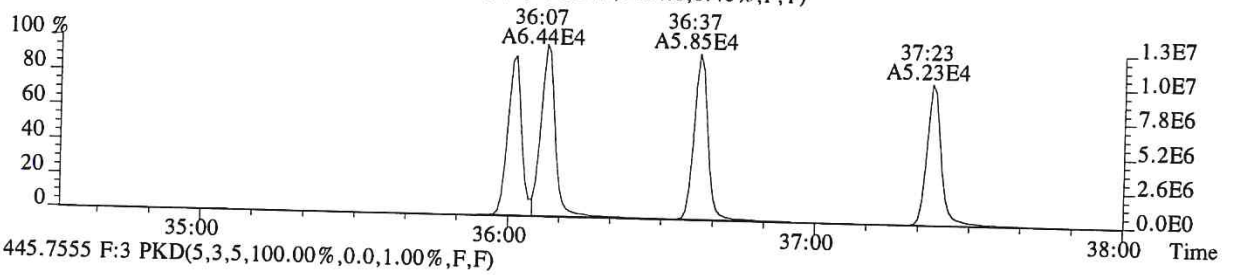
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2612.0,0.40%,F,T)



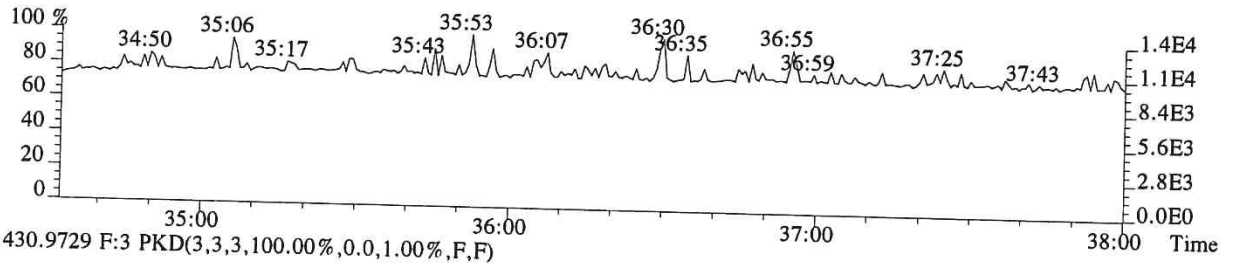
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



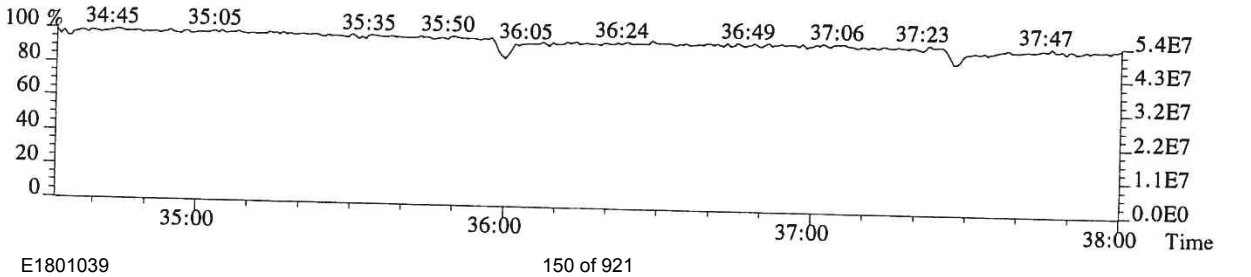
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

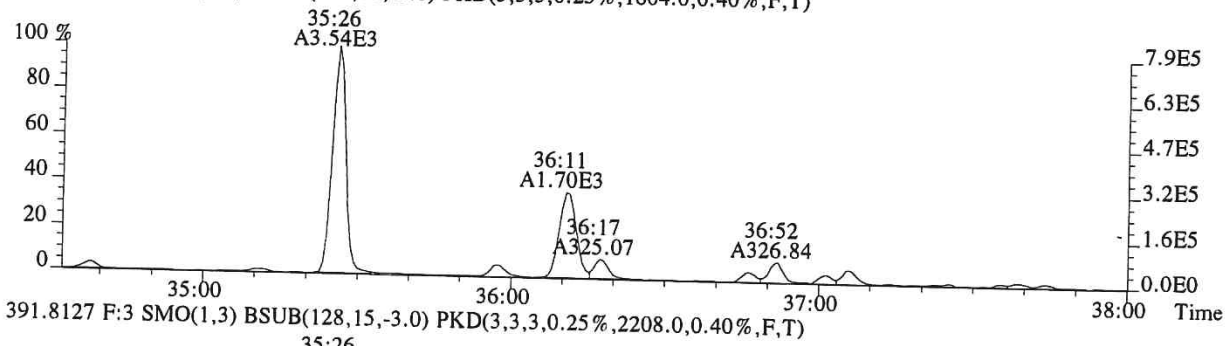


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

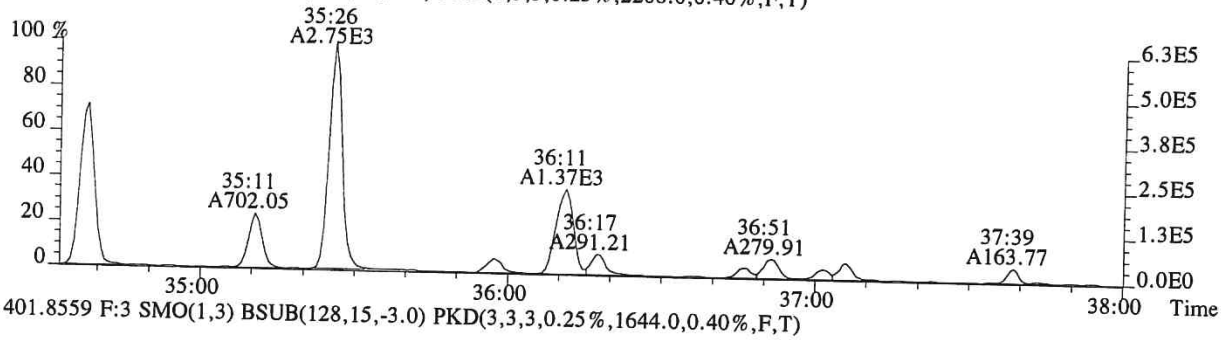


011081

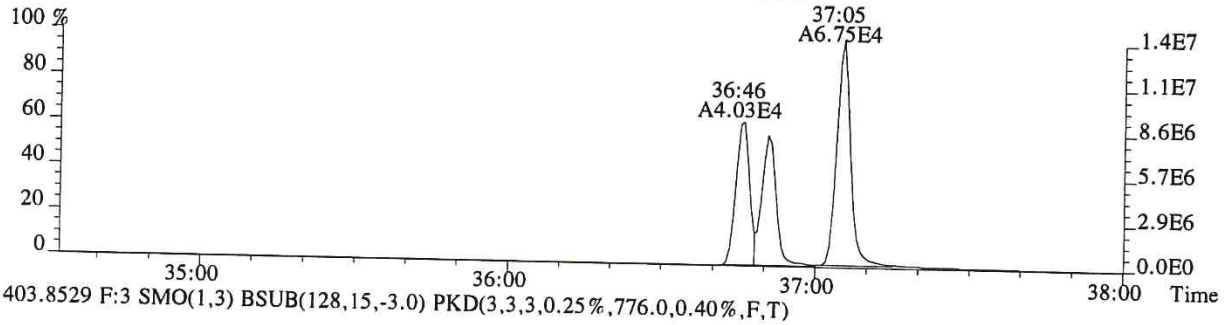
File:P519138 #1-312 Acq: 2-DEC-2018 10:13:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-017
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.40%,F,T)



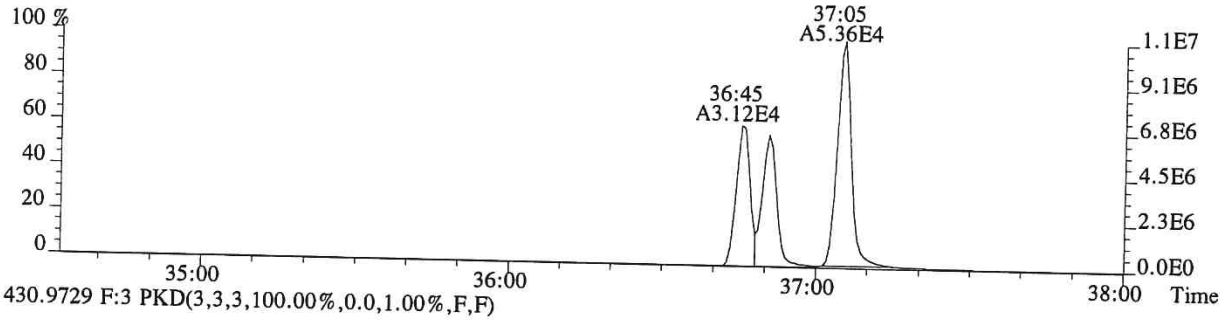
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2208.0,0.40%,F,T)



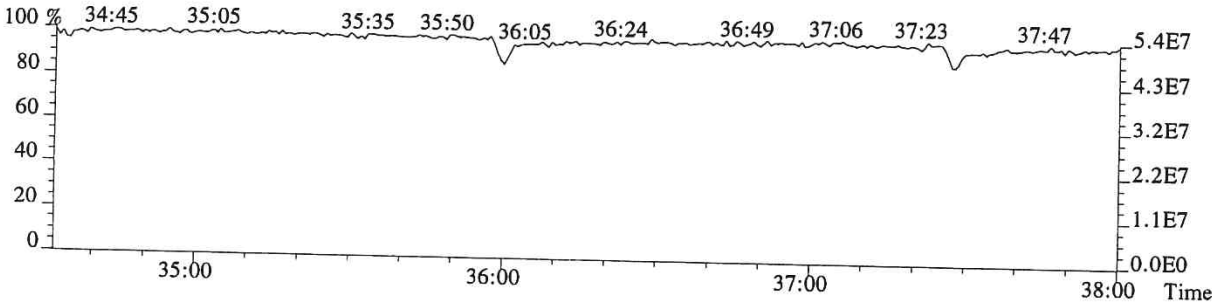
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)

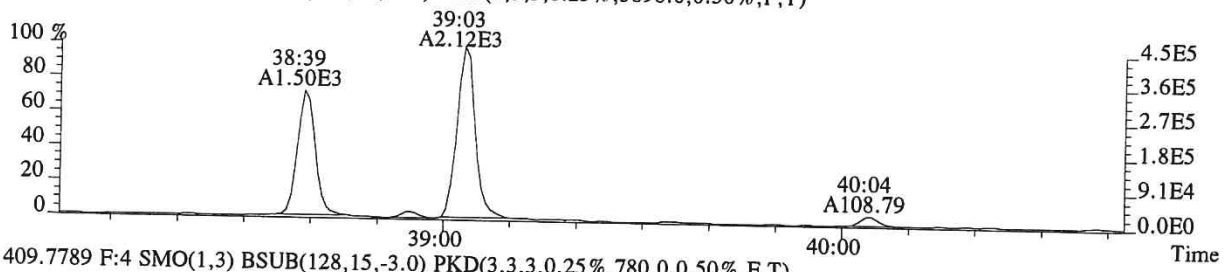


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

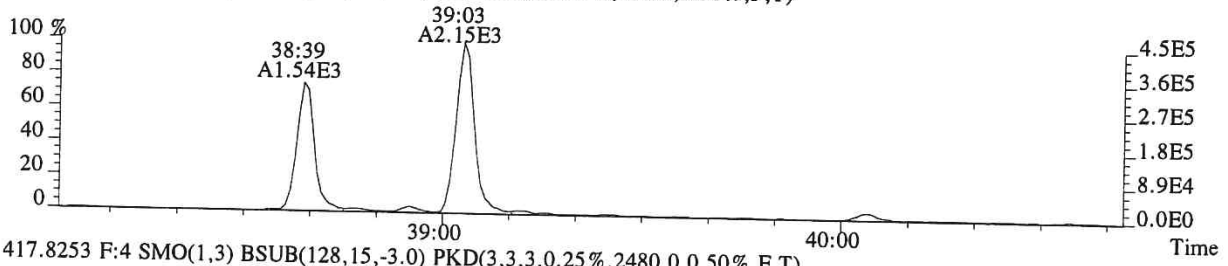


File:P519138 #1-241 Acq: 2-DEC-2018 10:13:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-017

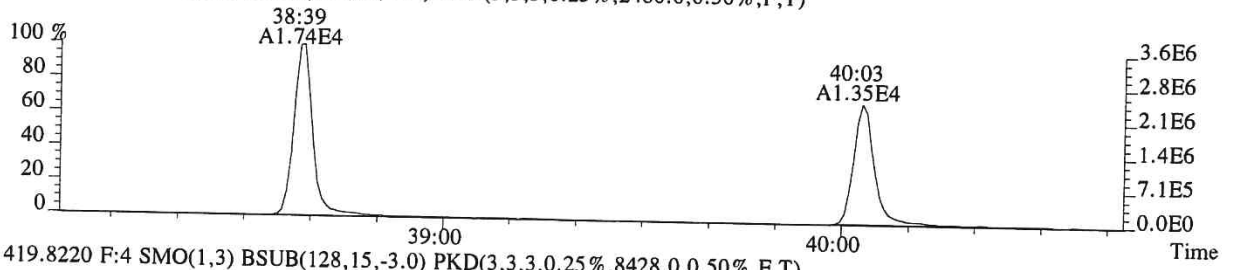
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3696.0,0.50%,F,T)



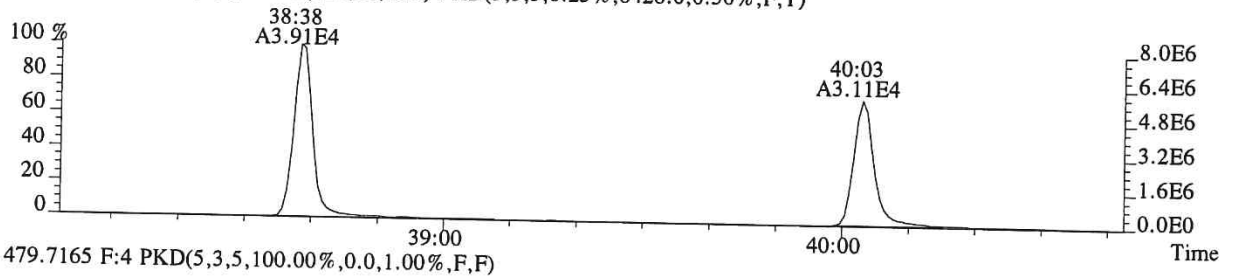
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.50%,F,T)



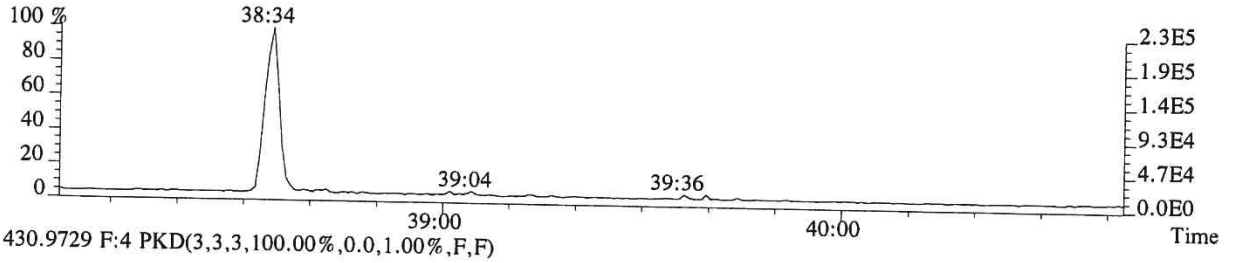
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2480.0,0.50%,F,T)



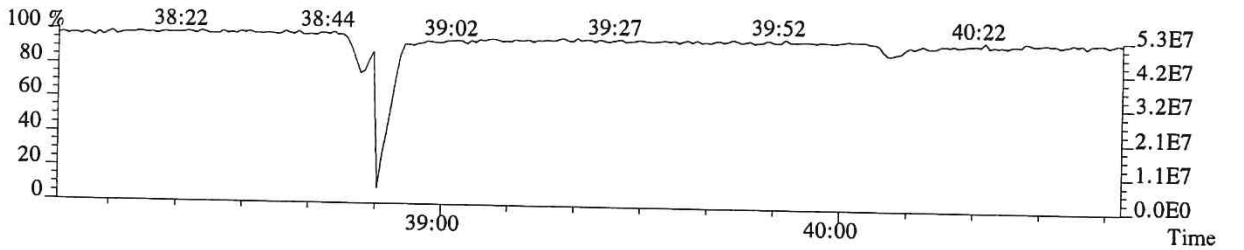
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8428.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



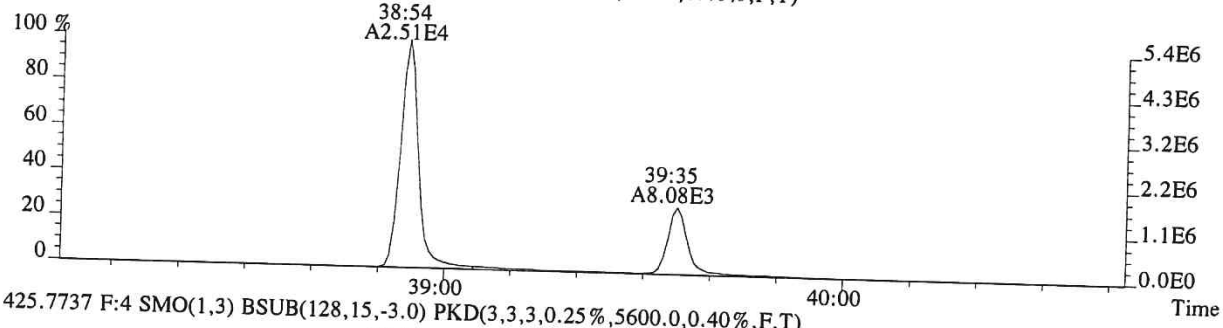
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



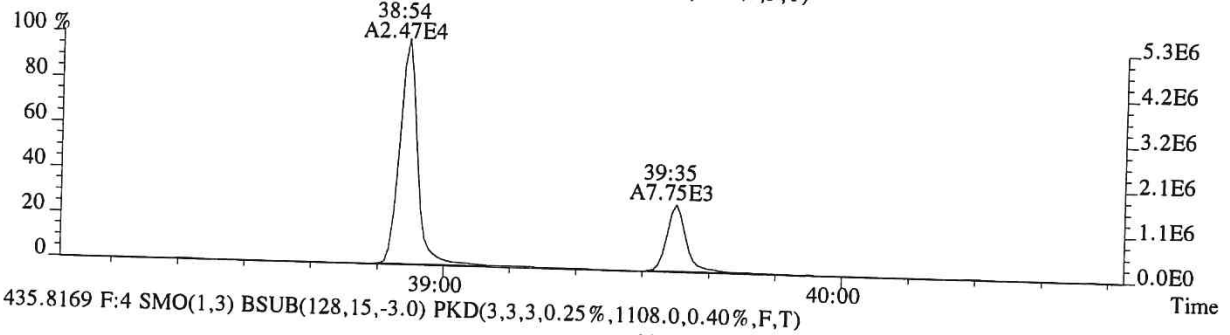
011083

File:P519138 #1-241 Acq: 2-DEC-2018 10:13:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-017

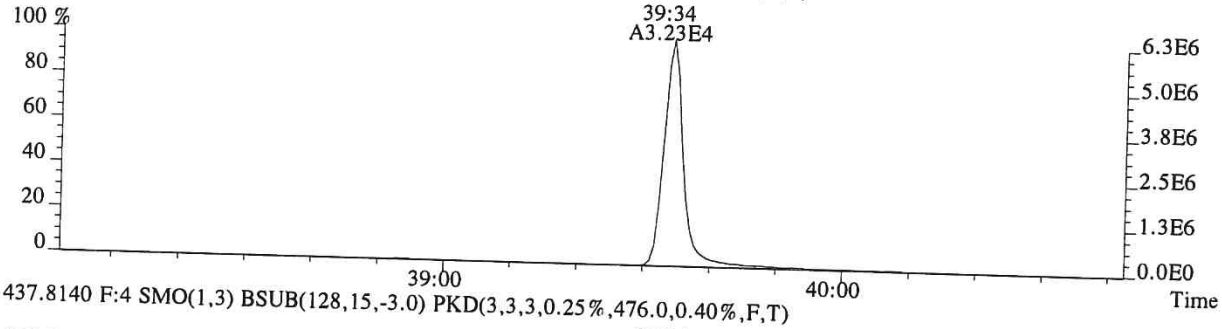
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



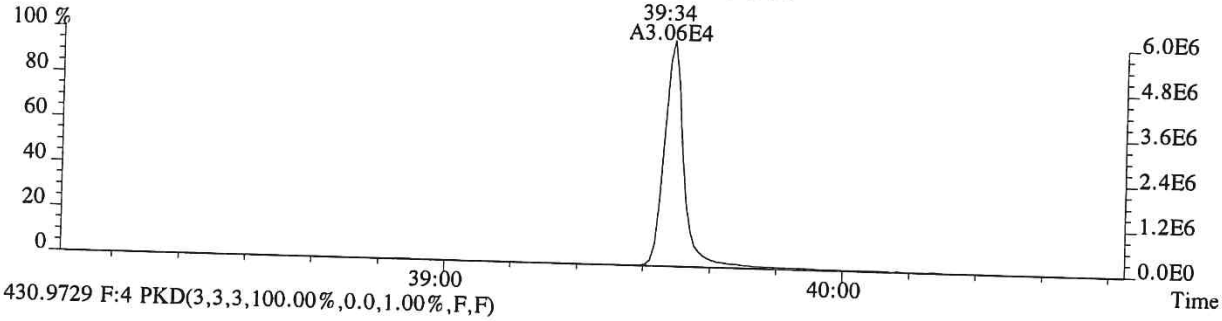
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5600.0,0.40%,F,T)



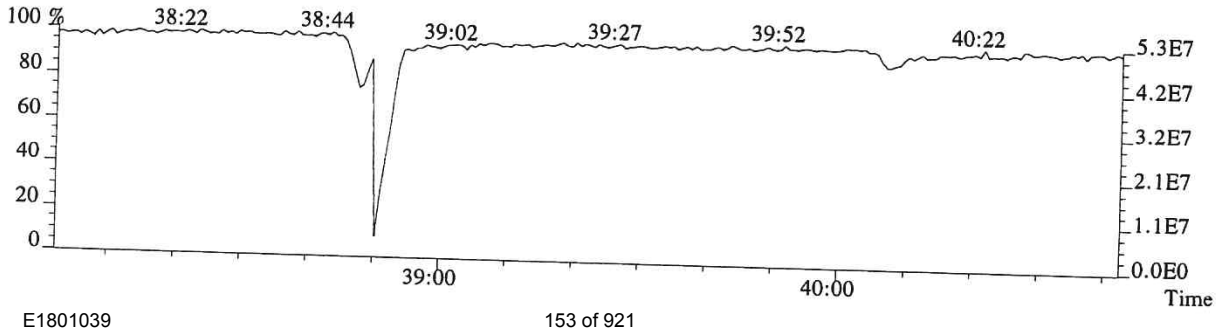
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



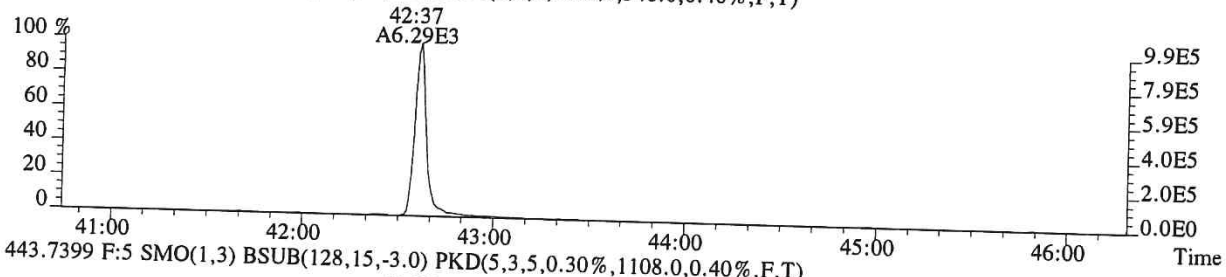
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



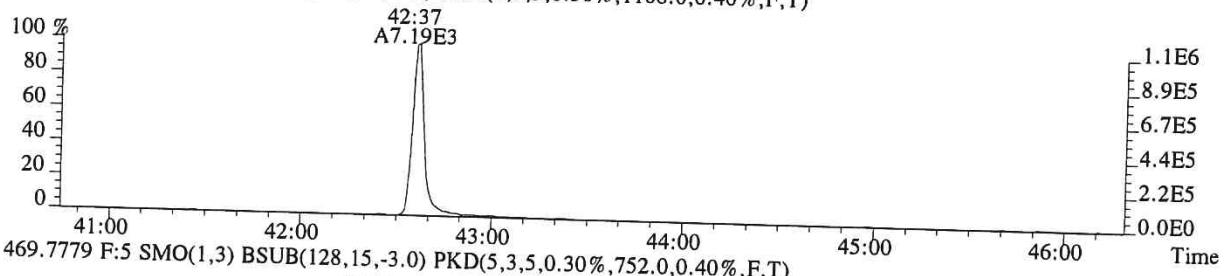
011084

File:P519138 #1-502 Acq: 2-DEC-2018 10:13:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-017

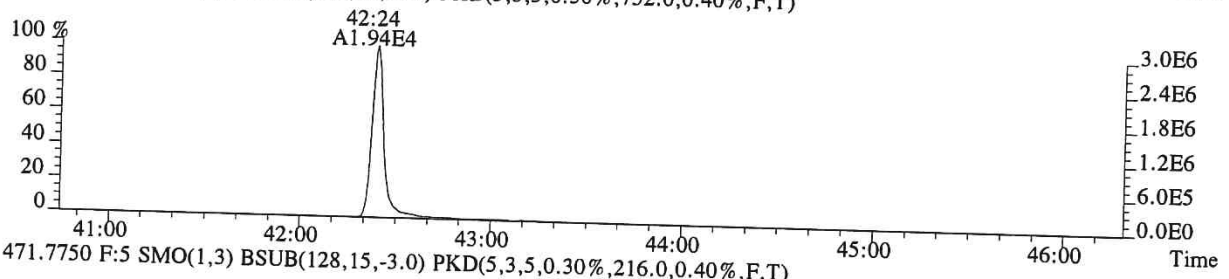
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



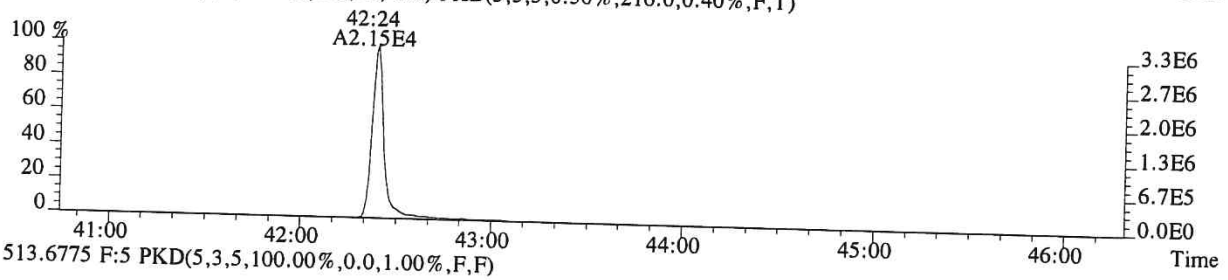
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1108.0,0.40%,F,T)



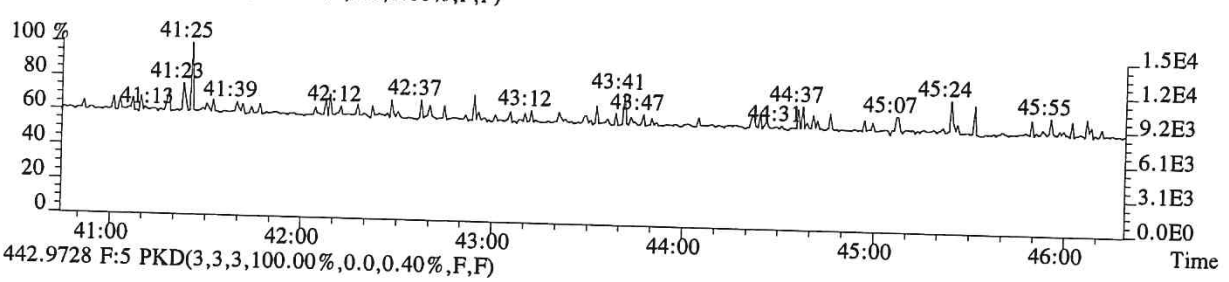
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,752.0,0.40%,F,T)



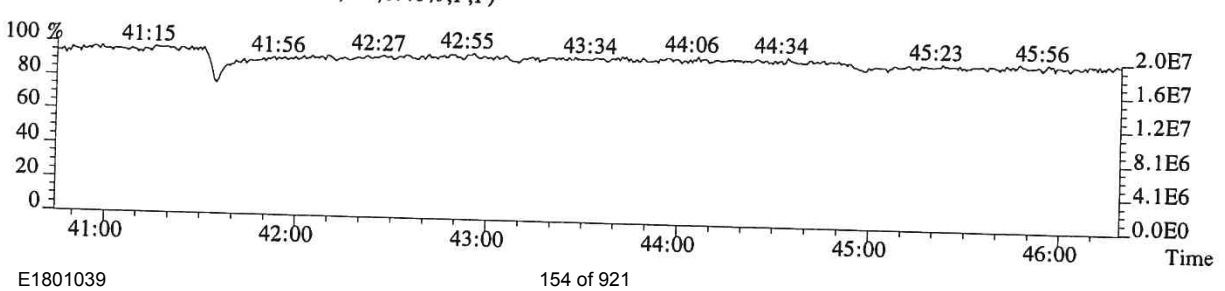
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

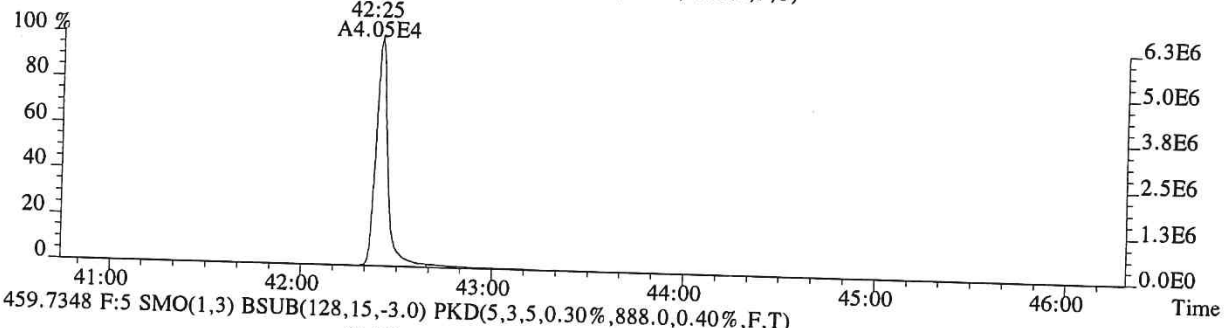


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

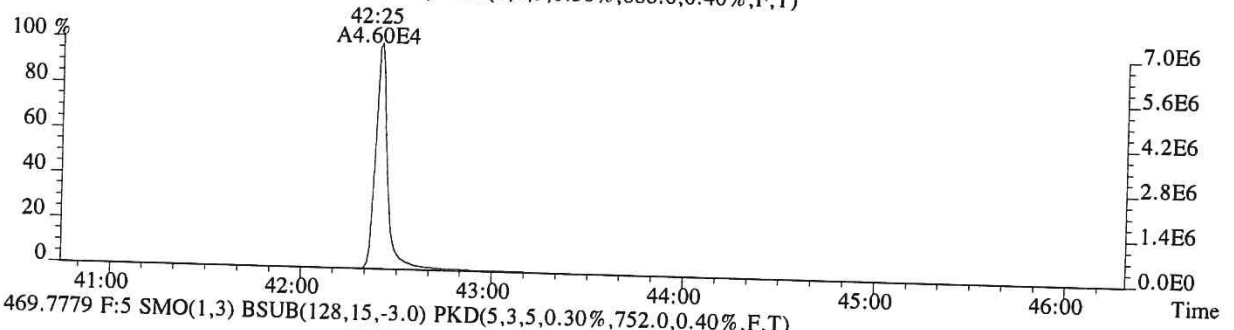


011085

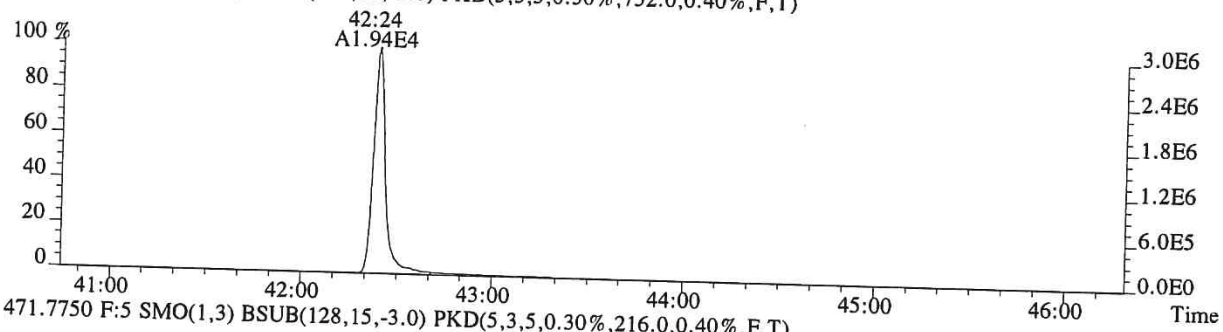
File:P519138 #1-502 Acq: 2-DEC-2018 10:13:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-017
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



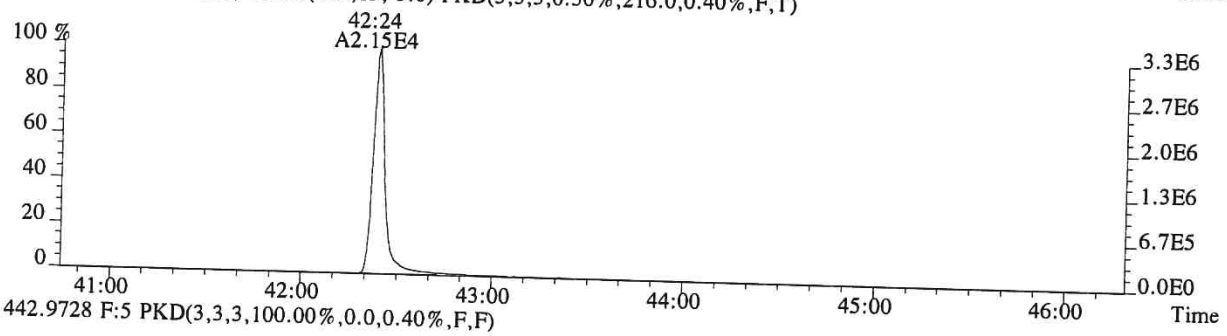
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,888.0,0.40%,F,T)



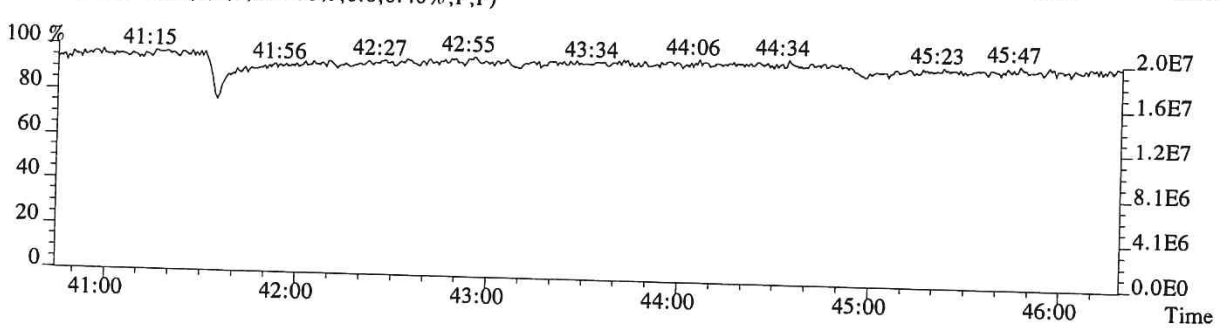
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,752.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011086

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0108

Run #9 Filename P519134 Samp: 1 Inj: 1 Acquired: 2-DEC-18 07:00:00
Processed: 3-DEC-18 17:10:28 Sample ID: E1801039-031

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	1.899e+03	2.488e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:27	1.107e+02	1.209e+02	0.92	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:24	3.123e+02	2.011e+02	1.55	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	3.803e+02	3.036e+02	1.25	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	1.641e+02	1.223e+02	1.34	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.485e+02	1.251e+02	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:25	1.247e+02	1.289e+02	0.97	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	1.656e+03	1.558e+03	1.06	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	8.896e+01	8.186e+01	1.09	yes	no	1.258
10	Unk	OCDF	42:37	8.137e+03	9.296e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:03	4.017e+02	5.148e+02	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	8.998e+01	6.128e+01	1.47	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	1.552e+02	1.160e+02	1.34	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	3.254e+02	2.465e+02	1.32	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	2.858e+02	1.904e+02	1.50	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	9.103e+03	8.872e+03	1.03	yes	no	1.025
17	Unk	OCDD	42:25	5.203e+04	5.785e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:15	4.286e+04	5.426e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	7.480e+04	4.747e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	7.026e+04	4.486e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	3.215e+04	6.223e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	3.650e+04	7.000e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	3.319e+04	6.321e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	2.969e+04	5.538e+04	0.54	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.937e+04	4.419e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	1.579e+04	3.568e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	3.164e+04	3.997e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	5.418e+04	3.411e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	4.569e+04	3.451e+04	1.32	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	4.382e+04	3.712e+04	1.18	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	3.623e+04	3.425e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:24	2.370e+04	2.672e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:28	5.162e+04	6.594e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	7.213e+04	5.954e+04	1.21	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:03	3.287e+04				no	1.014

$$\text{OCDD} = \frac{(5.203e+04 + 5.785e+04) \times 4000 \text{ pg} \times 1}{(2.370e+04 + 2.672e+04) \times 10.385 \text{ g} \times 79.4 / 100 \times 1.118} = 945.5 \text{ ng/kg}$$

LM 12/05/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0108

Run #9 Filename P519134 Samp: 1 Inj: 1 Acquired: 2-DEC-18 07:00:00
Processed: 3-DEC-18 17:10:28 LAB. ID: E1801039-031

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.29e+05	9.76e+02	3.4e+02	4.47e+05	2.71e+03	1.6e+02
2	1,2,3,7,8-PeCDF	1.98e+04	1.12e+03	1.8e+01	2.24e+04	2.08e+03	1.1e+01
3	2,3,4,7,8-PeCDF	4.25e+04	1.12e+03	3.8e+01	2.34e+04	2.08e+03	1.1e+01
4	1,2,3,4,7,8-HxCDF	8.63e+04	1.74e+03	5.0e+01	6.44e+04	1.78e+03	3.6e+01
5	1,2,3,6,7,8-HxCDF	3.24e+04	1.74e+03	1.9e+01	2.67e+04	1.78e+03	1.5e+01
6	2,3,4,6,7,8-HxCDF	2.80e+04	1.74e+03	1.6e+01	2.70e+04	1.78e+03	1.5e+01
7	1,2,3,7,8,9-HxCDF	2.45e+04	1.74e+03	1.4e+01	2.31e+04	1.78e+03	1.3e+01
8	1,2,3,4,6,7,8-HpCDF	3.43e+05	1.51e+03	2.3e+02	3.37e+05	1.42e+03	2.4e+02
9	1,2,3,4,7,8,9-HpCDF	2.06e+04	1.51e+03	1.4e+01	1.27e+04	1.42e+03	8.9e+00
10	OCDF	1.21e+06	1.68e+02	7.2e+03	1.40e+06	1.21e+03	1.2e+03
11	2,3,7,8-TCDD	7.07e+04	1.82e+03	3.9e+01	1.01e+05	1.52e+03	6.7e+01
12	1,2,3,7,8-PeCDD	1.88e+04	1.45e+03	1.3e+01	1.44e+04	1.59e+03	9.0e+00
13	1,2,3,4,7,8-HxCDD	3.30e+04	7.92e+02	4.2e+01	3.01e+04	4.11e+03	7.3e+00
14	1,2,3,6,7,8-HxCDD	6.68e+04	7.92e+02	8.4e+01	5.78e+04	4.11e+03	1.4e+01
15	1,2,3,7,8,9-HxCDD	5.49e+04	7.92e+02	6.9e+01	3.65e+04	4.11e+03	8.9e+00
16	1,2,3,4,6,7,8-HpCDD	1.75e+06	4.68e+02	3.7e+03	1.69e+06	9.00e+02	1.9e+03
17	OCDD	7.64e+06	2.28e+02	3.3e+04	8.39e+06	7.20e+02	1.2e+04
18	13C-2,3,7,8-TCDF	7.74e+06	9.24e+03	8.4e+02	9.66e+06	6.76e+03	1.4e+03
19	13C-1,2,3,7,8-PeCDF	1.41e+07	4.72e+02	3.0e+04	8.91e+06	1.42e+03	6.3e+03
20	13C-2,3,4,7,8-PeCDF	1.38e+07	4.72e+02	2.9e+04	8.71e+06	1.42e+03	6.1e+03
21	13C-1,2,3,4,7,8-HxCDF	6.91e+06	1.24e+03	5.6e+03	1.32e+07	1.84e+03	7.2e+03
22	13C-1,2,3,6,7,8-HxCDF	7.03e+06	1.24e+03	5.6e+03	1.36e+07	1.84e+03	7.4e+03
23	13C-2,3,4,6,7,8-HxCDF	6.84e+06	1.24e+03	5.5e+03	1.31e+07	1.84e+03	7.1e+03
24	13C-1,2,3,7,8,9-HxCDF	5.55e+06	1.24e+03	4.5e+03	1.07e+07	1.84e+03	5.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.81e+06	2.12e+03	1.8e+03	8.84e+06	5.02e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.79e+06	2.12e+03	1.3e+03	6.28e+06	5.02e+03	1.3e+03
27	13C-2,3,7,8-TCDD	6.14e+06	6.50e+03	9.5e+02	7.79e+06	2.93e+03	2.7e+03
28	13C-1,2,3,7,8-PeCDD	1.04e+07	1.92e+03	5.4e+03	6.45e+06	1.54e+03	4.2e+03
29	13C-1,2,3,4,7,8-HxCDD	9.84e+06	2.15e+03	4.6e+03	7.75e+06	1.02e+03	7.6e+03
30	13C-1,2,3,6,7,8-HxCDD	8.92e+06	2.15e+03	4.2e+03	7.16e+06	1.02e+03	7.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.62e+06	8.40e+02	7.9e+03	6.22e+06	6.88e+02	9.0e+03
32	13C-OCDD	3.47e+06	6.16e+02	5.6e+03	3.85e+06	5.88e+02	6.6e+03
33	13C-1,2,3,4-TCDD	9.80e+06	6.50e+03	1.5e+03	1.24e+07	2.93e+03	4.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.43e+07	2.15e+03	6.7e+03	1.14e+07	1.02e+03	1.1e+04
35	37Cl-2,3,7,8-TCDD	6.33e+06	1.59e+03	4.0e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.824e{+}03 + 1.516e{+}03) \times 2000}{(6.143e{+}06 + 7.789e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0108

Entry: 36 Totals Name: Total Tetra-Furans

Run: 9 File: P519134 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 07:00:00 Processed: 3-DEC-18 17:10:28

Mass: 303.9020 305.8990 Tot Response: 6.73e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:46	9.43e+01	1.29e+02	0.73	yes	2.23e+02		n	n
2	25:18	8.40e+01	1.24e+02	0.68	yes	2.08e+02		n	y
3	25:37	9.40e+01	1.21e+02	0.78	yes	2.15e+02		n	n
4	26:20	7.08e+01	1.00e+02	0.71	yes	1.71e+02		n	n
5	27:02	8.54e+01	9.97e+01	0.86	yes	1.85e+02		n	n
6	27:28	5.10e+02	7.25e+02	0.70	yes	1.23e+03		n	n
7	28:16	1.90e+03	2.49e+03	0.76	yes	4.39e+03	2,3,7,8-TCDF	n	n
8	28:49	4.84e+01	5.73e+01	0.85	yes	1.06e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0108

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 9 File: P519134 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 07:00:00 Processed: 3-DEC-18 17:10:28

Mass: 319.8970 321.8940 Tot Response: 1.94e+03 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:36	4.64e+01	0.82	yes	1.03e+02		n	n
2	27:10	3.60e+02	0.79	yes	8.14e+02		n	n
3	28:46	1.29e+01	0.84	yes	2.83e+01		n	n
4	29:03	4.02e+02	0.78	yes	9.17e+02	2,3,7,8-TCDD	n	n
5	29:20	3.19e+01	0.75	yes	7.47e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0108

Entry: 38 Totals Name: Total Penta-Furans1

Run: 9 File: P519134 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 07:00:00 Processed: 3-DEC-18 17:10:28

Mass: 339.8600 341.8570 Tot Response: 9.47e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:03	5.64e+02	3.83e+02 1.47	yes	9.47e+02		n	n

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Peak List Summary

CLIENT ID.
SL0108

Entry: 39 Totals Name: Total Penta-Furans2

Run: 9 File: P519134 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 07:00:00 Processed: 3-DEC-18 17:10:28

Mass: 339.8600 341.8570 Tot Response: 1.23e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:31	4.27e+02	2.94e+02 1.45	yes	7.21e+02		n	n
2	33:24	3.12e+02	2.01e+02 1.55	yes	5.13e+02	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0108

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 9 File: P519134 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 07:00:00 Processed: 3-DEC-18 17:10:28

Mass: 355.8550 357.8520 Tot Response: 1.04e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:00	3.68e+02	2.34e+02	1.57	yes	6.01e+02		n	n
2	32:55	1.76e+02	1.15e+02	1.53	yes	2.91e+02		n	n
3	33:39	9.00e+01	6.13e+01	1.47	yes	1.51e+02	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0108

Entry: 41 Totals Name: Total Hexa-Furans

Run: 9 File: P519134 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 07:00:00 Processed: 3-DEC-18 17:10:28

Mass: 373.8210 375.8180 Tot Response: 6.77e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:55	4.17e+02	3.32e+02	1.26	yes	7.49e+02		n	n
2	35:05	1.07e+03	9.18e+02	1.16	yes	1.99e+03		n	n
3	35:36	1.54e+03	1.26e+03	1.22	yes	2.80e+03		n	n
4	36:02	3.80e+02	3.04e+02	1.25	yes	6.84e+02	1,2,3,4,7,8-HxCDF	n	n
5	36:08	1.64e+02	1.22e+02	1.34	yes	2.86e+02	1,2,3,6,7,8-HxCDF	n	n
6	36:39	1.49e+02	1.25e+02	1.19	yes	2.74e+02	2,3,4,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0108

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 9 File: P519134 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 07:00:00 Processed: 3-DEC-18 17:10:28

Mass: 389.8160 391.8130 Tot Response: 1.14e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	3.86e+03	2.93e+03	1.32	yes	6.79e+03		n	n
2	36:11	1.94e+03	1.51e+03	1.29	yes	3.45e+03		n	n
3	36:47	1.55e+02	1.16e+02	1.34	yes	2.71e+02	1,2,3,4,7,8-HxCDD	n	n
4	36:52	3.25e+02	2.46e+02	1.32	yes	5.72e+02	1,2,3,6,7,8-HxCDD	n	n
5	37:01	1.46e+02	1.31e+02	1.12	yes	2.76e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0108

Entry: 43 Totals Name: Total Hepta-Furans

Run: 9 File: P519134 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 07:00:00 Processed: 3-DEC-18 17:10:28

Mass: 407.7820 409.7790 Tot Response: 8.66e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:39	1.66e+03	1.06	yes	3.21e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:55	5.59e+01	1.07	yes	1.08e+02		n	n
3	39:03	2.56e+03	0.98	yes	5.17e+03		n	n
4	40:04	8.90e+01	1.09	yes	1.71e+02	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0108

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 9 File: P519134 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 07:00:00 Processed: 3-DEC-18 17:10:28

Mass: 423.7770 425.7740 Tot Response: 8.69e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	3.52e+04	3.38e+04	1.04	yes	6.90e+04		n	n
2	39:35	9.10e+03	8.87e+03	1.03	yes	1.80e+04	1,2,3,4,6,7,8-HpCDD	n	n

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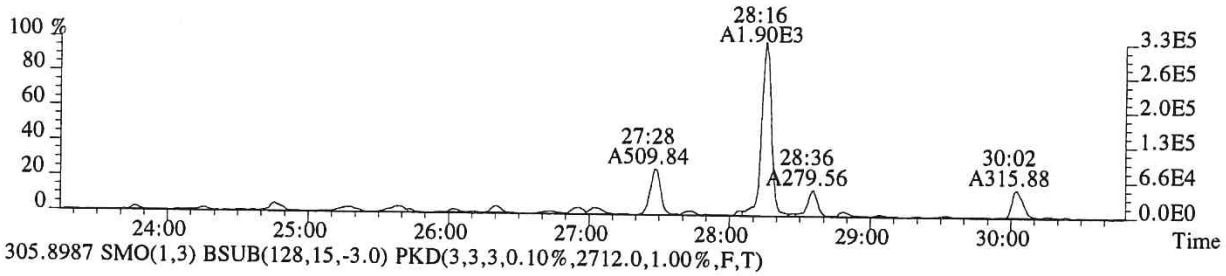
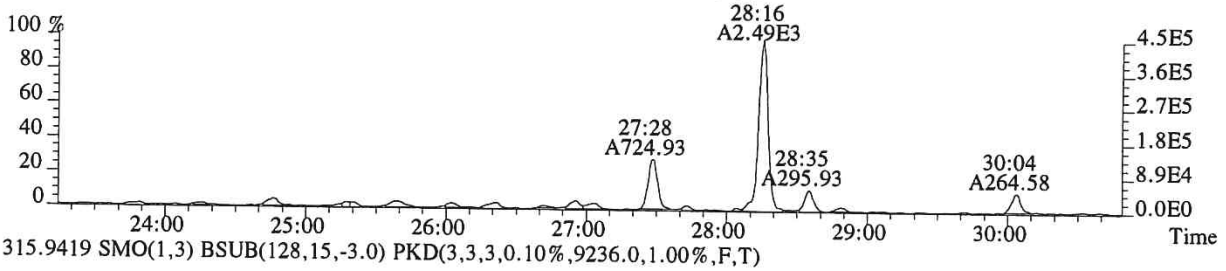
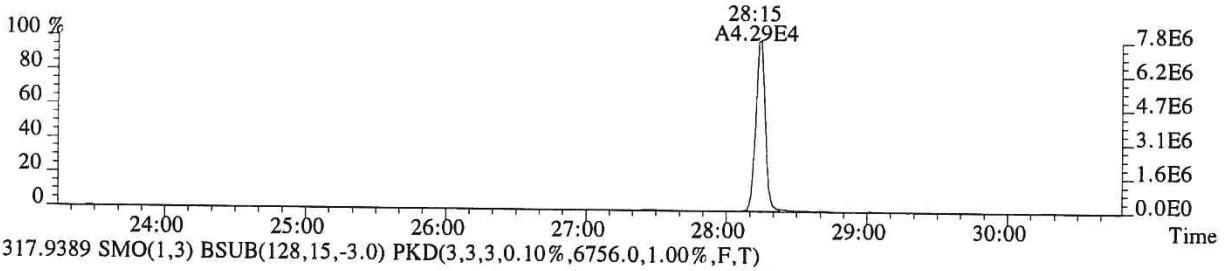
File:P519134 #1-538 Acq: 2-DEC-2018 07:00:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-031
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



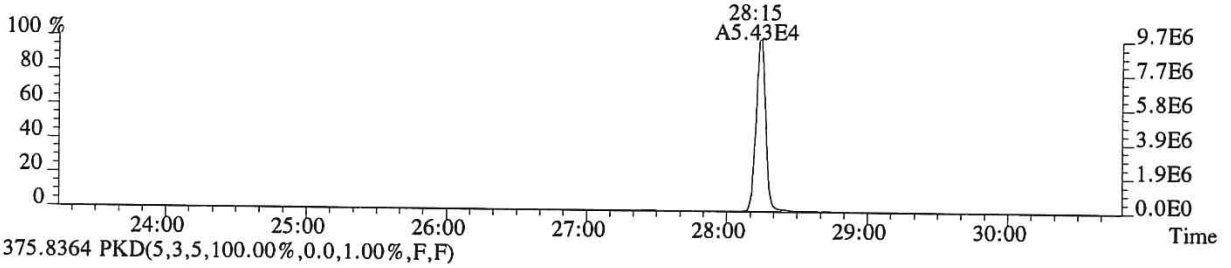
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2712.0,1.00%,F,T)



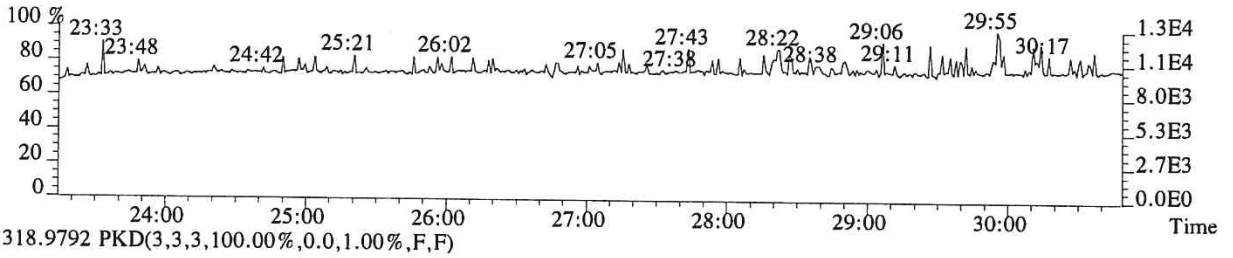
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9236.0,1.00%,F,T)



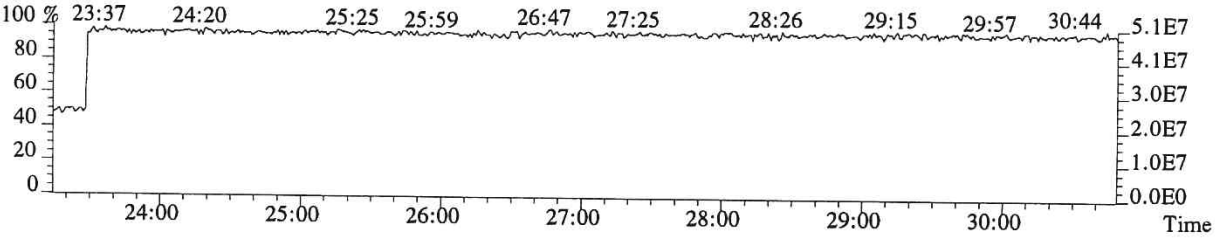
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6756.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

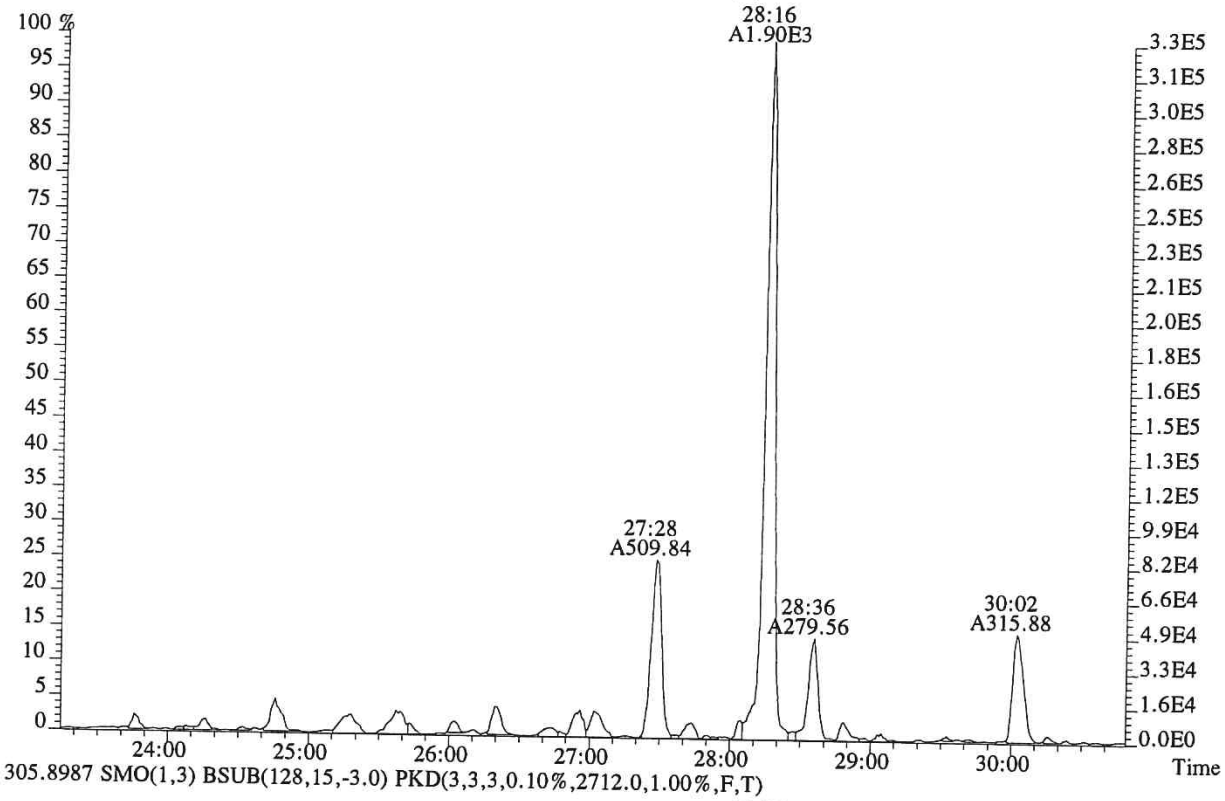


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

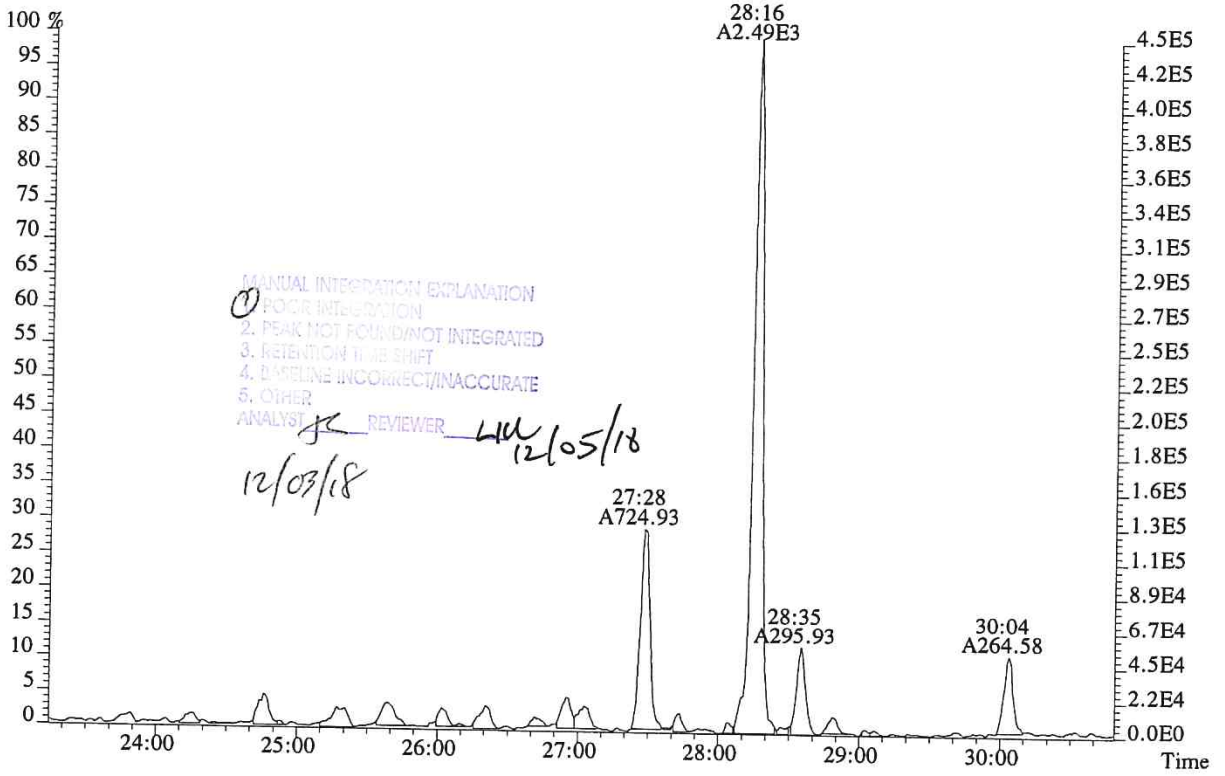


011098

File:P519134 #1-538 Acq: 2-DEC-2018 07:00:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-031
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



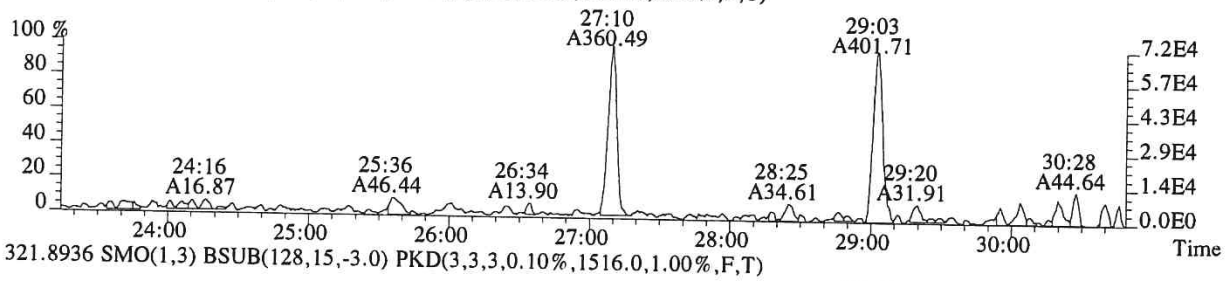
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2712.0,1.00%,F,T)



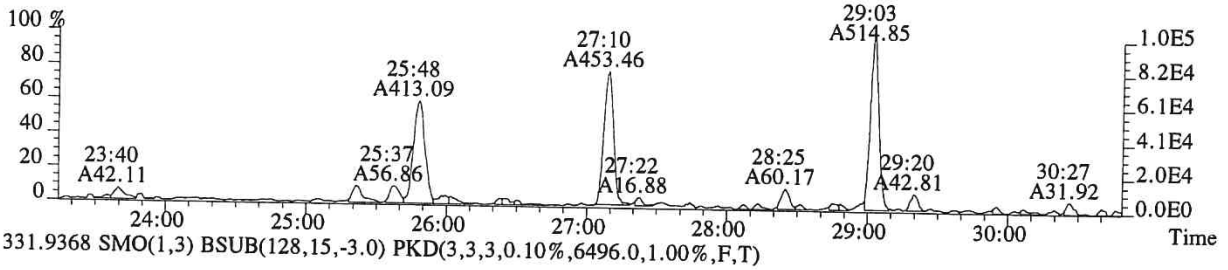
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST JC REVIEWER LHL 12/05/18
12/03/18

File:P519134 #1-538 Acq: 2-DEC-2018 07:00:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-031

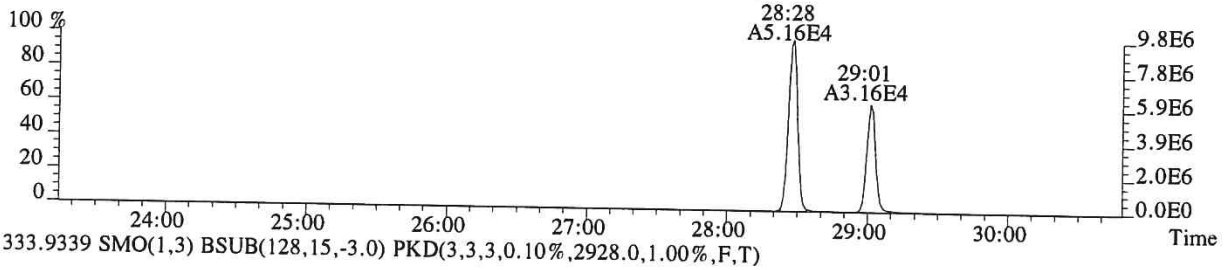
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1824.0,1.00%,F,T)



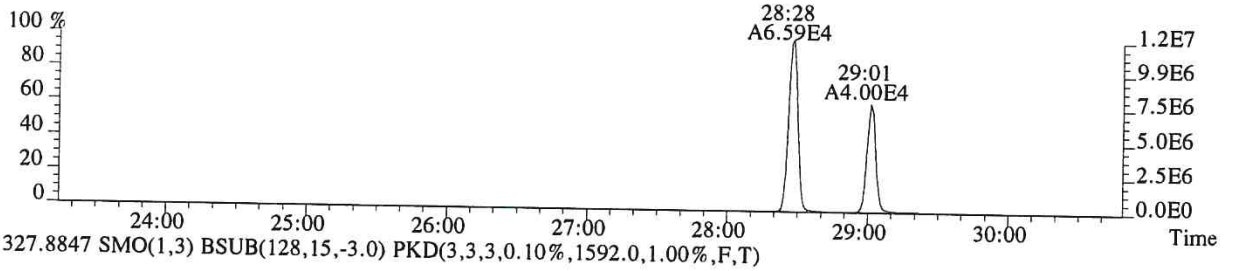
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1516.0,1.00%,F,T)



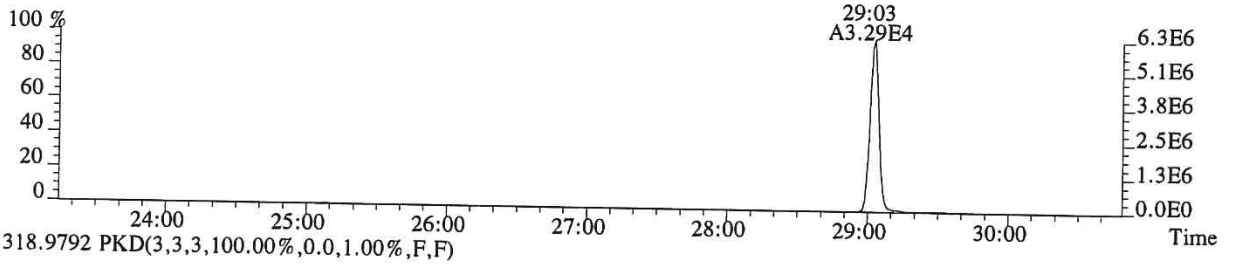
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6496.0,1.00%,F,T)



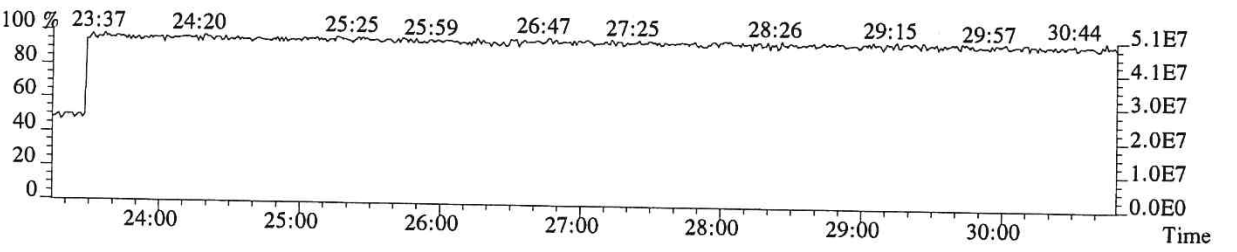
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2928.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)

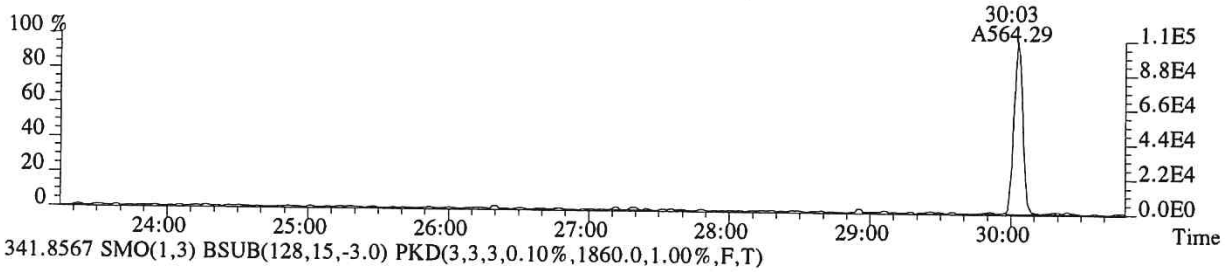


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

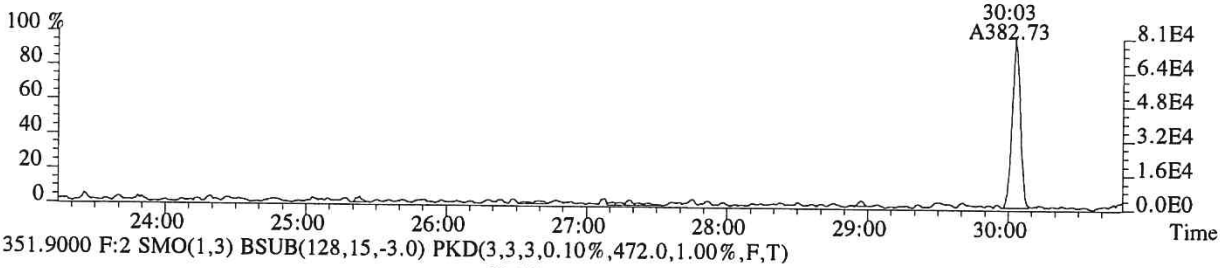


011100

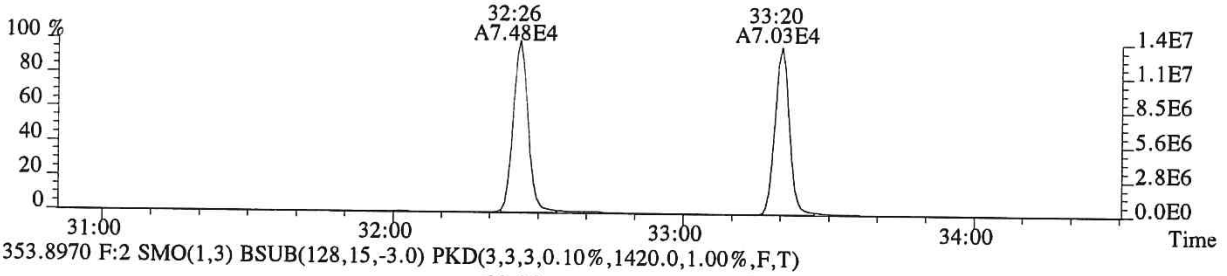
File:P519134 #1-538 Acq: 2-DEC-2018 07:00:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-031
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



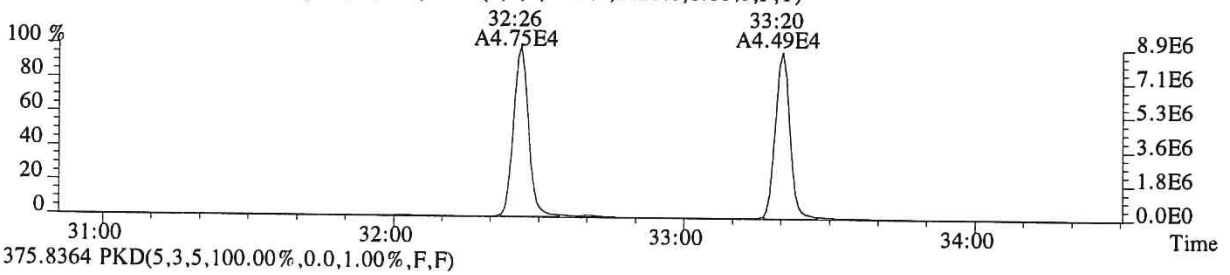
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1860.0,1.00%,F,T)



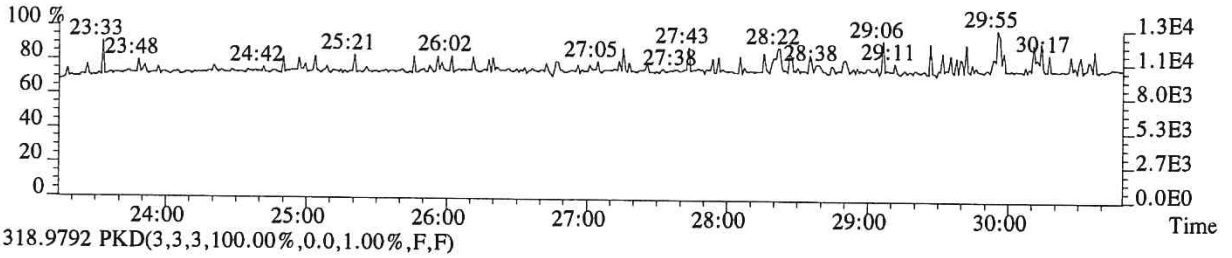
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



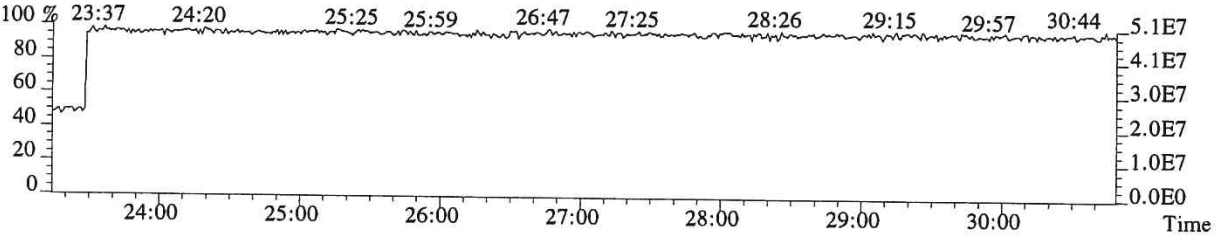
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



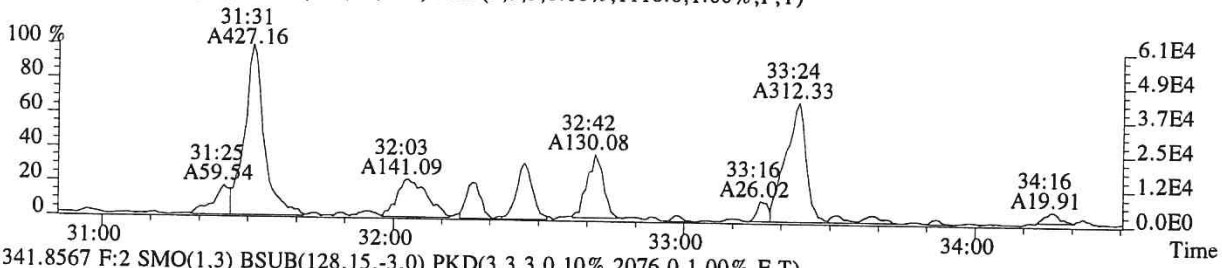
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



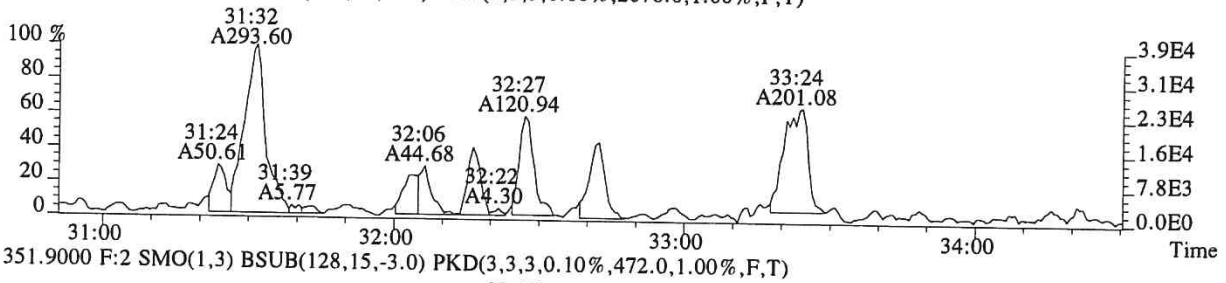
011101

File:P519134 #1-330 Acq: 2-DEC-2018 07:00:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-031

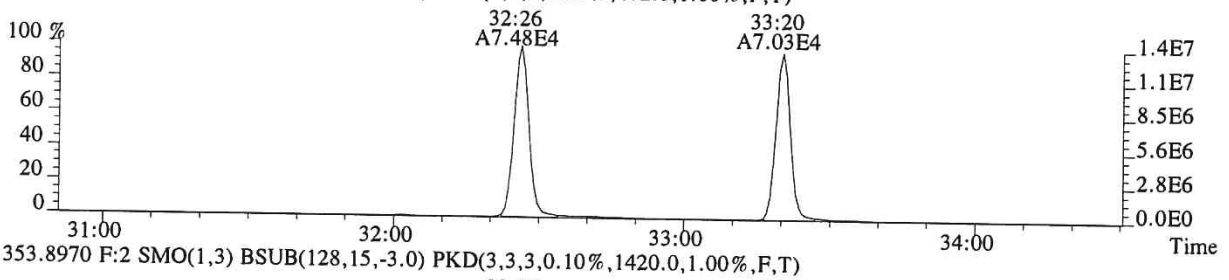
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



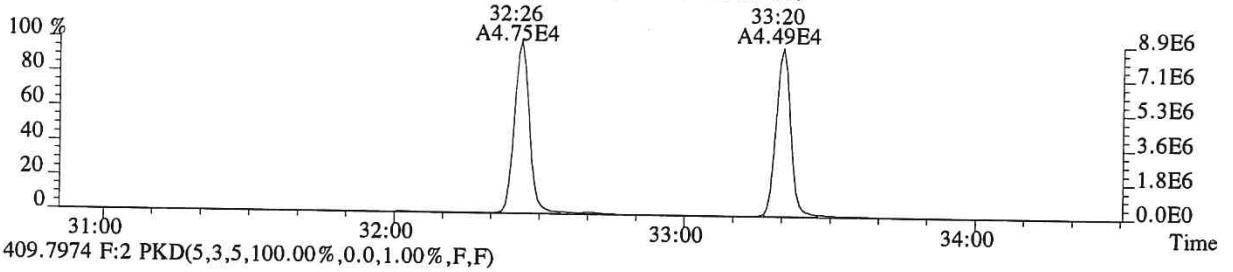
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2076.0,1.00%,F,T)



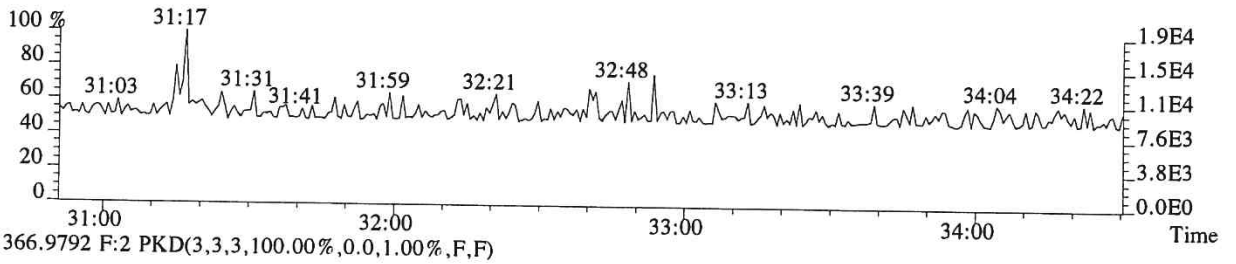
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



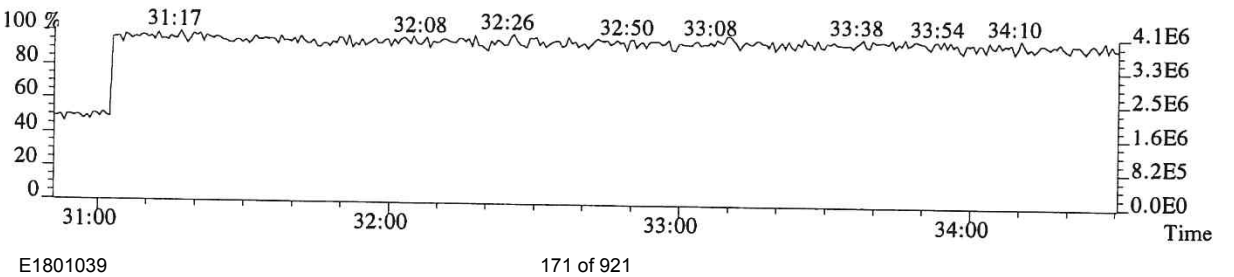
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



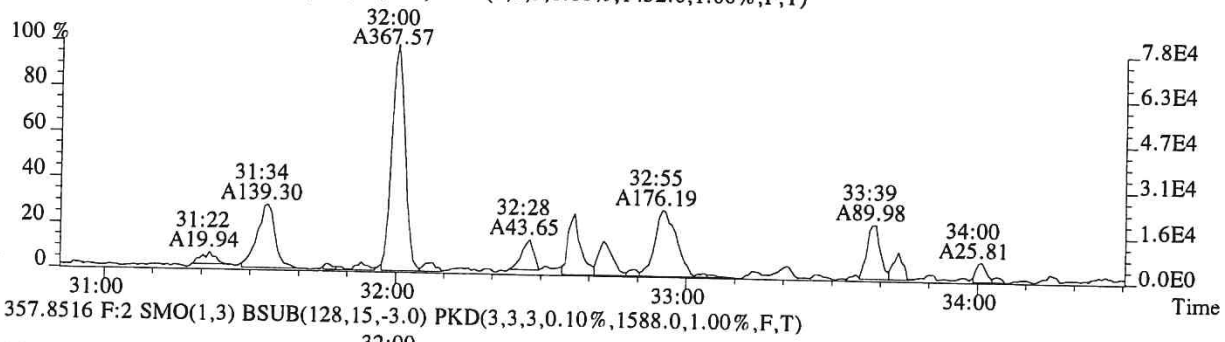
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



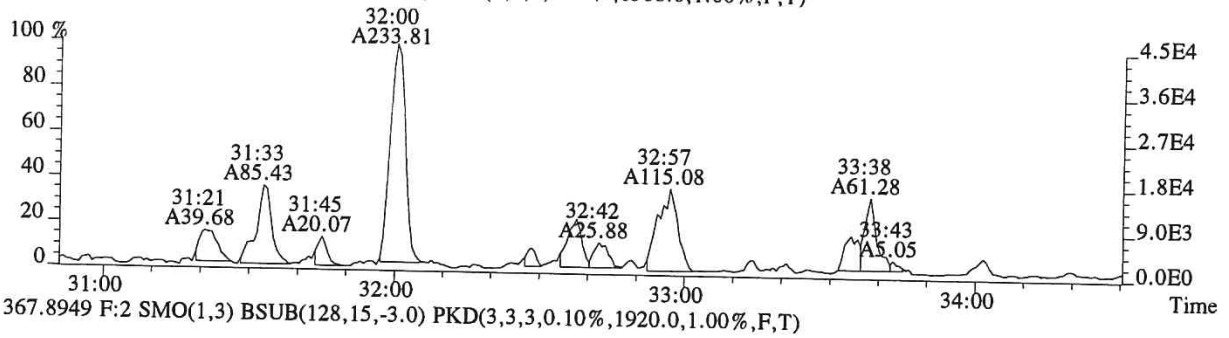
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



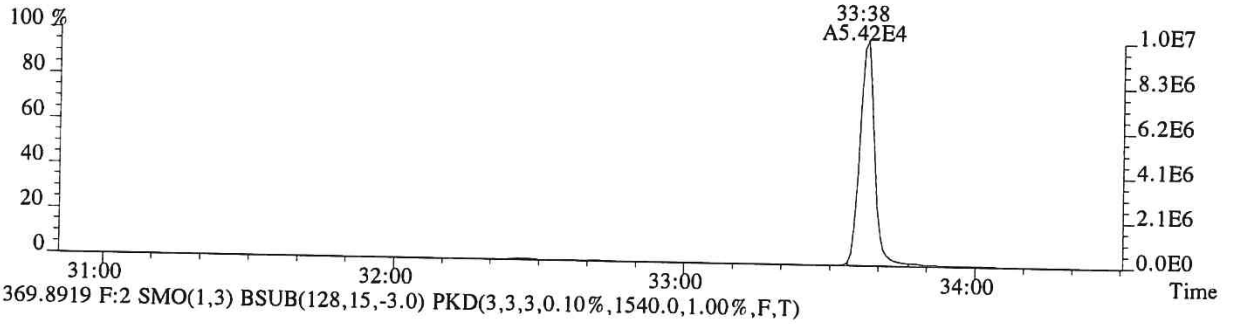
File:P519134 #1-330 Acq: 2-DEC-2018 07:00:00 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801039-031
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



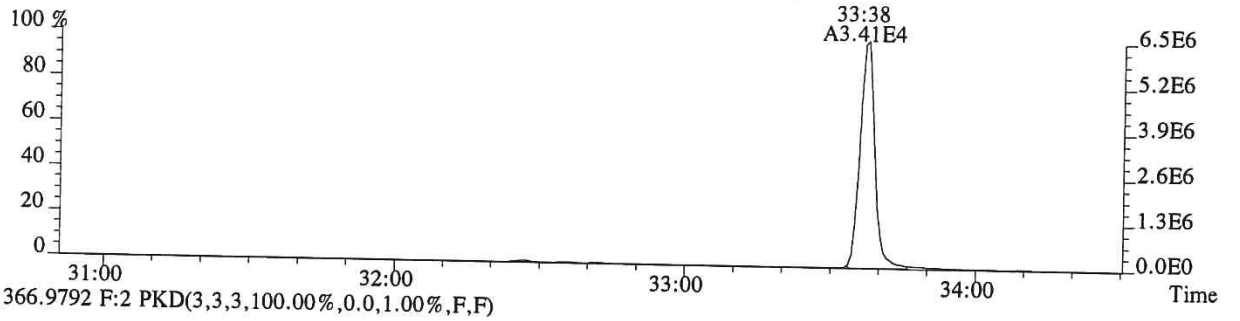
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



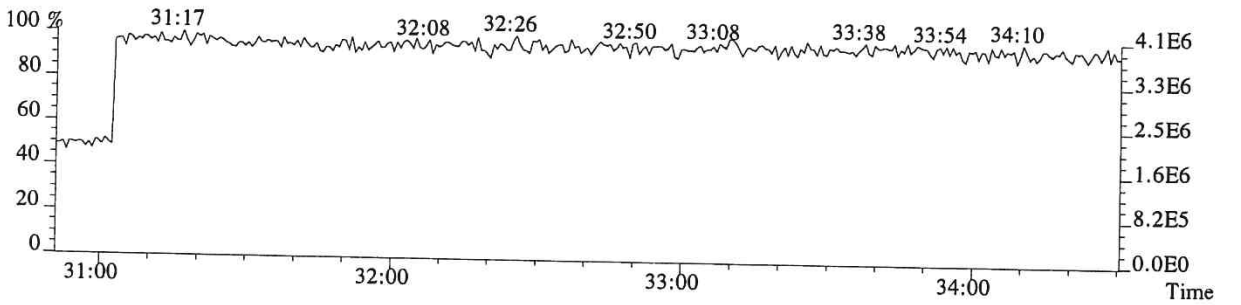
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1920.0,1.00%,F,T)



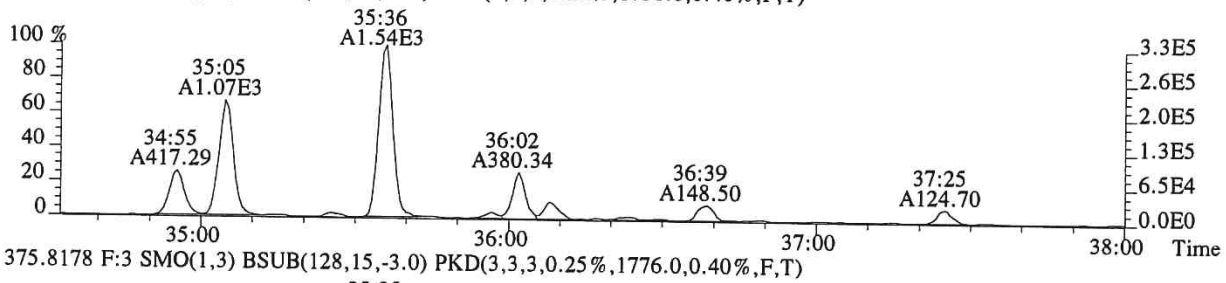
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



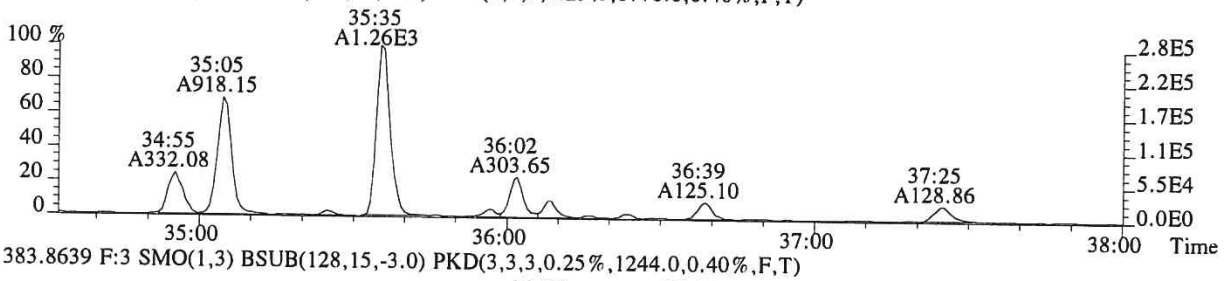
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



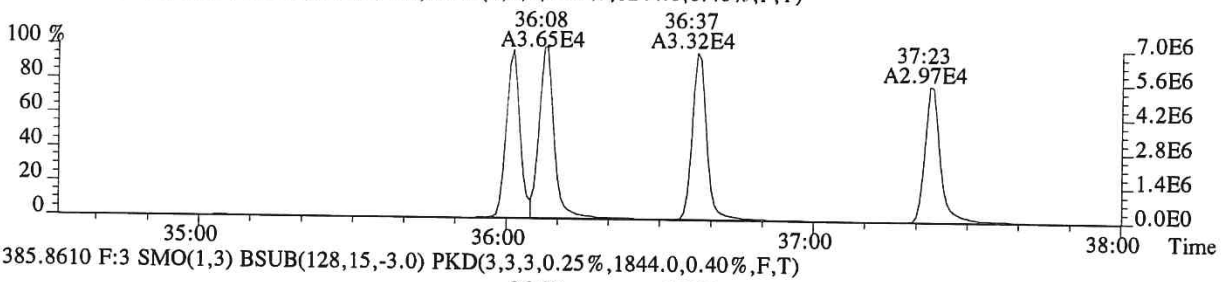
File:P519134 #1-312 Acq: 2-DEC-2018 07:00:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-031
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1736.0,0.40%,F,T)



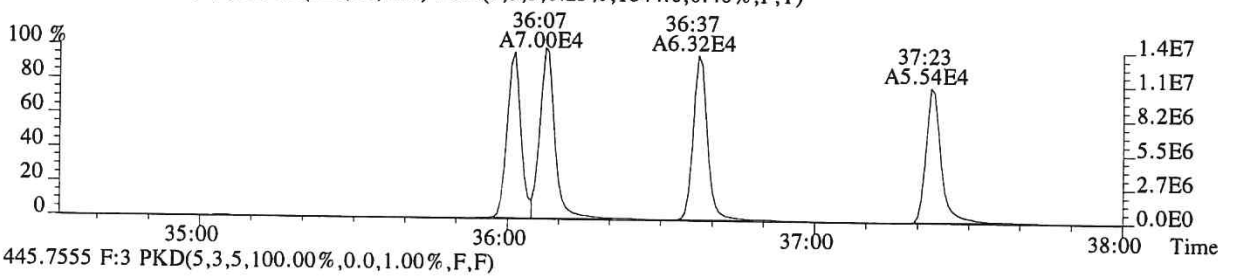
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1776.0,0.40%,F,T)



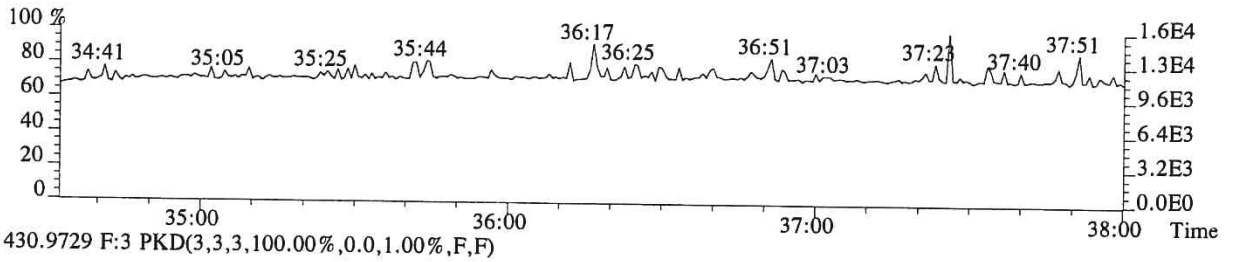
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



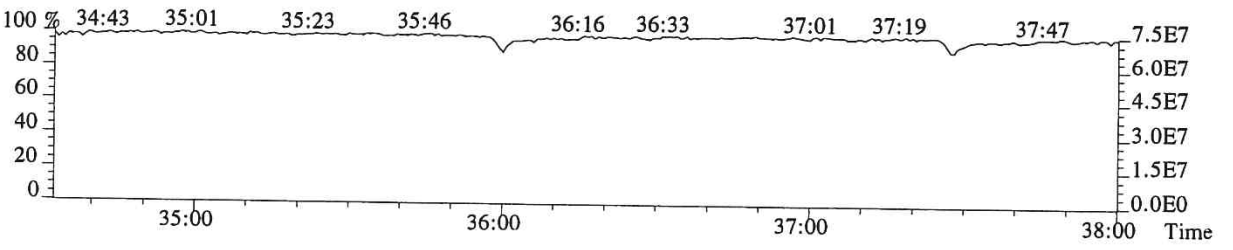
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

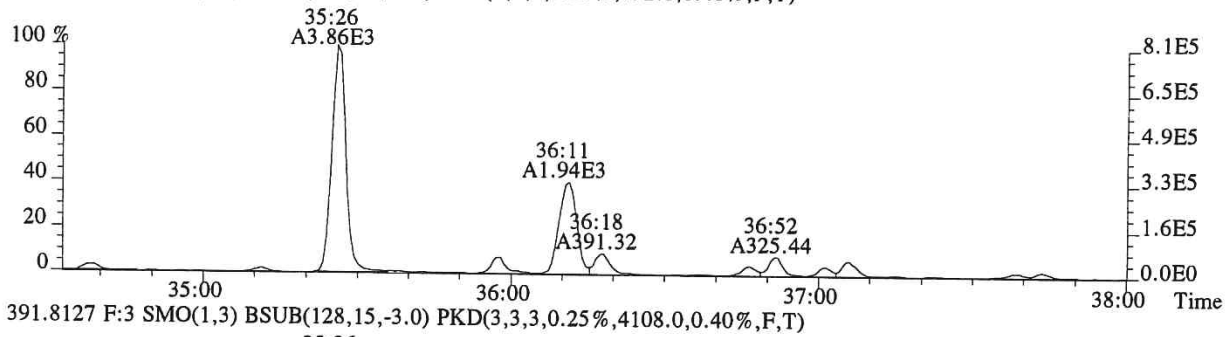


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

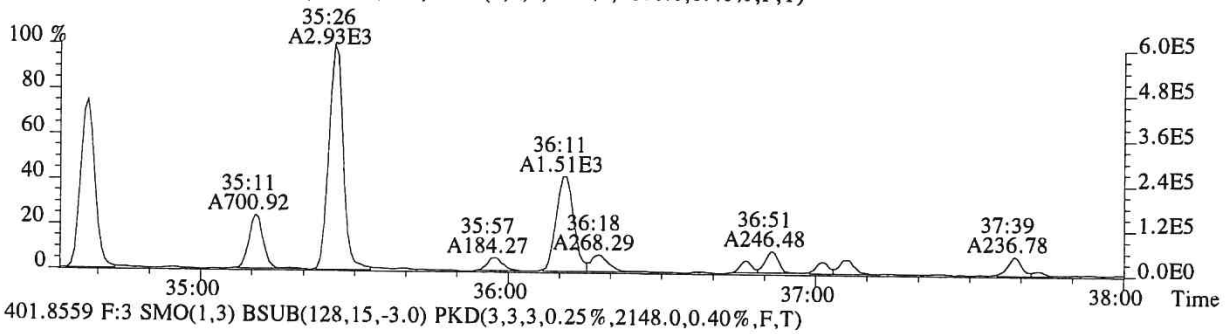


011104

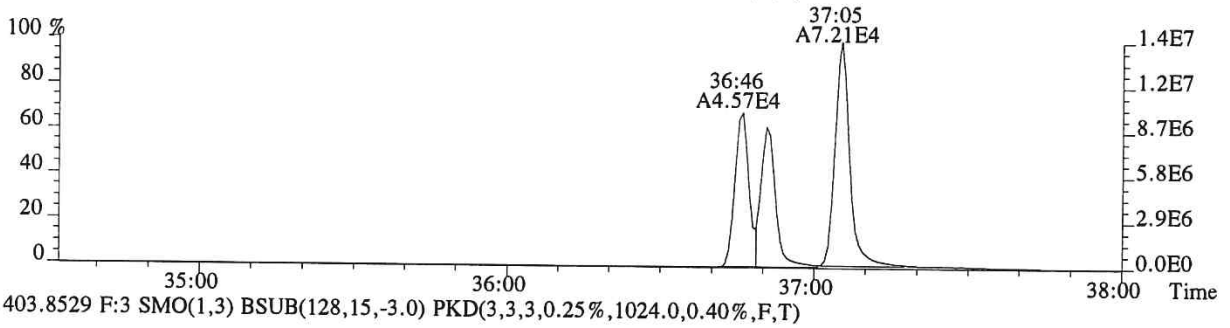
File:P519134 #1-312 Acq: 2-DEC-2018 07:00:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-031
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



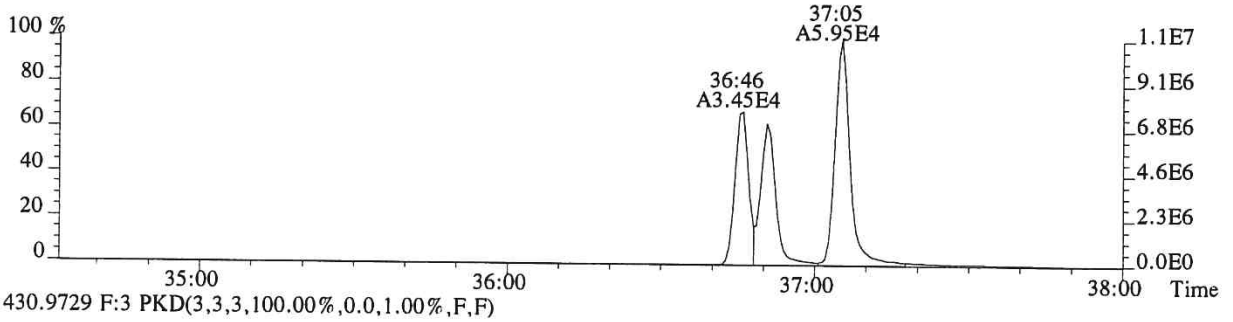
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4108.0,0.40%,F,T)



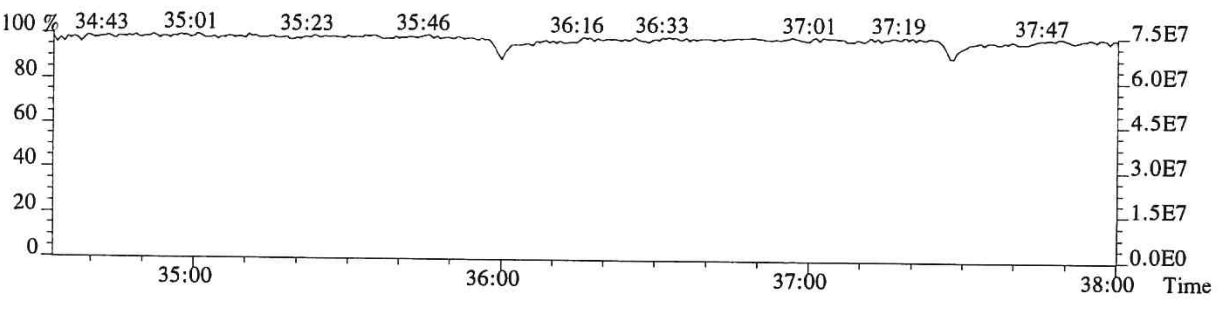
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2148.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)

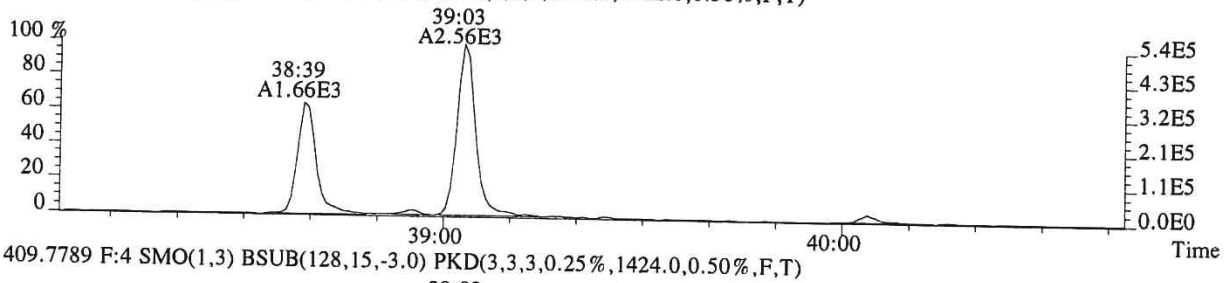


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

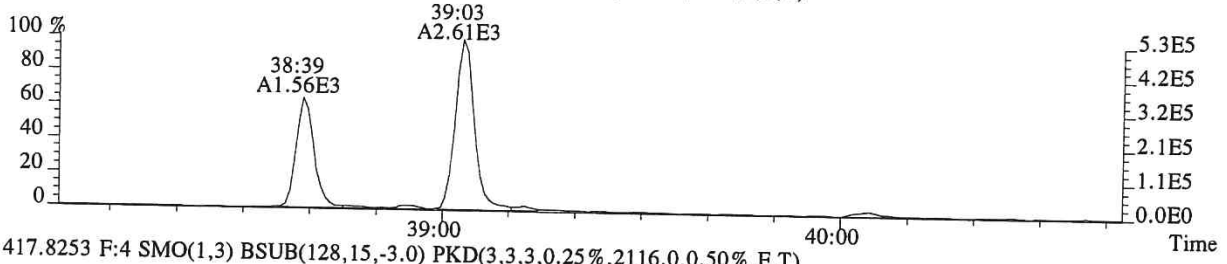


File:P519134 #1-241 Acq: 2-DEC-2018 07:00:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-031

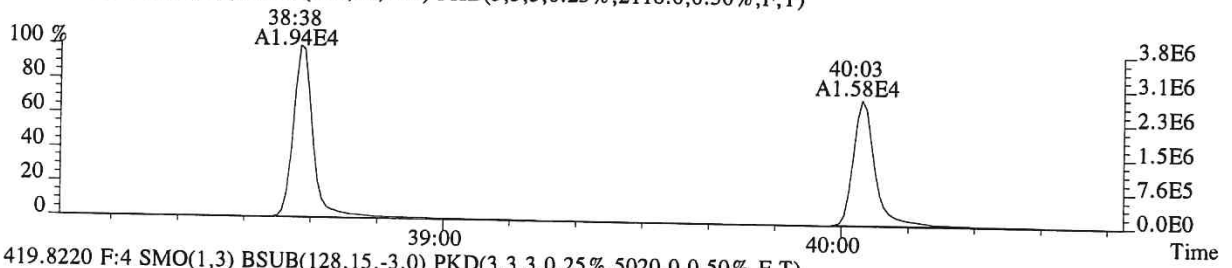
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1512.0,0.50%,F,T)



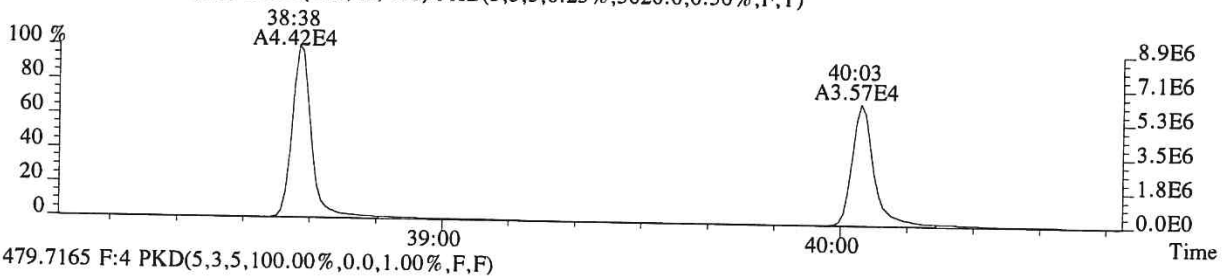
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.50%,F,T)



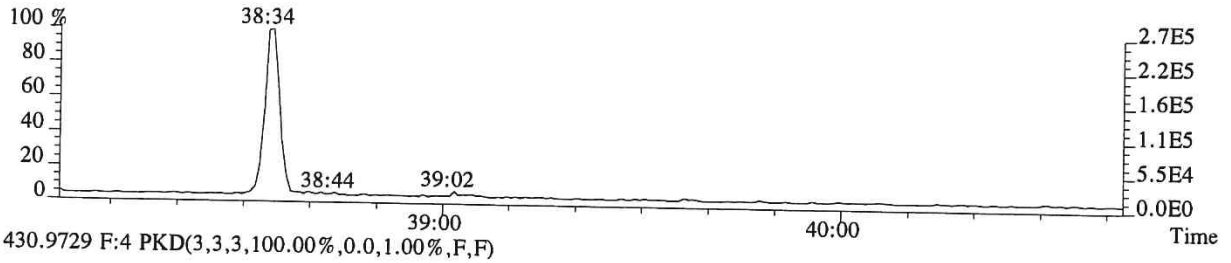
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2116.0,0.50%,F,T)



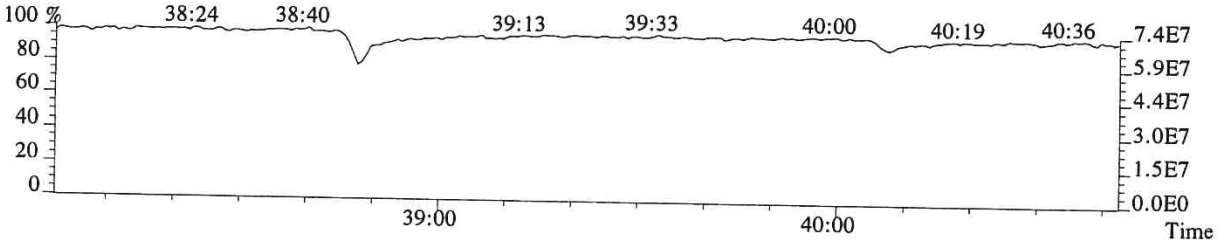
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5020.0,0.50%,F,T)



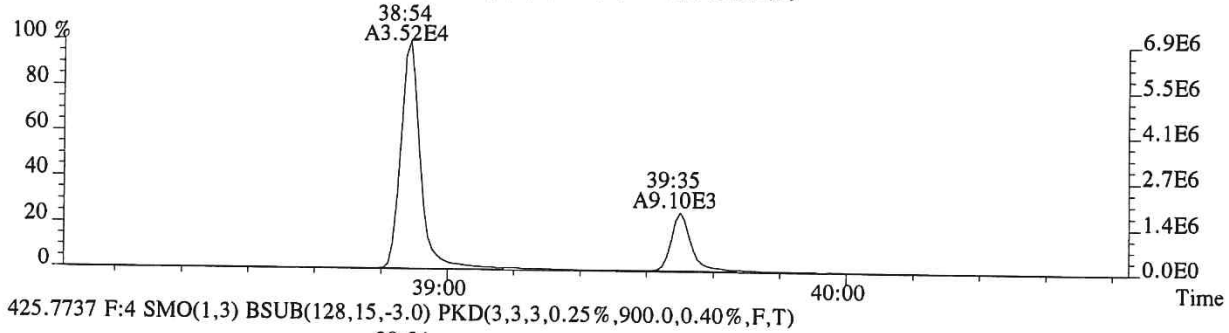
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



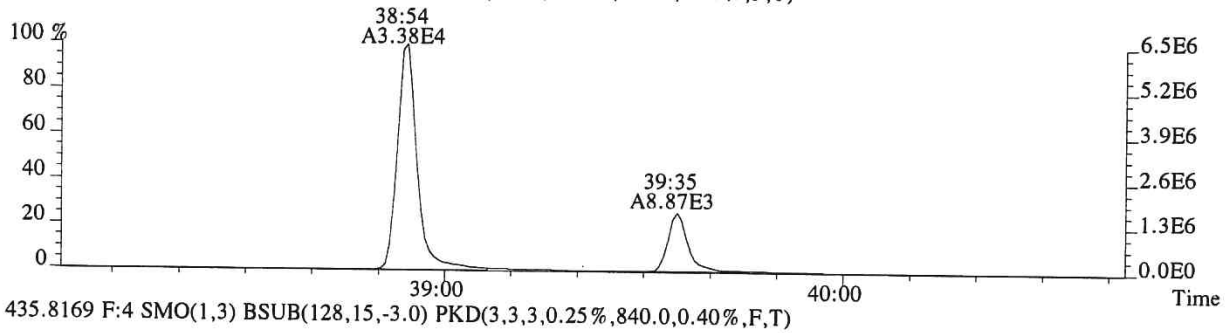
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



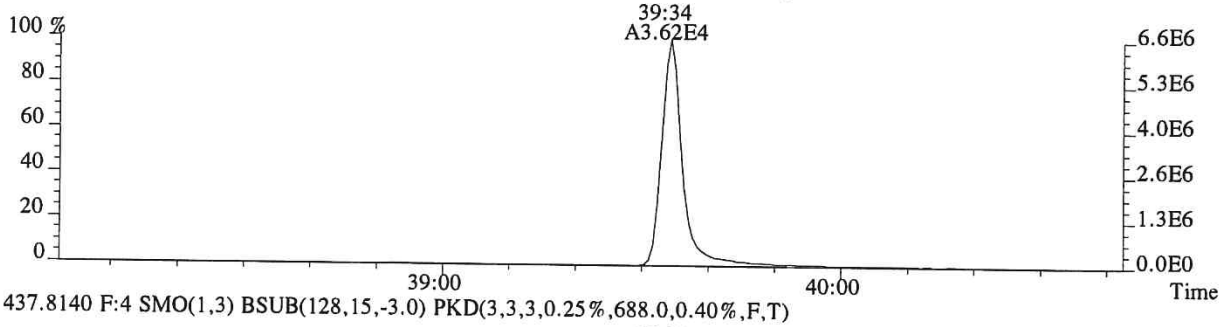
File:P519134 #1-241 Acq: 2-DEC-2018 07:00:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-031
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



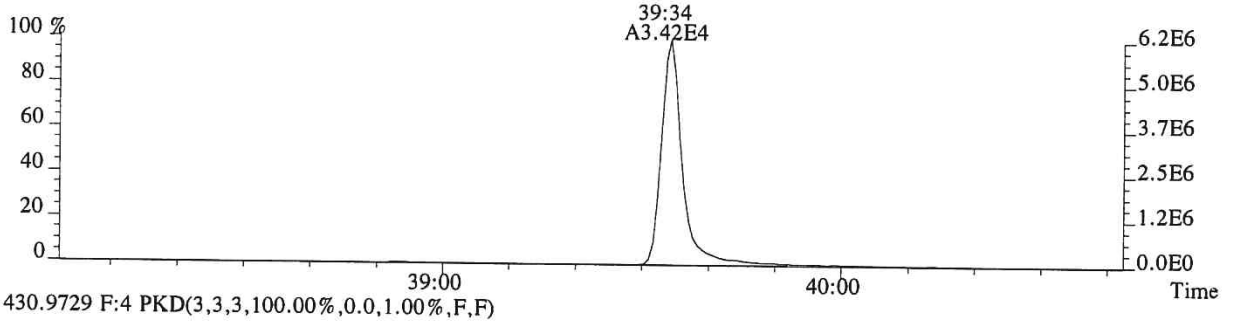
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



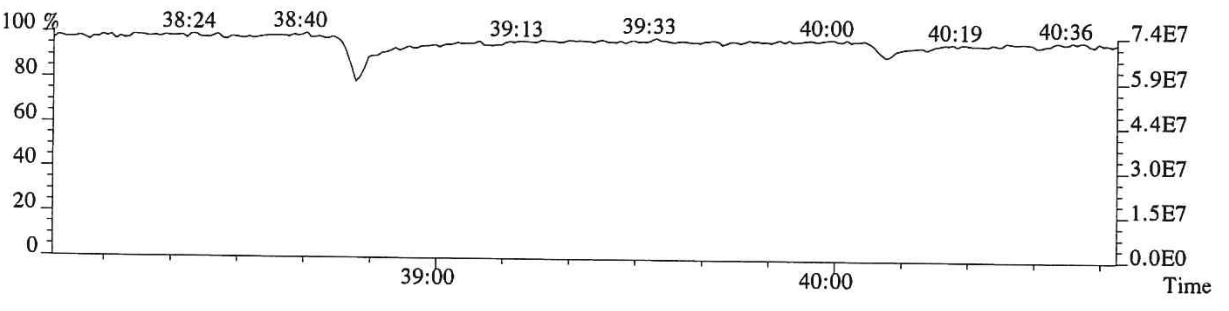
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



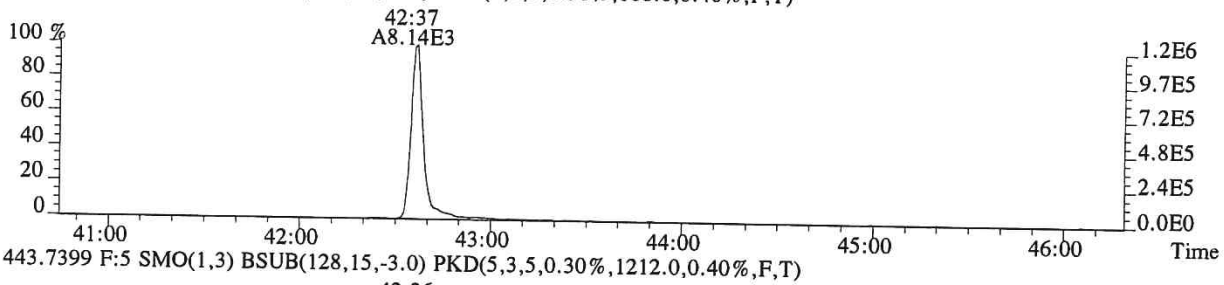
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



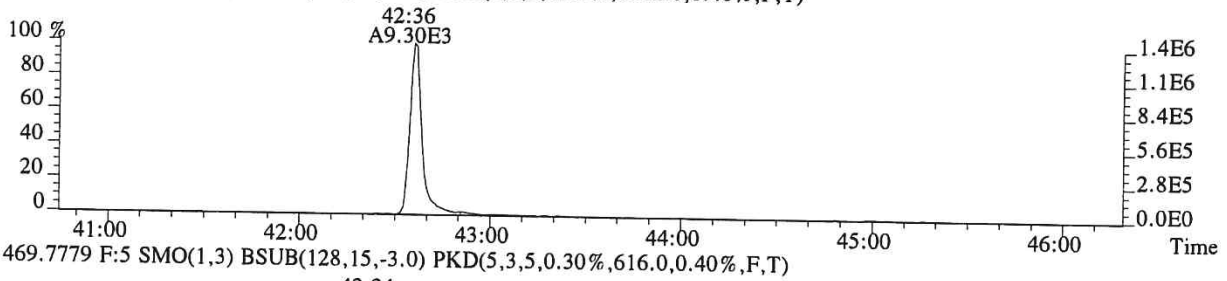
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



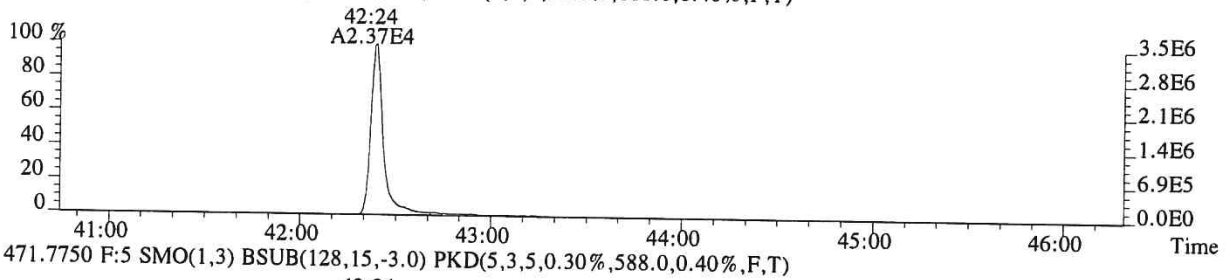
File:P519134 #1-502 Acq: 2-DEC-2018 07:00:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-031
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



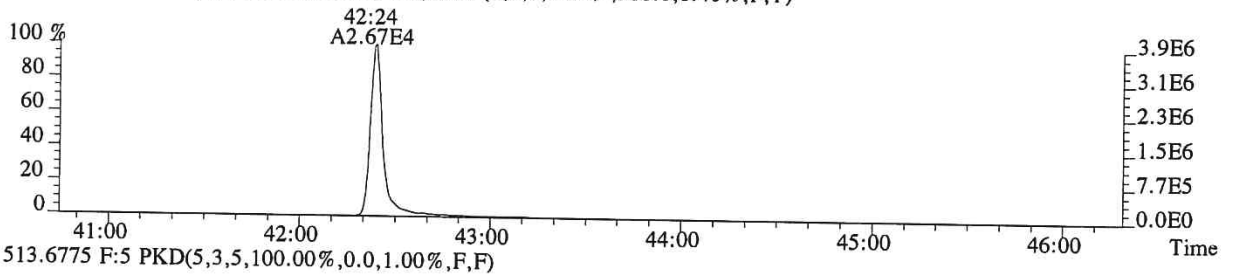
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1212.0,0.40%,F,T)



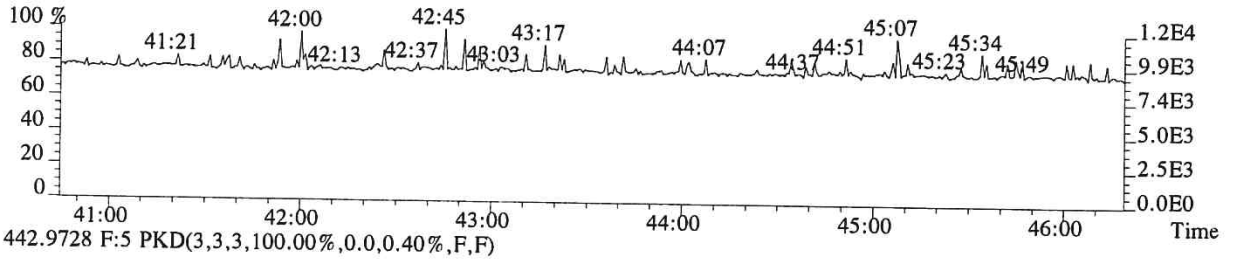
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



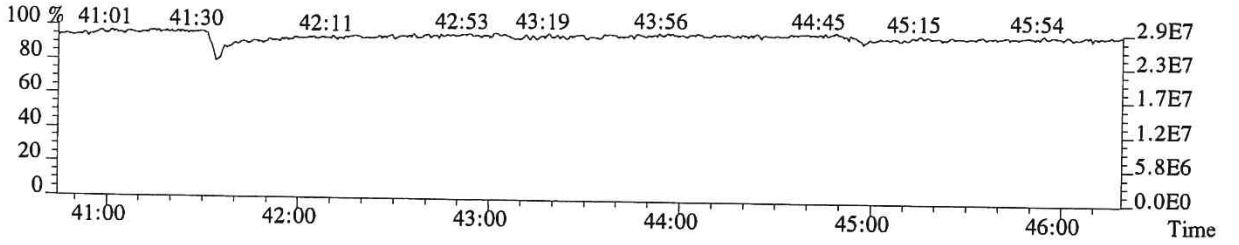
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



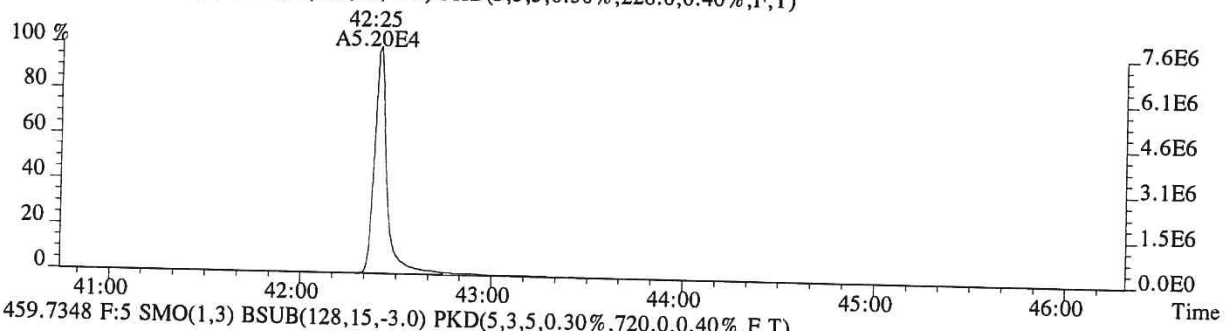
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



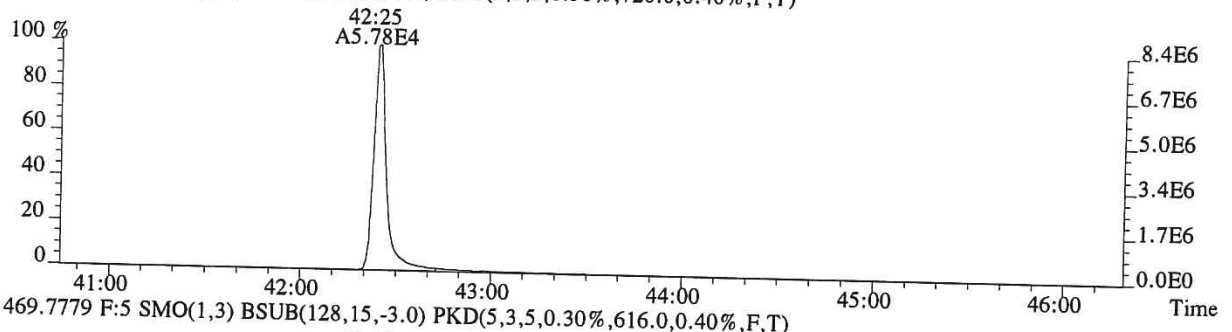
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



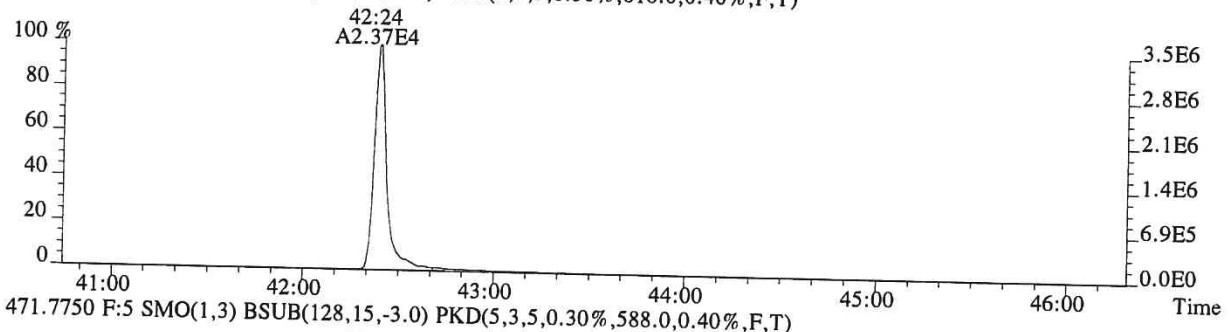
File:P519134 #1-502 Acq: 2-DEC-2018 07:00:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-031
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



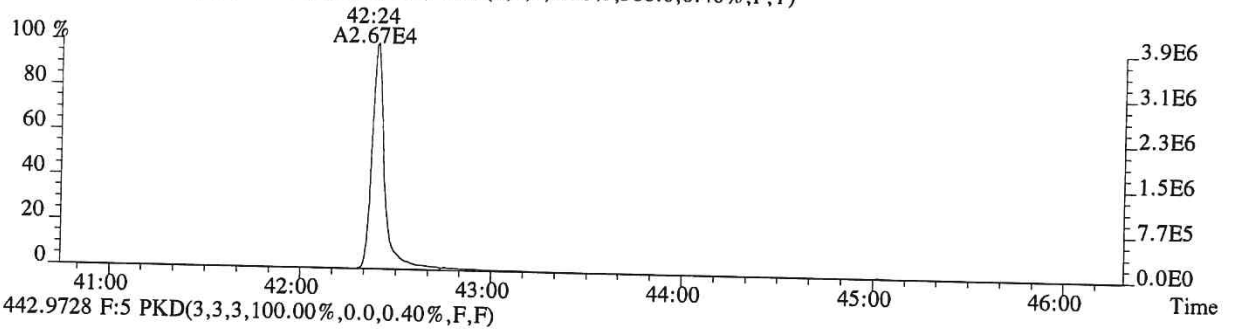
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,720.0,0.40%,F,T)



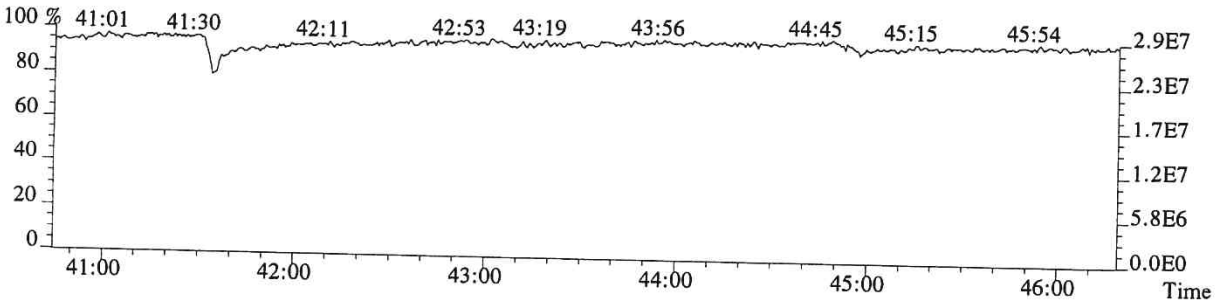
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011109

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0129

Run #14 Filename P519139 Samp: 1 Inj: 1 Acquired: 2-DEC-18 11:02:27
Processed: 3-DEC-18 17:48:46 Sample ID: E1801039-036

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	1.973e+05	2.581e+05	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:26	9.148e+03	5.906e+03	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:20	7.576e+03	4.845e+03	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:01	1.023e+04	8.463e+03	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	2.890e+03	2.389e+03	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:38	9.539e+02	8.327e+02	1.15	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:25	6.994e+02	6.028e+02	1.16	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	8.510e+03	8.447e+03	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	6.175e+02	5.854e+02	1.05	yes	no	1.258
10	Unk	OCDF	42:36	4.215e+04	4.824e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	5.734e+04	7.353e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	1.031e+03	6.779e+02	1.52	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:46	2.709e+02	2.033e+02	1.33	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	1.287e+03	9.789e+02	1.31	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:05	6.153e+02	4.971e+02	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	3.132e+04	3.065e+04	1.02	yes	no	1.025
17	Unk	OCDD	42:24	2.602e+05	2.902e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:13	3.345e+04	4.227e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	5.085e+04	3.255e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.603e+04	2.859e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.850e+04	3.584e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	2.010e+04	3.899e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	1.737e+04	3.346e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.518e+04	2.933e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	8.754e+03	2.033e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	5.812e+03	1.364e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:00	2.461e+04	3.078e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	3.592e+04	2.238e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	2.489e+04	1.976e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:50	2.339e+04	1.809e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.440e+04	1.366e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:23	7.089e+03	7.806e+03	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	5.753e+04	7.191e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	5.834e+04	4.617e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	2.619e+04				no	1.014

$$\text{OCDD} = \frac{(2.602e{+}05 + 2.902e{+}05) \times 4000 \text{ pg} \times 1}{(7.089e{+}03 + 7.806e{+}03) \times 10.819 \text{ g} \times 62.3 / 100 \times 1.118} = 19614 \text{ ng/kg}$$

LLL 12/05/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0129

Run #14 Filename P519139 Samp: 1 Inj: 1 Acquired: 2-DEC-18 11:02:27
Processed: 3-DEC-18 17:48:46 LAB. ID: E1801039-036

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.47e+07	1.19e+03	2.9e+04	4.53e+07	1.74e+03	2.6e+04
2	1,2,3,7,8-PeCDF	1.74e+06	8.55e+03	2.0e+02	1.17e+06	4.64e+03	2.5e+02
3	2,3,4,7,8-PeCDF	1.18e+06	8.55e+03	1.4e+02	7.50e+05	4.64e+03	1.6e+02
4	1,2,3,4,7,8-HxCDF	2.17e+06	6.05e+03	3.6e+02	1.81e+06	8.16e+03	2.2e+02
5	1,2,3,6,7,8-HxCDF	5.80e+05	6.05e+03	9.6e+01	4.78e+05	8.16e+03	5.9e+01
6	2,3,4,6,7,8-HxCDF	2.16e+05	6.05e+03	3.6e+01	1.64e+05	8.16e+03	2.0e+01
7	1,2,3,7,8,9-HxCDF	1.38e+05	6.05e+03	2.3e+01	1.07e+05	8.16e+03	1.3e+01
8	1,2,3,4,6,7,8-HpCDF	1.86e+06	5.05e+03	3.7e+02	1.76e+06	6.58e+03	2.7e+02
9	1,2,3,4,7,8,9-HpCDF	1.23e+05	5.05e+03	2.4e+01	1.14e+05	6.58e+03	1.7e+01
10	OCDF	6.56e+06	6.20e+02	1.1e+04	7.55e+06	9.68e+02	7.8e+03
11	2,3,7,8-TCDD	1.15e+07	2.82e+03	4.1e+03	1.47e+07	2.43e+03	6.0e+03
12	1,2,3,7,8-PeCDD	1.76e+05	1.67e+03	1.1e+02	1.21e+05	6.08e+02	2.0e+02
13	1,2,3,4,7,8-HxCDD	6.59e+04	7.44e+02	8.9e+01	4.95e+04	4.79e+03	1.0e+01
14	1,2,3,6,7,8-HxCDD	2.89e+05	7.44e+02	3.9e+02	2.09e+05	4.79e+03	4.4e+01
15	1,2,3,7,8,9-HxCDD	1.24e+05	7.44e+02	1.7e+02	1.04e+05	4.79e+03	2.2e+01
16	1,2,3,4,6,7,8-HpCDD	6.12e+06	6.77e+03	9.0e+02	6.03e+06	1.23e+04	4.9e+02
17	OCDD	4.11e+07	2.00e+02	2.1e+05	4.59e+07	7.92e+02	5.8e+04
18	13C-2,3,7,8-TCDF	6.21e+06	7.93e+03	7.8e+02	7.96e+06	4.82e+03	1.7e+03
19	13C-1,2,3,7,8-PeCDF	9.78e+06	1.19e+04	8.2e+02	6.25e+06	1.03e+04	6.1e+02
20	13C-2,3,4,7,8-PeCDF	9.39e+06	1.19e+04	7.9e+02	5.86e+06	1.03e+04	5.7e+02
21	13C-1,2,3,4,7,8-HxCDF	4.05e+06	1.22e+03	3.3e+03	7.85e+06	2.35e+03	3.3e+03
22	13C-1,2,3,6,7,8-HxCDF	4.18e+06	1.22e+03	3.4e+03	8.10e+06	2.35e+03	3.4e+03
23	13C-2,3,4,6,7,8-HxCDF	3.61e+06	1.22e+03	3.0e+03	7.13e+06	2.35e+03	3.0e+03
24	13C-1,2,3,7,8,9-HxCDF	3.02e+06	1.22e+03	2.5e+03	5.79e+06	2.35e+03	2.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.86e+06	3.73e+03	5.0e+02	4.33e+06	3.53e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.05e+06	3.73e+03	2.8e+02	2.55e+06	3.53e+03	7.2e+02
27	13C-2,3,7,8-TCDD	4.99e+06	5.52e+03	9.0e+02	6.23e+06	2.76e+03	2.3e+03
28	13C-1,2,3,7,8-PeCDD	7.05e+06	1.28e+03	5.5e+03	4.46e+06	1.40e+03	3.2e+03
29	13C-1,2,3,4,7,8-HxCDD	5.49e+06	2.43e+03	2.3e+03	4.34e+06	1.36e+03	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	4.84e+06	2.43e+03	2.0e+03	3.83e+06	1.36e+03	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.78e+06	8.76e+02	3.2e+03	2.67e+06	5.36e+02	5.0e+03
32	13C-OCDD	1.15e+06	9.80e+02	1.2e+03	1.24e+06	2.48e+02	5.0e+03
33	13C-1,2,3,4-TCDD	1.10e+07	5.52e+03	2.0e+03	1.38e+07	2.76e+03	5.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.22e+07	2.43e+03	5.0e+03	9.72e+06	1.36e+03	7.1e+03
35	37Cl-2,3,7,8-TCDD	5.24e+06	2.40e+03	2.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.816e{+}03 + 2.428e{+}03) \times 2000}{(4.987e{+}06 + 6.235e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0129

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P519139 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 11:02:27 Processed: 3-DEC-18 17:48:46

Mass: 303.9020 305.8990 Tot Response: 8.19e+05 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:15	4.27e+02	0.85	yes	9.28e+02		n	n
2	24:45	1.01e+03	0.74	yes	2.38e+03		n	n
3	25:18	2.11e+03	0.73	yes	4.98e+03		n	n
4	25:37	9.43e+03	0.75	yes	2.20e+04		n	n
5	26:02	3.24e+03	0.73	yes	7.65e+03		n	n
6	26:10	5.25e+02	0.82	yes	1.16e+03		n	n
7	26:19	7.83e+03	0.74	yes	1.84e+04		n	n
8	26:42	1.85e+03	0.88	yes	3.94e+03		n	n
9	26:54	6.00e+03	0.73	yes	1.42e+04		n	n
10	27:01	7.93e+03	0.75	yes	1.85e+04		n	n
11	27:27	8.34e+04	0.75	yes	1.94e+05		n	n
12	27:42	3.99e+03	0.73	yes	9.44e+03		n	n
13	28:15	1.97e+05	0.76	yes	4.55e+05	2,3,7,8-TCDF	n	n
14	28:34	1.37e+04	0.75	yes	3.20e+04		n	n
15	28:49	2.09e+03	0.79	yes	4.76e+03		n	n
16	30:04	1.26e+04	0.75	yes	2.92e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0129

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P519139 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 11:02:27 Processed: 3-DEC-18 17:48:46

Mass: 319.8970 321.8940 Tot Response: 1.44e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:47	8.17e+02	9.79e+02	0.83	yes	1.80e+03		n	n
2	29:02	5.73e+04	7.35e+04	0.78	yes	1.31e+05	2,3,7,8-TCDD	n	n
3	29:19	4.68e+03	6.51e+03	0.72	yes	1.12e+04		n	n

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Peak List Summary

CLIENT ID.
SL0129

Entry: 38 Totals Name: Total Penta-Furans1

Run: 14 File: P519139 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 11:02:27 Processed: 3-DEC-18 17:48:46

Mass: 339.8600 341.8570 Tot Response: 1.02e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:03	6.18e+03	4.04e+03 1.53	yes	1.02e+04		n	n

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Peak List Summary

CLIENT ID.
SL0129

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P519139 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 11:02:27 Processed: 3-DEC-18 17:48:46

Mass: 339.8600 341.8570 Tot Response: 5.07e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:23	5.80e+02	3.50e+02	1.66	yes	9.30e+02		n	n
2	31:30	7.33e+03	4.81e+03	1.52	yes	1.21e+04		n	n
3	32:02	1.06e+03	7.45e+02	1.43	yes	1.81e+03		n	n
4	32:08	3.00e+02	1.96e+02	1.53	yes	4.96e+02		n	n
5	32:16	1.09e+03	6.62e+02	1.65	yes	1.76e+03		n	n
6	32:26	9.15e+03	5.91e+03	1.55	yes	1.51e+04	1,2,3,7,8-PeCDF	n	n
7	32:41	3.15e+03	2.00e+03	1.57	yes	5.15e+03		n	n
8	33:15	1.91e+02	1.20e+02	1.59	yes	3.11e+02		n	n
9	33:20	7.58e+03	4.84e+03	1.56	yes	1.24e+04	2,3,4,7,8-PeCDF	n	n
10	34:15	3.49e+02	2.45e+02	1.42	yes	5.94e+02		n	n

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Peak List Summary

CLIENT ID.
SL0129

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P519139 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 11:02:27 Processed: 3-DEC-18 17:48:46

Mass: 355.8550 357.8520 Tot Response: 4.72e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:00	7.99e+02	5.43e+02	1.47	yes	1.34e+03		n	n
2	32:26	3.69e+02	2.53e+02	1.46	yes	6.22e+02		n	n
3	32:36	3.41e+02	2.26e+02	1.51	yes	5.66e+02		n	n
4	32:42	2.05e+02	1.32e+02	1.55	yes	3.36e+02		n	n
5	33:38	1.03e+03	6.78e+02	1.52	yes	1.71e+03	1,2,3,7,8-PeCDD	n	n
6	34:00	8.55e+01	5.54e+01	1.54	yes	1.41e+02		n	n

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Peak List Summary

CLIENT ID.
SL0129

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P519139 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 11:02:27 Processed: 3-DEC-18 17:48:46

Mass: 373.8210 375.8180 Tot Response: 5.12e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:55	1.27e+03	1.07e+03	1.18	yes	2.34e+03		n	n
2	35:04	4.75e+03	3.97e+03	1.20	yes	8.72e+03		n	n
3	35:25	2.13e+02	1.53e+02	1.39	yes	3.65e+02		n	n
4	35:35	6.81e+03	5.47e+03	1.25	yes	1.23e+04		n	n
5	35:56	2.06e+02	1.63e+02	1.26	yes	3.69e+02		n	n
6	36:01	1.02e+04	8.46e+03	1.21	yes	1.87e+04	1,2,3,4,7,8-HxCDF	n	n
7	36:08	2.89e+03	2.39e+03	1.21	yes	5.28e+03	1,2,3,6,7,8-HxCDF	n	n
8	36:28	5.71e+01	4.49e+01	1.27	yes	1.02e+02		n	n
9	36:38	9.54e+02	8.33e+02	1.15	yes	1.79e+03	2,3,4,6,7,8-HxCDF	n	n
10	37:25	6.99e+02	6.03e+02	1.16	yes	1.30e+03	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0129

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P519139 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 11:02:27 Processed: 3-DEC-18 17:48:46

Mass: 389.8160 391.8130 Tot Response: 2.63e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	6.87e+03	5.52e+03	1.25	yes	1.24e+04		n	n
2	35:57	7.09e+02	5.63e+02	1.26	yes	1.27e+03		n	n
3	36:11	4.42e+03	3.57e+03	1.24	yes	7.99e+03		n	n
4	36:17	2.49e+02	2.02e+02	1.24	yes	4.51e+02		n	n
5	36:24	1.51e+01	1.38e+01	1.10	yes	2.89e+01		n	n
6	36:46	2.71e+02	2.03e+02	1.33	yes	4.74e+02	1,2,3,4,7,8-HxCDD	n	n
7	36:51	1.29e+03	9.79e+02	1.31	yes	2.27e+03	1,2,3,6,7,8-HxCDD	n	n
8	37:01	1.75e+02	1.65e+02	1.06	yes	3.40e+02		n	n
9	37:05	6.15e+02	4.97e+02	1.24	yes	1.11e+03	1,2,3,7,8,9-HxCDD	n	n

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CLIENT ID.
SL0129

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P519139 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 11:02:27 Processed: 3-DEC-18 17:48:46

Mass: 407.7820 409.7790 Tot Response: 4.86e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:39	8.51e+03	8.45e+03	1.01	yes	1.70e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	39:03	1.53e+04	1.52e+04	1.00	yes	3.05e+04		n	n
3	40:03	6.17e+02	5.85e+02	1.05	yes	1.20e+03	1,2,3,4,7,8,9-HpCDF	n	n

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CLIENT ID.
SL0129

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519139 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 11:02:27 Processed: 3-DEC-18 17:48:46

Mass: 423.7770 425.7740 Tot Response: 1.46e+05 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	4.30e+04	4.11e+04 1.05	yes	8.41e+04		n	n
2	39:34	3.13e+04	3.06e+04 1.02	yes	6.20e+04	1,2,3,4,6,7,8-HpCDD	n	n

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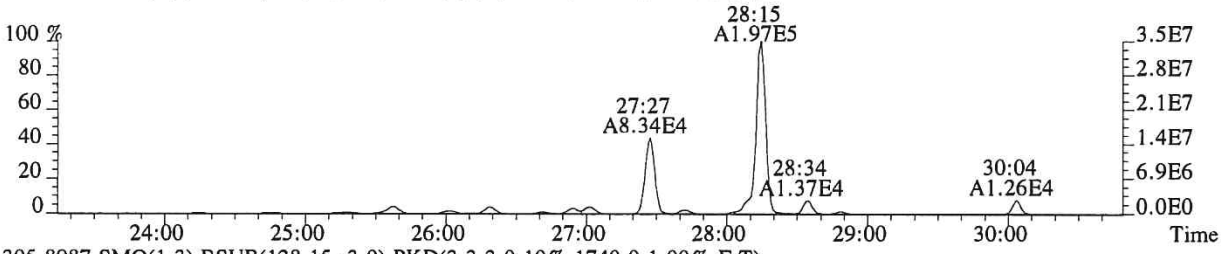
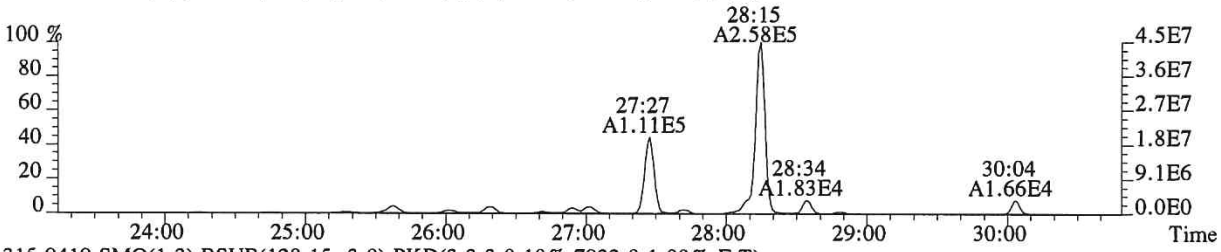
File:P519139 #1-538 Acq: 2-DEC-2018 11:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-036

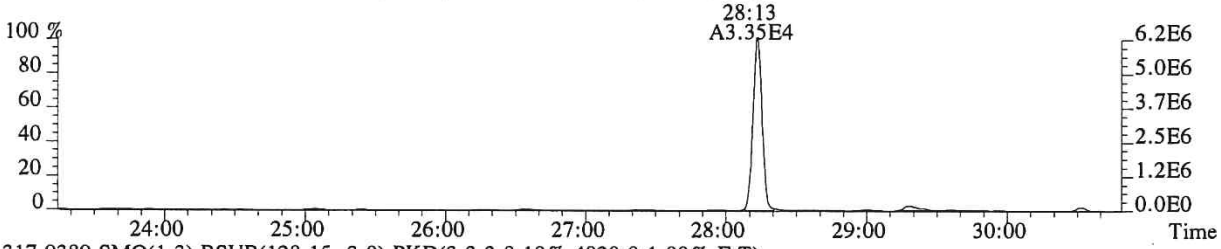
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



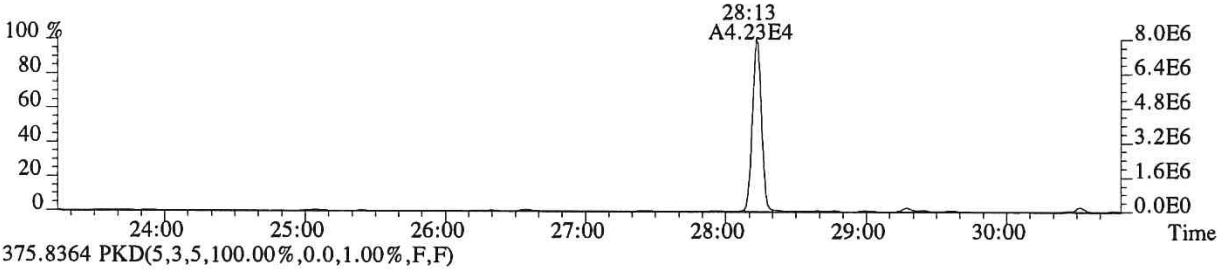
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1740.0,1.00%,F,T)



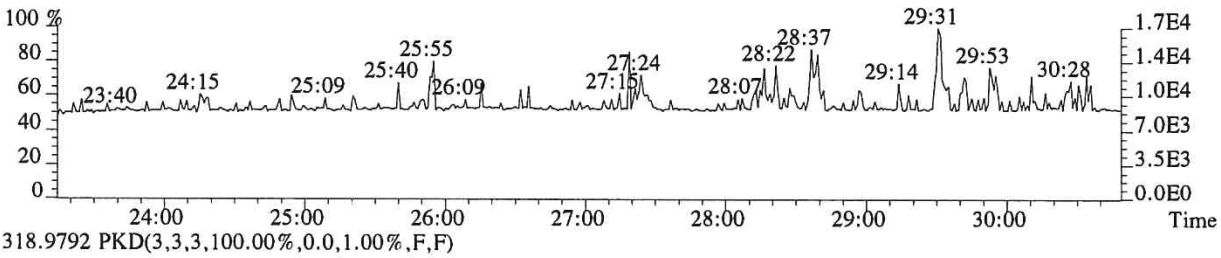
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7932.0,1.00%,F,T)



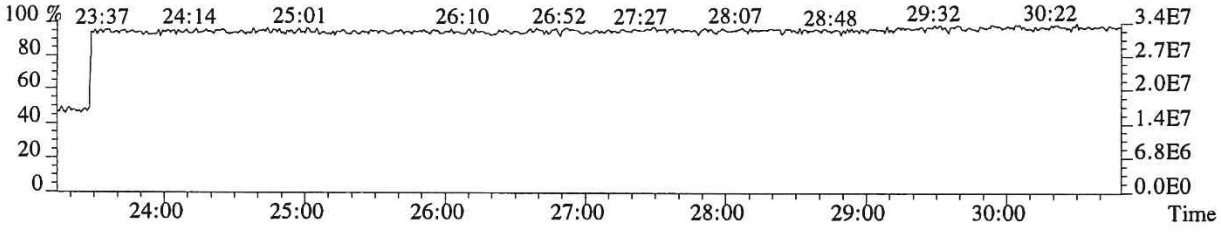
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4820.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

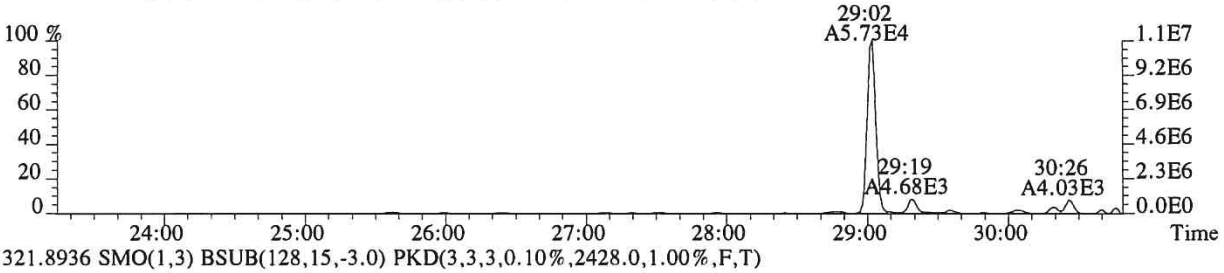


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

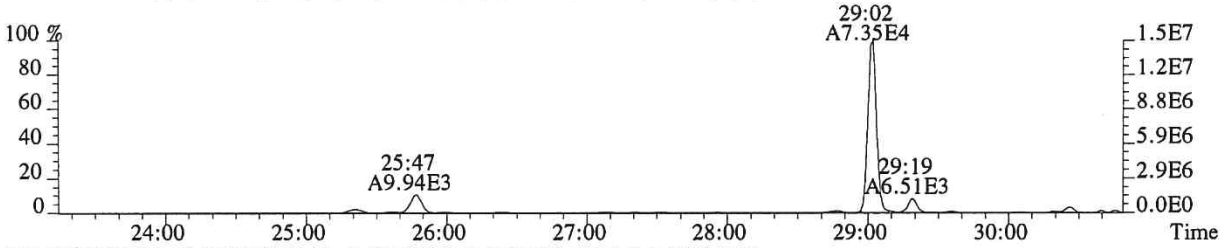


011121

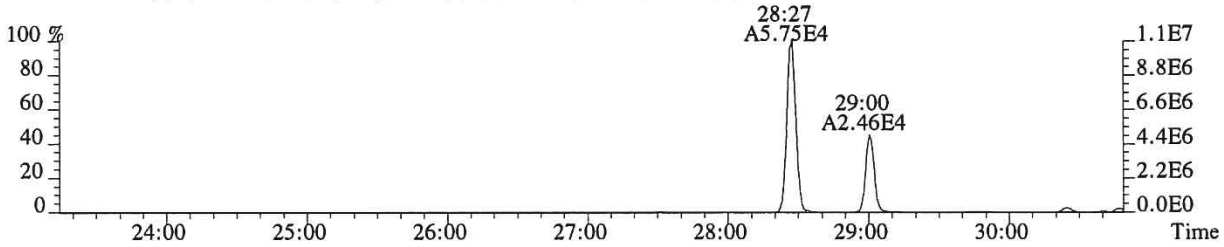
File:P519139 #1-538 Acq: 2-DEC-2018 11:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-036
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2816.0,1.00%,F,T)



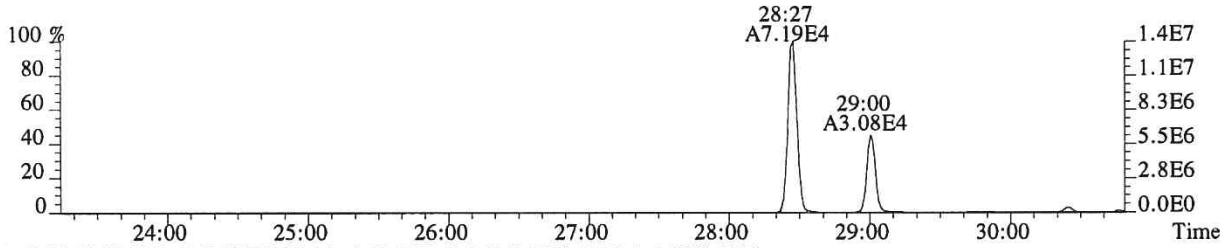
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2428.0,1.00%,F,T)



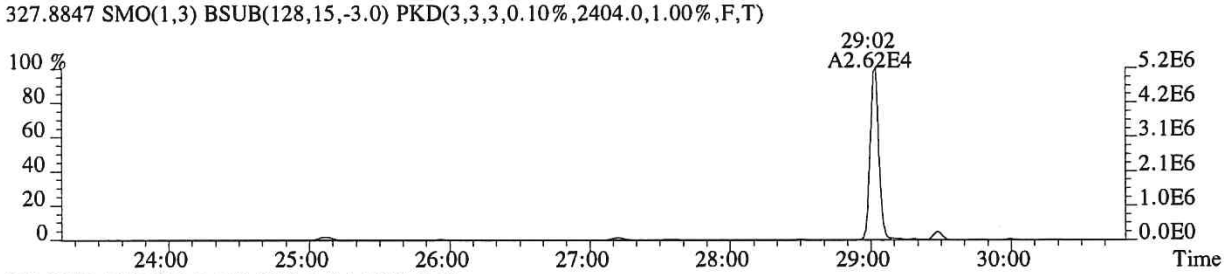
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5524.0,1.00%,F,T)



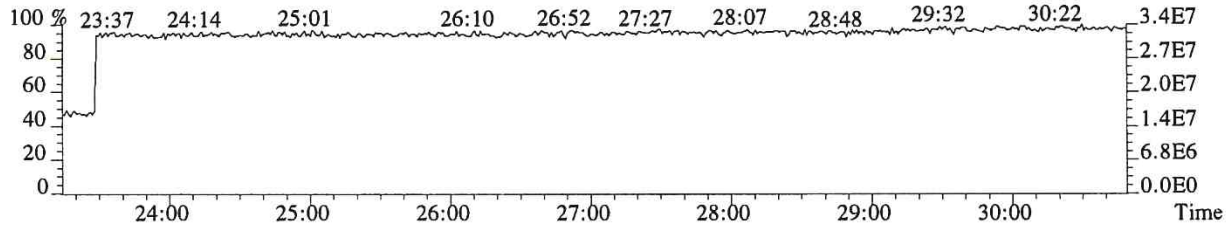
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2764.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2404.0,1.00%,F,T)

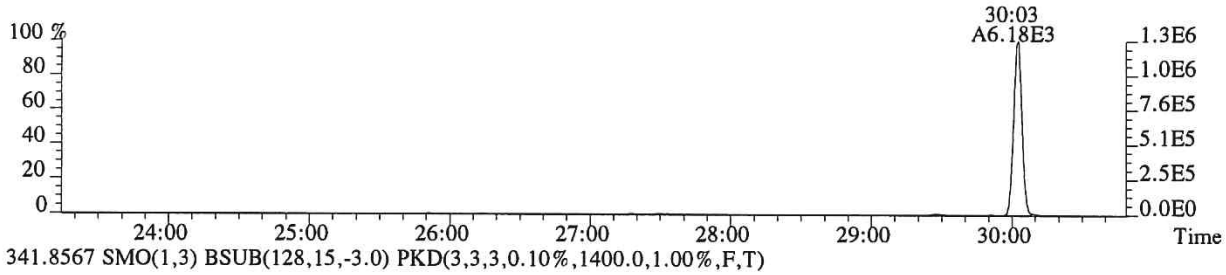


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

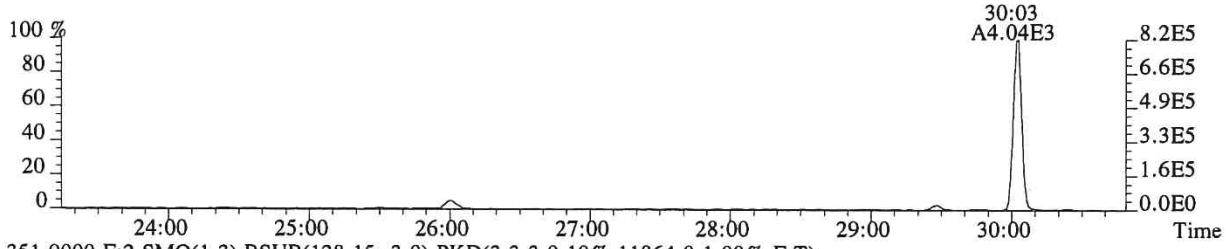


011122

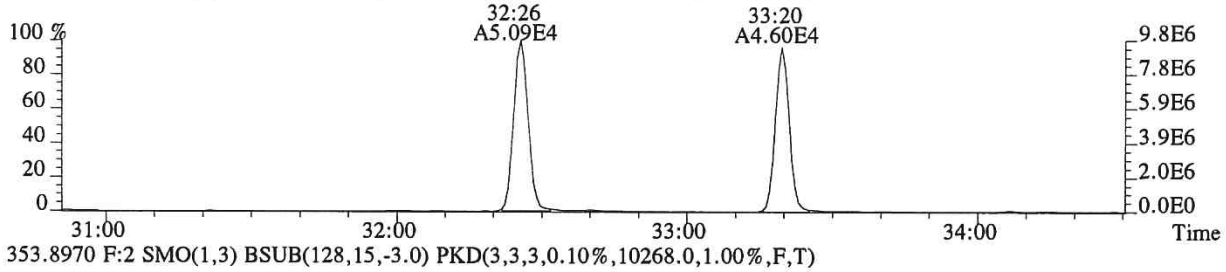
File:P519139 #1-538 Acq: 2-DEC-2018 11:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-036
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



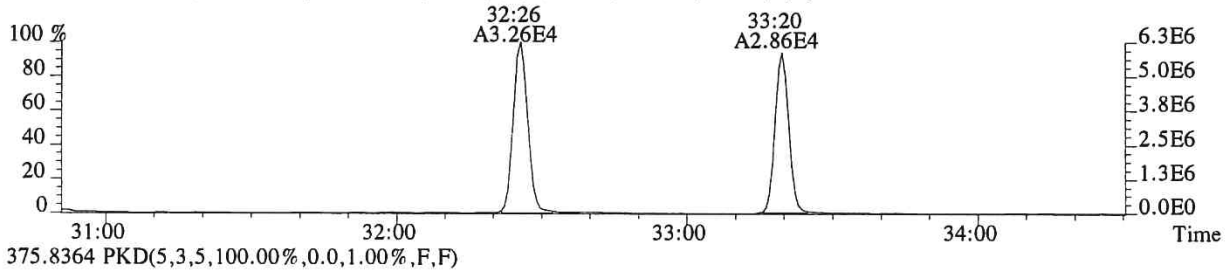
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



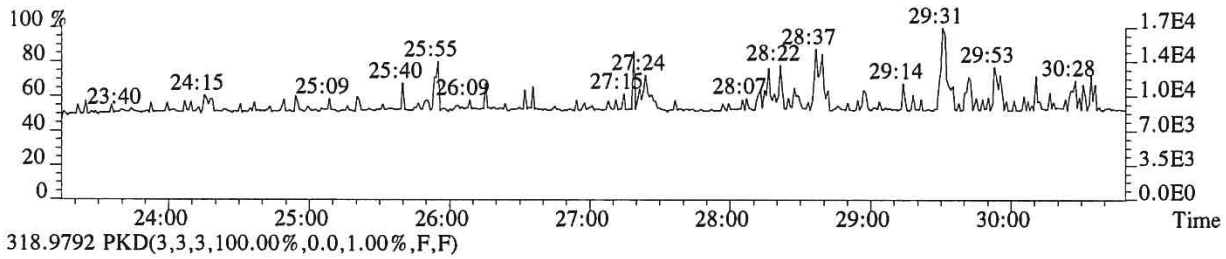
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11864.0,1.00%,F,T)



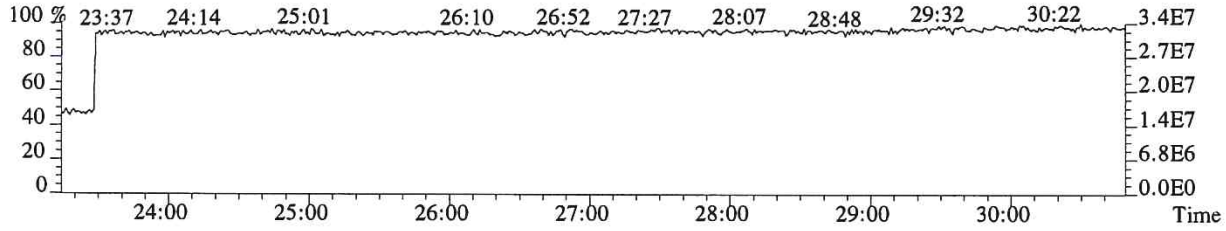
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10268.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

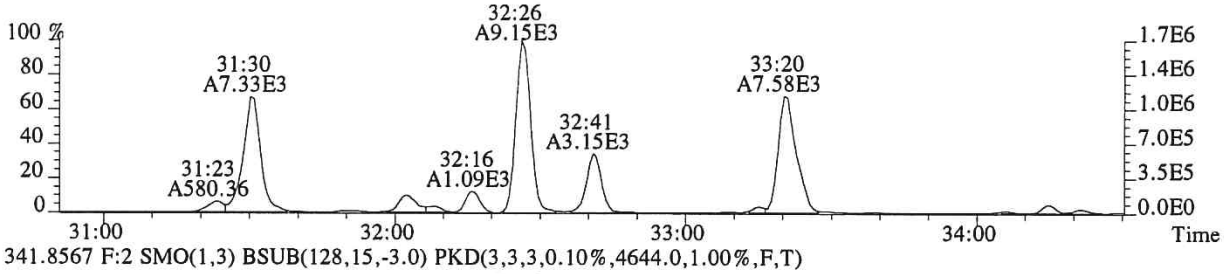


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

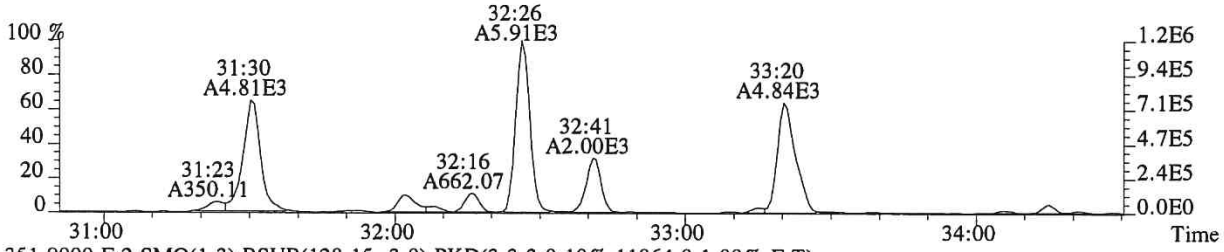


011123

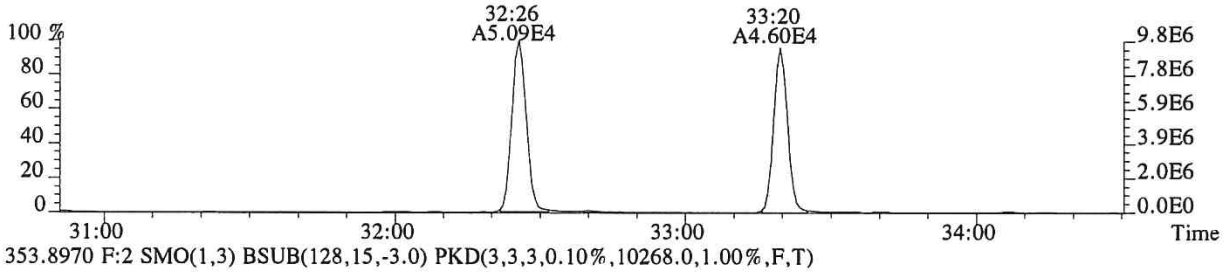
File:P519139 #1-330 Acq: 2-DEC-2018 11:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-036
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8548.0,1.00%,F,T)



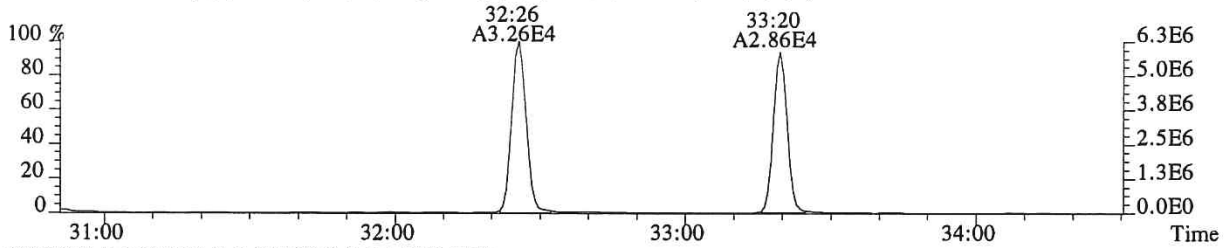
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4644.0,1.00%,F,T)



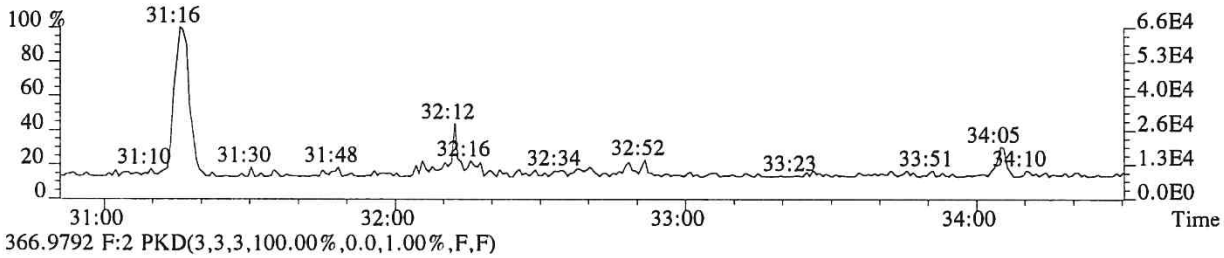
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11864.0,1.00%,F,T)



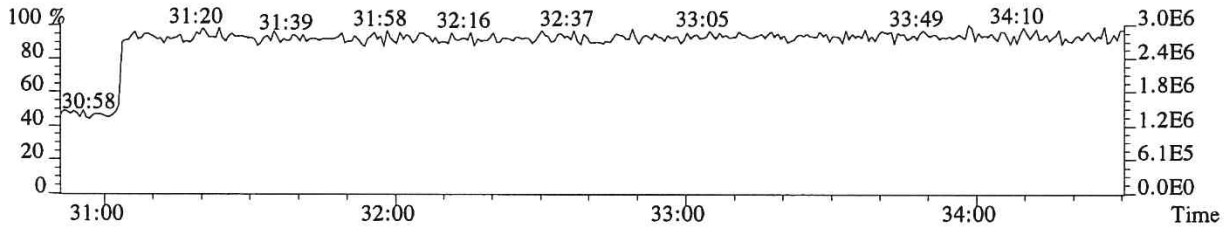
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10268.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

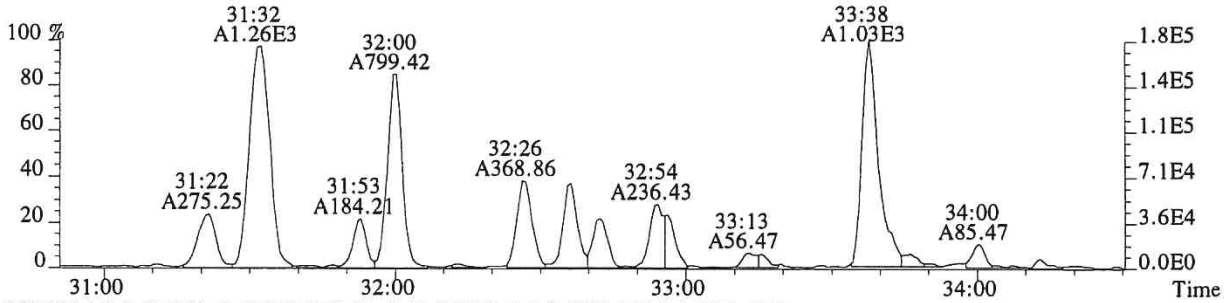


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

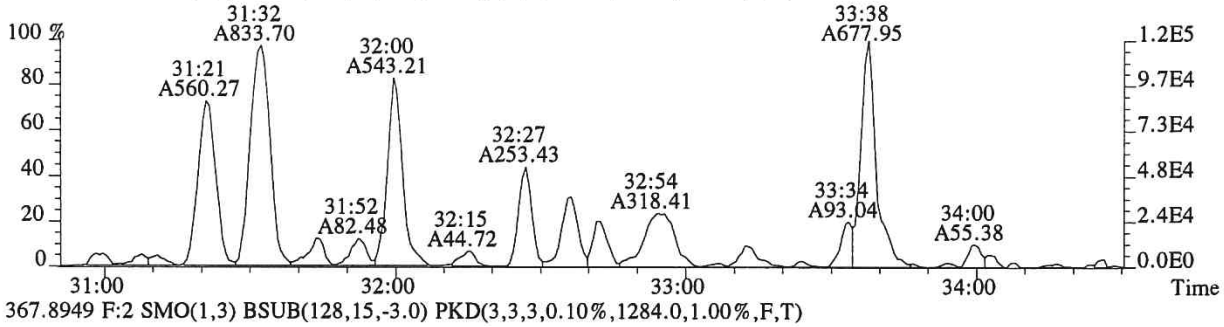


011124

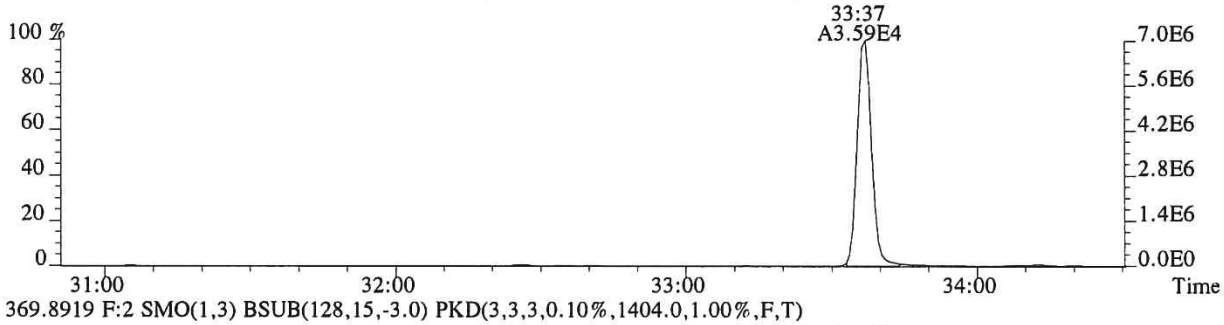
File:P519139 #1-330 Acq: 2-DEC-2018 11:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-036
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1668.0,1.00%,F,T)



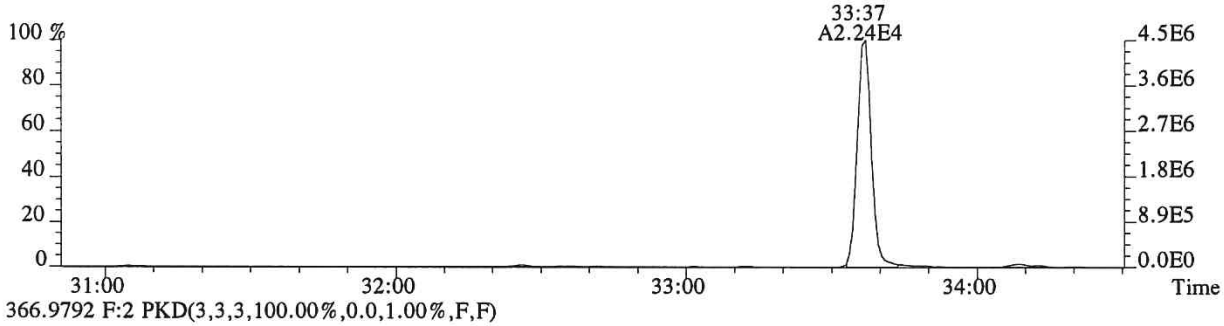
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



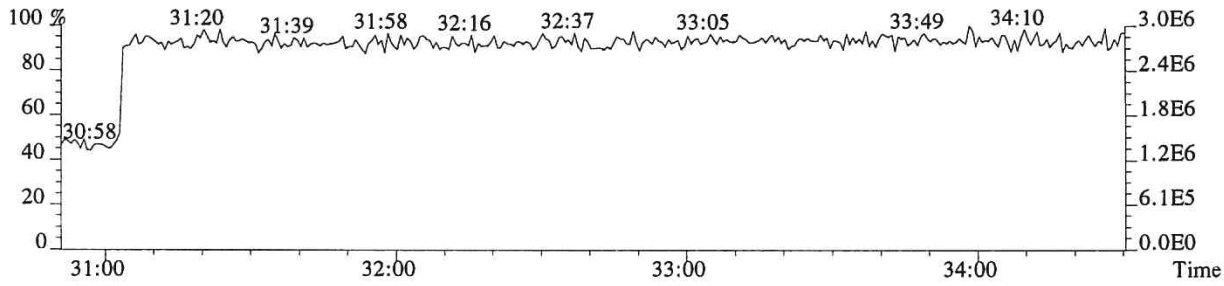
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)

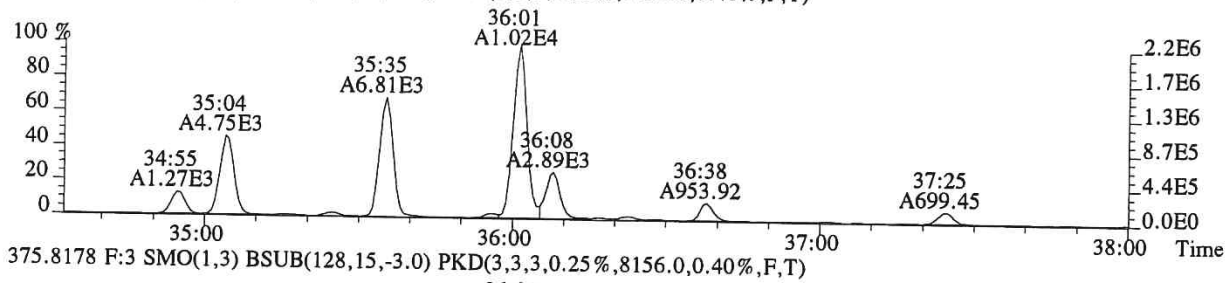


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

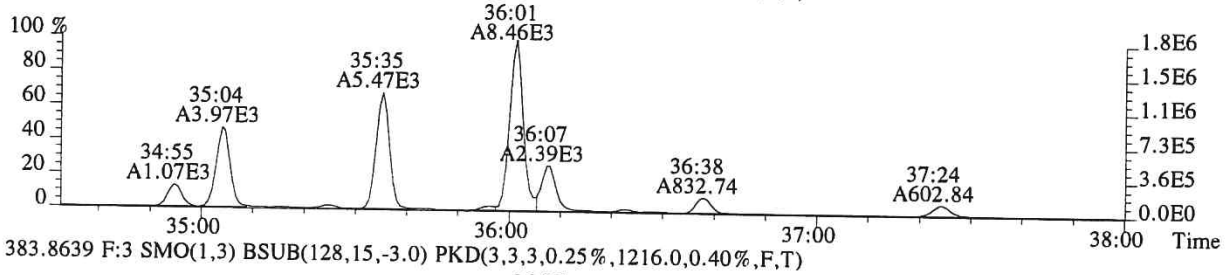


File:P519139 #1-312 Acq: 2-DEC-2018 11:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-036

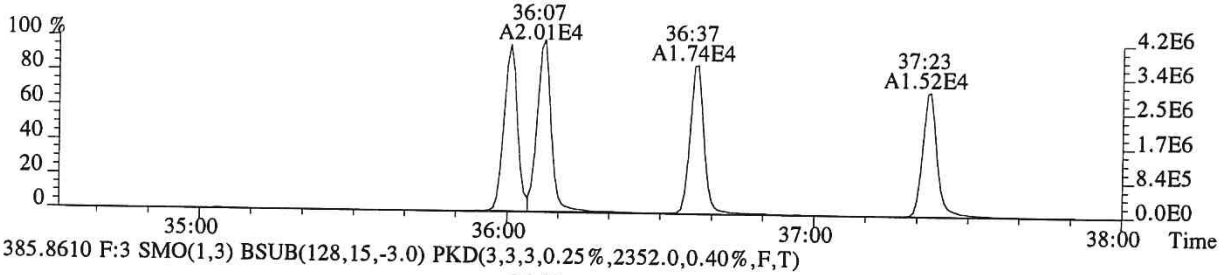
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6052.0,0.40%,F,T)



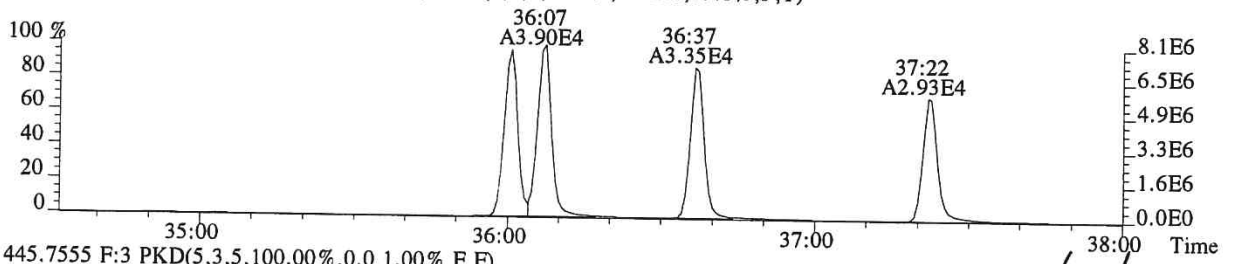
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8156.0,0.40%,F,T)



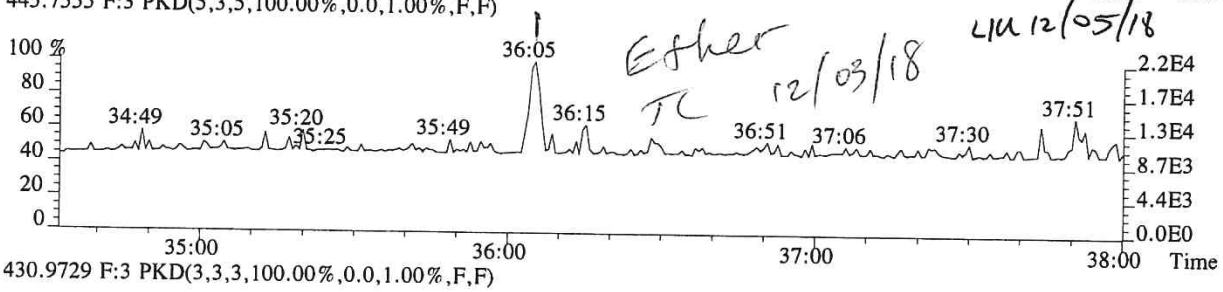
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.40%,F,T)



385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)

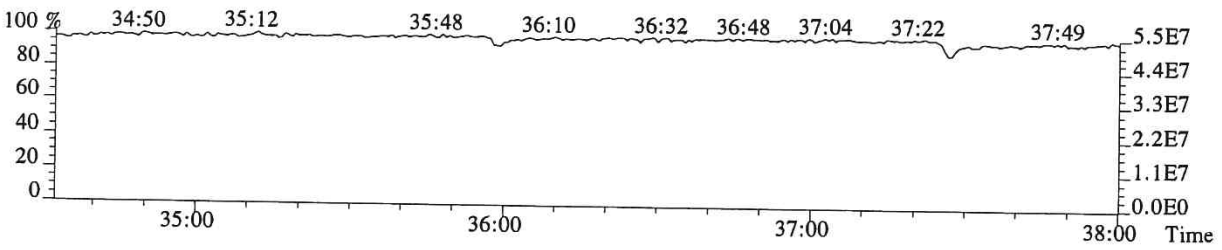


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



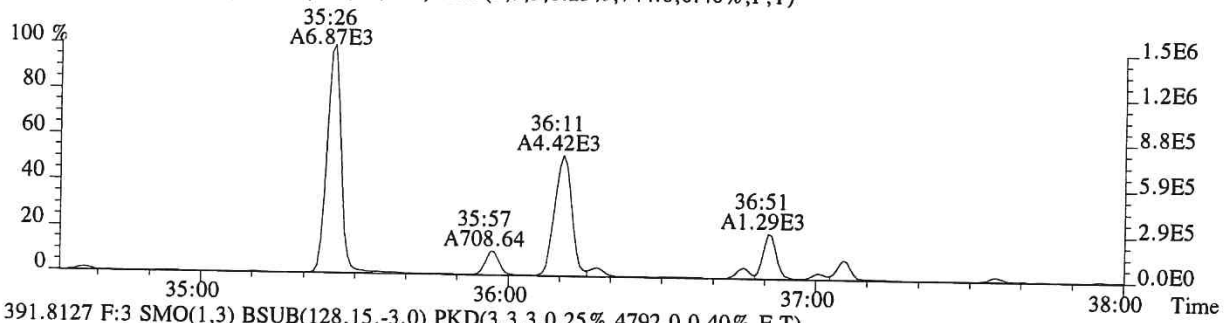
Ether TC 12/03/18 LM 12/05/18

430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

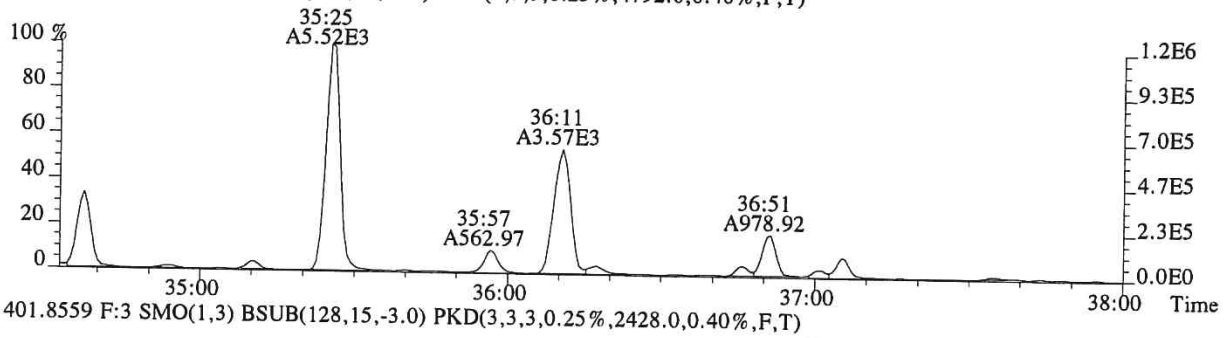


011126

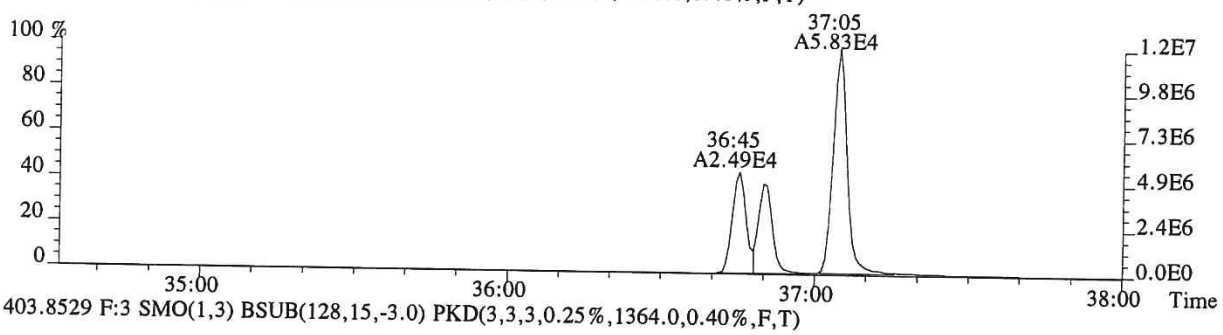
File:P519139 #1-312 Acq: 2-DEC-2018 11:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-036
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



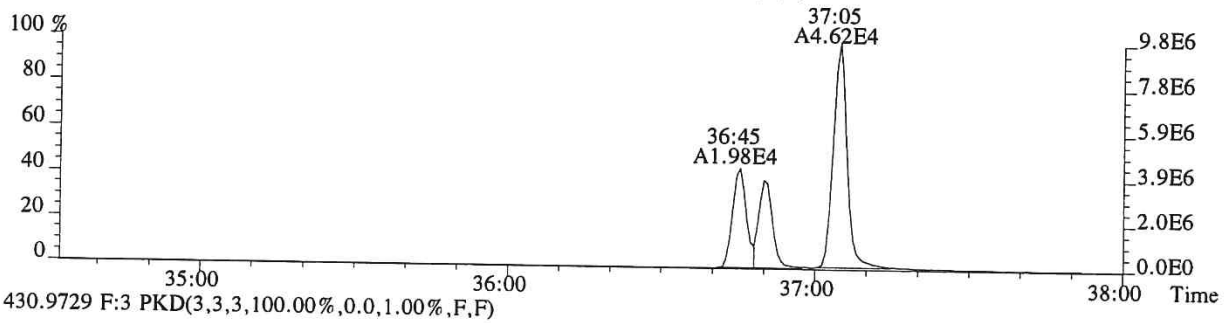
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4792.0,0.40%,F,T)



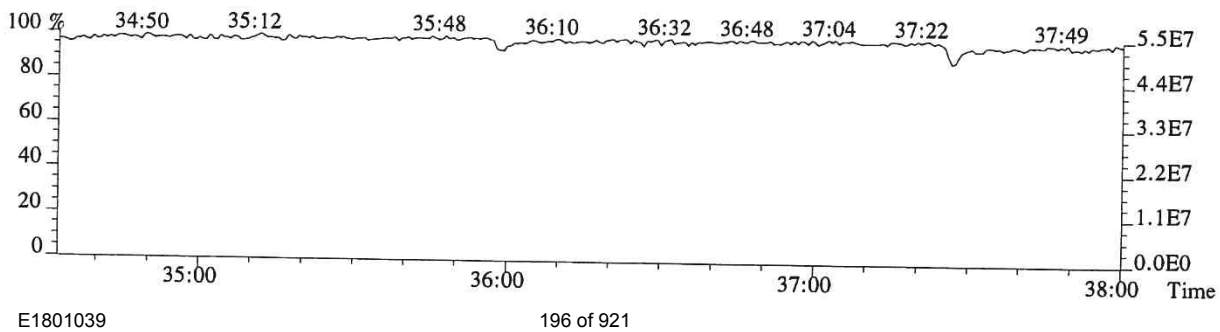
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2428.0,0.40%,F,T)



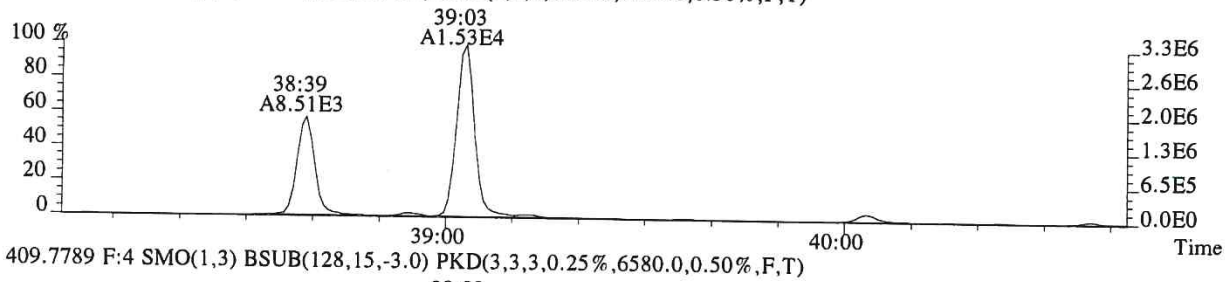
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



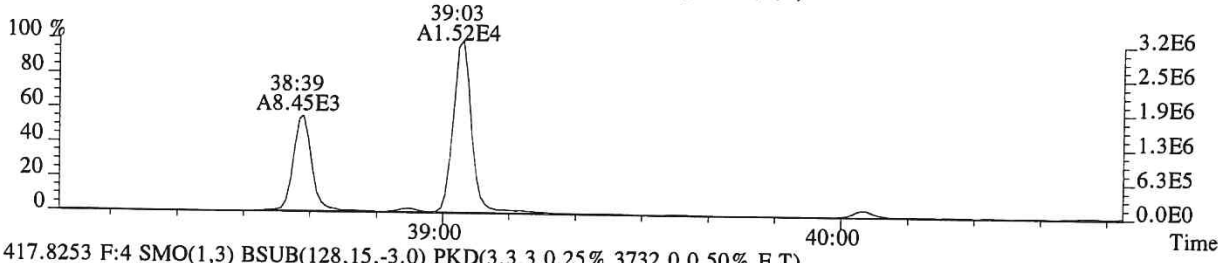
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



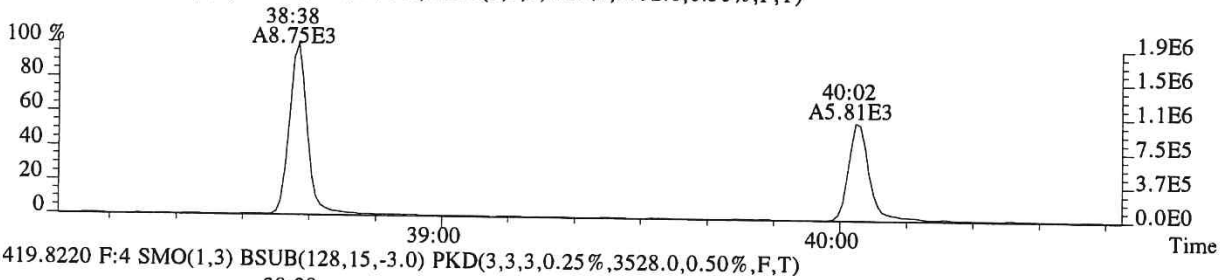
File:P519139 #1-241 Acq: 2-DEC-2018 11:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-036
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5048.0,0.50%,F,T)



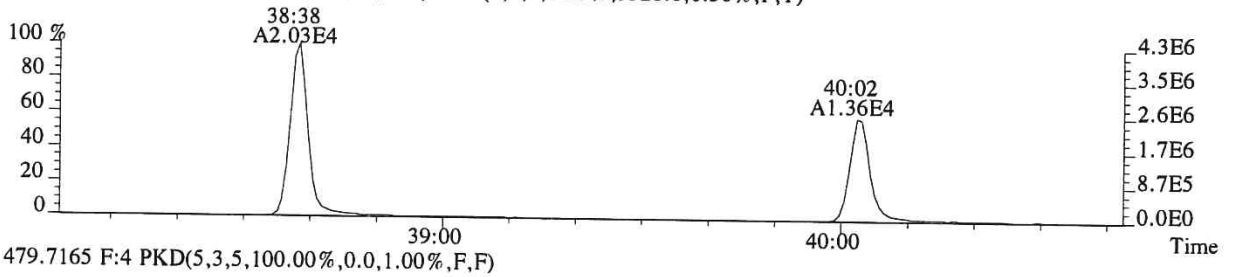
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6580.0,0.50%,F,T)



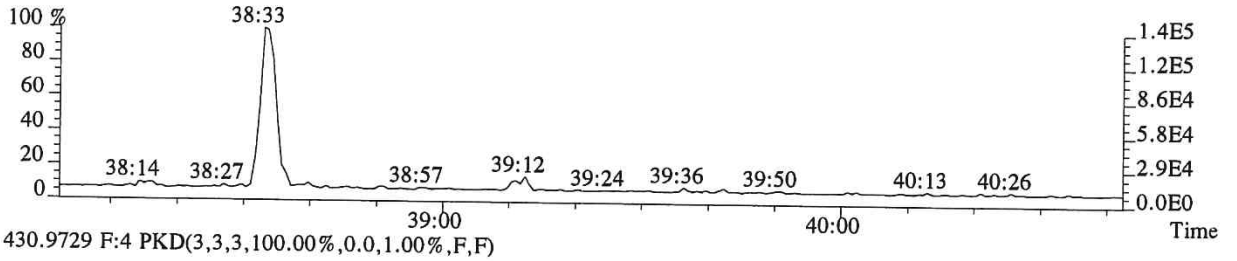
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3732.0,0.50%,F,T)



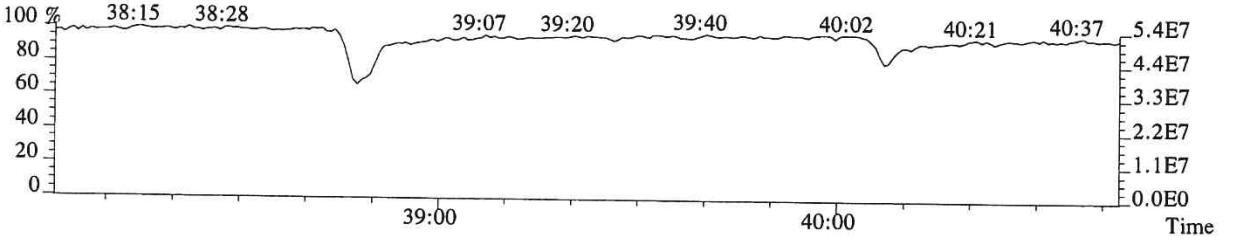
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3528.0,0.50%,F,T)



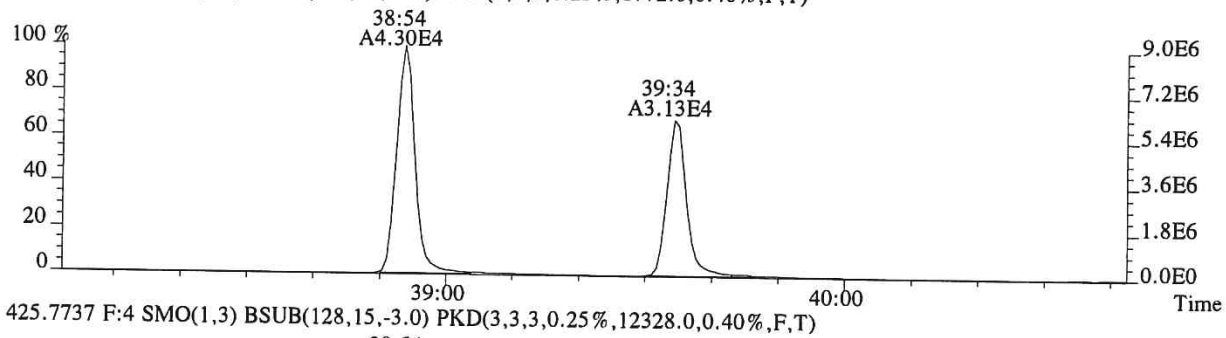
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



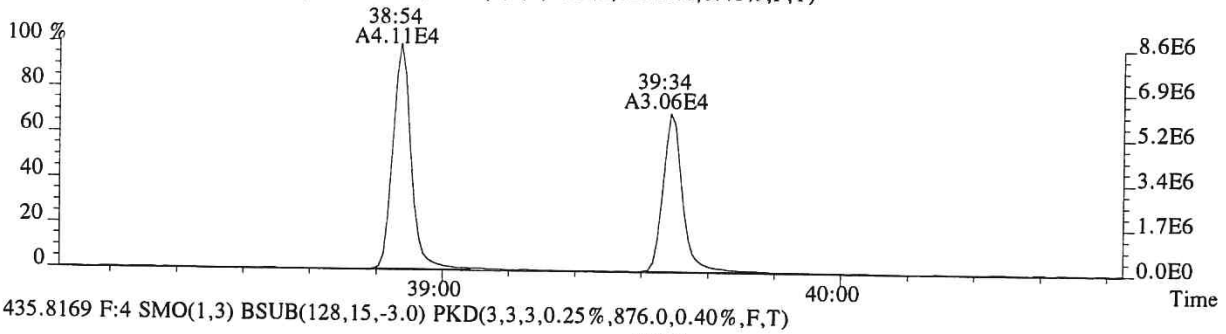
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



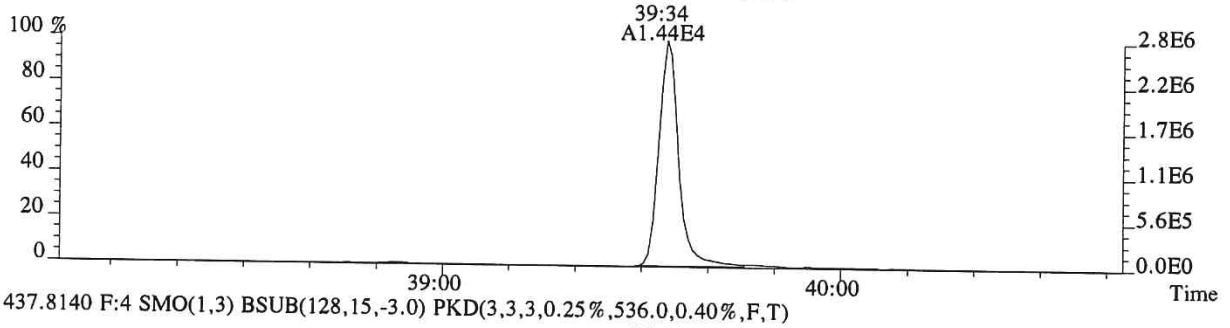
File:P519139 #1-241 Acq: 2-DEC-2018 11:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-036
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6772.0,0.40%,F,T)



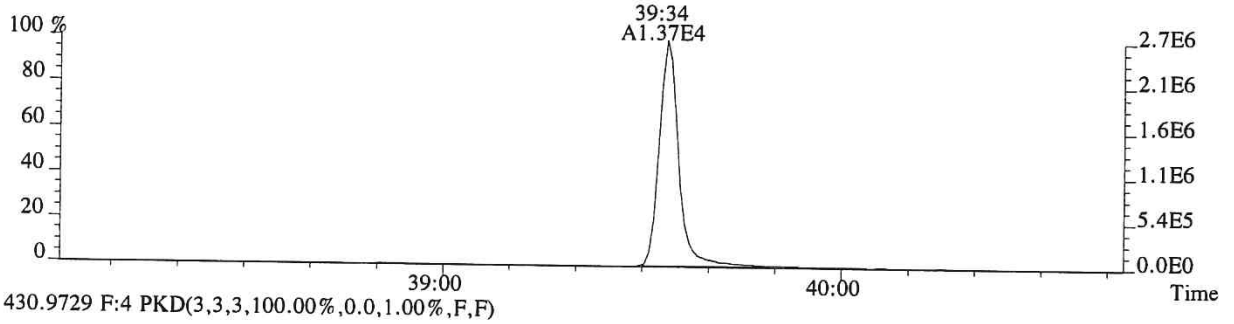
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12328.0,0.40%,F,T)



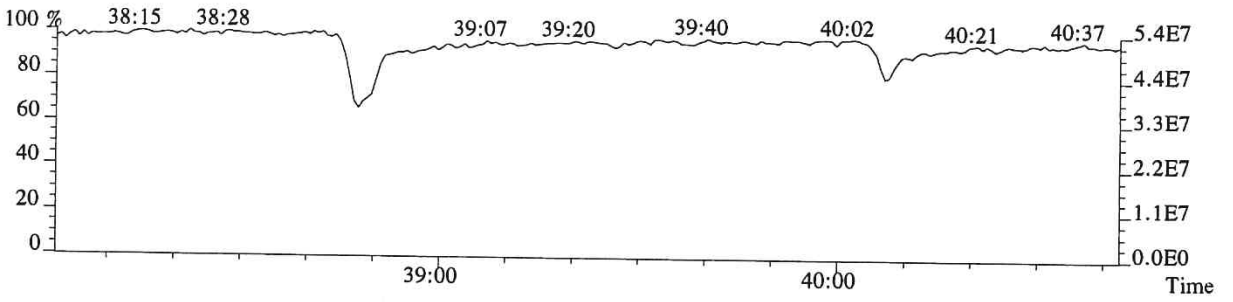
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)

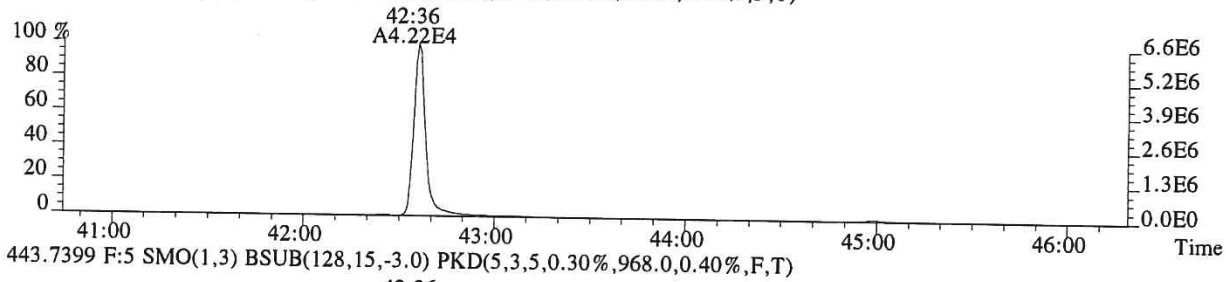


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

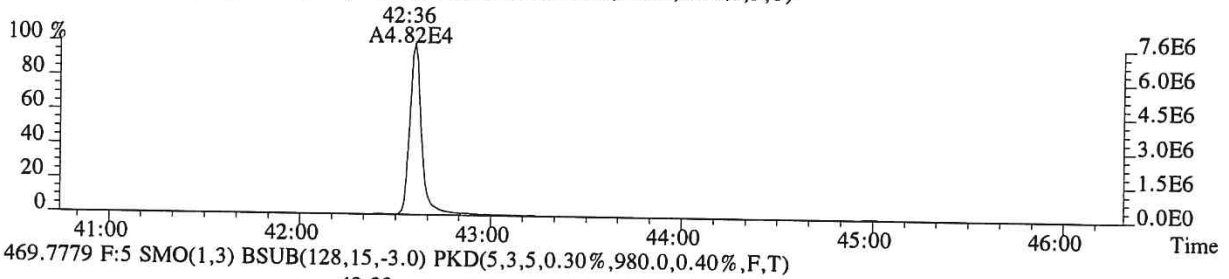


011129

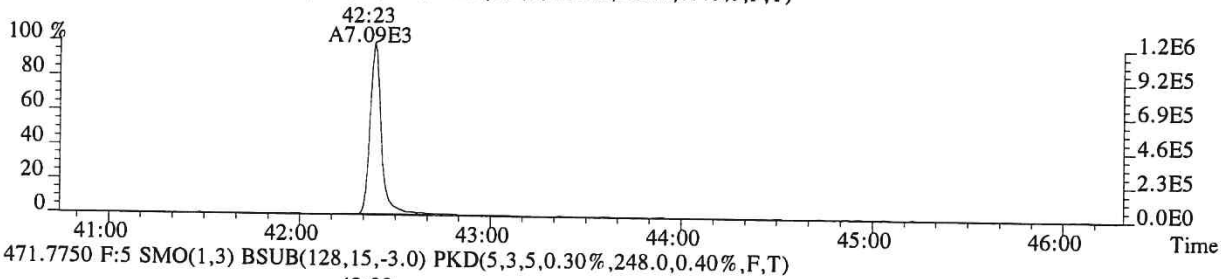
File:P519139 #1-502 Acq: 2-DEC-2018 11:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-036
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



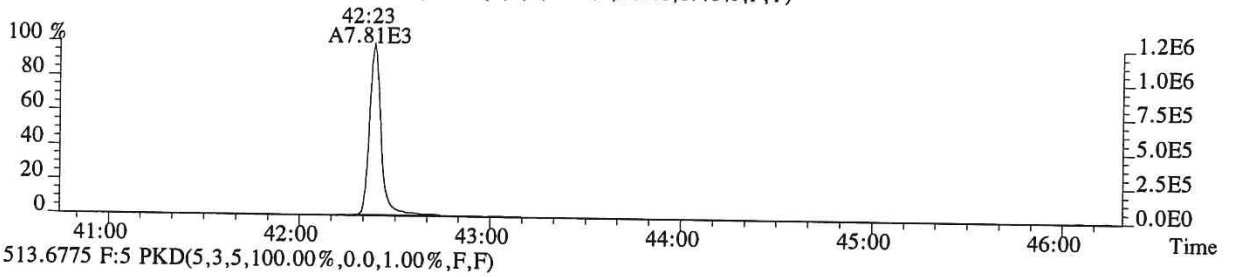
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,968.0,0.40%,F,T)



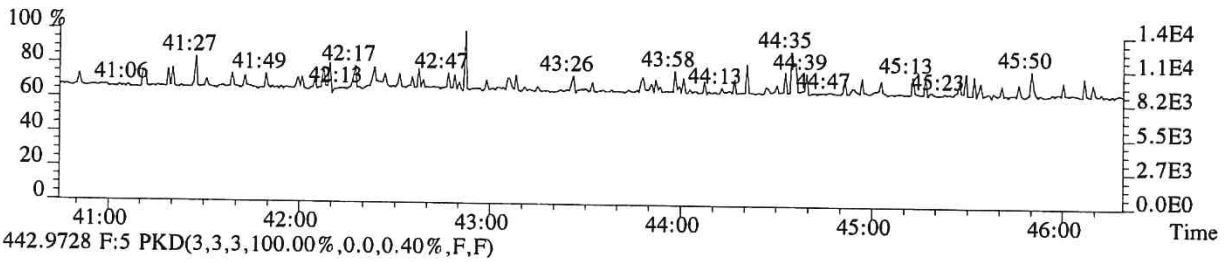
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,980.0,0.40%,F,T)



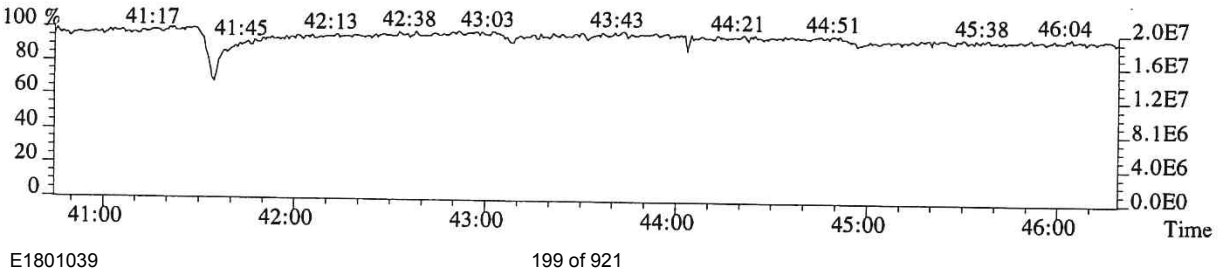
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

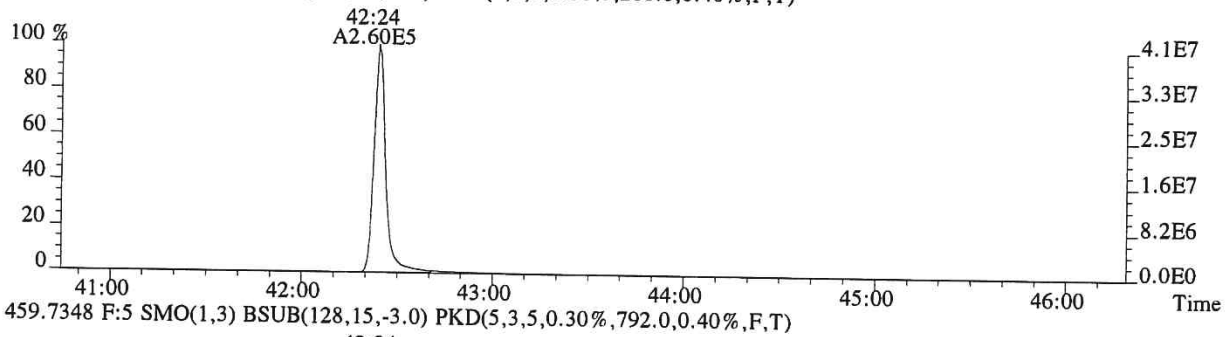


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

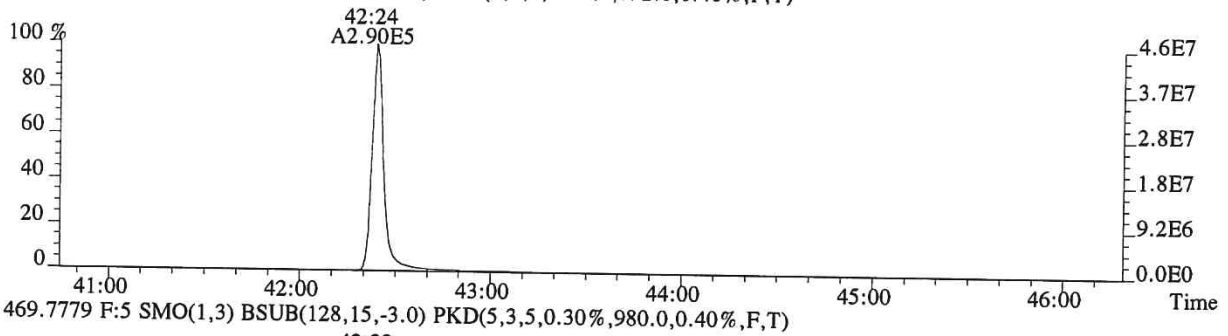


011130

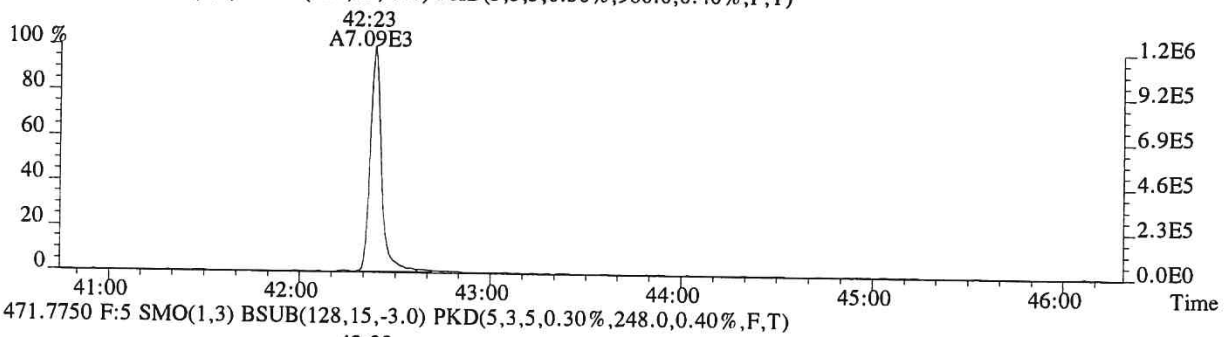
File:P519139 #1-502 Acq: 2-DEC-2018 11:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-036
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



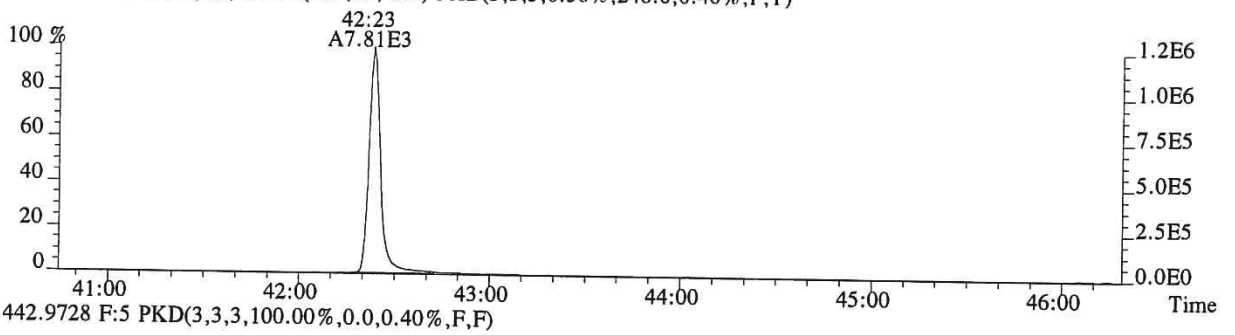
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,792.0,0.40%,F,T)



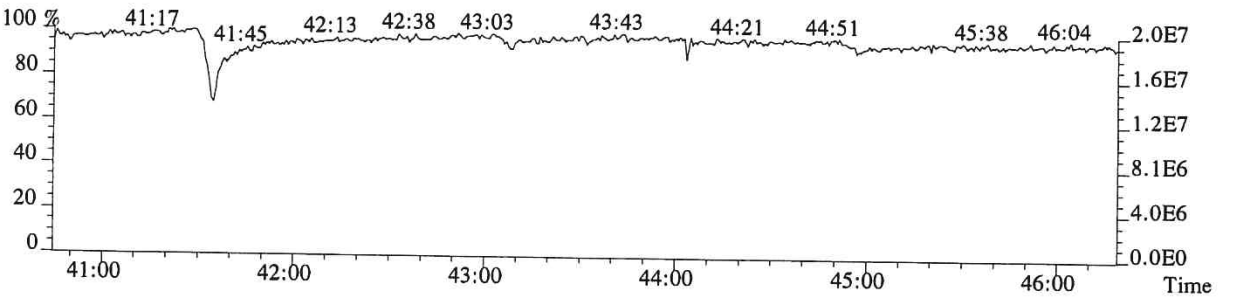
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,980.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0129

Run #10 Filename P615942 Samp: 1 Inj: 1 Acquired: 6-DEC-18 12:17:41
Processed: 10-DEC-18 11:31:57 Sample ID: E1801039-036DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	5.817e+03	7.258e+03	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	3.009e+02	1.818e+02	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	2.420e+02	1.422e+02	1.70	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	4.161e+02	3.209e+02	1.30	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:40	1.387e+02	1.687e+02	0.82	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	6.308e+01	5.069e+01	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:57	3.818e+01	3.050e+01	1.25	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	4.717e+02	4.748e+02	0.99	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	6.960e+01	4.249e+01	1.64	no	no	1.463
10	Unk	OCDF	41:56	5.416e+03	6.179e+03	0.88	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	1.701e+03	2.087e+03	0.82	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:08	2.314e+01	3.227e+01	0.72	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:23	6.059e+01	3.552e+01	1.71	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	6.320e+01	2.340e+01	2.70	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	1.868e+03	1.886e+03	0.99	yes	no	1.112
17	Unk	OCDD	41:44	2.951e+04	3.301e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:36	3.449e+04	4.445e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:55	5.425e+04	3.395e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	5.233e+04	3.228e+04	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	2.169e+04	4.171e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	2.710e+04	5.250e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	2.752e+04	5.160e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.086e+04	4.042e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.130e+04	4.689e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	1.976e+04	4.354e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	2.584e+04	3.309e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	4.298e+04	2.788e+04	1.54	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	2.937e+04	2.336e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	3.201e+04	2.482e+04	1.29	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	2.768e+04	2.598e+04	1.07	yes	no	0.857
32	IS	13C-OCDD	41:43	3.915e+04	4.267e+04	0.92	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	2.937e+04	3.789e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	3.569e+04	2.885e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:25	8.285e+02				no	1.086

$$\text{OCDD} = \frac{(2.951e+04 + 3.301e+04) \times 4000\ \text{pg} \times 20}{(3.915e+04 + 4.267e+04) \times 10.819\ \text{g} \times 62.3 / 100 \times 1.157 \times 0.12} = 65322\ \text{ng/kg}$$

LM 12/11/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0129

Run #10 Filename P615942 Samp: 1 Inj: 1 Acquired: 6-DEC-18 12:17:41
Processed: 10-DEC-18 11:31:57 LAB. ID: E1801039-036DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.91e+05	2.44e+03	3.7e+02	1.10e+06	6.40e+03	1.7e+02
2	1,2,3,7,8-PeCDF	4.78e+04	7.16e+02	6.7e+01	3.17e+04	4.41e+03	7.2e+00
3	2,3,4,7,8-PeCDF	3.75e+04	7.16e+02	5.2e+01	2.56e+04	4.41e+03	5.8e+00
4	1,2,3,4,7,8-HxCDF	8.29e+04	1.48e+03	5.6e+01	6.47e+04	1.96e+03	3.3e+01
5	1,2,3,6,7,8-HxCDF	2.41e+04	1.48e+03	1.6e+01	2.75e+04	1.96e+03	1.4e+01
6	2,3,4,6,7,8-HxCDF	1.32e+04	1.48e+03	8.9e+00	1.01e+04	1.96e+03	5.2e+00
7	1,2,3,7,8,9-HxCDF	6.95e+03	1.48e+03	4.7e+00	7.24e+03	1.96e+03	3.7e+00
8	1,2,3,4,6,7,8-HpCDF	1.00e+05	5.12e+02	2.0e+02	1.07e+05	7.04e+02	1.5e+02
9	1,2,3,4,7,8,9-HpCDF	1.64e+04	5.12e+02	3.2e+01	1.00e+04	7.04e+02	1.4e+01
10	OCDF	9.53e+05	4.88e+02	2.0e+03	1.06e+06	1.26e+03	8.4e+02
11	2,3,7,8-TCDD	2.85e+05	4.22e+03	6.8e+01	3.52e+05	1.91e+03	1.8e+02
12	1,2,3,7,8-PeCDD	7.47e+03	2.27e+03	3.3e+00	6.02e+03	7.68e+02	7.8e+00
13	1,2,3,4,7,8-HxCDD	*	1.12e+03	*	*	1.40e+03	*
14	1,2,3,6,7,8-HxCDD	1.42e+04	1.12e+03	1.3e+01	8.84e+03	1.40e+03	6.3e+00
15	1,2,3,7,8,9-HxCDD	1.05e+04	1.12e+03	9.4e+00	5.77e+03	1.40e+03	4.1e+00
16	1,2,3,4,6,7,8-HpCDD	3.69e+05	1.52e+03	2.4e+02	3.79e+05	2.29e+03	1.7e+02
17	OCDD	5.14e+06	2.84e+02	1.8e+04	5.76e+06	6.52e+02	8.8e+03
18	13C-2,3,7,8-TCDF	5.34e+06	1.15e+04	4.7e+02	6.97e+06	1.04e+04	6.7e+02
19	13C-1,2,3,7,8-PeCDF	9.28e+06	1.10e+03	8.4e+03	5.86e+06	1.38e+03	4.2e+03
20	13C-2,3,4,7,8-PeCDF	9.62e+06	1.10e+03	8.7e+03	5.96e+06	1.38e+03	4.3e+03
21	13C-1,2,3,4,7,8-HxCDF	4.66e+06	1.15e+03	4.1e+03	8.80e+06	2.18e+03	4.0e+03
22	13C-1,2,3,6,7,8-HxCDF	5.30e+06	1.15e+03	4.6e+03	1.02e+07	2.18e+03	4.7e+03
23	13C-2,3,4,6,7,8-HxCDF	5.50e+06	1.15e+03	4.8e+03	1.04e+07	2.18e+03	4.8e+03
24	13C-1,2,3,7,8,9-HxCDF	3.89e+06	1.15e+03	3.4e+03	7.65e+06	2.18e+03	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.43e+06	2.45e+03	1.8e+03	9.69e+06	9.36e+03	1.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.67e+06	2.45e+03	1.5e+03	8.05e+06	9.36e+03	8.6e+02
27	13C-2,3,7,8-TCDD	4.41e+06	1.93e+04	2.3e+02	5.54e+06	7.17e+03	7.7e+02
28	13C-1,2,3,7,8-PeCDD	7.55e+06	1.78e+03	4.2e+03	4.90e+06	2.23e+03	2.2e+03
29	13C-1,2,3,4,7,8-HxCDD	6.47e+06	3.52e+03	1.8e+03	5.09e+06	2.22e+03	2.3e+03
30	13C-1,2,3,6,7,8-HxCDD	6.37e+06	3.52e+03	1.8e+03	4.87e+06	2.22e+03	2.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.50e+06	1.54e+03	3.6e+03	5.17e+06	8.32e+02	6.2e+03
32	13C-OCDD	6.83e+06	1.97e+03	3.5e+03	7.30e+06	7.76e+02	9.4e+03
33	13C-1,2,3,4-TCDD	5.05e+06	1.93e+04	2.6e+02	6.47e+06	7.17e+03	9.0e+02
34	13C-1,2,3,7,8,9-HxCDD	7.03e+06	3.52e+03	2.0e+03	5.69e+06	2.22e+03	2.6e+03
35	37Cl-2,3,7,8-TCDD	1.45e+05	3.72e+03	3.9e+01			

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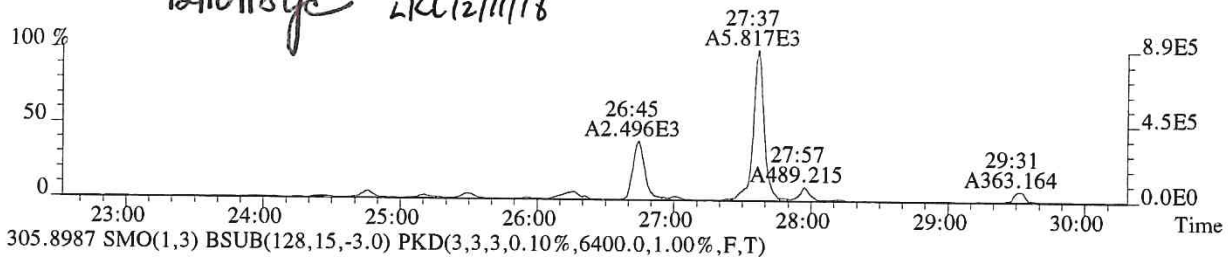
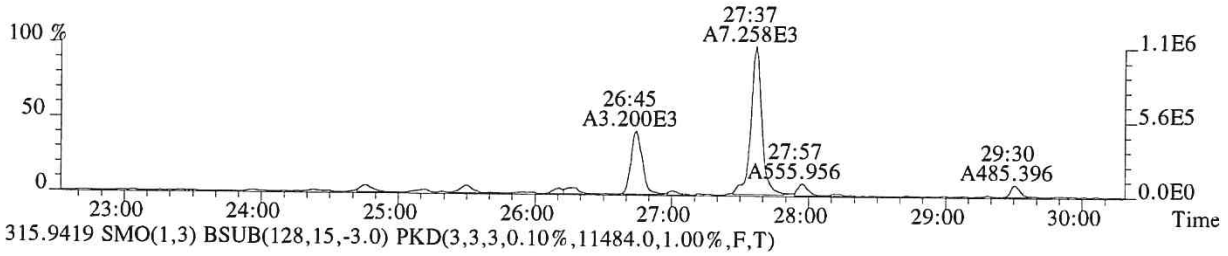
E1801039

File:P615942 #1-552 Acq: 6-DEC-2018 12:17:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:~~E181039~~036DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2436.0,1.00%,F,T)

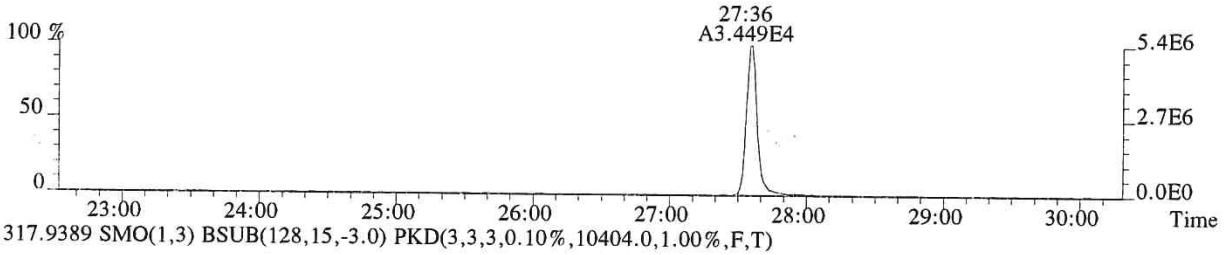
12/10/18 gc LKL 12/11/18



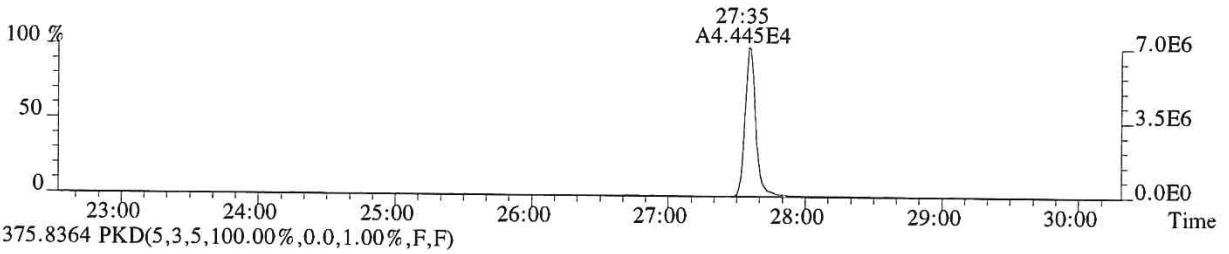
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6400.0,1.00%,F,T)



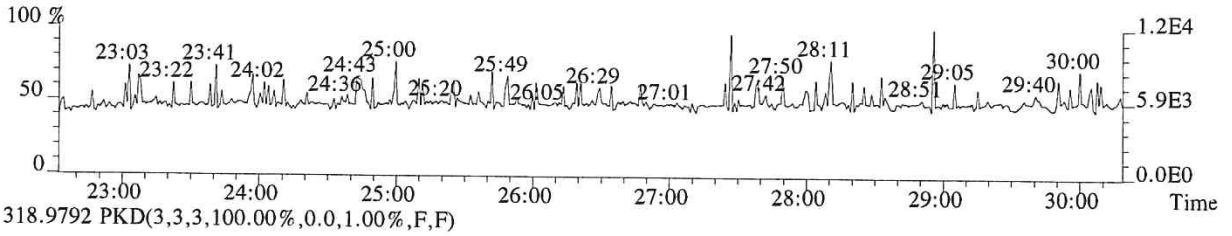
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11484.0,1.00%,F,T)



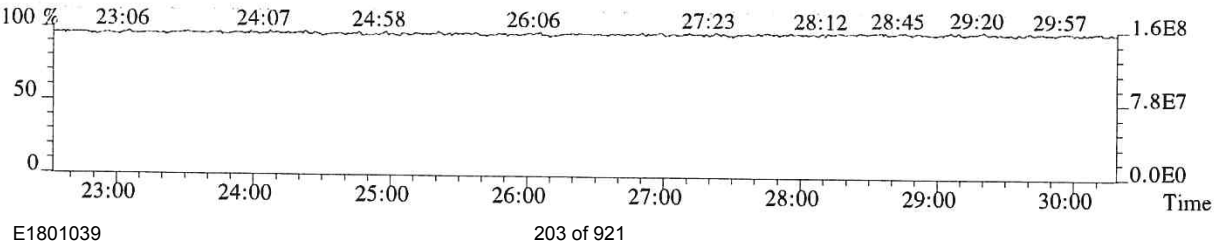
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10404.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

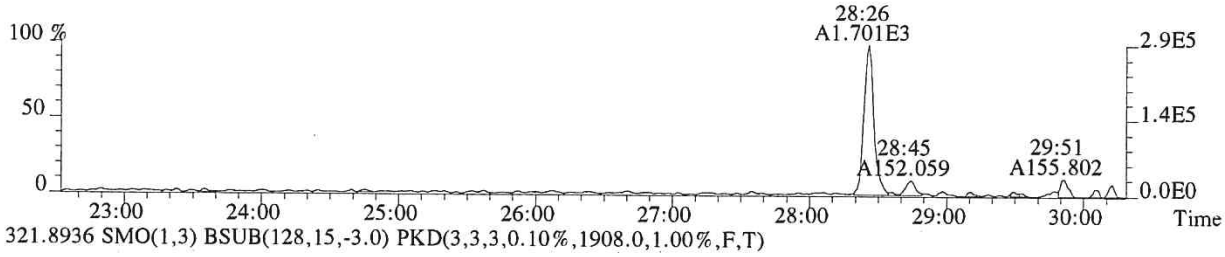


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

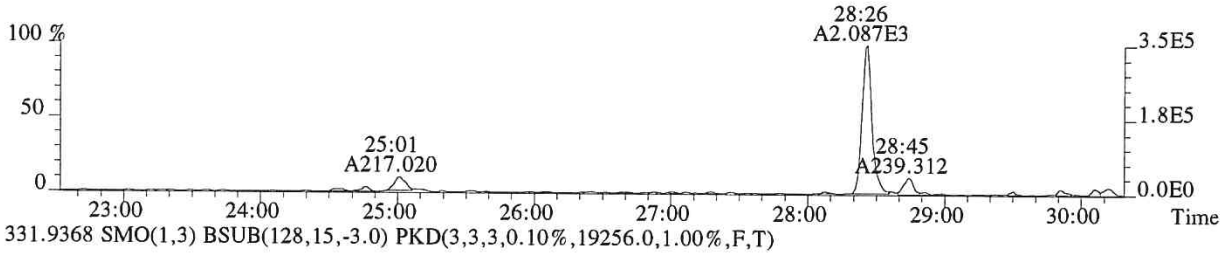


011134

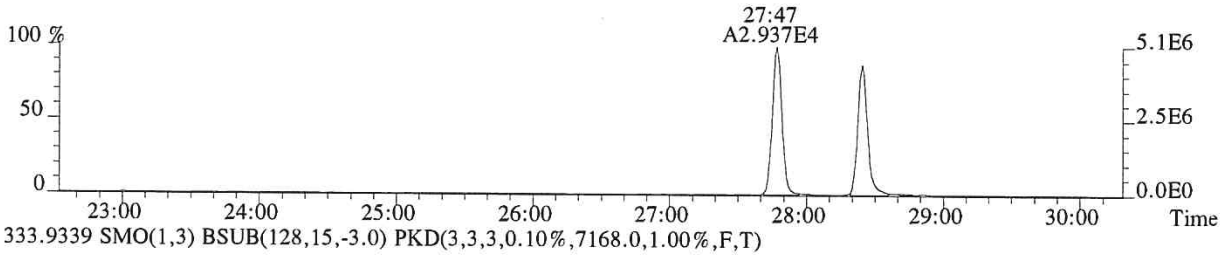
File:P615942 #1-552 Acq: 6-DEC-2018 12:17:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-036DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4216.0,1.00%,F,T)



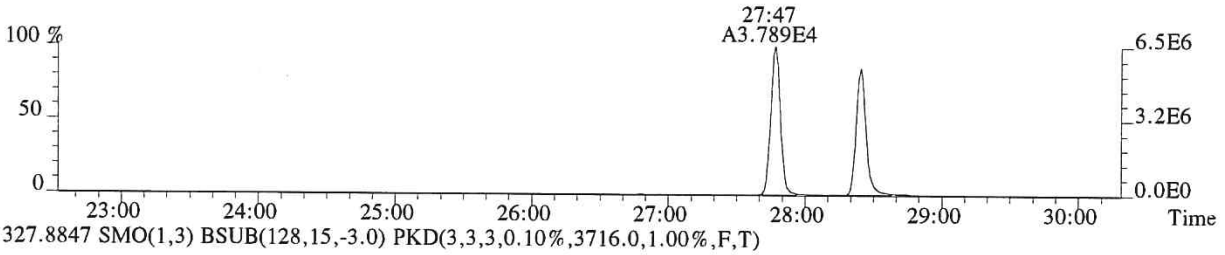
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



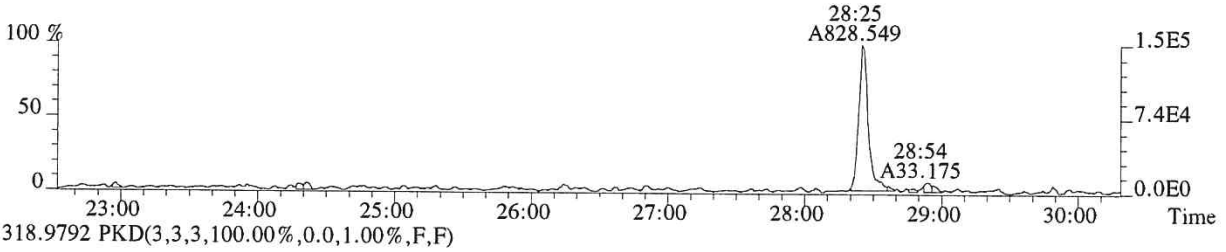
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19256.0,1.00%,F,T)



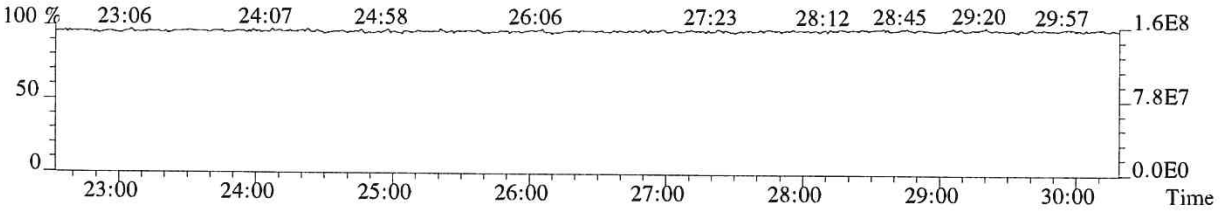
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7168.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3716.0,1.00%,F,T)

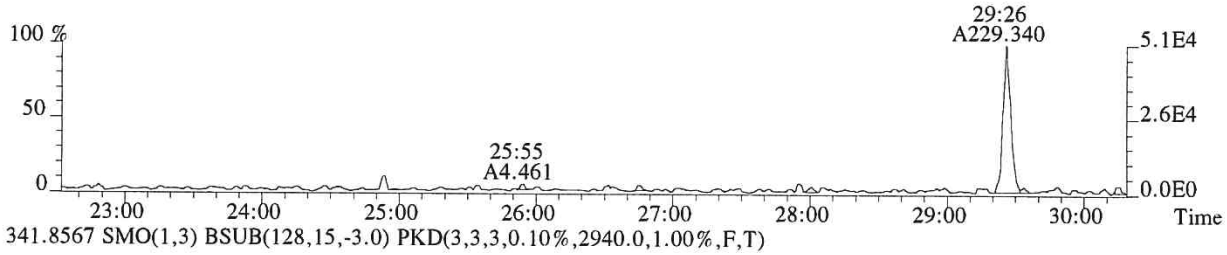


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

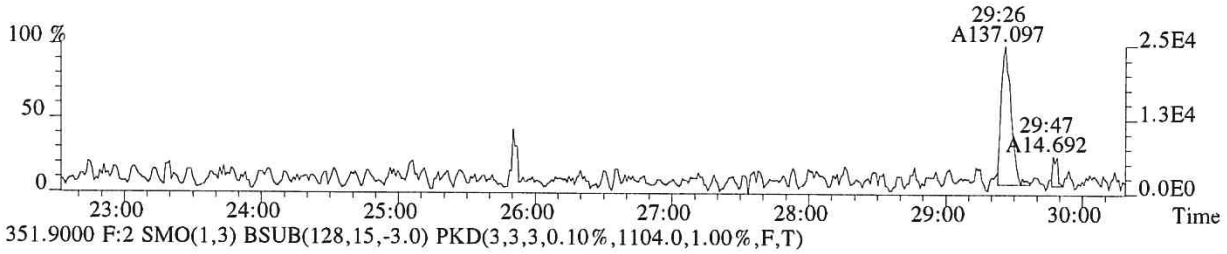


011135

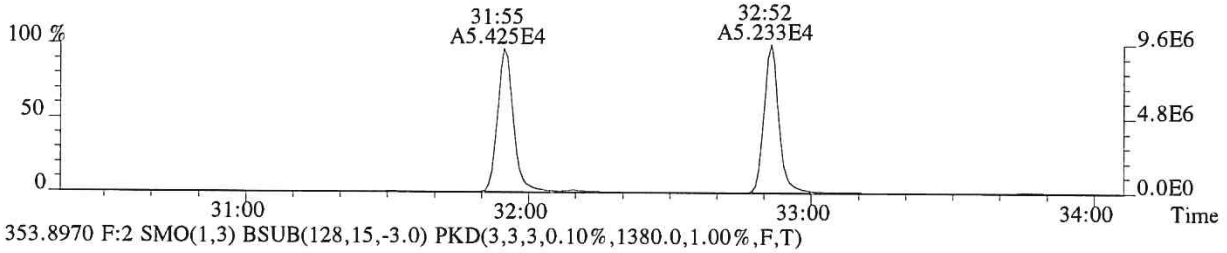
File:P615942 #1-552 Acq: 6-DEC-2018 12:17:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-036DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1668.0,1.00%,F,T)



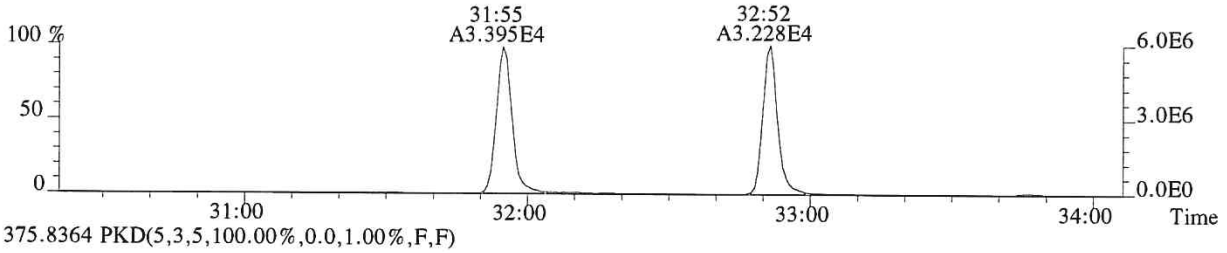
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2940.0,1.00%,F,T)



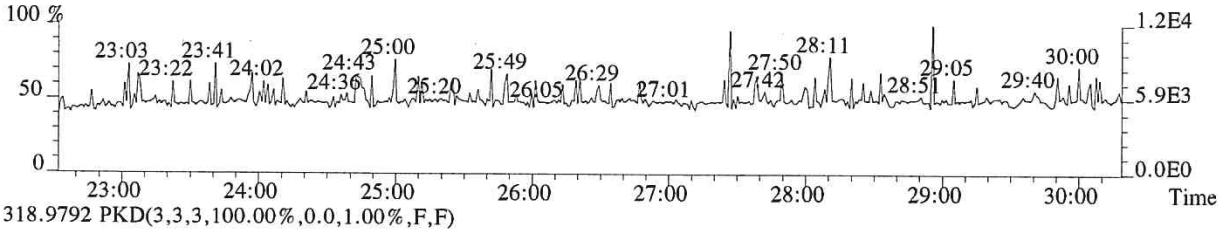
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



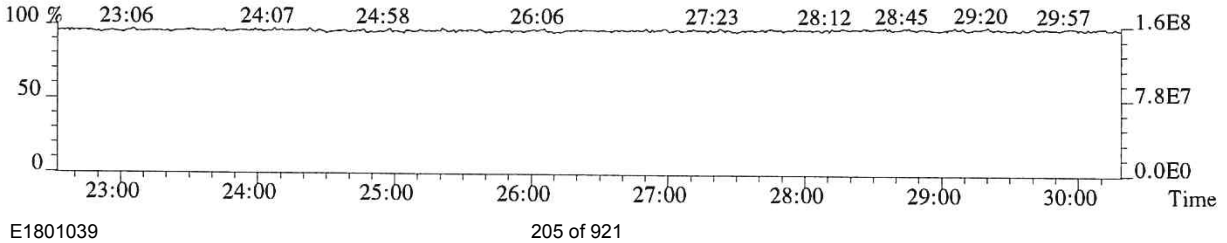
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

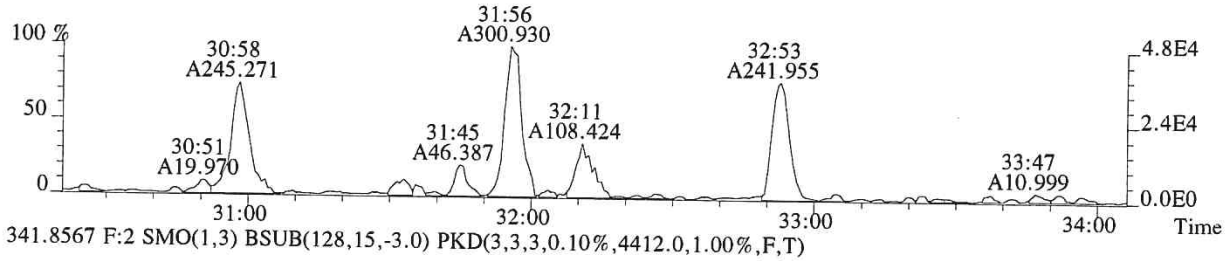


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

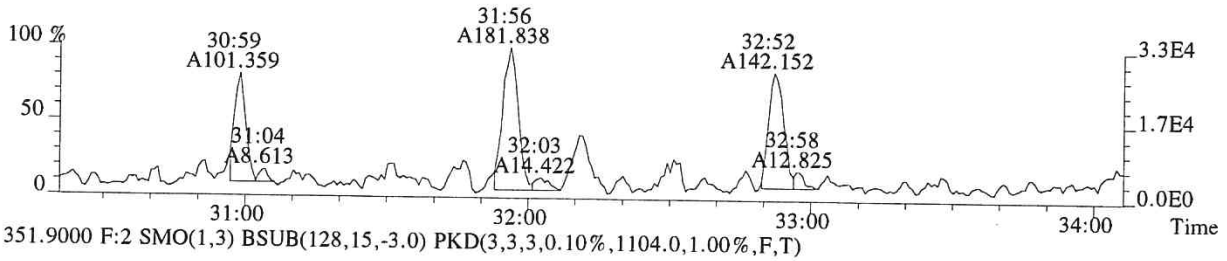


011136

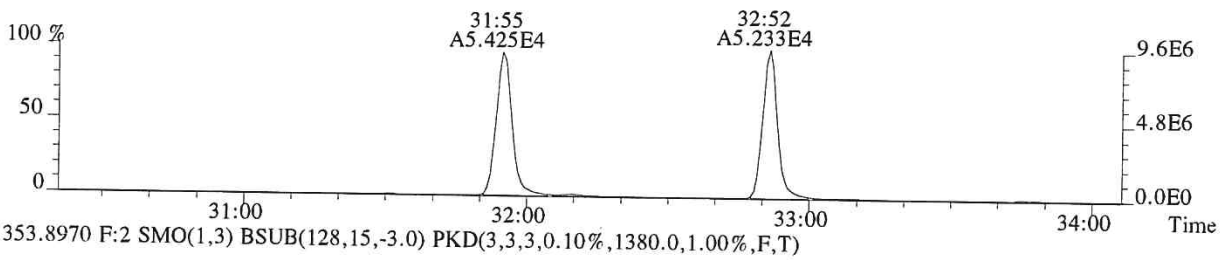
File:P615942 #1-339 Acq: 6-DEC-2018 12:17:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-036DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



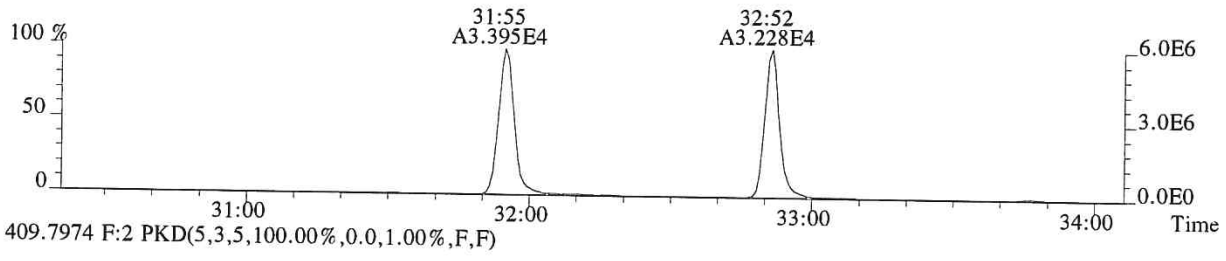
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4412.0,1.00%,F,T)



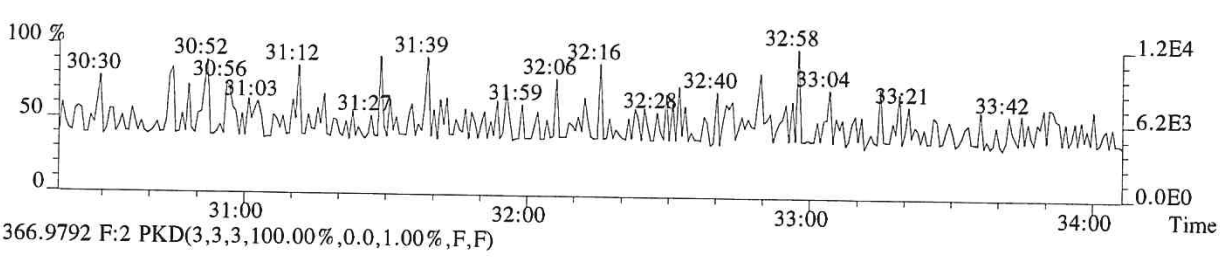
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



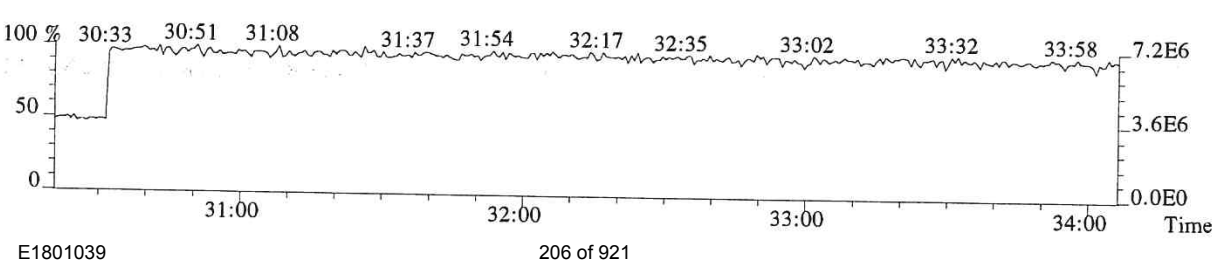
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



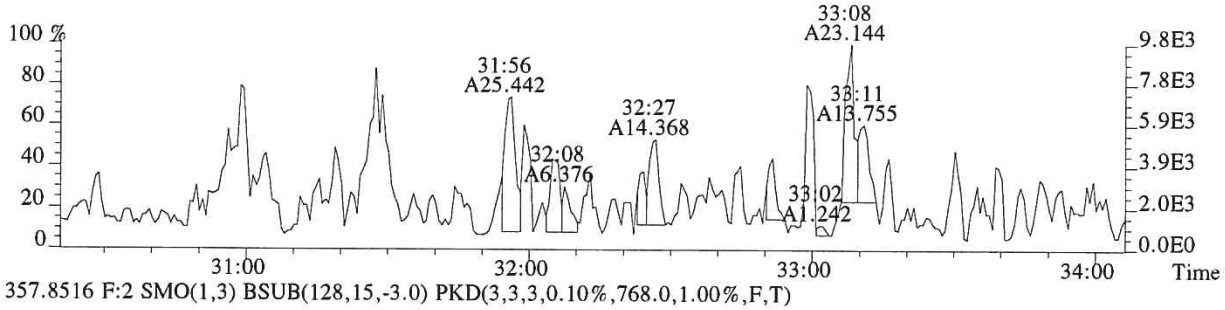
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



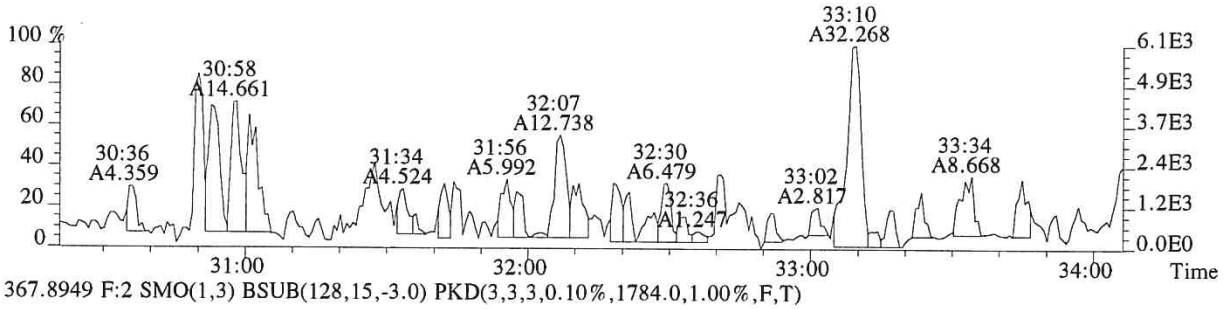
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



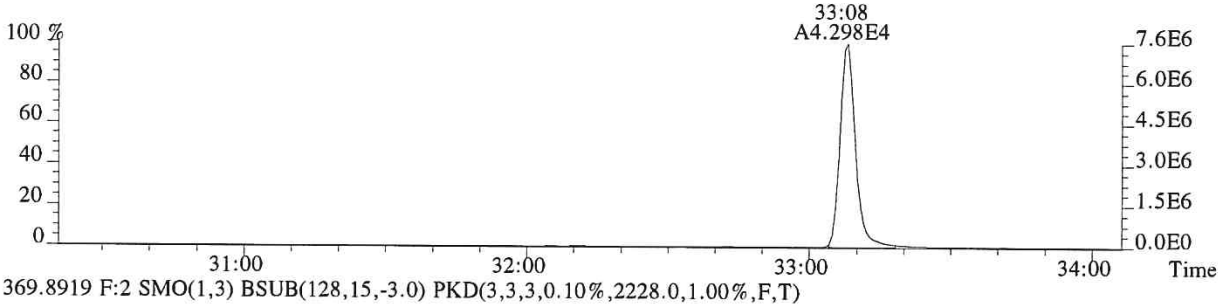
File:P615942 #1-339 Acq: 6-DEC-2018 12:17:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-036DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2268.0,1.00%,F,T)



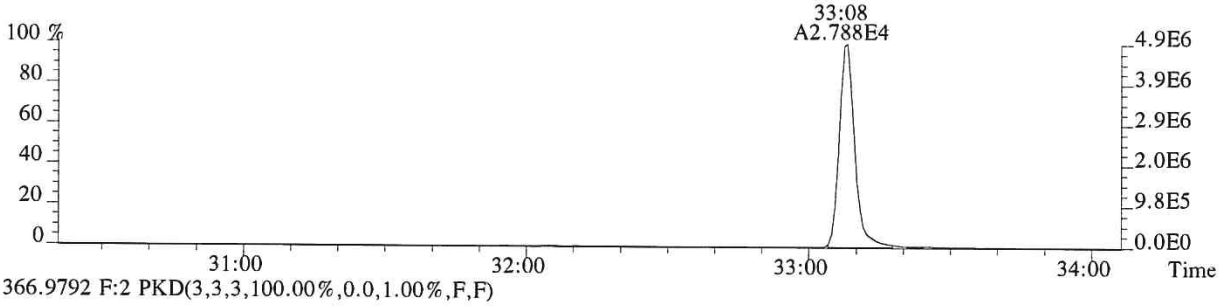
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



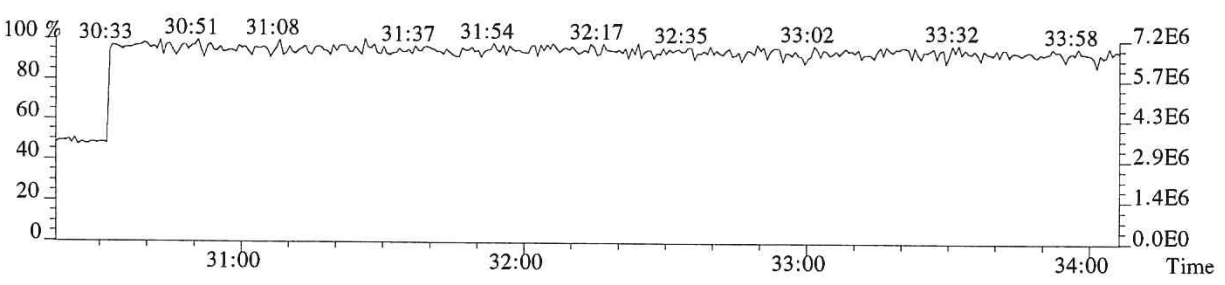
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



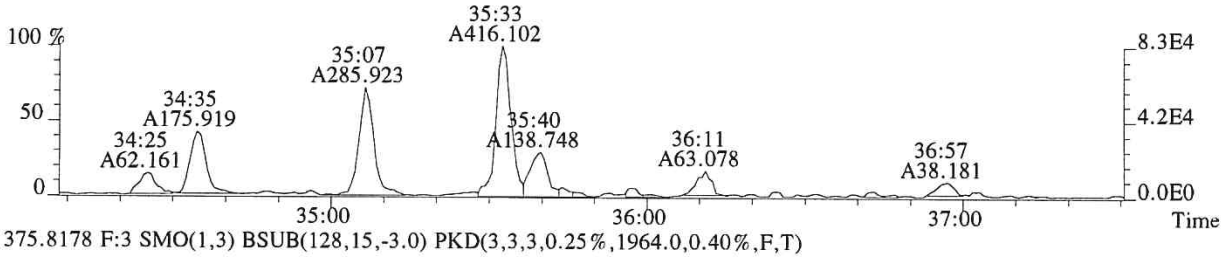
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



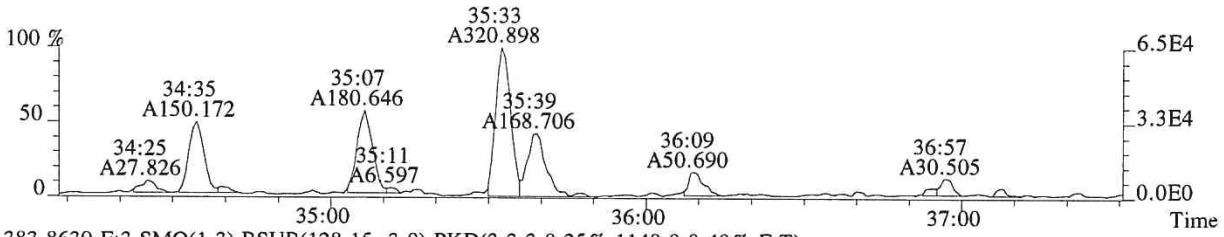
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



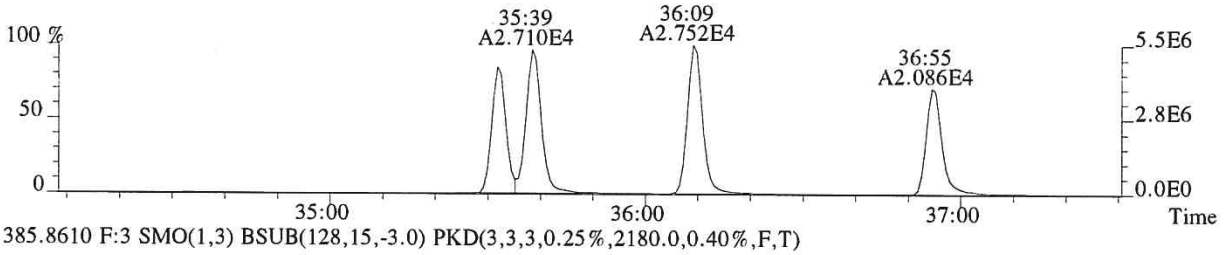
File:P615942 #1-304 Acq: 6-DEC-2018 12:17:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-036DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1480.0,0.40%,F,T)



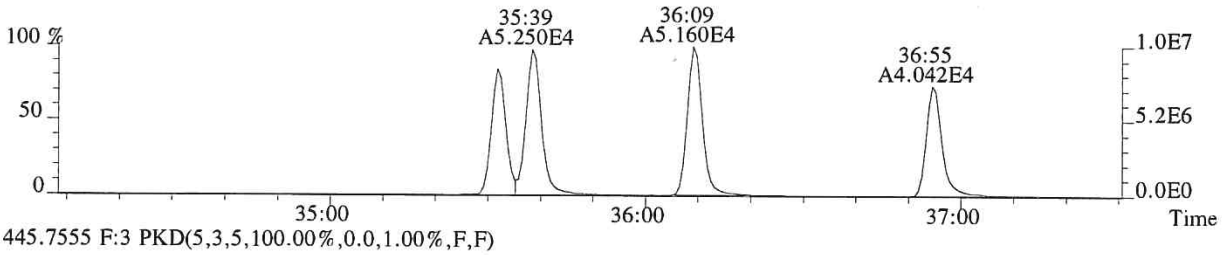
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1964.0,0.40%,F,T)



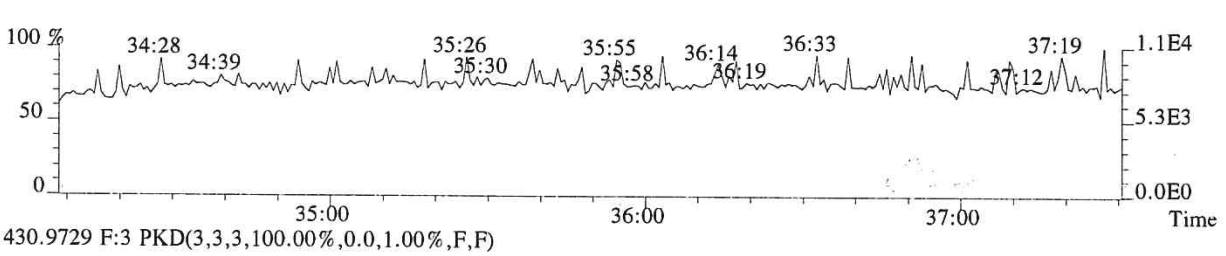
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



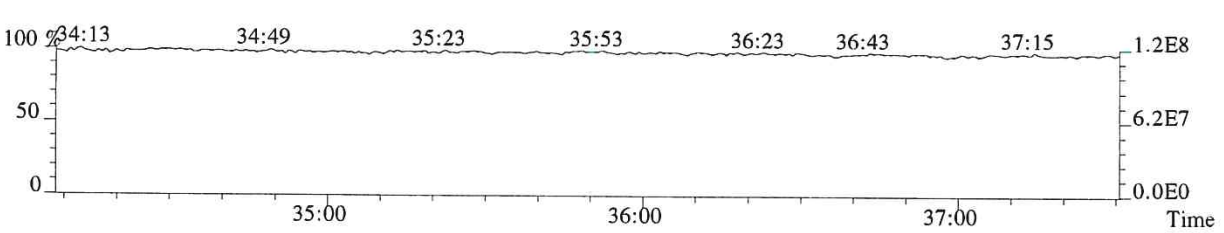
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

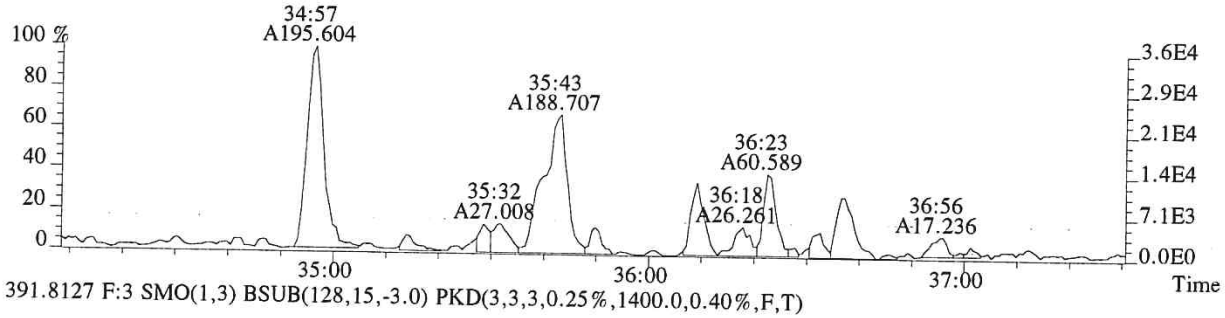


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

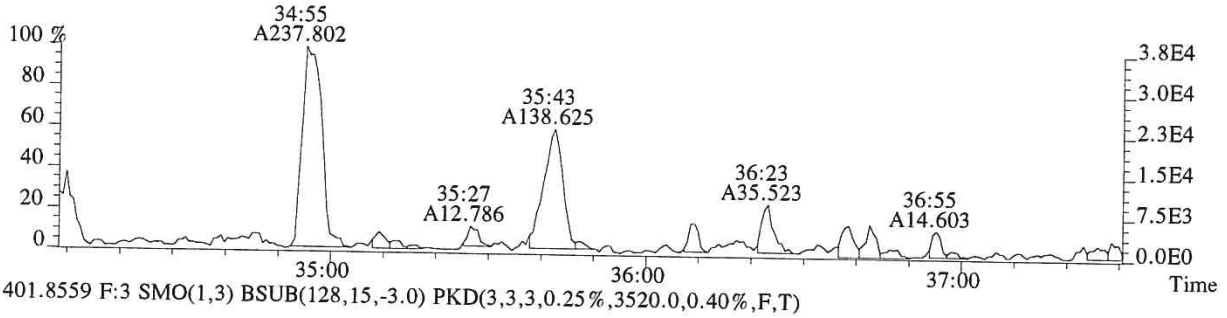


011139

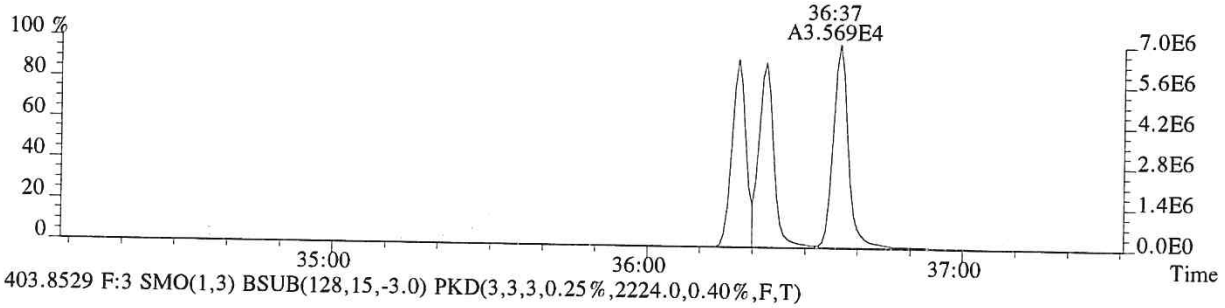
File:P615942 #1-304 Acq: 6-DEC-2018 12:17:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-036DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.40%,F,T)



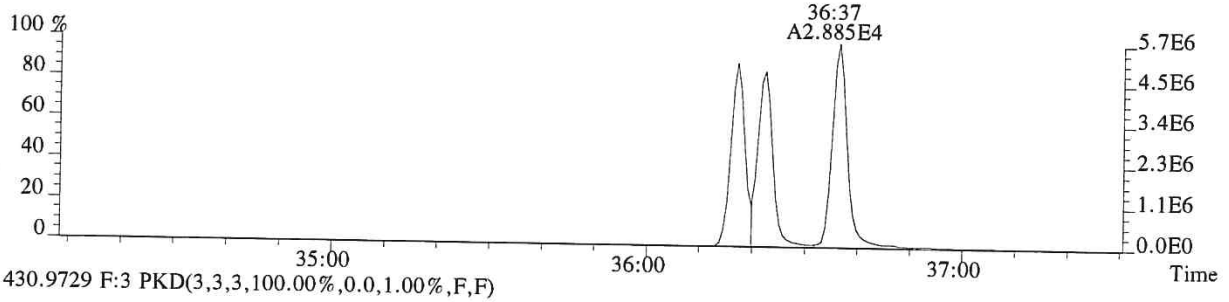
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



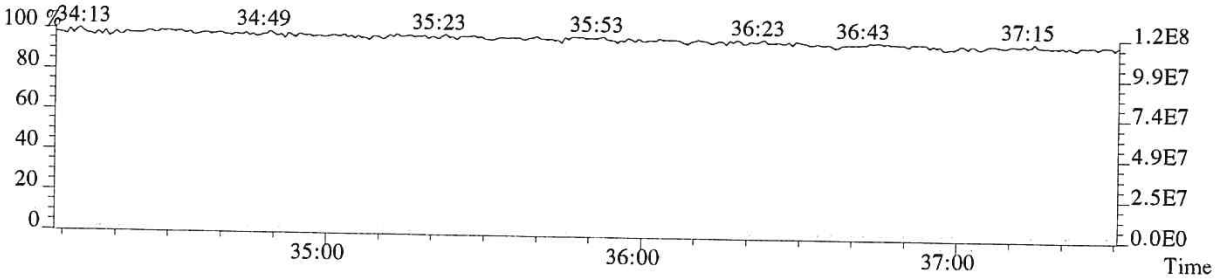
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3520.0,0.40%,F,T)



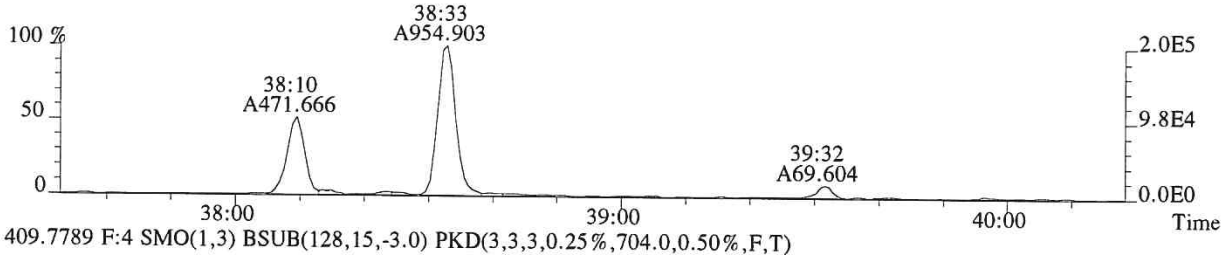
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.40%,F,T)



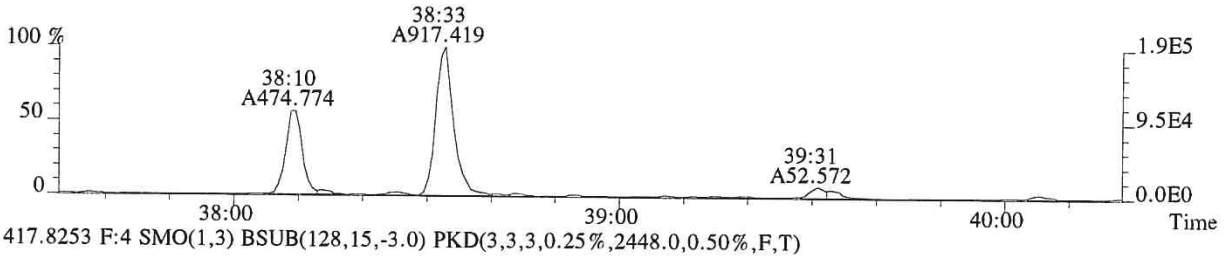
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



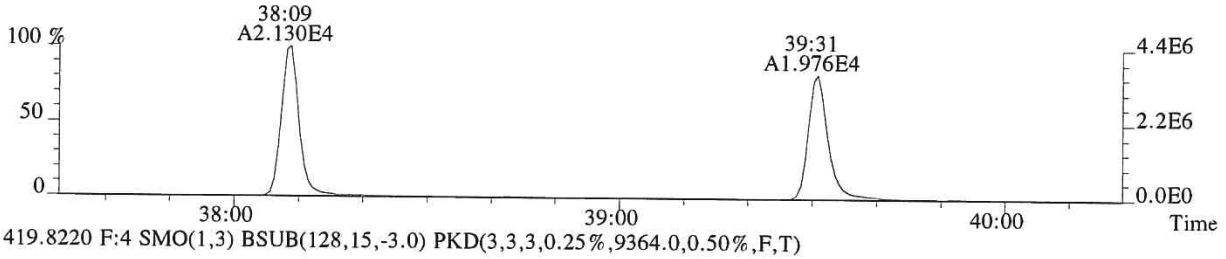
File:P615942 #1-249 Acq: 6-DEC-2018 12:17:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-036DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.50%,F,T)



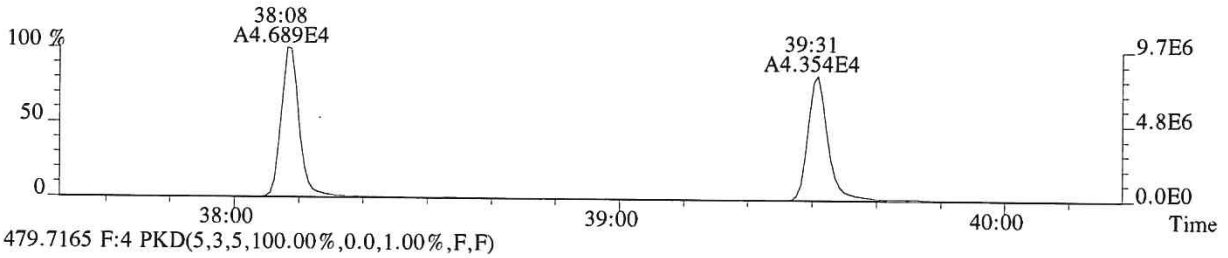
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.50%,F,T)



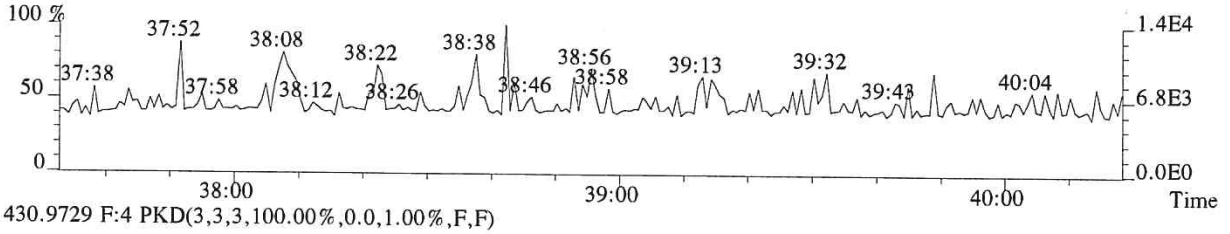
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2448.0,0.50%,F,T)



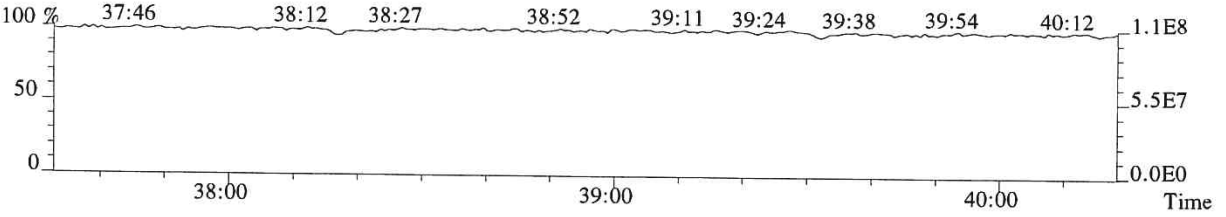
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9364.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

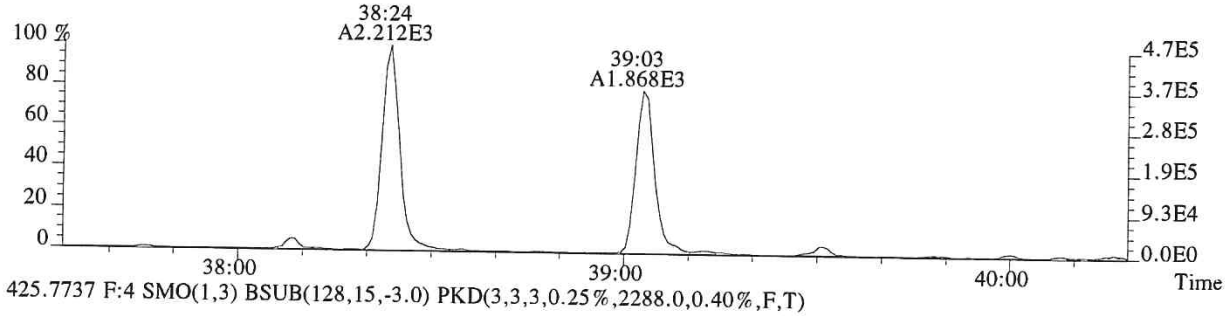


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

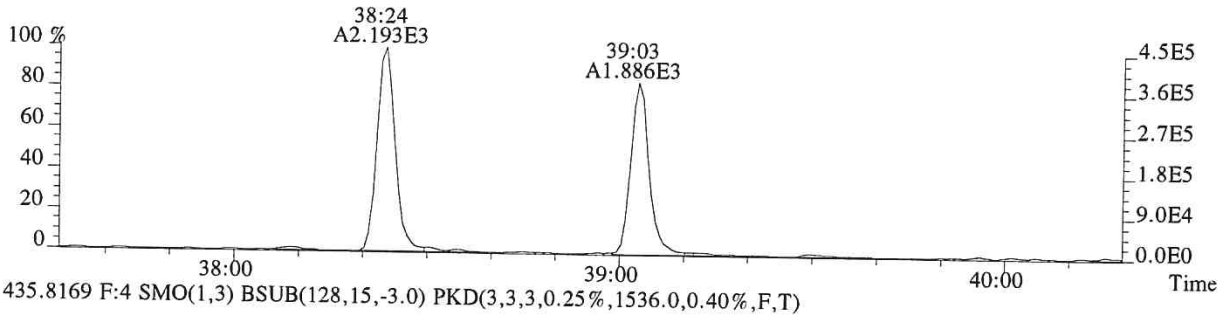


011141

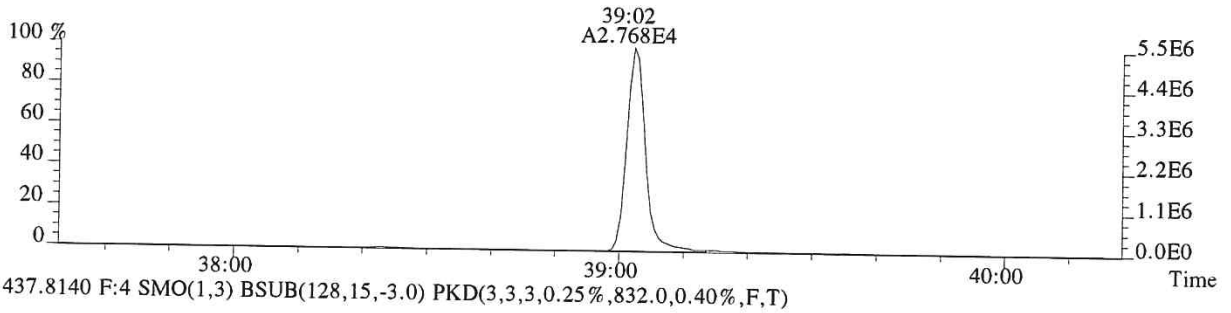
File:P615942 #1-249 Acq: 6-DEC-2018 12:17:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-036DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



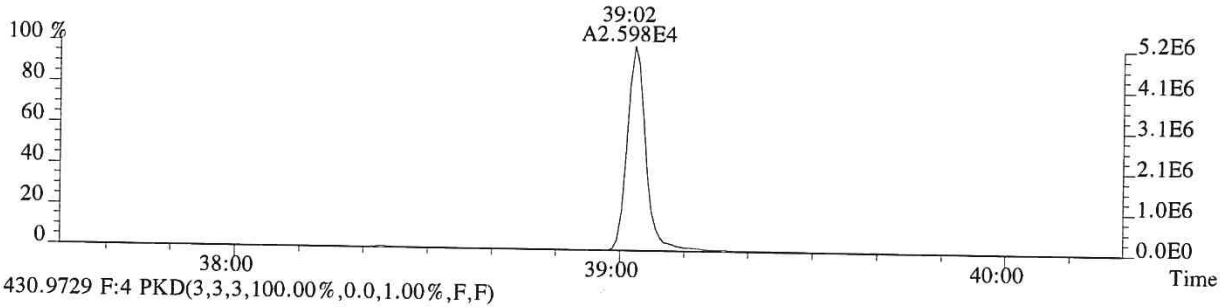
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2288.0,0.40%,F,T)



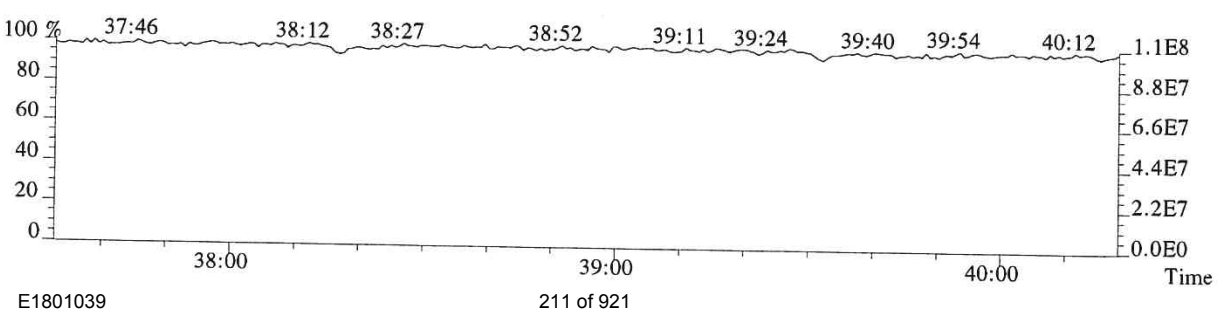
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



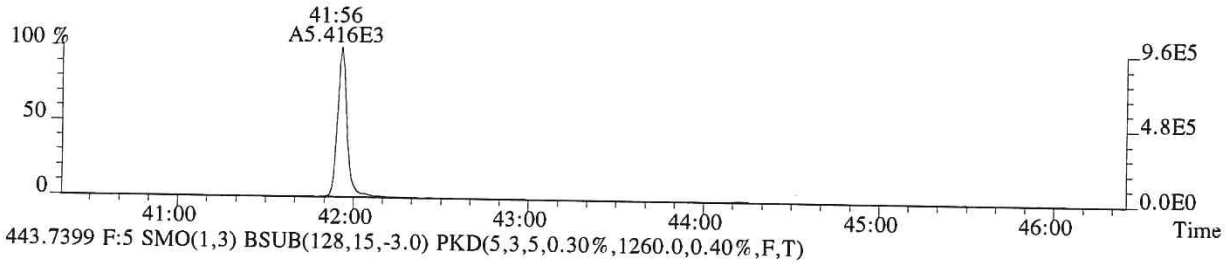
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



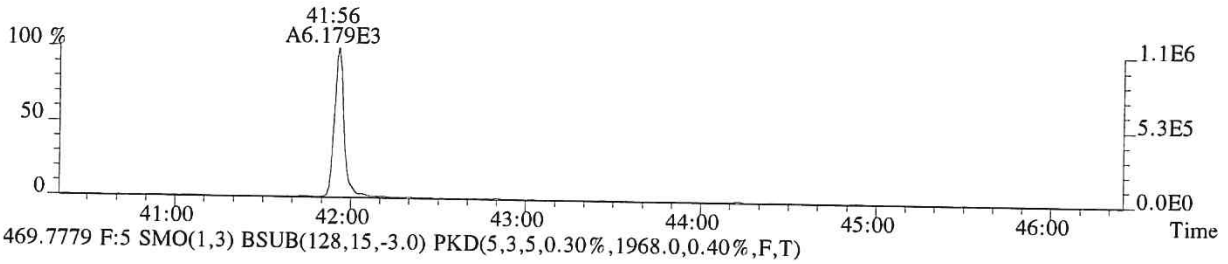
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



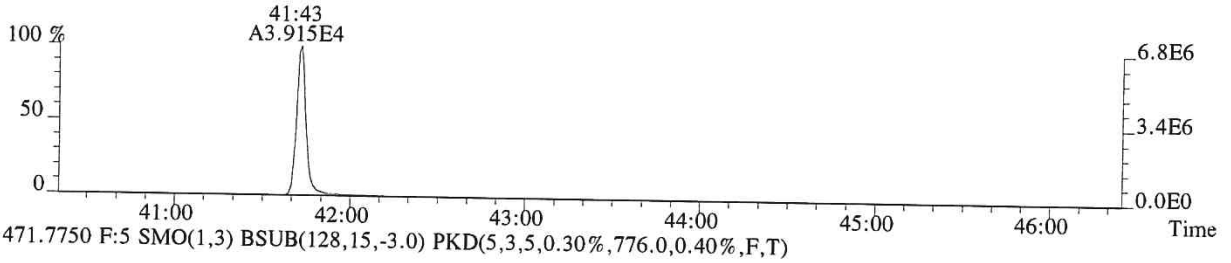
File:P615942 #1-547 Acq: 6-DEC-2018 12:17:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-036DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



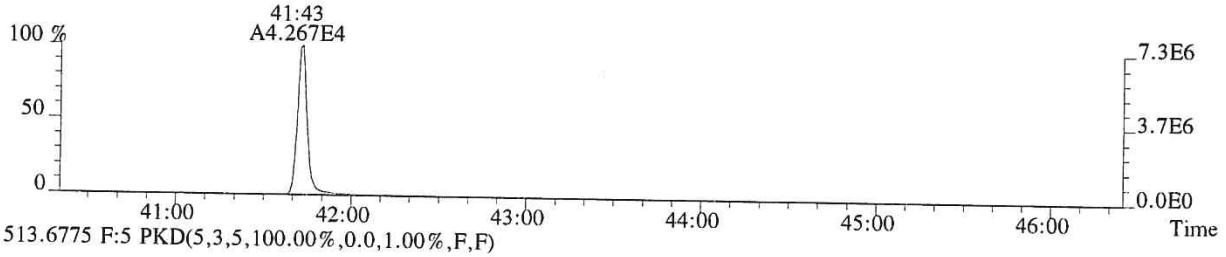
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1260.0,0.40%,F,T)



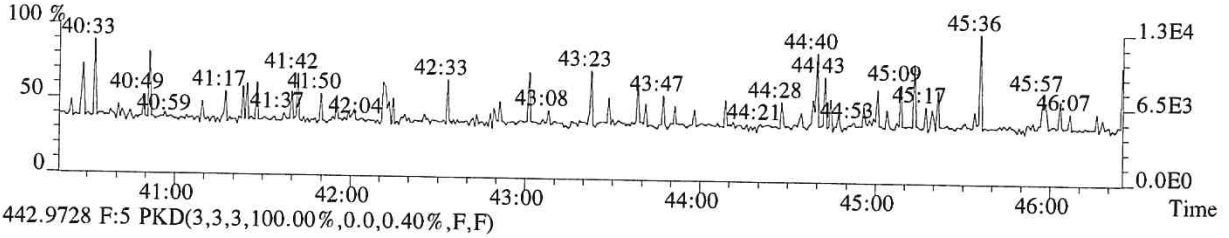
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1968.0,0.40%,F,T)



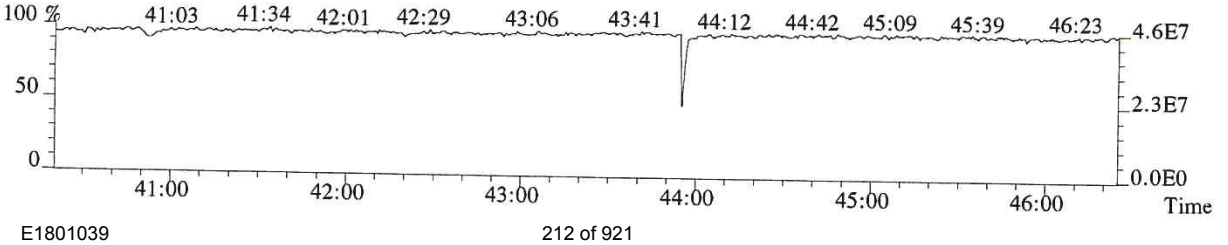
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



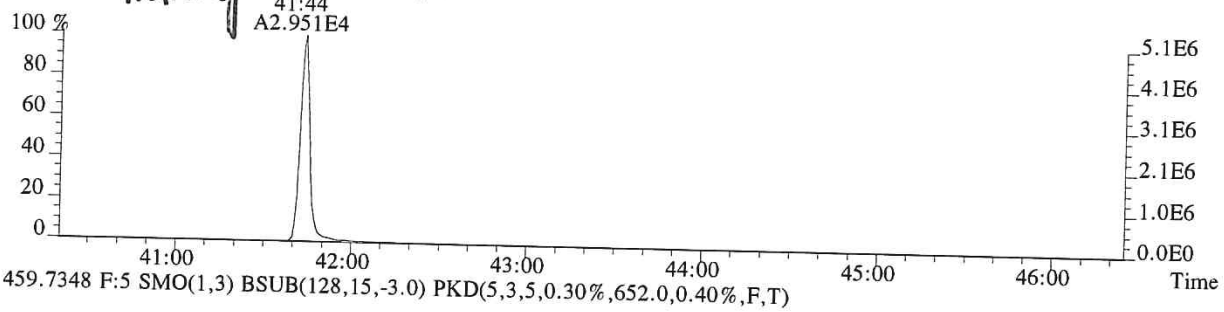
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



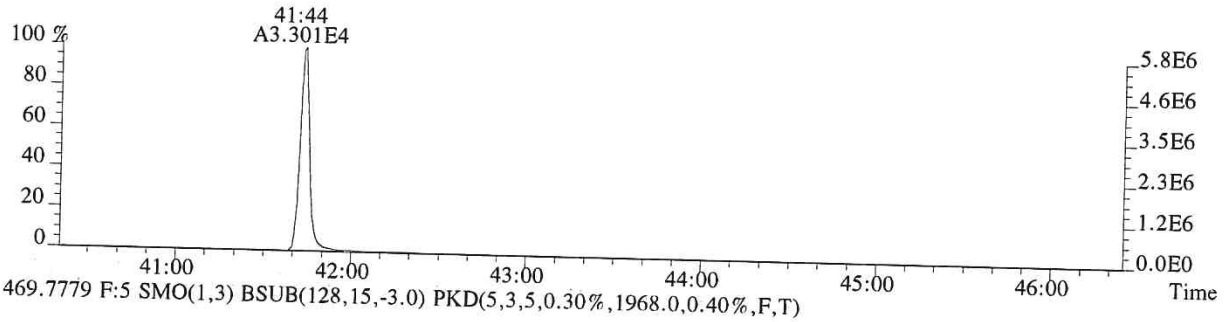
E1801039

File:P615942 #1-547 Acq: 6-DEC-2018 12:17:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:~~E181039~~-036DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)

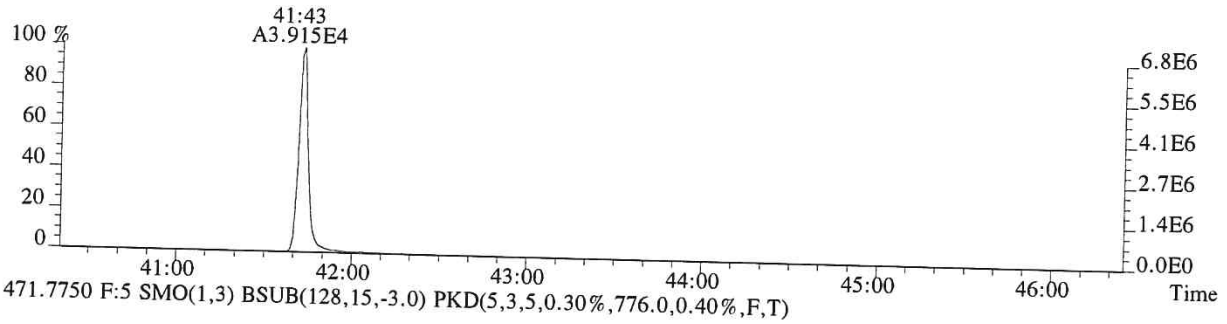
12/10/18 QC LKL 12/11/18



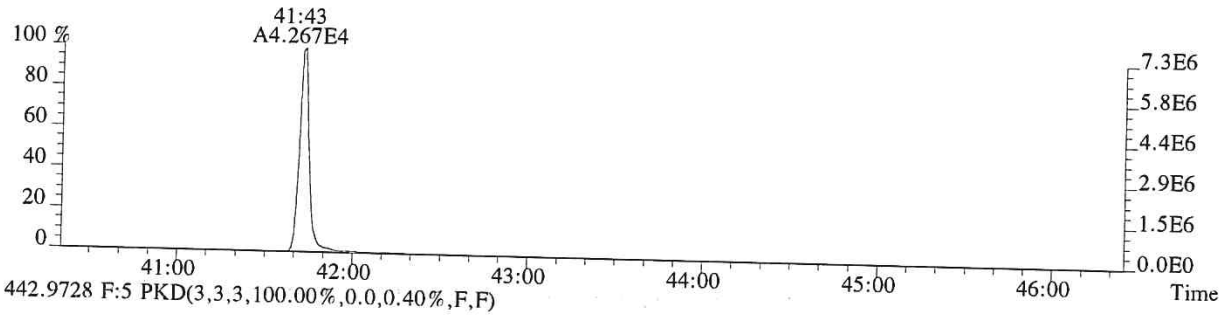
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



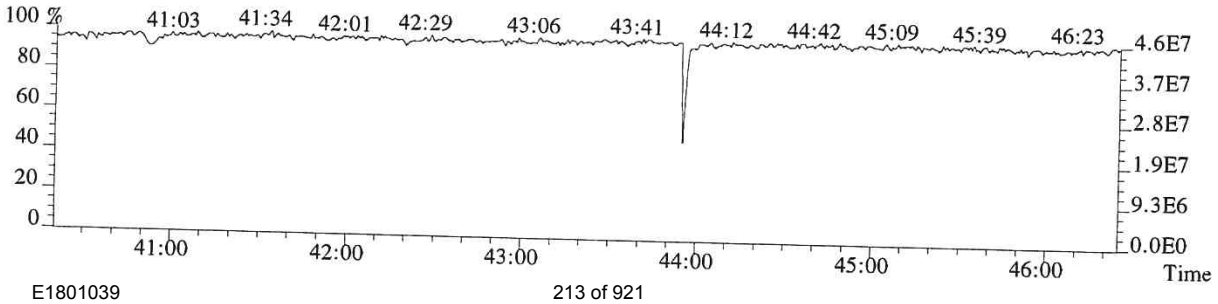
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1968.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0130

Run #15 Filename P519140 Samp: 1 Inj: 1 Acquired: 2-DEC-18 11:51:07
Processed: 3-DEC-18 18:03:20 Sample ID: E1801039-037

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	4.660e+05	6.169e+05	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:28	1.905e+04	1.266e+04	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:21	1.581e+04	1.045e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.691e+04	1.382e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:09	4.806e+03	3.847e+03	1.25	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.206e+03	1.054e+03	1.14	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:25	1.025e+03	8.462e+02	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	6.967e+03	6.793e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	6.251e+02	7.050e+02	0.89	yes	no	1.258
10	Unk	OCDF	42:36	2.823e+04	3.289e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:03	1.333e+05	1.700e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	1.962e+03	1.242e+03	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	2.237e+02	1.593e+02	1.40	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	1.163e+03	8.862e+02	1.31	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	6.045e+02	4.407e+02	1.37	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	1.994e+04	1.880e+04	1.06	yes	no	1.025
17	Unk	OCDD	42:24	1.713e+05	1.919e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:15	3.559e+04	4.528e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	4.786e+04	3.010e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.292e+04	2.692e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.369e+04	2.587e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	1.454e+04	2.893e+04	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	1.291e+04	2.501e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.027e+04	2.010e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	5.106e+03	1.173e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	3.233e+03	7.722e+03	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	2.487e+04	3.151e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.283e+04	2.059e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	1.709e+04	1.376e+04	1.24	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	1.697e+04	1.360e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	8.217e+03	7.784e+03	1.06	yes	no	0.858
32	IS	13C-OCDD	42:23	3.879e+03	4.346e+03	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:28	5.112e+04	6.405e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	3.772e+04	2.944e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:03	2.691e+04				no	1.014

$$\text{OCDD} = \frac{(1.713e+05 + 1.919e+05) \times 4000 \text{ pg} \times 1}{(3.879e+03 + 4.346e+03) \times 10.195 \text{ g} \times 62.7 / 100 \times 1.118} = 24715 \text{ ng/kg}$$

LM 12/05/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0130

Run #15 Filename P519140 Samp: 1 Inj: 1 Acquired: 2-DEC-18 11:51:07
Processed: 3-DEC-18 18:03:20 LAB. ID: E1801039-037

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.11e+07	1.92e+03	4.2e+04	1.06e+08	1.47e+03	7.2e+04
2	1,2,3,7,8-PeCDF	3.65e+06	6.75e+03	5.4e+02	2.43e+06	6.26e+03	3.9e+02
3	2,3,4,7,8-PeCDF	2.53e+06	6.75e+03	3.8e+02	1.65e+06	6.26e+03	2.6e+02
4	1,2,3,4,7,8-HxCDF	3.57e+06	3.33e+03	1.1e+03	2.92e+06	1.30e+03	2.2e+03
5	1,2,3,6,7,8-HxCDF	8.92e+05	3.33e+03	2.7e+02	7.43e+05	1.30e+03	5.7e+02
6	2,3,4,6,7,8-HxCDF	2.65e+05	3.33e+03	8.0e+01	2.32e+05	1.30e+03	1.8e+02
7	1,2,3,7,8,9-HxCDF	2.05e+05	3.33e+03	6.1e+01	1.71e+05	1.30e+03	1.3e+02
8	1,2,3,4,6,7,8-HpCDF	1.47e+06	5.19e+03	2.8e+02	1.45e+06	3.44e+03	4.2e+02
9	1,2,3,4,7,8,9-HpCDF	1.20e+05	5.19e+03	2.3e+01	1.32e+05	3.44e+03	3.8e+01
10	OCDF	4.33e+06	2.76e+02	1.6e+04	5.21e+06	3.68e+02	1.4e+04
11	2,3,7,8-TCDD	2.69e+07	2.92e+03	9.2e+03	3.42e+07	1.55e+03	2.2e+04
12	1,2,3,7,8-PeCDD	3.40e+05	1.74e+03	1.9e+02	2.26e+05	5.17e+03	4.4e+01
13	1,2,3,4,7,8-HxCDD	5.18e+04	1.48e+03	3.5e+01	4.12e+04	3.93e+03	1.0e+01
14	1,2,3,6,7,8-HxCDD	2.47e+05	1.48e+03	1.7e+02	1.89e+05	3.93e+03	4.8e+01
15	1,2,3,7,8,9-HxCDD	1.32e+05	1.48e+03	8.9e+01	8.76e+04	3.93e+03	2.2e+01
16	1,2,3,4,6,7,8-HpCDD	3.81e+06	7.56e+02	5.0e+03	3.54e+06	1.20e+03	3.0e+03
17	OCDD	2.68e+07	3.28e+02	8.2e+04	3.01e+07	5.88e+02	5.1e+04
18	13C-2,3,7,8-TCDF	6.61e+06	5.30e+03	1.2e+03	8.37e+06	3.63e+03	2.3e+03
19	13C-1,2,3,7,8-PeCDF	9.32e+06	1.53e+04	6.1e+02	5.89e+06	1.81e+04	3.2e+02
20	13C-2,3,4,7,8-PeCDF	8.66e+06	1.53e+04	5.7e+02	5.42e+06	1.81e+04	3.0e+02
21	13C-1,2,3,4,7,8-HxCDF	2.92e+06	1.63e+03	1.8e+03	5.58e+06	8.30e+03	6.7e+02
22	13C-1,2,3,6,7,8-HxCDF	2.95e+06	1.63e+03	1.8e+03	5.90e+06	8.30e+03	7.1e+02
23	13C-2,3,4,6,7,8-HxCDF	2.75e+06	1.63e+03	1.7e+03	5.39e+06	8.30e+03	6.5e+02
24	13C-1,2,3,7,8,9-HxCDF	2.06e+06	1.63e+03	1.3e+03	4.01e+06	8.30e+03	4.8e+02
25	13C-1,2,3,4,6,7,8-HpCDF	1.06e+06	3.04e+03	3.5e+02	2.49e+06	3.92e+03	6.4e+02
26	13C-1,2,3,4,7,8,9-HpCDF	5.98e+05	3.04e+03	2.0e+02	1.43e+06	3.92e+03	3.7e+02
27	13C-2,3,7,8-TCDD	4.93e+06	4.32e+03	1.1e+03	6.37e+06	2.53e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	6.43e+06	1.56e+03	4.1e+03	4.04e+06	1.35e+03	3.0e+03
29	13C-1,2,3,4,7,8-HxCDD	3.79e+06	1.75e+03	2.2e+03	3.03e+06	1.43e+03	2.1e+03
30	13C-1,2,3,6,7,8-HxCDD	3.50e+06	1.75e+03	2.0e+03	2.77e+06	1.43e+03	1.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.54e+06	1.10e+03	1.4e+03	1.49e+06	3.00e+02	5.0e+03
32	13C-OCDD	6.02e+05	6.80e+02	8.9e+02	6.94e+05	5.48e+02	1.3e+03
33	13C-1,2,3,4-TCDD	9.91e+06	4.32e+03	2.3e+03	1.24e+07	2.53e+03	4.9e+03
34	13C-1,2,3,7,8,9-HxCDD	7.62e+06	1.75e+03	4.3e+03	5.94e+06	1.43e+03	4.2e+03
35	37Cl-2,3,7,8-TCDD	5.44e+06	1.01e+03	5.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.920e{+}03 + 1.548e{+}03) \times 2000}{(4.931e{+}06 + 6.369e{+}06) \times (\quad) \times 1.085}$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0130

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P519140 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 11:51:07 Processed: 3-DEC-18 18:03:20

Mass: 303.9020 305.8990 Tot Response: 1.87e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:19	4.58e+03	6.17e+03	0.74	yes	1.07e+04		n	n
2	25:39	2.19e+04	2.91e+04	0.75	yes	5.10e+04		n	n
3	26:03	7.12e+03	9.75e+03	0.73	yes	1.69e+04		n	n
4	26:11	9.60e+02	1.35e+03	0.71	yes	2.31e+03		n	n
5	26:21	1.80e+04	2.45e+04	0.73	yes	4.25e+04		n	n
6	26:43	4.14e+03	5.38e+03	0.77	yes	9.52e+03		n	n
7	26:55	1.33e+04	1.83e+04	0.73	yes	3.17e+04		n	n
8	27:03	1.99e+04	2.68e+04	0.74	yes	4.68e+04		n	n
9	27:28	2.05e+05	2.69e+05	0.76	yes	4.75e+05		n	n
10	27:43	9.69e+03	1.32e+04	0.73	yes	2.29e+04		n	n
11	28:16	4.66e+05	6.17e+05	0.76	yes	1.08e+06	2,3,7,8-TCDF	n	n
12	28:49	4.28e+03	6.46e+03	0.66	yes	1.07e+04		n	n
13	30:05	3.09e+04	4.08e+04	0.76	yes	7.18e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0130

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P519140 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 11:51:07 Processed: 3-DEC-18 18:03:20

Mass: 319.8970 321.8940 Tot Response: 3.36e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:32	3.12e+02	4.72e+02	0.66	yes	7.85e+02		n	n
2	27:57	2.16e+02	3.19e+02	0.68	yes	5.35e+02		n	n
3	28:48	1.80e+03	2.24e+03	0.81	yes	4.05e+03		n	n
4	29:03	1.33e+05	1.70e+05	0.78	yes	3.03e+05	2,3,7,8-TCDD	n	n
5	29:20	1.20e+04	1.55e+04	0.78	yes	2.75e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0130

Entry: 38 Totals Name: Total Penta-Furans1

Run: 15 File: P519140 Sample:1 Injection:1 Function:1

Acquired: 2-DEC-18 11:51:07 Processed: 3-DEC-18 18:03:20

Mass: 339.8600 341.8570 Tot Response: 1.35e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:04	8.42e+03	5.08e+03 1.66	yes	1.35e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0130

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P519140 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 11:51:07 Processed: 3-DEC-18 18:03:20

Mass: 339.8600 341.8570 Tot Response: 1.01e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:24	7.53e+02	5.25e+02	1.43	yes	1.28e+03		n	n
2	31:32	1.34e+04	8.70e+03	1.54	yes	2.21e+04		n	n
3	32:03	1.66e+03	1.08e+03	1.54	yes	2.75e+03		n	n
4	32:09	5.41e+02	3.77e+02	1.44	yes	9.18e+02		n	n
5	32:17	2.22e+03	1.49e+03	1.49	yes	3.72e+03		n	n
6	32:28	1.90e+04	1.27e+04	1.50	yes	3.17e+04	1,2,3,7,8-PeCDF	n	n
7	32:42	6.54e+03	4.24e+03	1.54	yes	1.08e+04		n	n
8	33:09	5.01e+01	3.70e+01	1.36	yes	8.71e+01		n	n
9	33:21	1.58e+04	1.04e+04	1.51	yes	2.63e+04	2,3,4,7,8-PeCDF	n	n
10	34:16	7.19e+02	4.51e+02	1.59	yes	1.17e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0130

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P519140 Sample:1 Injection:1 Function:2

Acquired: 2-DEC-18 11:51:07 Processed: 3-DEC-18 18:03:20

Mass: 355.8550 357.8520 Tot Response: 4.77e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:28	5.53e+02	3.94e+02 1.40	yes	9.47e+02		n	n
2	32:37	3.84e+02	2.37e+02 1.62	yes	6.22e+02		n	n
3	33:38	1.96e+03	1.24e+03 1.58	yes	3.20e+03	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0130

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P519140 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 11:51:07 Processed: 3-DEC-18 18:03:20

Mass: 373.8210 375.8180 Tot Response: 6.85e+04 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:55	1.36e+03	1.19e+03	1.15	yes	2.55e+03		n	n
2	35:05	5.55e+03	4.62e+03	1.20	yes	1.02e+04		n	n
3	35:36	6.74e+03	5.56e+03	1.21	yes	1.23e+04		n	n
4	36:02	1.69e+04	1.38e+04	1.22	yes	3.07e+04	1,2,3,4,7,8-HxCDF	n	n
5	36:09	4.81e+03	3.85e+03	1.25	yes	8.65e+03	1,2,3,6,7,8-HxCDF	n	n
6	36:39	1.21e+03	1.05e+03	1.14	yes	2.26e+03	2,3,4,6,7,8-HxCDF	n	n
7	37:25	1.03e+03	8.46e+02	1.21	yes	1.87e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0130

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P519140 Sample:1 Injection:1 Function:3

Acquired: 2-DEC-18 11:51:07 Processed: 3-DEC-18 18:03:20

Mass: 389.8160 391.8130 Tot Response: 2.50e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	7.02e+03	5.32e+03	1.32	yes	1.23e+04		n	n
2	35:57	5.80e+02	4.86e+02	1.19	yes	1.07e+03		n	n
3	36:11	4.19e+03	3.47e+03	1.21	yes	7.66e+03		n	n
4	36:18	2.65e+02	2.06e+02	1.28	yes	4.71e+02		n	n
5	36:47	2.24e+02	1.59e+02	1.40	yes	3.83e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:51	1.16e+03	8.86e+02	1.31	yes	2.05e+03	1,2,3,6,7,8-HxCDD	n	n
7	37:06	6.05e+02	4.41e+02	1.37	yes	1.05e+03	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0130

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P519140 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 11:51:07 Processed: 3-DEC-18 18:03:20

Mass: 407.7820 409.7790 Tot Response: 3.73e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:39	6.97e+03	6.79e+03	1.03	yes	1.38e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	39:03	1.11e+04	1.11e+04	1.01	yes	2.22e+04		n	n
3	40:04	6.25e+02	7.05e+02	0.89	yes	1.33e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0130

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P519140 Sample:1 Injection:1 Function:4

Acquired: 2-DEC-18 11:51:07 Processed: 3-DEC-18 18:03:20

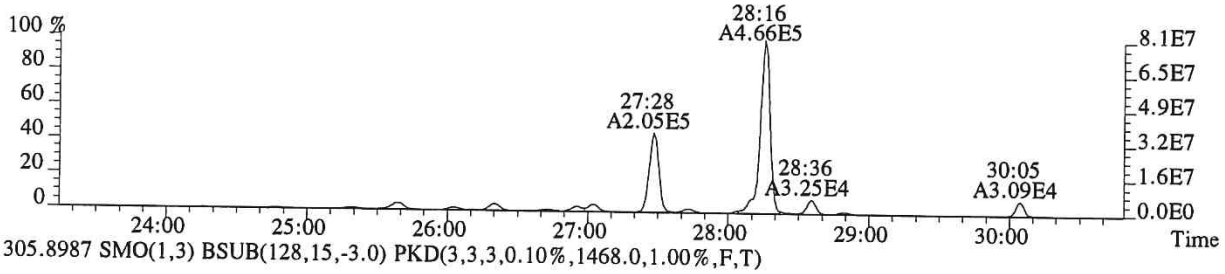
Mass: 423.7770 425.7740 Tot Response: 9.35e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	2.76e+04	1.02	yes	5.47e+04		n	n
2	39:35	1.99e+04	1.06	yes	3.87e+04	1,2,3,4,6,7,8-HpCDD	n	n

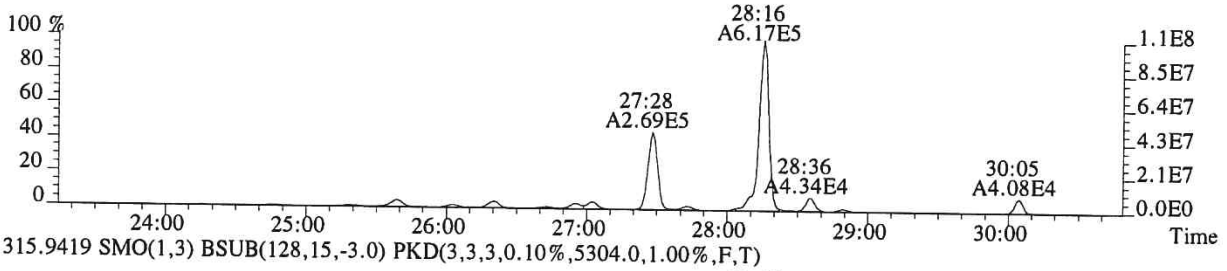
ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

File:P519140 #1-538 Acq: 2-DEC-2018 11:51:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-037

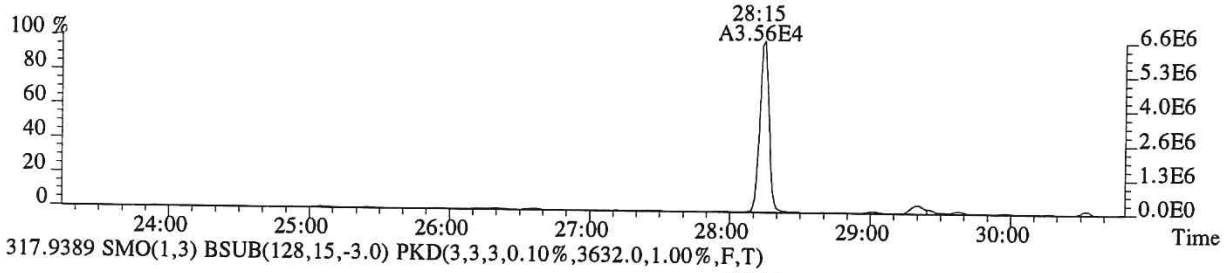
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1916.0,1.00%,F,T)



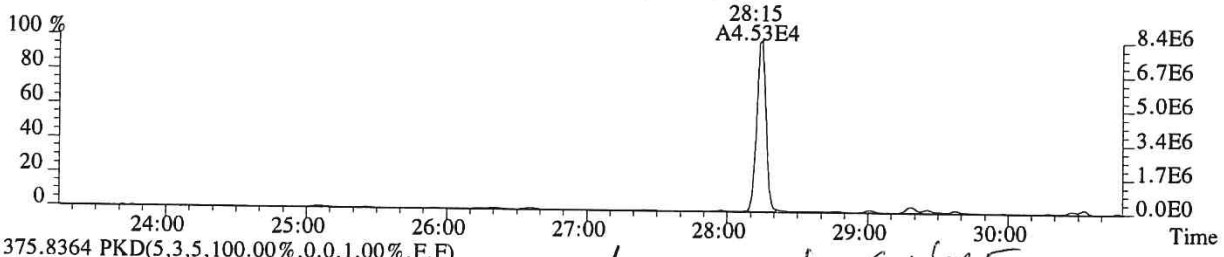
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5304.0,1.00%,F,T)

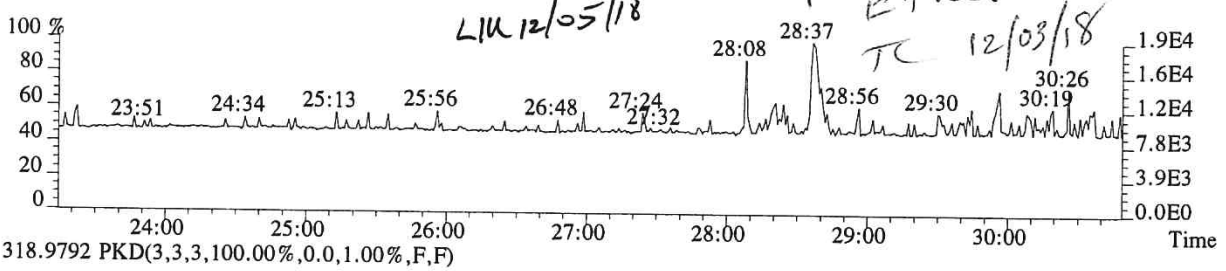


317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3632.0,1.00%,F,T)

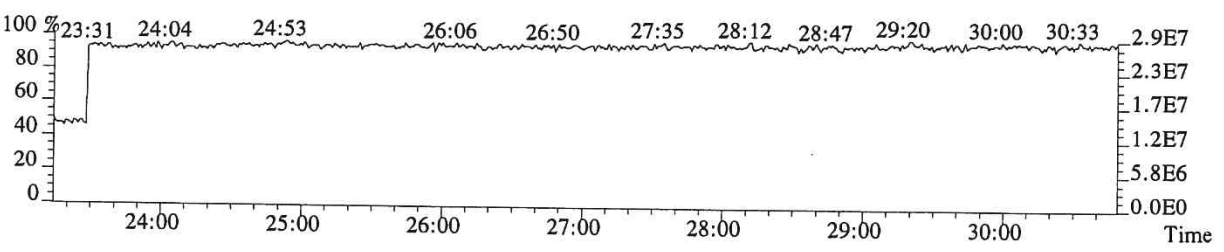


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

LIK 12/05/18 + Ether TC 12/03/18



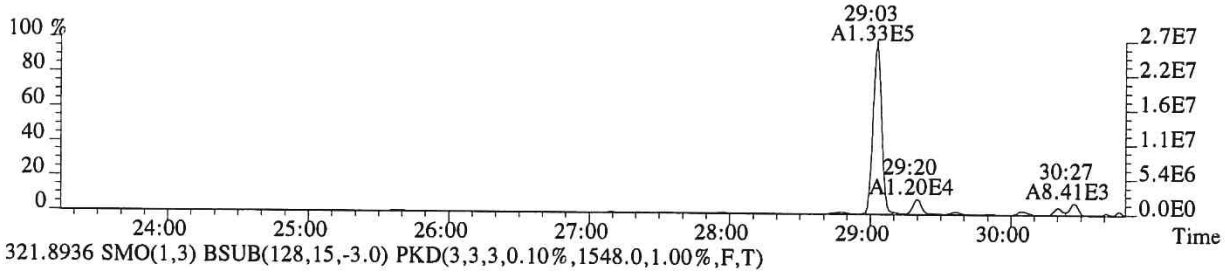
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



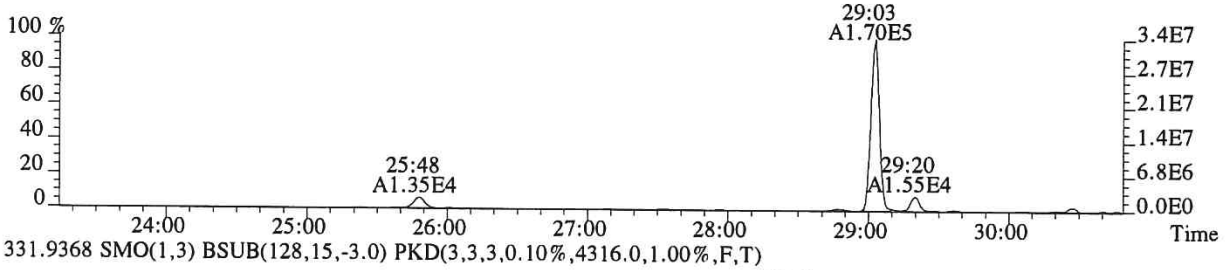
011156

File:P519140 #1-538 Acq: 2-DEC-2018 11:51:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-037

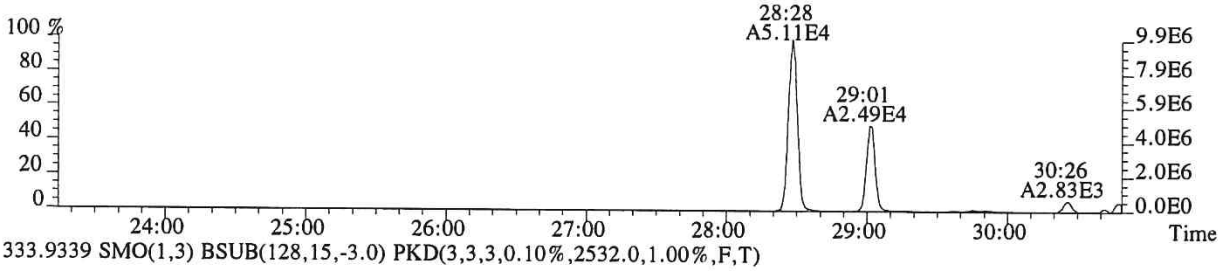
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2920.0,1.00%,F,T)



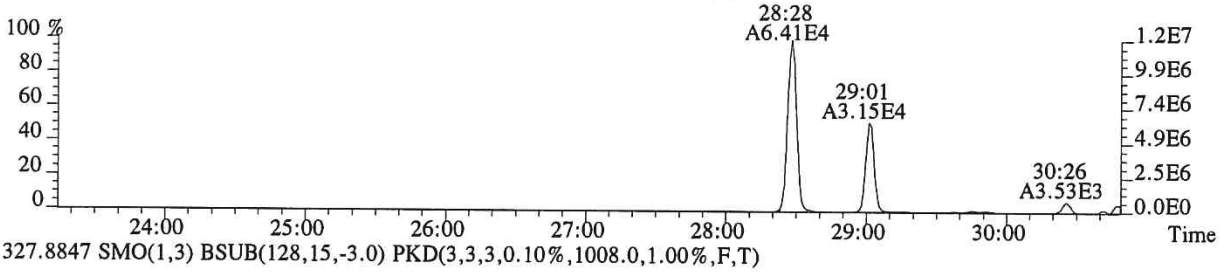
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1548.0,1.00%,F,T)



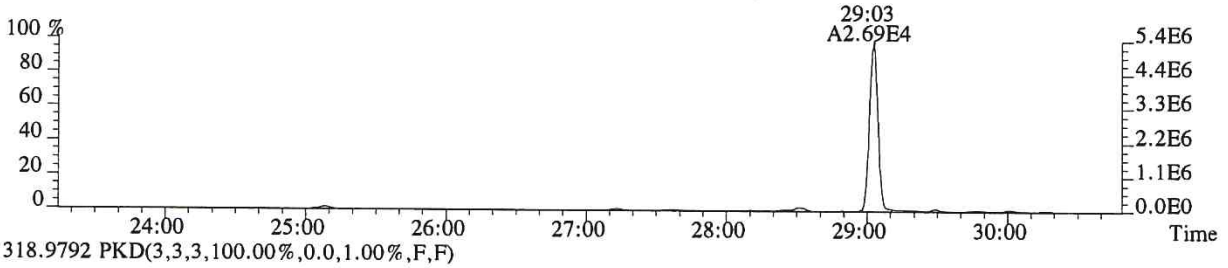
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



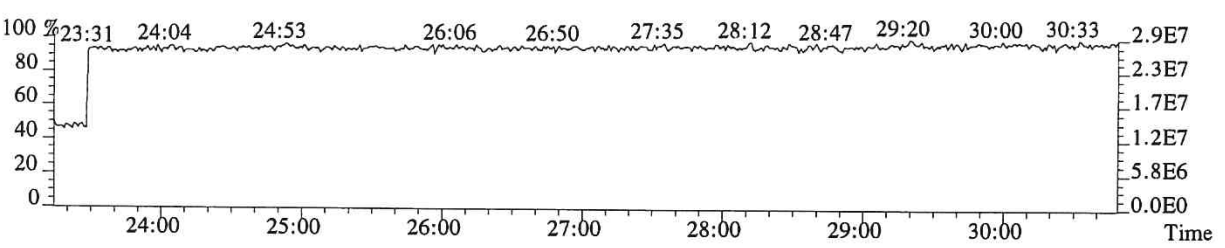
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2532.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)

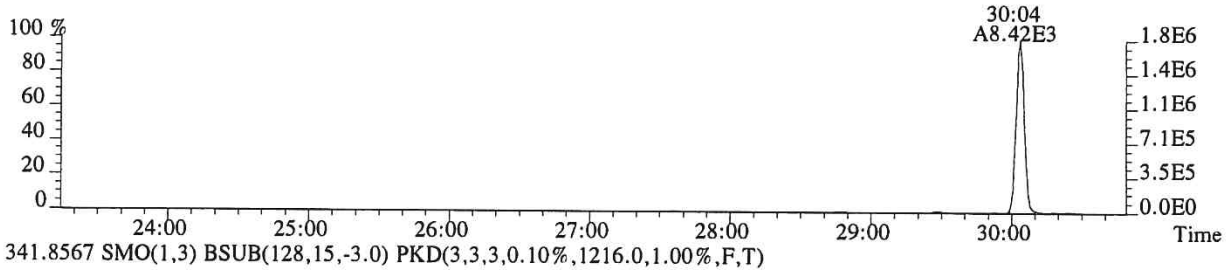


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

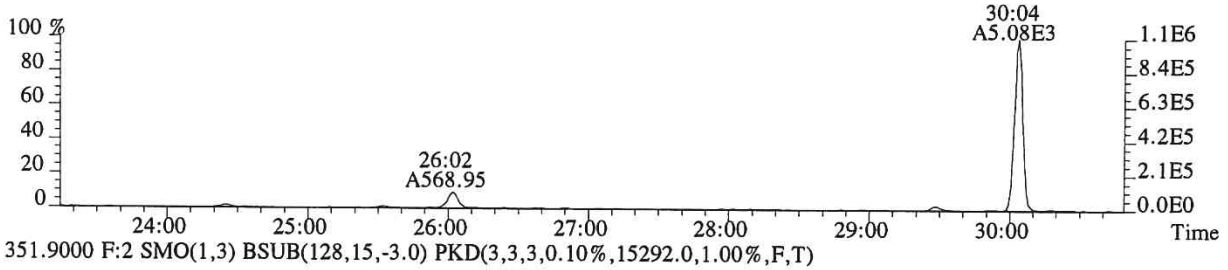


011157

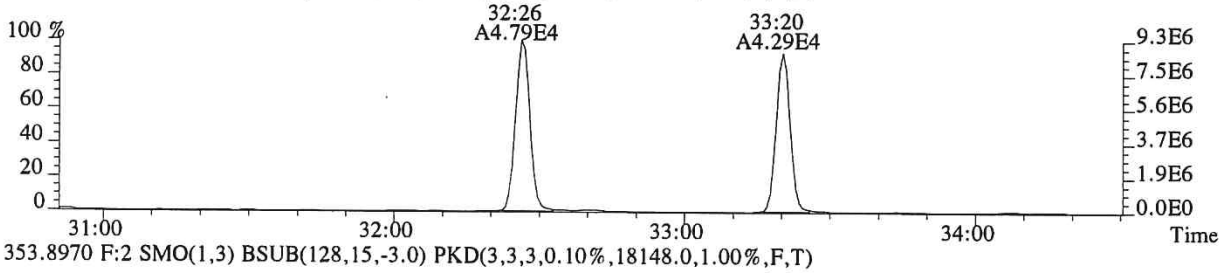
File:P519140 #1-538 Acq: 2-DEC-2018 11:51:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-037
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



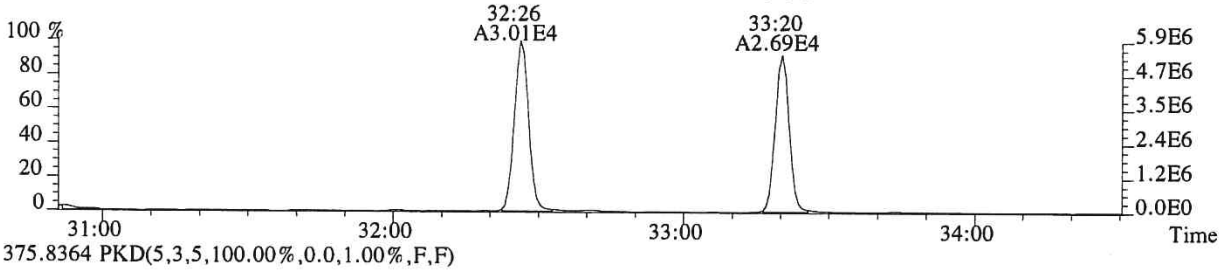
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



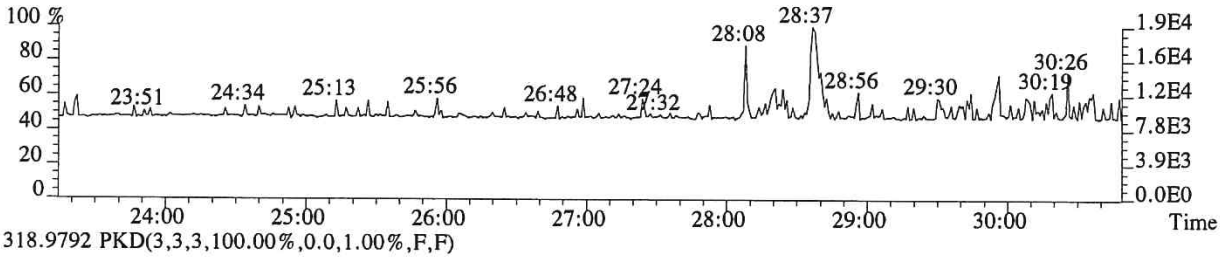
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15292.0,1.00%,F,T)



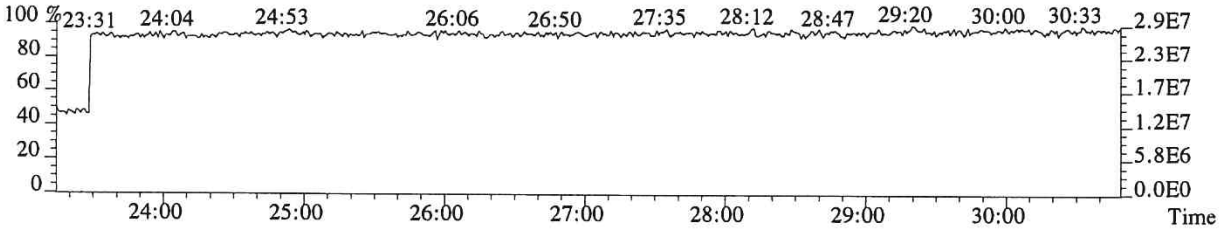
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18148.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

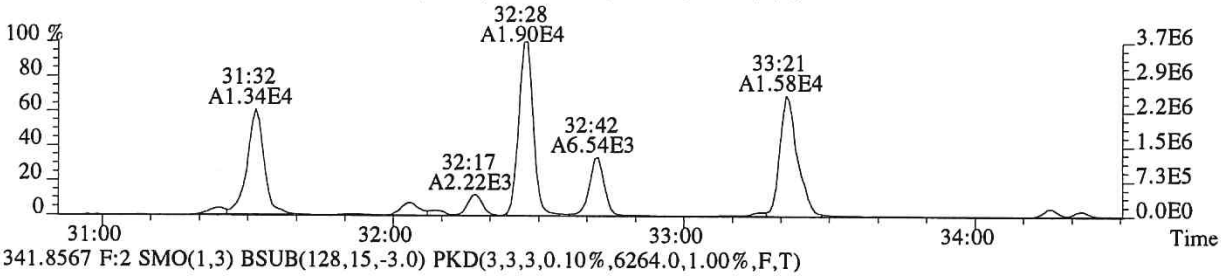


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

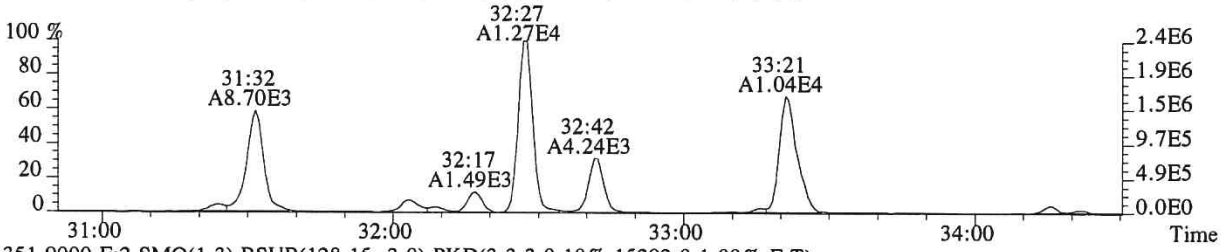


011158

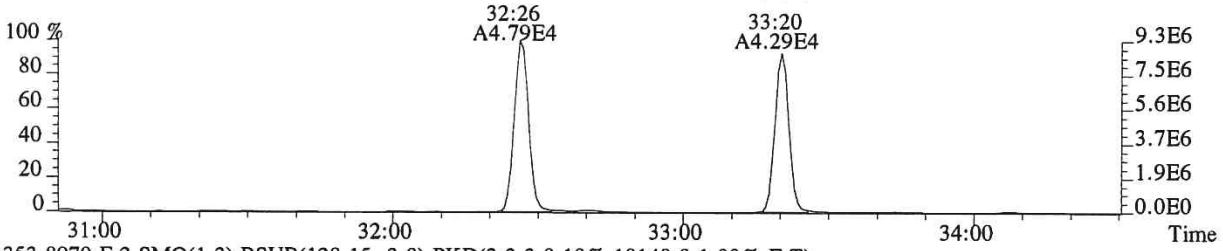
File:P519140 #1-330 Acq: 2-DEC-2018 11:51:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-037
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6752.0,1.00%,F,T)



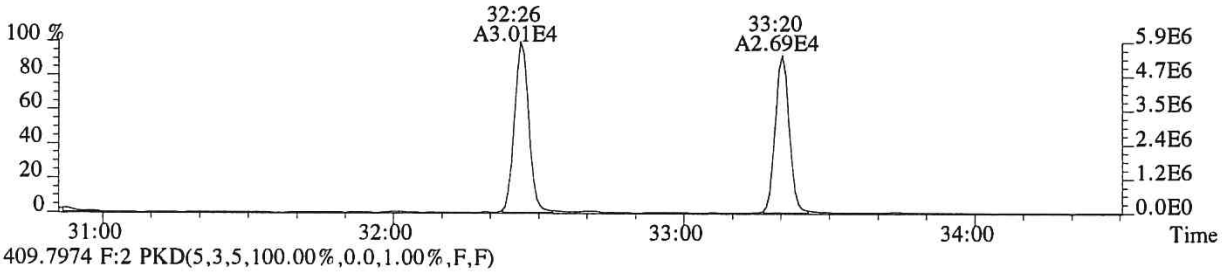
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6264.0,1.00%,F,T)



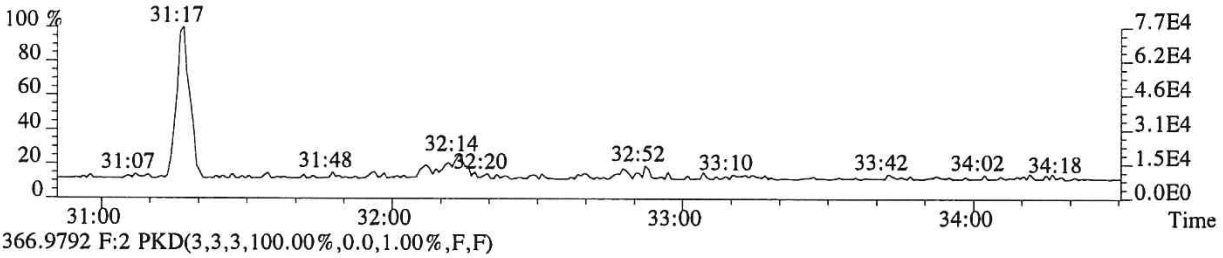
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15292.0,1.00%,F,T)



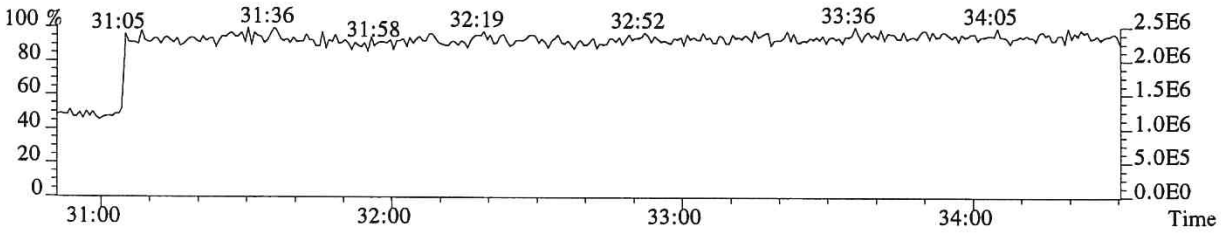
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18148.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

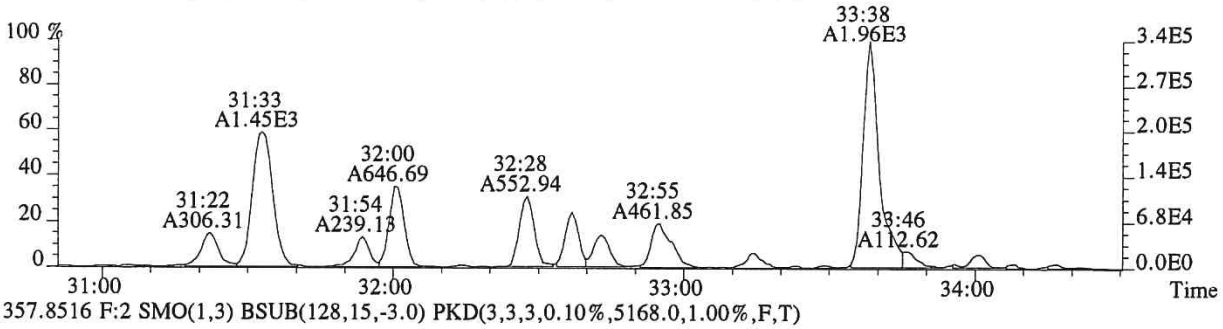


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

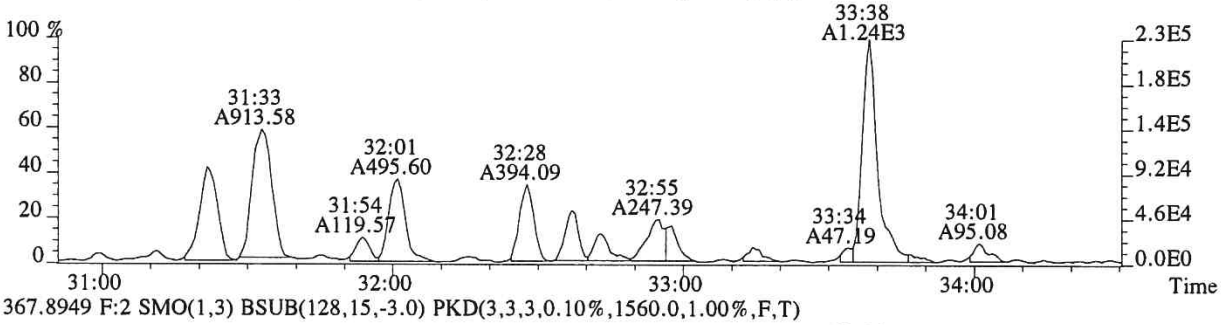


011159

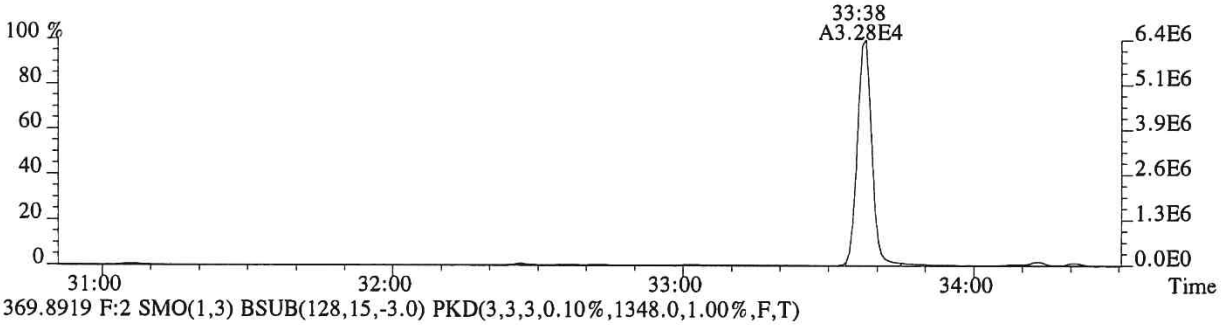
File:P519140 #1-330 Acq: 2-DEC-2018 11:51:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-037
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



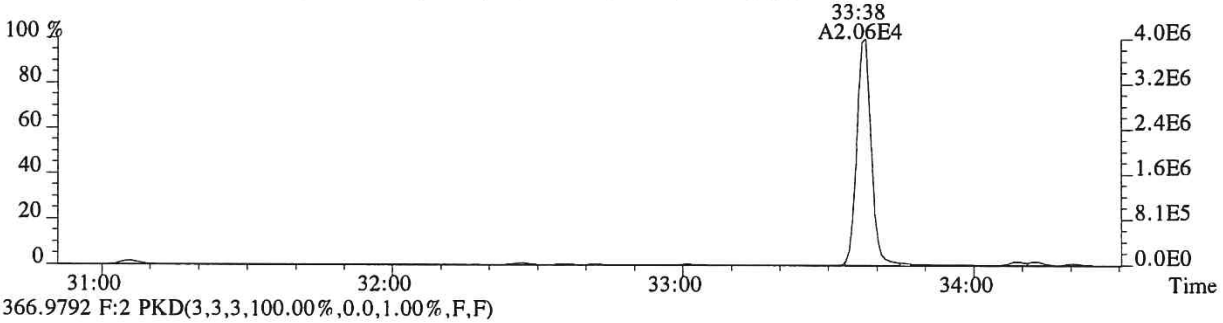
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5168.0,1.00%,F,T)



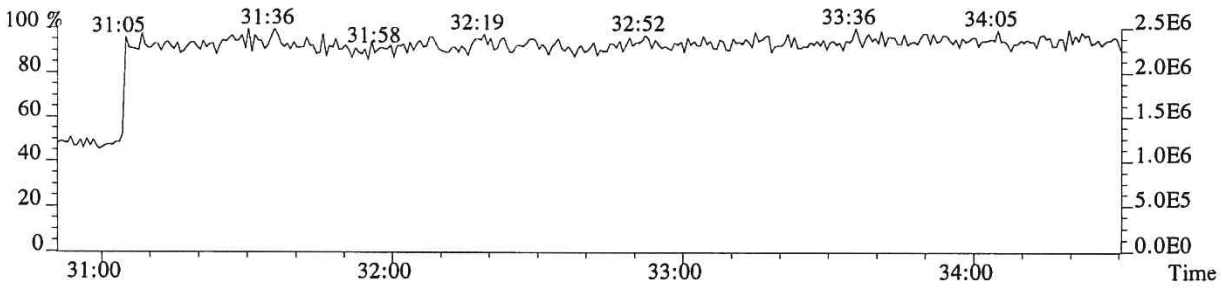
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



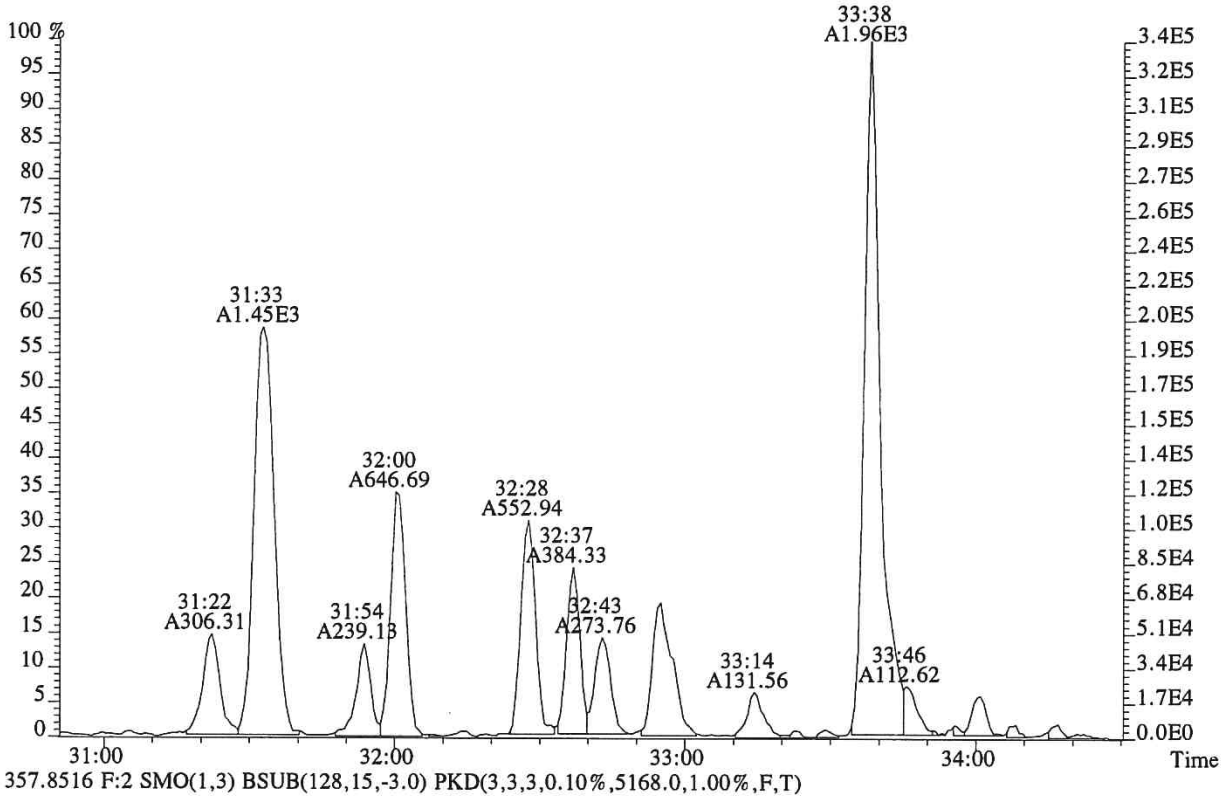
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



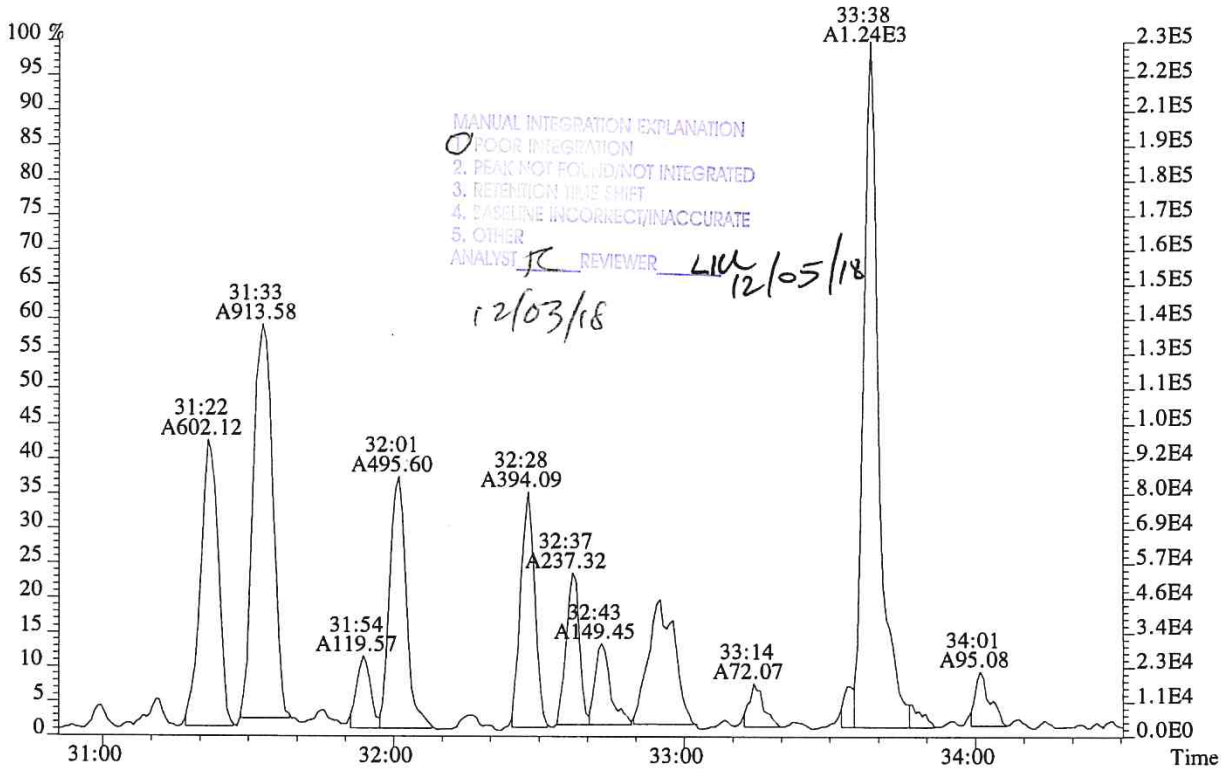
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



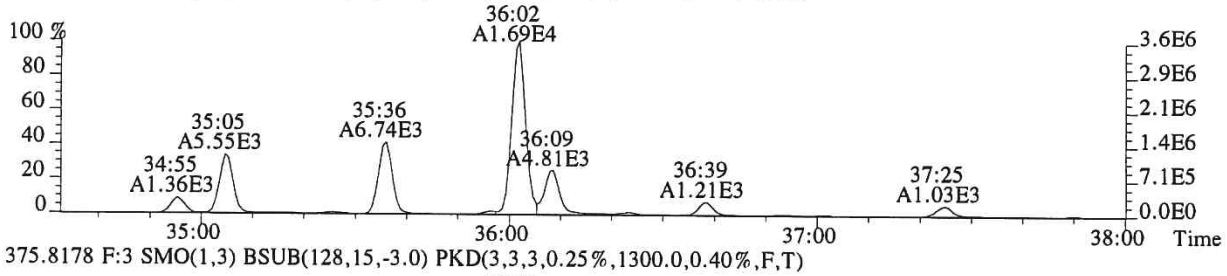
File:P519140 #1-330 Acq: 2-DEC-2018 11:51:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-037
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



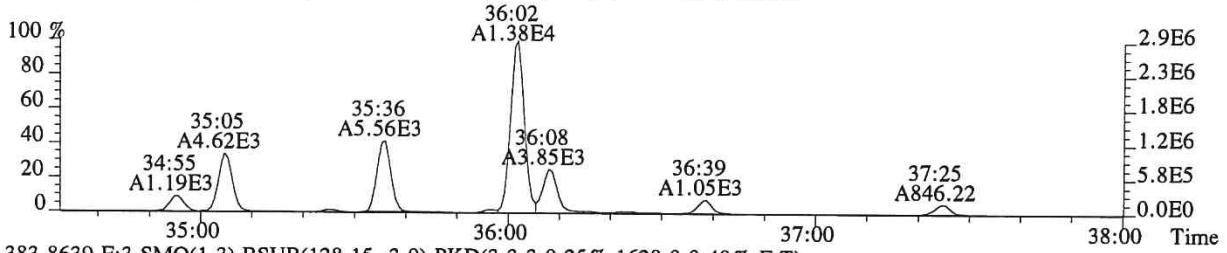
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5168.0,1.00%,F,T)



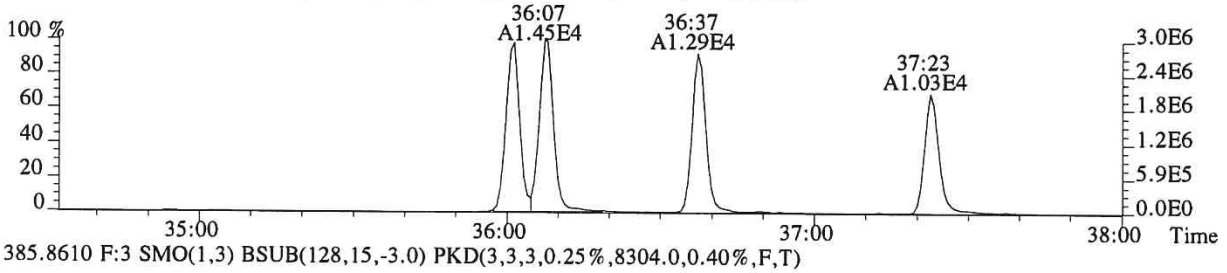
File:P519140 #1-312 Acq: 2-DEC-2018 11:51:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-037
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3328.0,0.40%,F,T)



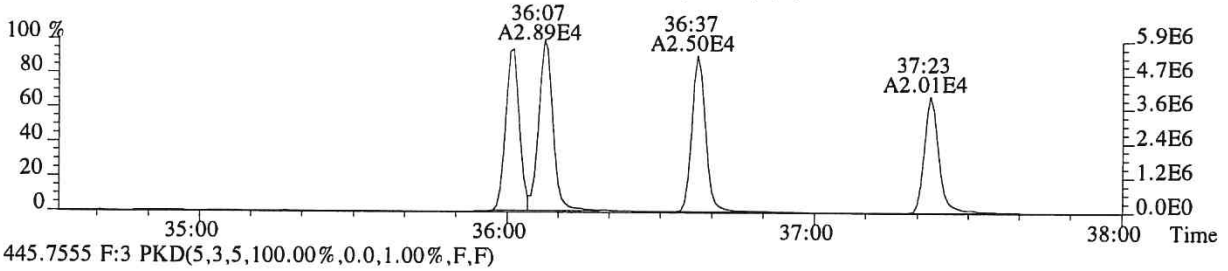
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.40%,F,T)



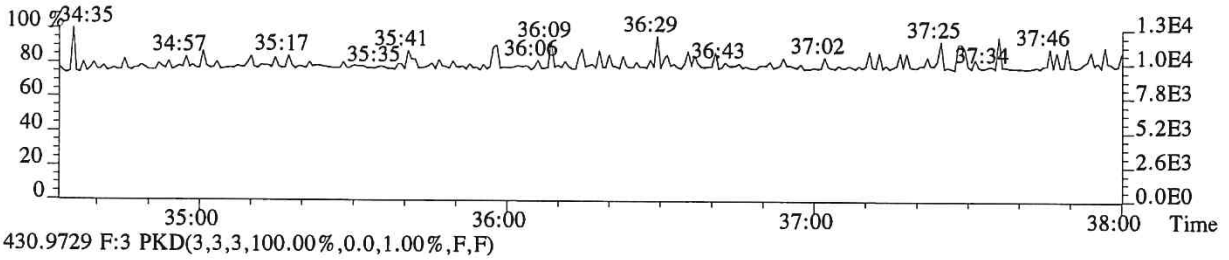
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



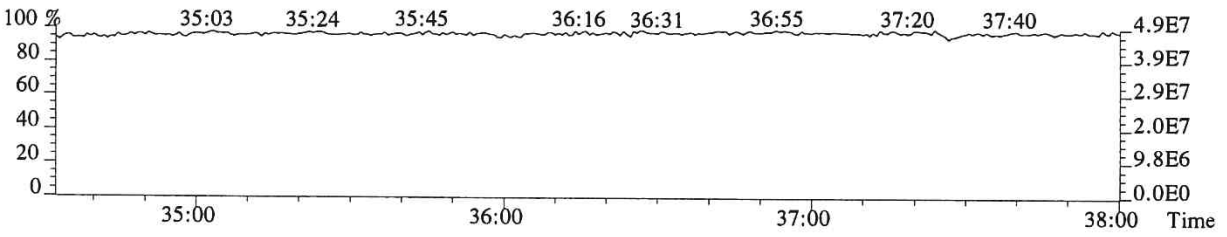
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8304.0,0.40%,F,T)



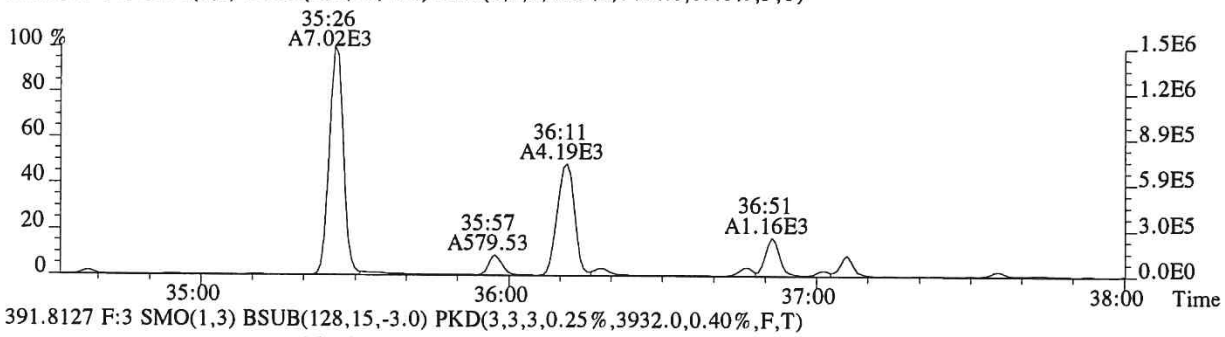
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



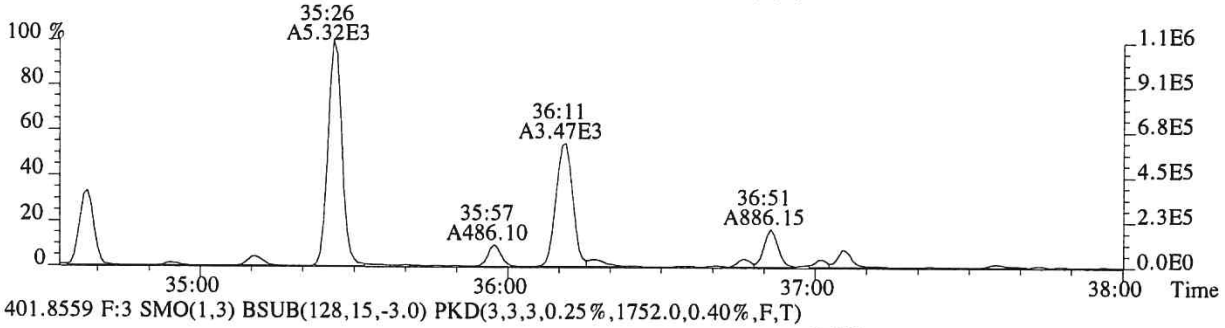
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



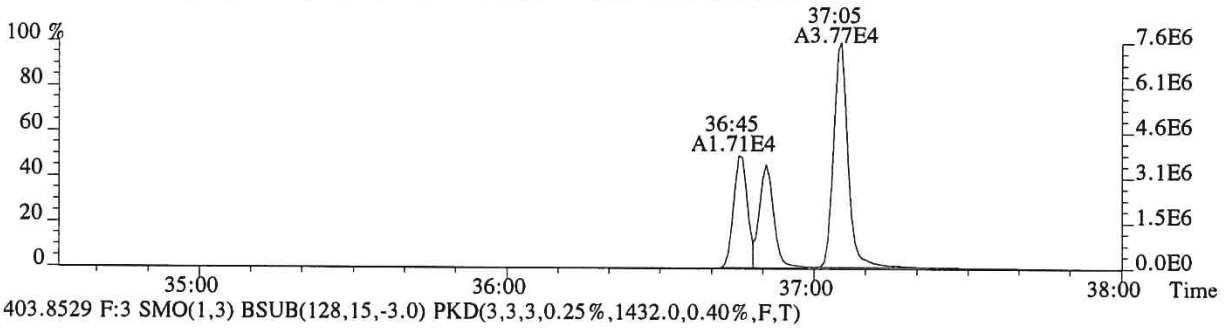
File:P519140 #1-312 Acq: 2-DEC-2018 11:51:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-037
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1484.0,0.40%,F,T)



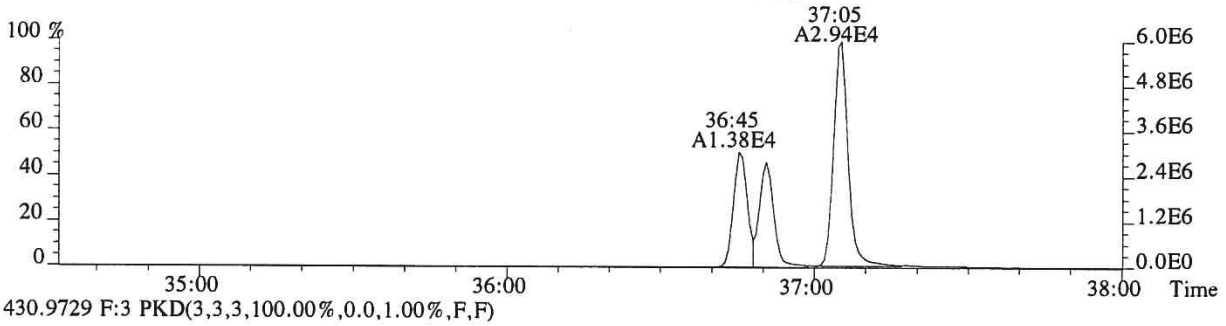
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3932.0,0.40%,F,T)



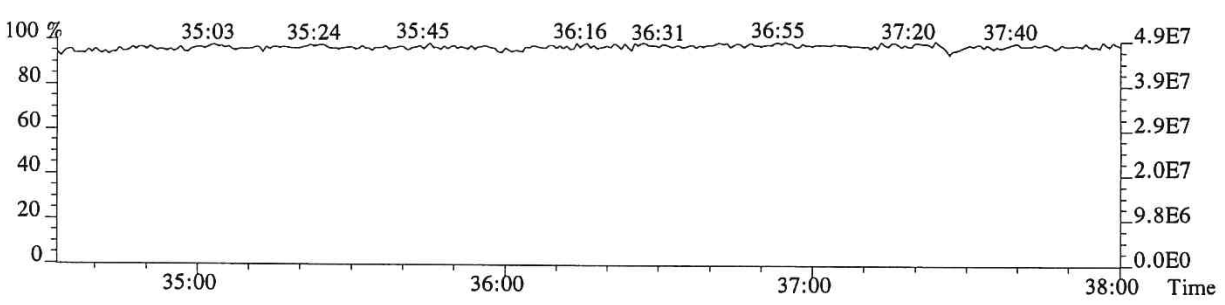
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1432.0,0.40%,F,T)

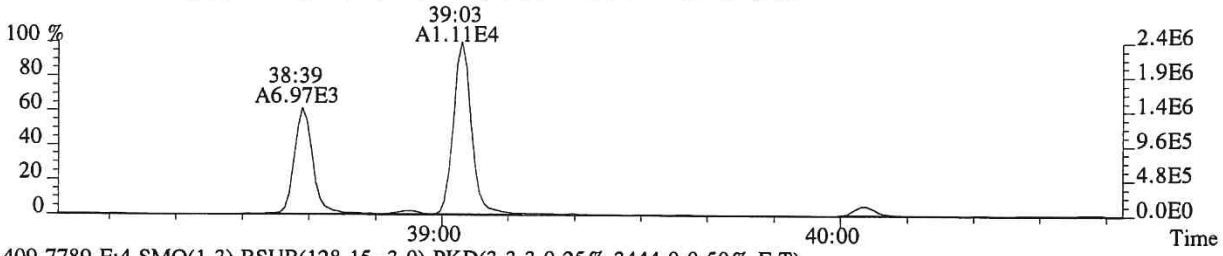


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

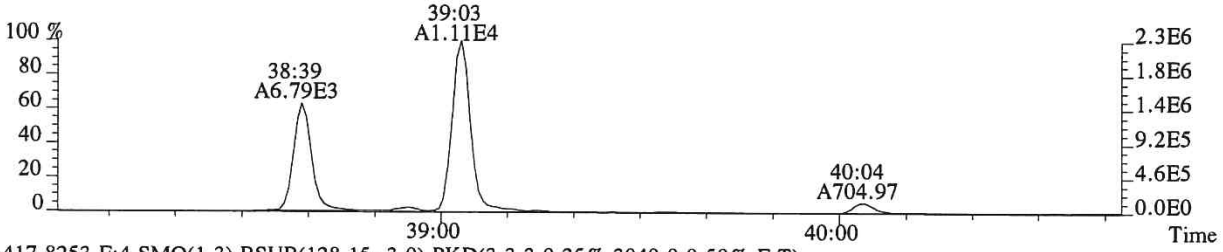


File:P519140 #1-241 Acq: 2-DEC-2018 11:51:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-037

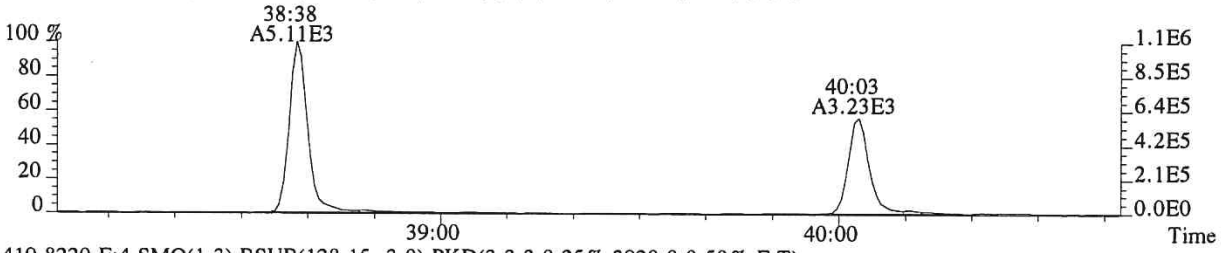
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5188.0,0.50%,F,T)



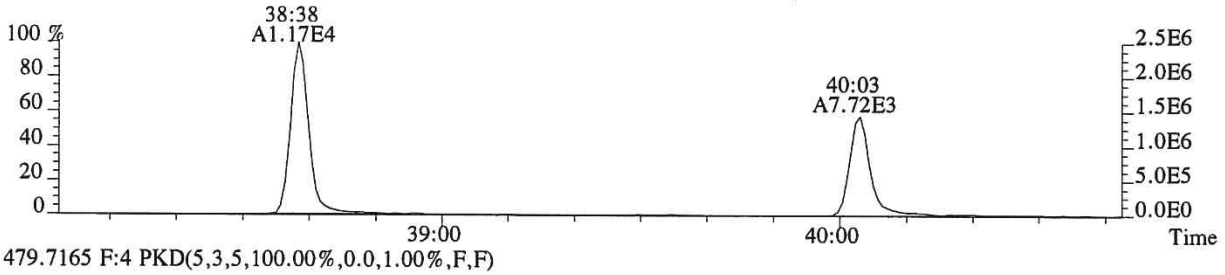
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3444.0,0.50%,F,T)



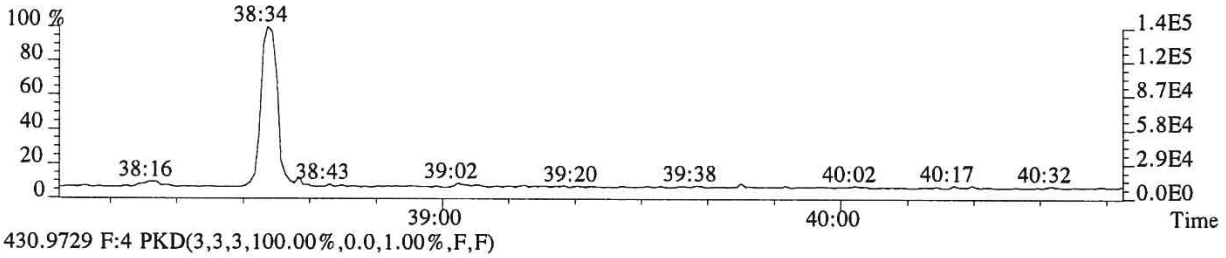
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.50%,F,T)



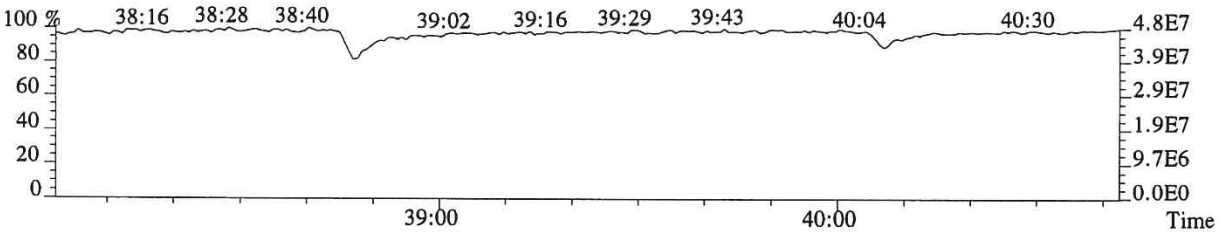
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3920.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

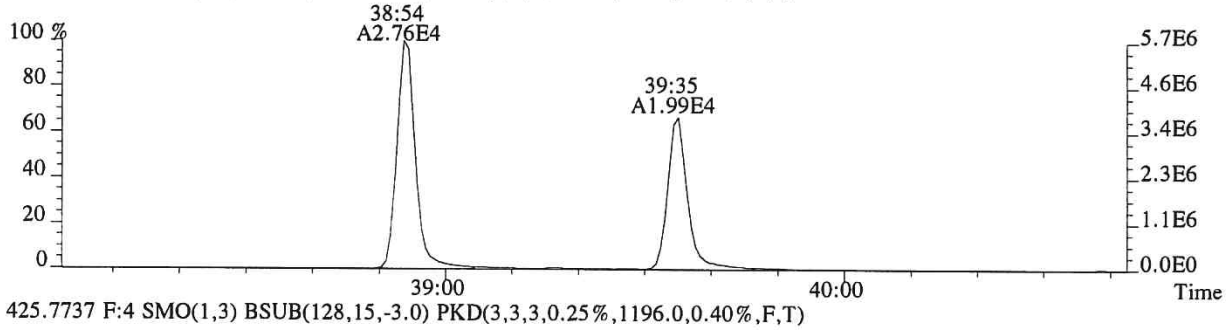


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

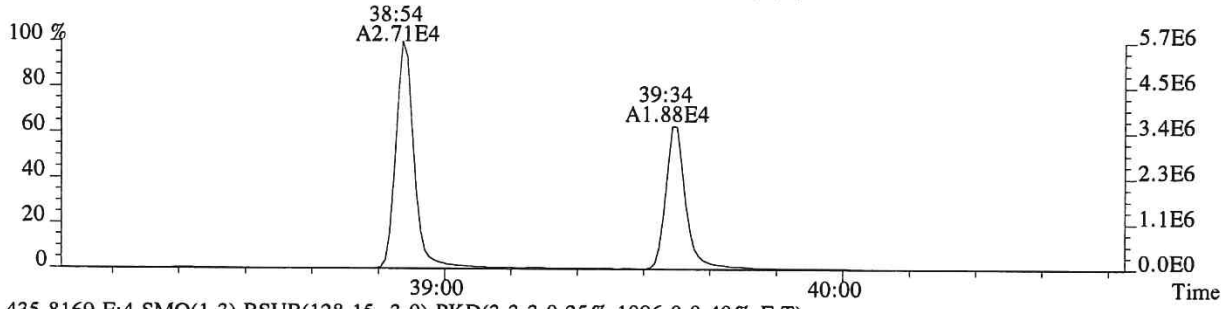


011164

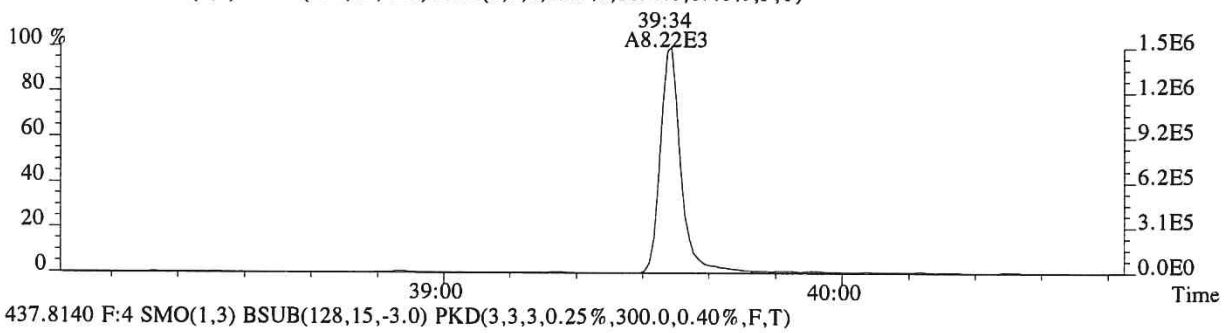
File:P519140 #1-241 Acq: 2-DEC-2018 11:51:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-037
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



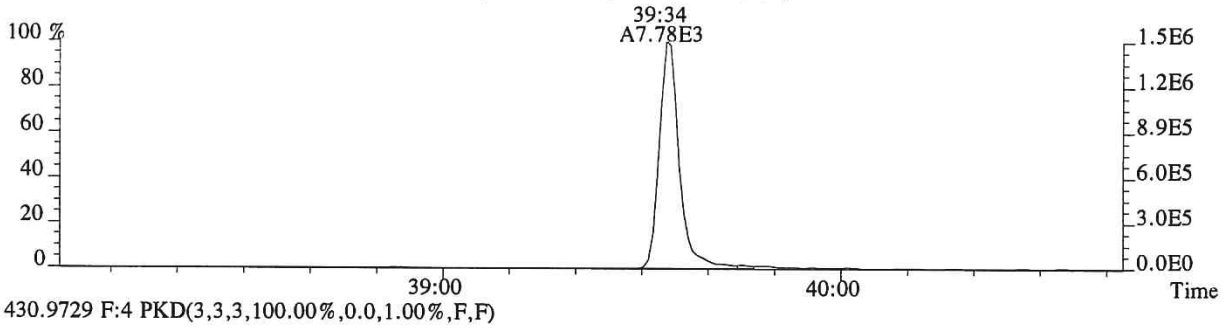
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1196.0,0.40%,F,T)



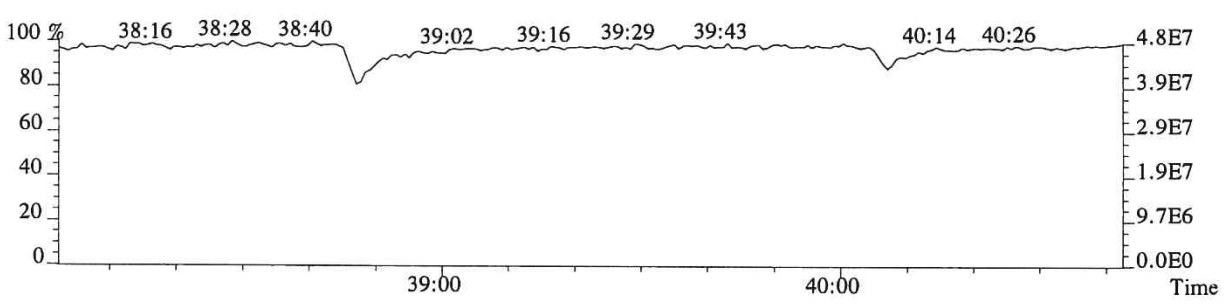
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



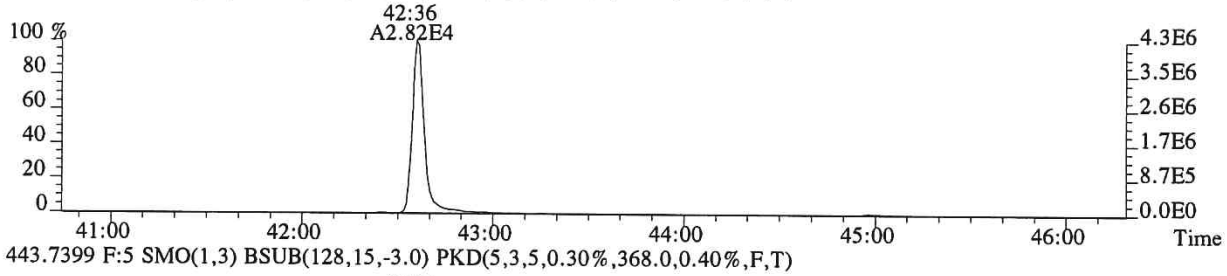
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



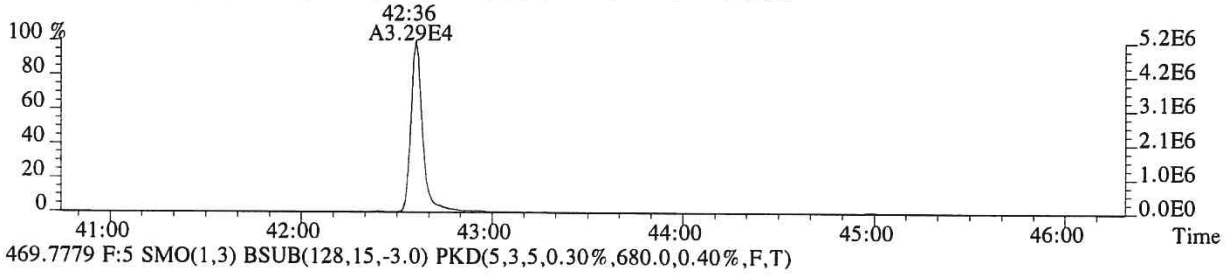
011165

File:P519140 #1-502 Acq: 2-DEC-2018 11:51:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-037

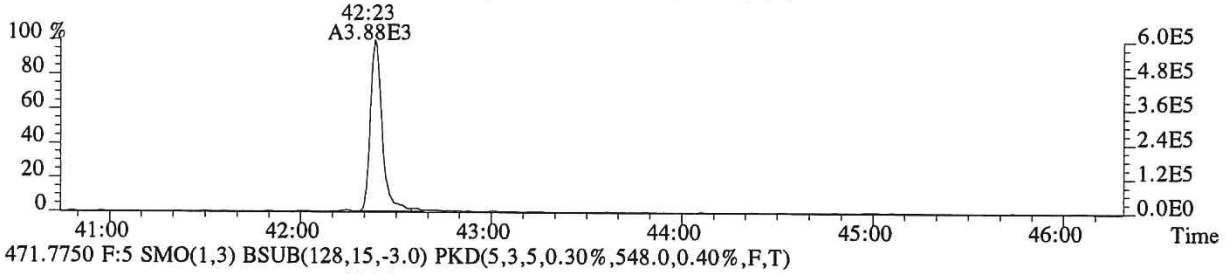
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



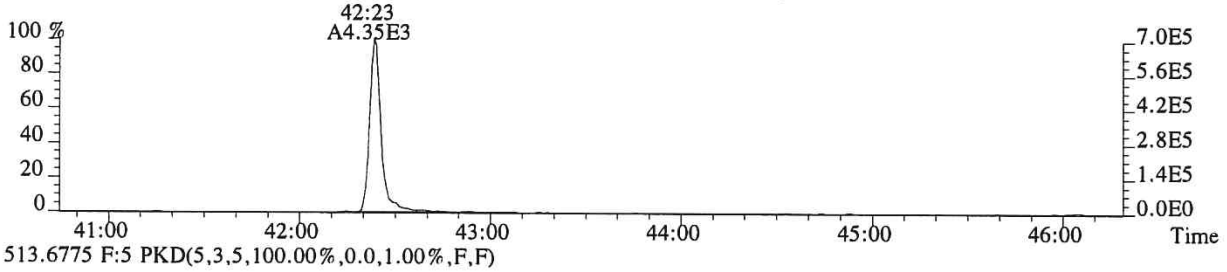
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



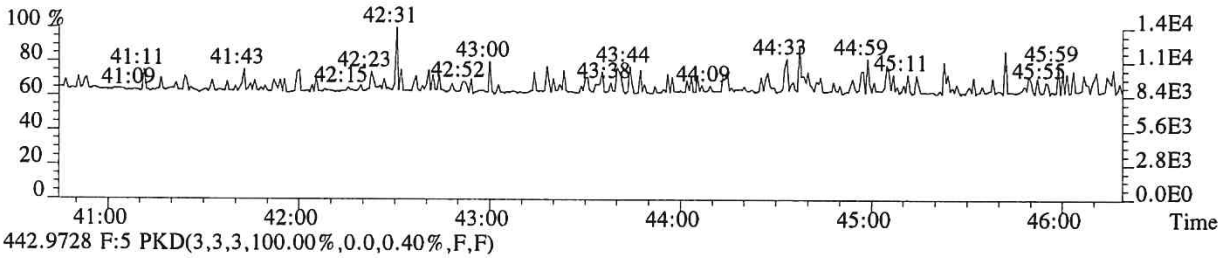
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



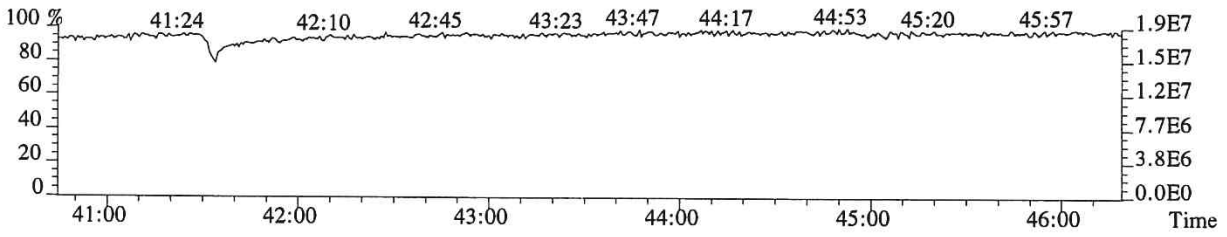
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,548.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

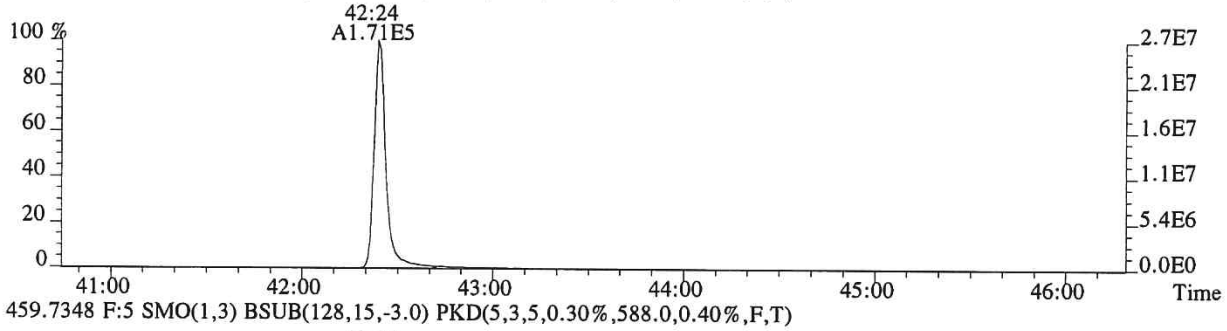


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

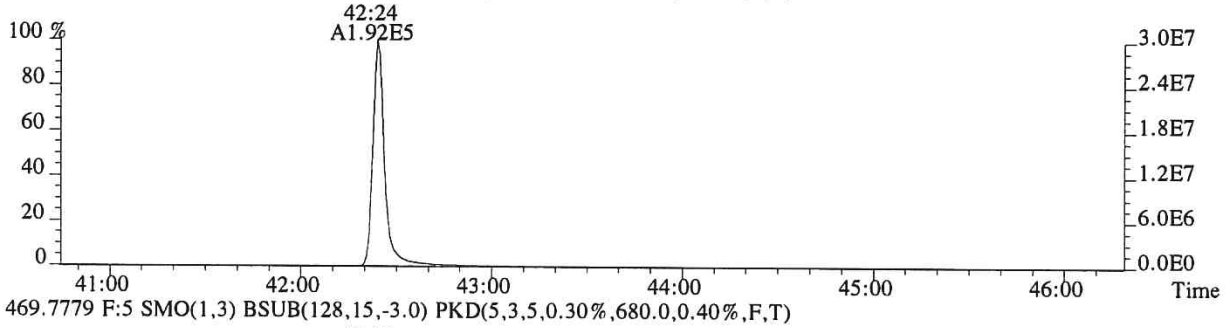


011166

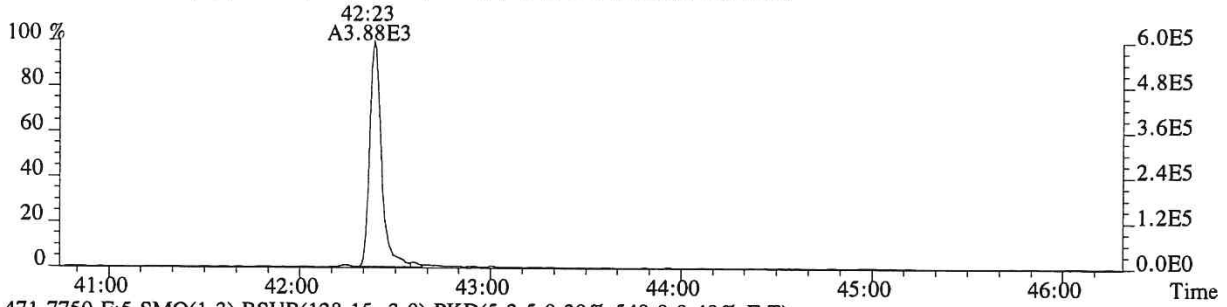
File:P519140 #1-502 Acq: 2-DEC-2018 11:51:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-037
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



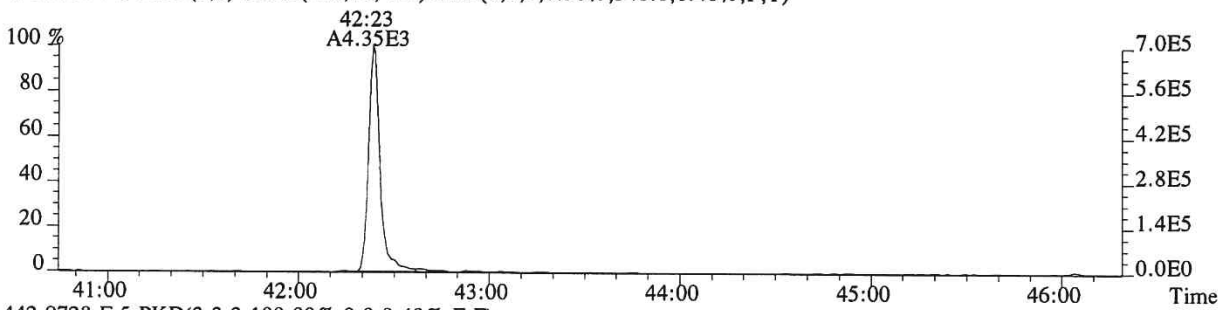
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



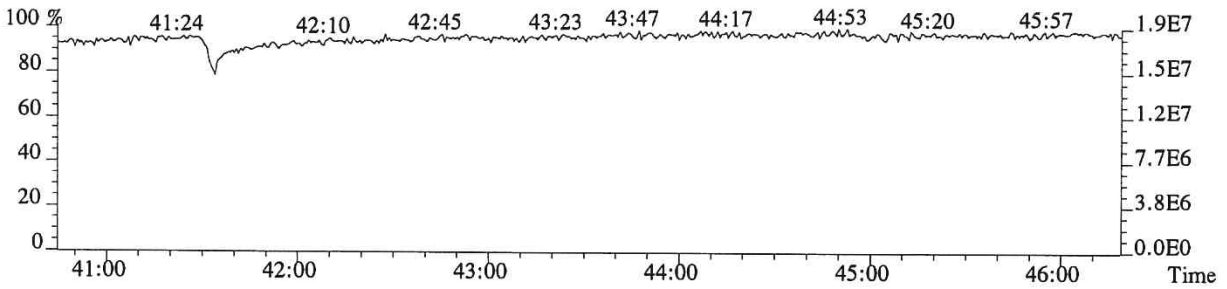
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,548.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011167

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0130

Run #11 Filename P615943 Samp: 1 Inj: 1 Acquired: 6-DEC-18 13:06:43
Processed: 10-DEC-18 11:31:58 Sample ID: E1801039-037DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	1.388e+04	1.773e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	6.475e+02	4.640e+02	1.40	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:52	5.370e+02	3.386e+02	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	9.131e+02	7.121e+02	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:39	2.815e+02	1.804e+02	1.56	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	8.270e+01	6.079e+01	1.36	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:57	1.027e+02	7.569e+01	1.36	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:09	6.645e+02	6.242e+02	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	1.012e+02	1.081e+02	0.94	yes	no	1.463
10	Unk	OCDF	41:56	6.868e+03	7.895e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	3.889e+03	5.108e+03	0.76	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:09	5.343e+01	3.981e+01	1.34	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:17	1.113e+01	1.226e+01	0.91	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:23	6.279e+01	9.342e+01	0.67	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:38	3.733e+01	4.591e+01	0.81	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	2.134e+03	1.887e+03	1.13	yes	no	1.112
17	Unk	OCDD	41:44	3.634e+04	4.150e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:35	3.454e+04	4.359e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:55	5.505e+04	3.433e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	5.326e+04	3.317e+04	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	2.214e+04	4.190e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	2.789e+04	5.201e+04	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	2.858e+04	5.464e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.225e+04	4.268e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:08	2.171e+04	4.875e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	2.049e+04	4.669e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	2.530e+04	3.250e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	4.413e+04	2.831e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	3.101e+04	2.414e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	3.234e+04	2.545e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	2.868e+04	2.681e+04	1.07	yes	no	0.857
32	IS	13C-OCDD	41:43	4.196e+04	4.599e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	2.972e+04	3.755e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	3.835e+04	3.097e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:26	8.280e+02				no	1.086

$$OCDD = \frac{(3.634e+04 + 4.150e+04) \times 4000\ pg \times 20}{(4.196e+04 + 4.599e+04) \times 10.195\ g \times 62.7 / 100 \times 1.157 \times 0.11} = 87031\ ng/kg$$

LM 12/11/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0130

Run #11 Filename P615943 Samp: 1 Inj: 1 Acquired: 6-DEC-18 13:06:43
Processed: 10-DEC-18 11:31:58 LAB. ID: E1801039-037DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.09e+06	1.70e+03	1.2e+03	2.62e+06	4.33e+03	6.1e+02
2	1,2,3,7,8-PeCDF	1.18e+05	1.36e+03	8.7e+01	9.24e+04	3.34e+03	2.8e+01
3	2,3,4,7,8-PeCDF	8.42e+04	1.36e+03	6.2e+01	4.97e+04	3.34e+03	1.5e+01
4	1,2,3,4,7,8-HxCDF	1.85e+05	1.15e+03	1.6e+02	1.55e+05	1.52e+03	1.0e+02
5	1,2,3,6,7,8-HxCDF	6.15e+04	1.15e+03	5.4e+01	3.85e+04	1.52e+03	2.5e+01
6	2,3,4,6,7,8-HxCDF	1.69e+04	1.15e+03	1.5e+01	1.43e+04	1.52e+03	9.4e+00
7	1,2,3,7,8,9-HxCDF	1.68e+04	1.15e+03	1.5e+01	1.62e+04	1.52e+03	1.1e+01
8	1,2,3,4,6,7,8-HpCDF	1.32e+05	1.18e+03	1.1e+02	1.40e+05	1.48e+03	9.5e+01
9	1,2,3,4,7,8,9-HpCDF	1.87e+04	1.18e+03	1.6e+01	2.50e+04	1.48e+03	1.7e+01
10	OCDF	1.15e+06	6.80e+02	1.7e+03	1.33e+06	1.90e+03	7.0e+02
11	2,3,7,8-TCDD	6.43e+05	3.46e+03	1.9e+02	8.68e+05	1.93e+03	4.5e+02
12	1,2,3,7,8-PeCDD	1.16e+04	2.20e+03	5.3e+00	6.53e+03	7.32e+02	8.9e+00
13	1,2,3,4,7,8-HxCDD	2.82e+03	5.60e+02	5.0e+00	3.17e+03	1.16e+03	2.7e+00
14	1,2,3,6,7,8-HxCDD	1.20e+04	5.60e+02	2.1e+01	1.81e+04	1.16e+03	1.6e+01
15	1,2,3,7,8,9-HxCDD	7.22e+03	5.60e+02	1.3e+01	8.82e+03	1.16e+03	7.6e+00
16	1,2,3,4,6,7,8-HpCDD	4.18e+05	1.38e+03	3.0e+02	3.98e+05	9.56e+02	4.2e+02
17	OCDD	6.27e+06	4.84e+02	1.3e+04	7.08e+06	1.04e+03	6.8e+03
18	13C-2,3,7,8-TCDF	5.57e+06	1.17e+04	4.8e+02	7.06e+06	1.01e+04	7.0e+02
19	13C-1,2,3,7,8-PeCDF	9.90e+06	2.49e+03	4.0e+03	6.05e+06	1.45e+03	4.2e+03
20	13C-2,3,4,7,8-PeCDF	9.94e+06	2.49e+03	4.0e+03	6.16e+06	1.45e+03	4.3e+03
21	13C-1,2,3,4,7,8-HxCDF	4.73e+06	2.09e+03	2.3e+03	8.95e+06	3.52e+03	2.5e+03
22	13C-1,2,3,6,7,8-HxCDF	5.58e+06	2.09e+03	2.7e+03	1.06e+07	3.52e+03	3.0e+03
23	13C-2,3,4,6,7,8-HxCDF	5.95e+06	2.09e+03	2.8e+03	1.13e+07	3.52e+03	3.2e+03
24	13C-1,2,3,7,8,9-HxCDF	4.27e+06	2.09e+03	2.0e+03	8.36e+06	3.52e+03	2.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.65e+06	2.00e+03	2.3e+03	1.04e+07	3.30e+03	3.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.92e+06	2.00e+03	2.0e+03	8.79e+06	3.30e+03	2.7e+03
27	13C-2,3,7,8-TCDD	4.39e+06	1.62e+04	2.7e+02	5.70e+06	5.80e+03	9.8e+02
28	13C-1,2,3,7,8-PeCDD	7.88e+06	1.76e+03	4.5e+03	5.04e+06	2.24e+03	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	6.83e+06	2.73e+03	2.5e+03	5.21e+06	2.80e+03	1.9e+03
30	13C-1,2,3,6,7,8-HxCDD	6.60e+06	2.73e+03	2.4e+03	5.16e+06	2.80e+03	1.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.85e+06	1.40e+03	4.2e+03	5.51e+06	6.16e+02	8.9e+03
32	13C-OCDD	7.14e+06	1.28e+03	5.6e+03	7.92e+06	9.92e+02	8.0e+03
33	13C-1,2,3,4-TCDD	5.29e+06	1.62e+04	3.3e+02	6.62e+06	5.80e+03	1.1e+03
34	13C-1,2,3,7,8,9-HxCDD	7.78e+06	2.73e+03	2.8e+03	6.07e+06	2.80e+03	2.2e+03
35	37Cl-2,3,7,8-TCDD	1.47e+05	3.32e+03	4.4e+01			

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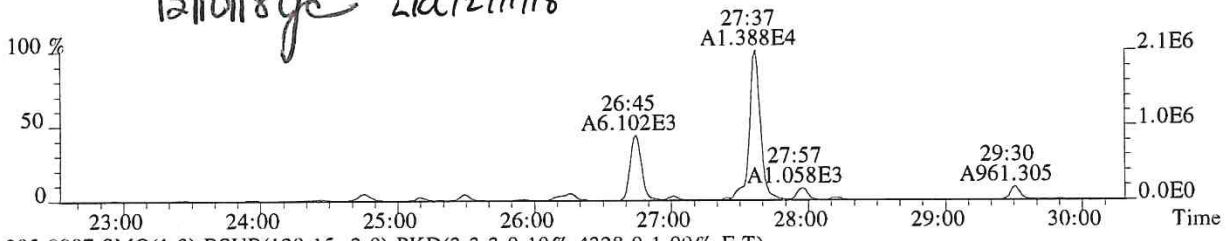
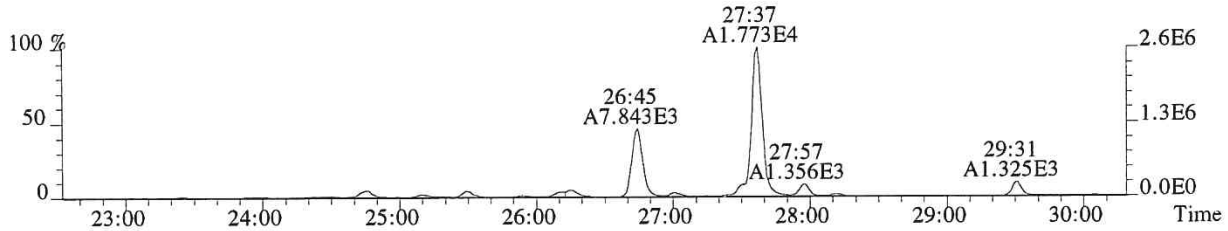
E1801039

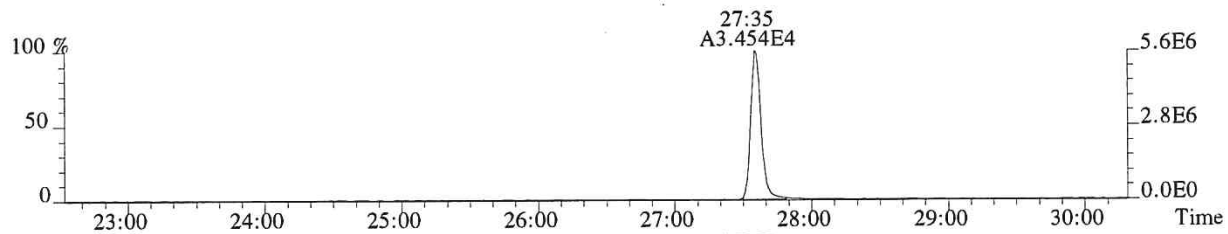
File:P615943 #1-552 Acq: 6-DEC-2018 13:06:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:~~E181039~~-037DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)
12/10/18 gc LKU 12/11/18



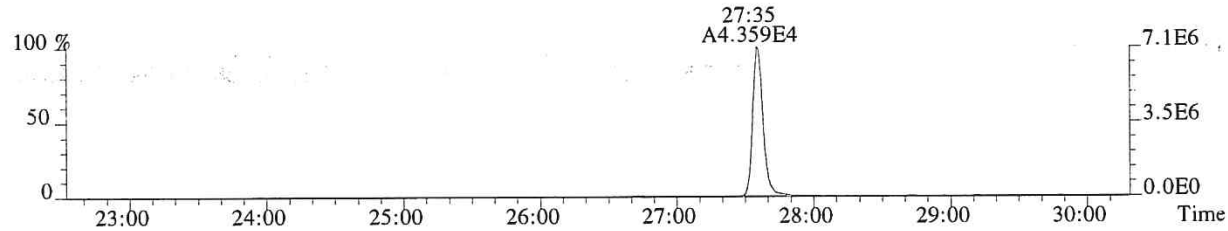
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4328.0,1.00%,F,T)



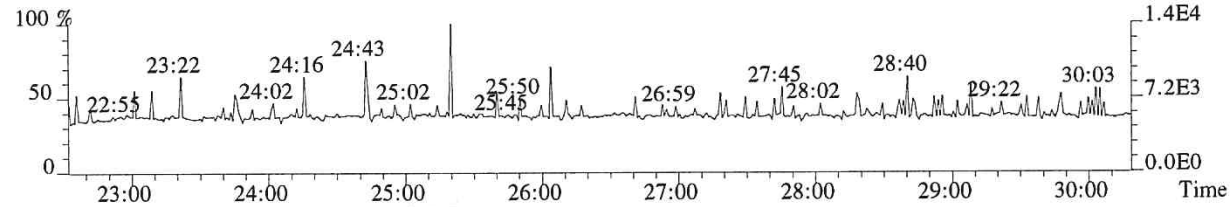
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11688.0,1.00%,F,T)



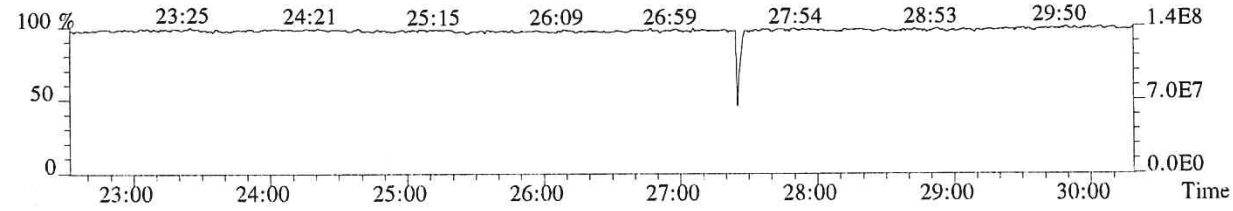
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10104.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

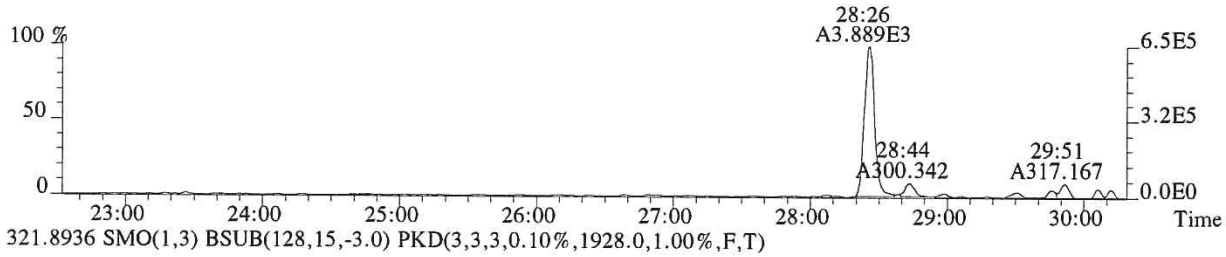


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

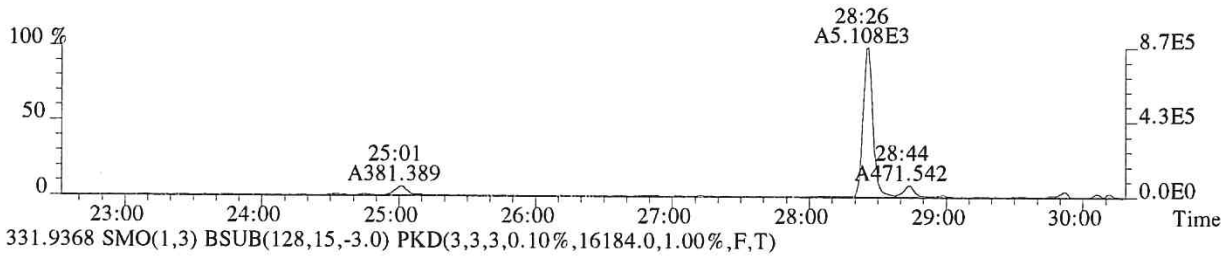


011170

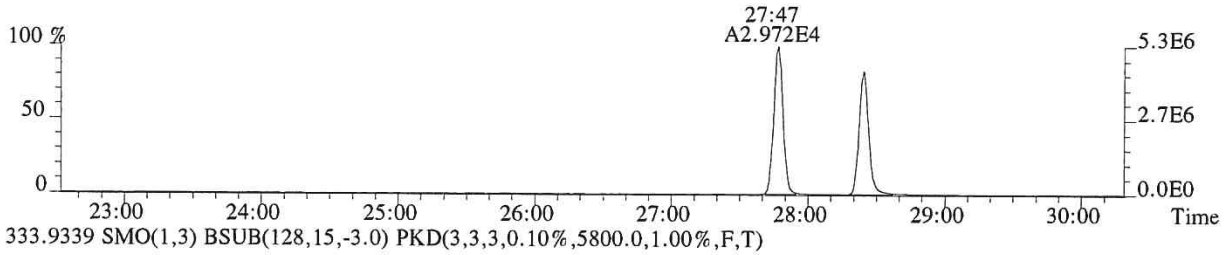
File:P615943 #1-552 Acq: 6-DEC-2018 13:06:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-037DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3464.0,1.00%,F,T)



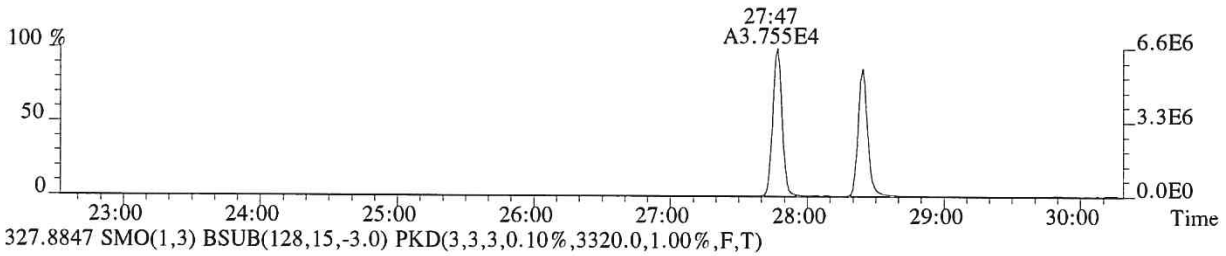
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1928.0,1.00%,F,T)



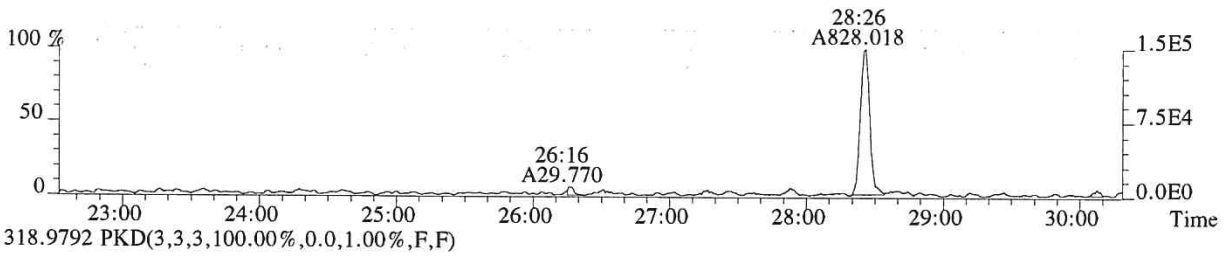
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16184.0,1.00%,F,T)



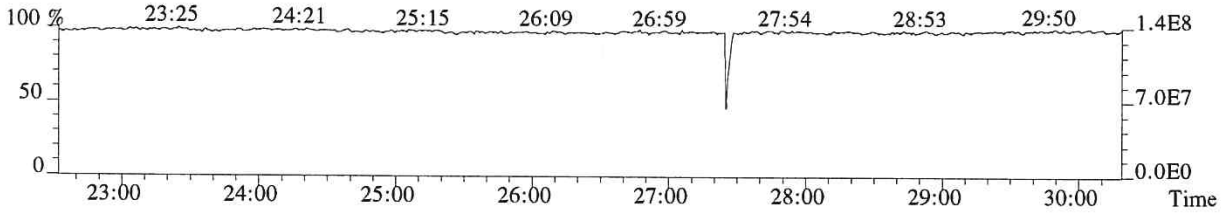
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5800.0,1.00%,F,T)



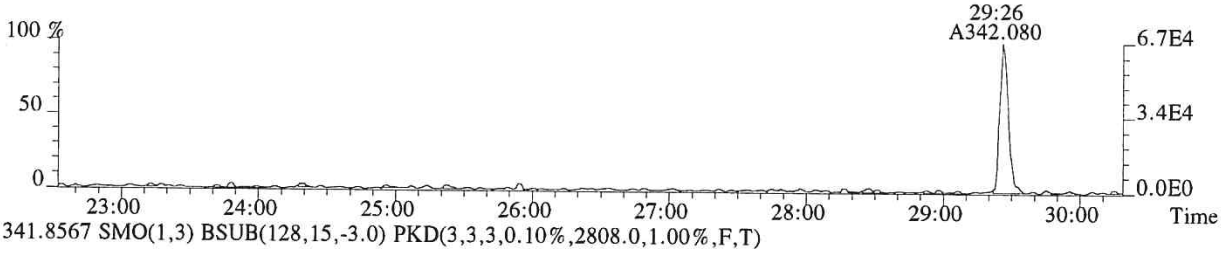
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3320.0,1.00%,F,T)



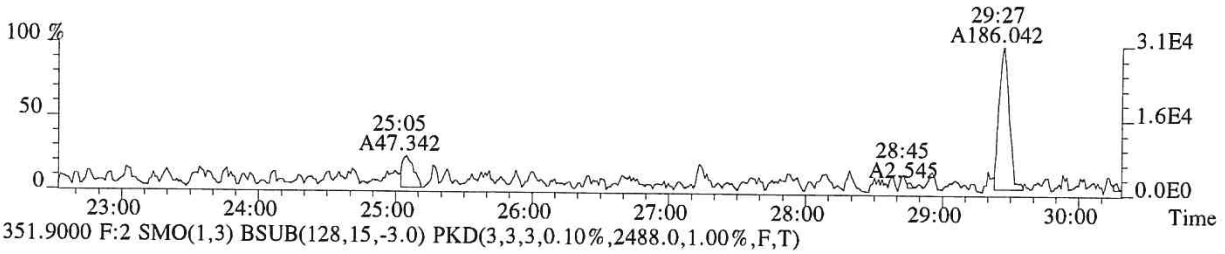
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



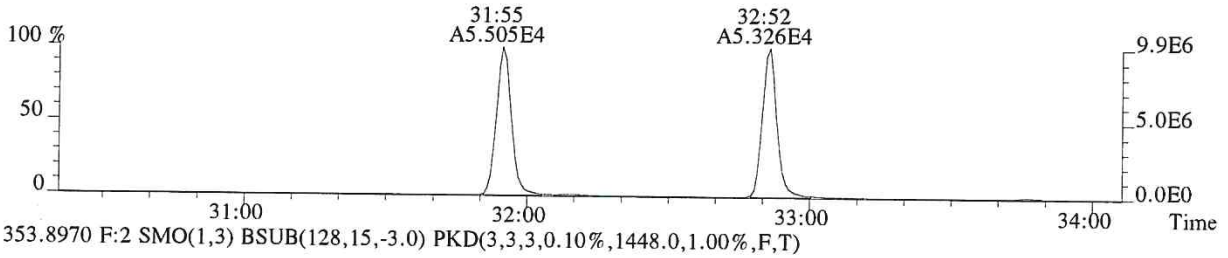
File:P615943 #1-552 Acq: 6-DEC-2018 13:06:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-037DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



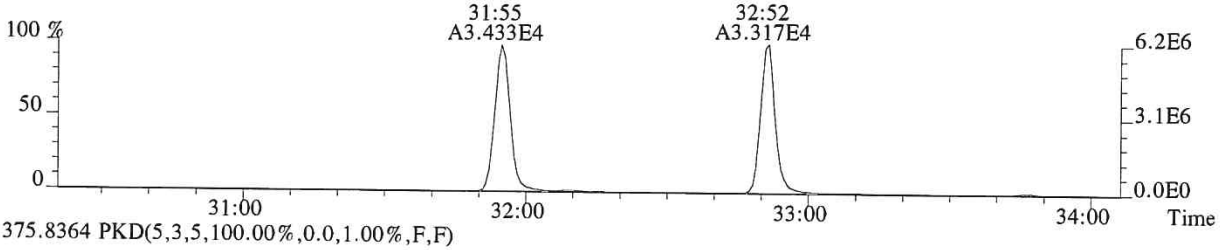
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2808.0,1.00%,F,T)



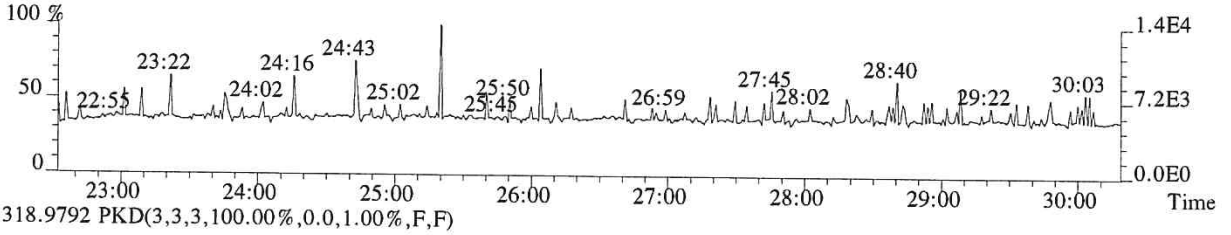
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2488.0,1.00%,F,T)



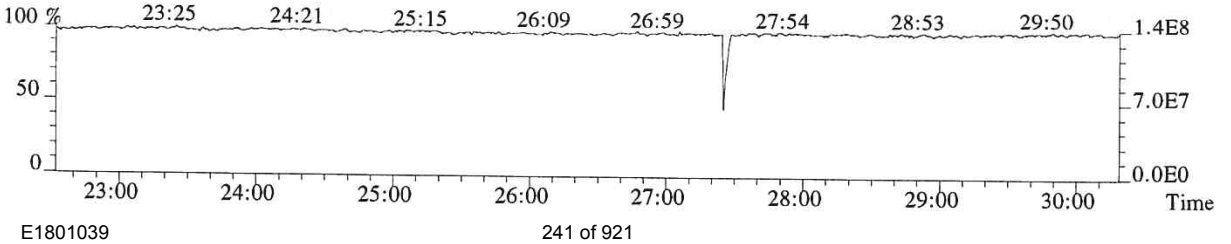
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



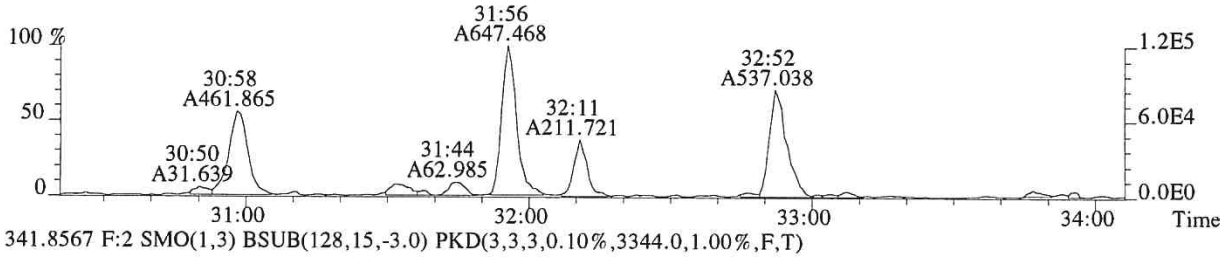
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



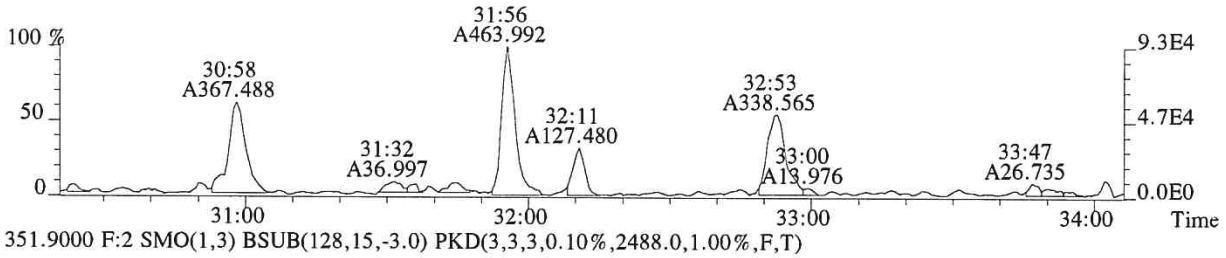
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



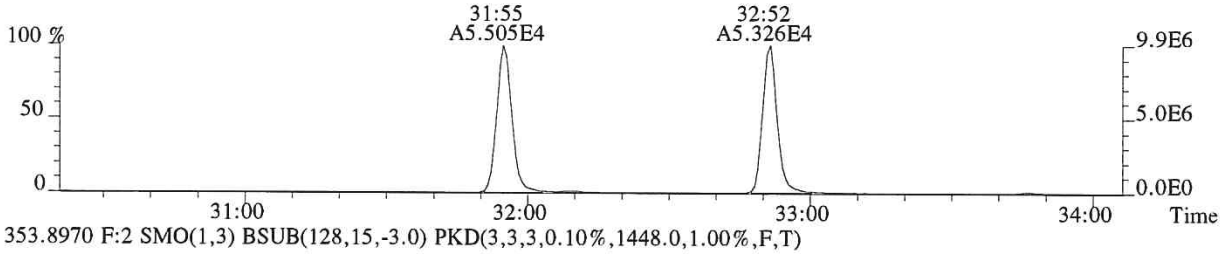
File:P615943 #1-339 Acq: 6-DEC-2018 13:06:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-037DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



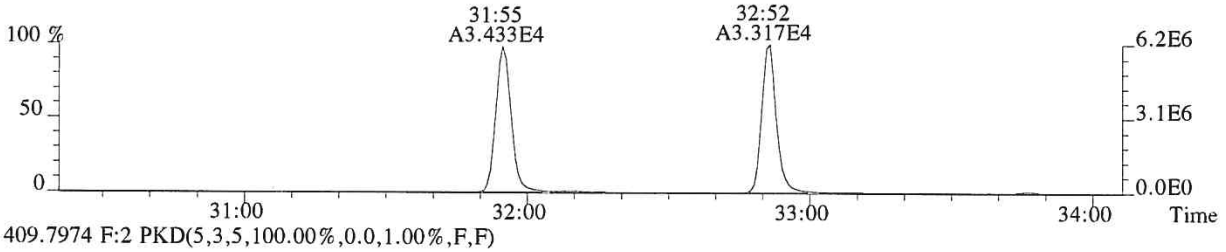
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3344.0,1.00%,F,T)



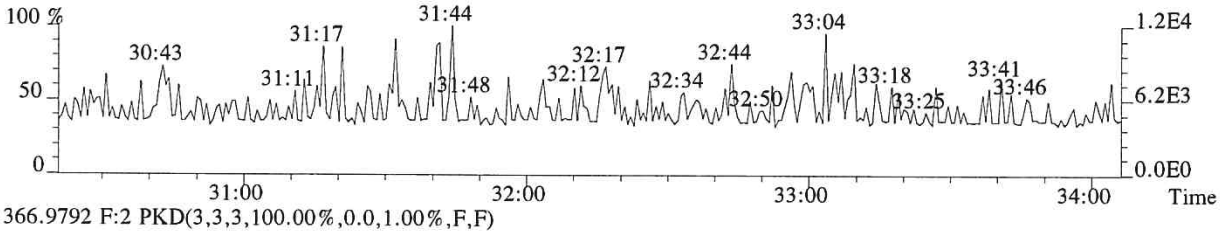
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2488.0,1.00%,F,T)



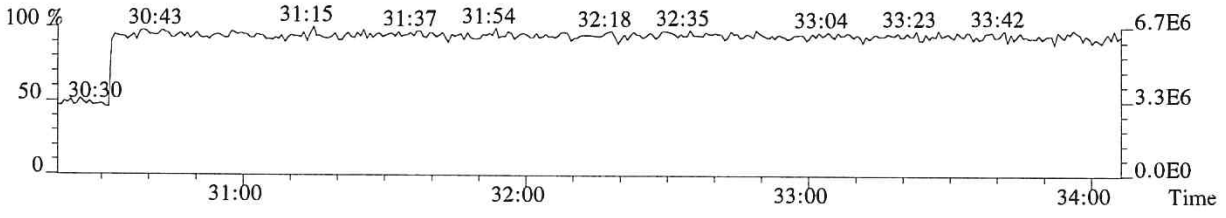
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



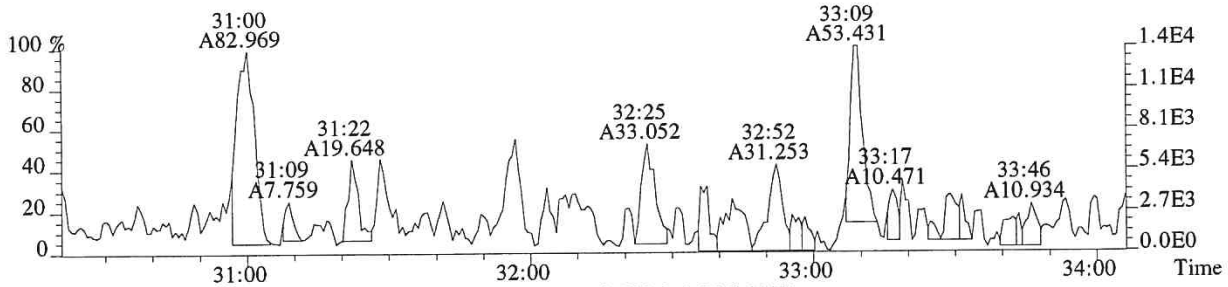
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



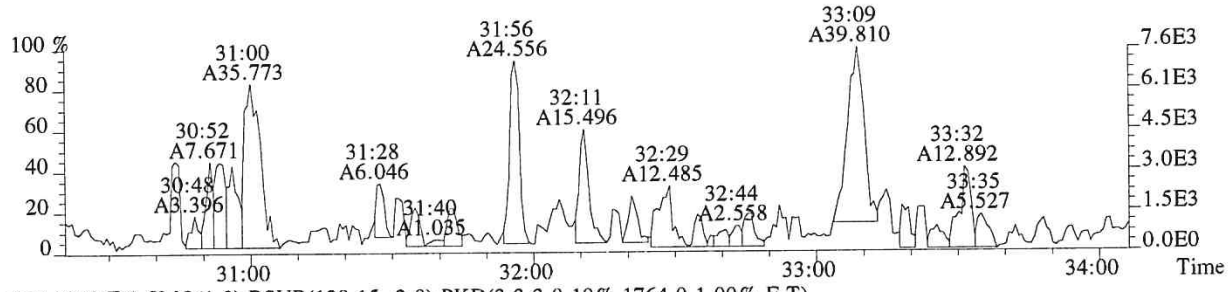
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



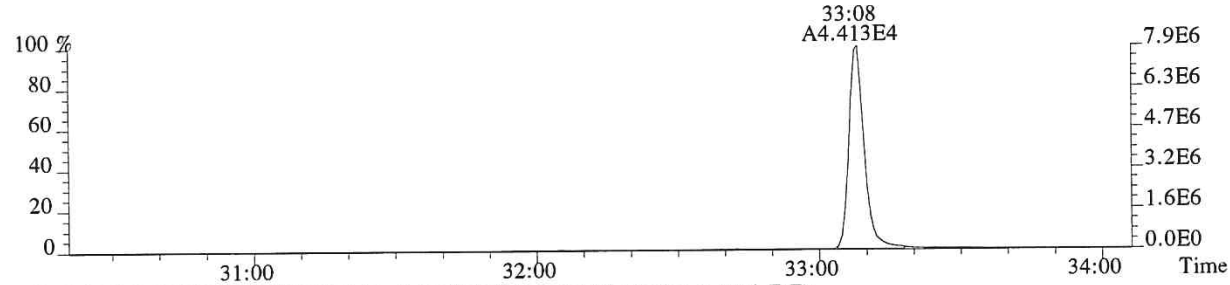
File:P615943 #1-339 Acq: 6-DEC-2018 13:06:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-037DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



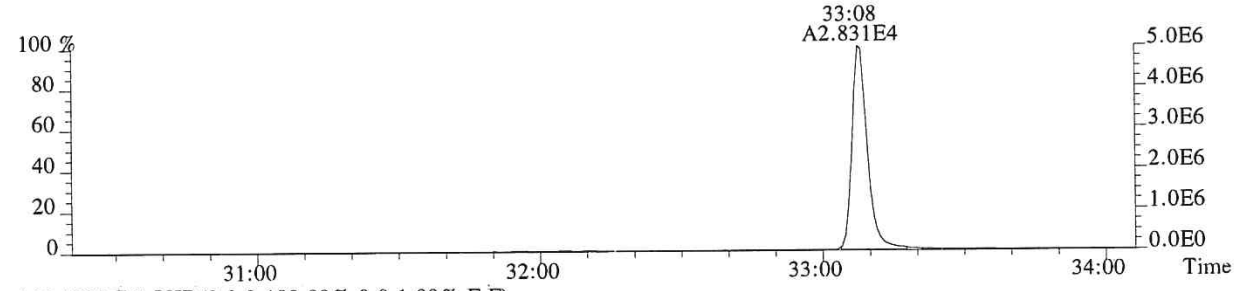
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



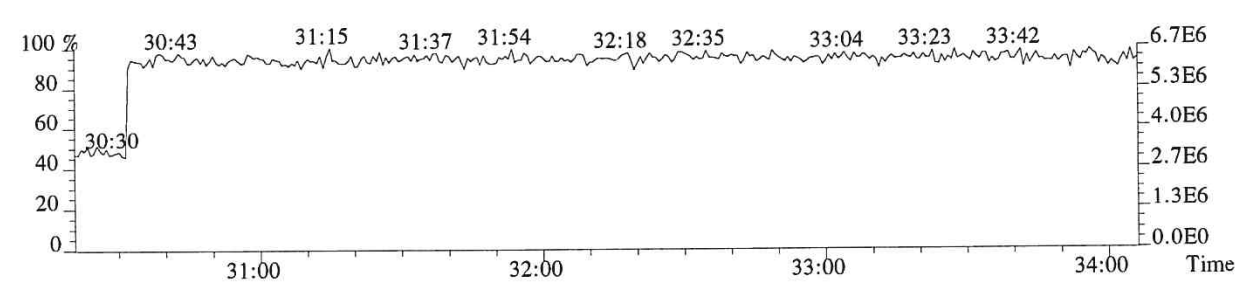
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2236.0,1.00%,F,T)

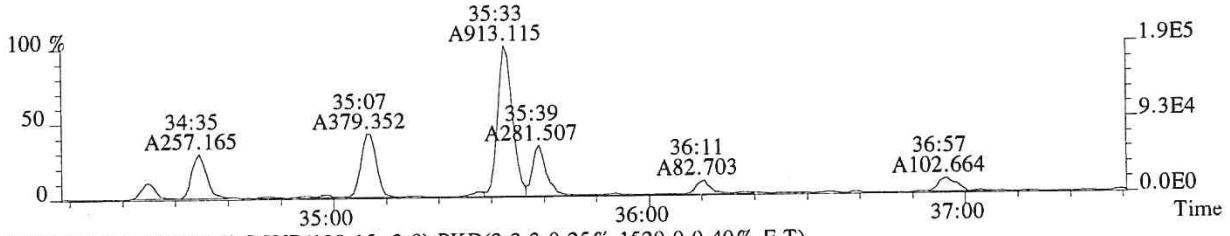


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

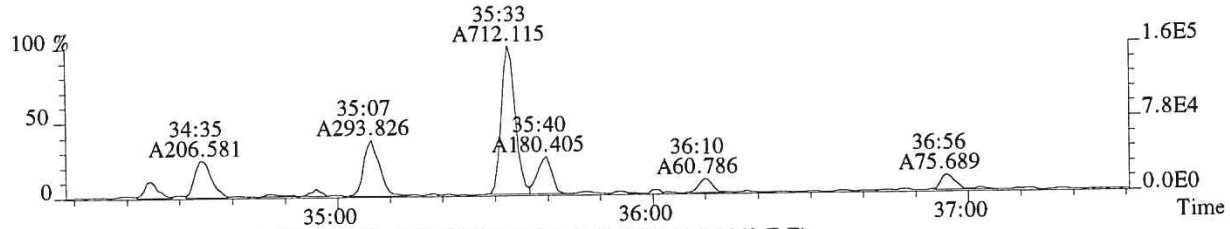


011174

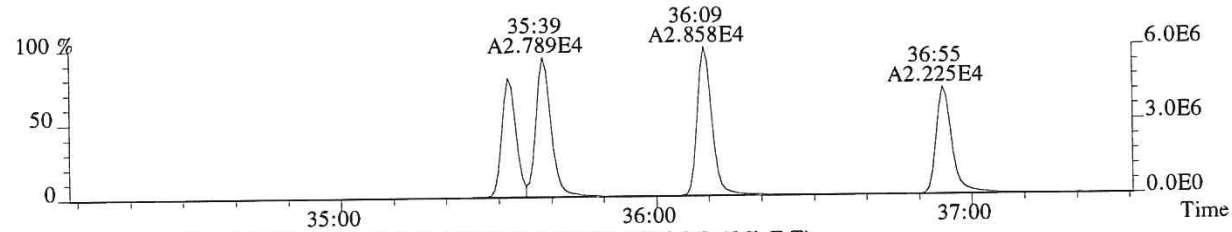
File:P615943 #1-304 Acq: 6-DEC-2018 13:06:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-037DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



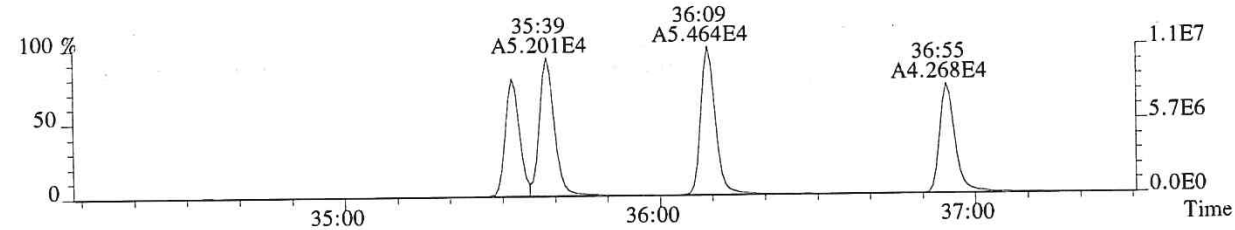
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1520.0,0.40%,F,T)



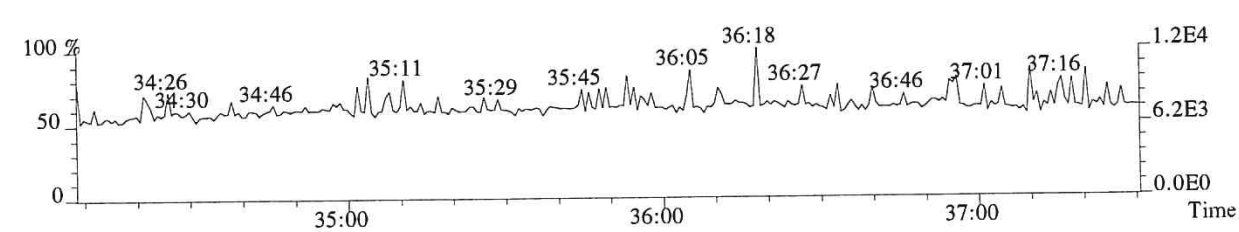
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2088.0,0.40%,F,T)



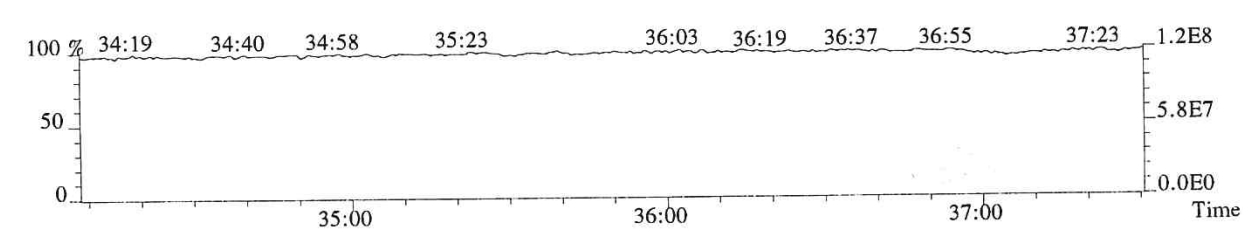
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3516.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

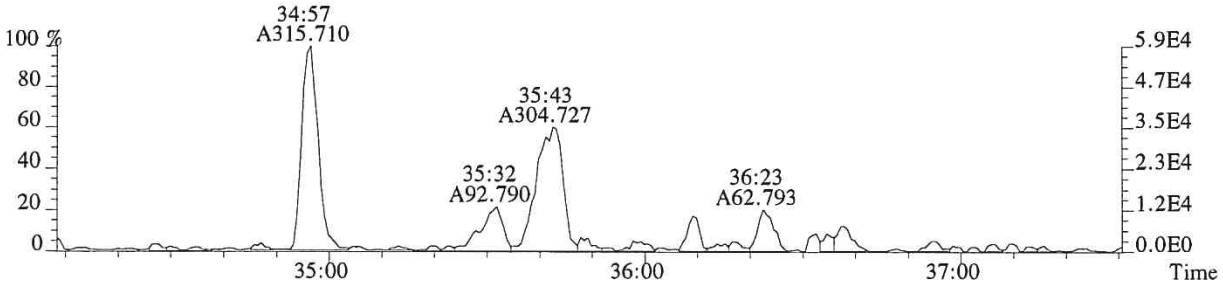


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

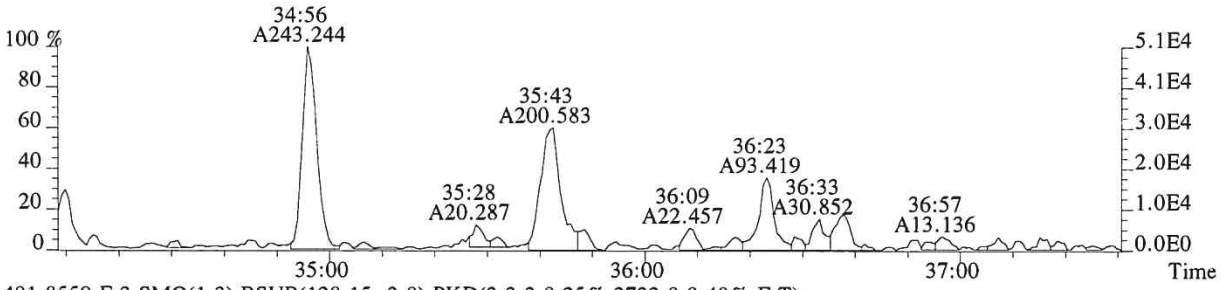


011175

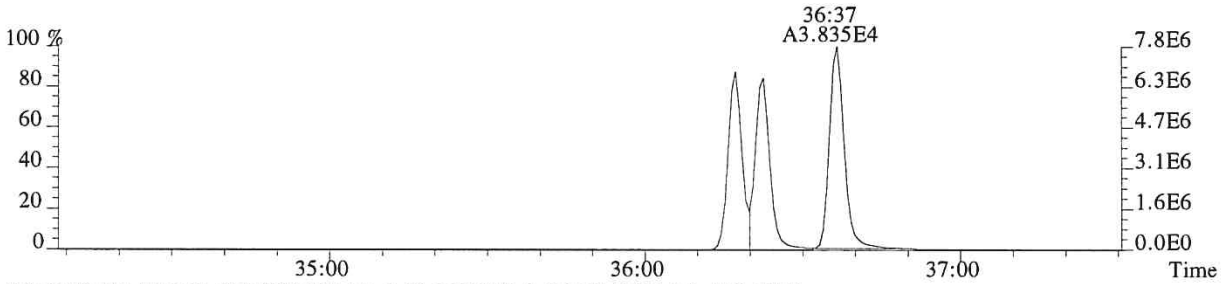
File:P615943 #1-304 Acq: 6-DEC-2018 13:06:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-037DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



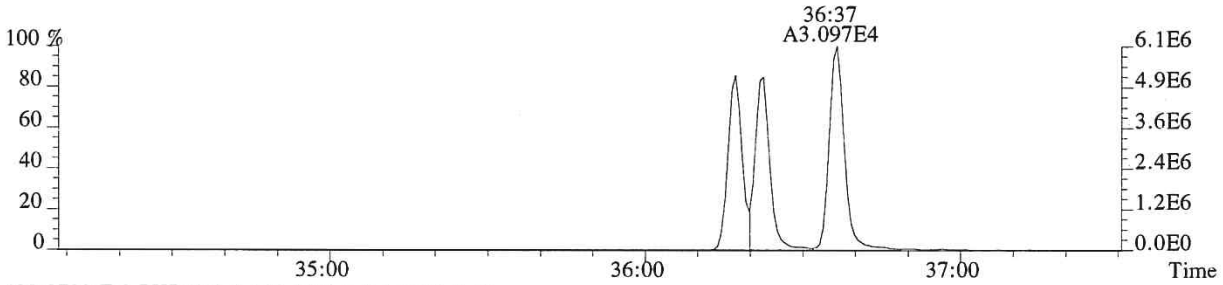
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



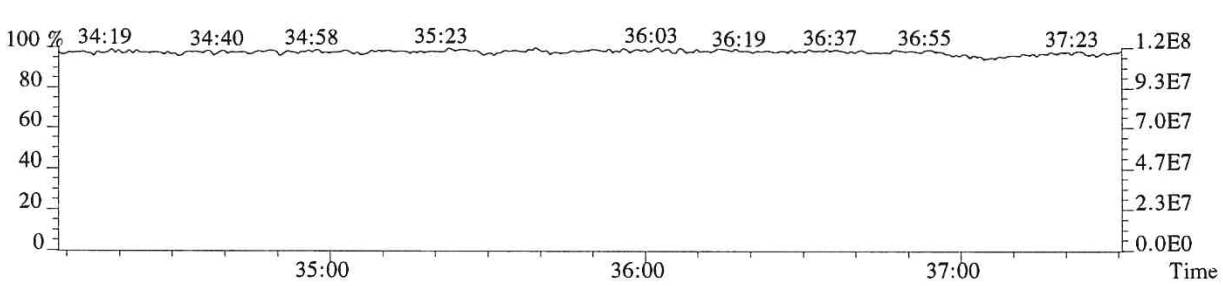
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2732.0,0.40%,F,T)



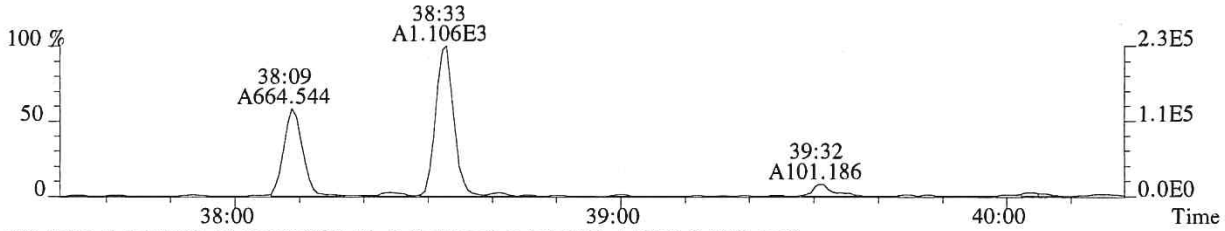
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2796.0,0.40%,F,T)



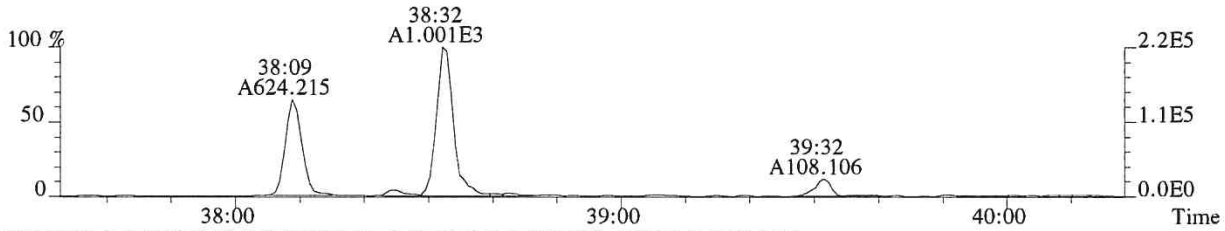
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



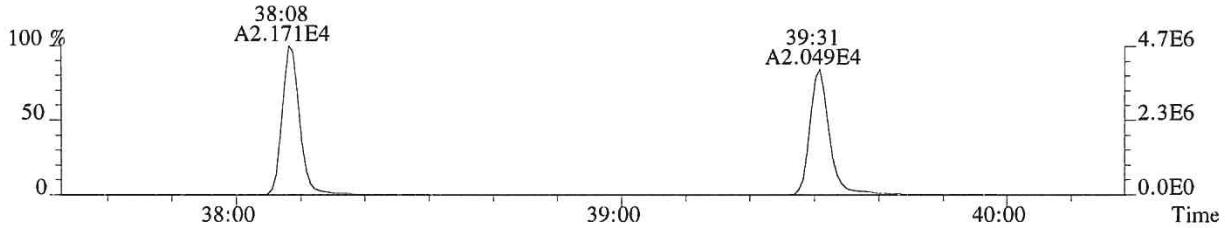
File:P615943 #1-249 Acq: 6-DEC-2018 13:06:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-037DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.50%,F,T)



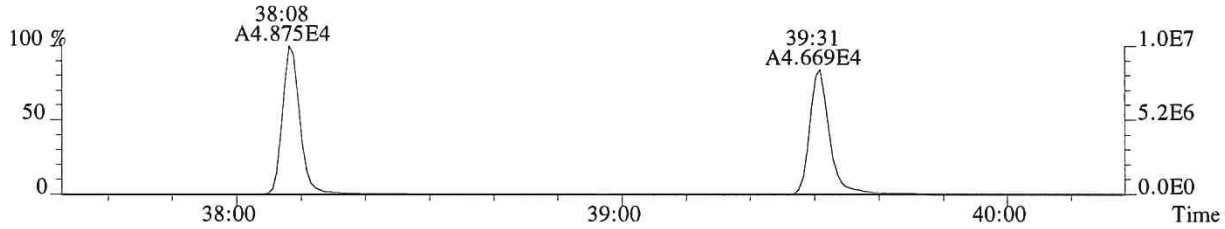
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1480.0,0.50%,F,T)



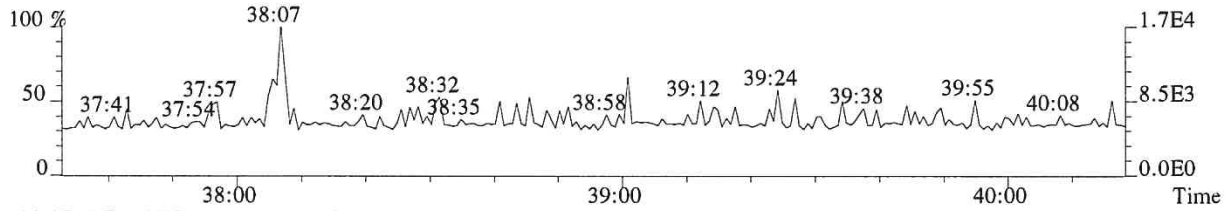
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.50%,F,T)



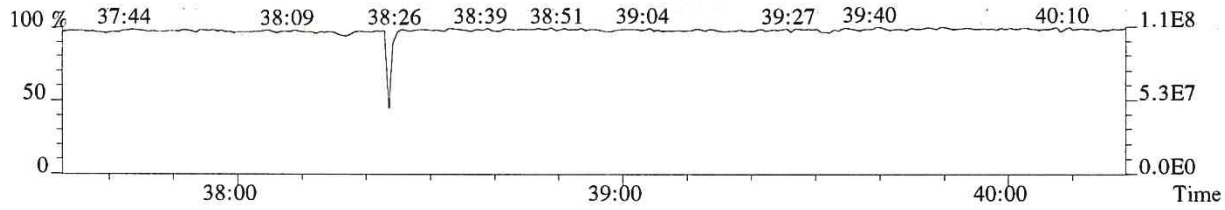
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3296.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

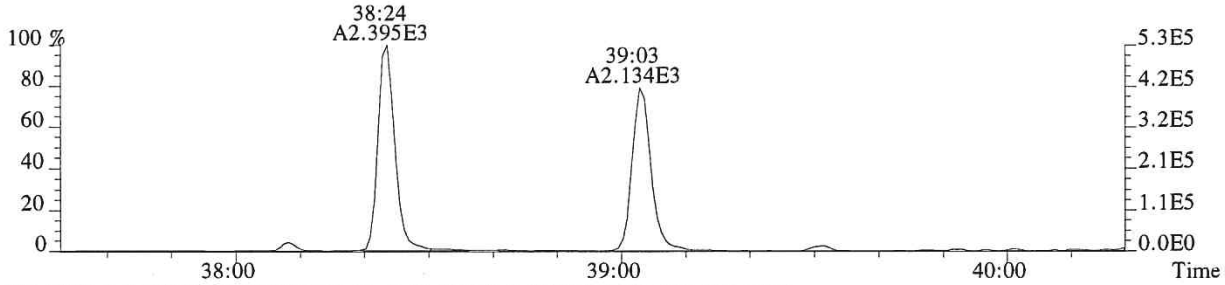


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

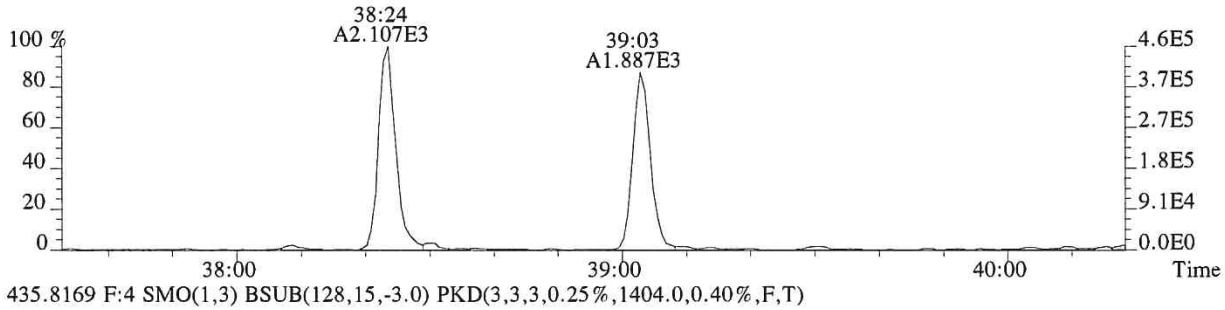


011177

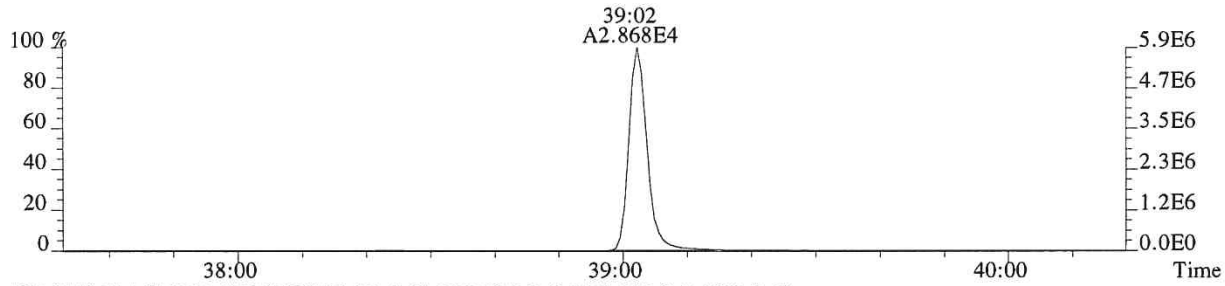
File:P615943 #1-249 Acq: 6-DEC-2018 13:06:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-037DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.40%,F,T)



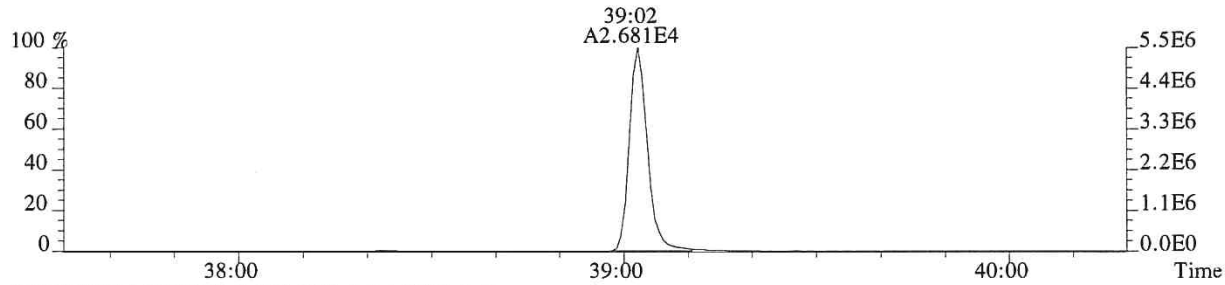
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



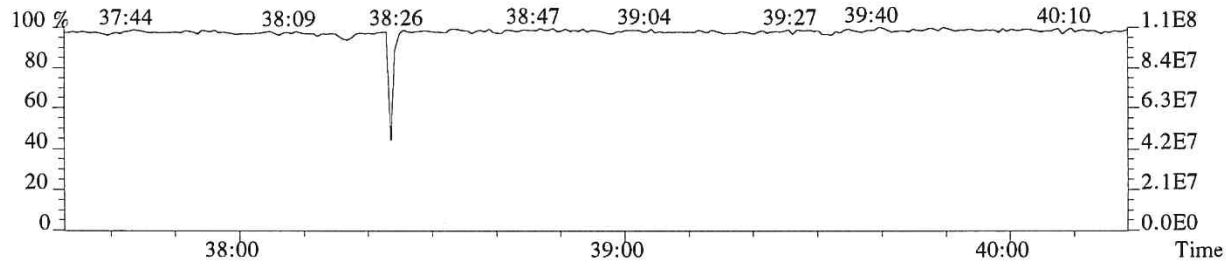
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.40%,F,T)



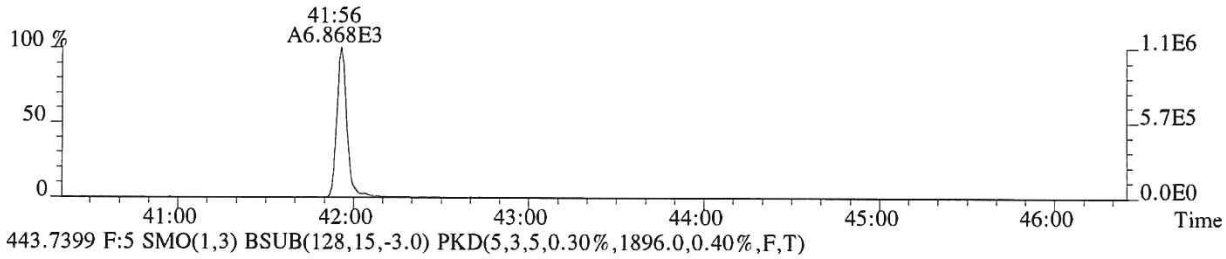
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



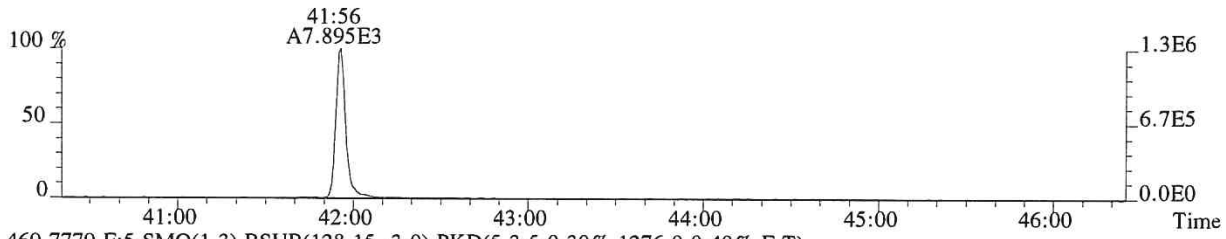
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



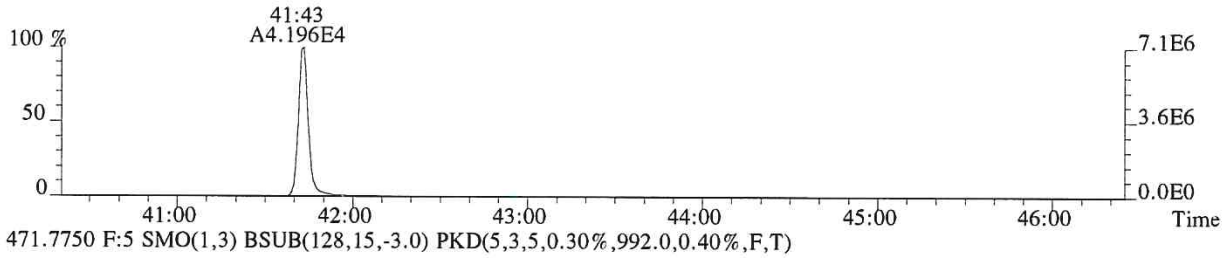
File:P615943 #1-547 Acq: 6-DEC-2018 13:06:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E181039-037DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



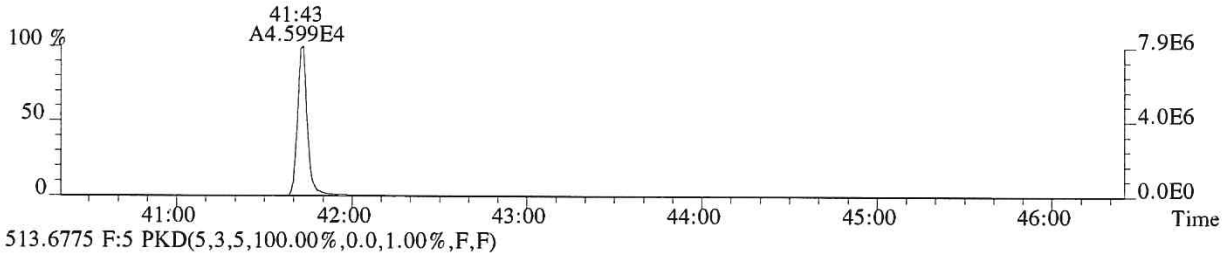
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1896.0,0.40%,F,T)



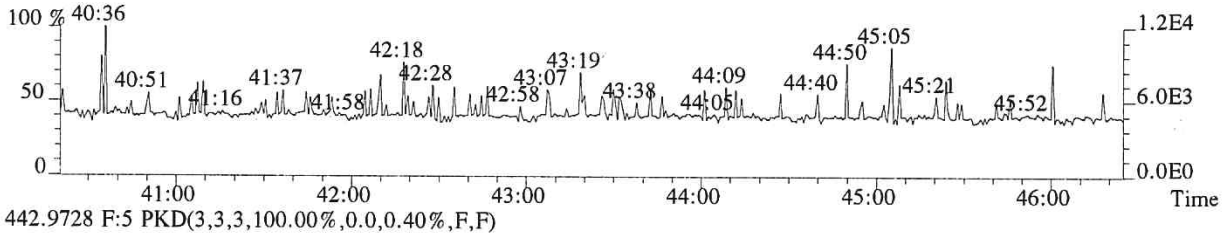
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



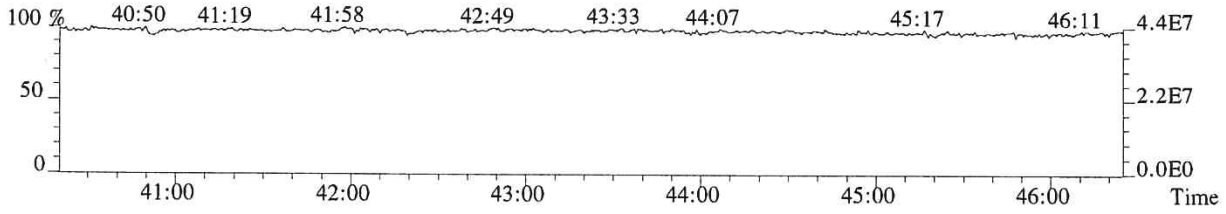
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,992.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

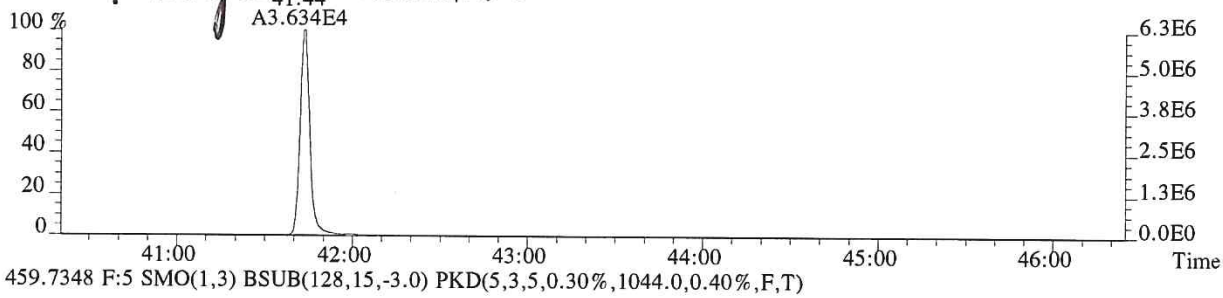


011179

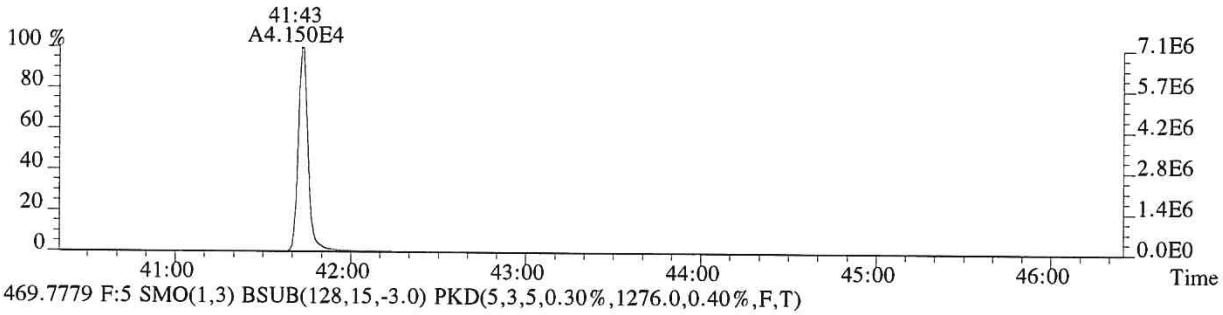
E1801039

File:P615943 #1-547 Acq: 6-DEC-2018 13:06:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:~~E181039~~037DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,484.0,0.40%,F,T)

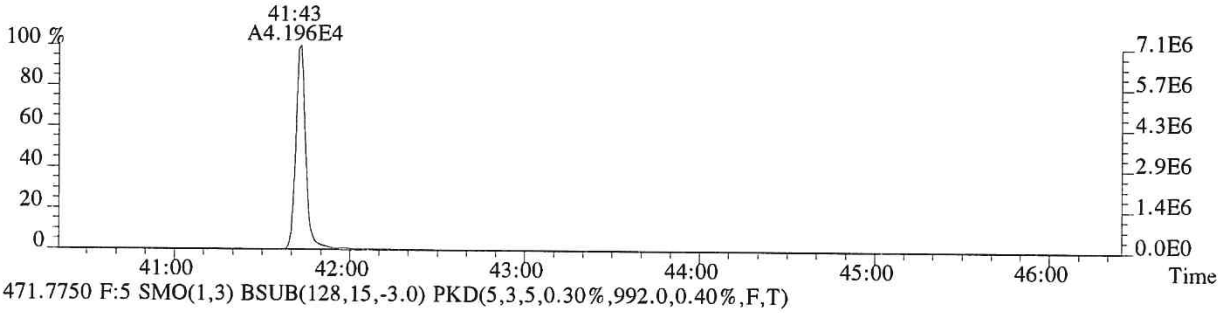
12/10/18 GC AKL 12/11/18



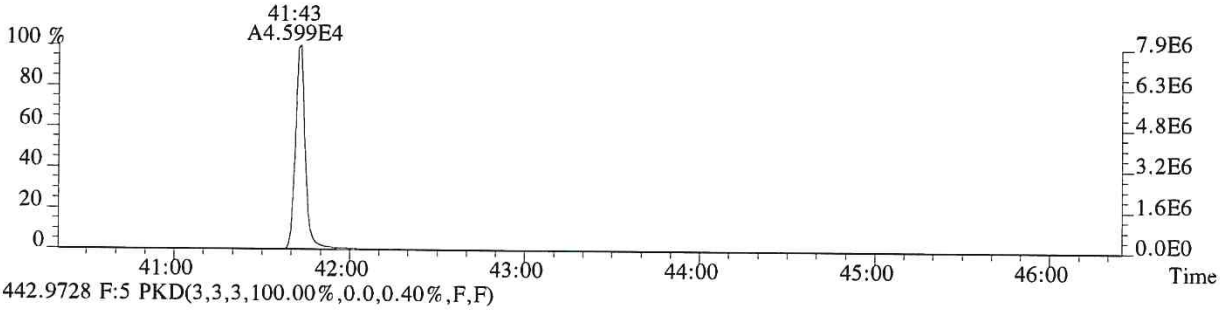
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1044.0,0.40%,F,T)



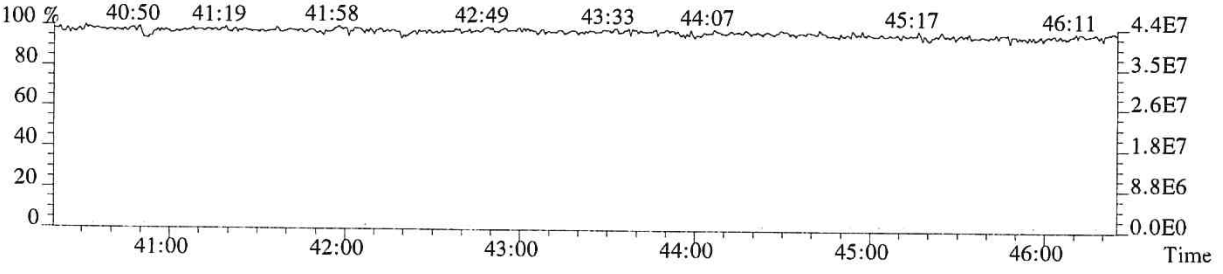
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,992.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0101

Run #16 Filename P519141 Samp: 1 Inj: 1 Acquired: 2-DEC-18 12:39:46
Processed: 3-DEC-18 18:10:19 Sample ID: E1801039-038

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	2.427e+04	3.290e+04	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:27	1.087e+03	6.966e+02	1.56	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:21	8.921e+02	6.125e+02	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.194e+03	1.051e+03	1.14	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:09	3.388e+02	3.273e+02	1.04	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:38	1.113e+02	1.044e+02	1.07	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:24	1.074e+02	7.781e+01	1.38	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	8.964e+02	9.100e+02	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	8.851e+01	9.850e+01	0.90	yes	no	1.258
10	Unk	OCDF	42:37	6.630e+03	7.874e+03	0.84	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	7.070e+03	9.017e+03	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	1.410e+02	1.108e+02	1.27	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.046e+02	1.027e+02	1.02	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	7.662e+01	9.128e+01	0.84	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	1.868e+03	1.781e+03	1.05	yes	no	1.025
17	Unk	OCDD	42:25	2.315e+04	2.569e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	3.332e+04	4.280e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	5.195e+04	3.284e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.636e+04	2.940e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.803e+04	3.489e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	1.974e+04	3.826e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	1.775e+04	3.444e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.377e+04	2.713e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	8.642e+03	1.927e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	5.757e+03	1.333e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	2.401e+04	3.044e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	3.516e+04	2.253e+04	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	2.391e+04	1.785e+04	1.34	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	2.265e+04	1.882e+04	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.387e+04	1.347e+04	1.03	yes	no	0.858
32	IS	13C-OCDD	42:24	7.860e+03	8.645e+03	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	5.009e+04	6.297e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	4.615e+04	3.630e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	2.599e+04				no	1.014

$$\text{OCDD} = \frac{(2.315e+04 + 2.569e+04) \times 4000 \text{ pg} \times 1}{(7.860e+03 + 8.645e+03) \times 10.176 \text{ g} \times 75.5 / 100 \times 1.118} = 1378 \text{ ng/kg}$$

LM 12/05/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0101

un #16 Filename P519141 Samp: 1 Inj: 1 Acquired: 2-DEC-18 12:39:46
rocessed: 3-DEC-18 18:10:19 LAB. ID: E1801039-038

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	4.11e+06	7.68e+02	5.4e+03	5.55e+06	1.80e+03	3.1e+03
	1,2,3,7,8-PeCDF	1.97e+05	1.30e+03	1.5e+02	1.31e+05	2.57e+03	5.1e+01
	2,3,4,7,8-PeCDF	1.29e+05	1.30e+03	9.9e+01	1.01e+05	2.57e+03	3.9e+01
	1,2,3,4,7,8-HxCDF	2.49e+05	1.50e+03	1.7e+02	2.33e+05	1.43e+03	1.6e+02
	1,2,3,6,7,8-HxCDF	6.36e+04	1.50e+03	4.3e+01	6.26e+04	1.43e+03	4.4e+01
	2,3,4,6,7,8-HxCDF	2.13e+04	1.50e+03	1.4e+01	1.94e+04	1.43e+03	1.4e+01
	1,2,3,7,8,9-HxCDF	1.80e+04	1.50e+03	1.2e+01	1.37e+04	1.43e+03	9.5e+00
	1,2,3,4,6,7,8-HpCDF	1.78e+05	9.68e+02	1.8e+02	1.79e+05	7.04e+02	2.5e+02
	1,2,3,4,7,8,9-HpCDF	1.61e+04	9.68e+02	1.7e+01	1.58e+04	7.04e+02	2.2e+01
10	OCDF	1.03e+06	2.76e+02	3.7e+03	1.21e+06	7.40e+02	1.6e+03
11	2,3,7,8-TCDD	1.37e+06	2.15e+03	6.4e+02	1.77e+06	1.49e+03	1.2e+03
12	1,2,3,7,8-PeCDD	2.16e+04	1.55e+03	1.4e+01	1.91e+04	1.07e+03	1.8e+01
13	1,2,3,4,7,8-HxCDD	*	1.05e+03	*	*	2.26e+03	*
14	1,2,3,6,7,8-HxCDD	2.16e+04	1.05e+03	2.1e+01	2.61e+04	2.26e+03	1.2e+01
15	1,2,3,7,8,9-HxCDD	1.70e+04	1.05e+03	1.6e+01	1.91e+04	2.26e+03	8.5e+00
16	1,2,3,4,6,7,8-HpCDD	3.57e+05	1.92e+03	1.9e+02	3.51e+05	1.14e+03	3.1e+02
17	OCDD	3.53e+06	4.52e+02	7.8e+03	3.86e+06	9.56e+02	4.0e+03
18	13C-2,3,7,8-TCDF	6.17e+06	6.28e+03	9.8e+02	7.97e+06	4.54e+03	1.8e+03
19	13C-1,2,3,7,8-PeCDF	9.66e+06	3.95e+03	2.4e+03	6.09e+06	4.75e+03	1.3e+03
20	13C-2,3,4,7,8-PeCDF	9.07e+06	3.95e+03	2.3e+03	5.82e+06	4.75e+03	1.2e+03
21	13C-1,2,3,4,7,8-HxCDF	3.84e+06	4.40e+02	8.7e+03	7.31e+06	1.72e+03	4.2e+03
22	13C-1,2,3,6,7,8-HxCDF	3.89e+06	4.40e+02	8.8e+03	7.61e+06	1.72e+03	4.4e+03
23	13C-2,3,4,6,7,8-HxCDF	3.74e+06	4.40e+02	8.5e+03	7.19e+06	1.72e+03	4.2e+03
24	13C-1,2,3,7,8,9-HxCDF	2.70e+06	4.40e+02	6.1e+03	5.29e+06	1.72e+03	3.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.69e+06	2.44e+03	6.9e+02	3.89e+06	3.80e+03	1.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.01e+06	2.44e+03	4.1e+02	2.38e+06	3.80e+03	6.3e+02
27	13C-2,3,7,8-TCDD	4.72e+06	5.68e+03	8.3e+02	5.90e+06	2.54e+03	2.3e+03
28	13C-1,2,3,7,8-PeCDD	6.73e+06	9.56e+02	7.0e+03	4.30e+06	1.30e+03	3.3e+03
29	13C-1,2,3,4,7,8-HxCDD	5.21e+06	1.62e+03	3.2e+03	4.01e+06	1.05e+03	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	4.72e+06	1.62e+03	2.9e+03	3.75e+06	1.05e+03	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.64e+06	8.12e+02	3.3e+03	2.57e+06	4.52e+02	5.7e+03
32	13C-OCDD	1.20e+06	3.52e+02	3.4e+03	1.29e+06	5.24e+02	2.5e+03
33	13C-1,2,3,4-TCDD	9.68e+06	5.68e+03	1.7e+03	1.23e+07	2.54e+03	4.8e+03
34	13C-1,2,3,7,8,9-HxCDD	9.53e+06	1.62e+03	5.9e+03	7.49e+06	1.05e+03	7.1e+03
35	37Cl-2,3,7,8-TCDD	5.07e+06	1.64e+03	3.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.148e{+}03 + 1.488e{+}03) \times 2000}{(4.716e{+}06 + 5.904e{+}06) \times (\qquad\qquad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0101

ntry: 36 Totals Name: Total Tetra-Furans

un: 16 File: P519141 Sample:1 Injection:1 Function:1

.cquired: 2-DEC-18 12:39:46 Processed: 3-DEC-18 18:10:19

lass: 303.9020 305.8990 Tot Response: 1.01e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
-	25:19	2.69e+02	3.95e+02	0.68	yes	6.65e+02		n	n
2	25:38	1.13e+03	1.59e+03	0.71	yes	2.72e+03		n	n
3	26:10	4.19e+01	5.84e+01	0.72	yes	1.00e+02		n	n
4	26:20	9.70e+02	1.34e+03	0.72	yes	2.31e+03		n	n
5	26:55	7.01e+02	9.49e+02	0.74	yes	1.65e+03		n	n
6	27:02	1.01e+03	1.38e+03	0.73	yes	2.39e+03		n	n
7	27:28	1.03e+04	1.37e+04	0.75	yes	2.40e+04		n	n
8	27:43	5.25e+02	7.02e+02	0.75	yes	1.23e+03		n	n
9	28:16	2.43e+04	3.29e+04	0.74	yes	5.72e+04	2,3,7,8-TCDF	n	n
10	28:35	1.79e+03	2.27e+03	0.79	yes	4.06e+03		n	n
11	28:49	2.80e+02	3.46e+02	0.81	yes	6.26e+02		n	n
12	30:04	1.86e+03	2.14e+03	0.87	yes	3.99e+03		n	n

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Peak List Summary

CLIENT ID.
SL0101

ntry: 37 Totals Name: Total Tetra-Dioxins

un: 16 File: P519141 Sample:1 Injection:1 Function:1

cquired: 2-DEC-18 12:39:46 Processed: 3-DEC-18 18:10:19

lass: 319.8970 321.8940 Tot Response: 1.76e+04 RRF: 1.085

	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
.	29:02	7.07e+03	9.02e+03	0.78	yes	1.61e+04	2,3,7,8-TCDD	n	n
2	29:20	6.42e+02	8.36e+02	0.77	yes	1.48e+03		n	n

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CLIENT ID.
SL0101

ıtry: 38 Totals Name: Total Penta-Furans1

un: 16 File: P519141 Sample:1 Injection:1 Function:1

cquired: 2-DEC-18 12:39:46 Processed: 3-DEC-18 18:10:19

ass: 339.8600 341.8570 Tot Response: 9.45e+02 RRF: 0.9857

	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	30:03	5.98e+02	3.47e+02	1.72	yes	9.45e+02	n	n

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Peak List Summary

CLIENT ID.
SL0101

ıtry: 39 Totals Name: Total Penta-Furans2

un: 16 File: P519141 Sample:1 Injection:1 Function:2

cquired: 2-DEC-18 12:39:46 Processed: 3-DEC-18 18:10:19

ass: 339.8600 341.8570 Tot Response: 5.58e+03 RRF: 0.9857

RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
31:31	8.11e+02	5.65e+02	1.44	yes	1.38e+03		n	n
32:08	4.45e+01	2.50e+01	1.78	yes	6.95e+01		n	n
32:16	1.56e+02	9.31e+01	1.67	yes	2.49e+02		n	n
32:27	1.09e+03	6.97e+02	1.56	yes	1.78e+03	1,2,3,7,8-PeCDF	n	n
32:42	3.55e+02	2.44e+02	1.45	yes	5.99e+02		n	n
33:21	8.92e+02	6.13e+02	1.46	yes	1.50e+03	2,3,4,7,8-PeCDF	n	n

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SL0101

ntry: 40 Totals Name: Total Penta-Dioxins

un: 16 File: P519141 Sample:1 Injection:1 Function:2

cquired: 2-DEC-18 12:39:46 Processed: 3-DEC-18 18:10:19

ass: 355.8550 357.8520 Tot Response: 3.14e+02 RRF: 0.9565

	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
								n	n
	32:00	1.35e+02	8.10e+01	1.67	yes	2.16e+02		n	n
	32:27	5.92e+01	3.83e+01	1.55	yes	9.75e+01			

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Peak List Summary

CLIENT ID.
SL0101

ntry: 41 Totals Name: Total Hexa-Furans

un: 16 File: P519141 Sample:1 Injection:1 Function:3

cquired: 2-DEC-18 12:39:46 Processed: 3-DEC-18 18:10:19

lass: 373.8210 375.8180 Tot Response: 3.71e+03 RRF: 1.141

	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
								n	n
1	34:55	1.19e+02	1.04e+02	1.14	yes	2.23e+02		n	n
2	35:36	4.07e+02	3.50e+02	1.16	yes	7.57e+02		n	n
3	35:56	4.41e+01	3.65e+01	1.21	yes	8.06e+01		n	n
4	36:02	1.19e+03	1.05e+03	1.14	yes	2.24e+03	1,2,3,4,7,8-HxCDF	n	n
5	36:38	1.11e+02	1.04e+02	1.07	yes	2.16e+02	2,3,4,6,7,8-HxCDF	n	n
6	37:24	1.07e+02	7.78e+01	1.38	yes	1.85e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

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SL0101

ıtry: 42 Totals Name: Total Hexa-Dioxins

ın: 16 File: P519141 Sample:1 Injection:1 Function:3

cquired: 2-DEC-18 12:39:46 Processed: 3-DEC-18 18:10:19

ass: 389.8160 391.8130 Tot Response: 2.86e+03 RRF: 1.047

RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
35:26	1.03e+03	8.06e+02	1.27	yes	1.83e+03		n	n
35:57	6.81e+01	5.78e+01	1.18	yes	1.26e+02		n	n
36:11	5.08e+02	3.90e+02	1.30	yes	8.98e+02		n	n

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Peak List Summary

CLIENT ID.
SL0101

ıtry: 43 Totals Name: Total Hepta-Furans

un: 16 File: P519141 Sample:1 Injection:1 Function:4

cquired: 2-DEC-18 12:39:46 Processed: 3-DEC-18 18:10:19

ass: 407.7820 409.7790 Tot Response: 3.54e+03 RRF: 1.308

	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	38:40	8.96e+02	9.10e+02	0.99	yes	1.81e+03	1,2,3,4,6,7,8-HpCDF	n	n
	39:03	7.55e+02	7.87e+02	0.96	yes	1.54e+03		n	n
	40:04	8.85e+01	9.85e+01	0.90	yes	1.87e+02	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0101

ıtry: 44 Totals Name: Total Hepta-Dioxins

un: 16 File: P519141 Sample:1 Injection:1 Function:4

cquired: 2-DEC-18 12:39:46 Processed: 3-DEC-18 18:10:19

ass: 423.7770 425.7740 Tot Response: 9.98e+03 RRF: 1.025

	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
								n	n
	38:54	3.18e+03	3.15e+03	1.01	yes	6.33e+03			
2	39:35	1.87e+03	1.78e+03	1.05	yes	3.65e+03	1,2,3,4,6,7,8-HpCDD	n	n

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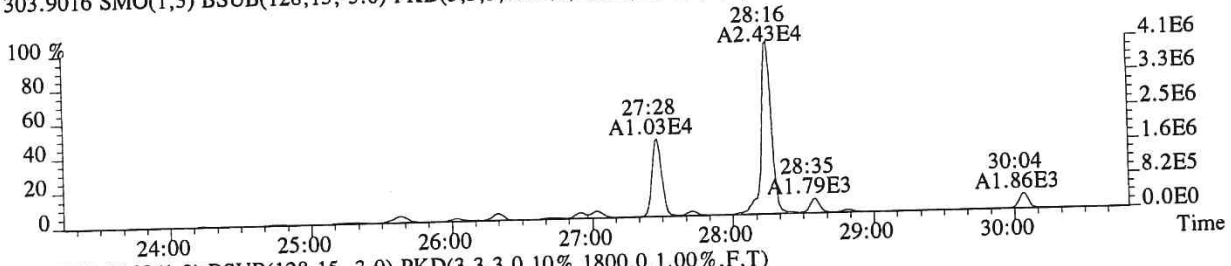
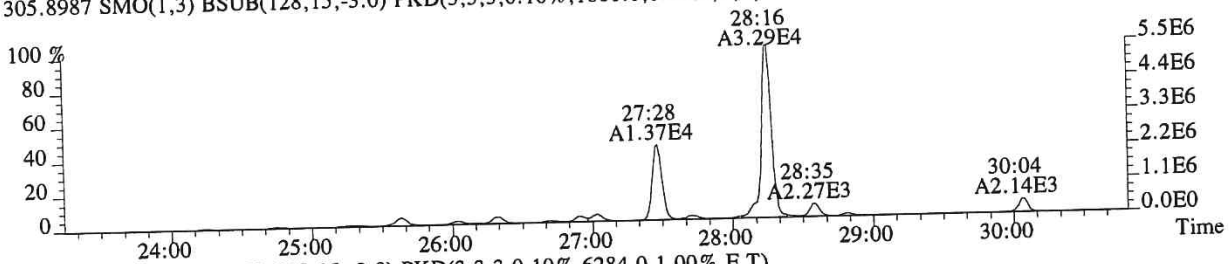
File:P519141 #1-538 Acq: 2-DEC-2018 12:39:46 Probe EI+ Magnet SIR VG BioTech Mass spectr

Sample#1 Exp:E1801039-038

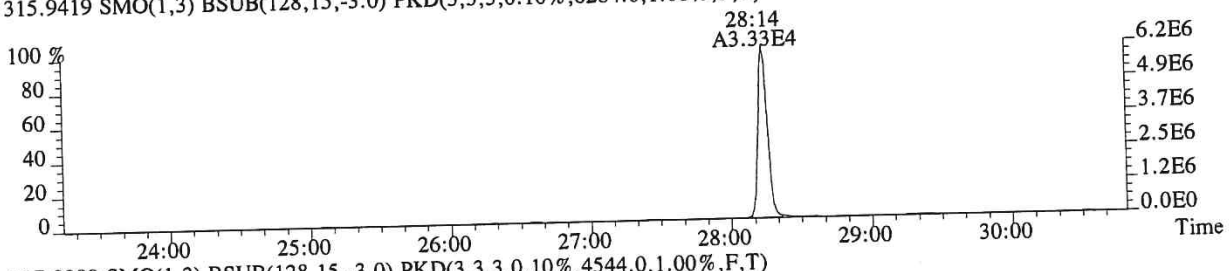
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



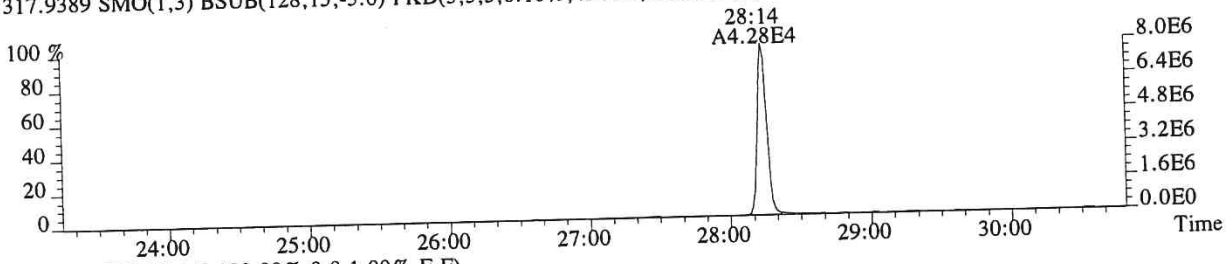
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



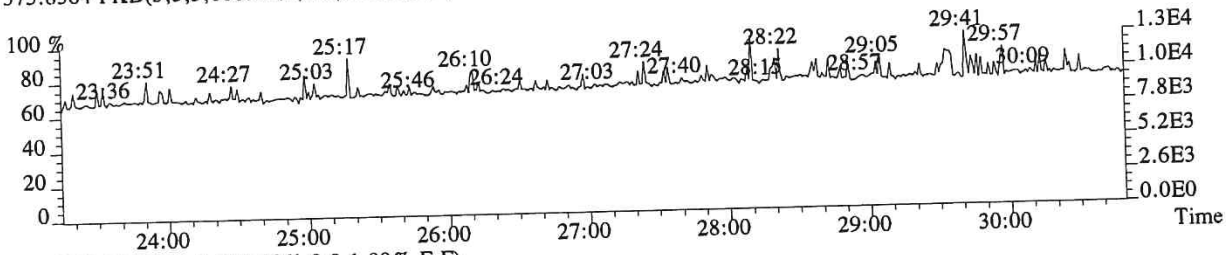
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6284.0,1.00%,F,T)



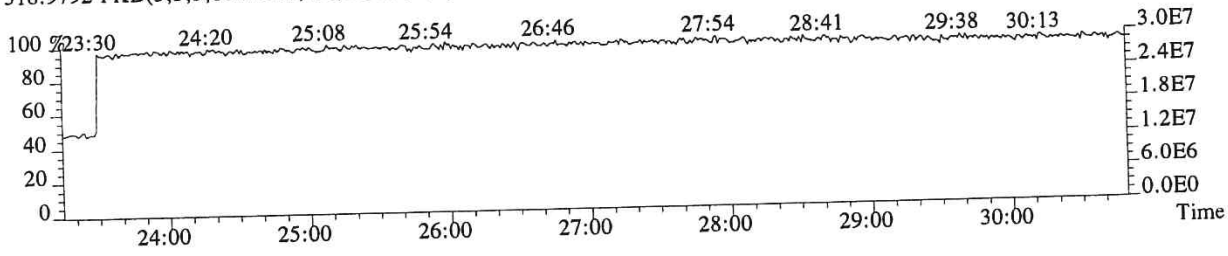
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4544.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

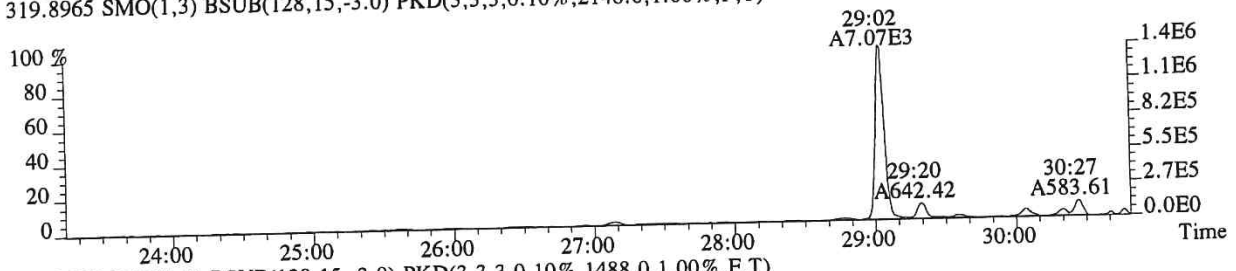


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

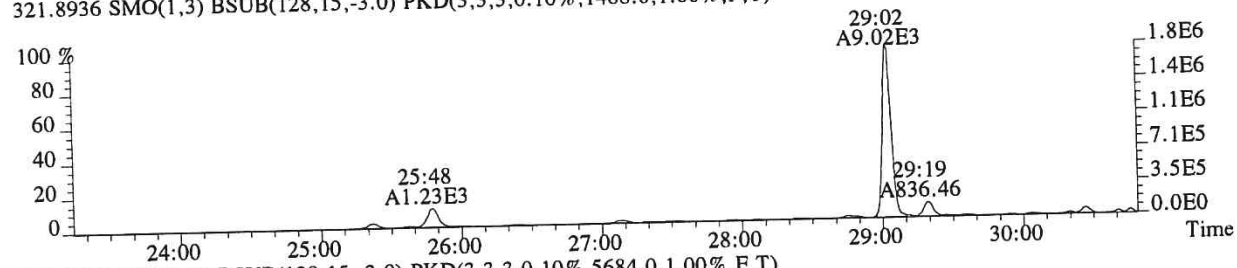


011192

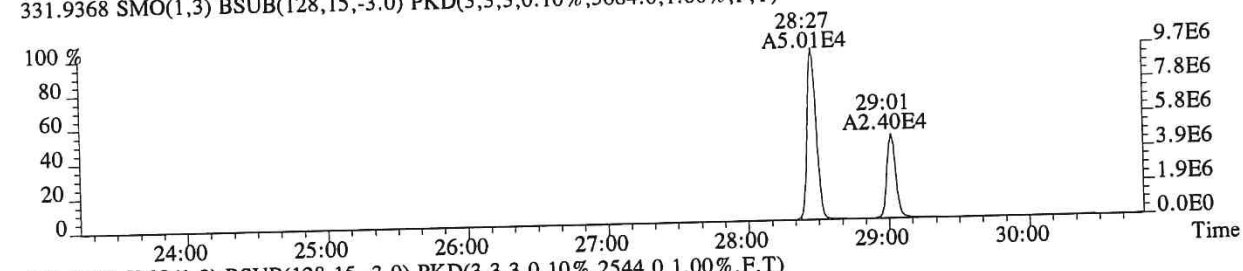
File:P519141 #1-538 Acq: 2-DEC-2018 12:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-038
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



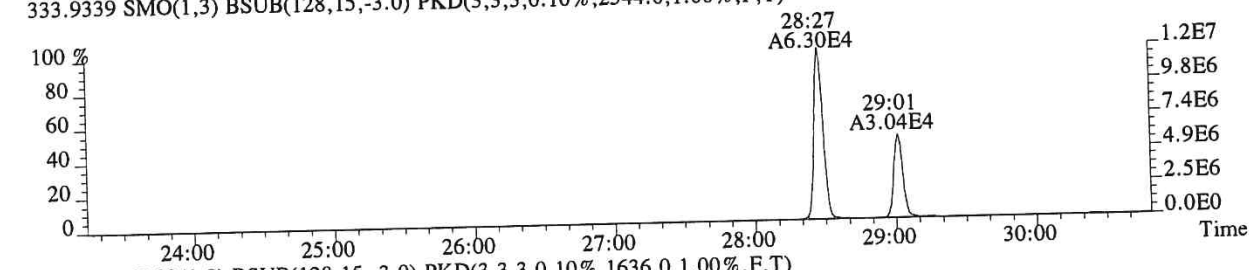
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



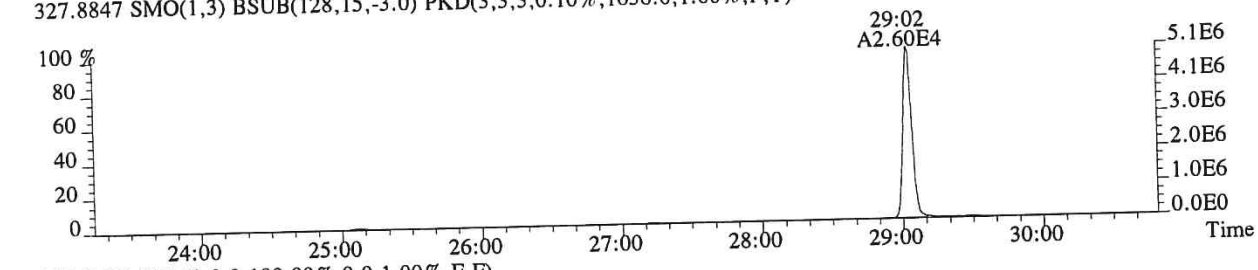
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5684.0,1.00%,F,T)



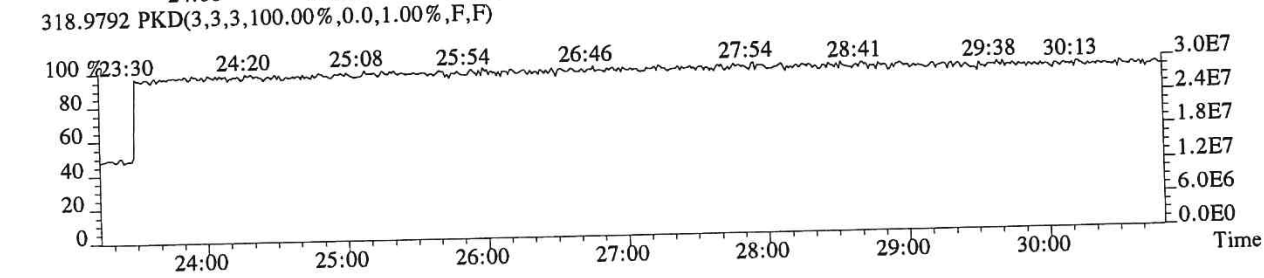
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2544.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)

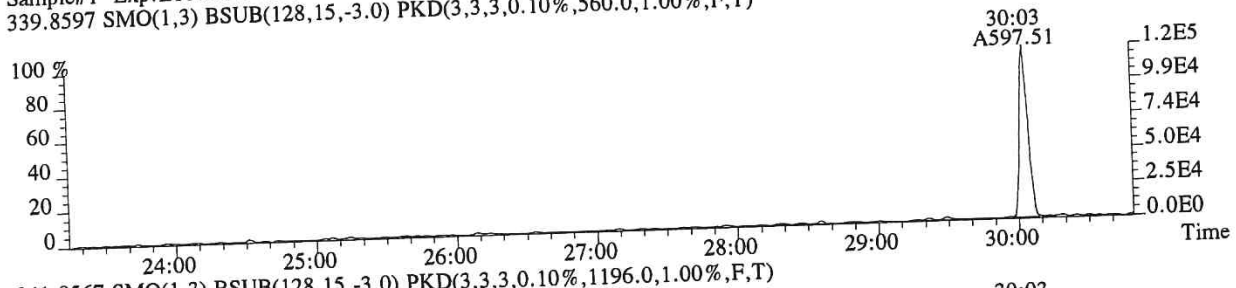


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

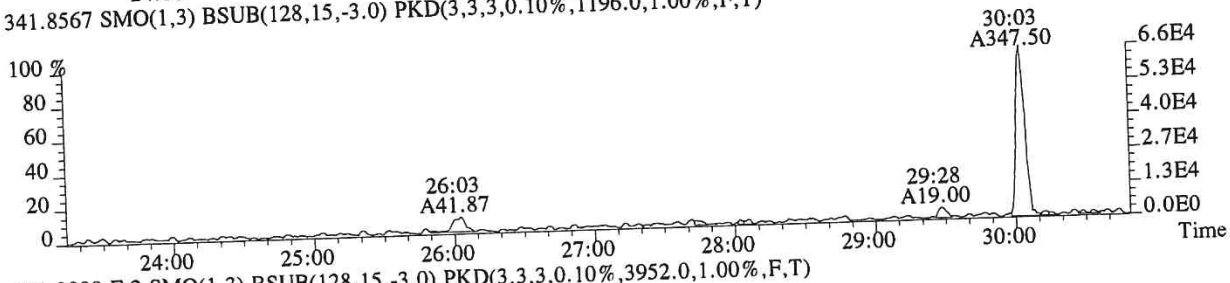


011193

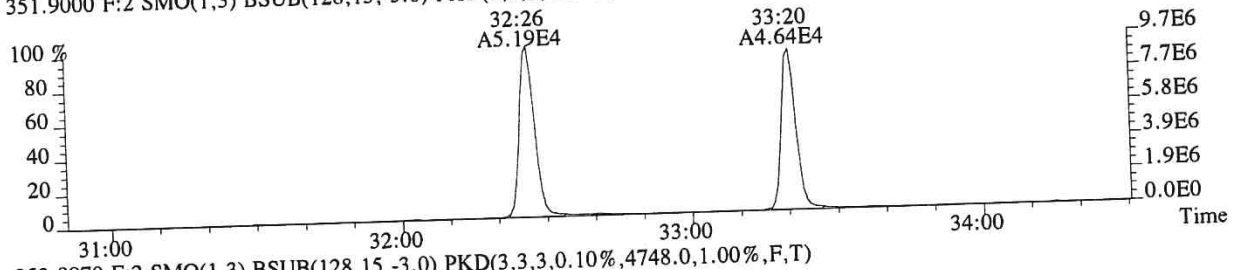
File:P519141 #1-538 Acq: 2-DEC-2018 12:39:46 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801039-038
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



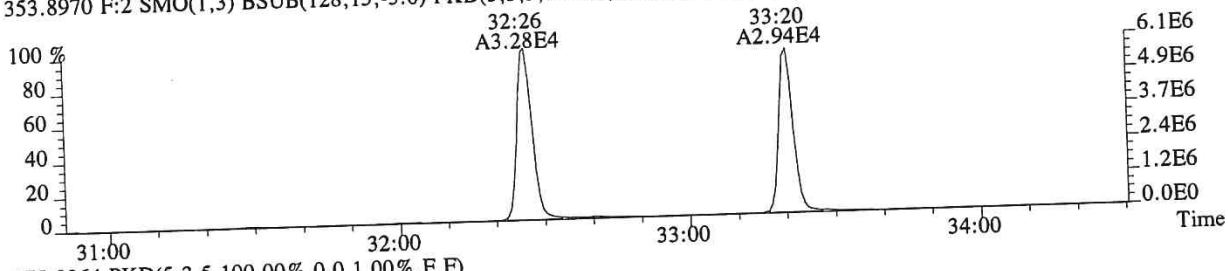
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



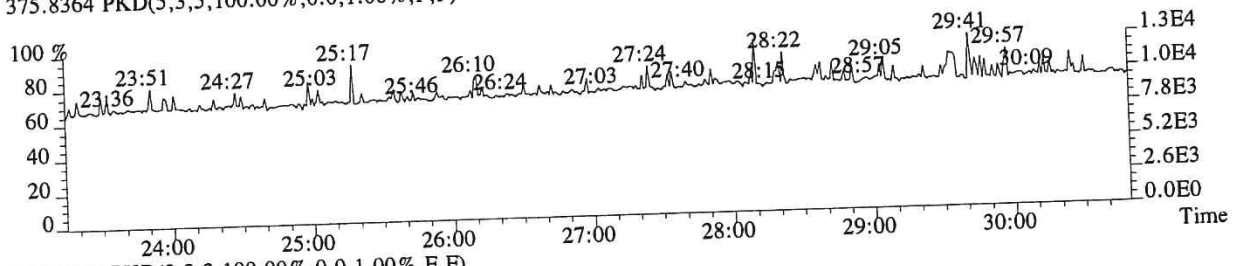
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3952.0,1.00%,F,T)



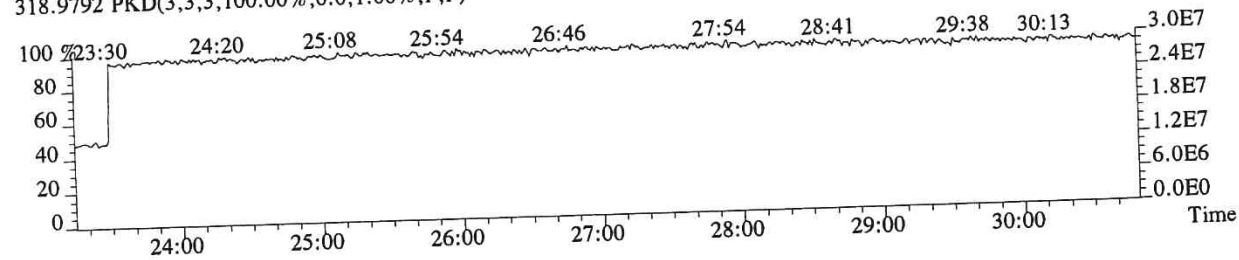
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4748.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

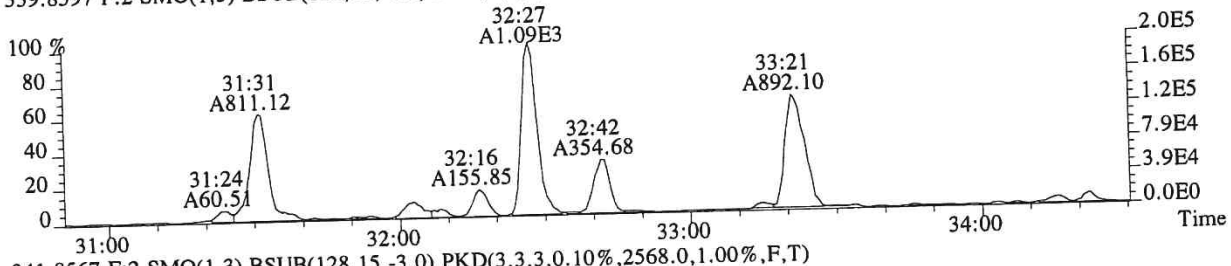


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

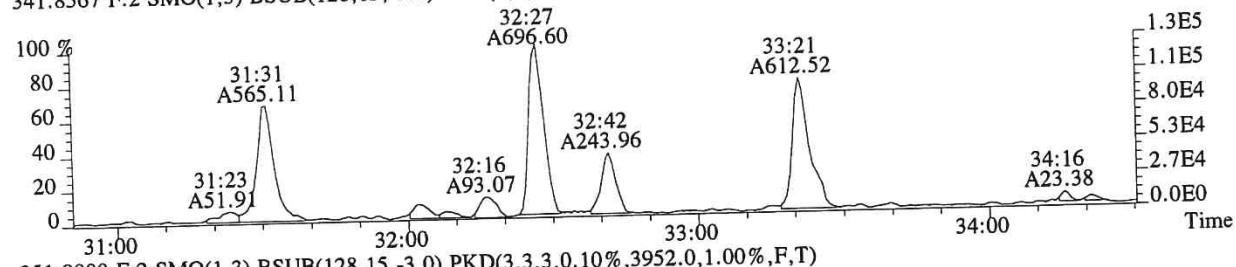


011194

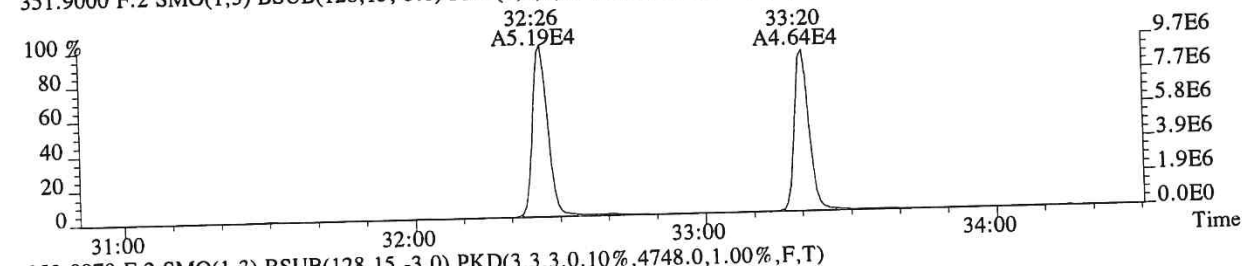
File:P519141 #1-330 Acq: 2-DEC-2018 12:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-038
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



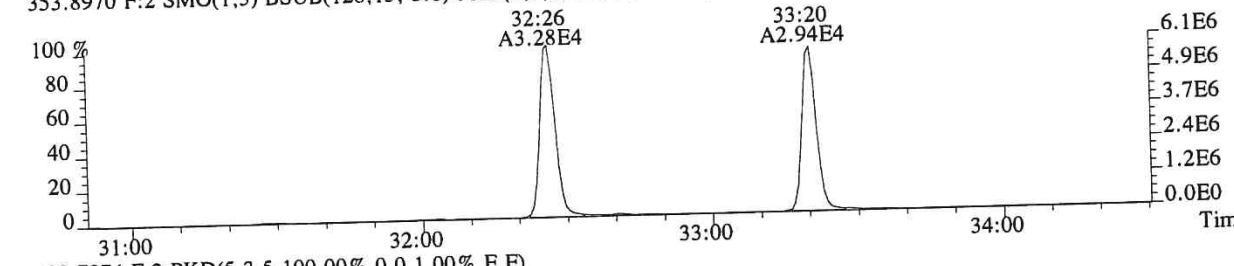
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



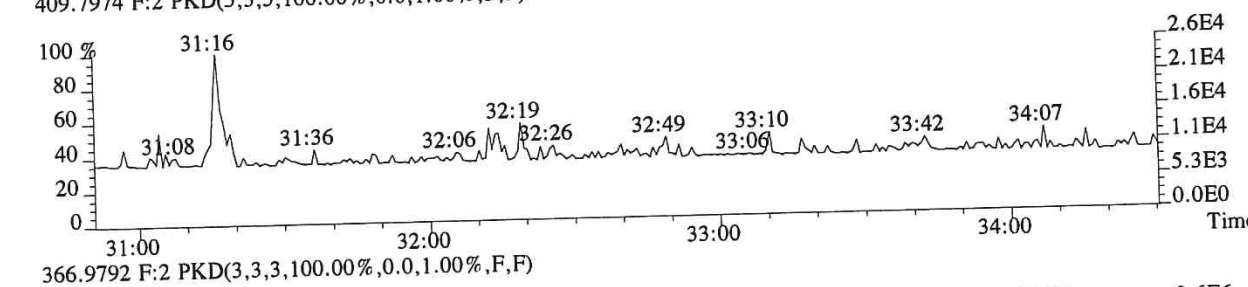
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3952.0,1.00%,F,T)



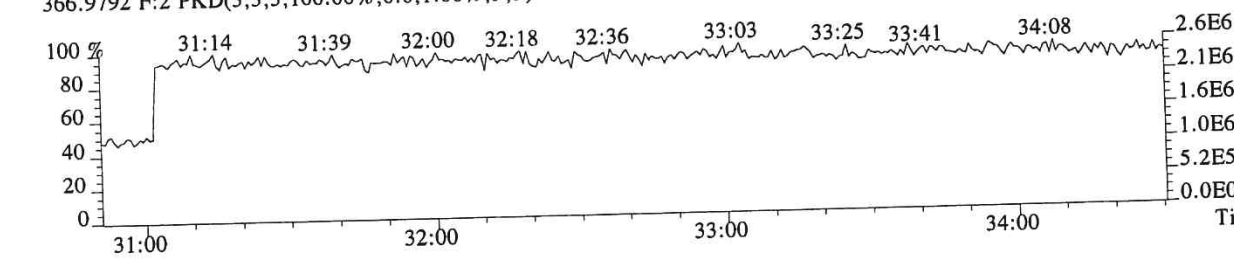
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4748.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

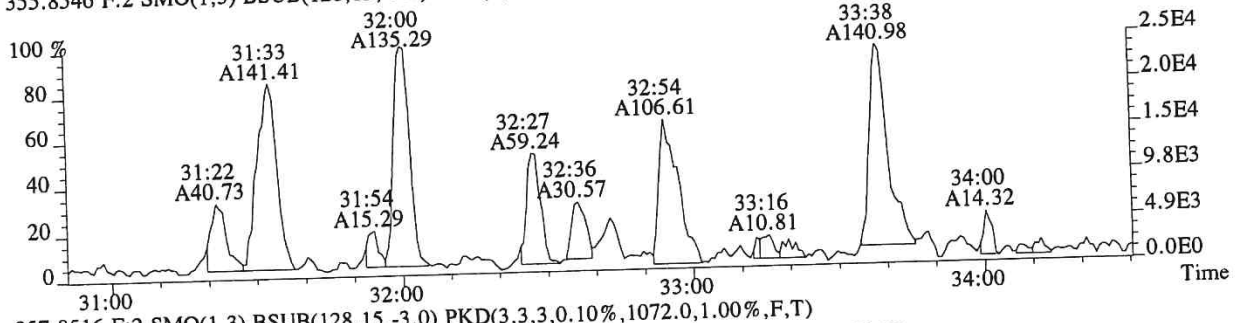


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

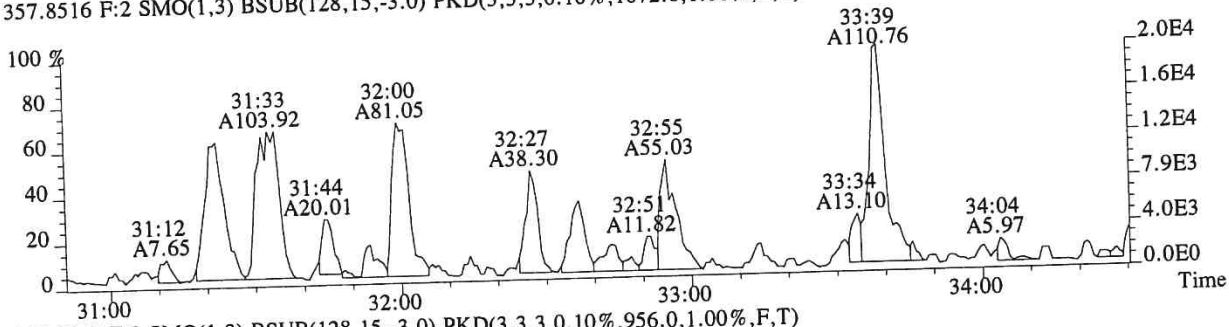


011195

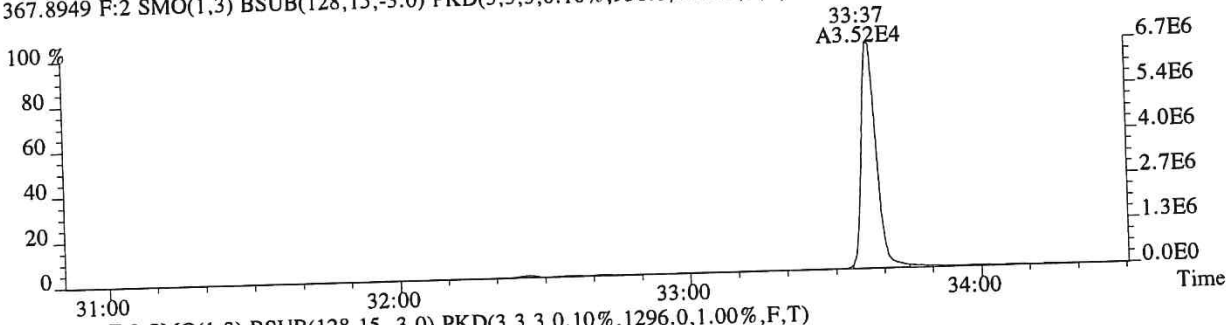
File:P519141 #1-330 Acq: 2-DEC-2018 12:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-038
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1548.0,1.00%,F,T)



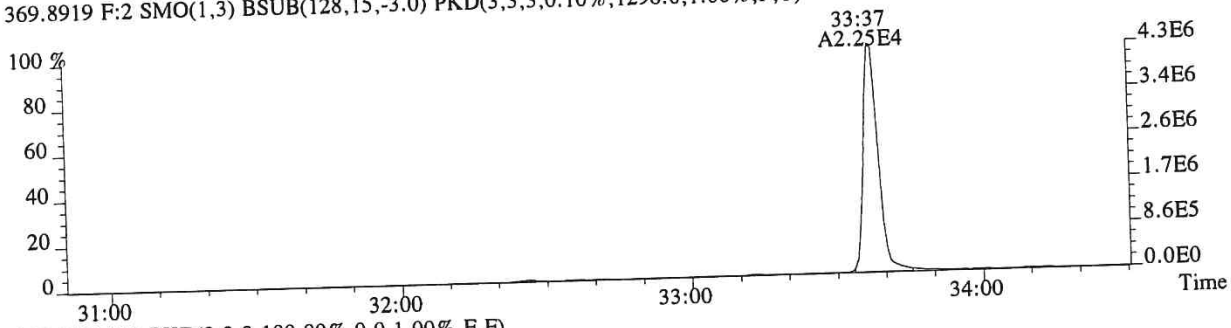
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



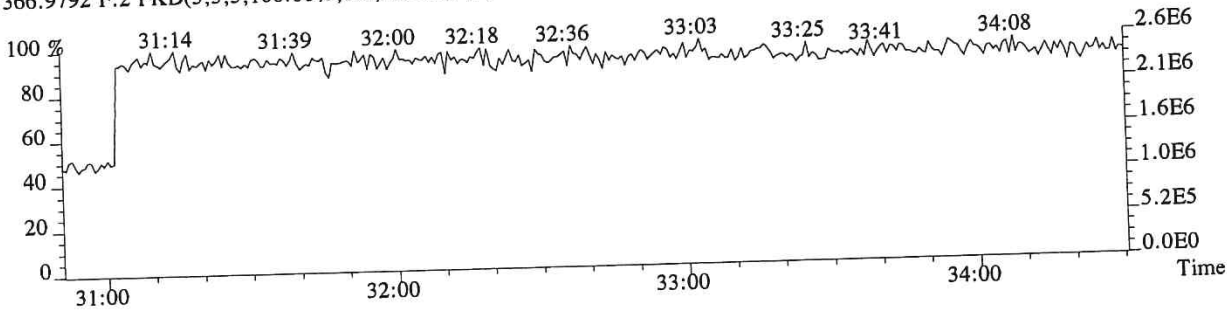
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)

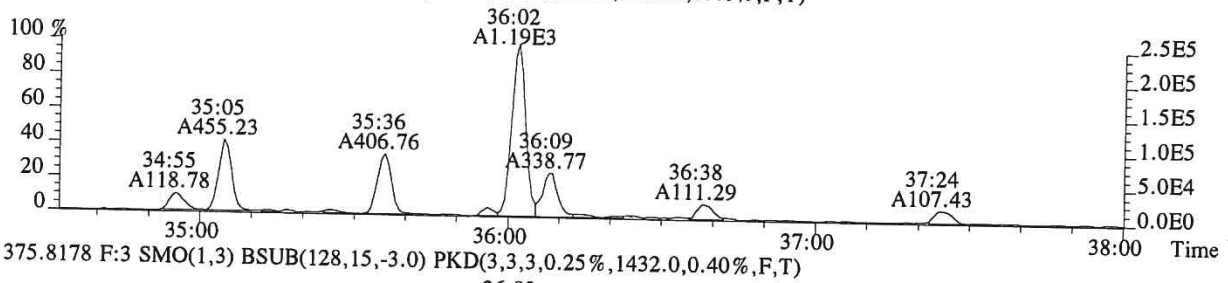


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

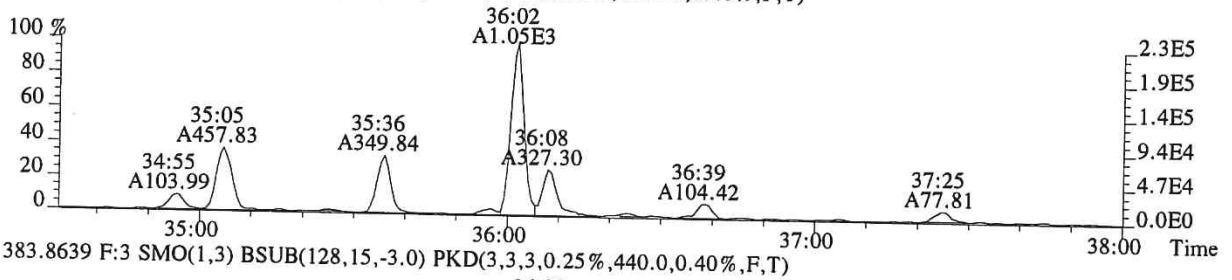


011196

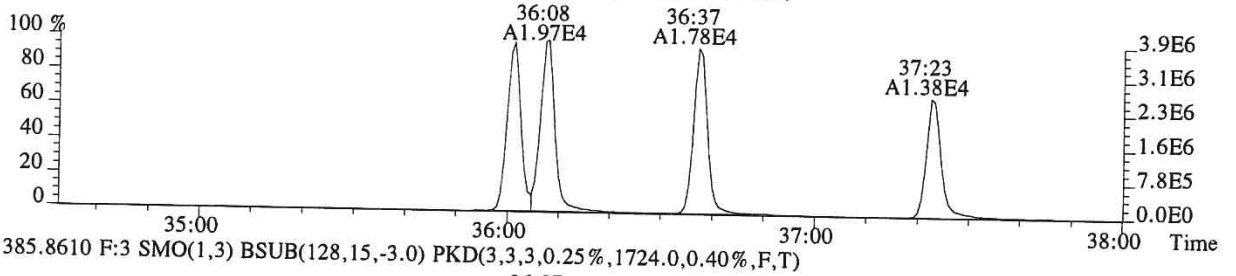
File:P519141 #1-312 Acq: 2-DEC-2018 12:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-038
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



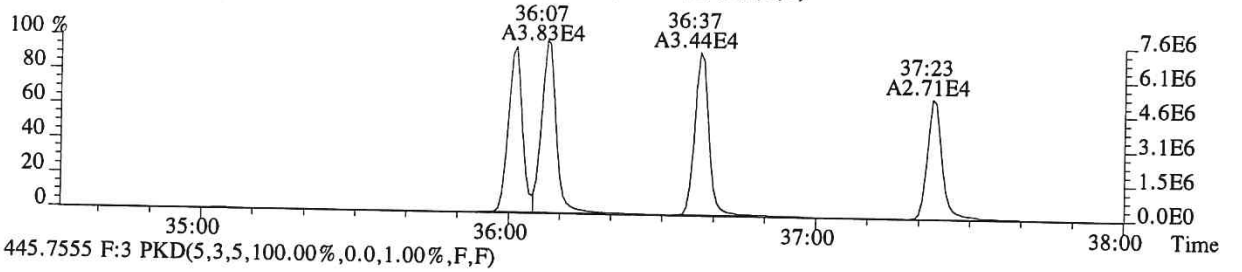
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1432.0,0.40%,F,T)



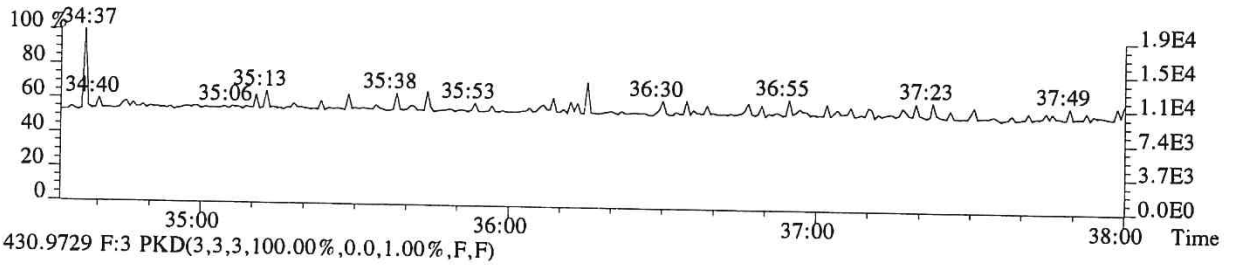
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



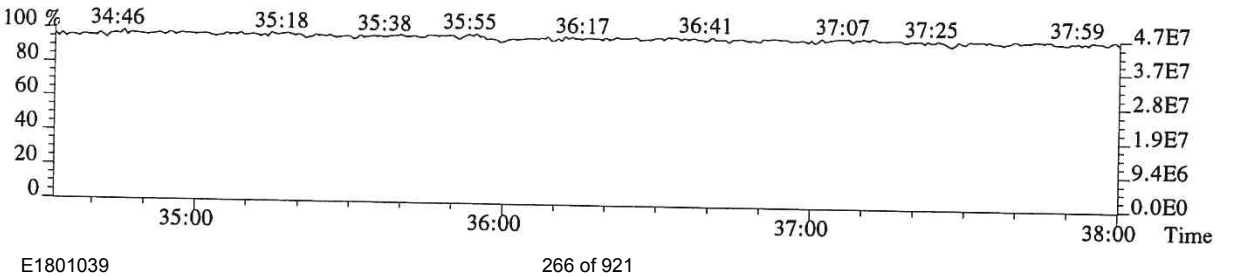
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1724.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

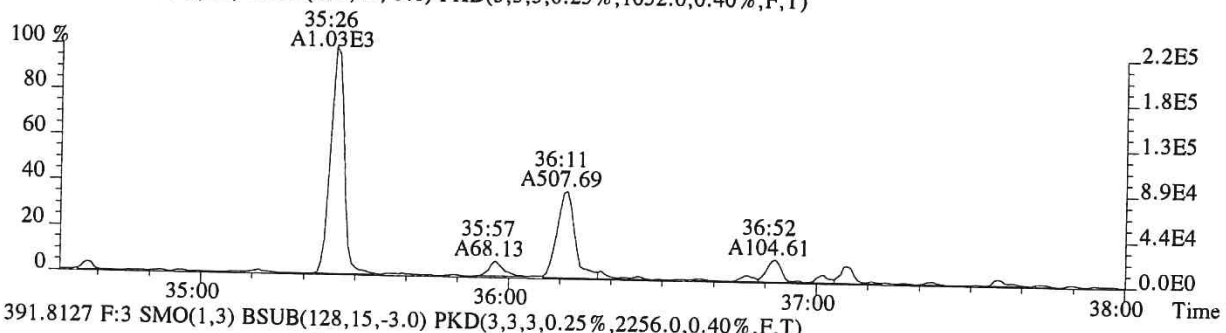


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

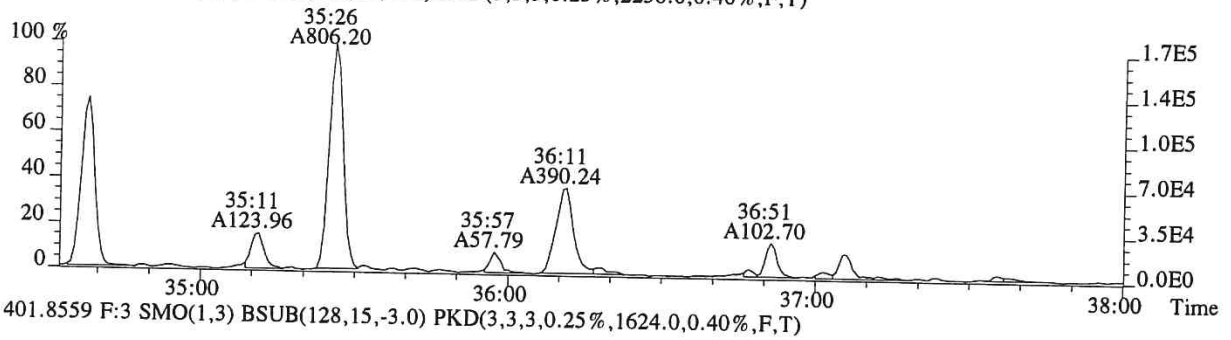


011197

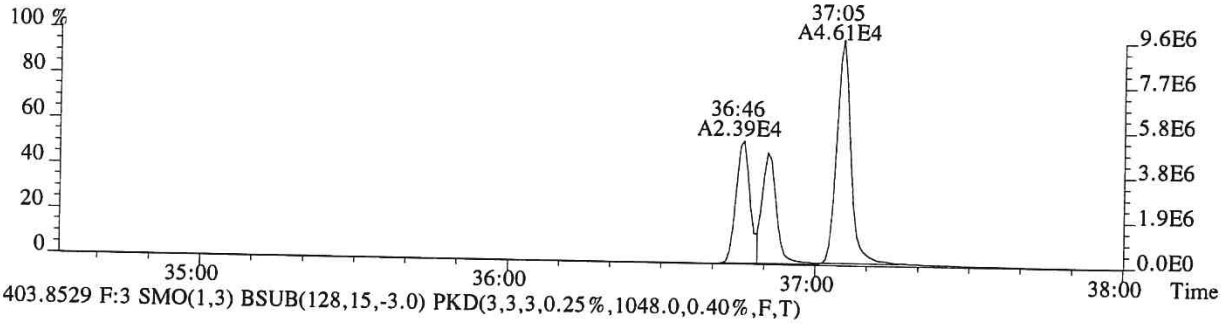
File:P519141 #1-312 Acq: 2-DEC-2018 12:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-038
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



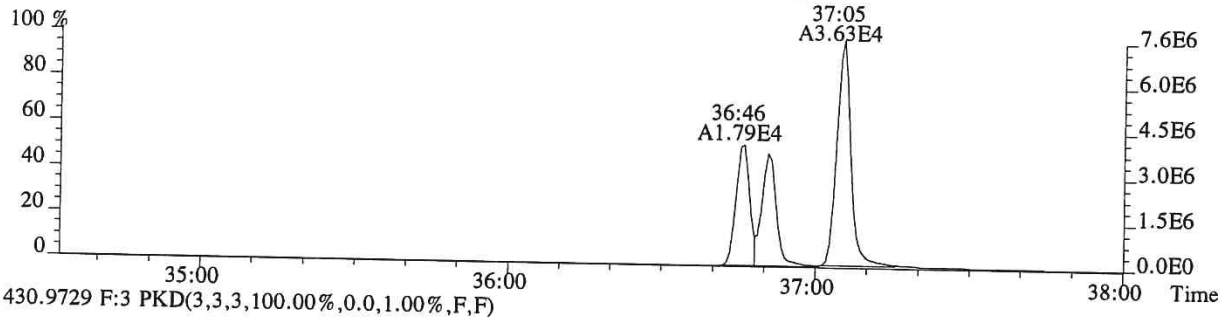
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2256.0,0.40%,F,T)



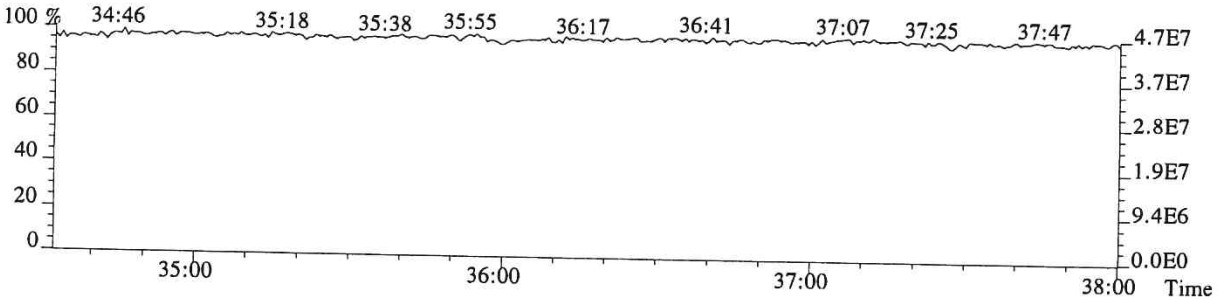
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



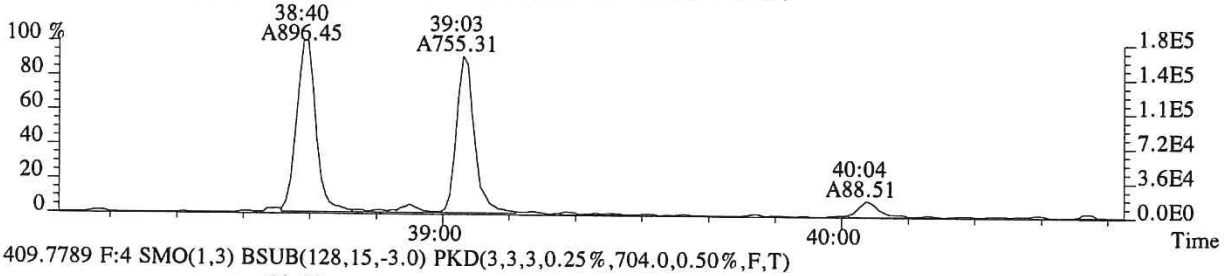
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



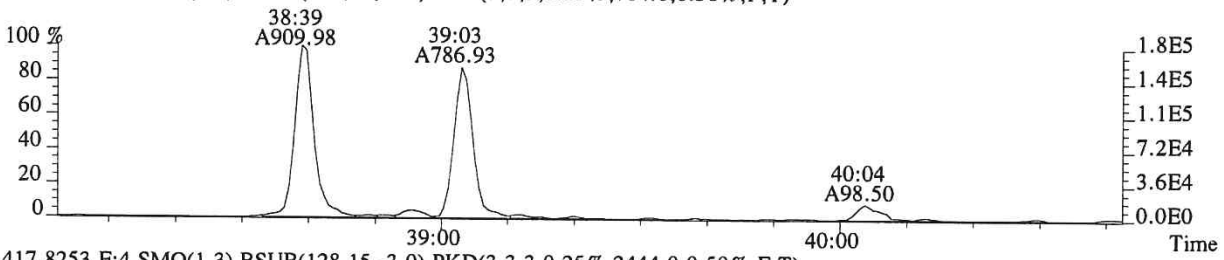
011198

File:P519141 #1-241 Acq: 2-DEC-2018 12:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-038

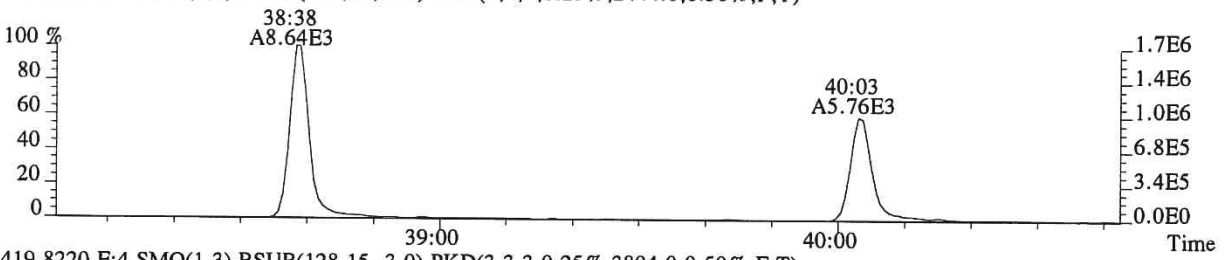
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.50%,F,T)



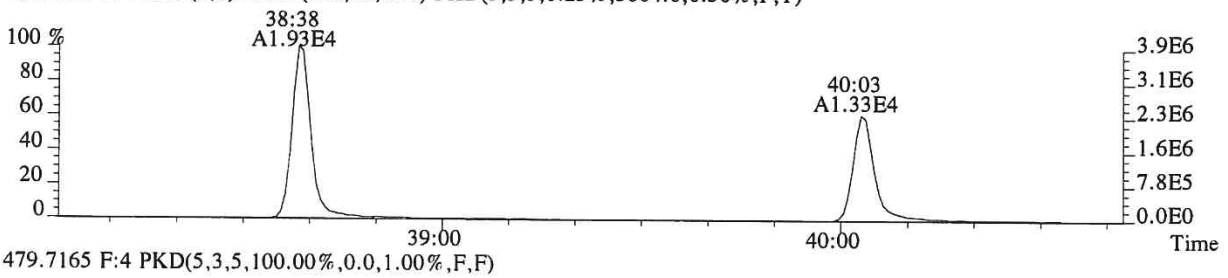
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.50%,F,T)



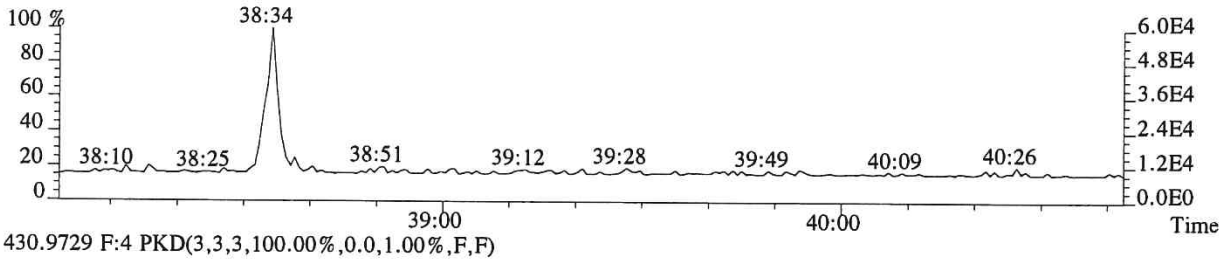
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2444.0,0.50%,F,T)



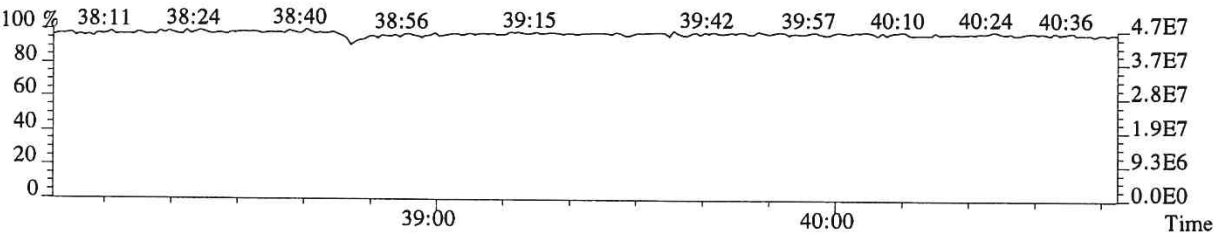
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3804.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

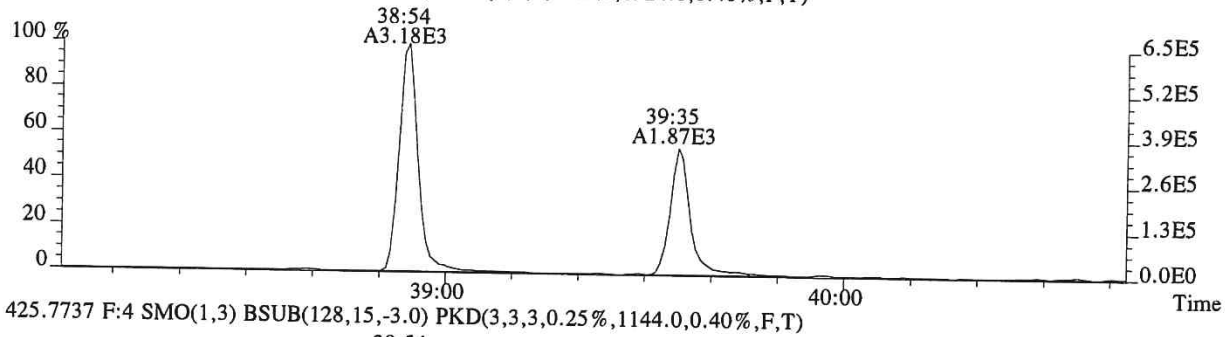


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

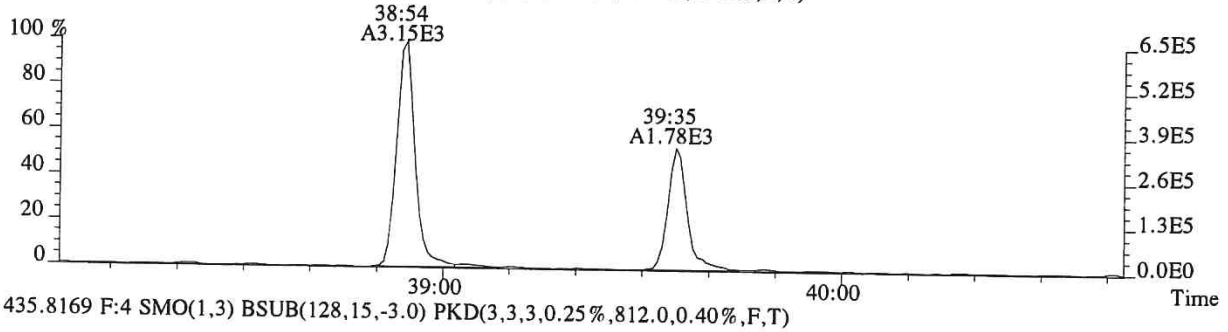


011199

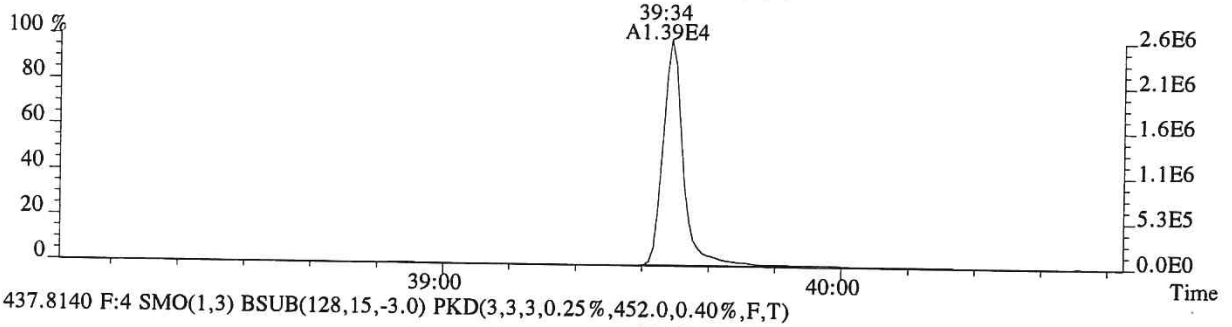
File:P519141 #1-241 Acq: 2-DEC-2018 12:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-038
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1924.0,0.40%,F,T)



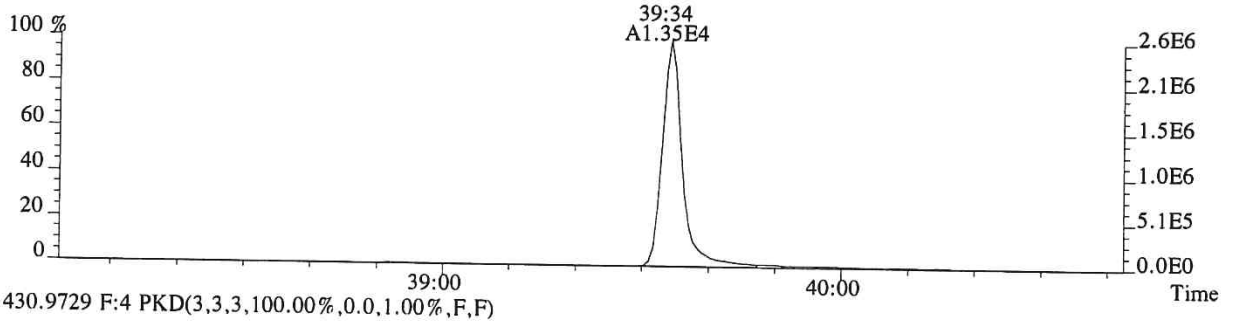
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



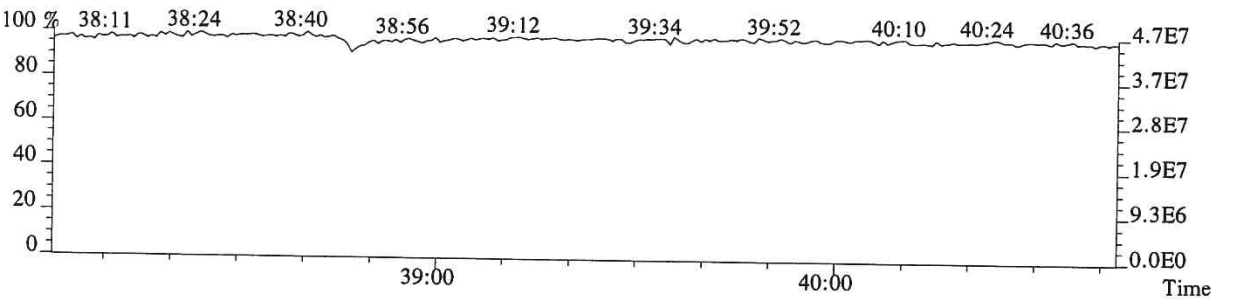
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)

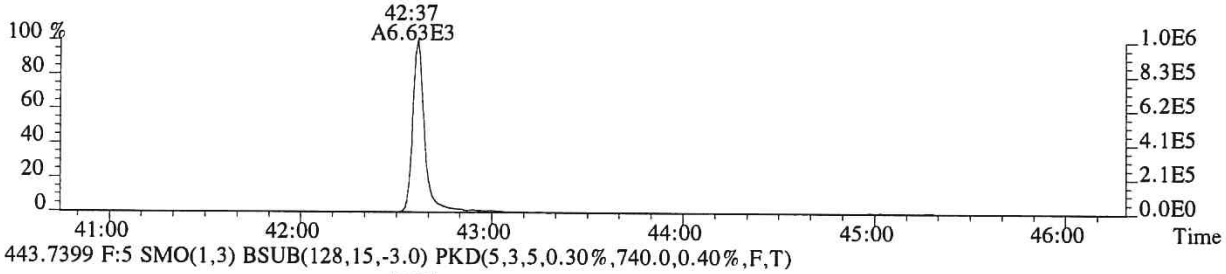


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

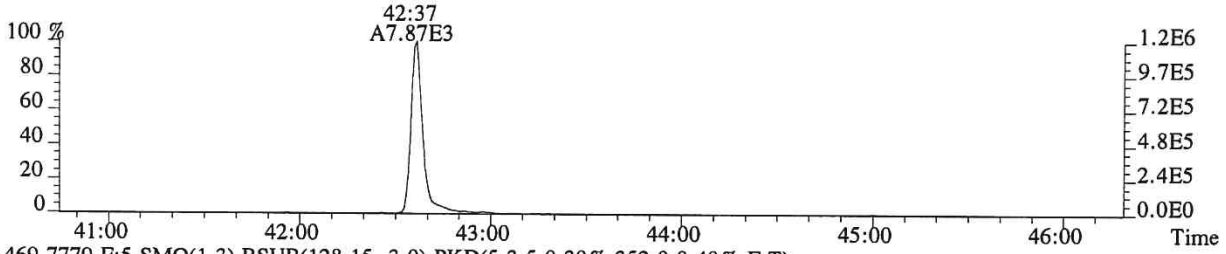


011200

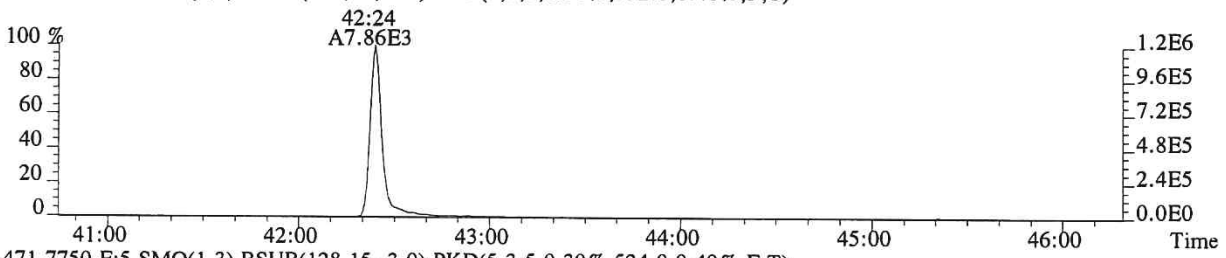
File:P519141 #1-502 Acq: 2-DEC-2018 12:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-038
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



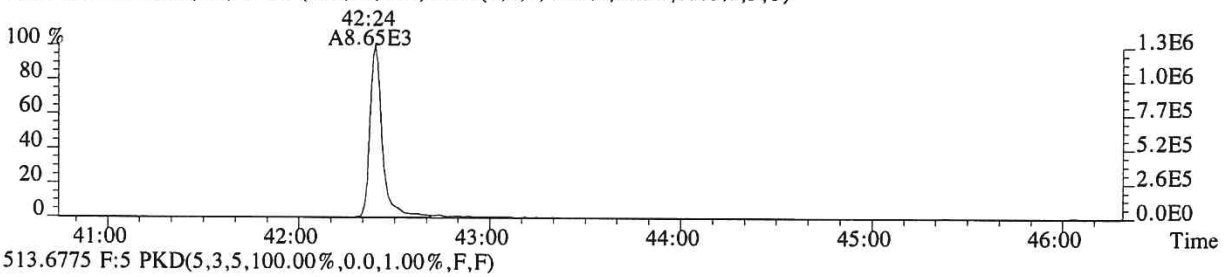
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



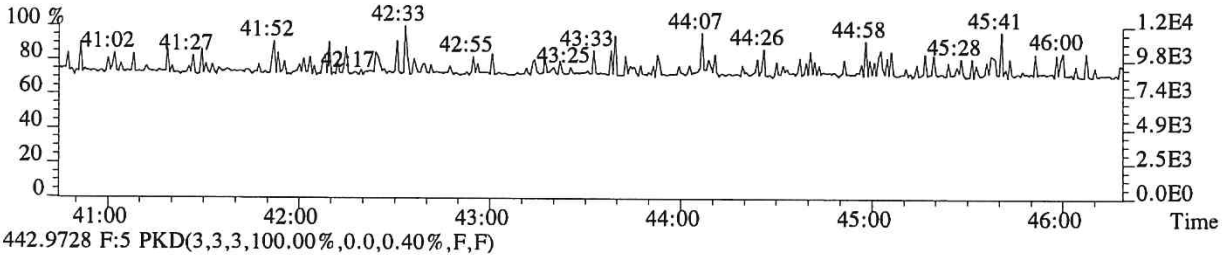
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



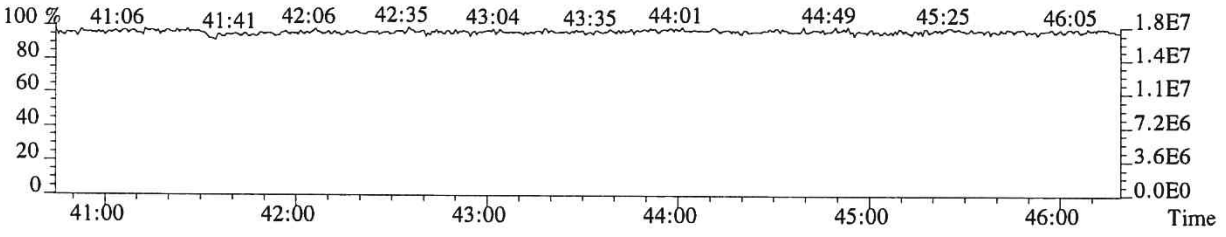
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



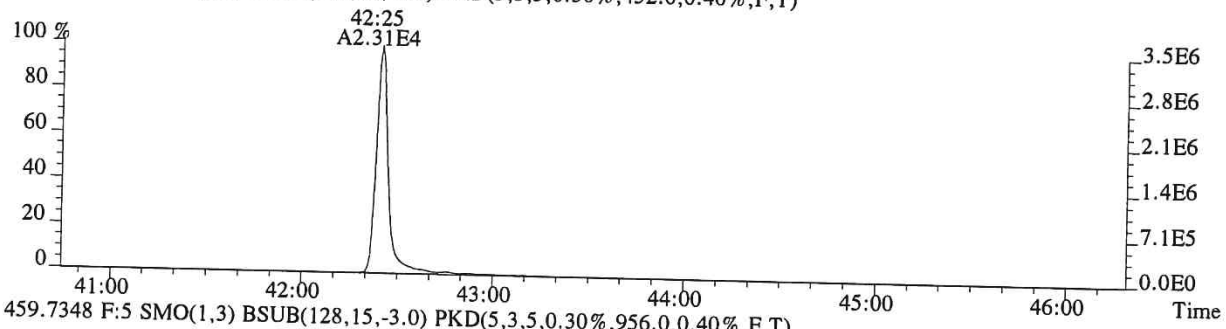
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



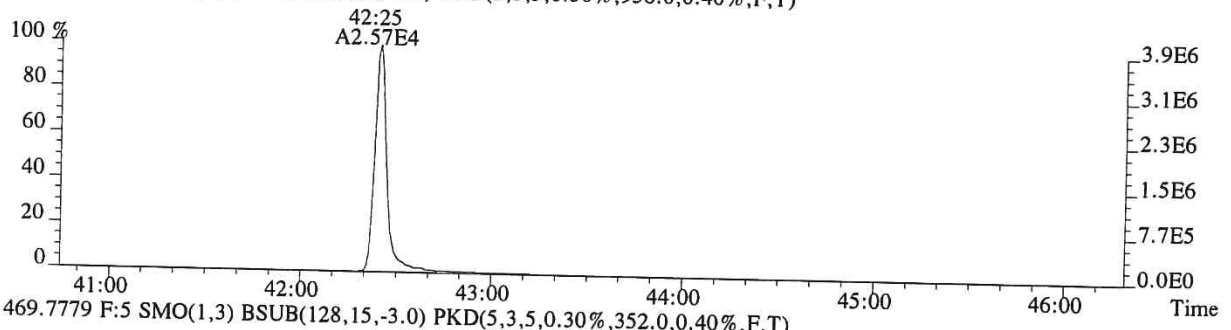
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



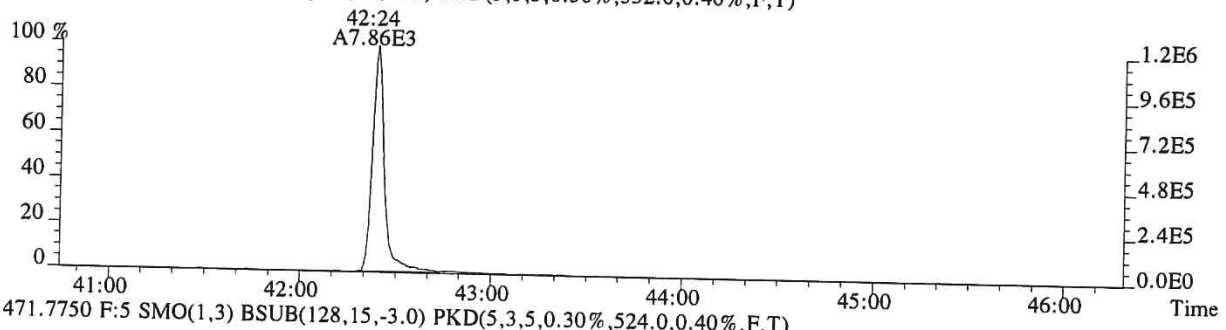
File:P519141 #1-502 Acq: 2-DEC-2018 12:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-038
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



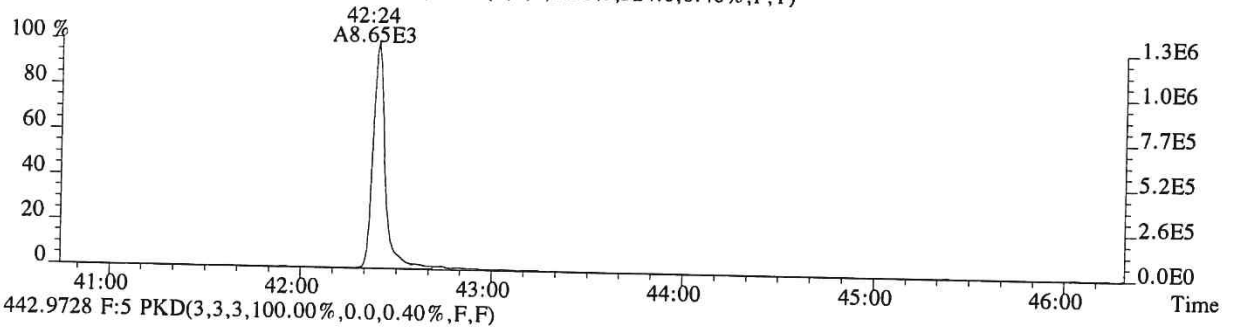
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



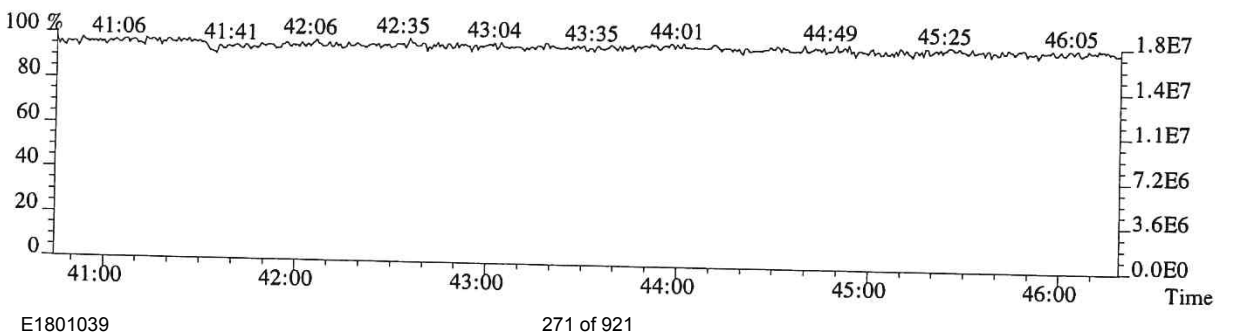
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011202

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
FW0005

un #15 Filename P519018 Samp: 1 Inj: 1 Acquired: 27-NOV-18 20:26:02
rocessed: 28-NOV-18 14:44:59 Sample ID: E1801039-039

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:12	2.657e+01	2.157e+01	1.23	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:19	1.291e+01	1.418e+01	0.91	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.675e+01	3.940e+01	0.68	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
0	Unk	OCDF	42:48	1.914e+02	2.173e+02	0.88	yes	no	1.359
1	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
2	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
3	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
4	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
5	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.063
6	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	yes	1.025
7	Unk	OCDD	42:37	1.733e+01	2.964e+01	0.58	no	yes	1.118
8	IS	13C-2,3,7,8-TCDF	28:30	2.982e+04	3.810e+04	0.78	yes	no	1.513
9	IS	13C-1,2,3,7,8-PeCDF	32:38	4.899e+04	3.105e+04	1.58	yes	no	1.471
0	IS	13C-2,3,4,7,8-PeCDF	33:32	4.668e+04	2.918e+04	1.60	yes	no	1.457
1	IS	13C-1,2,3,4,7,8-HxCDF	36:11	1.929e+04	3.730e+04	0.52	yes	no	1.234
2	IS	13C-1,2,3,6,7,8-HxCDF	36:17	2.171e+04	4.165e+04	0.52	yes	no	1.399
3	IS	13C-2,3,4,6,7,8-HxCDF	36:47	2.031e+04	3.854e+04	0.53	yes	no	1.257
4	IS	13C-1,2,3,7,8,9-HxCDF	37:33	1.527e+04	3.027e+04	0.50	yes	no	1.086
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.124e+04	2.498e+04	0.45	yes	no	0.966
6	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	8.510e+03	1.925e+04	0.44	yes	no	0.820
7	IS	13C-2,3,7,8-TCDD	29:16	2.009e+04	2.487e+04	0.81	yes	no	0.924
8	IS	13C-1,2,3,7,8-PeCDD	33:48	3.336e+04	2.094e+04	1.59	yes	no	0.975
9	IS	13C-1,2,3,4,7,8-HxCDD	36:55	2.482e+04	1.959e+04	1.27	yes	no	0.925
0	IS	13C-1,2,3,6,7,8-HxCDD	37:01	2.498e+04	1.974e+04	1.27	yes	no	0.949
1	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	1.949e+04	1.860e+04	1.05	yes	no	0.858
2	IS	13C-OCDD	42:35	1.507e+04	1.688e+04	0.89	yes	no	0.582
3	RS/RT	13C-1,2,3,4-TCDD	28:43	5.001e+04	6.269e+04	0.80	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:15	4.899e+04	3.929e+04	1.25	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	29:18	2.187e+04				no	1.014

1.947e+01

$$\text{OCDD} = \frac{(1.733e+01 + \cancel{2.964e+01}) \times 4000\ \text{pg} \times 1}{(1.507e+04 + 1.688e+04) \times 0.5 \times 100 / 100 \times 1.118} = 8.24\ \text{pg}$$

LM 11/29/18

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ouston, TX 77099
ffice(281)530-5656. Fax(281)530-5887

OCDD = 0.58 < 0.89

$$A2 = \frac{A1}{0.89} = 1.947\ e+01$$

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW0005

un #15 Filename P519018 Samp: 1 Inj: 1 Acquired: 27-NOV-18 20:26:02
rocessed: 28-NOV-18 14:44:59 LAB. ID: E1801039-039

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	*	8.80e+02	*	*	1.33e+03	*
	1,2,3,7,8-PeCDF	*	3.60e+02	*	*	2.02e+03	*
	2,3,4,7,8-PeCDF	*	3.60e+02	*	*	2.02e+03	*
	1,2,3,4,7,8-HxCDF	6.26e+03	6.64e+02	9.4e+00	4.95e+03	4.08e+02	1.2e+01
	1,2,3,6,7,8-HxCDF	1.96e+03	6.64e+02	3.0e+00	2.59e+03	4.08e+02	6.3e+00
	2,3,4,6,7,8-HxCDF	*	6.64e+02	*	*	4.08e+02	*
	1,2,3,7,8,9-HxCDF	*	6.64e+02	*	*	4.08e+02	*
	1,2,3,4,6,7,8-HpCDF	6.58e+03	4.44e+02	1.5e+01	8.18e+03	1.80e+02	4.5e+01
	1,2,3,4,7,8,9-HpCDF	*	4.44e+02	*	*	1.80e+02	*
0	OCDF	2.69e+04	2.12e+02	1.3e+02	3.31e+04	8.44e+02	3.9e+01
1	2,3,7,8-TCDD	*	1.60e+03	*	*	1.18e+03	*
2	1,2,3,7,8-PeCDD	*	1.53e+03	*	*	1.13e+03	*
3	1,2,3,4,7,8-HxCDD	*	4.96e+02	*	*	4.00e+02	*
4	1,2,3,6,7,8-HxCDD	*	4.96e+02	*	*	4.00e+02	*
5	1,2,3,7,8,9-HxCDD	*	4.96e+02	*	*	4.00e+02	*
6	1,2,3,4,6,7,8-HpCDD	*	5.36e+02	*	*	2.84e+02	*
7	OCDD	2.78e+03	2.24e+02	1.2e+01	3.71e+03	7.52e+02	4.9e+00
8	13C-2,3,7,8-TCDF	5.19e+06	6.97e+03	7.5e+02	6.60e+06	2.52e+03	2.6e+03
9	13C-1,2,3,7,8-PeCDF	8.43e+06	2.16e+03	3.9e+03	5.40e+06	1.44e+03	3.7e+03
0	13C-2,3,4,7,8-PeCDF	8.58e+06	2.16e+03	4.0e+03	5.32e+06	1.44e+03	3.7e+03
1	13C-1,2,3,4,7,8-HxCDF	4.02e+06	8.36e+02	4.8e+03	7.62e+06	1.43e+03	5.3e+03
2	13C-1,2,3,6,7,8-HxCDF	4.14e+06	8.36e+02	5.0e+03	7.94e+06	1.43e+03	5.6e+03
3	13C-2,3,4,6,7,8-HxCDF	4.11e+06	8.36e+02	4.9e+03	7.70e+06	1.43e+03	5.4e+03
4	13C-1,2,3,7,8,9-HxCDF	2.77e+06	8.36e+02	3.3e+03	5.35e+06	1.43e+03	3.7e+03
5	13C-1,2,3,4,6,7,8-HpCDF	2.22e+06	1.81e+03	1.2e+03	4.93e+06	4.04e+03	1.2e+03
6	13C-1,2,3,4,7,8,9-HpCDF	1.42e+06	1.81e+03	7.9e+02	3.21e+06	4.04e+03	7.9e+02
7	13C-2,3,7,8-TCDD	3.78e+06	6.48e+03	5.8e+02	4.64e+06	2.72e+03	1.7e+03
8	13C-1,2,3,7,8-PeCDD	6.17e+06	5.88e+02	1.0e+04	3.91e+06	9.16e+02	4.3e+03
9	13C-1,2,3,4,7,8-HxCDD	5.35e+06	2.95e+03	1.8e+03	4.21e+06	1.14e+03	3.7e+03
0	13C-1,2,3,6,7,8-HxCDD	4.72e+06	2.95e+03	1.6e+03	3.74e+06	1.14e+03	3.3e+03
1	13C-1,2,3,4,6,7,8-HpCDD	3.46e+06	7.08e+02	4.9e+03	3.32e+06	3.80e+02	8.7e+03
2	13C-OCDD	2.13e+06	1.96e+02	1.1e+04	2.41e+06	2.72e+02	8.8e+03
3	13C-1,2,3,4-TCDD	9.39e+06	6.48e+03	1.5e+03	1.17e+07	2.72e+03	4.3e+03
4	13C-1,2,3,7,8,9-HxCDD	9.18e+06	2.95e+03	3.1e+03	7.27e+06	1.14e+03	6.4e+03
5	37Cl-2,3,7,8-TCDD	4.04e+06	1.27e+03	3.2e+03			

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Peak List Summary

CLIENT ID.
FW0005

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P519018 Sample:1 Injection:1 Function:3

Acquired: 27-NOV-18 20:26:02 Processed: 28-NOV-18 14:44:59

Mass: 373.8210 375.8180 Tot Response: 4.81e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:12	2.66e+01	2.16e+01 1.23	yes	4.81e+01	1,2,3,4,7,8-HxCDF	n	y

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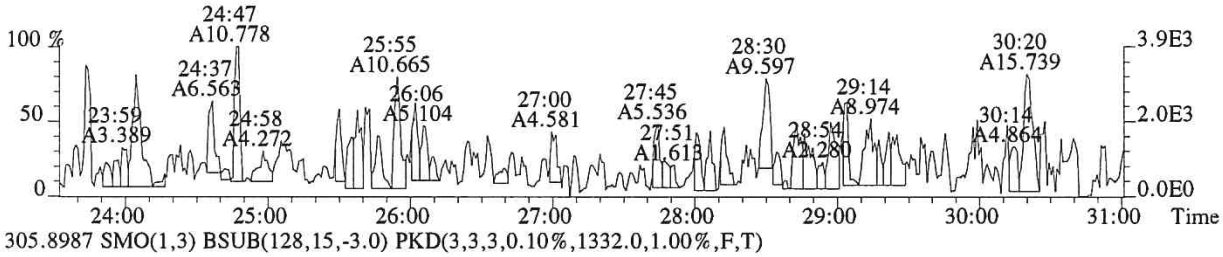
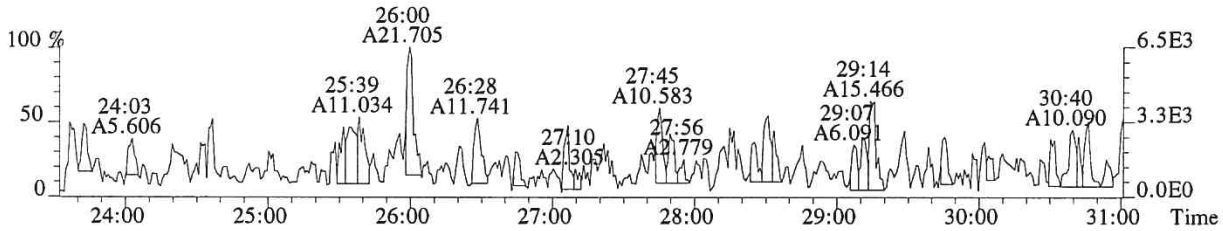
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

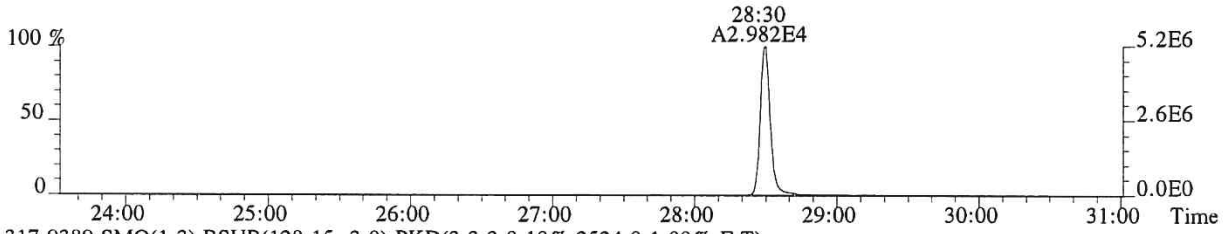
File:P519018 #1-531 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



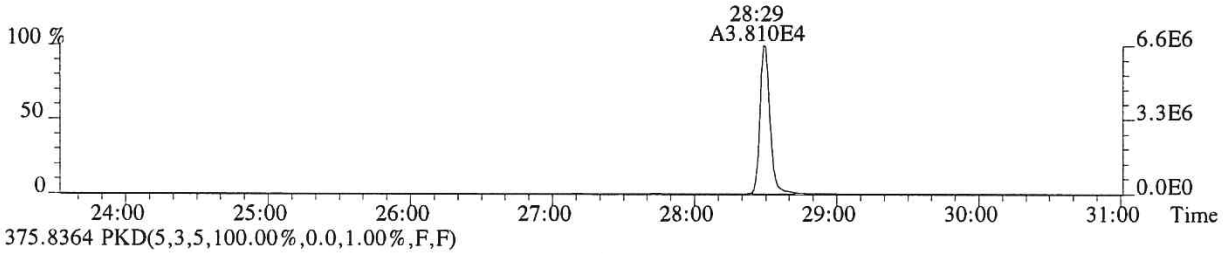
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



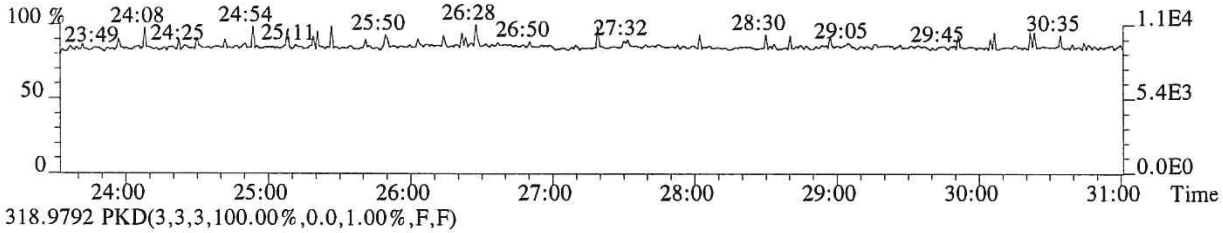
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6968.0,1.00%,F,T)



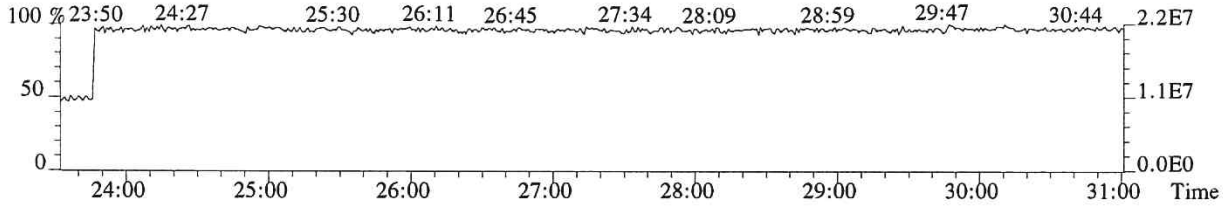
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2524.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

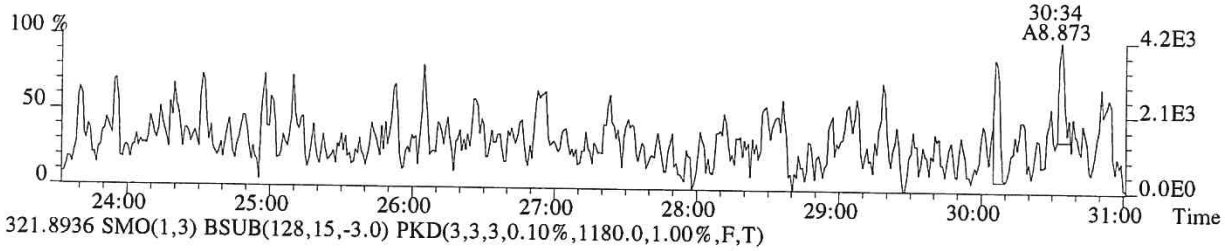


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

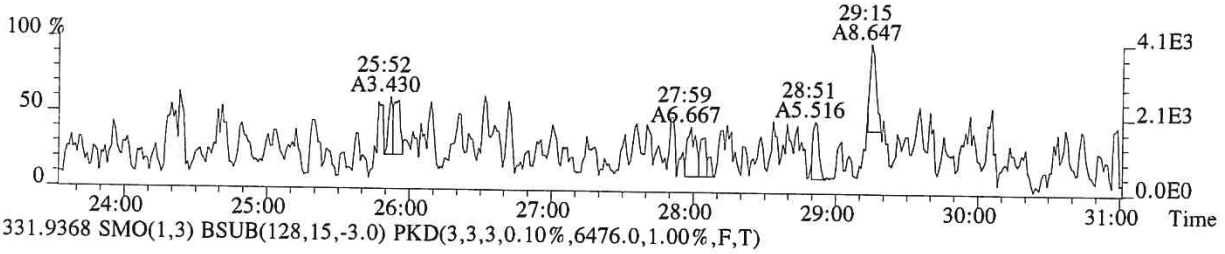


011206

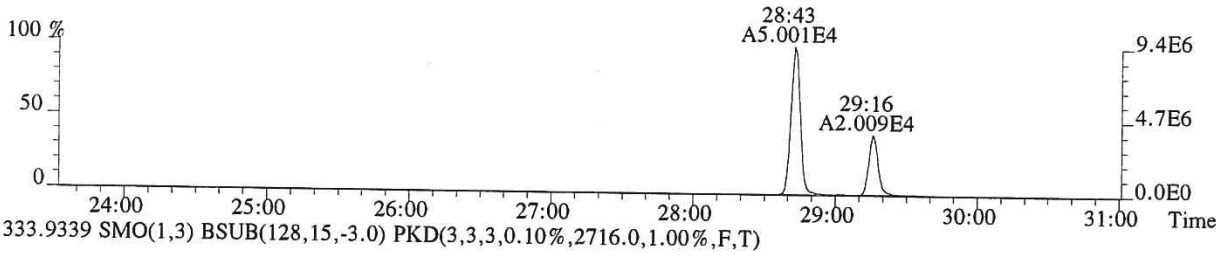
File:P519018 #1-531 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



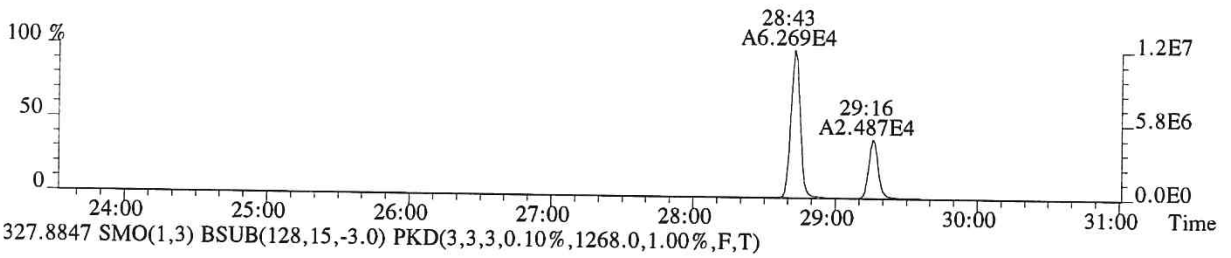
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



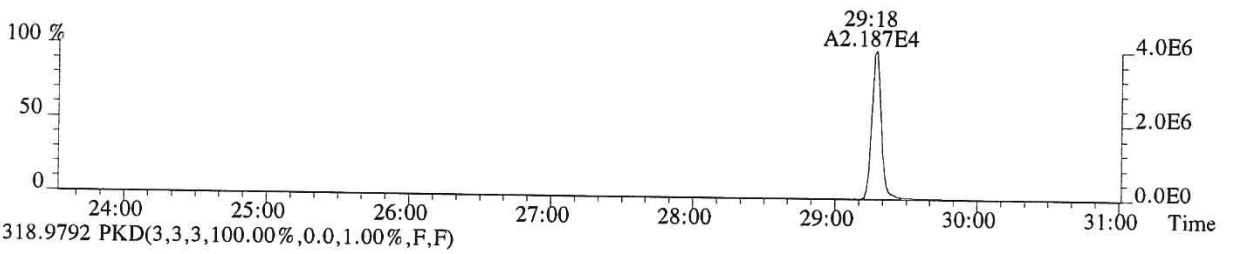
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6476.0,1.00%,F,T)



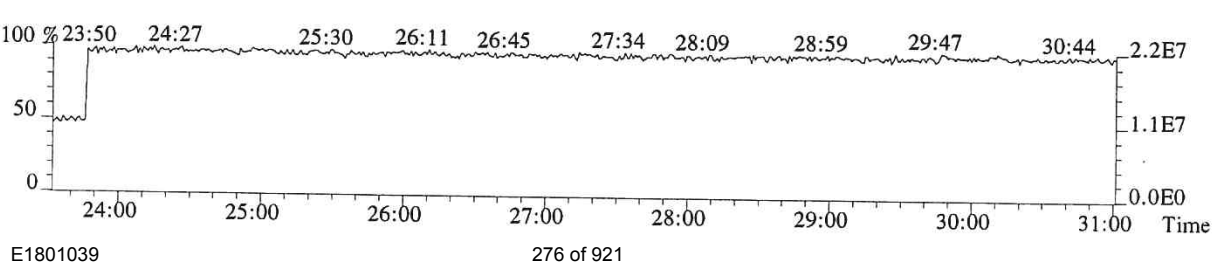
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2716.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)

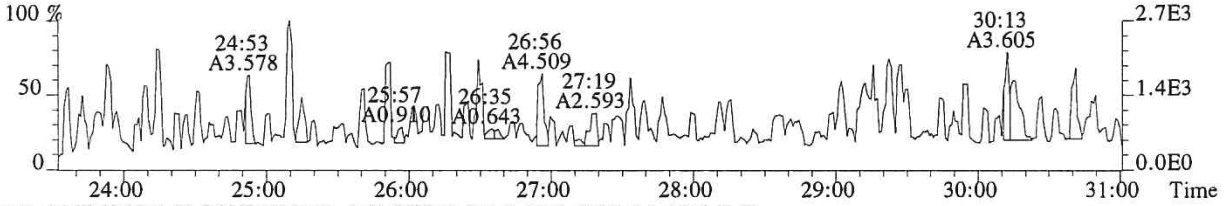


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

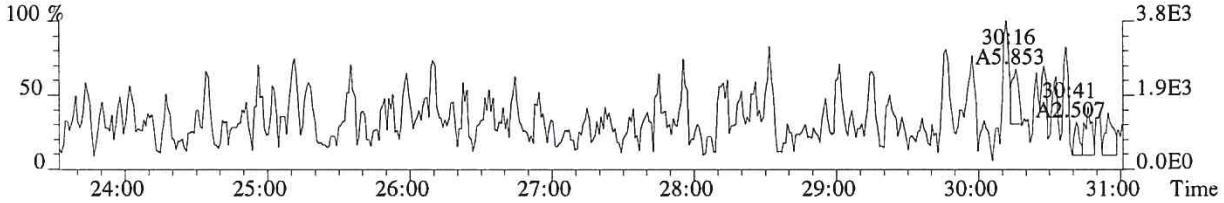


011207

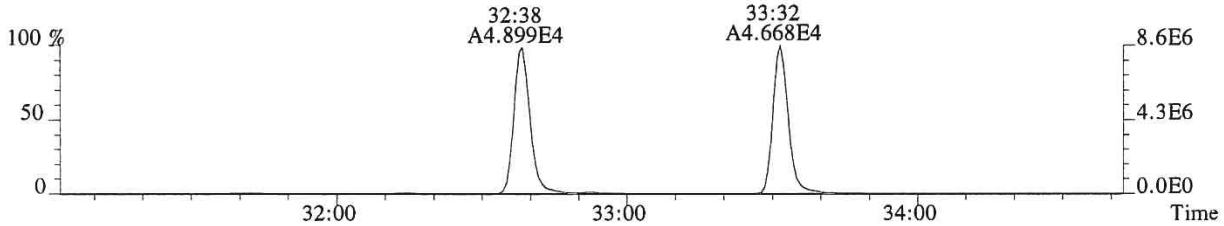
File:P519018 #1-531 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



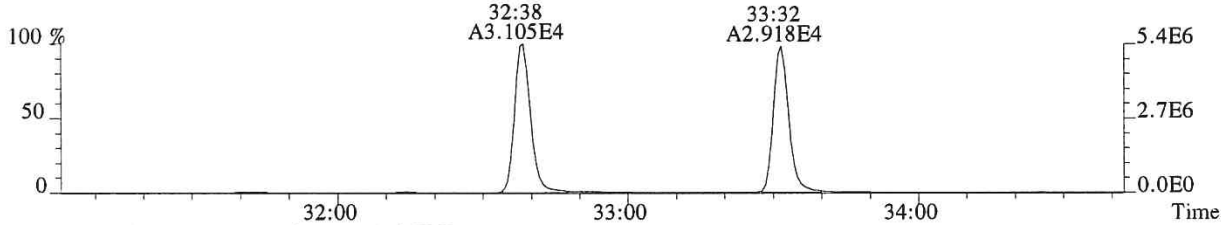
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



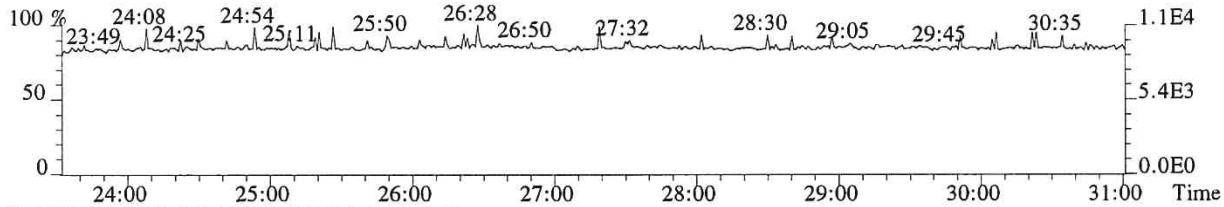
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2156.0,1.00%,F,T)



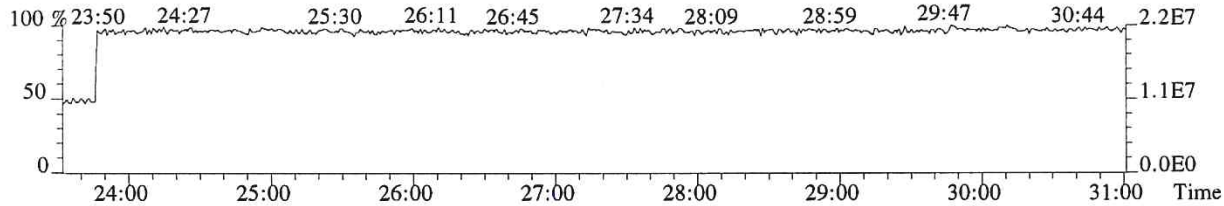
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1440.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

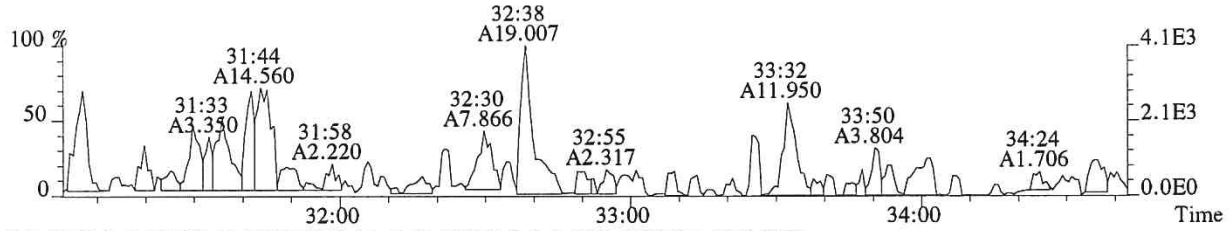


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

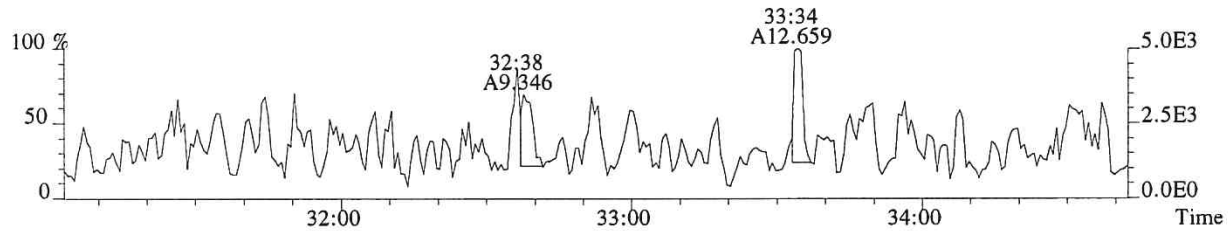


011208

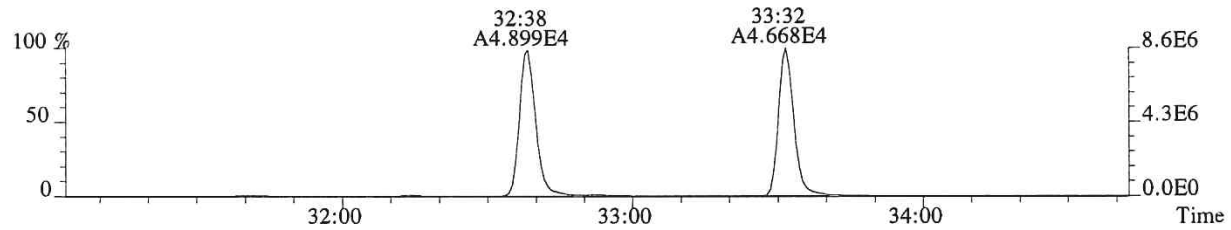
File:P519018 #1-330 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



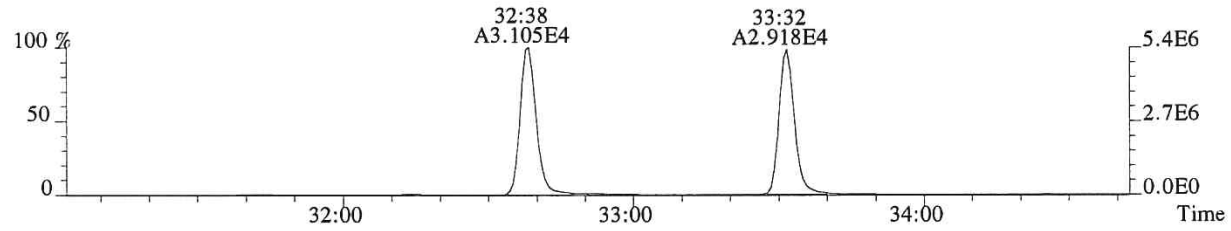
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2020.0,1.00%,F,T)



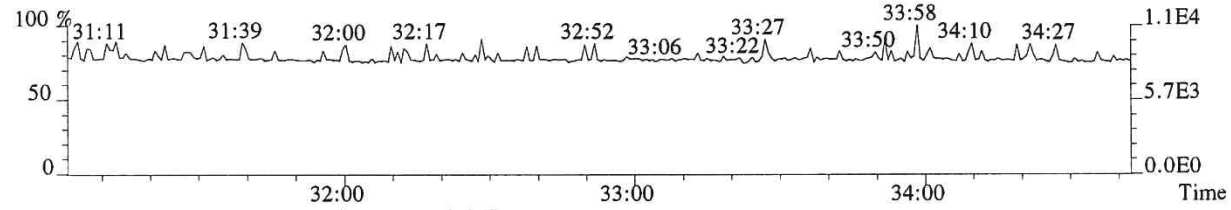
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2156.0,1.00%,F,T)



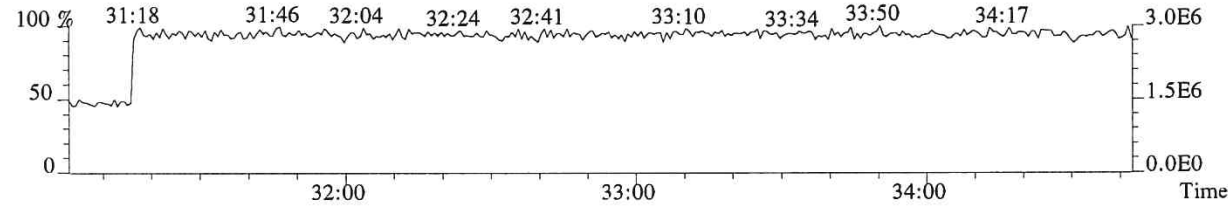
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1440.0,1.00%,F,T)



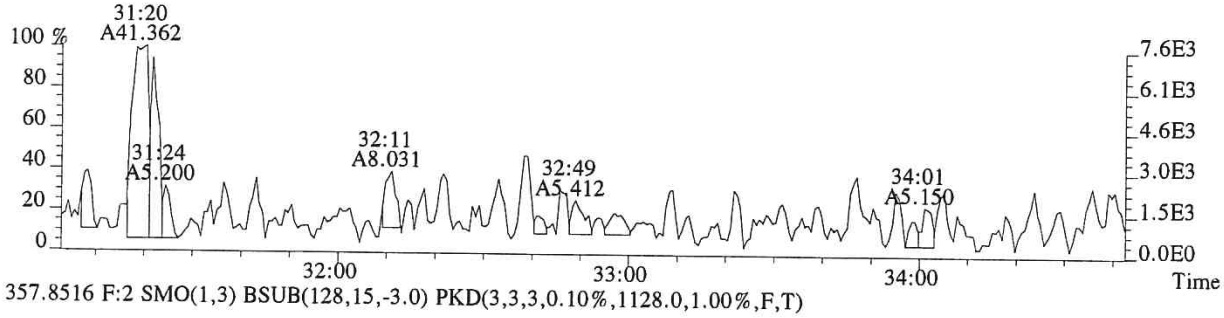
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



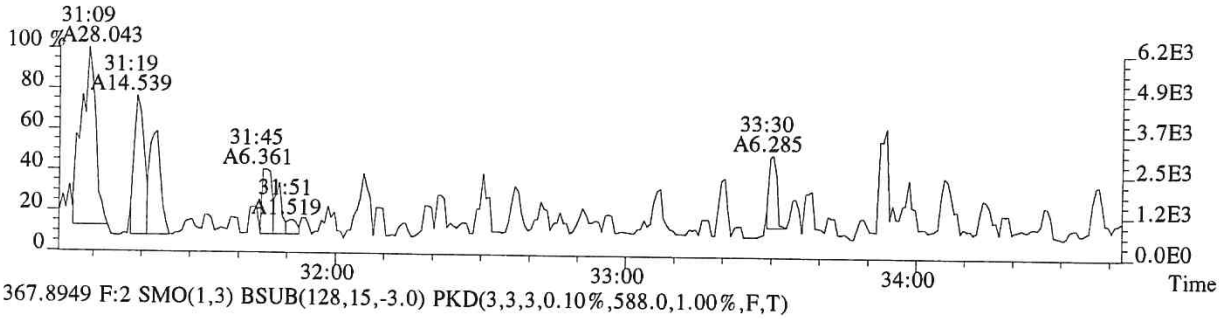
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



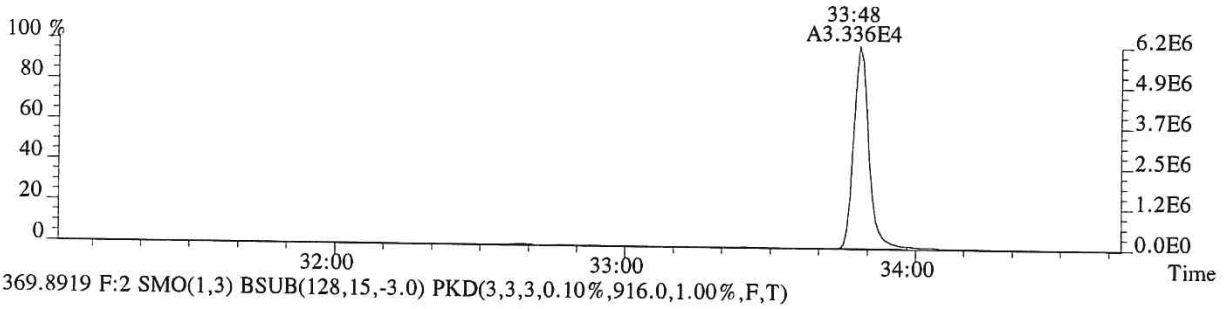
File:P519018 #1-330 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1528.0,1.00%,F,T)



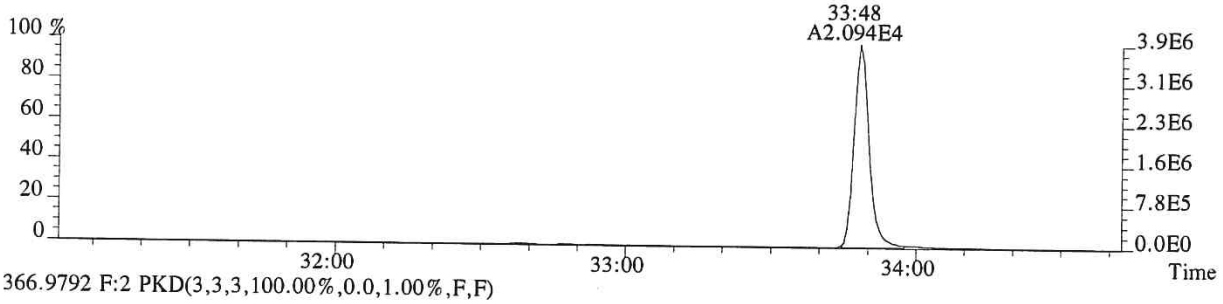
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



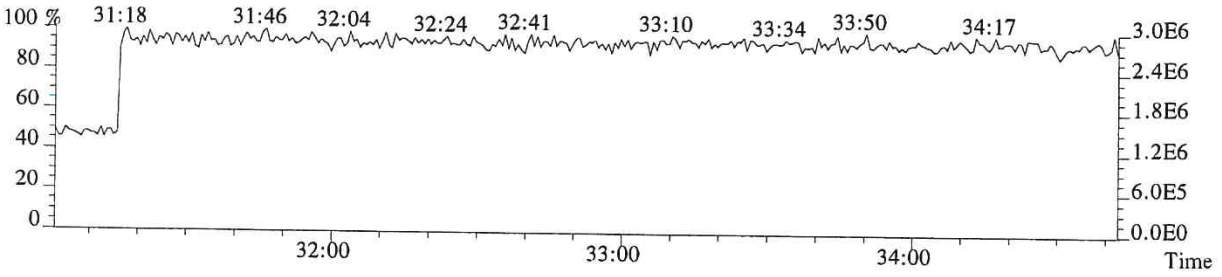
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



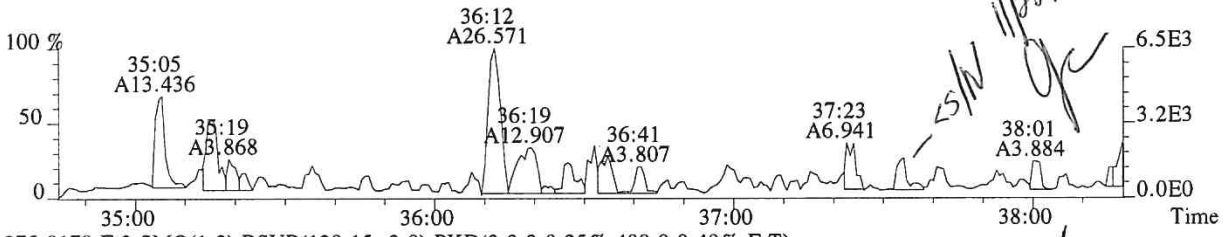
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



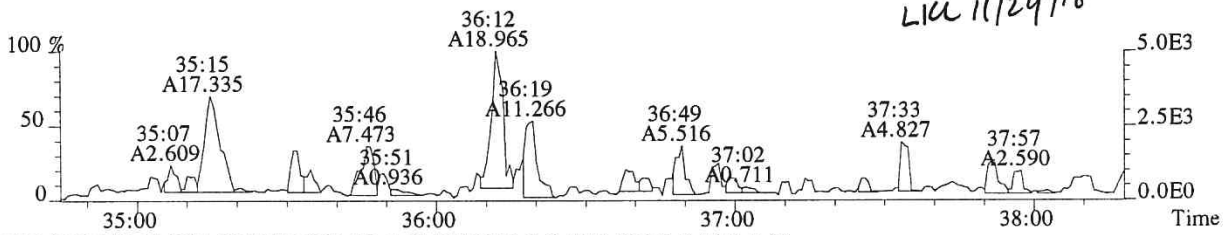
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



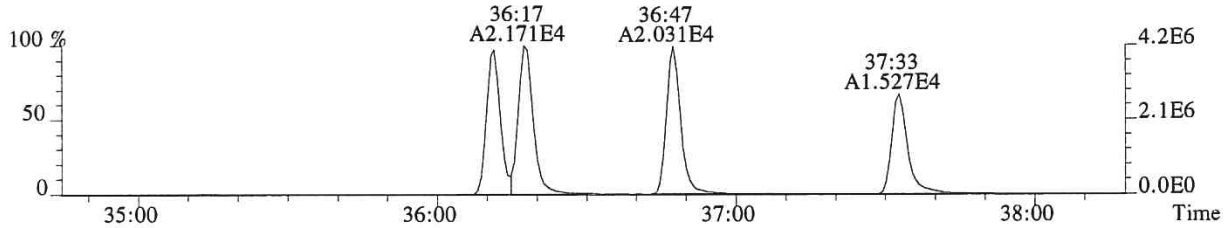
File:P519018 #1-321 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



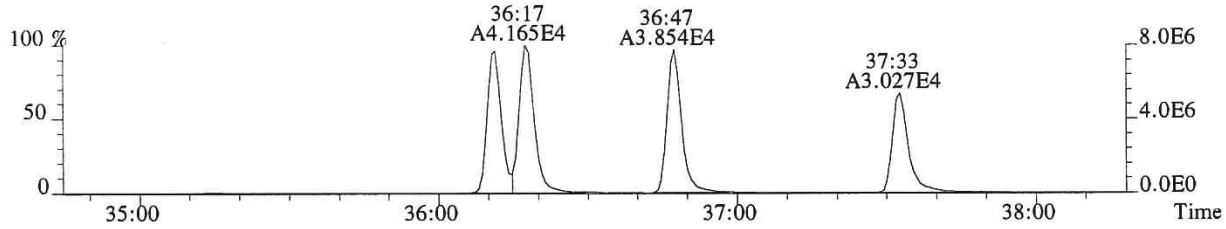
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



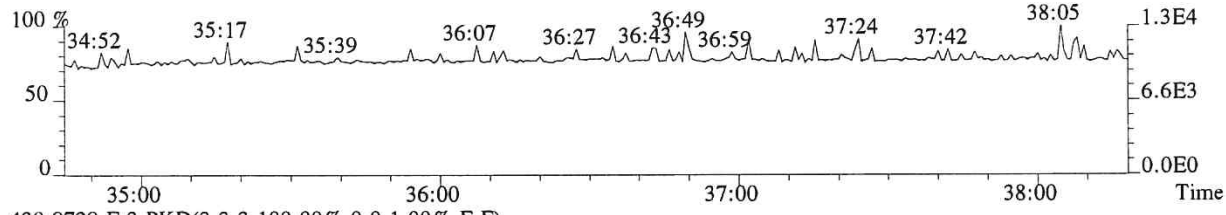
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



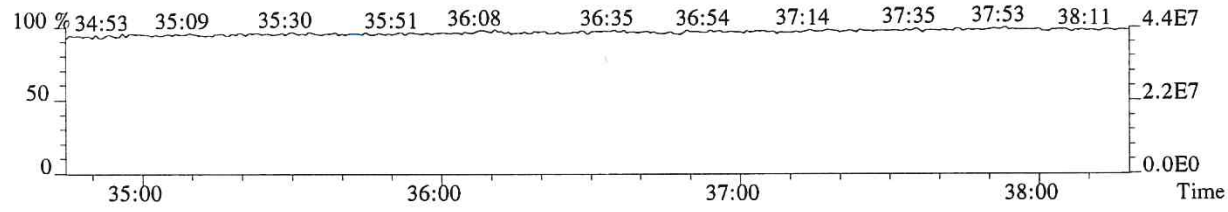
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

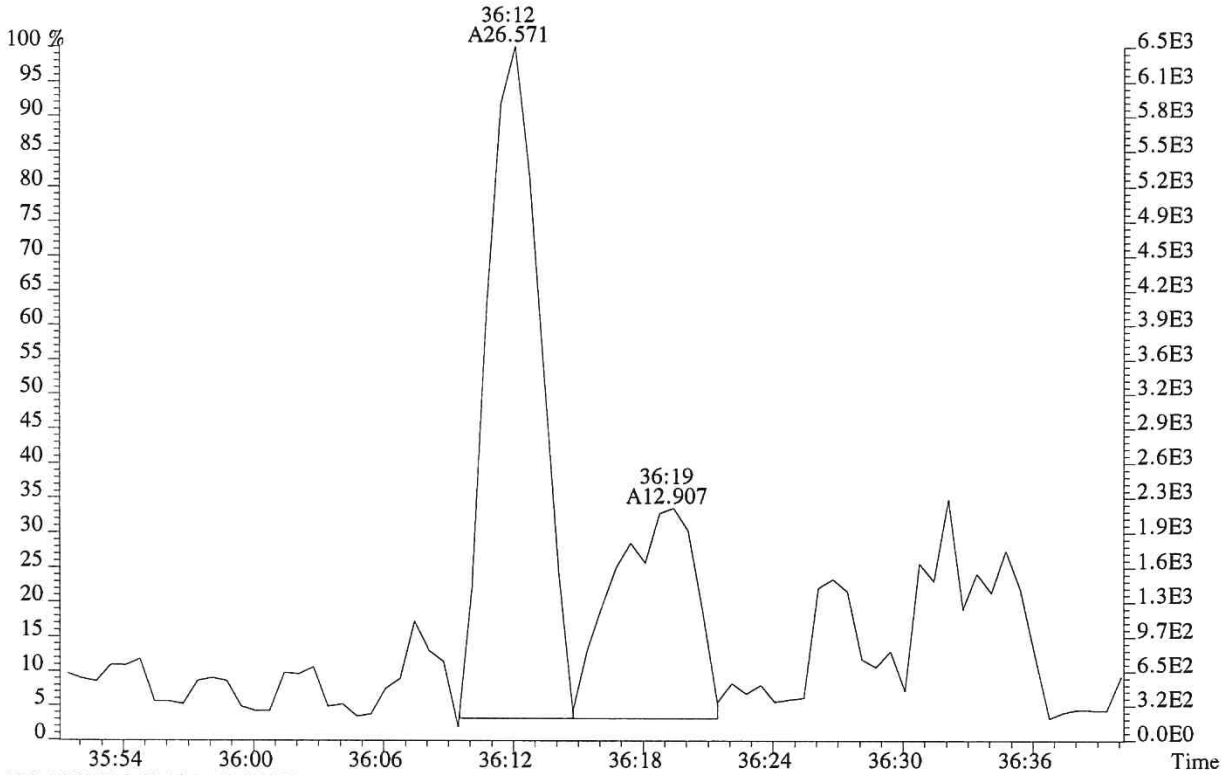


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

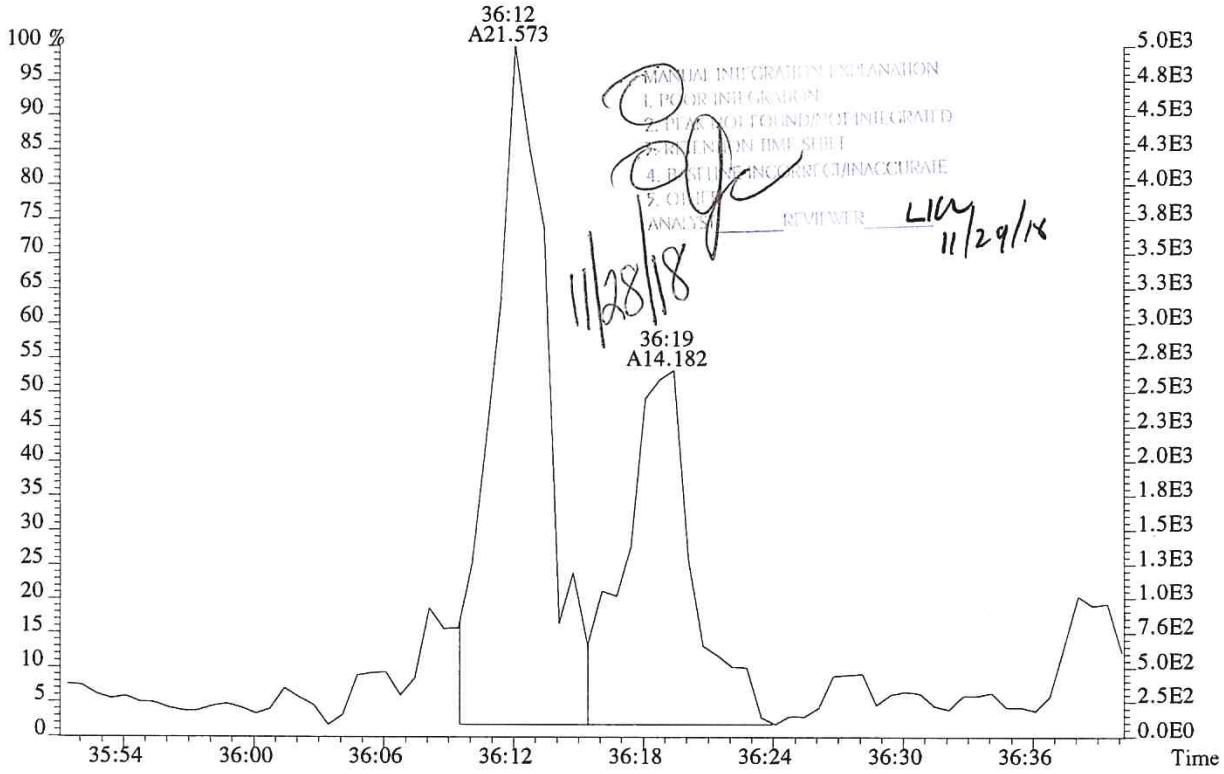


011211

File:P519018 #1-321 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



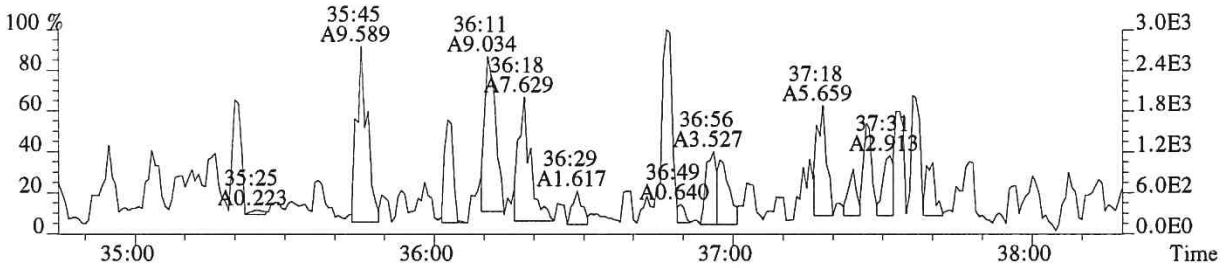
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



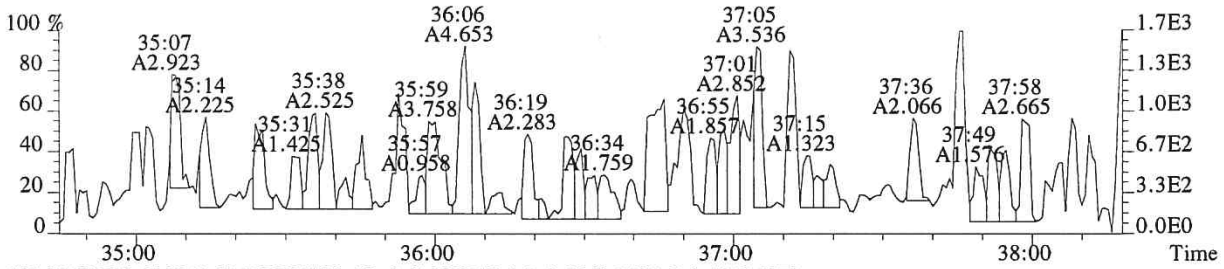
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. PEAK INTEGRATED INCORRECT/INACCURATE
5. OTHER
ANALYST
REVIEWER LIM 11/29/18
11/28/18

011212

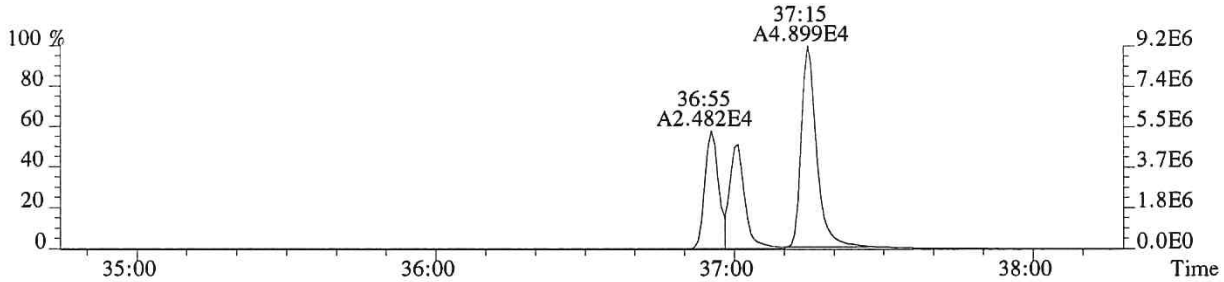
File:P519018 #1-321 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



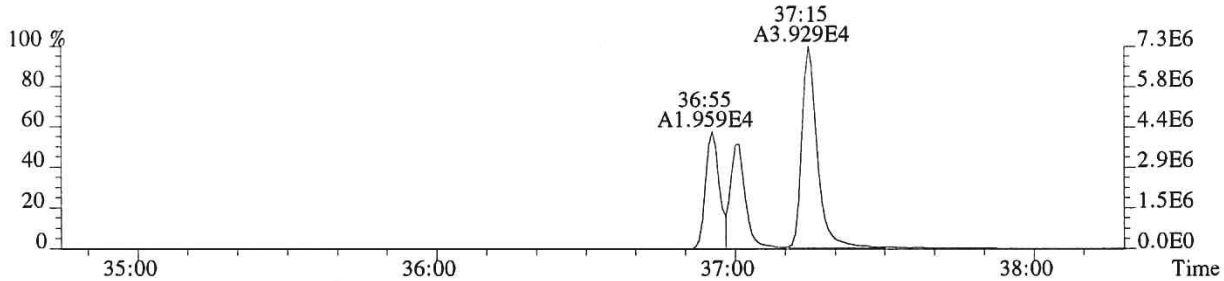
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



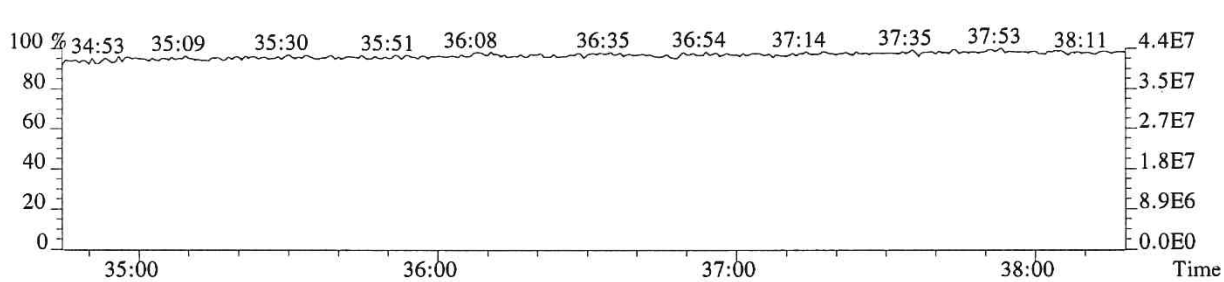
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2952.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)

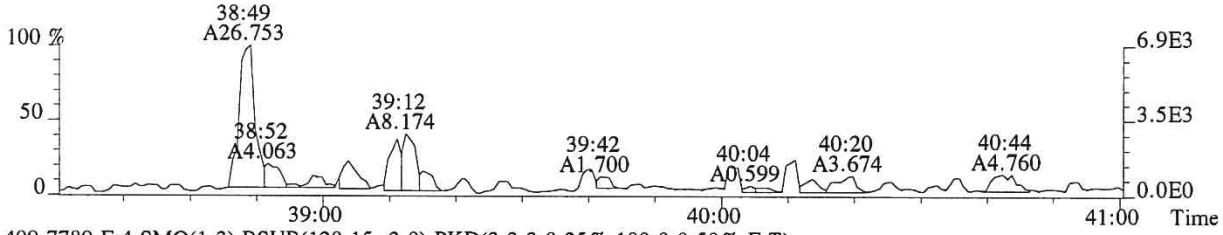


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

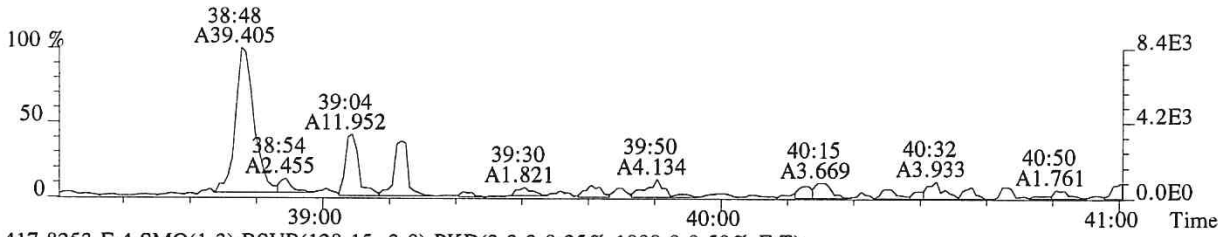


011213

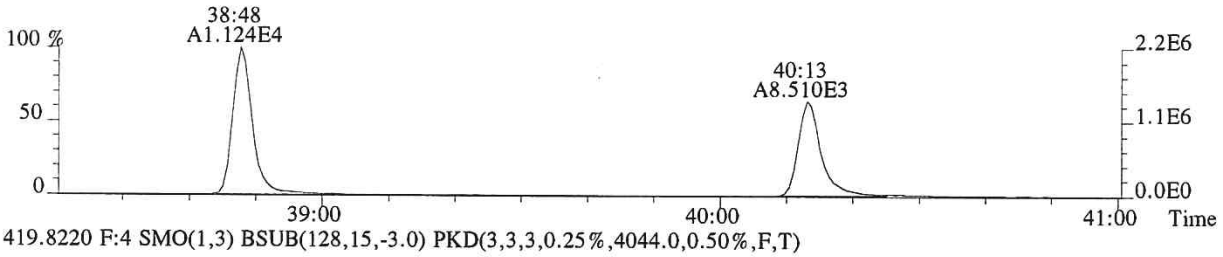
File:P519018 #1-241 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.50%,F,T)



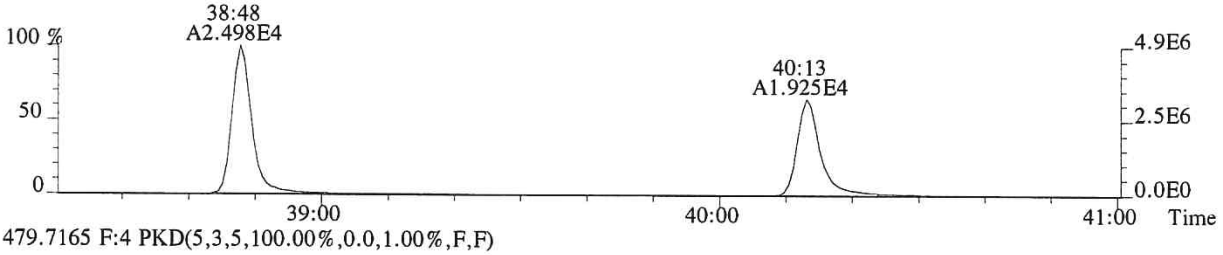
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.50%,F,T)



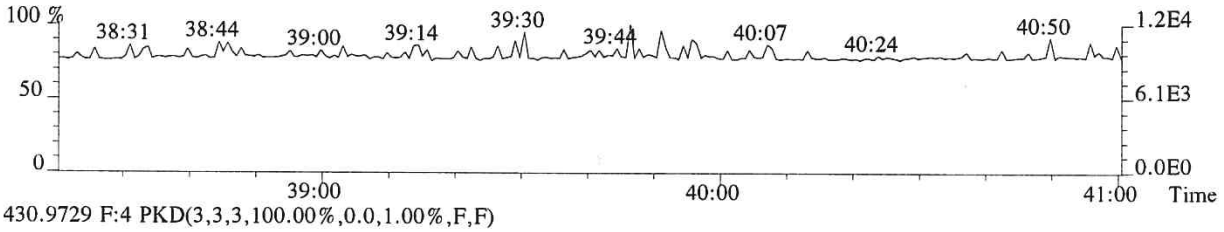
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1808.0,0.50%,F,T)



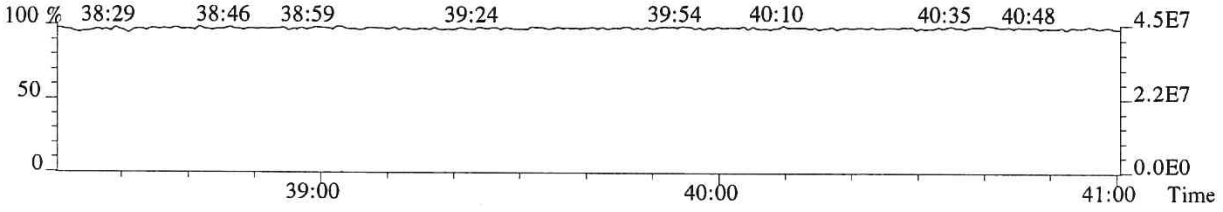
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4044.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



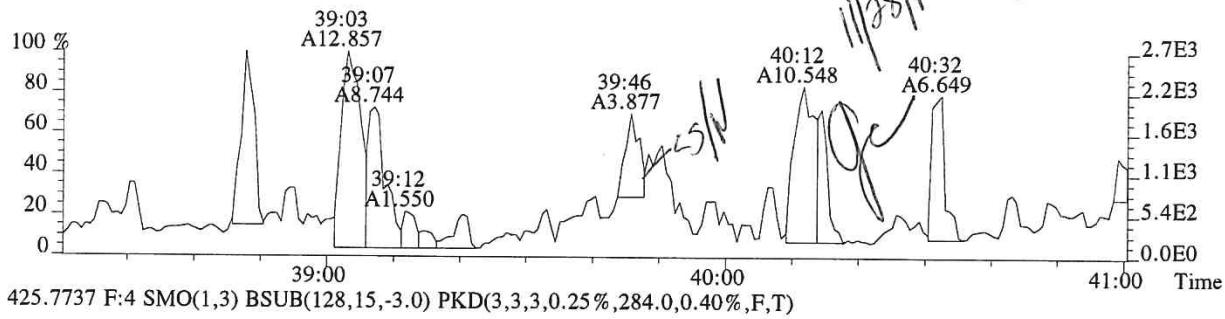
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



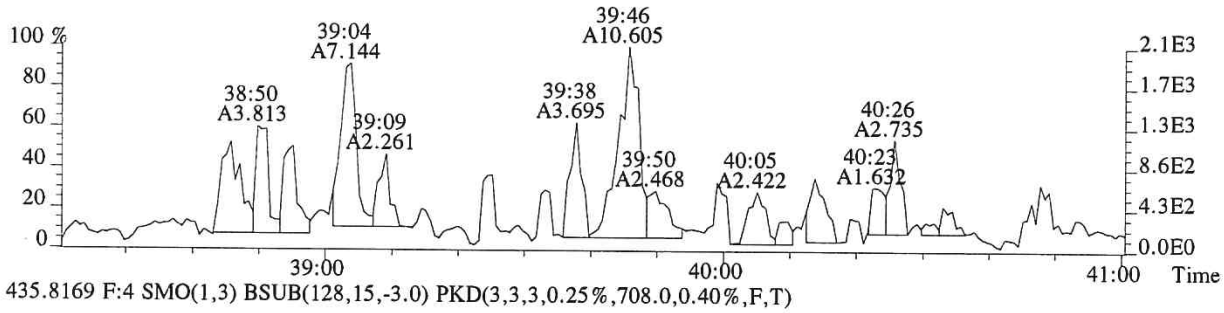
011214

File:P519018 #1-241 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)

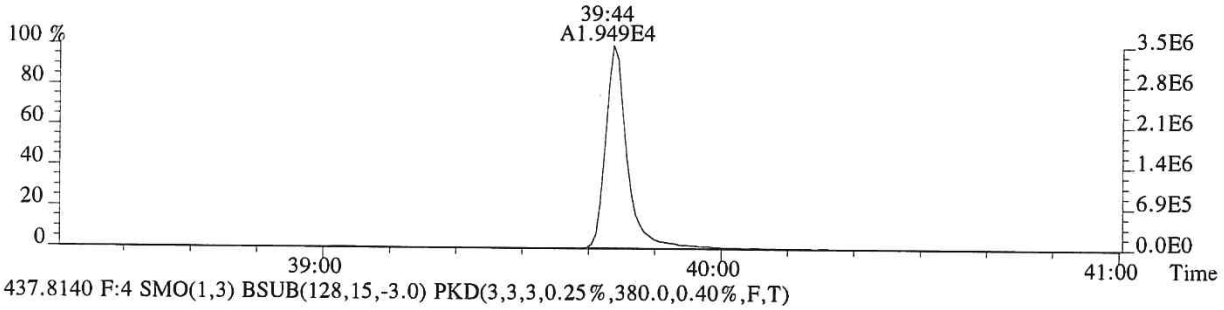
11/28/18 LLK 11/29/18



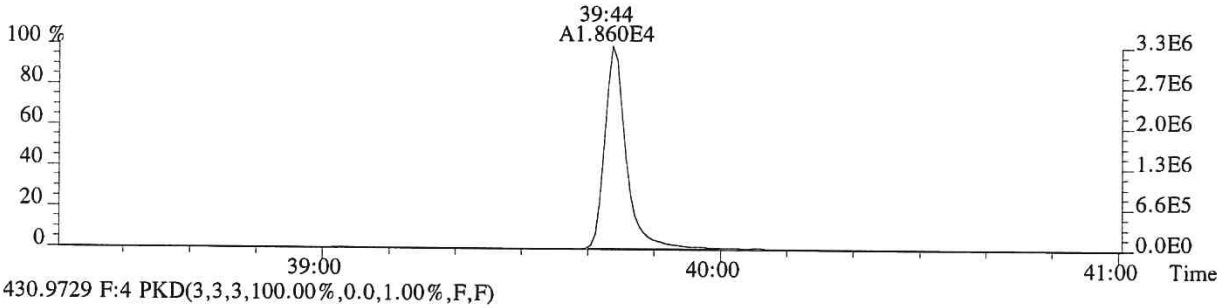
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



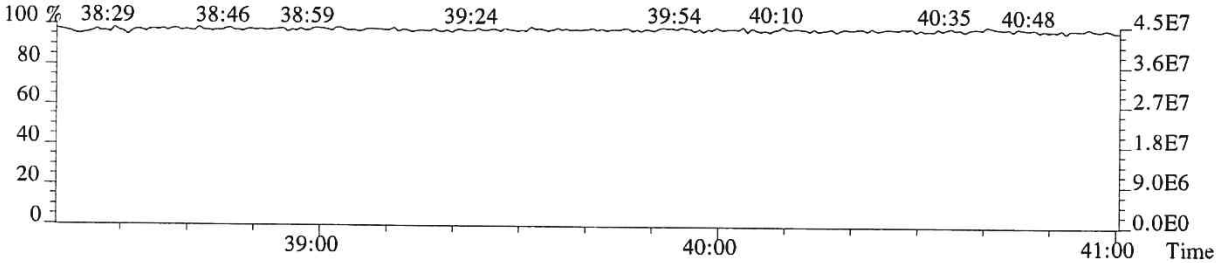
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)

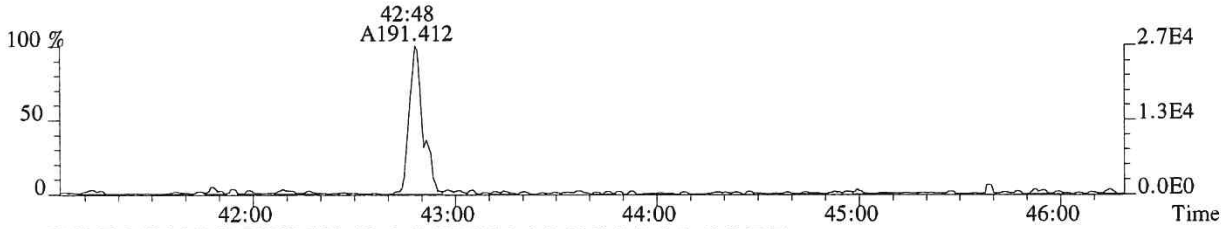


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

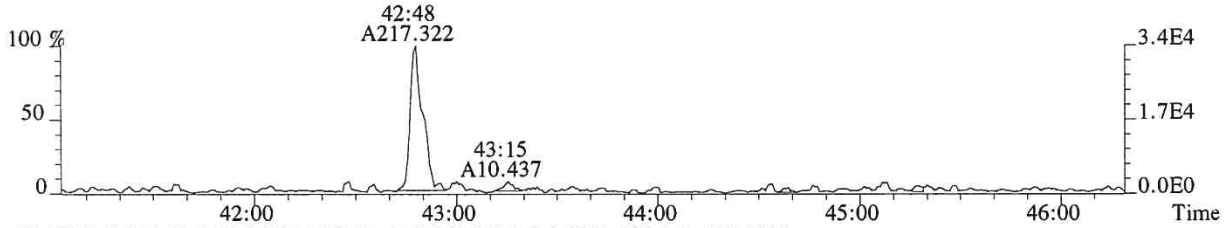


011215

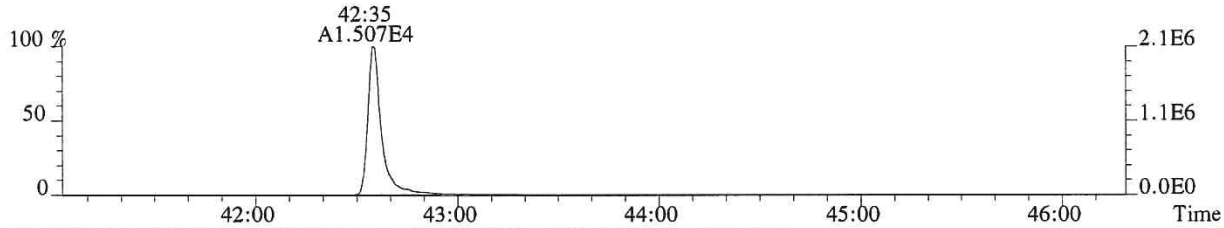
File:P519018 #1-475 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



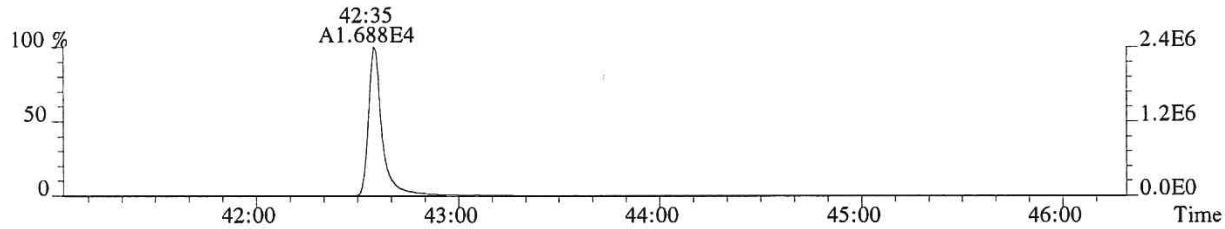
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,844.0,0.40%,F,T)



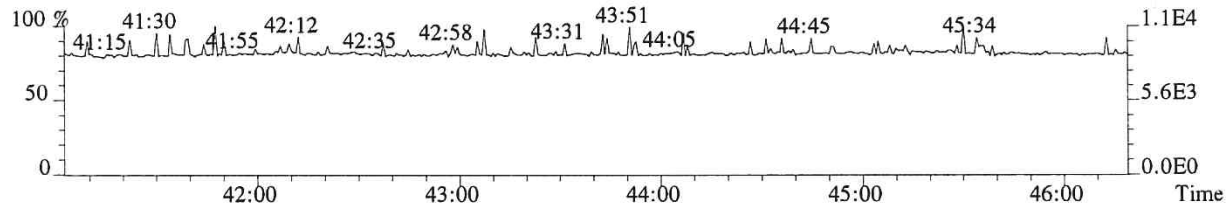
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



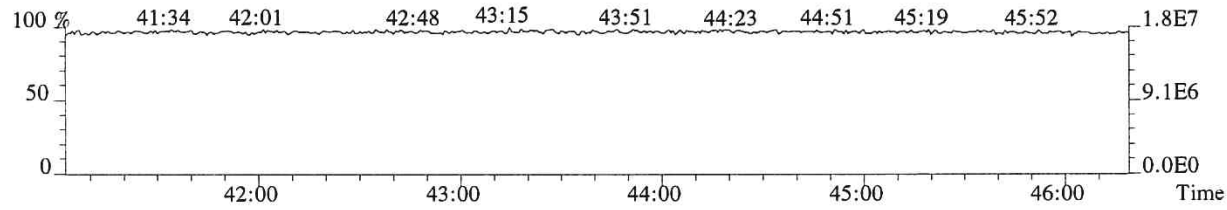
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

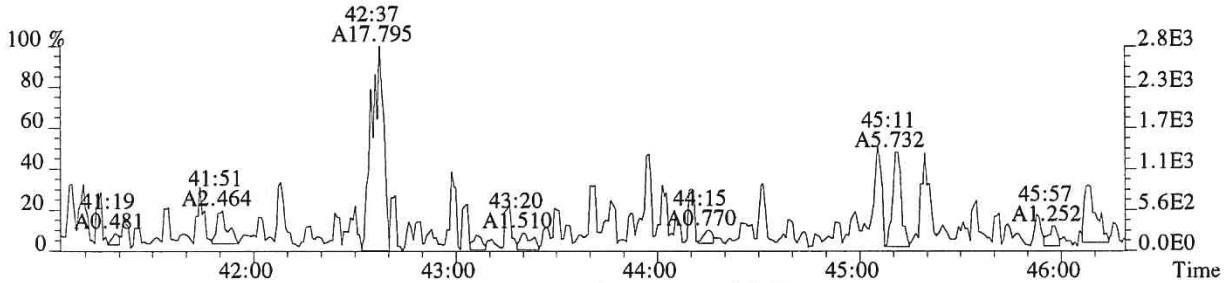


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

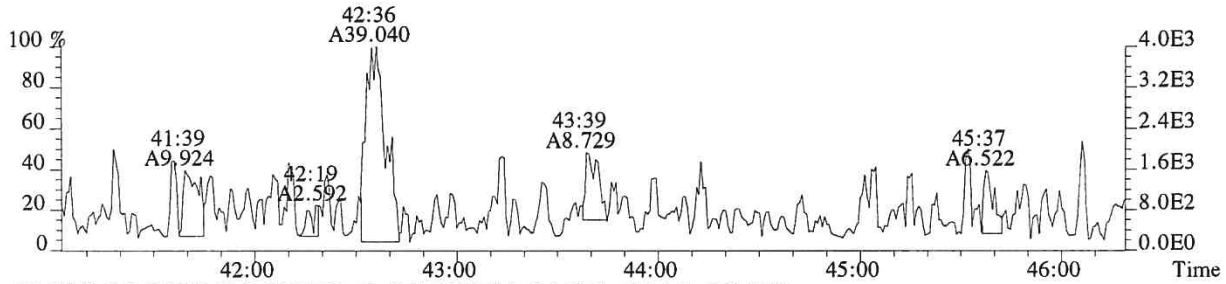


011216

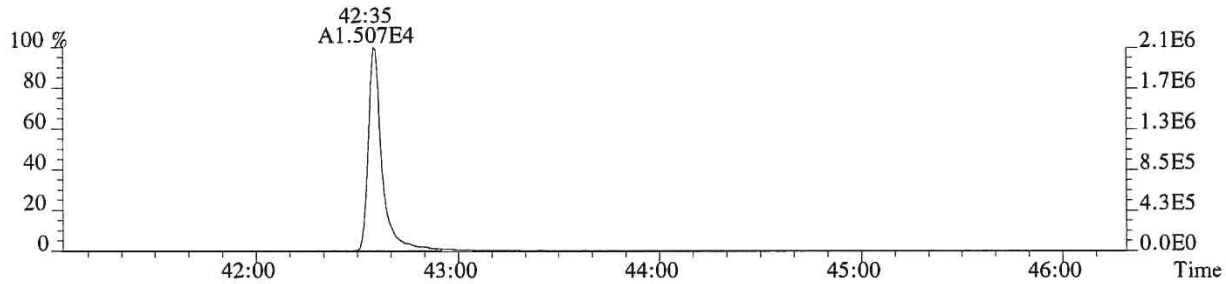
File:P519018 #1-475 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



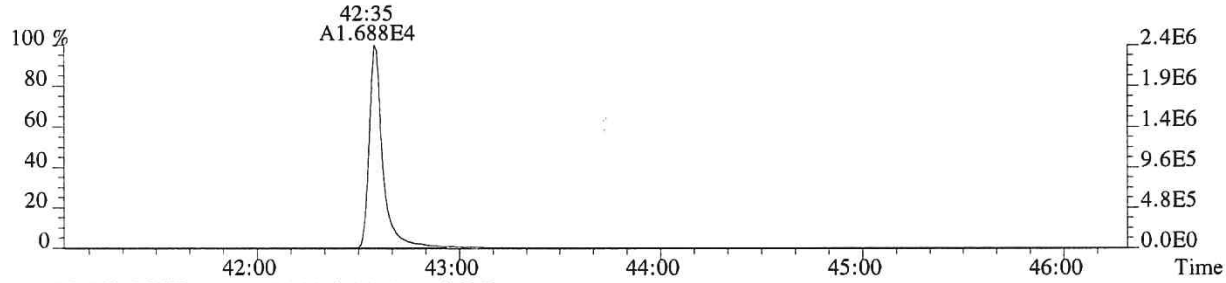
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,752.0,0.40%,F,T)



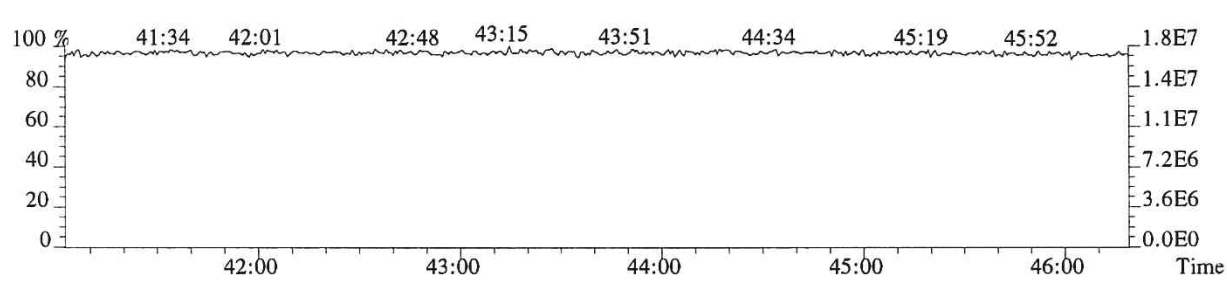
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)

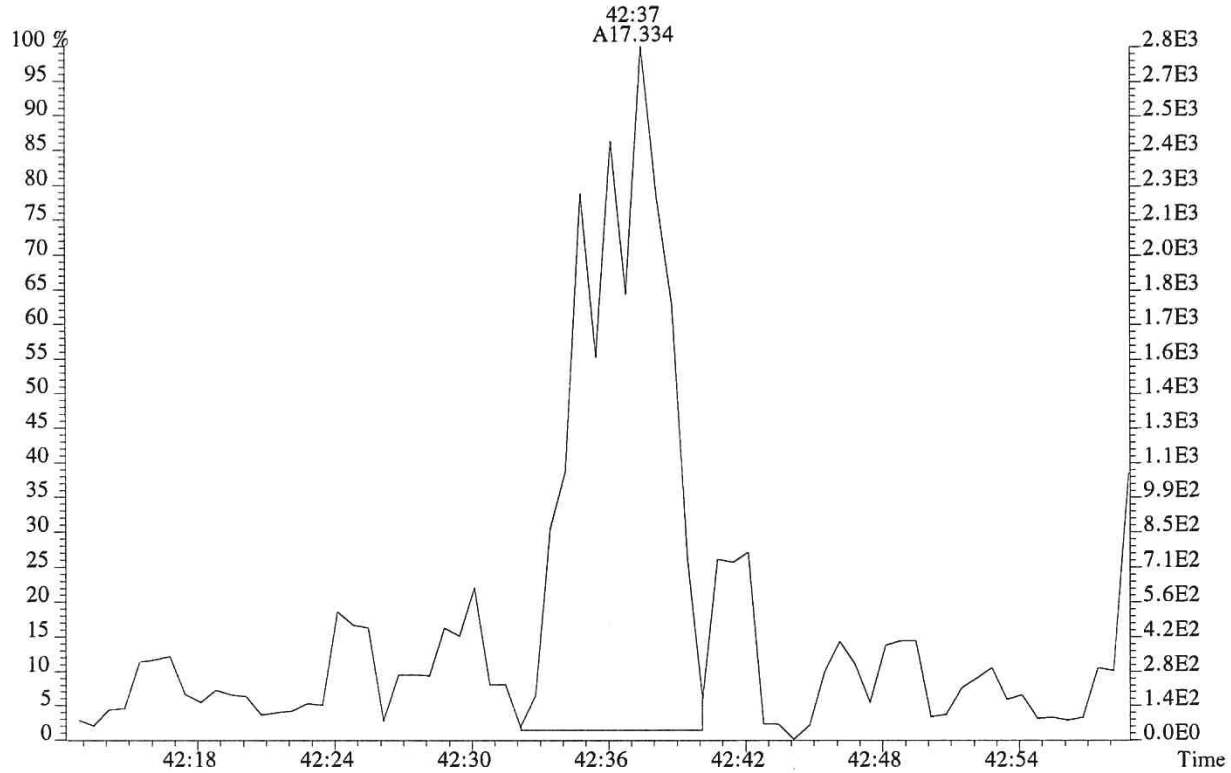


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

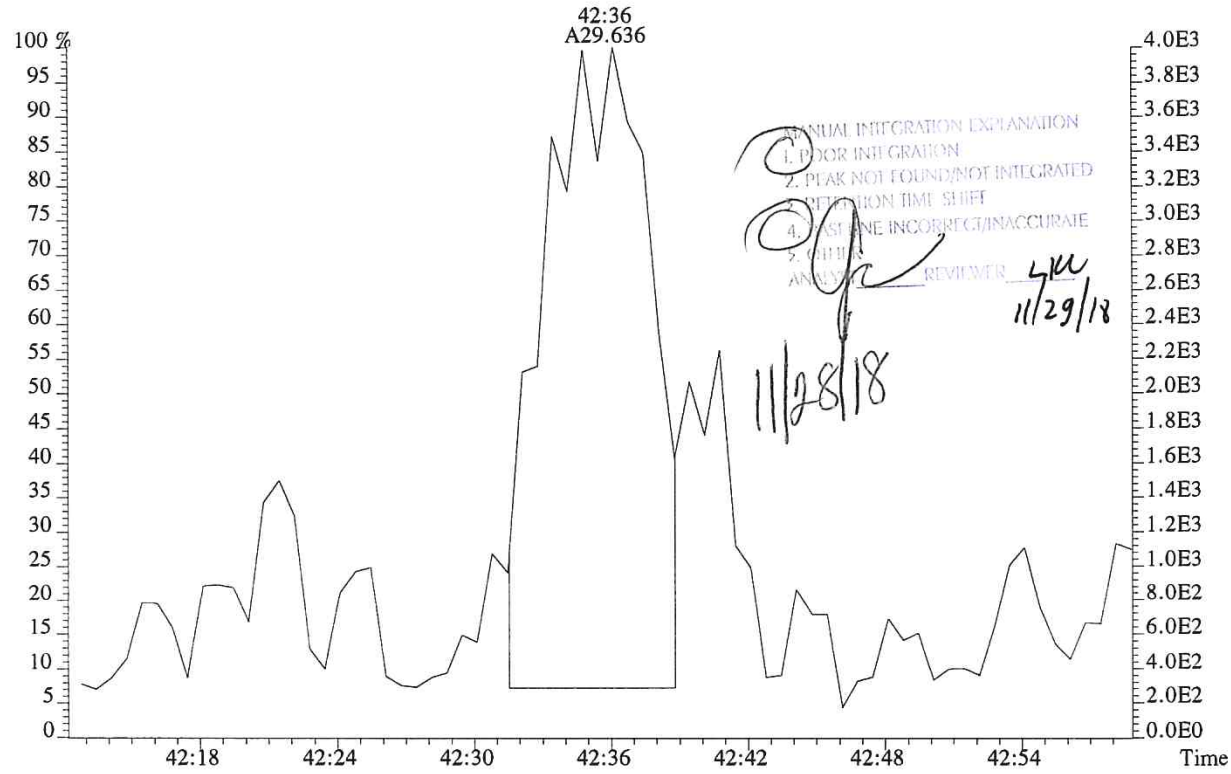


011217

File:P519018 #1-475 Acq:27-NOV-2018 20:26:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-039
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,752.0,0.40%,F,T)



MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER _____

11/28/18
11/29/18

011218

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
FW0006

Run #16 Filename P519019 Samp: 1 Inj: 1 Acquired: 27-NOV-18 21:14:40
Processed: 28-NOV-18 14:44:59 Sample ID: E1801039-040

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:40	2.684e+01	1.470e+01	1.83	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:11	2.466e+01	2.058e+01	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:50	2.888e+01	2.817e+01	1.03	yes	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:15	7.120e+00	1.029e+01	0.69	no	no	1.258
10	Unk	OCDF	42:48	1.759e+02	2.404e+02	0.73	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	yes	1.025
17	Unk	OCDD	42:36	2.582e+01	2.500e+01	1.03	no	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:30	2.192e+04	2.781e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:39	4.177e+04	2.651e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:32	3.829e+04	2.410e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	1.814e+04	3.525e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:19	2.036e+04	3.936e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	1.881e+04	3.590e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:33	1.494e+04	2.889e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.114e+04	2.516e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	8.511e+03	1.950e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:17	1.549e+04	1.942e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:49	2.858e+04	1.813e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	2.263e+04	1.765e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:01	2.367e+04	1.844e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	1.964e+04	1.856e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:35	1.639e+04	1.780e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:44	4.313e+04	5.453e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:15	4.251e+04	3.344e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:18	1.571e+04				no	1.014

$$\text{OCDD} = \frac{(2.582e+01 \rightarrow 2.225e+01 + 2.500e+01) \times 4000\ \text{pg} \times 1}{(1.639e+04 + 1.780e+04) \times 0.5 \times 100 / 100 \times 1.118} = 9.88\ \text{pg}$$

LW 11/29/18

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OCDD = 1.03 ÷ 0.89

A1 = A2 x 0.89 = 2.225e+01

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW0006

Run #16 Filename P519019 Samp: 1 Inj: 1 Acquired: 27-NOV-18 21:14:40
Processed: 28-NOV-18 14:44:59 LAB. ID: E1801039-040

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.00e+02	*	*	1.02e+03	*
2	1,2,3,7,8-PeCDF	5.14e+03	5.12e+02	1.0e+01	3.69e+03	1.11e+03	3.3e+00
3	2,3,4,7,8-PeCDF	*	5.12e+02	*	*	1.11e+03	*
4	1,2,3,4,7,8-HxCDF	3.95e+03	7.64e+02	5.2e+00	4.17e+03	6.12e+02	6.8e+00
5	1,2,3,6,7,8-HxCDF	*	7.64e+02	*	*	6.12e+02	*
6	2,3,4,6,7,8-HxCDF	*	7.64e+02	*	*	6.12e+02	*
7	1,2,3,7,8,9-HxCDF	*	7.64e+02	*	*	6.12e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.61e+03	2.12e+02	2.6e+01	5.68e+03	2.48e+02	2.3e+01
9	1,2,3,4,7,8,9-HpCDF	1.65e+03	2.12e+02	7.8e+00	2.56e+03	2.48e+02	1.0e+01
10	OCDF	2.91e+04	2.32e+02	1.3e+02	3.70e+04	5.16e+02	7.2e+01
11	2,3,7,8-TCDD	*	1.68e+03	*	*	1.14e+03	*
12	1,2,3,7,8-PeCDD	*	3.60e+02	*	*	2.56e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.72e+02	*	*	7.16e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.72e+02	*	*	7.16e+02	*
15	1,2,3,7,8,9-HxCDD	*	3.72e+02	*	*	7.16e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	2.04e+02	*	*	4.44e+02	*
17	OCDD	4.94e+03	2.24e+02	2.2e+01	3.83e+03	3.88e+02	9.9e+00
18	13C-2,3,7,8-TCDF	3.62e+06	5.79e+03	6.3e+02	4.61e+06	2.82e+03	1.6e+03
19	13C-1,2,3,7,8-PeCDF	7.06e+06	4.12e+02	1.7e+04	4.39e+06	4.88e+02	9.0e+03
20	13C-2,3,4,7,8-PeCDF	6.87e+06	4.12e+02	1.7e+04	4.32e+06	4.88e+02	8.9e+03
21	13C-1,2,3,4,7,8-HxCDF	3.69e+06	9.04e+02	4.1e+03	7.09e+06	1.06e+03	6.7e+03
22	13C-1,2,3,6,7,8-HxCDF	3.74e+06	9.04e+02	4.1e+03	7.27e+06	1.06e+03	6.9e+03
23	13C-2,3,4,6,7,8-HxCDF	3.72e+06	9.04e+02	4.1e+03	7.14e+06	1.06e+03	6.7e+03
24	13C-1,2,3,7,8,9-HxCDF	2.52e+06	9.04e+02	2.8e+03	4.86e+06	1.06e+03	4.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.12e+06	2.24e+03	9.5e+02	4.75e+06	2.31e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.32e+06	2.24e+03	5.9e+02	3.05e+06	2.31e+03	1.3e+03
27	13C-2,3,7,8-TCDD	2.79e+06	7.11e+03	3.9e+02	3.46e+06	3.21e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	5.08e+06	3.88e+02	1.3e+04	3.25e+06	7.12e+02	4.6e+03
29	13C-1,2,3,4,7,8-HxCDD	4.81e+06	2.38e+03	2.0e+03	3.73e+06	1.22e+03	3.1e+03
30	13C-1,2,3,6,7,8-HxCDD	4.38e+06	2.38e+03	1.8e+03	3.45e+06	1.22e+03	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.36e+06	3.12e+02	1.1e+04	3.14e+06	1.84e+02	1.7e+04
32	13C-OCDD	2.21e+06	2.36e+02	9.4e+03	2.45e+06	1.60e+02	1.5e+04
33	13C-1,2,3,4-TCDD	7.79e+06	7.11e+03	1.1e+03	9.86e+06	3.21e+03	3.1e+03
34	13C-1,2,3,7,8,9-HxCDD	7.92e+06	2.38e+03	3.3e+03	6.25e+06	1.22e+03	5.1e+03
35	37Cl-2,3,7,8-TCDD	2.72e+06	1.44e+03	1.9e+03			

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Peak List Summary

CLIENT ID.
FW0006

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P519019 Sample:1 Injection:1 Function:3

Acquired: 27-NOV-18 21:14:40 Processed: 28-NOV-18 14:44:59

Mass: 373.8210 375.8180 Tot Response: 4.52e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:11	2.47e+01	2.06e+01 1.20	yes	4.52e+01	1,2,3,4,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
FW0006

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P519019 Sample:1 Injection:1 Function:4

Acquired: 27-NOV-18 21:14:40 Processed: 28-NOV-18 14:44:59

Mass: 407.7820 409.7790 Tot Response: 5.71e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:50	2.89e+01	2.82e+01 1.03	yes	5.71e+01	1,2,3,4,6,7,8-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0006

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519019 Sample:1 Injection:1 Function:4

Acquired: 27-NOV-18 21:14:40 Processed: 28-NOV-18 14:44:59

Mass: 423.7770 425.7740 Tot Response: 2.50e+01 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:04	1.30e+01	1.19e+01 1.09	yes	2.50e+01		n	n

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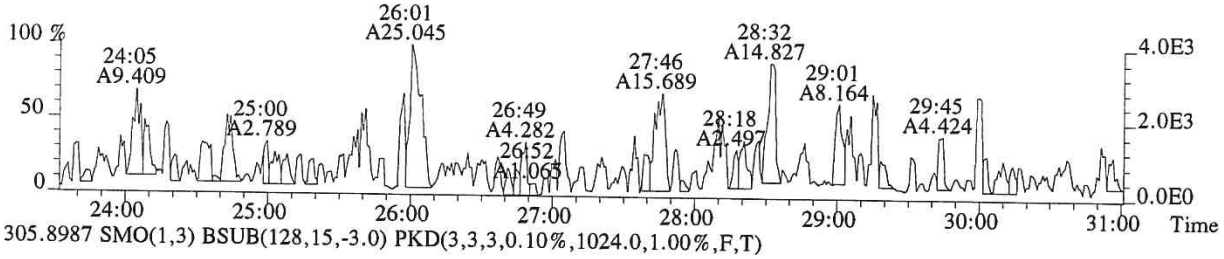
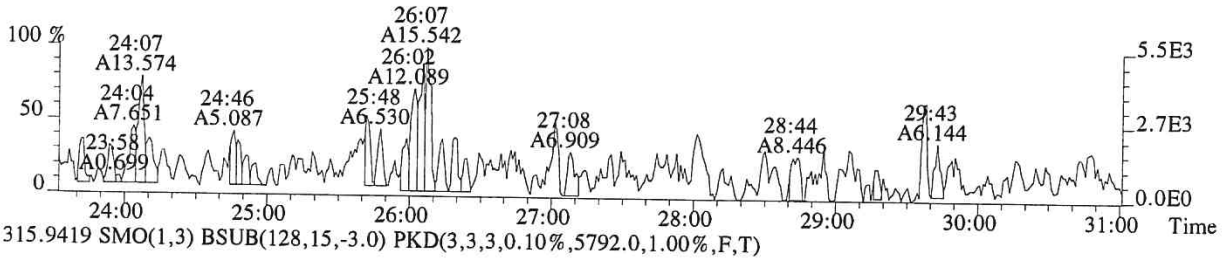
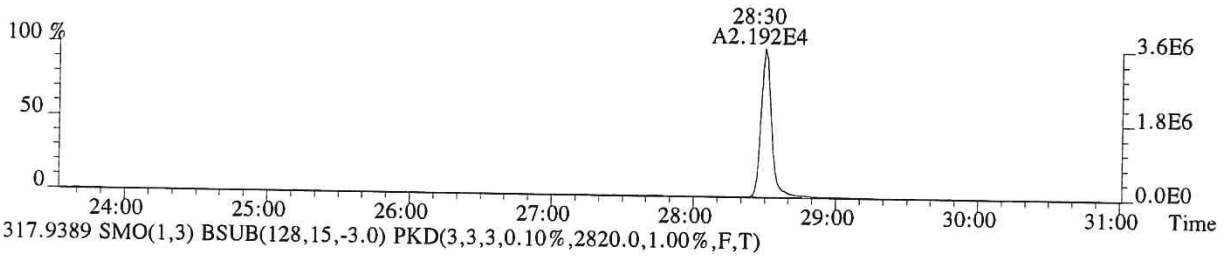
File:P519019 #1-531 Acq:27-NOV-2018 21:14:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-040
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



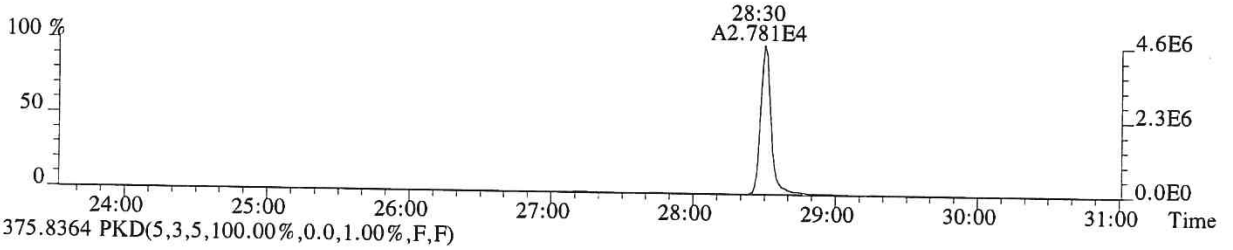
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



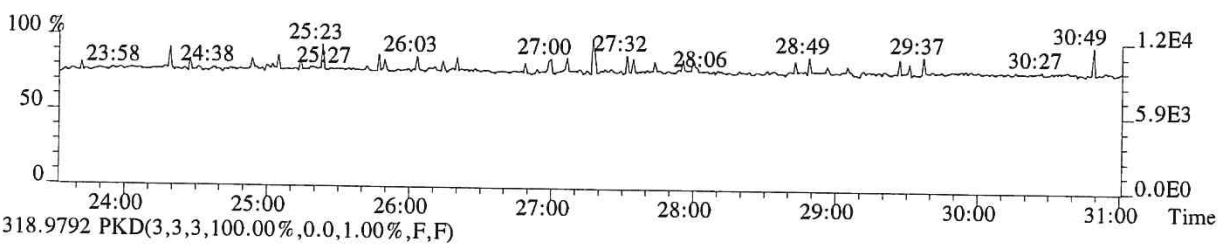
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5792.0,1.00%,F,T)



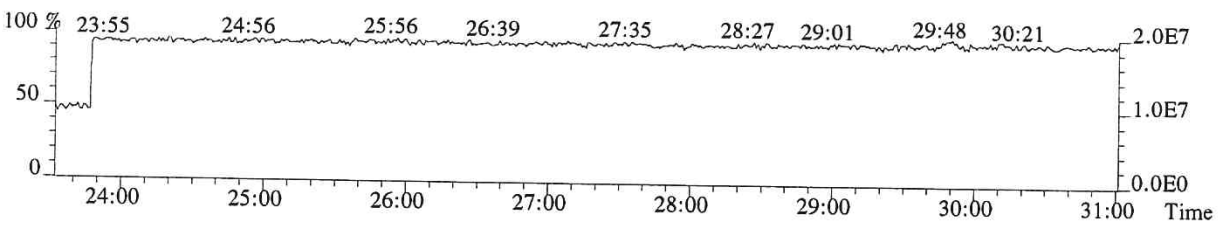
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

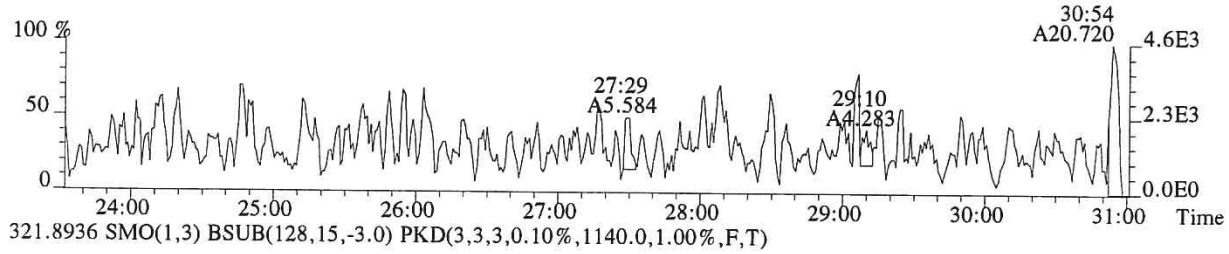


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

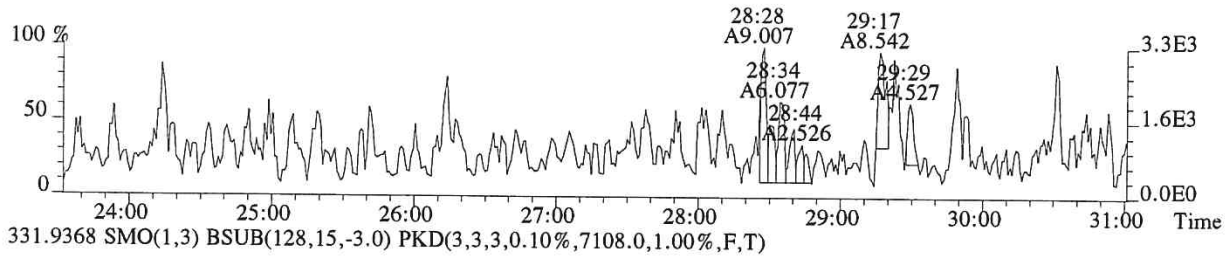


011224

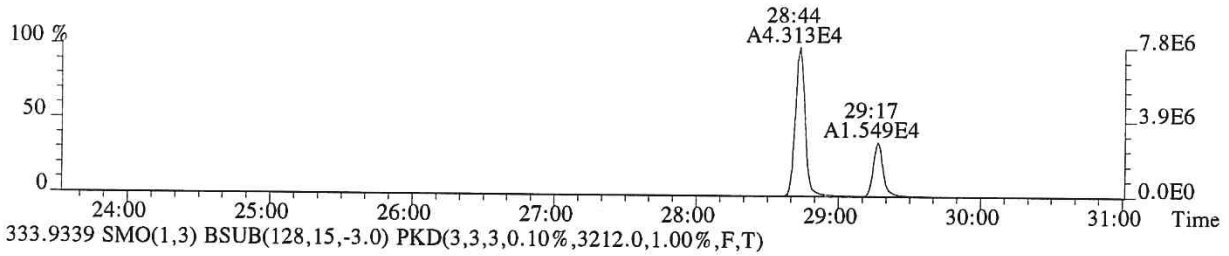
File:P519019 #1-531 Acq:27-NOV-2018 21:14:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-040
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



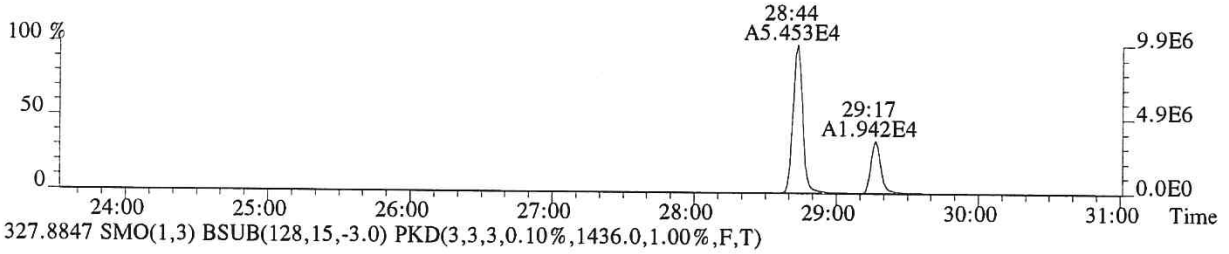
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



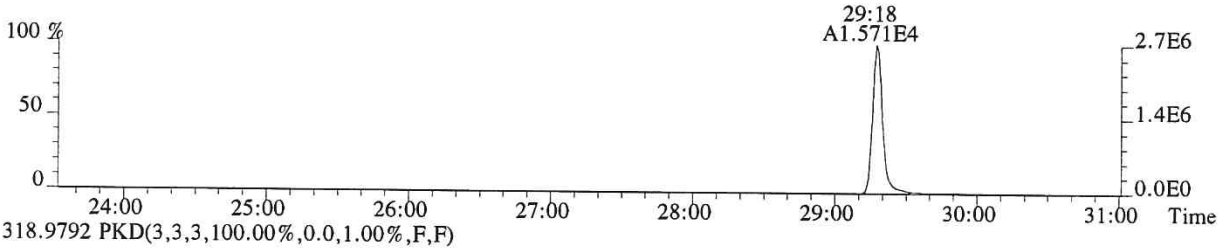
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7108.0,1.00%,F,T)



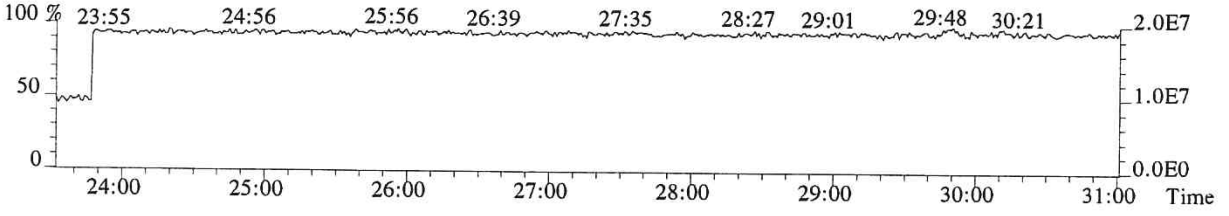
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3212.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)

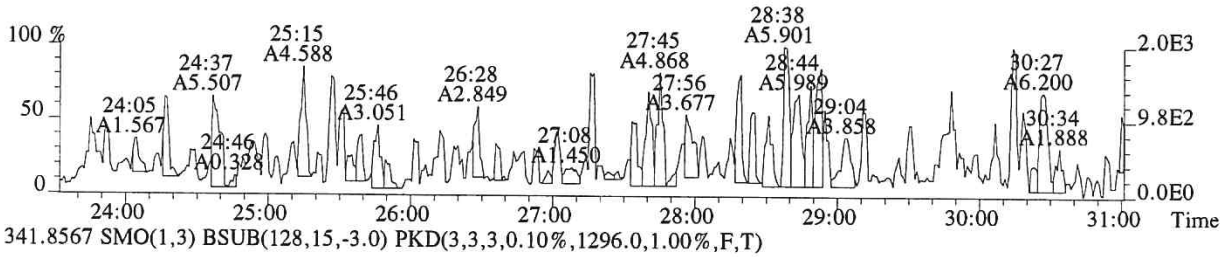


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

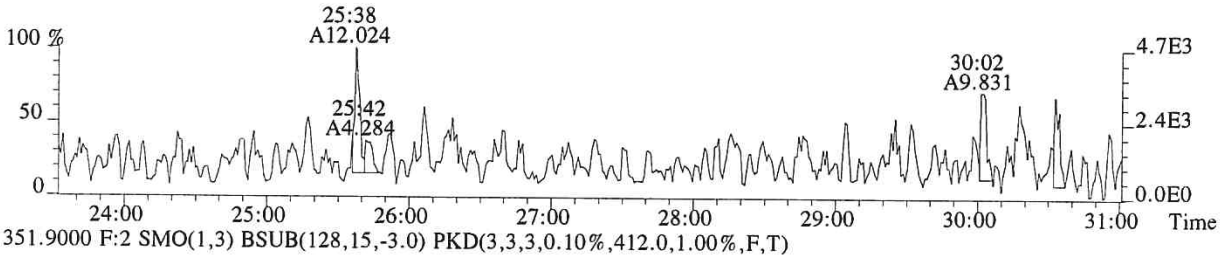


011225

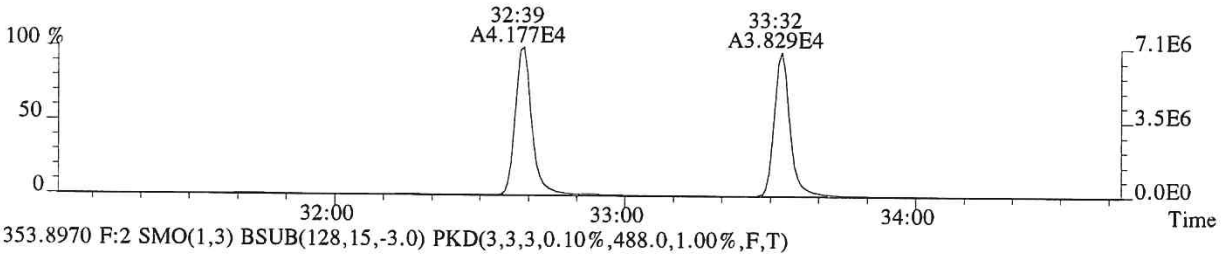
File:P519019 #1-531 Acq:27-NOV-2018 21:14:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-040
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



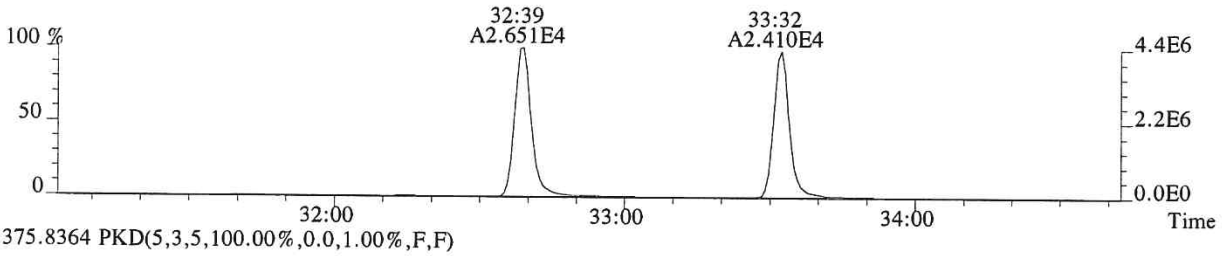
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



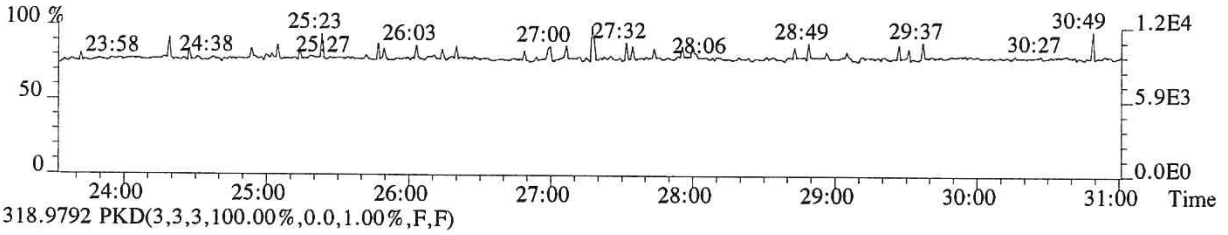
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



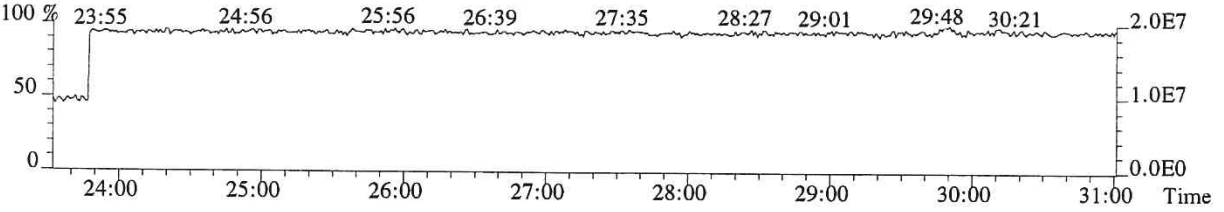
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

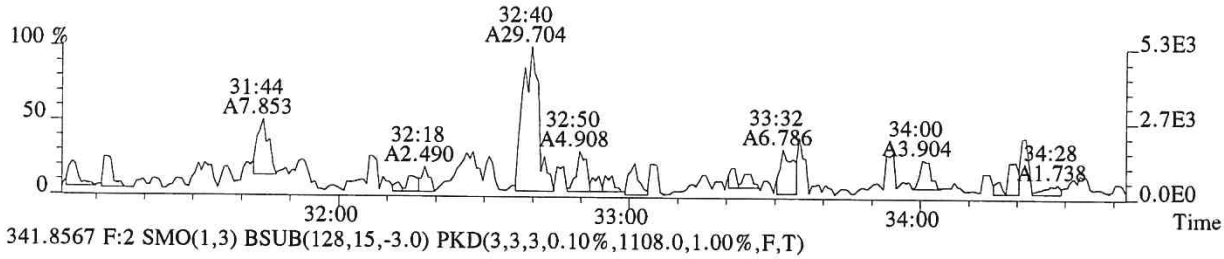


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

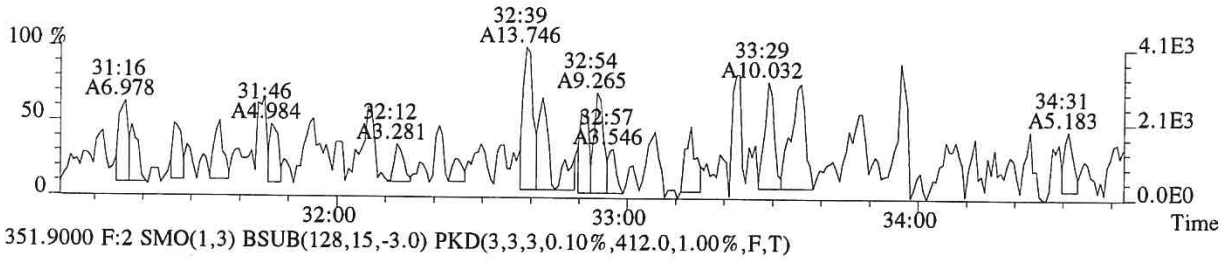


011226

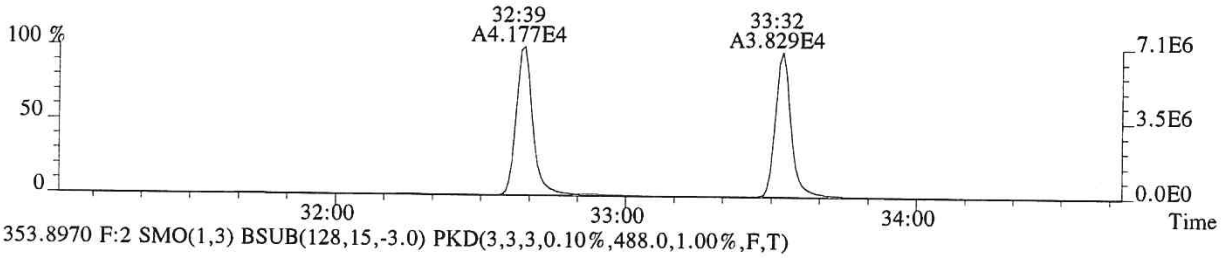
File:P519019 #1-330 Acq:27-NOV-2018 21:14:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-040
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



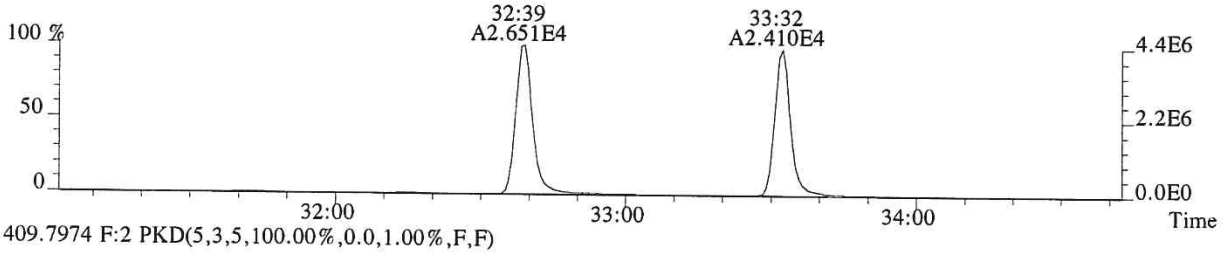
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



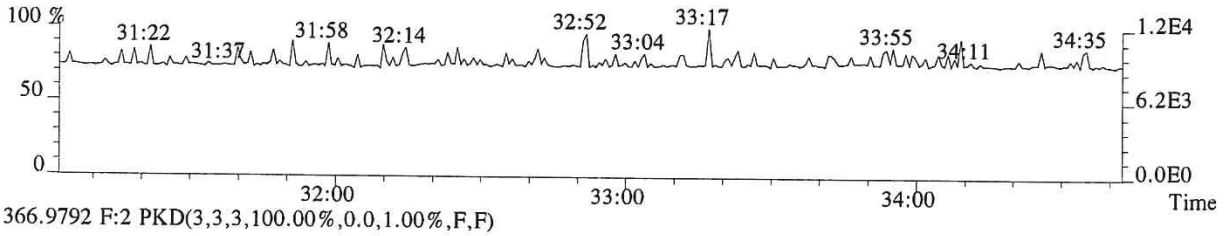
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



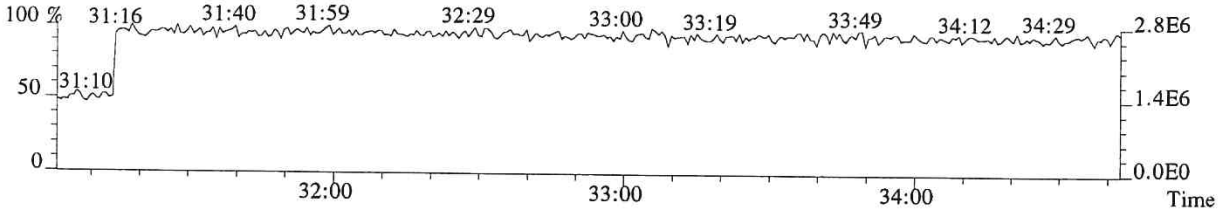
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



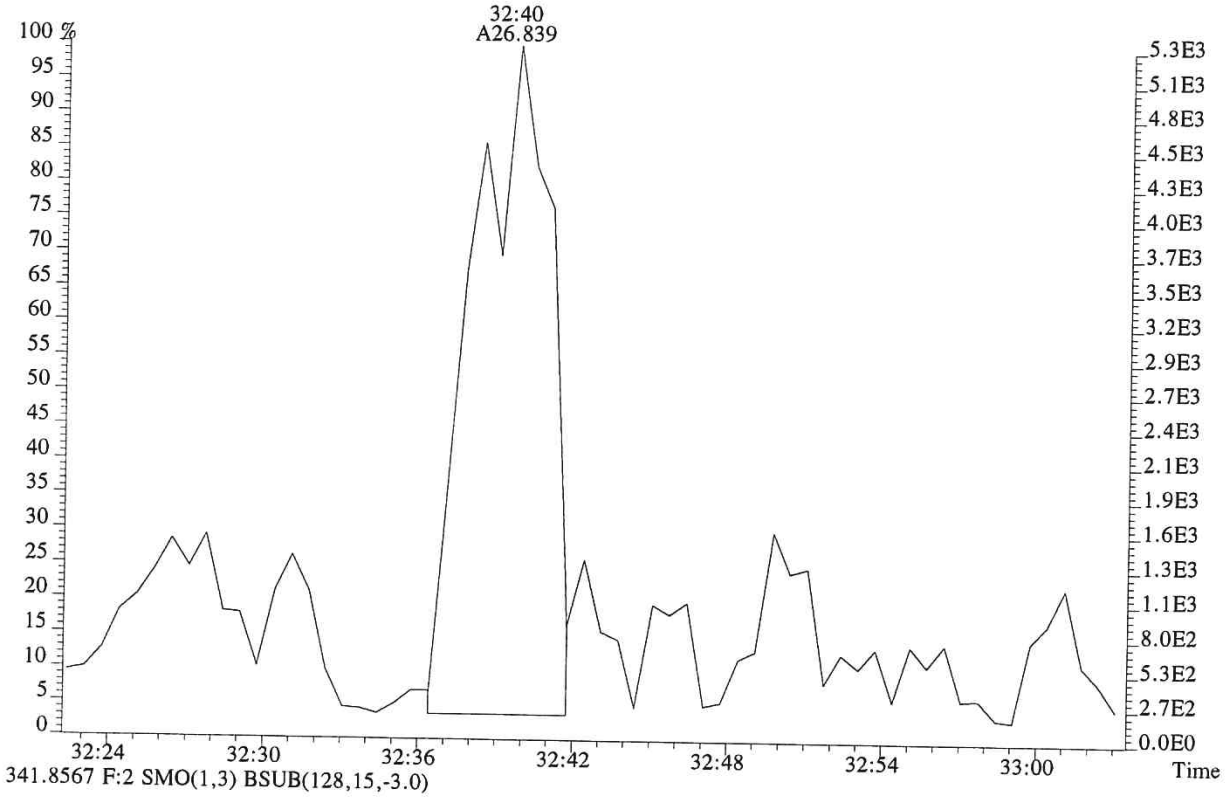
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



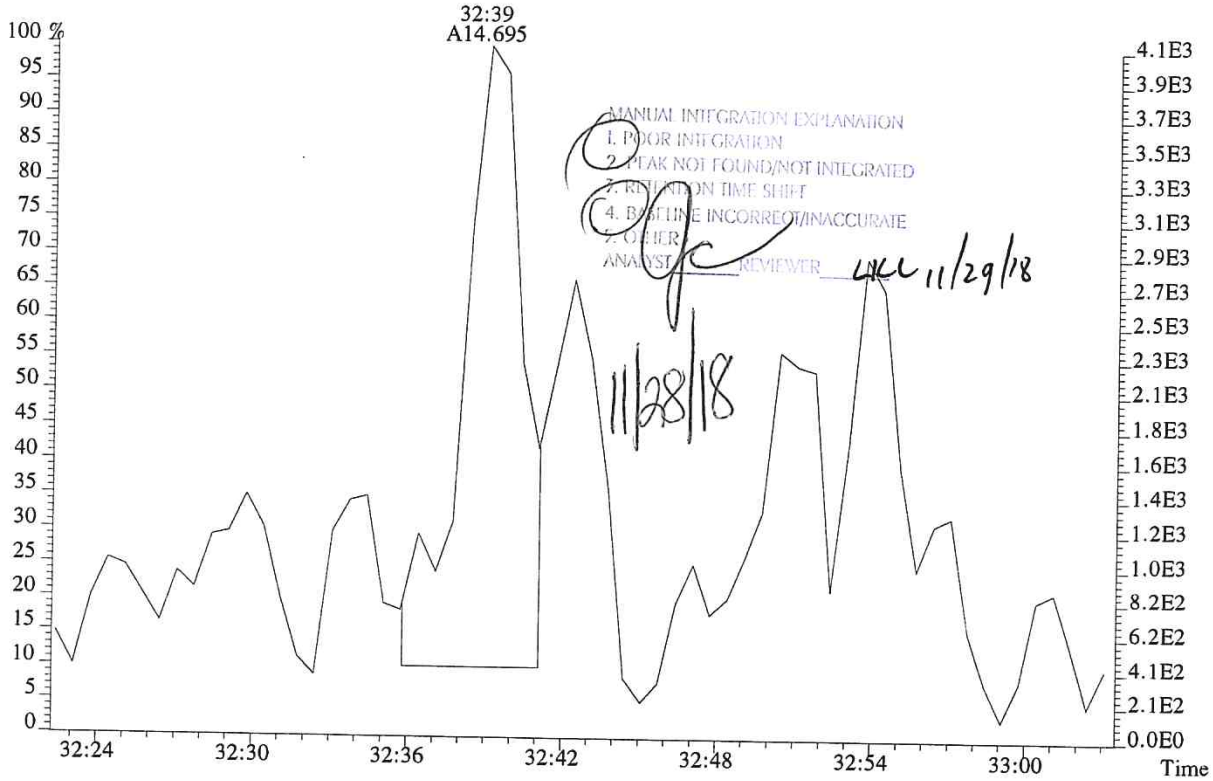
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519019 #1-330 Acq:27-NOV-2018 21:14:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-040
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0)



341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0)

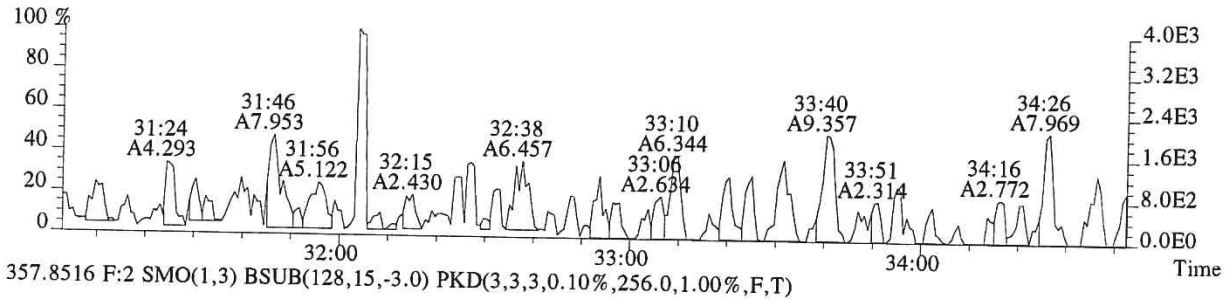


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER

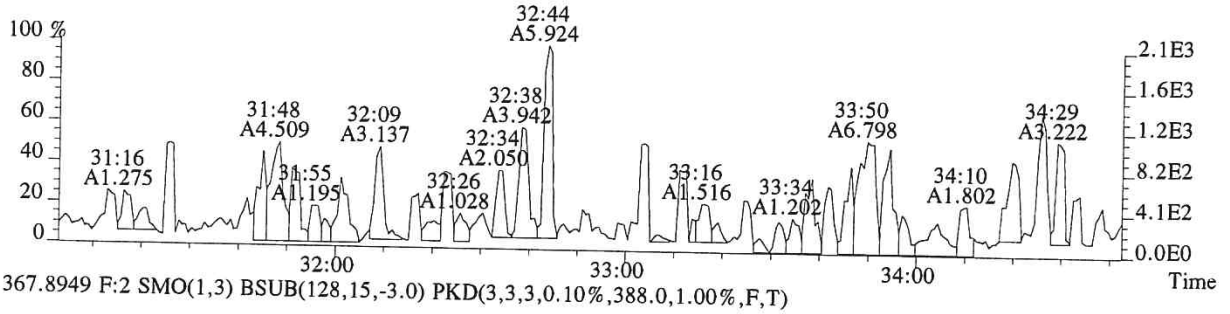
11/28/18

11/29/18

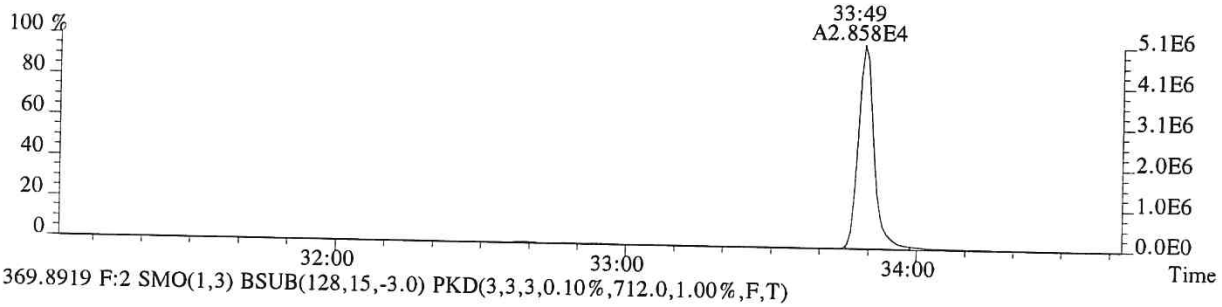
File:P519019 #1-330 Acq:27-NOV-2018 21:14:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-040
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



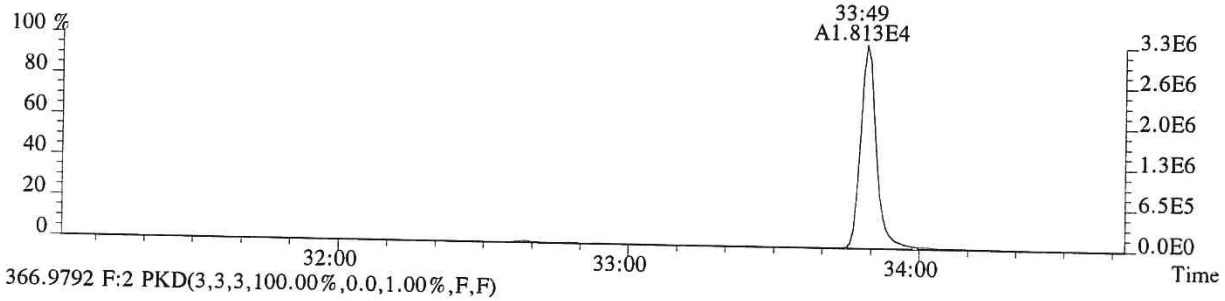
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



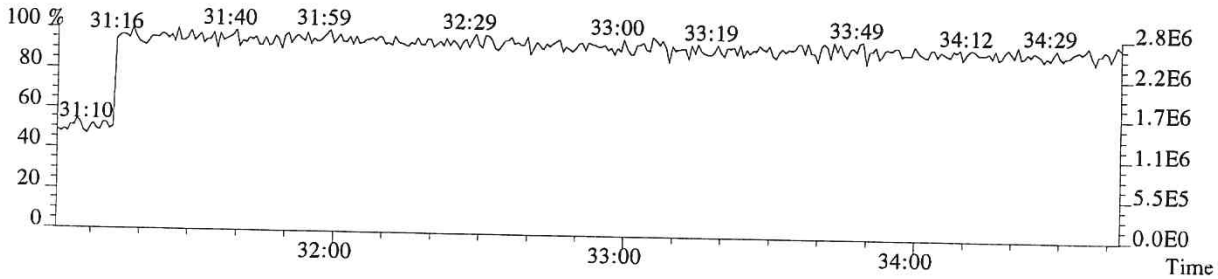
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)

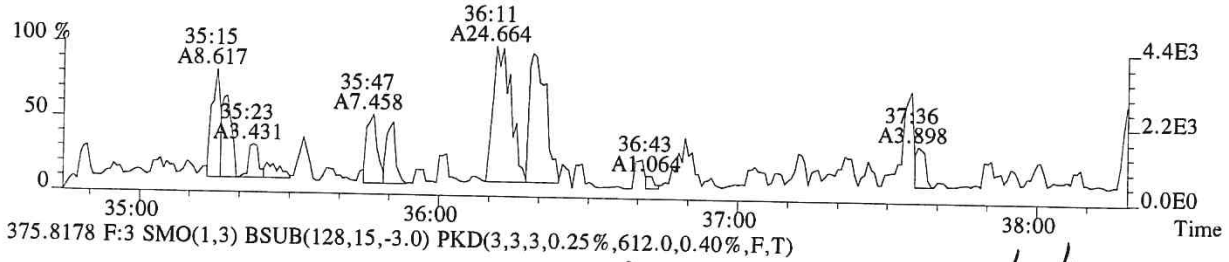


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

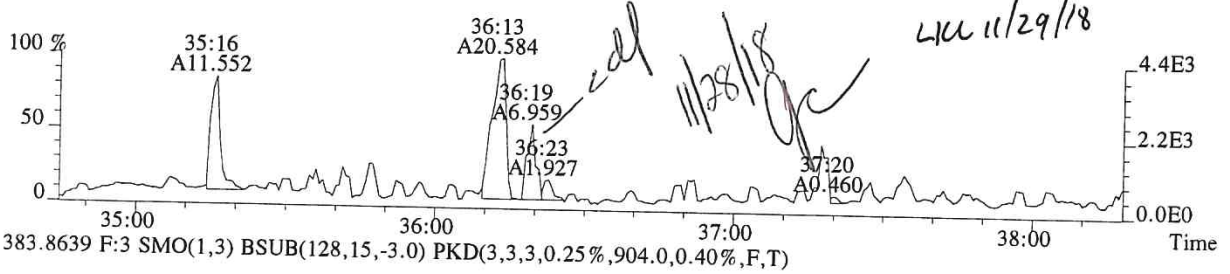


011229

File:P519019 #1-321 Acq:27-NOV-2018 21:14:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-040
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)

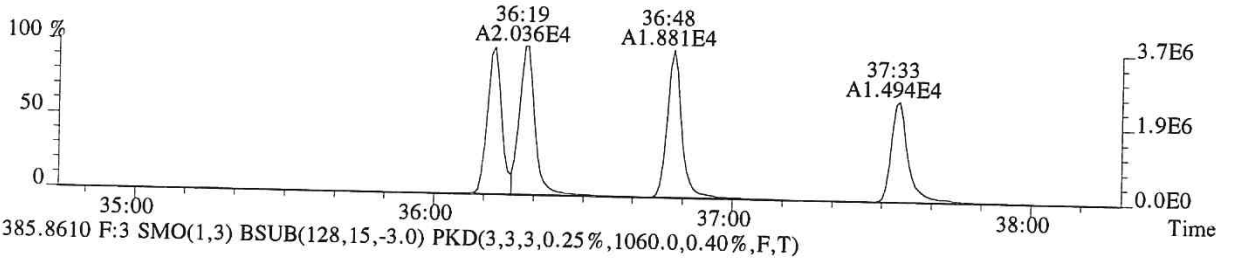


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)

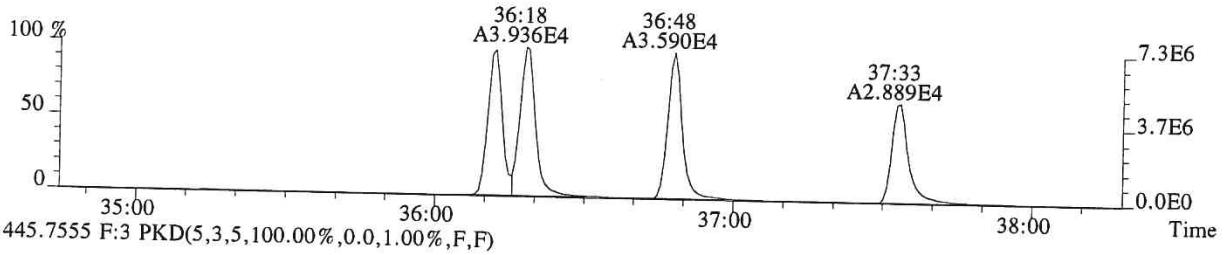


LMC 11/29/18

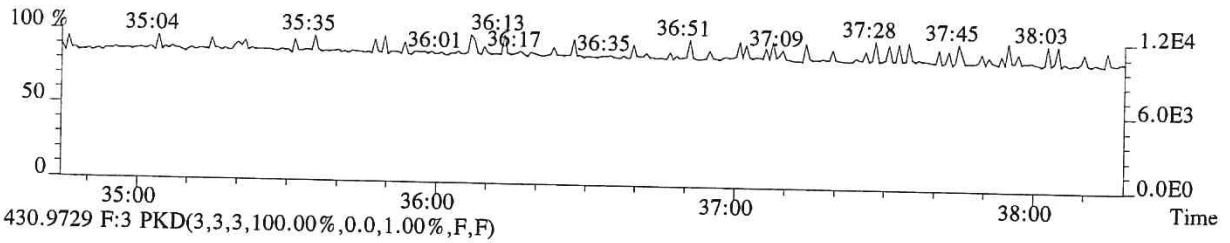
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



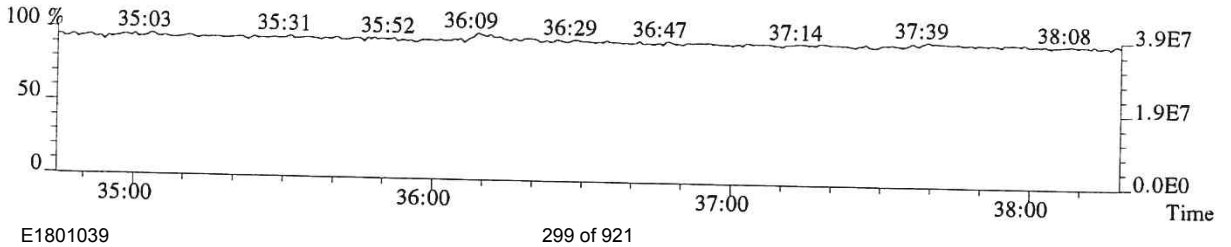
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



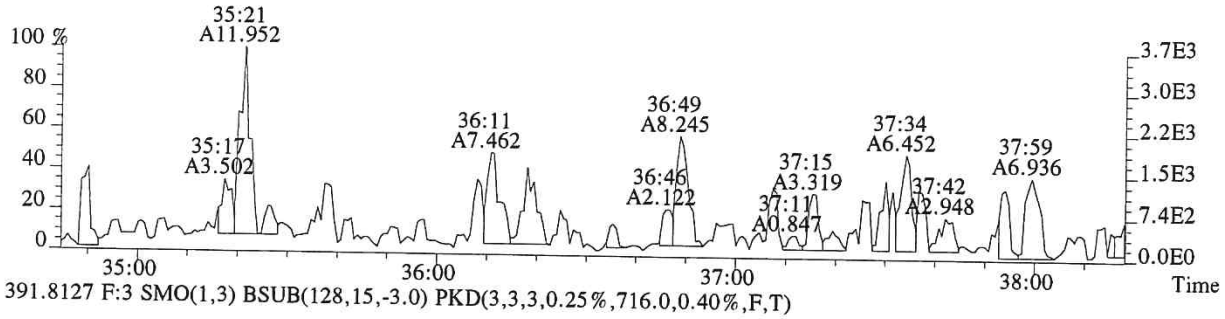
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



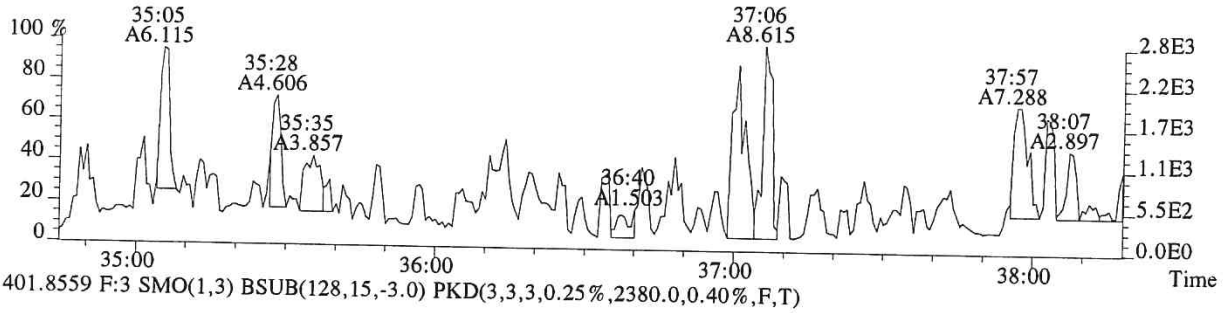
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



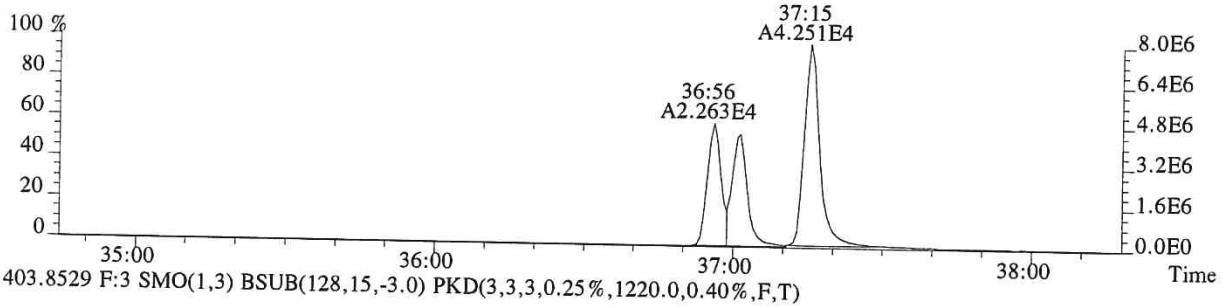
File:P519019 #1-321 Acq:27-NOV-2018 21:14:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-040
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



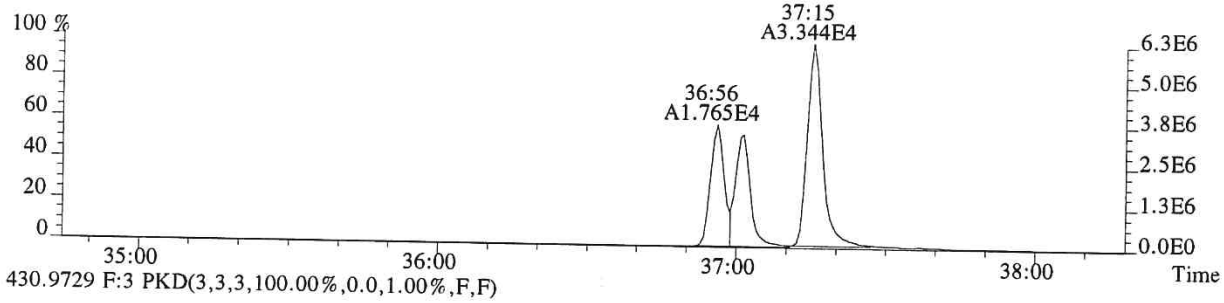
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



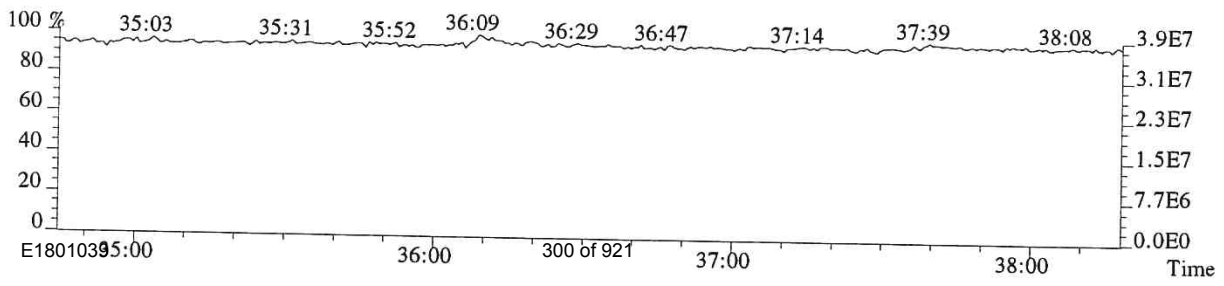
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2380.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1220.0,0.40%,F,T)

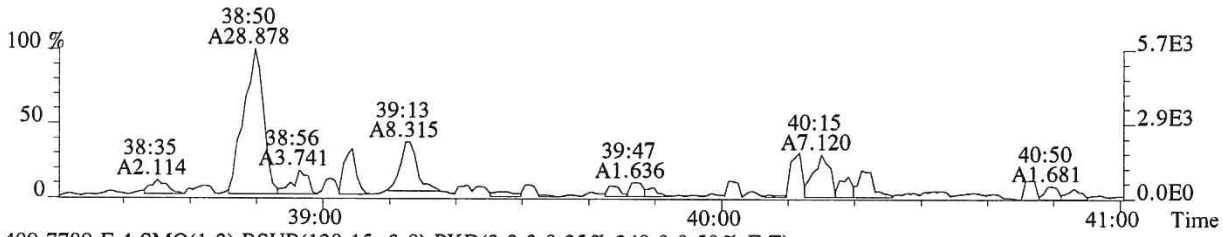


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

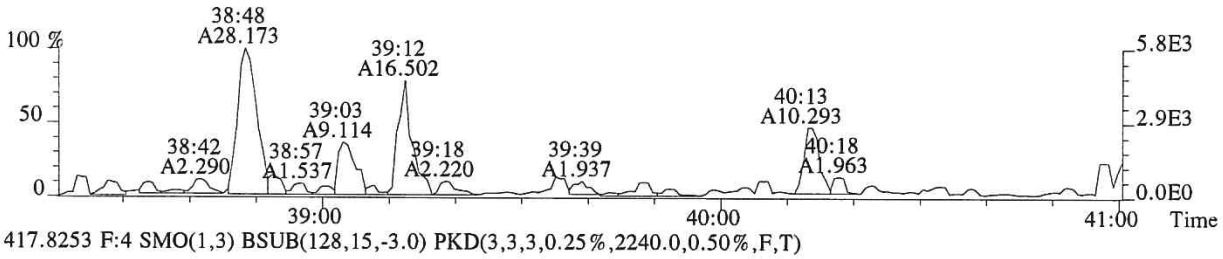


011231

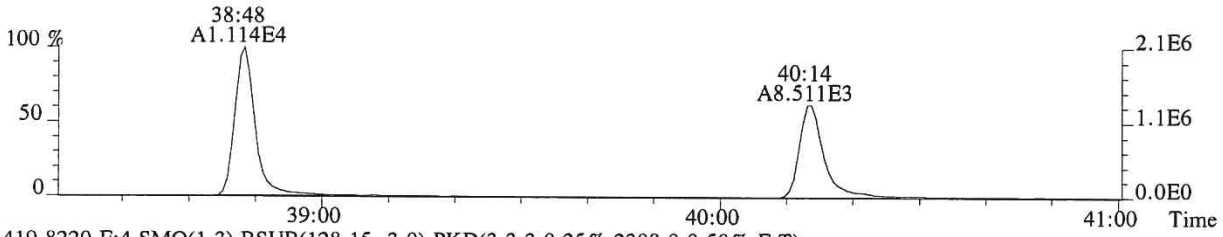
File:P519019 #1-241 Acq:27-NOV-2018 21:14:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-040
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.50%,F,T)



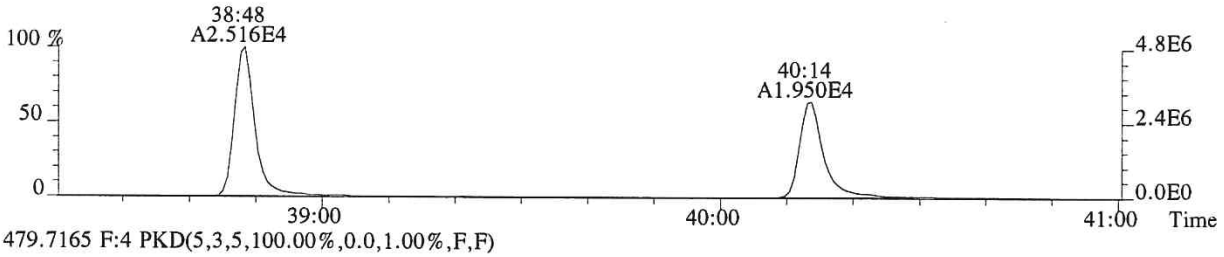
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.50%,F,T)



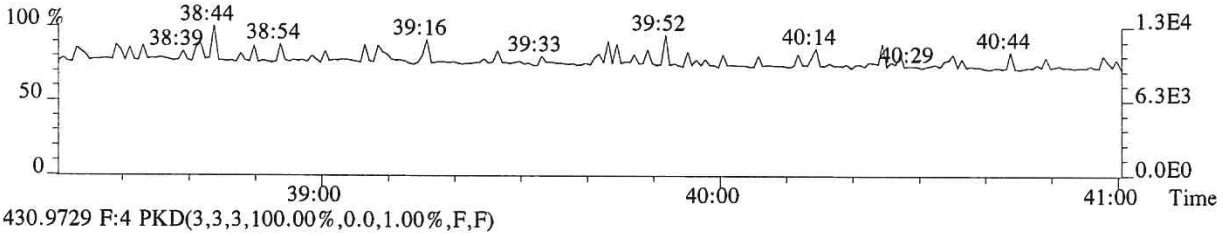
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.50%,F,T)



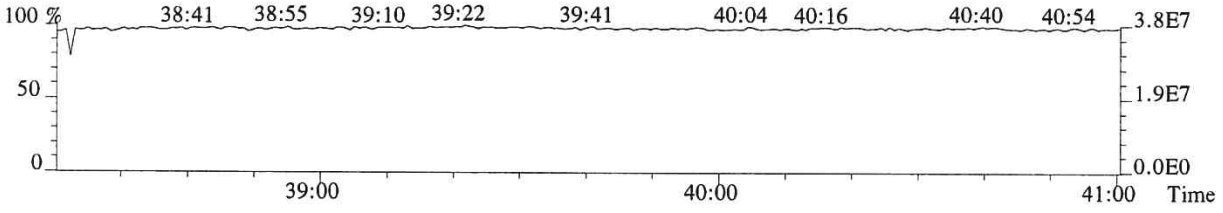
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2308.0,0.50%,F,T)



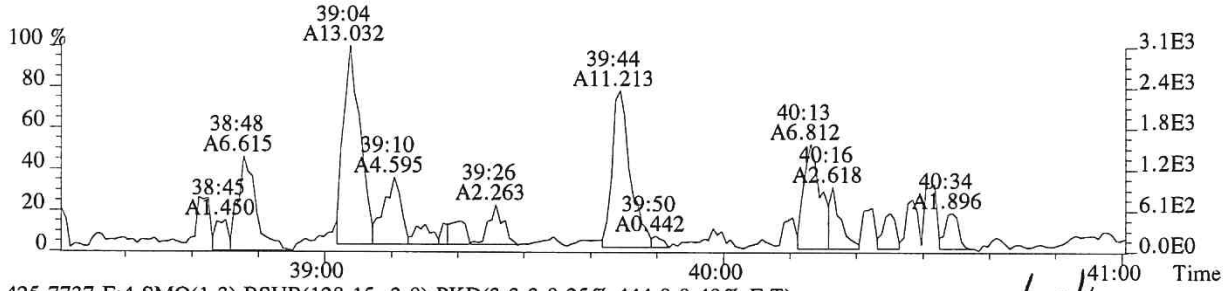
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

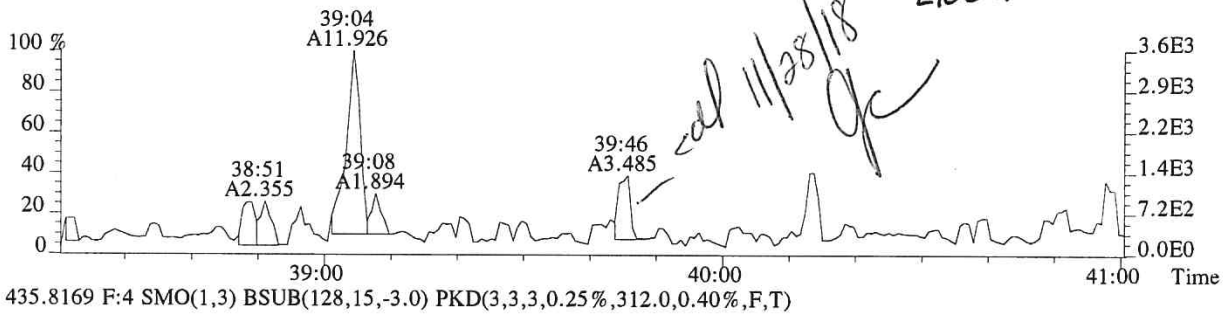


File:P519019 #1-241 Acq:27-NOV-2018 21:14:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-040
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)

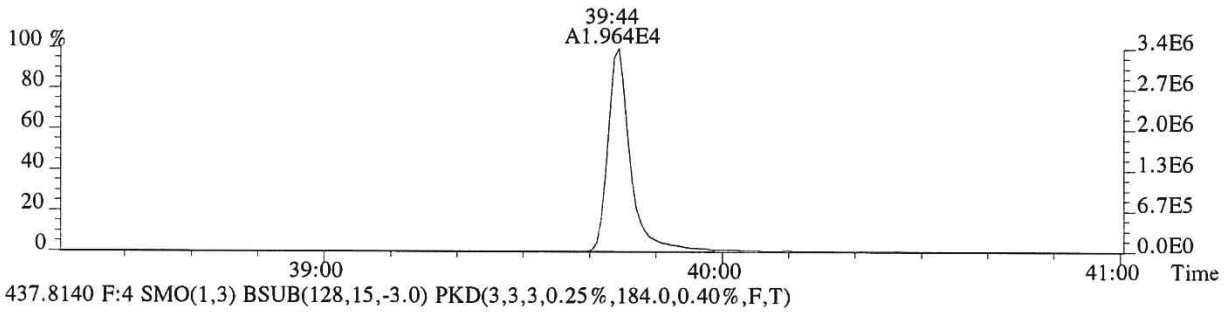


425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)

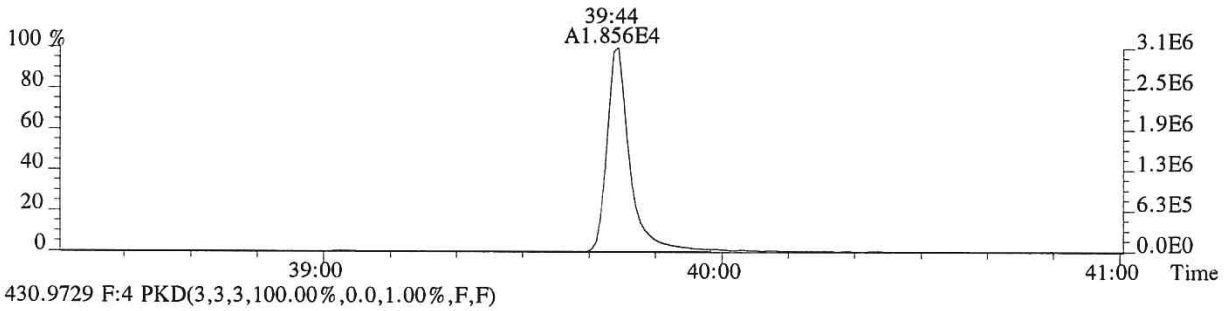
LKC 11/29/18



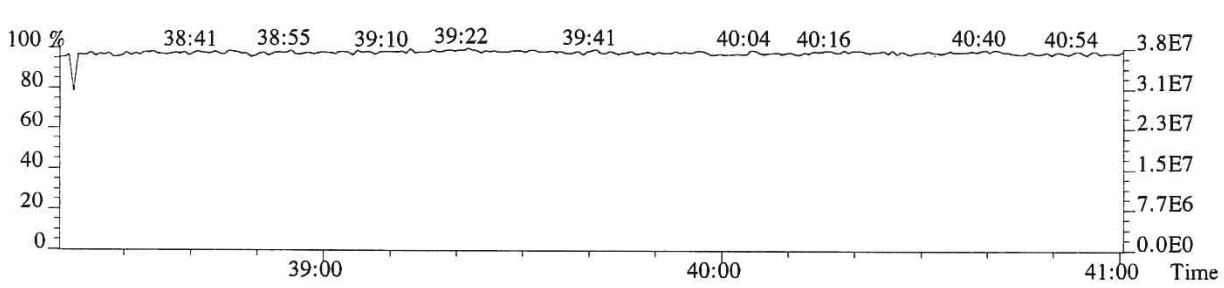
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



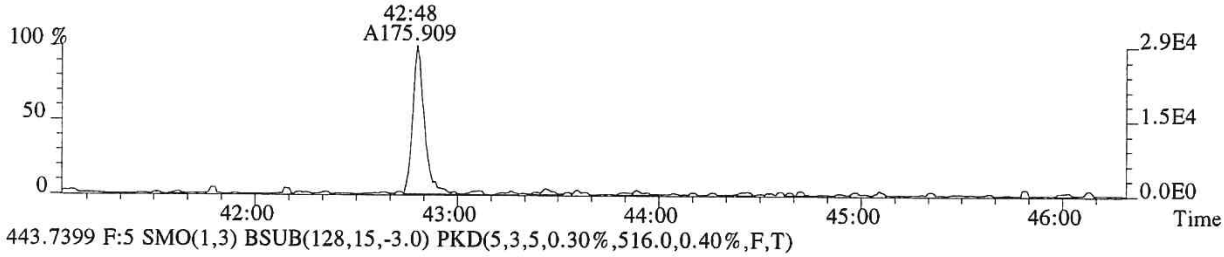
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



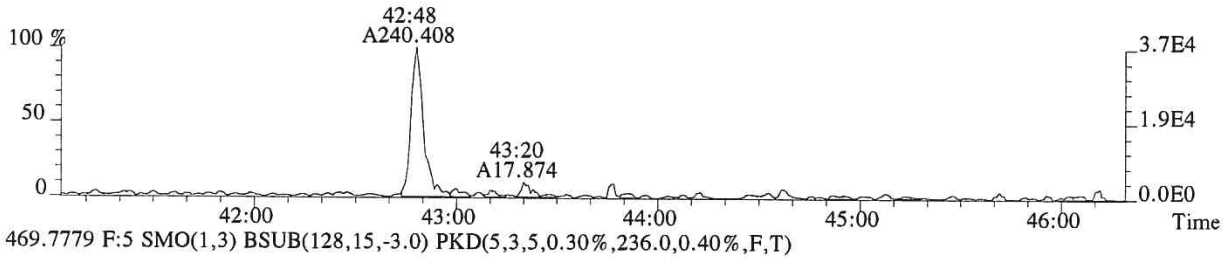
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



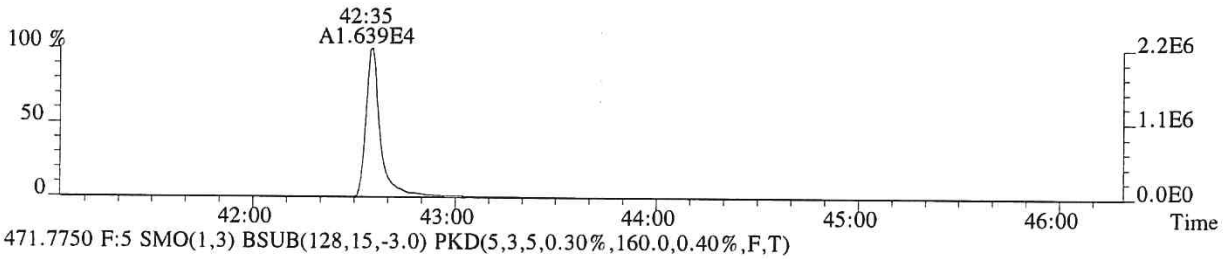
File:P519019 #1-475 Acq:27-NOV-2018 21:14:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-040
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



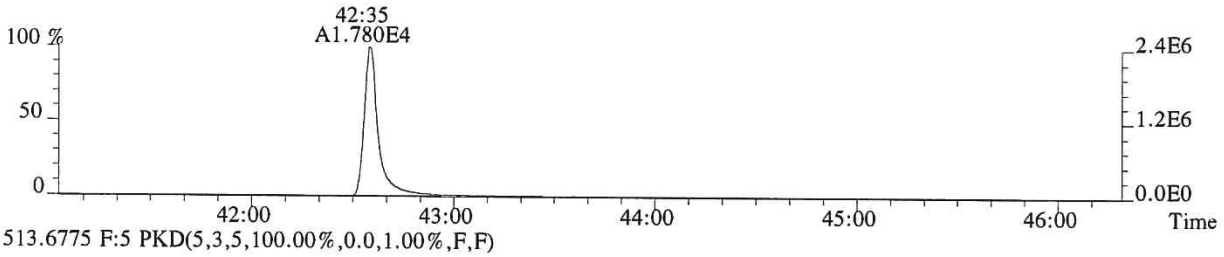
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



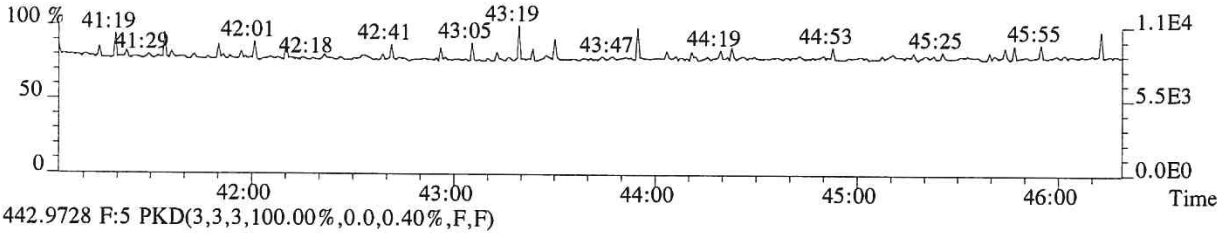
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



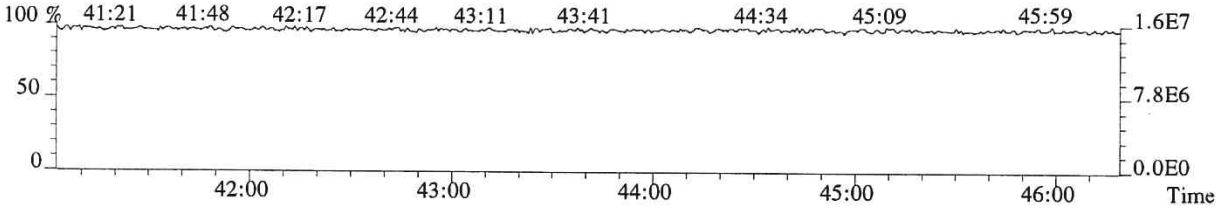
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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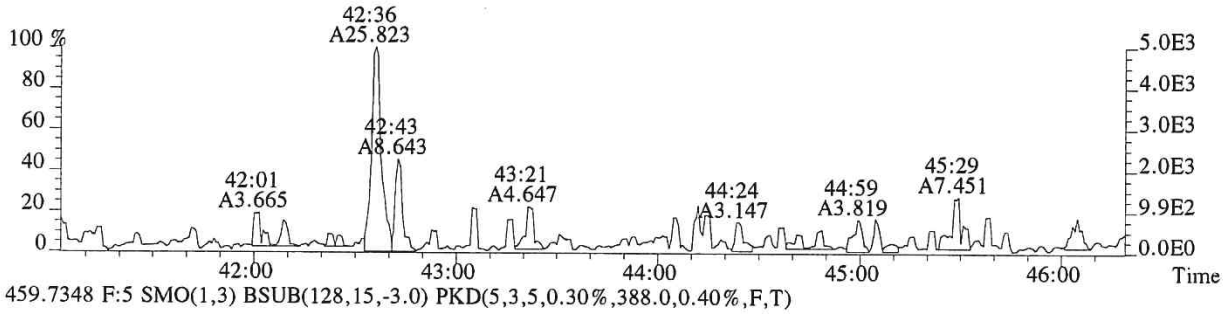
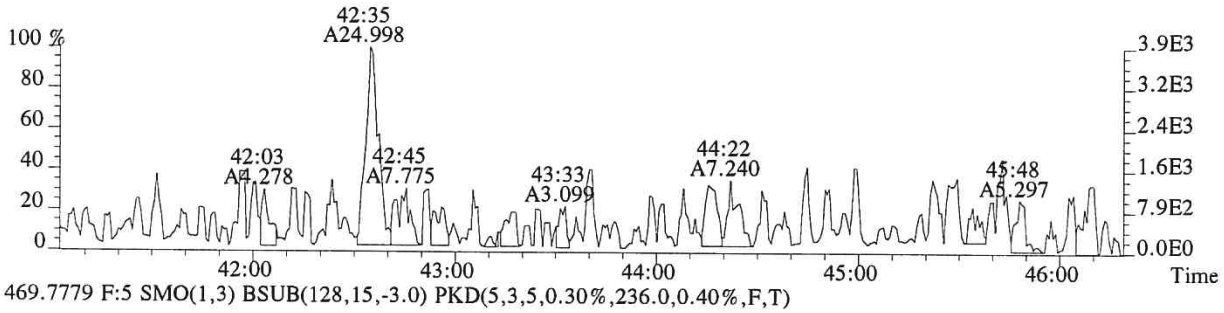
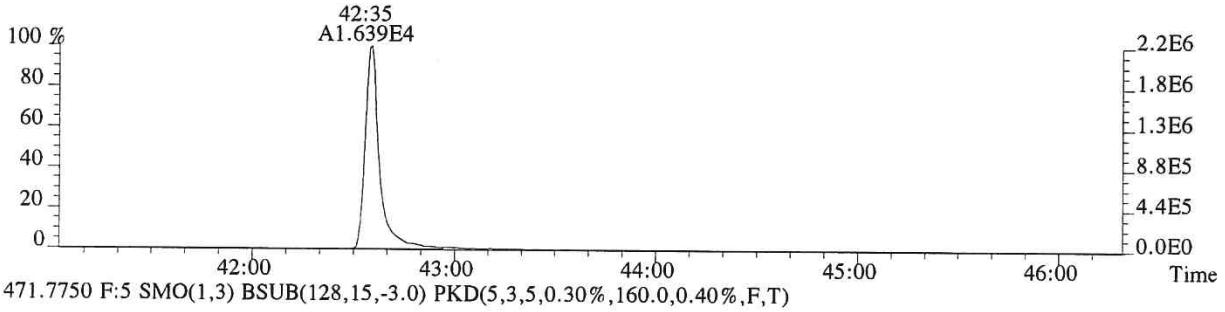
File:P519019 #1-475 Acq:27-NOV-2018 21:14:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-040
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



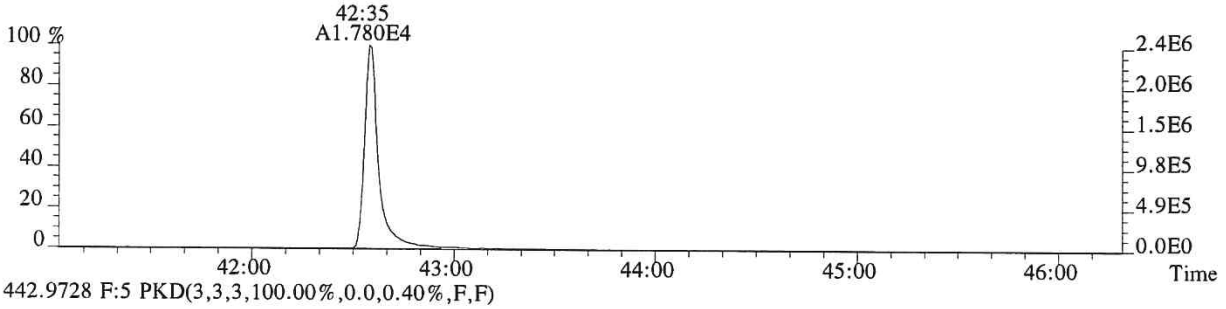
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



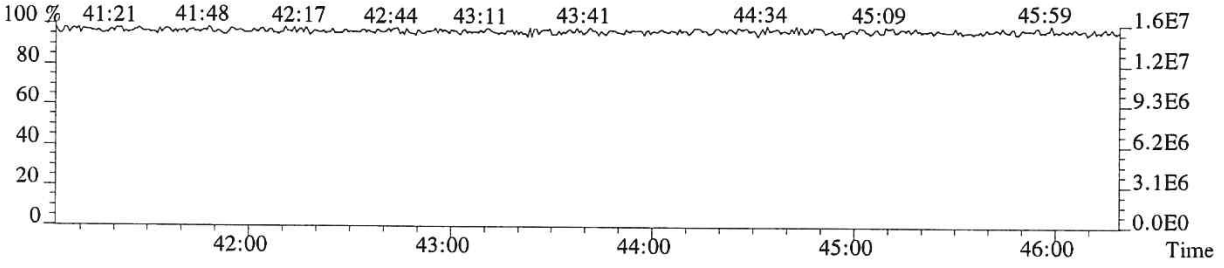
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
FW0004

Run #17 Filename P519020 Samp: 1 Inj: 1 Acquired: 27-NOV-18 22:03:17
Processed: 28-NOV-18 14:44:59 Sample ID: E1801039-041

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:13	2.788e+01	1.670e+01	1.67	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:48	6.204e+00	4.658e+00	1.33	yes	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.727e+01	2.467e+01	1.11	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:13	8.129e+00	1.034e+01	0.79	no	yes	1.258
10	Unk	OCDF	42:48	1.743e+02	2.608e+02	0.67	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:01	1.130e+01	1.004e+01	1.12	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:46	1.216e+01	9.894e+00	1.23	no	yes	1.025
17	Unk	OCDD	42:37	3.237e+01	3.607e+01	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:30	1.949e+04	2.493e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:38	3.935e+04	2.490e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:32	3.660e+04	2.336e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:11	1.597e+04	3.099e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	1.932e+04	3.647e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:47	1.790e+04	3.496e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:33	1.466e+04	2.822e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.120e+04	2.508e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	9.003e+03	2.066e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:16	1.391e+04	1.746e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:49	2.723e+04	1.700e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	2.103e+04	1.645e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:01	2.374e+04	1.860e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	1.985e+04	1.872e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:35	1.736e+04	1.949e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:43	3.967e+04	4.938e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:15	4.425e+04	3.448e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:18	1.450e+04				no	1.014

$$\text{OCDD} = \frac{(3.237e{+}01 + 3.607e{+}01) \times 4000\ \text{pg} \times 1}{(1.736e{+}04 + 1.949e{+}04) \times 0.5\ \text{g} \times 100 / 100 \times 1.118} = 13.3\ \text{pg}$$

4M 11/29/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW0004

Run #17 Filename P519020 Samp: 1 Inj: 1 Acquired: 27-NOV-18 22:03:17
Processed: 28-NOV-18 14:44:59 LAB. ID: E1801039-041

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.08e+02	*	*	1.74e+03	*
2	1,2,3,7,8-PeCDF	*	4.36e+02	*	*	9.96e+02	*
3	2,3,4,7,8-PeCDF	*	4.36e+02	*	*	9.96e+02	*
4	1,2,3,4,7,8-HxCDF	5.71e+03	2.92e+02	2.0e+01	3.06e+03	3.88e+02	7.9e+00
5	1,2,3,6,7,8-HxCDF	*	2.92e+02	*	*	3.88e+02	*
6	2,3,4,6,7,8-HxCDF	1.46e+03	2.92e+02	5.0e+00	1.55e+03	3.88e+02	4.0e+00
7	1,2,3,7,8,9-HxCDF	*	2.92e+02	*	*	3.88e+02	*
8	1,2,3,4,6,7,8-HpCDF	6.11e+03	2.16e+02	2.8e+01	4.64e+03	2.16e+02	2.1e+01
9	1,2,3,4,7,8,9-HpCDF	1.43e+03	2.16e+02	6.6e+00	2.69e+03	2.16e+02	1.2e+01
10	OCDF	2.62e+04	1.64e+02	1.6e+02	3.41e+04	4.24e+02	8.0e+01
11	2,3,7,8-TCDD	*	1.71e+03	*	*	1.13e+03	*
12	1,2,3,7,8-PeCDD	*	4.52e+02	*	*	2.92e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.16e+02	*	*	3.96e+02	*
14	1,2,3,6,7,8-HxCDD	1.90e+03	3.16e+02	6.0e+00	2.62e+03	3.96e+02	6.6e+00
15	1,2,3,7,8,9-HxCDD	*	3.16e+02	*	*	3.96e+02	*
16	1,2,3,4,6,7,8-HpCDD	2.37e+03	3.92e+02	6.0e+00	2.62e+03	3.84e+02	6.8e+00
17	OCDD	7.69e+03	2.52e+02	3.1e+01	5.14e+03	7.32e+02	7.0e+00
18	13C-2,3,7,8-TCDF	3.21e+06	3.79e+03	8.5e+02	4.14e+06	2.18e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	6.59e+06	4.68e+02	1.4e+04	4.23e+06	5.84e+02	7.2e+03
20	13C-2,3,4,7,8-PeCDF	6.44e+06	4.68e+02	1.4e+04	4.10e+06	5.84e+02	7.0e+03
21	13C-1,2,3,4,7,8-HxCDF	3.32e+06	4.72e+02	7.0e+03	6.40e+06	6.84e+02	9.4e+03
22	13C-1,2,3,6,7,8-HxCDF	3.56e+06	4.72e+02	7.5e+03	6.79e+06	6.84e+02	9.9e+03
23	13C-2,3,4,6,7,8-HxCDF	3.33e+06	4.72e+02	7.1e+03	6.49e+06	6.84e+02	9.5e+03
24	13C-1,2,3,7,8,9-HxCDF	2.48e+06	4.72e+02	5.3e+03	4.83e+06	6.84e+02	7.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.17e+06	1.90e+03	1.1e+03	4.69e+06	3.74e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+06	1.90e+03	7.6e+02	3.25e+06	3.74e+03	8.7e+02
27	13C-2,3,7,8-TCDD	2.40e+06	5.96e+03	4.0e+02	3.08e+06	3.56e+03	8.6e+02
28	13C-1,2,3,7,8-PeCDD	4.76e+06	2.92e+02	1.6e+04	2.95e+06	3.40e+02	8.7e+03
29	13C-1,2,3,4,7,8-HxCDD	4.48e+06	2.19e+03	2.0e+03	3.49e+06	9.40e+02	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	4.31e+06	2.19e+03	2.0e+03	3.36e+06	9.40e+02	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.48e+06	4.48e+02	7.8e+03	3.25e+06	1.88e+02	1.7e+04
32	13C-OCDD	2.41e+06	3.80e+02	6.3e+03	2.71e+06	2.84e+02	9.5e+03
33	13C-1,2,3,4-TCDD	7.18e+06	5.96e+03	1.2e+03	9.01e+06	3.56e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	7.67e+06	2.19e+03	3.5e+03	5.94e+06	9.40e+02	6.3e+03
35	37Cl-2,3,7,8-TCDD	2.54e+06	1.06e+03	2.4e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0004

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P519020 Sample:1 Injection:1 Function:3

Acquired: 27-NOV-18 22:03:17 Processed: 28-NOV-18 14:44:59

Mass: 373.8210 375.8180 Tot Response: 1.09e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:48	6.20e+00	4.66e+00 1.33	yes	1.09e+01	2,3,4,6,7,8-HxCDF	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0004

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P519020 Sample:1 Injection:1 Function:3

Acquired: 27-NOV-18 22:03:17 Processed: 28-NOV-18 14:44:59

Mass: 389.8160 391.8130 Tot Response: 2.13e+01 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:01	1.13e+01	1.00e+01 1.12	yes	2.13e+01	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0004

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P519020 Sample:1 Injection:1 Function:4

Acquired: 27-NOV-18 22:03:17 Processed: 28-NOV-18 14:44:59

Mass: 407.7820 409.7790 Tot Response: 5.19e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:49	2.73e+01	2.47e+01 1.11	yes	5.19e+01	1,2,3,4,6,7,8-HpCDF	n	n

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Houston, TX 77099
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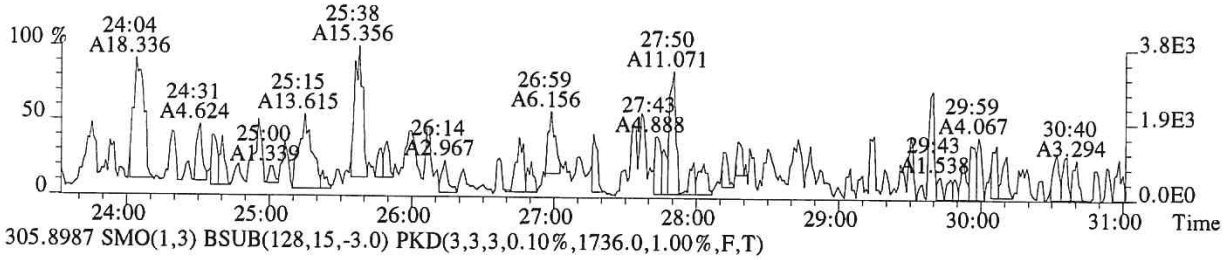
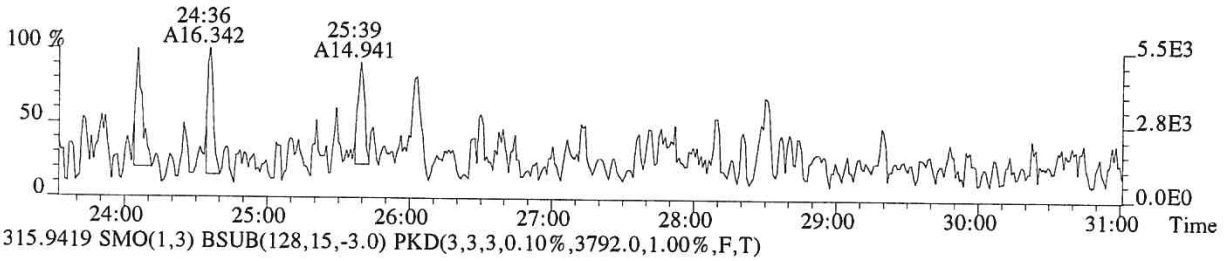
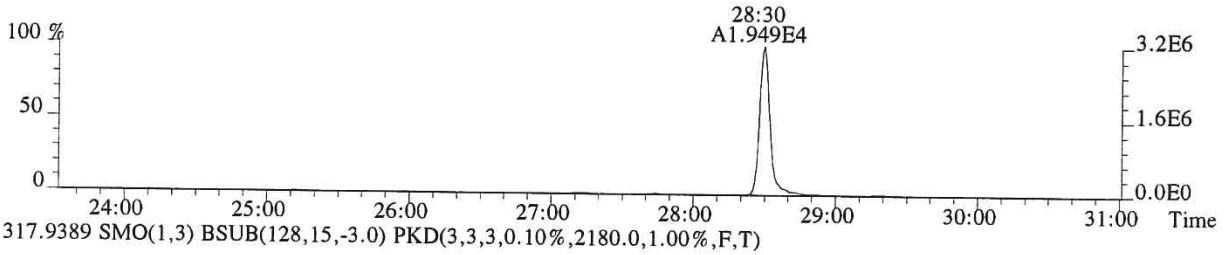
File:P519020 #1-531 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



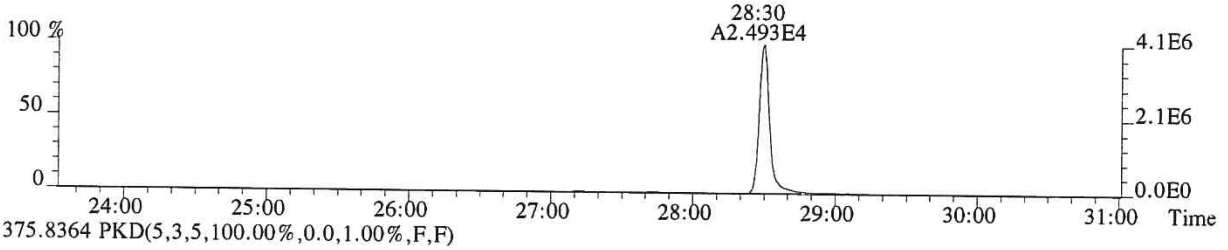
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1736.0,1.00%,F,T)



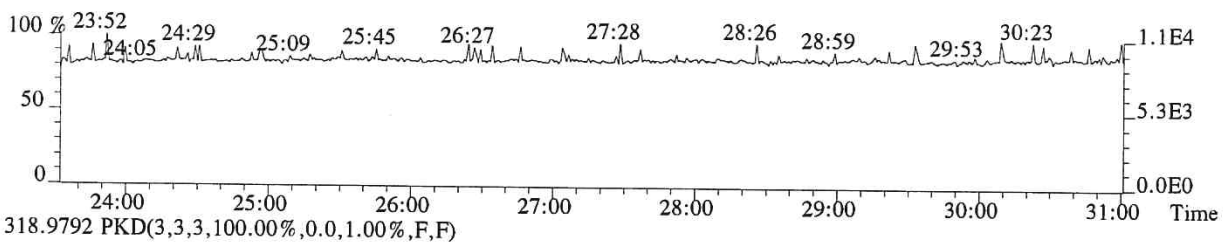
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3792.0,1.00%,F,T)



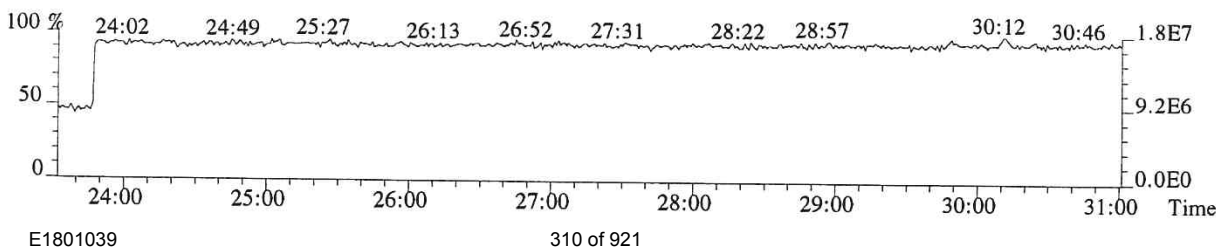
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

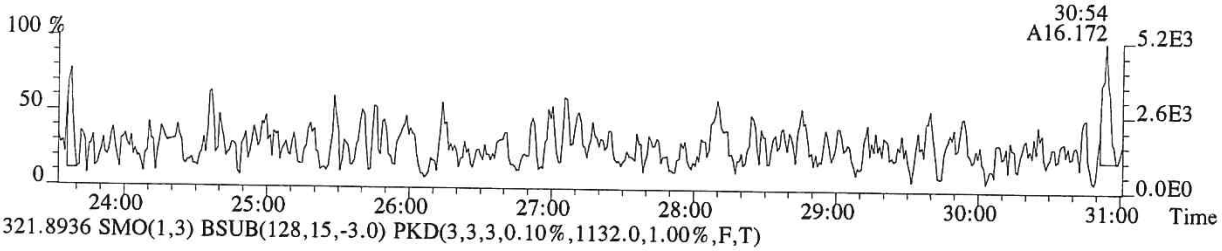


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

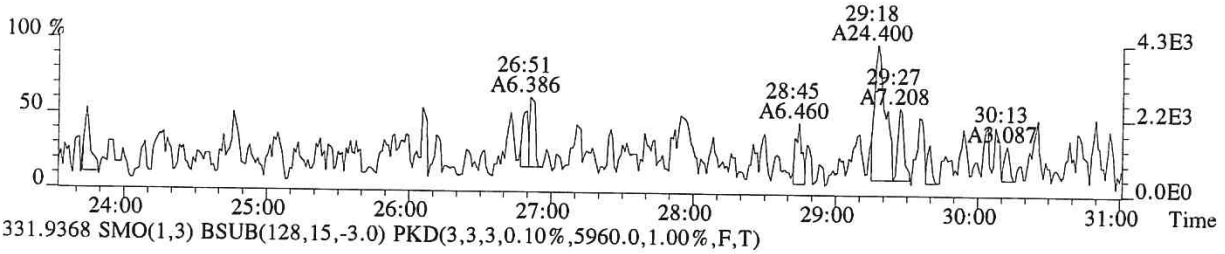


011241

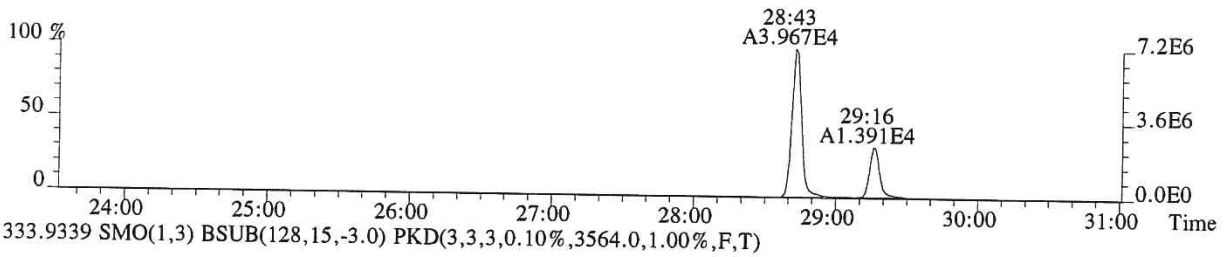
File:P519020 #1-531 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



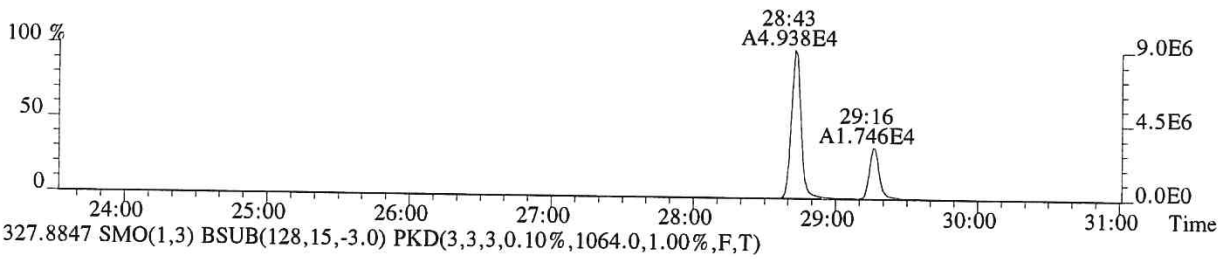
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



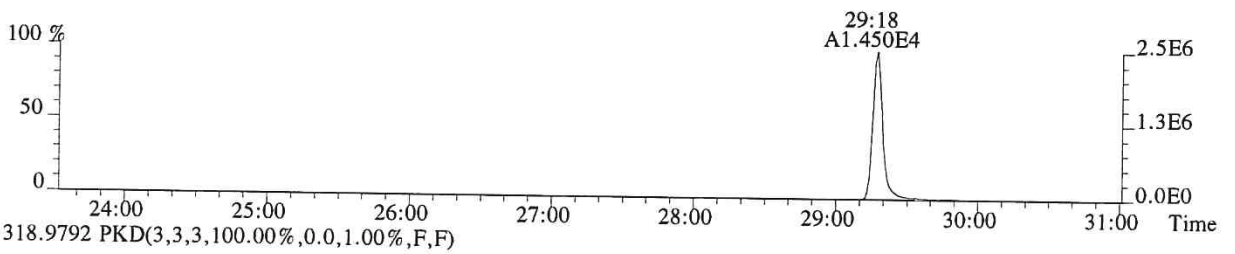
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5960.0,1.00%,F,T)



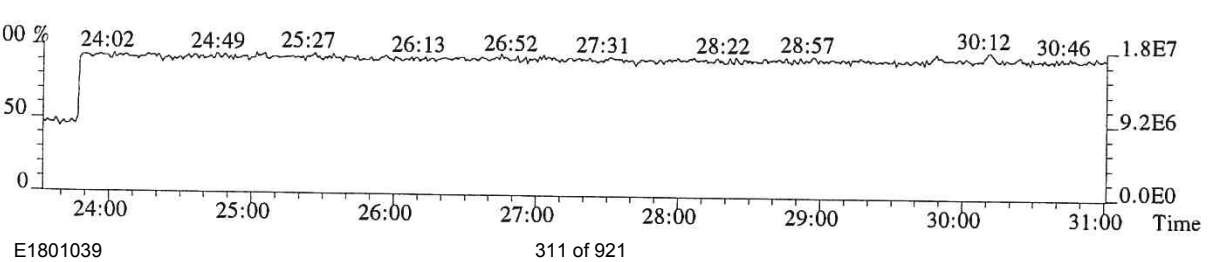
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)

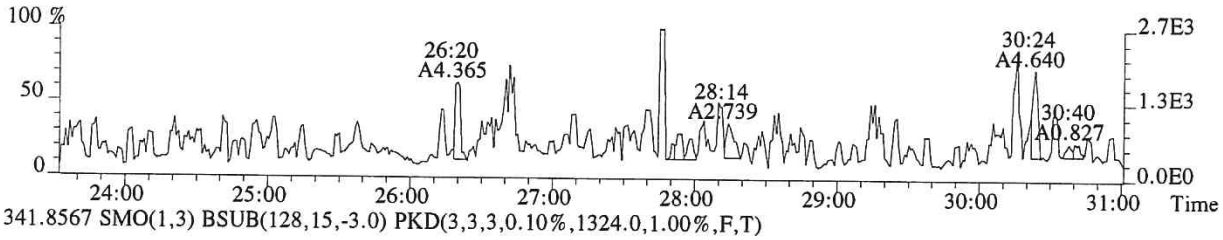


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

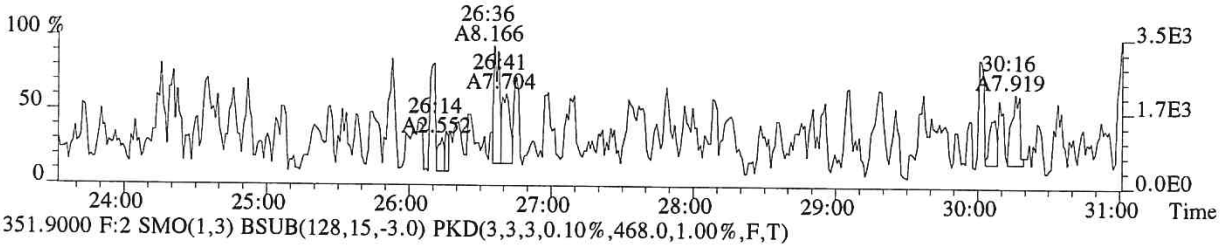


011242

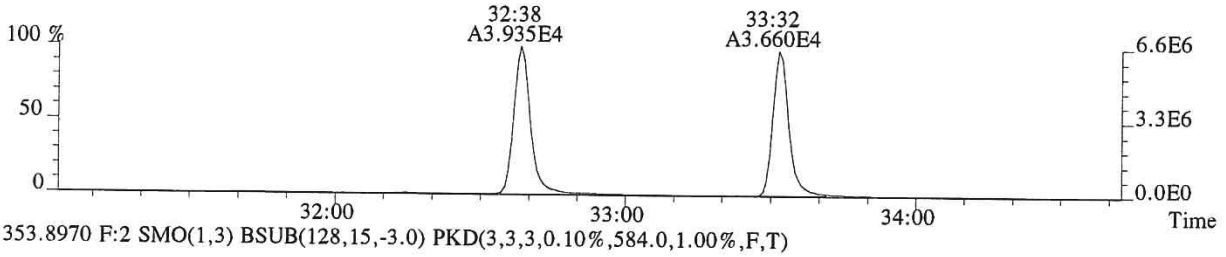
File:P519020 #1-531 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



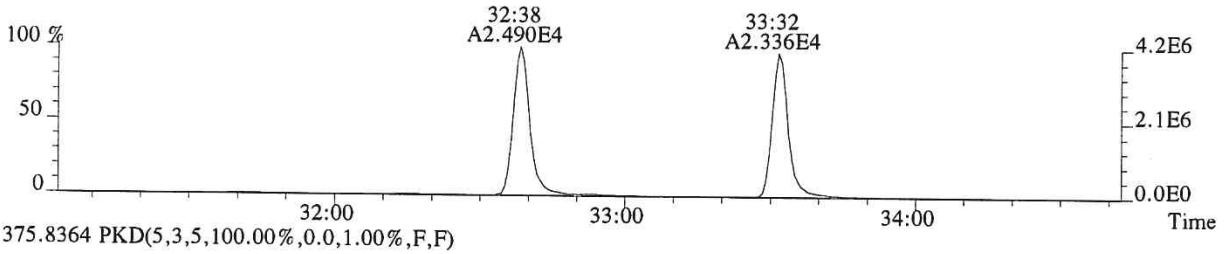
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



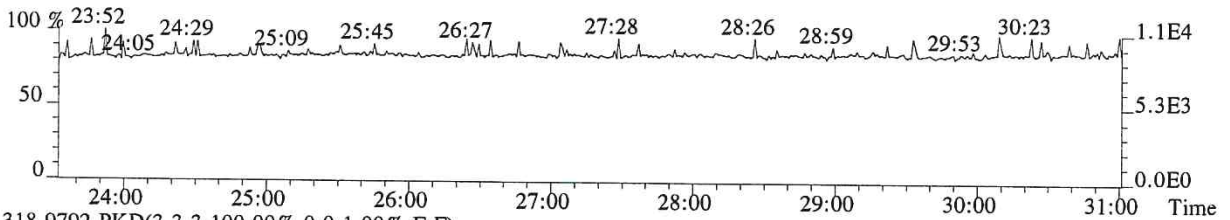
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



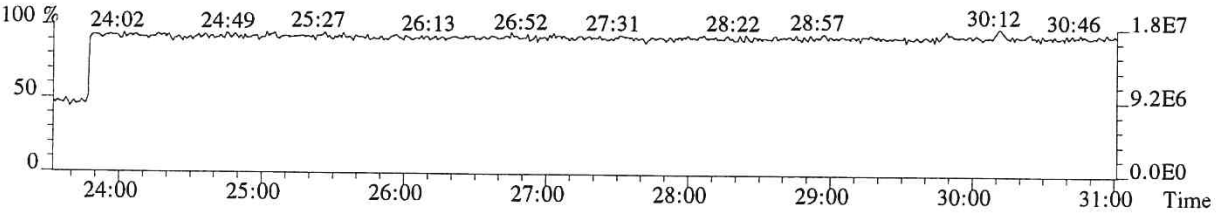
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

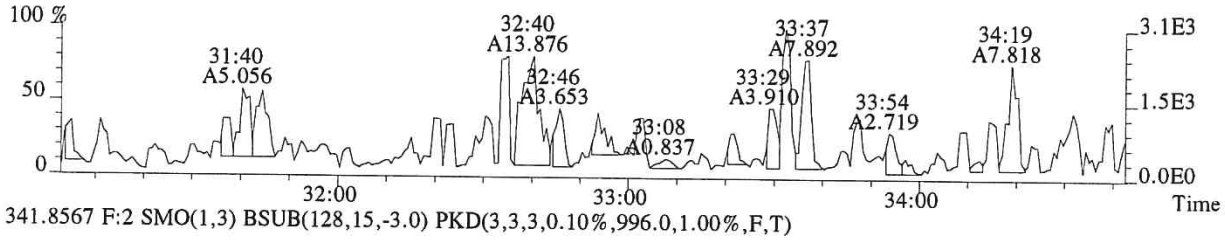


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

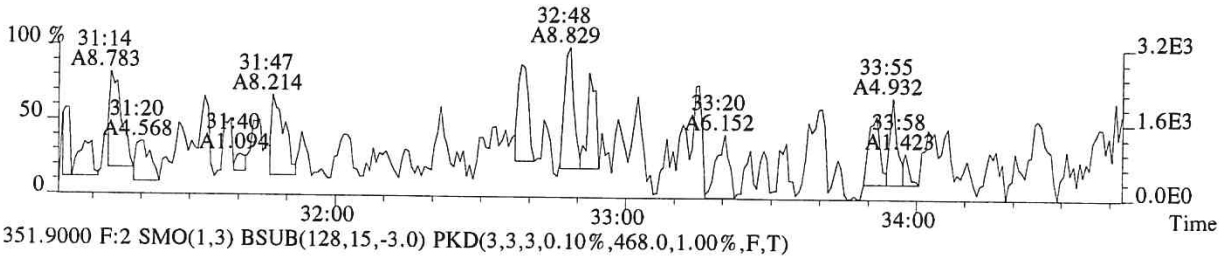


011243

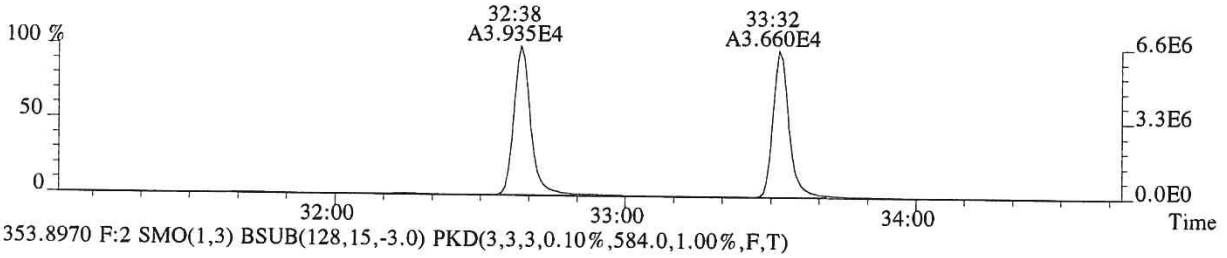
File:P519020 #1-330 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



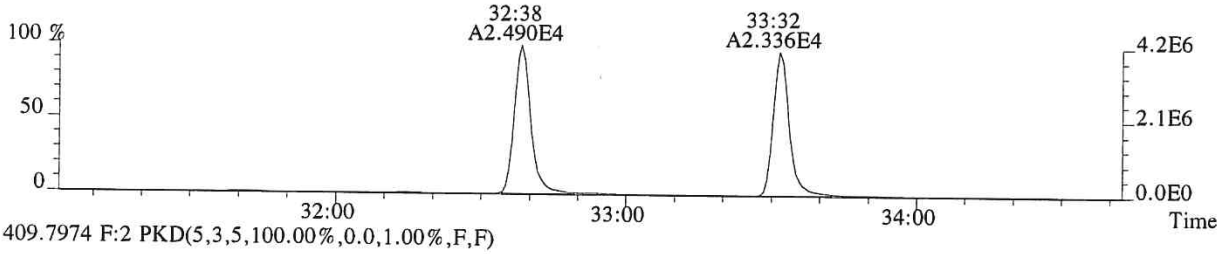
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



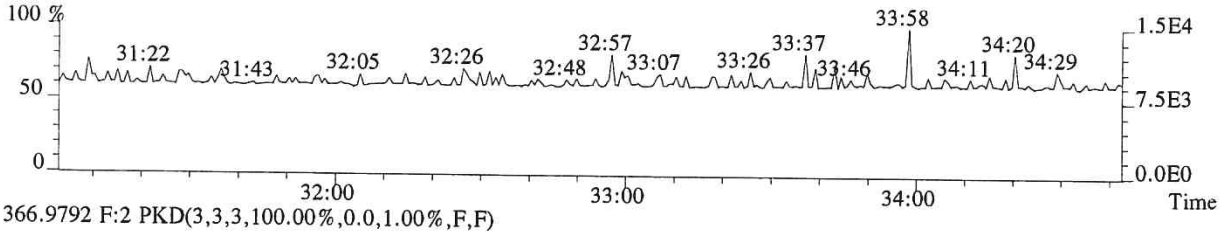
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



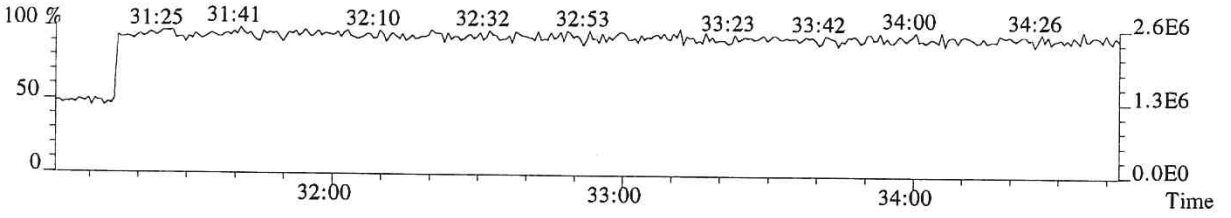
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

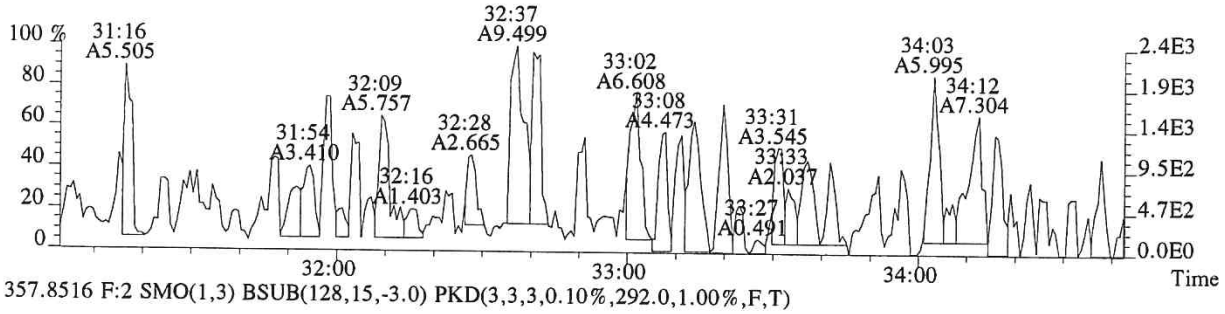


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

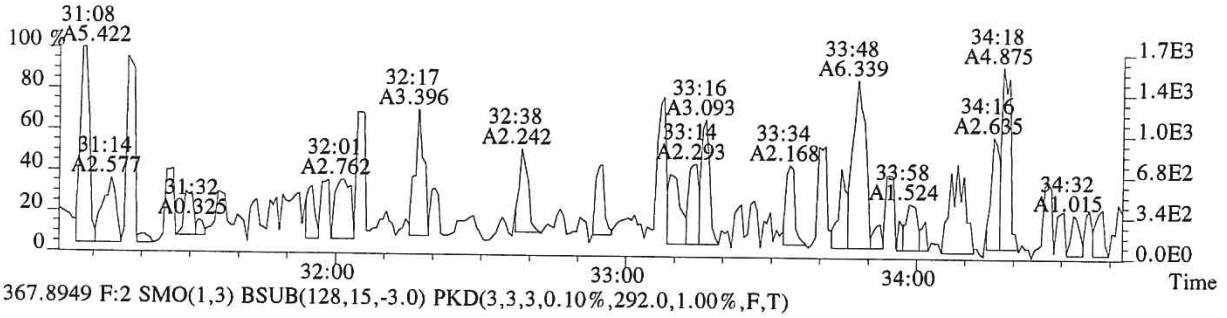


011244

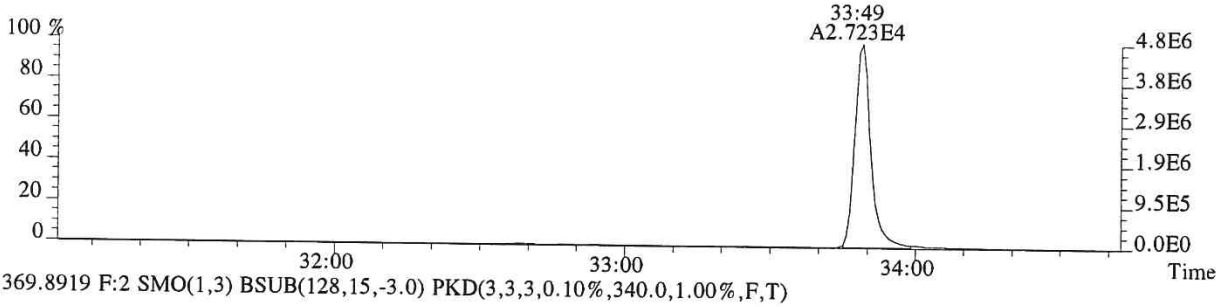
File:P519020 #1-330 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



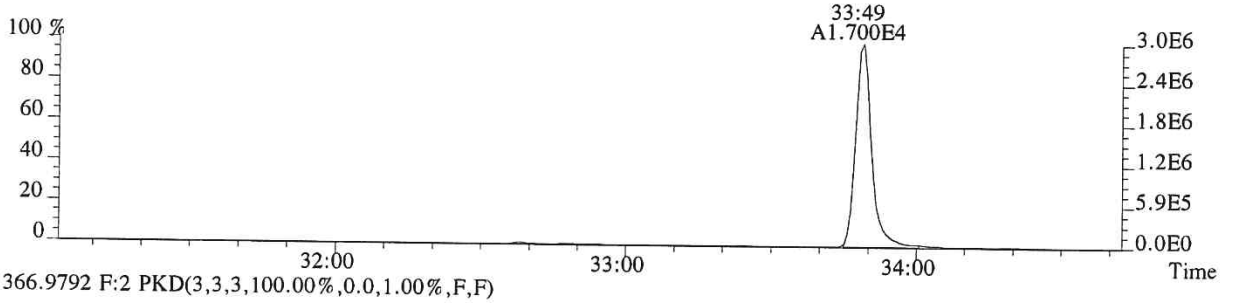
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



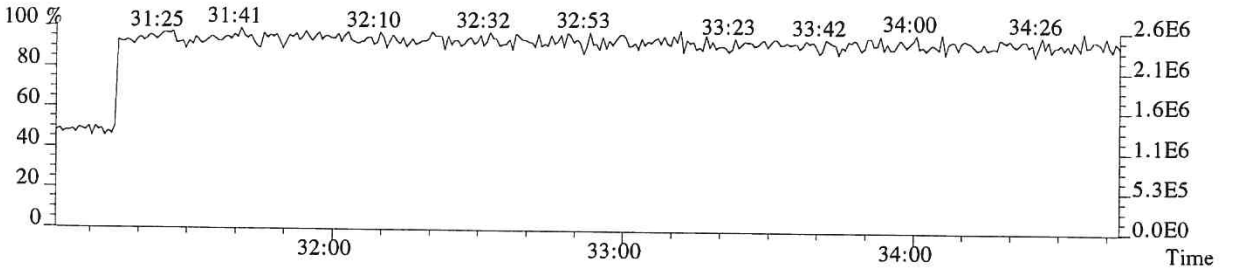
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)

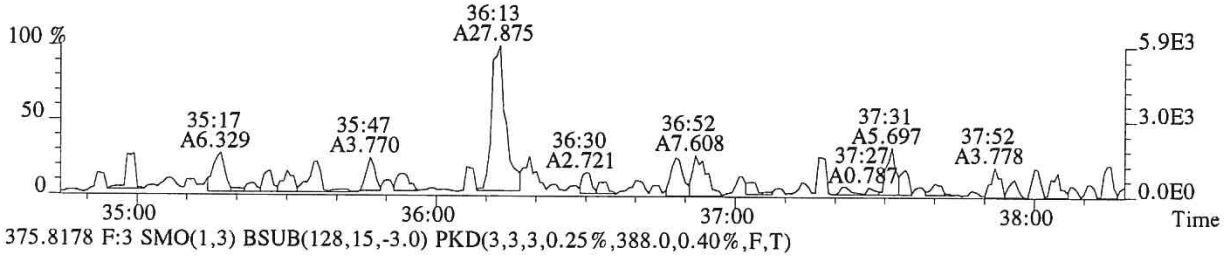


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

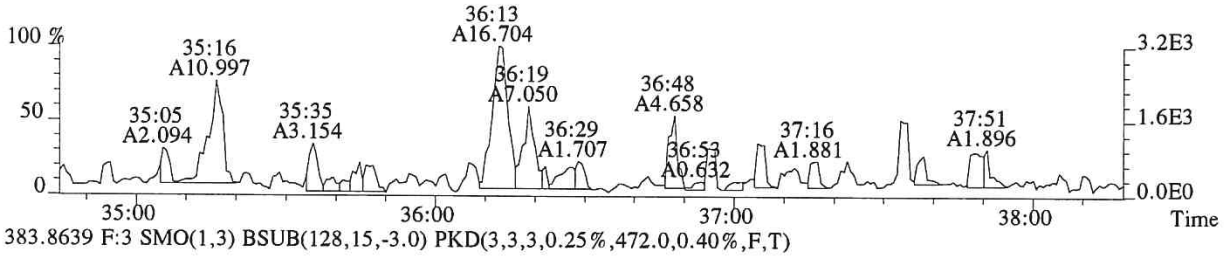


011245

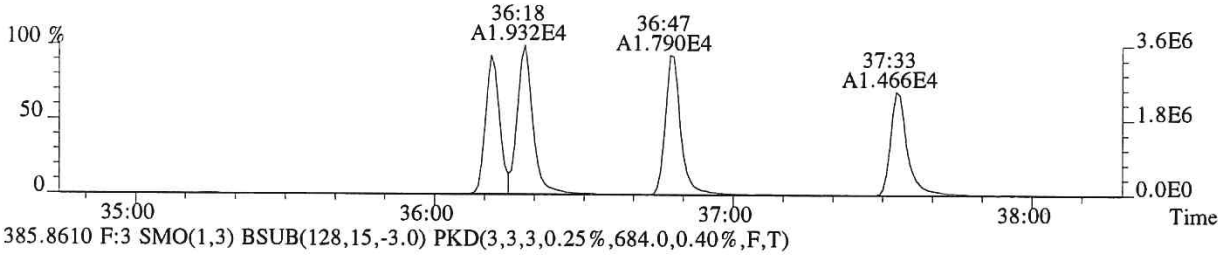
File:P519020 #1-321 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



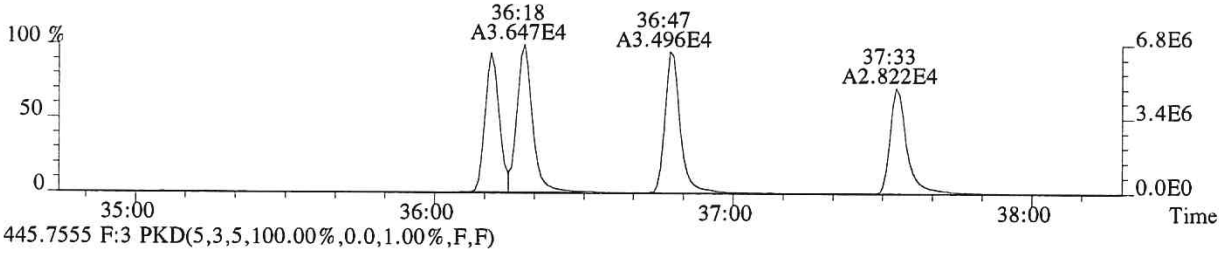
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



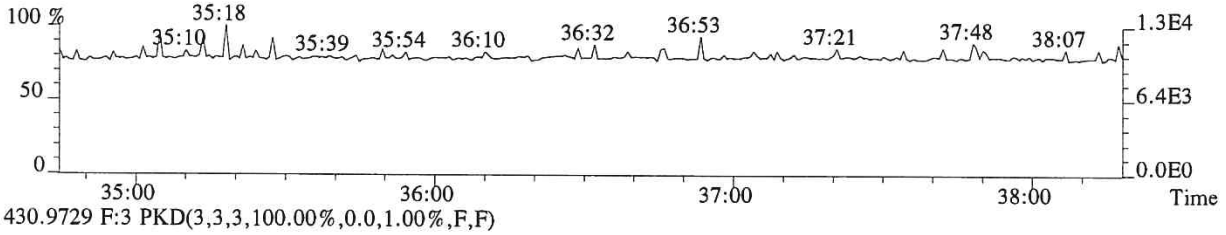
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



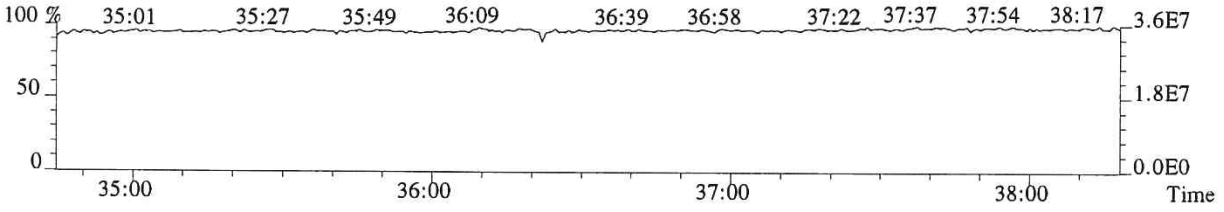
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

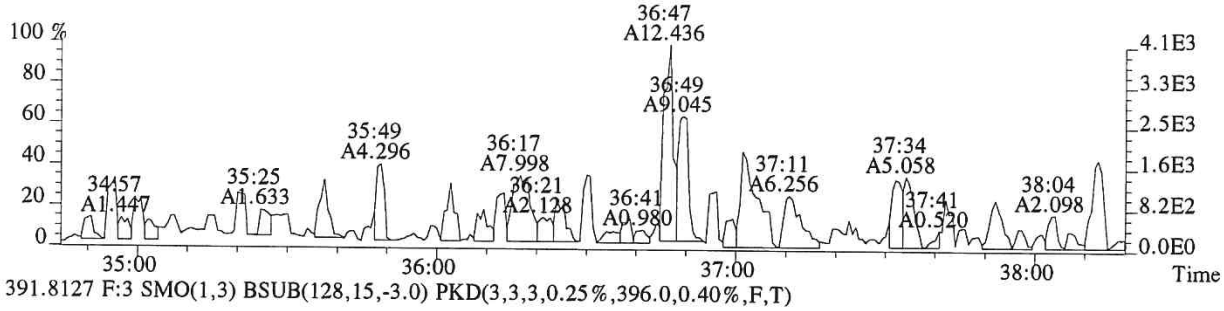


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

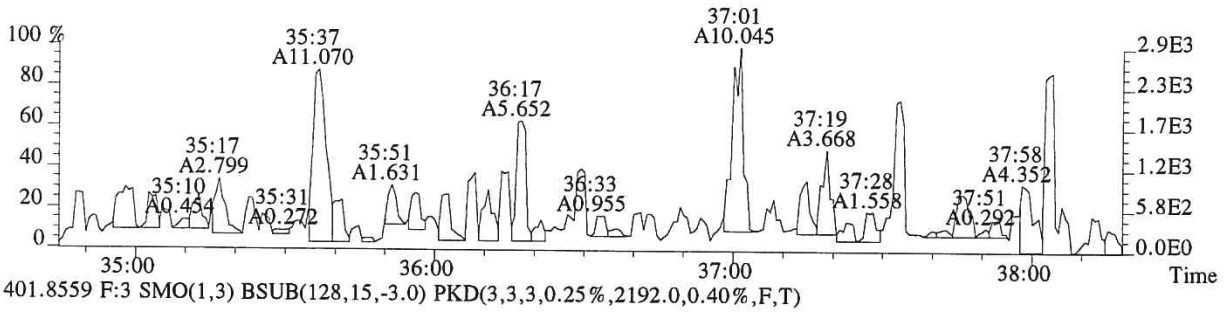


011246

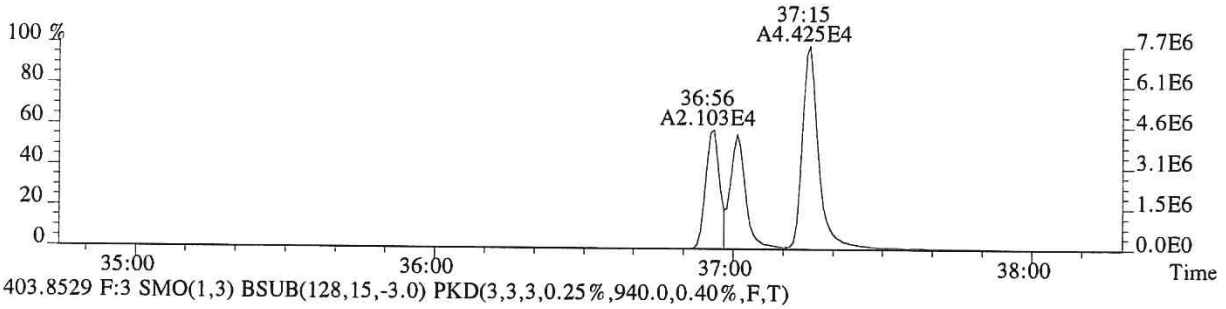
File:P519020 #1-321 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



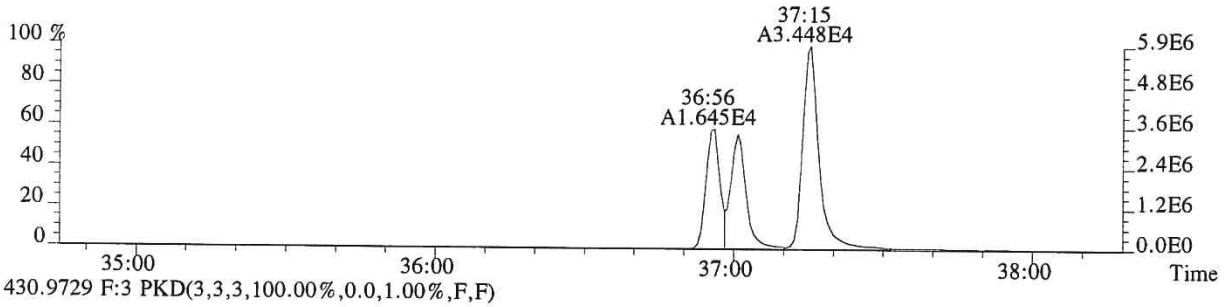
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



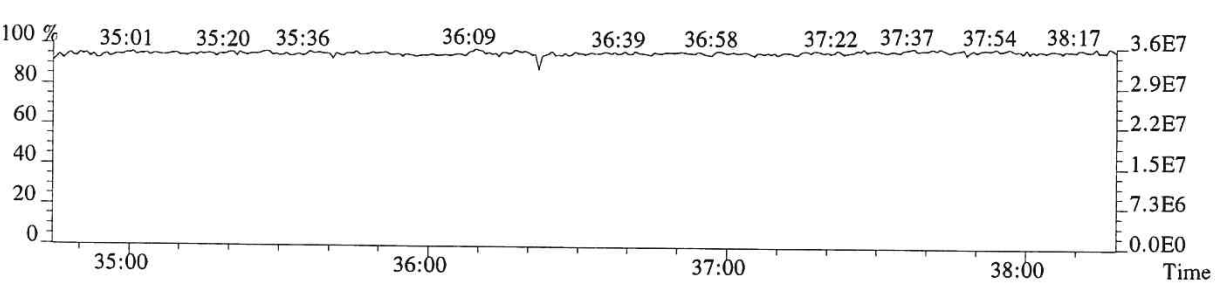
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2192.0,0.40%,F,T)



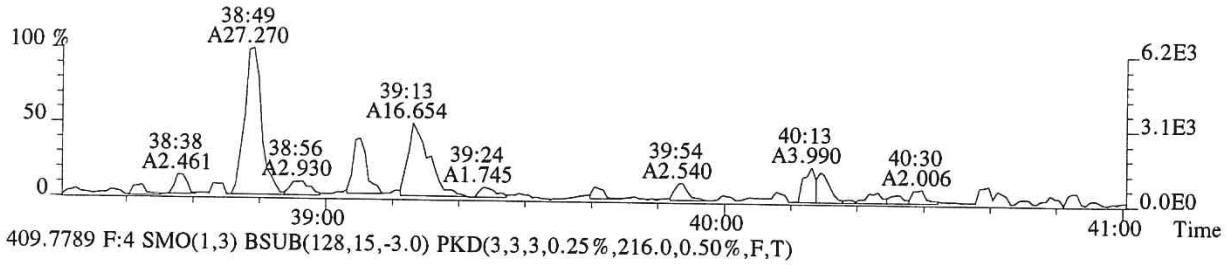
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



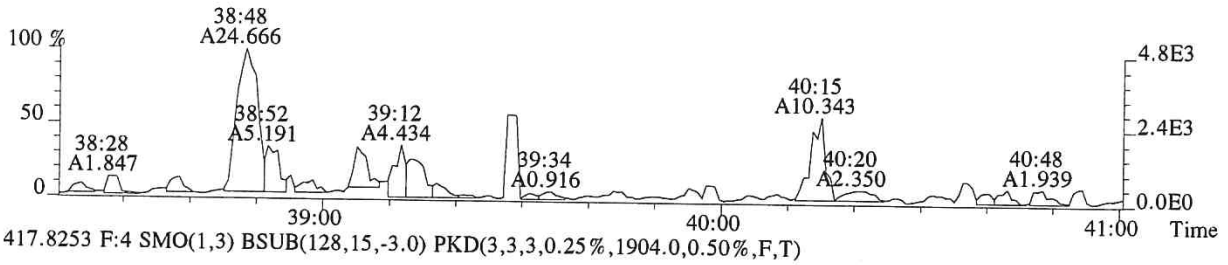
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



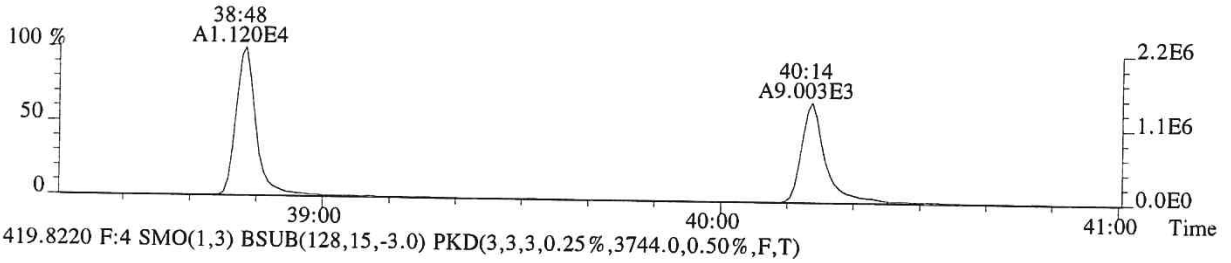
File:P519020 #1-241 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.50%,F,T)



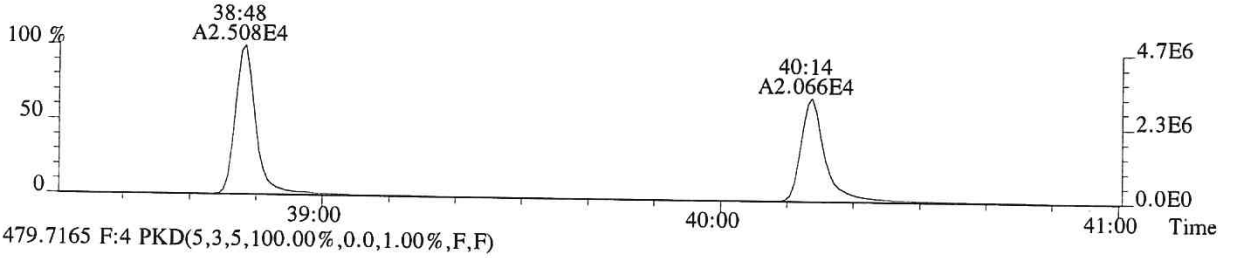
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.50%,F,T)



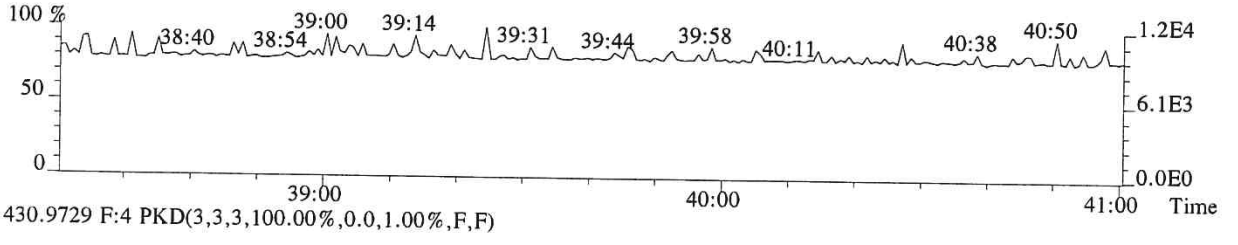
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1904.0,0.50%,F,T)



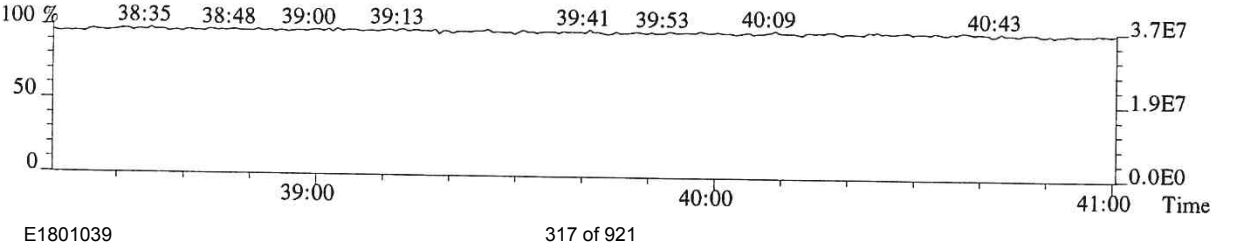
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3744.0,0.50%,F,T)



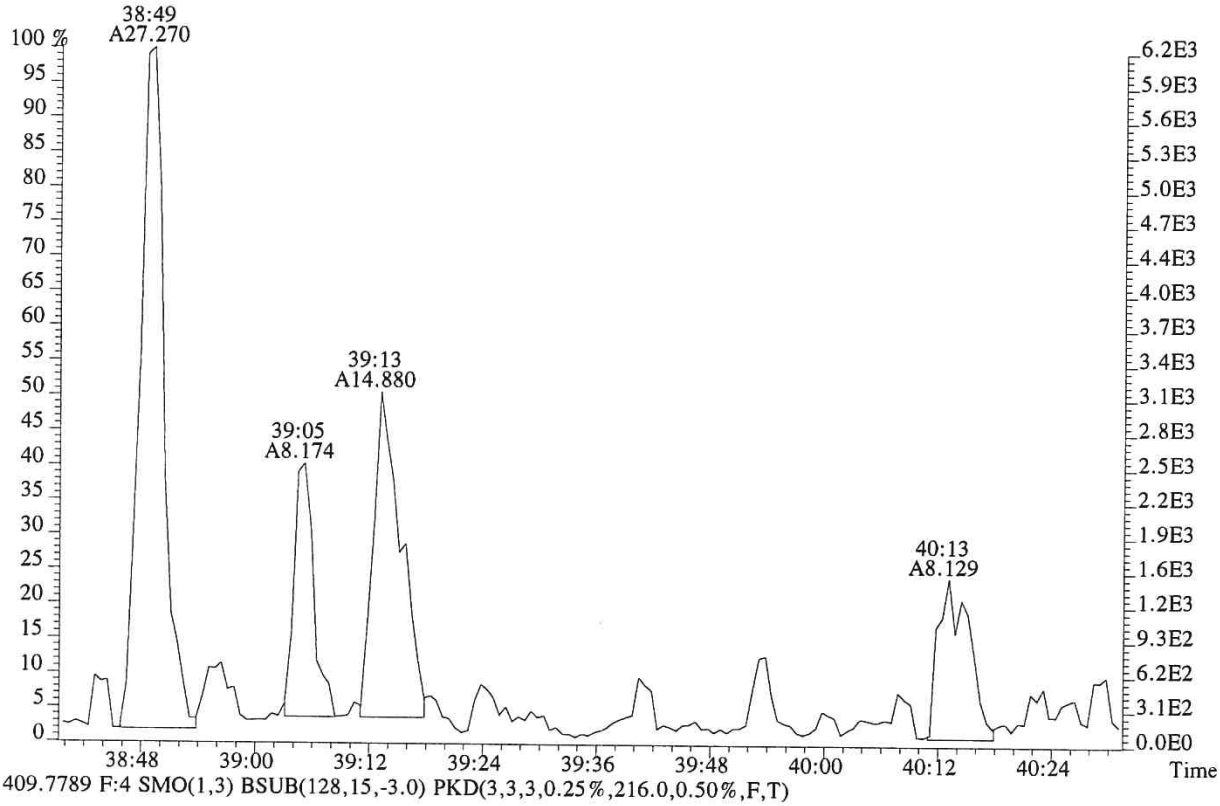
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



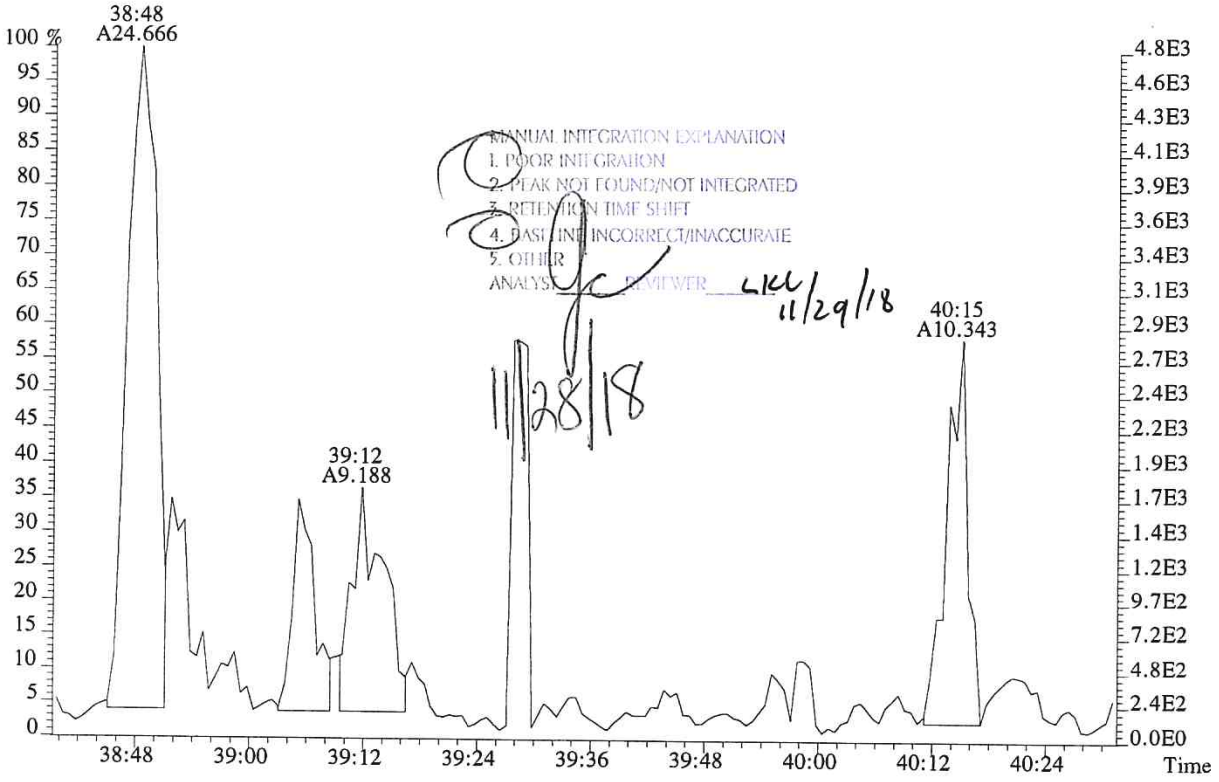
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519020 #1-241 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.50%,F,T)

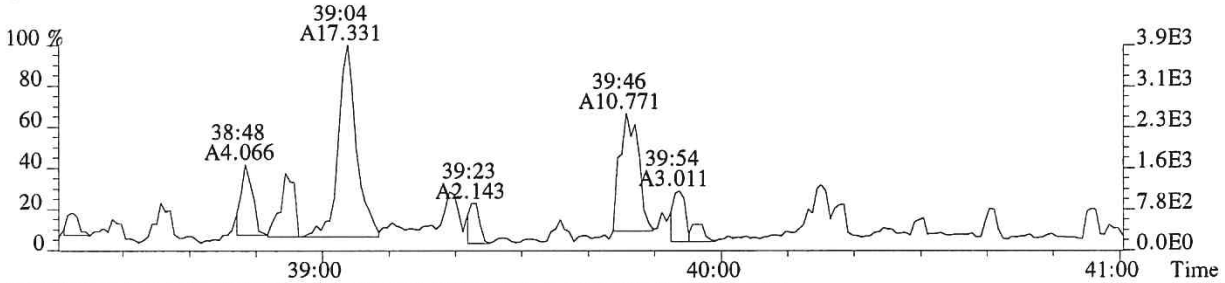


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.50%,F,T)

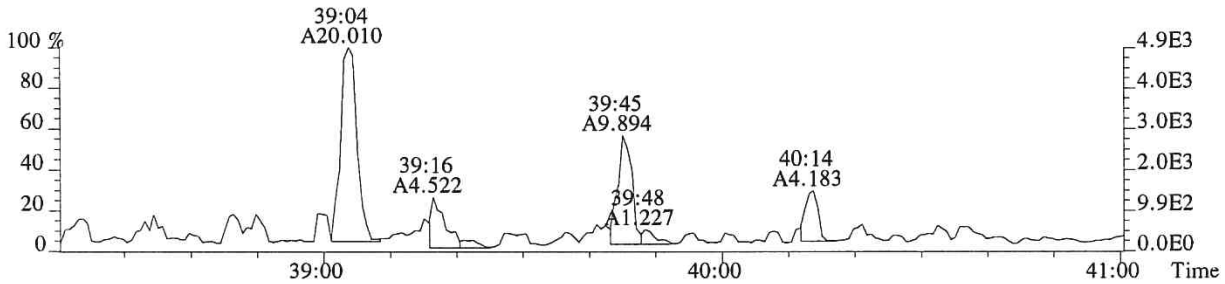


011249

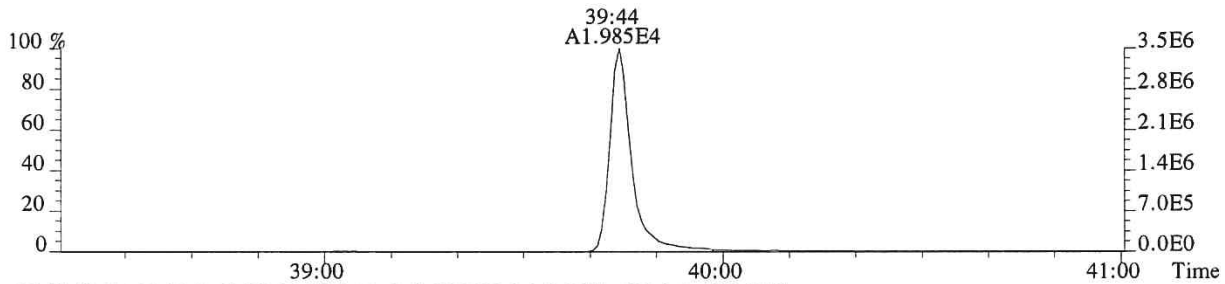
File:P519020 #1-241 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



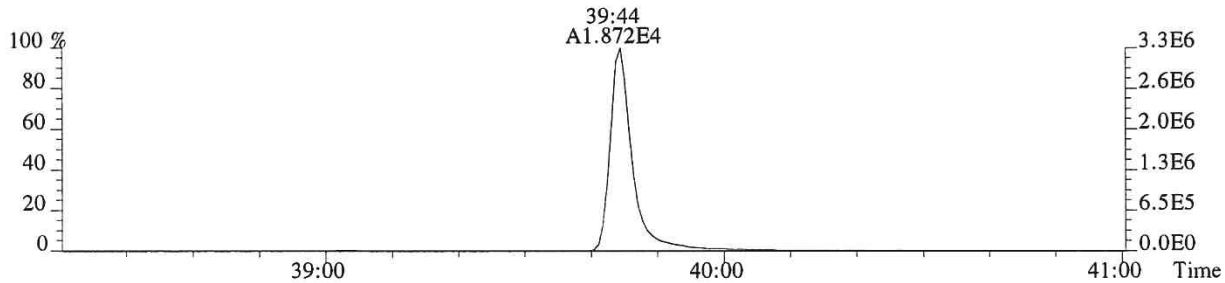
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



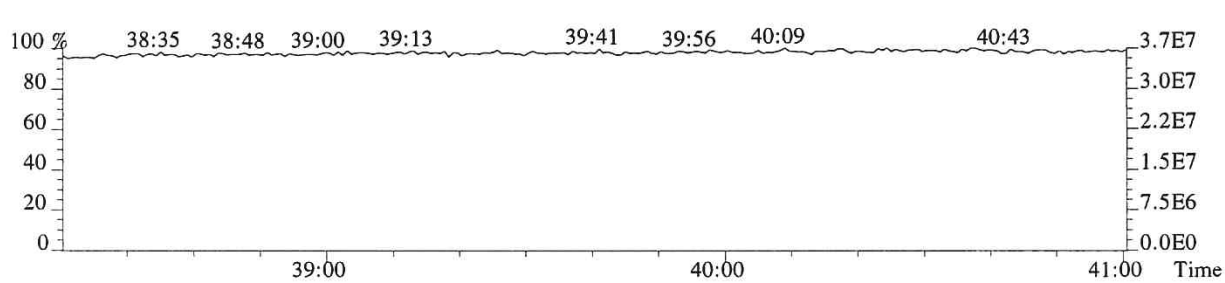
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



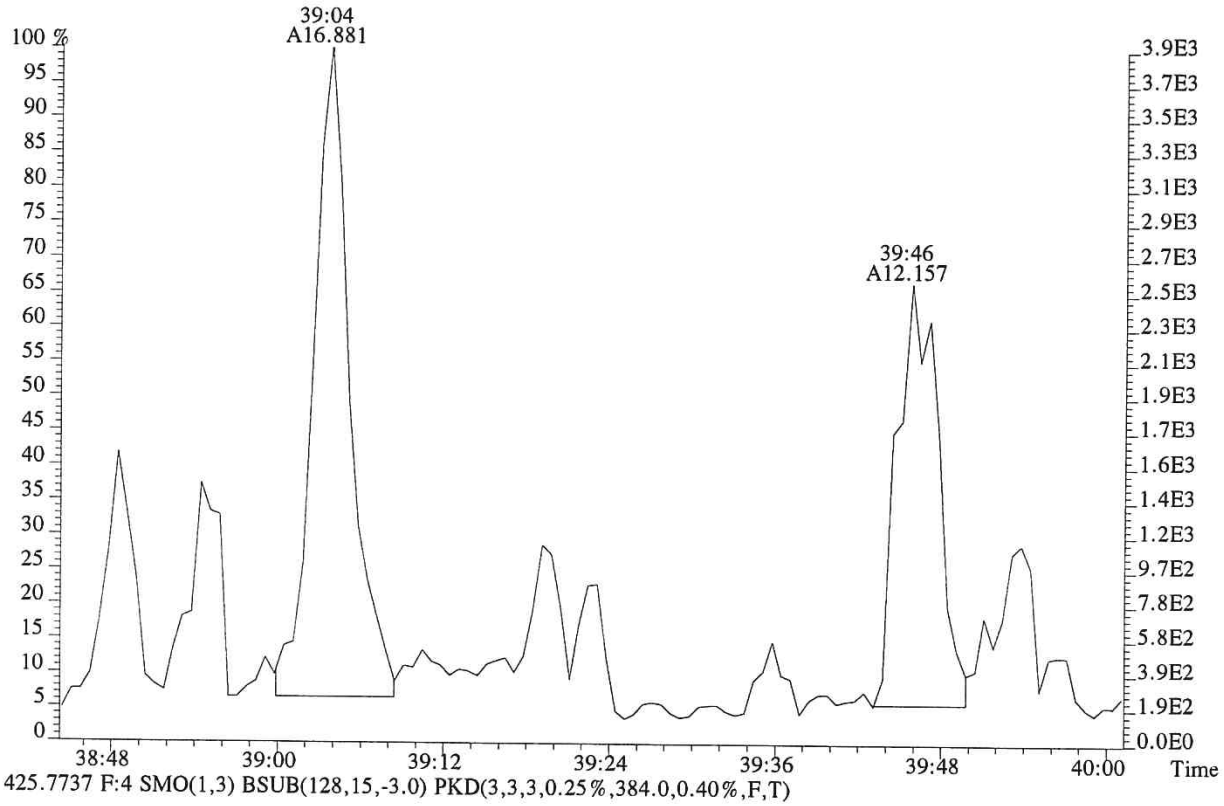
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



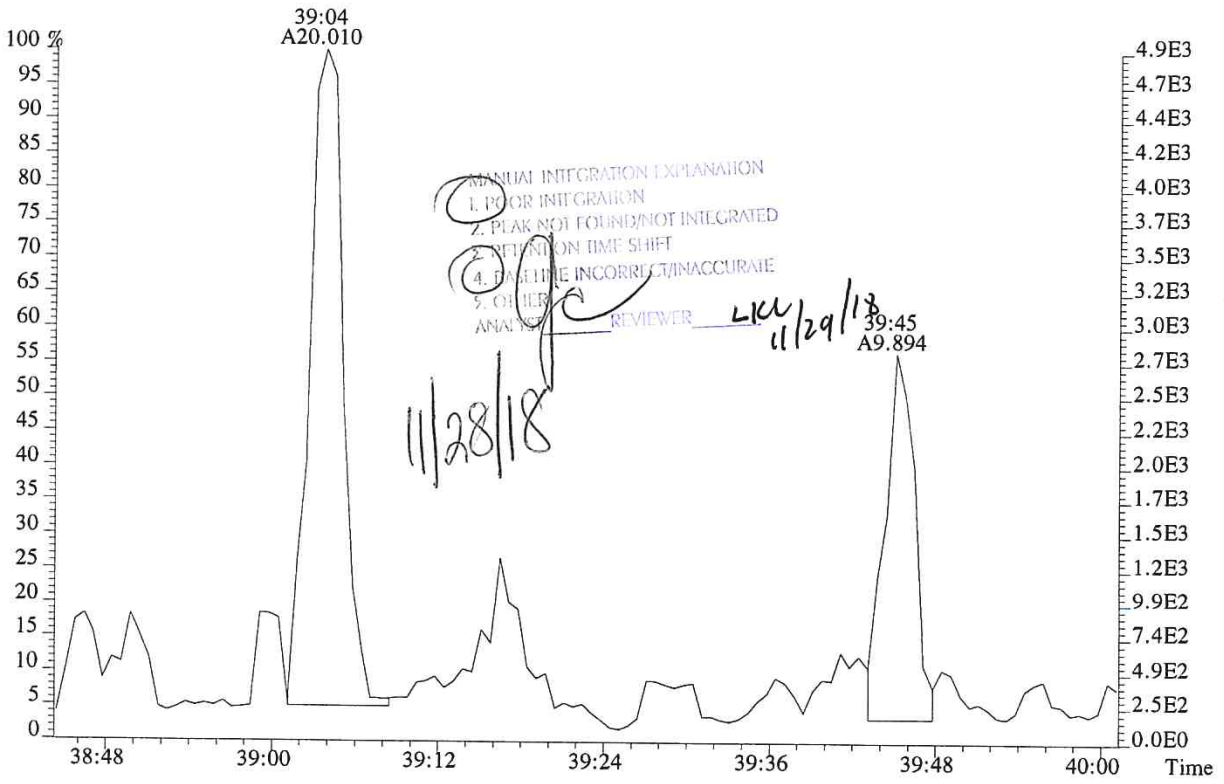
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519020 #1-241 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



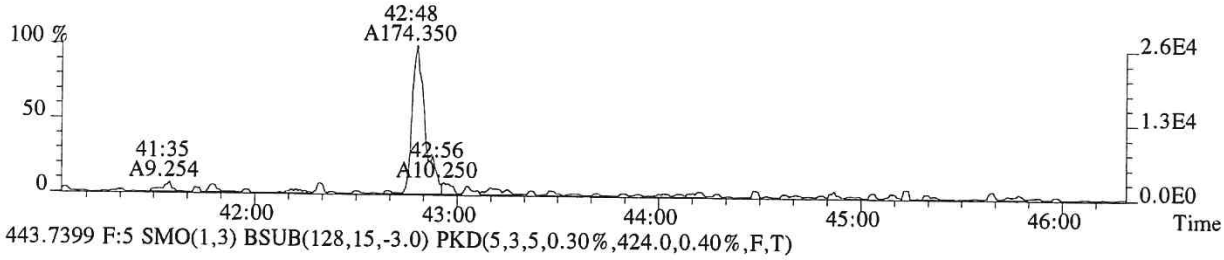
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



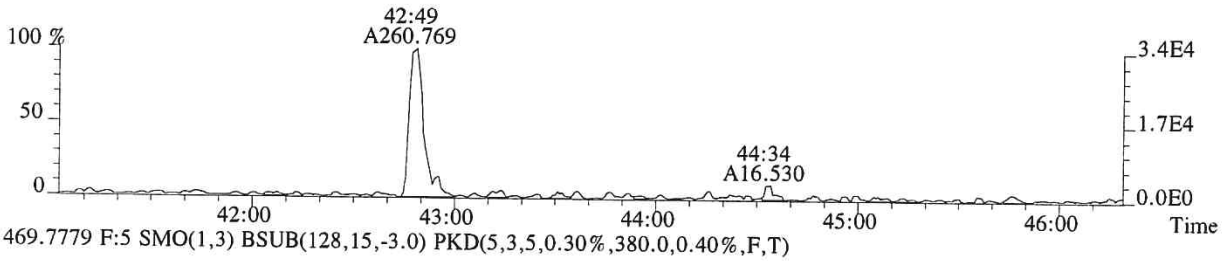
011251

File:P519020 #1-475 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041

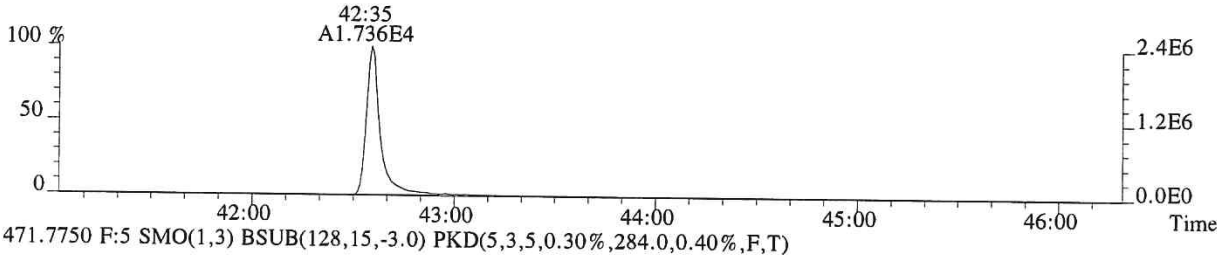
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



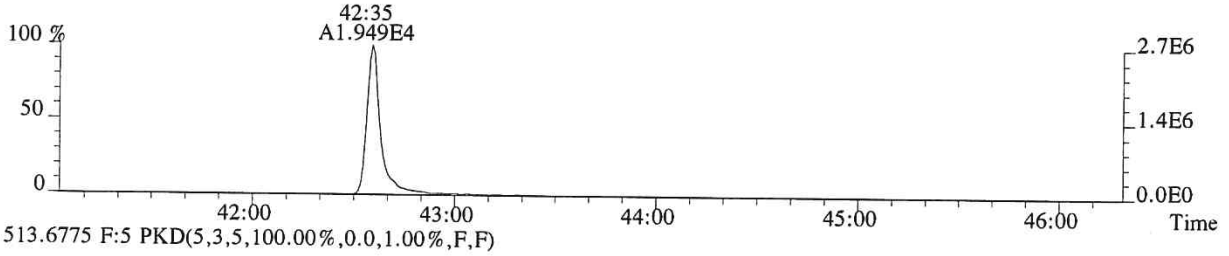
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



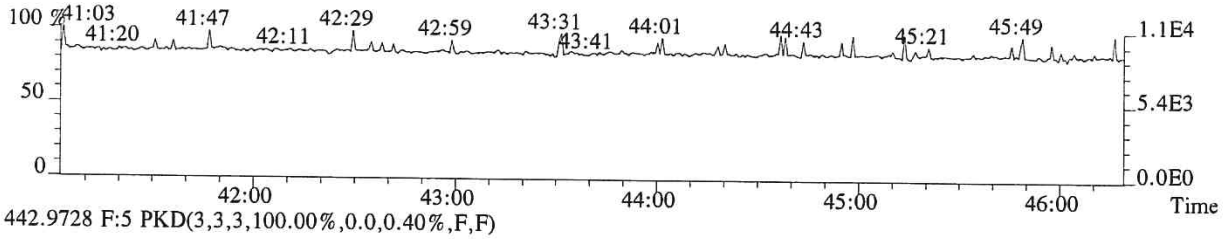
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



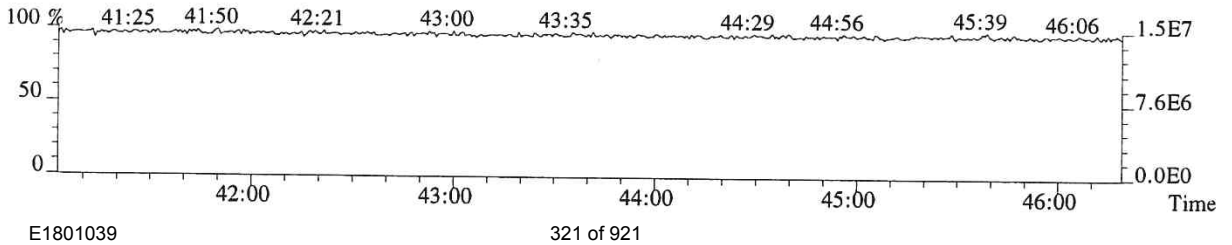
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



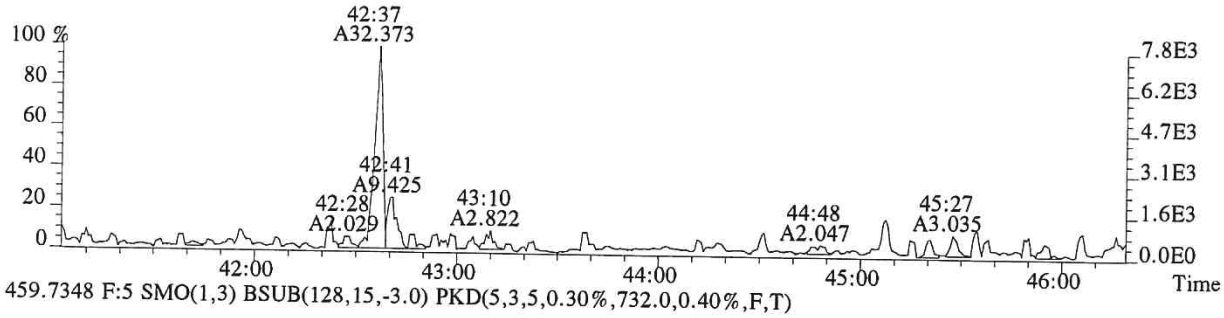
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



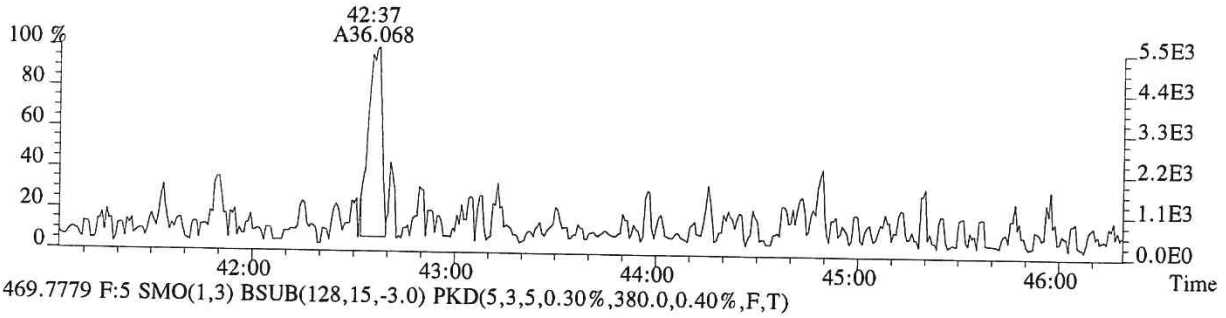
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



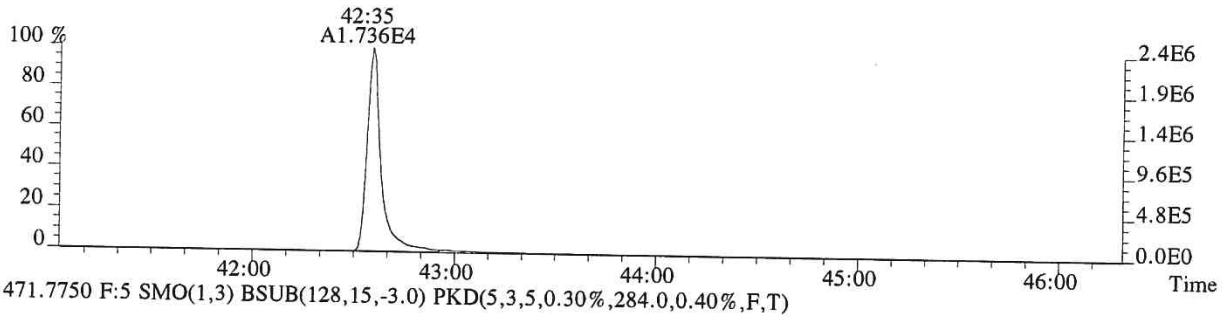
File:P519020 #1-475 Acq:27-NOV-2018 22:03:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1901039-041
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



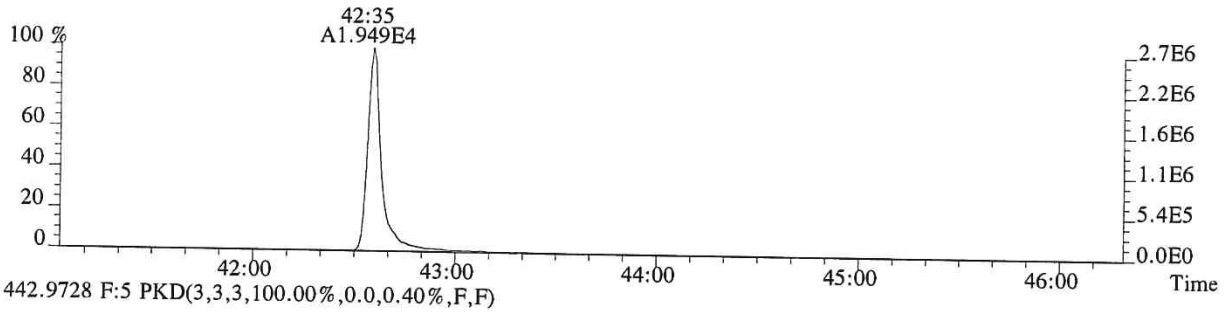
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



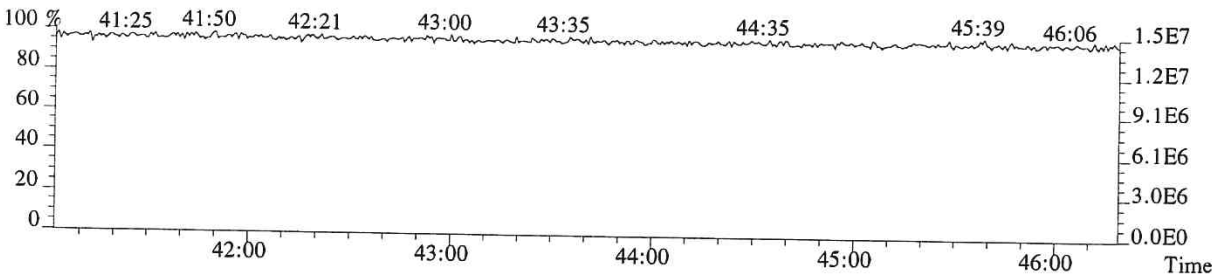
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
COMP-SL0119-0

Run #14 Filename P519311 Samp: 1 Inj: 1 Acquired: 8-DEC-18 14:49:24
Processed: 11-DEC-18 16:41:15 Sample ID: E1801039-042

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	1.115e+03	1.442e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	1.076e+02	5.641e+01	1.91	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	7.561e+01	7.922e+01	0.95	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	1.755e+02	1.437e+02	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:00	4.938e+01	4.956e+01	1.00	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	1.310e+01	1.416e+01	0.93	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	1.462e+01	2.518e+01	0.58	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	1.653e+02	1.535e+02	1.08	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:07	2.208e+01	2.186e+01	1.01	yes	no	1.258
10	Unk	OCDF	42:50	2.120e+02	2.381e+02	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	2.727e+02	3.547e+02	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:25	1.873e+01	1.745e+01	1.07	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:39	2.410e+01	1.755e+01	1.37	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	5.668e+01	3.203e+01	1.77	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	4.480e+01	3.743e+01	1.20	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:37	1.164e+03	1.119e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:39	1.376e+04	1.516e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.182e+04	1.489e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.411e+04	1.482e+04	1.63	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.313e+04	1.447e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	1.074e+04	2.107e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.365e+04	2.607e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	1.128e+04	2.189e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	1.165e+04	2.218e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	8.400e+03	1.880e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	7.923e+03	1.778e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	5.592e+03	7.068e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.714e+04	1.033e+04	1.66	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.573e+04	1.233e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.466e+04	1.153e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	1.697e+04	1.634e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:38	1.461e+04	1.609e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	1.936e+04	2.387e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.930e+04	2.256e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	8.436e+03				no	1.014

$$\text{OCDD} = \frac{(1.376e+04 + 1.516e+04) \times 4000\ \text{pg} \times 1}{(1.461e+04 + 1.609e+04) \times 10.916\ \text{g} \times 79\ /\ 100 \times 1.118} = 395.8403\ \text{ng/kg}$$

LG 12/13/18

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10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
COMP-SL0119-0123

Run #14 Filename P519311 Samp: 1 Inj: 1 Acquired: 8-DEC-18 14:49:24
Processed: 11-DEC-18 16:41:15 LAB. ID: E1801039-042

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.97e+05	2.80e+02	7.0e+02	2.49e+05	3.28e+02	7.6e+02
2	1,2,3,7,8-PeCDF	2.01e+04	4.24e+02	4.7e+01	1.04e+04	9.56e+02	1.1e+01
3	2,3,4,7,8-PeCDF	1.48e+04	4.24e+02	3.5e+01	1.29e+04	9.56e+02	1.3e+01
4	1,2,3,4,7,8-HxCDF	3.58e+04	1.56e+02	2.3e+02	3.18e+04	1.32e+02	2.4e+02
5	1,2,3,6,7,8-HxCDF	9.35e+03	1.56e+02	6.0e+01	1.05e+04	1.32e+02	7.9e+01
6	2,3,4,6,7,8-HxCDF	2.99e+03	1.56e+02	1.9e+01	2.56e+03	1.32e+02	1.9e+01
7	1,2,3,7,8,9-HxCDF	3.22e+03	1.56e+02	2.1e+01	4.26e+03	1.32e+02	3.2e+01
8	1,2,3,4,6,7,8-HpCDF	3.64e+04	3.64e+02	1.0e+02	3.21e+04	7.64e+02	4.2e+01
9	1,2,3,4,7,8,9-HpCDF	4.70e+03	3.64e+02	1.3e+01	3.69e+03	7.64e+02	4.8e+00
10	OCDF	2.44e+04	3.00e+02	8.1e+01	2.95e+04	2.88e+02	1.0e+02
11	2,3,7,8-TCDD	5.32e+04	7.72e+02	6.9e+01	6.96e+04	6.92e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.97e+03	7.52e+02	5.3e+00	3.92e+03	2.76e+02	1.4e+01
13	1,2,3,4,7,8-HxCDD	5.07e+03	3.68e+02	1.4e+01	3.40e+03	2.36e+02	1.4e+01
14	1,2,3,6,7,8-HxCDD	1.10e+04	3.68e+02	3.0e+01	6.56e+03	2.36e+02	2.8e+01
15	1,2,3,7,8,9-HxCDD	1.05e+04	3.68e+02	2.9e+01	9.47e+03	2.36e+02	4.0e+01
16	1,2,3,4,6,7,8-HpCDD	1.95e+05	1.18e+03	1.6e+02	1.95e+05	1.68e+02	1.2e+03
17	OCDD	1.64e+06	2.56e+02	6.4e+03	1.81e+06	3.04e+02	6.0e+03
18	13C-2,3,7,8-TCDF	2.15e+06	2.75e+03	7.8e+02	2.69e+06	1.39e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	4.46e+06	4.00e+02	1.1e+04	2.70e+06	3.32e+02	8.1e+03
20	13C-2,3,4,7,8-PeCDF	4.46e+06	4.00e+02	1.1e+04	2.80e+06	3.32e+02	8.4e+03
21	13C-1,2,3,4,7,8-HxCDF	2.17e+06	2.28e+02	9.5e+03	4.20e+06	2.04e+02	2.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.69e+06	2.28e+02	1.2e+04	5.13e+06	2.04e+02	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	2.22e+06	2.28e+02	9.7e+03	4.31e+06	2.04e+02	2.1e+04
24	13C-1,2,3,7,8,9-HxCDF	2.16e+06	2.28e+02	9.5e+03	4.20e+06	2.04e+02	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.63e+06	6.52e+02	2.5e+03	3.63e+06	8.32e+02	4.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.25e+06	6.52e+02	1.9e+03	2.87e+06	8.32e+02	3.4e+03
27	13C-2,3,7,8-TCDD	1.06e+06	2.70e+03	3.9e+02	1.34e+06	1.01e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	3.24e+06	4.28e+02	7.6e+03	1.95e+06	3.76e+02	5.2e+03
29	13C-1,2,3,4,7,8-HxCDD	3.43e+06	7.68e+02	4.5e+03	2.66e+06	3.88e+02	6.9e+03
30	13C-1,2,3,6,7,8-HxCDD	2.89e+06	7.68e+02	3.8e+03	2.27e+06	3.88e+02	5.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.84e+06	2.76e+02	1.0e+04	2.73e+06	2.76e+02	9.9e+03
32	13C-OCDD	1.68e+06	2.20e+02	7.6e+03	1.88e+06	2.44e+02	7.7e+03
33	13C-1,2,3,4-TCDD	3.59e+06	2.70e+03	1.3e+03	4.39e+06	1.01e+03	4.3e+03
34	13C-1,2,3,7,8,9-HxCDD	5.73e+06	7.68e+02	7.5e+03	4.41e+06	3.88e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	1.58e+06	2.24e+02	7.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (7.720e{+}02 + 6.920e{+}02) \times 2000}{(1.061e{+}06 + 1.335e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
COMP-SL0119-0123

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P519311 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 14:49:24 Processed: 11-DEC-18 16:41:15

Mass: 303.9020 305.8990 Tot Response: 4.58e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:16	2.60e+01	3.84e+01	0.68	yes	6.44e+01		n	n
2	25:07	4.79e+01	6.21e+01	0.77	yes	1.10e+02		n	n
3	25:32	2.31e+01	3.25e+01	0.71	yes	5.56e+01		n	n
4	26:33	5.42e+01	6.87e+01	0.79	yes	1.23e+02		n	n
5	27:02	4.14e+02	5.33e+02	0.78	yes	9.47e+02		n	n
6	27:17	2.99e+01	4.17e+01	0.72	yes	7.15e+01		n	n
7	27:51	1.11e+03	1.44e+03	0.77	yes	2.56e+03	2,3,7,8-TCDF	n	n
8	28:11	1.46e+02	1.90e+02	0.77	yes	3.36e+02		n	n
9	29:44	1.26e+02	1.89e+02	0.67	yes	3.15e+02		n	n

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Peak List Summary

CLIENT ID.
COMP-SL0119-0123

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P519311 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 14:49:24 Processed: 11-DEC-18 16:41:15

Mass: 319.8970 321.8940 Tot Response: 8.58e+02 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:42	1.05e+02	1.26e+02	0.84	yes	2.31e+02		n	n
2	28:40	2.73e+02	3.55e+02	0.77	yes	6.27e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
COMP-SL0119-0123

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P519311 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 14:49:24 Processed: 11-DEC-18 16:41:15

Mass: 339.8600 341.8570 Tot Response: 1.55e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:14	8.80e+01	6.67e+01 1.32	yes	1.55e+02		n	n

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Peak List Summary

CLIENT ID.
COMP-SL0119-0123

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P519311 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 14:49:24 Processed: 11-DEC-18 16:41:15

Mass: 355.8550 357.8520 Tot Response: 2.51e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:16	3.13e+01	2.01e+01 1.56	yes	5.14e+01		n	n
2	31:44	1.27e+02	7.28e+01 1.74	yes	2.00e+02		n	n

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Peak List Summary

CLIENT ID.
COMP-SL0119-0123

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P519311 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 14:49:24 Processed: 11-DEC-18 16:41:15

Mass: 373.8210 375.8180 Tot Response: 4.22e+02 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:54	5.84e+01	4.44e+01 1.32	yes	1.03e+02		n	n
2	35:53	1.76e+02	1.44e+02 1.22	yes	3.19e+02	1,2,3,4,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
COMP-SL0119-0123

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P519311 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 14:49:24 Processed: 11-DEC-18 16:41:15

Mass: 389.8160 391.8130 Tot Response: 2.11e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	1.07e+03	8.64e+02	1.24	yes	1.93e+03		n	n
2	36:39	2.41e+01	1.75e+01	1.37	yes	4.16e+01	1,2,3,4,7,8-HxCDD	n	n
3	36:55	3.11e+01	2.42e+01	1.29	yes	5.52e+01		n	n
4	36:59	4.48e+01	3.74e+01	1.20	yes	8.22e+01	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
COMP-SL0119-0123

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P519311 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 14:49:24 Processed: 11-DEC-18 16:41:15

Mass: 407.7820 409.7790 Tot Response: 7.12e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:38	1.65e+02	1.54e+02 1.08	yes	3.19e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:02	1.81e+02	1.68e+02 1.07	yes	3.49e+02		n	n
3	40:07	2.21e+01	2.19e+01 1.01	yes	4.39e+01	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
COMP-SL0119-0123

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519311 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 14:49:24 Processed: 11-DEC-18 16:41:15

Mass: 423.7770 425.7740 Tot Response: 8.61e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	3.22e+03	3.11e+03	1.04	yes	6.33e+03		n	n
2	39:37	1.16e+03	1.12e+03	1.04	yes	2.28e+03	1,2,3,4,6,7,8-HpCDD	n	n

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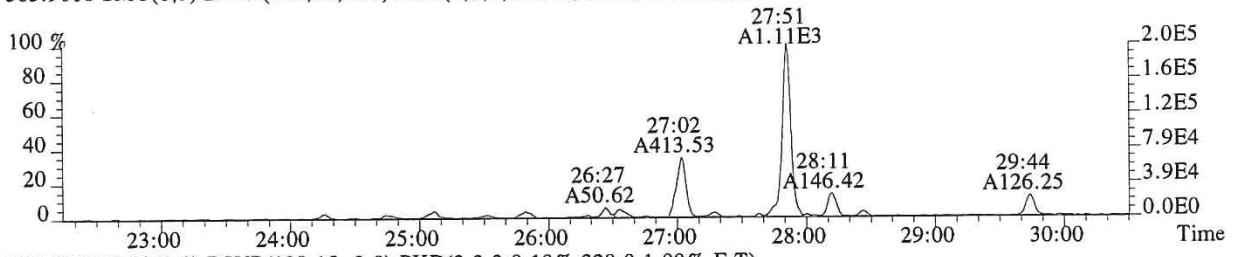
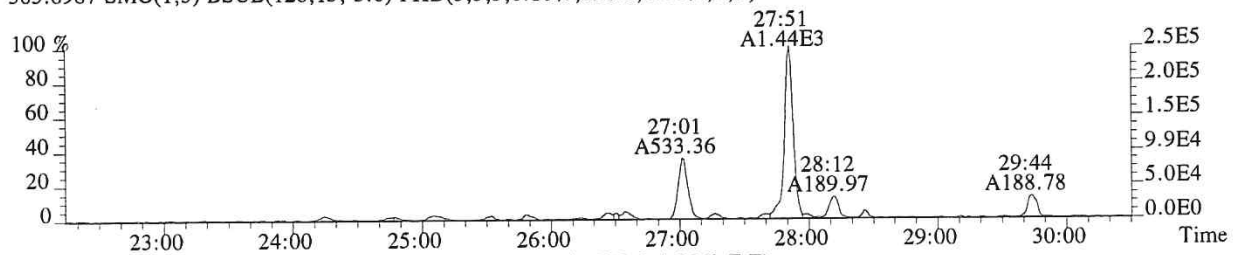
File:P519311 #1-587 Acq: 8-DEC-2018 14:49:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-042

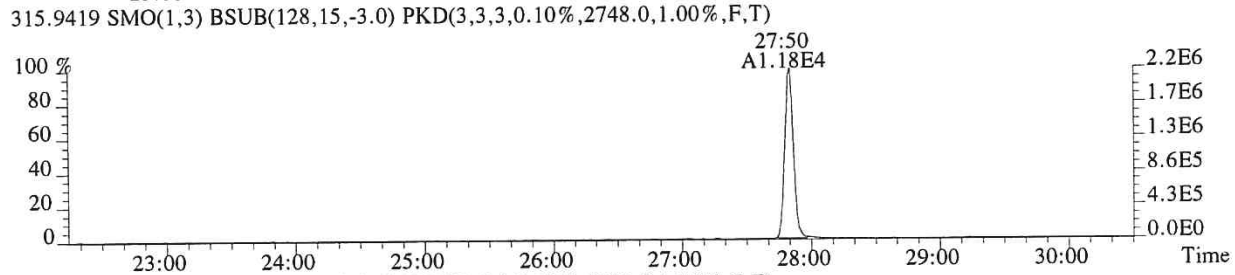
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



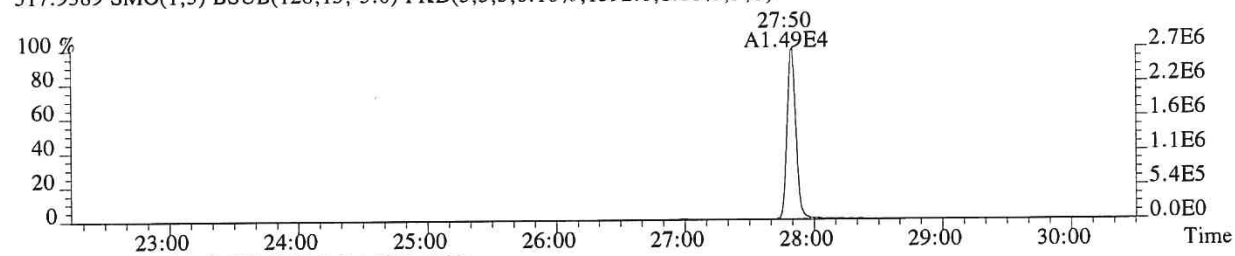
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



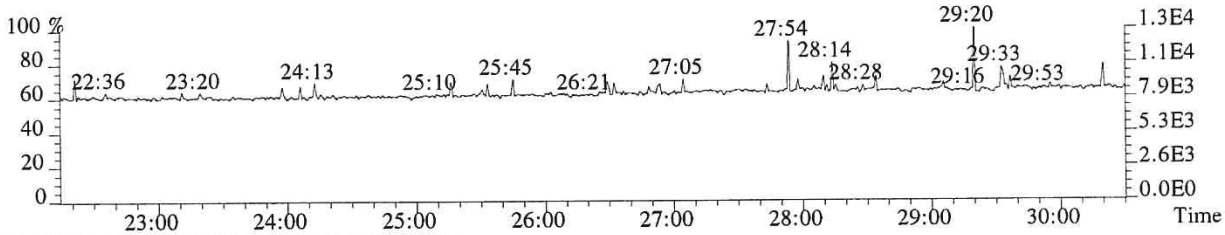
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2748.0,1.00%,F,T)



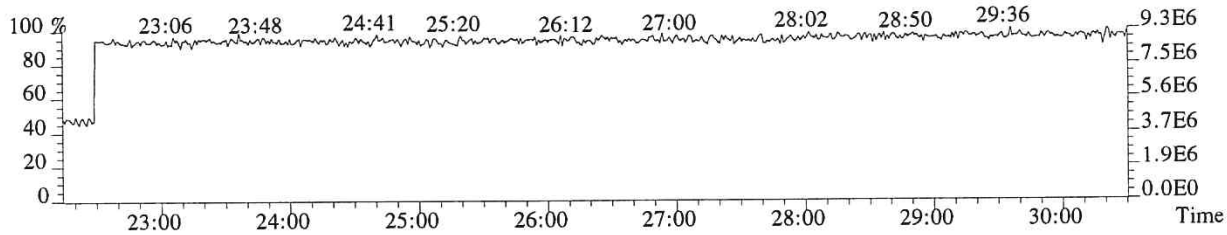
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

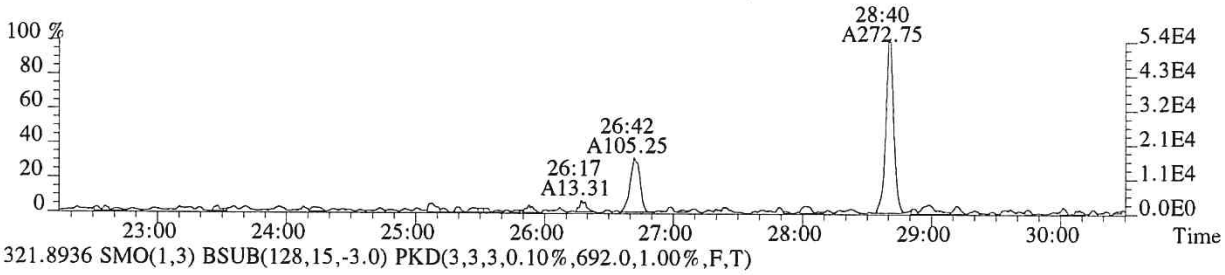


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

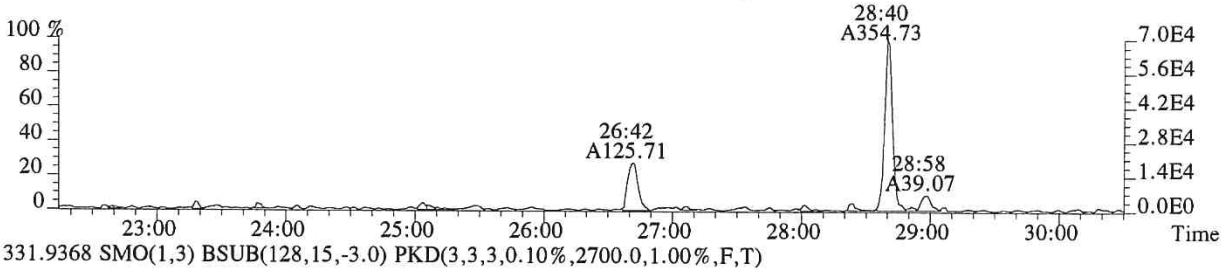


011264

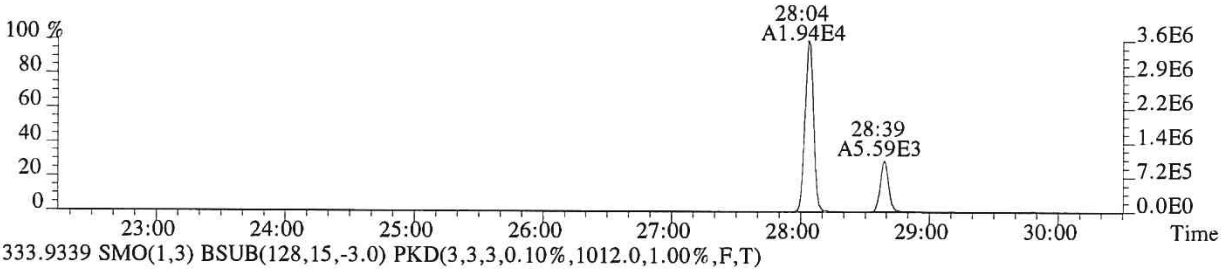
File:P519311 #1-587 Acq: 8-DEC-2018 14:49:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-042
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



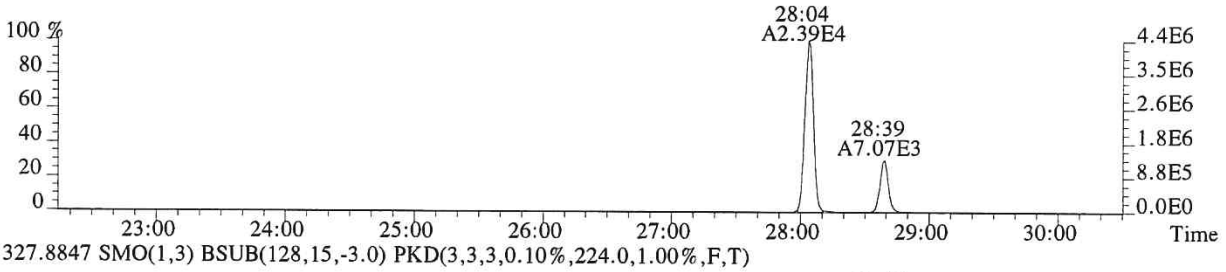
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



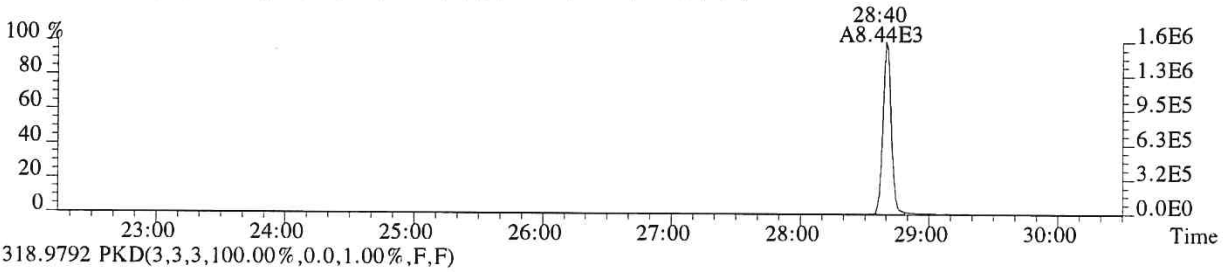
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2700.0,1.00%,F,T)



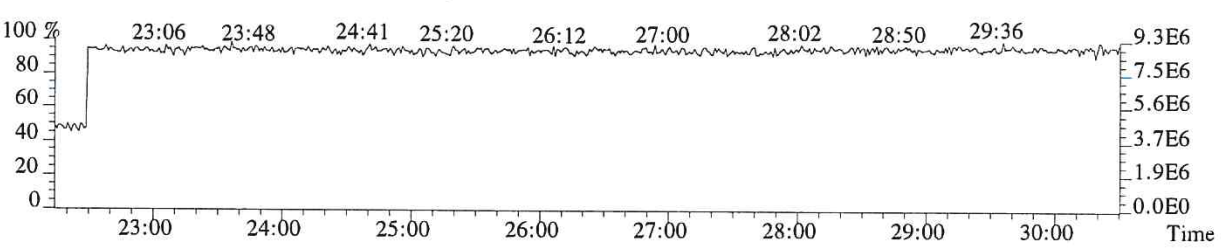
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)

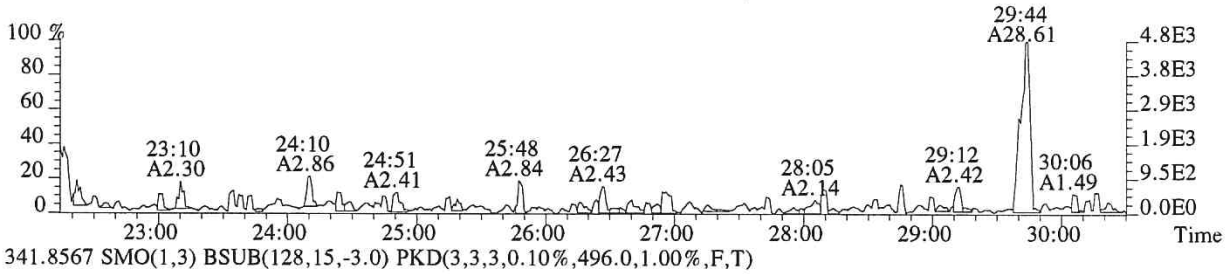


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

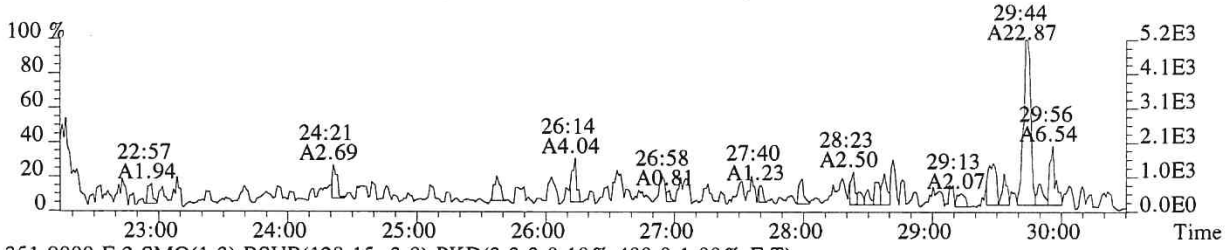


011265

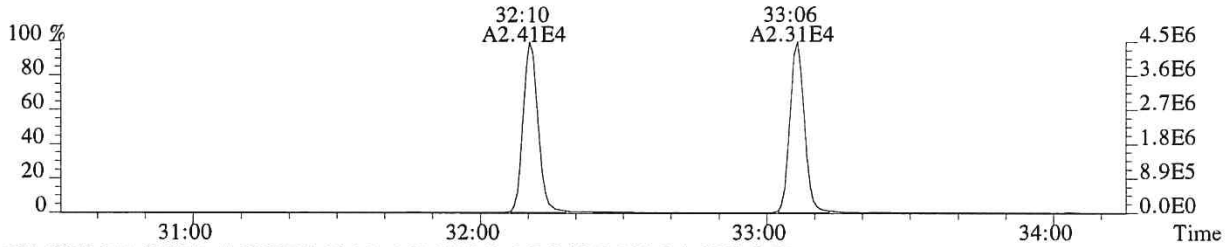
File:P519311 #1-587 Acq: 8-DEC-2018 14:49:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-042
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,176.0,1.00%,F,T)



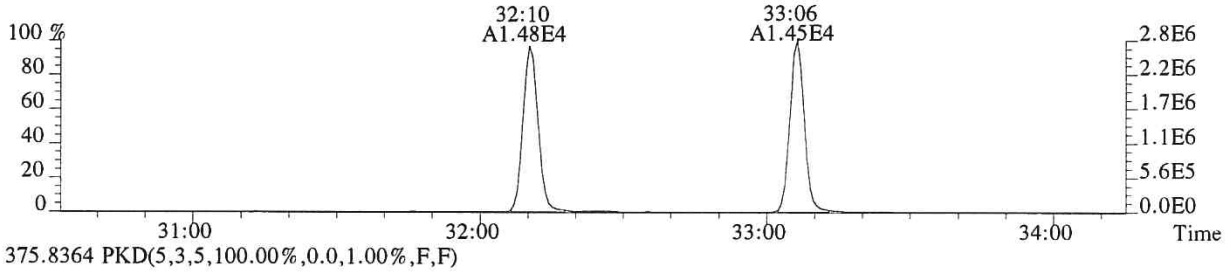
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



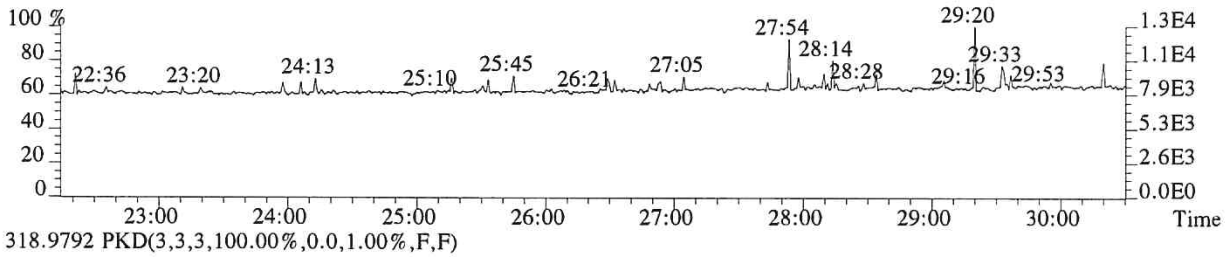
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



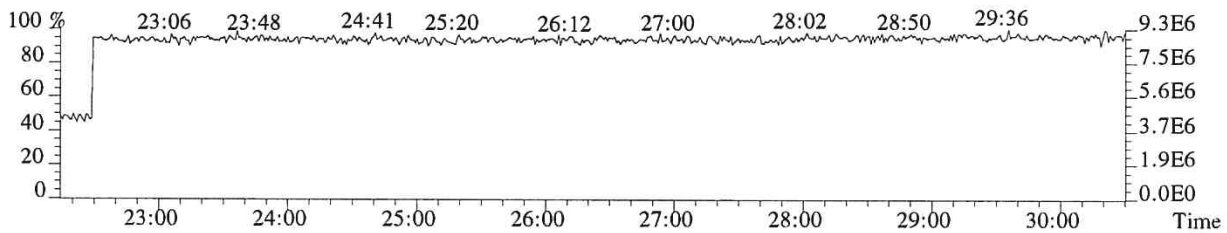
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

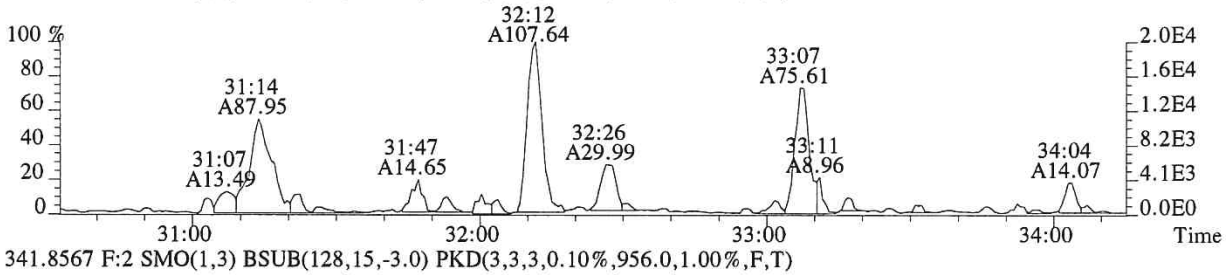


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

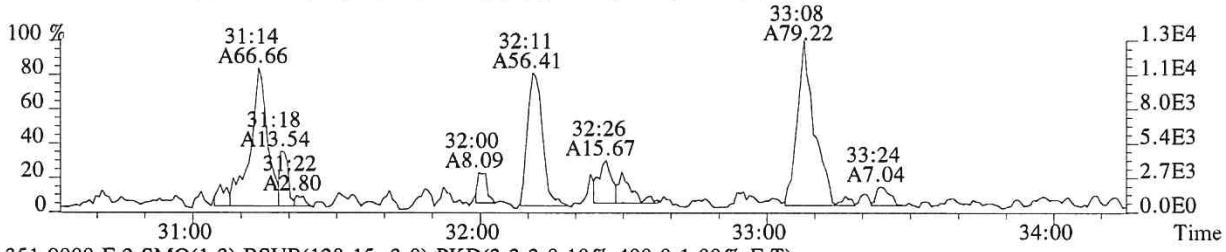


011266

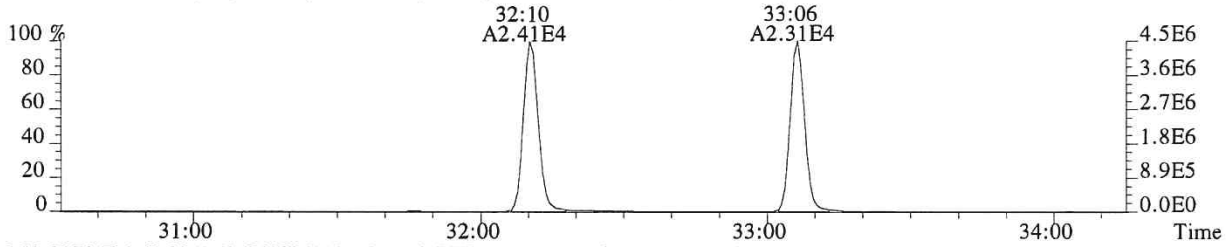
File:P519311 #1-335 Acq: 8-DEC-2018 14:49:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-042
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



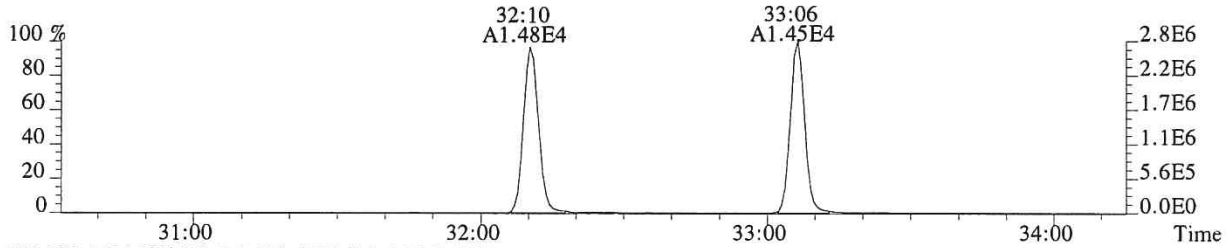
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



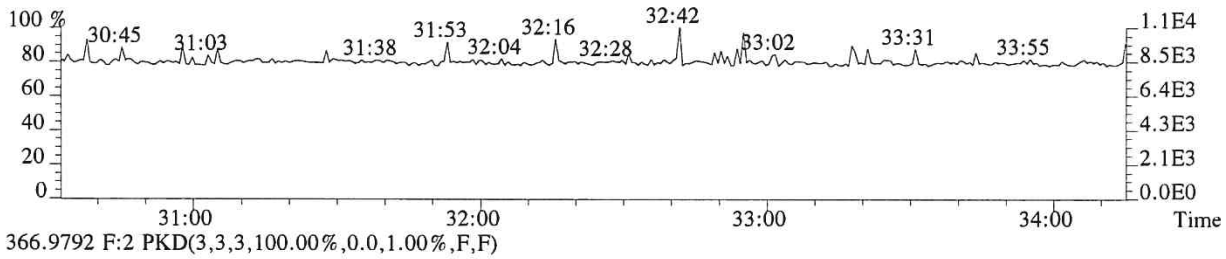
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



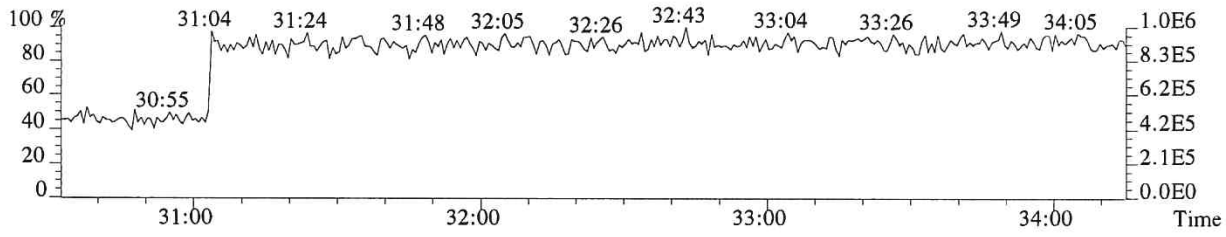
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

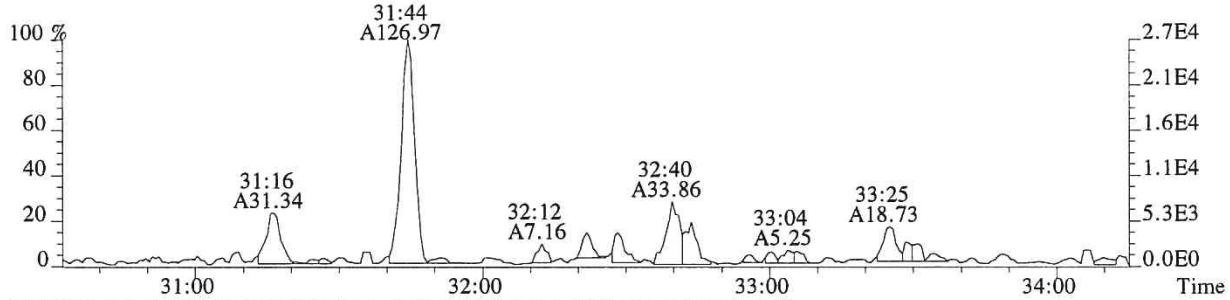


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

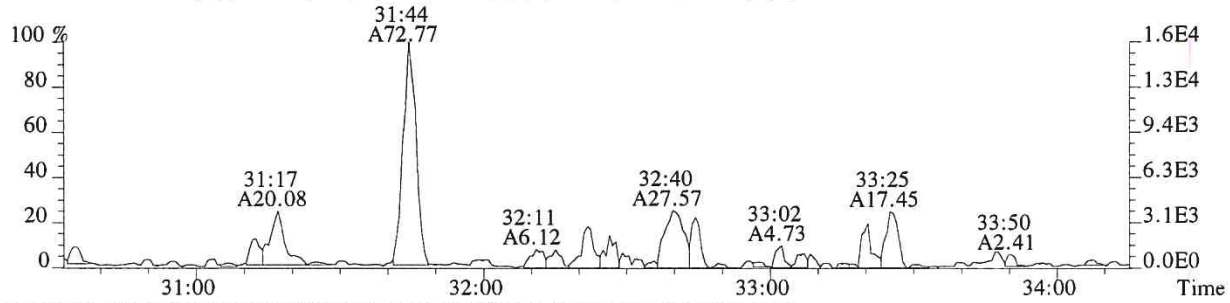


011267

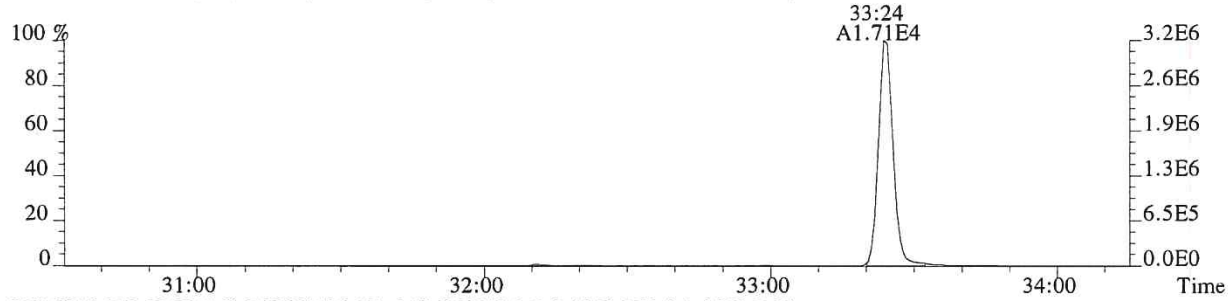
File:P519311 #1-335 Acq: 8-DEC-2018 14:49:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-042
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



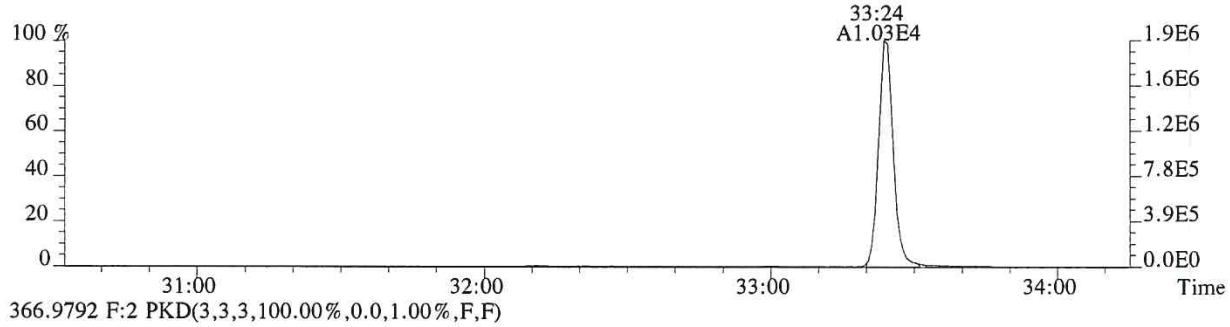
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



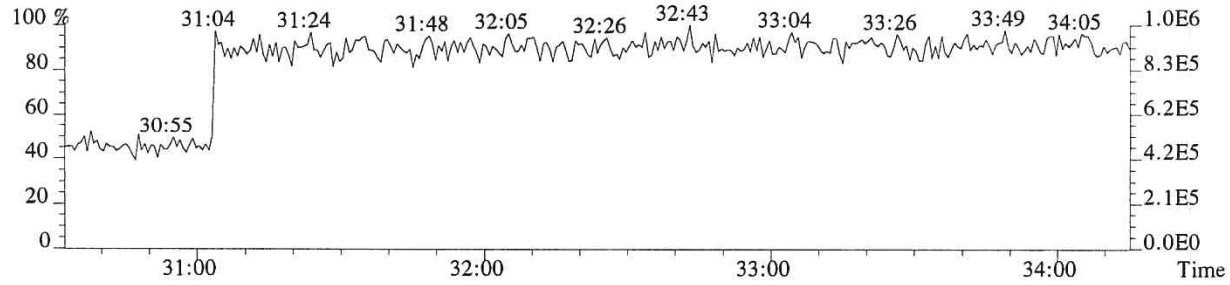
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



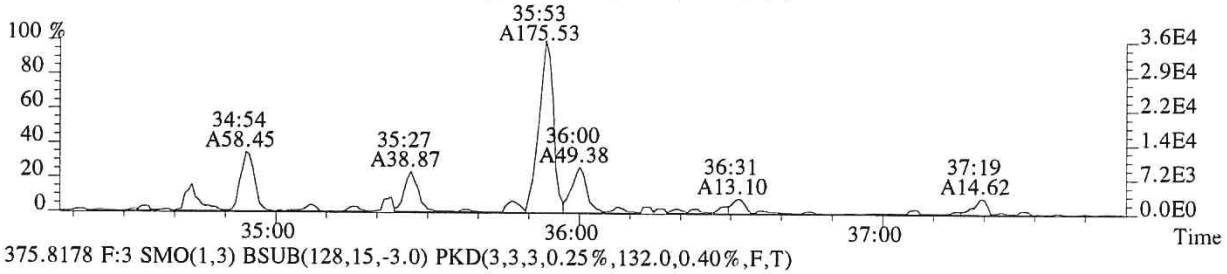
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



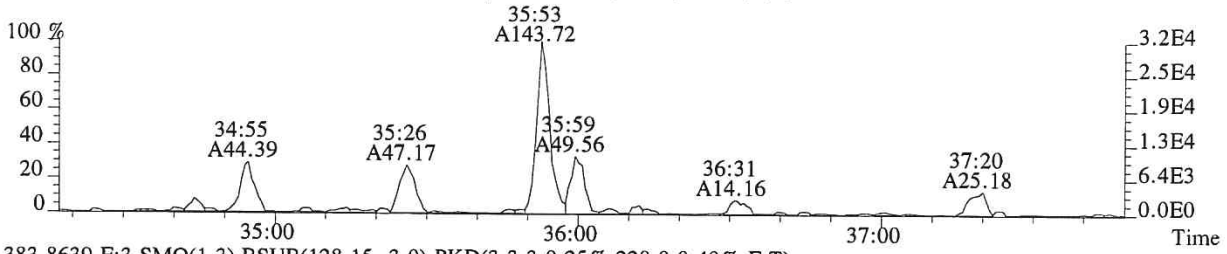
011268

File:P519311 #1-317 Acq: 8-DEC-2018 14:49:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-042

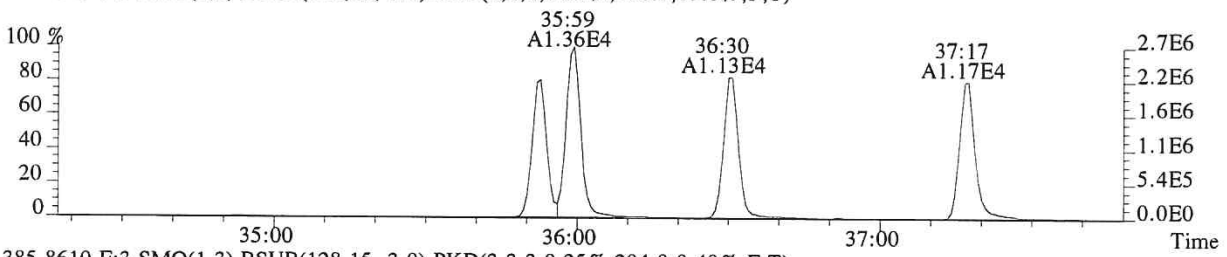
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,156.0,0.40%,F,T)



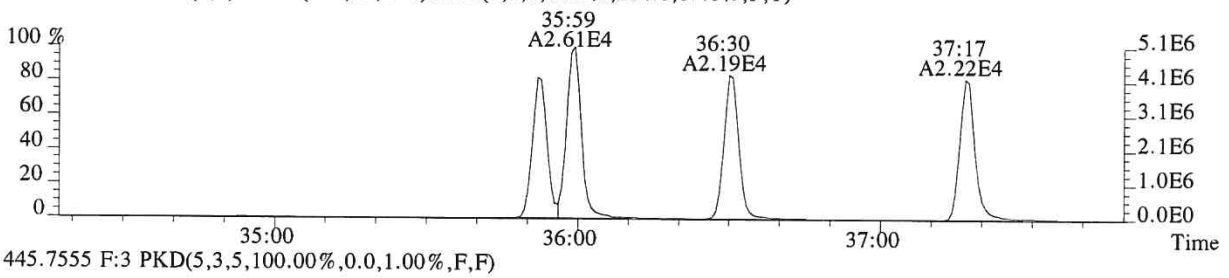
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,132.0,0.40%,F,T)



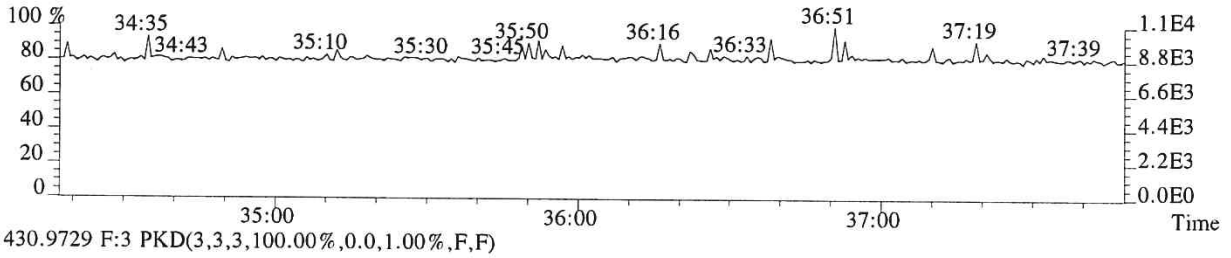
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



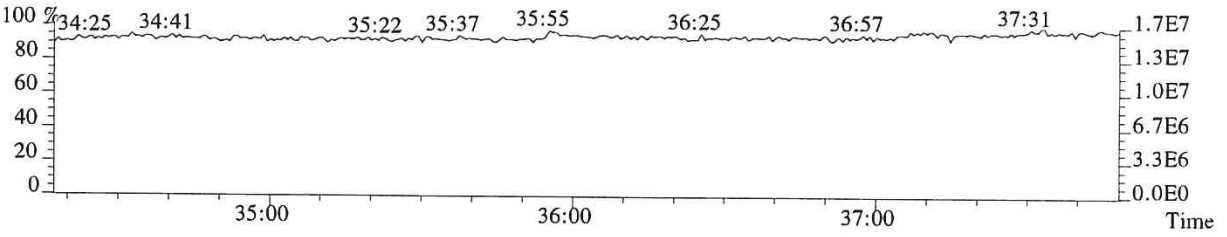
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

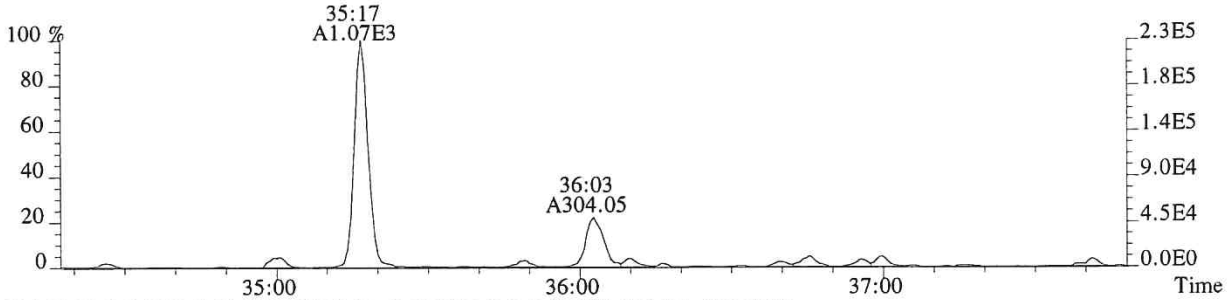


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

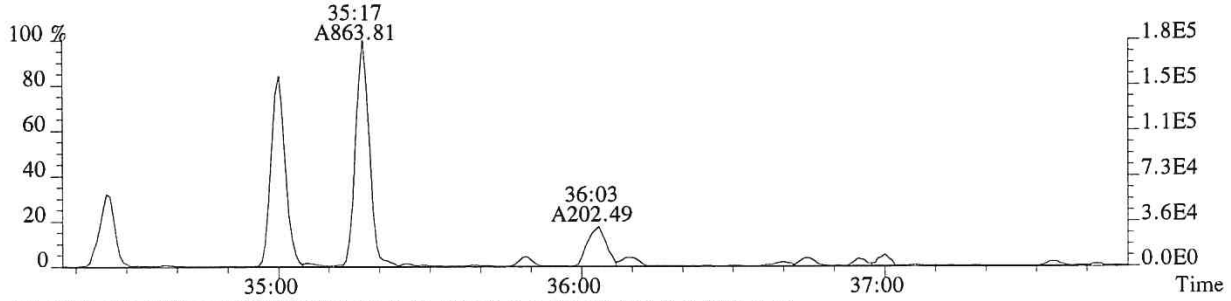


011269

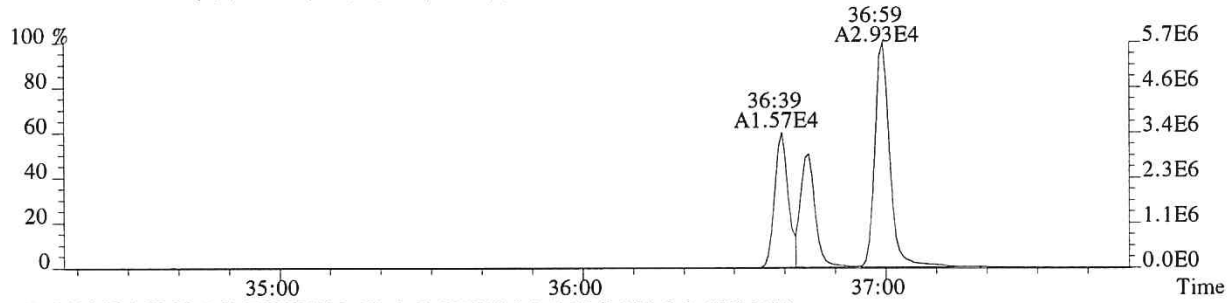
File:P519311 #1-317 Acq: 8-DEC-2018 14:49:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-042
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



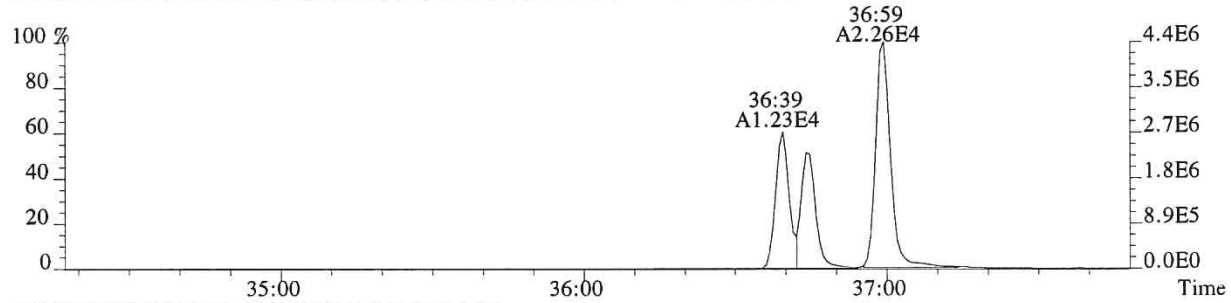
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



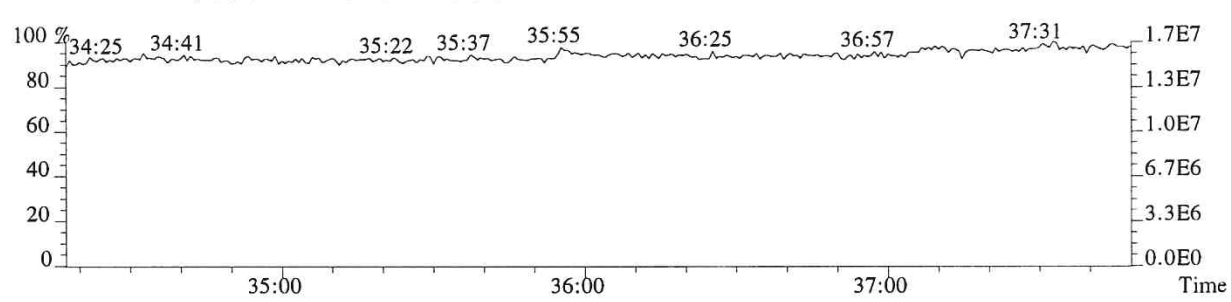
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)

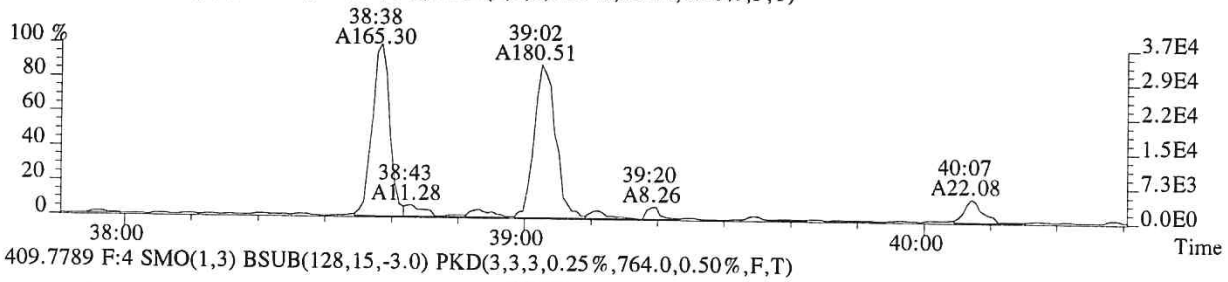


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

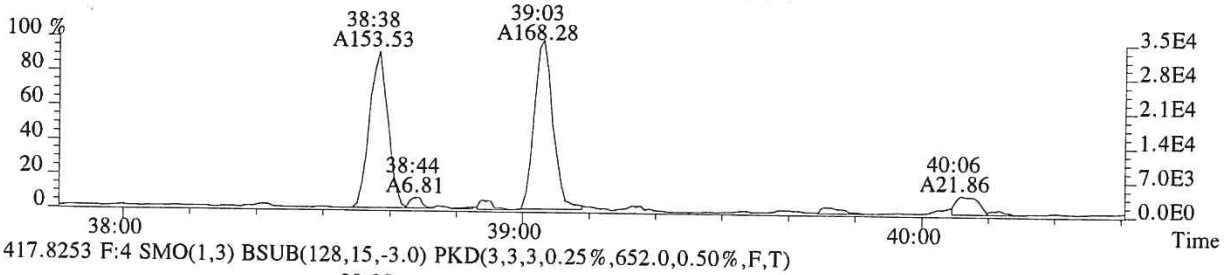


011270

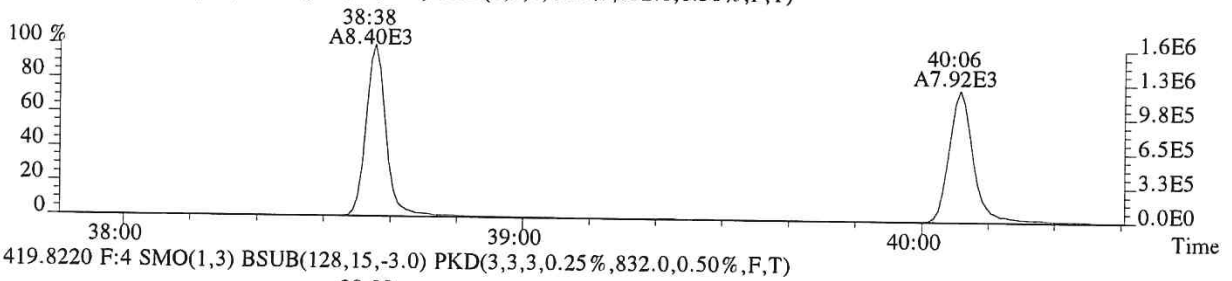
File:P519311 #1-241 Acq: 8-DEC-2018 14:49:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-042
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.50%,F,T)



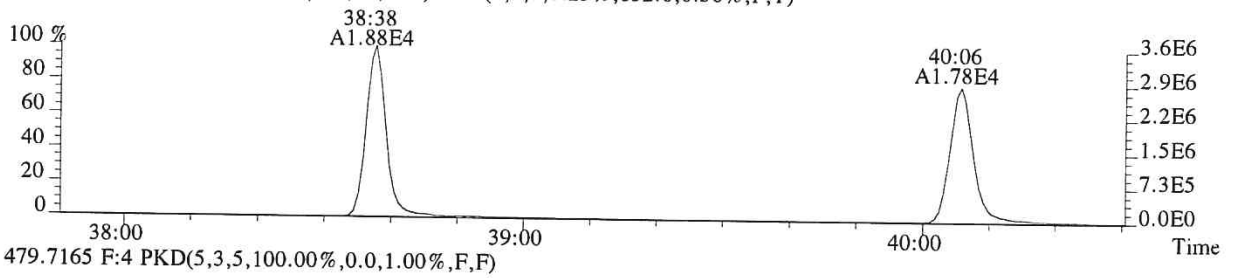
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.50%,F,T)



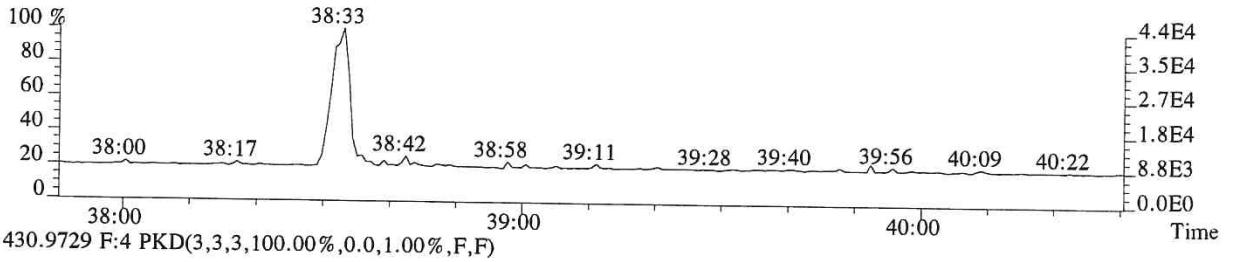
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.50%,F,T)



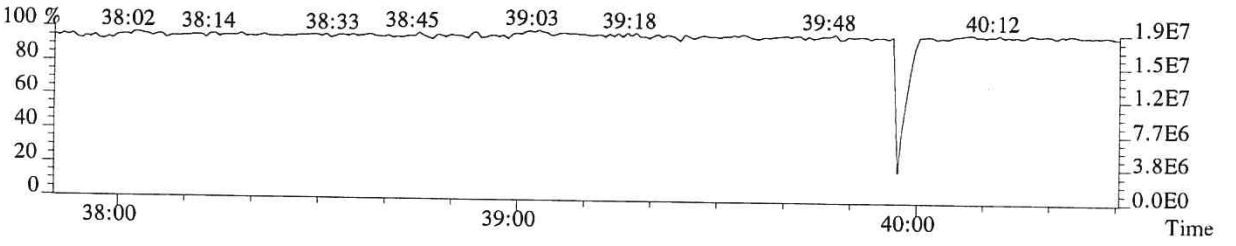
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

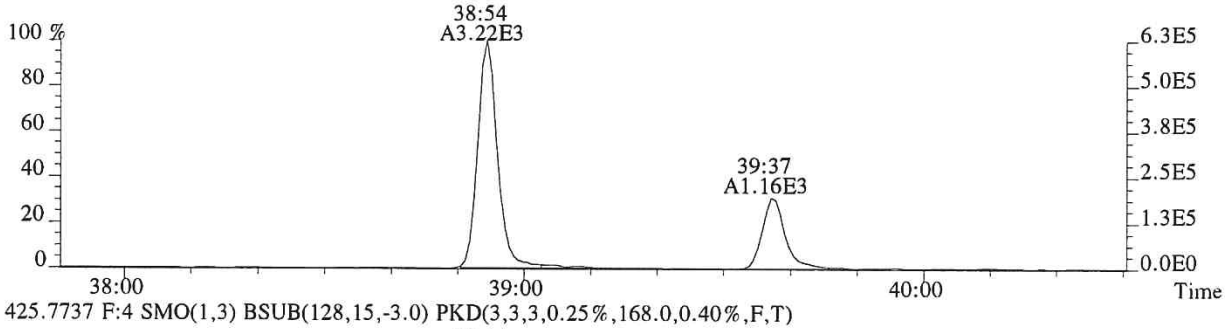


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

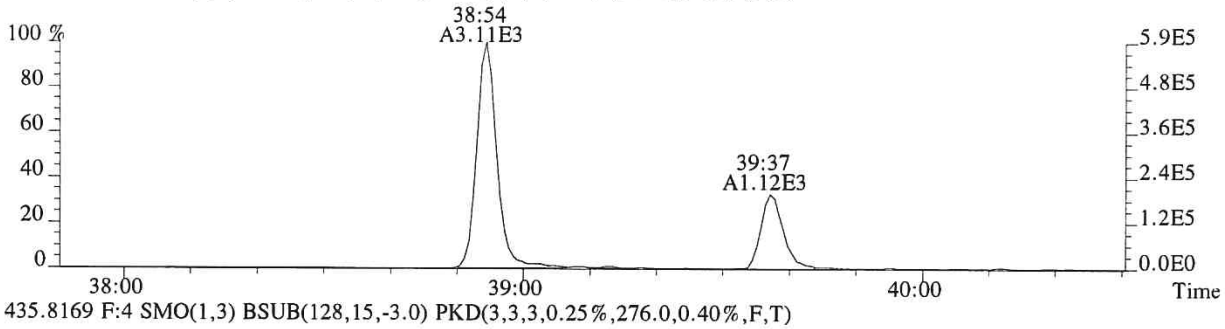


011271

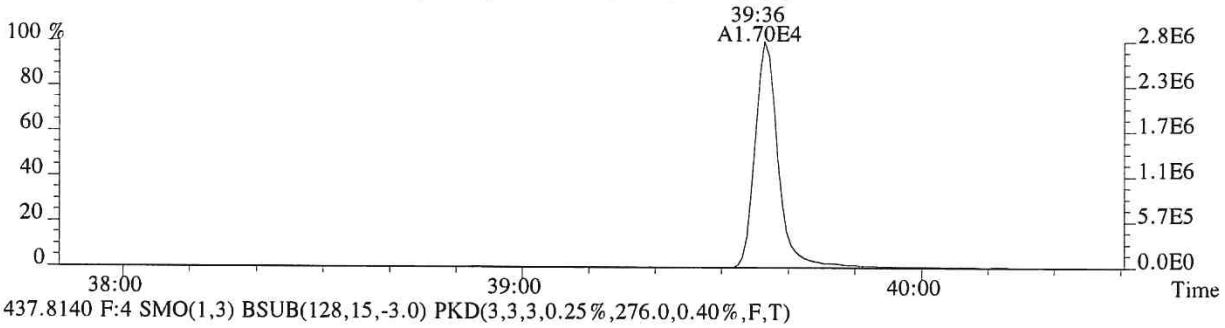
File:P519311 #1-241 Acq: 8-DEC-2018 14:49:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-042
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.40%,F,T)



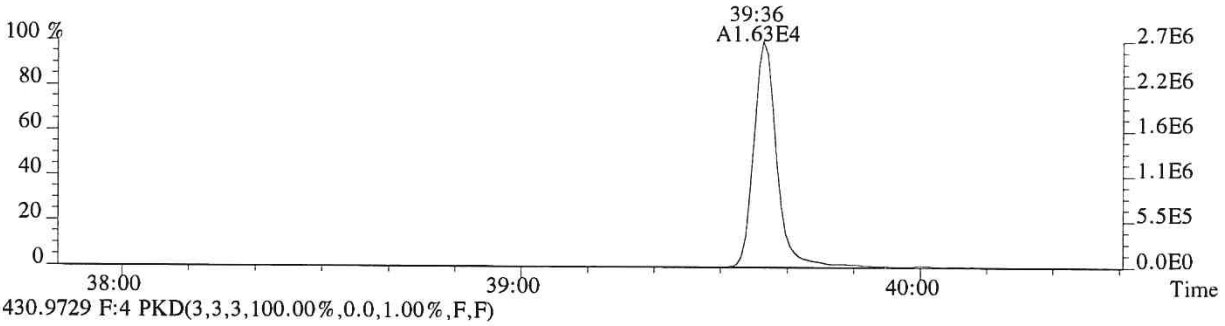
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



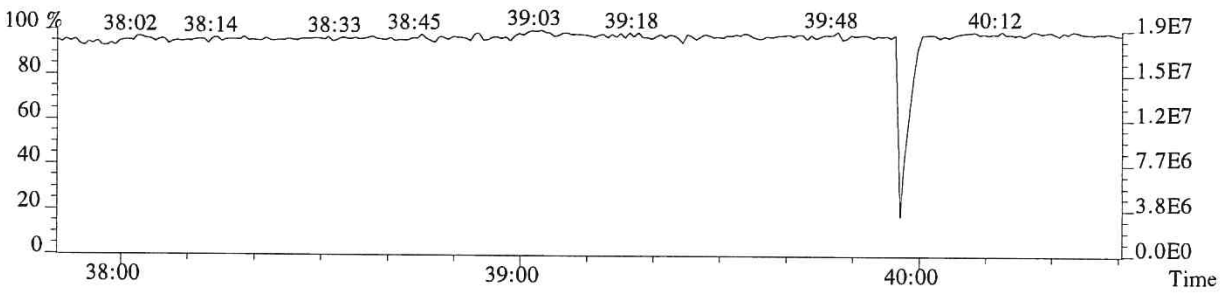
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



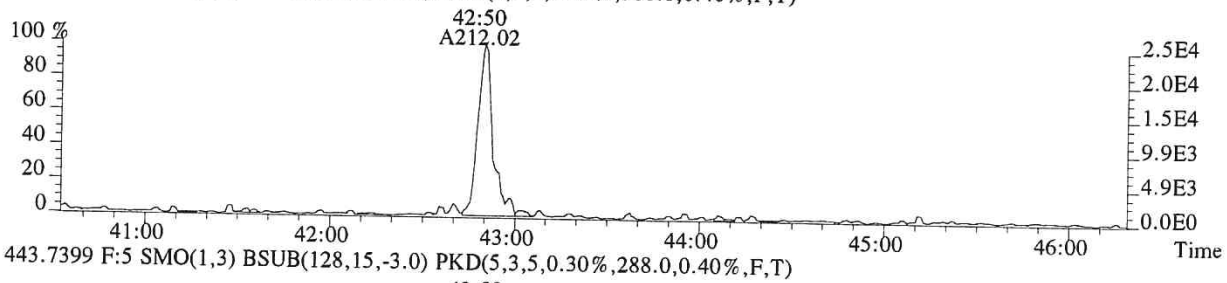
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



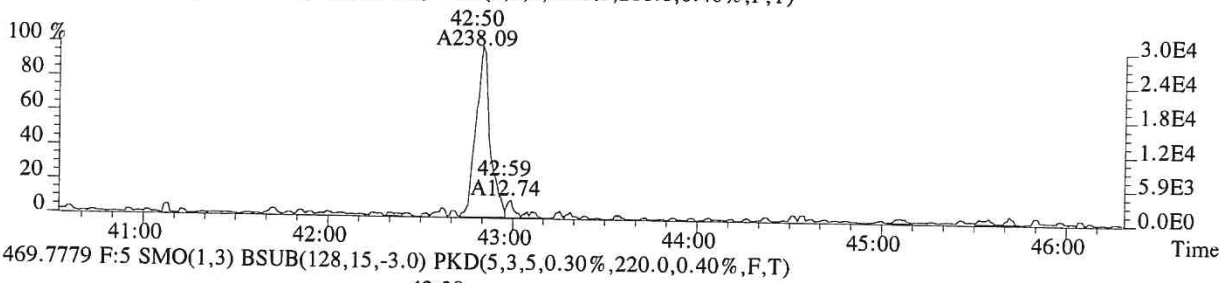
011272

File:P519311 #1-520 Acq: 8-DEC-2018 14:49:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-042

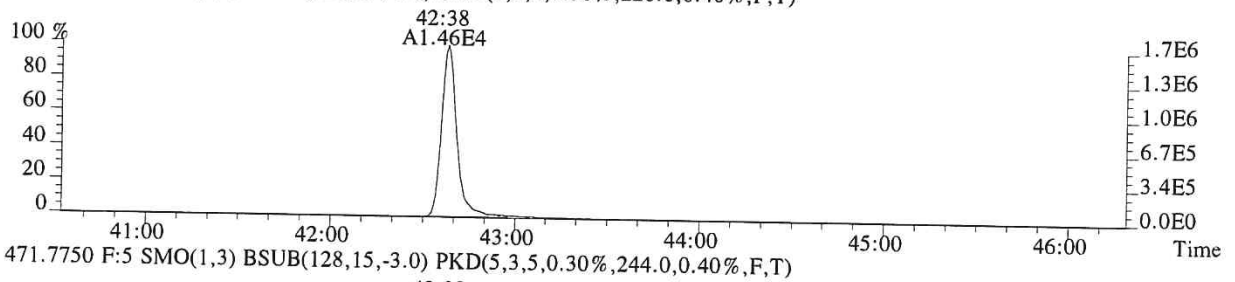
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



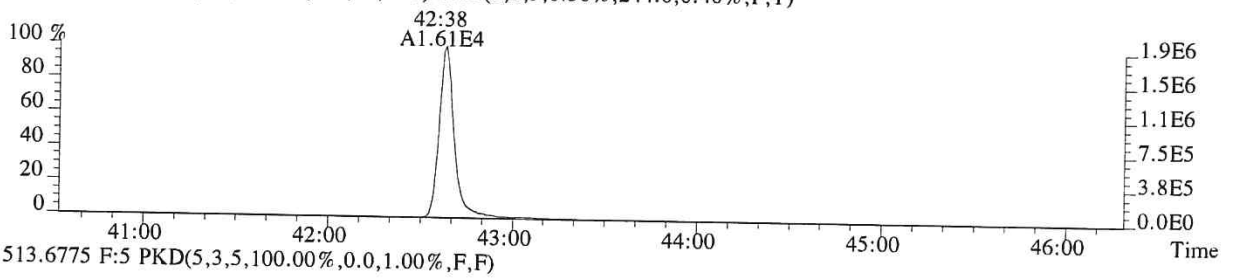
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



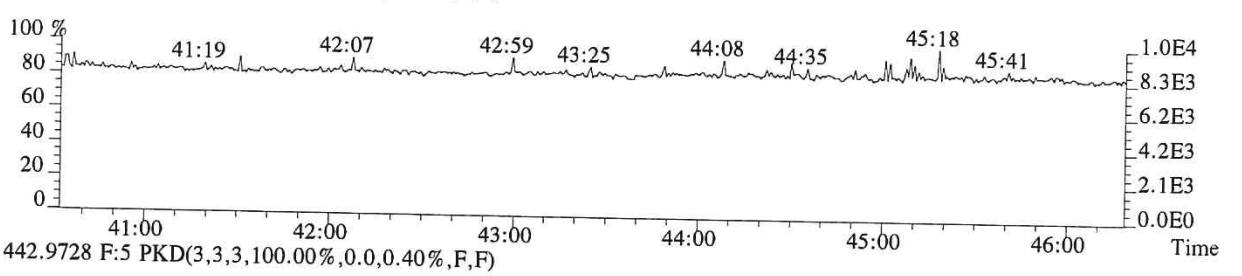
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



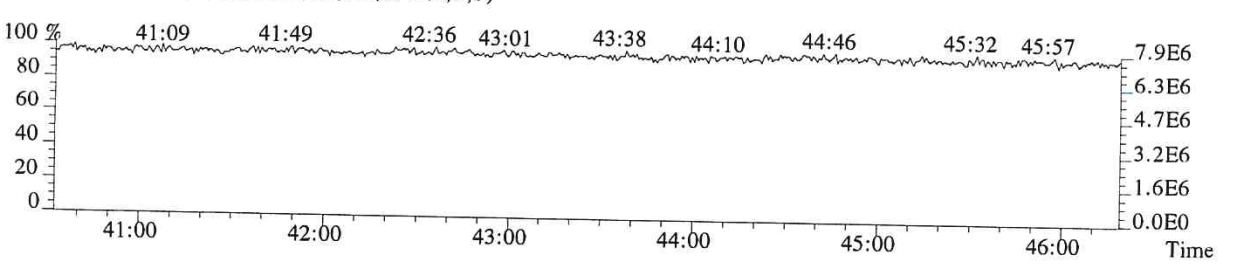
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

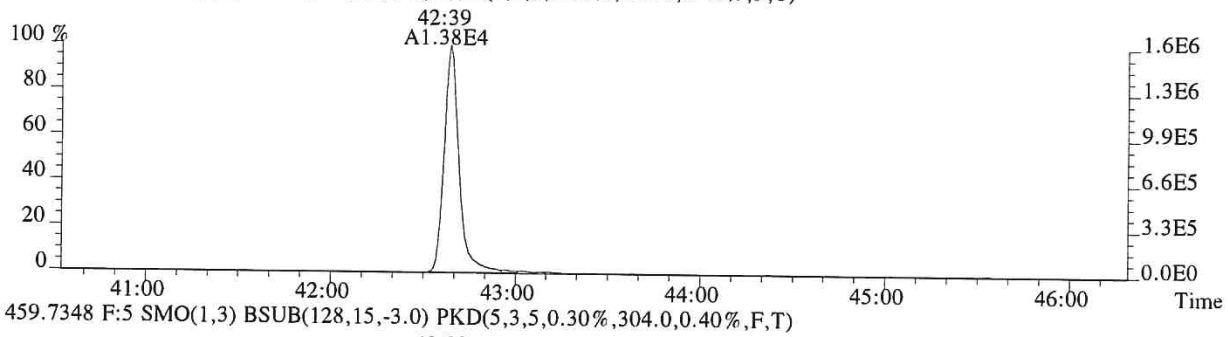


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

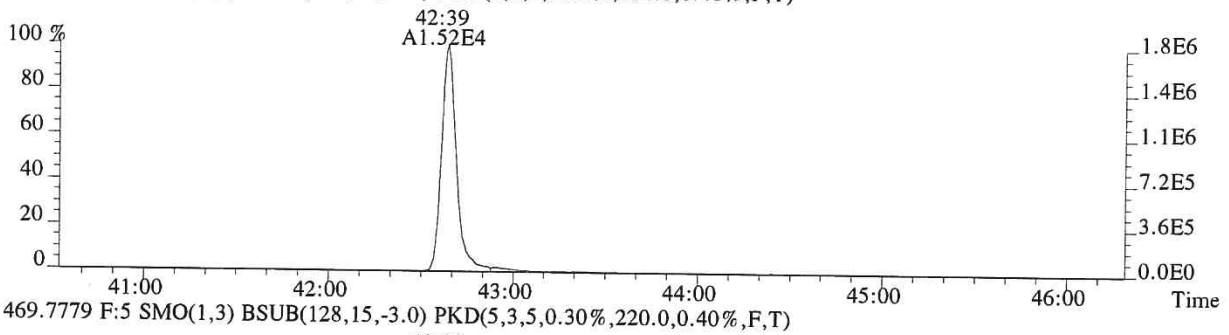


011273

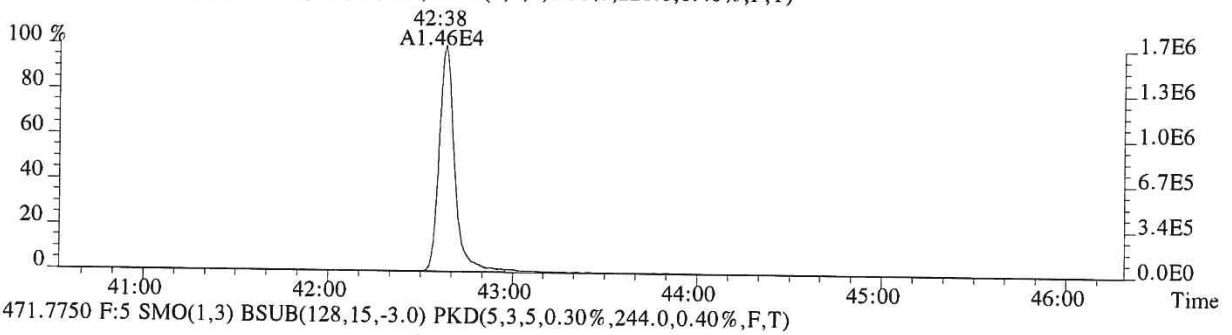
File:P519311 #1-520 Acq: 8-DEC-2018 14:49:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801039-042
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



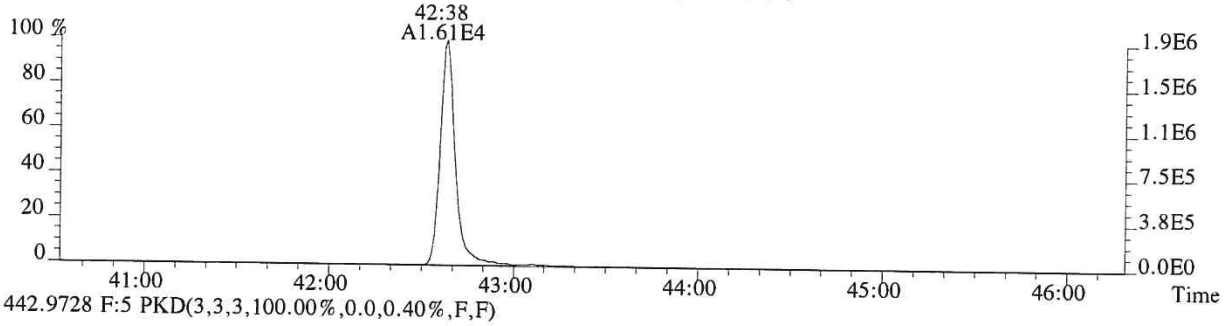
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



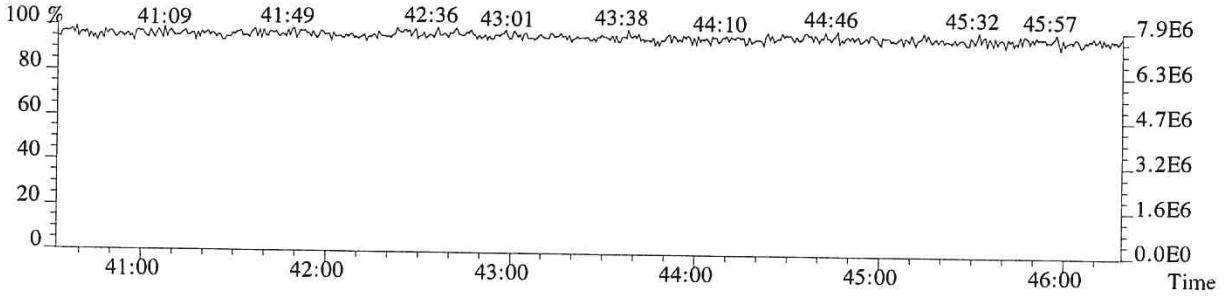
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011274

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P615718 Samp: 1 Inj: 1 Acquired: 27-NOV-18 13:29:29
Processed: 28-NOV-18 10:17:27 Sample ID: EQ1800467-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	43:30	9.705e+01	1.207e+02	0.80	yes	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	1.025e+01	1.475e+01	0.69	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:29	1.291e+01	1.539e+01	0.84	no	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:41	1.746e+01	1.565e+01	1.12	yes	yes	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	2.393e+01	1.664e+01	1.44	no	no	1.112
17	Unk	OCDD	43:17	1.149e+02	1.077e+02	1.07	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:14	3.244e+04	4.150e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	5.504e+04	3.464e+04	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:04	5.225e+04	3.244e+04	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	2.328e+04	4.400e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	2.617e+04	4.795e+04	0.55	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	2.538e+04	4.798e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	2.258e+04	4.327e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	1.515e+04	3.344e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	1.504e+04	3.371e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	2.451e+04	3.161e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	3.954e+04	2.530e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	3.374e+04	2.687e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:28	3.117e+04	2.438e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	2.852e+04	2.692e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	43:16	2.308e+04	2.579e+04	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	5.342e+04	6.689e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	6.632e+04	5.325e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:58	2.367e+04				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P615718 Samp: 1 Inj: 1 Acquired: 27-NOV-18 13:29:29
Processed: 28-NOV-18 10:17:27 LAB. ID: EQ1800467-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.10e+03	*	*	3.04e+03	*
2	1,2,3,7,8-PeCDF	*	1.32e+03	*	*	2.82e+03	*
3	2,3,4,7,8-PeCDF	*	1.32e+03	*	*	2.82e+03	*
4	1,2,3,4,7,8-HxCDF	*	3.98e+03	*	*	3.79e+03	*
5	1,2,3,6,7,8-HxCDF	*	3.98e+03	*	*	3.79e+03	*
6	2,3,4,6,7,8-HxCDF	*	3.98e+03	*	*	3.79e+03	*
7	1,2,3,7,8,9-HxCDF	*	3.98e+03	*	*	3.79e+03	*
8	1,2,3,4,6,7,8-HpCDF	*	4.51e+03	*	*	4.14e+03	*
9	1,2,3,4,7,8,9-HpCDF	*	4.51e+03	*	*	4.14e+03	*
10	OCDF	1.19e+04	6.24e+02	1.9e+01	1.87e+04	1.50e+03	1.2e+01
11	2,3,7,8-TCDD	*	3.26e+03	*	*	2.15e+03	*
12	1,2,3,7,8-PeCDD	*	1.47e+03	*	*	9.20e+02	*
13	1,2,3,4,7,8-HxCDD	2.34e+03	5.76e+02	4.1e+00	4.15e+03	6.52e+02	6.4e+00
14	1,2,3,6,7,8-HxCDD	3.94e+03	5.76e+02	6.8e+00	2.80e+03	6.52e+02	4.3e+00
15	1,2,3,7,8,9-HxCDD	5.24e+03	5.76e+02	9.1e+00	3.61e+03	6.52e+02	5.5e+00
16	1,2,3,4,6,7,8-HpCDD	5.06e+03	9.00e+02	5.6e+00	3.65e+03	5.52e+02	6.6e+00
17	OCDD	1.87e+04	4.44e+02	4.2e+01	1.66e+04	8.96e+02	1.9e+01
18	13C-2,3,7,8-TCDF	6.51e+06	1.18e+04	5.5e+02	8.17e+06	6.07e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	1.11e+07	2.14e+03	5.2e+03	7.08e+06	4.52e+02	1.6e+04
20	13C-2,3,4,7,8-PeCDF	1.12e+07	2.14e+03	5.2e+03	6.94e+06	4.52e+02	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	5.27e+06	1.44e+03	3.7e+03	9.96e+06	1.12e+03	8.9e+03
22	13C-1,2,3,6,7,8-HxCDF	5.84e+06	1.44e+03	4.1e+03	1.08e+07	1.12e+03	9.7e+03
23	13C-2,3,4,6,7,8-HxCDF	5.69e+06	1.44e+03	4.0e+03	1.06e+07	1.12e+03	9.5e+03
24	13C-1,2,3,7,8,9-HxCDF	5.08e+06	1.44e+03	3.5e+03	9.63e+06	1.12e+03	8.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.26e+06	2.70e+03	1.2e+03	7.20e+06	1.69e+03	4.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.01e+06	2.70e+03	1.1e+03	6.80e+06	1.69e+03	4.0e+03
27	13C-2,3,7,8-TCDD	5.27e+06	1.78e+04	3.0e+02	6.76e+06	4.41e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	8.48e+06	1.56e+03	5.4e+03	5.43e+06	1.43e+03	3.8e+03
29	13C-1,2,3,4,7,8-HxCDD	7.85e+06	2.93e+03	2.7e+03	6.23e+06	1.53e+03	4.1e+03
30	13C-1,2,3,6,7,8-HxCDD	7.03e+06	2.93e+03	2.4e+03	5.50e+06	1.53e+03	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.72e+06	1.08e+03	5.3e+03	5.43e+06	1.12e+03	4.9e+03
32	13C-OCDD	3.72e+06	6.52e+02	5.7e+03	4.06e+06	5.88e+02	6.9e+03
33	13C-1,2,3,4-TCDD	1.11e+07	1.78e+04	6.2e+02	1.39e+07	4.41e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.49e+07	2.93e+03	5.1e+03	1.19e+07	1.53e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	4.99e+06	1.06e+03	4.7e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.256e{+}03 + 2.152e{+}03) \times 2000}{(5.272e{+}06 + 6.761e{+}06) \times (\quad) \times 1.049} =$$

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Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P615718 Sample:1 Injection:1 Function:3

Acquired: 27-NOV-18 13:29:29 Processed: 28-NOV-18 10:17:27

Mass: 389.8160 391.8130 Tot Response: 3.31e+01 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:41	1.75e+01	1.56e+01 1.12	yes	3.31e+01	1,2,3,7,8,9-HxCDD	y	y

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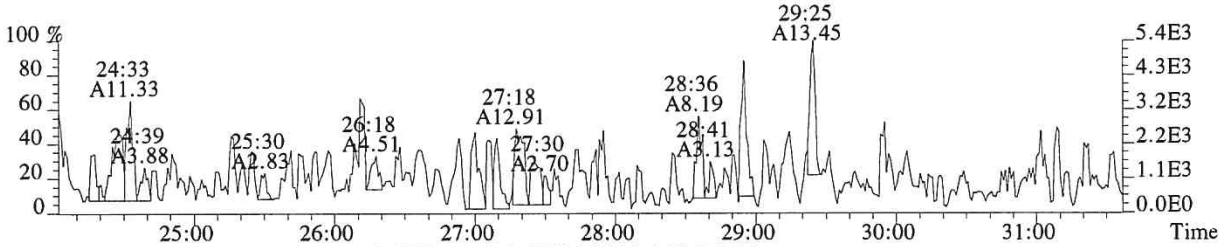
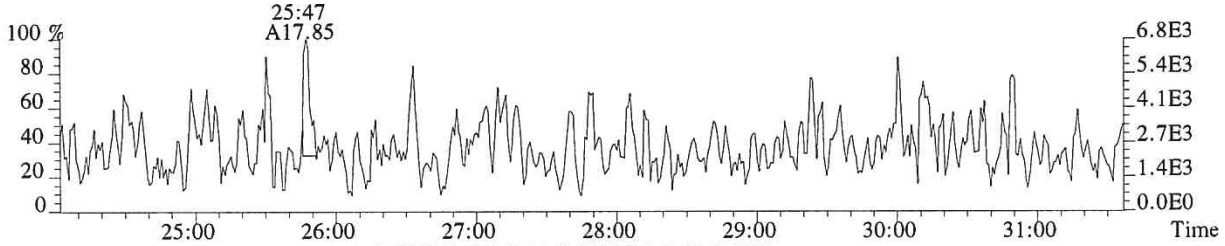
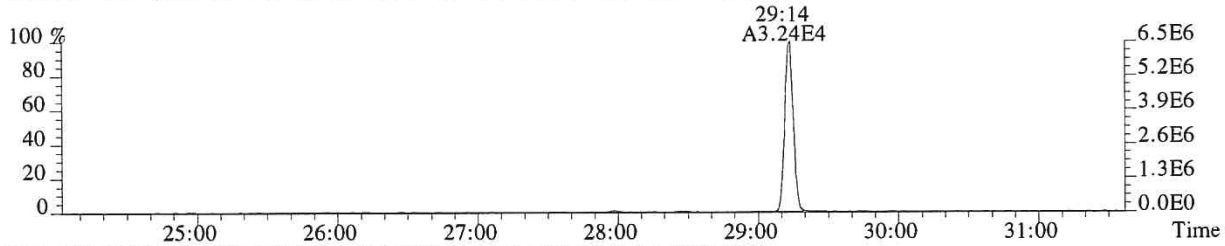
File:P615718 #1-538 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



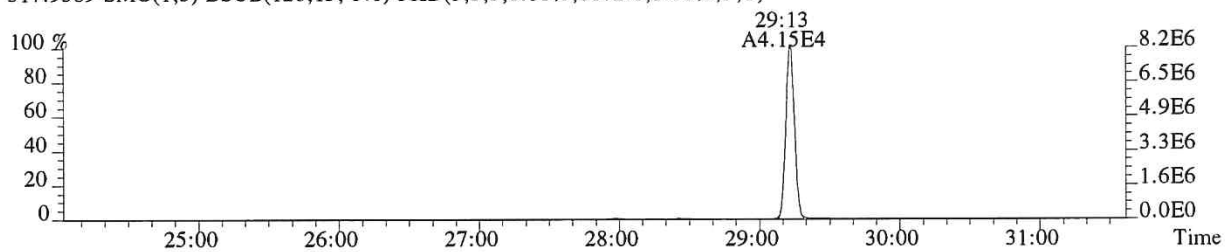
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3036.0,1.00%,F,T)



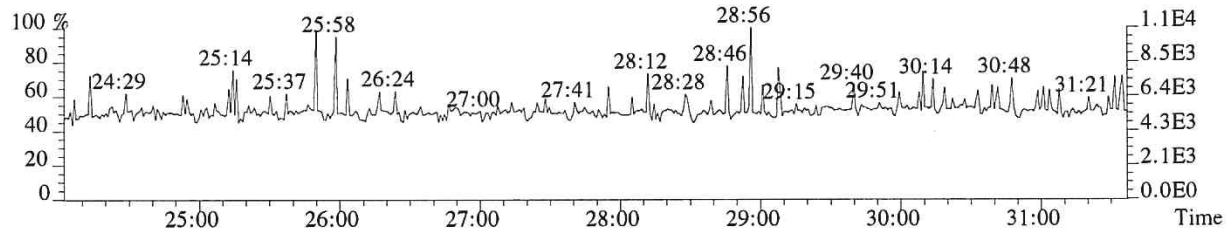
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11816.0,1.00%,F,T)



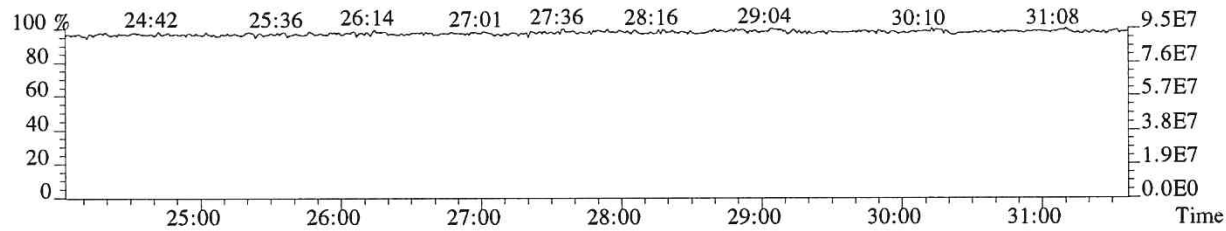
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6072.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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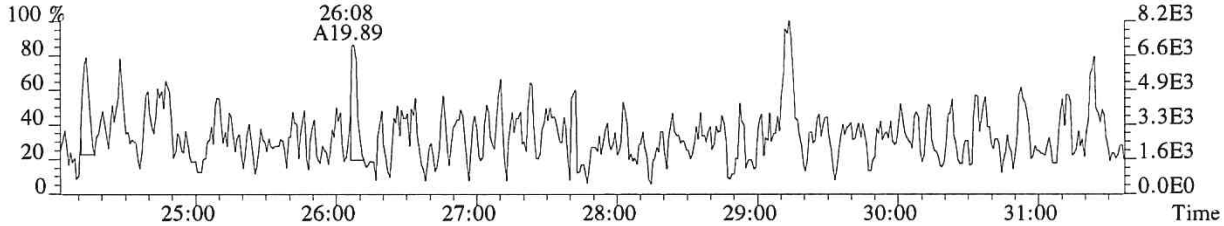
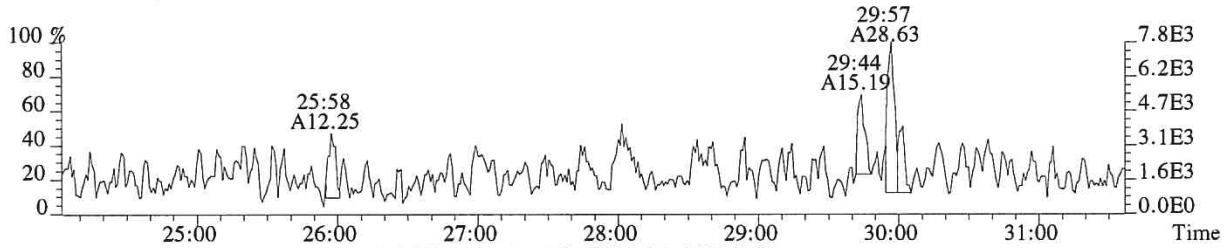
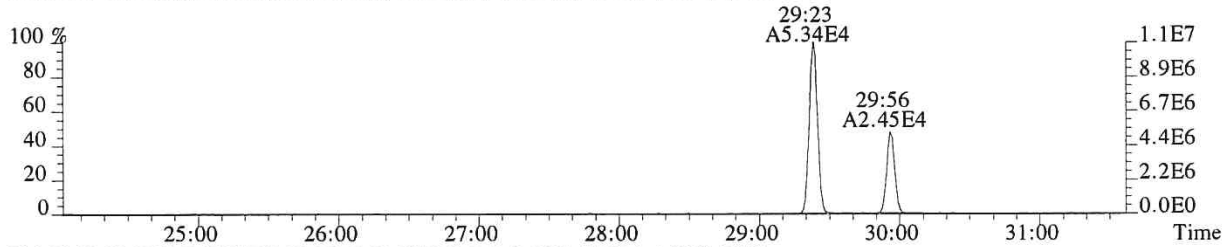
File:P615718 #1-538 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



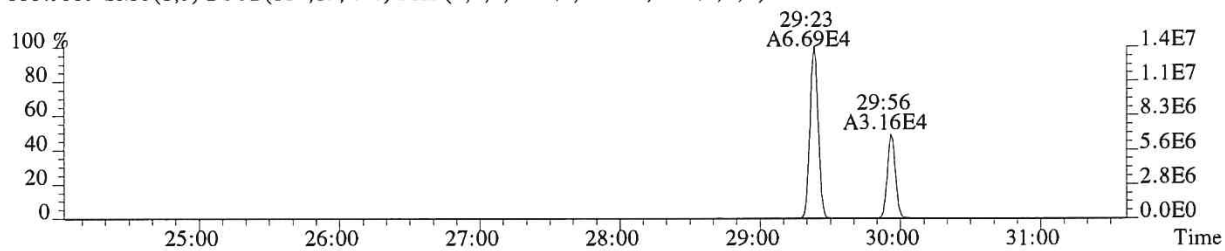
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2152.0,1.00%,F,T)



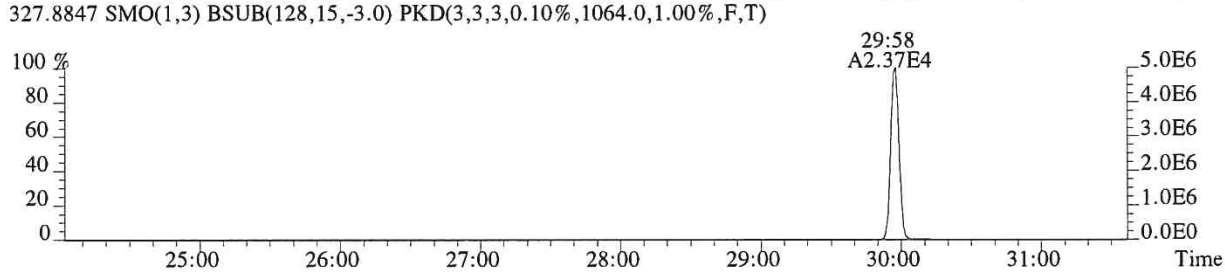
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17780.0,1.00%,F,T)



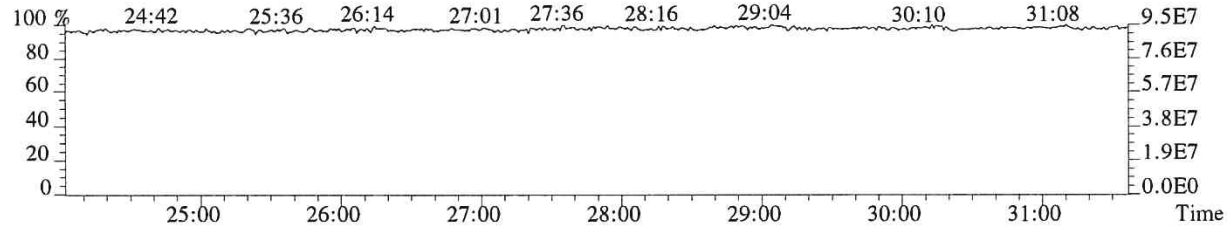
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)

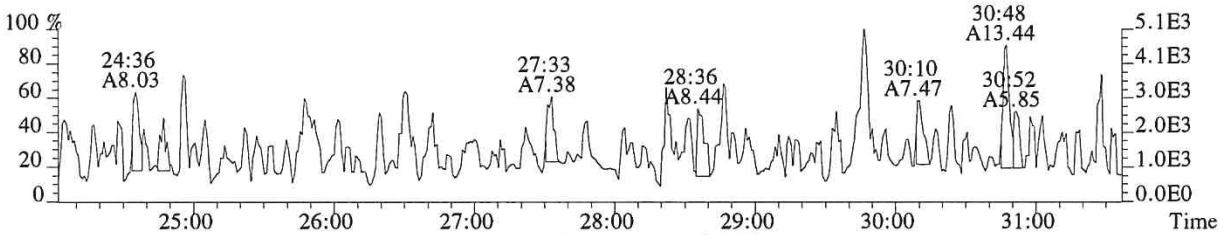


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

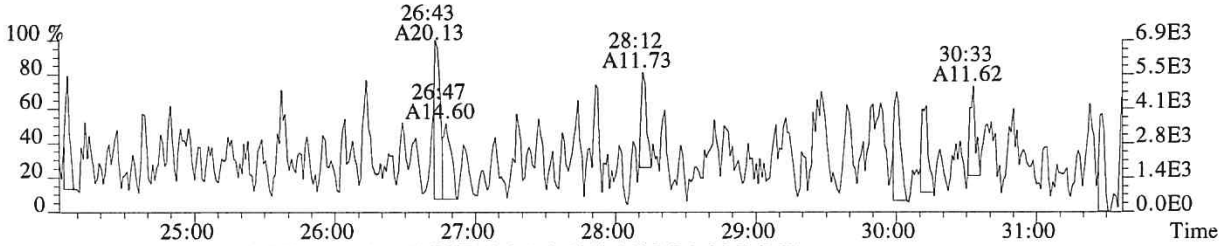


011279

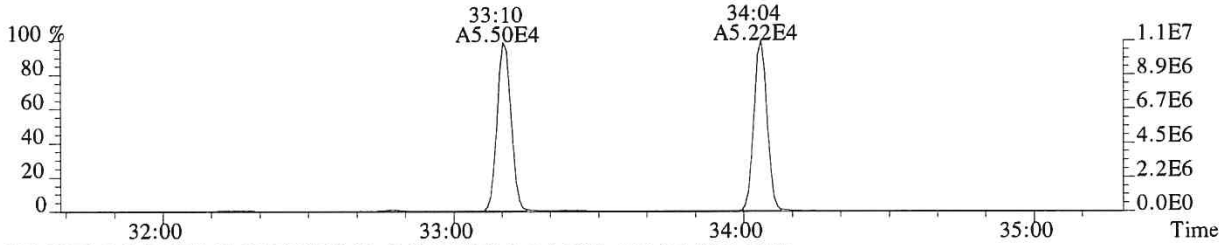
File:P615718 #1-538 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



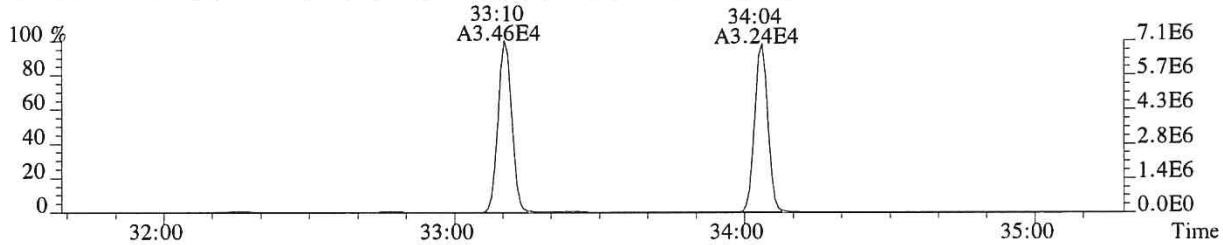
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2484.0,1.00%,F,T)



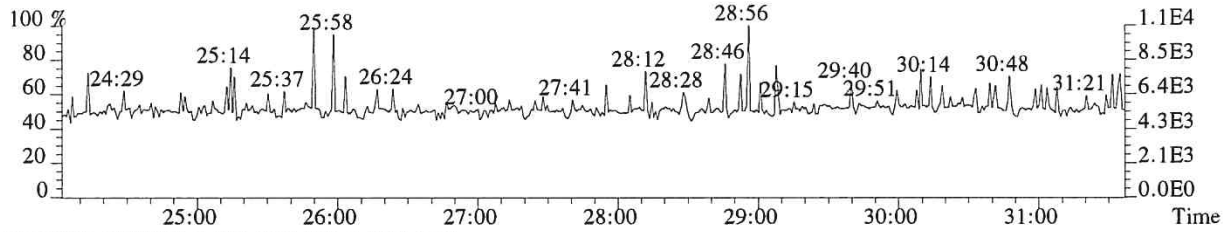
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



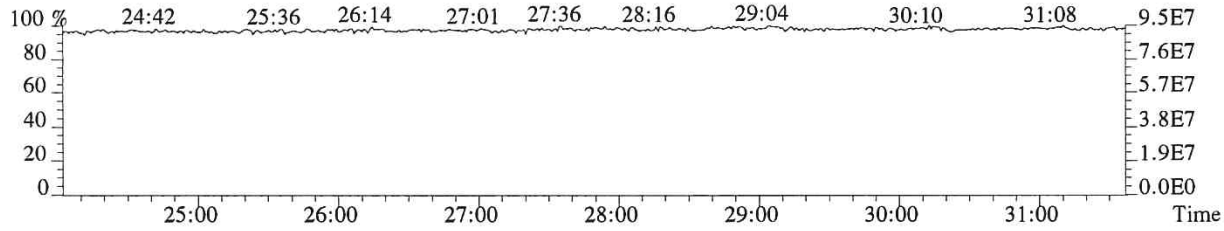
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



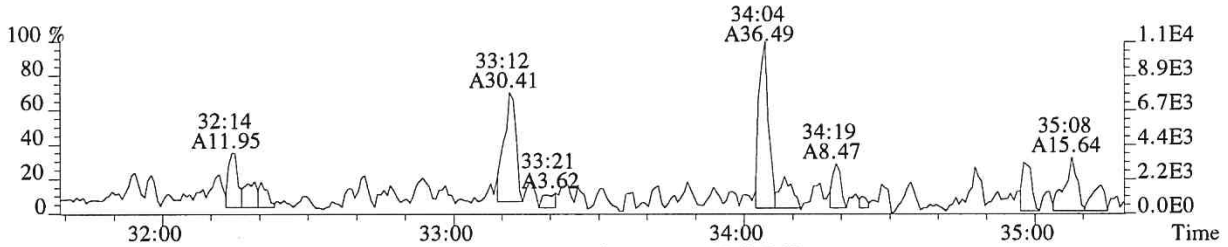
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



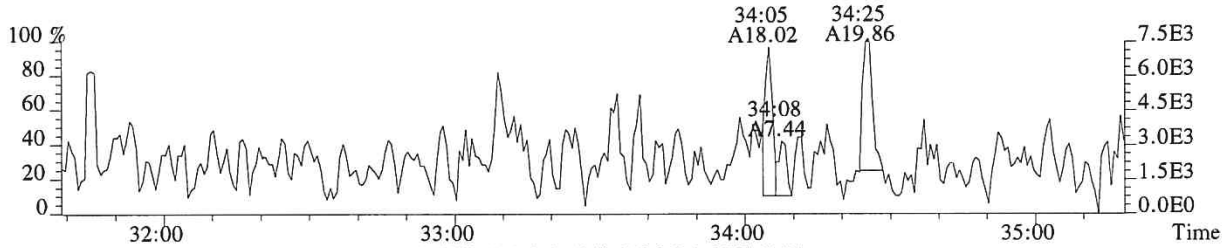
011280

File:P615718 #1-330 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

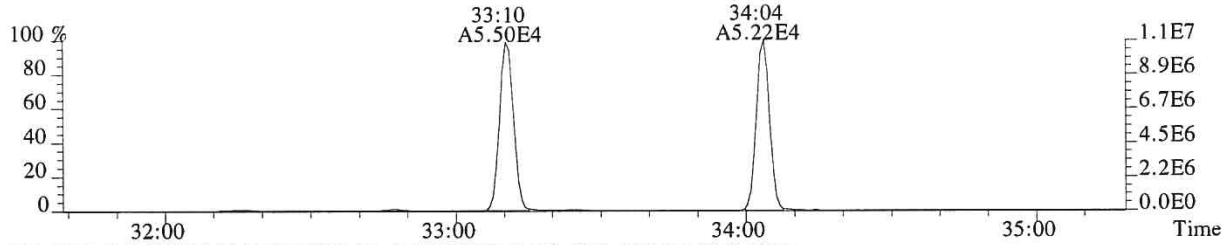
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



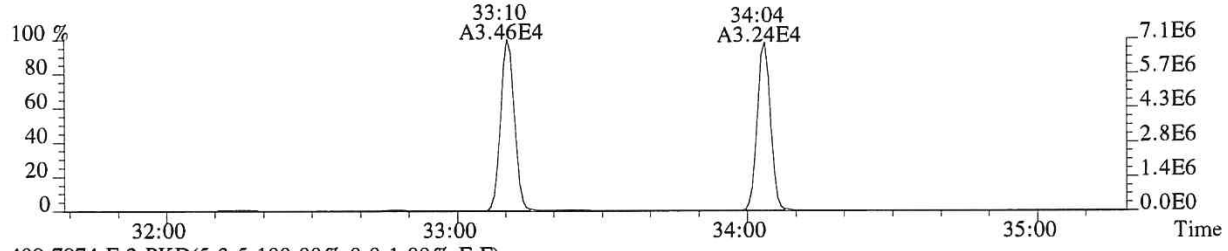
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



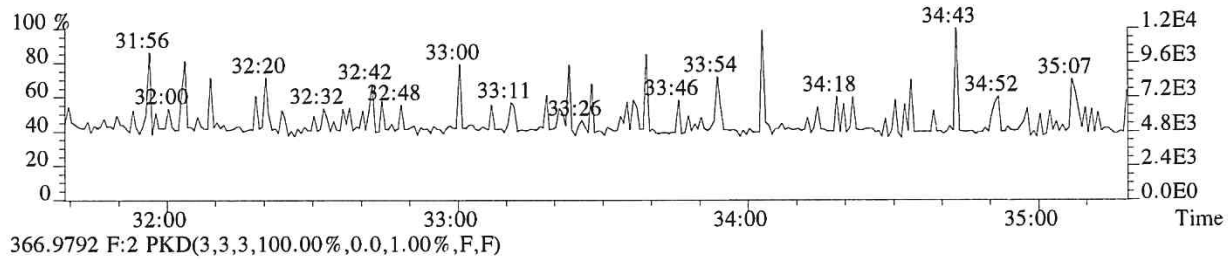
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



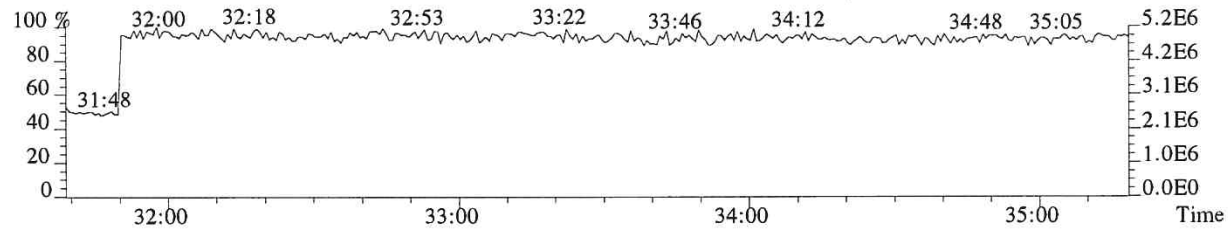
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

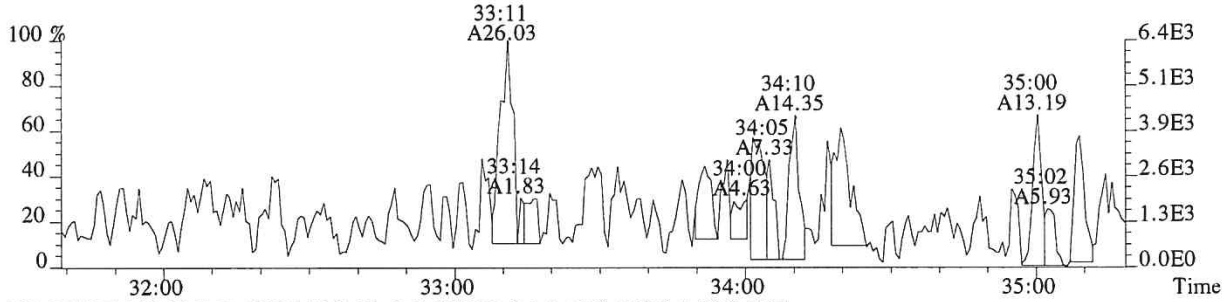


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

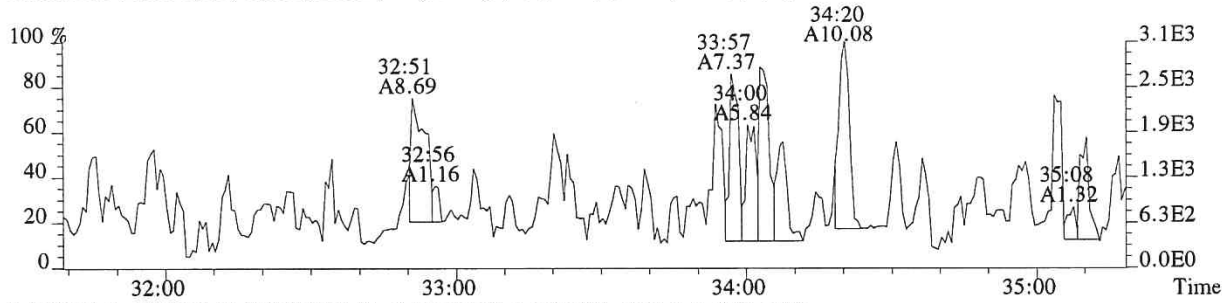


011281

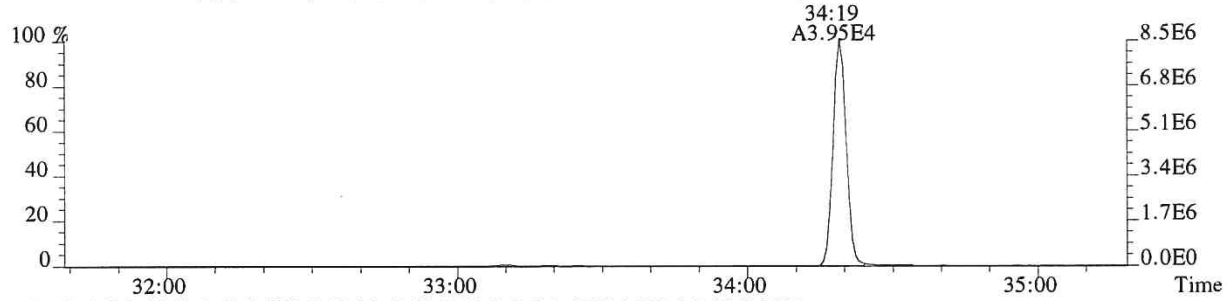
File:P615718 #1-330 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



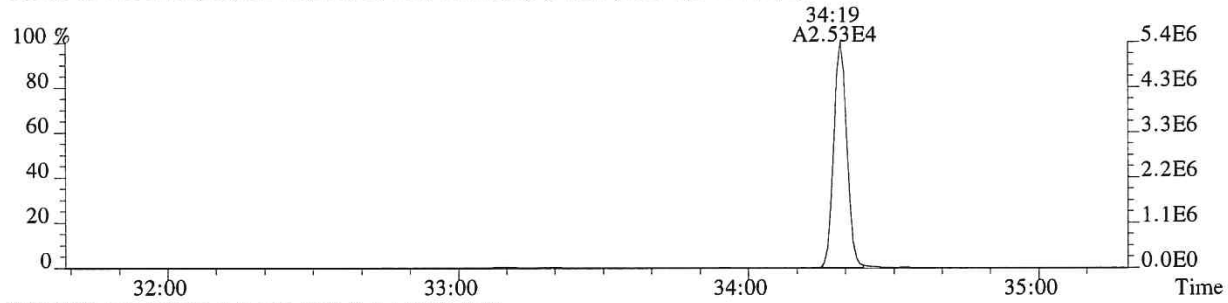
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



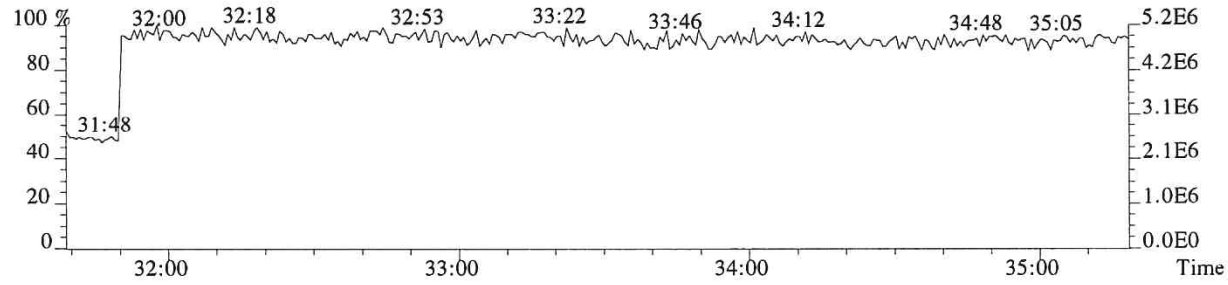
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)

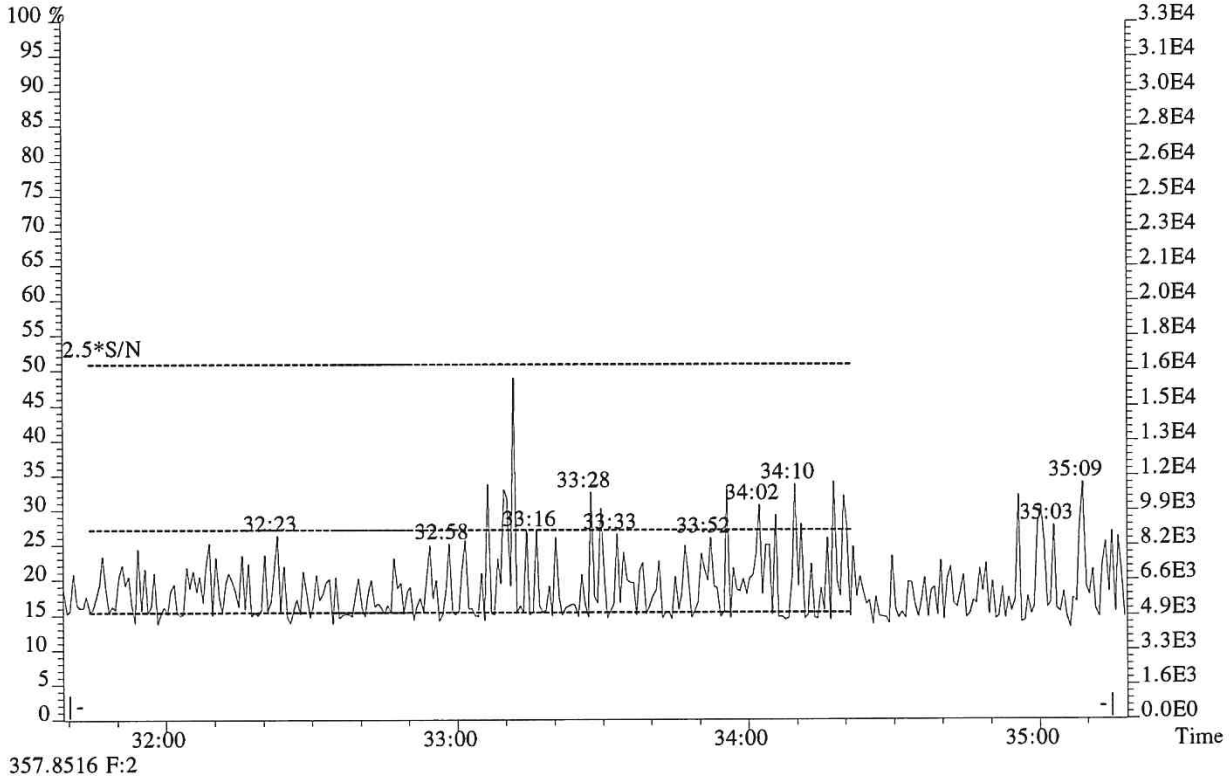


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

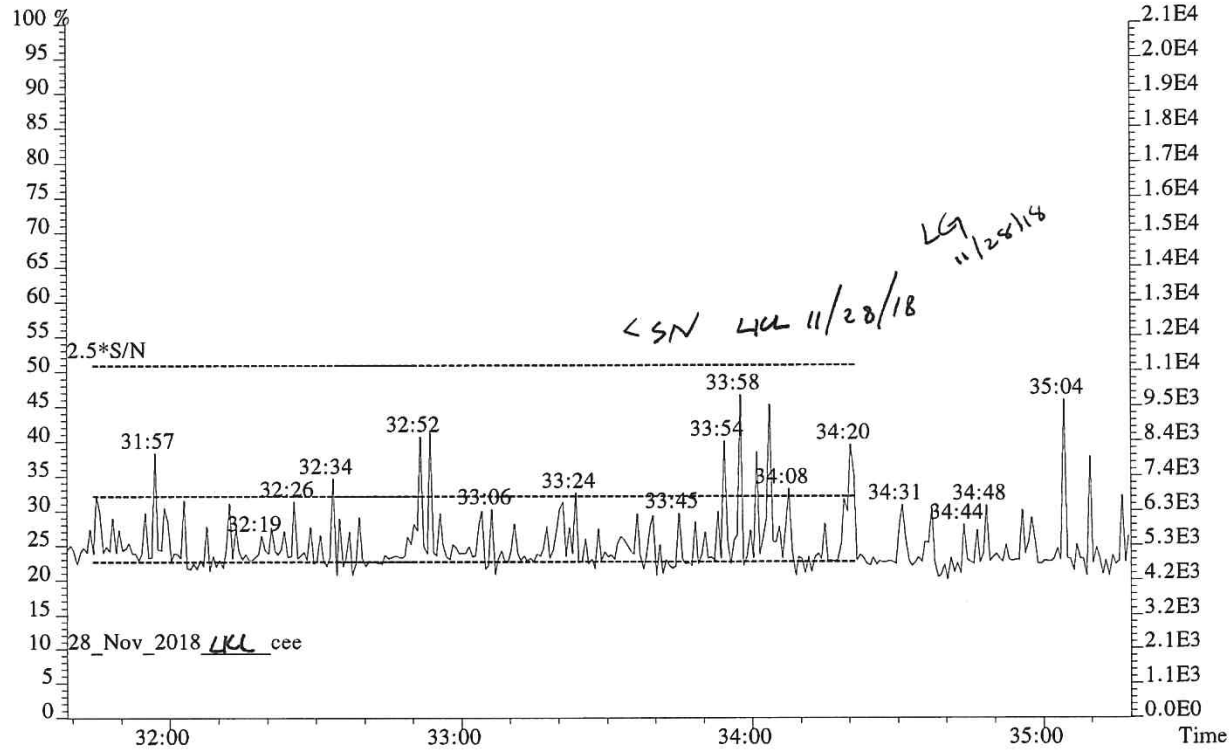


011282

File:P615718 #1-330 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2



357.8516 F:2



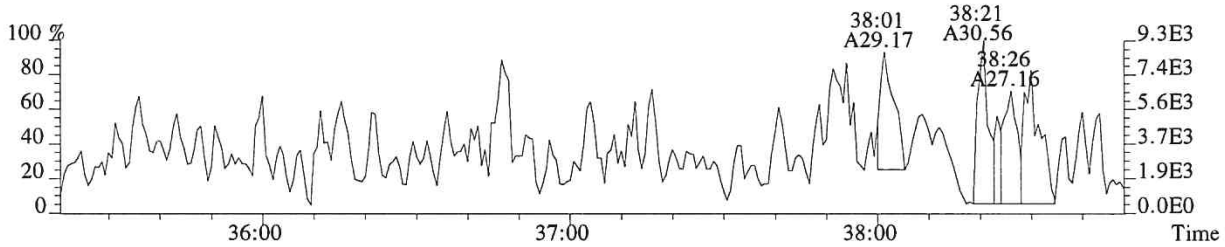
< SN LKL 11/28/18

LG 11/28/18

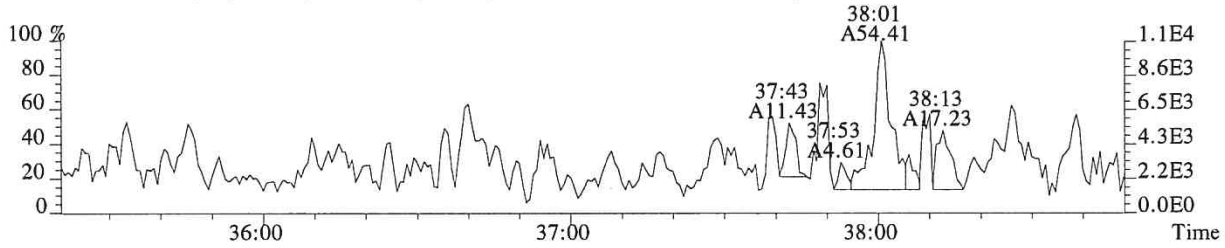
011283

File:P615718 #1-312 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

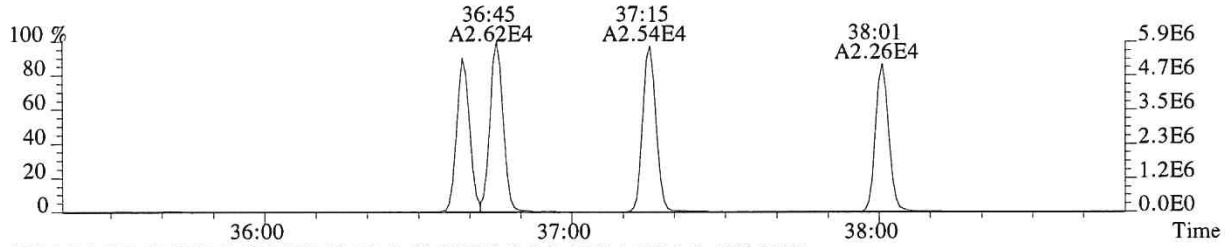
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3984.0,0.40%,F,T)



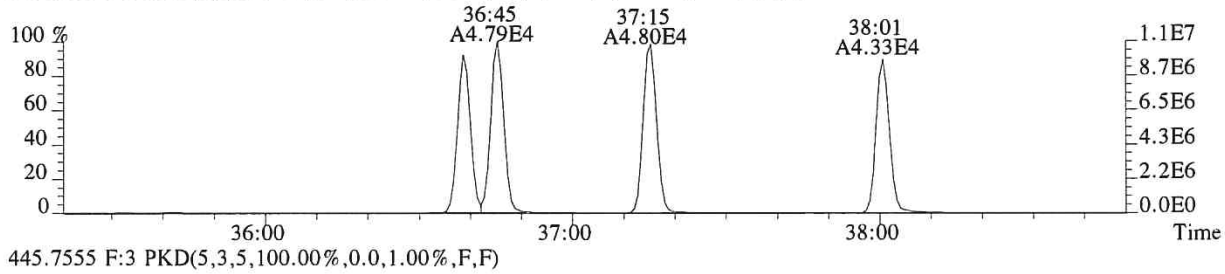
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3792.0,0.40%,F,T)



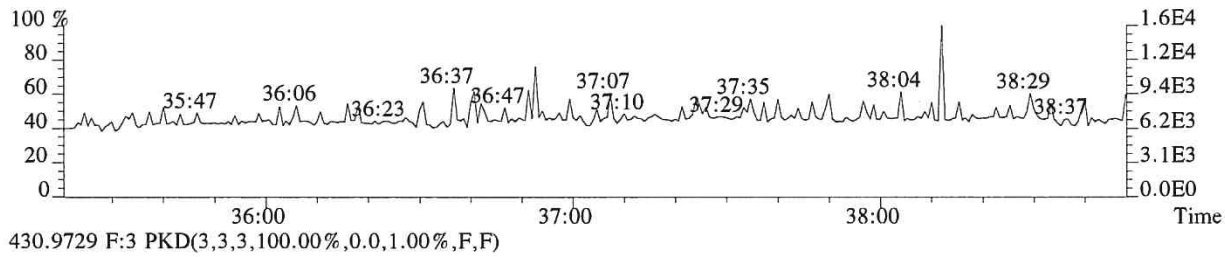
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.40%,F,T)



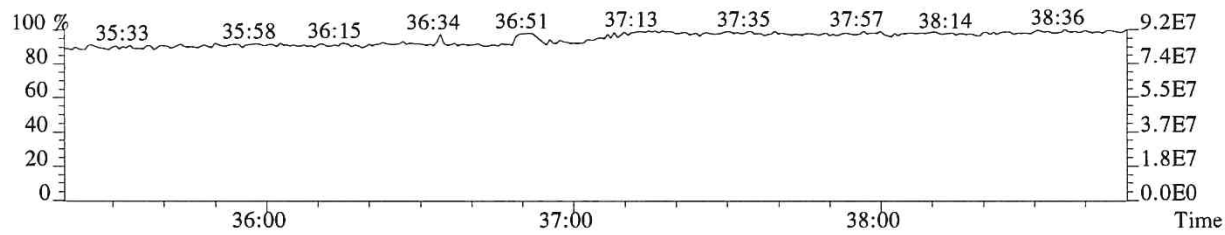
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

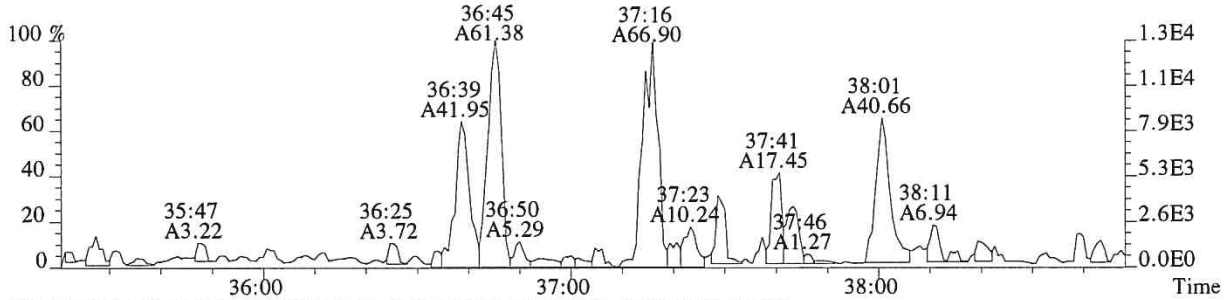


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

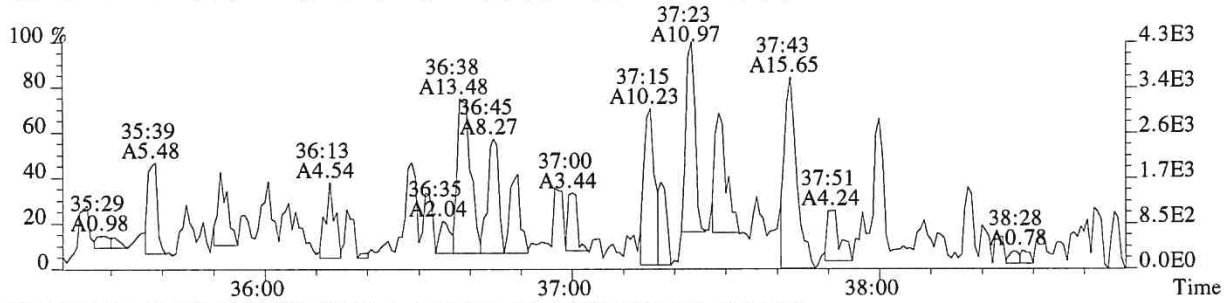


011284

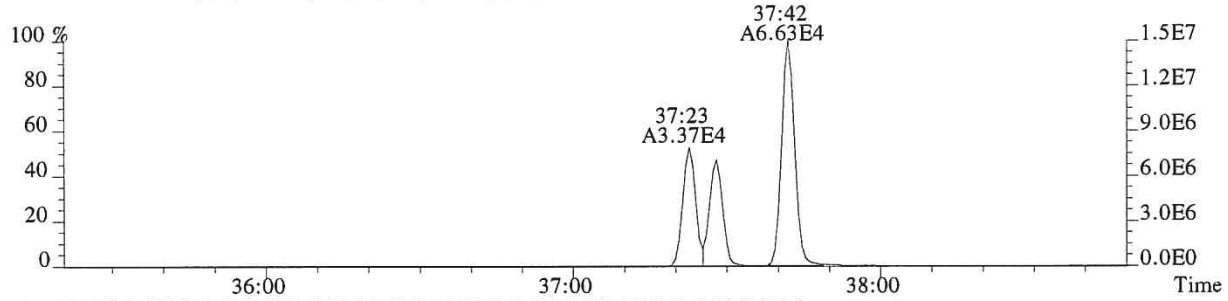
File:P615718 #1-312 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



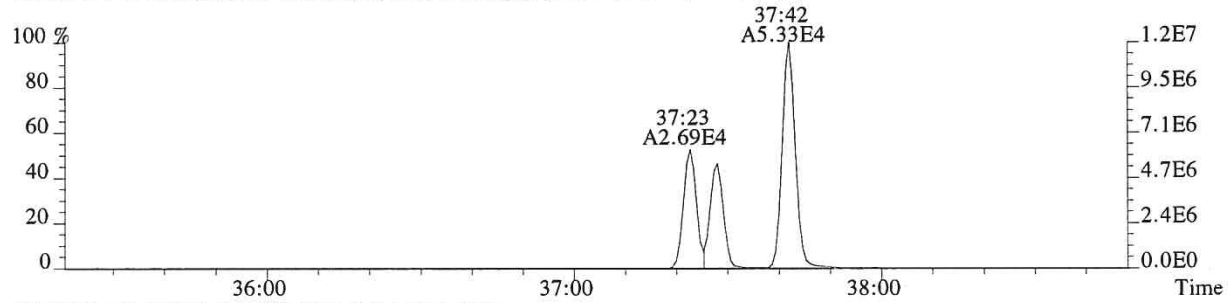
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



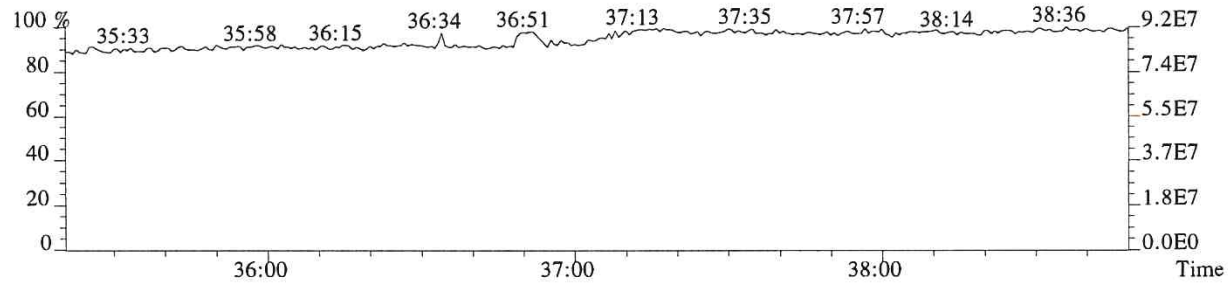
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)

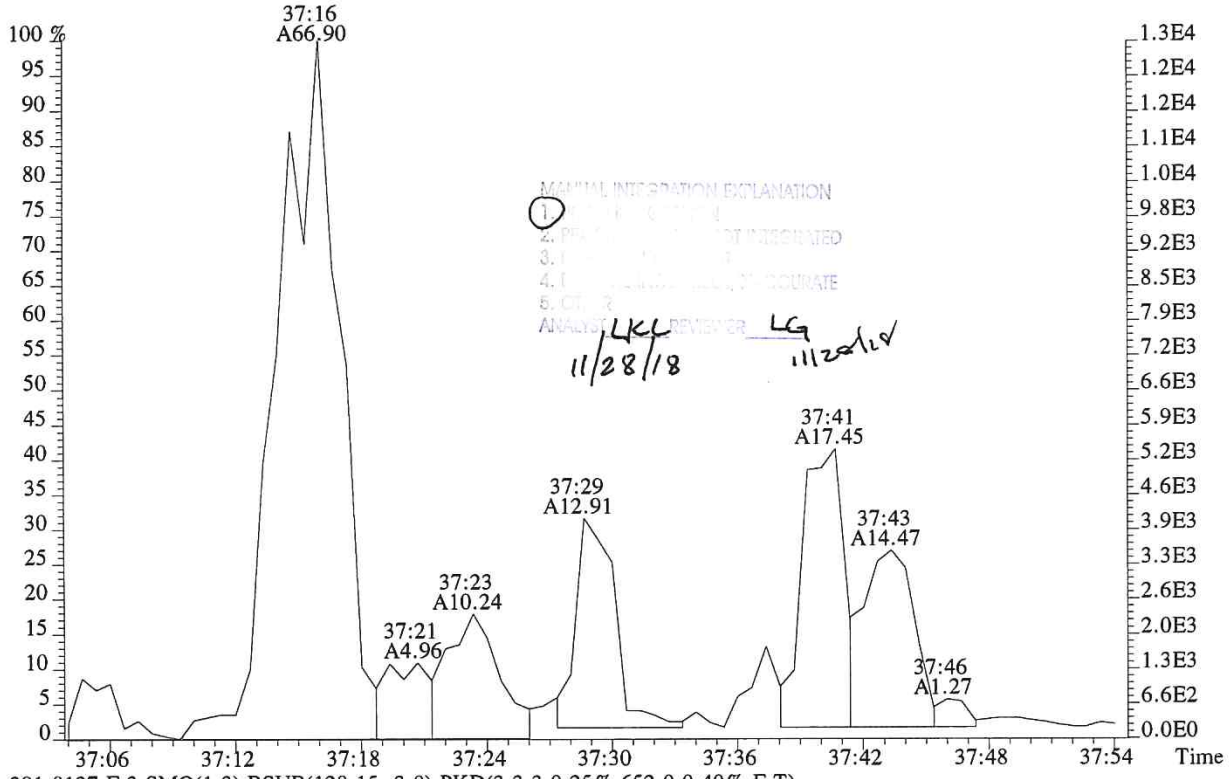


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

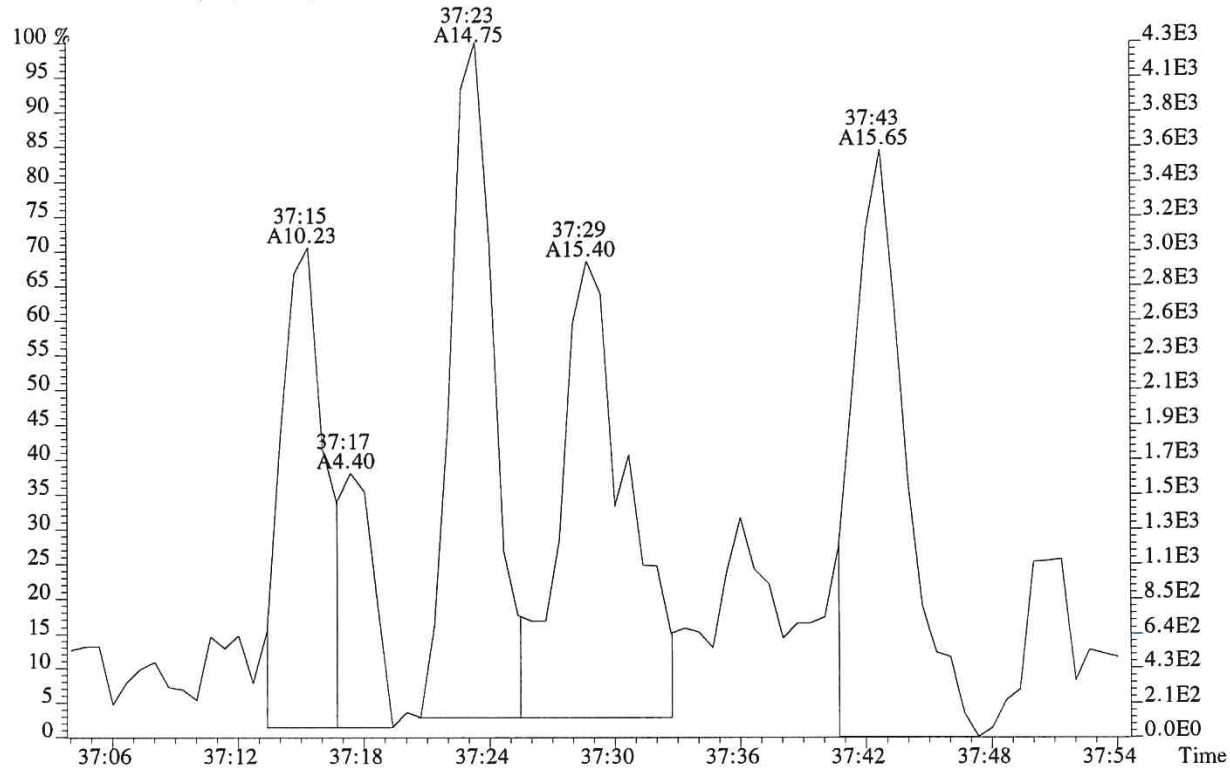


011285

File:P615718 #1-312 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)

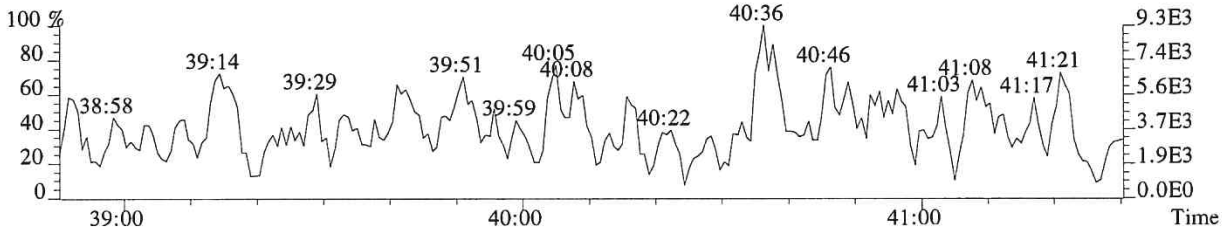


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)

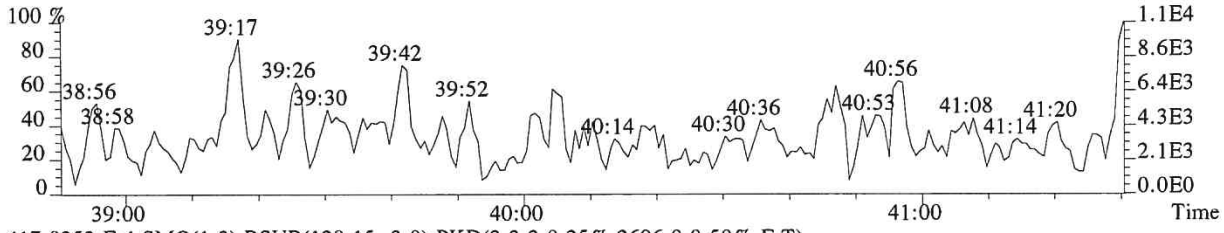


011286

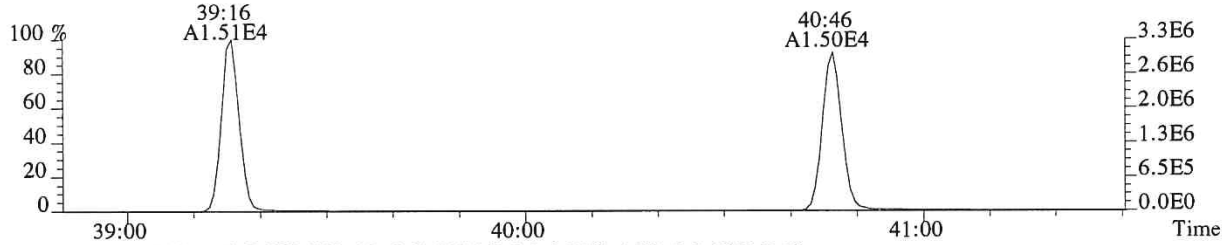
File:P615718 #1-241 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4512.0,0.50%,F,T)



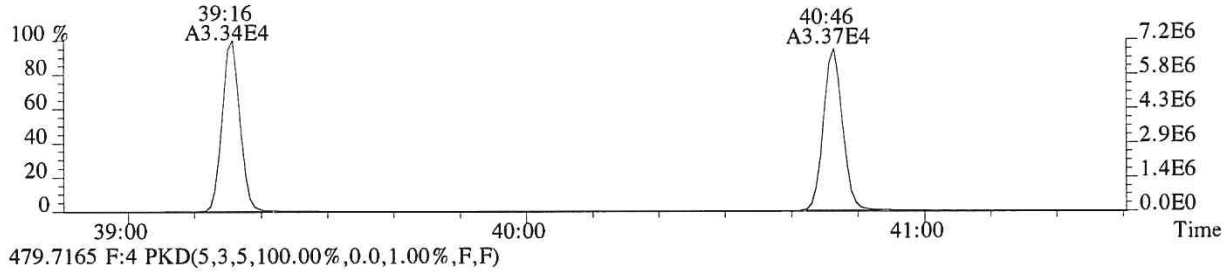
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4144.0,0.50%,F,T)



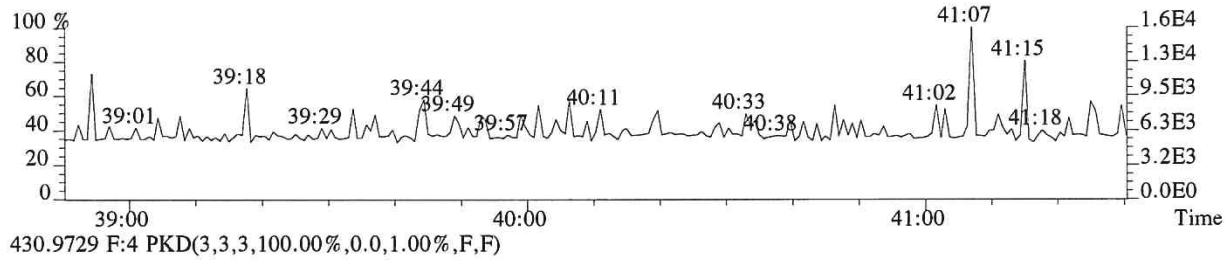
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2696.0,0.50%,F,T)



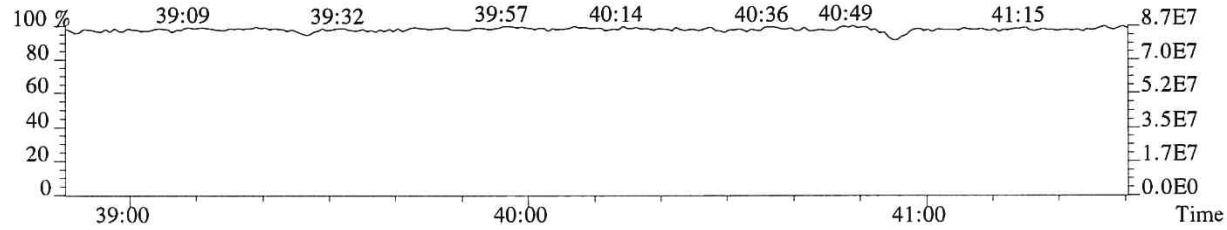
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1692.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

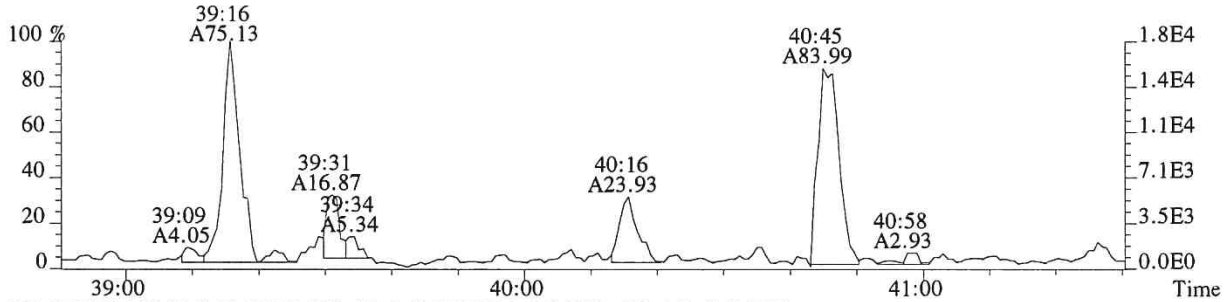


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

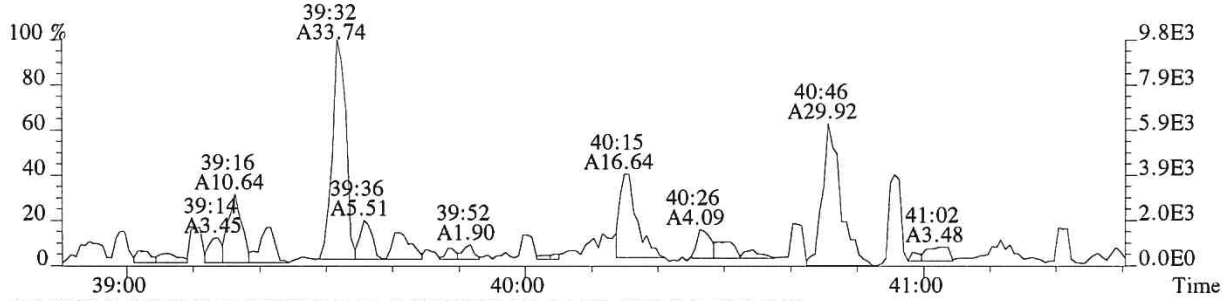


011287

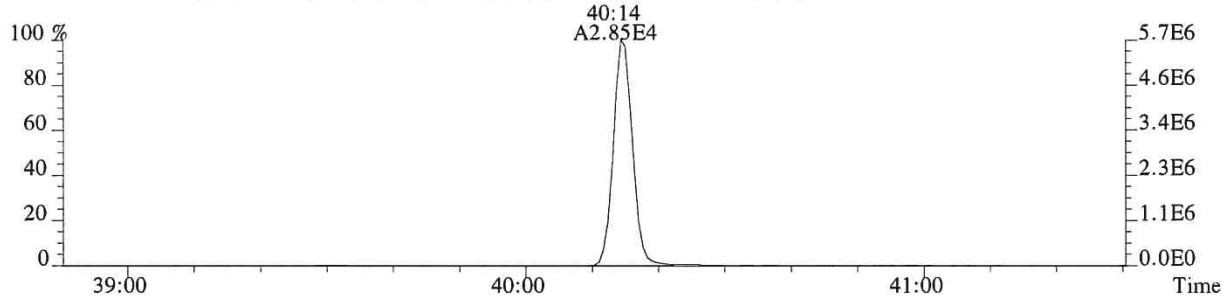
File:P615718 #1-241 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



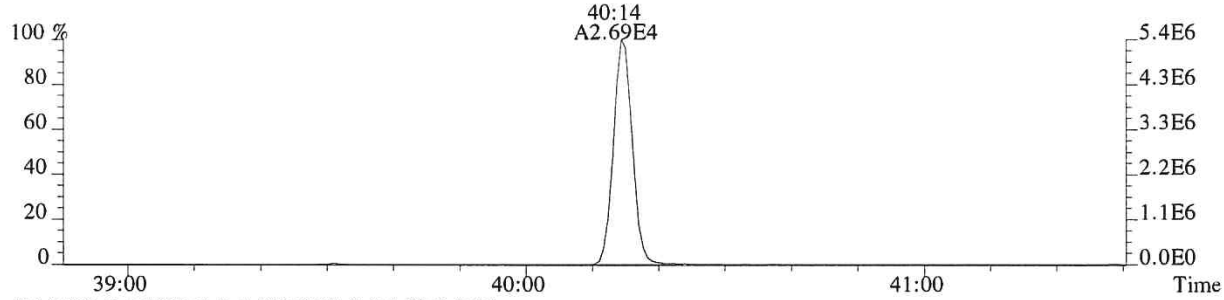
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



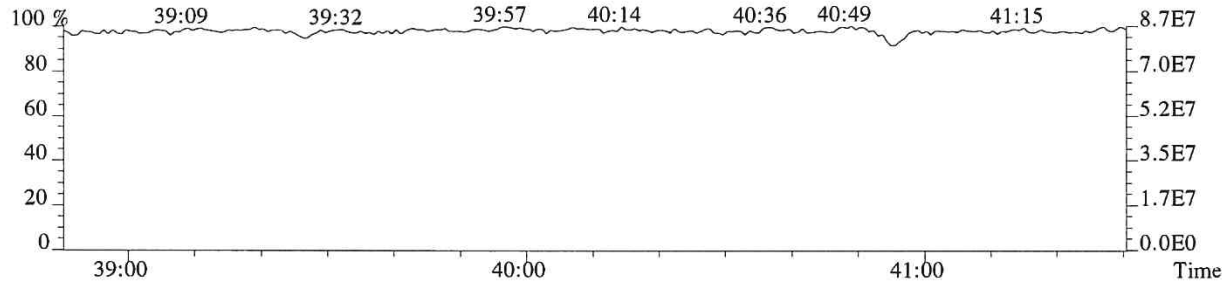
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



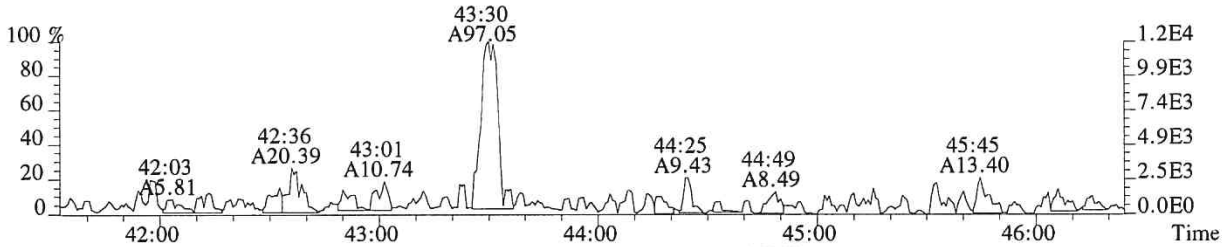
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



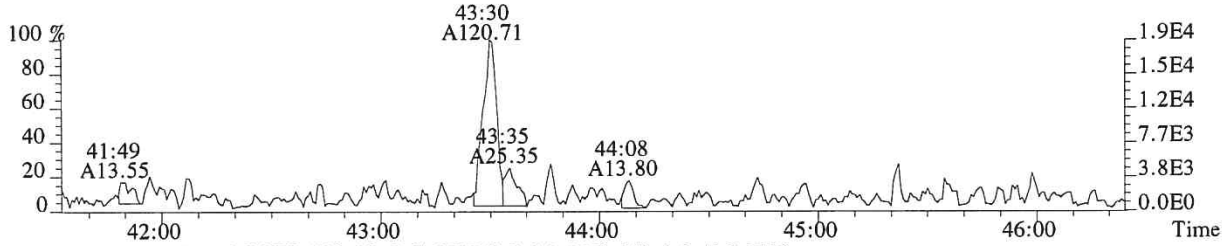
011288

File:P615718 #1-438 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

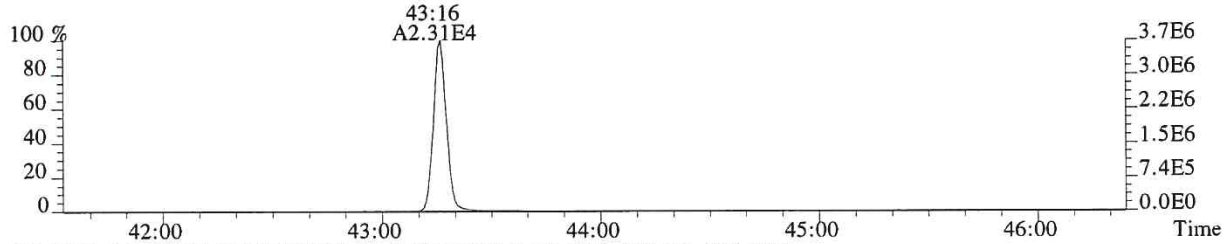
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



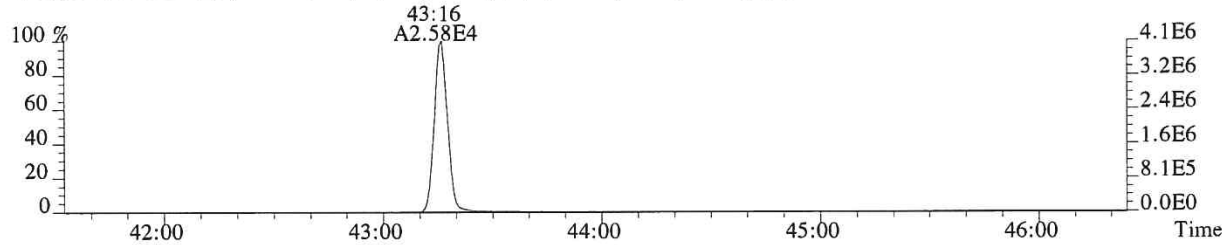
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



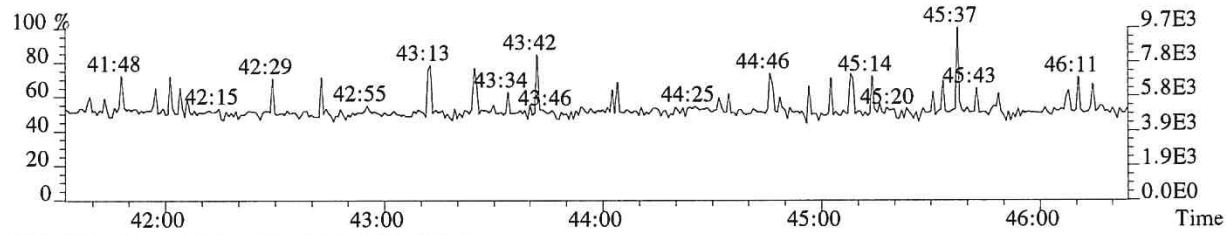
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



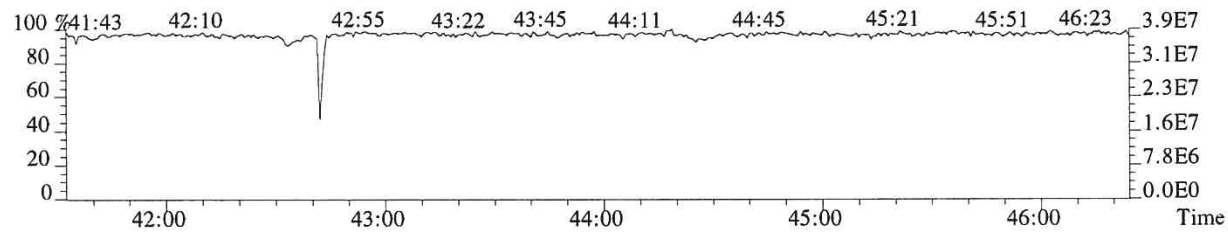
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



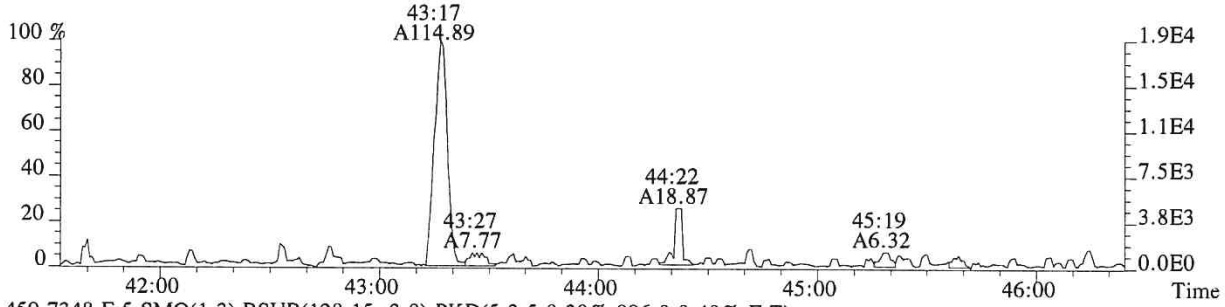
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



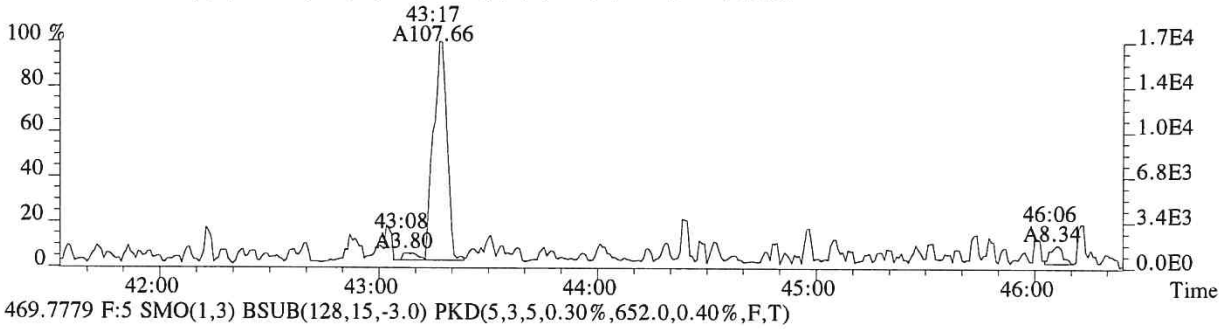
011289

File:P615718 #1-438 Acq:27-NOV-2018 13:29:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

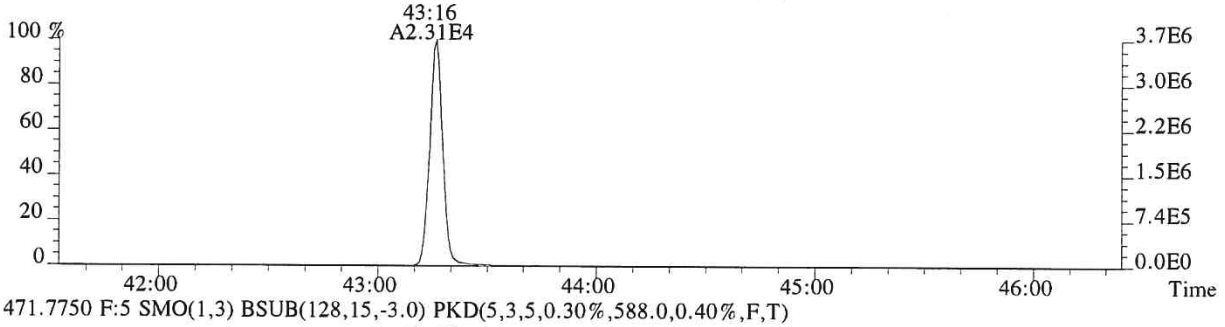
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



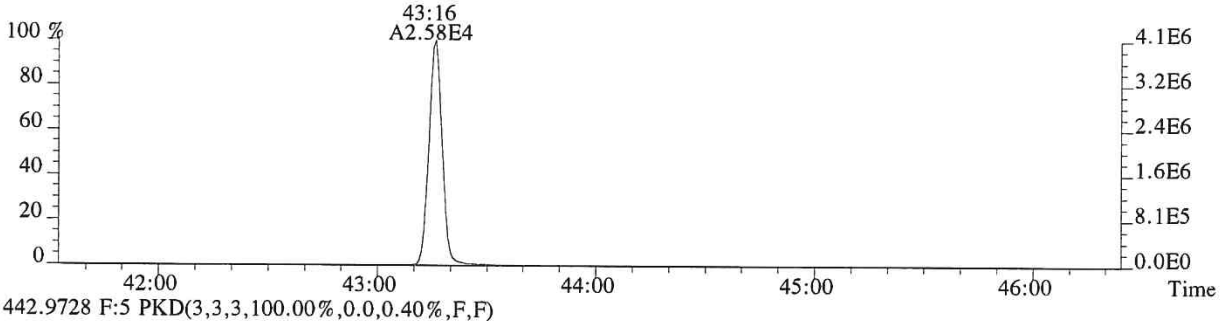
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,896.0,0.40%,F,T)



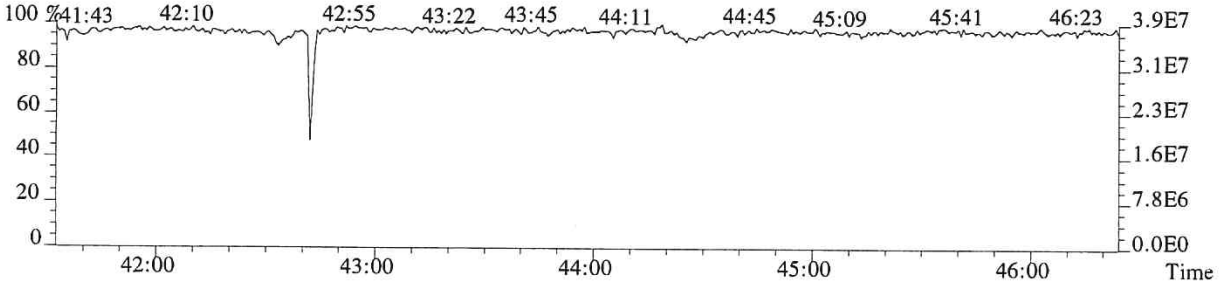
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #19 Filename P615727 Samp: 1 Inj: 1 Acquired: 27-NOV-18 20:53:53
Processed: 28-NOV-18 10:27:14 Sample ID: EQ1800467-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:14	2.839e+03	3.728e+03	0.76	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:11	2.929e+04	1.872e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:04	2.995e+04	1.934e+04	1.55	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	2.949e+04	2.370e+04	1.24	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:45	3.003e+04	2.429e+04	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:15	2.929e+04	2.401e+04	1.22	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:01	2.697e+04	2.217e+04	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	2.416e+04	2.352e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	2.136e+04	2.014e+04	1.06	yes	no	1.463
10	Unk	OCDF	43:30	2.959e+04	3.246e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	29:57	2.217e+03	2.743e+03	0.81	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:20	2.134e+04	1.350e+04	1.58	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	2.084e+04	1.698e+04	1.23	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:28	2.063e+04	1.648e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:43	2.160e+04	1.746e+04	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	1.706e+04	1.612e+04	1.06	yes	no	1.112
17	Unk	OCDD	43:16	2.146e+04	2.375e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:13	2.965e+04	3.765e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	6.391e+04	3.983e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:03	6.376e+04	3.995e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	3.145e+04	6.095e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	3.421e+04	6.542e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	3.413e+04	6.444e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	3.108e+04	6.007e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:15	2.331e+04	5.162e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	2.170e+04	4.680e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	2.216e+04	2.833e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	4.907e+04	3.149e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	4.694e+04	3.498e+04	1.34	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:27	4.172e+04	3.451e+04	1.21	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	4.358e+04	4.186e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	43:15	4.346e+04	4.768e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	6.840e+04	8.723e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	9.620e+04	7.591e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:57	2.190e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #19 Filename P615727 Samp: 1 Inj: 1 Acquired: 27-NOV-18 20:53:53
Processed: 28-NOV-18 10:27:14 LAB. ID: EQ1800467-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.73e+05	1.22e+03	4.7e+02	7.32e+05	3.20e+03	2.3e+02
2	1,2,3,7,8-PeCDF	5.93e+06	1.92e+03	3.1e+03	3.78e+06	3.14e+03	1.2e+03
3	2,3,4,7,8-PeCDF	6.10e+06	1.92e+03	3.2e+03	3.94e+06	3.14e+03	1.3e+03
4	1,2,3,4,7,8-HxCDF	6.49e+06	2.08e+03	3.1e+03	5.14e+06	3.02e+03	1.7e+03
5	1,2,3,6,7,8-HxCDF	6.33e+06	2.08e+03	3.0e+03	5.23e+06	3.02e+03	1.7e+03
6	2,3,4,6,7,8-HxCDF	6.42e+06	2.08e+03	3.1e+03	5.24e+06	3.02e+03	1.7e+03
7	1,2,3,7,8,9-HxCDF	5.69e+06	2.08e+03	2.7e+03	4.58e+06	3.02e+03	1.5e+03
8	1,2,3,4,6,7,8-HpCDF	5.10e+06	4.58e+03	1.1e+03	5.03e+06	2.89e+03	1.7e+03
9	1,2,3,4,7,8,9-HpCDF	4.01e+06	4.58e+03	8.7e+02	3.80e+06	2.89e+03	1.3e+03
10	OCDF	4.56e+06	1.08e+03	4.2e+03	5.02e+06	2.34e+03	2.1e+03
11	2,3,7,8-TCDD	4.80e+05	3.94e+03	1.2e+02	5.75e+05	1.60e+03	3.6e+02
12	1,2,3,7,8-PeCDD	4.46e+06	2.00e+03	2.2e+03	2.85e+06	6.80e+02	4.2e+03
13	1,2,3,4,7,8-HxCDD	4.60e+06	9.08e+02	5.1e+03	3.66e+06	7.56e+02	4.8e+03
14	1,2,3,6,7,8-HxCDD	4.53e+06	9.08e+02	5.0e+03	3.64e+06	7.56e+02	4.8e+03
15	1,2,3,7,8,9-HxCDD	4.65e+06	9.08e+02	5.1e+03	3.76e+06	7.56e+02	5.0e+03
16	1,2,3,4,6,7,8-HpCDD	3.36e+06	1.16e+03	2.9e+03	3.23e+06	8.72e+02	3.7e+03
17	OCDD	3.26e+06	7.36e+02	4.4e+03	3.61e+06	1.76e+03	2.0e+03
18	13C-2,3,7,8-TCDF	5.88e+06	1.30e+04	4.5e+02	7.66e+06	6.90e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	1.28e+07	1.00e+03	1.3e+04	7.94e+06	1.58e+03	5.0e+03
20	13C-2,3,4,7,8-PeCDF	1.34e+07	1.00e+03	1.3e+04	8.48e+06	1.58e+03	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	6.89e+06	2.20e+03	3.1e+03	1.32e+07	2.00e+03	6.6e+03
22	13C-1,2,3,6,7,8-HxCDF	7.42e+06	2.20e+03	3.4e+03	1.42e+07	2.00e+03	7.1e+03
23	13C-2,3,4,6,7,8-HxCDF	7.56e+06	2.20e+03	3.4e+03	1.43e+07	2.00e+03	7.2e+03
24	13C-1,2,3,7,8,9-HxCDF	6.44e+06	2.20e+03	2.9e+03	1.25e+07	2.00e+03	6.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.93e+06	2.46e+03	2.0e+03	1.10e+07	3.38e+03	3.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.11e+06	2.46e+03	1.7e+03	8.74e+06	3.38e+03	2.6e+03
27	13C-2,3,7,8-TCDD	4.74e+06	1.38e+04	3.4e+02	6.07e+06	5.33e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	1.02e+07	1.83e+03	5.6e+03	6.51e+06	2.04e+03	3.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.04e+07	3.97e+03	2.6e+03	7.98e+06	1.58e+03	5.0e+03
30	13C-1,2,3,6,7,8-HxCDD	9.21e+06	3.97e+03	2.3e+03	7.36e+06	1.58e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.64e+06	1.35e+03	6.4e+03	8.32e+06	8.48e+02	9.8e+03
32	13C-OCDD	6.68e+06	5.80e+02	1.2e+04	7.45e+06	7.68e+02	9.7e+03
33	13C-1,2,3,4-TCDD	1.41e+07	1.38e+04	1.0e+03	1.80e+07	5.33e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	2.07e+07	3.97e+03	5.2e+03	1.63e+07	1.58e+03	1.0e+04
35	37Cl-2,3,7,8-TCDD	4.63e+06	2.23e+03	2.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.936e{+}03 + 1.600e{+}03) \times 2000}{(4.745e{+}06 + 6.071e{+}06) \times (\quad) \times 1.049} =$$

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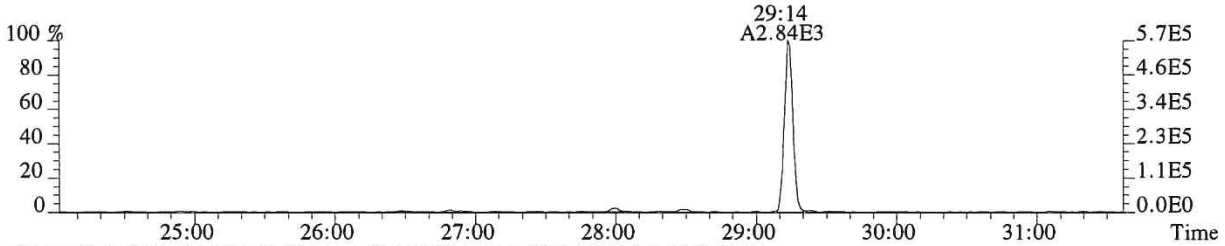
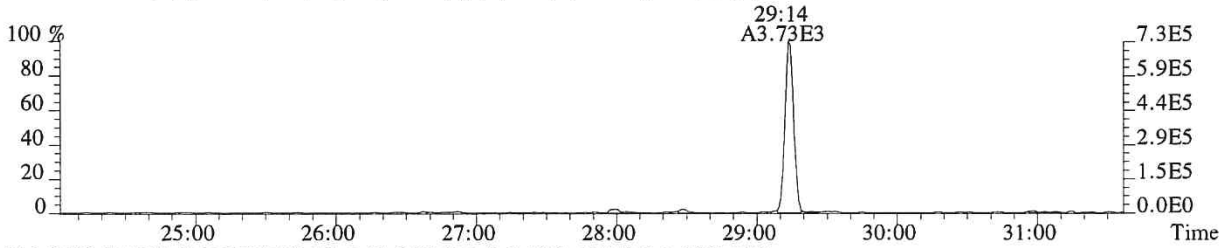
File:P615727 #1-538 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

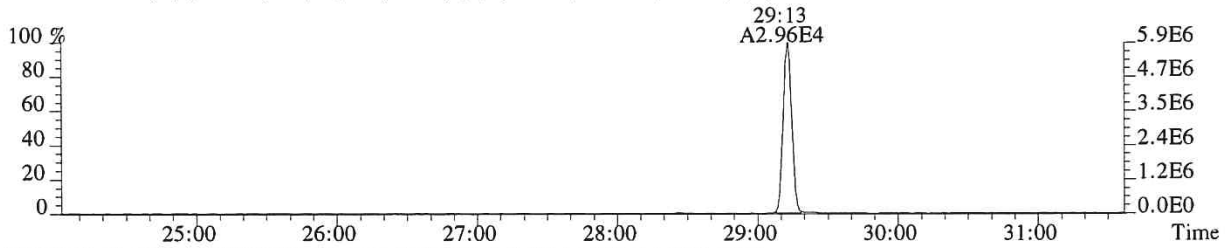
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



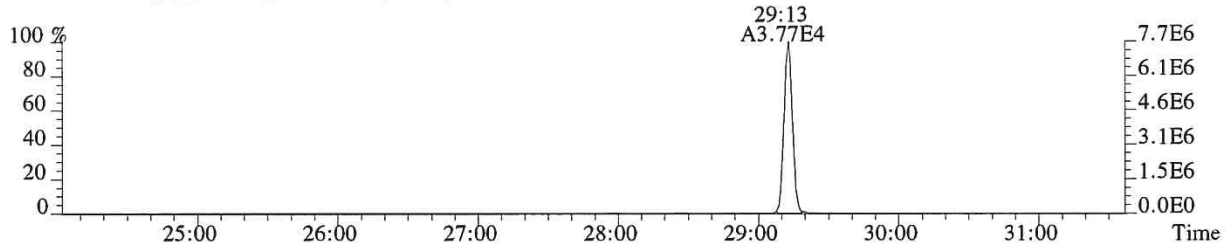
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3196.0,1.00%,F,T)



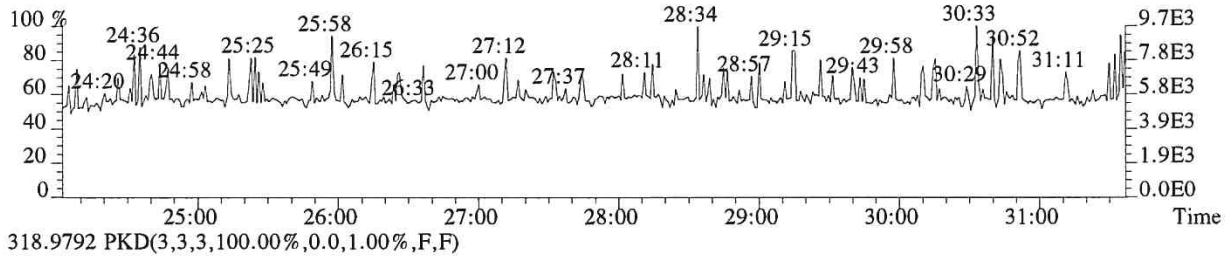
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13040.0,1.00%,F,T)



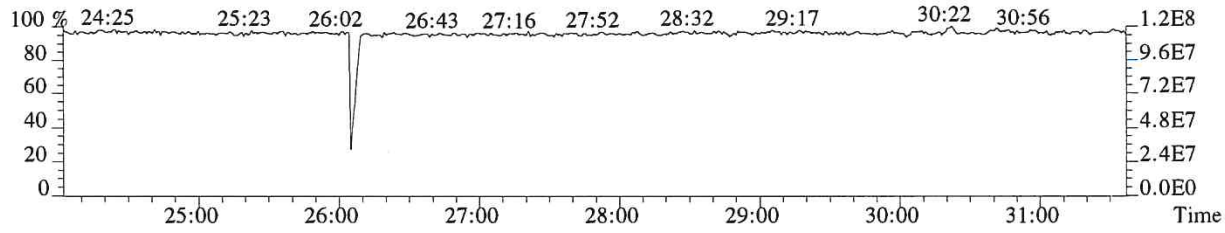
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6900.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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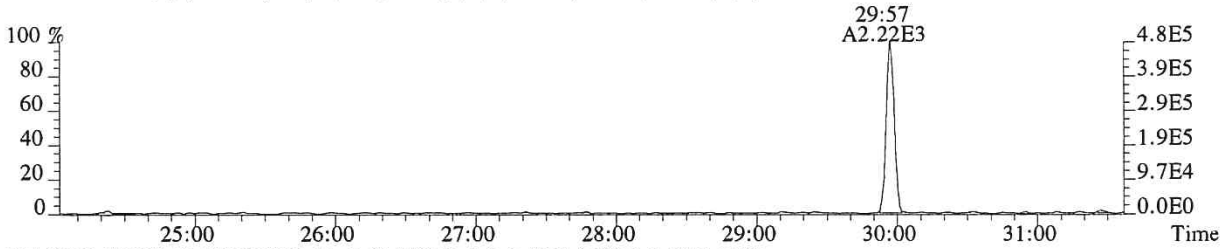
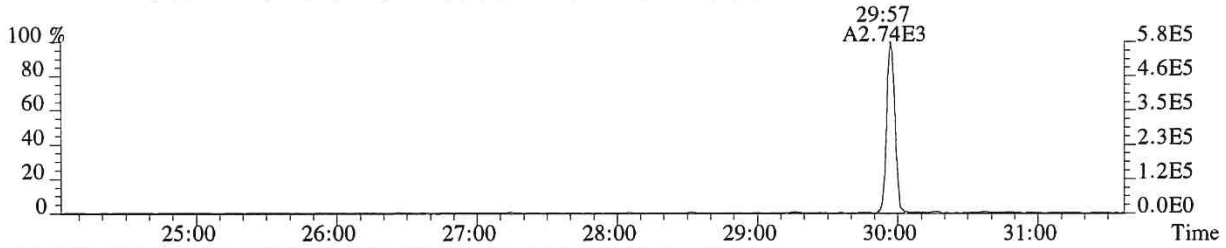
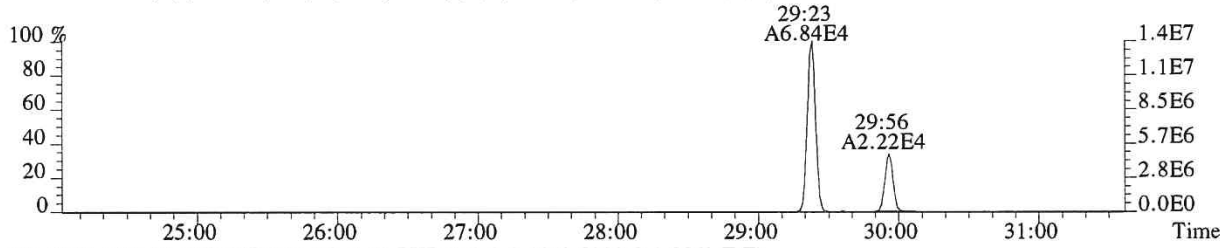
File:P615727 #1-538 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



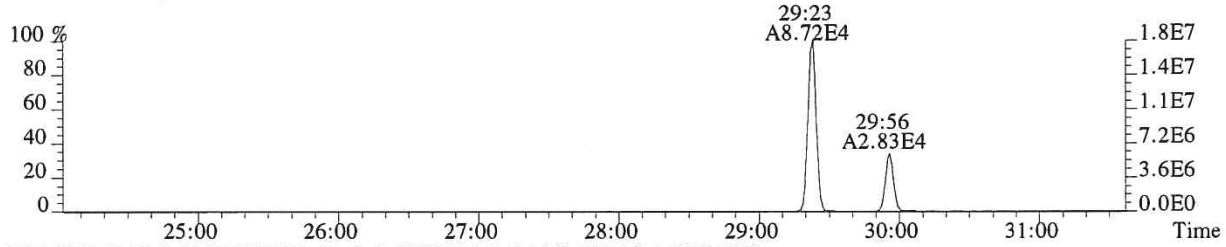
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



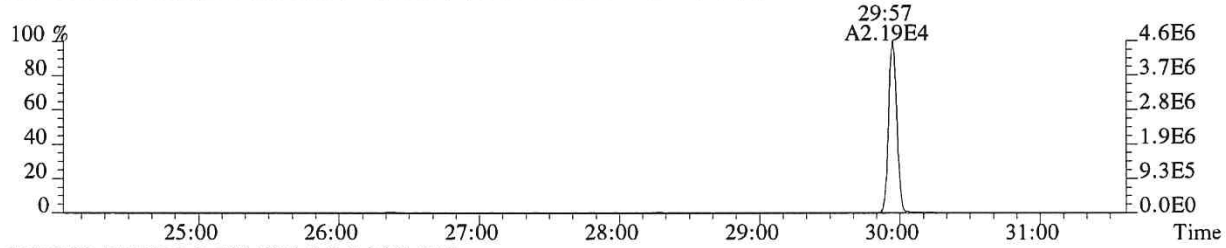
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13780.0,1.00%,F,T)



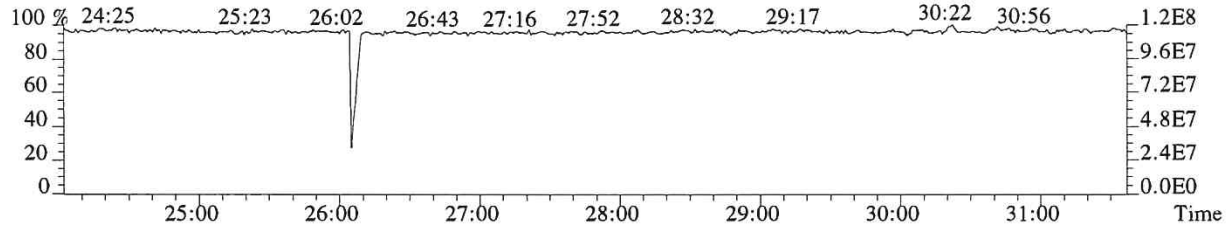
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5332.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2232.0,1.00%,F,T)

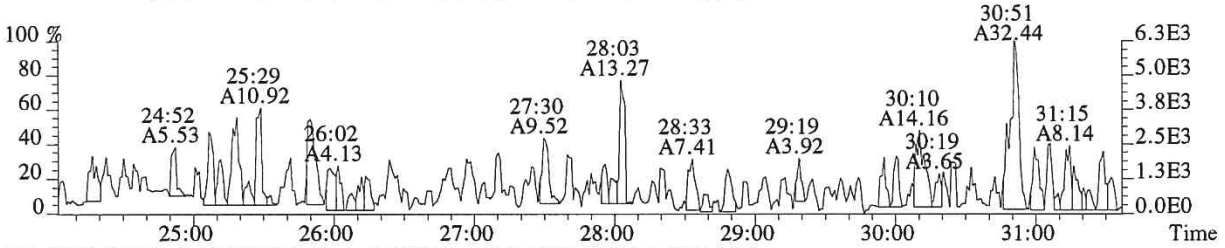


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

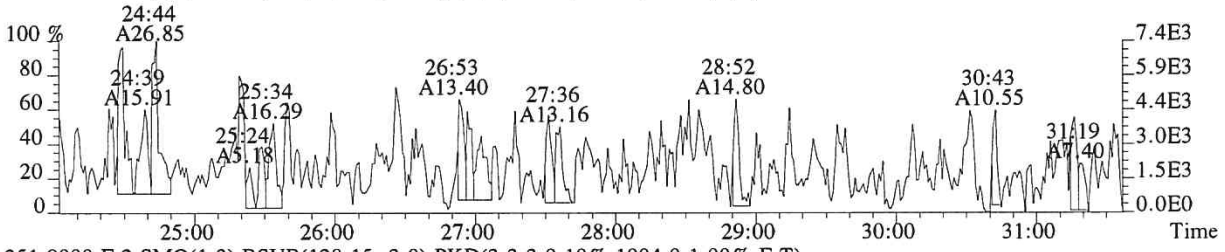


011294

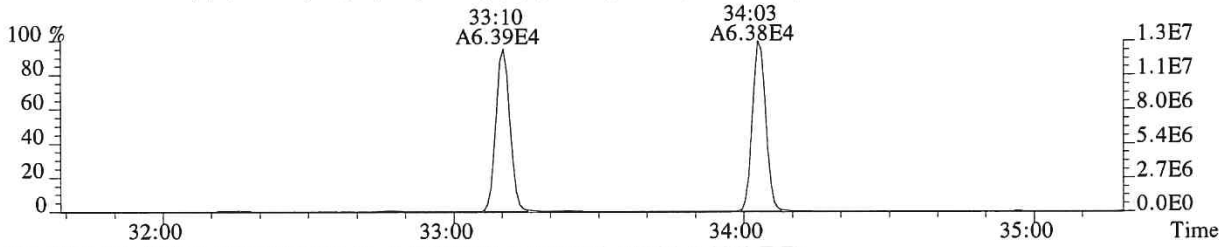
File:P615727 #1-538 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



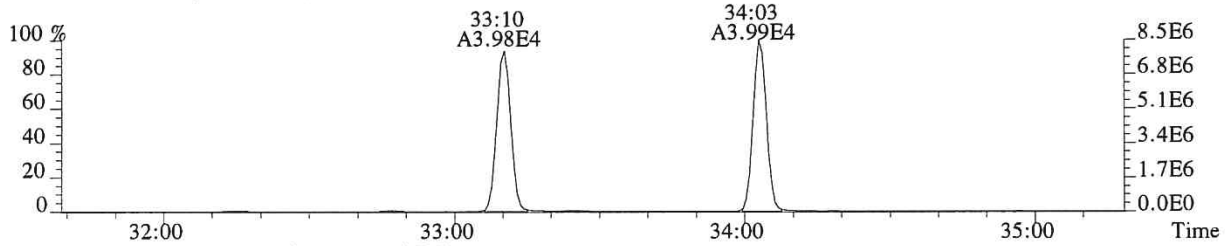
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2332.0,1.00%,F,T)



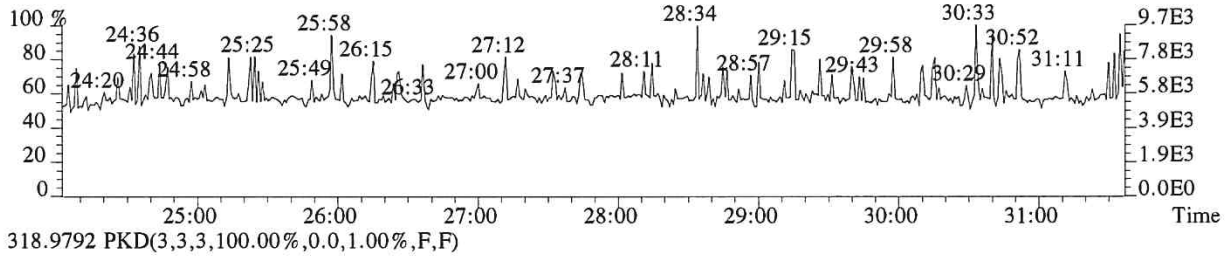
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



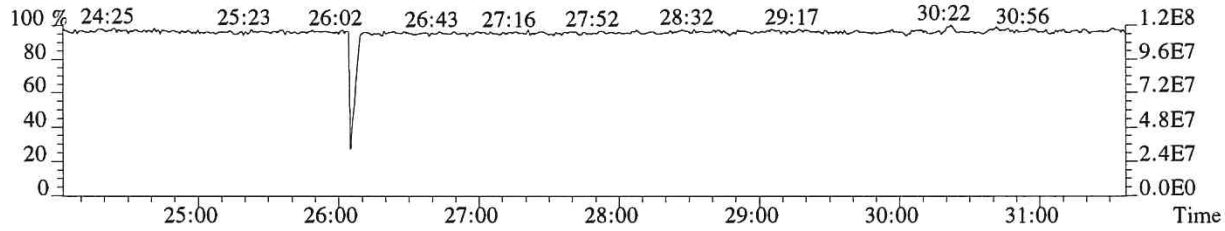
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



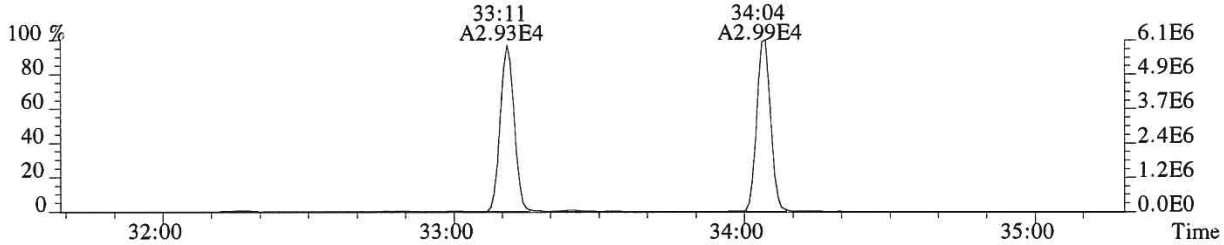
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



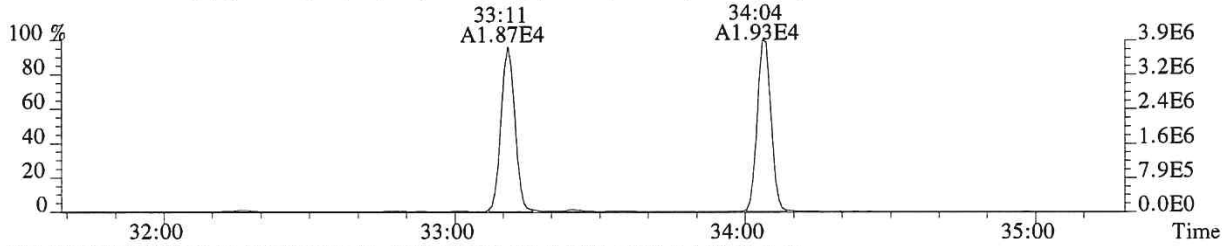
011295

File:P615727 #1-330 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

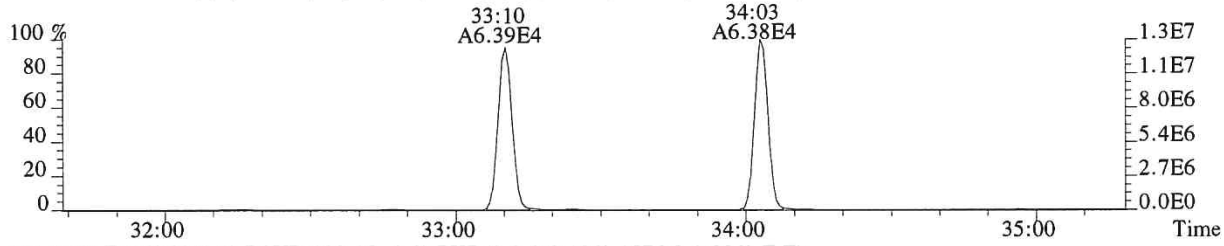
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



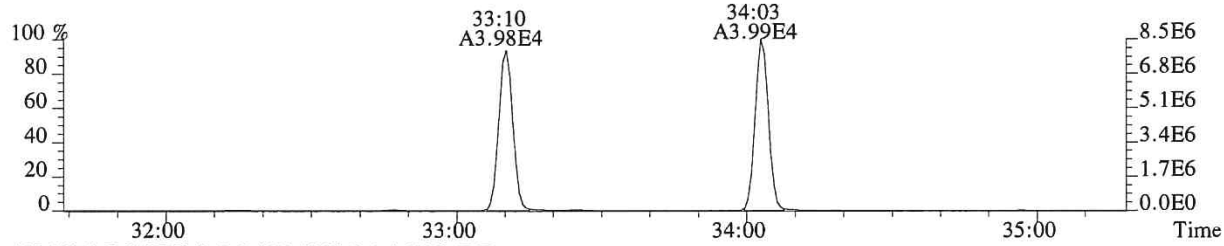
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3140.0,1.00%,F,T)



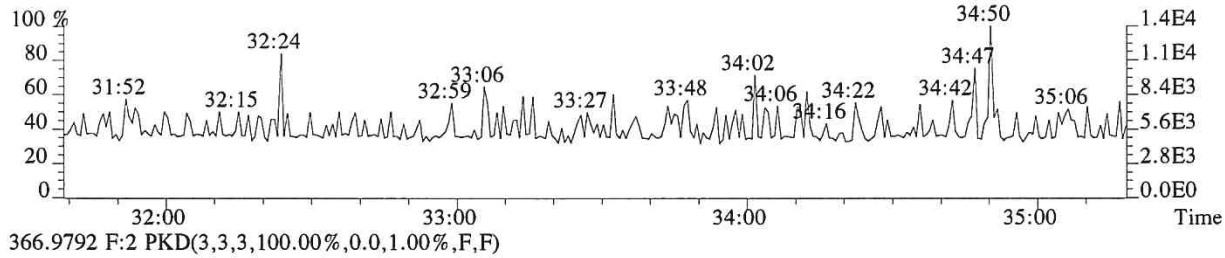
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



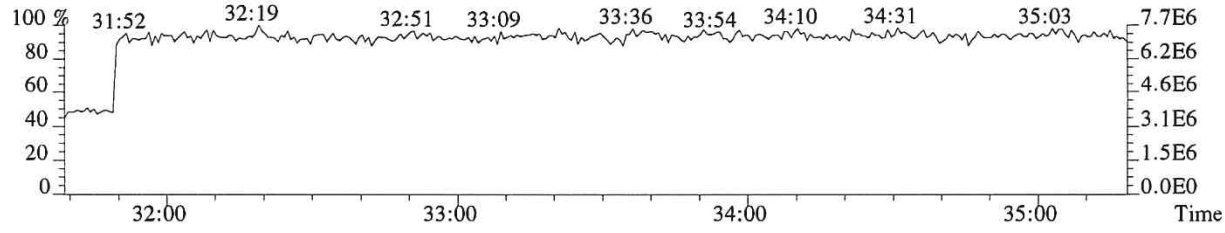
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

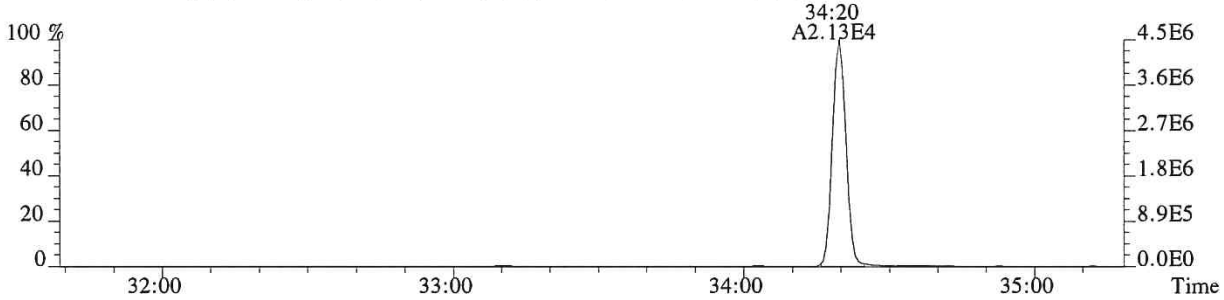


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

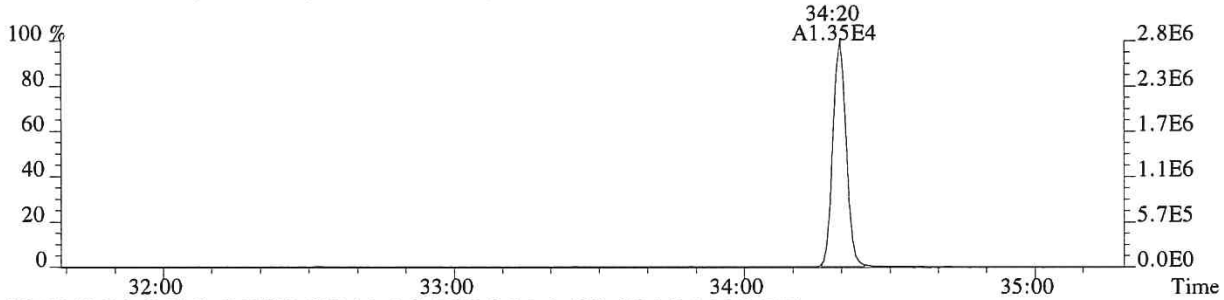


011296

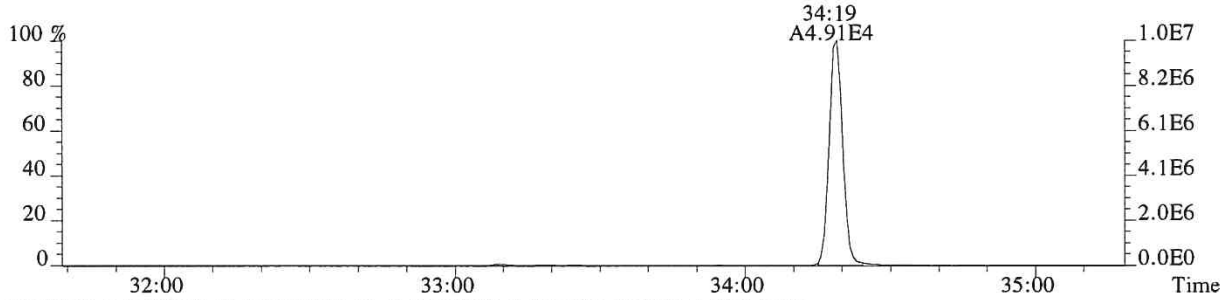
File:P615727 #1-330 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



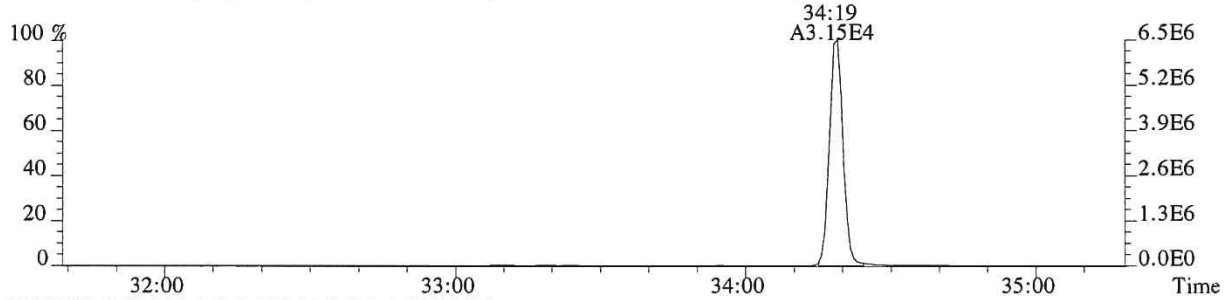
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



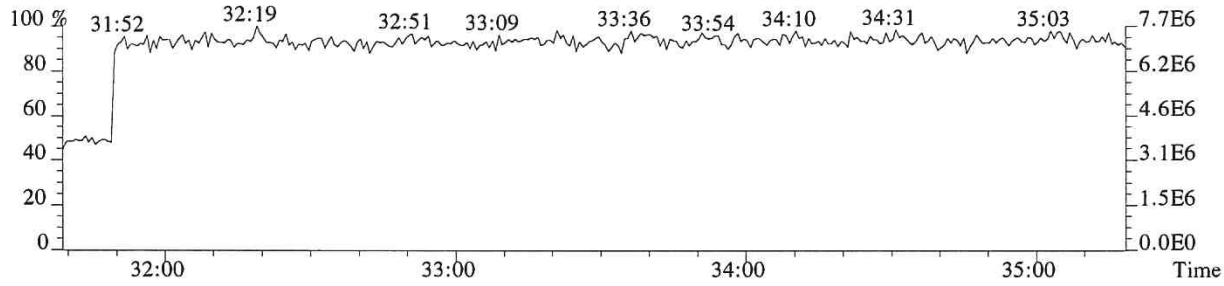
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)

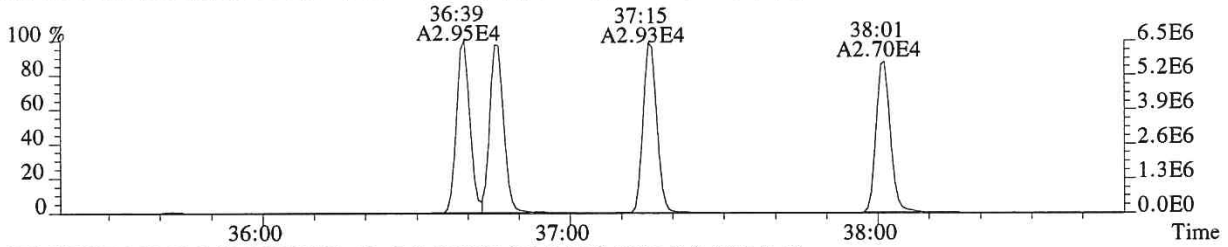


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

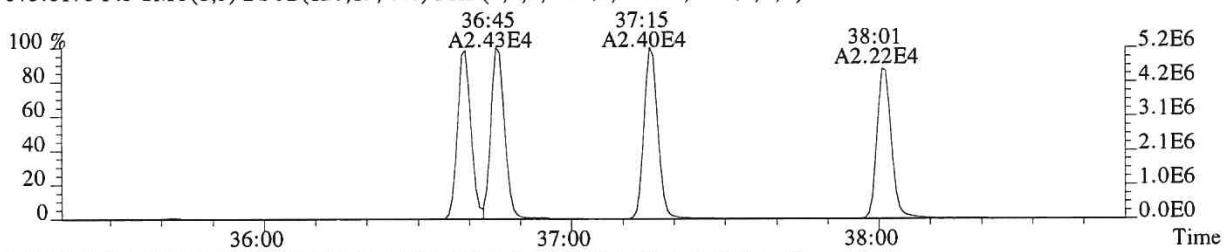


File:P615727 #1-312 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

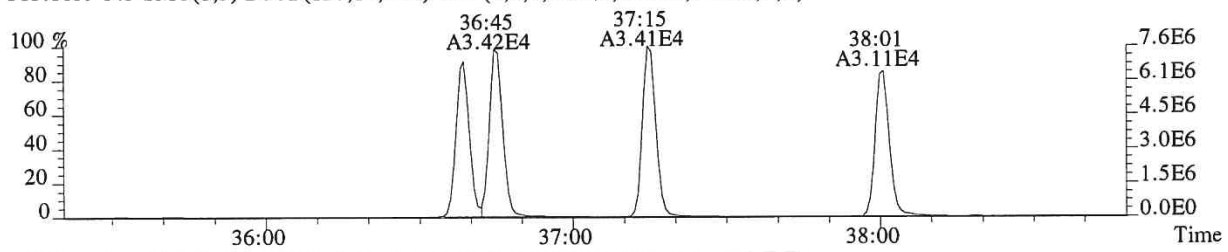
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



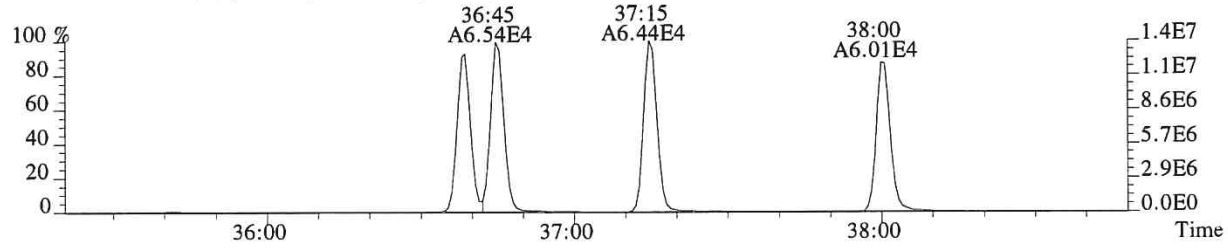
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3016.0,0.40%,F,T)



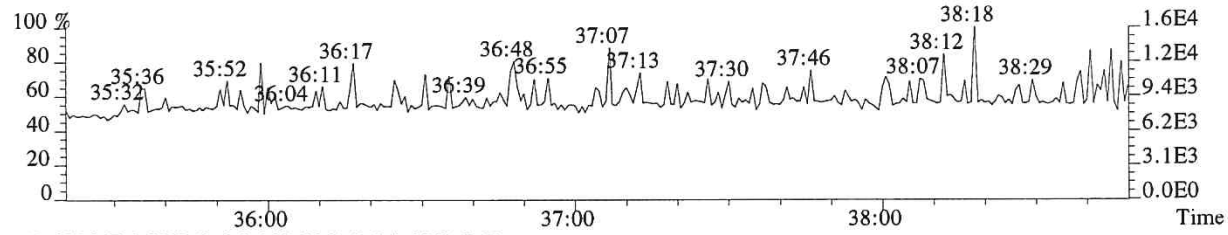
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2200.0,0.40%,F,T)



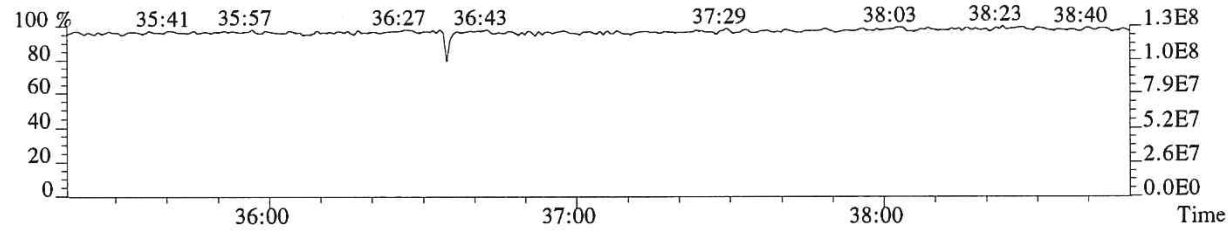
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



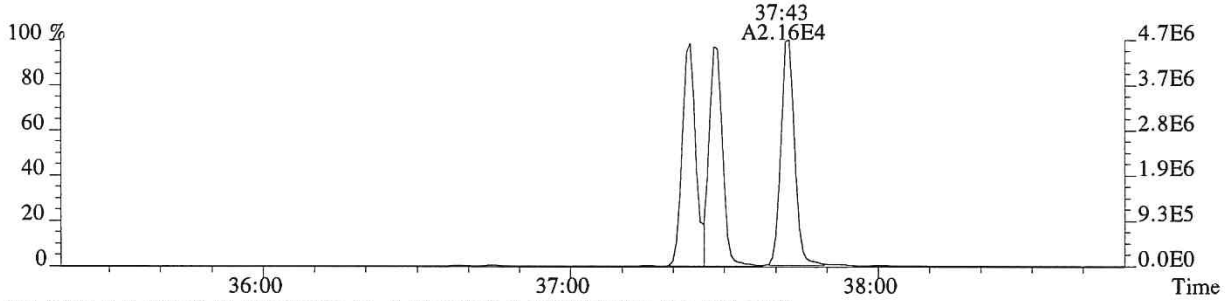
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



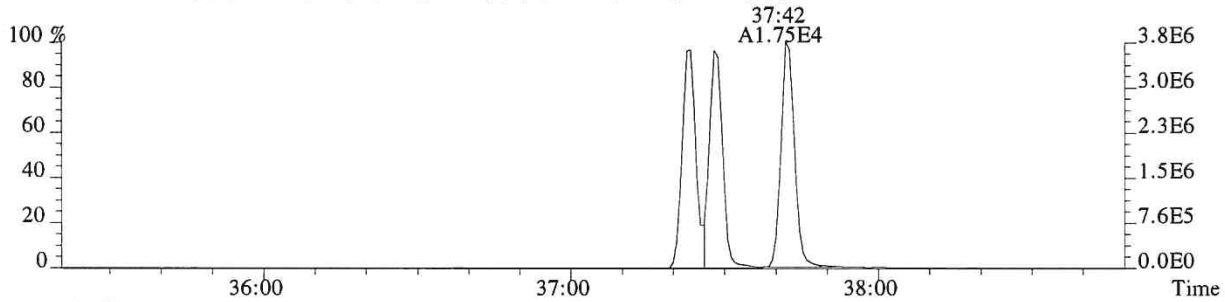
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



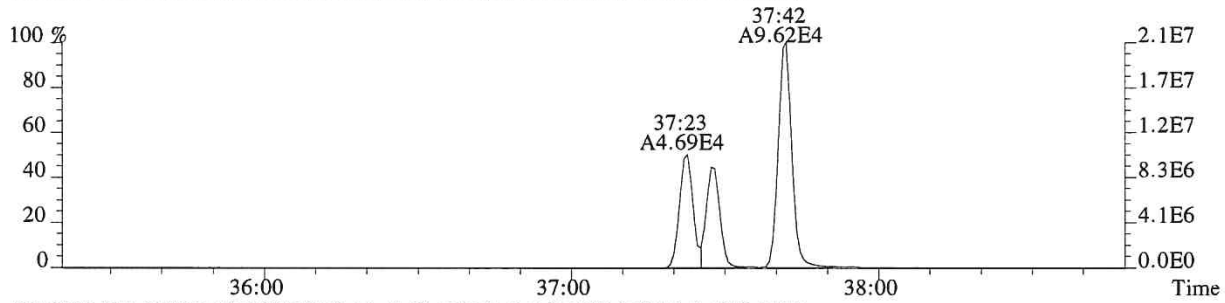
File:P615727 #1-312 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



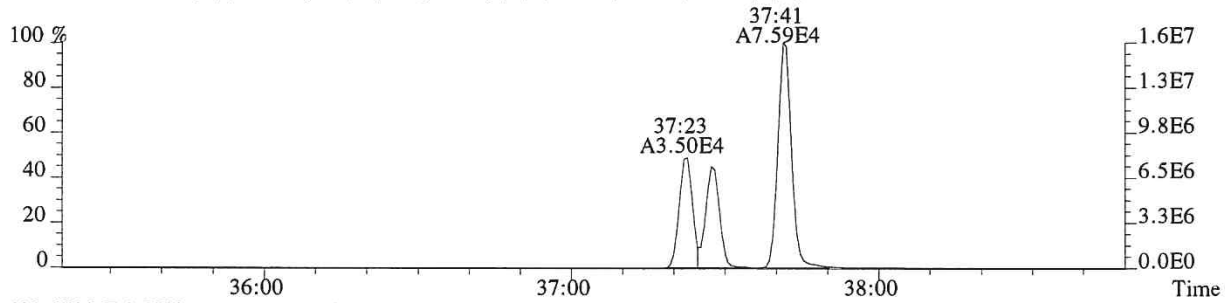
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



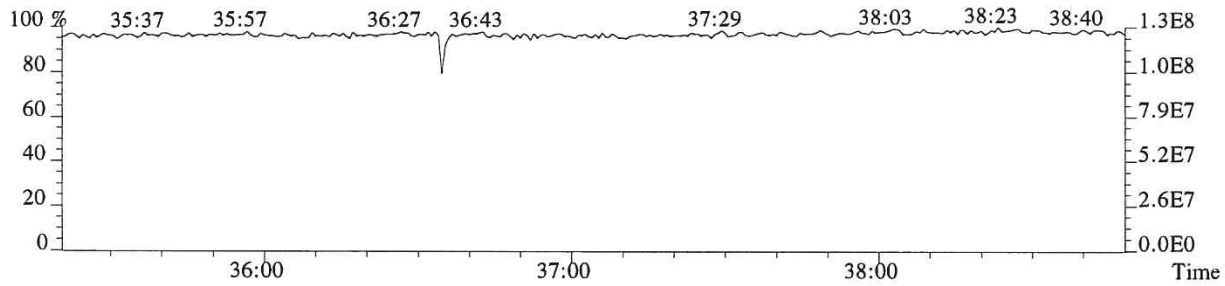
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3972.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)

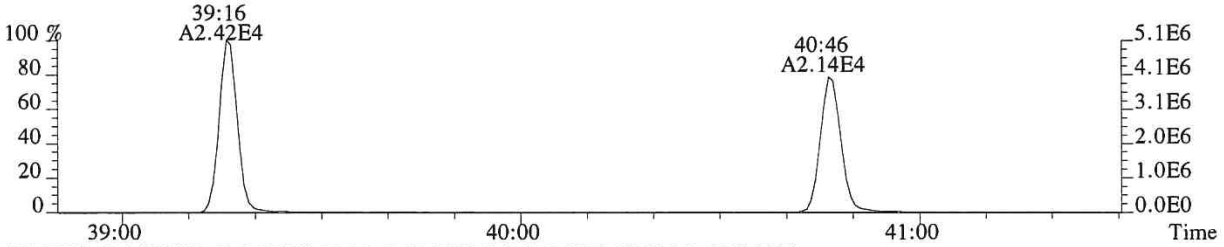


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

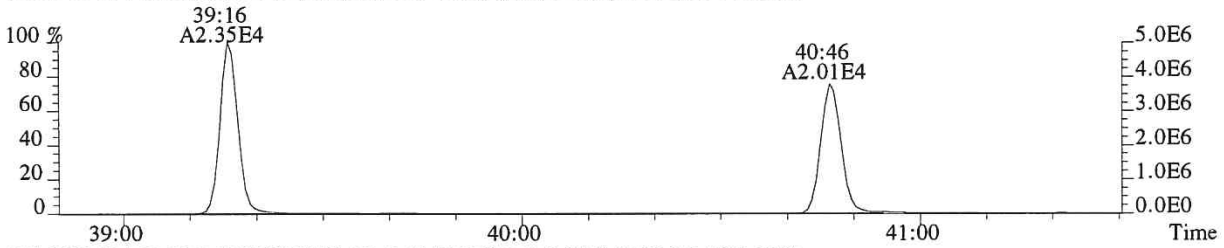


File:P615727 #1-241 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

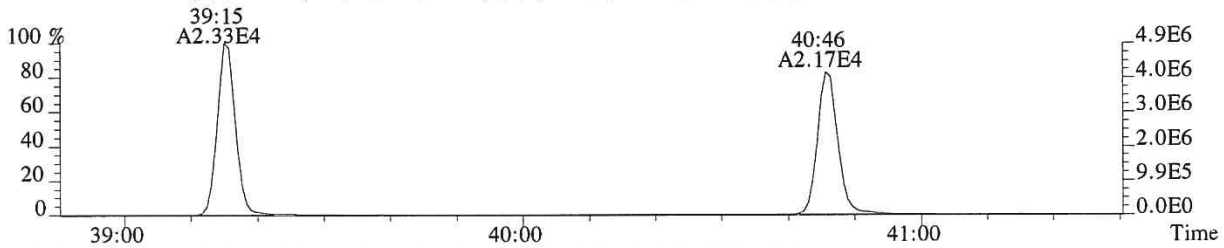
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4584.0,0.50%,F,T)



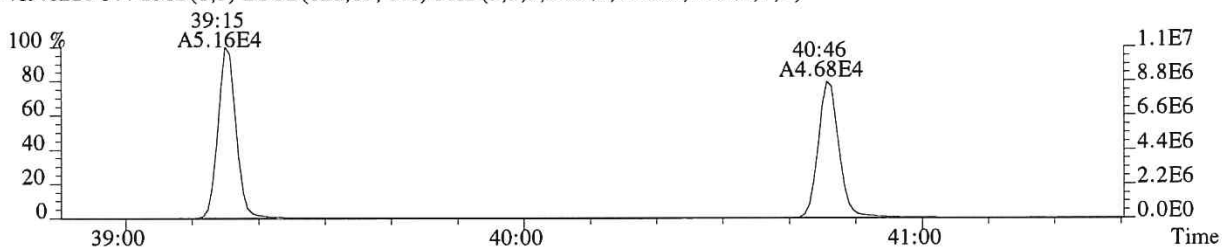
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.50%,F,T)



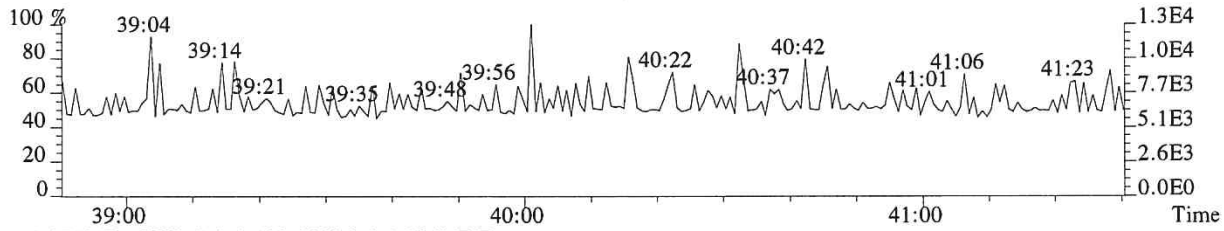
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.50%,F,T)



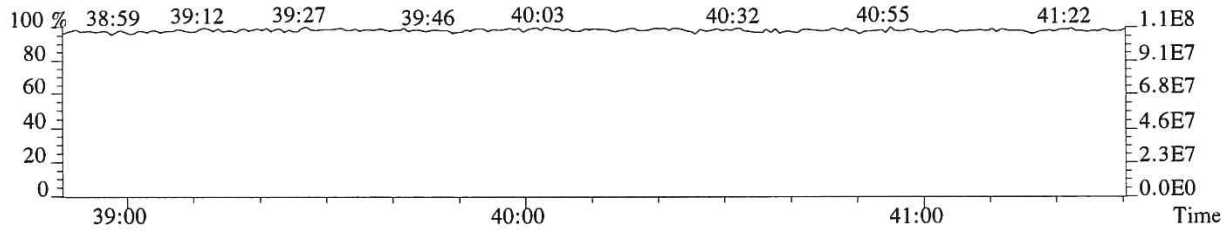
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3376.0,0.50%,F,T)



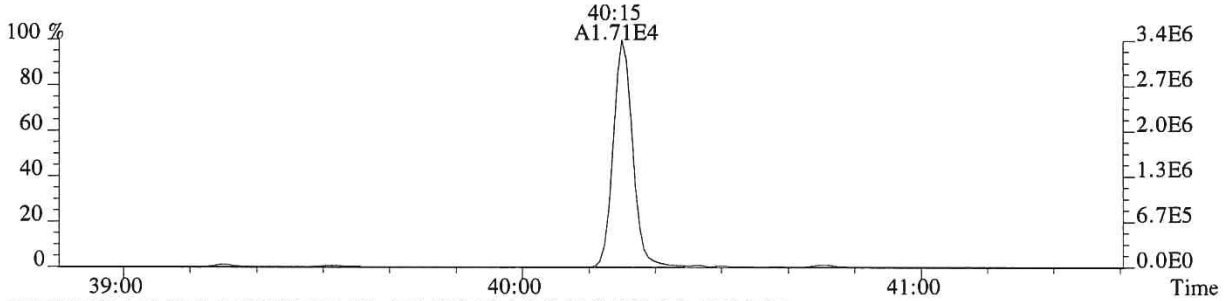
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



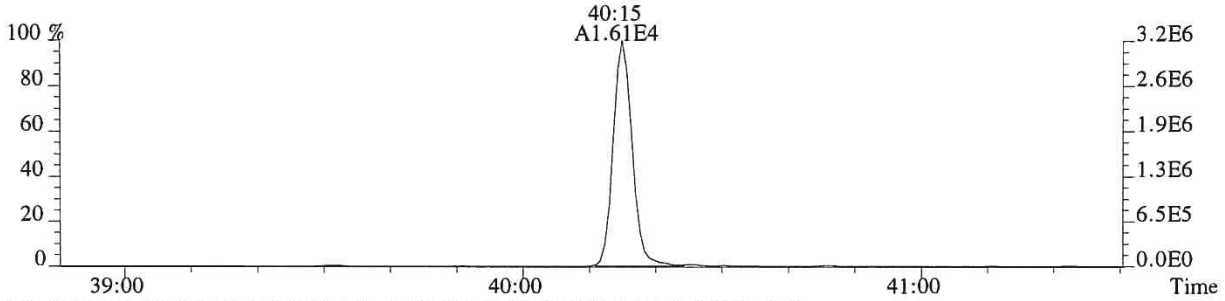
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



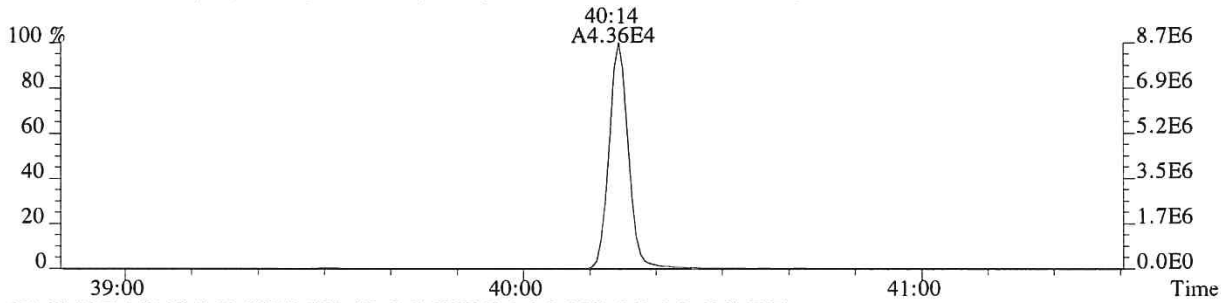
File:P615727 #1-241 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



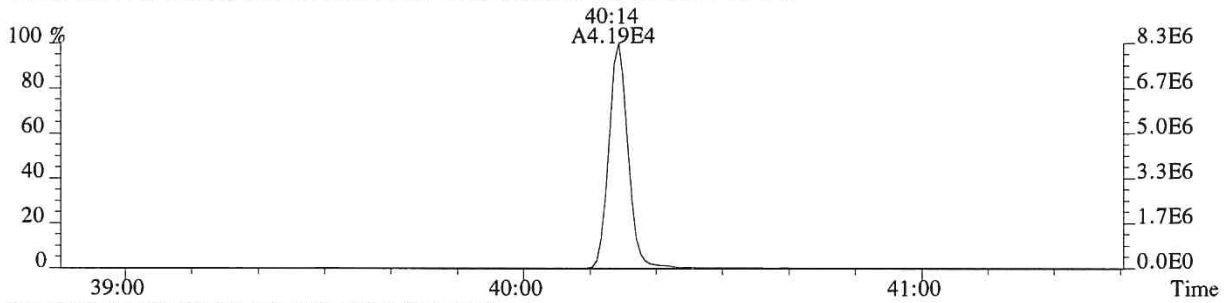
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



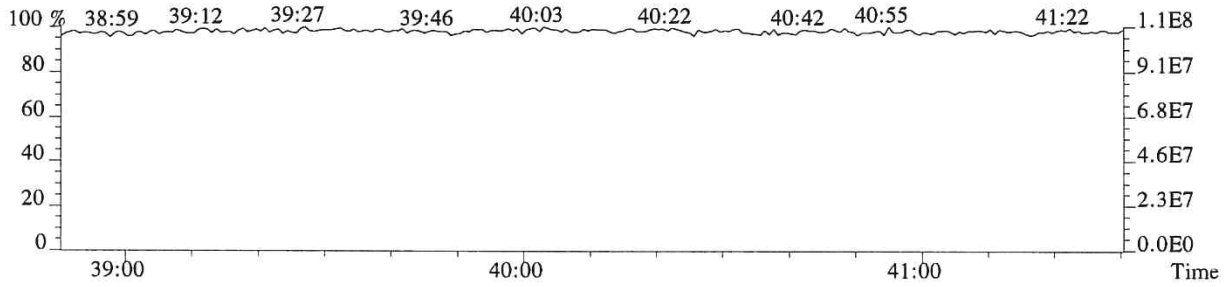
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1352.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



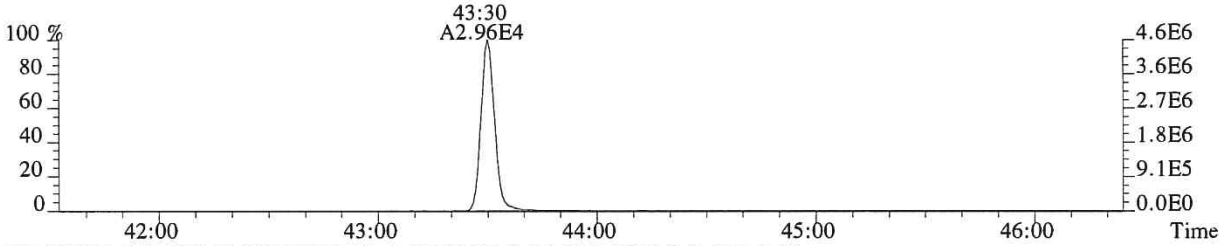
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



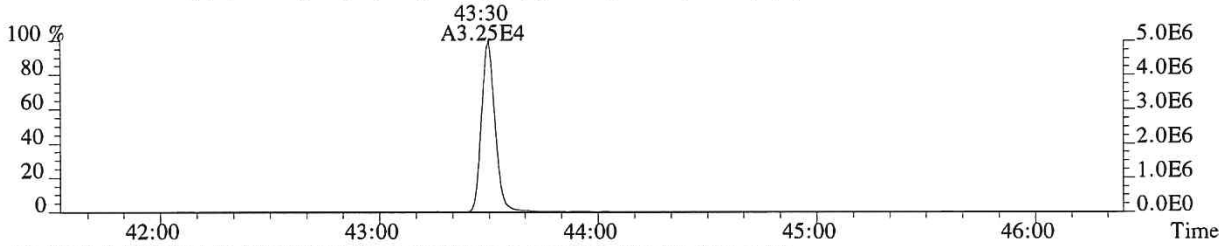
011301

File:P615727 #1-438 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

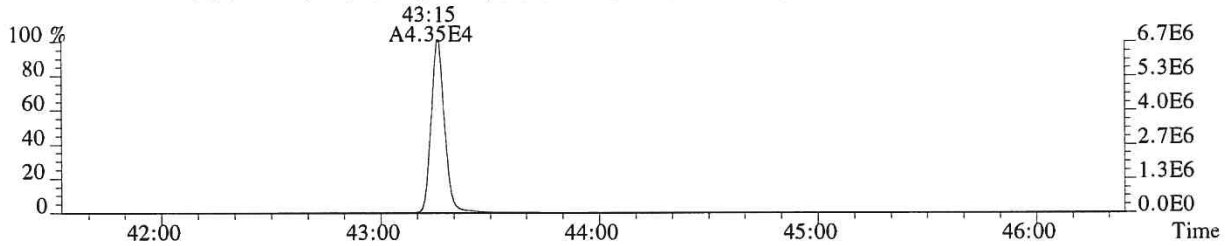
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1080.0,0.40%,F,T)



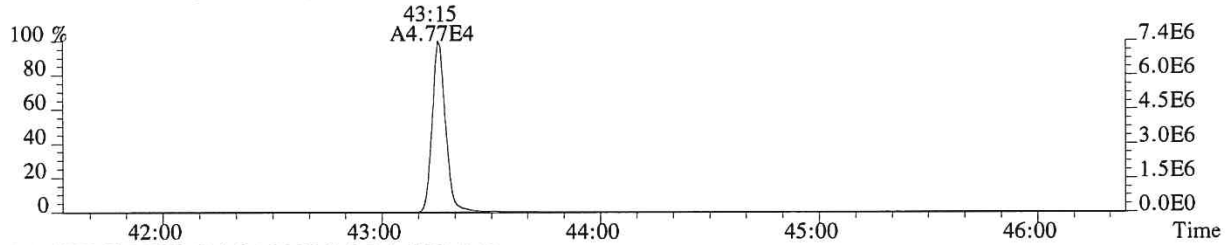
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2344.0,0.40%,F,T)



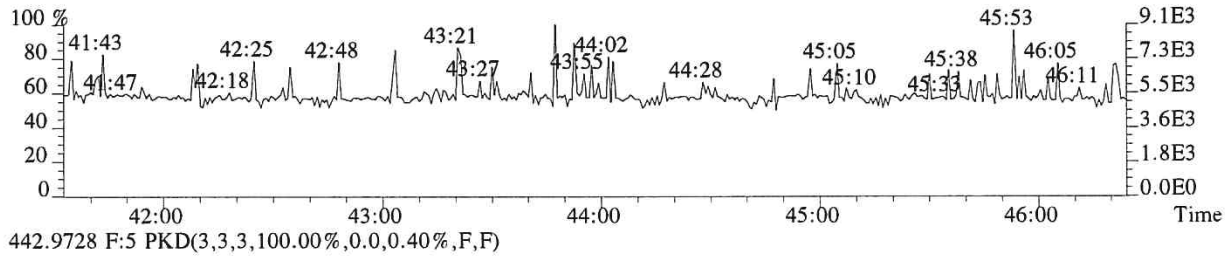
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



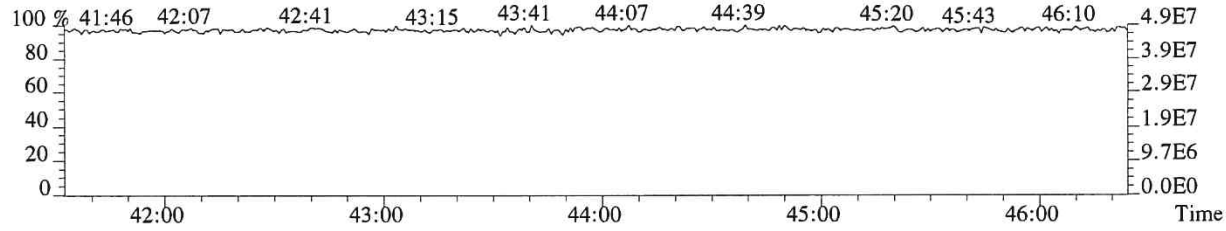
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



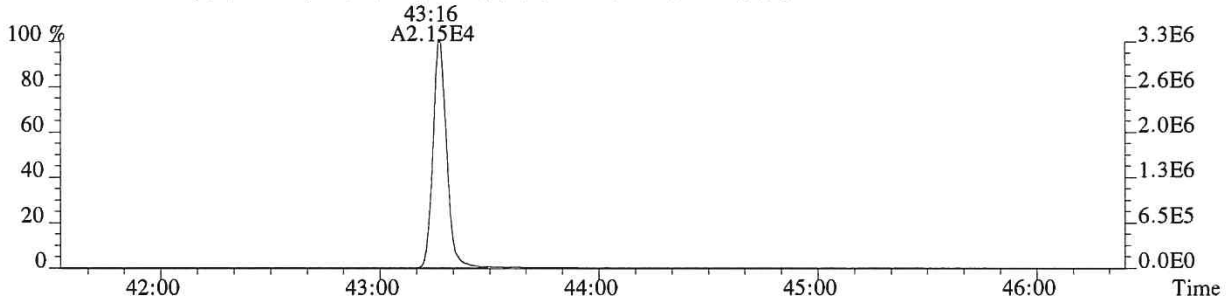
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



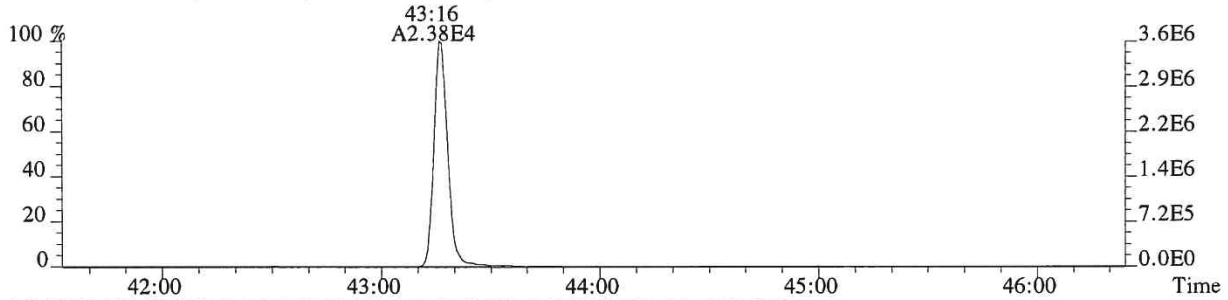
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



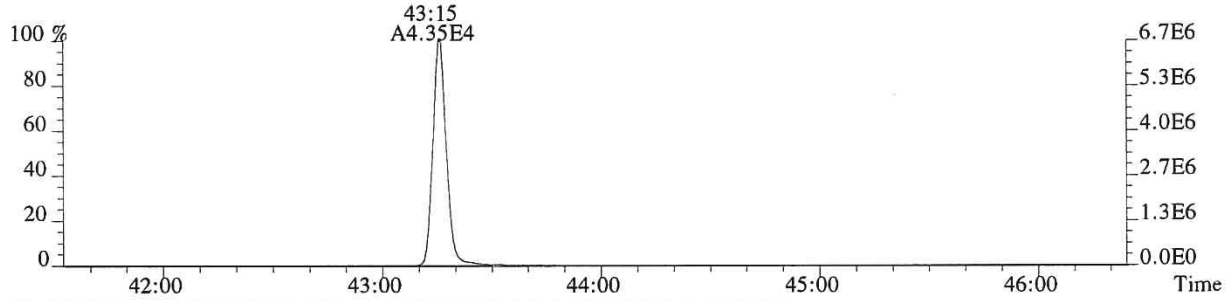
File:P615727 #1-438 Acq:27-NOV-2018 20:53:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



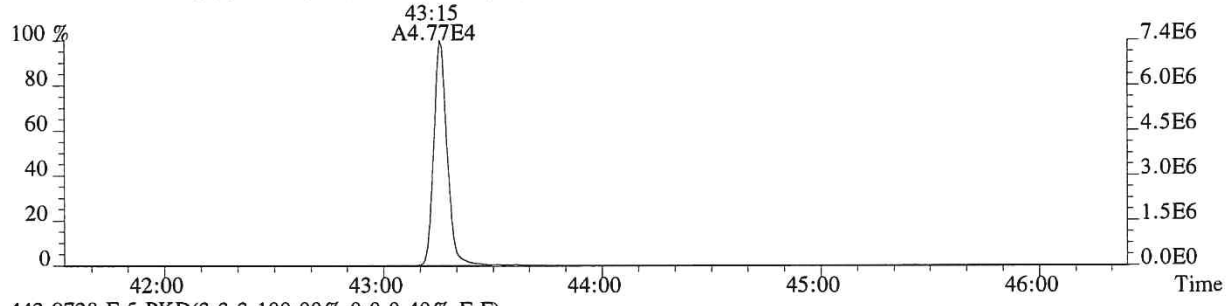
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1764.0,0.40%,F,T)



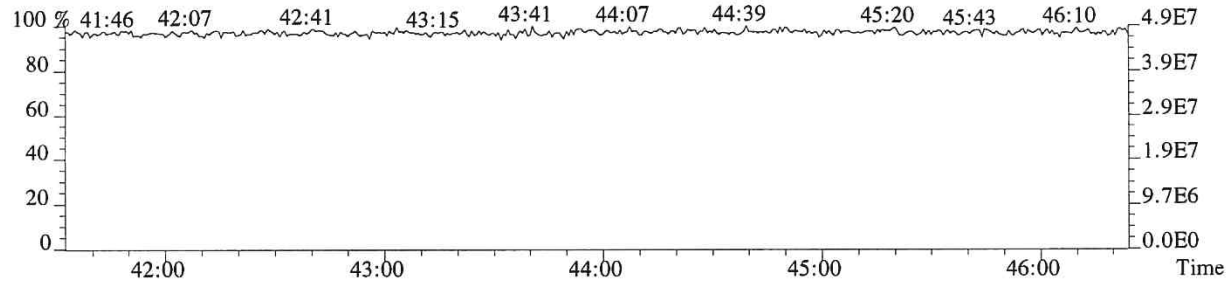
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011303

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #20 Filename P615728 Samp: 1 Inj: 1 Acquired: 27-NOV-18 21:43:01
Processed: 28-NOV-18 10:28:01 Sample ID: EQ1800467-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:14	2.241e+03	2.853e+03	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:10	2.312e+04	1.452e+04	1.59	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:04	2.313e+04	1.472e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	2.398e+04	1.910e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:45	2.479e+04	1.987e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:15	2.583e+04	2.075e+04	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:01	2.380e+04	1.933e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:15	2.245e+04	2.175e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	1.963e+04	1.929e+04	1.02	yes	no	1.463
10	Unk	OCDF	43:29	2.922e+04	3.339e+04	0.88	yes	no	1.571
11	Unk	2,3,7,8-TCDD	29:57	1.617e+03	2.157e+03	0.75	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:19	1.557e+04	1.015e+04	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	1.724e+04	1.338e+04	1.29	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:28	1.700e+04	1.357e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:42	1.921e+04	1.520e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:14	1.566e+04	1.506e+04	1.04	yes	no	1.112
17	Unk	OCDD	43:15	2.053e+04	2.304e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:12	2.326e+04	2.922e+04	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	4.801e+04	3.031e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:03	4.693e+04	2.930e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:38	2.412e+04	4.653e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	2.734e+04	5.176e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	2.843e+04	5.528e+04	0.51	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:00	2.601e+04	4.986e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:14	2.061e+04	4.579e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:45	1.968e+04	4.339e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:55	1.778e+04	2.234e+04	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:18	3.518e+04	2.274e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:22	3.702e+04	2.883e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:27	3.411e+04	2.611e+04	1.31	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	3.899e+04	3.694e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	43:15	4.012e+04	4.431e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:22	6.603e+04	8.282e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:41	8.059e+04	6.453e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:56	1.802e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #20 Filename P615728 Samp: 1 Inj: 1 Acquired: 27-NOV-18 21:43:01
Processed: 28-NOV-18 10:28:01 LAB. ID: EQ1800467-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.46e+05	1.36e+03	3.3e+02	5.76e+05	2.39e+03	2.4e+02
2	1,2,3,7,8-PeCDF	4.68e+06	1.18e+03	4.0e+03	2.94e+06	4.42e+03	6.6e+02
3	2,3,4,7,8-PeCDF	4.85e+06	1.18e+03	4.1e+03	3.08e+06	4.42e+03	7.0e+02
4	1,2,3,4,7,8-HxCDF	5.37e+06	1.10e+03	4.9e+03	4.25e+06	1.48e+03	2.9e+03
5	1,2,3,6,7,8-HxCDF	5.34e+06	1.10e+03	4.8e+03	4.26e+06	1.48e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	5.57e+06	1.10e+03	5.0e+03	4.47e+06	1.48e+03	3.0e+03
7	1,2,3,7,8,9-HxCDF	5.02e+06	1.10e+03	4.5e+03	4.12e+06	1.48e+03	2.8e+03
8	1,2,3,4,6,7,8-HpCDF	4.67e+06	3.65e+03	1.3e+03	4.52e+06	2.52e+03	1.8e+03
9	1,2,3,4,7,8,9-HpCDF	3.64e+06	3.65e+03	1.0e+03	3.63e+06	2.52e+03	1.4e+03
10	OCDF	4.48e+06	8.72e+02	5.1e+03	5.13e+06	1.95e+03	2.6e+03
11	2,3,7,8-TCDD	3.37e+05	2.49e+03	1.4e+02	4.39e+05	1.98e+03	2.2e+02
12	1,2,3,7,8-PeCDD	3.29e+06	2.30e+03	1.4e+03	2.15e+06	1.17e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	3.89e+06	1.20e+03	3.2e+03	3.03e+06	1.36e+03	2.2e+03
14	1,2,3,6,7,8-HxCDD	3.69e+06	1.20e+03	3.1e+03	2.93e+06	1.36e+03	2.2e+03
15	1,2,3,7,8,9-HxCDD	4.15e+06	1.20e+03	3.4e+03	3.19e+06	1.36e+03	2.4e+03
16	1,2,3,4,6,7,8-HpCDD	3.08e+06	1.47e+03	2.1e+03	2.97e+06	9.08e+02	3.3e+03
17	OCDD	3.14e+06	6.52e+02	4.8e+03	3.58e+06	8.36e+02	4.3e+03
18	13C-2,3,7,8-TCDF	4.54e+06	1.28e+04	3.5e+02	5.72e+06	6.21e+03	9.2e+02
19	13C-1,2,3,7,8-PeCDF	9.67e+06	9.96e+02	9.7e+03	6.08e+06	1.79e+03	3.4e+03
20	13C-2,3,4,7,8-PeCDF	9.59e+06	9.96e+02	9.6e+03	5.91e+06	1.79e+03	3.3e+03
21	13C-1,2,3,4,7,8-HxCDF	5.33e+06	1.44e+03	3.7e+03	1.04e+07	2.61e+03	4.0e+03
22	13C-1,2,3,6,7,8-HxCDF	5.82e+06	1.44e+03	4.0e+03	1.12e+07	2.61e+03	4.3e+03
23	13C-2,3,4,6,7,8-HxCDF	6.28e+06	1.44e+03	4.4e+03	1.19e+07	2.61e+03	4.6e+03
24	13C-1,2,3,7,8,9-HxCDF	5.58e+06	1.44e+03	3.9e+03	1.05e+07	2.61e+03	4.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.23e+06	2.14e+03	2.0e+03	9.60e+06	3.43e+03	2.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.66e+06	2.14e+03	1.7e+03	8.21e+06	3.43e+03	2.4e+03
27	13C-2,3,7,8-TCDD	3.73e+06	1.48e+04	2.5e+02	4.74e+06	5.73e+03	8.3e+02
28	13C-1,2,3,7,8-PeCDD	7.46e+06	2.04e+03	3.7e+03	4.78e+06	1.83e+03	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	8.51e+06	4.12e+03	2.1e+03	6.51e+06	1.86e+03	3.5e+03
30	13C-1,2,3,6,7,8-HxCDD	7.31e+06	4.12e+03	1.8e+03	5.73e+06	1.86e+03	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.57e+06	2.04e+03	3.7e+03	7.32e+06	4.28e+02	1.7e+04
32	13C-OCDD	6.11e+06	8.40e+02	7.3e+03	6.95e+06	6.92e+02	1.0e+04
33	13C-1,2,3,4-TCDD	1.38e+07	1.48e+04	9.4e+02	1.73e+07	5.73e+03	3.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.76e+07	4.12e+03	4.3e+03	1.39e+07	1.86e+03	7.5e+03
35	37Cl-2,3,7,8-TCDD	3.72e+06	1.96e+03	1.9e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.492e{+}03 + 1.980e{+}03) \times 2000}{(3.726e{+}06 + 4.740e{+}06) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
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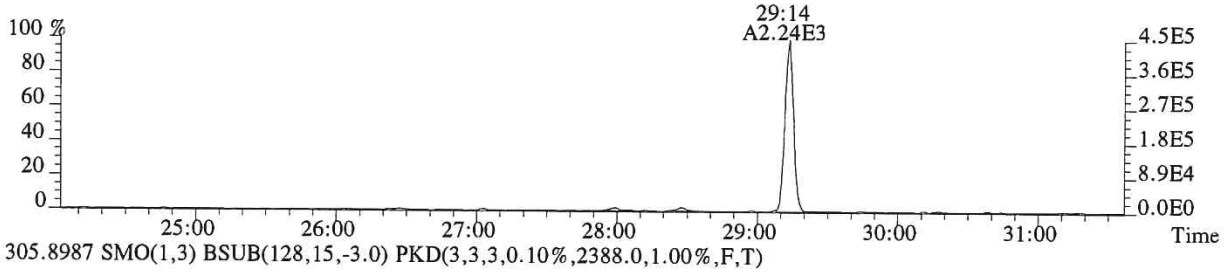
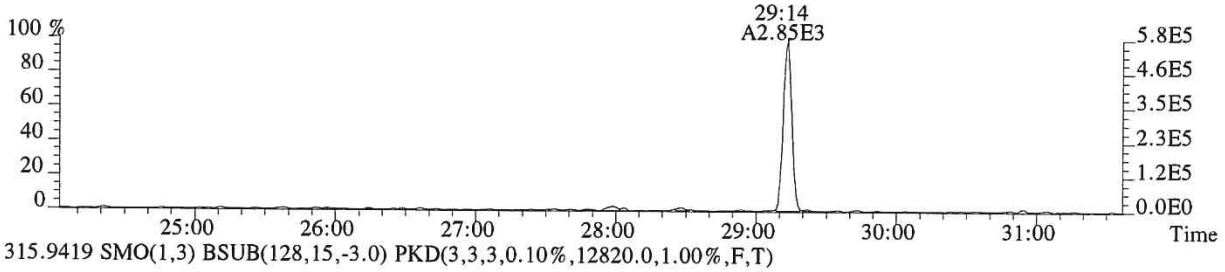
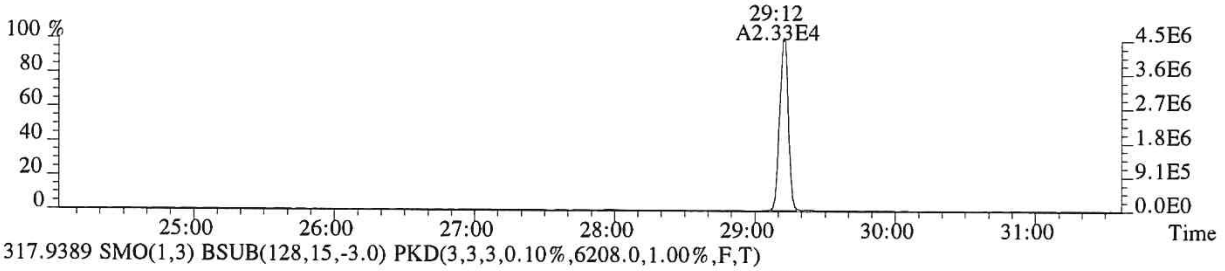
File:P615728 #1-538 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



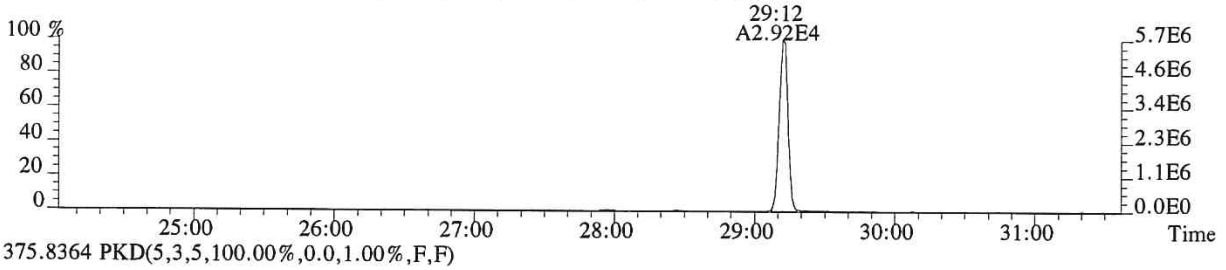
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



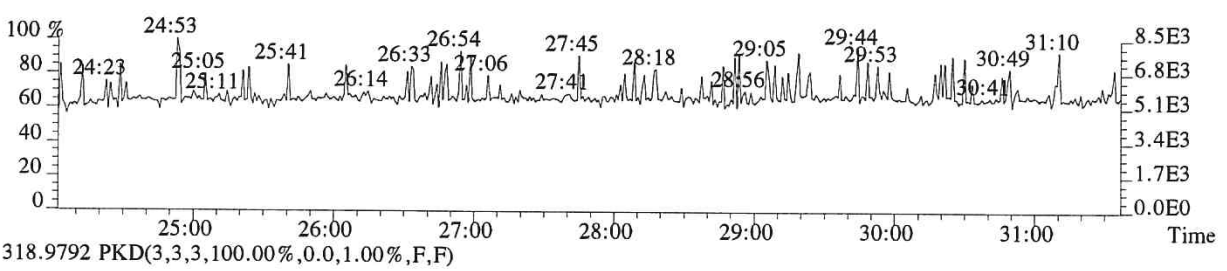
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12820.0,1.00%,F,T)



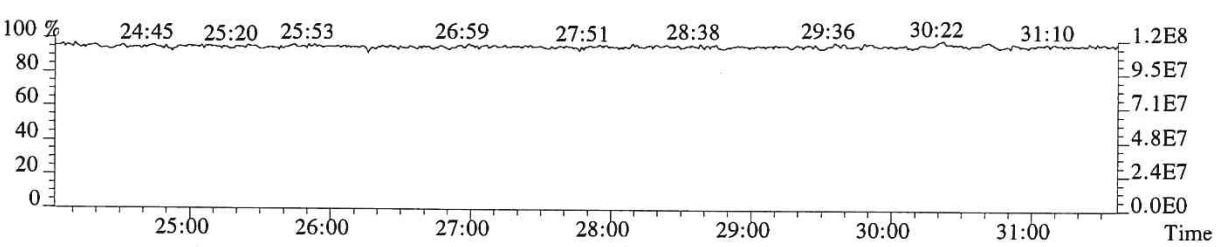
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6208.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



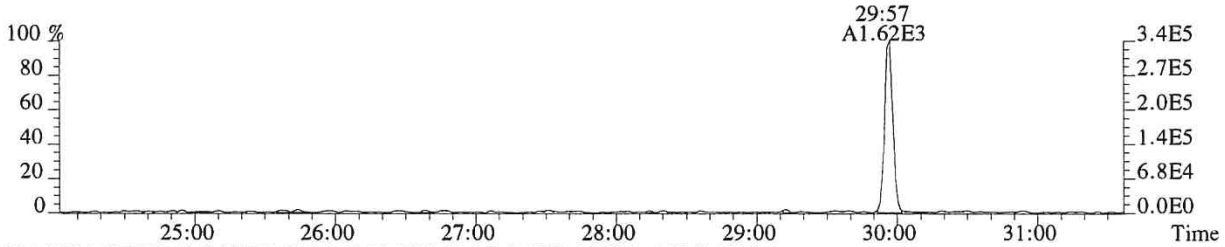
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



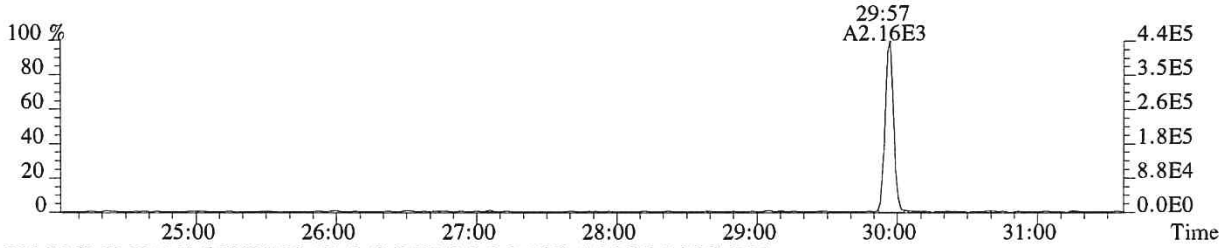
011306

File:P615728 #1-538 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

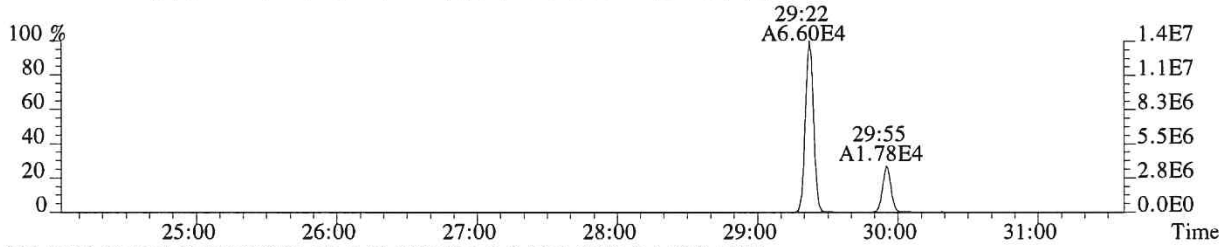
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2492.0,1.00%,F,T)



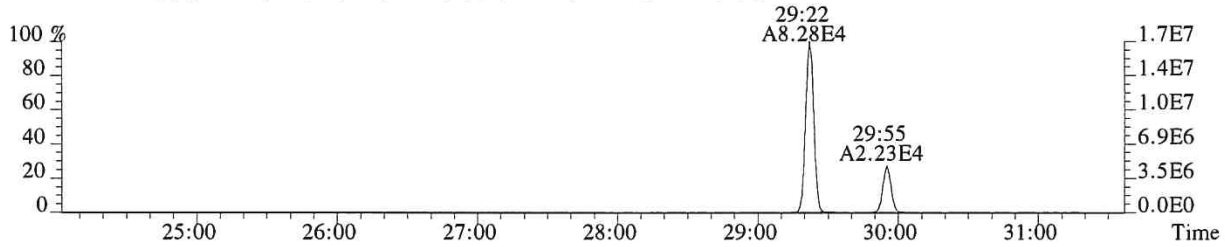
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



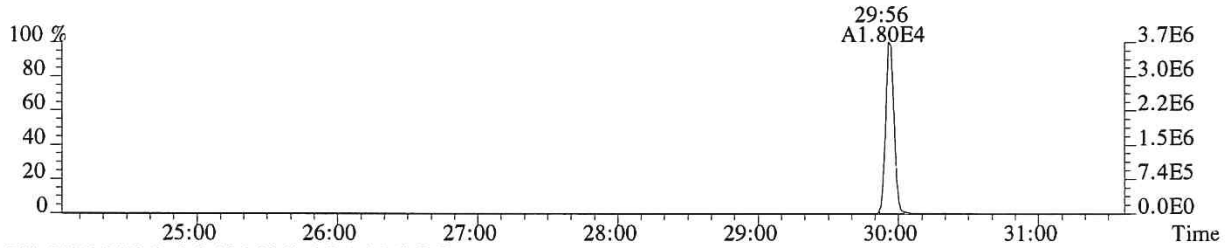
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14796.0,1.00%,F,T)



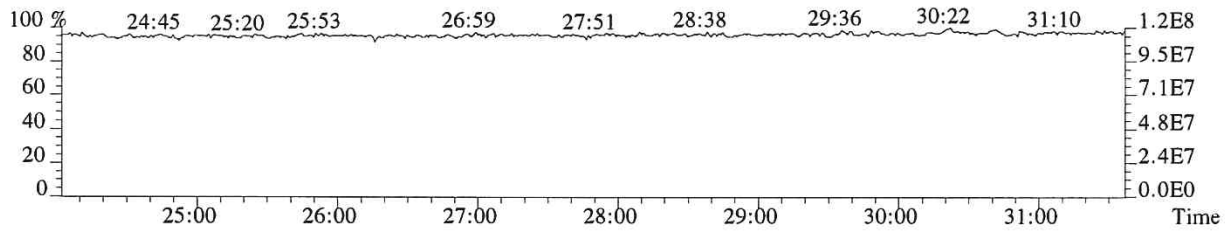
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5732.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1960.0,1.00%,F,T)

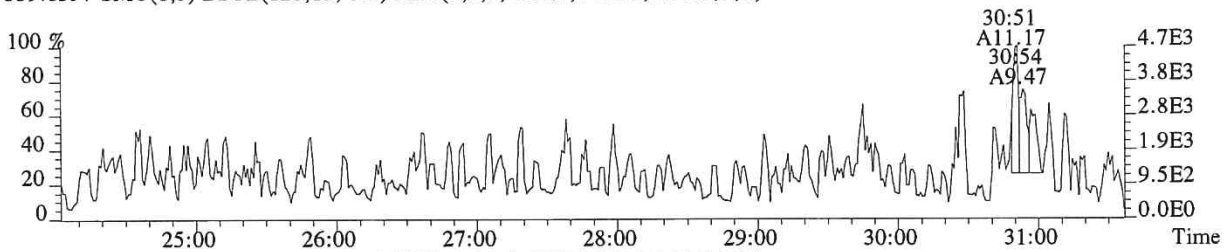


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

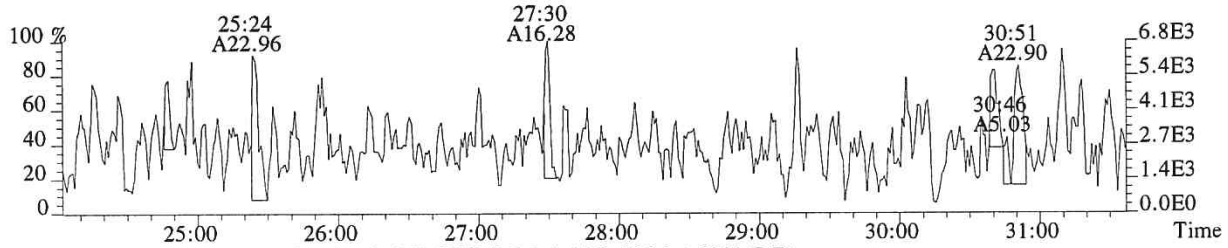


011307

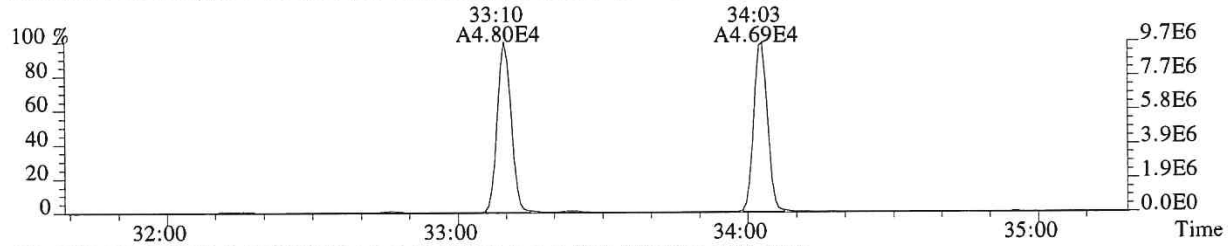
File:P615728 #1-538 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



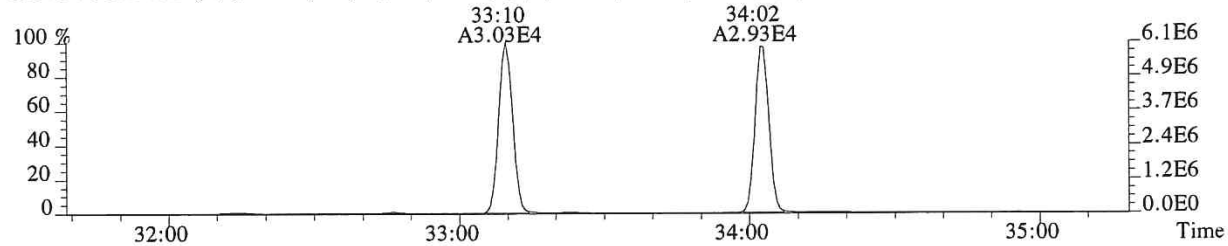
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3316.0,1.00%,F,T)



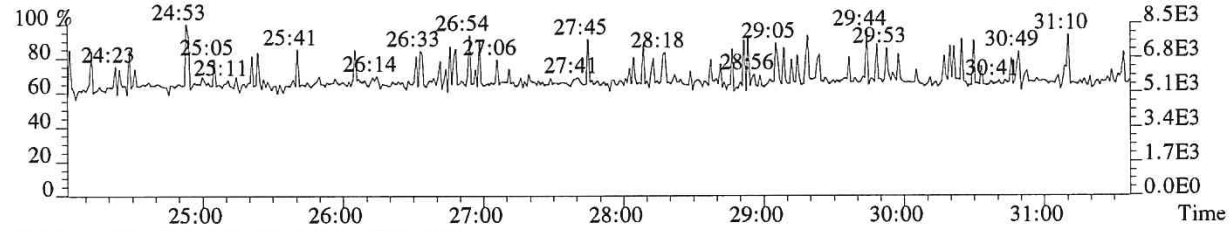
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



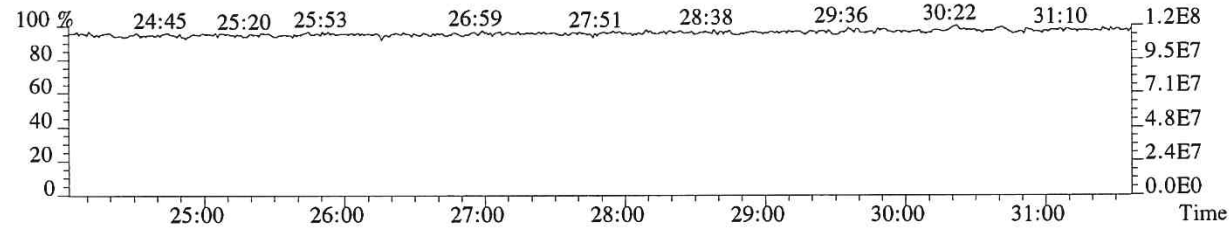
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



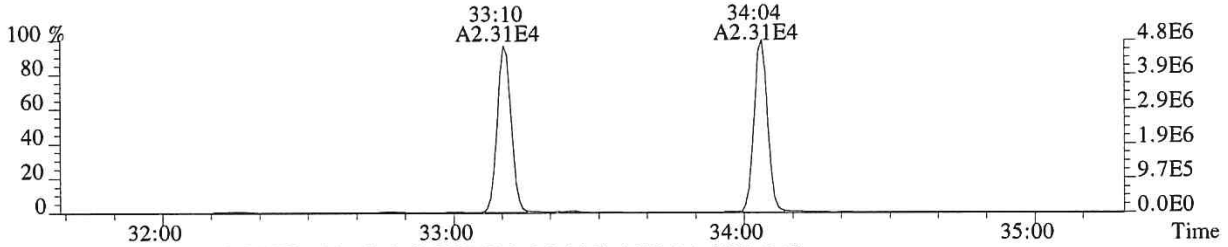
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



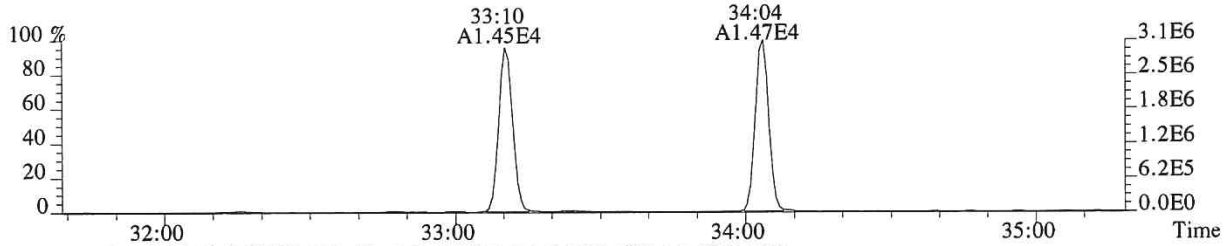
011308

File:P615728 #1-330 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

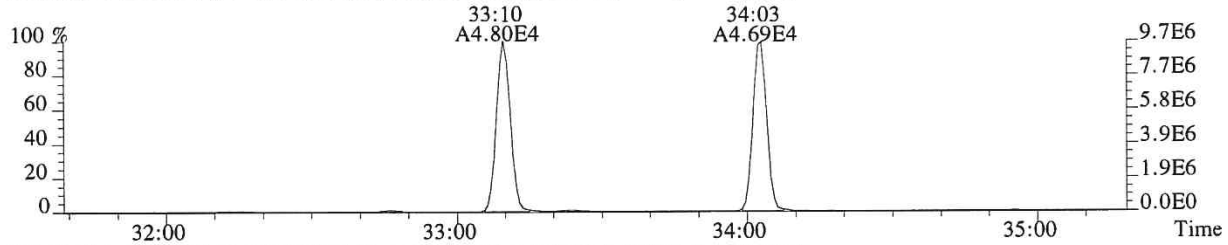
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



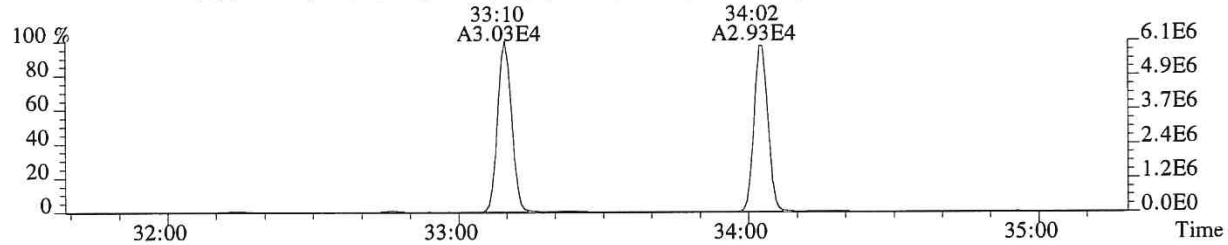
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4420.0,1.00%,F,T)



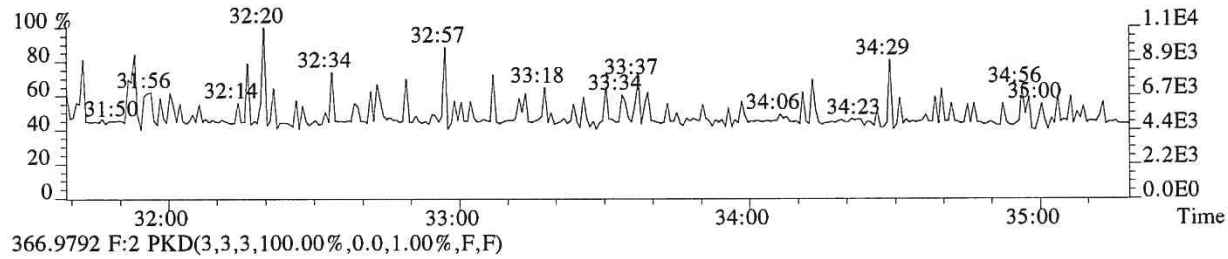
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



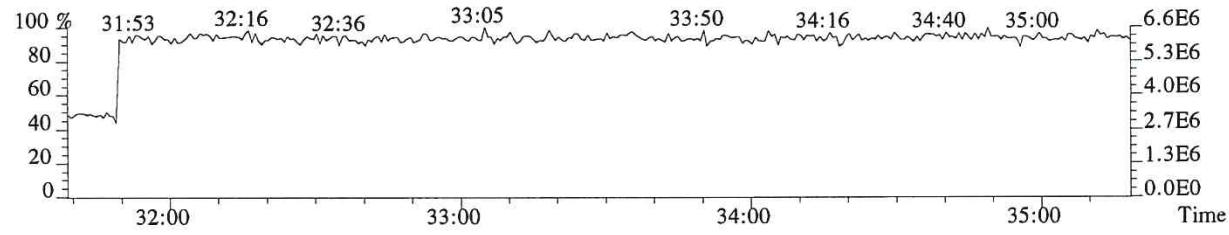
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

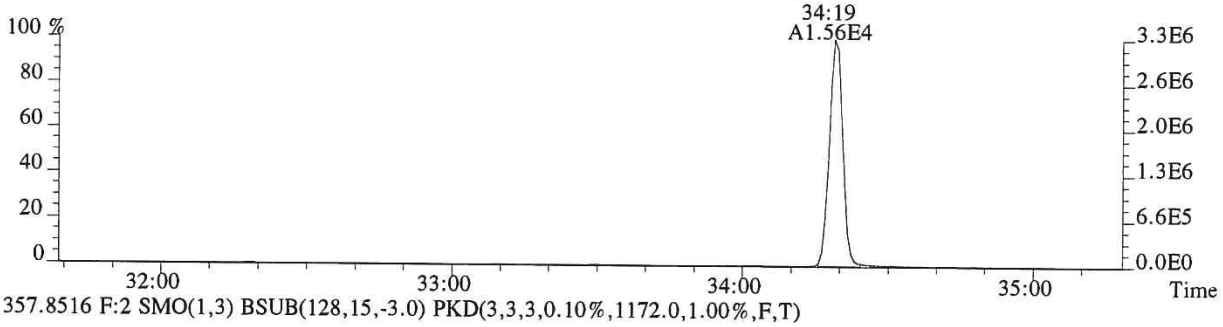


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

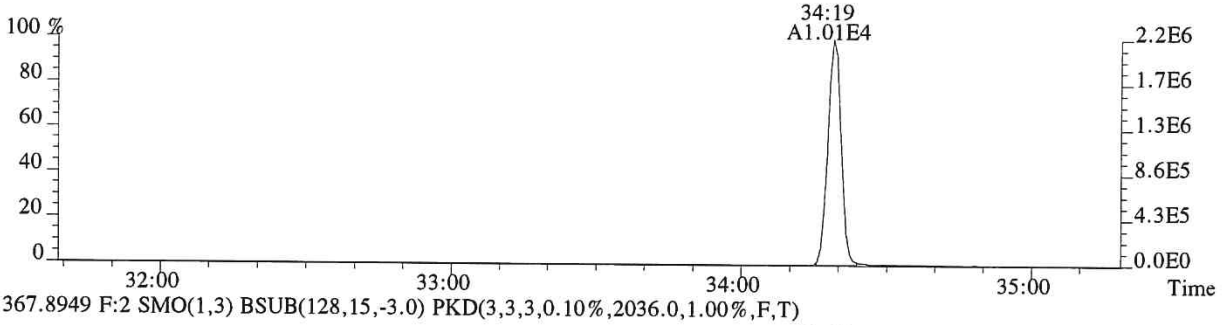


011309

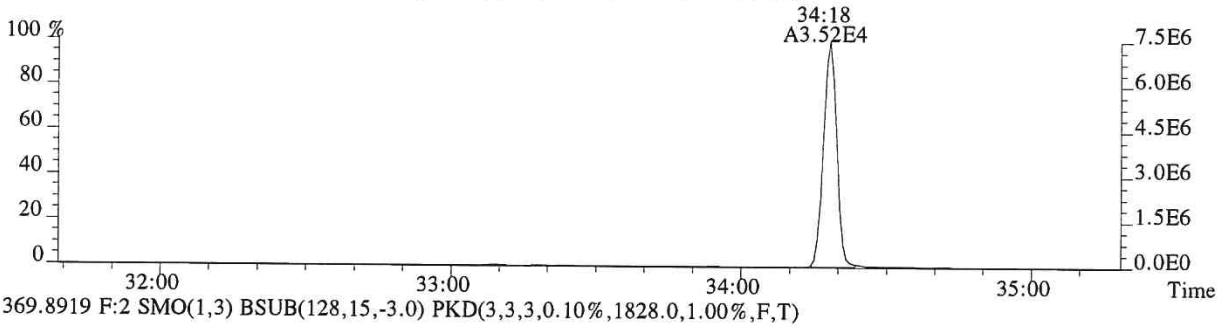
File:P615728 #1-330 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)



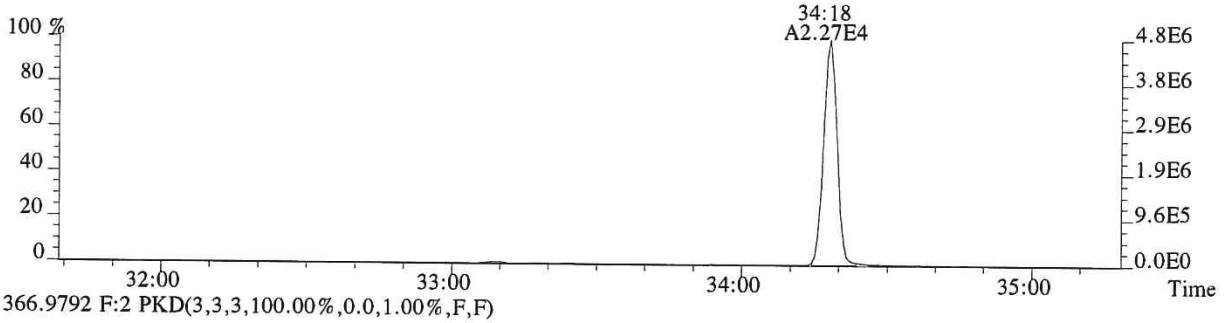
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



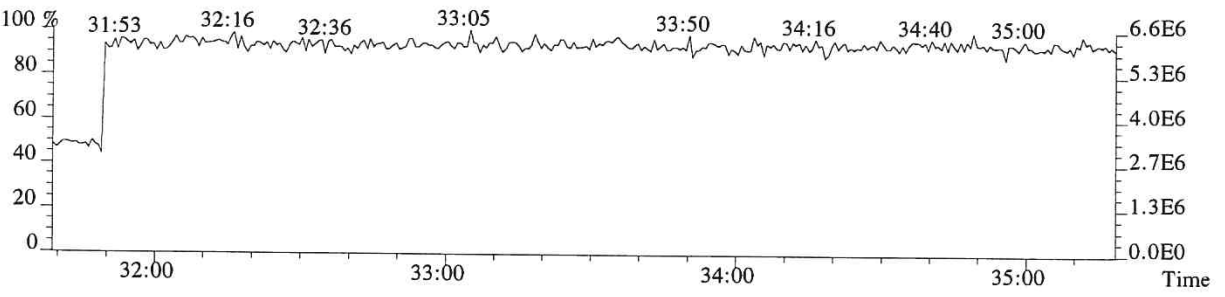
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)

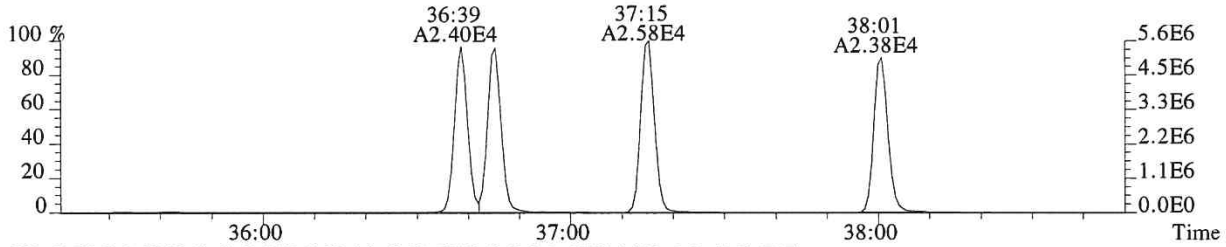


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

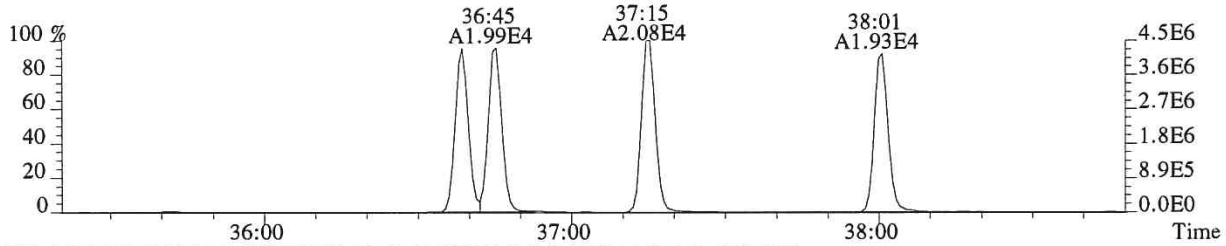


File:P615728 #1-312 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

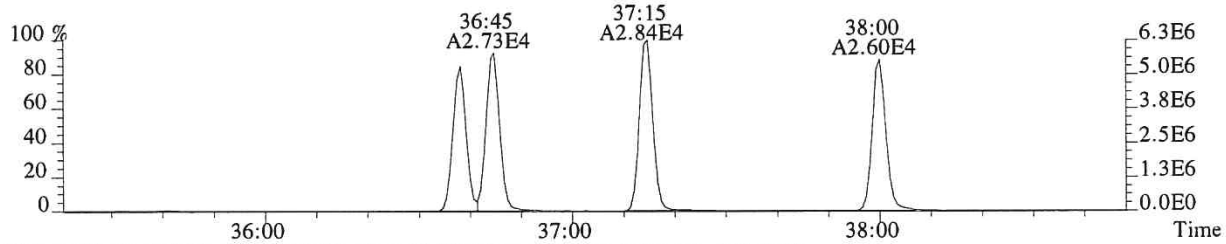
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



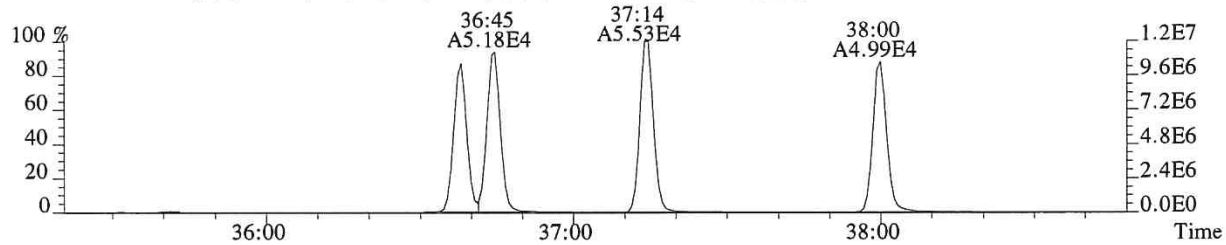
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1480.0,0.40%,F,T)



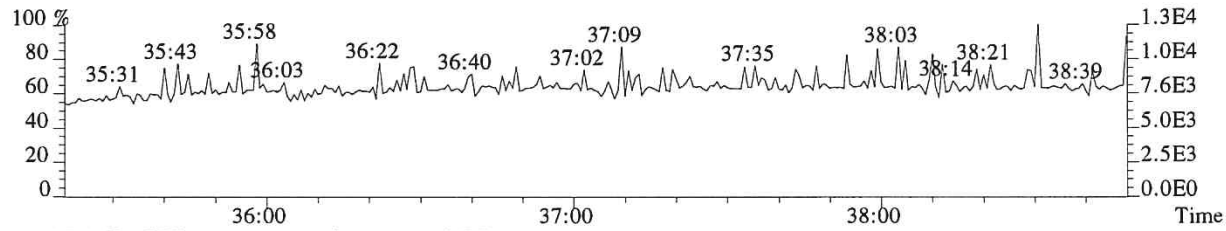
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



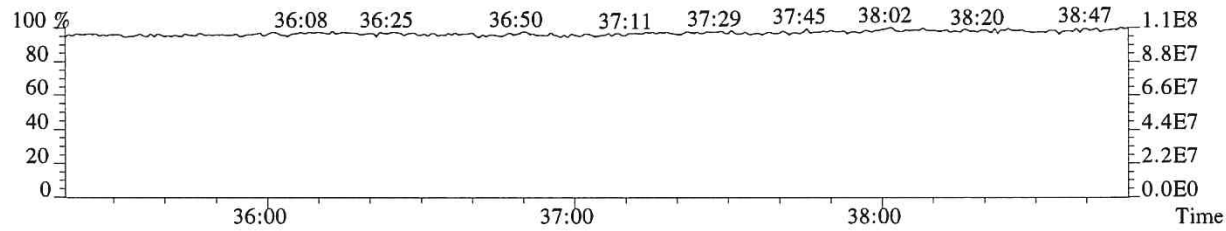
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2608.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

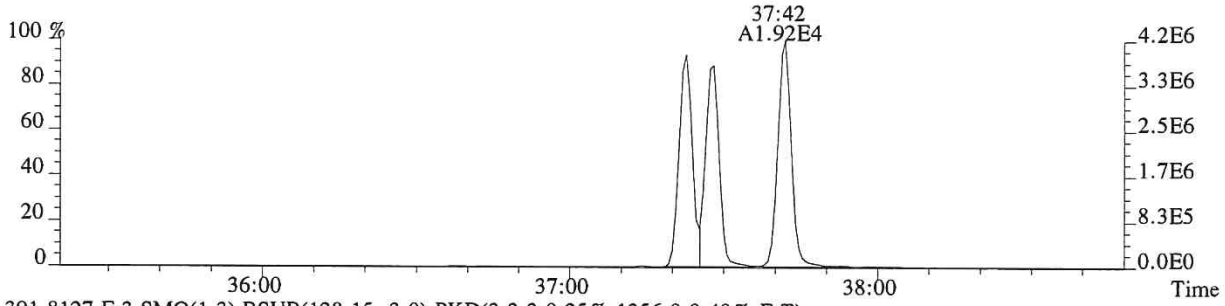


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

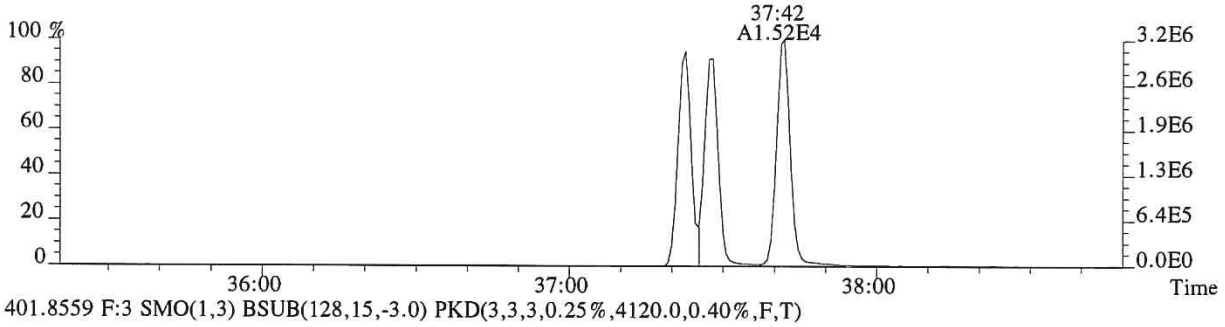


File:P615728 #1-312 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

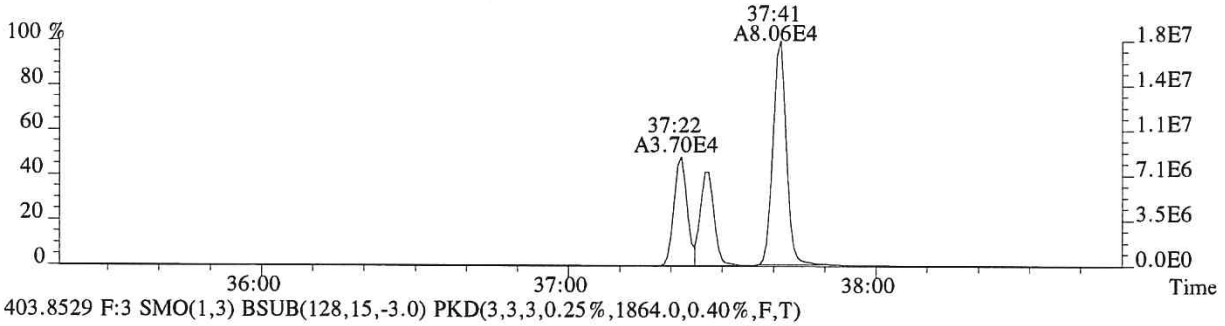
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



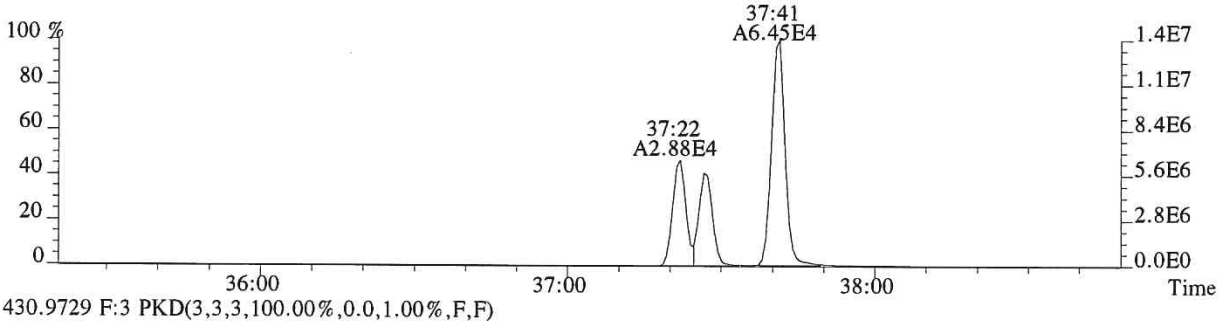
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1356.0,0.40%,F,T)



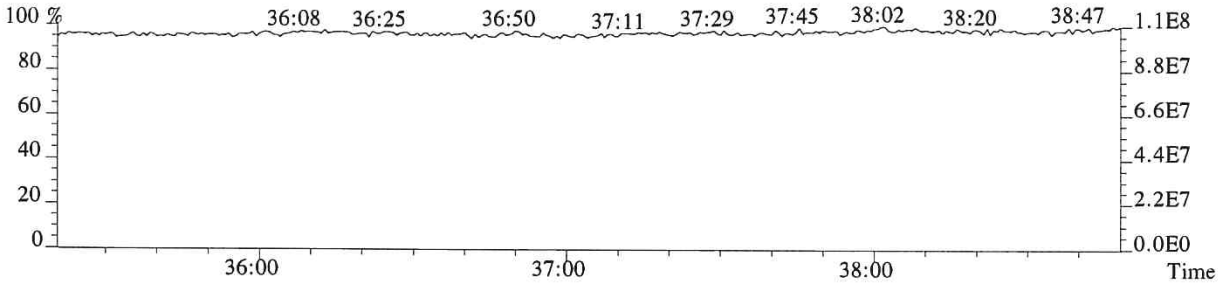
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4120.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1864.0,0.40%,F,T)



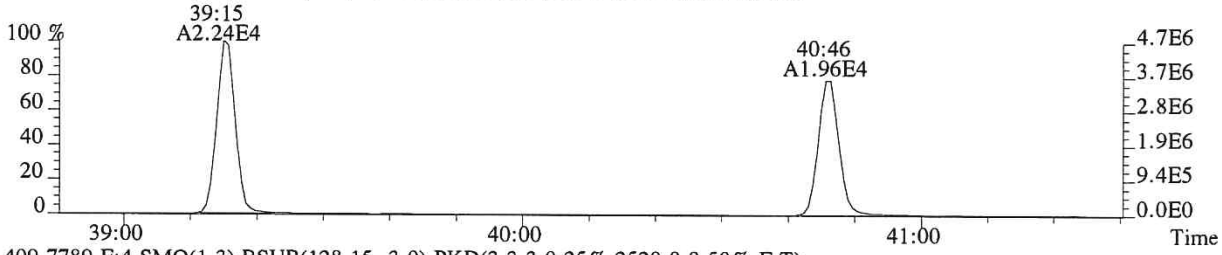
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



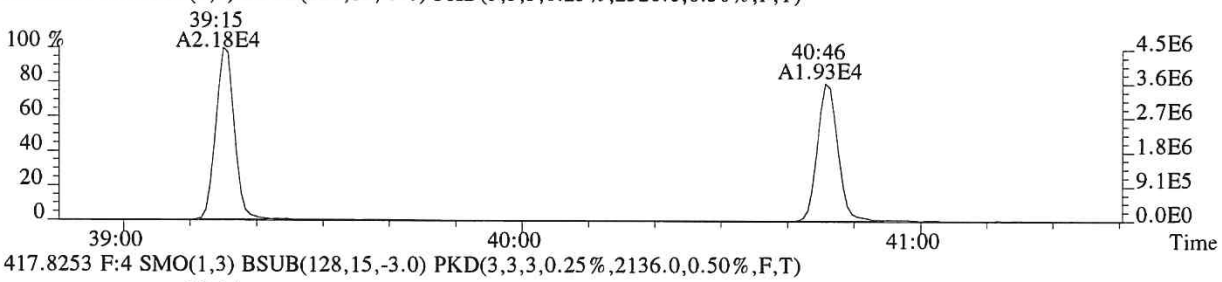
011312

File:P615728 #1-241 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

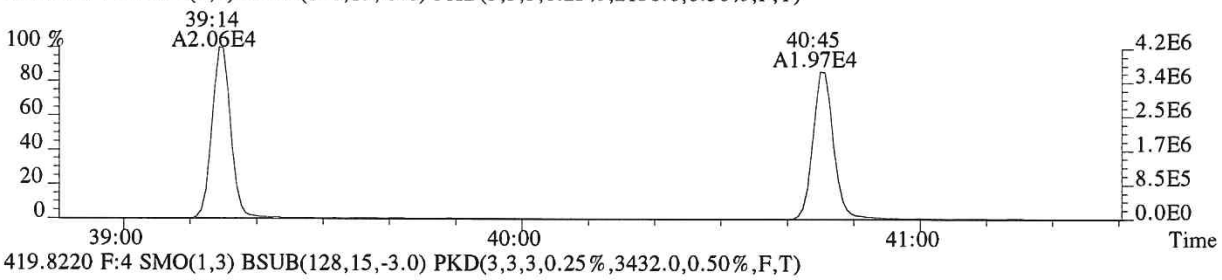
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3652.0,0.50%,F,T)



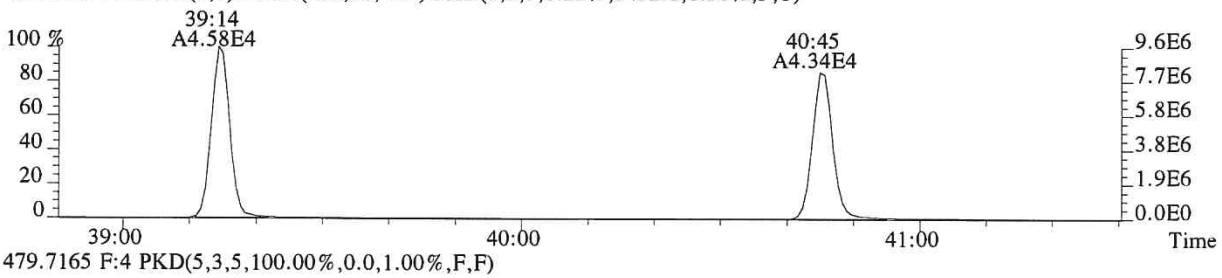
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2520.0,0.50%,F,T)



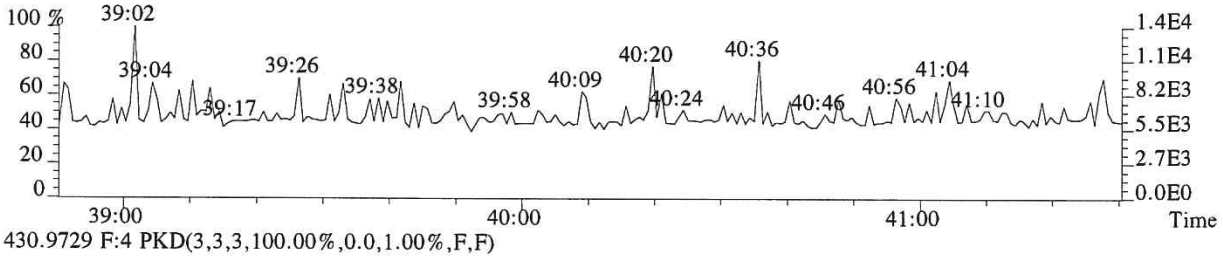
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2136.0,0.50%,F,T)



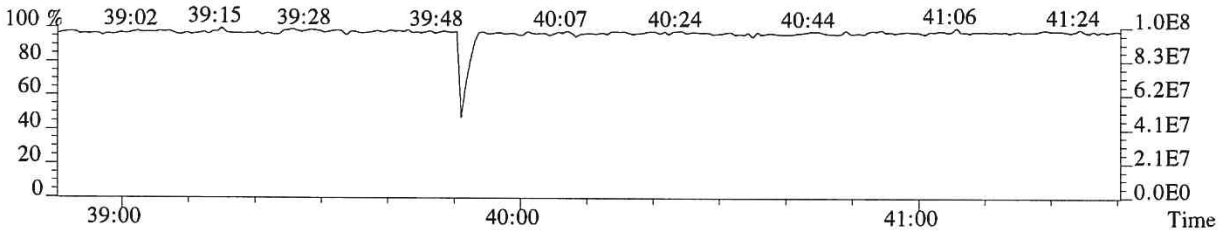
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3432.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

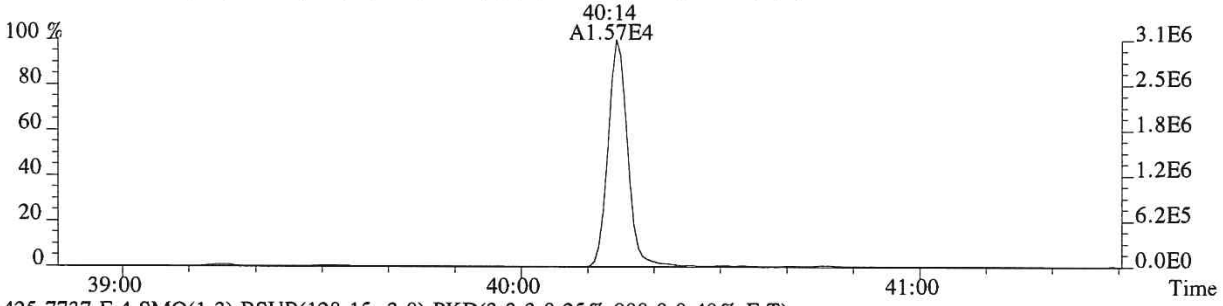


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

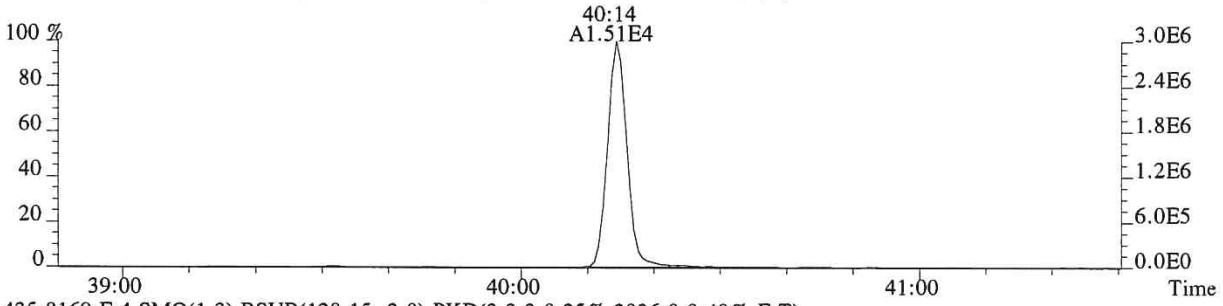


011313

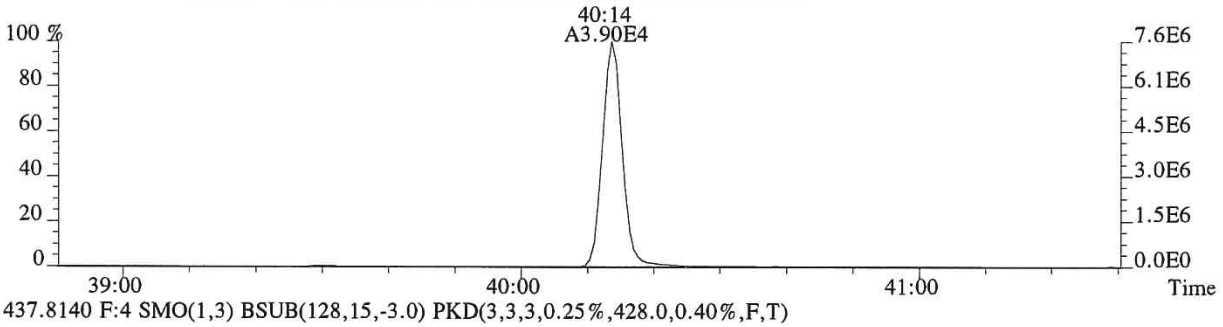
File:P615728 #1-241 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1468.0,0.40%,F,T)



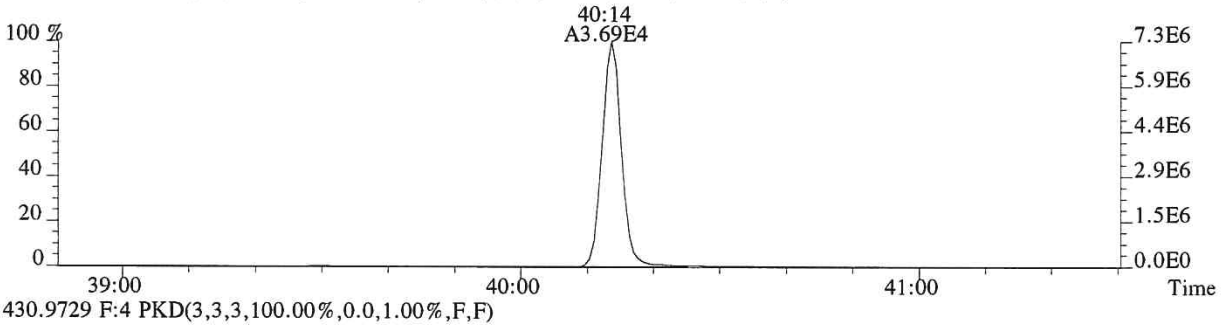
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



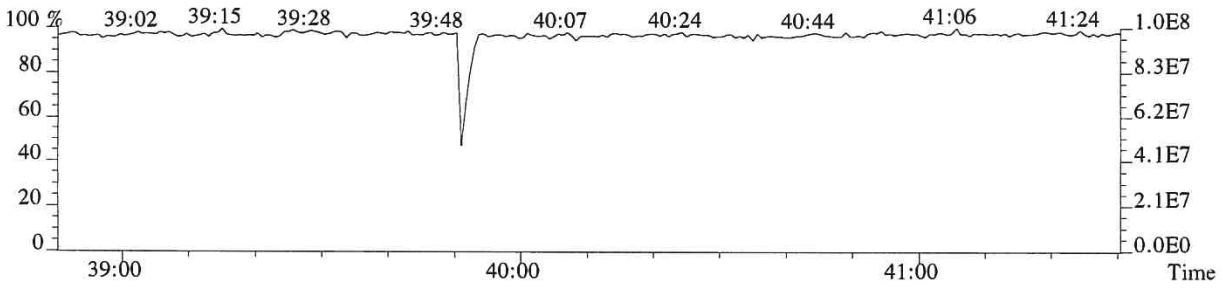
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2036.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)

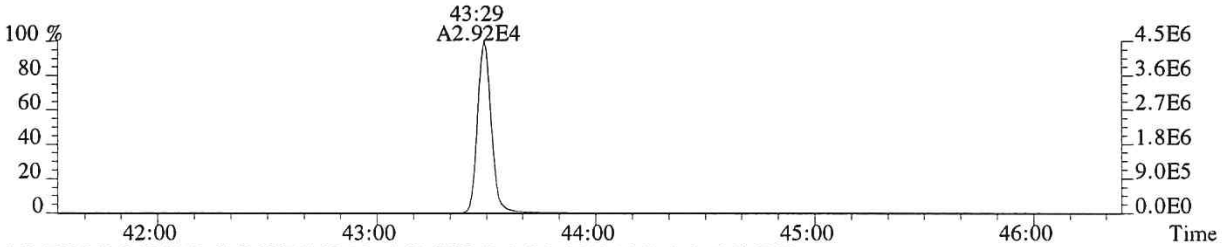


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

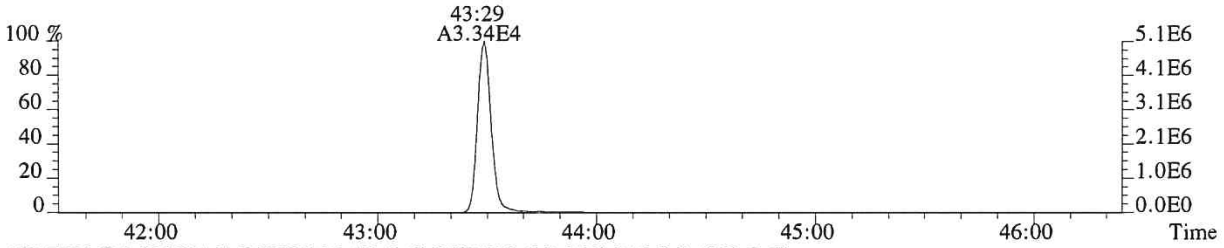


File:P615728 #1-438 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

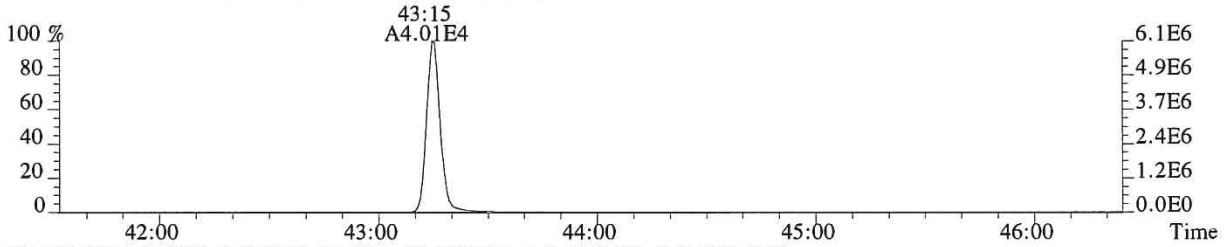
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



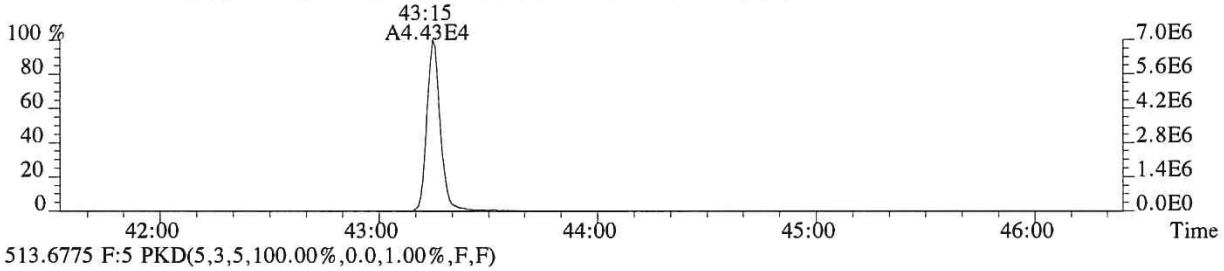
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1948.0,0.40%,F,T)



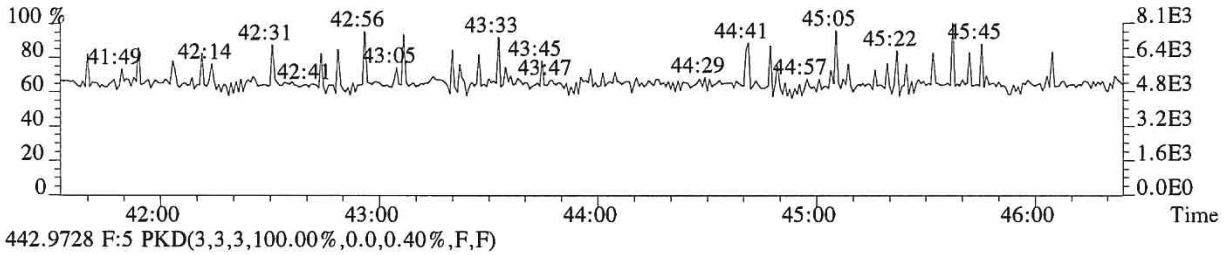
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



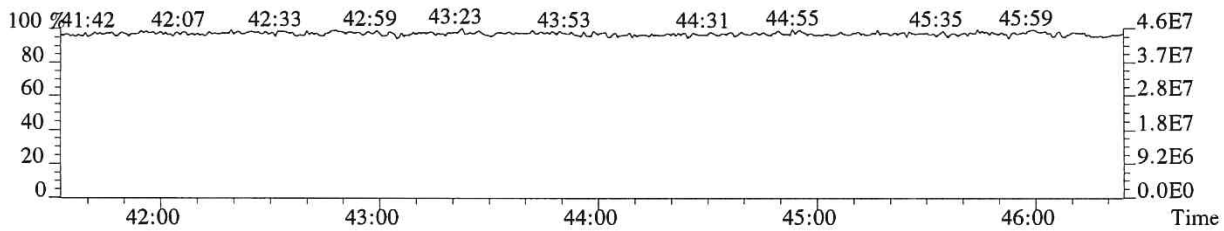
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

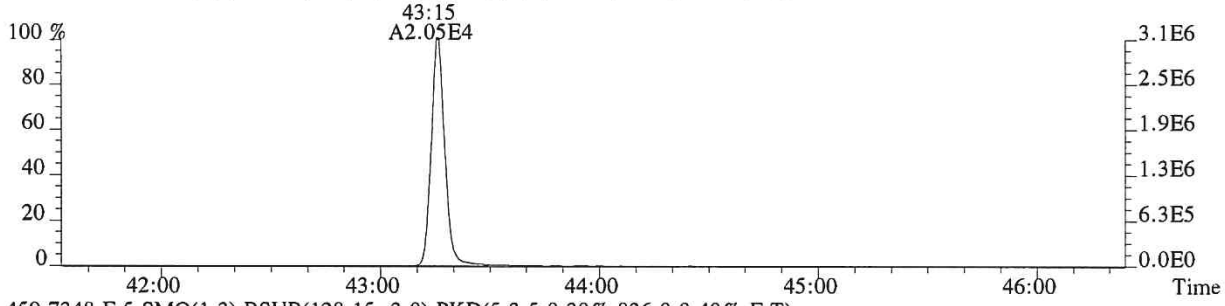


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

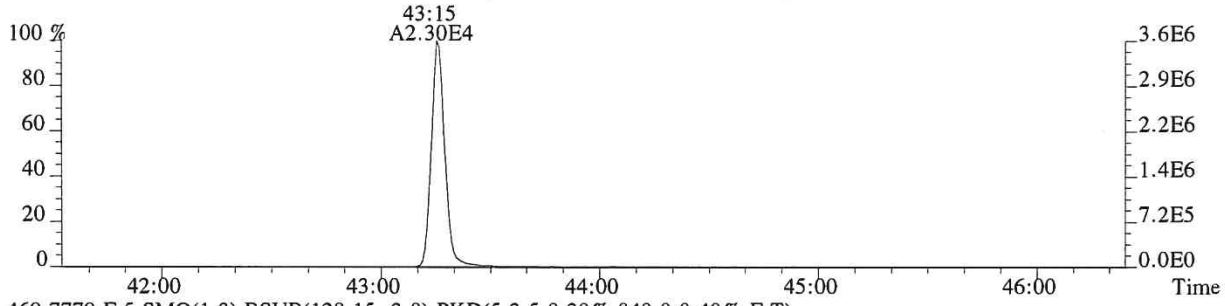


011315

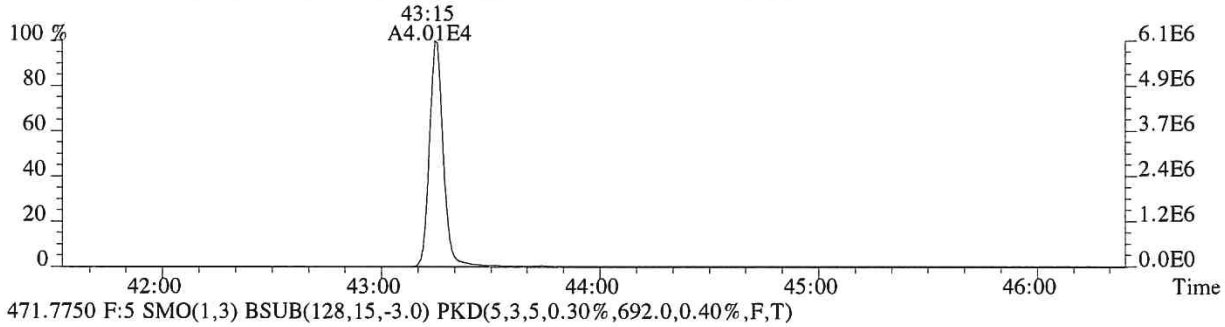
File:P615728 #1-438 Acq:27-NOV-2018 21:43:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



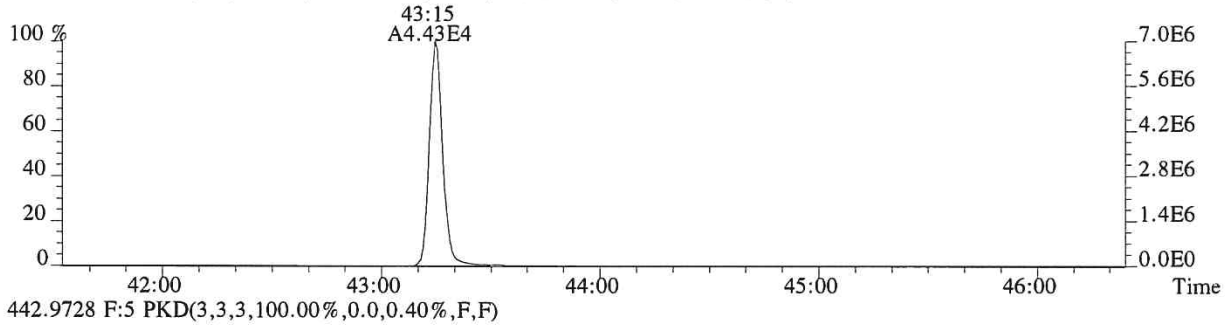
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



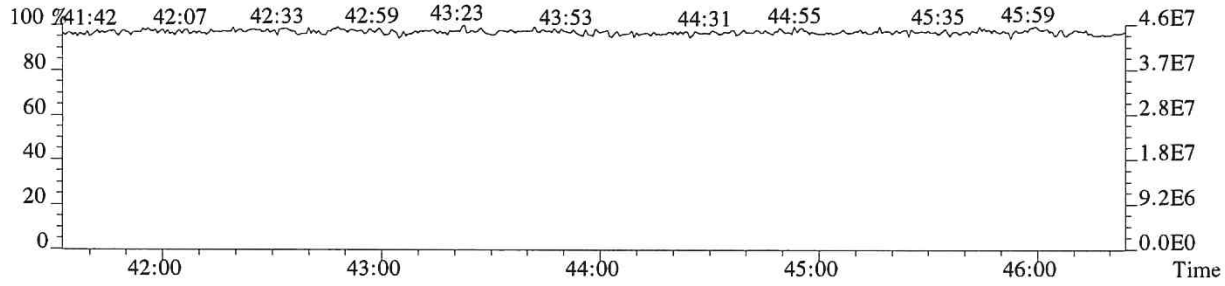
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011316

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #16 Filename P519219 Samp: 1 Inj: 1 Acquired: 5-DEC-18 08:32:35
Processed: 6-DEC-18 10:05:53 Sample ID: EQ1800469-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	yes	1.025
17	Unk	OCDD	42:14	2.891e+01	2.976e+01	0.97	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:00	8.577e+03	1.118e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:16	2.013e+04	1.258e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	1.987e+04	1.251e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	1.199e+04	2.309e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.375e+04	2.583e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.298e+04	2.498e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	1.211e+04	2.382e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	1.125e+04	2.507e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	1.099e+04	2.499e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	6.062e+03	7.842e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:28	1.567e+04	9.758e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	1.780e+04	1.422e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	1.769e+04	1.358e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	2.305e+04	2.207e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:14	2.849e+04	3.204e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:14	8.552e+03	1.054e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	2.051e+04	1.617e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.418e+03				no	1.014

$$\text{OCDD} = \frac{(2.891e+01 + 2.976e+01) \times 4000\ \text{pg} \times 1}{(2.849e+04 + 3.204e+04) \times \quad \text{g} \times \quad / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #16 Filename P519219 Samp: 1 Inj: 1 Acquired: 5-DEC-18 08:32:35
Processed: 6-DEC-18 10:05:53 LAB. ID: EQ1800469-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.48e+02	*	*	1.29e+03	*
2	1,2,3,7,8-PeCDF	*	3.76e+02	*	*	6.96e+02	*
3	2,3,4,7,8-PeCDF	*	3.76e+02	*	*	6.96e+02	*
4	1,2,3,4,7,8-HxCDF	*	2.40e+02	*	*	2.12e+02	*
5	1,2,3,6,7,8-HxCDF	*	2.40e+02	*	*	2.12e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.40e+02	*	*	2.12e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.40e+02	*	*	2.12e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	3.88e+02	*	*	3.64e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.88e+02	*	*	3.64e+02	*
10	OCDF	*	2.00e+02	*	*	8.04e+02	*
11	2,3,7,8-TCDD	*	1.43e+03	*	*	8.48e+02	*
12	1,2,3,7,8-PeCDD	*	3.68e+02	*	*	2.36e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.44e+02	*	*	2.84e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.44e+02	*	*	2.84e+02	*
15	1,2,3,7,8,9-HxCDD	*	2.44e+02	*	*	2.84e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	4.52e+02	*	*	3.80e+02	*
17	OCDD	5.81e+03	2.36e+02	2.5e+01	6.08e+03	2.32e+02	2.6e+01
18	13C-2,3,7,8-TCDF	1.53e+06	4.88e+03	3.1e+02	2.00e+06	5.08e+03	3.9e+02
19	13C-1,2,3,7,8-PeCDF	3.78e+06	4.00e+02	9.4e+03	2.38e+06	8.24e+02	2.9e+03
20	13C-2,3,4,7,8-PeCDF	3.91e+06	4.00e+02	9.8e+03	2.51e+06	8.24e+02	3.0e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+06	4.00e+02	6.6e+03	5.12e+06	6.28e+02	8.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.88e+06	4.00e+02	7.2e+03	5.50e+06	6.28e+02	8.8e+03
23	13C-2,3,4,6,7,8-HxCDF	2.88e+06	4.00e+02	7.2e+03	5.53e+06	6.28e+02	8.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.60e+06	4.00e+02	6.5e+03	5.02e+06	6.28e+02	8.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.38e+06	1.70e+03	1.4e+03	5.42e+06	3.68e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.13e+06	1.70e+03	1.3e+03	4.91e+06	3.68e+03	1.3e+03
27	13C-2,3,7,8-TCDD	1.19e+06	3.89e+03	3.0e+02	1.50e+06	2.08e+03	7.2e+02
28	13C-1,2,3,7,8-PeCDD	3.11e+06	7.00e+02	4.4e+03	1.90e+06	6.48e+02	2.9e+03
29	13C-1,2,3,4,7,8-HxCDD	4.08e+06	9.60e+02	4.3e+03	3.25e+06	4.76e+02	6.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.76e+06	9.60e+02	3.9e+03	2.90e+06	4.76e+02	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.58e+06	1.37e+03	3.3e+03	4.36e+06	1.25e+03	3.5e+03
32	13C-OCDD	4.85e+06	2.64e+02	1.8e+04	5.43e+06	1.64e+02	3.3e+04
33	13C-1,2,3,4-TCDD	1.62e+06	3.89e+03	4.2e+02	1.98e+06	2.08e+03	9.5e+02
34	13C-1,2,3,7,8,9-HxCDD	4.26e+06	9.60e+02	4.4e+03	3.30e+06	4.76e+02	6.9e+03
35	37Cl-2,3,7,8-TCDD	1.24e+06	8.96e+02	1.4e+03			

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Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519219 Sample:1 Injection:1 Function:4

Acquired: 5-DEC-18 08:32:35 Processed: 6-DEC-18 10:05:53

Mass: 423.7770 425.7740 Tot Response: 2.43e+01 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	1.17e+01	1.26e+01	0.94	yes	2.43e+01	n	n

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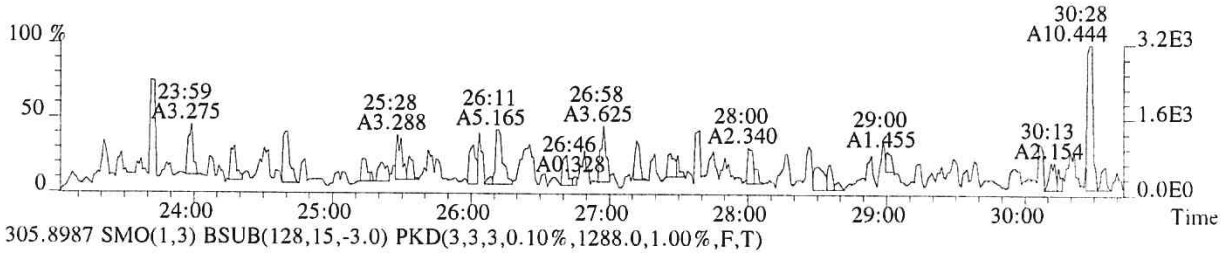
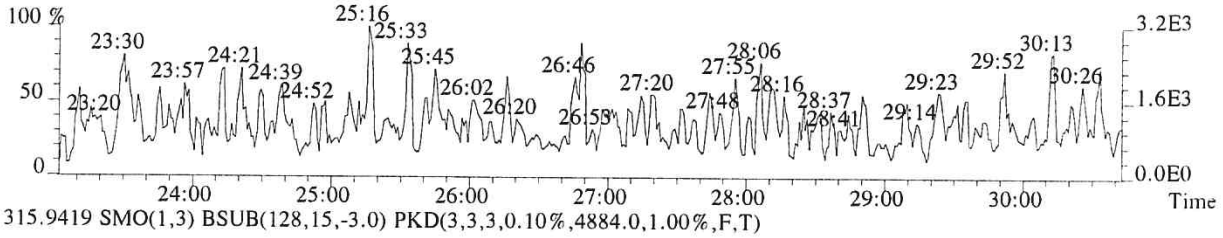
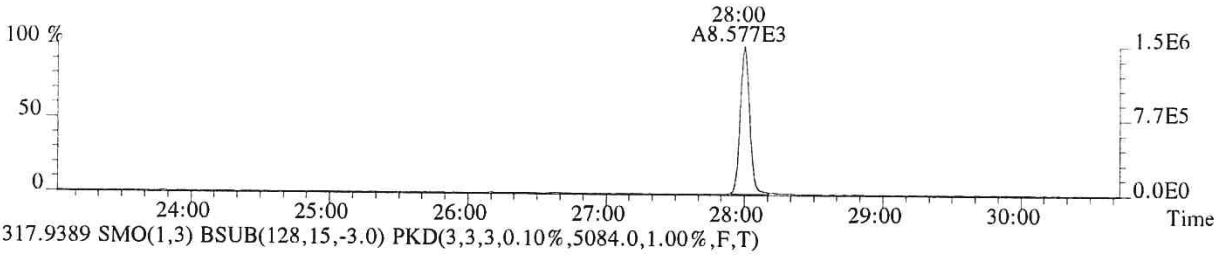
File:P519219 #1-545 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



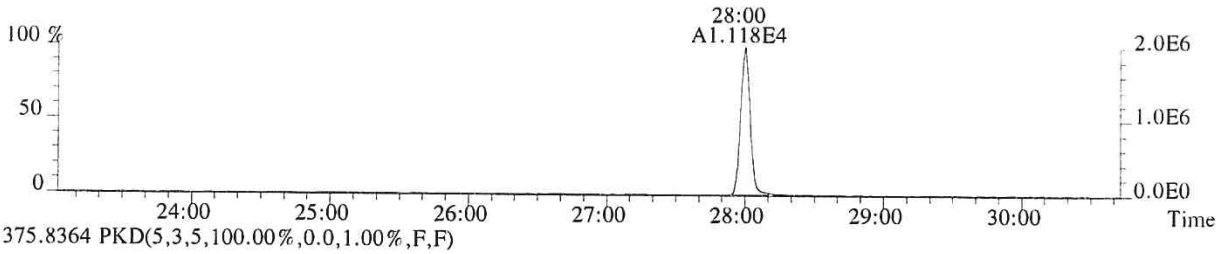
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



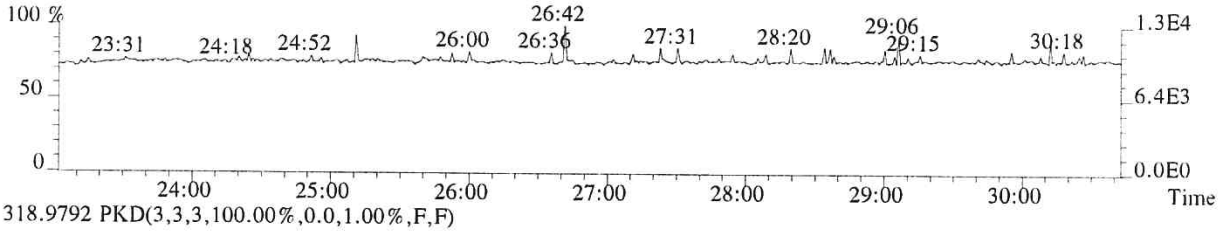
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4884.0,1.00%,F,T)



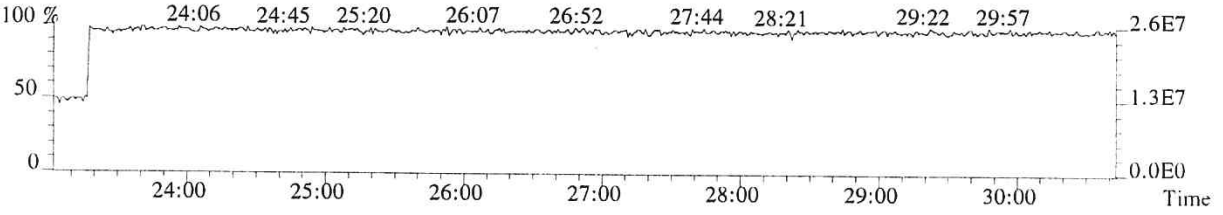
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5084.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

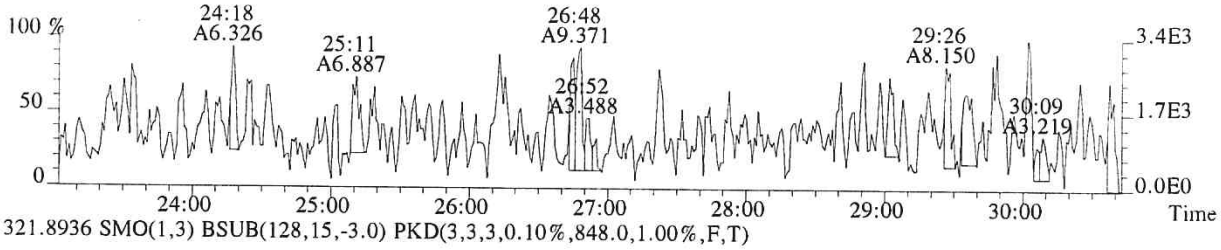


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

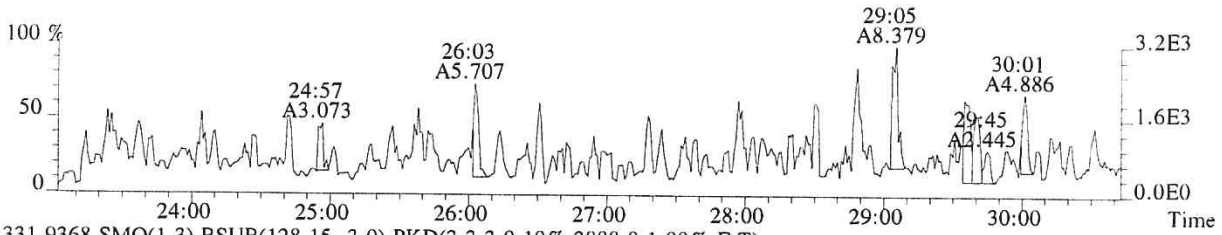


011320

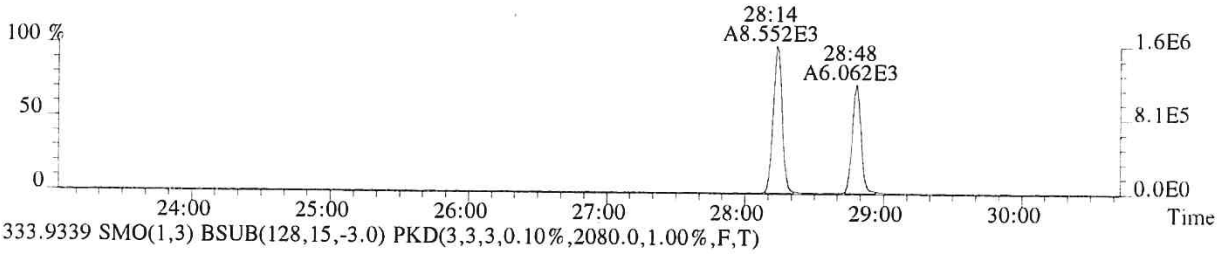
File:P519219 #1-545 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



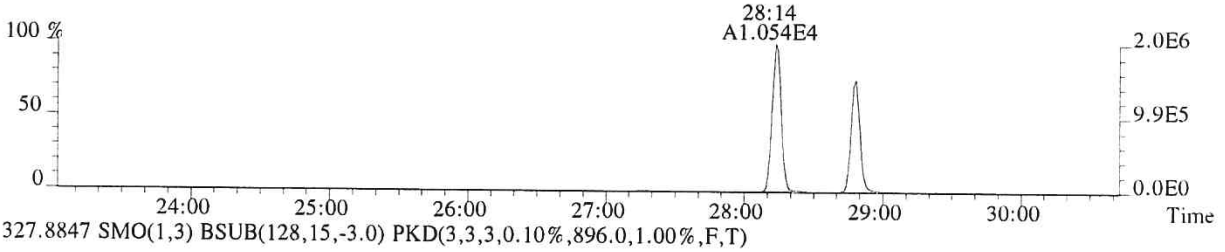
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



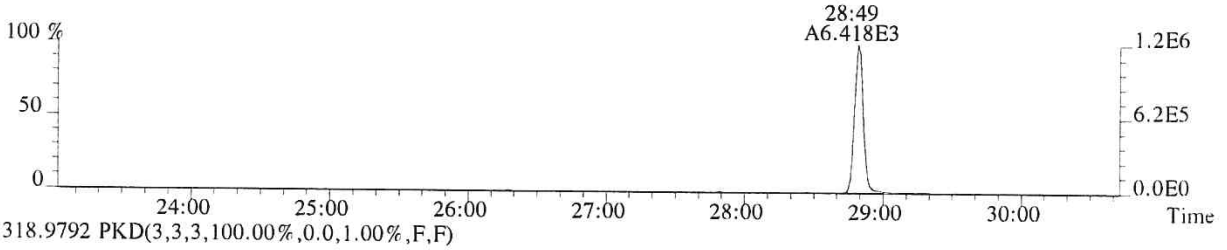
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3888.0,1.00%,F,T)



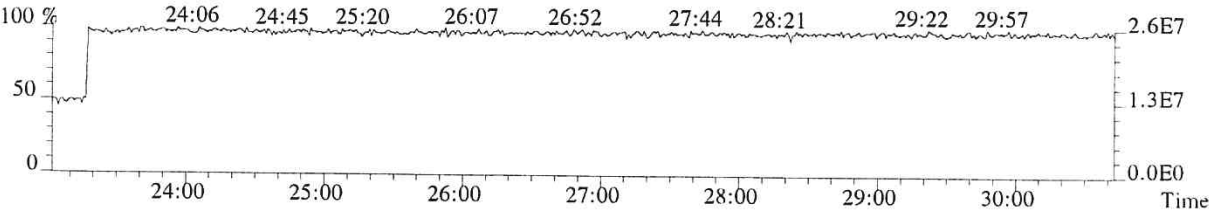
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



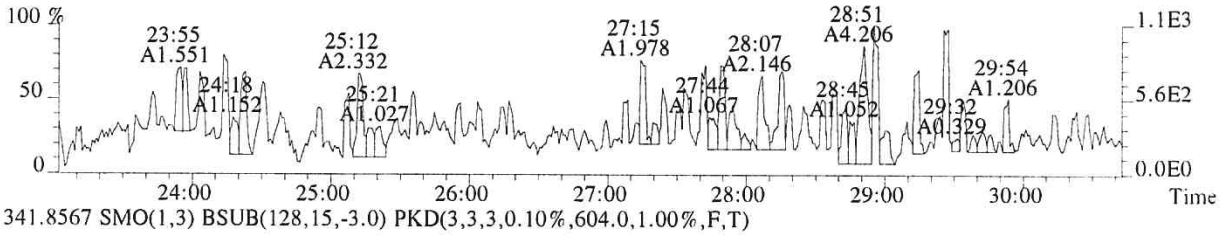
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



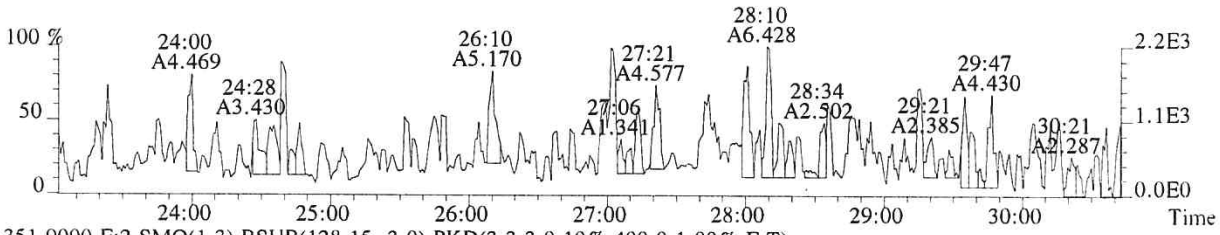
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



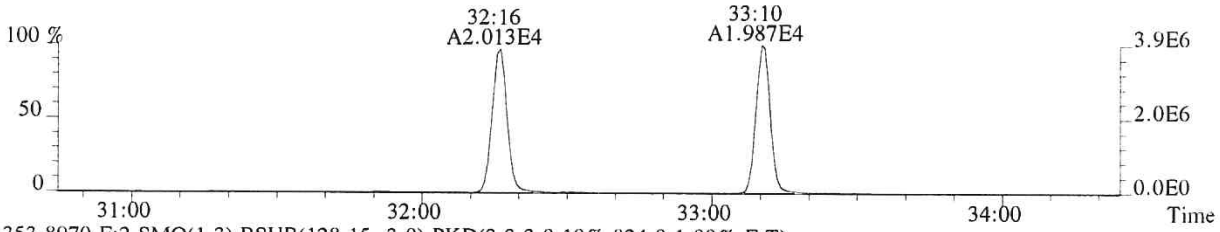
File:P519219 #1-545 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



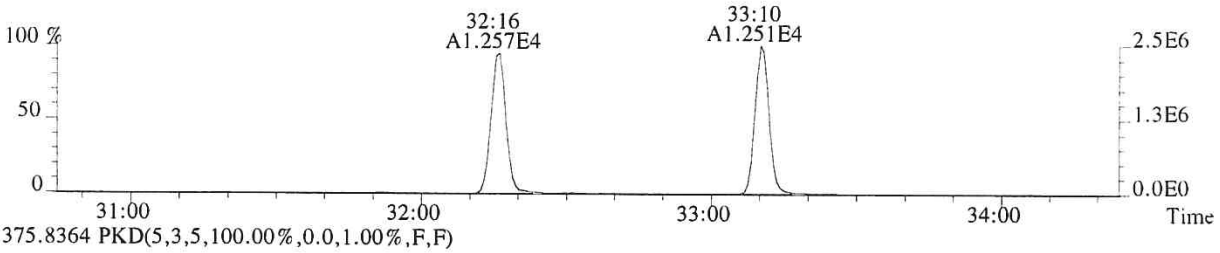
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



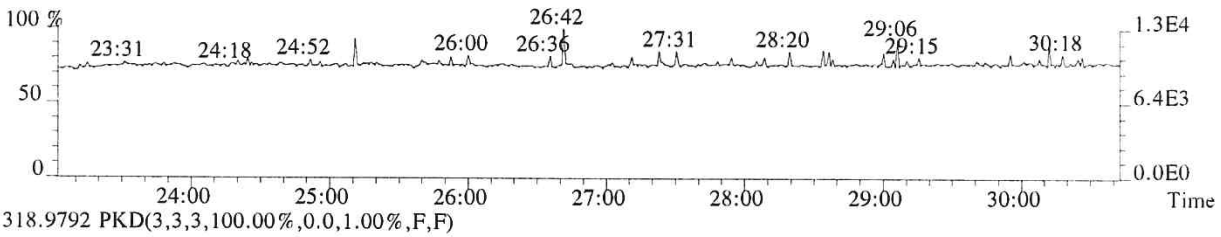
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



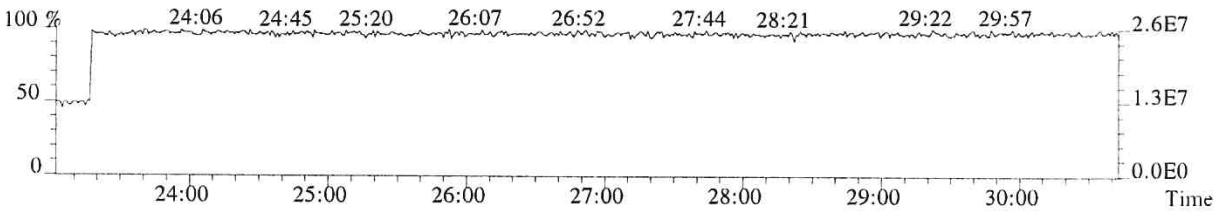
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

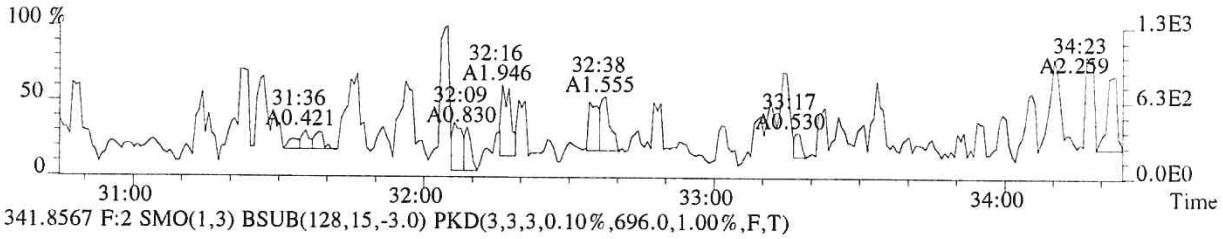


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

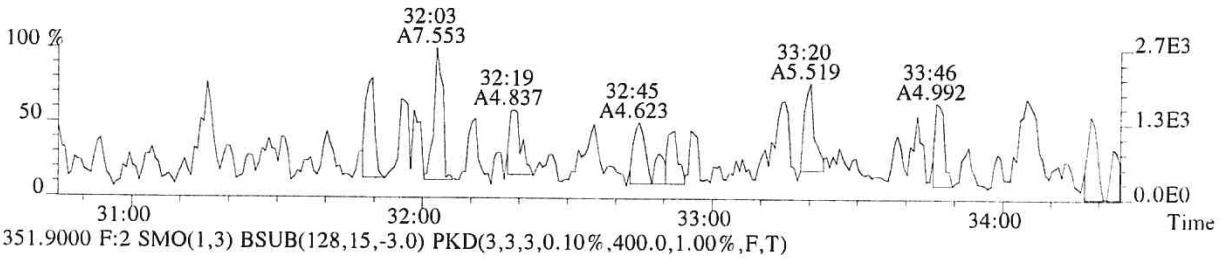


011322

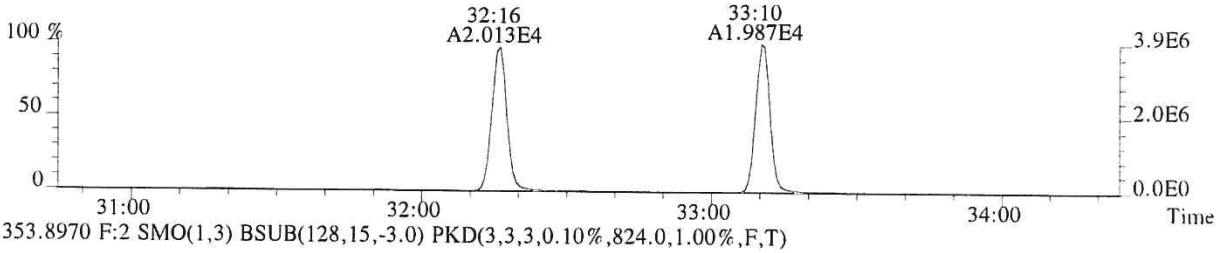
File:P519219 #1-330 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



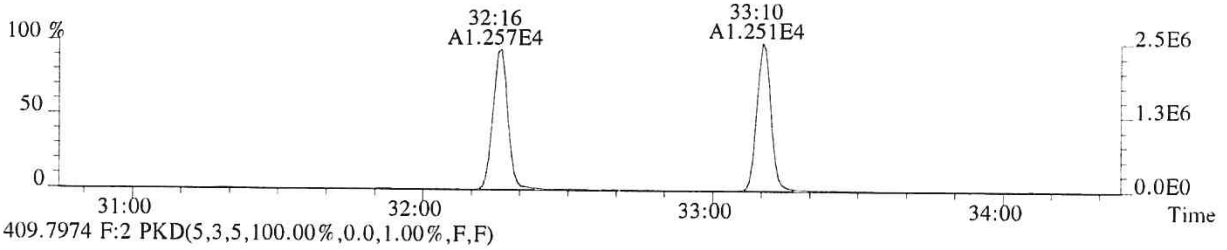
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



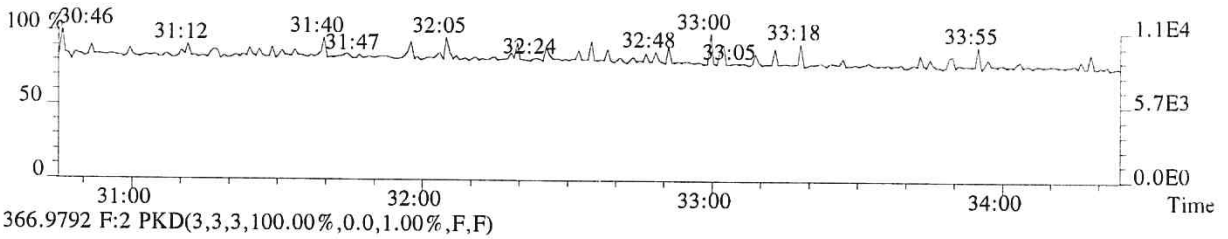
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



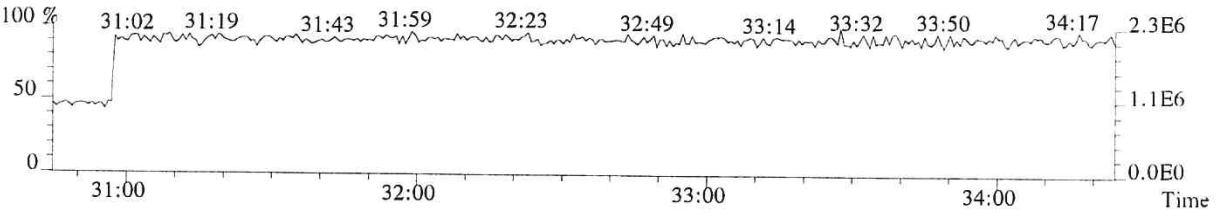
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



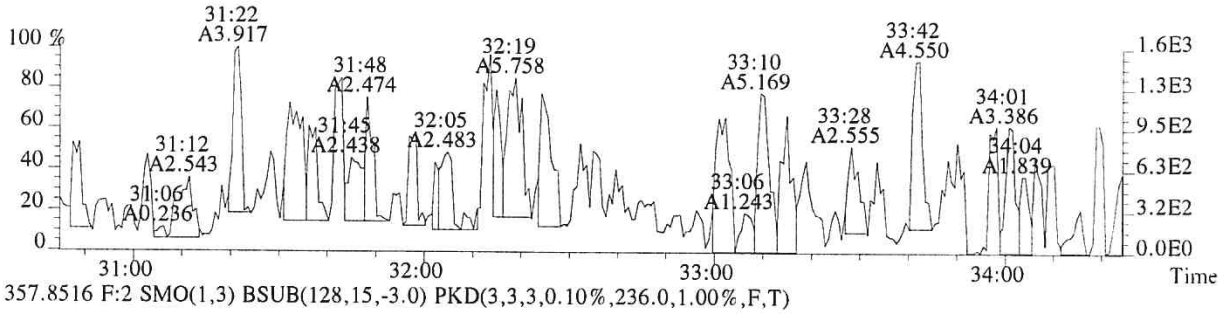
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



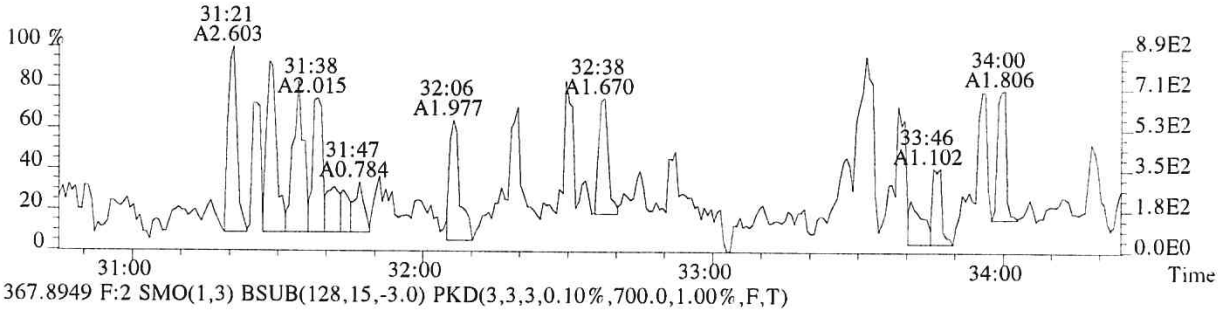
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



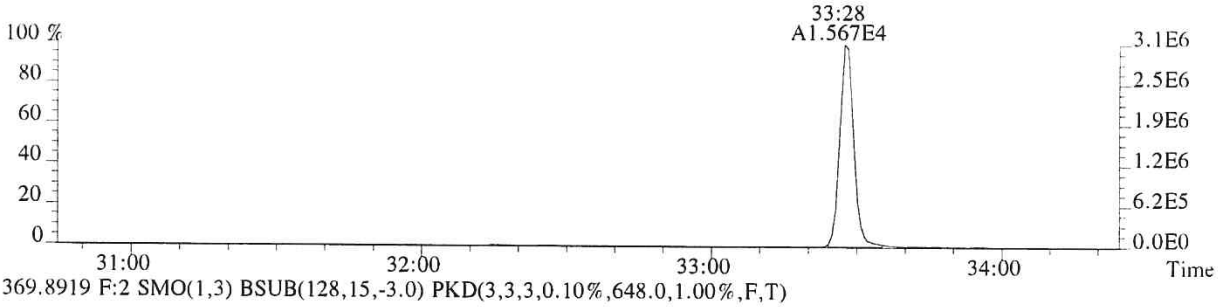
File:P519219 #1-330 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



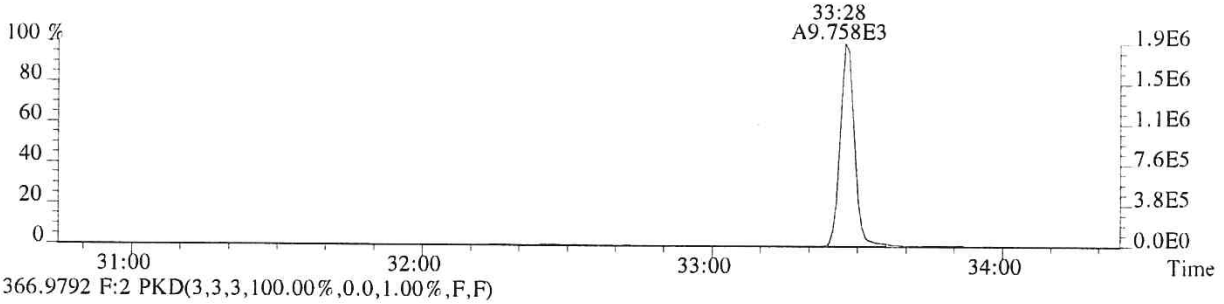
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



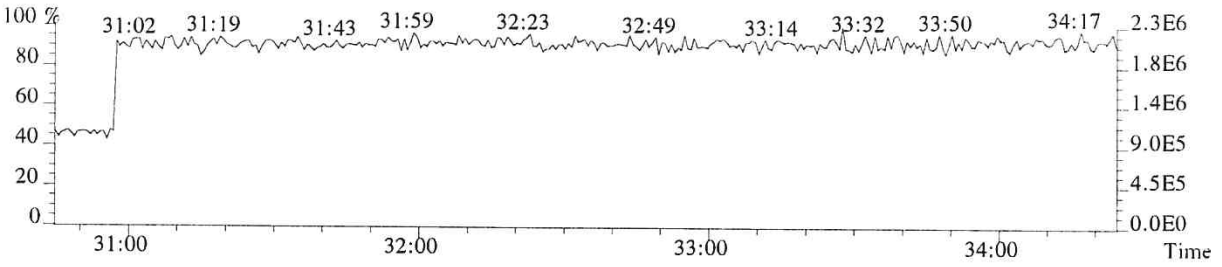
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



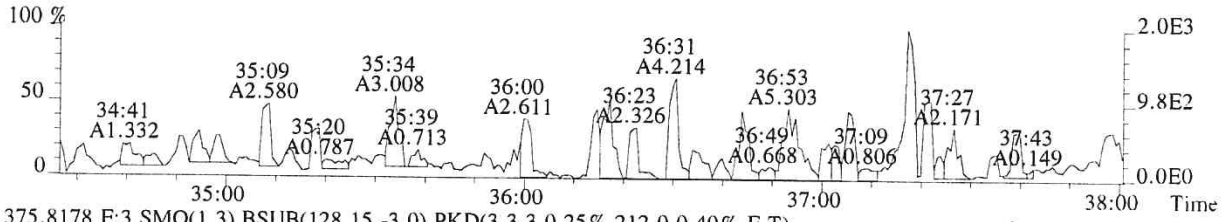
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



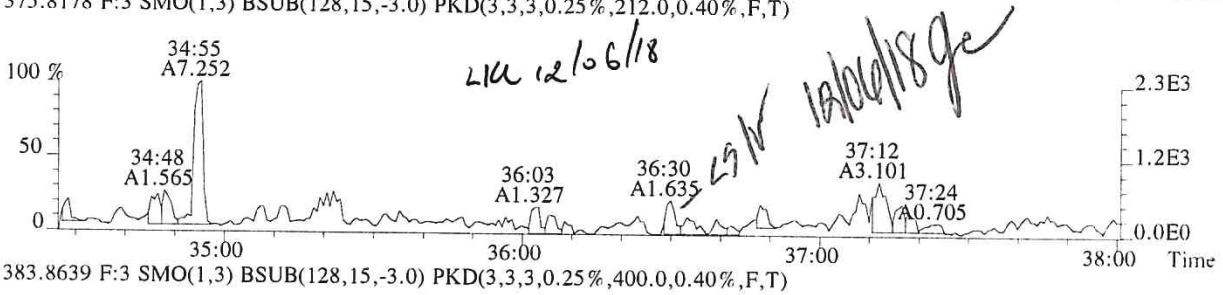
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519219 #1-322 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



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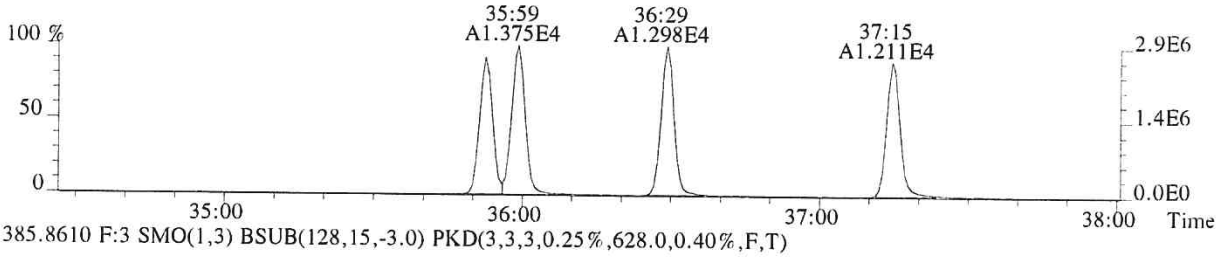
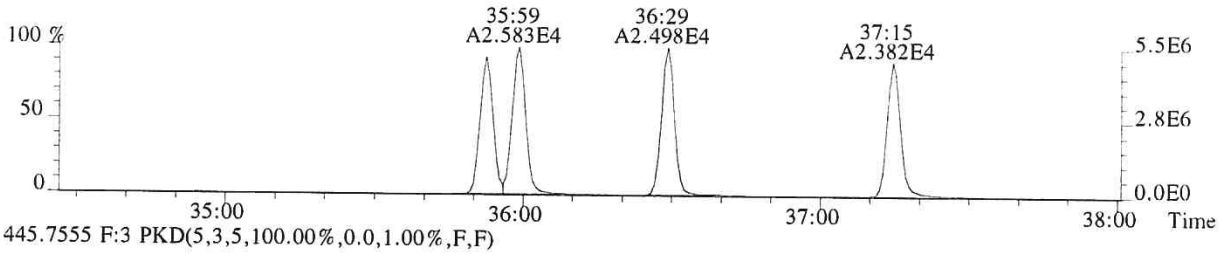
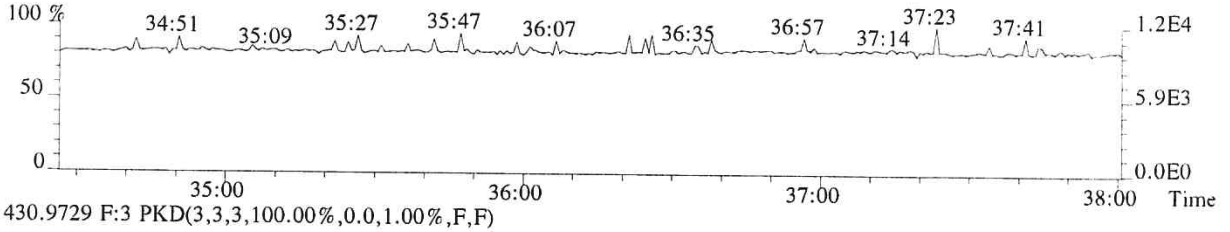
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



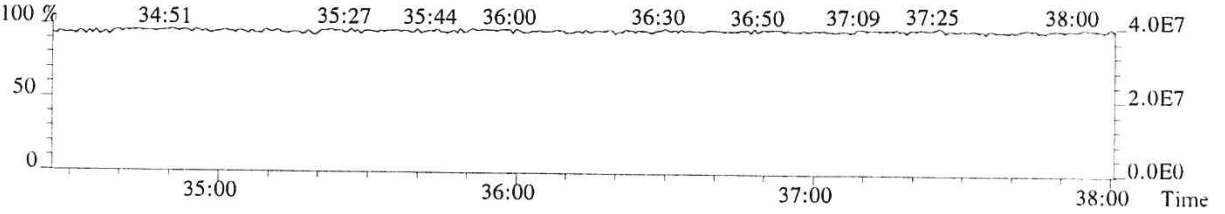
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



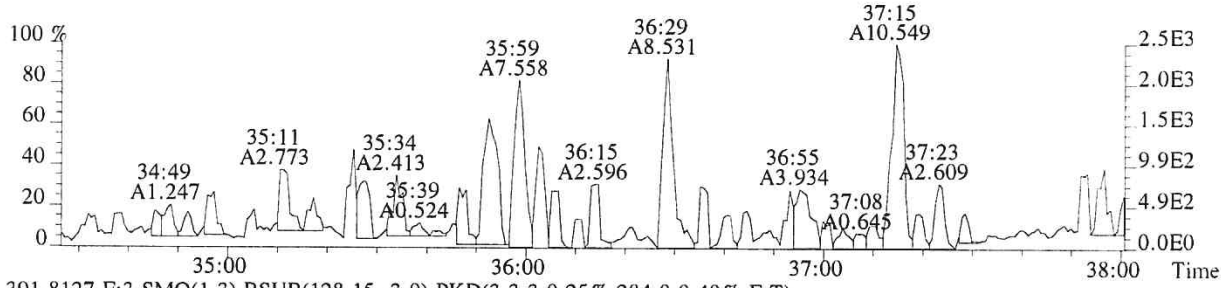
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



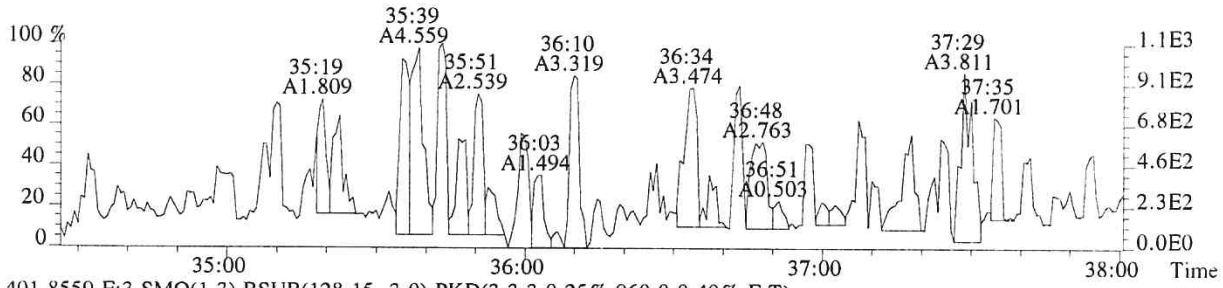
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



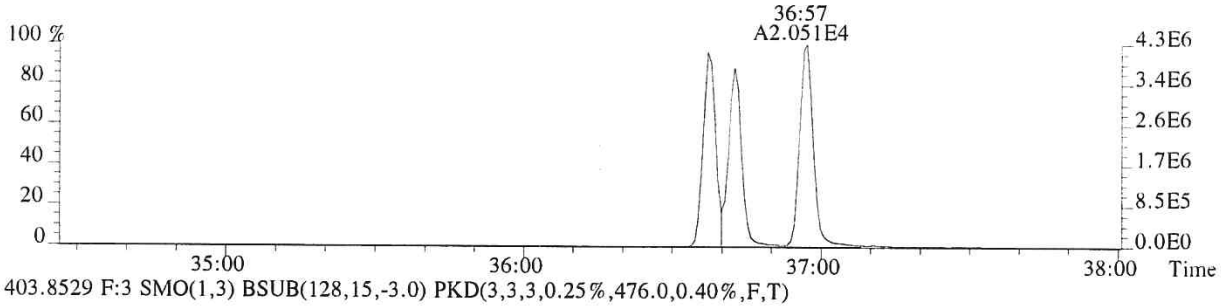
File:P519219 #1-322 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



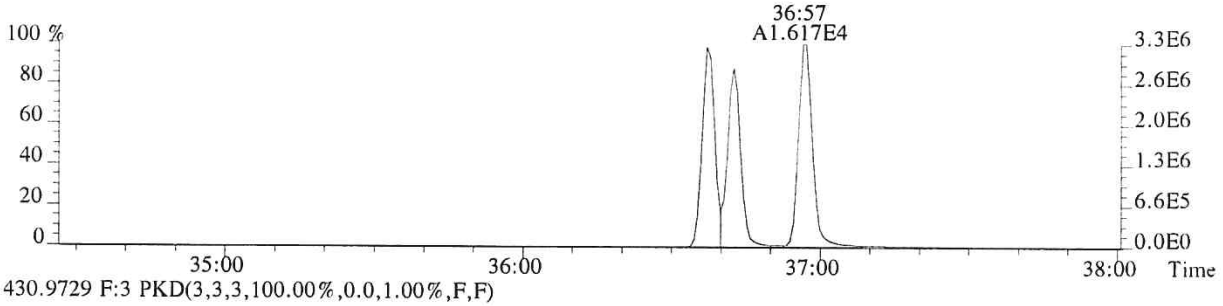
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



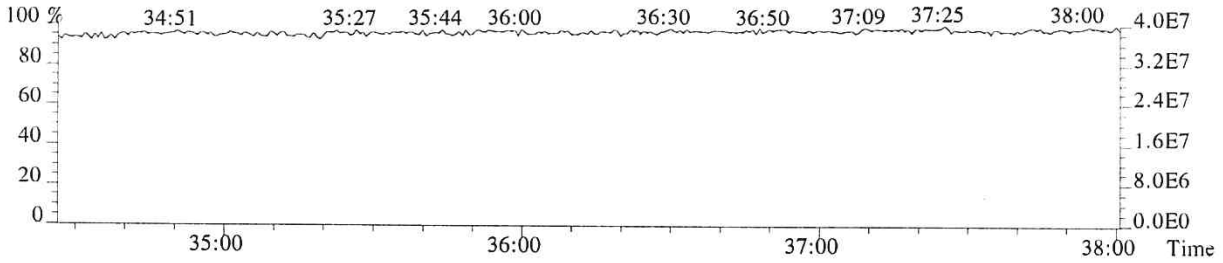
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)

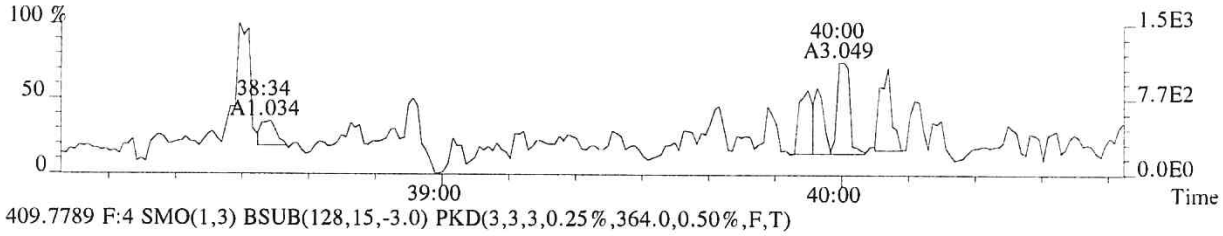


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

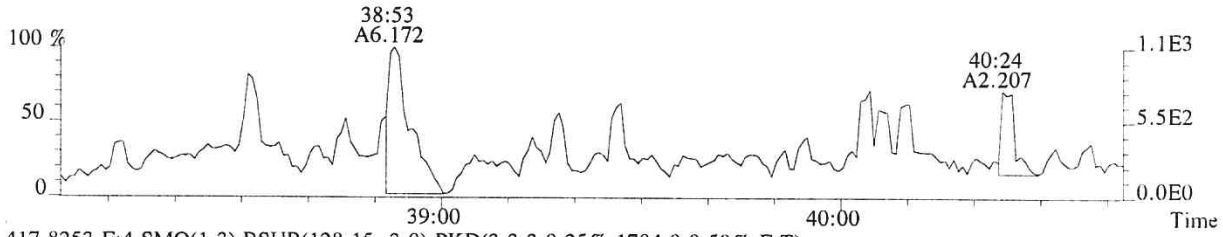


011326

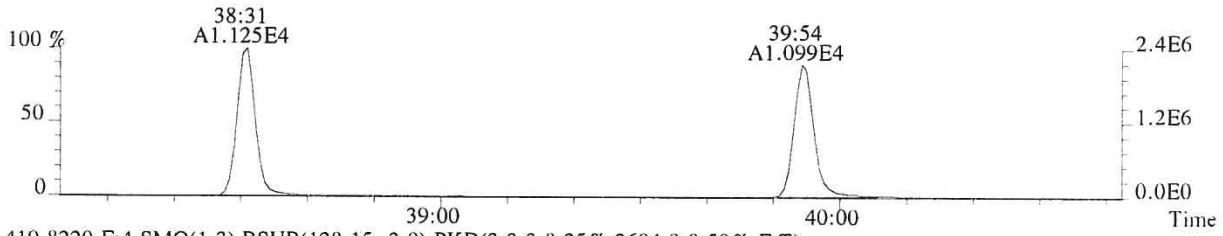
File:P519219 #1-240 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.50%,F,T)



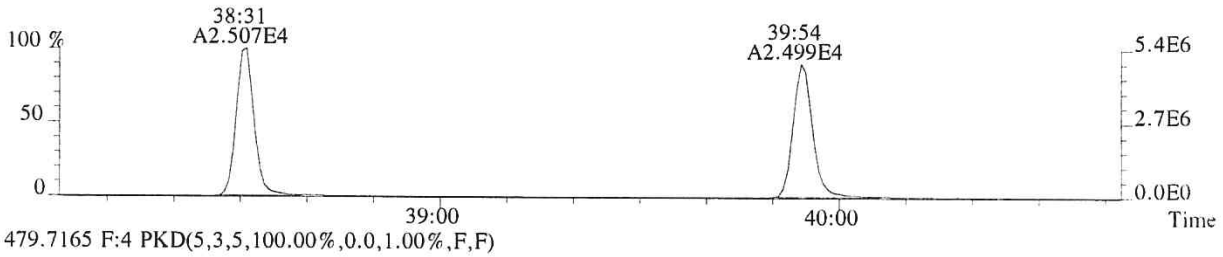
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.50%,F,T)



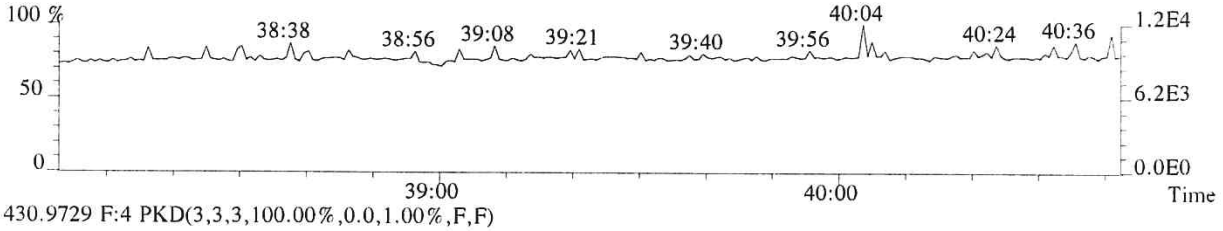
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.50%,F,T)



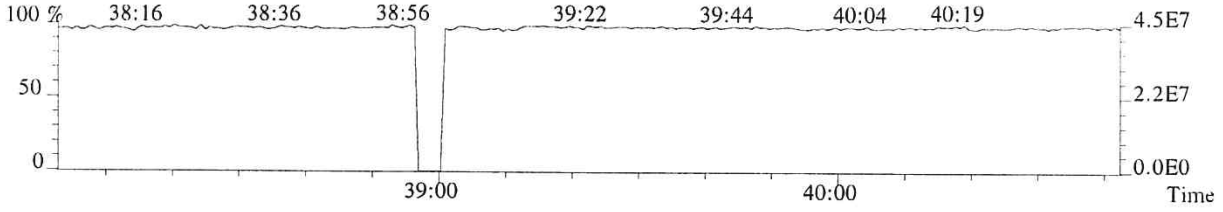
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3684.0,0.50%,F,T)



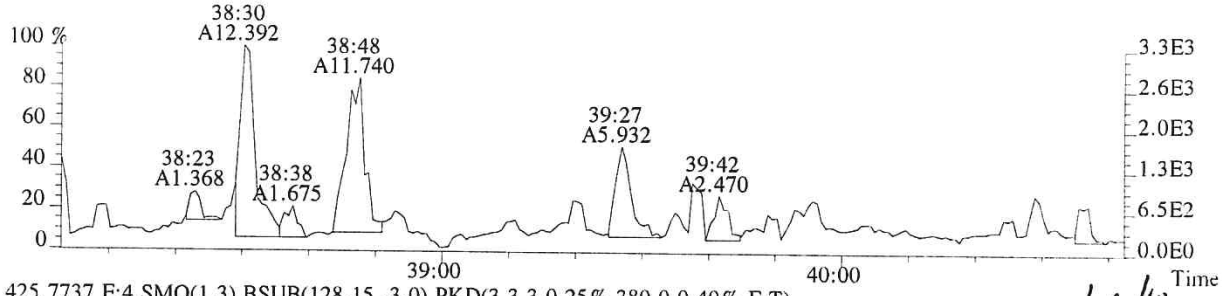
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

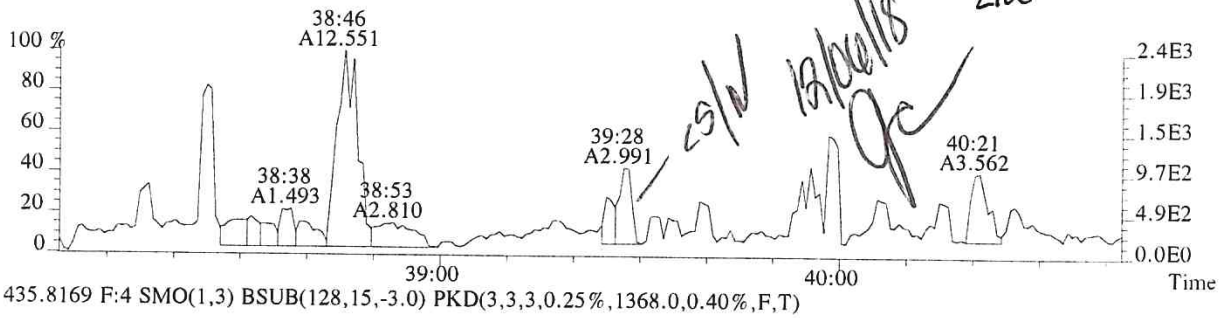


File:P519219 #1-240 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)

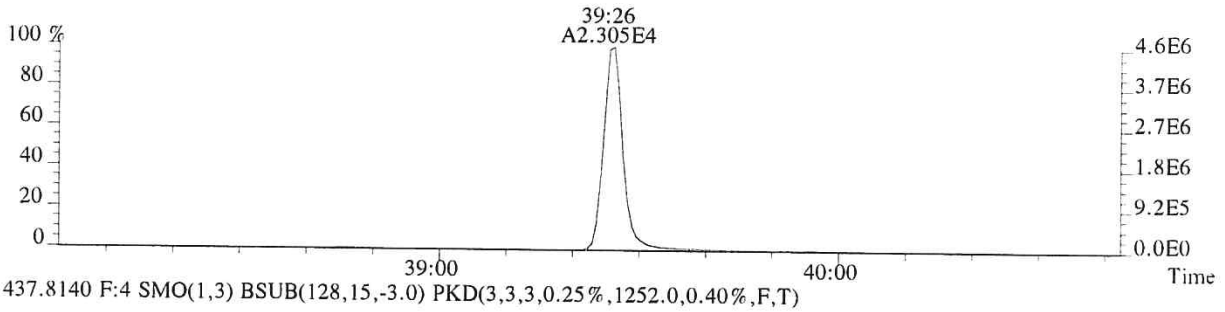


425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)

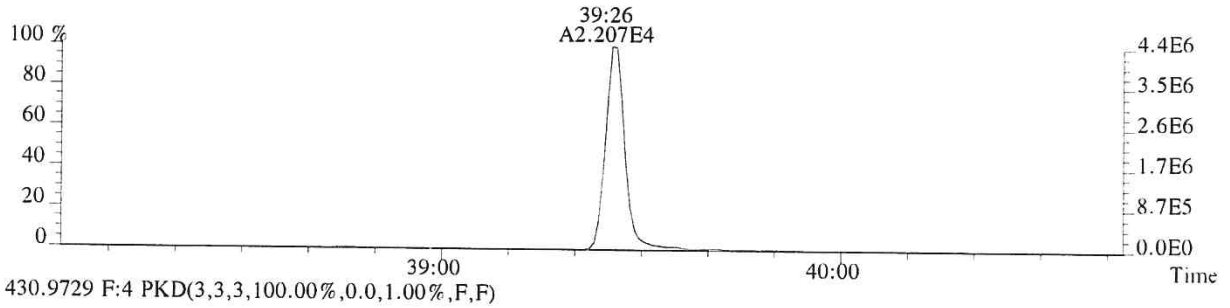
LLM 12/06/18



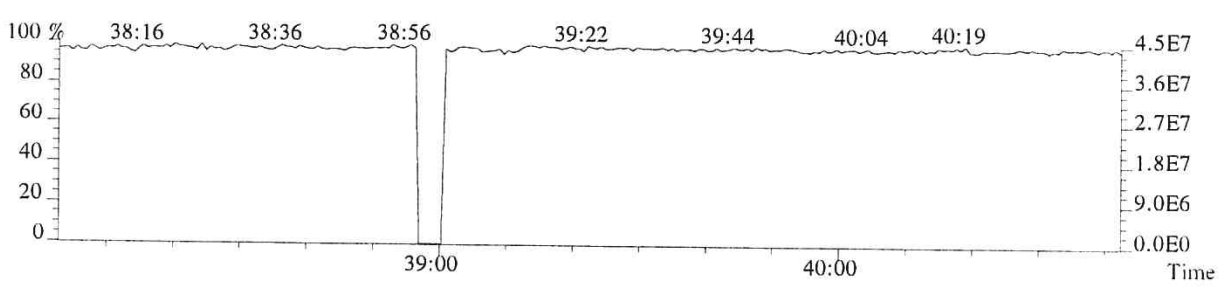
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



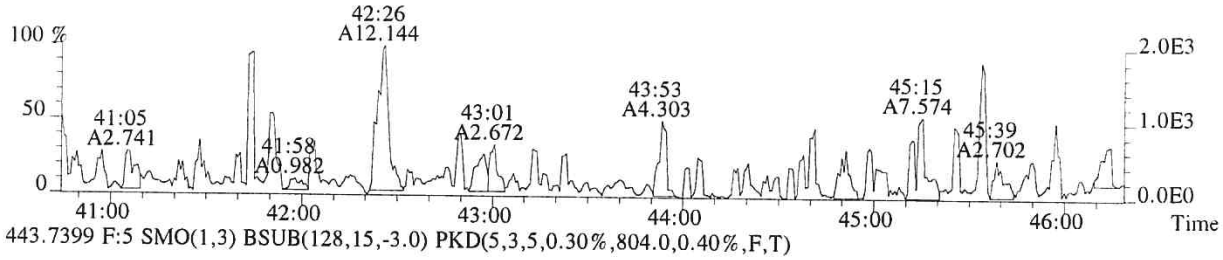
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



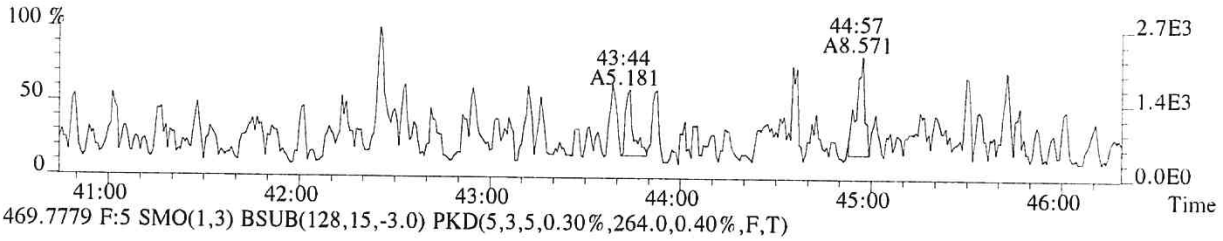
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



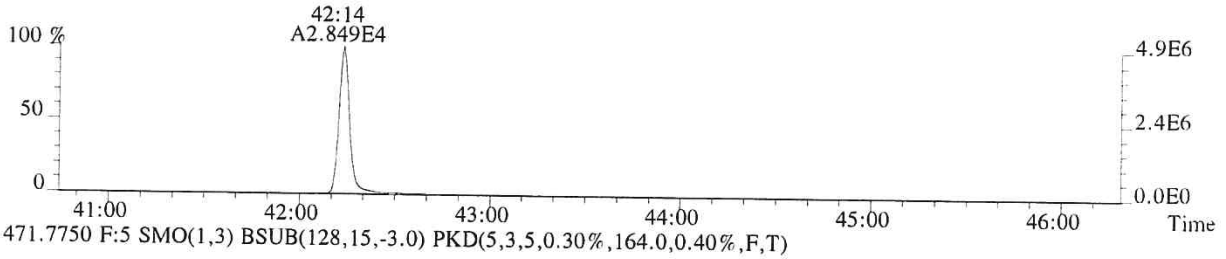
File:P519219 #1-502 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



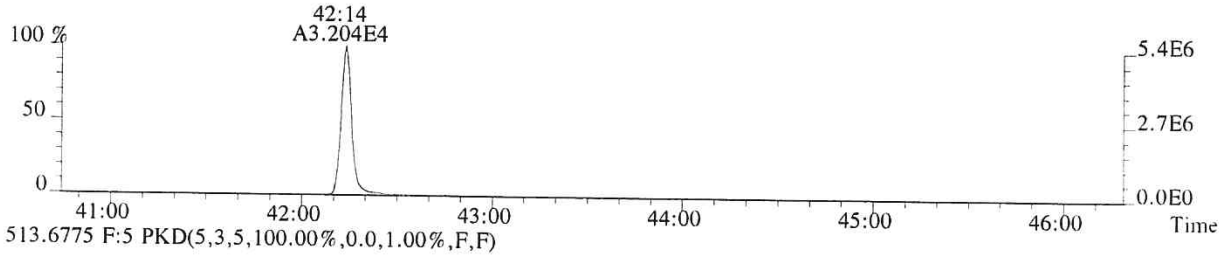
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,804.0,0.40%,F,T)



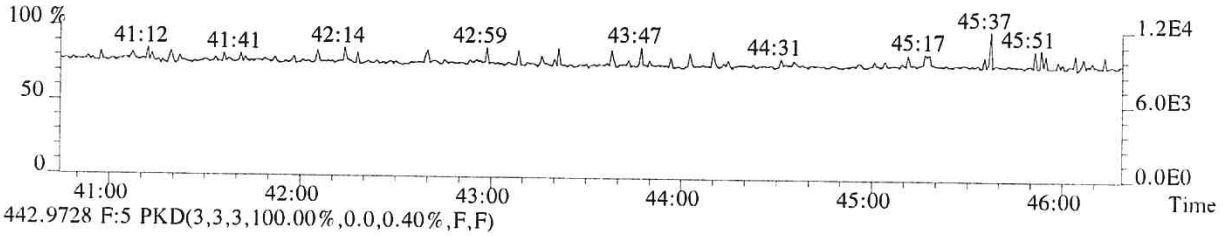
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



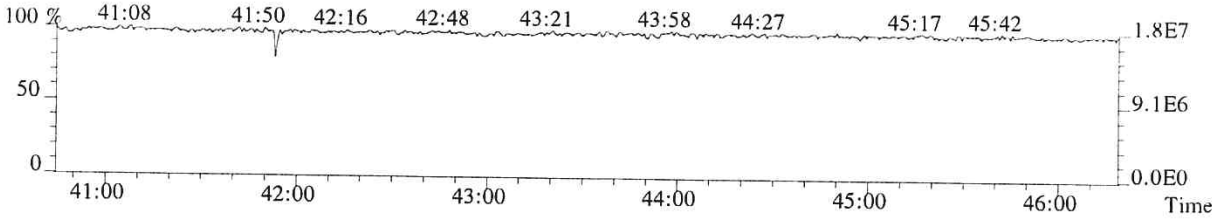
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



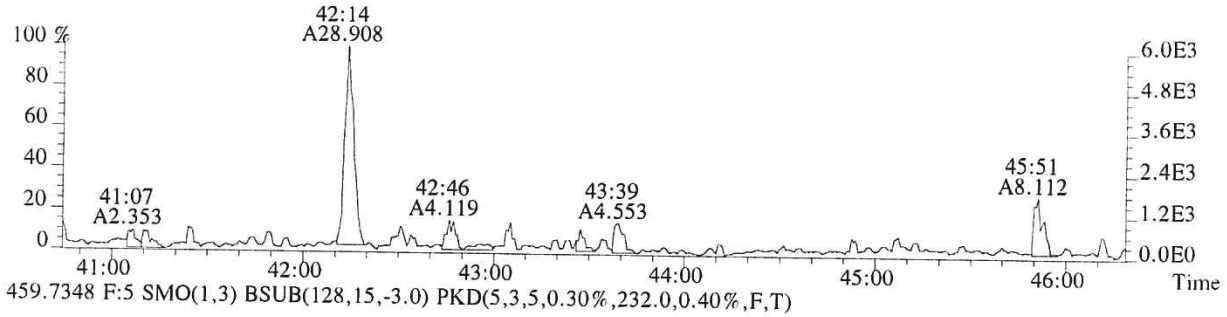
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



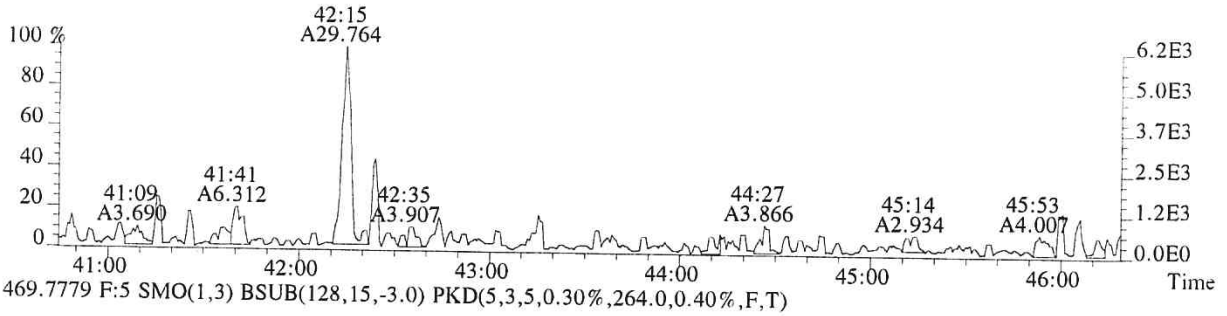
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



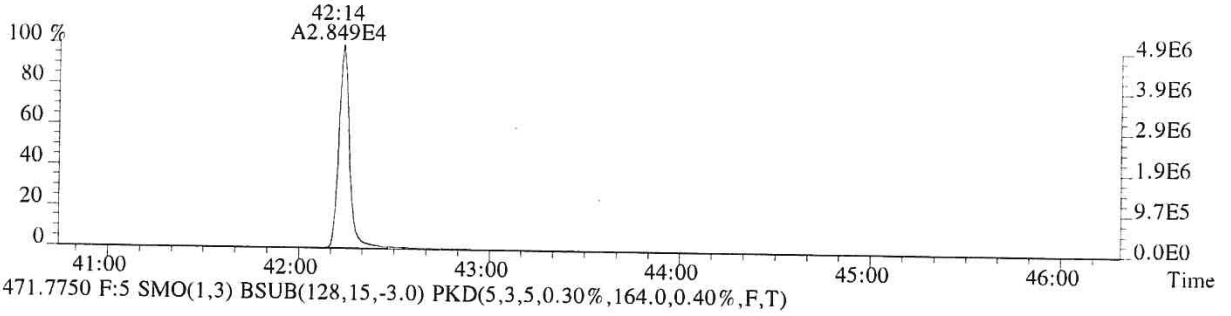
File:P519219 #1-502 Acq: 5-DEC-2018 08:32:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



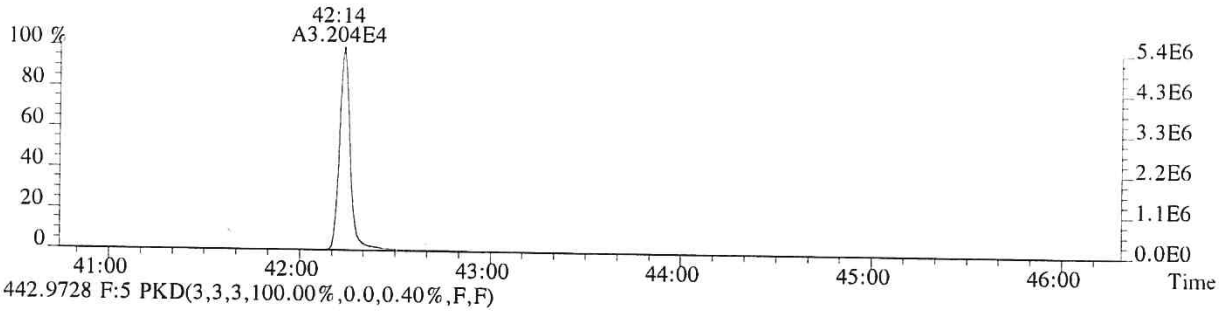
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



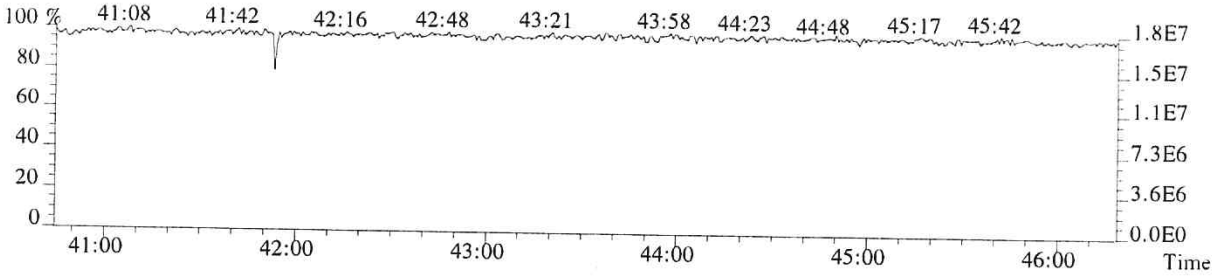
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #18 Filename P519143 Samp: 1 Inj: 1 Acquired: 2-DEC-18 14:17:05
Processed: 3-DEC-18 18:21:32 Sample ID: EQ1800469-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	1.763e+03	2.346e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:28	2.094e+04	1.361e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:22	2.275e+04	1.507e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.772e+04	1.516e+04	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:09	1.978e+04	1.654e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.842e+04	1.555e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:24	1.426e+04	1.184e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	1.075e+04	1.115e+04	0.96	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	7.465e+03	7.911e+03	0.94	yes	no	1.258
10	Unk	OCDF	42:37	7.167e+03	7.956e+03	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:03	1.426e+03	1.876e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	1.735e+04	1.105e+04	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	1.334e+04	1.047e+04	1.27	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.416e+04	1.132e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	1.477e+04	1.184e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	7.504e+03	7.052e+03	1.06	yes	no	1.025
17	Unk	OCDD	42:25	6.267e+03	7.106e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:15	2.019e+04	2.570e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	4.560e+04	2.907e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	4.716e+04	2.986e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.894e+04	3.643e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	2.211e+04	4.254e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	2.122e+04	4.103e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.648e+04	3.171e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.051e+04	2.346e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	7.394e+03	1.741e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:01	1.424e+04	1.827e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.588e+04	2.276e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	2.746e+04	2.154e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	2.756e+04	2.193e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	1.881e+04	1.747e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:25	1.163e+04	1.296e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:28	4.873e+04	6.186e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	5.119e+04	4.012e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:03	1.517e+04				no	1.014

$$\text{OCDD} = \frac{(6.267e+03 + 7.106e+03) \times 4000 \text{ pg} \times 1}{(1.163e+04 + 1.296e+04) \times \text{g} \times / 100 \times 1.118}$$

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #18 Filename P519143 Samp: 1 Inj: 1 Acquired: 2-DEC-18 14:17:05
Processed: 3-DEC-18 18:21:32 LAB. ID: EQ1800469-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.17e+05	7.52e+02	4.2e+02	4.15e+05	1.26e+03	3.3e+02
2	1,2,3,7,8-PeCDF	3.85e+06	4.92e+02	7.8e+03	2.47e+06	9.40e+02	2.6e+03
3	2,3,4,7,8-PeCDF	4.38e+06	4.92e+02	8.9e+03	2.88e+06	9.40e+02	3.1e+03
4	1,2,3,4,7,8-HxCDF	3.88e+06	4.88e+02	7.9e+03	3.33e+06	4.12e+02	8.1e+03
5	1,2,3,6,7,8-HxCDF	4.05e+06	4.88e+02	8.3e+03	3.39e+06	4.12e+02	8.2e+03
6	2,3,4,6,7,8-HxCDF	3.95e+06	4.88e+02	8.1e+03	3.29e+06	4.12e+02	8.0e+03
7	1,2,3,7,8,9-HxCDF	2.87e+06	4.88e+02	5.9e+03	2.35e+06	4.12e+02	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	2.30e+06	2.13e+03	1.1e+03	2.36e+06	1.62e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	1.40e+06	2.13e+03	6.5e+02	1.43e+06	1.62e+03	8.8e+02
10	OCDF	1.09e+06	3.36e+02	3.3e+03	1.26e+06	1.03e+03	1.2e+03
11	2,3,7,8-TCDD	2.67e+05	1.90e+03	1.4e+02	3.48e+05	9.72e+02	3.6e+02
12	1,2,3,7,8-PeCDD	3.33e+06	8.52e+02	3.9e+03	2.16e+06	2.28e+02	9.5e+03
13	1,2,3,4,7,8-HxCDD	3.00e+06	2.88e+02	1.0e+04	2.36e+06	2.56e+02	9.2e+03
14	1,2,3,6,7,8-HxCDD	2.94e+06	2.88e+02	1.0e+04	2.32e+06	2.56e+02	9.1e+03
15	1,2,3,7,8,9-HxCDD	2.89e+06	2.88e+02	1.0e+04	2.39e+06	2.56e+02	9.3e+03
16	1,2,3,4,6,7,8-HpCDD	1.40e+06	5.28e+02	2.6e+03	1.33e+06	3.60e+02	3.7e+03
17	OCDD	9.61e+05	2.60e+02	3.7e+03	1.06e+06	6.80e+02	1.6e+03
18	13C-2,3,7,8-TCDF	3.65e+06	5.41e+03	6.7e+02	4.59e+06	2.97e+03	1.5e+03
19	13C-1,2,3,7,8-PeCDF	8.33e+06	1.00e+03	8.3e+03	5.47e+06	5.88e+02	9.3e+03
20	13C-2,3,4,7,8-PeCDF	9.37e+06	1.00e+03	9.3e+03	5.99e+06	5.88e+02	1.0e+04
21	13C-1,2,3,4,7,8-HxCDF	4.16e+06	5.12e+02	8.1e+03	8.04e+06	7.20e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	4.53e+06	5.12e+02	8.8e+03	8.68e+06	7.20e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	4.53e+06	5.12e+02	8.8e+03	8.81e+06	7.20e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	3.31e+06	5.12e+02	6.5e+03	6.31e+06	7.20e+02	8.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.16e+06	1.60e+03	1.3e+03	4.89e+06	5.50e+03	8.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.32e+06	1.60e+03	8.2e+02	3.13e+06	5.50e+03	5.7e+02
27	13C-2,3,7,8-TCDD	2.67e+06	5.44e+03	4.9e+02	3.44e+06	2.73e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	7.02e+06	5.68e+02	1.2e+04	4.50e+06	6.56e+02	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	6.16e+06	1.70e+03	3.6e+03	4.80e+06	1.08e+03	4.4e+03
30	13C-1,2,3,6,7,8-HxCDD	5.64e+06	1.70e+03	3.3e+03	4.45e+06	1.08e+03	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.46e+06	5.68e+02	6.1e+03	3.24e+06	3.64e+02	8.9e+03
32	13C-OCDD	1.77e+06	2.16e+02	8.2e+03	1.96e+06	2.96e+02	6.6e+03
33	13C-1,2,3,4-TCDD	9.20e+06	5.44e+03	1.7e+03	1.17e+07	2.73e+03	4.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	1.70e+03	6.0e+03	7.99e+06	1.08e+03	7.4e+03
35	37Cl-2,3,7,8-TCDD	2.89e+06	1.83e+03	1.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.904e{+}03 + 9.720e{+}02) \times 2000}{(2.673e{+}06 + 3.443e{+}06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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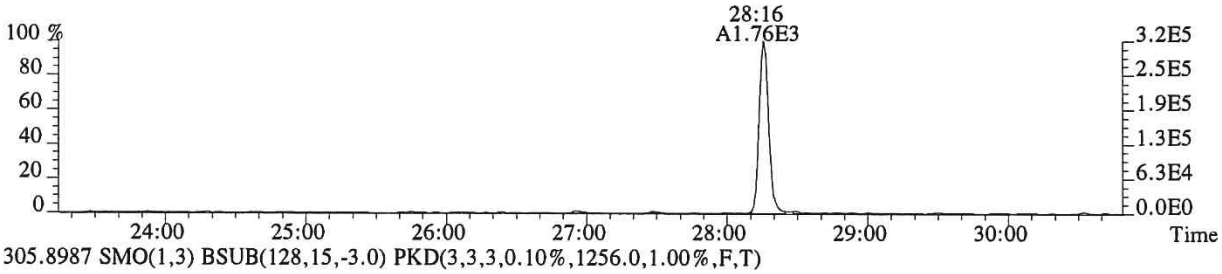
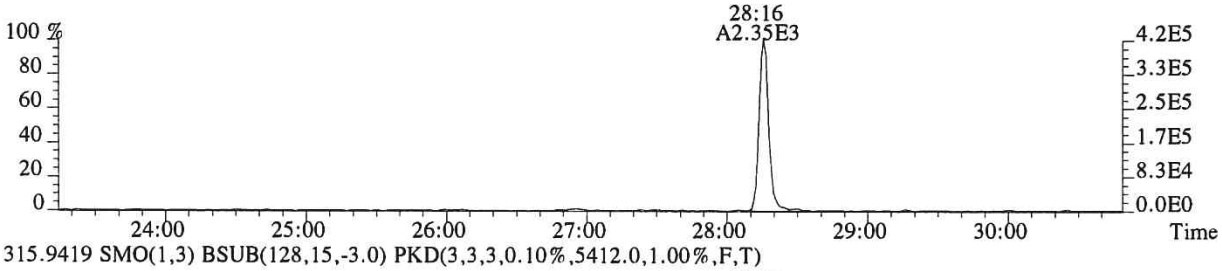
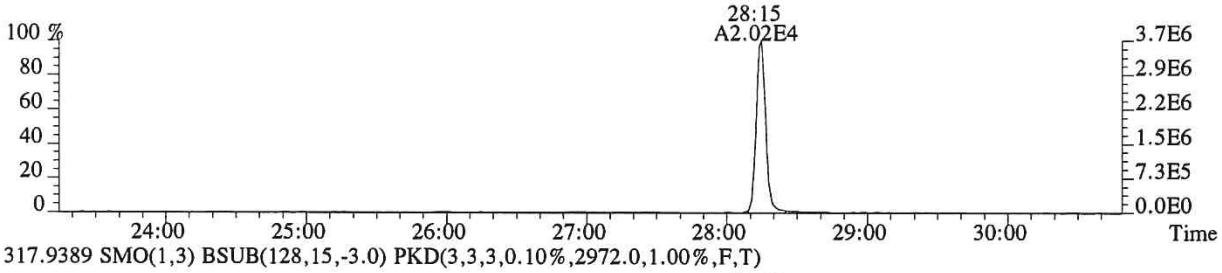
File:P519143 #1-538 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



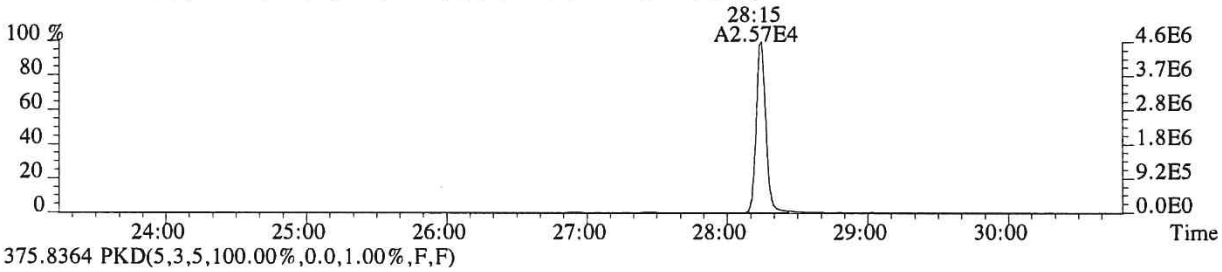
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



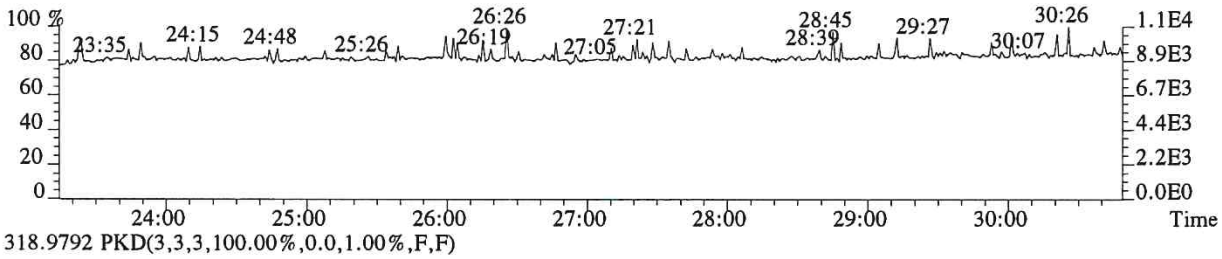
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5412.0,1.00%,F,T)



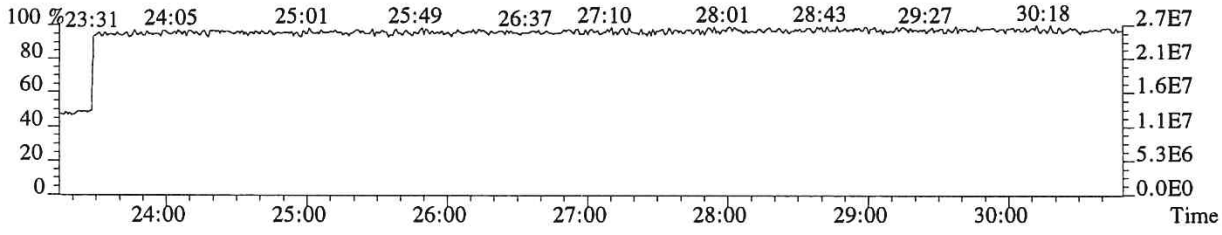
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2972.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

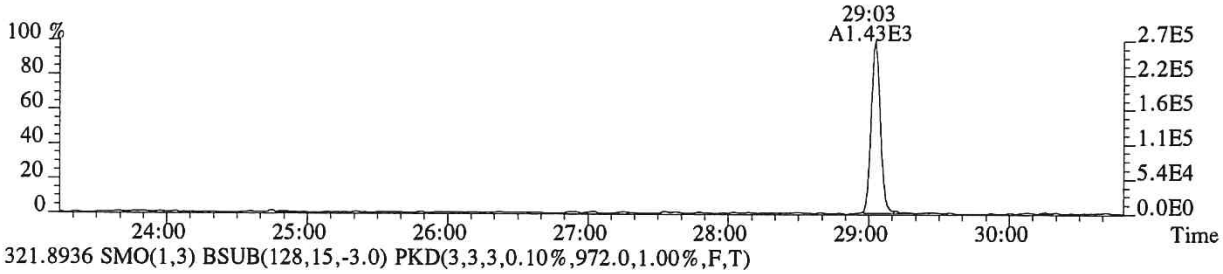


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

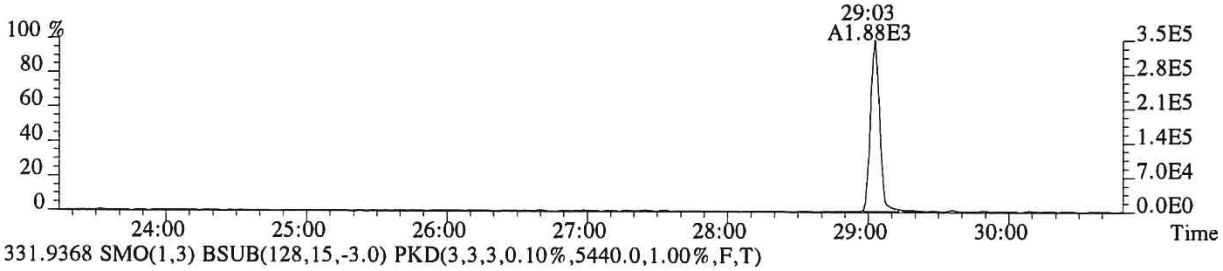


011333

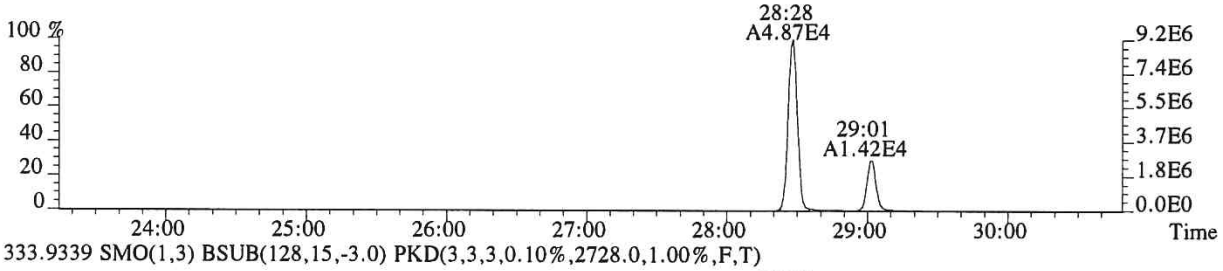
File:P519143 #1-538 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



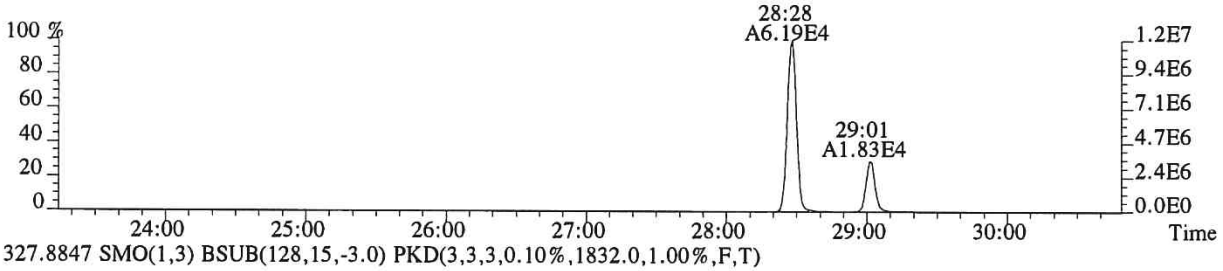
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



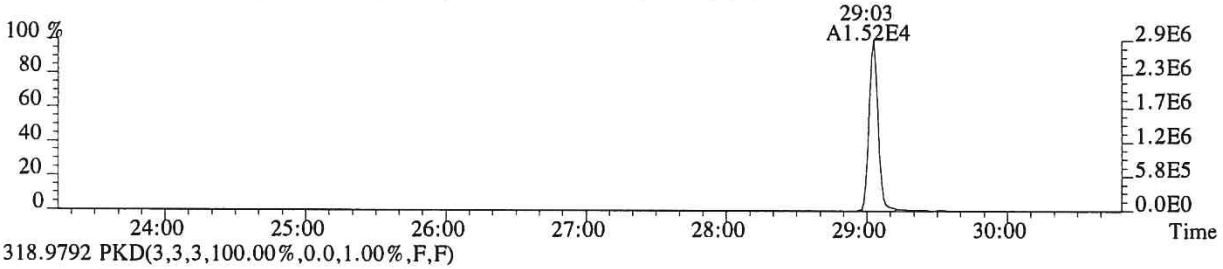
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5440.0,1.00%,F,T)



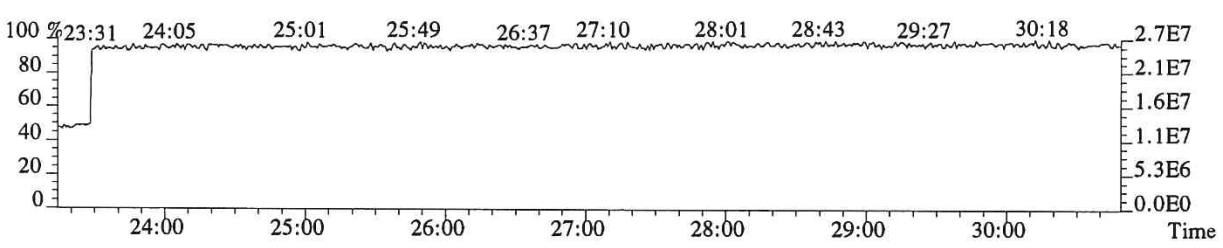
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2728.0,1.00%,F,T)



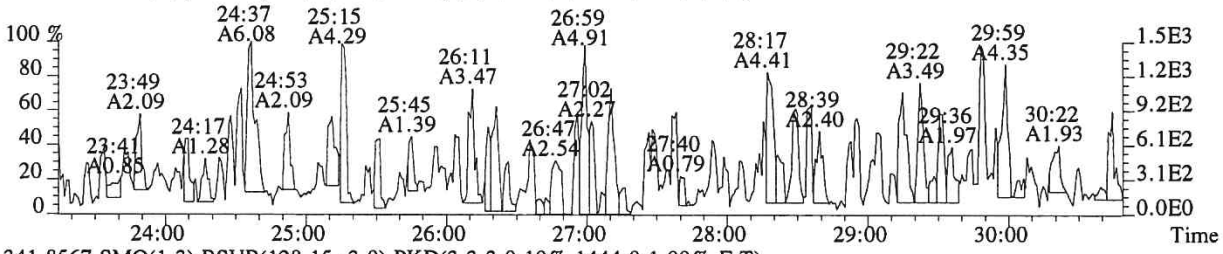
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



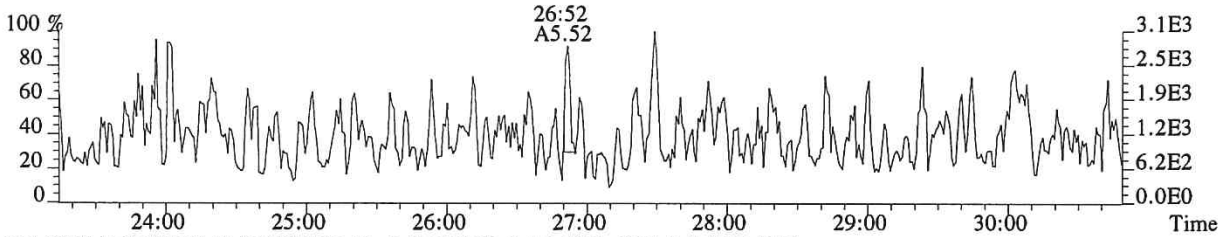
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



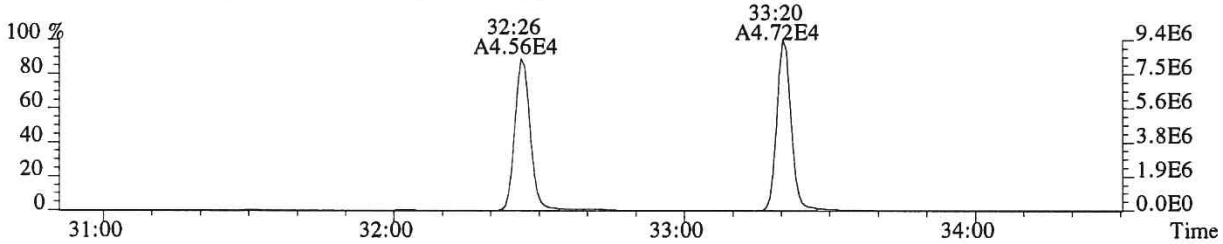
File:P519143 #1-538 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



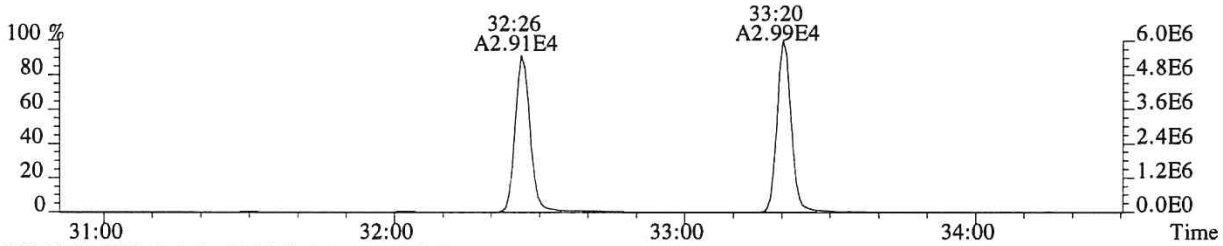
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



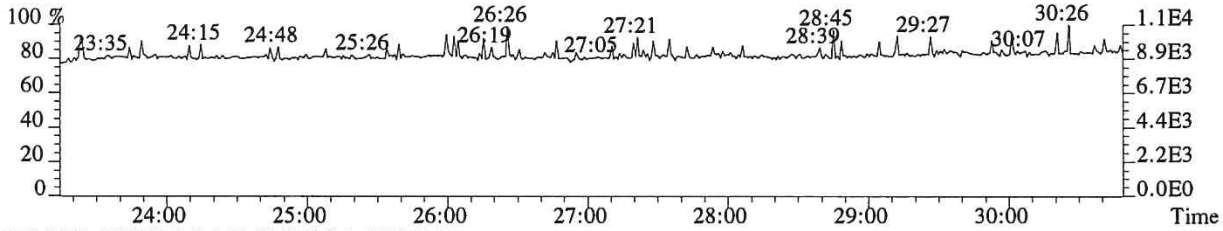
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



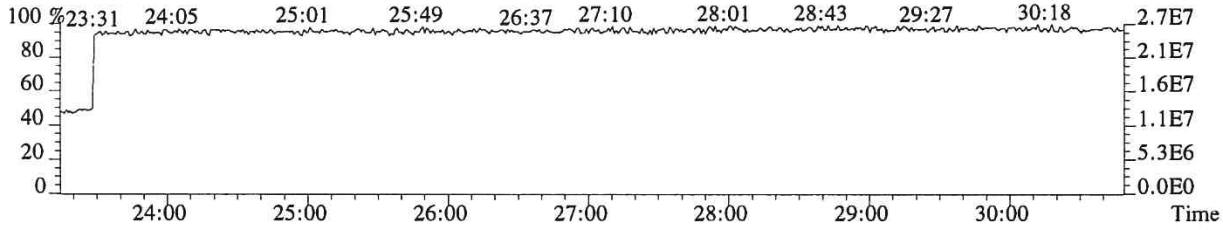
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



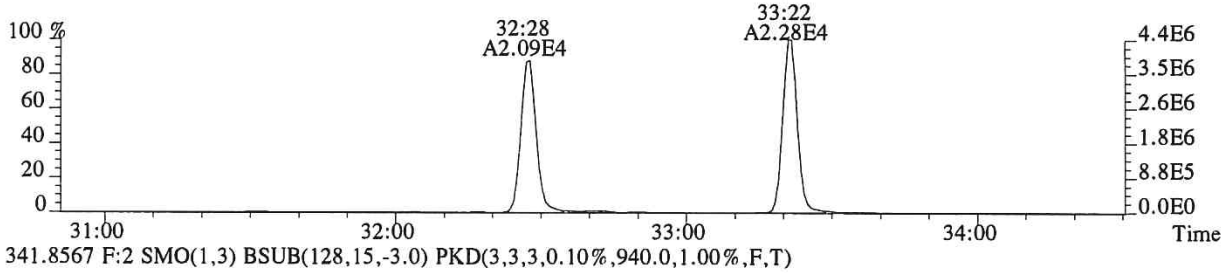
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



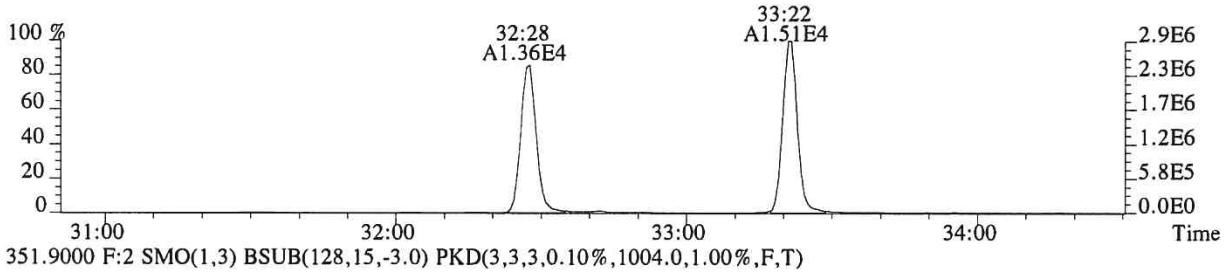
011335

File:P519143 #1-330 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02

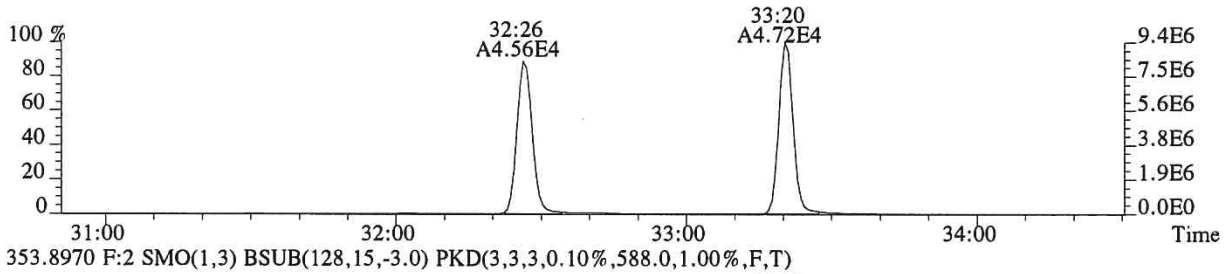
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



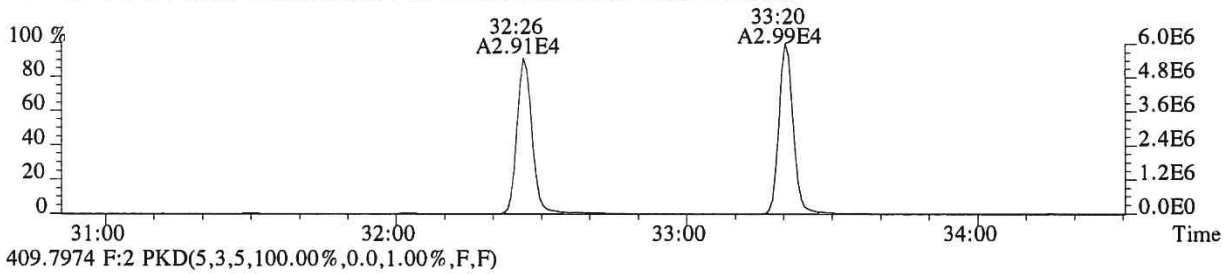
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



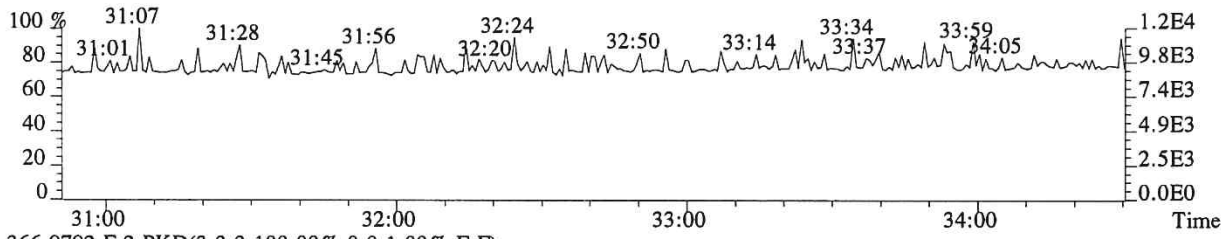
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



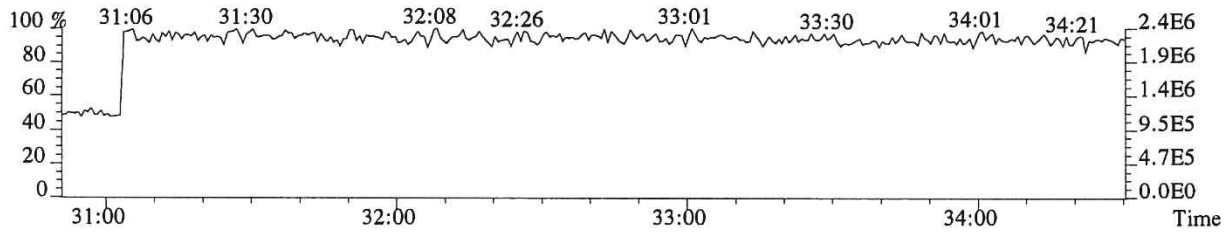
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



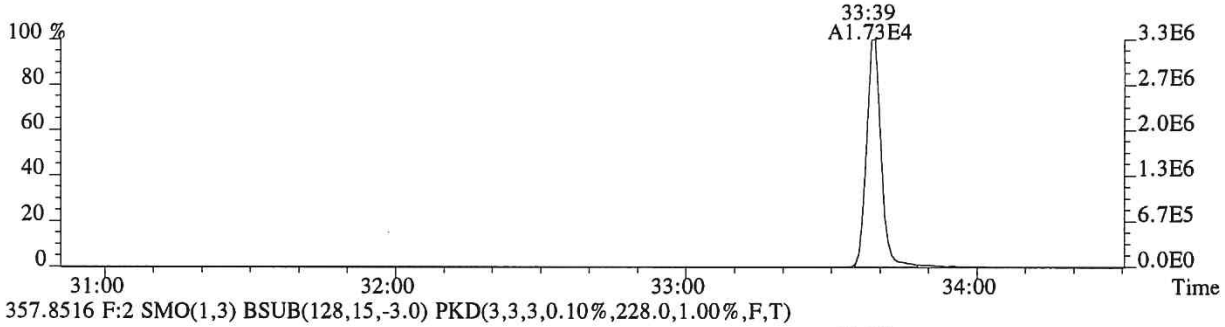
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



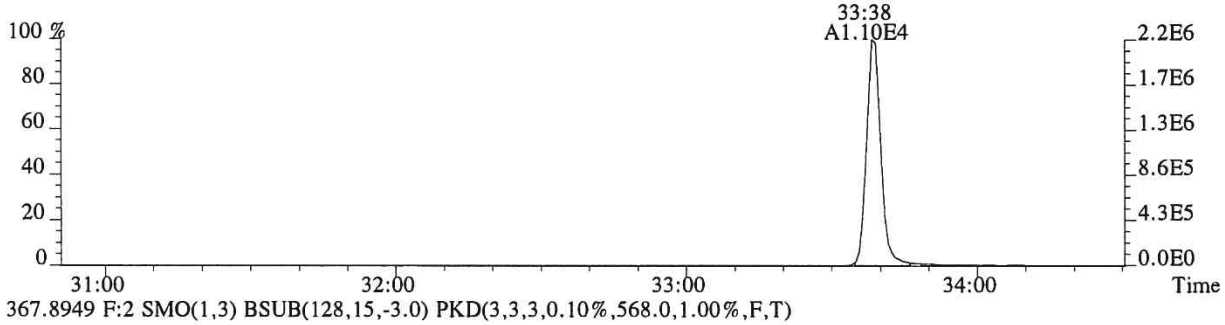
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



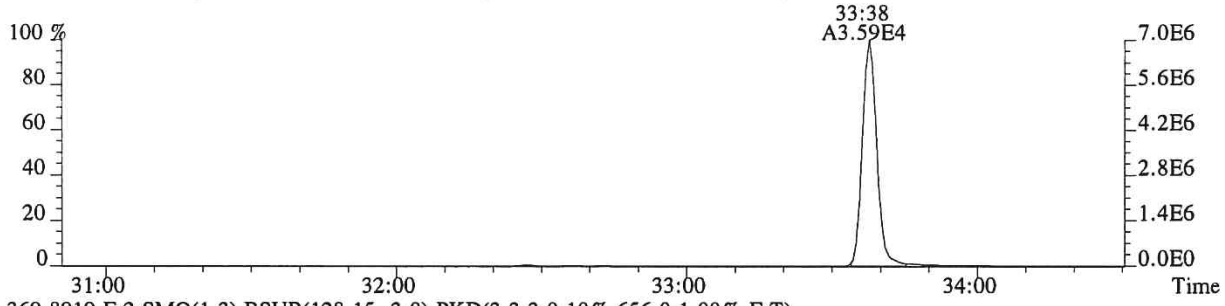
File:P519143 #1-330 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



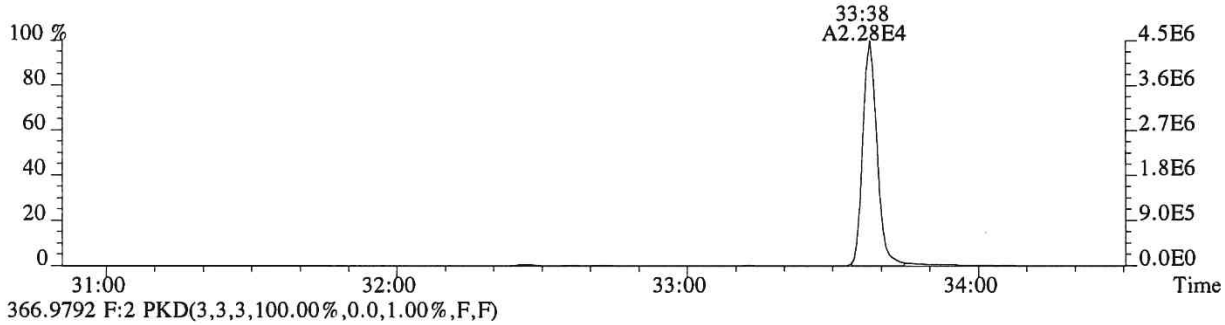
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



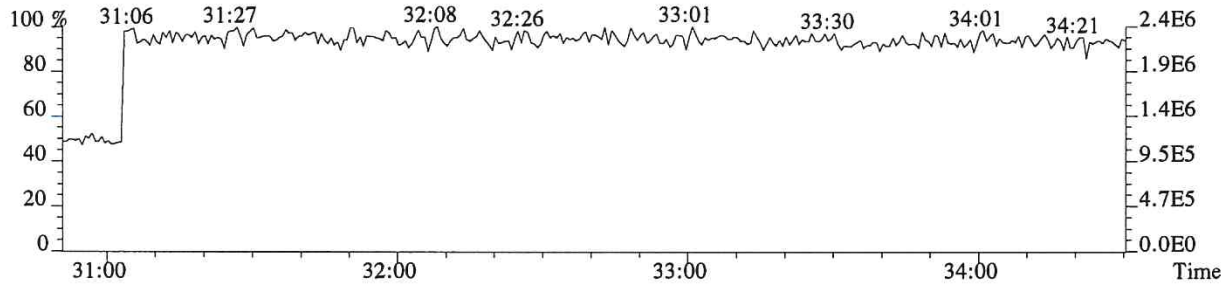
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)

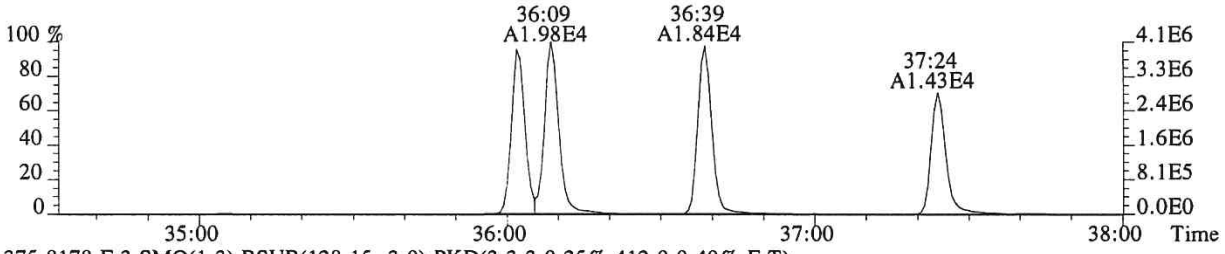


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

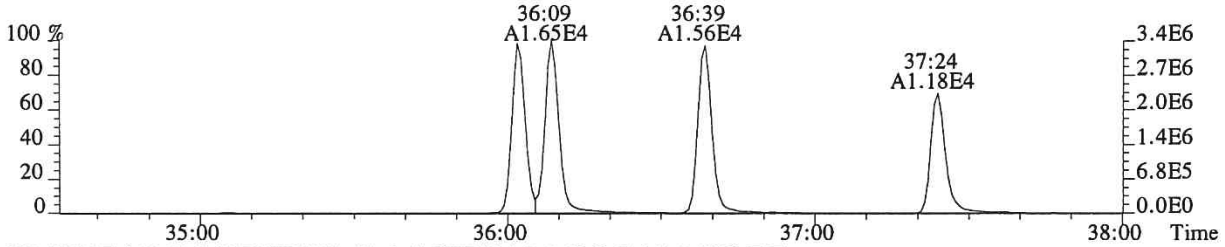


File:P519143 #1-312 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02

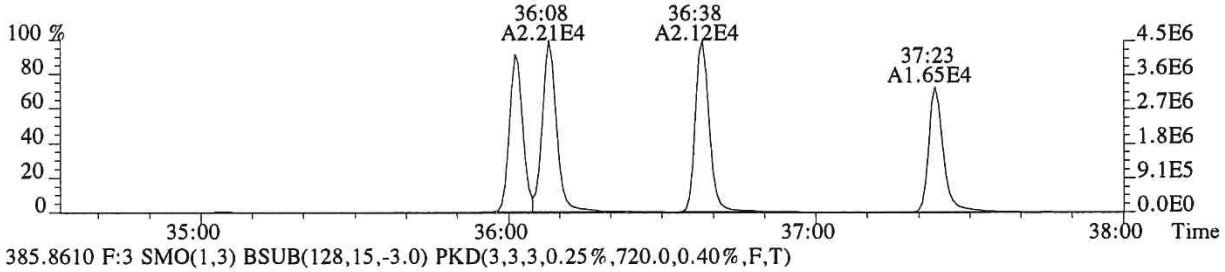
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



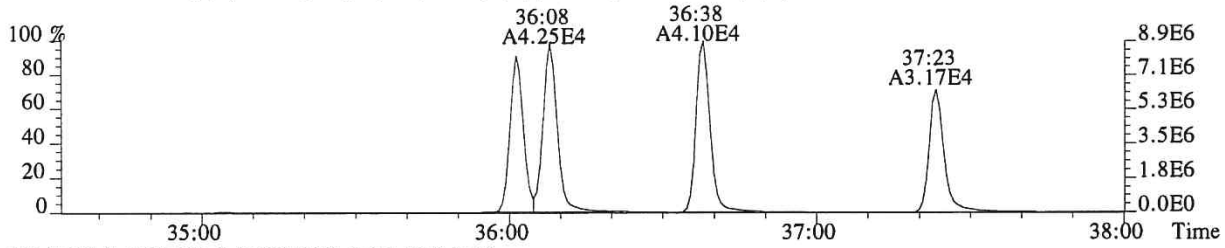
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



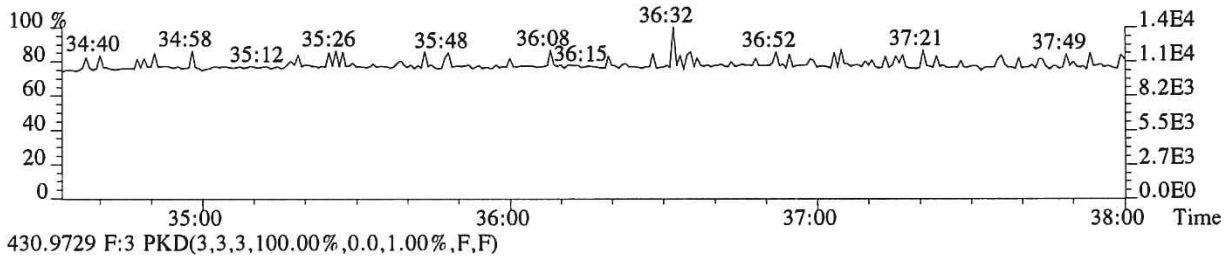
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



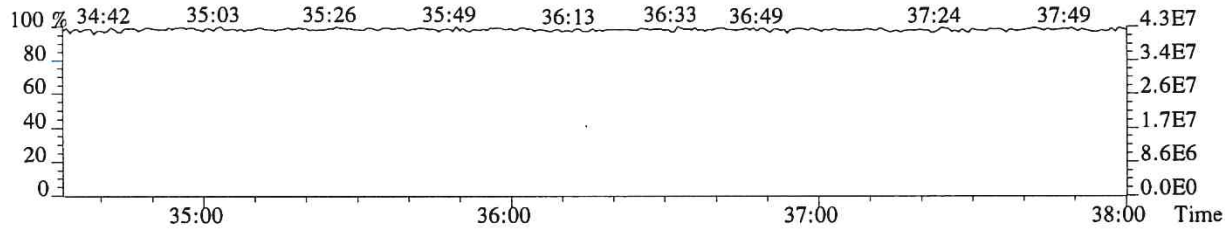
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



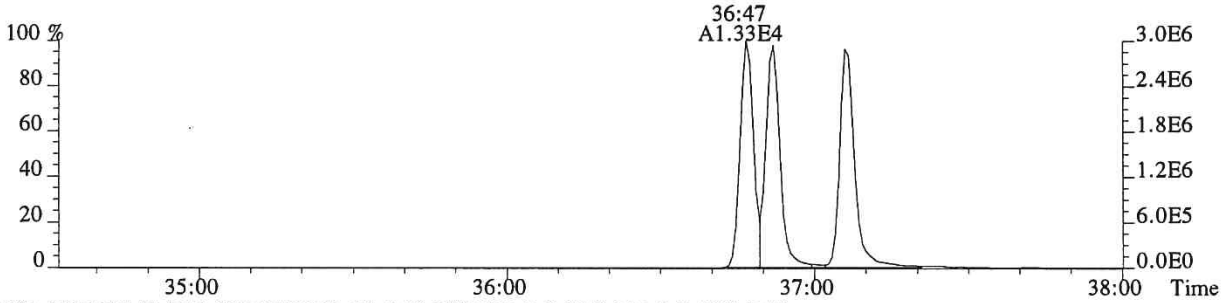
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



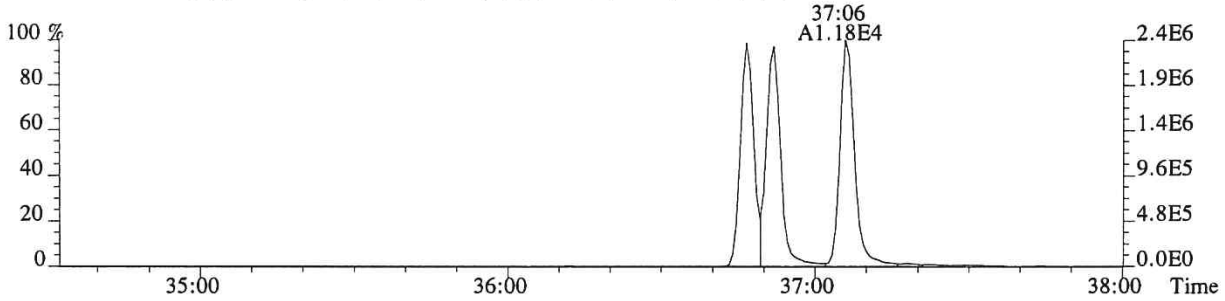
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



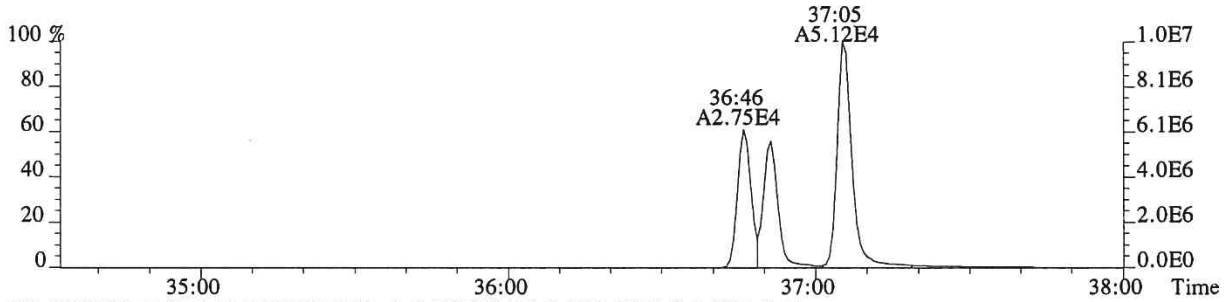
File:P519143 #1-312 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



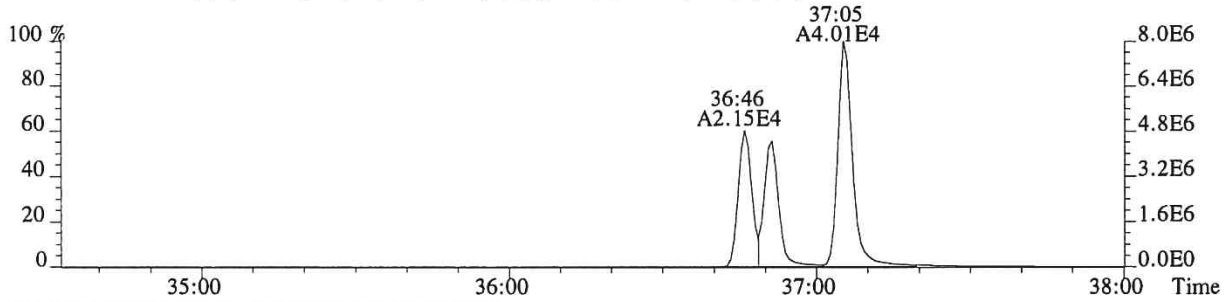
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



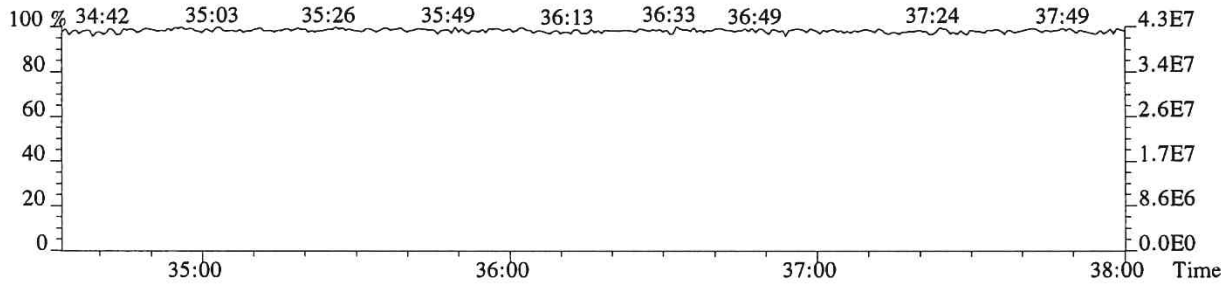
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1696.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)



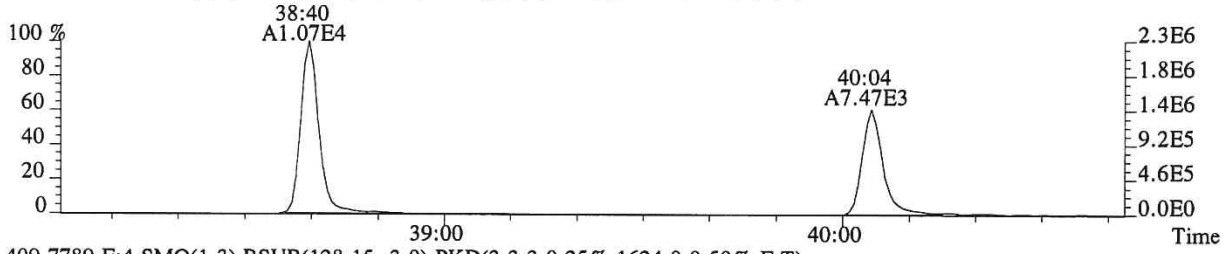
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



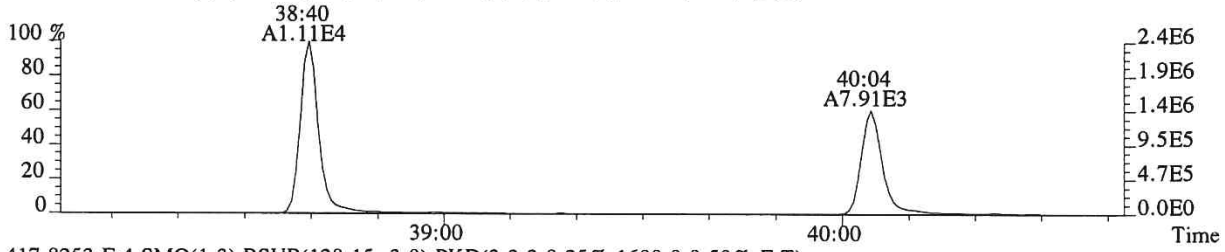
011339

File:P519143 #1-241 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02

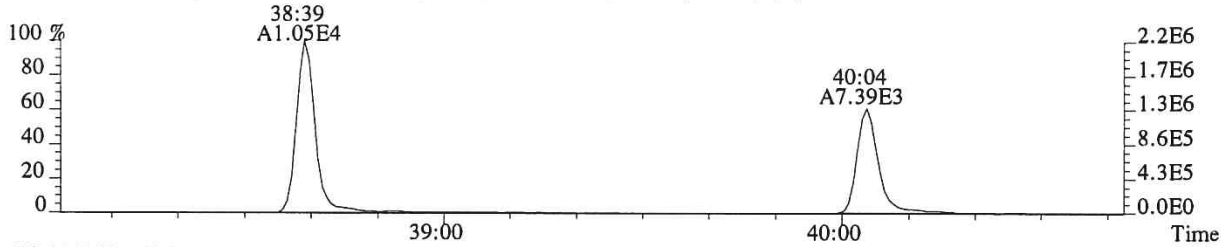
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2132.0,0.50%,F,T)



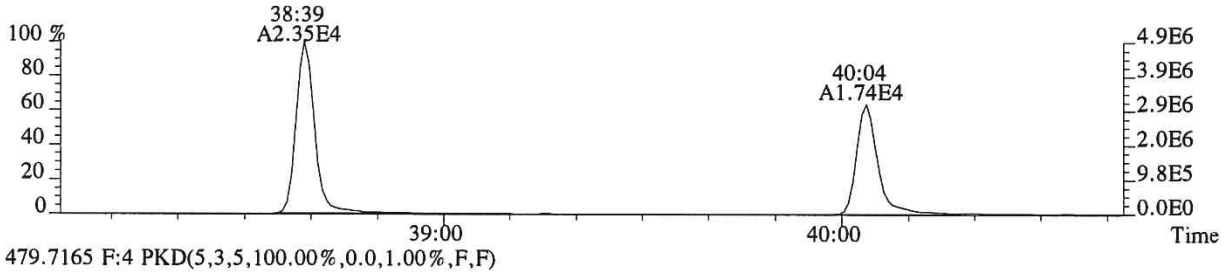
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.50%,F,T)



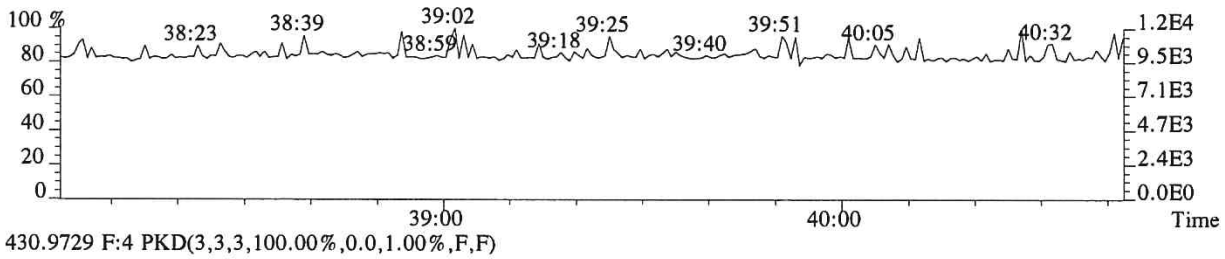
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.50%,F,T)



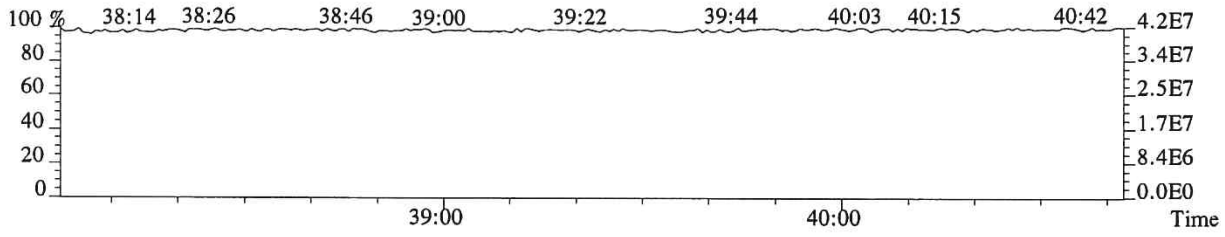
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5504.0,0.50%,F,T)



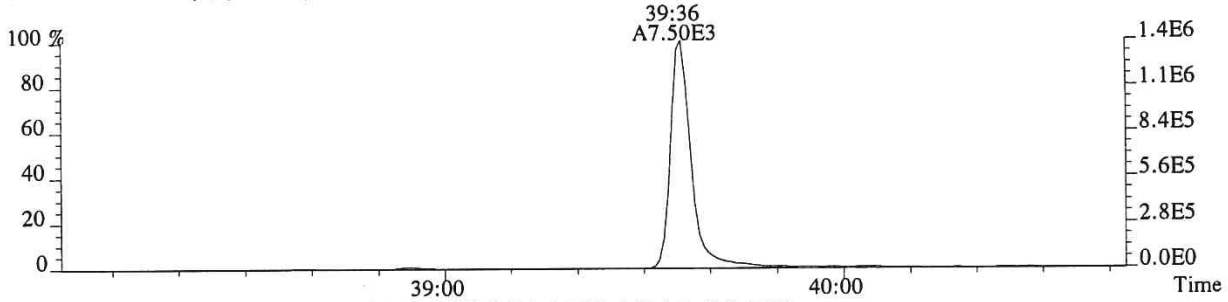
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



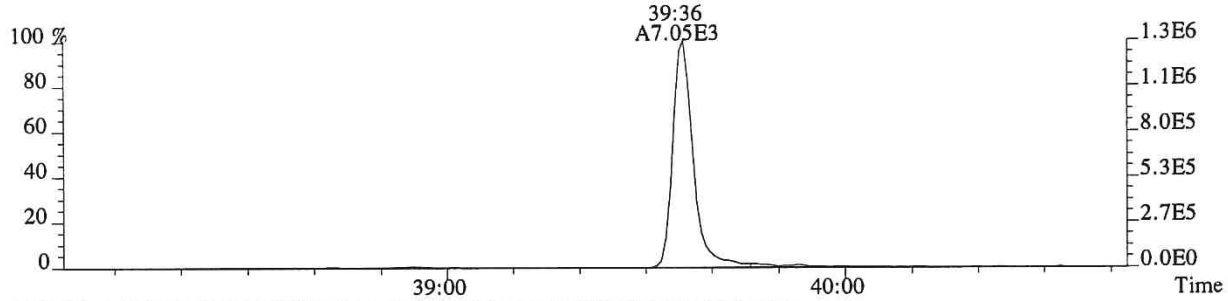
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



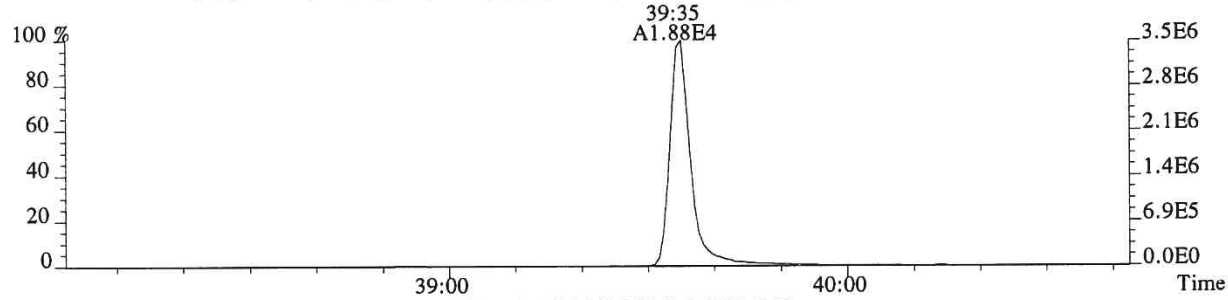
File:P519143 #1-241 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



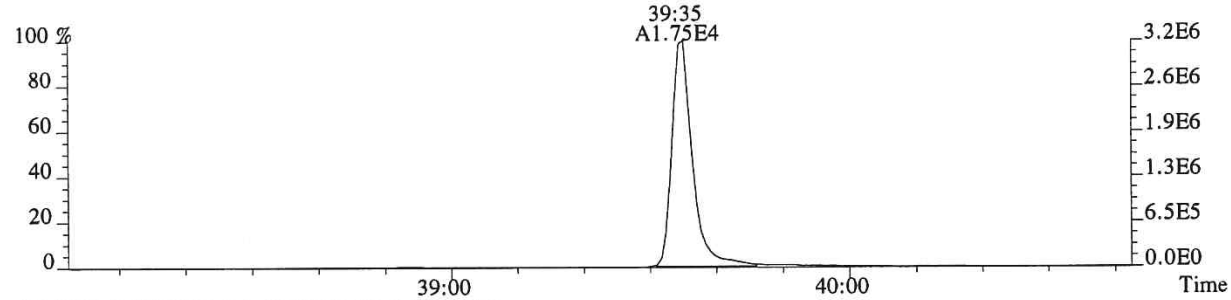
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



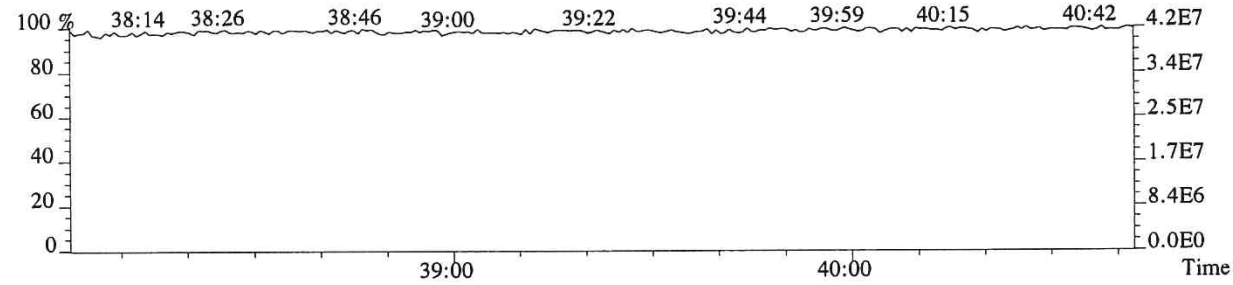
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)

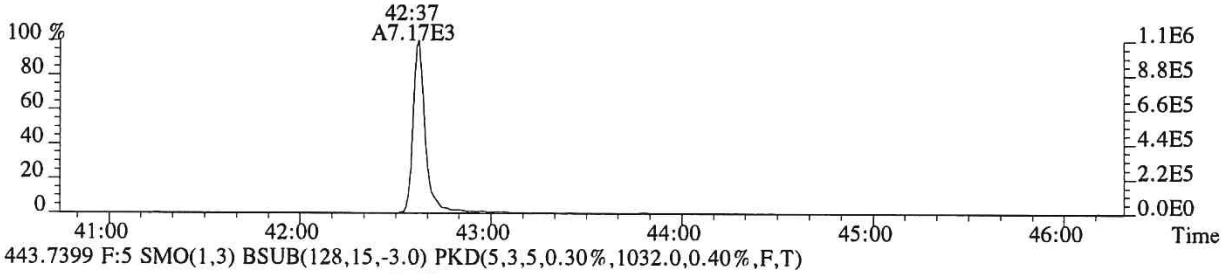


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

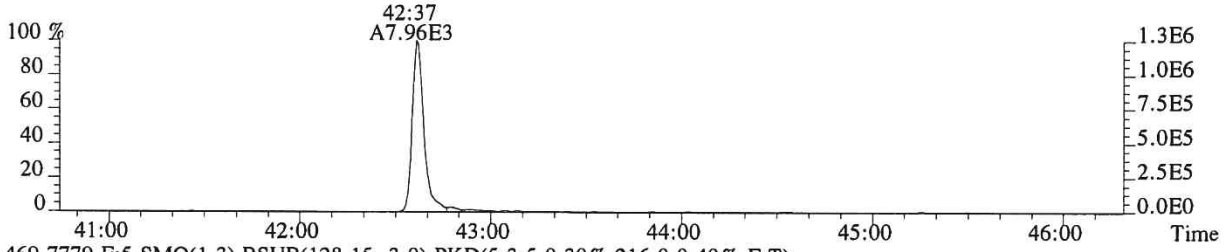


File:P519143 #1-502 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02

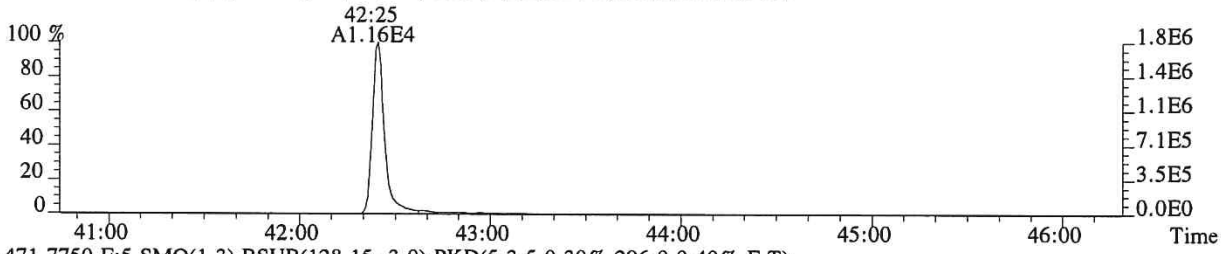
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



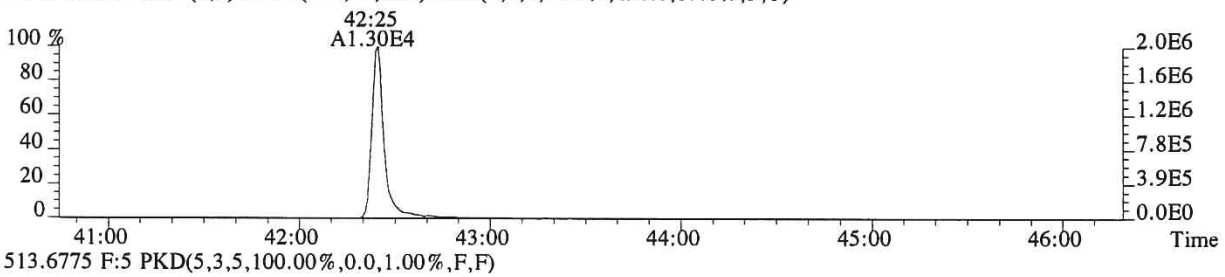
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1032.0,0.40%,F,T)



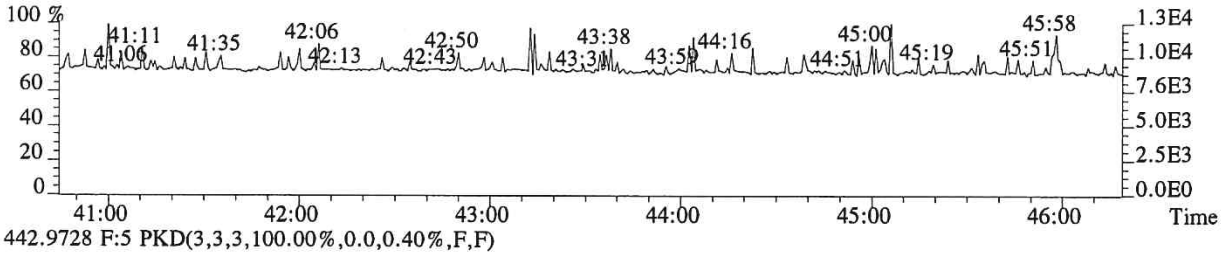
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



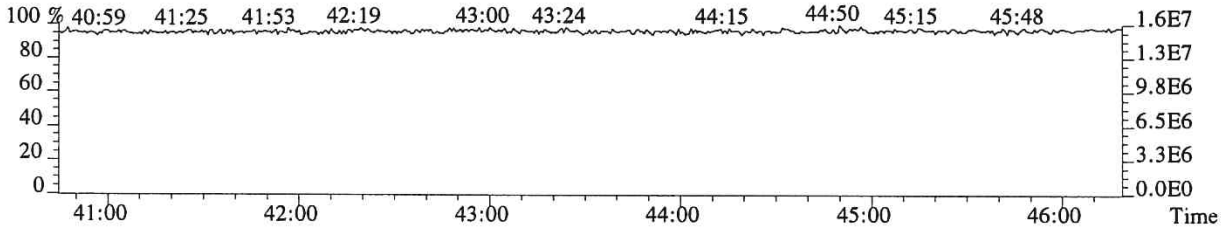
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



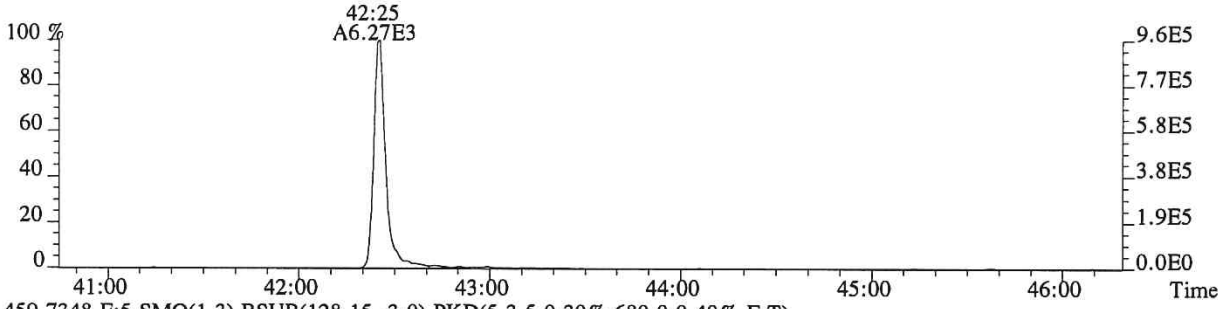
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



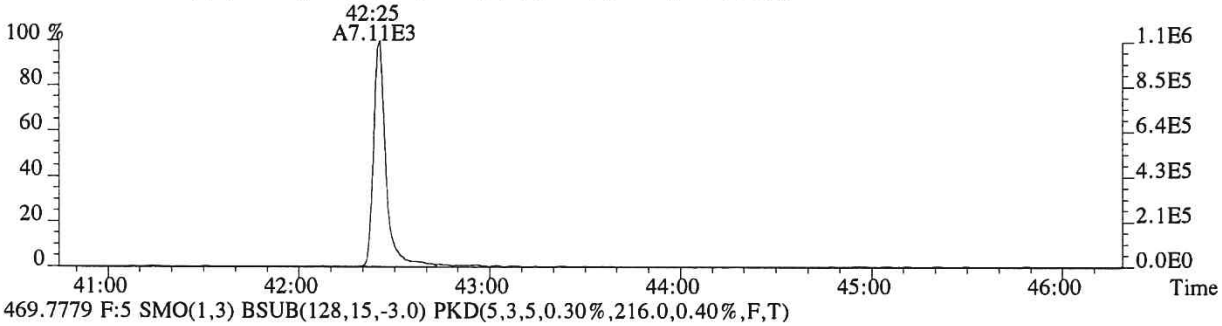
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



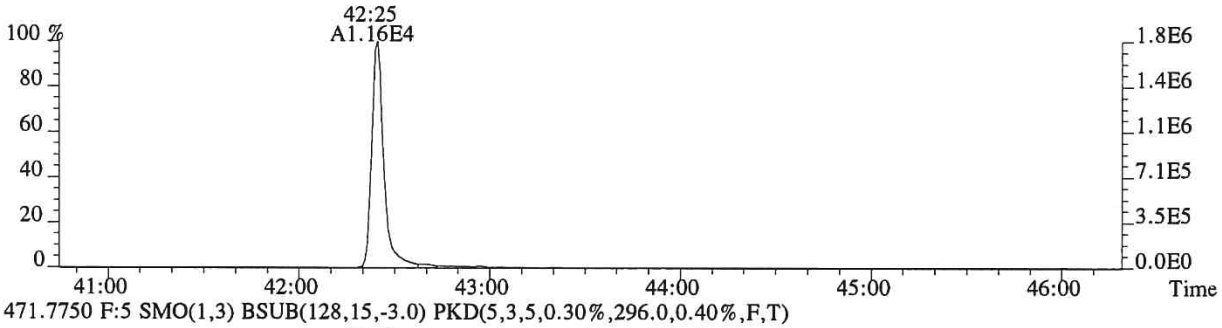
File:P519143 #1-502 Acq: 2-DEC-2018 14:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



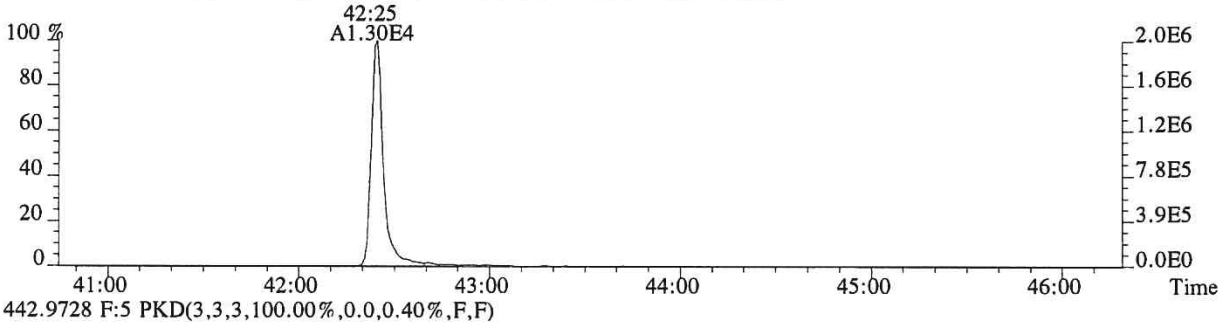
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



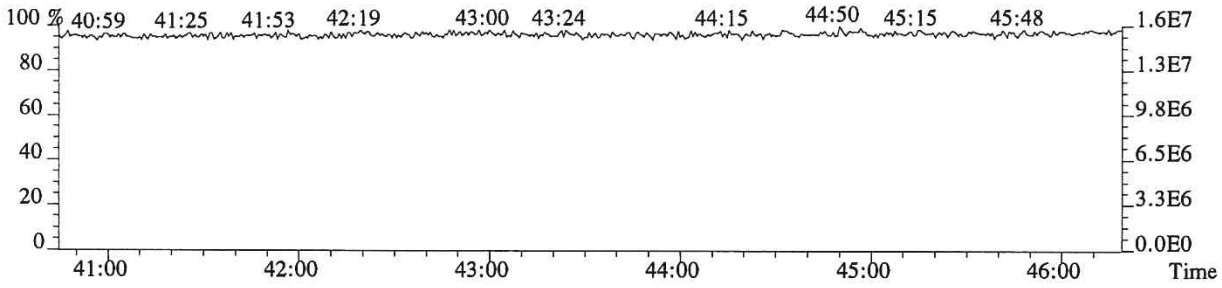
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #19 Filename P519144 Samp: 1 Inj: 1 Acquired: 2-DEC-18 15:05:44
Processed: 3-DEC-18 18:23:50 Sample ID: EQ1800469-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:16	2.385e+03	3.249e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:28	2.404e+04	1.587e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:22	2.431e+04	1.603e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:03	2.046e+04	1.714e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:09	2.201e+04	1.820e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:39	2.040e+04	1.677e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:24	1.668e+04	1.376e+04	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:40	1.427e+04	1.423e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	1.003e+04	1.012e+04	0.99	yes	no	1.258
10	Unk	OCDF	42:38	9.891e+03	1.144e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:03	2.031e+03	2.694e+03	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:39	1.855e+04	1.168e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:47	1.477e+04	1.181e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.611e+04	1.296e+04	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:07	1.632e+04	1.274e+04	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	9.608e+03	9.185e+03	1.05	yes	no	1.025
17	Unk	OCDD	42:25	8.572e+03	9.614e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:15	2.722e+04	3.435e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:27	5.183e+04	3.232e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:21	4.907e+04	3.137e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:02	2.149e+04	4.099e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	2.425e+04	4.726e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	2.332e+04	4.558e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.870e+04	3.714e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.316e+04	2.965e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	9.679e+03	2.184e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:02	1.981e+04	2.508e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.885e+04	2.426e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	3.120e+04	2.422e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	3.118e+04	2.454e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	2.351e+04	2.197e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:25	1.608e+04	1.768e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:28	4.411e+04	5.620e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:06	5.036e+04	4.002e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:03	2.096e+04				no	1.014

$$\text{OCDD} = \frac{(8.572e+03 + 9.614e+03) \times 4000 \text{ pg} \times 1}{(1.608e+04 + 1.768e+04) \times \text{g} \times / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #19 Filename P519144 Samp: 1 Inj: 1 Acquired: 2-DEC-18 15:05:44
Processed: 3-DEC-18 18:23:50 LAB. ID: EQ1800469-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.39e+05	6.44e+02	6.8e+02	5.82e+05	1.16e+03	5.0e+02
2	1,2,3,7,8-PeCDF	4.63e+06	6.48e+02	7.1e+03	3.07e+06	1.44e+03	2.1e+03
3	2,3,4,7,8-PeCDF	4.82e+06	6.48e+02	7.4e+03	3.17e+06	1.44e+03	2.2e+03
4	1,2,3,4,7,8-HxCDF	4.32e+06	3.84e+02	1.1e+04	3.65e+06	3.00e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	4.50e+06	3.84e+02	1.2e+04	3.75e+06	3.00e+02	1.2e+04
6	2,3,4,6,7,8-HxCDF	4.39e+06	3.84e+02	1.1e+04	3.66e+06	3.00e+02	1.2e+04
7	1,2,3,7,8,9-HxCDF	3.34e+06	3.84e+02	8.7e+03	2.75e+06	3.00e+02	9.2e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+06	1.60e+03	1.9e+03	2.95e+06	3.08e+03	9.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.87e+06	1.60e+03	1.2e+03	1.91e+06	3.08e+03	6.2e+02
10	OCDF	1.51e+06	4.28e+02	3.5e+03	1.80e+06	6.92e+02	2.6e+03
11	2,3,7,8-TCDD	4.02e+05	1.75e+03	2.3e+02	5.19e+05	8.68e+02	6.0e+02
12	1,2,3,7,8-PeCDD	3.63e+06	7.68e+02	4.7e+03	2.29e+06	2.44e+02	9.4e+03
13	1,2,3,4,7,8-HxCDD	3.30e+06	4.84e+02	6.8e+03	2.62e+06	5.40e+02	4.9e+03
14	1,2,3,6,7,8-HxCDD	3.29e+06	4.84e+02	6.8e+03	2.64e+06	5.40e+02	4.9e+03
15	1,2,3,7,8,9-HxCDD	3.22e+06	4.84e+02	6.6e+03	2.62e+06	5.40e+02	4.9e+03
16	1,2,3,4,6,7,8-HpCDD	1.87e+06	5.08e+02	3.7e+03	1.81e+06	4.64e+02	3.9e+03
17	OCDD	1.37e+06	3.40e+02	4.0e+03	1.50e+06	5.60e+02	2.7e+03
18	13C-2,3,7,8-TCDF	4.93e+06	5.69e+03	8.7e+02	6.19e+06	3.28e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	9.68e+06	3.40e+02	2.8e+04	5.99e+06	6.80e+02	8.8e+03
20	13C-2,3,4,7,8-PeCDF	9.51e+06	3.40e+02	2.8e+04	5.99e+06	6.80e+02	8.8e+03
21	13C-1,2,3,4,7,8-HxCDF	4.57e+06	6.04e+02	7.6e+03	8.70e+06	9.80e+02	8.9e+03
22	13C-1,2,3,6,7,8-HxCDF	4.93e+06	6.04e+02	8.2e+03	9.49e+06	9.80e+02	9.7e+03
23	13C-2,3,4,6,7,8-HxCDF	4.96e+06	6.04e+02	8.2e+03	9.91e+06	9.80e+02	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	3.80e+06	6.04e+02	6.3e+03	7.54e+06	9.80e+02	7.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.75e+06	1.65e+03	1.7e+03	6.25e+06	2.98e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.81e+06	1.65e+03	1.1e+03	4.06e+06	2.98e+03	1.4e+03
27	13C-2,3,7,8-TCDD	3.82e+06	4.67e+03	8.2e+02	4.84e+06	2.28e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	7.56e+06	5.96e+02	1.3e+04	4.76e+06	6.24e+02	7.6e+03
29	13C-1,2,3,4,7,8-HxCDD	6.91e+06	1.18e+03	5.9e+03	5.40e+06	6.56e+02	8.2e+03
30	13C-1,2,3,6,7,8-HxCDD	6.33e+06	1.18e+03	5.4e+03	5.05e+06	6.56e+02	7.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.67e+06	4.60e+02	1.0e+04	4.27e+06	3.32e+02	1.3e+04
32	13C-OCDD	2.48e+06	6.04e+02	4.1e+03	2.78e+06	2.88e+02	9.7e+03
33	13C-1,2,3,4-TCDD	8.63e+06	4.67e+03	1.8e+03	1.09e+07	2.28e+03	4.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.05e+07	1.18e+03	8.9e+03	8.26e+06	6.56e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	4.08e+06	1.62e+03	2.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.748e+03 + 8.680e+02) \times 2000}{(3.822e+06 + 4.841e+06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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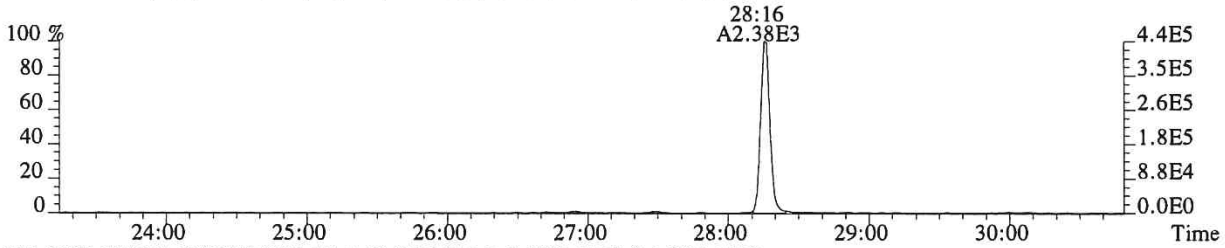
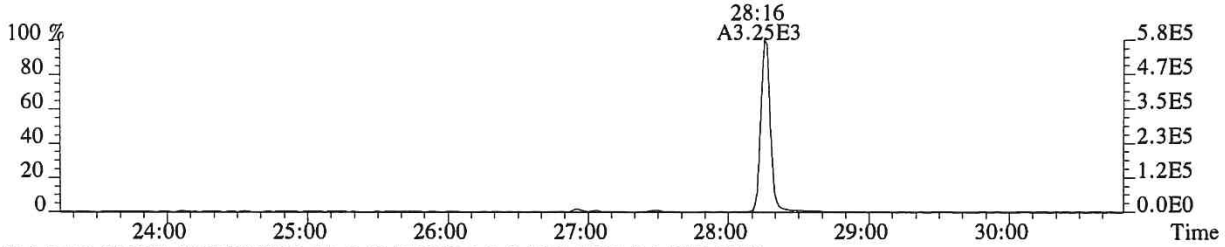
File:P519144 #1-538 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03

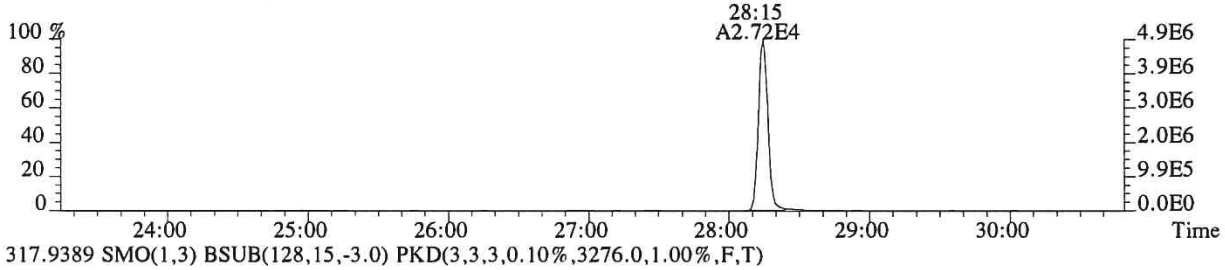
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



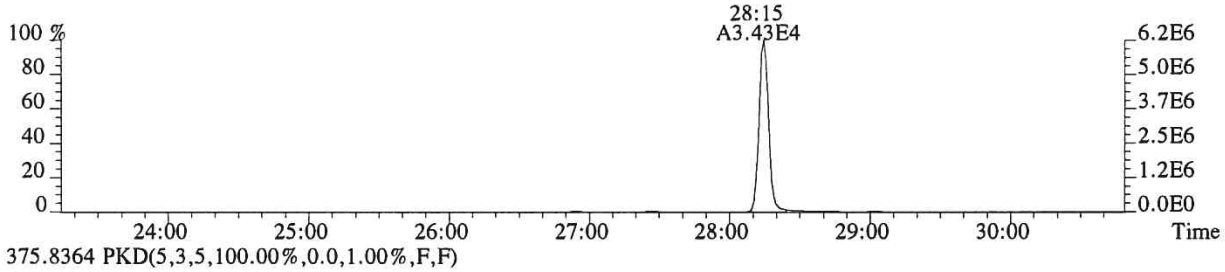
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



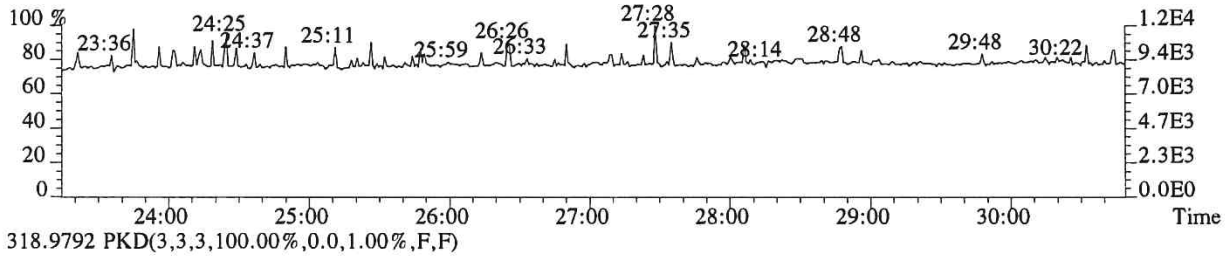
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5692.0,1.00%,F,T)



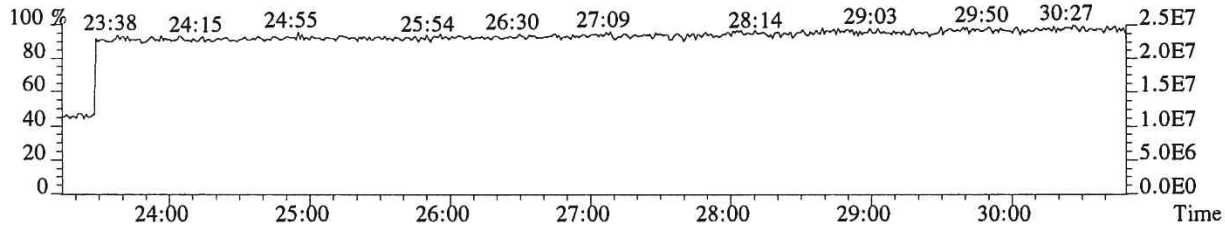
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3276.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

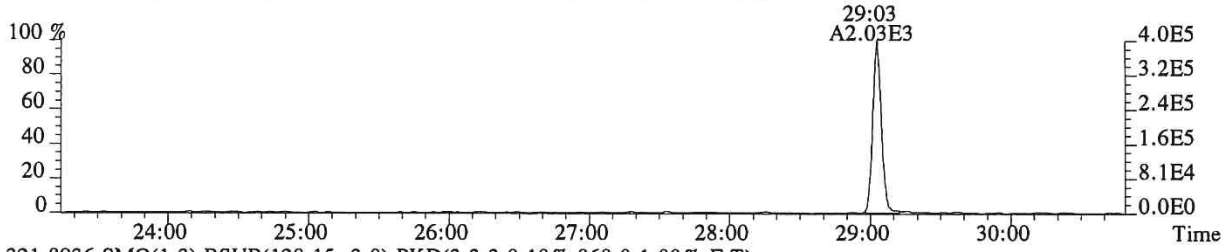


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

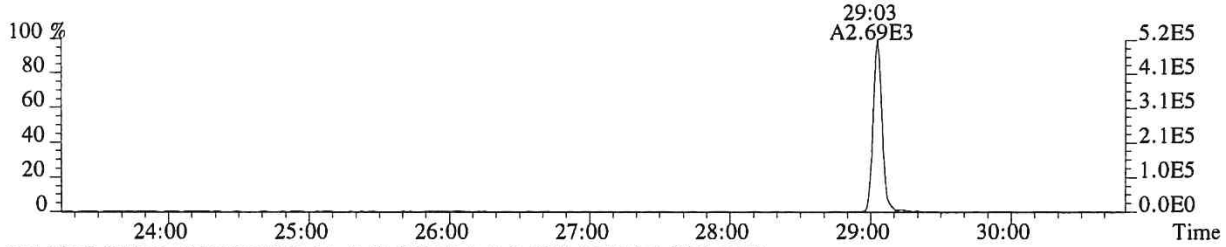


011346

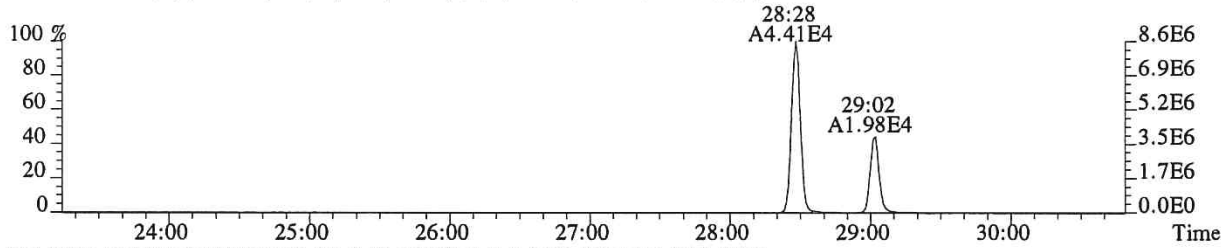
File:P519144 #1-538 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1748.0,1.00%,F,T)



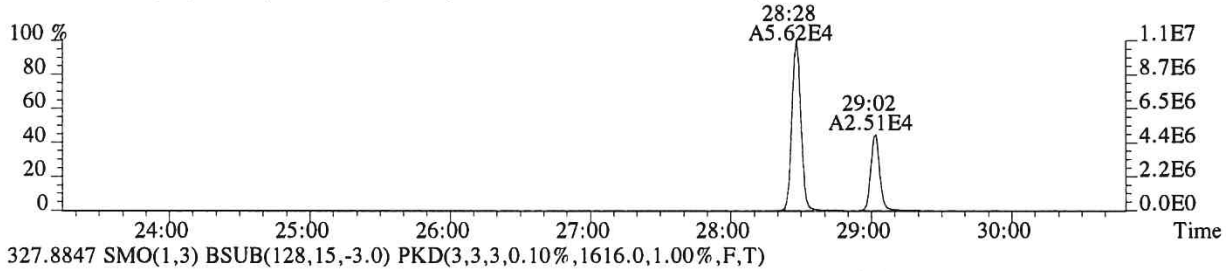
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



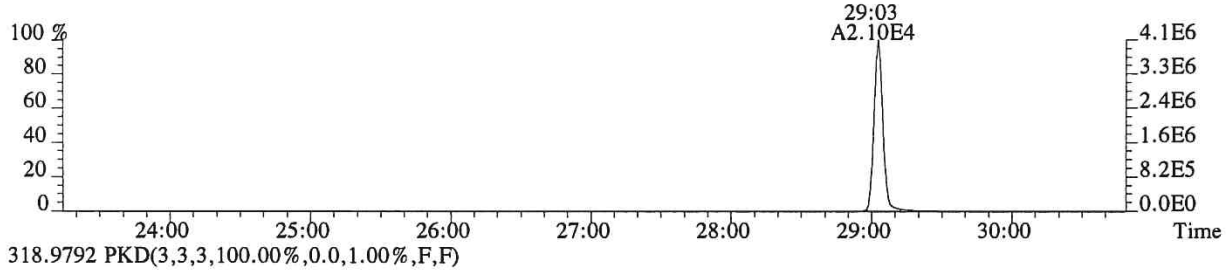
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4672.0,1.00%,F,T)



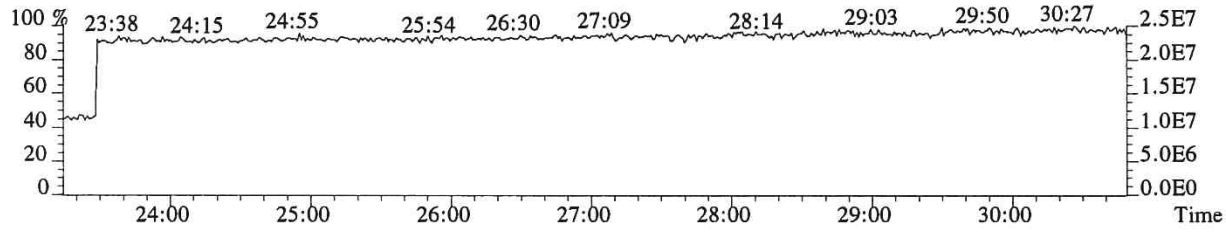
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1616.0,1.00%,F,T)

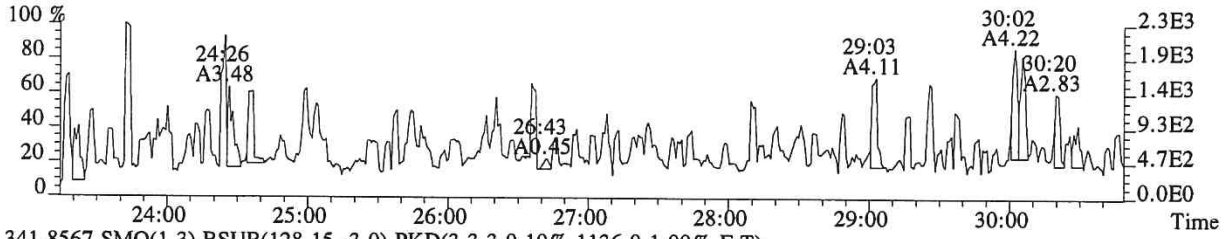


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

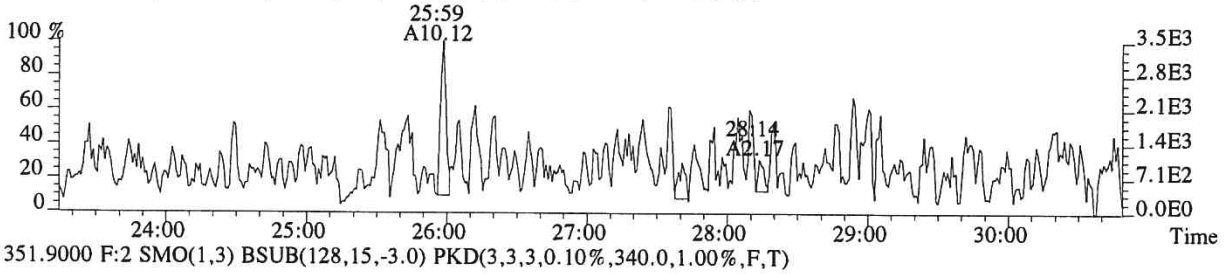


011347

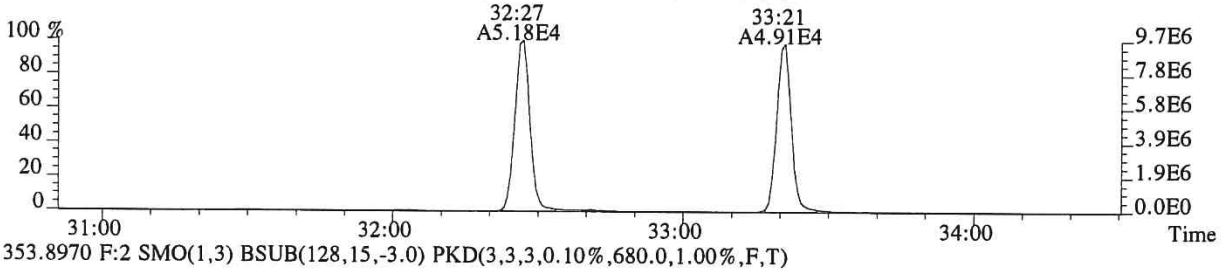
File:P519144 #1-538 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



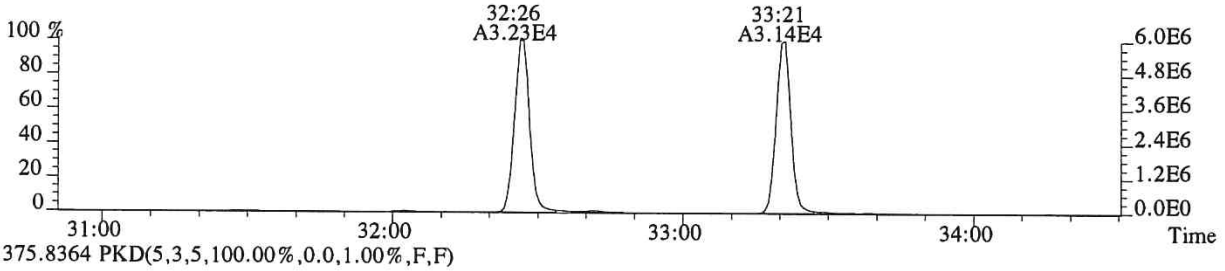
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



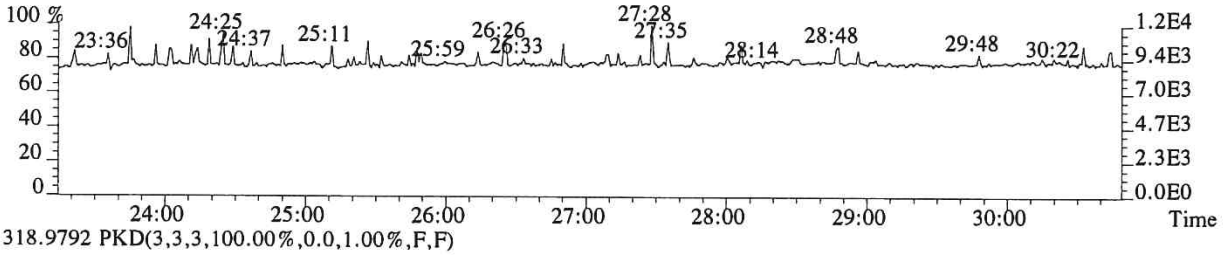
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



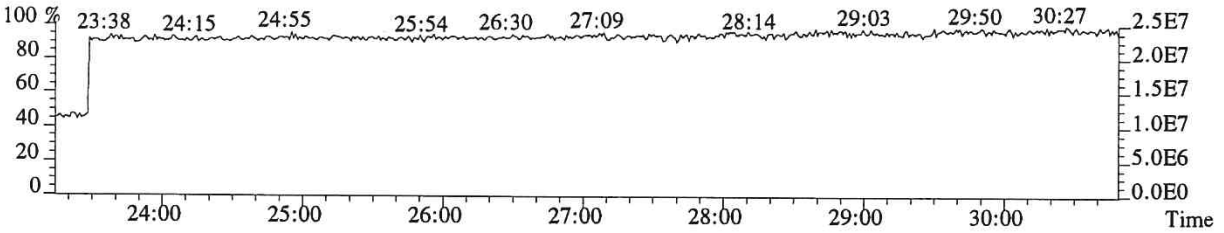
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

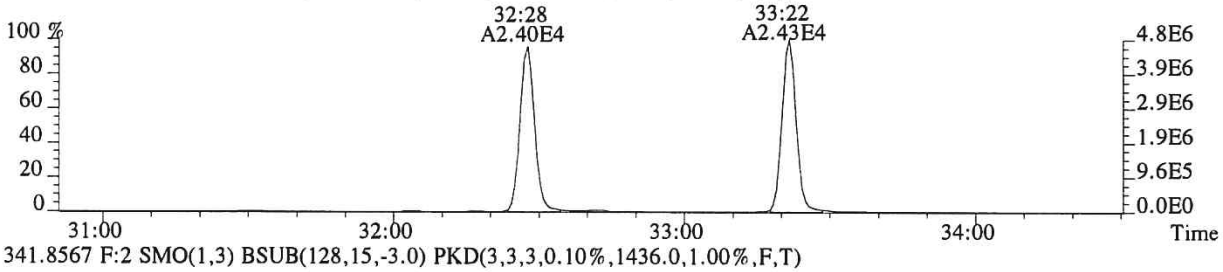


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

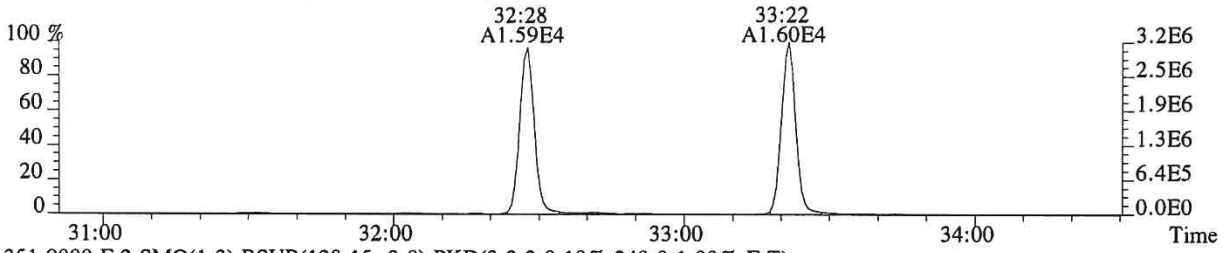


011348

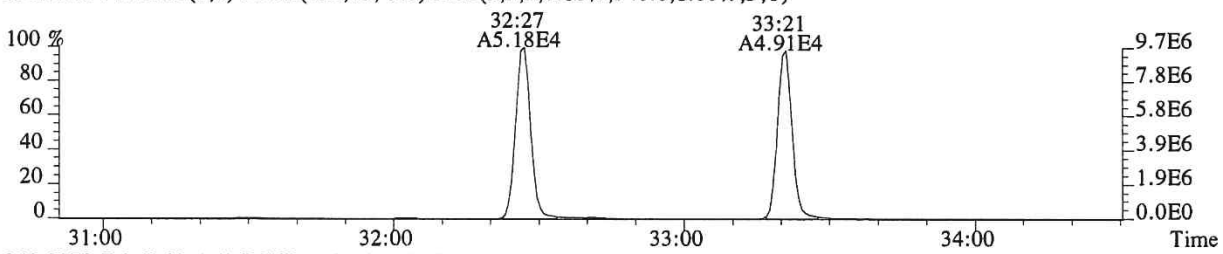
File:P519144 #1-330 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



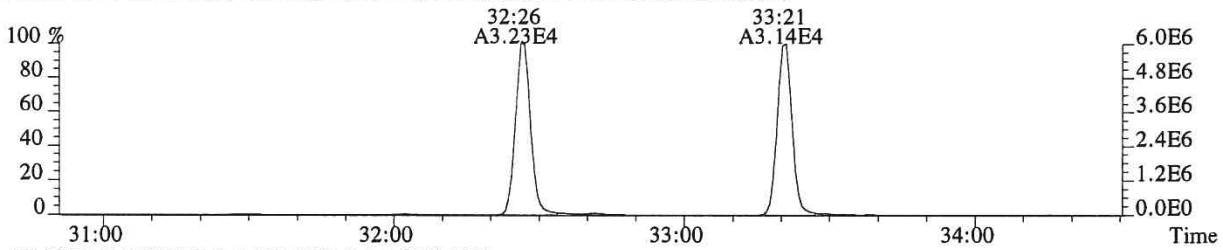
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



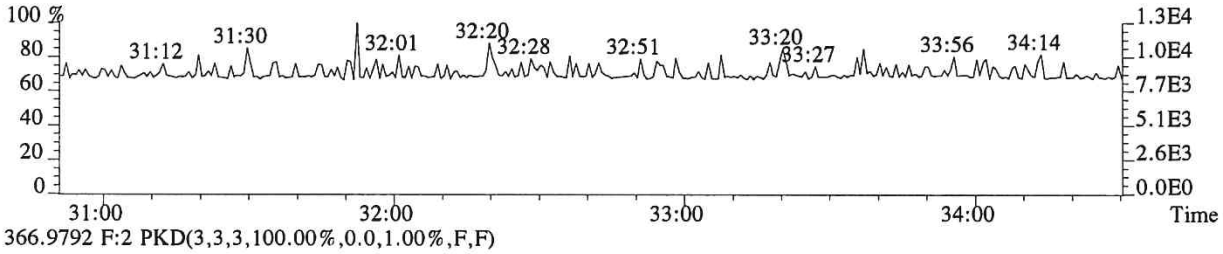
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



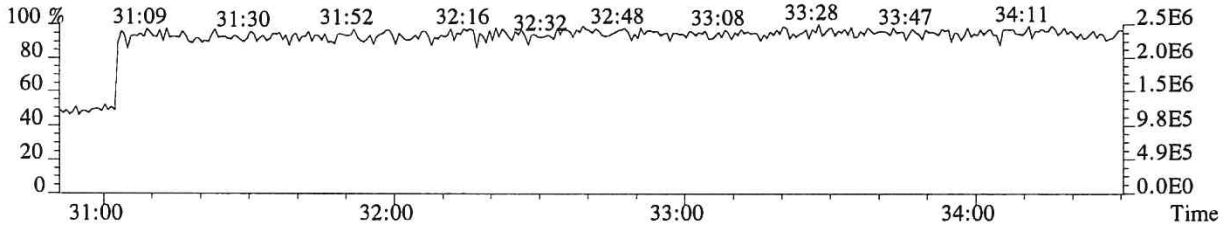
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

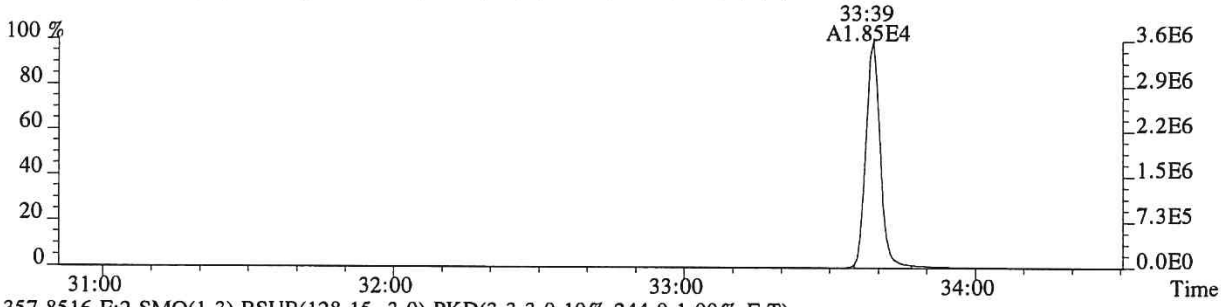


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

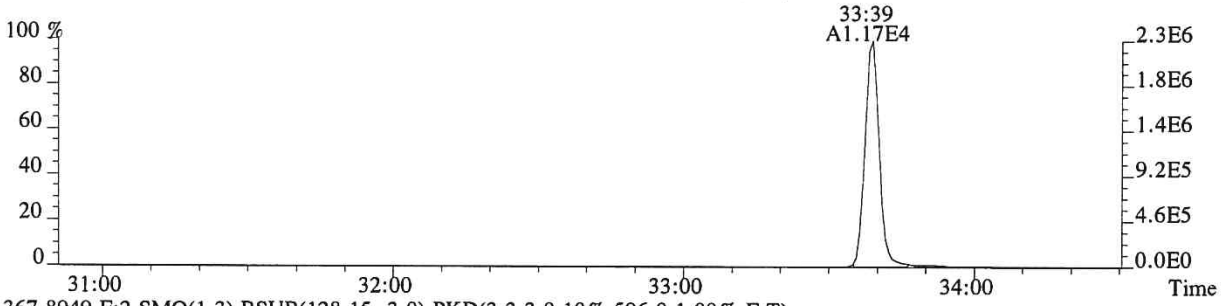


011349

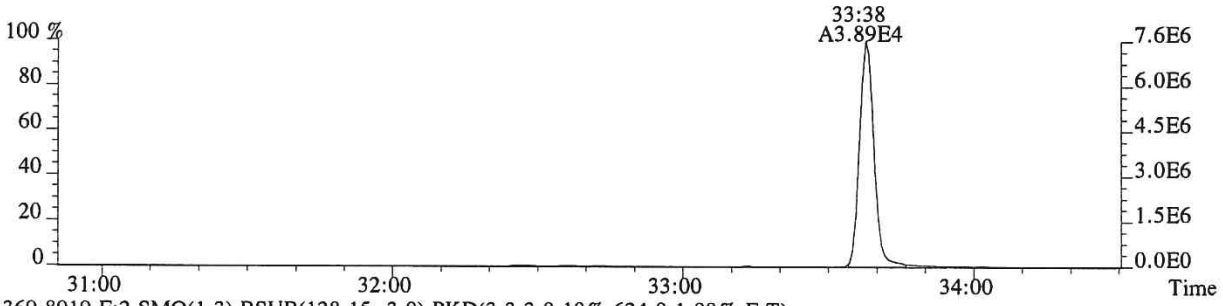
File:P519144 #1-330 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



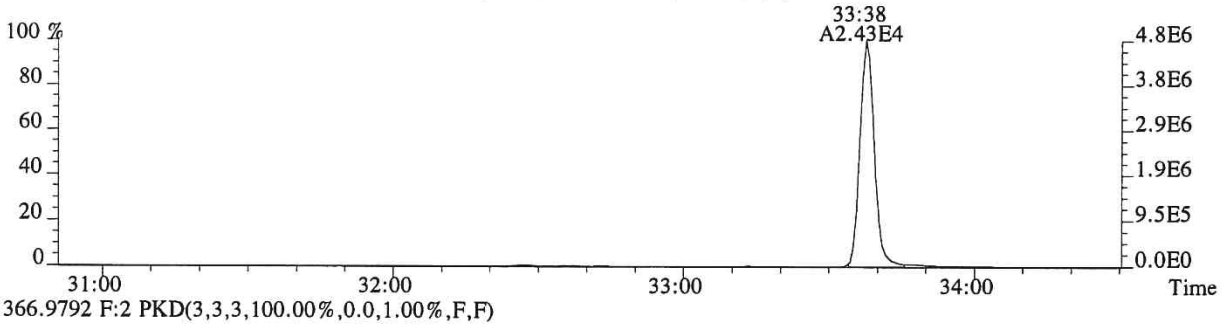
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



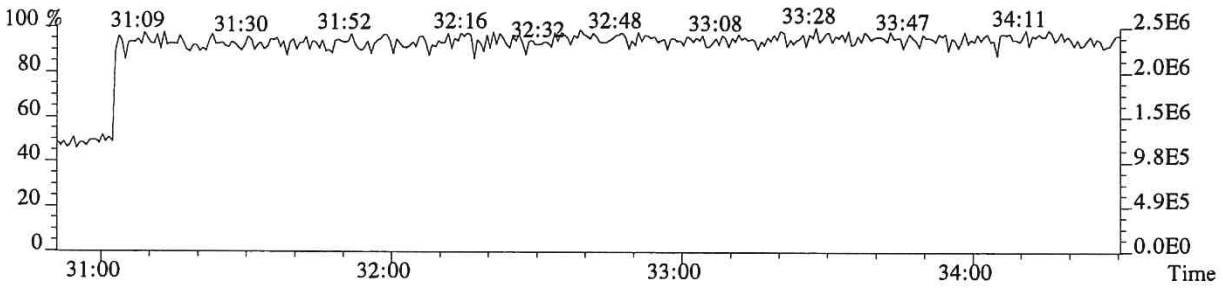
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)

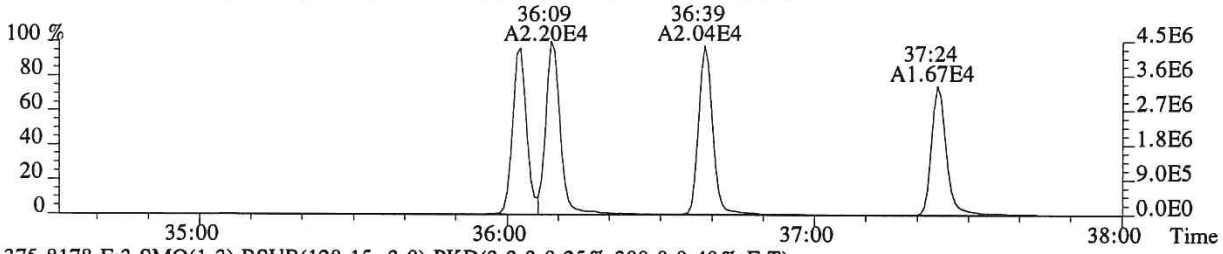


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

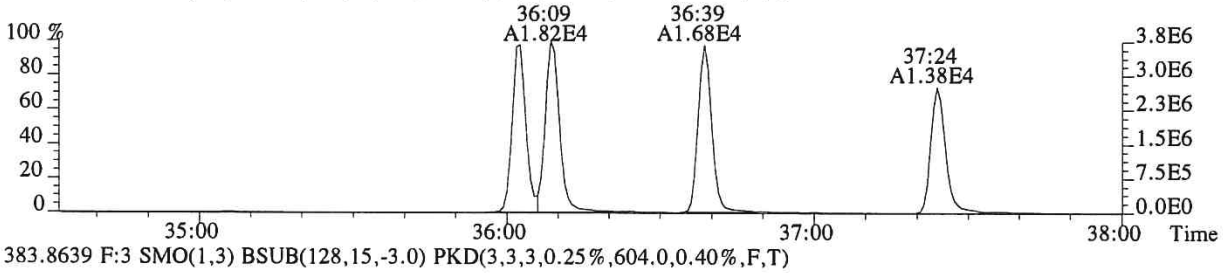


File:P519144 #1-312 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03

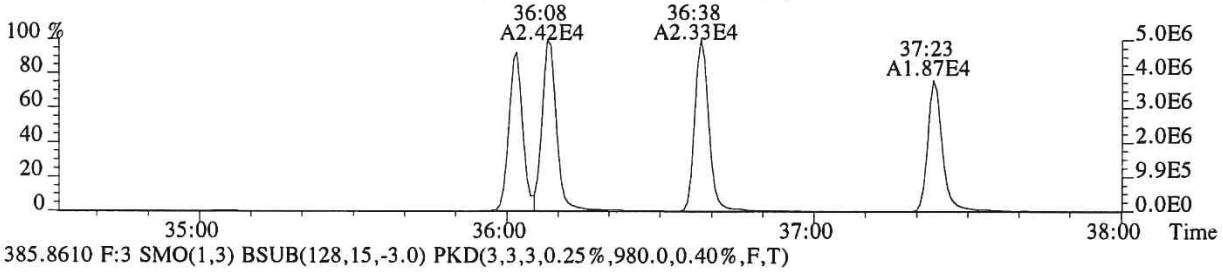
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



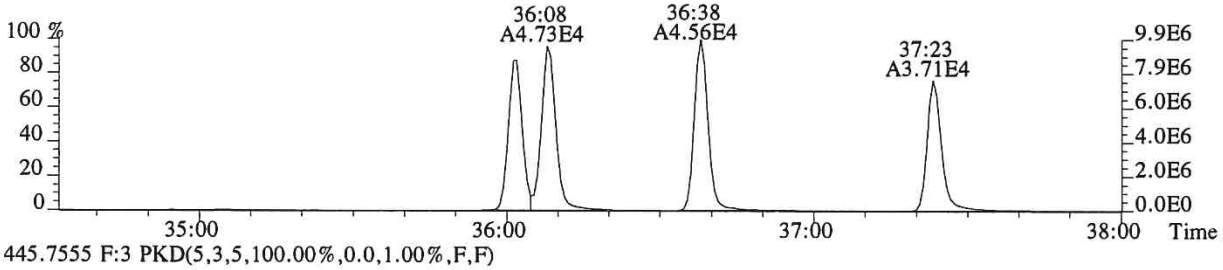
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



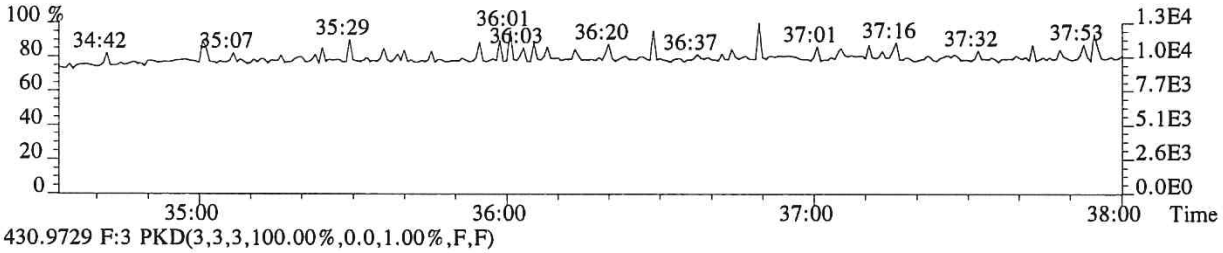
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



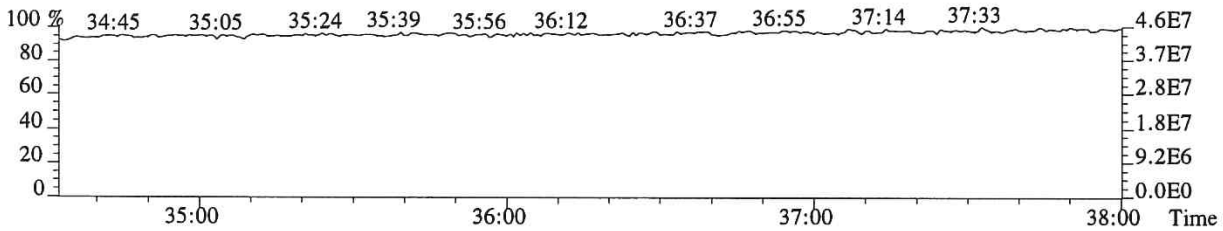
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



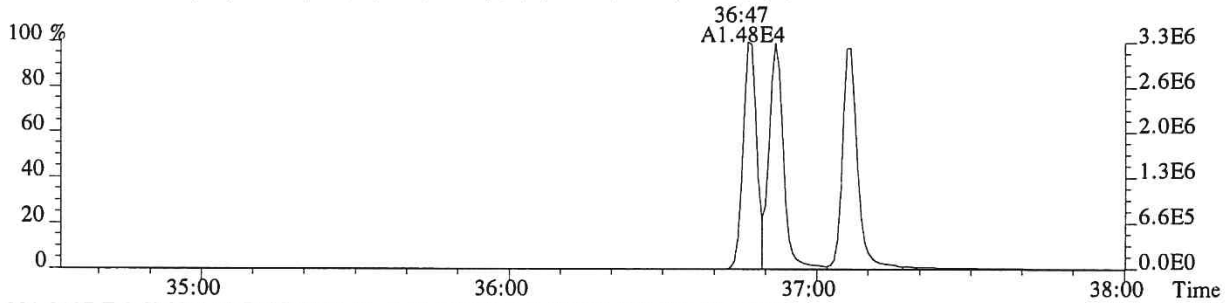
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



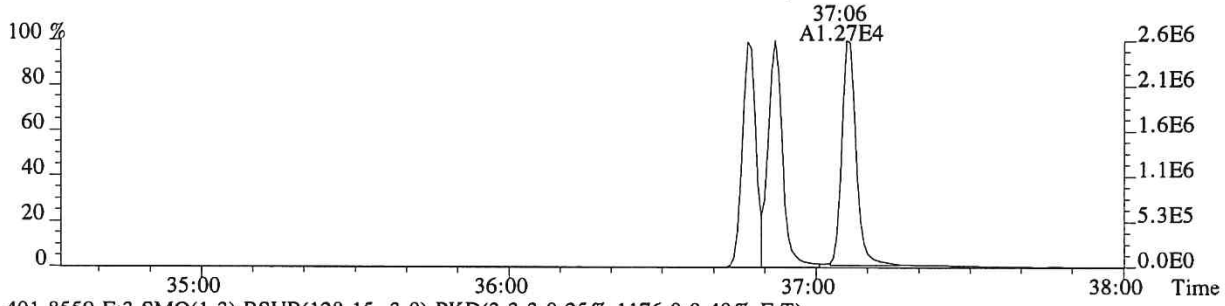
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



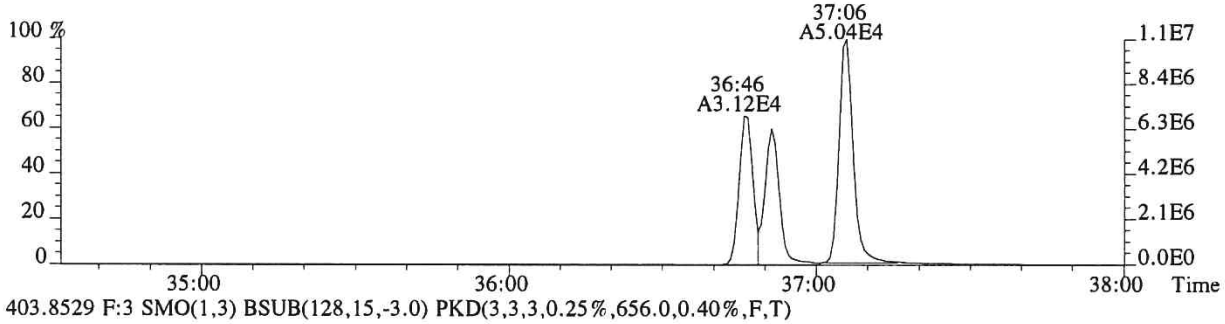
File:P519144 #1-312 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



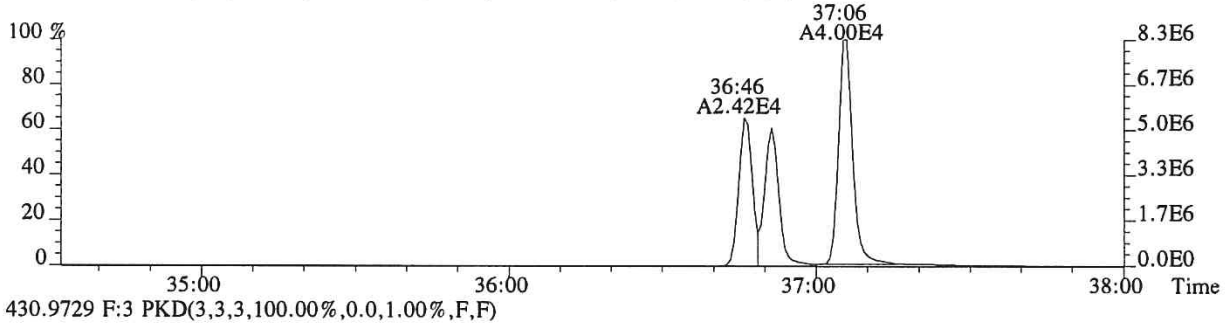
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



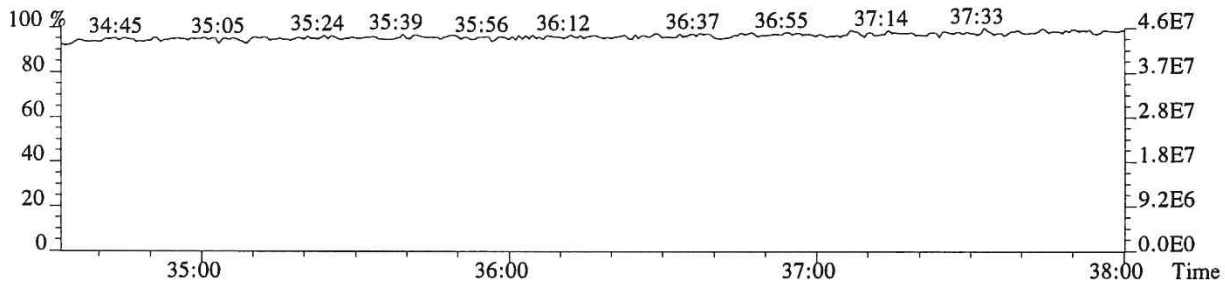
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)

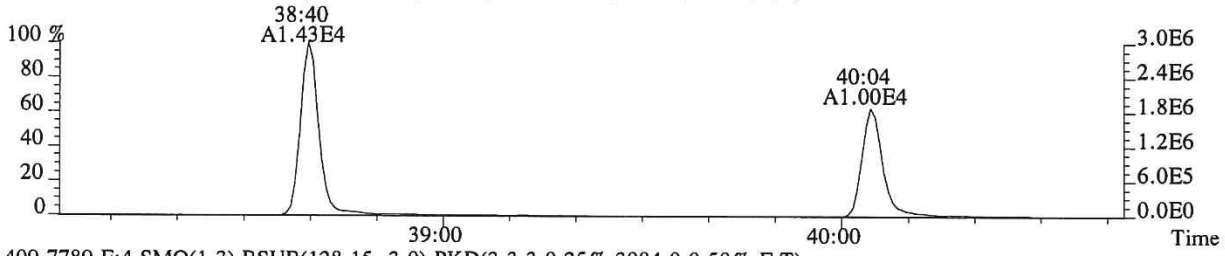


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

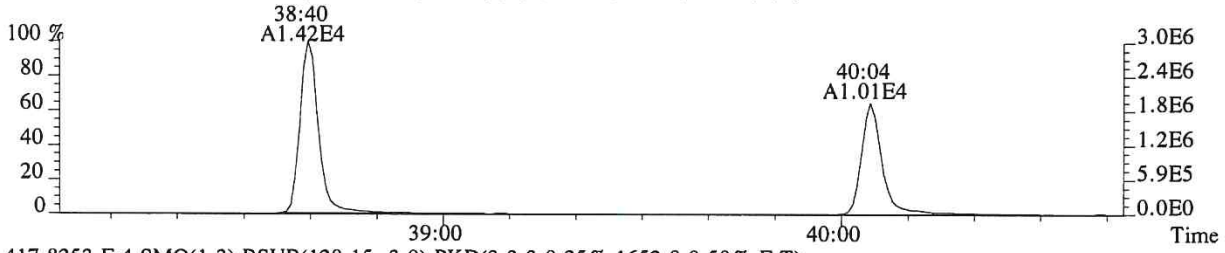


011352

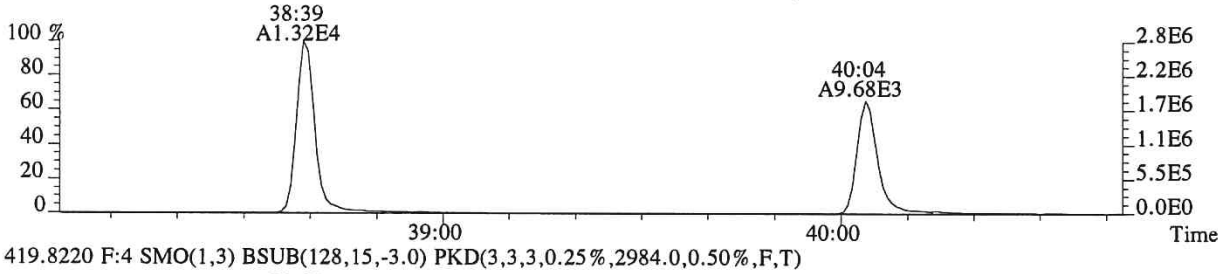
File:P519144 #1-241 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.50%,F,T)



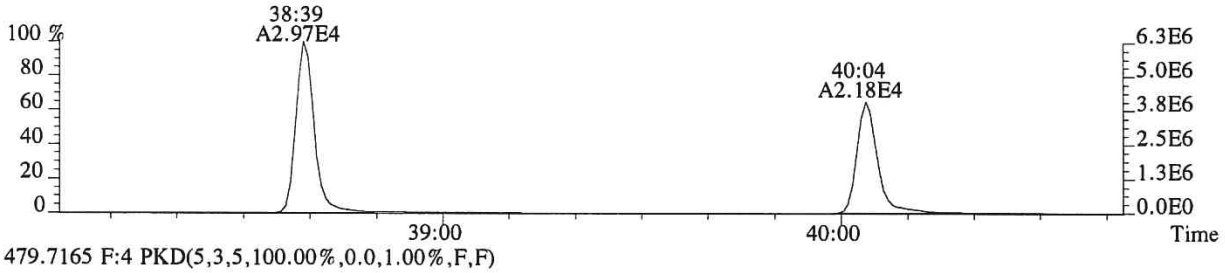
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.50%,F,T)



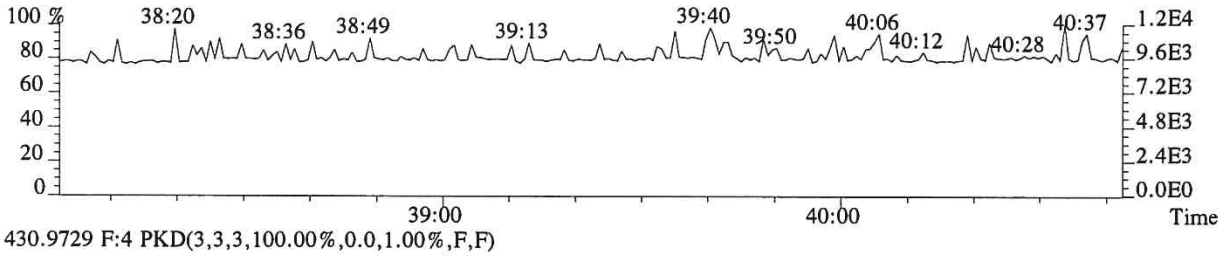
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.50%,F,T)



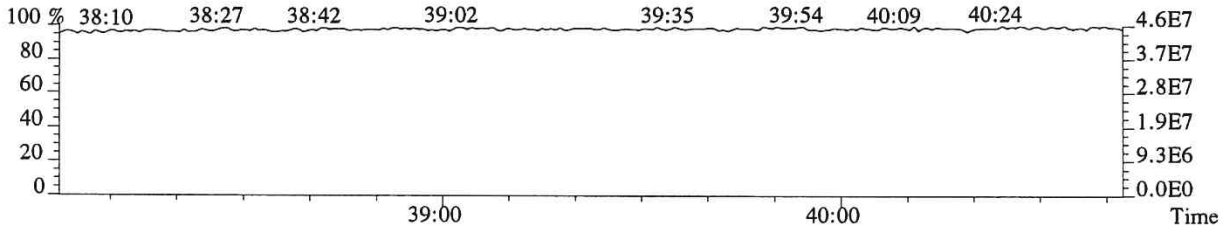
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

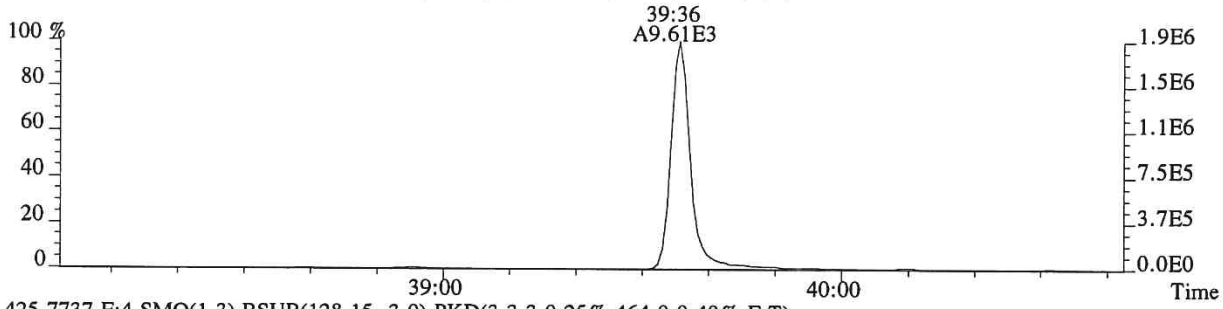


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

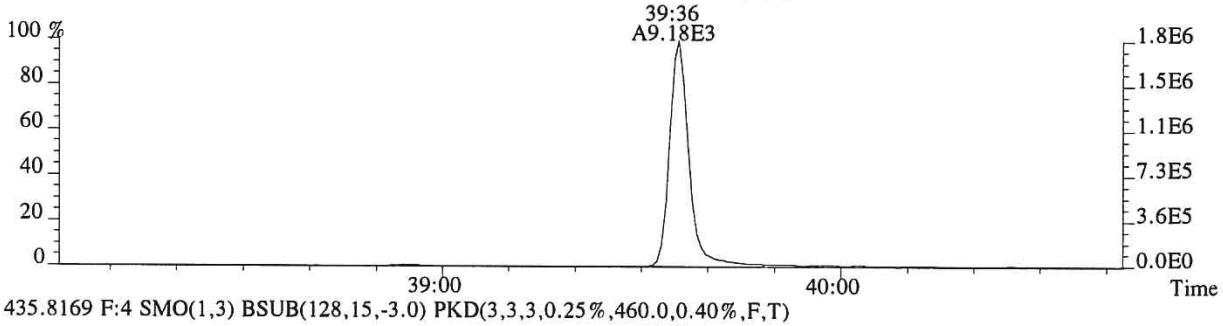


011353

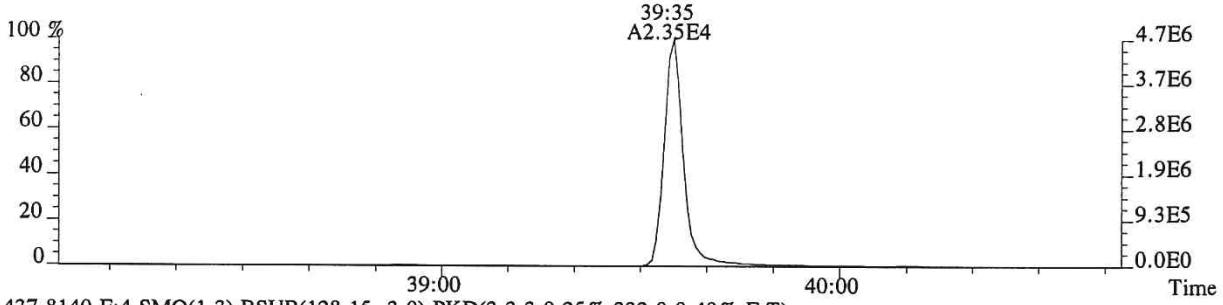
File:P519144 #1-241 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



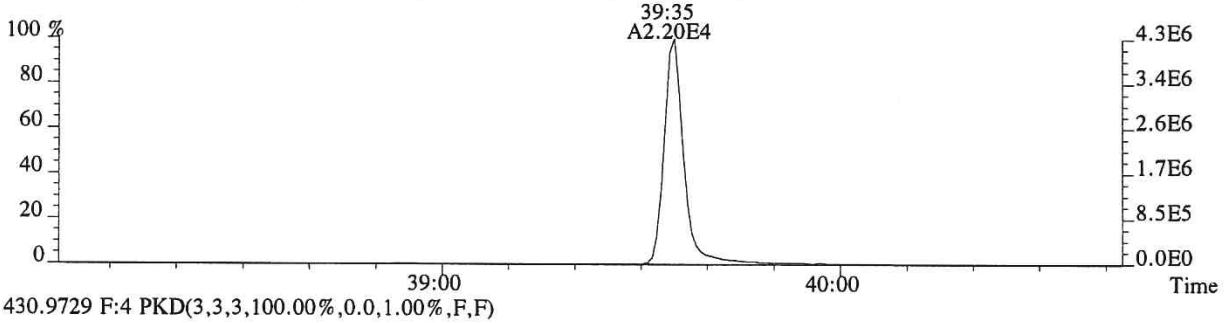
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



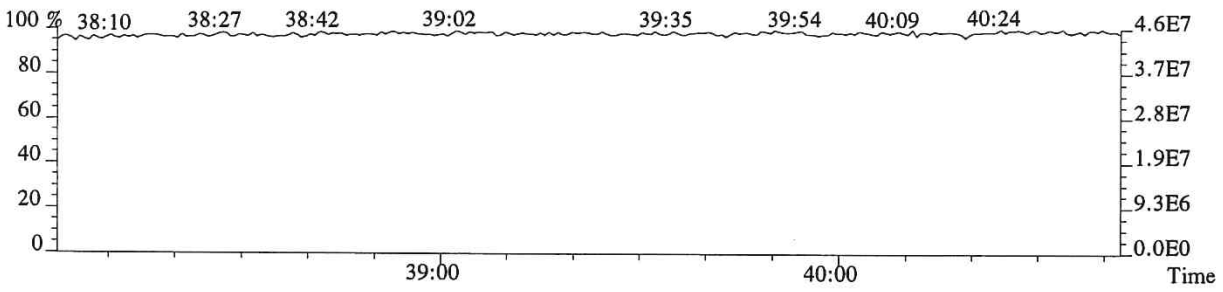
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)

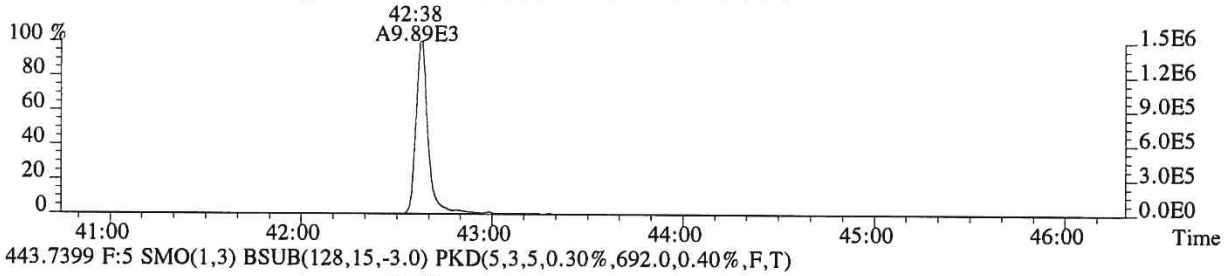


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

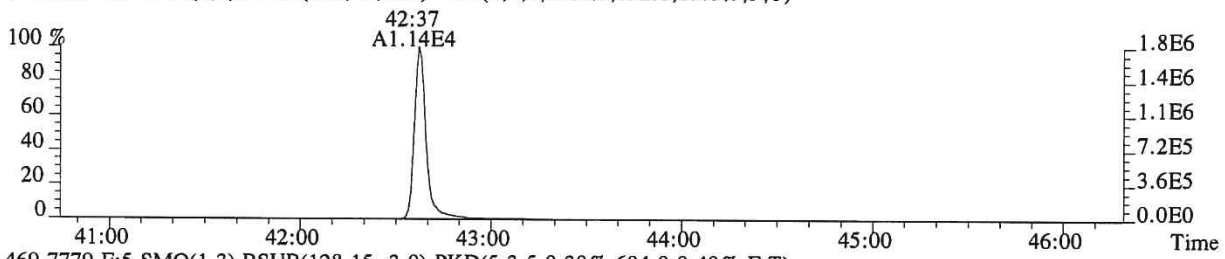


011354

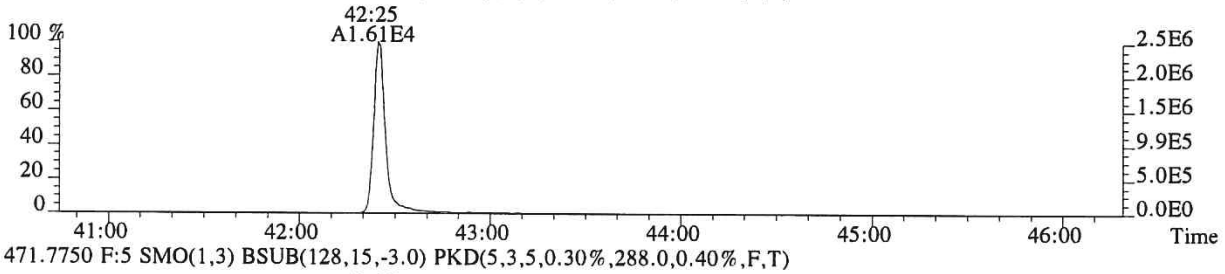
File:P519144 #1-502 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



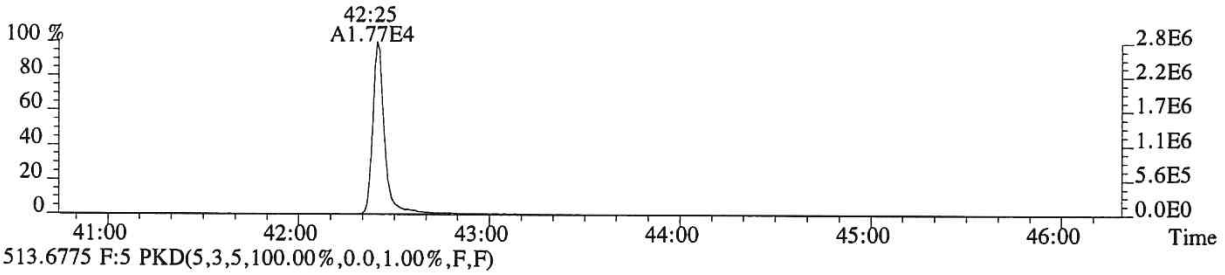
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



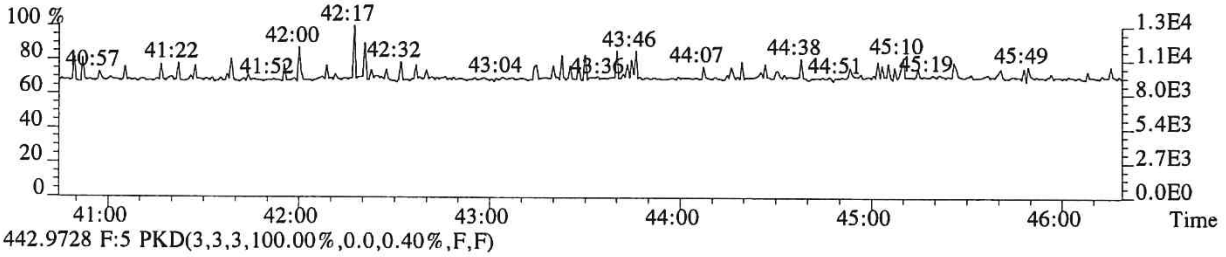
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



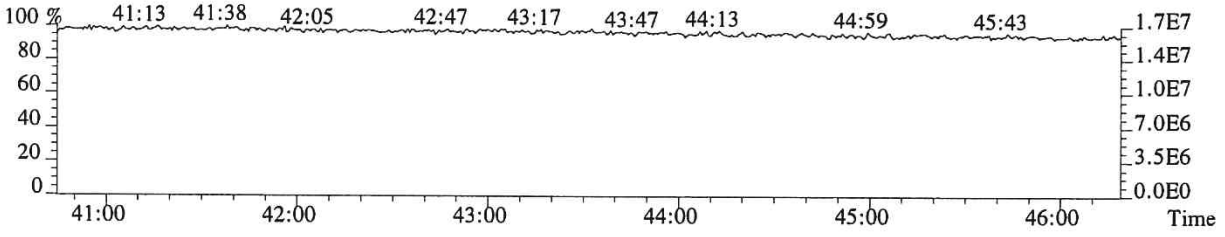
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



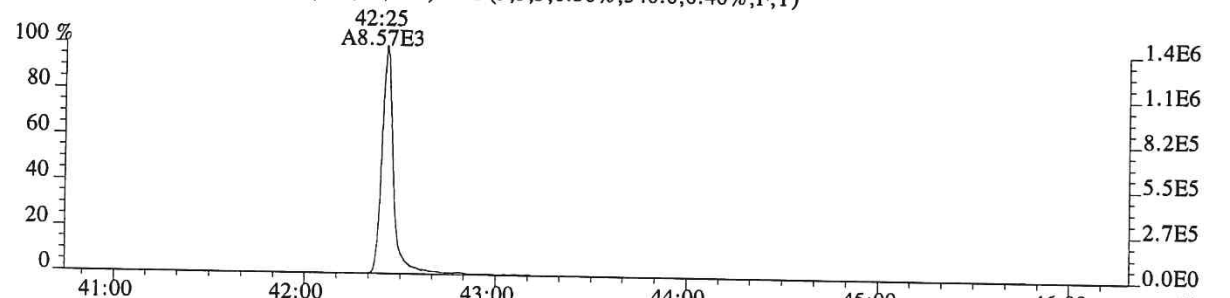
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



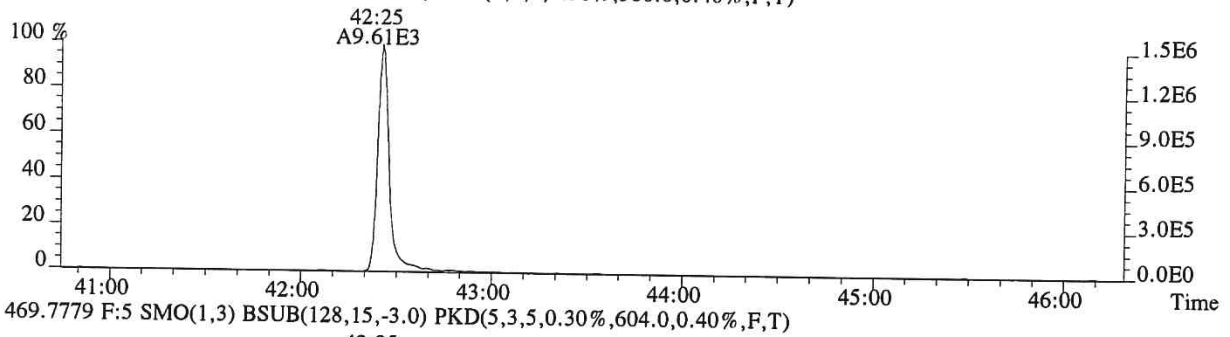
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



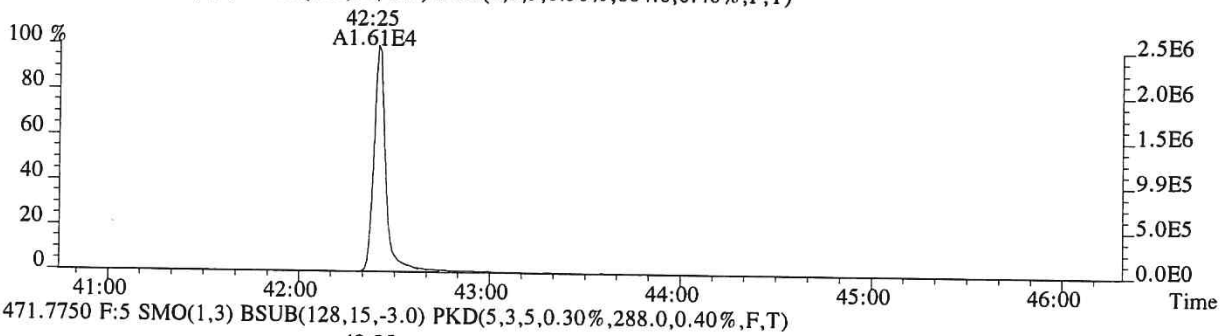
File:P519144 #1-502 Acq: 2-DEC-2018 15:05:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800469-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



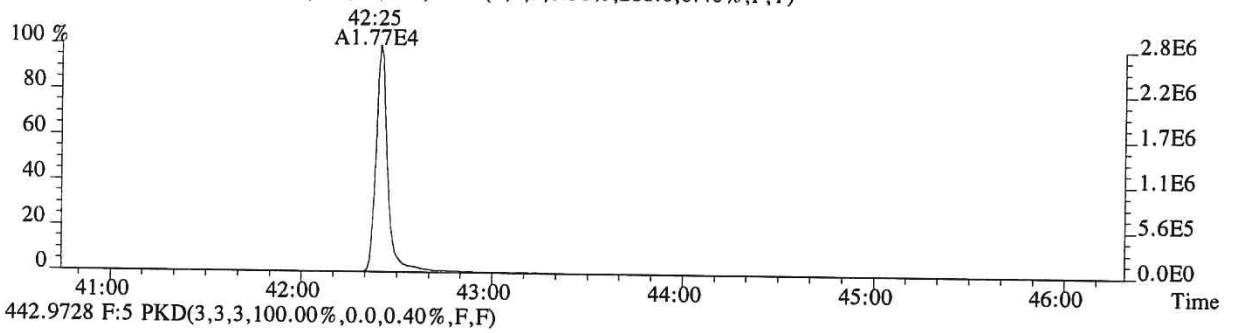
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



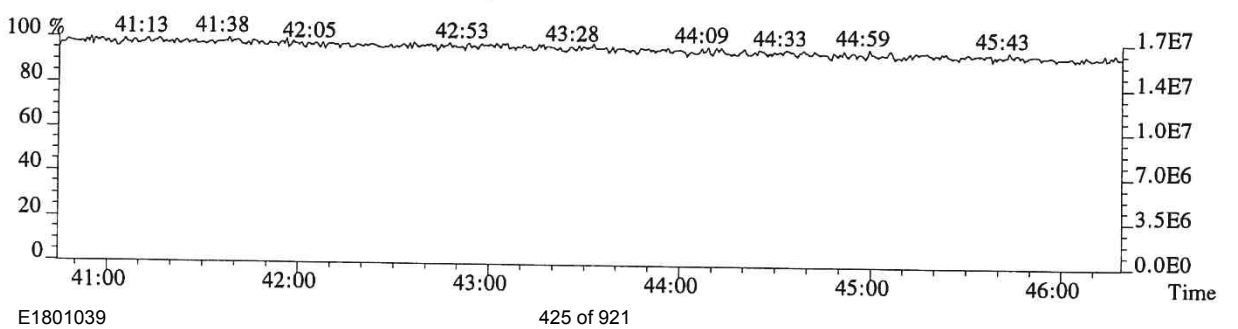
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011356

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #11 Filename P519371 Samp: 1 Inj: 1 Acquired: 12-DEC-18 03:51:29
Processed: 13-DEC-18 09:30:57 Sample ID: EQ1800498-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	8.122e+00	5.399e+00	1.50	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	8.989e+00	8.781e+00	1.02	yes	yes	1.025
17	Unk	OCDD	42:29	1.783e+01	1.794e+01	0.99	yes	yes	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	2.003e+04	2.551e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	4.653e+04	2.904e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	4.708e+04	2.928e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	2.268e+04	4.329e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:53	2.662e+04	5.367e+04	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.459e+04	4.623e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	2.363e+04	4.583e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.757e+04	4.037e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	1.647e+04	3.788e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	9.394e+03	1.225e+04	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:18	3.485e+04	2.143e+04	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	3.285e+04	2.584e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	3.208e+04	2.550e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	3.617e+04	3.428e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:29	3.089e+04	3.419e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	2.439e+04	3.080e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	3.791e+04	2.938e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	7.637e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #11 Filename P519371 Samp: 1 Inj: 1 Acquired: 12-DEC-18 03:51:29
Processed: 13-DEC-18 09:30:57 LAB. ID: EQ1800498-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	3.04e+02	*	*	5.76e+02	*
2	1,2,3,7,8-PeCDF	*	2.52e+02	*	*	7.68e+02	*
3	2,3,4,7,8-PeCDF	*	2.52e+02	*	*	7.68e+02	*
4	1,2,3,4,7,8-HxCDF	*	3.00e+02	*	*	2.80e+02	*
5	1,2,3,6,7,8-HxCDF	*	3.00e+02	*	*	2.80e+02	*
6	2,3,4,6,7,8-HxCDF	*	3.00e+02	*	*	2.80e+02	*
7	1,2,3,7,8,9-HxCDF	*	3.00e+02	*	*	2.80e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	2.32e+02	*	*	2.68e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	2.32e+02	*	*	2.68e+02	*
10	OCDF	*	2.72e+02	*	*	2.84e+02	*
11	2,3,7,8-TCDD	*	1.17e+03	*	*	4.76e+02	*
12	1,2,3,7,8-PeCDD	2.31e+03	5.28e+02	4.4e+00	1.40e+03	2.68e+02	5.2e+00
13	1,2,3,4,7,8-HxCDD	*	2.28e+02	*	*	1.92e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.28e+02	*	*	1.92e+02	*
15	1,2,3,7,8,9-HxCDD	*	2.28e+02	*	*	1.92e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.53e+03	2.60e+02	5.9e+00	1.47e+03	1.52e+02	9.7e+00
17	OCDD	2.95e+03	2.76e+02	1.1e+01	2.73e+03	3.68e+02	7.4e+00
18	13C-2,3,7,8-TCDF	3.48e+06	3.55e+03	9.8e+02	4.46e+06	2.16e+03	2.1e+03
19	13C-1,2,3,7,8-PeCDF	8.43e+06	4.08e+02	2.1e+04	5.29e+06	1.08e+03	4.9e+03
20	13C-2,3,4,7,8-PeCDF	9.00e+06	4.08e+02	2.2e+04	5.58e+06	1.08e+03	5.2e+03
21	13C-1,2,3,4,7,8-HxCDF	4.59e+06	4.56e+02	1.0e+04	8.97e+06	7.16e+02	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	5.04e+06	4.56e+02	1.1e+04	9.78e+06	7.16e+02	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	4.80e+06	4.56e+02	1.1e+04	9.19e+06	7.16e+02	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	4.10e+06	4.56e+02	9.0e+03	7.88e+06	7.16e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.19e+06	2.38e+03	1.3e+03	7.24e+06	2.82e+03	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.55e+06	2.38e+03	1.1e+03	5.72e+06	2.82e+03	2.0e+03
27	13C-2,3,7,8-TCDD	1.73e+06	3.75e+03	4.6e+02	2.27e+06	1.56e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	6.38e+06	3.04e+02	2.1e+04	3.99e+06	2.16e+02	1.8e+04
29	13C-1,2,3,4,7,8-HxCDD	6.62e+06	4.88e+02	1.4e+04	5.18e+06	2.80e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	6.01e+06	4.88e+02	1.2e+04	4.85e+06	2.80e+02	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+06	2.56e+02	2.2e+04	5.34e+06	4.08e+02	1.3e+04
32	13C-OCDD	3.37e+06	3.20e+02	1.1e+04	3.71e+06	3.28e+02	1.1e+04
33	13C-1,2,3,4-TCDD	4.44e+06	3.75e+03	1.2e+03	5.58e+06	1.56e+03	3.6e+03
34	13C-1,2,3,7,8,9-HxCDD	6.62e+06	4.88e+02	1.4e+04	5.06e+06	2.80e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.43e+06	4.12e+02	3.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.168e{+}03 + 4.760e{+}02) \times 2000}{(1.728e{+}06 + 2.266e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P519371 Sample:1 Injection:1 Function:2

Acquired: 12-DEC-18 03:51:29 Processed: 13-DEC-18 09:30:57

Mass: 355.8550 357.8520 Tot Response: 1.35e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:20	8.12e+00	5.40e+00 1.50	yes	1.35e+01	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P519371 Sample:1 Injection:1 Function:4

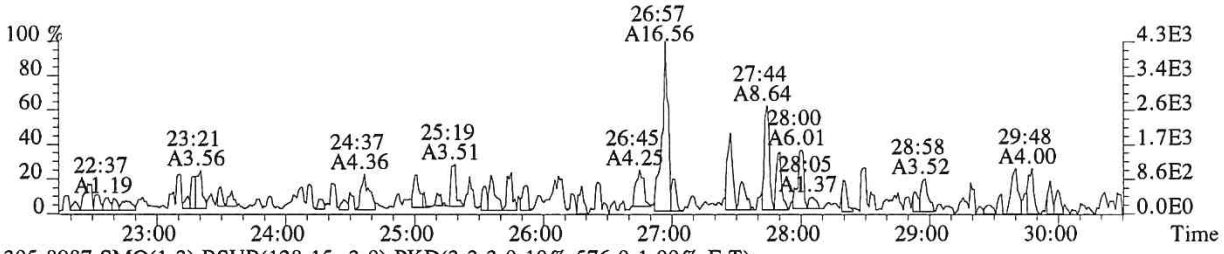
Acquired: 12-DEC-18 03:51:29 Processed: 13-DEC-18 09:30:57

Mass: 423.7770 425.7740 Tot Response: 1.78e+01 RRF: 1.025

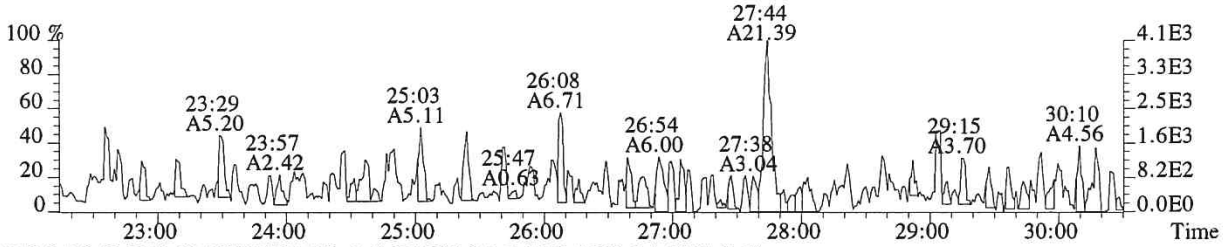
#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:32	8.99e+00	8.78e+00 1.02	yes	1.78e+01	1,2,3,4,6,7,8-HpCDD	y	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

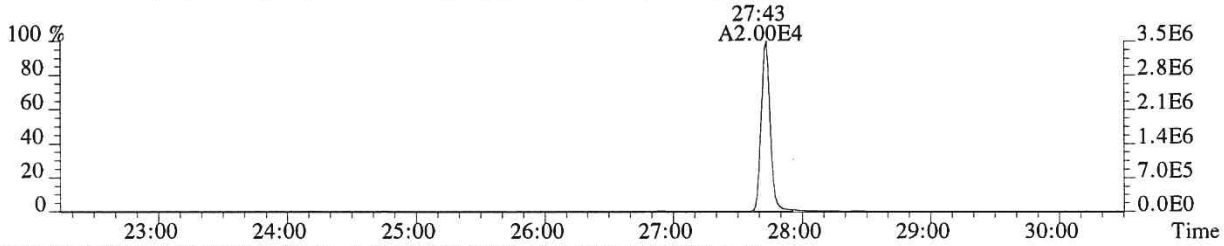
File:P519371 #1-587 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



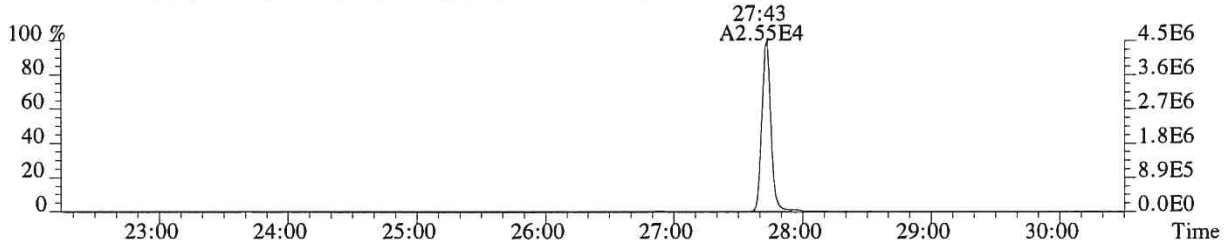
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



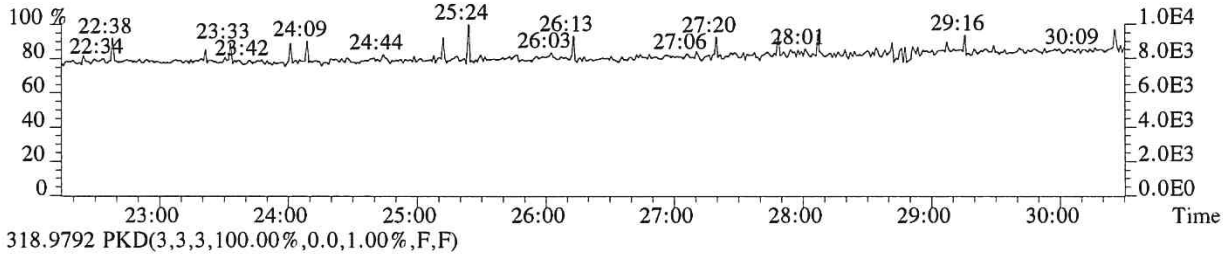
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3552.0,1.00%,F,T)



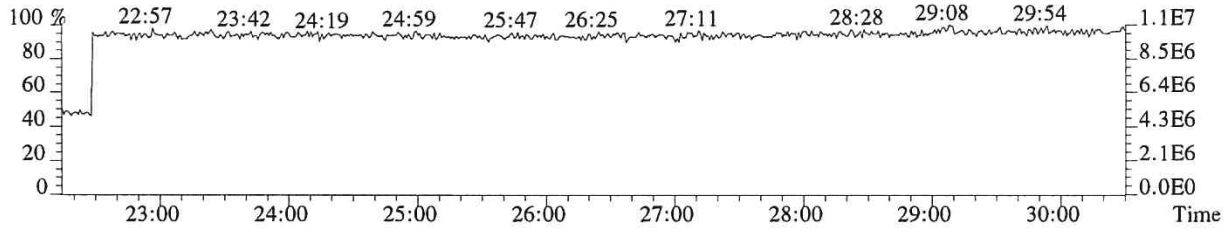
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2156.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

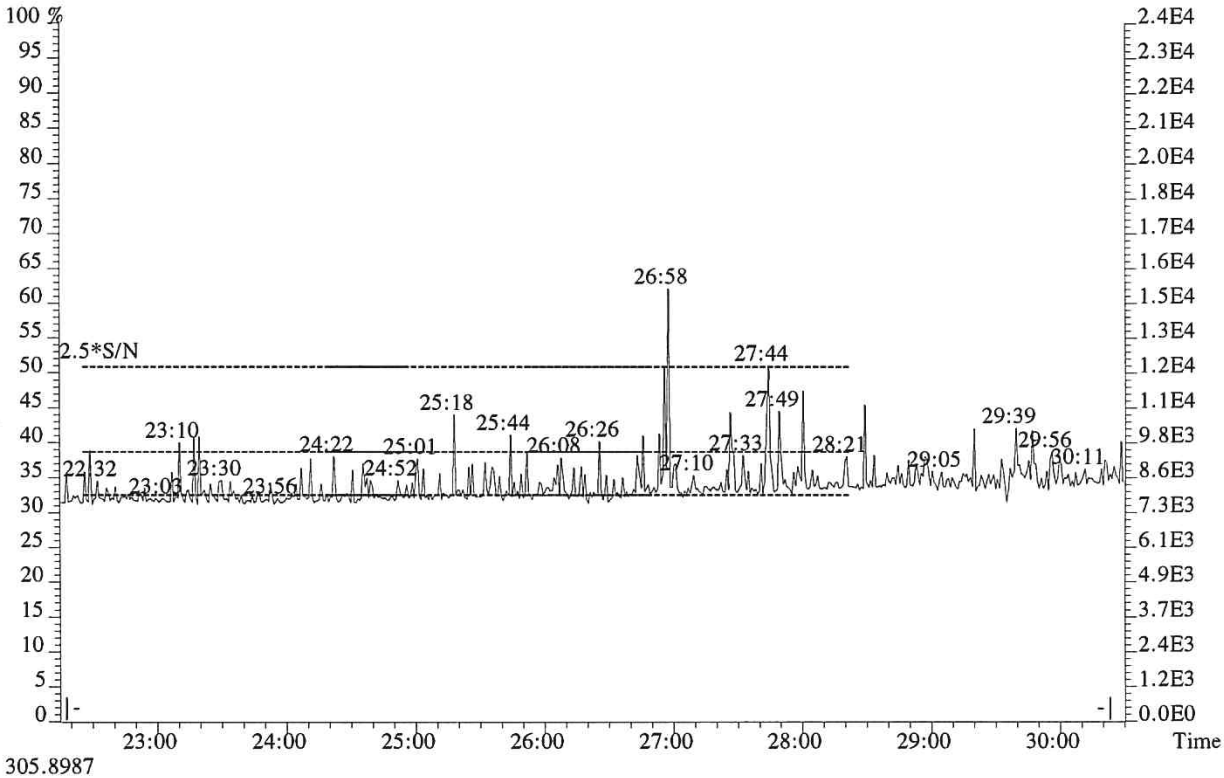


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

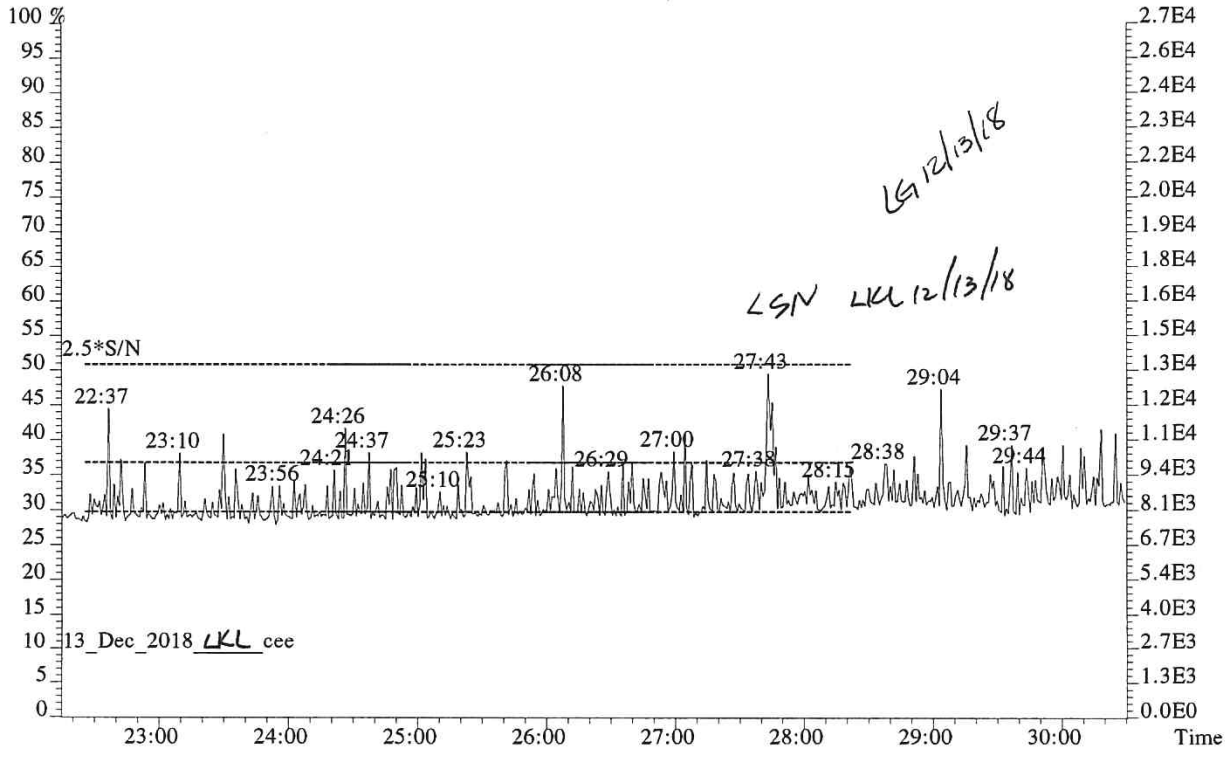


011361

File:P519371 #1-587 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
303.9016

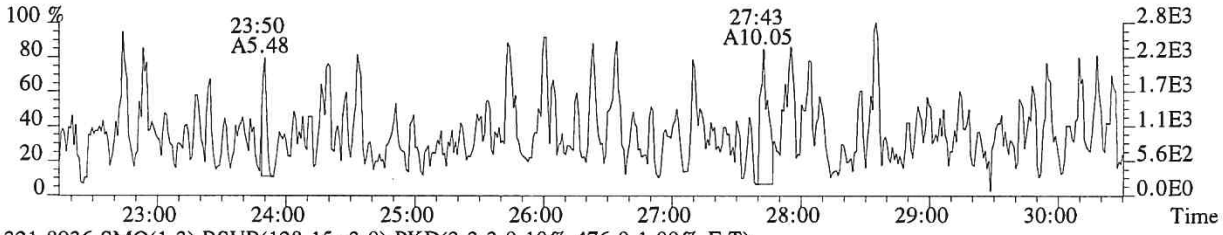


305.8987

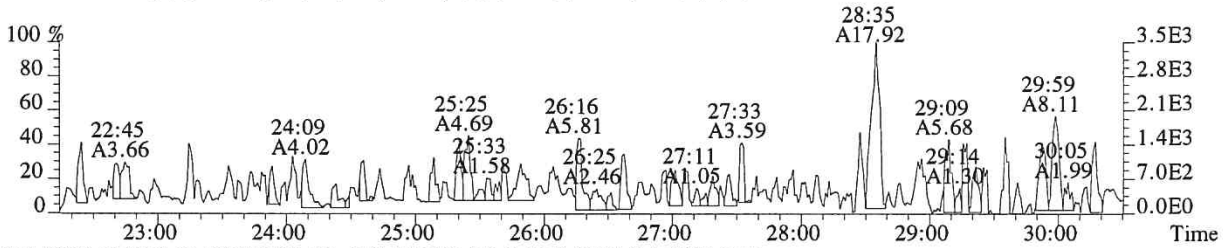


011362

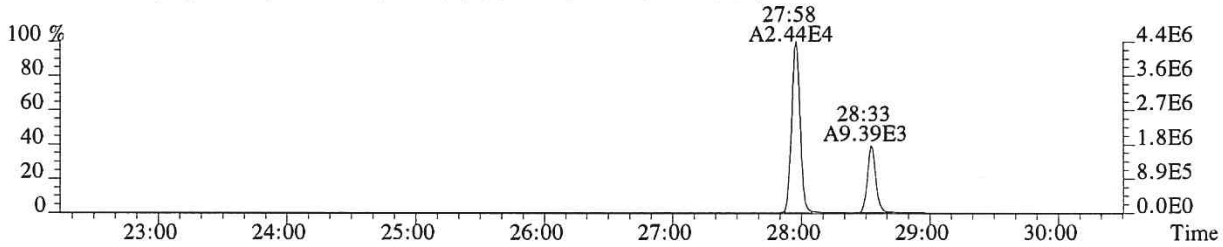
File:P519371 #1-587 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



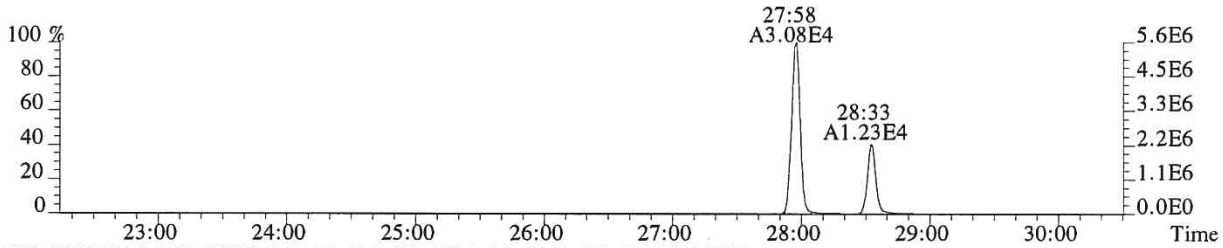
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



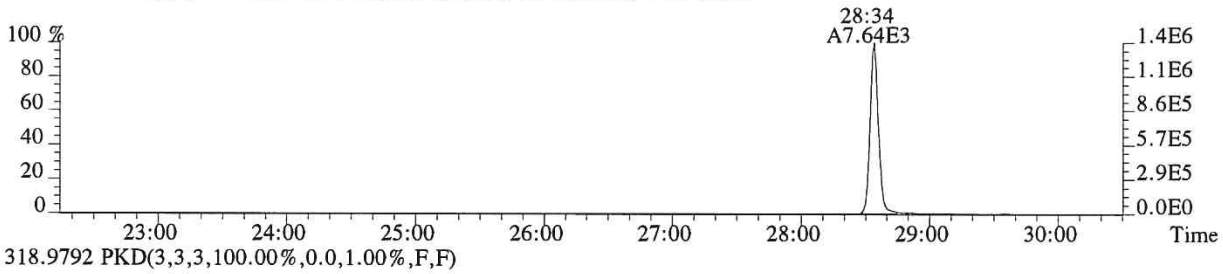
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3748.0,1.00%,F,T)



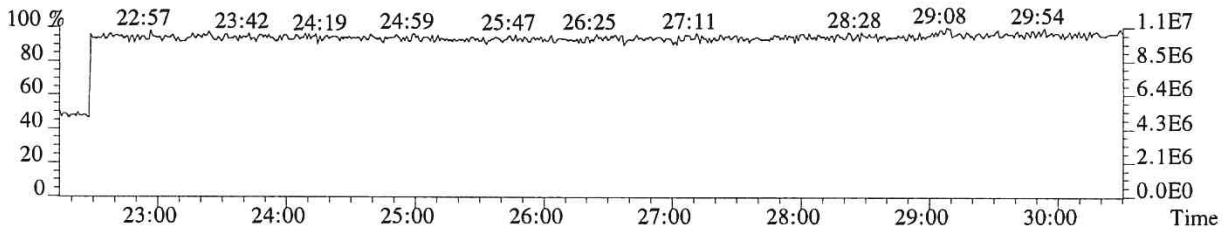
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)

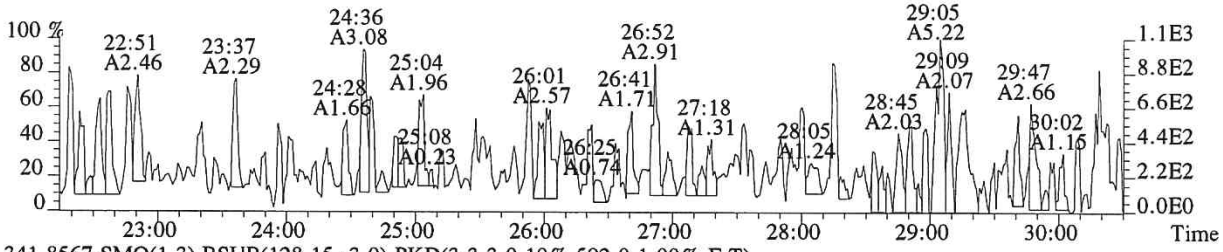


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

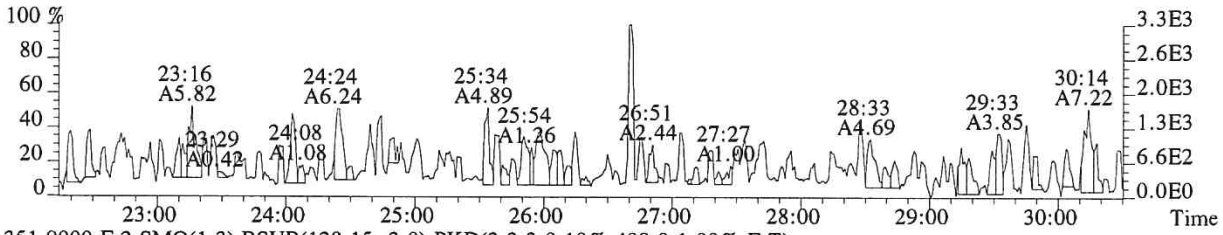


011363

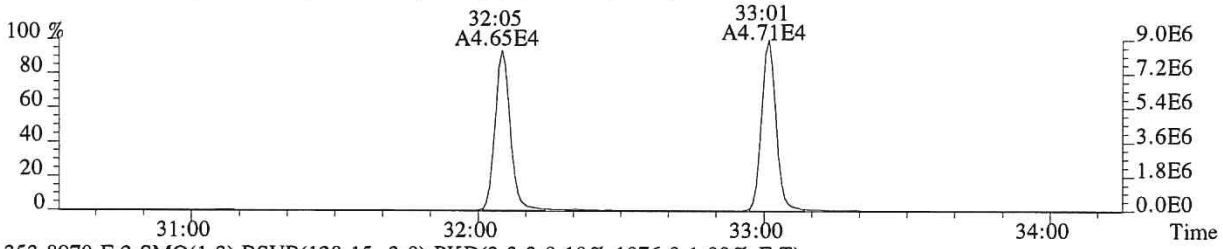
File:P519371 #1-587 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



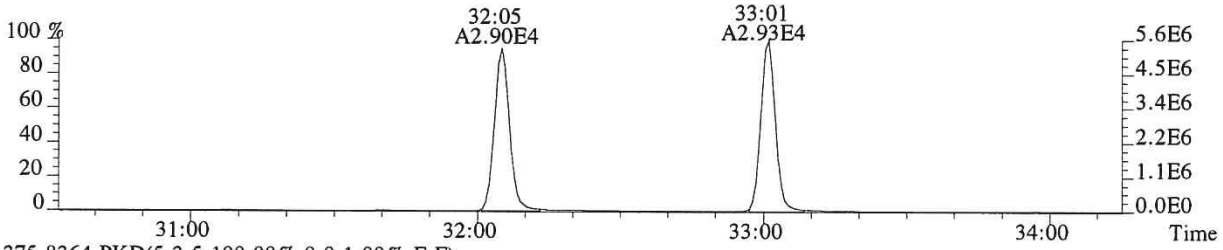
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



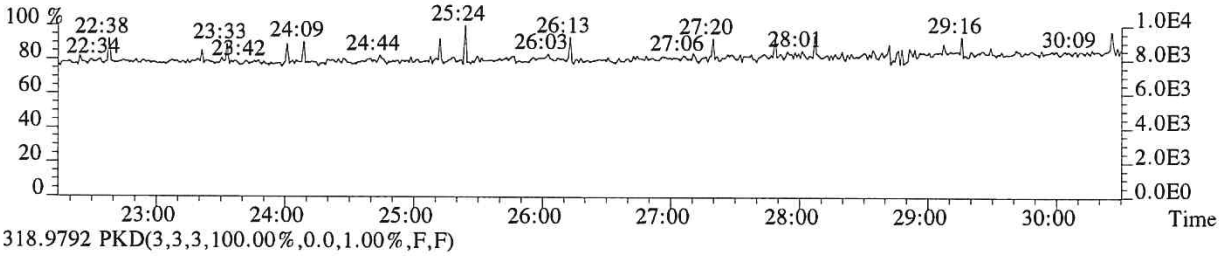
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



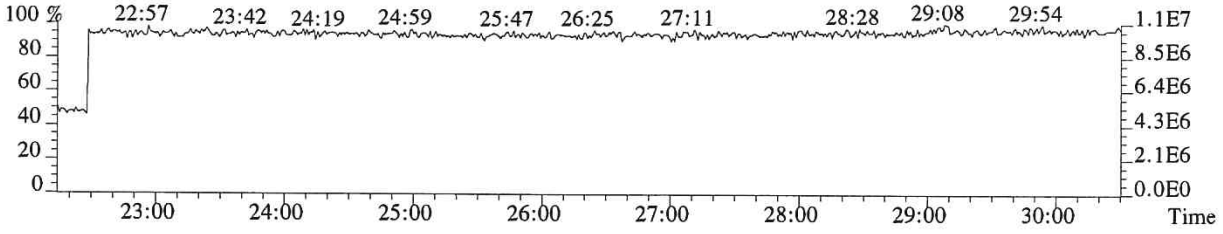
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

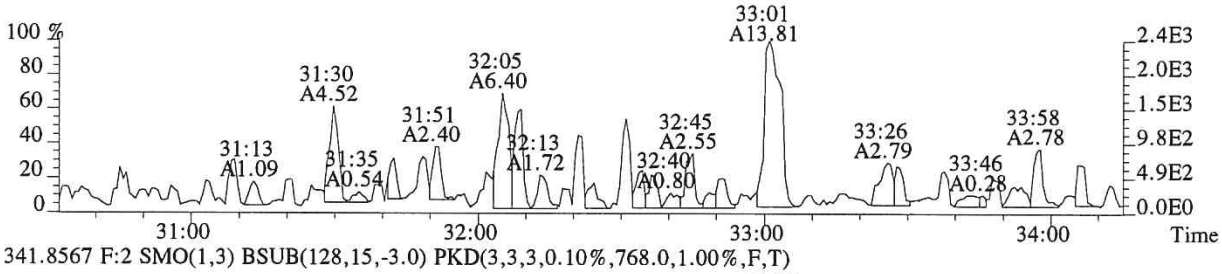


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

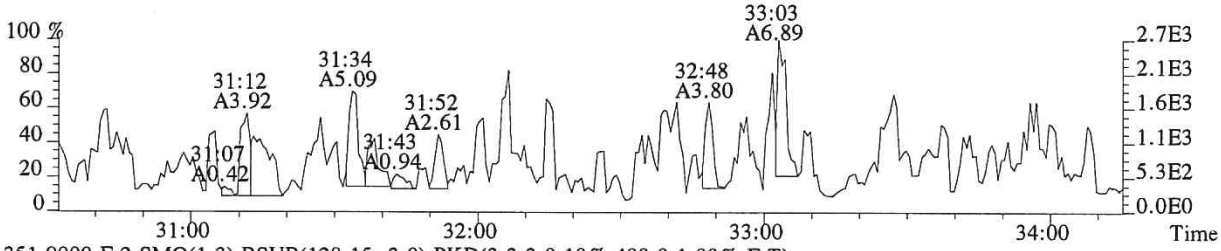


011364

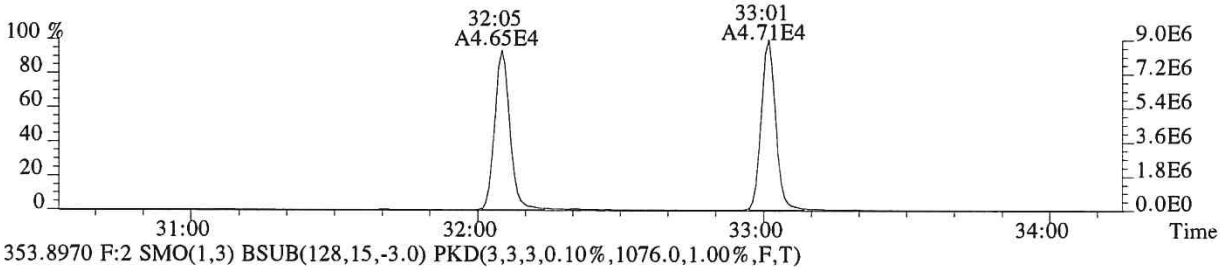
File:P519371 #1-335 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



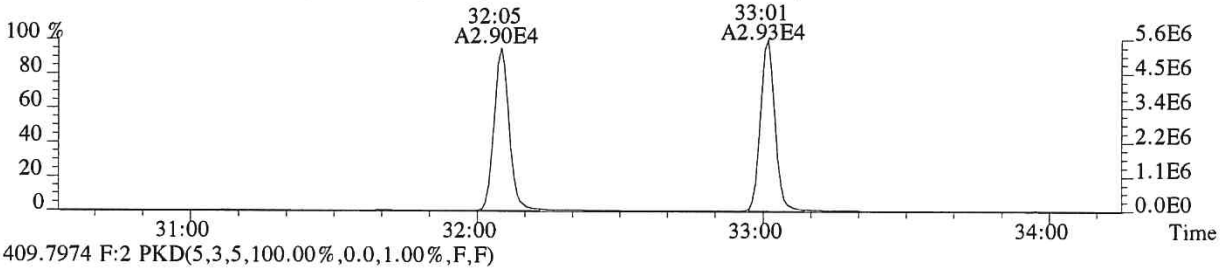
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



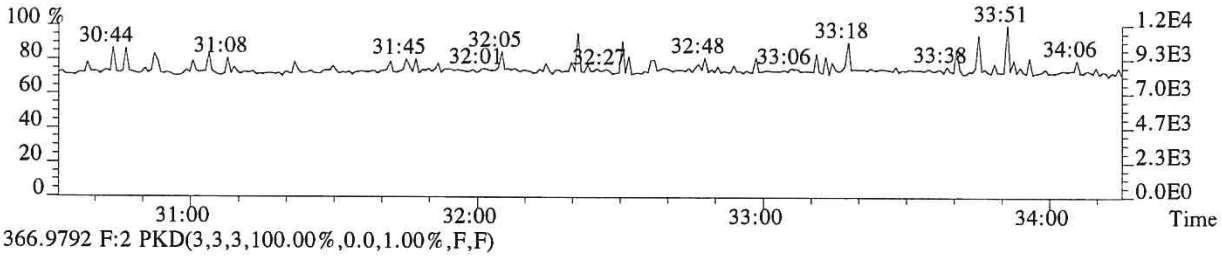
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



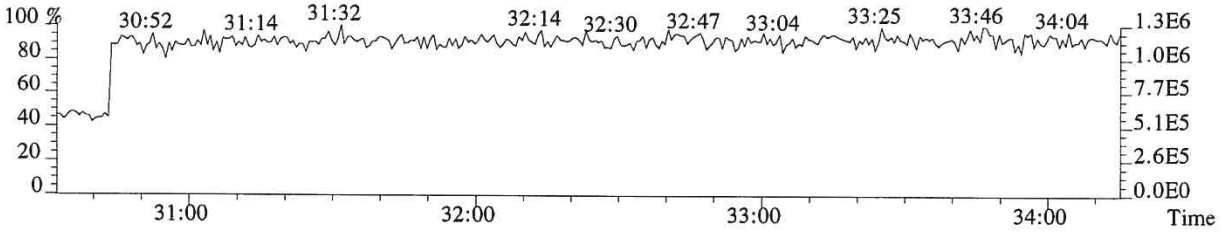
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



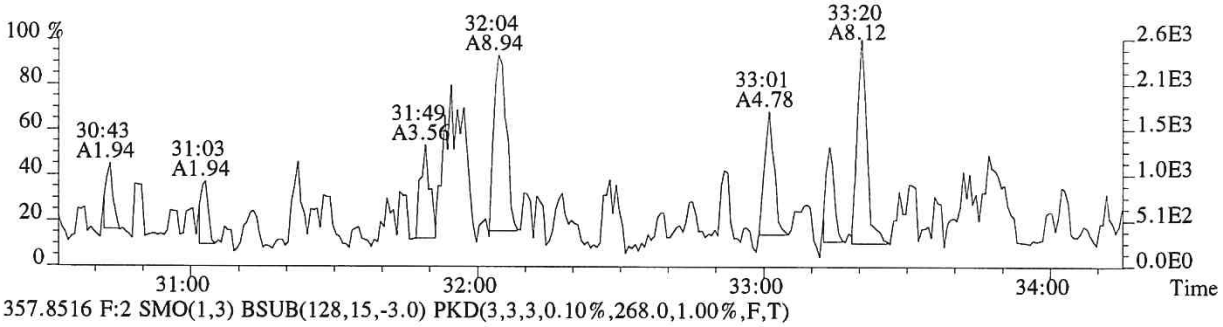
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



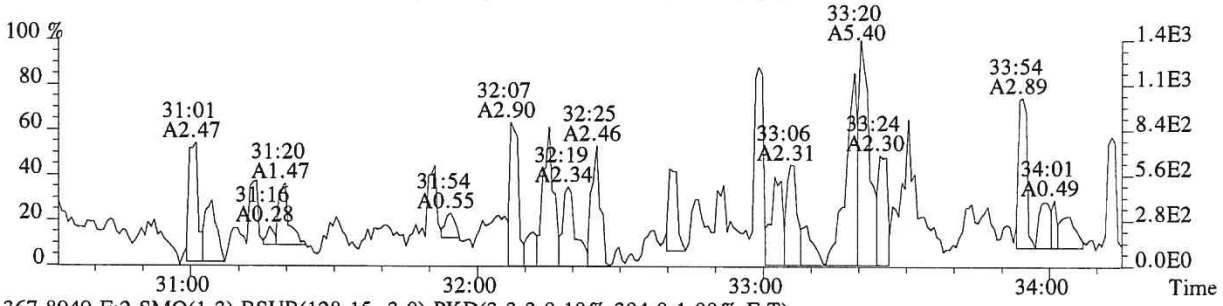
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



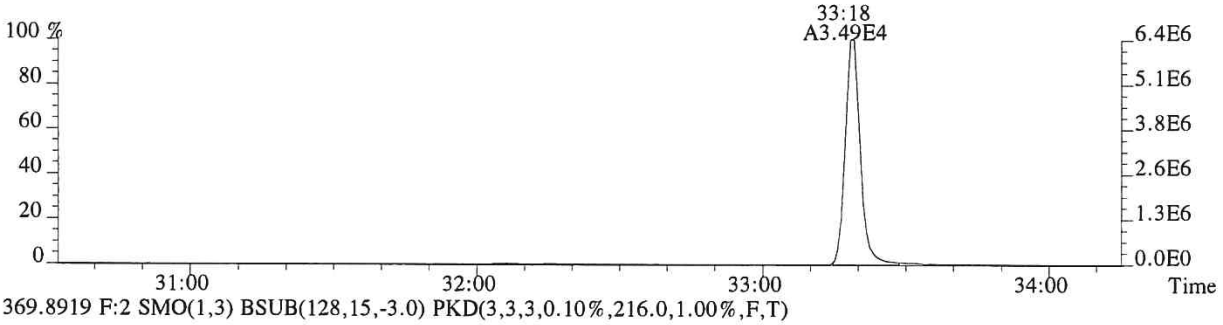
File:P519371 #1-335 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



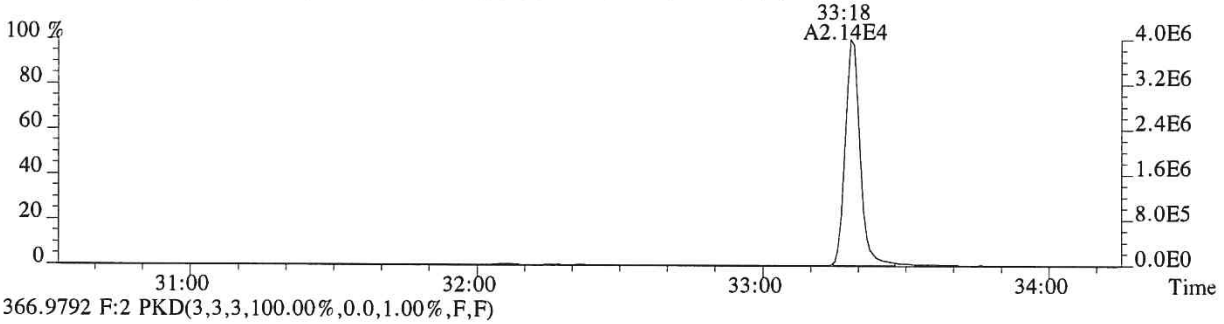
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



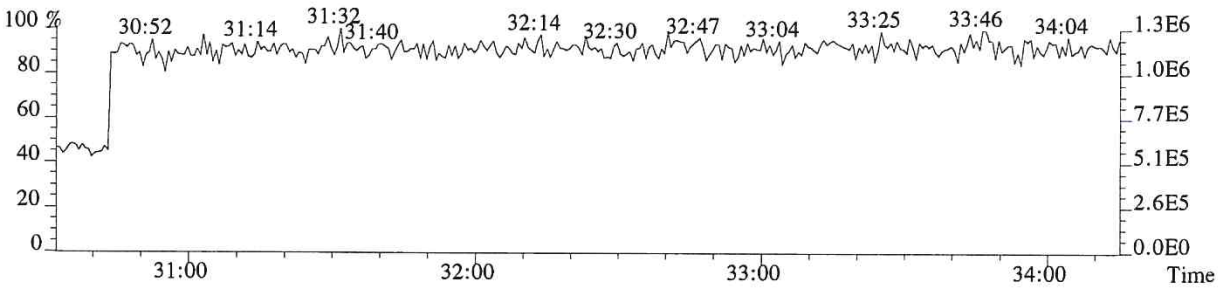
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



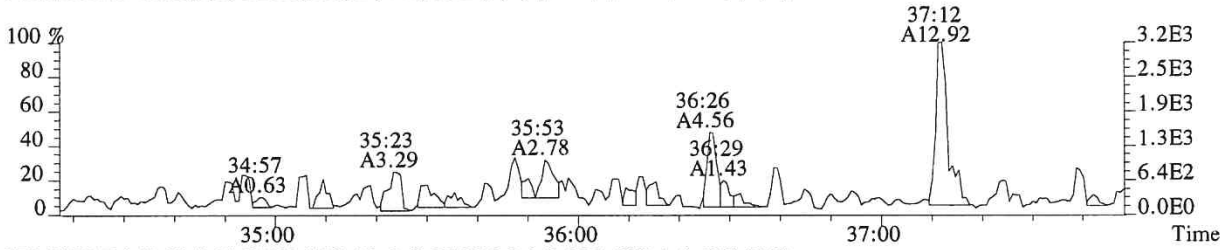
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



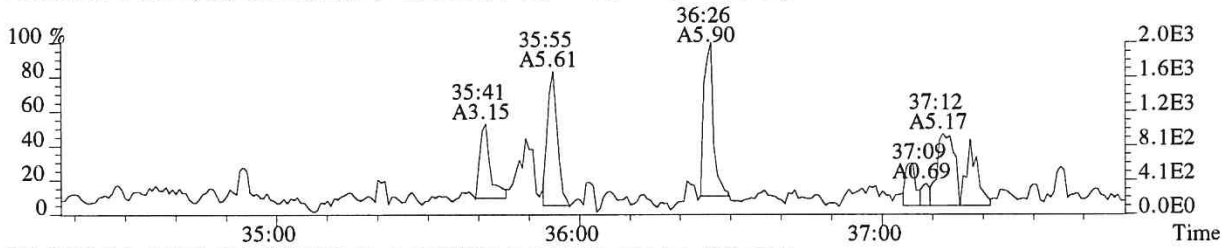
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



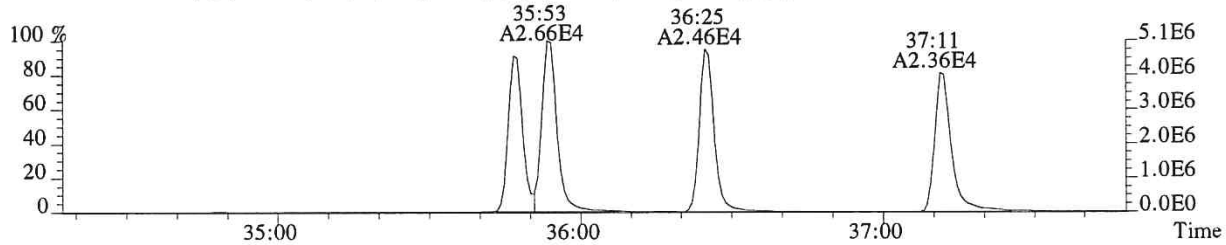
File:P519371 #1-317 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



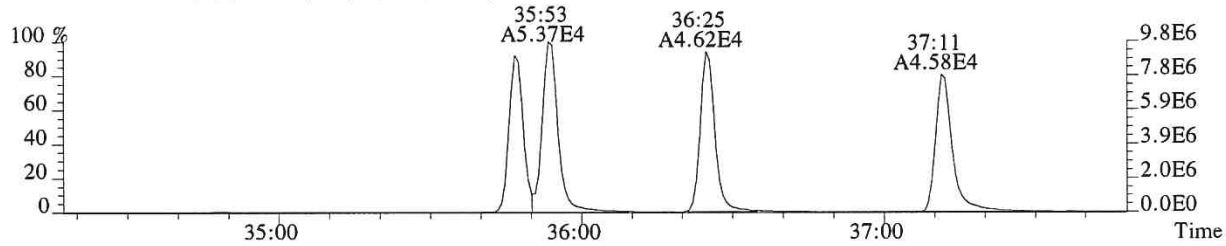
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



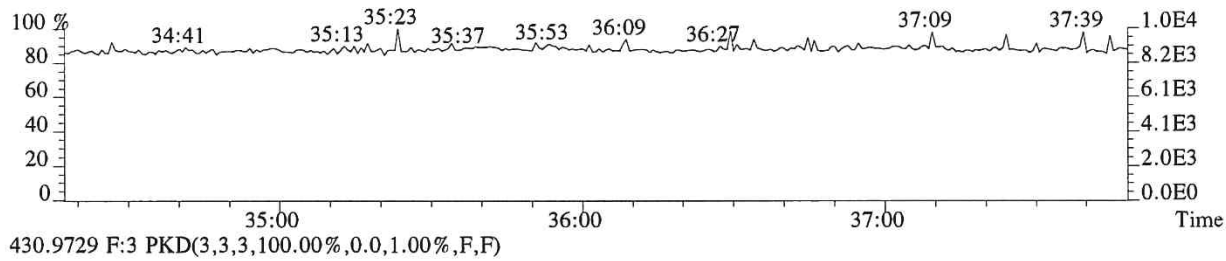
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



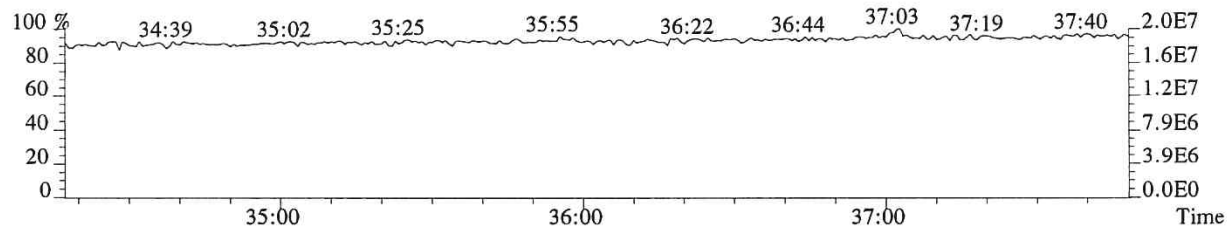
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

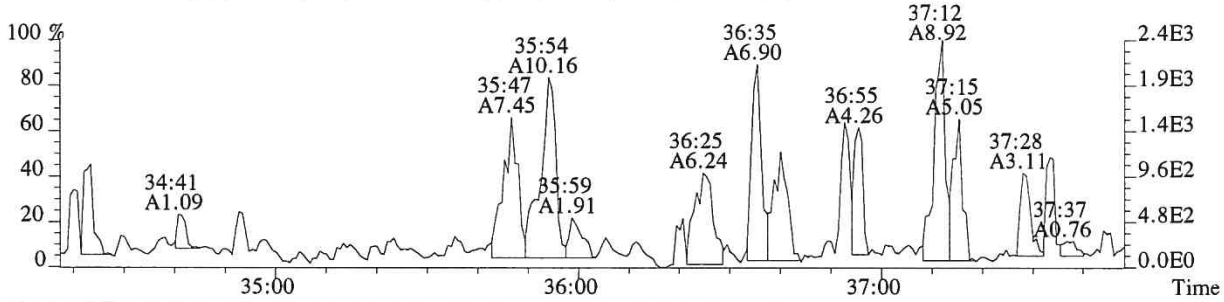


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

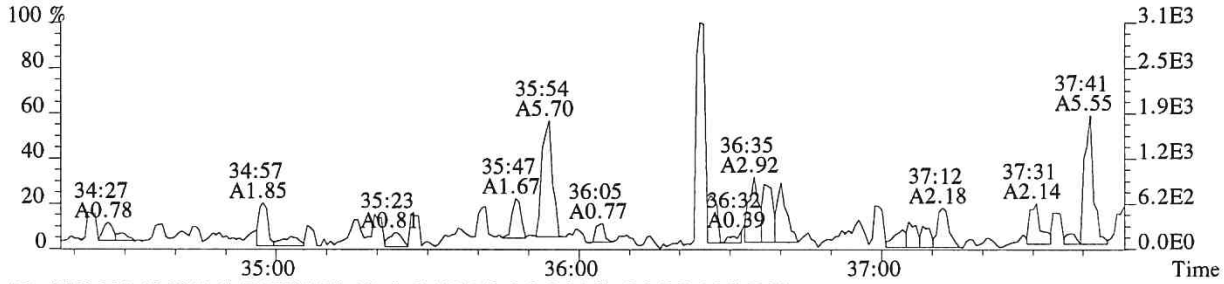


011367

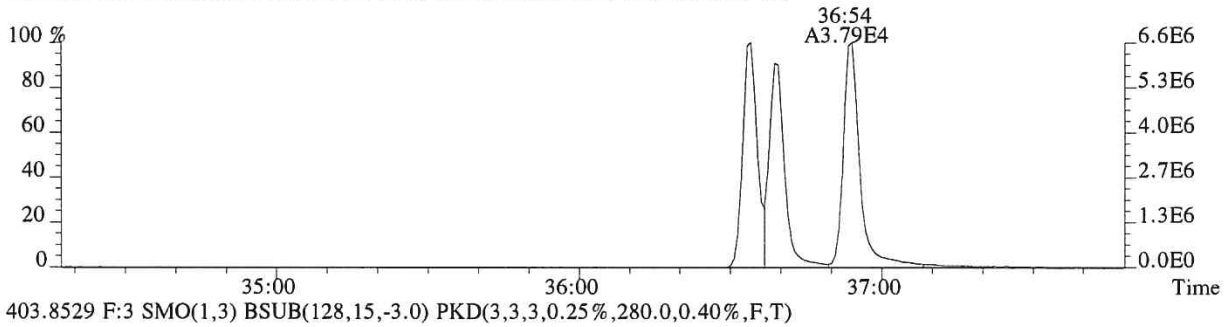
File:P519371 #1-317 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



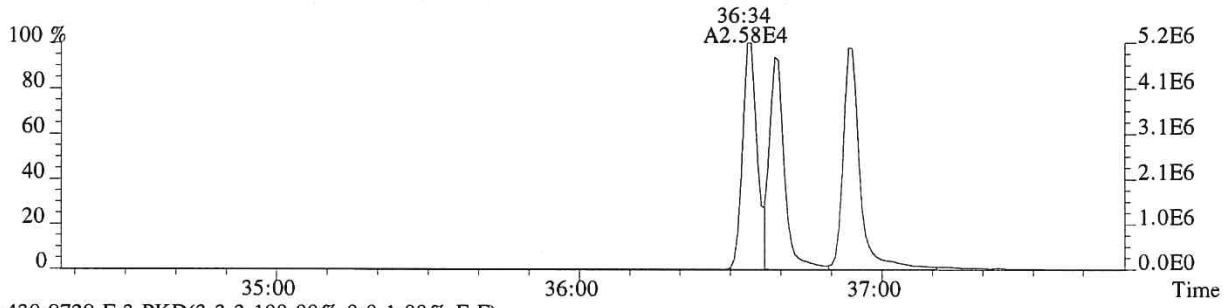
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



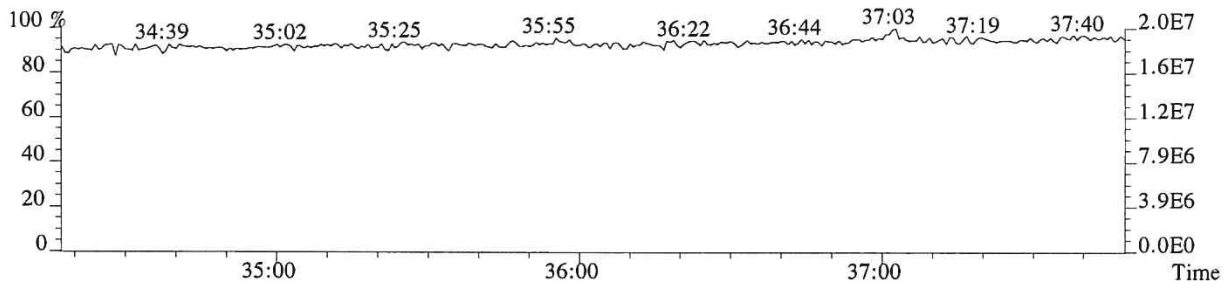
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)

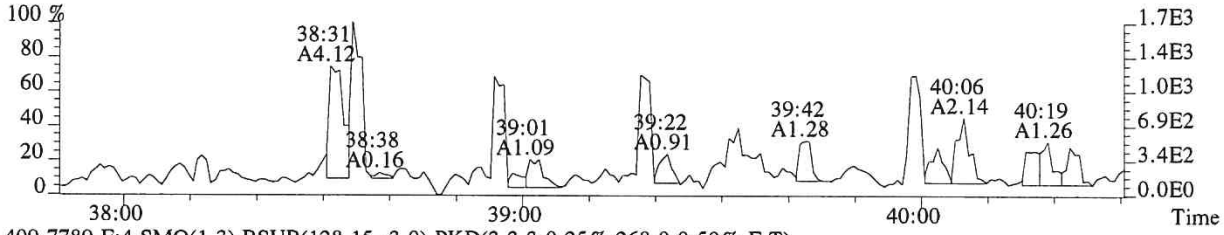


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

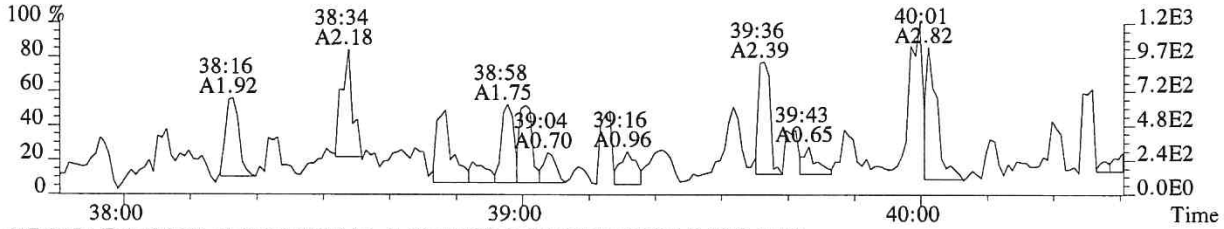


011368

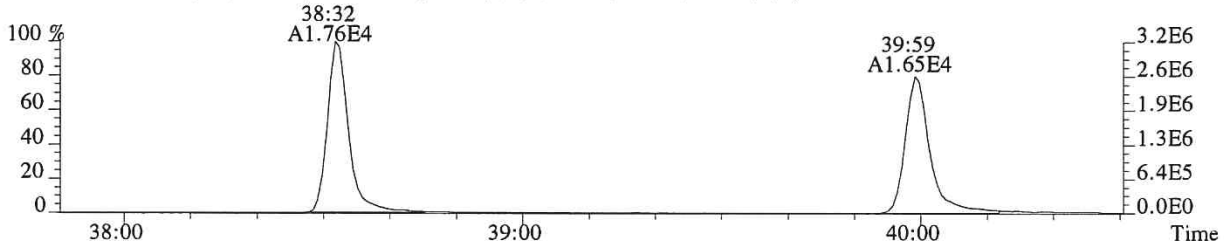
File:P519371 #1-241 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.50%,F,T)



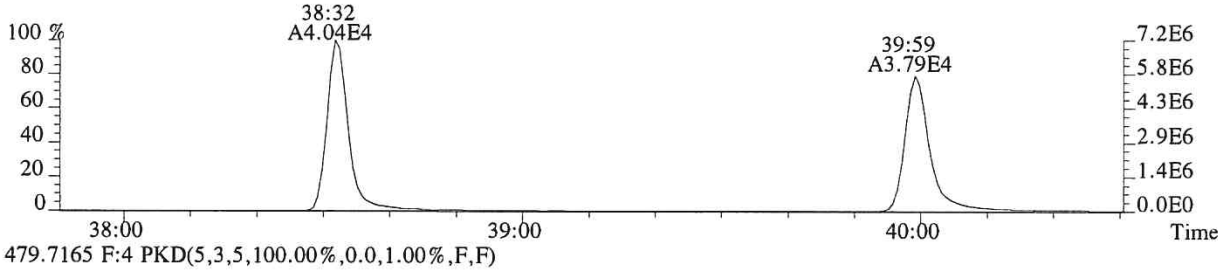
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.50%,F,T)



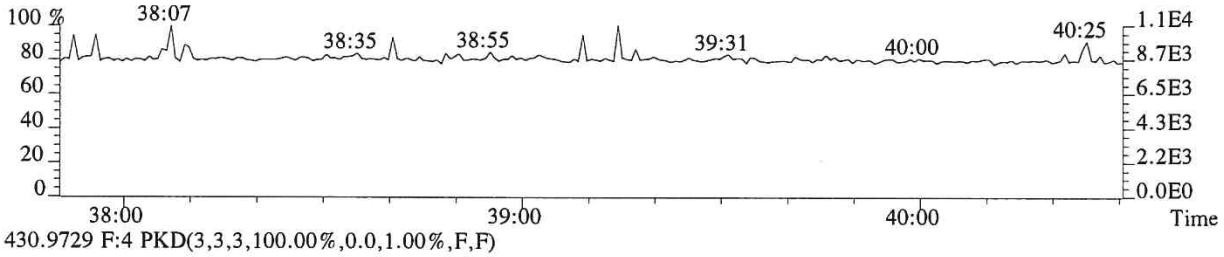
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2376.0,0.50%,F,T)



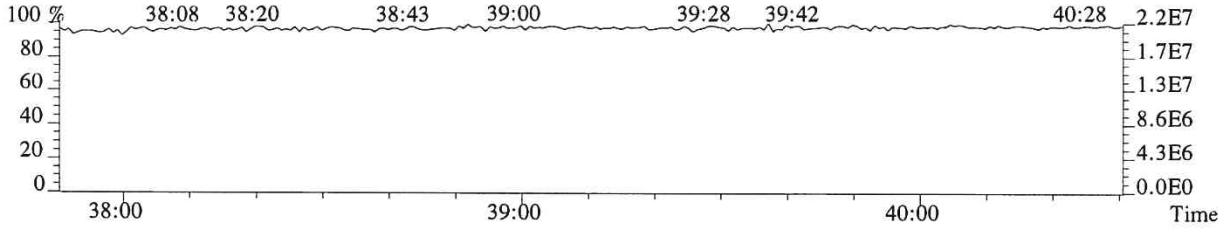
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2816.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

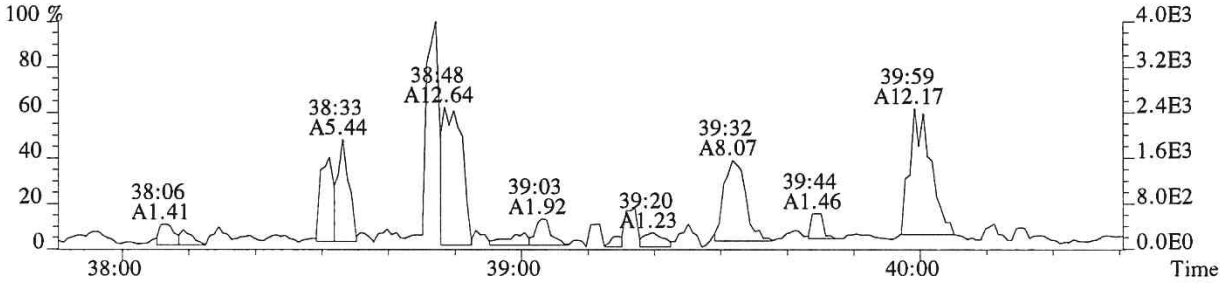


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

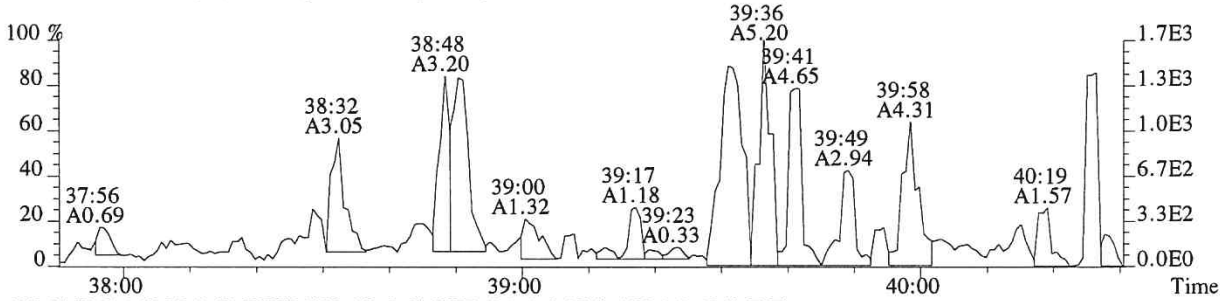


011369

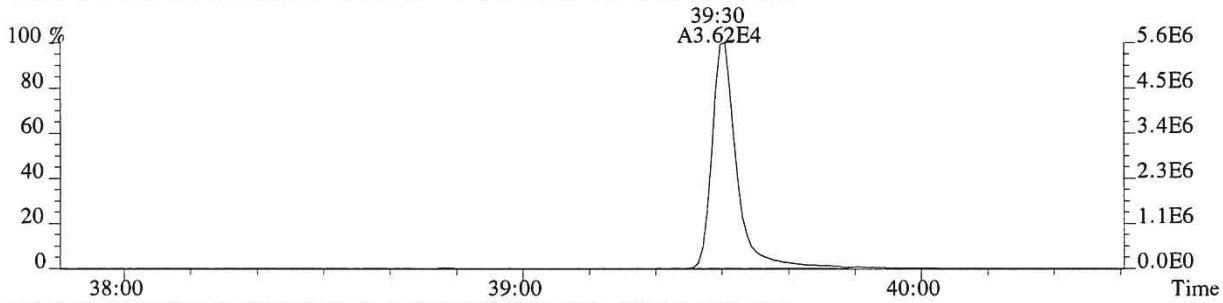
File:P519371 #1-241 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



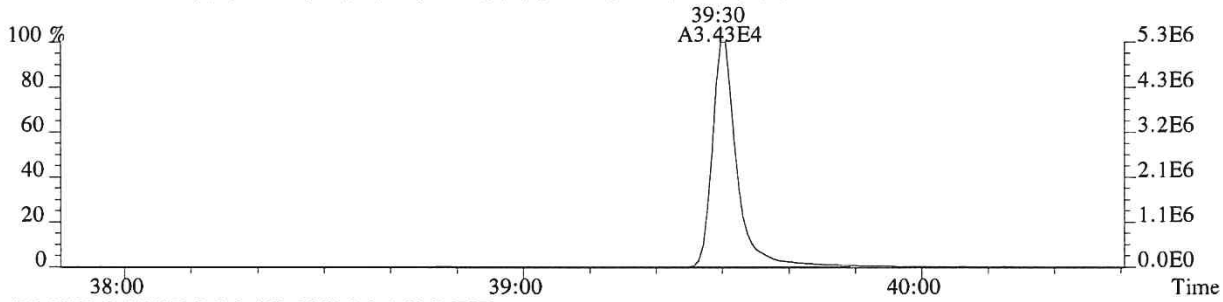
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,152.0,0.40%,F,T)



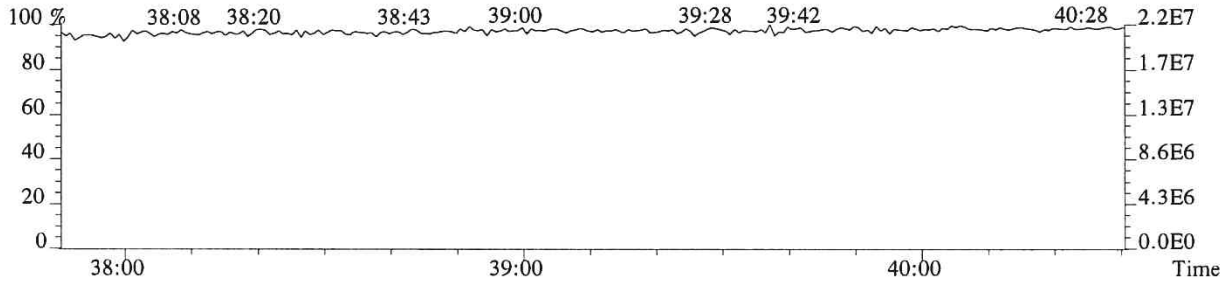
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



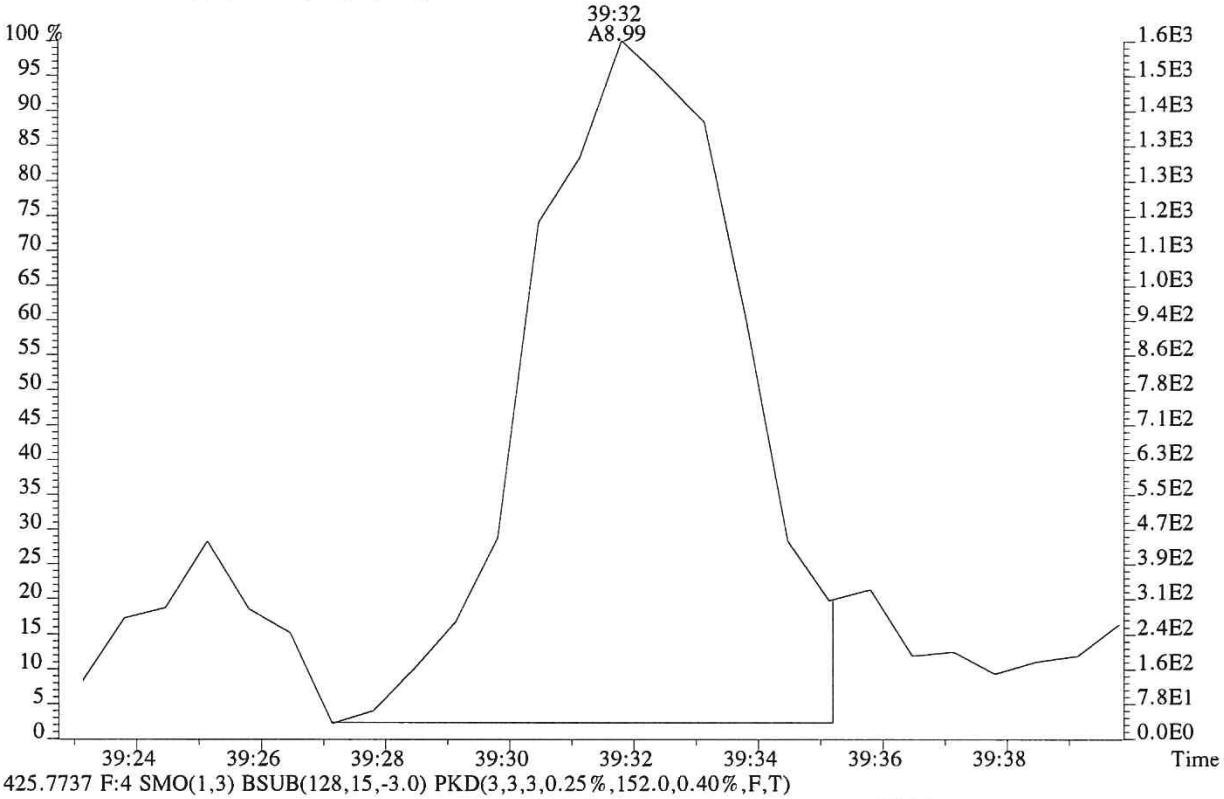
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



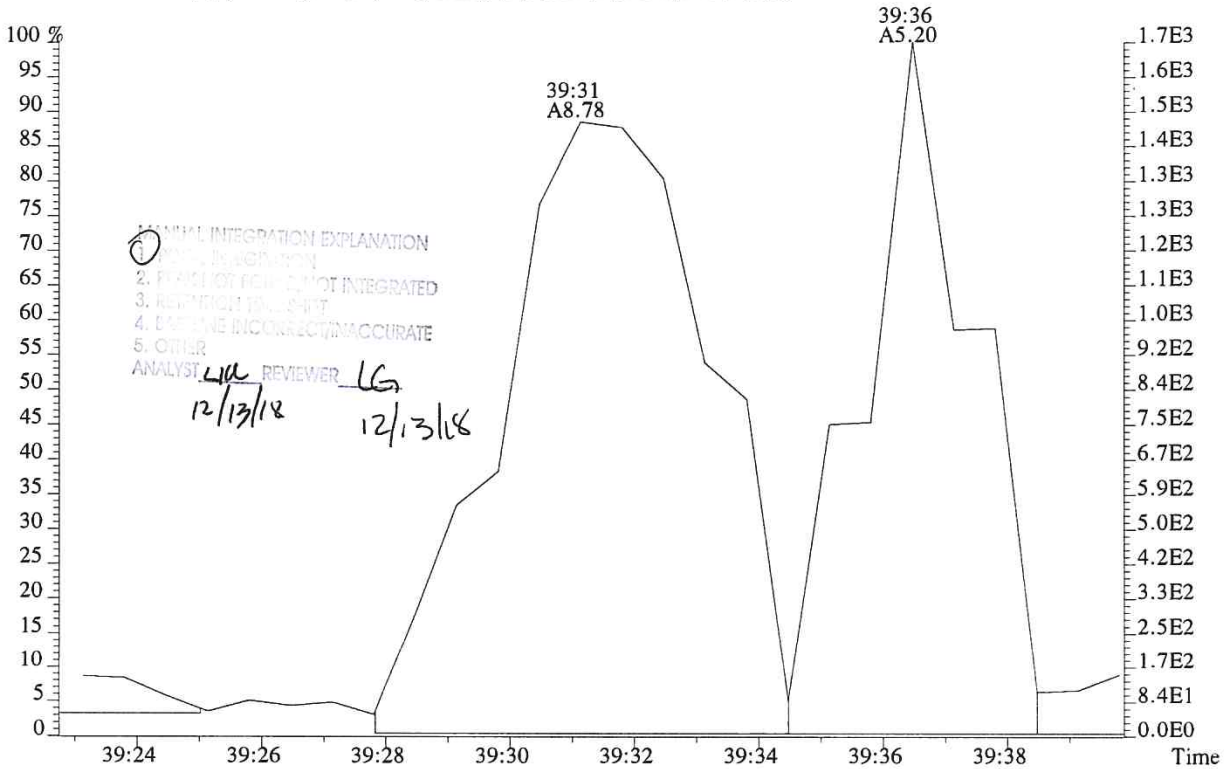
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519371 #1-241 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0)

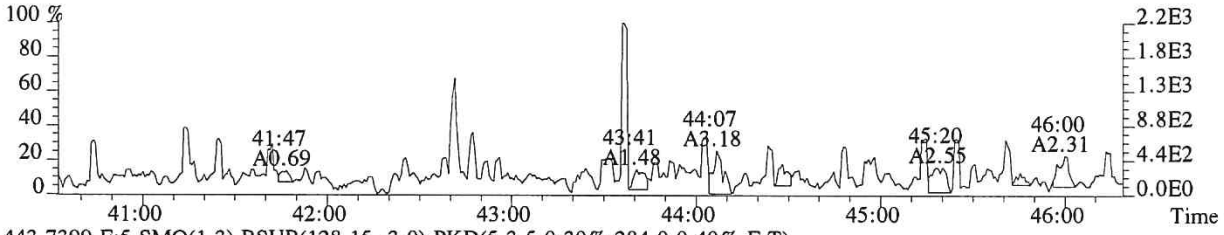


425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,152.0,0.40%,F,T)

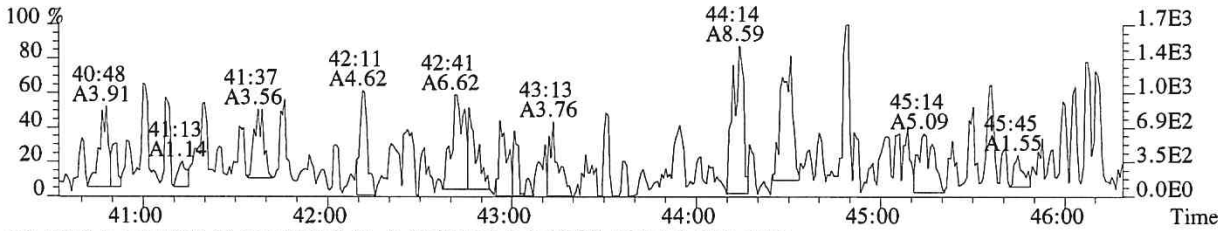


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND, NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST LW 12/13/18 REVIEWER LG 12/13/18

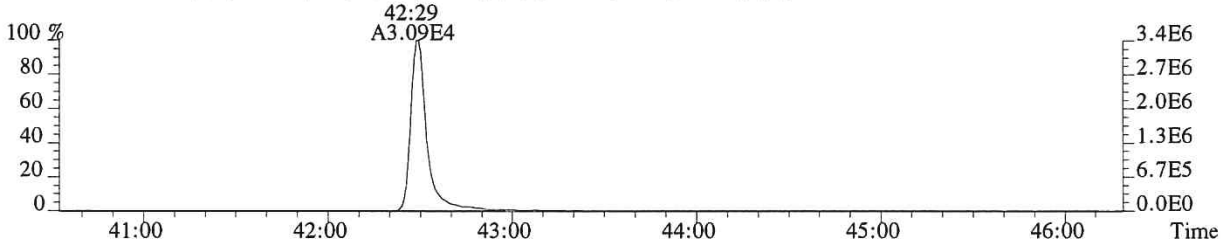
File:P519371 #1-520 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



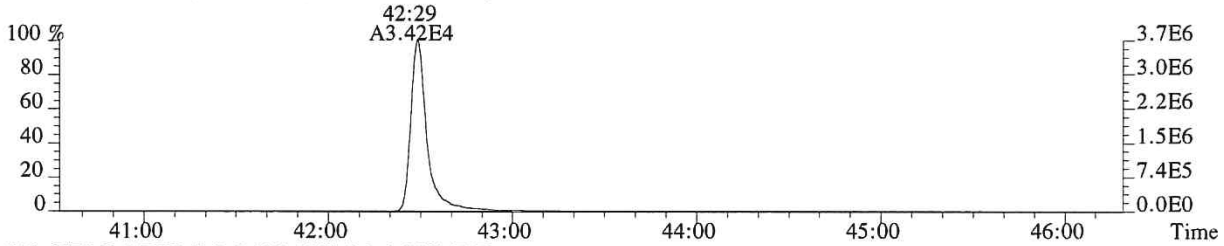
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



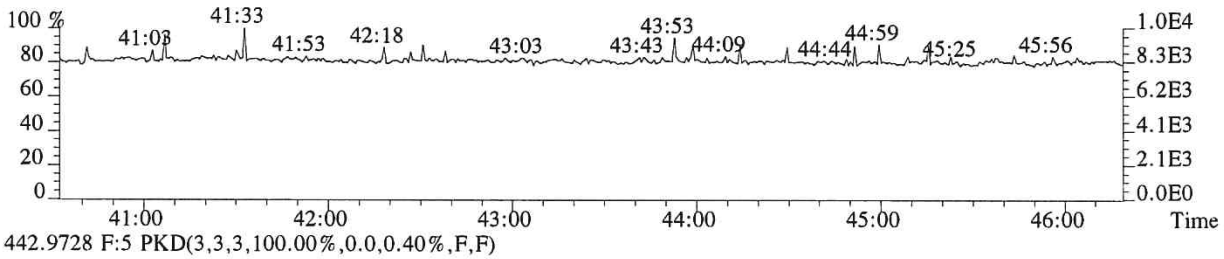
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



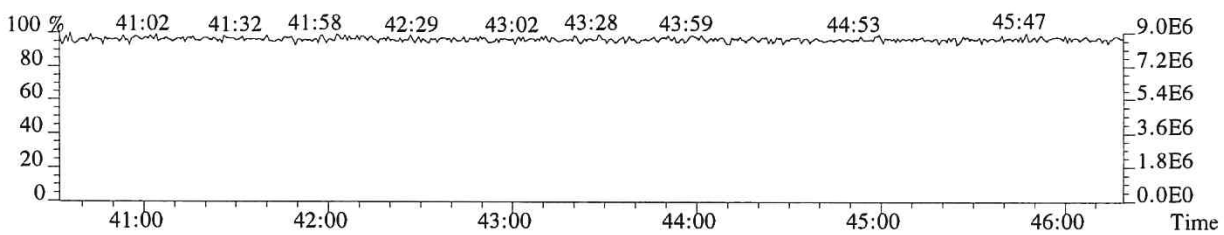
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

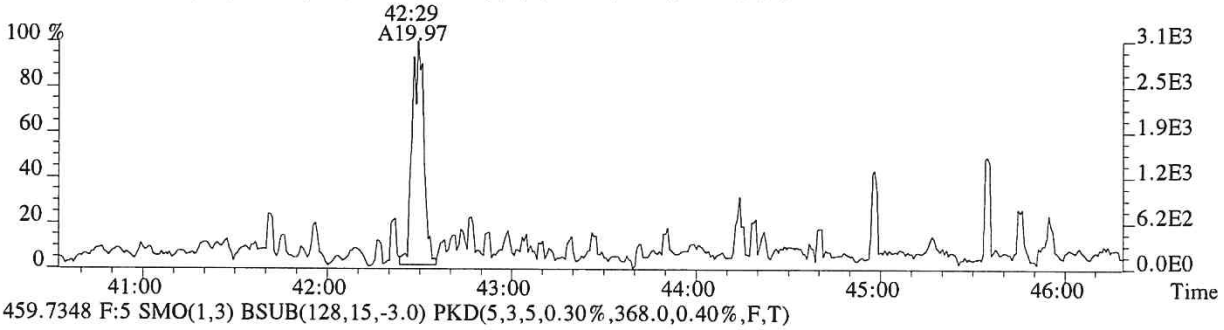


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

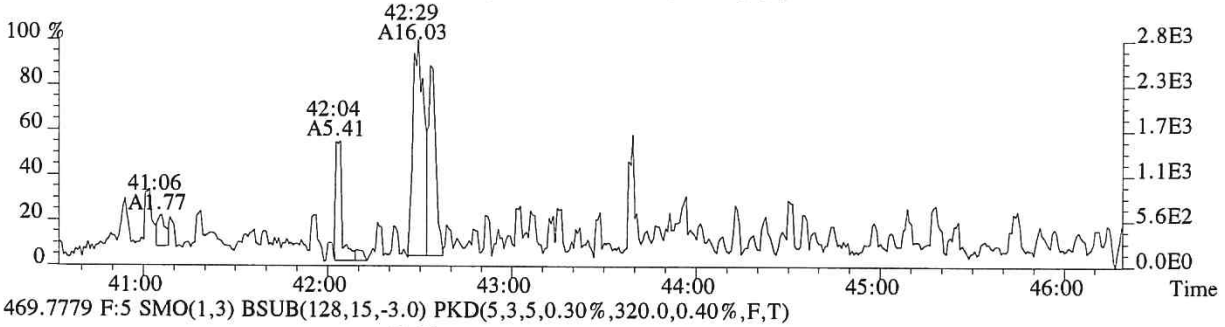


011372

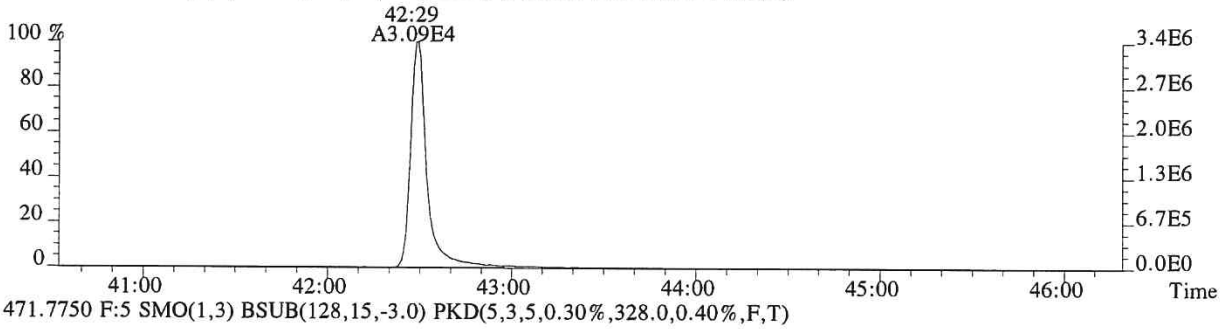
File:P519371 #1-520 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



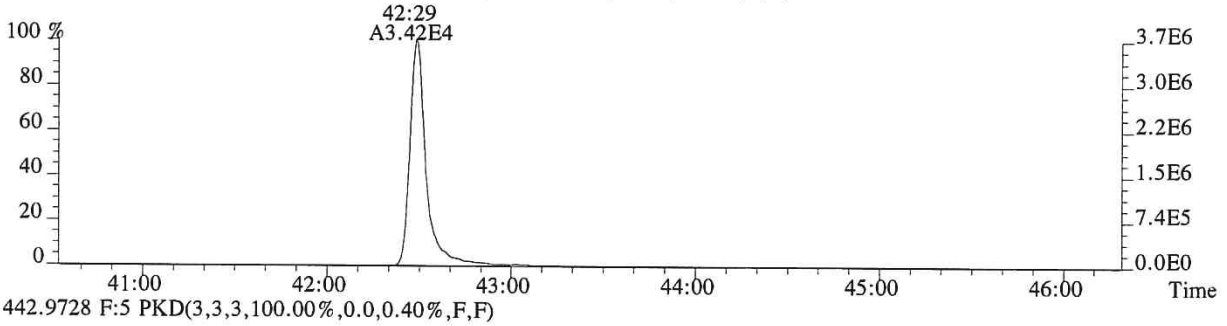
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



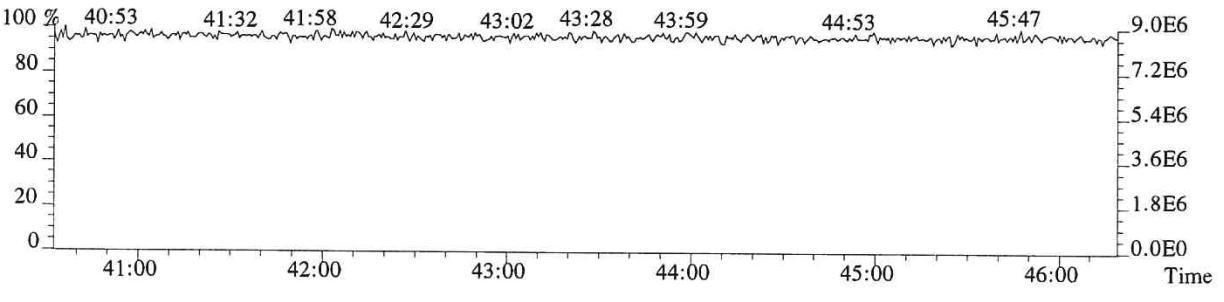
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)

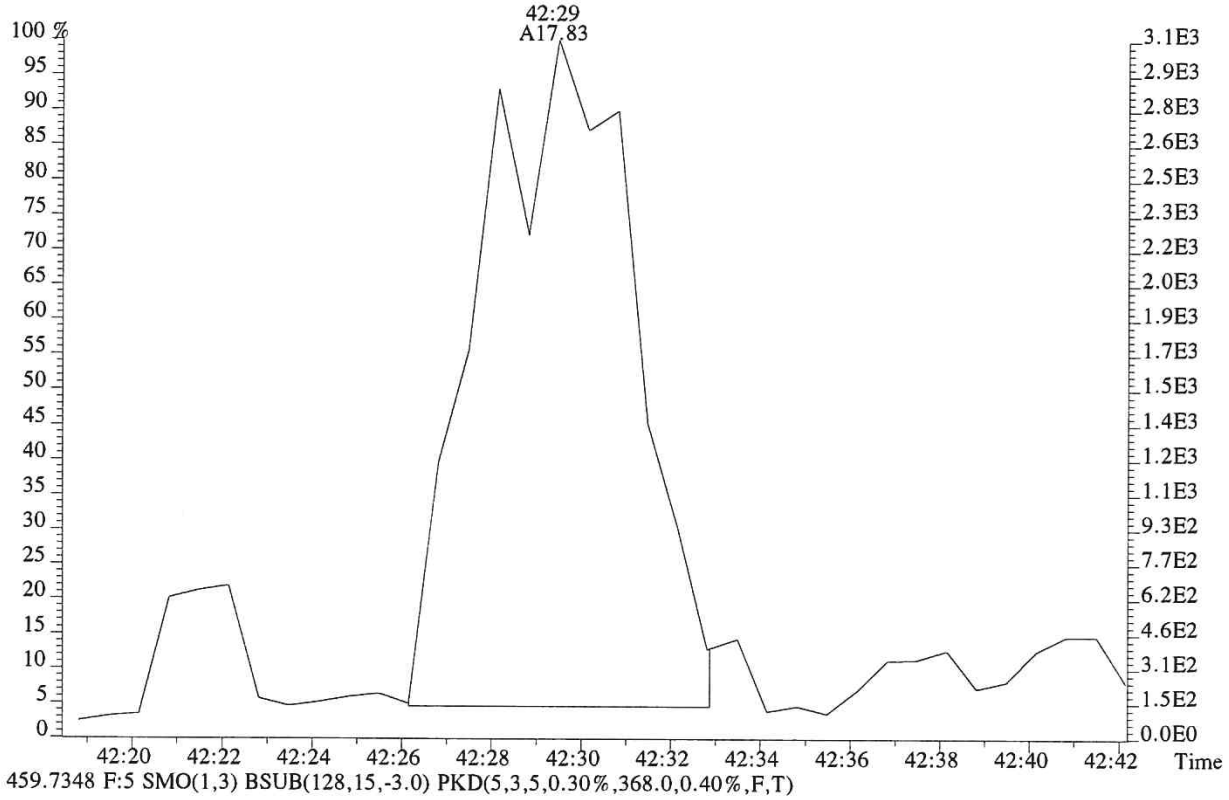


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

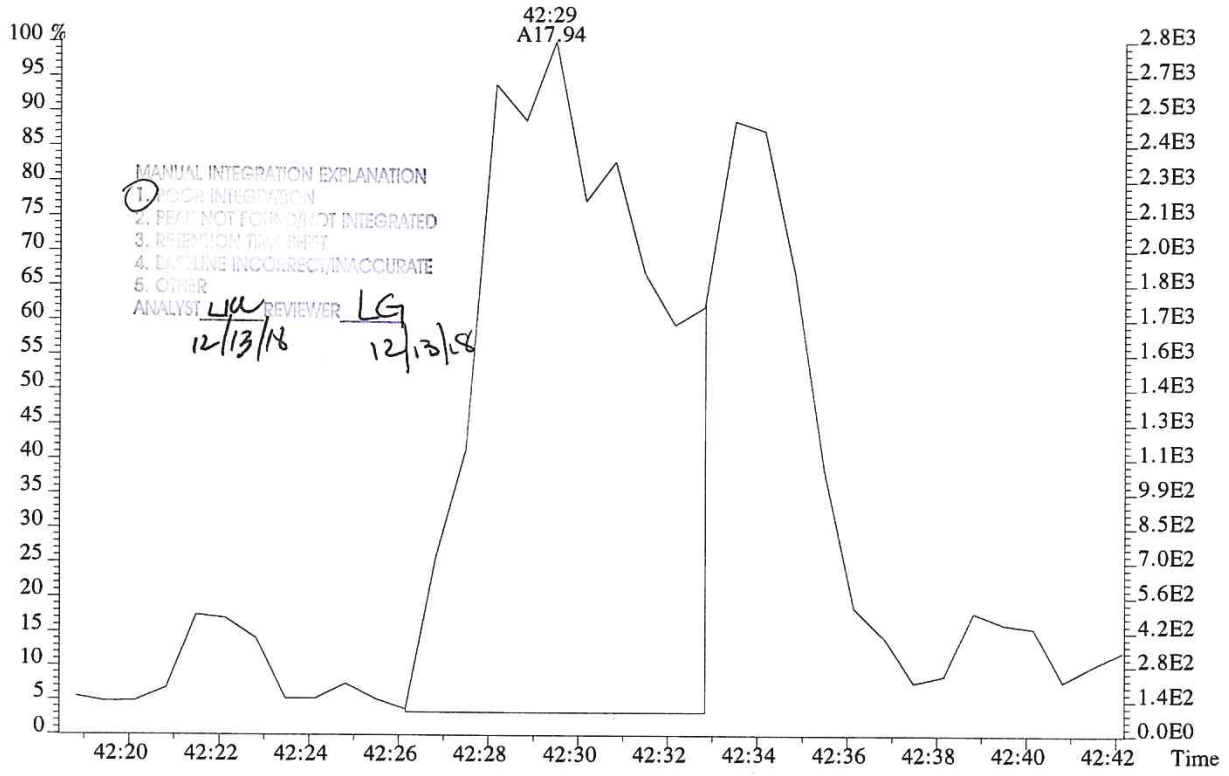


011373

File:P519371 #1-520 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



MANUAL INTEGRATION EXPLANATION
1. MINOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST LW 12/13/18 REVIEWER LG 12/13/18

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P519332 Samp: 1 Inj: 1 Acquired: 10-DEC-18 19:19:11
Processed: 11-DEC-18 15:18:41 Sample ID: EQ1800498-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	2.852e+03	3.593e+03	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:08	2.581e+04	1.649e+04	1.56	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	2.529e+04	1.673e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.274e+04	1.875e+04	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.643e+04	2.133e+04	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	2.169e+04	1.855e+04	1.17	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	2.109e+04	1.768e+04	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:33	1.760e+04	1.745e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	1.575e+04	1.508e+04	1.04	yes	no	1.258
10	Unk	OCDF	42:38	2.054e+04	2.364e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	2.073e+03	2.807e+03	0.74	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	1.876e+04	1.200e+04	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	1.569e+04	1.221e+04	1.29	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	1.726e+04	1.363e+04	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	1.817e+04	1.416e+04	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	1.268e+04	1.174e+04	1.08	yes	no	1.025
17	Unk	OCDD	42:27	1.599e+04	1.840e+04	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	3.198e+04	4.072e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	5.492e+04	3.436e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	5.257e+04	3.306e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.356e+04	4.530e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.946e+04	5.538e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	2.430e+04	4.651e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:13	2.360e+04	4.553e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.638e+04	3.770e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	1.496e+04	3.468e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:35	1.420e+04	1.753e+04	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	3.944e+04	2.465e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	3.203e+04	2.506e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	3.390e+04	2.574e+04	1.32	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	3.319e+04	3.063e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:25	2.801e+04	3.202e+04	0.87	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	3.629e+04	4.522e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	5.419e+04	4.221e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	2.005e+04				no	1.014

$$\text{OCDD} = \frac{(1.599e+04 + 1.840e+04) \times 4000\ \text{pg} \times 1}{(2.801e+04 + 3.202e+04) \times \text{g} \times / 100 \times 1.118} =$$

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P519332 Samp: 1 Inj: 1 Acquired: 10-DEC-18 19:19:11
Processed: 11-DEC-18 15:18:41 LAB. ID: EQ1800498-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.06e+05	2.64e+02	1.9e+03	6.60e+05	7.12e+02	9.3e+02
2	1,2,3,7,8-PeCDF	4.65e+06	3.00e+02	1.6e+04	2.93e+06	1.84e+03	1.6e+03
3	2,3,4,7,8-PeCDF	4.93e+06	3.00e+02	1.6e+04	3.30e+06	1.84e+03	1.8e+03
4	1,2,3,4,7,8-HxCDF	4.73e+06	7.64e+02	6.2e+03	3.91e+06	2.64e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	4.96e+06	7.64e+02	6.5e+03	3.96e+06	2.64e+02	1.5e+04
6	2,3,4,6,7,8-HxCDF	4.39e+06	7.64e+02	5.7e+03	3.68e+06	2.64e+02	1.4e+04
7	1,2,3,7,8,9-HxCDF	3.76e+06	7.64e+02	4.9e+03	3.13e+06	2.64e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	3.27e+06	1.64e+03	2.0e+03	3.21e+06	2.10e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	2.59e+06	1.64e+03	1.6e+03	2.51e+06	2.10e+03	1.2e+03
10	OCDF	2.57e+06	3.20e+02	8.0e+03	2.90e+06	9.92e+02	2.9e+03
11	2,3,7,8-TCDD	3.84e+05	1.87e+03	2.1e+02	5.22e+05	9.48e+02	5.5e+02
12	1,2,3,7,8-PeCDD	3.54e+06	9.32e+02	3.8e+03	2.28e+06	2.48e+02	9.2e+03
13	1,2,3,4,7,8-HxCDD	3.41e+06	1.80e+02	1.9e+04	2.64e+06	3.04e+02	8.7e+03
14	1,2,3,6,7,8-HxCDD	3.22e+06	1.80e+02	1.8e+04	2.58e+06	3.04e+02	8.5e+03
15	1,2,3,7,8,9-HxCDD	3.18e+06	1.80e+02	1.8e+04	2.54e+06	3.04e+02	8.4e+03
16	1,2,3,4,6,7,8-HpCDD	2.10e+06	4.76e+02	4.4e+03	1.94e+06	3.44e+02	5.6e+03
17	OCDD	1.83e+06	3.24e+02	5.6e+03	2.05e+06	4.36e+02	4.7e+03
18	13C-2,3,7,8-TCDF	5.73e+06	8.71e+03	6.6e+02	7.30e+06	5.78e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	9.98e+06	7.68e+02	1.3e+04	6.25e+06	1.01e+03	6.2e+03
20	13C-2,3,4,7,8-PeCDF	1.03e+07	7.68e+02	1.3e+04	6.55e+06	1.01e+03	6.5e+03
21	13C-1,2,3,4,7,8-HxCDF	4.92e+06	6.84e+02	7.2e+03	9.47e+06	8.32e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	5.54e+06	6.84e+02	8.1e+03	1.06e+07	8.32e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	4.86e+06	6.84e+02	7.1e+03	9.18e+06	8.32e+02	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	4.13e+06	6.84e+02	6.0e+03	8.03e+06	8.32e+02	9.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.07e+06	4.72e+03	6.5e+02	7.04e+06	4.48e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.45e+06	4.72e+03	5.2e+02	5.64e+06	4.48e+03	1.3e+03
27	13C-2,3,7,8-TCDD	2.59e+06	5.20e+03	5.0e+02	3.25e+06	2.15e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	7.35e+06	1.00e+03	7.3e+03	4.57e+06	7.12e+02	6.4e+03
29	13C-1,2,3,4,7,8-HxCDD	6.83e+06	1.10e+03	6.2e+03	5.34e+06	5.56e+02	9.6e+03
30	13C-1,2,3,6,7,8-HxCDD	6.35e+06	1.10e+03	5.8e+03	4.85e+06	5.56e+02	8.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.36e+06	3.72e+02	1.4e+04	4.94e+06	2.60e+02	1.9e+04
32	13C-OCDD	3.25e+06	4.68e+02	7.0e+03	3.61e+06	2.76e+02	1.3e+04
33	13C-1,2,3,4-TCDD	6.77e+06	5.20e+03	1.3e+03	8.44e+06	2.15e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	9.61e+06	1.10e+03	8.7e+03	7.58e+06	5.56e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.71e+06	8.64e+02	4.3e+03			

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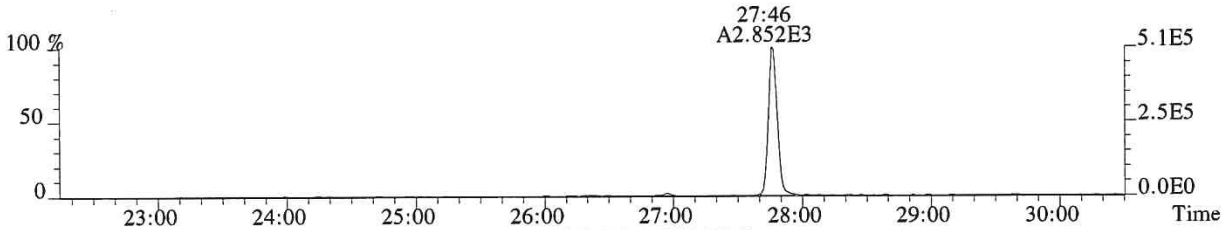
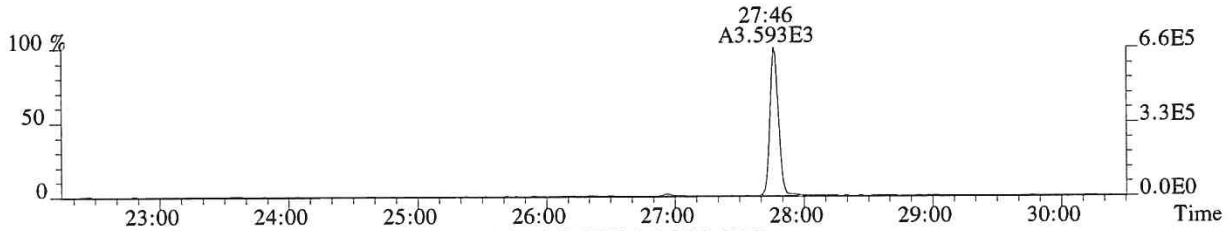
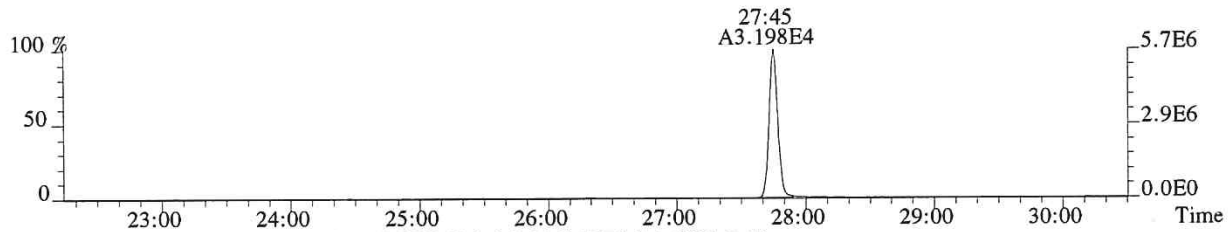
File:P519332 #1-587 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



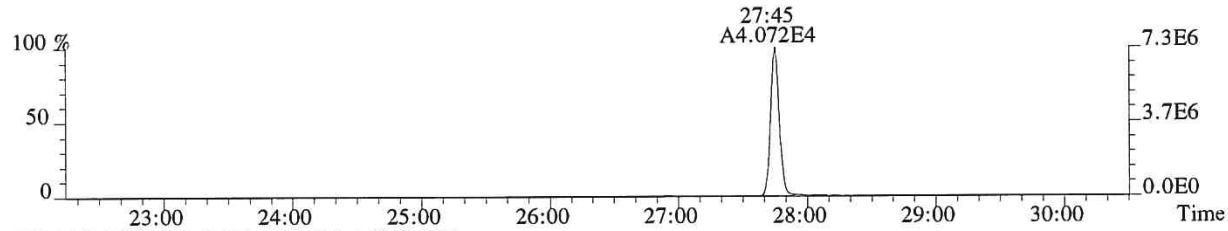
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



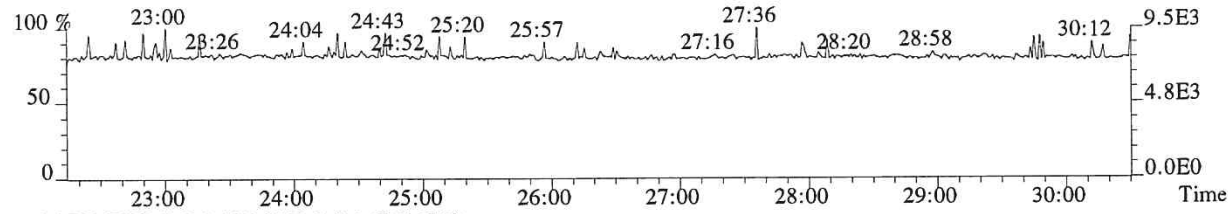
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8712.0,1.00%,F,T)



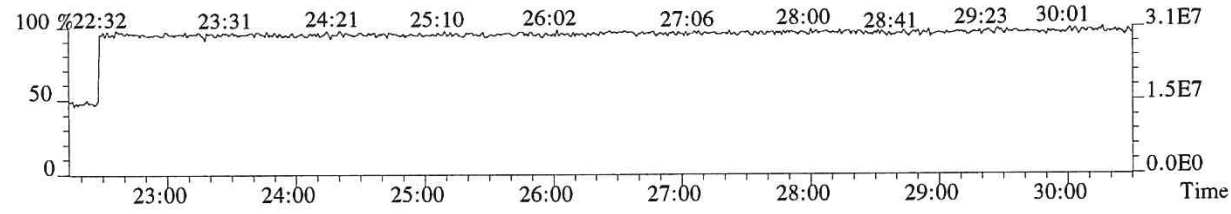
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5776.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

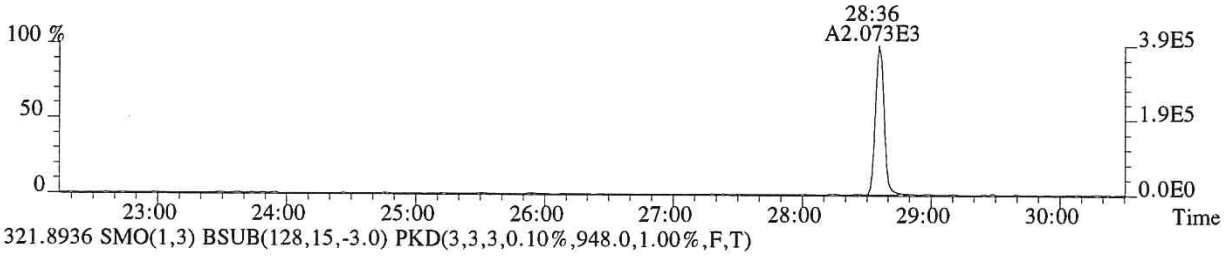


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

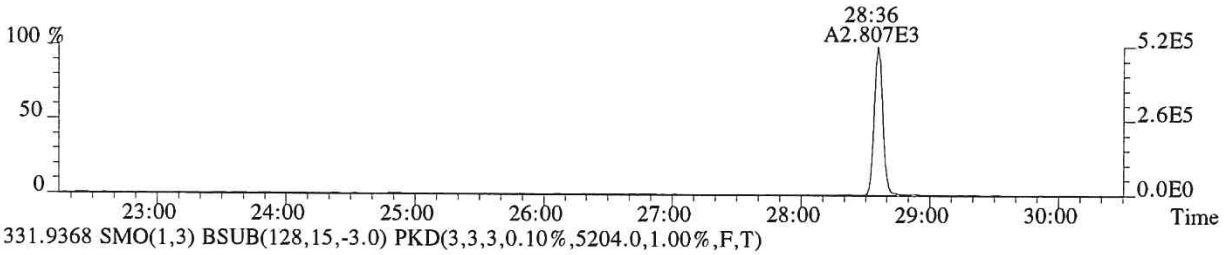


011377

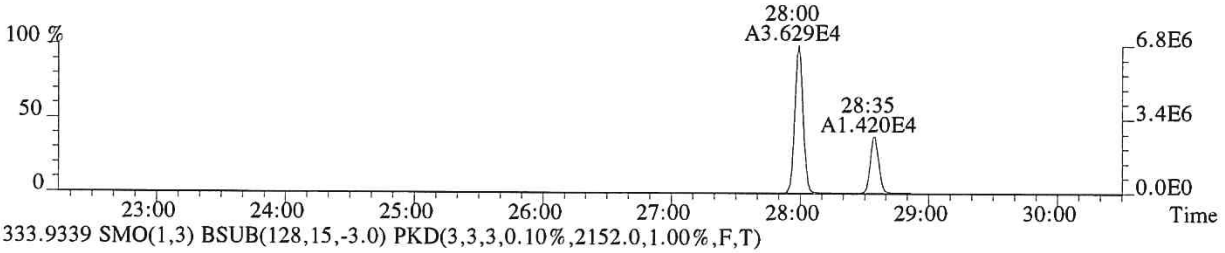
File:P519332 #1-587 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1868.0,1.00%,F,T)



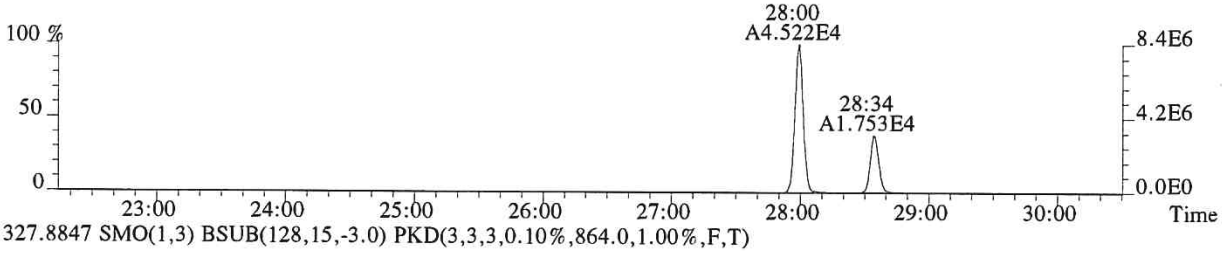
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



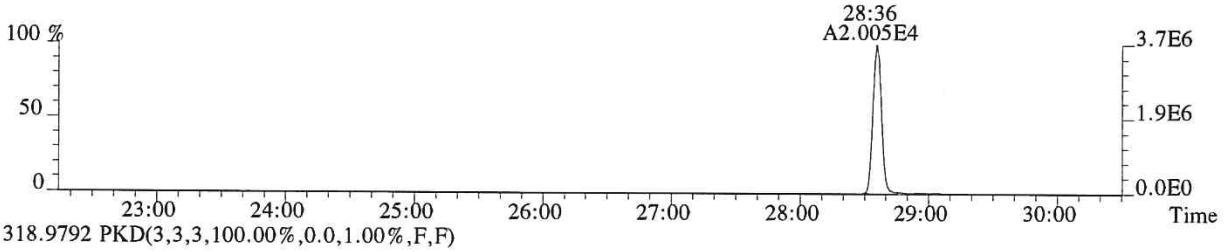
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5204.0,1.00%,F,T)



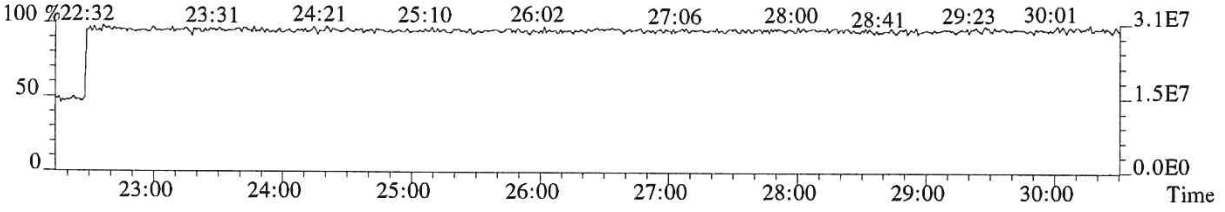
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2152.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)

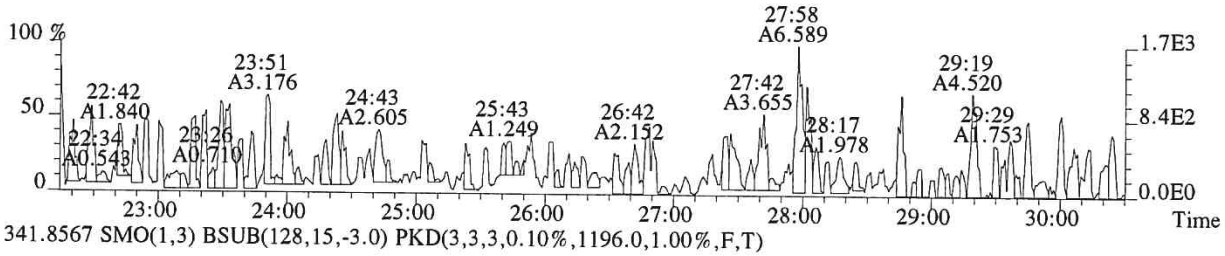


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

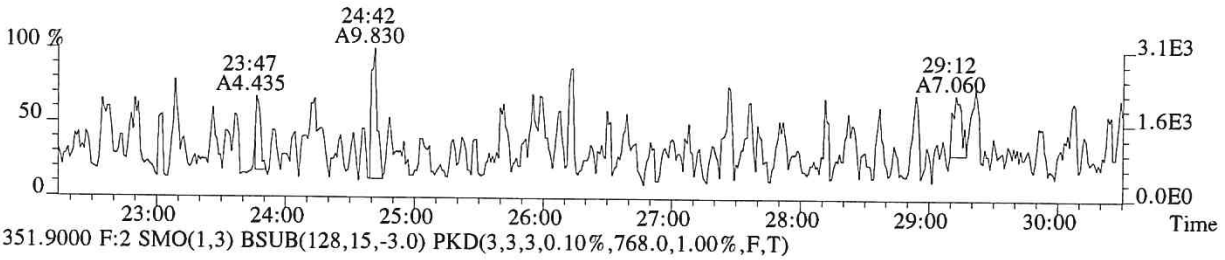


011378

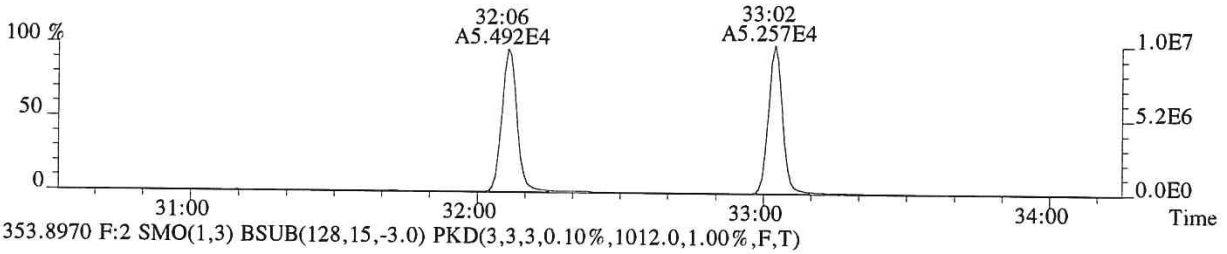
File:P519332 #1-587 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



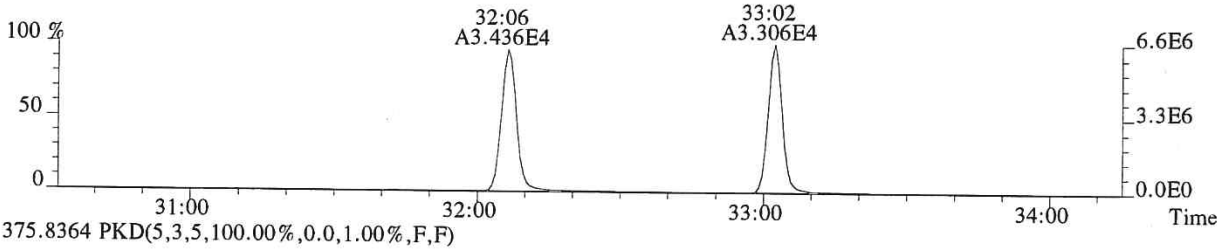
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



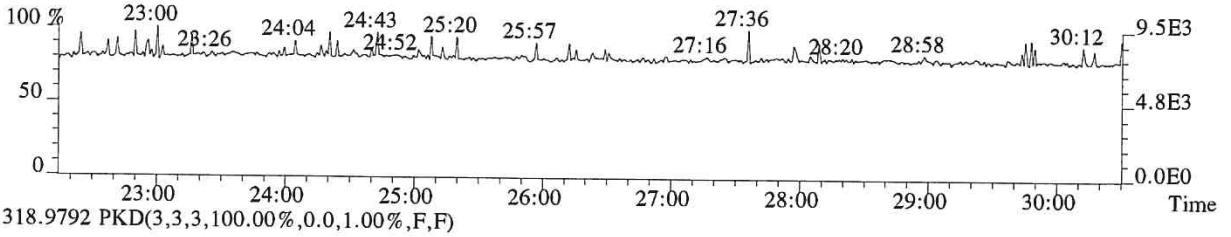
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



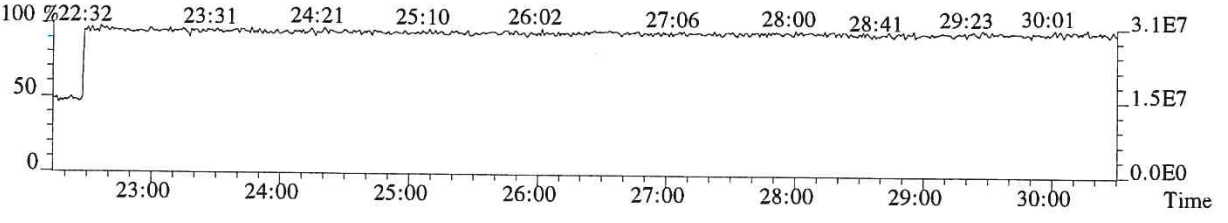
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



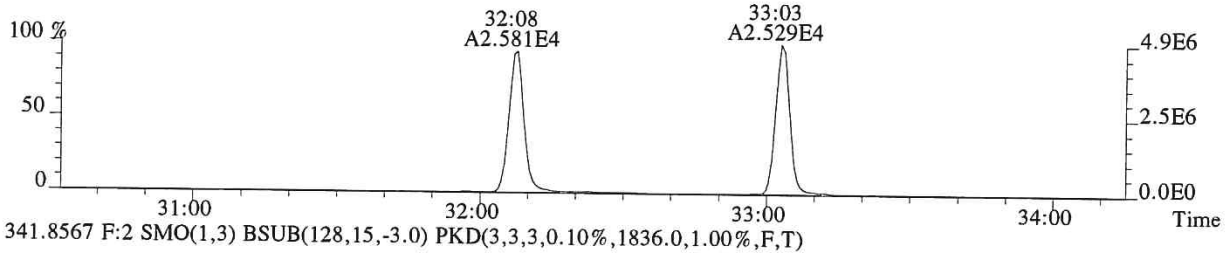
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



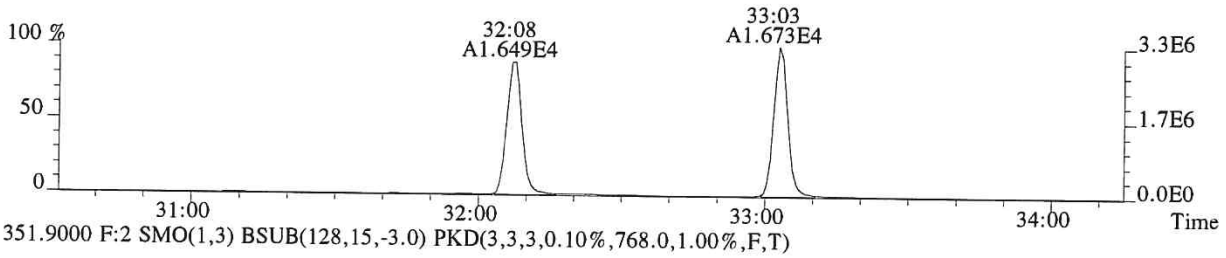
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



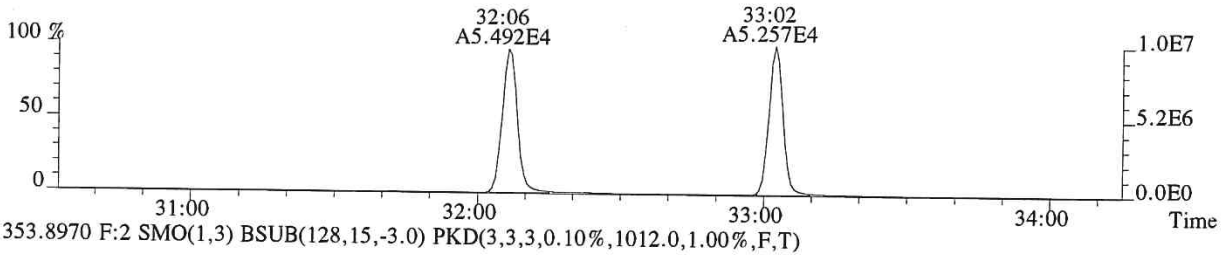
File:P519332 #1-335 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



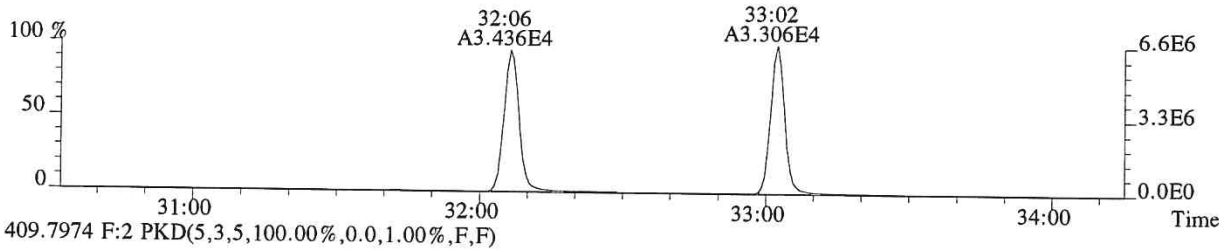
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1836.0,1.00%,F,T)



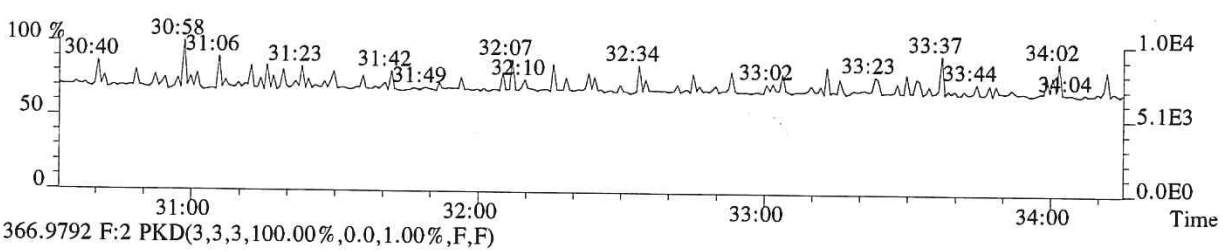
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



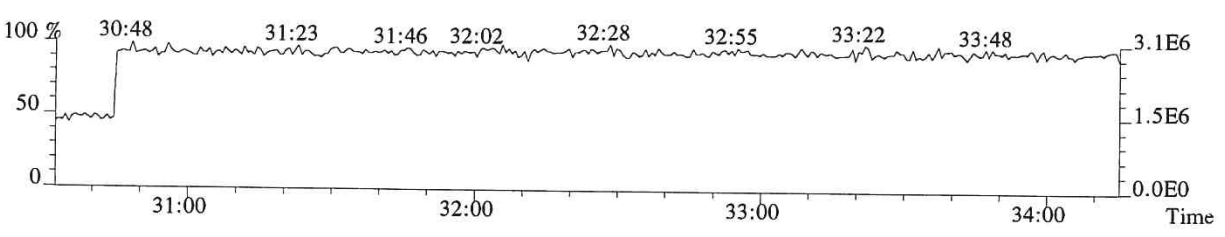
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

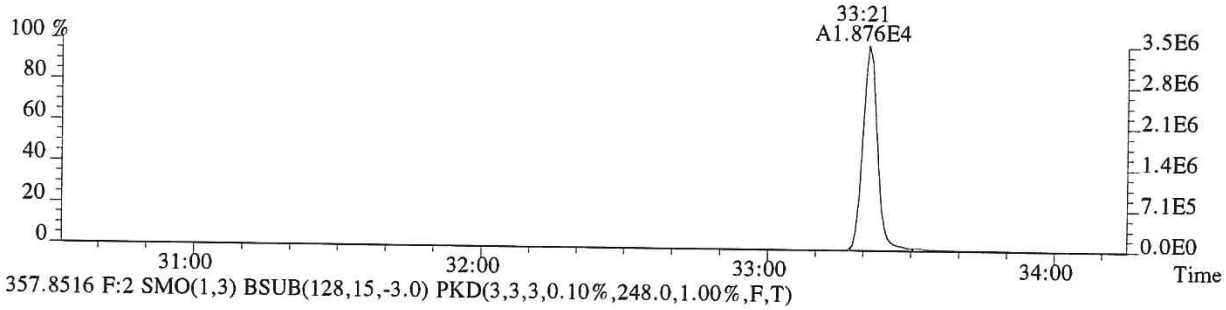


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

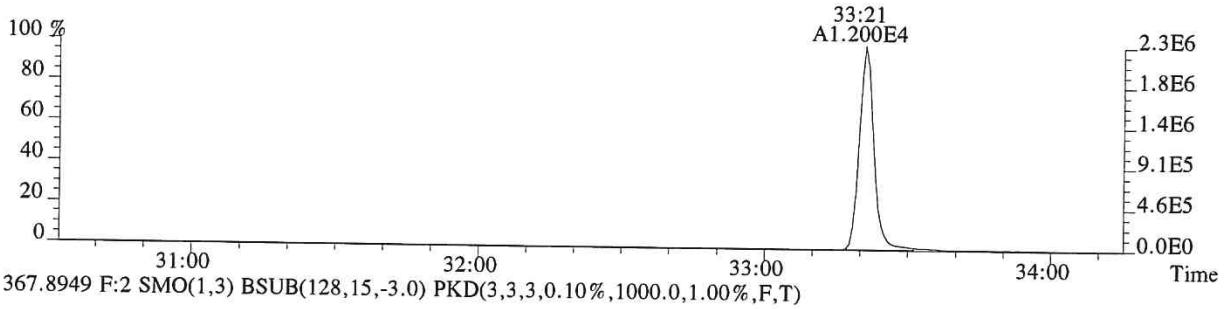


011380

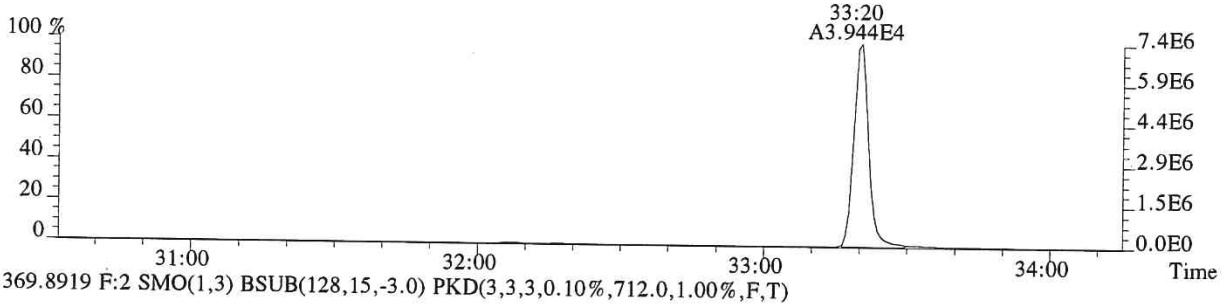
File:P519332 #1-335 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



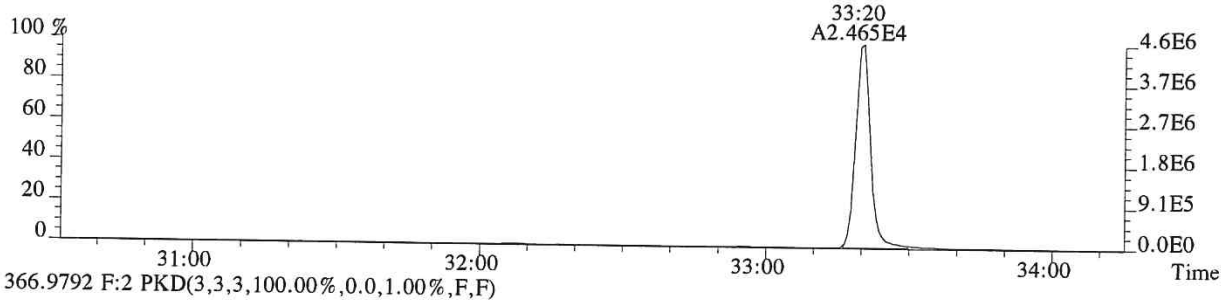
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



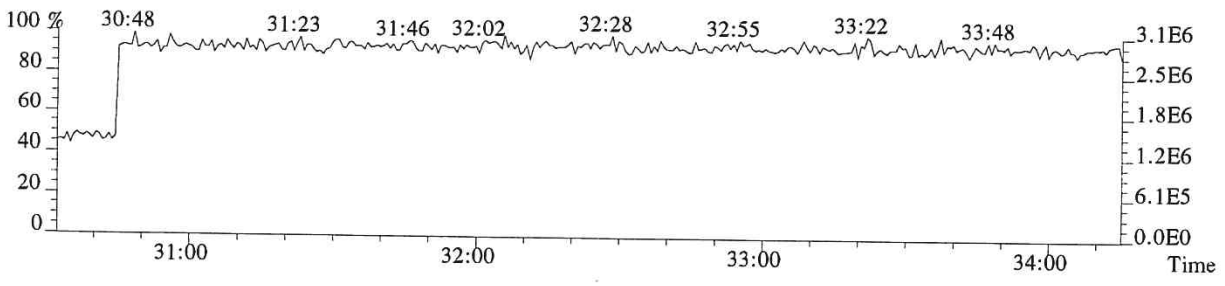
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)

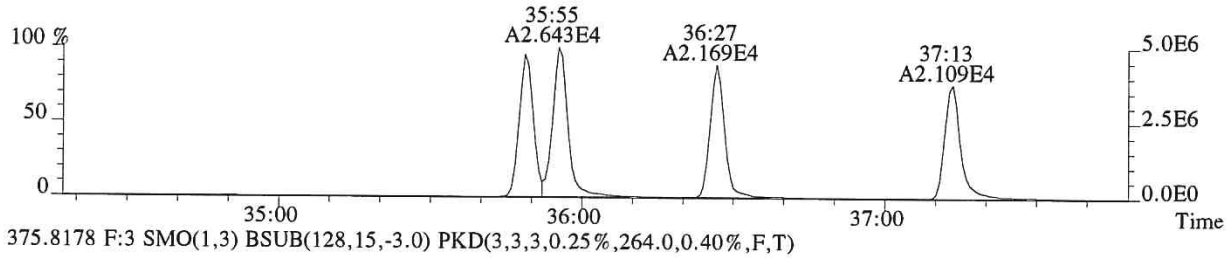


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

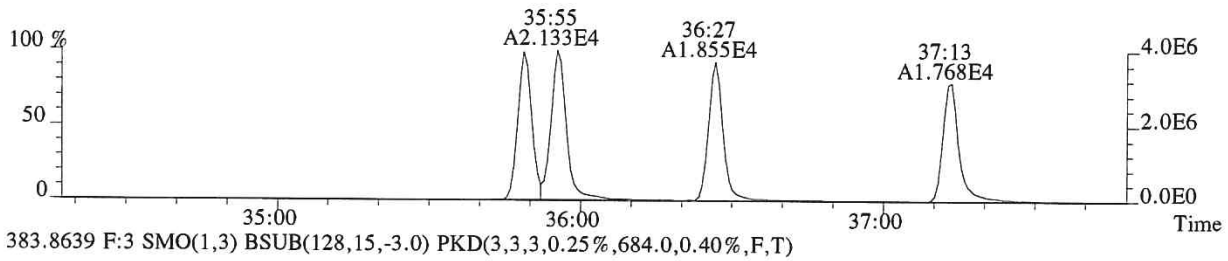


011381

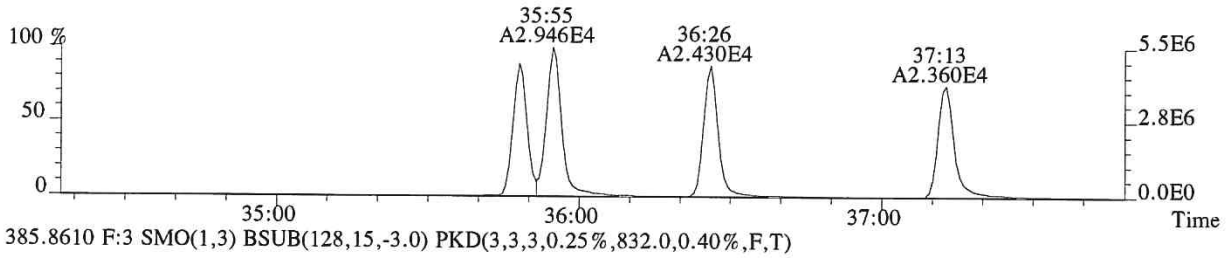
File:P519332 #1-317 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



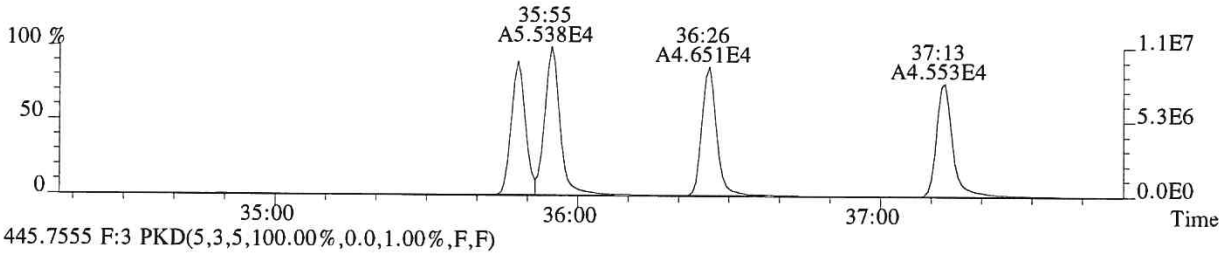
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



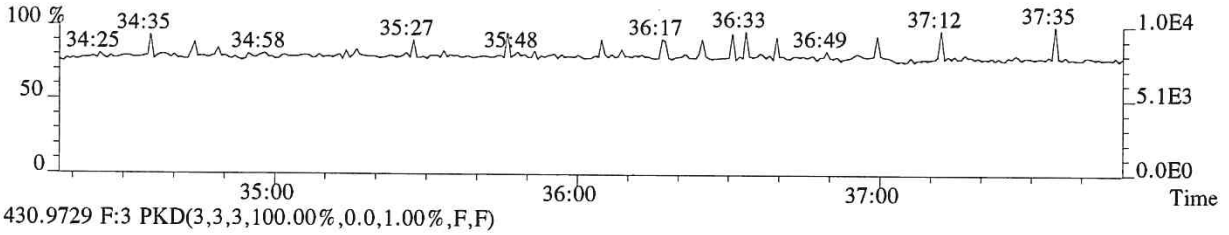
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



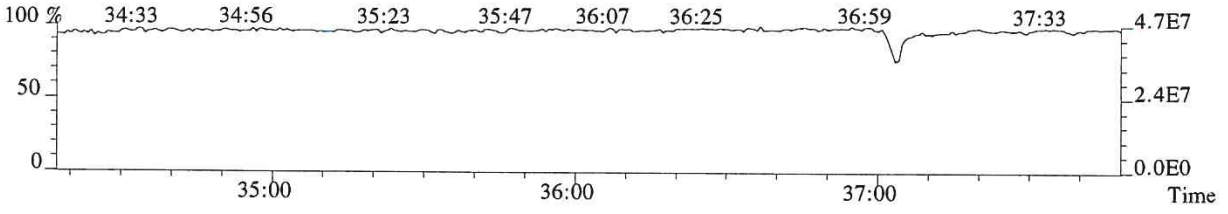
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

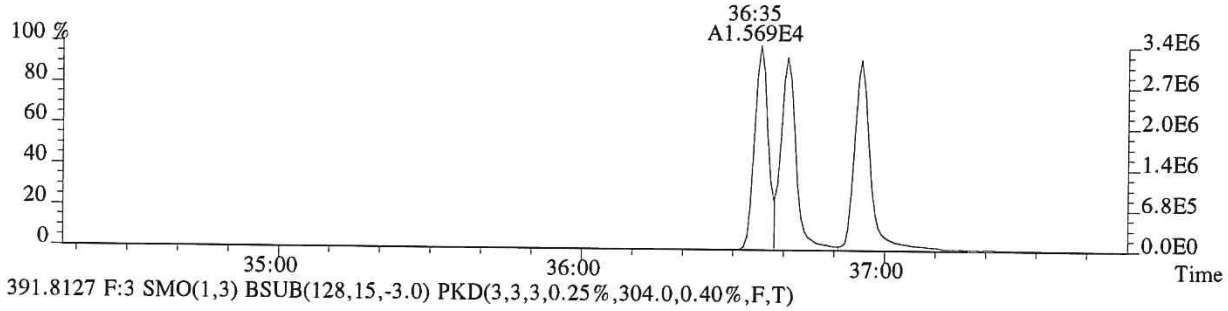


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

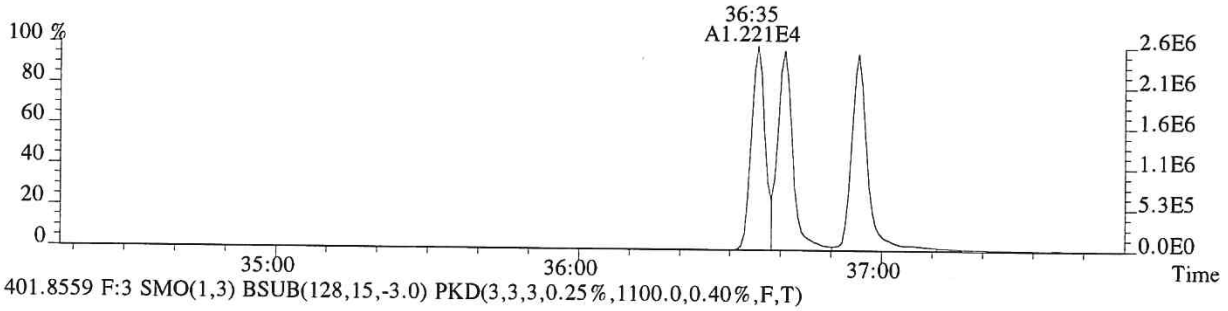


011382

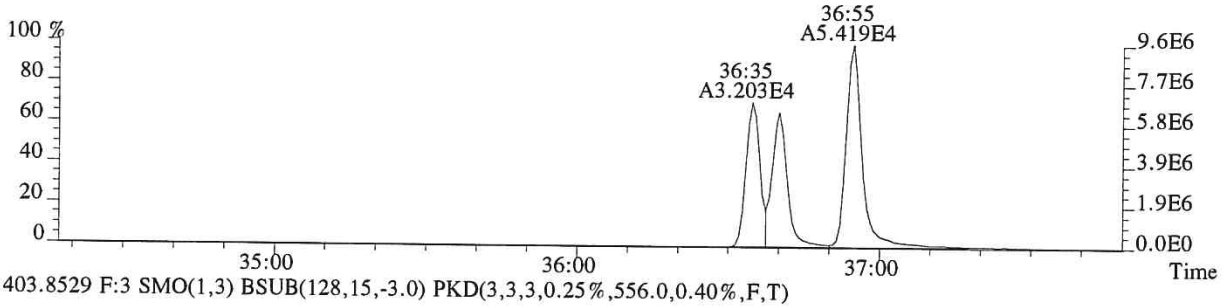
File:P519332 #1-317 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



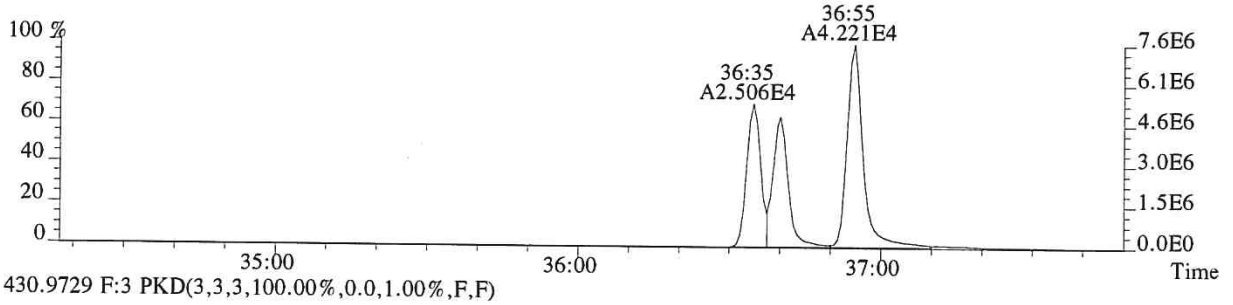
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



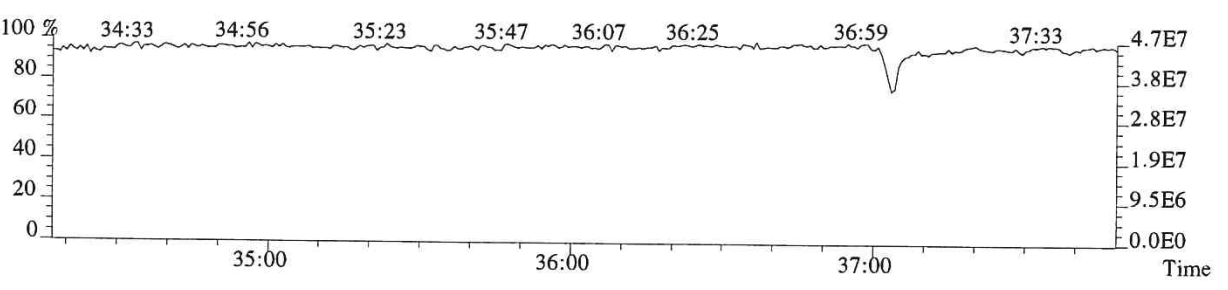
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)

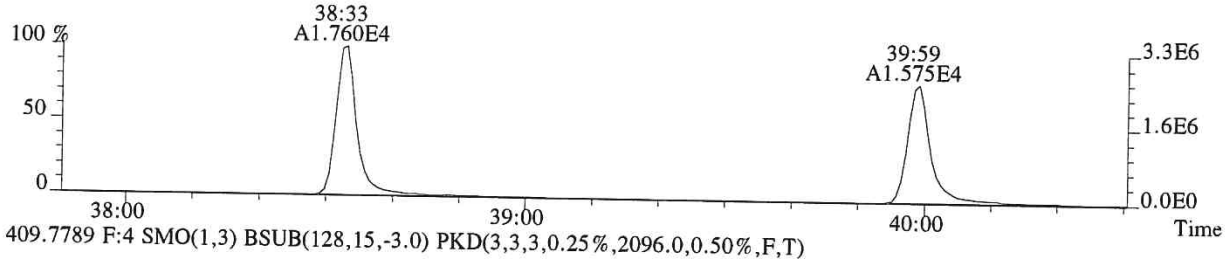


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

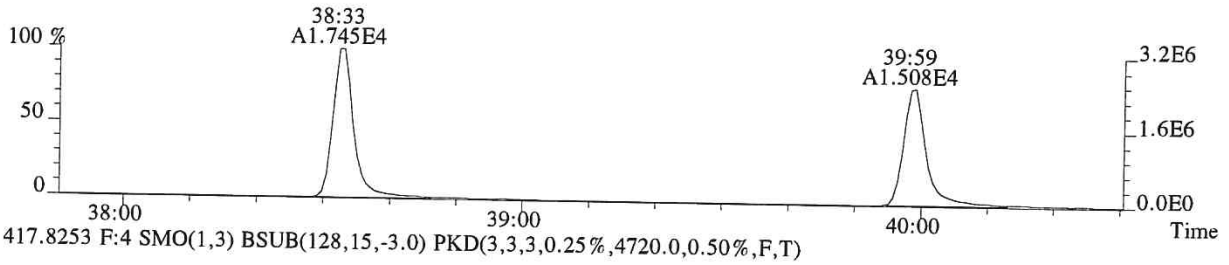


011383

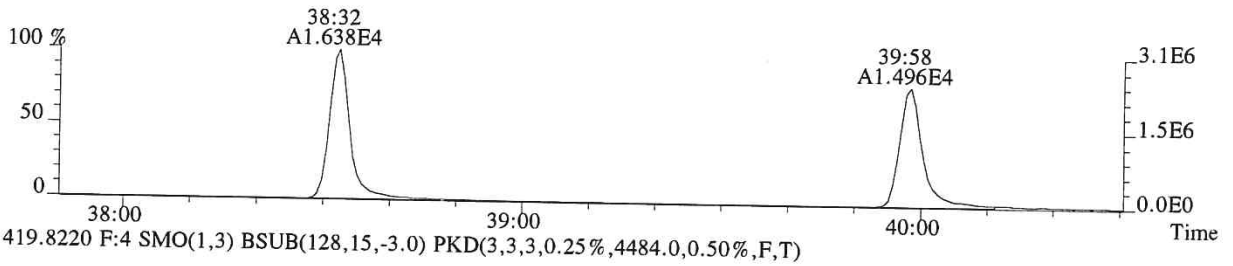
File:P519332 #1-241 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1640.0,0.50%,F,T)



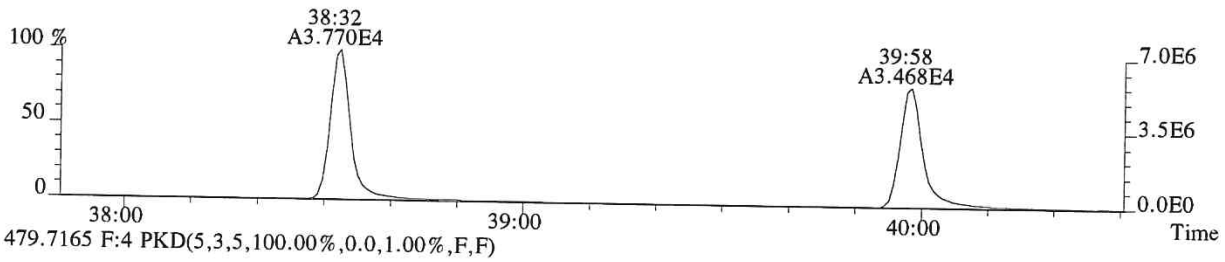
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2096.0,0.50%,F,T)



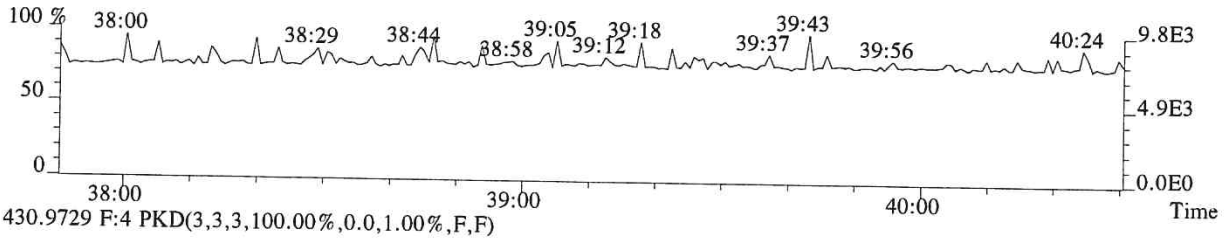
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.50%,F,T)



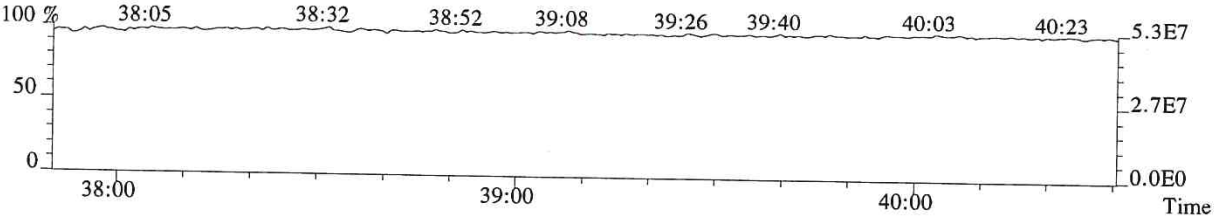
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4484.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

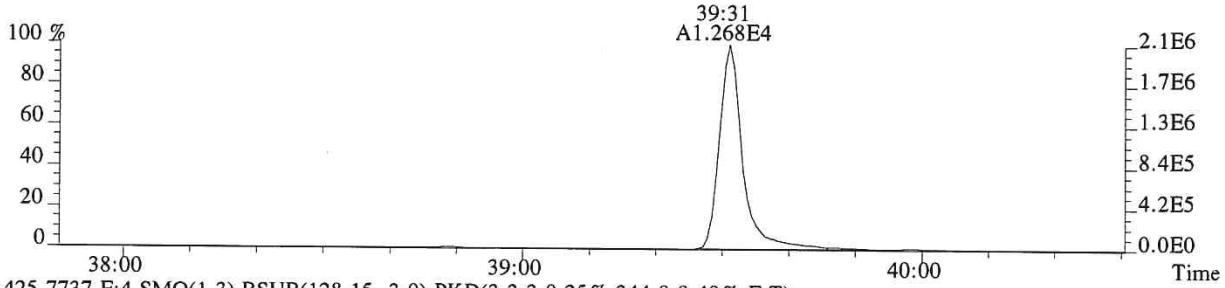


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

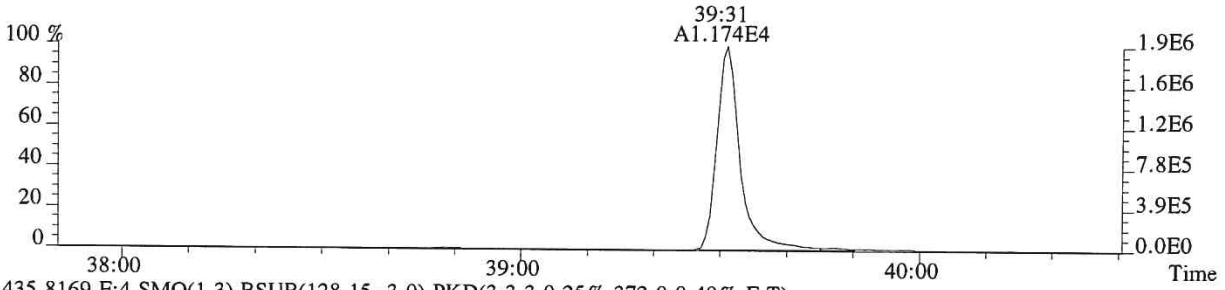


011384

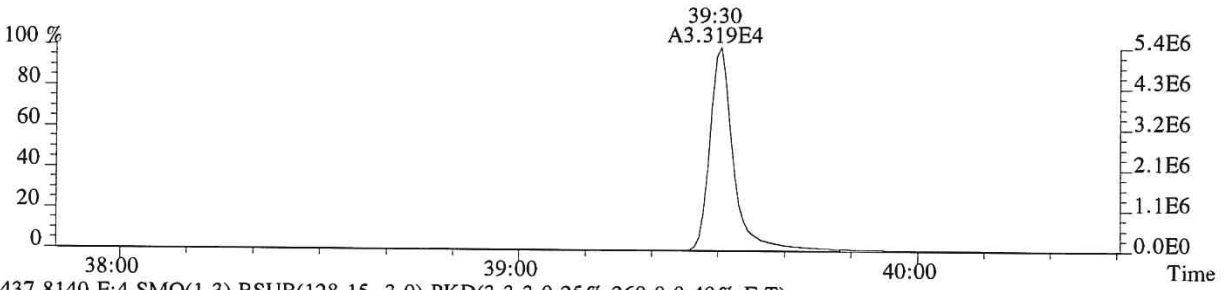
File:P519332 #1-241 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



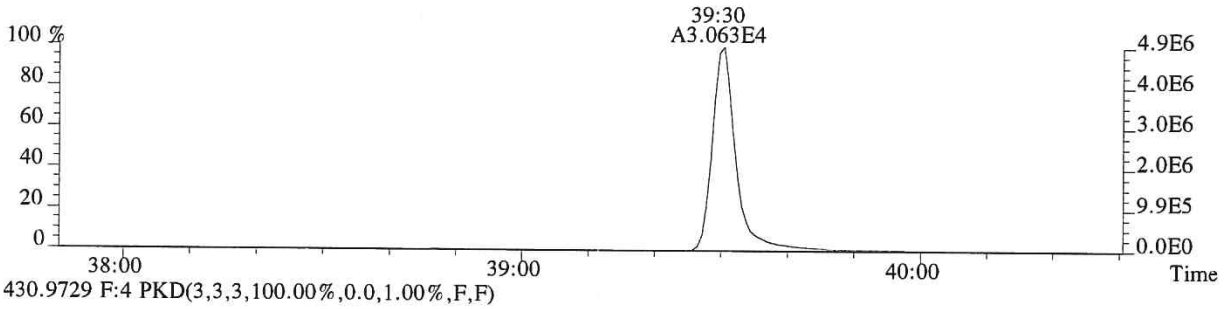
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



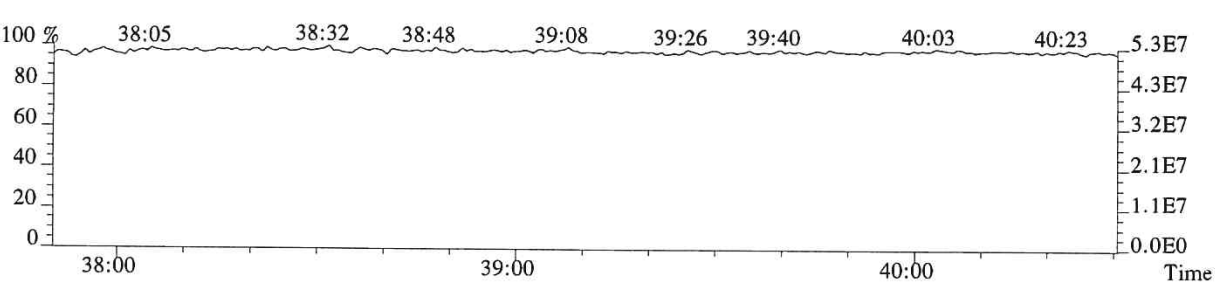
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)

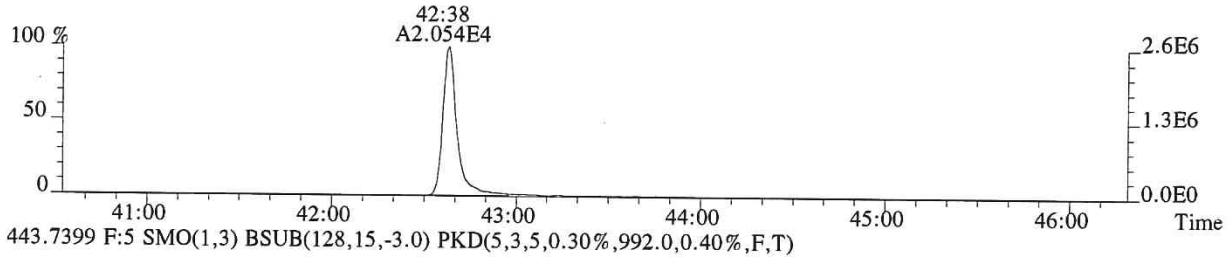


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

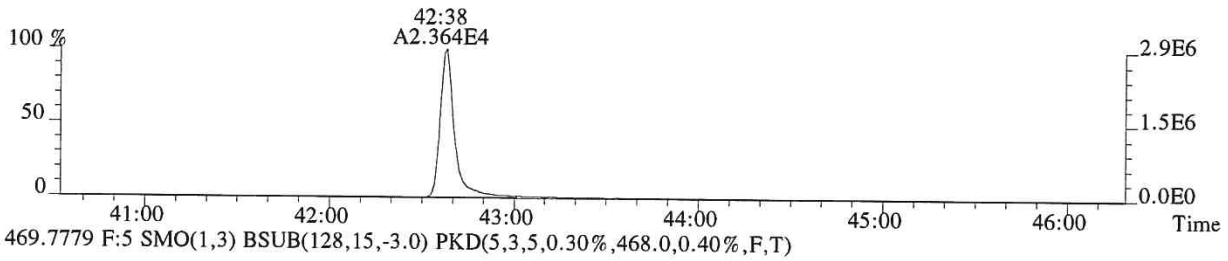


011385

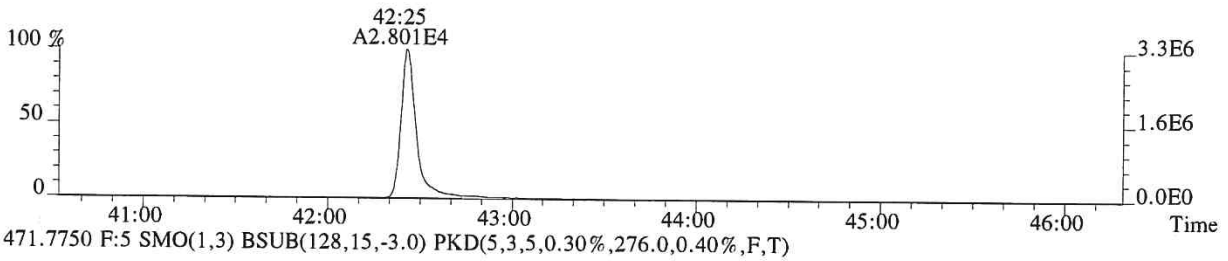
File:P519332 #1-520 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



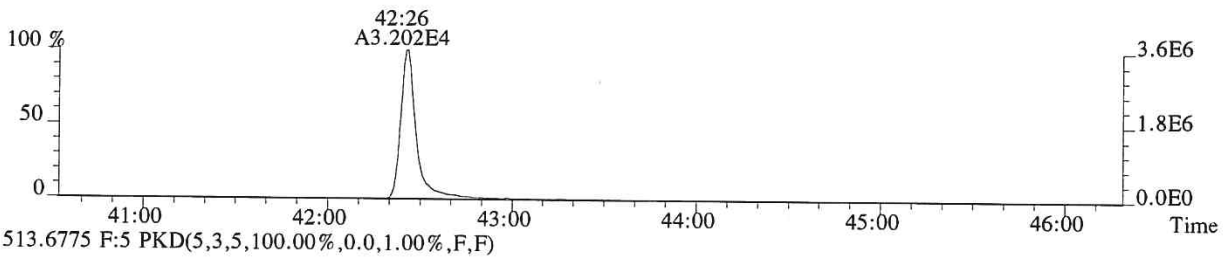
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,992.0,0.40%,F,T)



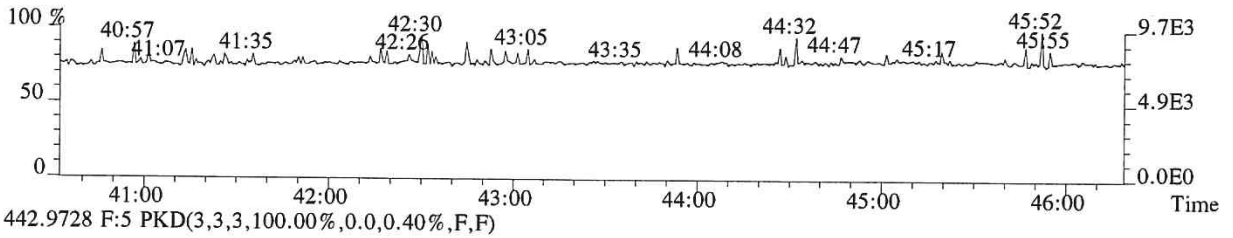
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



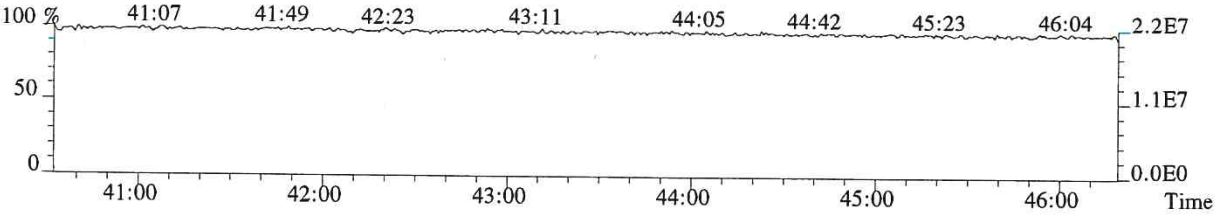
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



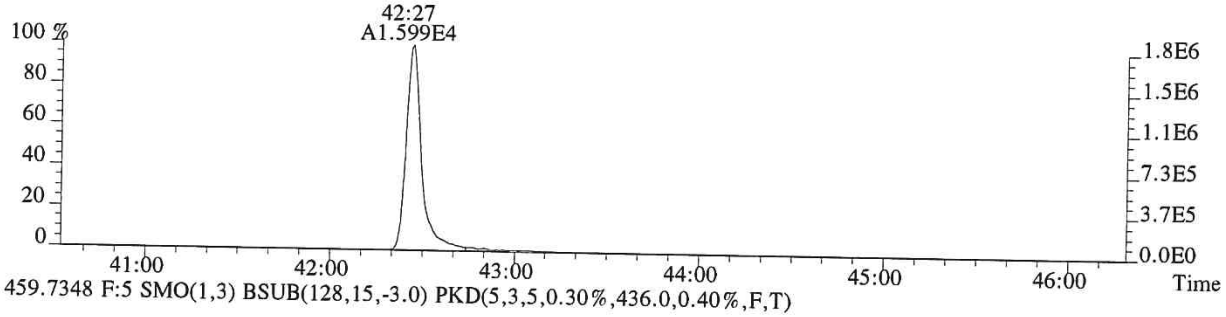
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



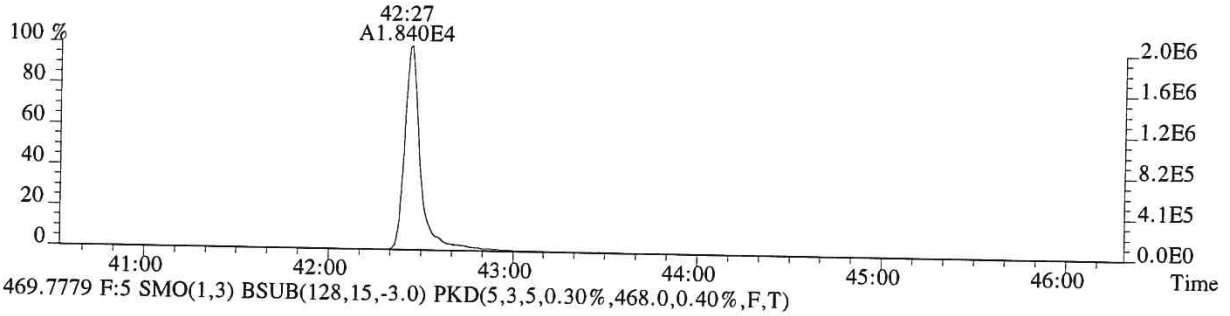
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



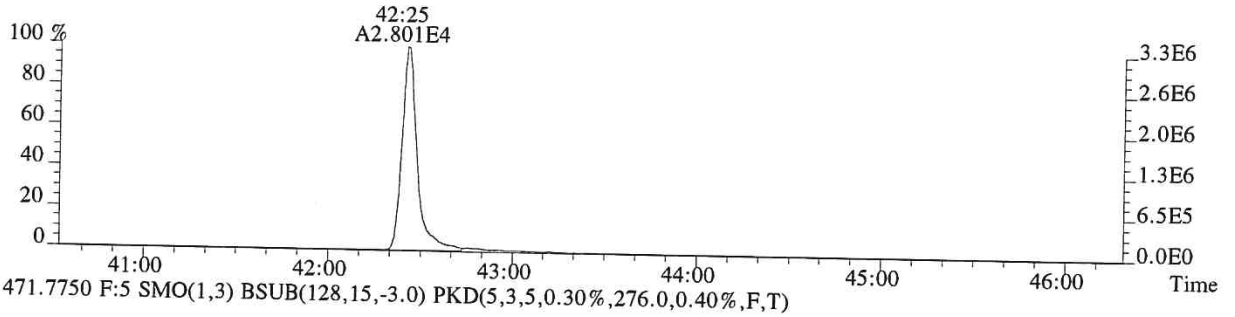
File:P519332 #1-520 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



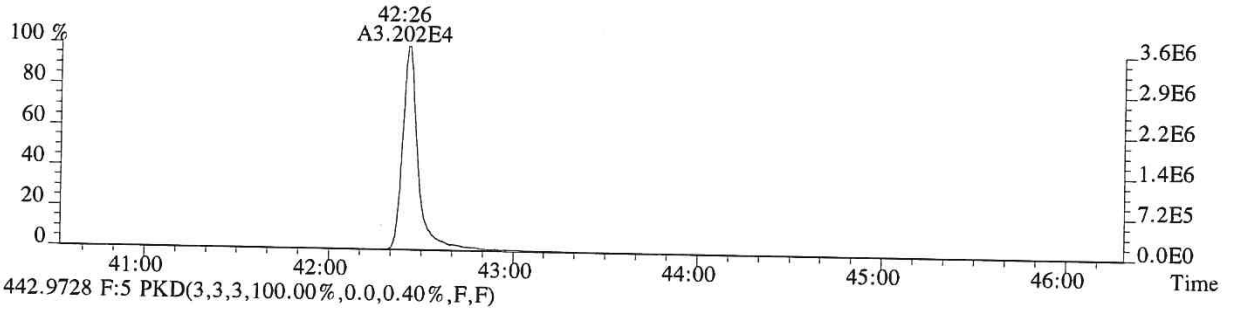
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



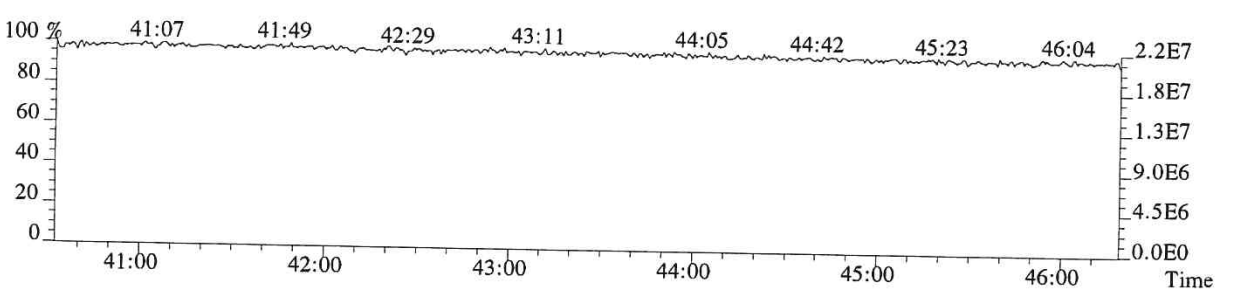
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P519333 Samp: 1 Inj: 1 Acquired: 10-DEC-18 20:07:48
Processed: 11-DEC-18 15:18:42 Sample ID: EQ1800498-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.973e+03	2.551e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	1.550e+04	1.019e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.623e+04	1.051e+04	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	1.242e+04	1.002e+04	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.350e+04	1.117e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.118e+04	9.598e+03	1.16	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:12	1.046e+04	8.548e+03	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	8.134e+03	8.127e+03	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	7.053e+03	6.835e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:38	7.796e+03	9.102e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	1.530e+03	1.950e+03	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.146e+04	7.300e+03	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	8.576e+03	6.723e+03	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:39	9.154e+03	7.331e+03	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	8.745e+03	7.229e+03	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	5.731e+03	5.035e+03	1.14	yes	no	1.025
17	Unk	OCDD	42:27	5.402e+03	6.241e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	2.172e+04	2.806e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	3.332e+04	2.093e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	3.337e+04	2.086e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.292e+04	2.491e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.550e+04	2.984e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.257e+04	2.415e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	1.142e+04	2.246e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	7.414e+03	1.721e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	6.753e+03	1.563e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	9.285e+03	1.168e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	2.426e+04	1.480e+04	1.64	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.778e+04	1.301e+04	1.37	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.769e+04	1.461e+04	1.21	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	1.456e+04	1.351e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:26	9.537e+03	1.045e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	2.896e+04	3.632e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	4.119e+04	3.417e+04	1.21	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.358e+04				no	1.014

$$\text{OCDD} = \frac{(5.402e+03 + 6.241e+03) \times 4000\ \text{pg} \times 1}{(9.537e+03 + 1.045e+04) \times \text{g} \times / 100 \times 1.118}$$

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10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P519333 Samp: 1 Inj: 1 Acquired: 10-DEC-18 20:07:48
Processed: 11-DEC-18 15:18:42 LAB. ID: EQ1800498-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.43e+05	7.04e+02	4.9e+02	4.66e+05	1.27e+03	3.7e+02
2	1,2,3,7,8-PeCDF	2.85e+06	4.72e+02	6.0e+03	1.87e+06	1.34e+03	1.4e+03
3	2,3,4,7,8-PeCDF	3.13e+06	4.72e+02	6.6e+03	2.01e+06	1.34e+03	1.5e+03
4	1,2,3,4,7,8-HxCDF	2.56e+06	6.16e+02	4.2e+03	2.04e+06	3.72e+02	5.5e+03
5	1,2,3,6,7,8-HxCDF	2.58e+06	6.16e+02	4.2e+03	2.12e+06	3.72e+02	5.7e+03
6	2,3,4,6,7,8-HxCDF	2.22e+06	6.16e+02	3.6e+03	1.88e+06	3.72e+02	5.1e+03
7	1,2,3,7,8,9-HxCDF	1.89e+06	6.16e+02	3.1e+03	1.53e+06	3.72e+02	4.1e+03
8	1,2,3,4,6,7,8-HpCDF	1.52e+06	1.30e+03	1.2e+03	1.51e+06	3.28e+03	4.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.14e+06	1.30e+03	8.8e+02	1.10e+06	3.28e+03	3.4e+02
10	OCDF	9.48e+05	2.20e+02	4.3e+03	1.09e+06	8.80e+02	1.2e+03
11	2,3,7,8-TCDD	2.66e+05	2.46e+03	1.1e+02	3.61e+05	1.23e+03	2.9e+02
12	1,2,3,7,8-PeCDD	2.11e+06	6.36e+02	3.3e+03	1.33e+06	2.20e+02	6.0e+03
13	1,2,3,4,7,8-HxCDD	1.74e+06	3.16e+02	5.5e+03	1.36e+06	3.76e+02	3.6e+03
14	1,2,3,6,7,8-HxCDD	1.76e+06	3.16e+02	5.6e+03	1.43e+06	3.76e+02	3.8e+03
15	1,2,3,7,8,9-HxCDD	1.54e+06	3.16e+02	4.9e+03	1.26e+06	3.76e+02	3.3e+03
16	1,2,3,4,6,7,8-HpCDD	9.27e+05	3.52e+02	2.6e+03	8.48e+05	2.68e+02	3.2e+03
17	OCDD	6.31e+05	1.92e+02	3.3e+03	7.48e+05	3.32e+02	2.3e+03
18	13C-2,3,7,8-TCDF	3.79e+06	8.16e+03	4.6e+02	4.88e+06	5.87e+03	8.3e+02
19	13C-1,2,3,7,8-PeCDF	6.02e+06	4.64e+02	1.3e+04	3.82e+06	3.40e+02	1.1e+04
20	13C-2,3,4,7,8-PeCDF	6.34e+06	4.64e+02	1.4e+04	4.02e+06	3.40e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	2.66e+06	1.06e+03	2.5e+03	5.00e+06	6.52e+02	7.7e+03
22	13C-1,2,3,6,7,8-HxCDF	2.93e+06	1.06e+03	2.8e+03	5.53e+06	6.52e+02	8.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.49e+06	1.06e+03	2.4e+03	4.78e+06	6.52e+02	7.3e+03
24	13C-1,2,3,7,8,9-HxCDF	2.06e+06	1.06e+03	2.0e+03	4.01e+06	6.52e+02	6.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.38e+06	1.54e+03	9.0e+02	3.18e+06	3.26e+03	9.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.07e+06	1.54e+03	7.0e+02	2.46e+06	3.26e+03	7.5e+02
27	13C-2,3,7,8-TCDD	1.74e+06	6.17e+03	2.8e+02	2.17e+06	2.07e+03	1.0e+03
28	13C-1,2,3,7,8-PeCDD	4.59e+06	9.96e+02	4.6e+03	2.81e+06	7.12e+02	3.9e+03
29	13C-1,2,3,4,7,8-HxCDD	3.64e+06	8.52e+02	4.3e+03	2.77e+06	6.76e+02	4.1e+03
30	13C-1,2,3,6,7,8-HxCDD	3.34e+06	8.52e+02	3.9e+03	2.67e+06	6.76e+02	4.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.40e+06	4.24e+02	5.7e+03	2.19e+06	2.76e+02	7.9e+03
32	13C-OCDD	1.10e+06	3.52e+02	3.1e+03	1.26e+06	2.68e+02	4.7e+03
33	13C-1,2,3,4-TCDD	5.35e+06	6.17e+03	8.7e+02	6.75e+06	2.07e+03	3.3e+03
34	13C-1,2,3,7,8,9-HxCDD	7.60e+06	8.52e+02	8.9e+03	5.99e+06	6.76e+02	8.9e+03
35	37Cl-2,3,7,8-TCDD	2.50e+06	5.28e+02	4.7e+03			

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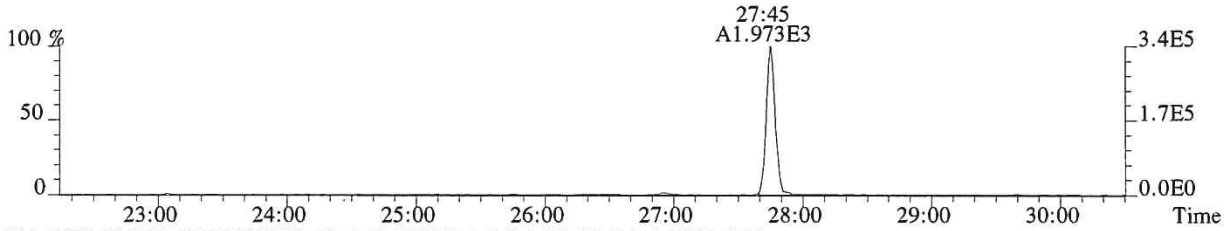
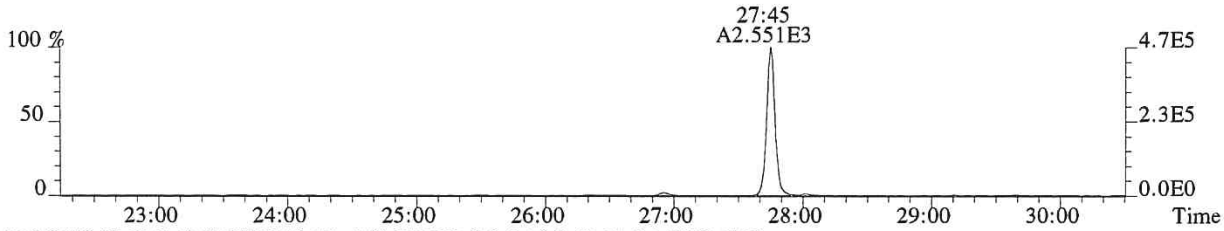
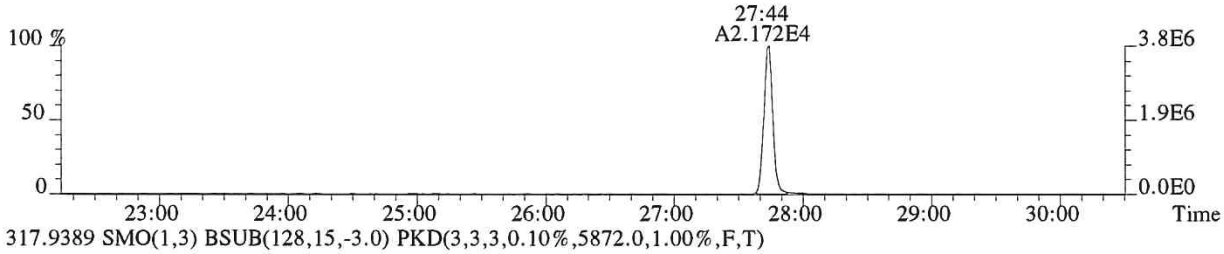
File:P519333 #1-587 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



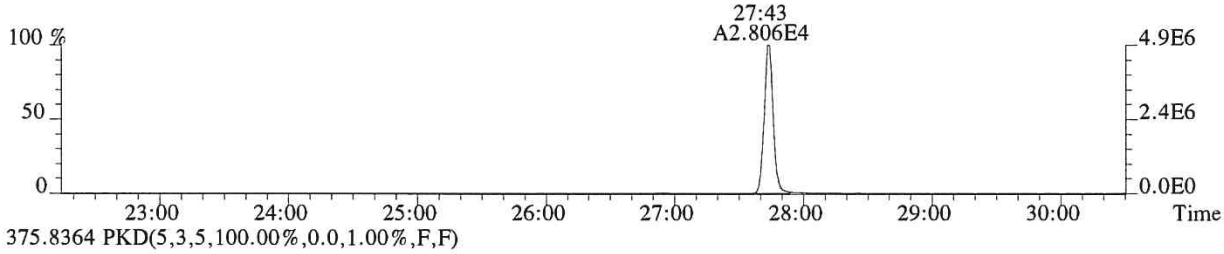
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



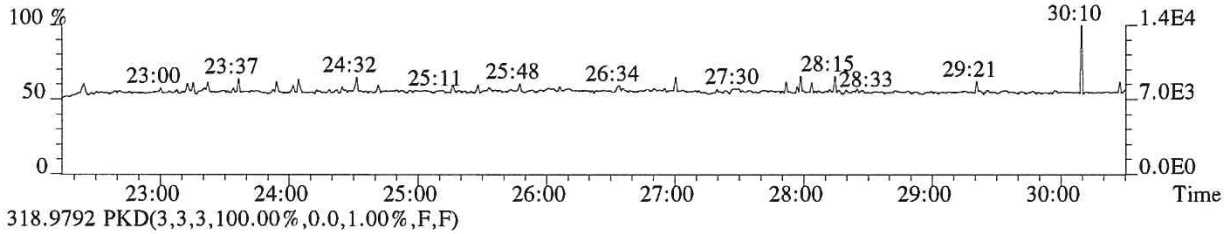
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8164.0,1.00%,F,T)



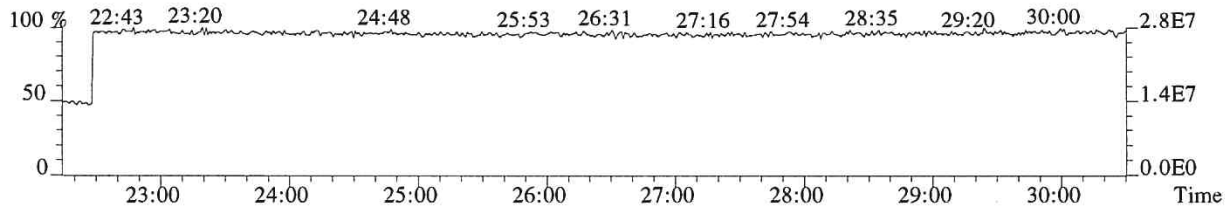
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



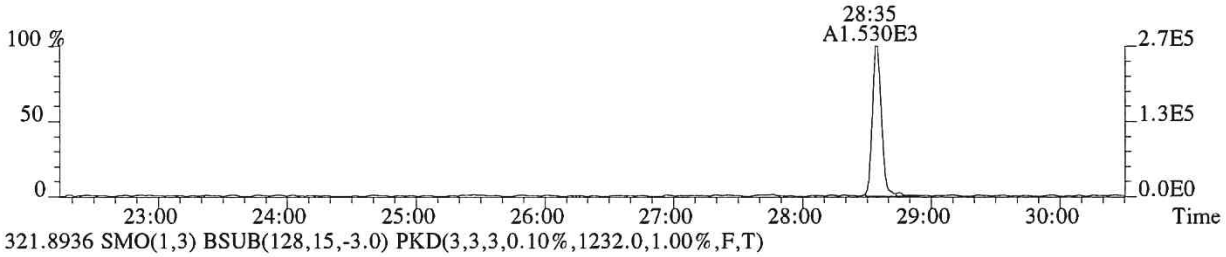
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



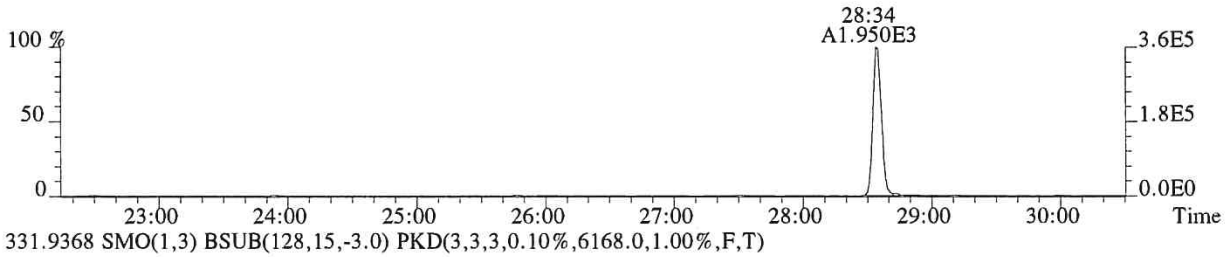
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



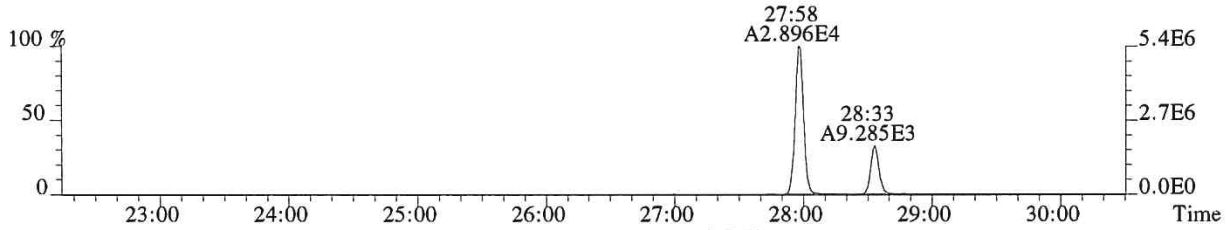
File:P519333 #1-587 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2456.0,1.00%,F,T)



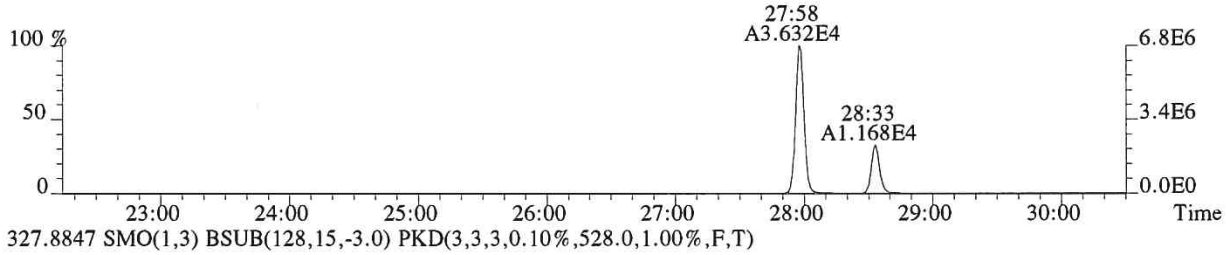
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



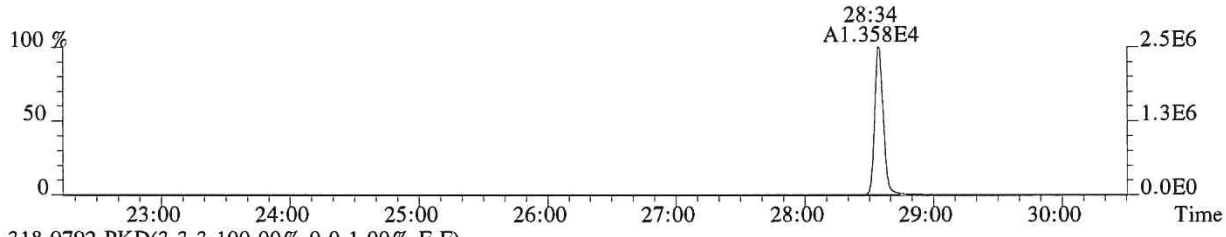
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6168.0,1.00%,F,T)



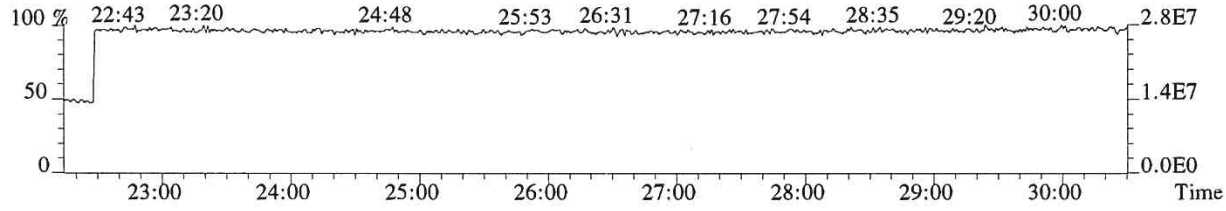
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2072.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)

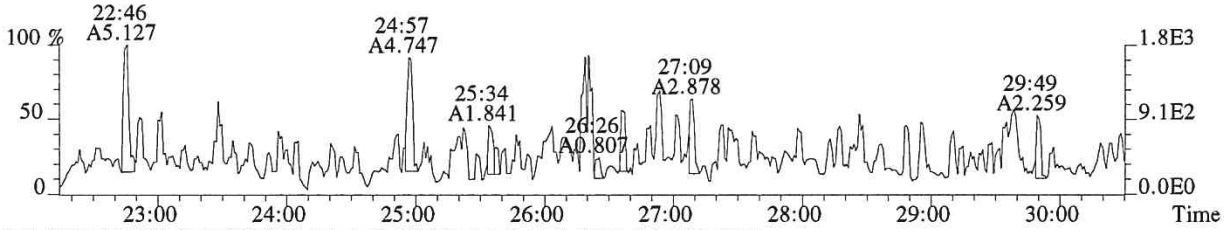


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

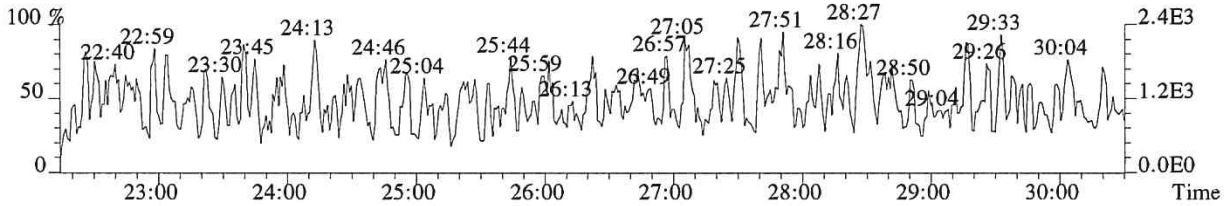


011391

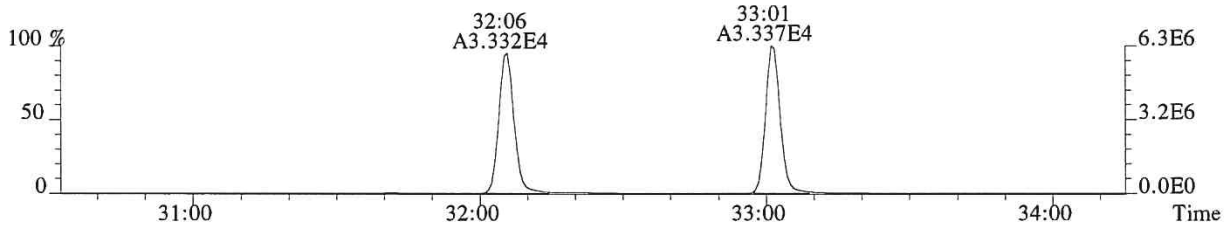
File:P519333 #1-587 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



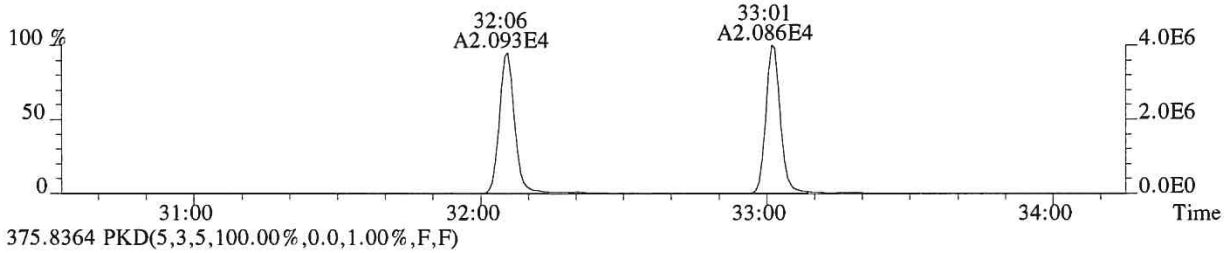
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1440.0,1.00%,F,T)



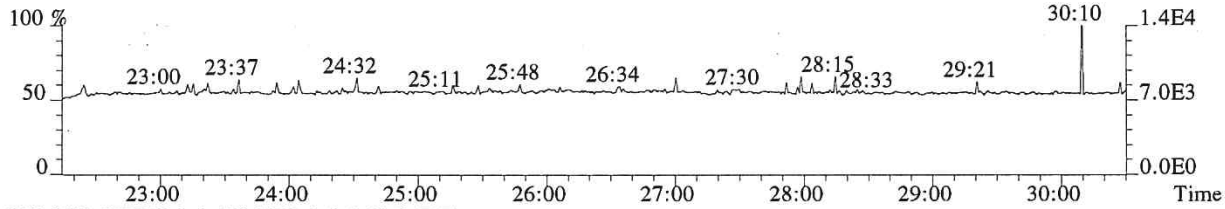
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



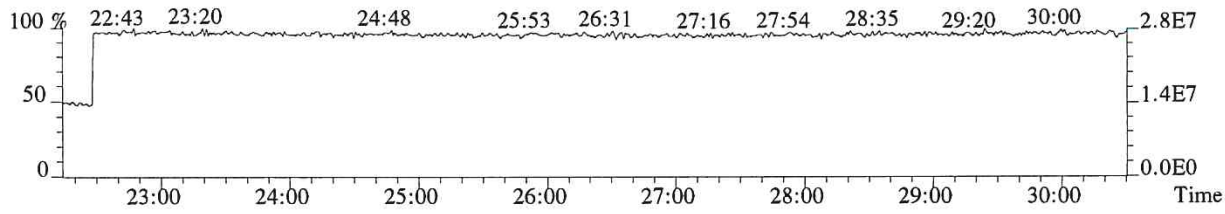
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



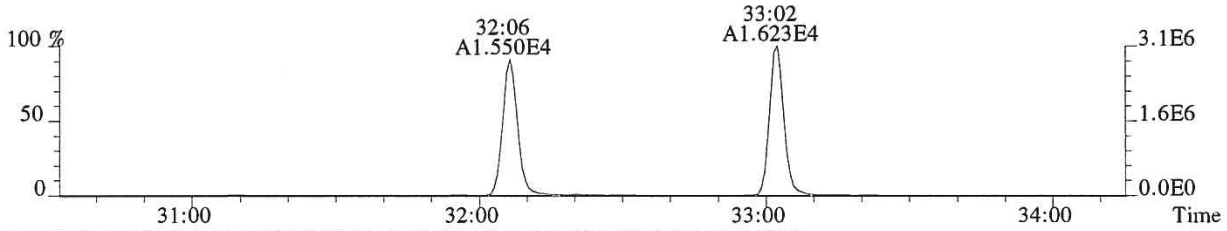
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



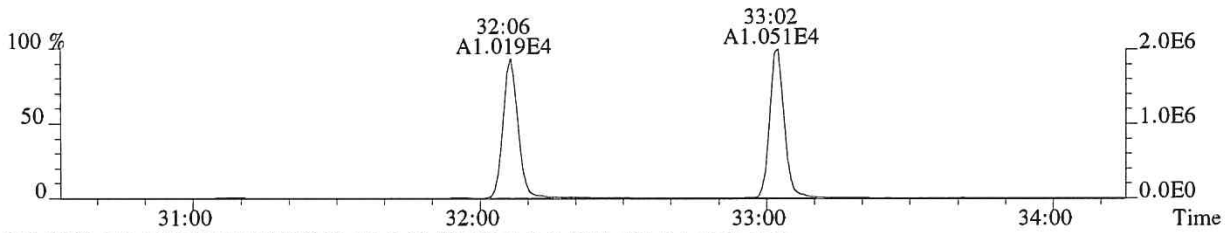
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



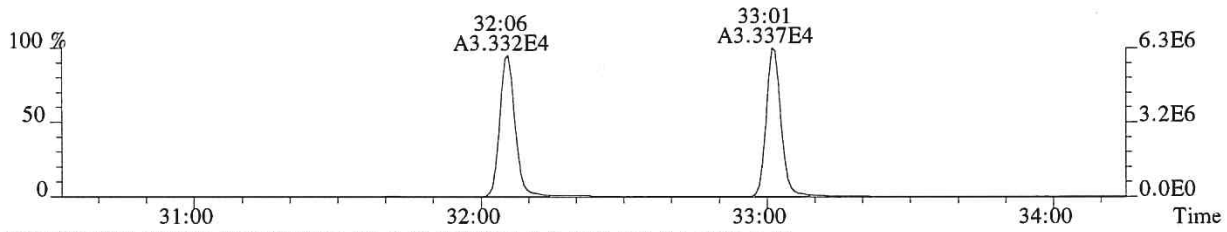
File:P519333 #1-335 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



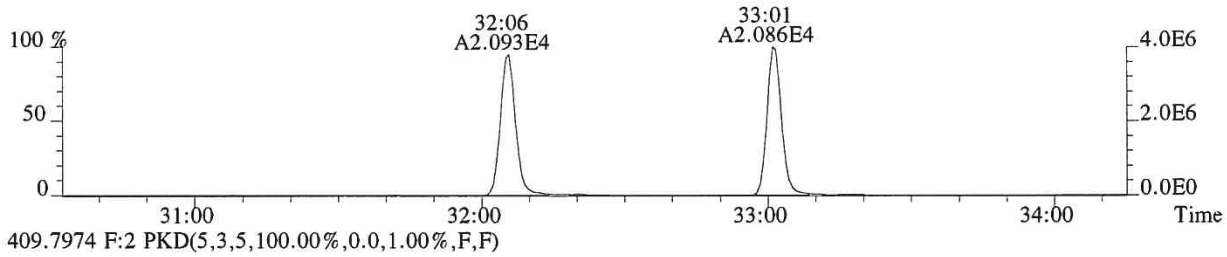
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



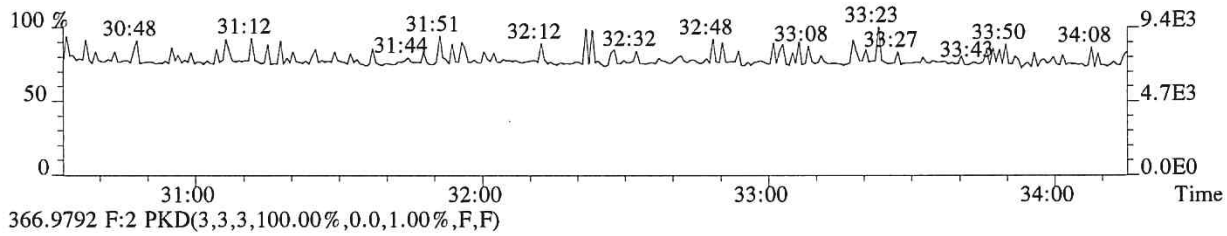
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



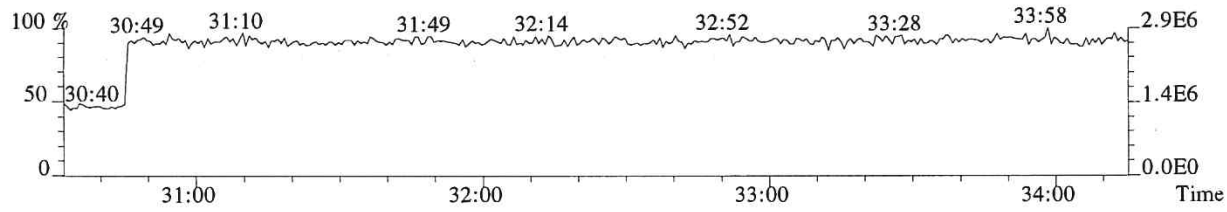
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

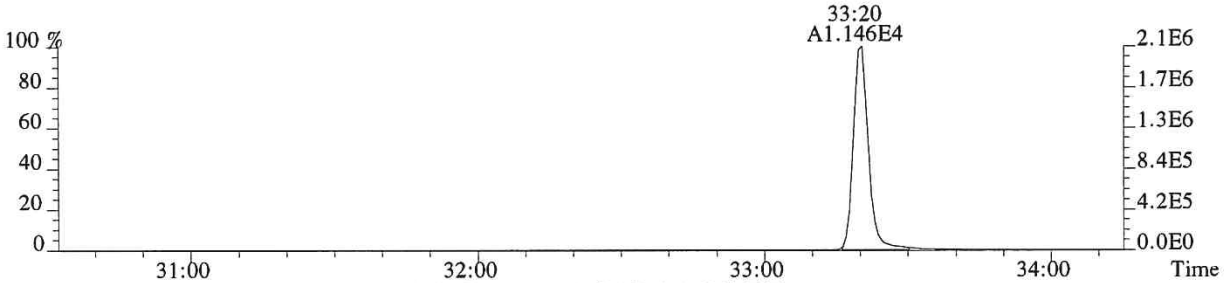


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

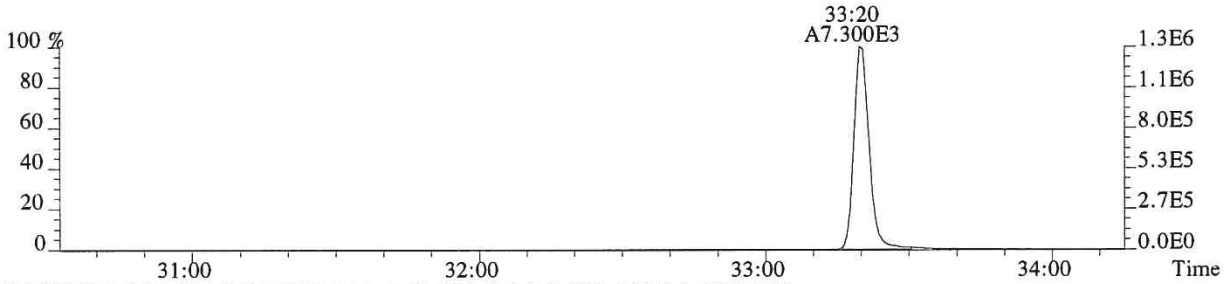


011393

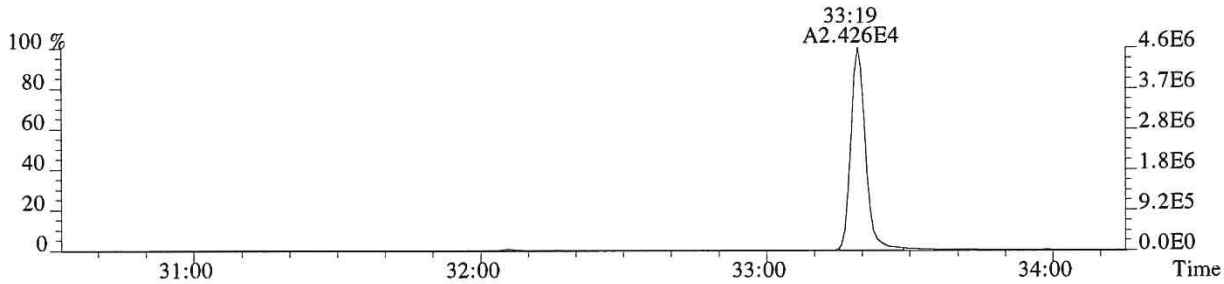
File:P519333 #1-335 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



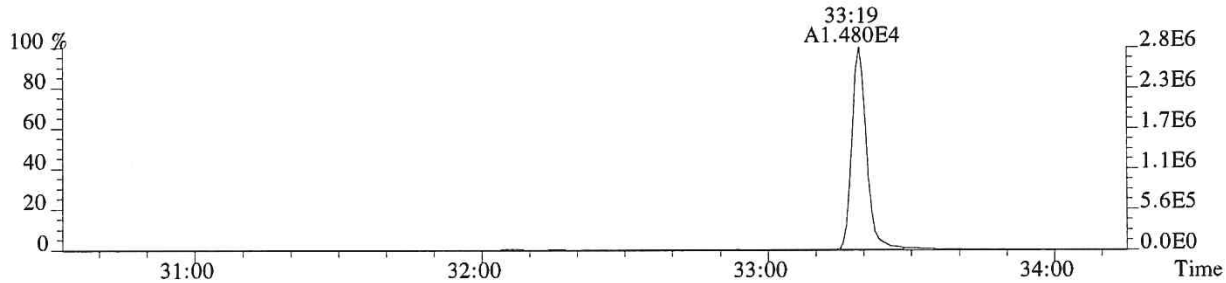
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



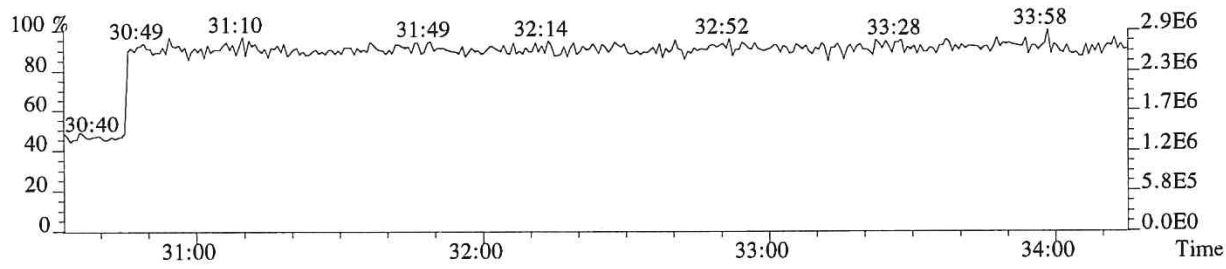
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



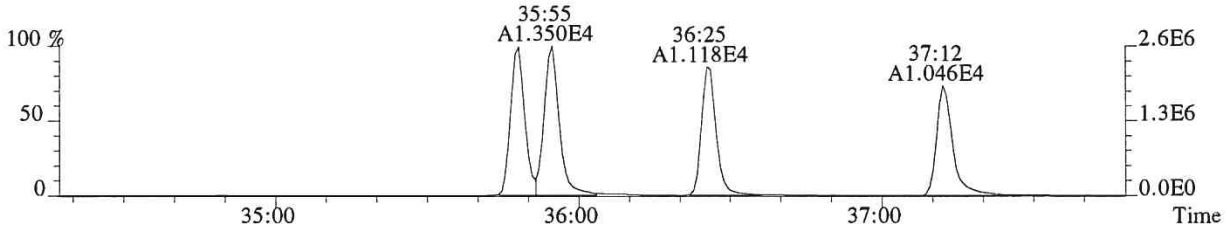
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



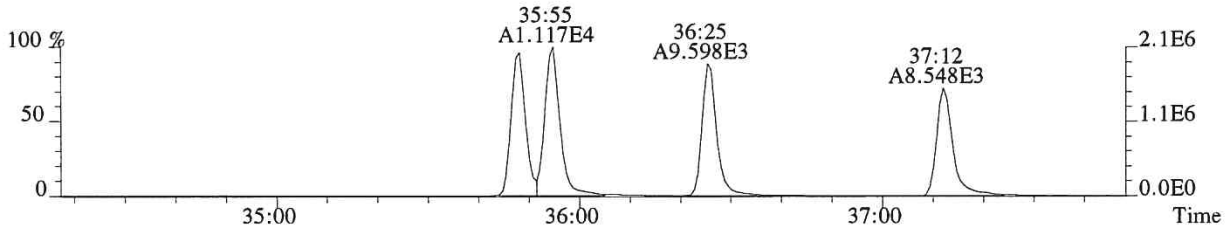
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



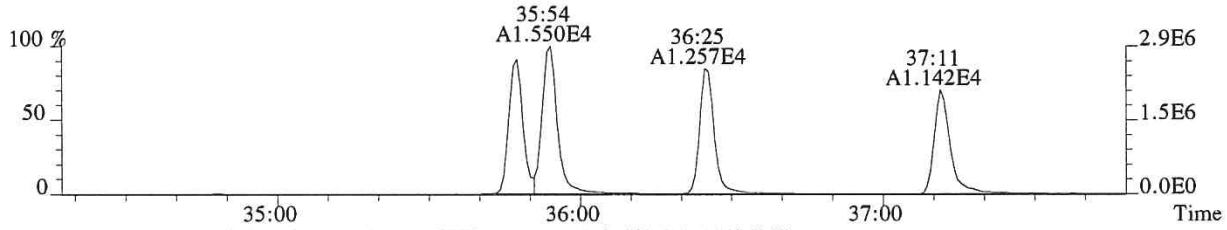
File:P519333 #1-317 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



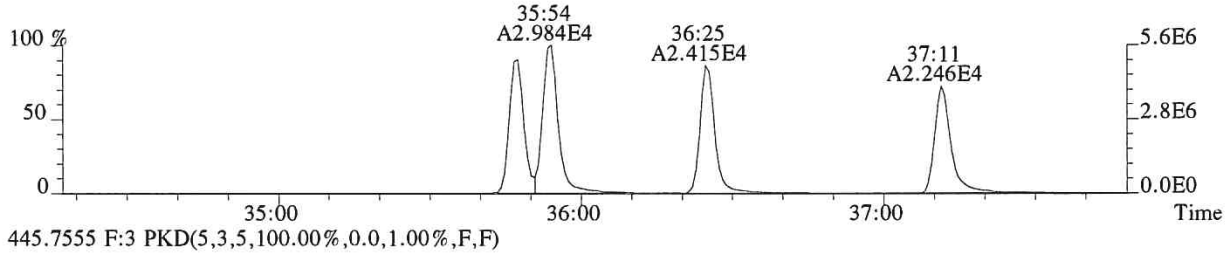
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



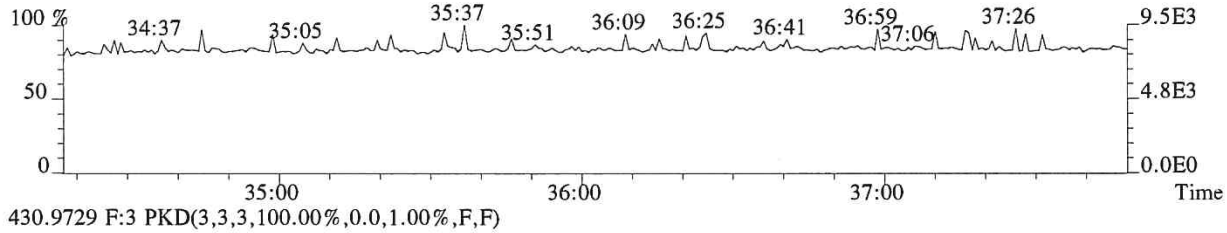
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



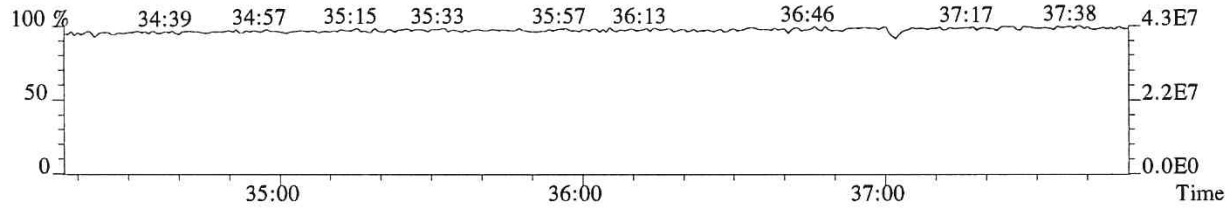
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



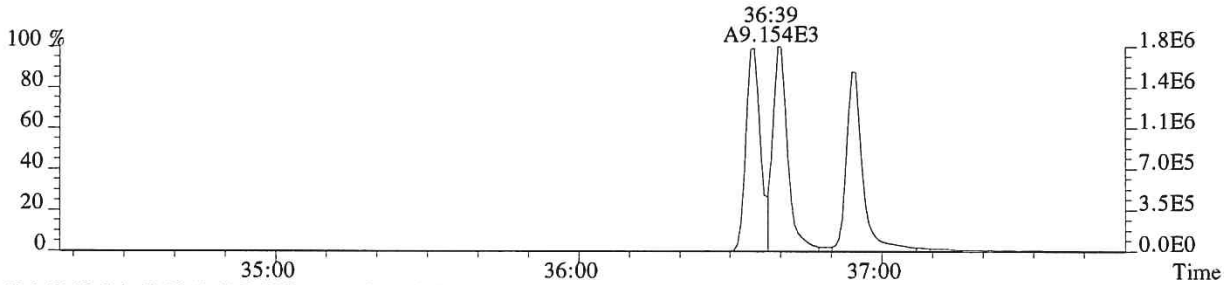
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



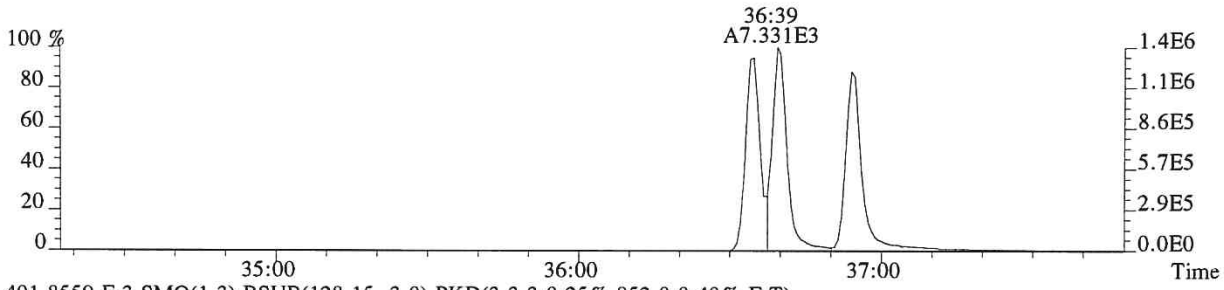
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



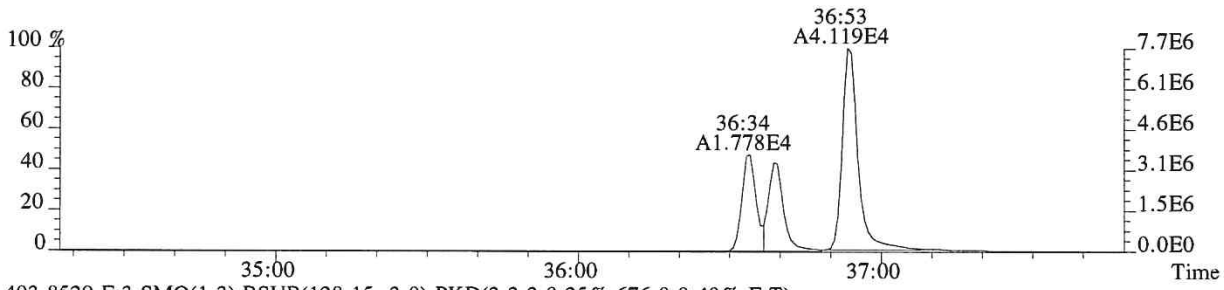
File:P519333 #1-317 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



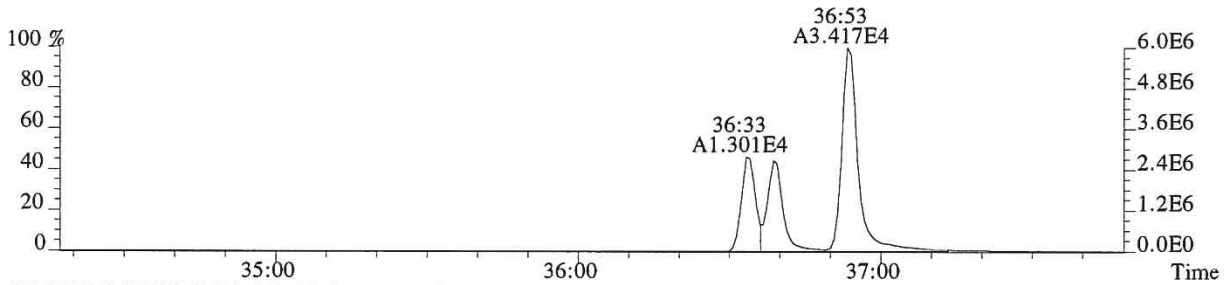
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



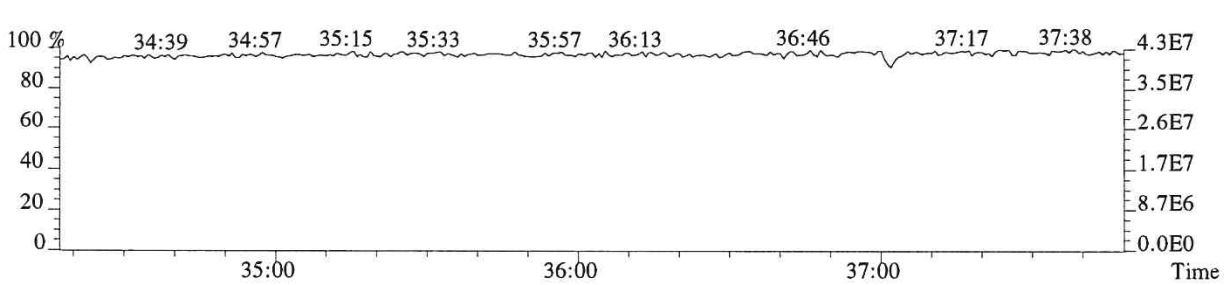
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



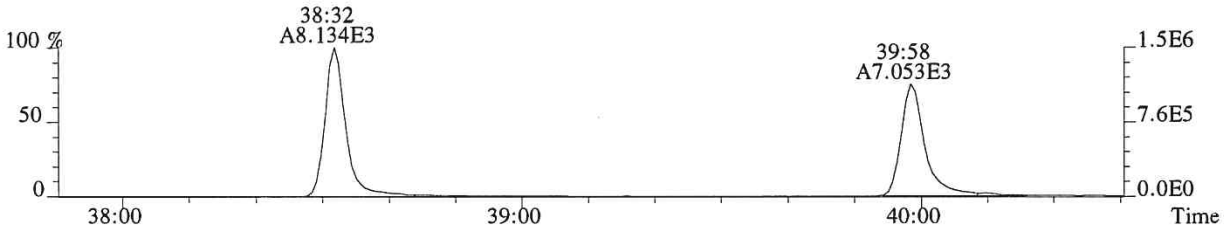
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



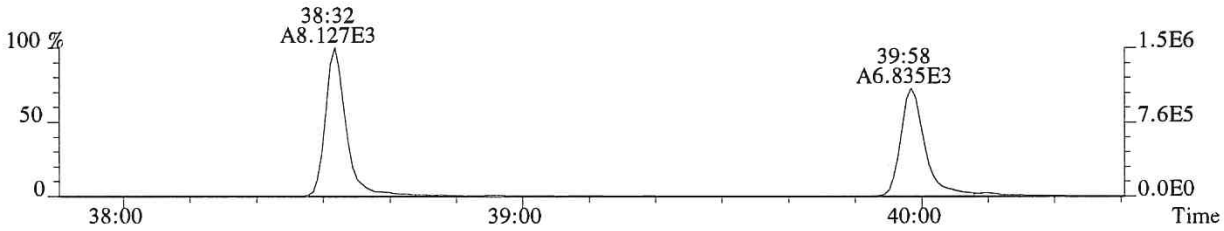
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



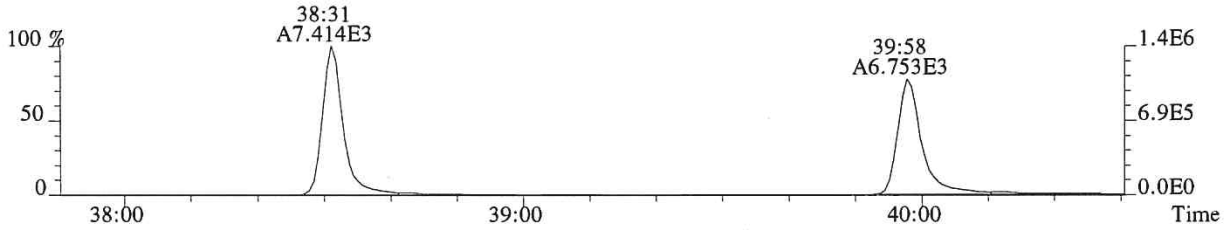
File:P519333 #1-241 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.50%,F,T)



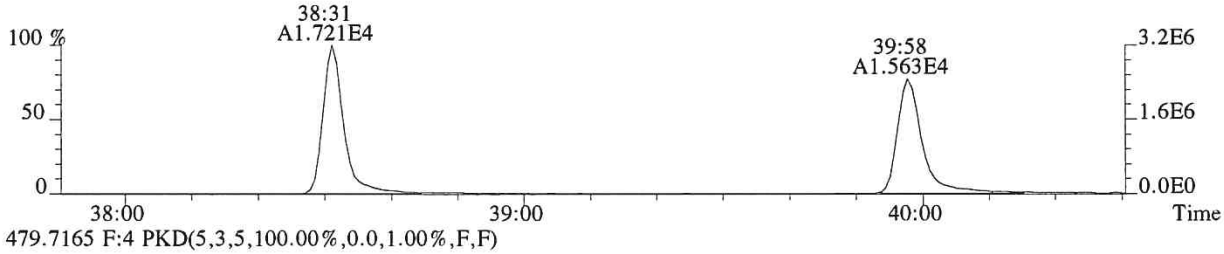
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3284.0,0.50%,F,T)



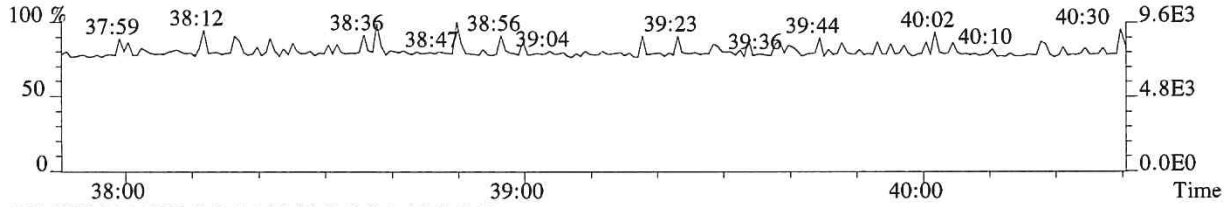
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.50%,F,T)



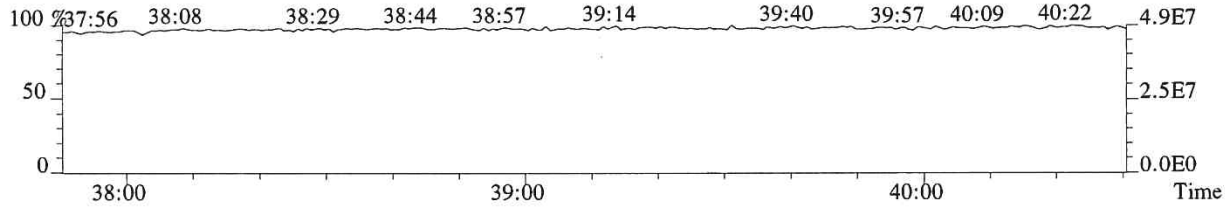
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3264.0,0.50%,F,T)



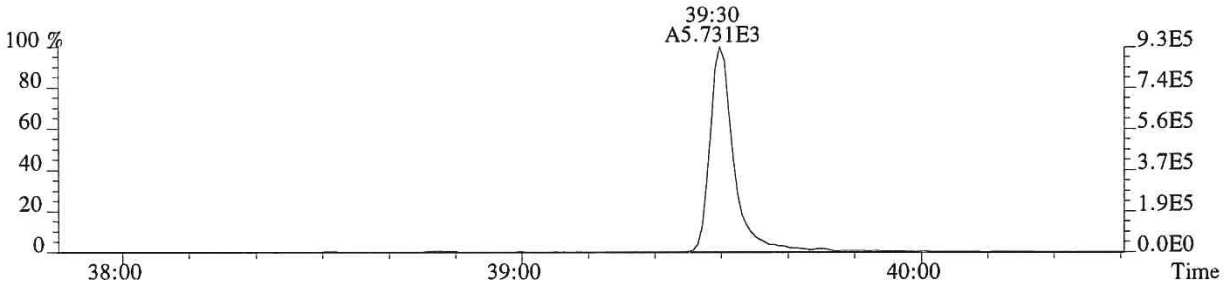
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



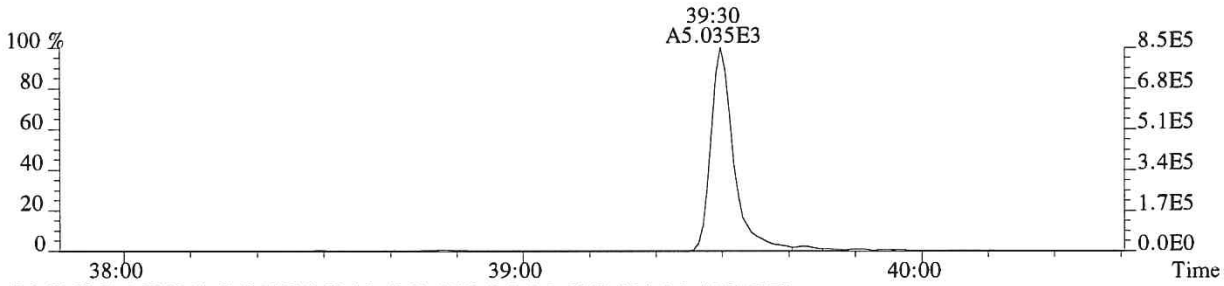
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



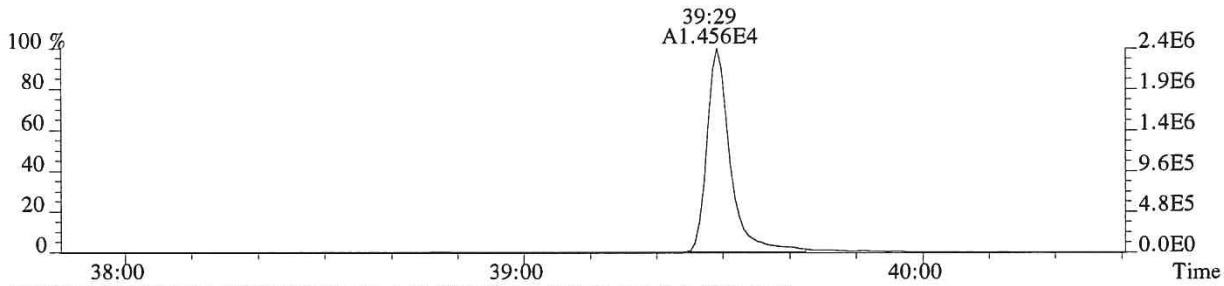
File:P519333 #1-241 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



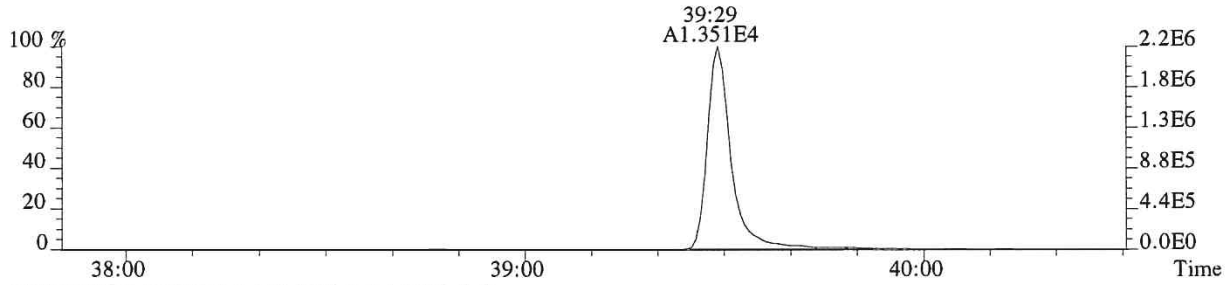
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



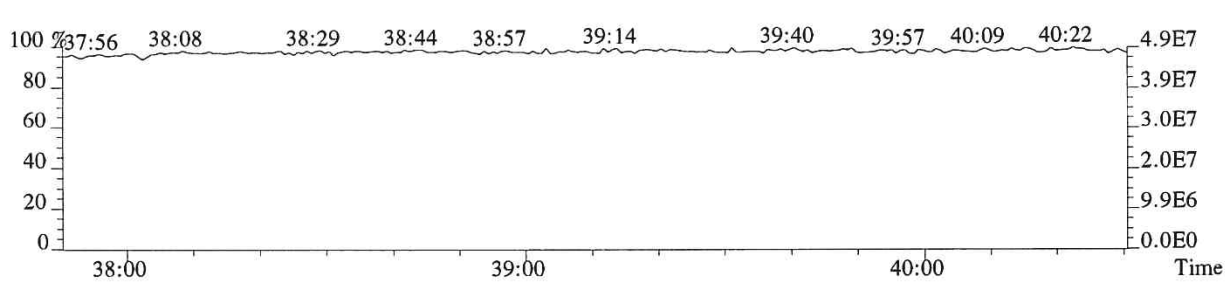
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)

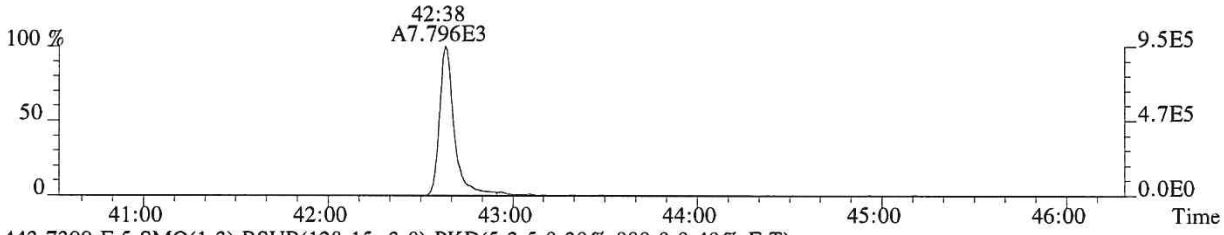


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

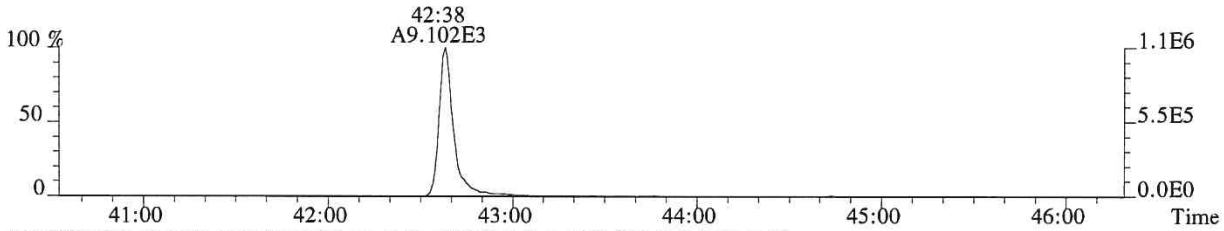


011398

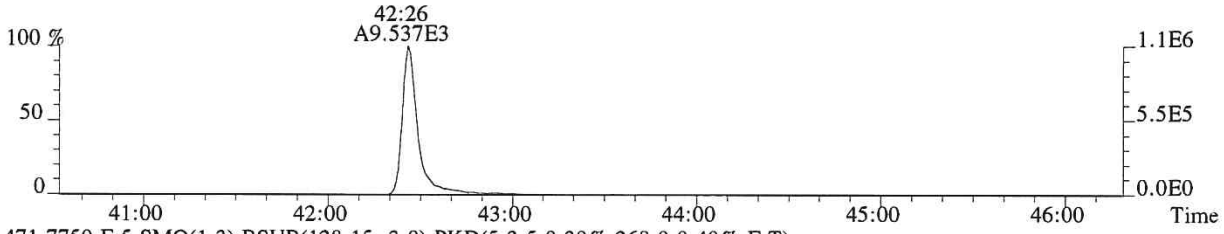
File:P519333 #1-520 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



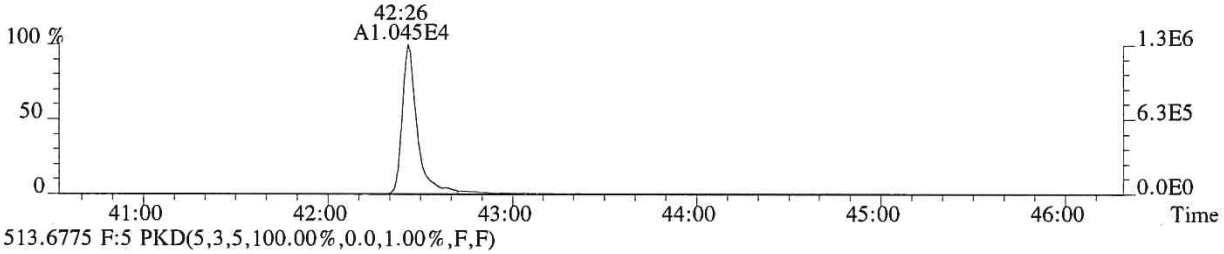
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



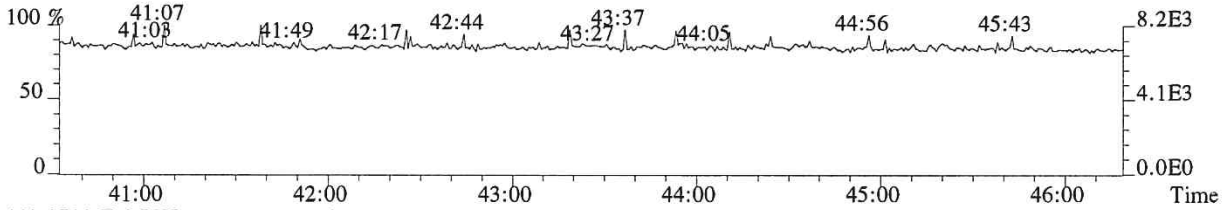
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



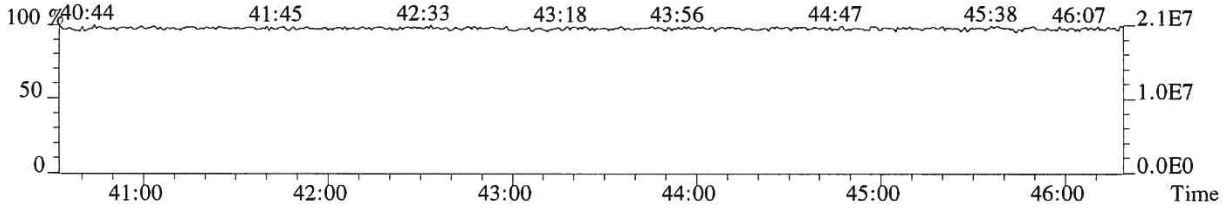
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

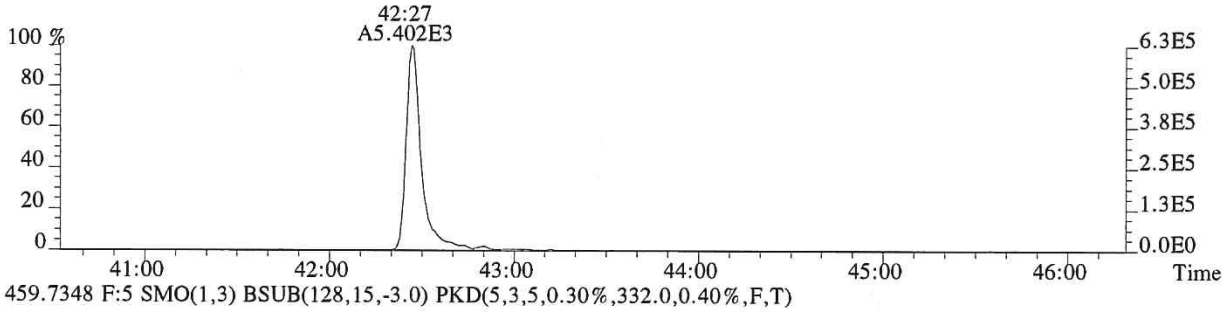


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

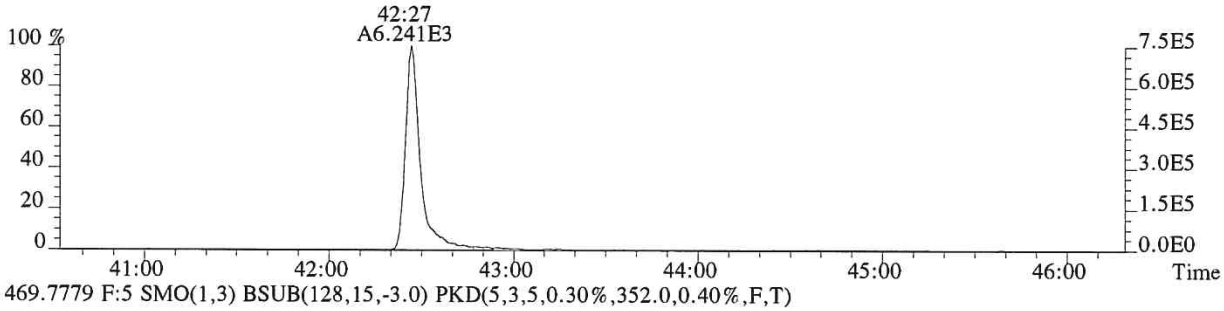


011399

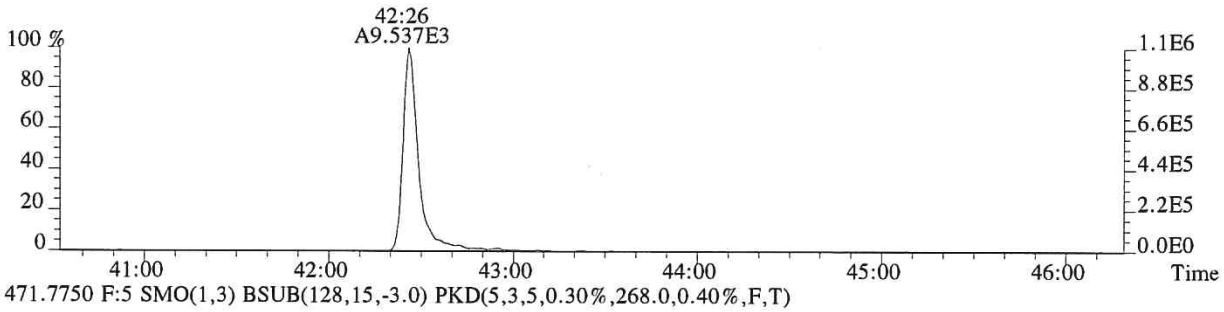
File:P519333 #1-520 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



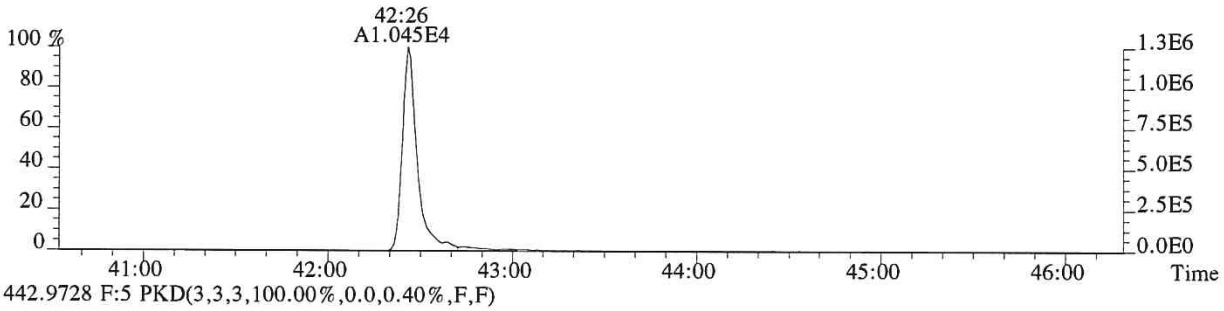
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



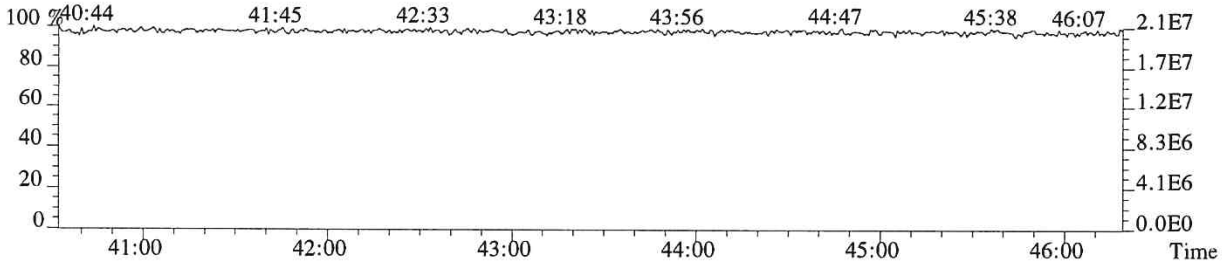
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519009

Date: 11/27/18 - 11/28/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519009	27-NOV-18	13:02:58
192977	WINDOW DEFINE	P519010	27-NOV-18	13:56:14
METHOD BLANK	EQ1800460-01	P519011	27-NOV-18	14:44:32
2348627001	E1801024-001	P519012	27-NOV-18	15:34:53
2348627002	E1801021-001	P519013	27-NOV-18	16:23:20
2348627003	E1801021-002	P519014	27-NOV-18	17:11:15
183376 BULK FILTER	E1801036-004	P519015	27-NOV-18	17:59:56
183387 FILTER MEDIA	E1801036-005	P519016	27-NOV-18	18:48:40
FW0005	E1801039-039	P519018	27-NOV-18	20:26:02
FW0006	E1801039-040	P519019	27-NOV-18	21:14:40
FW0004	E1801039-041	P519020	27-NOV-18	22:03:17
DU-18401	J1807948-004	P519021	27-NOV-18	22:51:58
LCS	EQ1800471-02	P519022	27-NOV-18	23:40:37
DLCS	EQ1800471-03	P519023	28-NOV-18	00:29:21
183388 HEPA FILTER	E1801036-006	P519017	27-NOV-18	19:37:21

E1801039

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181127A.SPL
Last Modified: Wednesday, November 28, 2018 06:14:14 Central Standard Time
Printed: Wednesday, November 28, 2018 06:14:16 Central Standard Time

Page Position (1, 1)

Opus 4: P519009res

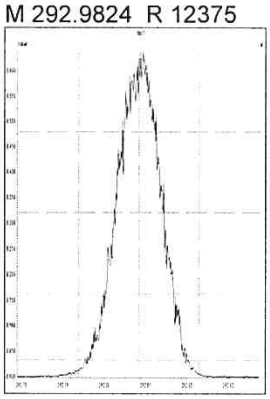
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/27/18	13:02	P519009	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMScheck 12:59
2		13:56	P519010	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		14:44	P519011	MB	EQ1800460-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:34	P519012	E1801024-001	E1801024-001	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		16:23	P519013	E1801021-001	E1801021-001	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		17:11	P519014	E1801021-002	E1801021-002	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:59	P519015	E1801036-004	E1801036-004	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:48	P519016	E1801036-005	E1801036-005	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9	19:37	20:26	P519017	E1801036-006	E1801036-006	EPA1613_ALS	Dioxin_ALS	Tray1:9		need to reinject
10	20:36	21:14	P519018	E1901039-039	E1901039-039	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11	21:14	22:03	P519019	E1901039-040	E1901039-040	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12	22:03	22:51	P519020	E1901039-041	E1901039-041	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13	22:51	23:40	P519021	J1807948-004	J1807948-004	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14	23:40	00:29	P519022	LCS	EQ1800471-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15	11/28/18	00:29	P519023	DLCS	EQ1800471-03	EPA1613_ALS	Dioxin_ALS	Tray1:15	↓	HRMScheck 03:10
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

11/28/18

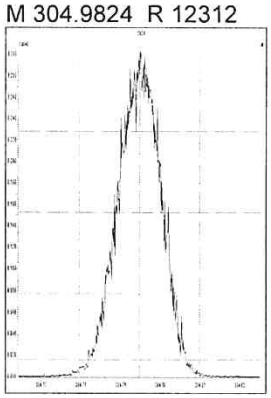
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 12:59:33 Central Standard Time

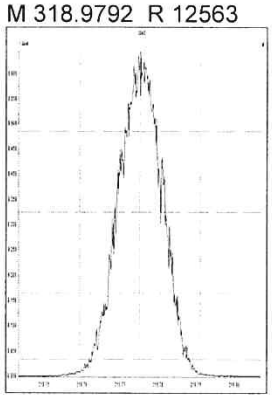
M 292.9824 R 12375



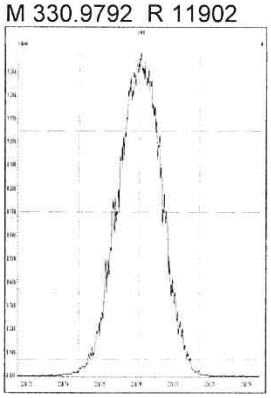
M 304.9824 R 12312



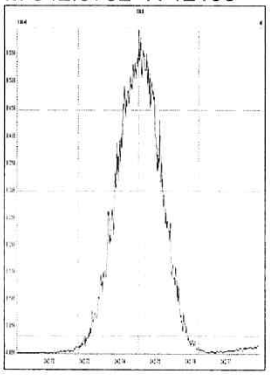
M 318.9792 R 12563



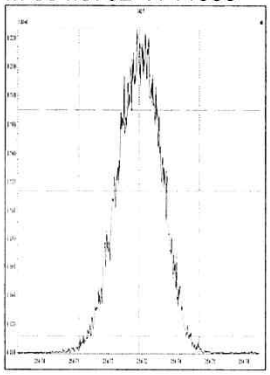
M 330.9792 R 11902



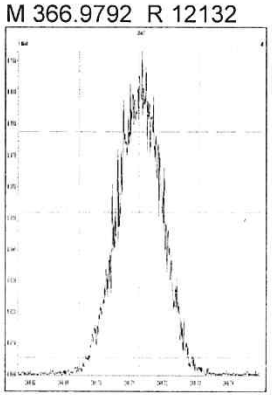
M 342.9792 R 12196



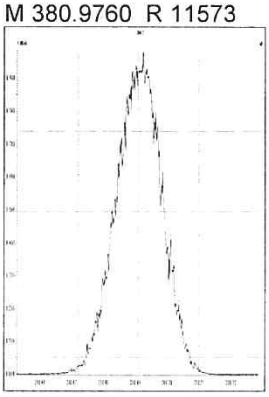
M 354.9792 R 11960



M 366.9792 R 12132



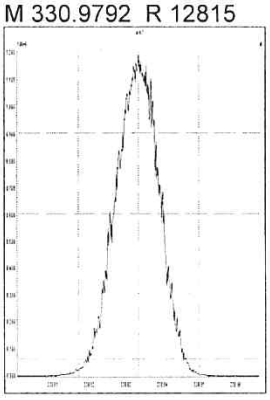
M 380.9760 R 11573



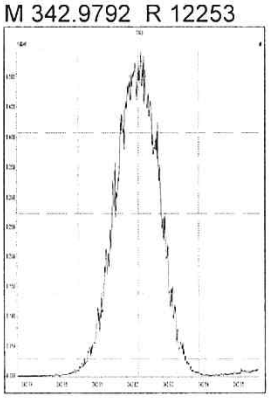
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 13:00:16 Central Standard Time

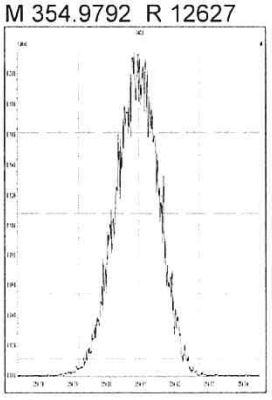
M 330.9792 R 12815



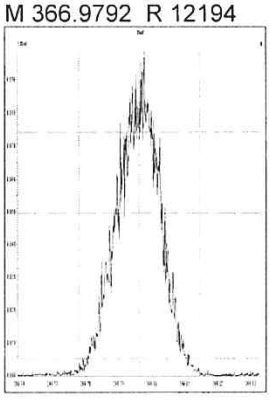
M 342.9792 R 12253



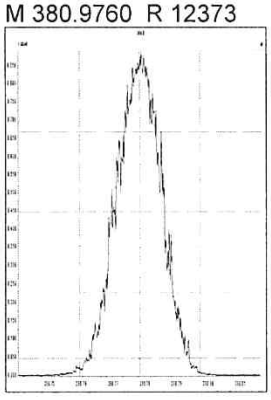
M 354.9792 R 12627



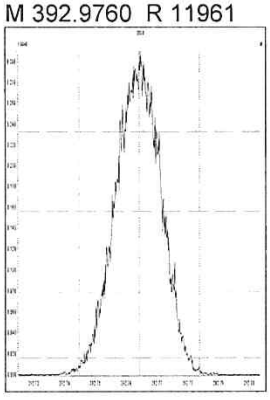
M 366.9792 R 12194



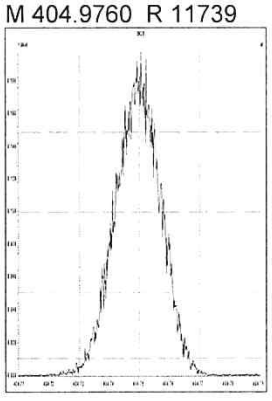
M 380.9760 R 12373



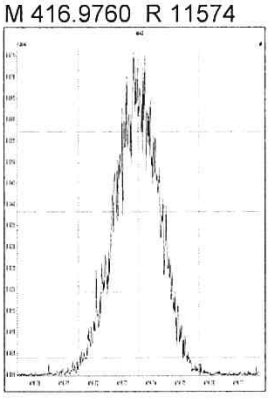
M 392.9760 R 11961



M 404.9760 R 11739



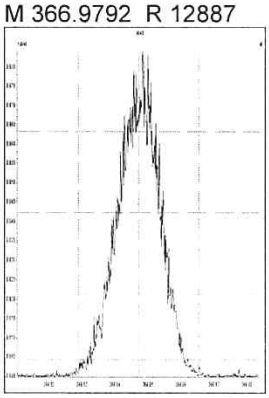
M 416.9760 R 11574



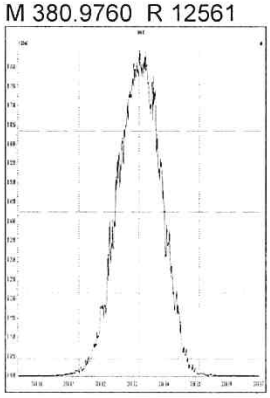
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 13:00:56 Central Standard Time

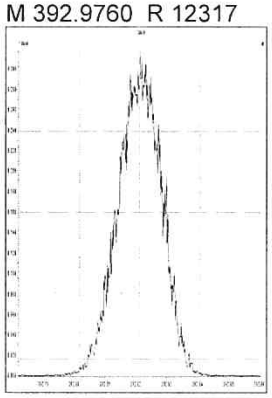
M 366.9792 R 12887



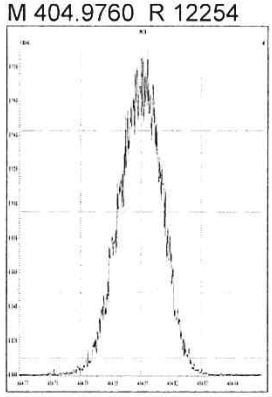
M 380.9760 R 12561



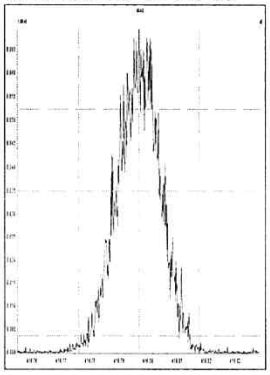
M 392.9760 R 12317



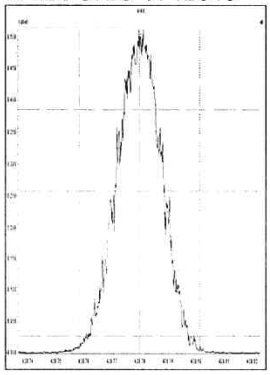
M 404.9760 R 12254



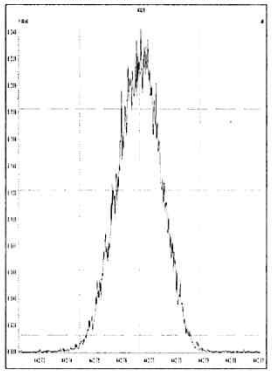
M 416.9760 R 14283



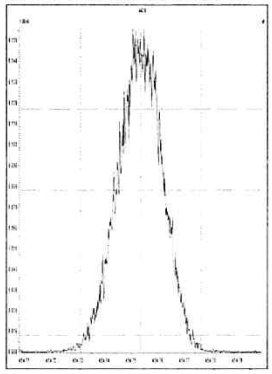
M 430.9728 R 12019



M 442.9728 R 11519



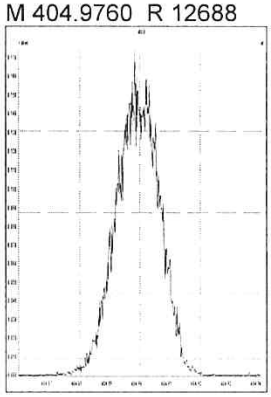
M 454.9728 R 12074



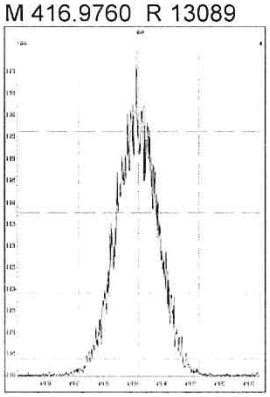
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 13:01:42 Central Standard Time

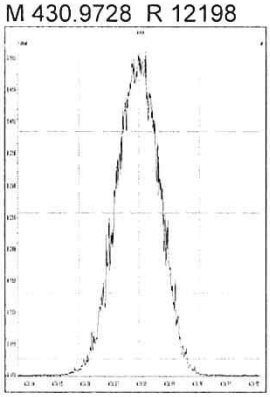
M 404.9760 R 12688



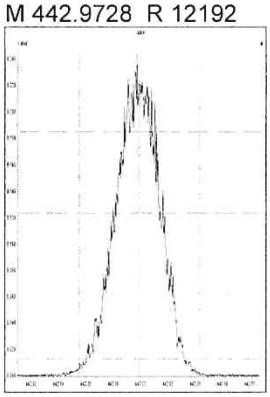
M 416.9760 R 13089



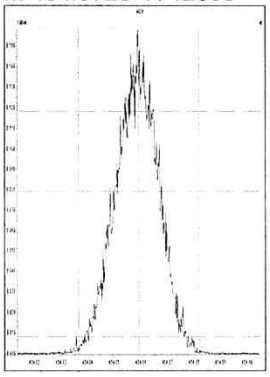
M 430.9728 R 12198



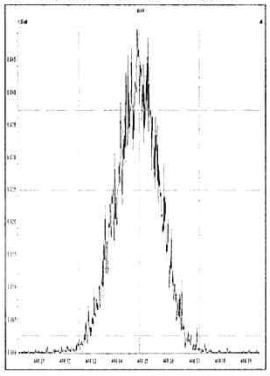
M 442.9728 R 12192



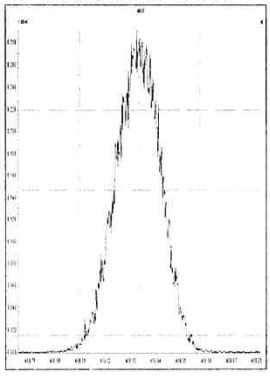
M 454.9728 R 12690



M 466.9728 R 12884



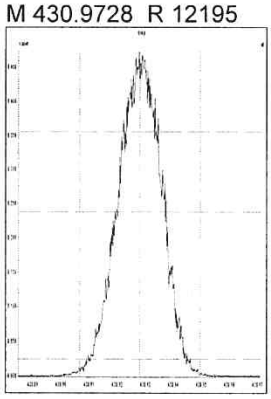
M 480.9696 R 12019



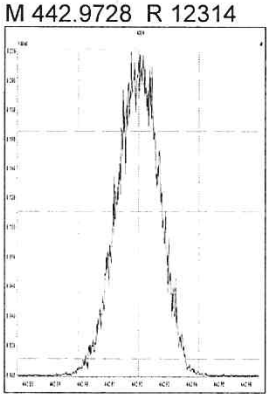
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 13:02:25 Central Standard Time

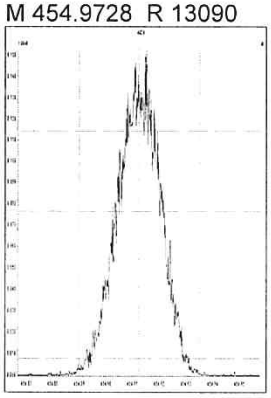
M 430.9728 R 12195



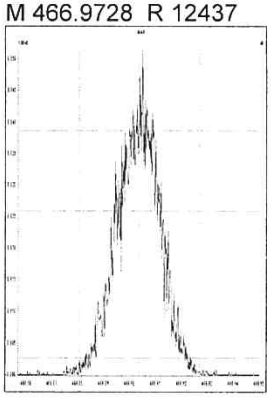
M 442.9728 R 12314



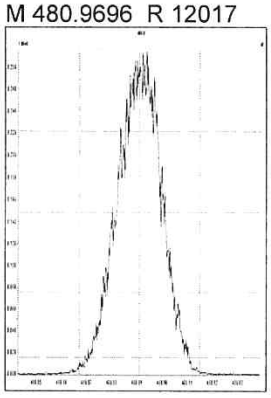
M 454.9728 R 13090



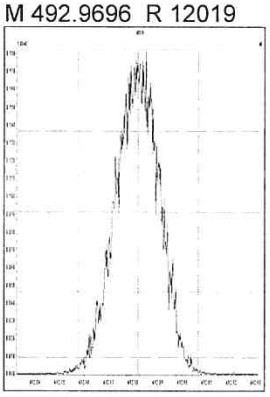
M 466.9728 R 12437



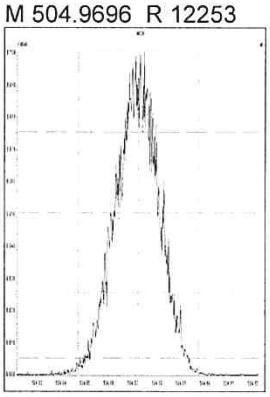
M 480.9696 R 12017



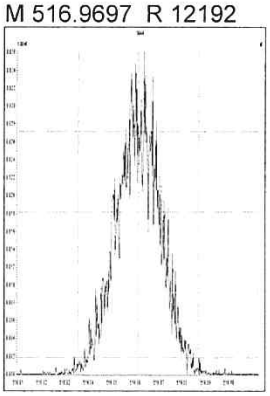
M 492.9696 R 12019



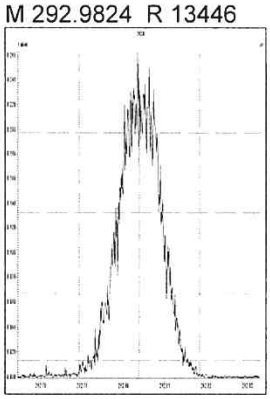
M 504.9696 R 12253



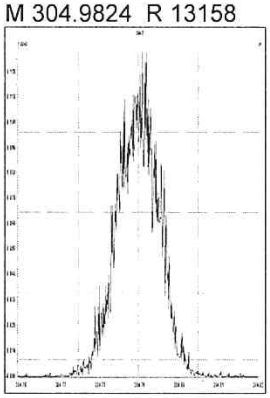
M 516.9697 R 12192



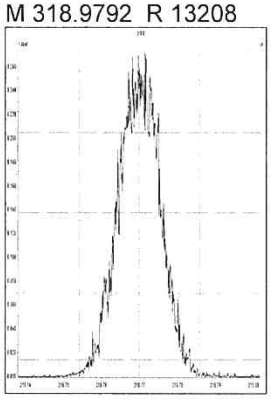
M 292.9824 R 13446



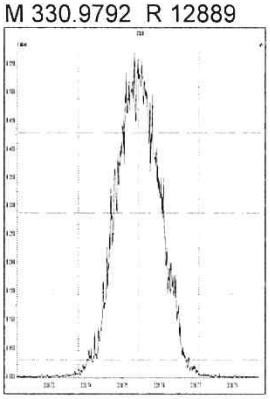
M 304.9824 R 13158



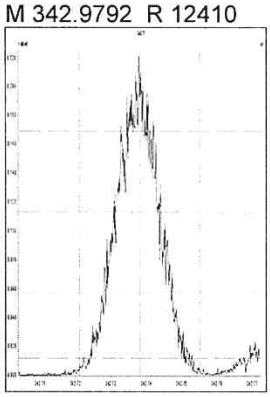
M 318.9792 R 13208



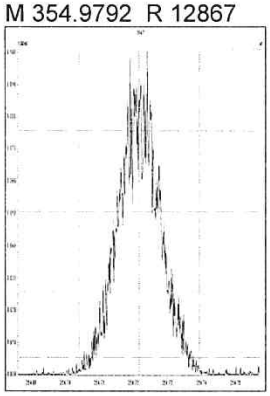
M 330.9792 R 12889



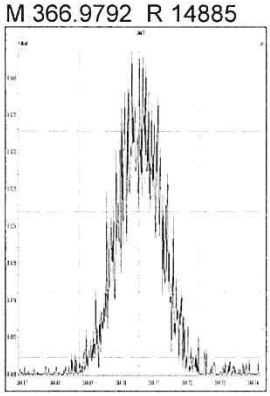
M 342.9792 R 12410



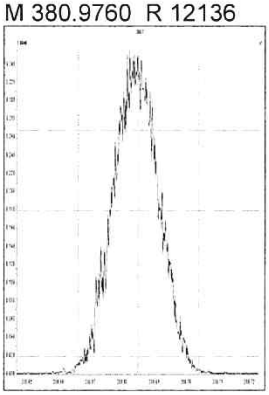
M 354.9792 R 12867



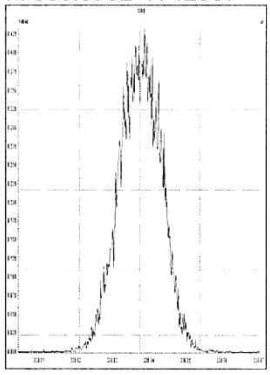
M 366.9792 R 14885



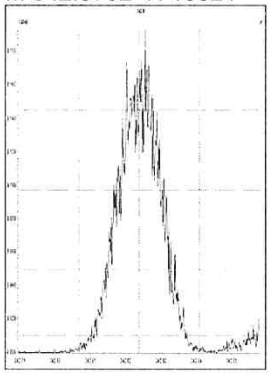
M 380.9760 R 12136



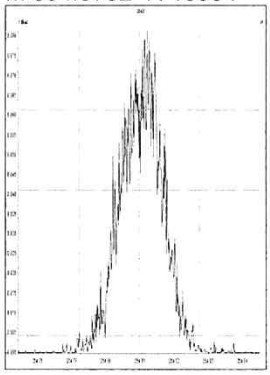
M 330.9792 R 12987



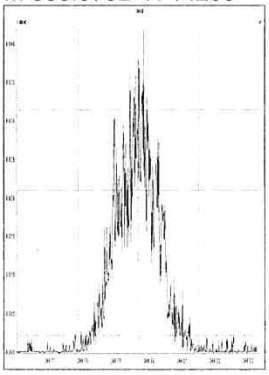
M 342.9792 R 13021



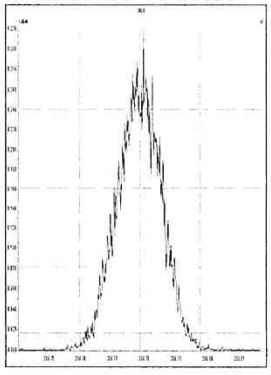
M 354.9792 R 13994



M 366.9792 R 14235



M 380.9760 R 12486



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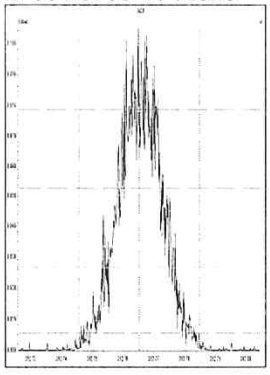

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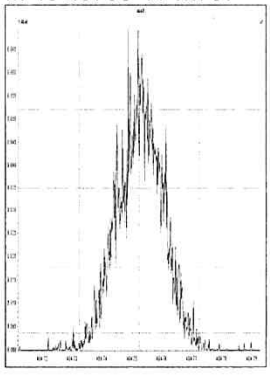

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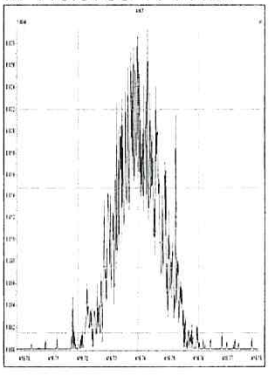

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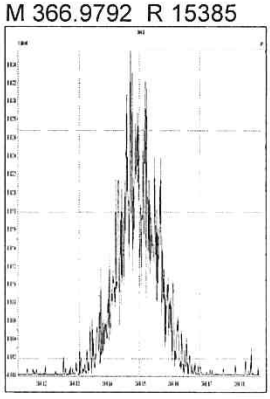

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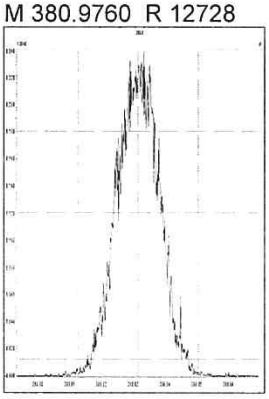

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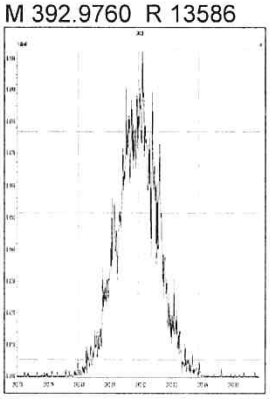

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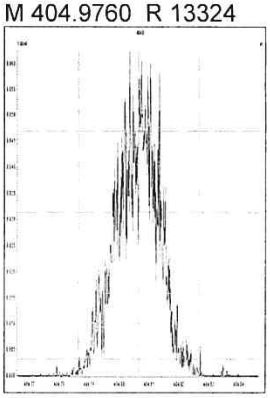

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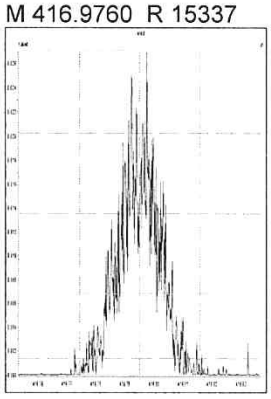

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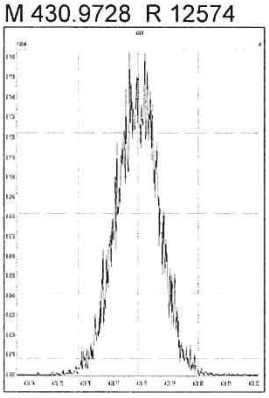

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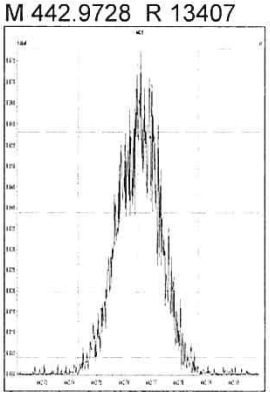

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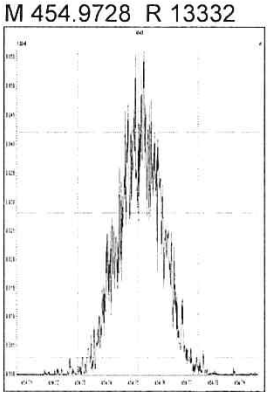
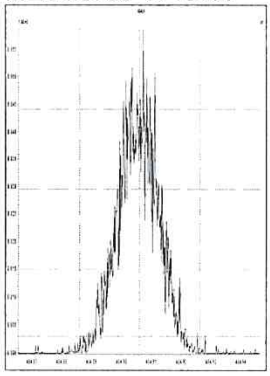


M 404.9760 R 13477



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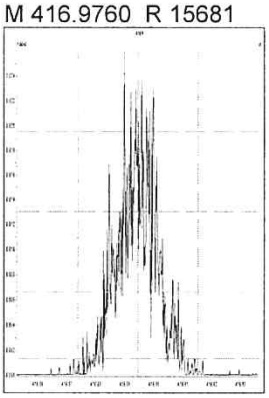

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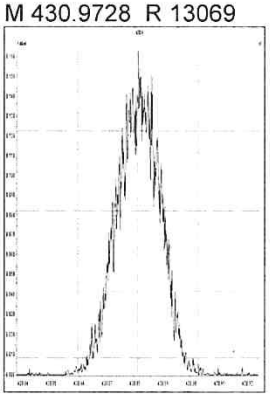

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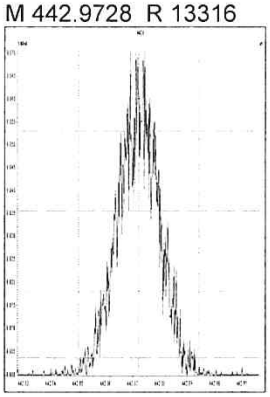

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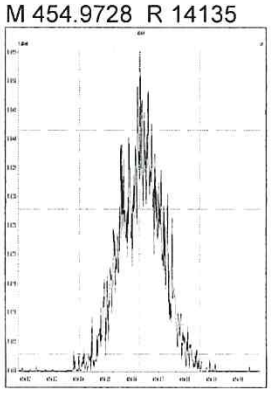

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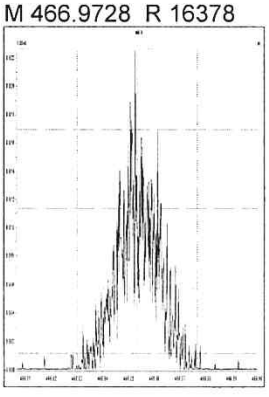

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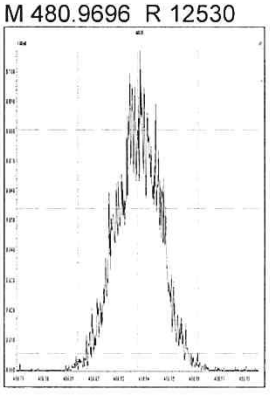

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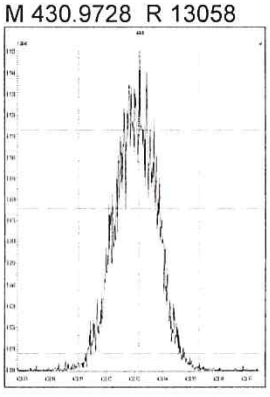

Printed: Wednesday, November 28, 2018 03:10:49 Central Standard Time

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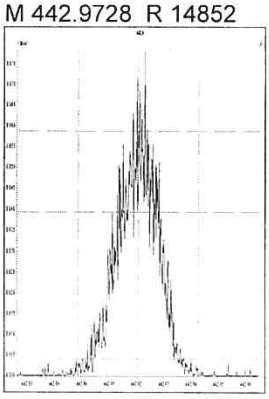

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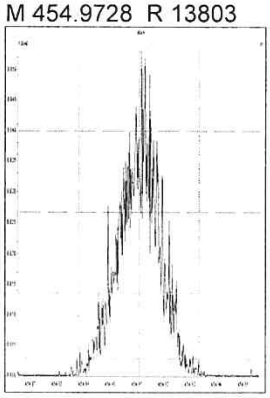
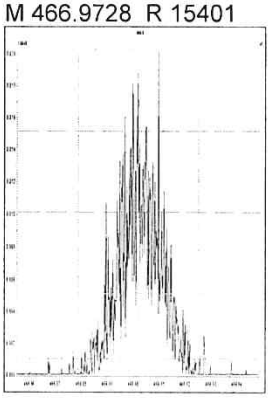


M 466.9728 R 15401



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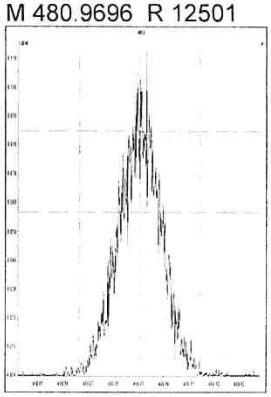

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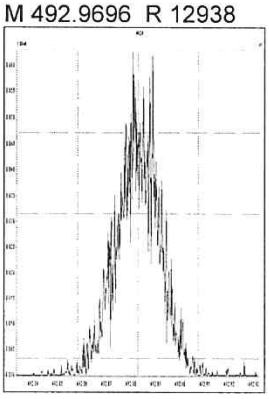

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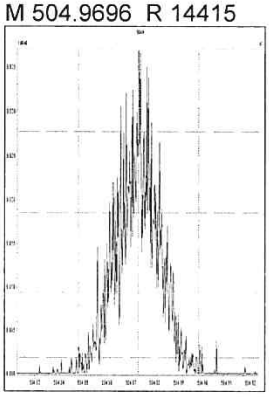

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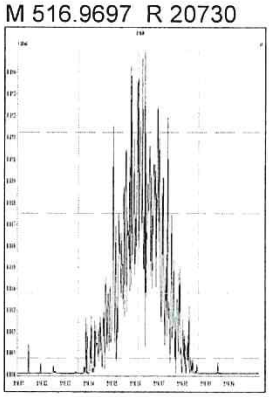


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

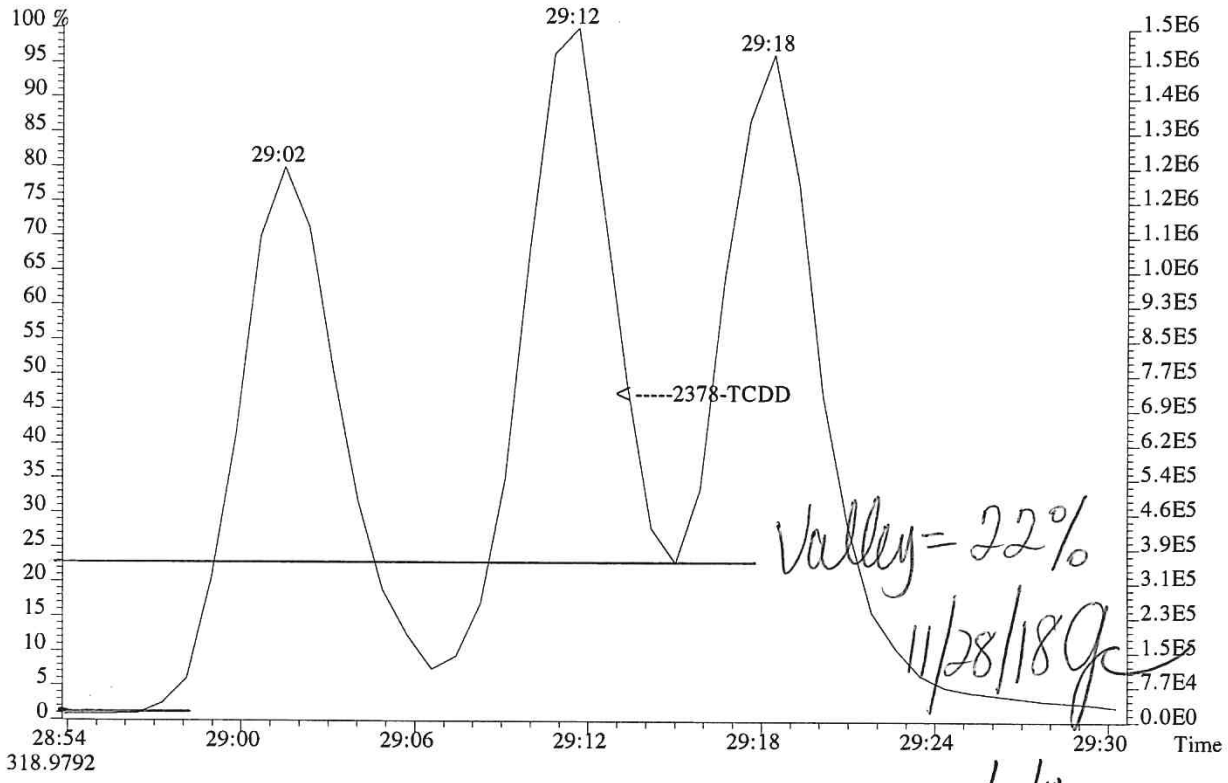
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519010
Date Analyzed: 27-NOV-2018
Time Analyzed: 13:56:14

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:06	30:19
TCDD	25:58	30:10
PeCDF	30:16	34:28
PeCDD	31:46	34:12
HxCDF	35:07	37:36
HxCDD	35:37	37:12
HpCDF	38:49	40:14
HpCDD	39:04	39:46

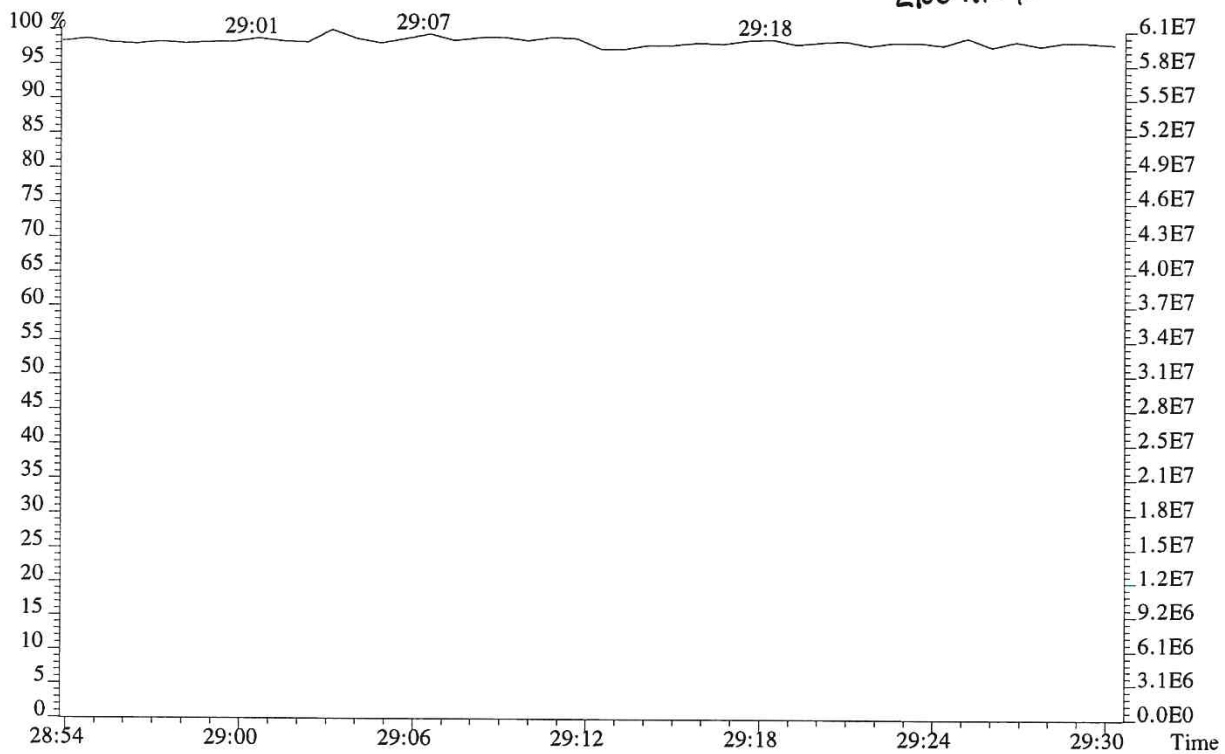
% Valley 2378-TCDD: 22 %

File:P519010 #1-531 Acq:27-NOV-2018 13:56:14 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:192977
319.8965



318.9792

LM 11/29/18



011414

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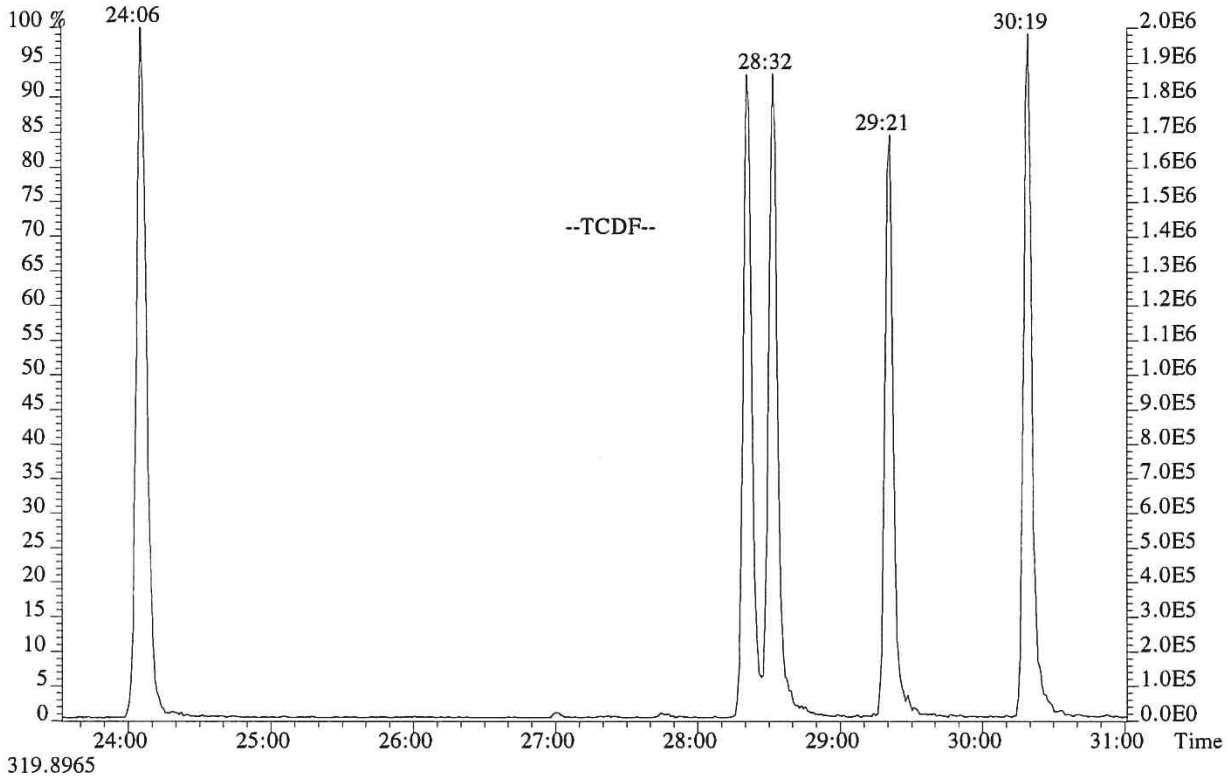
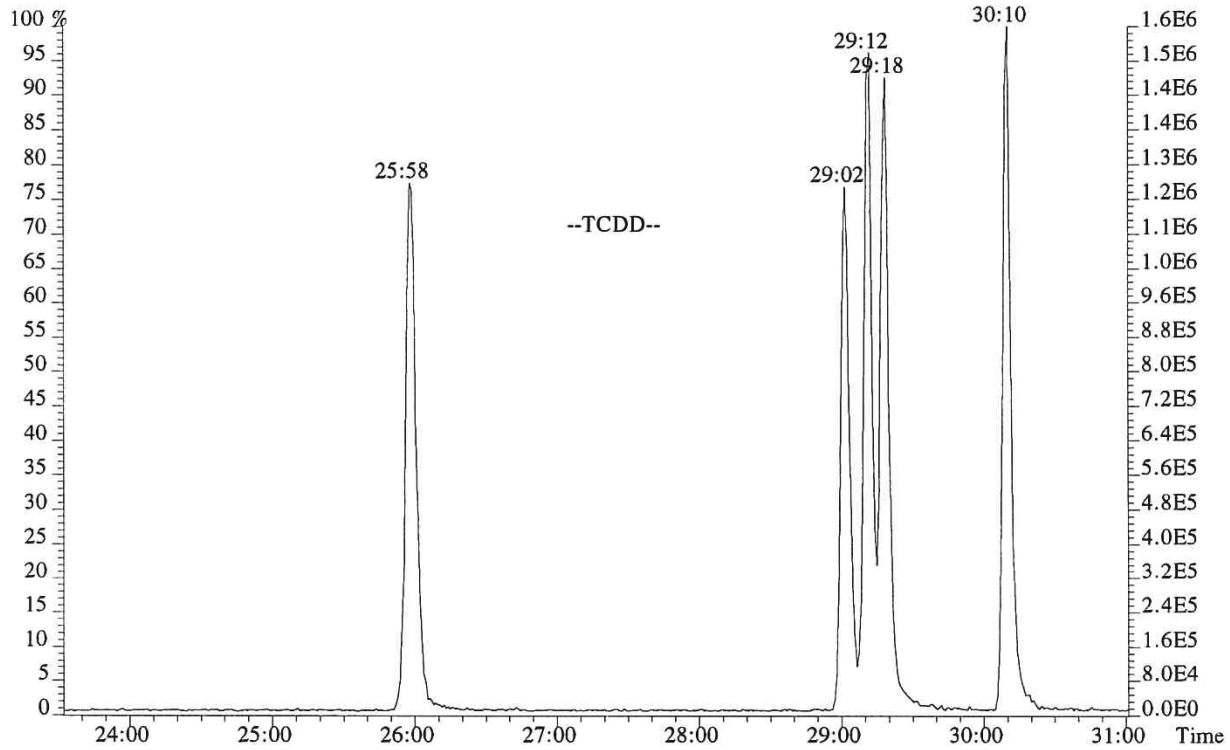
303.9016



319.8965



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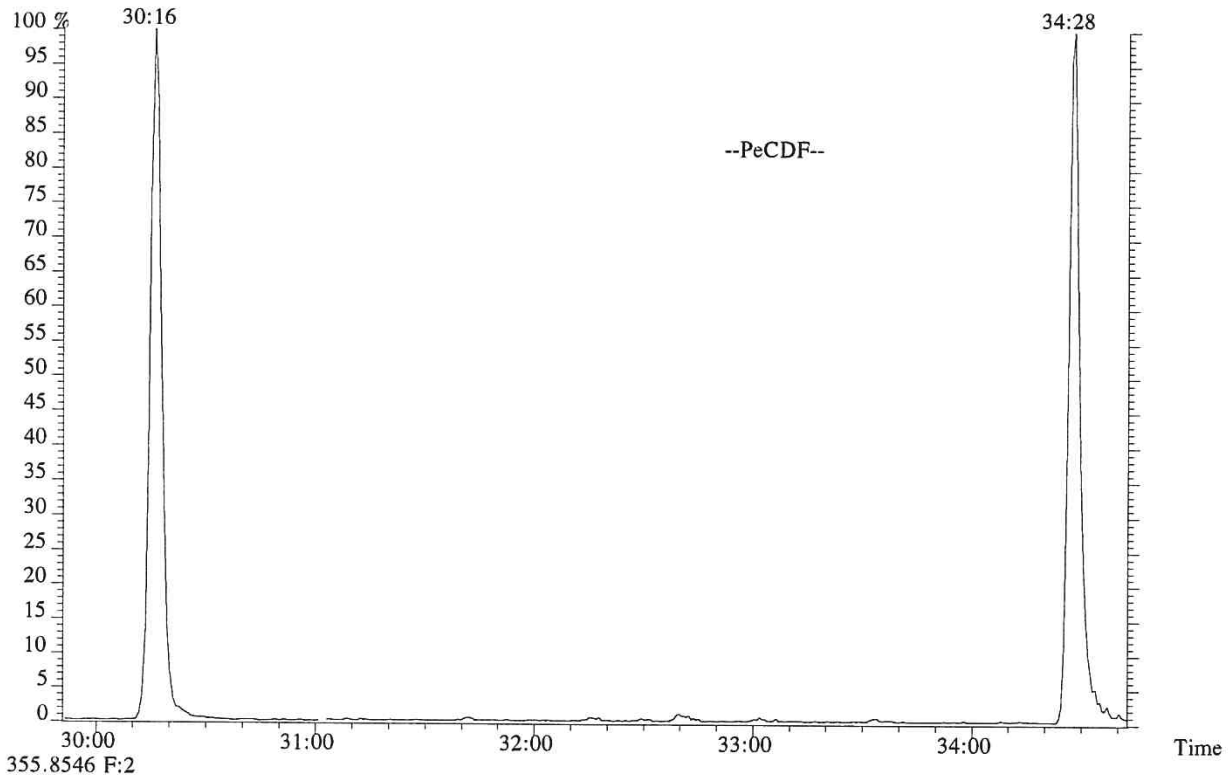
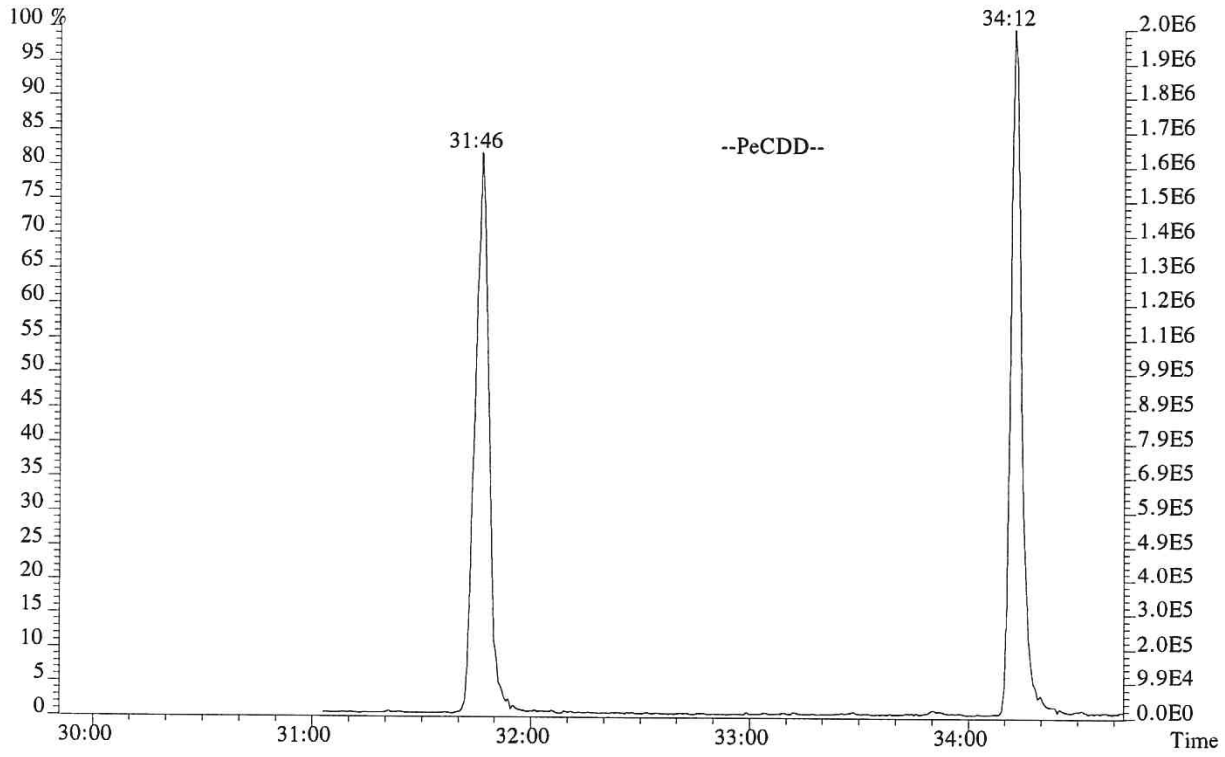
339.8597,339.8597 F:2



355.8546 F:2



011416

File:P519010 #1-321 Acq:27-NOV-2018 13:56:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
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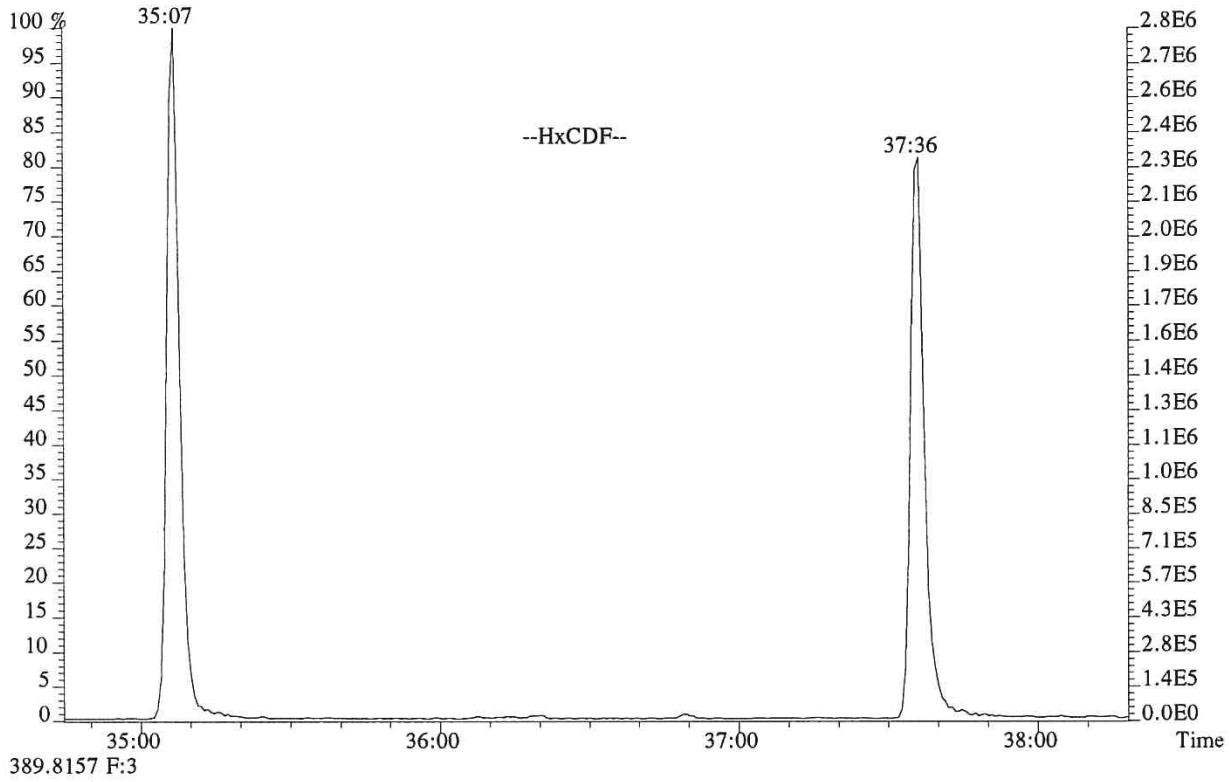
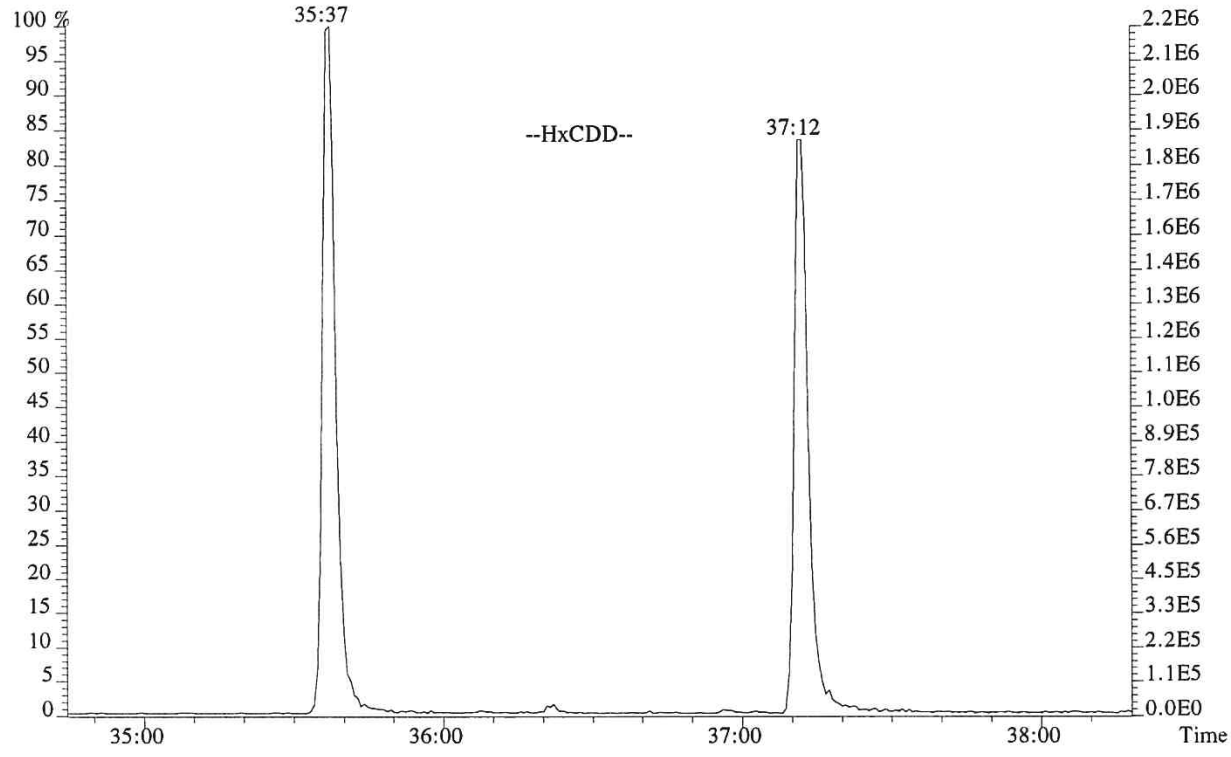


389.8157 F:3



011417

File:P519010 #1-241 Acq:27-NOV-2018 13:56:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
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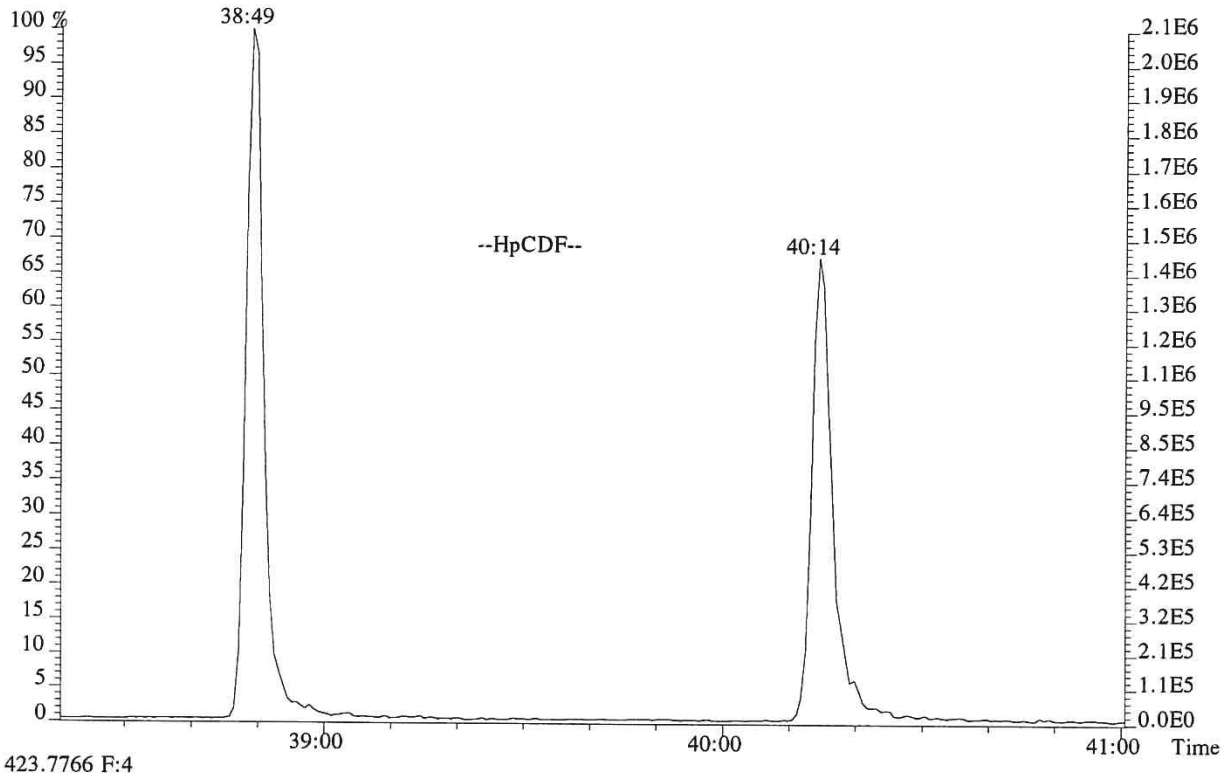
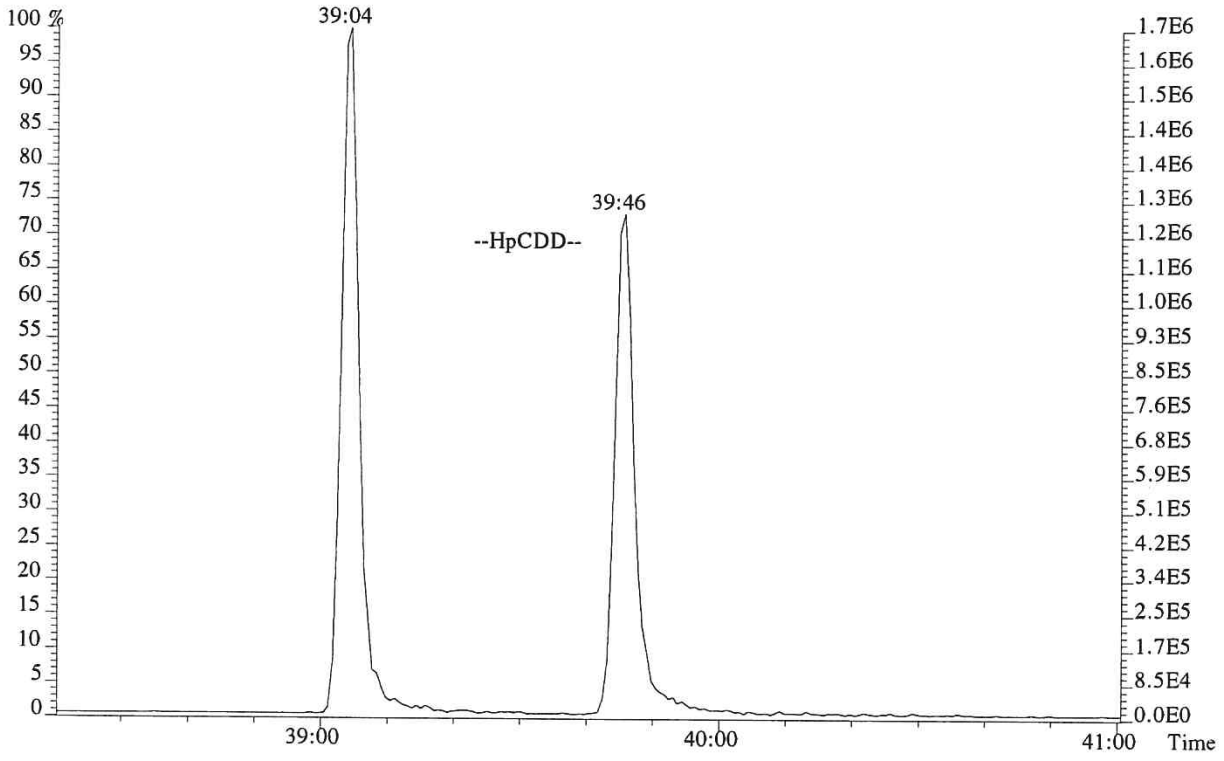


423.7766 F:4



011418

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519009 Analysis Date: 27-NOV-18 Time: 13:02:58

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	8.9	7.8 - 12.9	-10.8
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	49	39 - 65	-2.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-1.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	51	41 - 61	3.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	51	43 - 58	1.1
OCDD	M+2/M+4	0.88	0.76-1.02	99	79 - 126	-1.4
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.6	8.4 - 12.0	-3.5
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 60	-2.1
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 61	-1.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	0.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	-0.8
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	49	45 - 56	-1.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	49	44 - 57	-1.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	-0.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	50	43 - 58	0.5
OCDF	M+2/M+4	0.87	0.76-1.02	96	63 - 159	-4.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519009 Analysis Date: 27-NOV-18 Time: 13:02:58

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	102	82 - 121	2.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	99	62 - 160	-0.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	90	85 - 117	-9.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	87	72 - 138	-12.6
13C-OCDD	M+2/M+4	0.91	0.76-1.02	182	96 - 415	-8.8
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	93	71 - 140	-6.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	96	76 - 130	-4.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	98	77 - 130	-1.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	89	76 - 131	-11.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	96	70 - 143	-4.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	90	74 - 135	-9.7
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	100	73 - 137	-0.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	90	78 - 129	-10.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	86	77 - 129	-14.2
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.7	7.8 - 12.7	-3.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519009 Samp: 1 Inj: 1 Acquired: 27-NOV-18 13:02:58
Processed: 28-NOV-18 14:44:58 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:33	5.312e+03	6.843e+03	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:40	4.001e+04	2.625e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:34	3.893e+04	2.546e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:13	3.032e+04	2.460e+04	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:19	3.417e+04	2.802e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:49	3.136e+04	2.560e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:34	2.550e+04	2.074e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.452e+04	2.410e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.840e+04	1.870e+04	0.98	yes	no	1.258
10	Unk	OCDF	42:49	2.680e+04	3.074e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:18	3.755e+03	4.932e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:50	2.601e+04	1.664e+04	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:57	1.977e+04	1.567e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:02	2.249e+04	1.806e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:17	2.267e+04	1.807e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:46	1.654e+04	1.586e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:36	2.281e+04	2.605e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:31	5.904e+04	7.478e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:39	8.189e+04	5.179e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:32	8.276e+04	5.315e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	3.134e+04	6.019e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:19	3.788e+04	7.376e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	3.546e+04	6.900e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:33	2.834e+04	5.345e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.257e+04	4.976e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.830e+04	4.040e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:18	3.946e+04	5.025e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:50	5.630e+04	3.536e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:57	3.912e+04	3.039e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:01	4.443e+04	3.489e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:45	3.207e+04	3.050e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:35	4.211e+04	4.650e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:45	4.177e+04	5.303e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:16	4.623e+04	3.721e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:18	9.279e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519009 Samp: 1 Inj: 1 Acquired: 27-NOV-18 13:02:58
Processed: 28-NOV-18 14:44:58 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.08e+05	6.60e+02	1.4e+03	1.18e+06	2.49e+03	4.7e+02
2	1,2,3,7,8-PeCDF	6.98e+06	1.17e+03	6.0e+03	4.58e+06	2.51e+03	1.8e+03
3	2,3,4,7,8-PeCDF	7.22e+06	1.17e+03	6.2e+03	4.65e+06	2.51e+03	1.9e+03
4	1,2,3,4,7,8-HxCDF	6.30e+06	1.02e+03	6.2e+03	5.13e+06	5.64e+02	9.1e+03
5	1,2,3,6,7,8-HxCDF	6.65e+06	1.02e+03	6.5e+03	5.31e+06	5.64e+02	9.4e+03
6	2,3,4,6,7,8-HxCDF	6.12e+06	1.02e+03	6.0e+03	5.06e+06	5.64e+02	9.0e+03
7	1,2,3,7,8,9-HxCDF	4.62e+06	1.02e+03	4.5e+03	3.76e+06	5.64e+02	6.7e+03
8	1,2,3,4,6,7,8-HpCDF	4.73e+06	5.11e+03	9.2e+02	4.71e+06	4.11e+03	1.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.15e+06	5.11e+03	6.2e+02	3.27e+06	4.11e+03	8.0e+02
10	OCDF	4.05e+06	2.68e+02	1.5e+04	4.48e+06	1.10e+03	4.1e+03
11	2,3,7,8-TCDD	6.88e+05	2.72e+03	2.5e+02	9.30e+05	1.32e+03	7.1e+02
12	1,2,3,7,8-PeCDD	4.83e+06	1.49e+03	3.2e+03	3.01e+06	2.64e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.23e+06	2.68e+02	1.6e+04	3.36e+06	5.32e+02	6.3e+03
14	1,2,3,6,7,8-HxCDD	4.29e+06	2.68e+02	1.6e+04	3.49e+06	5.32e+02	6.6e+03
15	1,2,3,7,8,9-HxCDD	4.15e+06	2.68e+02	1.5e+04	3.27e+06	5.32e+02	6.2e+03
16	1,2,3,4,6,7,8-HpCDD	2.96e+06	2.84e+02	1.0e+04	2.77e+06	3.92e+02	7.1e+03
17	OCDD	3.30e+06	1.92e+02	1.7e+04	3.84e+06	5.96e+02	6.4e+03
18	13C-2,3,7,8-TCDF	1.04e+07	7.11e+03	1.5e+03	1.32e+07	4.26e+03	3.1e+03
19	13C-1,2,3,7,8-PeCDF	1.41e+07	6.08e+02	2.3e+04	9.00e+06	1.05e+03	8.6e+03
20	13C-2,3,4,7,8-PeCDF	1.49e+07	6.08e+02	2.5e+04	9.67e+06	1.05e+03	9.2e+03
21	13C-1,2,3,4,7,8-HxCDF	6.59e+06	1.32e+03	5.0e+03	1.25e+07	1.18e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	7.34e+06	1.32e+03	5.5e+03	1.42e+07	1.18e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	6.86e+06	1.32e+03	5.2e+03	1.32e+07	1.18e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	5.13e+06	1.32e+03	3.9e+03	9.74e+06	1.18e+03	8.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.30e+06	2.61e+03	1.6e+03	9.54e+06	1.60e+03	5.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.08e+06	2.61e+03	1.2e+03	6.95e+06	1.60e+03	4.3e+03
27	13C-2,3,7,8-TCDD	7.24e+06	6.28e+03	1.2e+03	9.19e+06	3.67e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	1.02e+07	1.04e+03	9.8e+03	6.49e+06	7.88e+02	8.2e+03
29	13C-1,2,3,4,7,8-HxCDD	8.37e+06	2.80e+03	3.0e+03	6.49e+06	1.18e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	8.38e+06	2.80e+03	3.0e+03	6.65e+06	1.18e+03	5.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.59e+06	5.04e+02	1.1e+04	5.37e+06	5.32e+02	1.0e+04
32	13C-OCDD	6.14e+06	4.48e+02	1.4e+04	6.68e+06	4.88e+02	1.4e+04
33	13C-1,2,3,4-TCDD	7.86e+06	6.28e+03	1.3e+03	9.87e+06	3.67e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	8.31e+06	2.80e+03	3.0e+03	6.65e+06	1.18e+03	5.7e+03
35	37Cl-2,3,7,8-TCDD	1.72e+06	9.32e+02	1.8e+03			

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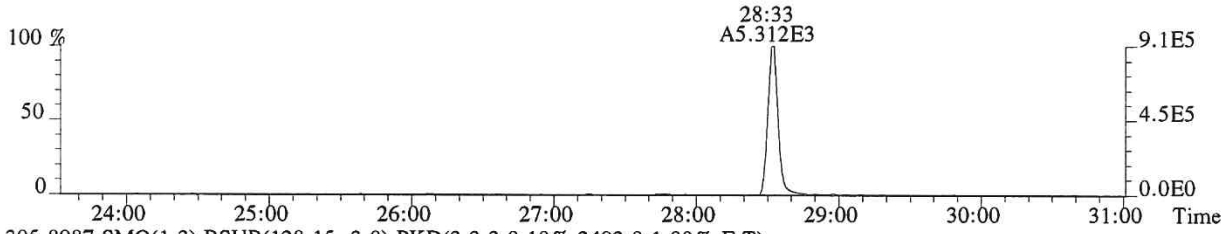
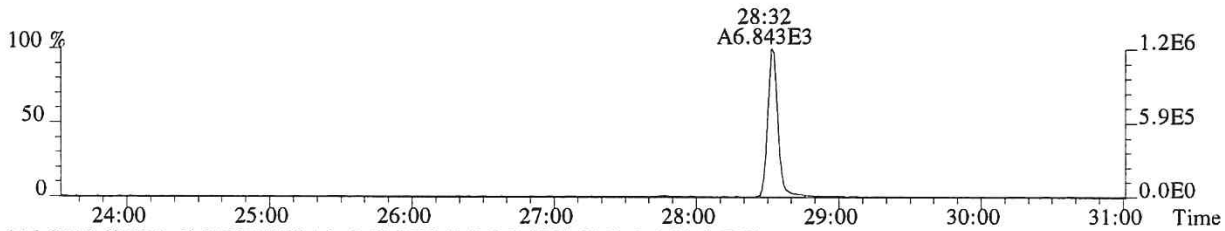
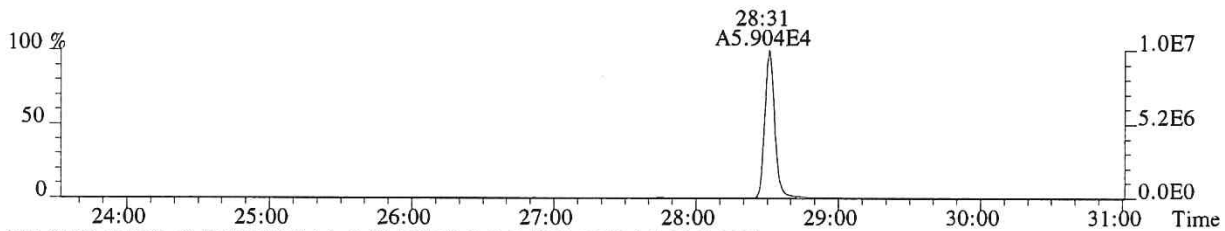
File:P519009 #1-531 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



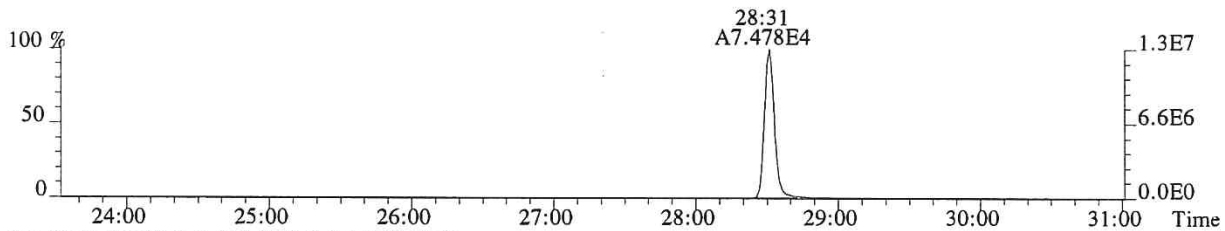
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2492.0,1.00%,F,T)



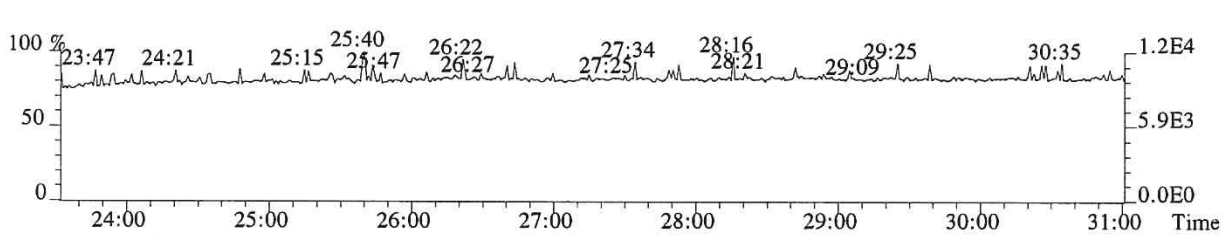
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7112.0,1.00%,F,T)



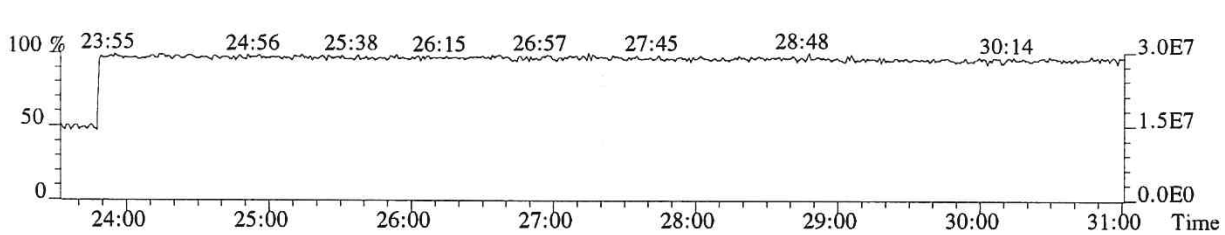
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

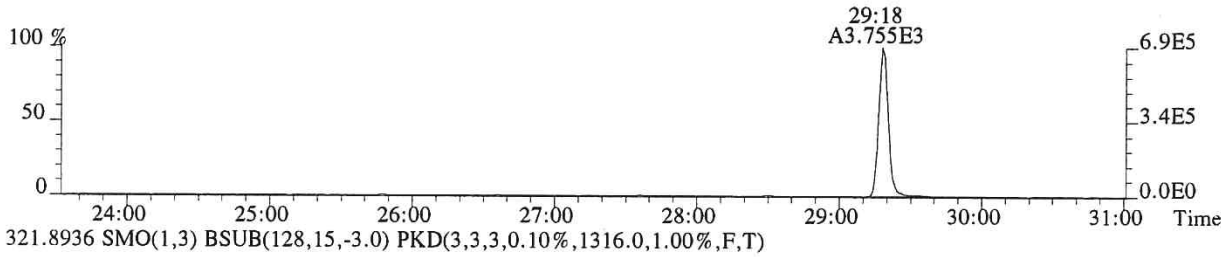


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

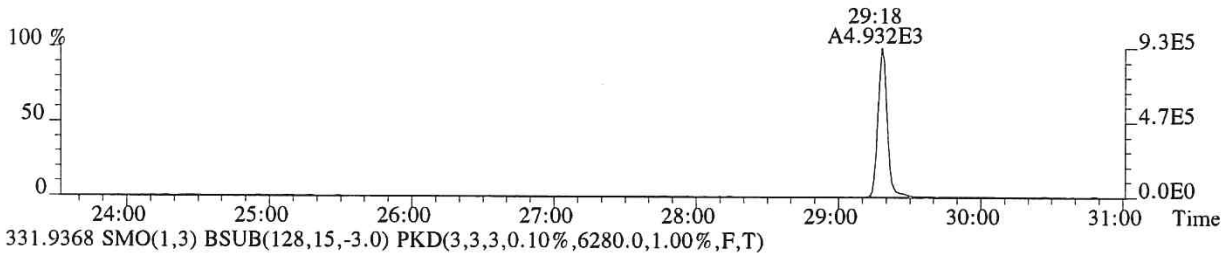


011423

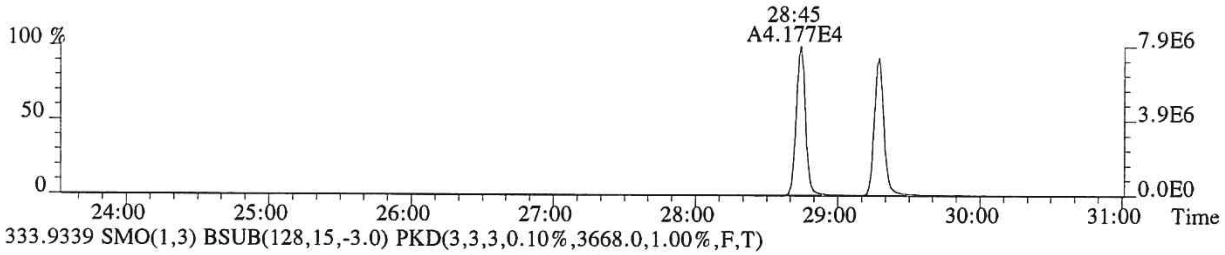
File:P519009 #1-531 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2724.0,1.00%,F,T)



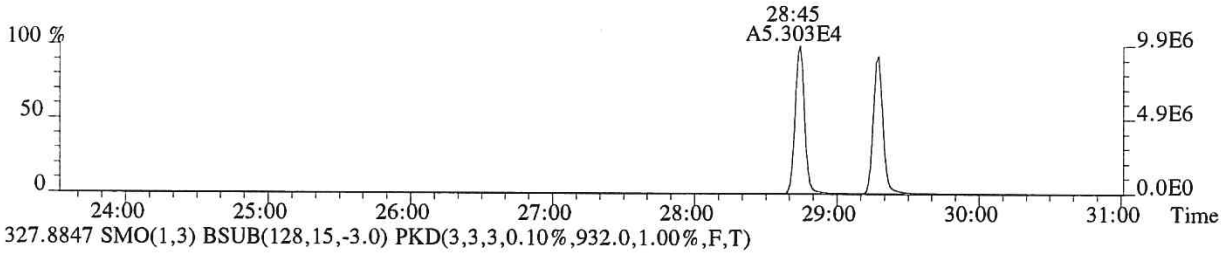
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



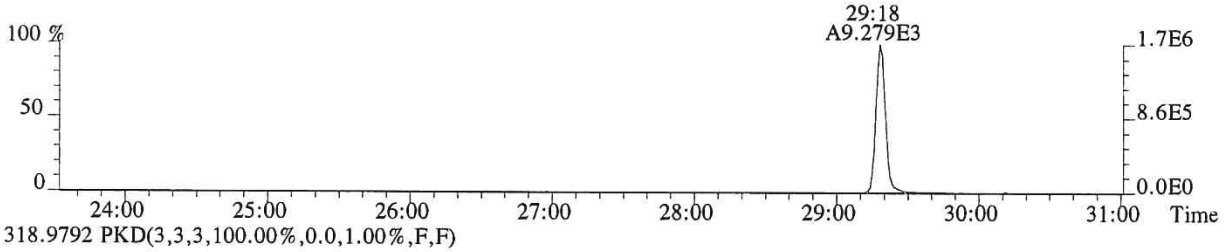
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6280.0,1.00%,F,T)



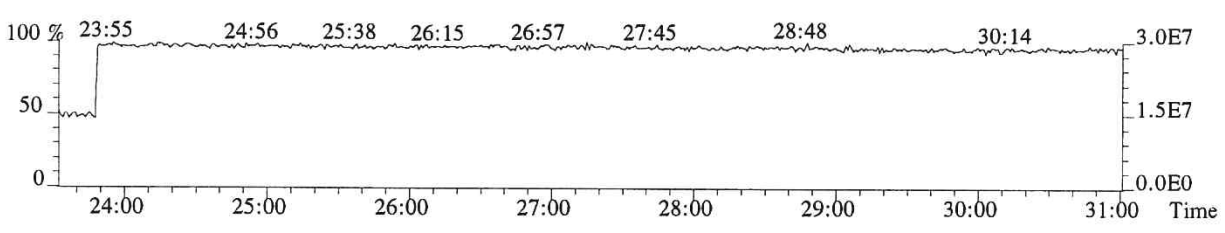
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3668.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)

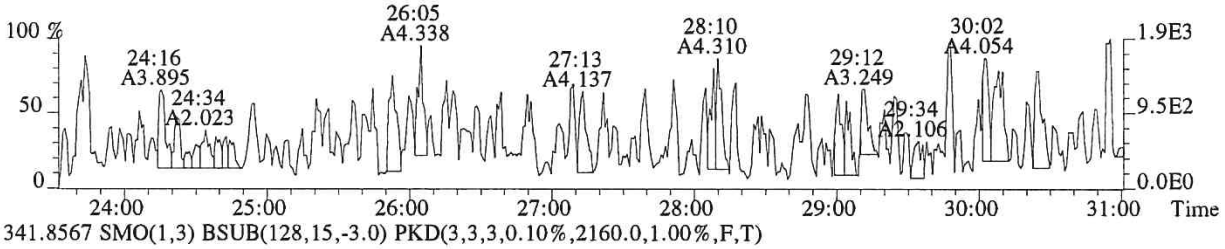


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

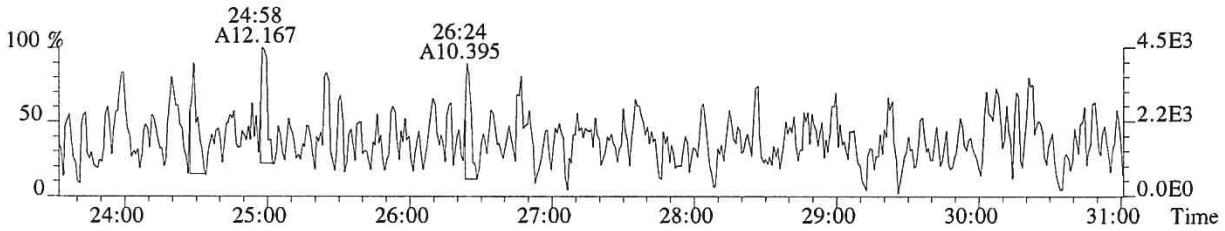


011424

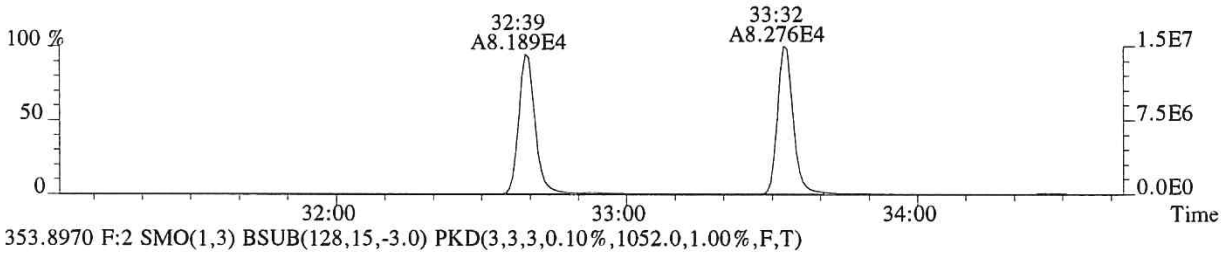
File:P519009 #1-531 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



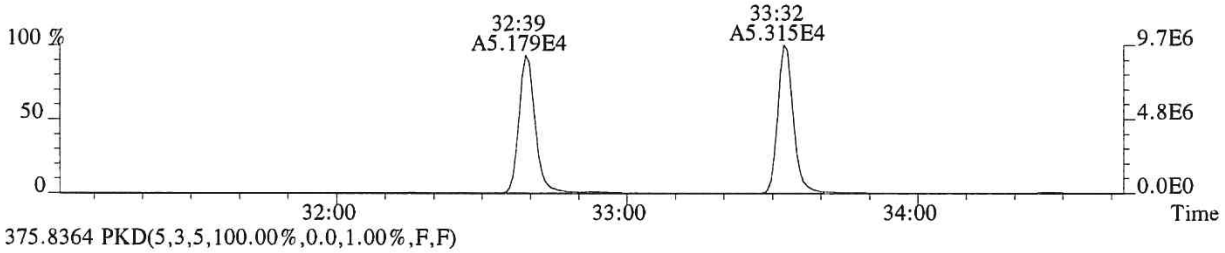
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



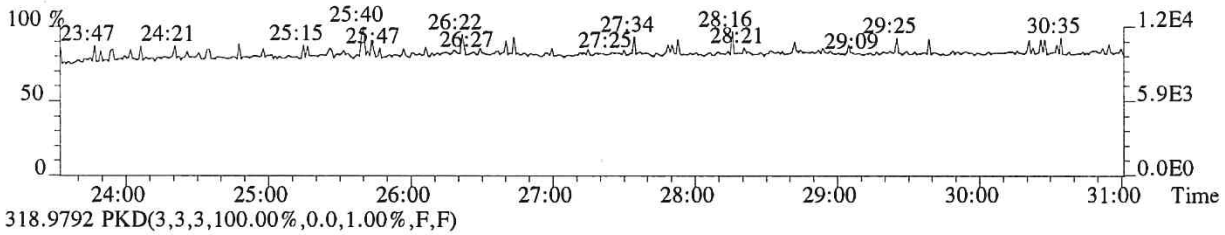
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



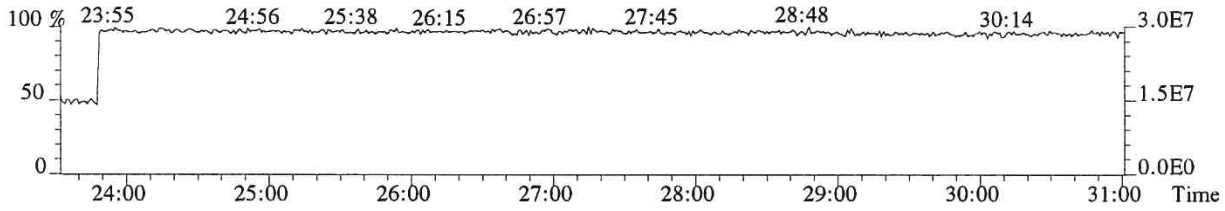
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

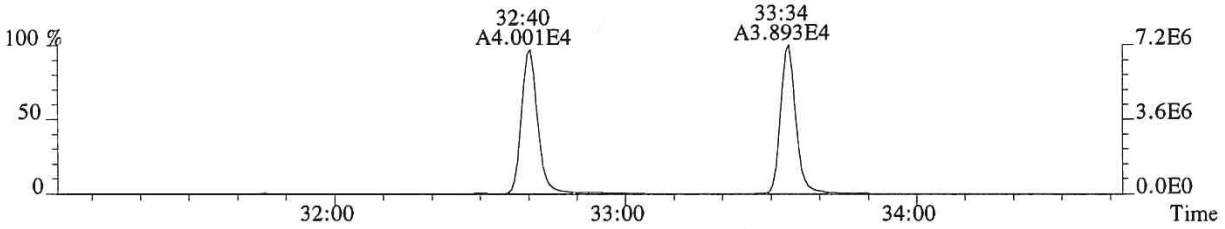


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

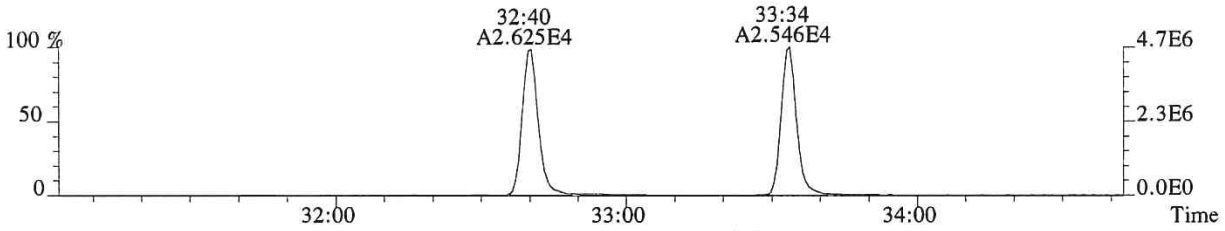


011425

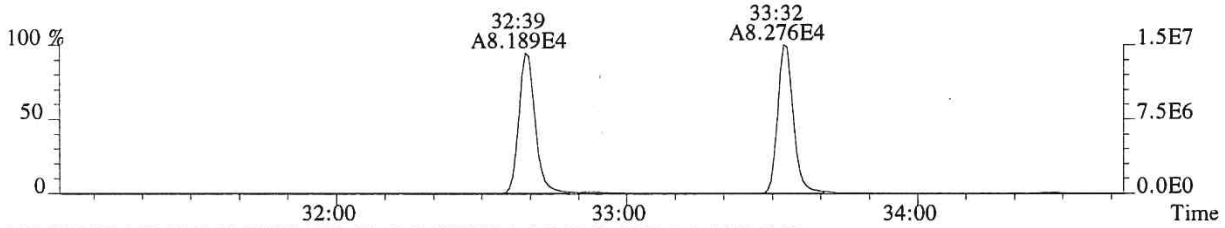
File:P519009 #1-330 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



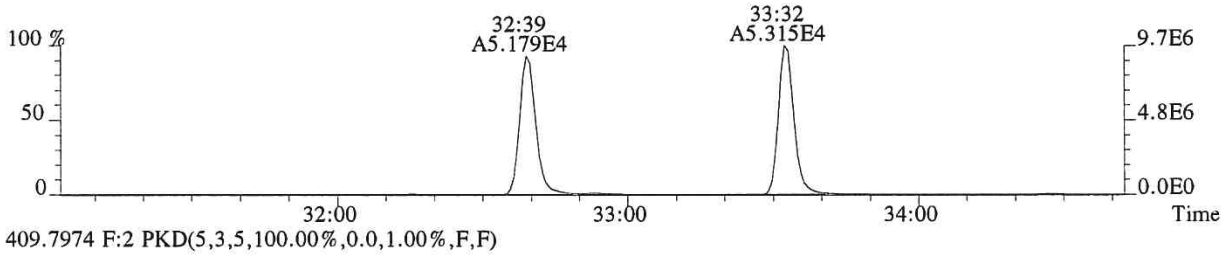
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2512.0,1.00%,F,T)



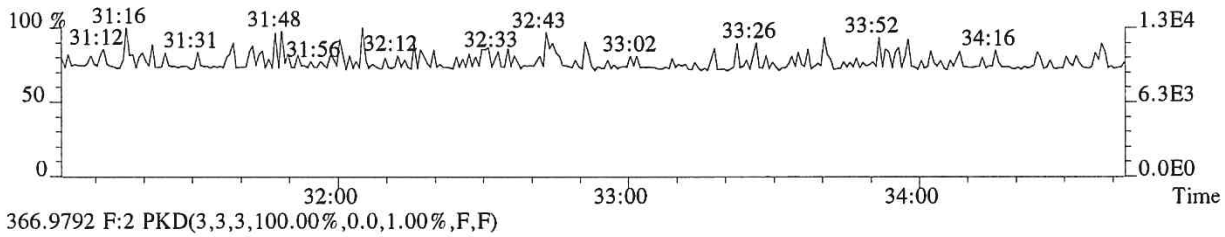
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



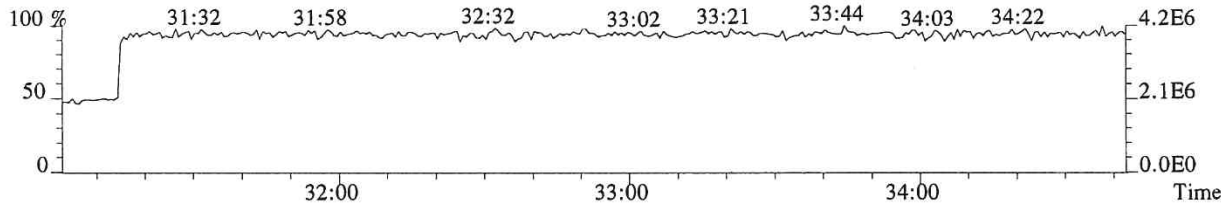
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

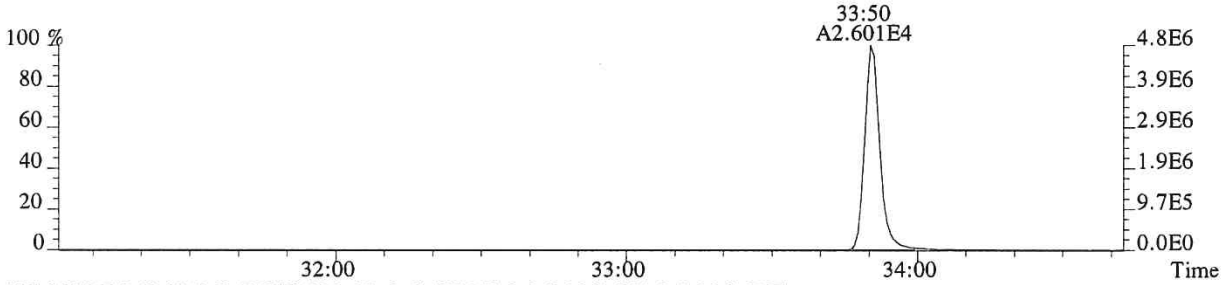


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

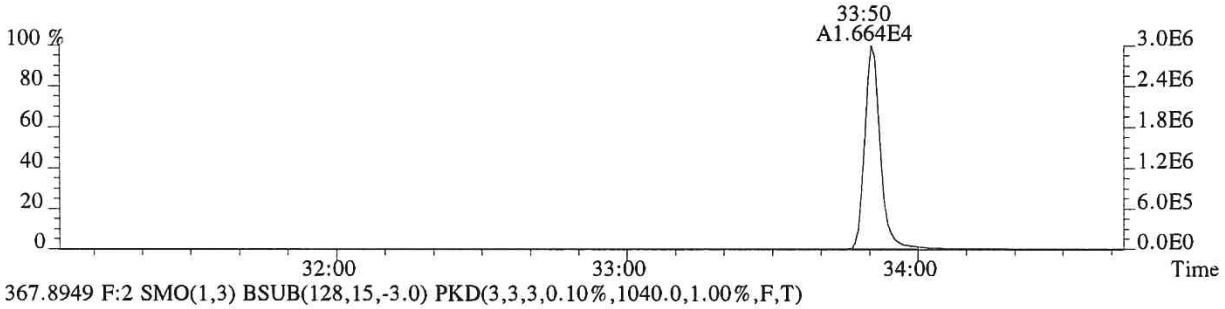


011426

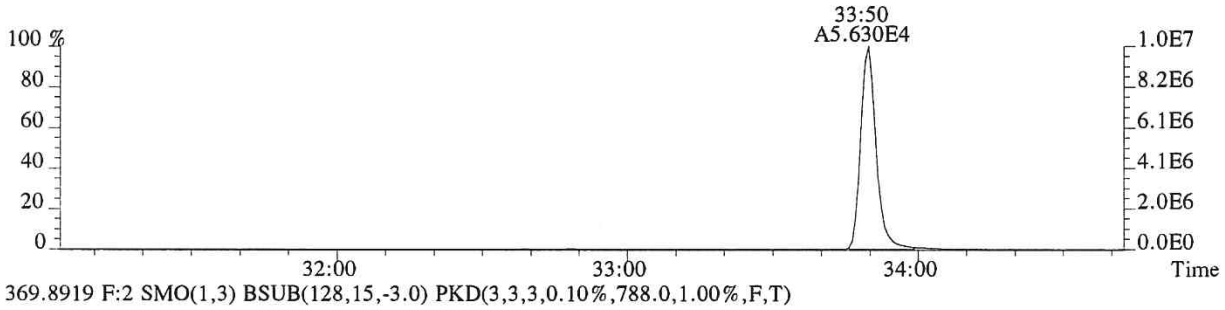
File:P519009 #1-330 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1492.0,1.00%,F,T)



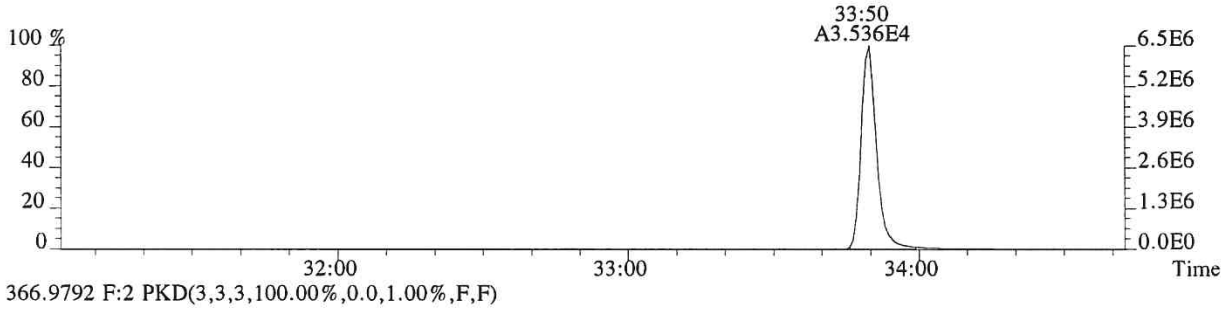
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



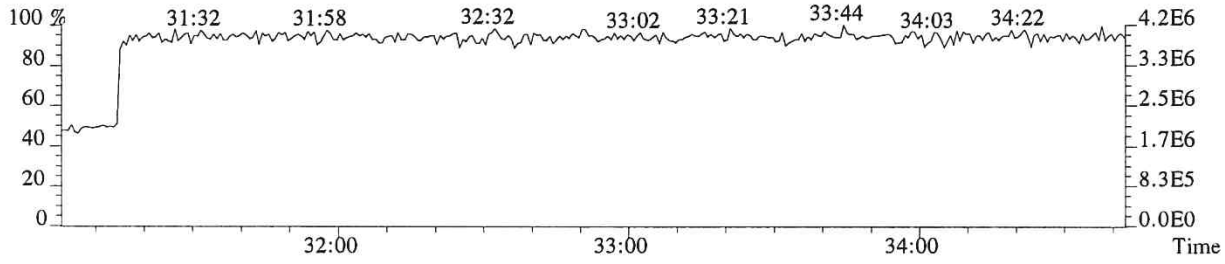
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



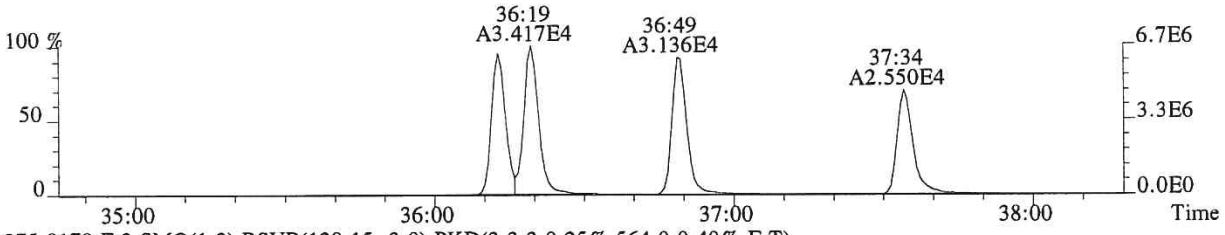
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



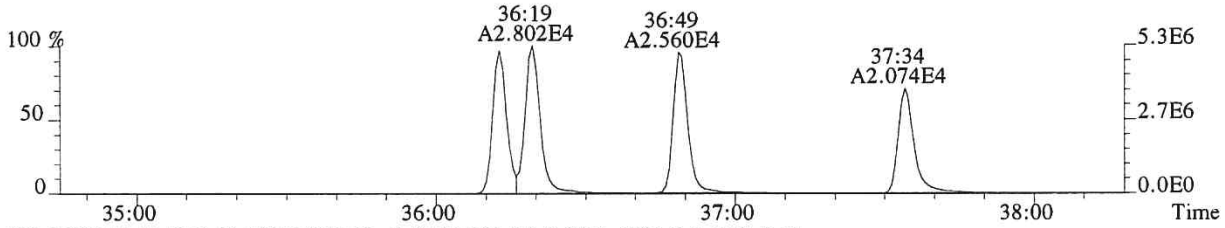
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



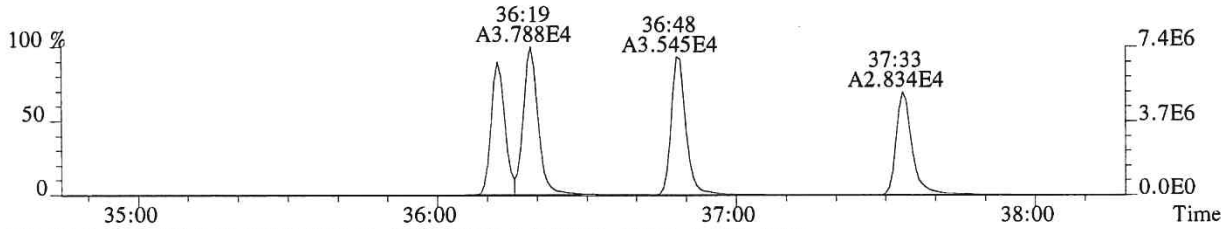
File:P519009 #1-321 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



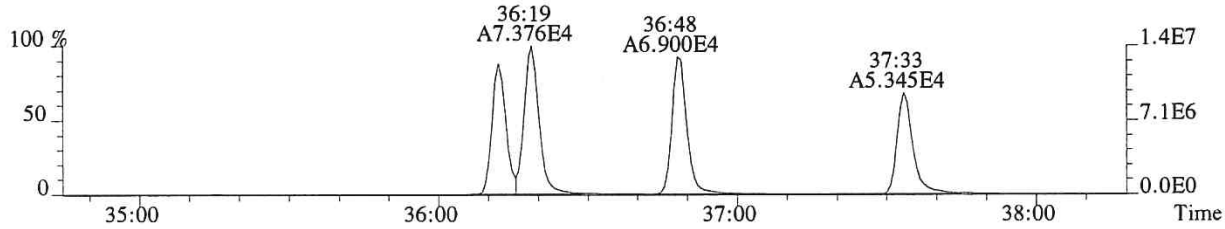
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



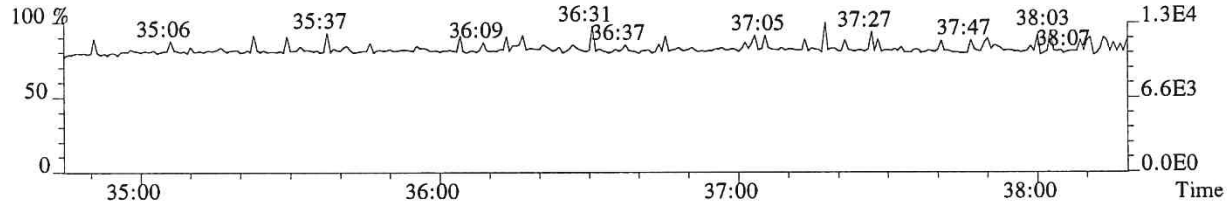
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



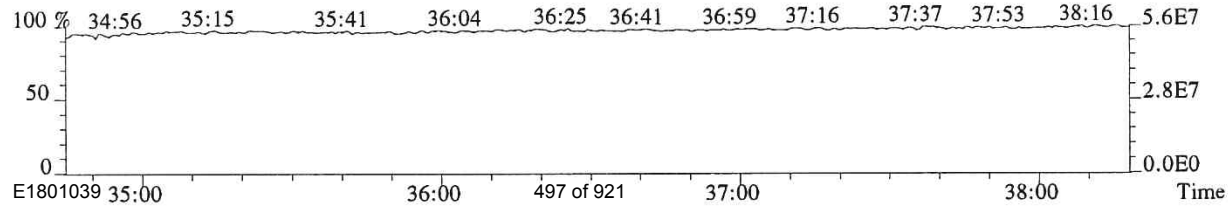
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

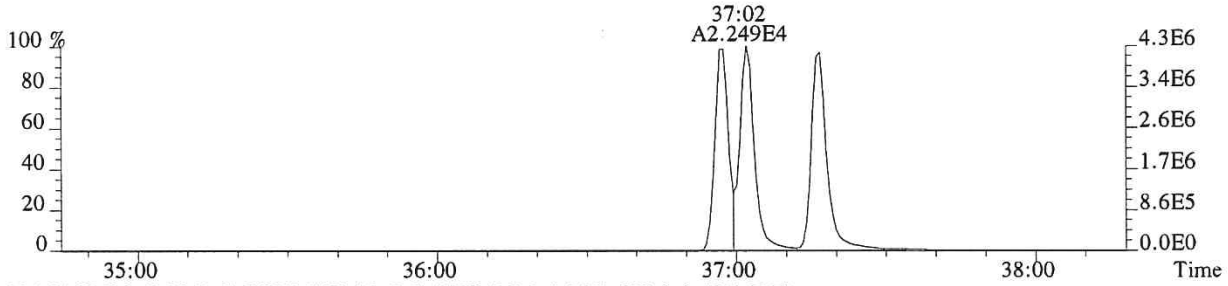


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

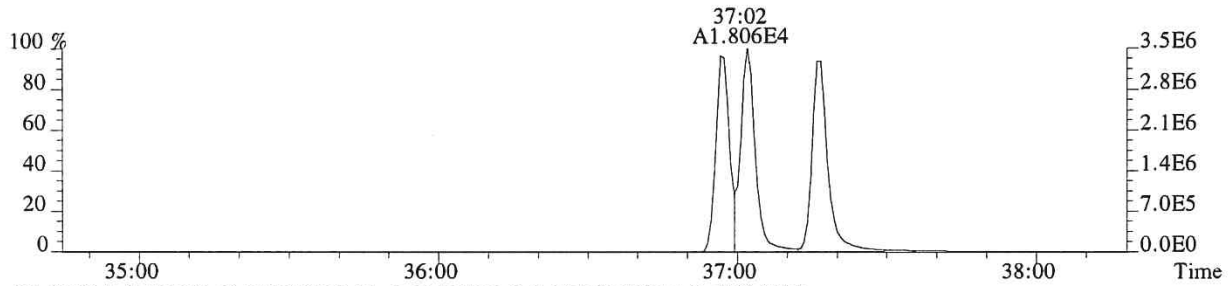


011428

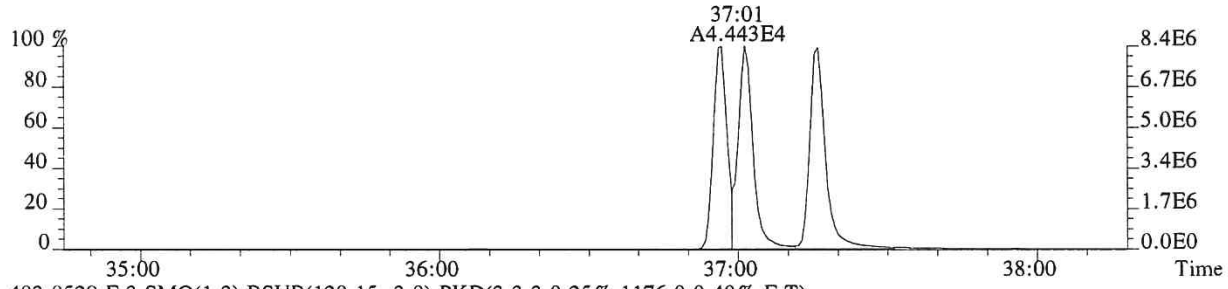
File:P519009 #1-321 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



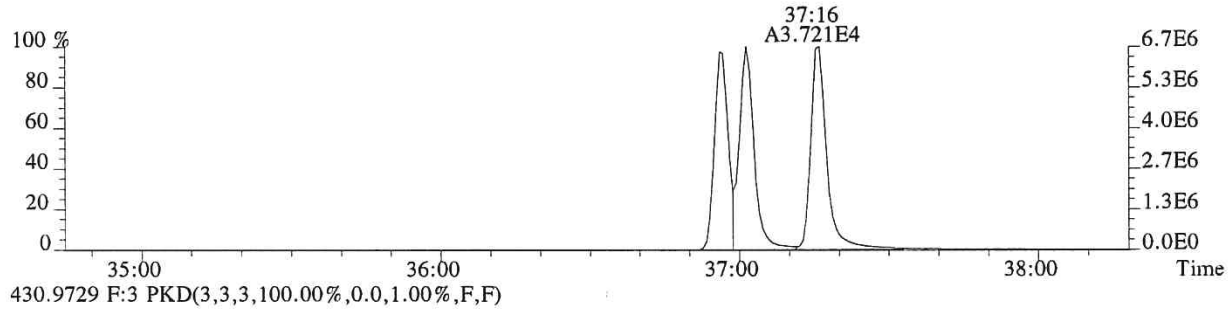
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



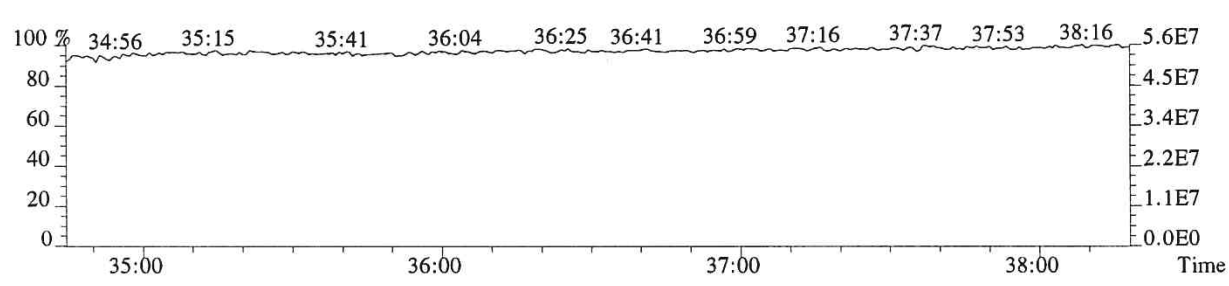
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2804.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)

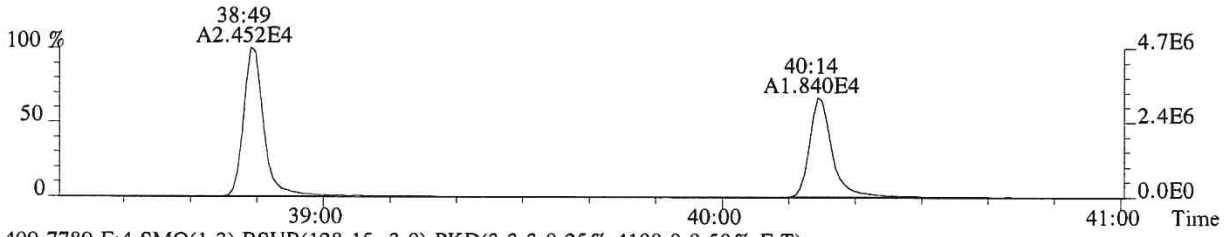


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

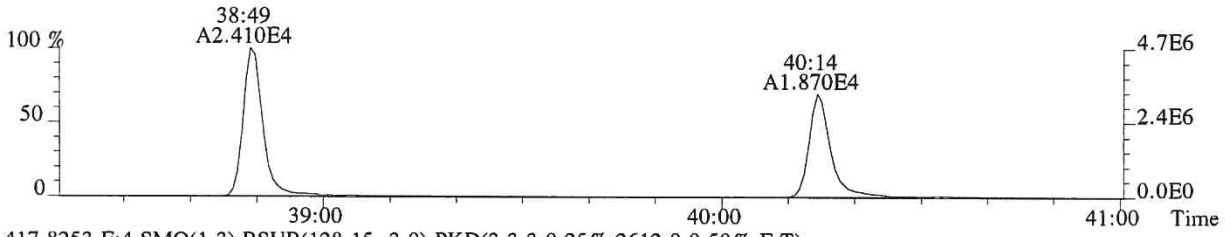


011429

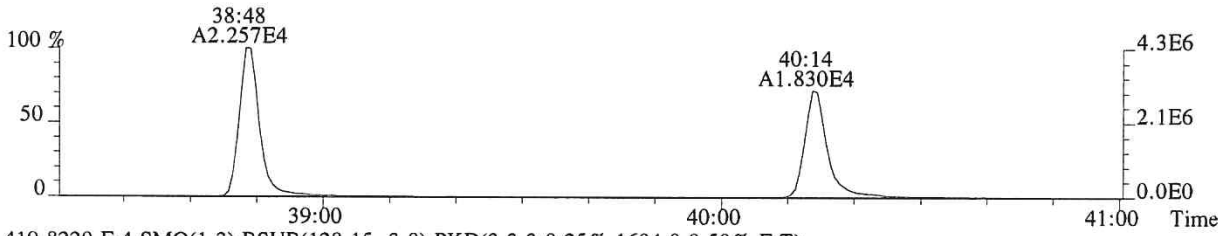
File:P519009 #1-241 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5112.0,0.50%,F,T)



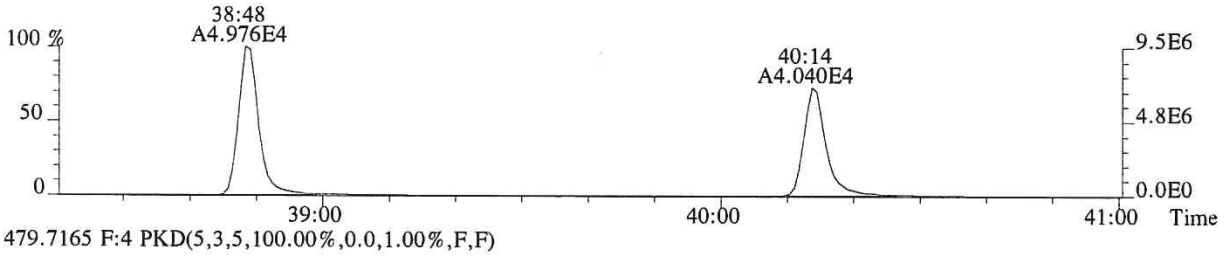
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4108.0,0.50%,F,T)



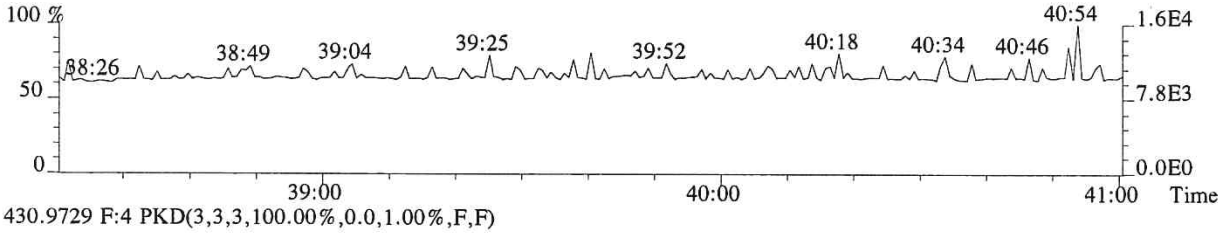
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2612.0,0.50%,F,T)



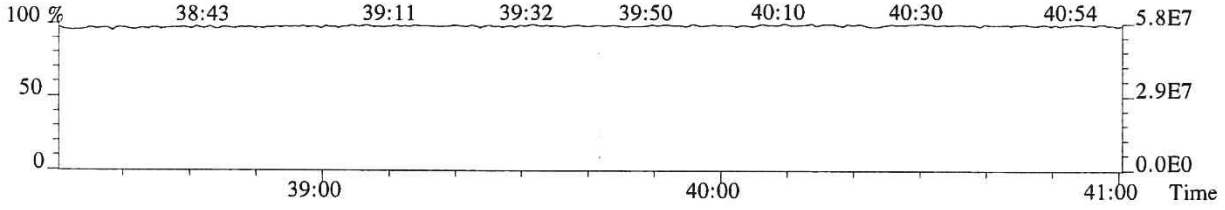
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.50%,F,T)



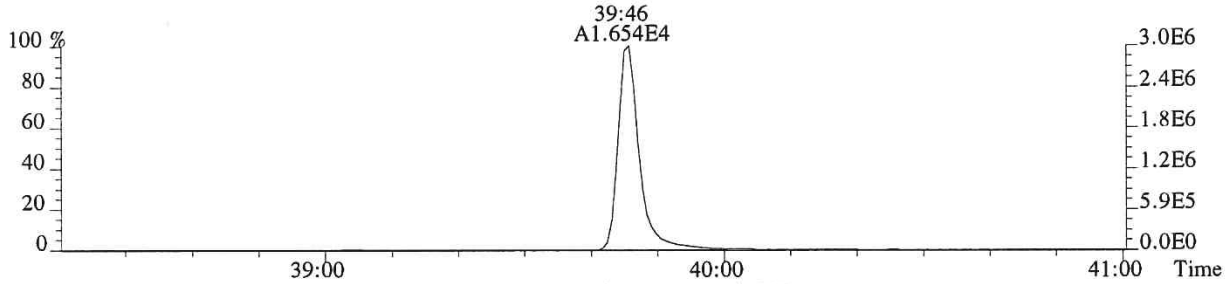
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



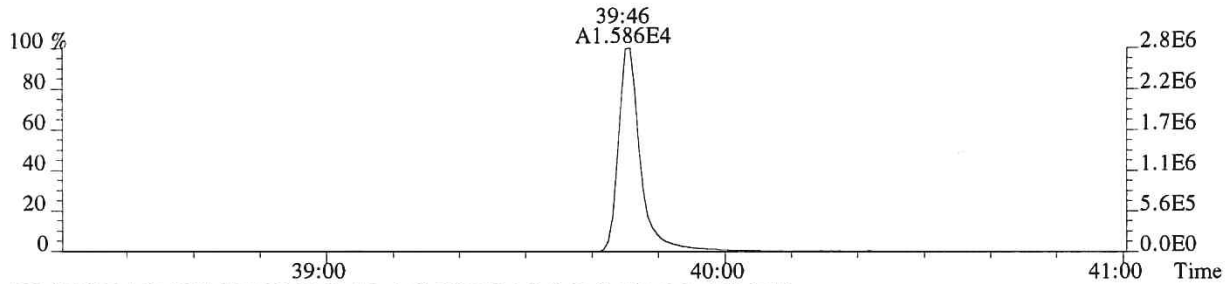
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



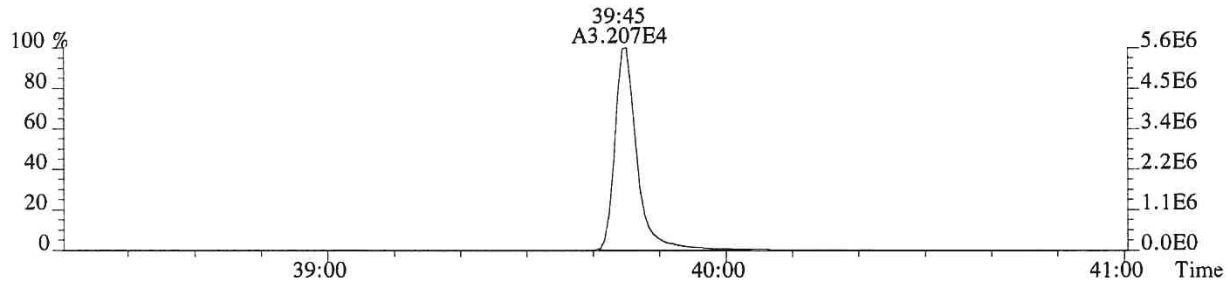
File:P519009 #1-241 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



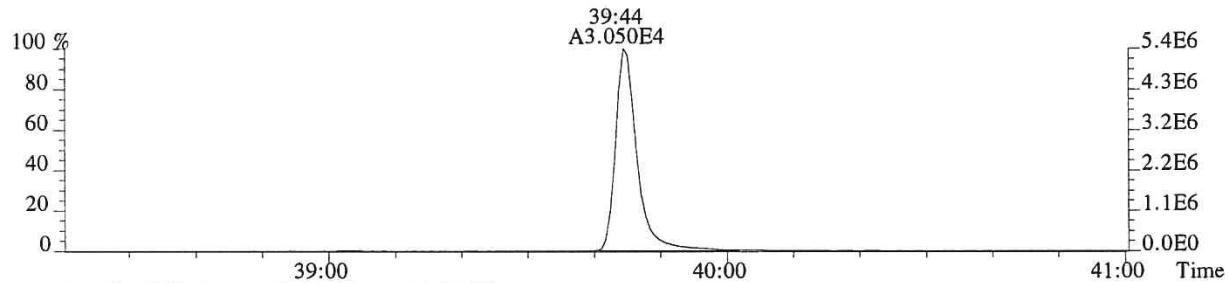
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



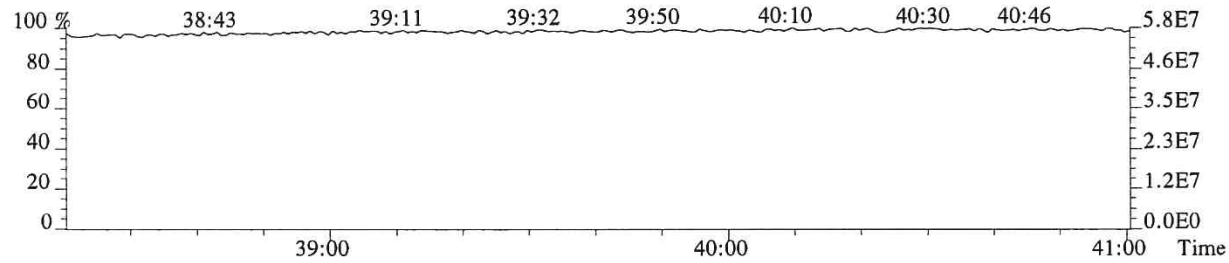
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



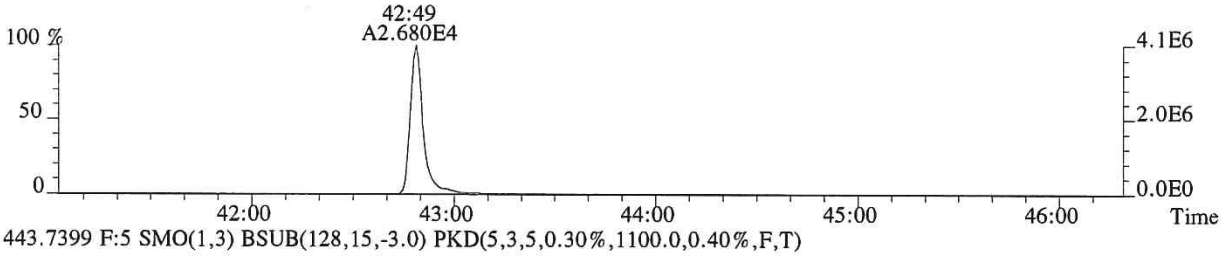
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



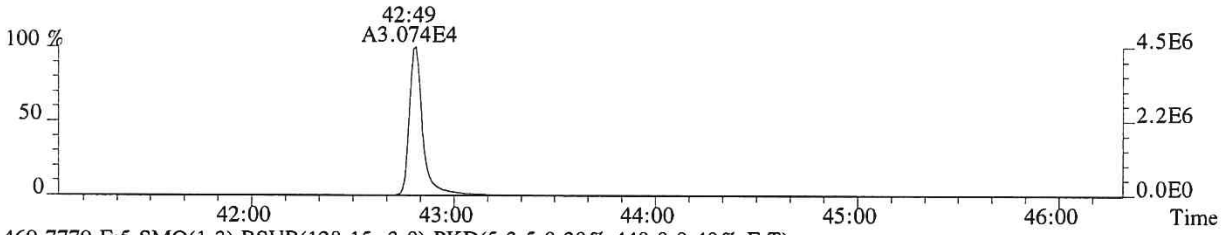
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



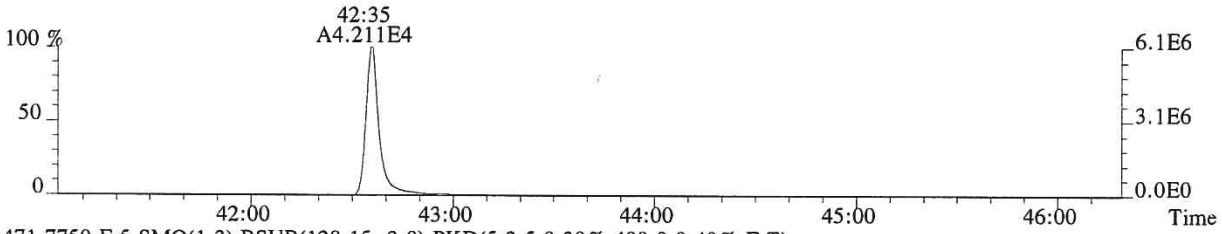
File:P519009 #1-475 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



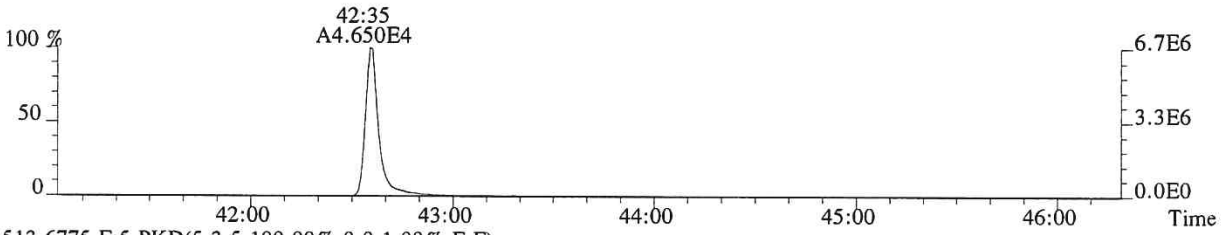
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1100.0,0.40%,F,T)



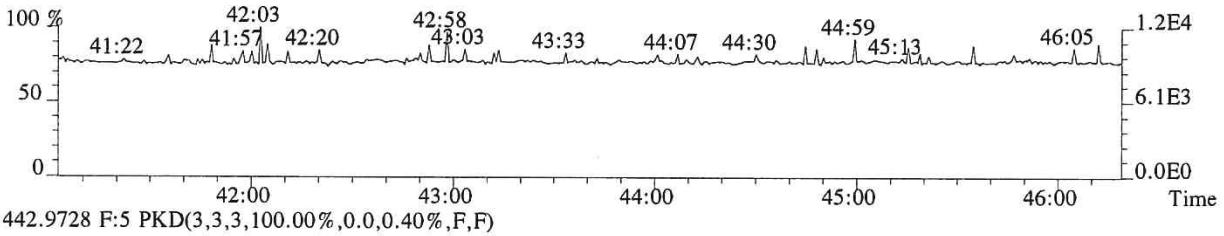
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



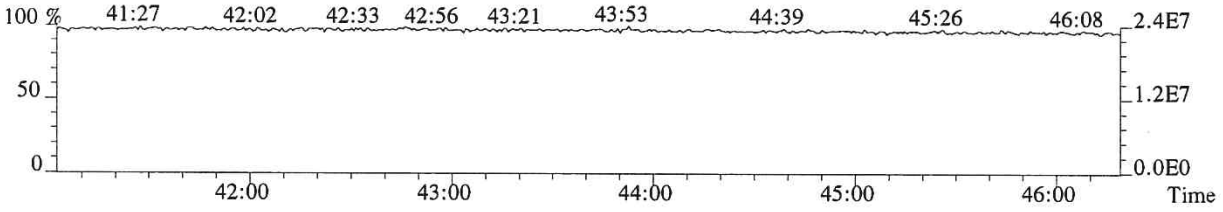
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

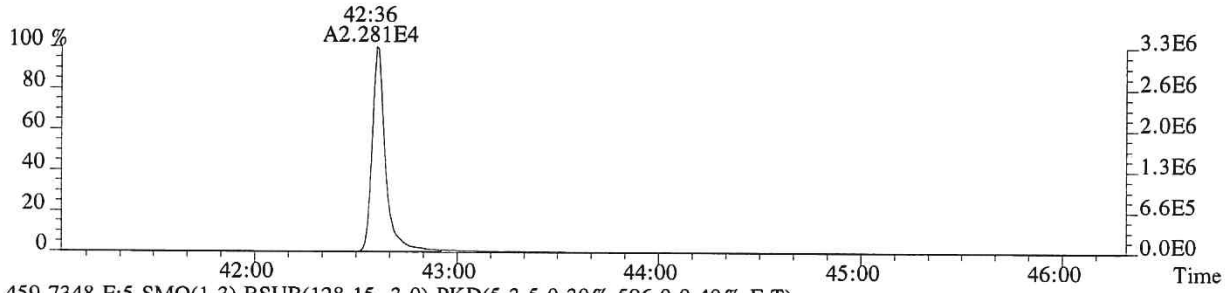


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

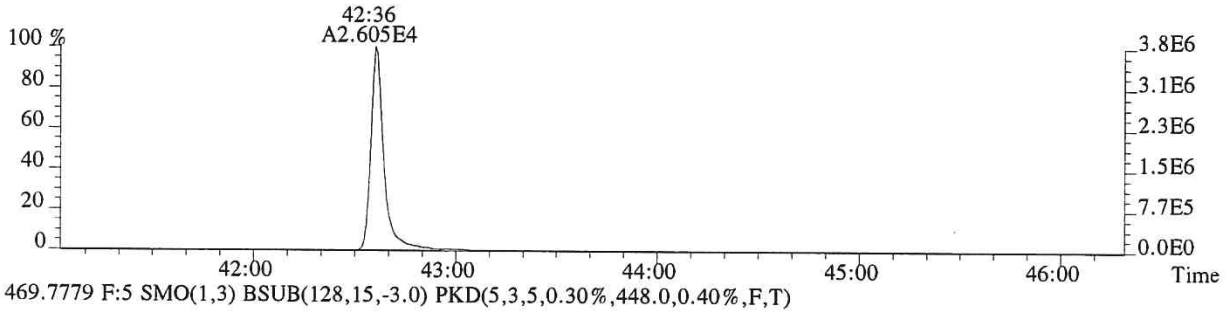


011432

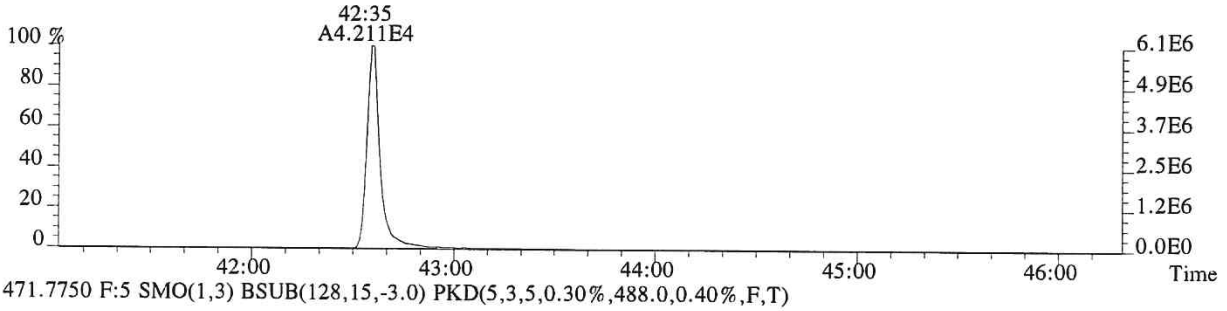
File:P519009 #1-475 Acq:27-NOV-2018 13:02:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



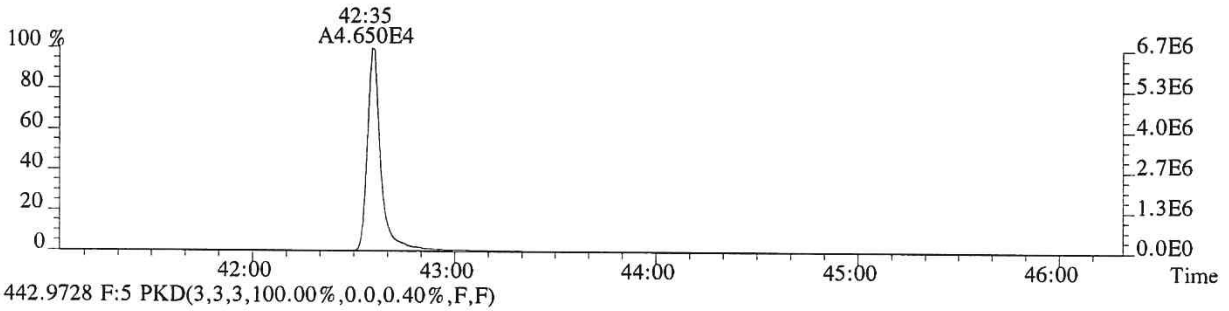
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



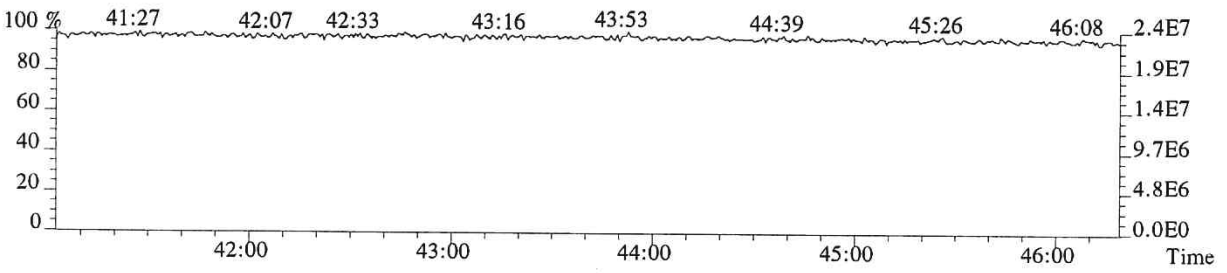
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519131

Date: 12/02/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P519132	2-DEC-18	04:33:24
194503	CS3	P519131	2-DEC-18	03:44:46
METHOD BLANK	EQ1800458-01	P519133	2-DEC-18	05:22:03
SL0108	E1801039-031	P519134	2-DEC-18	07:00:00
SL0516	E1801038-021	P519135	2-DEC-18	07:48:35
SL0517	E1801038-022	P519136	2-DEC-18	08:36:31
SL0100	E1801039-006	P519137	2-DEC-18	09:25:10
SL0107	E1801039-017	P519138	2-DEC-18	10:13:48
SL0129	E1801039-036	P519139	2-DEC-18	11:02:27
SL0130	E1801039-037	P519140	2-DEC-18	11:51:07
SL0101	E1801039-038	P519141	2-DEC-18	12:39:46
SL0509	E1801040-001	P519142	2-DEC-18	13:28:25
LCS	EQ1800469-02	P519143	2-DEC-18	14:17:05
DLCS	EQ1800469-03	P519144	2-DEC-18	15:05:44

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181202A.SPL
Last Modified: Monday, December 03, 2018 07:46:34 Central Standard Time
Printed: Monday, December 03, 2018 07:46:35 Central Standard Time

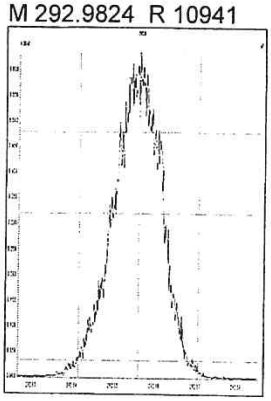
OPUS5: P519131RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/2/18	03:44	P519131	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMSCheck 05:03
2		04:35	P519132	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		C 12/1/18
3		05:22	P519133	MB	EQ1800458-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		07:00	P519134	E1801039-031	E1801039-031	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		07:48	P519135	E1801038-021	E1801038-021	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		08:36	P519136	E1801038-022	E1801038-022	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		09:25	P519137	E1801039-006	E1801039-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		10:13	P519138	E1801039-017	E1801039-017	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		11:02	P519139	E1801039-036	E1801039-036	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		11:51	P519140	E1801039-037	E1801039-037	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		12:39	P519141	E1801039-038	E1801039-038	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		13:28	P519142	E1801040-001	E1801040-001	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		14:17	P519143	LCS	EQ1800469-02	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		15:05	P519144	DLCS	EQ1800469-03	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		16:02	P519145	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMSCheck 16:02
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

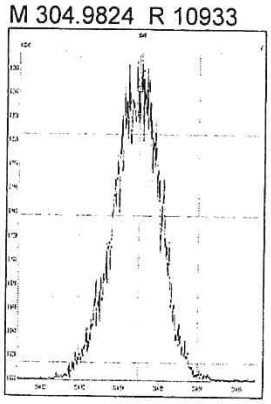
JC 12/03/18

038

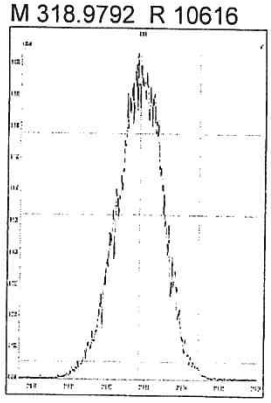
M 292.9824 R 10941



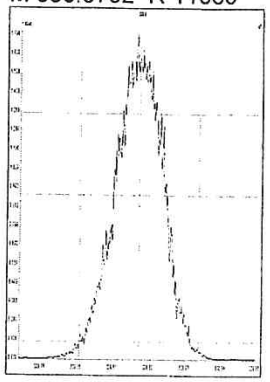
M 304.9824 R 10933



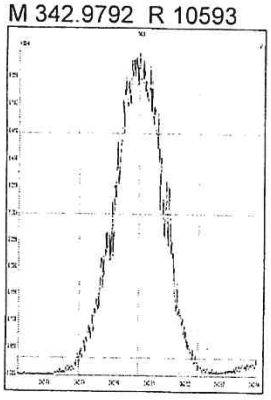
M 318.9792 R 10616



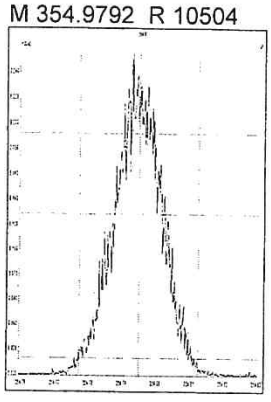
M 330.9792 R 11065



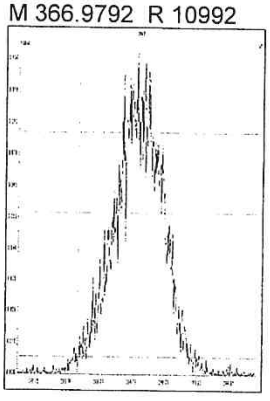
M 342.9792 R 10593



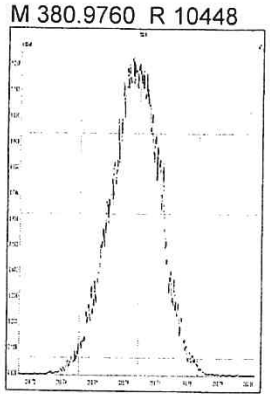
M 354.9792 R 10504



M 366.9792 R 10992



M 380.9760 R 10448



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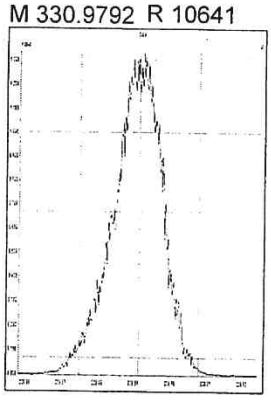
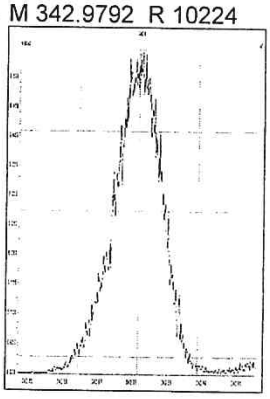
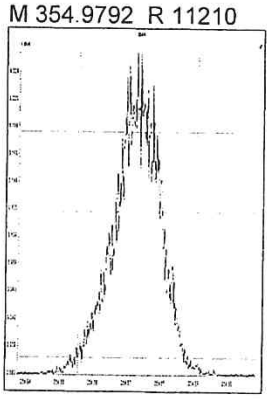


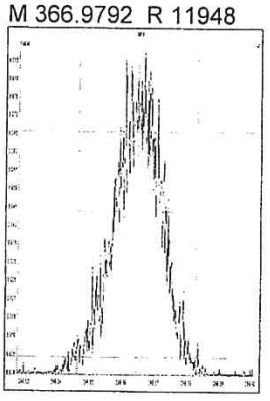
M 342.9792 R 10224



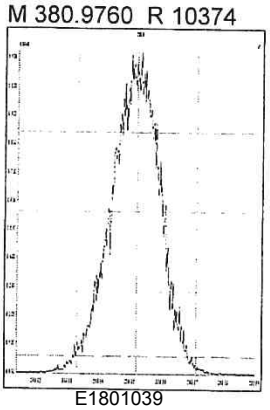
M 354.9792 R 11210



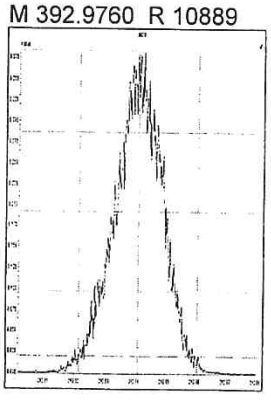
M 366.9792 R 11948



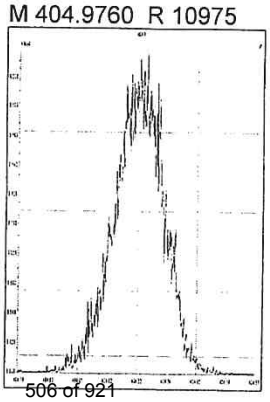
M 380.9760 R 10374



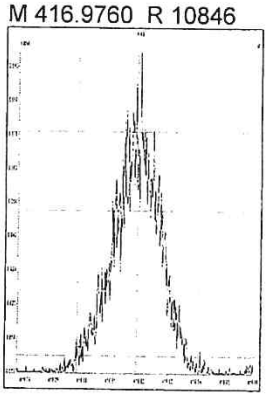
M 392.9760 R 10889



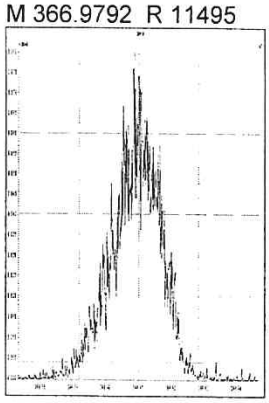
M 404.9760 R 10975



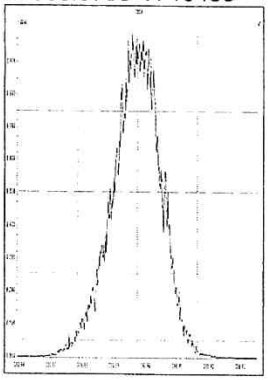
M 416.9760 R 10846



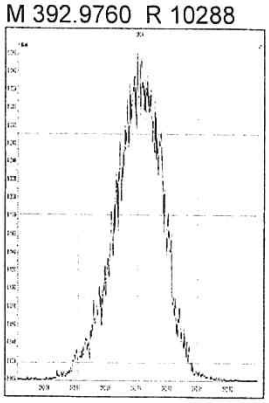
M 366.9792 R 11495



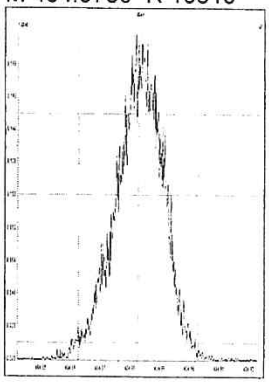
M 380.9760 R 10485



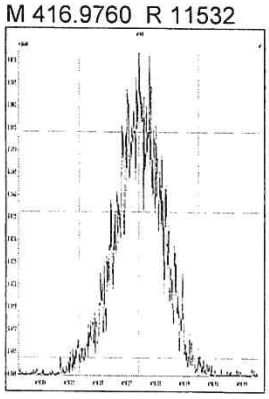
M 392.9760 R 10288



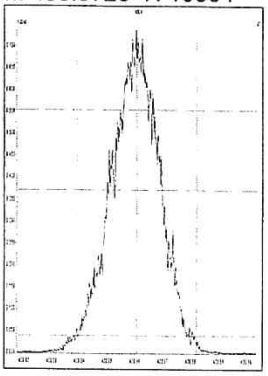
M 404.9760 R 10619



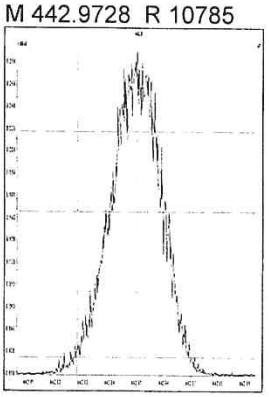
M 416.9760 R 11532



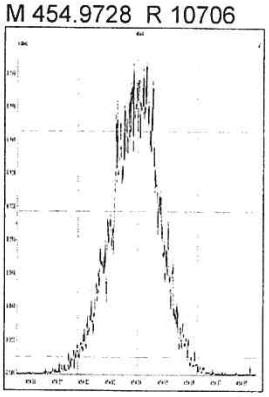
M 430.9728 R 10504



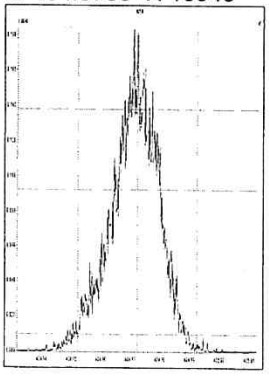
M 442.9728 R 10785



M 454.9728 R 10706



M 404.9760 R 10943



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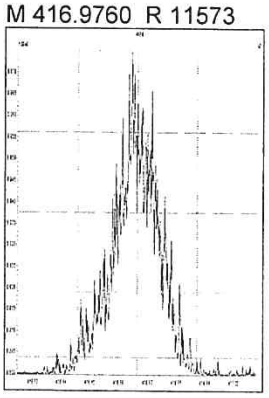
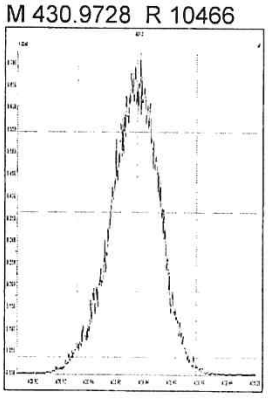
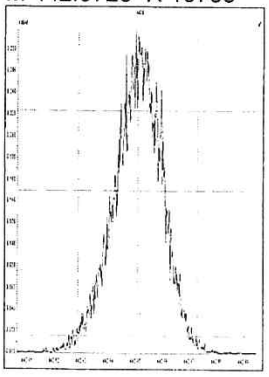


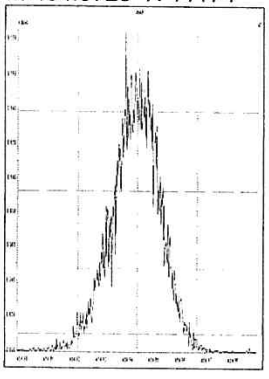
M 430.9728 R 10466



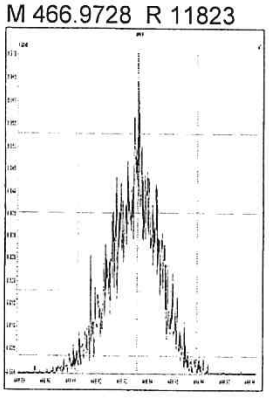
M 442.9728 R 10753



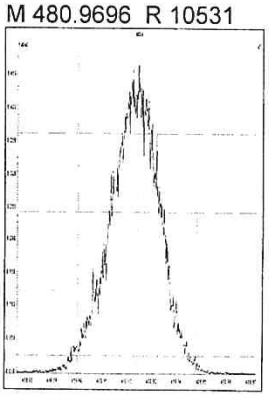
M 454.9728 R 11174



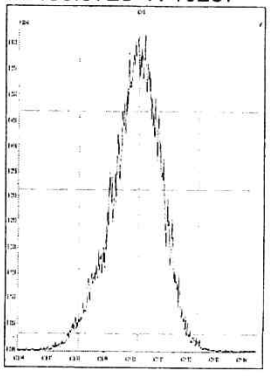
M 466.9728 R 11823



M 480.9696 R 10531



M 430.9728 R 10287



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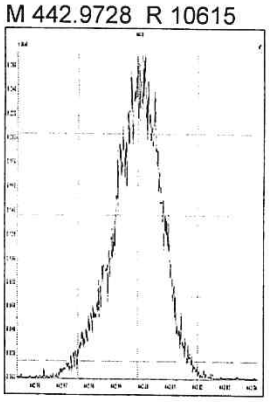

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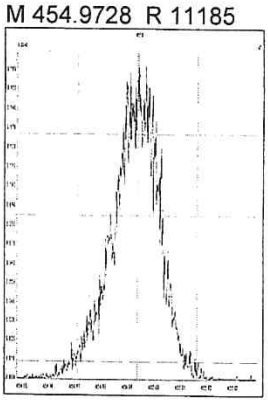

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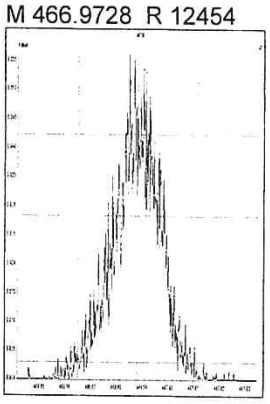

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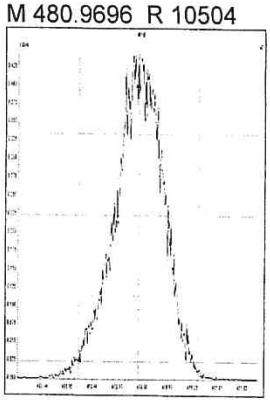

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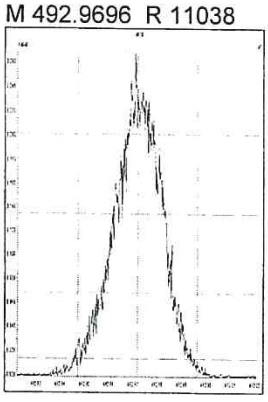
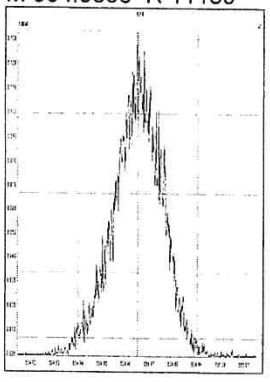
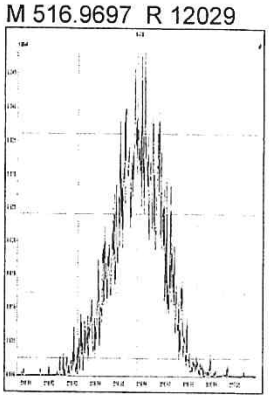


M 504.9696 R 11189



M 516.9697 R 12029



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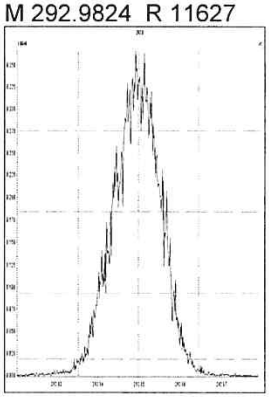
M 292.9824 R 11627



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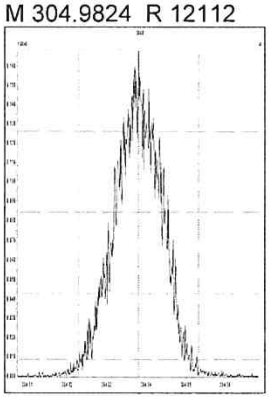

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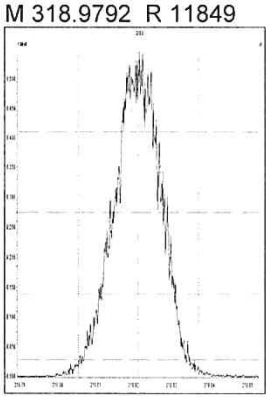

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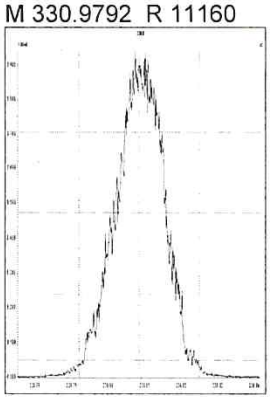

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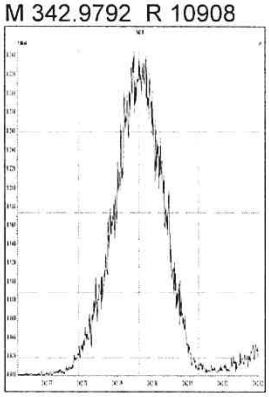

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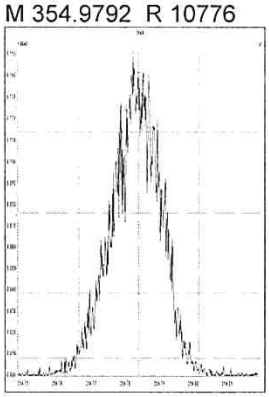

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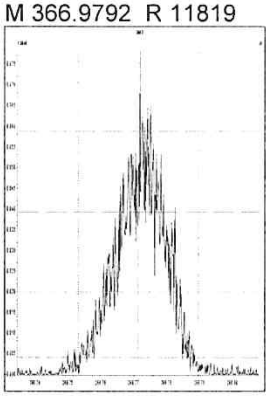

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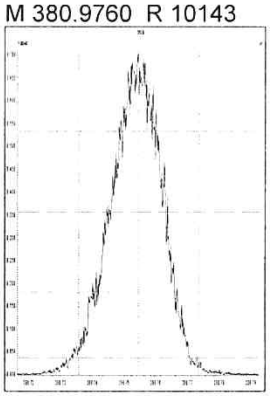
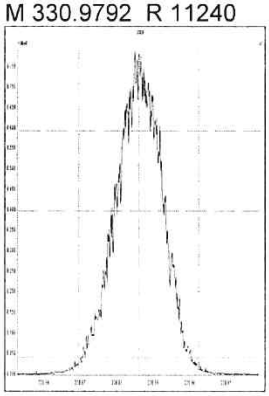


M 330.9792 R 11240



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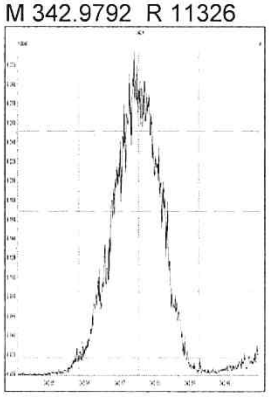

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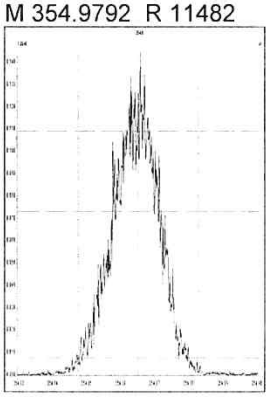

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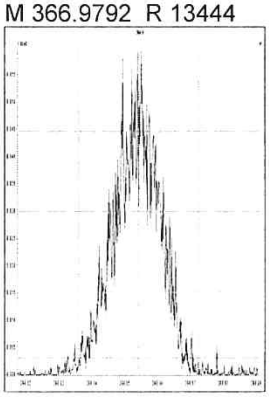

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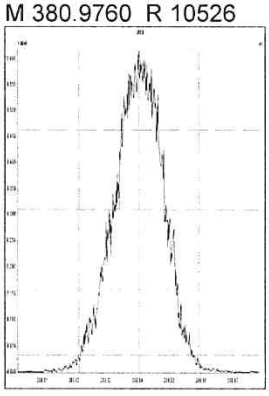

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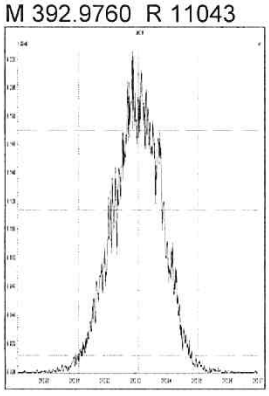

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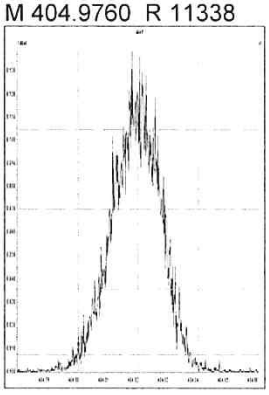

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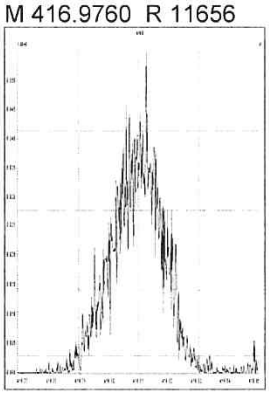

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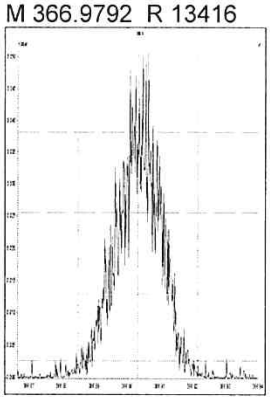

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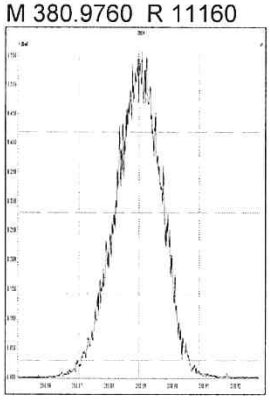

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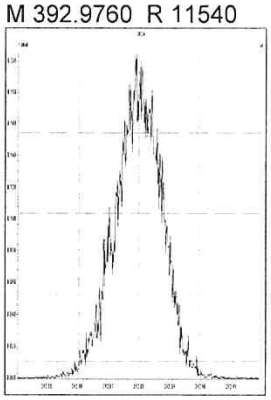

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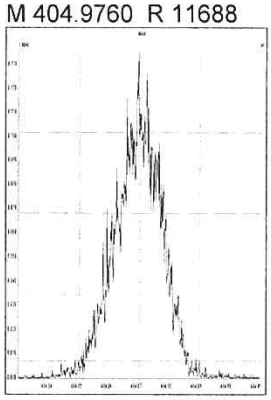

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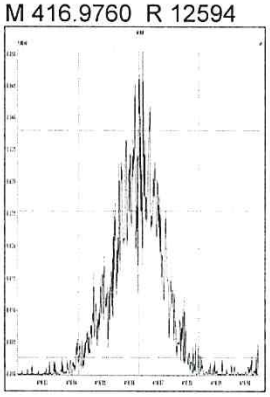

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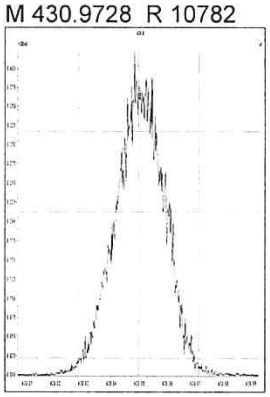

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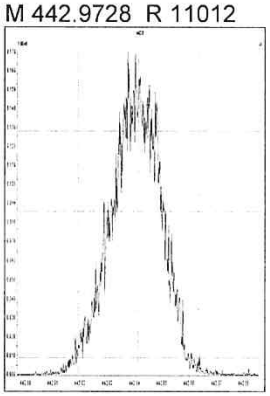

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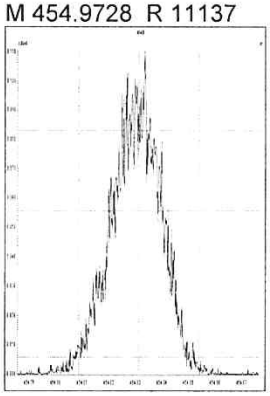
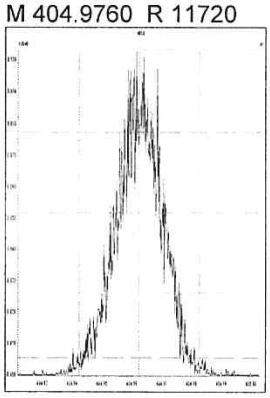


M 404.9760 R 11720



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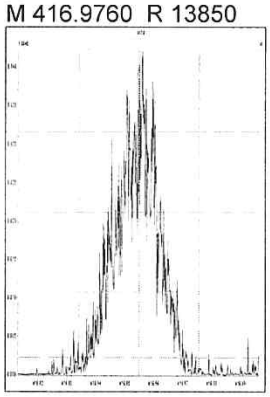

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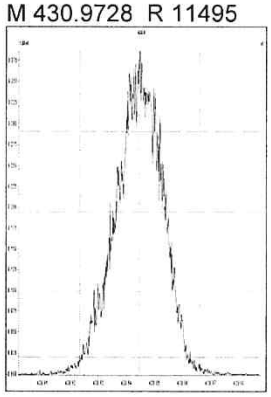

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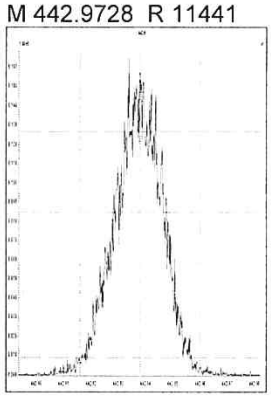

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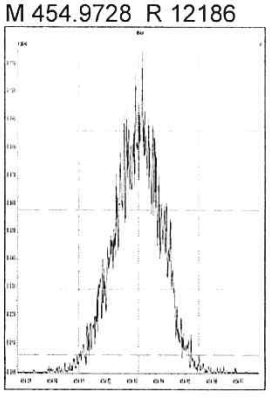

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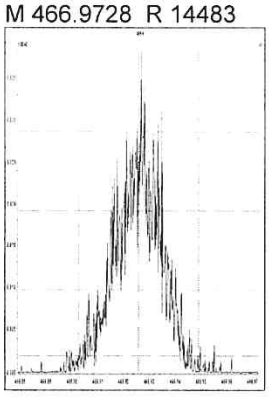
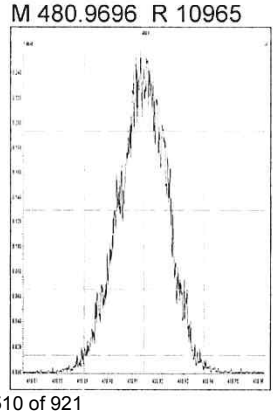


M 480.9696 R 10965



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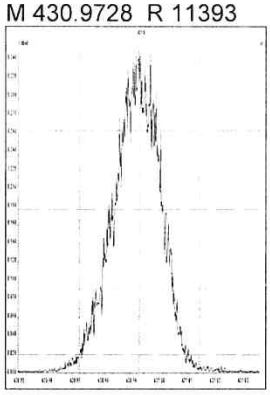

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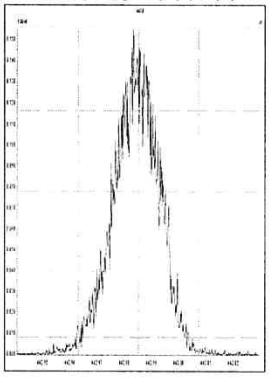

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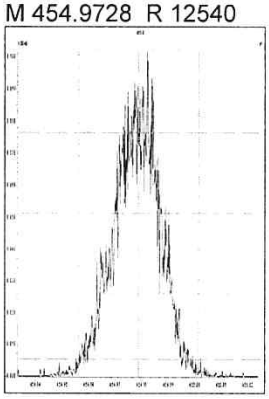

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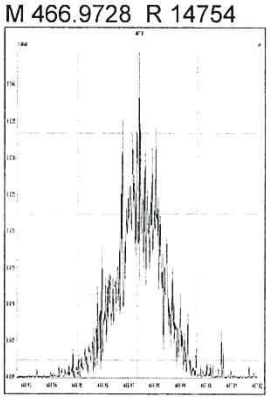

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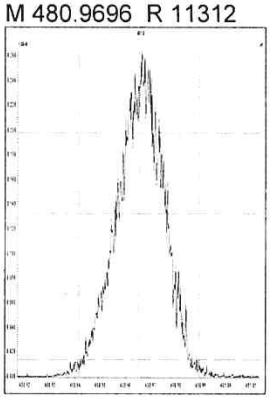

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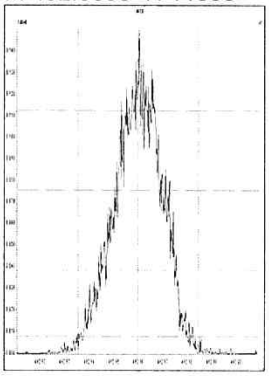

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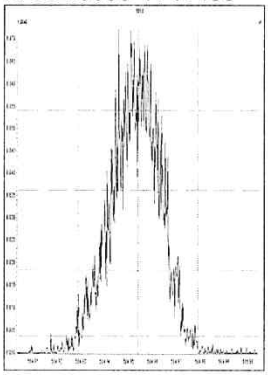

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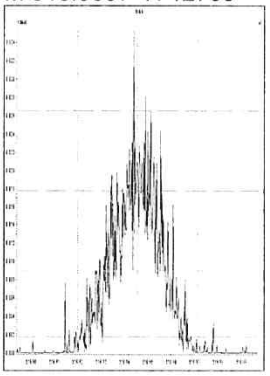


WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

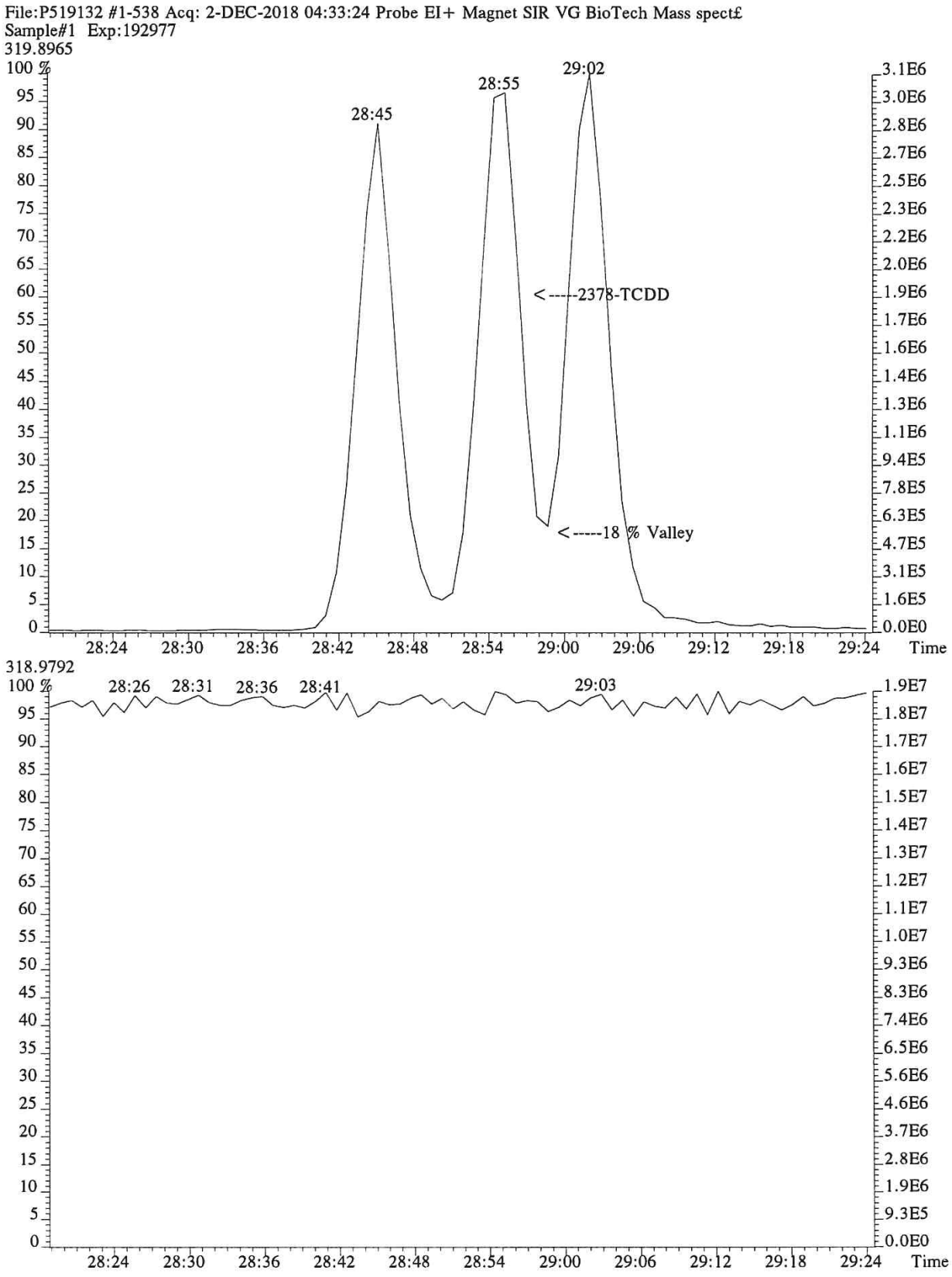
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519132
Date Analyzed: 2-DEC-2018
Time Analyzed: 04:33:24

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:45	30:04
TCDD	25:37	29:54
PeCDF	30:01	34:15
PeCDD	31:33	34:00
HxCDF	34:55	37:25
HxCDD	35:26	37:01
HpCDF	38:39	40:04
HpCDD	38:54	39:35

% Valley 2378-TCDD: 18 %


File:P519132 #1-538 Acq: 2-DEC-2018 04:33:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
28:45
28:55
29:02
<-----2378-TCDD
<-----18 % Valley
318.9792
28:26
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28:36
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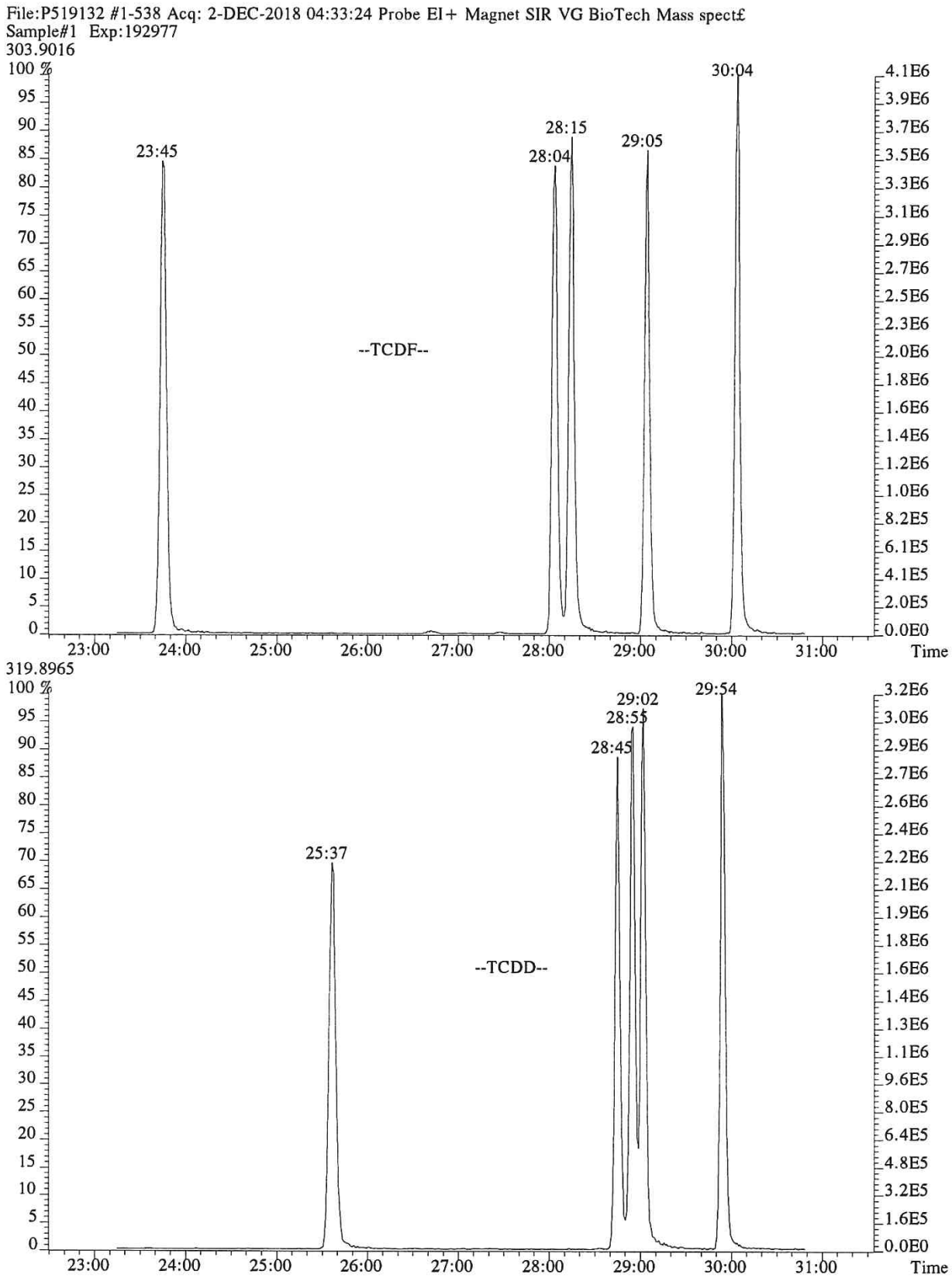
Time

011444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100 %
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28:04
28:15
29:05
30:04
--TCDF--
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3.9E6
3.7E6
3.5E6
3.3E6
3.1E6
2.9E6
2.7E6
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Time
319.8965
100 %
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29:54
--TCDD--
3.2E6
3.0E6
2.9E6
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1.6E6
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Time

File:P519132 #1-538 Acq: 2-DEC-2018 04:33:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
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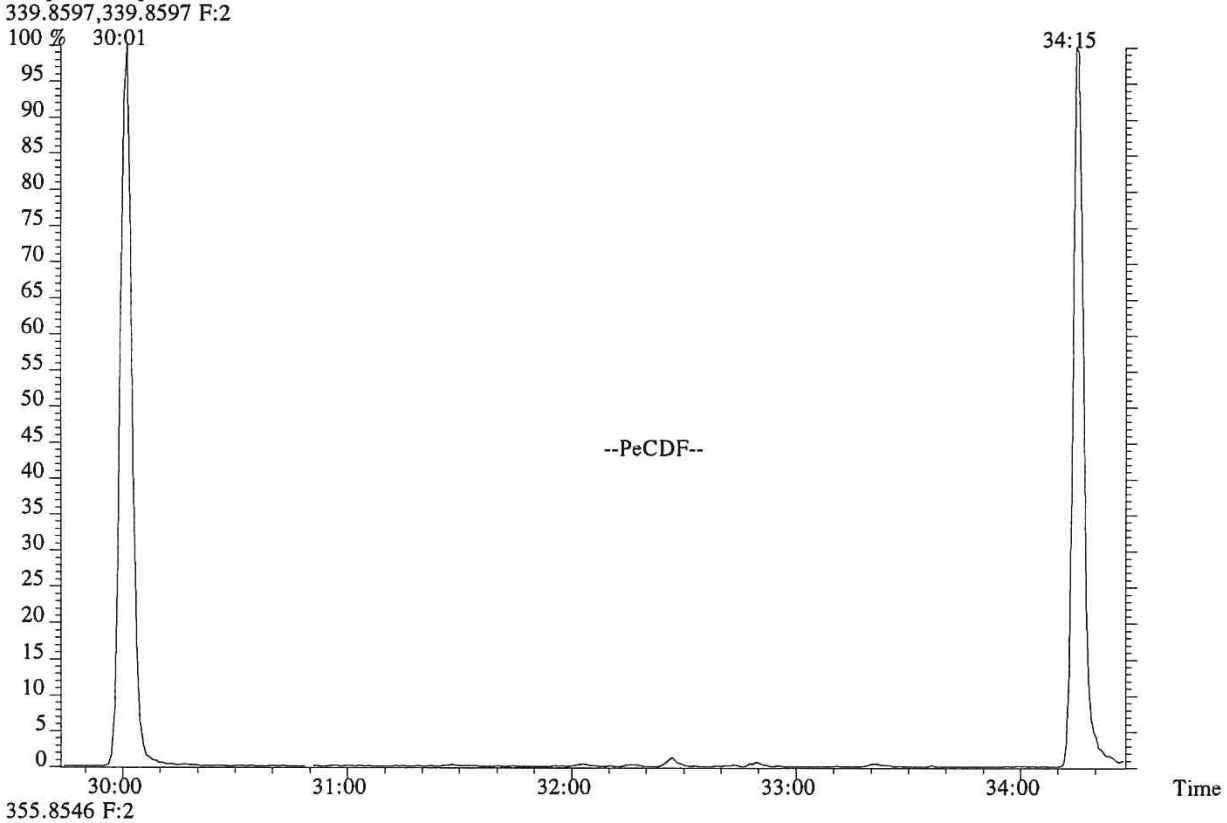
339.8597,339.8597 F:2



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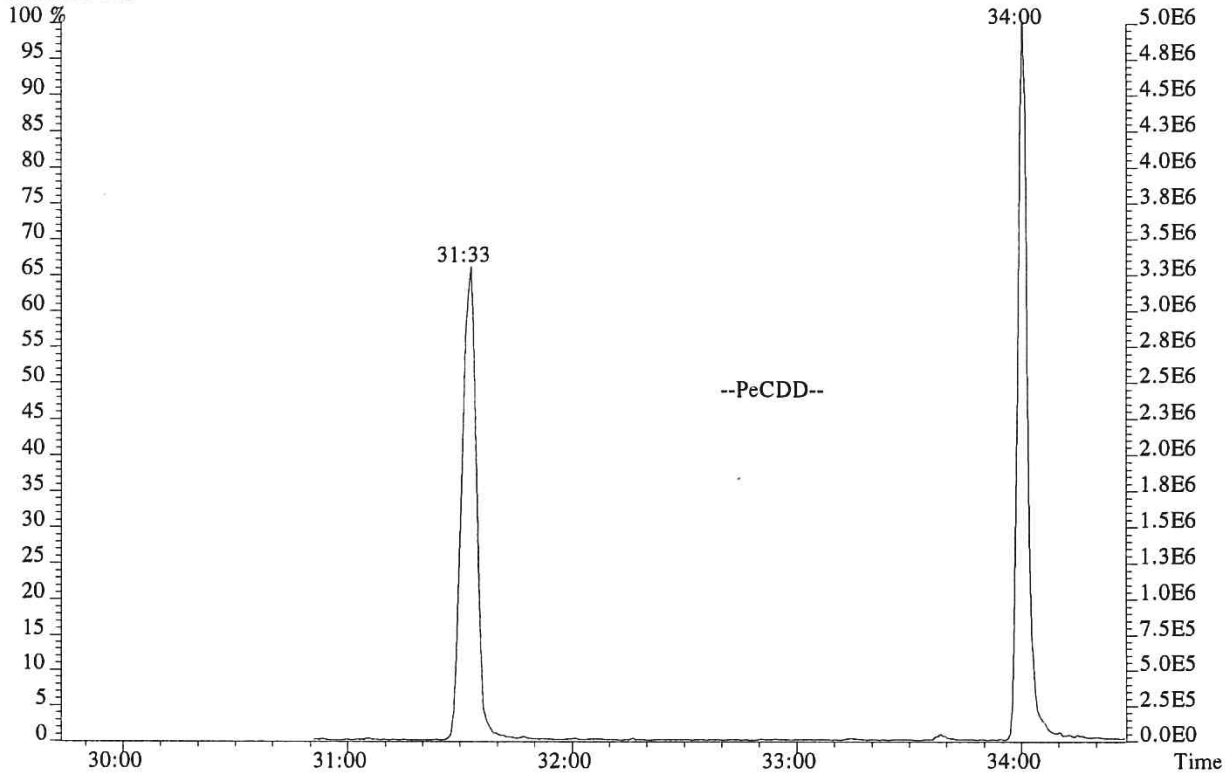

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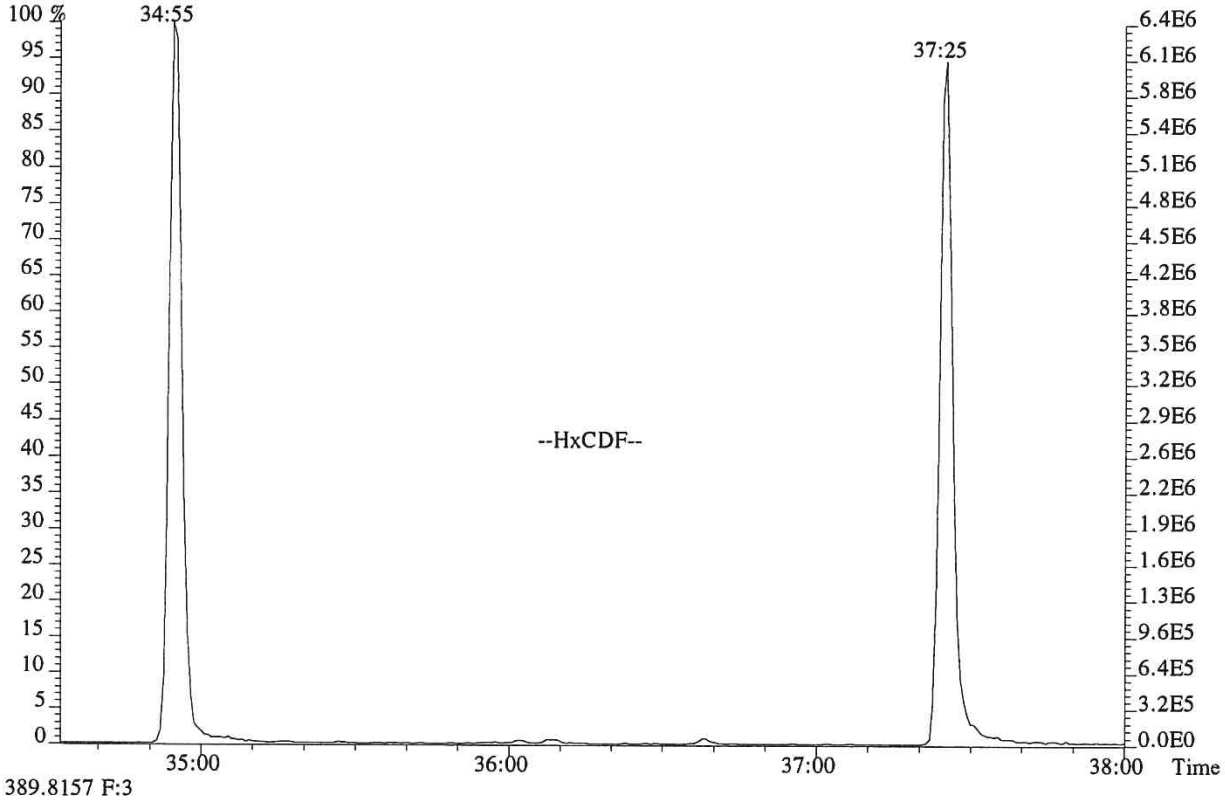

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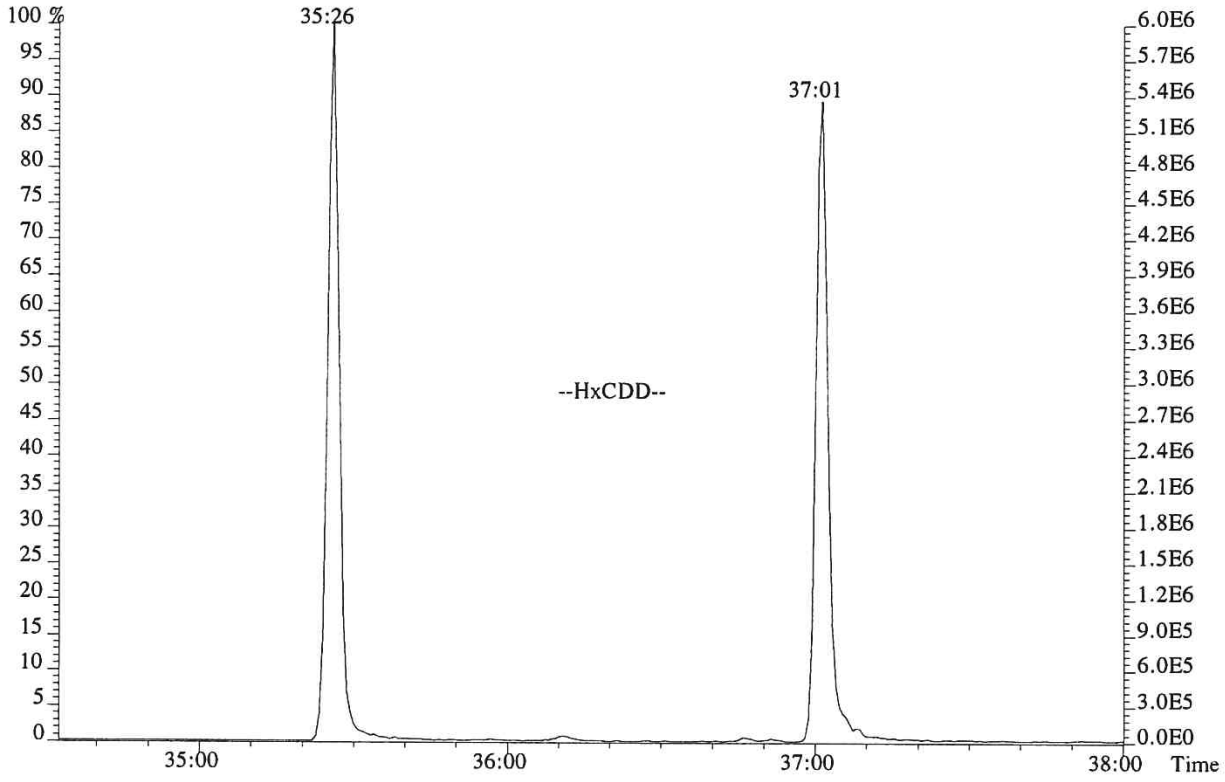

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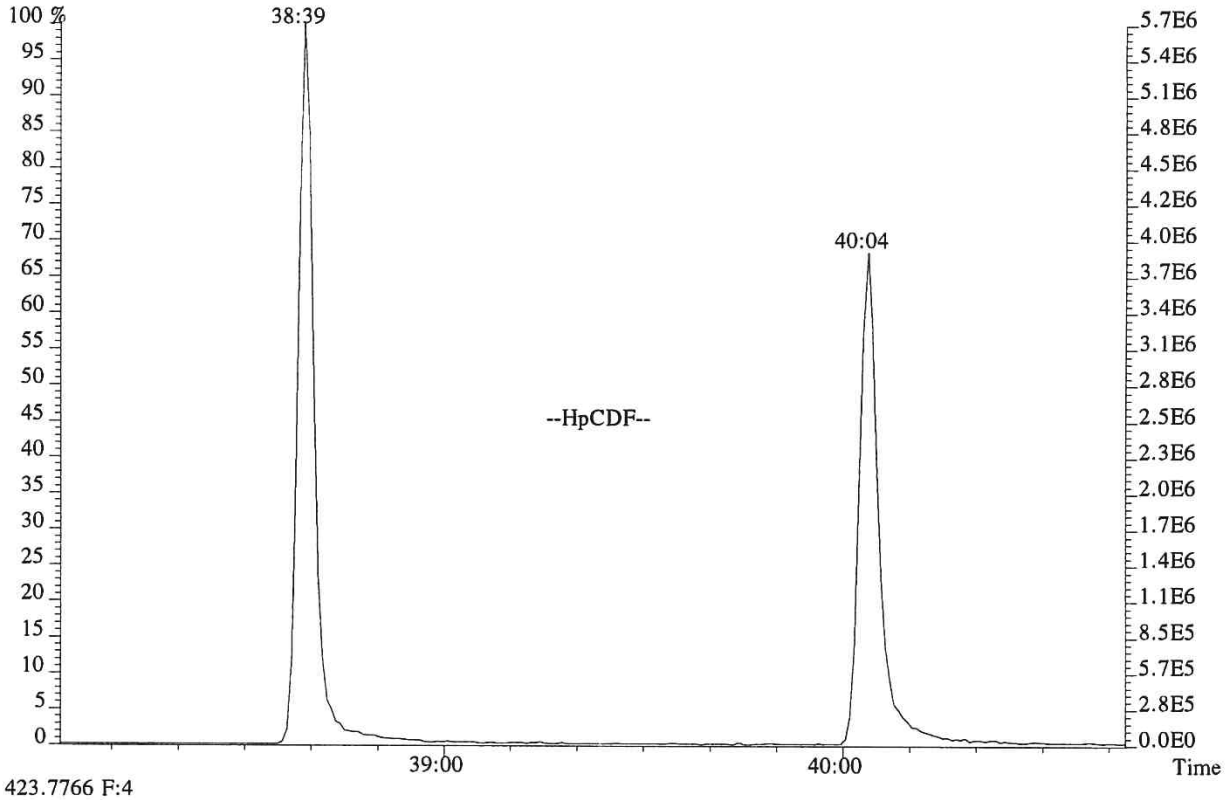
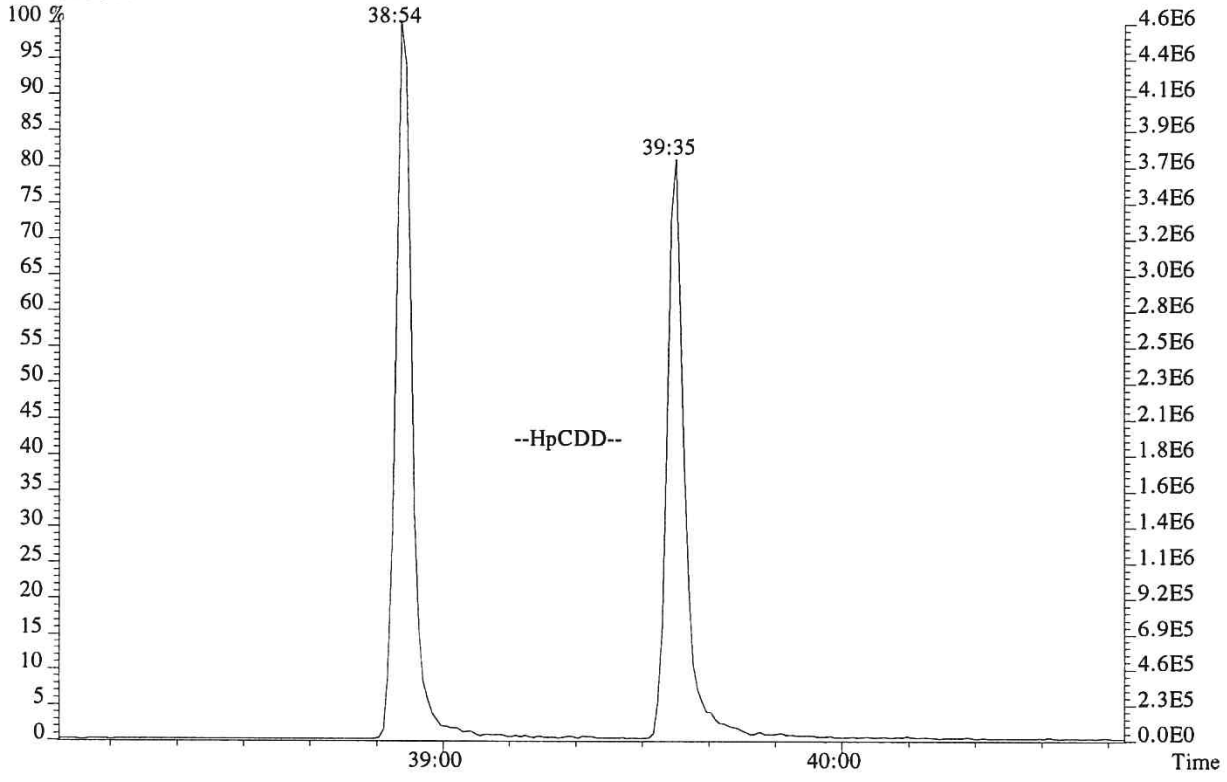


423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID : DB-5MSUI

VER Data Filename: P519131 Analysis Date: 2-DEC-18 Time: 03:44:46

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.2	7.8 - 12.9	-8.2
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	49	39 - 65	-2.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-1.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-1.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	51	41 - 61	1.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	49	43 - 58	-1.8
OCDD	M+2/M+4	0.89	0.76-1.02	99	79 - 126	-1.3
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	9.4	8.4 - 12.0	-5.9
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 60	-2.5
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 61	-2.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	50	45 - 56	0.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	49	45 - 56	-2.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	49	44 - 57	-2.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	49	45 - 55	-2.7
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	49	43 - 58	-1.6
OCDF	M+2/M+4	0.89	0.76-1.02	92	63 - 159	-8.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID : DB-5MSUI

VER Data Filename: P519131 Analysis Date: 2-DEC-18 Time: 03:44:46

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	106	82 - 121	6.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	110	62 - 160	9.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	93	85 - 117	-6.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	99	85 - 118	-1.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	95	72 - 138	-4.5
13C-OCDD	M+2/M+4	0.90	0.76-1.02	176	96 - 415	-11.9
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	92	71 - 140	-8.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	100	76 - 130	0.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	102	77 - 130	1.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	86	76 - 131	-14.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	89	70 - 143	-10.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	94	74 - 135	-5.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	93	73 - 137	-7.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	89	78 - 129	-11.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	89	77 - 129	-11.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.1	7.8 - 12.7	1.3

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519131 Samp: 1 Inj: 1 Acquired: 2-DEC-18 03:44:46
Processed: 3-DEC-18 17:04:26 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:15	9.114e+03	1.228e+04	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:27	7.652e+04	5.000e+04	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:21	7.288e+04	4.760e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:01	6.524e+04	5.256e+04	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:08	6.863e+04	5.820e+04	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:38	6.353e+04	5.329e+04	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:23	5.837e+04	4.776e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	5.256e+04	5.202e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	4.159e+04	4.168e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:37	5.570e+04	6.280e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:02	7.411e+03	9.578e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:38	5.254e+04	3.365e+04	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:46	4.502e+04	3.621e+04	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:51	4.884e+04	3.942e+04	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:06	4.995e+04	4.009e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	3.902e+04	3.720e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:24	4.923e+04	5.554e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:14	1.063e+05	1.350e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:26	1.568e+05	9.968e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:20	1.573e+05	9.980e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	6.753e+04	1.289e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:07	7.935e+04	1.518e+05	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:37	7.340e+04	1.427e+05	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	6.478e+04	1.250e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	4.915e+04	1.100e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	4.162e+04	9.290e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:00	7.546e+04	9.506e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:37	1.135e+05	7.219e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:45	8.864e+04	7.082e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	9.671e+04	7.669e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	7.710e+04	7.436e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:23	9.016e+04	9.972e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:27	7.713e+04	9.656e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	1.012e+05	8.379e+04	1.21	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:02	1.783e+04				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519131 Samp: 1 Inj: 1 Acquired: 2-DEC-18 03:44:46
Processed: 3-DEC-18 17:04:26 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.68e+06	4.92e+02	3.4e+03	2.29e+06	9.16e+02	2.5e+03
2	1,2,3,7,8-PeCDF	1.42e+07	6.20e+02	2.3e+04	9.25e+06	1.07e+03	8.7e+03
3	2,3,4,7,8-PeCDF	1.42e+07	6.20e+02	2.3e+04	9.24e+06	1.07e+03	8.7e+03
4	1,2,3,4,7,8-HxCDF	1.37e+07	3.36e+02	4.1e+04	1.13e+07	4.80e+02	2.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+07	3.36e+02	4.2e+04	1.18e+07	4.80e+02	2.5e+04
6	2,3,4,6,7,8-HxCDF	1.37e+07	3.36e+02	4.1e+04	1.15e+07	4.80e+02	2.4e+04
7	1,2,3,7,8,9-HxCDF	1.17e+07	3.36e+02	3.5e+04	9.65e+06	4.80e+02	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.09e+07	6.86e+03	1.6e+03	1.08e+07	4.81e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	7.62e+06	6.86e+03	1.1e+03	7.58e+06	4.81e+03	1.6e+03
10	OCDF	8.50e+06	3.32e+02	2.6e+04	9.67e+06	4.20e+02	2.3e+04
11	2,3,7,8-TCDD	1.45e+06	1.42e+03	1.0e+03	1.93e+06	6.96e+02	2.8e+03
12	1,2,3,7,8-PeCDD	1.03e+07	6.96e+02	1.5e+04	6.45e+06	1.72e+02	3.8e+04
13	1,2,3,4,7,8-HxCDD	9.89e+06	3.80e+02	2.6e+04	8.06e+06	5.48e+02	1.5e+04
14	1,2,3,6,7,8-HxCDD	9.96e+06	3.80e+02	2.6e+04	8.06e+06	5.48e+02	1.5e+04
15	1,2,3,7,8,9-HxCDD	1.03e+07	3.80e+02	2.7e+04	8.22e+06	5.48e+02	1.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.50e+06	5.20e+02	1.4e+04	7.12e+06	5.08e+02	1.4e+04
17	OCDD	7.51e+06	2.60e+02	2.9e+04	8.49e+06	4.72e+02	1.8e+04
18	13C-2,3,7,8-TCDF	1.95e+07	3.97e+03	4.9e+03	2.45e+07	2.38e+03	1.0e+04
19	13C-1,2,3,7,8-PeCDF	2.87e+07	6.32e+02	4.5e+04	1.85e+07	4.28e+02	4.3e+04
20	13C-2,3,4,7,8-PeCDF	3.00e+07	6.32e+02	4.7e+04	1.92e+07	4.28e+02	4.5e+04
21	13C-1,2,3,4,7,8-HxCDF	1.45e+07	9.64e+02	1.5e+04	2.77e+07	9.16e+02	3.0e+04
22	13C-1,2,3,6,7,8-HxCDF	1.61e+07	9.64e+02	1.7e+04	3.08e+07	9.16e+02	3.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.56e+07	9.64e+02	1.6e+04	3.04e+07	9.16e+02	3.3e+04
24	13C-1,2,3,7,8,9-HxCDF	1.29e+07	9.64e+02	1.3e+04	2.49e+07	9.16e+02	2.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.01e+07	3.27e+03	3.1e+03	2.27e+07	6.58e+03	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.60e+06	3.27e+03	2.3e+03	1.67e+07	6.58e+03	2.5e+03
27	13C-2,3,7,8-TCDD	1.42e+07	3.70e+03	3.8e+03	1.80e+07	2.32e+03	7.8e+03
28	13C-1,2,3,7,8-PeCDD	2.21e+07	7.04e+02	3.1e+04	1.40e+07	8.04e+02	1.7e+04
29	13C-1,2,3,4,7,8-HxCDD	1.95e+07	1.10e+03	1.8e+04	1.56e+07	8.36e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	1.96e+07	1.10e+03	1.8e+04	1.57e+07	8.36e+02	1.9e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.47e+07	8.56e+02	1.7e+04	1.39e+07	3.32e+02	4.2e+04
32	13C-OCDD	1.36e+07	3.68e+02	3.7e+04	1.51e+07	2.84e+02	5.3e+04
33	13C-1,2,3,4-TCDD	1.49e+07	3.70e+03	4.0e+03	1.86e+07	2.32e+03	8.0e+03
34	13C-1,2,3,7,8,9-HxCDD	2.06e+07	1.10e+03	1.9e+04	1.64e+07	8.36e+02	2.0e+04
35	37Cl-2,3,7,8-TCDD	3.51e+06	1.64e+03	2.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.420e{+}03 + 6.960e{+}02) \times 100}{(1.417e{+}07 + 1.799e{+}07) \times (\quad) \times 1.085}$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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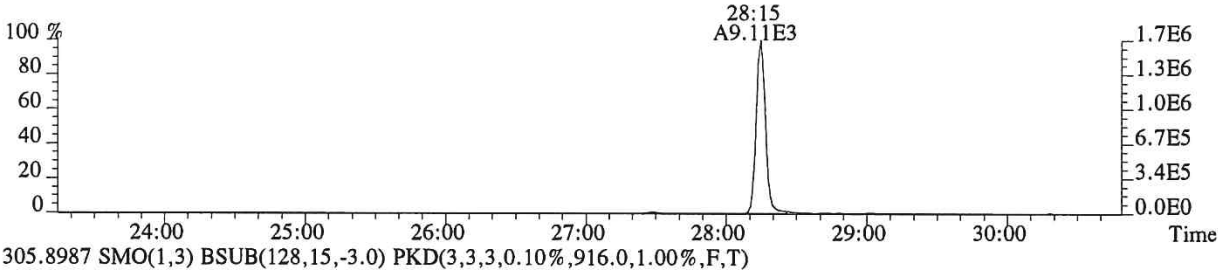
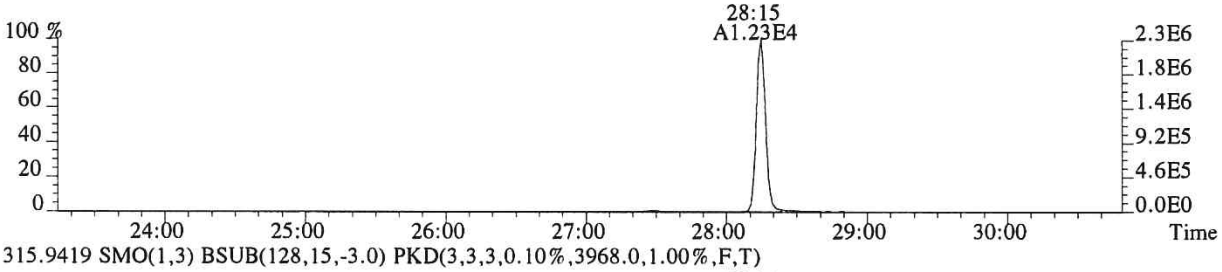
Office:(281)530-5656. Fax:(281)530-5887

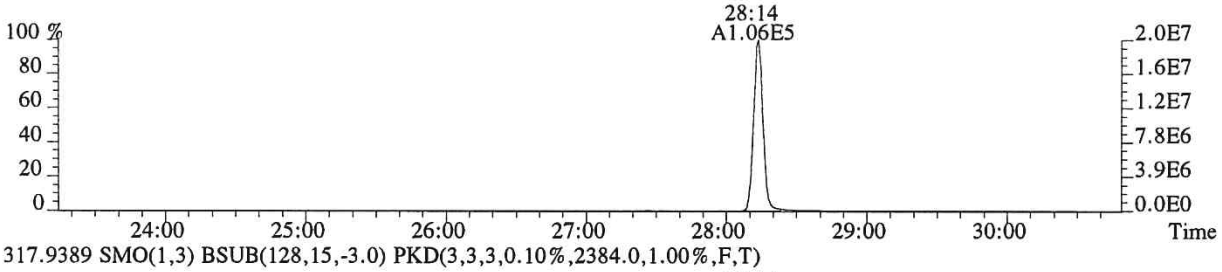
File:P519131 #1-538 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



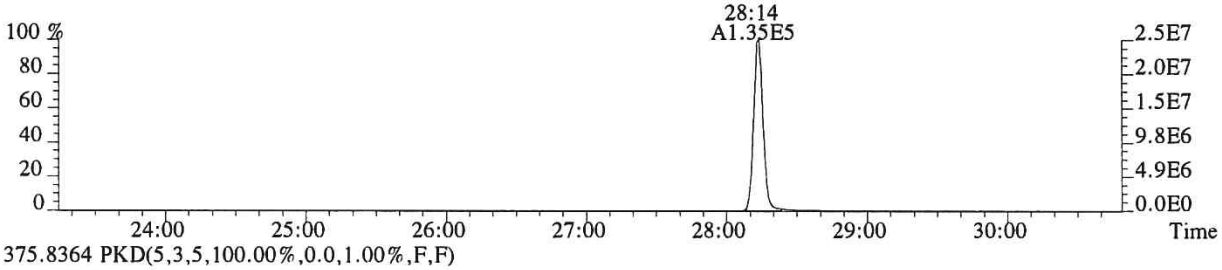
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



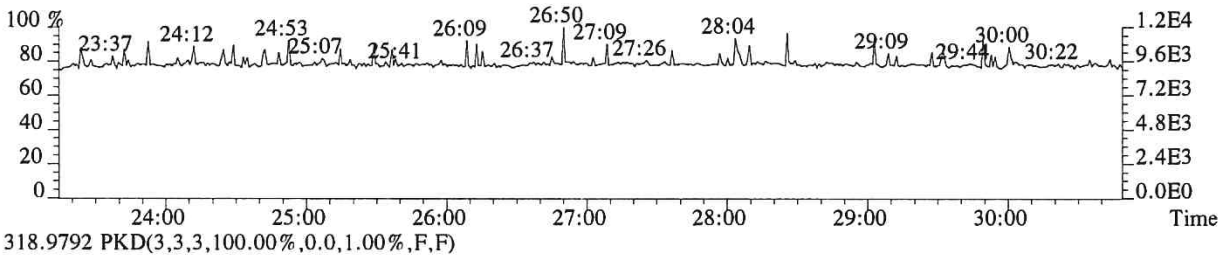
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3968.0,1.00%,F,T)



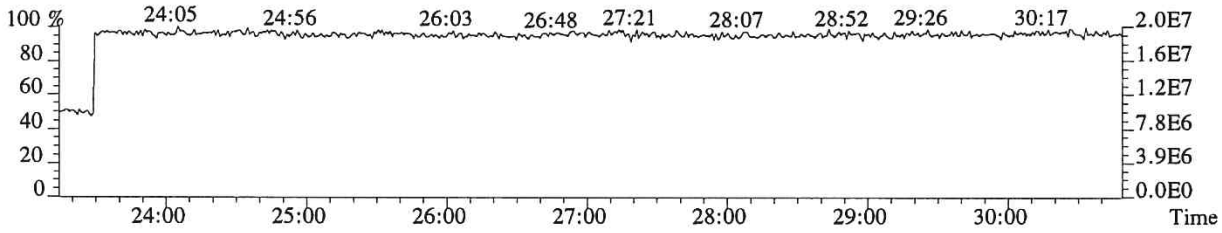
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2384.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



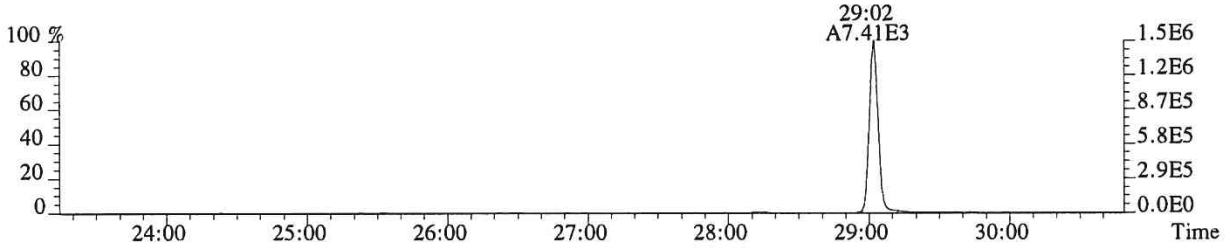
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



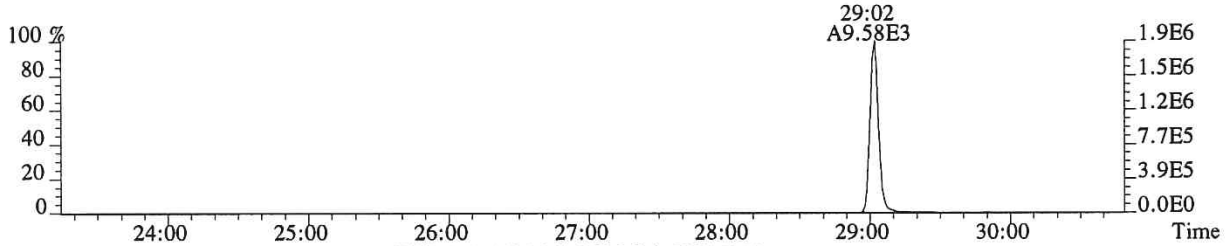
011453

File:P519131 #1-538 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

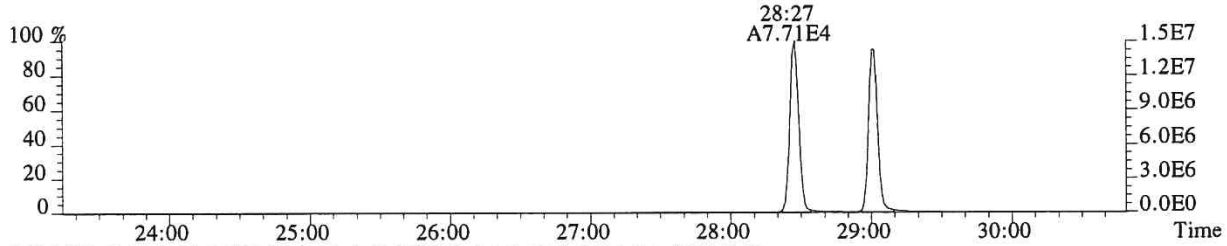
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



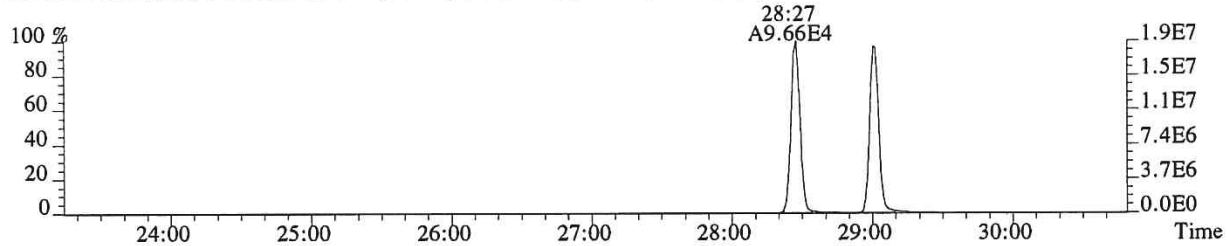
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



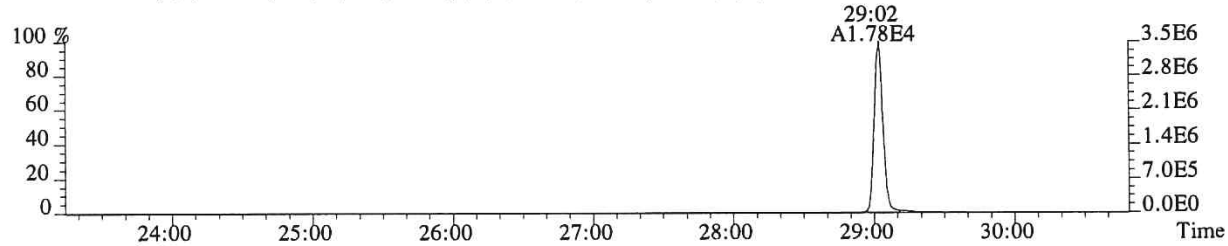
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3696.0,1.00%,F,T)



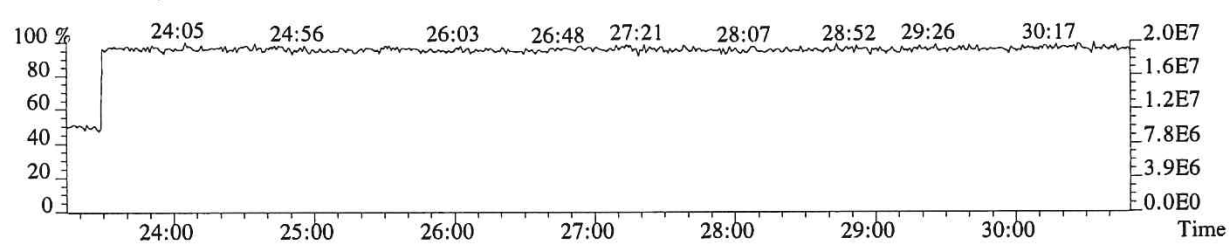
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)

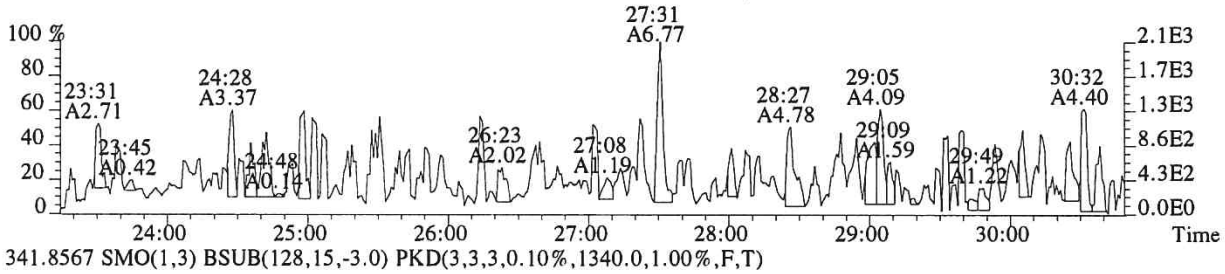


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

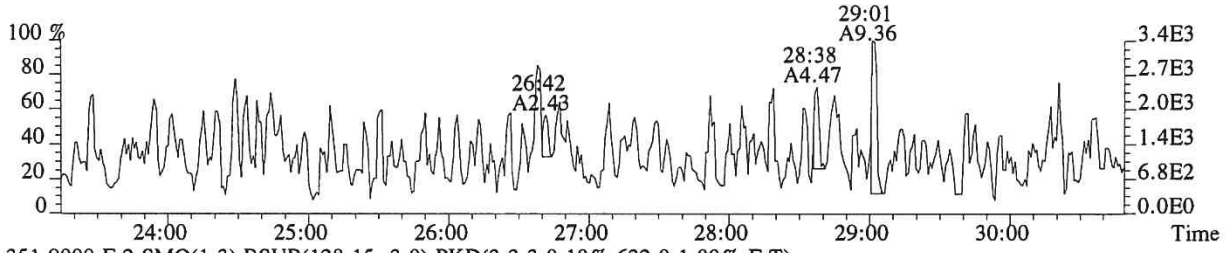


011454

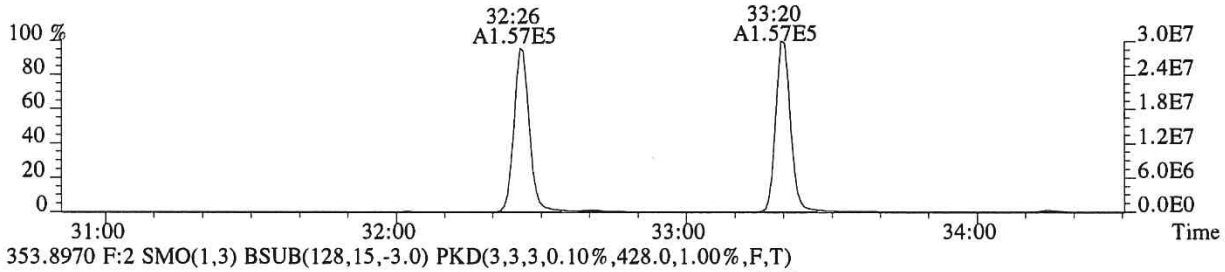
File:P519131 #1-538 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



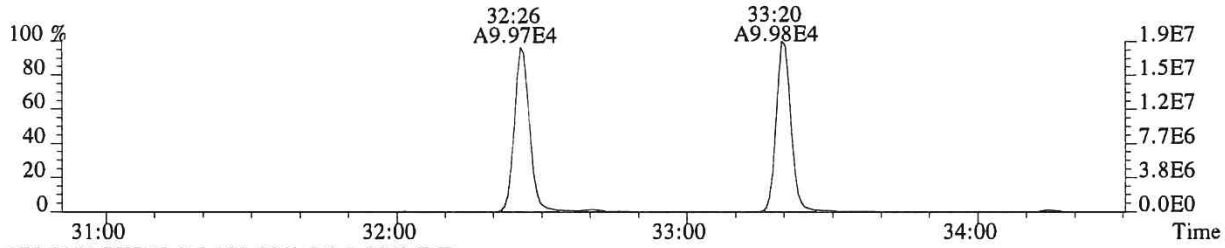
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



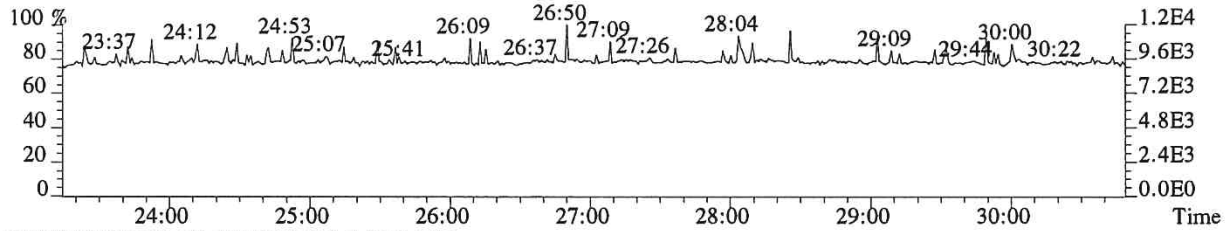
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



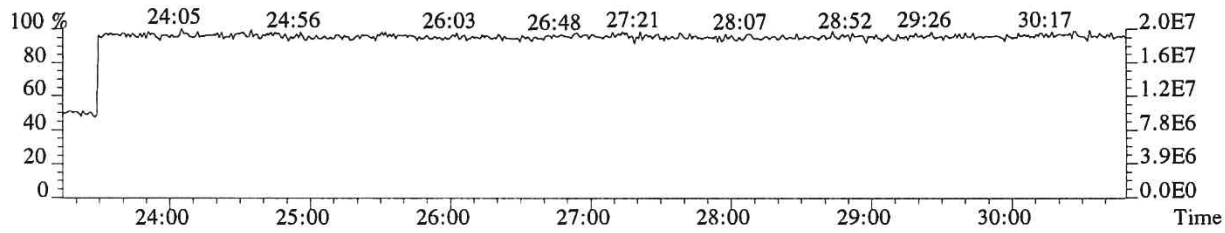
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

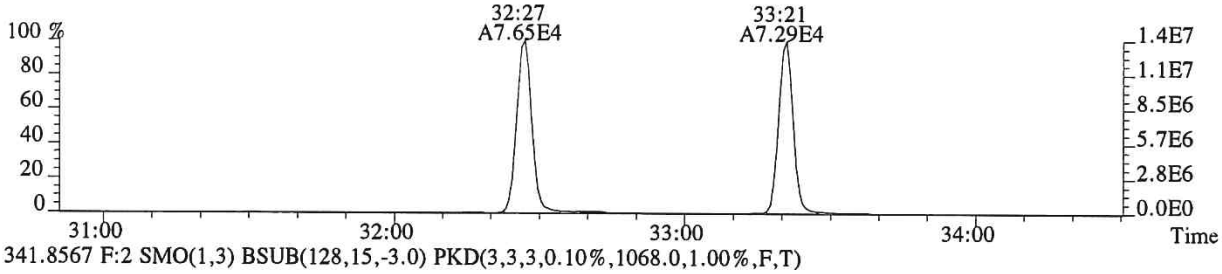


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

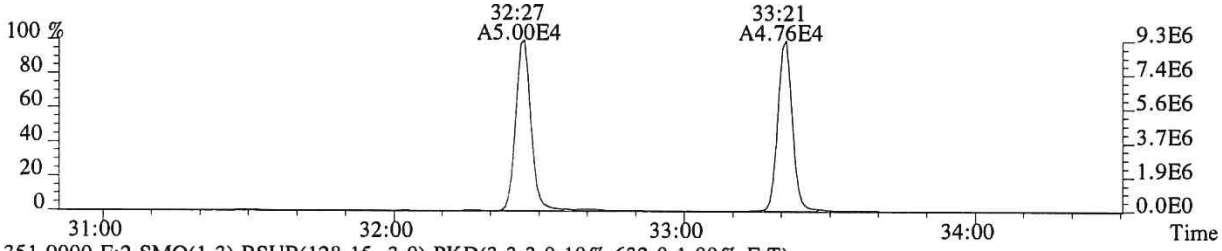


011455

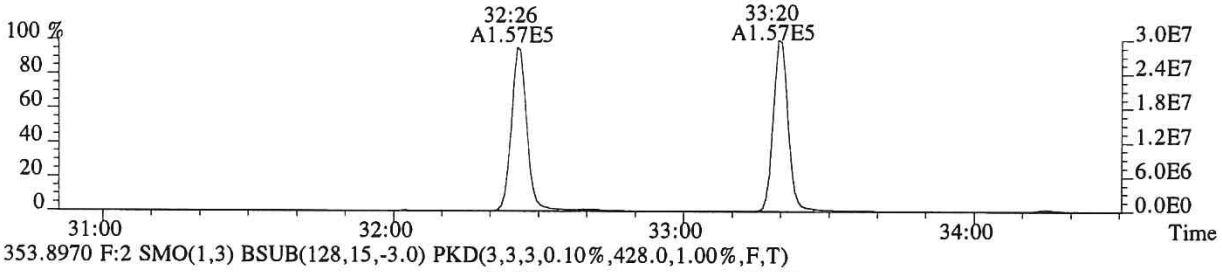
File:P519131 #1-330 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



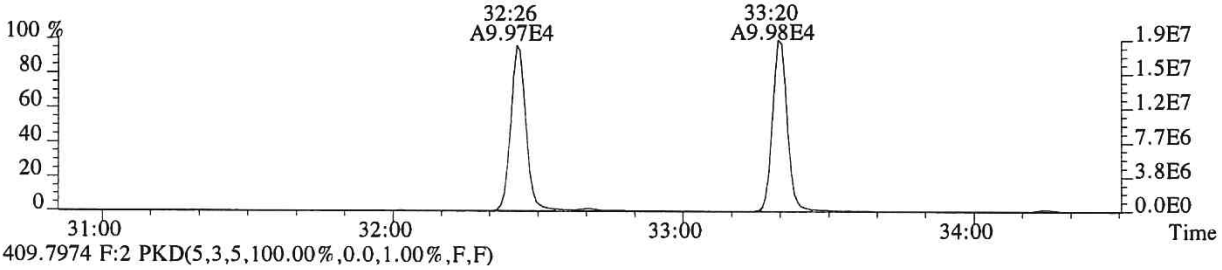
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



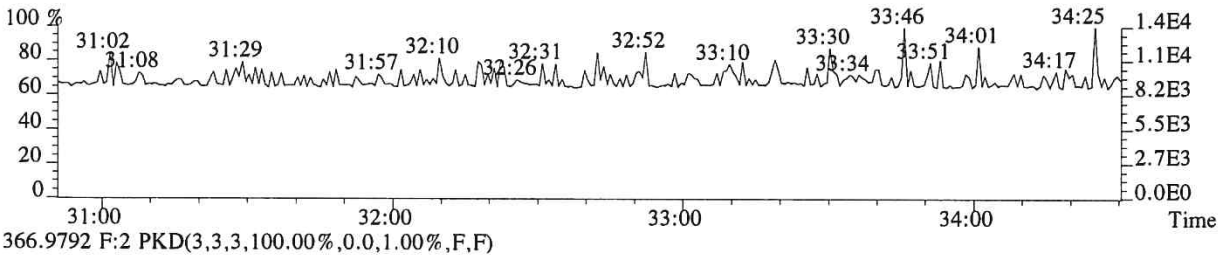
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



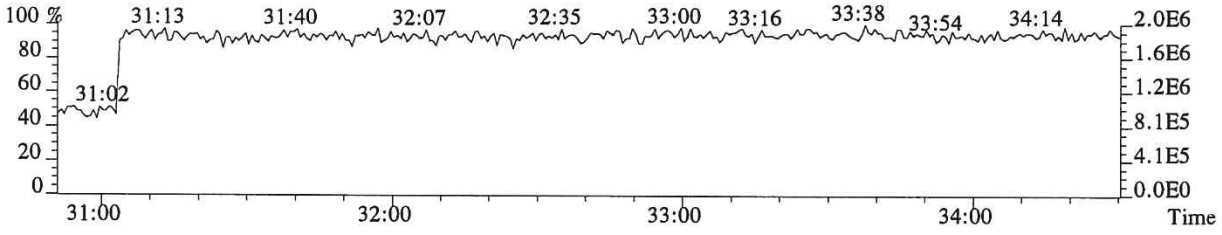
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



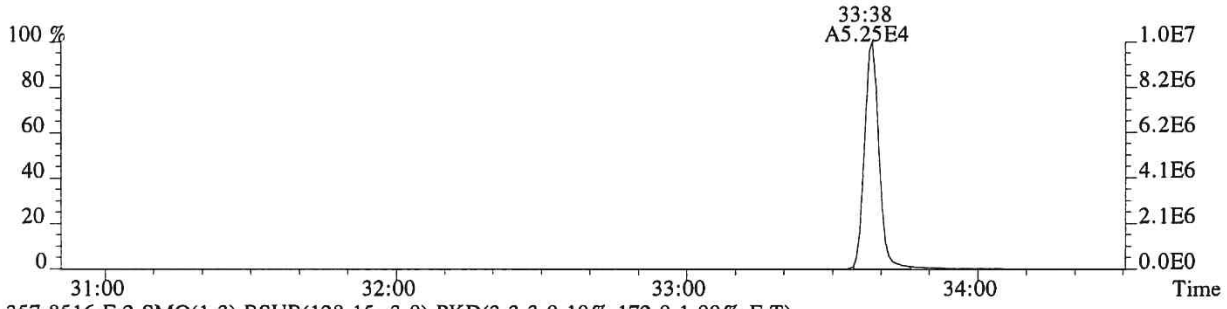
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



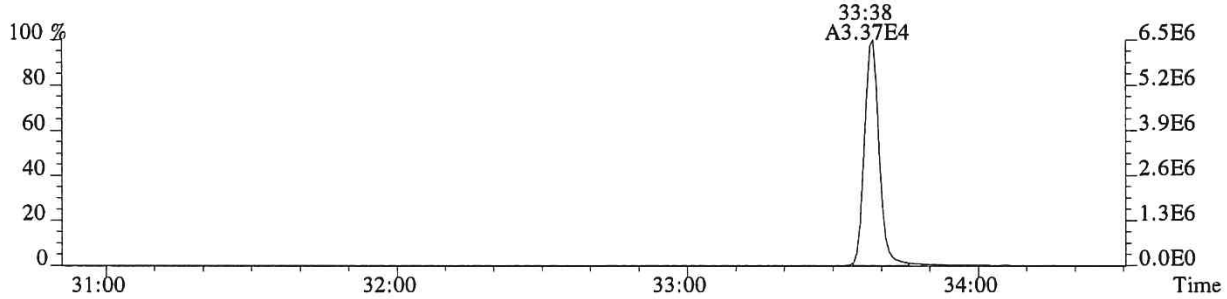
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



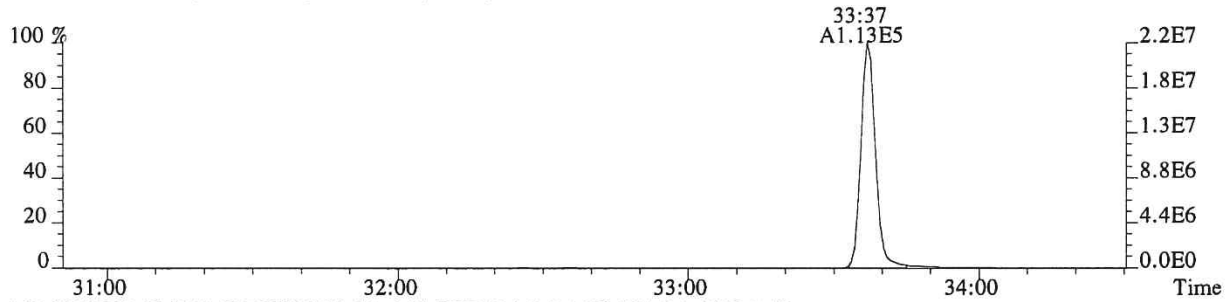
File:P519131 #1-330 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



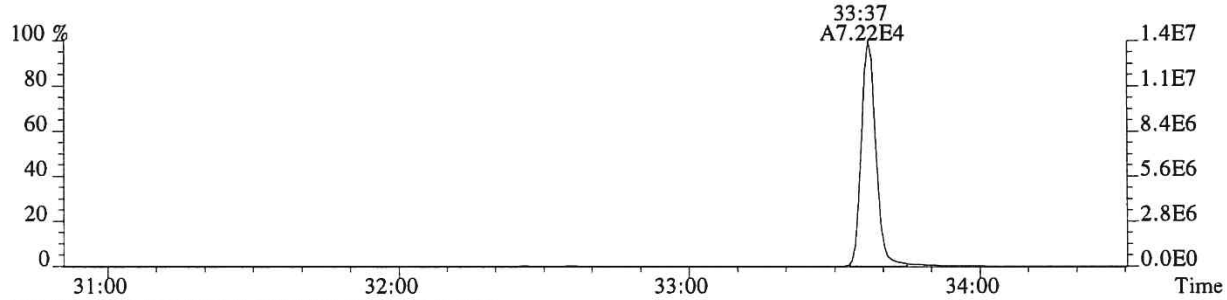
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



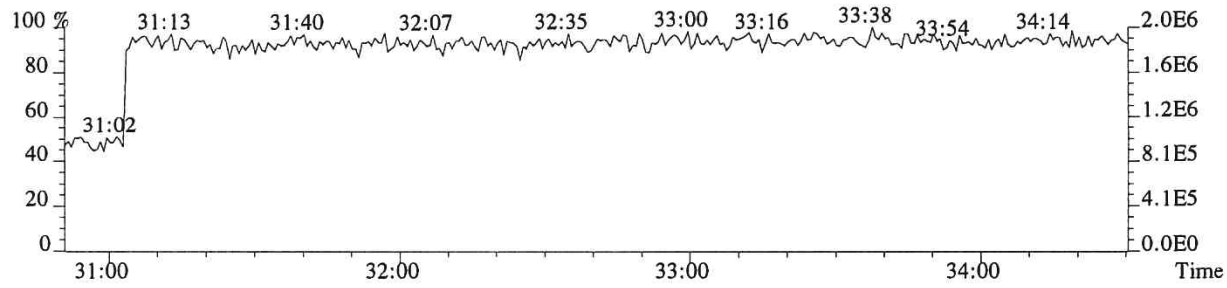
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)

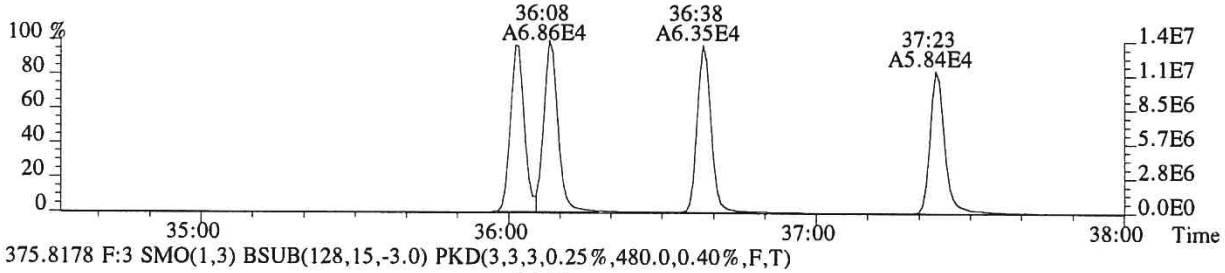


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

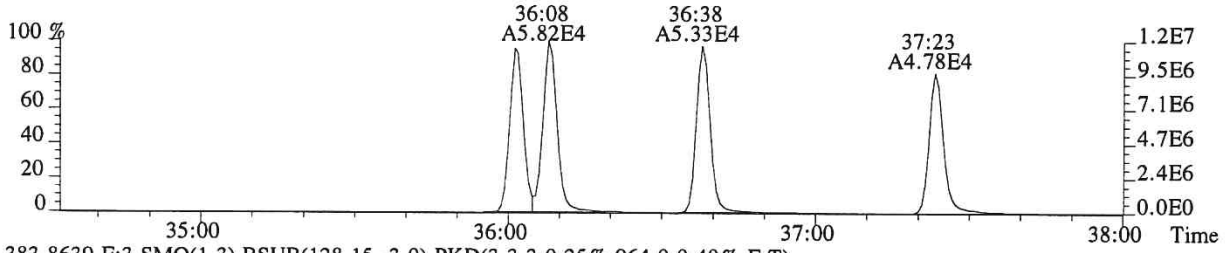


File:P519131 #1-312 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

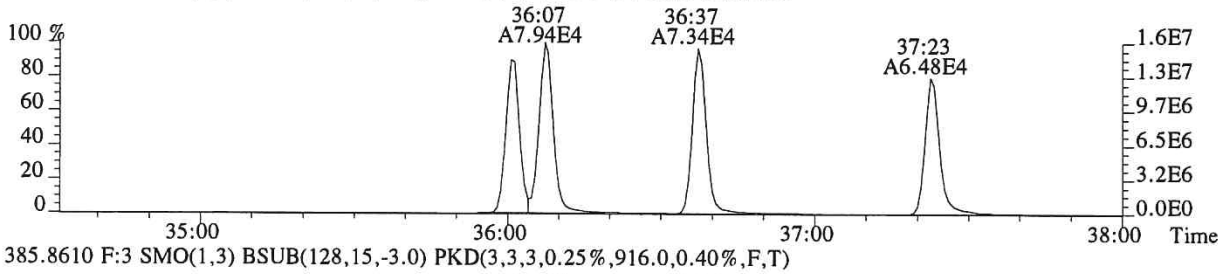
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



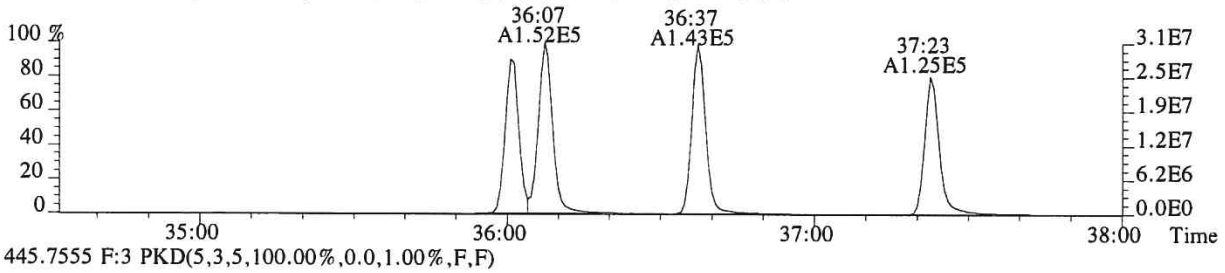
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



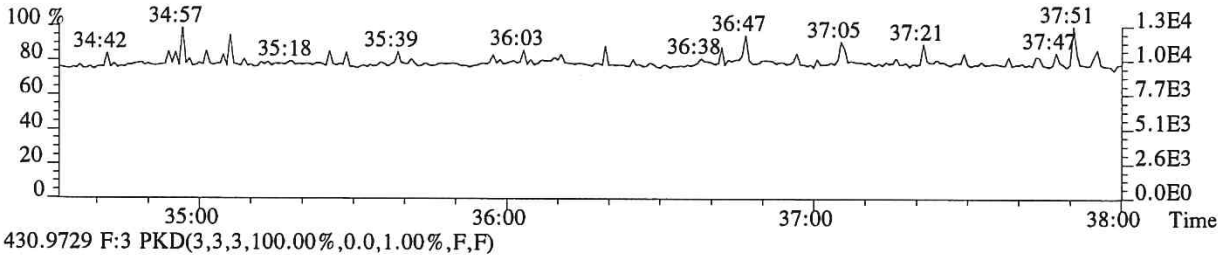
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)



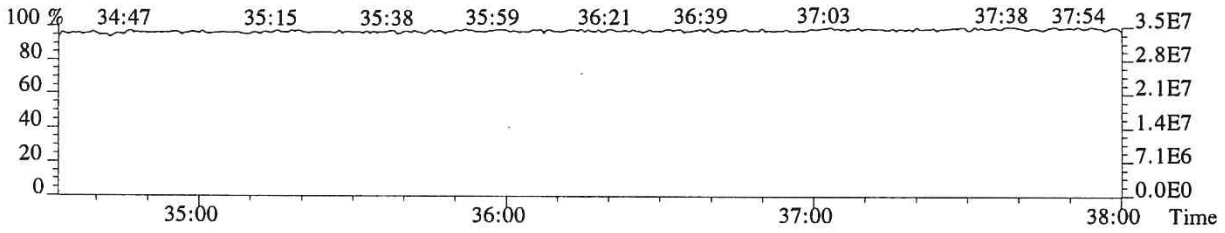
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

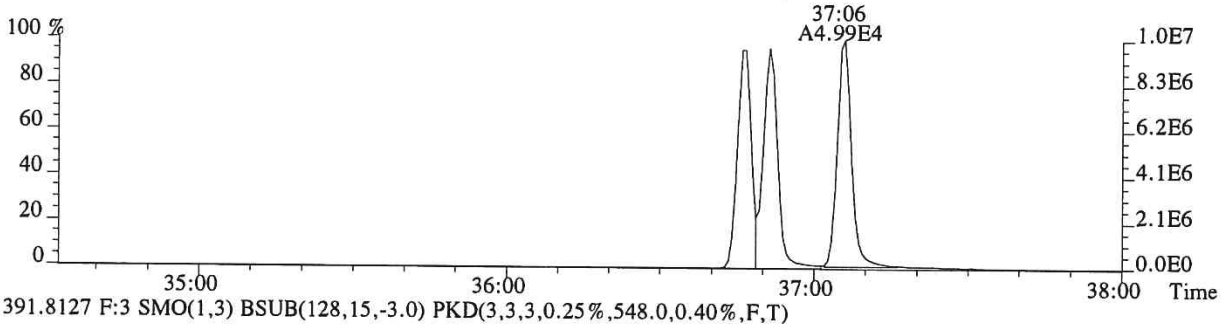


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

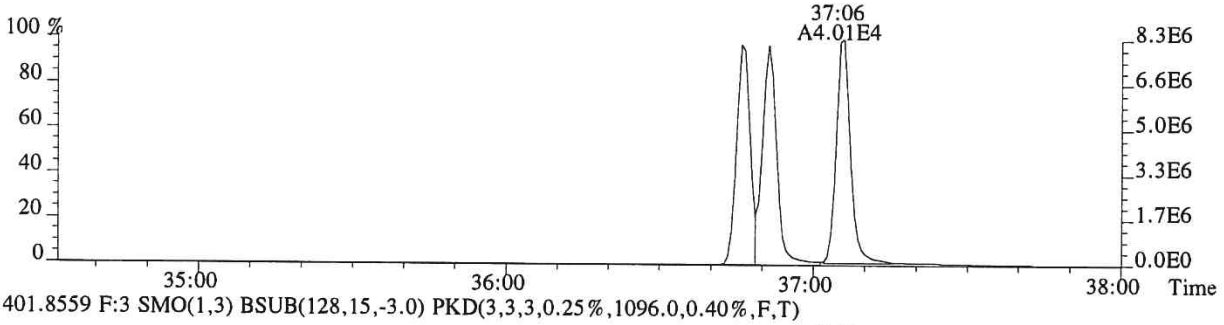


011458

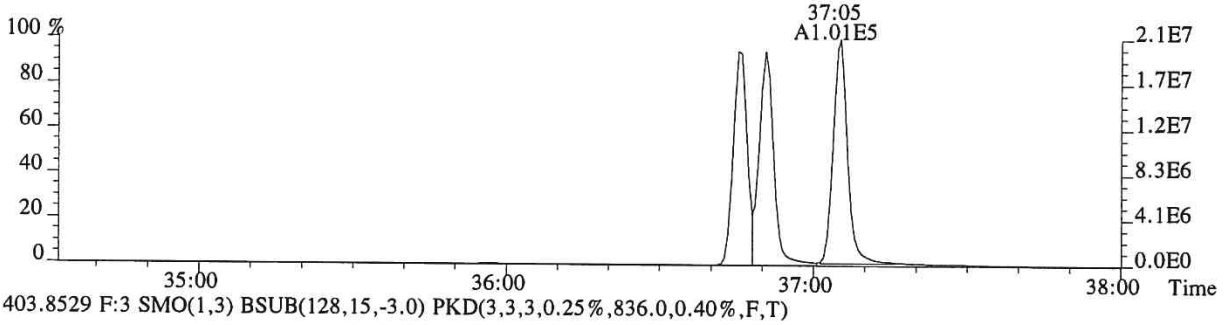
File:P519131 #1-312 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



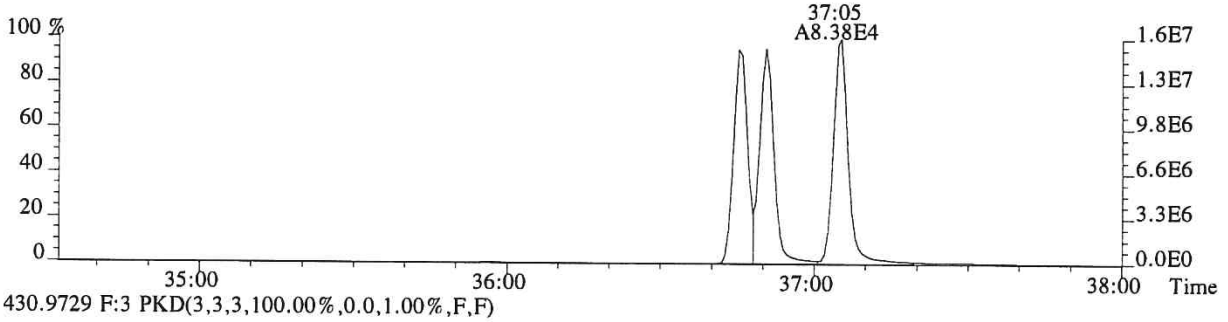
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



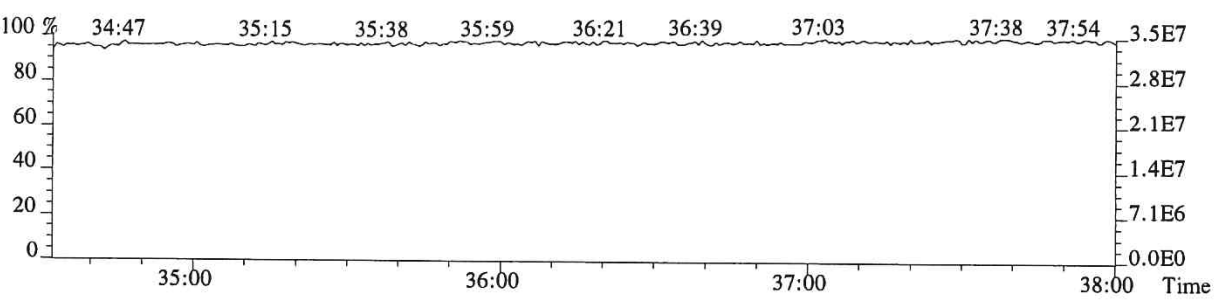
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)

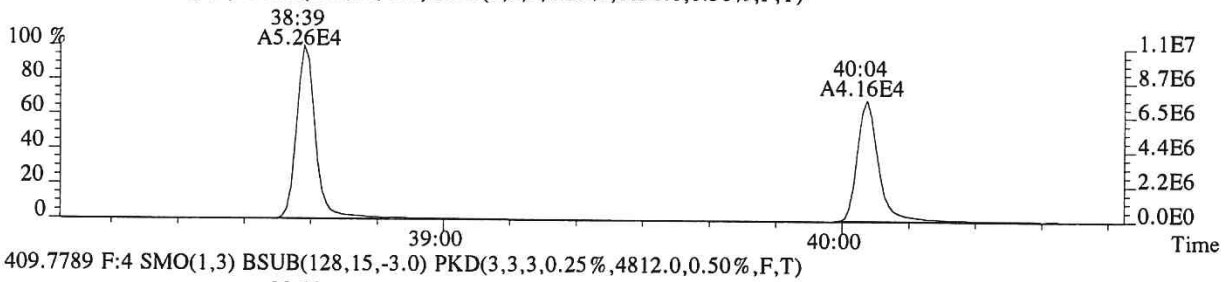


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

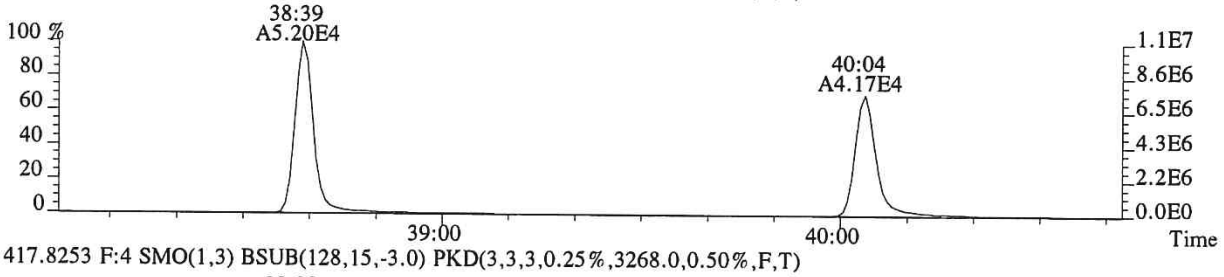


011459

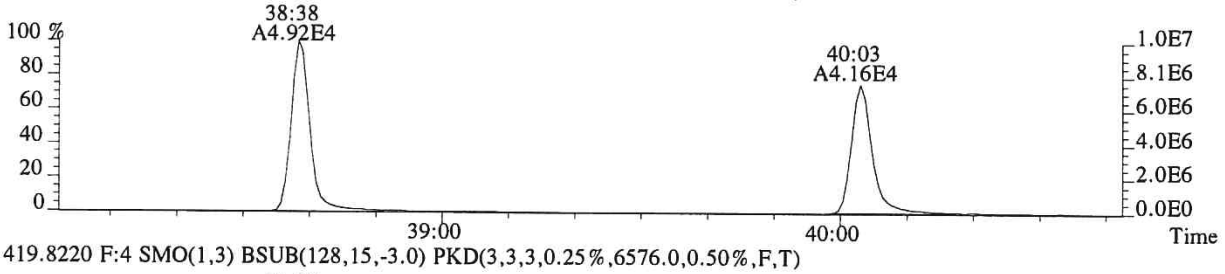
File:P519131 #1-241 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6856.0,0.50%,F,T)



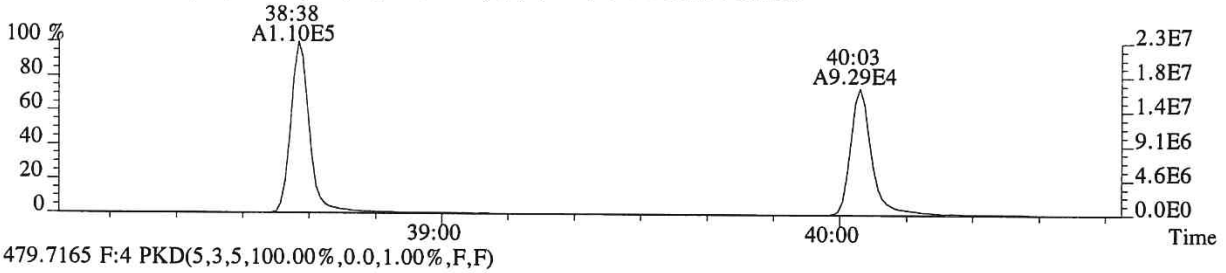
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4812.0,0.50%,F,T)



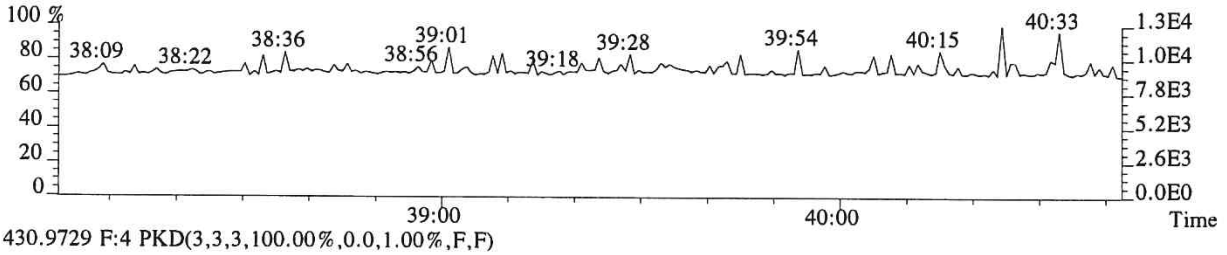
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3268.0,0.50%,F,T)



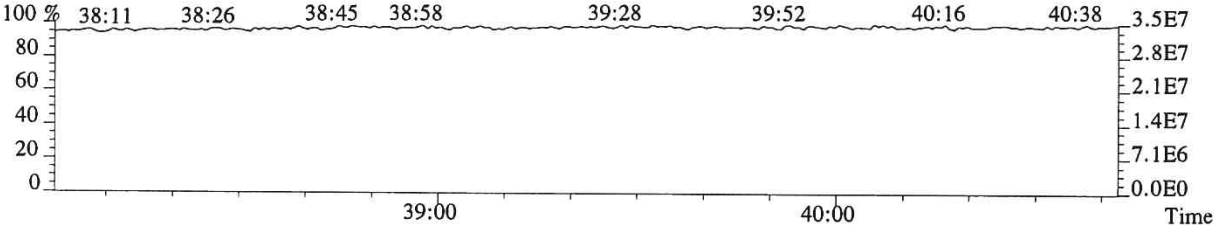
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6576.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

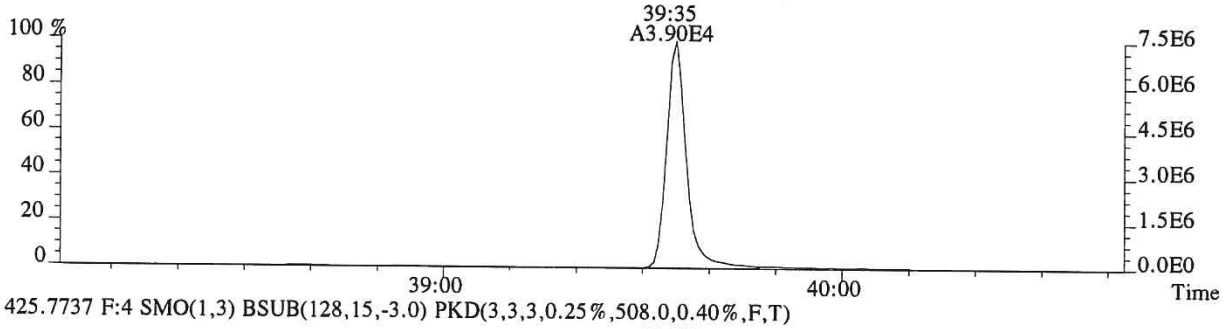


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

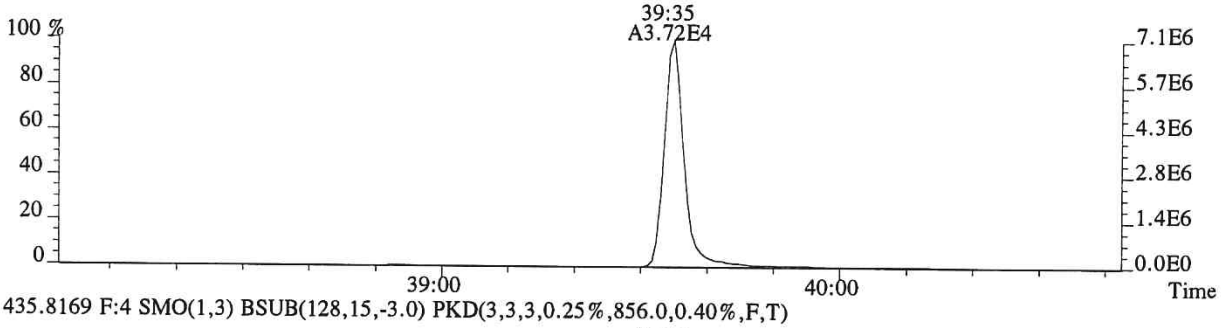


011460

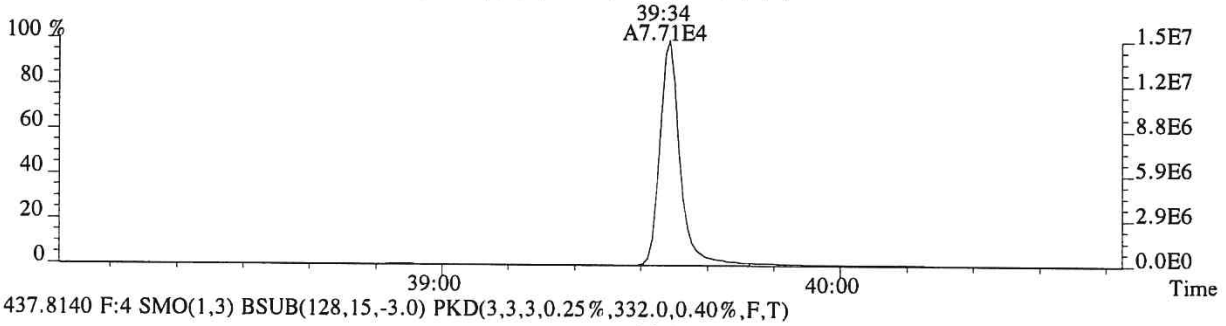
File:P519131 #1-241 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



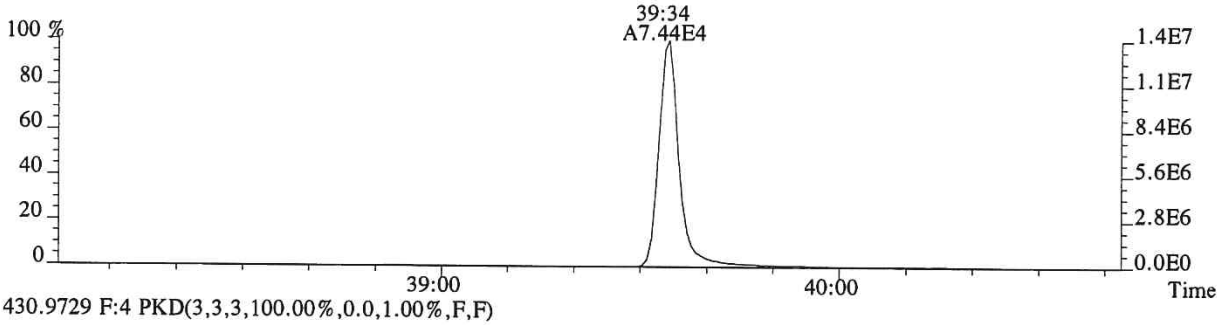
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



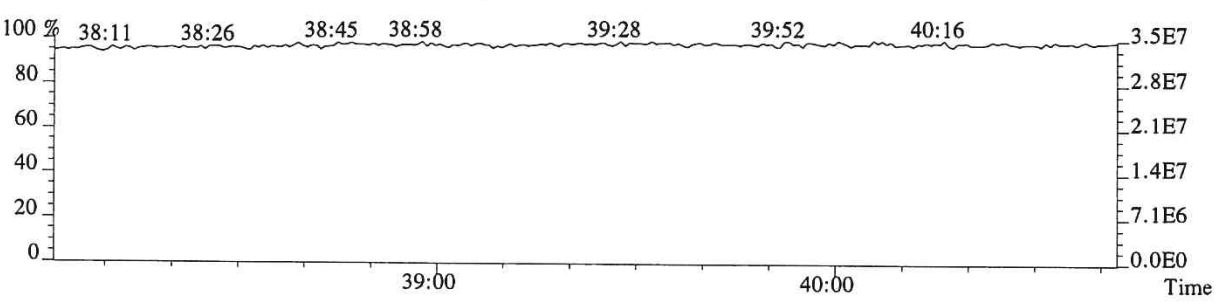
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



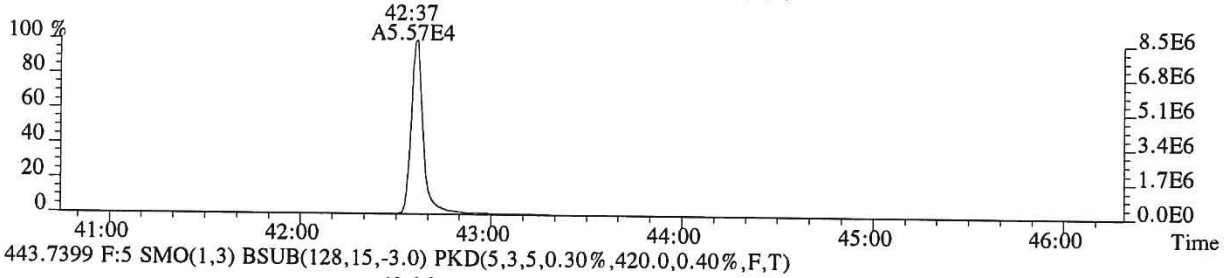
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



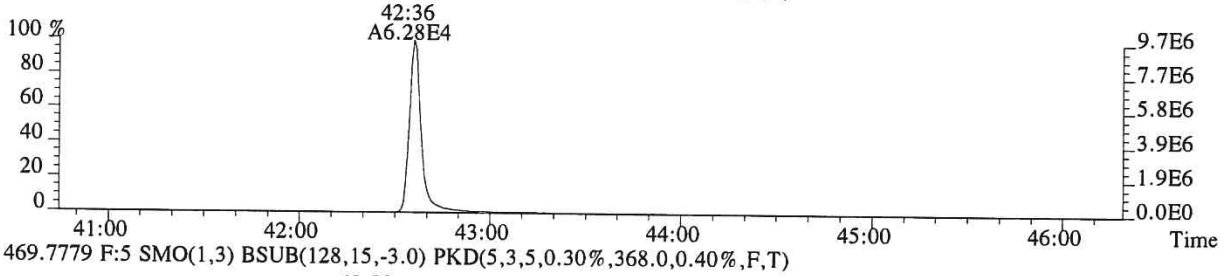
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



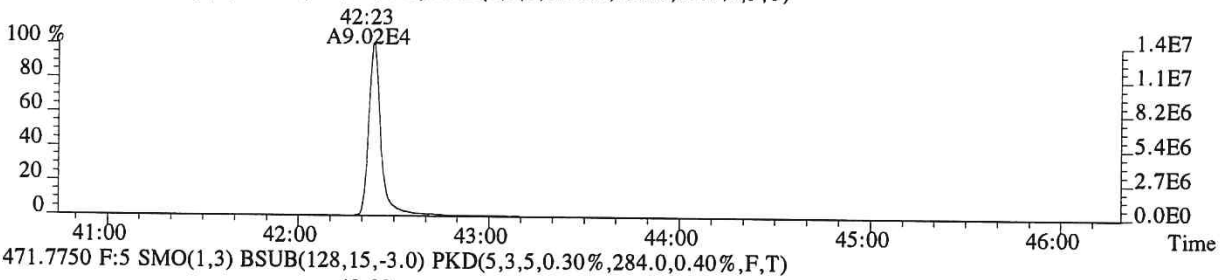
File:P519131 #1-502 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



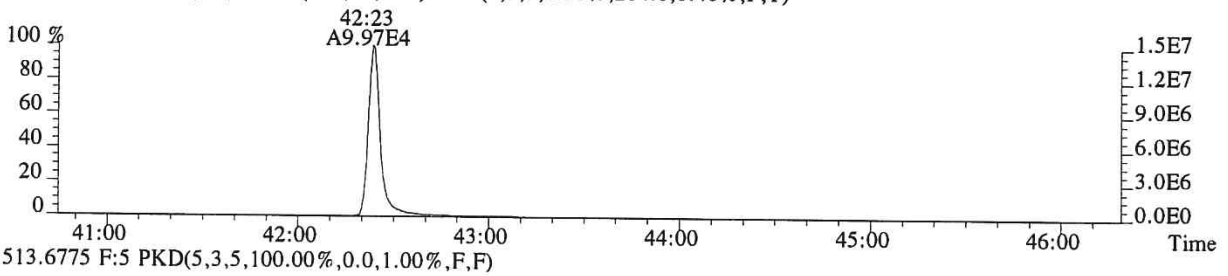
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



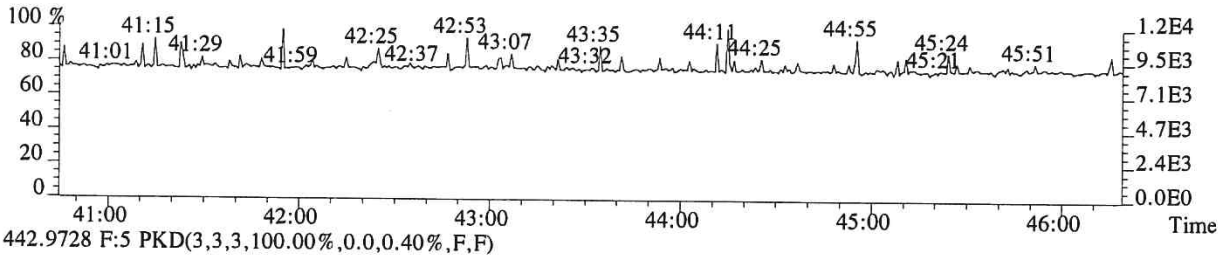
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



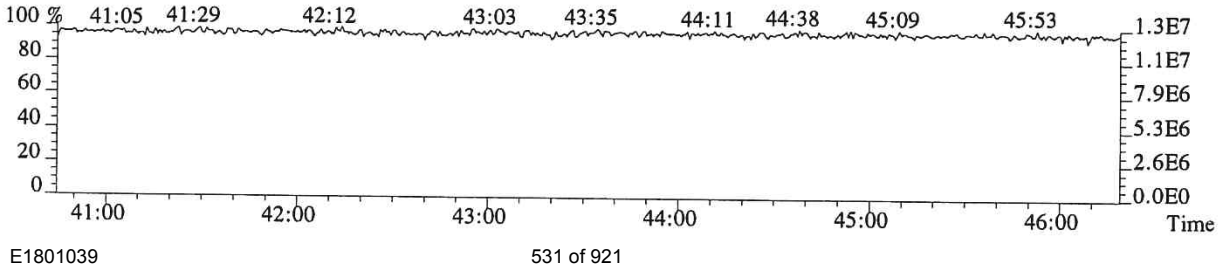
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

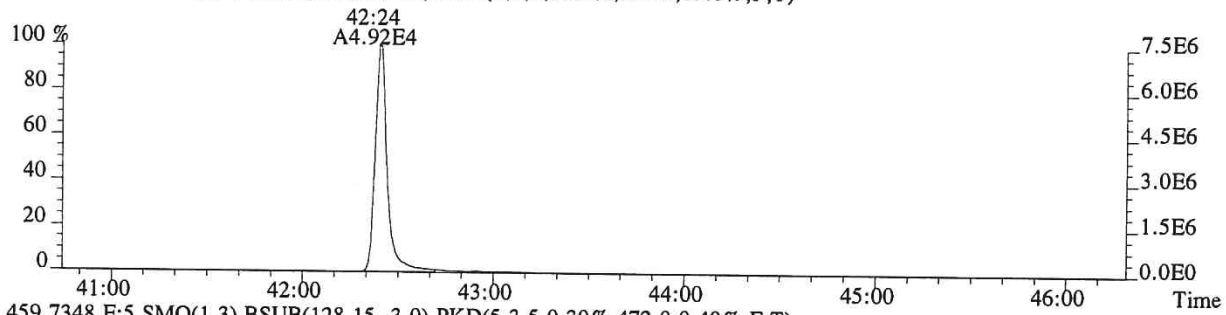


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

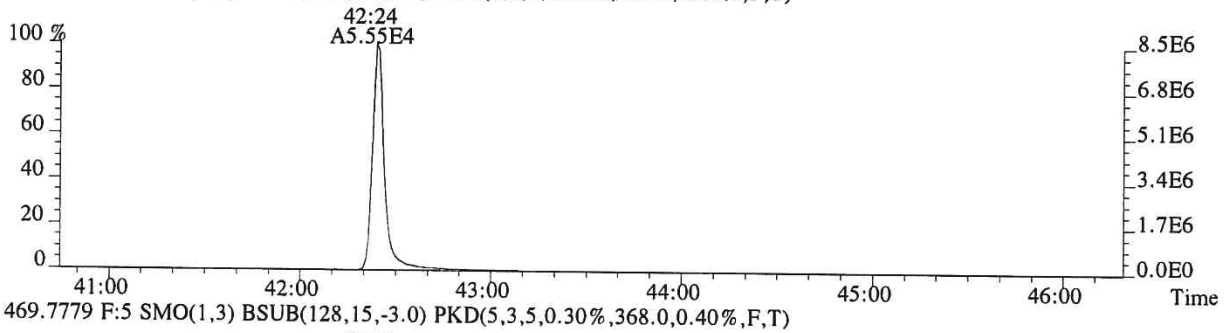


011462

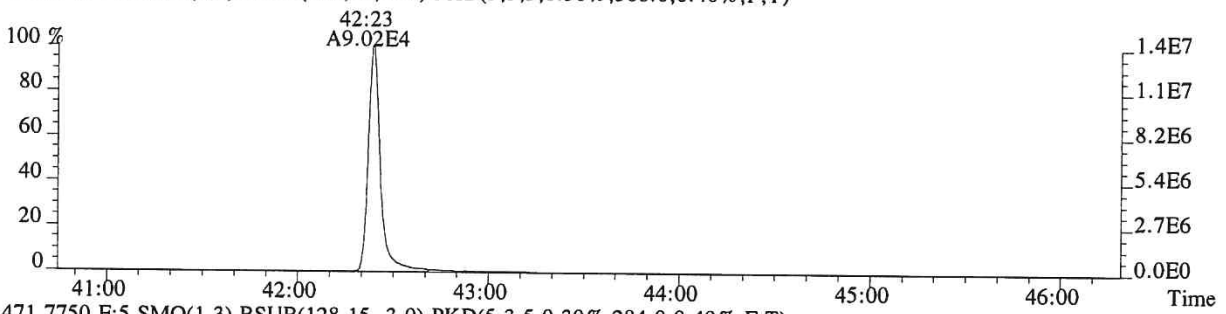
File:P519131 #1-502 Acq: 2-DEC-2018 03:44:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



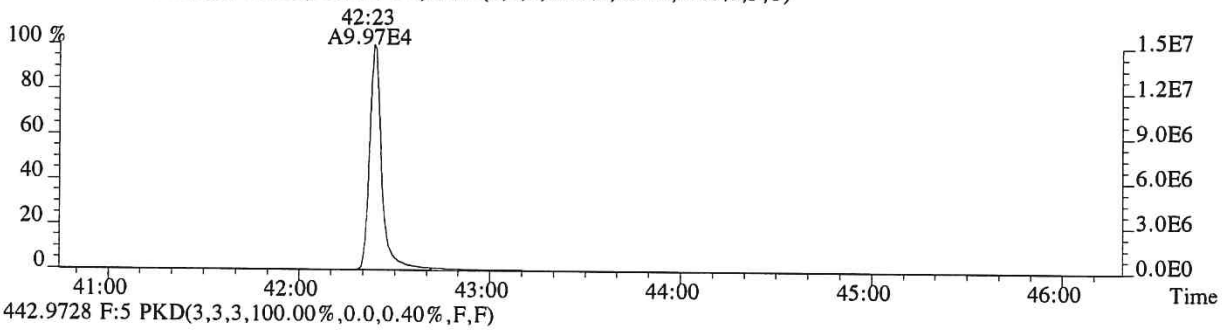
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



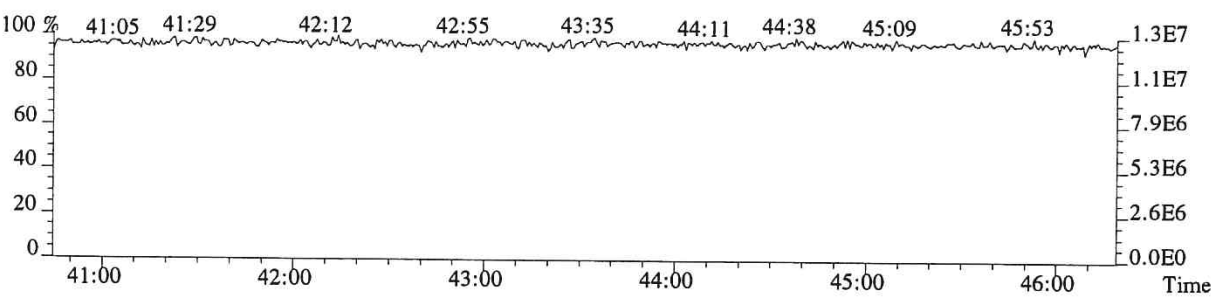
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011463

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519210

Date: 12/05/18

Circle one: (Beginning) / Ending

Method: (1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

011464

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519210	5-DEC-18	01:15:25
192977	WINDOW DEFINE	P519211	5-DEC-18	02:03:12
METHOD BLANK	EQ1800481-01	P519212	5-DEC-18	02:51:49
METHOD BLANK	EQ1800487-01	P519213	5-DEC-18	03:40:26
PRIMARY SLUDGE 4Q18	E1801025-001	P519214	5-DEC-18	04:29:03
SECONDARY SLUDGE 4	E1801025-002	P519215	5-DEC-18	05:17:40
18315B01BA	E1801053-001	P519216	5-DEC-18	06:06:19
CT-09C-2018	J1807948-015	P519217	5-DEC-18	06:56:09
NONANE	NONANE	P519218	5-DEC-18	07:43:57
METHOD BLANK	EQ1800469-01	P519219	5-DEC-18	08:32:35
SL0129	E1801039-036DL	P519220	5-DEC-18	09:21:17
SL0130	E1801039-037DL	P519221	5-DEC-18	10:09:57
LCS	EQ1800485-02	P519222	5-DEC-18	10:58:35
DLCS	EQ1800485-03	P519223	5-DEC-18	11:47:11

Sample List Report

MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181204B.SPL
Last Modified: Wednesday, December 05, 2018 12:27:49 Central Standard Time
Printed: Wednesday, December 05, 2018 12:27:50 Central Standard Time

Page Position (1, 1)

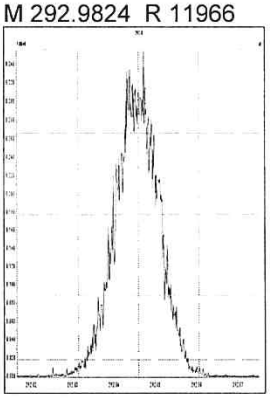
Opus4: P519210res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/5/18	01:15	P519210	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMS check 01:15
2		02:03	P519211	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		02:51	P519212	MB	EQ1800481-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		03:40	P519213	MB	EQ1800487-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		04:29	P519214	E1801025-001	E1801025-001	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		05:17	P519215	E1801025-002	E1801025-002	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		06:06	P519216	E1801053-001	E1801053-001	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		06:56	P519217	J1807948-015	J1807948-015	EPA1613_ALS	Dioxin_ALS	Tray1:8		needs reinjection
9		07:43	P519218	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		08:32	P519219	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		09:21	P519220	E1801039-036DL	E1801039-036DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		10:09	P519221	E1801039-037DL	E1801039-037DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		10:58	P519222	LCS	EQ1800485-02	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		11:47	P519223	DLCS	EQ1800485-03	EPA1613_ALS	Dioxin_ALS	Tray1:14		HRMS check 12:41
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

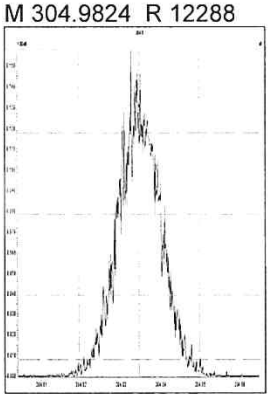
Jc
12/06/18

Printed: Wednesday, December 05, 2018 01:15:23 Central Standard Time

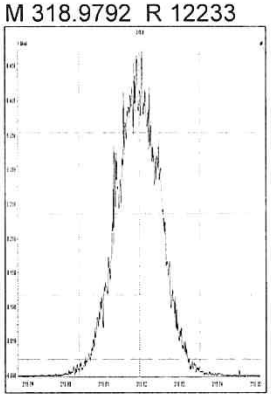
M 292.9824 R 11966



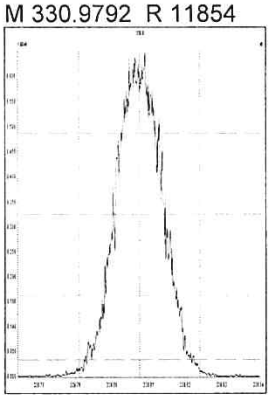
M 304.9824 R 12288



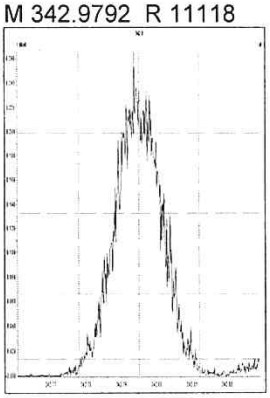
M 318.9792 R 12233



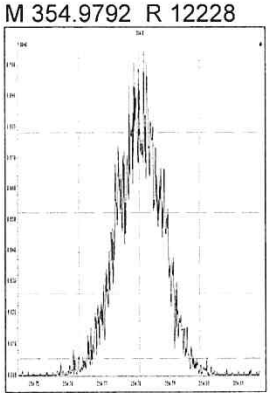
M 330.9792 R 11854



M 342.9792 R 11118



M 354.9792 R 12228



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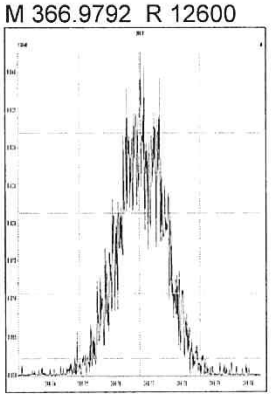
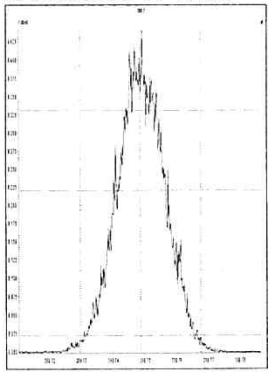
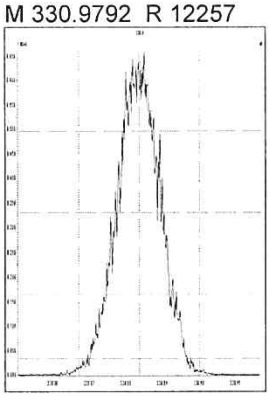


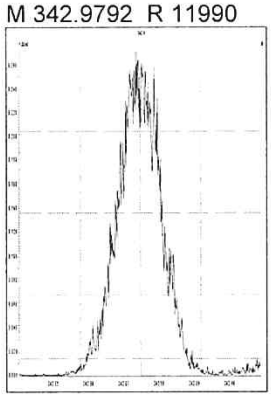
M 380.9760 R 11037



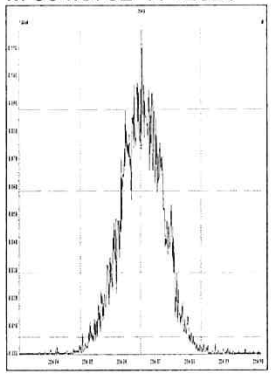
M 330.9792 R 12257



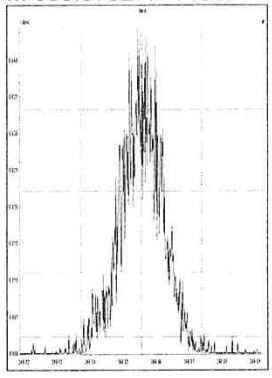
M 342.9792 R 11990



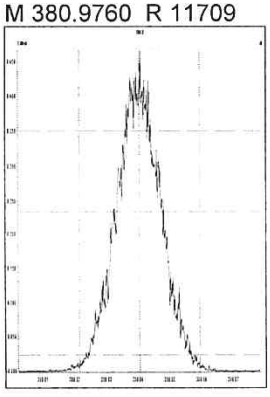
M 354.9792 R 12820



M 366.9792 R 14097



M 380.9760 R 11709



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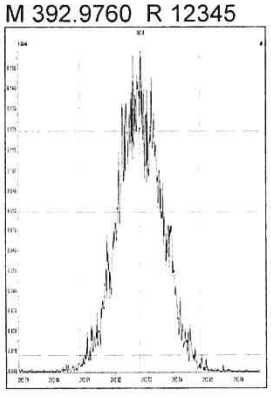
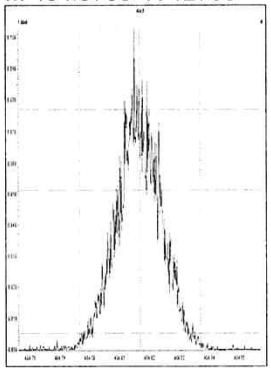
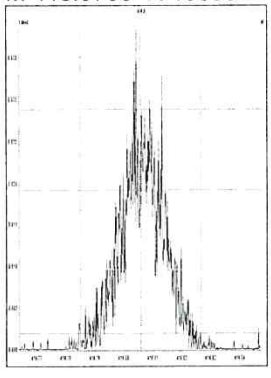


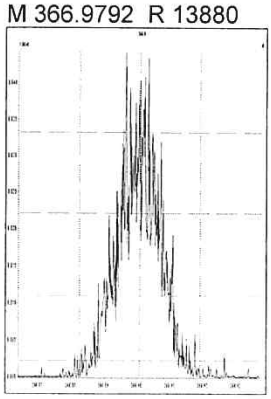
M 404.9760 R 12755



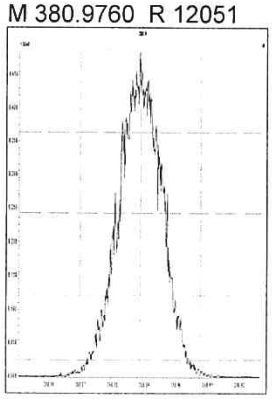
M 416.9760 R 13086



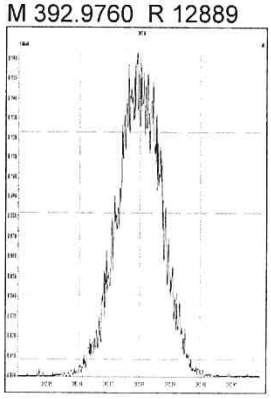
M 366.9792 R 13880



M 380.9760 R 12051



M 392.9760 R 12889



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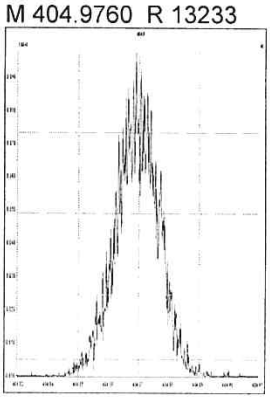
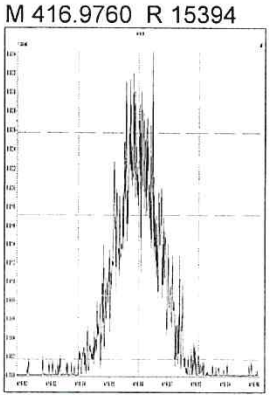
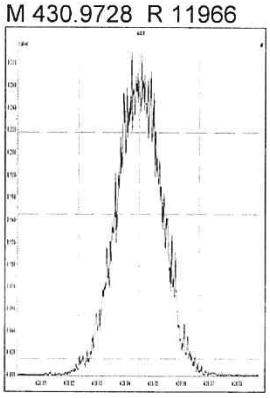


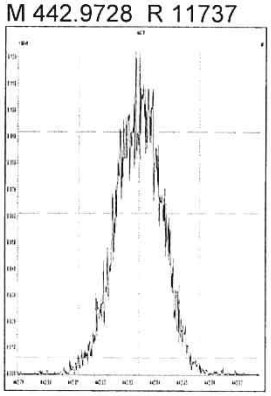
M 416.9760 R 15394



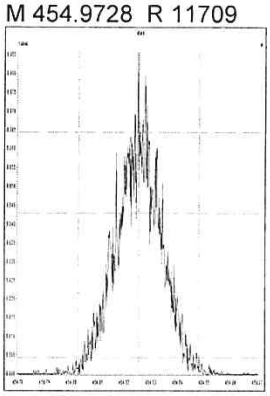
M 430.9728 R 11966



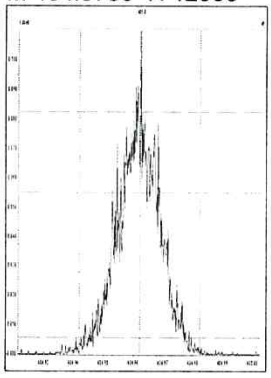
M 442.9728 R 11737



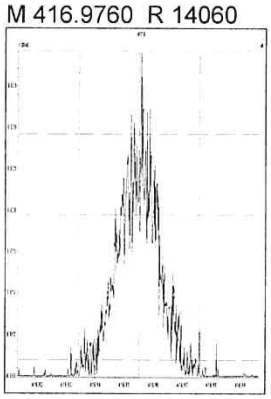
M 454.9728 R 11709



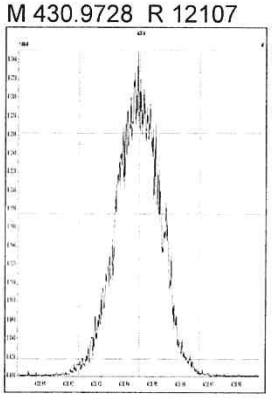
M 404.9760 R 12993



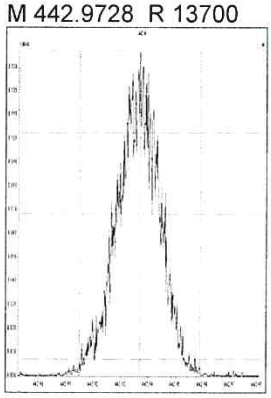
M 416.9760 R 14060



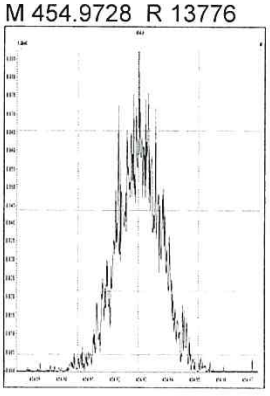
M 430.9728 R 12107



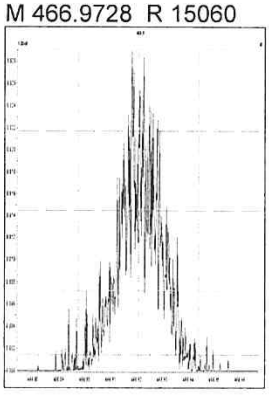
M 442.9728 R 13700



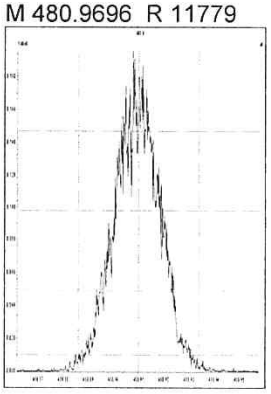
M 454.9728 R 13776



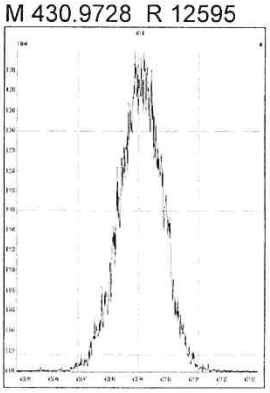
M 466.9728 R 15060



M 480.9696 R 11779



M 430.9728 R 12595



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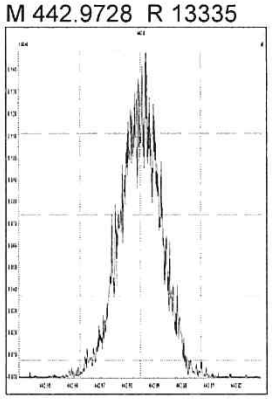
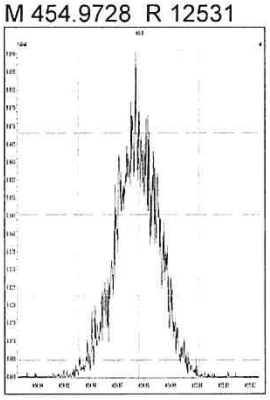
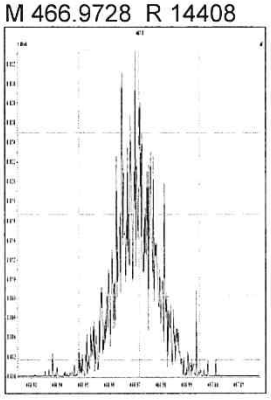
M 442.9728 R 13335



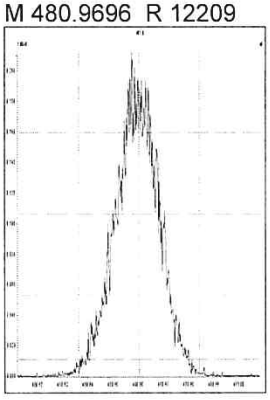
M 454.9728 R 12531



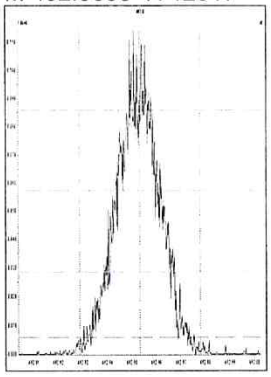
M 466.9728 R 14408



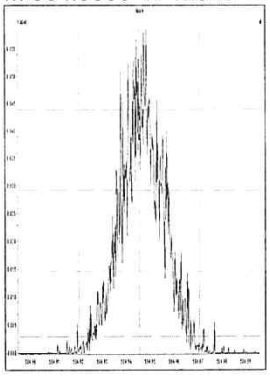
M 480.9696 R 12209



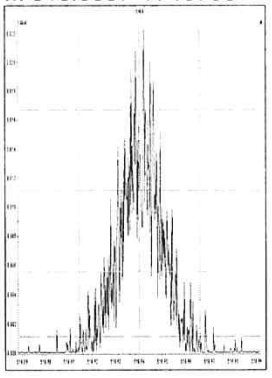
M 492.9696 R 12317



M 504.9696 R 12325



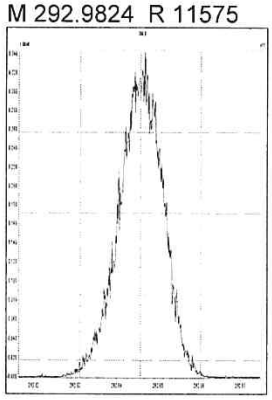
M 516.9697 R 15738



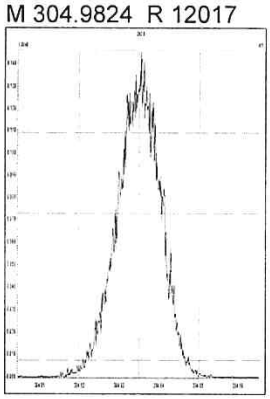
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:41:54 Central Standard Time

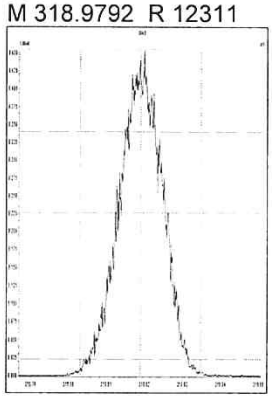
M 292.9824 R 11575



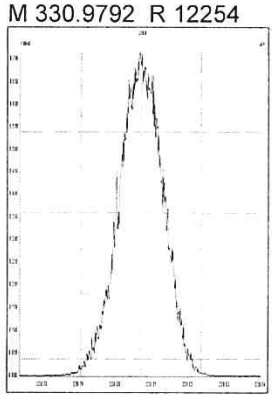
M 304.9824 R 12017



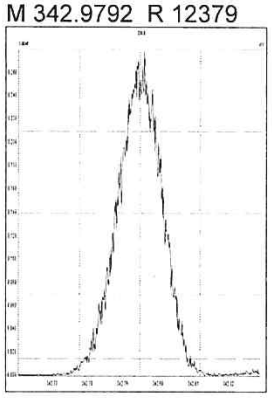
M 318.9792 R 12311



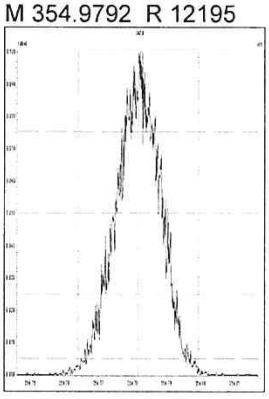
M 330.9792 R 12254



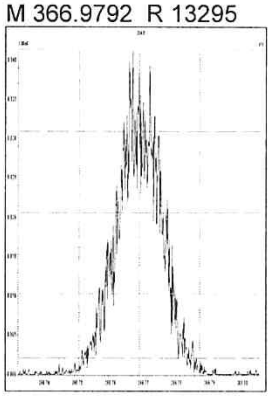
M 342.9792 R 12379



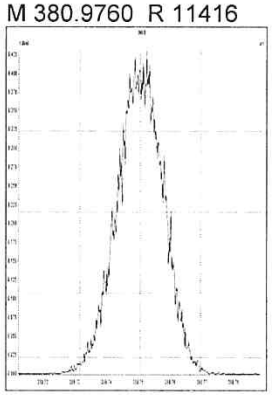
M 354.9792 R 12195



M 366.9792 R 13295



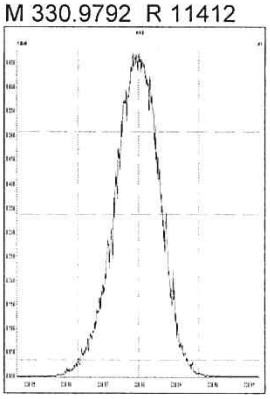
M 380.9760 R 11416



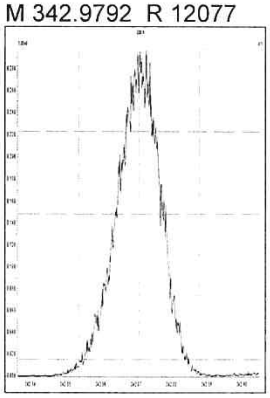
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:42:50 Central Standard Time

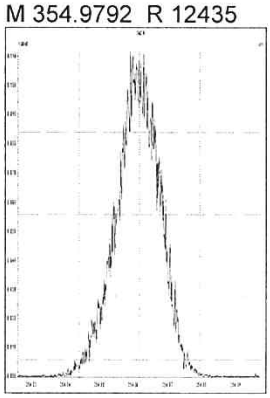
M 330.9792 R 11412



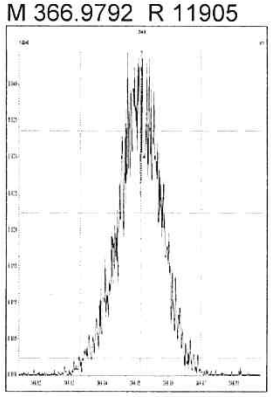
M 342.9792 R 12077



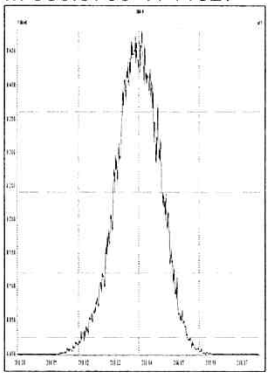
M 354.9792 R 12435



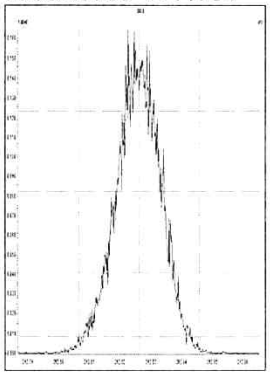
M 366.9792 R 11905



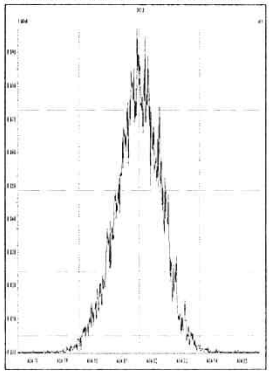
M 380.9760 R 11627



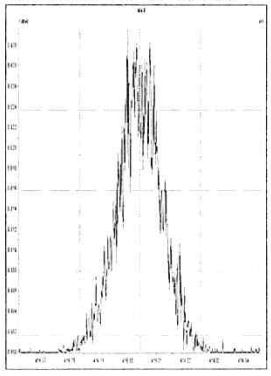
M 392.9760 R 11734



M 404.9760 R 11520



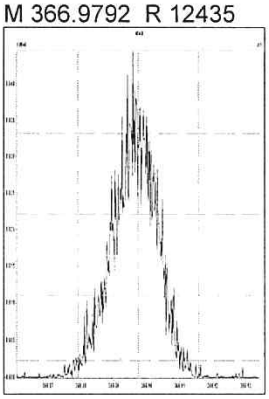
M 416.9760 R 13300



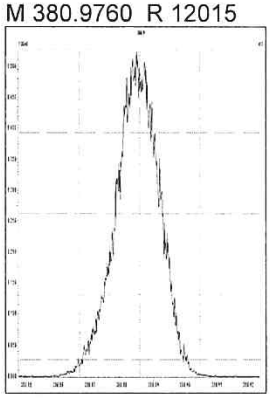
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:43:38 Central Standard Time

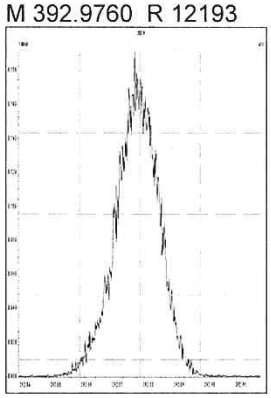
M 366.9792 R 12435



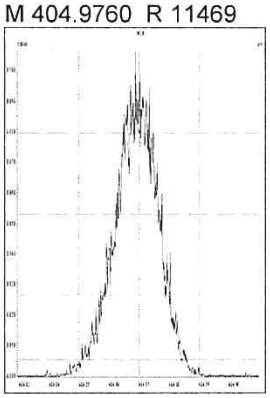
M 380.9760 R 12015



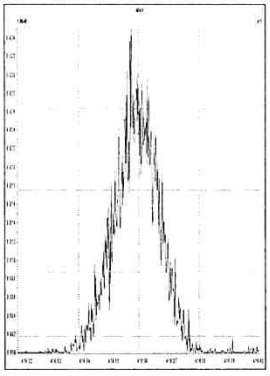
M 392.9760 R 12193



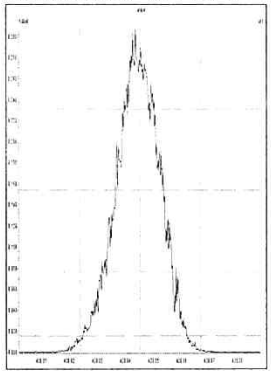
M 404.9760 R 11469



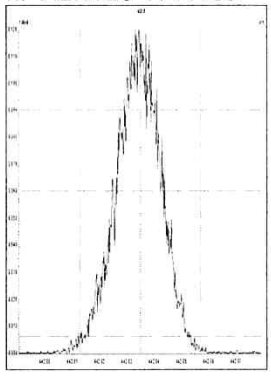
M 416.9760 R 12018



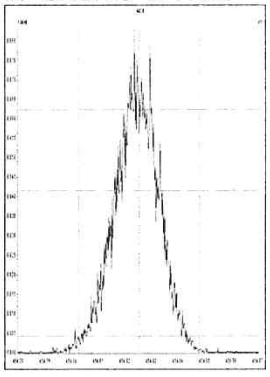
M 430.9728 R 11572



M 442.9728 R 11789



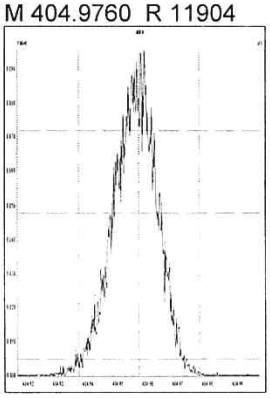
M 454.9728 R 11847



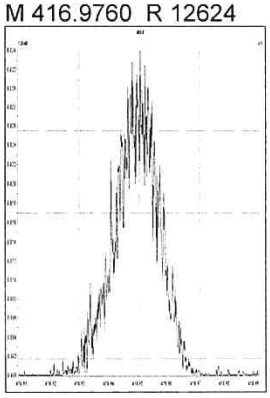
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, December 05, 2018 12:44:15 Central Standard Time

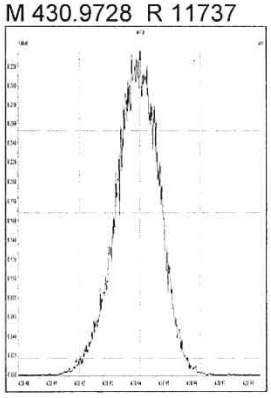
M 404.9760 R 11904



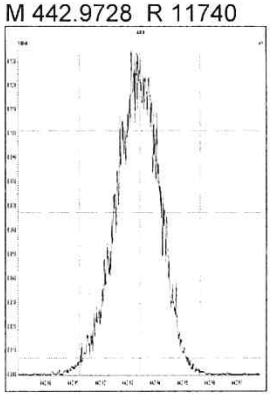
M 416.9760 R 12624



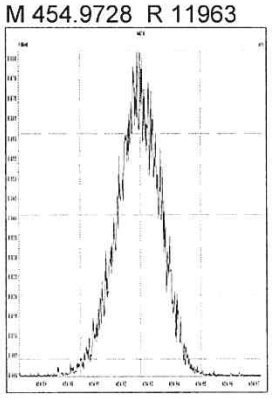
M 430.9728 R 11737



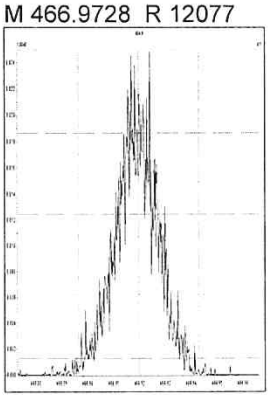
M 442.9728 R 11740



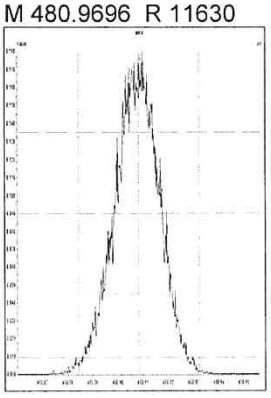
M 454.9728 R 11963



M 466.9728 R 12077



M 480.9696 R 11630



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

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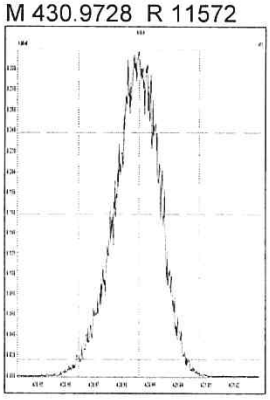
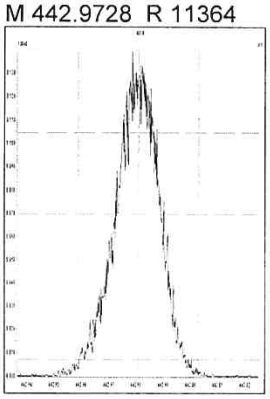
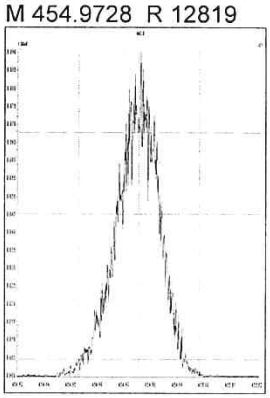
M 430.9728 R 11572



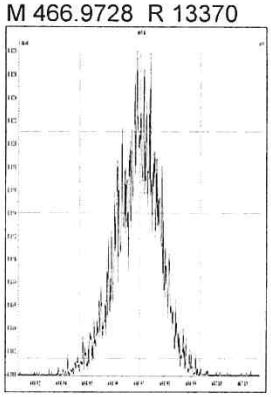
M 442.9728 R 11364



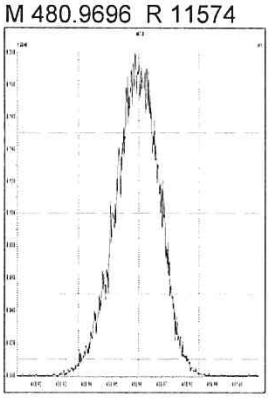
M 454.9728 R 12819



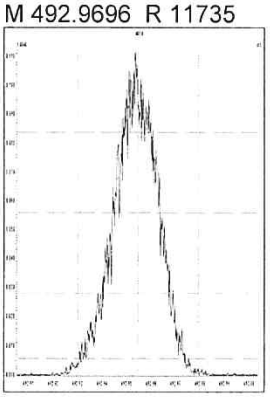
M 466.9728 R 13370



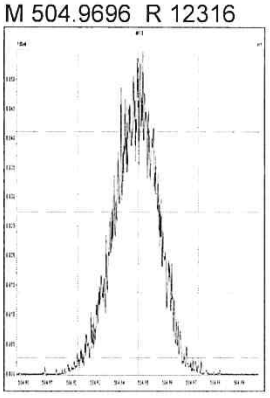
M 480.9696 R 11574



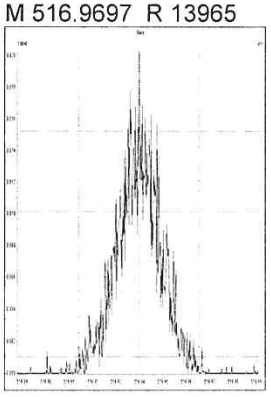
M 492.9696 R 11735



M 504.9696 R 12316



M 516.9697 R 13965



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

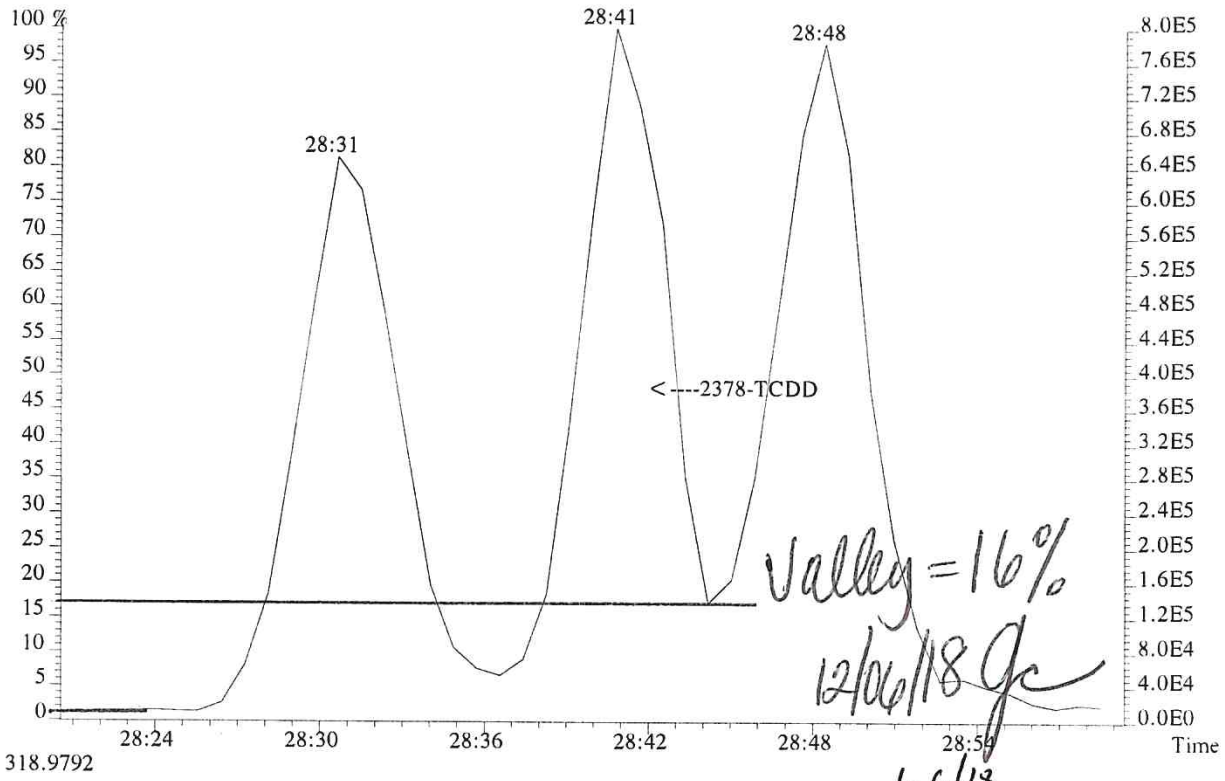
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519211
Date Analyzed: 5-DEC-2018
Time Analyzed: 02:03:12

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:51
TCDD	25:18	29:42
PeCDF	29:48	34:06
PeCDD	31:21	33:50
HxCDF	34:45	37:16
HxCDD	35:17	36:53
HpCDF	38:30	39:54
HpCDD	38:45	39:26

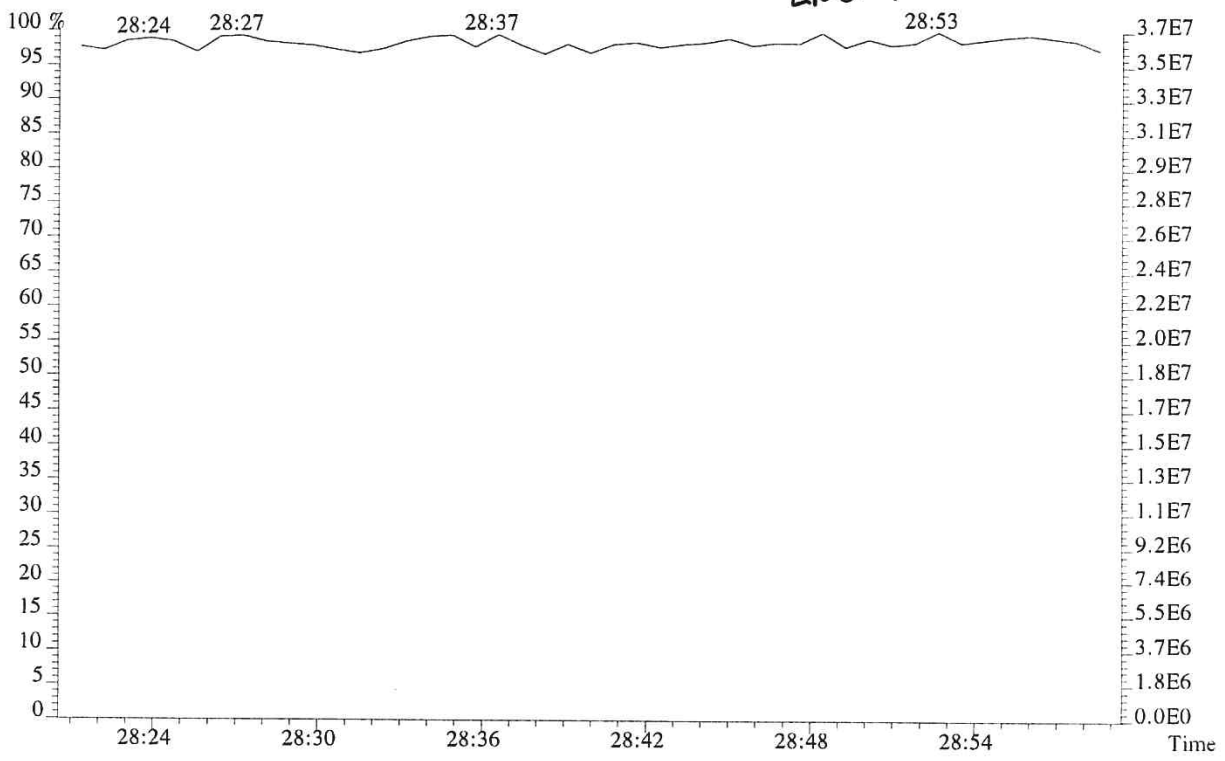
% Valley 2378-TCDD: 16 %

File:P519211 #1-545 Acq: 5-DEC-2018 02:03:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LIL 12/06/18



011476

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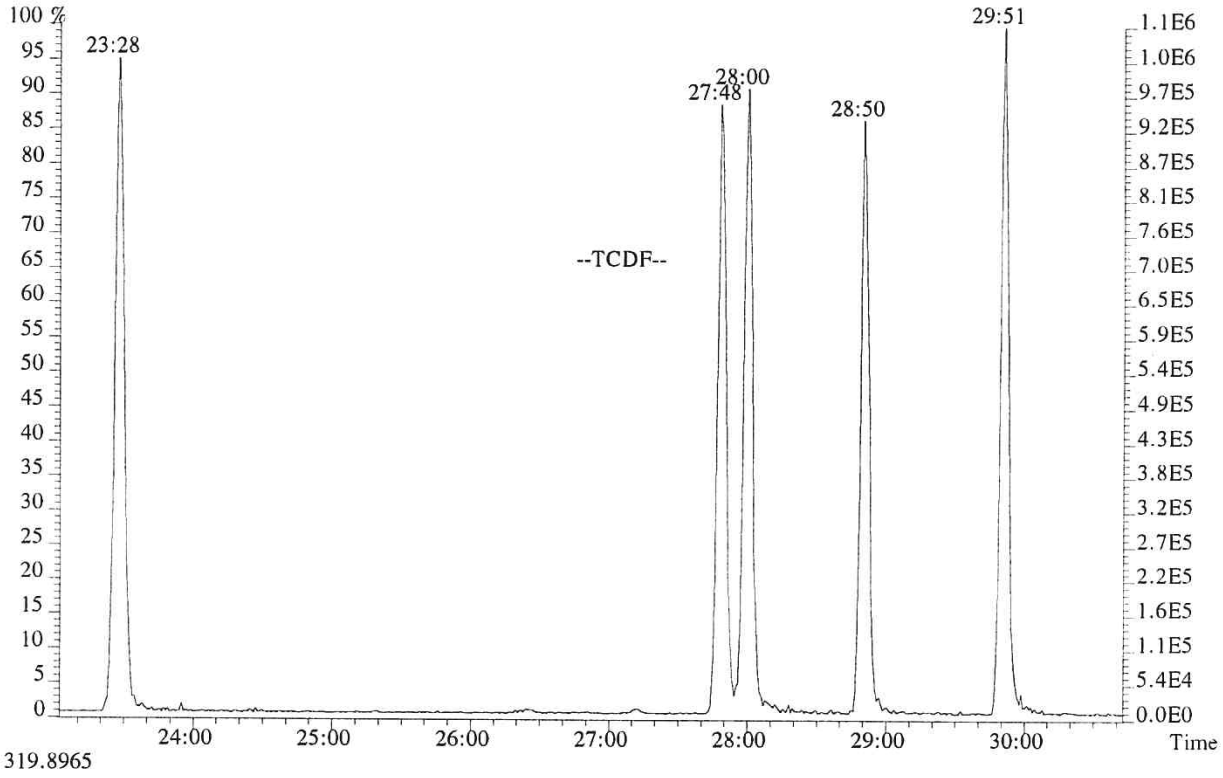
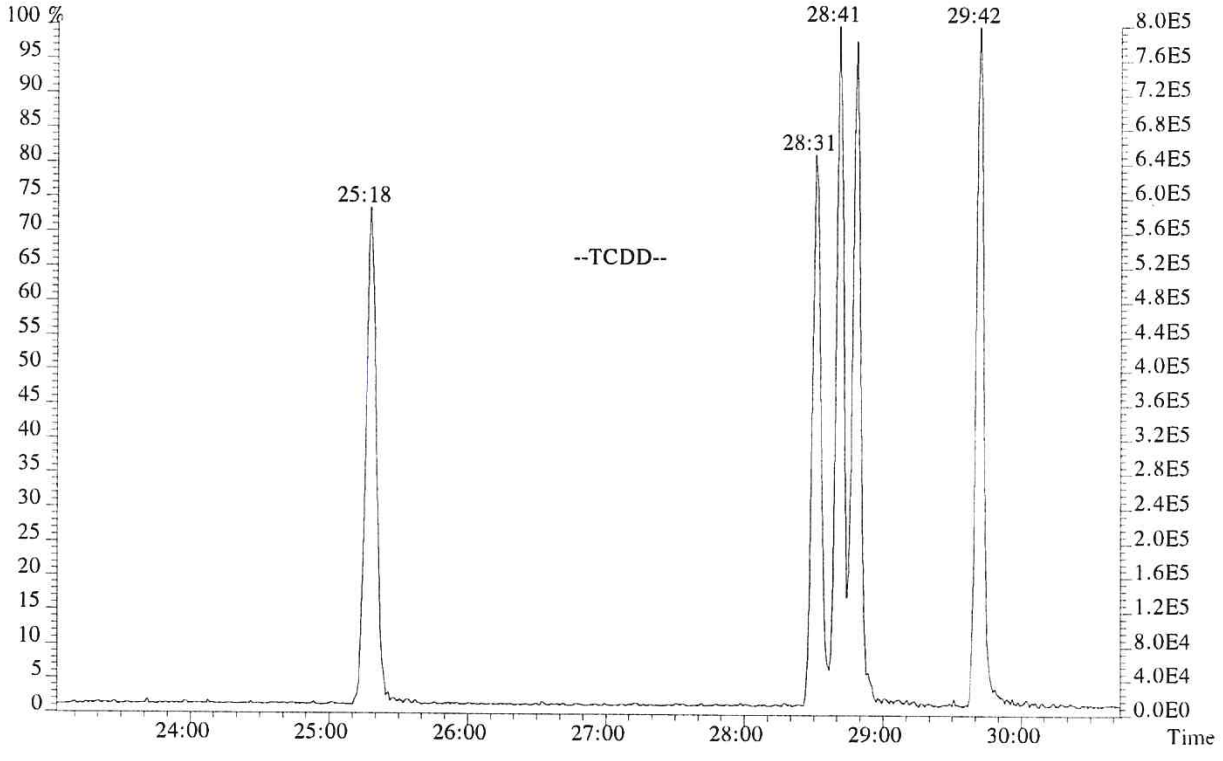
Sample#1 Exp:192977
303.9016

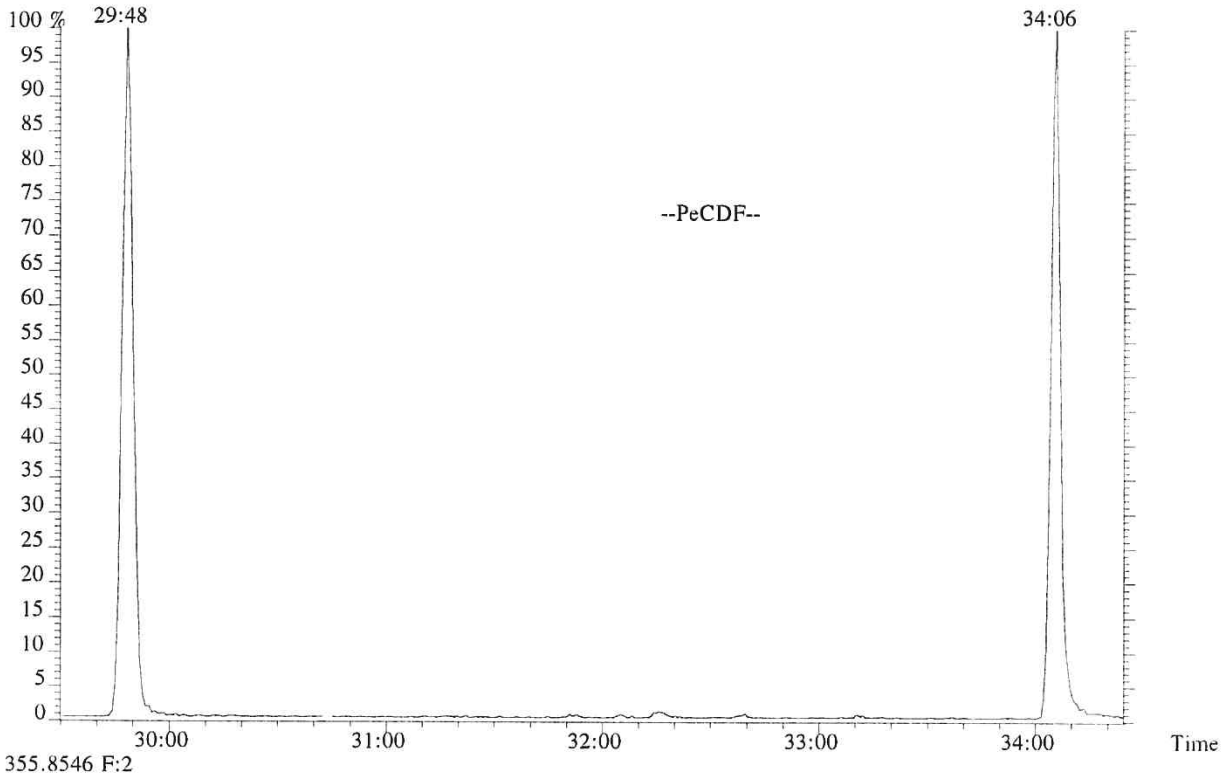


319.8965

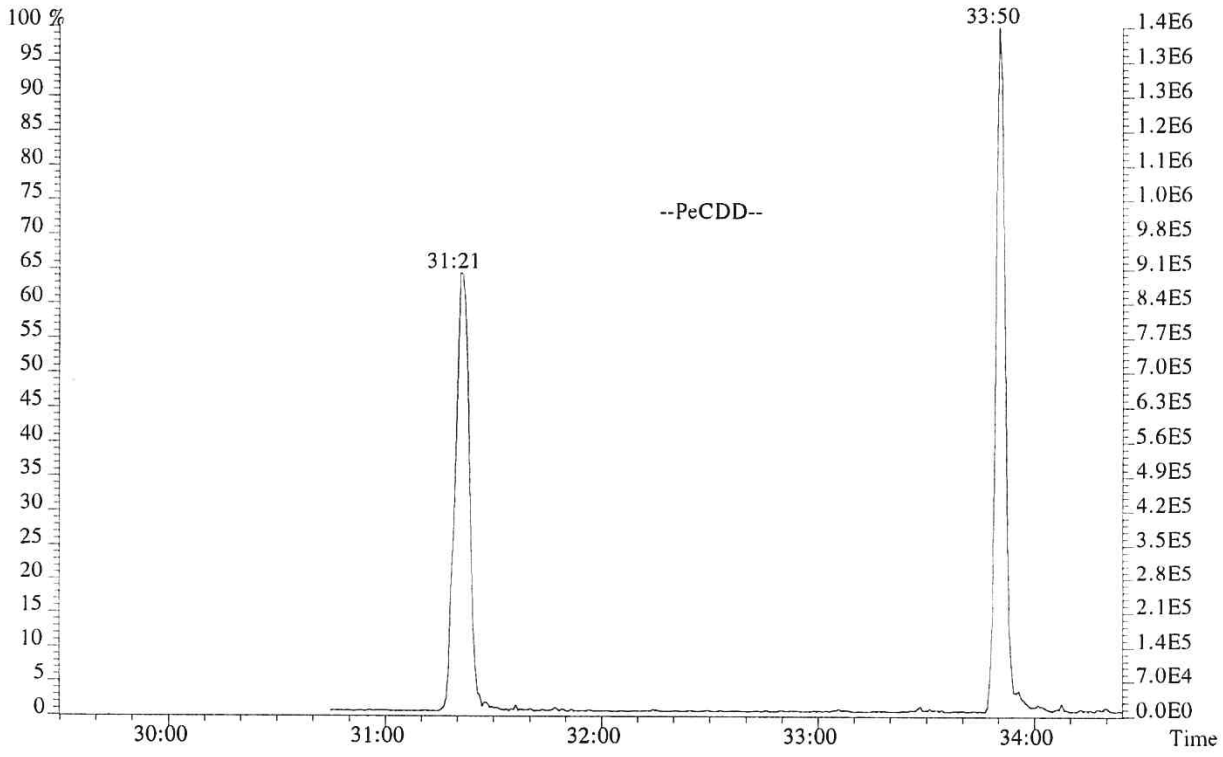


011477

File:P519211 #1-545 Acq: 5-DEC-2018 02:03:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2

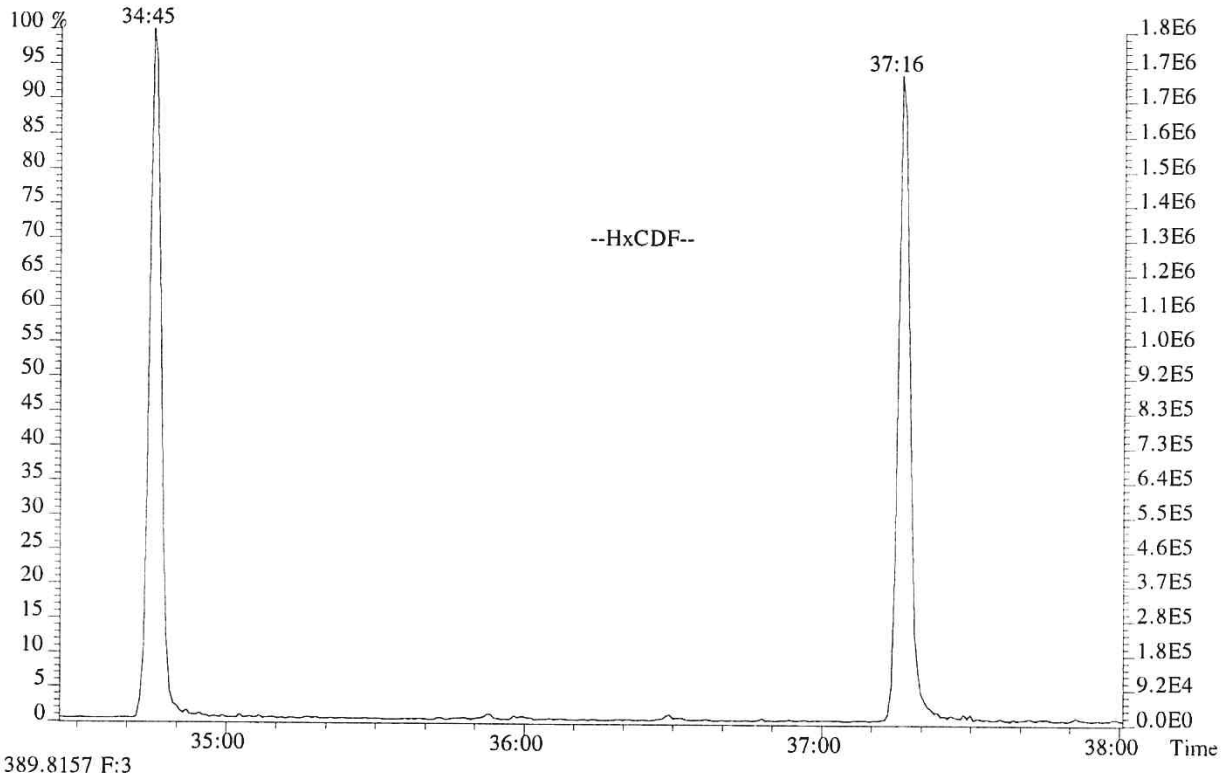


355.8546 F:2

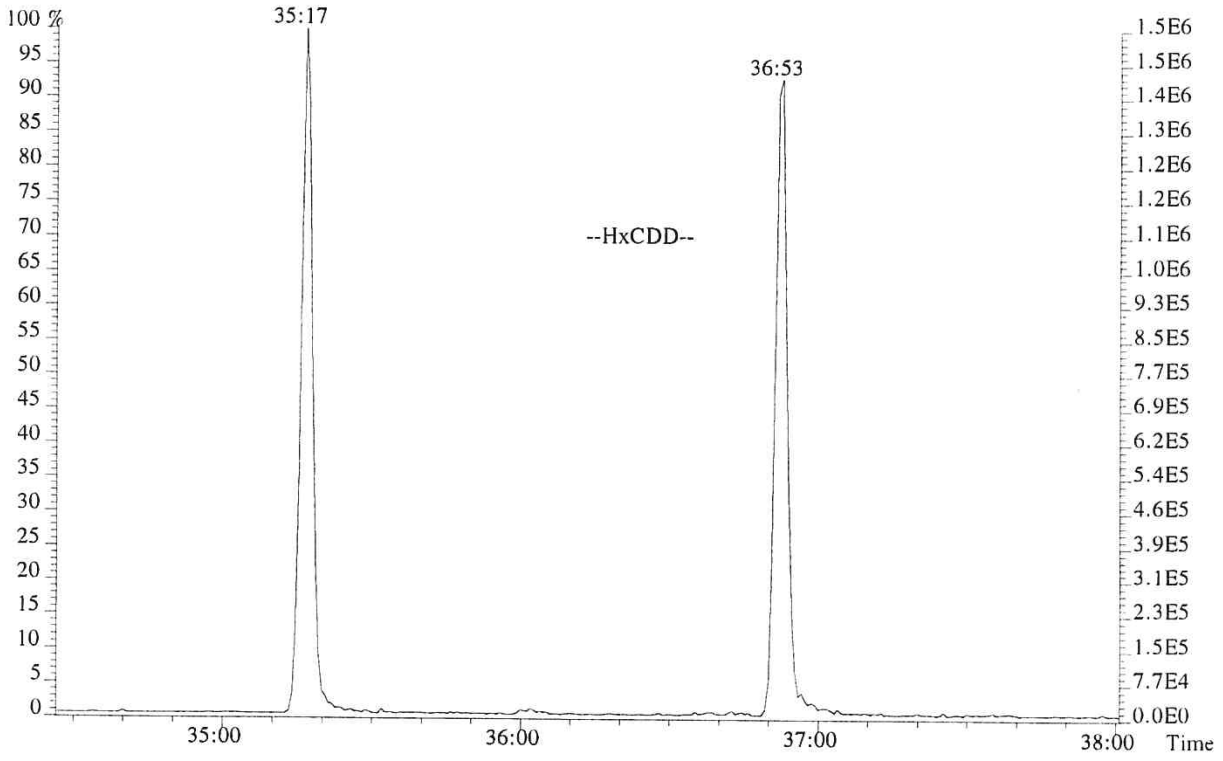


011478

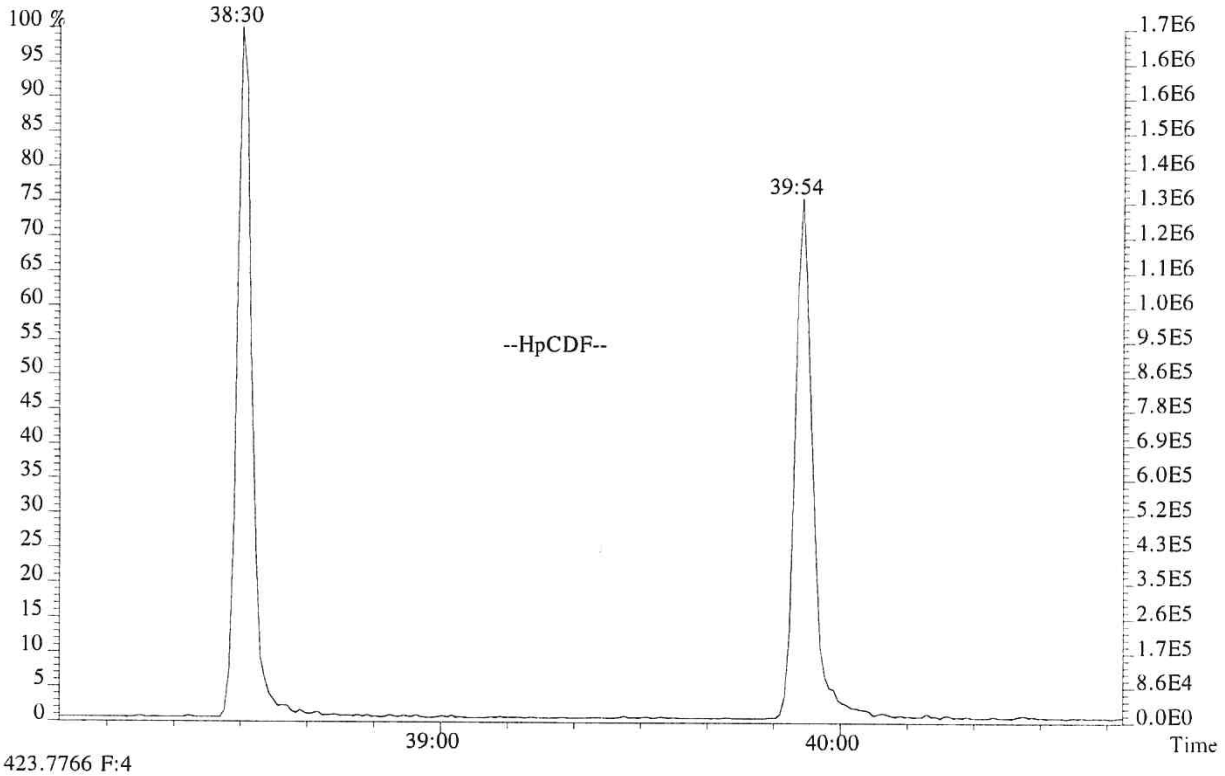
File:P519211 #1-322 Acq: 5-DEC-2018 02:03:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3



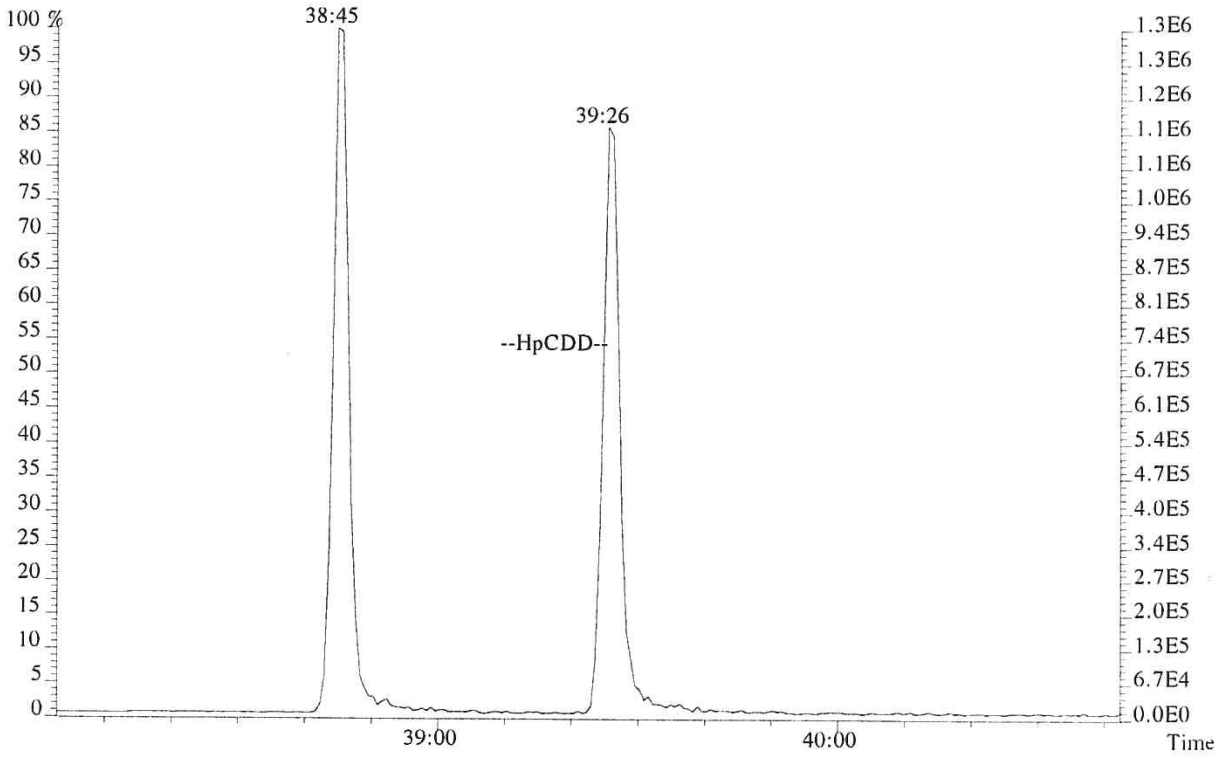
389.8157 F:3



File:P519211 #1-240 Acq: 5-DEC-2018 02:03:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519210 Analysis Date: 5-DEC-18 Time: 01:15:25

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.5	7.8 - 12.9	-5.1
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	51	39 - 65	2.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	51	39 - 64	1.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	52	39 - 64	3.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.28	1.05-1.43	54	41 - 61	8.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	50	43 - 58	0.6
OCDD	M+2/M+4	0.90	0.76-1.02	101	79 - 126	1.3
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	9.9	8.4 - 12.0	-0.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	0.9
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	51	41 - 61	2.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.17	1.05-1.43	52	45 - 56	3.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	50	45 - 56	0.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	50	44 - 57	0.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	0.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	49	43 - 58	-1.2
OCDF	M+2/M+4	0.90	0.76-1.02	101	63 - 159	0.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519210 Analysis Date: 5-DEC-18 Time: 01:15:25

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	107	82 - 121	6.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	123	62 - 160	23.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	98	85 - 117	-2.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	96	85 - 118	-3.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	12.7
13C-OCDD	M+2/M+4	0.91	0.76-1.02	270	96 - 415	35.2
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-1.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	119	76 - 130	18.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	120	77 - 130	20.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	90	76 - 131	-9.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	90	70 - 143	-10.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	73 - 137	-2.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	117	77 - 129	17.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.5	7.8 - 12.7	4.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519210 Samp: 1 Inj: 1 Acquired: 5-DEC-18 01:15:25
Processed: 6-DEC-18 10:05:45 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	2.756e+03	3.737e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	2.513e+04	1.656e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:11	2.440e+04	1.601e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.185e+04	1.866e+04	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	2.313e+04	1.900e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.198e+04	1.867e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	2.056e+04	1.659e+04	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	2.101e+04	2.060e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:55	1.756e+04	1.785e+04	0.98	yes	no	1.258
10	Unk	OCDF	42:26	3.016e+04	3.369e+04	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:49	2.095e+03	2.645e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	1.679e+04	1.086e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	1.592e+04	1.245e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	1.628e+04	1.278e+04	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	1.751e+04	1.368e+04	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	1.516e+04	1.442e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:14	2.503e+04	2.792e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	3.084e+04	3.862e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:16	5.032e+04	3.128e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	5.047e+04	3.162e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	2.267e+04	4.334e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	2.537e+04	4.931e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	2.491e+04	4.766e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	2.233e+04	4.212e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	1.904e+04	4.243e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	1.768e+04	3.932e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	2.058e+04	2.546e+04	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:28	3.451e+04	2.172e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	3.032e+04	2.344e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	3.054e+04	2.374e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	2.958e+04	2.781e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:13	4.442e+04	4.904e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:14	2.079e+04	2.598e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	3.291e+04	2.646e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	4.962e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519210 Samp: 1 Inj: 1 Acquired: 5-DEC-18 01:15:25
Processed: 6-DEC-18 10:05:45 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.22e+05	1.96e+02	2.7e+03	6.82e+05	9.16e+02	7.4e+02
2	1,2,3,7,8-PeCDF	4.71e+06	2.48e+02	1.9e+04	3.12e+06	8.20e+02	3.8e+03
3	2,3,4,7,8-PeCDF	4.97e+06	2.48e+02	2.0e+04	3.23e+06	8.20e+02	3.9e+03
4	1,2,3,4,7,8-HxCDF	4.72e+06	5.32e+02	8.9e+03	4.03e+06	2.76e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	4.72e+06	5.32e+02	8.9e+03	3.98e+06	2.76e+02	1.4e+04
6	2,3,4,6,7,8-HxCDF	4.76e+06	5.32e+02	9.0e+03	3.97e+06	2.76e+02	1.4e+04
7	1,2,3,7,8,9-HxCDF	4.41e+06	5.32e+02	8.3e+03	3.41e+06	2.76e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	4.68e+06	1.79e+03	2.6e+03	4.61e+06	2.40e+03	1.9e+03
9	1,2,3,4,7,8,9-HpCDF	3.45e+06	1.79e+03	1.9e+03	3.46e+06	2.40e+03	1.4e+03
10	OCDF	5.03e+06	2.28e+02	2.2e+04	5.70e+06	4.16e+02	1.4e+04
11	2,3,7,8-TCDD	3.97e+05	1.16e+03	3.4e+02	5.22e+05	5.12e+02	1.0e+03
12	1,2,3,7,8-PeCDD	3.33e+06	3.92e+02	8.5e+03	2.15e+06	2.72e+02	7.9e+03
13	1,2,3,4,7,8-HxCDD	3.64e+06	2.64e+02	1.4e+04	2.83e+06	2.36e+02	1.2e+04
14	1,2,3,6,7,8-HxCDD	3.50e+06	2.64e+02	1.3e+04	2.75e+06	2.36e+02	1.2e+04
15	1,2,3,7,8,9-HxCDD	3.76e+06	2.64e+02	1.4e+04	2.94e+06	2.36e+02	1.2e+04
16	1,2,3,4,6,7,8-HpCDD	3.16e+06	2.80e+02	1.1e+04	3.02e+06	2.56e+02	1.2e+04
17	OCDD	4.25e+06	2.28e+02	1.9e+04	4.76e+06	2.52e+02	1.9e+04
18	13C-2,3,7,8-TCDF	5.51e+06	3.96e+03	1.4e+03	6.80e+06	2.42e+03	2.8e+03
19	13C-1,2,3,7,8-PeCDF	9.58e+06	5.48e+02	1.7e+04	5.97e+06	3.00e+02	2.0e+04
20	13C-2,3,4,7,8-PeCDF	1.02e+07	5.48e+02	1.9e+04	6.39e+06	3.00e+02	2.1e+04
21	13C-1,2,3,4,7,8-HxCDF	4.87e+06	4.64e+02	1.1e+04	9.25e+06	8.44e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	5.32e+06	4.64e+02	1.1e+04	1.04e+07	8.44e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	5.34e+06	4.64e+02	1.2e+04	1.00e+07	8.44e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	4.68e+06	4.64e+02	1.0e+04	8.77e+06	8.44e+02	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.18e+06	3.02e+03	1.4e+03	9.31e+06	6.16e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.39e+06	3.02e+03	1.1e+03	7.55e+06	6.16e+03	1.2e+03
27	13C-2,3,7,8-TCDD	3.95e+06	3.79e+03	1.0e+03	4.91e+06	1.30e+03	3.8e+03
28	13C-1,2,3,7,8-PeCDD	7.00e+06	4.64e+02	1.5e+04	4.44e+06	8.04e+02	5.5e+03
29	13C-1,2,3,4,7,8-HxCDD	6.92e+06	8.88e+02	7.8e+03	5.33e+06	2.56e+02	2.1e+04
30	13C-1,2,3,6,7,8-HxCDD	6.59e+06	8.88e+02	7.4e+03	5.11e+06	2.56e+02	2.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.98e+06	8.80e+02	6.8e+03	5.67e+06	5.08e+02	1.1e+04
32	13C-OCDD	7.60e+06	4.68e+02	1.6e+04	8.41e+06	3.28e+02	2.6e+04
33	13C-1,2,3,4-TCDD	3.97e+06	3.79e+03	1.0e+03	4.91e+06	1.30e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	7.17e+06	8.88e+02	8.1e+03	5.65e+06	2.56e+02	2.2e+04
35	37Cl-2,3,7,8-TCDD	9.46e+05	9.20e+02	1.0e+03			

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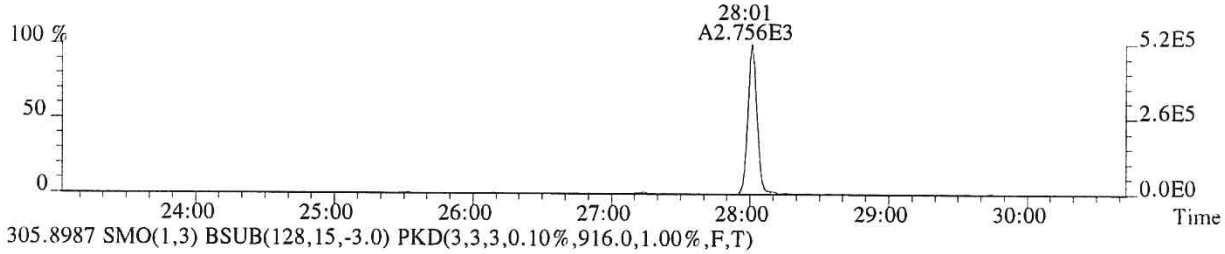
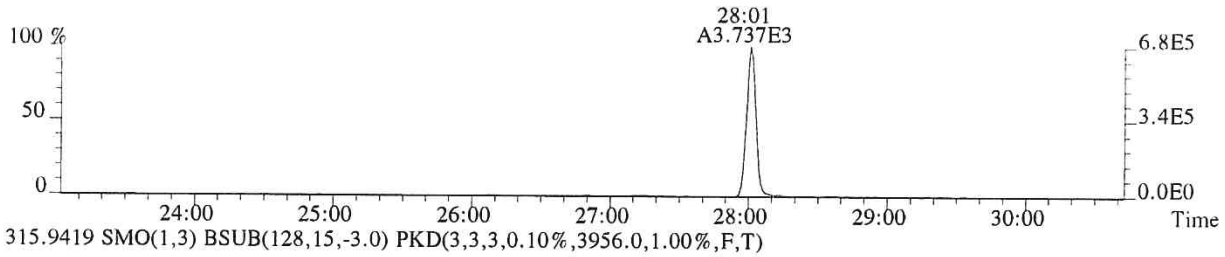
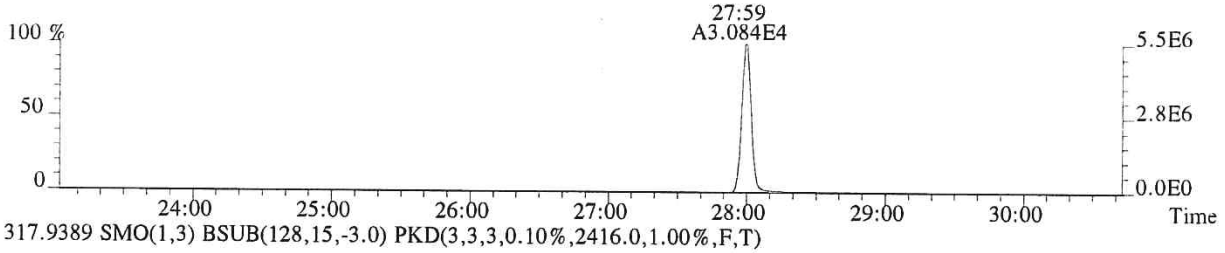
File:P519210 #1-545 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



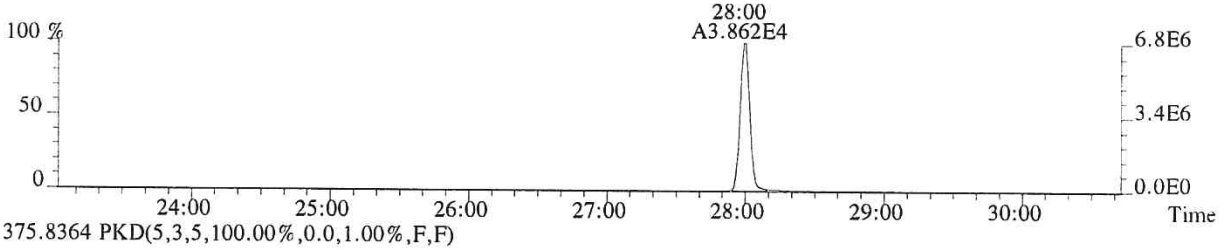
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



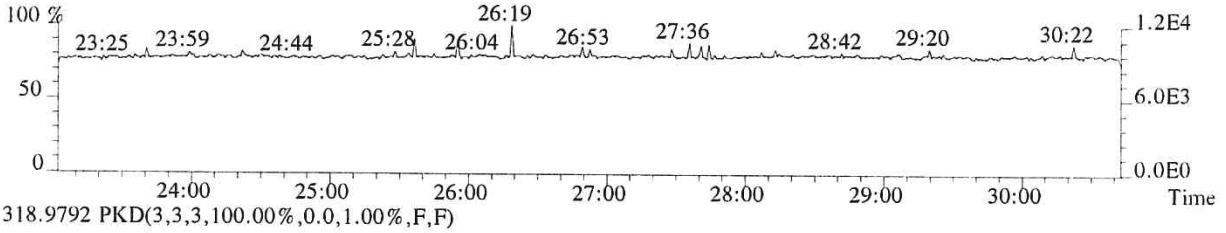
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3956.0,1.00%,F,T)



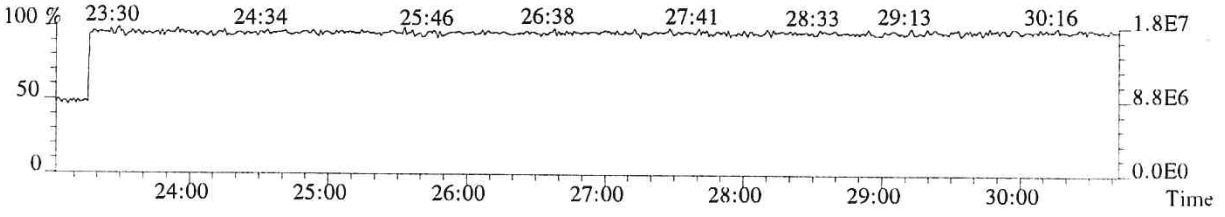
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2416.0,1.00%,F,T)



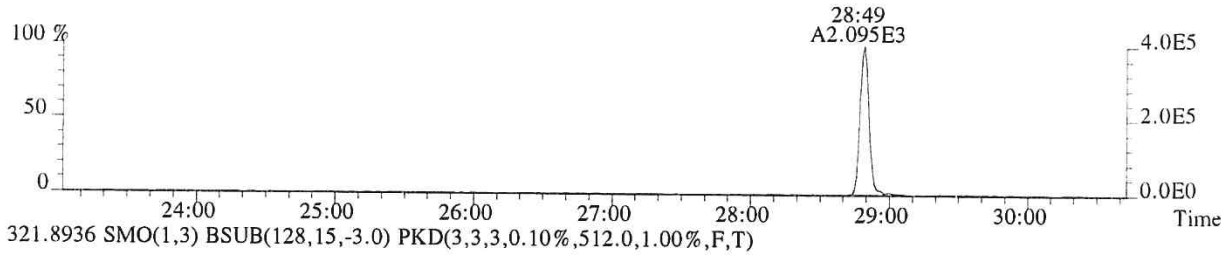
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



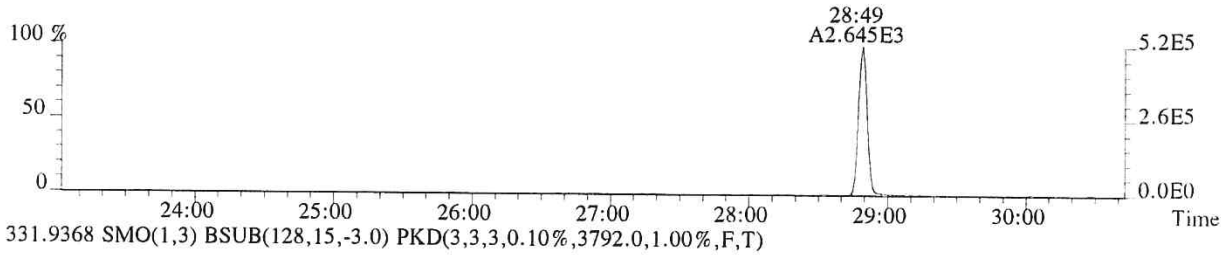
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



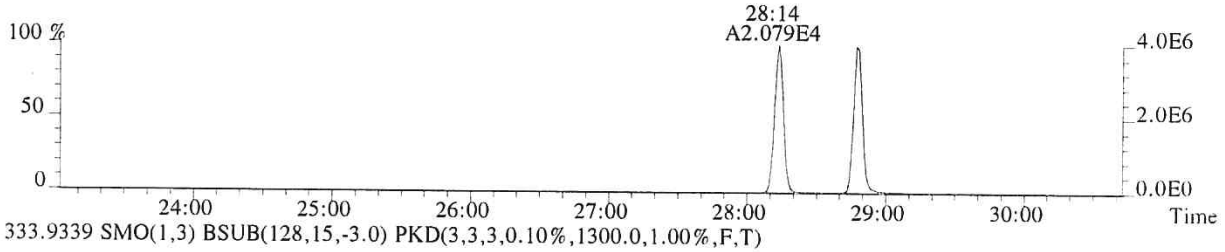
File:P519210 #1-545 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



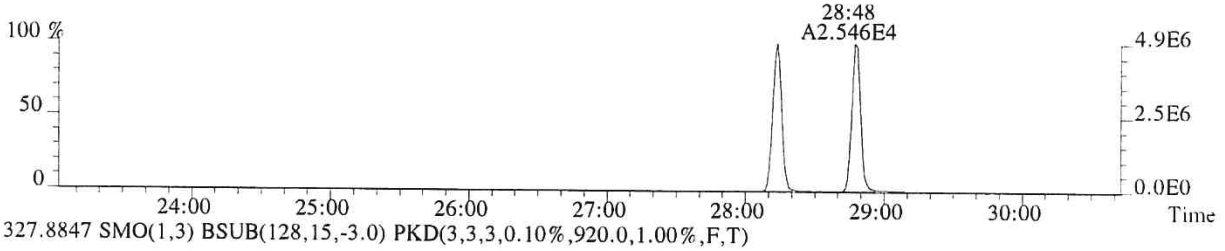
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



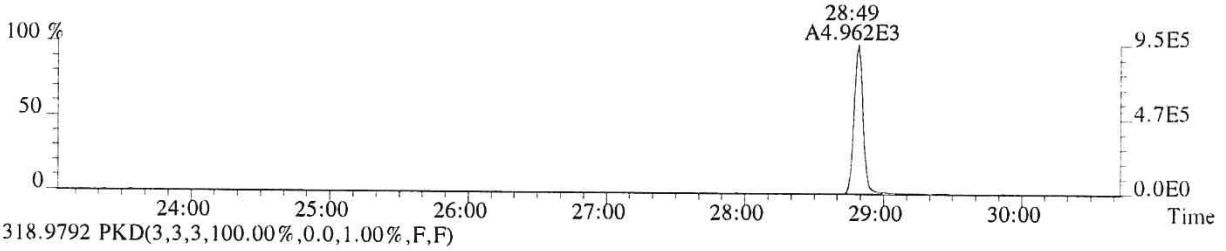
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3792.0,1.00%,F,T)



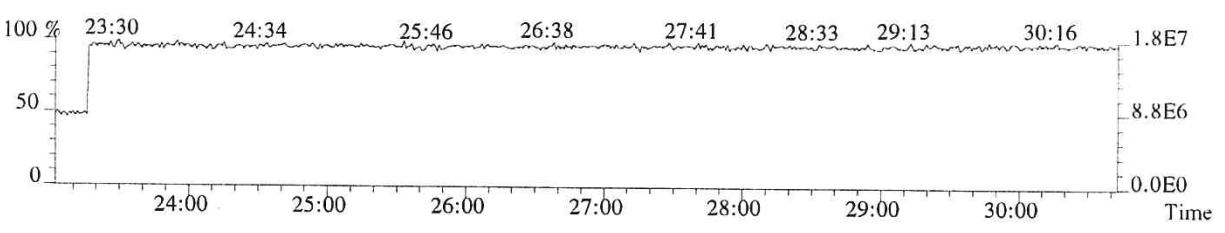
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)

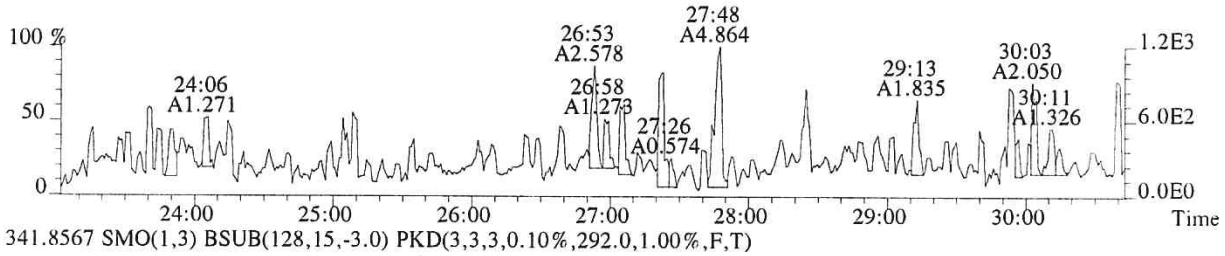


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

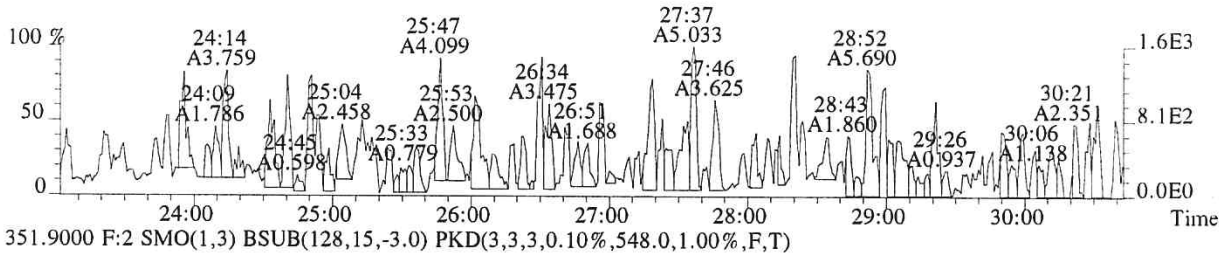


011486

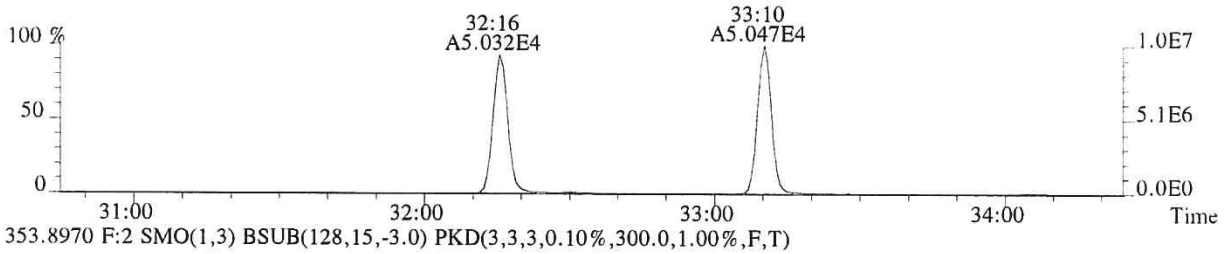
File:P519210 #1-545 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



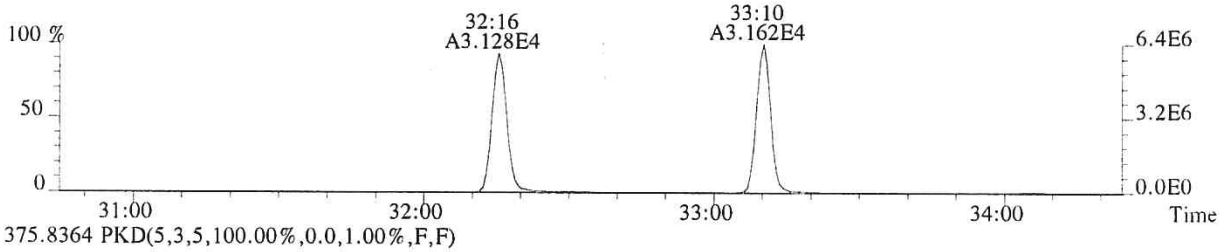
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



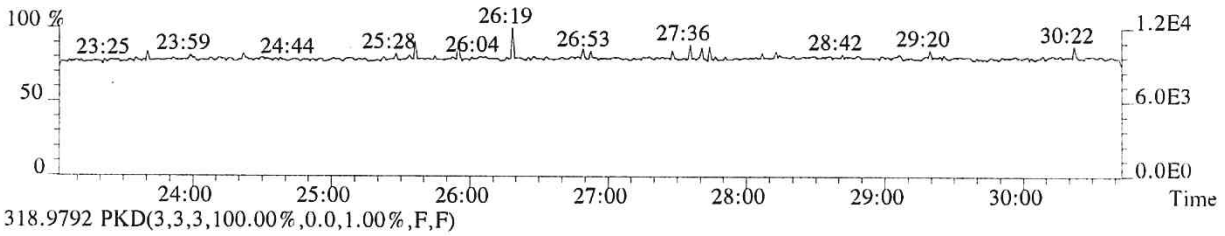
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



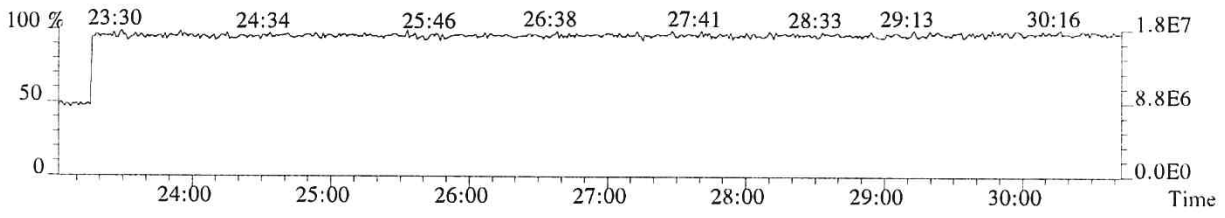
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

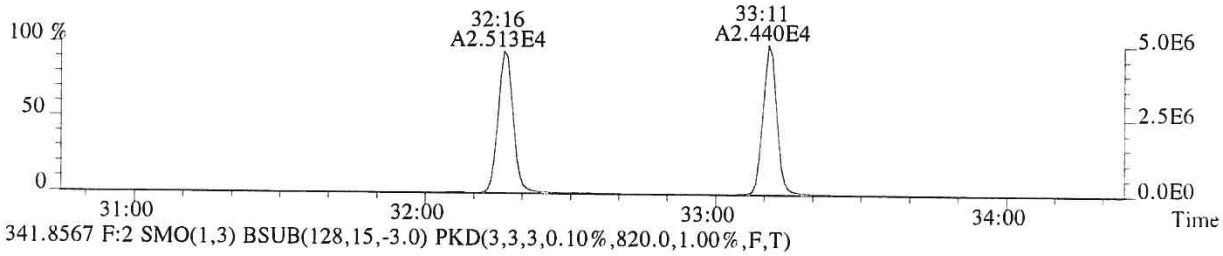


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

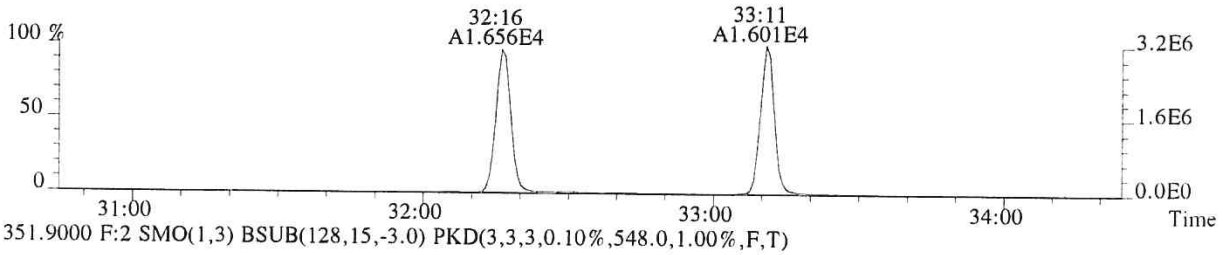


011487

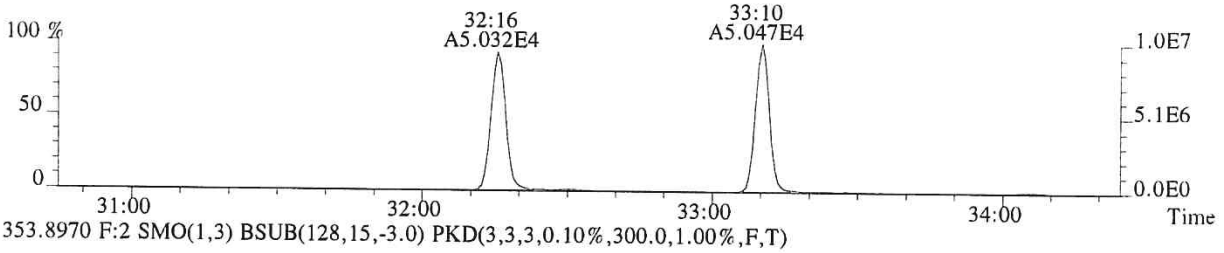
File:P519210 #1-330 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



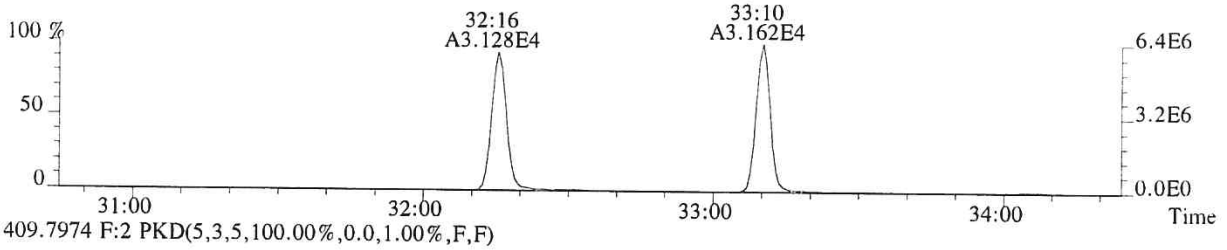
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



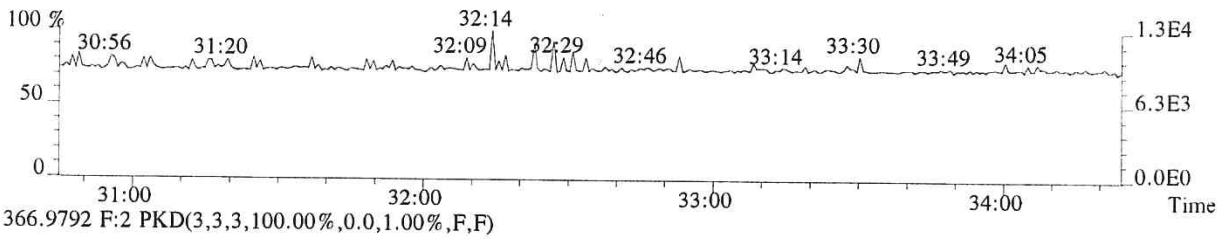
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



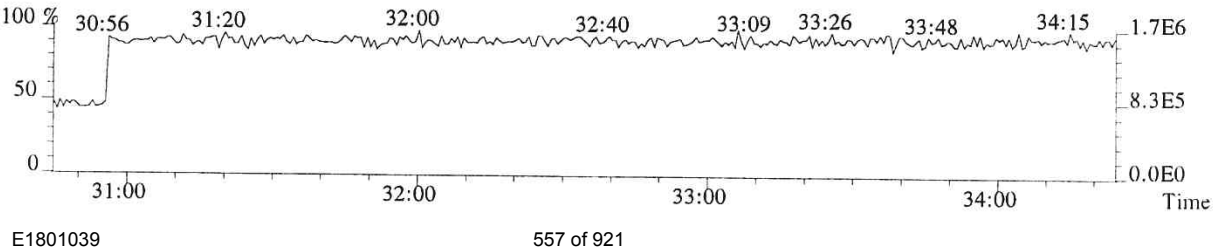
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

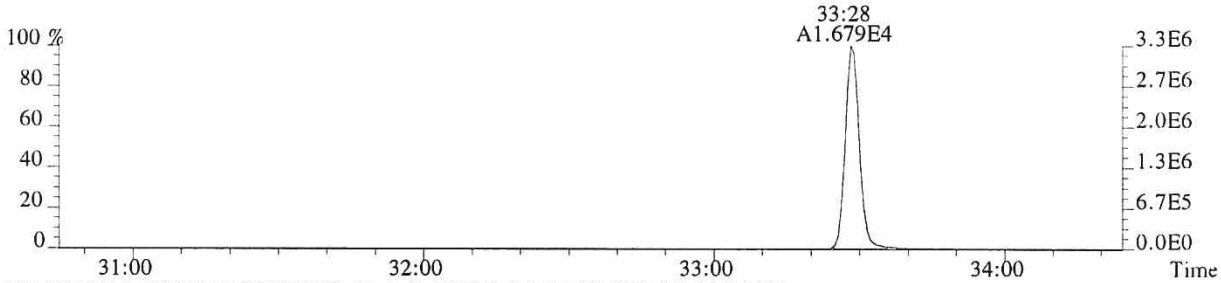


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

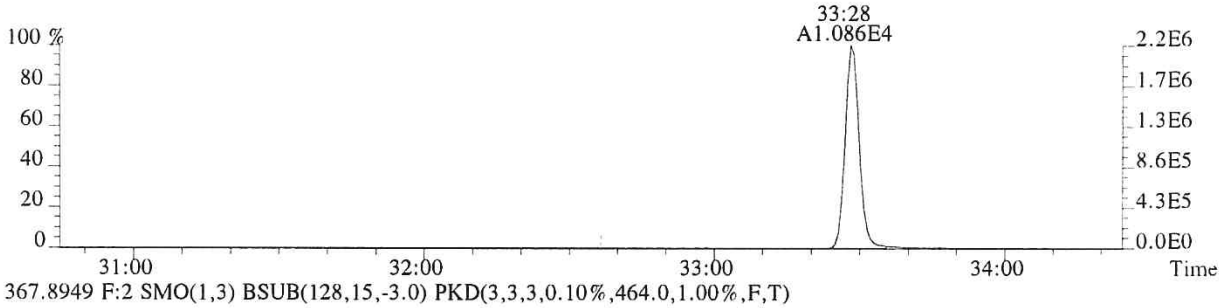


011488

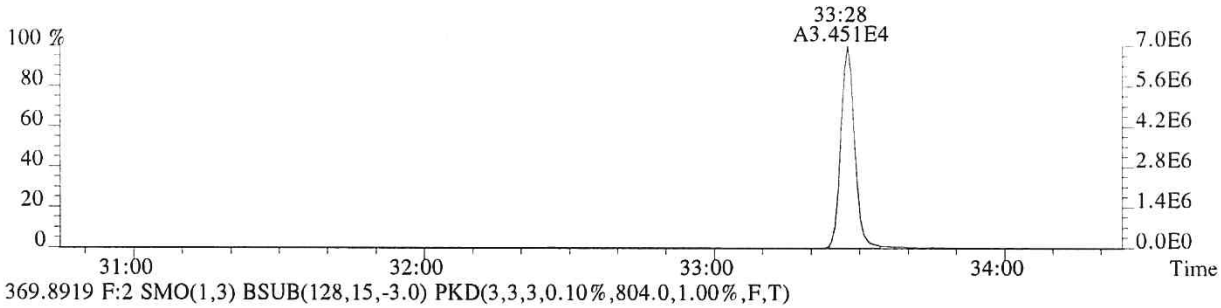
File:P519210 #1-330 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



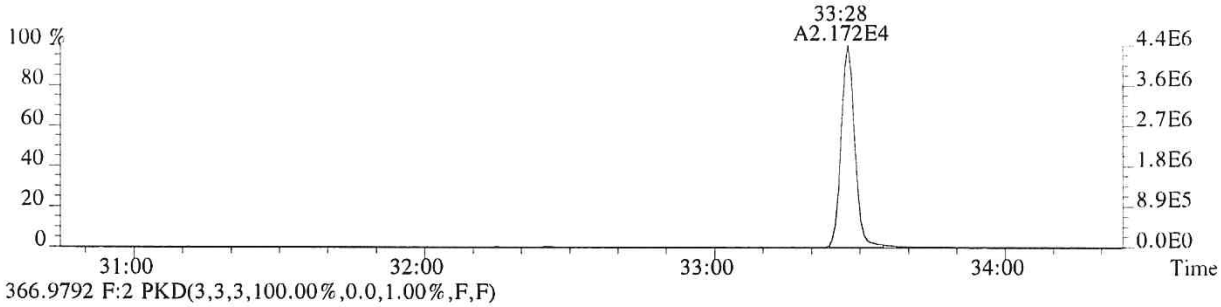
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



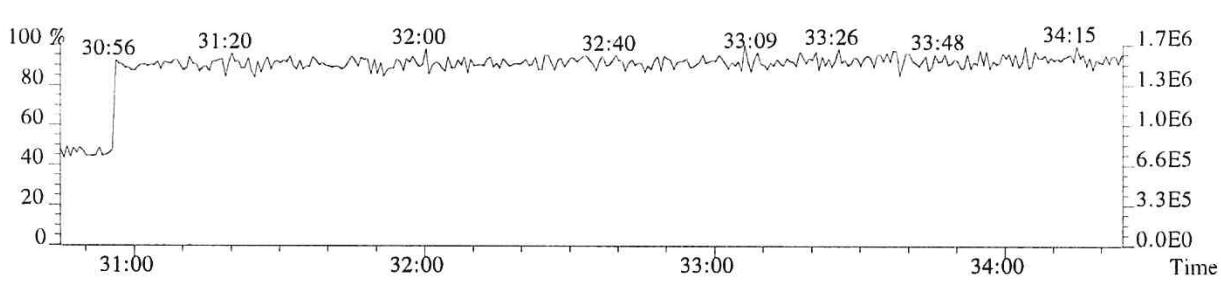
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



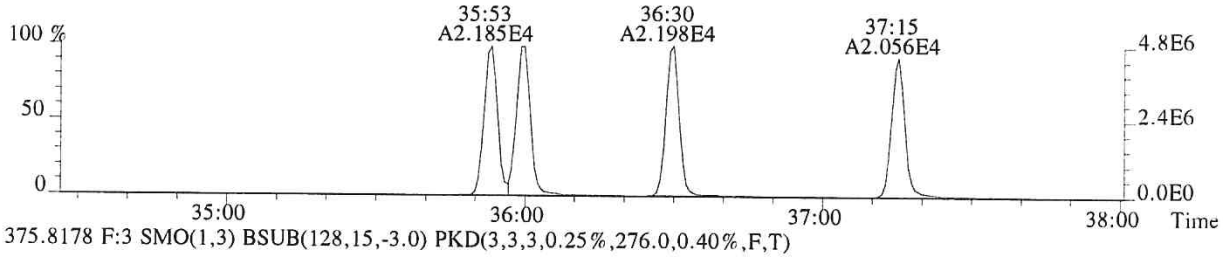
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



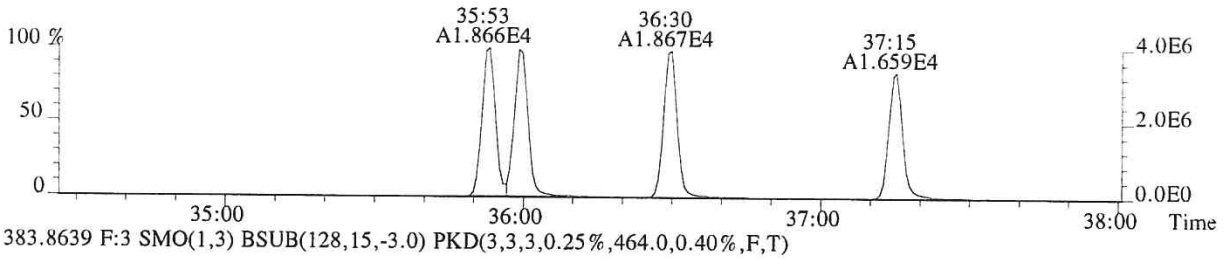
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



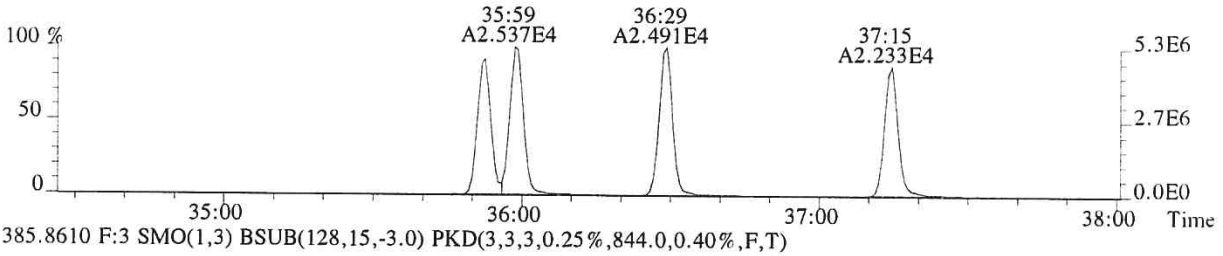
File:P519210 #1-322 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



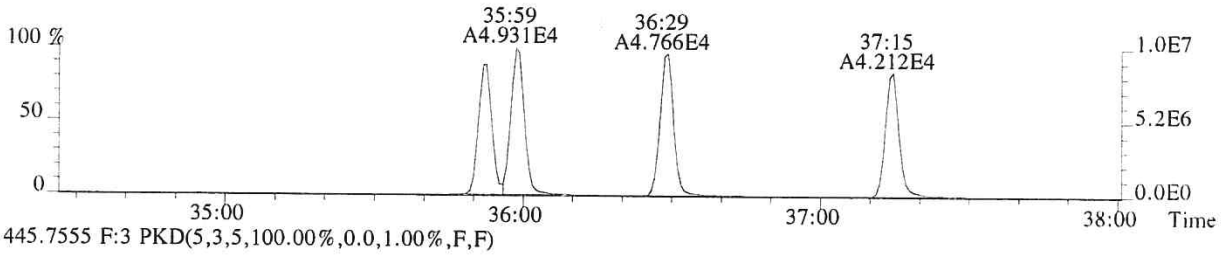
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



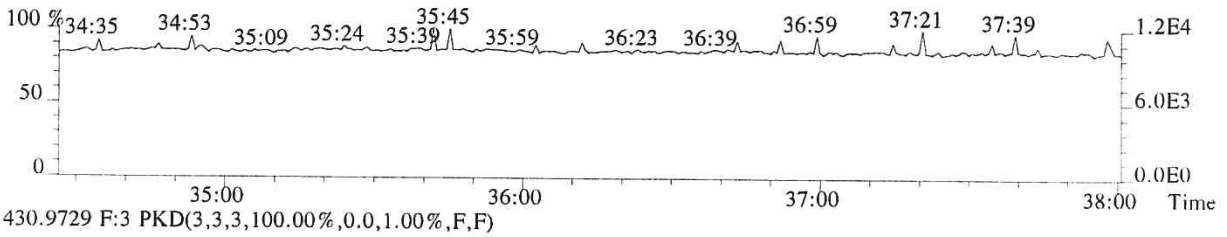
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



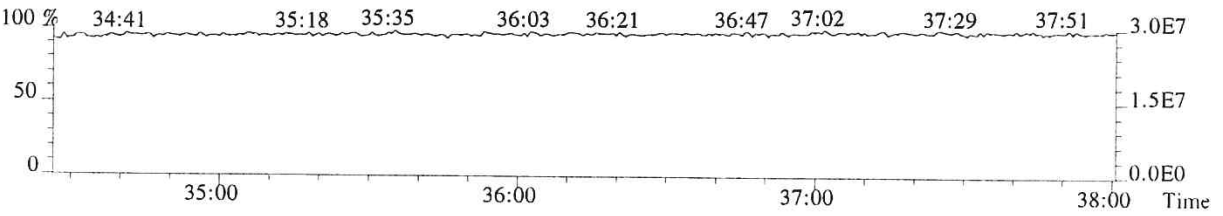
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



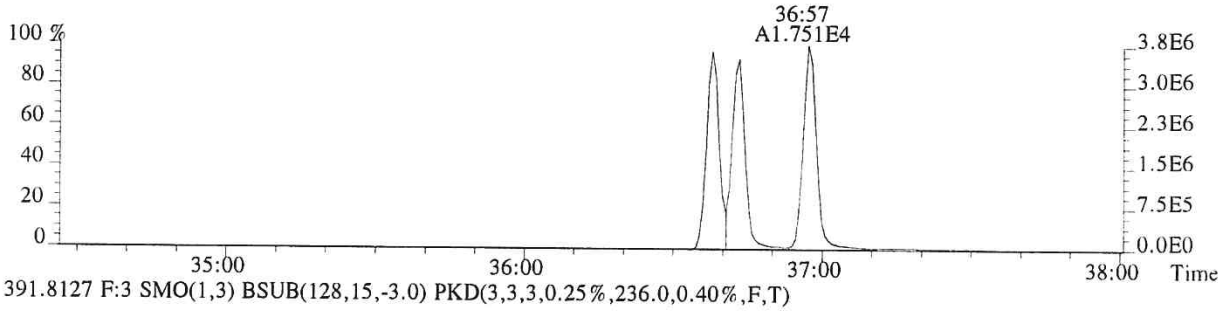
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



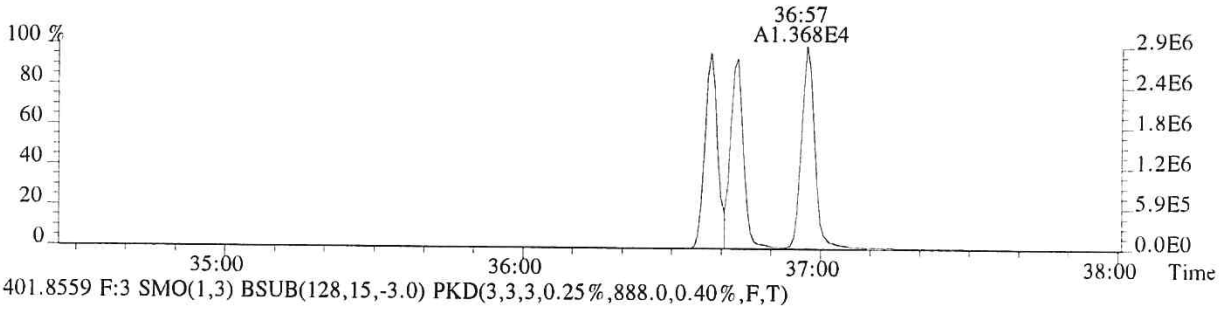
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



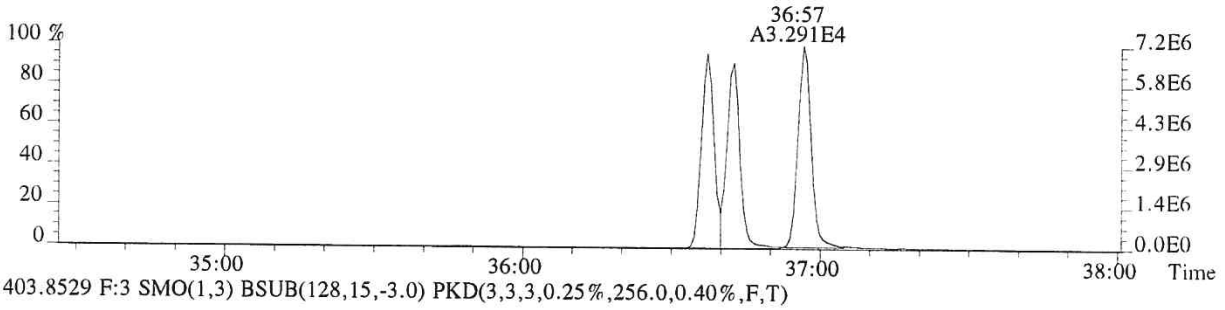
File:P519210 #1-322 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



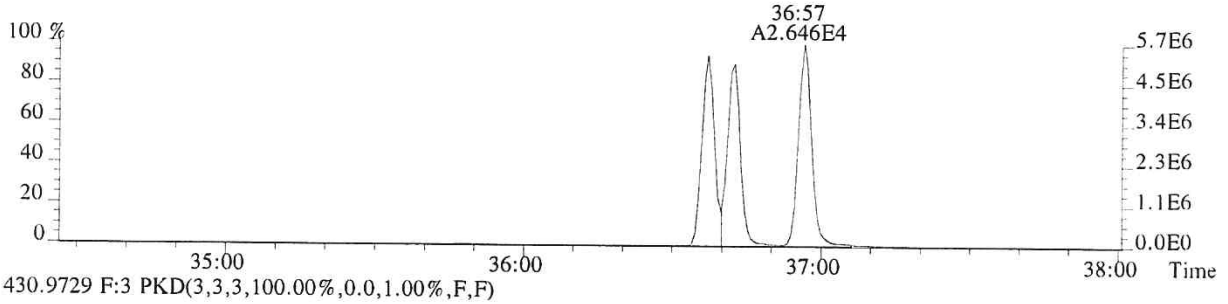
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



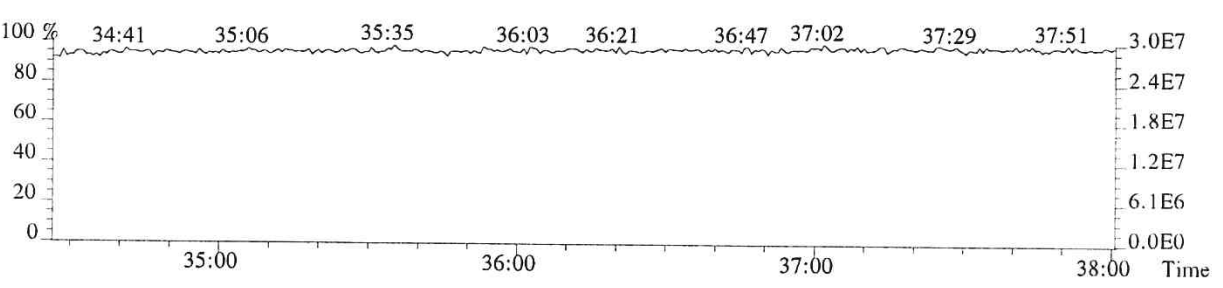
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



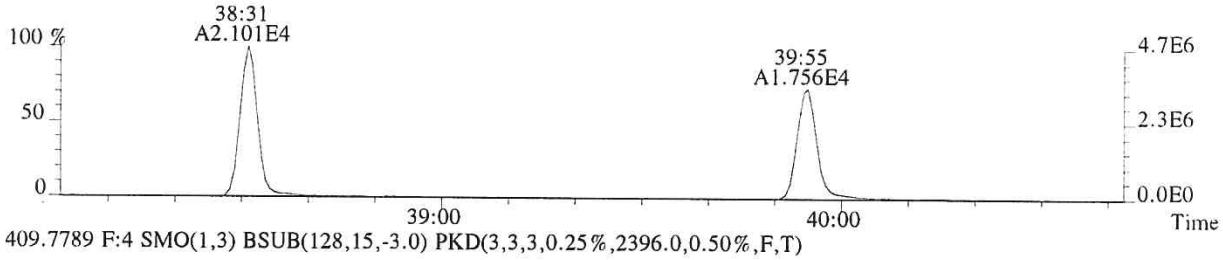
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



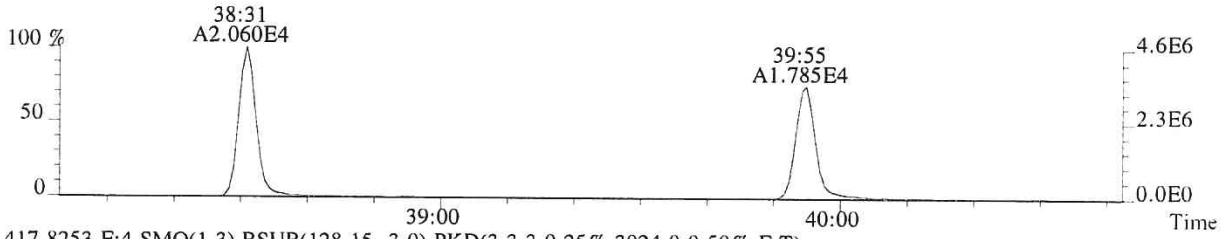
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



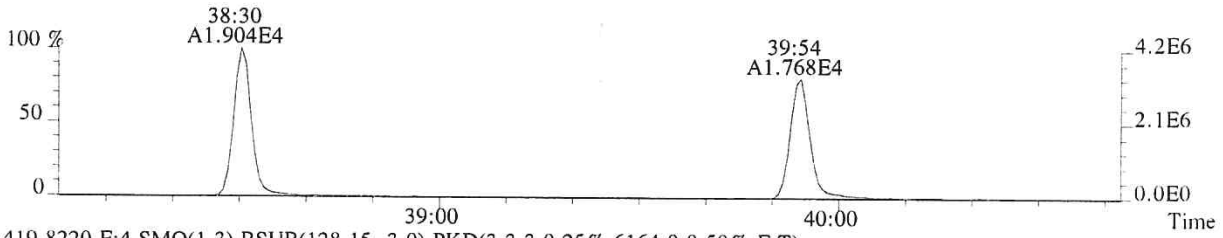
File:P519210 #1-240 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1792.0,0.50%,F,T)



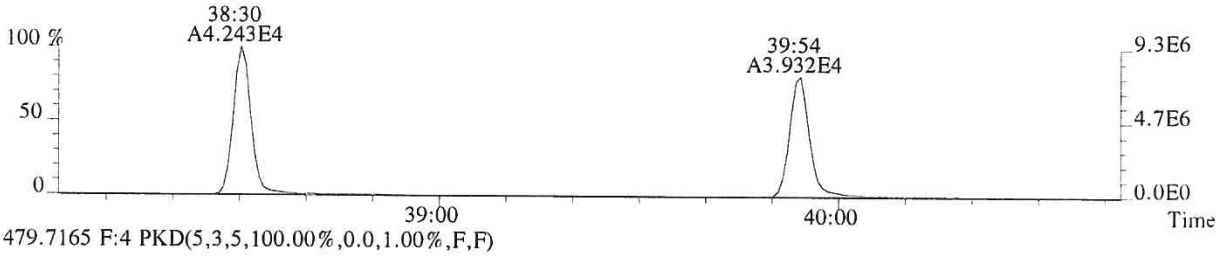
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.50%,F,T)



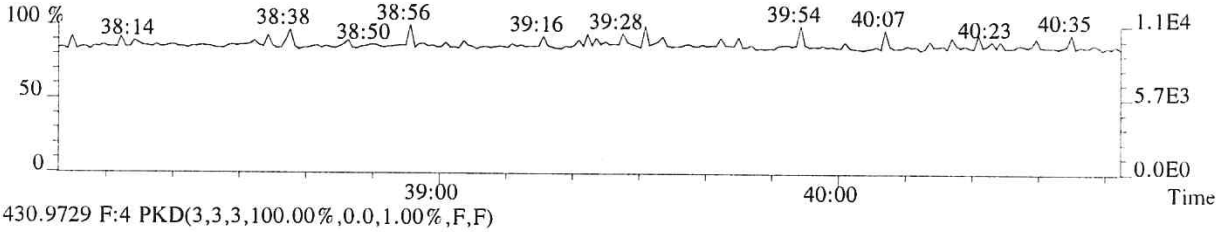
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3024.0,0.50%,F,T)



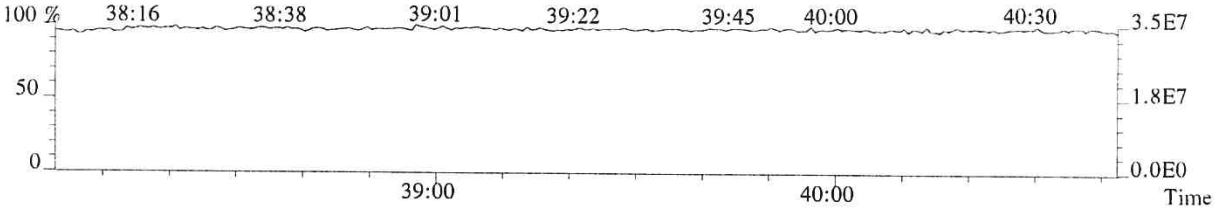
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6164.0,0.50%,F,T)



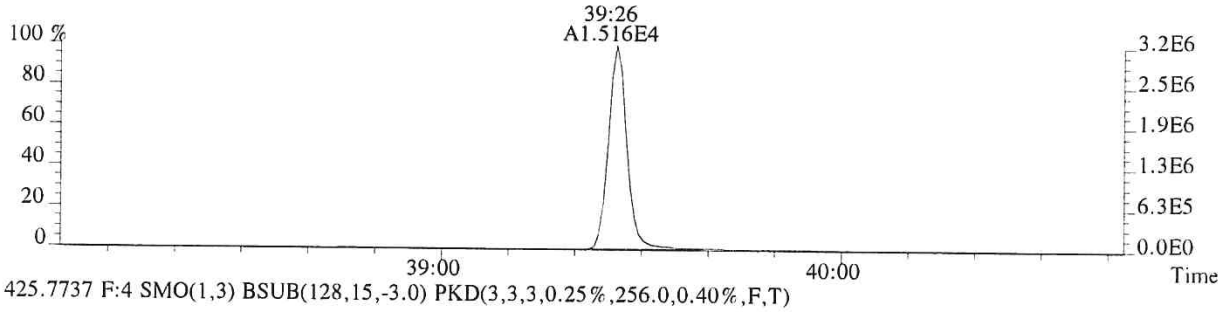
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



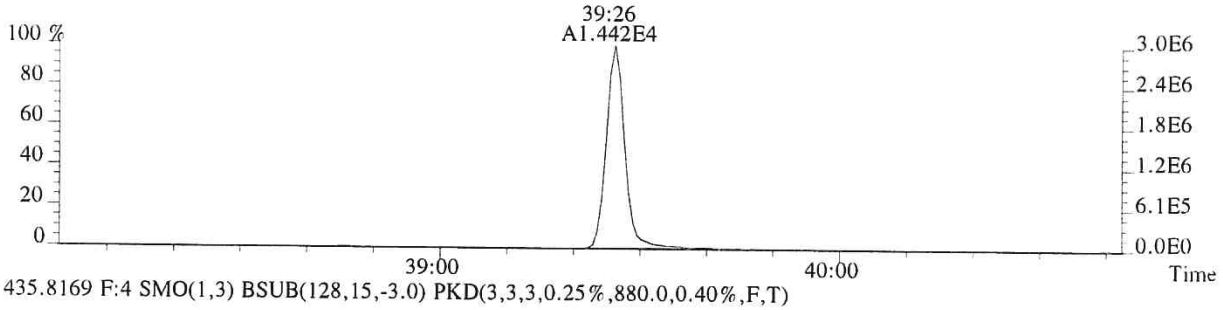
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



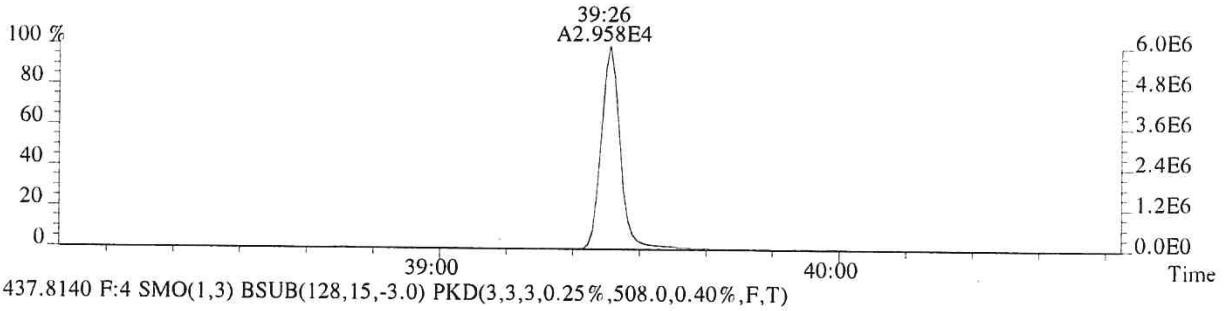
File:P519210 #1-240 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



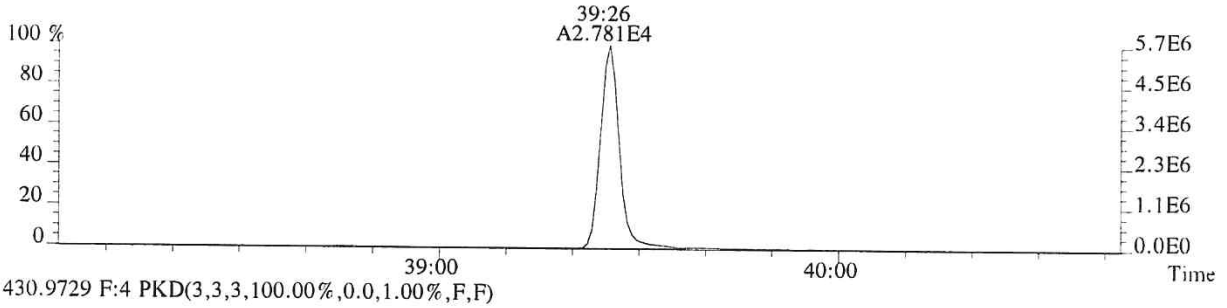
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



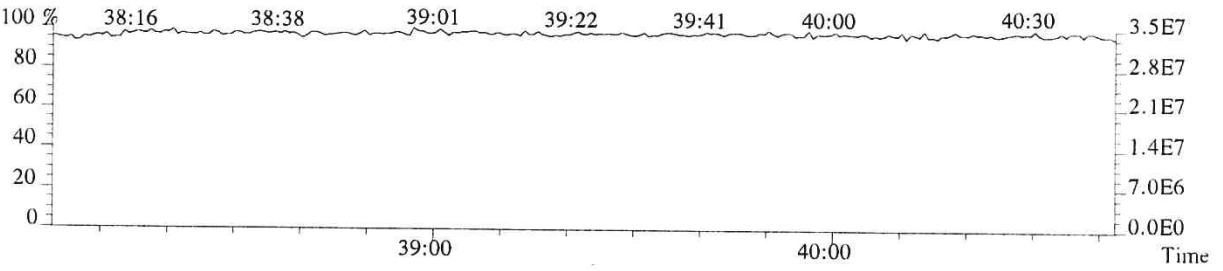
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)

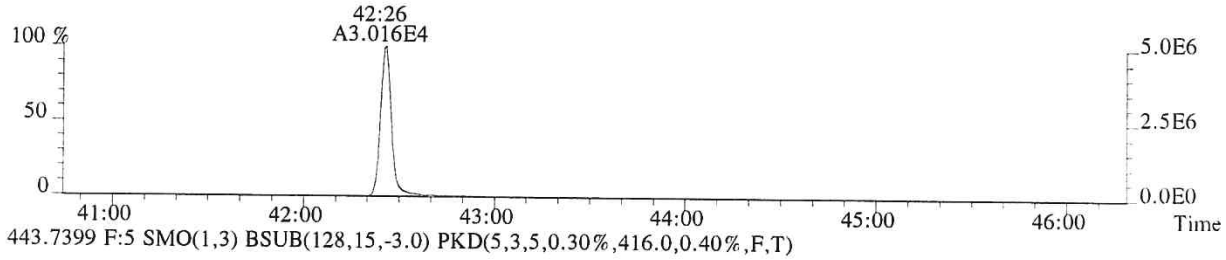


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

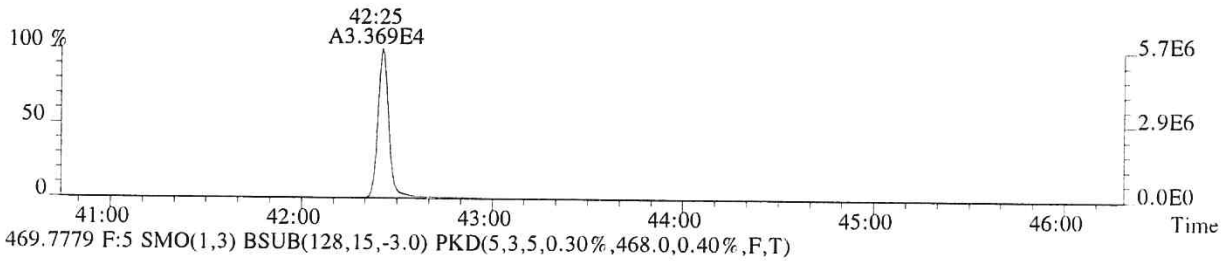


011493

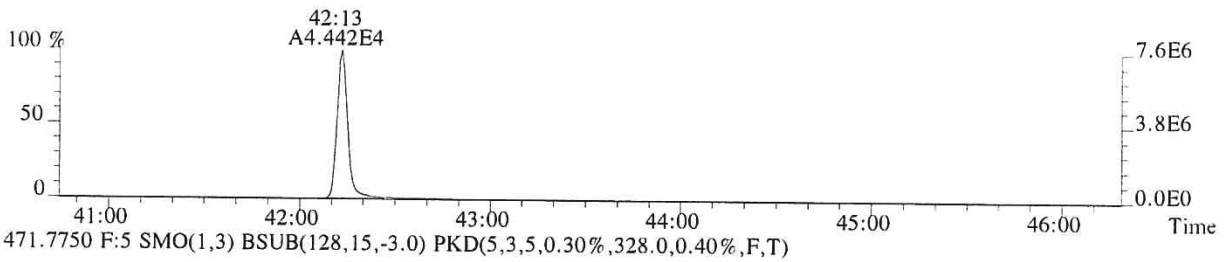
File:P519210 #1-502 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



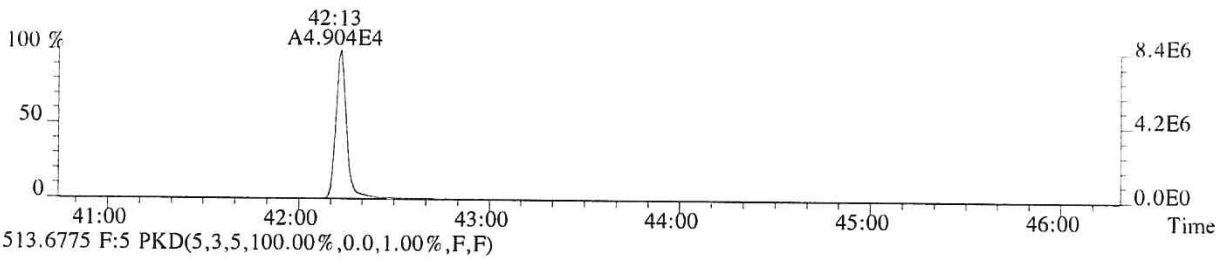
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



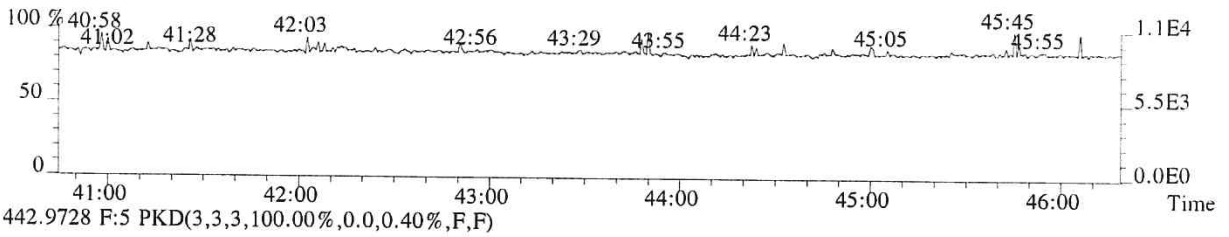
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



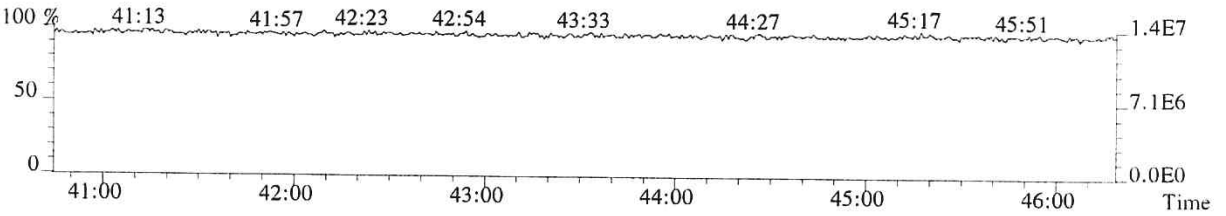
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



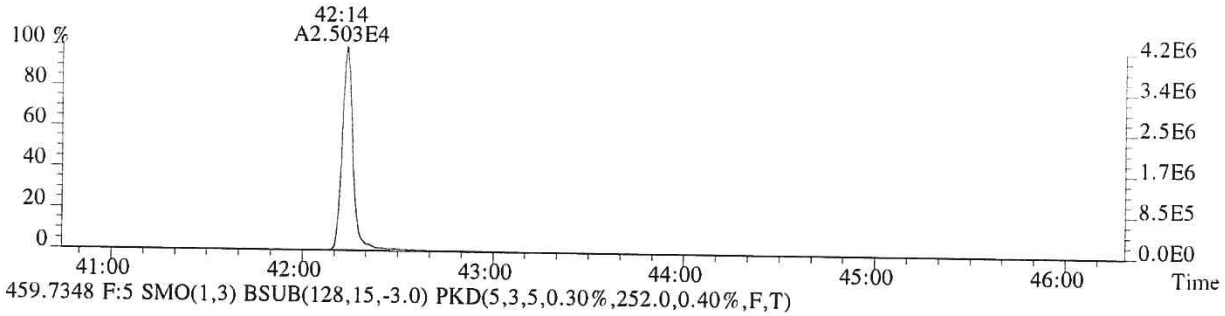
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



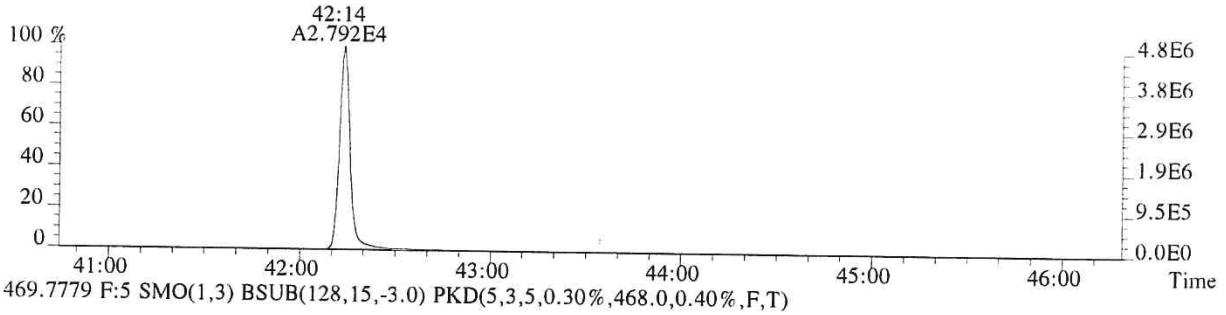
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



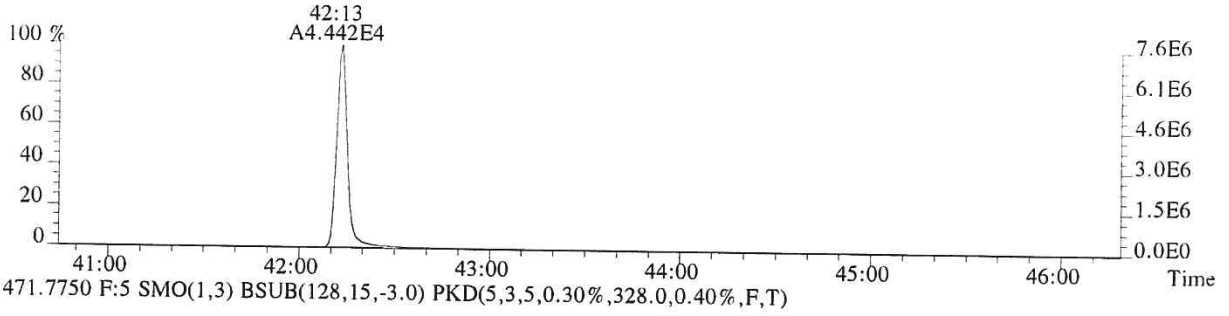
File:P519210 #1-502 Acq: 5-DEC-2018 01:15:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



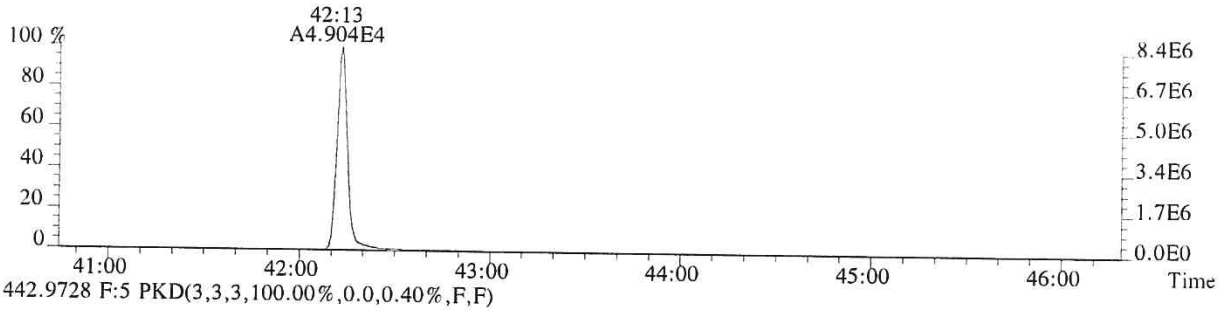
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



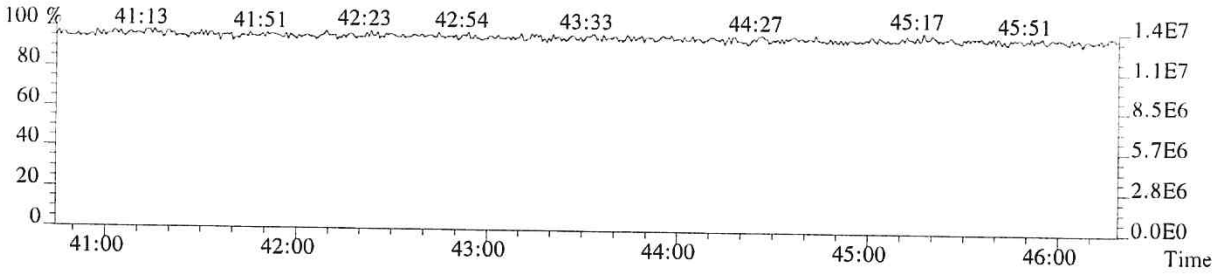
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519319

Date: 12/10/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519319	10-DEC-18	08:43:37
192977	WINDOW DEFINE	P519320	10-DEC-18	09:34:53
METHOD BLANK	EQ1800469-01	P519321	10-DEC-18	10:24:28
METHOD BLANK	EQ1800496-01	P519322	10-DEC-18	11:12:15
SL0175	E1801056-023DL	P519323	10-DEC-18	12:00:55
SL0221	E1801056-057DL	P519324	10-DEC-18	12:49:32
SL0227	E1801056-063DL	P519325	10-DEC-18	13:38:17
SL0249	E1801058-017DL	P519326	10-DEC-18	14:27:45
SL0250	E1801058-018DL	P519327	10-DEC-18	15:16:55
SL0553	E1801057-001DL	P519328	10-DEC-18	16:05:14
SL0556	E1801057-004DL	P519329	10-DEC-18	16:53:18
SL0559	E1801057-007DL	P519330	10-DEC-18	17:41:56
SL0560	E1801057-008DL	P519331	10-DEC-18	18:30:33
LCS	EQ1800498-02	P519332	10-DEC-18	19:19:11
DLCS	EQ1800498-03	P519333	10-DEC-18	20:07:48

E1801039

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181210A.SPL
Last Modified: Tuesday, December 11, 2018 06:34:31 Central Standard Time
Printed: Tuesday, December 11, 2018 06:34:33 Central Standard Time

Page Position (1, 1)

OPUS 4: P519319res

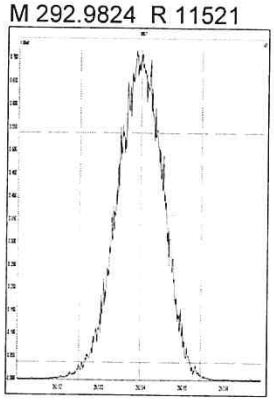
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/10/18	08:43	P519319	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 08:39
2		09:34	P519320	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		10:24	P519321	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		11:12	P519322	MB	EQ1800496-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:00	P519323	E1801056-023DL	E1801056-023DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		12:49	P519324	E1801056-057DL	E1801056-057DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		13:38	P519325	E1801056-063DL	E1801056-063DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		14:27	P519326	E1801058-017DL	E1801058-017DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		15:16	P519327	E1801058-018DL	E1801058-018DL	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:05	P519328	E1801057-001DL	E1801057-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		16:53	P519329	E1801057-004DL	E1801057-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		17:41	P519330	E1801057-007DL	E1801057-007DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		18:30	P519331	E1801057-008DL	E1801057-008DL	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		19:19	P519332	LCS	EQ1800498-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		20:07	P519333	DLCS	EQ1800498-03	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		21:04	P519334	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 21:04
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JC 12/11/18

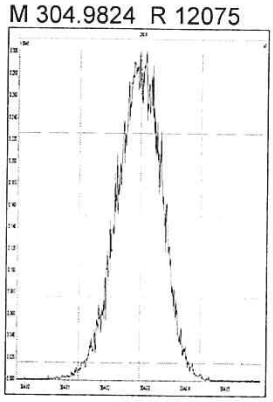
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:39:35 Central Standard Time

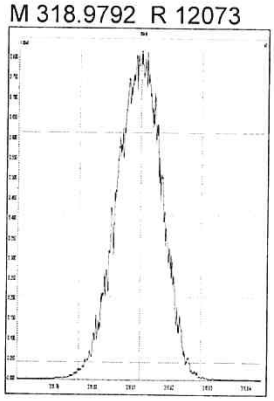
M 292.9824 R 11521



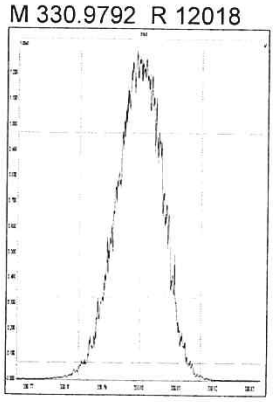
M 304.9824 R 12075



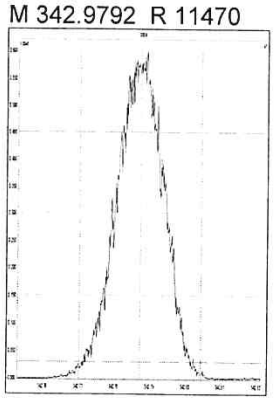
M 318.9792 R 12073



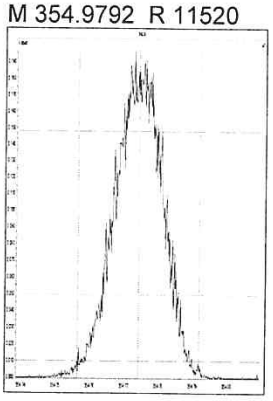
M 330.9792 R 12018



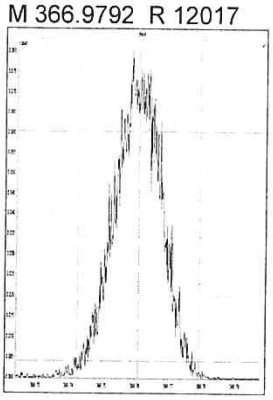
M 342.9792 R 11470



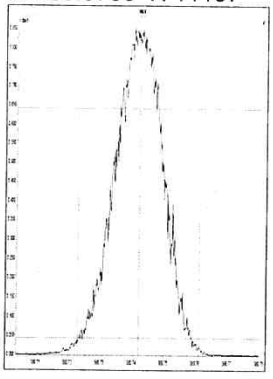
M 354.9792 R 11520



M 366.9792 R 12017



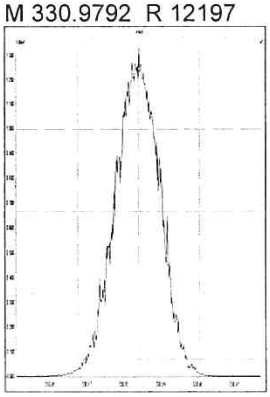
M 380.9760 R 11157



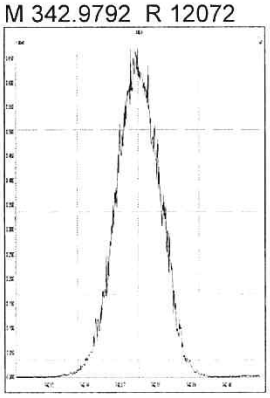
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:40:10 Central Standard Time

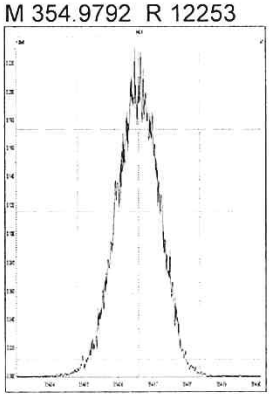
M 330.9792 R 12197



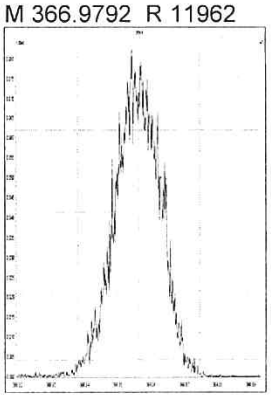
M 342.9792 R 12072



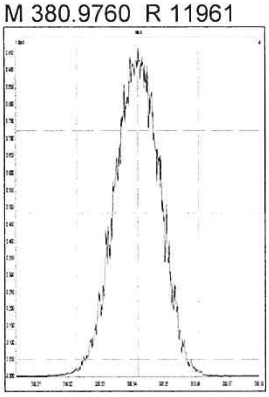
M 354.9792 R 12253



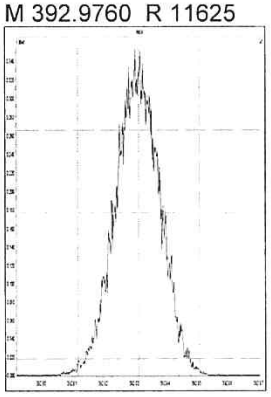
M 366.9792 R 11962



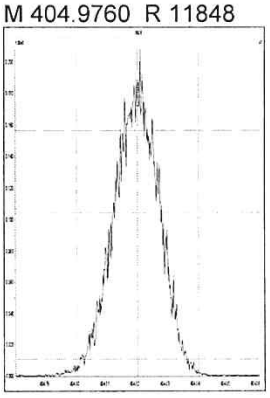
M 380.9760 R 11961



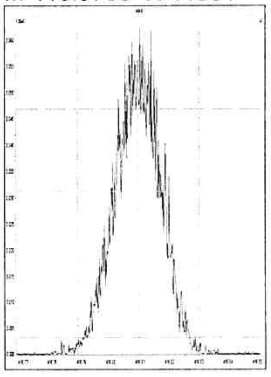
M 392.9760 R 11625



M 404.9760 R 11848



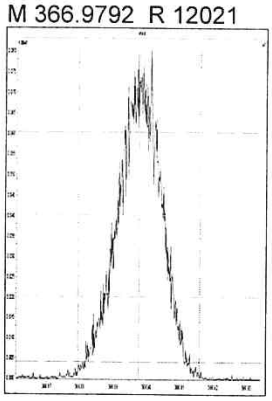
M 416.9760 R 11361



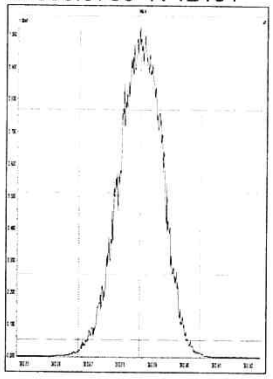
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:41:10 Central Standard Time

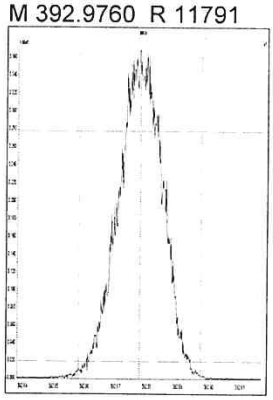
M 366.9792 R 12021



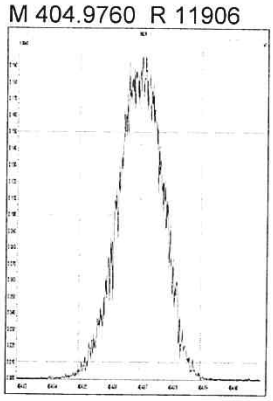
M 380.9760 R 12191



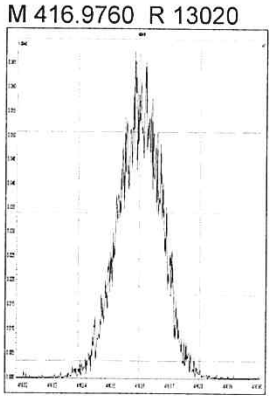
M 392.9760 R 11791



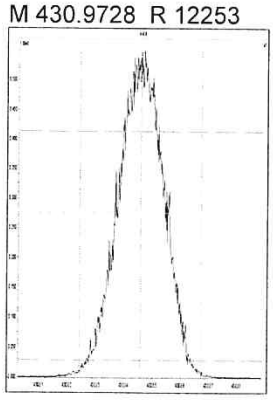
M 404.9760 R 11906



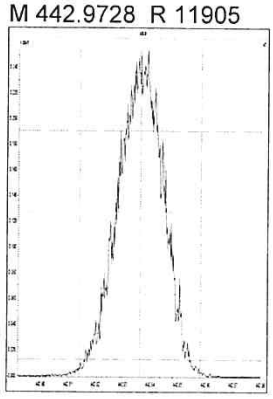
M 416.9760 R 13020



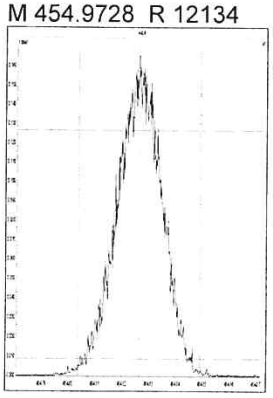
M 430.9728 R 12253



M 442.9728 R 11905



M 454.9728 R 12134

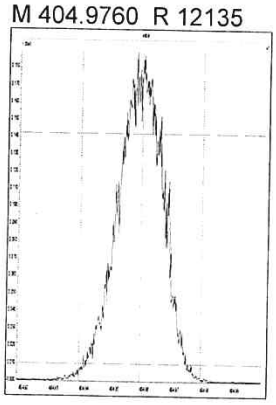


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

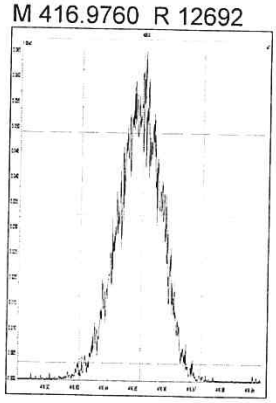
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:41:54 Central Standard Time

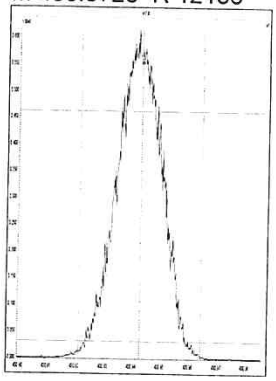
M 404.9760 R 12135



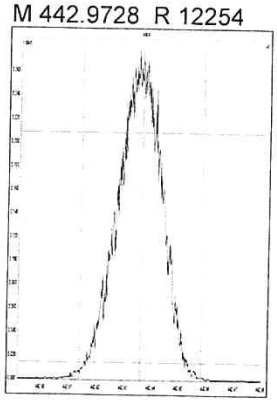
M 416.9760 R 12692



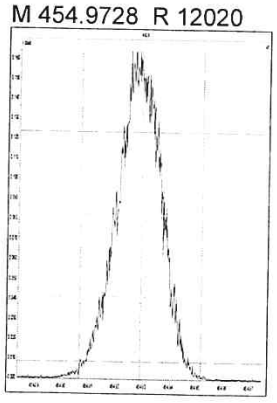
M 430.9728 R 12136



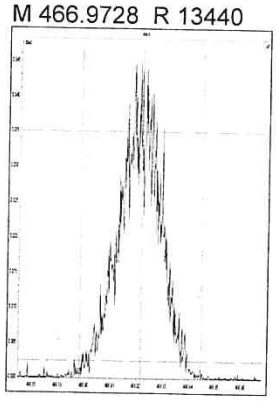
M 442.9728 R 12254



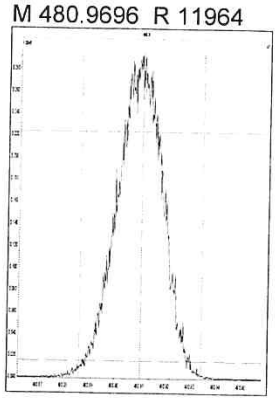
M 454.9728 R 12020



M 466.9728 R 13440



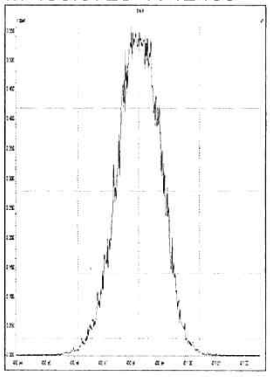
M 480.9696 R 11964



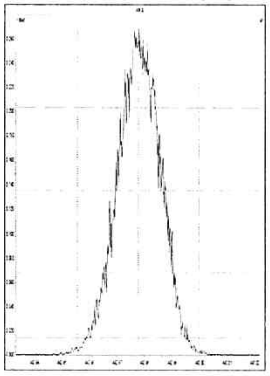
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:42:56 Central Standard Time

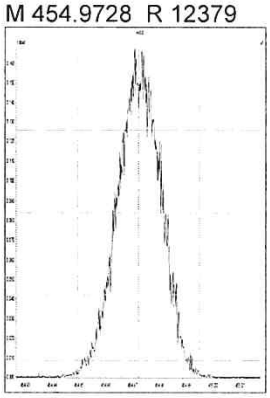
M 430.9728 R 12439



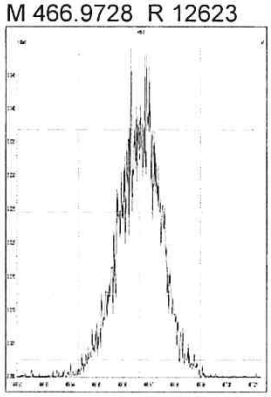
M 442.9728 R 12019



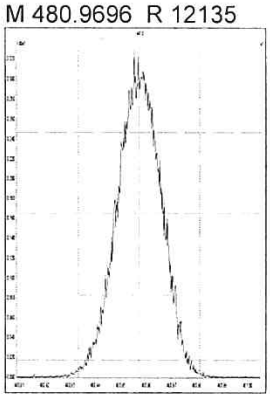
M 454.9728 R 12379



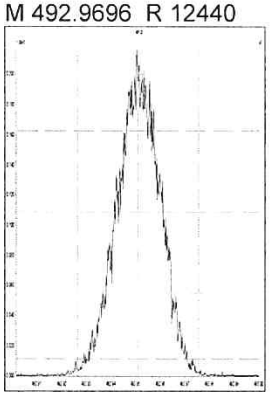
M 466.9728 R 12623



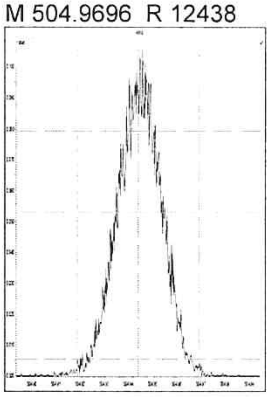
M 480.9696 R 12135



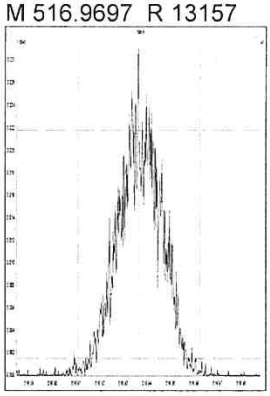
M 492.9696 R 12440



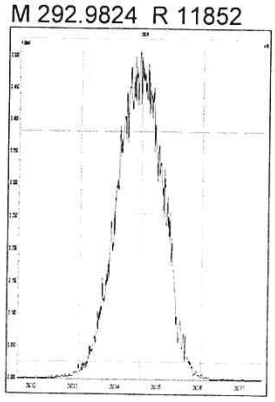
M 504.9696 R 12438



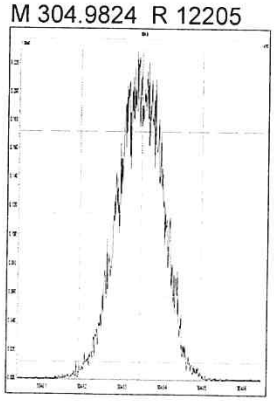
M 516.9697 R 13157



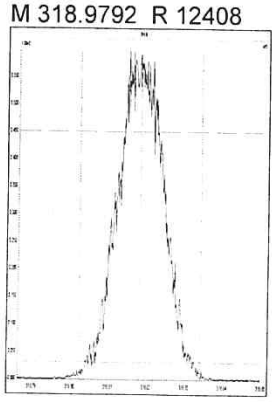
M 292.9824 R 11852



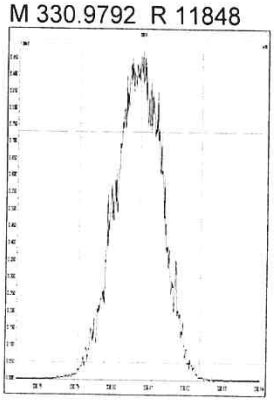
M 304.9824 R 12205



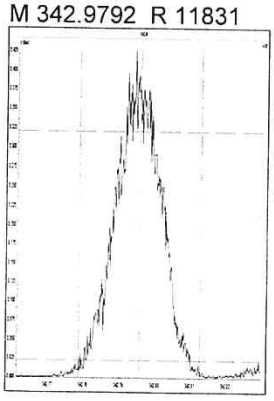
M 318.9792 R 12408



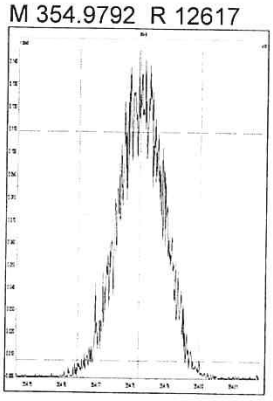
M 330.9792 R 11848



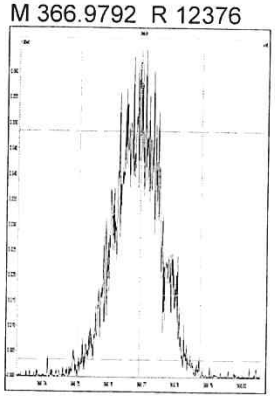
M 342.9792 R 11831



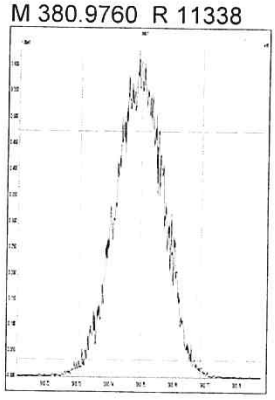
M 354.9792 R 12617



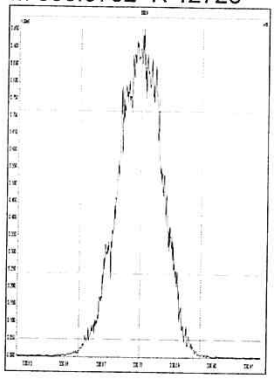
M 366.9792 R 12376



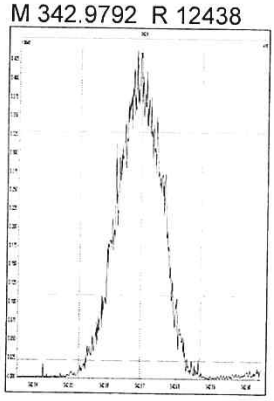
M 380.9760 R 11338



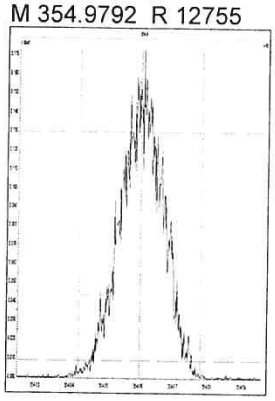
M 330.9792 R 12723



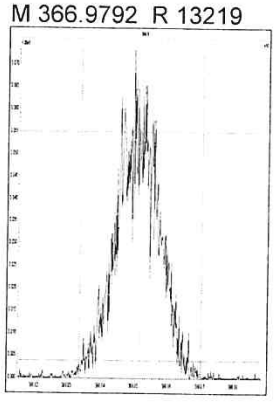
M 342.9792 R 12438



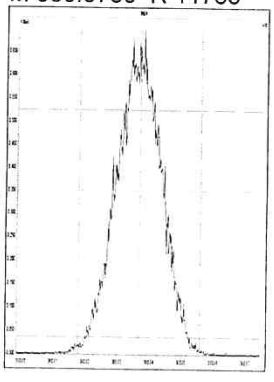
M 354.9792 R 12755



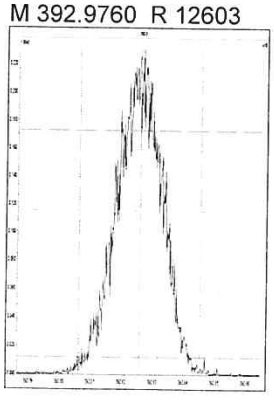
M 366.9792 R 13219



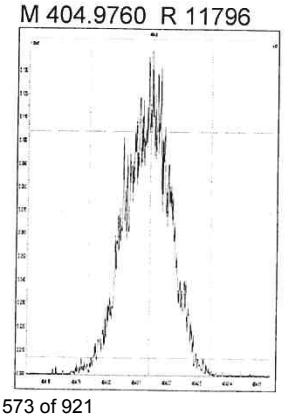
M 380.9760 R 11765



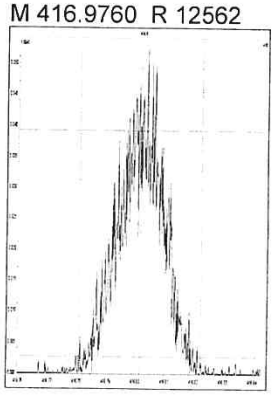
M 392.9760 R 12603



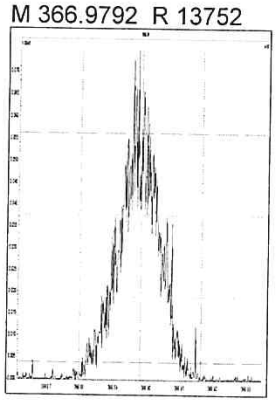
M 404.9760 R 11796



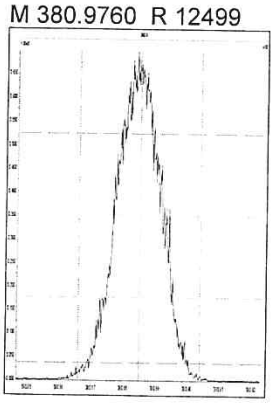
M 416.9760 R 12562



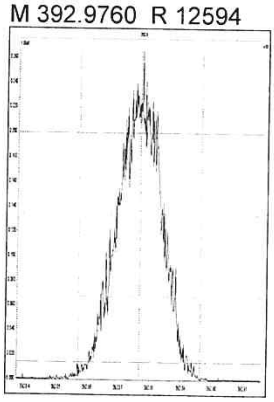
M 366.9792 R 13752



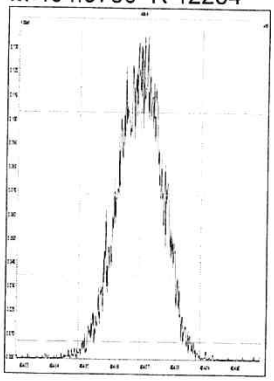
M 380.9760 R 12499



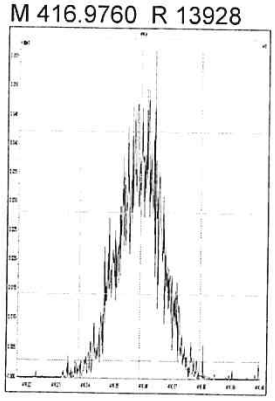
M 392.9760 R 12594



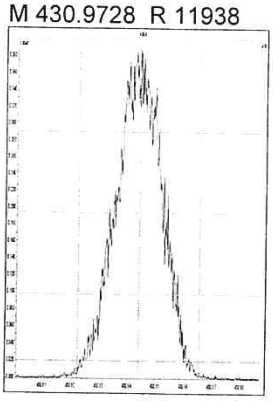
M 404.9760 R 12254



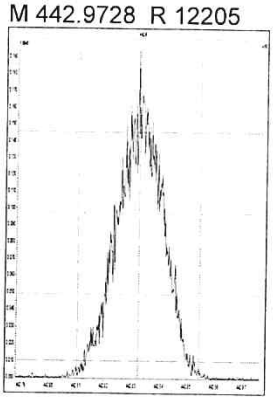
M 416.9760 R 13928



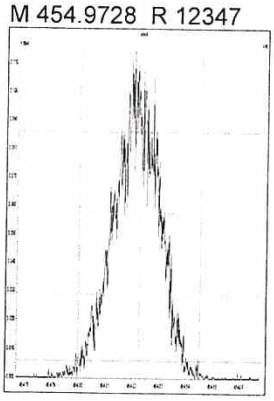
M 430.9728 R 11938



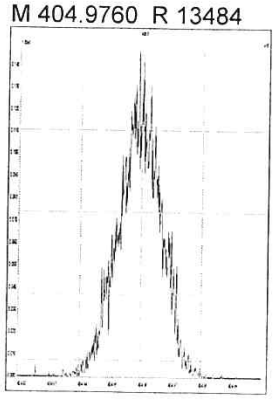
M 442.9728 R 12205



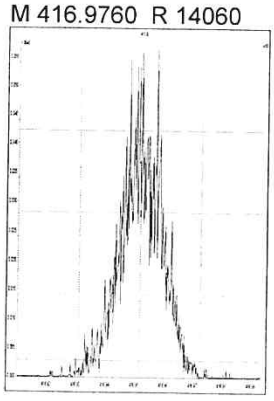
M 454.9728 R 12347



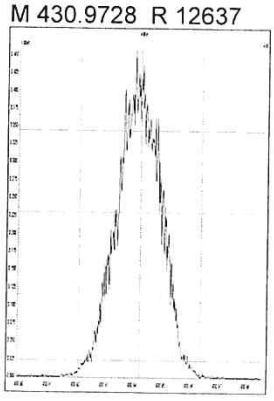
M 404.9760 R 13484



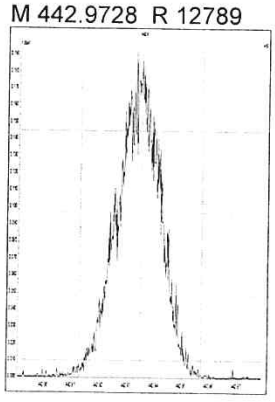
M 416.9760 R 14060



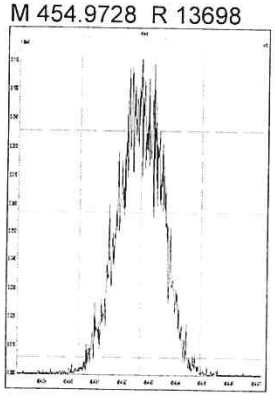
M 430.9728 R 12637



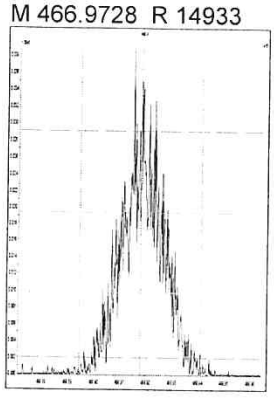
M 442.9728 R 12789



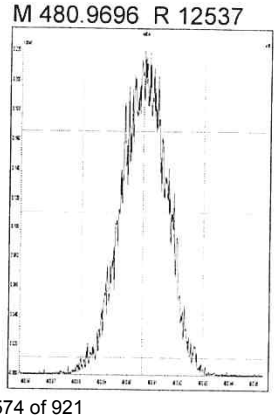
M 454.9728 R 13698



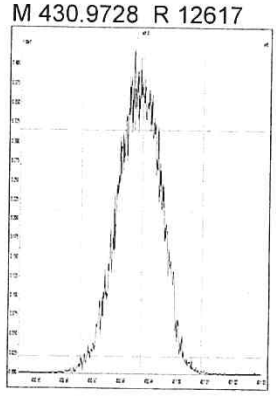
M 466.9728 R 14933



M 480.9696 R 12537

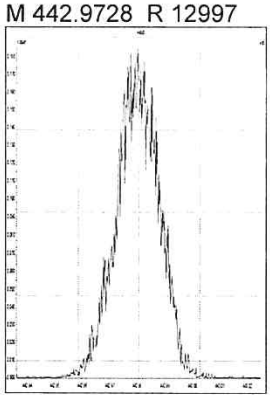


M 430.9728 R 12617

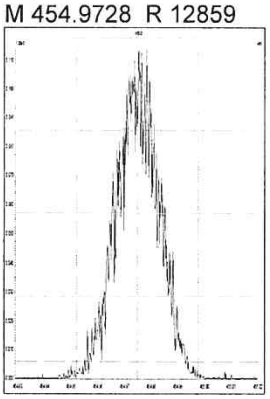


Printed: Monday, December 10, 2018 21:04:43 Central Standard Time

M 442.9728 R 12997



M 454.9728 R 12859



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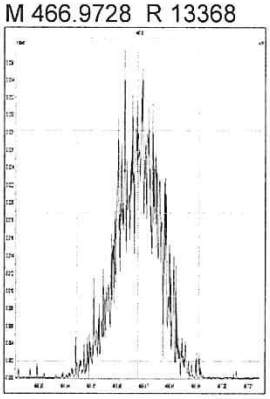
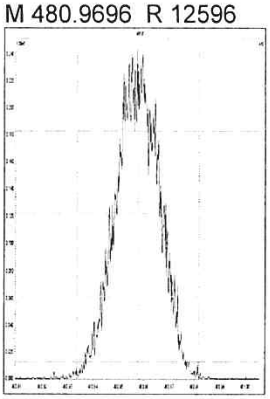


M 480.9696 R 12596



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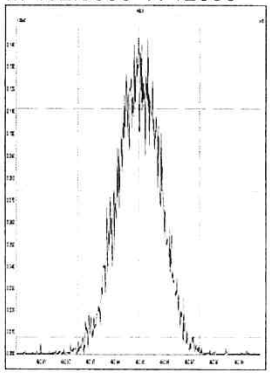

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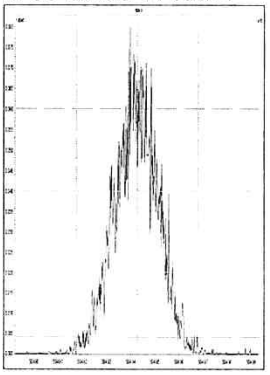
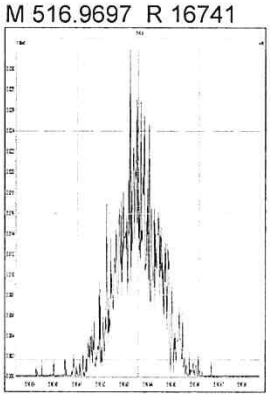


M 516.9697 R 16741



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

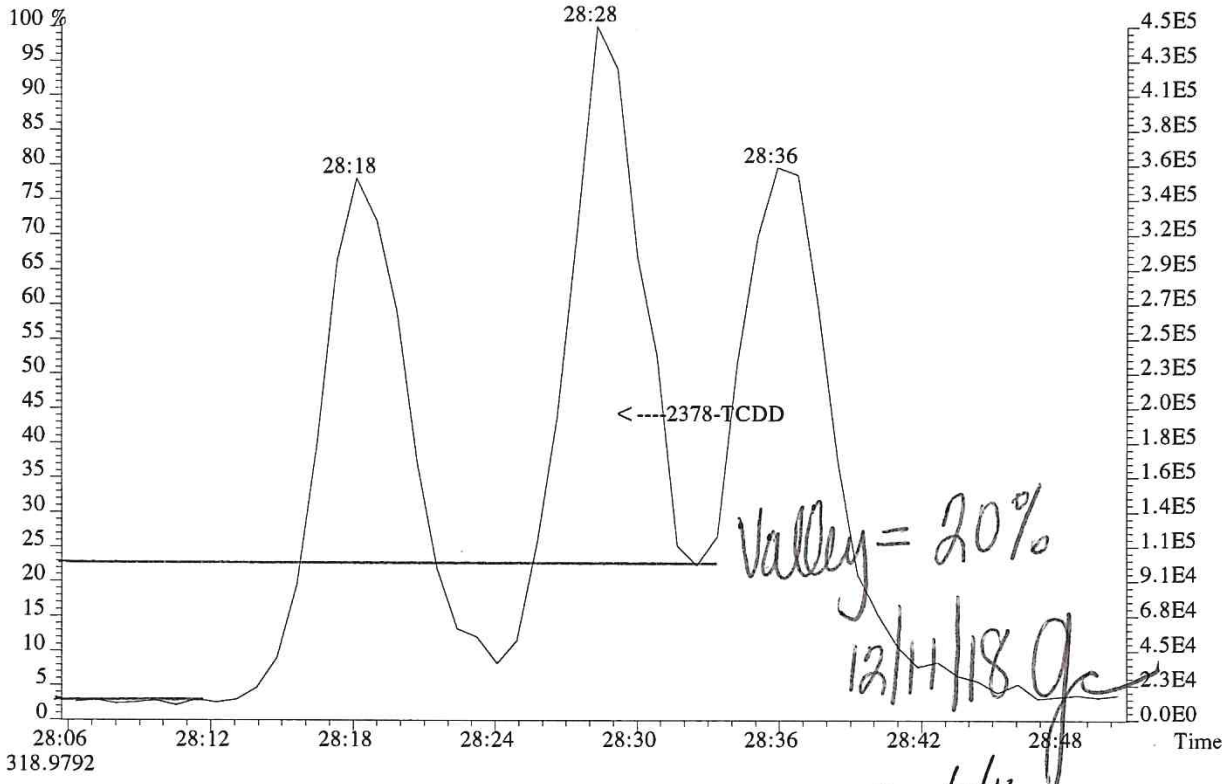
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519320
Date Analyzed: 10-DEC-2018
Time Analyzed: 09:34:53

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:12	29:40
TCDD	25:01	29:30
PeCDF	29:38	33:59
PeCDD	31:12	33:43
HxCDF	34:40	37:14
HxCDD	35:12	36:50
HpCDF	38:32	39:58
HpCDD	38:48	39:30

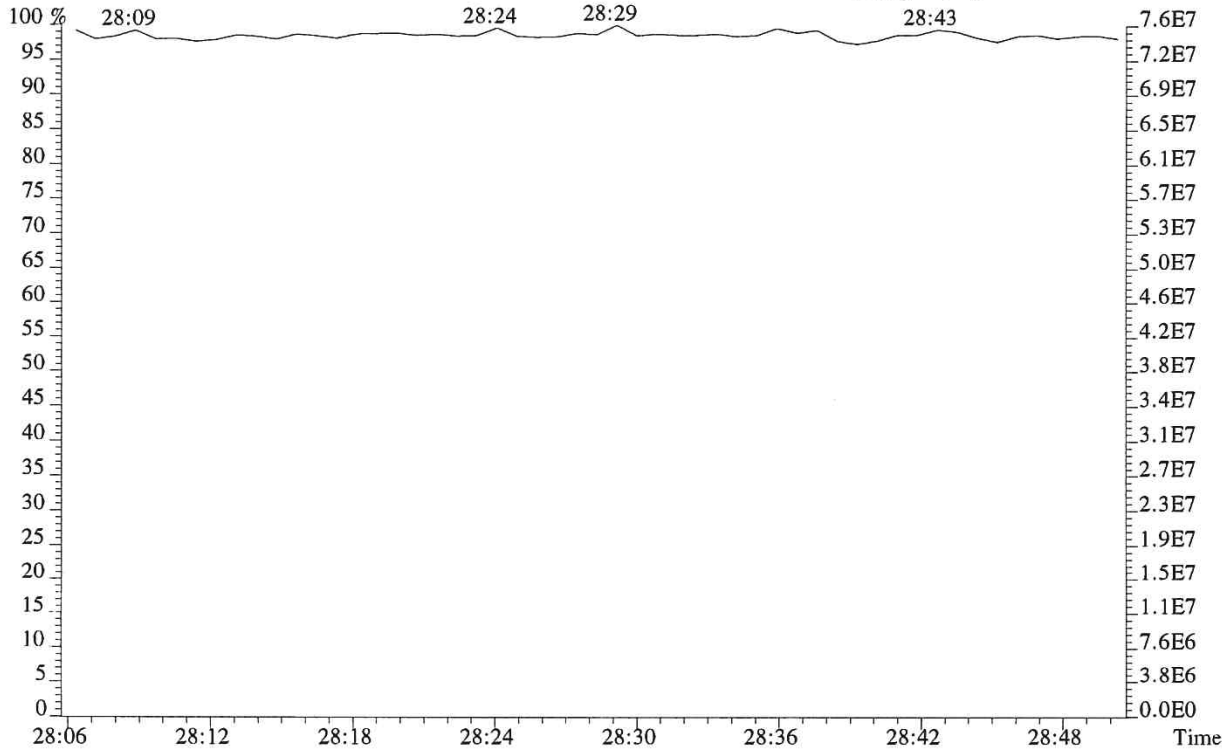
% Valley 2378-TCDD: 20 %

File:P519320 #1-587 Acq:10-DEC-2018 09:34:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LM 12/11/18



011508

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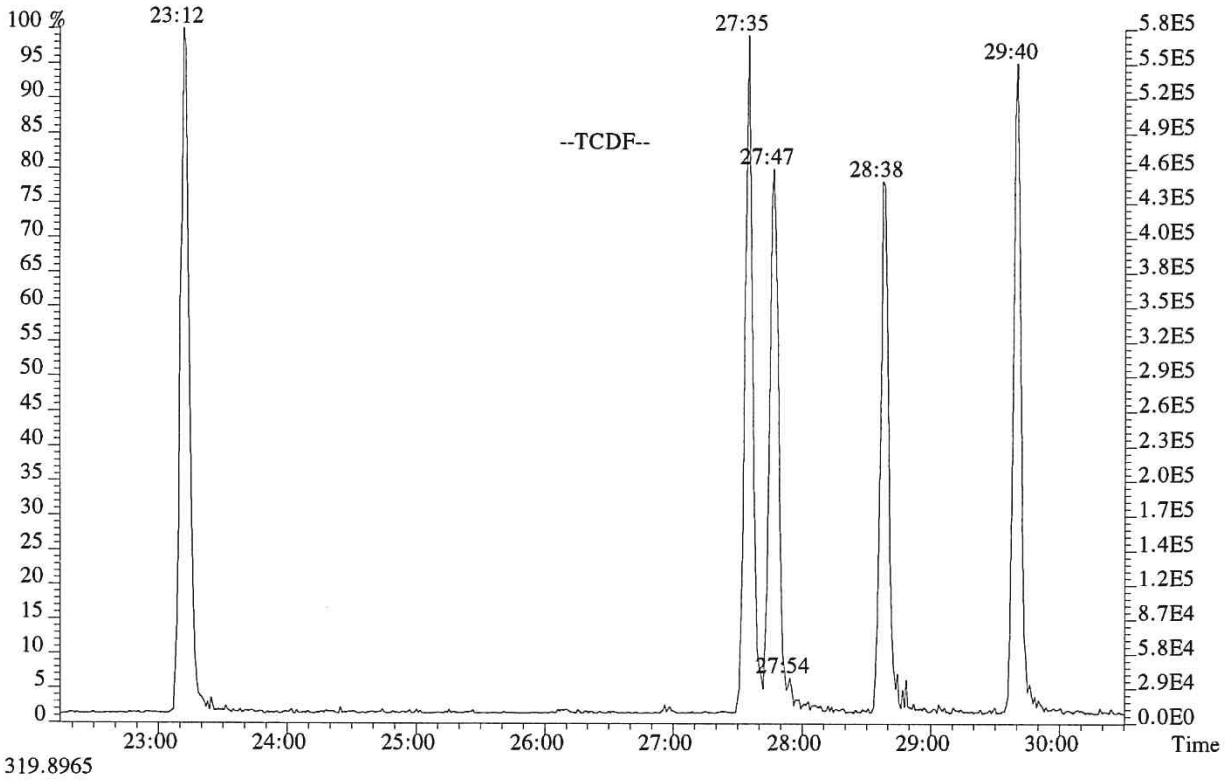
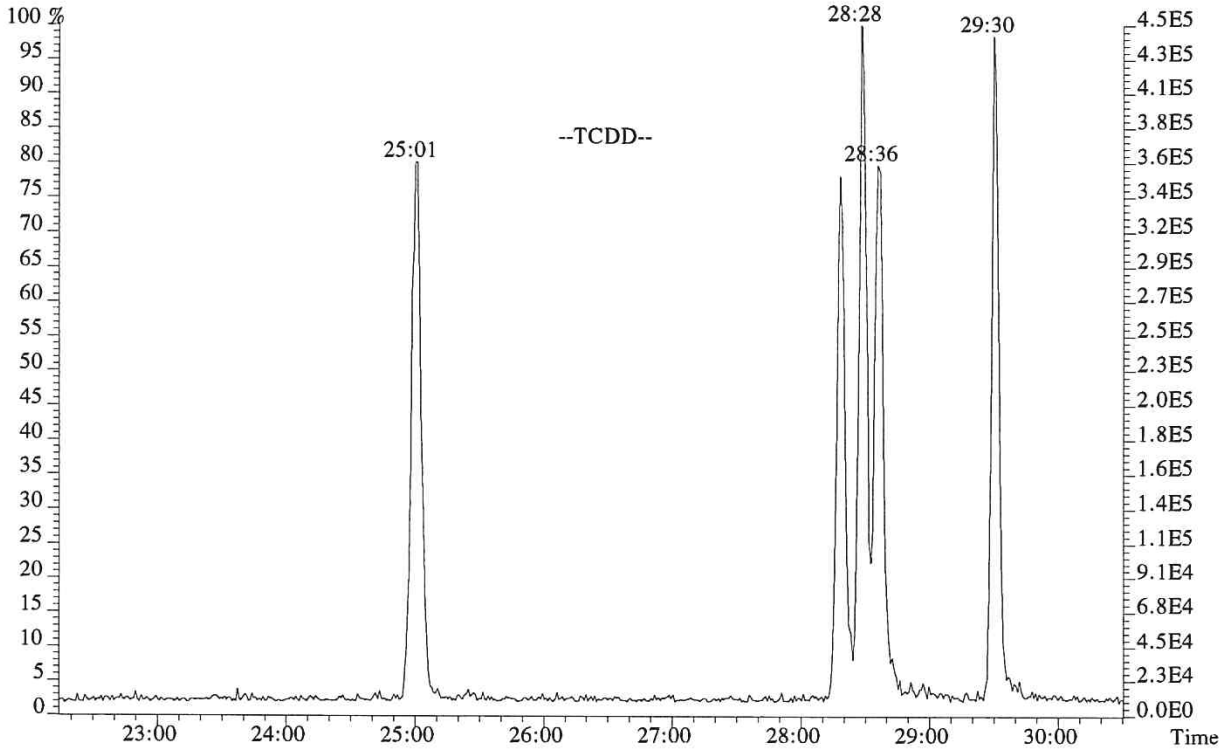
303.9016



319.8965



011509

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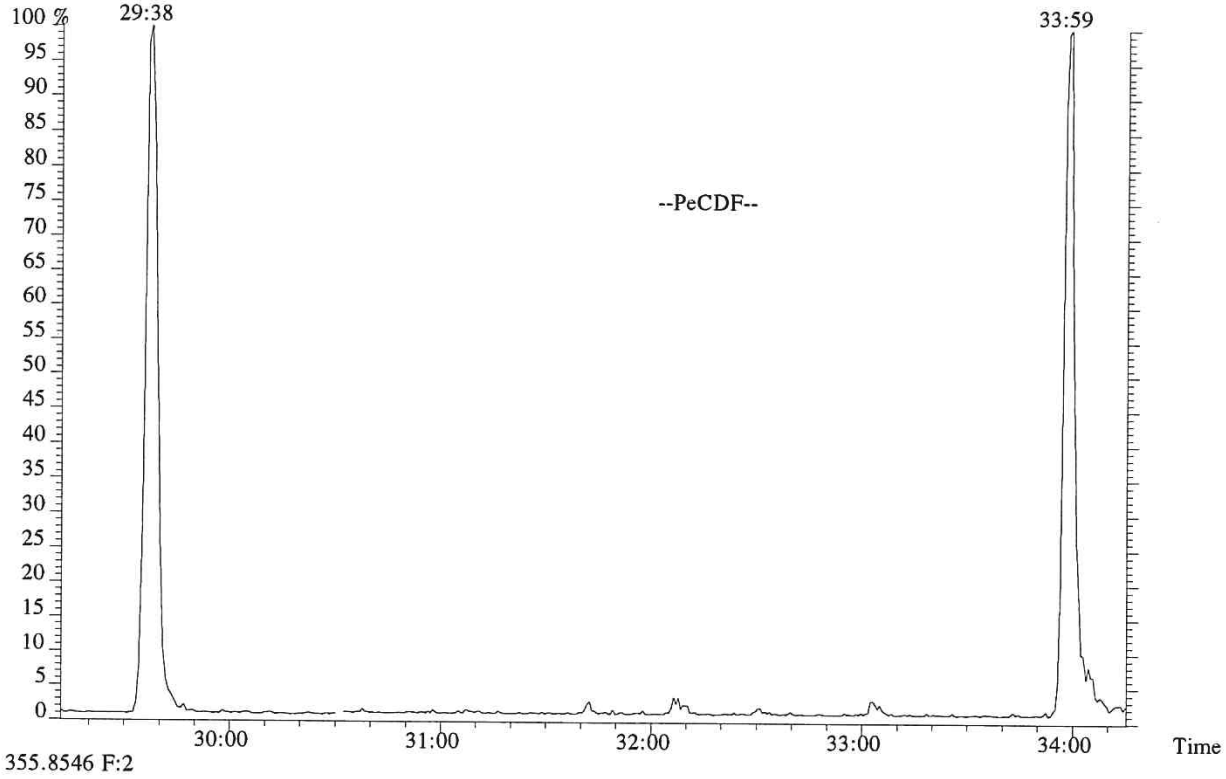
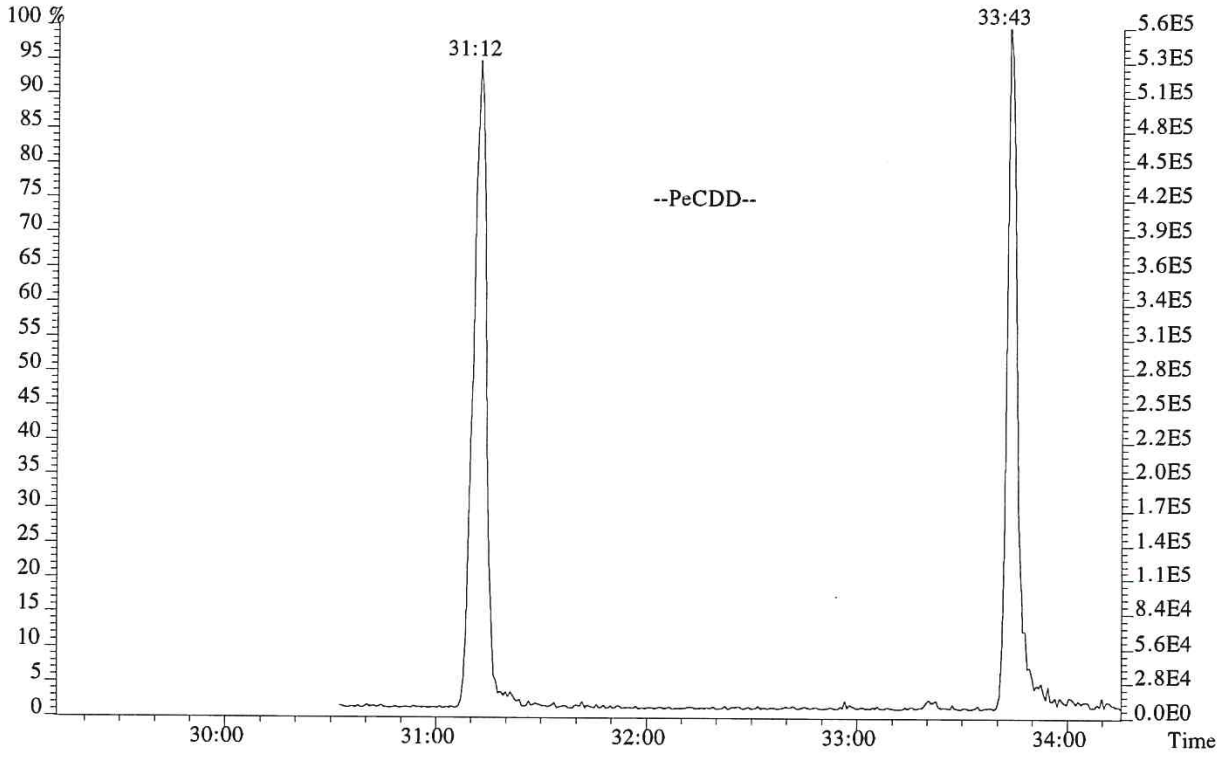
339.8597,339.8597 F:2



355.8546 F:2



011510

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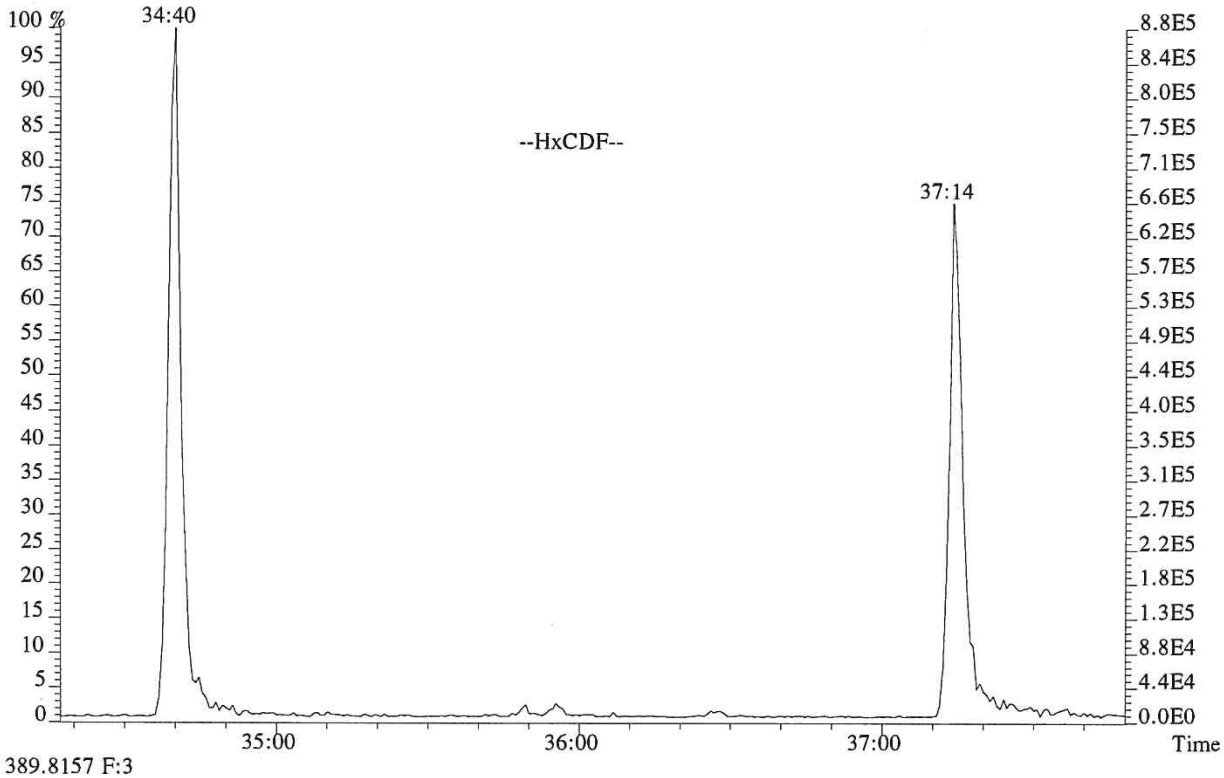
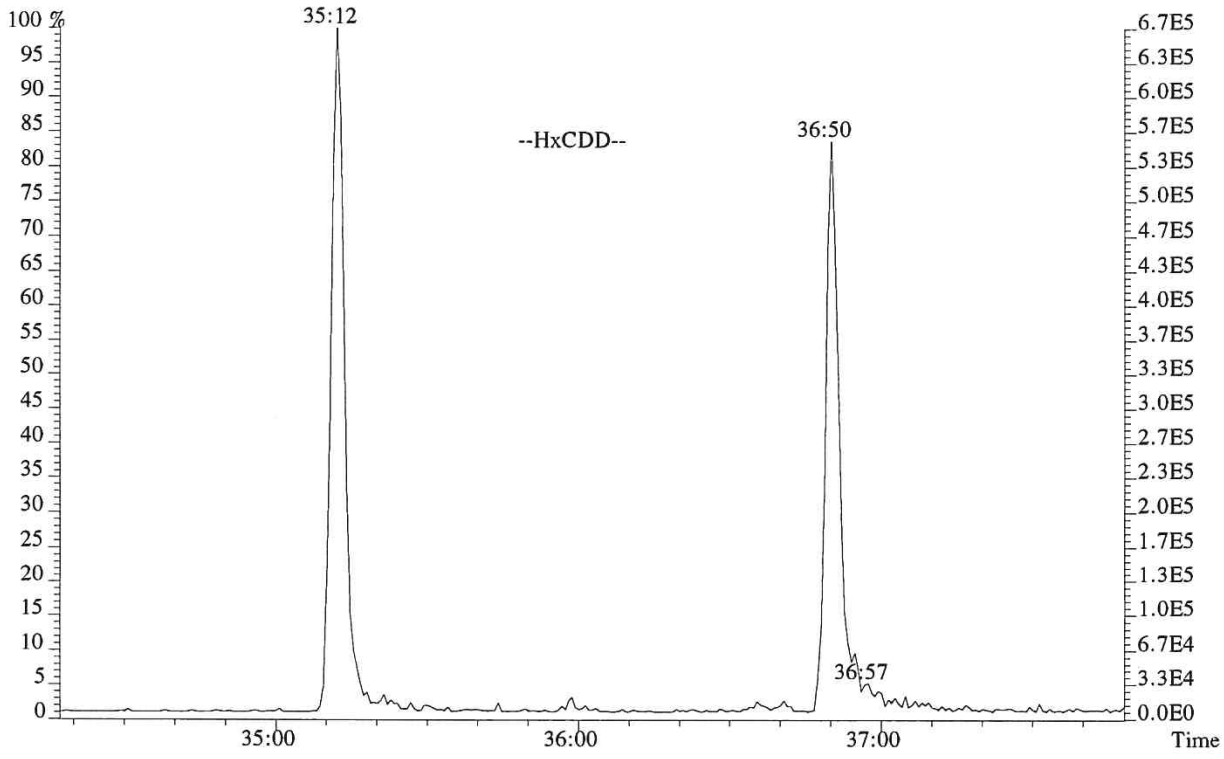
Sample#1 Exp:192977
373.8208 F:3

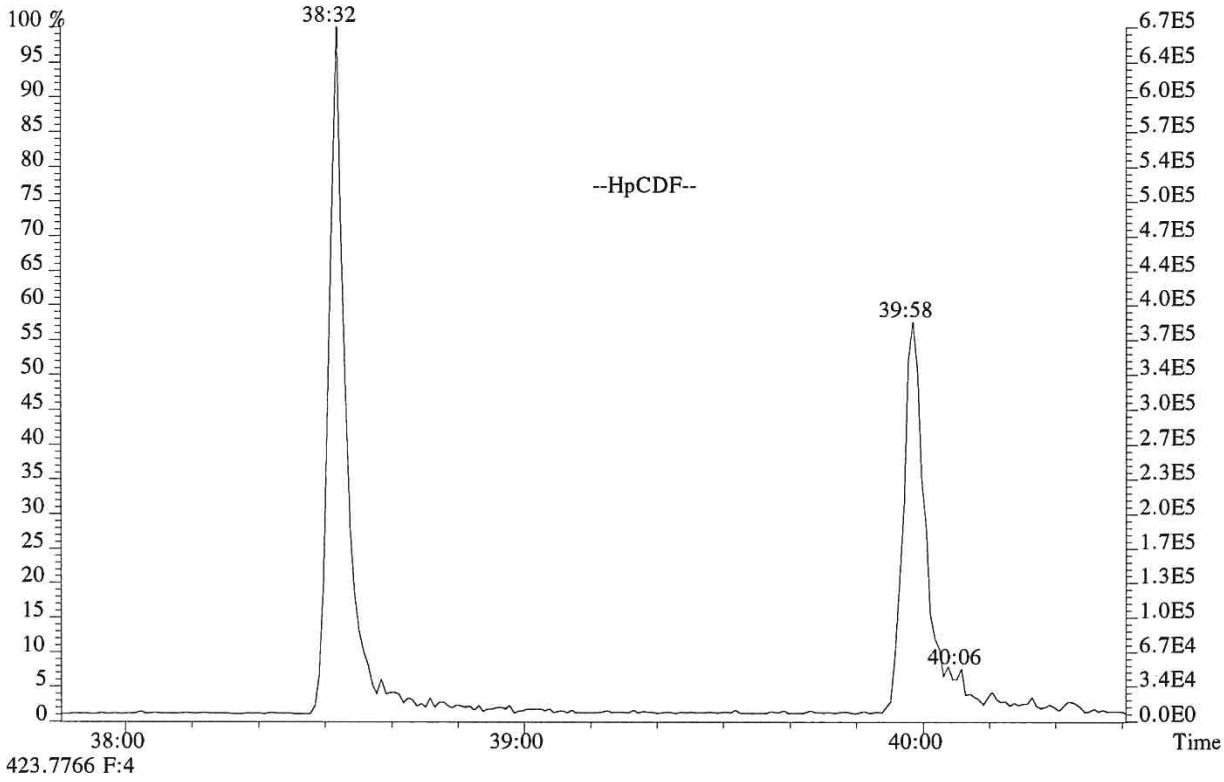


389.8157 F:3

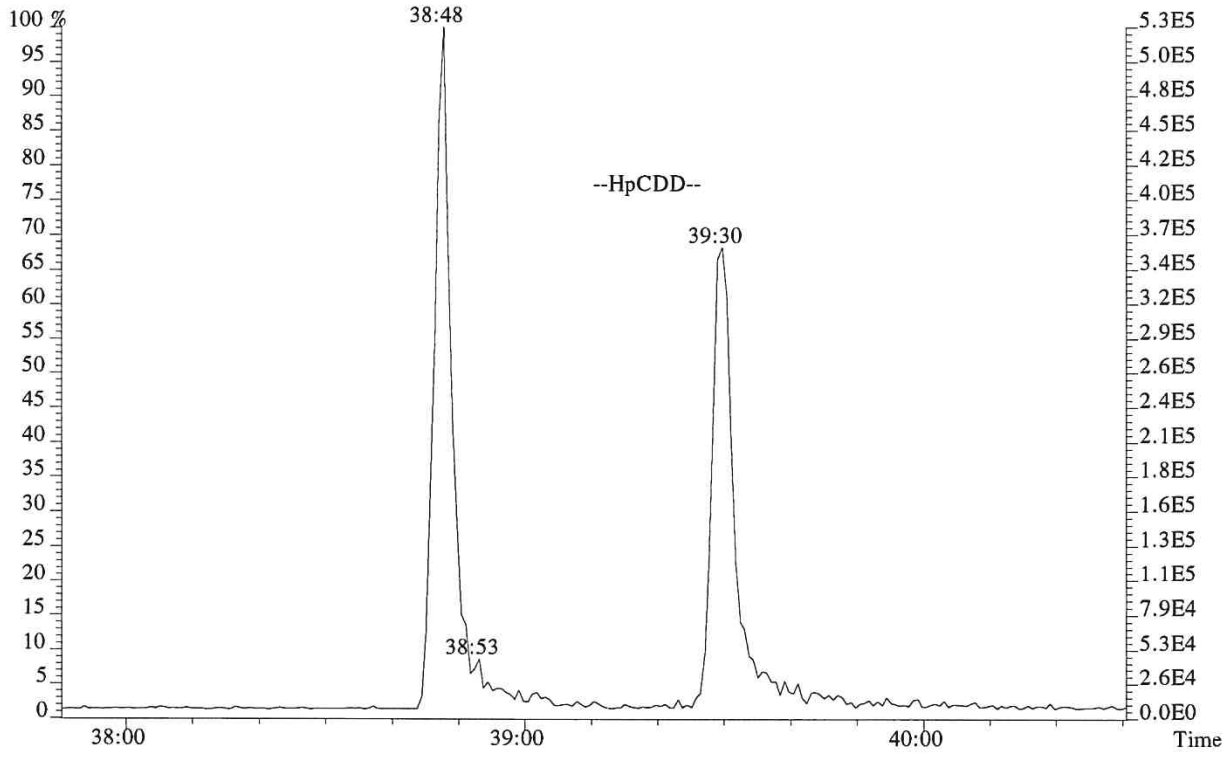


011511

File:P519320 #1-241 Acq:10-DEC-2018 09:34:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



011512

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519319 Analysis Date: 10-DEC-18 Time: 08:43:37

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.8	7.8 - 12.9	-1.7
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	-1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	54	41 - 61	7.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	50	43 - 58	-0.2
OCDD	M+2/M+4	0.90	0.76-1.02	99	79 - 126	-0.7
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.6	8.4 - 12.0	-3.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	-0.5
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	50	41 - 61	-0.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	50	45 - 56	0.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	-0.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	50	44 - 57	1.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	50	45 - 55	0.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.4
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-2.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519319 Analysis Date: 10-DEC-18 Time: 08:43:37

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-2.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	107	62 - 160	6.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	86	85 - 117	-14.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	101	85 - 118	0.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	94	72 - 138	-5.8
13C-OCDD	M+2/M+4	0.90	0.76-1.02	216	96 - 415	8.2
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	93	71 - 140	-7.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	103	76 - 130	2.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	106	77 - 130	6.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	83	76 - 131	-17.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	70 - 143	-4.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	85	74 - 135	-15.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	91	73 - 137	-9.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	95	78 - 129	-4.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	89	77 - 129	-11.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.5	7.8 - 12.7	-4.7

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519319 Samp: 1 Inj: 1 Acquired: 10-DEC-18 08:43:37
Processed: 11-DEC-18 15:18:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:48	5.306e+03	7.058e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:08	4.475e+04	2.952e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.329e+04	2.830e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.408e+04	2.857e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	4.159e+04	3.445e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.540e+04	2.999e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:12	2.969e+04	2.408e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	3.257e+04	3.146e+04	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	2.356e+04	2.347e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:35	3.990e+04	4.514e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:37	4.077e+03	5.309e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	2.919e+04	1.885e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	2.353e+04	1.866e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	2.847e+04	2.253e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.836e+04	2.256e+04	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:28	2.187e+04	2.028e+04	1.08	yes	no	1.025
17	Unk	OCDD	42:23	3.386e+04	3.752e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:46	6.030e+04	7.611e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:07	9.068e+04	5.677e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	9.205e+04	5.837e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	3.514e+04	6.920e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	4.665e+04	8.929e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	3.964e+04	7.706e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	3.177e+04	6.190e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	2.921e+04	6.472e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:56	2.258e+04	5.193e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:35	3.909e+04	4.892e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	6.261e+04	3.883e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	4.579e+04	3.531e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	5.463e+04	4.289e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	4.307e+04	3.937e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:23	6.087e+04	6.772e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	4.342e+04	5.398e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	5.713e+04	4.493e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:37	9.407e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519319 Samp: 1 Inj: 1 Acquired: 10-DEC-18 08:43:37
Processed: 11-DEC-18 15:18:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.83e+05	6.04e+02	1.5e+03	1.18e+06	2.18e+03	5.4e+02
2	1,2,3,7,8-PeCDF	7.71e+06	4.68e+02	1.6e+04	5.02e+06	3.74e+03	1.3e+03
3	2,3,4,7,8-PeCDF	7.80e+06	4.68e+02	1.7e+04	5.22e+06	3.74e+03	1.4e+03
4	1,2,3,4,7,8-HxCDF	6.80e+06	5.16e+02	1.3e+04	5.62e+06	6.20e+02	9.1e+03
5	1,2,3,6,7,8-HxCDF	7.29e+06	5.16e+02	1.4e+04	6.03e+06	6.20e+02	9.7e+03
6	2,3,4,6,7,8-HxCDF	6.83e+06	5.16e+02	1.3e+04	5.61e+06	6.20e+02	9.0e+03
7	1,2,3,7,8,9-HxCDF	5.01e+06	5.16e+02	9.7e+03	4.06e+06	6.20e+02	6.6e+03
8	1,2,3,4,6,7,8-HpCDF	5.95e+06	4.45e+03	1.3e+03	5.72e+06	4.35e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.44e+06	4.45e+03	7.7e+02	3.46e+06	4.35e+03	8.0e+02
10	OCDF	4.72e+06	2.92e+02	1.6e+04	5.36e+06	7.40e+02	7.2e+03
11	2,3,7,8-TCDD	7.27e+05	1.90e+03	3.8e+02	9.05e+05	9.20e+02	9.8e+02
12	1,2,3,7,8-PeCDD	5.13e+06	6.08e+02	8.4e+03	3.28e+06	3.20e+02	1.0e+04
13	1,2,3,4,7,8-HxCDD	4.96e+06	4.60e+02	1.1e+04	3.94e+06	9.92e+02	4.0e+03
14	1,2,3,6,7,8-HxCDD	5.01e+06	4.60e+02	1.1e+04	3.94e+06	9.92e+02	4.0e+03
15	1,2,3,7,8,9-HxCDD	4.61e+06	4.60e+02	1.0e+04	3.69e+06	9.92e+02	3.7e+03
16	1,2,3,4,6,7,8-HpCDD	3.48e+06	3.68e+02	9.5e+03	3.36e+06	3.52e+02	9.5e+03
17	OCDD	3.92e+06	2.24e+02	1.7e+04	4.35e+06	1.48e+02	2.9e+04
18	13C-2,3,7,8-TCDF	1.01e+07	8.30e+03	1.2e+03	1.28e+07	5.92e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	1.51e+07	8.24e+02	1.8e+04	9.47e+06	4.32e+02	2.2e+04
20	13C-2,3,4,7,8-PeCDF	1.68e+07	8.24e+02	2.0e+04	1.07e+07	4.32e+02	2.5e+04
21	13C-1,2,3,4,7,8-HxCDF	6.89e+06	3.28e+02	2.1e+04	1.35e+07	7.16e+02	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	8.06e+06	3.28e+02	2.5e+04	1.54e+07	7.16e+02	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	7.55e+06	3.28e+02	2.3e+04	1.45e+07	7.16e+02	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	5.37e+06	3.28e+02	1.6e+04	1.04e+07	7.16e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.27e+06	6.60e+03	8.0e+02	1.18e+07	1.72e+04	6.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.32e+06	6.60e+03	5.0e+02	7.49e+06	1.72e+04	4.4e+02
27	13C-2,3,7,8-TCDD	6.93e+06	8.50e+03	8.1e+02	8.64e+06	3.41e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	1.07e+07	1.41e+03	7.6e+03	6.64e+06	1.12e+03	5.9e+03
29	13C-1,2,3,4,7,8-HxCDD	9.59e+06	1.84e+03	5.2e+03	7.34e+06	5.72e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	9.49e+06	1.84e+03	5.2e+03	7.55e+06	5.72e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.80e+06	4.44e+02	1.5e+04	6.32e+06	6.20e+02	1.0e+04
32	13C-OCDD	6.94e+06	4.08e+02	1.7e+04	7.67e+06	2.36e+02	3.2e+04
33	13C-1,2,3,4-TCDD	7.91e+06	8.50e+03	9.3e+02	9.81e+06	3.41e+03	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	8.95e+06	1.84e+03	4.9e+03	7.11e+06	5.72e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.64e+06	1.46e+03	1.1e+03			

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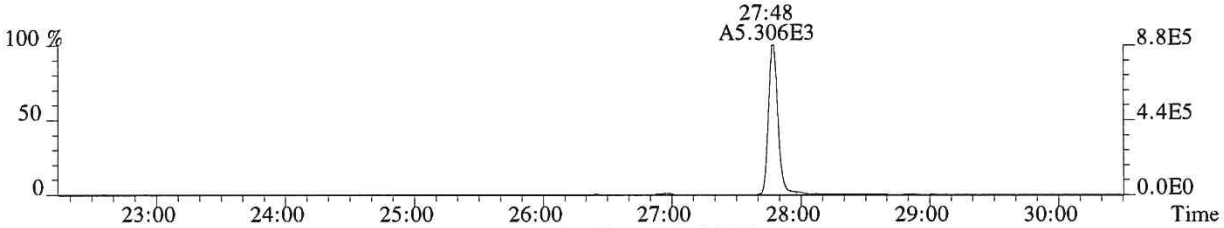
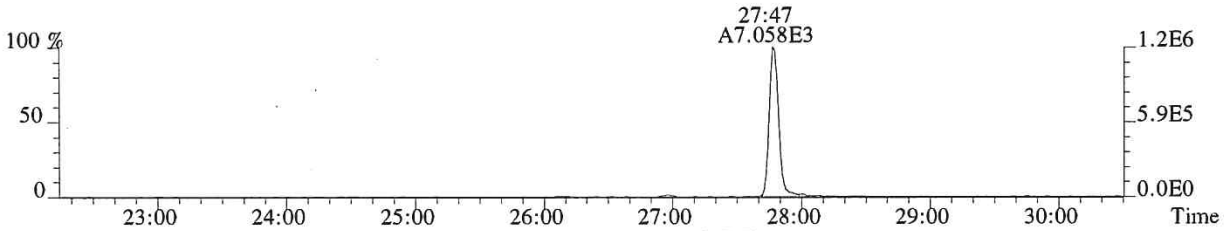
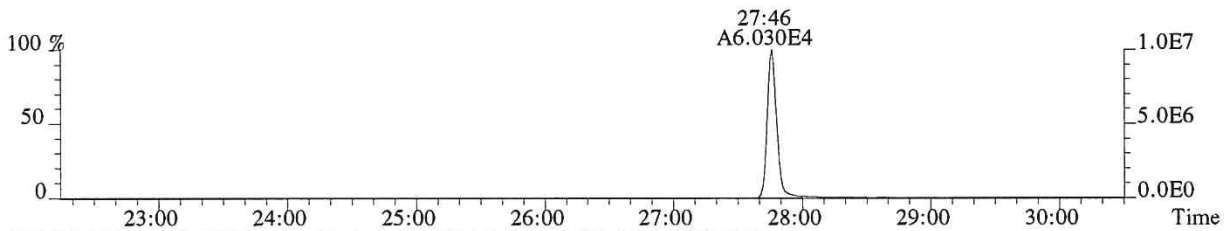
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



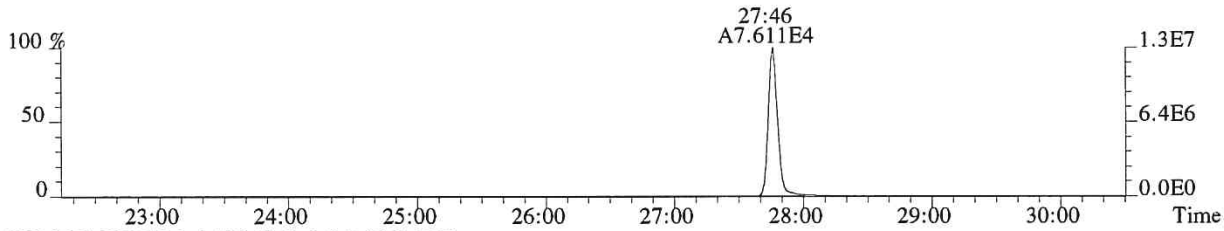
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



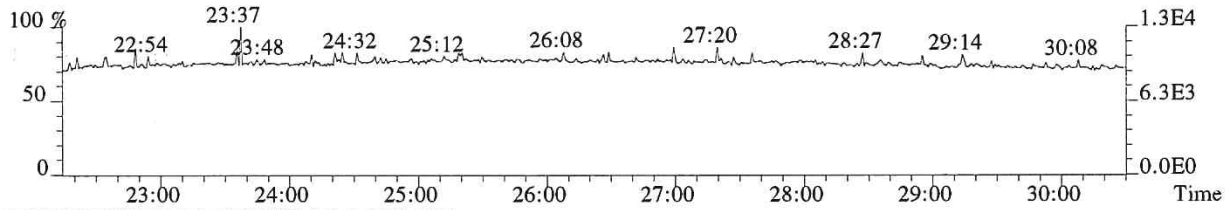
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8304.0,1.00%,F,T)



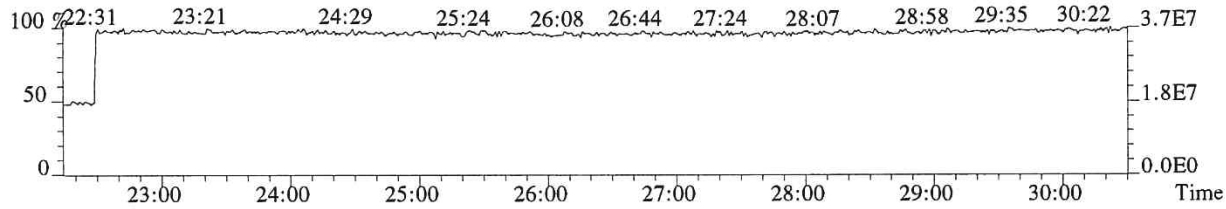
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5916.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

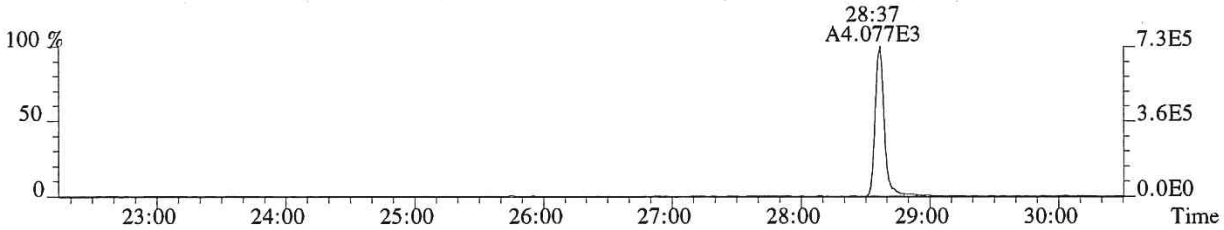


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

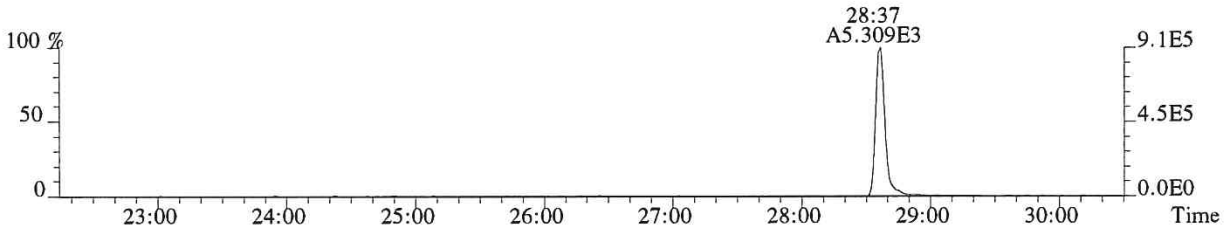


011517

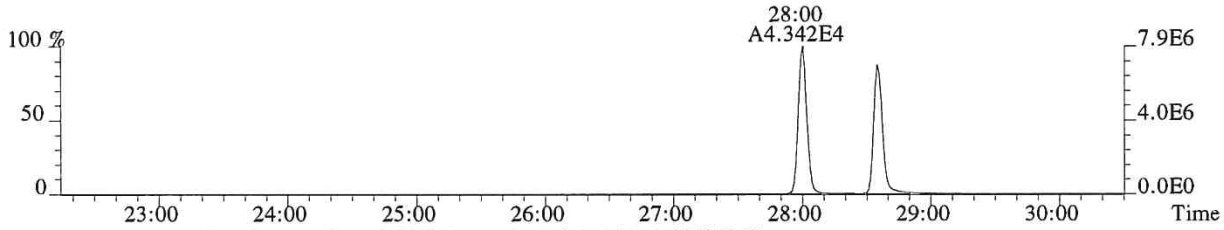
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



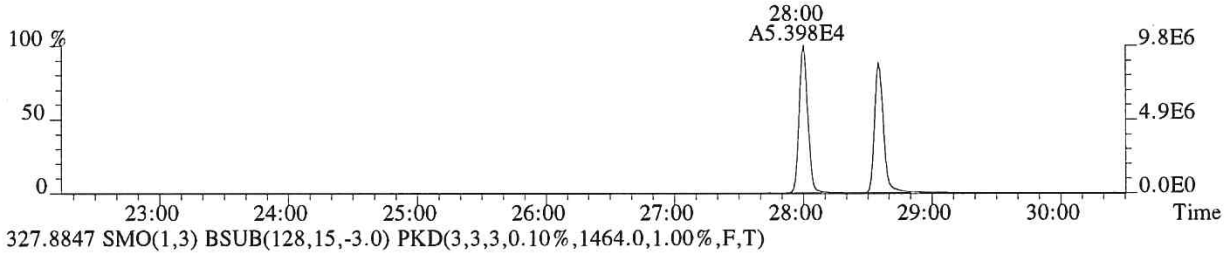
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



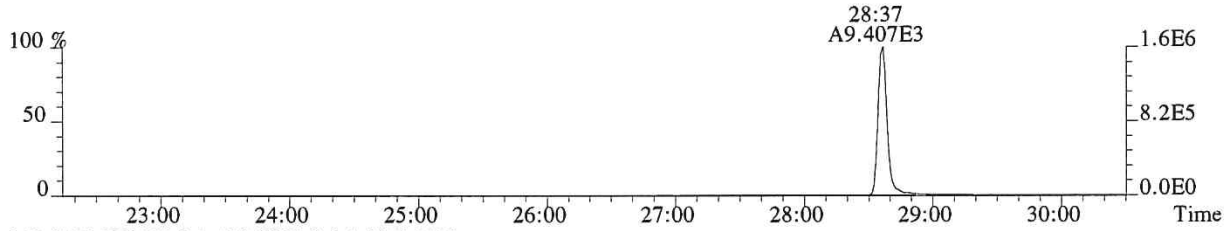
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8504.0,1.00%,F,T)



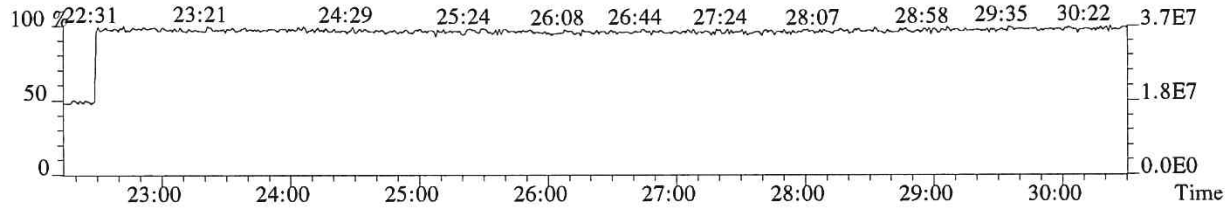
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)

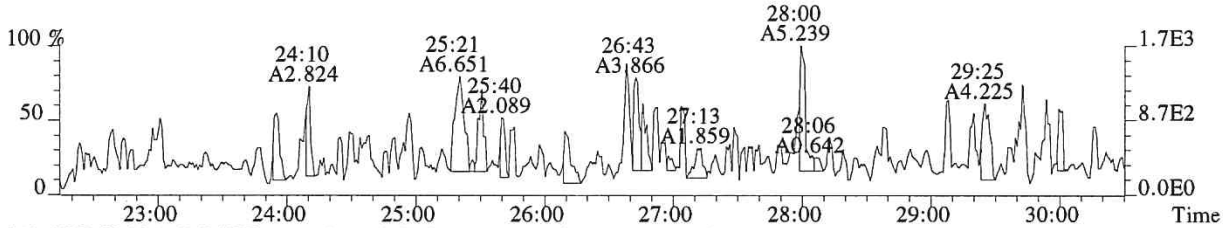


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

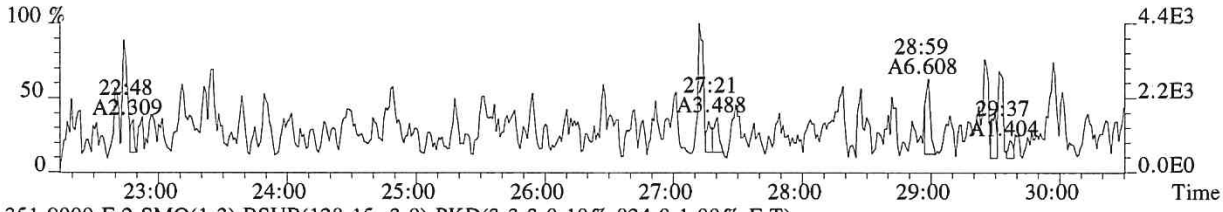


011518

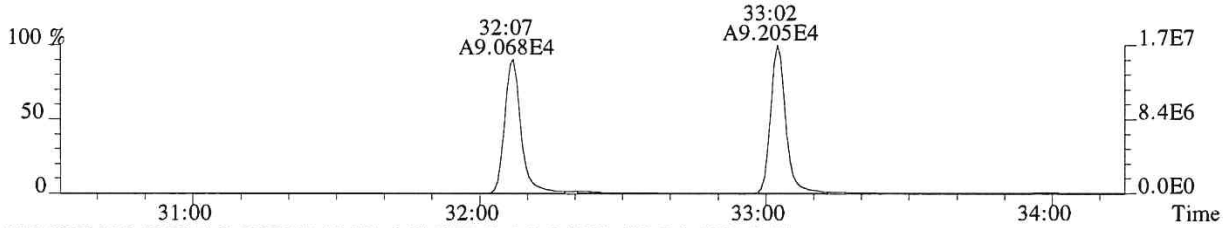
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



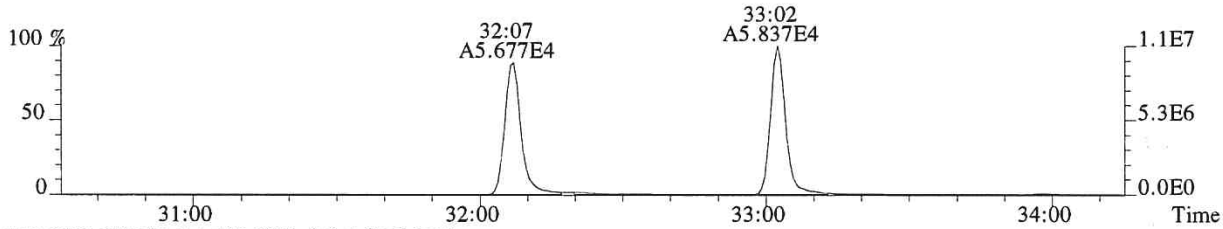
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



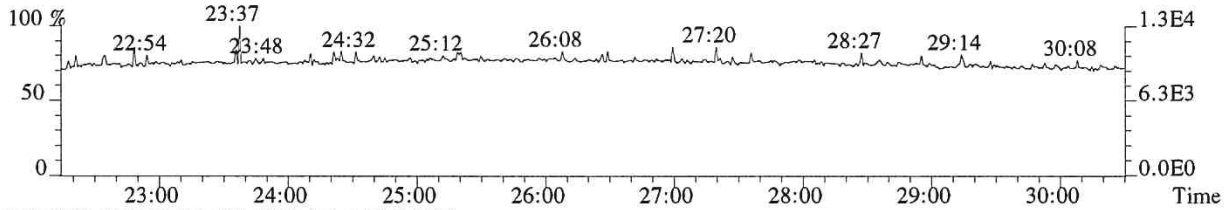
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



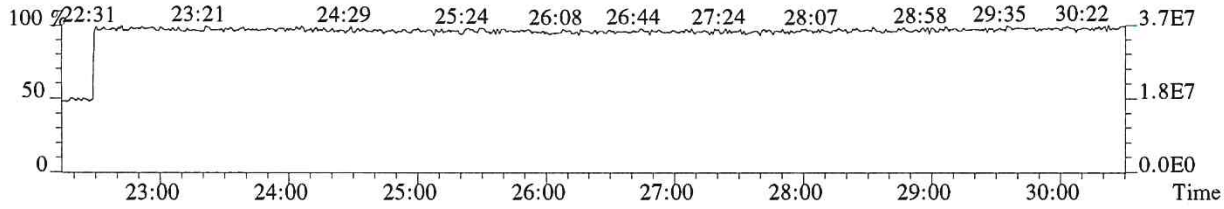
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

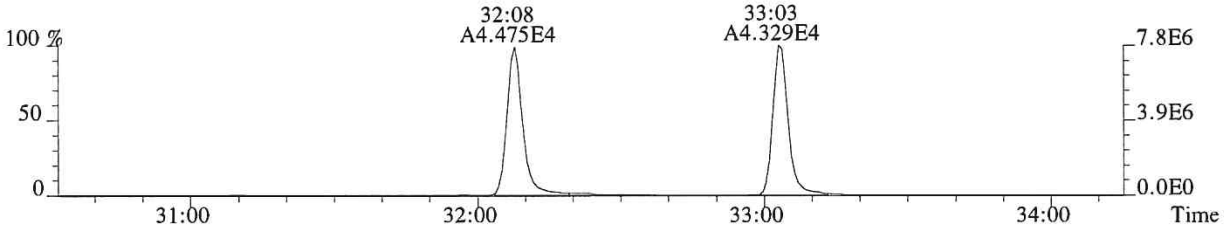


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

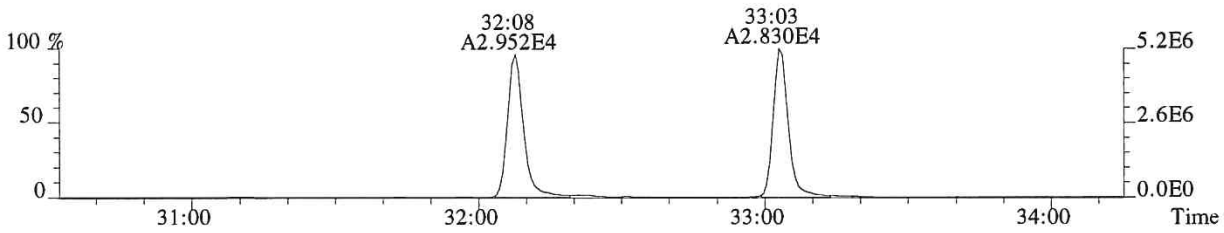


011519

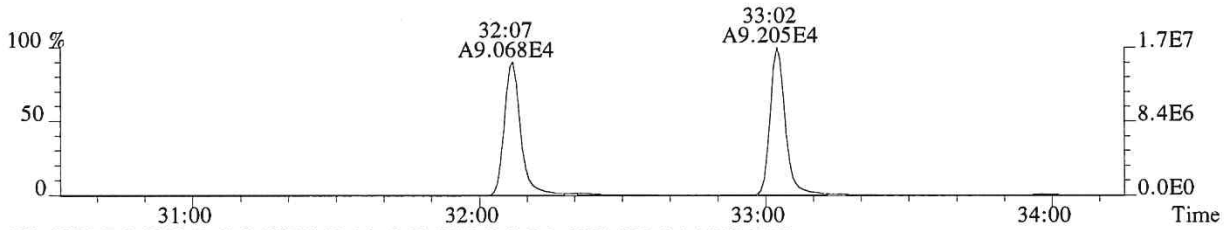
File:P519319 #1-335 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



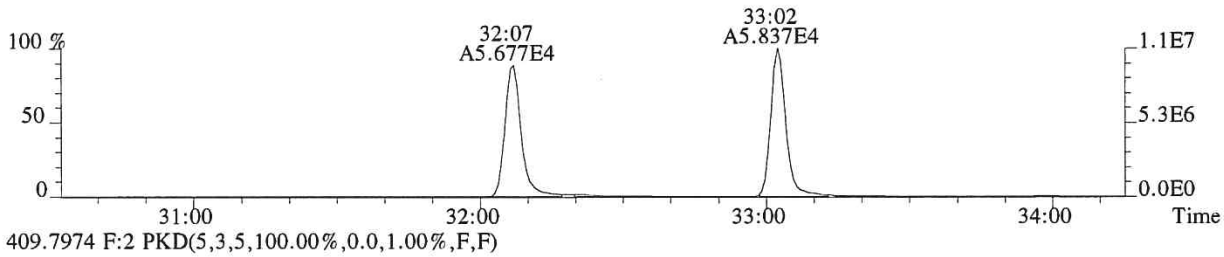
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3740.0,1.00%,F,T)



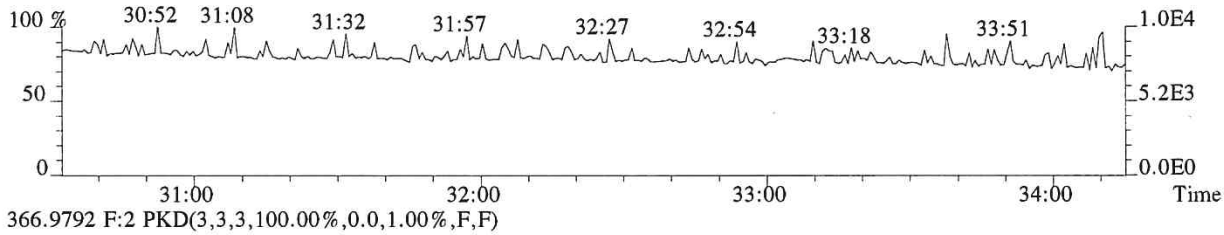
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



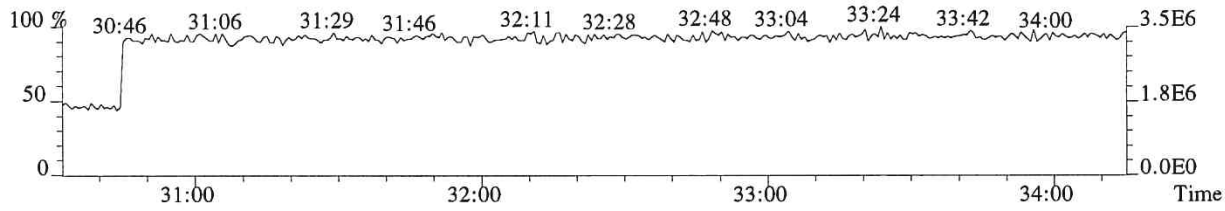
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

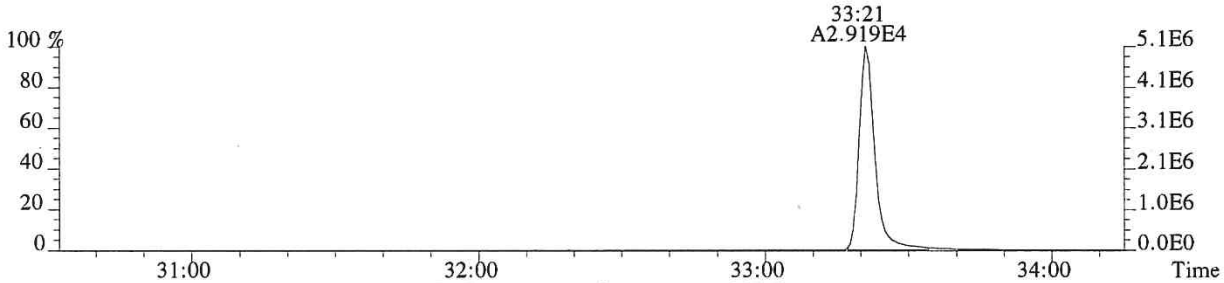


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

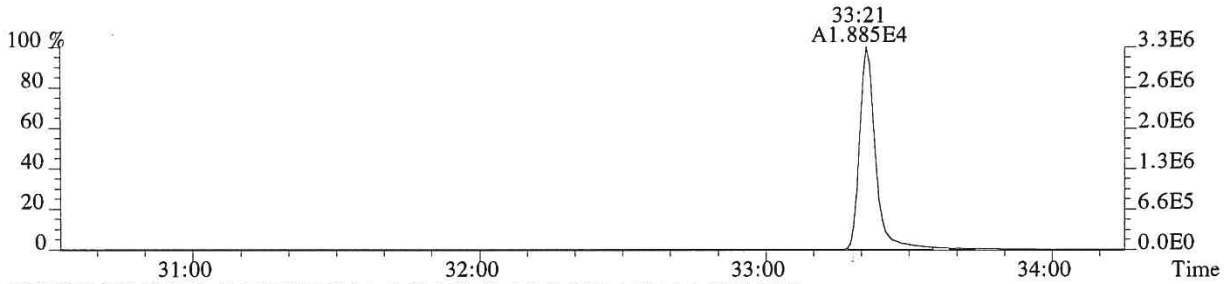


011520

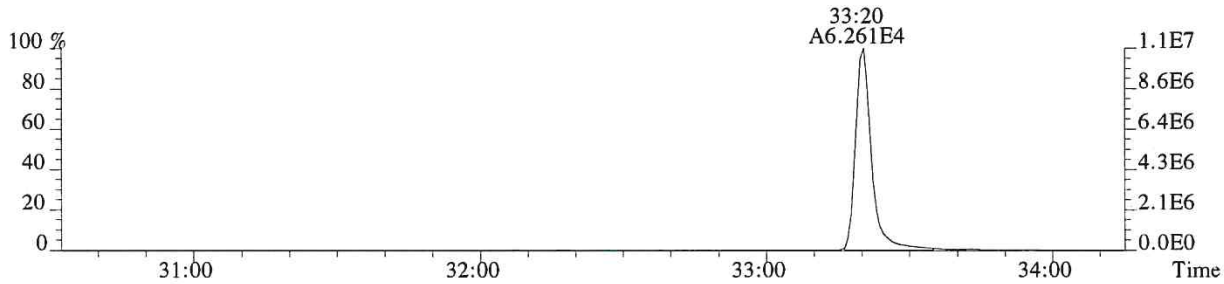
File:P519319 #1-335 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



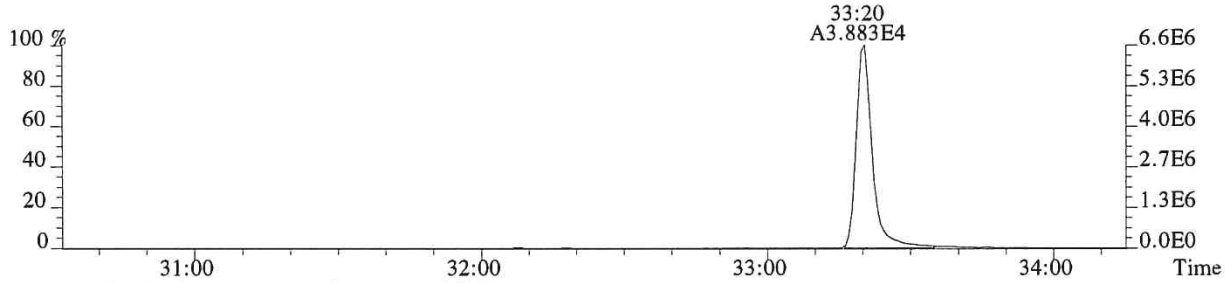
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



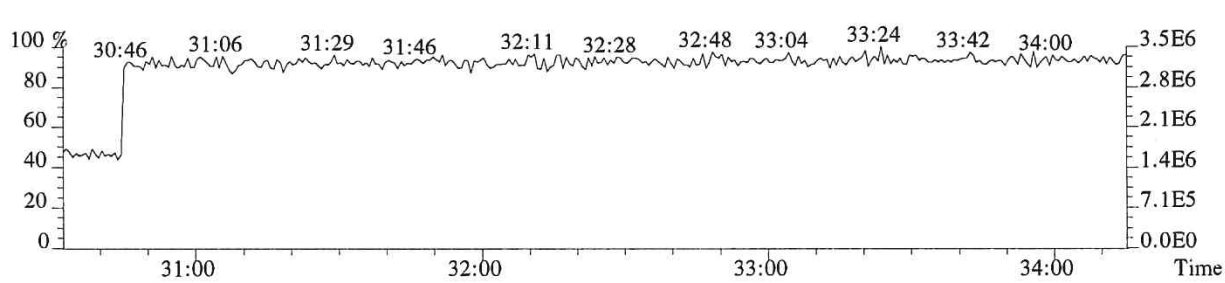
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



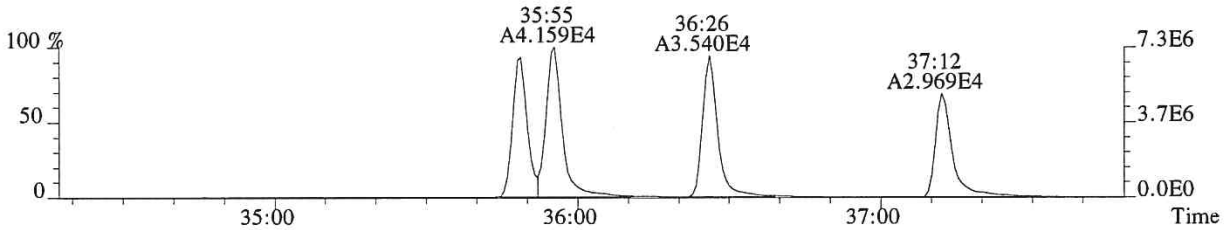
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



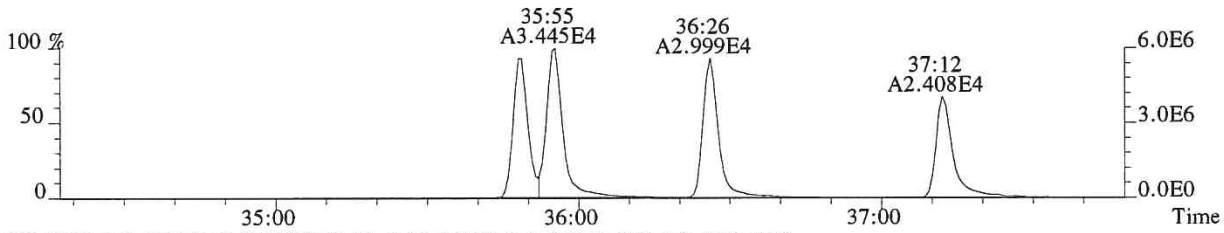
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



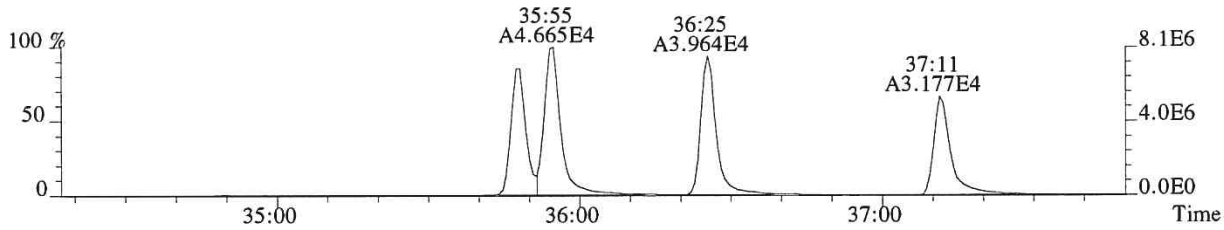
File:P519319 #1-317 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



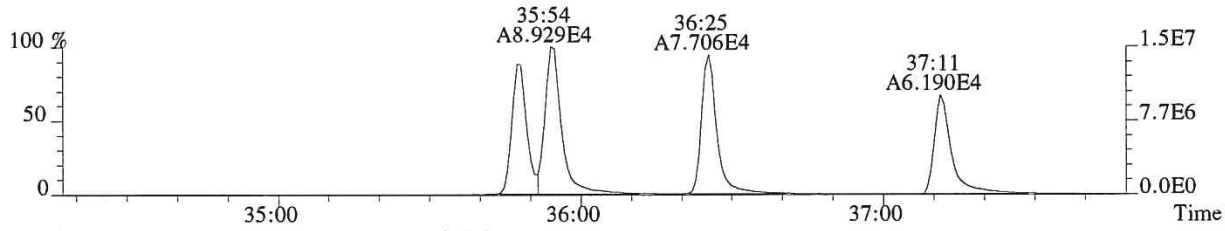
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



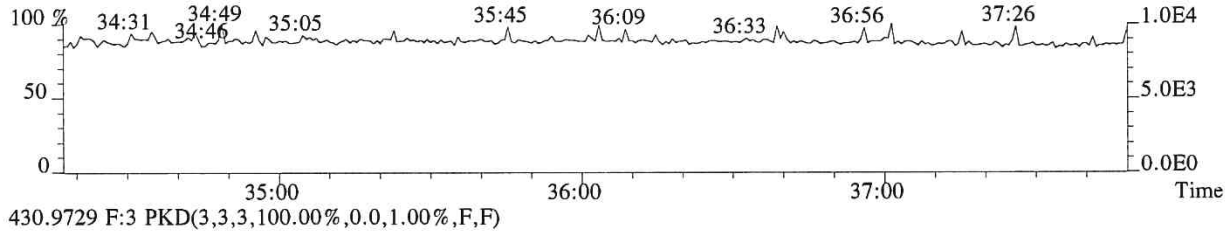
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



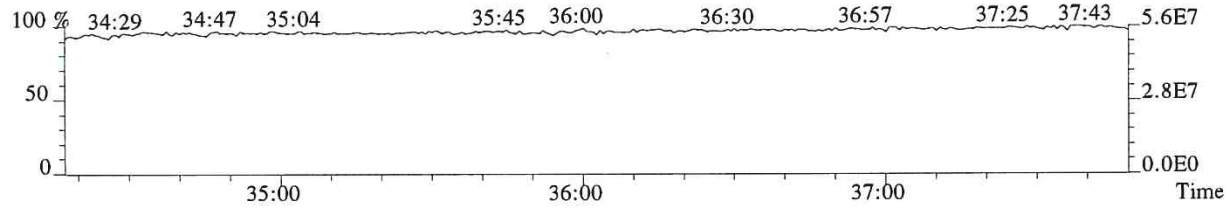
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

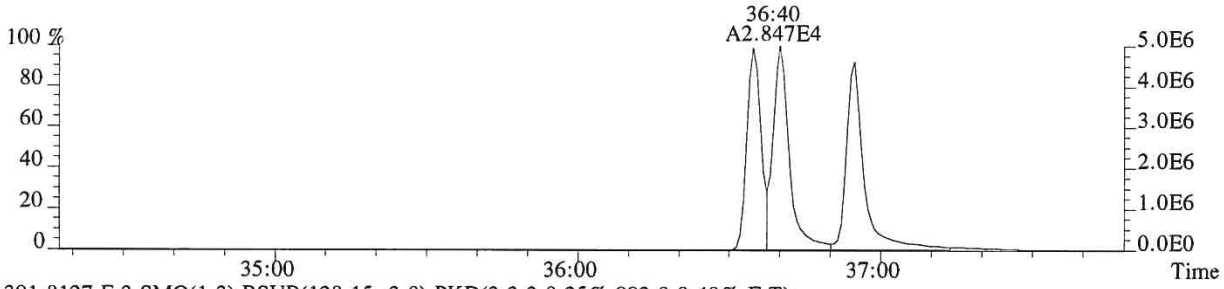


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

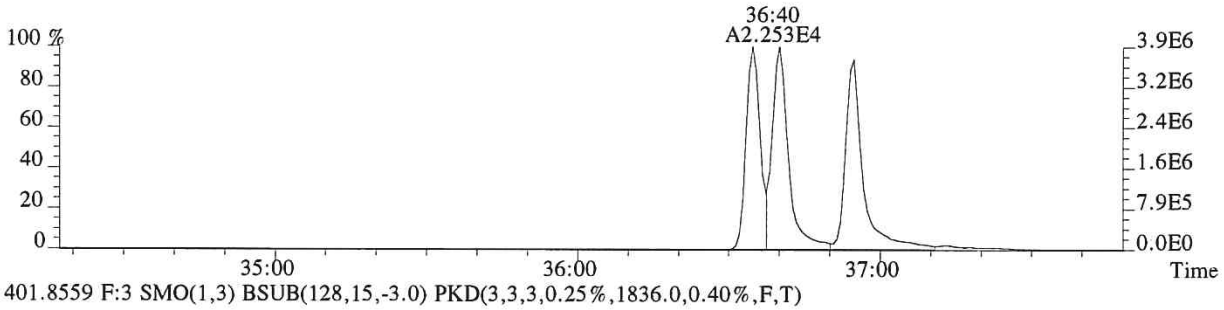


011522

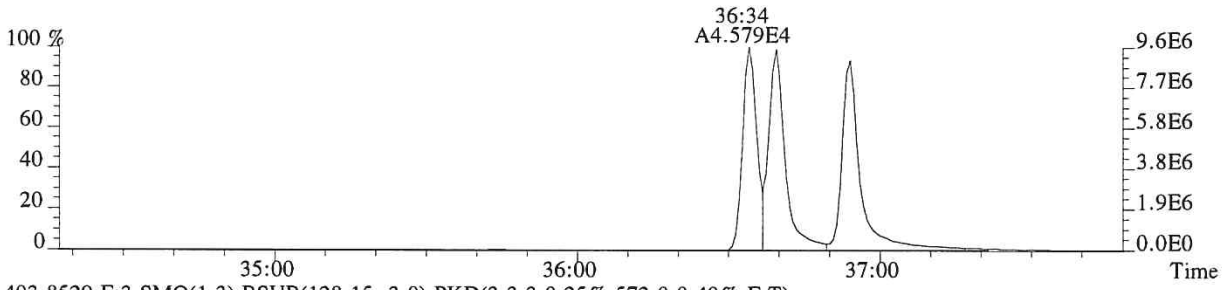
File:P519319 #1-317 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



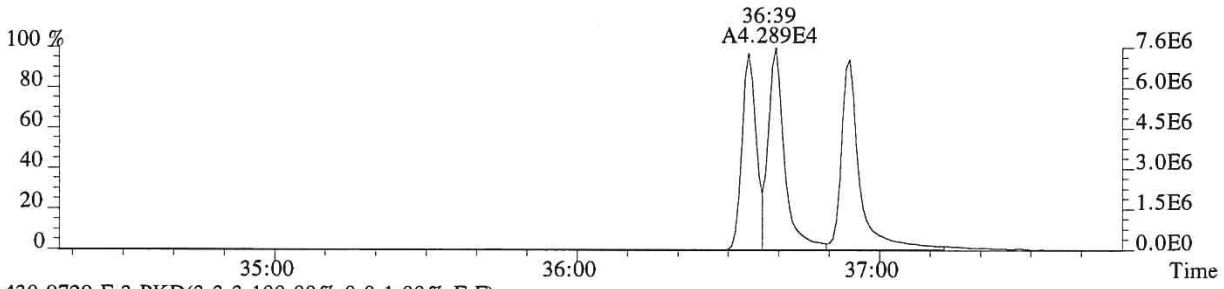
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



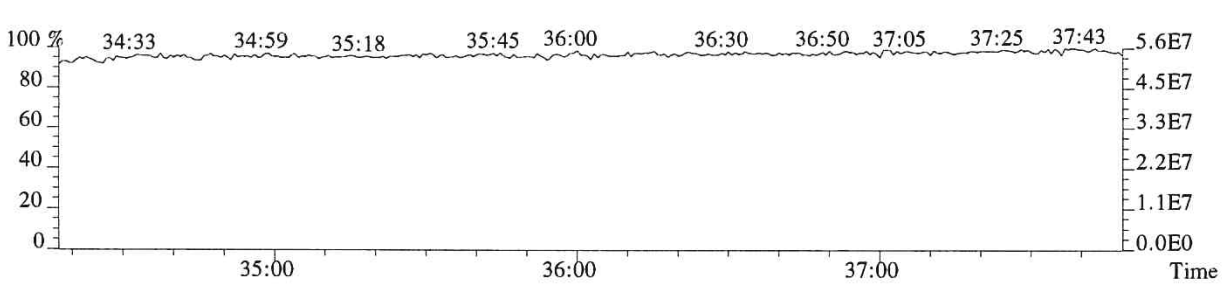
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)

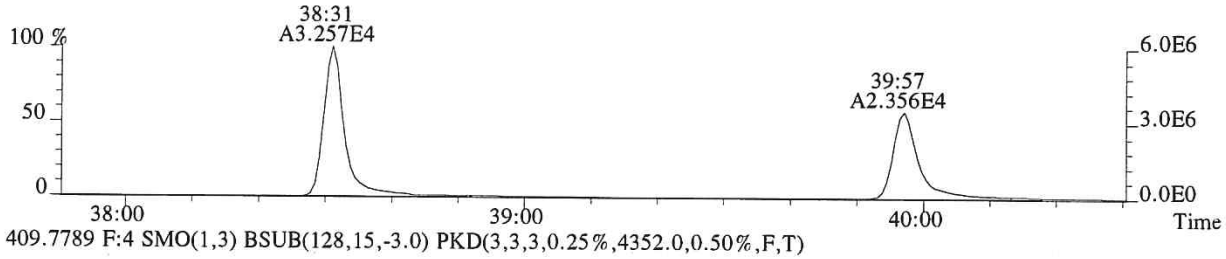


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

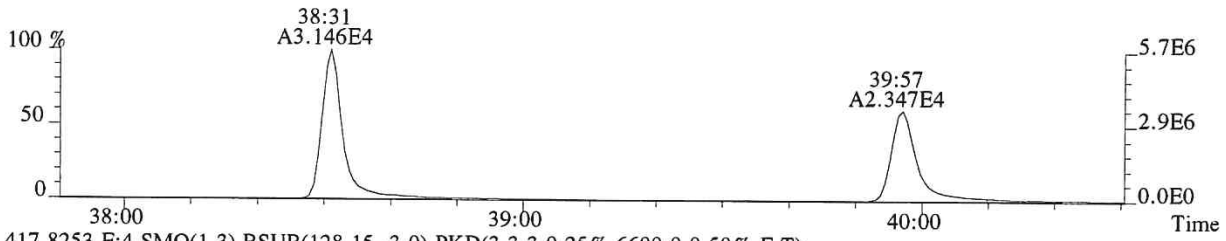


011523

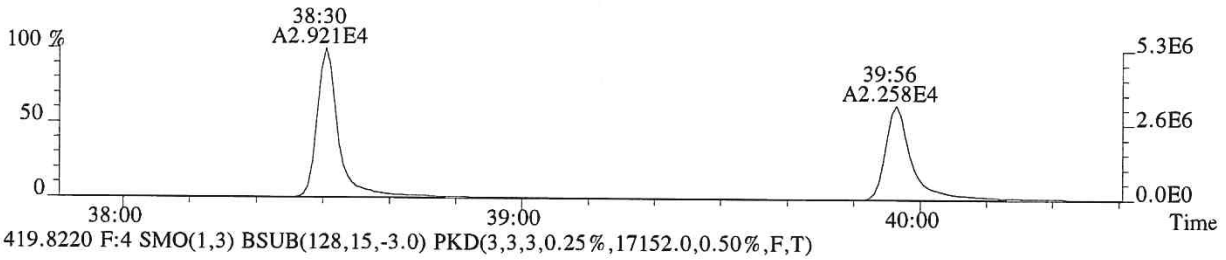
File:P519319 #1-241 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4448.0,0.50%,F,T)



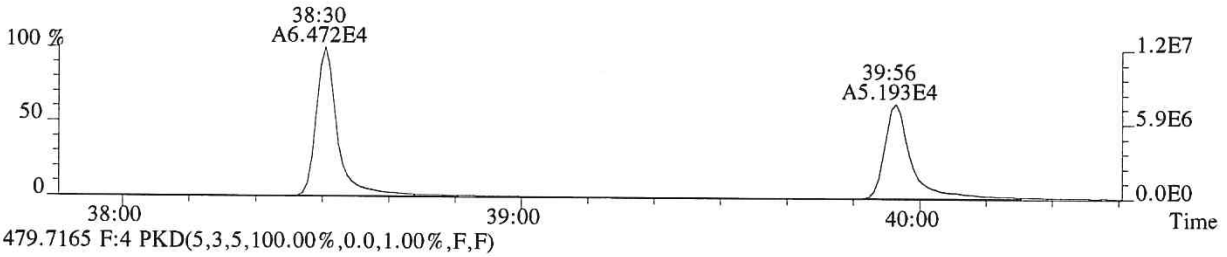
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4352.0,0.50%,F,T)



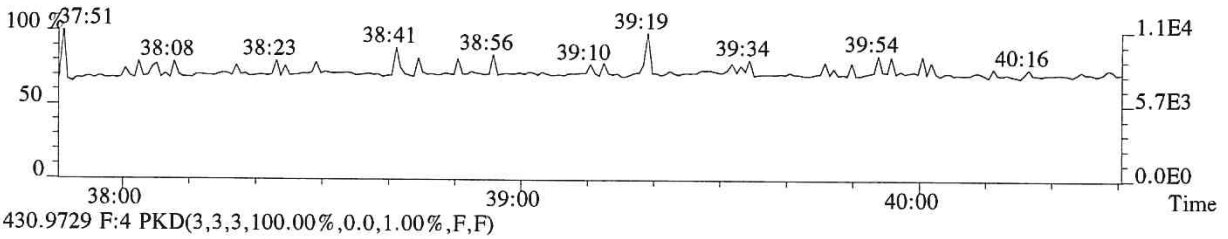
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6600.0,0.50%,F,T)



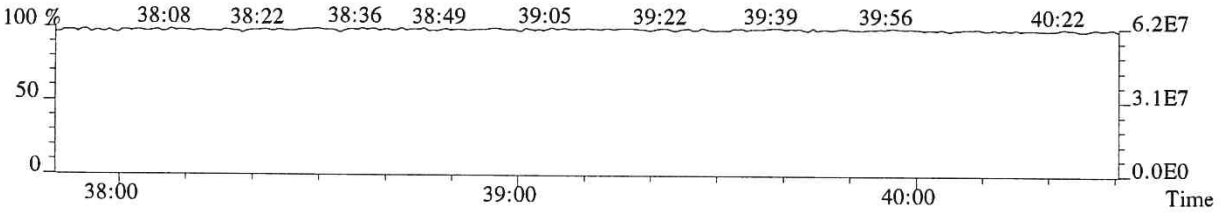
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17152.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

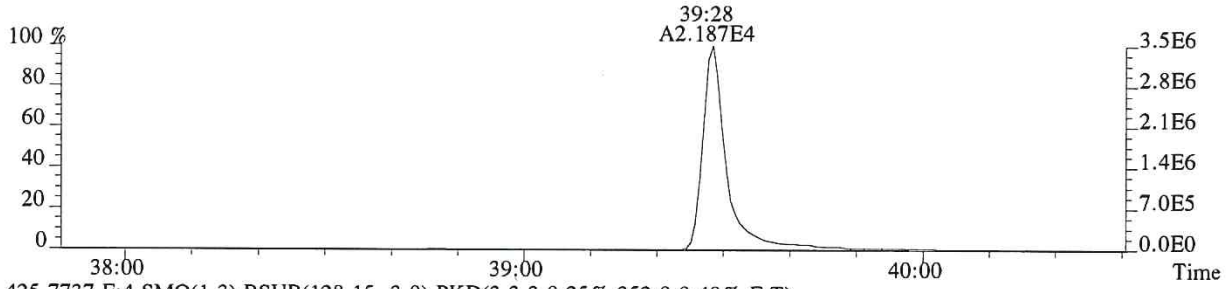


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

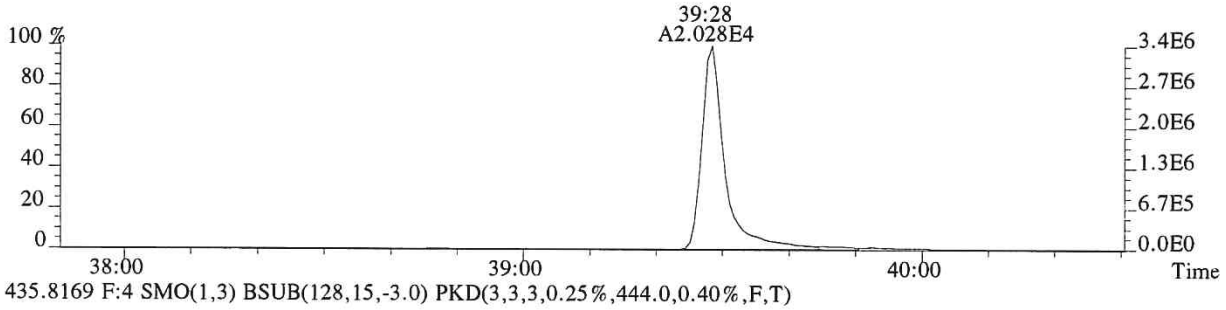


011524

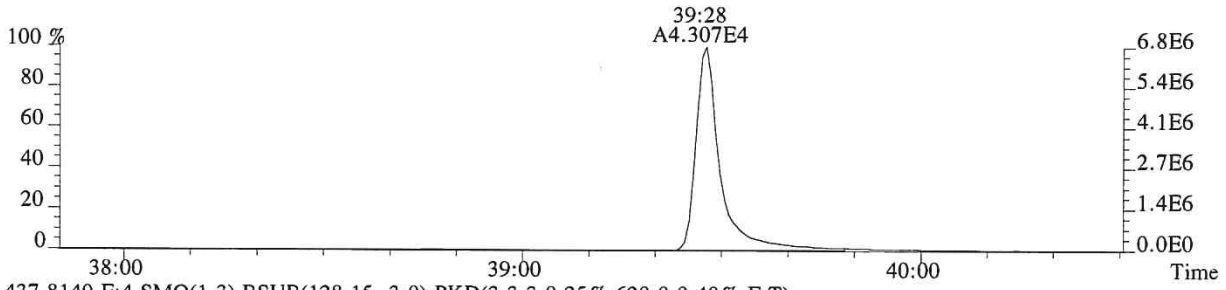
File:P519319 #1-241 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



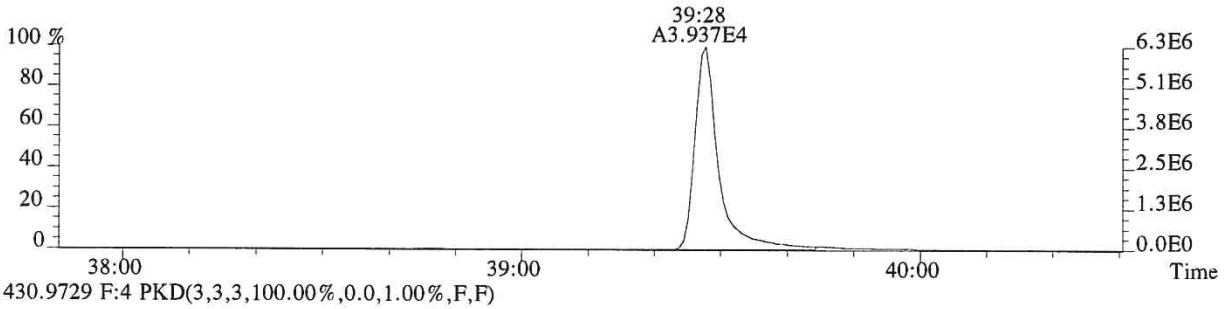
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



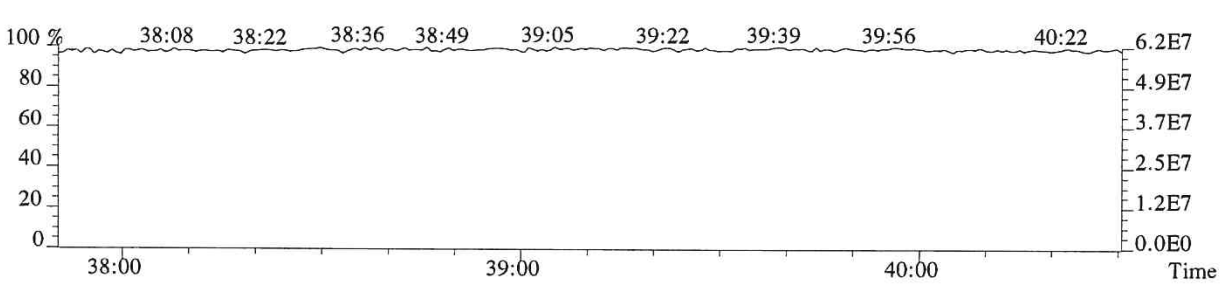
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)

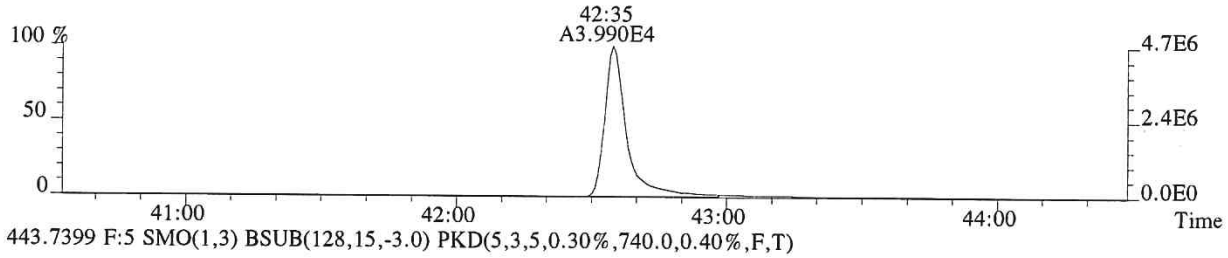


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

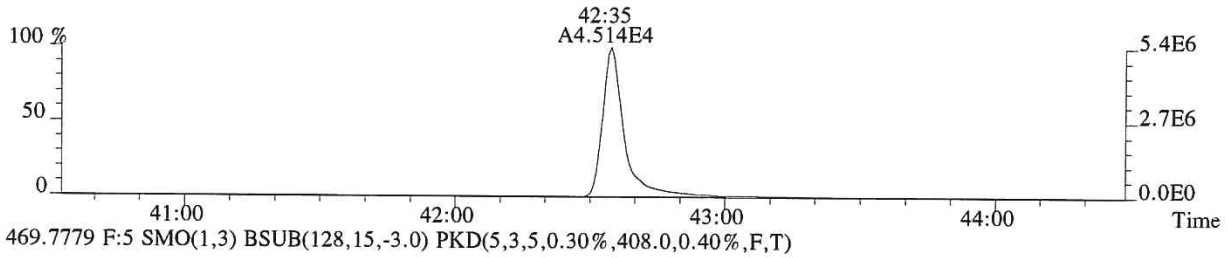


011525

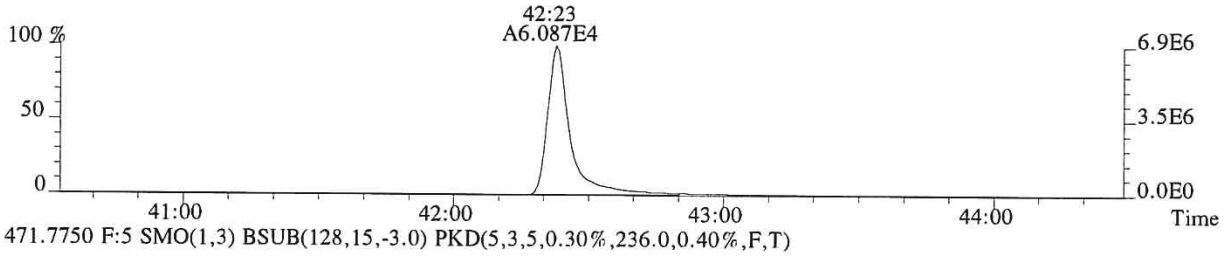
File:P519319 #1-355 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



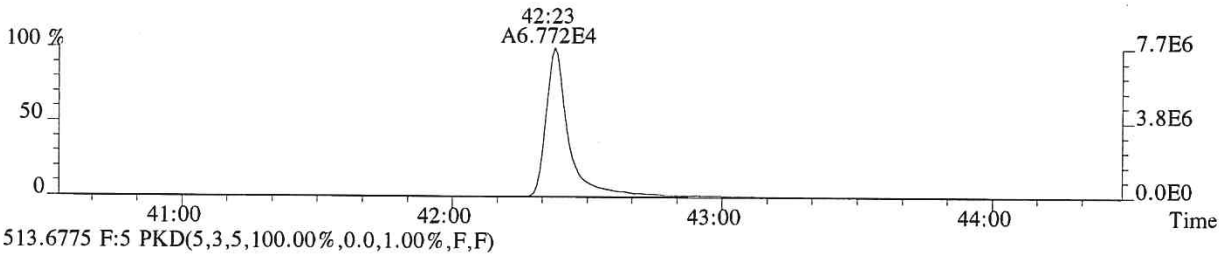
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



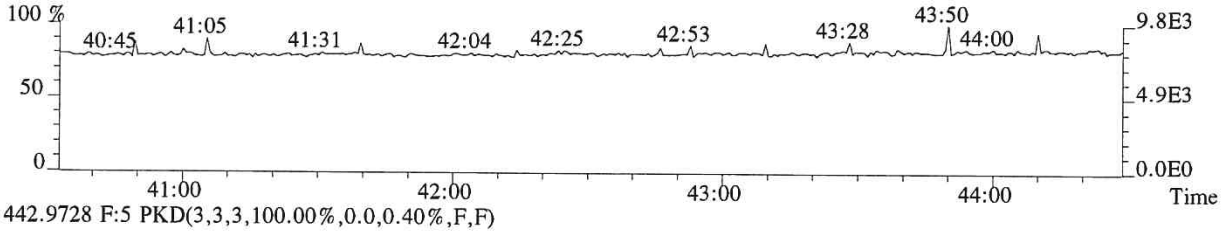
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



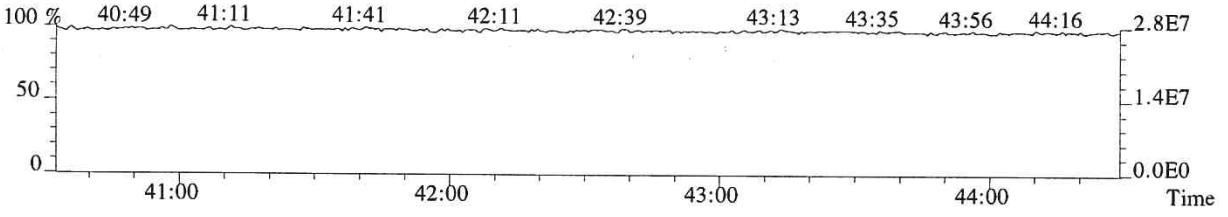
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

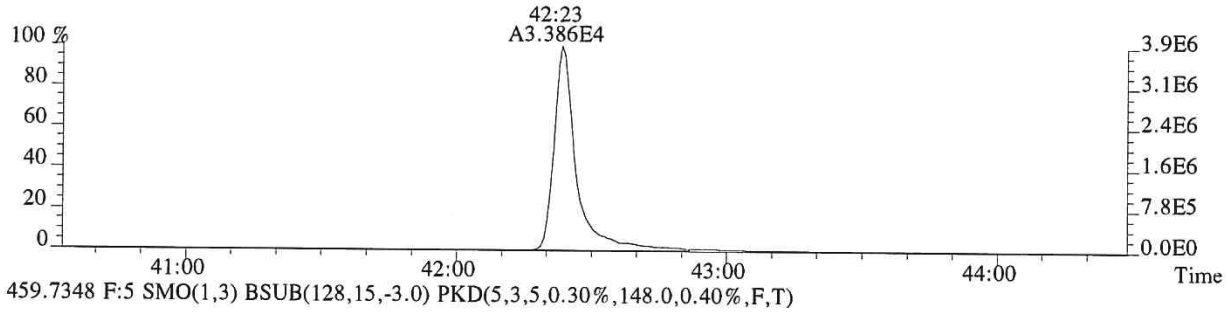


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

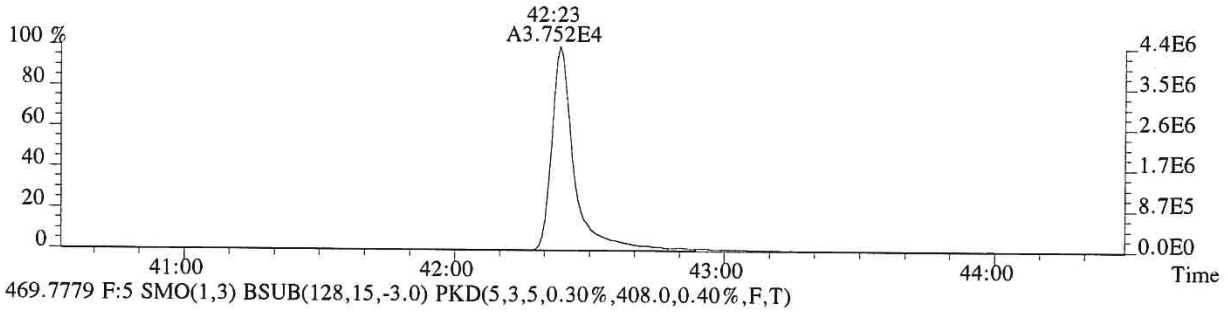


011526

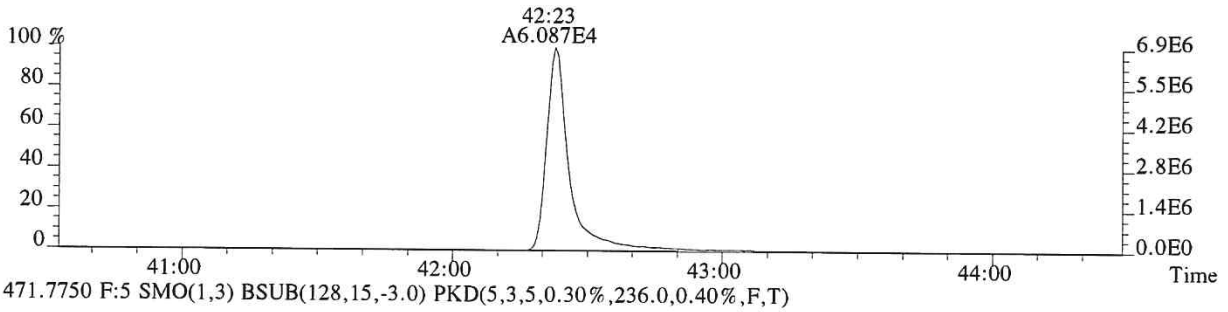
File:P519319 #1-355 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



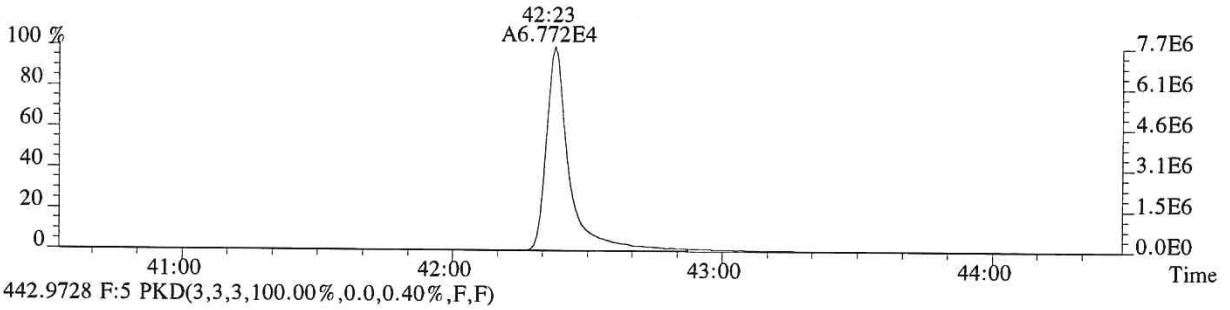
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



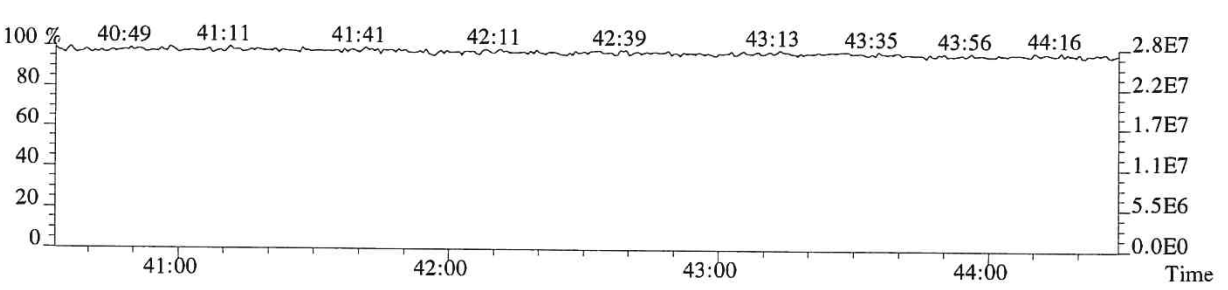
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011527

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519366

Date: 12/11 - 12/12/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P519367	12-DEC-18	00:36:53
194503	CS3	P519366	11-DEC-18	23:49:06
METHOD BLANK	EQ1800469-01	P519368	12-DEC-18	01:25:30
METHOD BLANK	EQ1800499-01	P519369	12-DEC-18	02:14:16
METHOD BLANK	EQ1800500-01	P519370	12-DEC-18	03:02:53
METHOD BLANK	EQ1800498-01	P519371	12-DEC-18	03:51:29
18-C036150	K1811360-001	P519372	12-DEC-18	04:40:08
SL0577	E1801065-027	P519373	12-DEC-18	05:28:45
SL0578	E1801065-028	P519374	12-DEC-18	06:18:14
SL0579	E1801065-029	P519375	12-DEC-18	07:06:39
SL0570	E1801065-011DL	P519376	12-DEC-18	07:54:43
SL0561	E1801065-012DL	P519377	12-DEC-18	08:43:29
SL0562	E1801065-013DL	P519378	12-DEC-18	09:32:06
LCS	EQ1800500-02	P519379	12-DEC-18	10:20:34
DLCS	EQ1800500-03	P519380	12-DEC-18	11:09:11

E1801039

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181211B.SPL
Last Modified: Wednesday, December 12, 2018 11:32:46 Central Standard Time
Printed: Wednesday, December 12, 2018 11:32:48 Central Standard Time

Page Position (1, 1)

OPUS 5NET: P519366 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/12/18	23:49	P519366	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	1+2LS check 23:29
2	12/12/18	00:36	P519367	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		01:25	P519368	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		02:14	P519369	MB	EQ1800499-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		03:02	P519370	MB	EQ1800500-01	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		03:51	P519371	MB	EQ1800498-01	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		04:40	P519372	K1811360-001	K1811360-001	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		05:28	P519373	E1801065-027	E1801065-027	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		06:18	P519374	E1801065-028	E1801065-028	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		07:06	P519375	E1801065-029	E1801065-029	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		07:54	P519376	E1801065-011DL	E1801065-011DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		08:43	P519377	E1801065-012DL	E1801065-012DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		09:32	P519378	E1801065-013DL	E1801065-013DL	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		10:20	P519379	LCS	EQ1800500-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15	✓	11:09	P519380	DLCS	EQ1800500-03	EPA1613_ALS	Dioxin_ALS	Tray1:15		1+2LS check 12:01
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LKL 12/13/18

Printed: Tuesday, December 11, 2018 23:49:04 Central Standard Time

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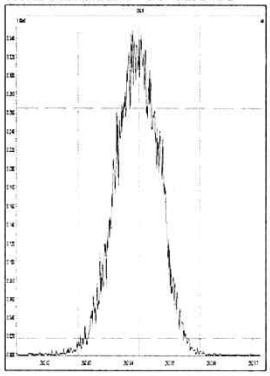

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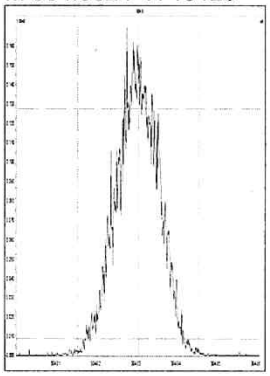

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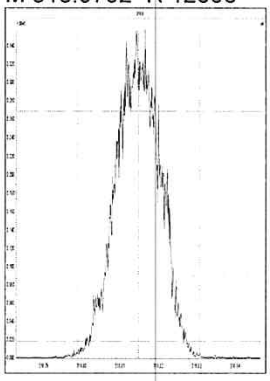

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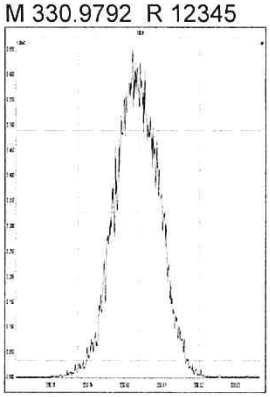

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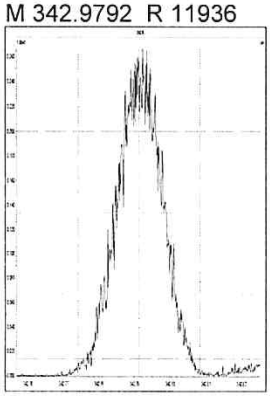

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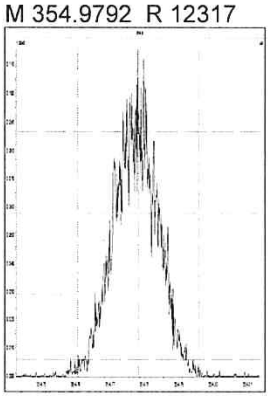

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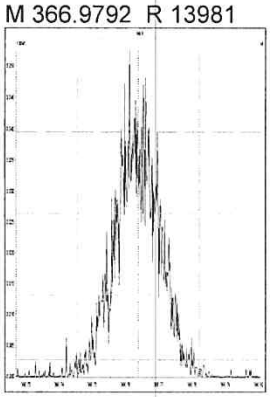

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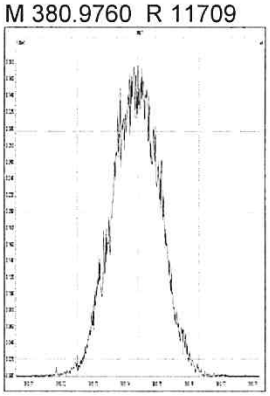

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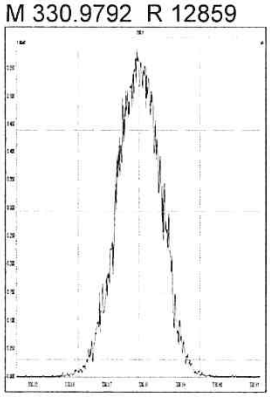

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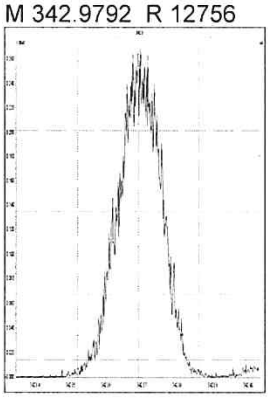

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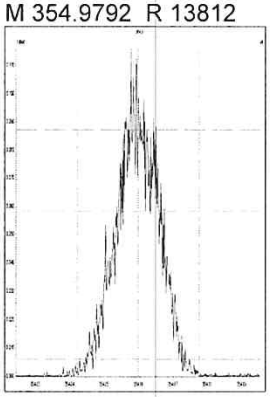

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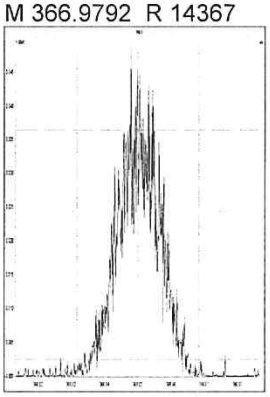

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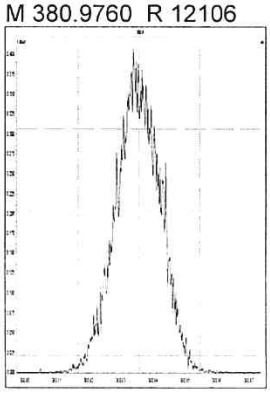

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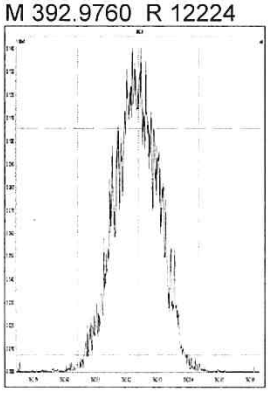

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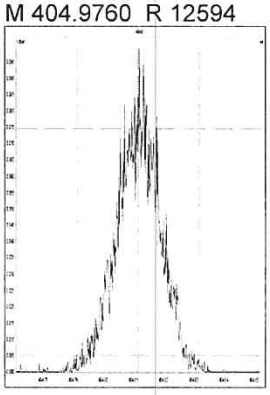

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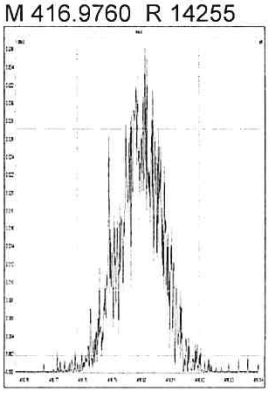

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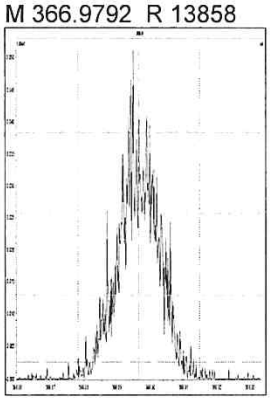

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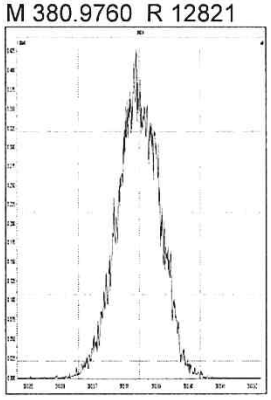

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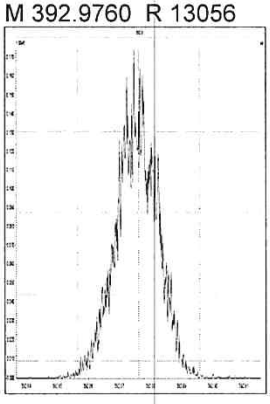

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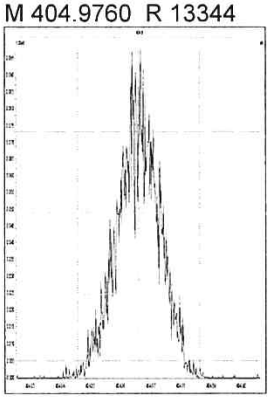

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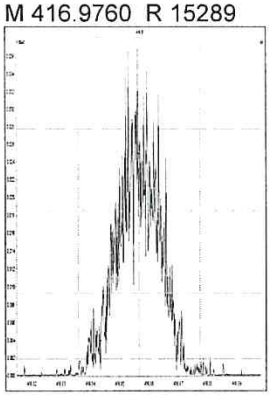

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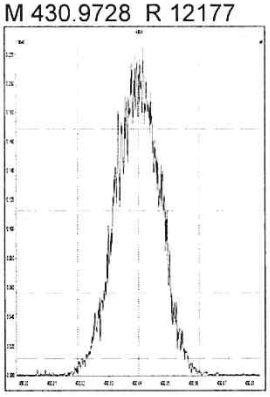

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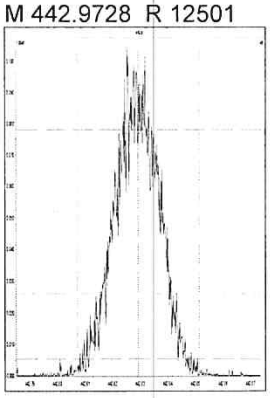

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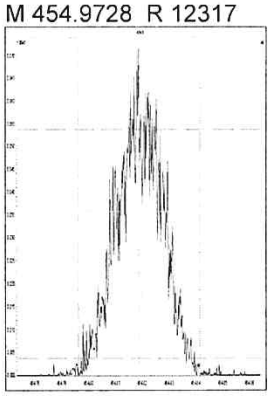

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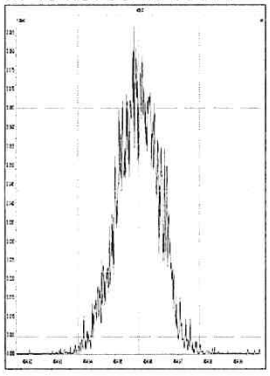

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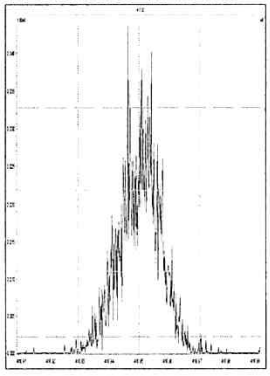

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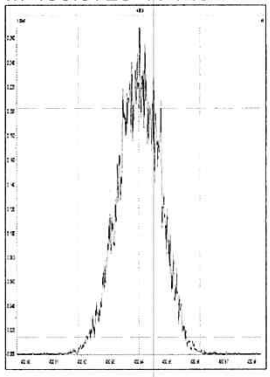

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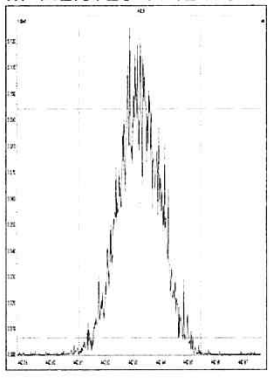

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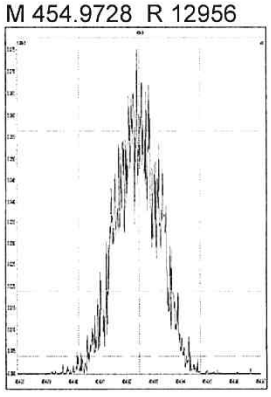

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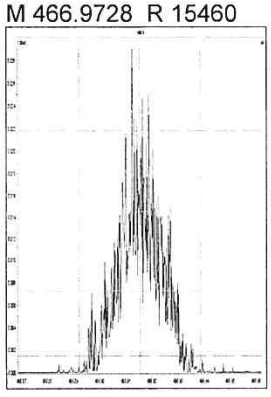

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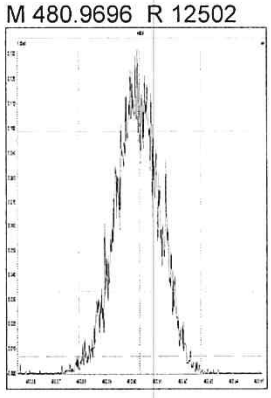

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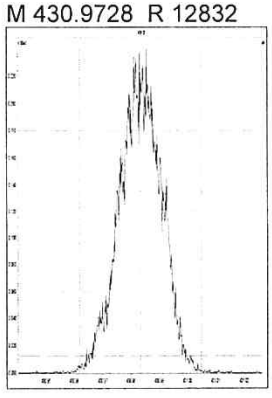

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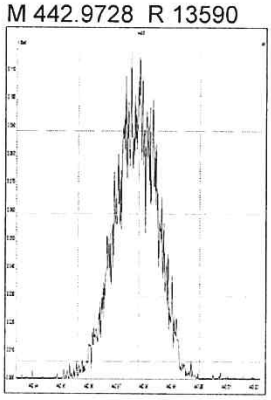

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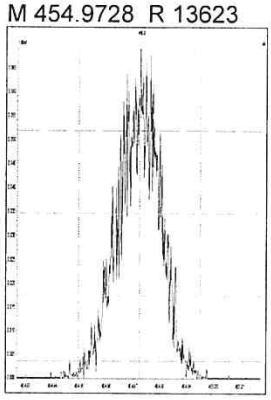

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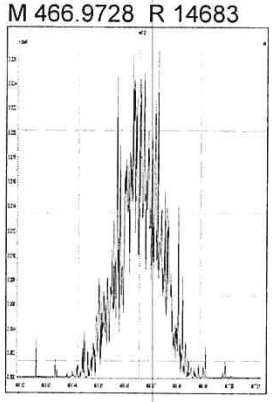

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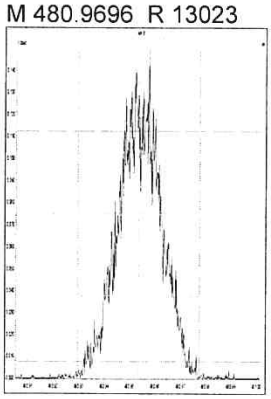

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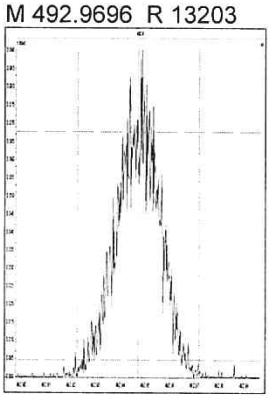

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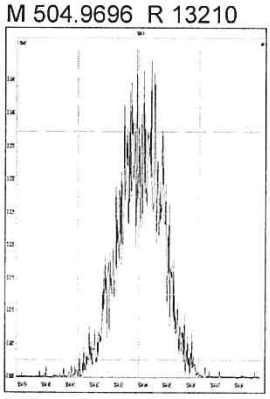

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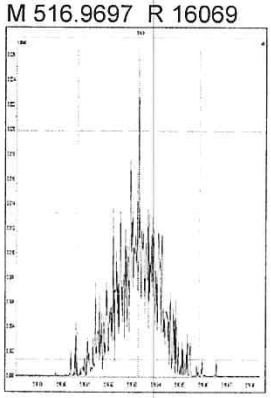

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Printed: Wednesday, December 12, 2018 12:01:18 Central Standard Time

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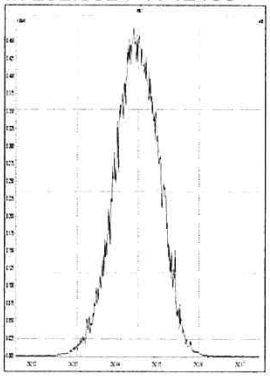

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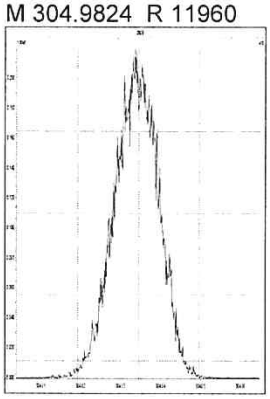

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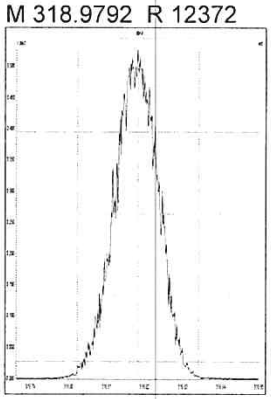

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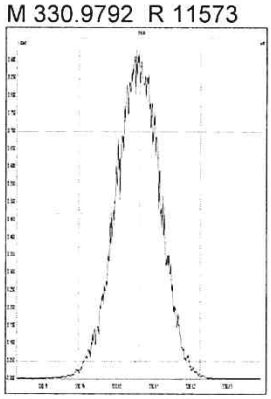
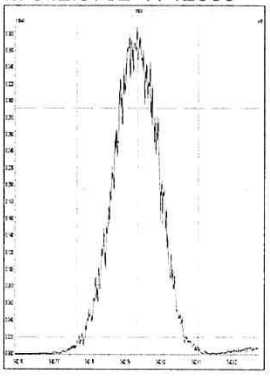
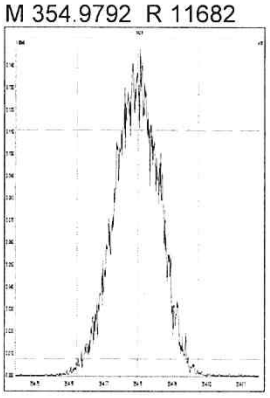


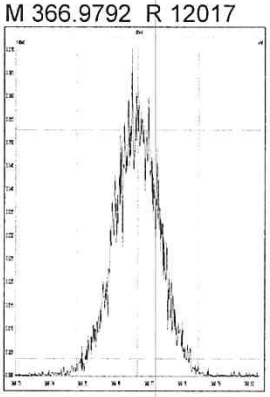
M 342.9792 R 12080



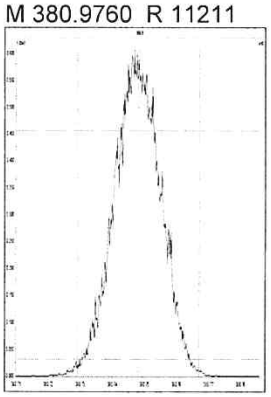
M 354.9792 R 11682



M 366.9792 R 12017



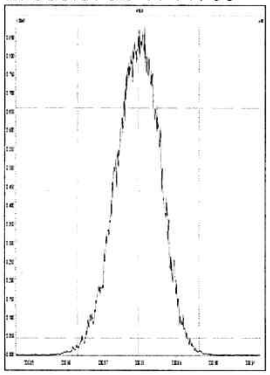
M 380.9760 R 11211



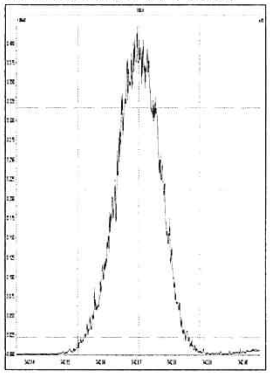
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, December 12, 2018 12:02:01 Central Standard Time

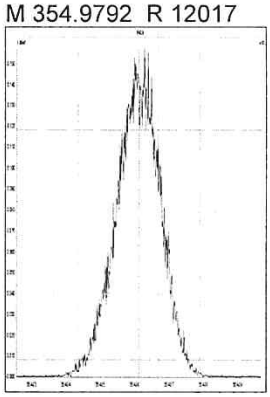
M 330.9792 R 11789



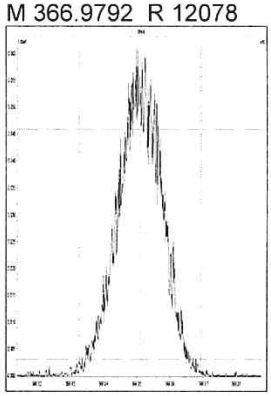
M 342.9792 R 11961



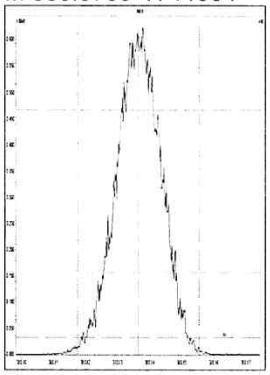
M 354.9792 R 12017



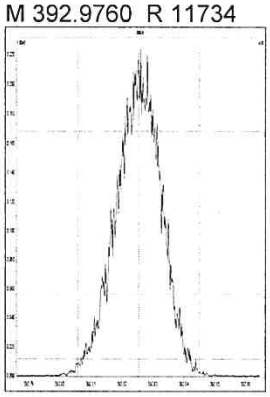
M 366.9792 R 12078



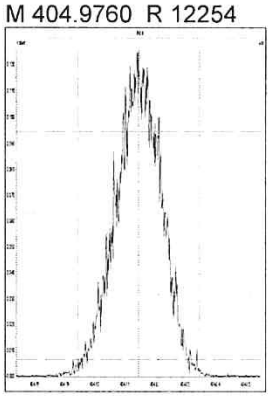
M 380.9760 R 11904



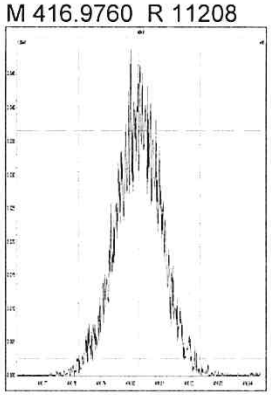
M 392.9760 R 11734



M 404.9760 R 12254



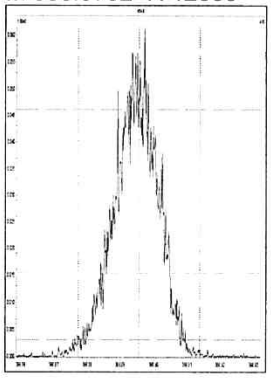
M 416.9760 R 11208



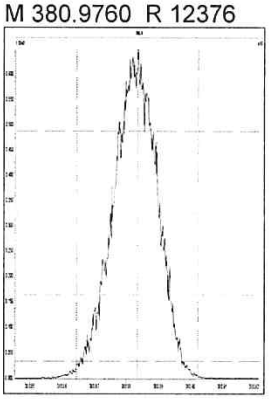
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, December 12, 2018 12:02:45 Central Standard Time

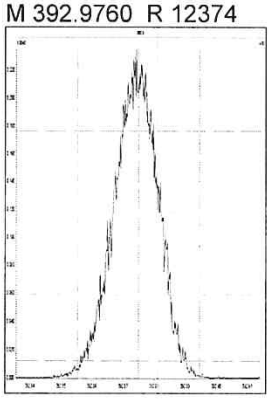
M 366.9792 R 12883



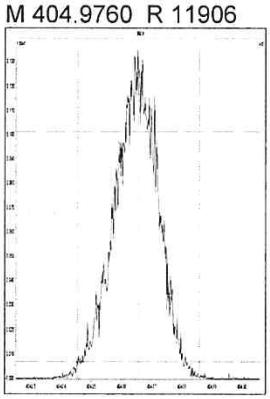
M 380.9760 R 12376



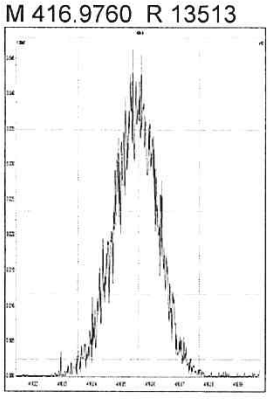
M 392.9760 R 12374



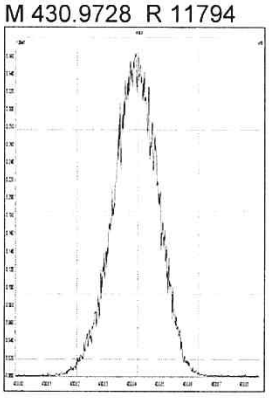
M 404.9760 R 11906



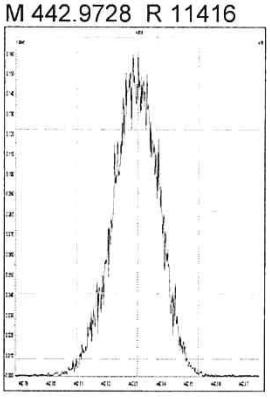
M 416.9760 R 13513



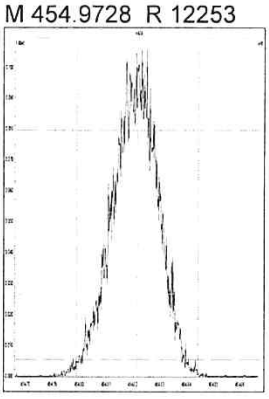
M 430.9728 R 11794



M 442.9728 R 11416



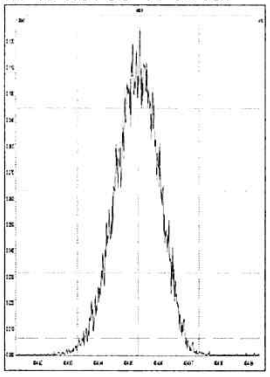
M 454.9728 R 12253



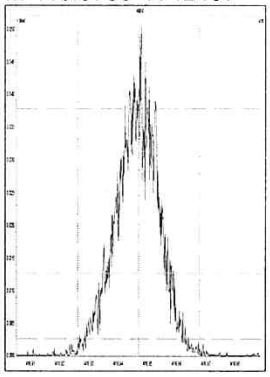
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, December 12, 2018 12:03:25 Central Standard Time

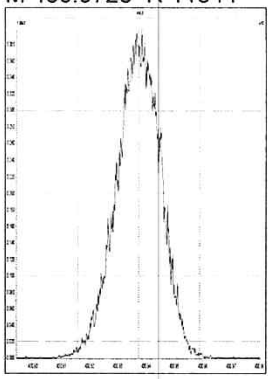
M 404.9760 R 12437



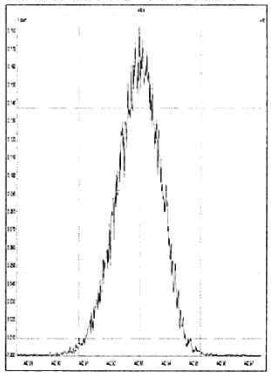
M 416.9760 R 12197



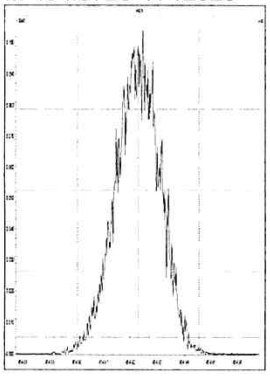
M 430.9728 R 11844



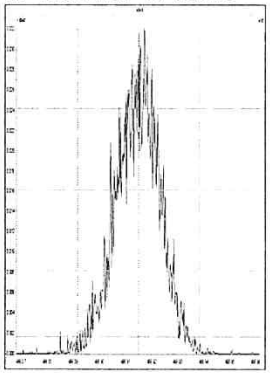
M 442.9728 R 12134



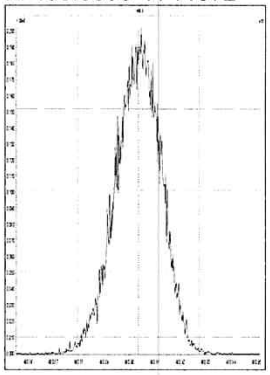
M 454.9728 R 12020



M 466.9728 R 12886



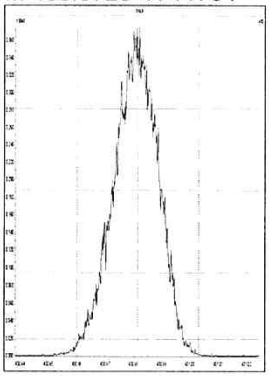
M 480.9696 R 11572



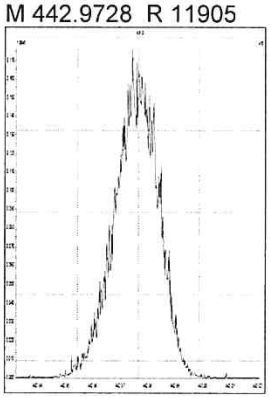
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, December 12, 2018 12:04:15 Central Standard Time

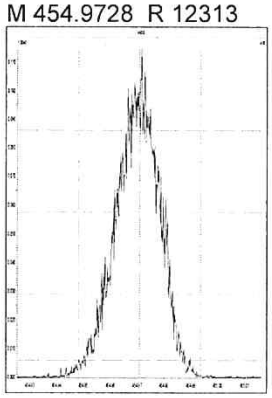
M 430.9728 R 11734



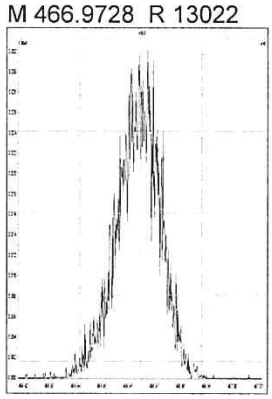
M 442.9728 R 11905



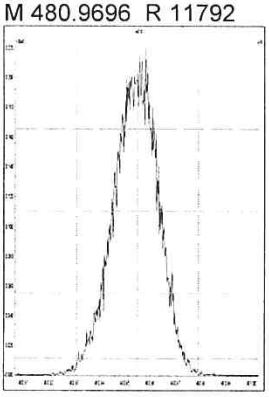
M 454.9728 R 12313



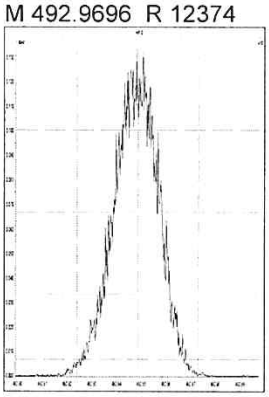
M 466.9728 R 13022



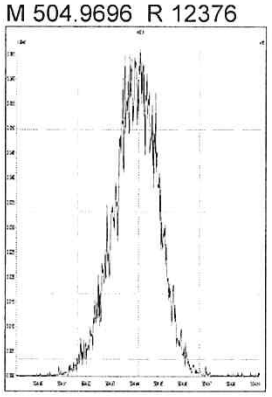
M 480.9696 R 11792



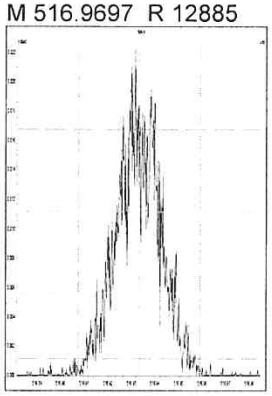
M 492.9696 R 12374



M 504.9696 R 12376



M 516.9697 R 12885



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

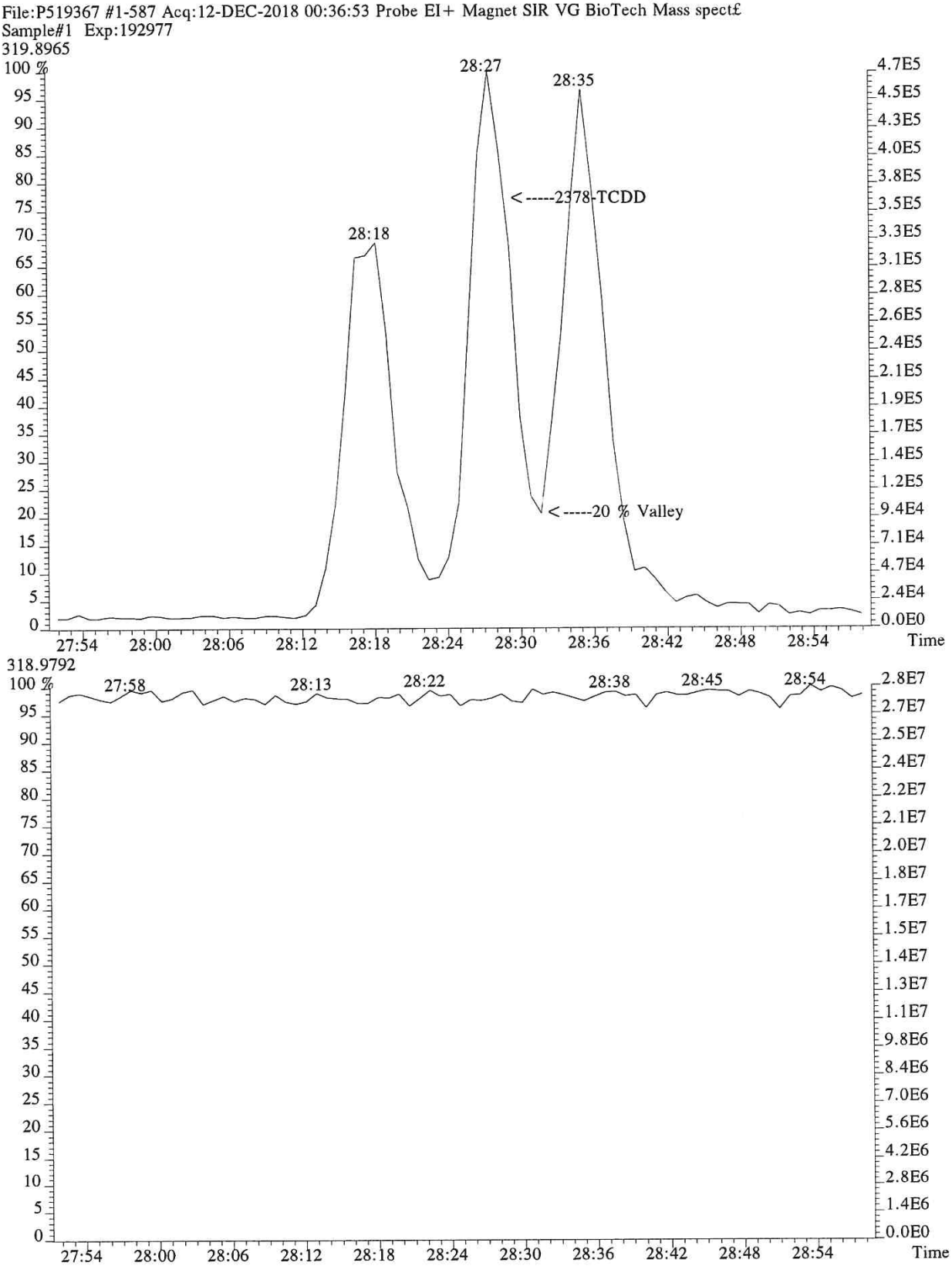
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519367
Date Analyzed: 12-DEC-18
Time Analyzed: 00:36:53

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:11	29:39
TCDD	24:59	29:29
PeCDF	29:37	33:59
PeCDD	31:12	33:44
HxCDF	34:40	37:15
HxCDD	35:12	36:51
HpCDF	38:33	40:00
HpCDD	38:48	39:31

% Valley 2378-TCDD: 20 %


File:P519367 #1-587 Acq:12-DEC-2018 00:36:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965
28:27
28:35
28:18
<-----2378-TCDD
<-----20 % Valley
Time
318.9792
27:58
28:13
28:22
28:38
28:45
28:54
Time

011540

File:P519367 #1-587 Acq:12-DEC-2018 00:36:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
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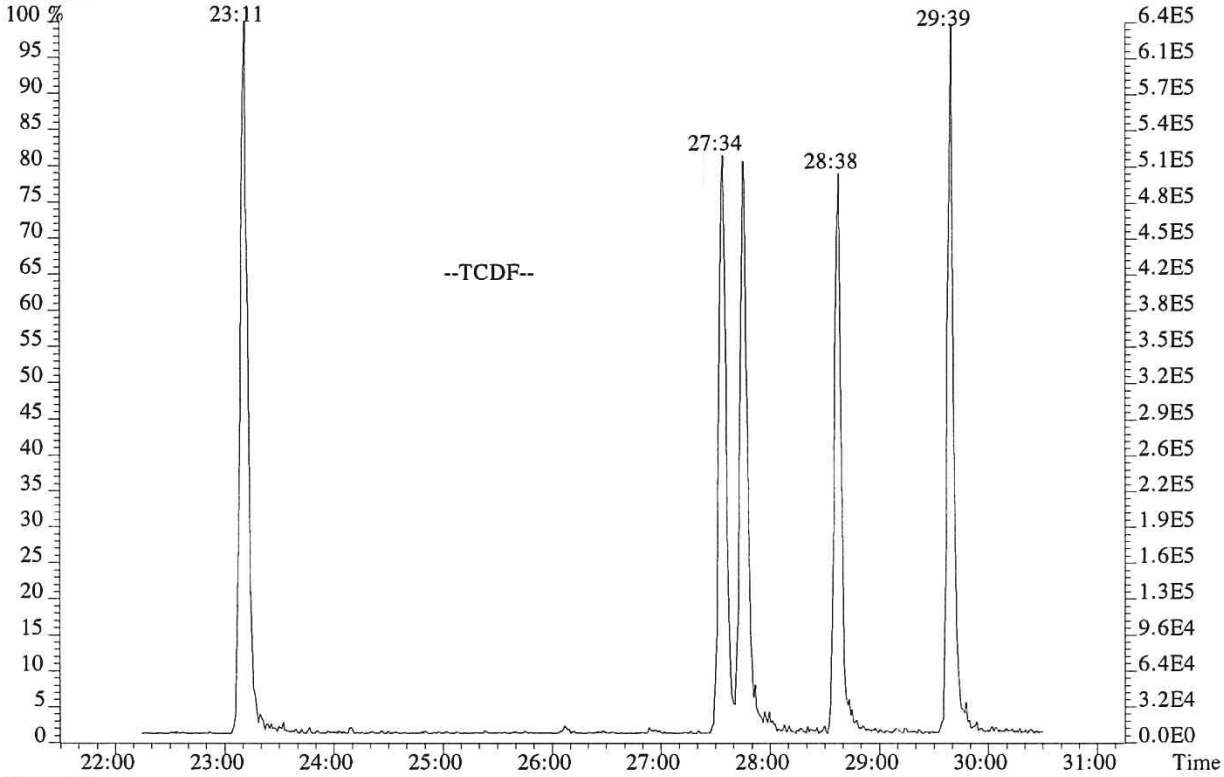
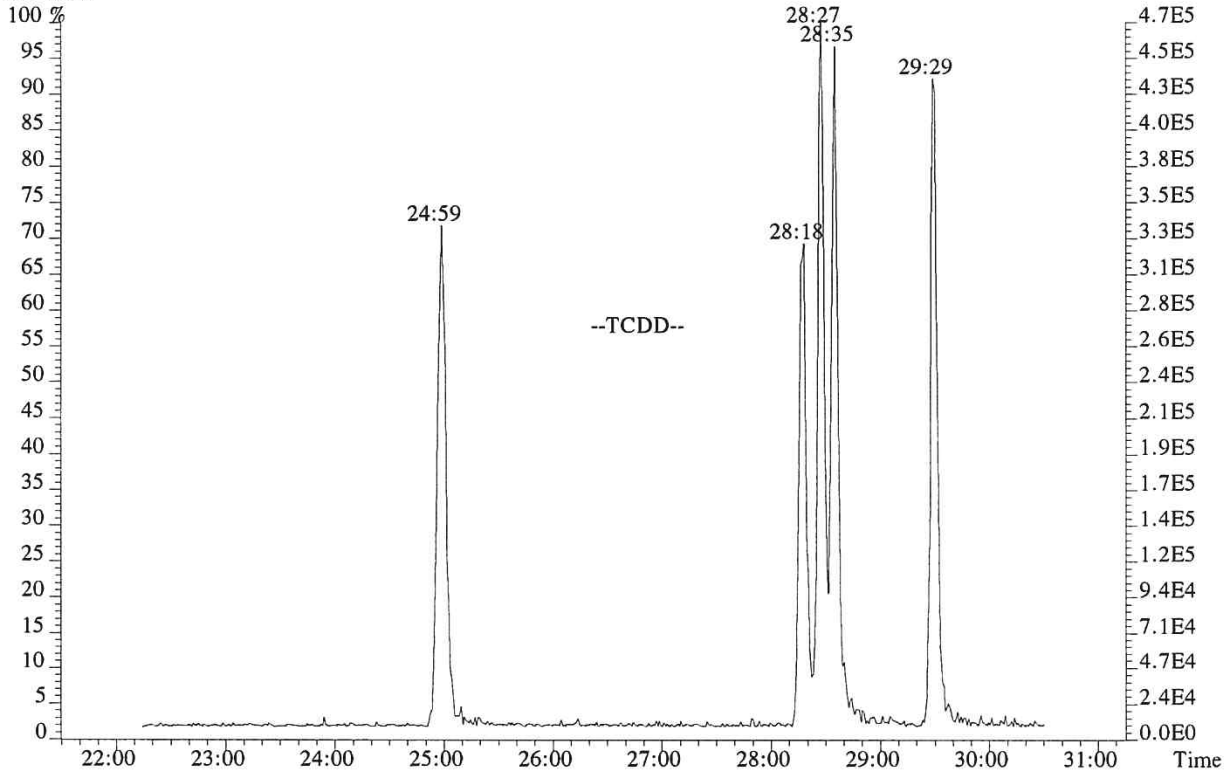
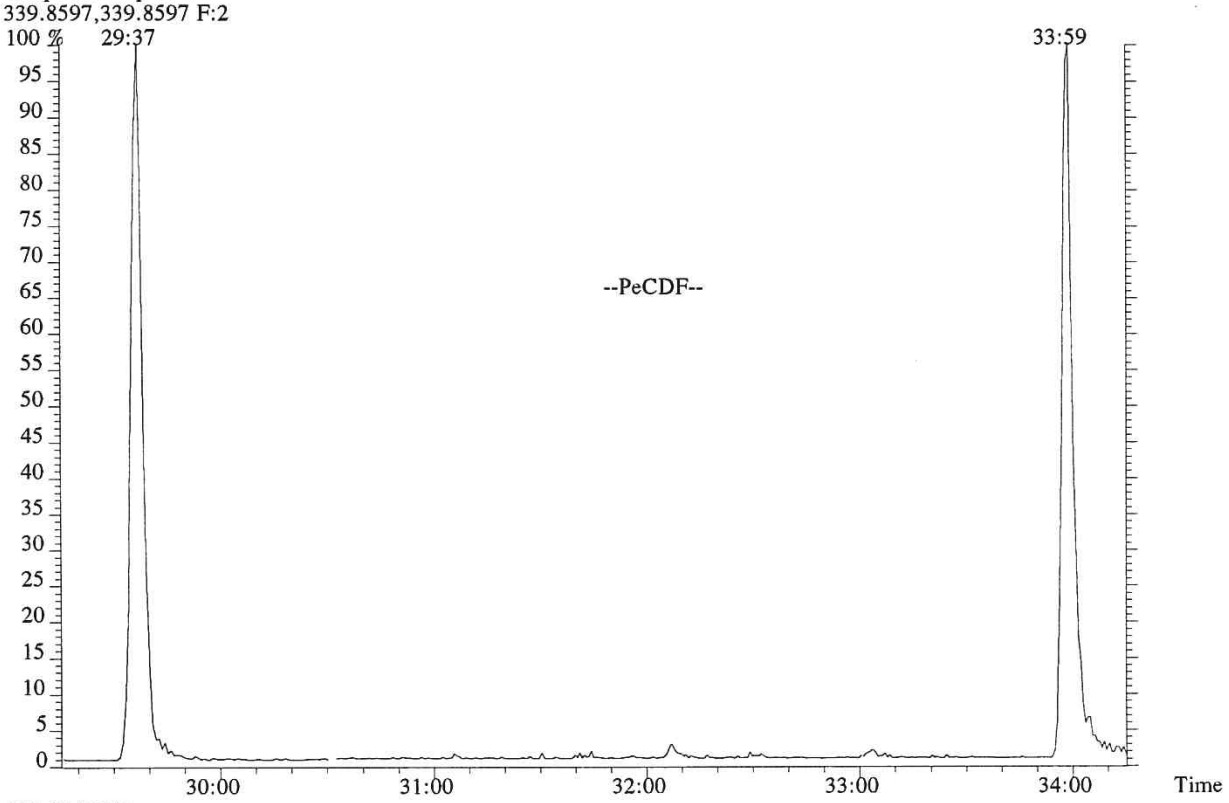
303.9016



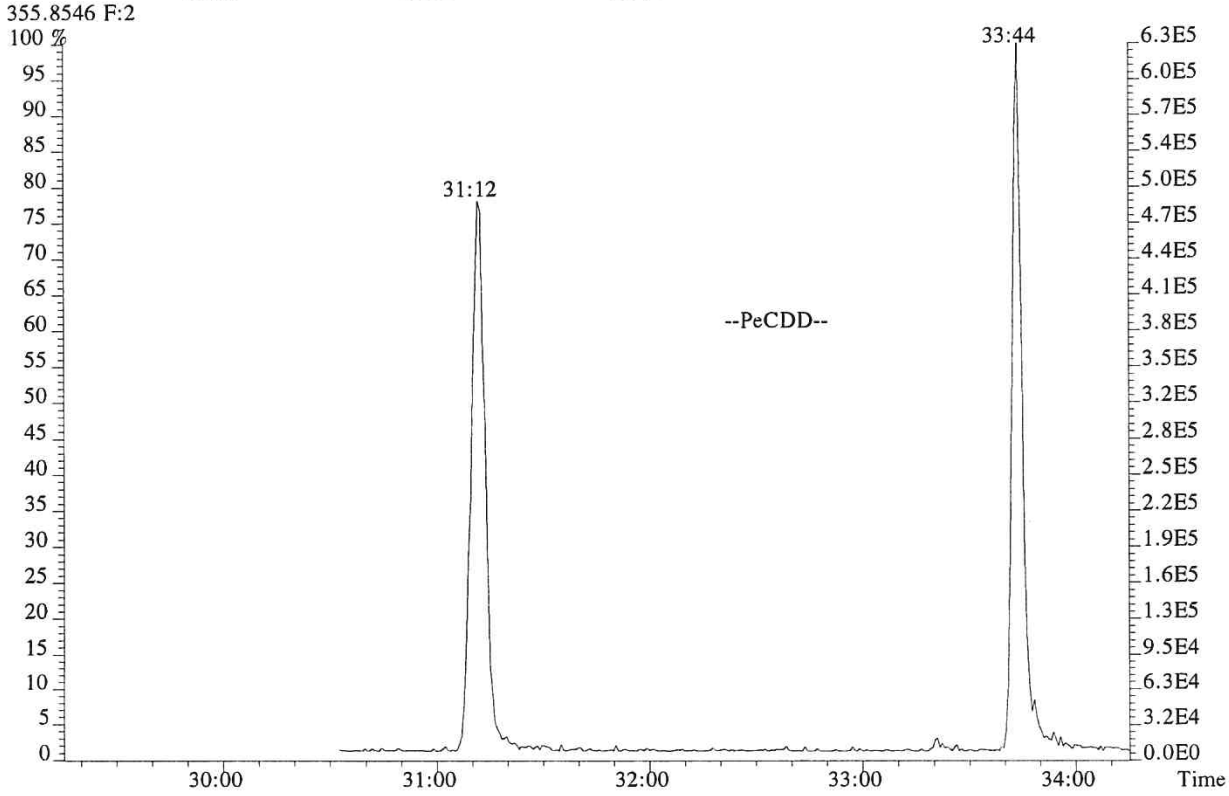
319.8965



File:P519367 #1-587 Acq:12-DEC-2018 00:36:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



011542

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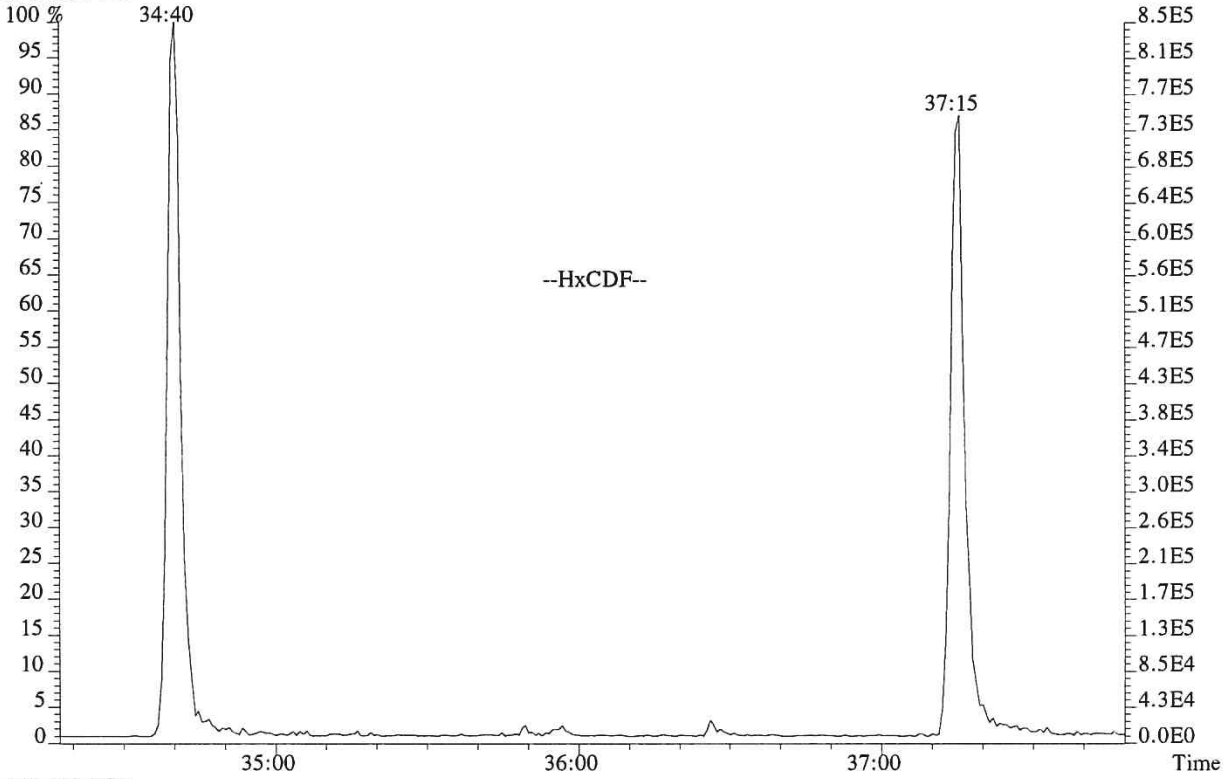
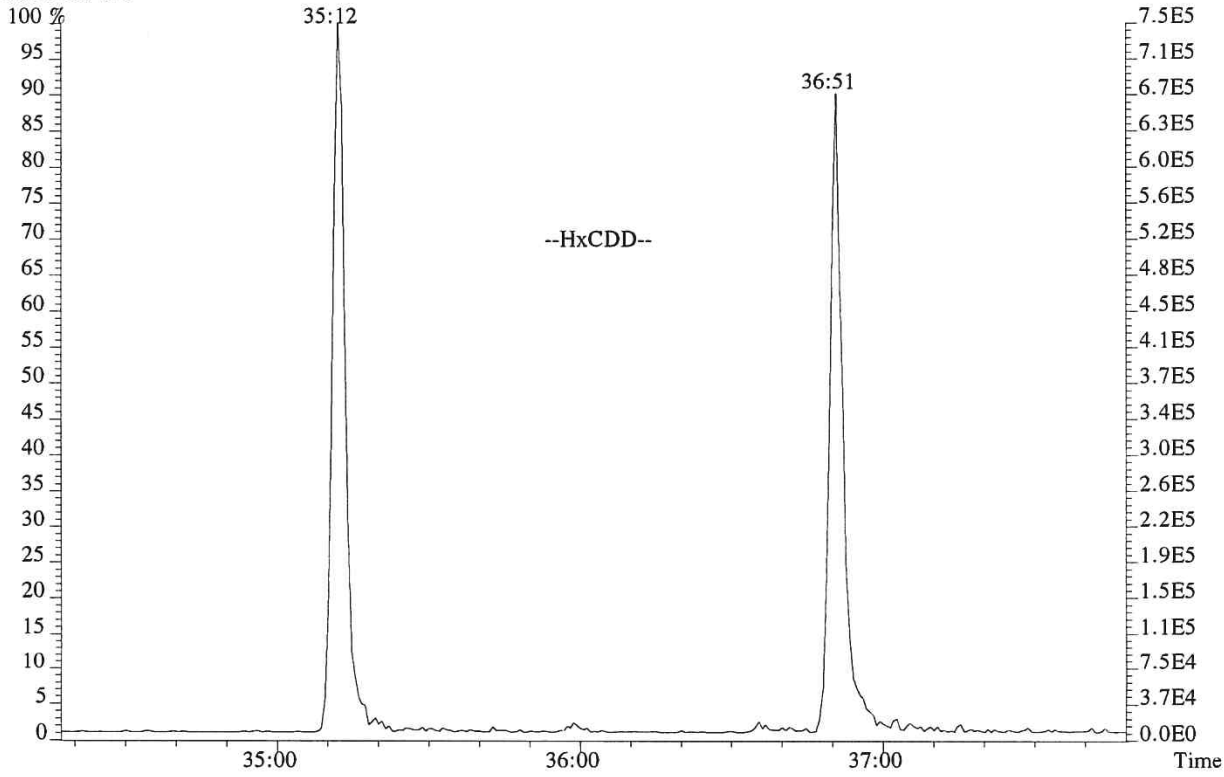
Sample#1 Exp:192977
373.8208 F:3

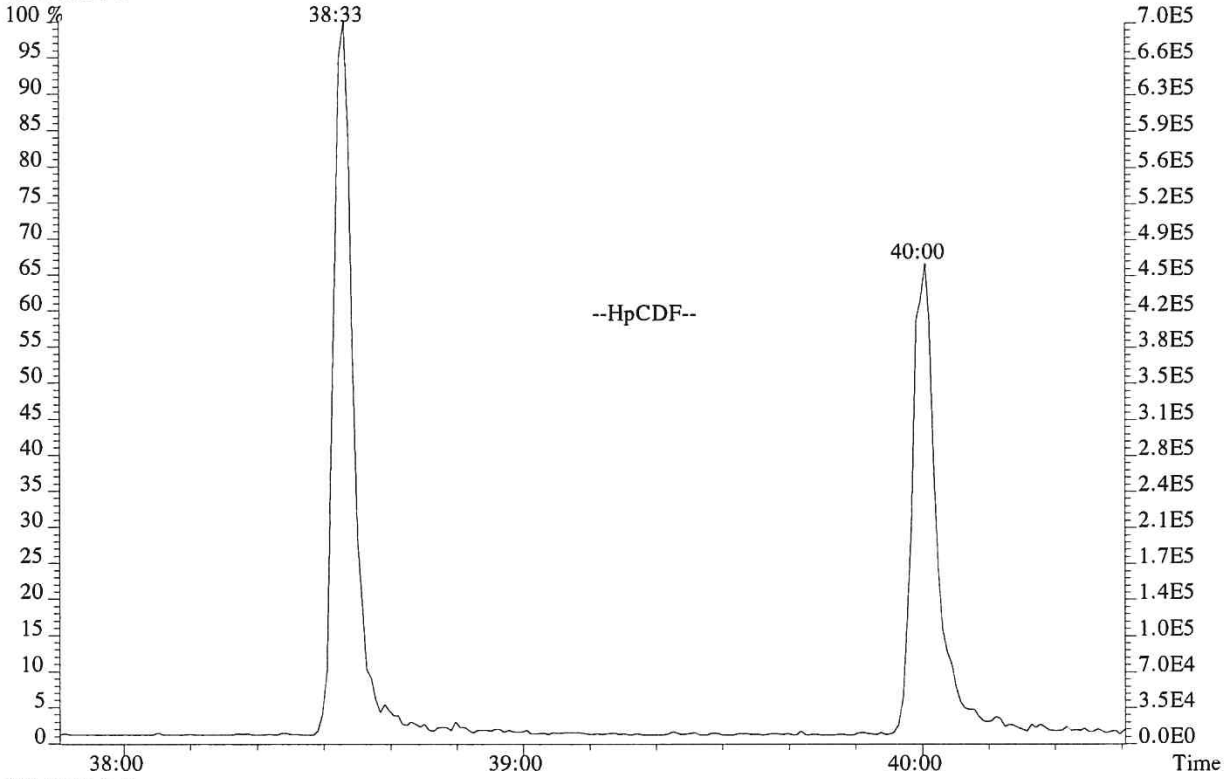


389.8157 F:3

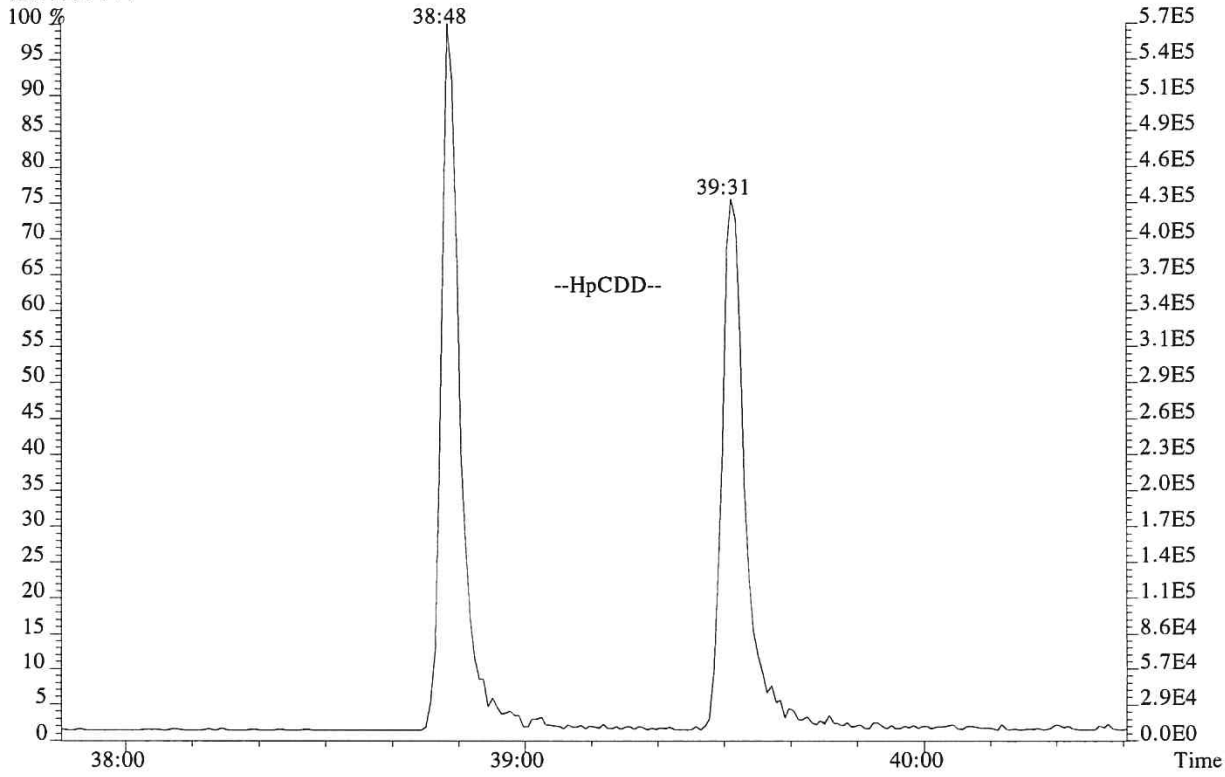


011543

File:P519367 #1-587 Acq:12-DEC-2018 00:36:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519366 Analysis Date: 11-DEC-18 Time: 23:49:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.63	1.32-1.78	50	39 - 65	-0.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	50	39 - 64	0.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	53	41 - 61	5.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	0.7
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	9.5	8.4 - 12.0	-4.9
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	49	41 - 60	-1.3
2,3,4,7,8-PeCDF	M+2/M+4	1.49	1.32-1.78	49	41 - 61	-2.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.17	1.05-1.43	52	45 - 56	3.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	50	44 - 57	0.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.21	1.05-1.43	50	45 - 56	-0.5
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	0.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	49	45 - 55	-1.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	51	43 - 58	2.2
OCDF	M+2/M+4	0.89	0.76-1.02	99	63 - 159	-1.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519366 Analysis Date: 11-DEC-18 Time: 23:49:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	102	82 - 121	2.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.32-1.78	107	62 - 160	7.1
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	93	85 - 117	-7.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	96	85 - 118	-4.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.0
13C-OCDD	M+2/M+4	0.90	0.76-1.02	249	96 - 415	24.6
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	96	71 - 140	-4.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	109	76 - 130	8.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	108	77 - 130	7.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	87	76 - 131	-12.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	70 - 143	-5.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	97	74 - 135	-2.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	97	73 - 137	-3.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	104	78 - 129	4.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	106	77 - 129	5.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.0	7.8 - 12.7	-0.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519366 Samp: 1 Inj: 1 Acquired: 11-DEC-18 23:49:06
Processed: 13-DEC-18 09:25:54 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	3.288e+03	4.606e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	2.924e+04	1.932e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	2.674e+04	1.791e+04	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	2.307e+04	1.968e+04	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.621e+04	2.194e+04	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	2.400e+04	1.982e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	2.123e+04	1.752e+04	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:33	2.181e+04	2.152e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:60	1.817e+04	1.769e+04	1.03	yes	no	1.258
10	Unk	OCDF	42:40	2.950e+04	3.328e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	2.669e+03	3.403e+03	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.863e+04	1.144e+04	1.63	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	1.588e+04	1.295e+04	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	1.709e+04	1.354e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	1.783e+04	1.424e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	1.509e+04	1.449e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:29	2.476e+04	2.797e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	3.943e+04	4.876e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	5.970e+04	3.750e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	5.851e+04	3.655e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	2.415e+04	4.551e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.909e+04	5.641e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	2.710e+04	5.150e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	2.330e+04	4.477e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	2.026e+04	4.473e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	1.729e+04	3.854e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	2.552e+04	3.188e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	3.915e+04	2.422e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	3.106e+04	2.441e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	3.311e+04	2.539e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	2.983e+04	2.824e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:28	4.423e+04	4.941e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	2.704e+04	3.365e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	3.657e+04	2.795e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	6.145e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519366 Samp: 1 Inj: 1 Acquired: 11-DEC-18 23:49:06
Processed: 13-DEC-18 09:25:54 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.58e+05	5.00e+02	1.1e+03	7.63e+05	8.44e+02	9.0e+02
2	1,2,3,7,8-PeCDF	5.21e+06	1.64e+02	3.2e+04	3.44e+06	9.80e+02	3.5e+03
3	2,3,4,7,8-PeCDF	5.01e+06	1.64e+02	3.1e+04	3.45e+06	9.80e+02	3.5e+03
4	1,2,3,4,7,8-HxCDF	4.69e+06	2.92e+02	1.6e+04	4.00e+06	3.44e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	5.03e+06	2.92e+02	1.7e+04	4.15e+06	3.44e+02	1.2e+04
6	2,3,4,6,7,8-HxCDF	4.73e+06	2.92e+02	1.6e+04	3.94e+06	3.44e+02	1.1e+04
7	1,2,3,7,8,9-HxCDF	3.79e+06	2.92e+02	1.3e+04	3.15e+06	3.44e+02	9.2e+03
8	1,2,3,4,6,7,8-HpCDF	4.01e+06	2.72e+03	1.5e+03	3.97e+06	4.52e+03	8.8e+02
9	1,2,3,4,7,8,9-HpCDF	2.86e+06	2.72e+03	1.1e+03	2.79e+06	4.52e+03	6.2e+02
10	OCDF	3.44e+06	2.40e+02	1.4e+04	3.93e+06	6.24e+02	6.3e+03
11	2,3,7,8-TCDD	4.81e+05	1.39e+03	3.5e+02	6.33e+05	6.16e+02	1.0e+03
12	1,2,3,7,8-PeCDD	3.52e+06	4.60e+02	7.7e+03	2.19e+06	1.64e+02	1.3e+04
13	1,2,3,4,7,8-HxCDD	3.28e+06	3.36e+02	9.8e+03	2.68e+06	3.92e+02	6.8e+03
14	1,2,3,6,7,8-HxCDD	3.30e+06	3.36e+02	9.8e+03	2.57e+06	3.92e+02	6.6e+03
15	1,2,3,7,8,9-HxCDD	3.27e+06	3.36e+02	9.7e+03	2.63e+06	3.92e+02	6.7e+03
16	1,2,3,4,6,7,8-HpCDD	2.48e+06	2.56e+02	9.7e+03	2.35e+06	2.88e+02	8.2e+03
17	OCDD	2.90e+06	1.76e+02	1.6e+04	3.24e+06	2.04e+02	1.6e+04
18	13C-2,3,7,8-TCDF	6.80e+06	4.27e+03	1.6e+03	8.44e+06	2.48e+03	3.4e+03
19	13C-1,2,3,7,8-PeCDF	1.07e+07	2.60e+02	4.1e+04	6.83e+06	5.56e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	1.12e+07	2.60e+02	4.3e+04	6.95e+06	5.56e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	4.88e+06	6.56e+02	7.4e+03	9.47e+06	8.08e+02	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	5.50e+06	6.56e+02	8.4e+03	1.06e+07	8.08e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	5.28e+06	6.56e+02	8.1e+03	1.02e+07	8.08e+02	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	4.21e+06	6.56e+02	6.4e+03	8.07e+06	8.08e+02	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.77e+06	2.52e+03	1.5e+03	8.15e+06	5.36e+02	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.77e+06	2.52e+03	1.1e+03	6.14e+06	5.36e+02	1.1e+04
27	13C-2,3,7,8-TCDD	4.59e+06	3.72e+03	1.2e+03	5.69e+06	1.37e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	7.19e+06	2.52e+02	2.9e+04	4.45e+06	3.60e+02	1.2e+04
29	13C-1,2,3,4,7,8-HxCDD	6.42e+06	8.52e+02	7.5e+03	5.01e+06	2.40e+02	2.1e+04
30	13C-1,2,3,6,7,8-HxCDD	6.25e+06	8.52e+02	7.3e+03	4.84e+06	2.40e+02	2.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.93e+06	3.60e+02	1.4e+04	4.63e+06	2.88e+02	1.6e+04
32	13C-OCDD	5.00e+06	2.52e+02	2.0e+04	5.68e+06	2.00e+02	2.8e+04
33	13C-1,2,3,4-TCDD	5.00e+06	3.72e+03	1.3e+03	6.20e+06	1.37e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	6.63e+06	8.52e+02	7.8e+03	5.10e+06	2.40e+02	2.1e+04
35	37Cl-2,3,7,8-TCDD	1.11e+06	9.24e+02	1.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.392e{+}03 + 6.160e{+}02) \times 100}{(4.593e{+}06 + 5.691e{+}06) \times (\qquad\qquad) \times 1.085} =$$

ALS ENVIRONMENTAL
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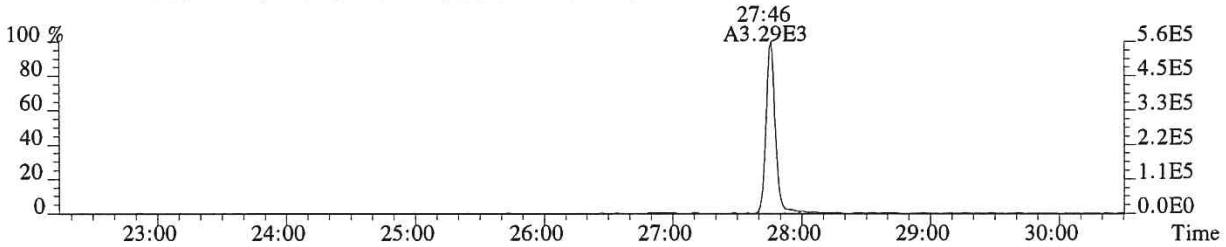
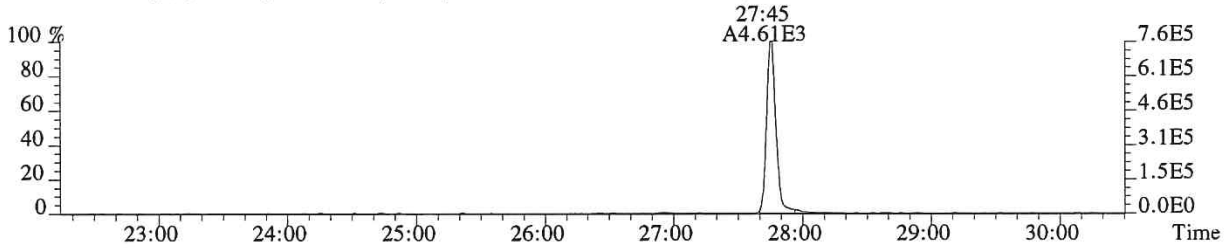
File:P519366 #1-587 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

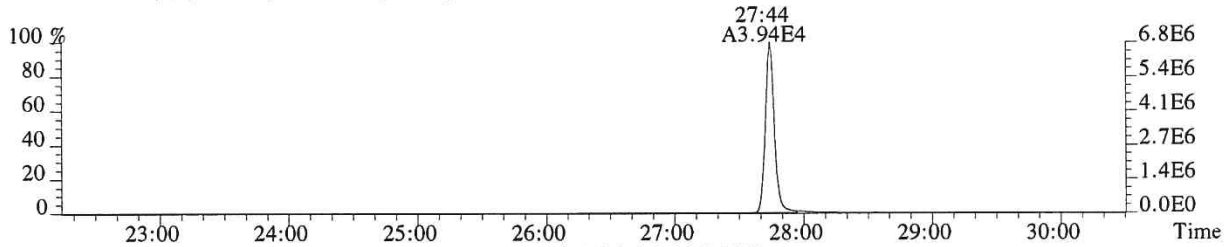
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



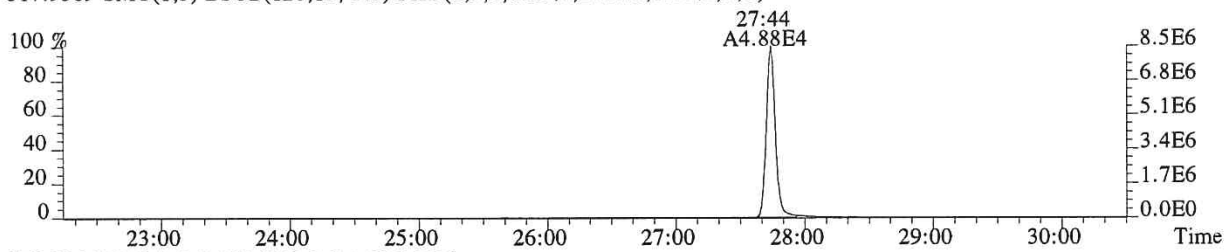
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



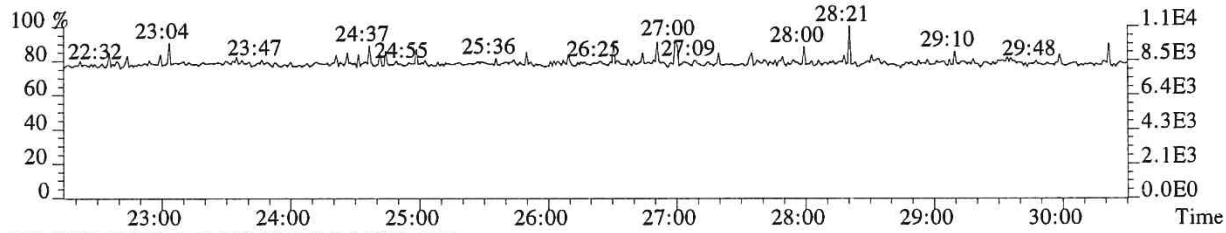
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4268.0,1.00%,F,T)



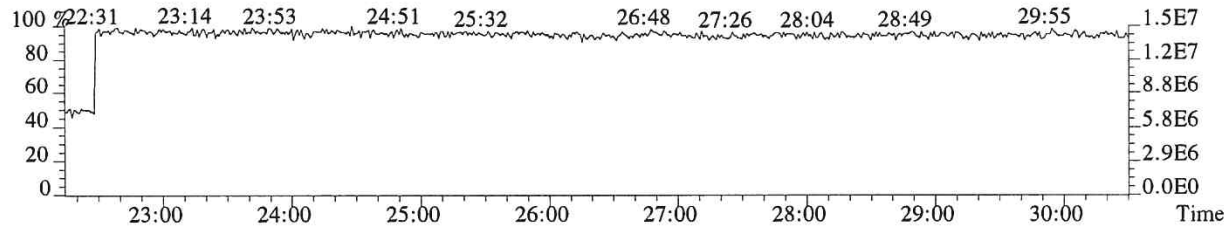
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2480.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

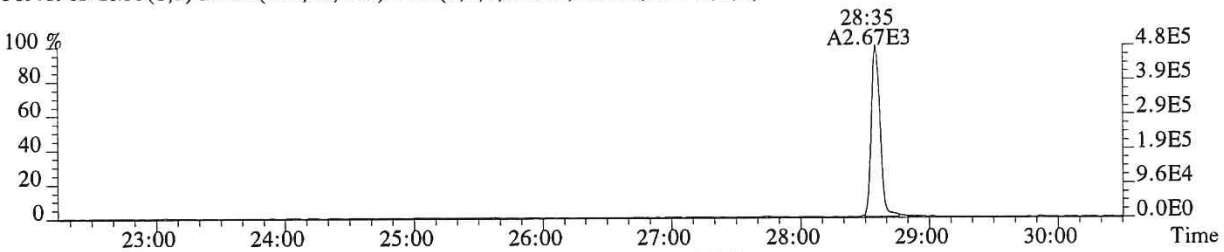


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

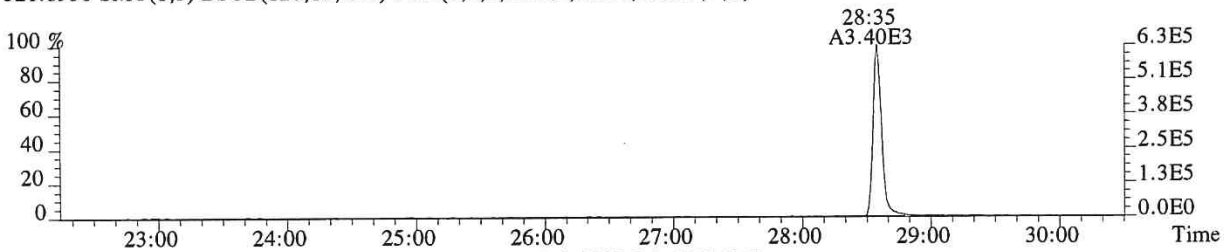


011549

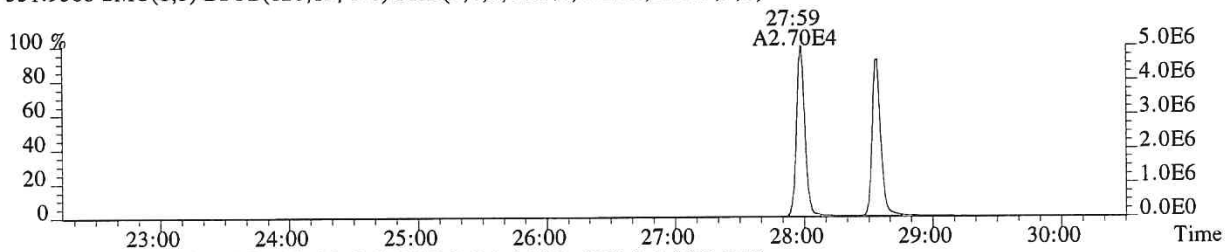
File:P519366 #1-587 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



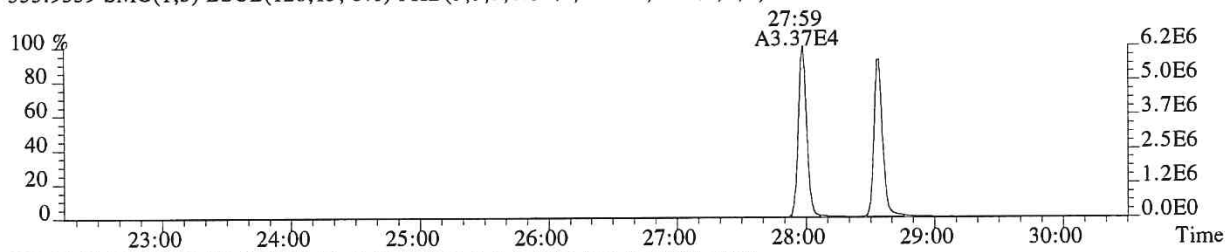
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



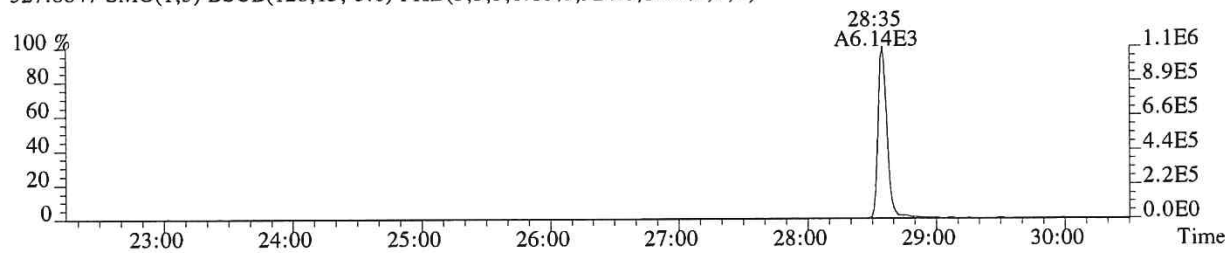
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3720.0,1.00%,F,T)



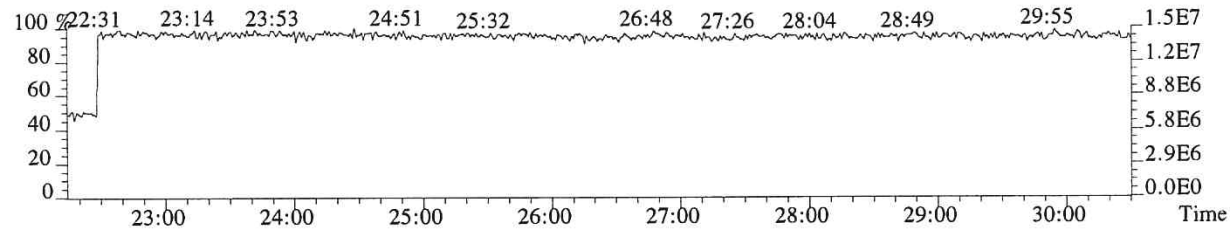
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)

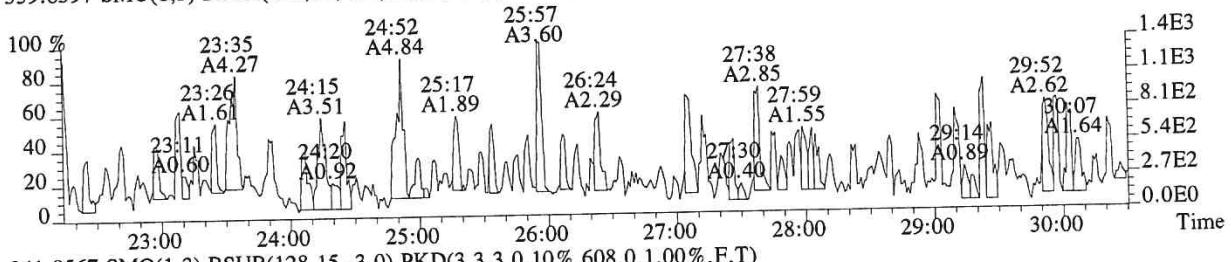


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

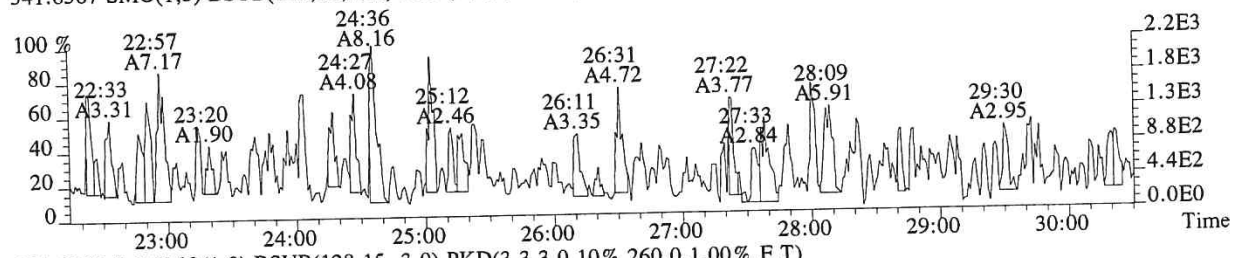


011550

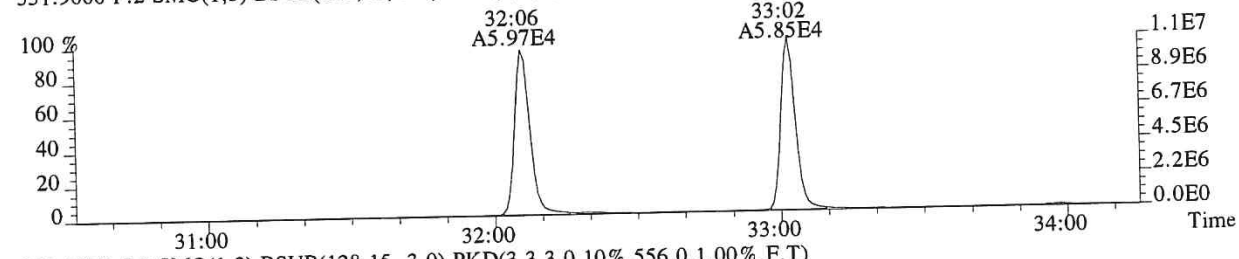
File:P519366 #1-587 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



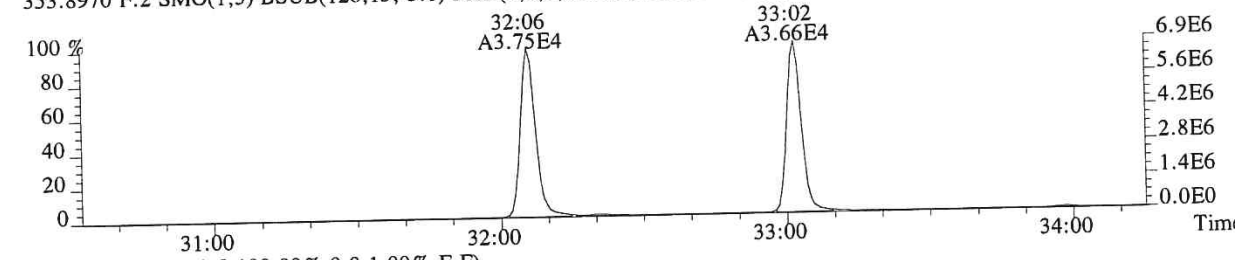
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



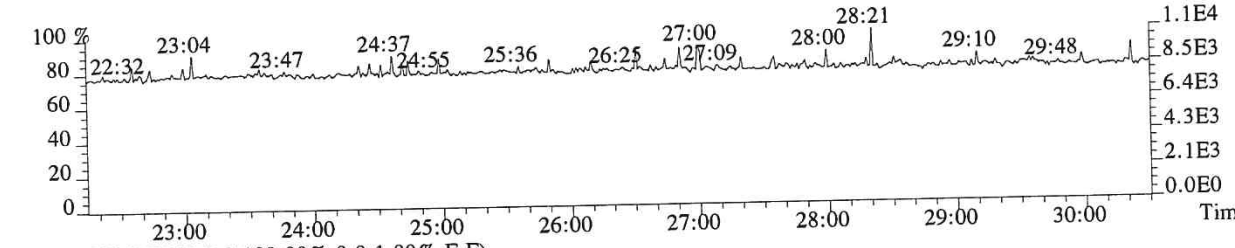
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



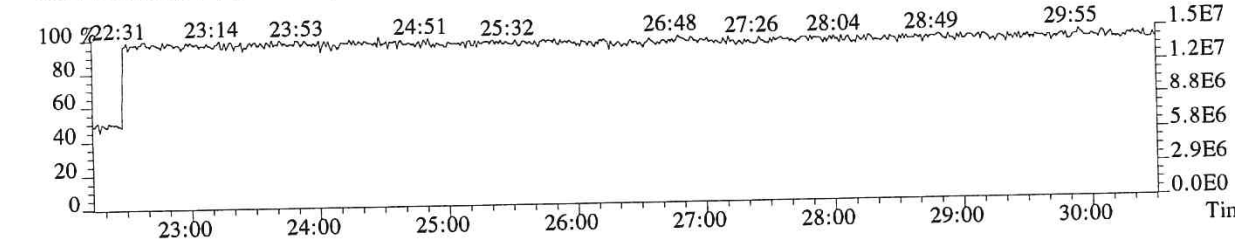
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

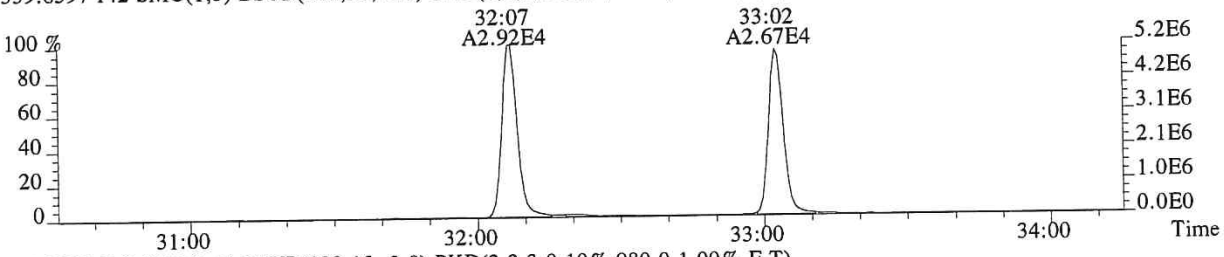


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

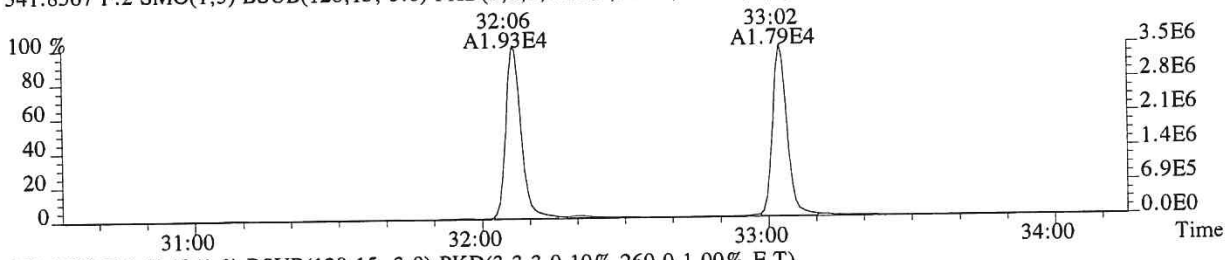


011551

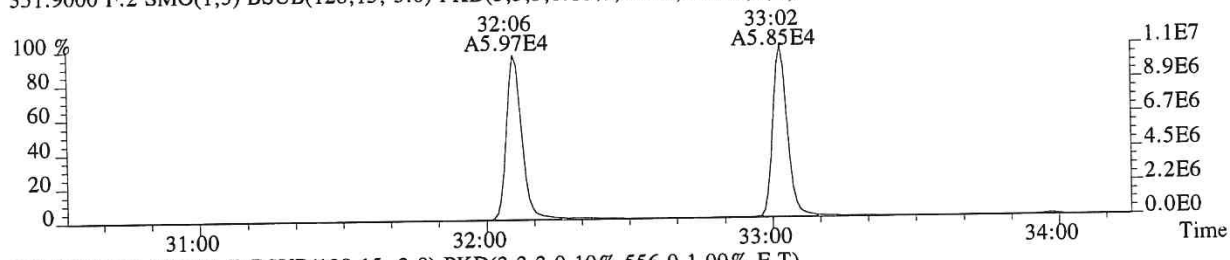
File:P519366 #1-335 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



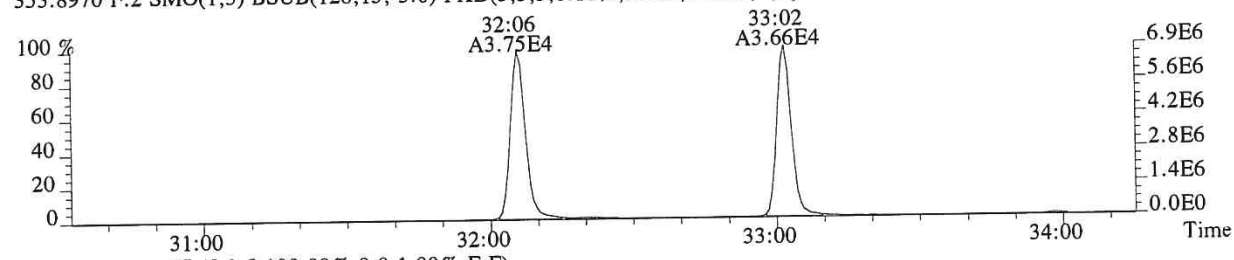
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



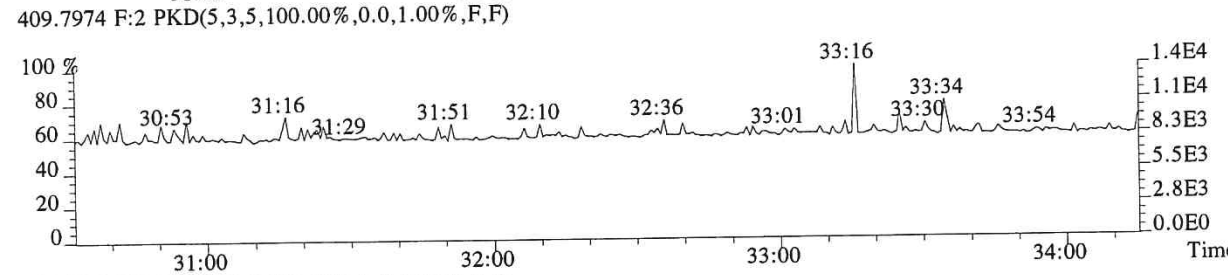
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



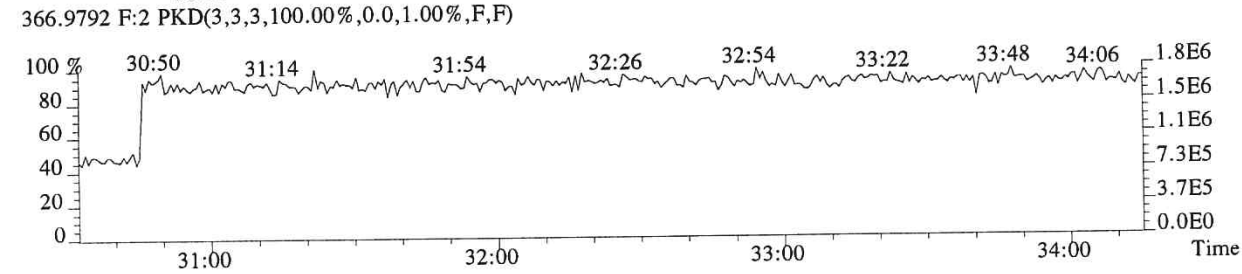
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

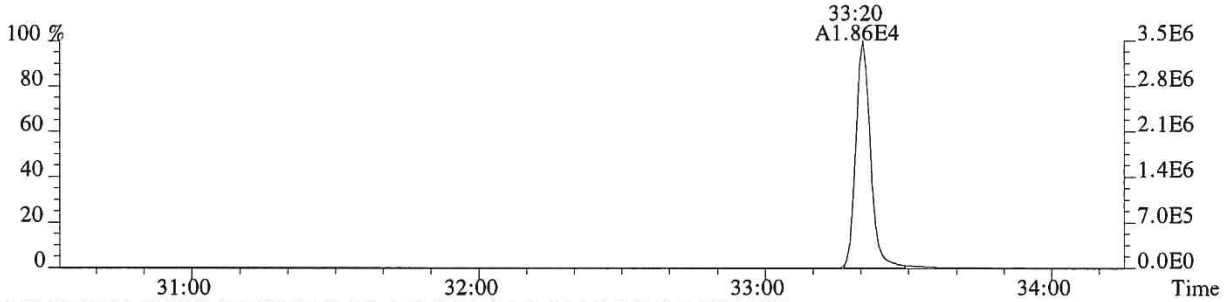


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

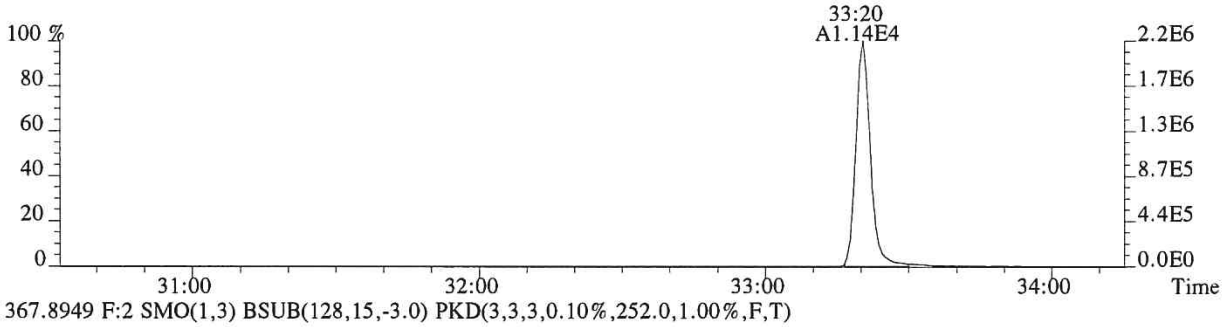


011552

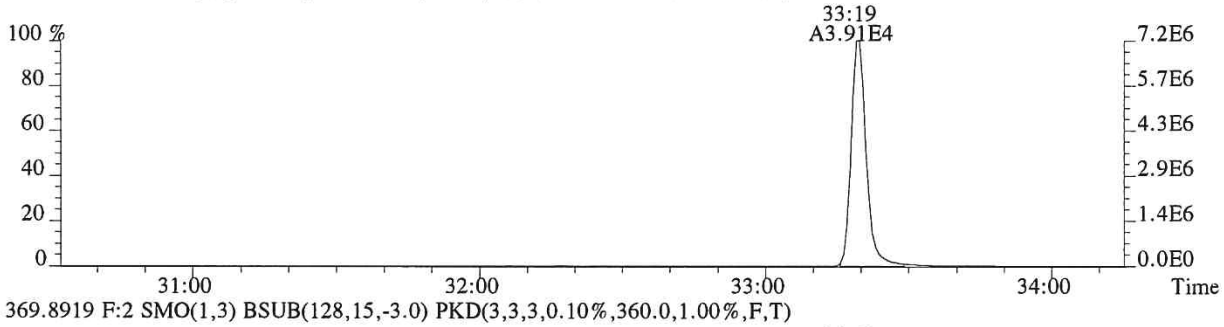
File:P519366 #1-335 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



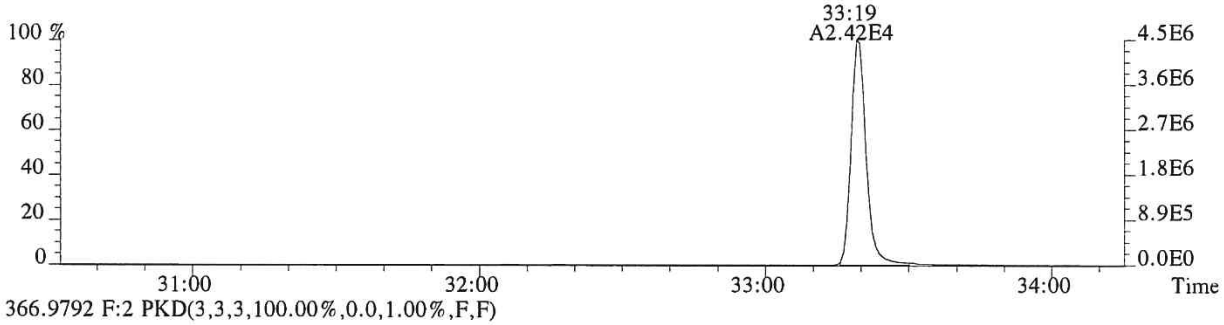
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



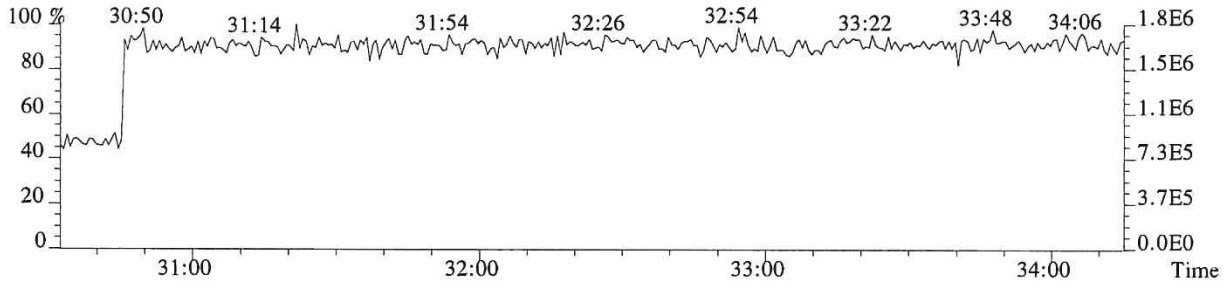
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



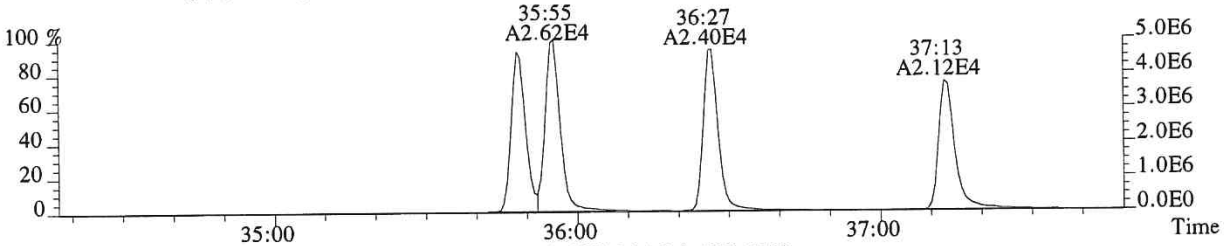
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



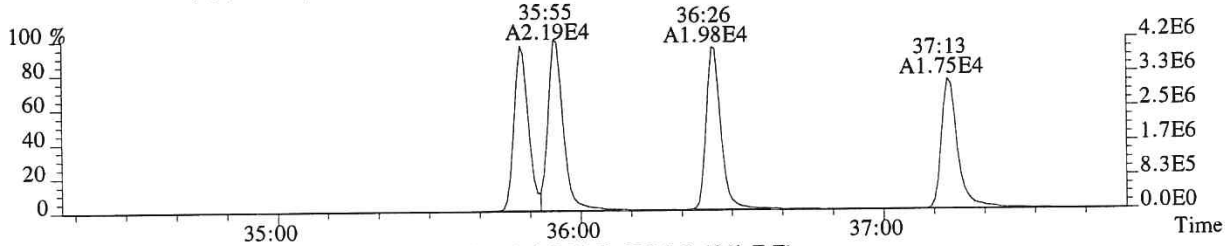
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



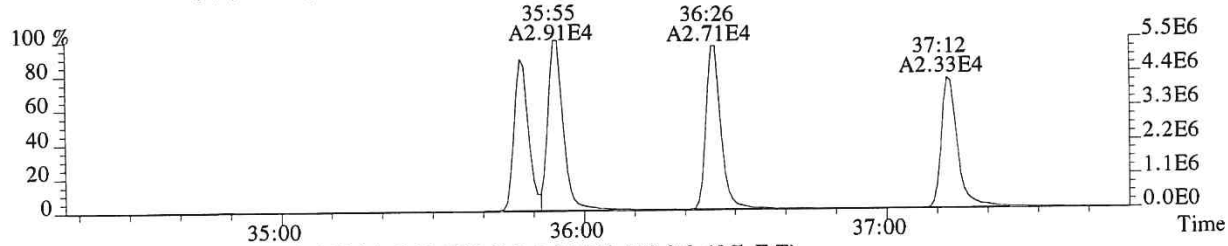
File:P519366 #1-317 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



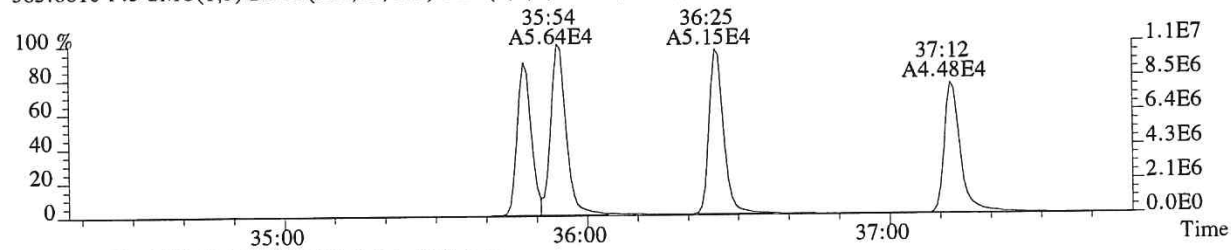
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



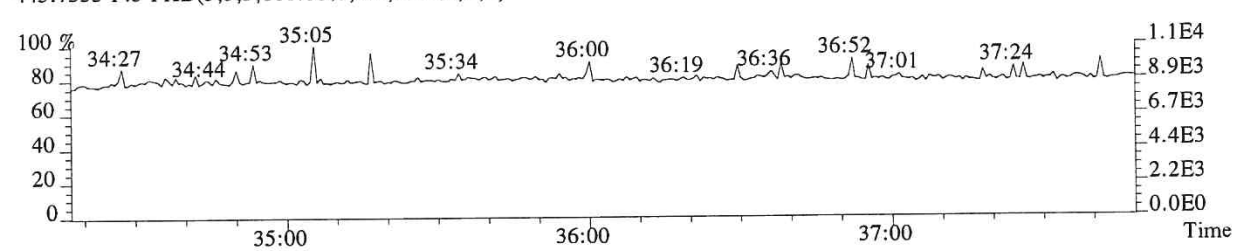
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



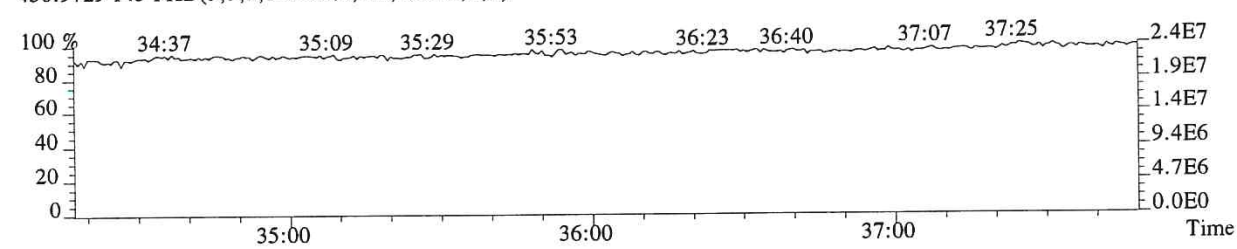
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

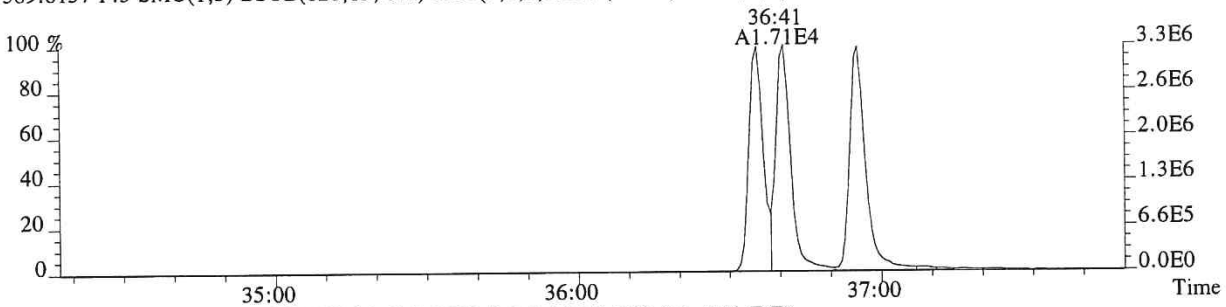


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

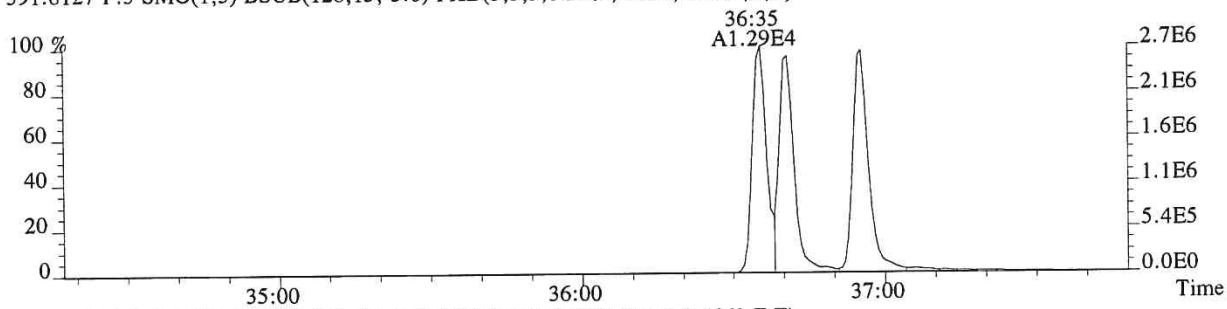


011554

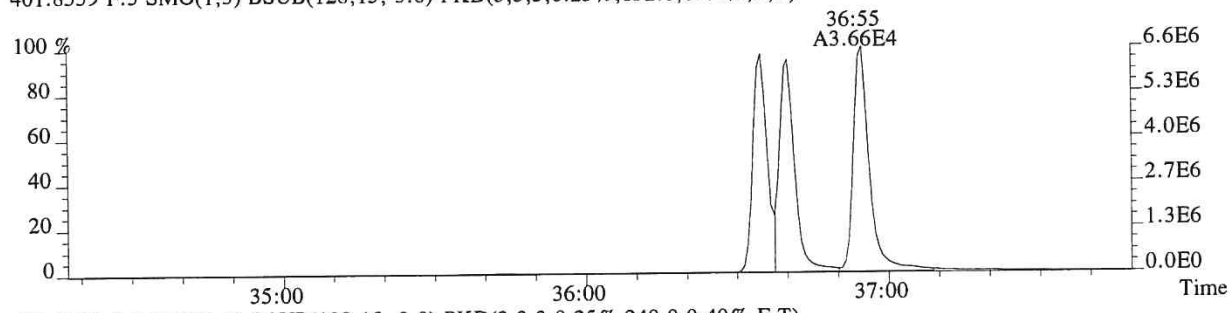
File:P519366 #1-317 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



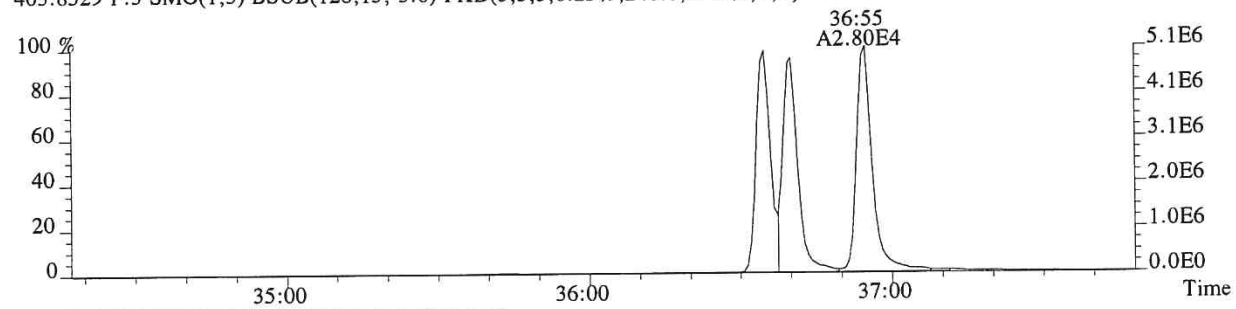
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



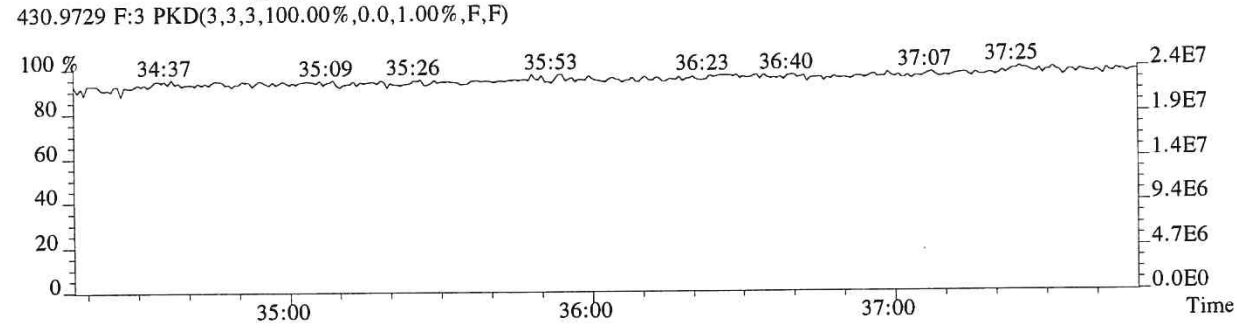
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



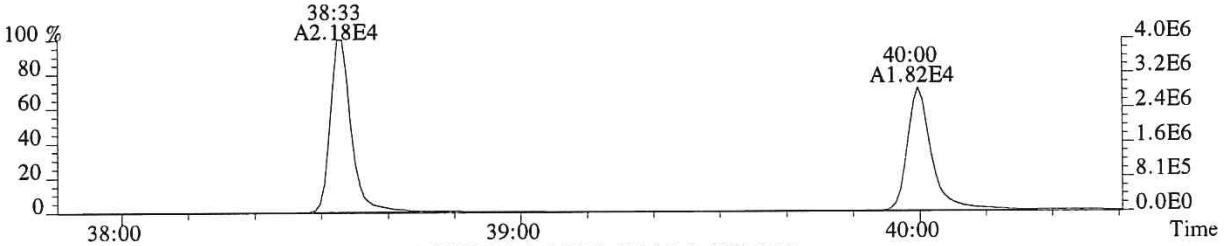
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



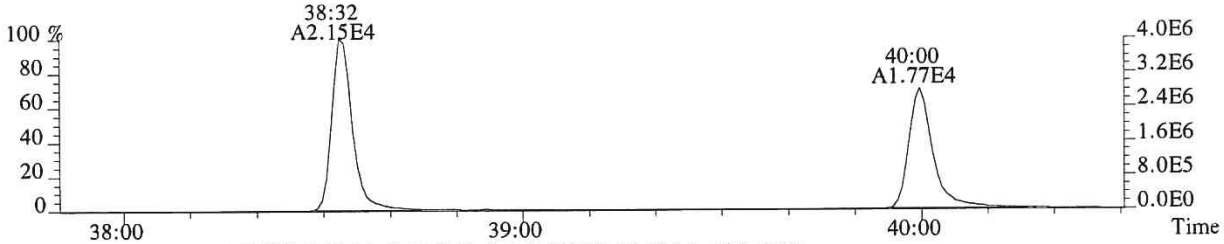
011555

File:P519366 #1-241 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

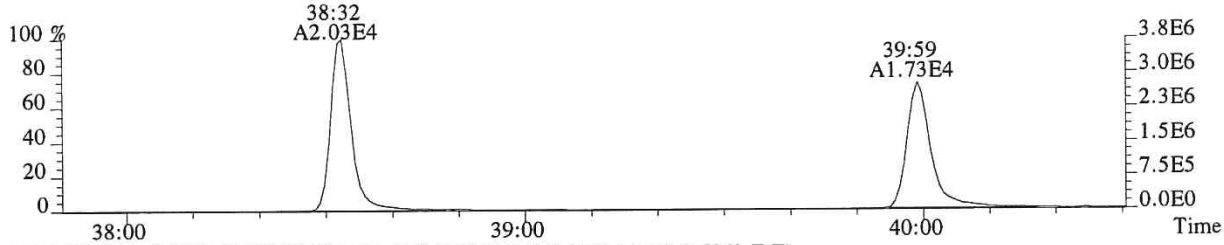
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2716.0,0.50%,F,T)



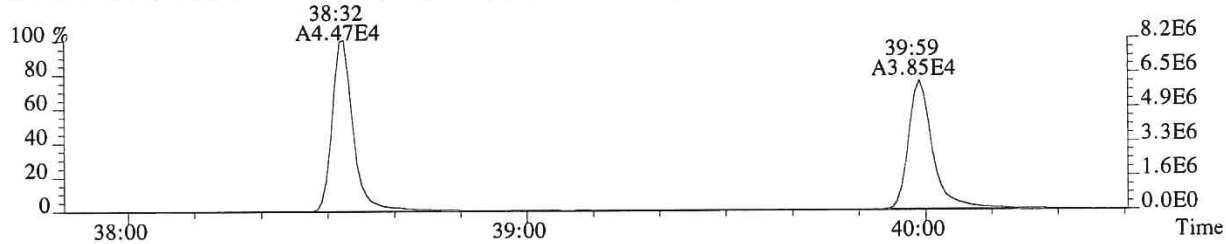
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4516.0,0.50%,F,T)



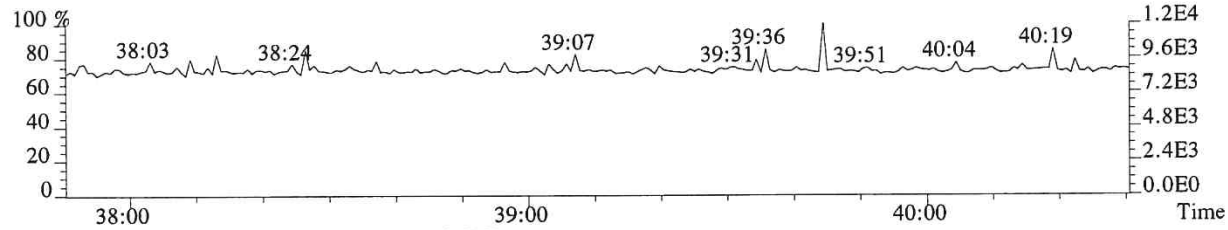
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2516.0,0.50%,F,T)



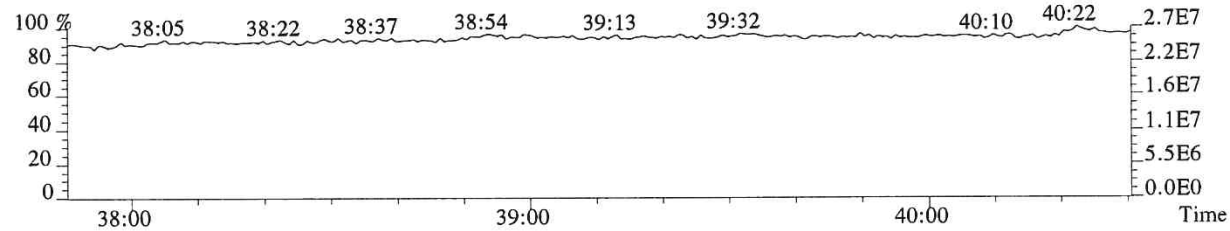
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

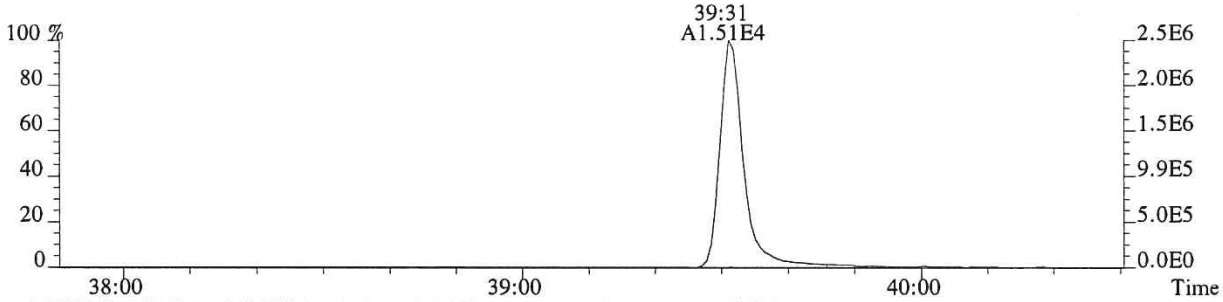


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

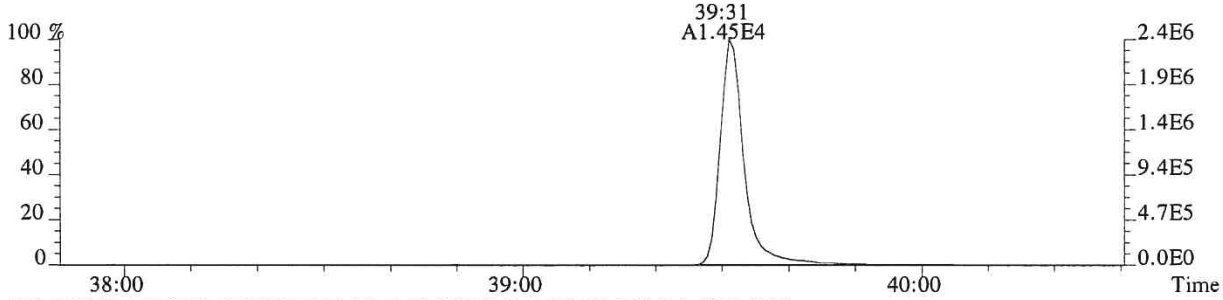


011556

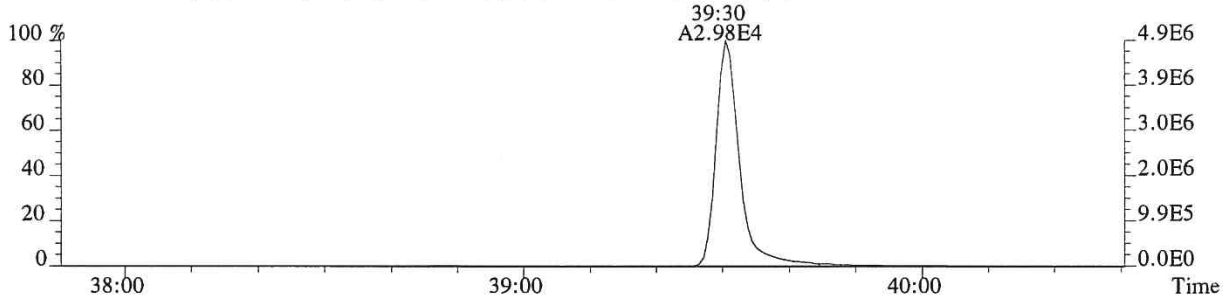
File:P519366 #1-241 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



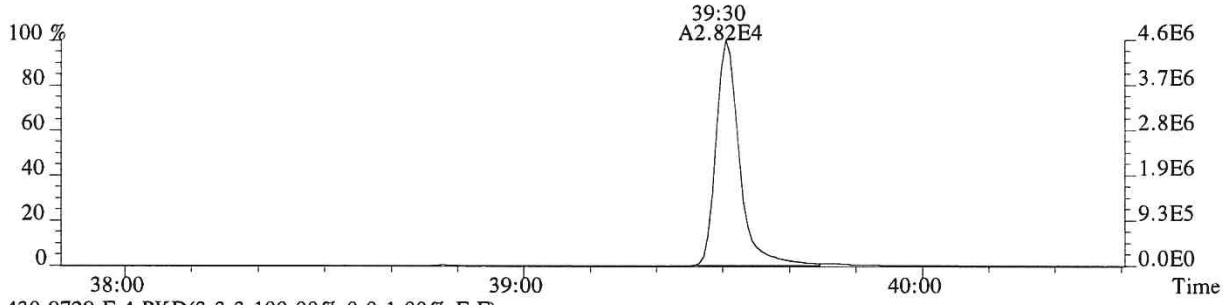
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



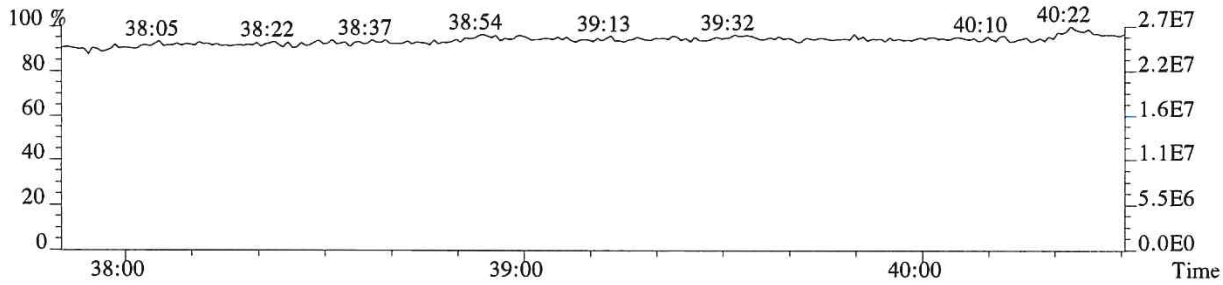
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)

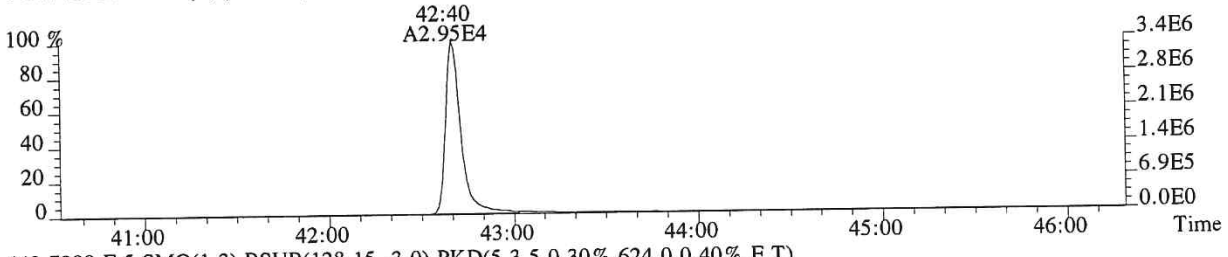


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

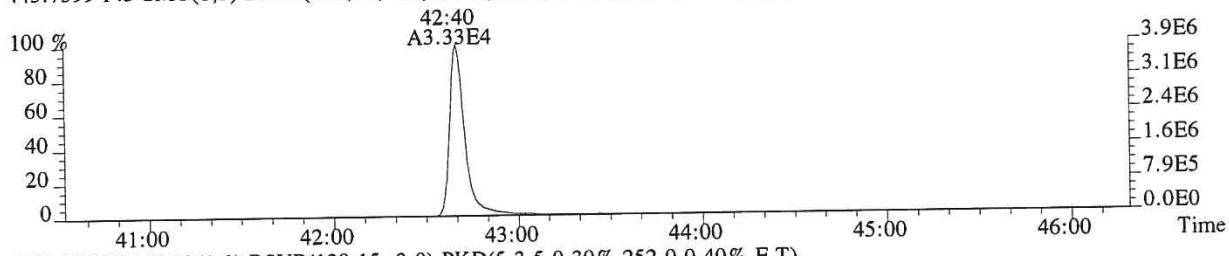


011557

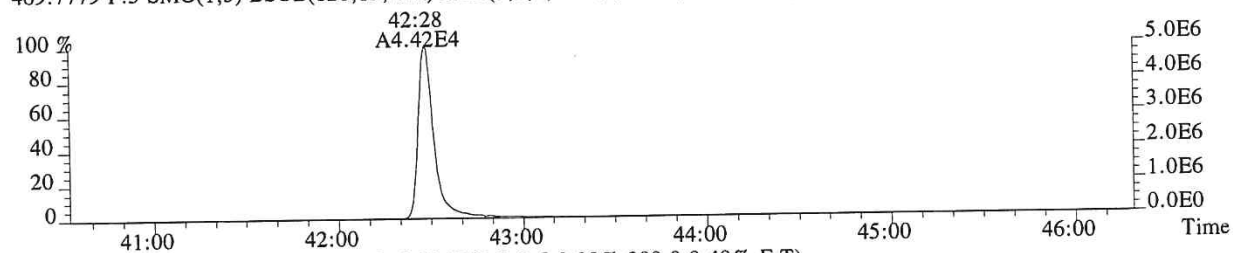
File:P519366 #1-520 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



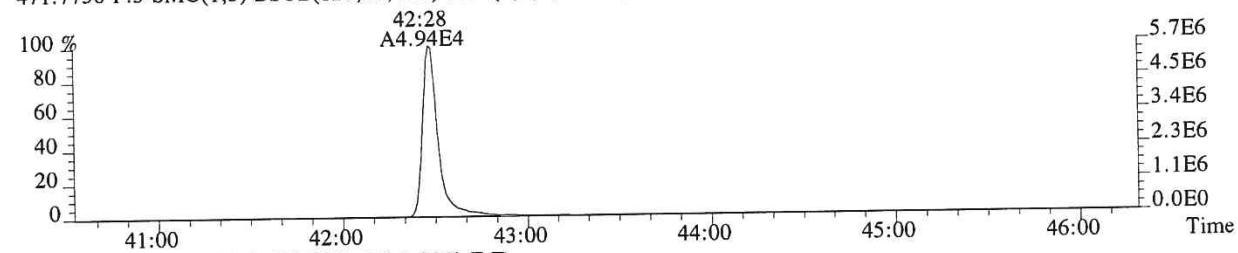
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



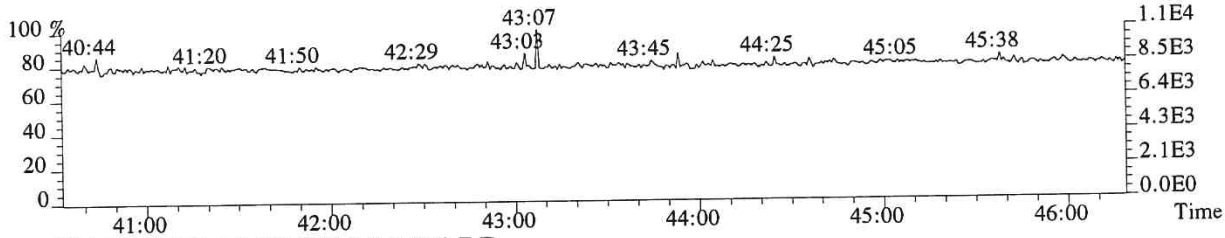
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



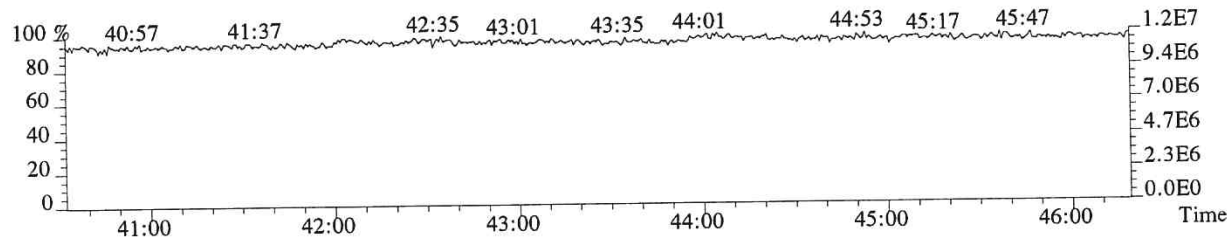
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

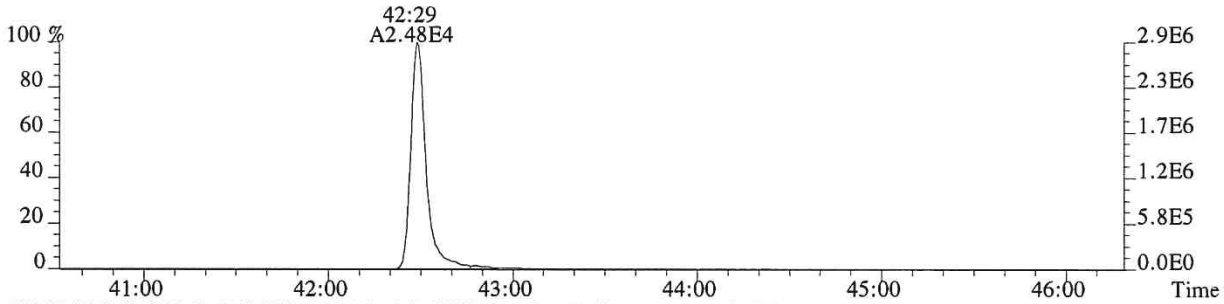


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

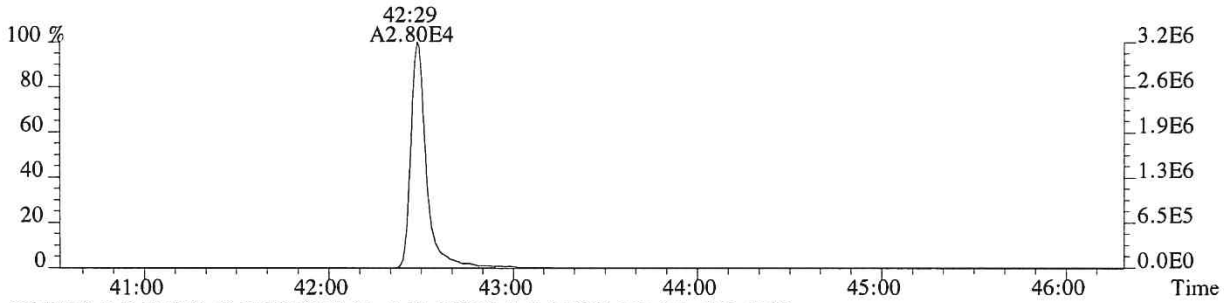


011558

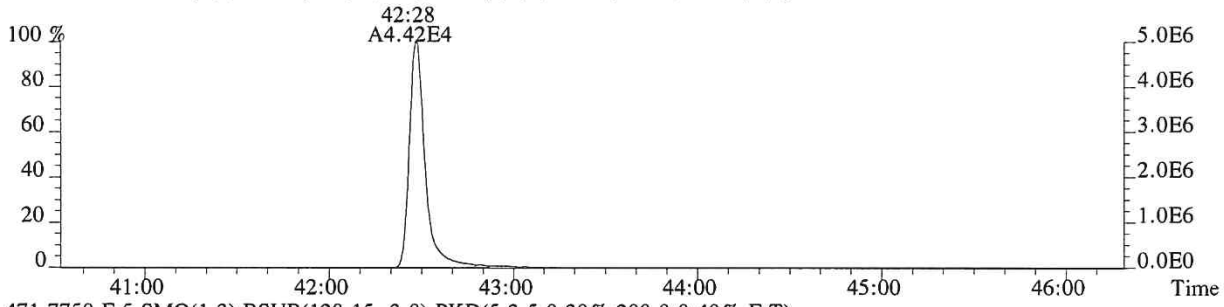
File:P519366 #1-520 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



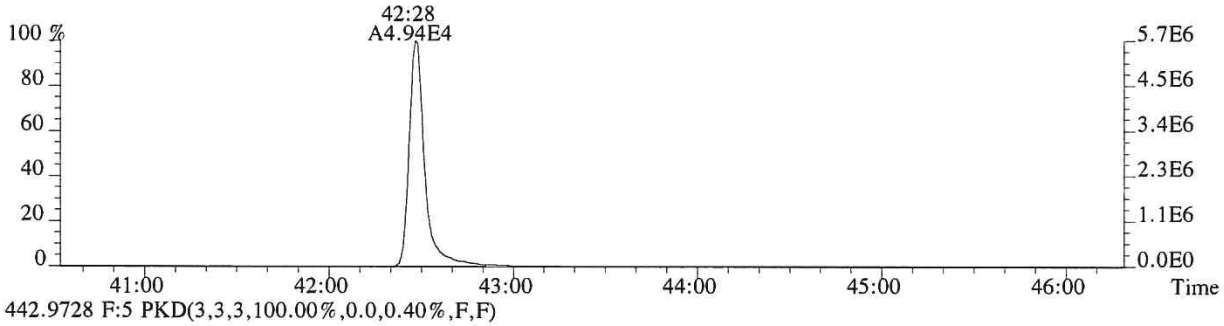
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



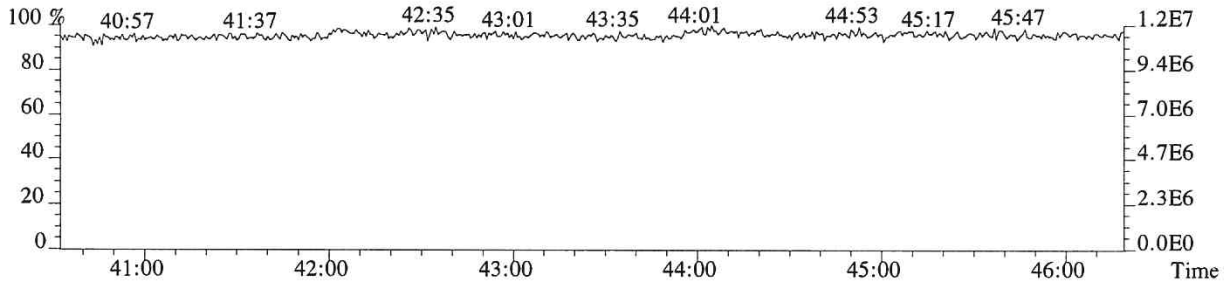
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011559

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P615714

Date: 11/27/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P615715	27-NOV-18	11:03:06
194503	CS3	P615714	27-NOV-18	10:04:16
METHOD BLANK	EQ1800466-01	P615716	27-NOV-18	11:51:24
METHOD BLANK	EQ1800474-01	P615717	27-NOV-18	12:40:25
METHOD BLANK	EQ1800467-01	P615718	27-NOV-18	13:29:29
FW0002	E1801012-021	P615719	27-NOV-18	14:18:43
FW0003	E1801012-022	P615720	27-NOV-18	15:07:45
FW0001	E1801020-053	P615721	27-NOV-18	15:59:49
FB001	E1801020-054	P615722	27-NOV-18	16:48:08
183384-D/F WIPE OF	E1801036-001	P615723	27-NOV-18	17:37:19
183391-D/F WIPE OF	E1801036-002	P615724	27-NOV-18	18:26:25
183392-D/F WIPE OF	E1801036-003	P615725	27-NOV-18	19:15:37
FW0050	E1801038-023	P615726	27-NOV-18	20:04:50
LCS	EQ1800467-02	P615727	27-NOV-18	20:53:53
DLCS	EQ1800467-03	P615728	27-NOV-18	21:43:01

E1801039

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181127A.SPL
Last Modified: Wednesday, November 28, 2018 10:35:01 Central Standard Time
Printed: Wednesday, November 28, 2018 10:35:03 Central Standard Time

Page Position (1, 1)

OPUS5NET: P615714 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	11/27/18	10:04	P615714	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LKL	HRMScheck 10:59
2		11:03	P615715	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		11:51	P615716	EQ1800466-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		12:40	P615717	EQ1800474-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		13:29	P615718	EQ1800467-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		14:18	P615719	E1801012-021	E1801012-021	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		15:07	P615720	E1801012-022	E1801012-022	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:59	P615721	E1801020-053	E1801020-053	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		16:48	P615722	E1801020-054	E1801020-054	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		17:37	P615723	E1801036-001	E1801036-001	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		18:26	P615724	E1801036-002	E1801036-002	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		19:15	P615725	E1801036-003	E1801036-003	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		20:04	P615726	E1801038-023	E1801038-023	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:53	P615727	EQ1800467-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		21:43	P615728	EQ1800467-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		22:40	P615729	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMScheck 22:40
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

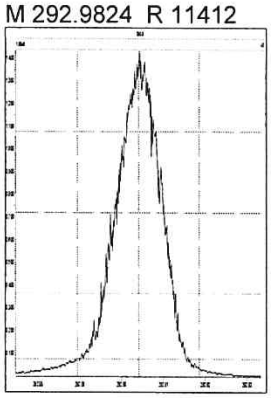
LKL 11/28/18

011562

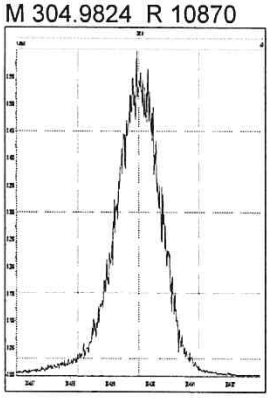
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 10:59:40 Central Standard Time

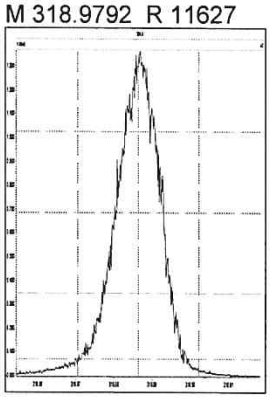
M 292.9824 R 11412



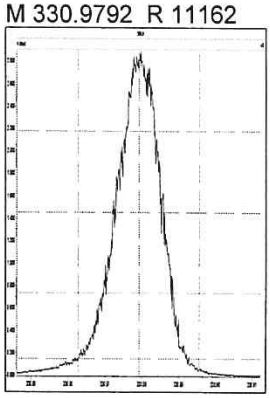
M 304.9824 R 10870



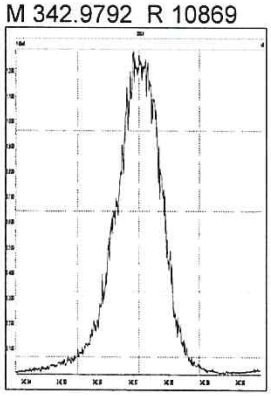
M 318.9792 R 11627



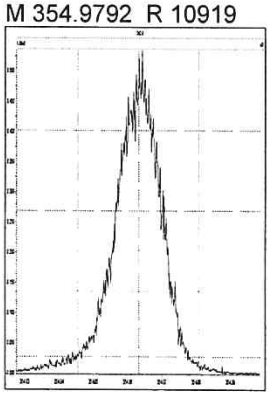
M 330.9792 R 11162



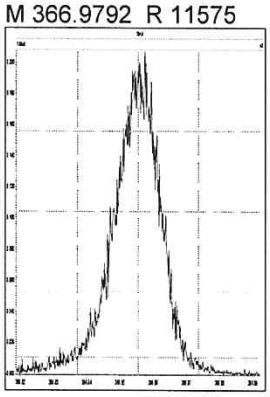
M 342.9792 R 10869



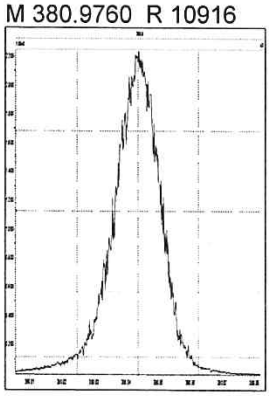
M 354.9792 R 10919



M 366.9792 R 11575



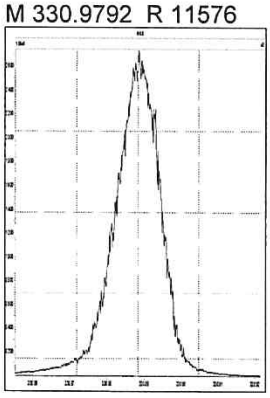
M 380.9760 R 10916



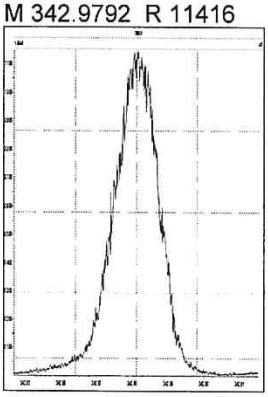
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:00:33 Central Standard Time

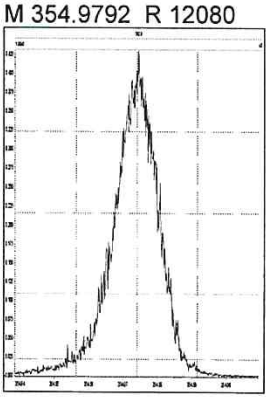
M 330.9792 R 11576



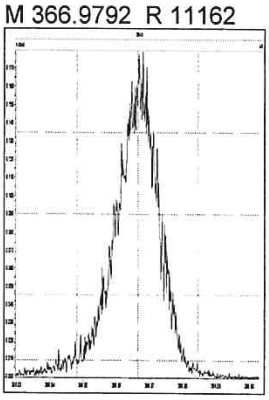
M 342.9792 R 11416



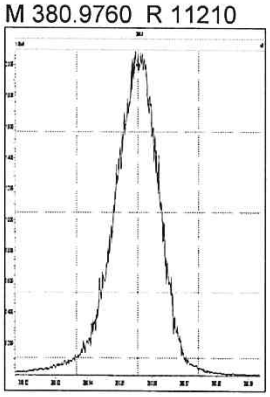
M 354.9792 R 12080



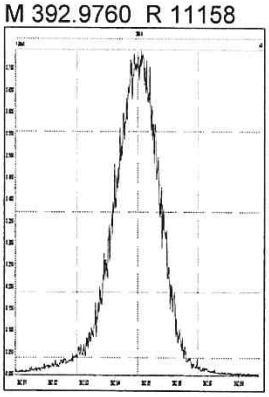
M 366.9792 R 11162



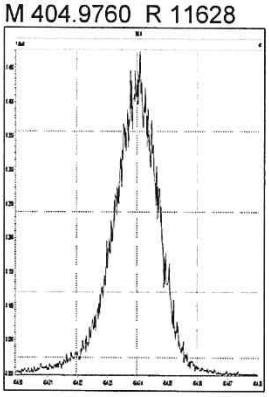
M 380.9760 R 11210



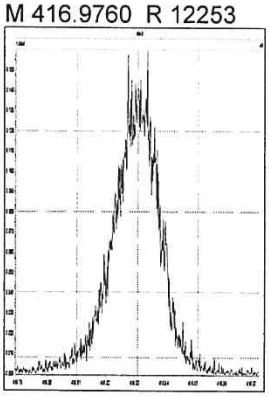
M 392.9760 R 11158



M 404.9760 R 11628



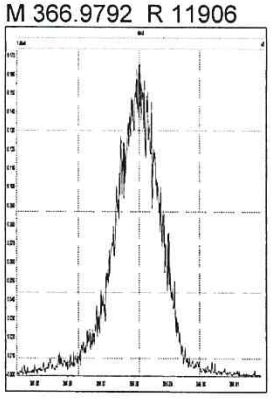
M 416.9760 R 12253



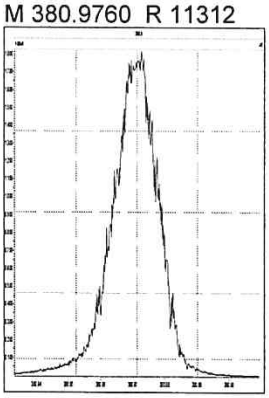
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:01:08 Central Standard Time

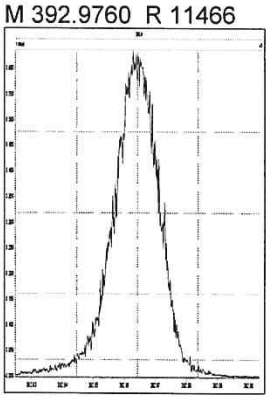
M 366.9792 R 11906



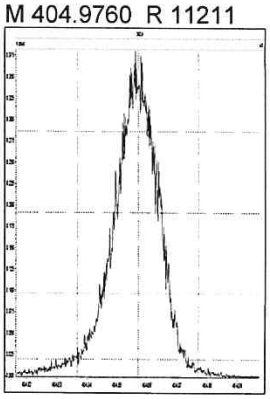
M 380.9760 R 11312



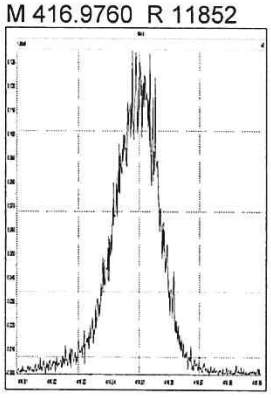
M 392.9760 R 11466



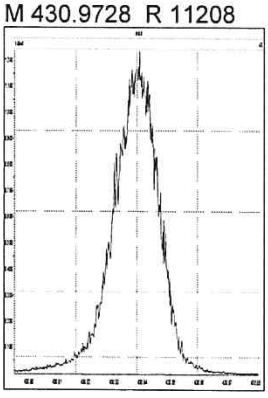
M 404.9760 R 11211



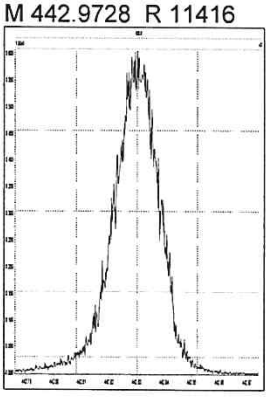
M 416.9760 R 11852



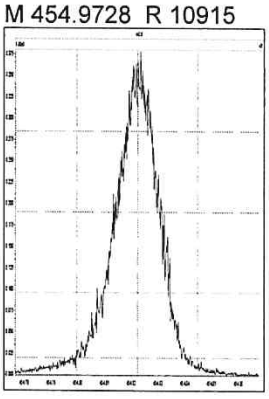
M 430.9728 R 11208



M 442.9728 R 11416



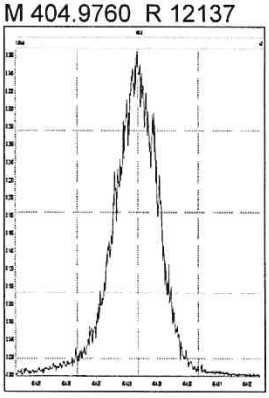
M 454.9728 R 10915



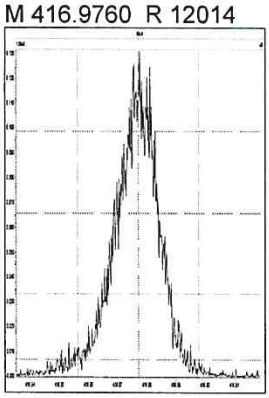
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, November 27, 2018 11:01:36 Central Standard Time

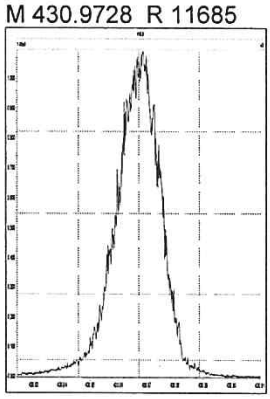
M 404.9760 R 12137



M 416.9760 R 12014



M 430.9728 R 11685



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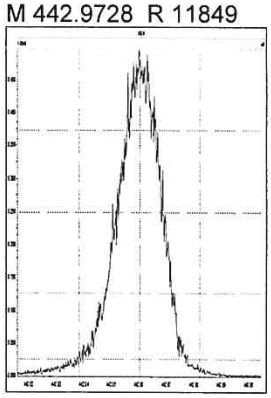

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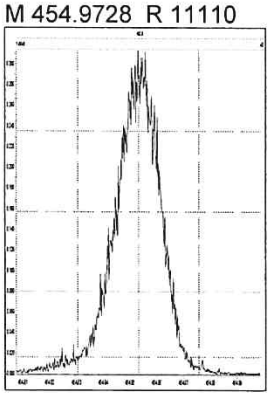

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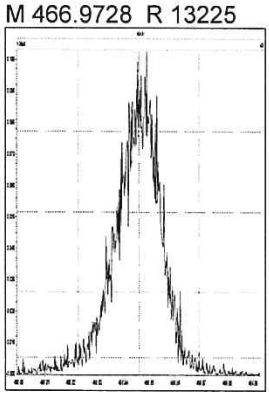

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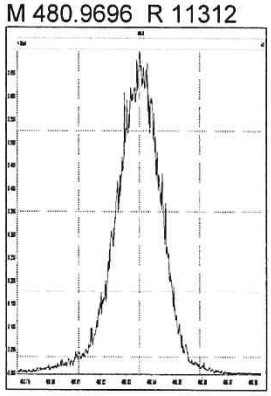

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Printed: Tuesday, November 27, 2018 11:02:11 Central Standard Time

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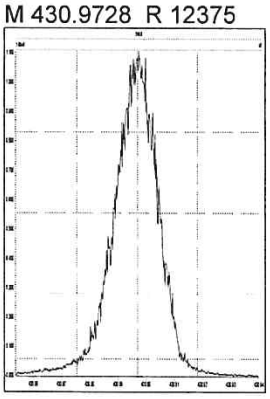

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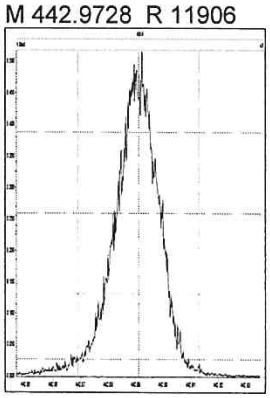

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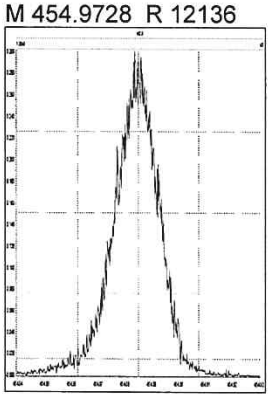

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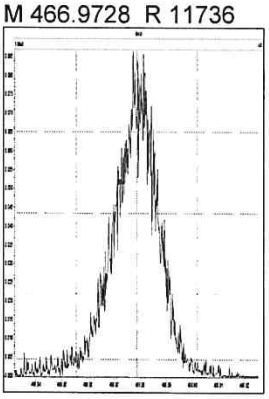

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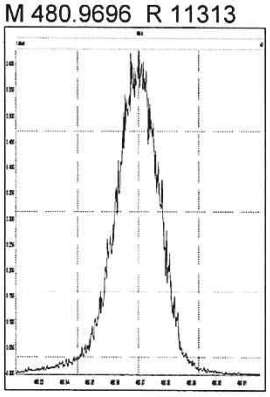

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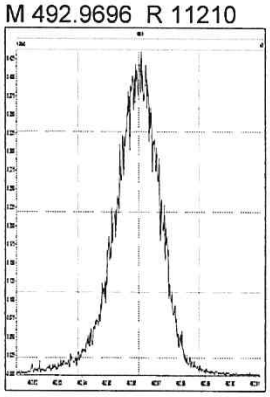

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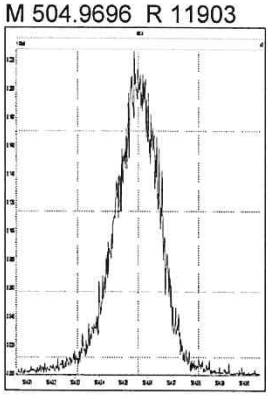

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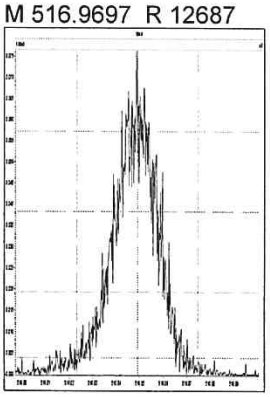

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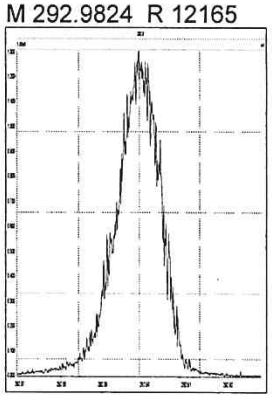

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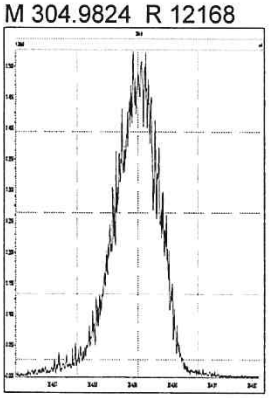

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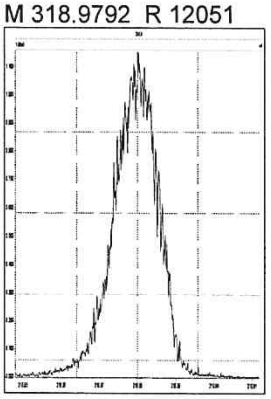

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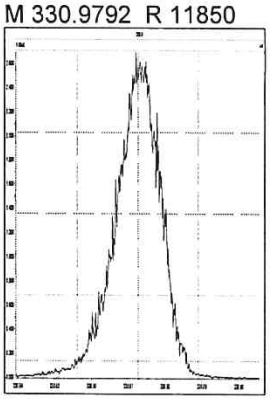

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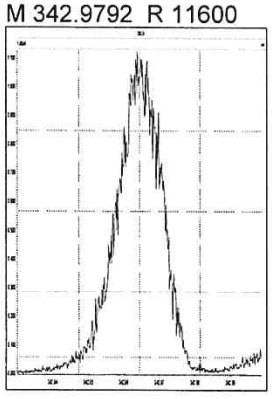

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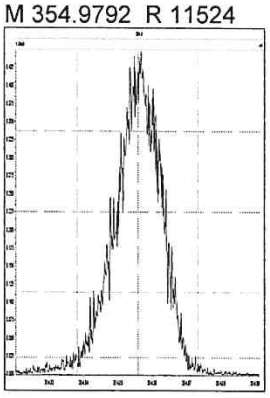

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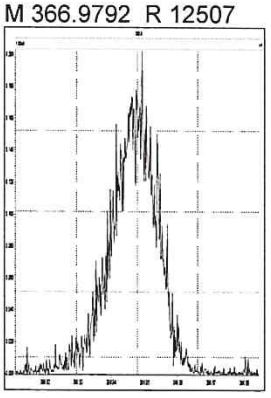

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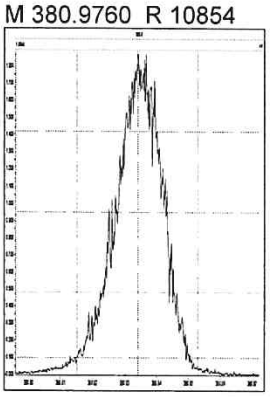

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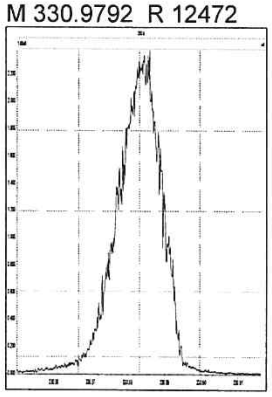

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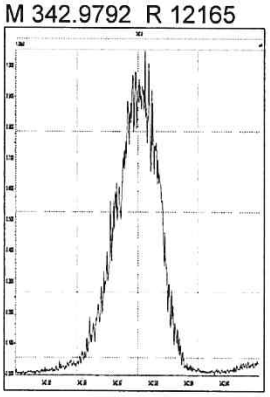

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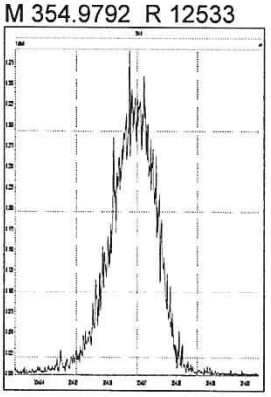

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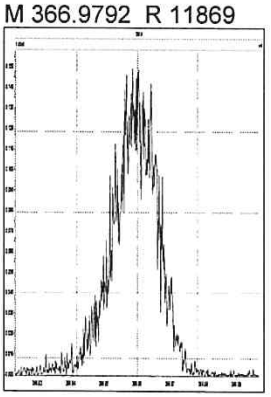

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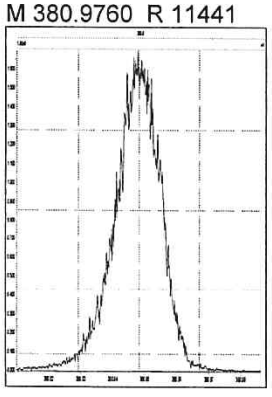

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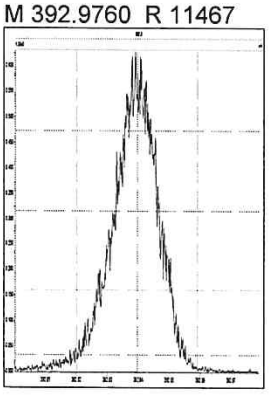

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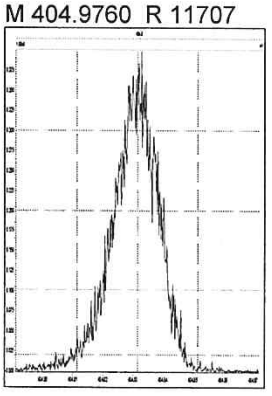

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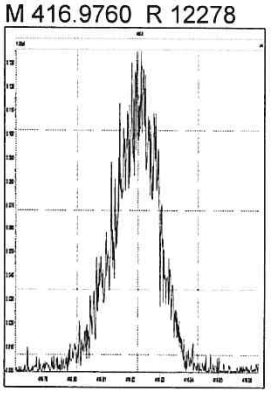

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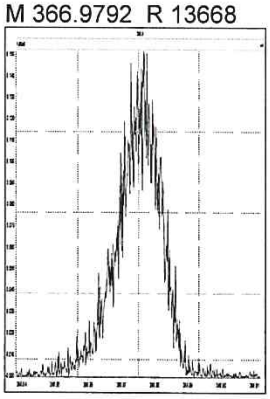

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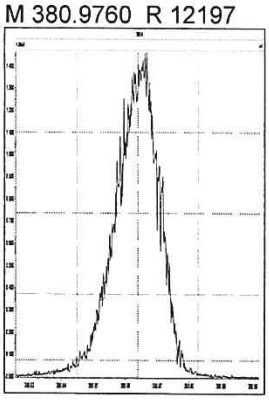

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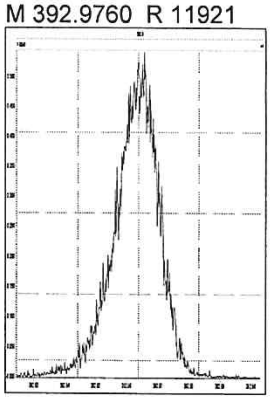

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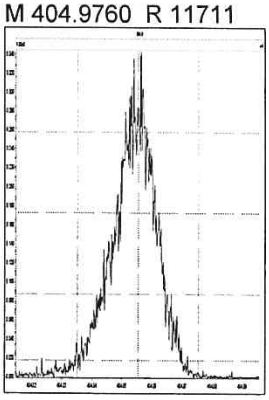

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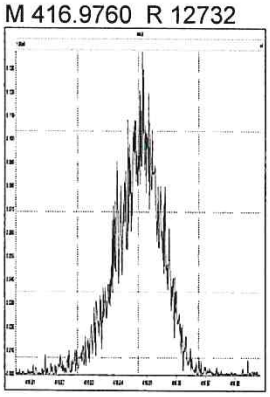

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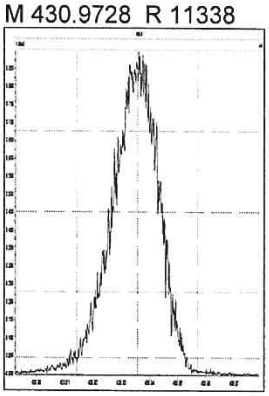

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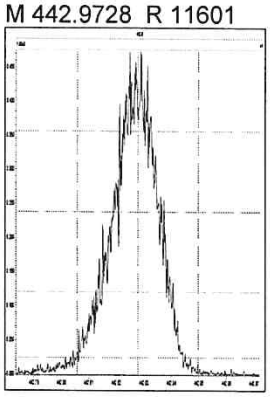

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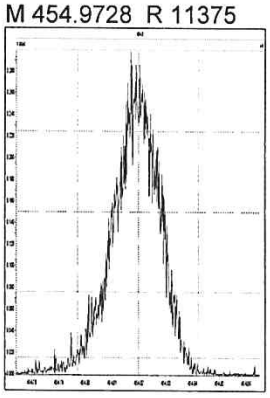

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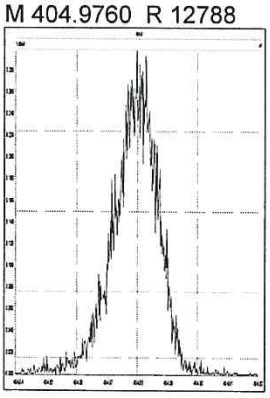

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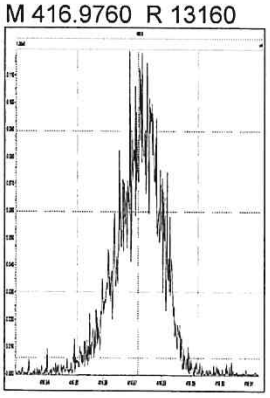

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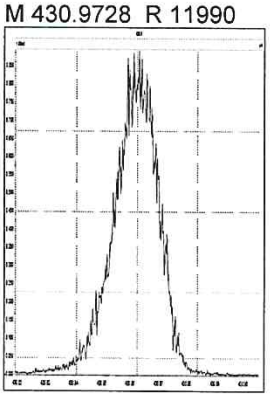

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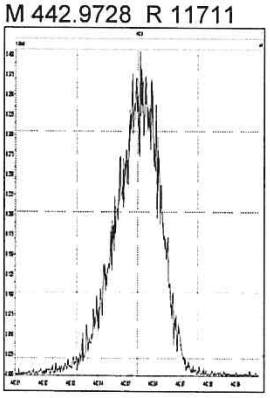

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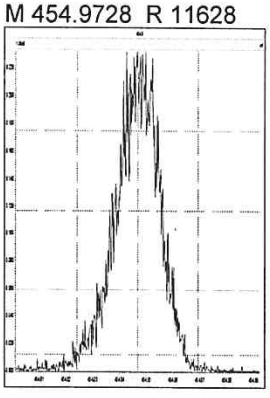

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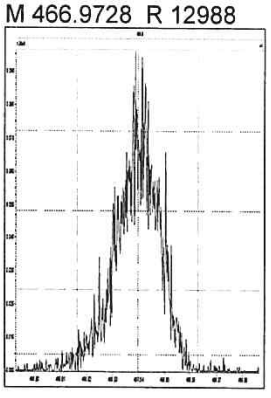

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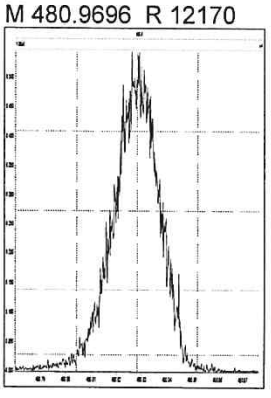

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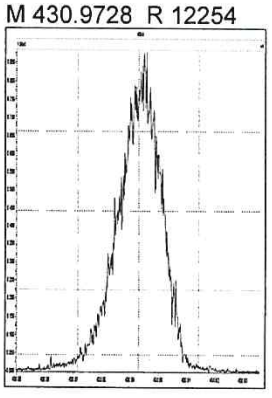

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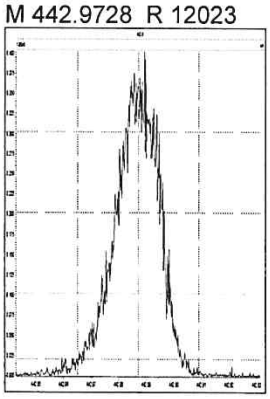

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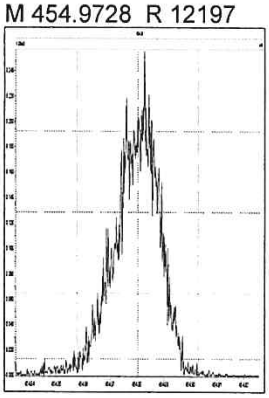

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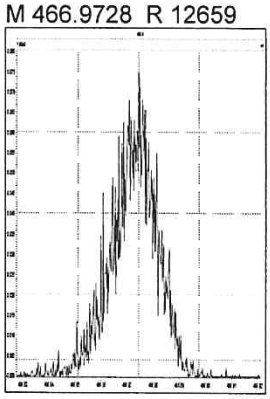

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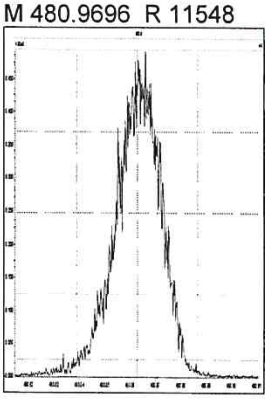

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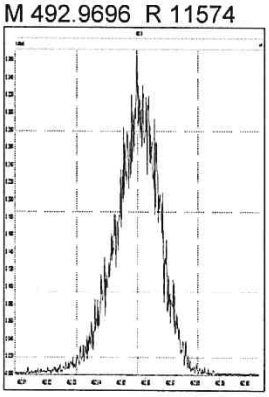

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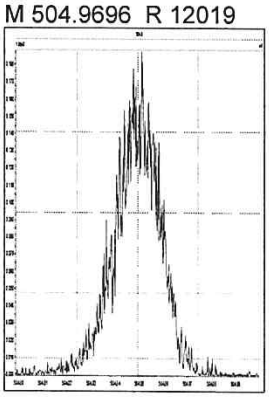

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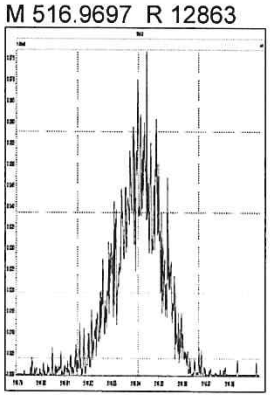


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

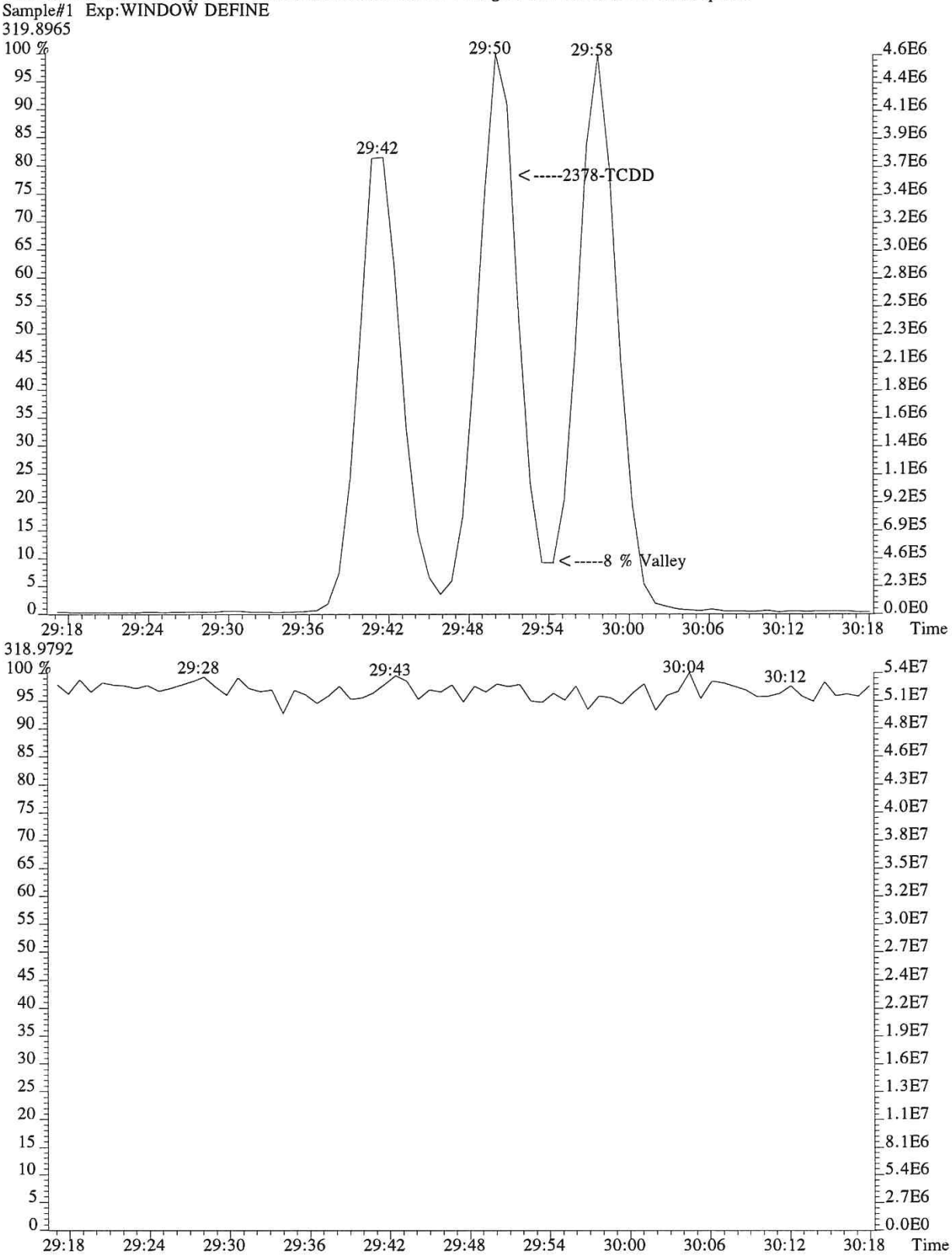
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P615715
Date Analyzed: 27-NOV-18
Time Analyzed: 11:03:06

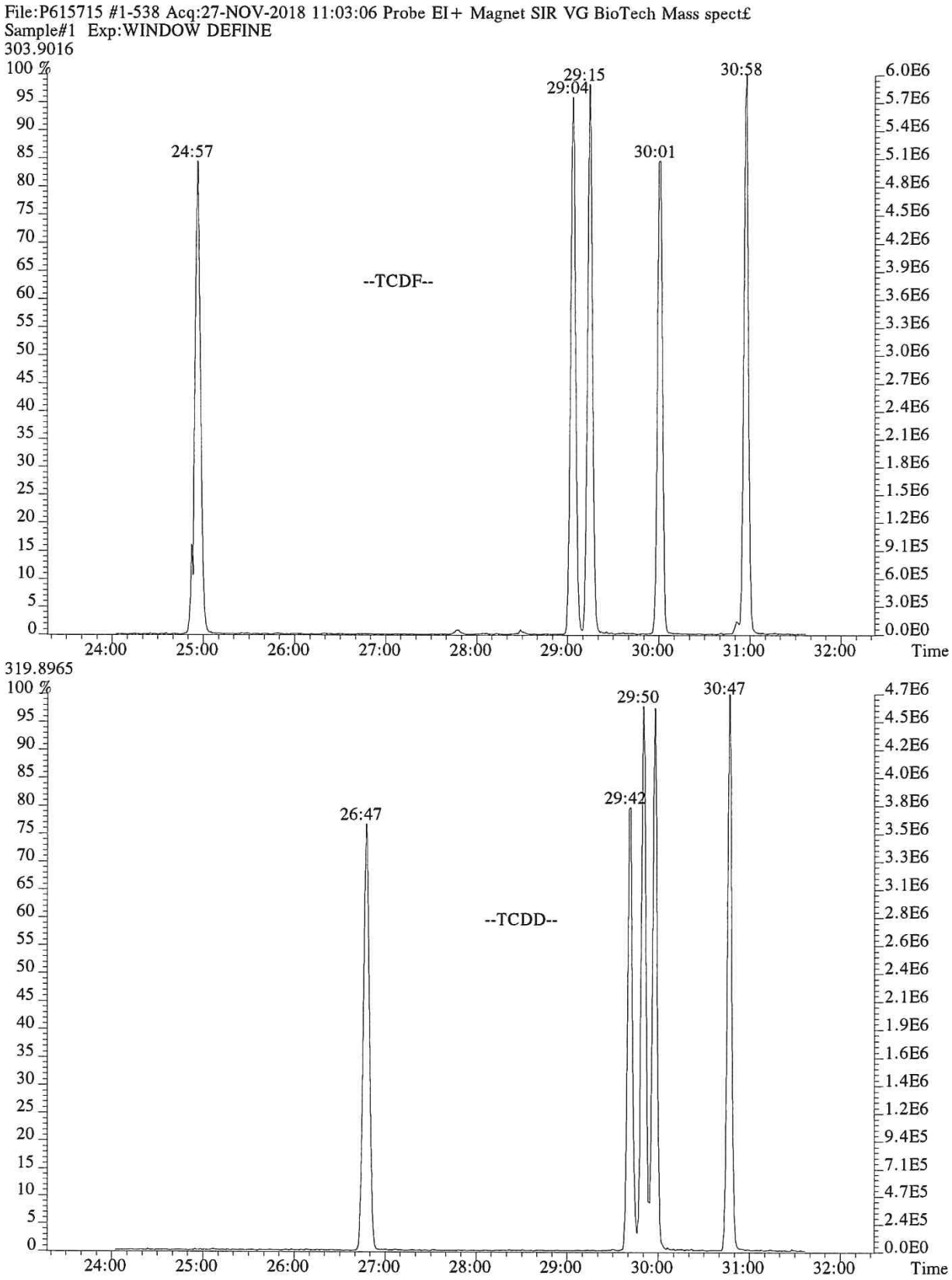
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:57	30:58
TCDD	26:47	30:47
PeCDF	30:51	34:58
PeCDD	32:18	34:42
HxCDF	35:33	38:03
HxCDD	36:03	37:38
HpCDF	39:16	40:47
HpCDD	39:31	40:15

% Valley 2378-TCDD: 8 %

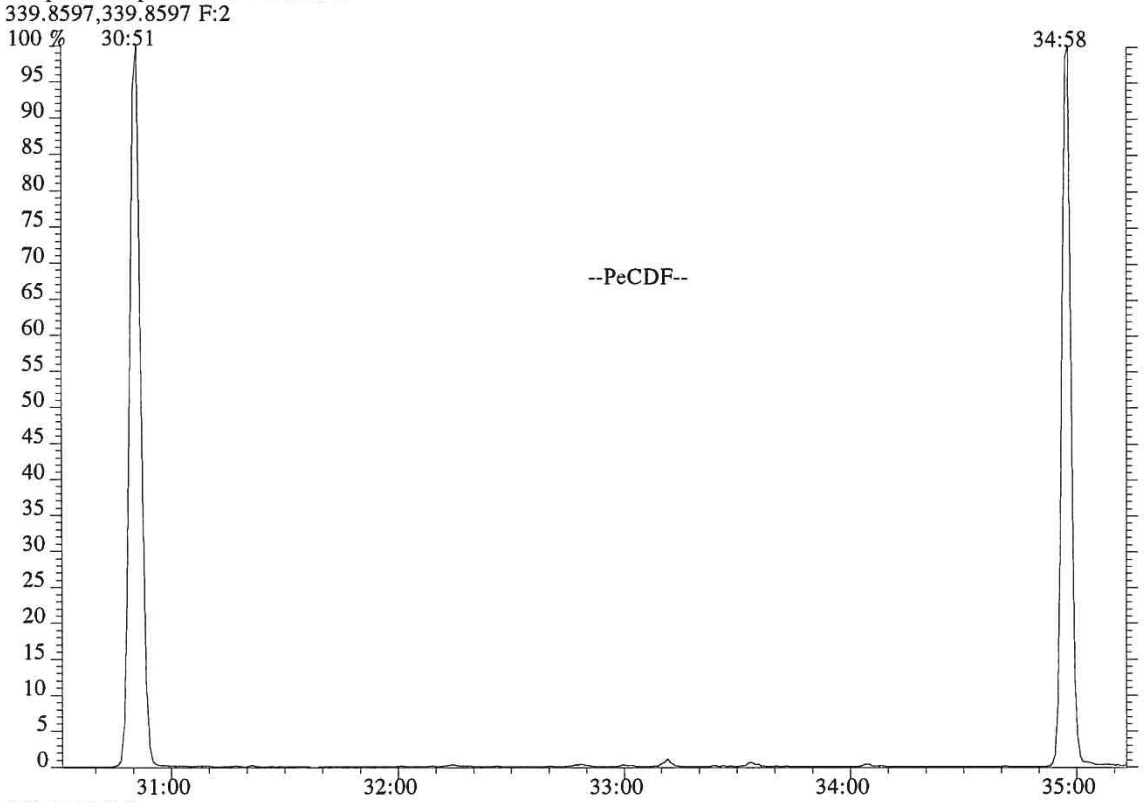
File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



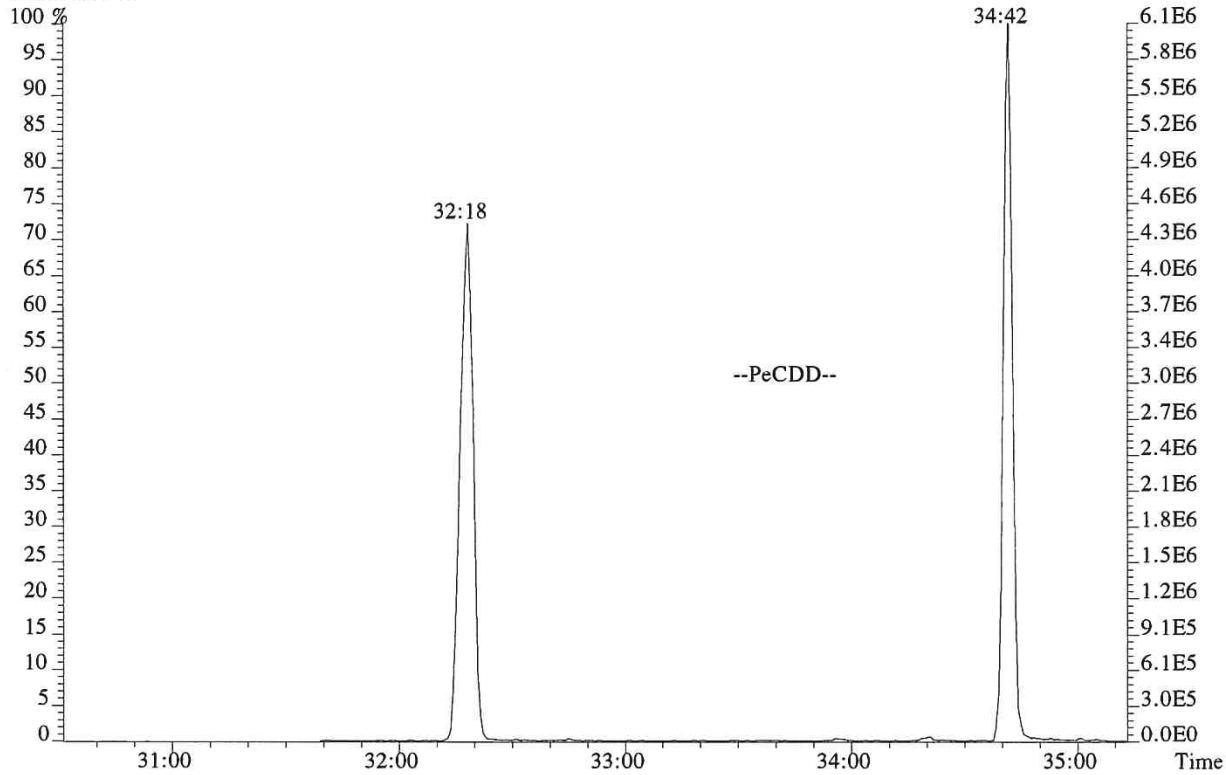
011572


File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016
100 %
24:57
29:04
29:15
30:01
30:58
--TCDF--
6.0E6
5.7E6
5.4E6
5.1E6
4.8E6
4.5E6
4.2E6
3.9E6
3.6E6
3.3E6
3.0E6
2.7E6
2.4E6
2.1E6
1.8E6
1.5E6
1.2E6
9.1E5
6.0E5
3.0E5
0.0E0
24:00
25:00
26:00
27:00
28:00
29:00
30:00
31:00
32:00
Time
319.8965
100 %
26:47
29:42
29:50
30:47
--TCDD--
4.7E6
4.5E6
4.2E6
4.0E6
3.8E6
3.5E6
3.3E6
3.1E6
2.8E6
2.6E6
2.4E6
2.1E6
1.9E6
1.6E6
1.4E6
1.2E6
9.4E5
7.1E5
4.7E5
2.4E5
0.0E0
24:00
25:00
26:00
27:00
28:00
29:00
30:00
31:00
32:00
Time

File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



011574

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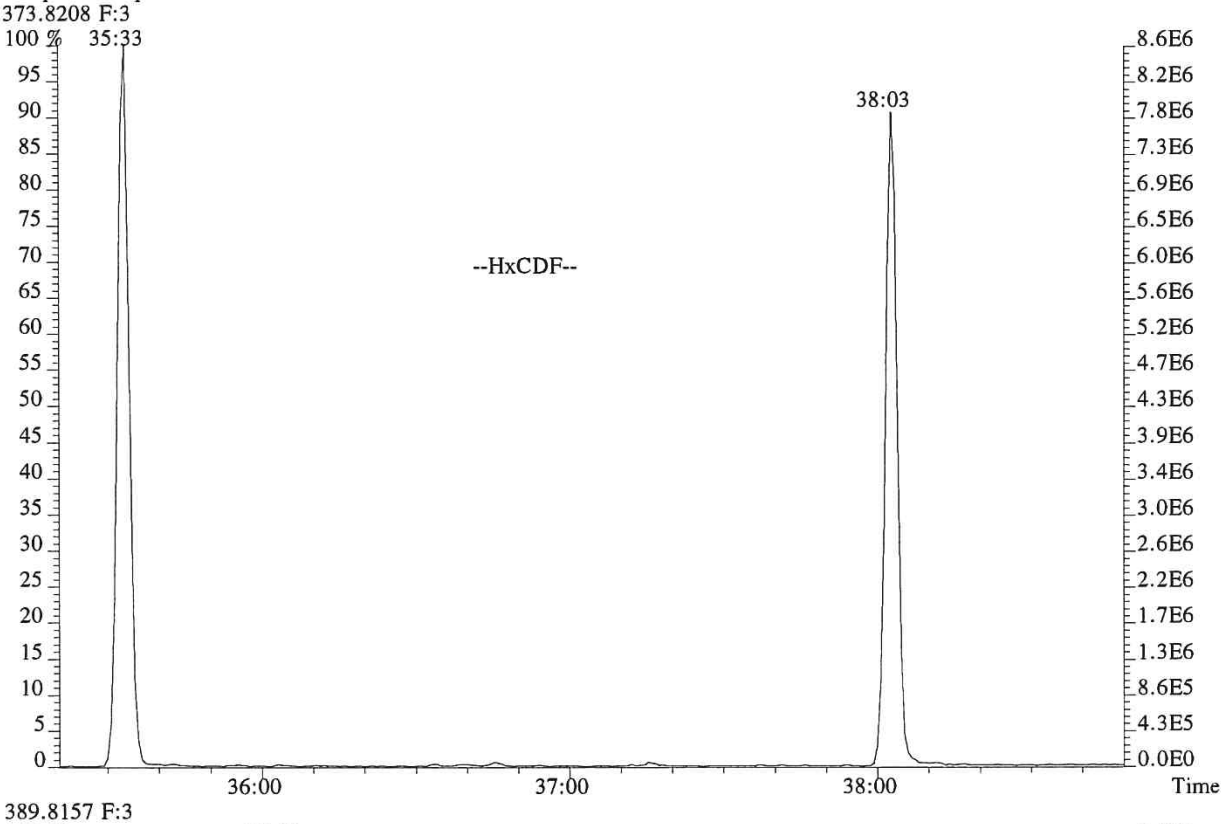
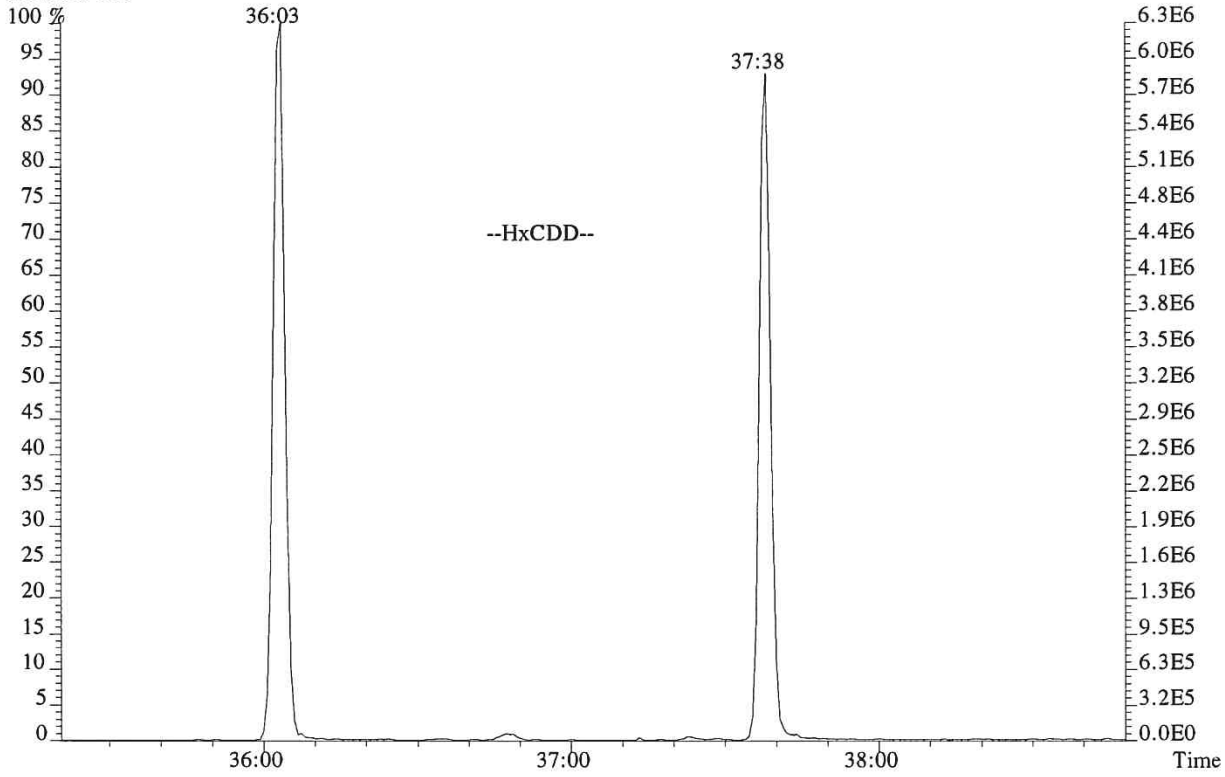
Sample#1 Exp:WINDOW DEFINE

373.8208 F:3

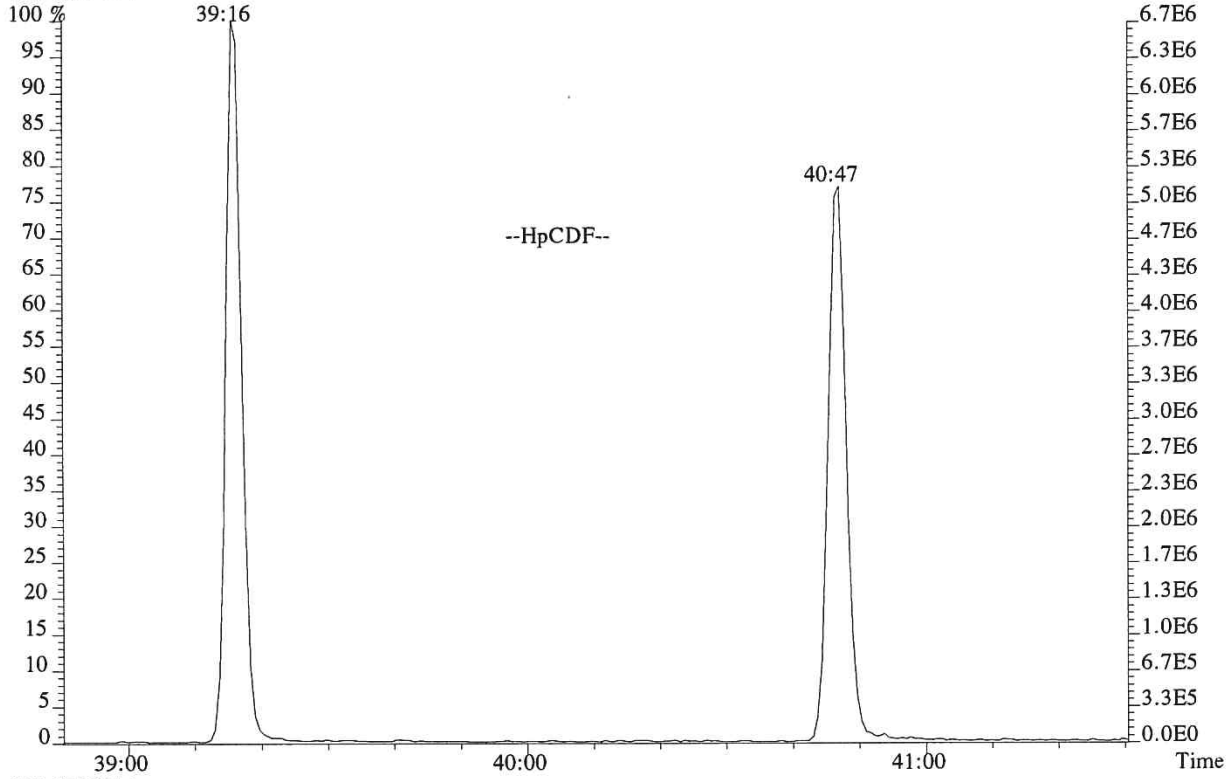


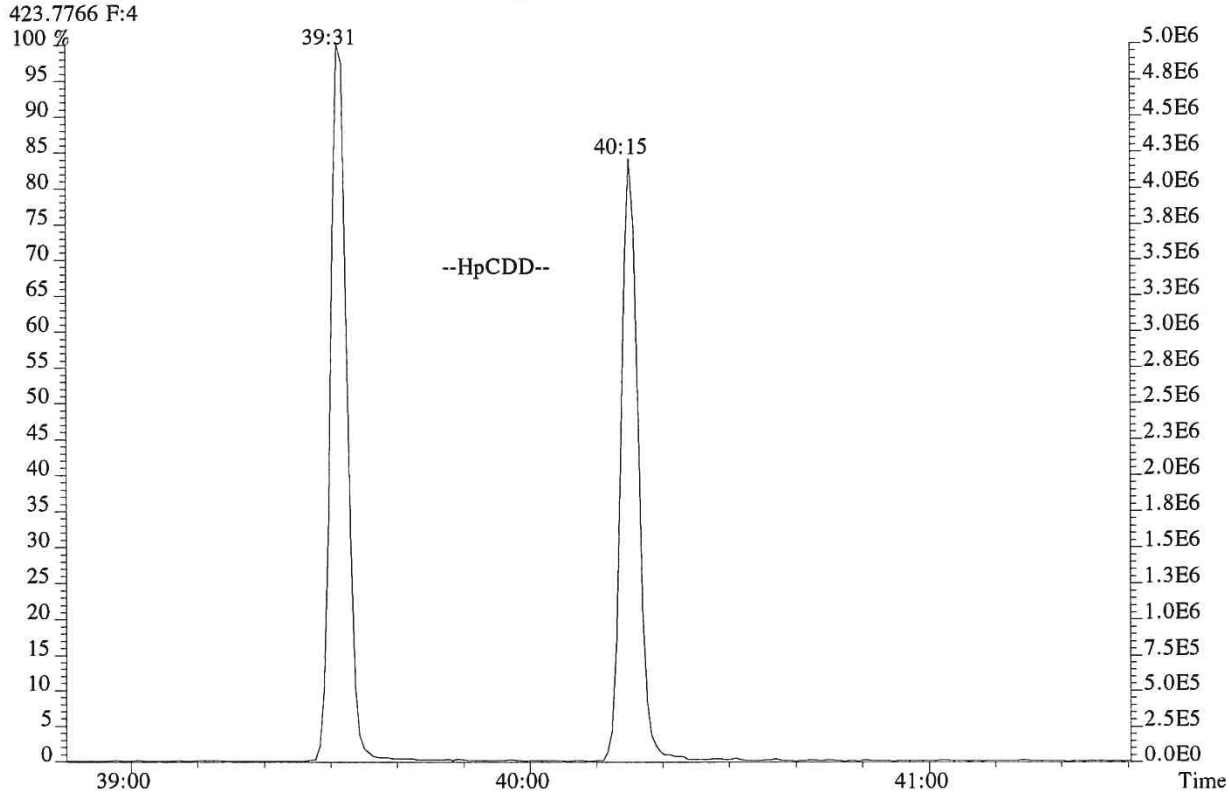
389.8157 F:3



011575

File:P615715 #1-538 Acq:27-NOV-2018 11:03:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





011576

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615714 Analysis Date: 27-NOV-18 Time: 10:04:16

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.4	7.8 - 12.9	-6.2
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	49	39 - 65	-1.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-2.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	47	43 - 58	-6.8
OCDD	M+2/M+4	0.89	0.76-1.02	95	79 - 126	-4.9
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.1	8.4 - 12.0	-9.2
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	46	41 - 60	-7.5
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	46	41 - 61	-8.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	45	45 - 56	-10.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-7.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	46	45 - 56	-7.6
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-8.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	45	45 - 55	-9.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	45	43 - 58	-10.9
OCDF	M+2/M+4	0.91	0.76-1.02	85	63 - 159	-15.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615714 Analysis Date: 27-NOV-18 Time: 10:04:16

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	103	82 - 121	3.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.53	1.32-1.78	92	62 - 160	-7.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	103	85 - 117	2.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	98	85 - 118	-2.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	107	72 - 138	7.3
13C-OCDD	M+2/M+4	0.91	0.76-1.02	222	96 - 415	10.9
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	94	71 - 140	-5.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	90	76 - 130	-9.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	91	77 - 130	-9.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	97	76 - 131	-2.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	93	70 - 143	-7.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	95	74 - 135	-5.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	98	73 - 137	-2.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	96	78 - 129	-3.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	97	77 - 129	-3.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.7	7.8 - 12.7	-3.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P615714 Samp: 1 Inj: 1 Acquired: 27-NOV-18 10:04:16
Processed: 28-NOV-18 10:13:20 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:15	1.940e+04	2.505e+04	0.77	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	33:12	1.591e+05	1.013e+05	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	34:04	1.498e+05	9.482e+04	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	36:39	1.303e+05	1.046e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	36:46	1.347e+05	1.084e+05	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	37:16	1.299e+05	1.046e+05	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	38:01	1.171e+05	9.560e+04	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	39:16	1.133e+05	1.097e+05	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	40:47	9.515e+04	9.243e+04	1.03	yes	no	1.463
10	Unk	OCDF	43:30	1.516e+05	1.674e+05	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	29:58	1.500e+04	1.868e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	34:20	9.766e+04	6.288e+04	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	37:23	8.865e+04	7.065e+04	1.25	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	37:29	8.430e+04	6.698e+04	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	37:43	9.215e+04	7.325e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	8.006e+04	7.591e+04	1.05	yes	no	1.112
17	Unk	OCDD	43:17	1.241e+05	1.389e+05	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	29:14	1.991e+05	2.537e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	33:10	2.981e+05	1.889e+05	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	34:04	2.965e+05	1.872e+05	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	36:39	1.276e+05	2.411e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	36:45	1.414e+05	2.648e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	37:15	1.387e+05	2.602e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	38:01	1.209e+05	2.298e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	1.008e+05	2.232e+05	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	8.959e+04	1.982e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	29:56	1.506e+05	1.916e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	34:19	2.126e+05	1.388e+05	1.53	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	37:23	1.702e+05	1.336e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	37:28	1.618e+05	1.271e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	1.543e+05	1.467e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	43:16	2.277e+05	2.503e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	29:23	1.493e+05	1.890e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:42	1.823e+05	1.449e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:58	3.548e+04				no	1.086

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P615714 Samp: 1 Inj: 1 Acquired: 27-NOV-18 10:04:16
Processed: 28-NOV-18 10:13:20 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.97e+06	1.68e+03	2.4e+03	5.13e+06	2.93e+03	1.8e+03
2	1,2,3,7,8-PeCDF	3.18e+07	1.23e+03	2.6e+04	2.01e+07	4.35e+03	4.6e+03
3	2,3,4,7,8-PeCDF	3.24e+07	1.23e+03	2.6e+04	2.05e+07	4.35e+03	4.7e+03
4	1,2,3,4,7,8-HxCDF	2.97e+07	5.67e+03	5.2e+03	2.38e+07	3.38e+03	7.1e+03
5	1,2,3,6,7,8-HxCDF	3.01e+07	5.67e+03	5.3e+03	2.42e+07	3.38e+03	7.2e+03
6	2,3,4,6,7,8-HxCDF	2.92e+07	5.67e+03	5.2e+03	2.33e+07	3.38e+03	6.9e+03
7	1,2,3,7,8,9-HxCDF	2.57e+07	5.67e+03	4.5e+03	2.06e+07	3.38e+03	6.1e+03
8	1,2,3,4,6,7,8-HpCDF	2.43e+07	9.67e+03	2.5e+03	2.38e+07	6.98e+03	3.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.86e+07	9.67e+03	1.9e+03	1.77e+07	6.98e+03	2.5e+03
10	OCDF	2.43e+07	1.32e+03	1.8e+04	2.71e+07	2.55e+03	1.1e+04
11	2,3,7,8-TCDD	3.20e+06	3.18e+03	1.0e+03	3.97e+06	1.90e+03	2.1e+03
12	1,2,3,7,8-PeCDD	2.02e+07	1.78e+03	1.1e+04	1.32e+07	7.76e+02	1.7e+04
13	1,2,3,4,7,8-HxCDD	2.01e+07	2.02e+03	1.0e+04	1.59e+07	6.80e+02	2.3e+04
14	1,2,3,6,7,8-HxCDD	1.92e+07	2.02e+03	9.5e+03	1.51e+07	6.80e+02	2.2e+04
15	1,2,3,7,8,9-HxCDD	2.09e+07	2.02e+03	1.0e+04	1.66e+07	6.80e+02	2.4e+04
16	1,2,3,4,6,7,8-HpCDD	1.64e+07	2.62e+03	6.3e+03	1.56e+07	1.80e+03	8.7e+03
17	OCDD	2.02e+07	3.84e+02	5.3e+04	2.25e+07	9.76e+02	2.3e+04
18	13C-2,3,7,8-TCDF	4.03e+07	1.28e+04	3.1e+03	5.06e+07	9.08e+03	5.6e+03
19	13C-1,2,3,7,8-PeCDF	6.01e+07	1.80e+03	3.3e+04	3.84e+07	2.20e+03	1.7e+04
20	13C-2,3,4,7,8-PeCDF	6.34e+07	1.80e+03	3.5e+04	3.98e+07	2.20e+03	1.8e+04
21	13C-1,2,3,4,7,8-HxCDF	2.89e+07	1.82e+03	1.6e+04	5.48e+07	2.92e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	3.14e+07	1.82e+03	1.7e+04	5.86e+07	2.92e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	3.13e+07	1.82e+03	1.7e+04	5.78e+07	2.92e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	2.67e+07	1.82e+03	1.5e+04	5.07e+07	2.92e+03	1.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.15e+07	3.80e+03	5.7e+03	4.81e+07	1.04e+04	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.73e+07	3.80e+03	4.6e+03	3.76e+07	1.04e+04	3.6e+03
27	13C-2,3,7,8-TCDD	3.15e+07	1.98e+04	1.6e+03	4.02e+07	7.29e+03	5.5e+03
28	13C-1,2,3,7,8-PeCDD	4.54e+07	2.14e+03	2.1e+04	2.96e+07	2.84e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.81e+07	3.04e+03	1.3e+04	2.99e+07	1.55e+03	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	3.67e+07	3.04e+03	1.2e+04	2.85e+07	1.55e+03	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.16e+07	2.06e+03	1.5e+04	2.99e+07	2.33e+03	1.3e+04
32	13C-OCDD	3.65e+07	4.56e+02	8.0e+04	4.00e+07	4.44e+02	9.0e+04
33	13C-1,2,3,4-TCDD	3.09e+07	1.98e+04	1.6e+03	3.92e+07	7.29e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	4.17e+07	3.04e+03	1.4e+04	3.28e+07	1.55e+03	2.1e+04
35	37Cl-2,3,7,8-TCDD	7.60e+06	1.66e+03	4.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.180e{+}03 + 1.896e{+}03) \times 100}{(3.149e{+}07 + 4.025e{+}07) \times (\quad) \times 1.049} =$$

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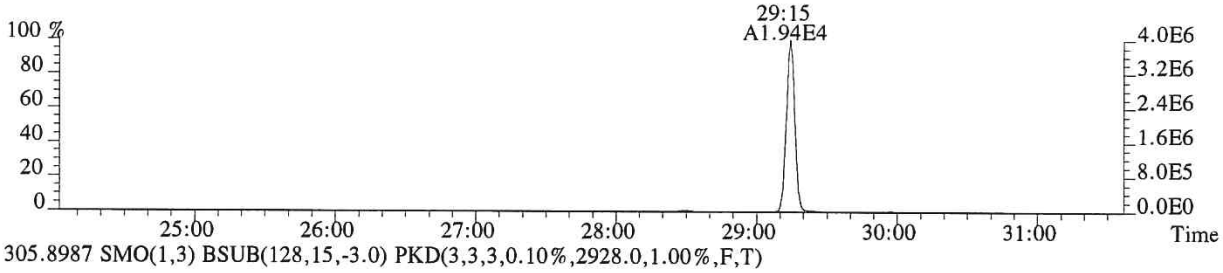
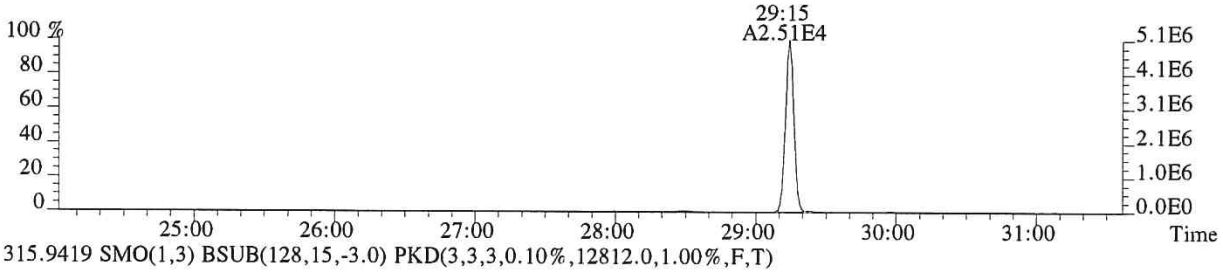
File:P615714 #1-538 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

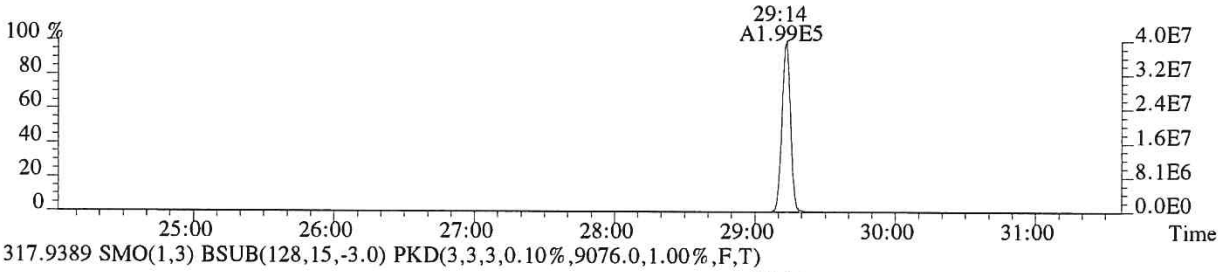
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



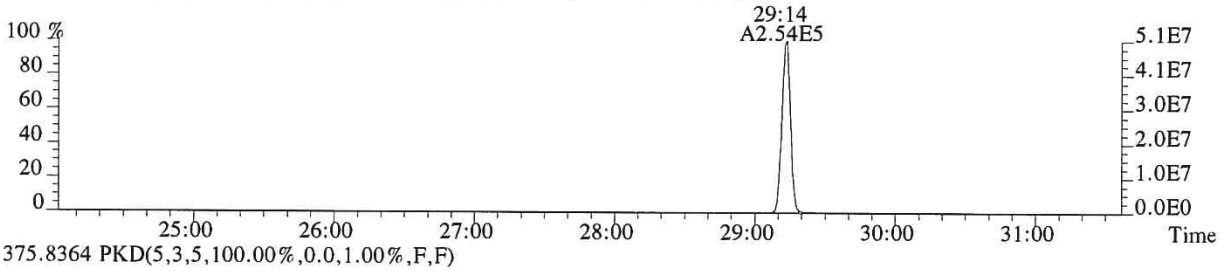
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2928.0,1.00%,F,T)



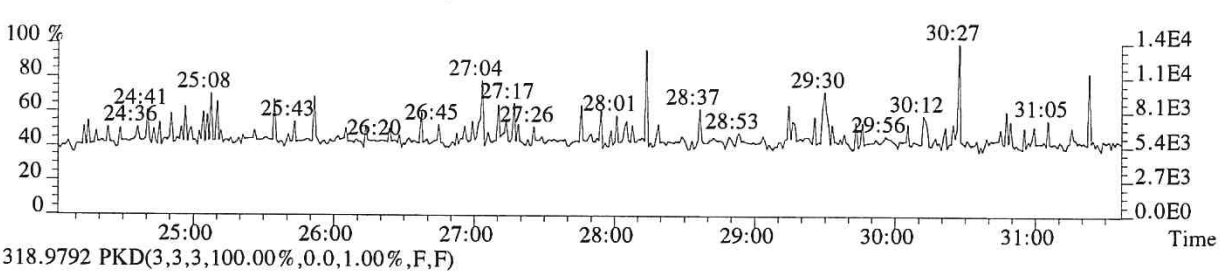
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12812.0,1.00%,F,T)



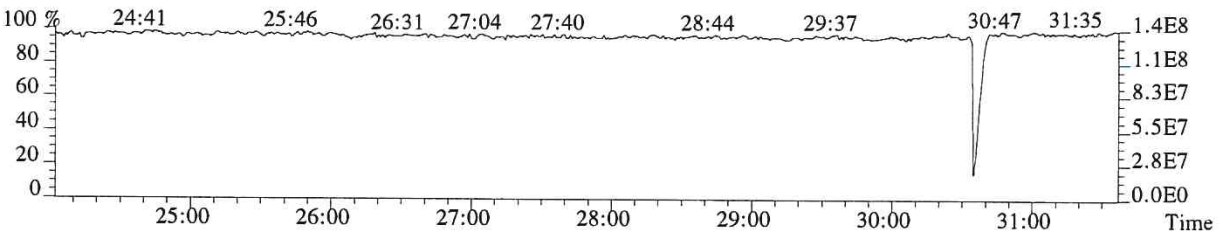
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9076.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

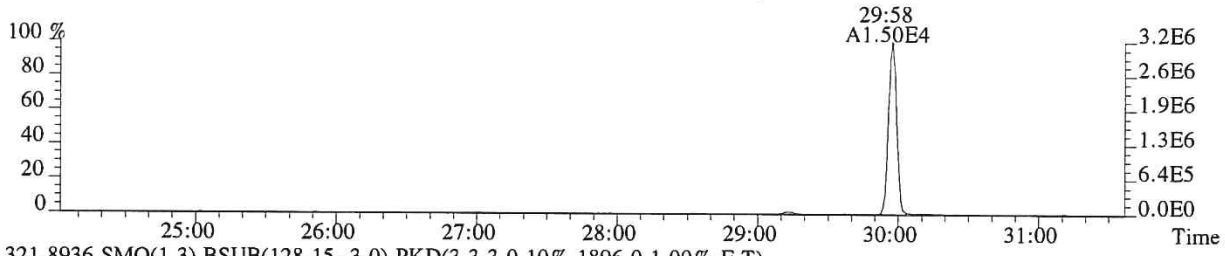


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

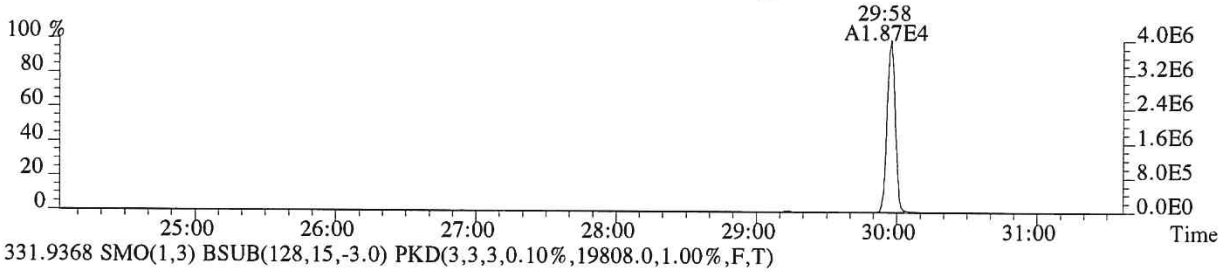


011581

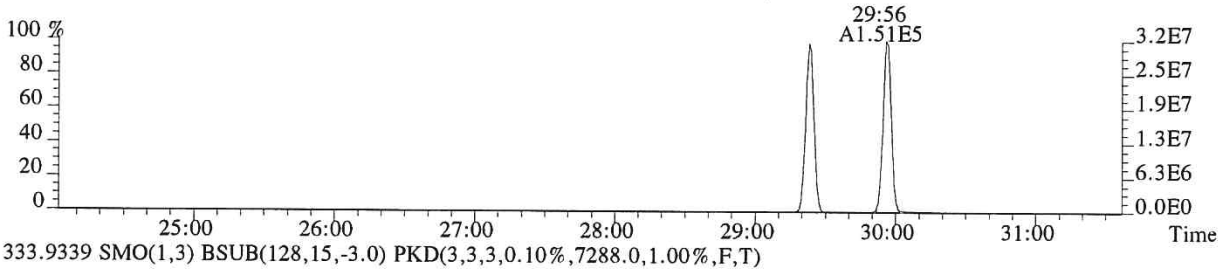
File:P615714 #1-538 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3180.0,1.00%,F,T)



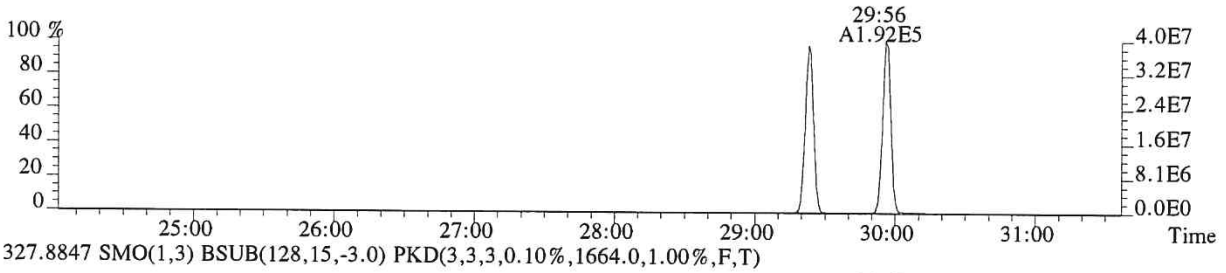
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



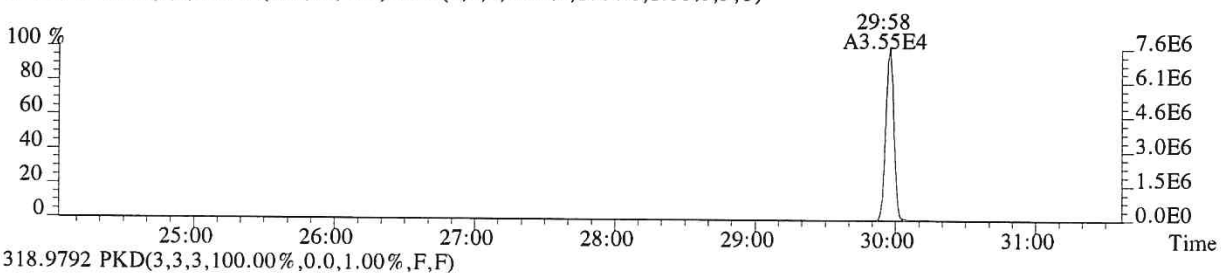
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19808.0,1.00%,F,T)



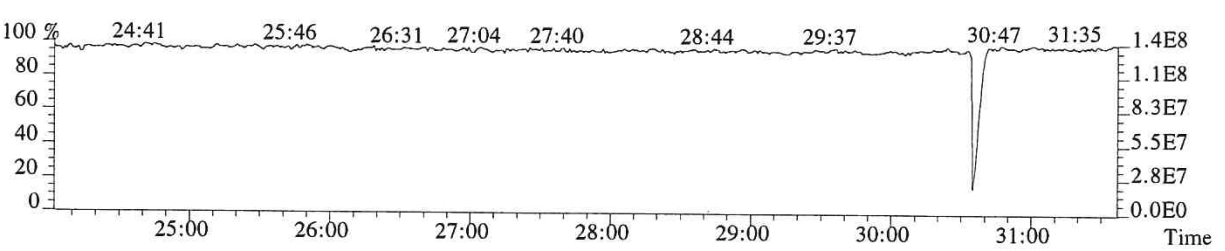
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7288.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)

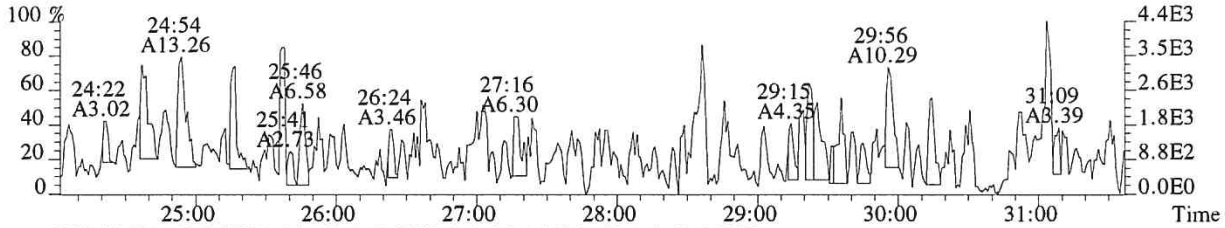


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

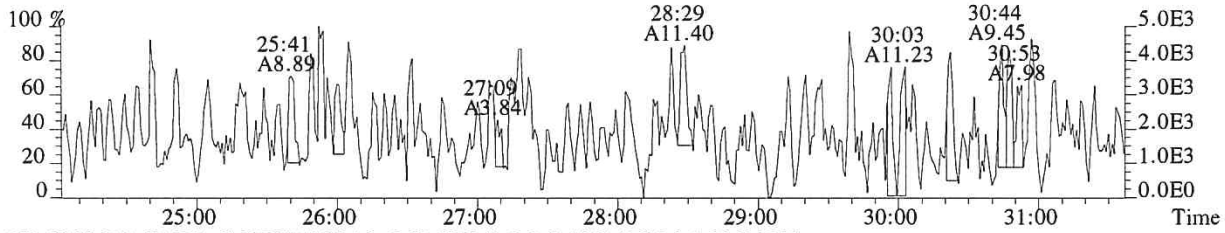


011582

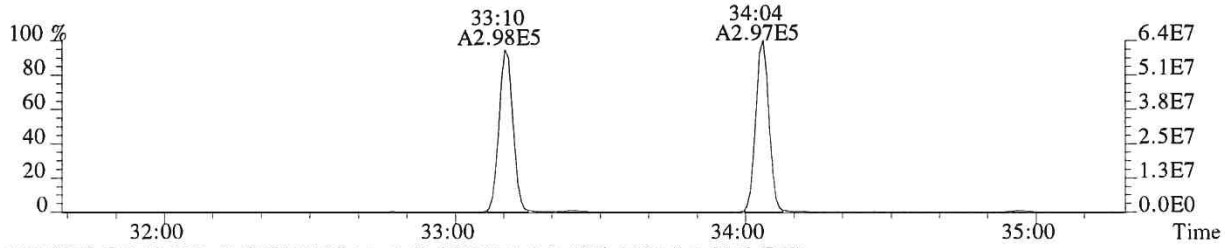
File:P615714 #1-538 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



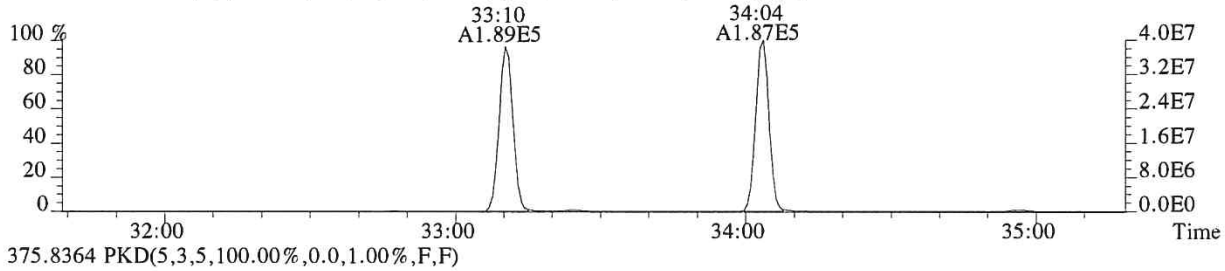
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



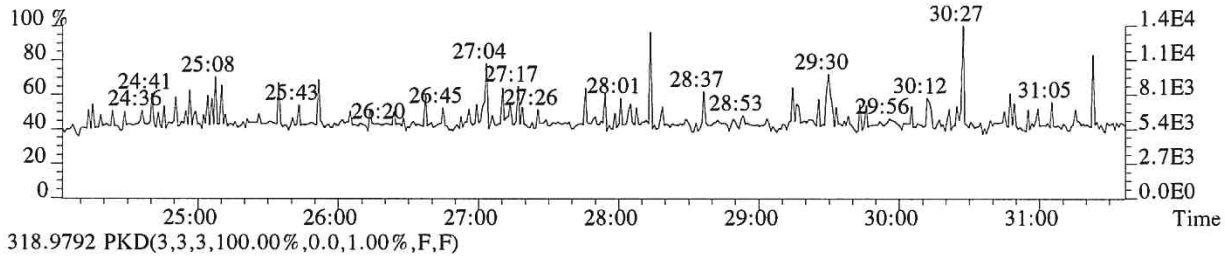
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



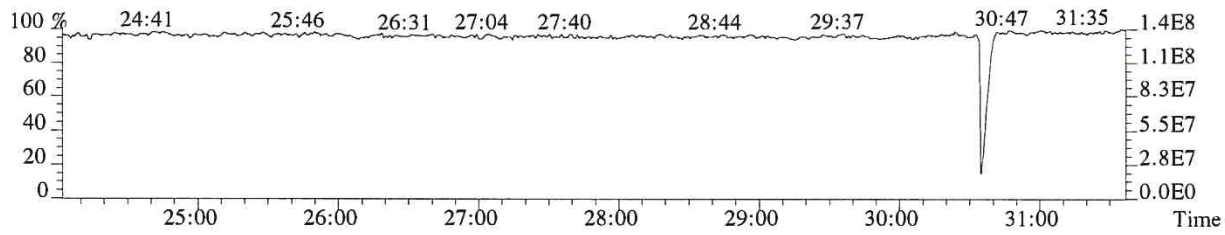
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



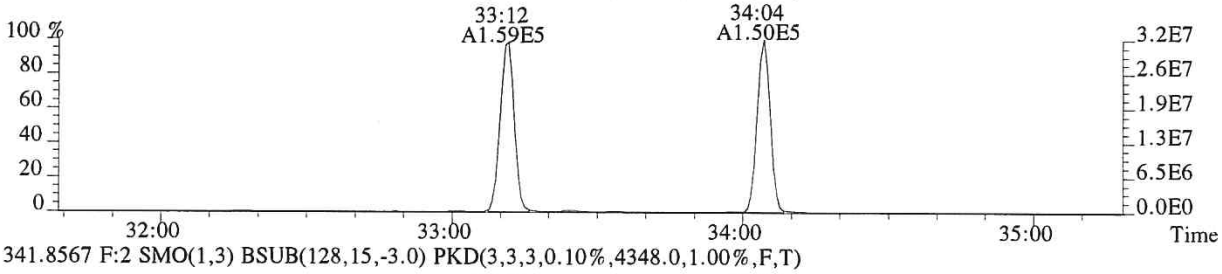
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



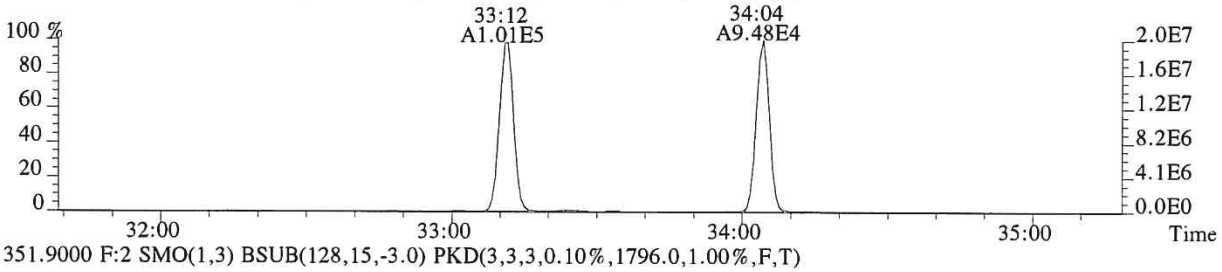
011583

File:P615714 #1-330 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

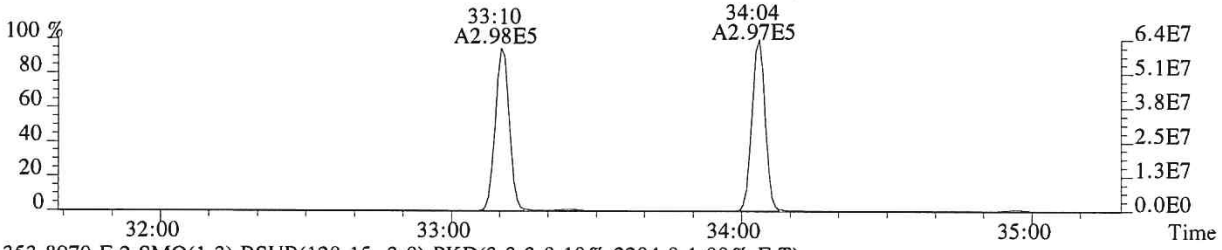
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



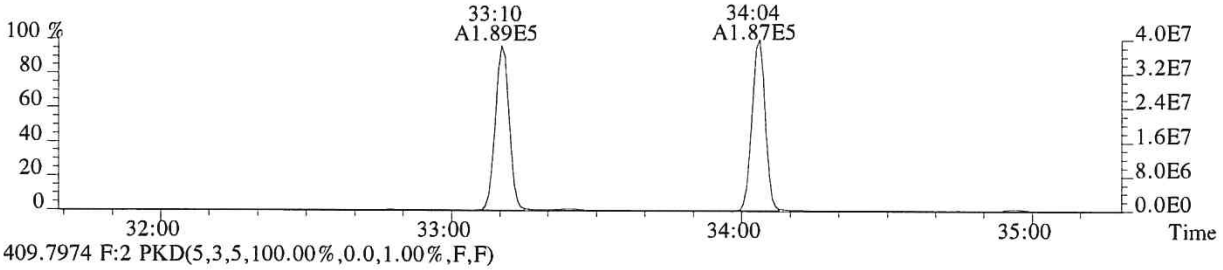
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



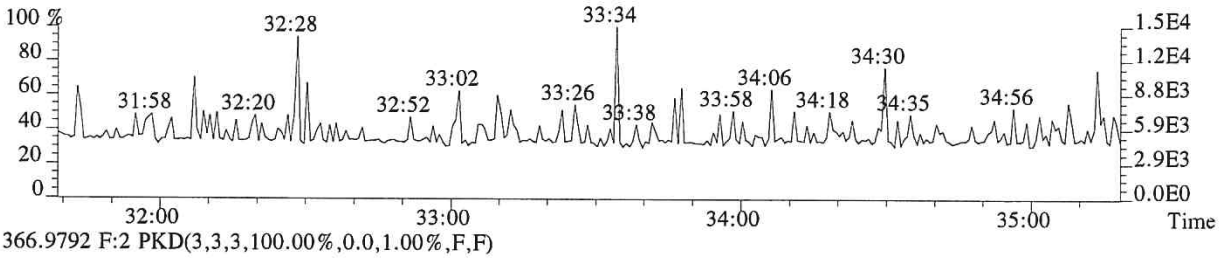
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



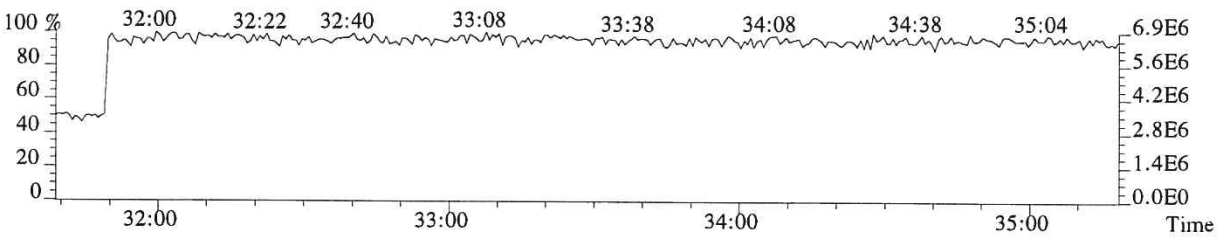
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

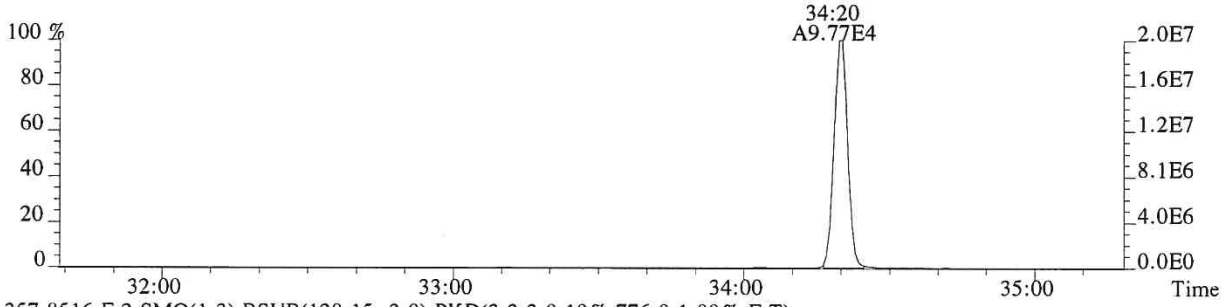


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

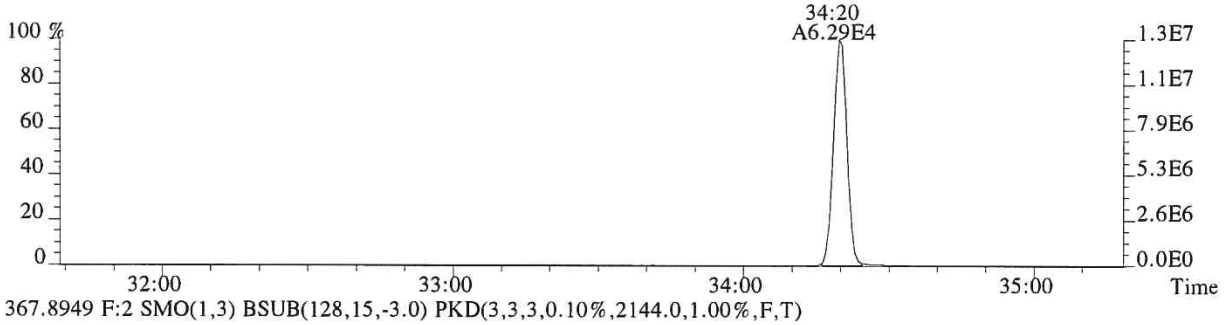


011584

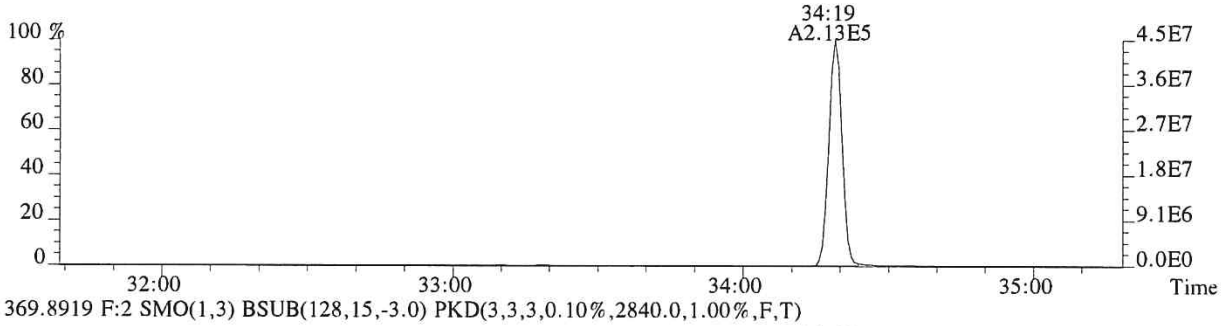
File:P615714 #1-330 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



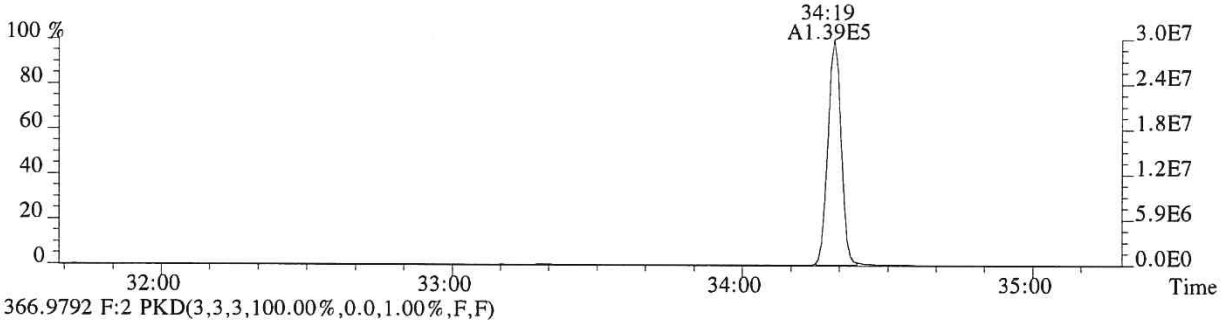
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



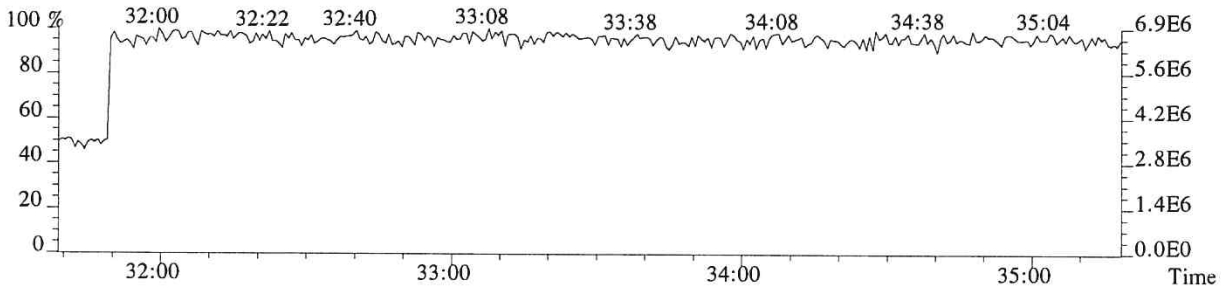
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2840.0,1.00%,F,T)



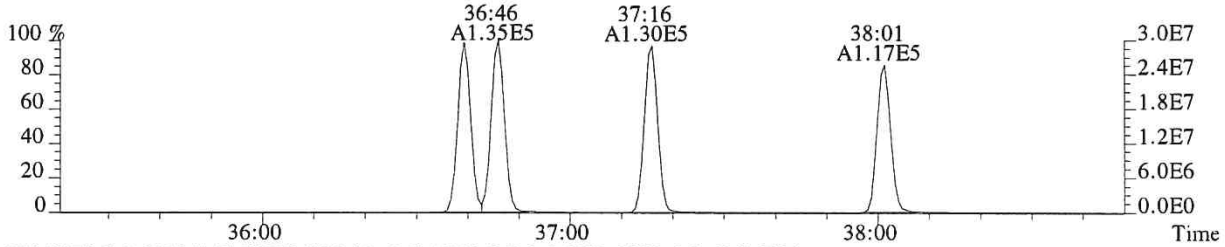
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



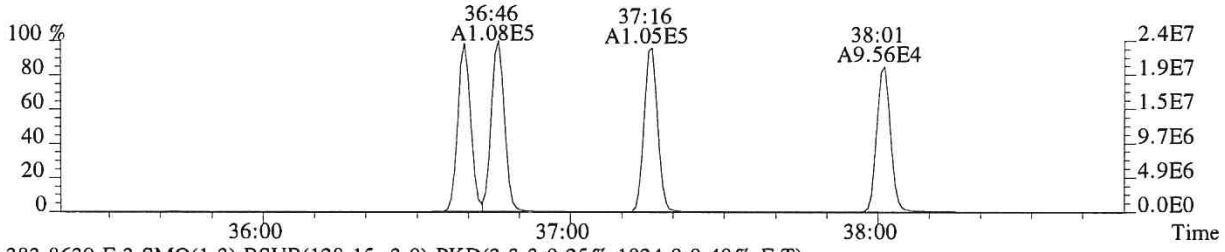
011585

File:P615714 #1-312 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

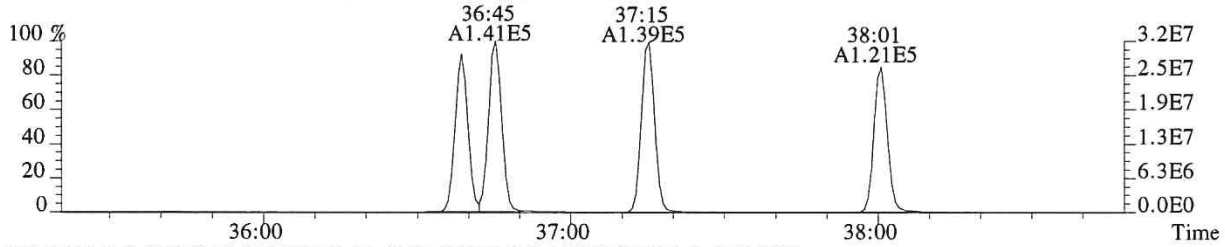
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5668.0,0.40%,F,T)



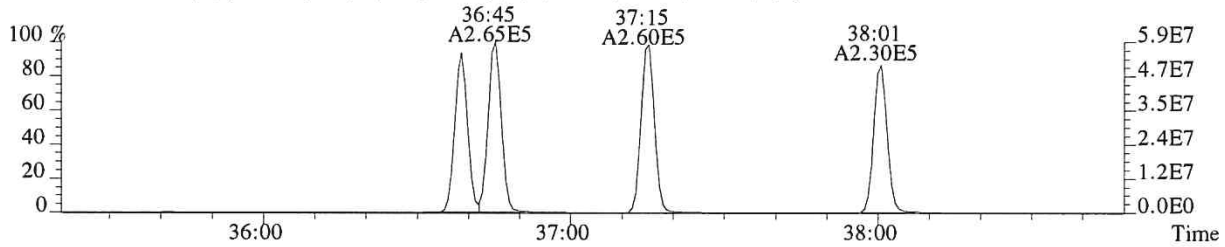
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3380.0,0.40%,F,T)



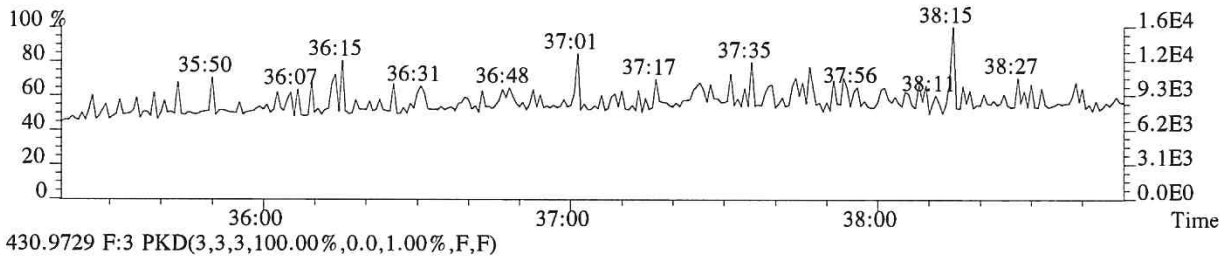
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1824.0,0.40%,F,T)



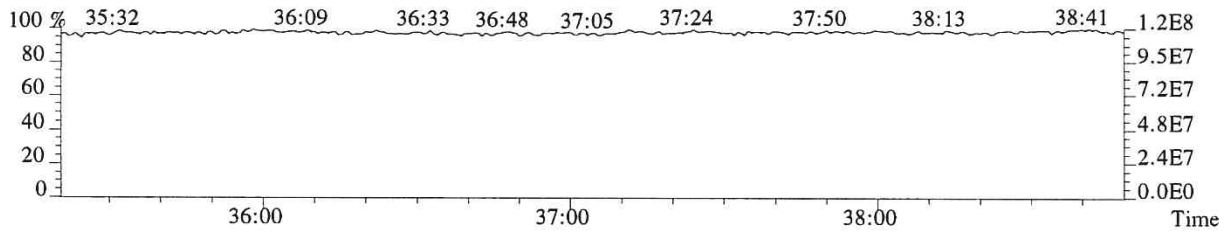
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2916.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

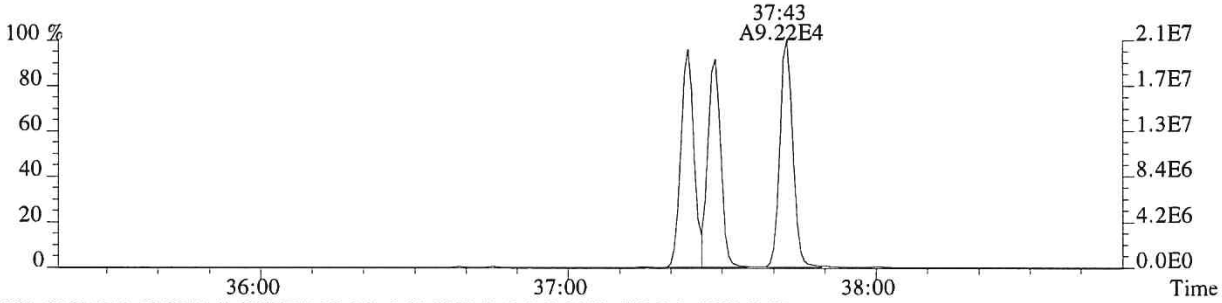


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

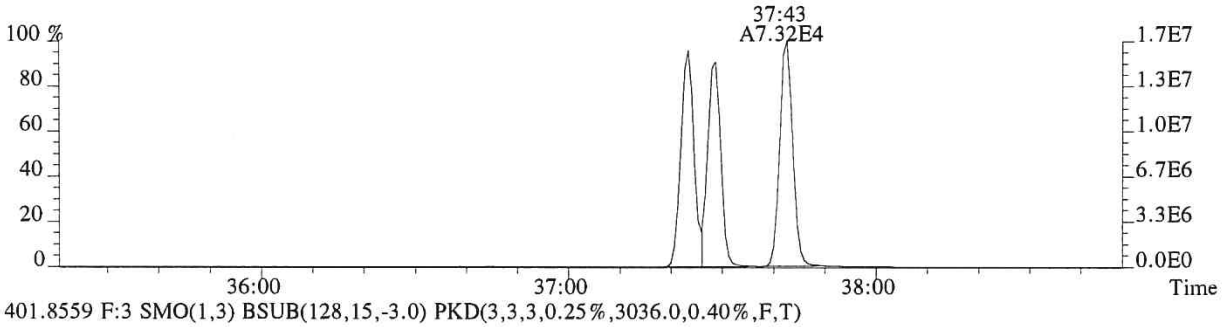


011586

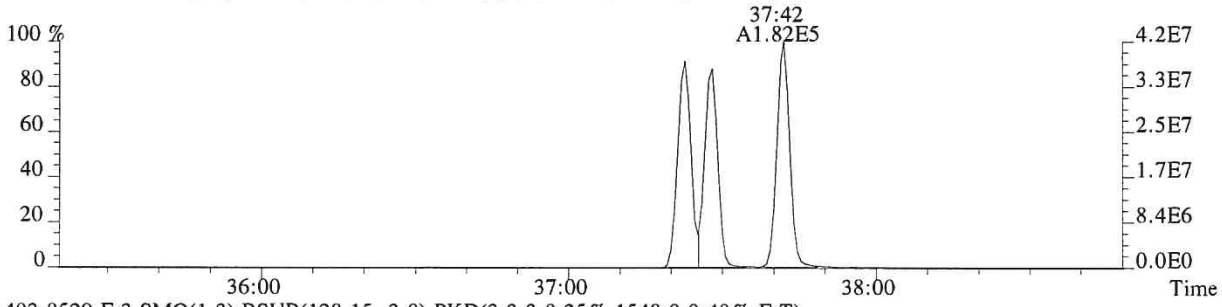
File:P615714 #1-312 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2016.0,0.40%,F,T)



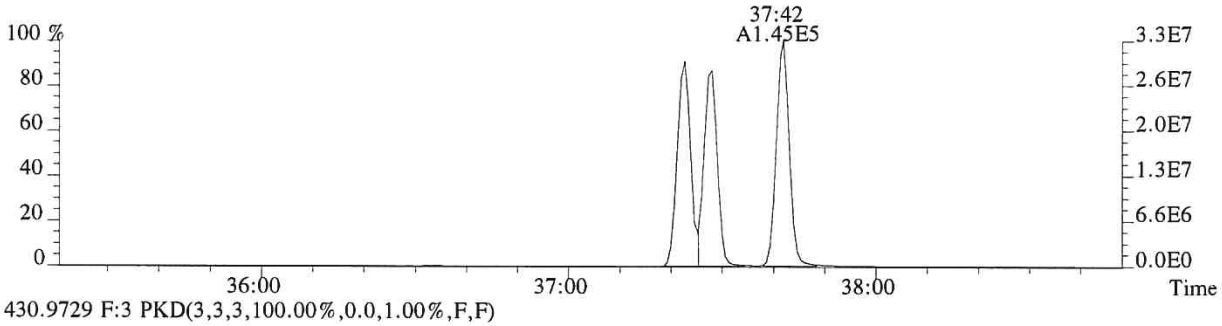
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



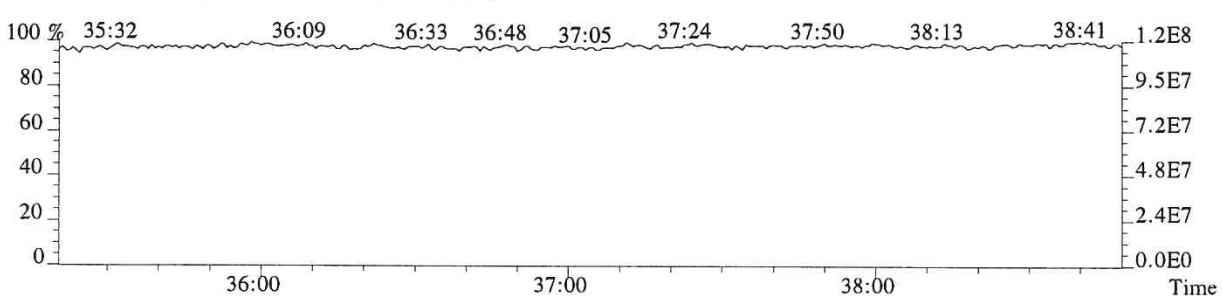
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)

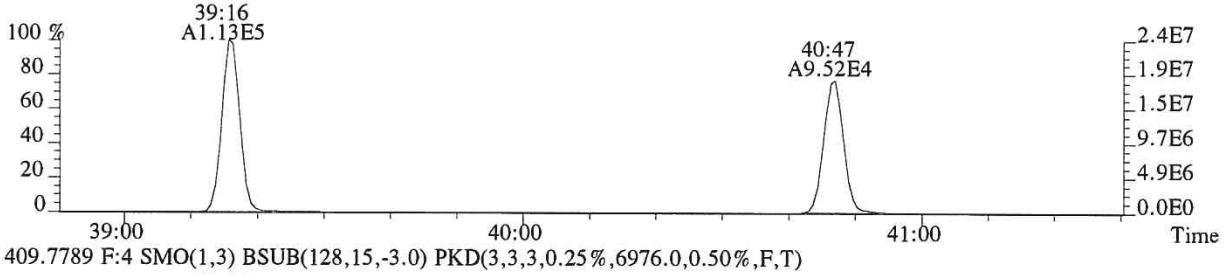


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

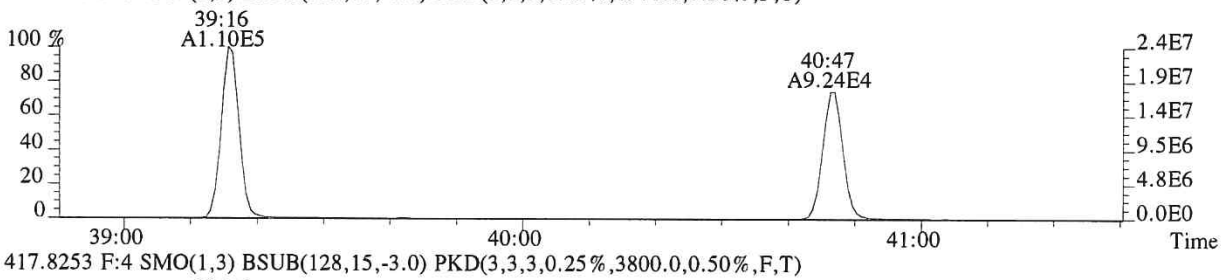


File:P615714 #1-241 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

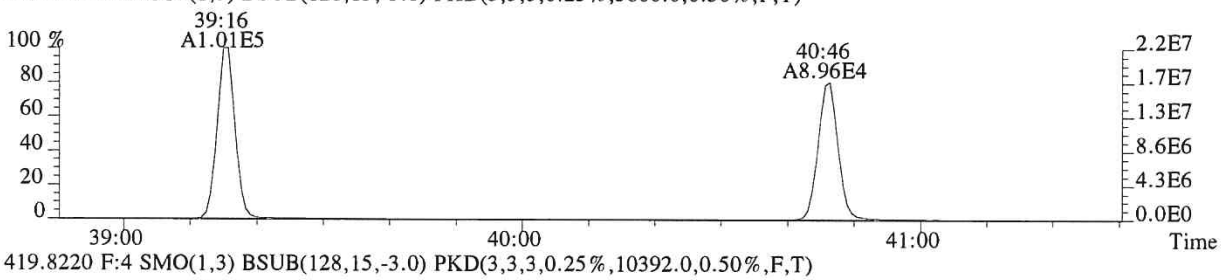
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9668.0,0.50%,F,T)



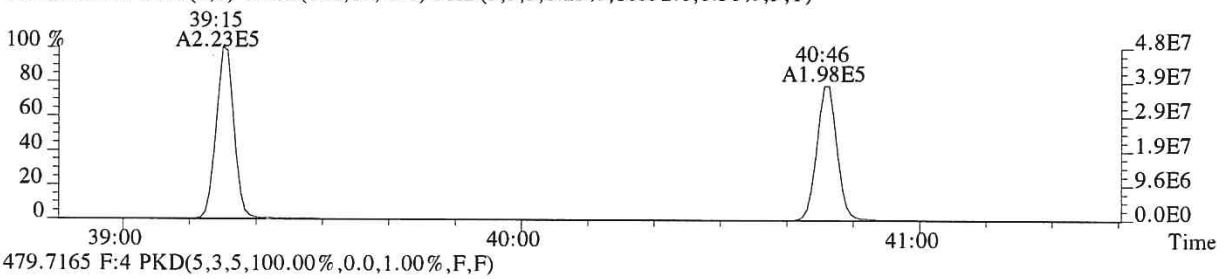
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6976.0,0.50%,F,T)



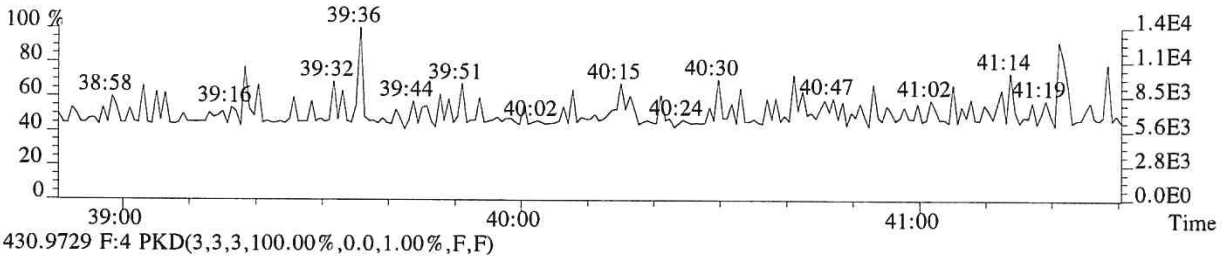
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3800.0,0.50%,F,T)



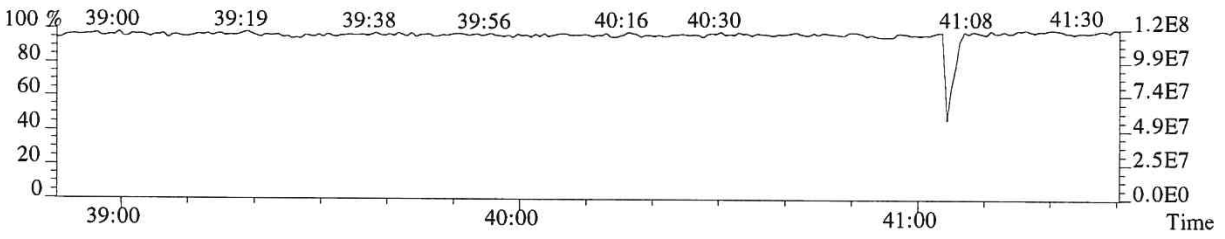
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10392.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

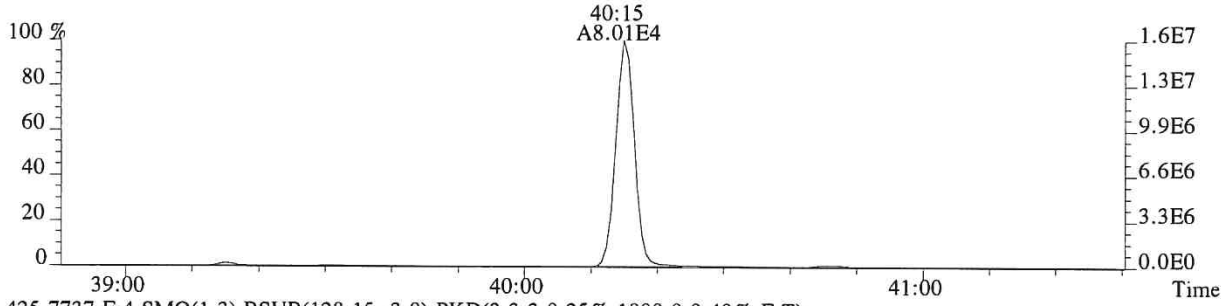


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

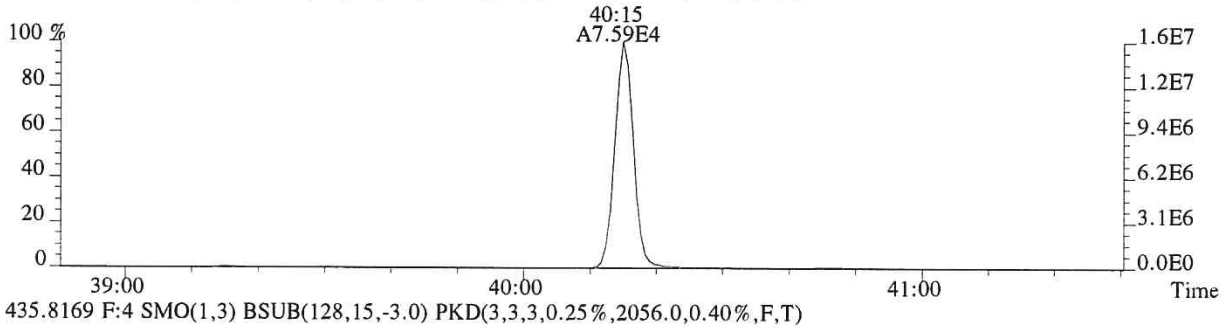


011588

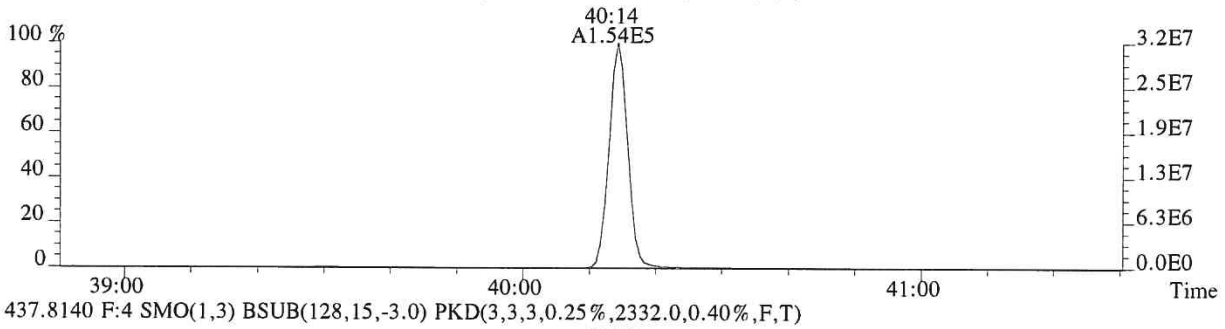
File:P615714 #1-241 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2620.0,0.40%,F,T)



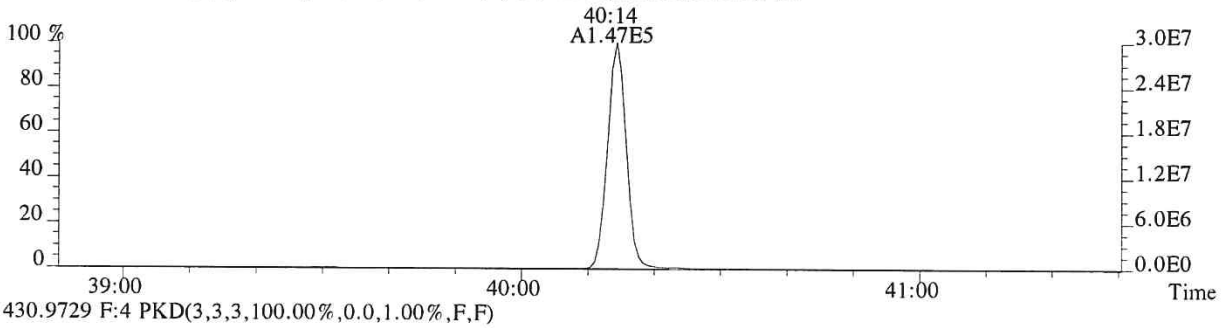
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1800.0,0.40%,F,T)



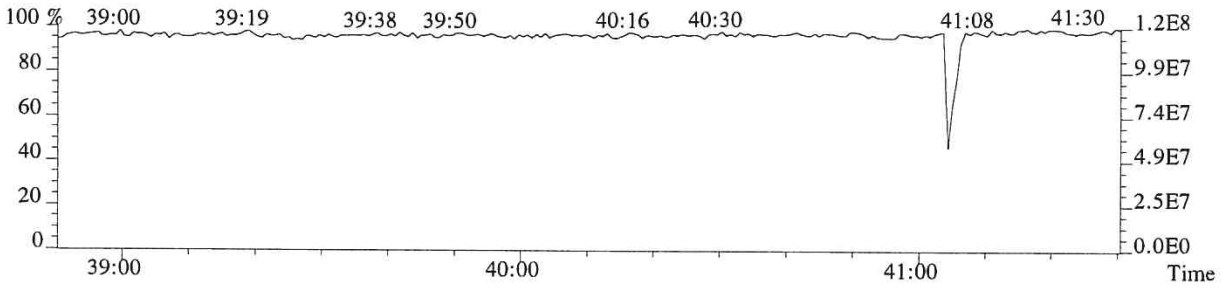
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2056.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.40%,F,T)



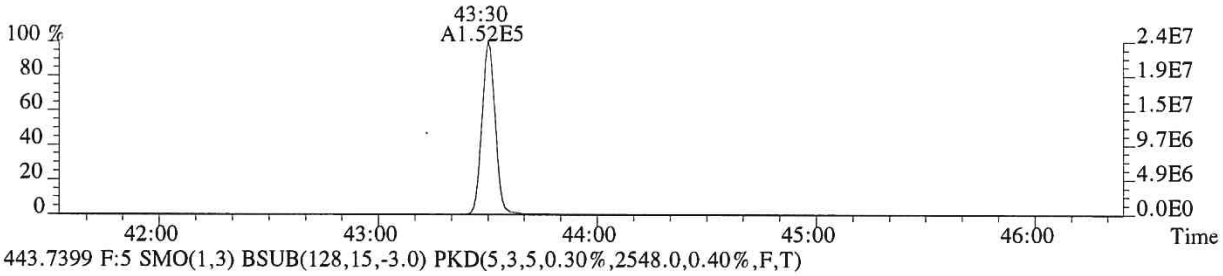
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



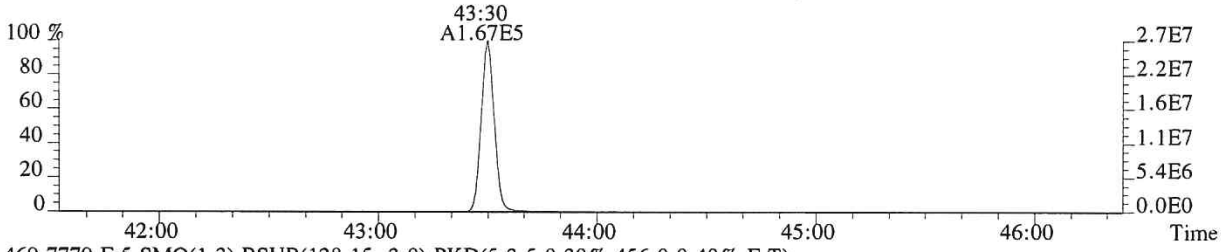
011589

File:P615714 #1-438 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

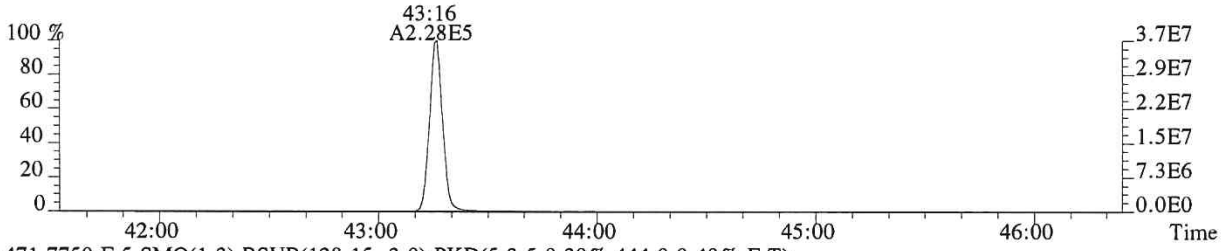
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1324.0,0.40%,F,T)



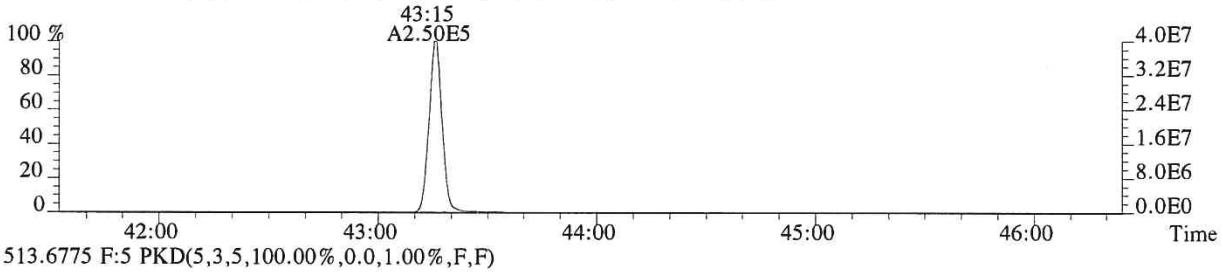
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2548.0,0.40%,F,T)



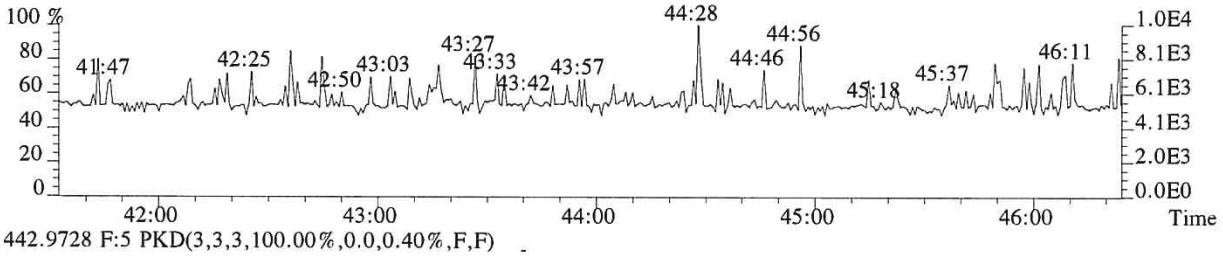
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



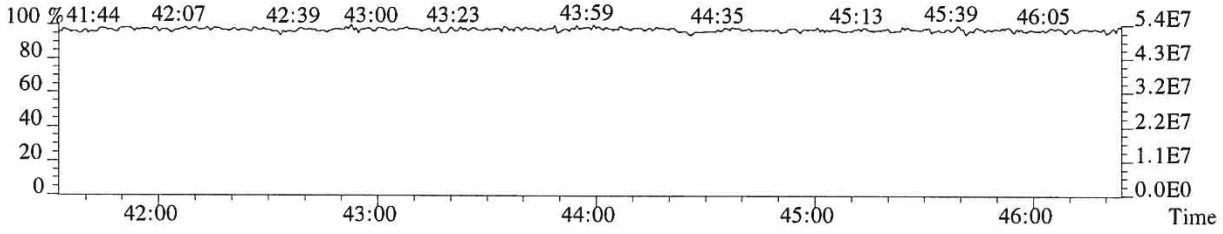
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

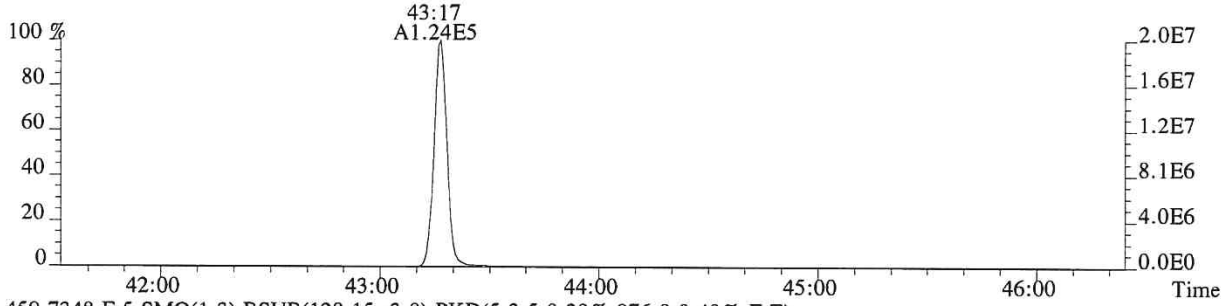


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

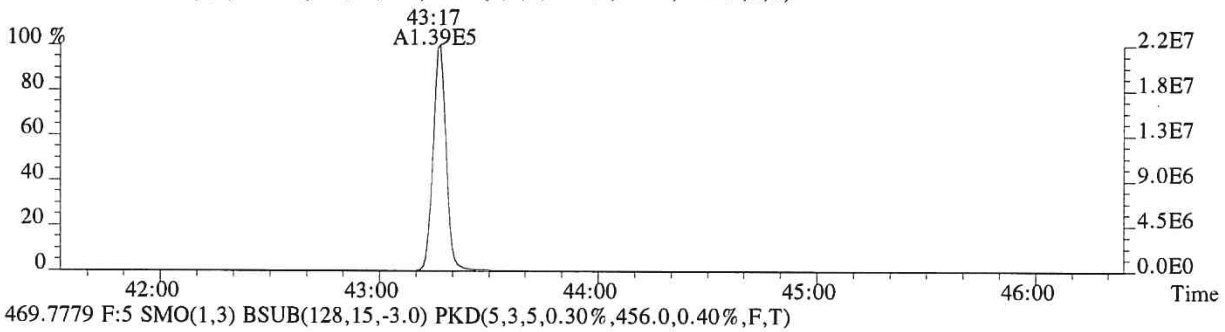


011590

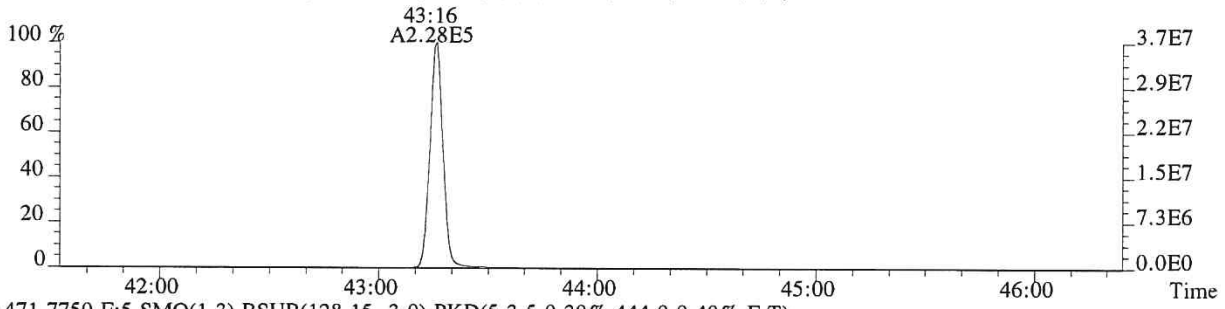
File:P615714 #1-438 Acq:27-NOV-2018 10:04:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



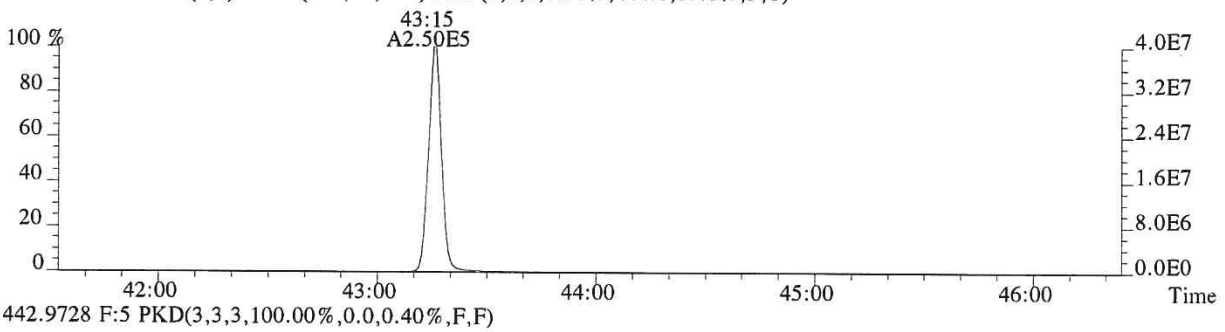
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,976.0,0.40%,F,T)



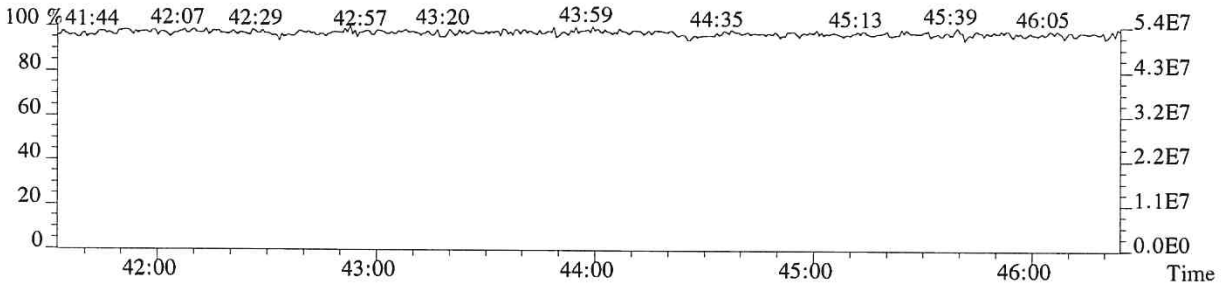
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011591

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P0159401

Date: 12/06/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: QC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P615939	6-DEC-18	09:46:58
194503	CS3	P615940	6-DEC-18	10:36:14
METHOD BLANK	EQ1800489-01	P615941	6-DEC-18	11:29:21
SL0129	E1801039-036DL	P615942	6-DEC-18	12:17:41
SL0130	E1801039-037DL	P615943	6-DEC-18	13:06:43
141506W-141510W	E1801004-006	P615944	6-DEC-18	14:03:40
152901F-152905F	E1801004-009	P615945	6-DEC-18	14:51:59
18315B01BA	E1801053-001	P615946	6-DEC-18	15:42:25
SL0544	E1801046-006	P615947	6-DEC-18	16:30:45
SL0191	E1801056-006	P615948	6-DEC-18	17:22:09
SL0197	E1801056-012	P615949	6-DEC-18	18:10:28
SL0203	E1801056-039	P615950	6-DEC-18	18:59:31
SL0204	E1801056-040	P615951	6-DEC-18	19:48:42
LCS	EQ1800488-02	P615952	6-DEC-18	20:37:53
DLCS	EQ1800488-03	P615953	6-DEC-18	21:27:03

E1801039

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181206A.SPL
Last Modified: Friday, December 07, 2018 06:56:08 Central Standard Time
Printed: Friday, December 07, 2018 06:56:10 Central Standard Time

Page Position (1, 1)

OPUS4: P615940res

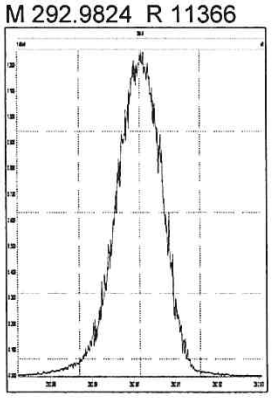
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/6/18	08:52	P615938	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	not used
2		09:46	P615939	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMScheck 08:51
3		10:36	P615940	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		11:29	P615941	EQ1800489-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:17	P615942	E181039-036DL	E181039-036DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:06	P615943	E181039-037DL	E181039-037DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:03	P615944	E1801004-006	E1801004-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		14:51	P615945	E1801004-009	E1801004-009	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		15:42	P615946	E1801053-001	E1801053-001	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:30	P615947	E1801046-006	E1801046-006	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		17:22	P615948	E1801056-006	E1801056-006	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:10	P615949	E1801056-012	E1801056-012	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		18:59	P615950	E1801056-039	E1801056-039	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		19:48	P615951	E1801056-040	E1801056-040	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		20:37	P615952	EQ1800488-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		21:27	P615953	EQ1800488-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:16		
17		22:24	P615954	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMScheck 22:24
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LG 12/10/18

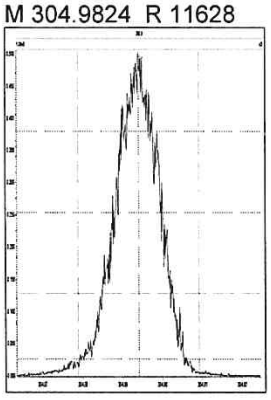
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:51:02 Central Standard Time

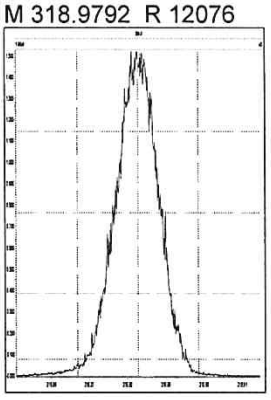
M 292.9824 R 11366



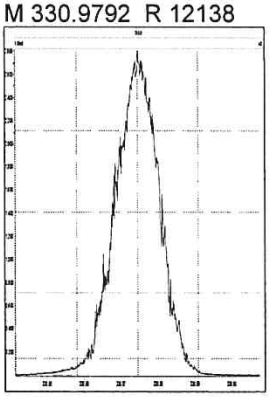
M 304.9824 R 11628



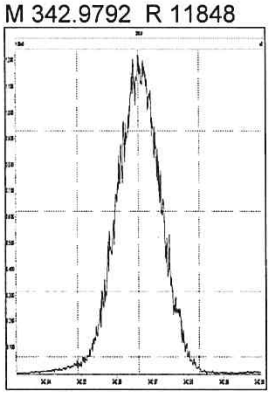
M 318.9792 R 12076



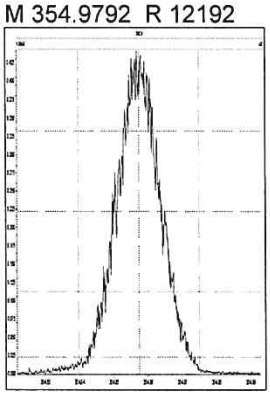
M 330.9792 R 12138



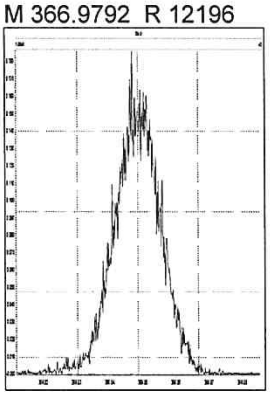
M 342.9792 R 11848



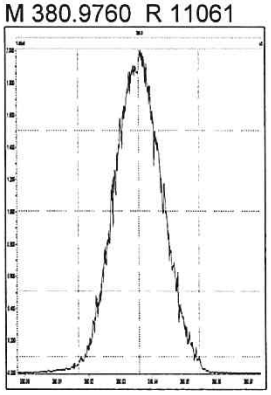
M 354.9792 R 12192



M 366.9792 R 12196



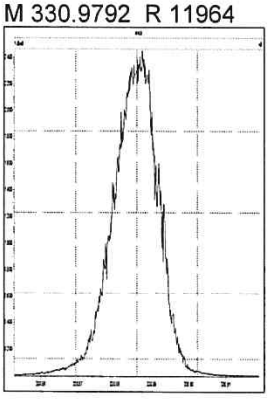
M 380.9760 R 11061



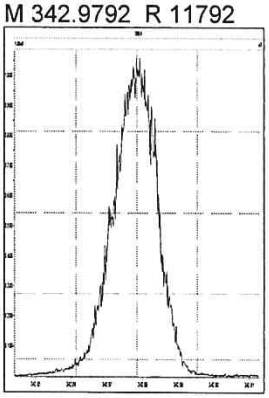
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:51:50 Central Standard Time

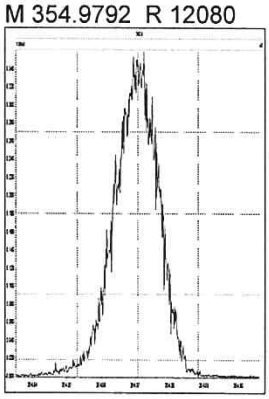
M 330.9792 R 11964



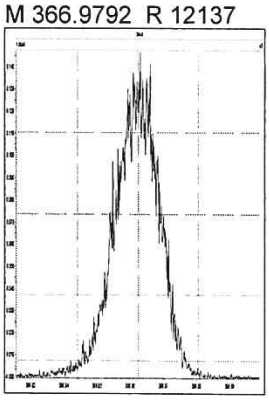
M 342.9792 R 11792



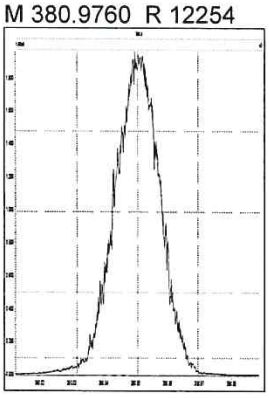
M 354.9792 R 12080



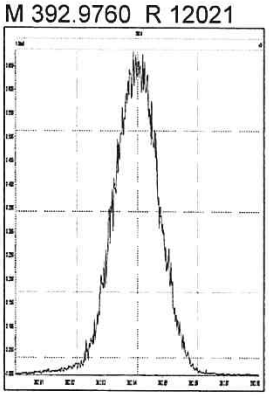
M 366.9792 R 12137



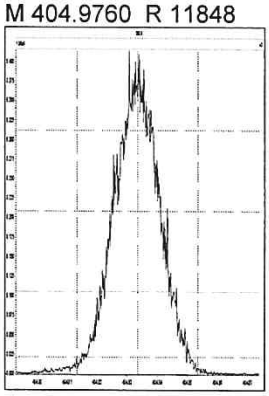
M 380.9760 R 12254



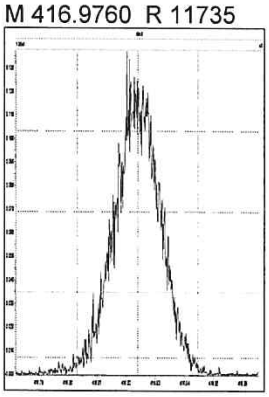
M 392.9760 R 12021



M 404.9760 R 11848



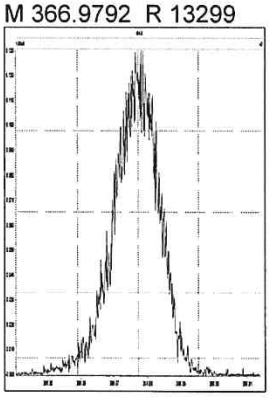
M 416.9760 R 11735



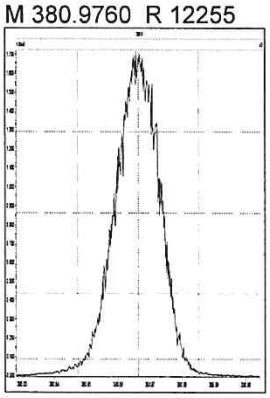
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:52:34 Central Standard Time

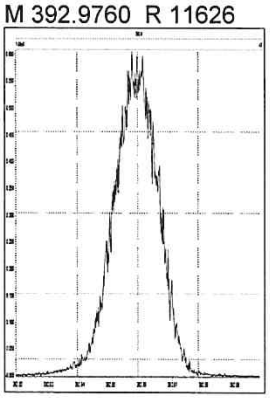
M 366.9792 R 13299



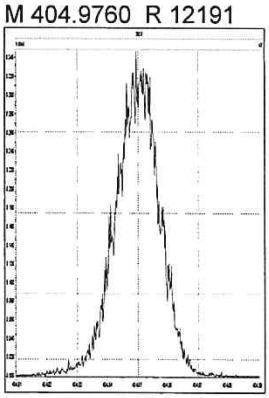
M 380.9760 R 12255



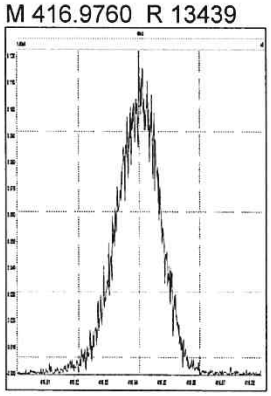
M 392.9760 R 11626



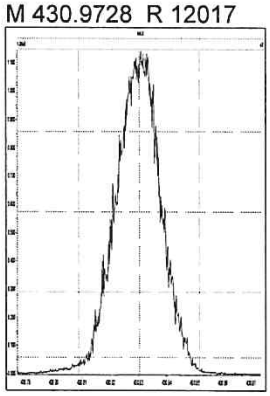
M 404.9760 R 12191



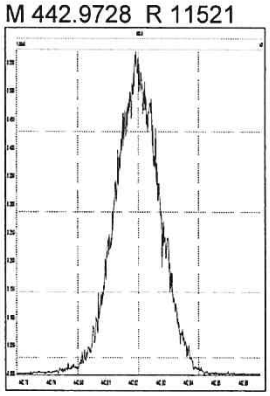
M 416.9760 R 13439



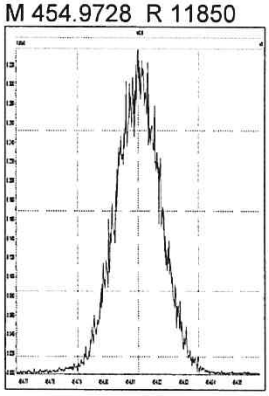
M 430.9728 R 12017



M 442.9728 R 11521



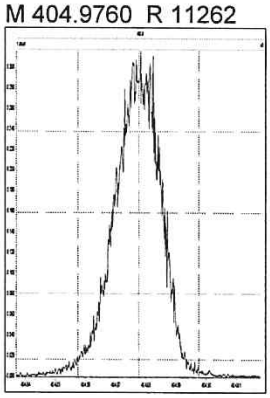
M 454.9728 R 11850



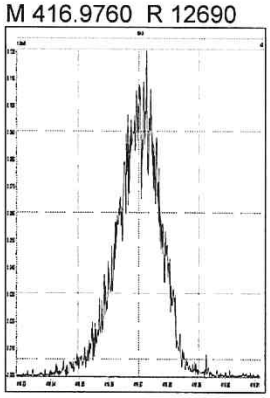
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:53:21 Central Standard Time

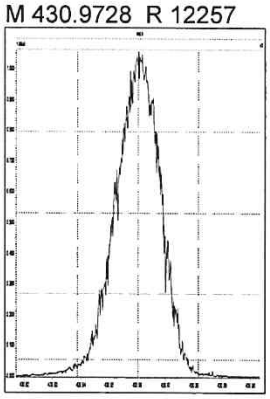
M 404.9760 R 11262



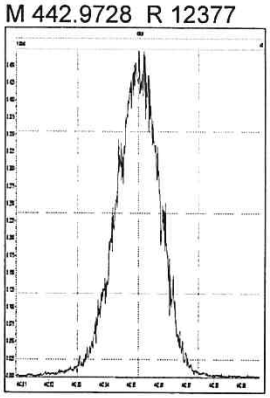
M 416.9760 R 12690



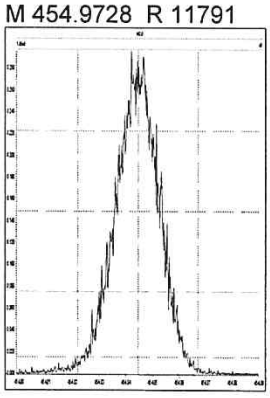
M 430.9728 R 12257



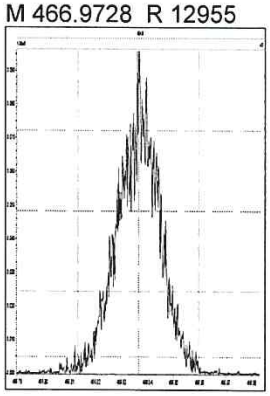
M 442.9728 R 12377



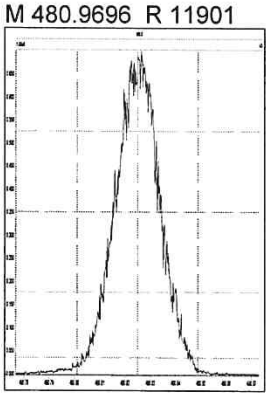
M 454.9728 R 11791



M 466.9728 R 12955



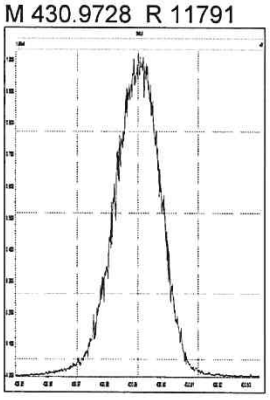
M 480.9696 R 11901



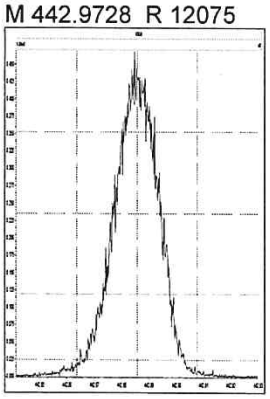
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:54:10 Central Standard Time

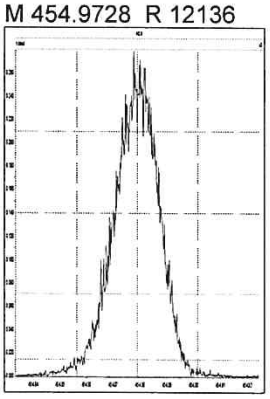
M 430.9728 R 11791



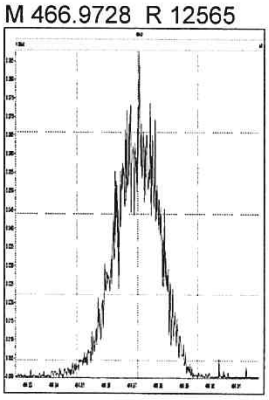
M 442.9728 R 12075



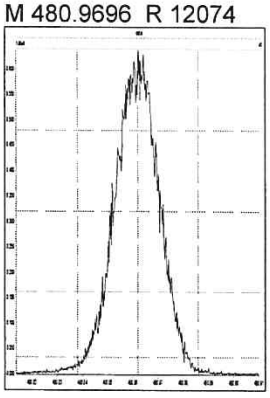
M 454.9728 R 12136



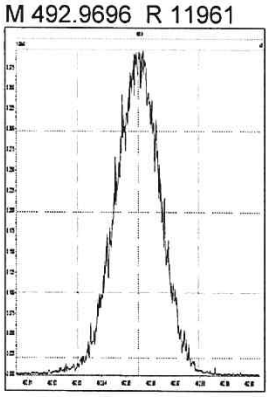
M 466.9728 R 12565



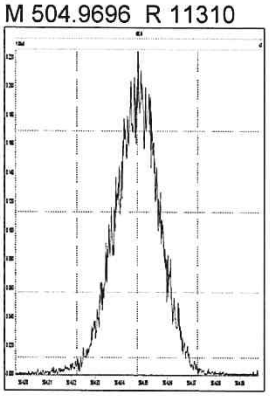
M 480.9696 R 12074



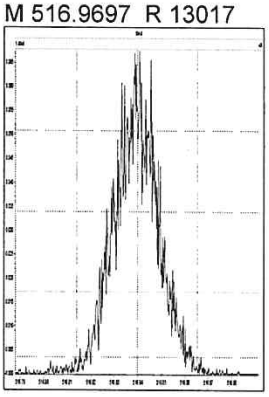
M 492.9696 R 11961



M 504.9696 R 11310



M 516.9697 R 13017



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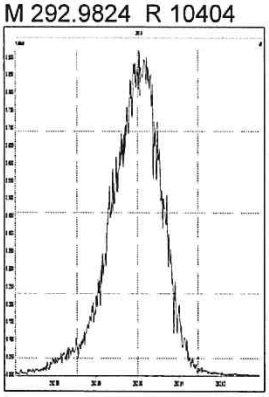
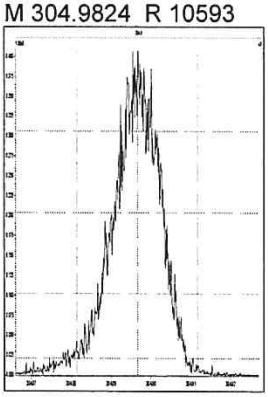
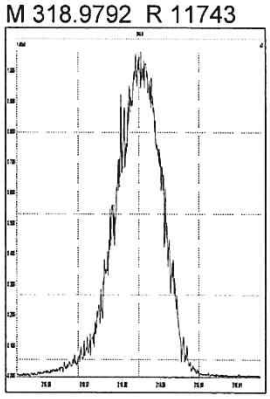
M 292.9824 R 10404



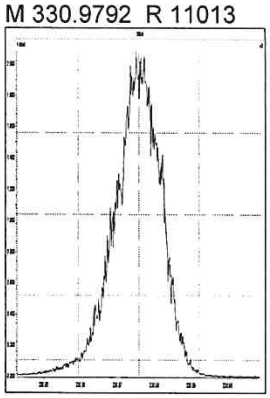
M 304.9824 R 10593



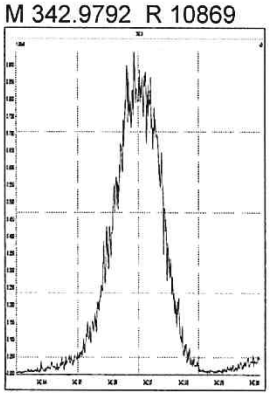
M 318.9792 R 11743



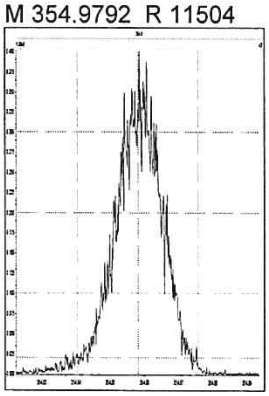
M 330.9792 R 11013



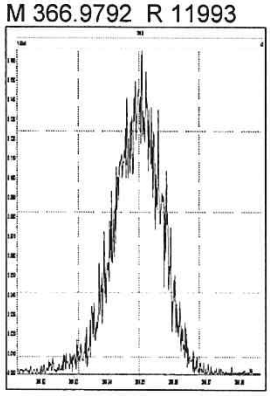
M 342.9792 R 10869



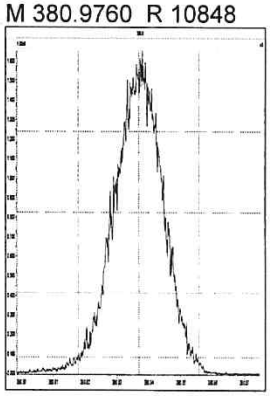
M 354.9792 R 11504



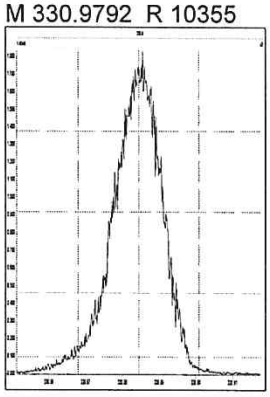
M 366.9792 R 11993



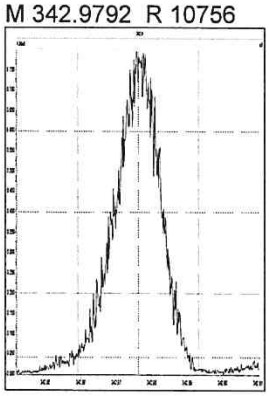
M 380.9760 R 10848



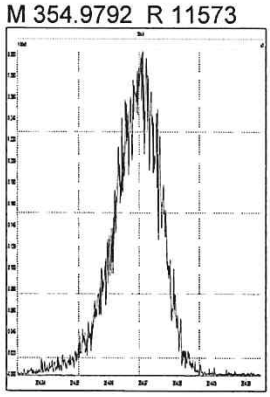
M 330.9792 R 10355



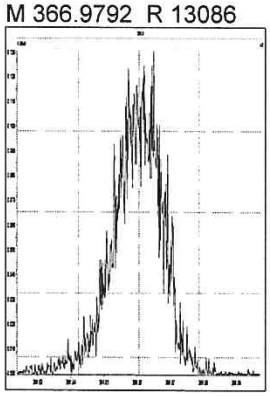
M 342.9792 R 10756



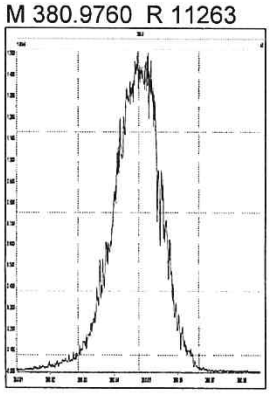
M 354.9792 R 11573



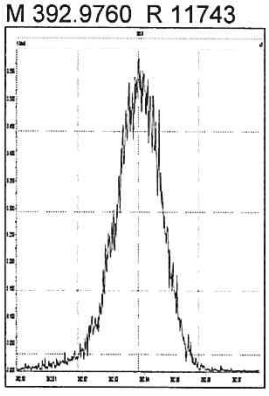
M 366.9792 R 13086



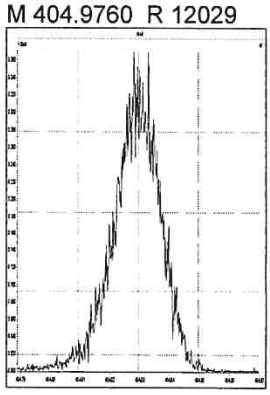
M 380.9760 R 11263



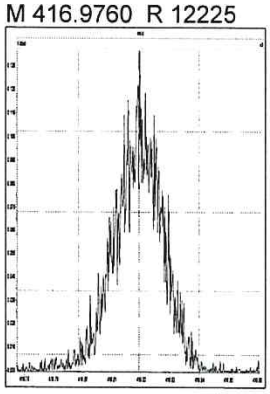
M 392.9760 R 11743



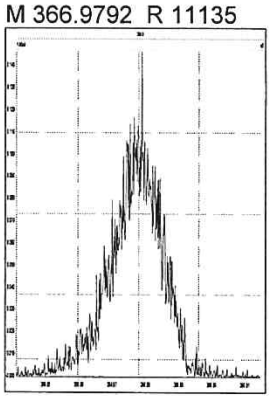
M 404.9760 R 12029



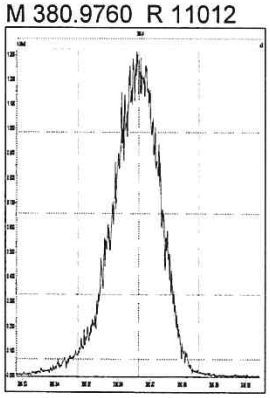
M 416.9760 R 12225



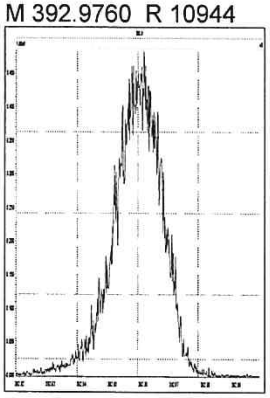
M 366.9792 R 11135



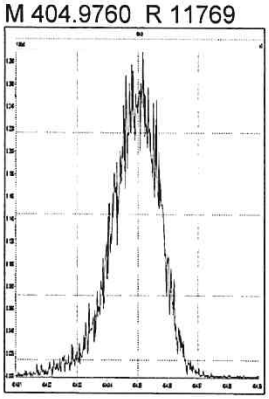
M 380.9760 R 11012



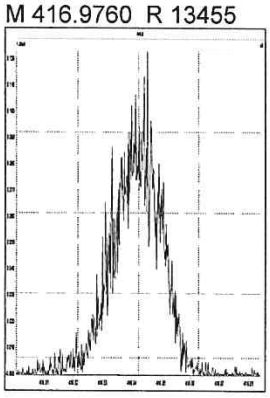
M 392.9760 R 10944



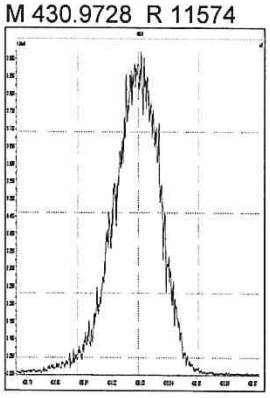
M 404.9760 R 11769



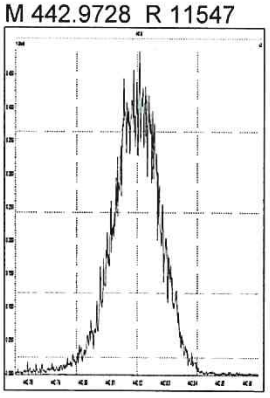
M 416.9760 R 13455



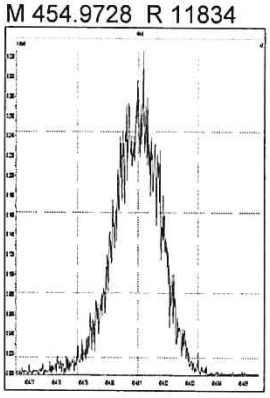
M 430.9728 R 11574



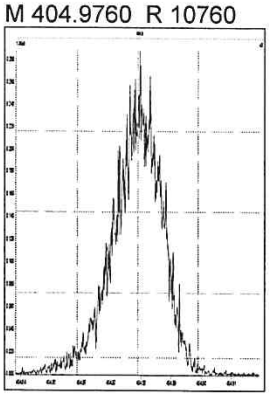
M 442.9728 R 11547



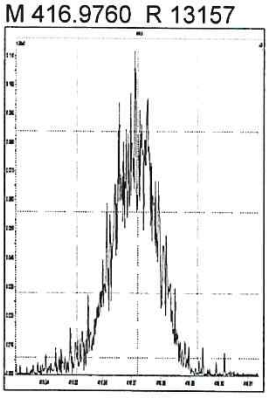
M 454.9728 R 11834



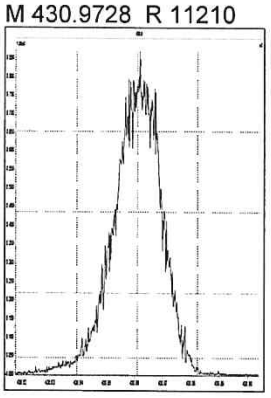
M 404.9760 R 10760



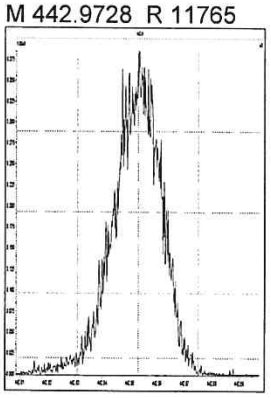
M 416.9760 R 13157



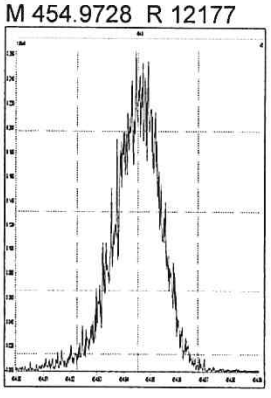
M 430.9728 R 11210



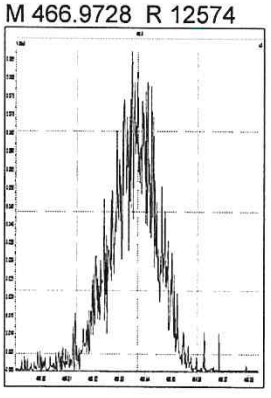
M 442.9728 R 11765



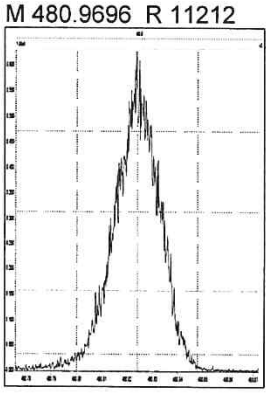
M 454.9728 R 12177



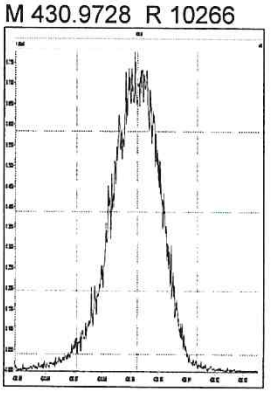
M 466.9728 R 12574



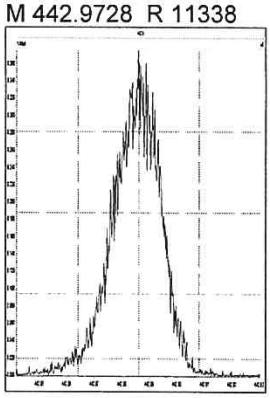
M 480.9696 R 11212



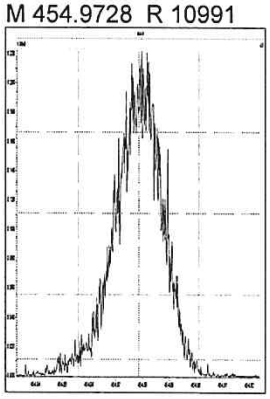
M 430.9728 R 10266



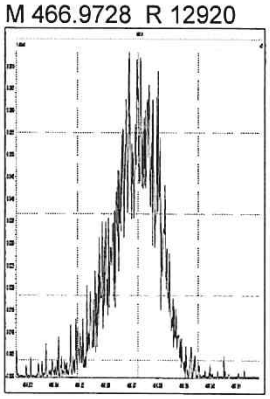
M 442.9728 R 11338



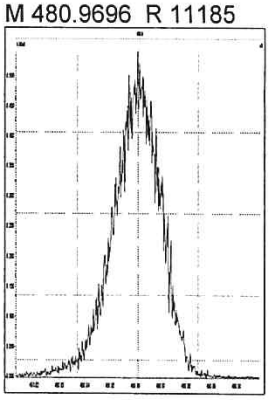
M 454.9728 R 10991



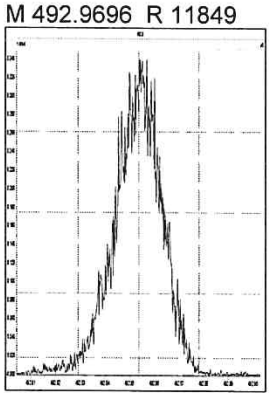
M 466.9728 R 12920



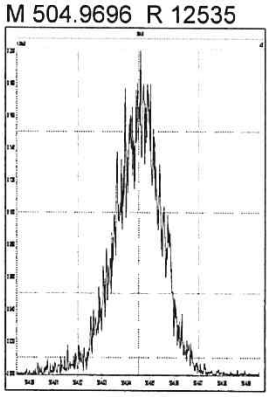
M 480.9696 R 11185



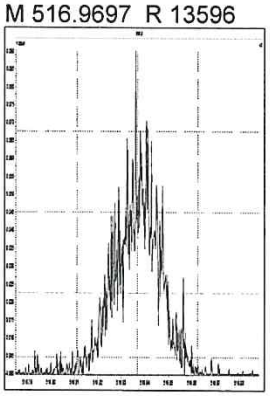
M 492.9696 R 11849



M 504.9696 R 12535



M 516.9697 R 13596



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

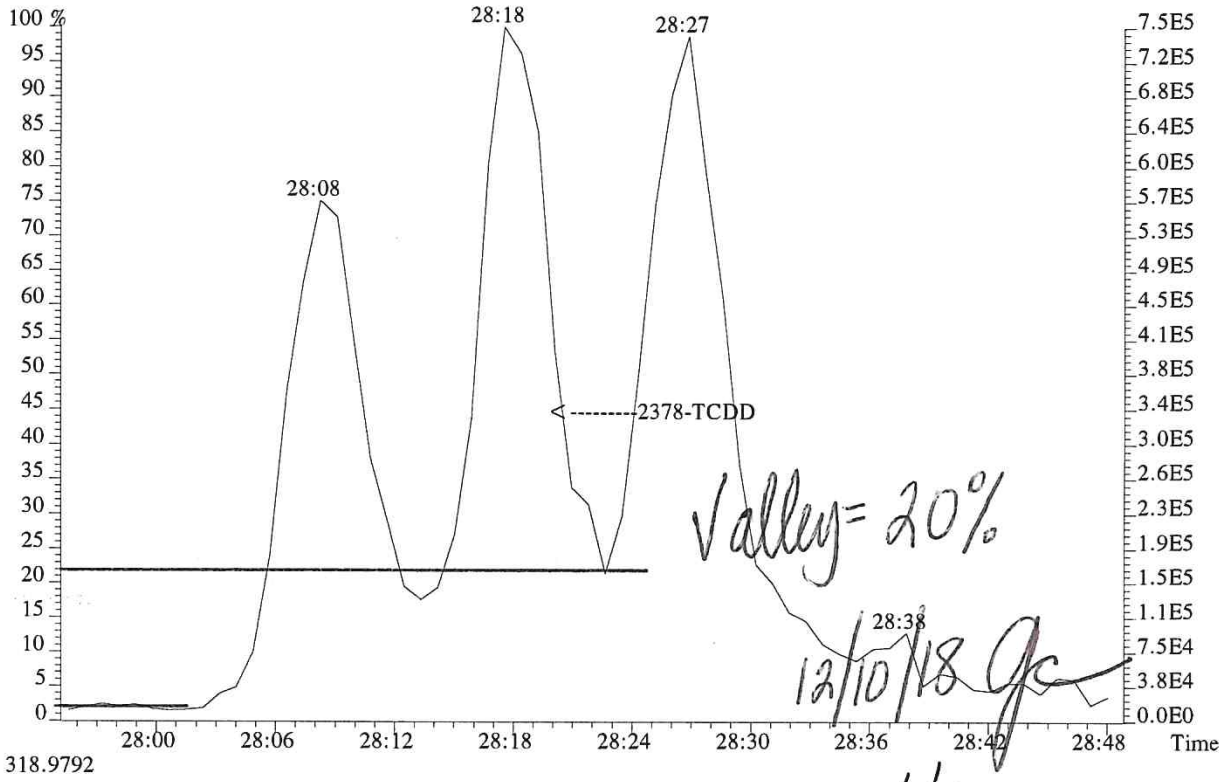
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P615939
Date Analyzed: 6-DEC-18
Time Analyzed: 09:46:58

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:59	29:32
TCDD	24:46	29:20
PeCDF	29:25	33:48
PeCDD	31:02	33:32
HxCDF	34:26	36:58
HxCDD	34:57	36:33
HpCDF	38:10	39:32
HpCDD	38:24	39:04

% Valley 2378-TCDD: 20 %

File:P615939 #1-552 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



Valley = 20%

12/10/18 JC

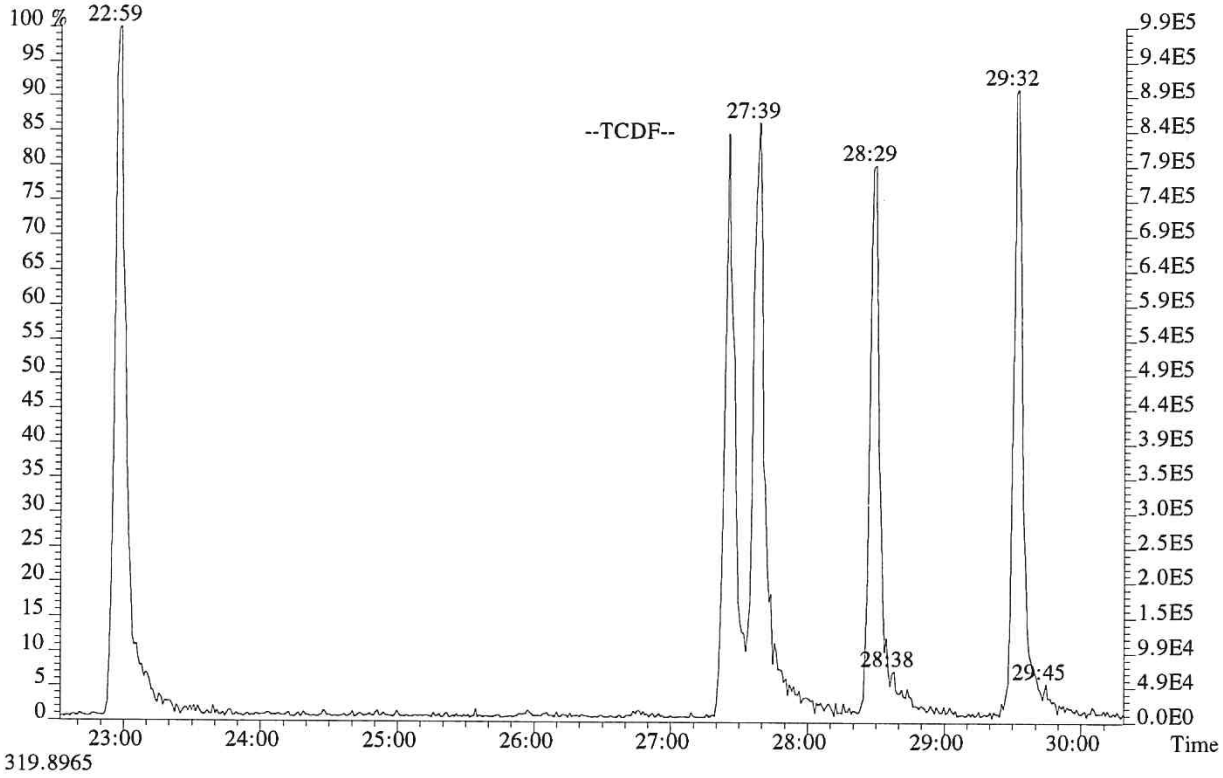
318.9792

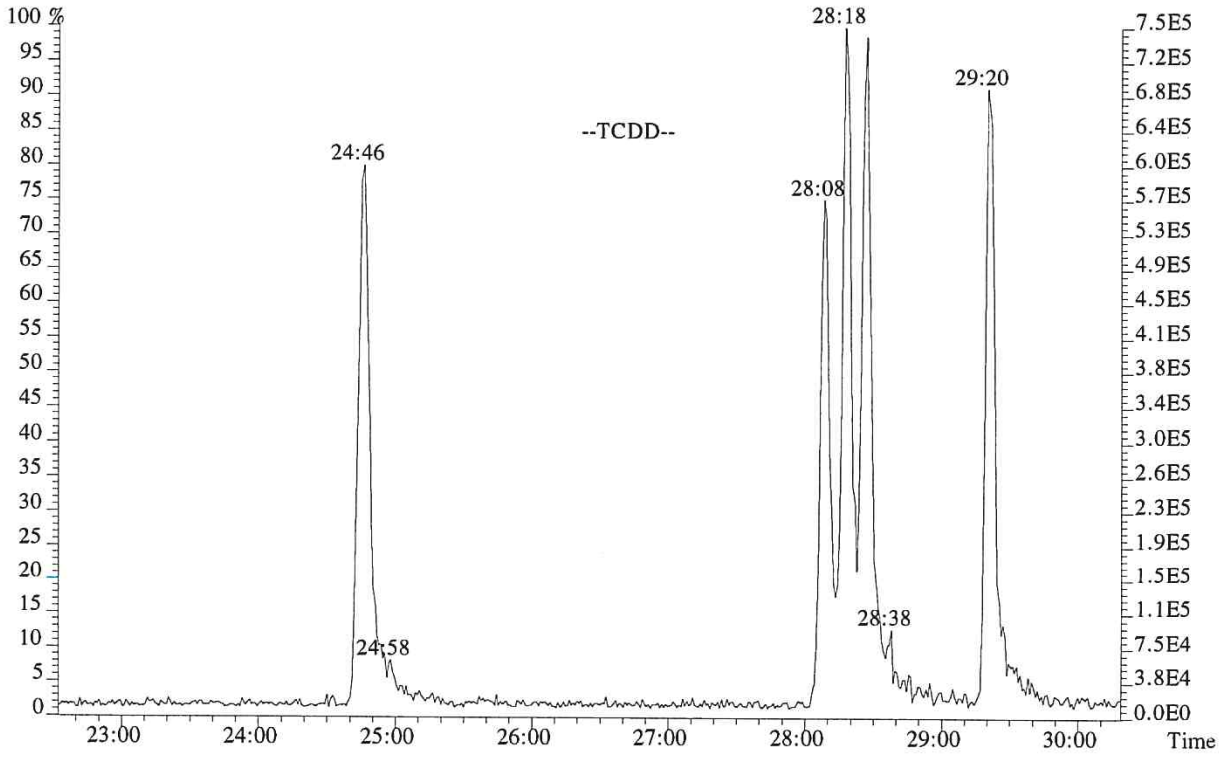
LM 12/11/18



011604

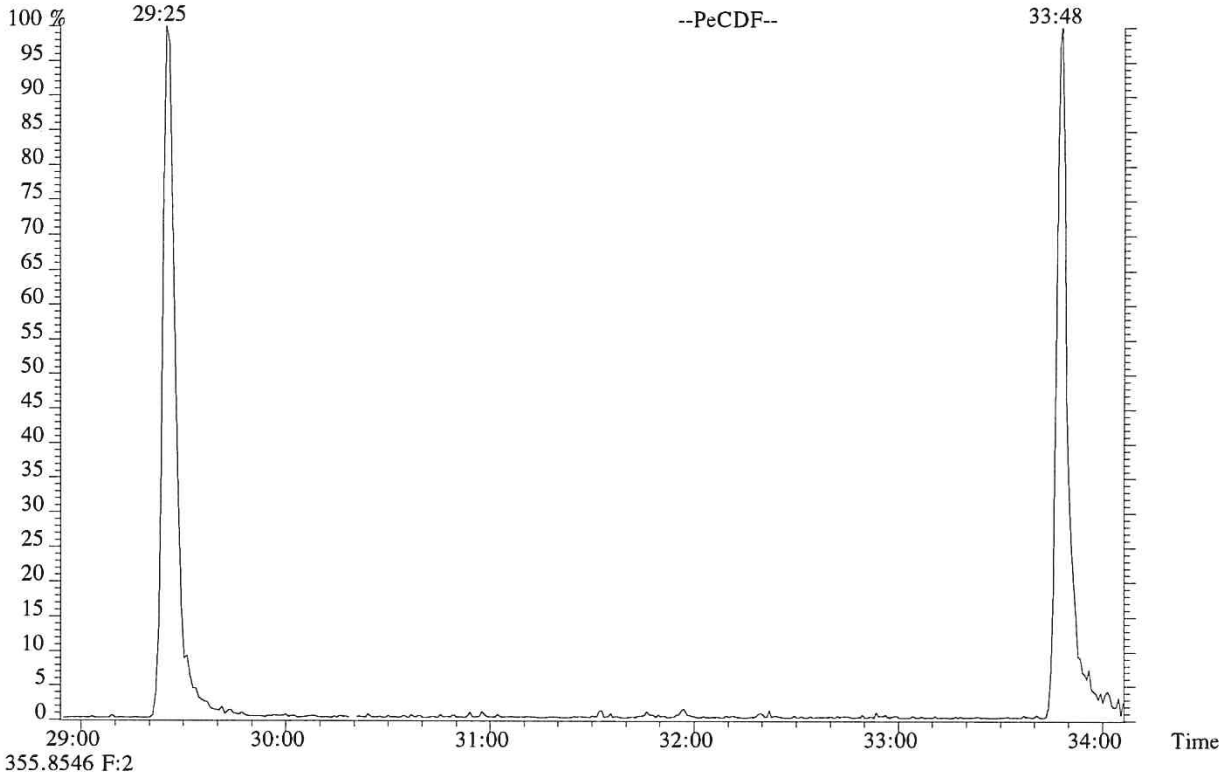
File:P615939 #1-552 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



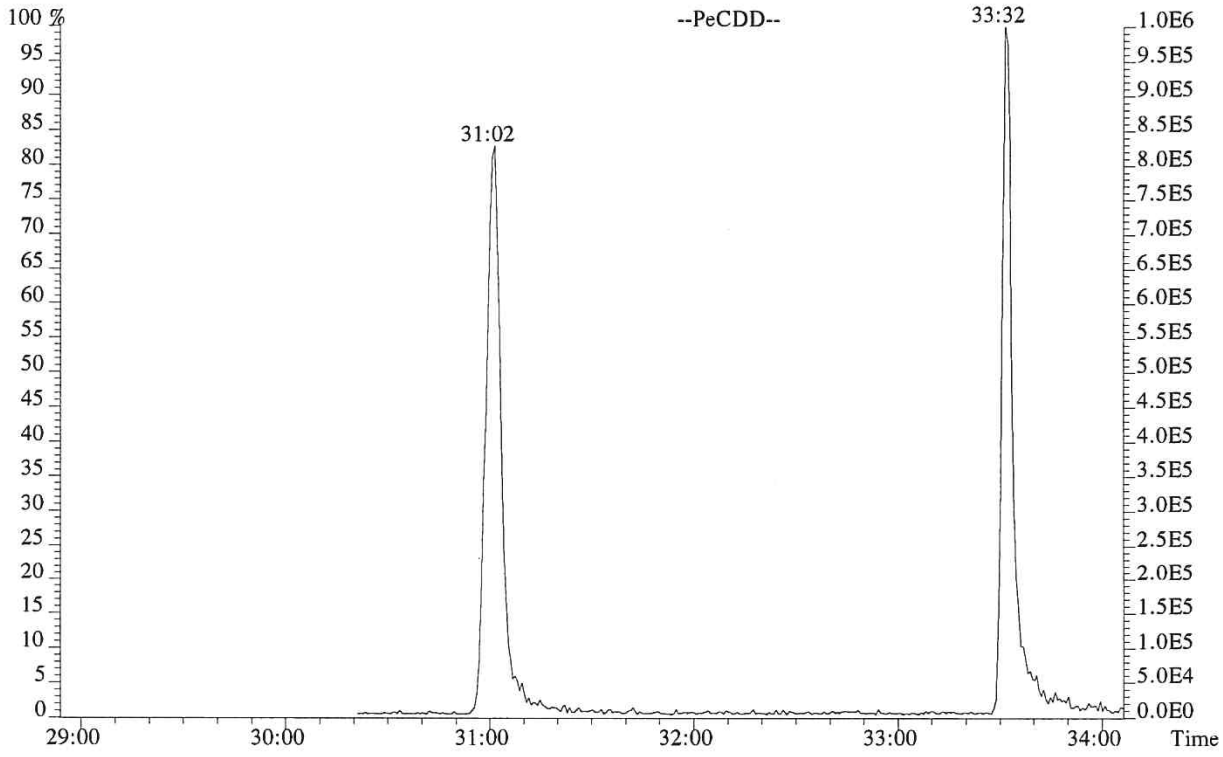


011605

File:P615939 #1-552 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

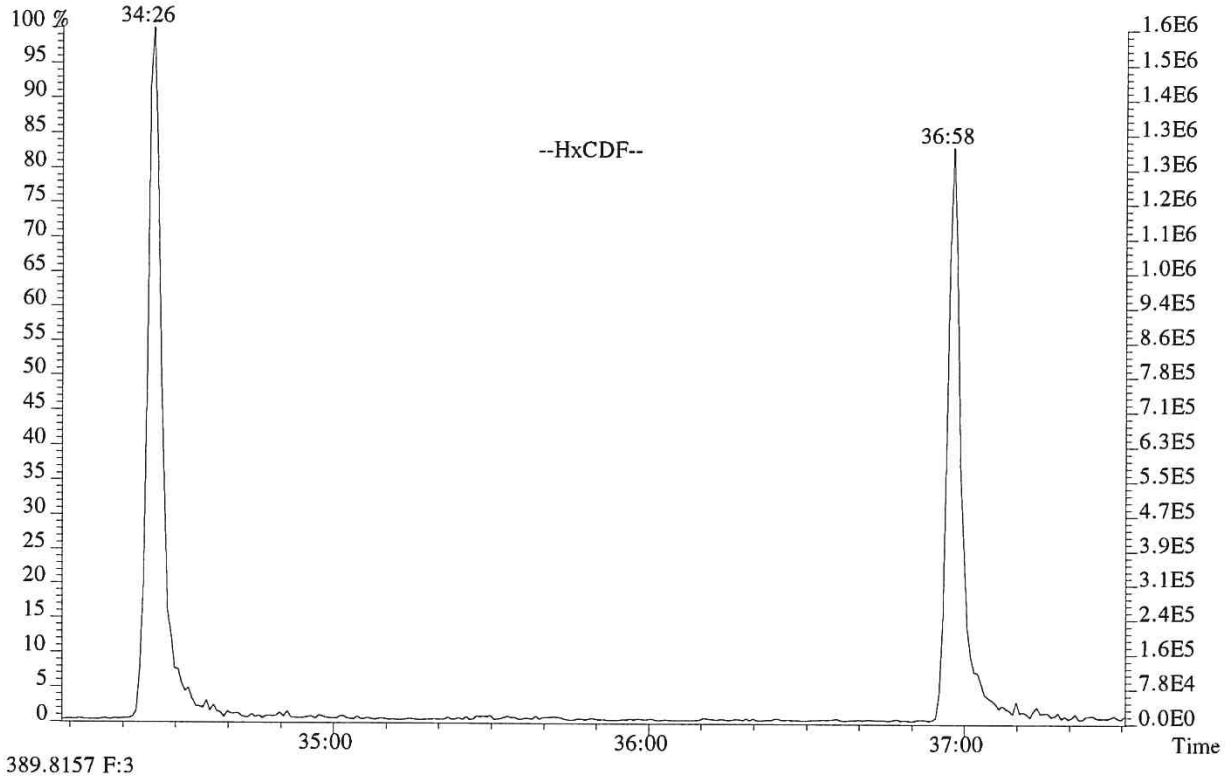


355.8546 F:2

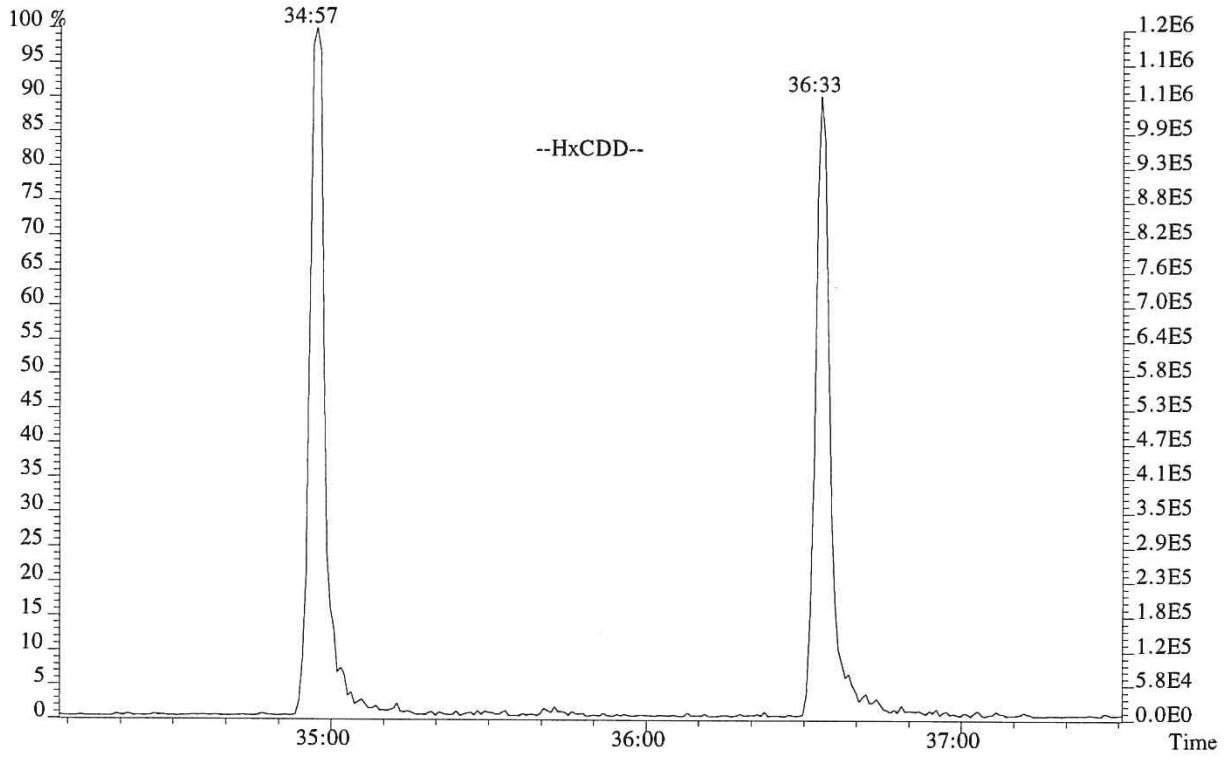


011606

File:P615939 #1-304 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

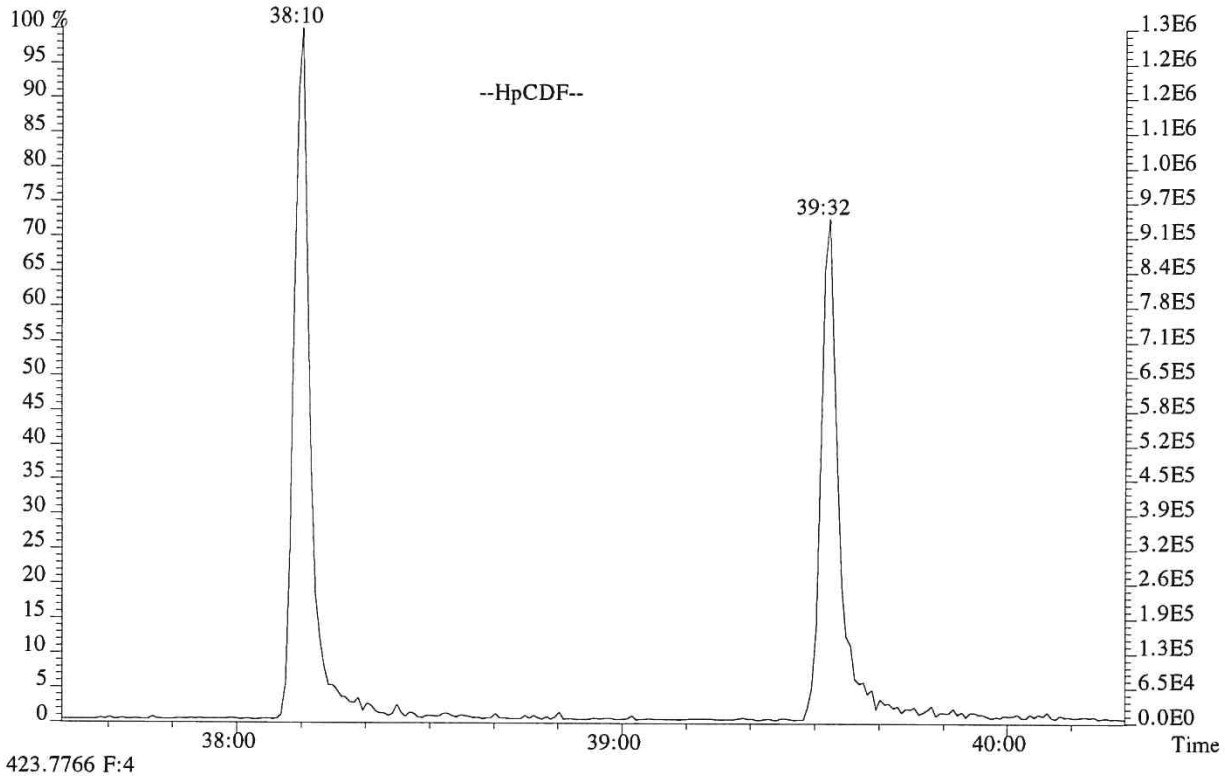


389.8157 F:3

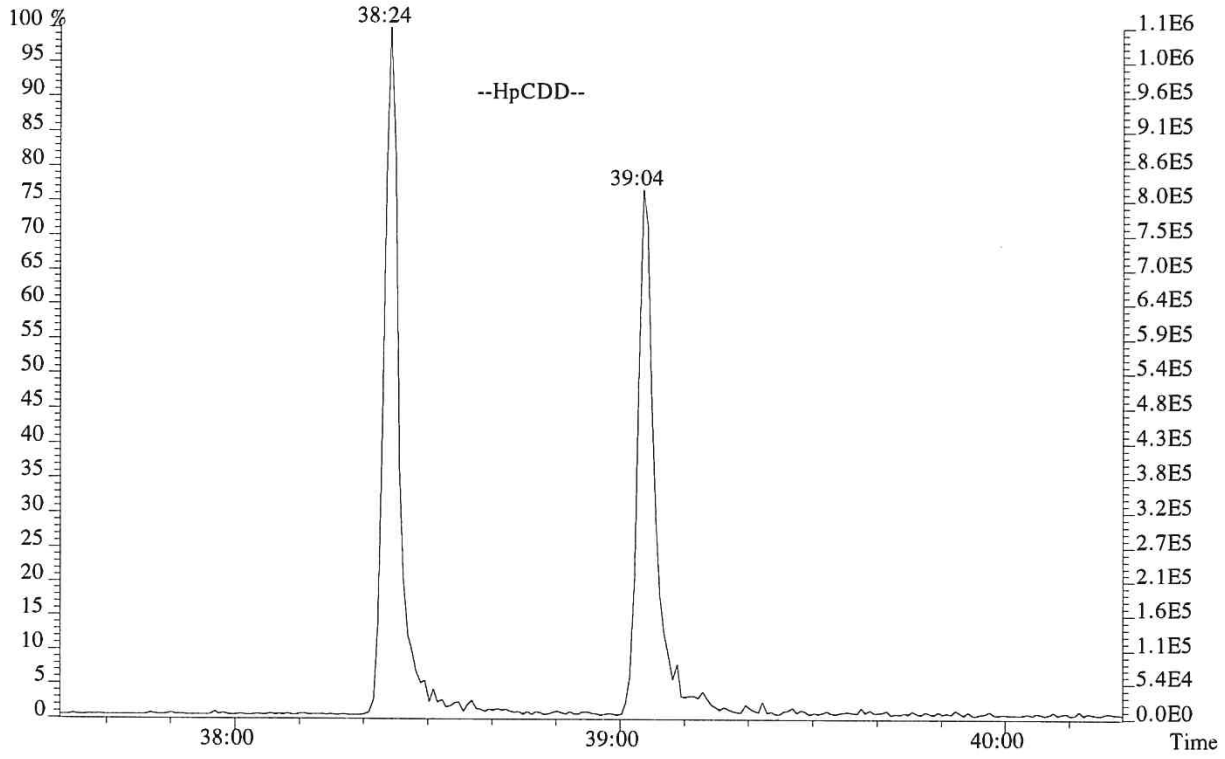


011607

File:P615939 #1-249 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



011608

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615940 Analysis Date: 6-DEC-18 Time: 10:36:14

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.6	7.8 - 12.9	-4.1
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	49	39 - 65	-2.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	48	39 - 64	-3.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	-0.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	47	43 - 58	-6.2
OCDD	M+2/M+4	0.89	0.76-1.02	95	79 - 126	-4.7
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	9.0	8.4 - 12.0	-10.4
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	45	41 - 60	-9.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	45	41 - 61	-10.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	45	45 - 56	-10.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	46	44 - 57	-7.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	46	45 - 56	-7.5
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-8.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	46	45 - 55	-8.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.06	0.88-1.20	45	43 - 58	-10.0
OCDF	M+2/M+4	0.90	0.76-1.02	86	63 - 159	-14.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615940 Analysis Date: 6-DEC-18 Time: 10:36:14

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	97	82 - 121	-3.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	91	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	100	85 - 117	-0.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	102	85 - 118	2.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	96	72 - 138	-4.4
13C-OCDD	M+2/M+4	0.90	0.76-1.02	188	96 - 415	-5.9
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	92	71 - 140	-8.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	89	76 - 130	-11.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	87	77 - 130	-12.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	76 - 131	-5.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	97	70 - 143	-3.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	86	74 - 135	-13.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-5.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	90	78 - 129	-10.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	85	77 - 129	-14.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.3	7.8 - 12.7	-7.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #8 Filename P615940 Samp: 1 Inj: 1 Acquired: 6-DEC-18 10:36:14
Processed: 10-DEC-18 11:31:53 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	7.114e+03	9.021e+03	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	5.771e+04	3.707e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:52	5.304e+04	3.400e+04	1.56	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	4.722e+04	3.842e+04	1.23	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:39	5.261e+04	4.196e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:10	4.702e+04	3.800e+04	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:55	4.036e+04	3.274e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:09	4.022e+04	3.902e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	3.230e+04	3.050e+04	1.06	yes	no	1.463
10	Unk	OCDF	41:56	4.869e+04	5.409e+04	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:25	5.330e+03	6.936e+03	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:09	3.653e+04	2.343e+04	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:18	3.190e+04	2.575e+04	1.24	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:23	3.360e+04	2.616e+04	1.28	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	3.533e+04	2.810e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	2.683e+04	2.590e+04	1.04	yes	no	1.112
17	Unk	OCDD	41:43	3.965e+04	4.461e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:35	7.353e+04	9.298e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:55	1.119e+05	6.994e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	1.084e+05	6.792e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	4.667e+04	8.828e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	5.488e+04	1.040e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	4.976e+04	9.512e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	4.144e+04	7.897e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:08	3.526e+04	7.848e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	2.968e+04	6.570e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	5.307e+04	6.886e+04	0.77	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	8.023e+04	5.192e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	6.176e+04	4.924e+04	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	6.352e+04	5.029e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	5.160e+04	4.941e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	41:43	7.238e+04	8.033e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	5.690e+04	7.153e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	6.857e+04	5.467e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:25	1.292e+04				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #8 Filename P615940 Samp: 1 Inj: 1 Acquired: 6-DEC-18 10:36:14
Processed: 10-DEC-18 11:31:53 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	2.18e+03	4.8e+02	1.31e+06	7.64e+03	1.7e+02
2	1,2,3,7,8-PeCDF	9.45e+06	1.68e+03	5.6e+03	6.05e+06	3.39e+03	1.8e+03
3	2,3,4,7,8-PeCDF	9.31e+06	1.68e+03	5.6e+03	5.99e+06	3.39e+03	1.8e+03
4	1,2,3,4,7,8-HxCDF	9.97e+06	1.42e+03	7.0e+03	8.09e+06	1.10e+03	7.4e+03
5	1,2,3,6,7,8-HxCDF	1.02e+07	1.42e+03	7.2e+03	8.14e+06	1.10e+03	7.4e+03
6	2,3,4,6,7,8-HxCDF	9.44e+06	1.42e+03	6.7e+03	7.59e+06	1.10e+03	6.9e+03
7	1,2,3,7,8,9-HxCDF	7.77e+06	1.42e+03	5.5e+03	6.34e+06	1.10e+03	5.8e+03
8	1,2,3,4,6,7,8-HpCDF	8.43e+06	4.38e+03	1.9e+03	8.15e+06	1.96e+03	4.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.85e+06	4.38e+03	1.3e+03	5.49e+06	1.96e+03	2.8e+03
10	OCDF	8.12e+06	7.48e+02	1.1e+04	9.20e+06	2.77e+03	3.3e+03
11	2,3,7,8-TCDD	8.59e+05	4.31e+03	2.0e+02	1.12e+06	2.51e+03	4.5e+02
12	1,2,3,7,8-PeCDD	6.46e+06	1.86e+03	3.5e+03	4.02e+06	9.20e+02	4.4e+03
13	1,2,3,4,7,8-HxCDD	6.80e+06	1.24e+03	5.5e+03	5.49e+06	2.11e+03	2.6e+03
14	1,2,3,6,7,8-HxCDD	6.66e+06	1.24e+03	5.4e+03	5.15e+06	2.11e+03	2.4e+03
15	1,2,3,7,8,9-HxCDD	6.78e+06	1.24e+03	5.5e+03	5.37e+06	2.11e+03	2.5e+03
16	1,2,3,4,6,7,8-HpCDD	5.29e+06	1.20e+03	4.4e+03	5.05e+06	6.44e+02	7.8e+03
17	OCDD	6.97e+06	3.76e+02	1.9e+04	7.70e+06	1.09e+03	7.1e+03
18	13C-2,3,7,8-TCDF	1.05e+07	8.47e+03	1.2e+03	1.33e+07	1.22e+04	1.1e+03
19	13C-1,2,3,7,8-PeCDF	1.82e+07	1.97e+03	9.3e+03	1.14e+07	1.05e+03	1.1e+04
20	13C-2,3,4,7,8-PeCDF	1.86e+07	1.97e+03	9.4e+03	1.15e+07	1.05e+03	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	9.76e+06	2.59e+03	3.8e+03	1.85e+07	2.73e+03	6.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.08e+07	2.59e+03	4.2e+03	2.04e+07	2.73e+03	7.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.01e+07	2.59e+03	3.9e+03	1.94e+07	2.73e+03	7.1e+03
24	13C-1,2,3,7,8,9-HxCDF	7.97e+06	2.59e+03	3.1e+03	1.52e+07	2.73e+03	5.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.30e+06	5.48e+03	1.3e+03	1.63e+07	1.16e+04	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.41e+06	5.48e+03	9.9e+02	1.18e+07	1.16e+04	1.0e+03
27	13C-2,3,7,8-TCDD	8.61e+06	1.77e+04	4.9e+02	1.09e+07	8.28e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	1.38e+07	2.56e+03	5.4e+03	8.93e+06	2.42e+03	3.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.32e+07	4.48e+03	2.9e+03	1.03e+07	2.30e+03	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.24e+07	4.48e+03	2.8e+03	9.79e+06	2.30e+03	4.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.04e+07	1.85e+03	5.6e+03	9.71e+06	8.64e+02	1.1e+04
32	13C-OCDD	1.27e+07	1.44e+03	8.8e+03	1.39e+07	4.60e+02	3.0e+04
33	13C-1,2,3,4-TCDD	8.83e+06	1.77e+04	5.0e+02	1.12e+07	8.28e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.33e+07	4.48e+03	3.0e+03	1.05e+07	2.30e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.99e+06	3.54e+03	5.6e+02			

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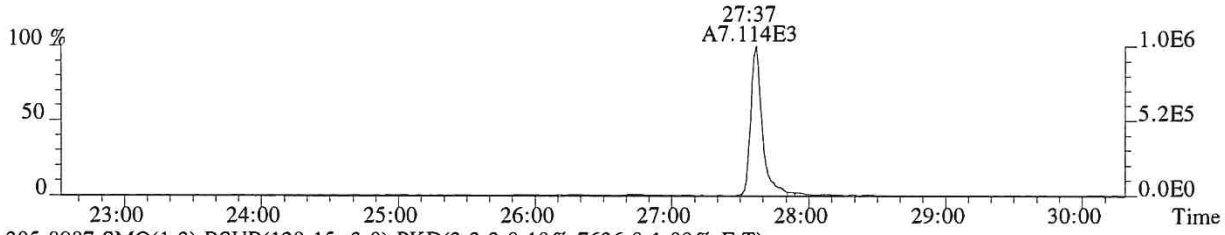
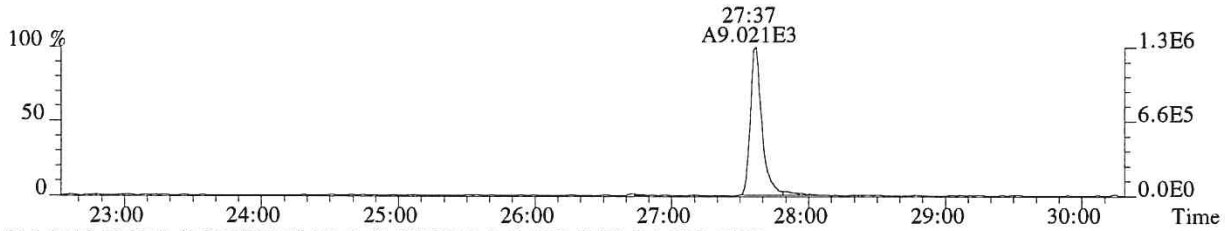
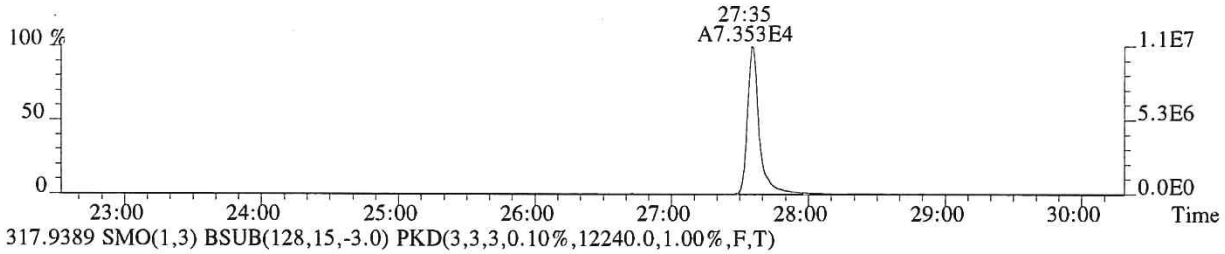
File:P615940 #1-552 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



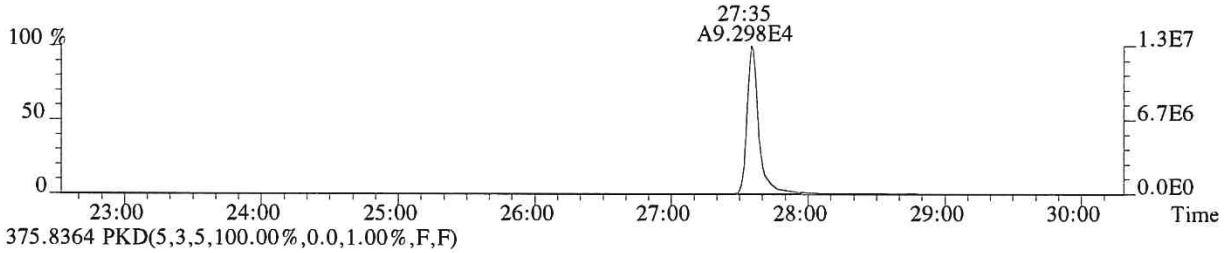
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7636.0,1.00%,F,T)



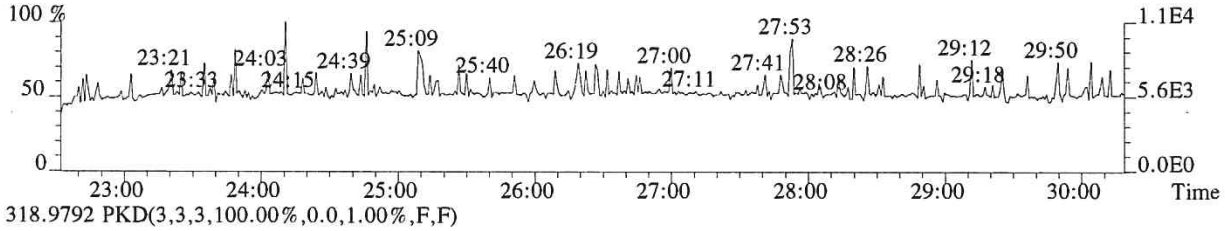
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8472.0,1.00%,F,T)



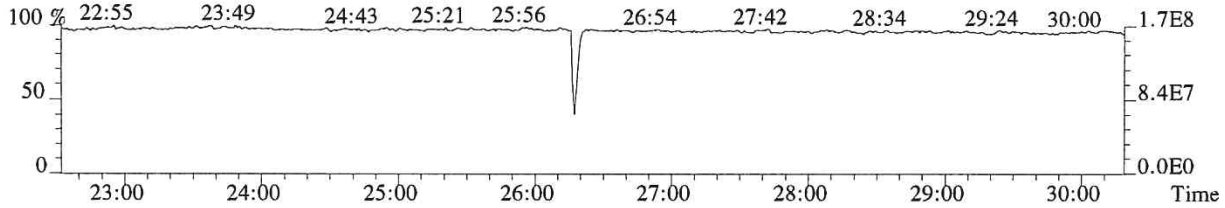
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12240.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

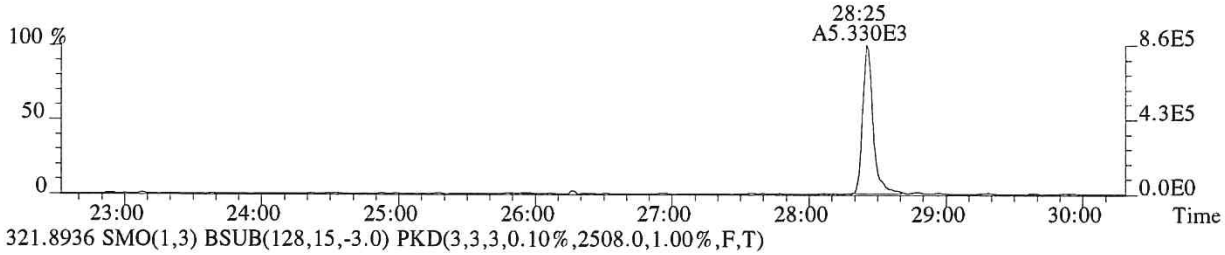


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

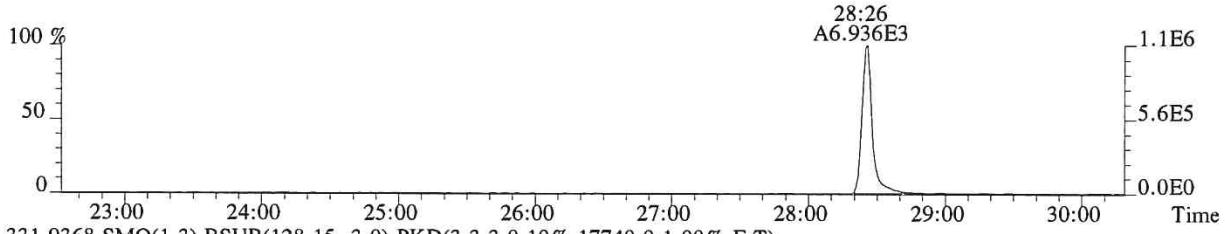


011613

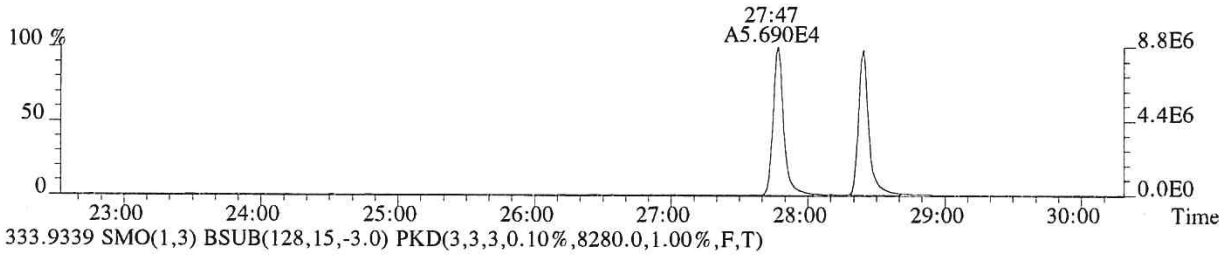
File:P615940 #1-552 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4308.0,1.00%,F,T)



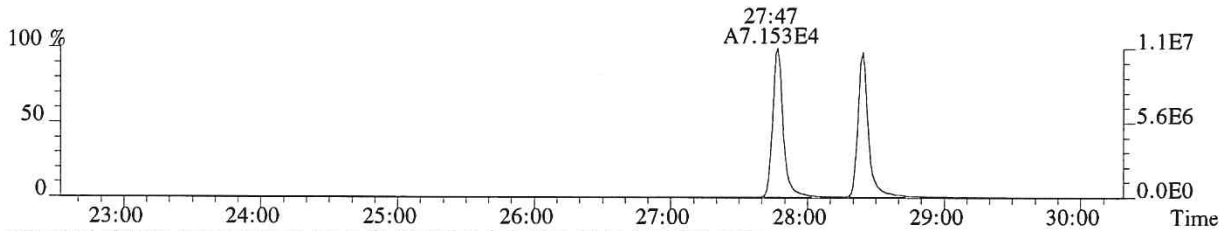
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2508.0,1.00%,F,T)



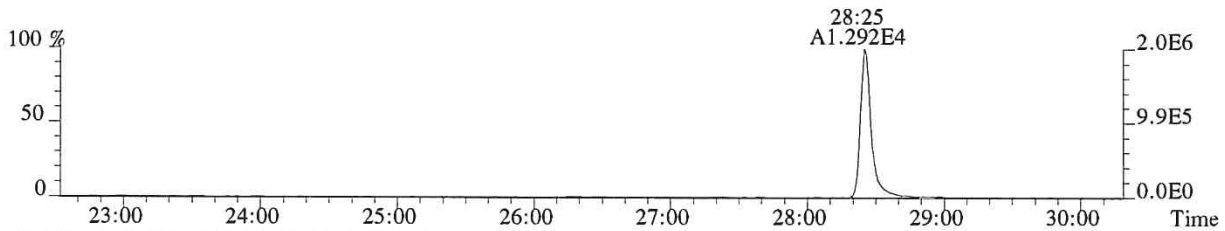
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17740.0,1.00%,F,T)



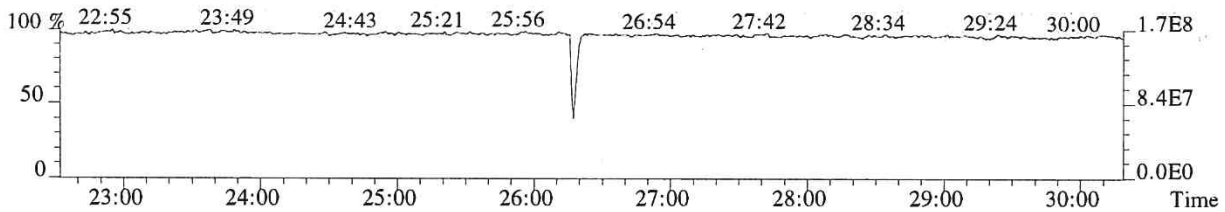
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8280.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3544.0,1.00%,F,T)

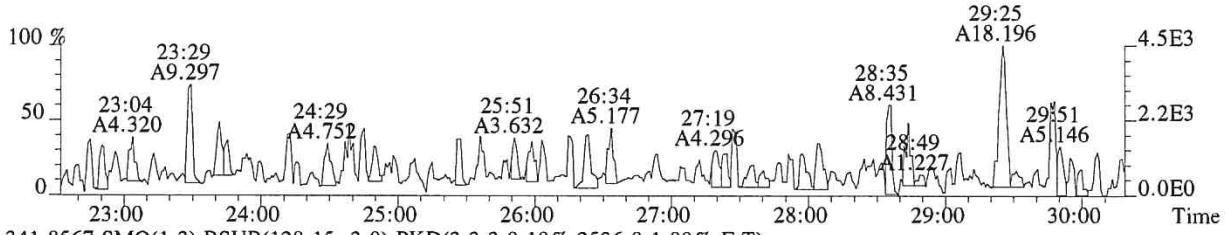


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

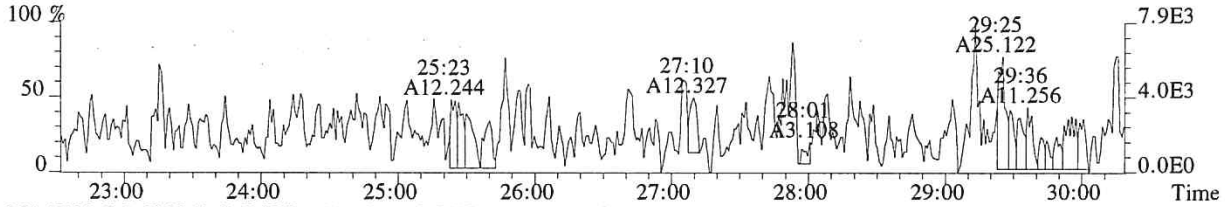


011614

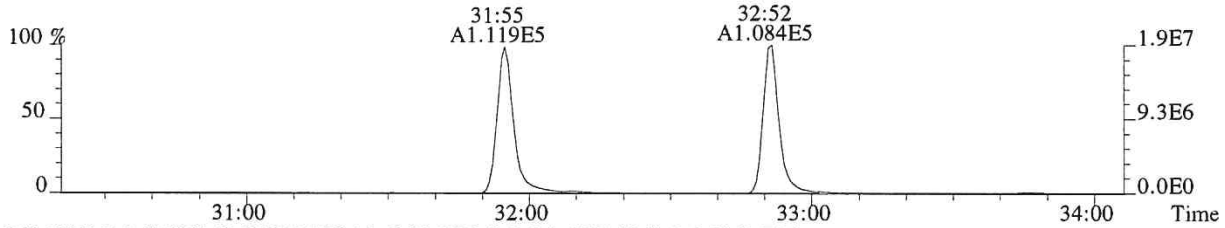
File:P615940 #1-552 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



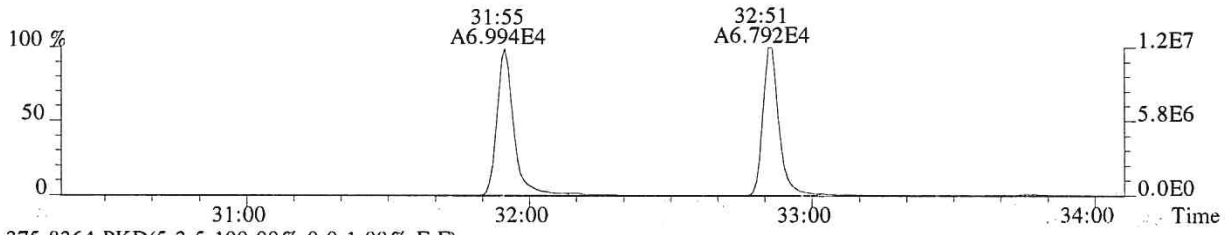
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2536.0,1.00%,F,T)



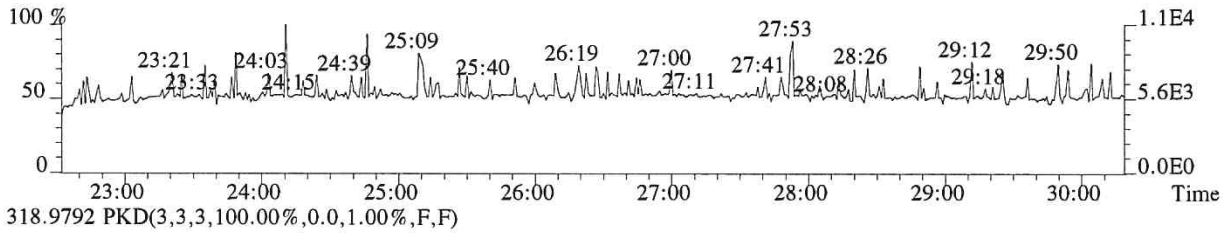
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



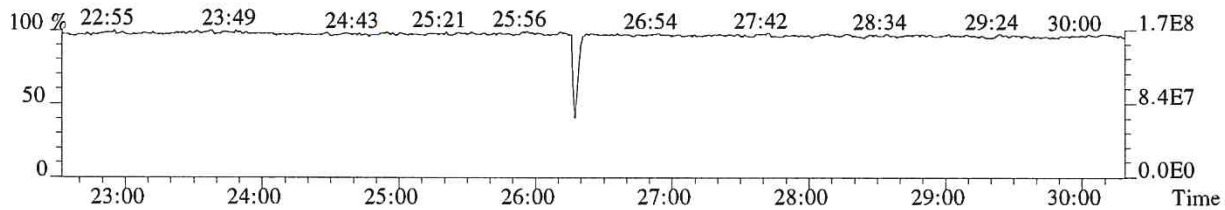
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

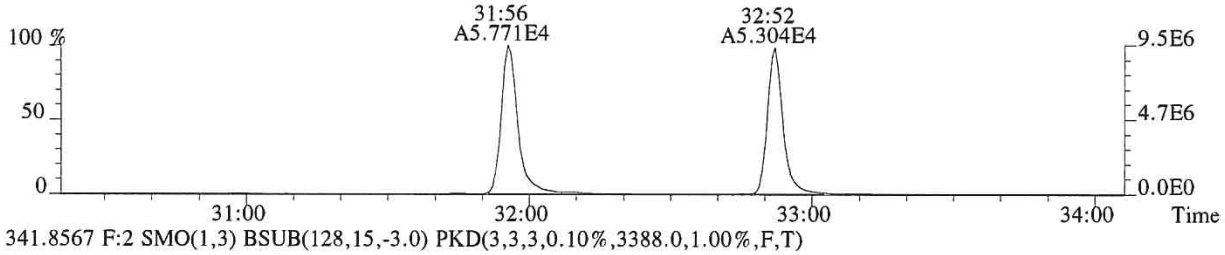


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

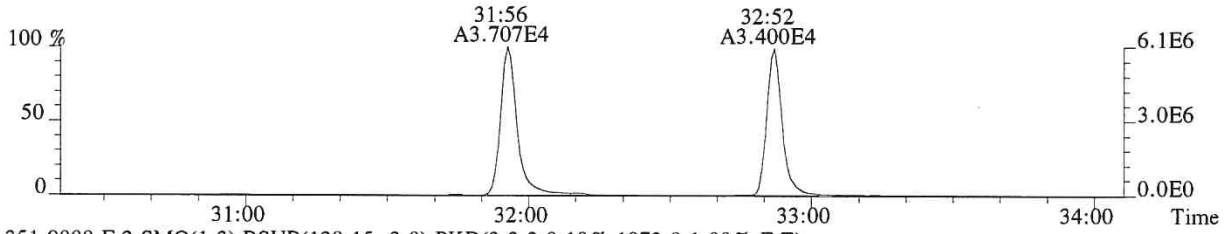


011615

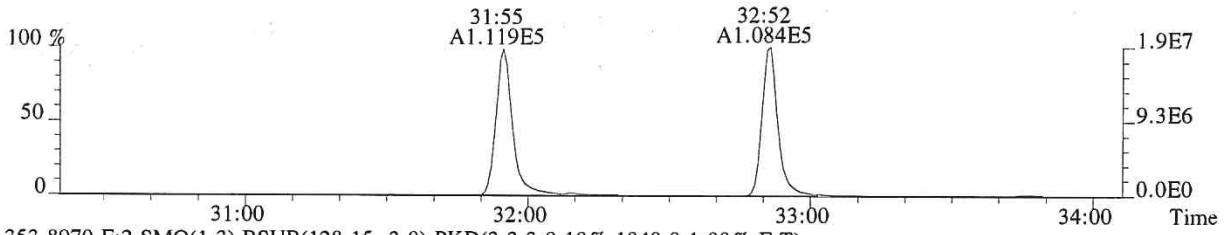
File:P615940 #1-339 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



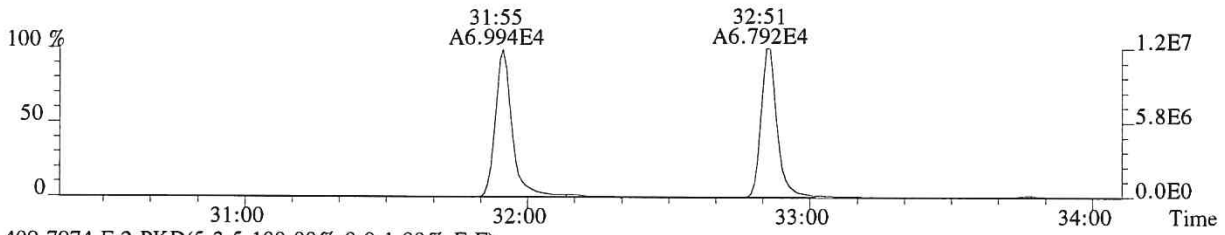
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3388.0,1.00%,F,T)



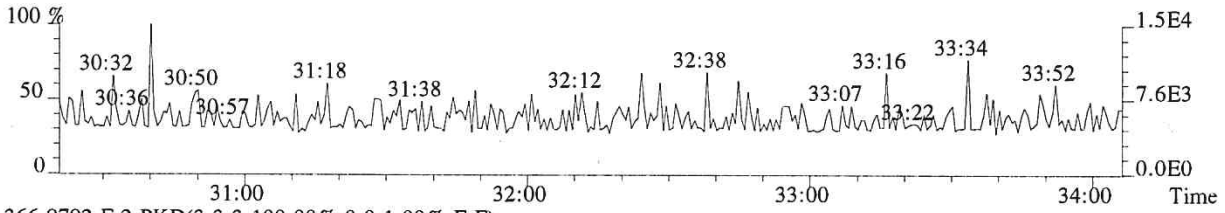
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



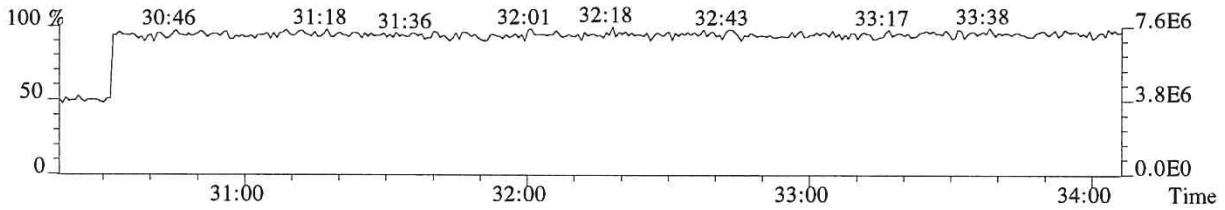
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

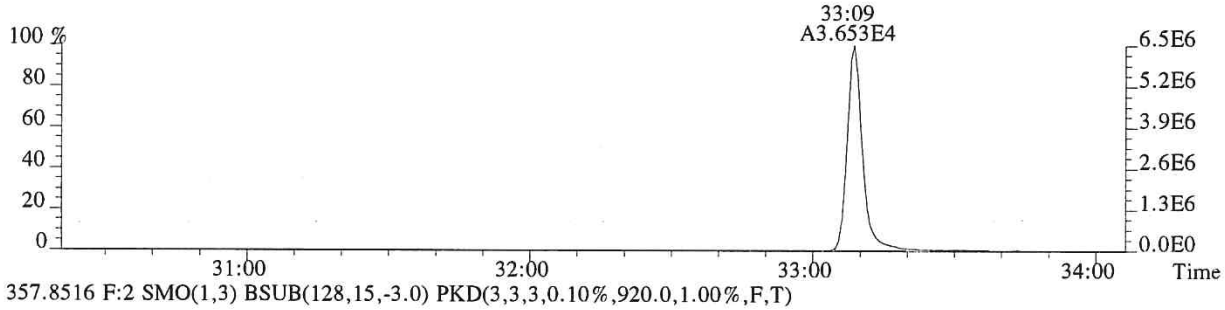


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

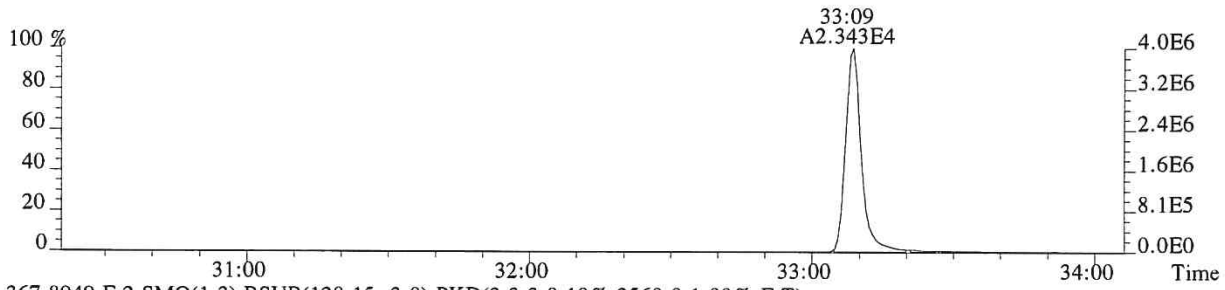


011616

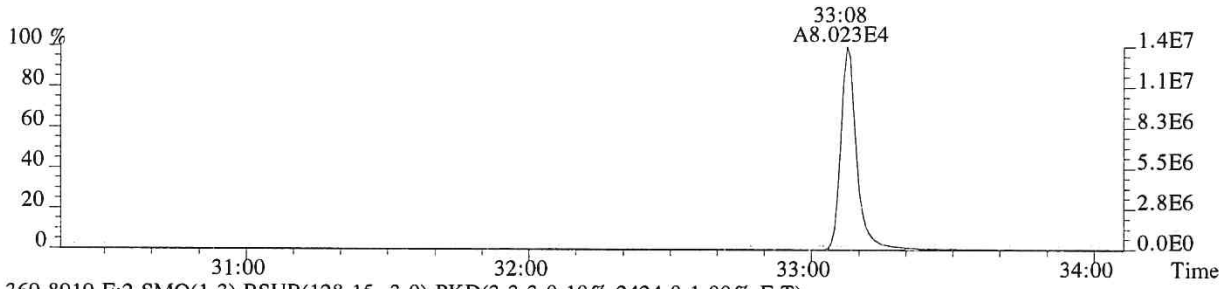
File:P615940 #1-339 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1856.0,1.00%,F,T)



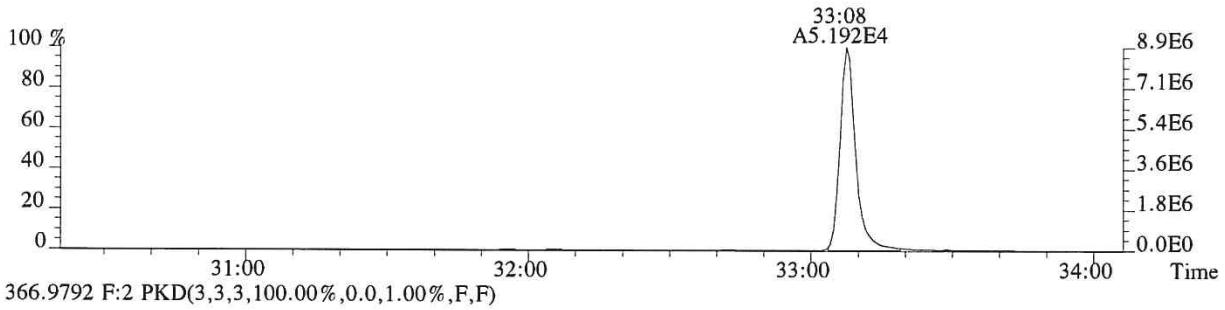
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



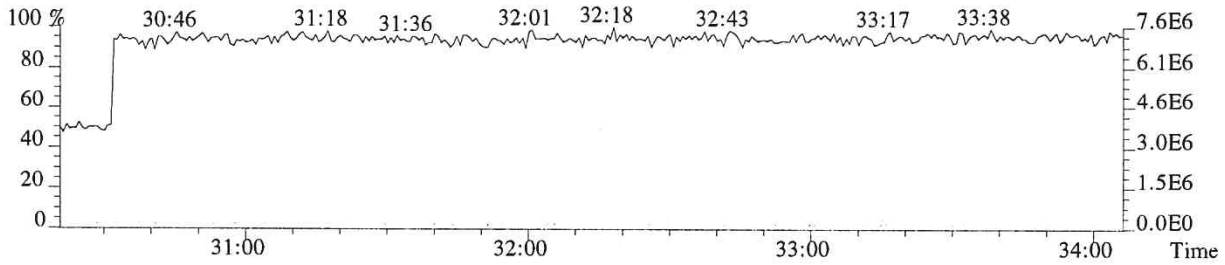
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



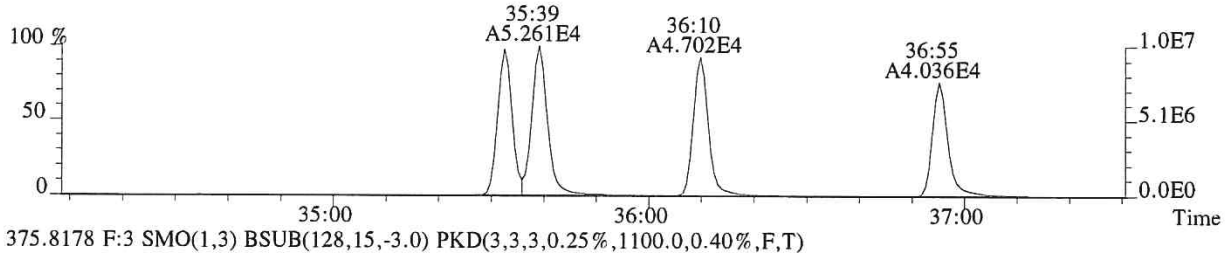
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



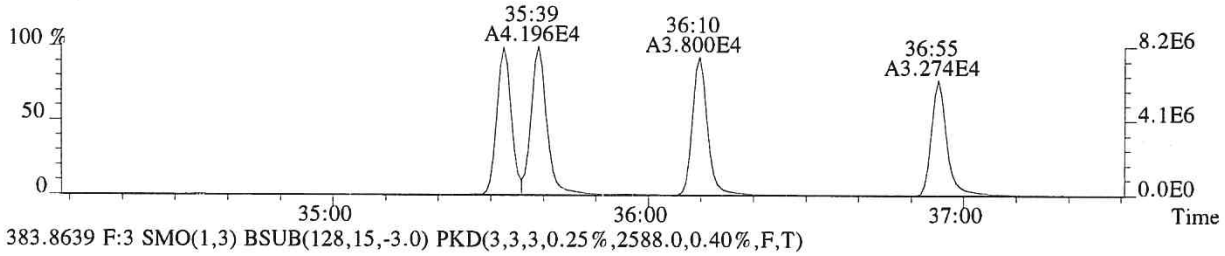
011617

File:P615940 #1-304 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

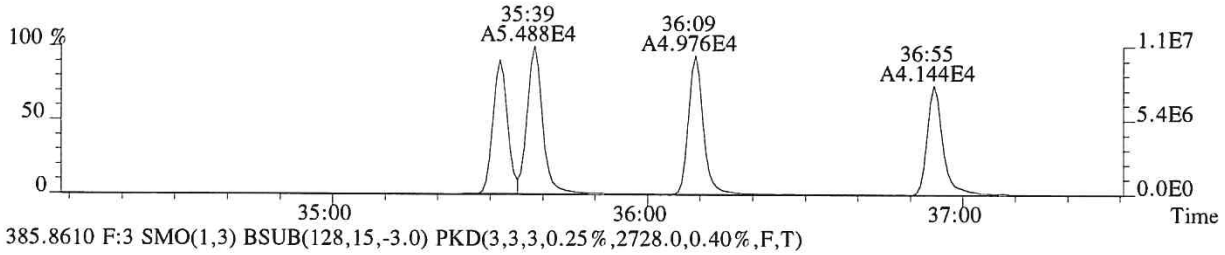
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1416.0,0.40%,F,T)



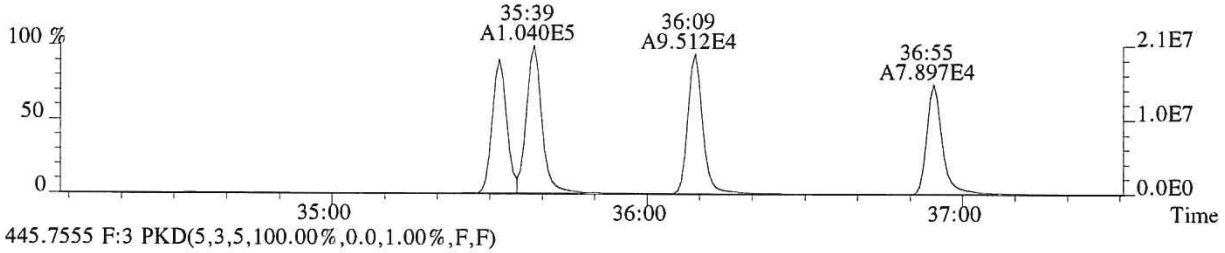
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



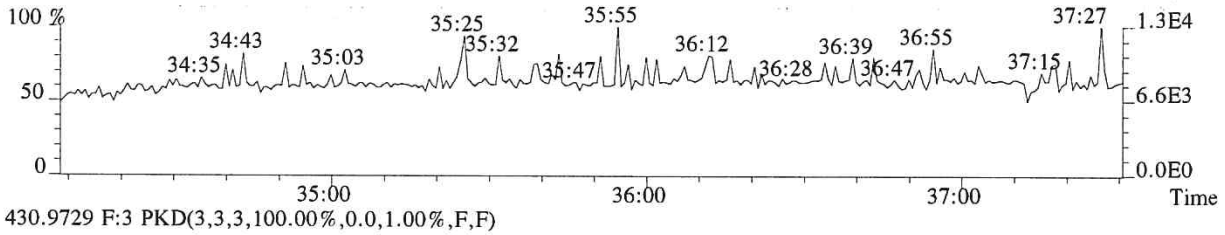
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2588.0,0.40%,F,T)



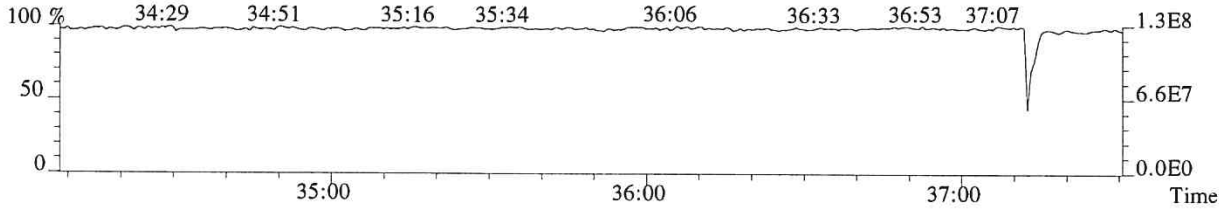
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2728.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

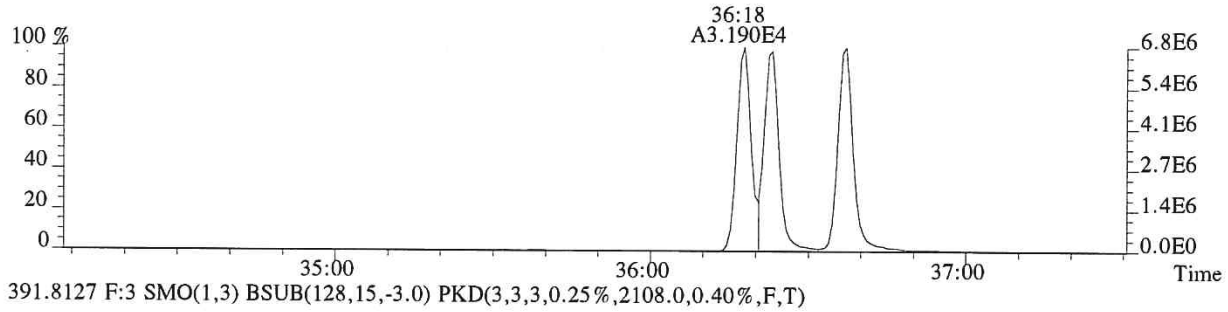


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

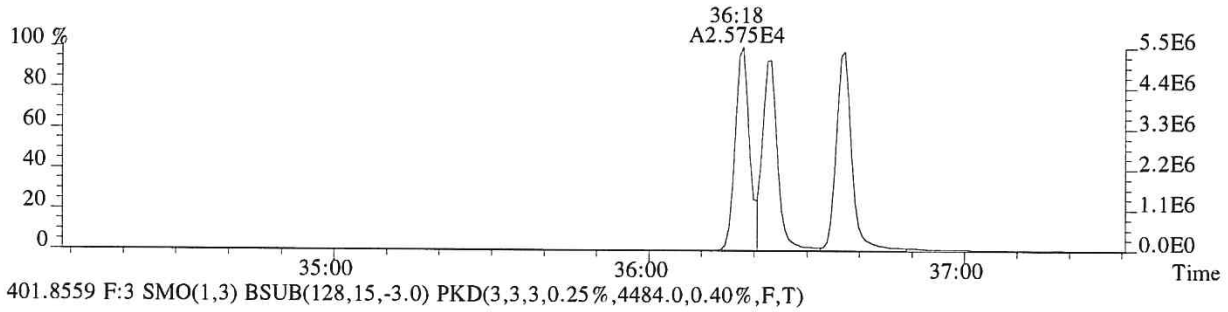


011618

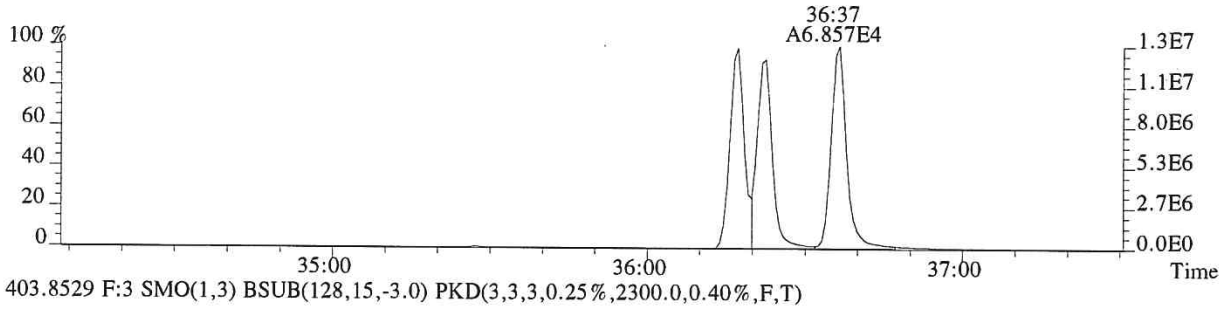
File:P615940 #1-304 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.40%,F,T)



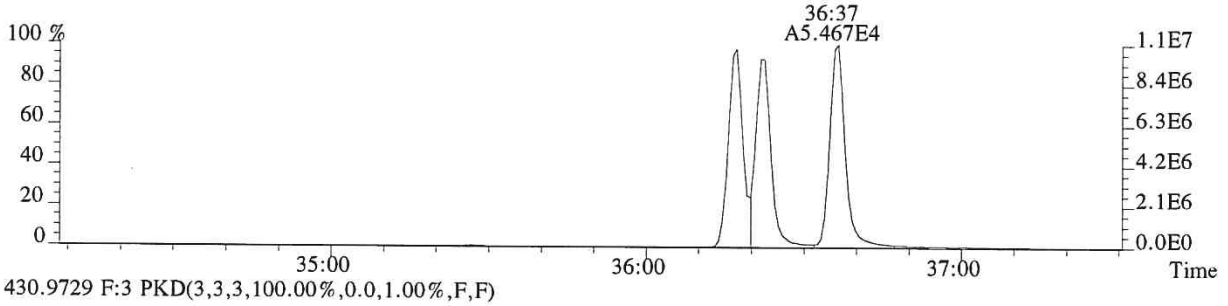
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2108.0,0.40%,F,T)



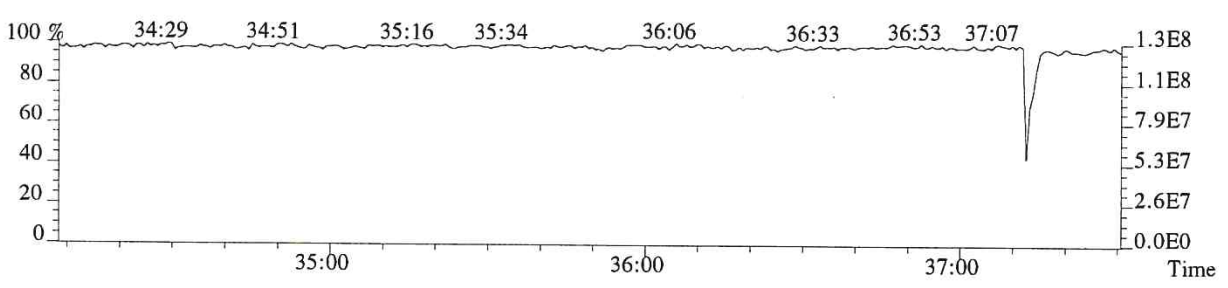
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4484.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.40%,F,T)

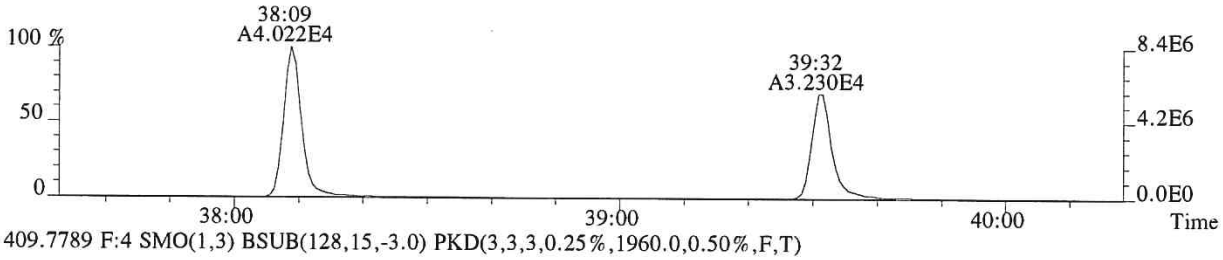


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

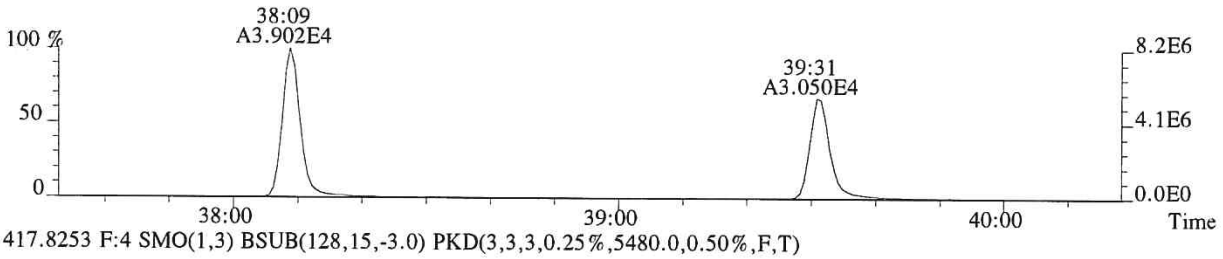


011619

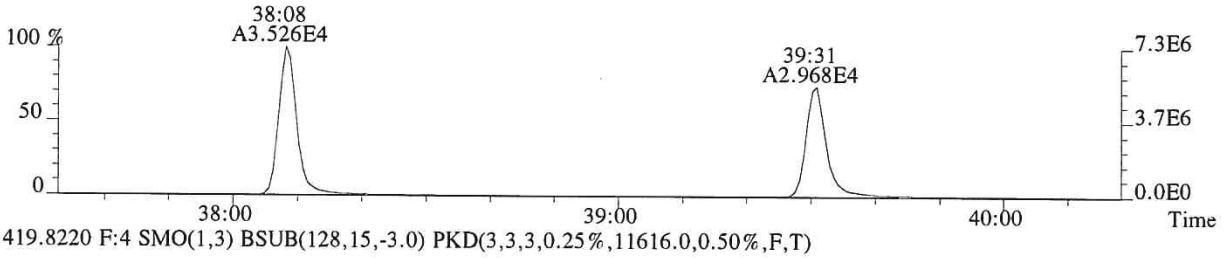
File:P615940 #1-249 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4380.0,0.50%,F,T)



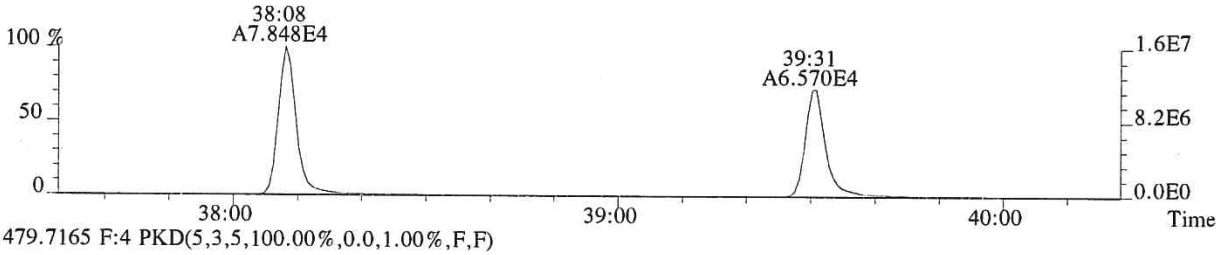
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1960.0,0.50%,F,T)



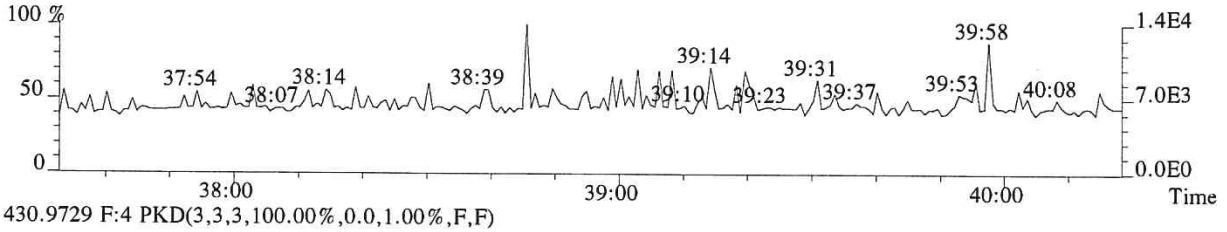
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5480.0,0.50%,F,T)



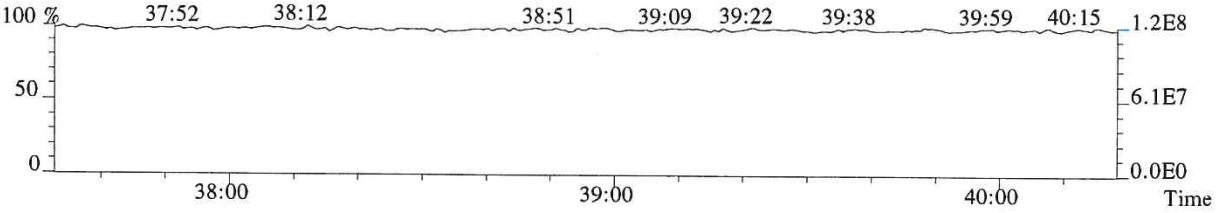
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11616.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

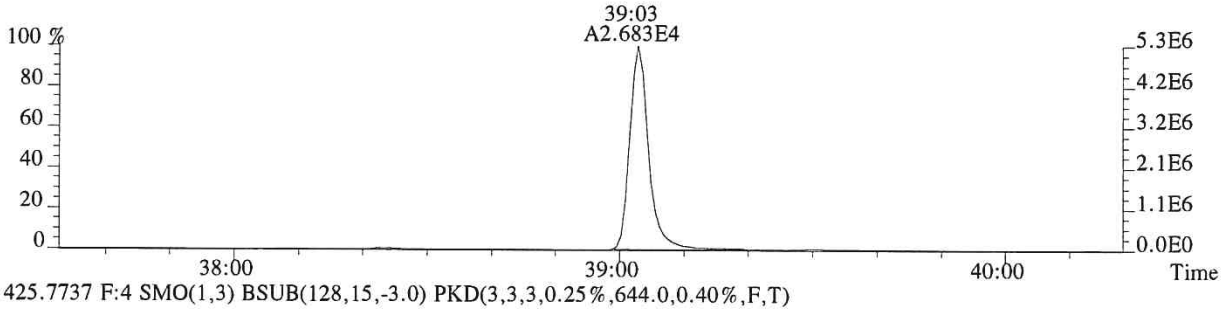


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

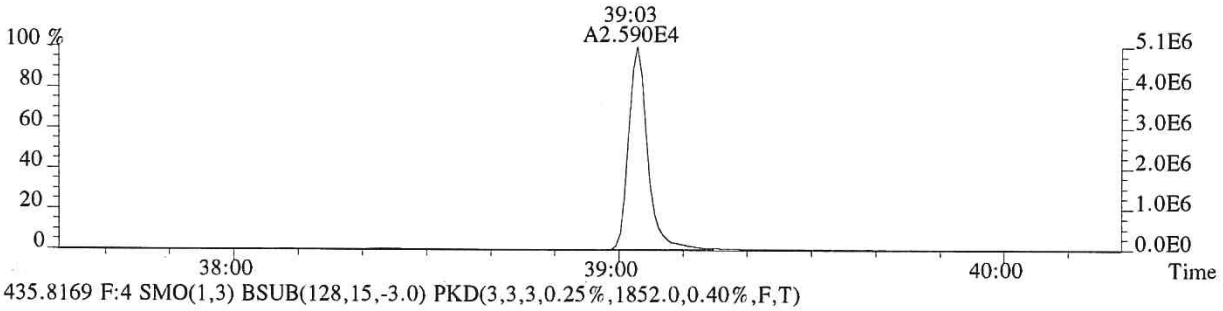


011620

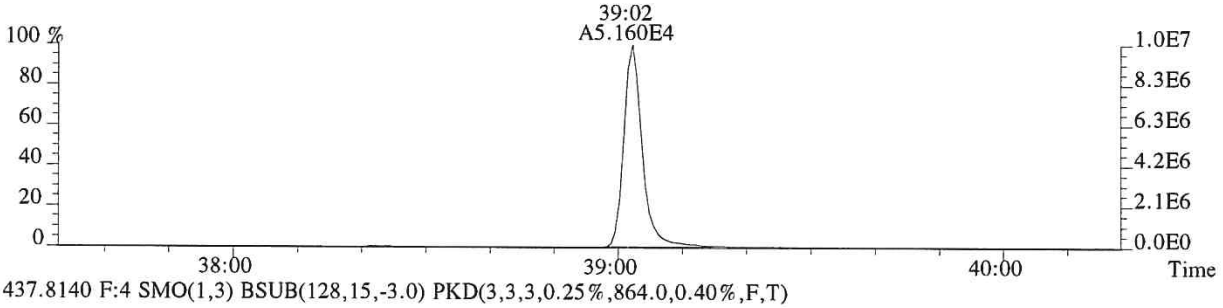
File:P615940 #1-249 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



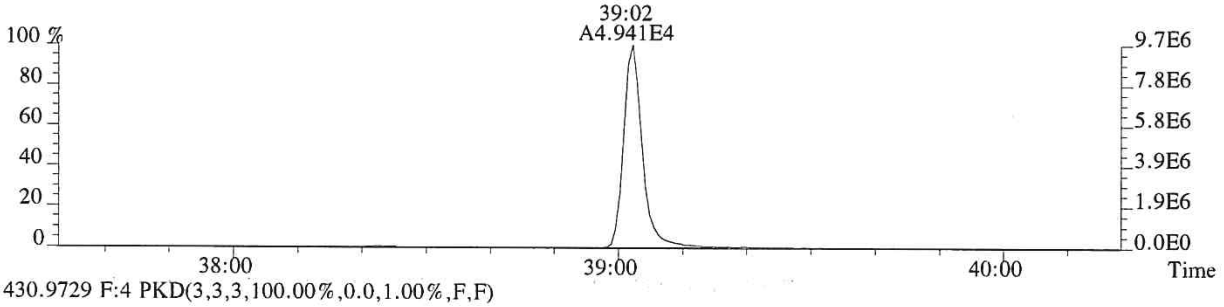
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



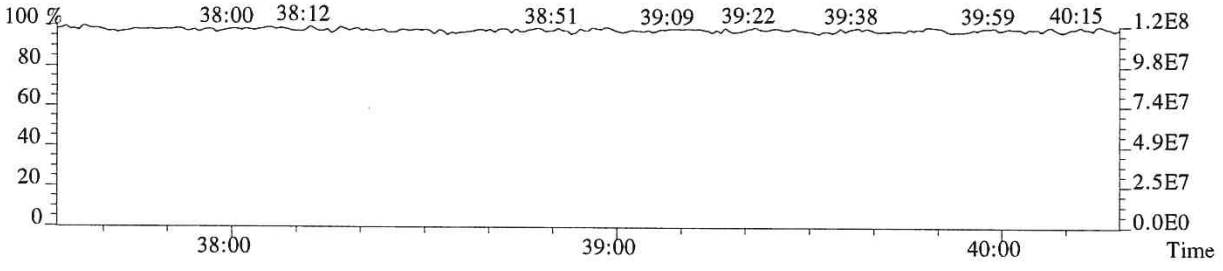
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1852.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)

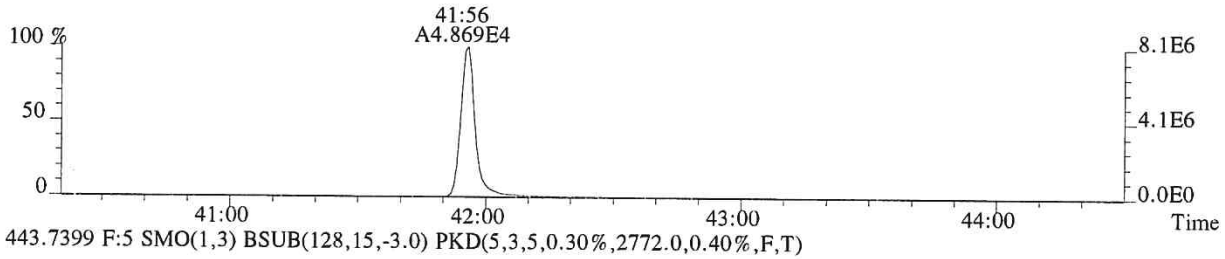


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

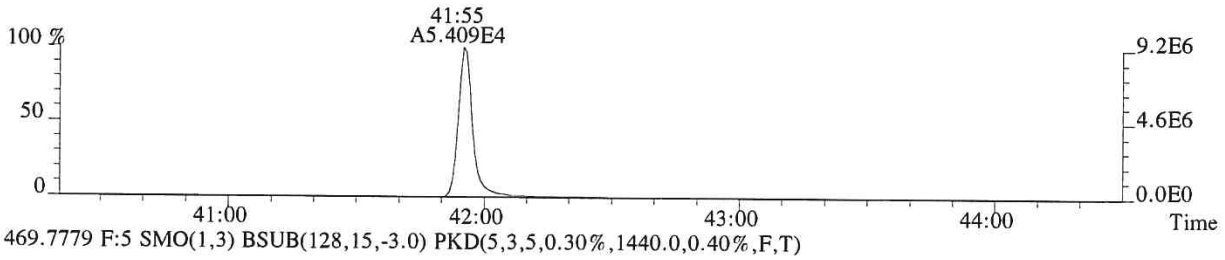


011621

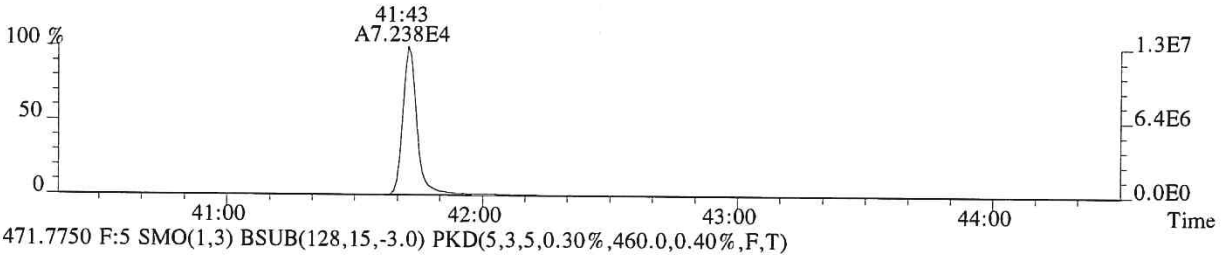
File:P615940 #1-375 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,748.0,0.40%,F,T)



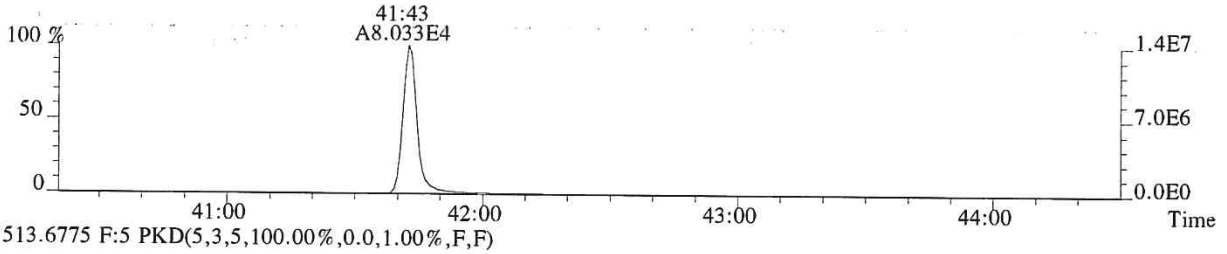
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2772.0,0.40%,F,T)



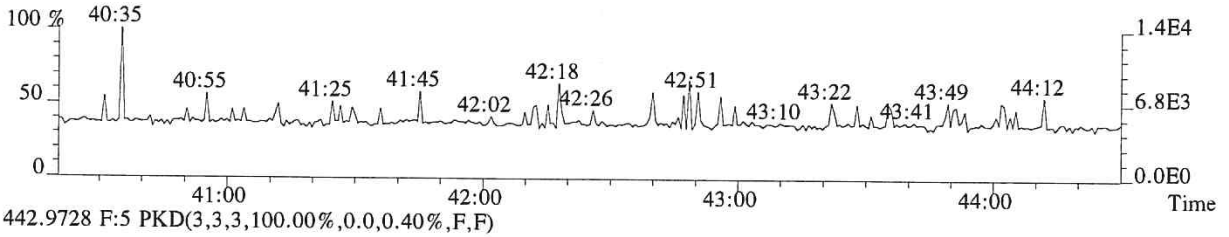
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1440.0,0.40%,F,T)



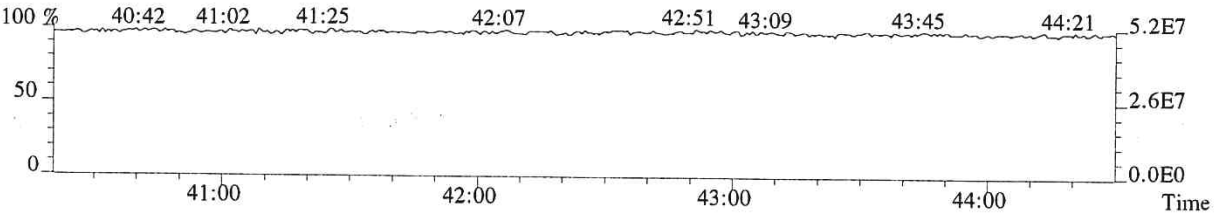
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

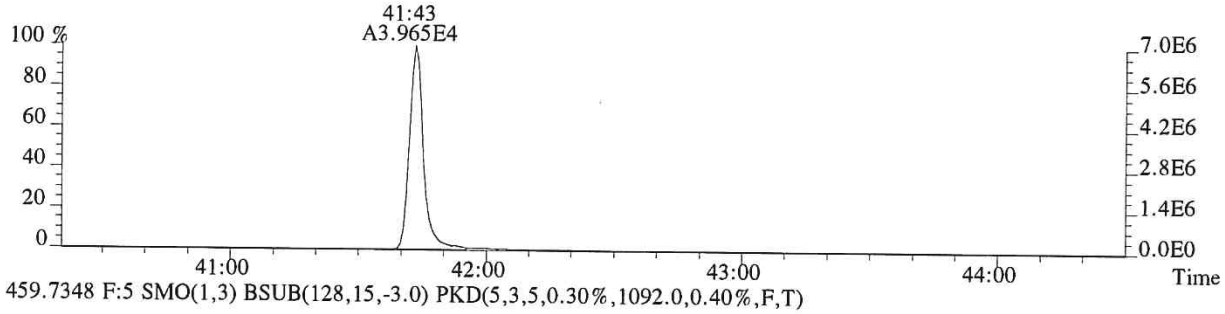


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

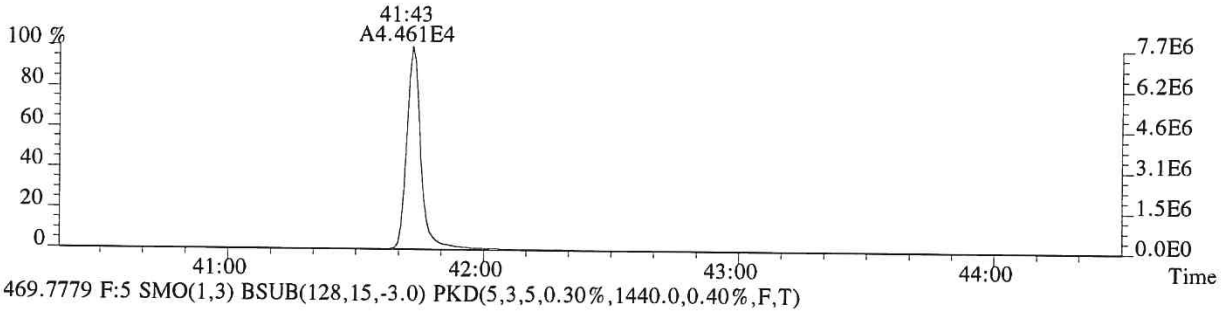


011622

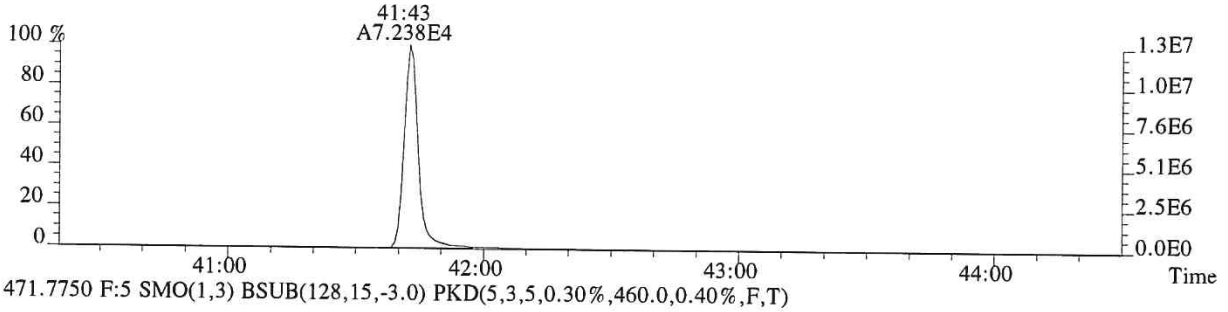
File:P615940 #1-375 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



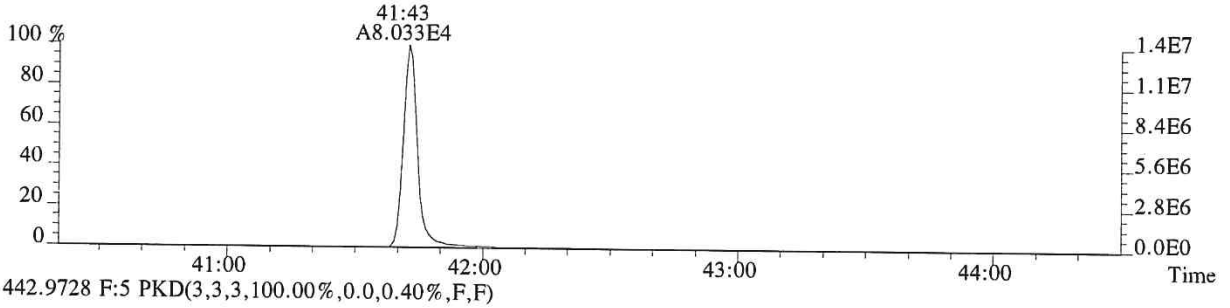
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1092.0,0.40%,F,T)



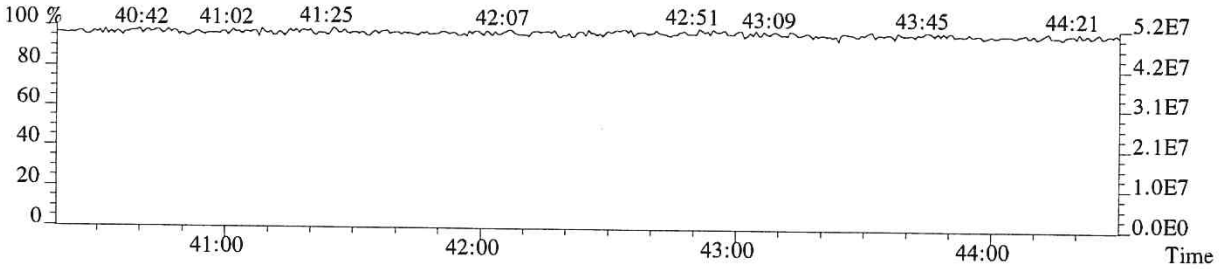
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1440.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011623

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Leung
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:39	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	YY	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ YD 1/25/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

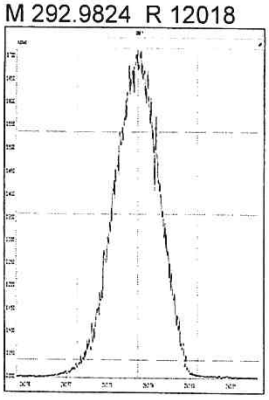
gc 01/25/18

* gc 01/25/18

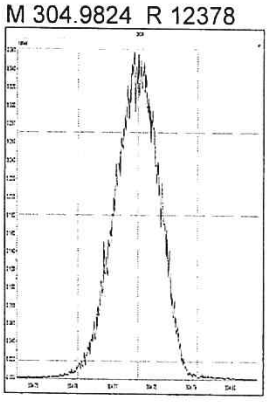
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

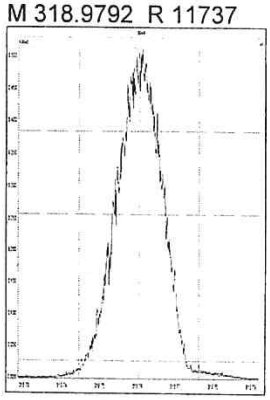
M 292.9824 R 12018



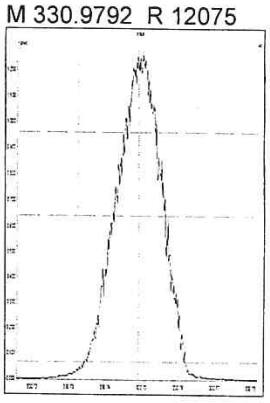
M 304.9824 R 12378



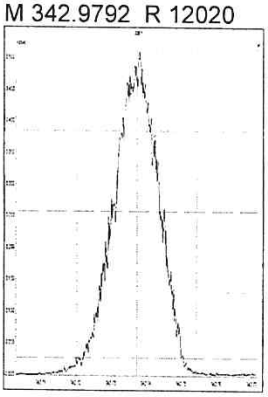
M 318.9792 R 11737



M 330.9792 R 12075



M 342.9792 R 12020



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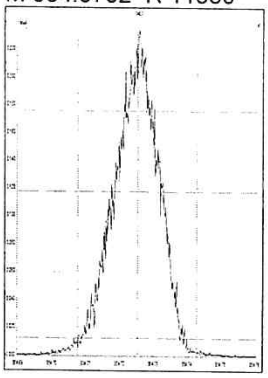

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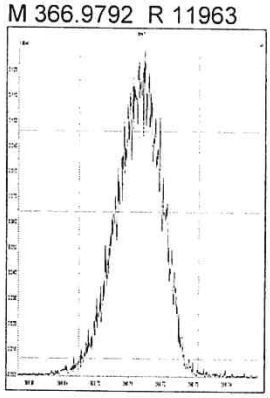
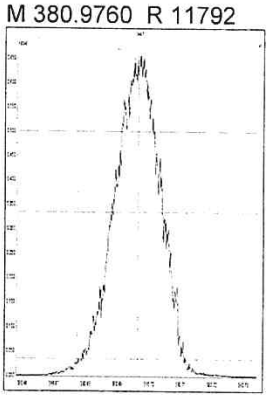


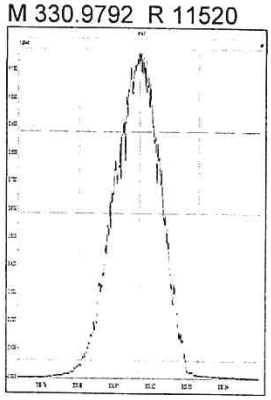
M 380.9760 R 11792



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

M 330.9792 R 11520



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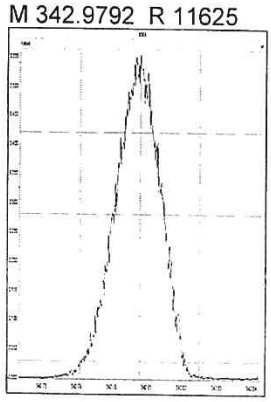
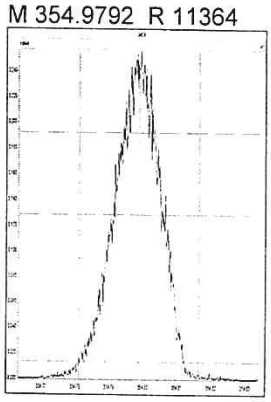
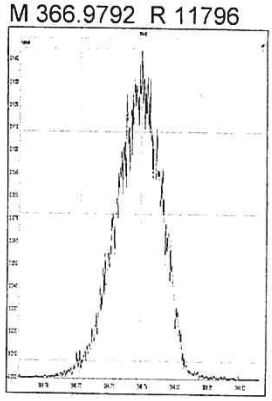


M 354.9792 R 11364



M 366.9792 R 11796



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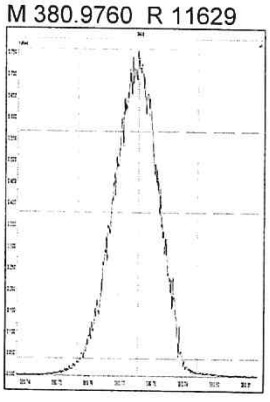
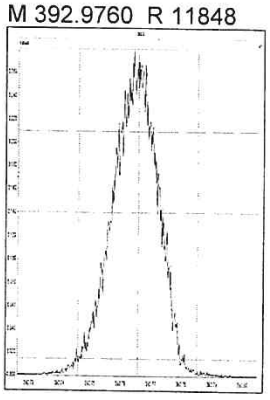
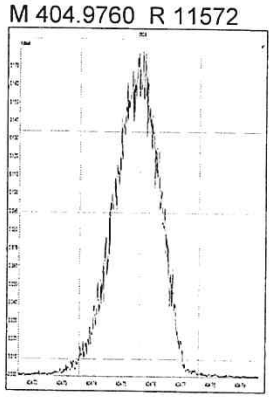


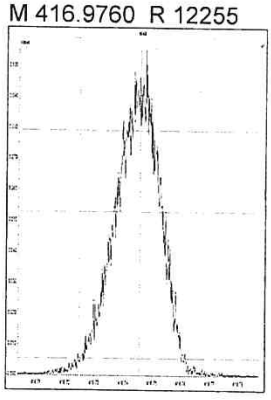
M 392.9760 R 11848



M 404.9760 R 11572



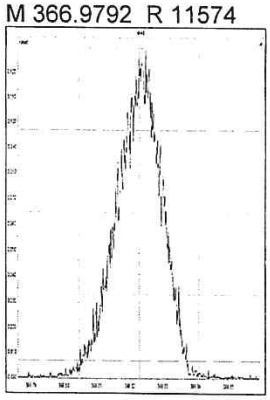
M 416.9760 R 12255



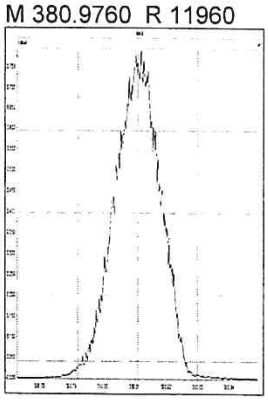
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

M 366.9792 R 11574



M 380.9760 R 11960



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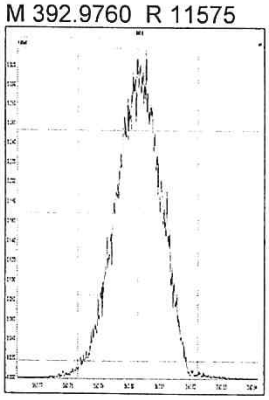

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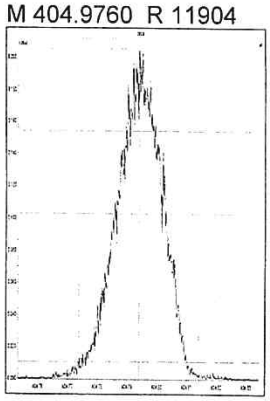
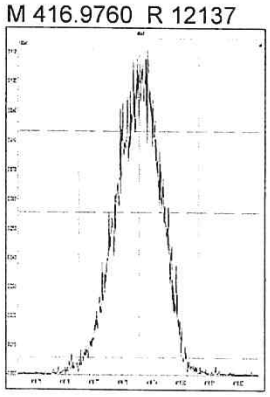
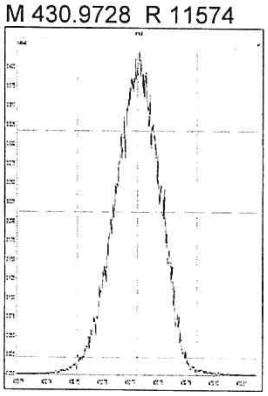


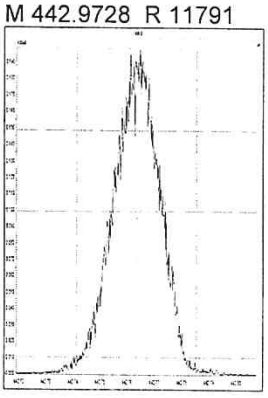
M 416.9760 R 12137



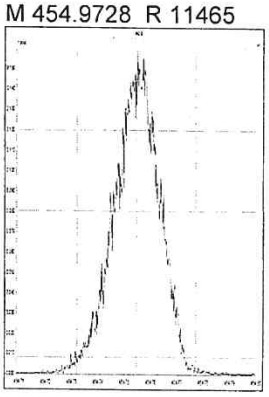
M 430.9728 R 11574



M 442.9728 R 11791



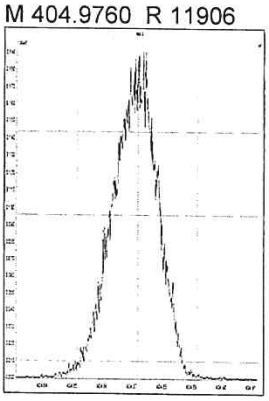
M 454.9728 R 11465



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

M 404.9760 R 11906



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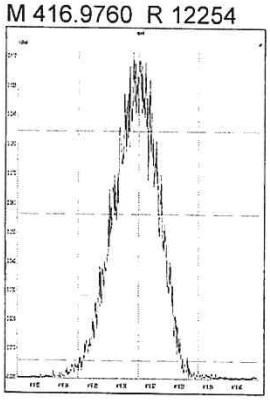
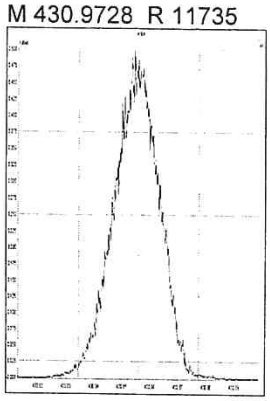
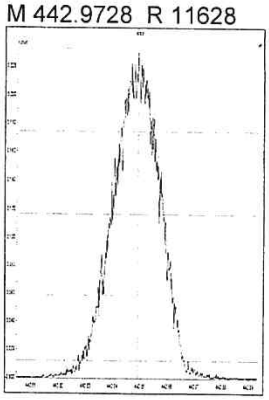


M 430.9728 R 11735



M 442.9728 R 11628



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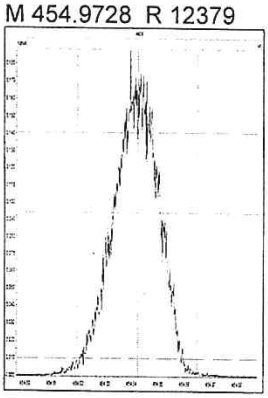

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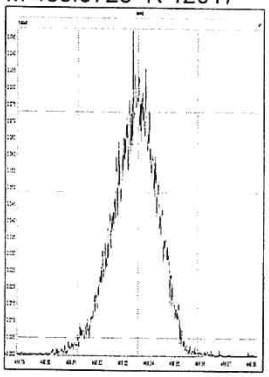

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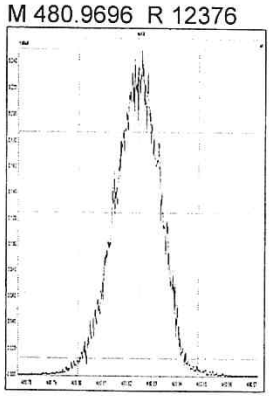
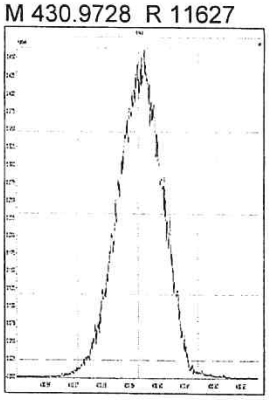


File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

M 430.9728 R 11627



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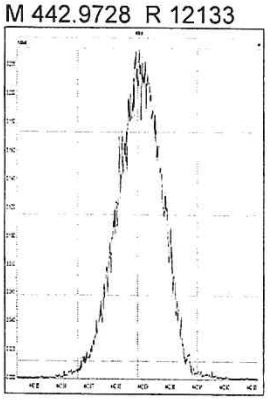

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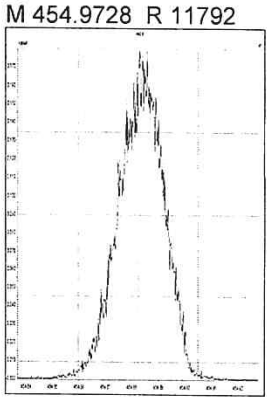

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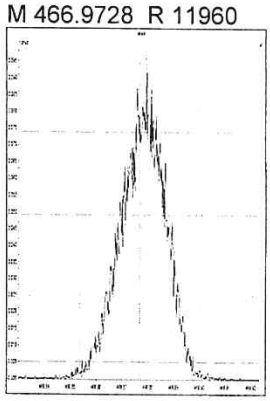

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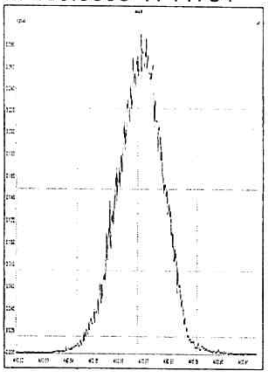

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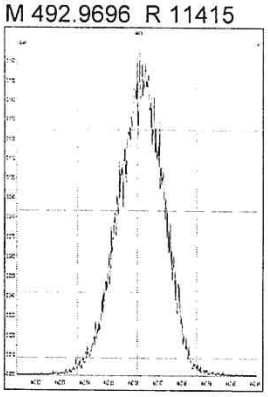
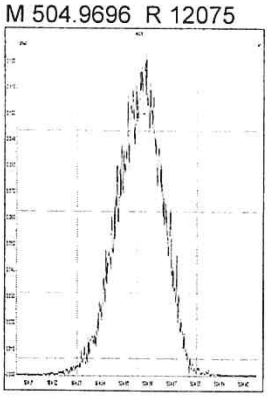


M 504.9696 R 12075



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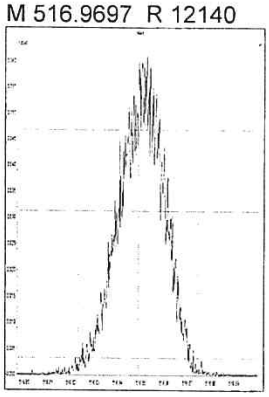

File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

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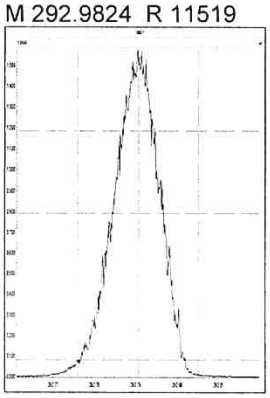
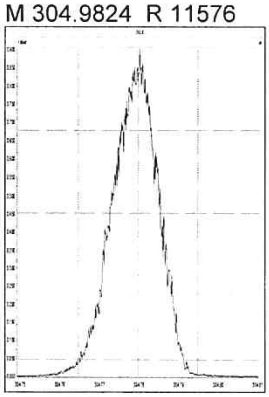


M 304.9824 R 11576



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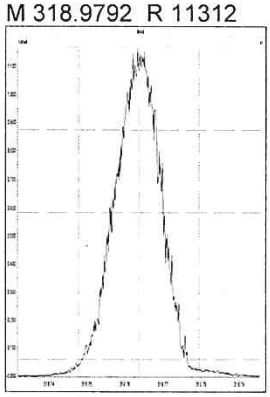

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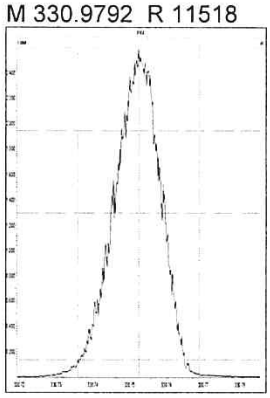
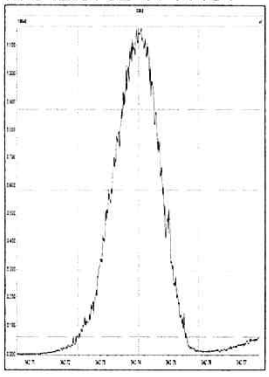
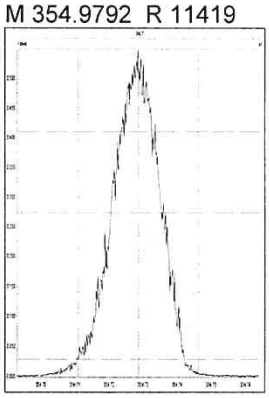


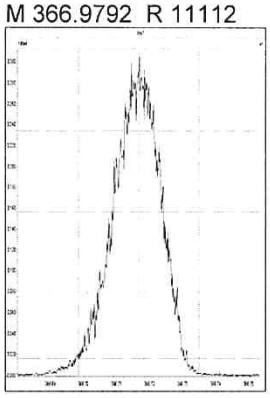
M 342.9792 R 11161



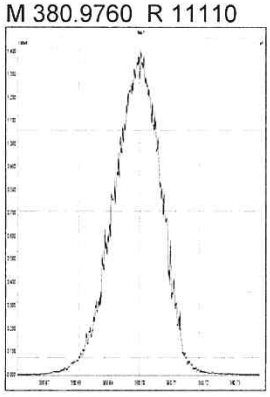
M 354.9792 R 11419



M 366.9792 R 11112



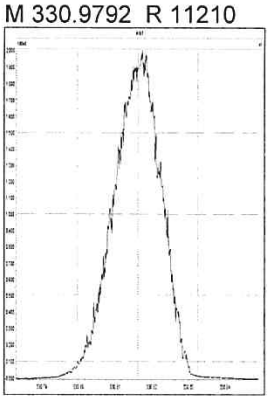
M 380.9760 R 11110



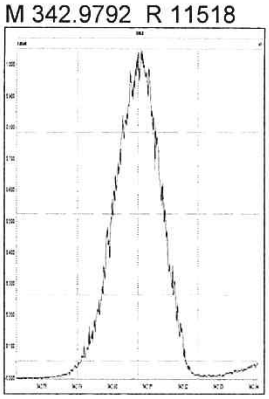
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

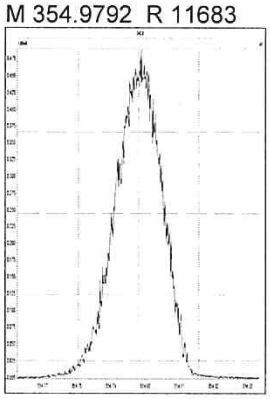
M 330.9792 R 11210



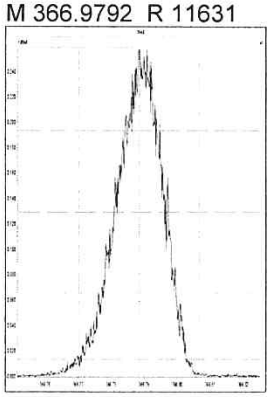
M 342.9792 R 11518



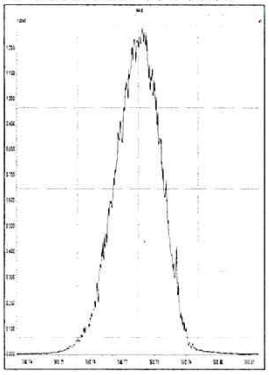
M 354.9792 R 11683



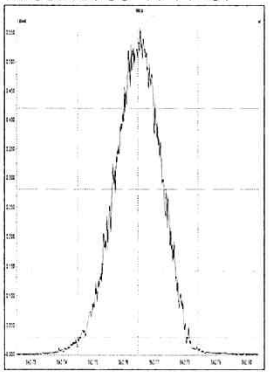
M 366.9792 R 11631



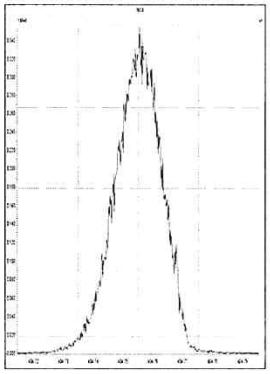
M 380.9760 R 11314



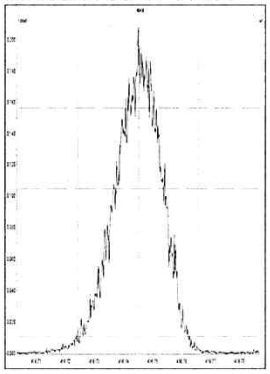
M 392.9760 R 11467



M 404.9760 R 11518



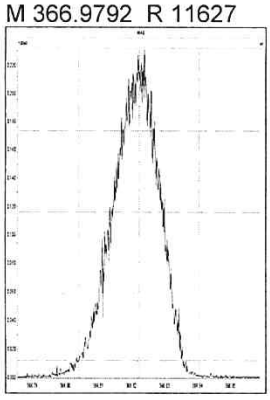
M 416.9760 R 11161



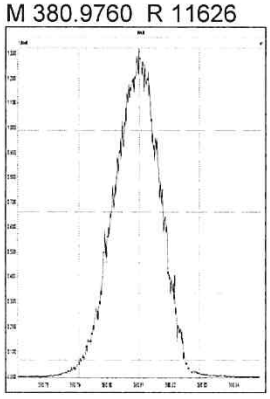
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

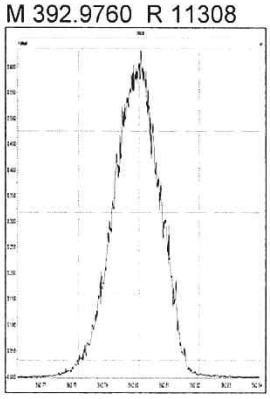
M 366.9792 R 11627



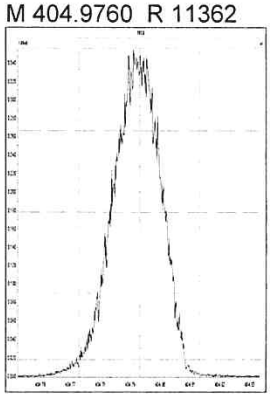
M 380.9760 R 11626



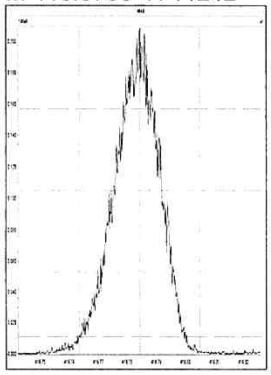
M 392.9760 R 11308



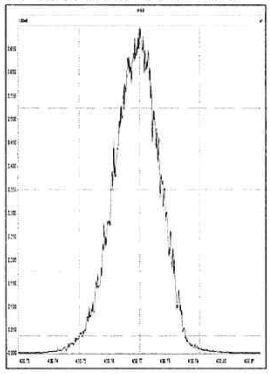
M 404.9760 R 11362



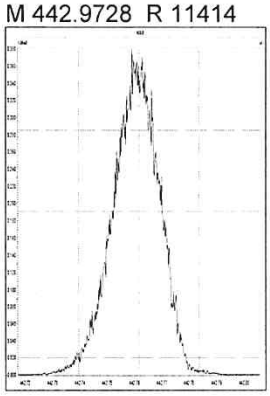
M 416.9760 R 11212



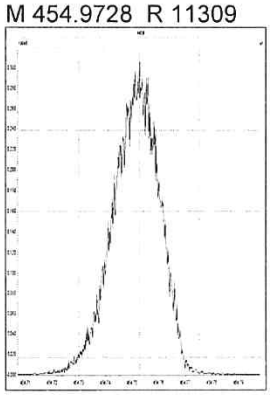
M 430.9728 R 11363



M 442.9728 R 11414



M 454.9728 R 11309

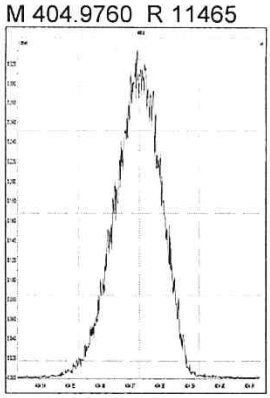


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

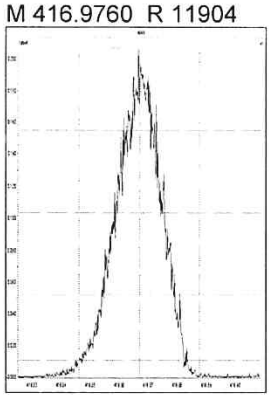
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

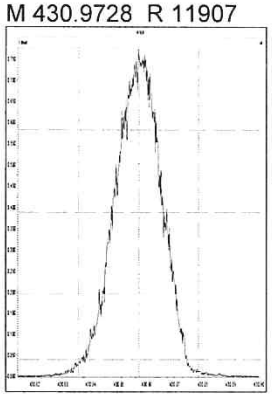
M 404.9760 R 11465



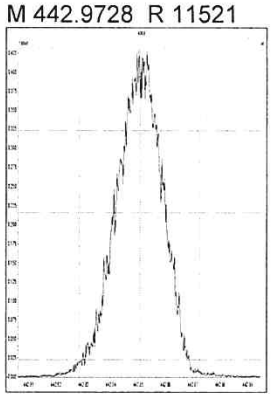
M 416.9760 R 11904



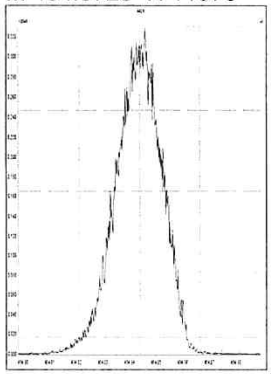
M 430.9728 R 11907



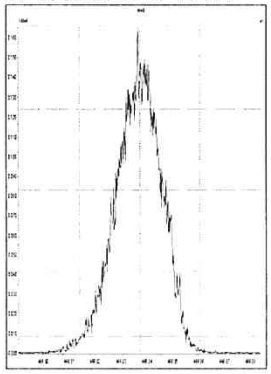
M 442.9728 R 11521



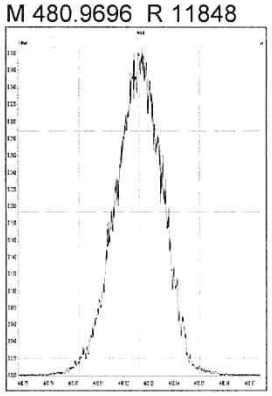
M 454.9728 R 11573



M 466.9728 R 11417



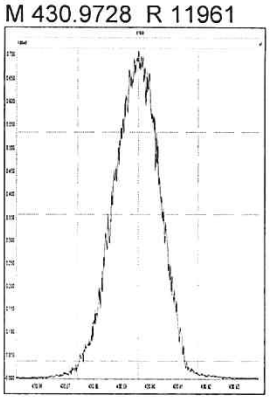
M 480.9696 R 11848



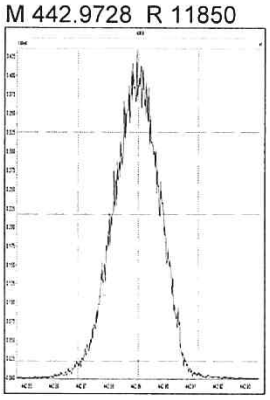
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

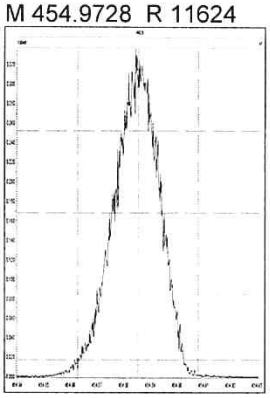
M 430.9728 R 11961



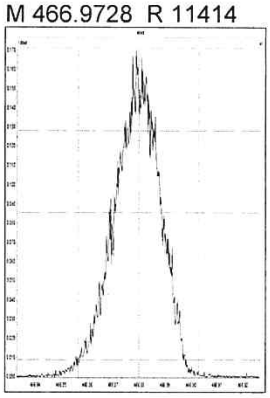
M 442.9728 R 11850



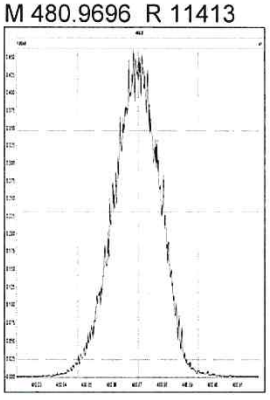
M 454.9728 R 11624



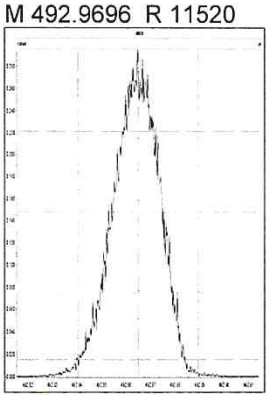
M 466.9728 R 11414



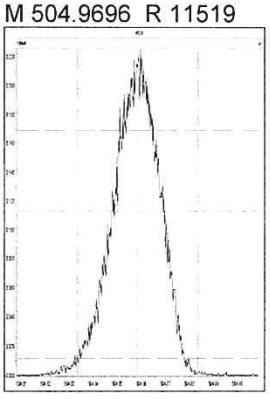
M 480.9696 R 11413



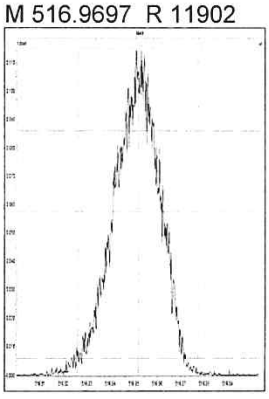
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

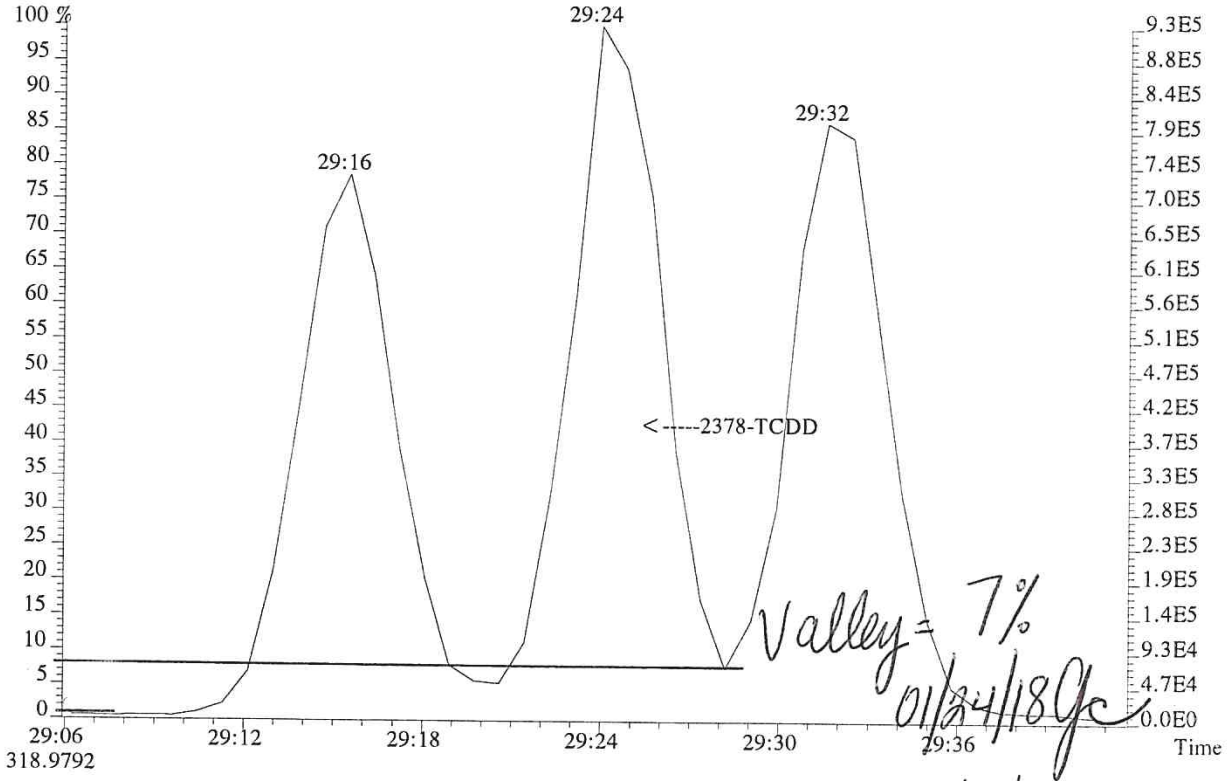
Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

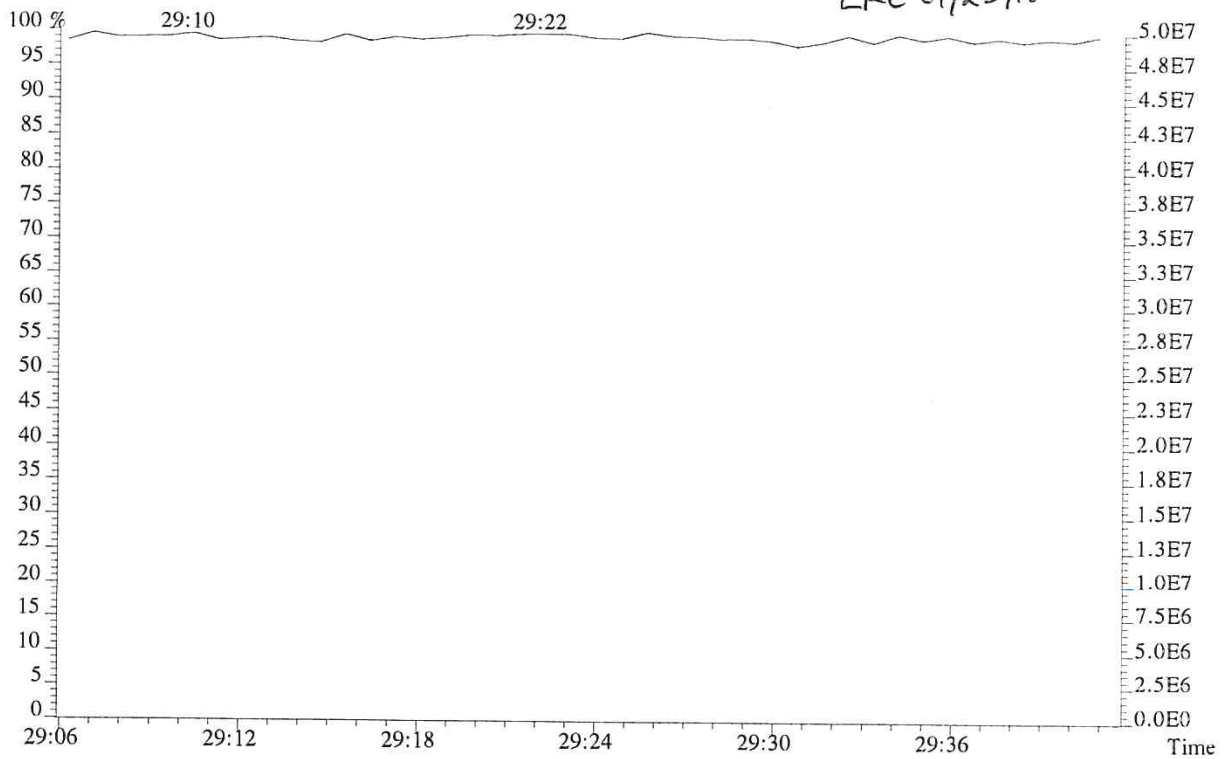
% Valley 2378-TCDD: 7 %

011639

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965

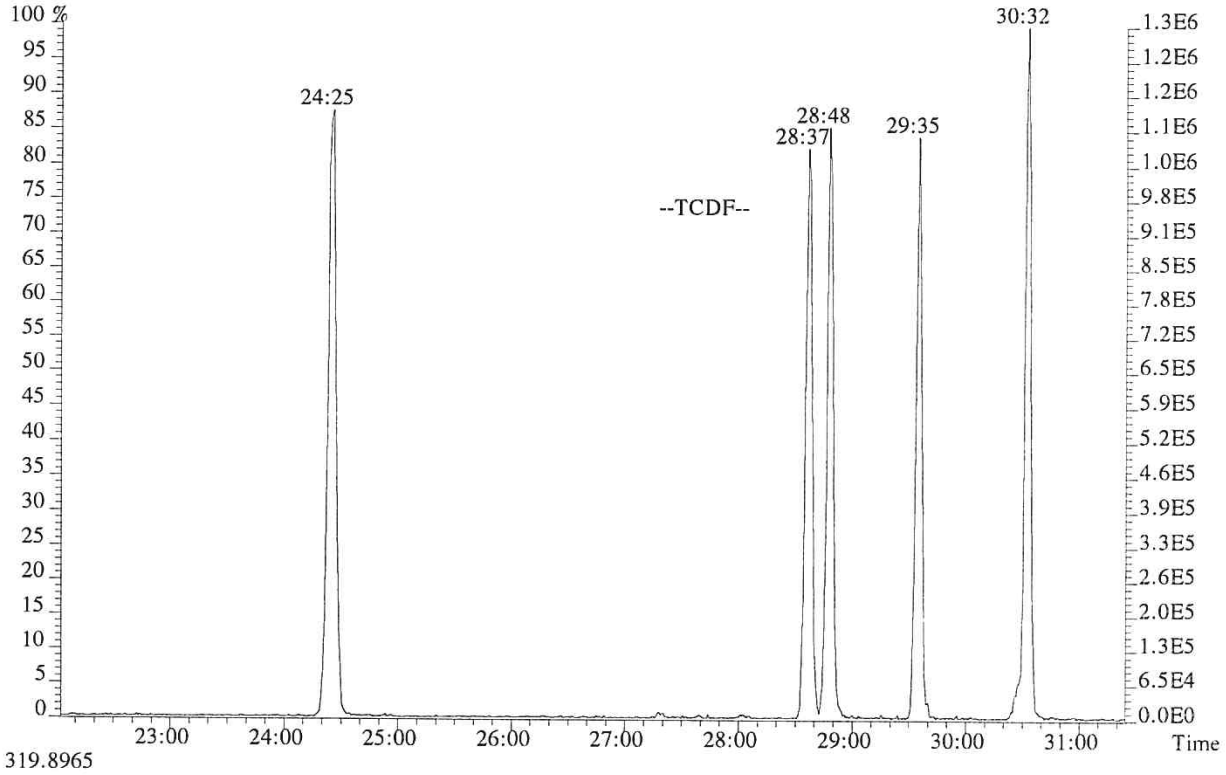


LKL 01/25/18

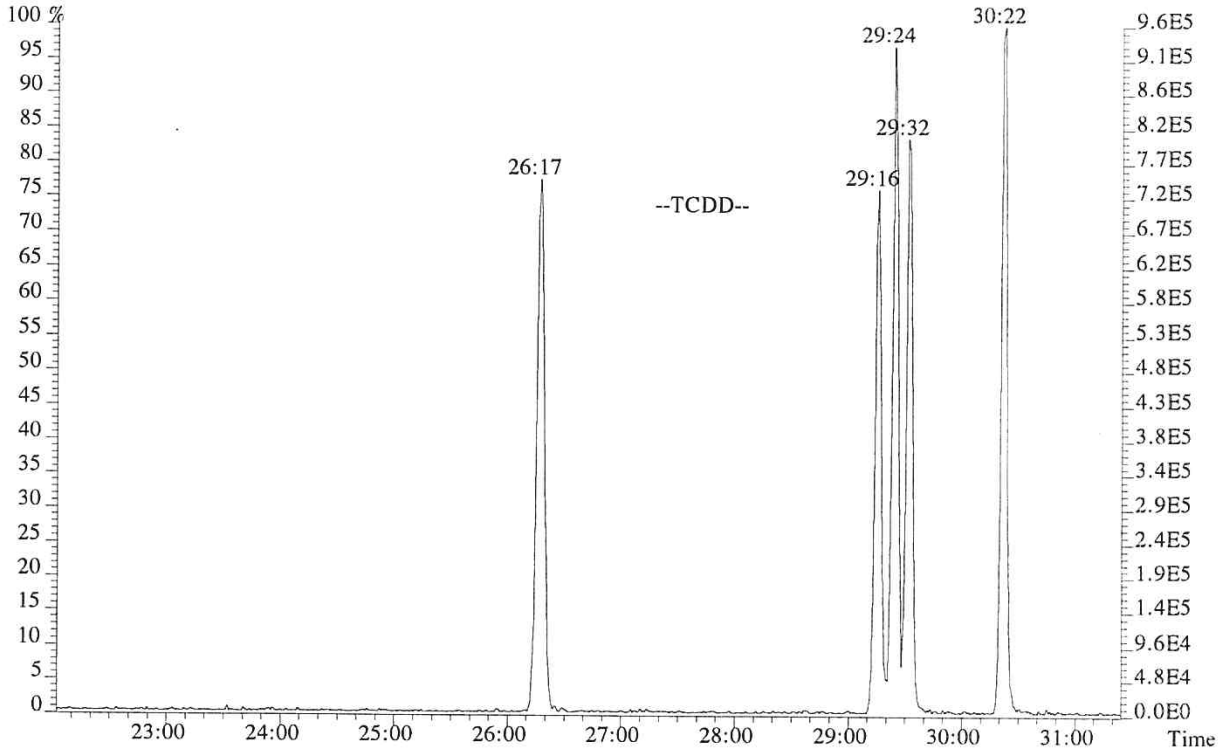


011640

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
303.9016

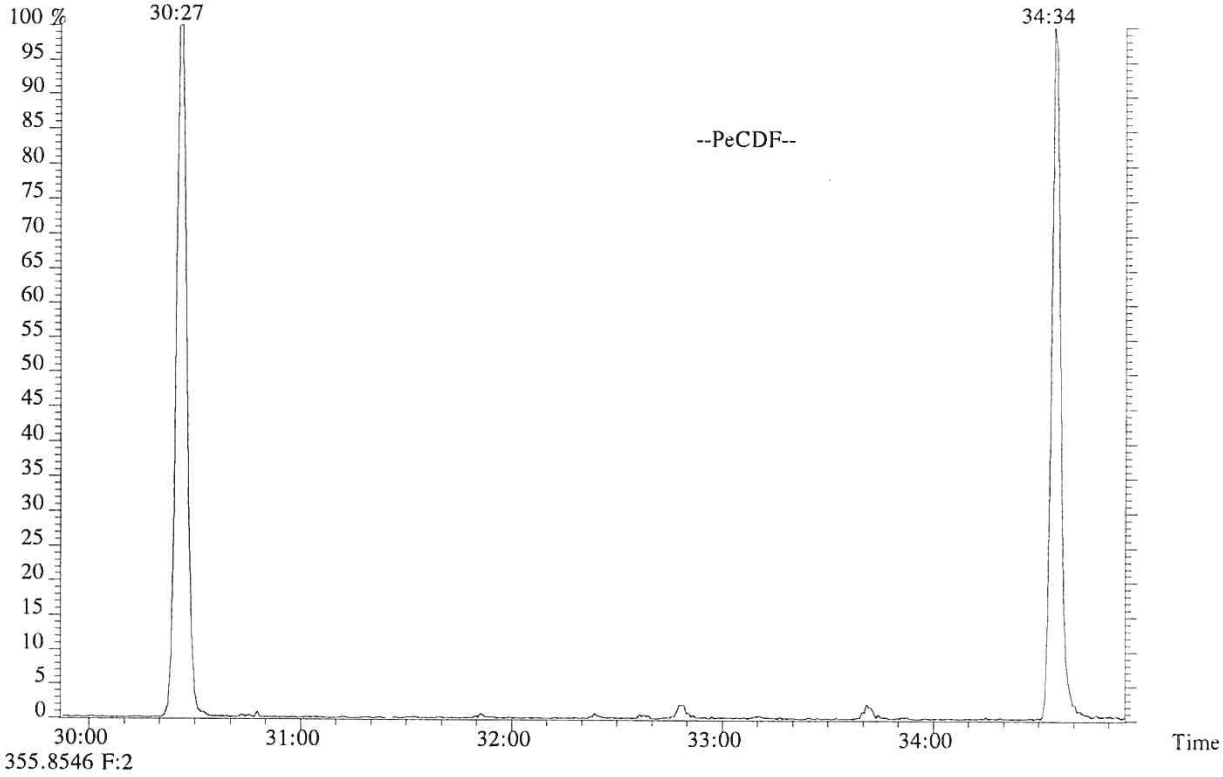


319.8965

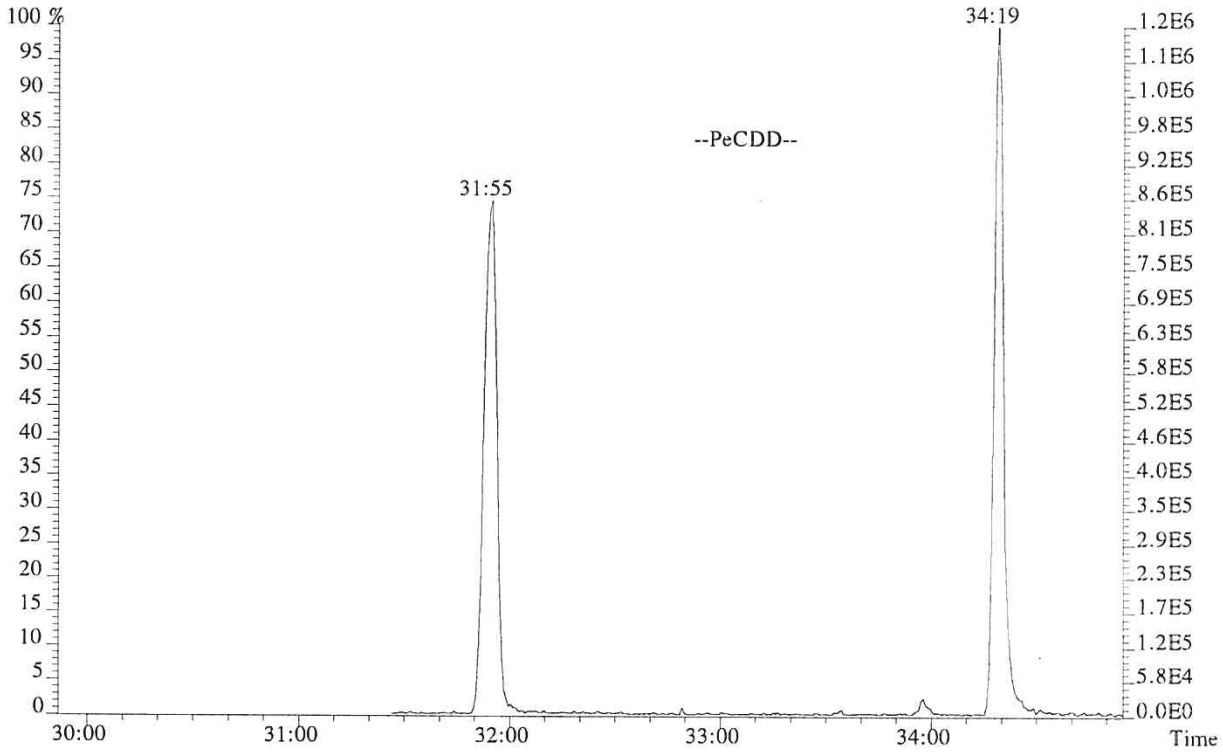


011641

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2

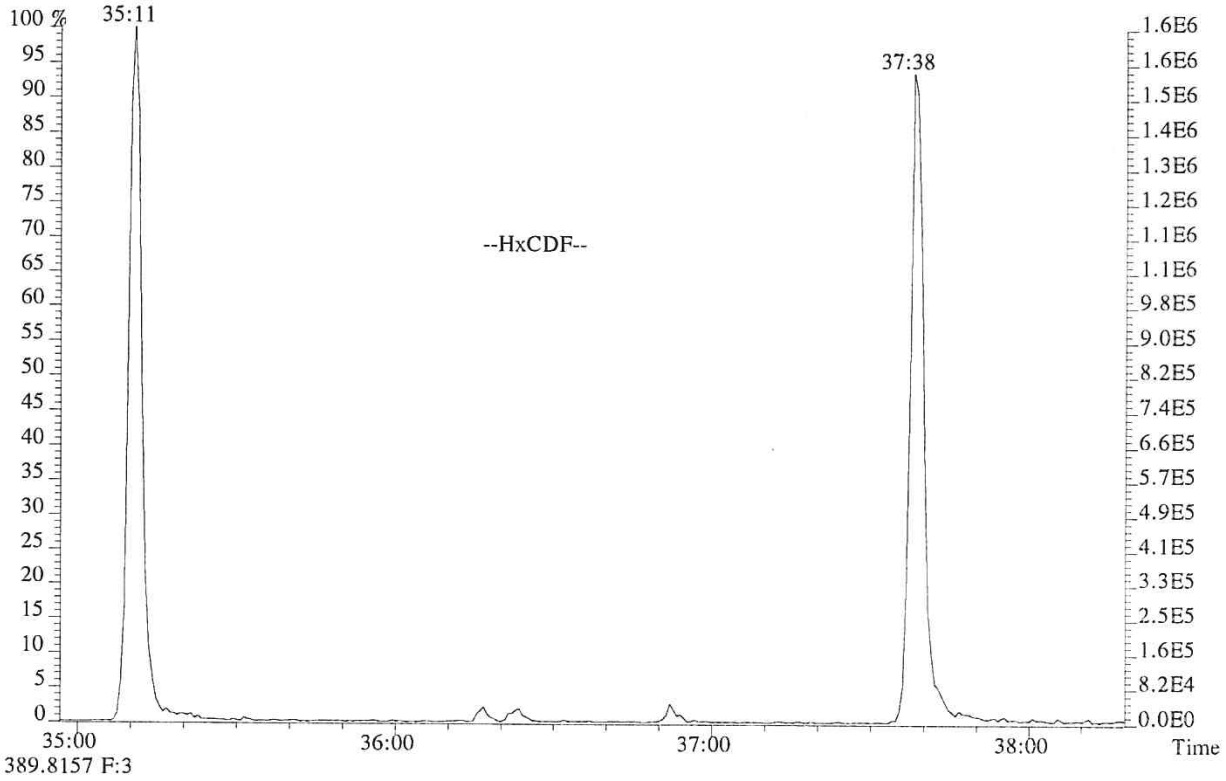


355.8546 F:2

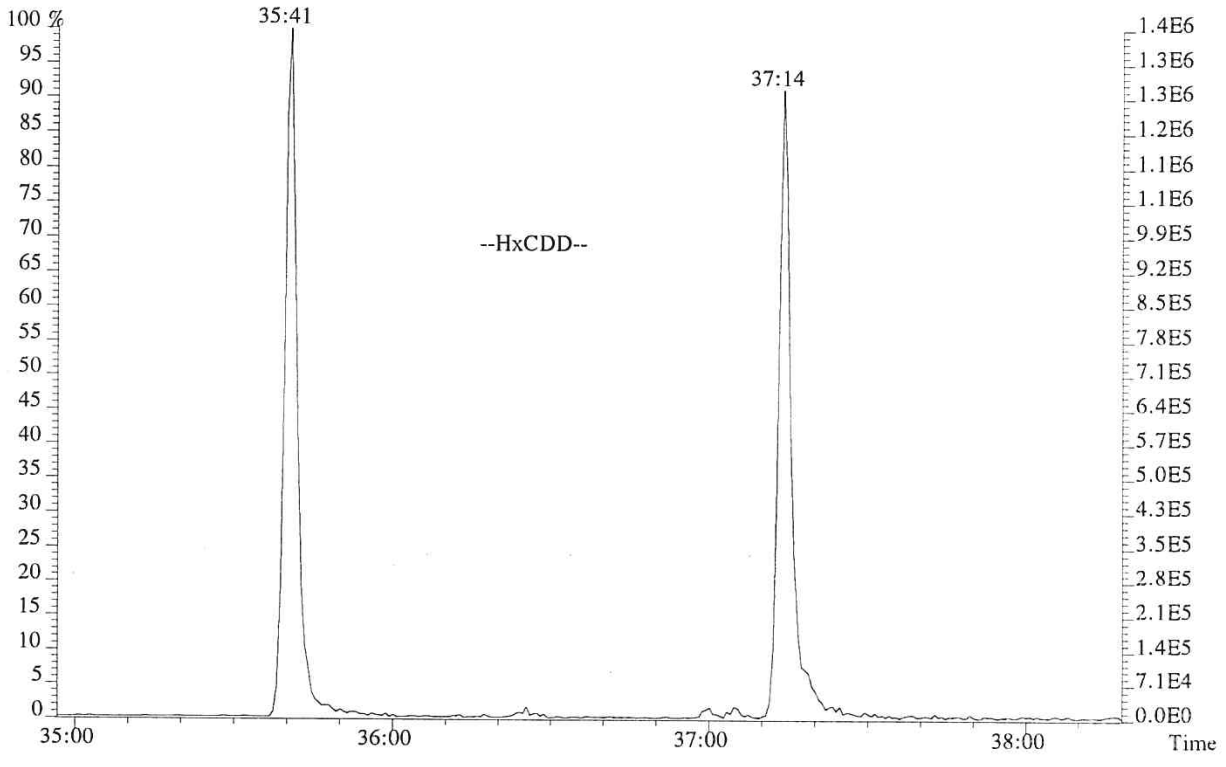


011642

File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3

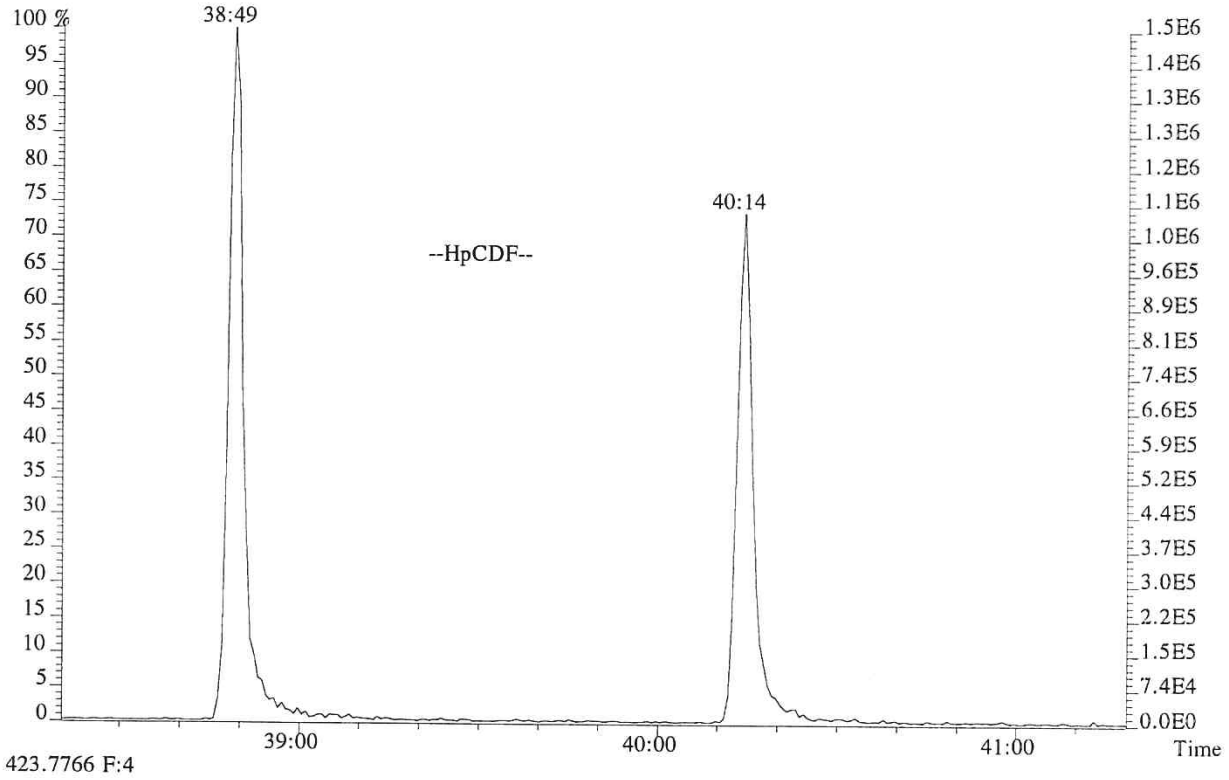


389.8157 F:3

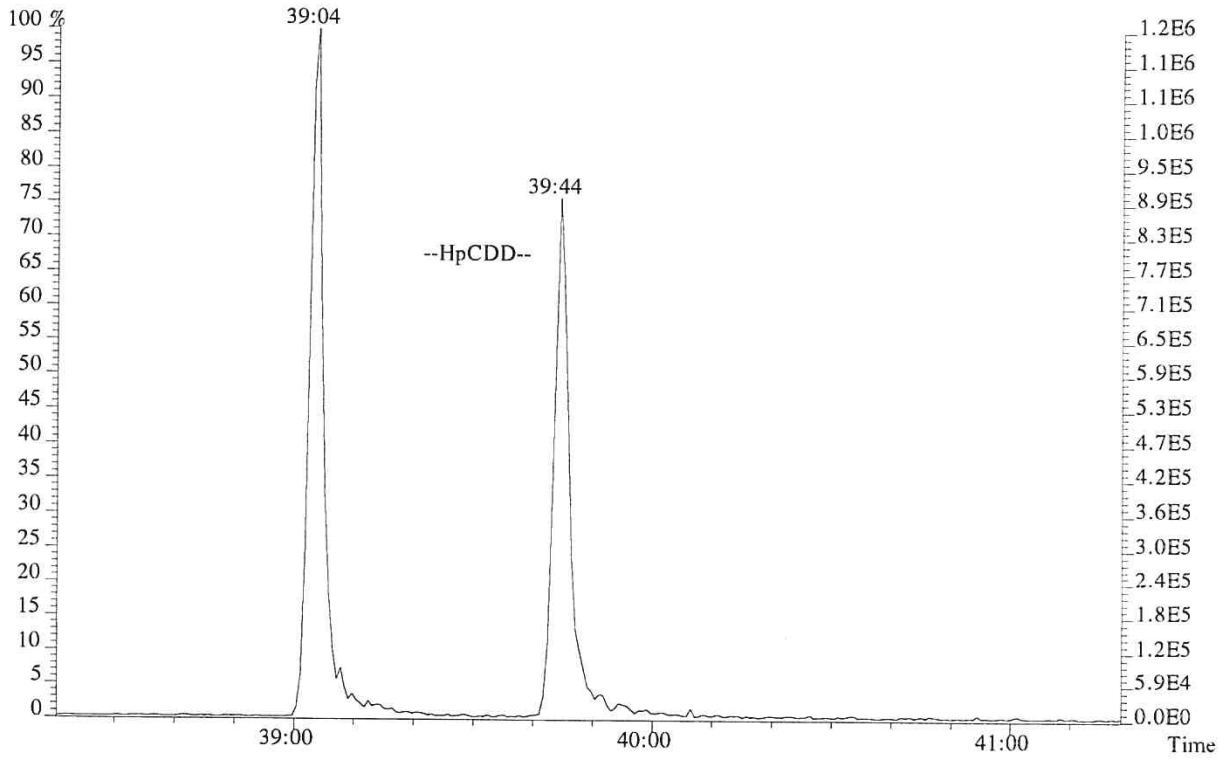


011643

File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



011644

USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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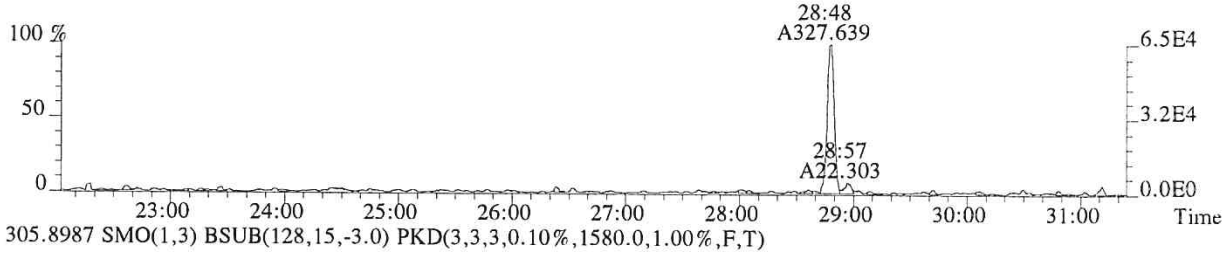
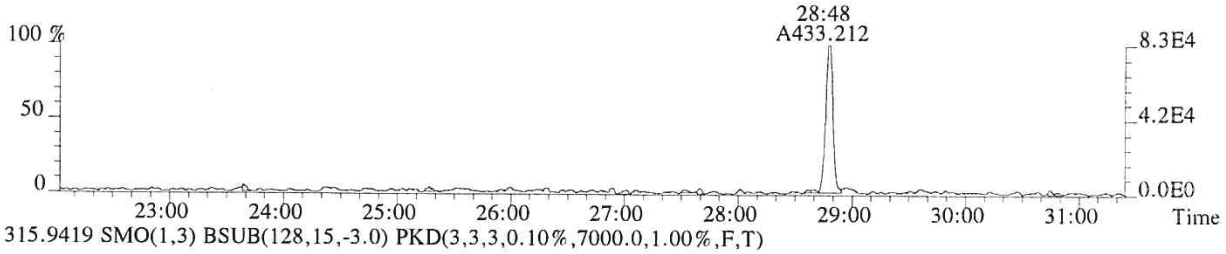
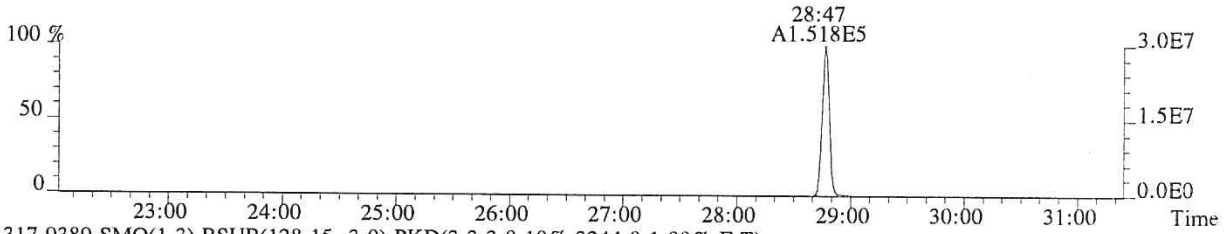
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



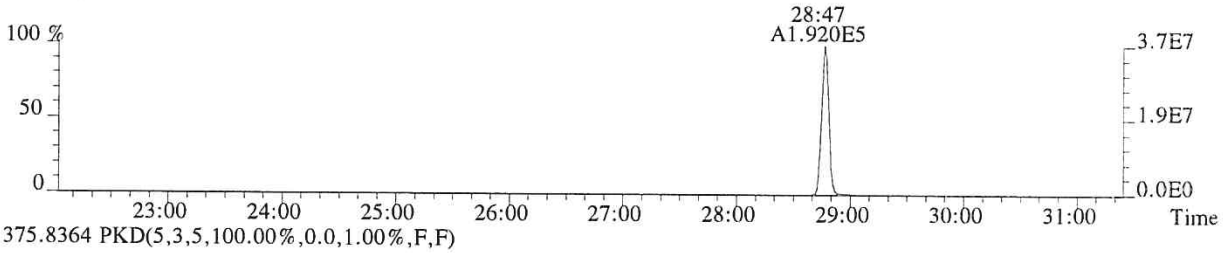
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



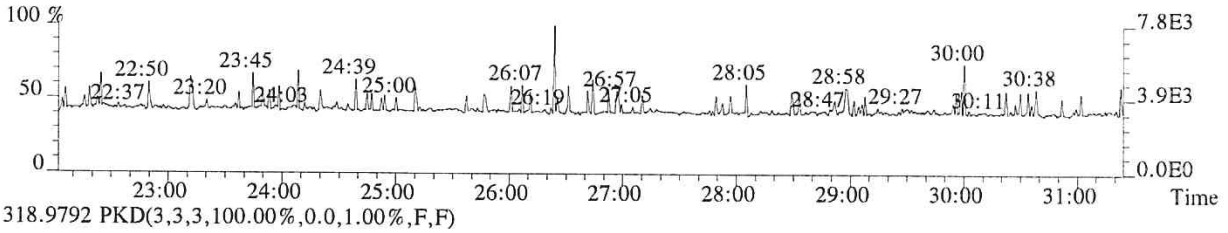
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



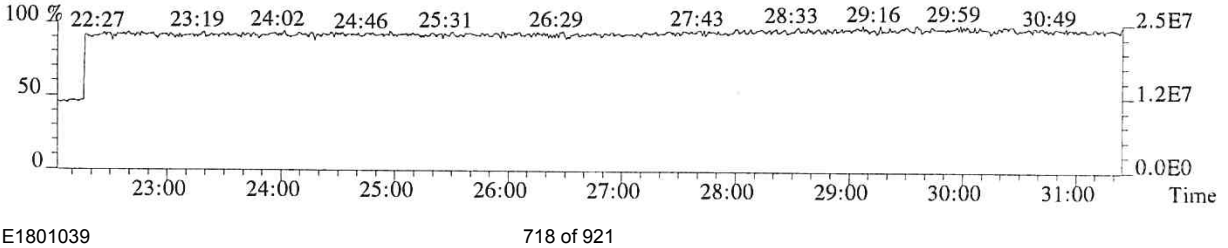
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

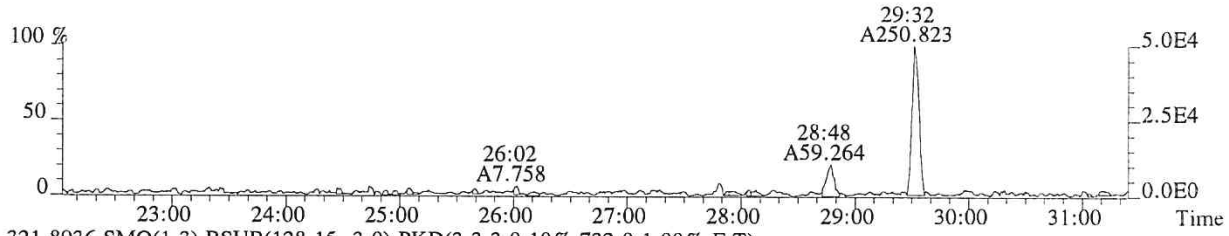


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

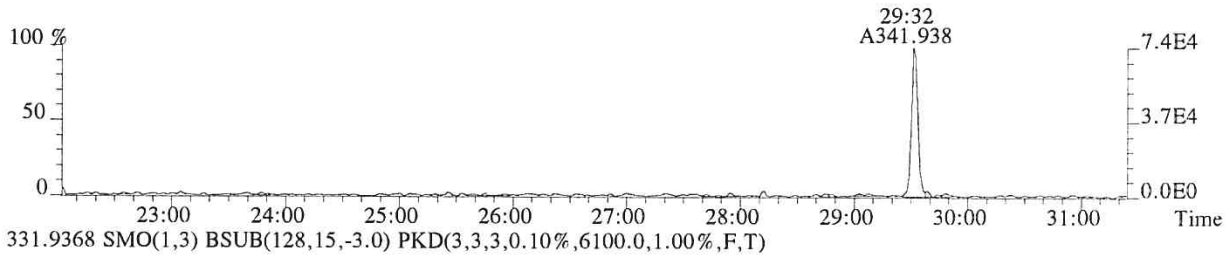


011649

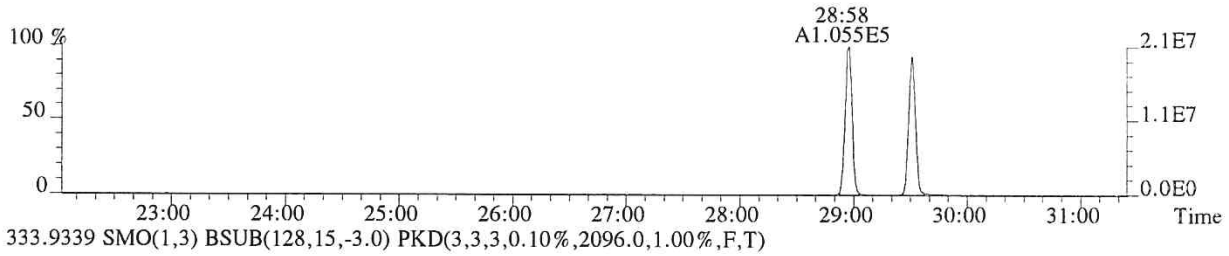
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



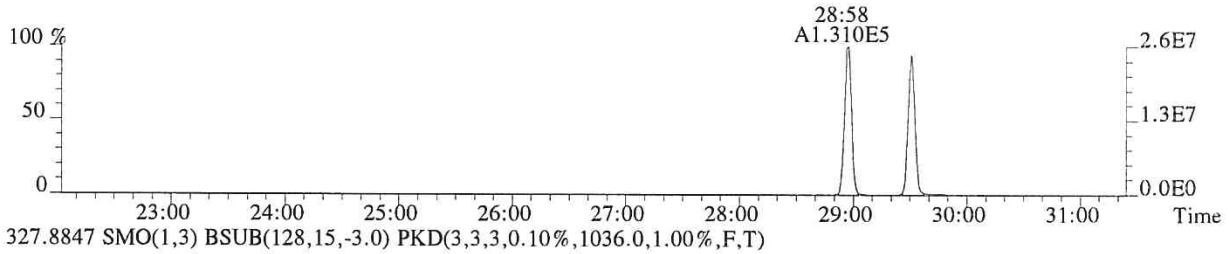
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



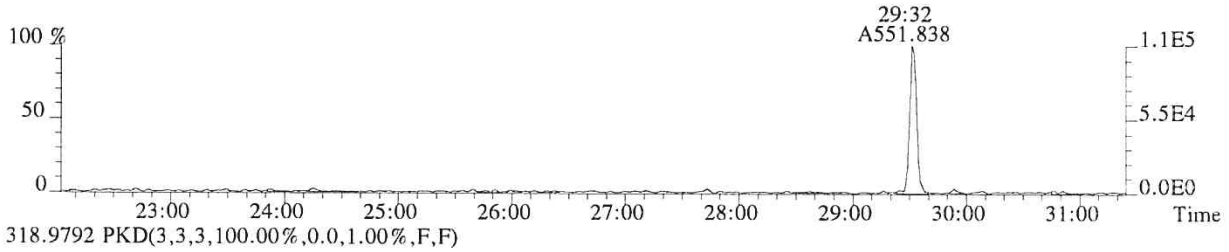
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



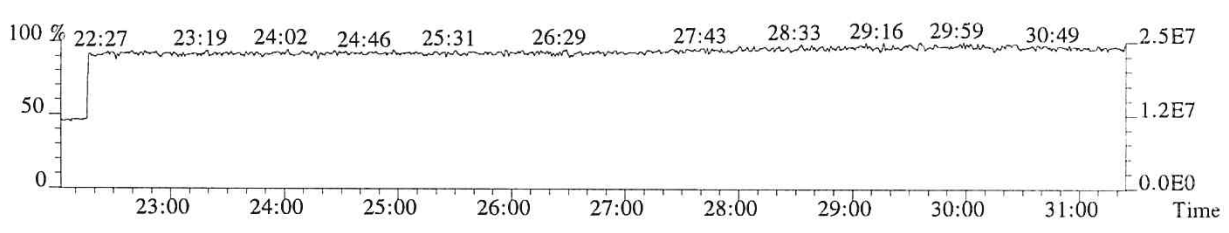
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

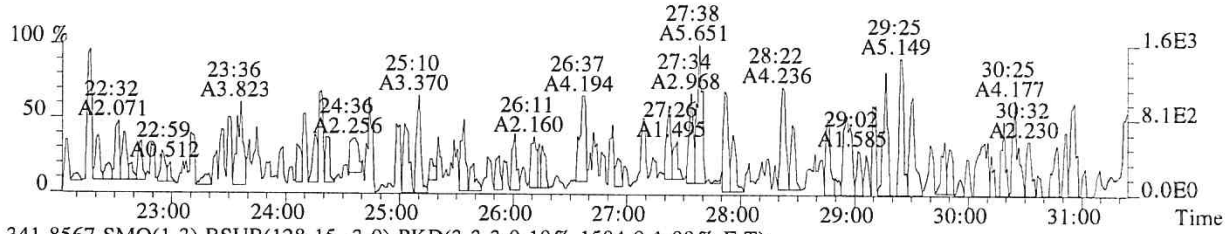


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

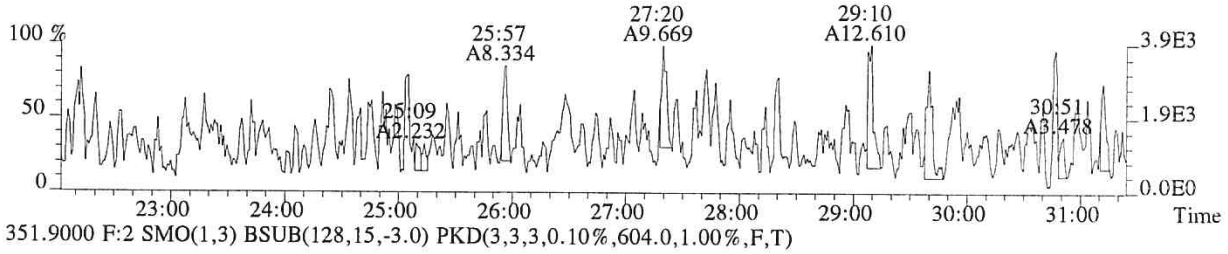


011650

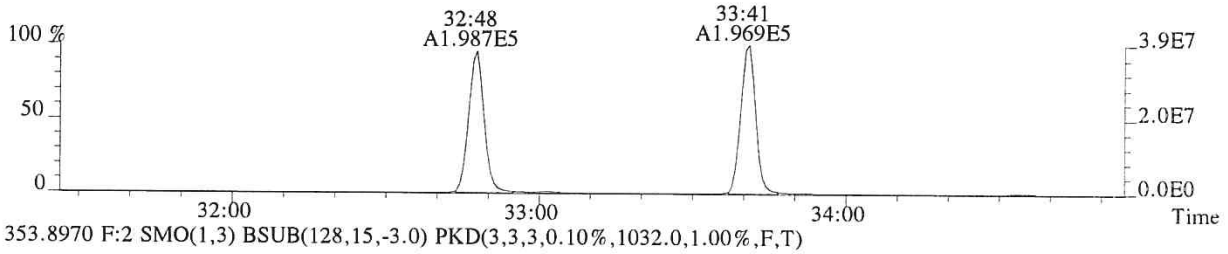
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



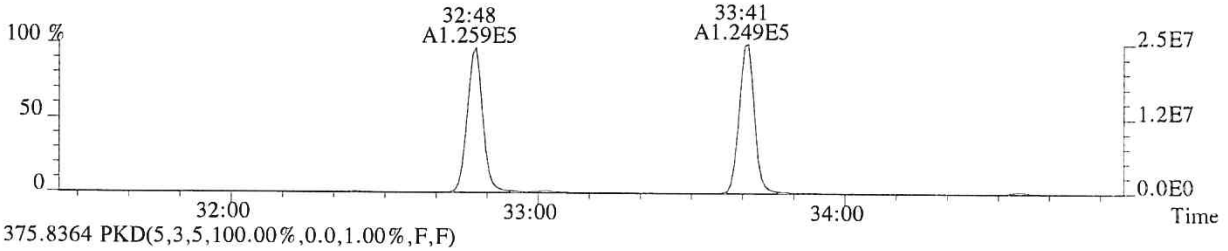
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



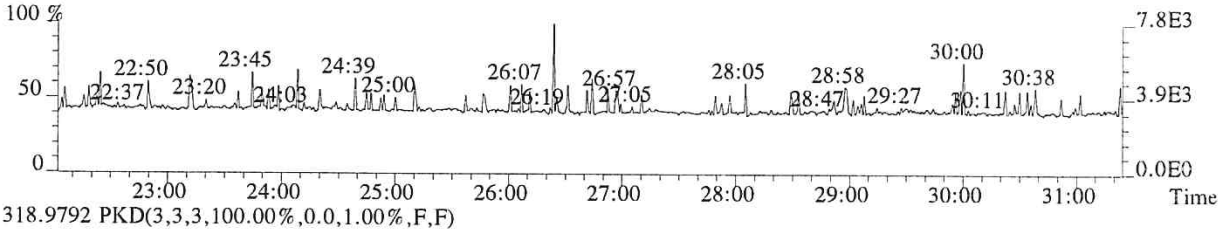
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



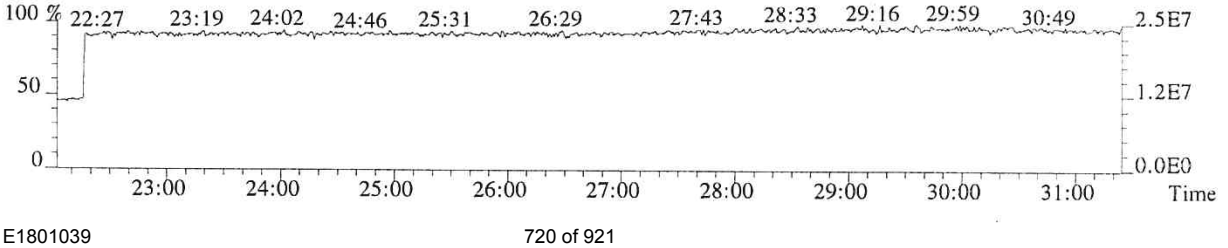
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

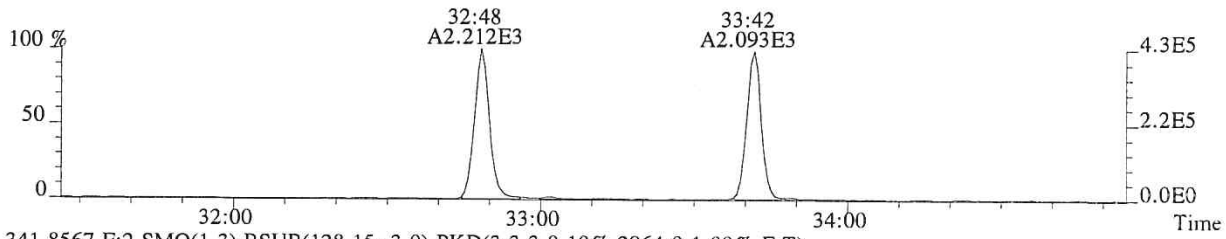


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

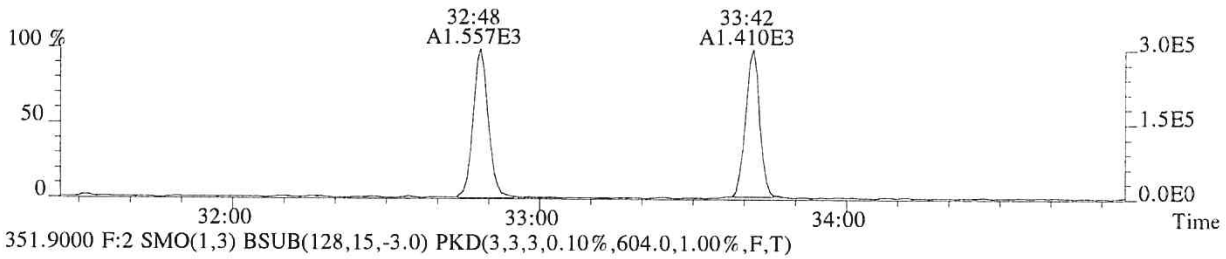


011651

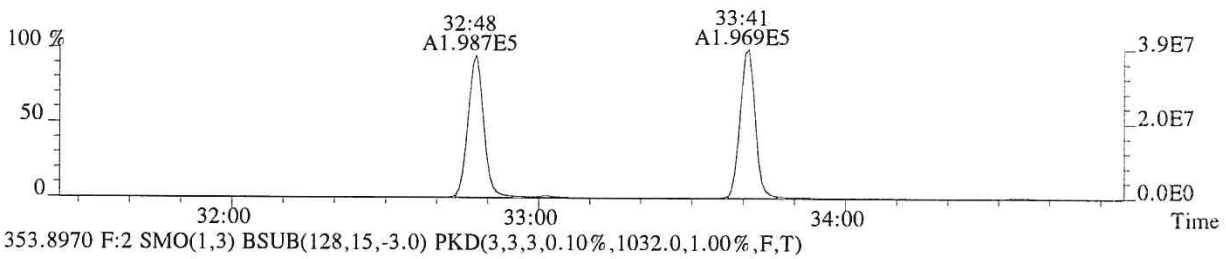
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



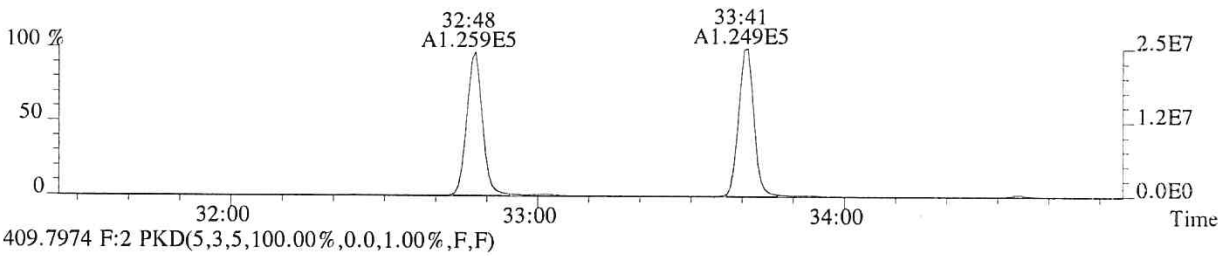
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



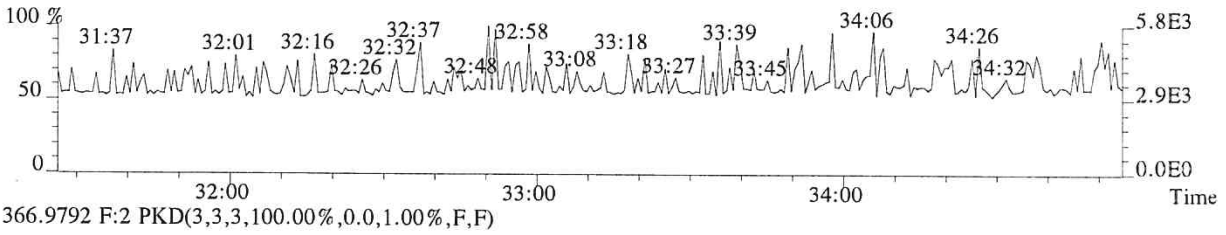
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



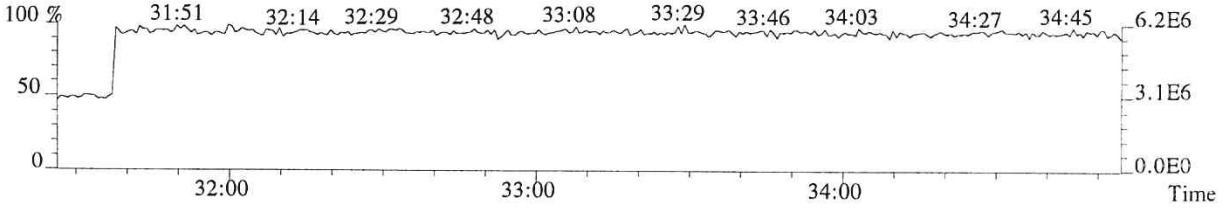
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

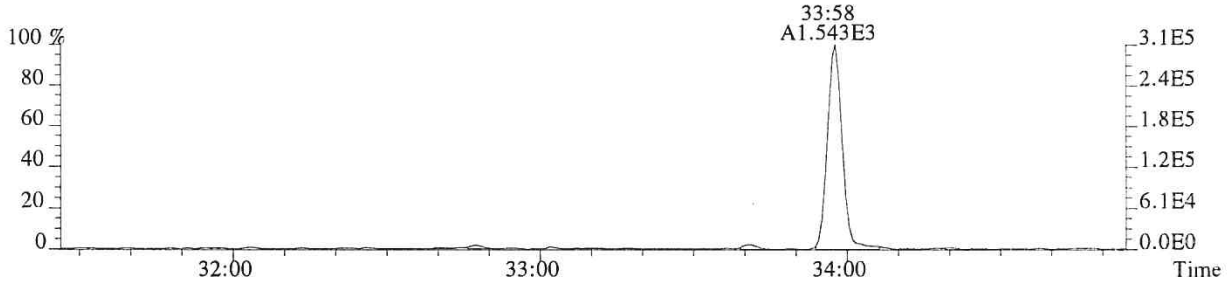


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

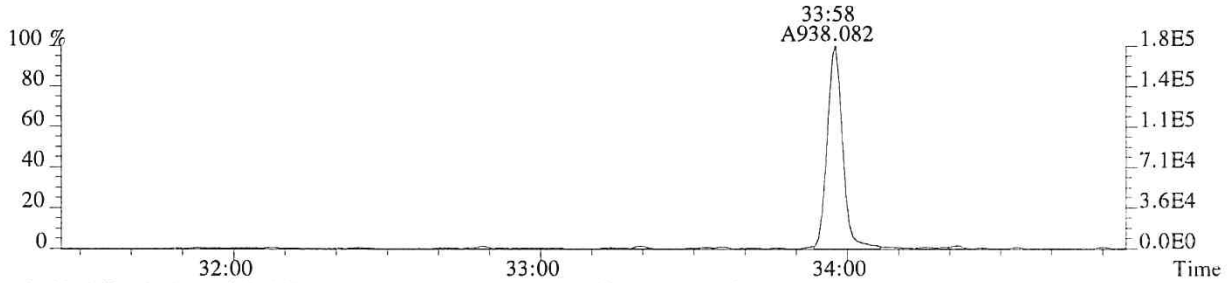


011652

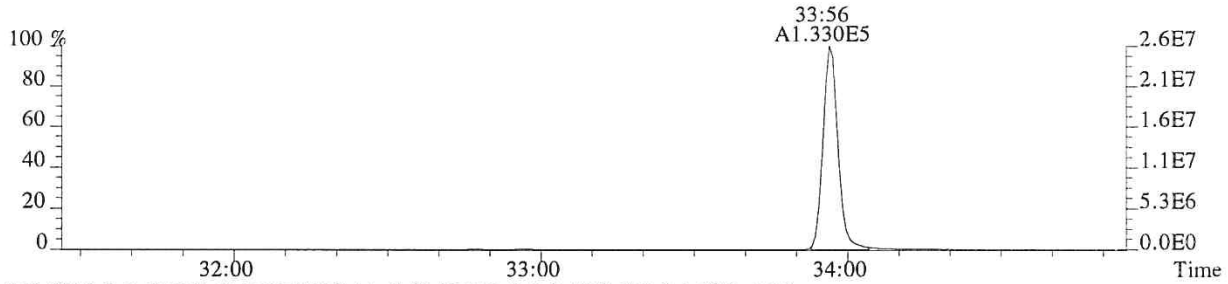
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



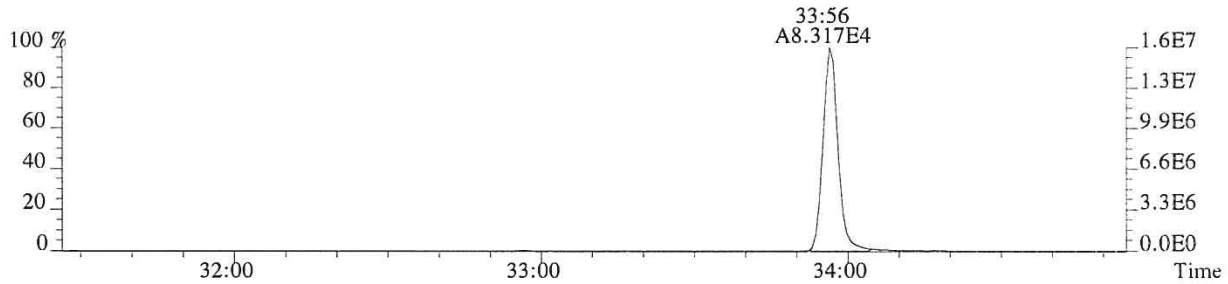
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



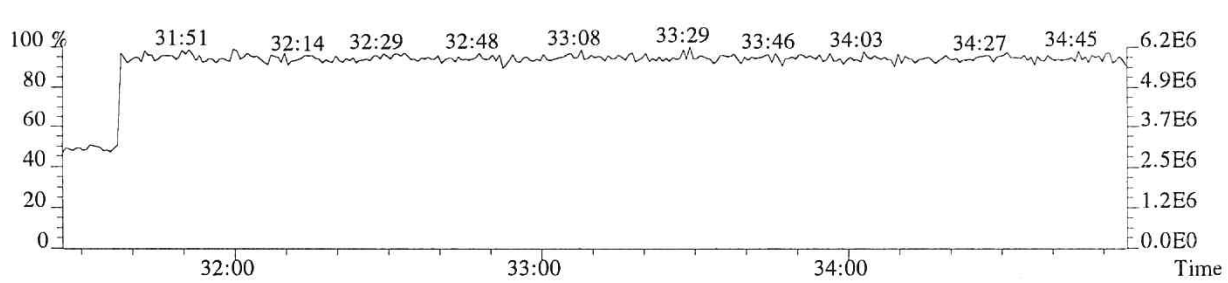
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)

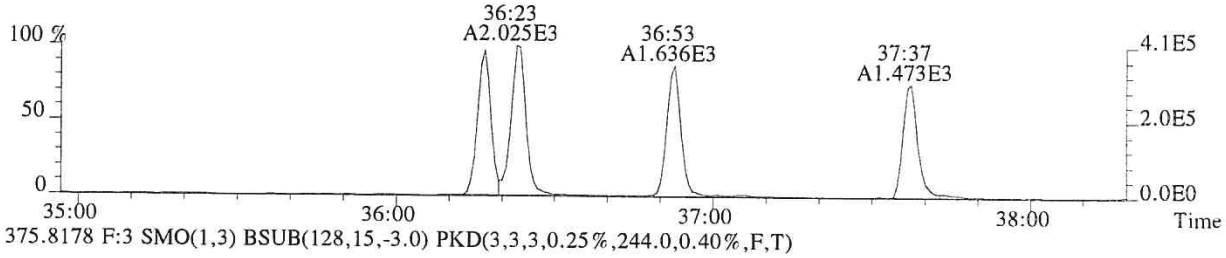


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

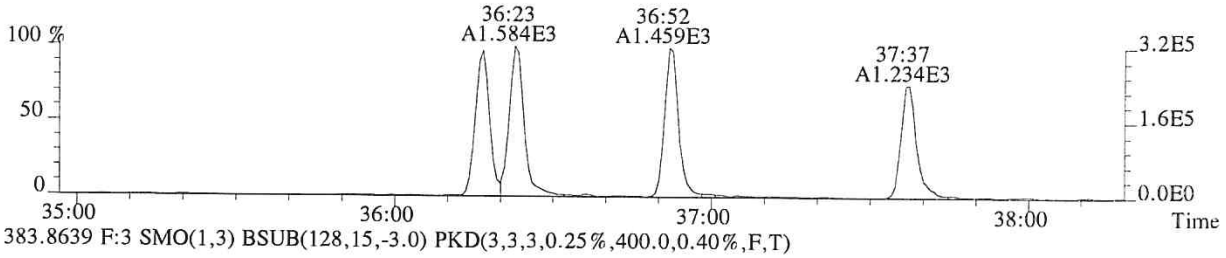


011653

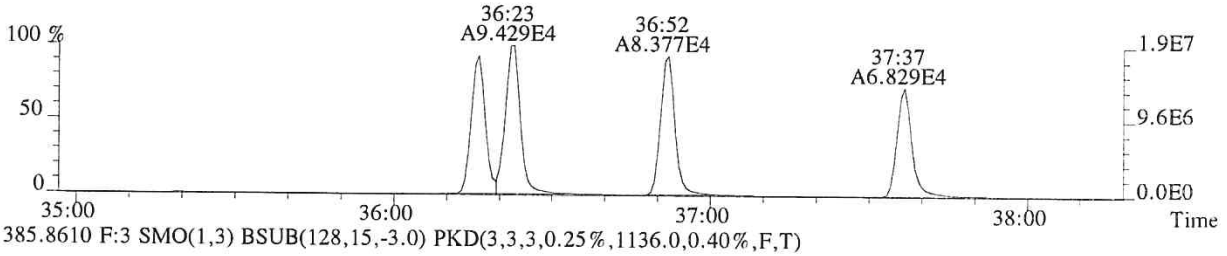
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



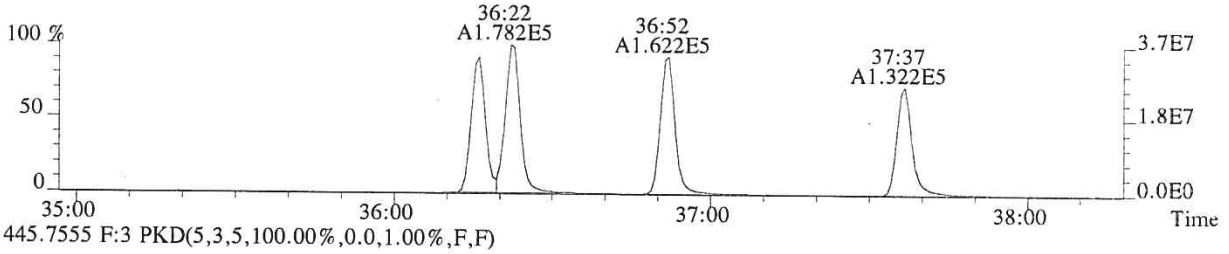
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



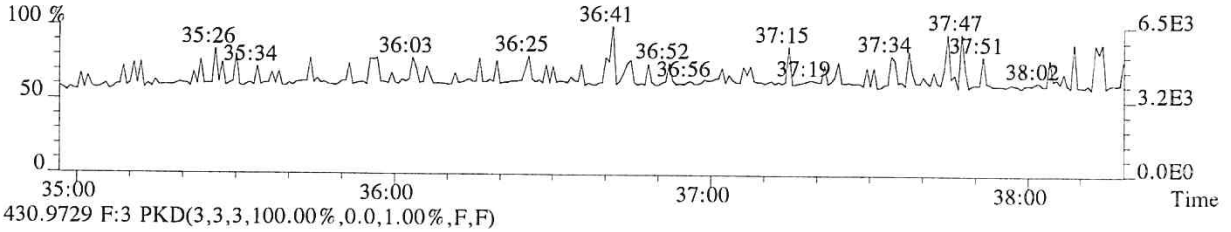
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



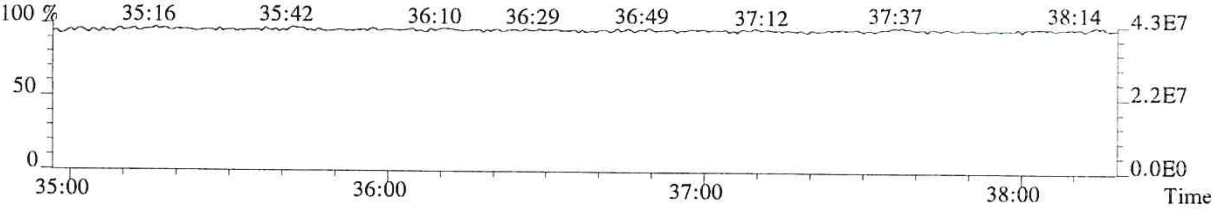
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

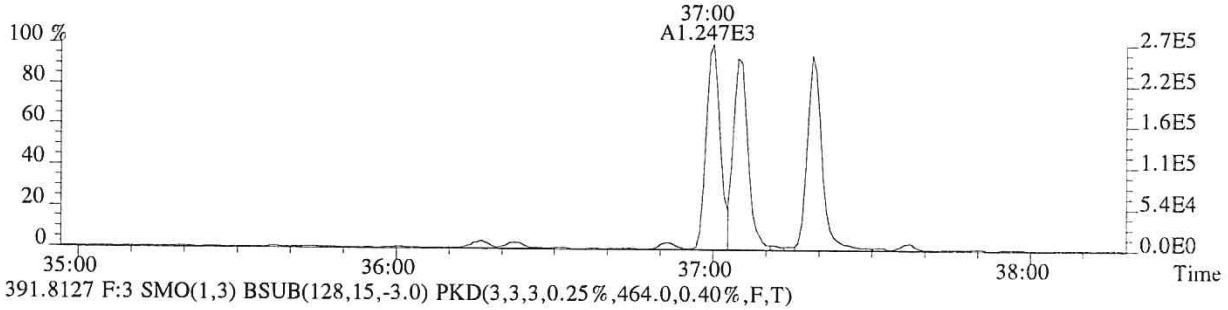


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

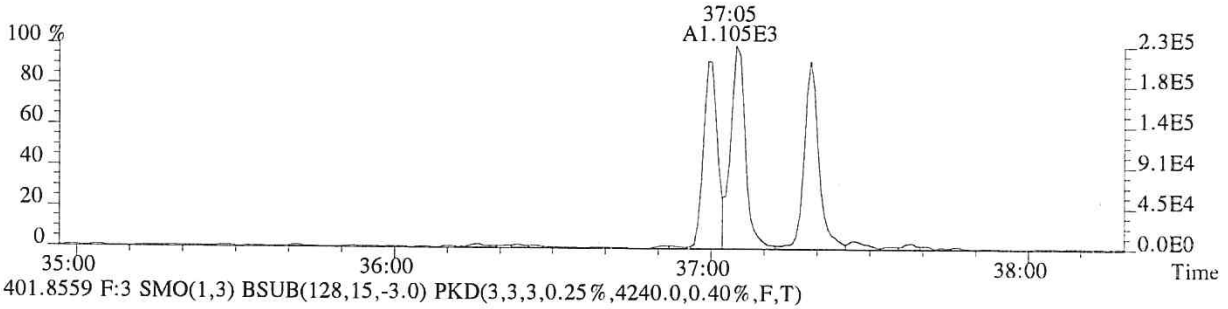


011654

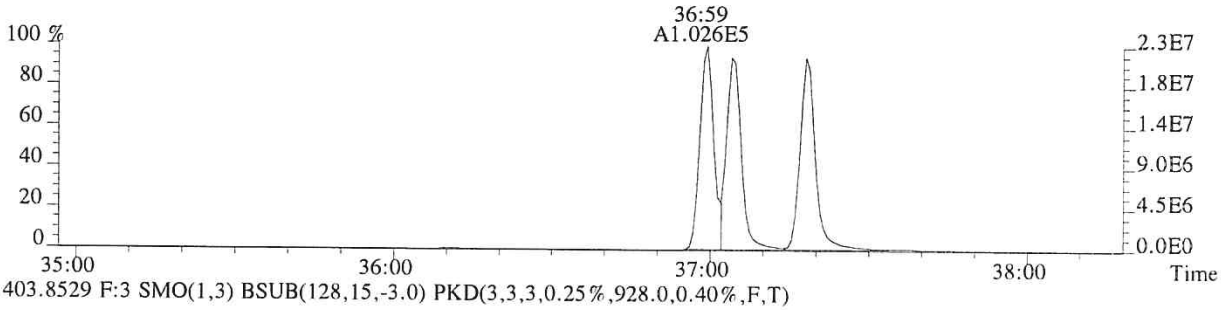
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



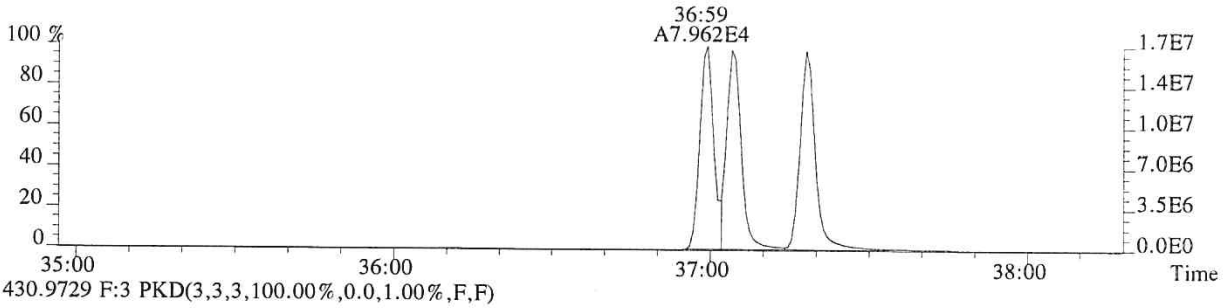
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



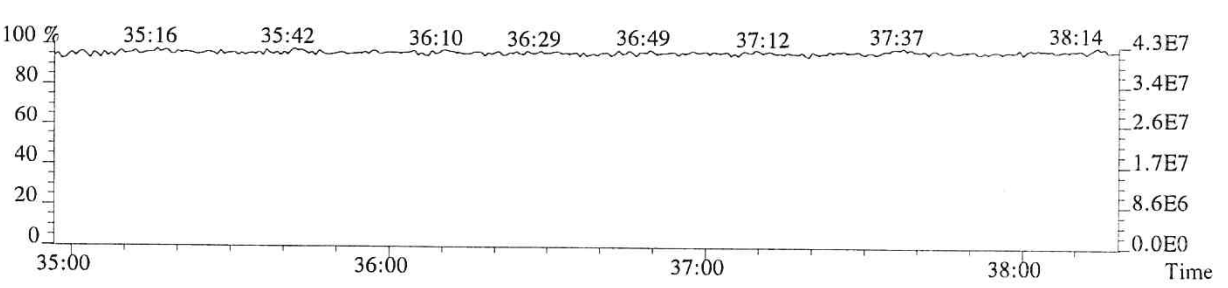
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)

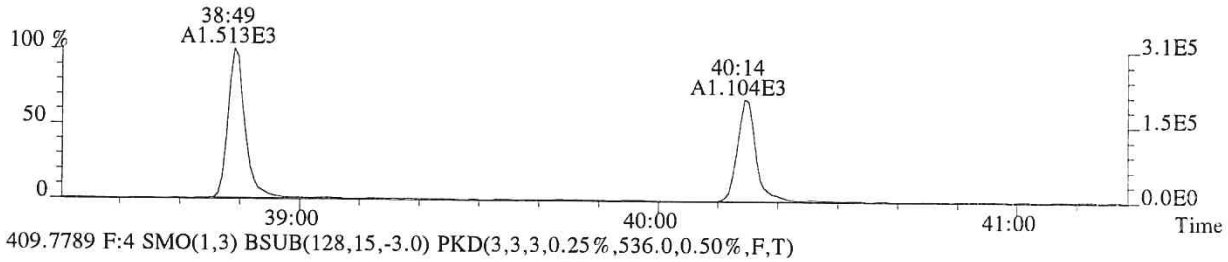


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

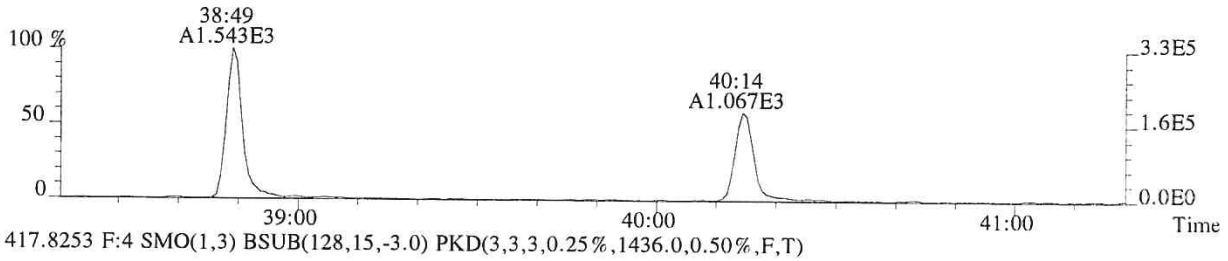


011655

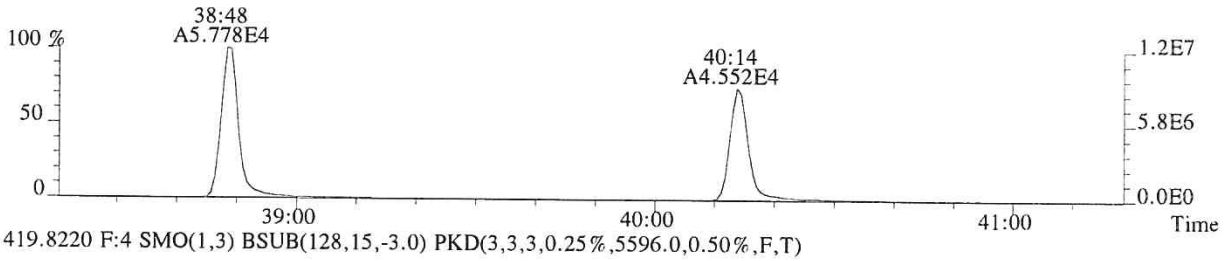
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



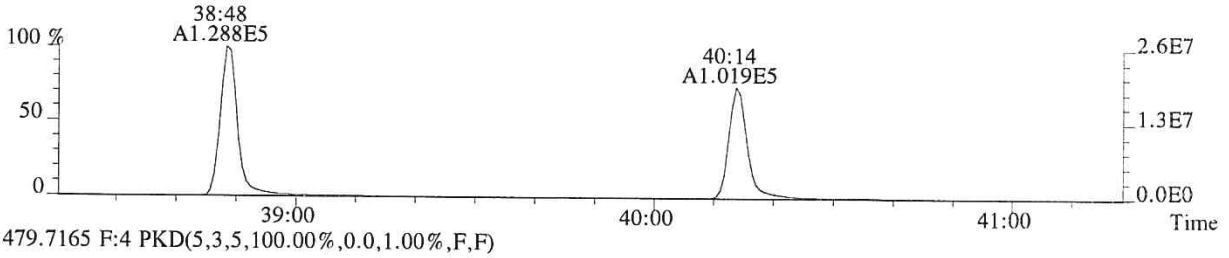
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



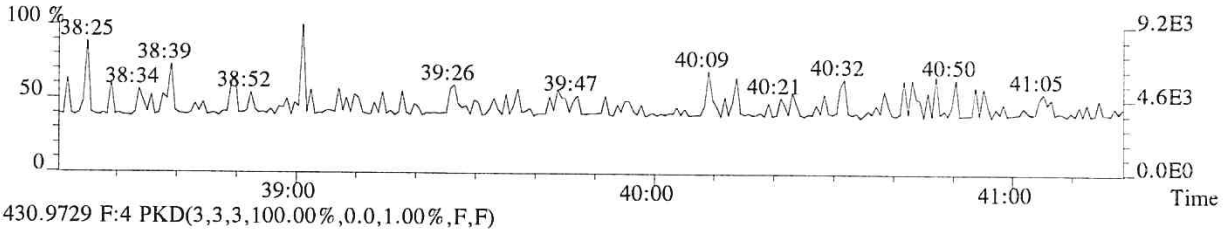
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



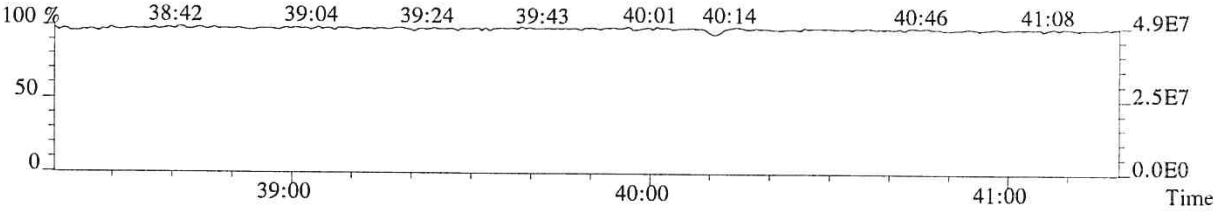
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

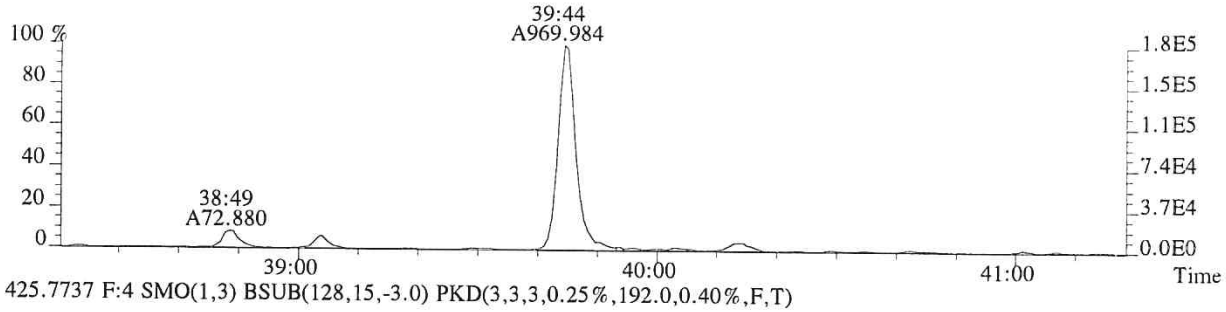


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

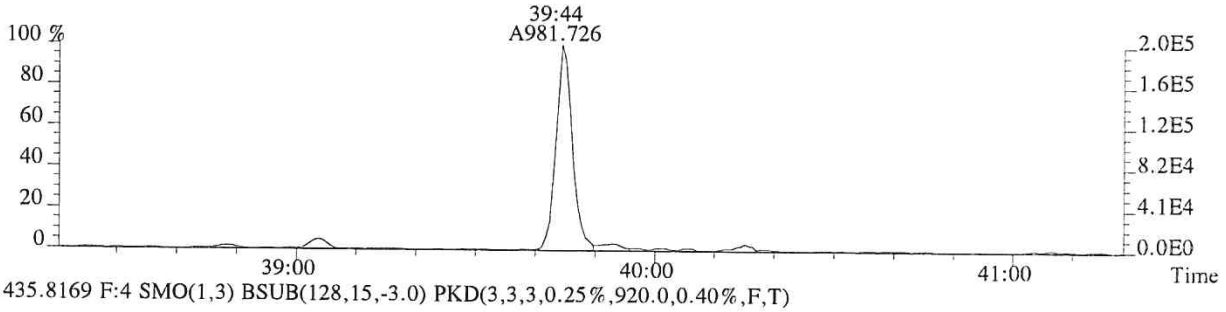


011656

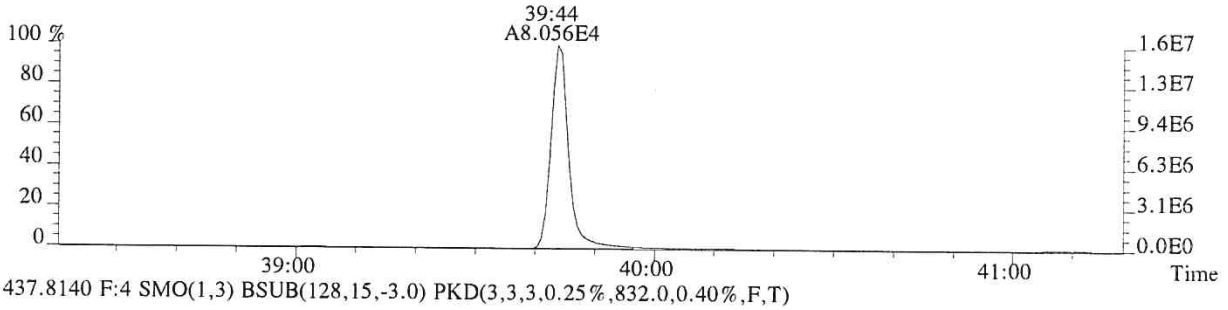
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



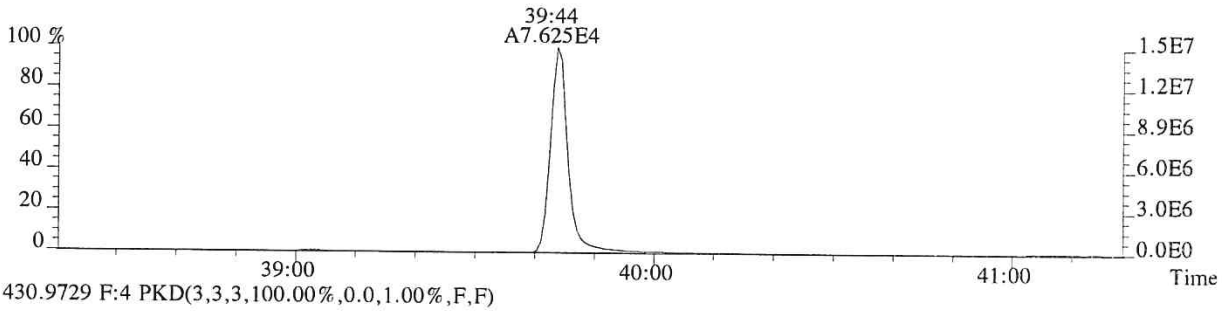
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



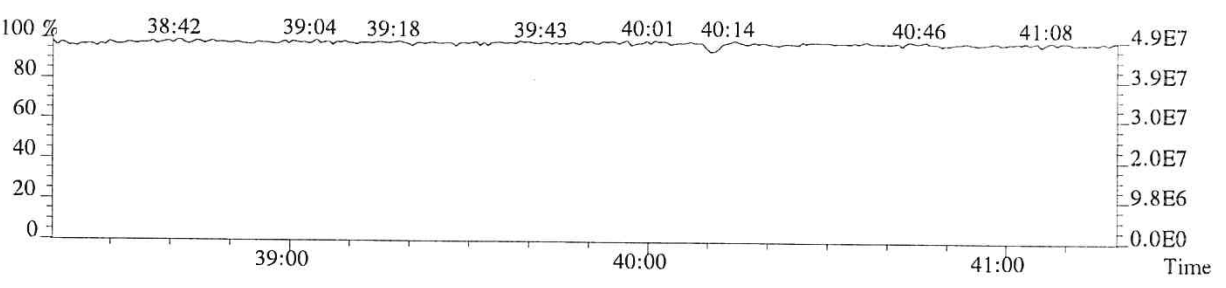
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)

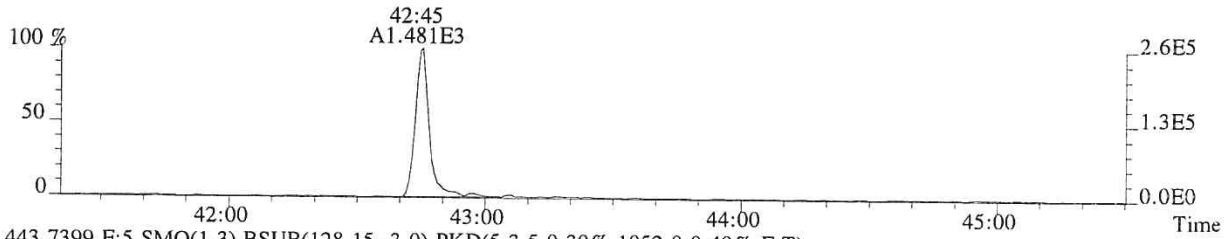


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

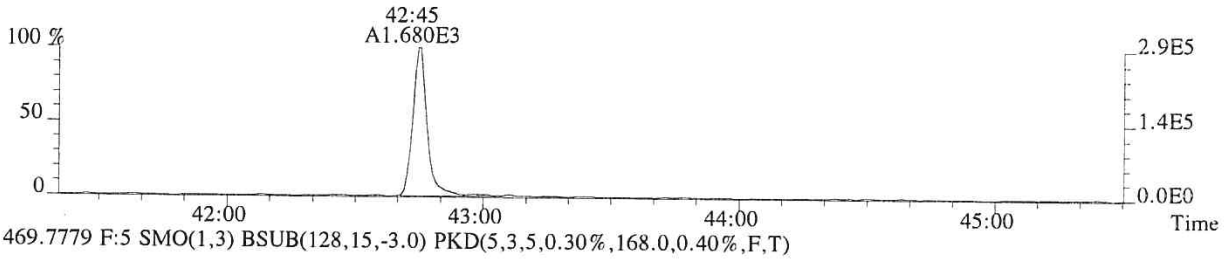


011657

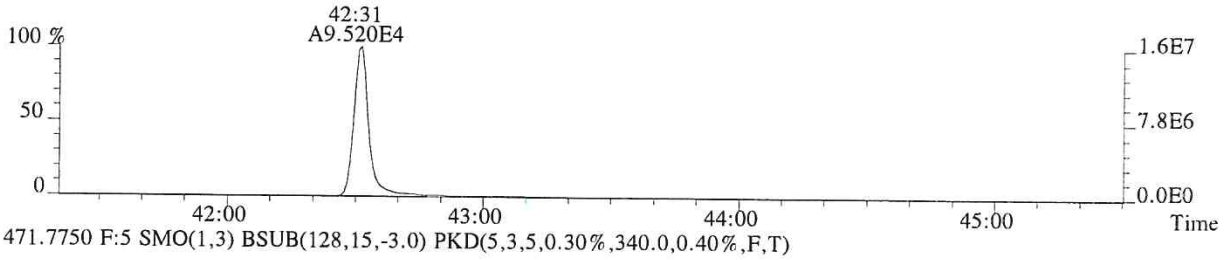
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



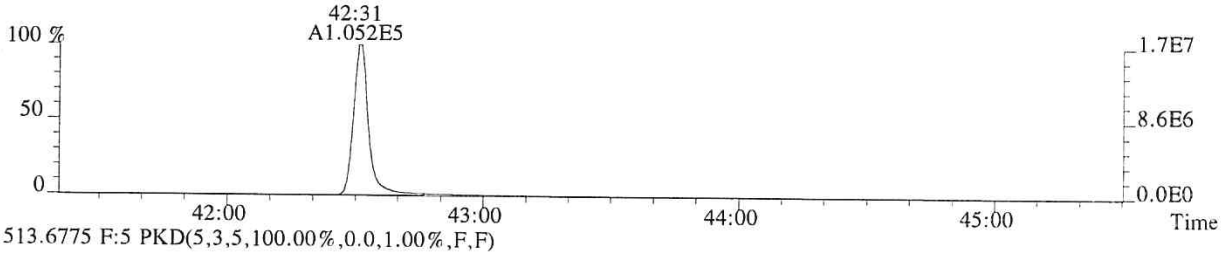
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



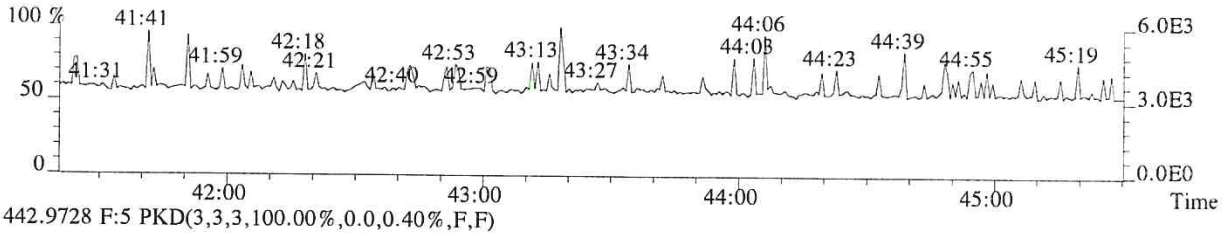
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



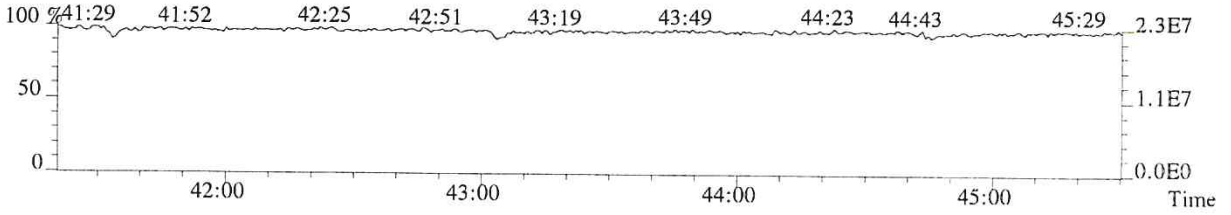
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

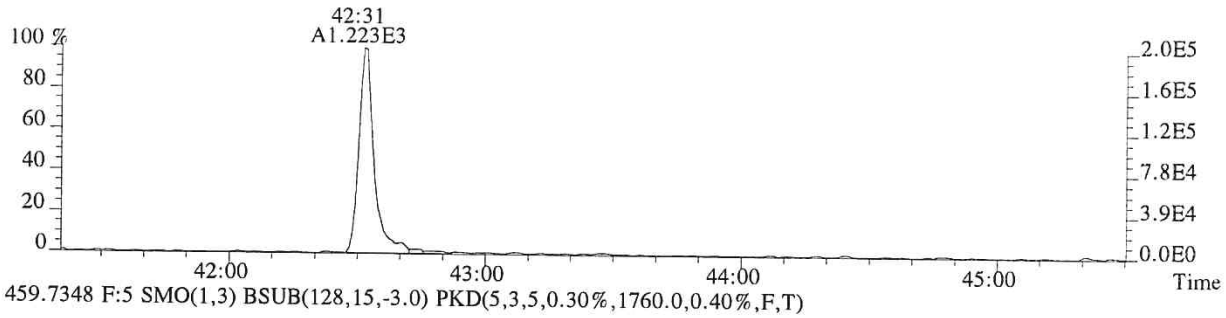


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

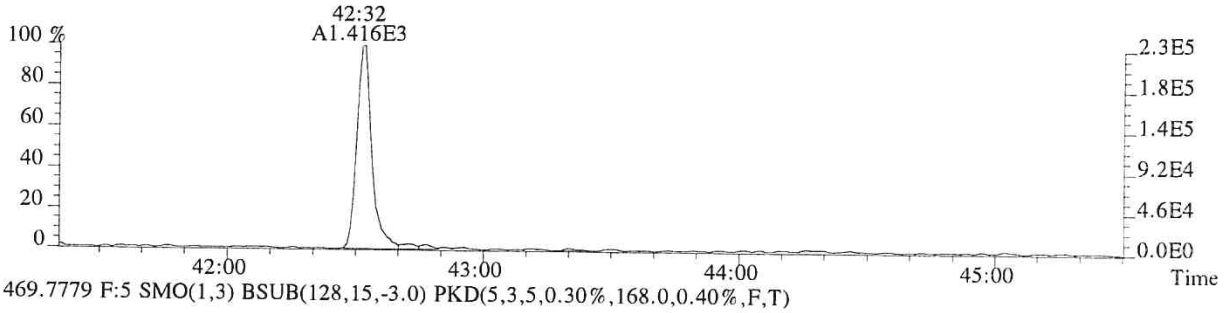


011658

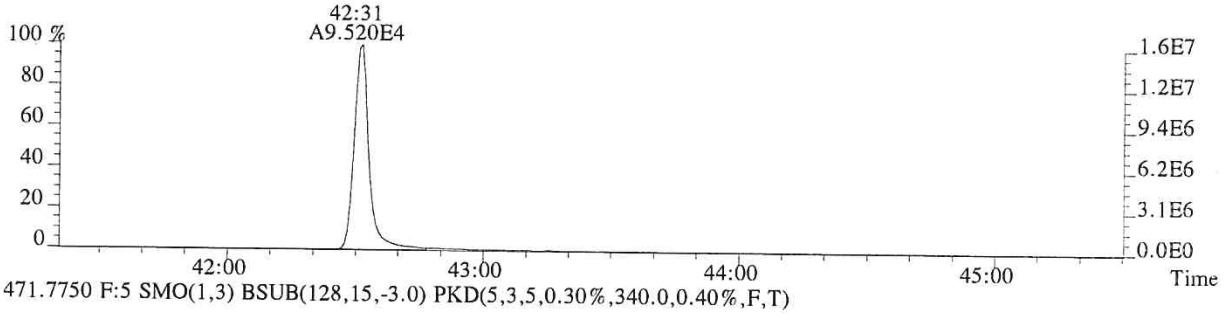
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



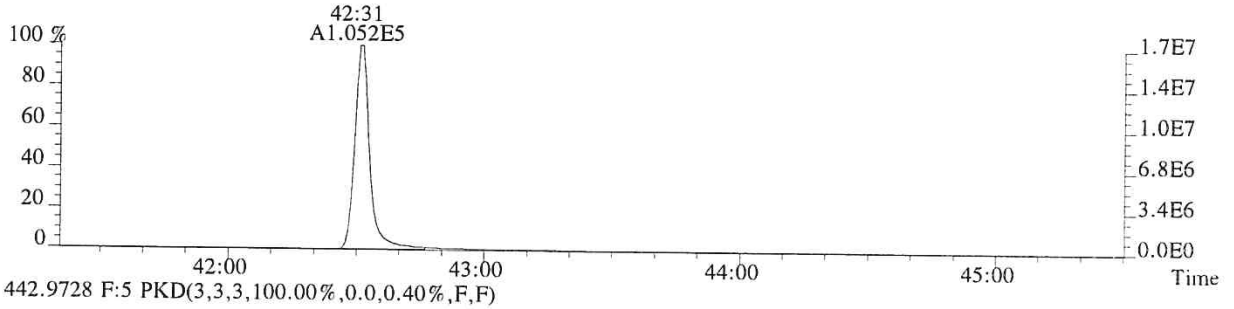
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



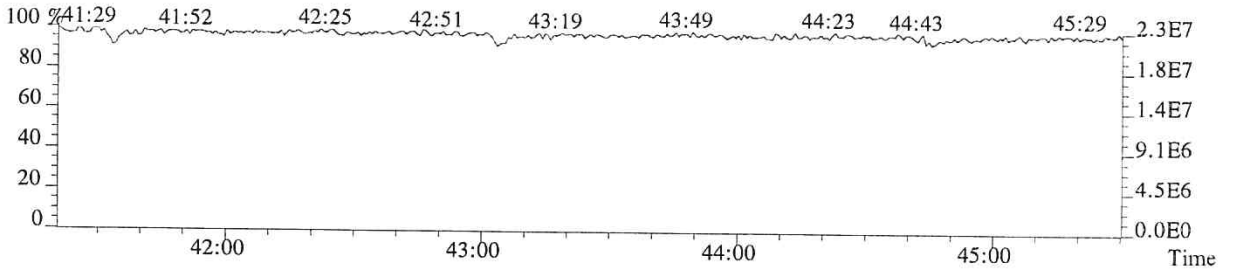
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011659

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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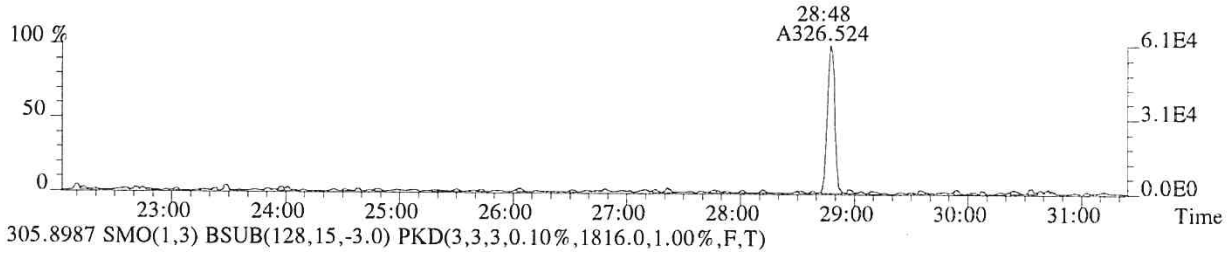
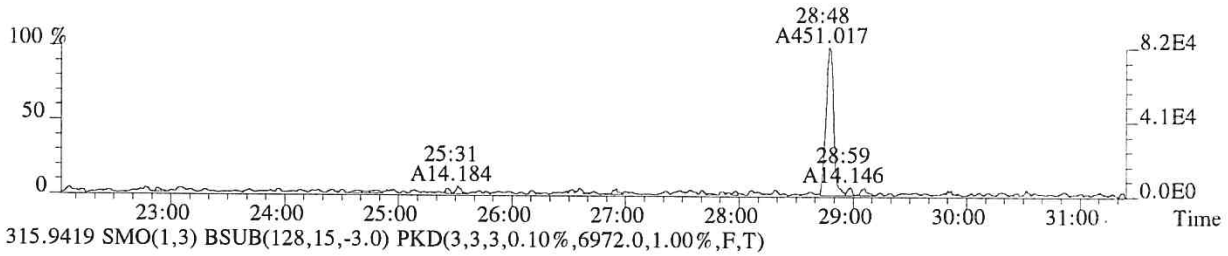
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

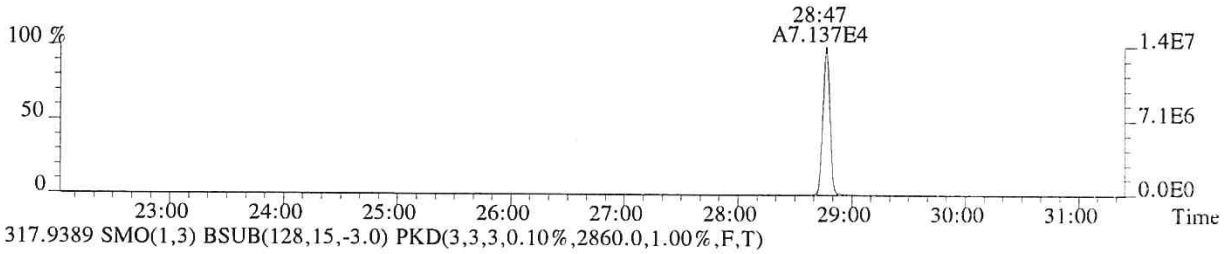
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



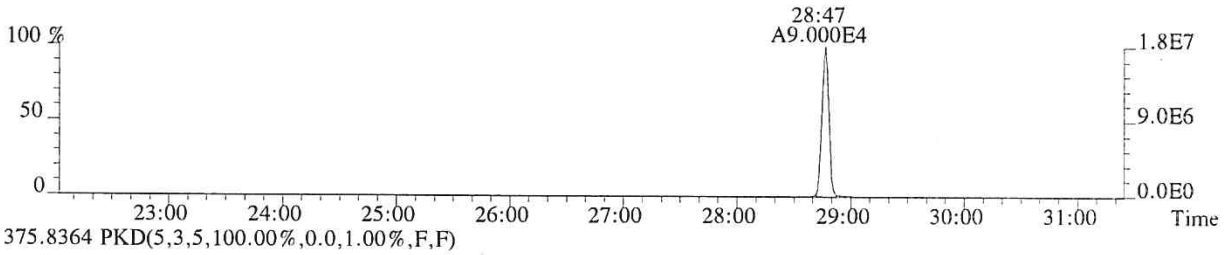
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



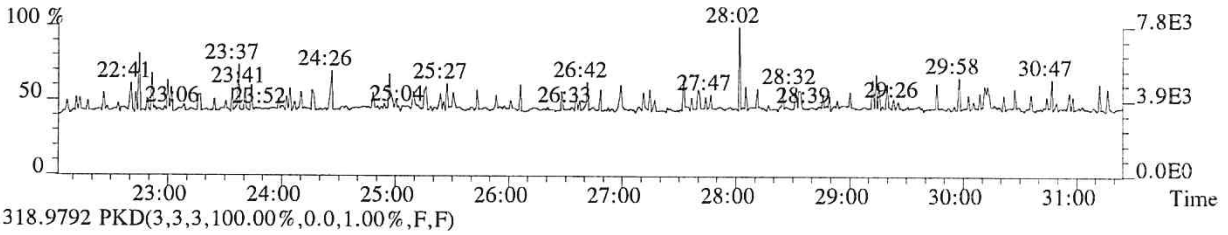
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



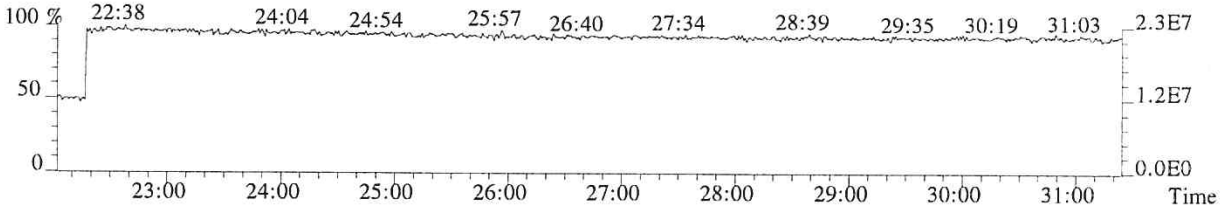
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

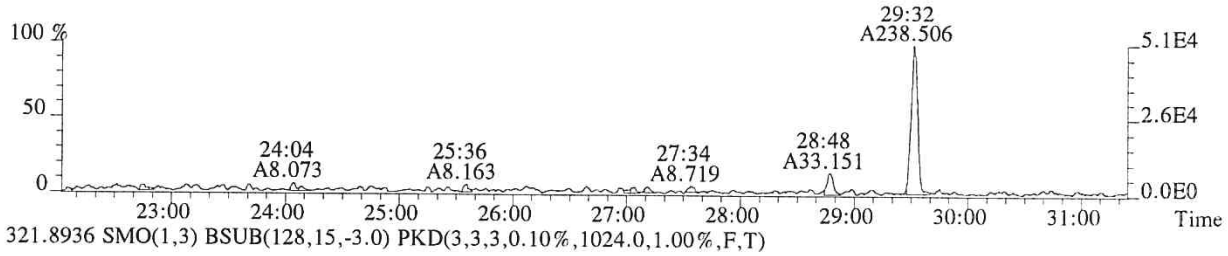


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

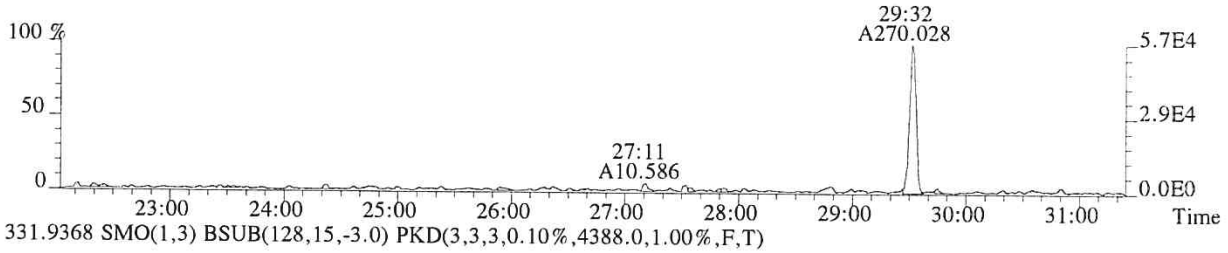


011662

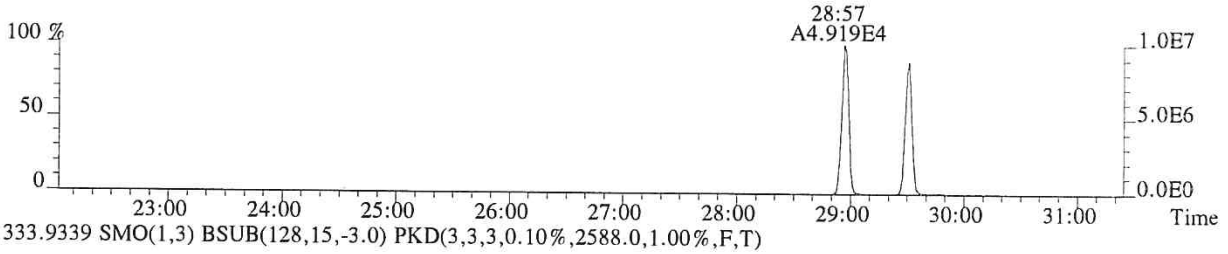
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



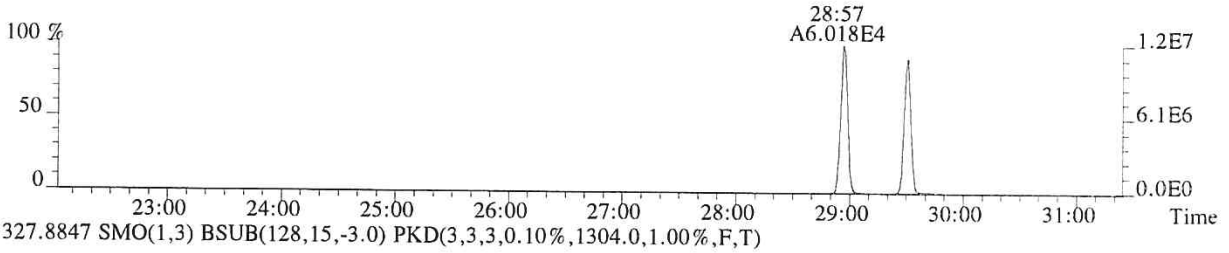
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



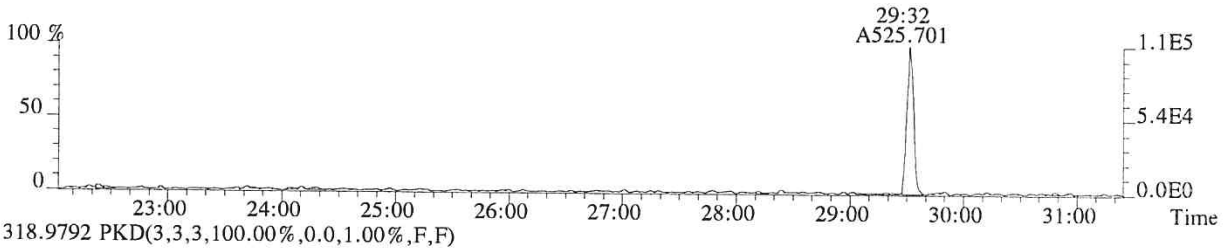
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



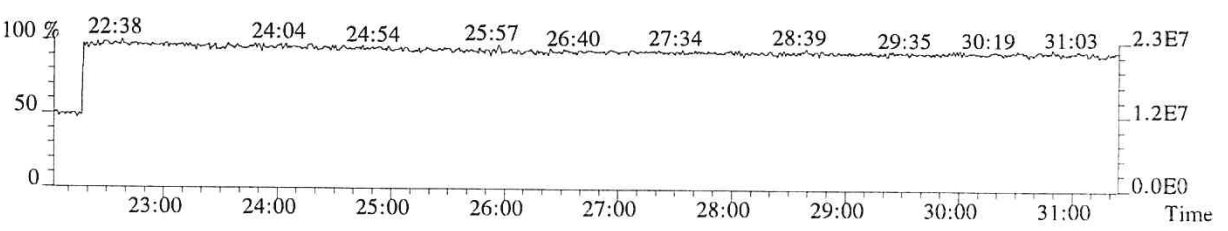
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)

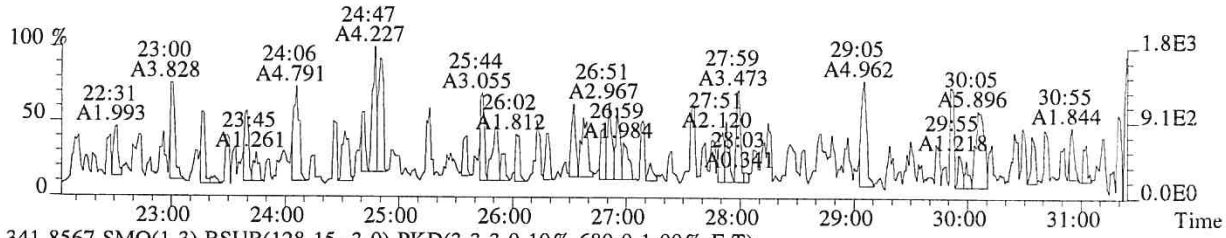


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

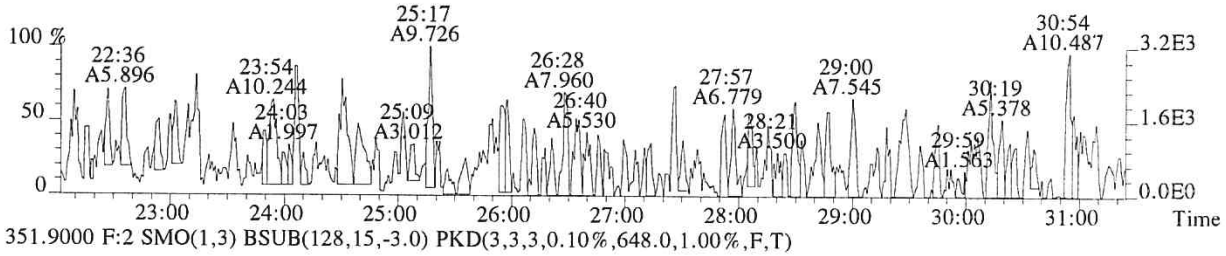


011663

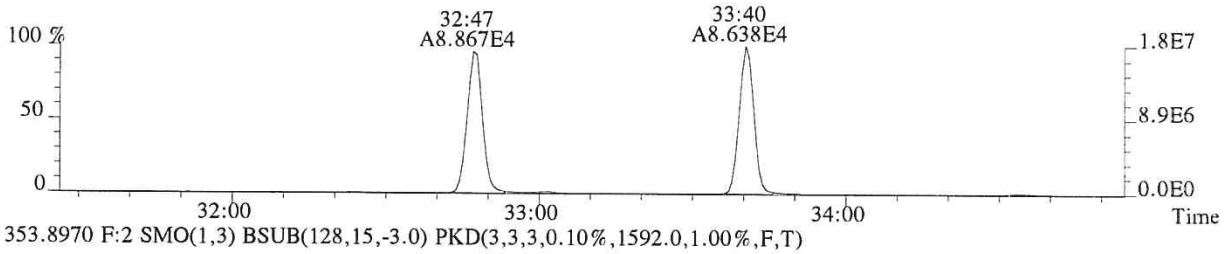
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



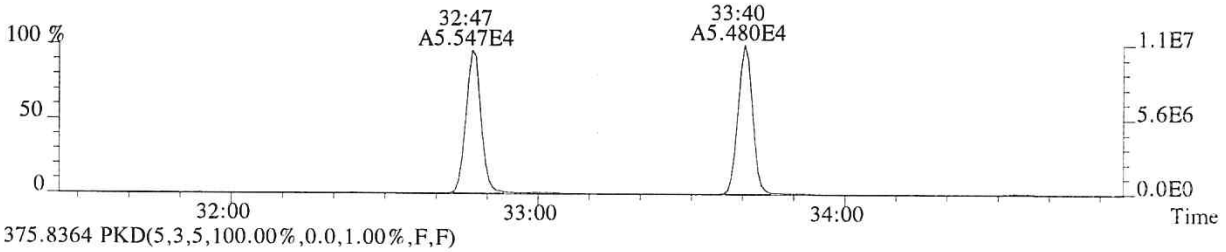
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



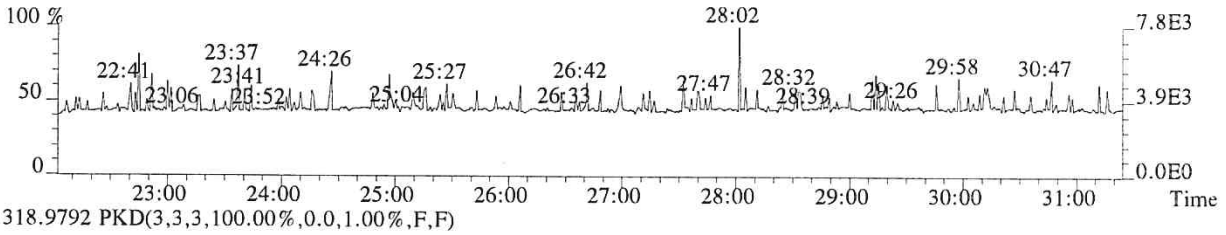
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



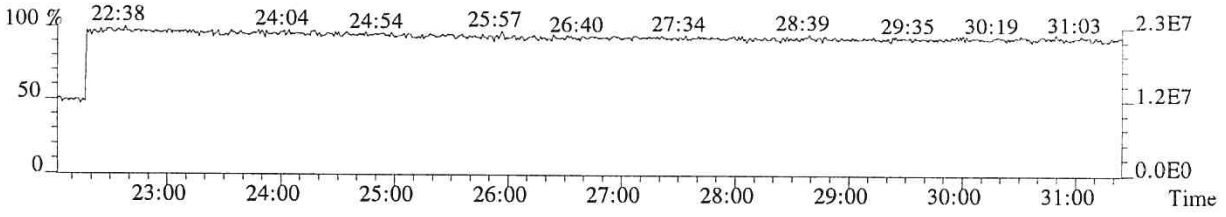
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

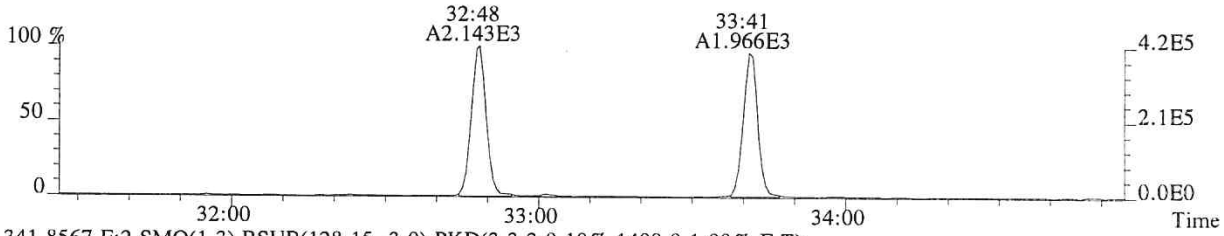


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

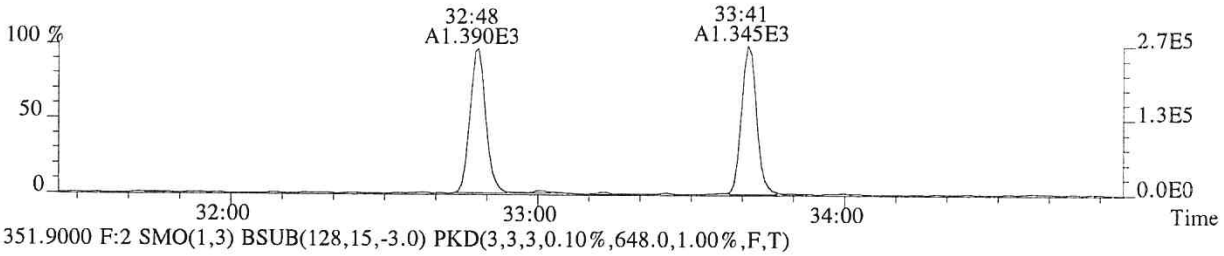


011664

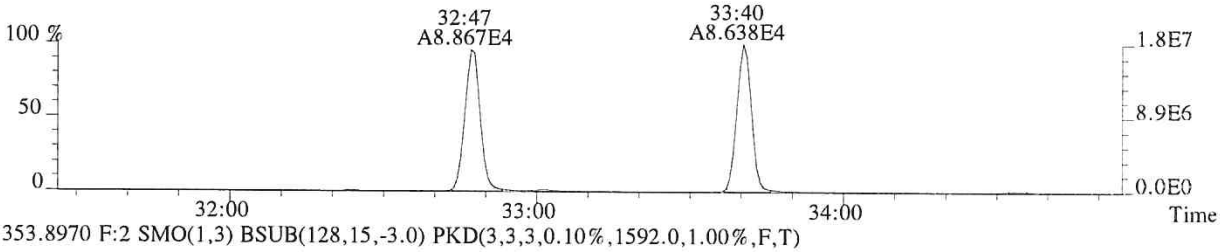
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



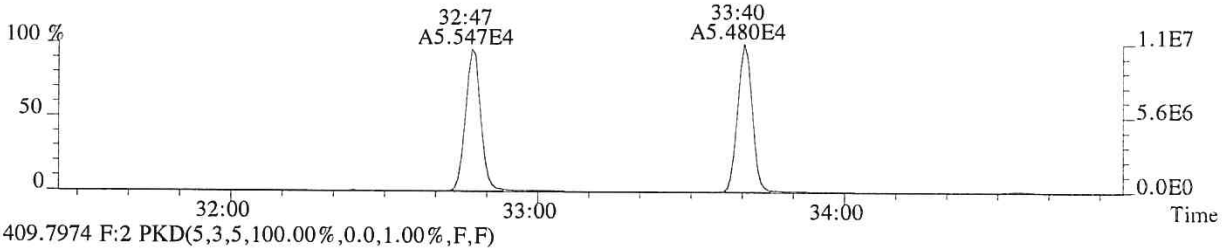
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



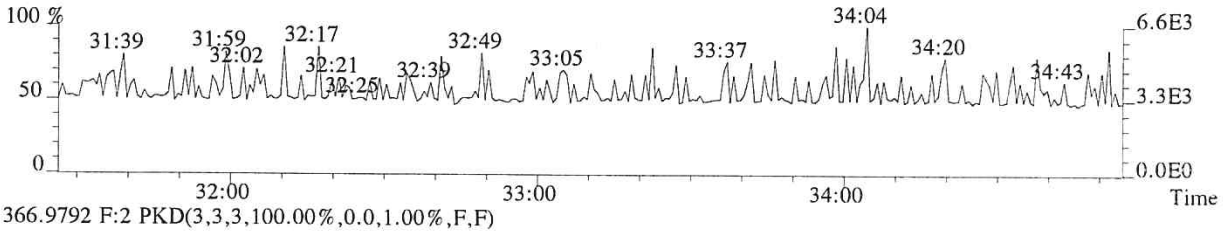
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



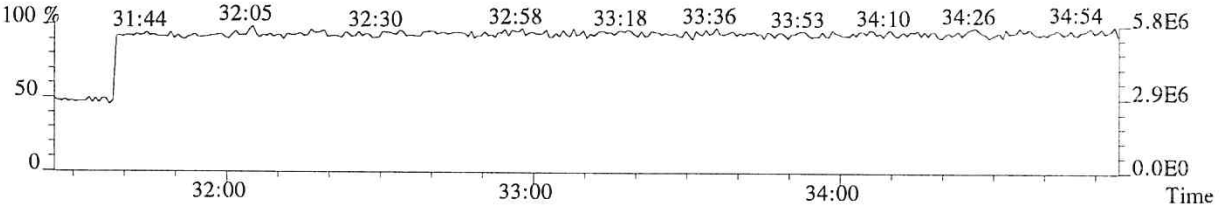
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

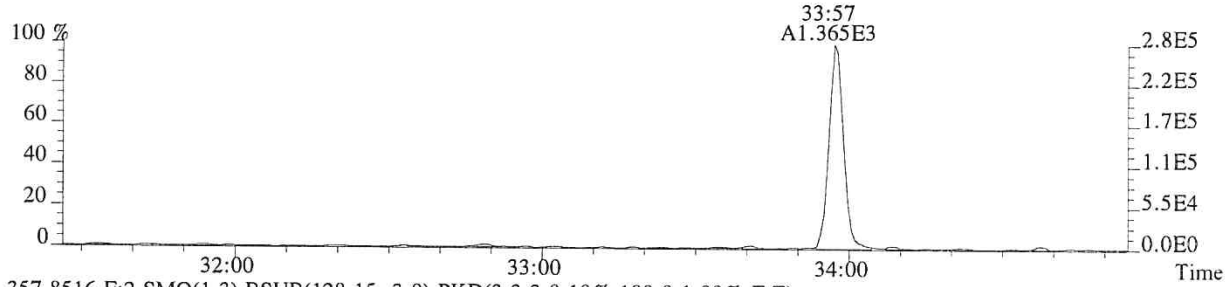


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

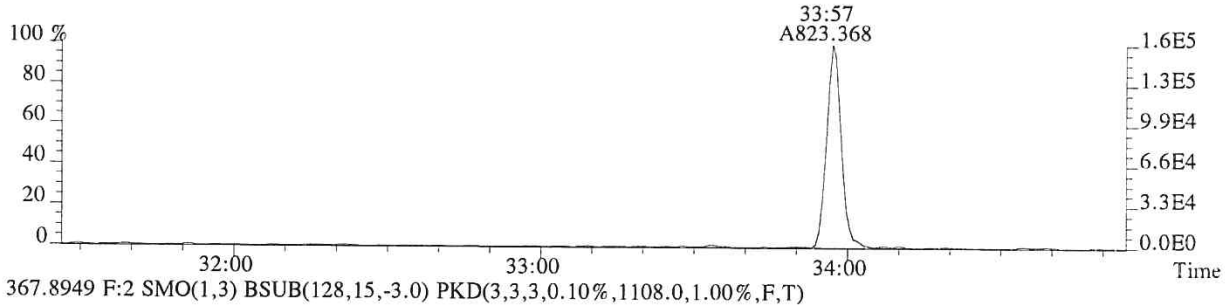


011665

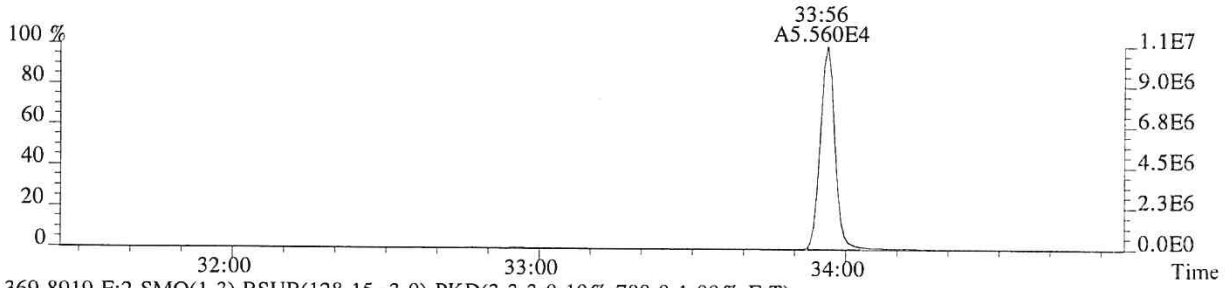
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



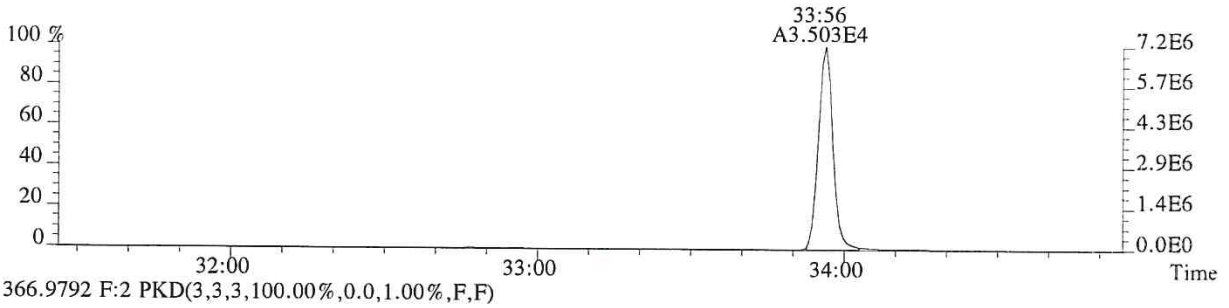
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



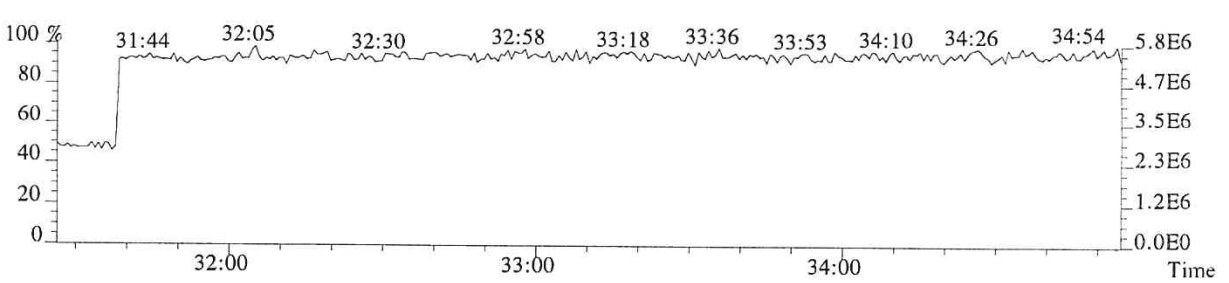
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



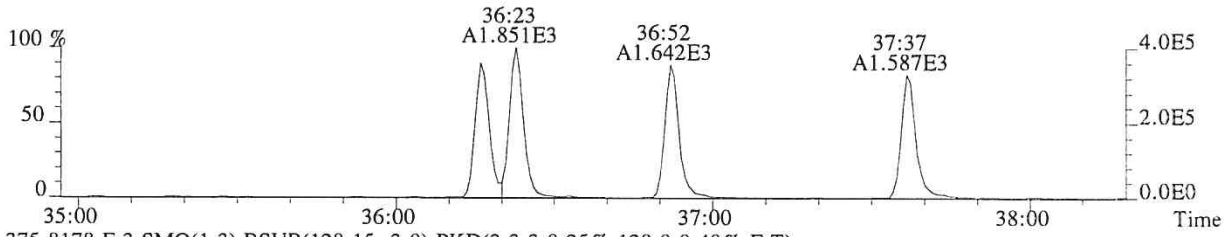
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



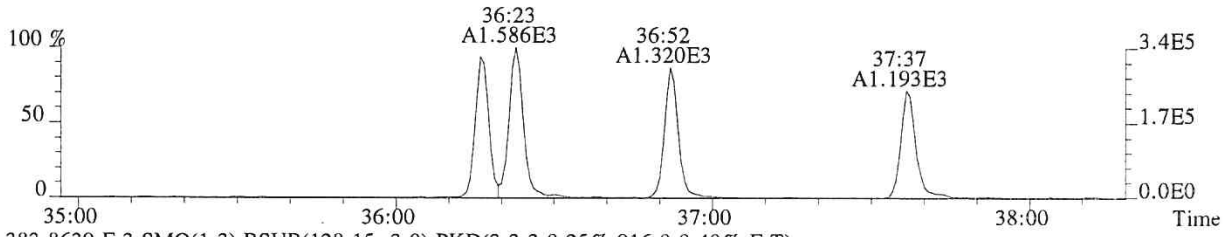
011666

File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

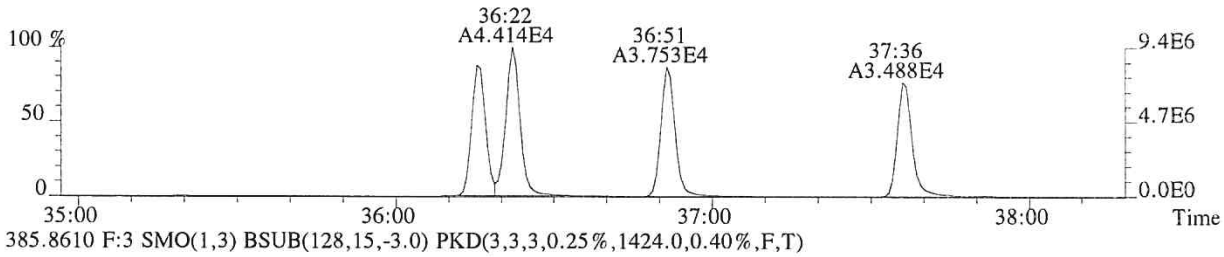
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



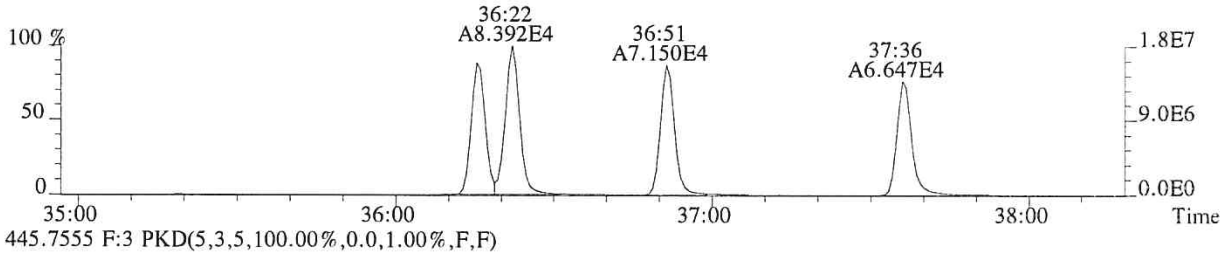
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



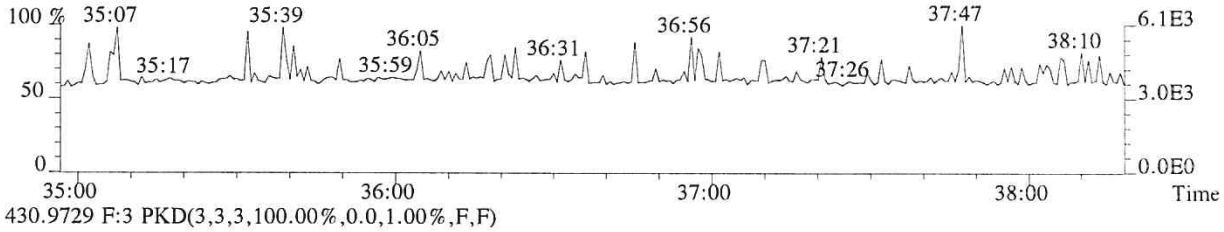
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



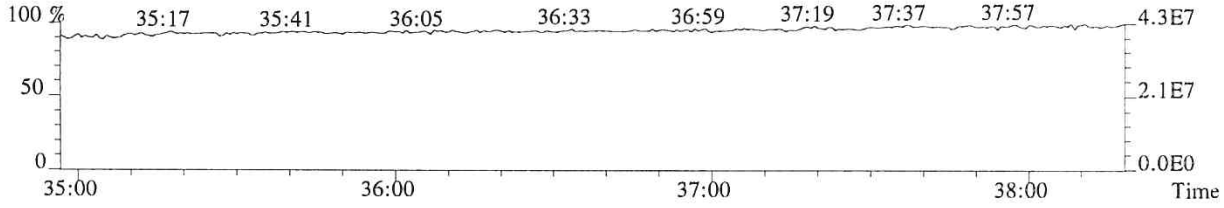
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

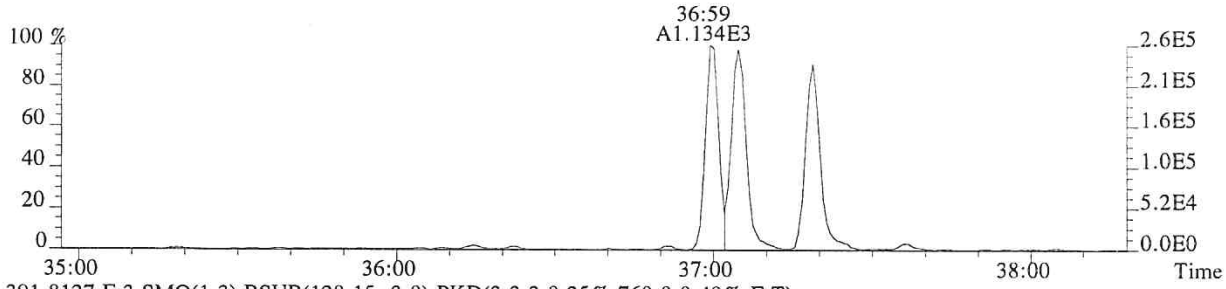


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

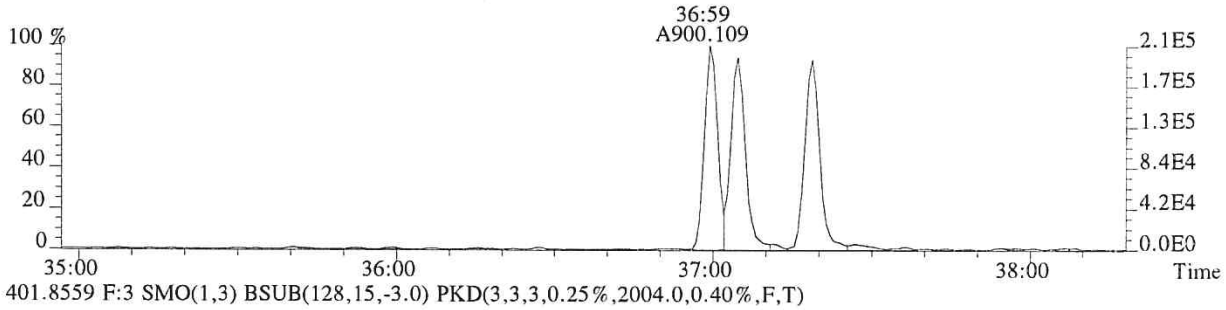


011667

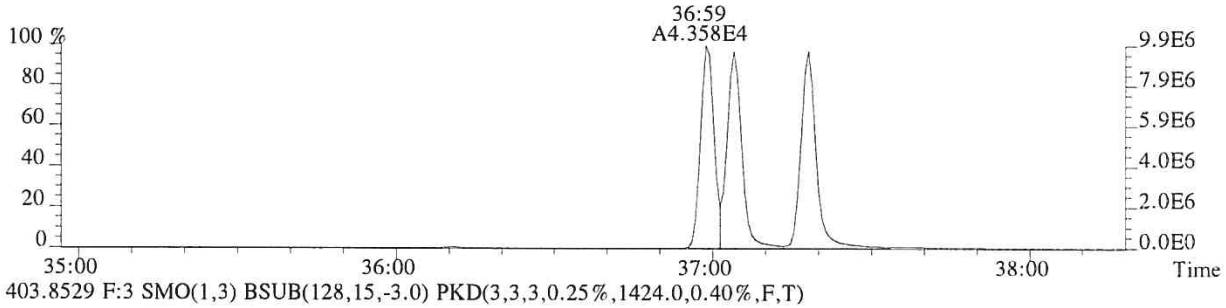
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



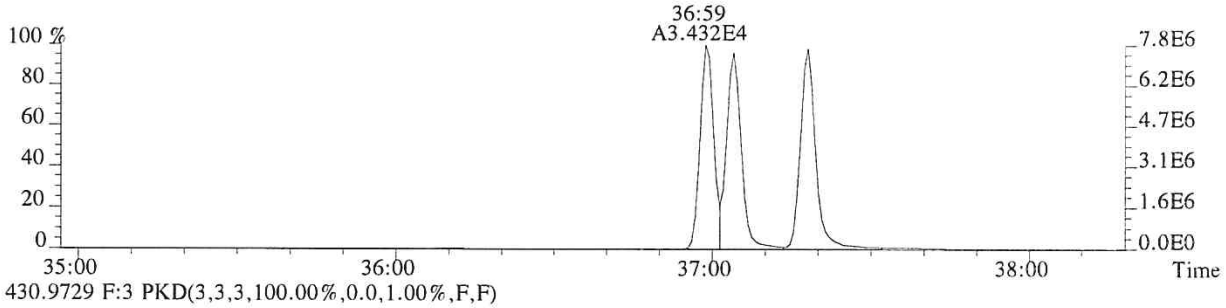
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



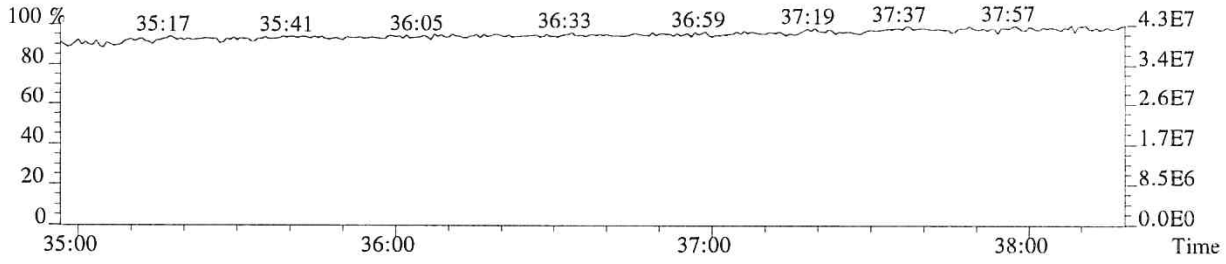
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)

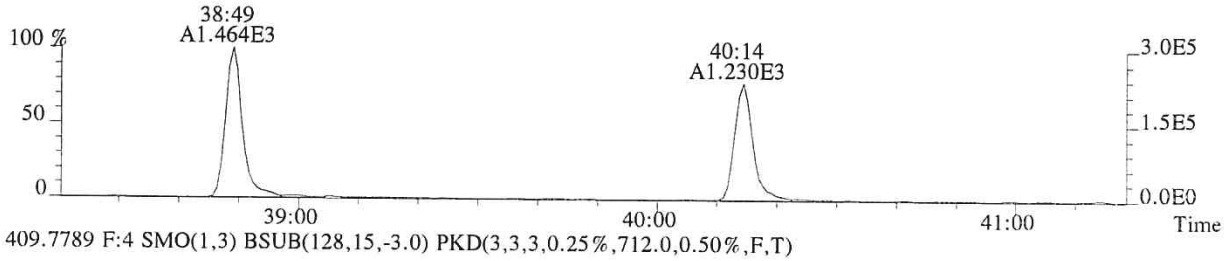


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

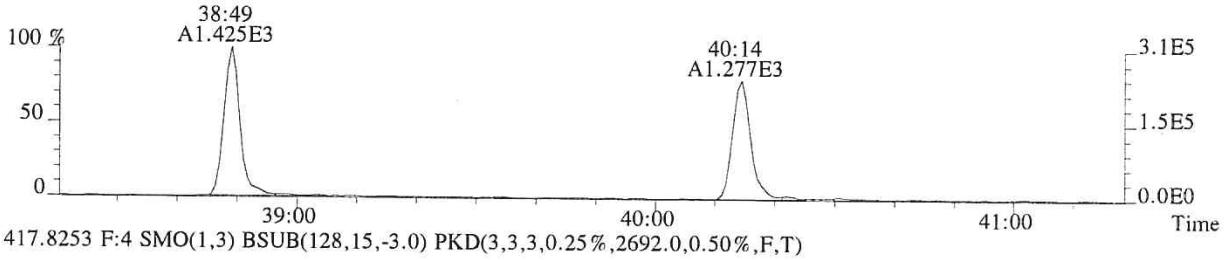


011668

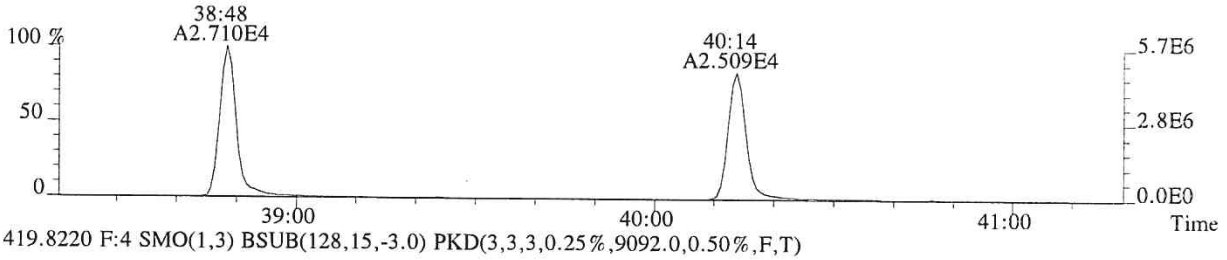
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



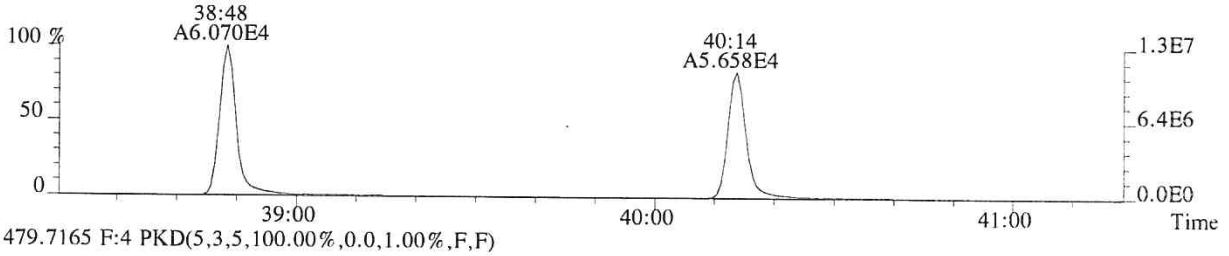
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



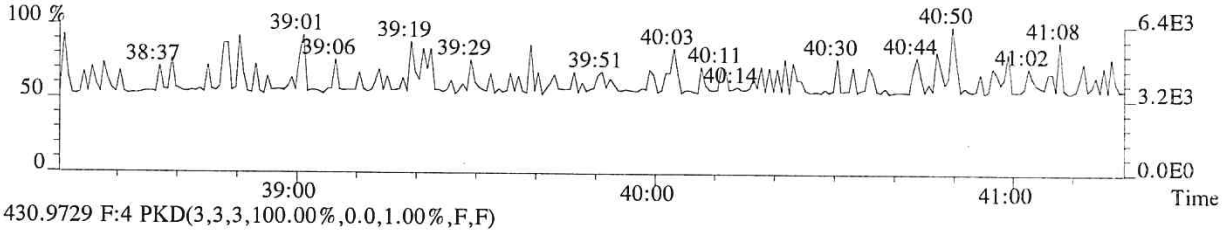
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



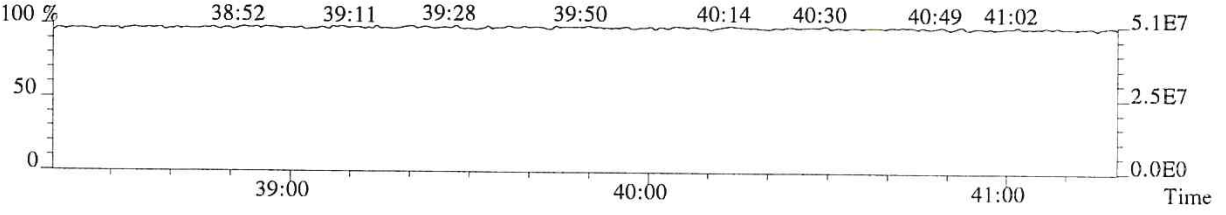
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

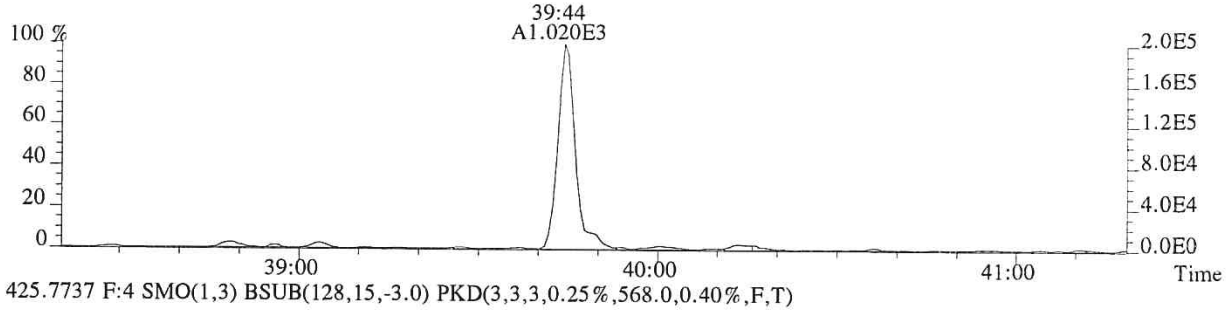


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

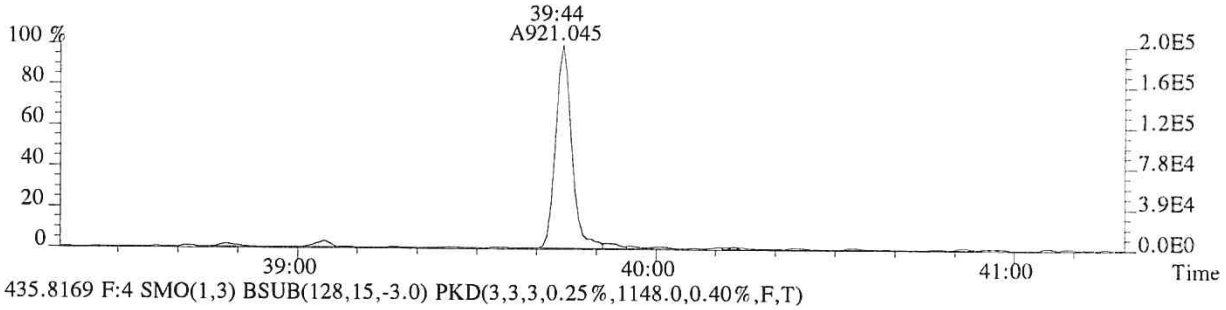


011669

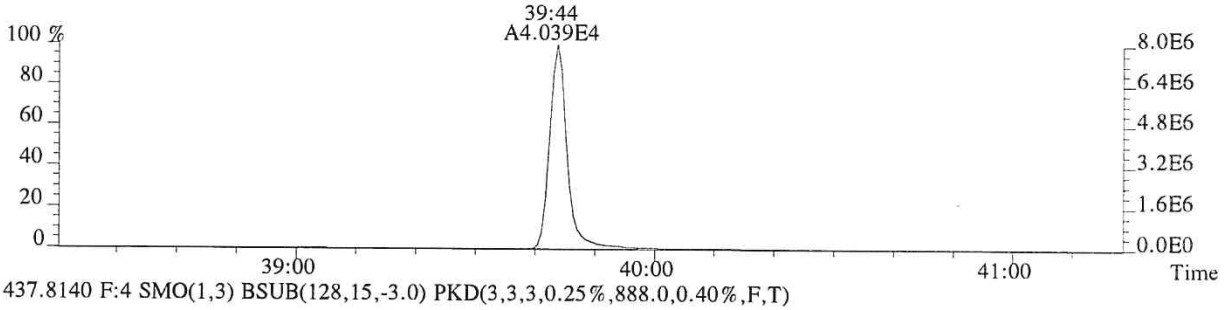
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



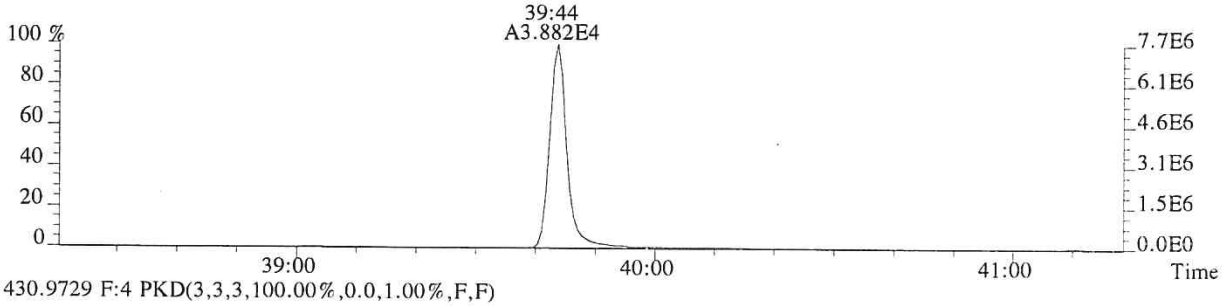
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



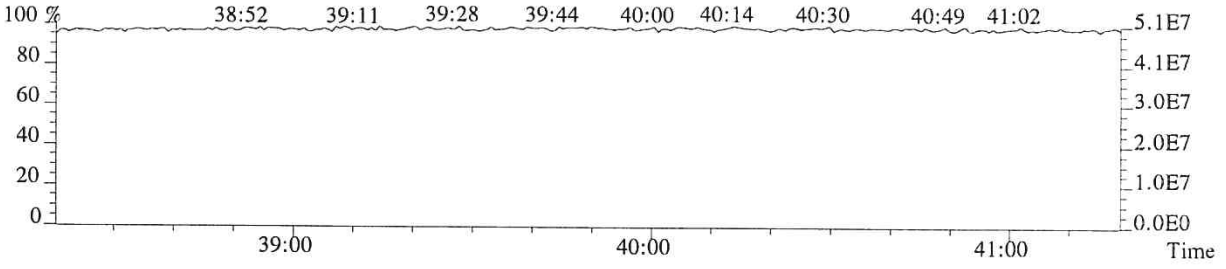
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)

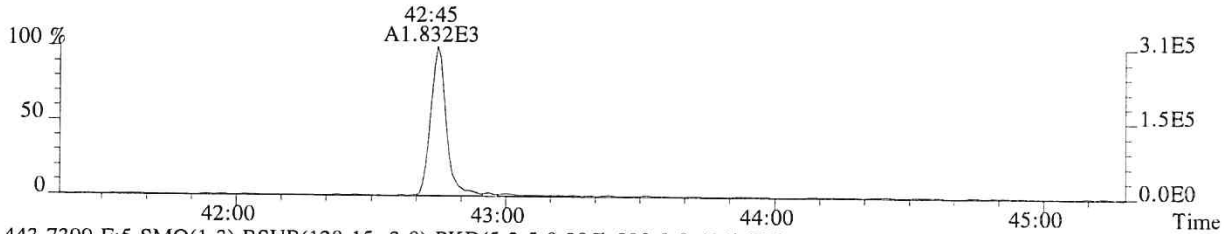


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

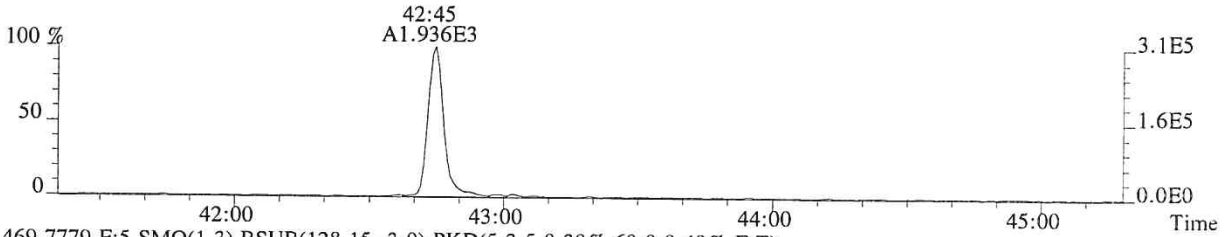


011670

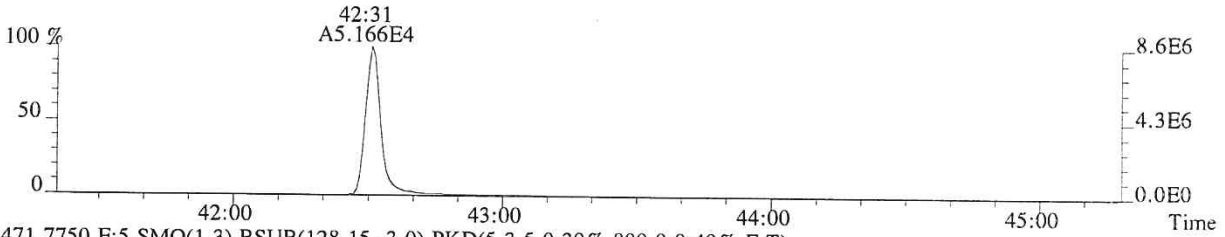
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



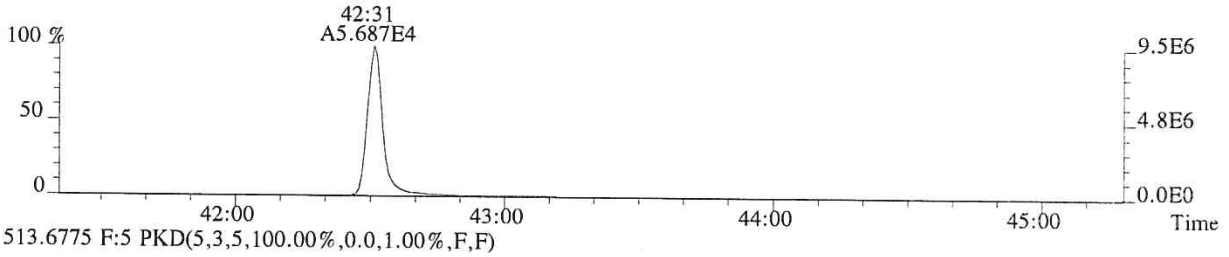
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



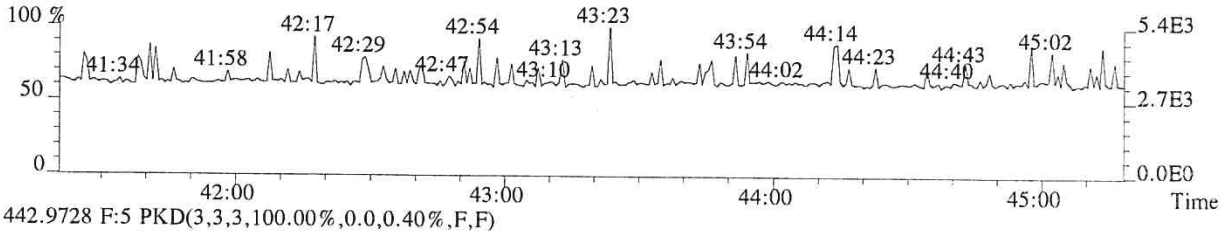
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



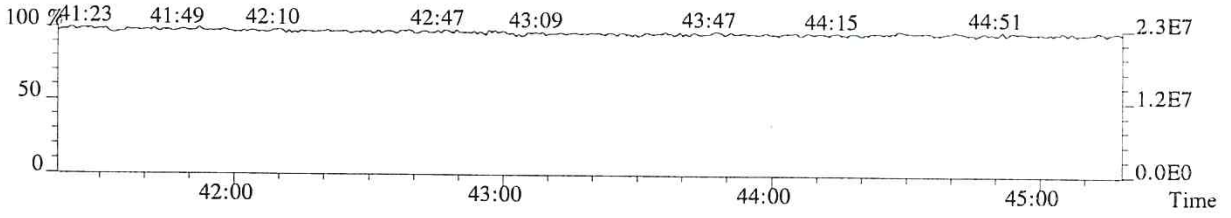
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

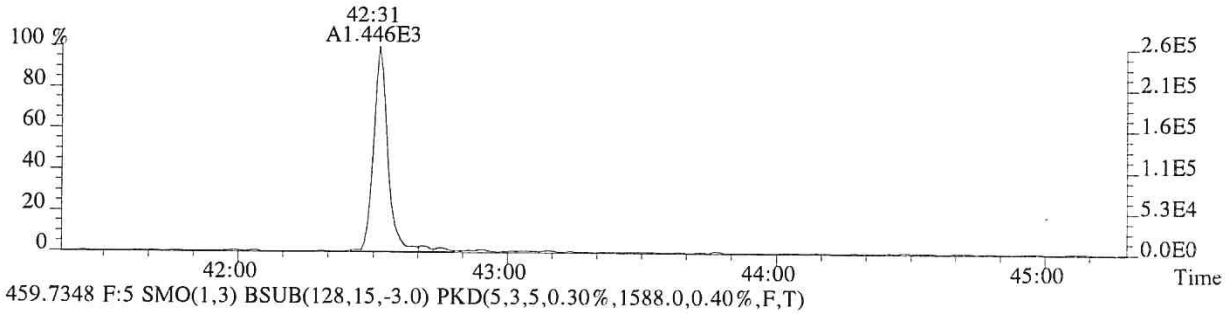


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

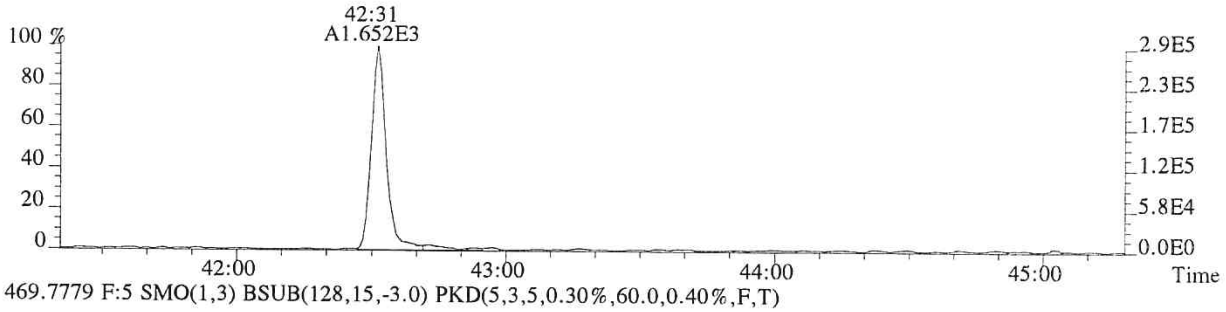


011671

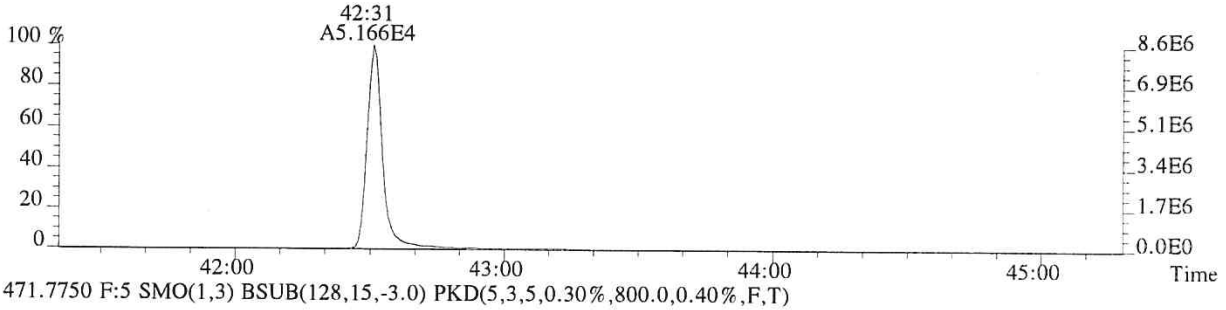
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



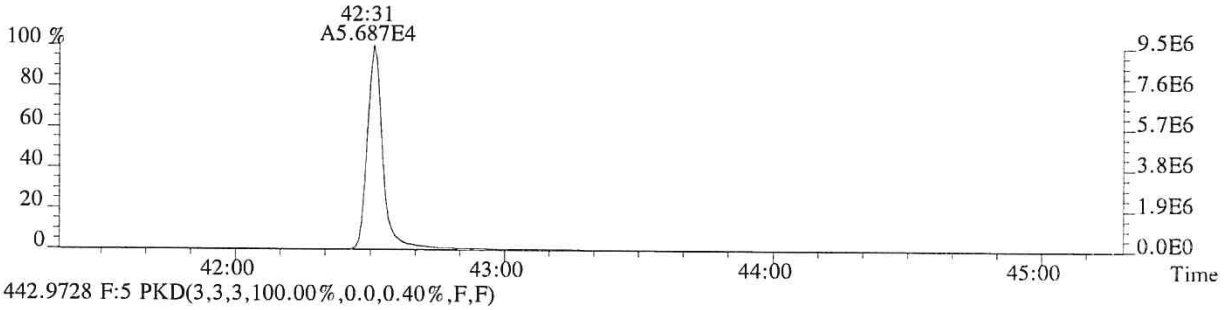
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



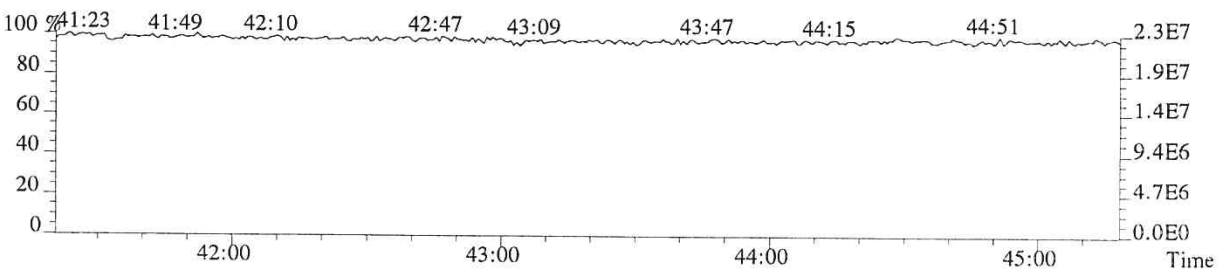
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011672

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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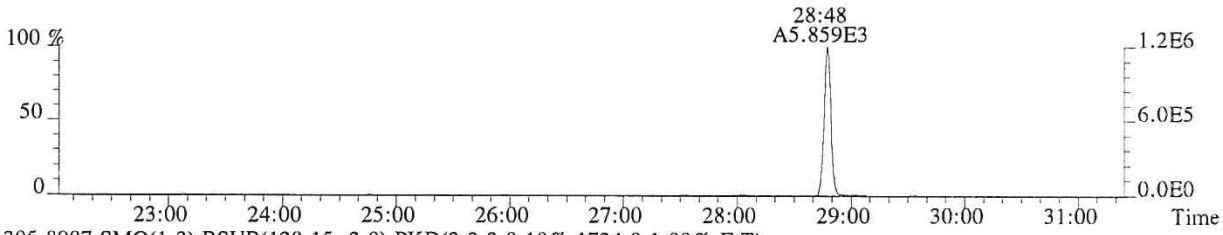
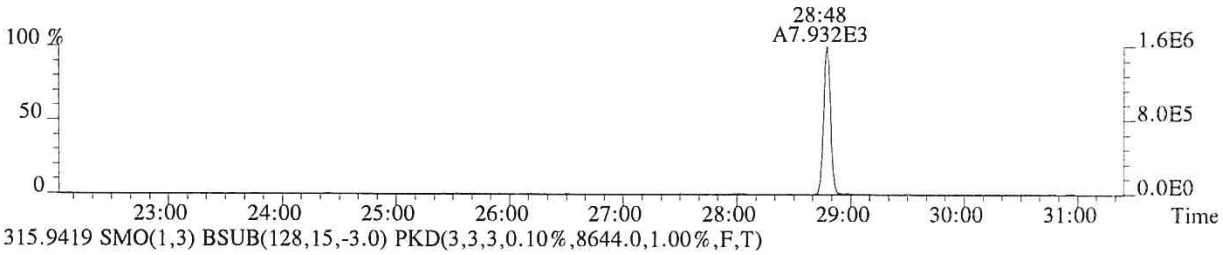
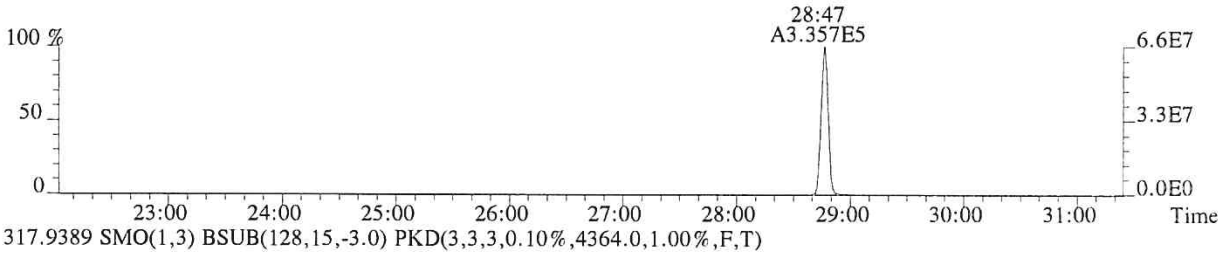
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



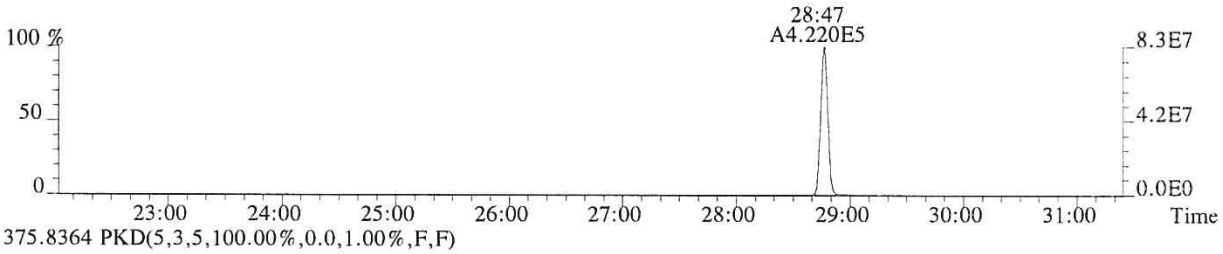
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



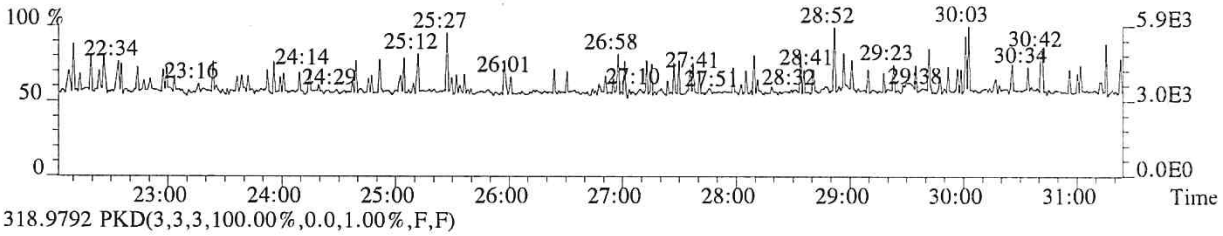
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



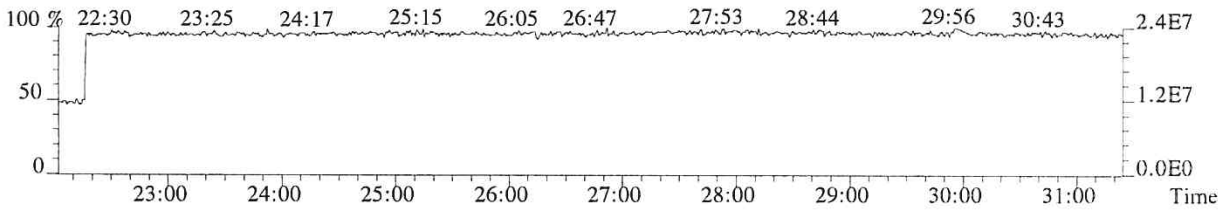
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

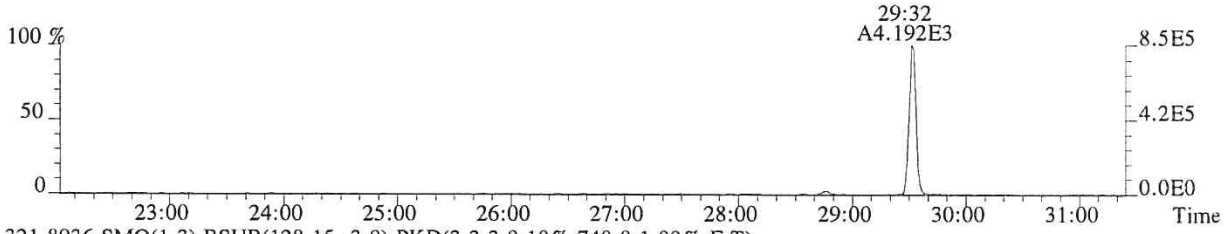


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

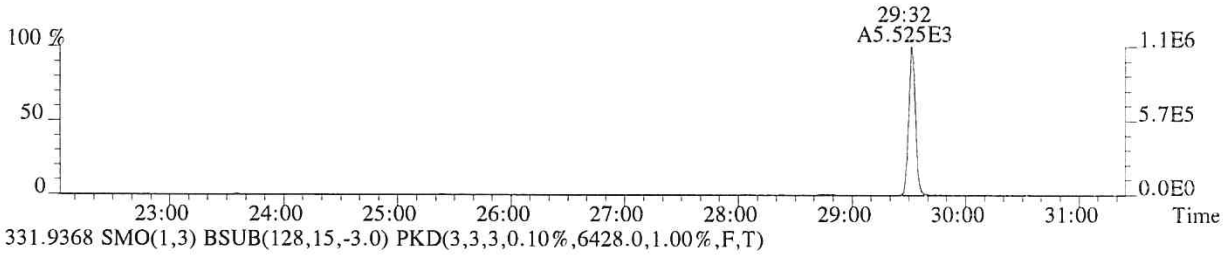


011675

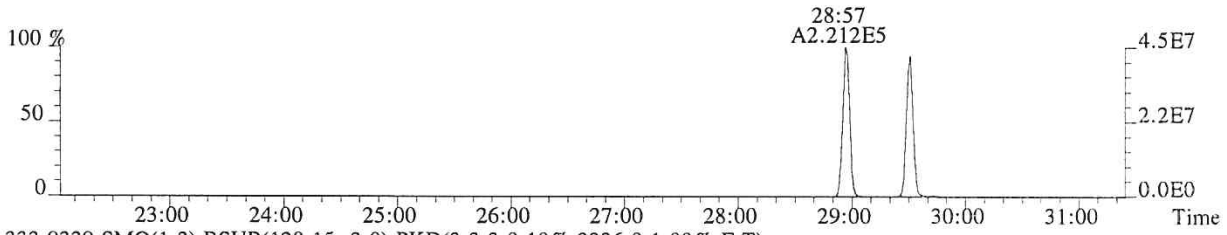
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



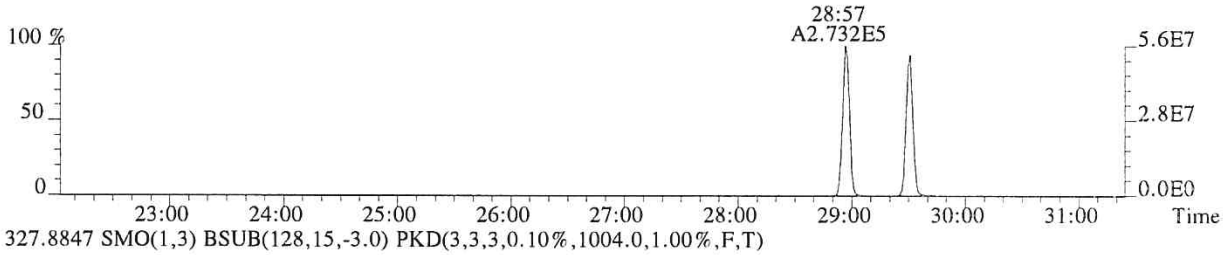
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



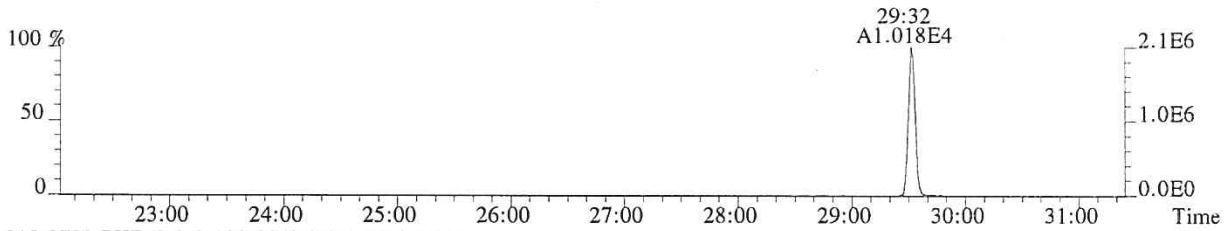
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



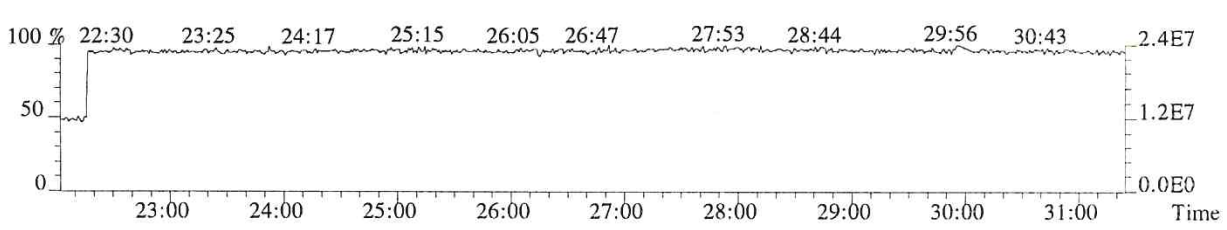
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

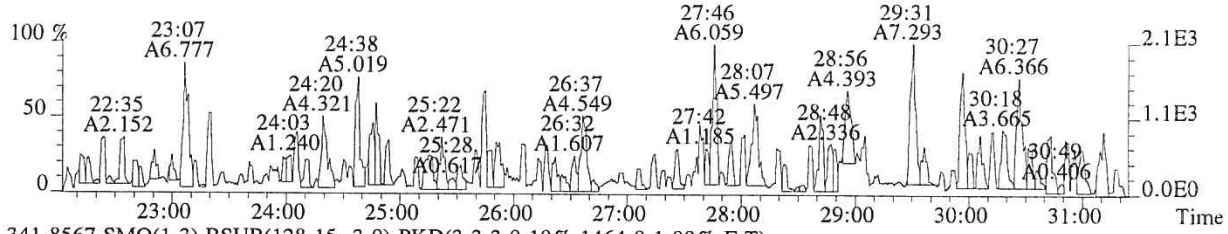


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

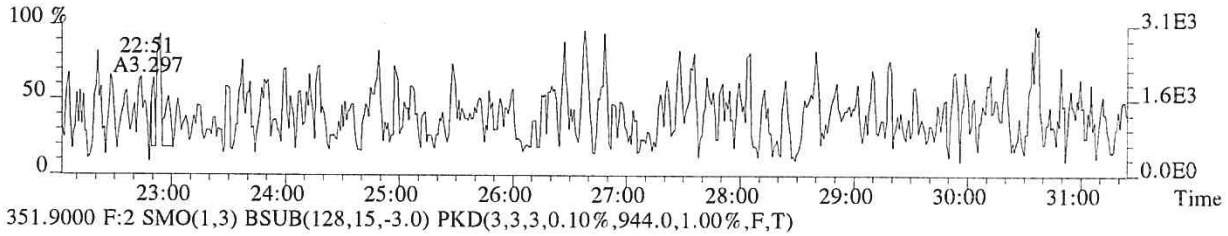


011676

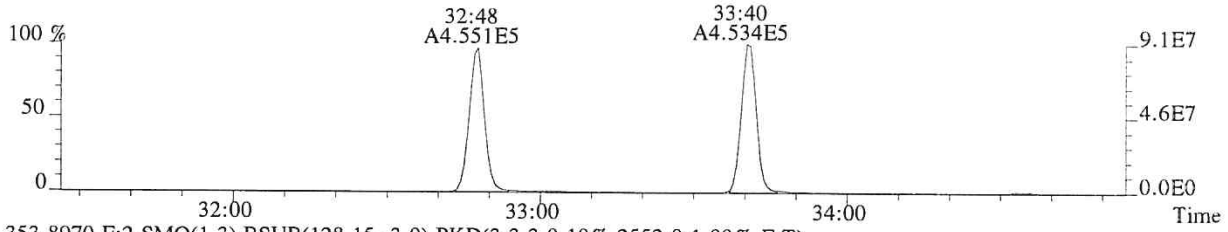
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



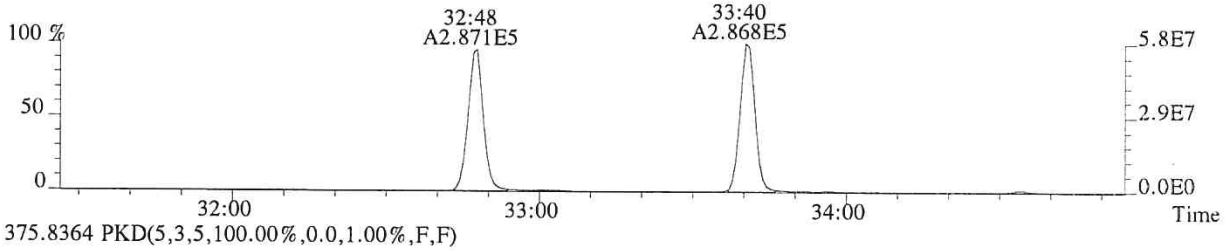
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



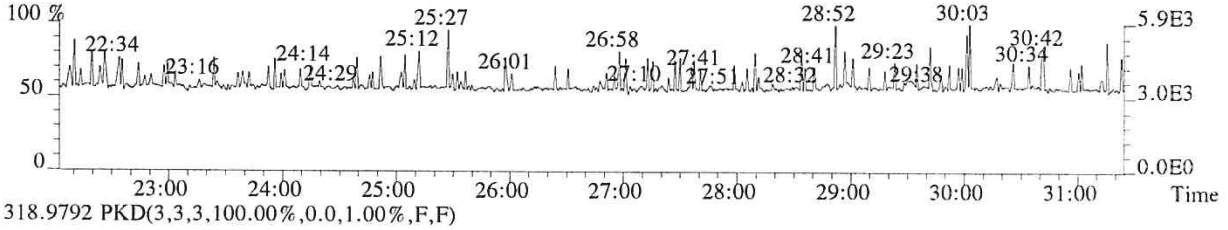
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



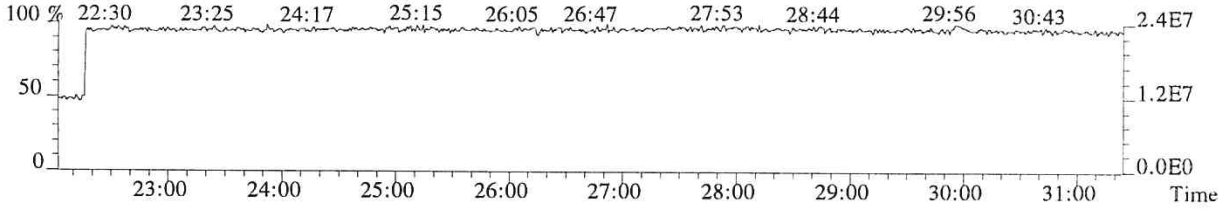
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

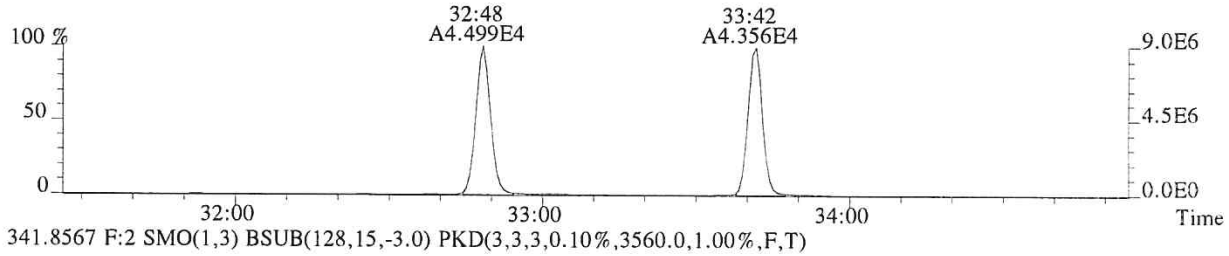


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

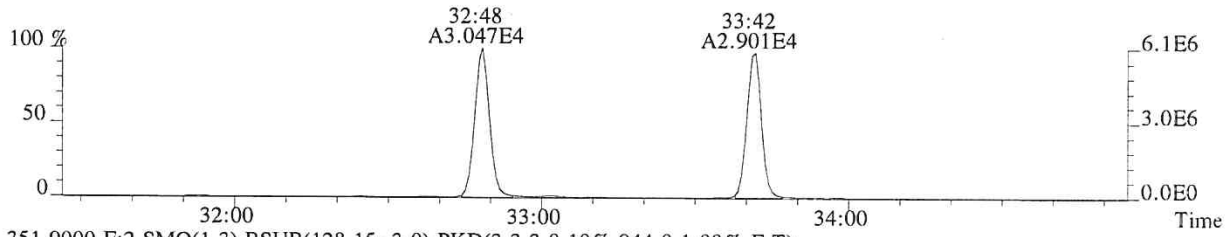


011677

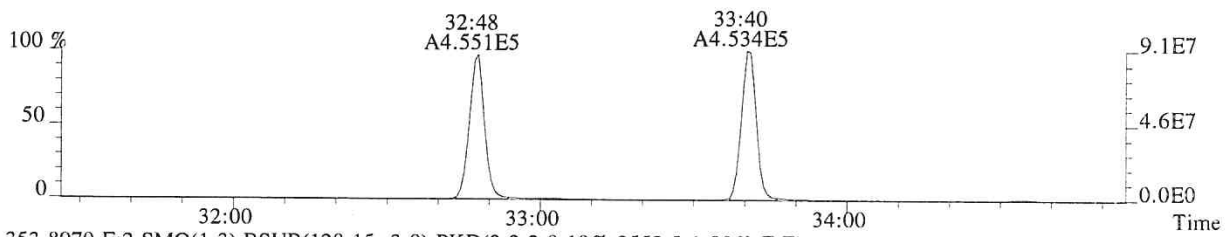
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



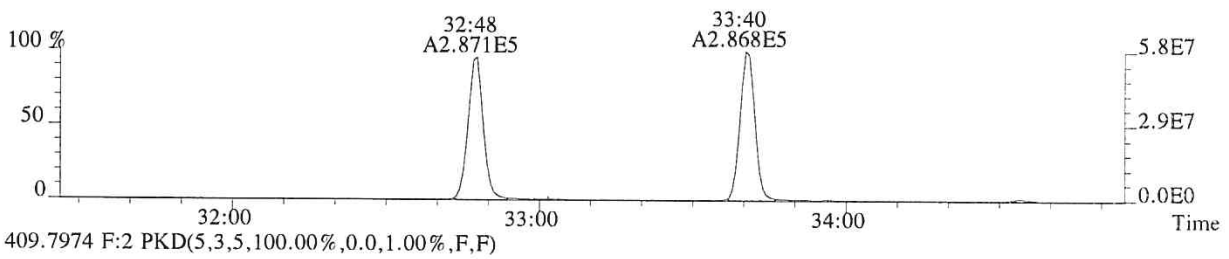
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



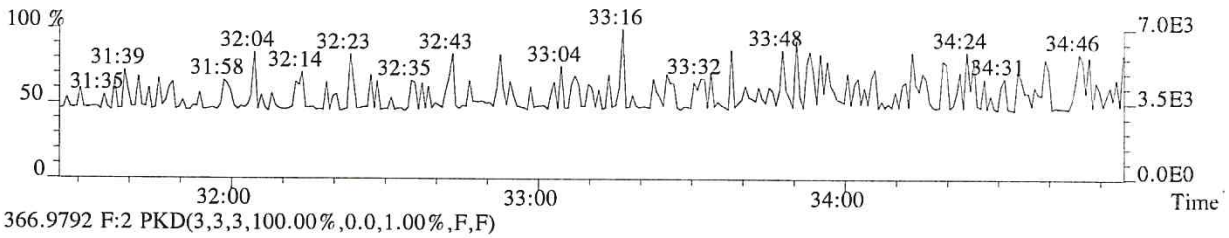
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



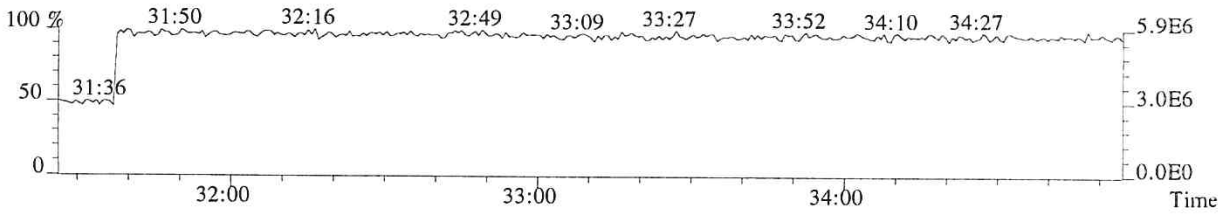
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

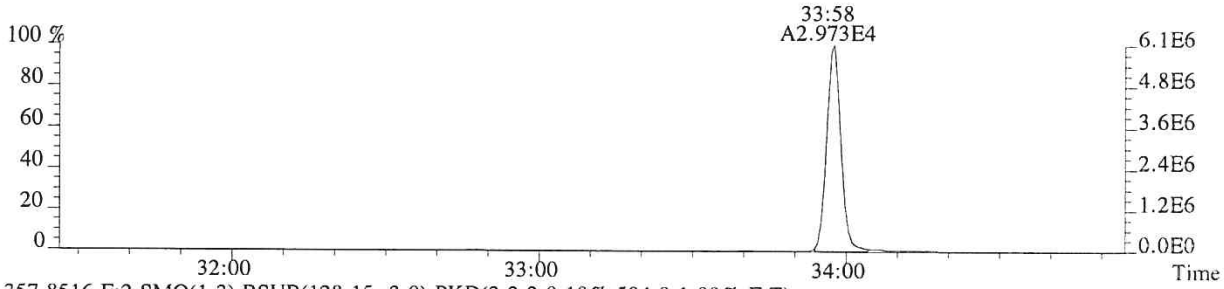


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

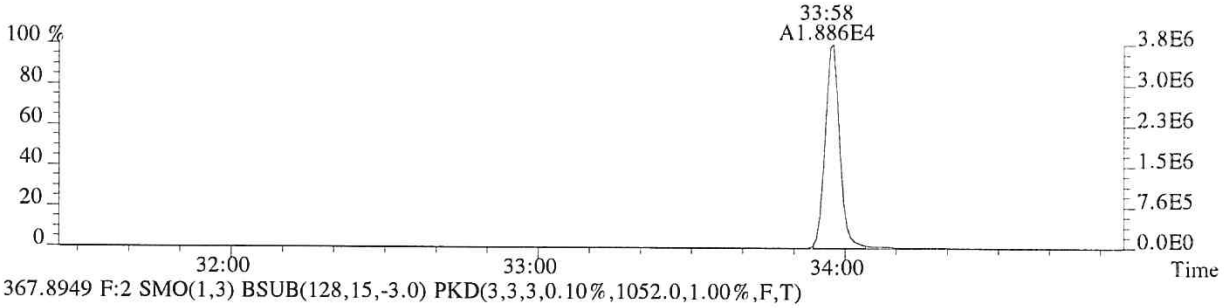


011678

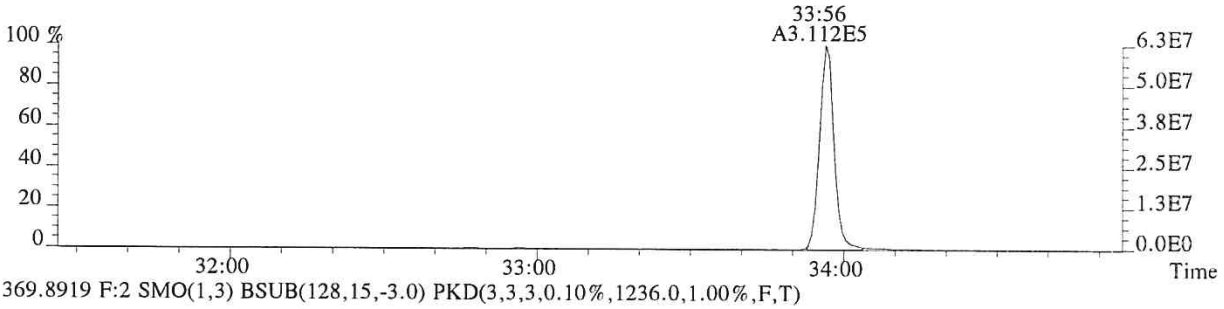
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



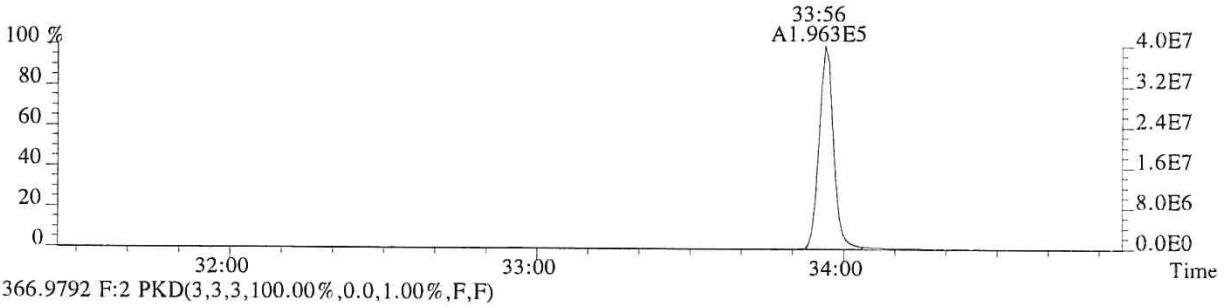
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



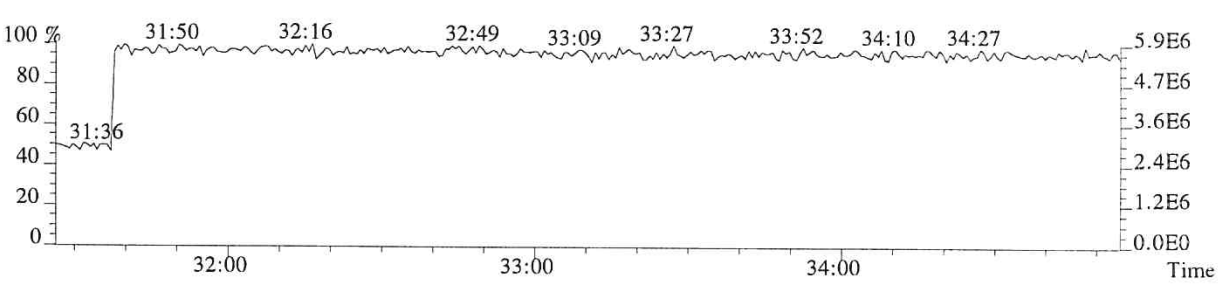
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)

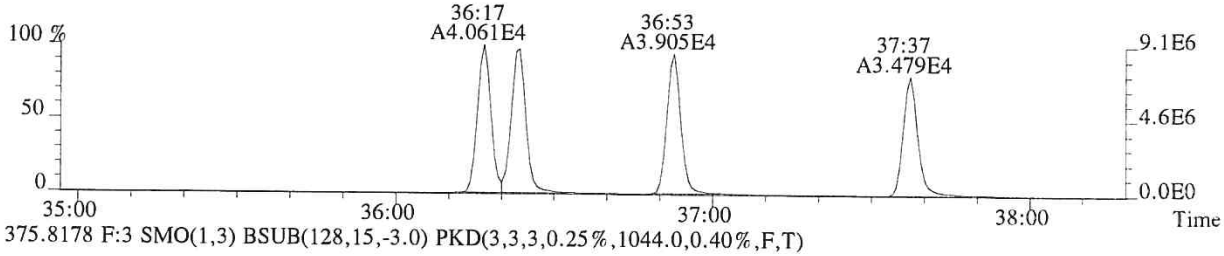


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

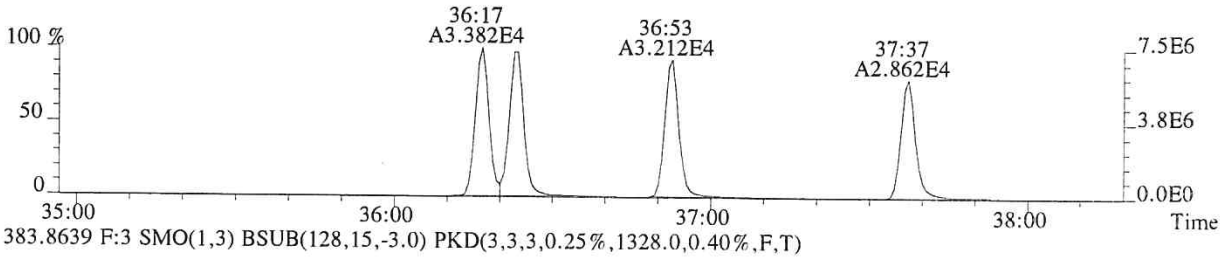


011679

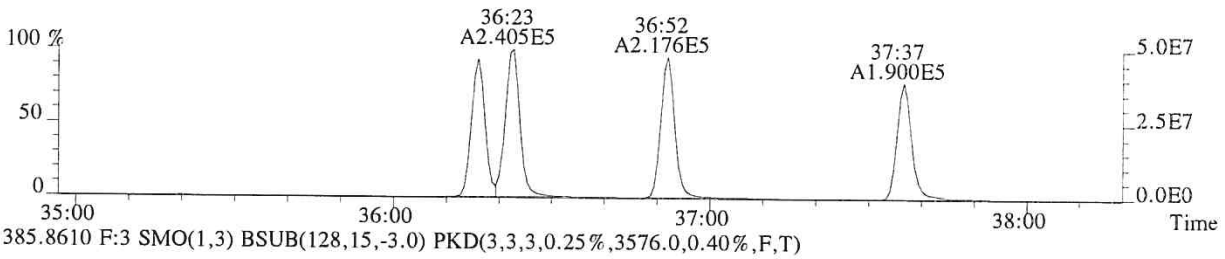
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



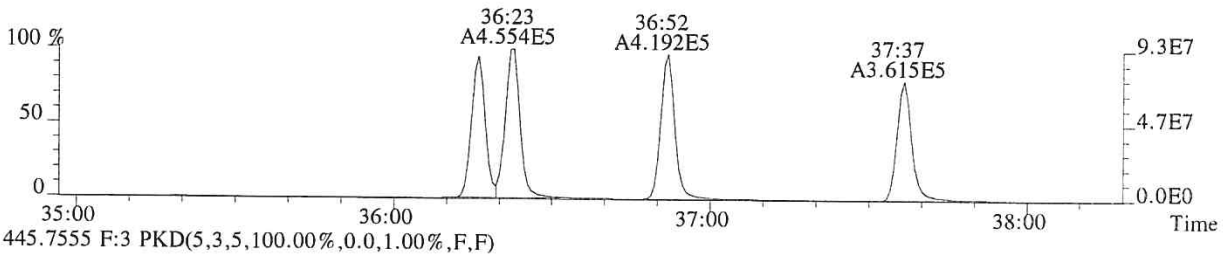
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



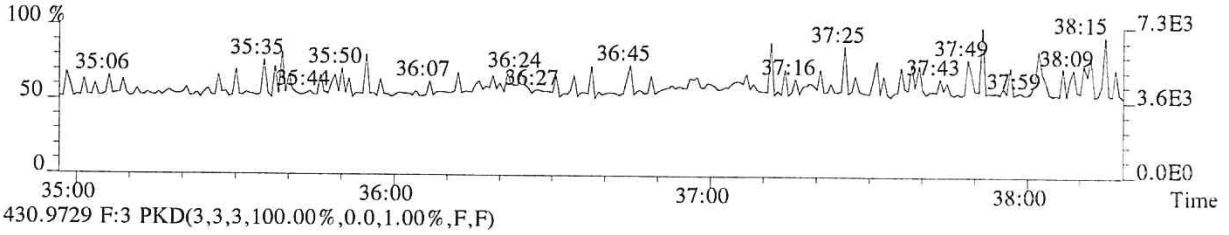
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



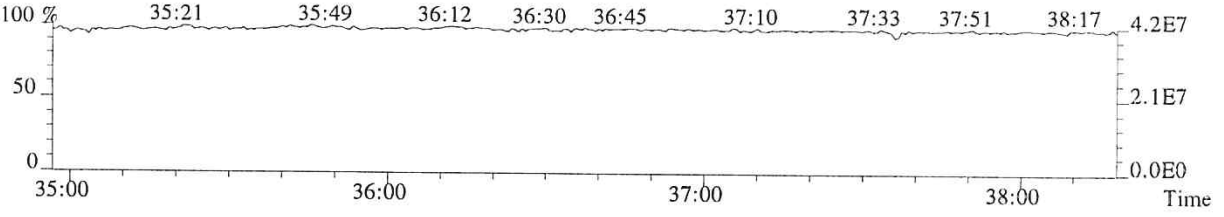
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

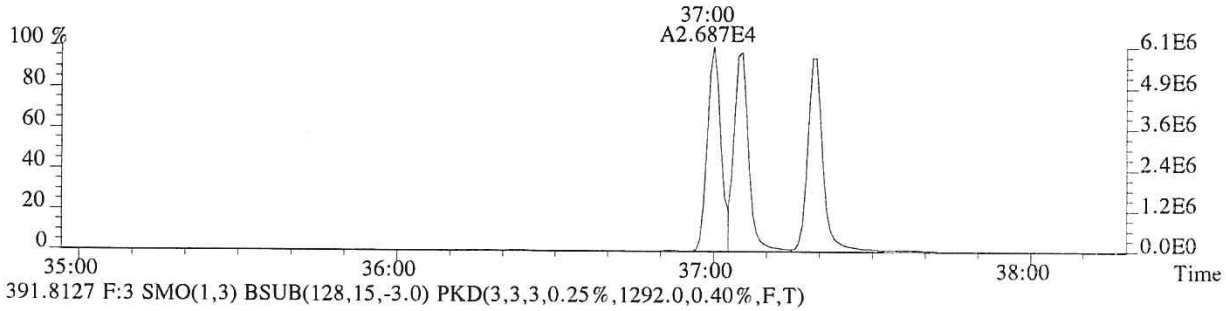


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

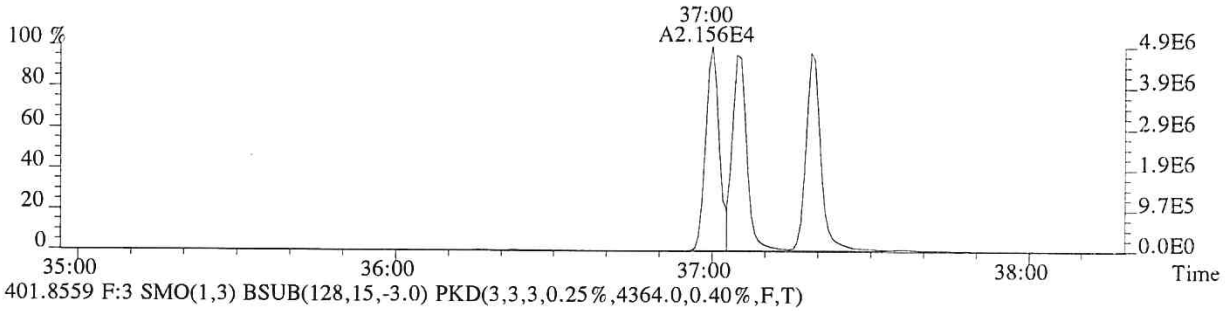


011680

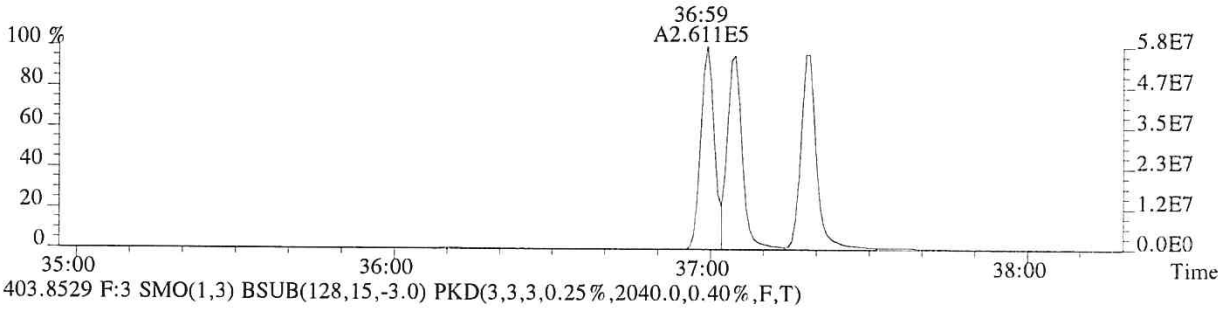
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



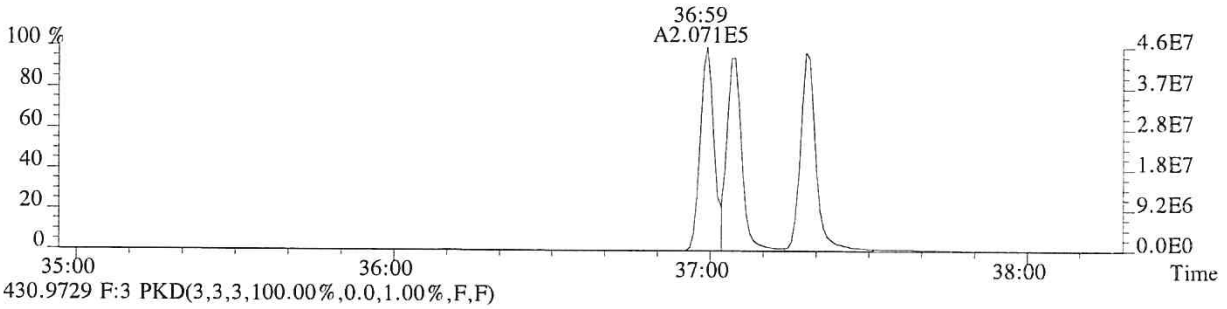
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



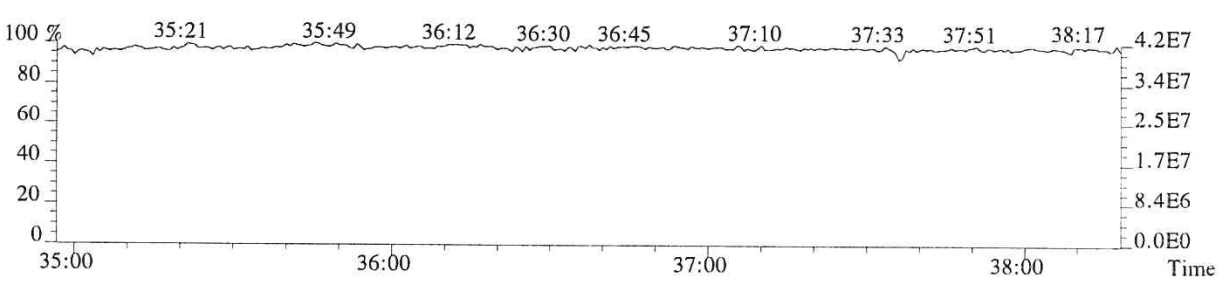
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)

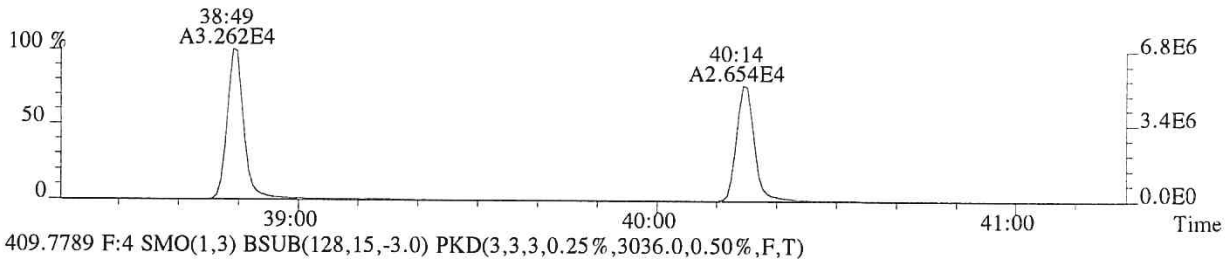


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

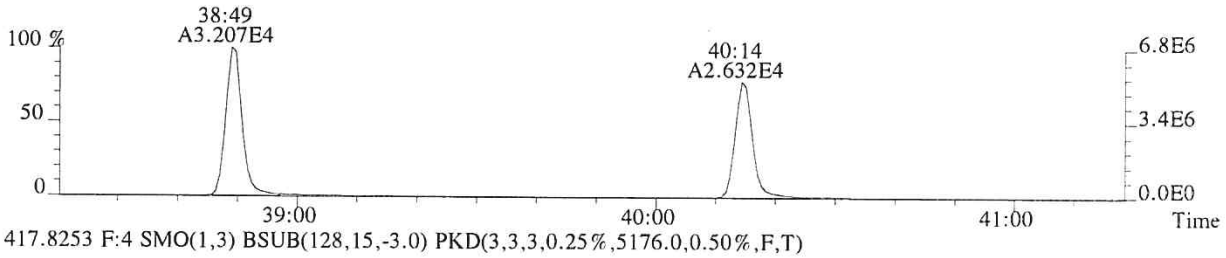


011681

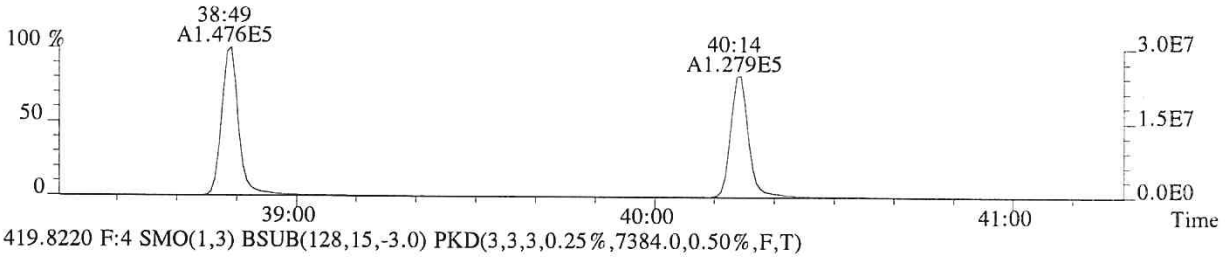
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



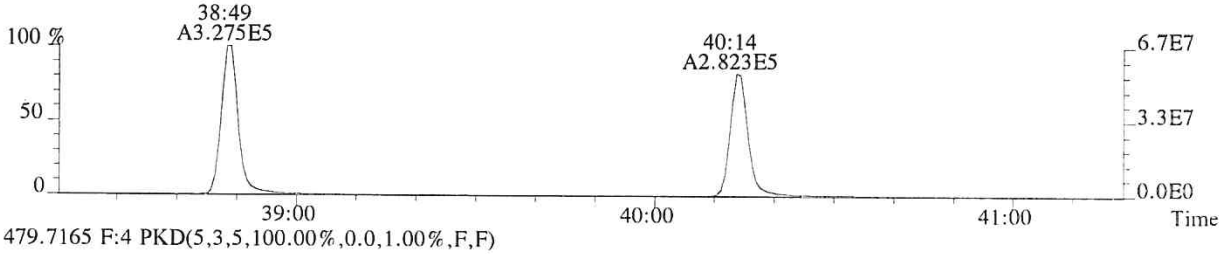
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



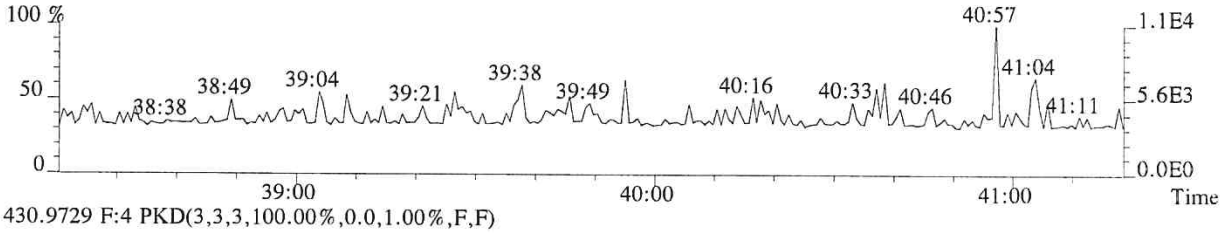
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



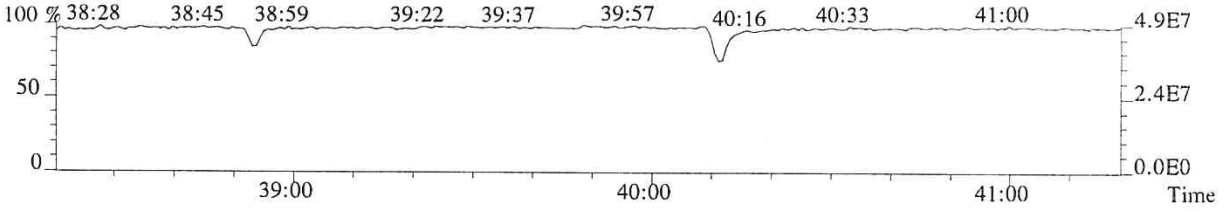
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

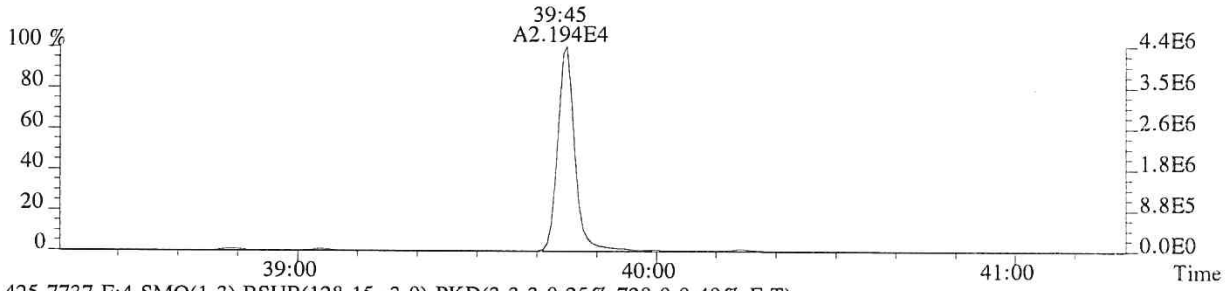


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

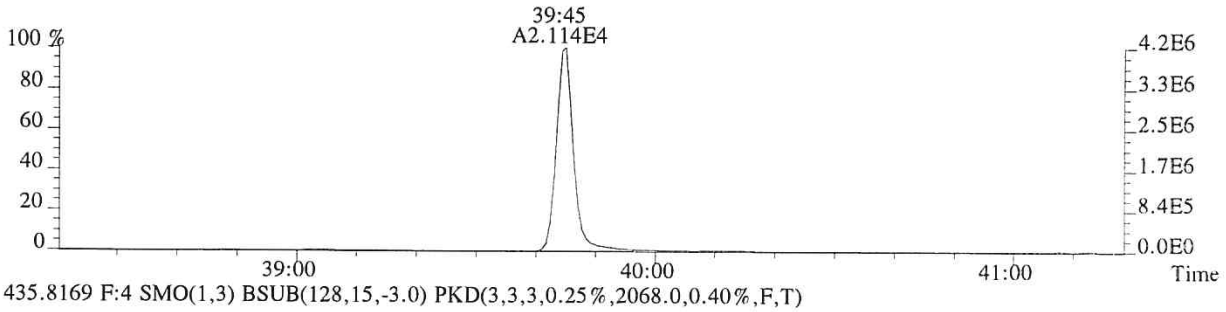


011682

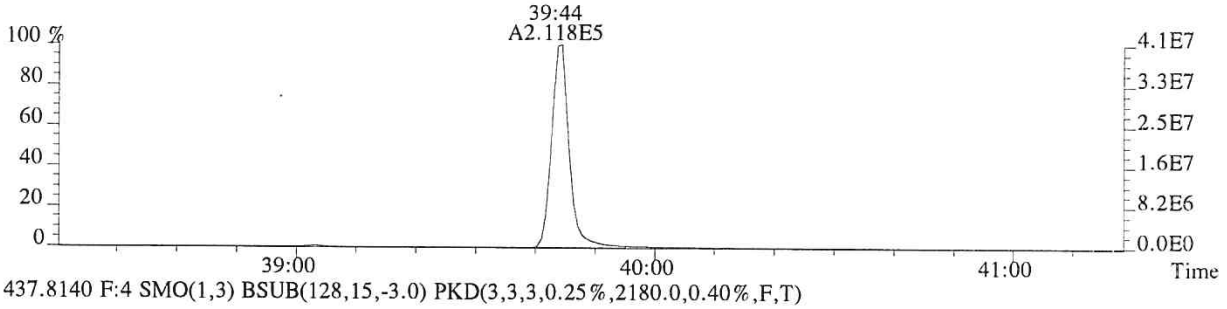
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



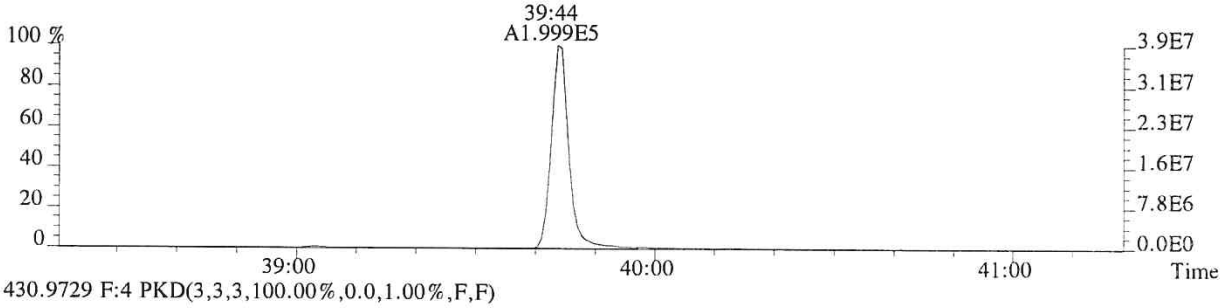
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



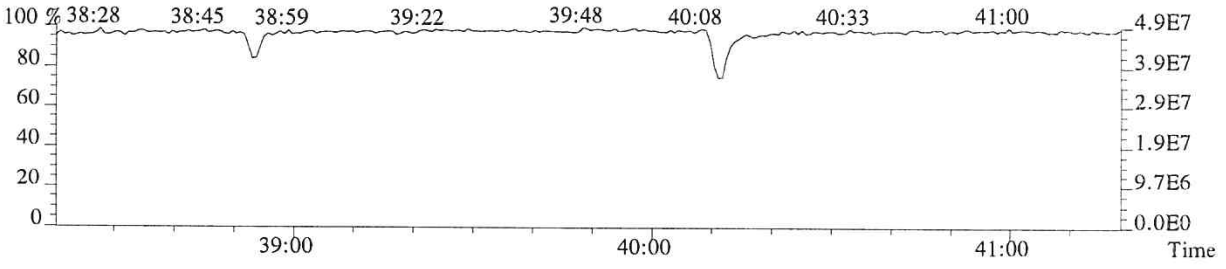
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)

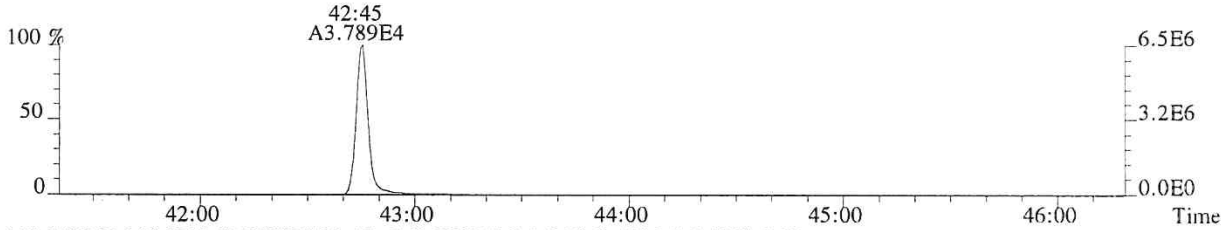


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

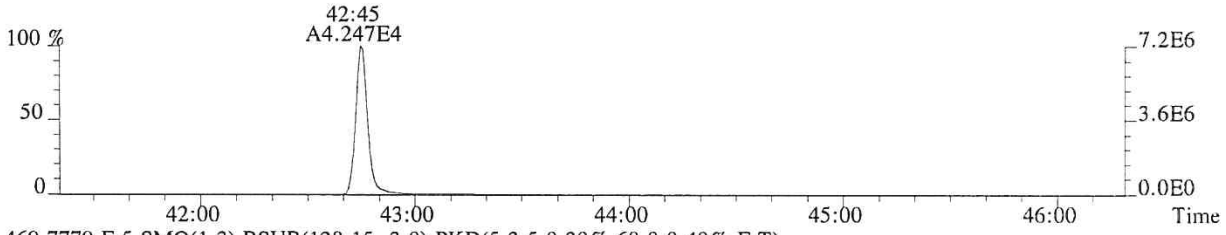


011683

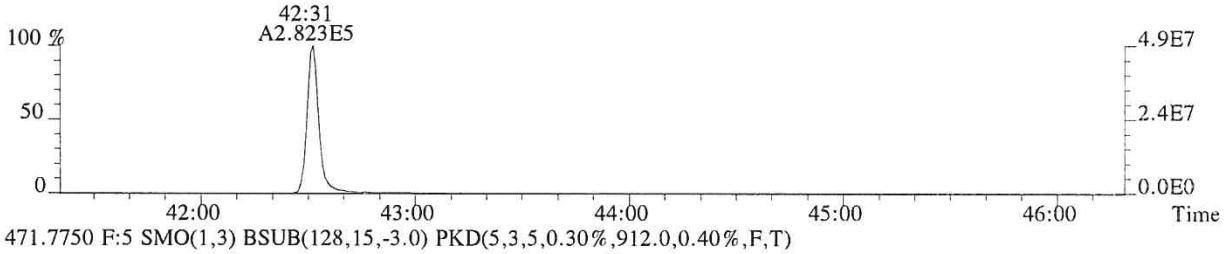
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



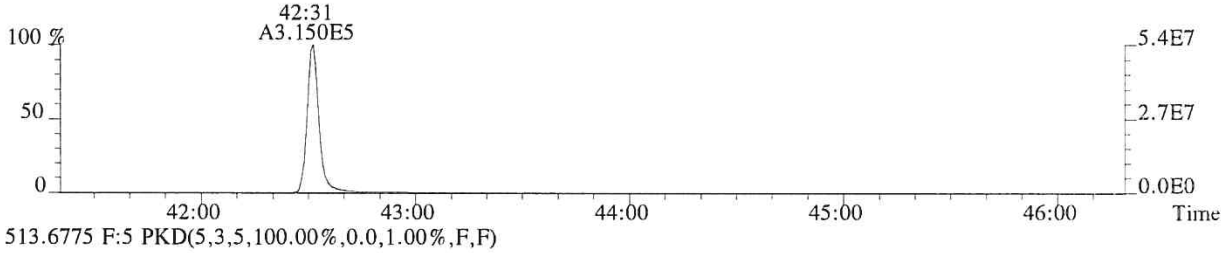
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



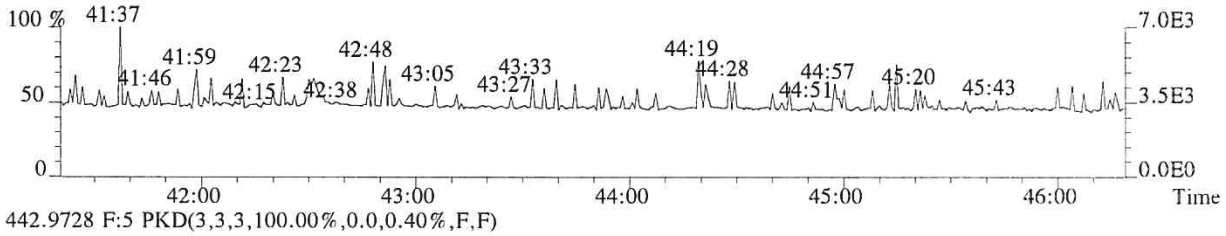
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



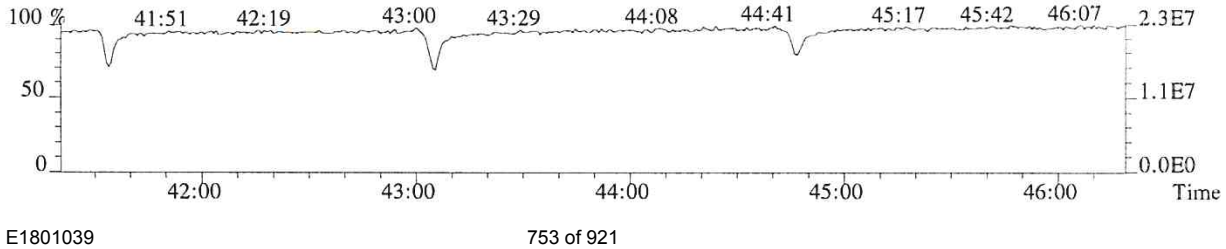
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

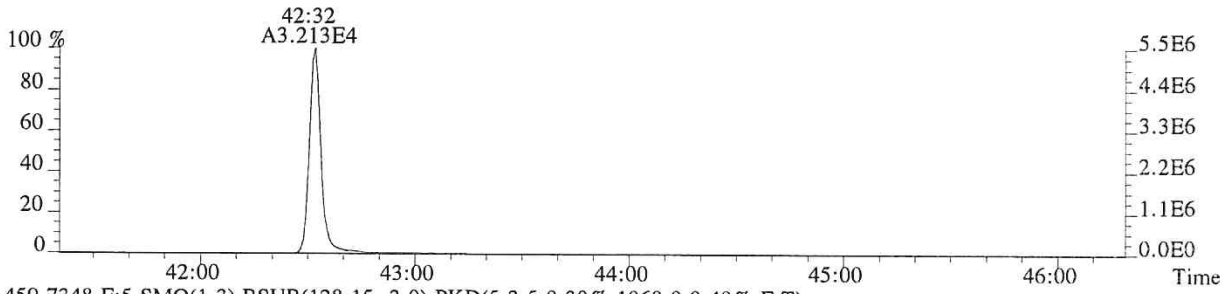


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

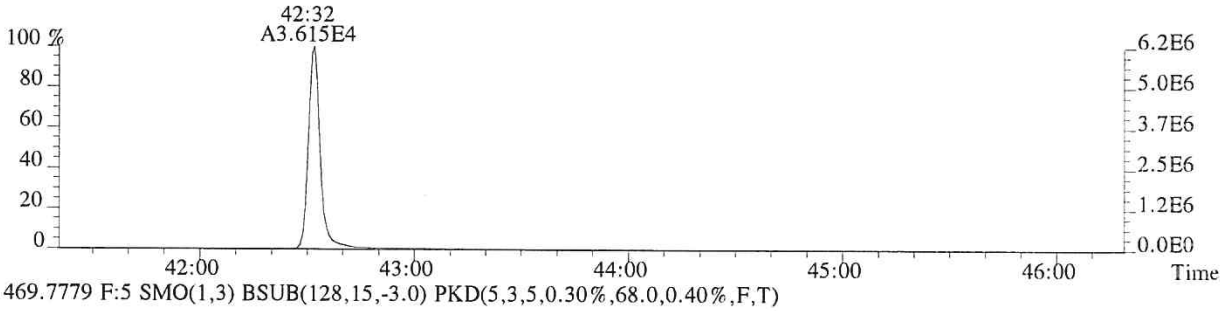


011684

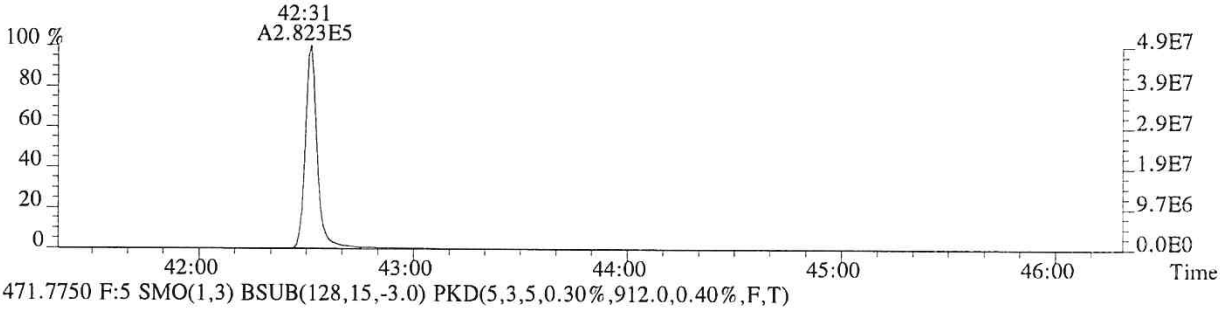
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



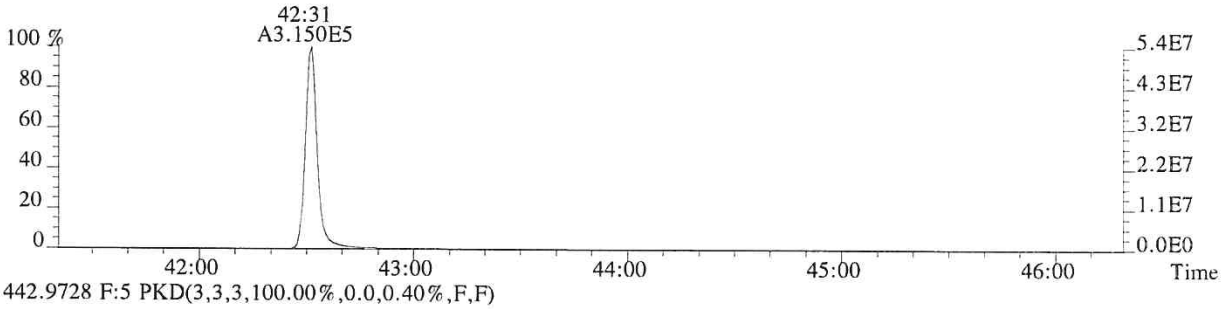
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



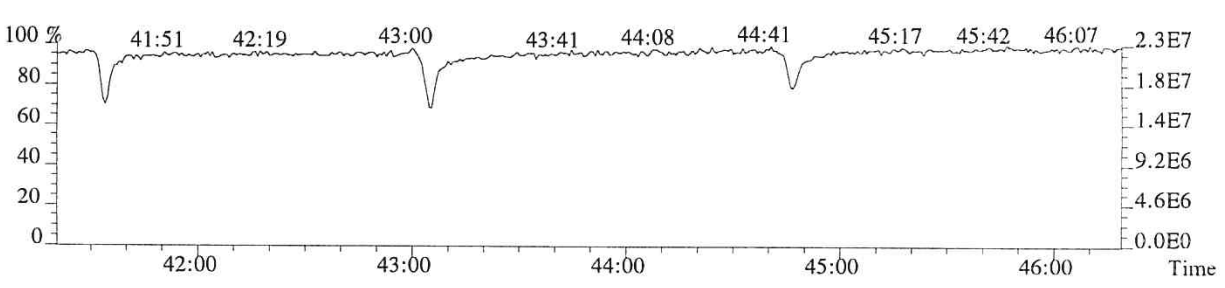
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011685

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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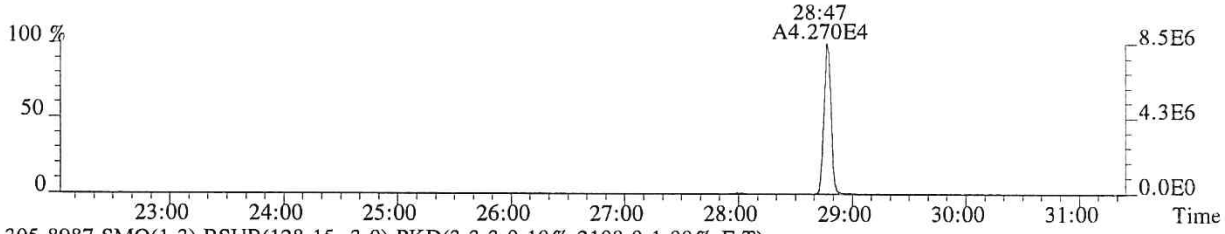
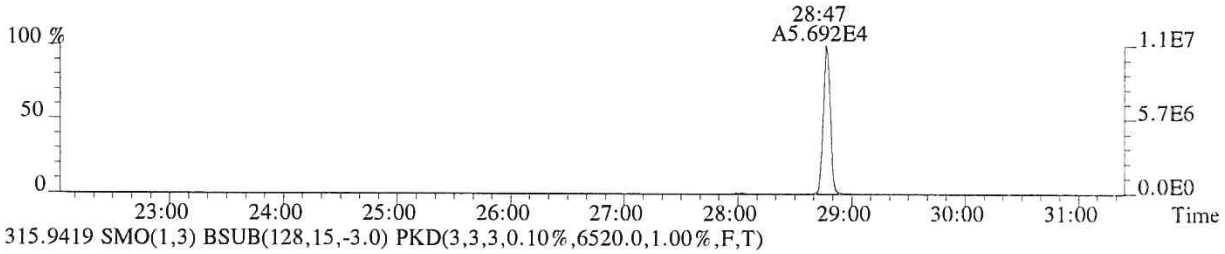
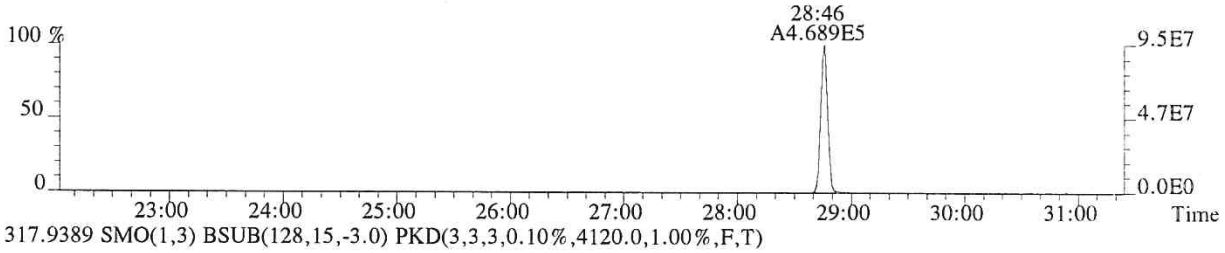
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



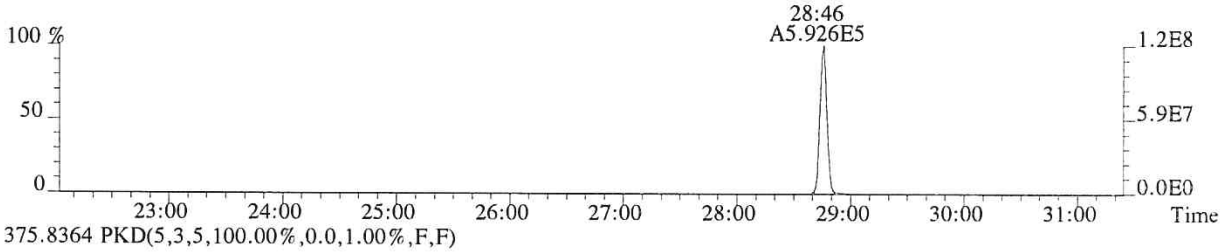
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



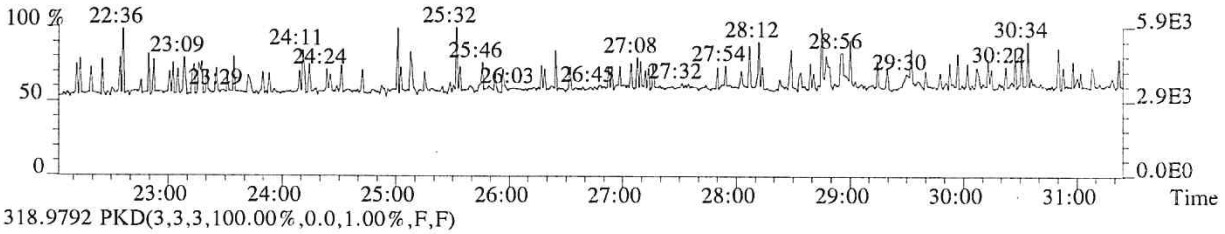
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



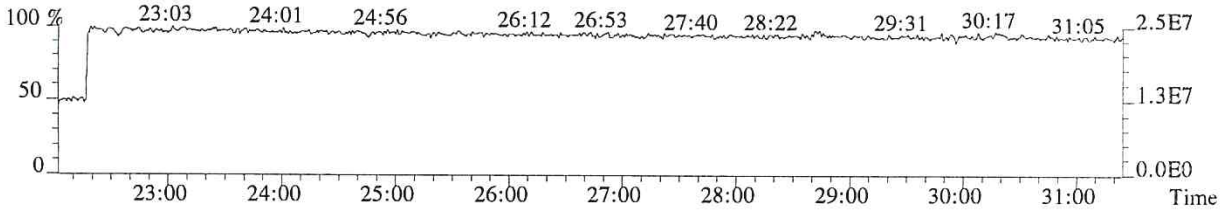
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

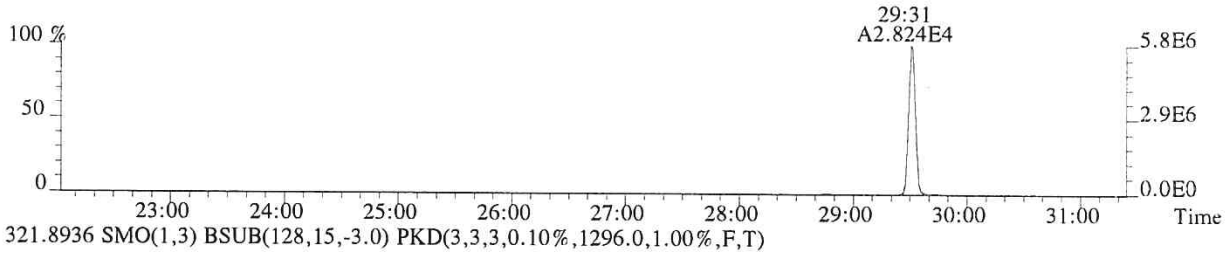


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

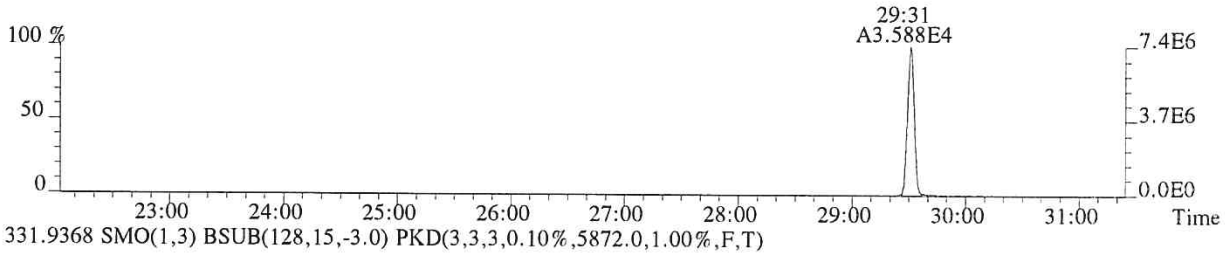


011688

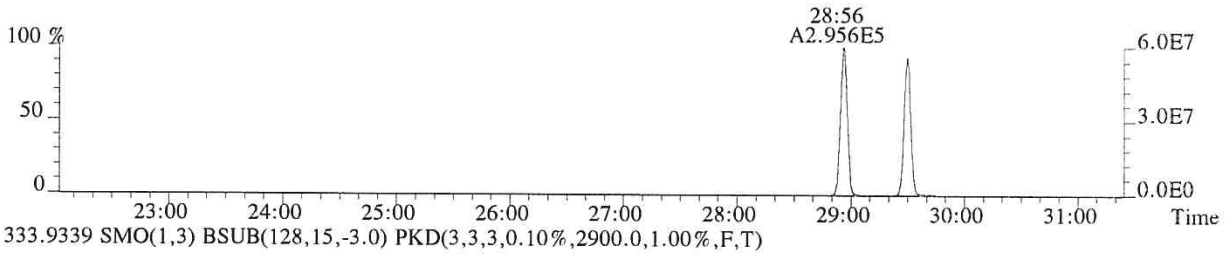
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



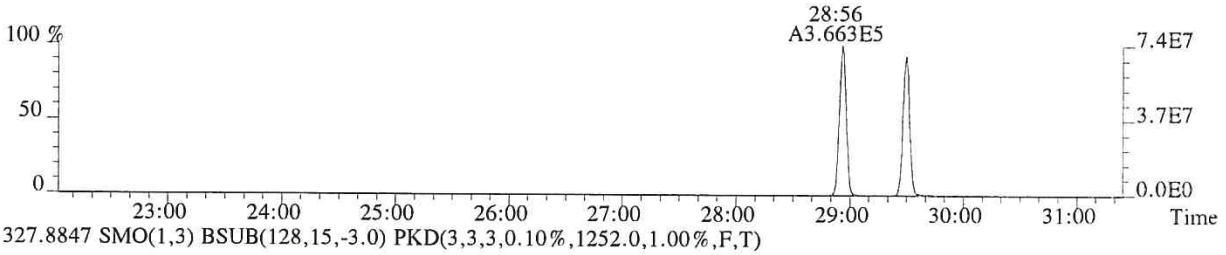
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



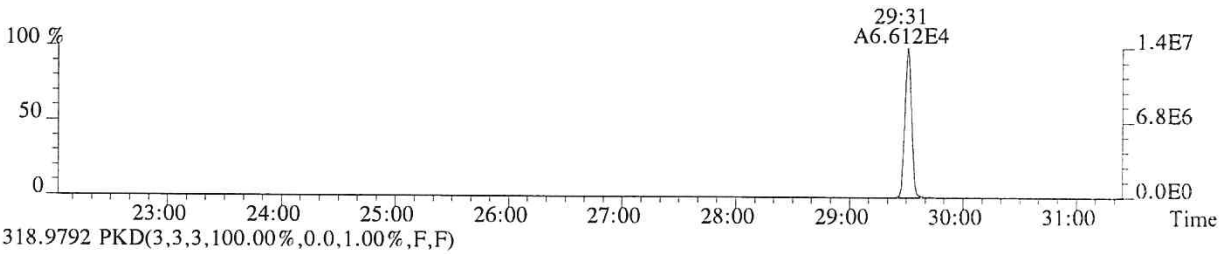
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



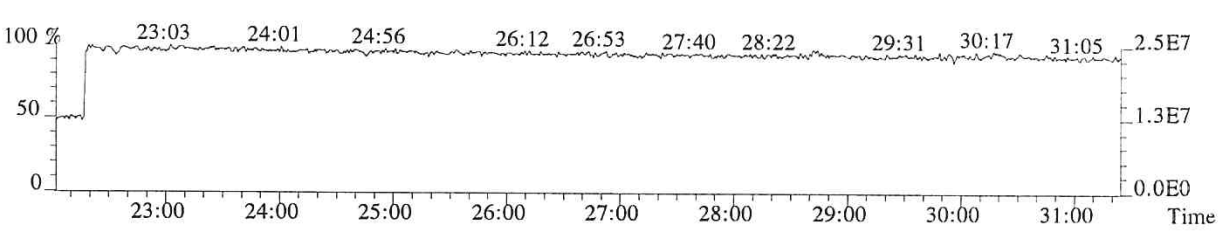
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)

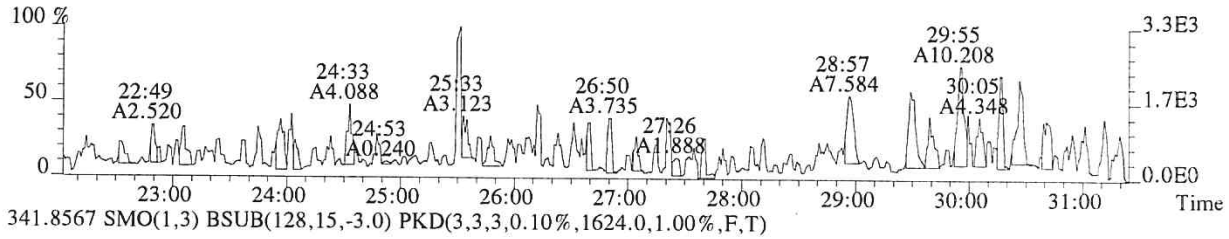


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

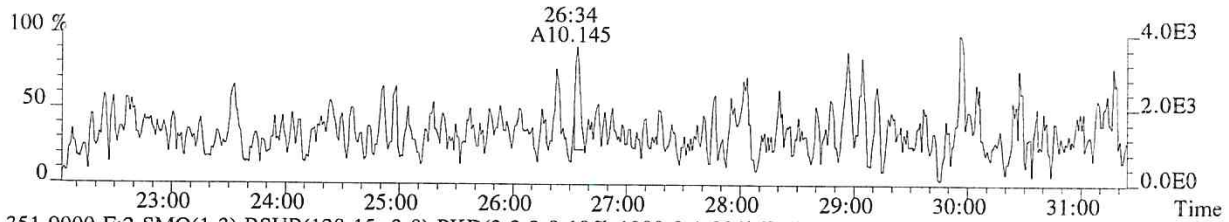


011689

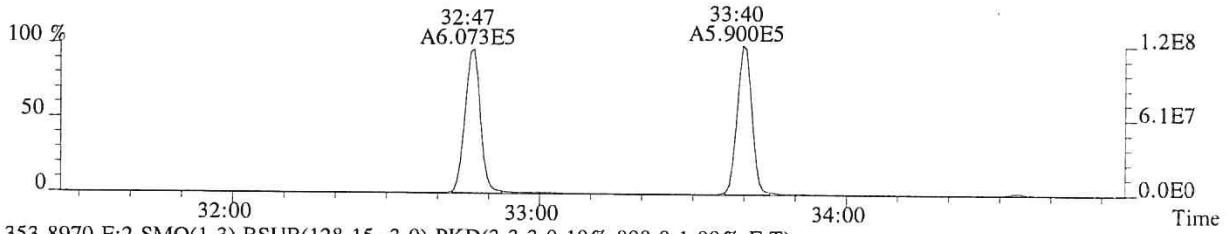
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



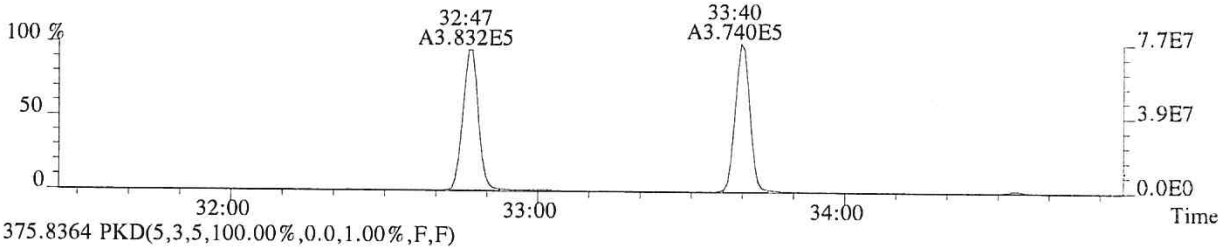
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



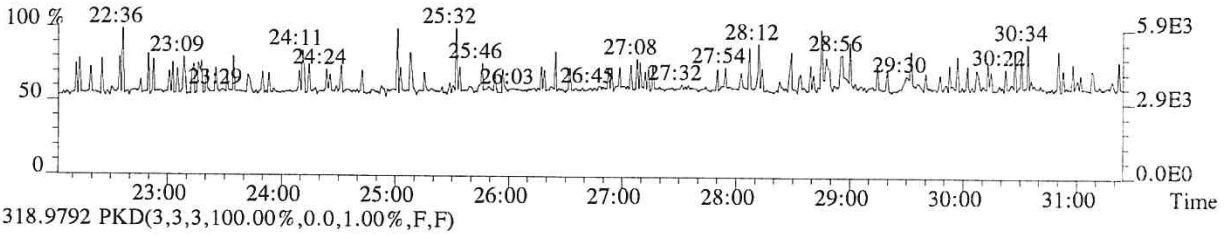
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



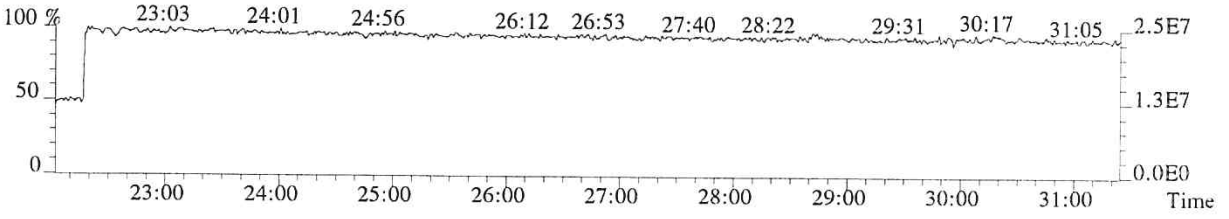
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

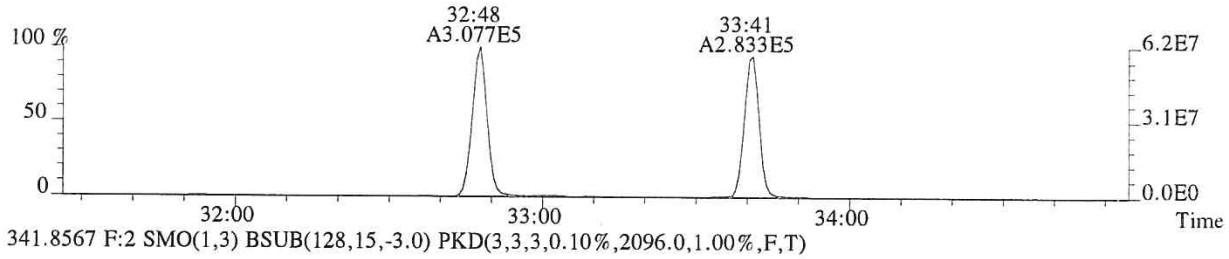


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

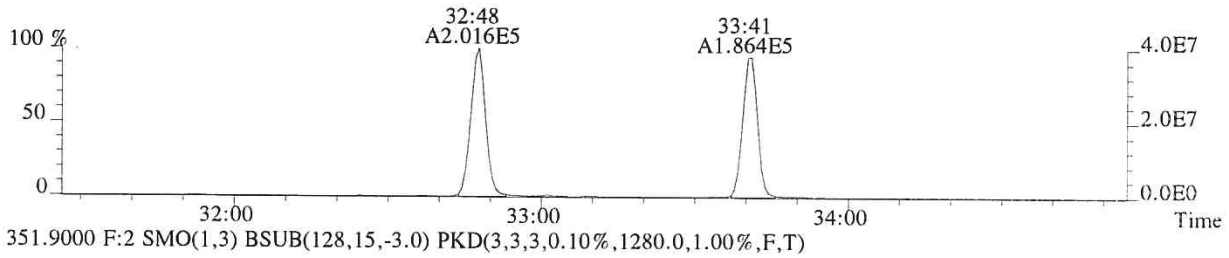


011690

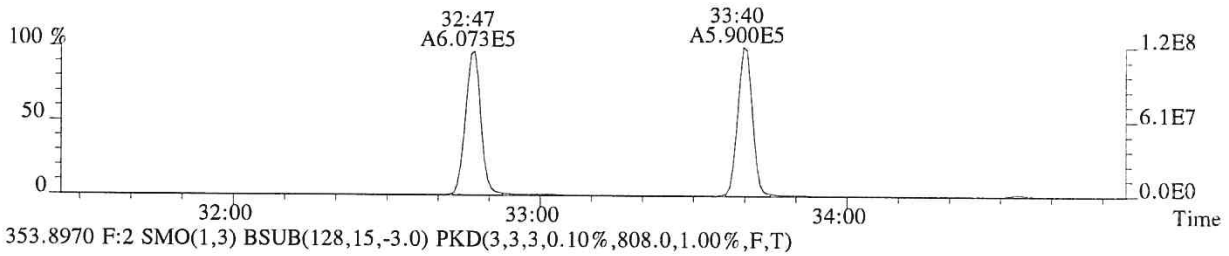
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



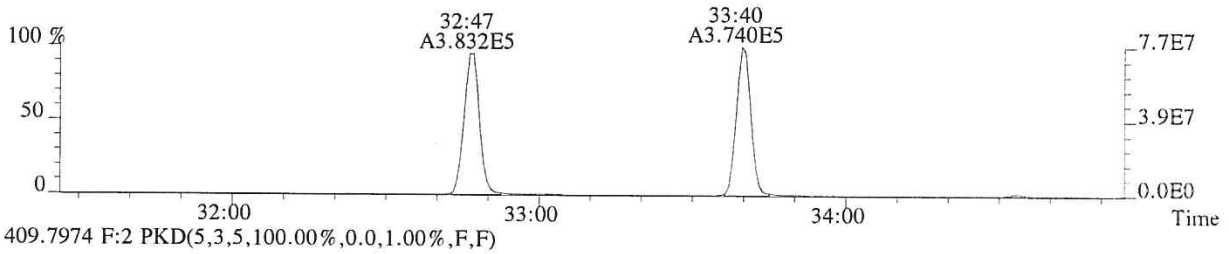
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



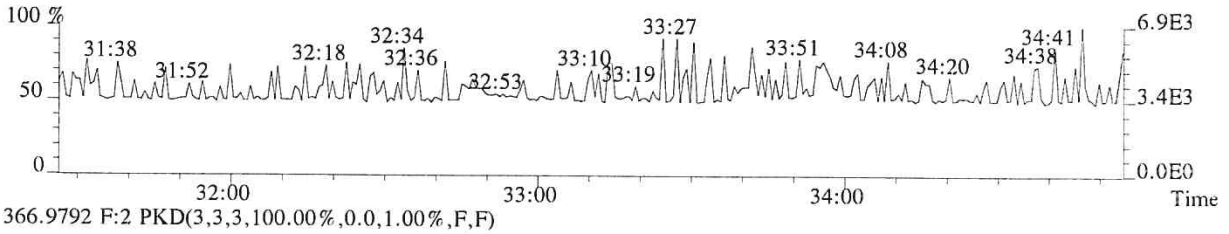
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



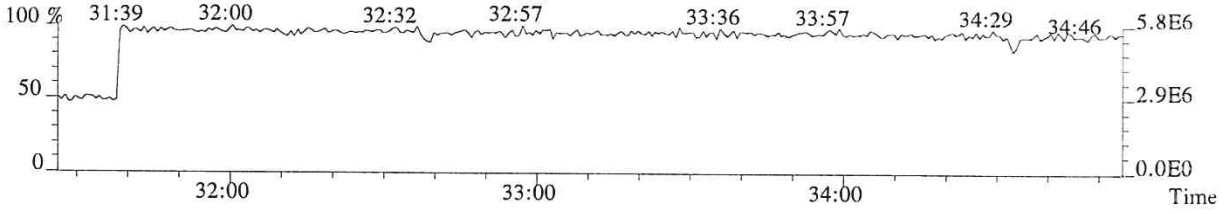
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

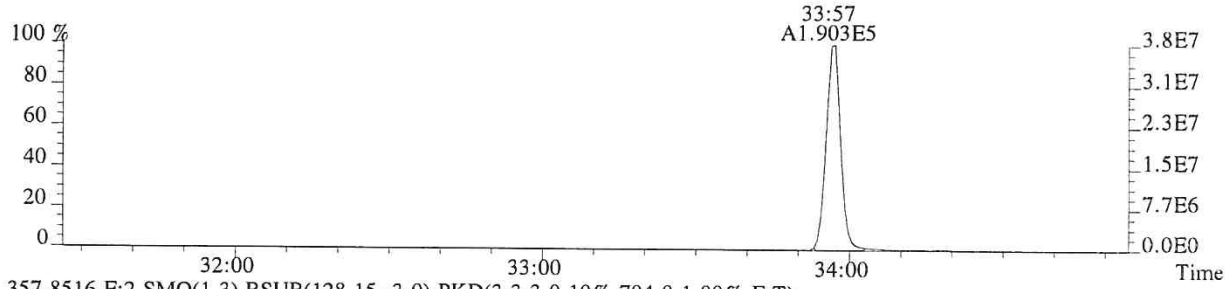


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

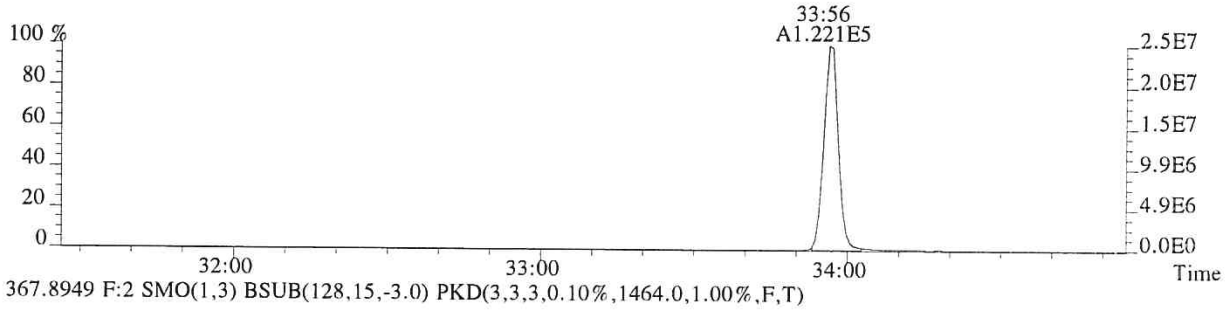


011691

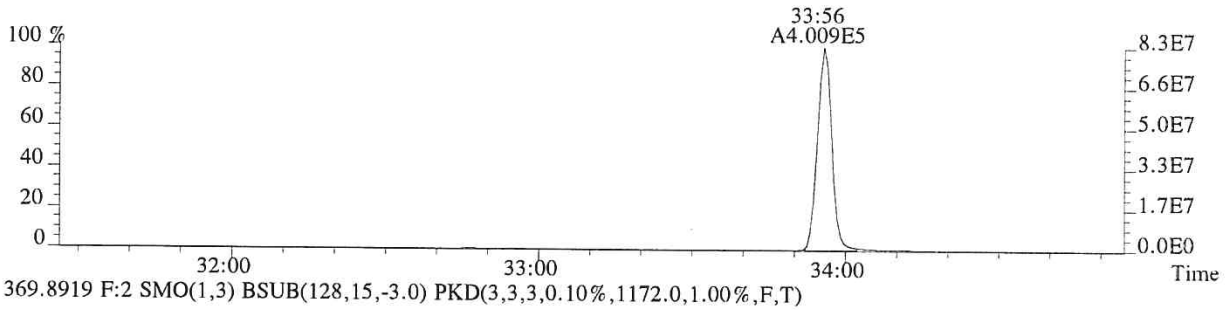
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



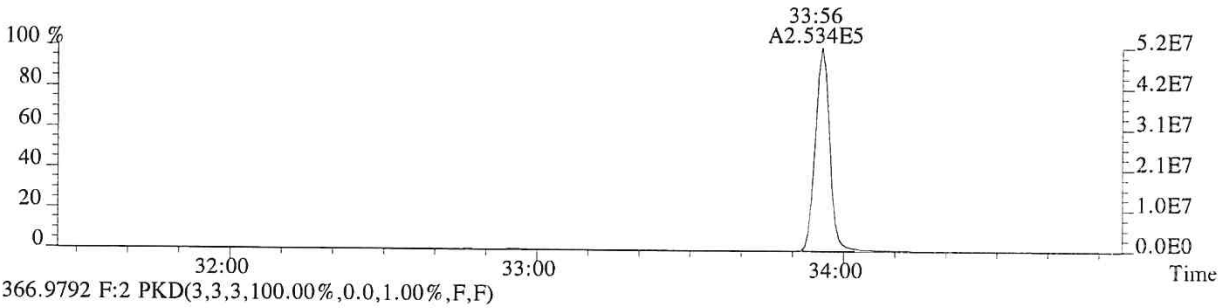
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



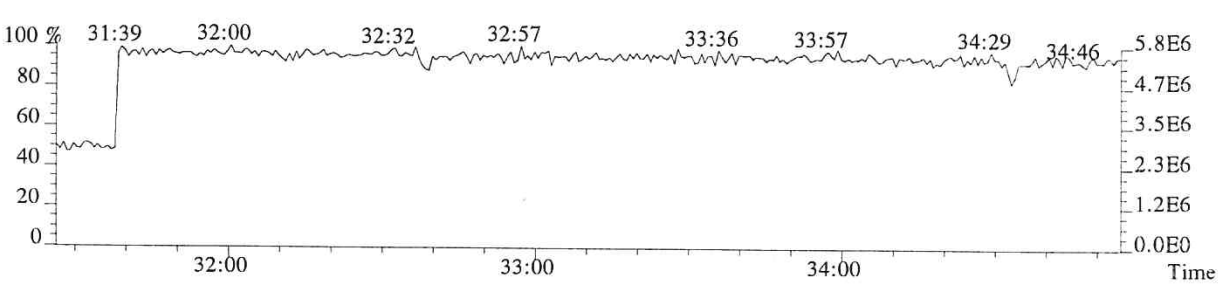
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)

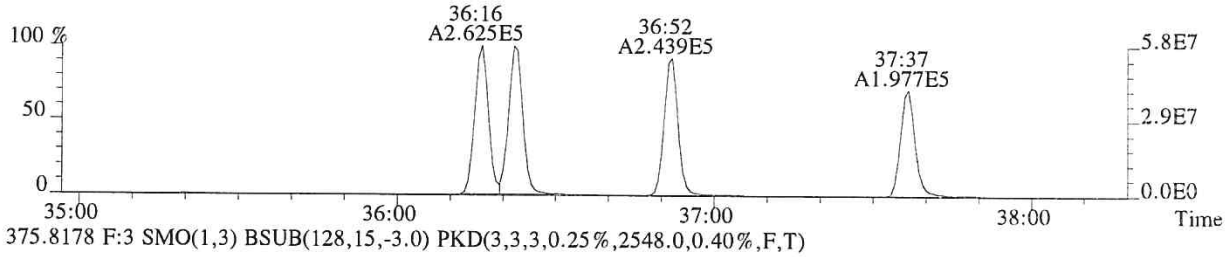


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

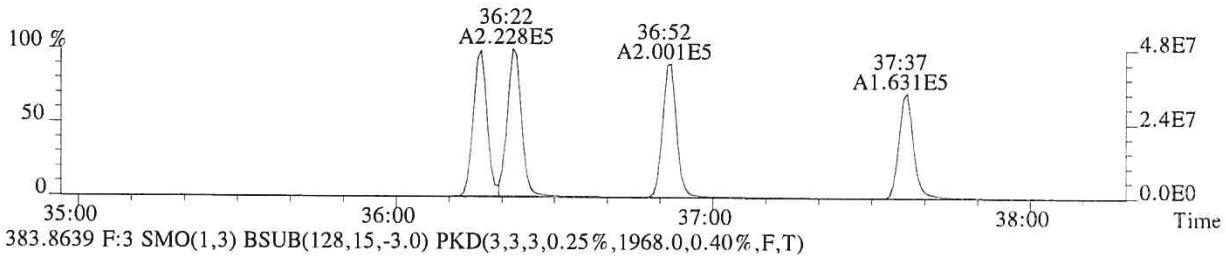


011692

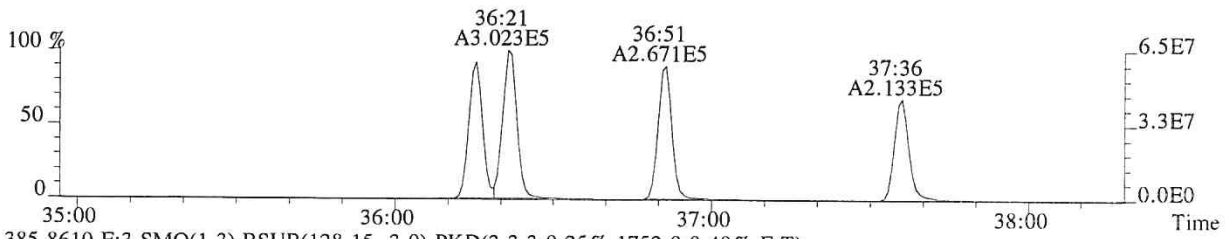
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



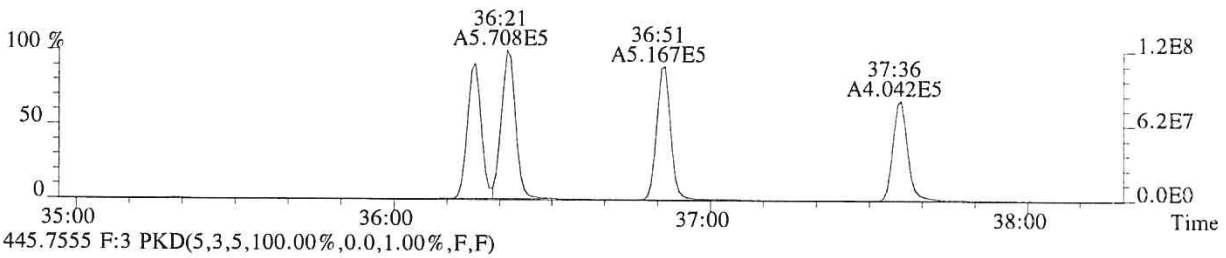
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



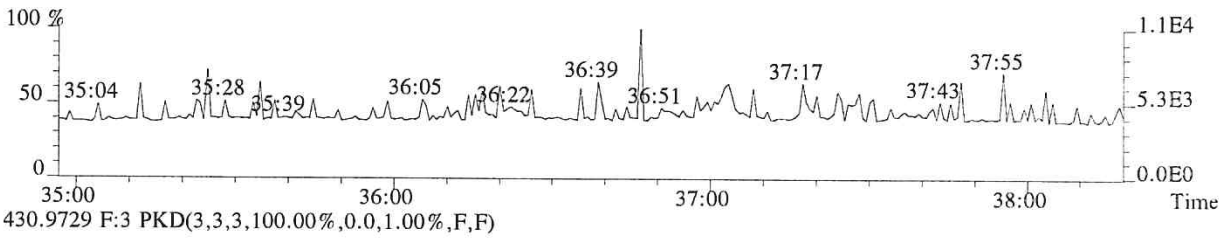
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



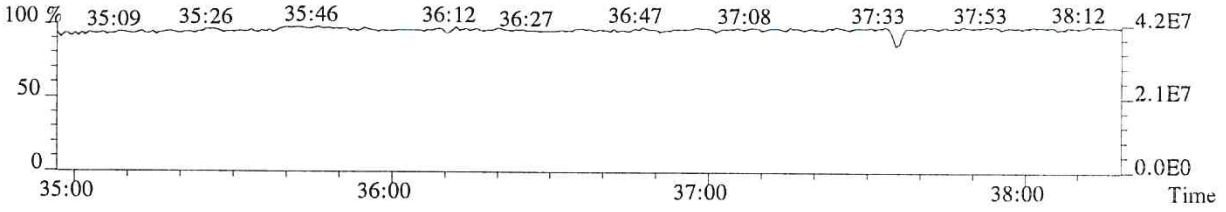
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

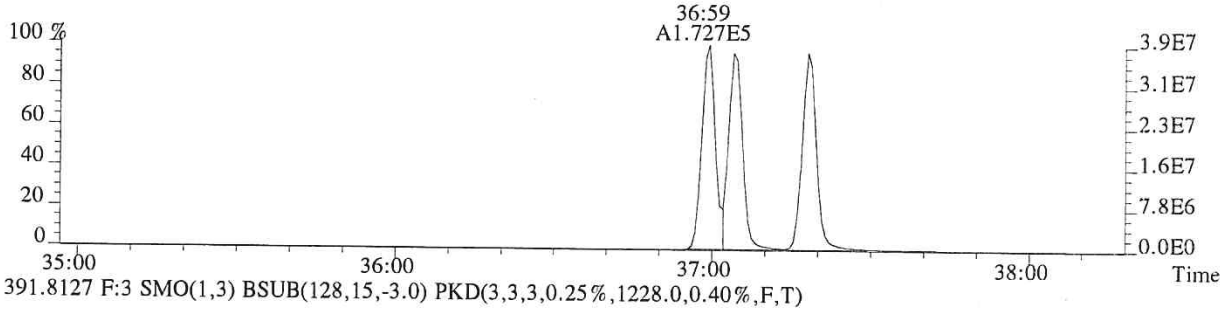


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

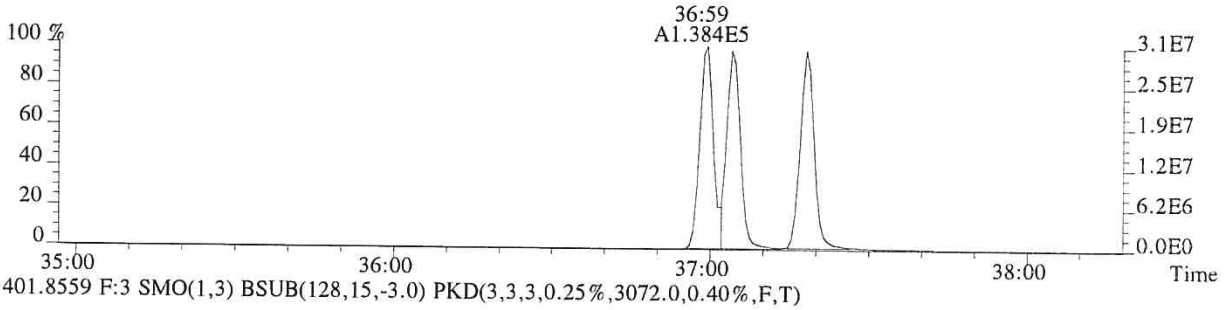


011693

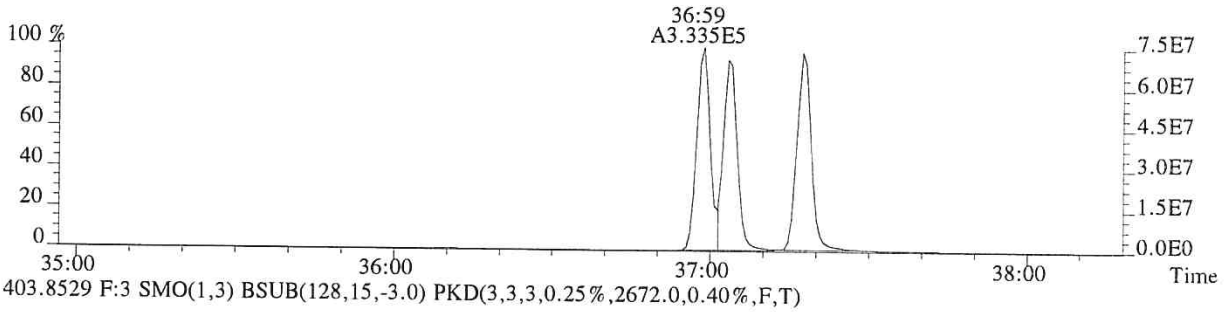
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



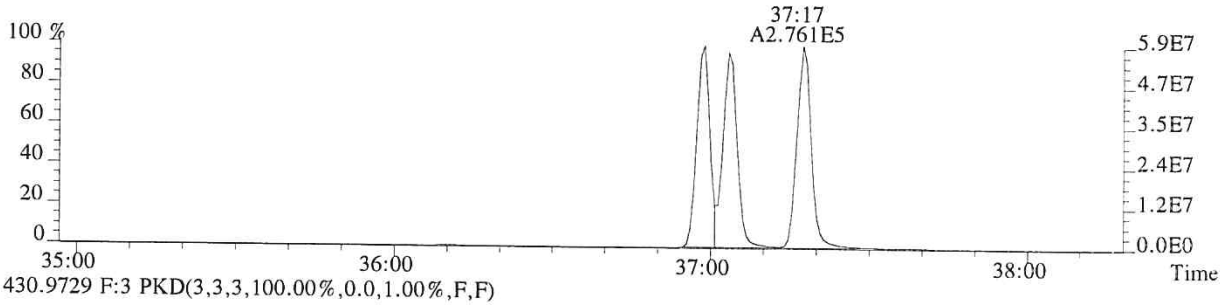
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



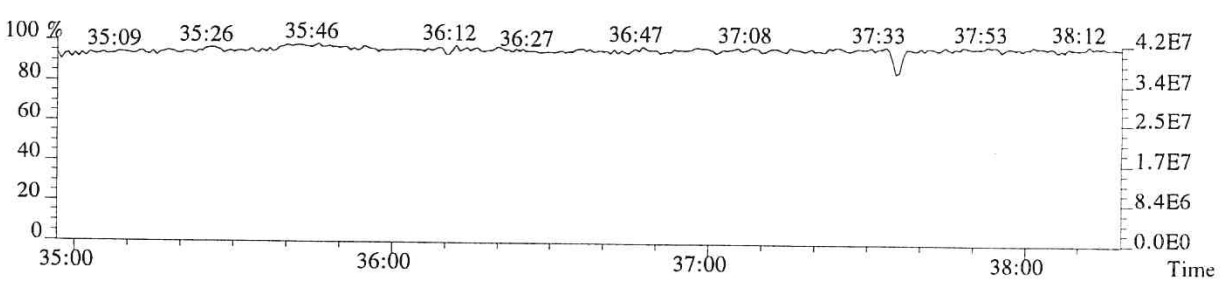
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)

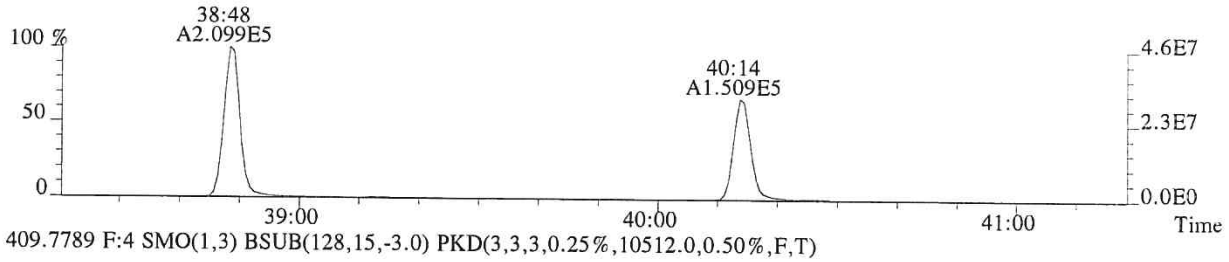


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

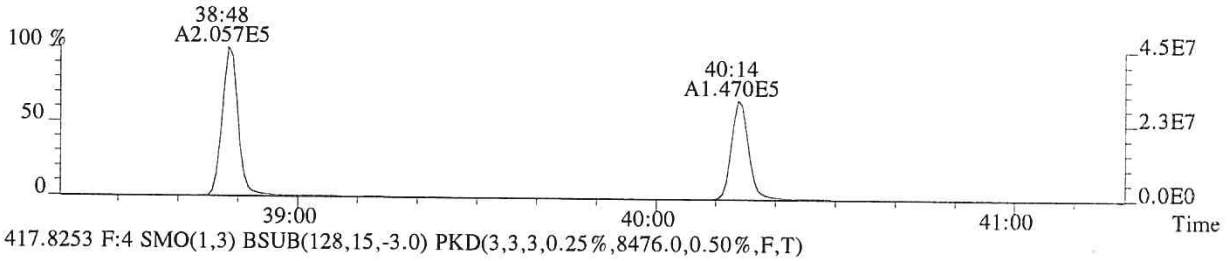


011694

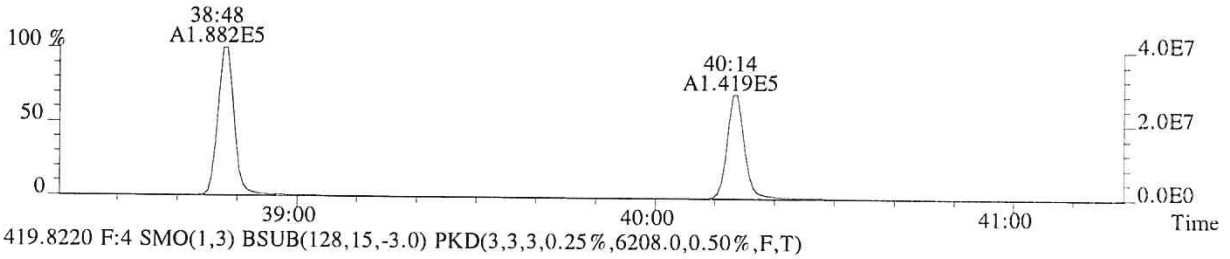
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



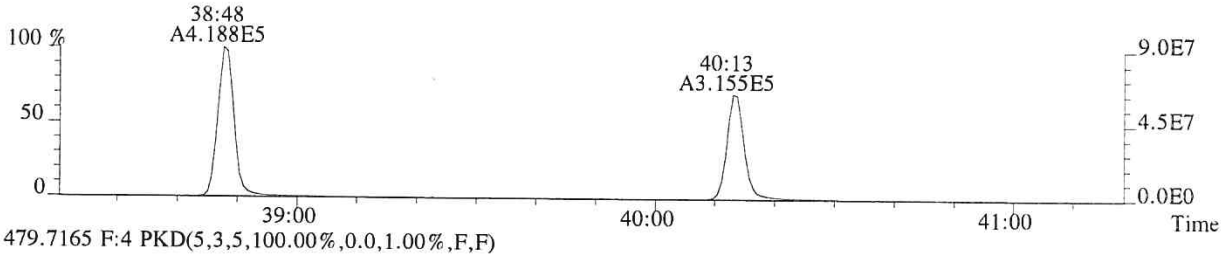
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



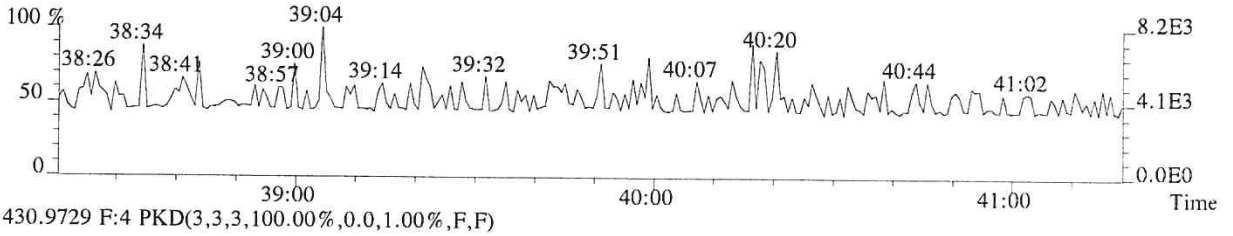
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



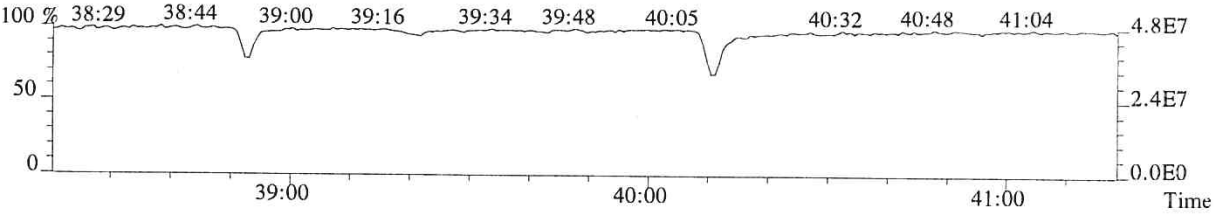
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

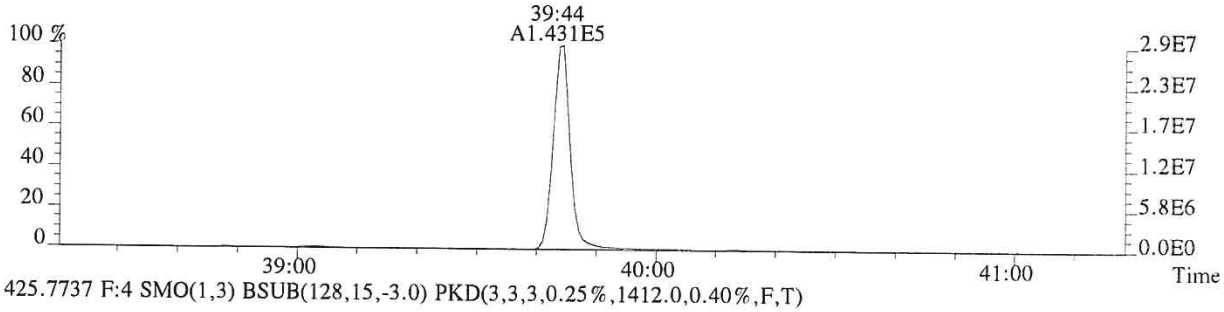


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

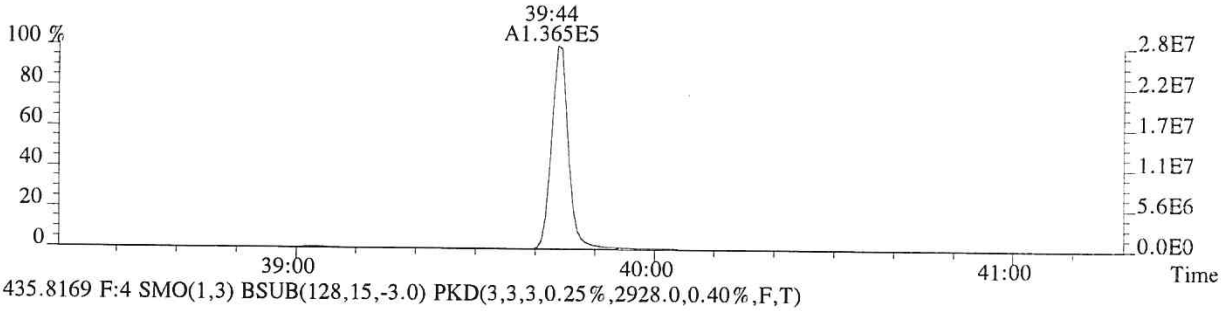


011695

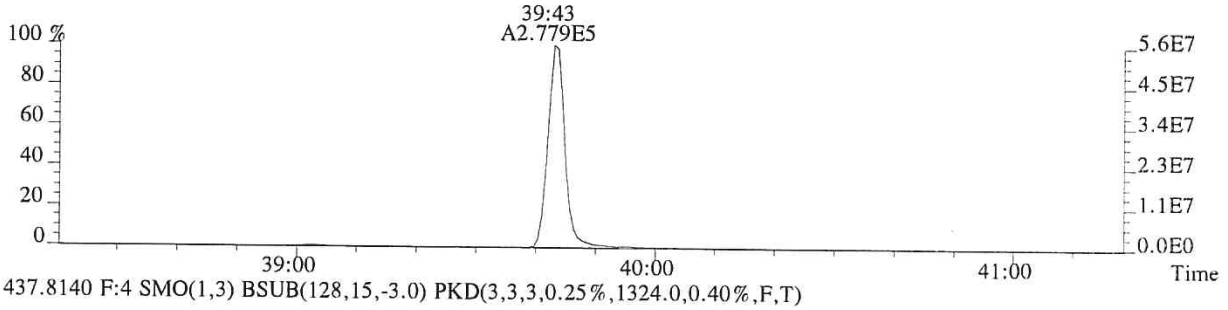
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



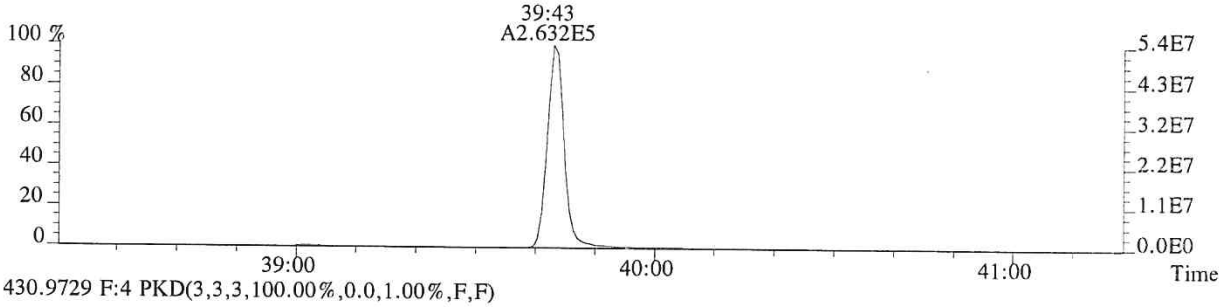
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



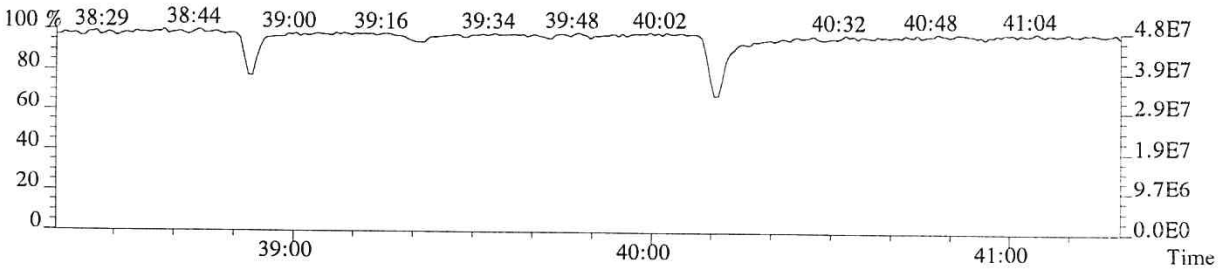
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)

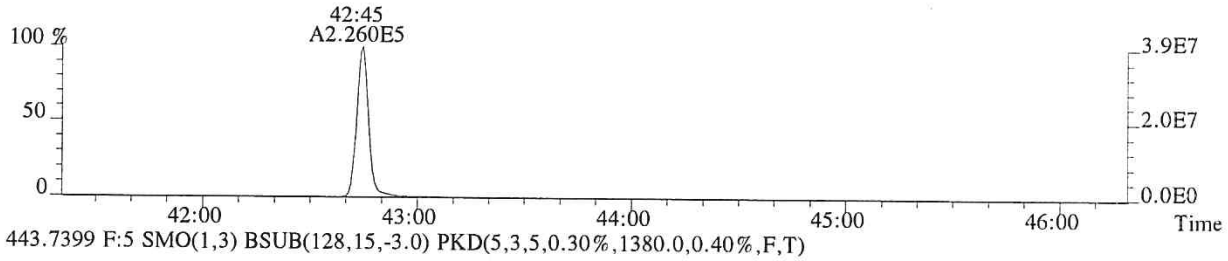


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

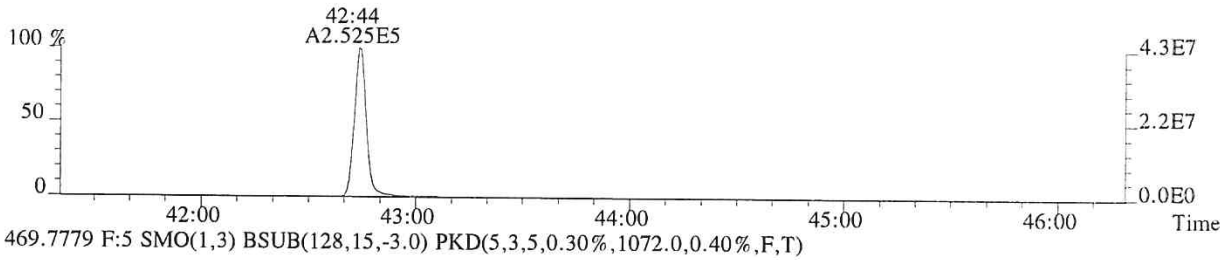


011696

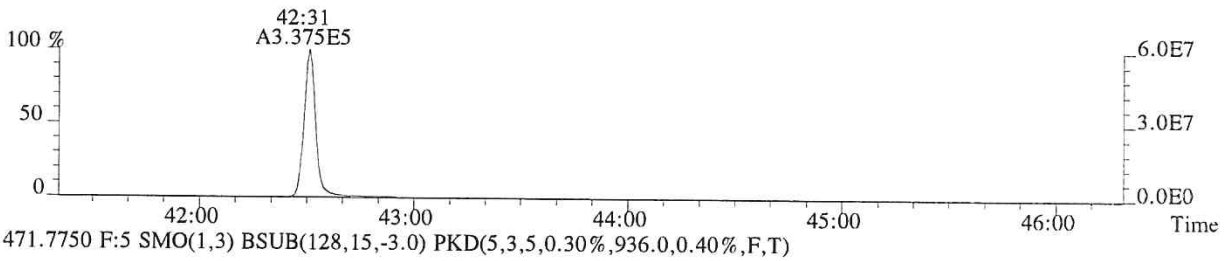
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



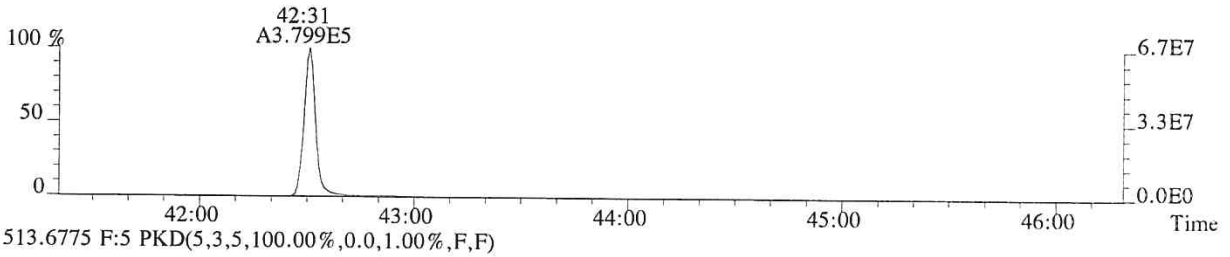
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



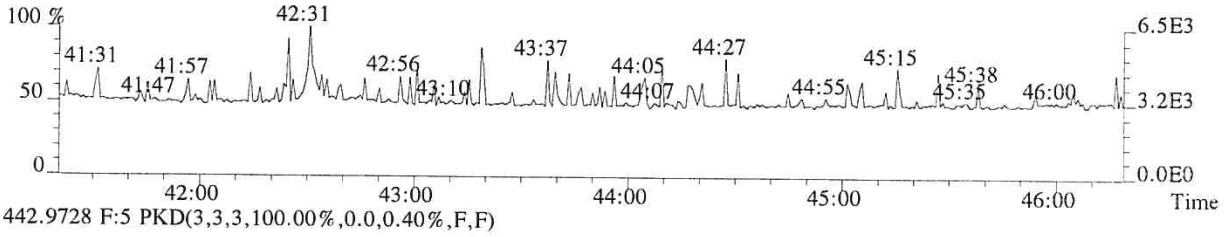
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



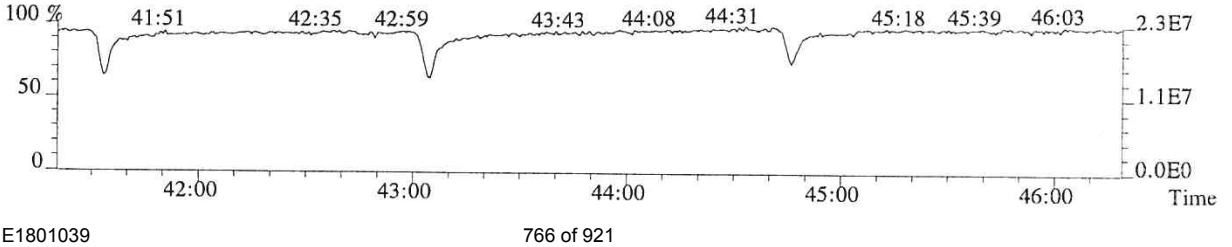
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

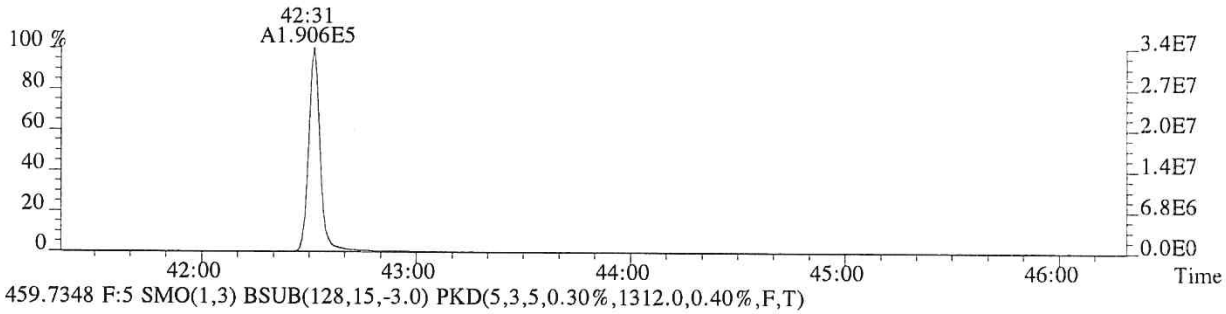


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

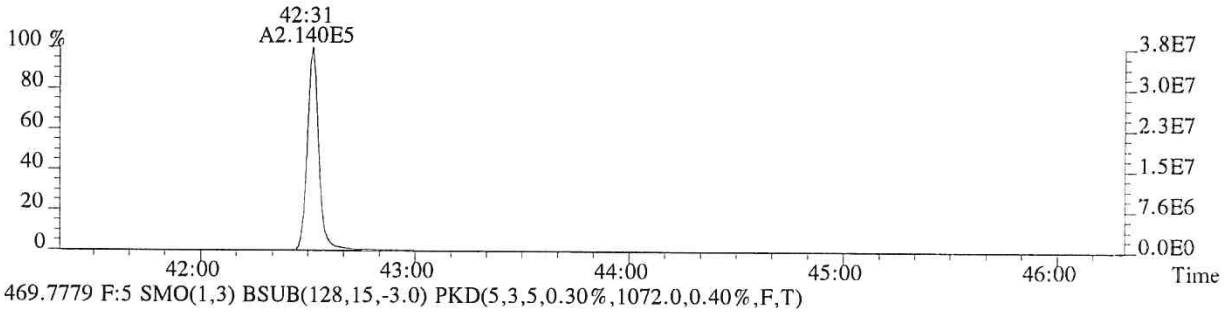


011697

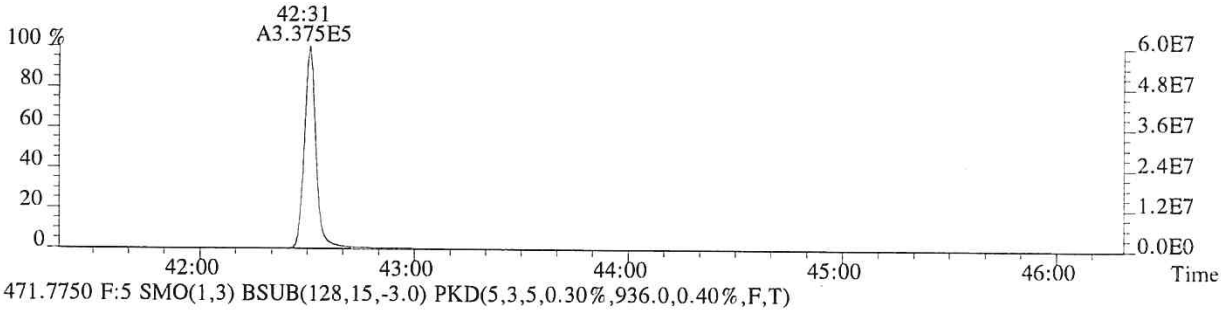
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



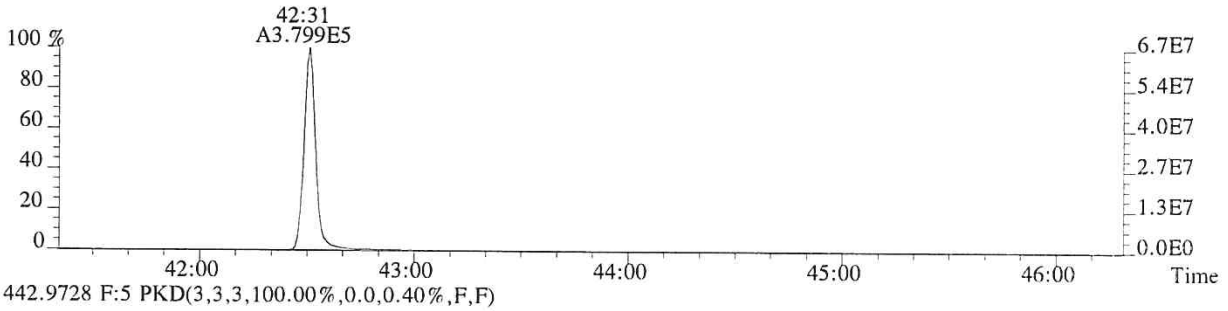
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



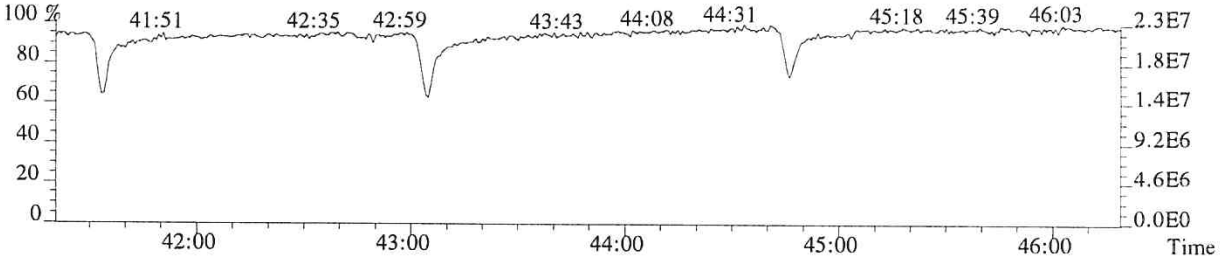
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011698

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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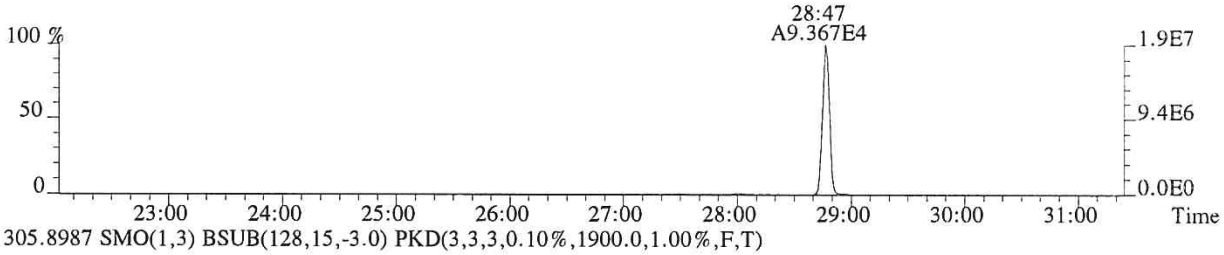
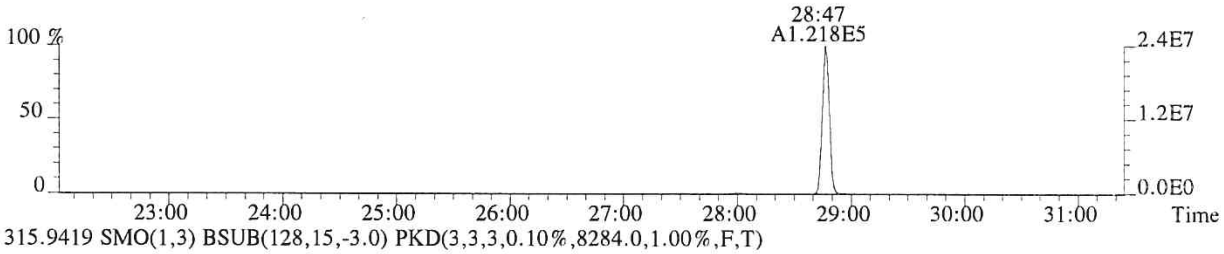
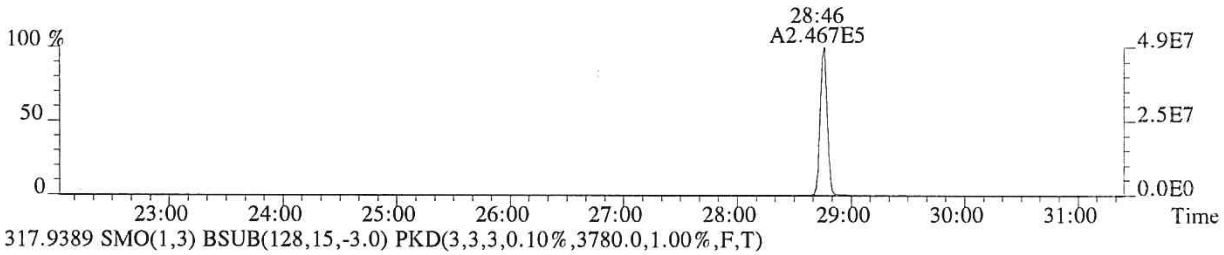
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



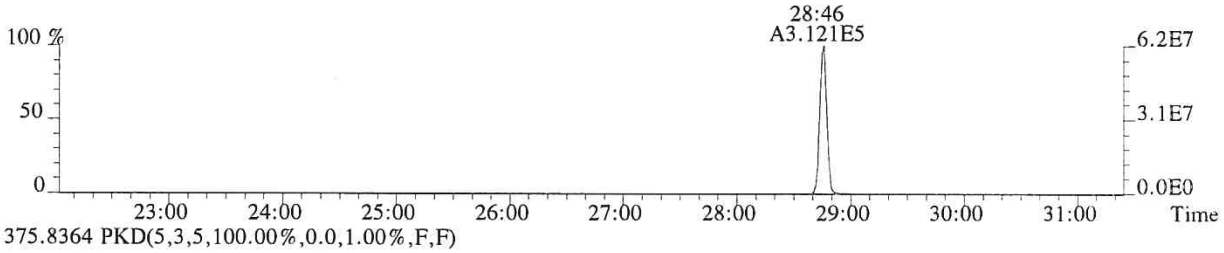
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



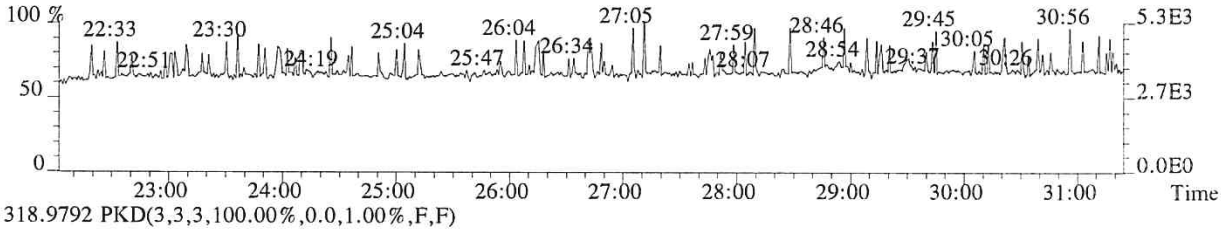
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



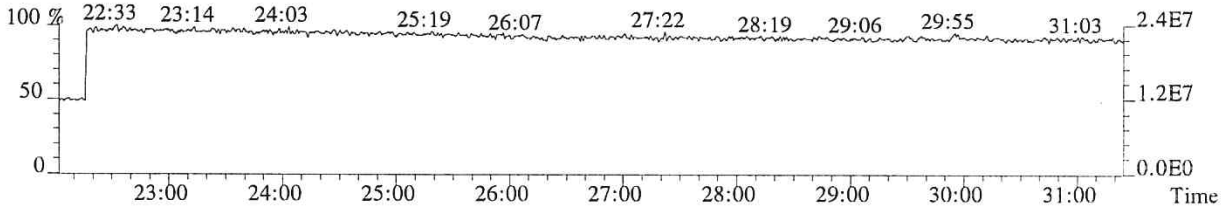
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

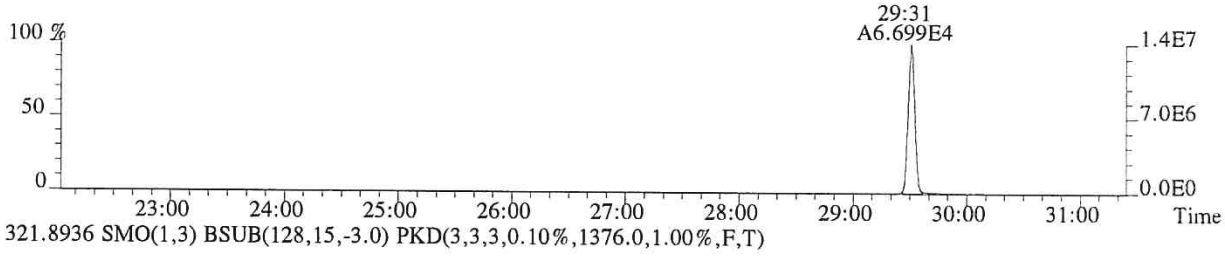


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

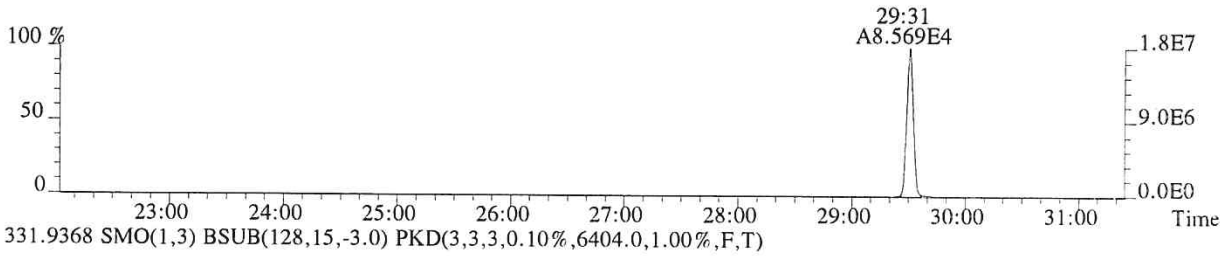


011701

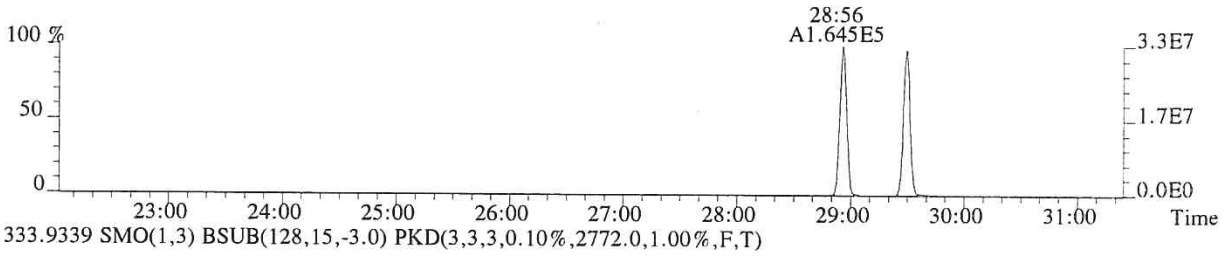
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



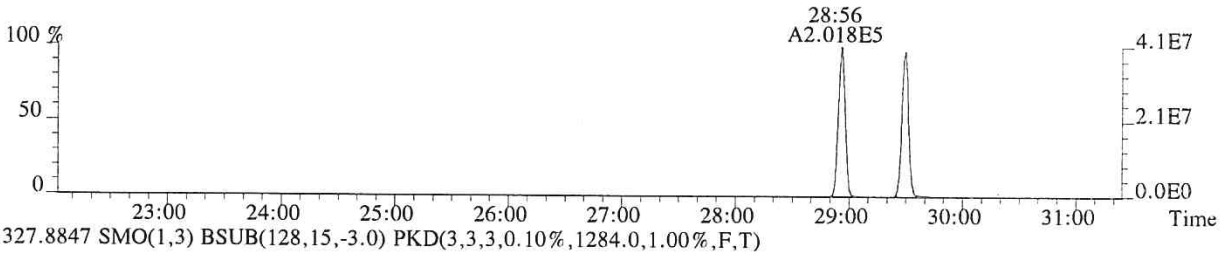
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



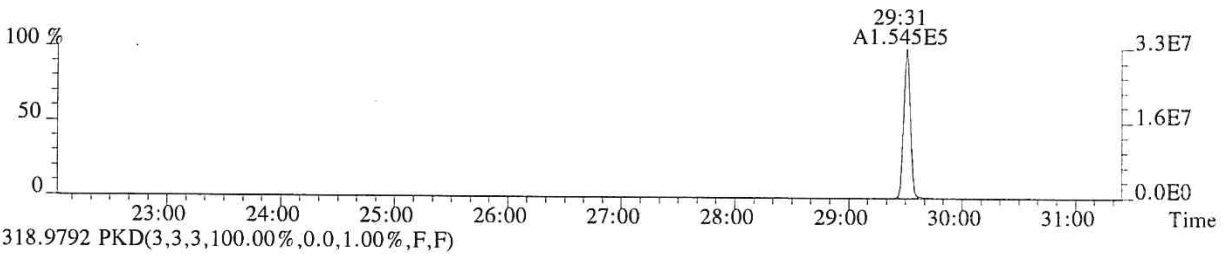
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



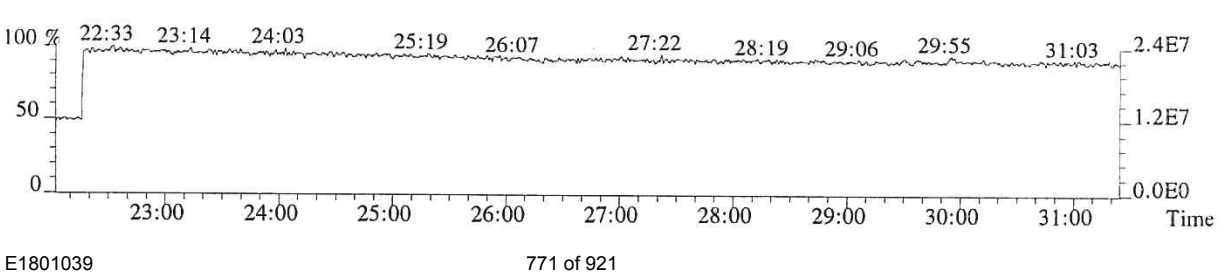
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)

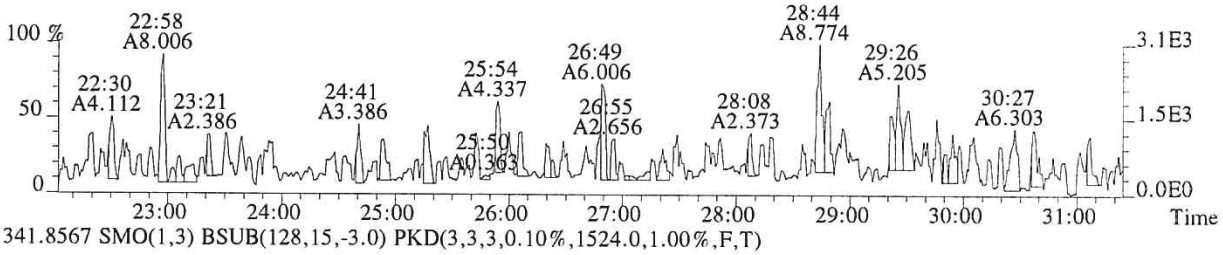


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

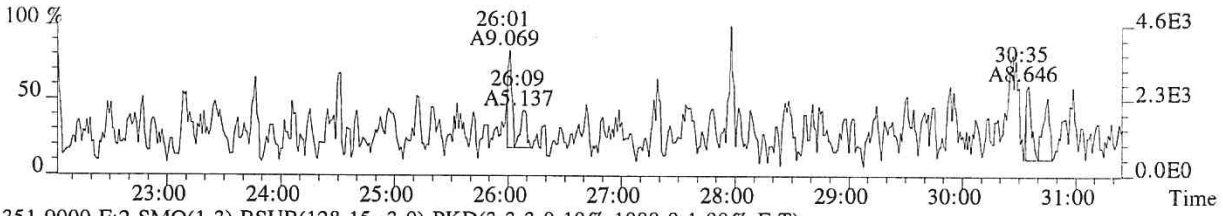


011702

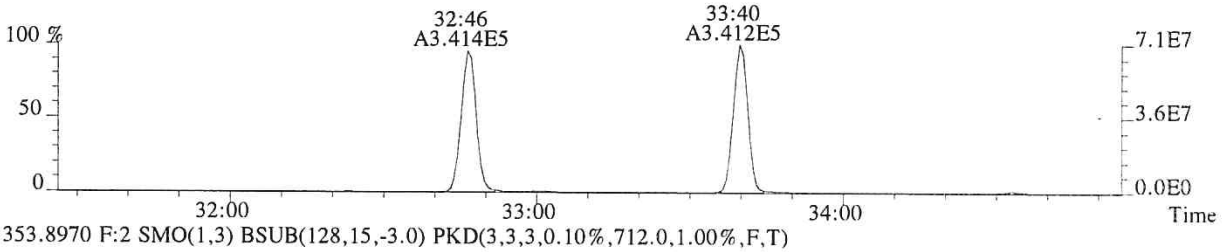
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



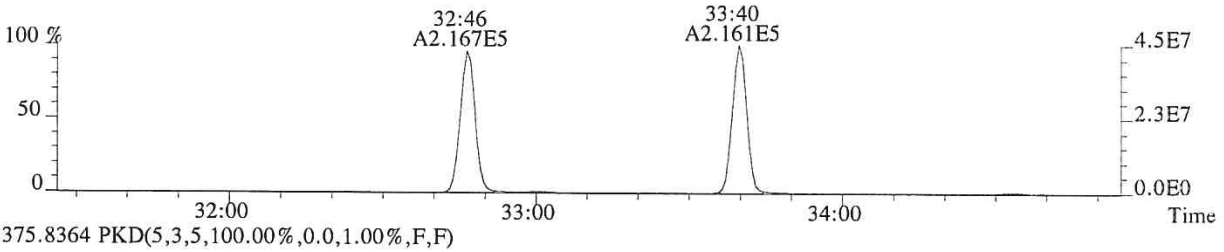
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



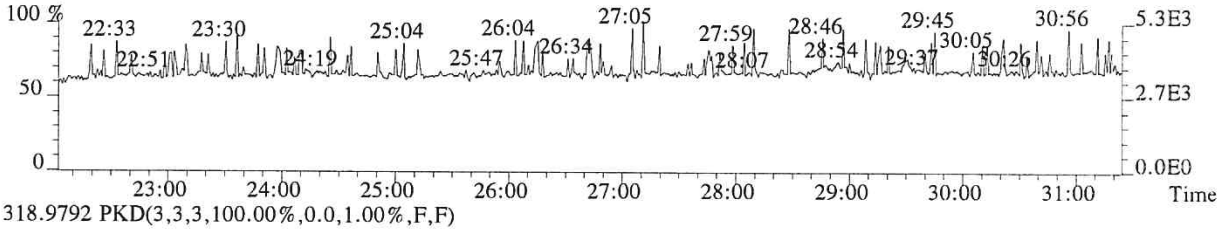
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



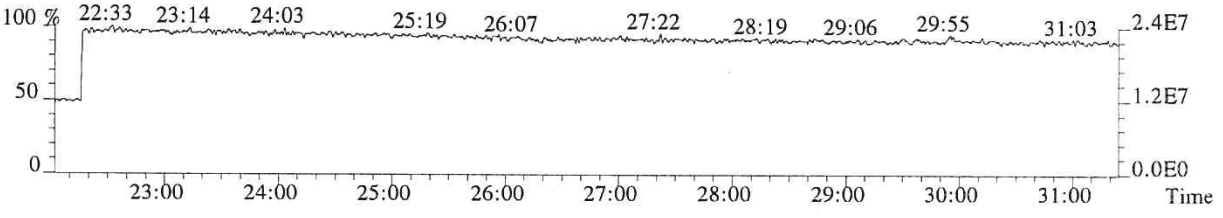
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

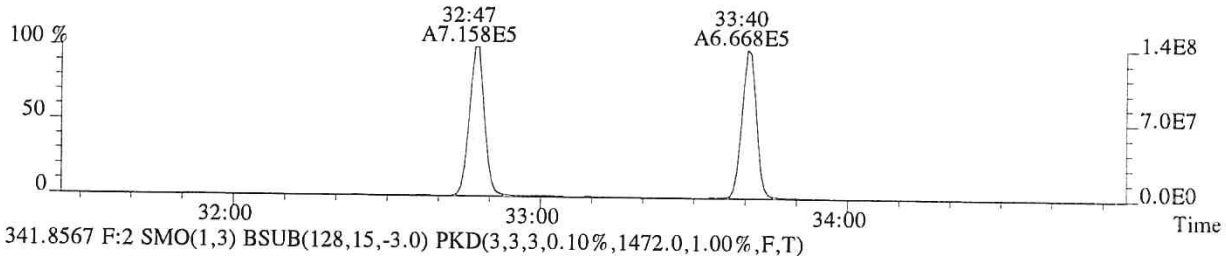


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

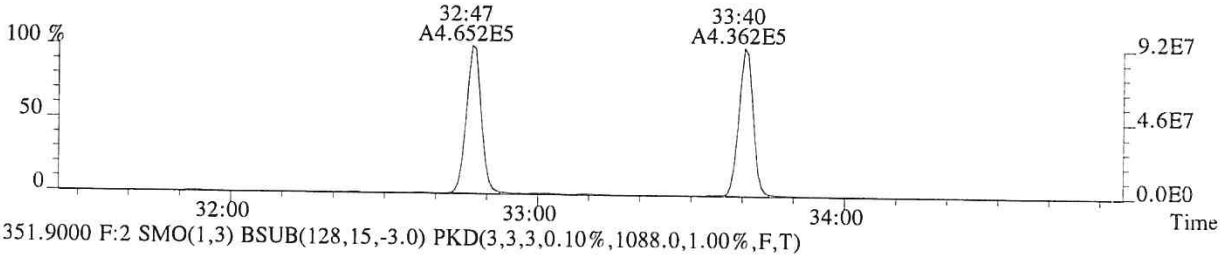


011703

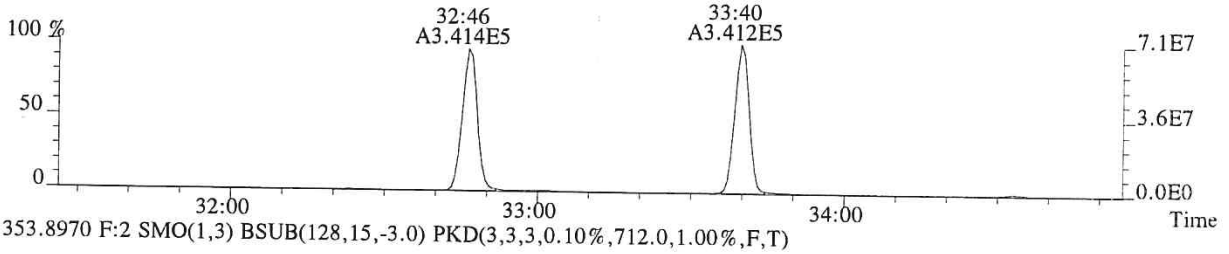
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



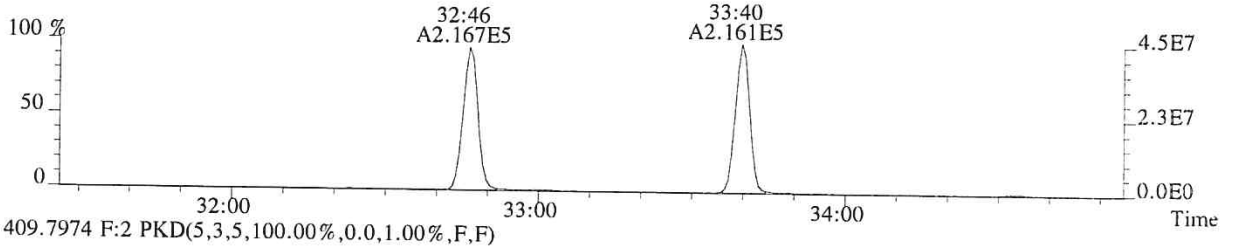
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



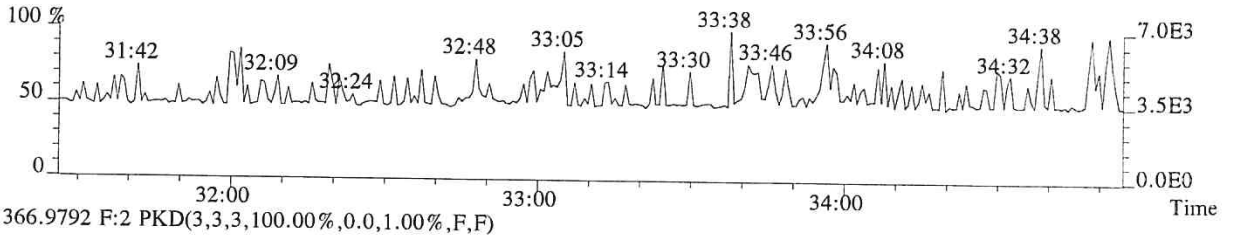
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



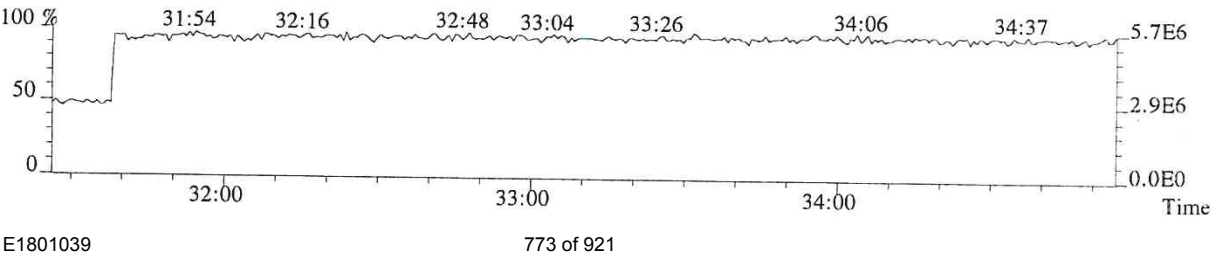
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

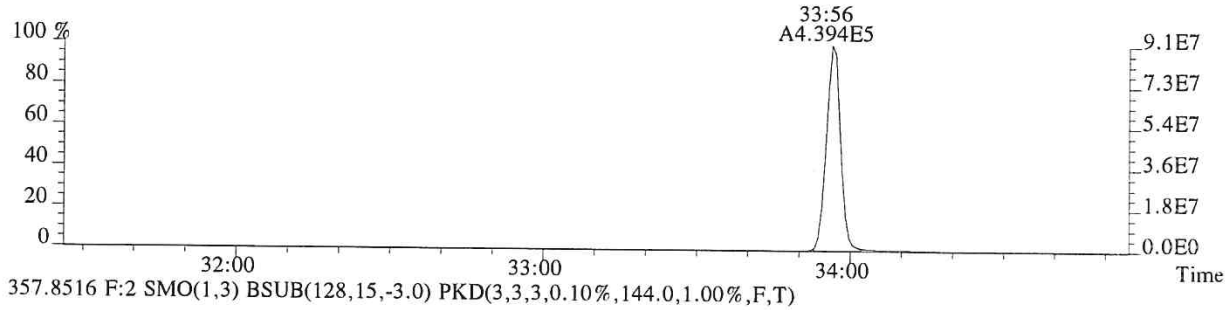


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

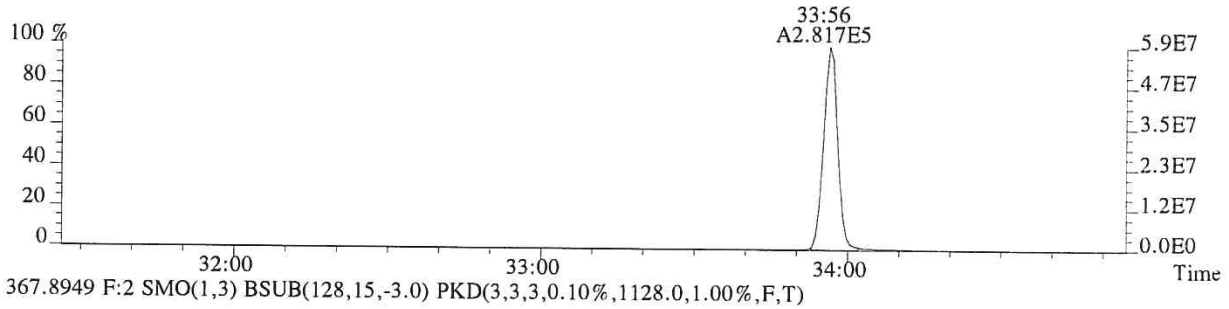


011704

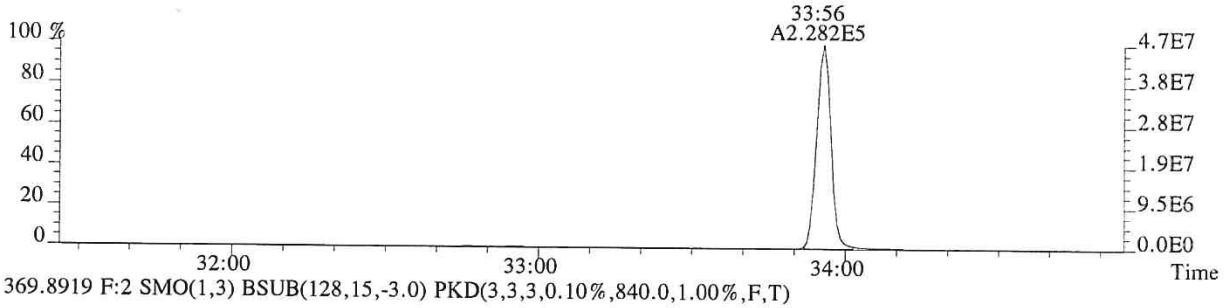
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



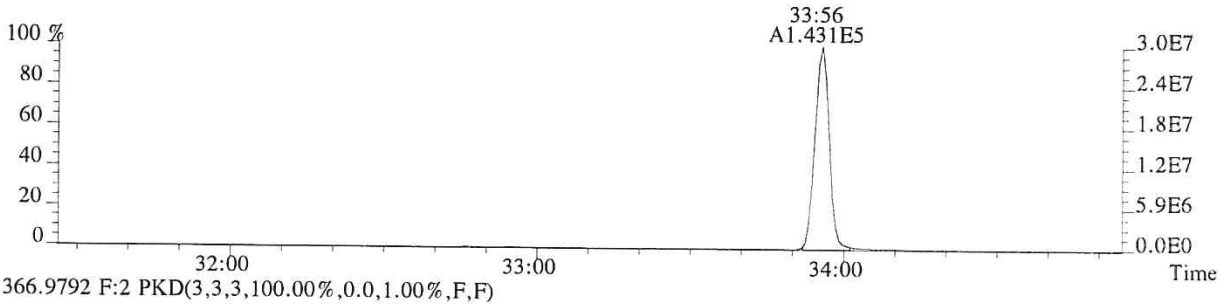
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



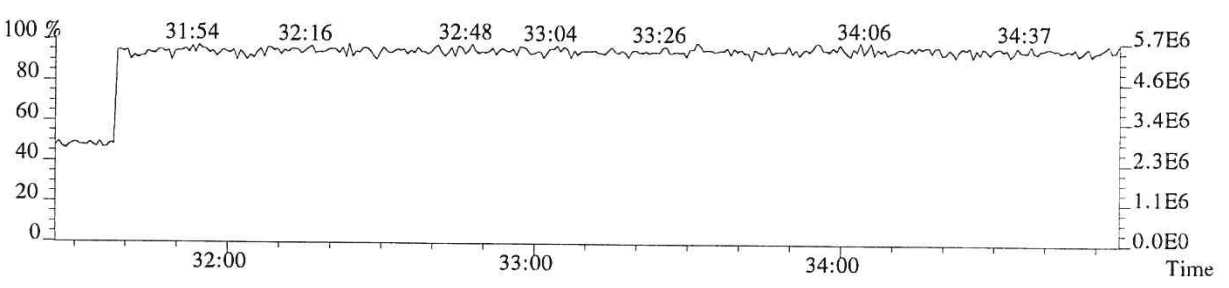
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



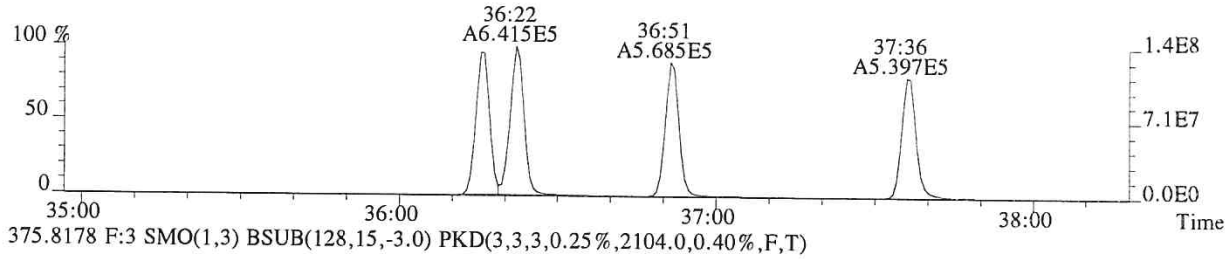
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



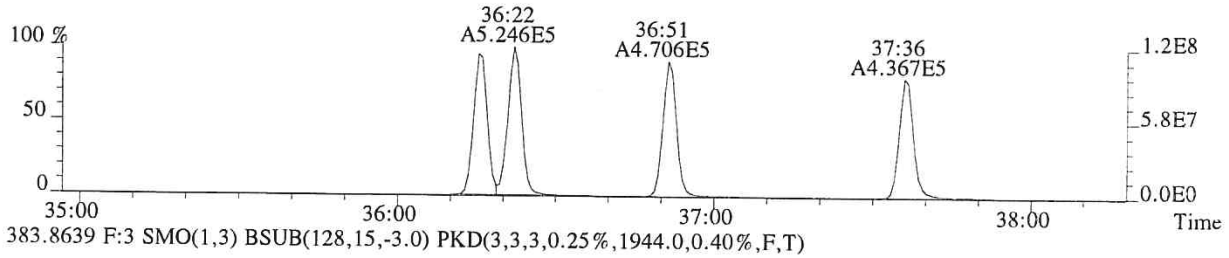
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



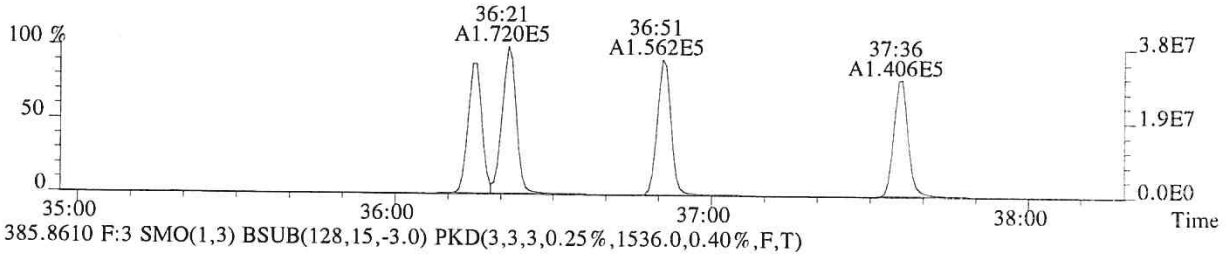
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



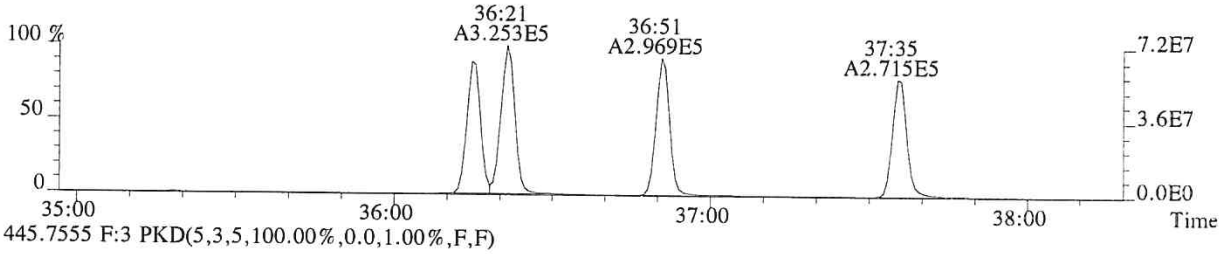
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



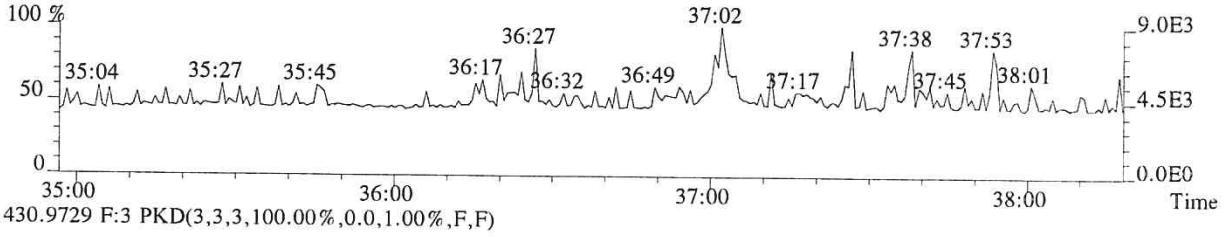
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



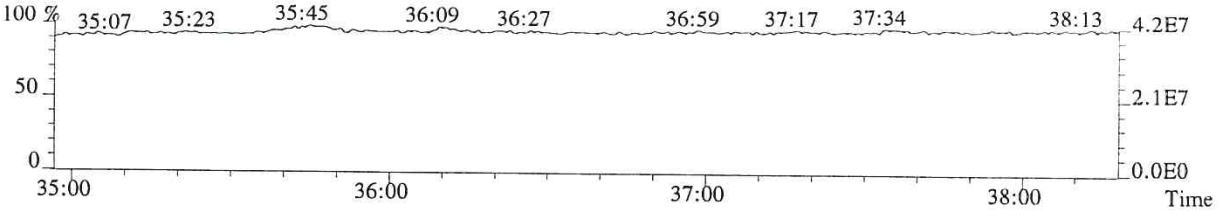
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

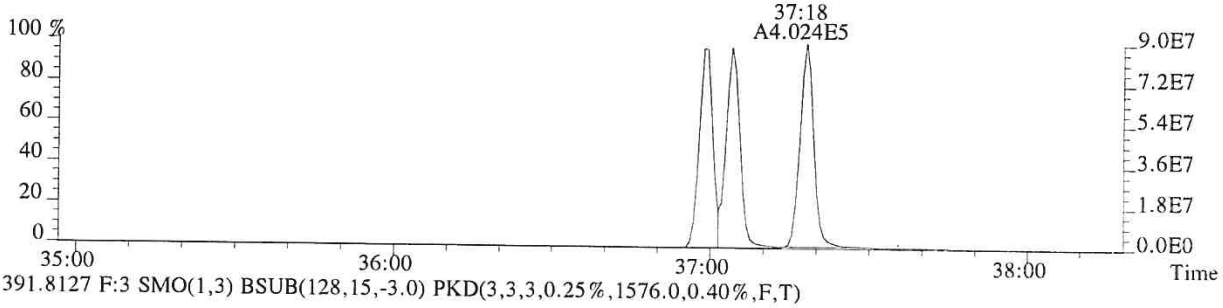


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

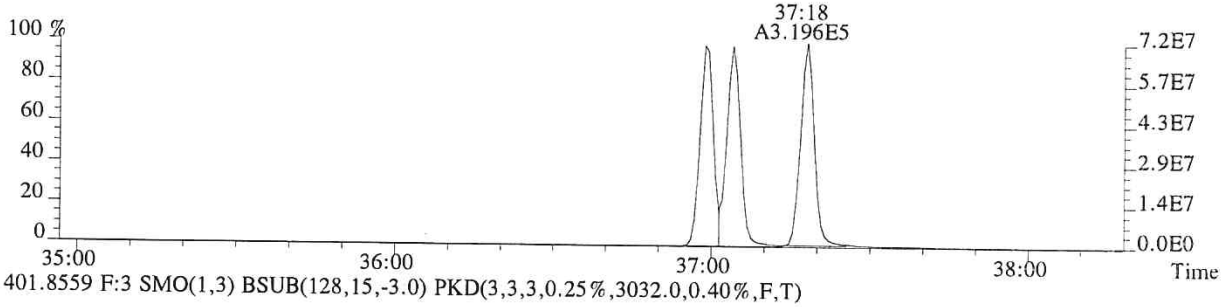


011706

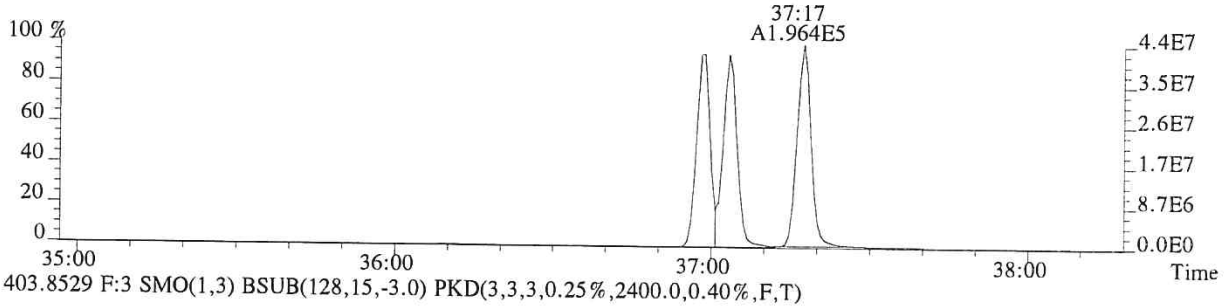
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



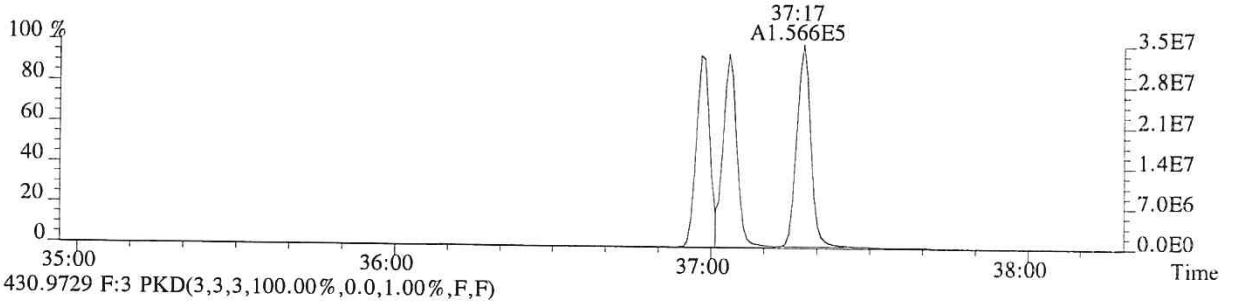
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



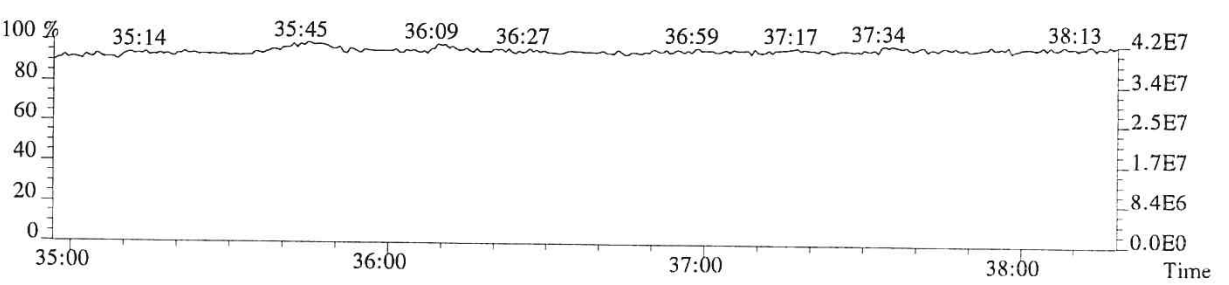
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)

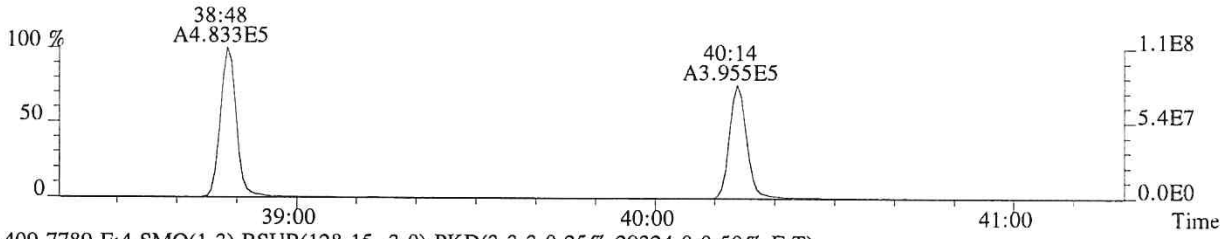


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

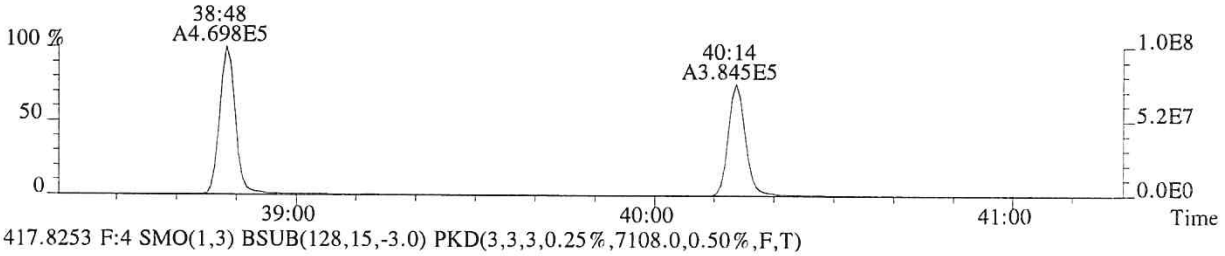


011707

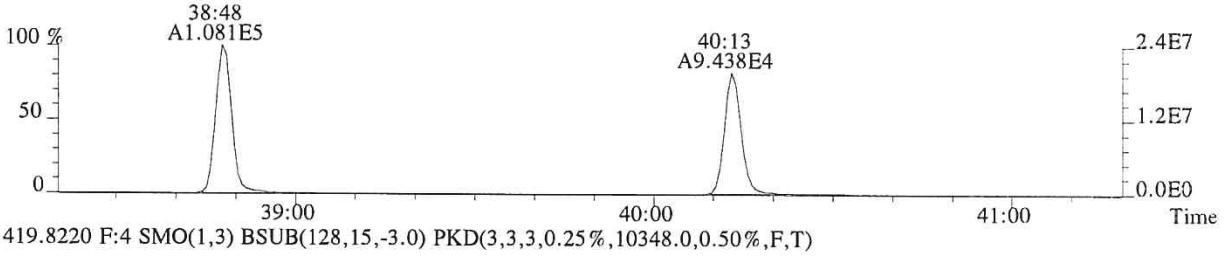
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



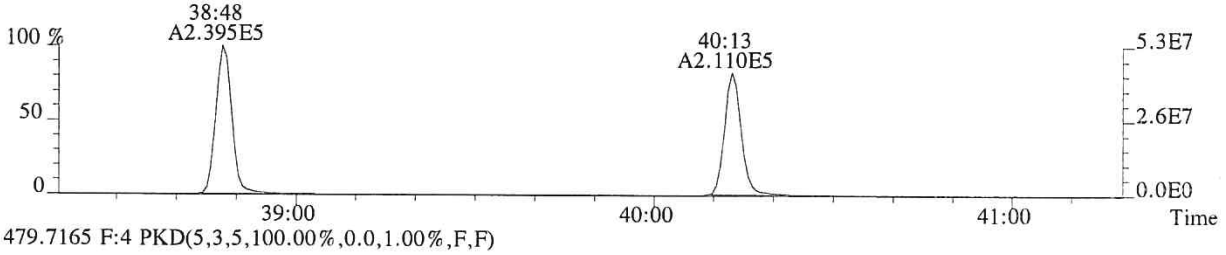
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



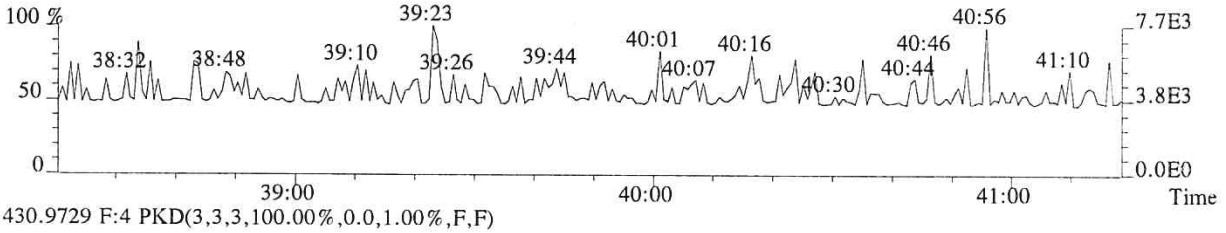
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



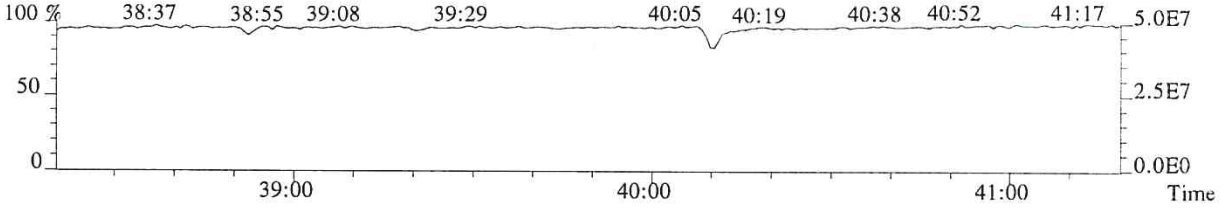
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

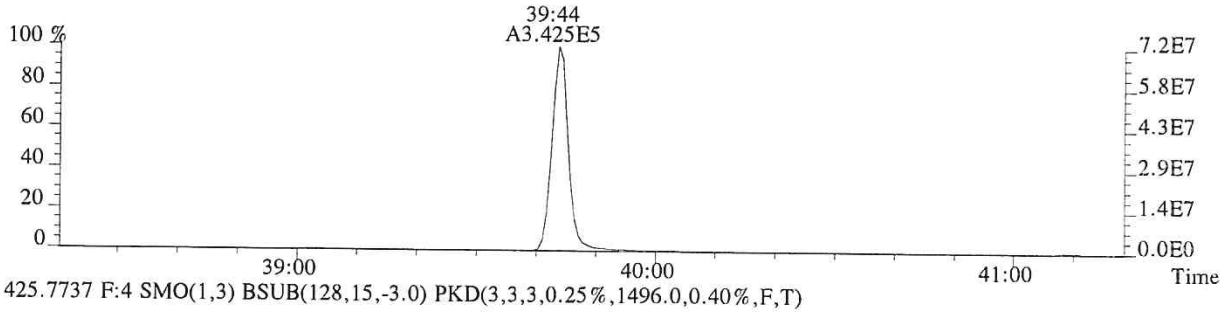


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

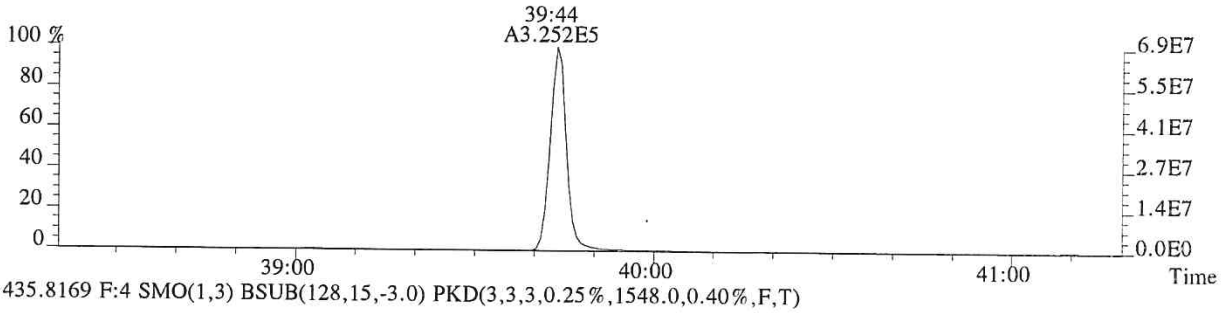


011708

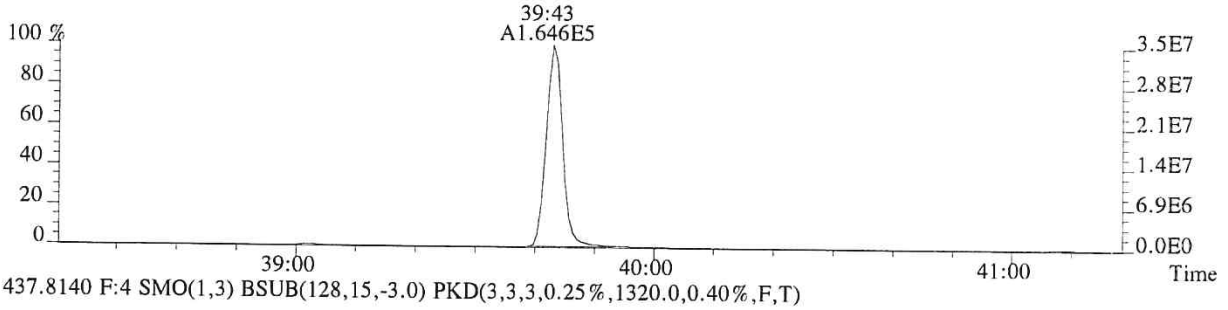
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



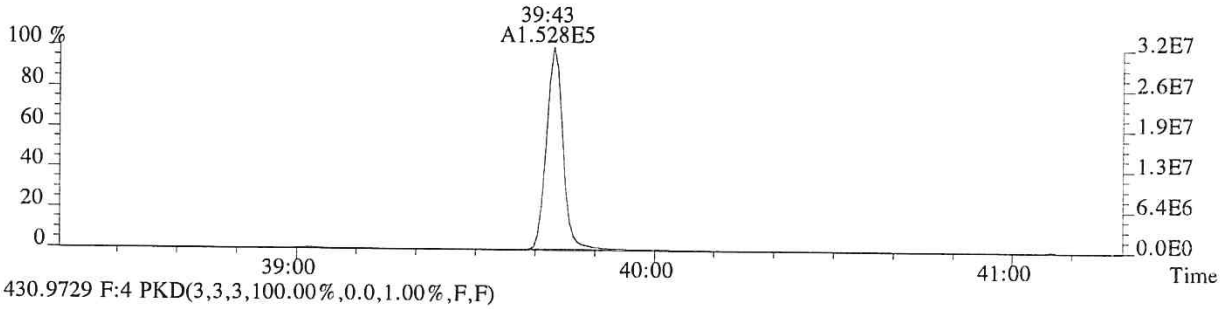
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



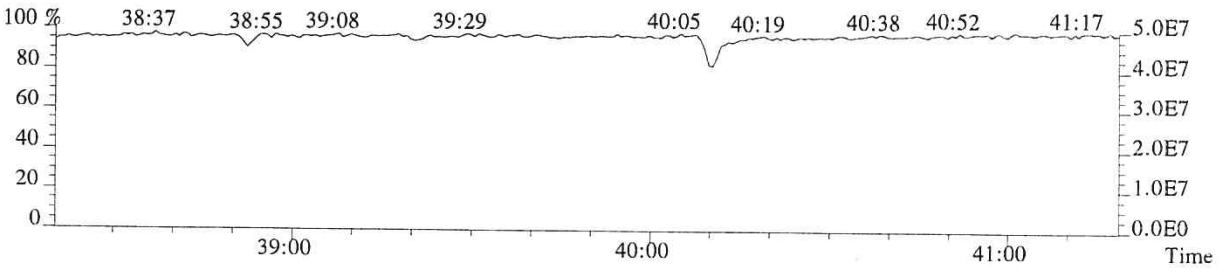
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)

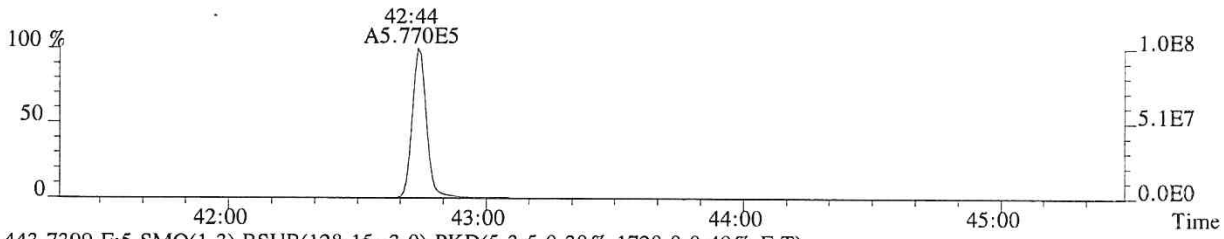


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

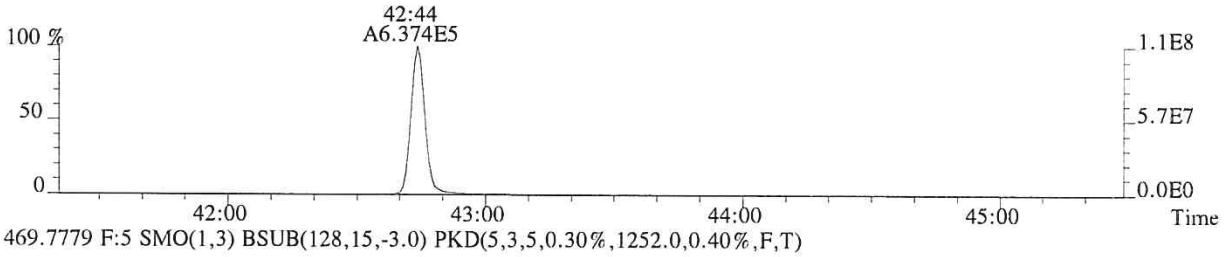


011709

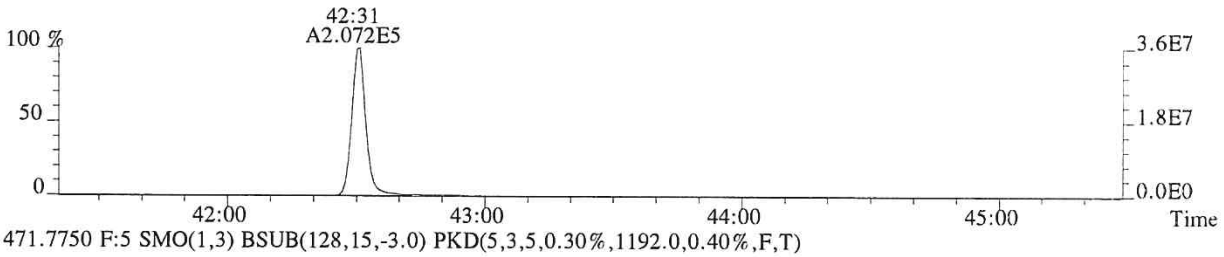
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



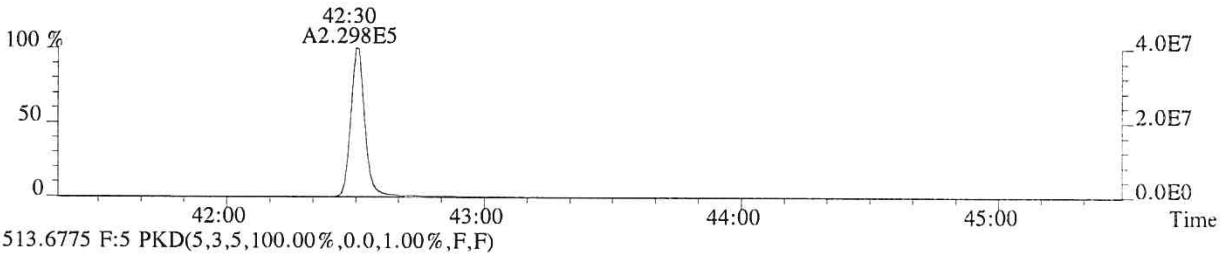
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



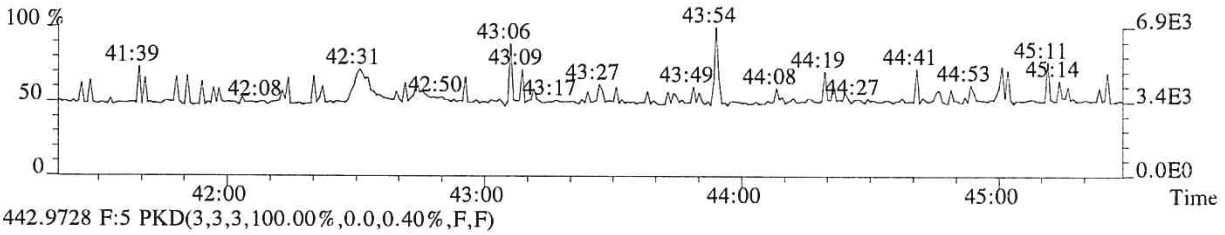
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



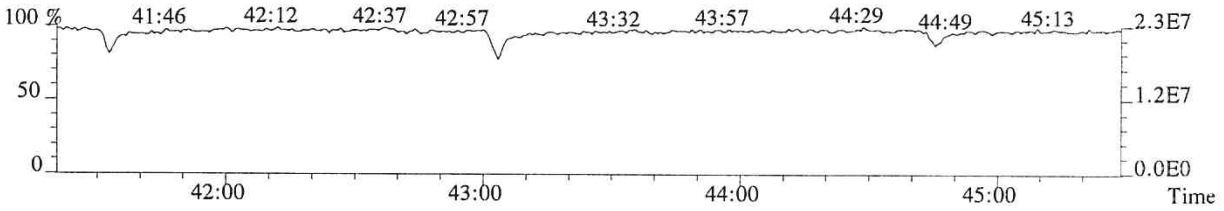
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

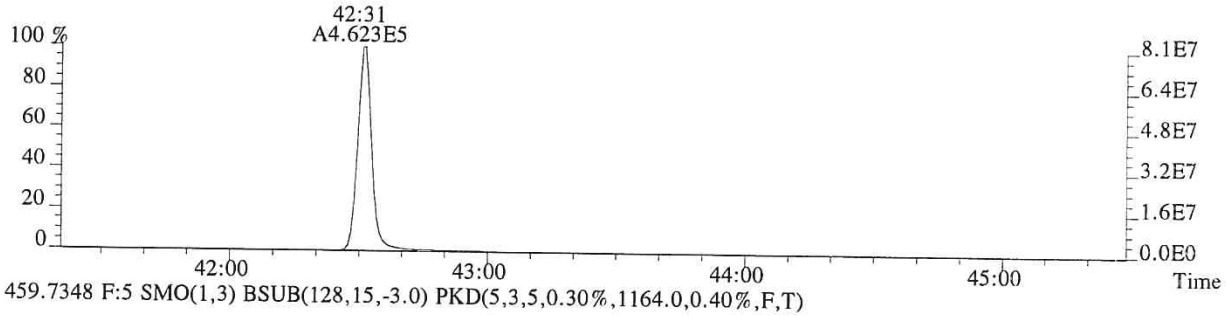


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

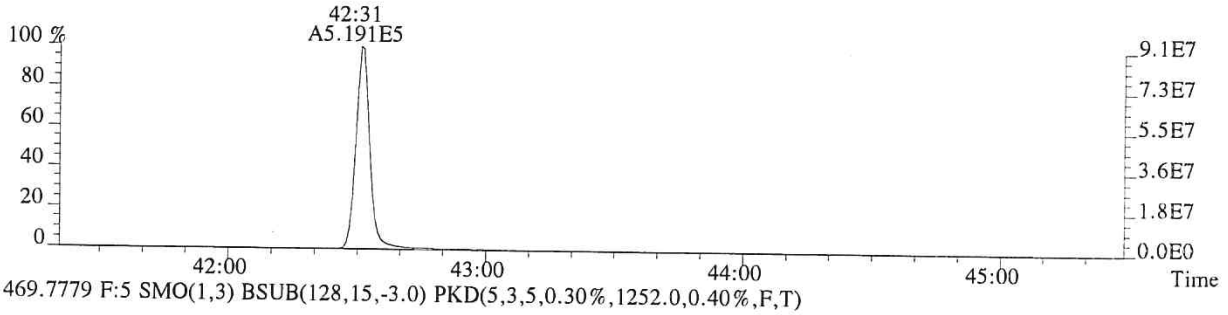


011710

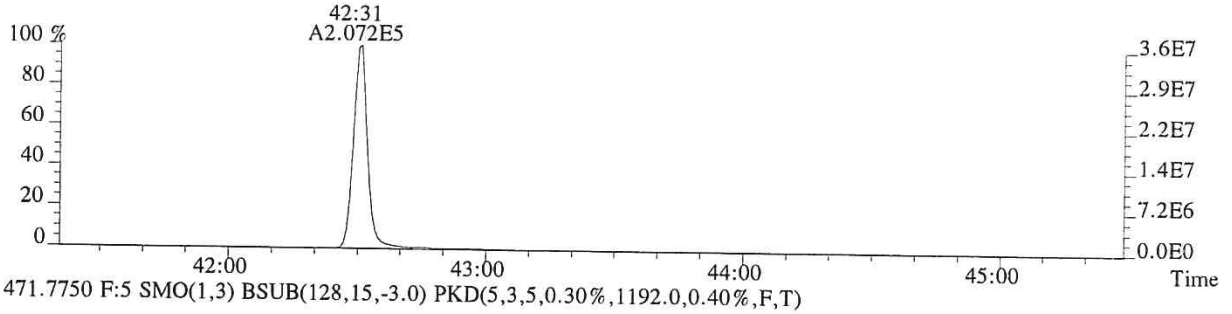
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



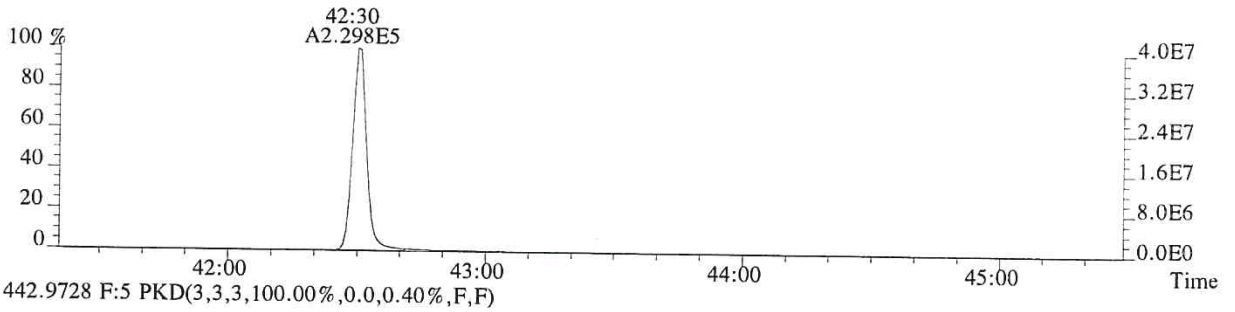
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



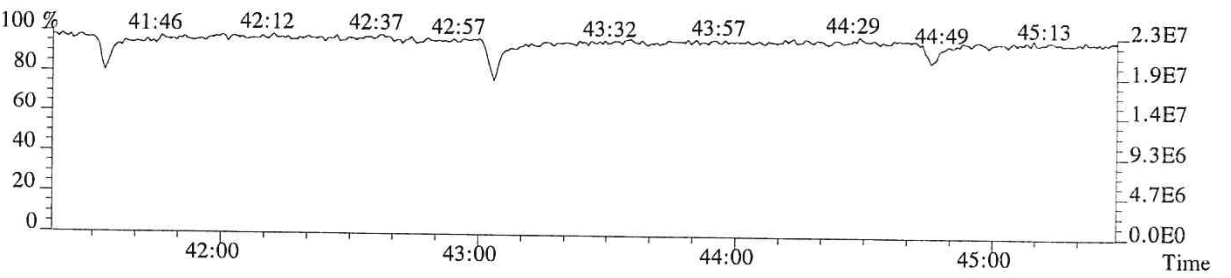
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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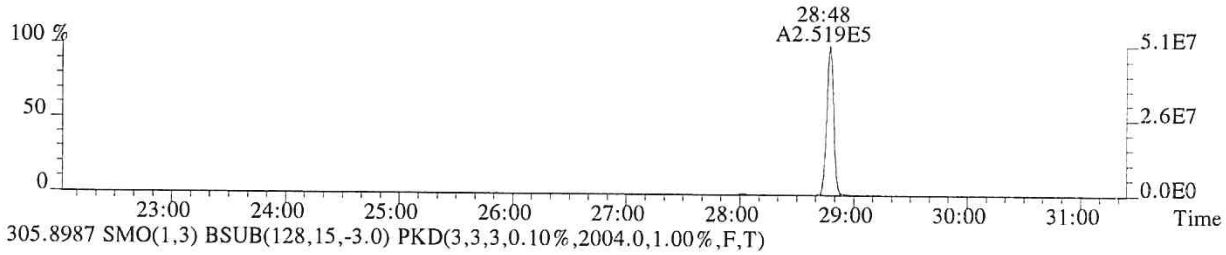
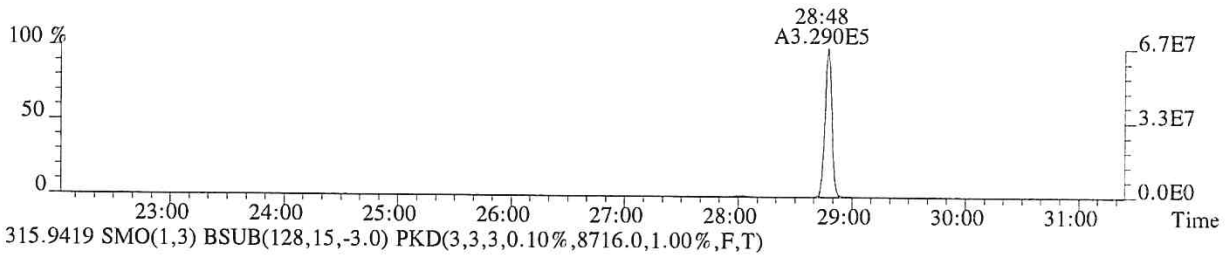
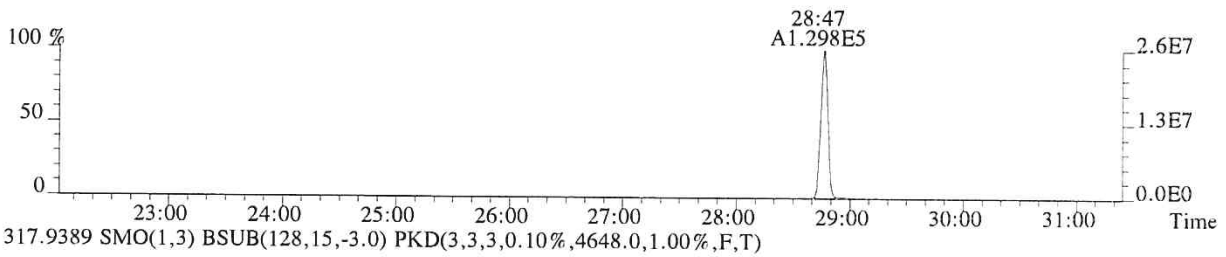
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



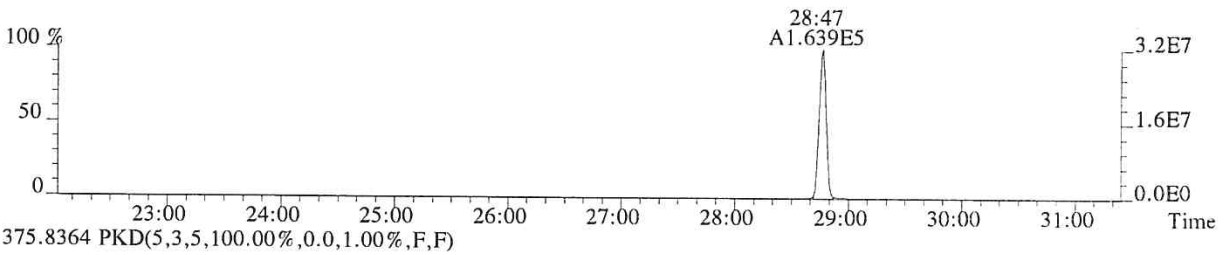
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



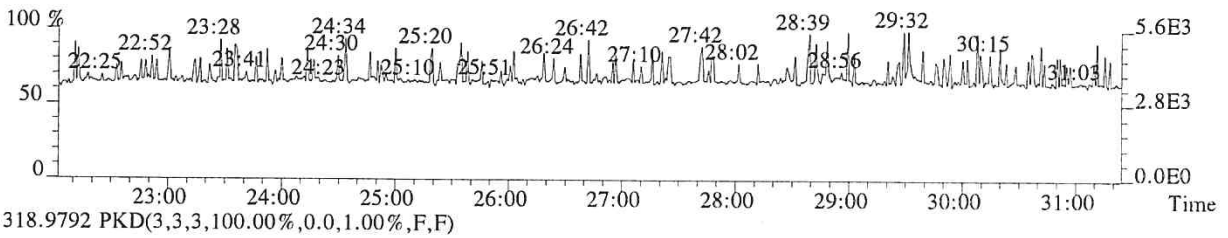
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



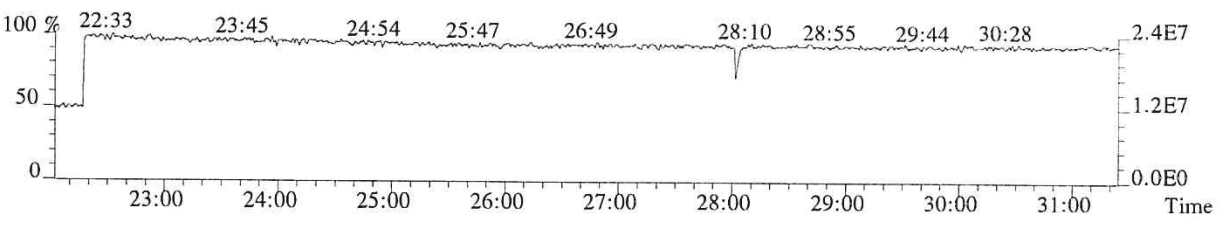
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

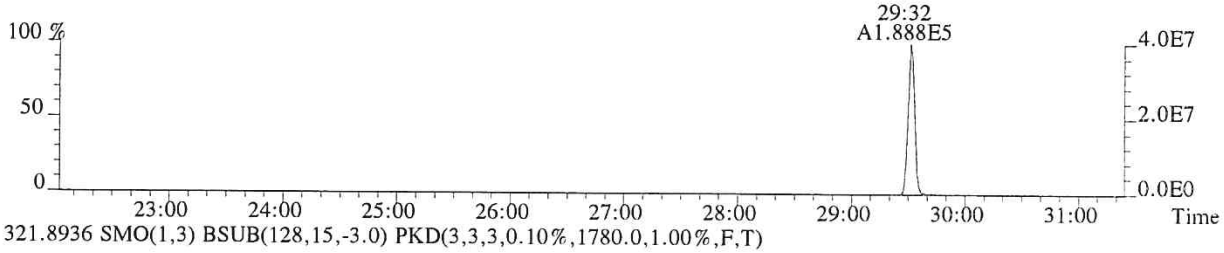


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

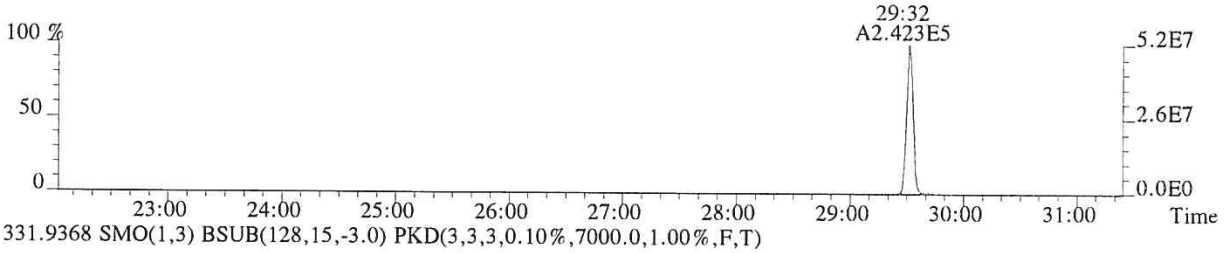


011714

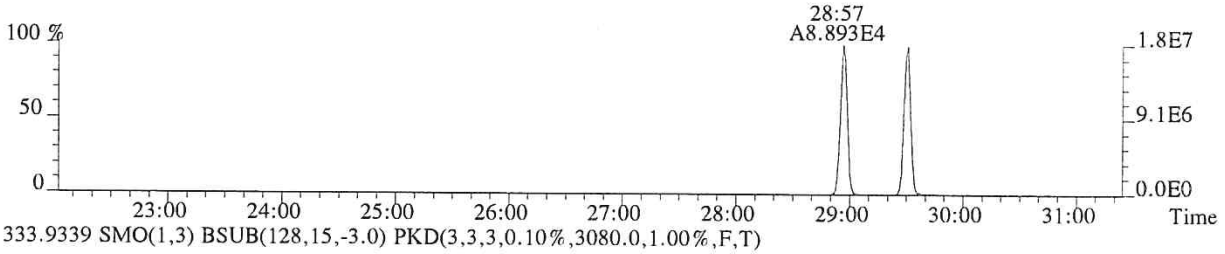
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



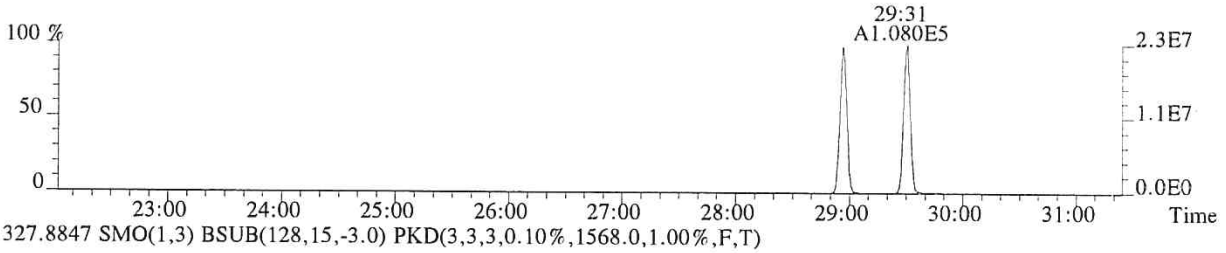
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



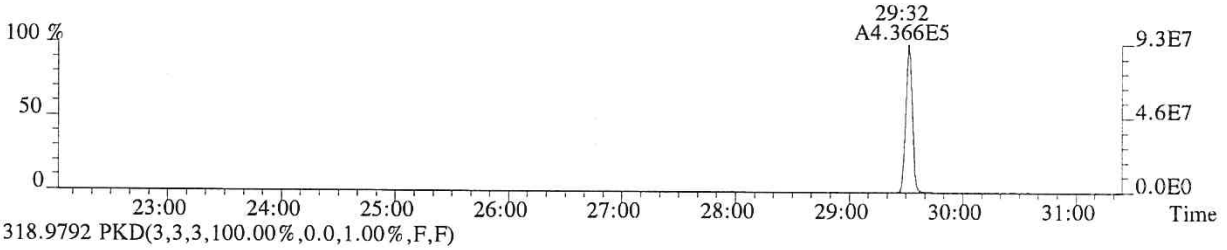
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



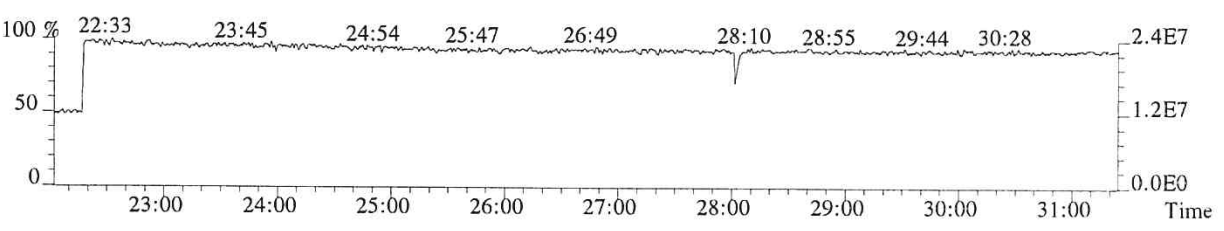
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)

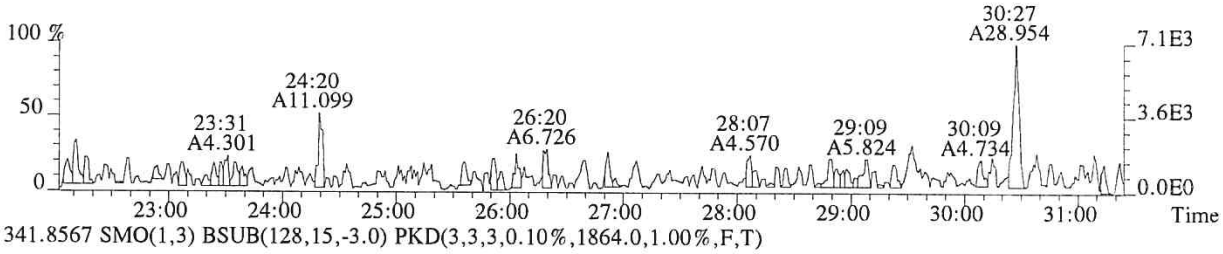


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

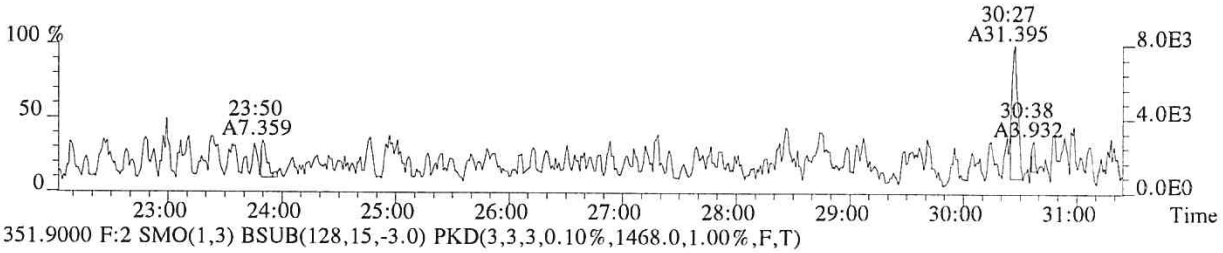


011715

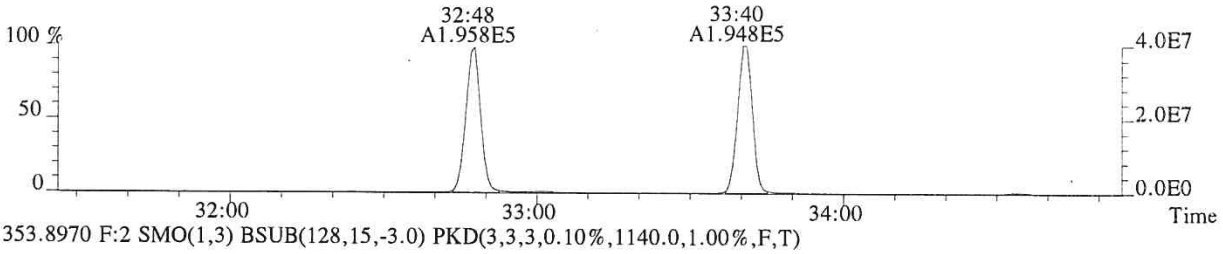
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



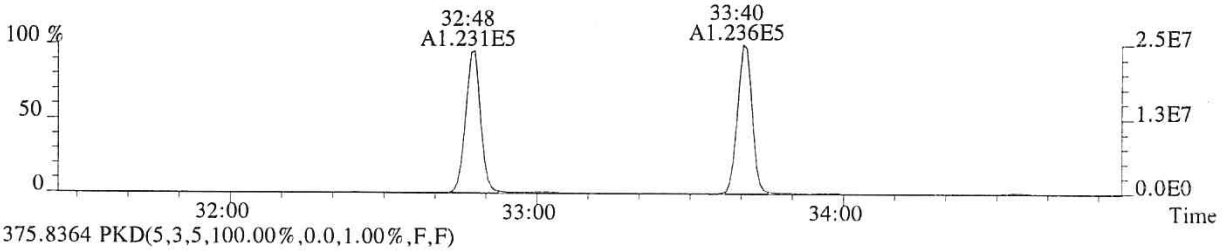
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



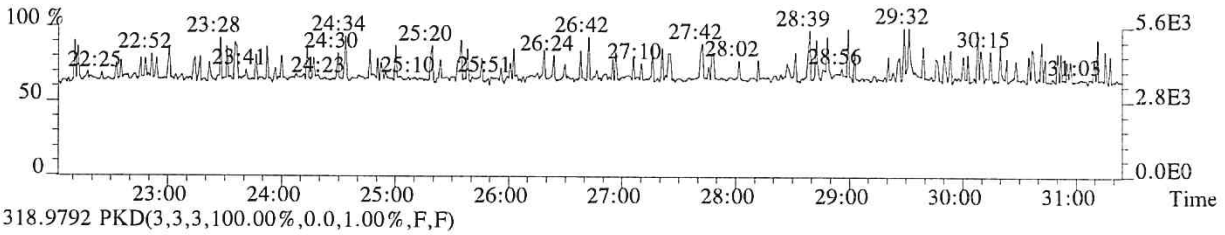
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



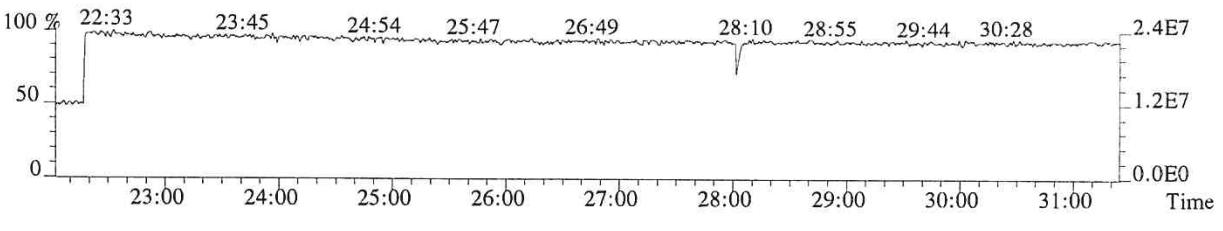
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

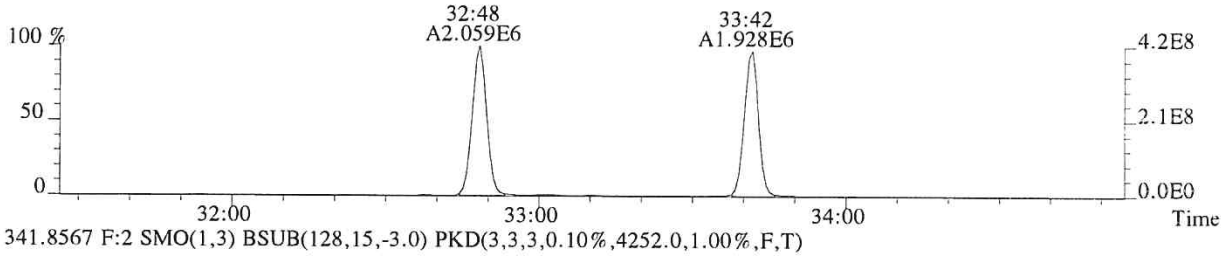


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

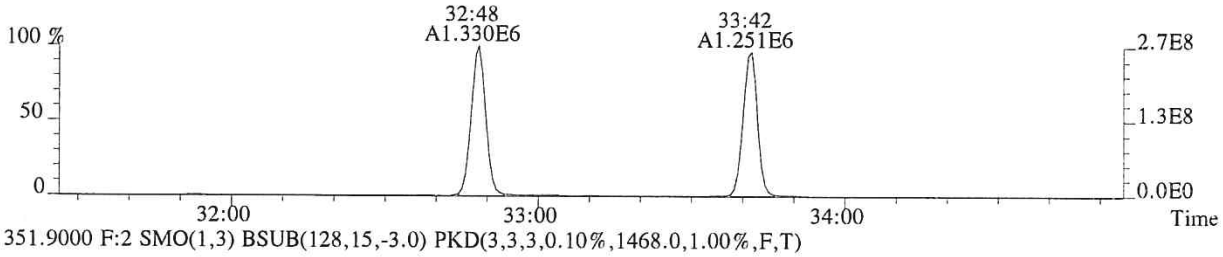


011716

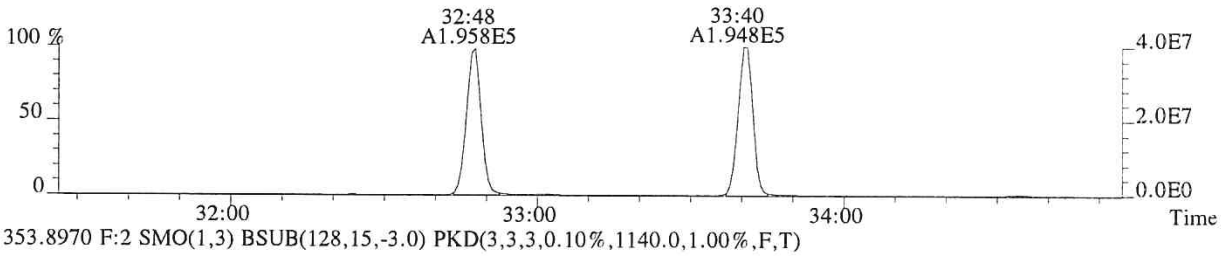
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



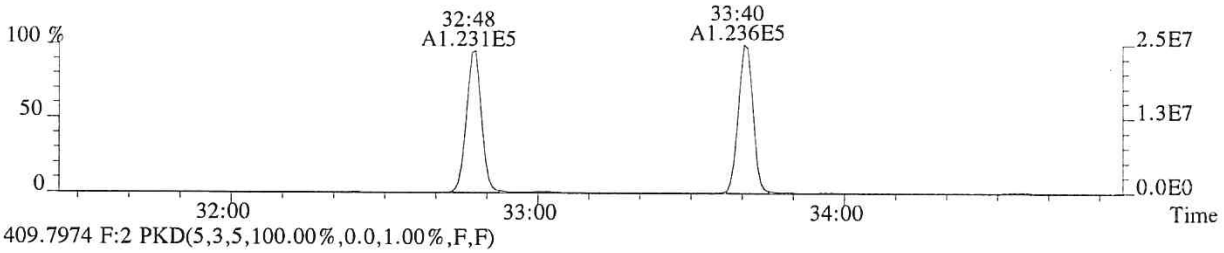
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



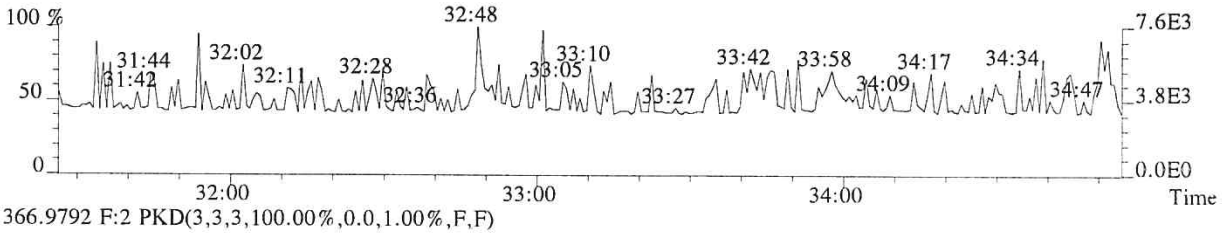
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



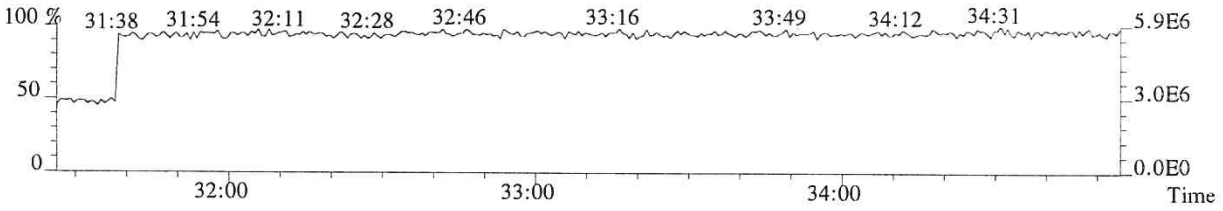
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

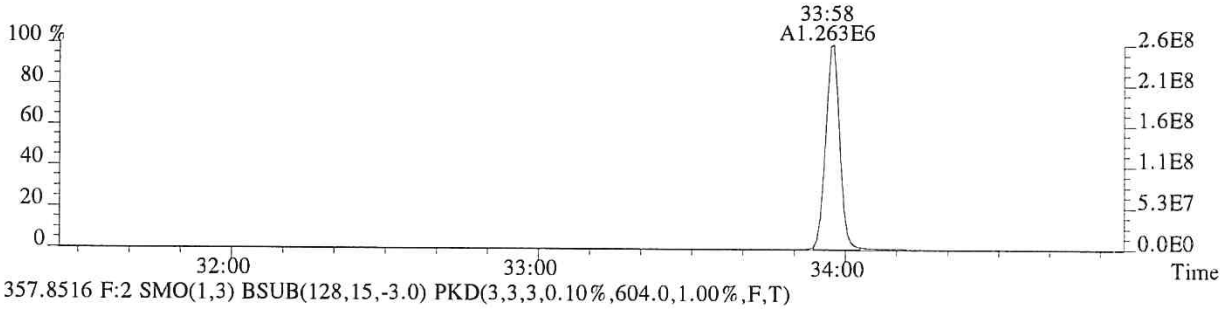


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

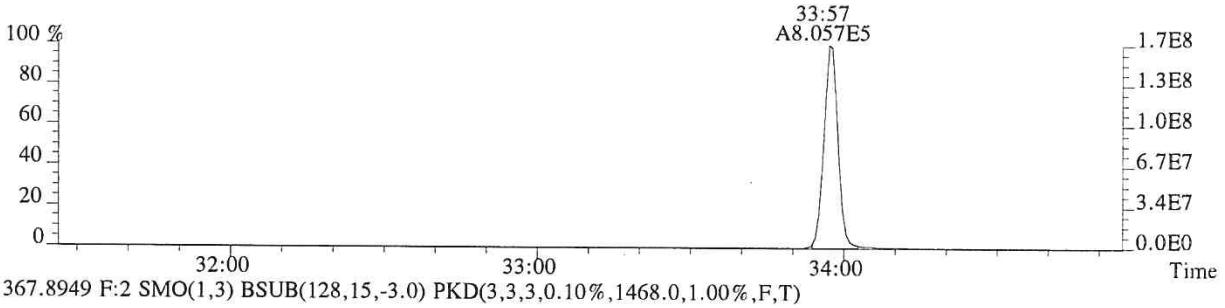


011717

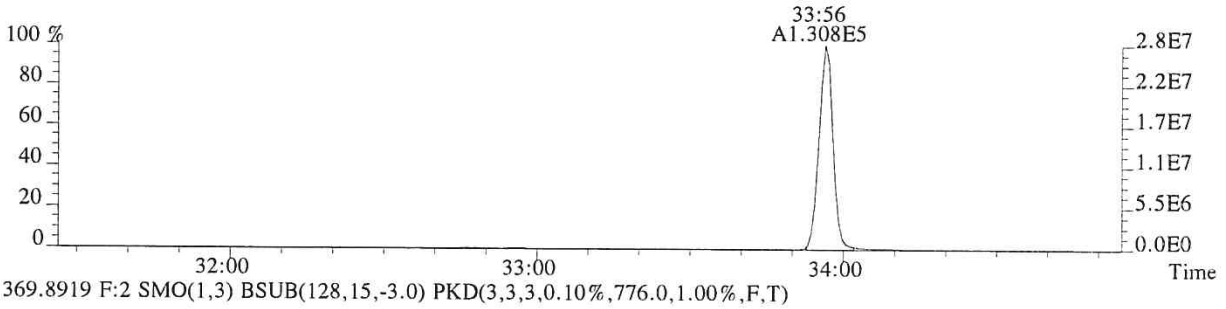
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



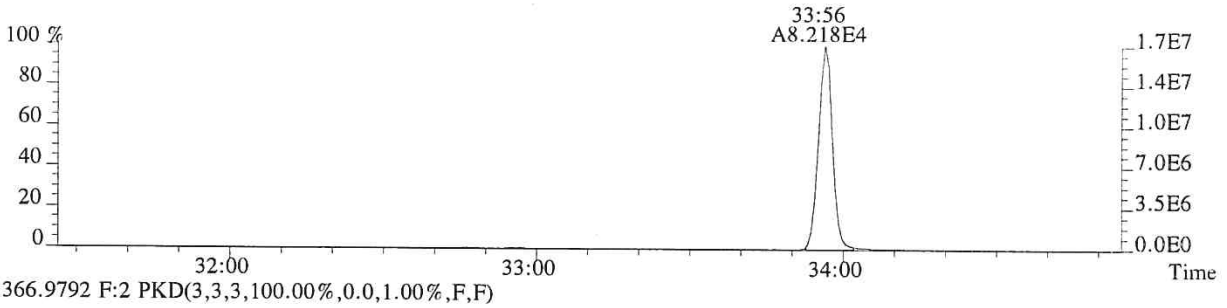
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



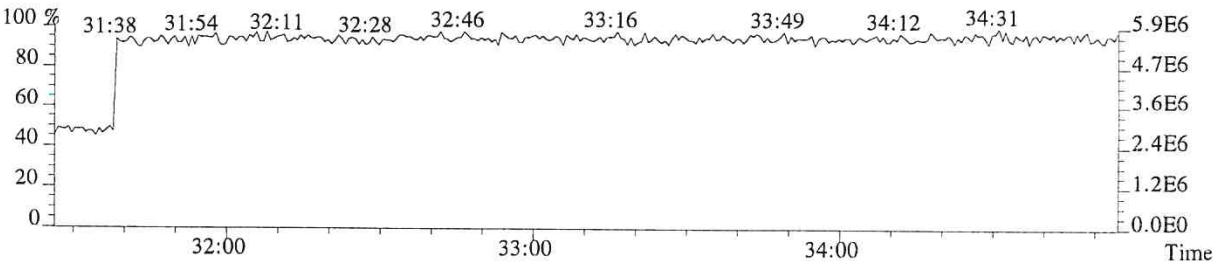
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



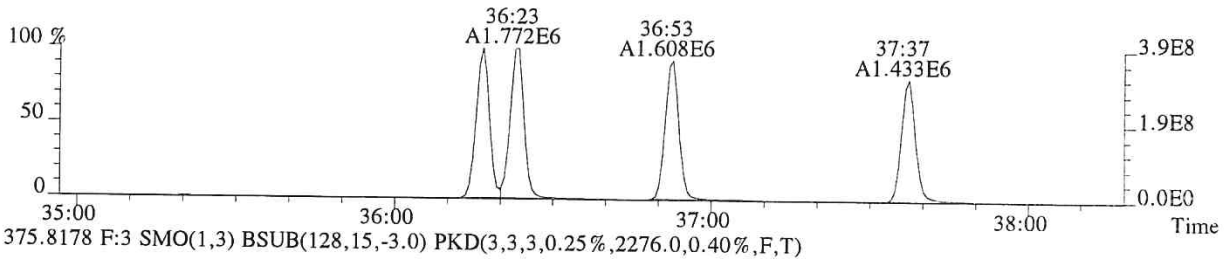
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



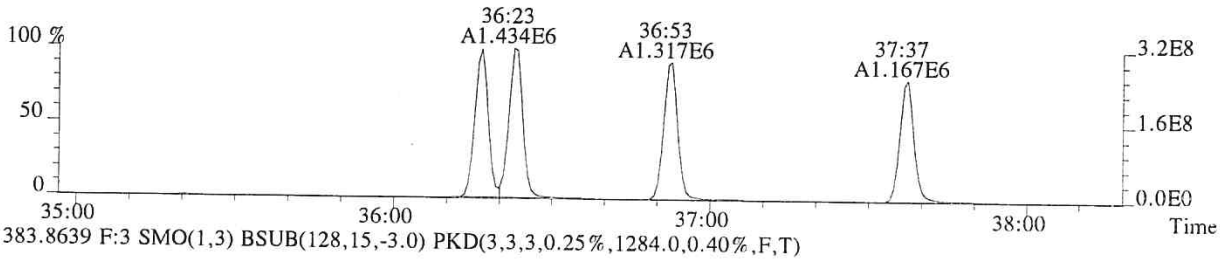
011718

File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657

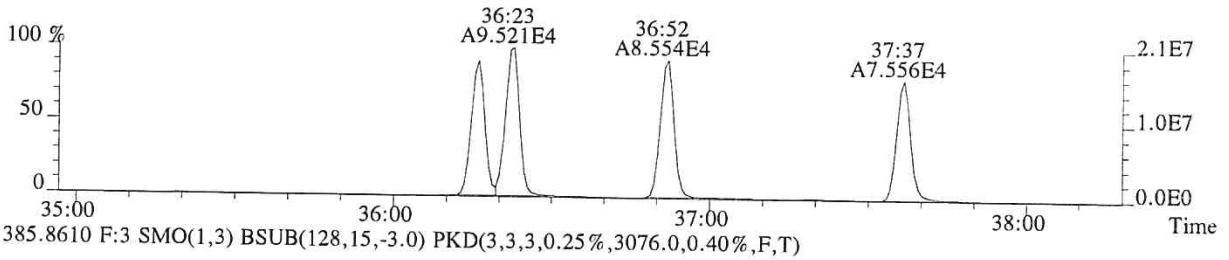
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



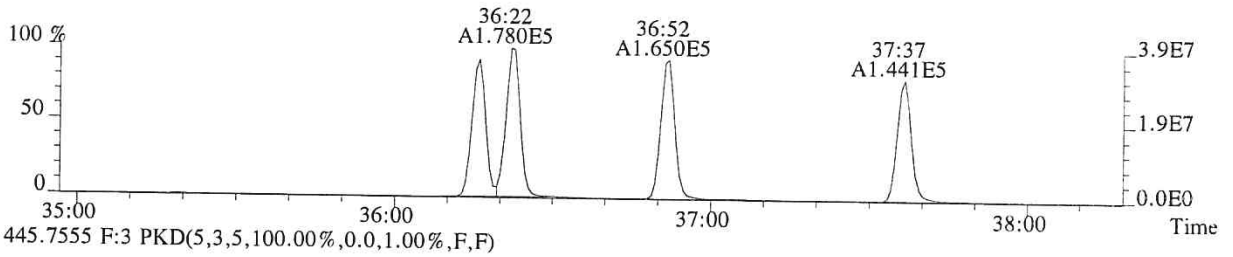
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



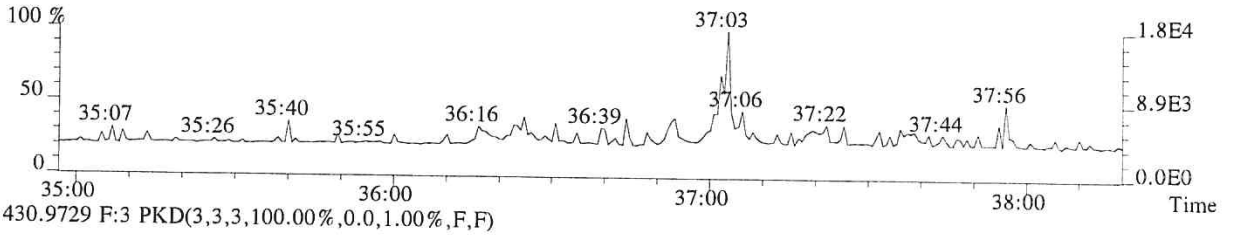
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



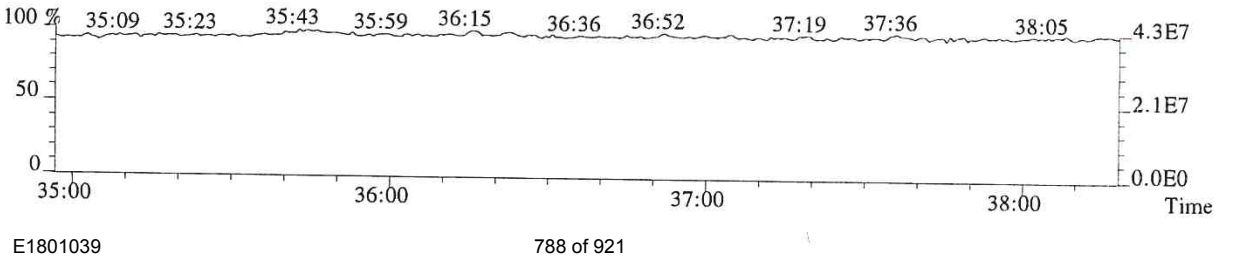
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

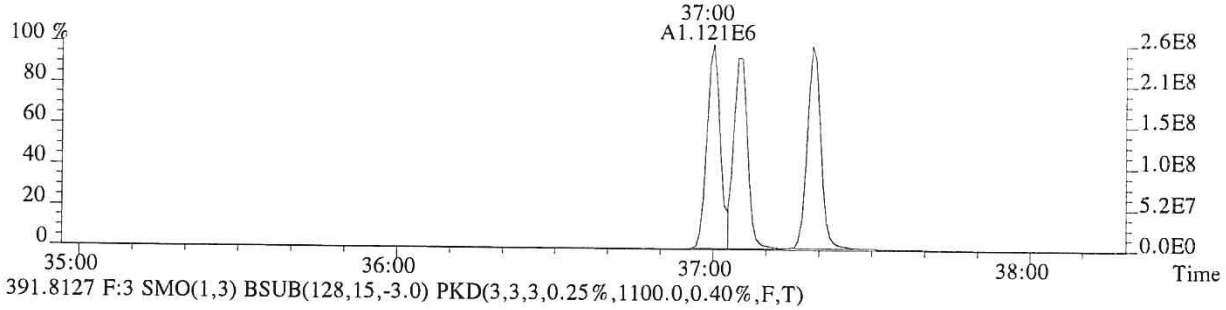


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

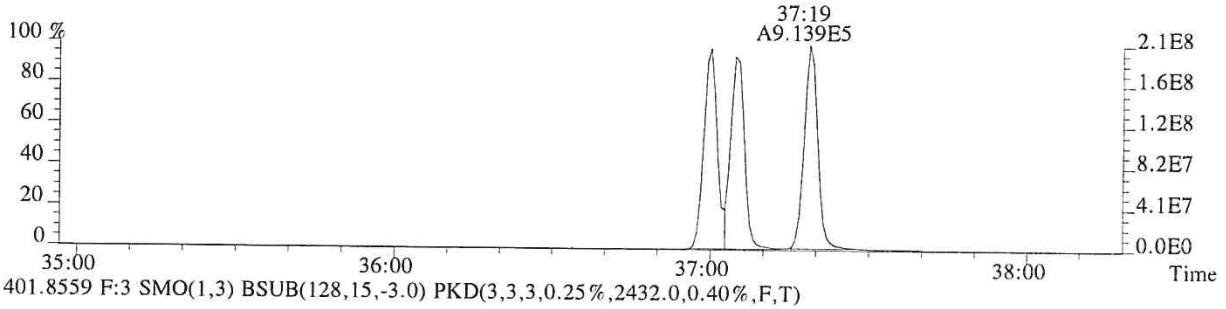


011719

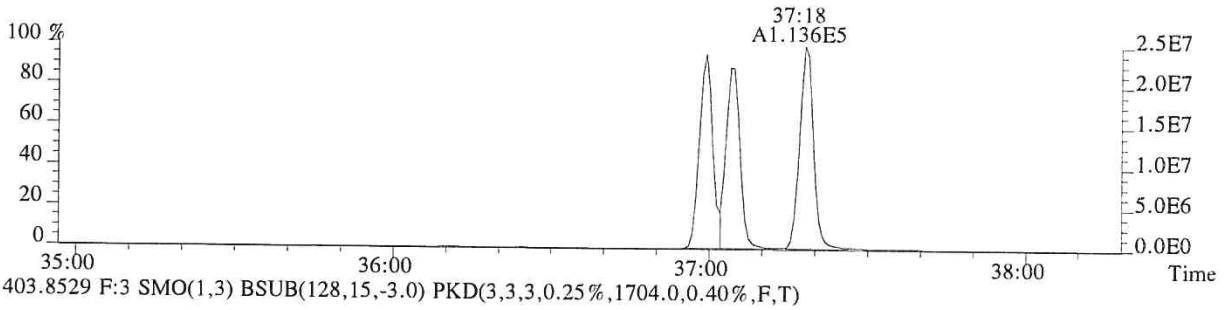
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



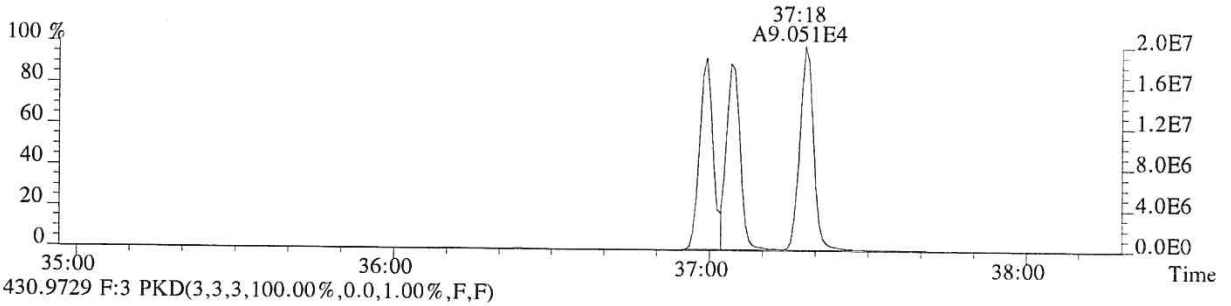
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



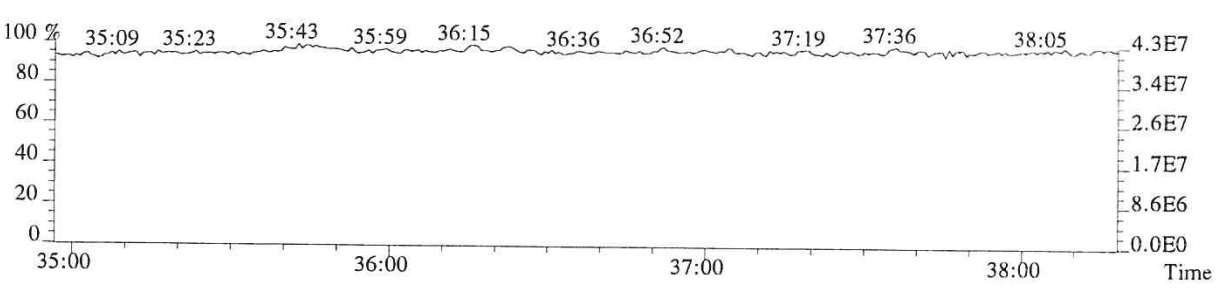
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)

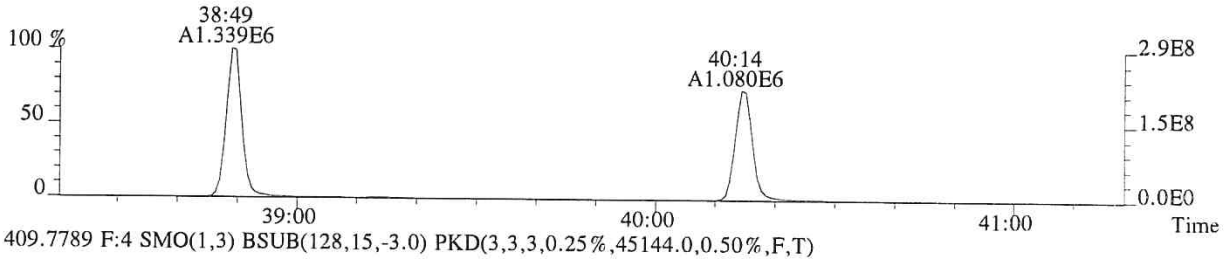


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

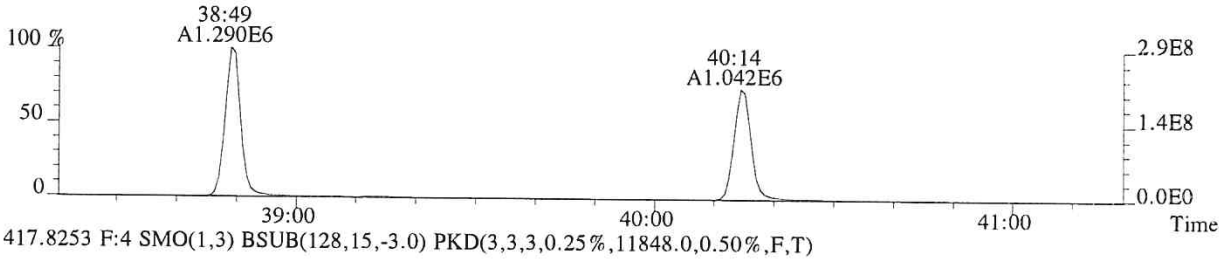


011720

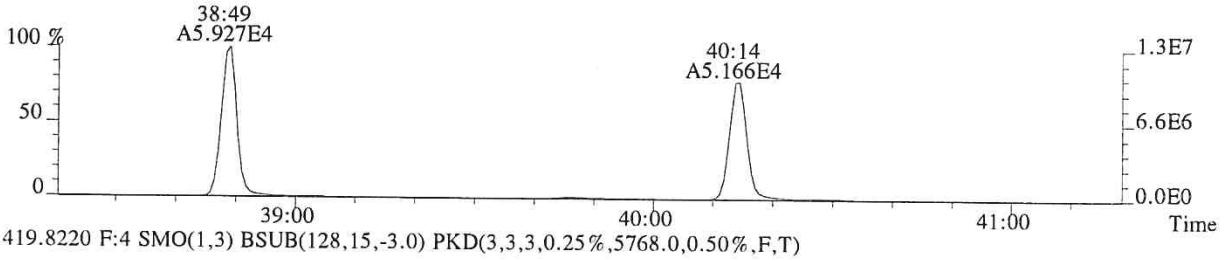
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



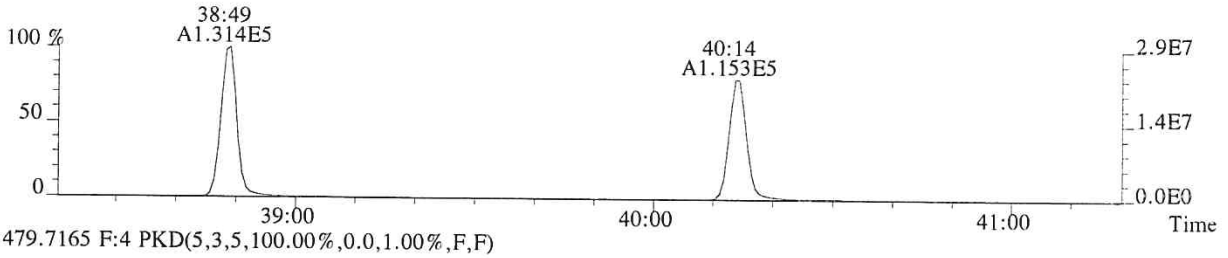
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



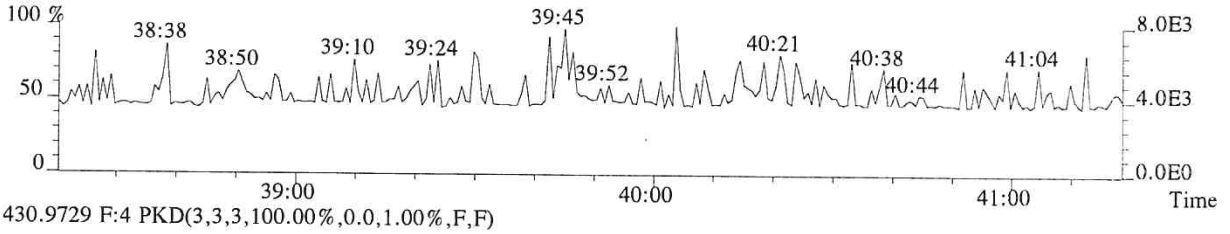
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



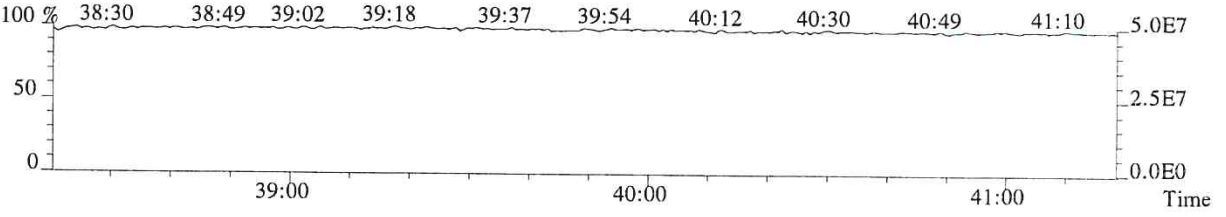
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

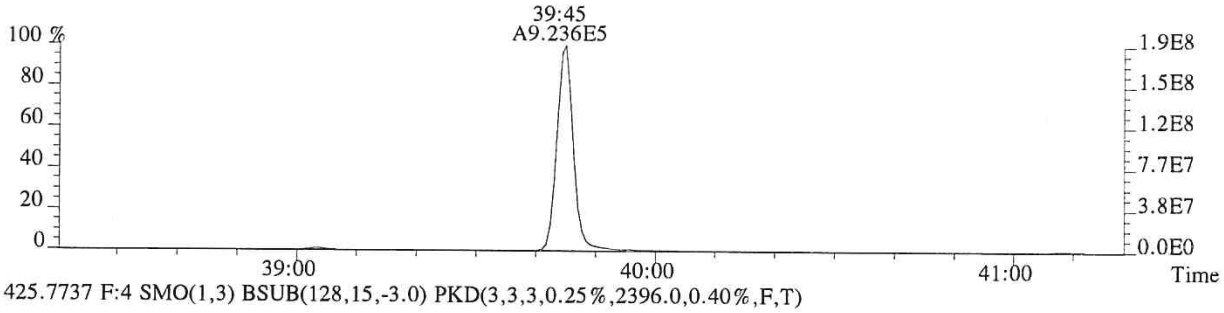


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

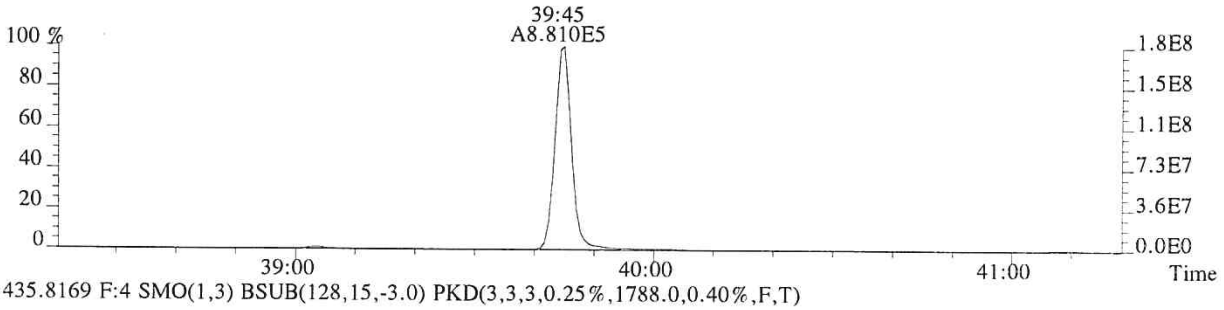


011721

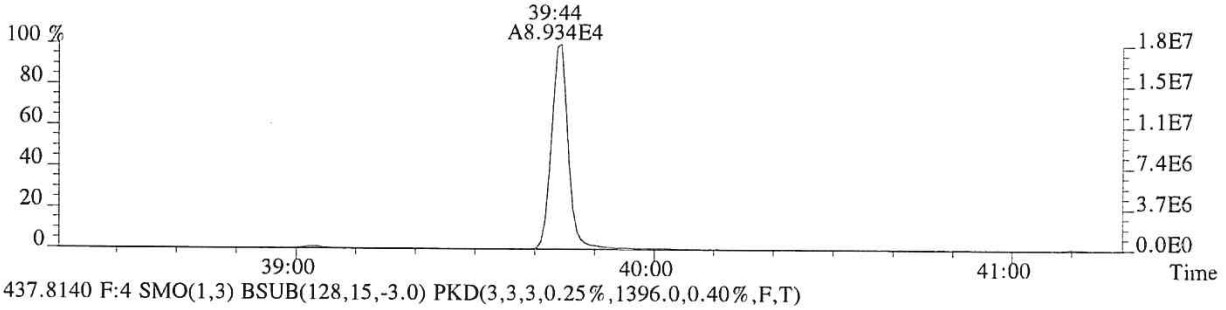
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



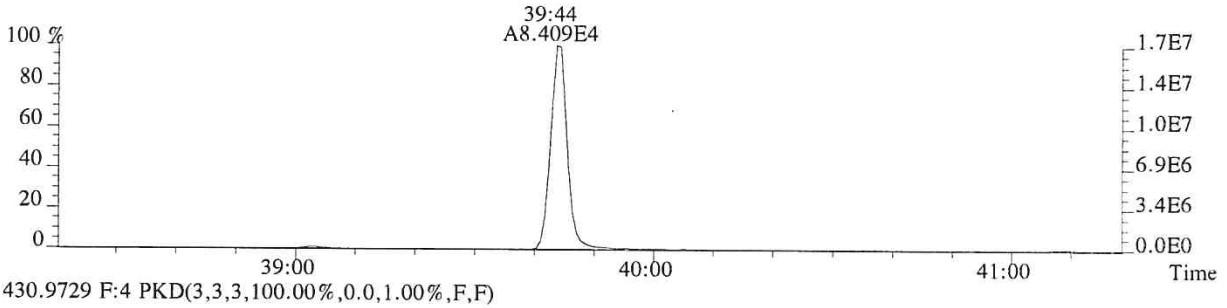
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



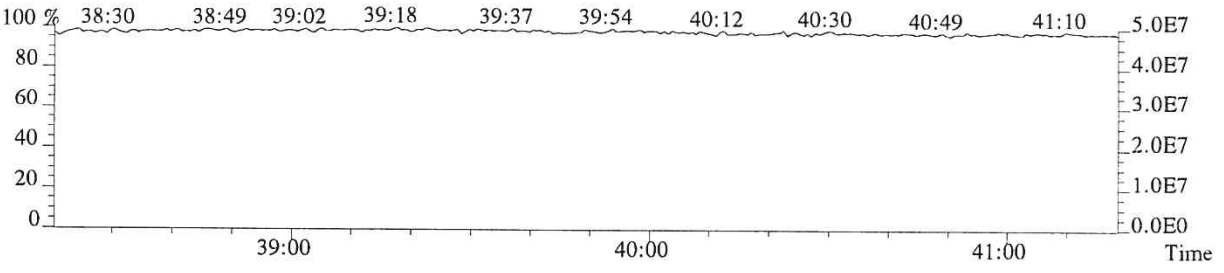
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)

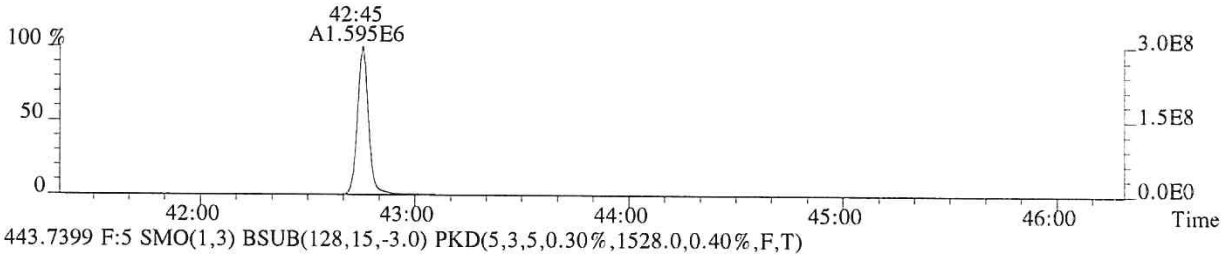


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

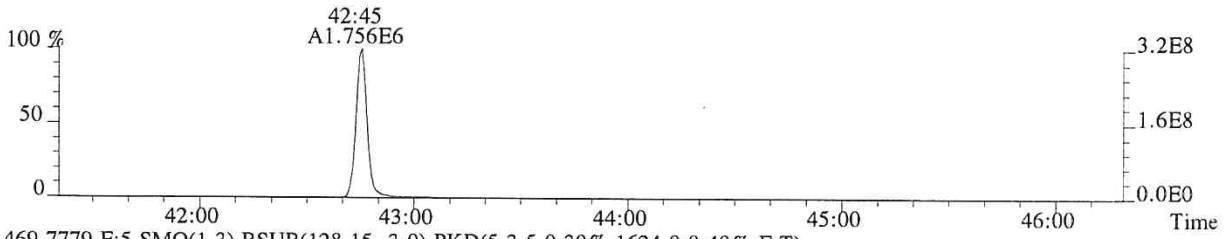


011722

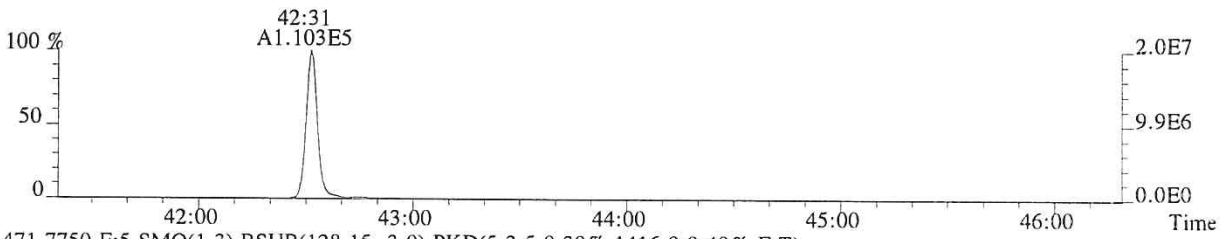
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



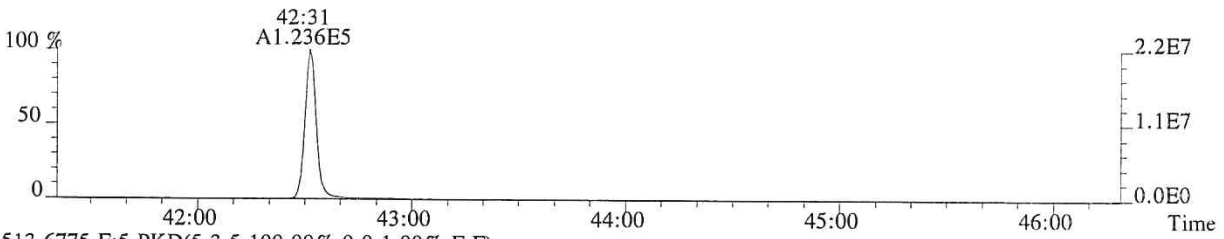
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



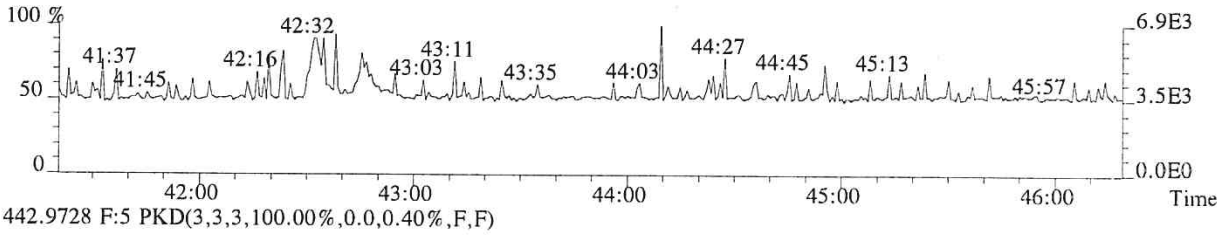
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



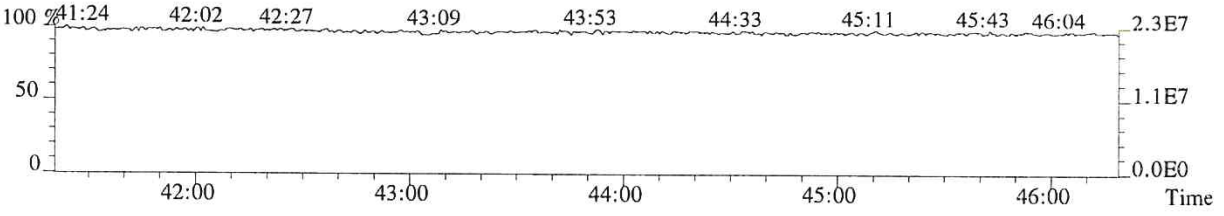
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

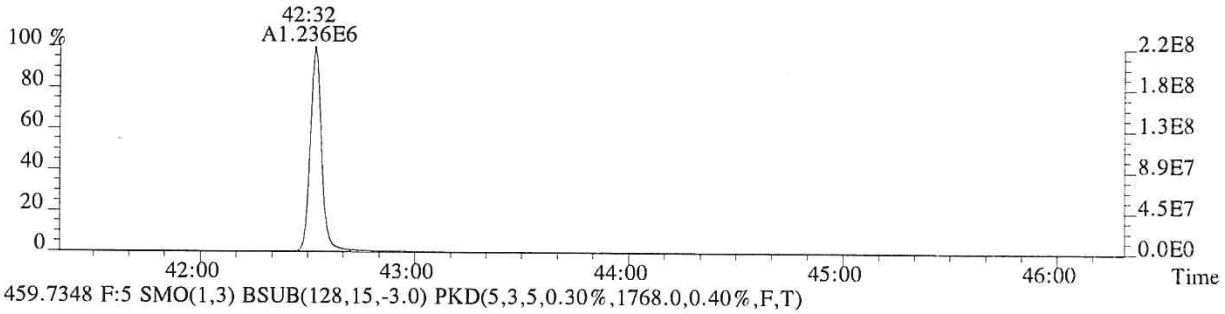


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

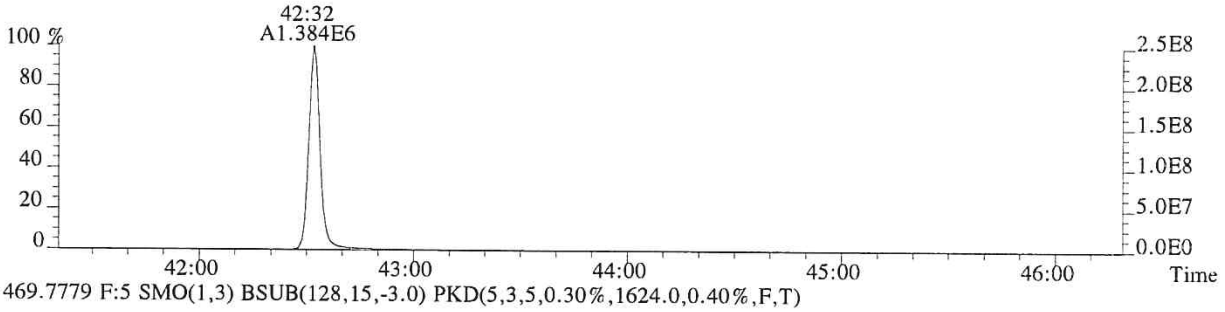


011723

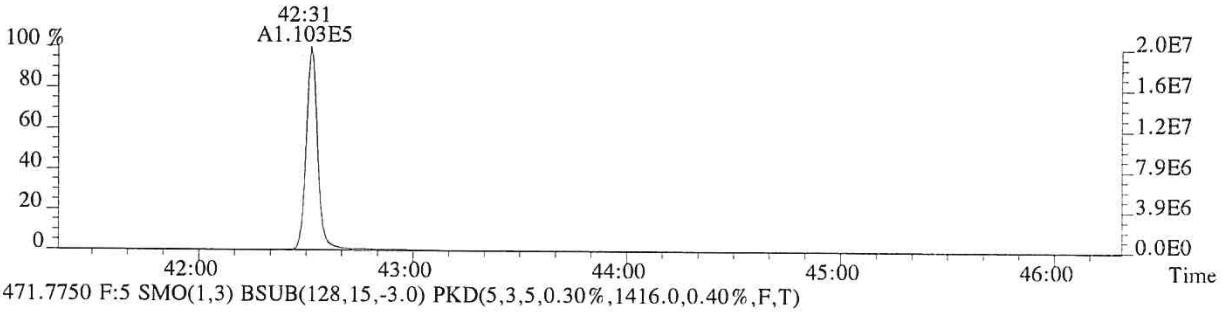
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



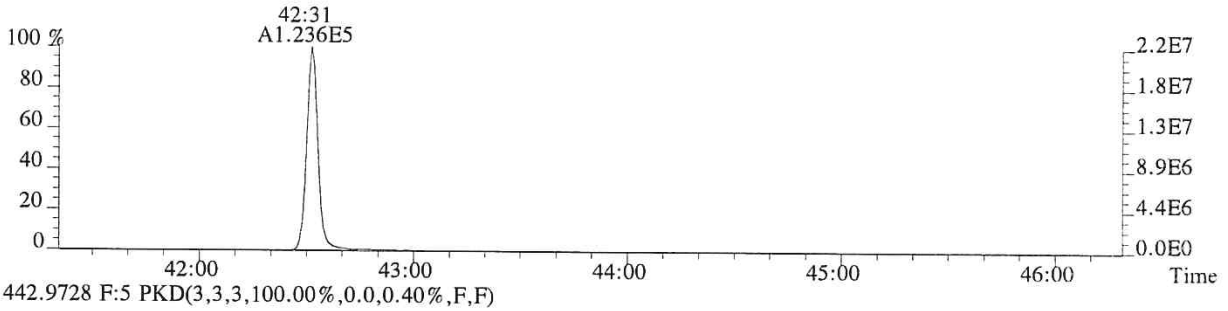
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



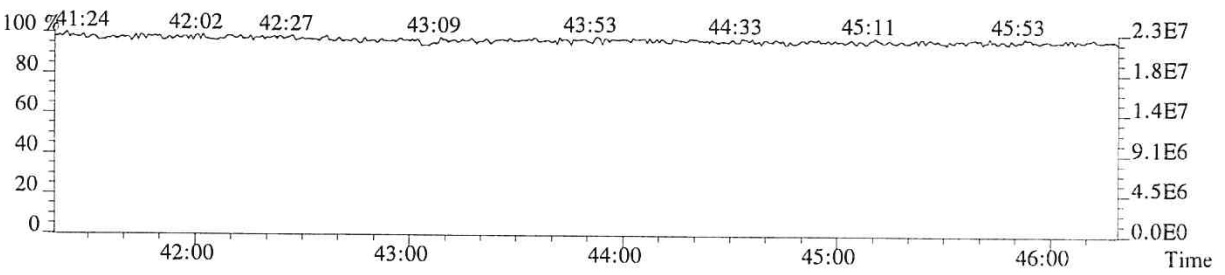
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011724

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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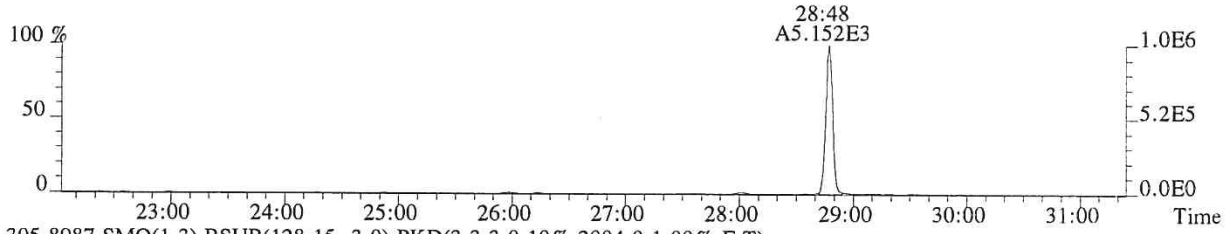
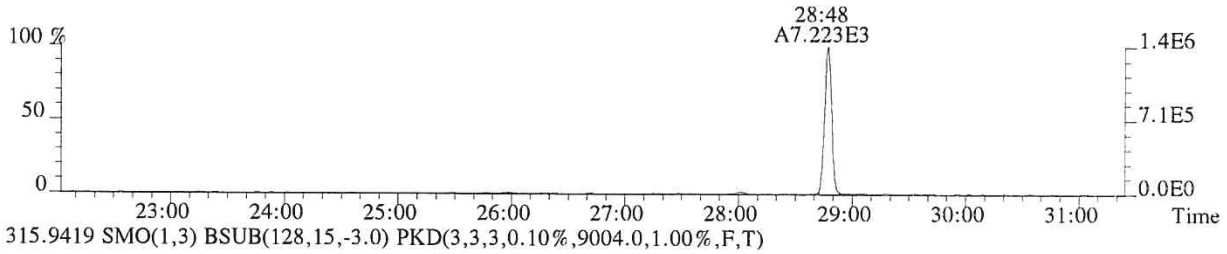
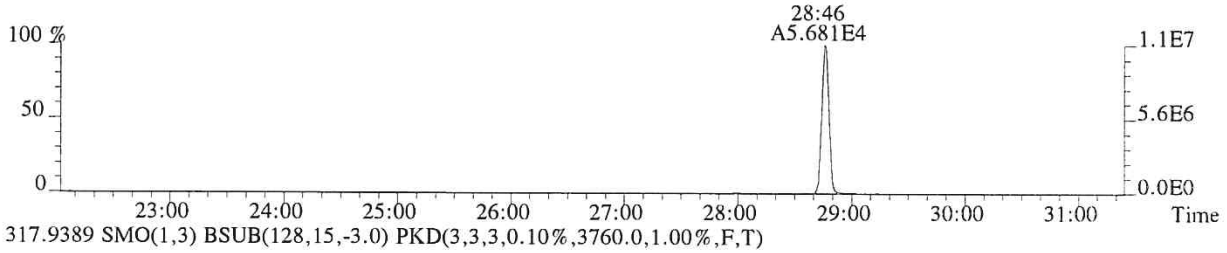
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



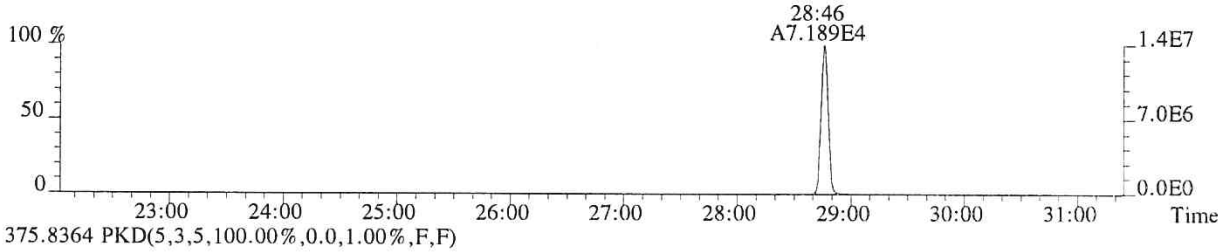
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



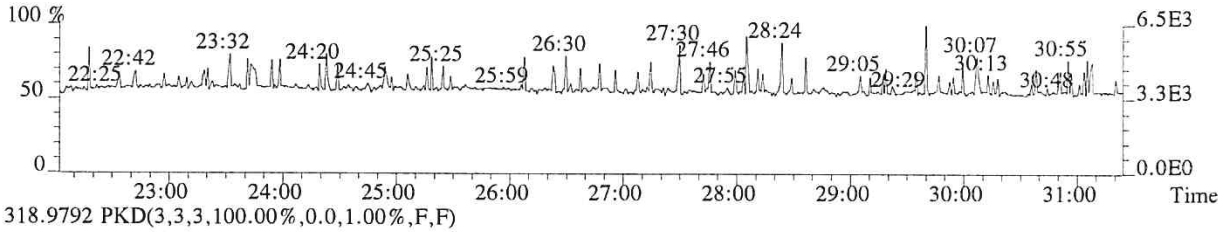
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



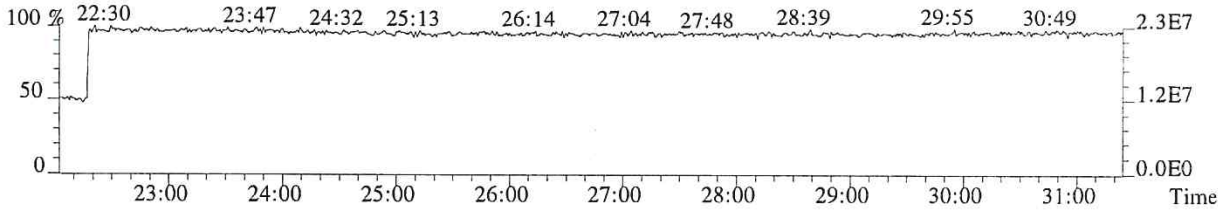
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

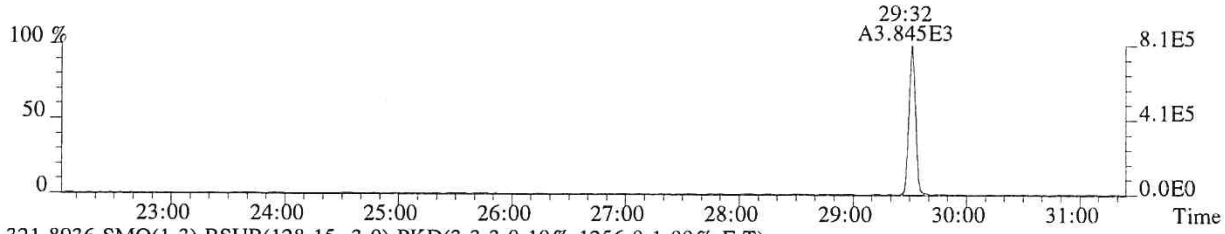


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

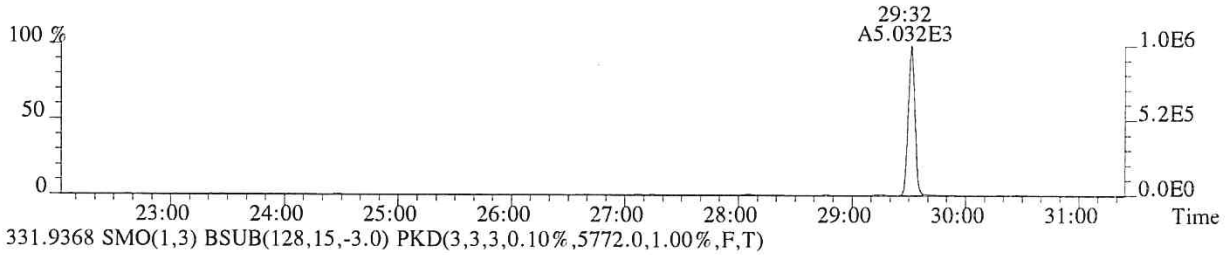


011729

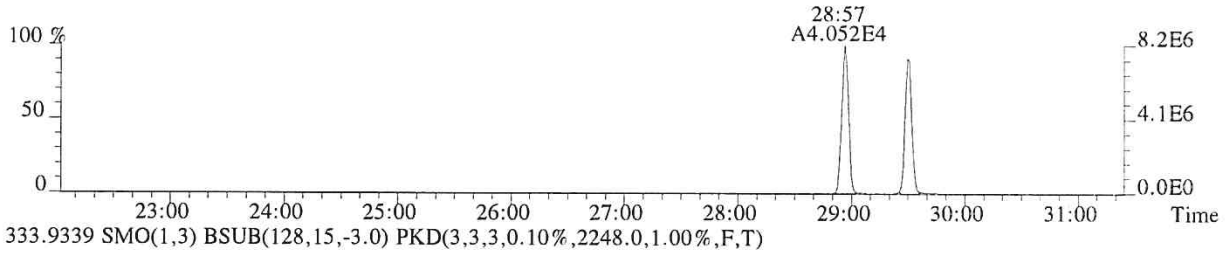
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



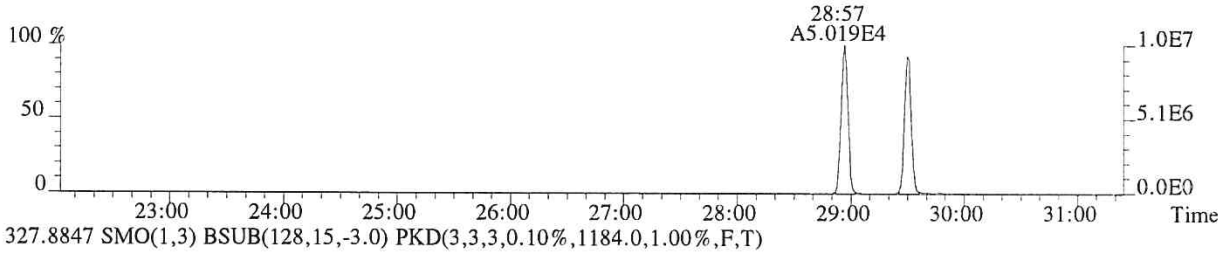
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



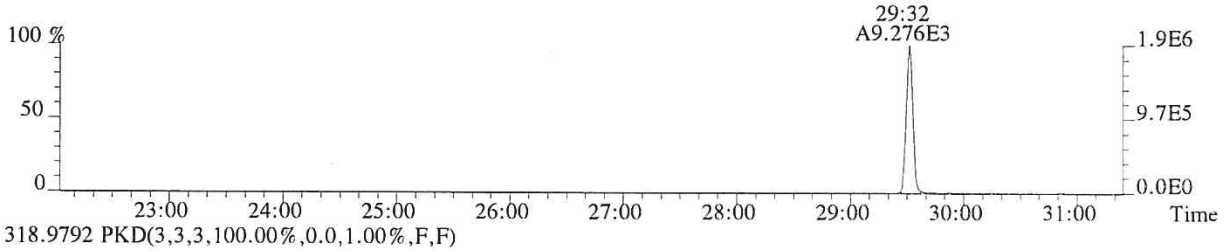
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



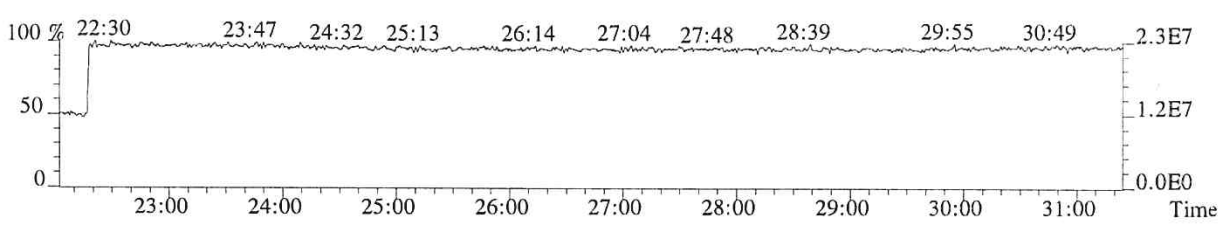
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)

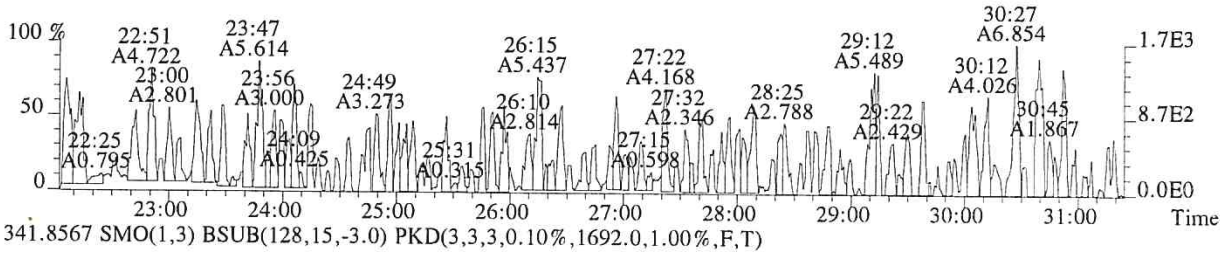


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

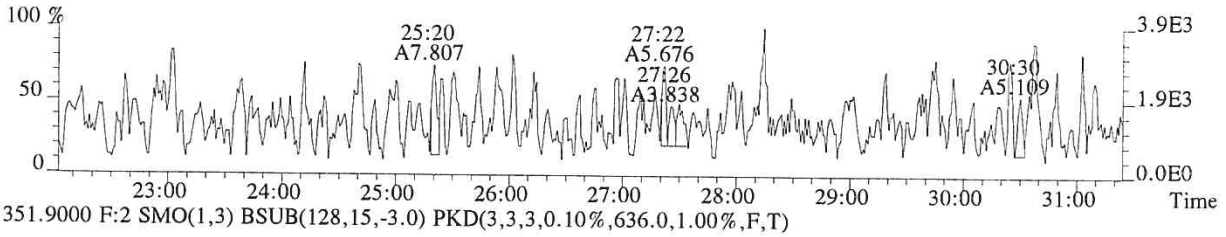


011730

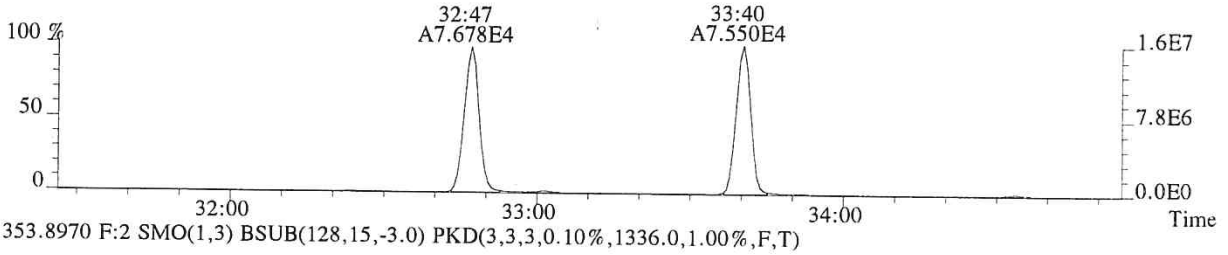
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



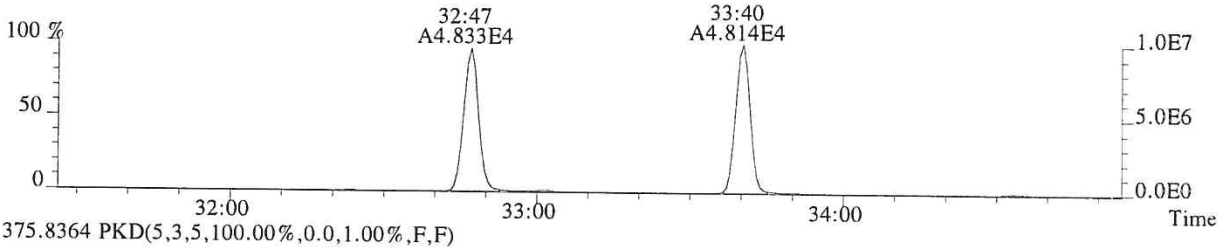
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



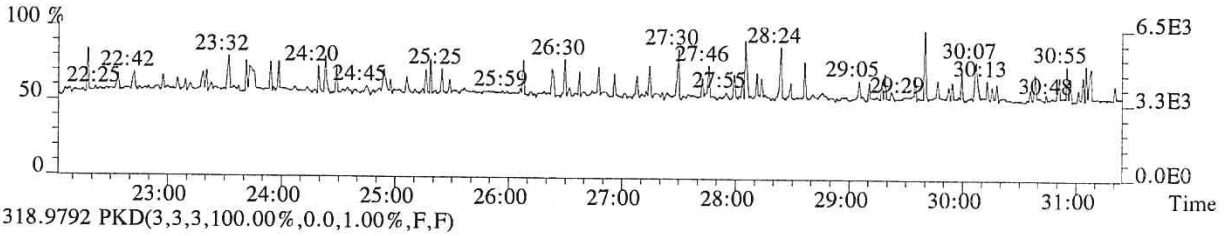
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



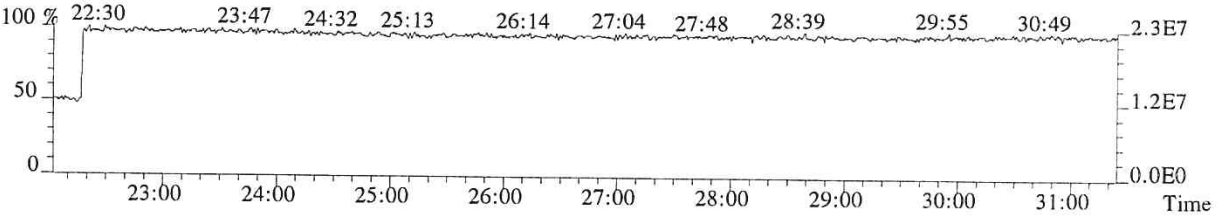
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

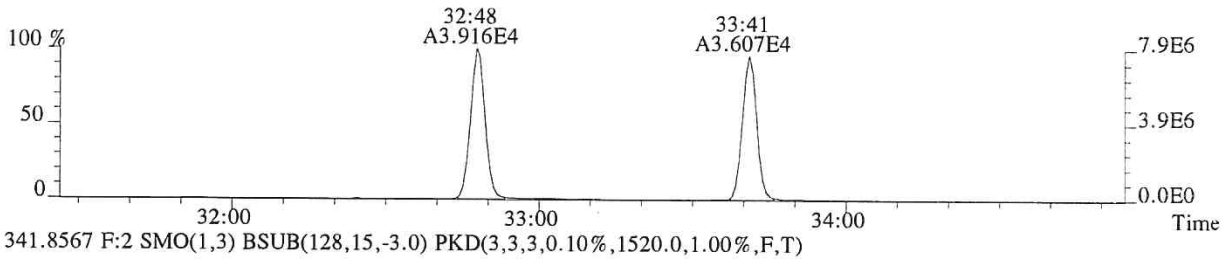


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

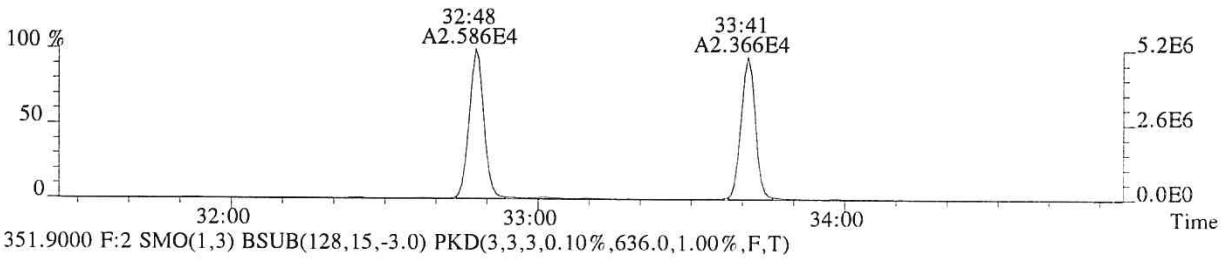


011731

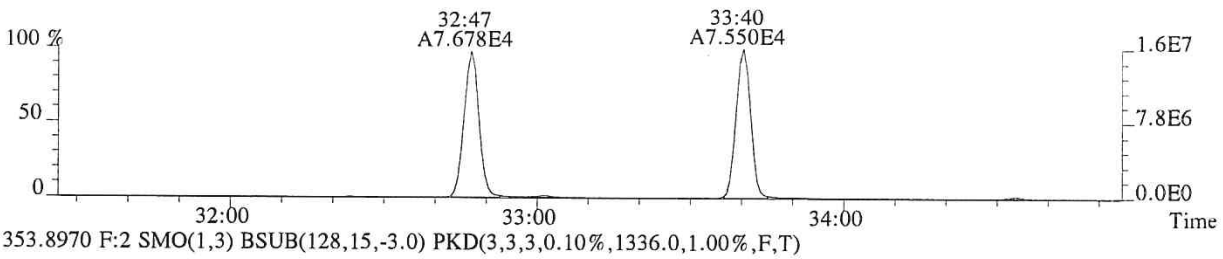
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



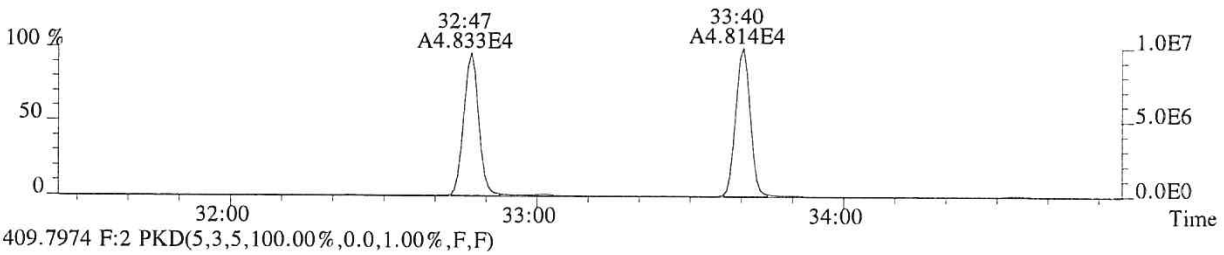
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



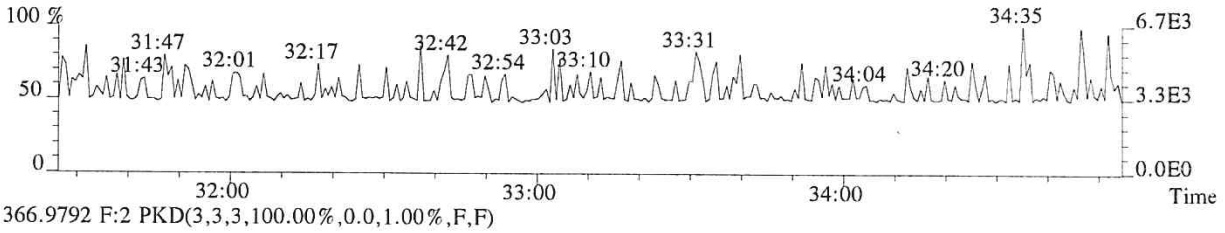
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



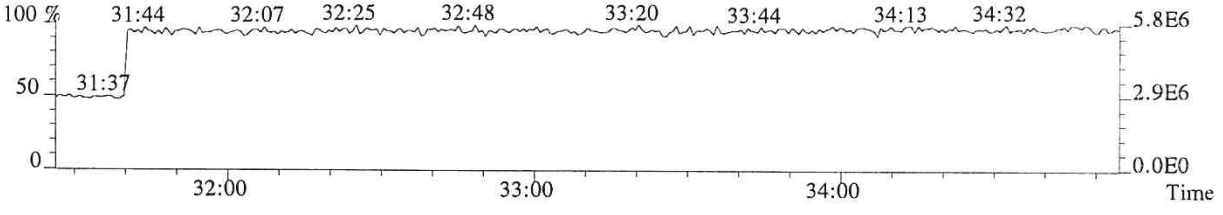
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

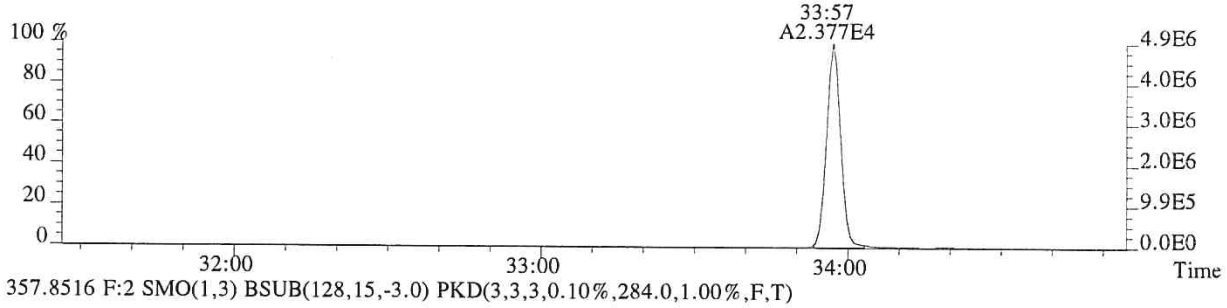


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

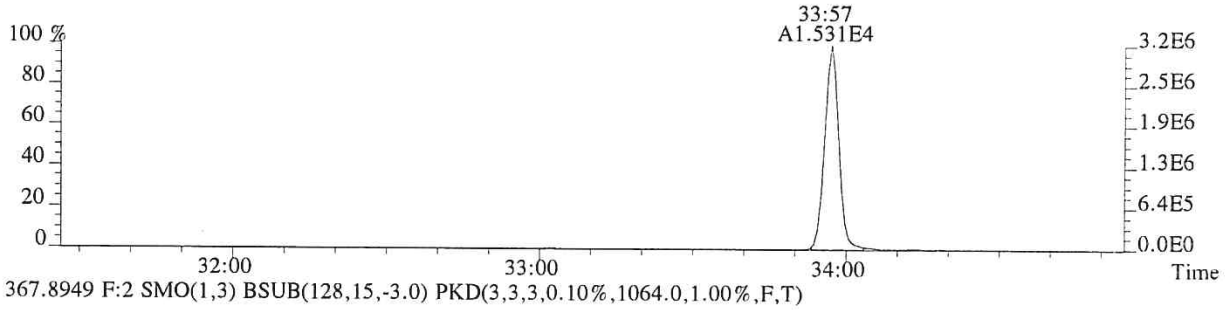


011732

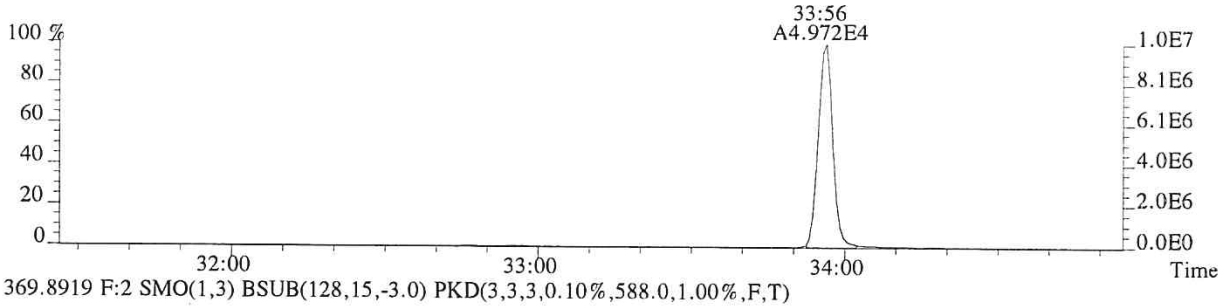
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



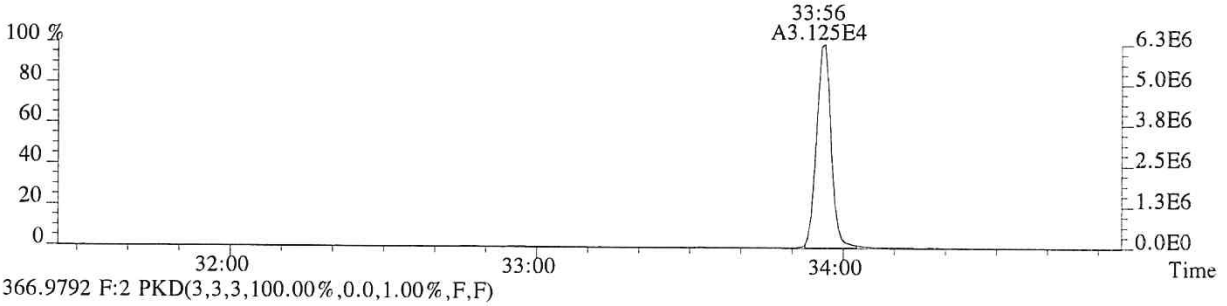
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



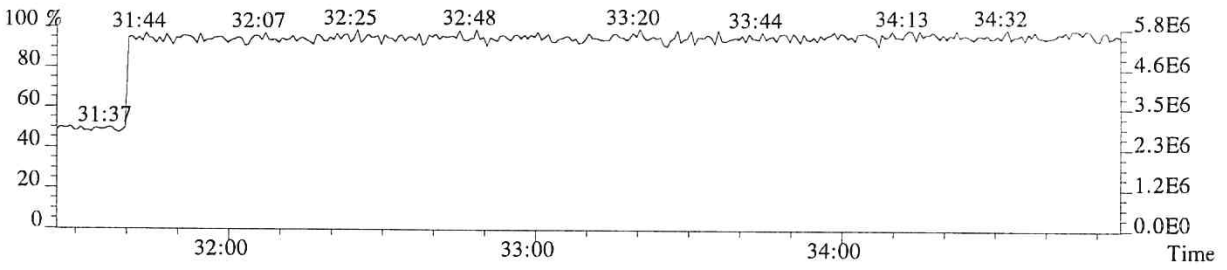
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)

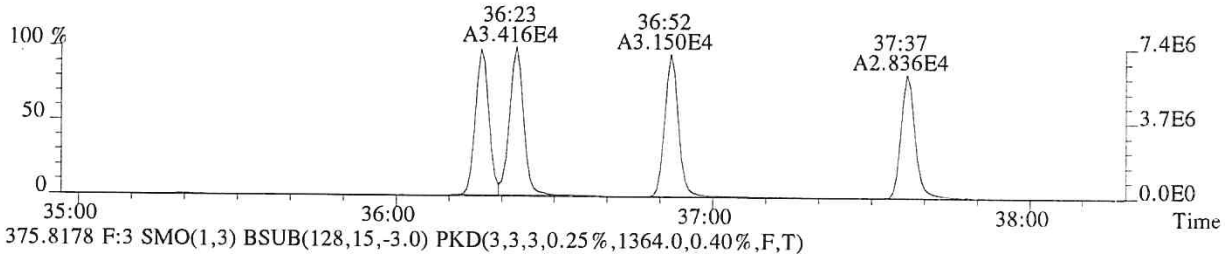


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

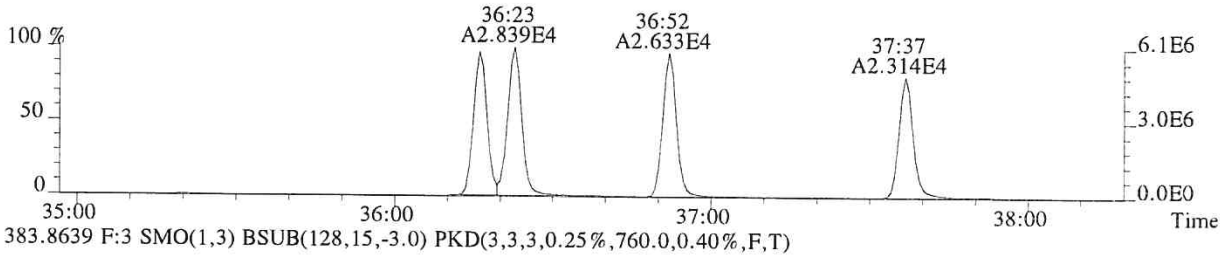


011733

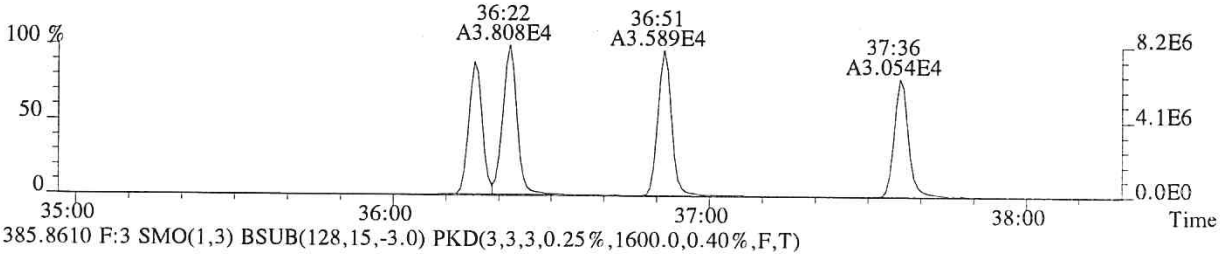
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



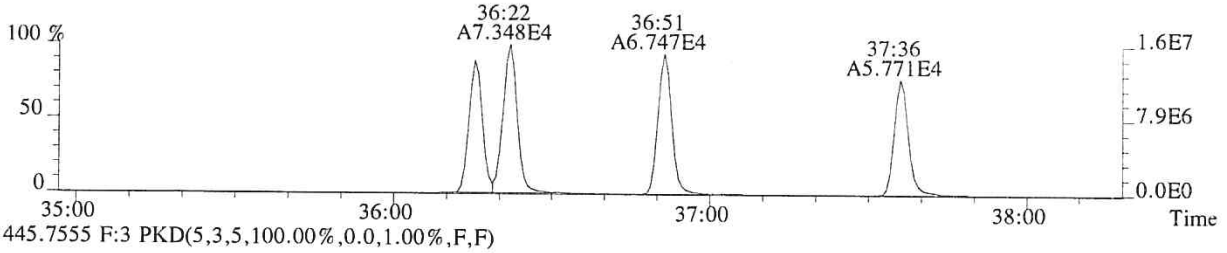
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



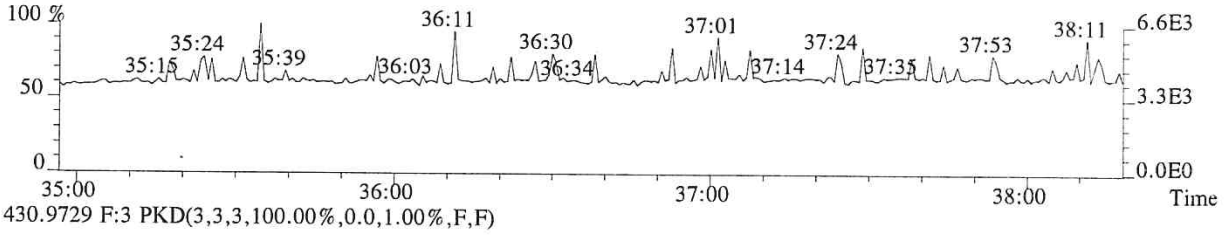
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



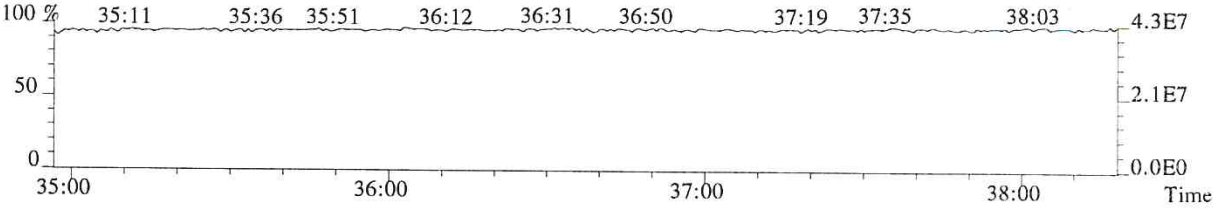
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

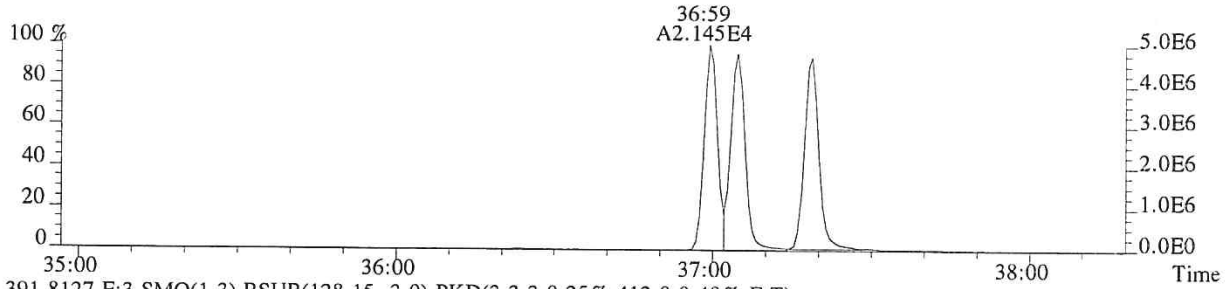


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

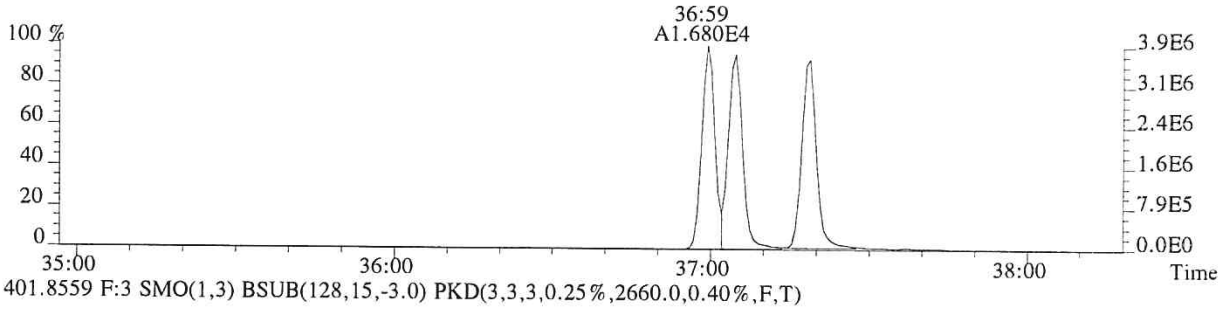


011734

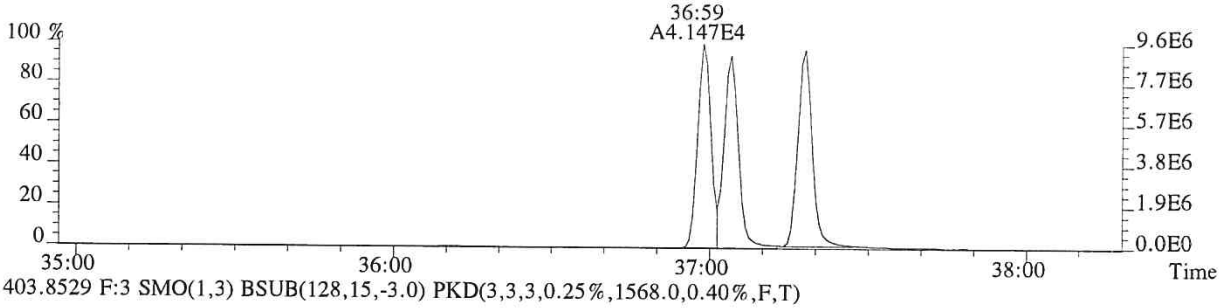
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



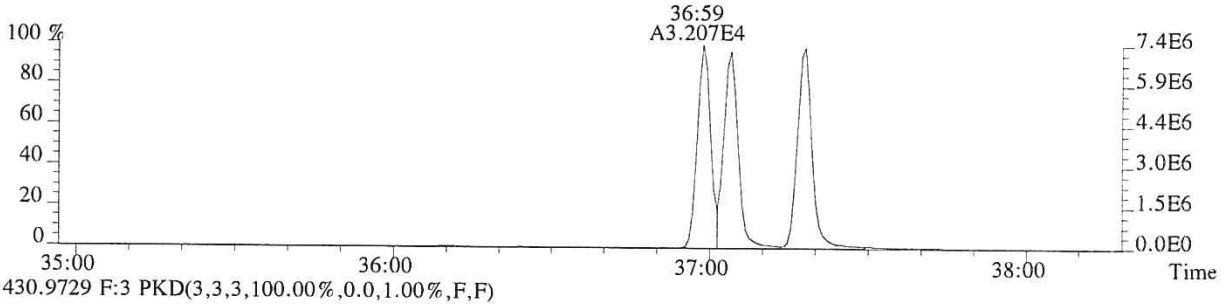
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



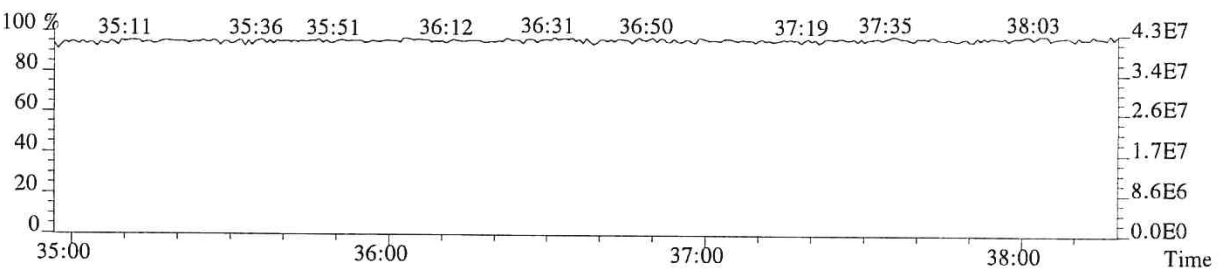
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)

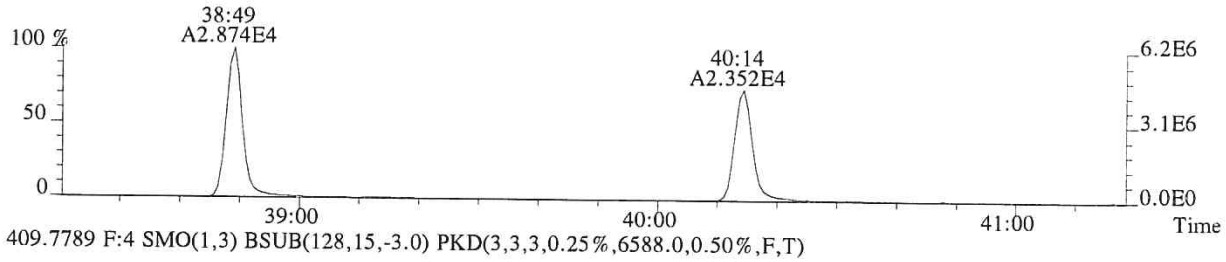


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

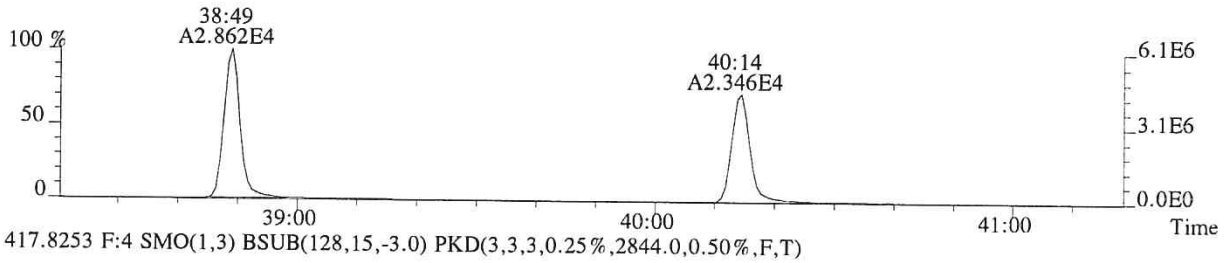


011735

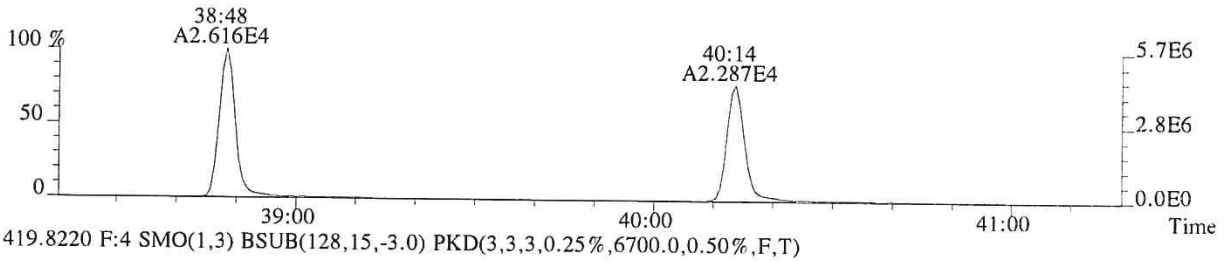
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



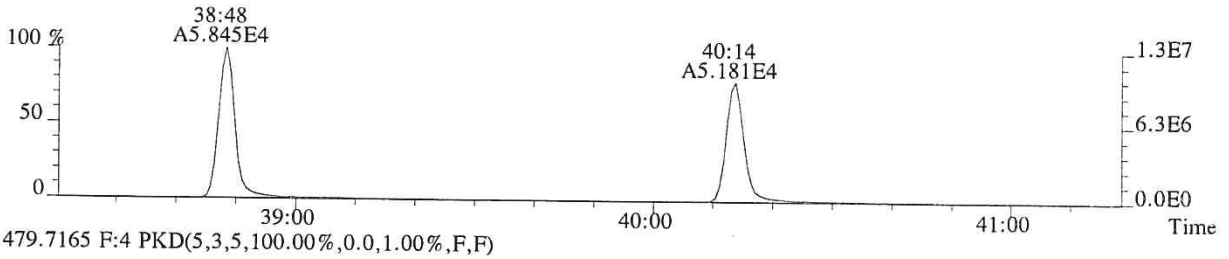
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



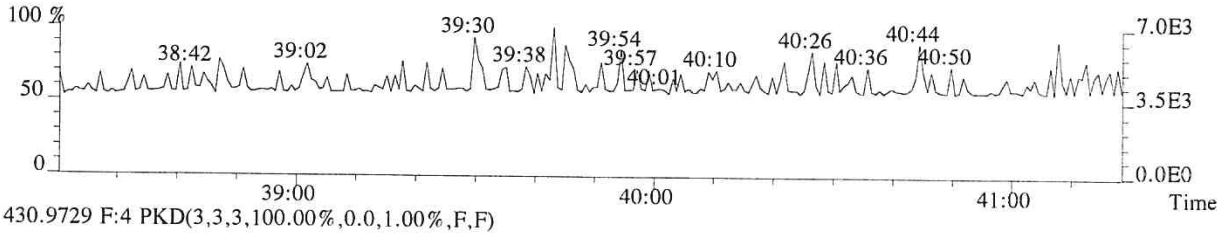
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



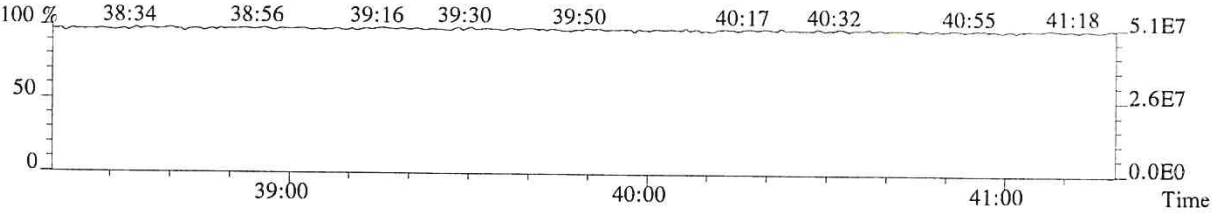
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

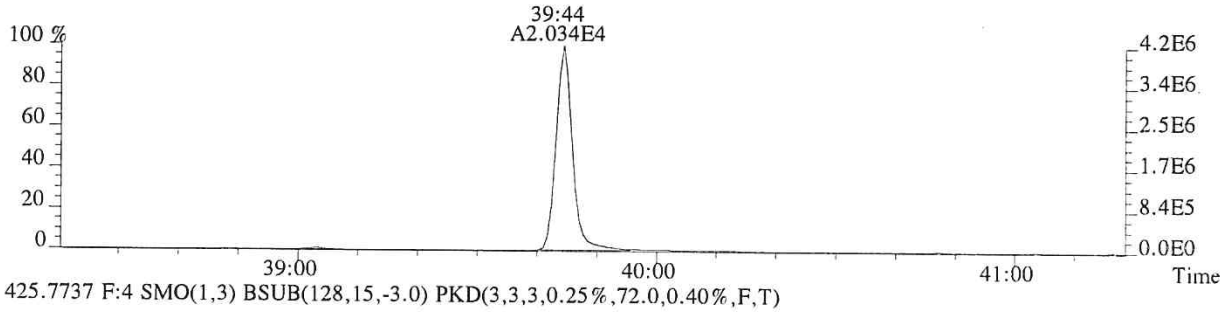


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

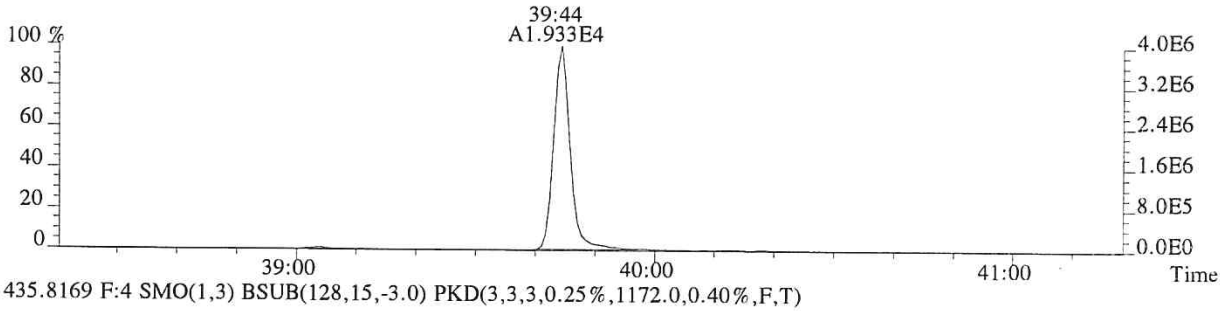


011736

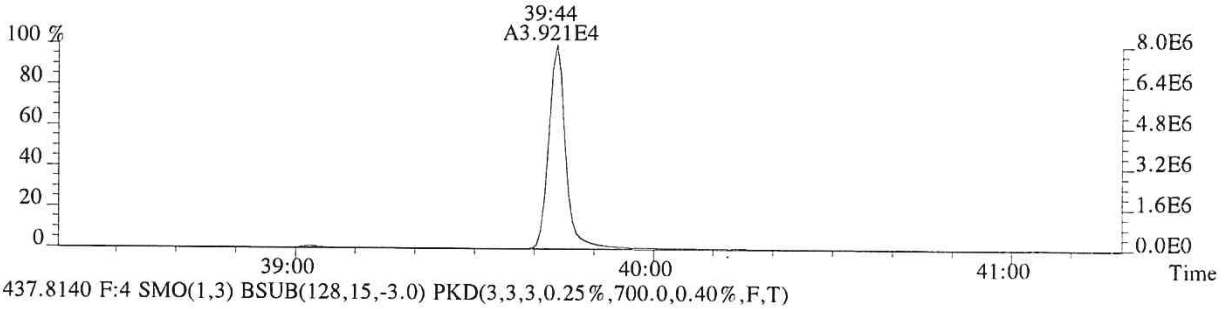
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



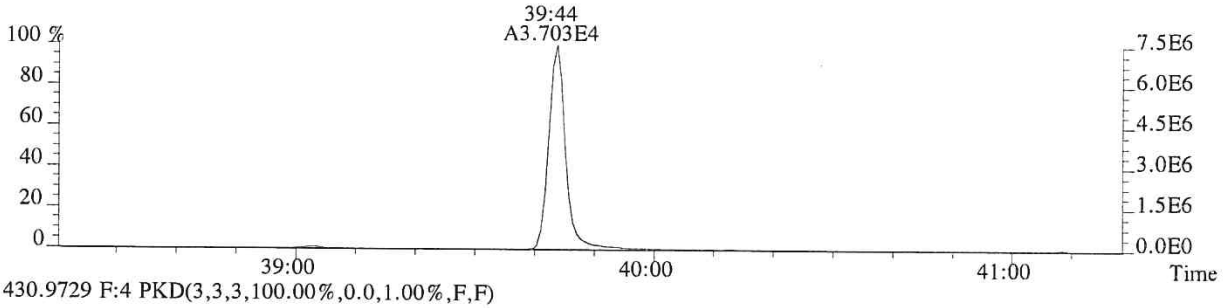
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



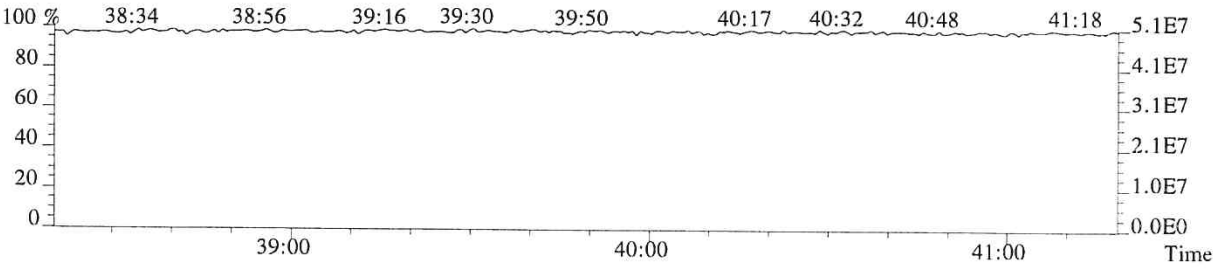
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

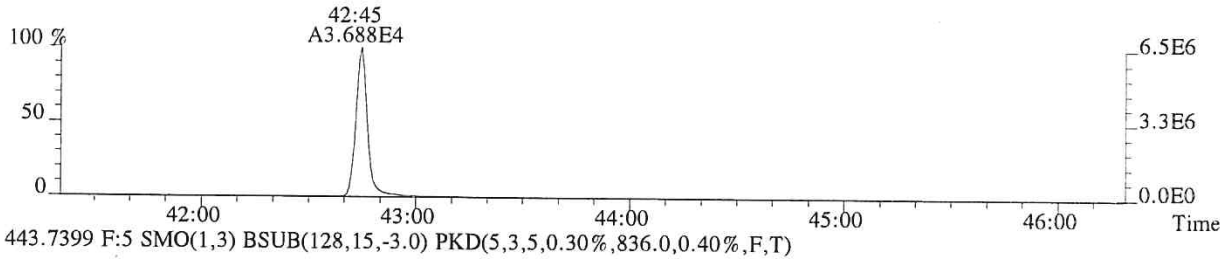


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

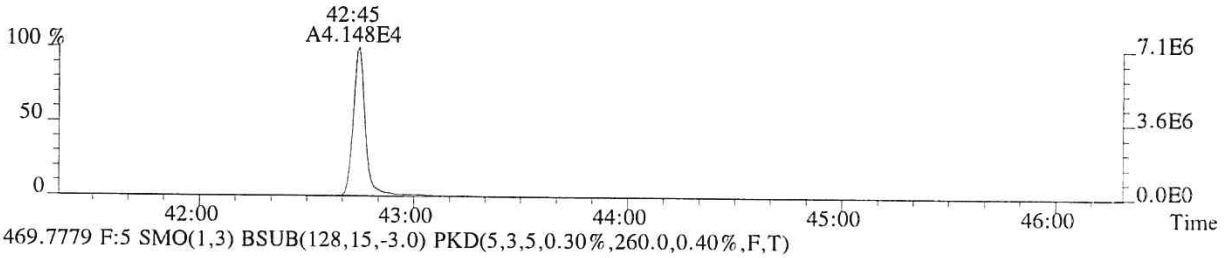


011737

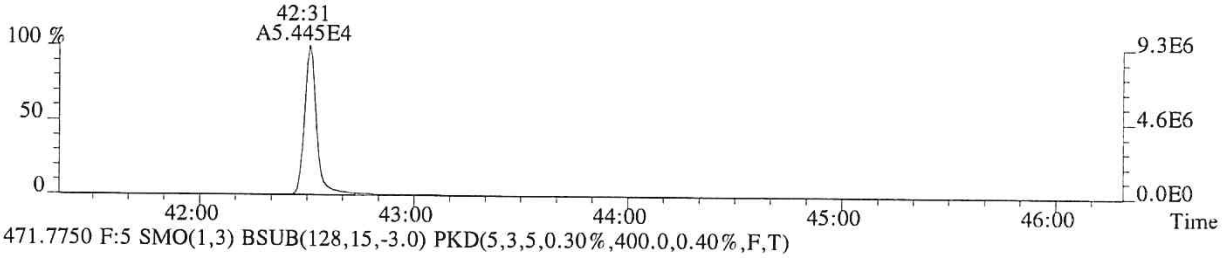
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



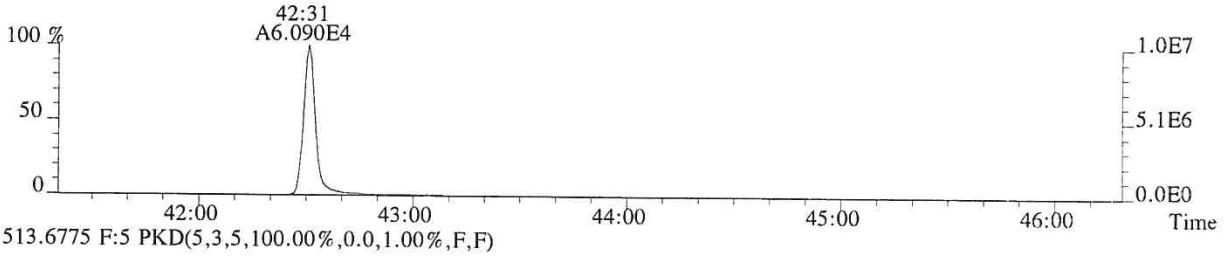
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



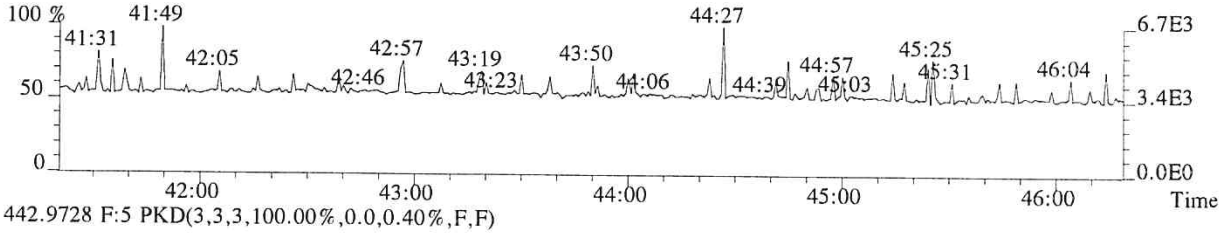
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



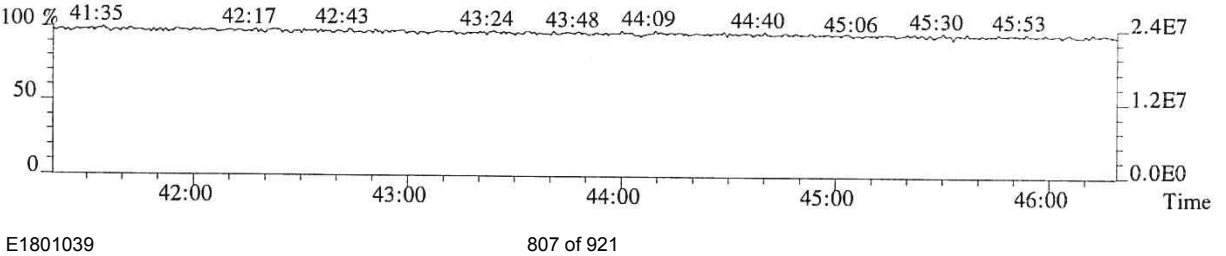
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

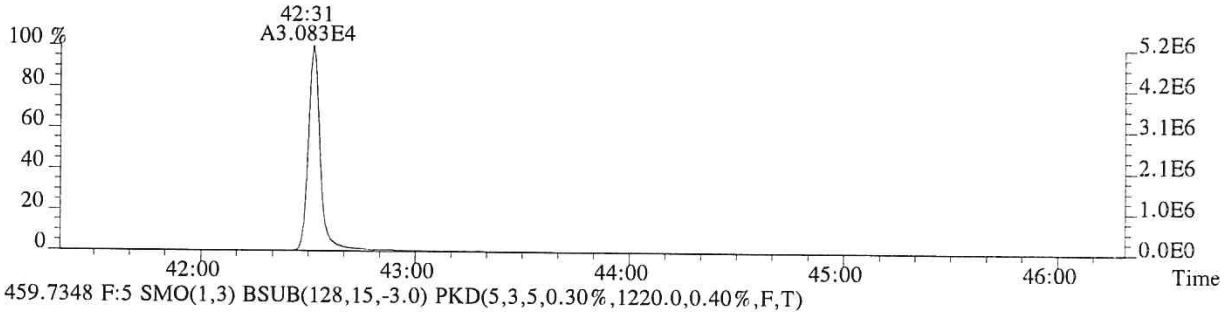


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

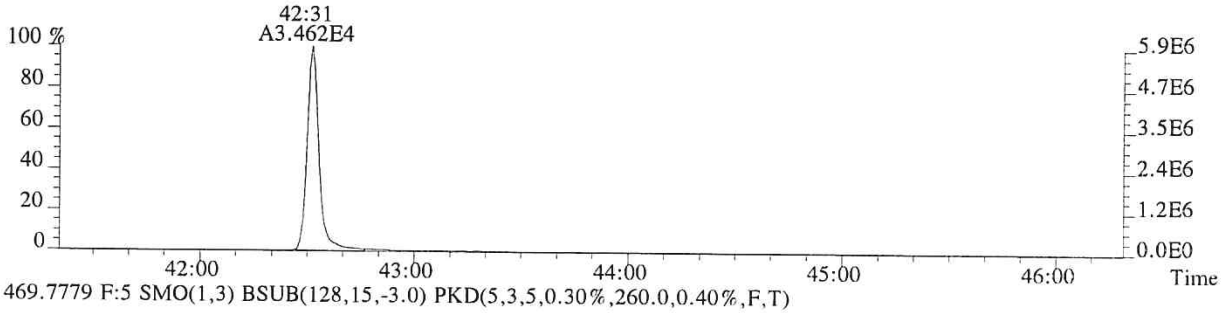


011738

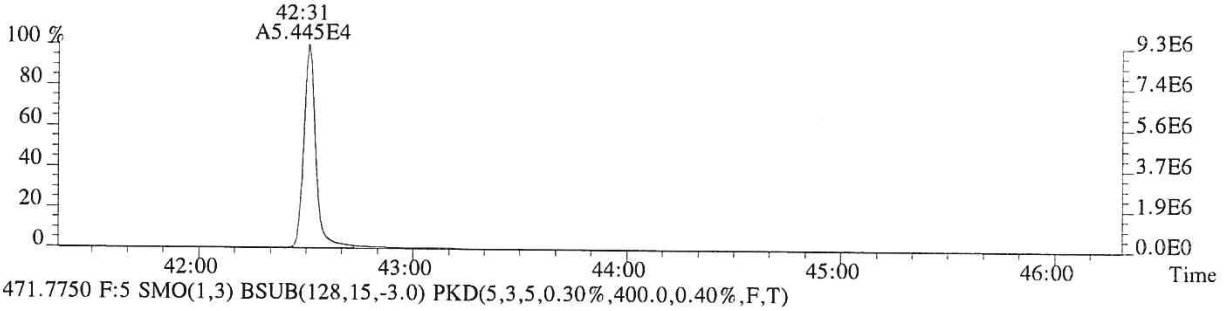
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



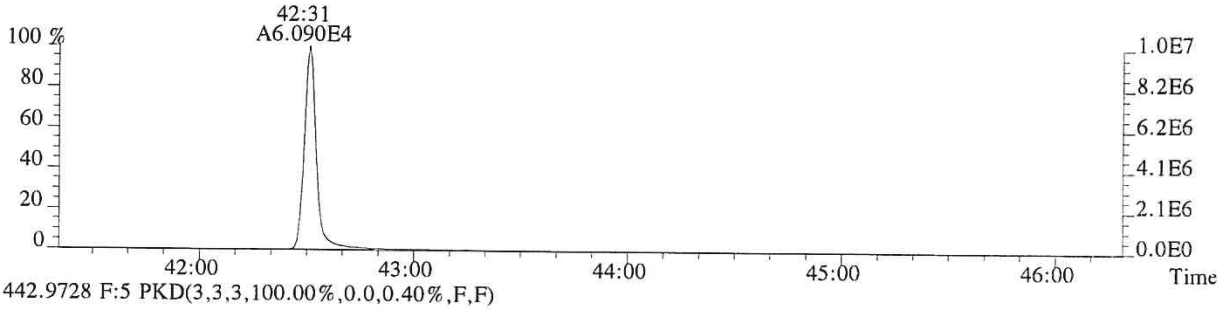
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



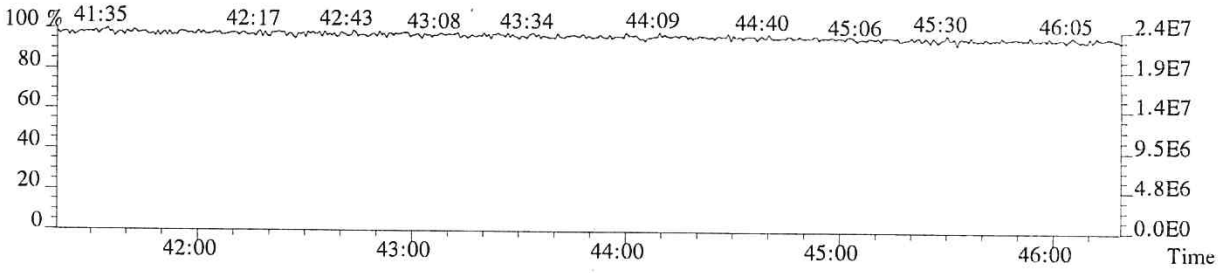
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011739

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-18092516131				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir						
Description		**Yes**	**No**	**NA**	**NR**	**ER#**
Analytical Sequence						
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?		√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?		√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?		√				
Were all calibration standards analyzed only once?		√				
Was the ICV analyzed after the ICAL, before analyzing samples?		√				
Mass Resolution Check						
Are beginning and ending resolution checks provided and legible?		√				
Were all target masses >10,000 resolving power at the beginning of the sequence?		√				
Were all target masses >10,000 resolving power at the end of the sequence?		√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?				√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?				√		
Window Define/209						
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?		√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?		√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?		√				
Were all first and last eluters adequately resolved in each function?		√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?				√		
Was the retention time of PCB 209 >55 min?				√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182				√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?				√		
Calibration Standards						
Were there at least 5 calibration standards analyzed?		√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?				√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?		√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Weir		Yes	No	NA	NR	ER#
Description						
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?		√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?		√				
Were area counts for the highest calibration standard below levels of saturation?		√				
Were manual integrations technically justified to correct for poor software integration?				√		
Response Factors						
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?		√				
Were all calibration standards used in determining response factors?		√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?		√				
Did the RSD for RRFs for each native analyte meet method criteria?		√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?		√				
Were RFs for each labeled compound calculated for each calibration point?		√				
Did the RSD for RF for each labeled compound meet method criteria?		√				
Initial Calibration Verification						
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)		√				
Did all analytes meet method criteria for the ICV.		√				

Laboratory Review Checklist: Initial Calibration			
Method: 1613/8290		Process Date: 09/26/2018	
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I	
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong	
ER#[5]	**Description**		

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P614680	25-SEP-18	12:13:01
76554	CS0.5	P614682	25-SEP-18	14:18:27
82614	CS1	P614683	25-SEP-18	15:08:49
193434	CS2	P614684	25-SEP-18	15:59:37
76557	CS3	P614685	25-SEP-18	16:52:47
82167	CS4	P614686	25-SEP-18	17:41:03
185657	CS5	P614687	25-SEP-18	18:30:08
188969	2ND SOURCE	P614690	25-SEP-18	20:57:19

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20180925A.SPL
Last Modified: Wednesday, September 26, 2018 06:14:12 Central Daylight Time
Printed: Wednesday, September 26, 2018 06:14:14 Central Daylight Time

Page Position (1, 1)

OPUS4: P6-180925161 3I
P614690res

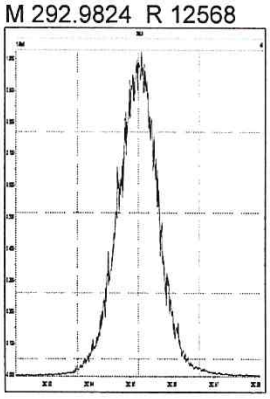
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	9/25/18	12:13	P614680	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 12:08
2		13:01	P614681	192807	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		14:18	P614682	76554	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:08	P614683	82614	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P614684	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:52	P614685	76557	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:41	P614686	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:30	P614687	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:19	P614688	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P614689	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:10		Do not use
11		20:57	P614690	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:52	P614691	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:12		HRMScheck 22:51
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LG 09/26/18

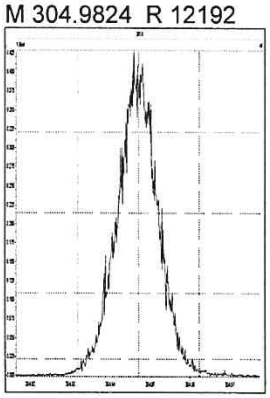
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:08:26 Central Daylight Time

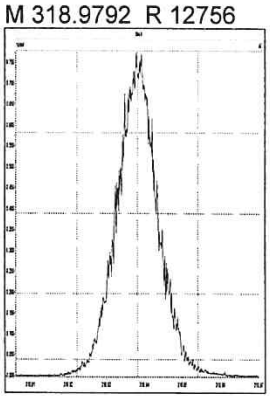
M 292.9824 R 12568



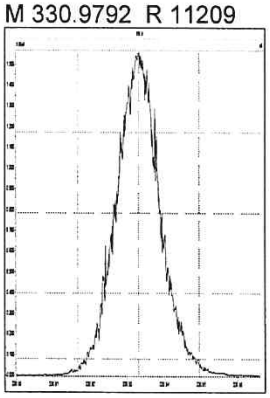
M 304.9824 R 12192



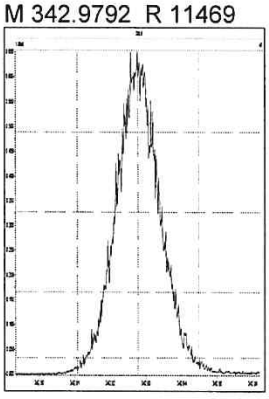
M 318.9792 R 12756



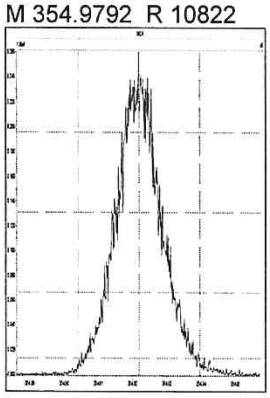
M 330.9792 R 11209



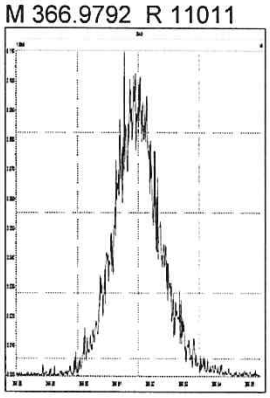
M 342.9792 R 11469



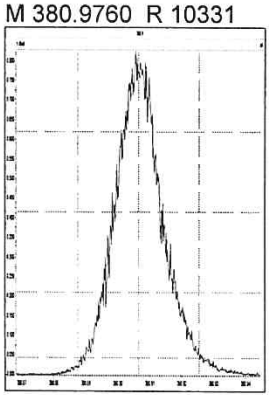
M 354.9792 R 10822



M 366.9792 R 11011



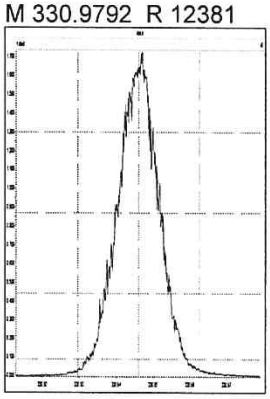
M 380.9760 R 10331



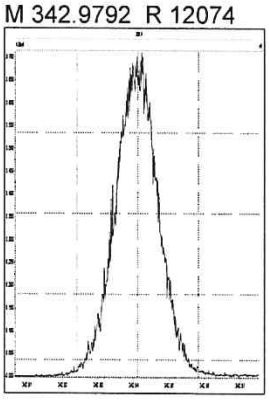
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:09:22 Central Daylight Time

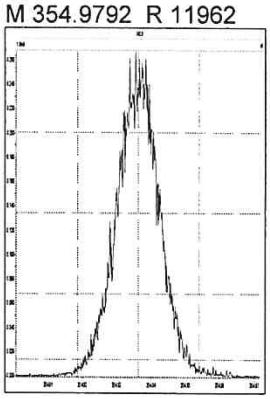
M 330.9792 R 12381



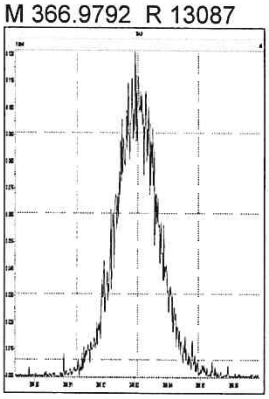
M 342.9792 R 12074



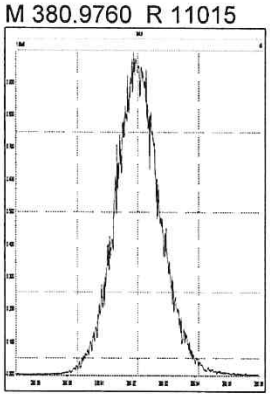
M 354.9792 R 11962



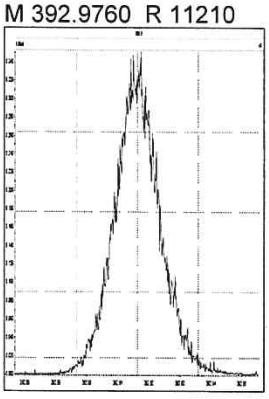
M 366.9792 R 13087



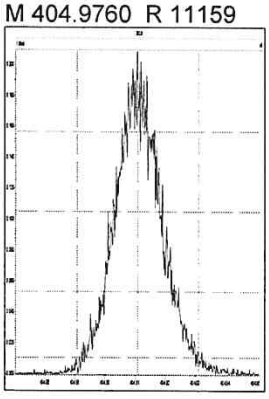
M 380.9760 R 11015



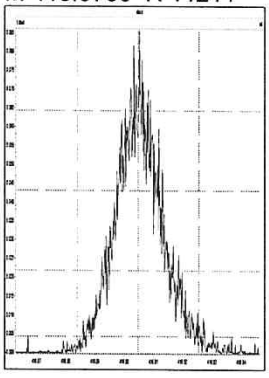
M 392.9760 R 11210



M 404.9760 R 11159



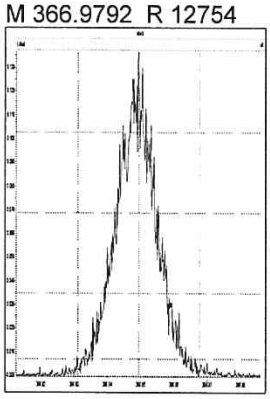
M 416.9760 R 11211



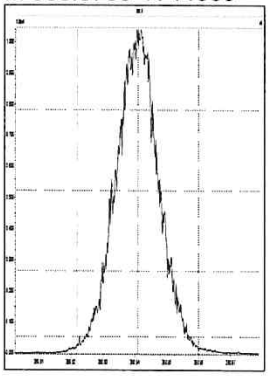
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:10 Central Daylight Time

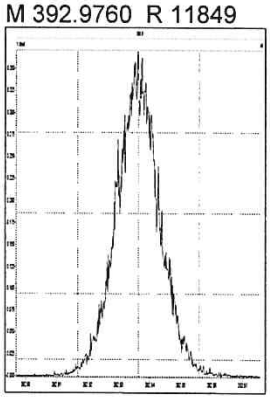
M 366.9792 R 12754



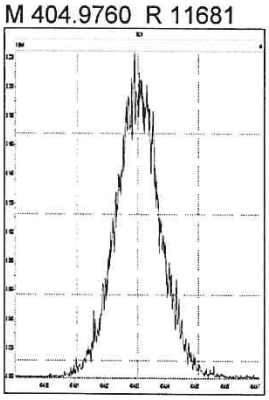
M 380.9760 R 11959



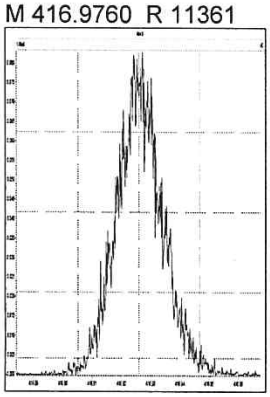
M 392.9760 R 11849



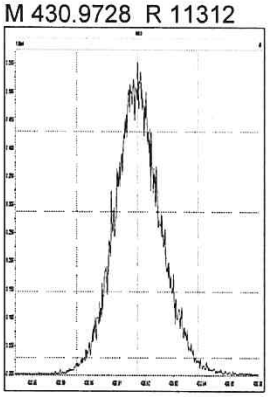
M 404.9760 R 11681



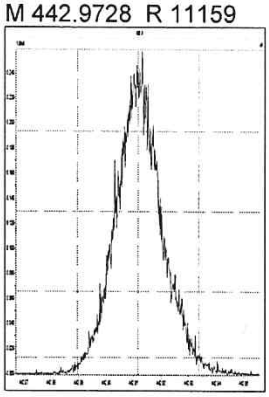
M 416.9760 R 11361



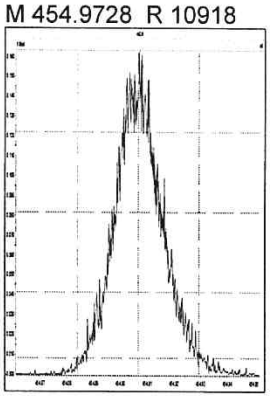
M 430.9728 R 11312



M 442.9728 R 11159



M 454.9728 R 10918

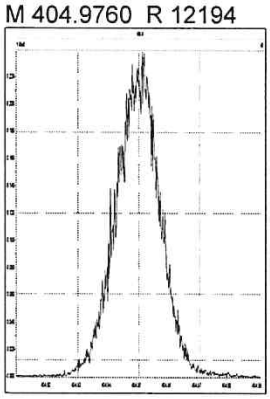


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

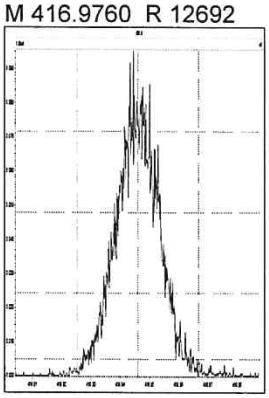
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:51 Central Daylight Time

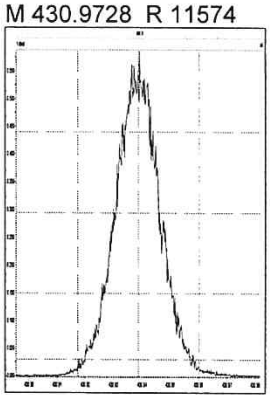
M 404.9760 R 12194



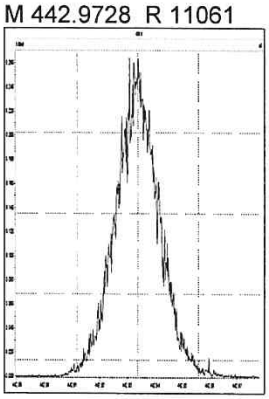
M 416.9760 R 12692



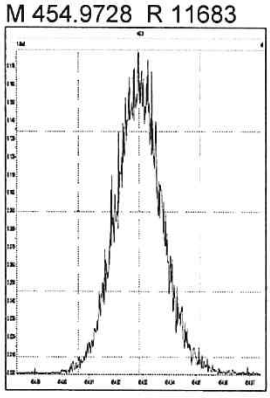
M 430.9728 R 11574



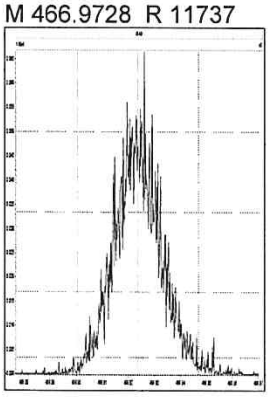
M 442.9728 R 11061



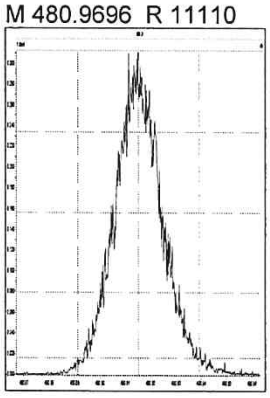
M 454.9728 R 11683



M 466.9728 R 11737



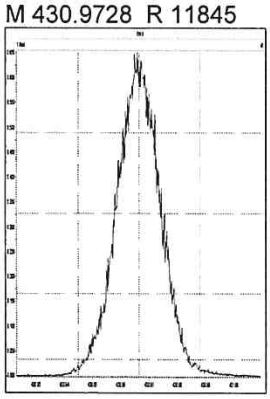
M 480.9696 R 11110



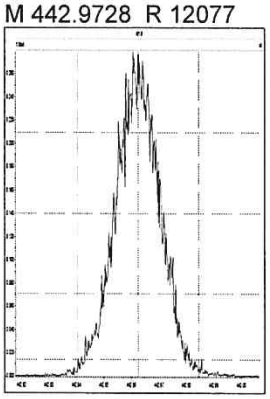
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:11:41 Central Daylight Time

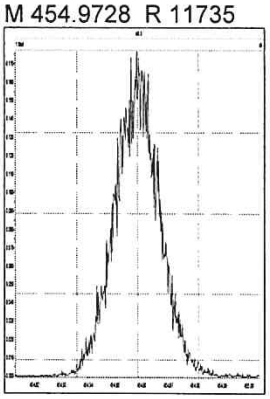
M 430.9728 R 11845



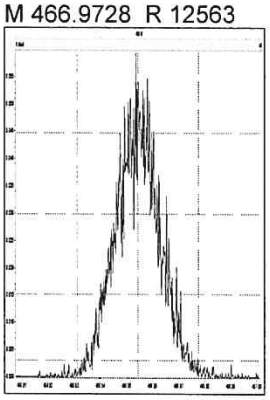
M 442.9728 R 12077



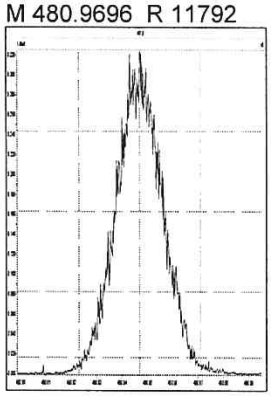
M 454.9728 R 11735



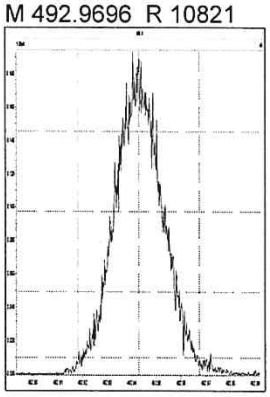
M 466.9728 R 12563



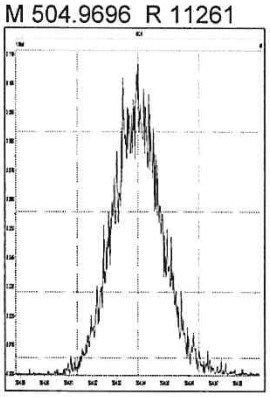
M 480.9696 R 11792



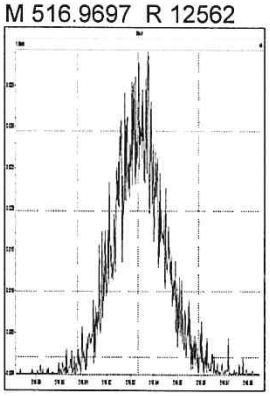
M 492.9696 R 10821



M 504.9696 R 11261



M 516.9697 R 12562



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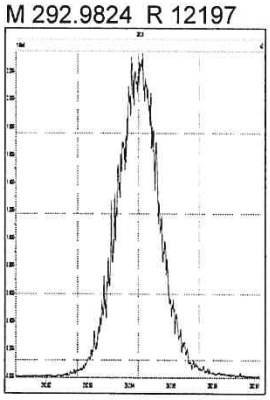
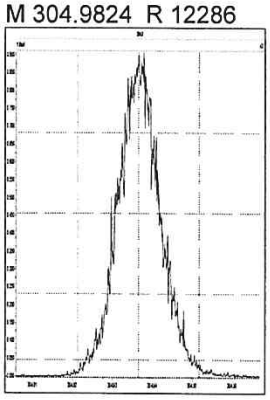


M 304.9824 R 12286



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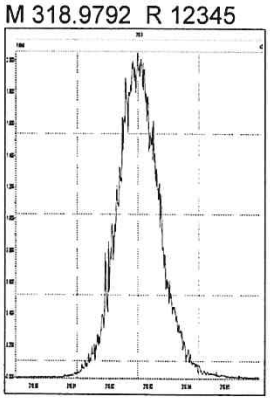
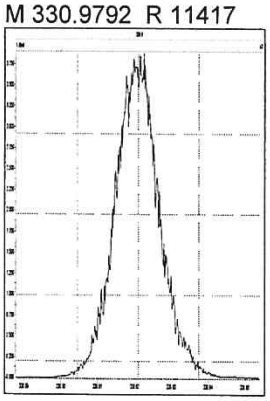


M 330.9792 R 11417



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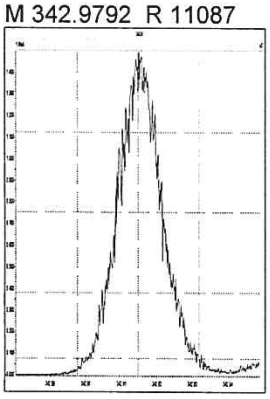

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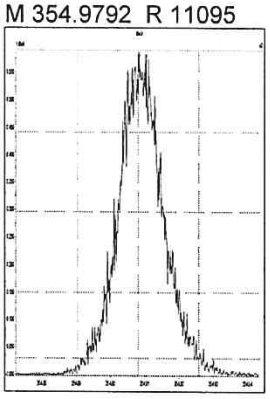

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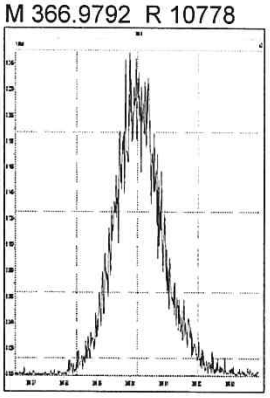

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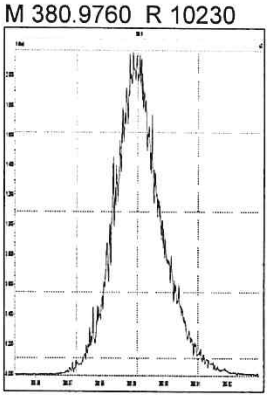

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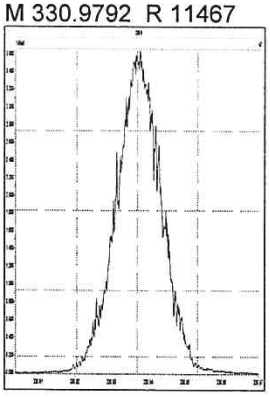

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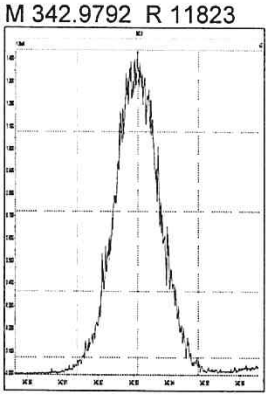

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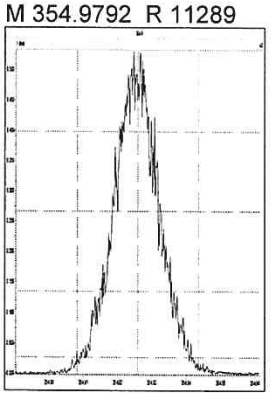

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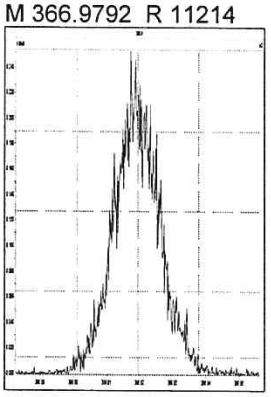
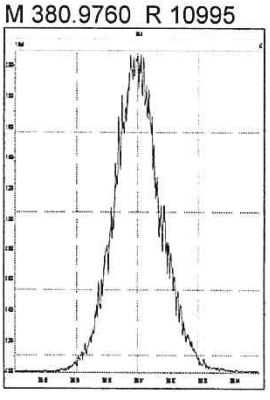
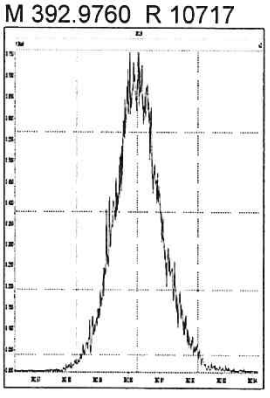


M 380.9760 R 10995



M 392.9760 R 10717



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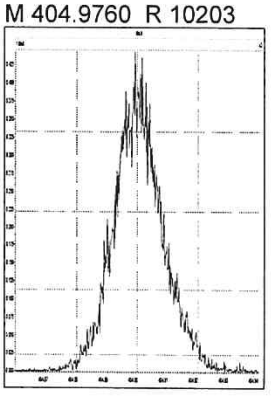

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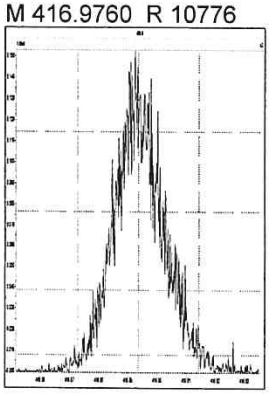

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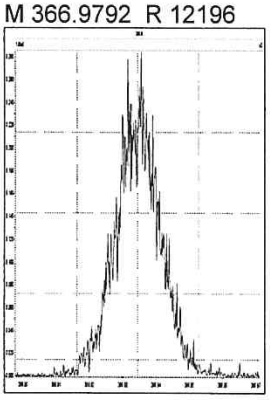

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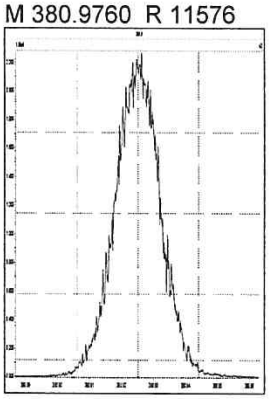

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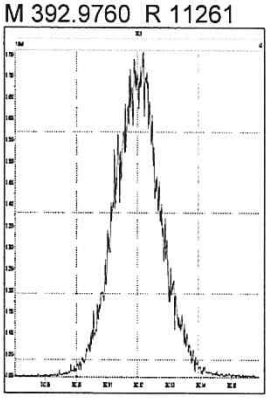
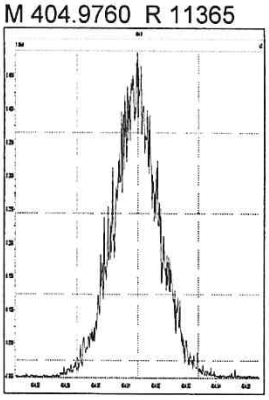


M 404.9760 R 11365



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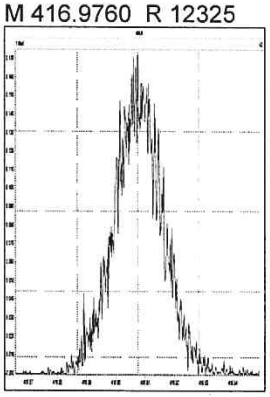

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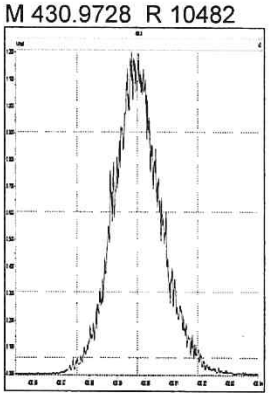

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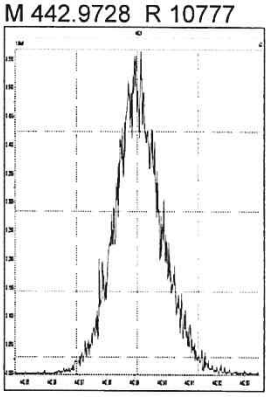

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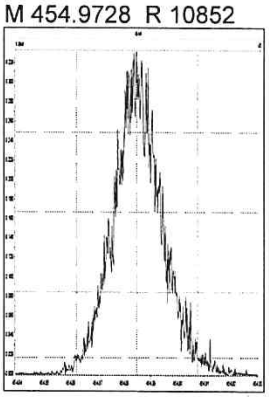

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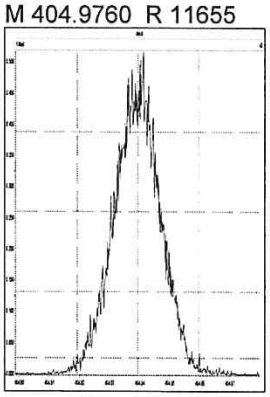

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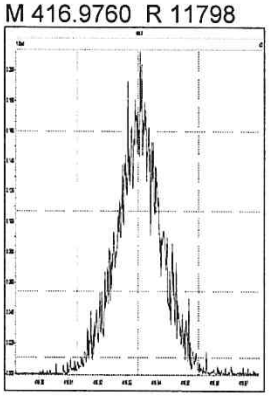

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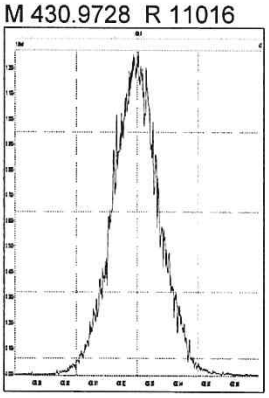

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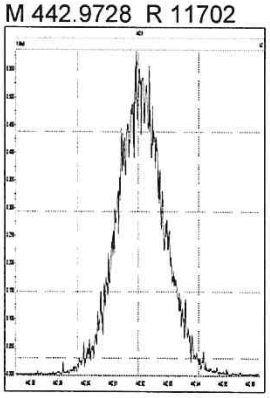
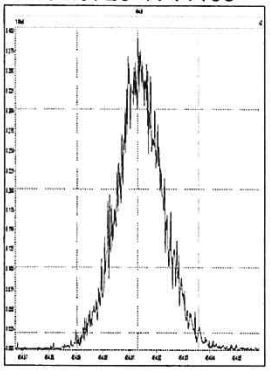
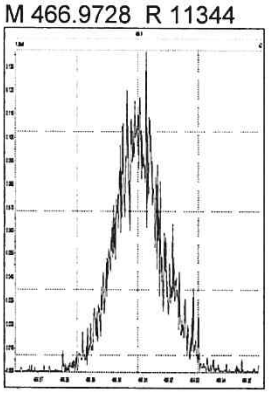


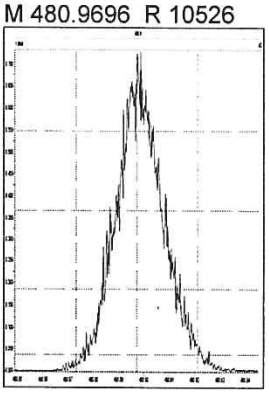
M 454.9728 R 11188



M 466.9728 R 11344



M 480.9696 R 10526



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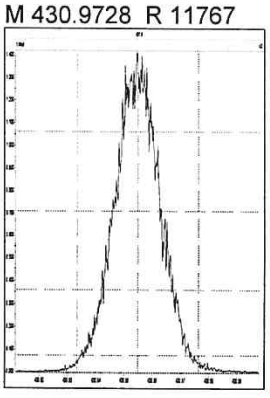
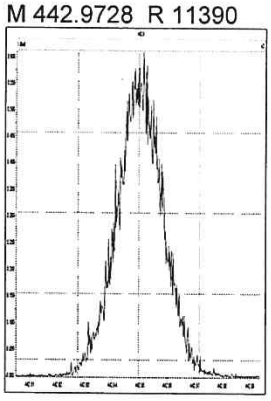


M 442.9728 R 11390



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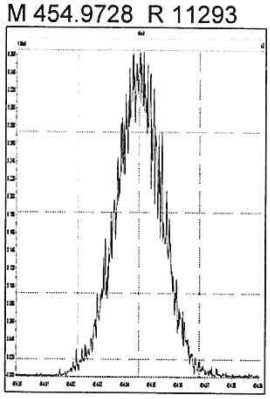

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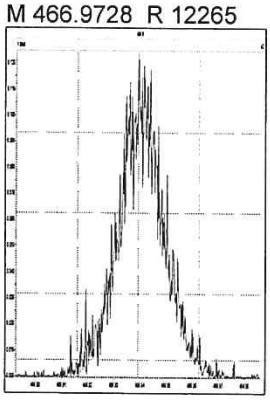
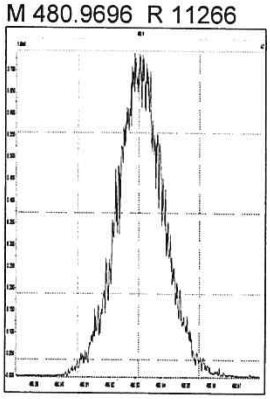
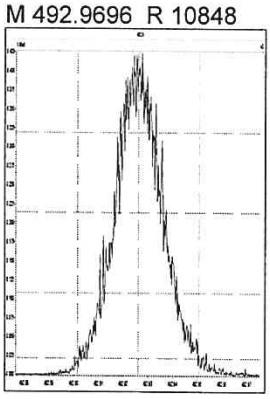


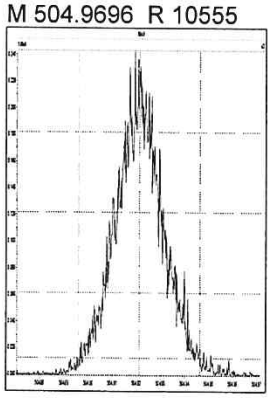
M 480.9696 R 11266



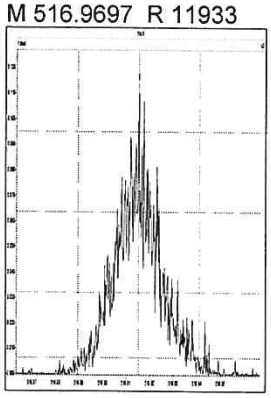
M 492.9696 R 10848



M 504.9696 R 10555



M 516.9697 R 11933



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

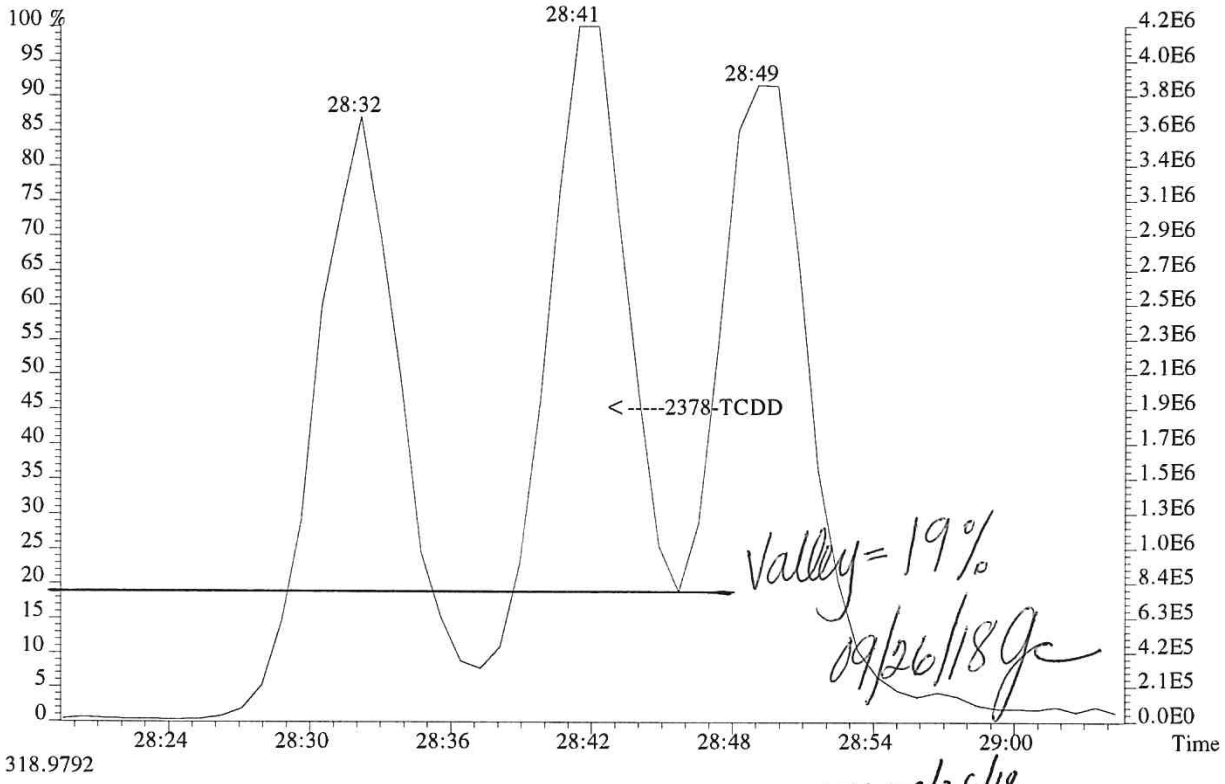
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P614680
Date Analyzed: 25-SEP-18
Time Analyzed: 12:13:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:52
TCDD	25:18	29:42
PeCDF	29:48	34:04
PeCDD	31:21	33:49
HxCDF	34:43	37:12
HxCDD	35:14	36:49
HpCDF	38:24	39:46
HpCDD	38:39	39:18

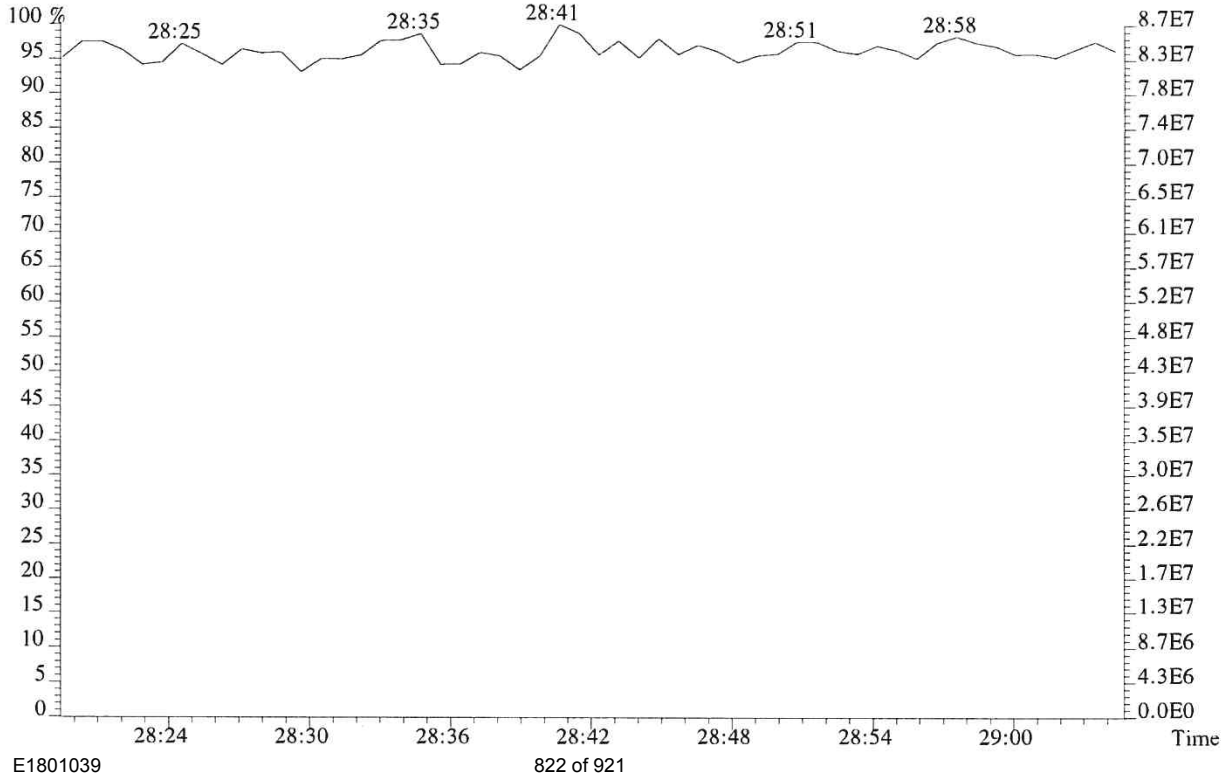
% Valley 2378-TCDD: 19 %

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



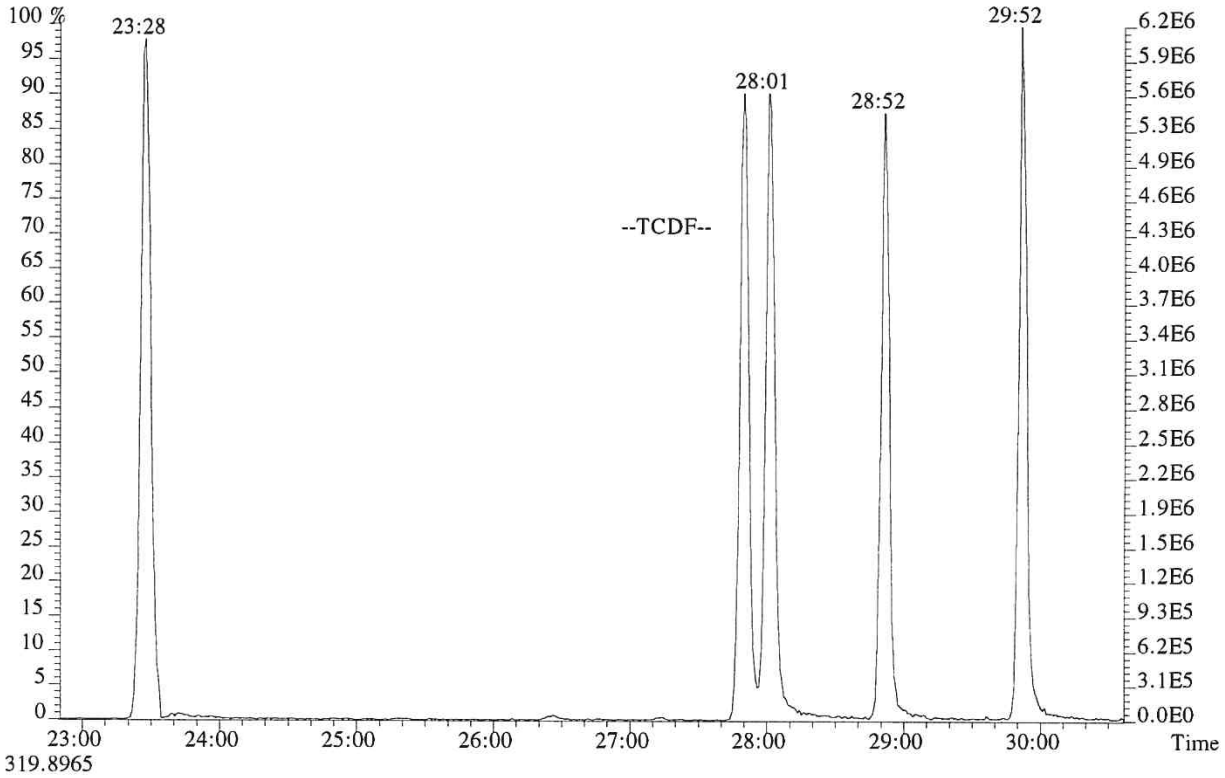
318.9792

LKL 09/26/18

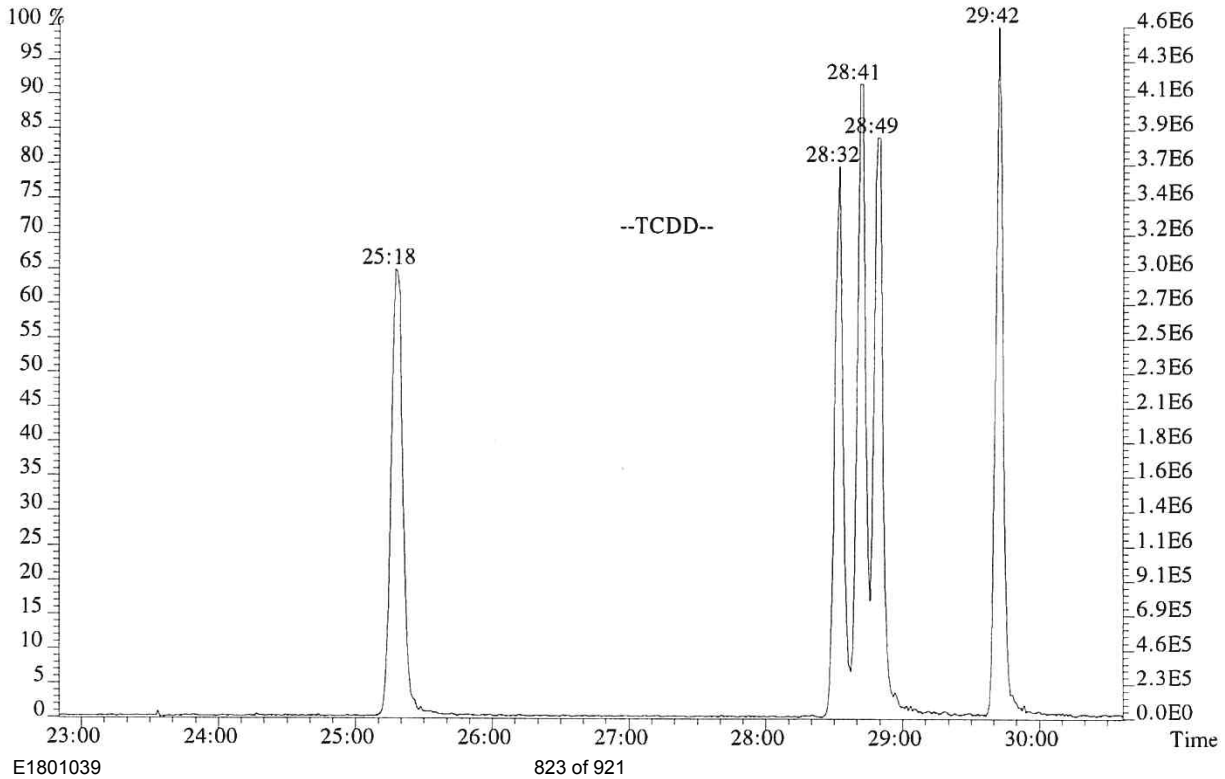


011753

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016

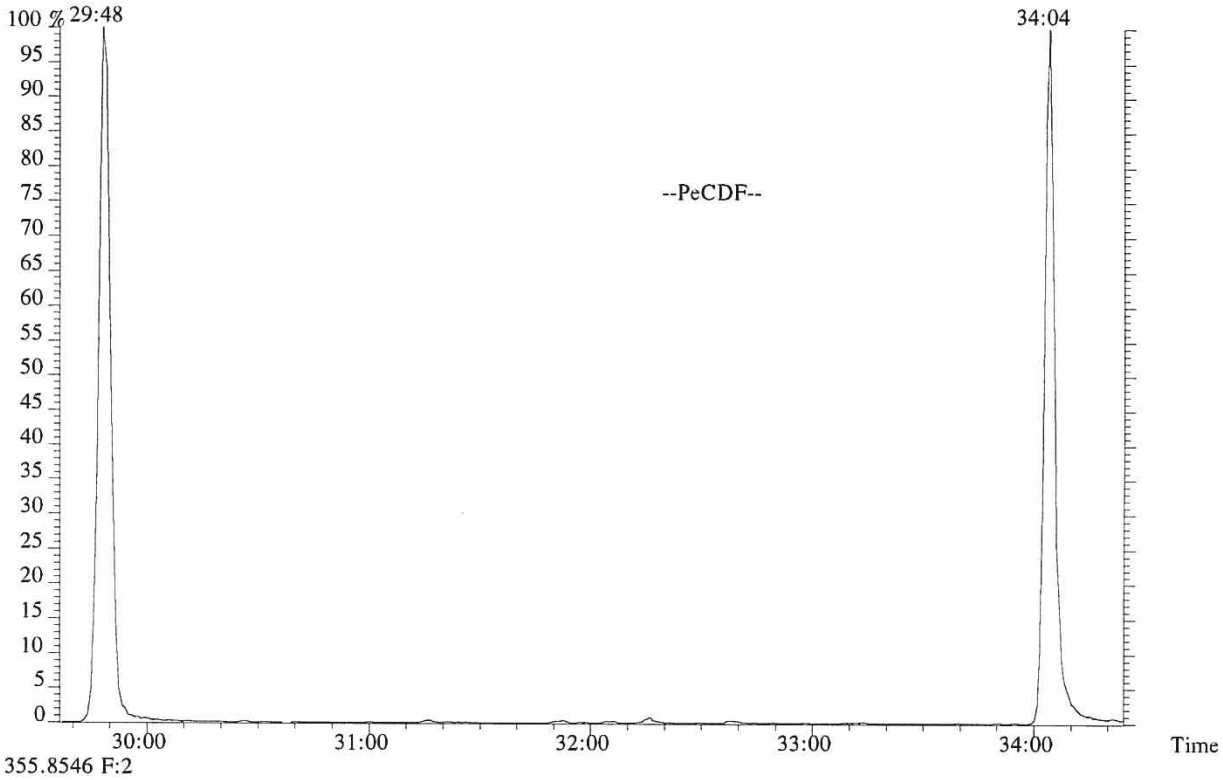


319.8965

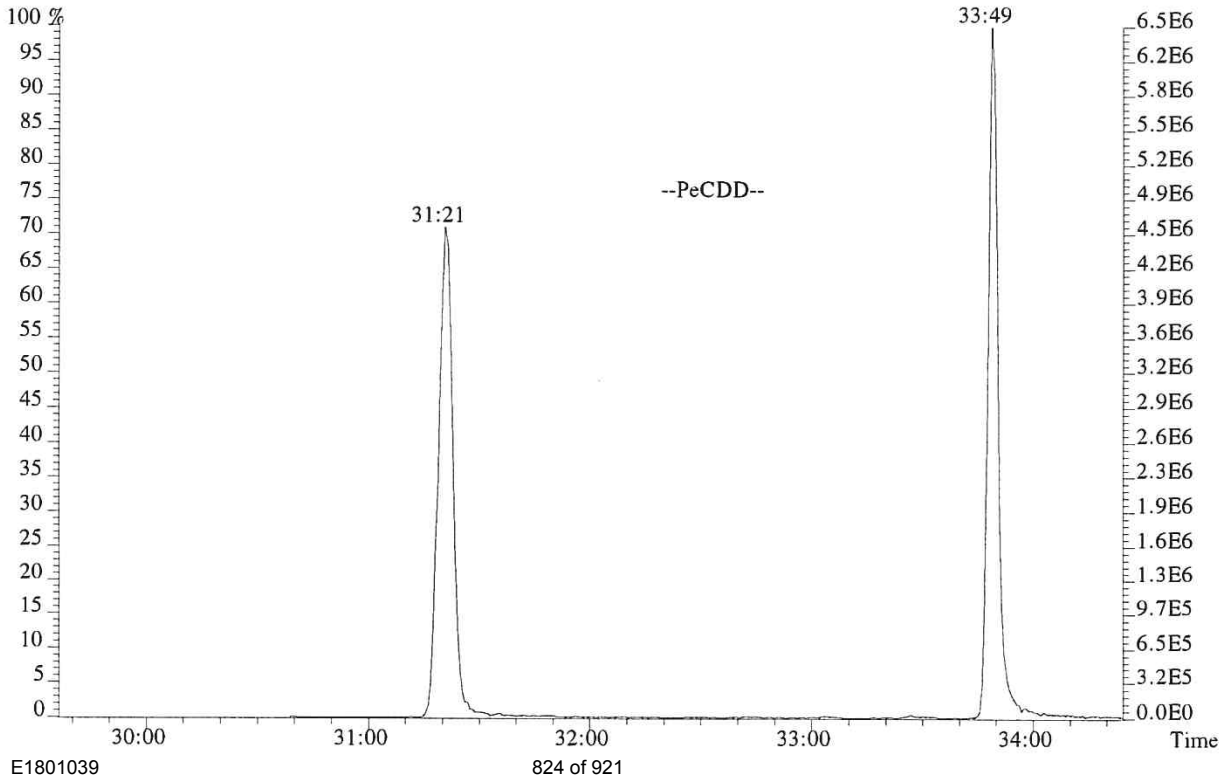


011754

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

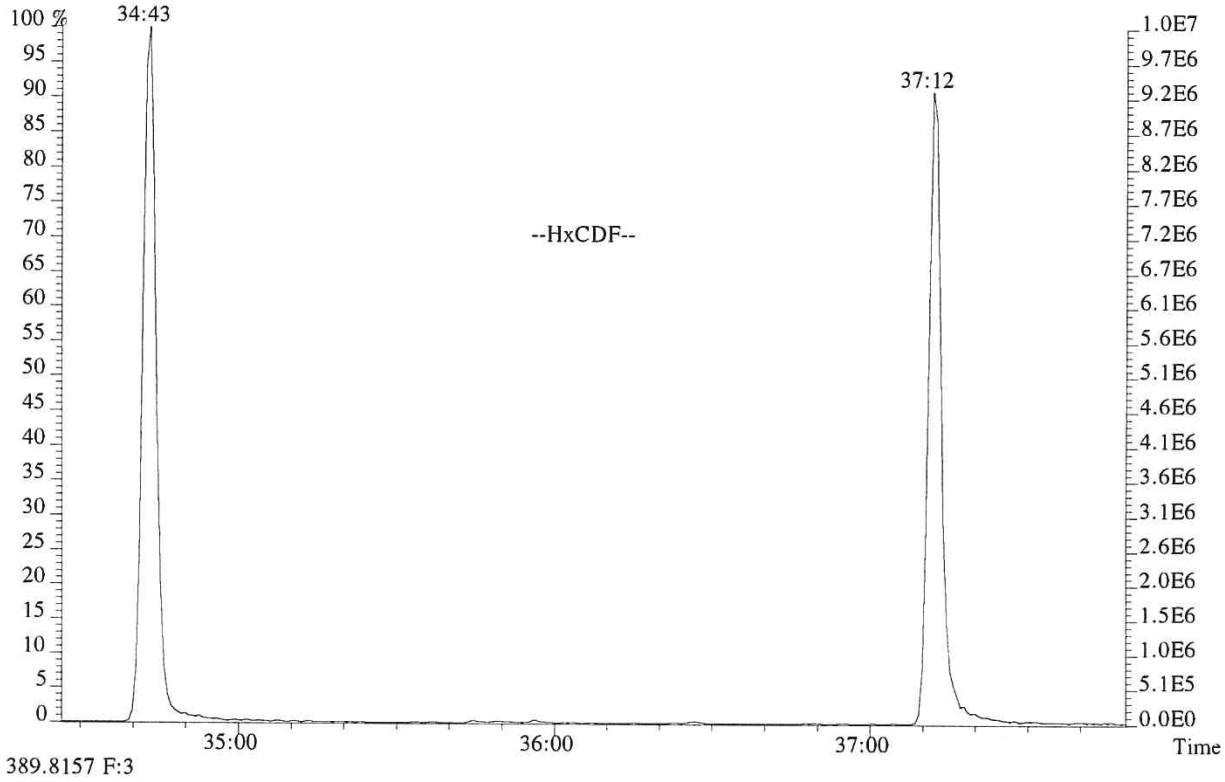


355.8546 F:2

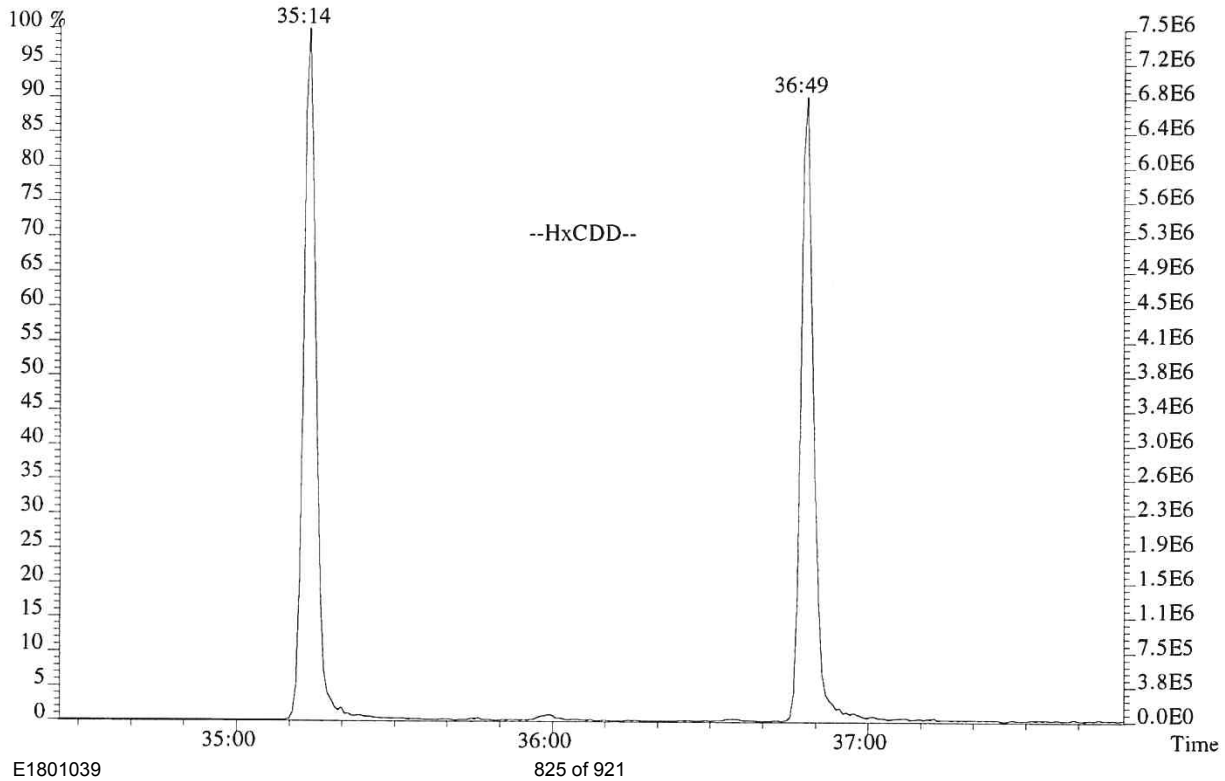


011755

File:P614680 #1-304 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

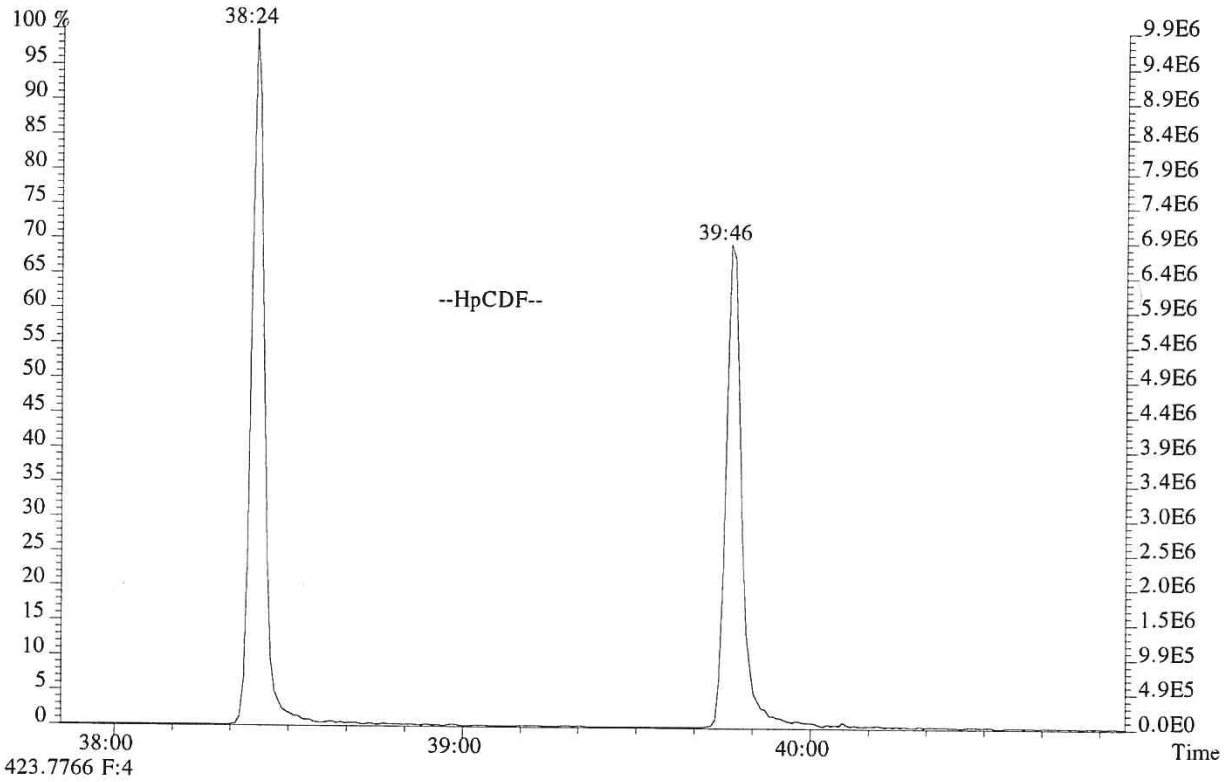


389.8157 F:3

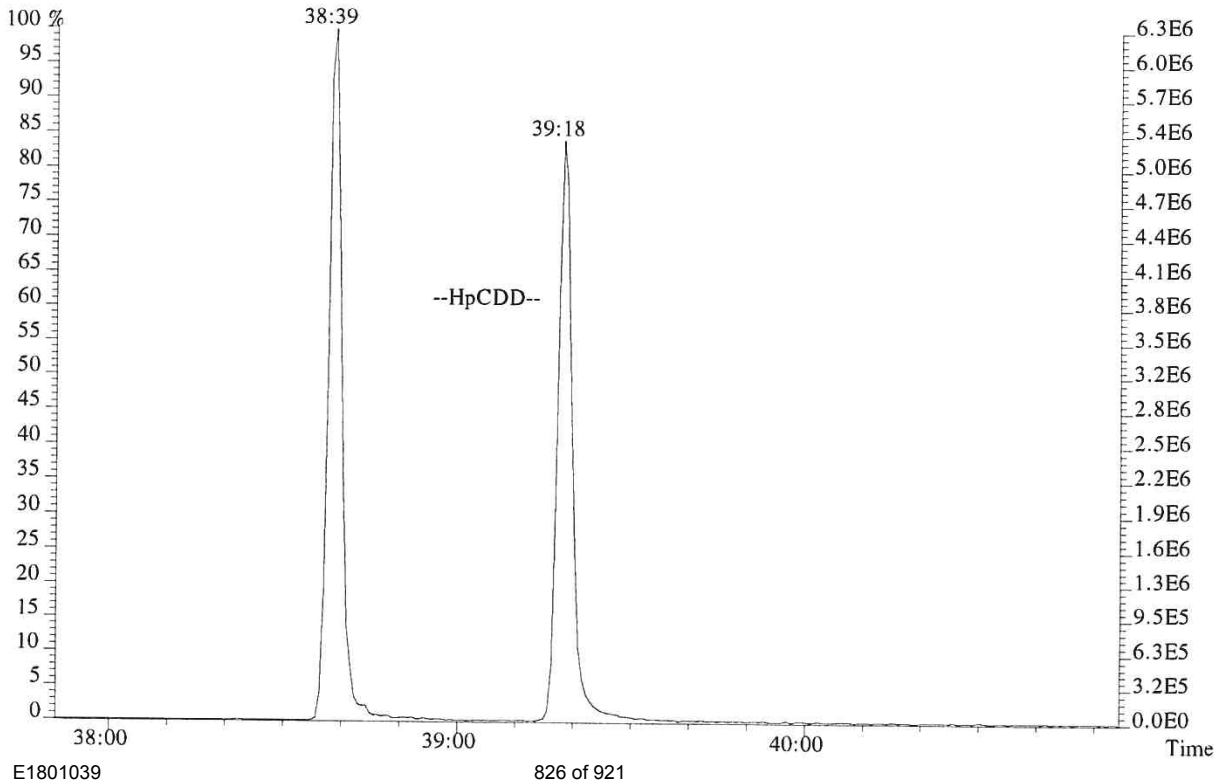


011756

File:P614680 #1-276 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

	RR/RRF						MEAN		
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.15	1.00	1.00	1.03	1.05	1.06	1.05	5.38	+/-20%
2,3,7,8-TCDF	1.13	1.08	1.12	1.05	1.06	1.05	1.08	3.07	+/-20%
1,2,3,7,8-PeCDF	1.16	1.17	1.12	1.15	1.16	1.18	1.16	1.72	+/-20%
1,2,3,7,8-PeCDD	0.89	0.95	0.95	0.91	0.93	0.93	0.93	2.61	+/-20%
2,3,4,7,8-PeCDF	1.10	1.13	1.10	1.08	1.10	1.11	1.10	1.49	+/-20%
1,2,3,4,7,8-HxCDF	1.47	1.46	1.39	1.36	1.38	1.42	1.42	3.10	+/-20%
1,2,3,6,7,8-HxCDF	1.27	1.36	1.30	1.28	1.28	1.28	1.29	2.52	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.11	1.04	1.06	1.05	1.06	1.07	3.00	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.07	1.06	1.06	1.06	1.05	1.06	0.70	+/-20%
1,2,3,7,8,9-HxCDD	1.17	1.18	1.12	1.13	1.14	1.12	1.15	2.24	+/-20%
2,3,4,6,7,8-HxCDF	1.27	1.32	1.29	1.28	1.27	1.27	1.28	1.52	+/-20%
1,2,3,7,8,9-HxCDF	1.34	1.34	1.29	1.30	1.30	1.30	1.31	1.68	+/-20%
1,2,3,4,6,7,8-HpCDF	1.56	1.60	1.46	1.50	1.51	1.51	1.52	3.15	+/-20%
1,2,3,4,6,7,8-HpCDD	1.14	1.13	1.09	1.10	1.10	1.11	1.11	1.85	+/-20%
1,2,3,4,7,8,9-HpCDF	1.47	1.54	1.46	1.45	1.43	1.43	1.46	2.80	+/-20%
OCDD	1.22	1.21	1.10	1.14	1.14	1.14	1.16	4.23	+/-20%
OCDF	1.60	1.61	1.49	1.57	1.57	1.59	1.57	2.60	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.98	0.97	0.97	1.00	1.01	0.98	2.13	+/-35%
13C-1,2,3,7,8-PeCDD	1.09	1.05	1.16	1.13	1.16	1.15	1.12	3.77	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.90	0.91	0.90	0.90	0.89	0.90	0.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.92	0.92	0.89	0.89	0.91	0.90	0.90	1.52	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.86	0.88	0.85	0.86	0.84	0.84	0.86	1.91	+/-35%
13C-OCDD	0.65	0.69	0.65	0.67	0.65	0.65	0.66	2.45	+/-35%
13C-2,3,7,8-TCDF	1.40	1.41	1.42	1.44	1.40	1.43	1.42	1.24	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.54	1.61	1.61	1.65	1.63	1.60	3.24	+/-35%
13C-2,3,4,7,8-PeCDF	1.52	1.49	1.60	1.57	1.63	1.61	1.57	3.42	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.18	1.19	1.14	1.21	1.18	1.06	1.16	4.58	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.39	1.34	1.33	1.35	1.31	1.29	1.34	2.46	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.24	1.24	1.25	1.24	1.25	1.06	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.13	1.13	1.12	1.15	1.15	1.10	1.13	1.66	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.06	1.02	1.04	1.01	1.01	1.03	1.93	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.94	0.95	0.90	0.86	0.90	0.88	0.91	3.64	+/-35%
37Cl-2,3,7,8-TCDD	1.06	1.11	1.07	1.05	1.11	1.13	1.09	3.15	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC lIMITS
2,3,7,8-TCDF	304/306	0.75	0.75	0.83	0.80	0.79	0.80		0.65-0.89
2,3,7,8-TCDD	320/322	0.78	0.83	0.80	0.78	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.58	1.57	1.58	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.57	1.61	1.57	1.58	1.59	1.59		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.56	1.52	1.53	1.55	1.55	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.26	1.28	1.29		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.24	1.25	1.27	1.27	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.29	1.25	1.28	1.28	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.22	1.29	1.23	1.28	1.28	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.21	1.20	1.26	1.33	1.26	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.41	1.27	1.25	1.23	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.22	1.25	1.24	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.04	1.02	1.06	1.05	1.04	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.89	1.07	1.05	1.04	1.05	1.05		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.10	1.07	1.07	1.06	1.06	1.06		0.88-1.20
OCDF	442/444	0.90	0.87	0.91	0.92	0.93	0.92		0.76-1.02
OCDD	458/460	0.93	0.89	0.88	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.80	0.80	0.80	0.80	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.58	1.57	1.58	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.26	1.26	1.32	1.25	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.26	1.26	1.20	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.04	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.91	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.80	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.60	1.60	1.60	1.60		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.62	1.61	1.59	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.54	0.54	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.54	0.54	0.53	0.54	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.53	0.54	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.46	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.46	0.45	0.46	0.45	0.46		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.81	0.81	0.80	0.79	0.81		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.26	1.26	1.24	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.991e+02	5.332e+02	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.245e+03	1.970e+03	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:10	3.017e+03	1.917e+03	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.964e+03	2.360e+03	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.032e+03	2.349e+03	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.788e+03	2.154e+03	1.29	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.544e+03	2.080e+03	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.520e+03	2.421e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.988e+03	2.226e+03	0.89	yes	no	1.463
10	Unk	OCDF	42:13	3.006e+03	3.322e+03	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:49	2.873e+02	3.690e+02	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.757e+03	1.126e+03	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.695e+03	1.402e+03	1.21	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.736e+03	1.234e+03	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.790e+03	1.494e+03	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.575e+03	1.438e+03	1.10	yes	no	1.112
17	Unk	OCDD	42:01	2.333e+03	2.510e+03	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	28:00	1.453e+05	1.860e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.225e+05	1.378e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.208e+05	1.389e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	1.017e+05	1.873e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.172e+05	2.227e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.097e+05	2.020e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.463e+04	1.814e+05	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	7.990e+04	1.736e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	7.243e+04	1.569e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.005e+05	1.270e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.588e+05	1.004e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.251e+05	9.838e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.252e+05	9.893e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.083e+05	1.026e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:01	1.503e+05	1.668e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.058e+05	1.311e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.355e+05	1.094e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.272e+02				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+04	1.79e+03	3.7e+01	1.00e+05	4.41e+03	2.3e+01
2	1,2,3,7,8-PeCDF	5.99e+05	1.18e+03	5.1e+02	3.57e+05	4.28e+03	8.3e+01
3	2,3,4,7,8-PeCDF	5.69e+05	1.18e+03	4.8e+02	3.70e+05	4.28e+03	8.7e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.85e+05	1.42e+03	3.4e+02
5	1,2,3,6,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.95e+05	1.42e+03	3.5e+02
6	2,3,4,6,7,8-HxCDF	6.03e+05	3.25e+03	1.9e+02	4.83e+05	1.42e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	4.97e+05	3.25e+03	1.5e+02	4.13e+05	1.42e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.62e+05	1.66e+03	3.4e+02	5.47e+05	1.04e+03	5.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.66e+03	2.4e+02	4.51e+05	1.04e+03	4.3e+02
10	OCDF	5.23e+05	1.34e+03	3.9e+02	5.81e+05	4.02e+03	1.4e+02
11	2,3,7,8-TCDD	6.18e+04	5.07e+03	1.2e+01	6.68e+04	2.40e+03	2.8e+01
12	1,2,3,7,8-PeCDD	3.47e+05	2.36e+03	1.5e+02	2.20e+05	2.64e+02	8.3e+02
13	1,2,3,4,7,8-HxCDD	3.95e+05	1.84e+03	2.1e+02	3.18e+05	1.66e+03	1.9e+02
14	1,2,3,6,7,8-HxCDD	3.64e+05	1.84e+03	2.0e+02	2.60e+05	1.66e+03	1.6e+02
15	1,2,3,7,8,9-HxCDD	4.06e+05	1.84e+03	2.2e+02	3.23e+05	1.66e+03	1.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.19e+05	2.32e+03	1.4e+02	3.31e+05	1.19e+03	2.8e+02
17	OCDD	4.28e+05	8.48e+02	5.0e+02	4.37e+05	1.30e+03	3.4e+02
18	13C-2,3,7,8-TCDF	2.54e+07	1.52e+04	1.7e+03	3.22e+07	1.06e+04	3.1e+03
19	13C-1,2,3,7,8-PeCDF	4.04e+07	2.12e+03	1.9e+04	2.49e+07	3.13e+03	8.0e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+07	2.12e+03	2.0e+04	2.67e+07	3.13e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.18e+07	3.28e+03	6.7e+03	4.05e+07	3.71e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.40e+07	3.28e+03	7.3e+03	4.55e+07	3.71e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.42e+07	3.28e+03	7.4e+03	4.44e+07	3.71e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.91e+07	3.28e+03	5.8e+03	3.68e+07	3.71e+03	9.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+07	5.66e+03	3.2e+03	3.90e+07	2.05e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+07	5.66e+03	2.6e+03	3.15e+07	2.05e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.84e+07	1.55e+04	1.2e+03	2.34e+07	5.32e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+07	3.24e+03	9.6e+03	1.95e+07	2.82e+03	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	5.20e+03	5.5e+03	2.24e+07	3.08e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+07	5.20e+03	5.1e+03	2.10e+07	3.08e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	2.60e+03	8.7e+03	2.13e+07	2.03e+03	1.1e+04
32	13C-OCDD	2.73e+07	1.56e+03	1.8e+04	2.99e+07	4.32e+02	6.9e+04
33	13C-1,2,3,4-TCDD	1.96e+07	1.55e+04	1.3e+03	2.41e+07	5.32e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+07	5.20e+03	5.8e+03	2.40e+07	3.08e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.12e+05	4.66e+03	2.4e+01			

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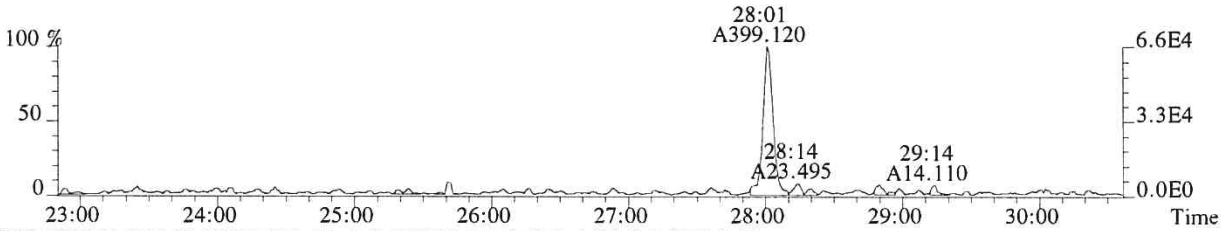
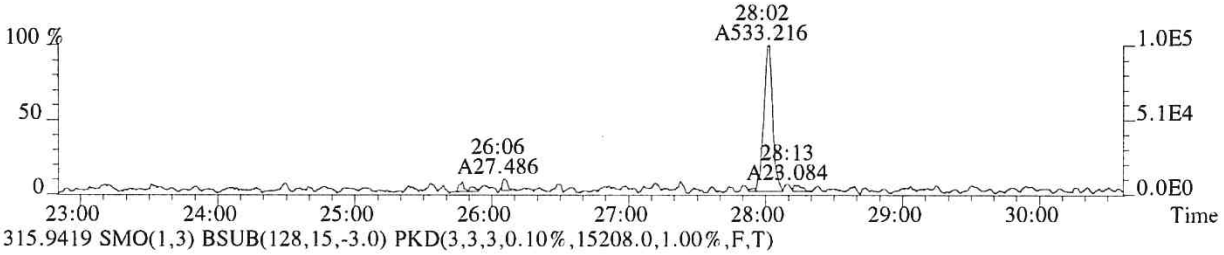
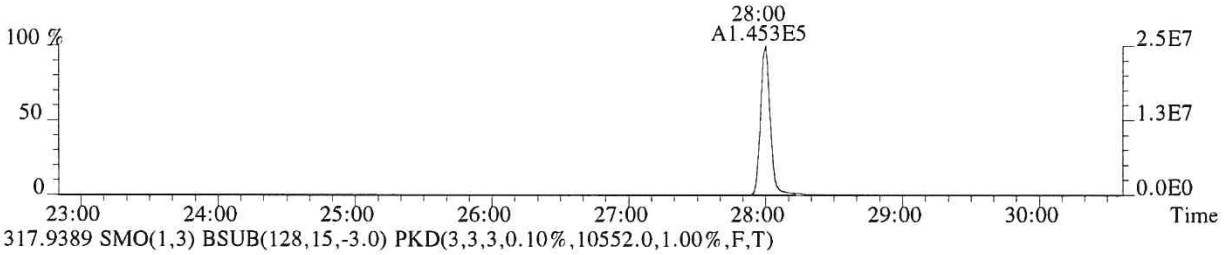
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



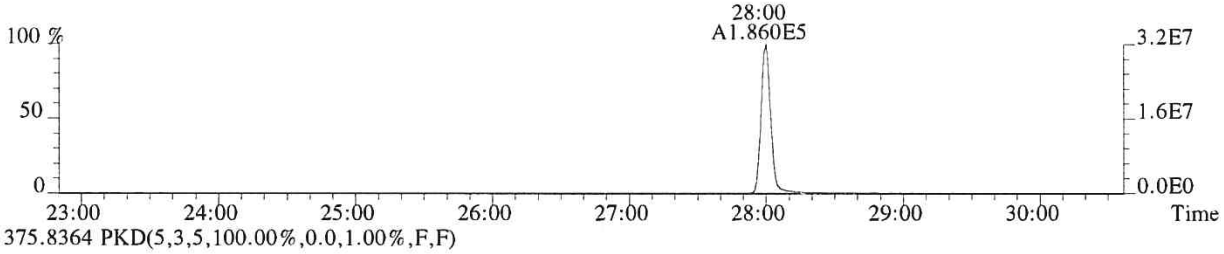
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



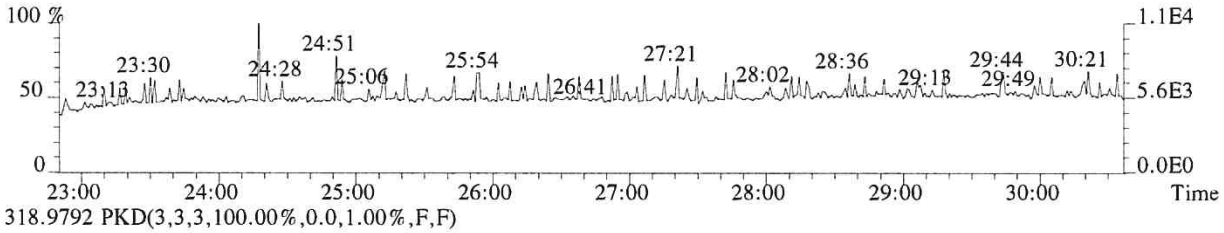
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15208.0,1.00%,F,T)



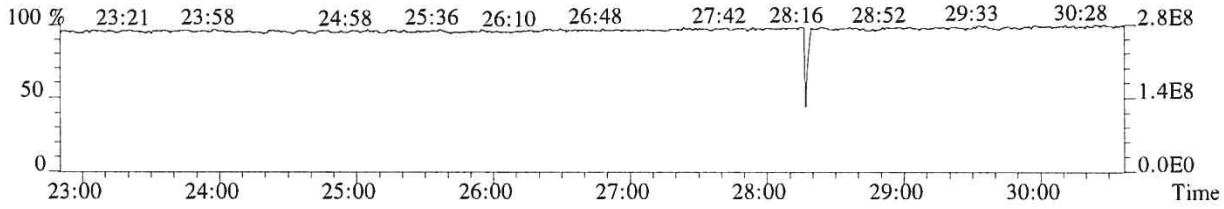
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

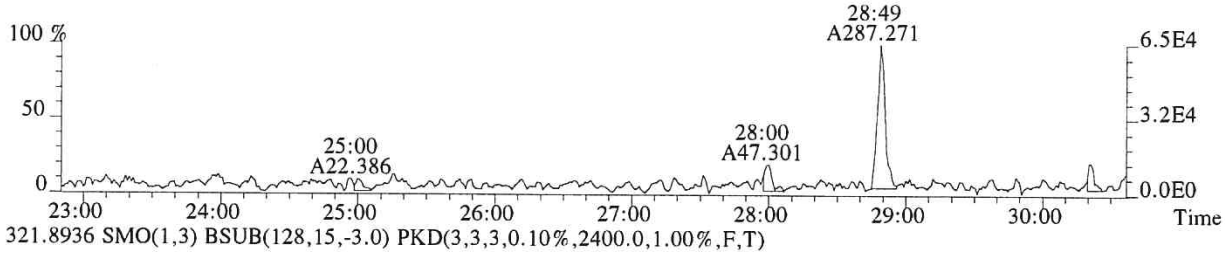


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

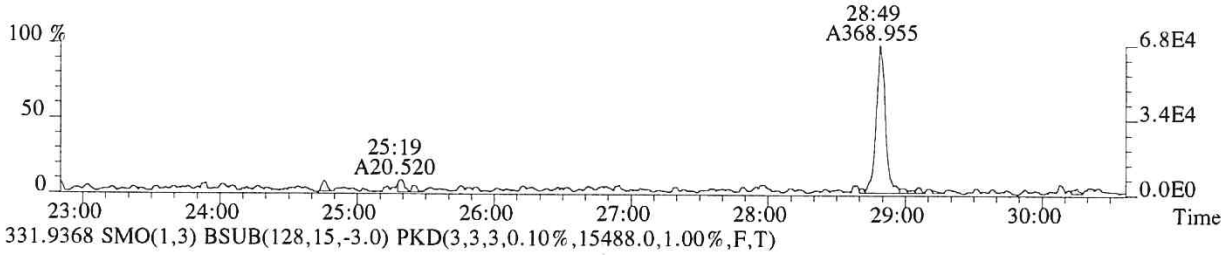


011762

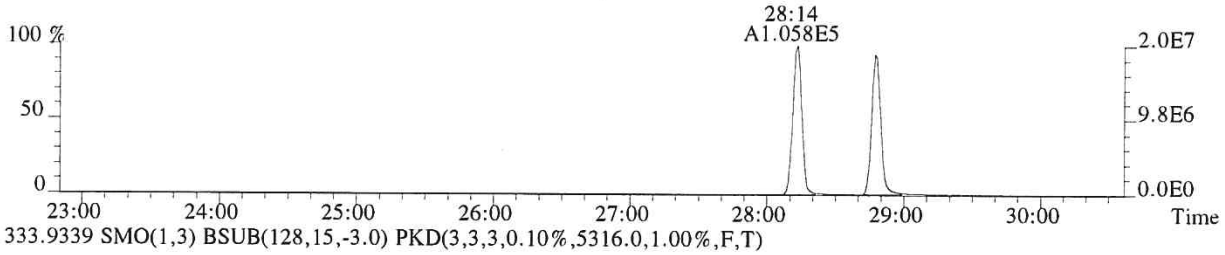
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5072.0,1.00%,F,T)



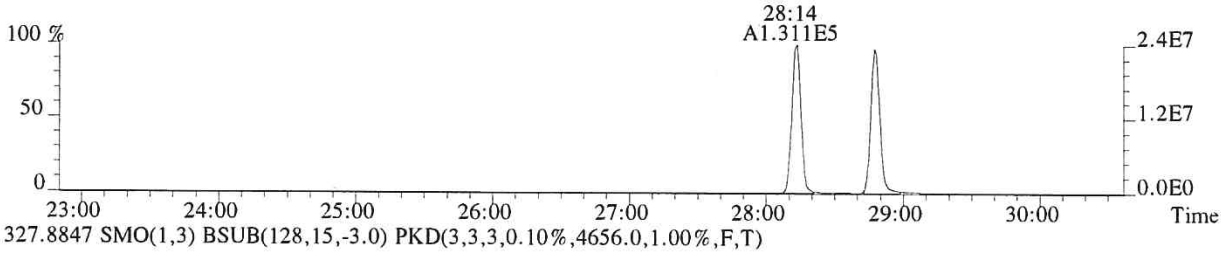
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



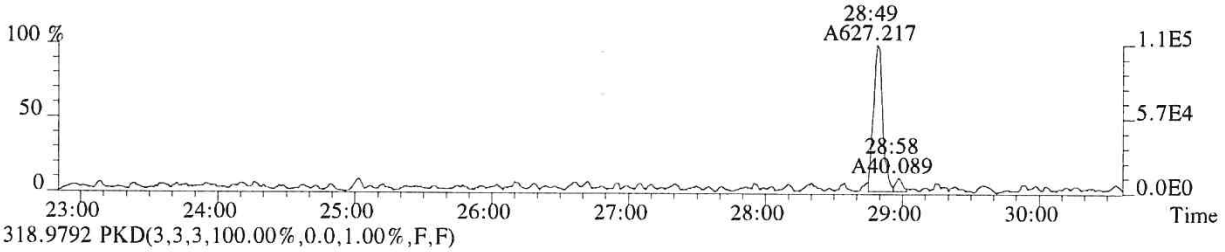
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15488.0,1.00%,F,T)



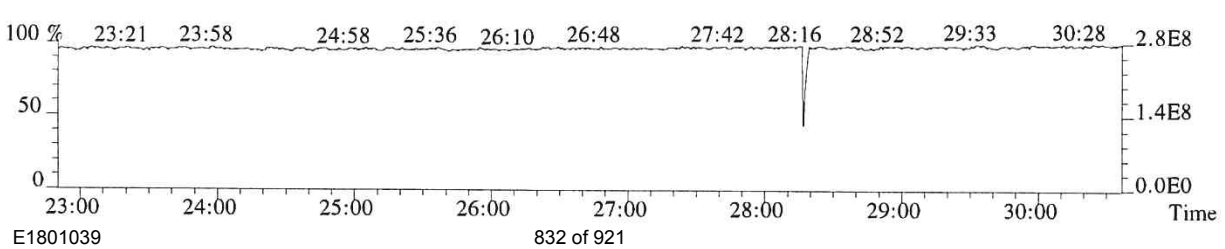
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5316.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)

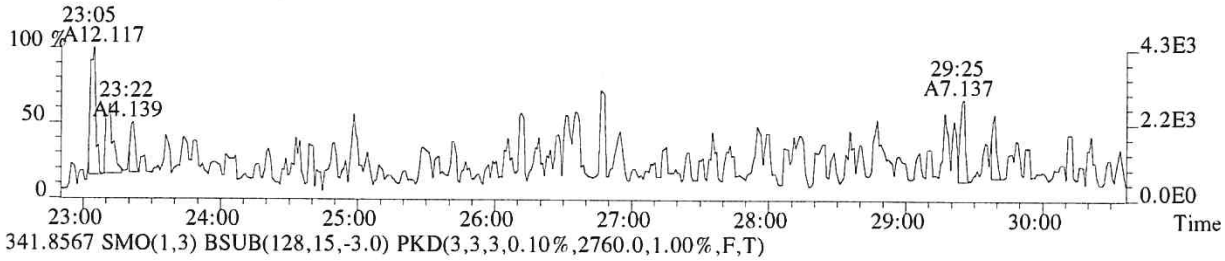


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

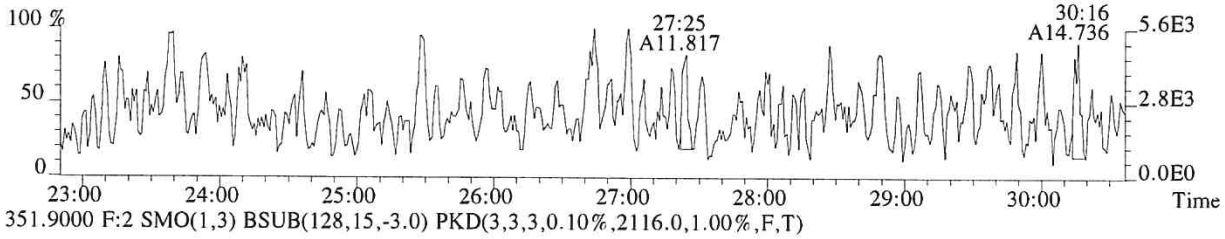


011763

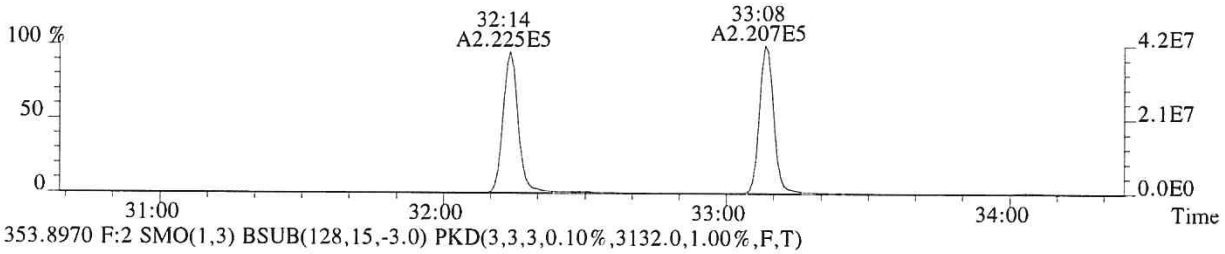
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



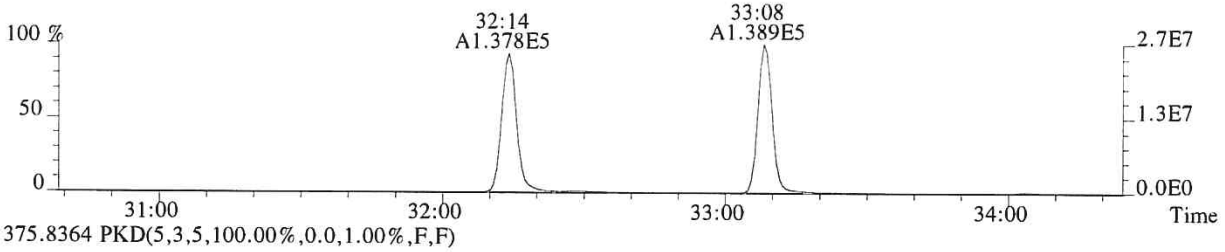
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



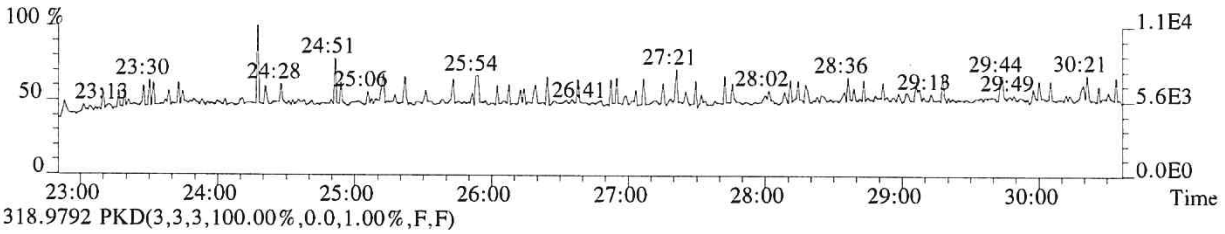
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



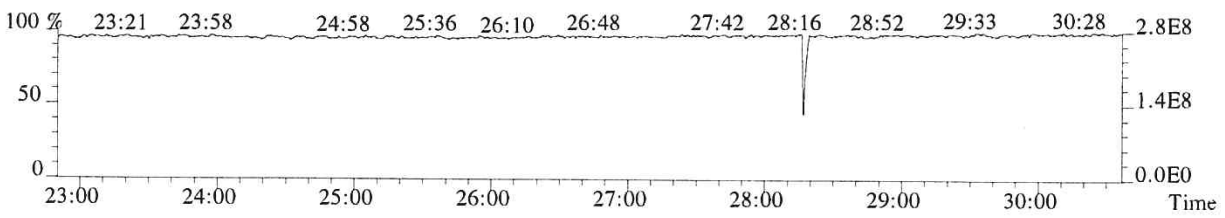
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

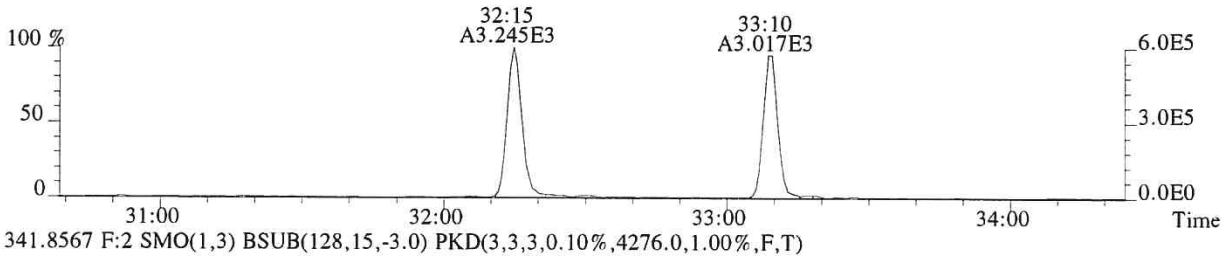


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

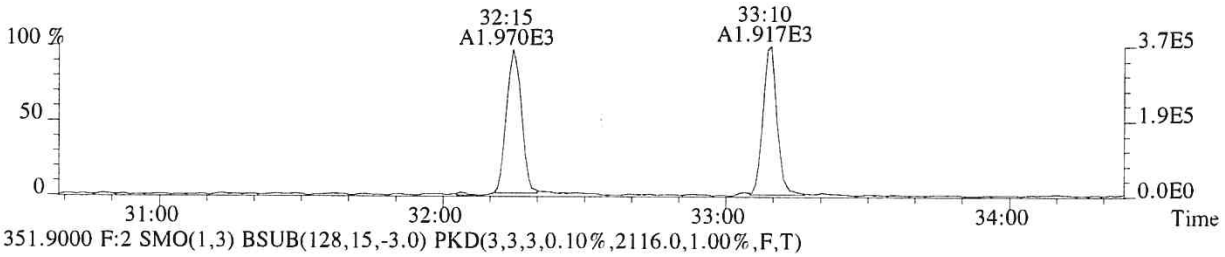


011764

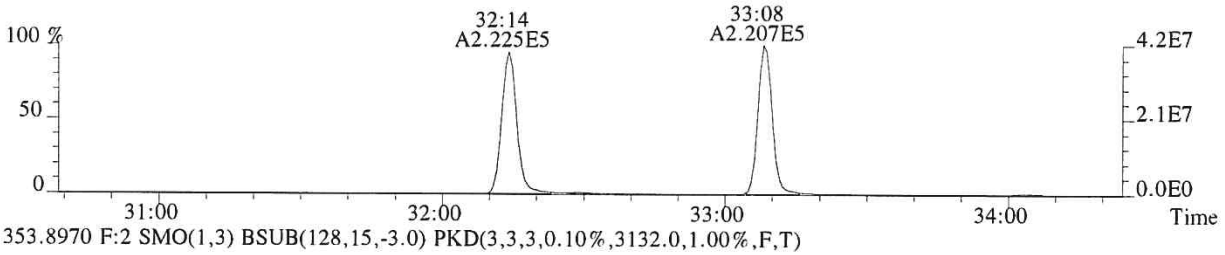
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



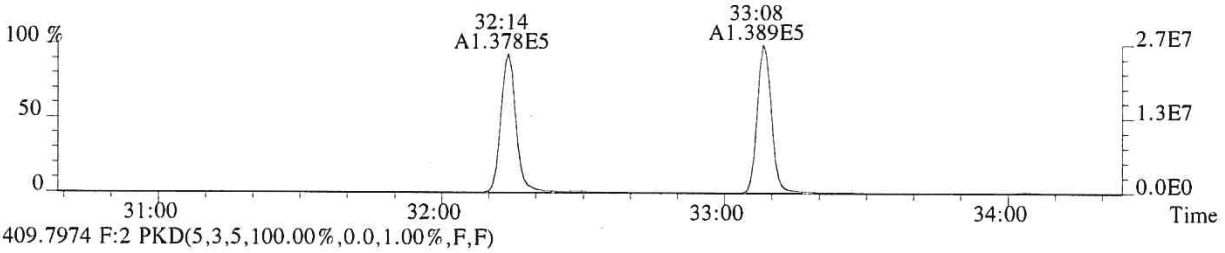
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4276.0,1.00%,F,T)



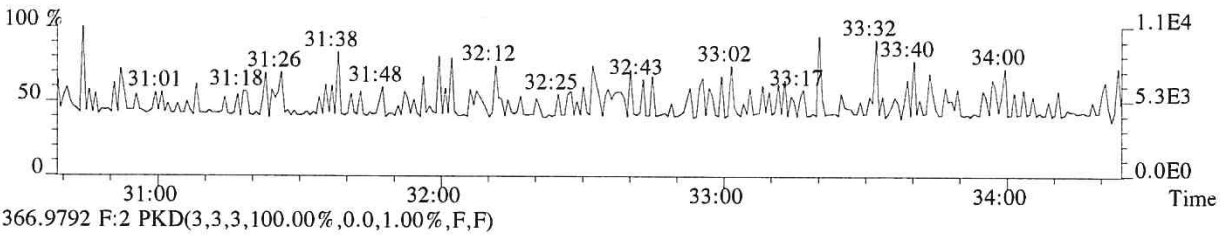
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



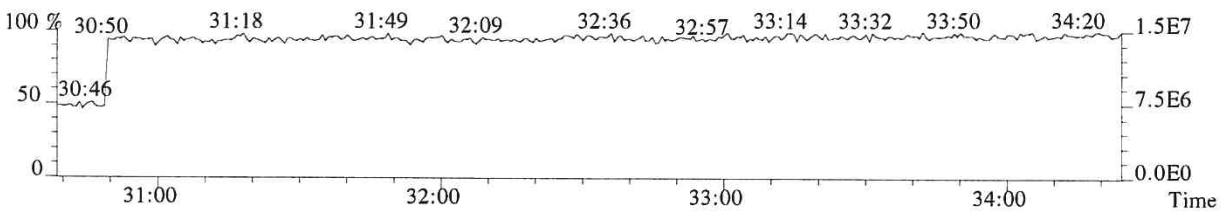
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



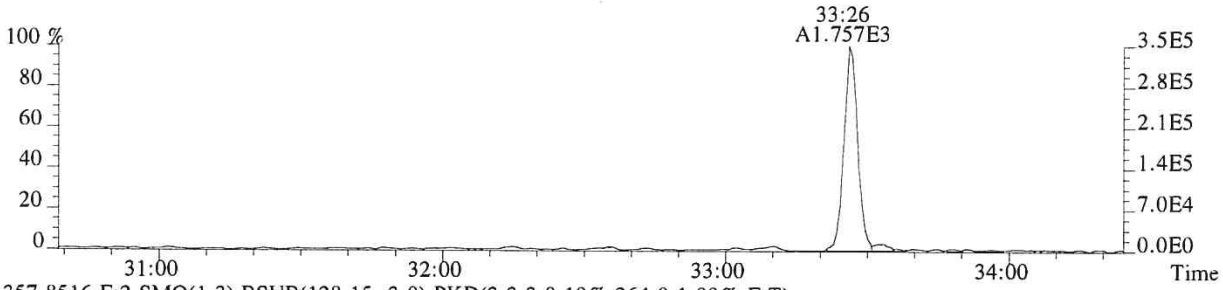
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



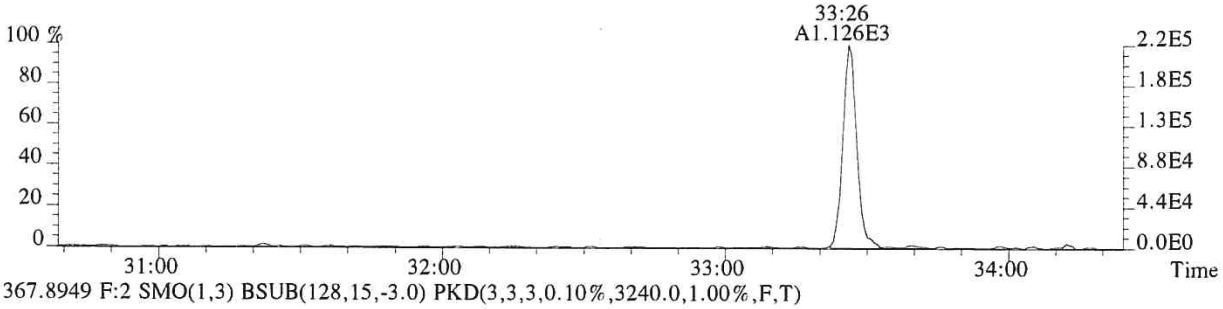
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



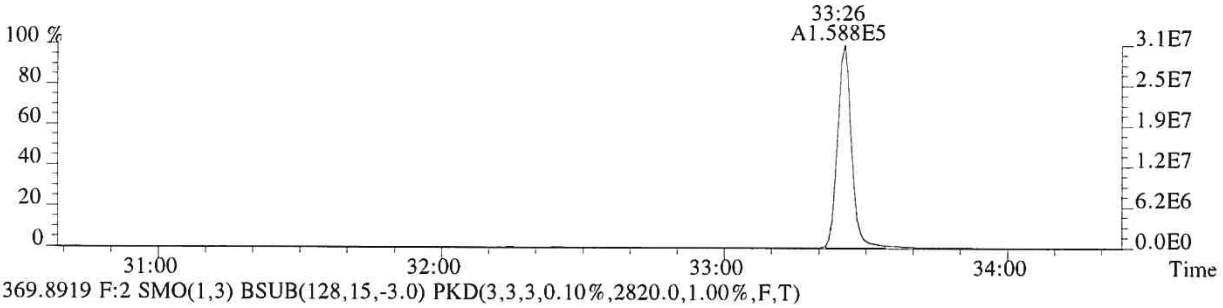
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



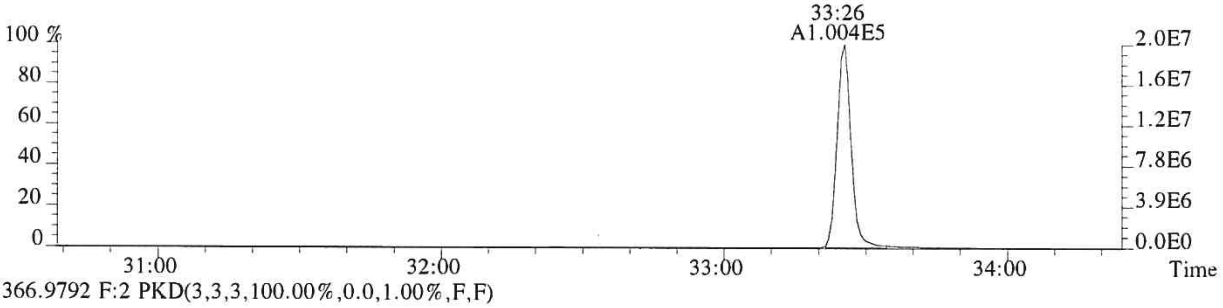
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



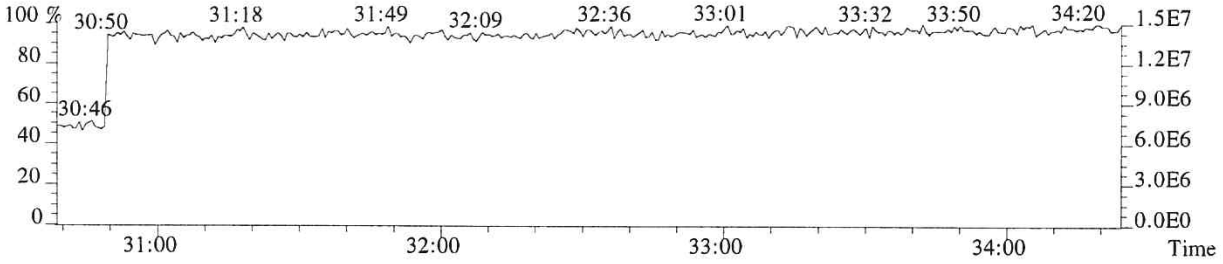
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)

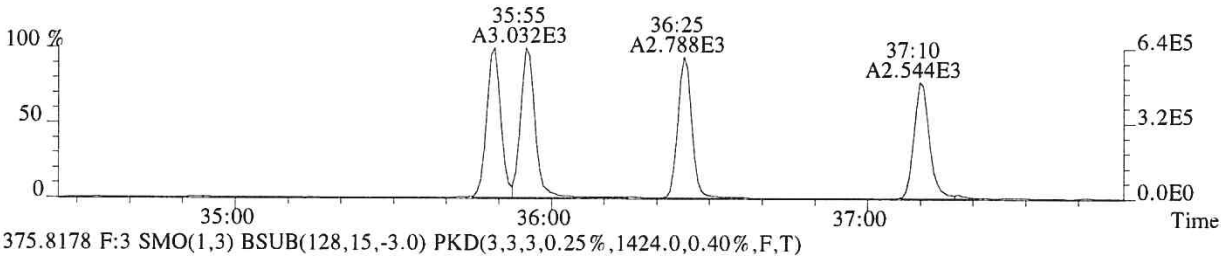


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

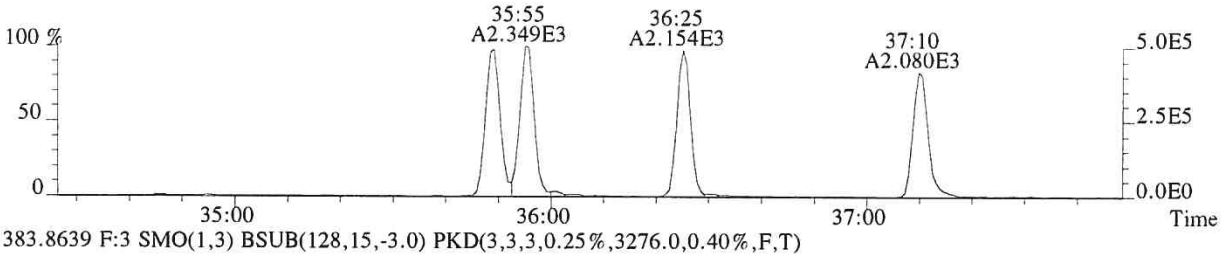


011766

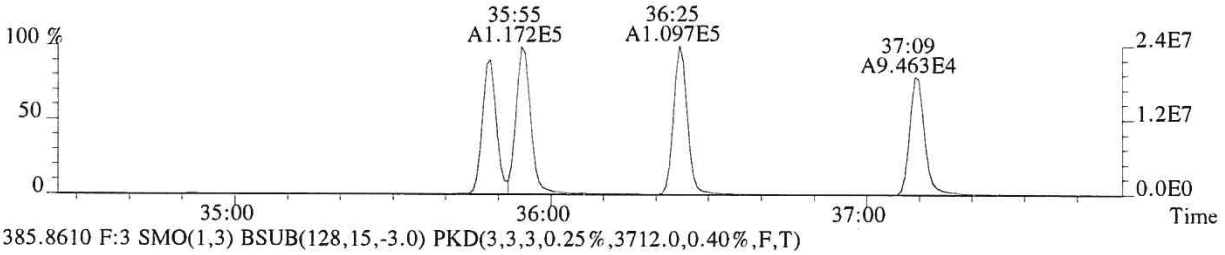
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.40%,F,T)



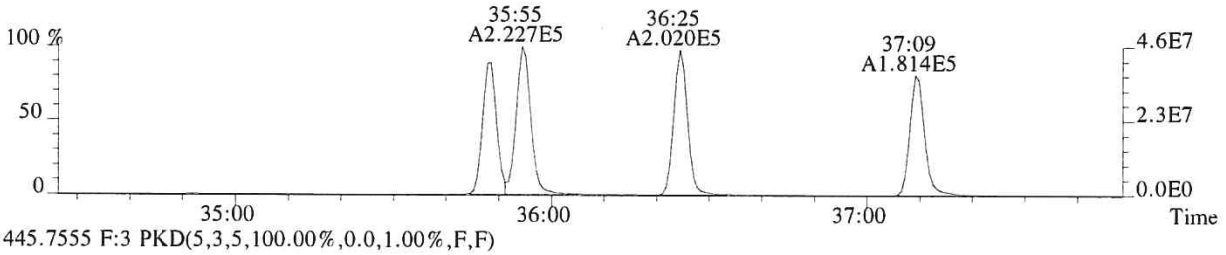
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



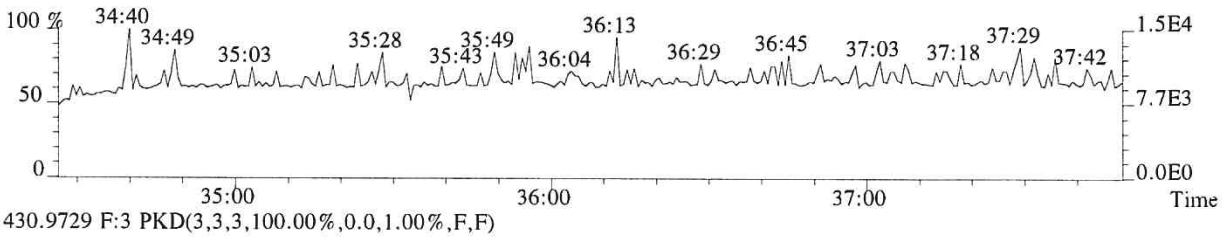
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



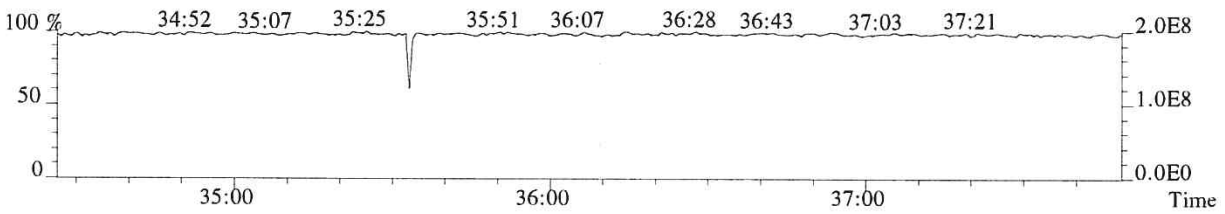
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

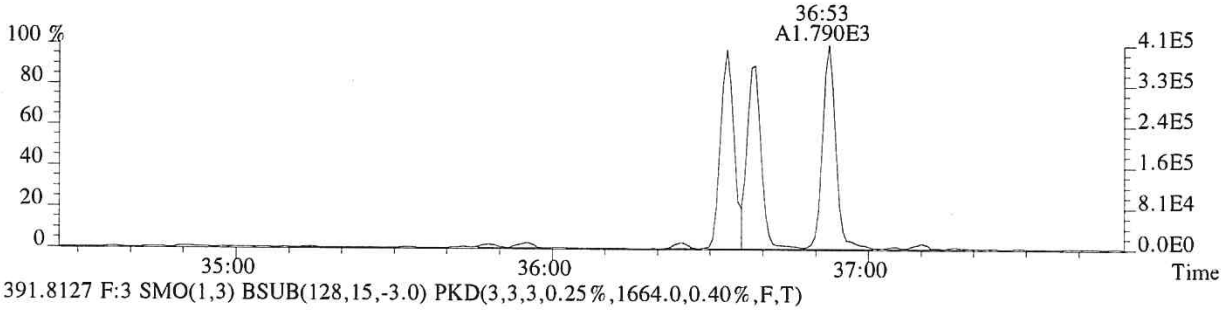


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

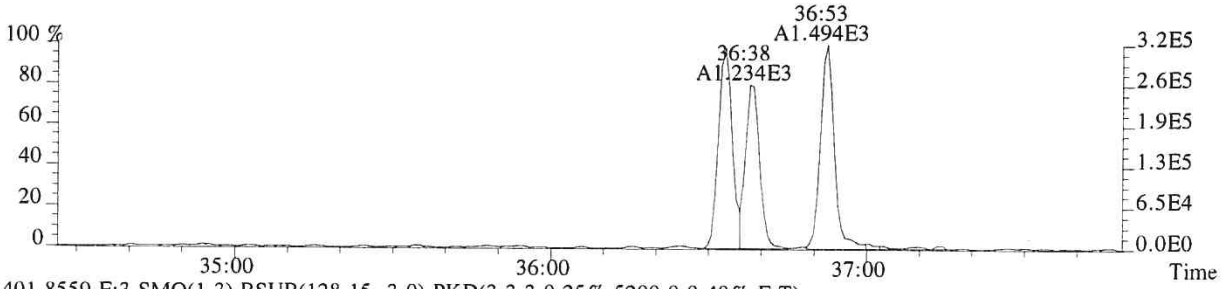


011767

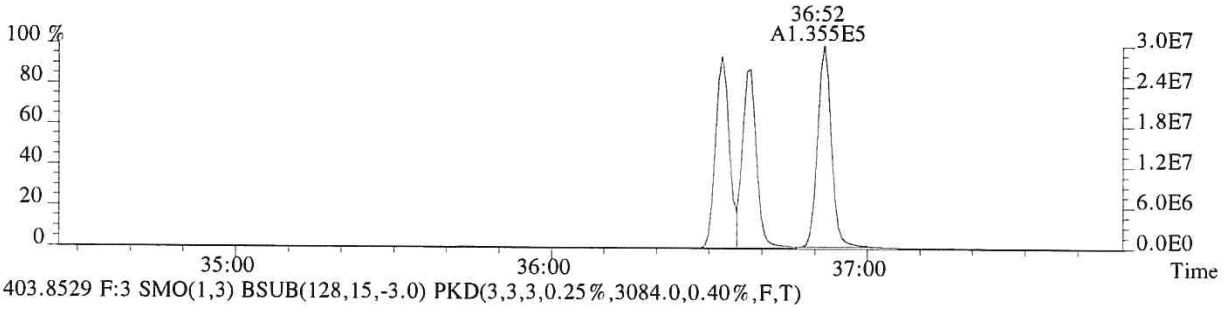
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



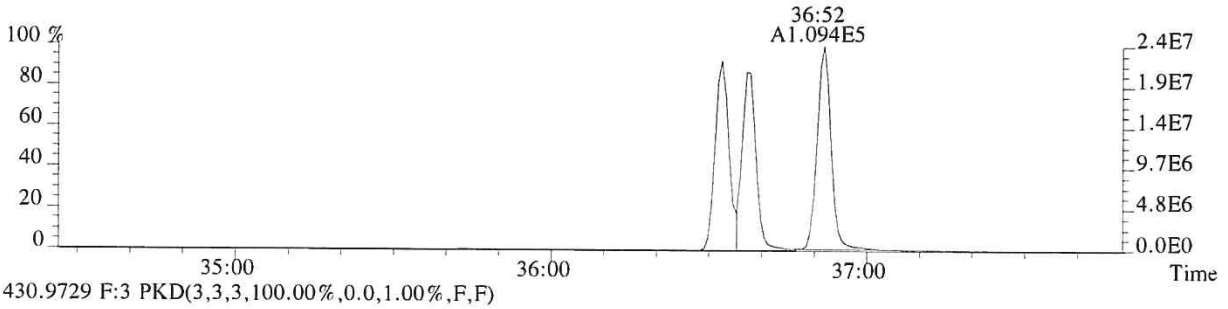
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



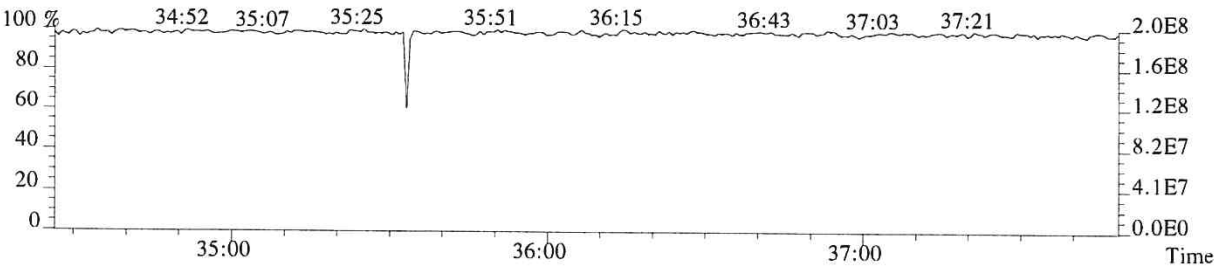
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5200.0,0.40%,F,T)



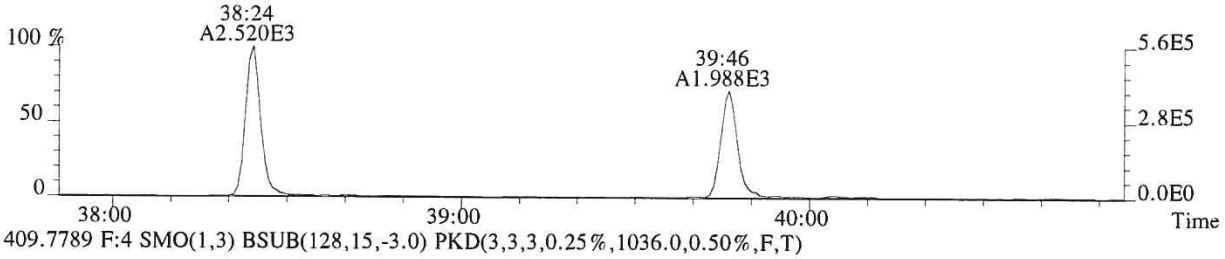
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



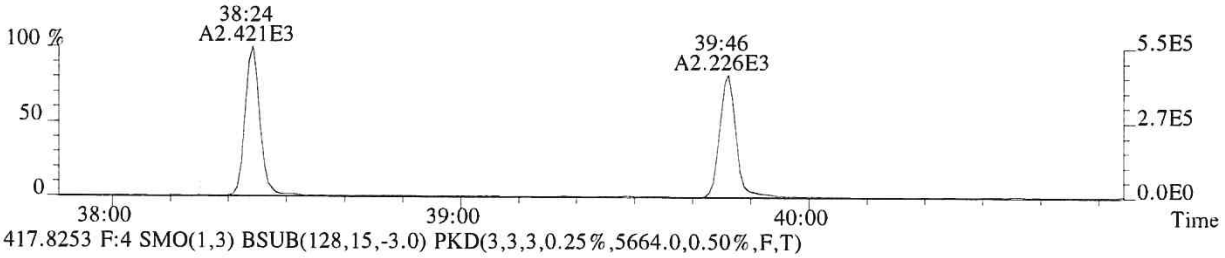
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



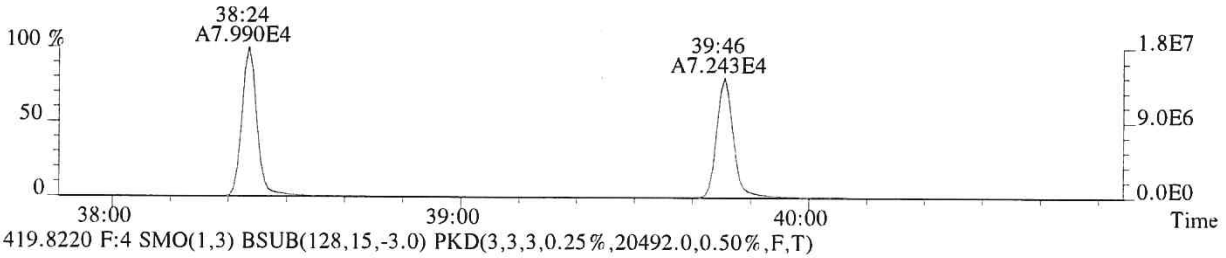
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.50%,F,T)



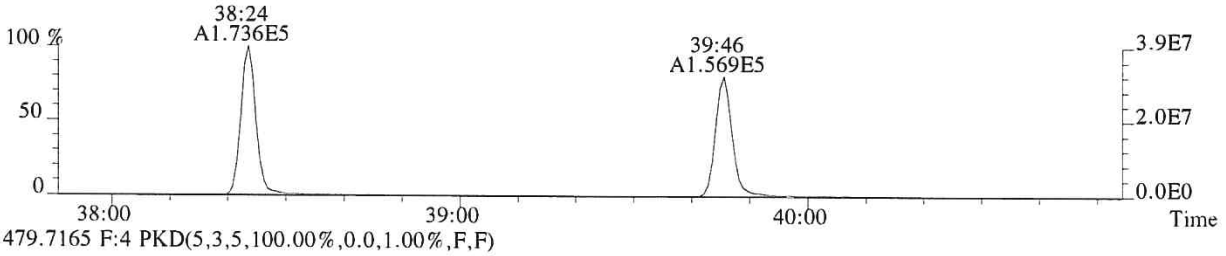
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



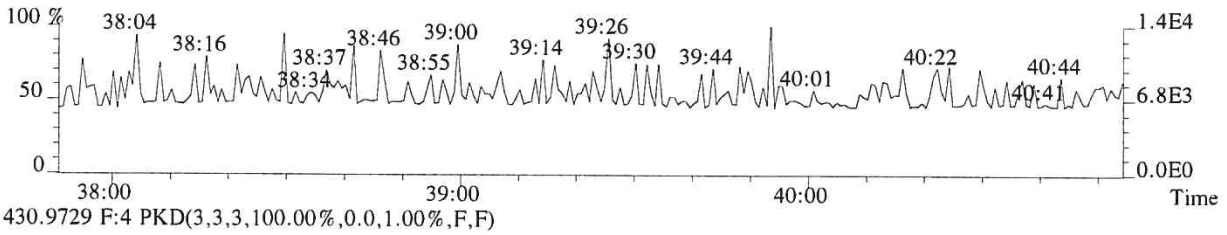
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5664.0,0.50%,F,T)



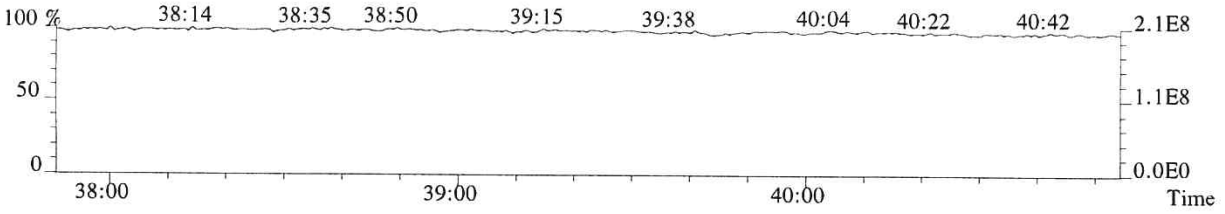
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20492.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

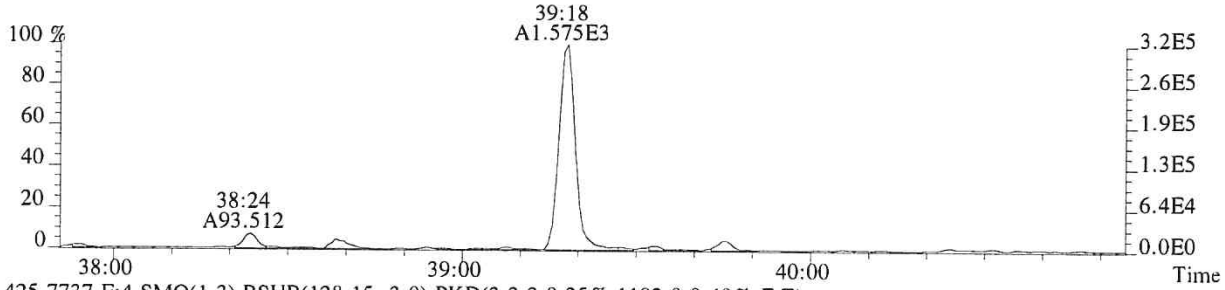


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

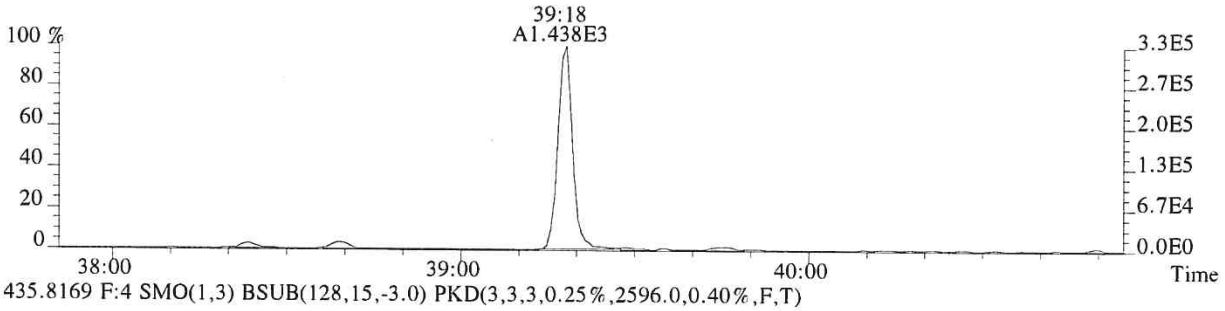


011769

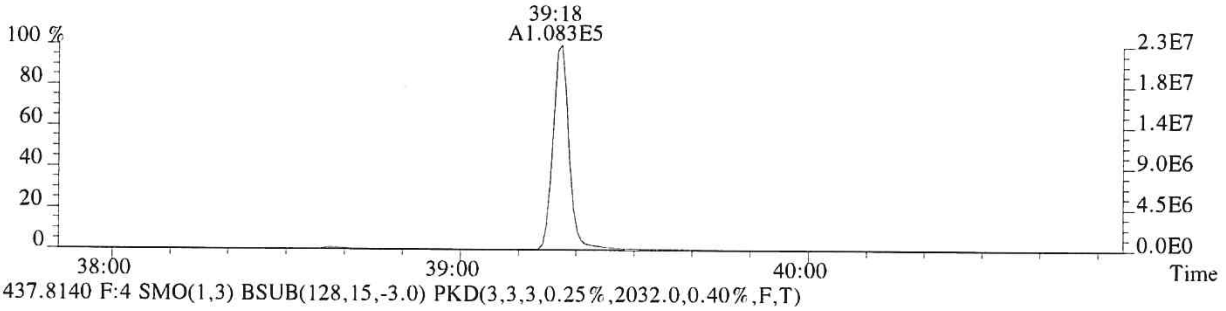
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



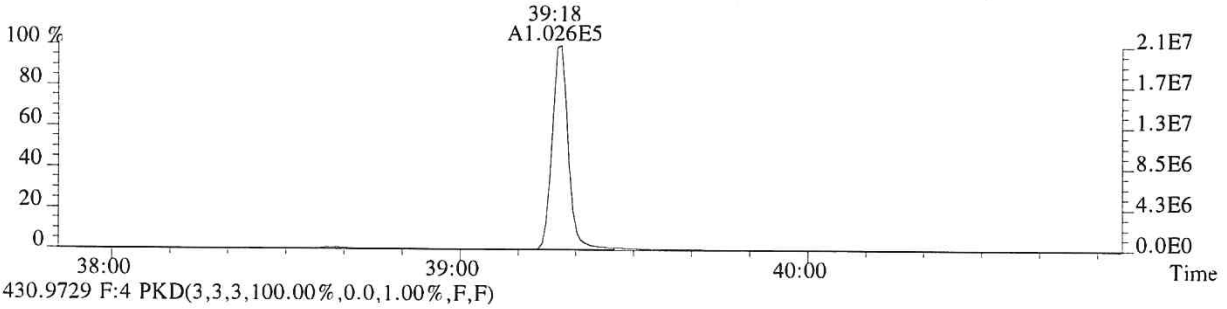
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



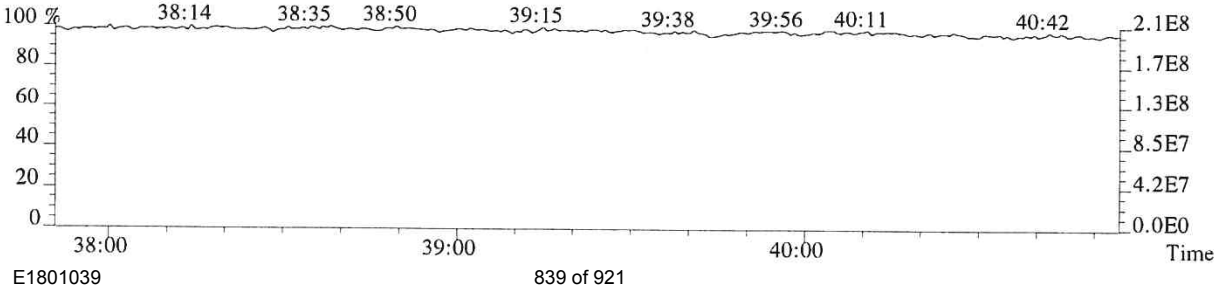
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)

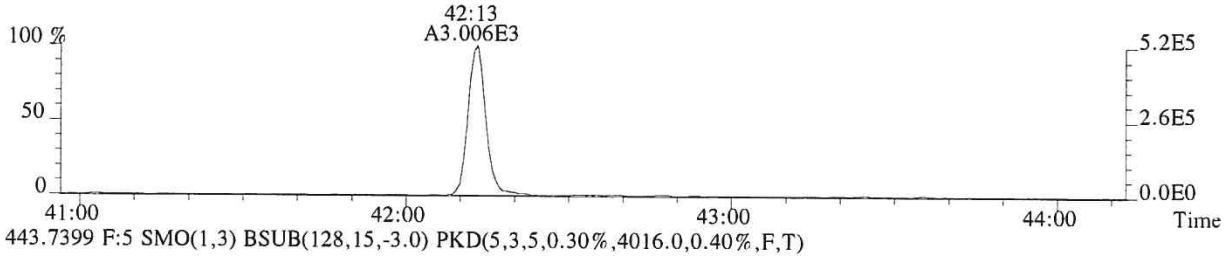


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

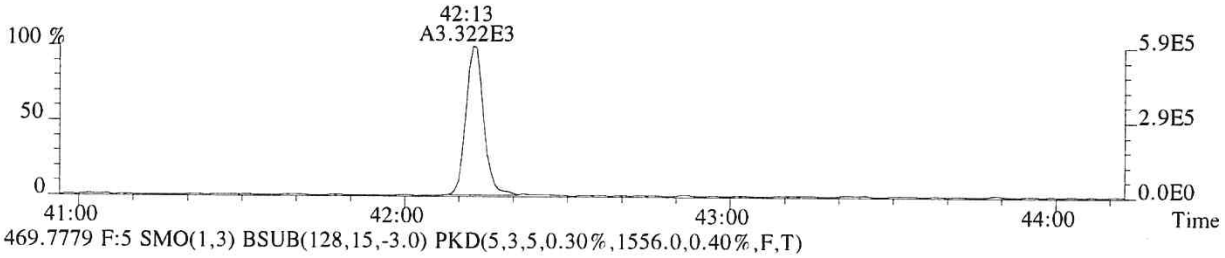


011770

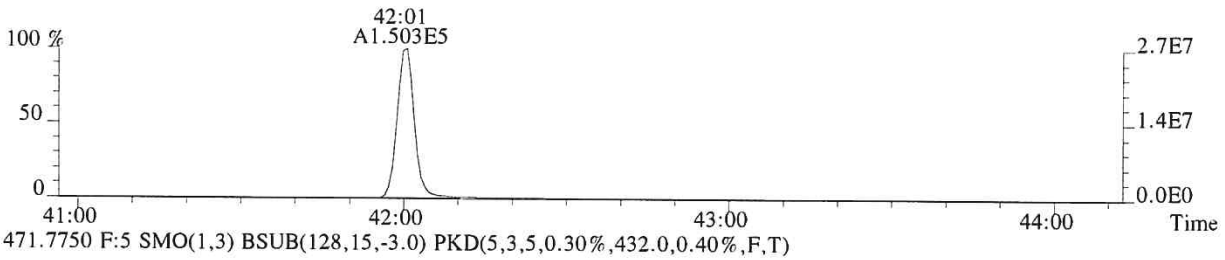
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



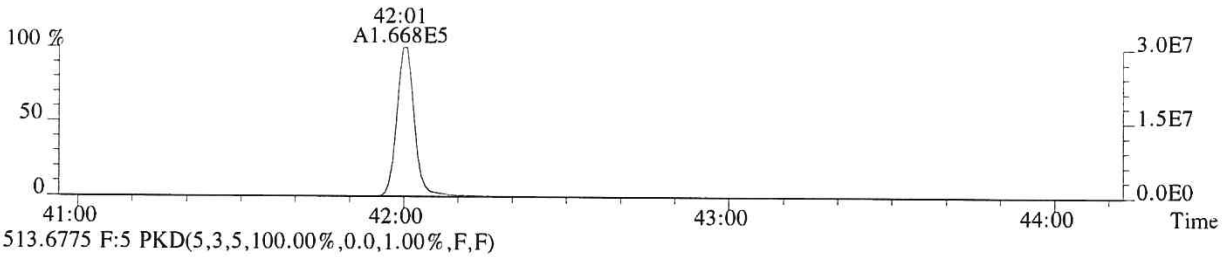
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4016.0,0.40%,F,T)



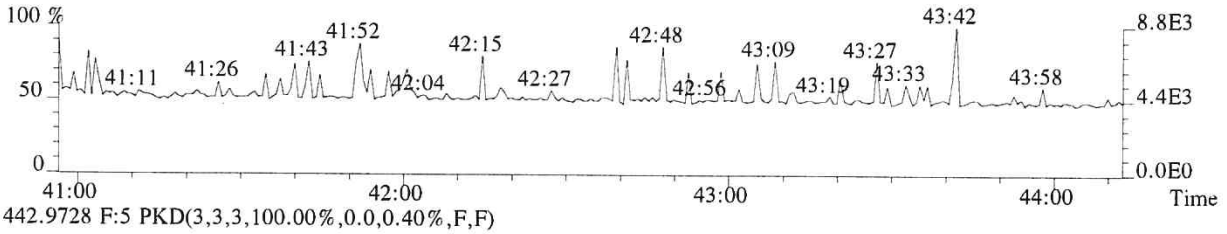
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



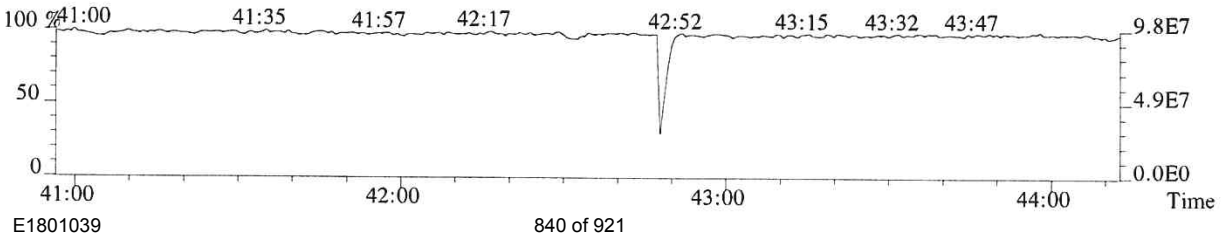
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



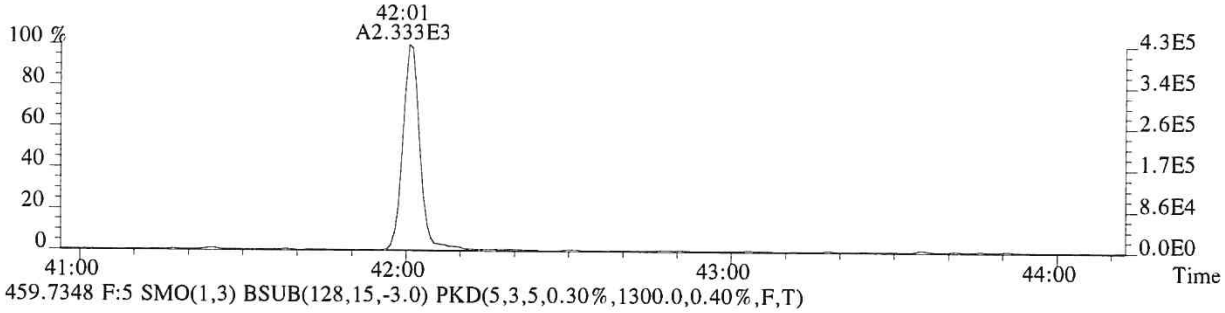
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



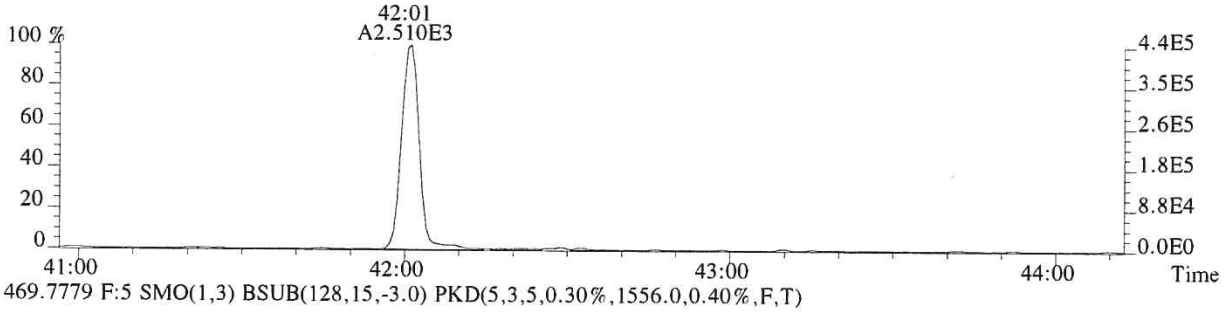
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



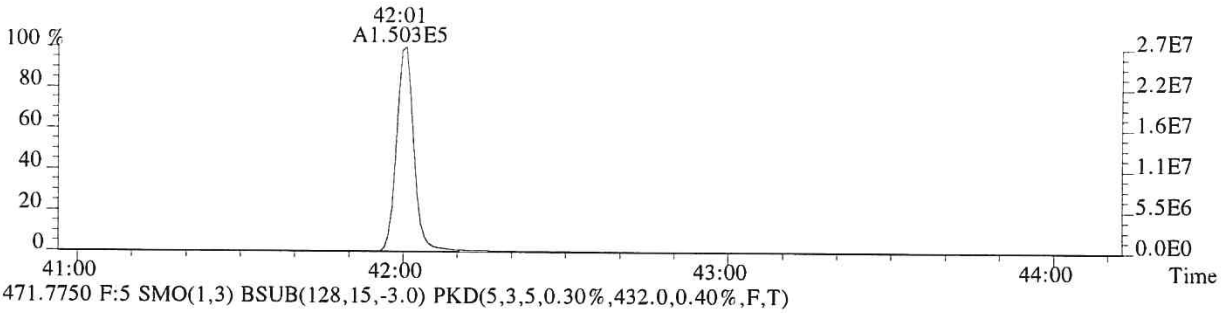
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



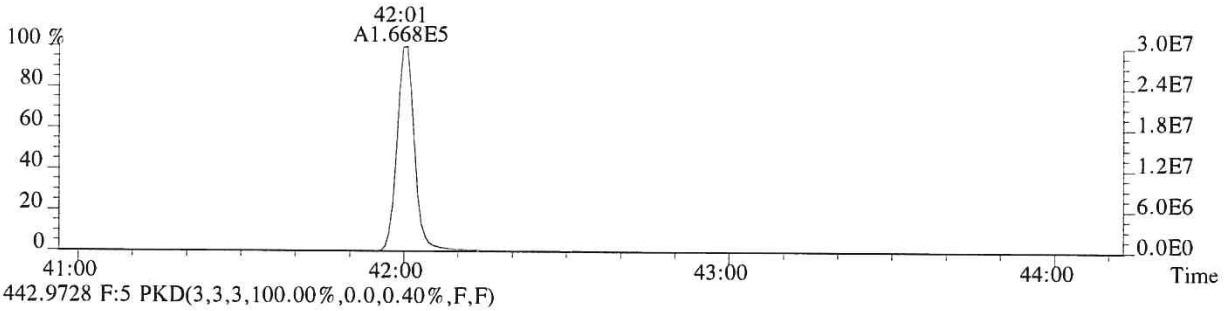
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



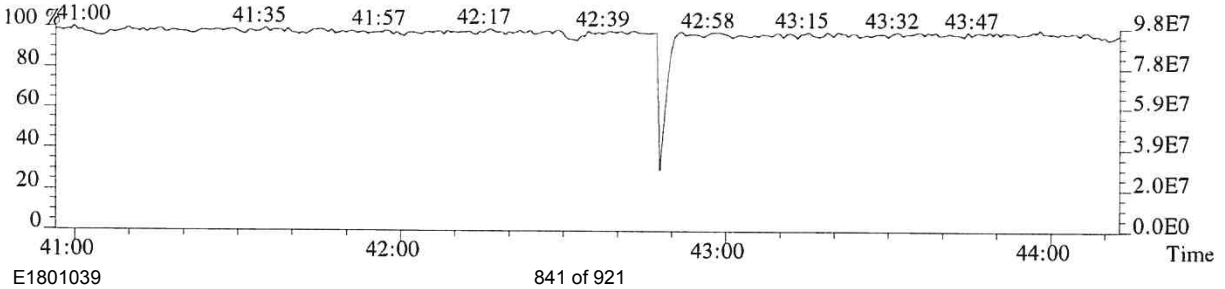
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011772

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	9.696e+02	1.301e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	8.209e+03	5.211e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	7.782e+03	4.847e+03	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.580e+03	5.860e+03	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.826e+03	6.295e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	7.149e+03	5.707e+03	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	6.633e+03	5.137e+03	1.29	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	6.668e+03	6.509e+03	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	5.874e+03	5.515e+03	1.07	yes	no	1.463
10	Unk	OCDF	42:13	7.957e+03	9.190e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	6.591e+02	7.969e+02	0.83	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	4.521e+03	2.979e+03	1.52	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	4.250e+03	3.535e+03	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	4.303e+03	3.394e+03	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	4.586e+03	3.767e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.011e+03	3.764e+03	1.07	yes	no	1.112
17	Unk	OCDD	42:01	6.097e+03	6.815e+03	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.863e+05	2.330e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.845e+05	1.757e+05	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.739e+05	1.718e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.281e+05	2.407e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.461e+05	2.703e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.362e+05	2.538e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.215e+05	2.294e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.041e+05	2.259e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	9.345e+04	2.024e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.293e+05	1.616e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.924e+05	1.218e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.556e+05	1.239e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.601e+05	1.267e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.414e+05	1.336e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.022e+05	2.237e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.337e+05	1.646e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.731e+05	1.377e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.653e+03				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.73e+05	2.52e+03	6.9e+01	2.26e+05	4.68e+03	4.8e+01
2	1,2,3,7,8-PeCDF	1.49e+06	1.07e+03	1.4e+03	9.88e+05	5.47e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.55e+06	1.07e+03	1.5e+03	9.81e+05	5.47e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	1.64e+06	3.19e+03	5.1e+02	1.29e+06	1.24e+03	1.0e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	3.19e+03	5.2e+02	1.30e+06	1.24e+03	1.0e+03
6	2,3,4,6,7,8-HxCDF	1.53e+06	3.19e+03	4.8e+02	1.19e+06	1.24e+03	9.6e+02
7	1,2,3,7,8,9-HxCDF	1.37e+06	3.19e+03	4.3e+02	1.06e+06	1.24e+03	8.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.48e+06	1.97e+03	7.5e+02	1.45e+06	1.25e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.19e+06	1.97e+03	6.0e+02	1.11e+06	1.25e+03	8.9e+02
10	OCDF	1.45e+06	1.15e+03	1.3e+03	1.64e+06	2.28e+03	7.2e+02
11	2,3,7,8-TCDD	1.20e+05	6.88e+03	1.7e+01	1.48e+05	2.99e+03	5.0e+01
12	1,2,3,7,8-PeCDD	8.64e+05	2.37e+03	3.6e+02	5.83e+05	1.39e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	9.60e+05	1.02e+03	9.4e+02	8.07e+05	1.68e+03	4.8e+02
14	1,2,3,6,7,8-HxCDD	9.46e+05	1.02e+03	9.3e+02	7.52e+05	1.68e+03	4.5e+02
15	1,2,3,7,8,9-HxCDD	1.01e+06	1.02e+03	9.9e+02	8.34e+05	1.68e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	8.38e+05	1.17e+03	7.2e+02	8.29e+05	4.84e+02	1.7e+03
17	OCDD	1.16e+06	3.14e+03	3.7e+02	1.30e+06	1.96e+03	6.6e+02
18	13C-2,3,7,8-TCDF	3.28e+07	1.64e+04	2.0e+03	4.11e+07	1.27e+04	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.29e+07	3.44e+03	1.5e+04	3.26e+07	2.57e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	3.44e+03	1.6e+04	3.38e+07	2.57e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+07	3.47e+03	8.3e+03	5.39e+07	4.48e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.07e+07	3.47e+03	8.8e+03	5.68e+07	4.48e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.95e+07	3.47e+03	8.5e+03	5.46e+07	4.48e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.51e+07	3.47e+03	7.2e+03	4.72e+07	4.48e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.29e+04	1.8e+03	4.99e+07	2.56e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+07	1.29e+04	1.5e+03	4.06e+07	2.56e+04	1.6e+03
27	13C-2,3,7,8-TCDD	2.37e+07	1.79e+04	1.3e+03	2.98e+07	7.48e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	3.81e+07	3.05e+03	1.3e+04	2.43e+07	1.79e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	3.53e+07	4.99e+03	7.1e+03	2.84e+07	2.28e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.46e+07	4.99e+03	6.9e+03	2.73e+07	2.28e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+07	3.94e+03	7.8e+03	2.93e+07	1.60e+03	1.8e+04
32	13C-OCDD	3.85e+07	1.12e+03	3.4e+04	4.22e+07	1.86e+03	2.3e+04
33	13C-1,2,3,4-TCDD	2.49e+07	1.79e+04	1.4e+03	3.07e+07	7.48e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	4.99e+03	7.5e+03	3.01e+07	2.28e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.03e+05	3.87e+03	7.8e+01			

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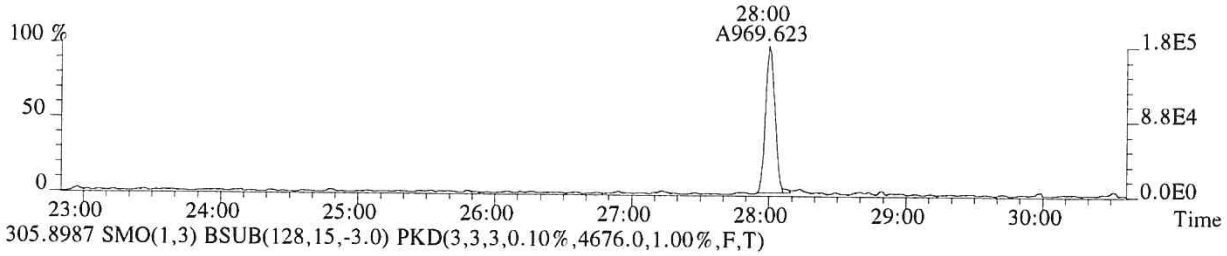
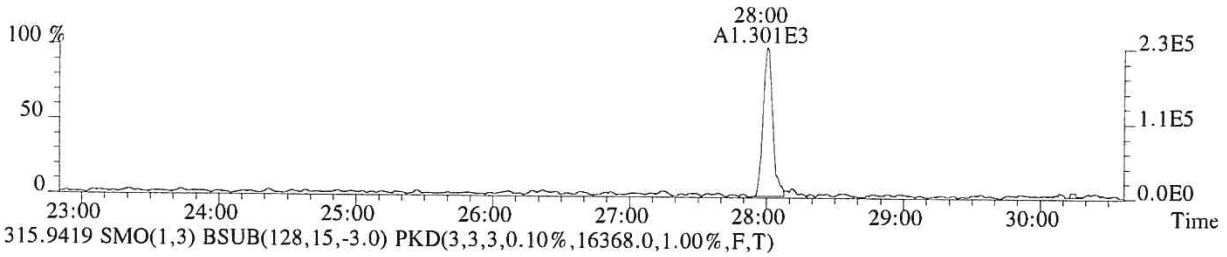
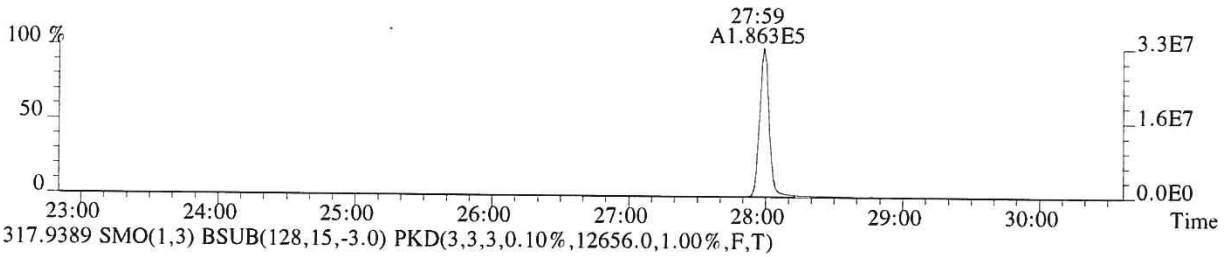
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



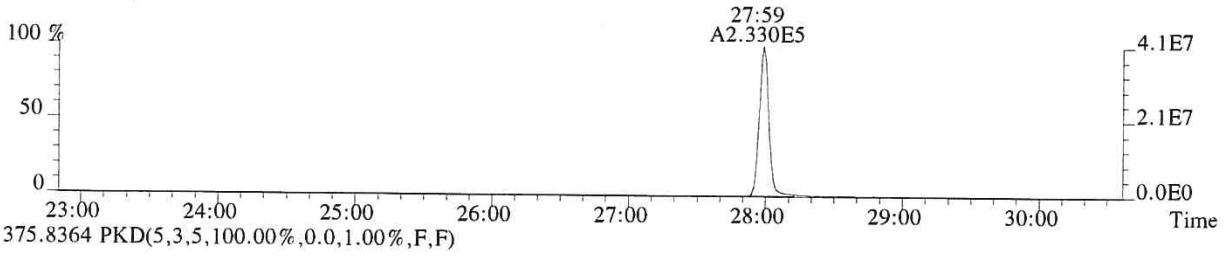
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4676.0,1.00%,F,T)



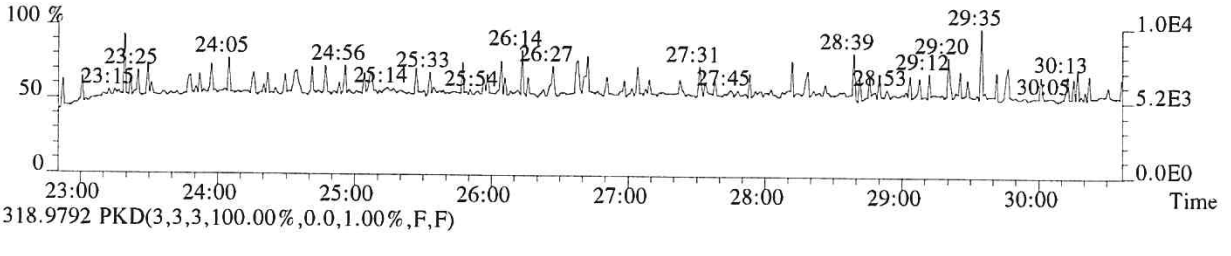
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16368.0,1.00%,F,T)



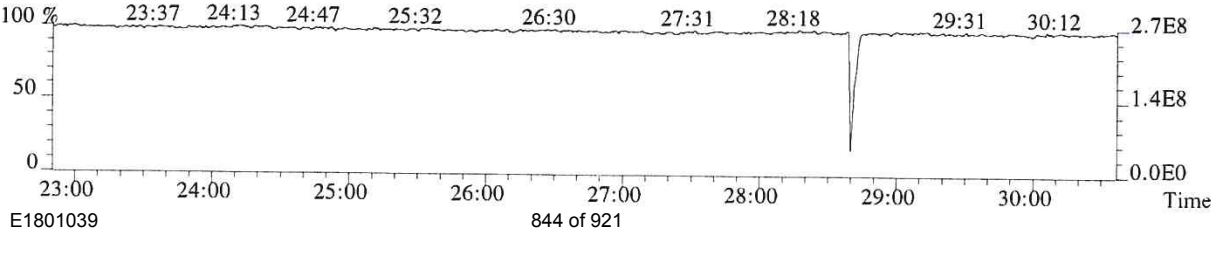
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

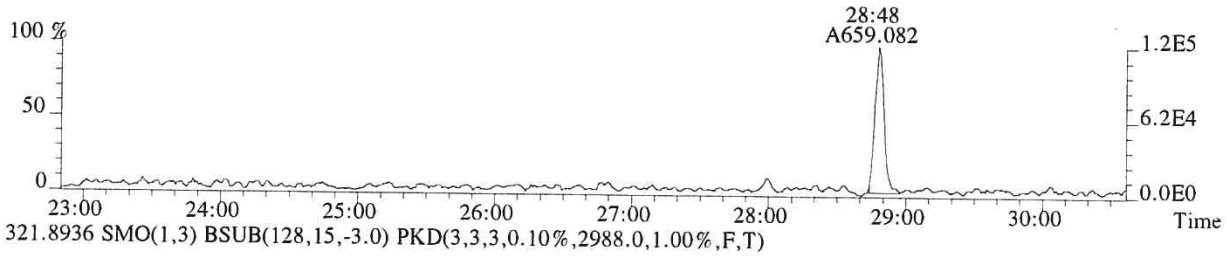


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

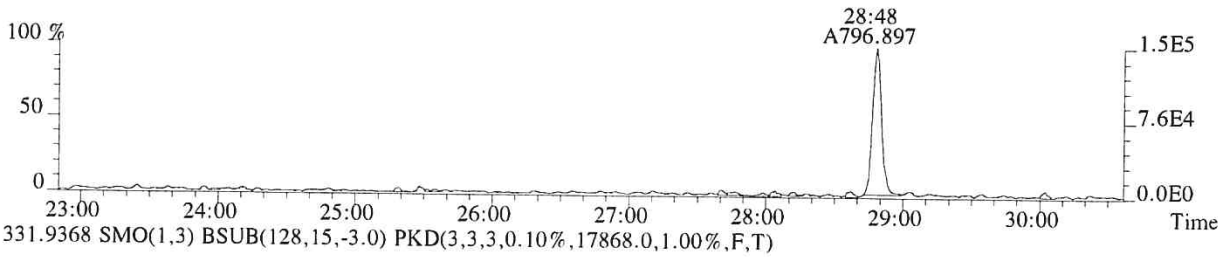


011775

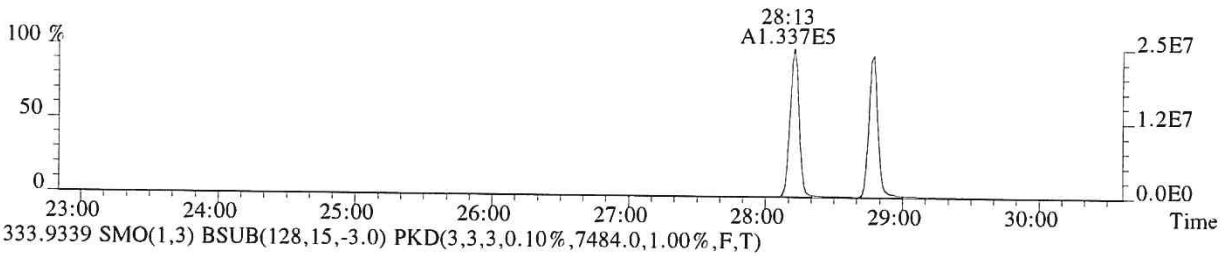
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6880.0,1.00%,F,T)



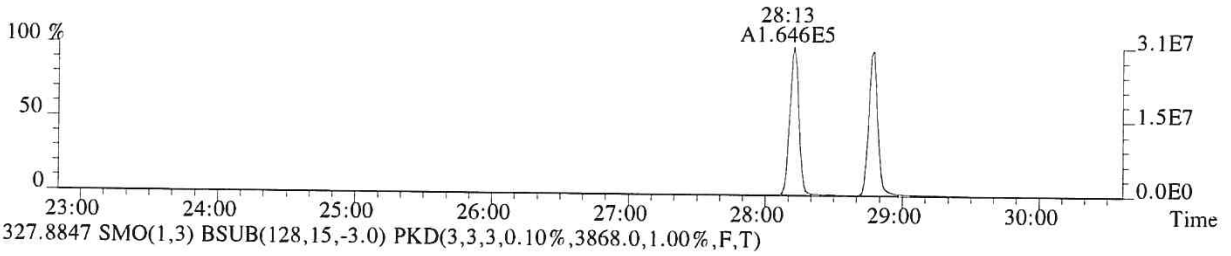
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



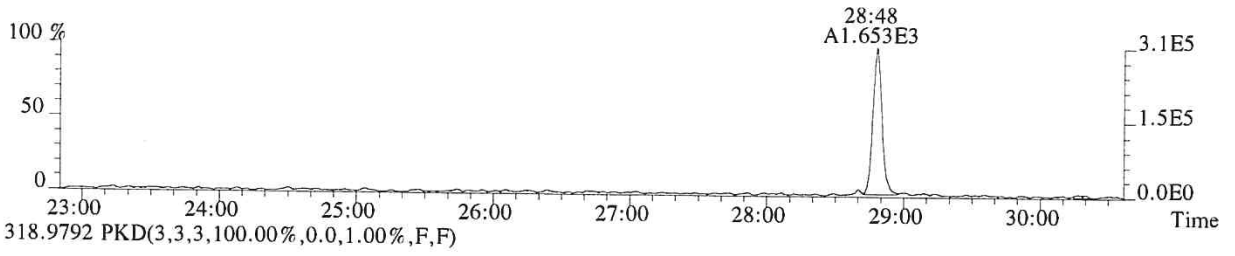
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17868.0,1.00%,F,T)



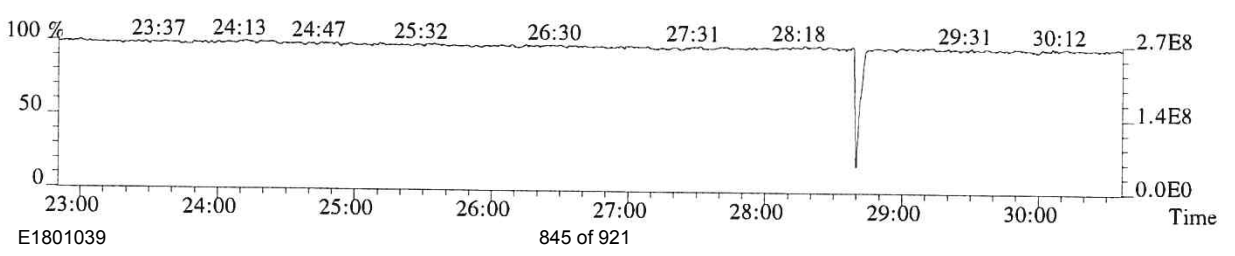
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7484.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)

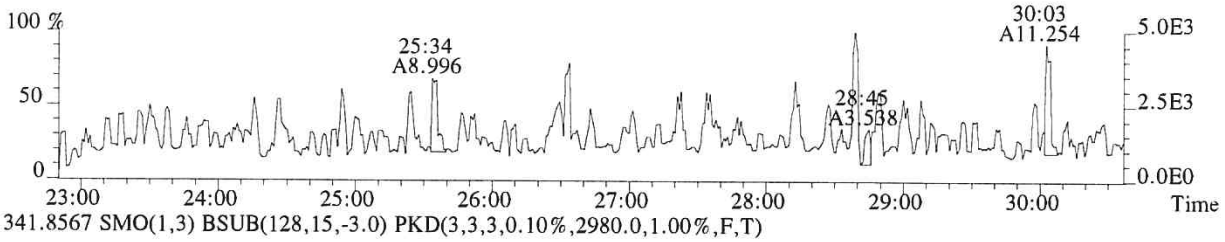


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

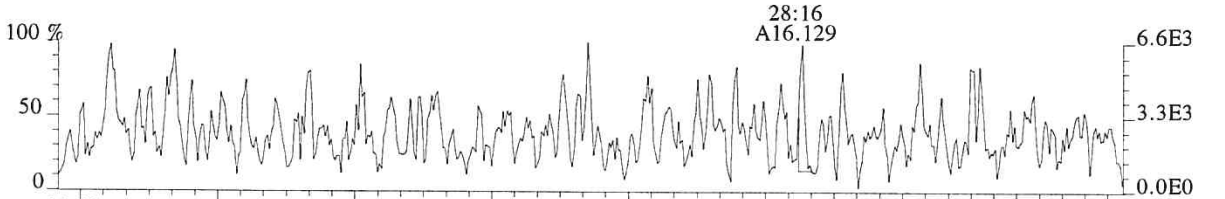


011776

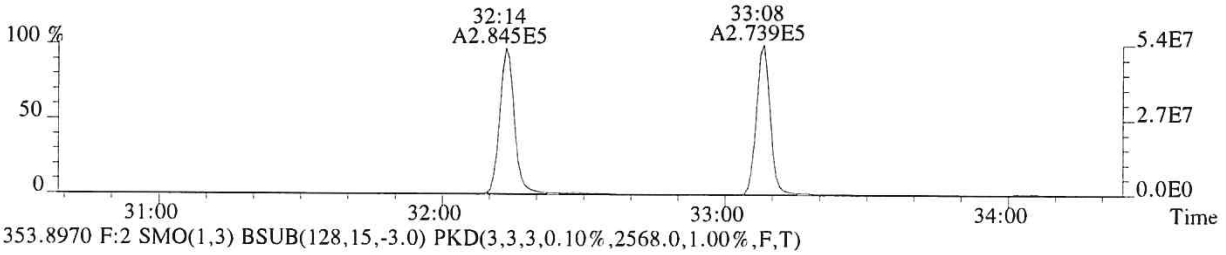
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



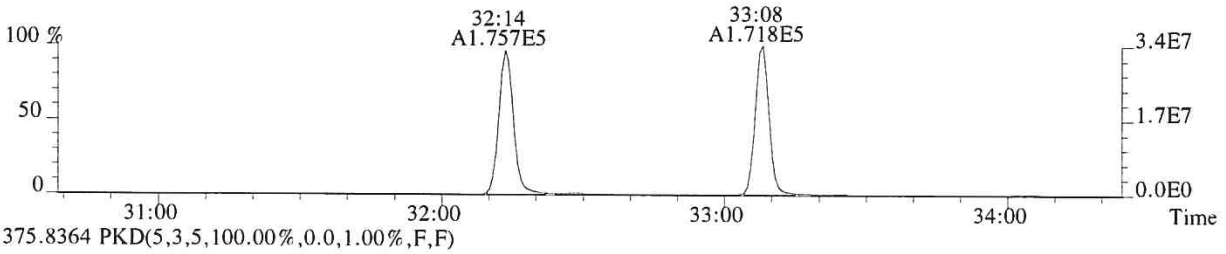
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



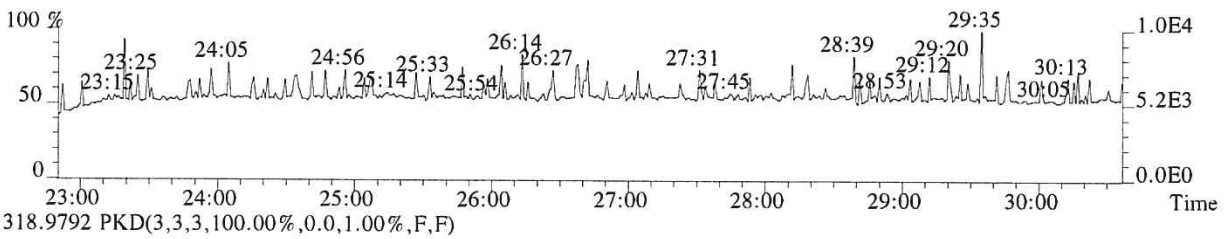
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



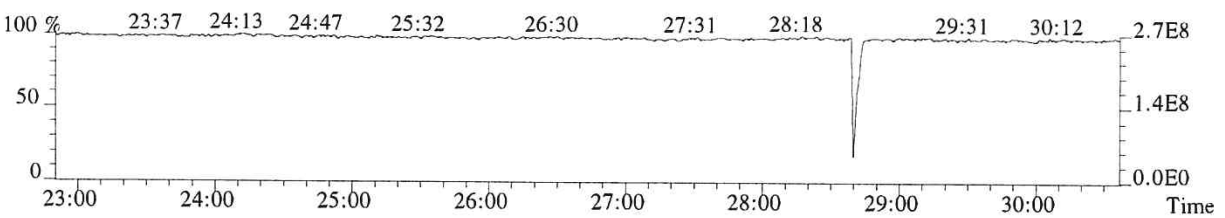
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



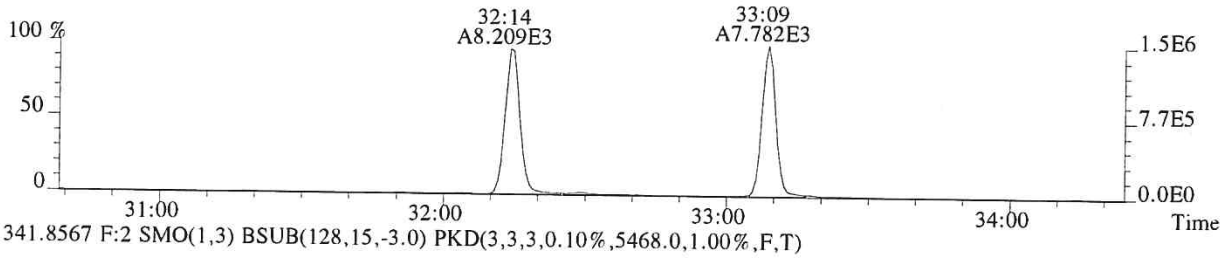
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



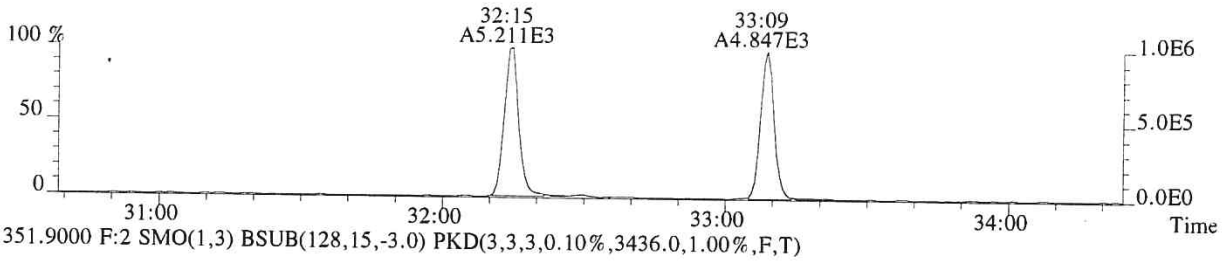
011777

File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

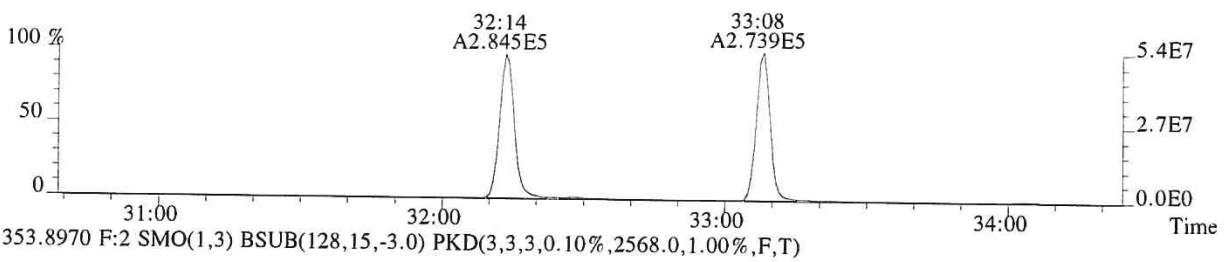
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



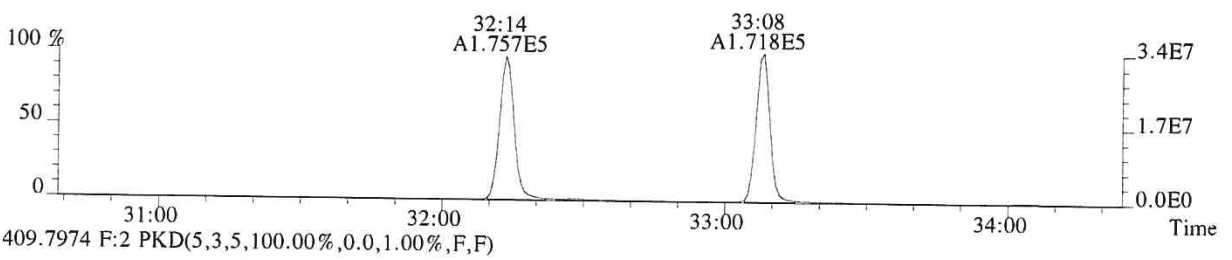
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5468.0,1.00%,F,T)



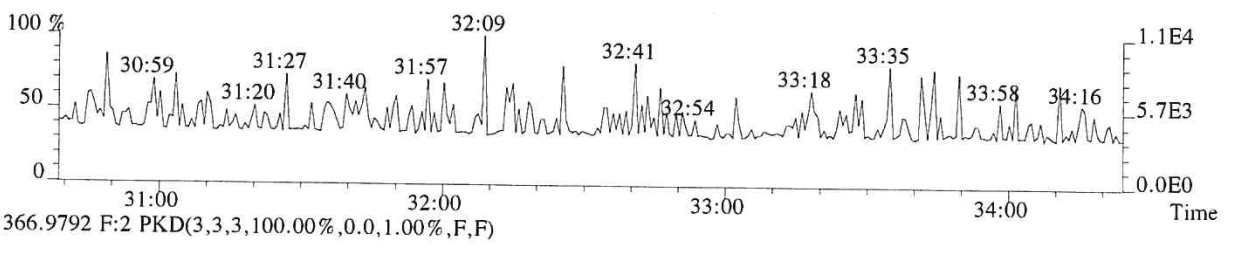
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



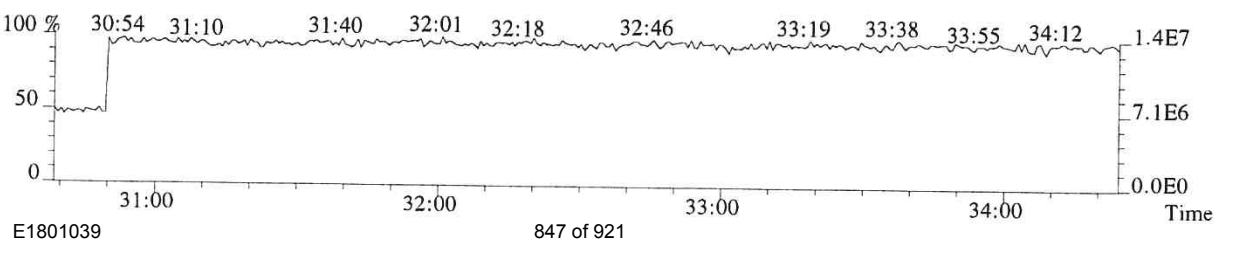
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

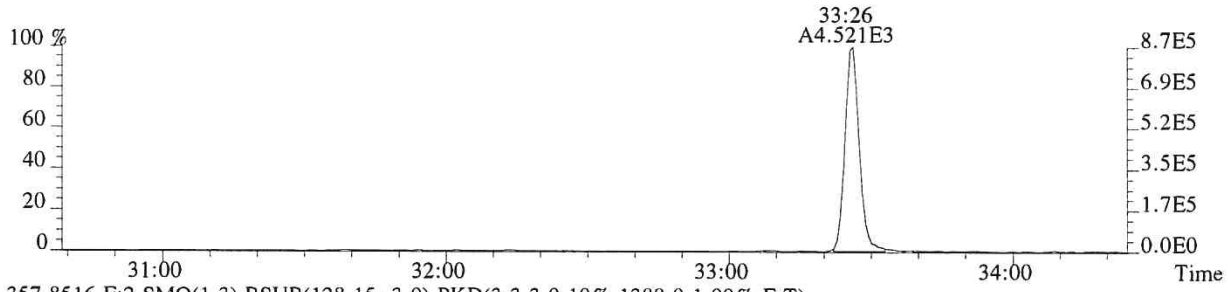


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

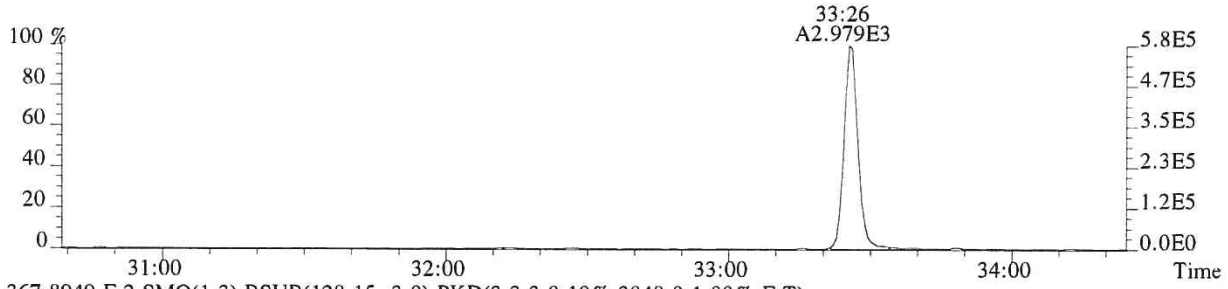


011778

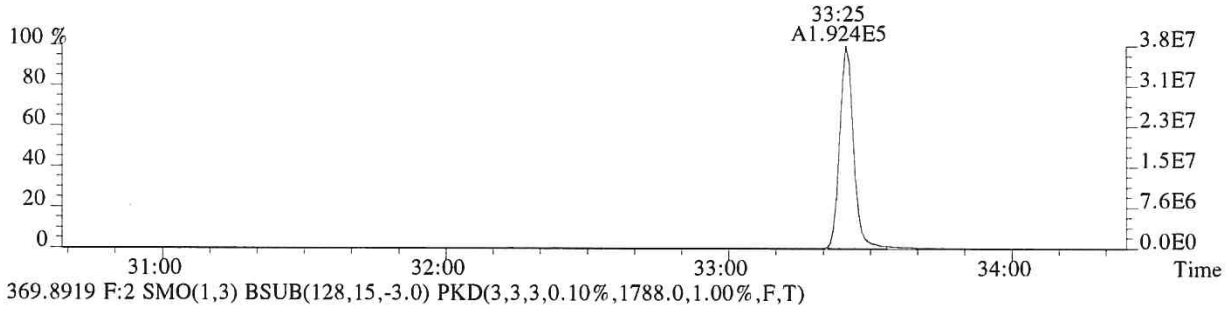
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



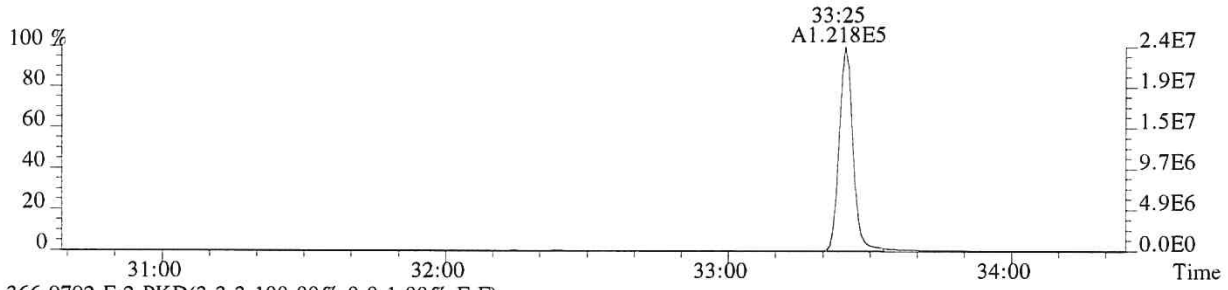
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



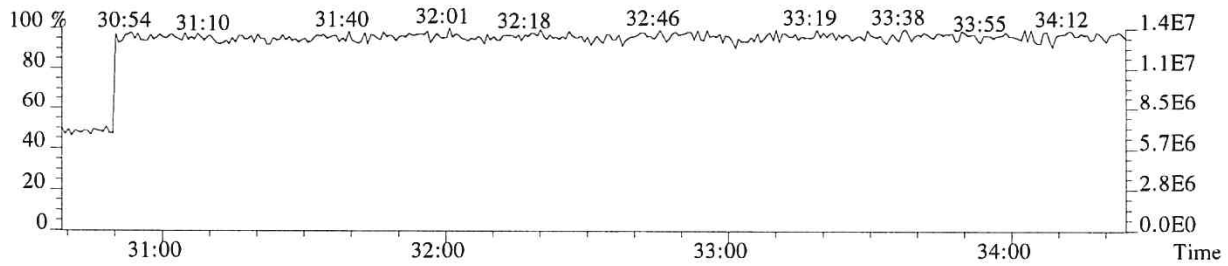
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)

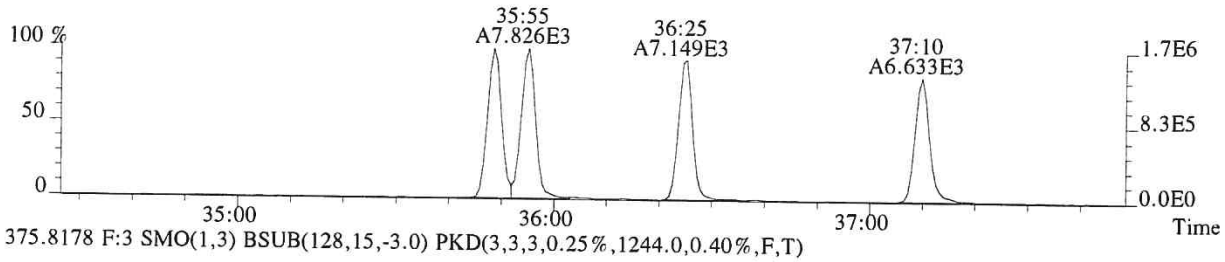


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

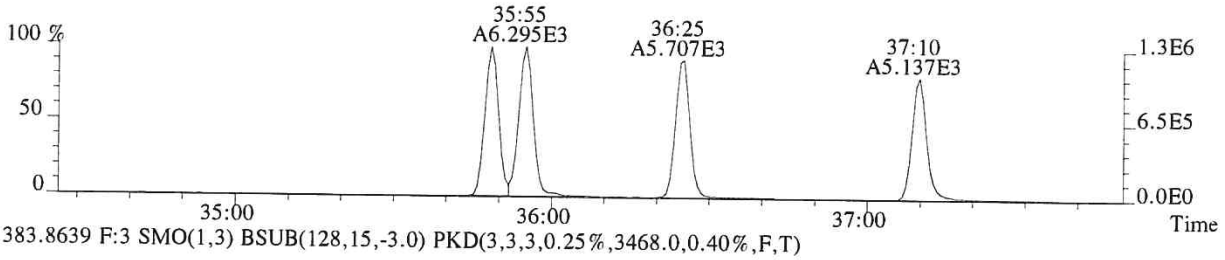


011779

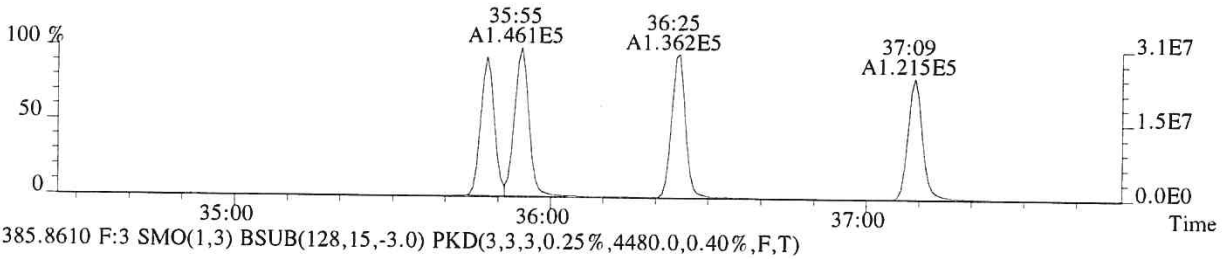
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



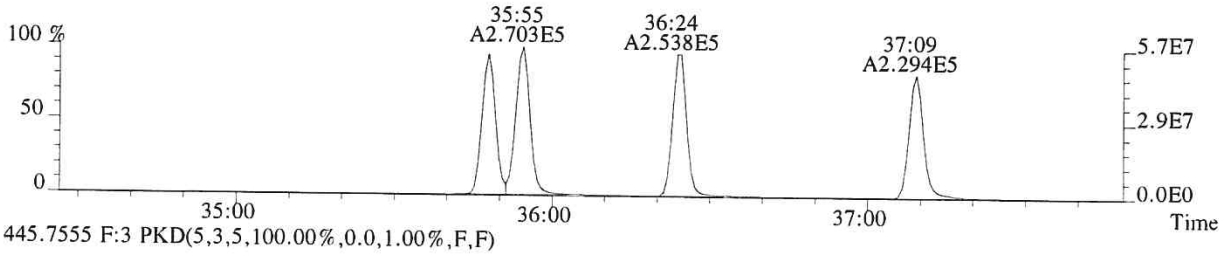
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



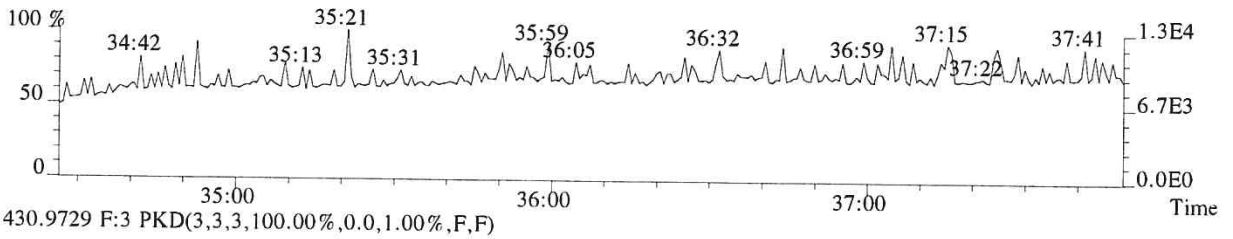
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



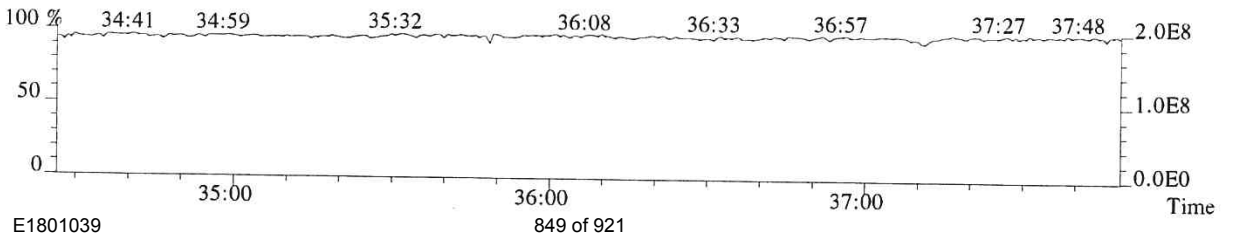
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4480.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

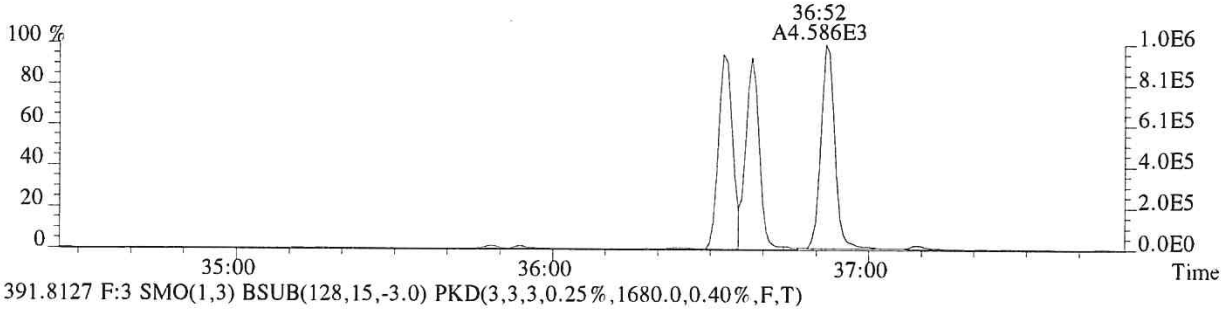


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

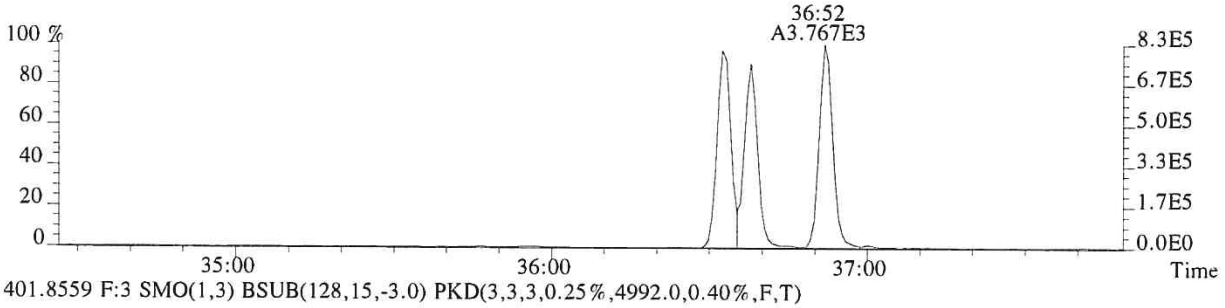


011780

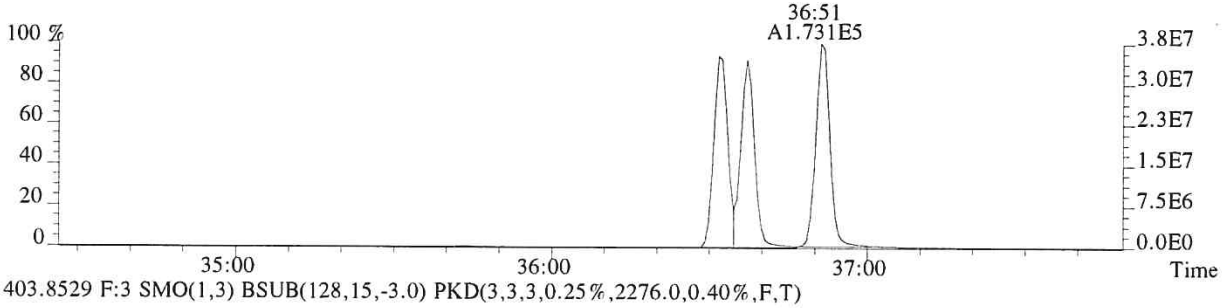
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



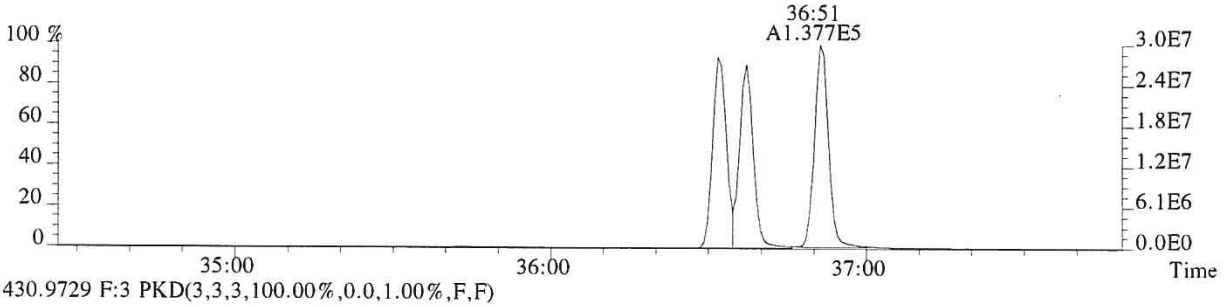
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



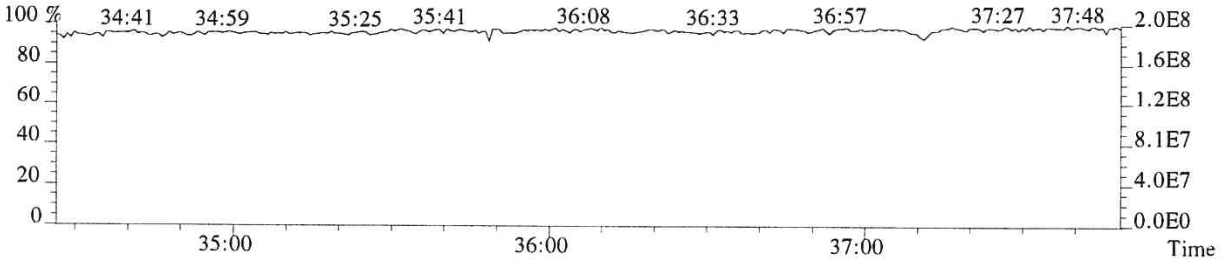
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



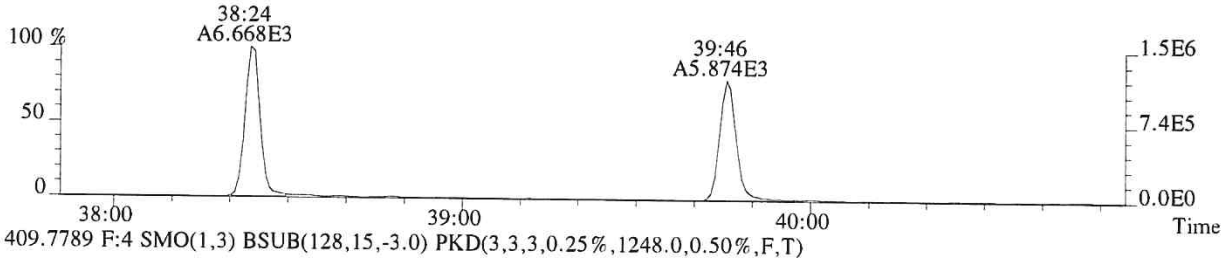
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



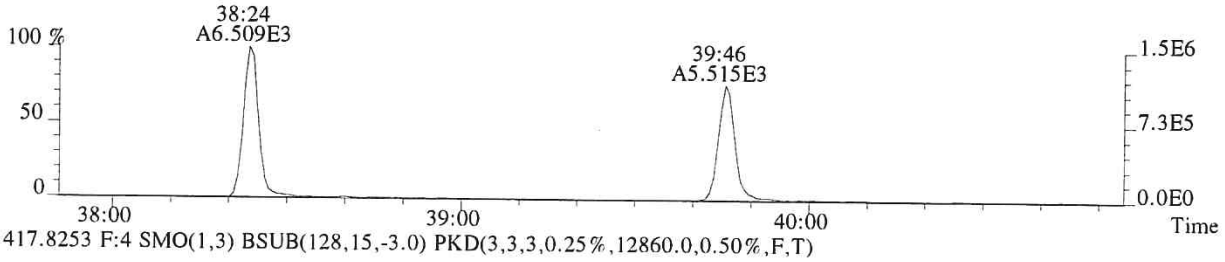
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



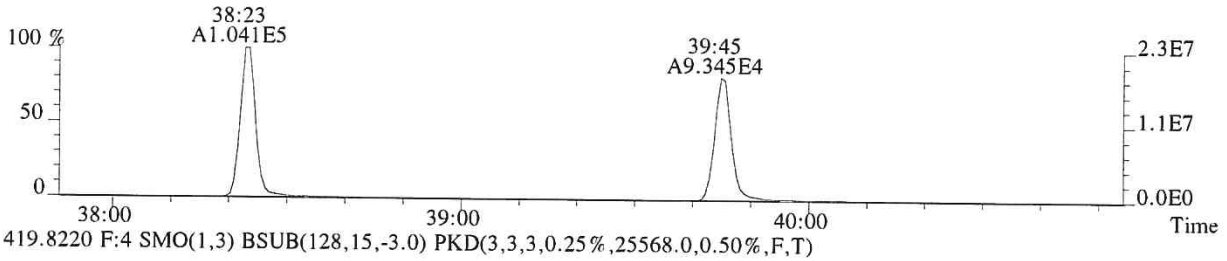
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



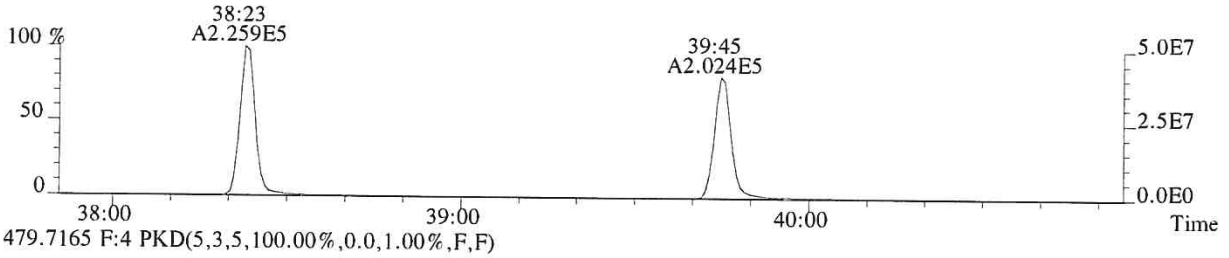
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



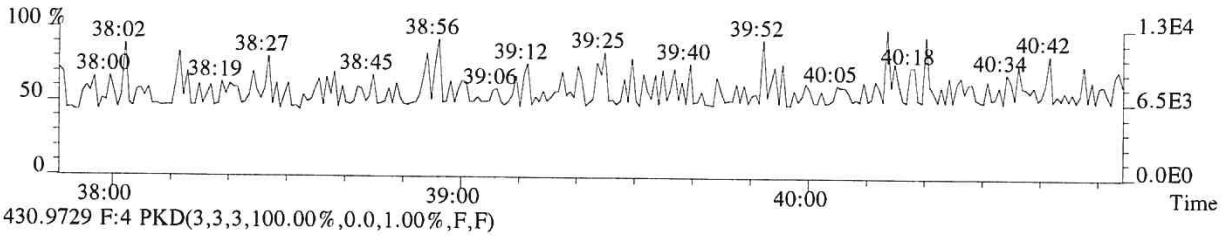
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12860.0,0.50%,F,T)



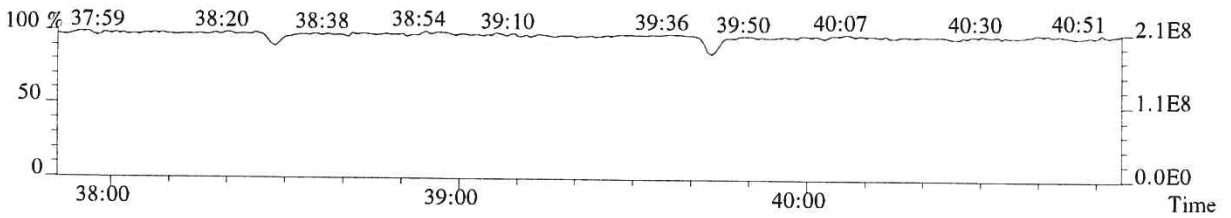
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25568.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

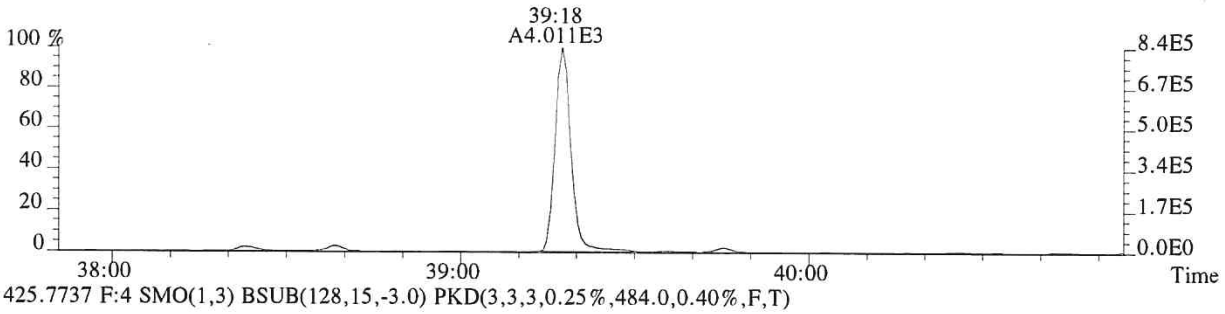


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

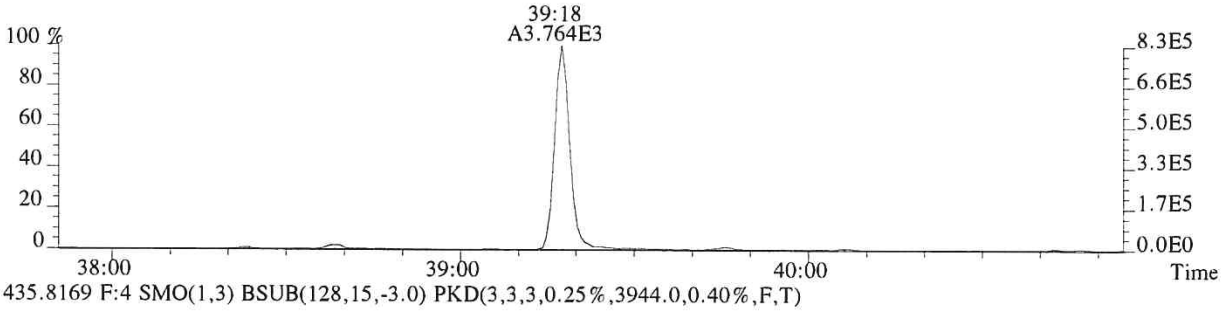


011782

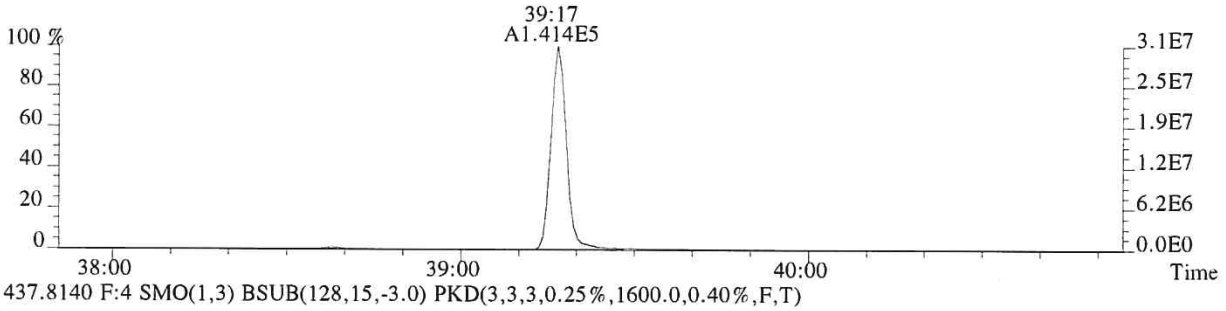
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



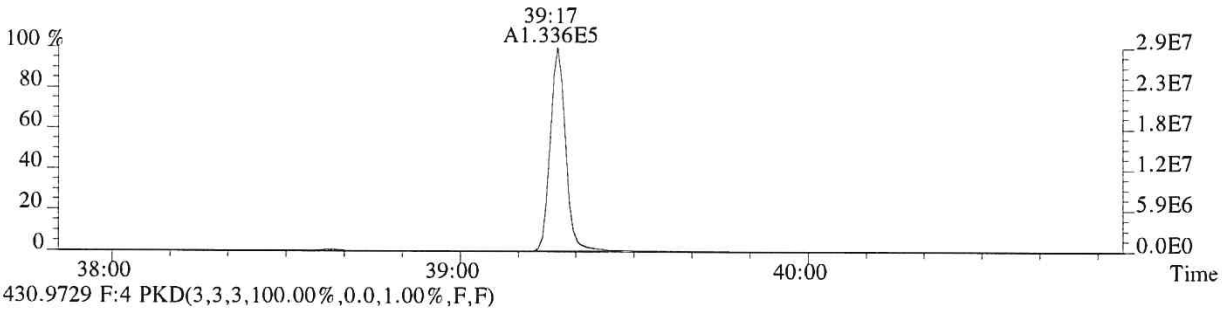
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



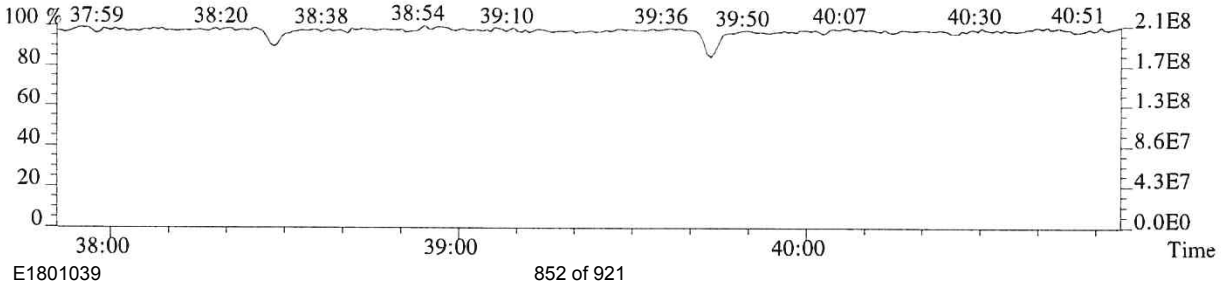
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



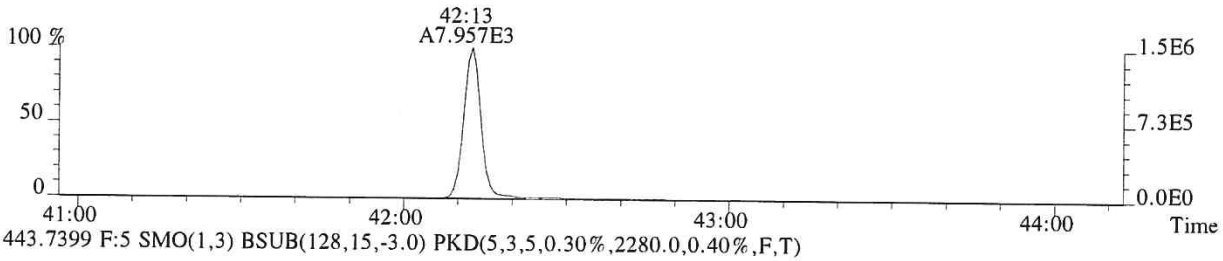
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



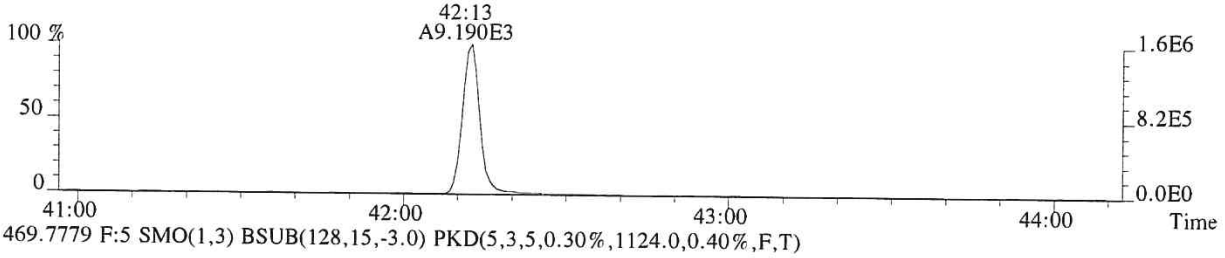
011783

File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

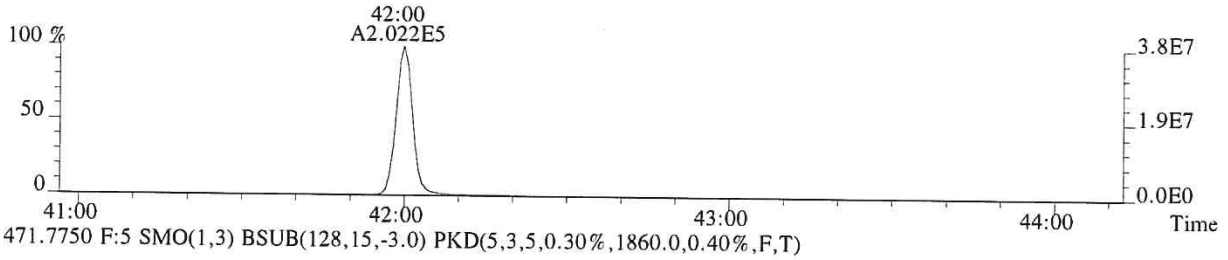
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



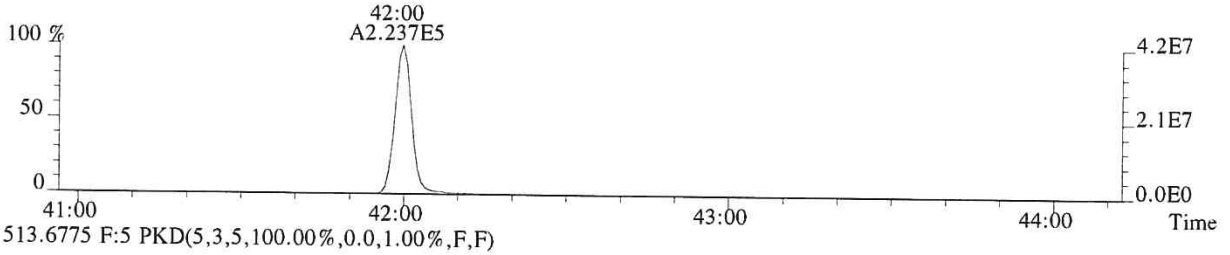
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2280.0,0.40%,F,T)



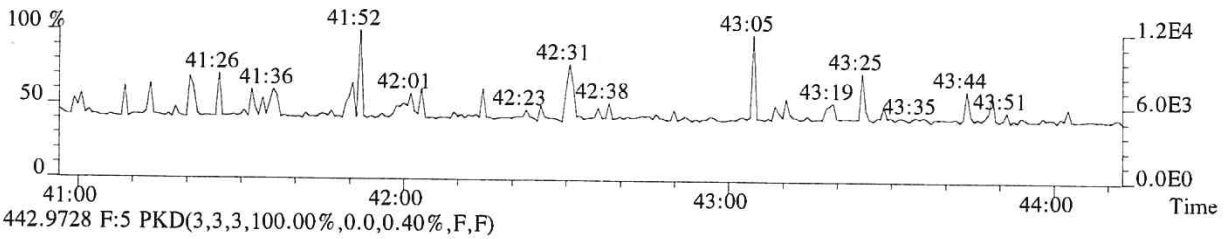
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



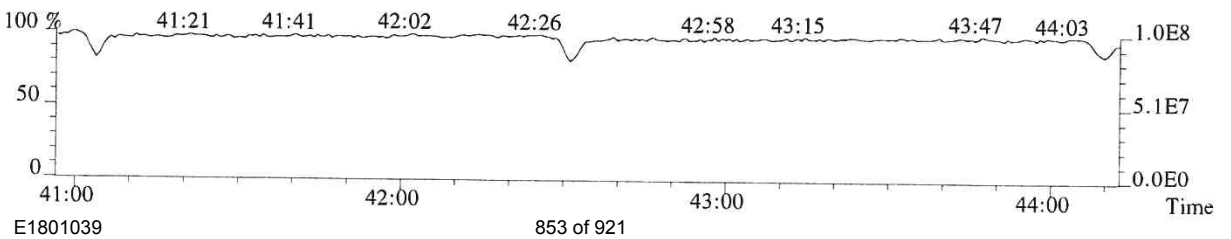
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

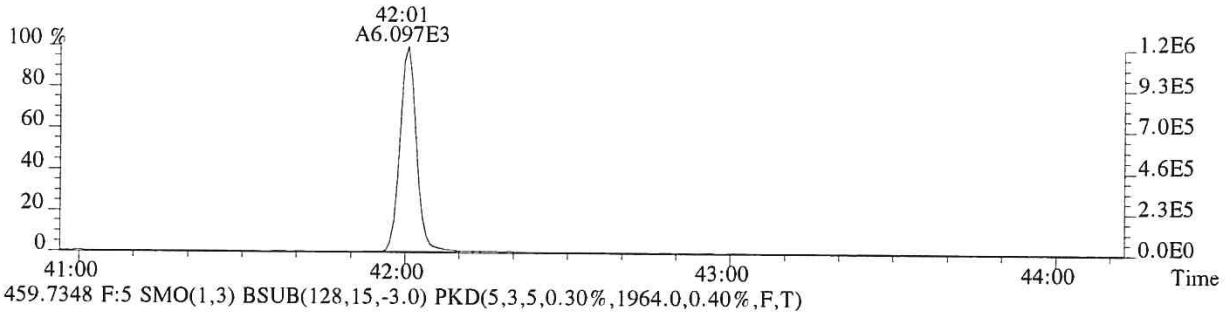


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

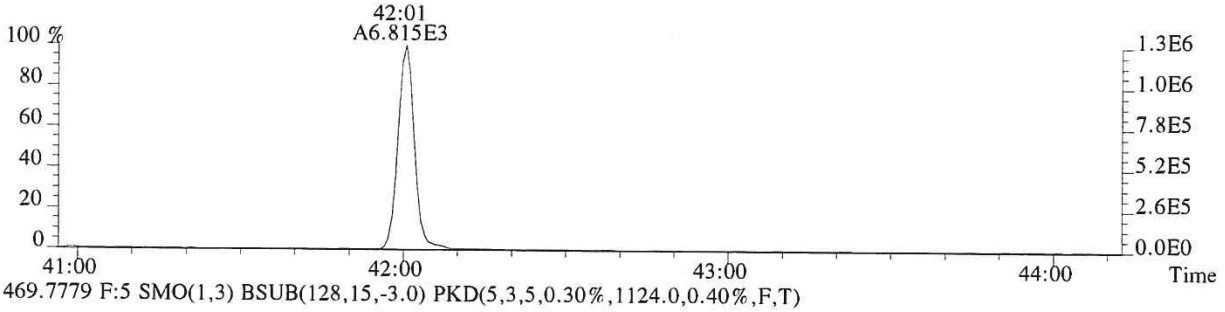


011784

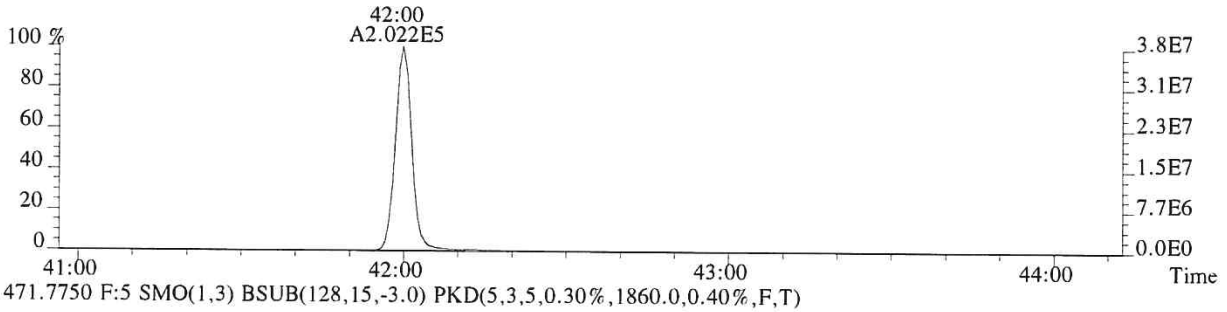
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3136.0,0.40%,F,T)



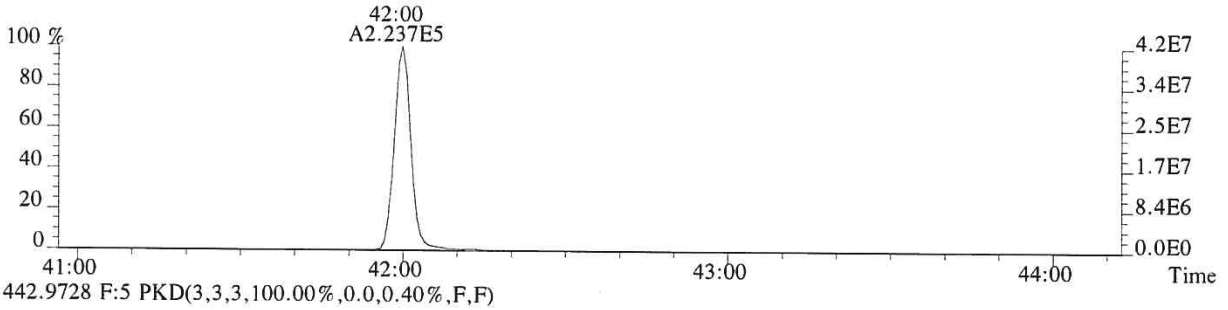
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



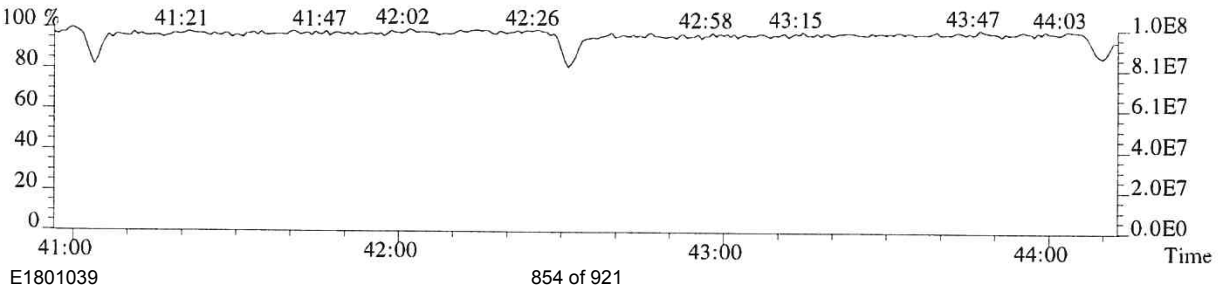
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.102e+03	3.732e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	2.387e+04	1.519e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:08	2.329e+04	1.484e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.143e+04	1.713e+04	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.340e+04	1.874e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.188e+04	1.713e+04	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.950e+04	1.588e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.863e+04	1.764e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.650e+04	1.567e+04	1.05	yes	no	1.463
10	Unk	OCDF	42:12	2.250e+04	2.478e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.874e+03	2.328e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.440e+04	9.416e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.279e+04	1.013e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.275e+04	1.020e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	1.359e+04	1.091e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.169e+04	1.088e+04	1.07	yes	no	1.112
17	Unk	OCDD	42:01	1.626e+04	1.848e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.350e+05	1.713e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.144e+05	1.340e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.142e+05	1.318e+05	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.603e+04	1.811e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.132e+05	2.120e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.055e+05	1.978e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.513e+04	1.787e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	7.767e+04	1.706e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	6.849e+04	1.521e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	9.327e+04	1.167e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.531e+05	9.729e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.232e+05	9.748e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.208e+05	9.608e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.060e+05	1.018e+05	1.04	yes	no	0.857
32	IS	13C-OCDD	42:00	1.501e+05	1.663e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:12	9.647e+04	1.194e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.360e+05	1.078e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.600e+03				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.46e+05	1.35e+03	4.0e+02	6.81e+05	4.17e+03	1.6e+02
2	1,2,3,7,8-PeCDF	4.40e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	4.45e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	4.64e+06	2.66e+03	1.7e+03	3.65e+06	1.33e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.85e+06	2.66e+03	1.8e+03	3.88e+06	1.33e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.77e+06	2.66e+03	1.8e+03	3.75e+06	1.33e+03	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.92e+06	2.66e+03	1.5e+03	3.16e+06	1.33e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	4.06e+03	1.0e+03	3.98e+06	5.19e+03	7.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.43e+06	4.06e+03	8.5e+02	3.23e+06	5.19e+03	6.2e+02
10	OCDF	4.02e+06	1.02e+03	3.9e+03	4.45e+06	3.18e+03	1.4e+03
11	2,3,7,8-TCDD	3.59e+05	5.08e+03	7.1e+01	4.49e+05	2.84e+03	1.6e+02
12	1,2,3,7,8-PeCDD	2.79e+06	2.23e+03	1.3e+03	1.83e+06	1.03e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	1.16e+03	2.5e+03	2.30e+06	2.22e+03	1.0e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	1.16e+03	2.4e+03	2.20e+06	2.22e+03	9.9e+02
15	1,2,3,7,8,9-HxCDD	2.97e+06	1.16e+03	2.6e+03	2.38e+06	2.22e+03	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.22e+03	2.0e+03	2.30e+06	1.43e+03	1.6e+03
17	OCDD	3.03e+06	8.24e+02	3.7e+03	3.48e+06	2.34e+03	1.5e+03
18	13C-2,3,7,8-TCDF	2.30e+07	1.44e+04	1.6e+03	2.91e+07	8.40e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.88e+07	2.39e+03	1.6e+04	2.43e+07	1.71e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	4.22e+07	2.39e+03	1.8e+04	2.60e+07	1.71e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.07e+07	2.16e+03	9.6e+03	3.93e+07	5.29e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.36e+07	2.16e+03	1.1e+04	4.45e+07	5.29e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.32e+07	2.16e+03	1.1e+04	4.39e+07	5.29e+03	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.16e+03	8.9e+03	3.69e+07	5.29e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+07	7.69e+03	2.3e+03	3.85e+07	2.07e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+07	7.69e+03	1.8e+03	3.12e+07	2.07e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.74e+07	1.66e+04	1.0e+03	2.17e+07	7.77e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.92e+07	3.94e+03	7.4e+03	1.87e+07	3.45e+03	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+07	5.37e+03	5.3e+03	2.21e+07	2.98e+03	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+07	5.37e+03	4.9e+03	2.11e+07	2.98e+03	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+07	3.06e+03	7.3e+03	2.12e+07	2.68e+03	7.9e+03
32	13C-OCDD	2.74e+07	2.09e+03	1.3e+04	3.02e+07	1.61e+03	1.9e+04
33	13C-1,2,3,4-TCDD	1.78e+07	1.66e+04	1.1e+03	2.20e+07	7.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.99e+07	5.37e+03	5.6e+03	2.35e+07	2.98e+03	7.9e+03
35	37Cl-2,3,7,8-TCDD	8.73e+05	3.54e+03	2.5e+02			

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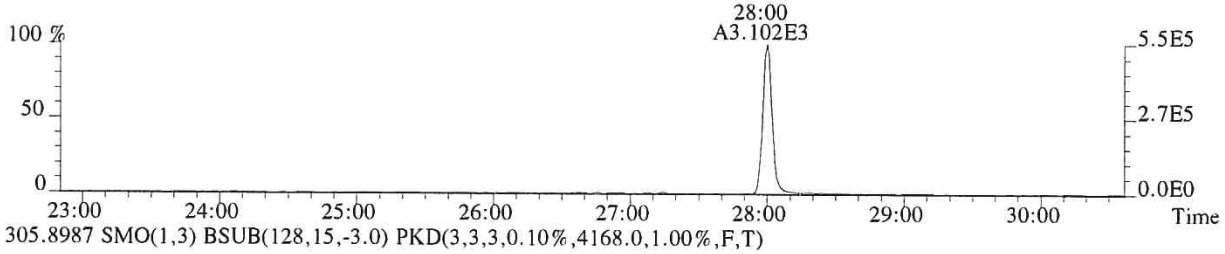
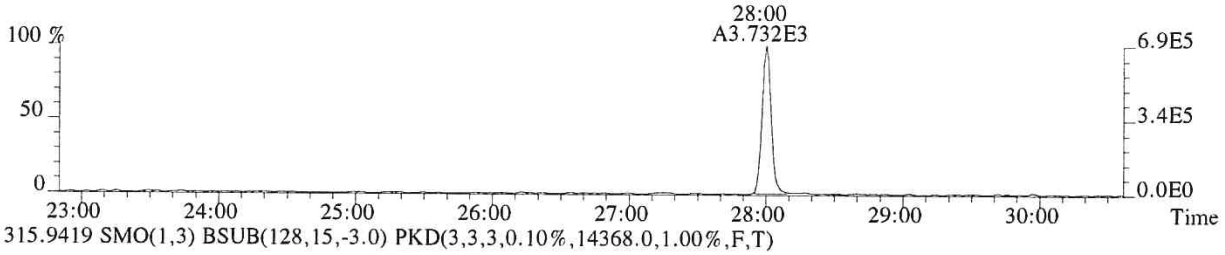
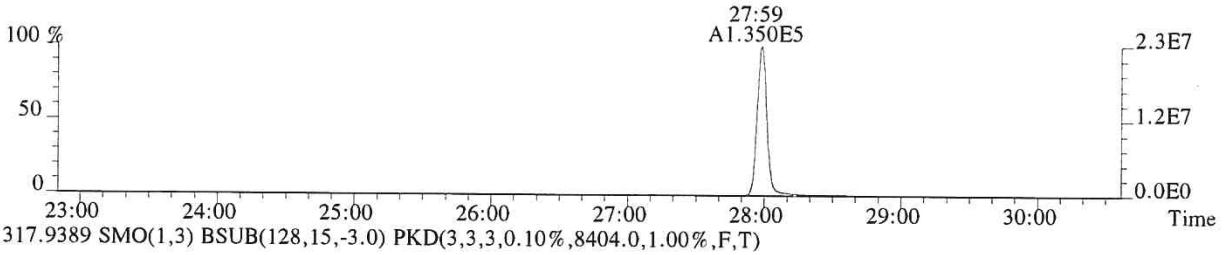
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



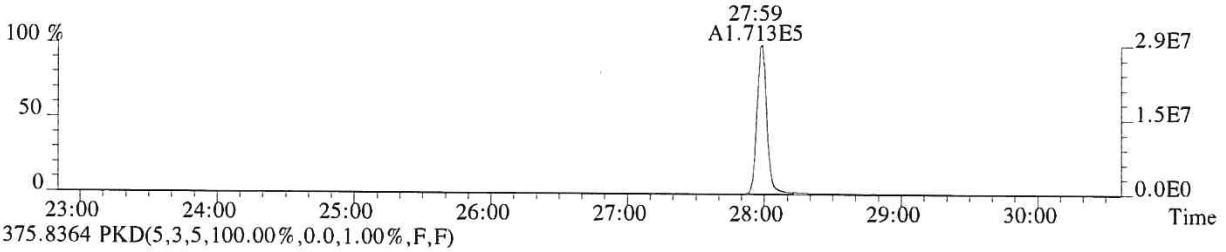
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



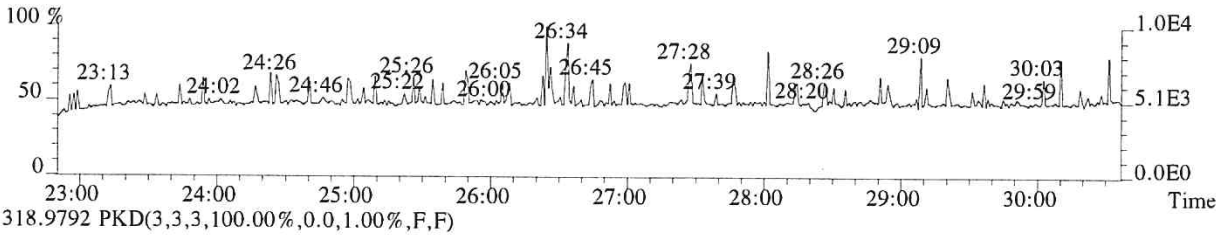
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14368.0,1.00%,F,T)



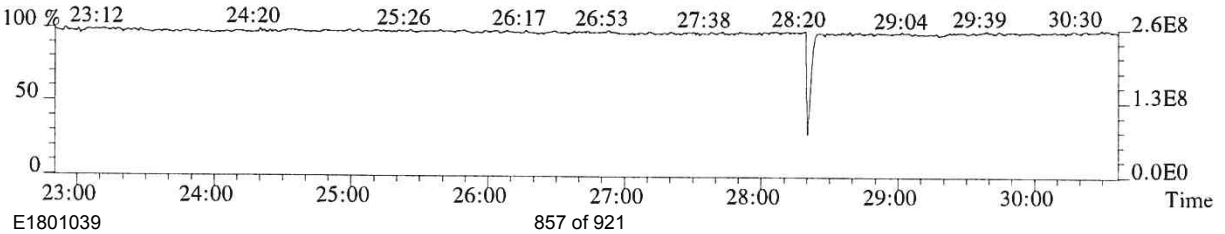
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8404.0,1.00%,F,T)



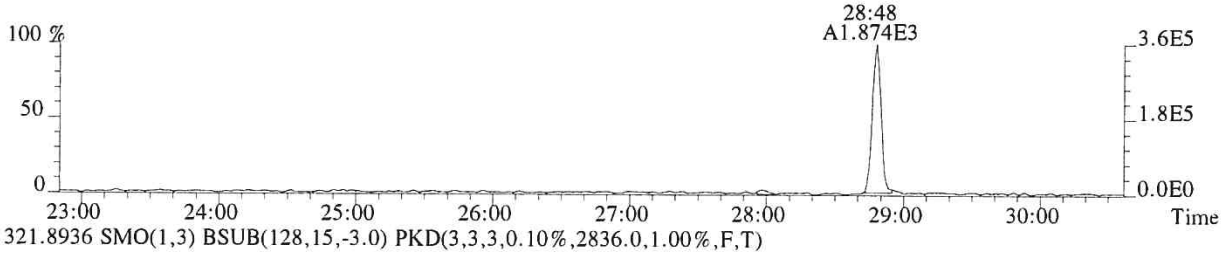
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



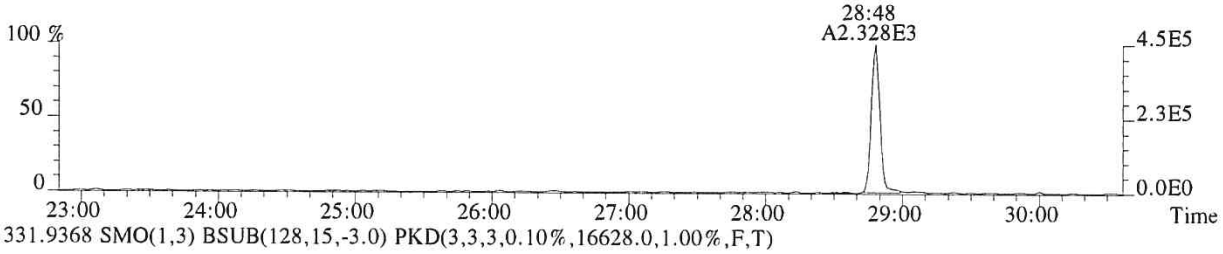
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



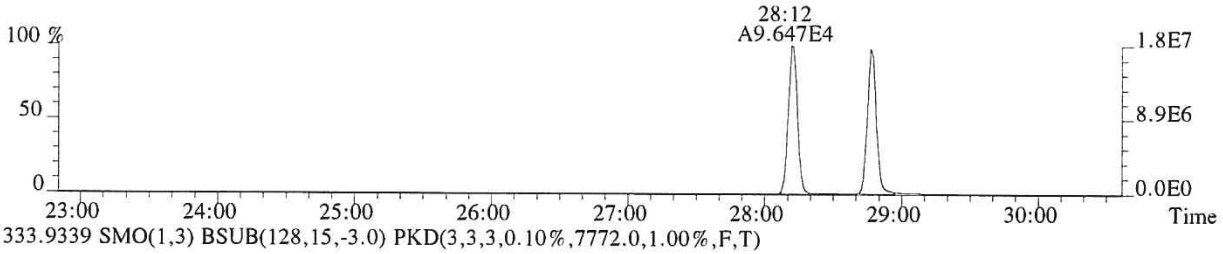
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



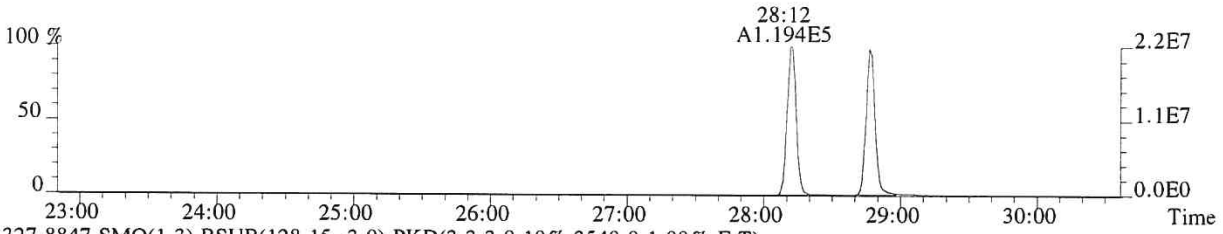
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



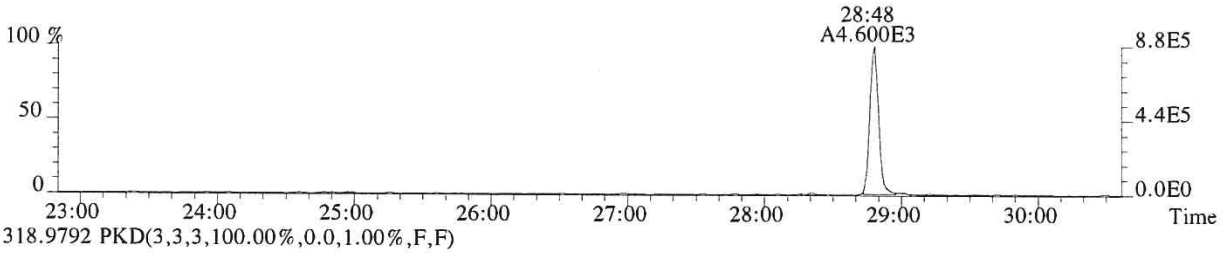
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16628.0,1.00%,F,T)



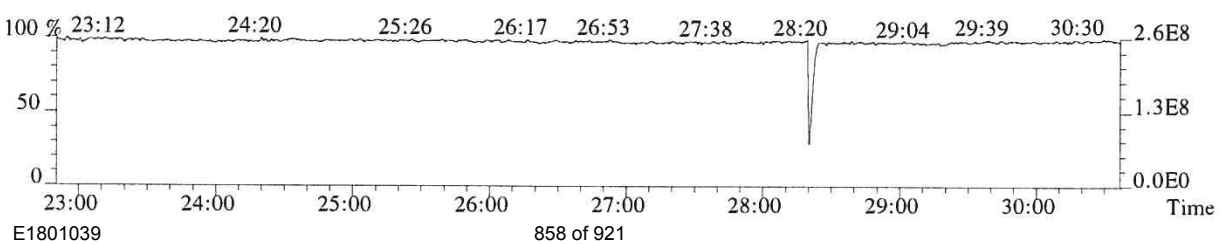
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7772.0,1.00%,F,T)



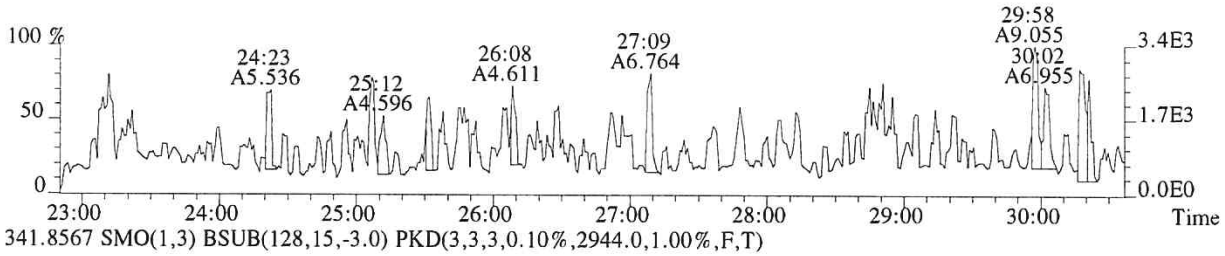
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)



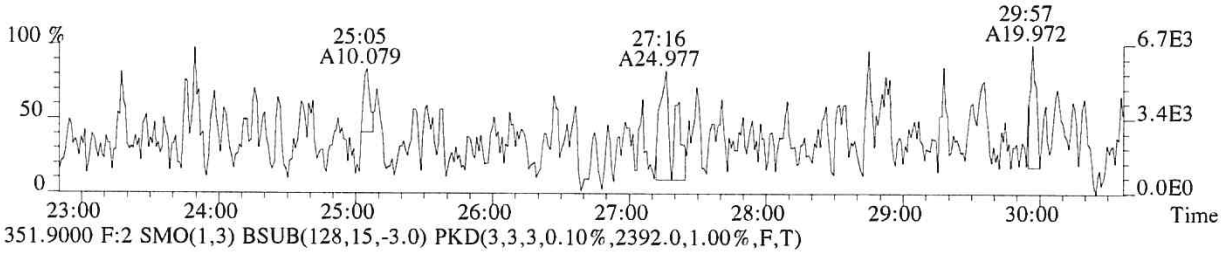
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



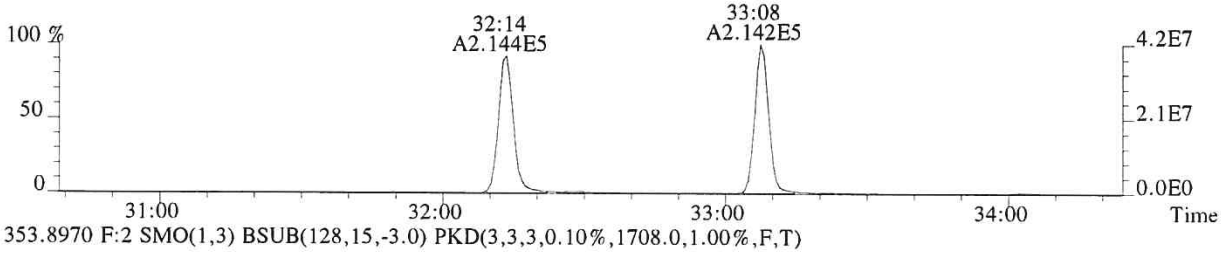
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



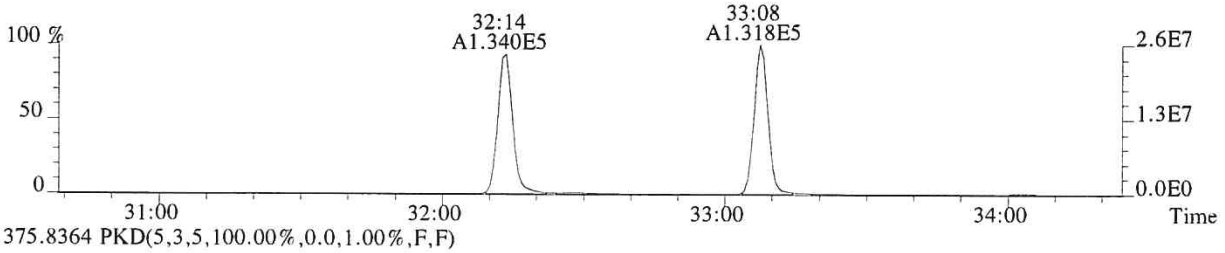
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



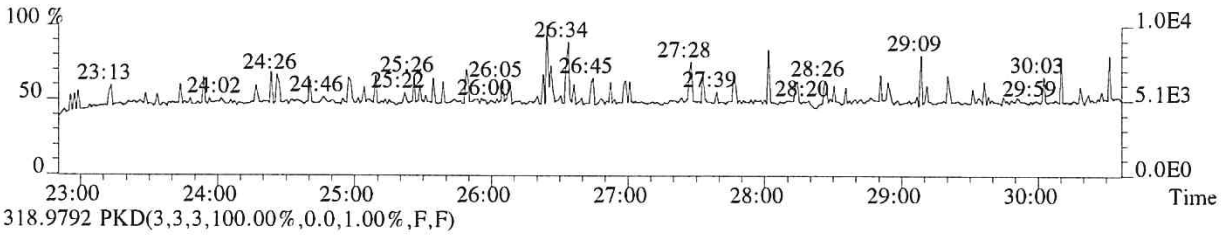
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



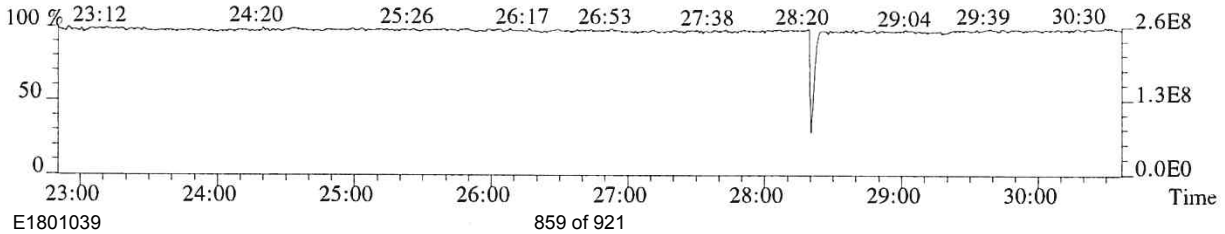
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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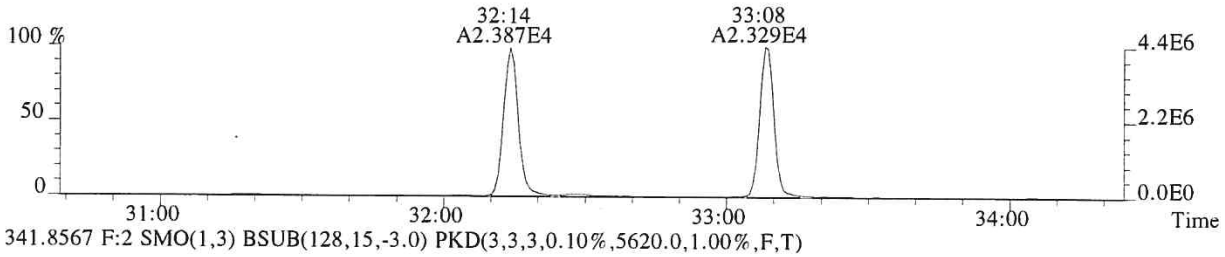
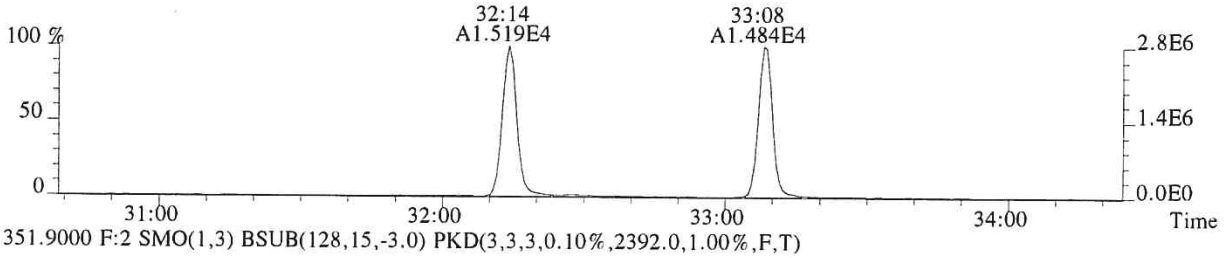
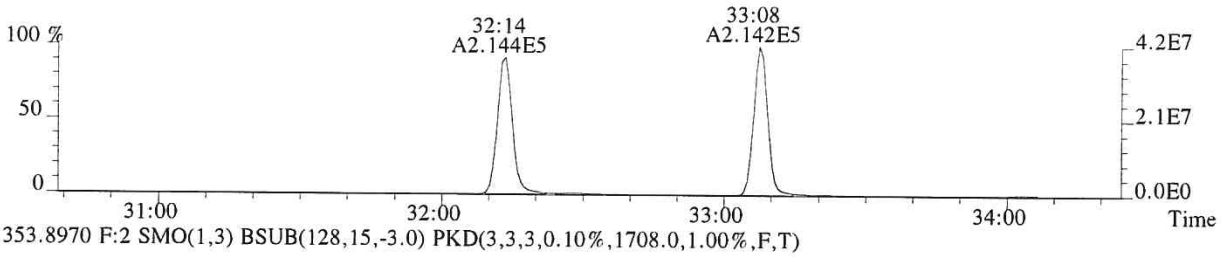
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



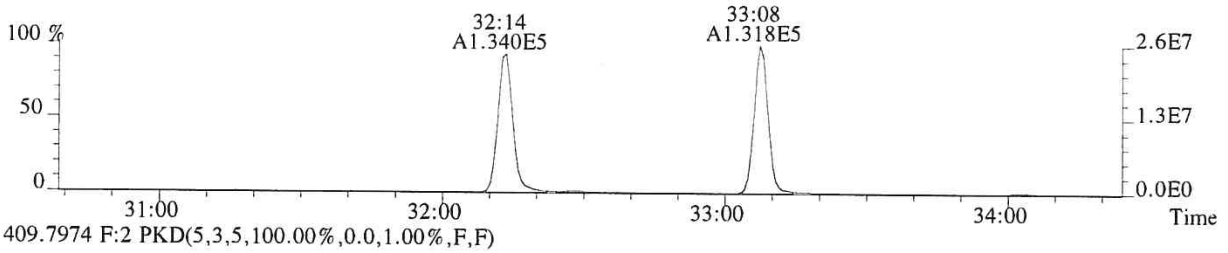
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5620.0,1.00%,F,T)



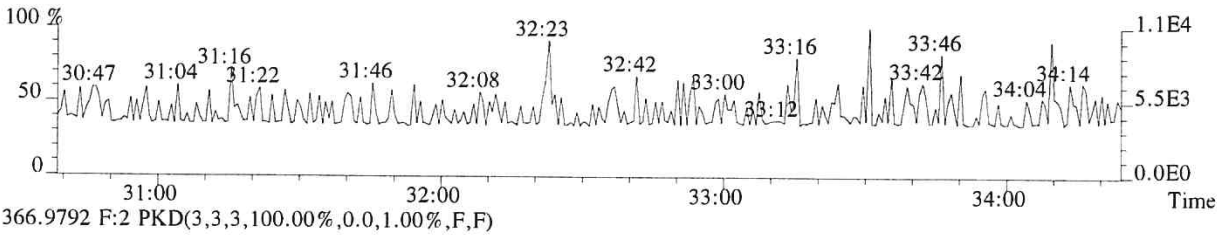
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



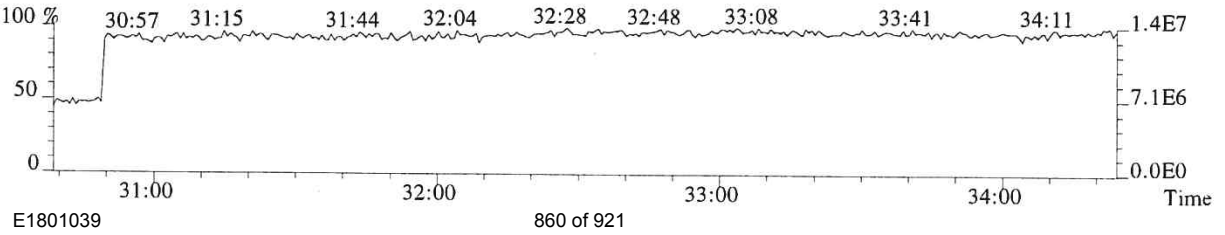
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



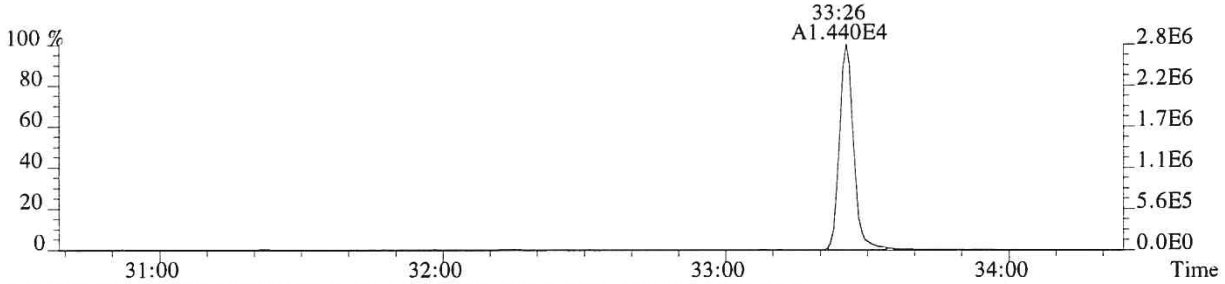
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



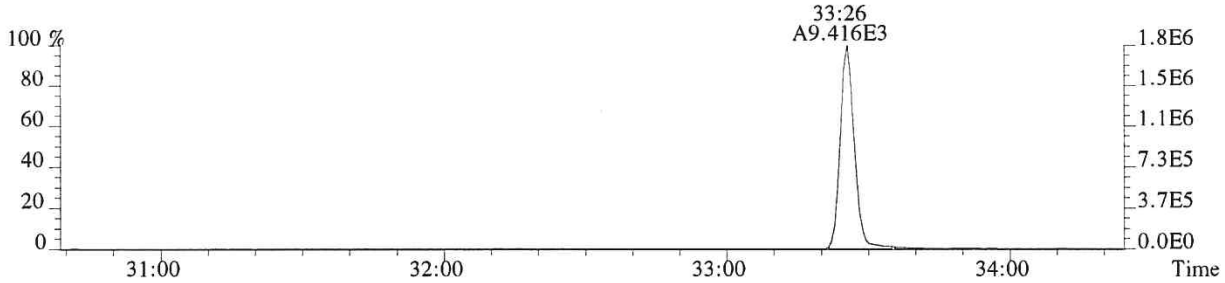
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



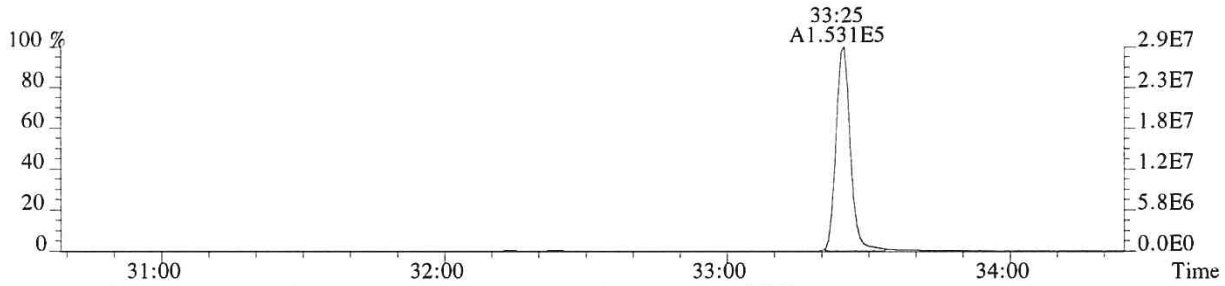
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



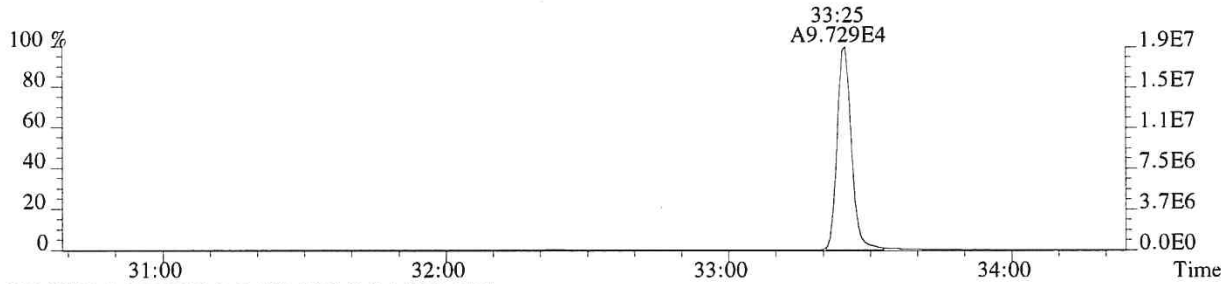
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



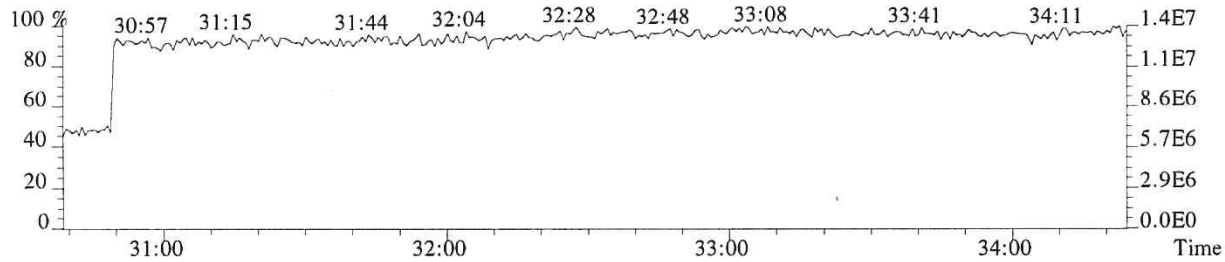
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



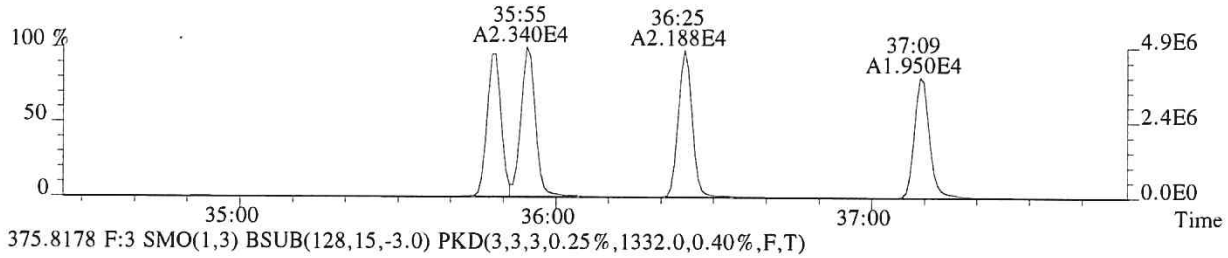
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



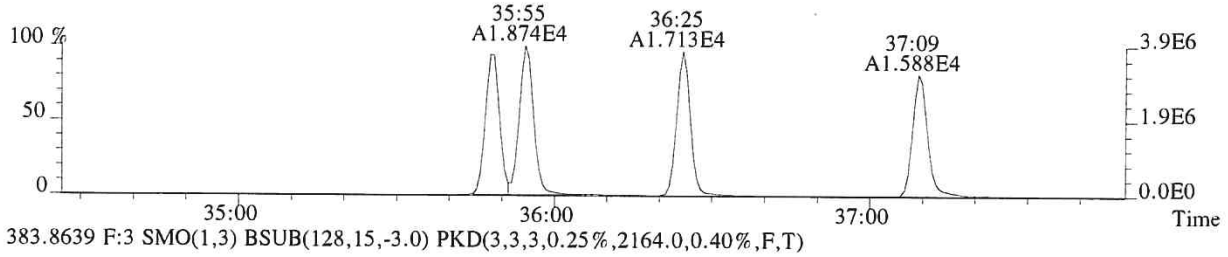
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



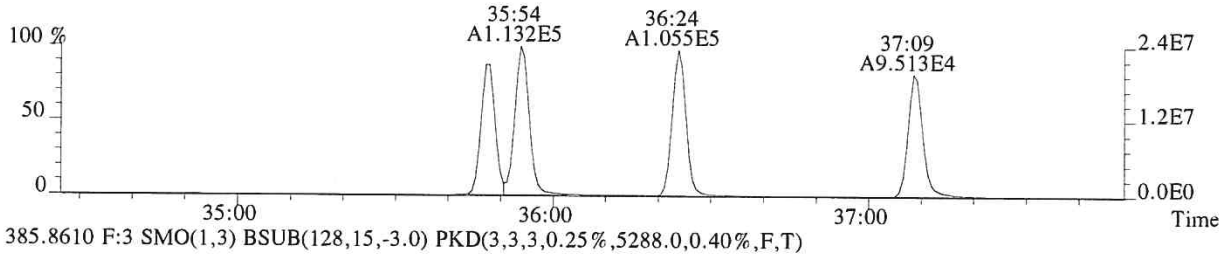
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.40%,F,T)



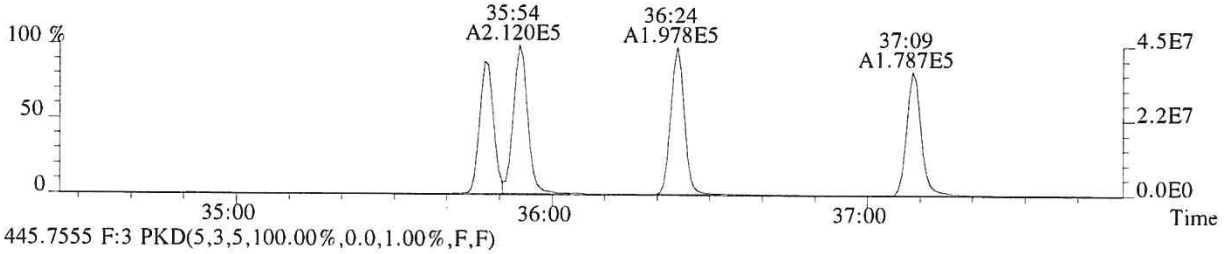
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



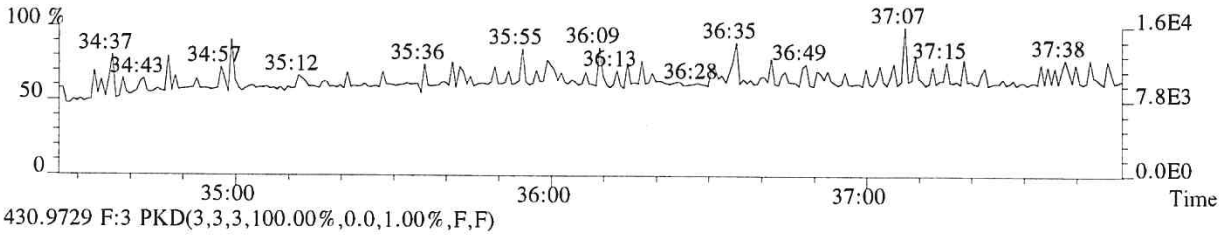
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



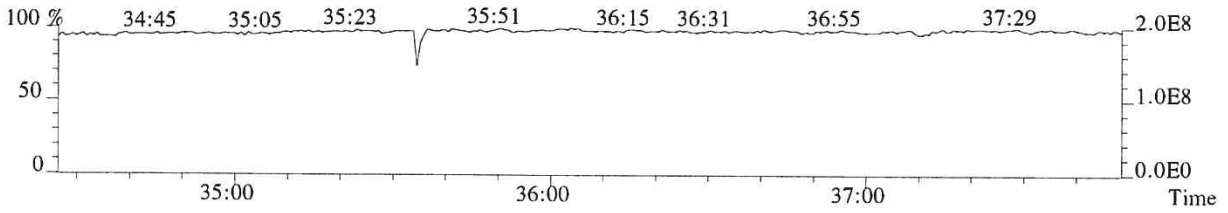
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5288.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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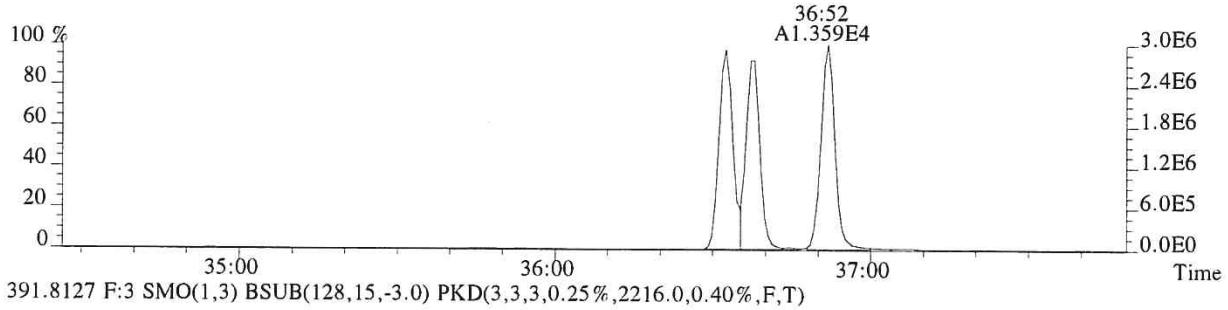
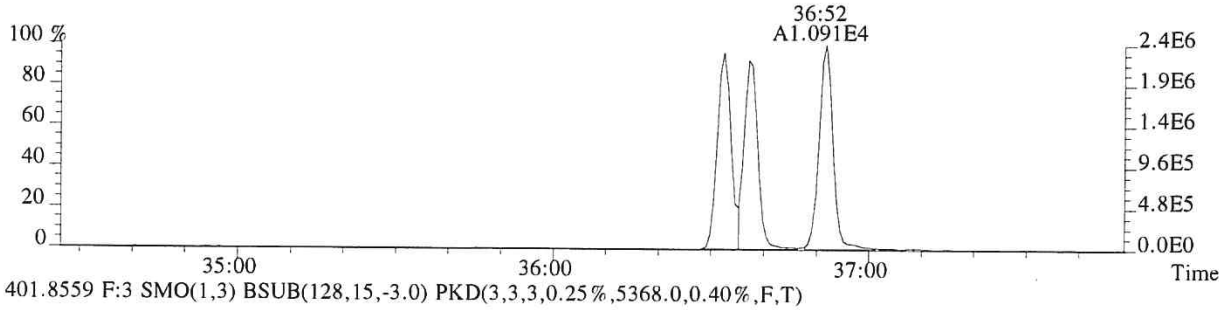
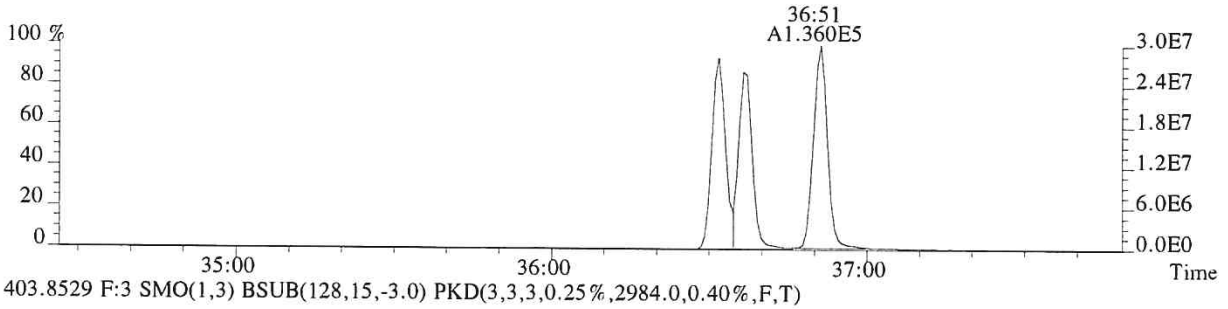
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



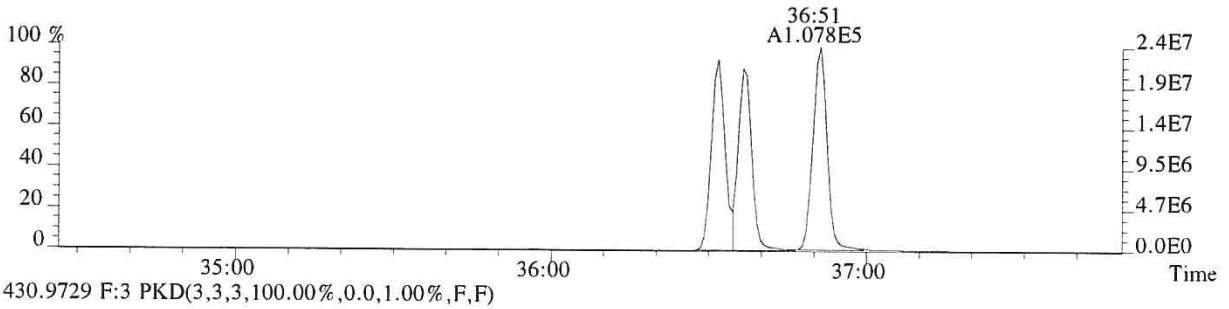
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



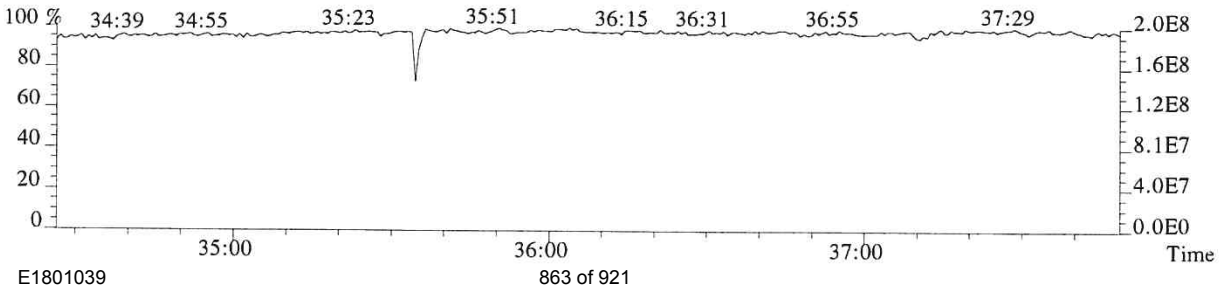
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5368.0,0.40%,F,T)



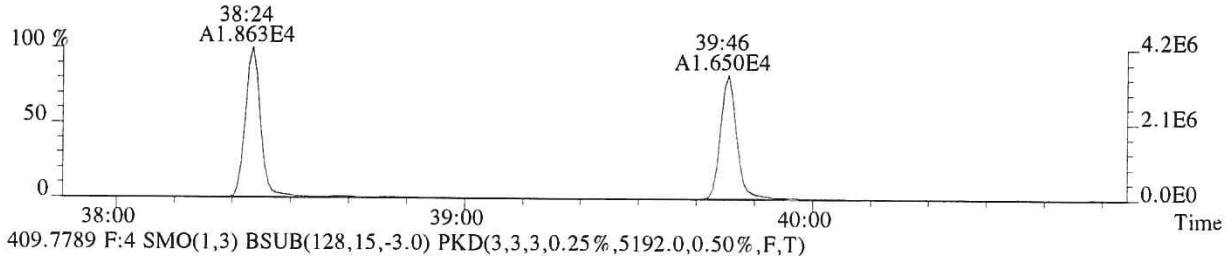
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



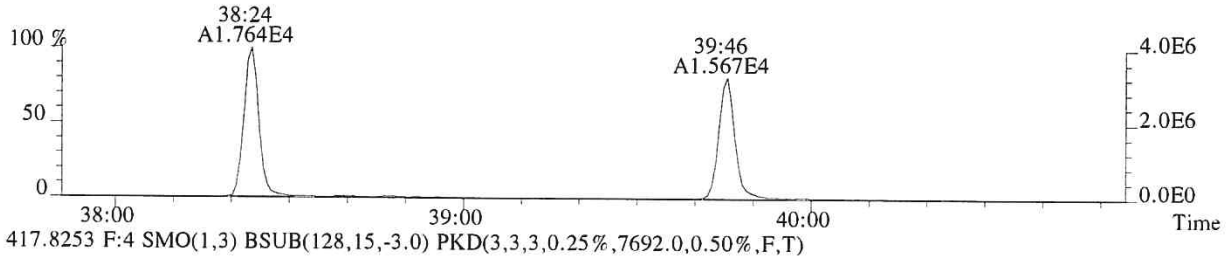
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



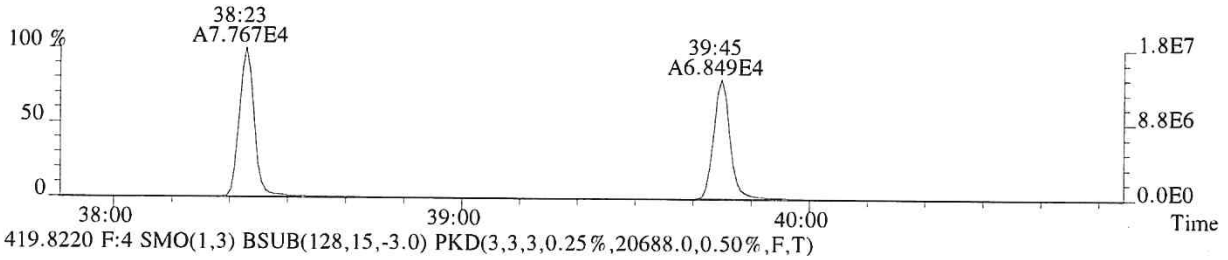
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4060.0,0.50%,F,T)



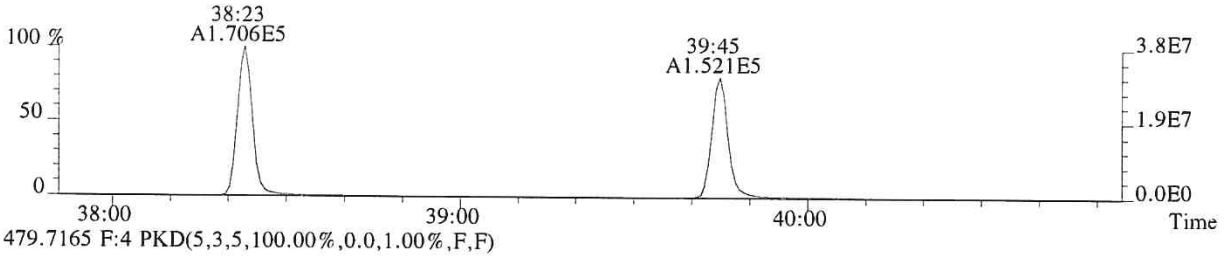
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5192.0,0.50%,F,T)



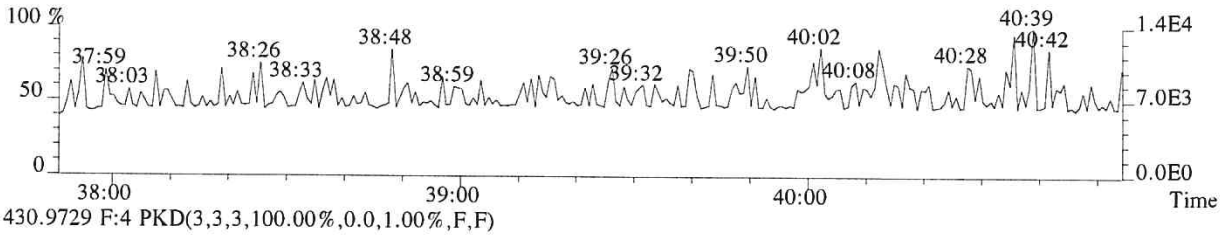
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7692.0,0.50%,F,T)



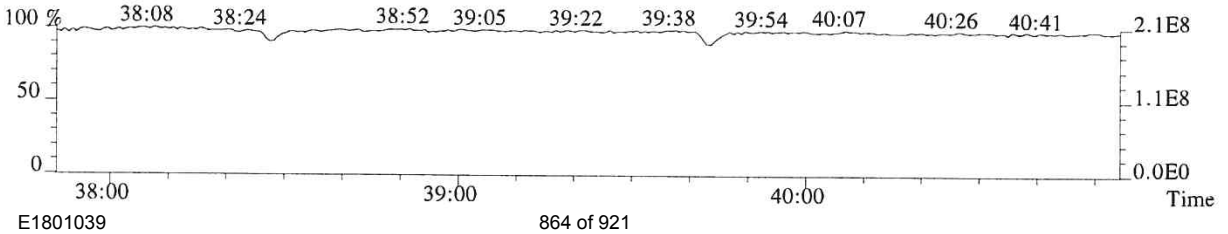
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20688.0,0.50%,F,T)



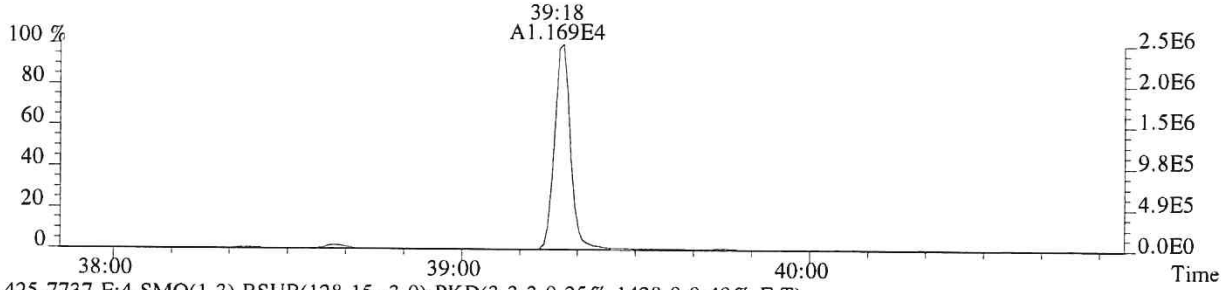
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



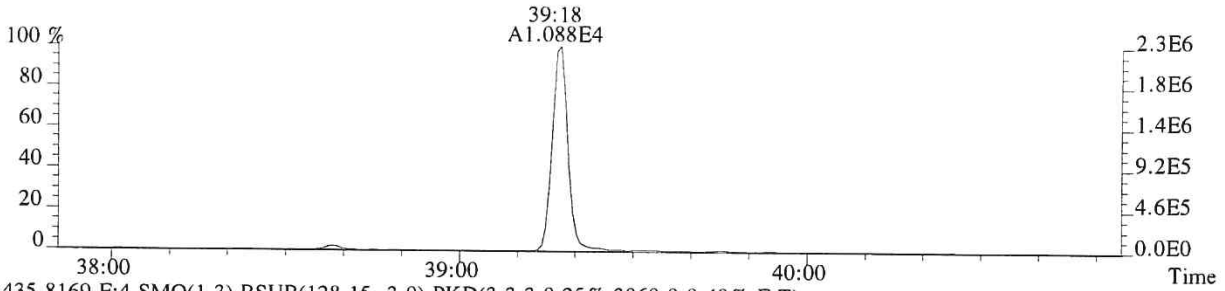
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



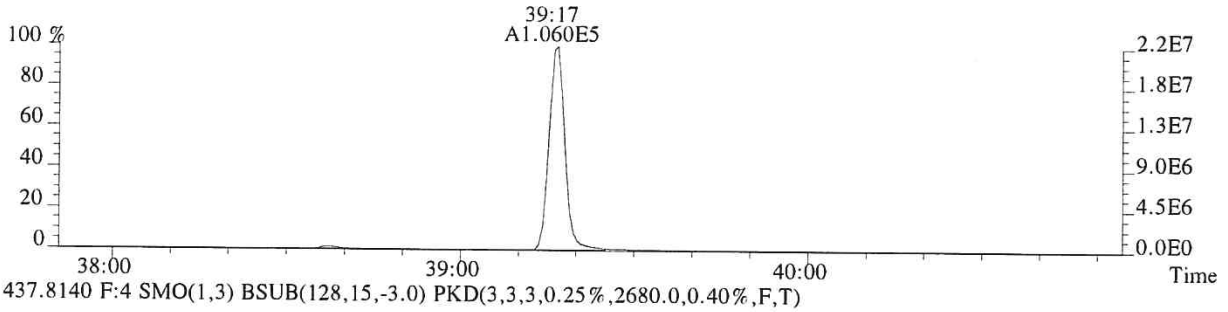
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



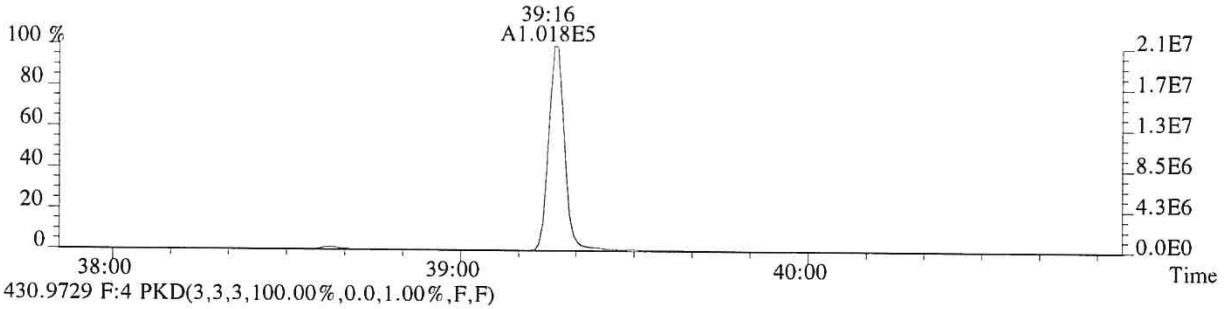
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



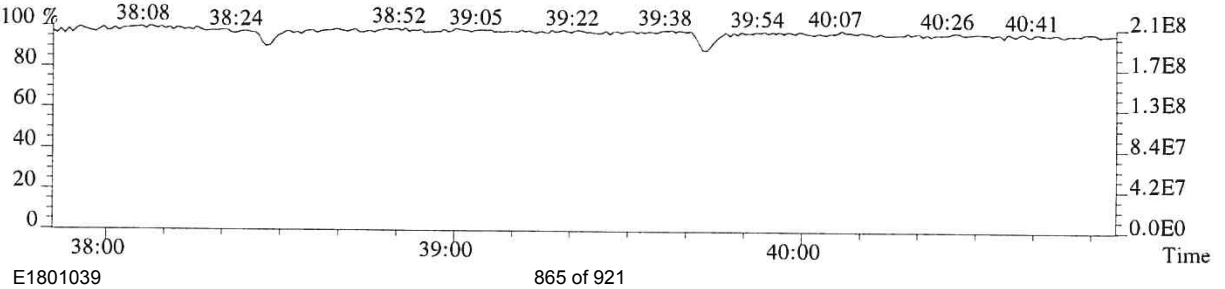
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



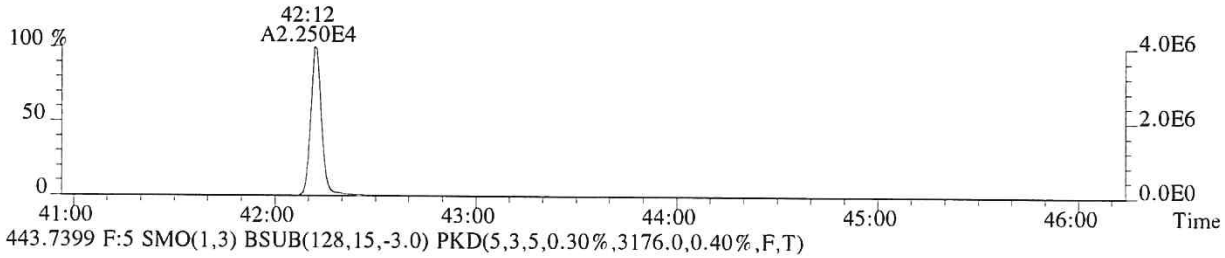
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)



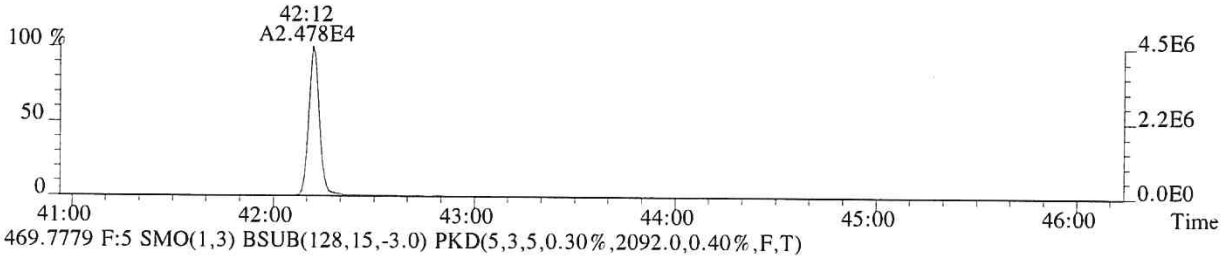
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



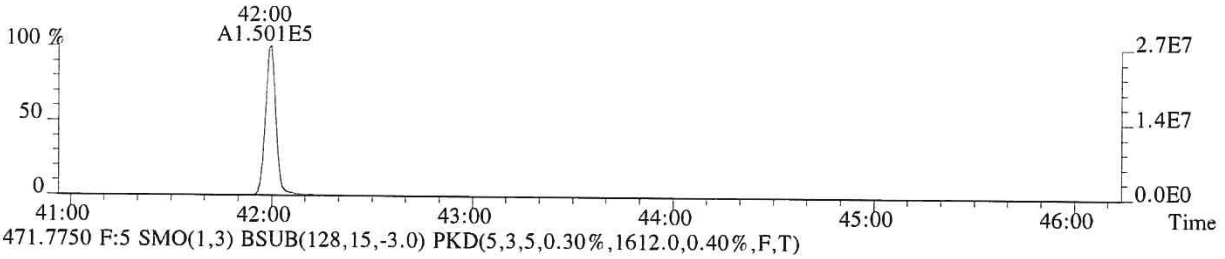
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



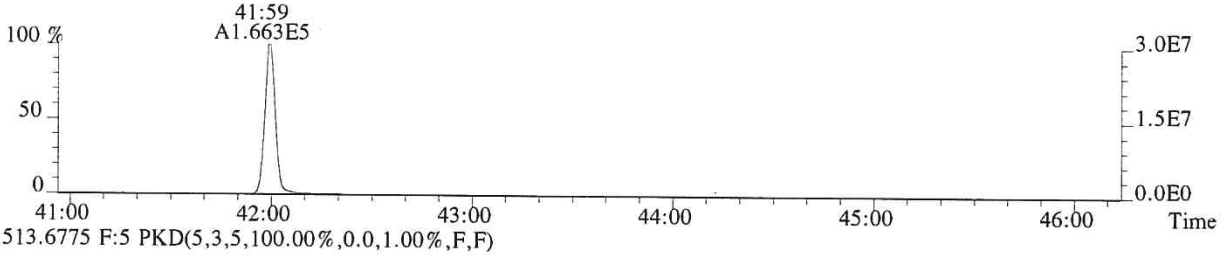
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3176.0,0.40%,F,T)



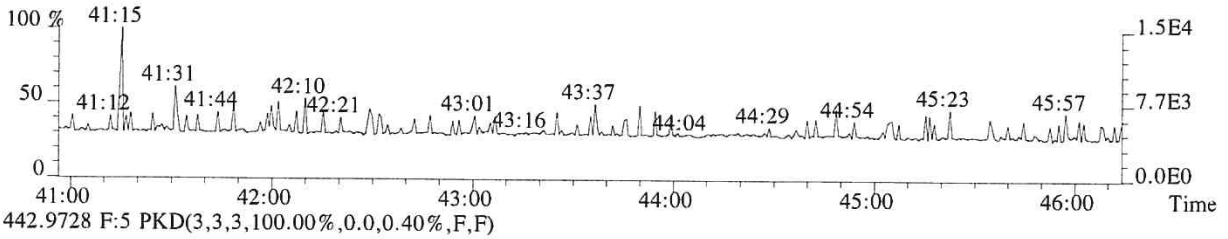
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



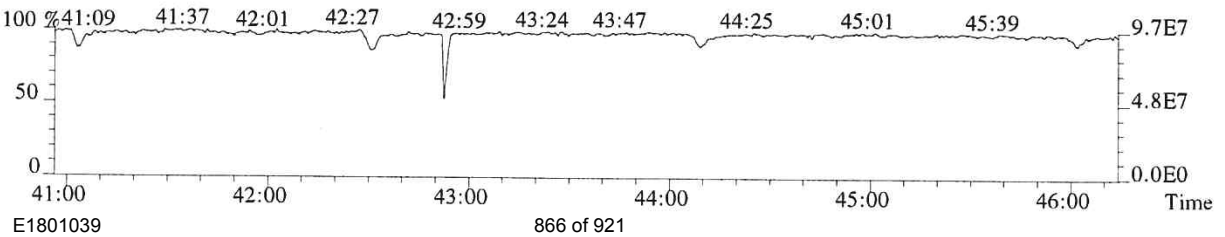
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



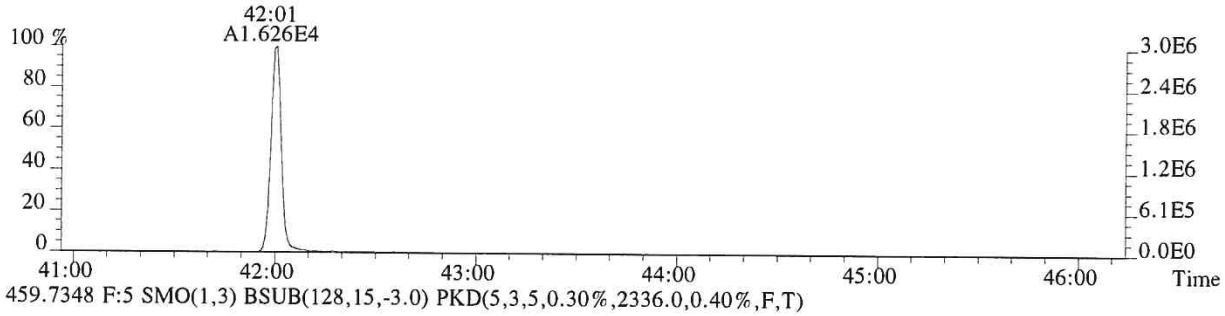
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



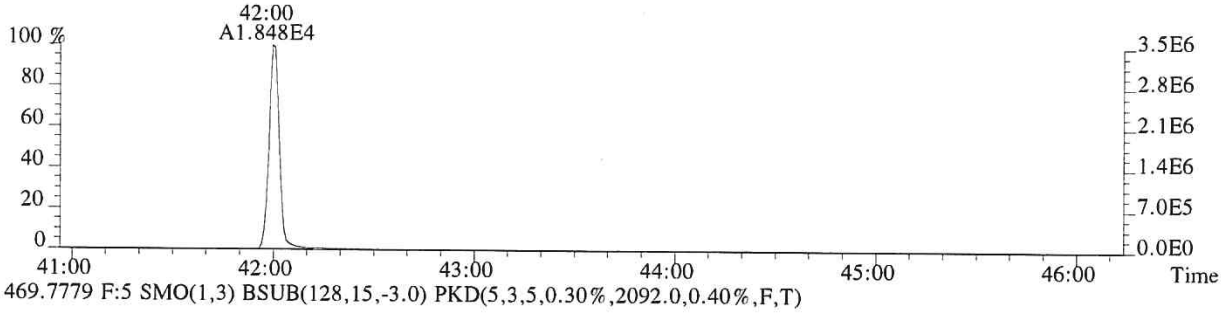
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



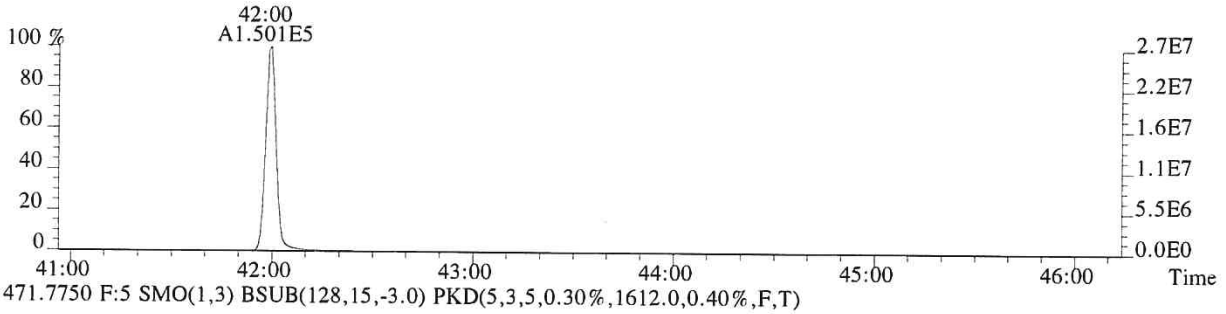
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



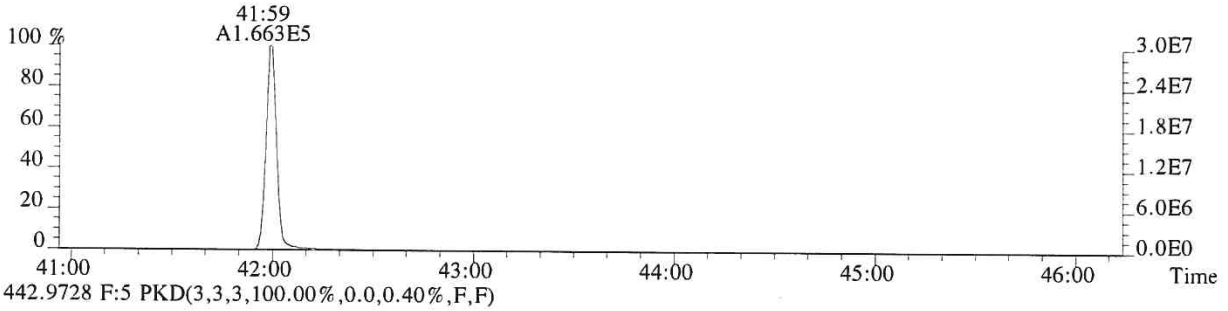
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2336.0,0.40%,F,T)



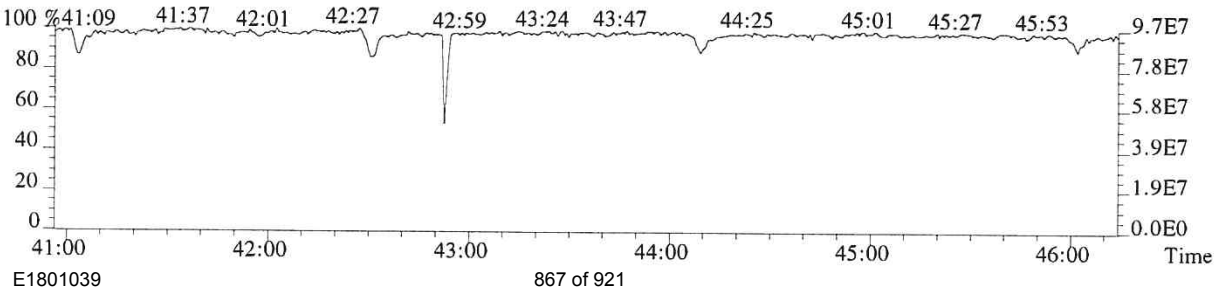
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.637e+04	4.546e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.073e+05	1.939e+05	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	2.818e+05	1.782e+05	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.774e+05	2.200e+05	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.905e+05	2.295e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.685e+05	2.105e+05	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.537e+05	1.982e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.407e+05	2.292e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.925e+05	1.847e+05	1.04	yes	no	1.463
10	Unk	OCDF	42:13	3.041e+05	3.309e+05	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	2.365e+04	3.051e+04	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.706e+05	1.098e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.645e+05	1.238e+05	1.33	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.567e+05	1.272e+05	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.702e+05	1.368e+05	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.477e+05	1.392e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.180e+05	2.422e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	3.444e+05	4.352e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	5.358e+05	3.352e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	5.234e+05	3.254e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.524e+05	4.773e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.834e+05	5.294e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.621e+05	4.867e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.431e+05	4.520e+05	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.967e+05	4.289e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.638e+05	3.571e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.330e+05	2.909e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.758e+05	2.372e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	3.106e+05	2.345e+05	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.932e+05	2.439e+05	1.20	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.673e+05	2.524e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	3.863e+05	4.247e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.395e+05	3.006e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	3.335e+05	2.694e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.645e+04				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+06	2.18e+03	3.0e+03	8.17e+06	4.39e+03	1.9e+03
2	1,2,3,7,8-PeCDF	5.78e+07	2.87e+03	2.0e+04	3.64e+07	4.35e+03	8.4e+03
3	2,3,4,7,8-PeCDF	5.79e+07	2.87e+03	2.0e+04	3.65e+07	4.35e+03	8.4e+03
4	1,2,3,4,7,8-HxCDF	6.15e+07	2.89e+03	2.1e+04	4.93e+07	2.08e+03	2.4e+04
5	1,2,3,6,7,8-HxCDF	6.26e+07	2.89e+03	2.2e+04	4.97e+07	2.08e+03	2.4e+04
6	2,3,4,6,7,8-HxCDF	6.14e+07	2.89e+03	2.1e+04	4.79e+07	2.08e+03	2.3e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.89e+03	1.9e+04	4.26e+07	2.08e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.56e+07	1.47e+04	3.8e+03	5.23e+07	1.66e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.99e+07	1.47e+04	2.7e+03	3.80e+07	1.66e+04	2.3e+03
10	OCDF	5.72e+07	1.23e+03	4.7e+04	6.22e+07	3.01e+03	2.1e+04
11	2,3,7,8-TCDD	4.49e+06	5.36e+03	8.4e+02	5.78e+06	2.64e+03	2.2e+03
12	1,2,3,7,8-PeCDD	3.45e+07	2.46e+03	1.4e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	3.72e+07	9.04e+02	4.1e+04	2.90e+07	1.56e+03	1.9e+04
14	1,2,3,6,7,8-HxCDD	3.60e+07	9.04e+02	4.0e+04	2.81e+07	1.56e+03	1.8e+04
15	1,2,3,7,8,9-HxCDD	3.80e+07	9.04e+02	4.2e+04	3.00e+07	1.56e+03	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	3.19e+07	1.58e+03	2.0e+04	3.06e+07	1.63e+03	1.9e+04
17	OCDD	4.21e+07	1.71e+03	2.5e+04	4.66e+07	1.53e+03	3.0e+04
18	13C-2,3,7,8-TCDF	6.23e+07	1.55e+04	4.0e+03	7.90e+07	1.02e+04	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+08	2.14e+03	4.7e+04	6.28e+07	2.18e+03	2.9e+04
20	13C-2,3,4,7,8-PeCDF	1.07e+08	2.14e+03	5.0e+04	6.66e+07	2.18e+03	3.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.63e+07	2.92e+03	1.9e+04	1.07e+08	4.60e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.12e+07	2.92e+03	2.1e+04	1.15e+08	4.60e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	2.92e+03	2.0e+04	1.10e+08	4.60e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.22e+07	2.92e+03	1.8e+04	9.74e+07	4.60e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.59e+07	1.18e+04	3.9e+03	9.95e+07	3.82e+04	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	1.18e+04	2.9e+03	7.29e+07	3.82e+04	1.9e+03
27	13C-2,3,7,8-TCDD	4.45e+07	1.91e+04	2.3e+03	5.53e+07	7.70e+03	7.2e+03
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.59e+03	2.1e+04	4.74e+07	2.50e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.95e+07	5.55e+03	1.3e+04	5.43e+07	3.18e+03	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	6.70e+07	5.55e+03	1.2e+04	5.36e+07	3.18e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.80e+07	4.72e+03	1.2e+04	5.53e+07	2.63e+03	2.1e+04
32	13C-OCDD	7.33e+07	1.86e+03	4.0e+04	8.10e+07	5.92e+02	1.4e+05
33	13C-1,2,3,4-TCDD	4.48e+07	1.91e+04	2.3e+03	5.67e+07	7.70e+03	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.38e+07	5.55e+03	1.3e+04	5.89e+07	3.18e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	1.08e+07	3.52e+03	3.1e+03			

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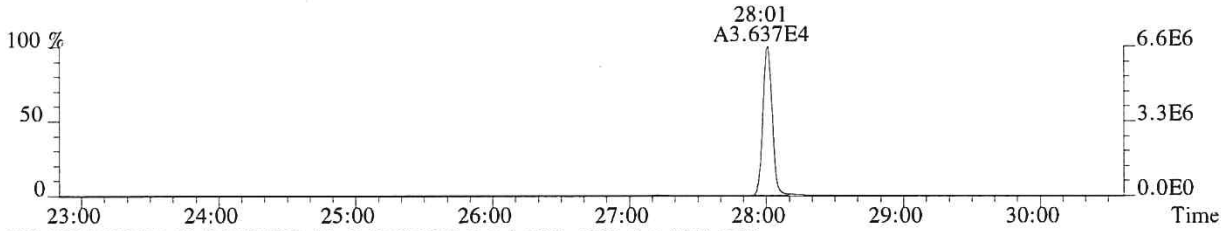
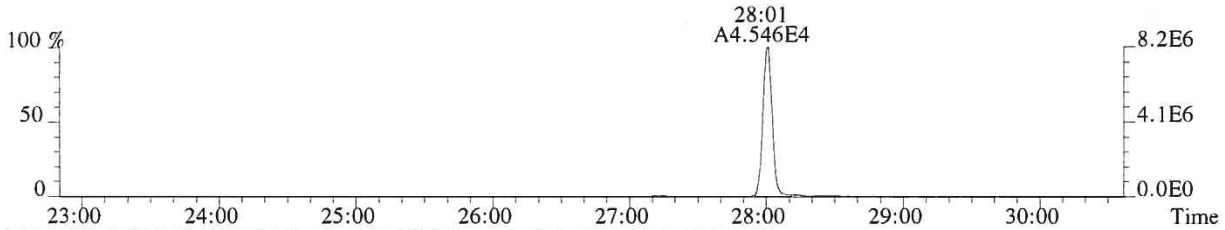
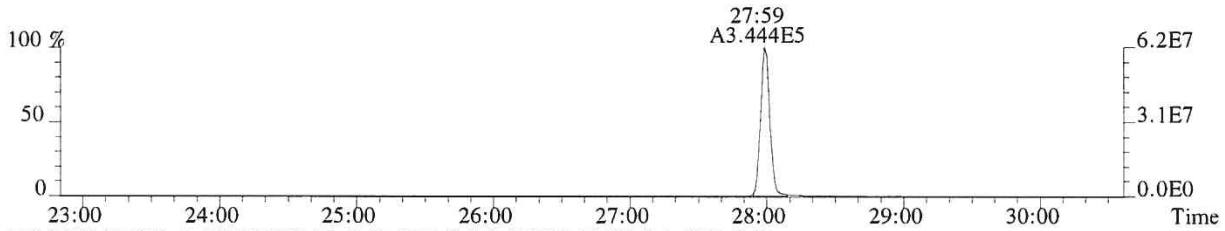
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



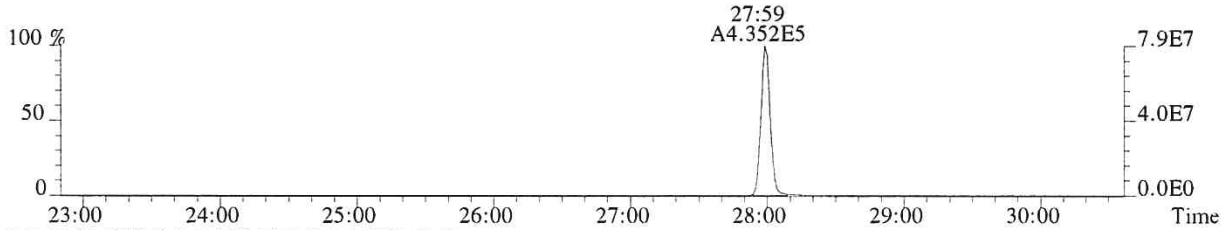
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



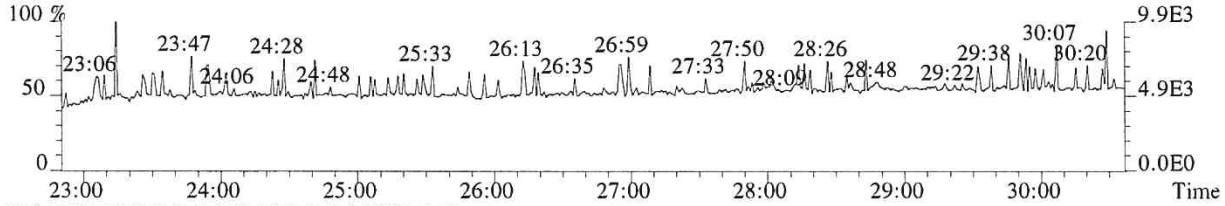
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15516.0,1.00%,F,T)



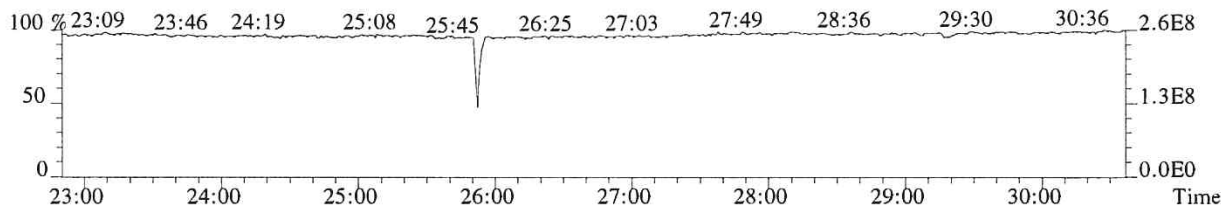
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

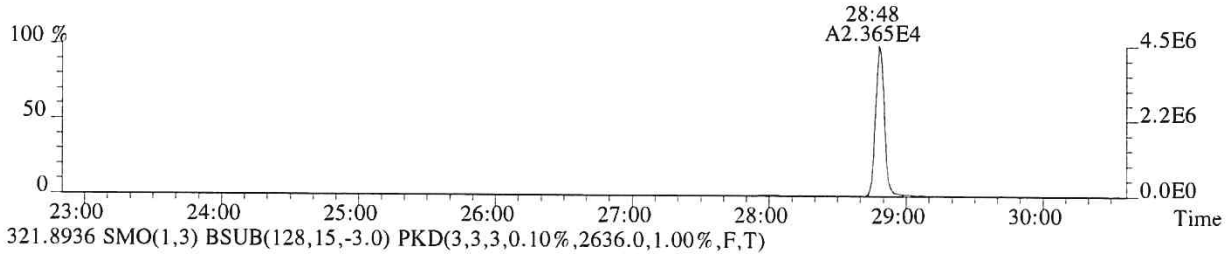


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

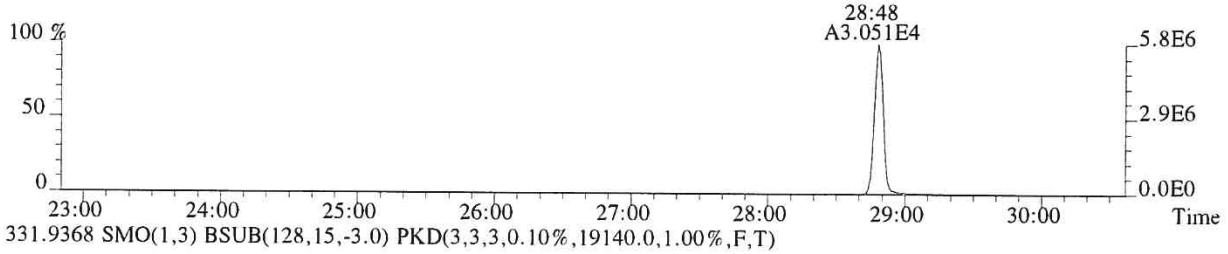


011801

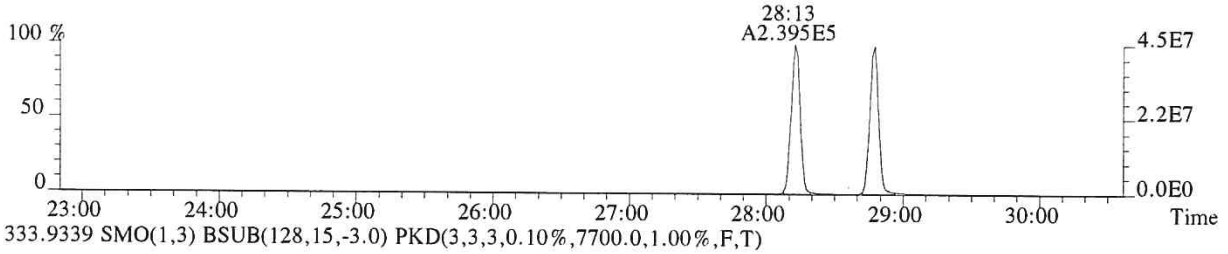
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



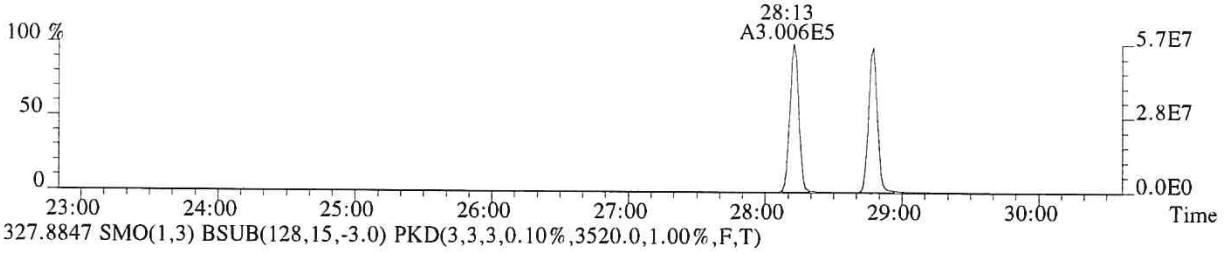
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



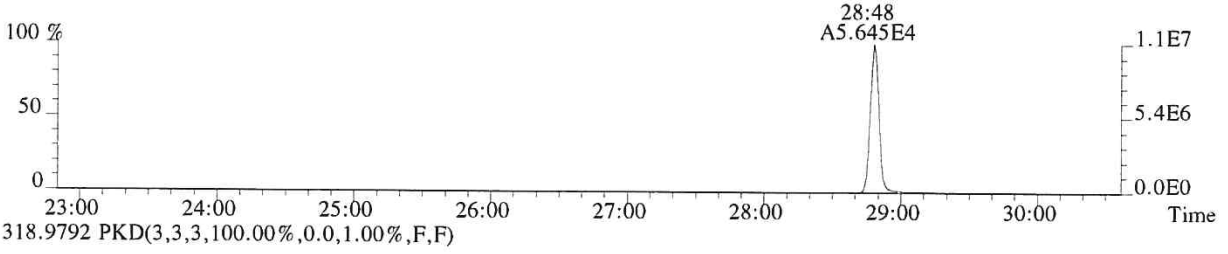
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



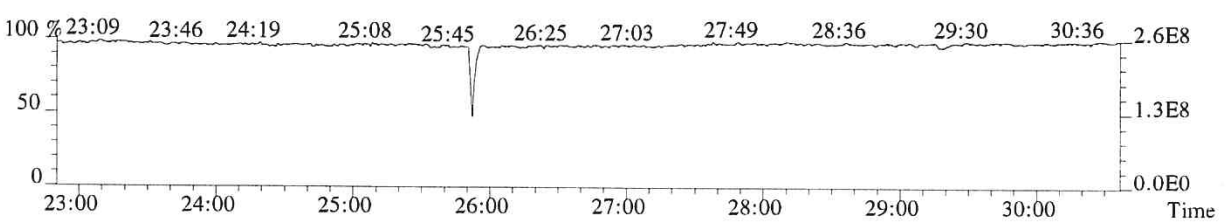
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)

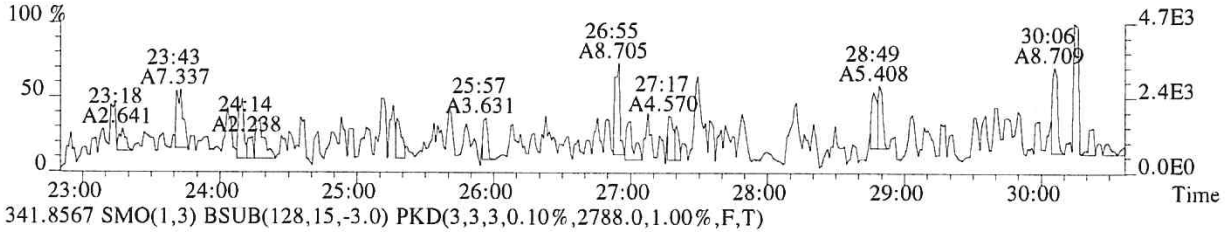


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

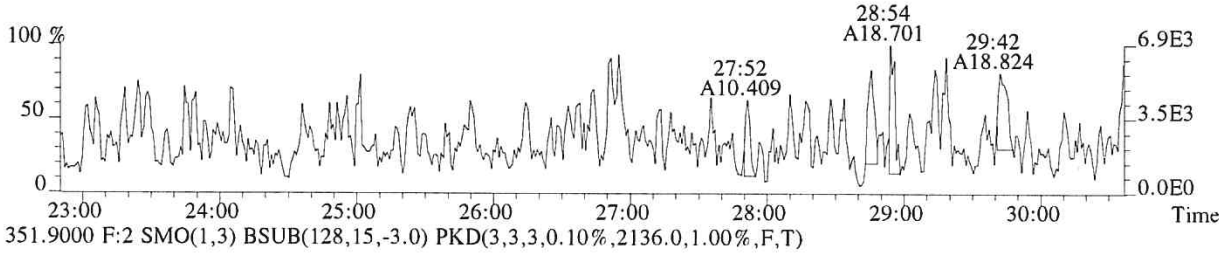


011802

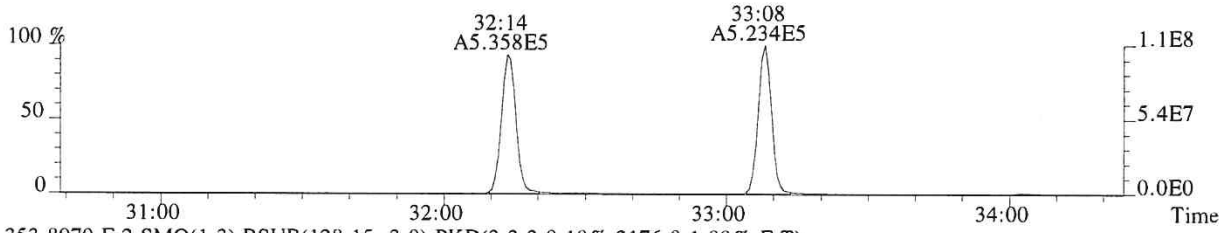
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



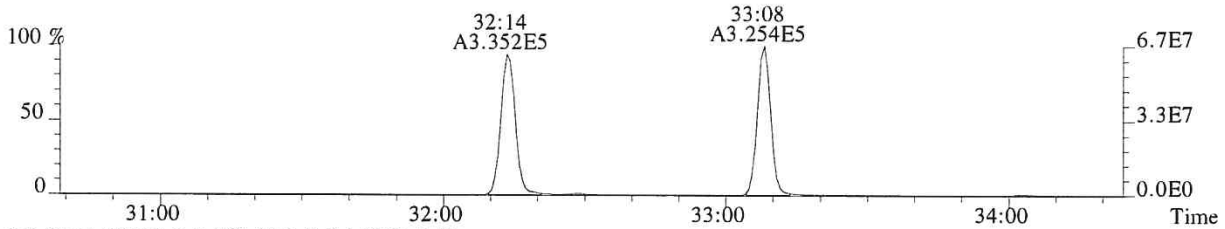
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



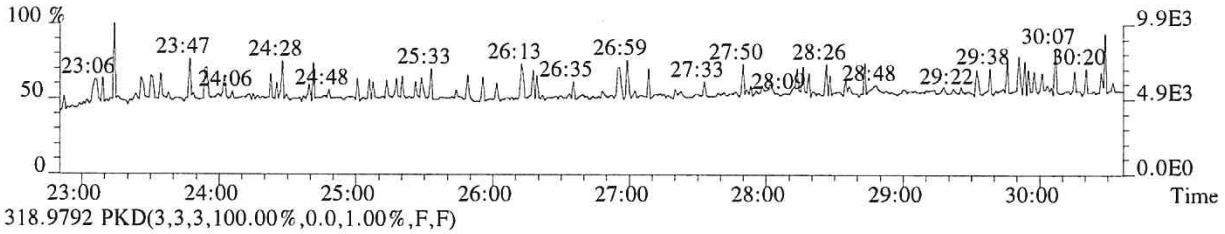
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



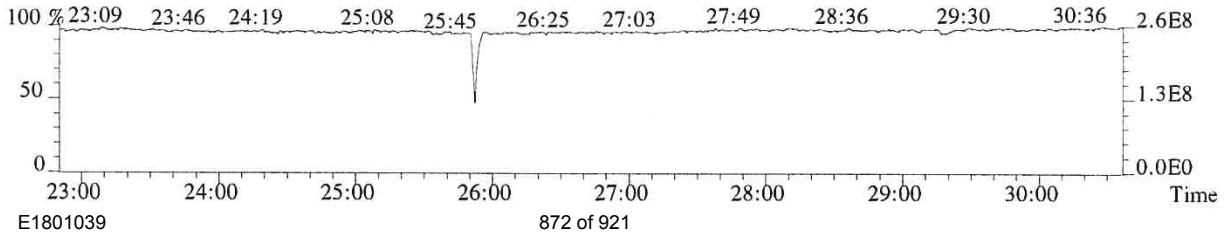
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

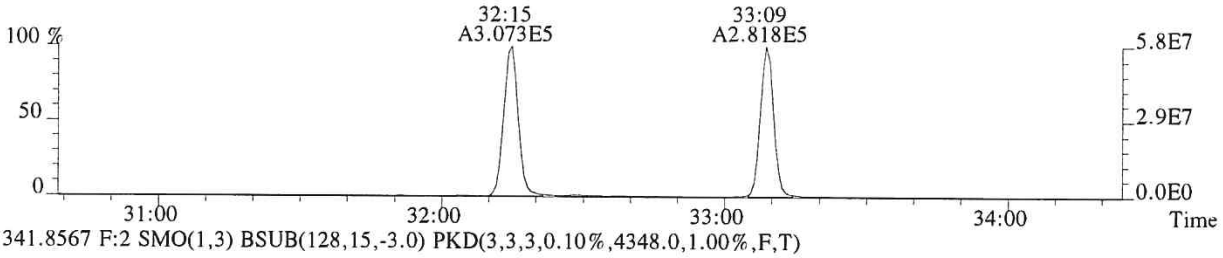


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

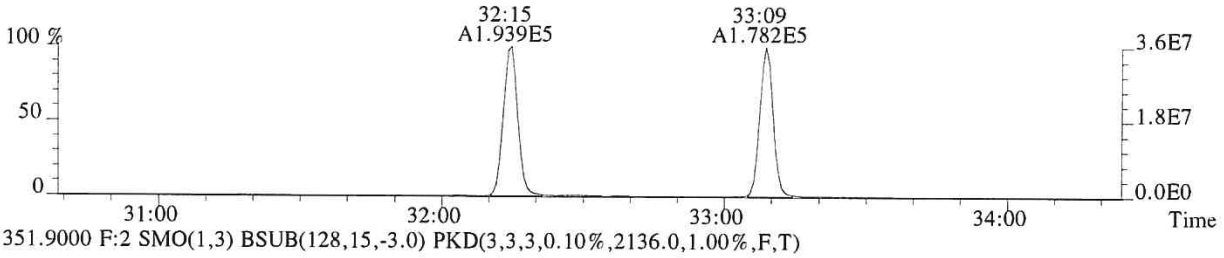


File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

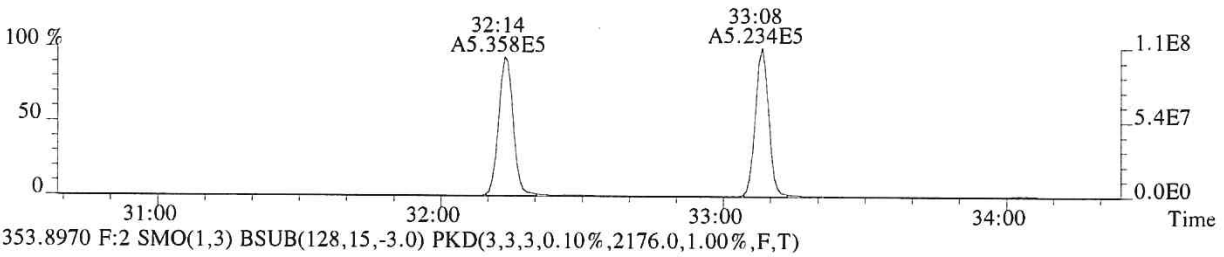
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



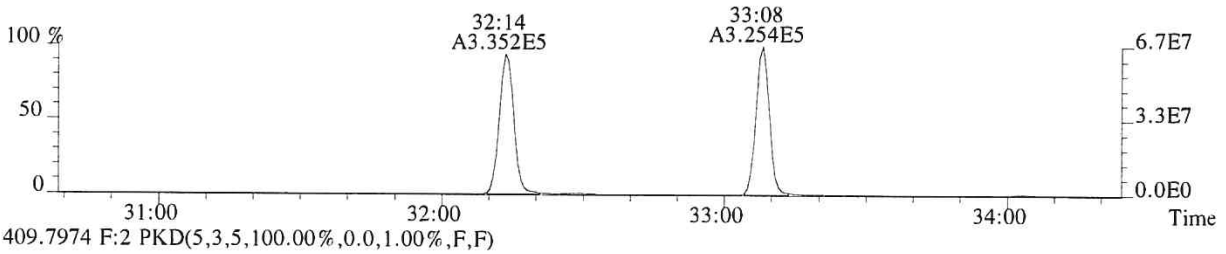
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



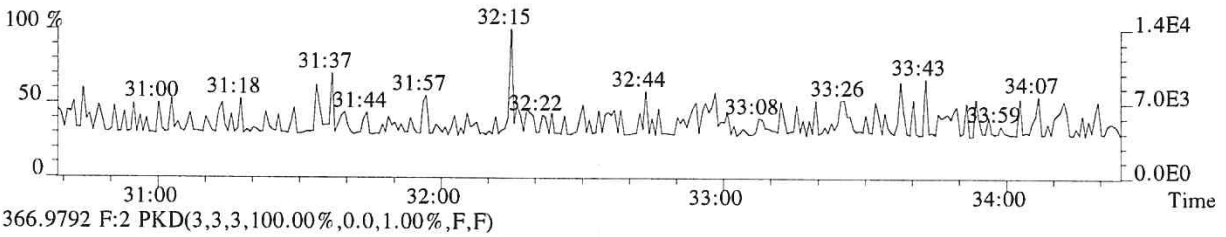
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



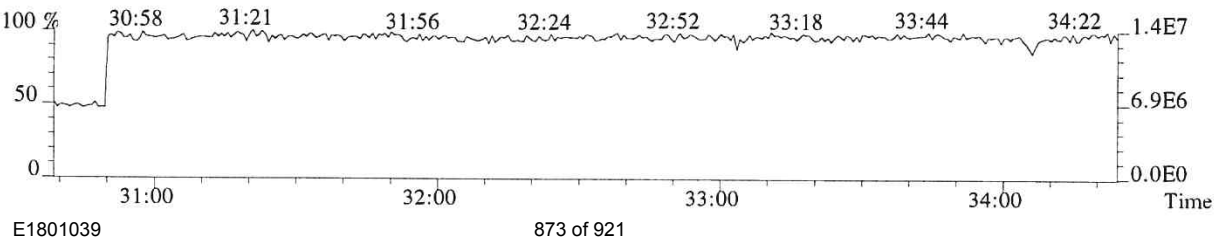
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

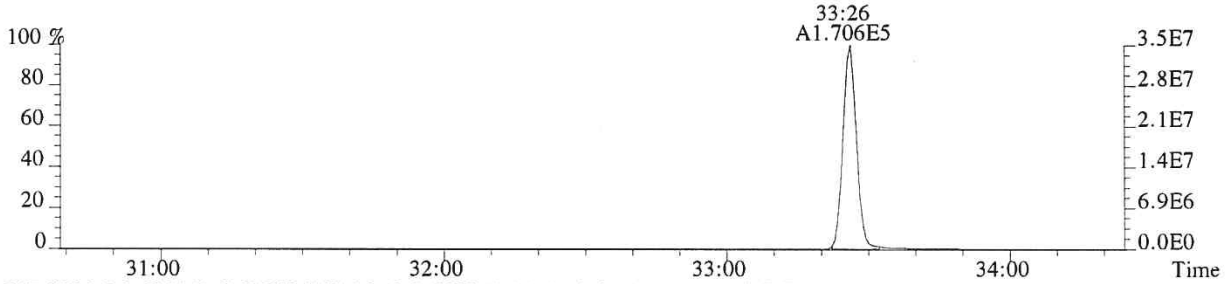


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

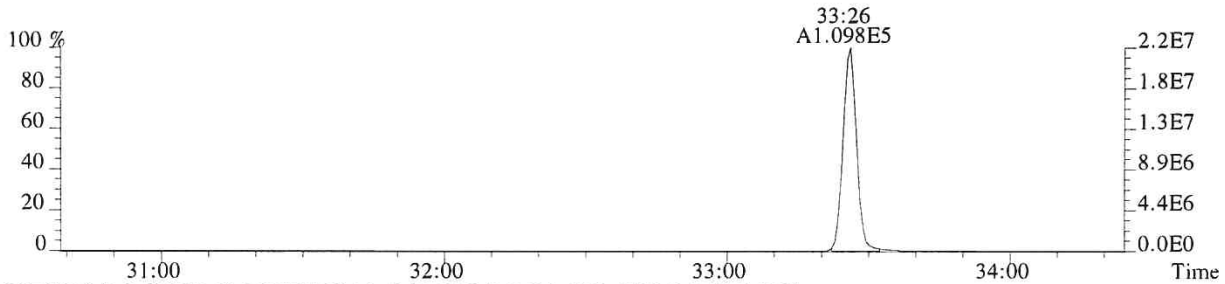


011804

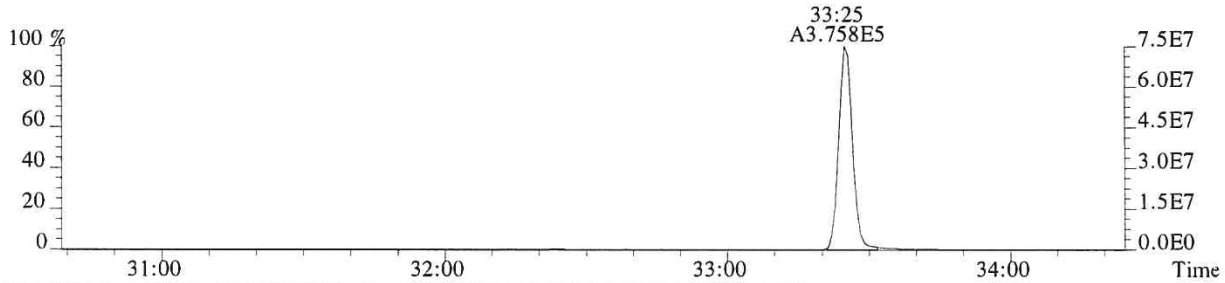
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



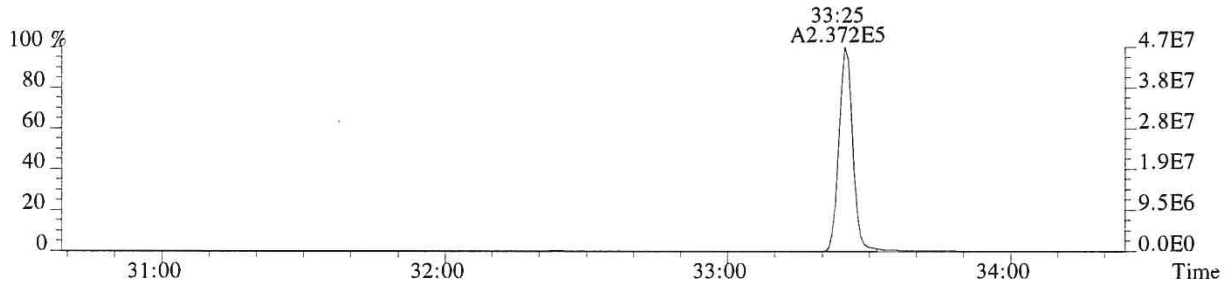
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



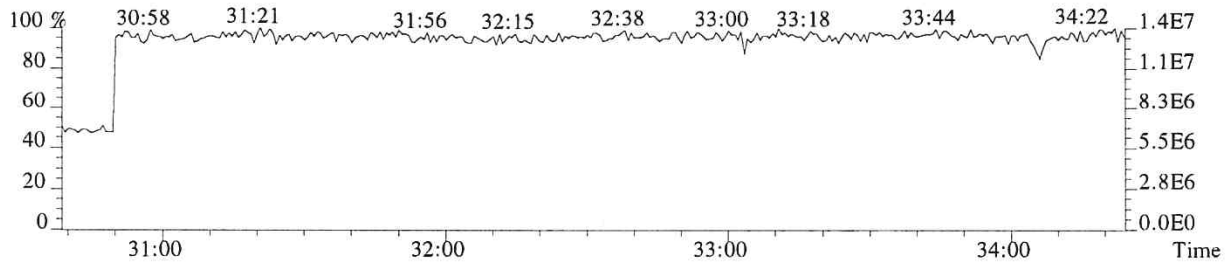
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)

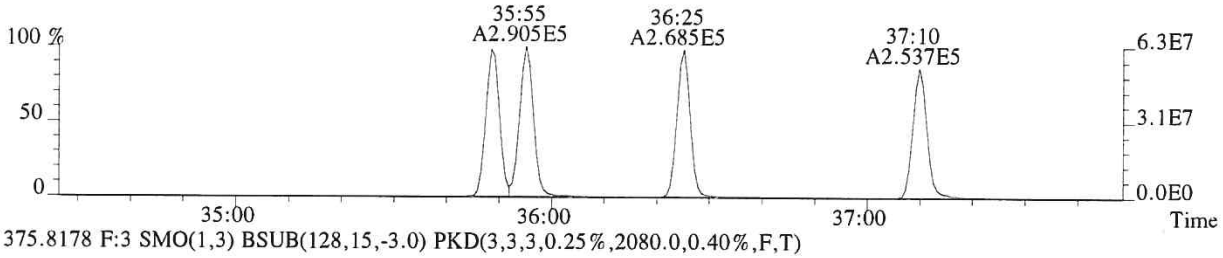


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

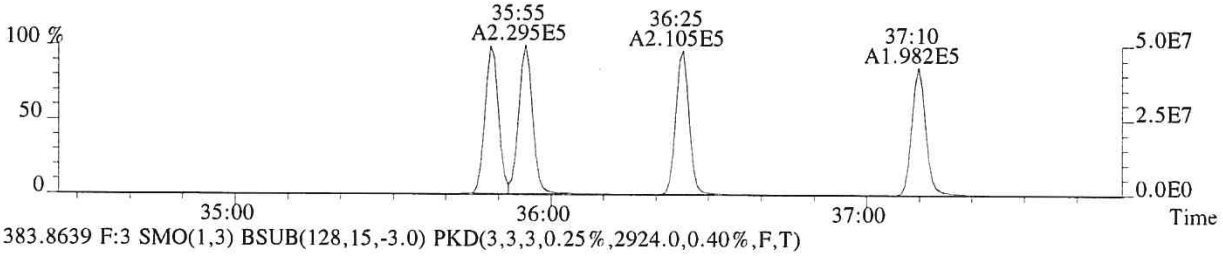


011805

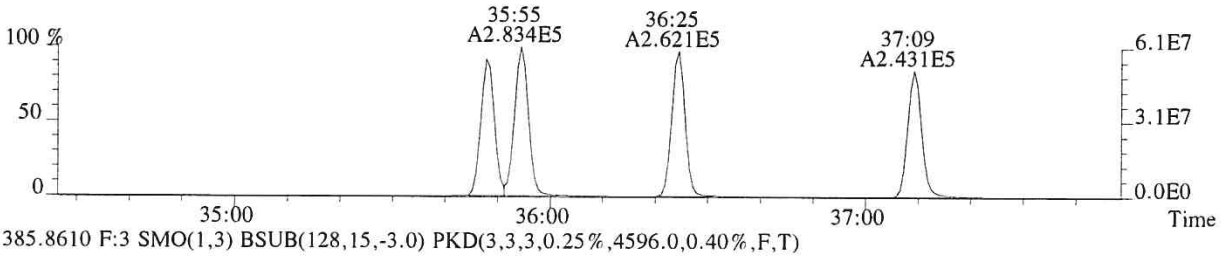
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



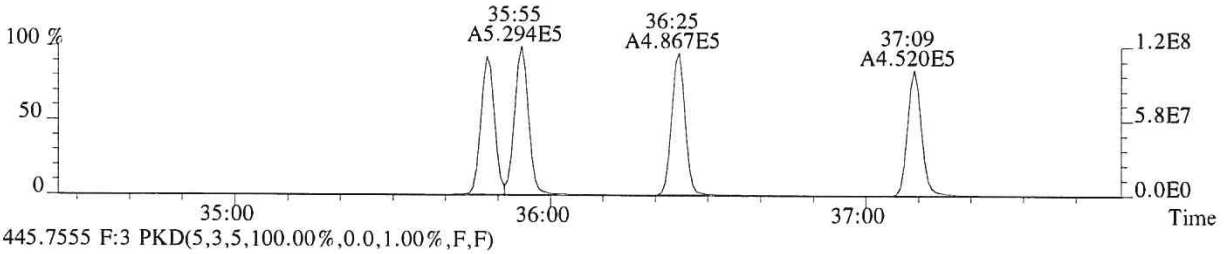
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



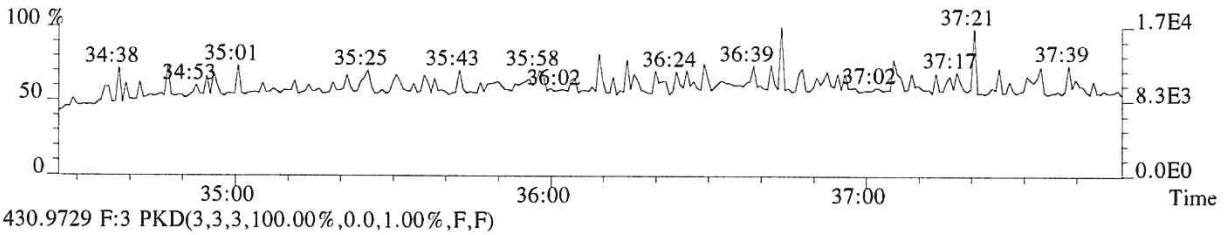
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



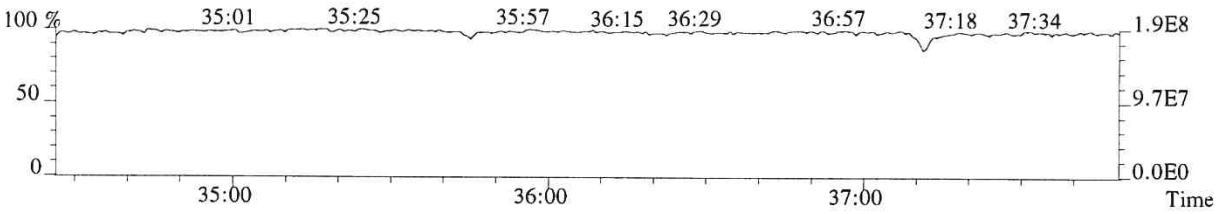
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4596.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

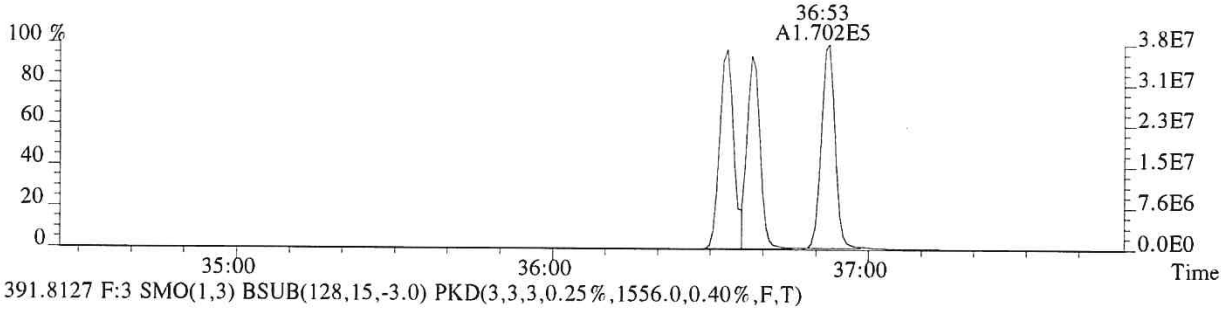


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

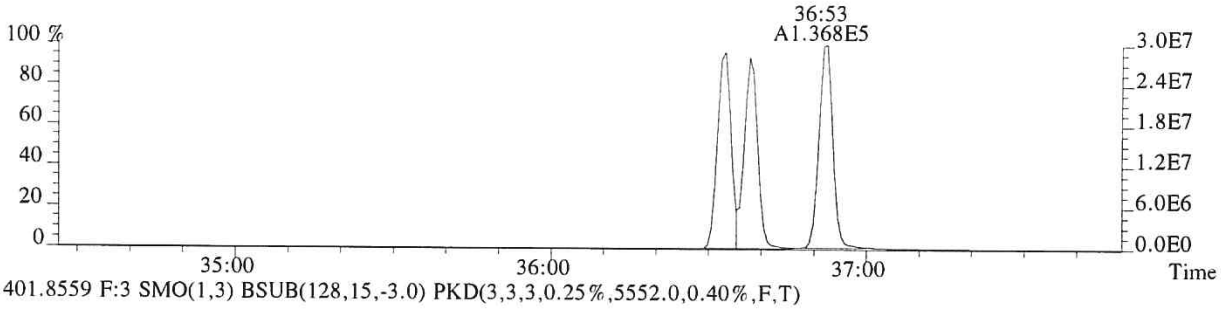


011806

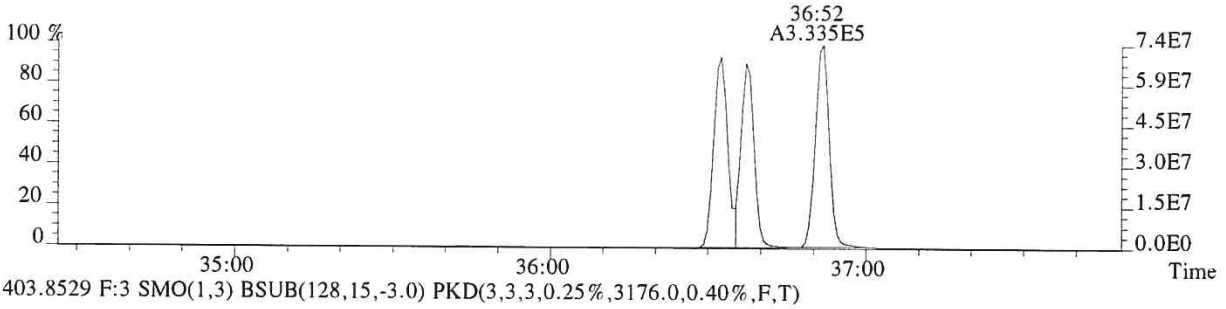
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



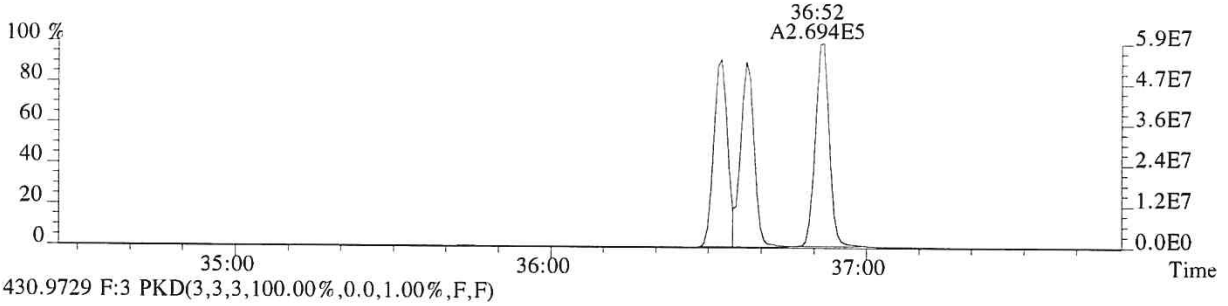
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



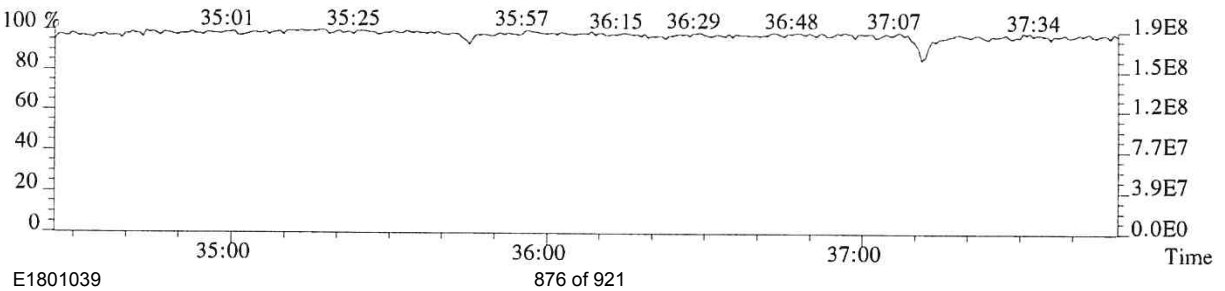
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5552.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)

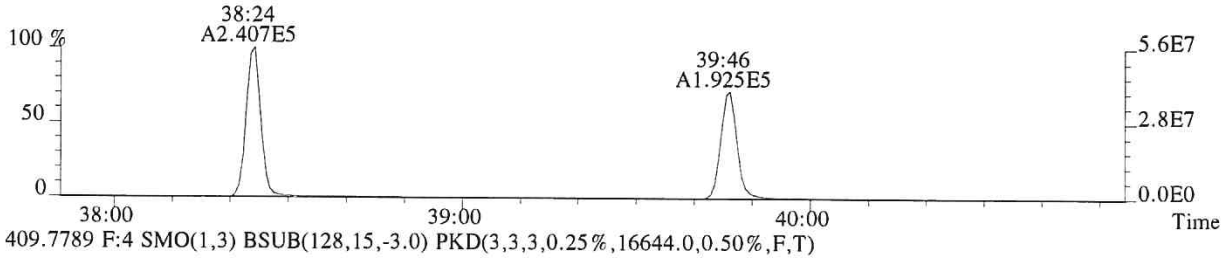


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

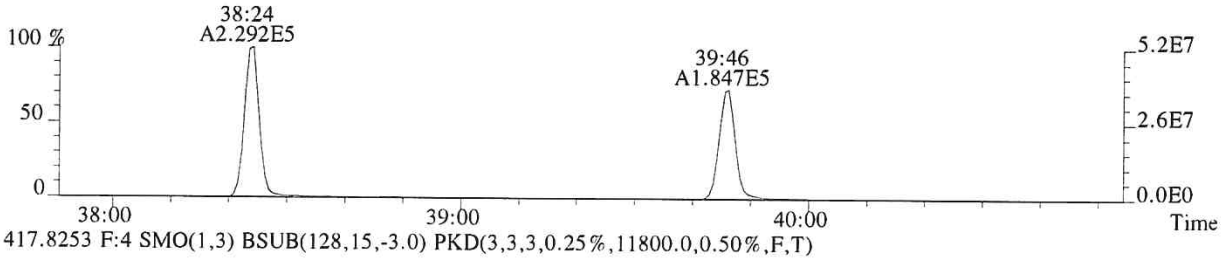


011807

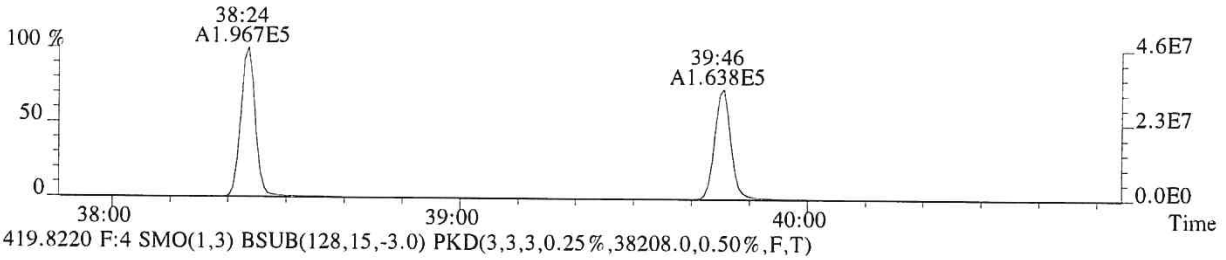
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14728.0,0.50%,F,T)



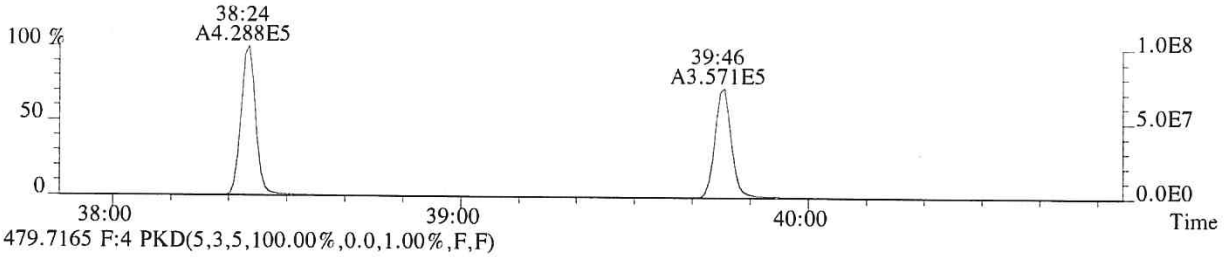
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16644.0,0.50%,F,T)



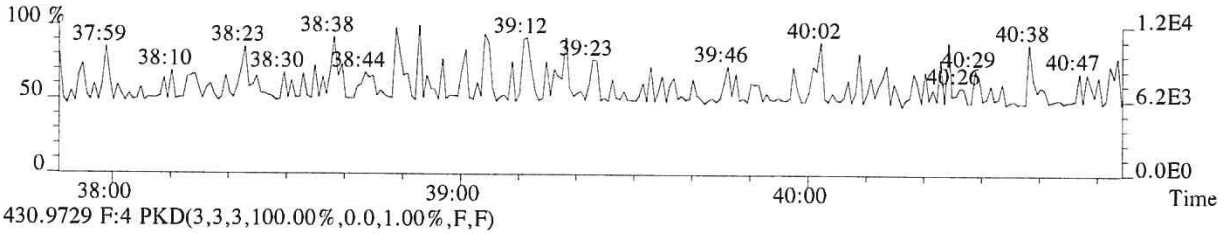
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11800.0,0.50%,F,T)



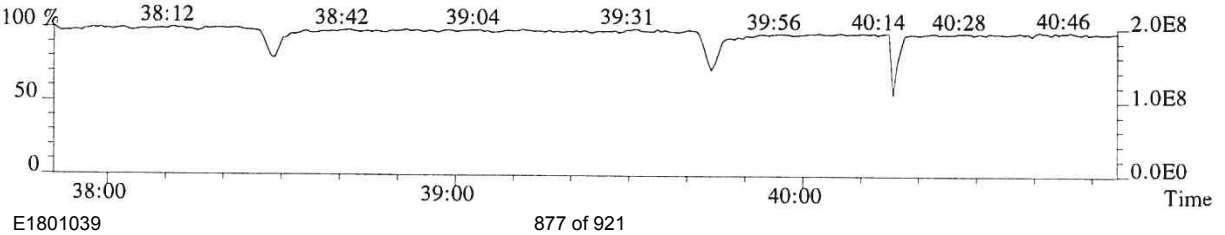
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,38208.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

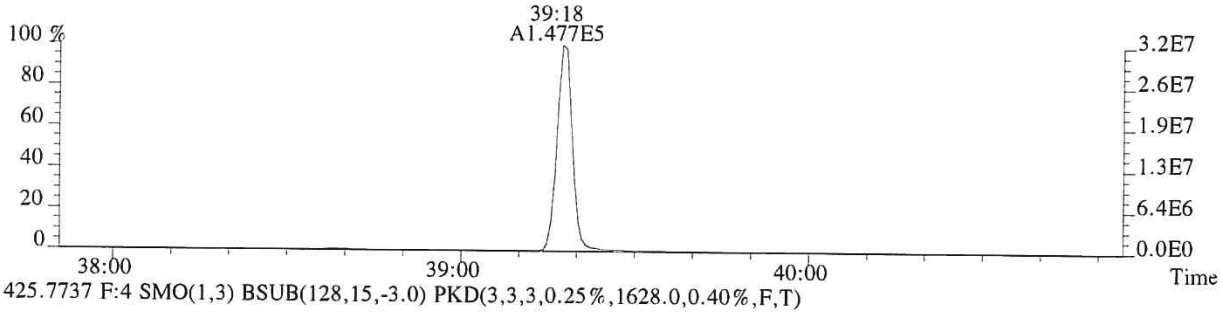


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

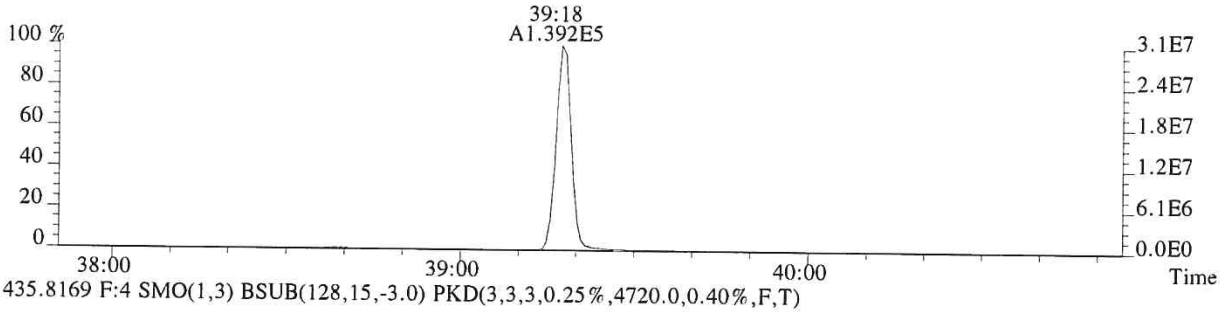


011808

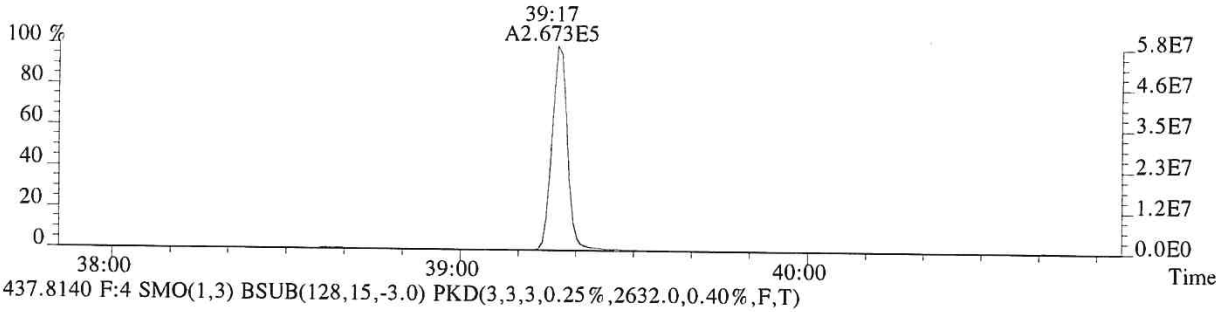
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



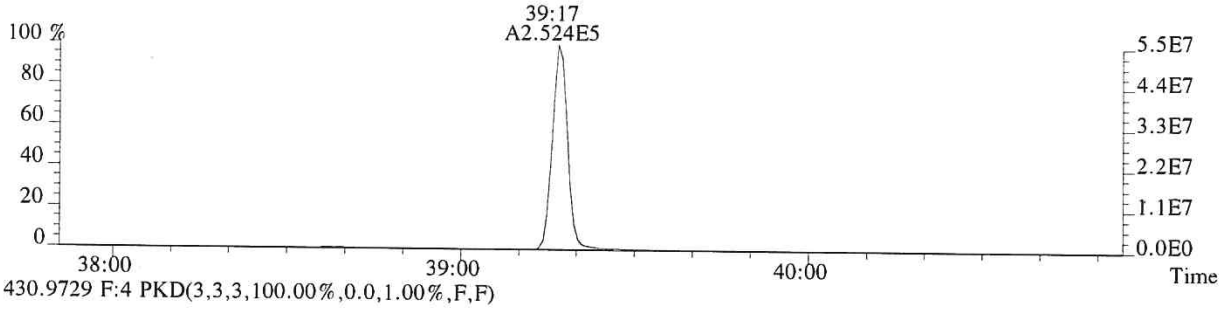
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



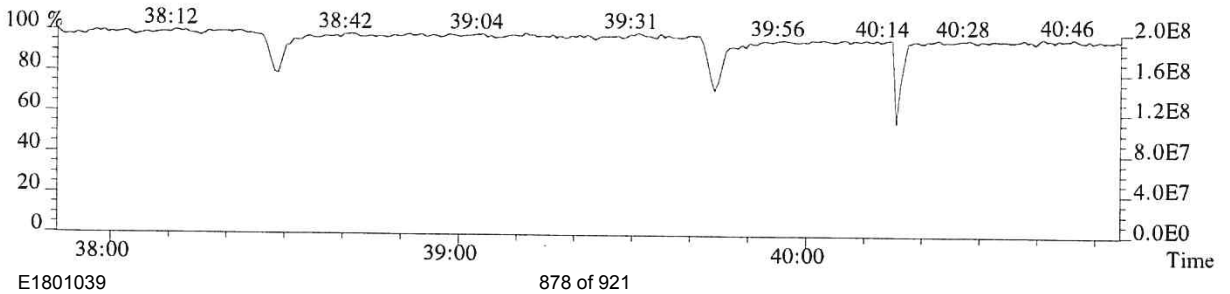
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)

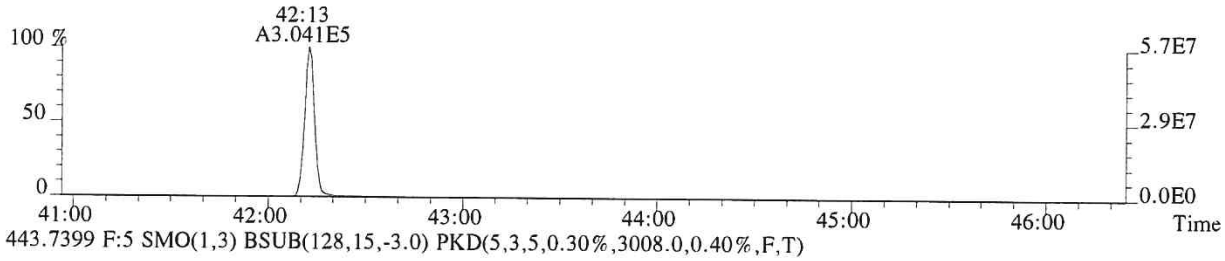


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

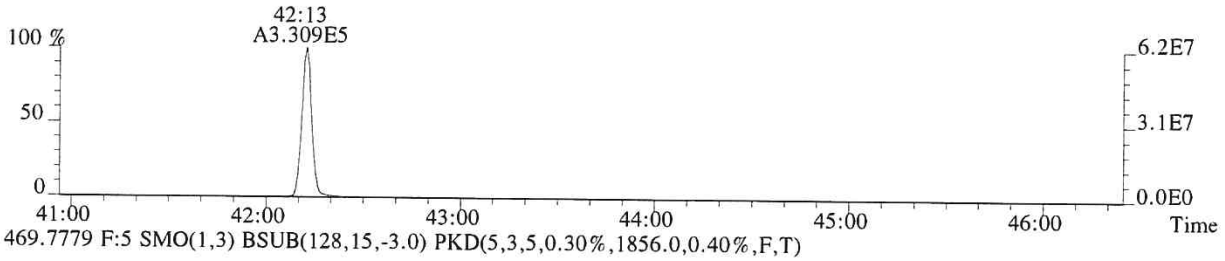


011809

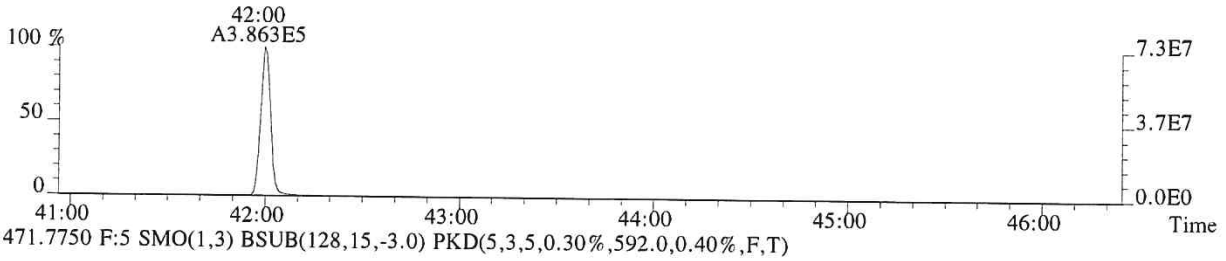
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



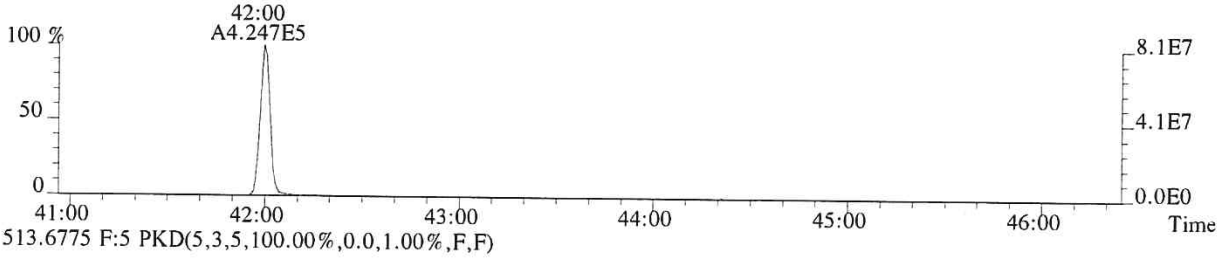
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3008.0,0.40%,F,T)



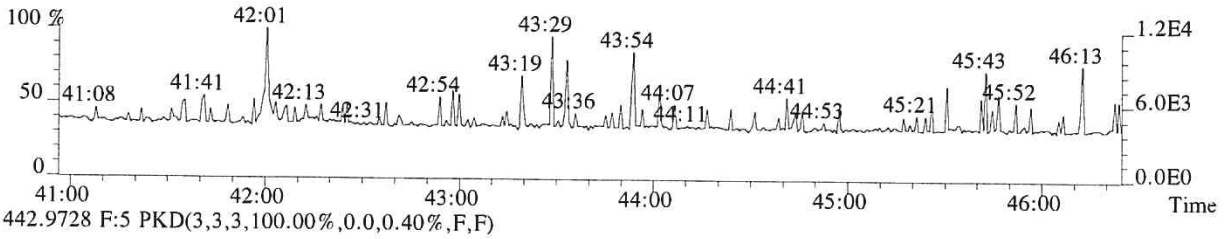
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



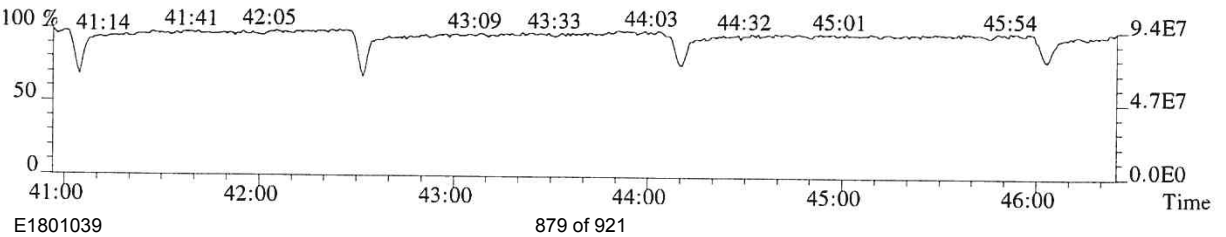
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

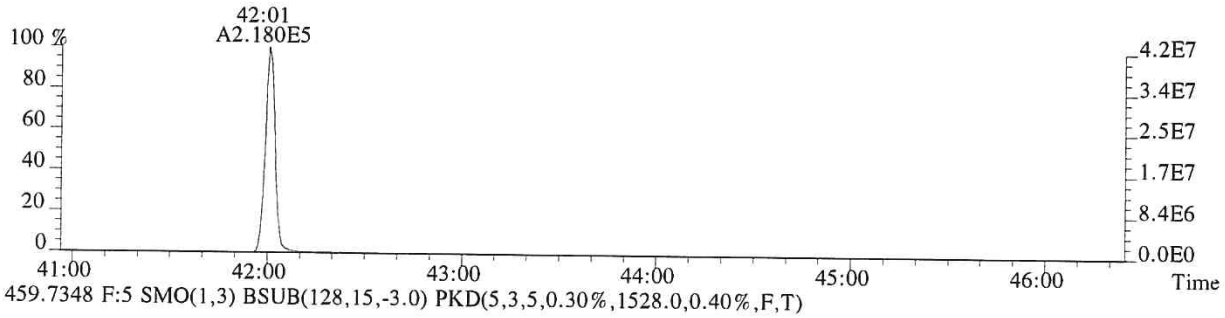


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

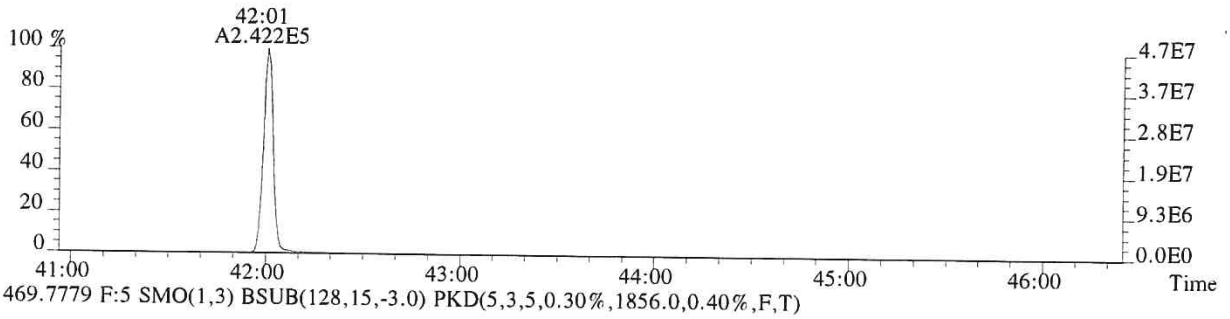


011810

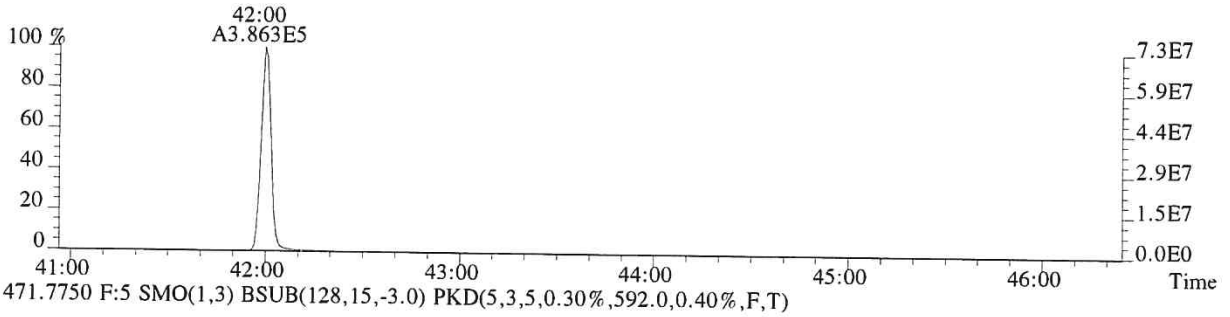
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



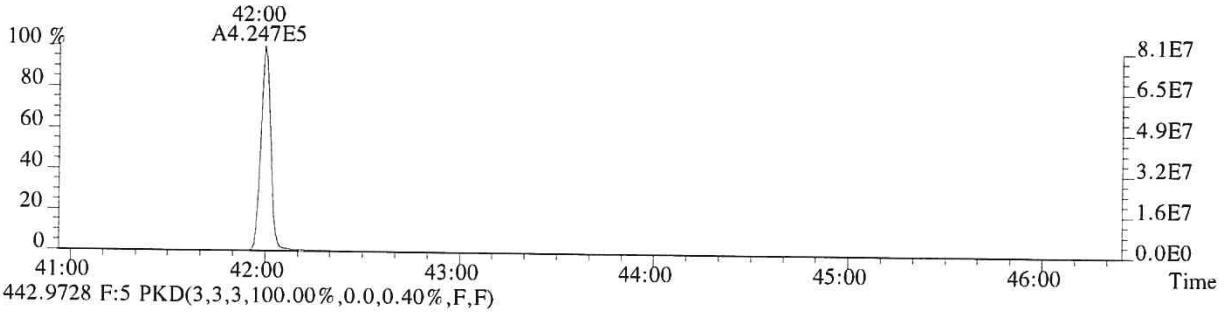
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



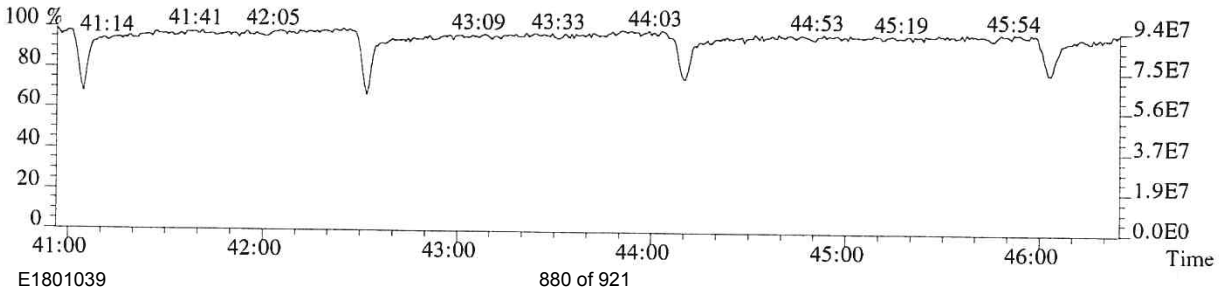
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011811

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.186e+05	1.498e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.070e+06	6.680e+05	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	9.931e+05	6.255e+05	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	9.336e+05	7.318e+05	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.546e+05	7.530e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	9.004e+05	7.134e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	8.574e+05	6.711e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	7.924e+05	7.640e+05	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	6.712e+05	6.389e+05	1.05	yes	no	1.463
10	Unk	OCDF	42:13	9.999e+05	1.075e+06	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	8.371e+04	1.065e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	5.908e+05	3.807e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.387e+05	4.268e+05	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	5.444e+05	4.299e+05	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	5.850e+05	4.610e+05	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.859e+05	4.568e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	7.127e+05	7.901e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.799e+05	3.543e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	4.595e+05	2.875e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	4.523e+05	2.842e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.092e+05	3.928e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.332e+05	4.327e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.224e+05	4.139e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.041e+05	3.825e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.626e+05	3.528e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.431e+05	3.159e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.012e+05	2.528e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.193e+05	2.044e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.552e+05	2.035e+05	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.565e+05	2.045e+05	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.187e+05	2.081e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	3.133e+05	3.464e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.000e+05	2.518e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.828e+05	2.264e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.003e+05				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.13e+07	2.15e+03	9.9e+03	2.70e+07	4.22e+03	6.4e+03
2	1,2,3,7,8-PeCDF	2.03e+08	3.06e+03	6.6e+04	1.29e+08	4.95e+03	2.6e+04
3	2,3,4,7,8-PeCDF	2.04e+08	3.06e+03	6.7e+04	1.28e+08	4.95e+03	2.6e+04
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.85e+03	1.2e+05	1.68e+08	4.92e+03	3.4e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	1.85e+03	1.1e+05	1.67e+08	4.92e+03	3.4e+04
6	2,3,4,6,7,8-HxCDF	2.02e+08	1.85e+03	1.1e+05	1.59e+08	4.92e+03	3.2e+04
7	1,2,3,7,8,9-HxCDF	1.88e+08	1.85e+03	1.0e+05	1.47e+08	4.92e+03	3.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.78e+08	2.61e+04	6.8e+03	1.72e+08	1.83e+04	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+08	2.61e+04	5.4e+03	1.35e+08	1.83e+04	7.4e+03
10	OCDF	1.94e+08	1.46e+03	1.3e+05	2.08e+08	3.00e+03	6.9e+04
11	2,3,7,8-TCDD	1.62e+07	6.38e+03	2.5e+03	2.06e+07	2.42e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.19e+08	3.22e+03	3.7e+04	7.64e+07	1.02e+03	7.5e+04
13	1,2,3,4,7,8-HxCDD	1.25e+08	9.48e+02	1.3e+05	9.78e+07	1.64e+03	5.9e+04
14	1,2,3,6,7,8-HxCDD	1.22e+08	9.48e+02	1.3e+05	9.73e+07	1.64e+03	5.9e+04
15	1,2,3,7,8,9-HxCDD	1.31e+08	9.48e+02	1.4e+05	1.04e+08	1.64e+03	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.10e+08	2.46e+03	4.5e+04	1.04e+08	2.38e+03	4.4e+04
17	OCDD	1.42e+08	1.24e+03	1.1e+05	1.57e+08	1.46e+03	1.1e+05
18	13C-2,3,7,8-TCDF	5.06e+07	1.14e+04	4.4e+03	6.41e+07	7.28e+03	8.8e+03
19	13C-1,2,3,7,8-PeCDF	8.88e+07	3.08e+03	2.9e+04	5.58e+07	3.54e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	9.15e+07	3.08e+03	3.0e+04	5.70e+07	3.54e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	4.76e+07	3.01e+03	1.6e+04	8.96e+07	4.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	5.17e+07	3.01e+03	1.7e+04	9.54e+07	4.64e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.99e+07	3.01e+03	1.7e+04	9.21e+07	4.64e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.48e+07	3.01e+03	1.5e+04	8.44e+07	4.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+07	8.80e+03	4.2e+03	8.02e+07	1.92e+04	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.97e+07	8.80e+03	3.4e+03	6.54e+07	1.92e+04	3.4e+03
27	13C-2,3,7,8-TCDD	3.77e+07	1.85e+04	2.0e+03	4.78e+07	7.81e+03	6.1e+03
28	13C-1,2,3,7,8-PeCDD	6.47e+07	3.56e+03	1.8e+04	4.18e+07	3.26e+03	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	5.86e+07	4.66e+03	1.3e+04	4.67e+07	3.04e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	5.76e+07	4.66e+03	1.2e+04	4.61e+07	3.04e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.94e+07	3.14e+03	1.6e+04	4.74e+07	1.71e+03	2.8e+04
32	13C-OCDD	6.18e+07	1.83e+03	3.4e+04	6.87e+07	9.56e+02	7.2e+04
33	13C-1,2,3,4-TCDD	3.76e+07	1.85e+04	2.0e+03	4.73e+07	7.81e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.25e+07	4.66e+03	1.3e+04	5.04e+07	3.04e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	3.86e+07	4.32e+03	9.0e+03			

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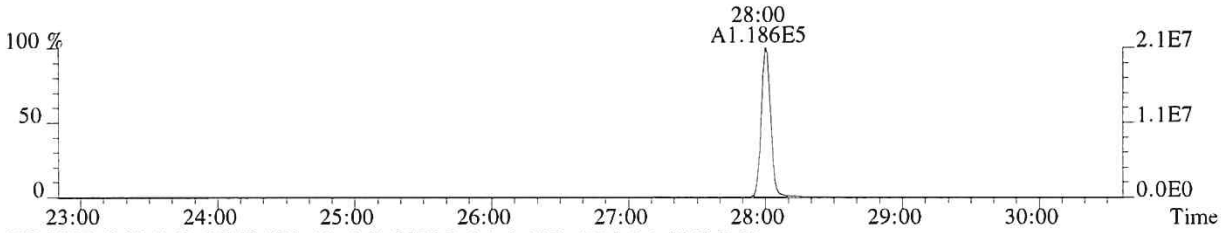
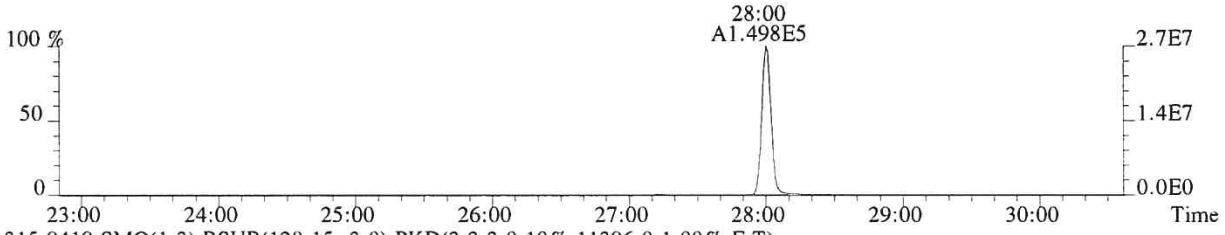
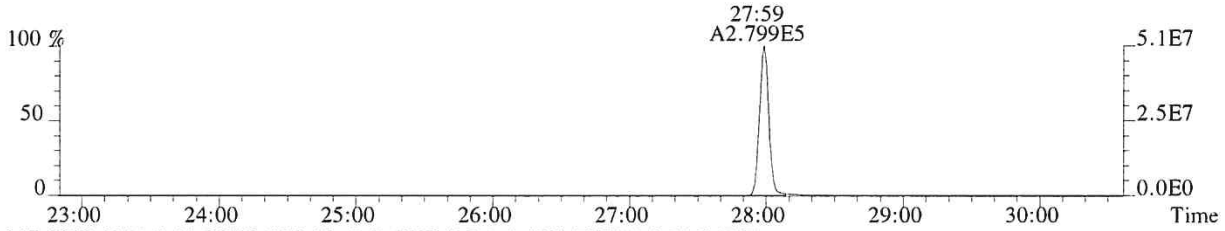
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



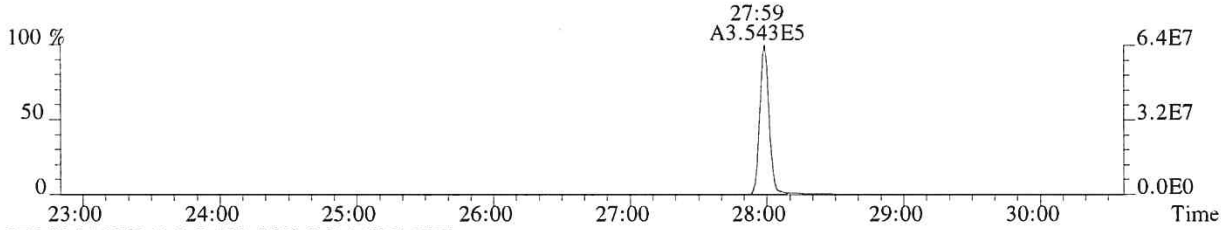
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



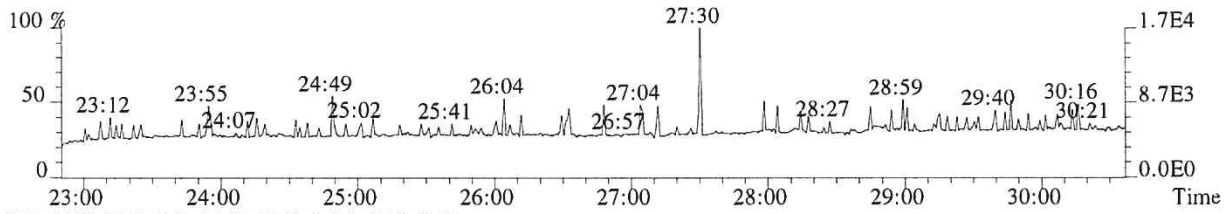
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



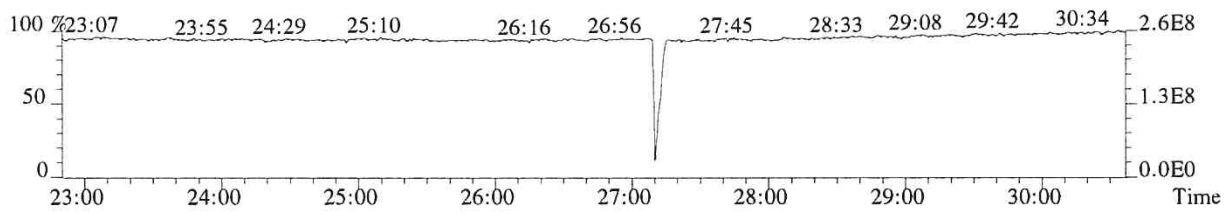
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7276.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

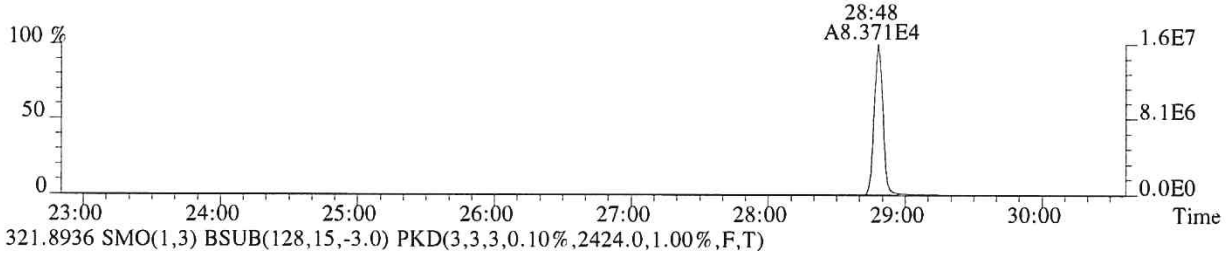


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

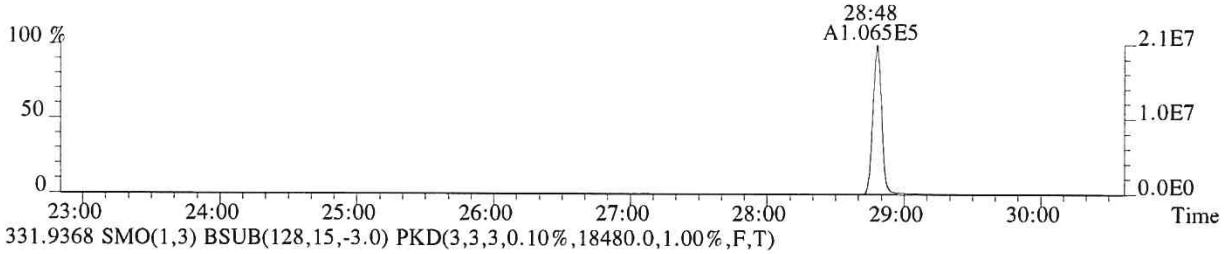


011814

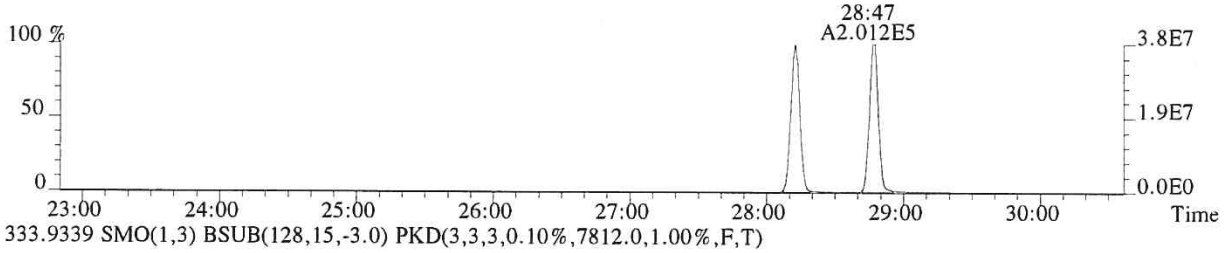
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6384.0,1.00%,F,T)



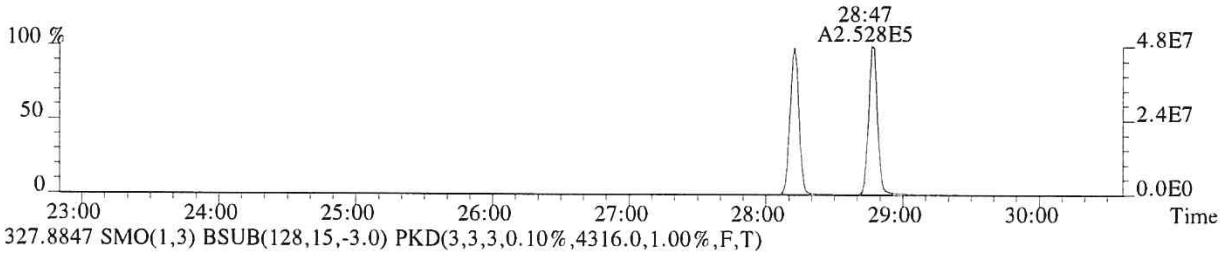
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



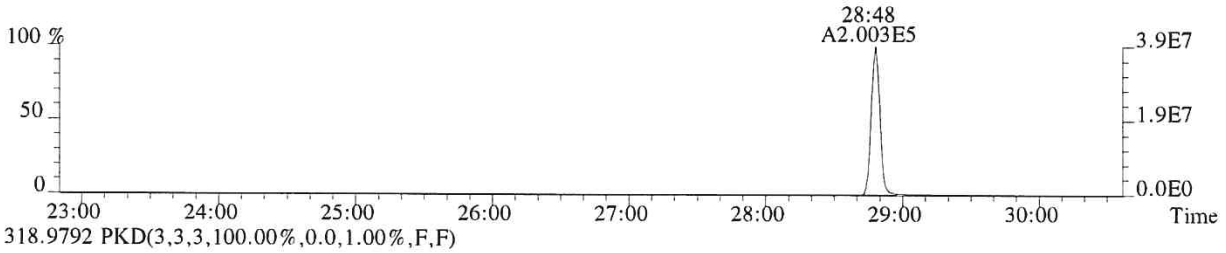
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18480.0,1.00%,F,T)



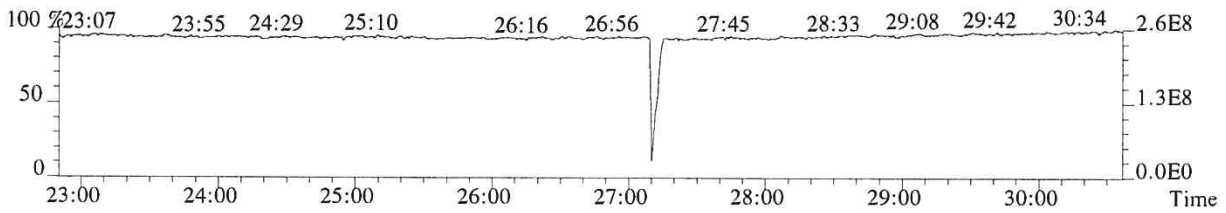
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)

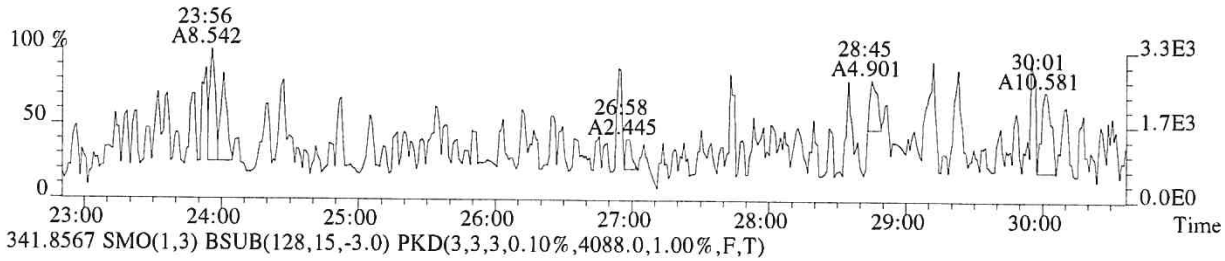


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

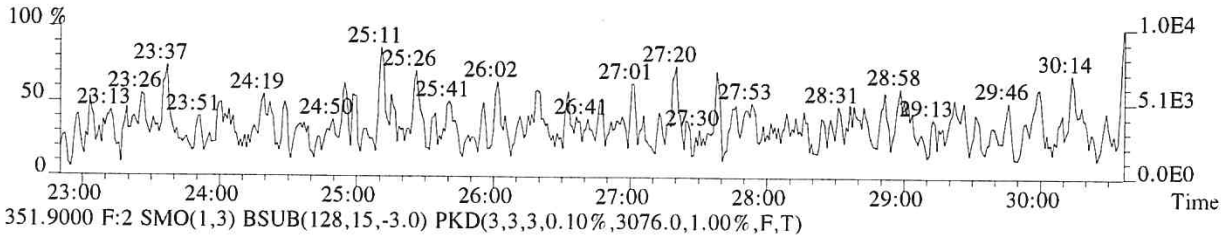


011815

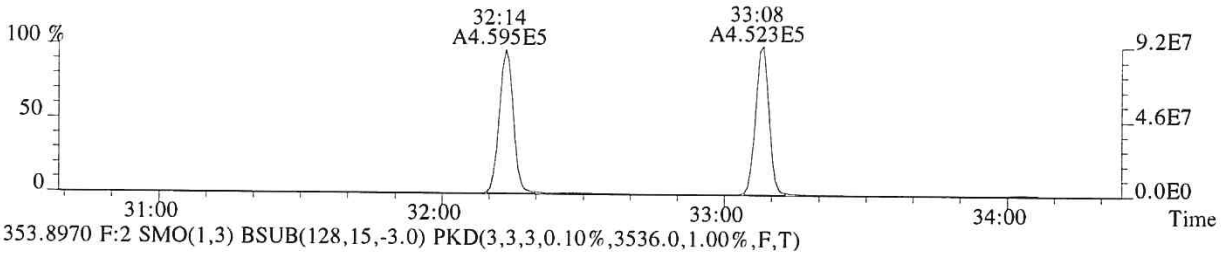
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



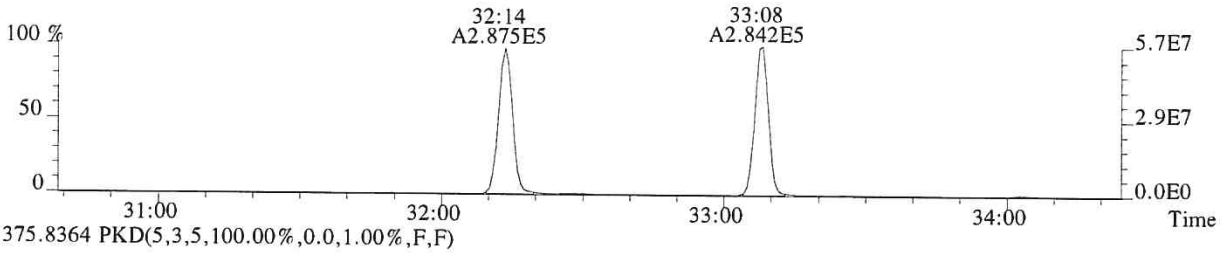
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



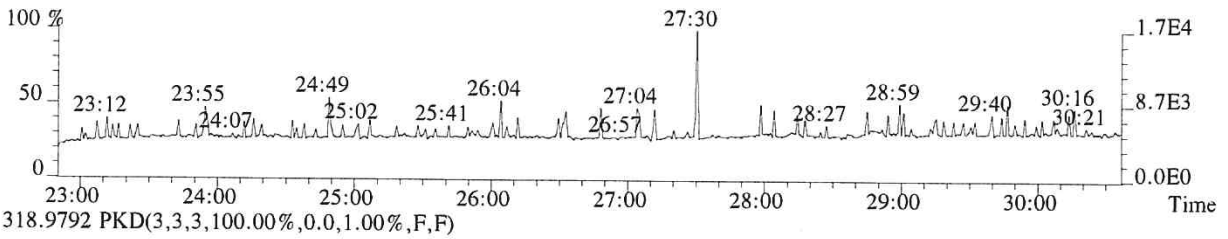
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



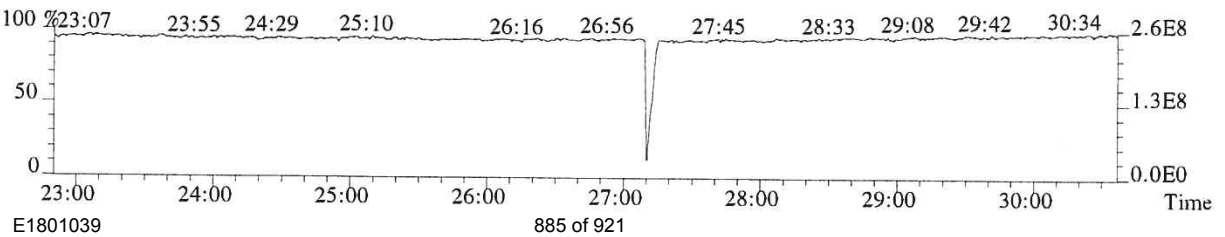
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

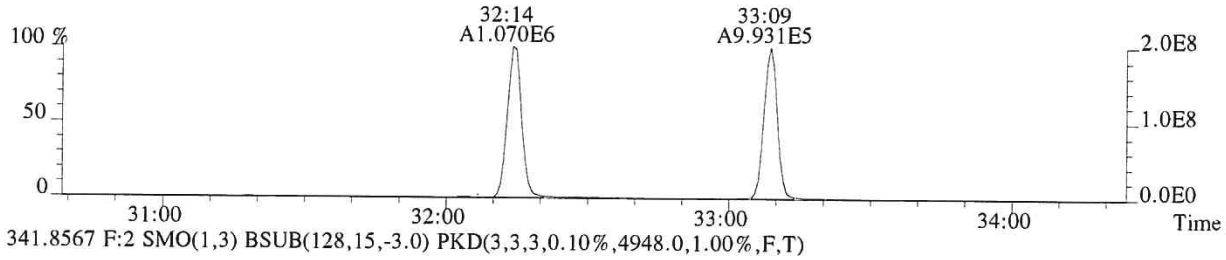


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

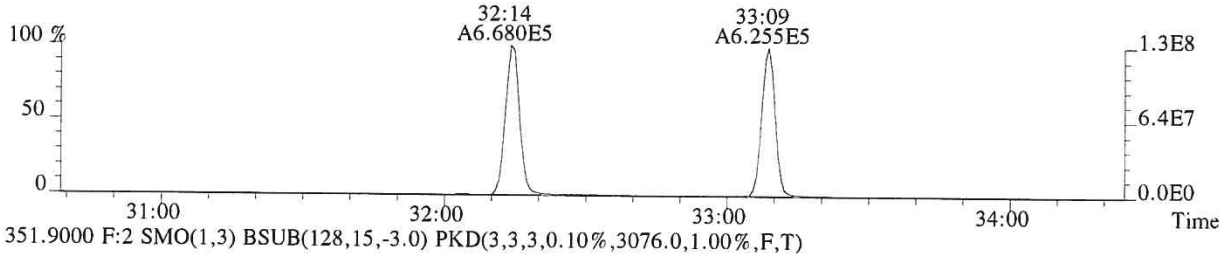


011816

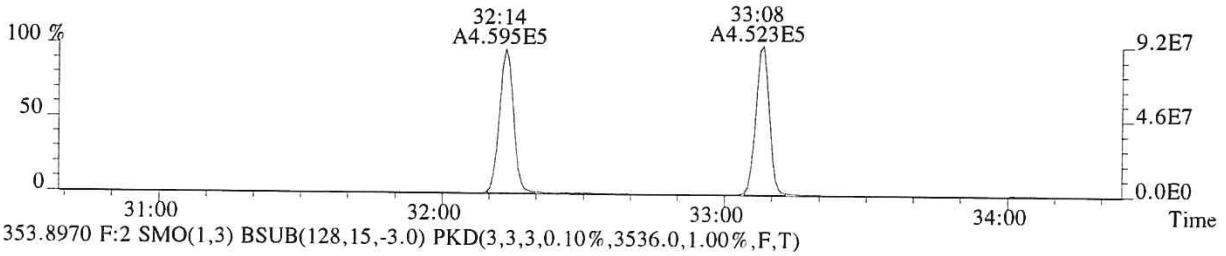
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



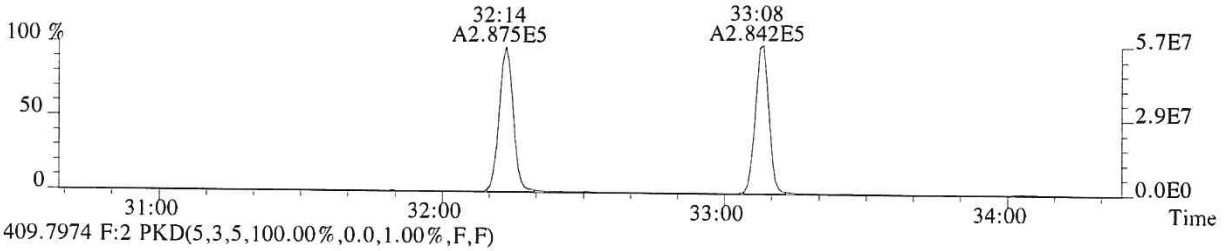
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



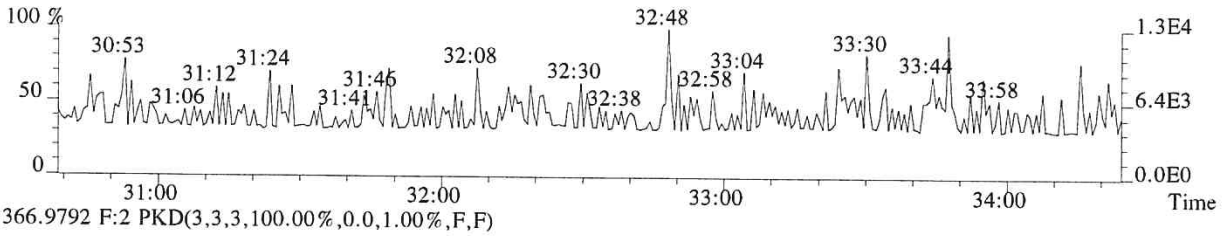
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



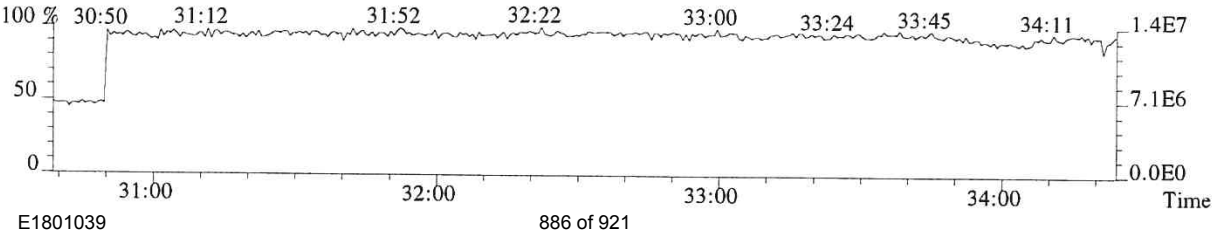
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

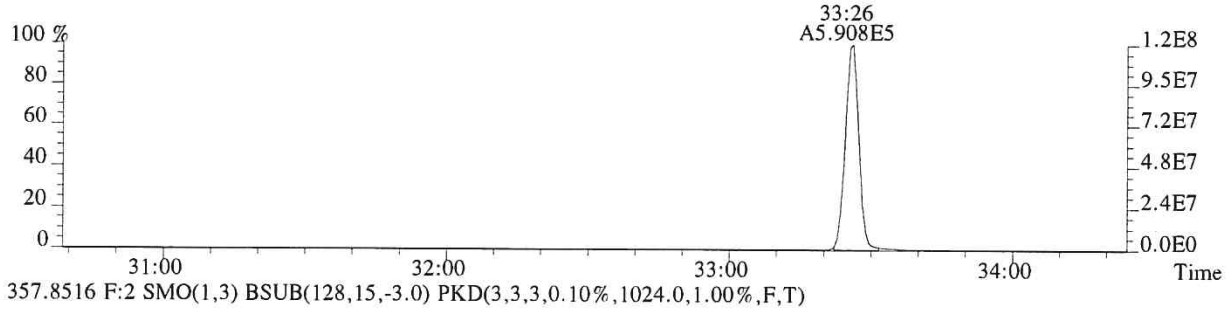


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

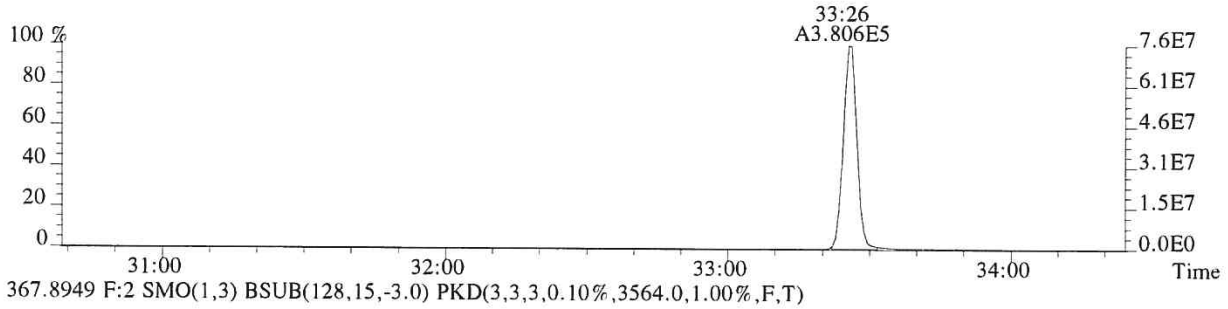


011817

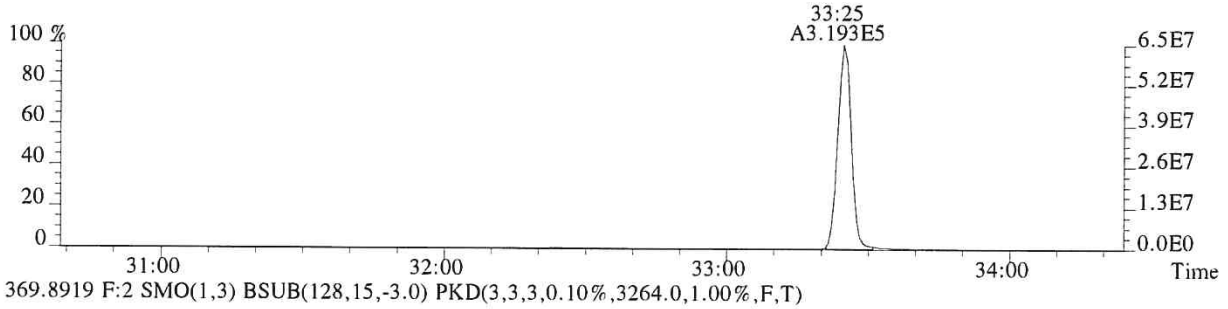
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



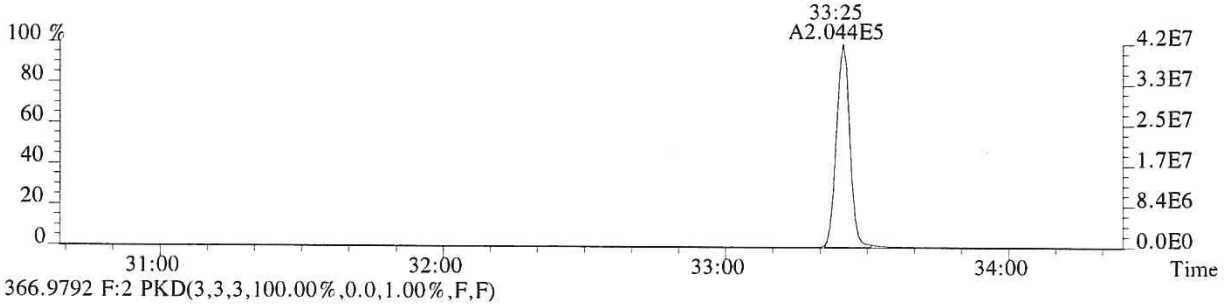
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



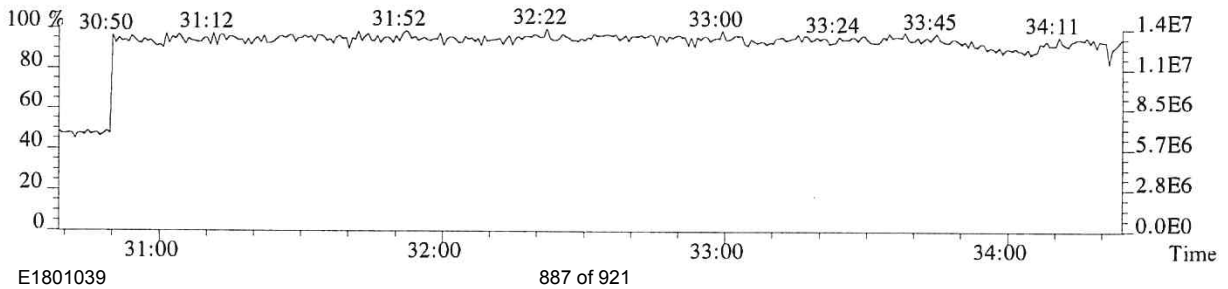
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)

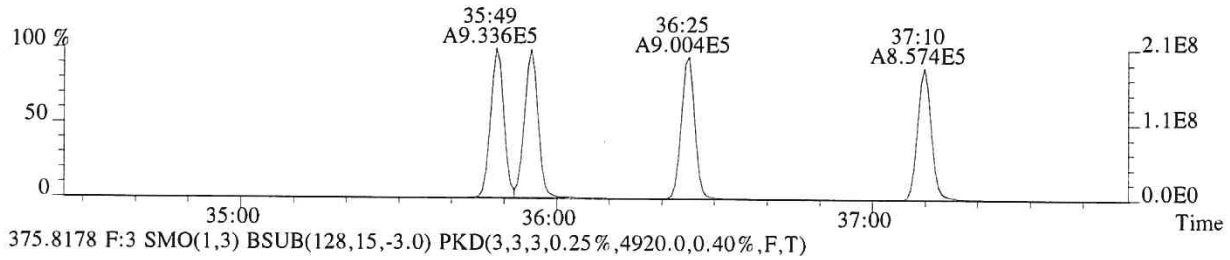


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

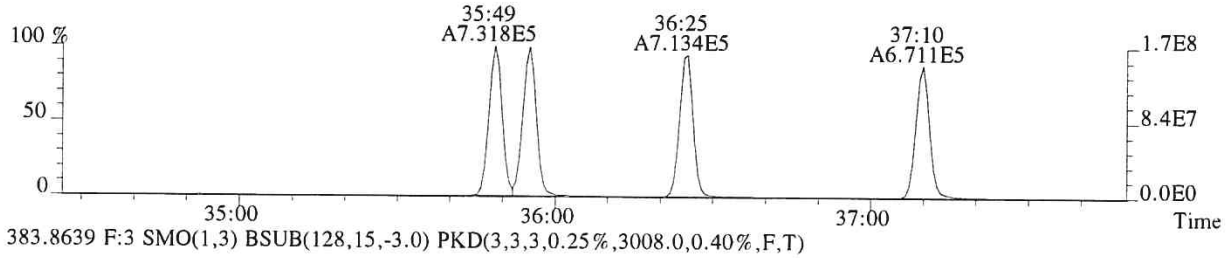


011818

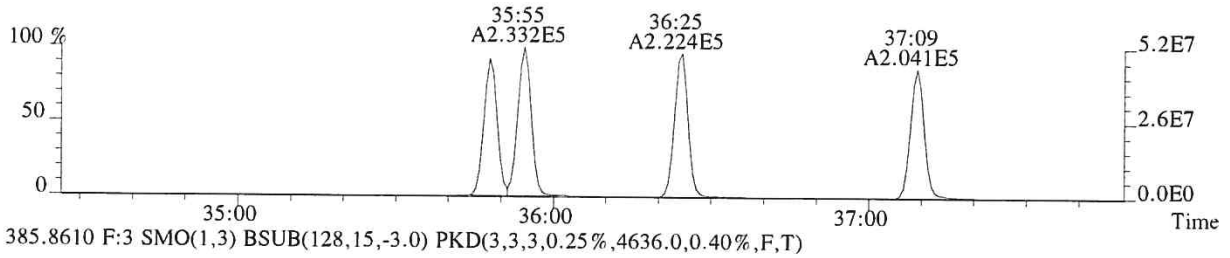
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



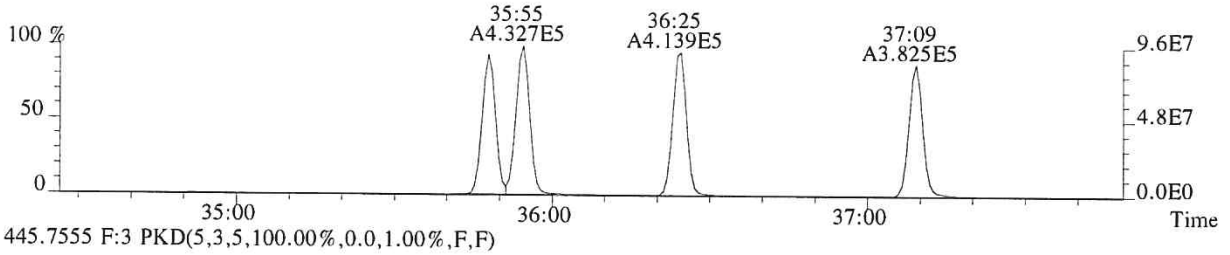
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4920.0,0.40%,F,T)



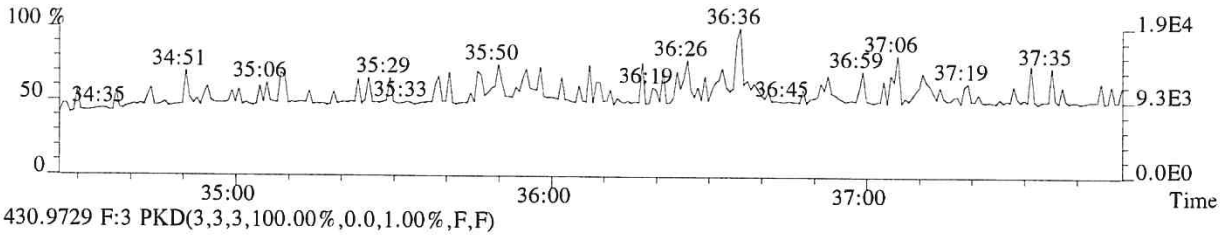
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



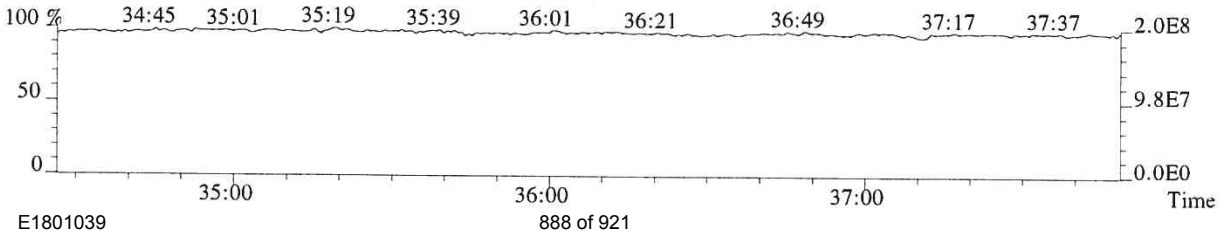
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



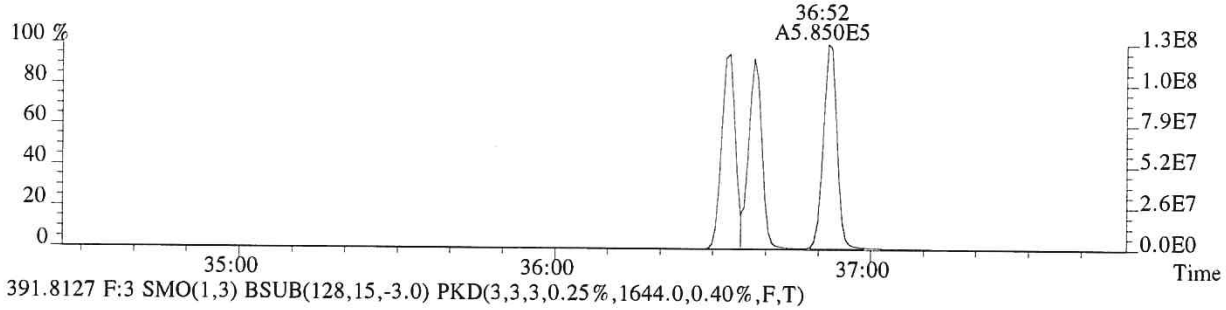
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



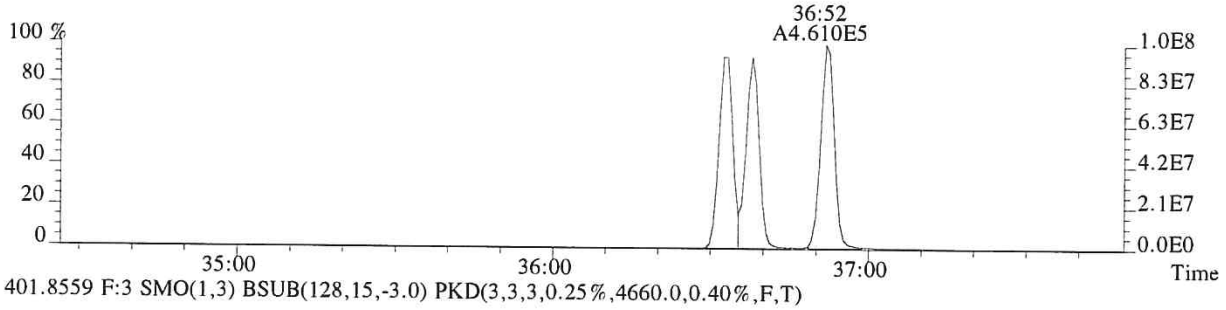
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



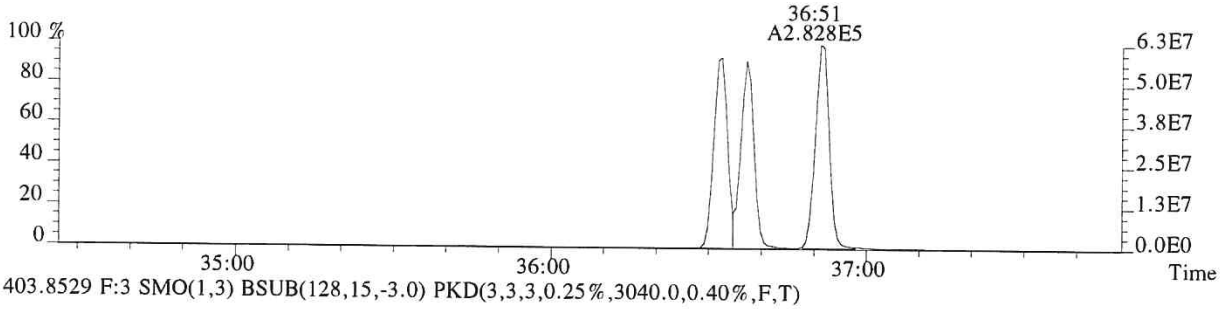
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



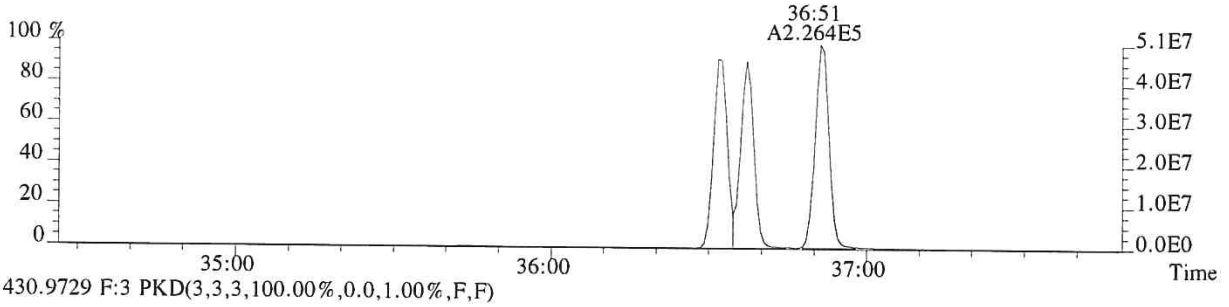
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



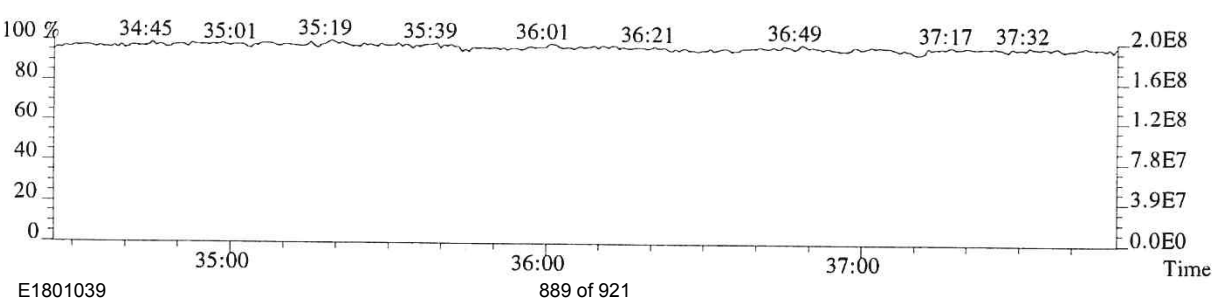
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)

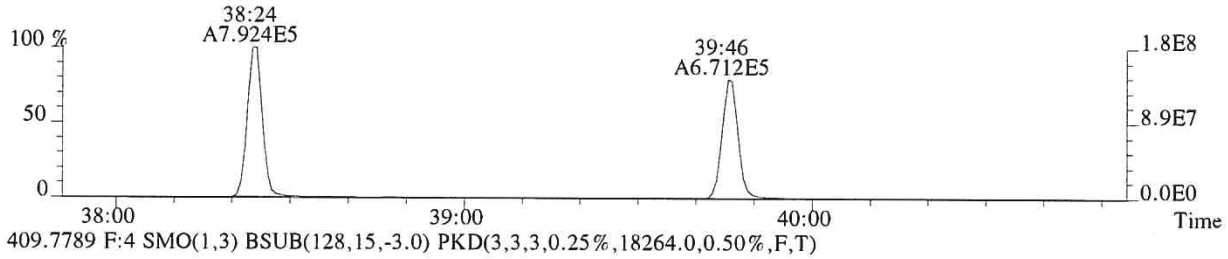


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

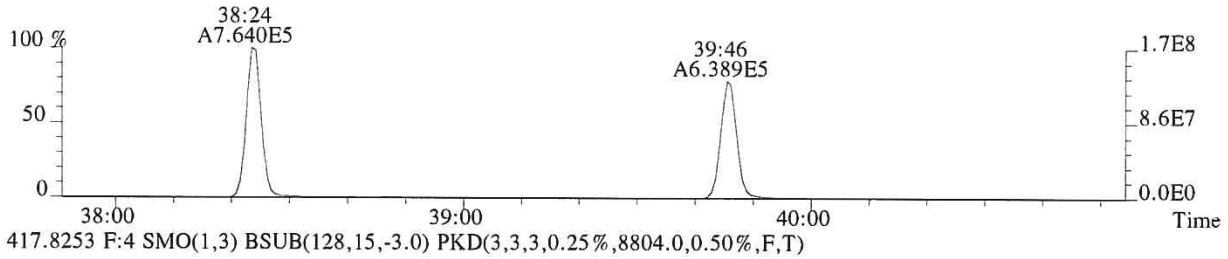


011820

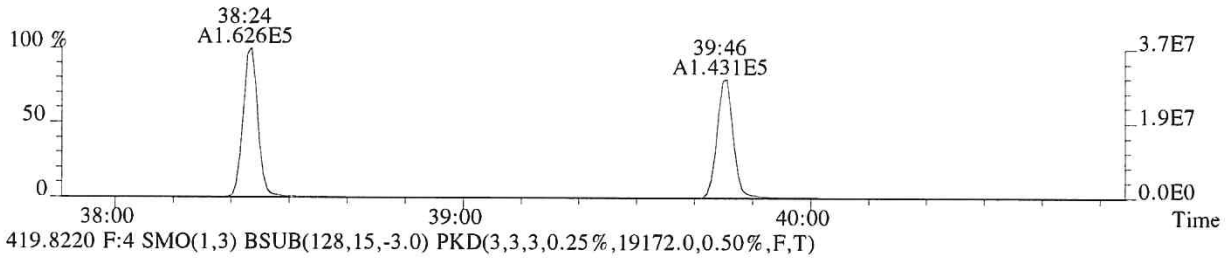
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26056.0,0.50%,F,T)



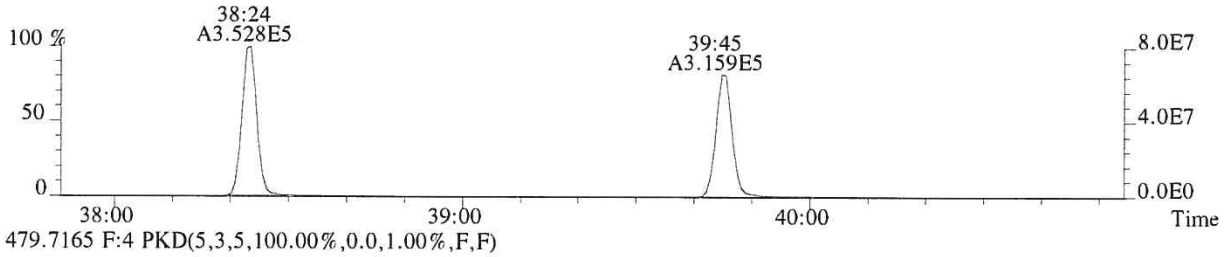
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18264.0,0.50%,F,T)



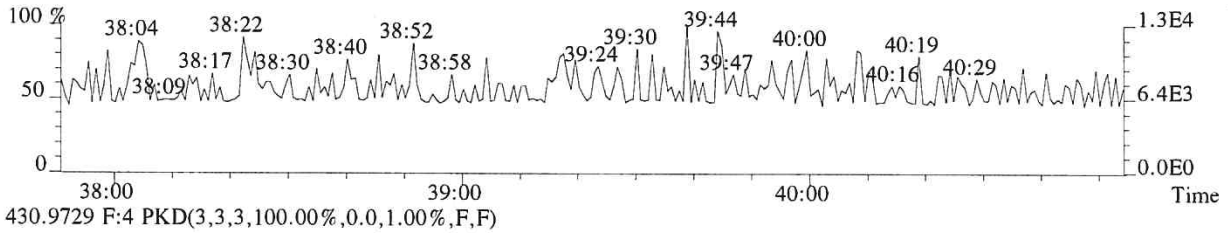
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8804.0,0.50%,F,T)



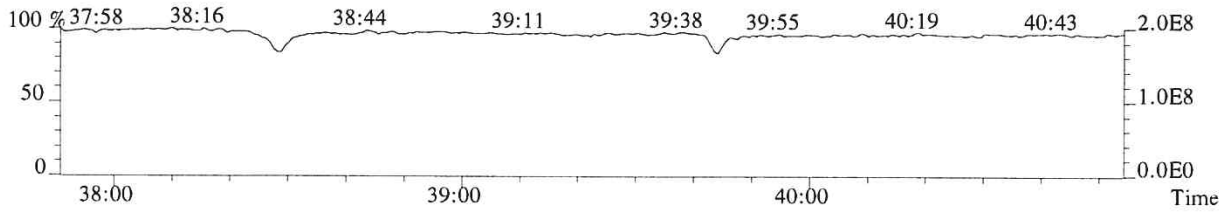
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19172.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

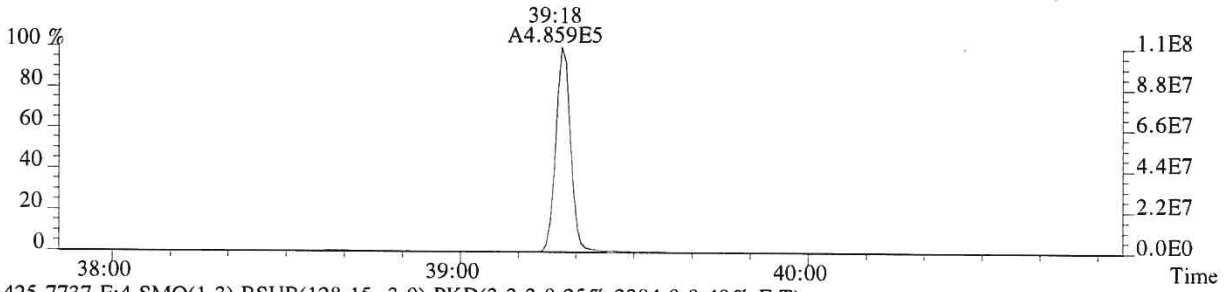


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

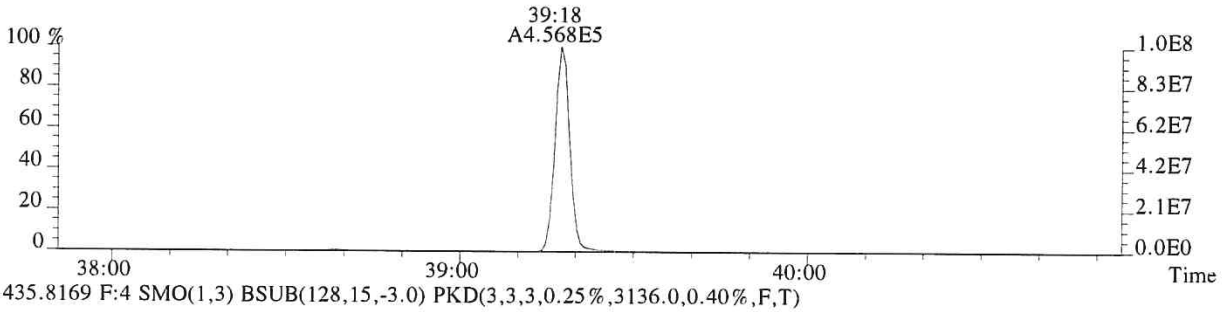


011821

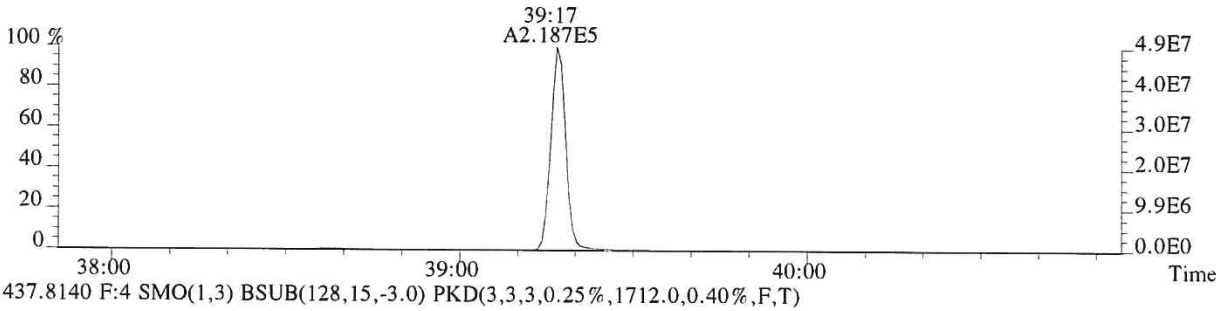
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



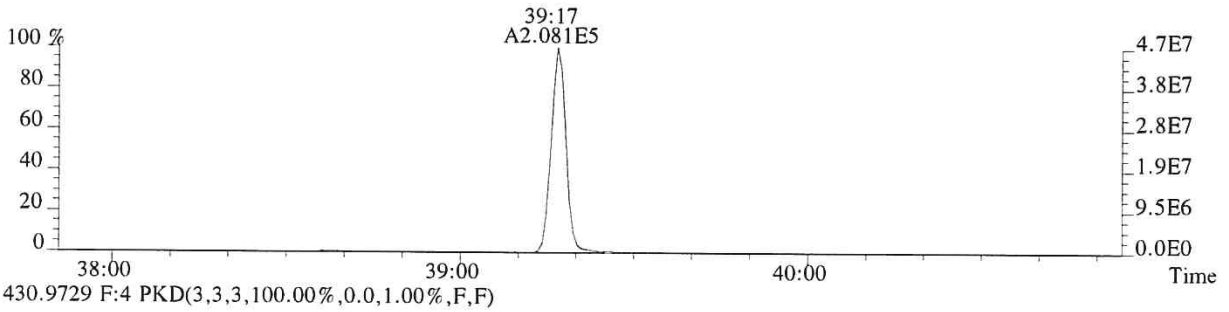
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



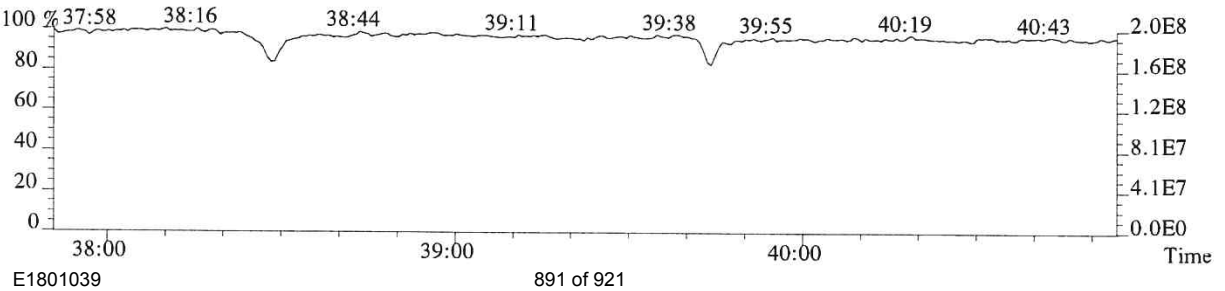
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)

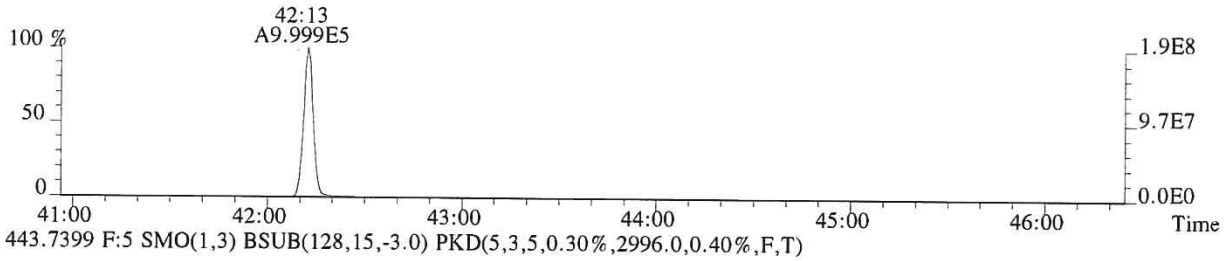


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

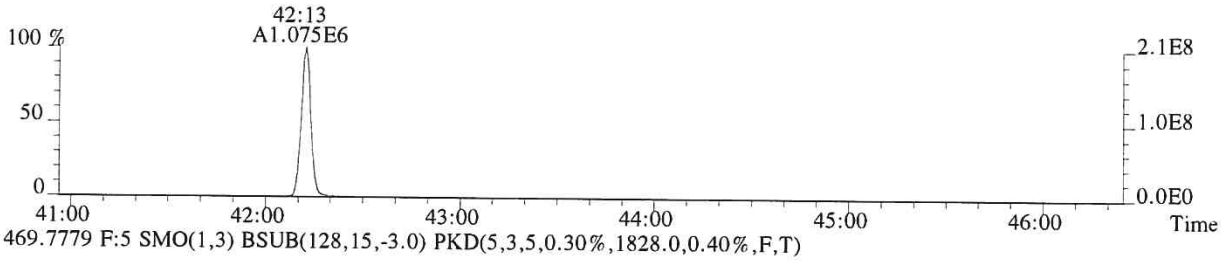


011822

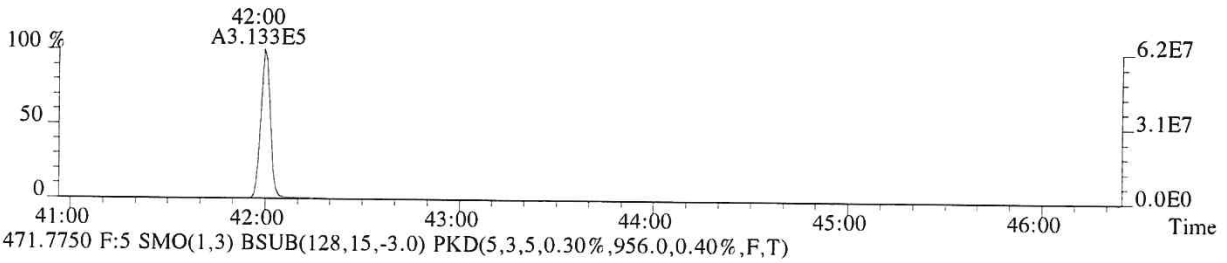
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



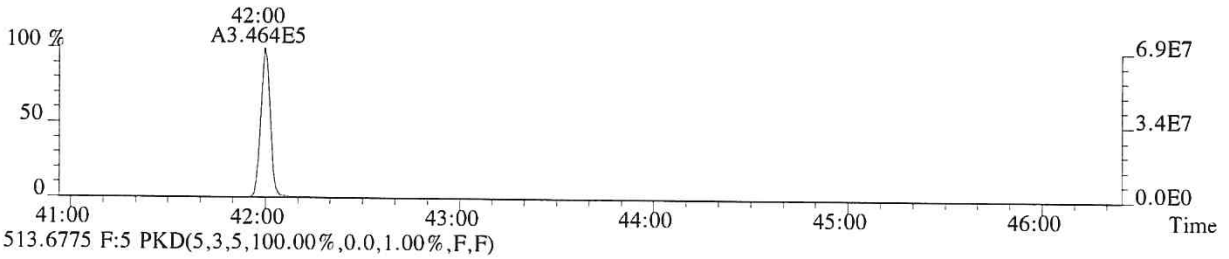
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



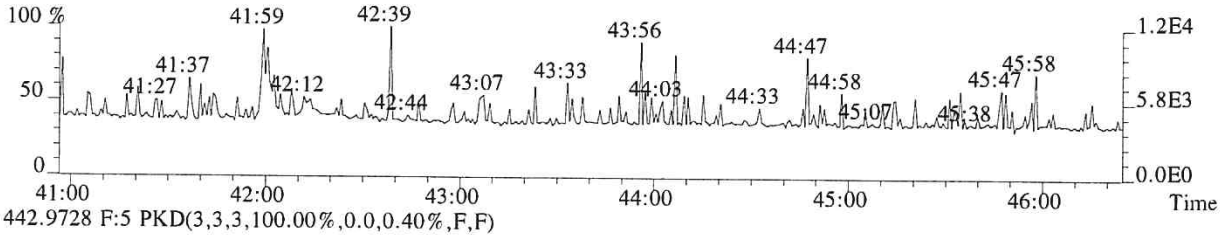
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



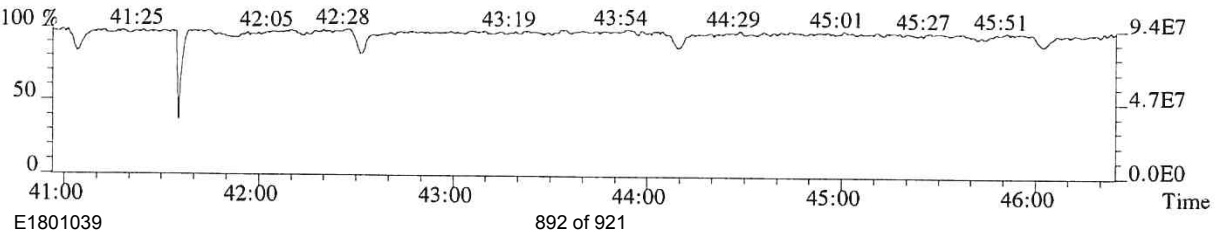
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

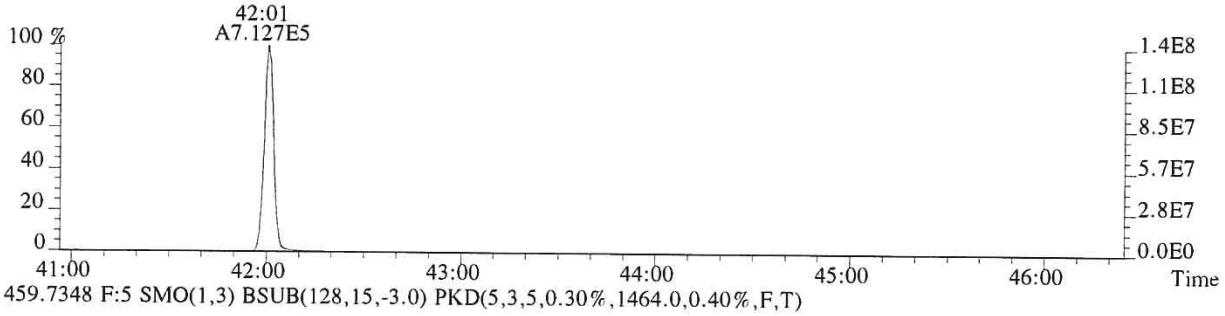


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

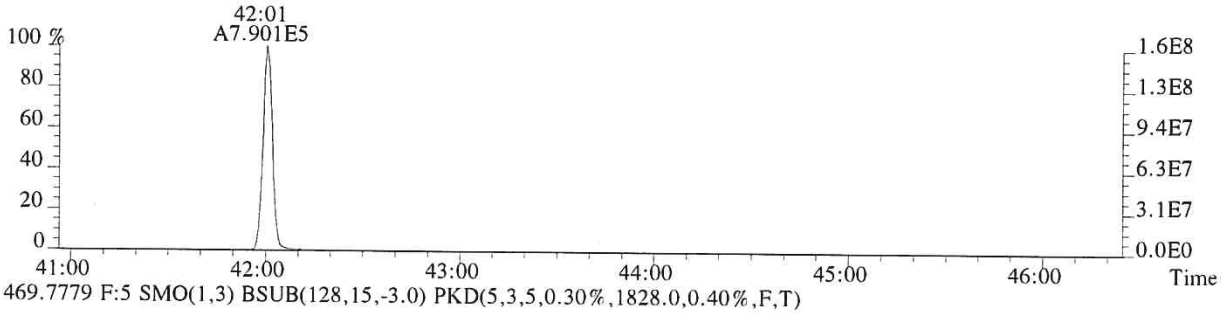


011823

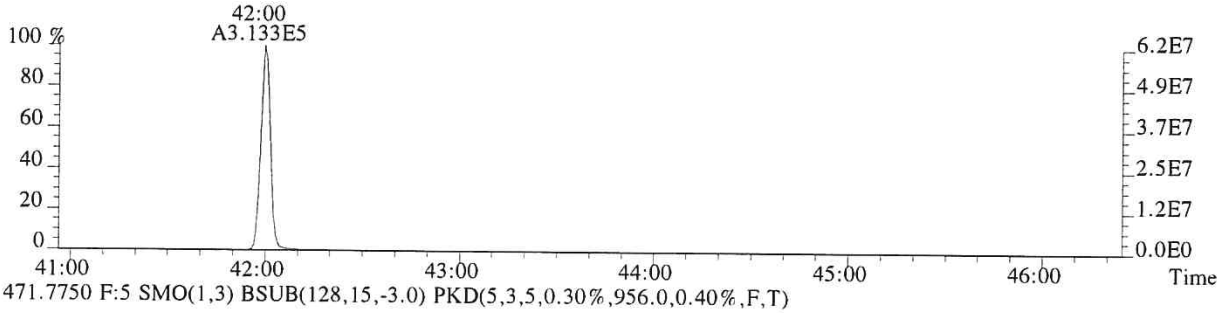
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



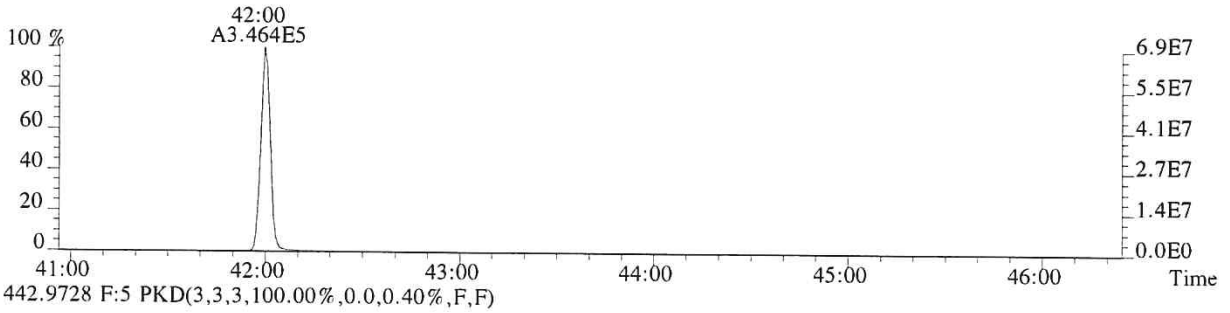
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



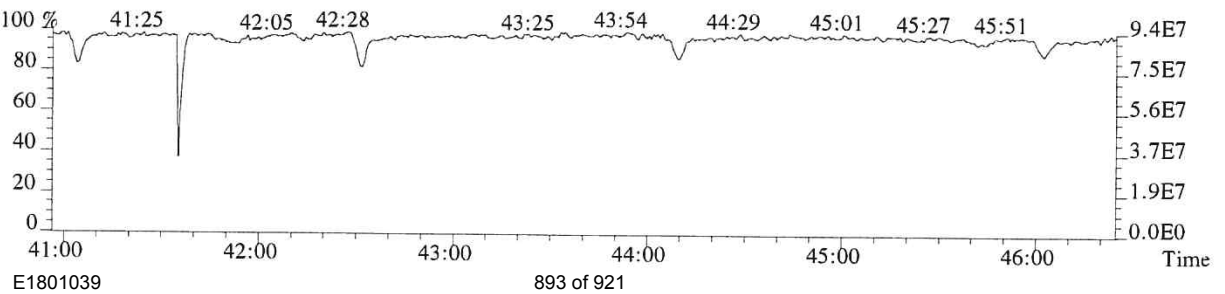
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011824

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.651e+05	5.844e+05	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	4.117e+06	2.575e+06	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	3.795e+06	2.391e+06	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.313e+06	2.571e+06	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.588e+06	2.836e+06	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	3.399e+06	2.690e+06	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	3.119e+06	2.463e+06	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.035e+06	2.883e+06	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	2.518e+06	2.388e+06	1.05	yes	no	1.463
10	Unk	OCDF	42:13	3.855e+06	4.175e+06	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	3.257e+05	4.207e+05	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	2.277e+06	1.455e+06	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.053e+06	1.616e+06	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	2.042e+06	1.617e+06	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	2.180e+06	1.732e+06	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.868e+06	1.765e+06	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.725e+06	3.028e+06	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.197e+05	2.785e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	3.496e+05	2.178e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	3.453e+05	2.138e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.447e+05	2.684e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.758e+05	3.274e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.668e+05	3.132e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.489e+05	2.799e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.241e+05	2.682e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	1.078e+05	2.346e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.558e+05	1.966e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	2.439e+05	1.553e+05	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.940e+05	1.538e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.938e+05	1.542e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.682e+05	1.601e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	2.375e+05	2.681e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.555e+05	1.925e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.160e+05	1.725e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	7.877e+05				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.41e+07	1.94e+03	4.3e+04	1.06e+08	4.26e+03	2.5e+04
2	1,2,3,7,8-PeCDF	8.11e+08	8.46e+03	9.6e+04	5.11e+08	9.13e+03	5.6e+04
3	2,3,4,7,8-PeCDF	7.87e+08	8.46e+03	9.3e+04	4.93e+08	9.13e+03	5.4e+04
4	1,2,3,4,7,8-HxCDF	7.76e+08	1.23e+04	6.3e+04	6.07e+08	9.42e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	8.10e+08	1.23e+04	6.6e+04	6.40e+08	9.42e+03	6.8e+04
6	2,3,4,6,7,8-HxCDF	7.65e+08	1.23e+04	6.2e+04	6.05e+08	9.42e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	6.96e+08	1.23e+04	5.6e+04	5.46e+08	9.42e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.09e+08	9.68e+04	7.3e+03	6.78e+08	6.15e+04	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	5.55e+08	9.68e+04	5.7e+03	5.29e+08	6.15e+04	8.6e+03
10	OCDF	7.55e+08	1.43e+03	5.3e+05	8.22e+08	2.80e+03	2.9e+05
11	2,3,7,8-TCDD	6.32e+07	4.52e+03	1.4e+04	8.21e+07	2.67e+03	3.1e+04
12	1,2,3,7,8-PeCDD	4.67e+08	3.26e+03	1.4e+05	2.98e+08	1.54e+03	1.9e+05
13	1,2,3,4,7,8-HxCDD	4.65e+08	2.34e+03	2.0e+05	3.68e+08	1.99e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	4.59e+08	2.34e+03	2.0e+05	3.67e+08	1.99e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	4.96e+08	2.34e+03	2.1e+05	3.98e+08	1.99e+03	2.0e+05
16	1,2,3,4,6,7,8-HpCDD	4.28e+08	1.10e+04	3.9e+04	4.06e+08	8.82e+03	4.6e+04
17	OCDD	5.24e+08	9.60e+02	5.5e+05	5.87e+08	1.87e+03	3.1e+05
18	13C-2,3,7,8-TCDF	3.91e+07	1.53e+04	2.6e+03	4.94e+07	1.22e+04	4.0e+03
19	13C-1,2,3,7,8-PeCDF	6.89e+07	2.06e+03	3.3e+04	4.27e+07	4.55e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	6.95e+07	2.06e+03	3.4e+04	4.34e+07	4.55e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.33e+07	2.62e+03	1.3e+04	6.22e+07	4.07e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	3.91e+07	2.62e+03	1.5e+04	7.31e+07	4.07e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.74e+07	2.62e+03	1.4e+04	6.98e+07	4.07e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.36e+07	2.62e+03	1.3e+04	6.29e+07	4.07e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.82e+07	6.76e+03	4.2e+03	6.20e+07	1.14e+04	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.34e+07	6.76e+03	3.5e+03	5.11e+07	1.14e+04	4.5e+03
27	13C-2,3,7,8-TCDD	3.04e+07	1.91e+04	1.6e+03	3.86e+07	8.85e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	5.04e+07	1.98e+03	2.5e+04	3.21e+07	2.85e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	4.39e+07	4.70e+03	9.3e+03	3.50e+07	2.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	4.37e+07	4.70e+03	9.3e+03	3.49e+07	2.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.82e+07	2.97e+03	1.3e+04	3.65e+07	2.54e+03	1.4e+04
32	13C-OCDD	4.50e+07	3.46e+03	1.3e+04	5.10e+07	1.82e+03	2.8e+04
33	13C-1,2,3,4-TCDD	2.93e+07	1.91e+04	1.5e+03	3.60e+07	8.85e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.90e+07	4.70e+03	1.0e+04	3.94e+07	2.24e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.54e+08	4.95e+03	3.1e+04			

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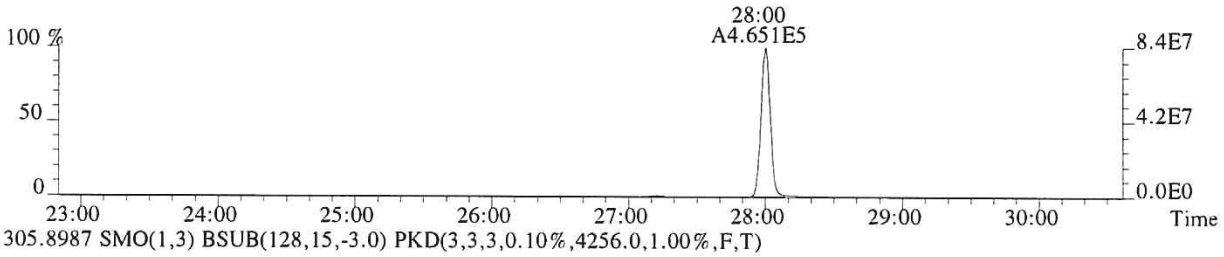
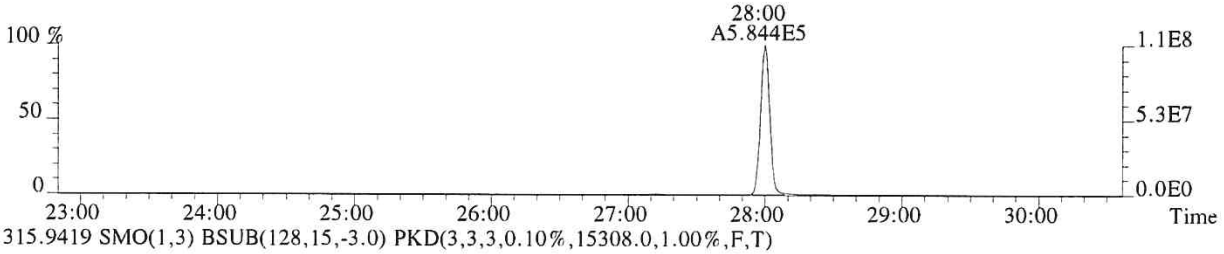
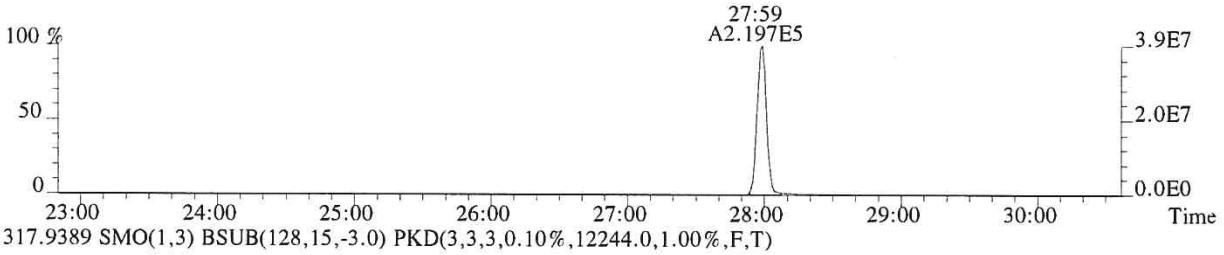
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



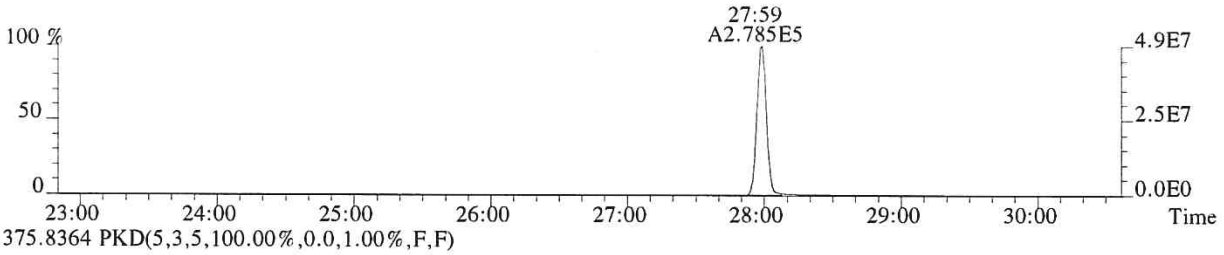
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



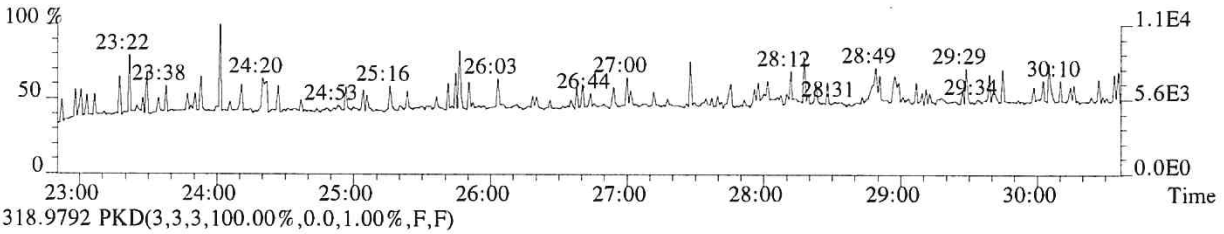
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15308.0,1.00%,F,T)



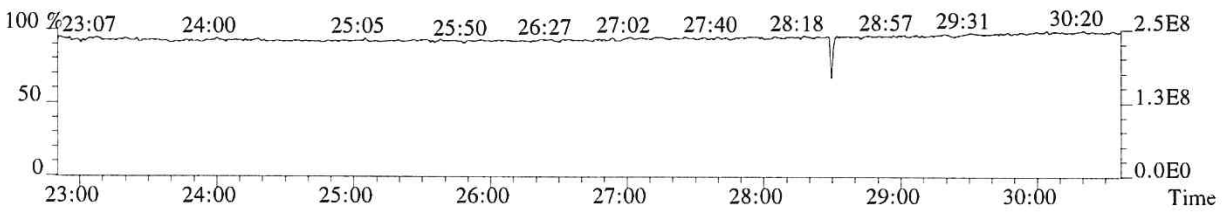
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

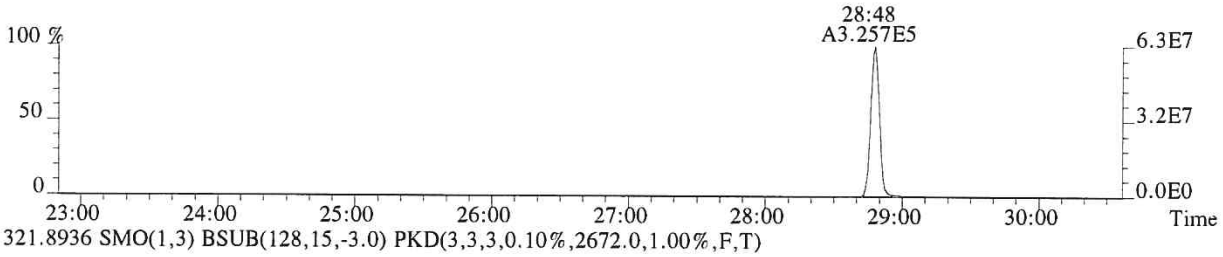


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

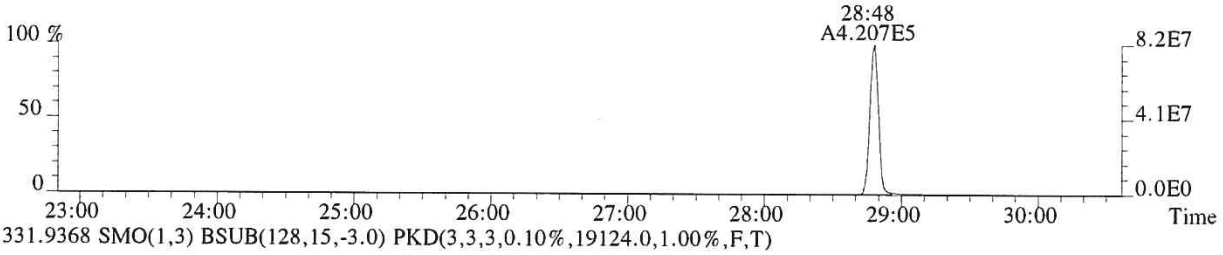


011827

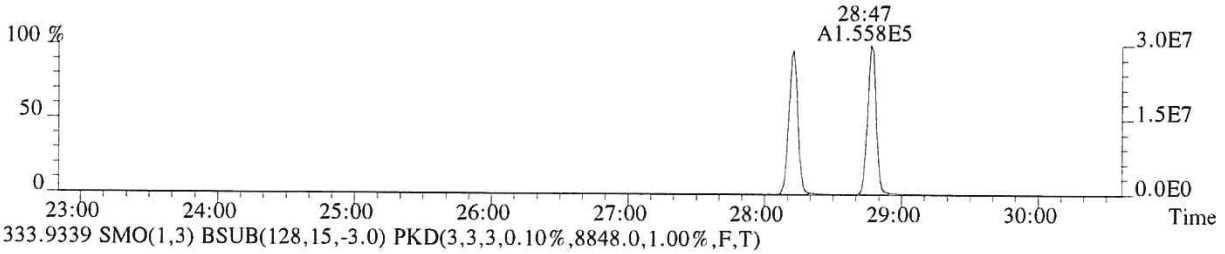
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



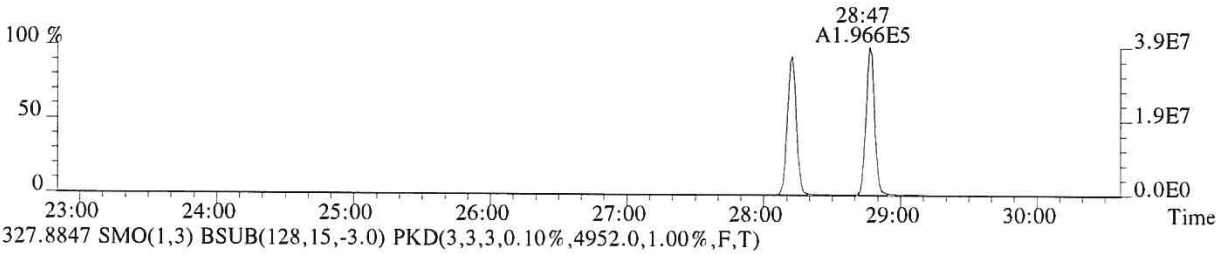
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



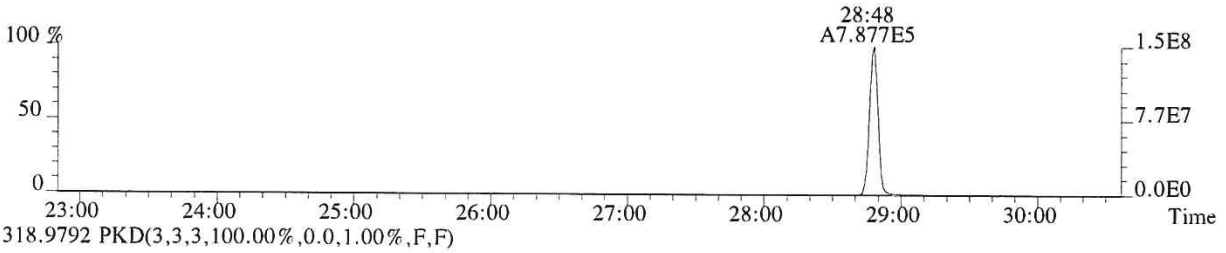
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19124.0,1.00%,F,T)



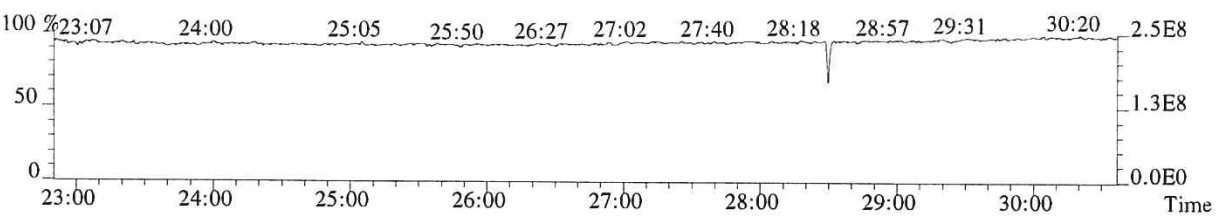
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8848.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)

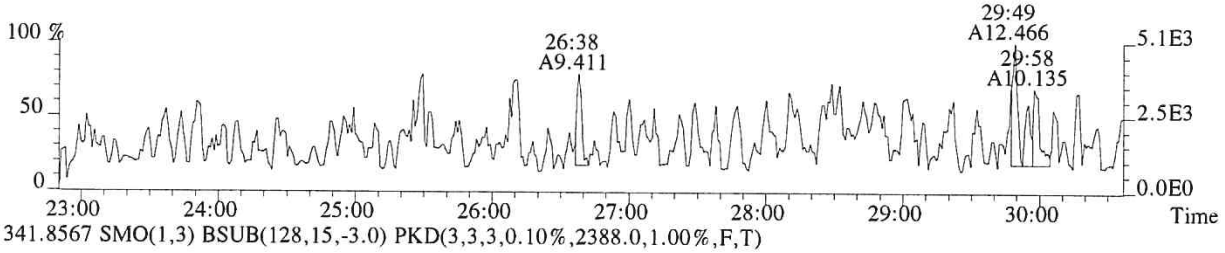


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

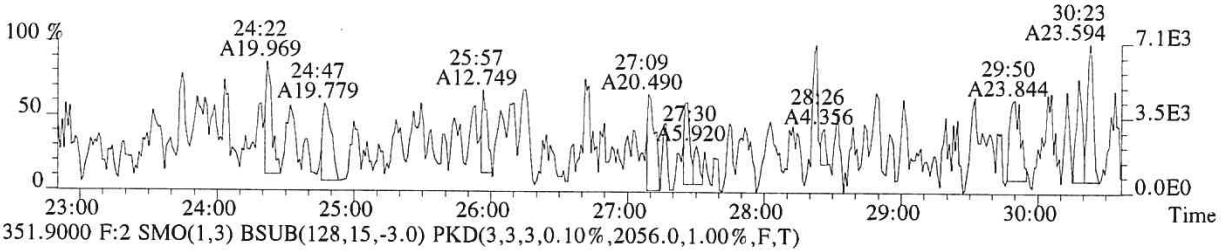


011828

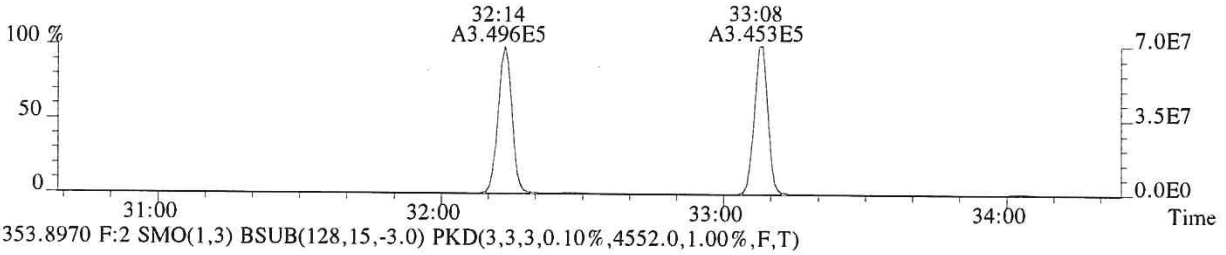
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



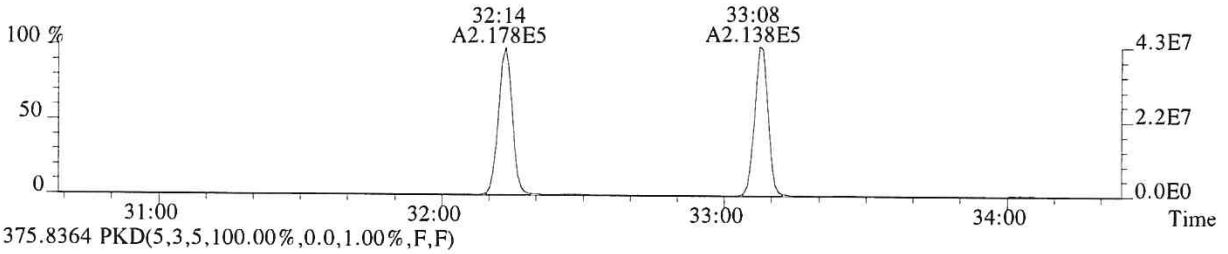
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



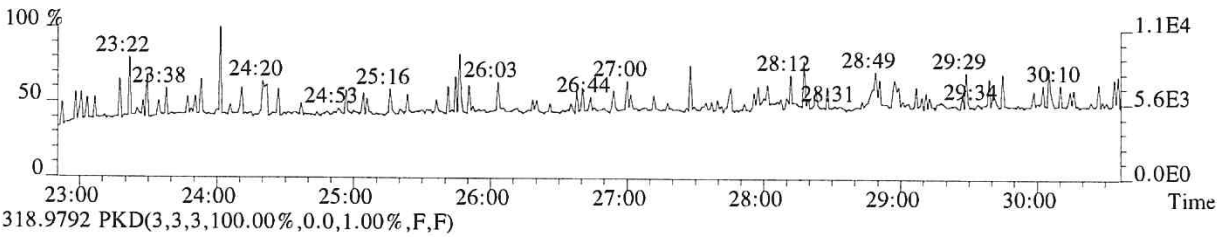
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



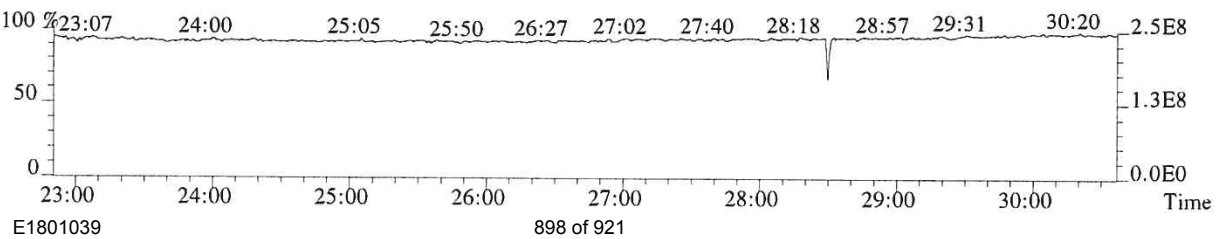
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



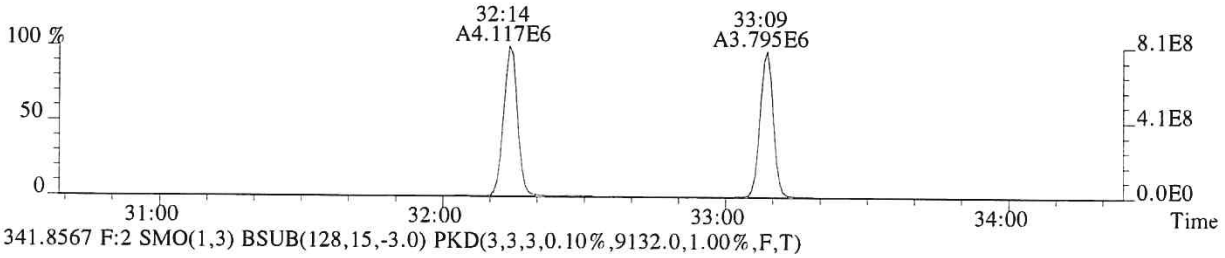
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



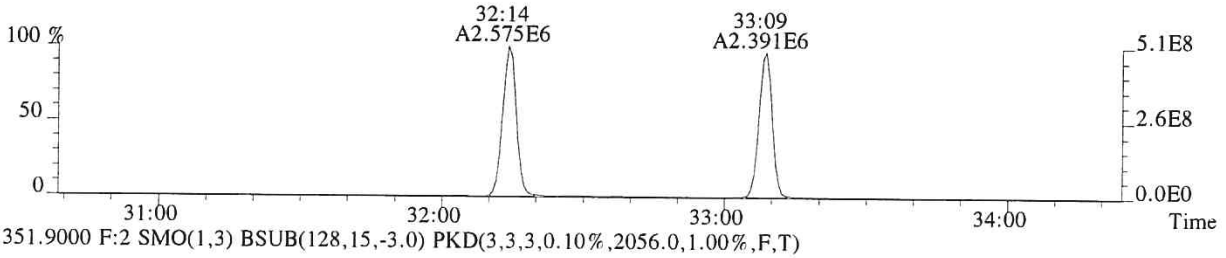
011829

File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

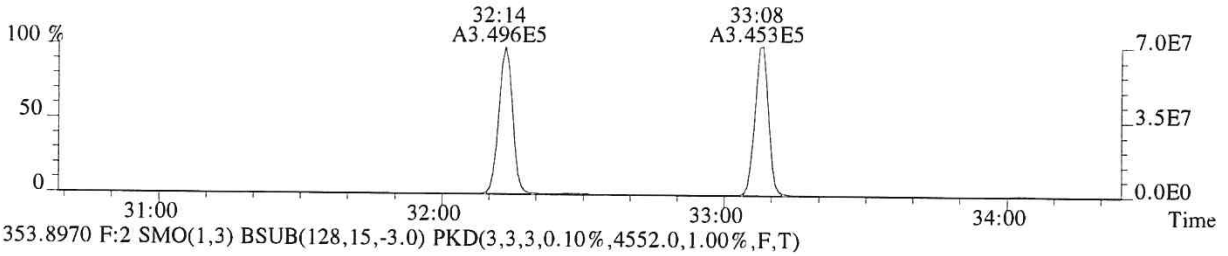
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8456.0,1.00%,F,T)



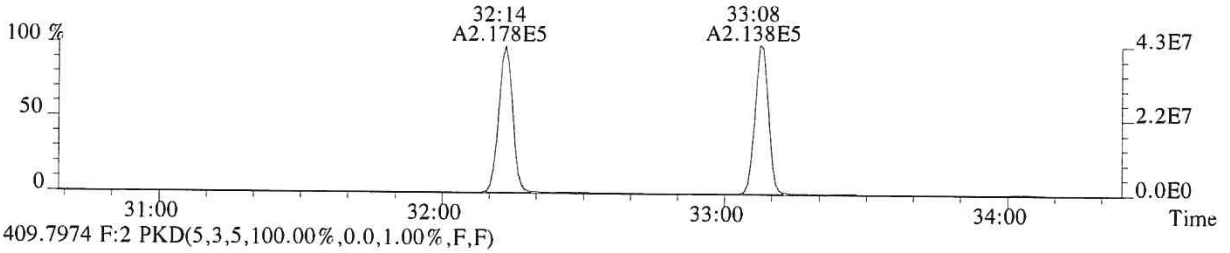
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9132.0,1.00%,F,T)



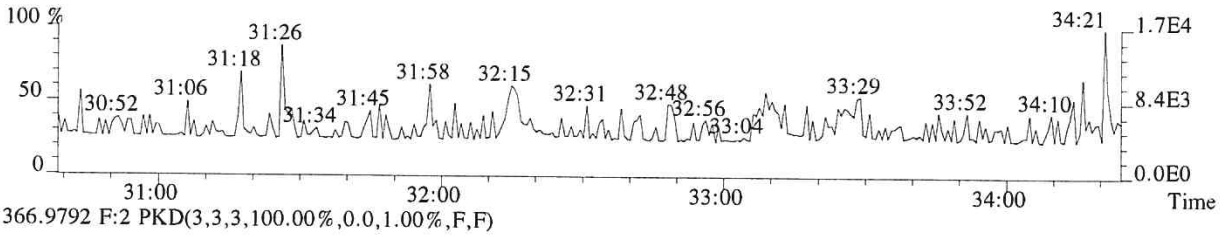
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



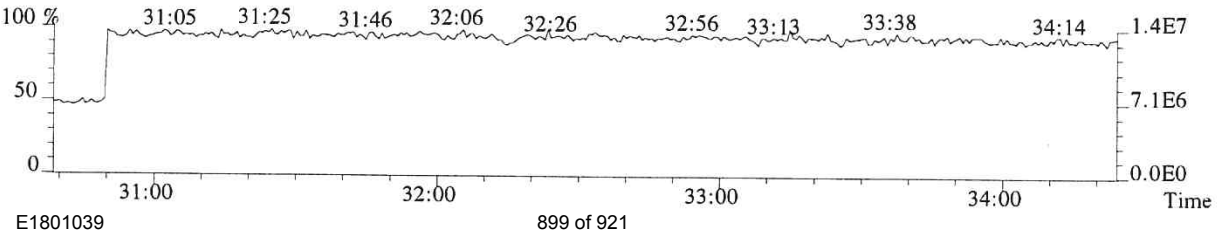
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



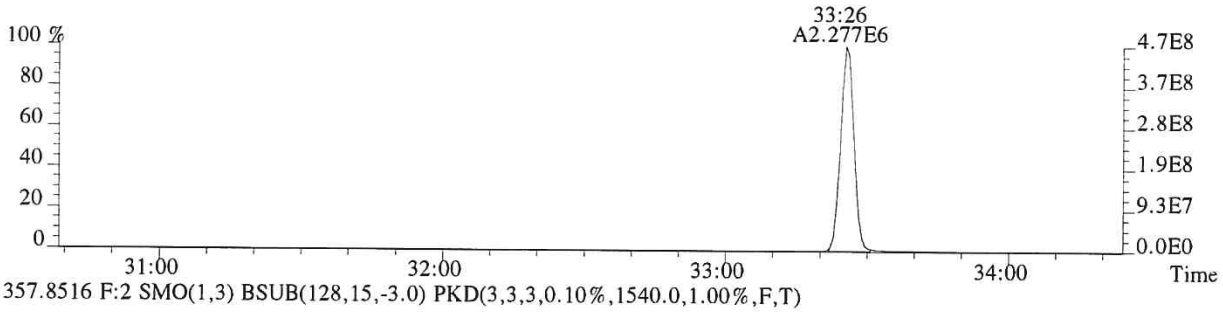
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



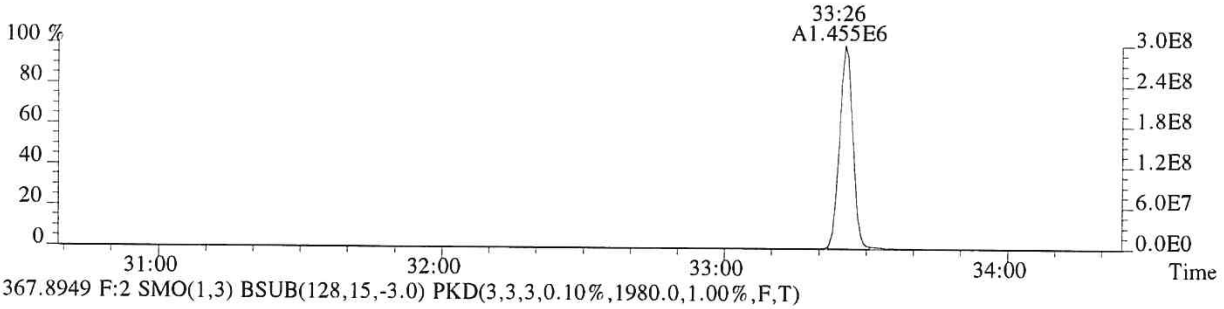
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



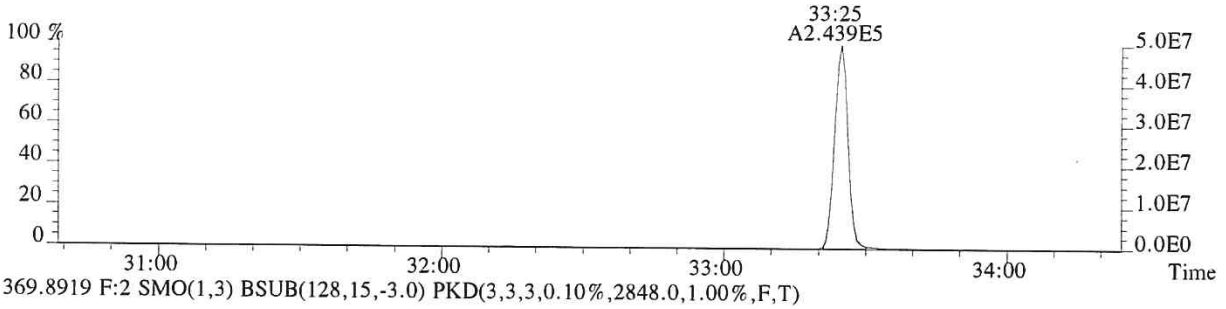
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



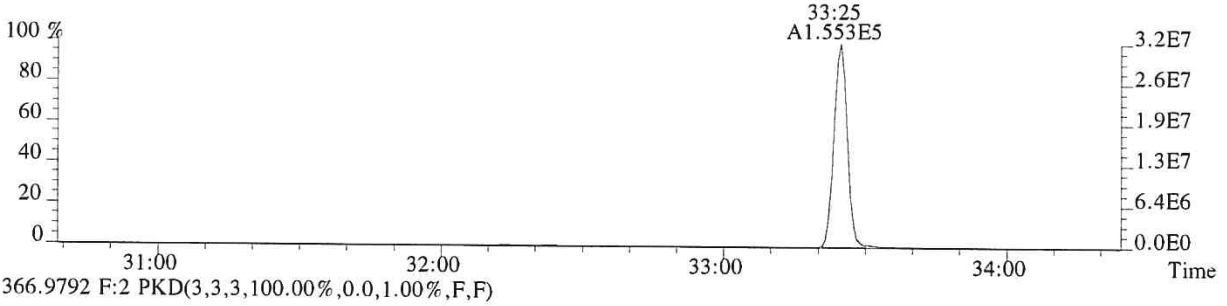
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



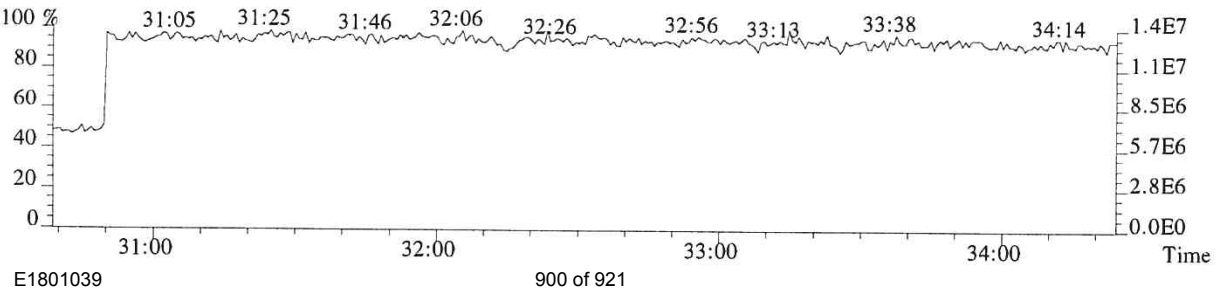
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



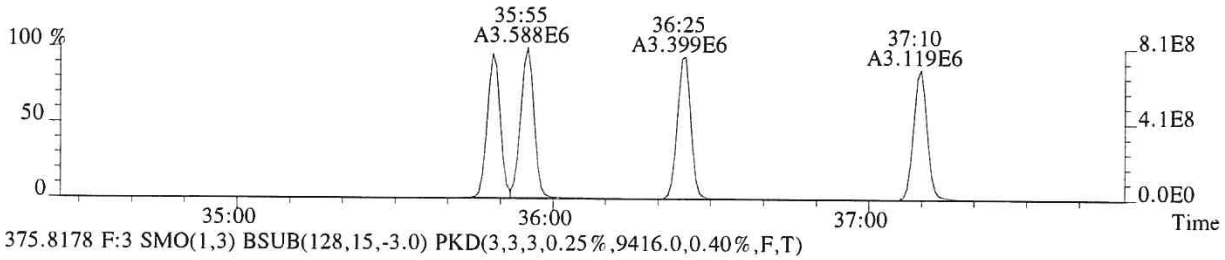
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)



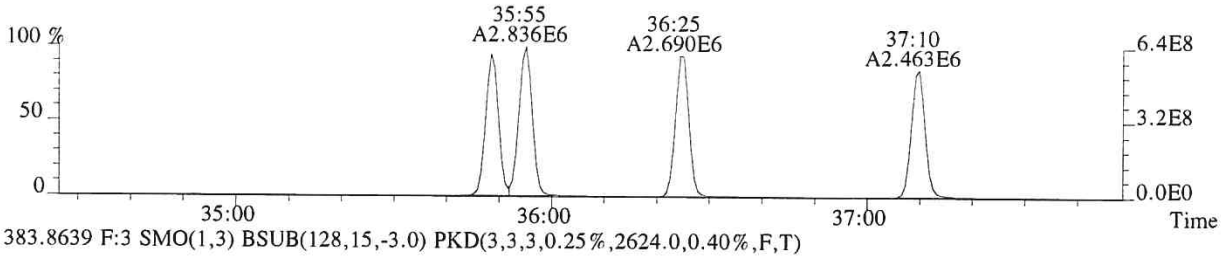
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



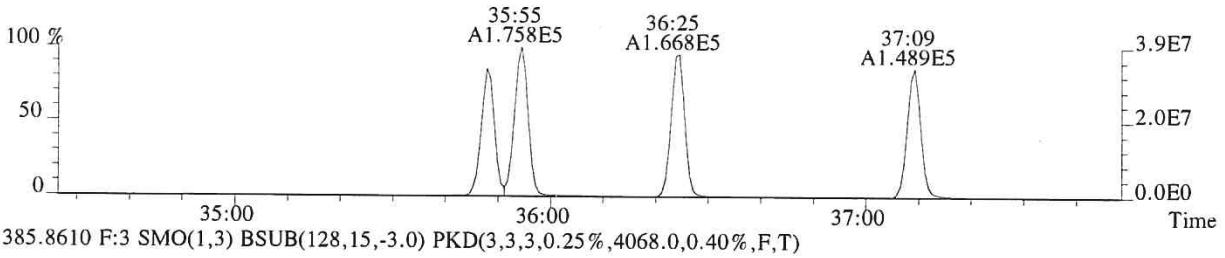
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12332.0,0.40%,F,T)



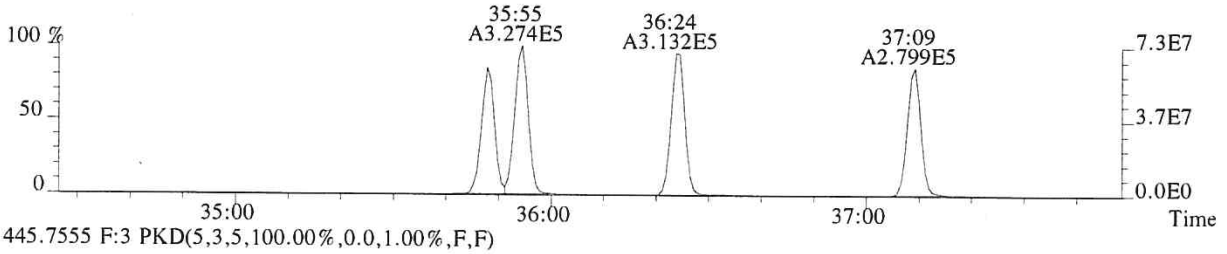
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9416.0,0.40%,F,T)



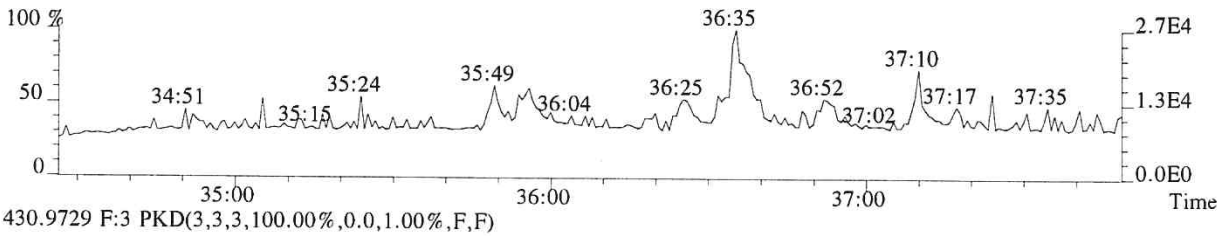
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.40%,F,T)



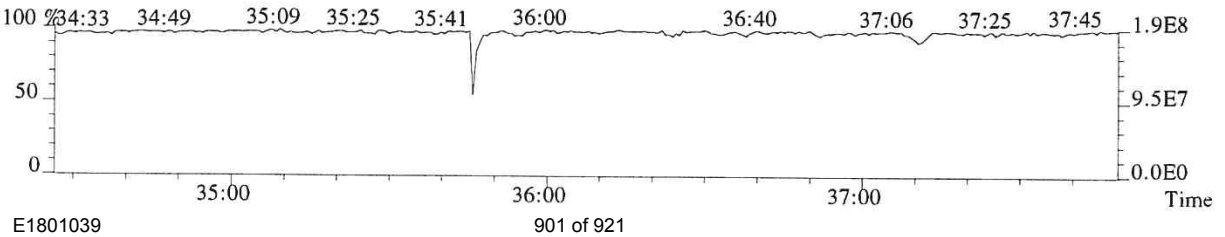
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4068.0,0.40%,F,T)



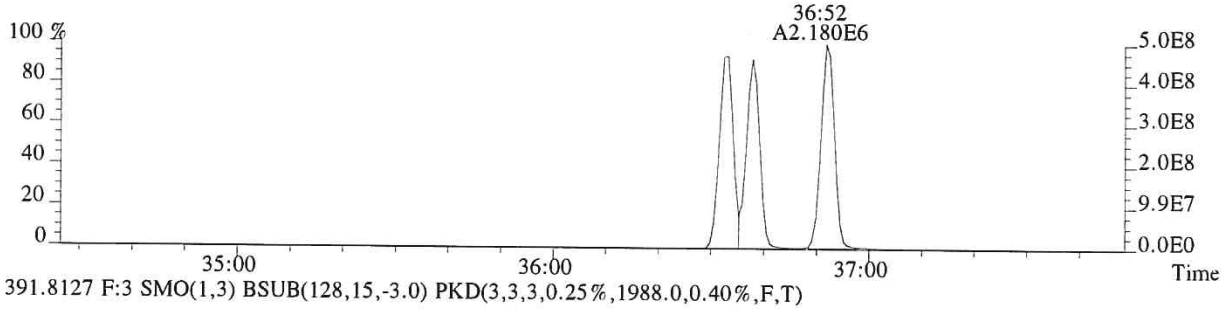
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



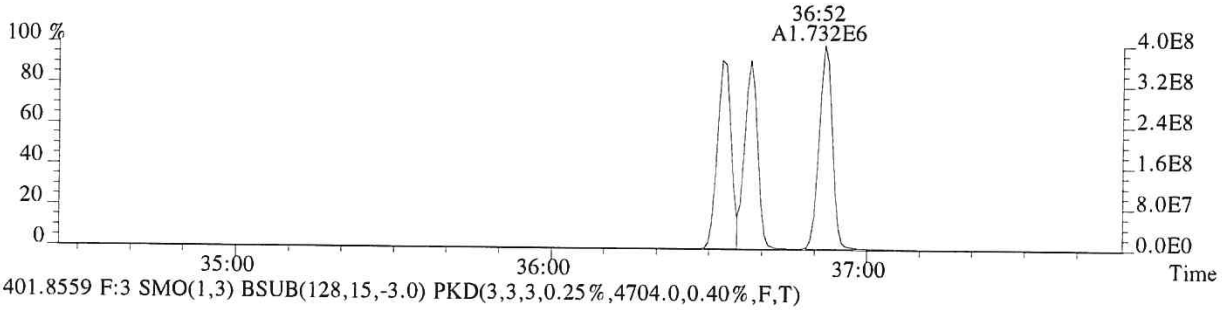
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



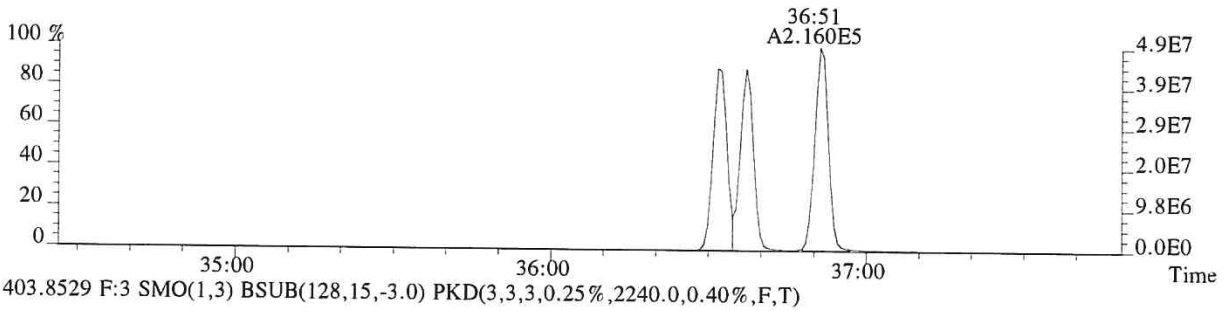
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



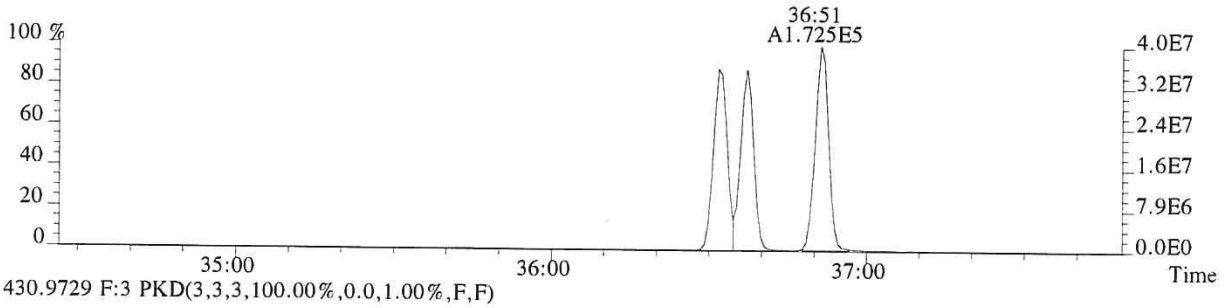
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



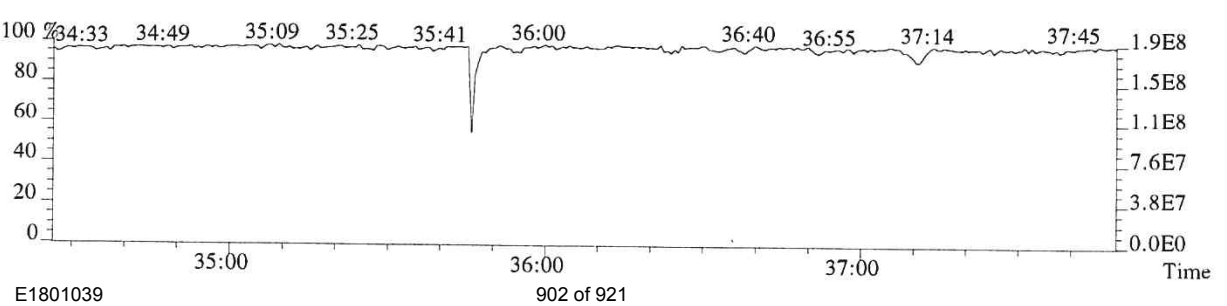
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



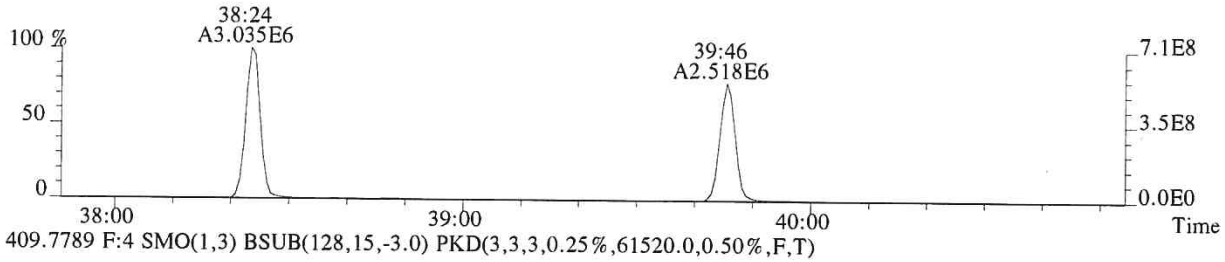
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)



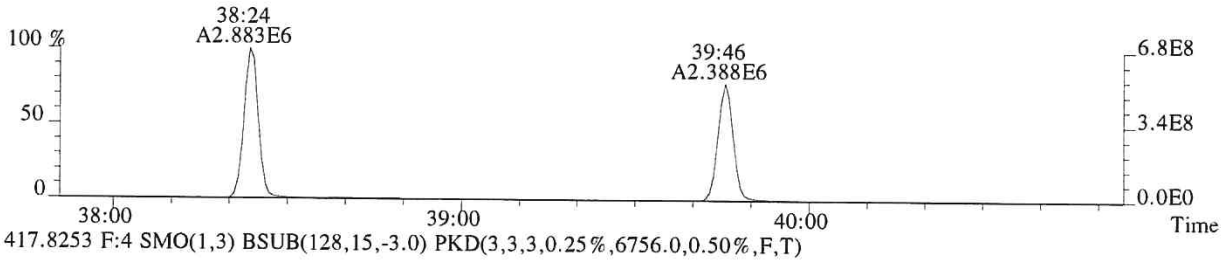
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



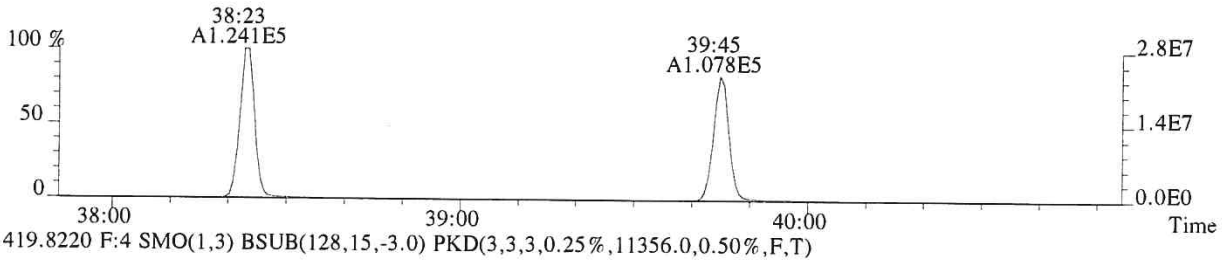
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96804.0,0.50%,F,T)



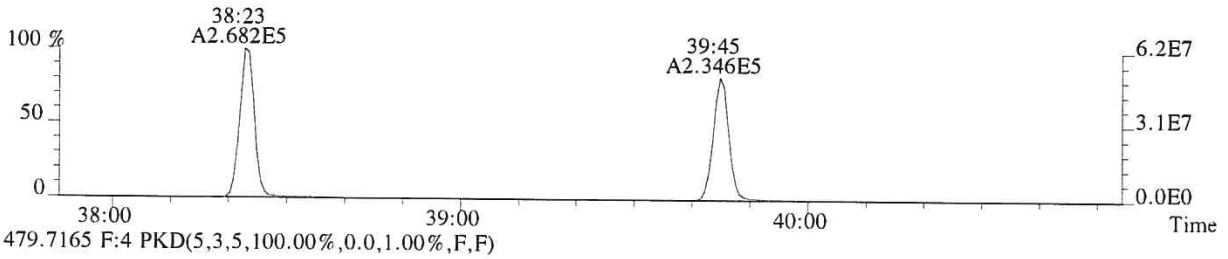
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61520.0,0.50%,F,T)



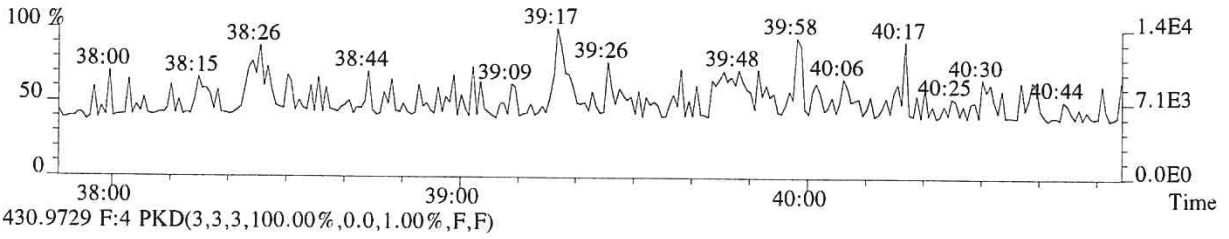
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)



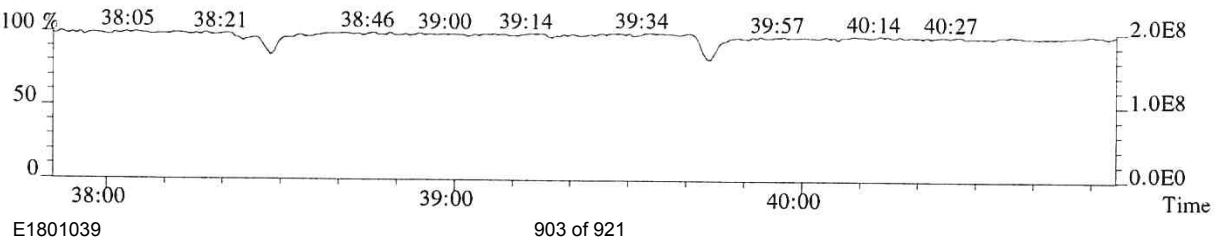
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11356.0,0.50%,F,T)



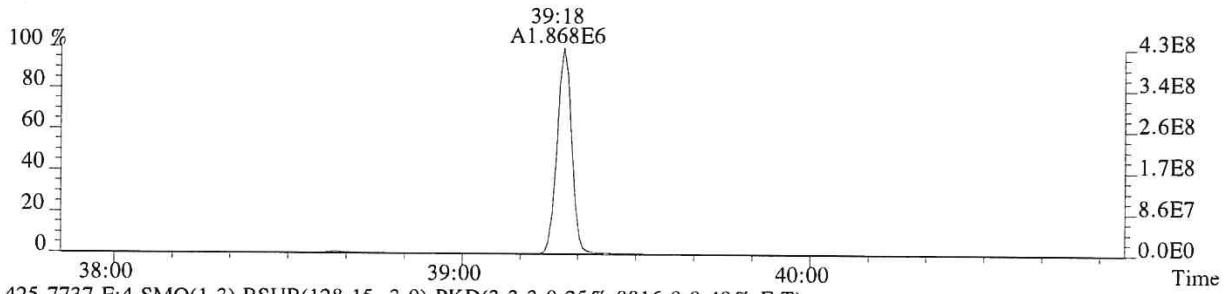
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



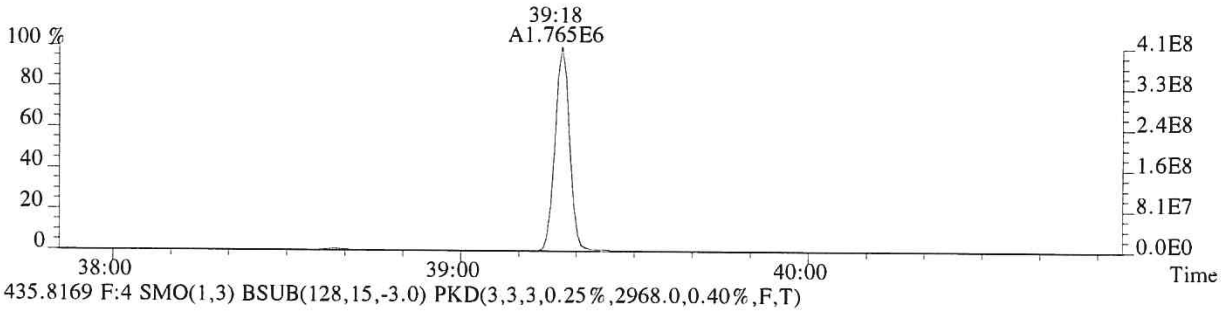
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



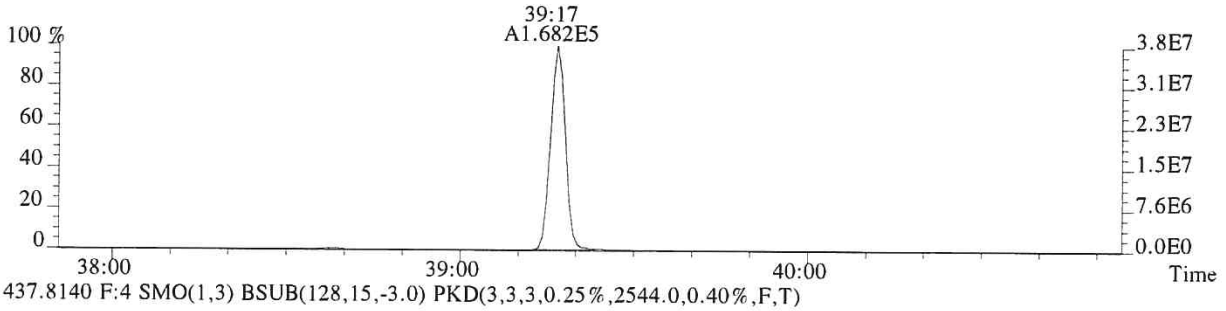
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11044.0,0.40%,F,T)



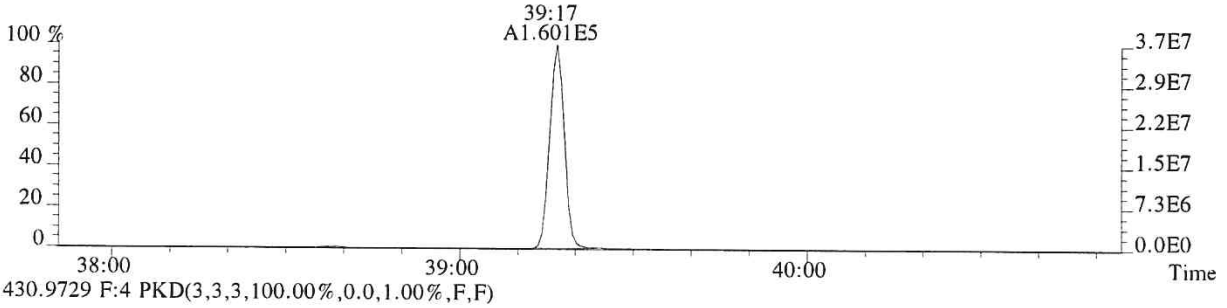
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8816.0,0.40%,F,T)



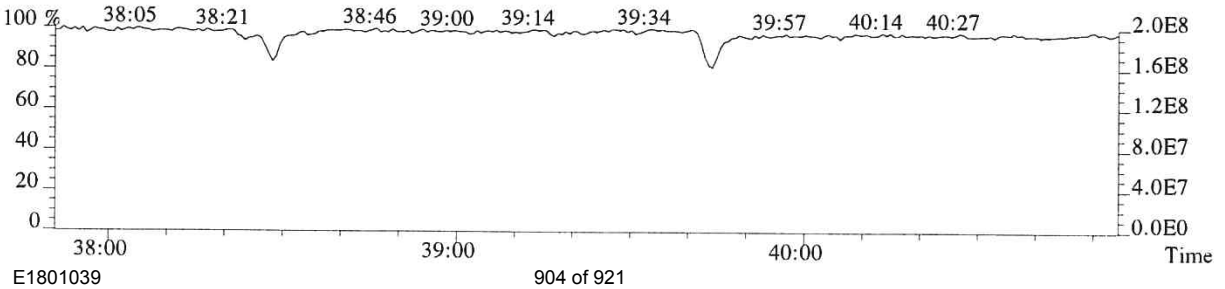
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2968.0,0.40%,F,T)



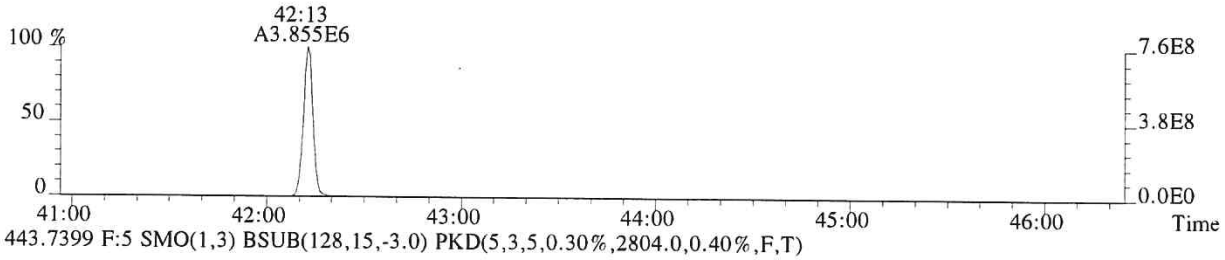
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2544.0,0.40%,F,T)



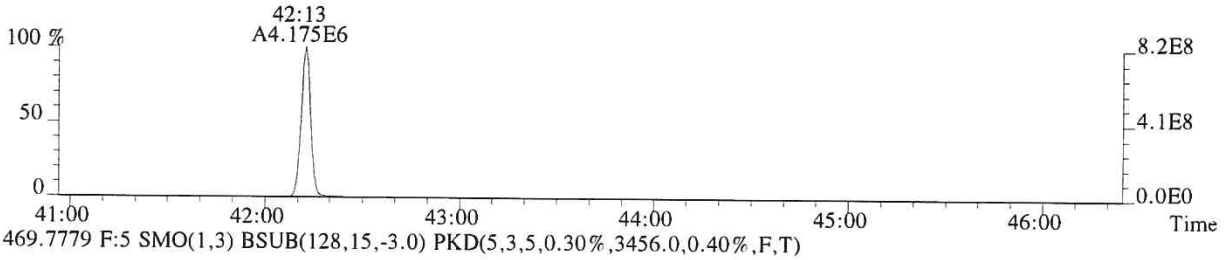
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



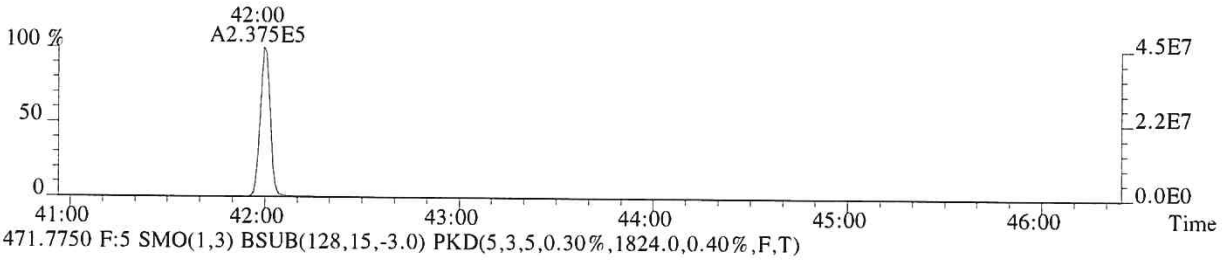
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



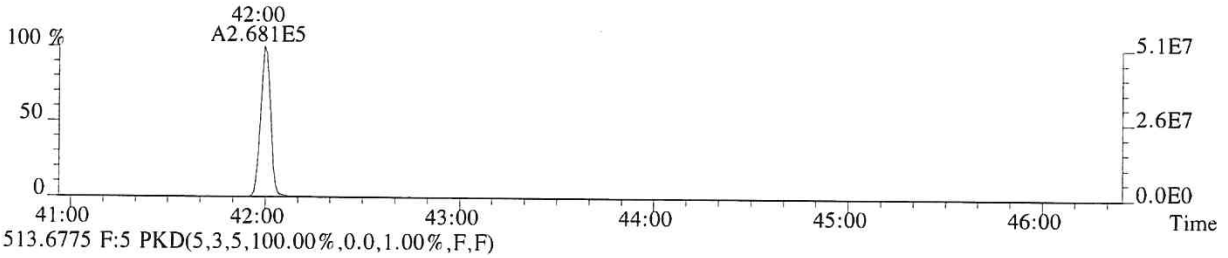
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2804.0,0.40%,F,T)



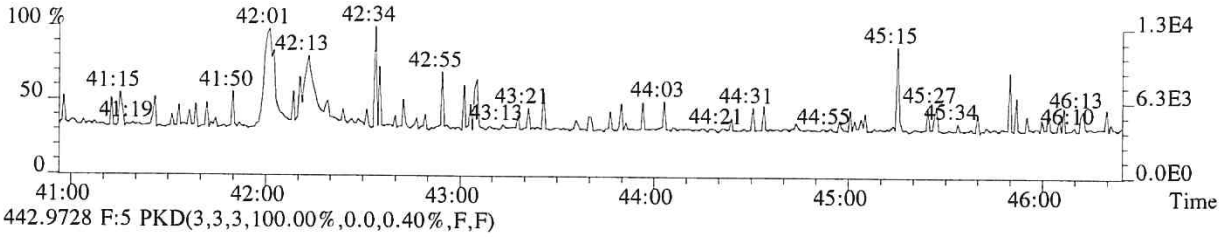
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



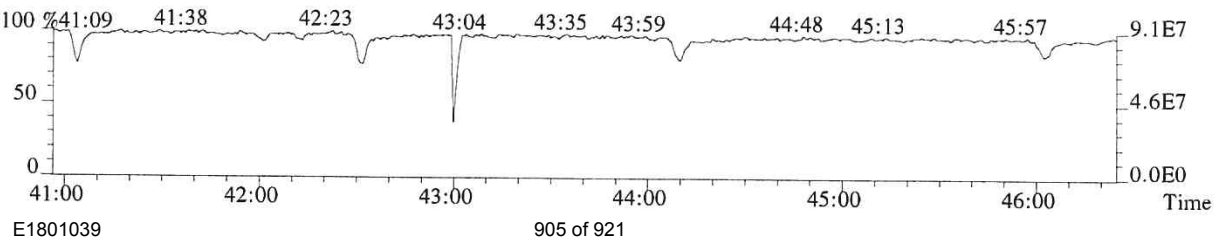
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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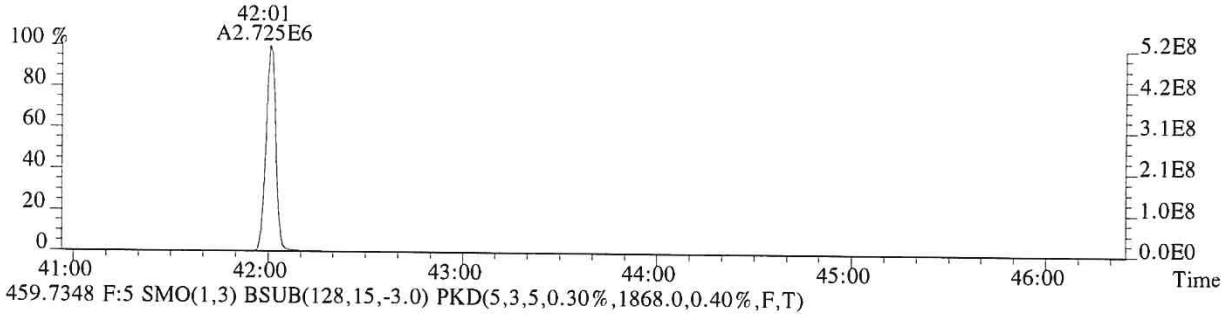
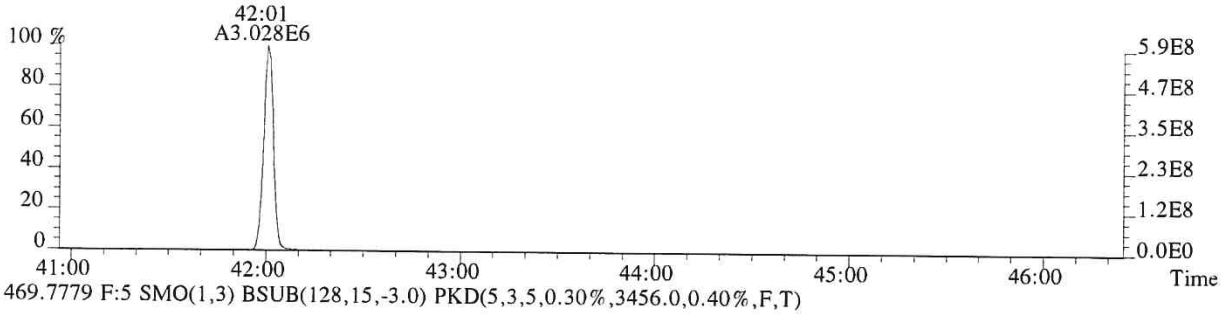
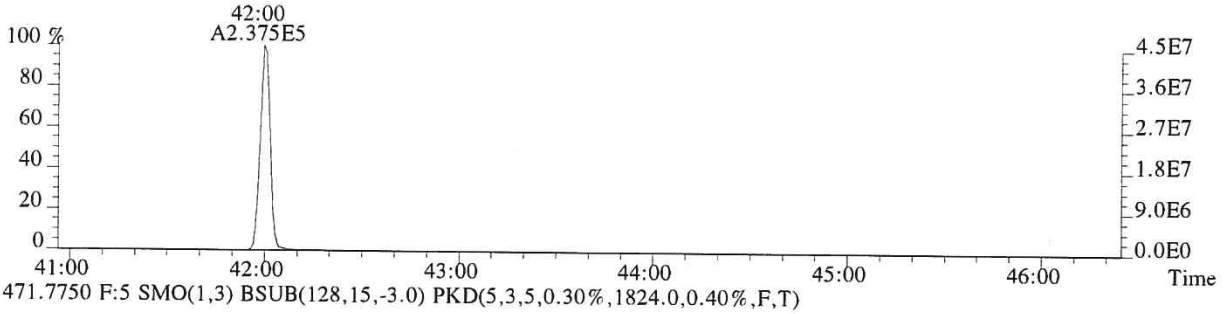
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



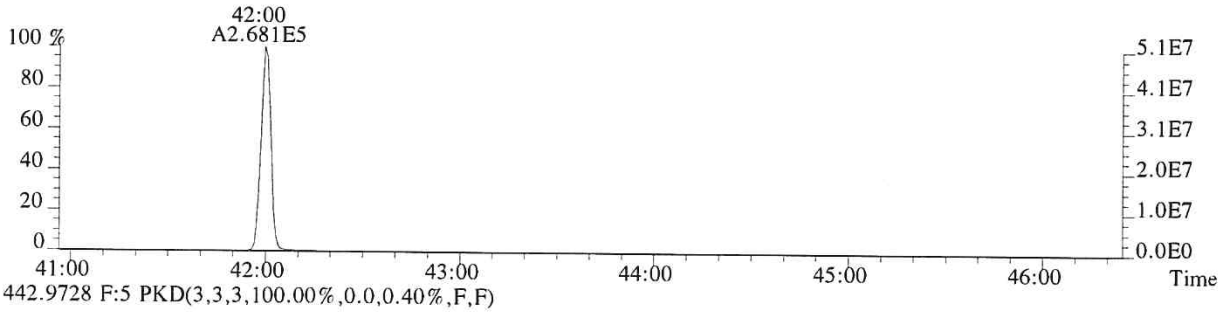
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1868.0,0.40%,F,T)



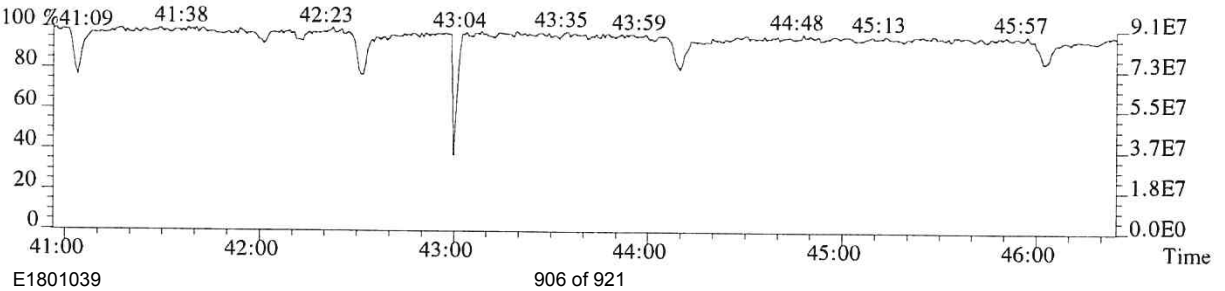
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-2.1
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.7	8.4 - 12.0	-2.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.5
OCDF	M+2/M+4	0.93	0.76-1.02	100	63 - 159	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

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1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	99	82 - 121	-0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	97	62 - 160	-2.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	224	96 - 415	11.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	98	76 - 130	-2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	96	77 - 130	-3.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	102	76 - 131	2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	109	77 - 129	9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.742e+04	2.239e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.470e+05	9.342e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	1.362e+05	8.490e+04	1.60	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.308e+05	1.044e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.371e+05	1.074e+05	1.28	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.285e+05	1.018e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.211e+05	9.459e+04	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.180e+05	1.126e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.018e+05	9.931e+04	1.02	yes	no	1.463
10	Unk	OCDF	42:12	1.605e+05	1.721e+05	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.193e+04	1.490e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	8.164e+04	5.215e+04	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	7.752e+04	6.082e+04	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	7.678e+04	6.066e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	8.213e+04	6.494e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	7.382e+04	6.944e+04	1.06	yes	no	1.112
17	Unk	OCDD	42:01	1.146e+05	1.261e+05	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.682e+05	2.104e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.590e+05	1.613e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.497e+05	1.565e+05	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.202e+05	2.212e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.342e+05	2.529e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.258e+05	2.350e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.132e+05	2.142e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	9.579e+04	2.089e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	8.964e+04	1.952e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.166e+05	1.457e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.797e+05	1.149e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.476e+05	1.165e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.453e+05	1.145e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.336e+05	1.263e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.007e+05	2.242e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.202e+05	1.487e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.598e+05	1.284e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.893e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.16e+03	1.4e+03	3.95e+06	5.67e+03	7.0e+02
2	1,2,3,7,8-PeCDF	2.75e+07	1.50e+03	1.8e+04	1.74e+07	8.24e+03	2.1e+03
3	2,3,4,7,8-PeCDF	2.67e+07	1.50e+03	1.8e+04	1.67e+07	8.24e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.29e+07	2.48e+03	9.3e+03
5	1,2,3,6,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.30e+07	2.48e+03	9.3e+03
6	2,3,4,6,7,8-HxCDF	2.86e+07	2.35e+03	1.2e+04	2.28e+07	2.48e+03	9.2e+03
7	1,2,3,7,8,9-HxCDF	2.47e+07	2.35e+03	1.1e+04	1.95e+07	2.48e+03	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.70e+07	4.46e+03	6.0e+03	2.58e+07	1.29e+04	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	4.46e+03	4.8e+03	2.03e+07	1.29e+04	1.6e+03
10	OCDF	3.01e+07	1.50e+03	2.0e+04	3.28e+07	3.09e+03	1.1e+04
11	2,3,7,8-TCDD	2.20e+06	4.04e+03	5.4e+02	2.73e+06	2.27e+03	1.2e+03
12	1,2,3,7,8-PeCDD	1.64e+07	3.14e+03	5.2e+03	1.06e+07	2.92e+02	3.6e+04
13	1,2,3,4,7,8-HxCDD	1.79e+07	1.59e+03	1.1e+04	1.41e+07	2.43e+03	5.8e+03
14	1,2,3,6,7,8-HxCDD	1.70e+07	1.59e+03	1.1e+04	1.34e+07	2.43e+03	5.5e+03
15	1,2,3,7,8,9-HxCDD	1.85e+07	1.59e+03	1.2e+04	1.48e+07	2.43e+03	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+07	2.28e+03	7.0e+03	1.49e+07	8.84e+02	1.7e+04
17	OCDD	2.16e+07	1.17e+03	1.8e+04	2.38e+07	1.31e+03	1.8e+04
18	13C-2,3,7,8-TCDF	2.88e+07	1.57e+04	1.8e+03	3.60e+07	9.18e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	4.01e+03	1.2e+04	3.00e+07	3.41e+03	8.8e+03
20	13C-2,3,4,7,8-PeCDF	4.95e+07	4.01e+03	1.2e+04	3.12e+07	3.41e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+07	2.99e+03	8.9e+03	4.93e+07	3.83e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.83e+07	2.99e+03	9.5e+03	5.32e+07	3.83e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.80e+07	2.99e+03	9.4e+03	5.25e+07	3.83e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.35e+07	2.99e+03	7.9e+03	4.43e+07	3.83e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+07	7.32e+03	3.0e+03	4.77e+07	1.38e+04	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.88e+07	7.32e+03	2.6e+03	4.06e+07	1.38e+04	2.9e+03
27	13C-2,3,7,8-TCDD	2.17e+07	2.56e+04	8.4e+02	2.71e+07	6.97e+03	3.9e+03
28	13C-1,2,3,7,8-PeCDD	3.57e+07	3.26e+03	1.1e+04	2.28e+07	2.28e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.37e+07	5.66e+03	6.0e+03	2.64e+07	3.42e+03	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.18e+07	5.66e+03	5.6e+03	2.51e+07	3.42e+03	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+07	3.13e+03	9.1e+03	2.68e+07	1.88e+03	1.4e+04
32	13C-OCDD	3.77e+07	2.72e+03	1.4e+04	4.17e+07	9.60e+02	4.3e+04
33	13C-1,2,3,4-TCDD	2.21e+07	2.56e+04	8.6e+02	2.72e+07	6.97e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+07	5.66e+03	6.4e+03	2.92e+07	3.42e+03	8.5e+03
35	37Cl-2,3,7,8-TCDD	5.28e+06	4.24e+03	1.2e+03			

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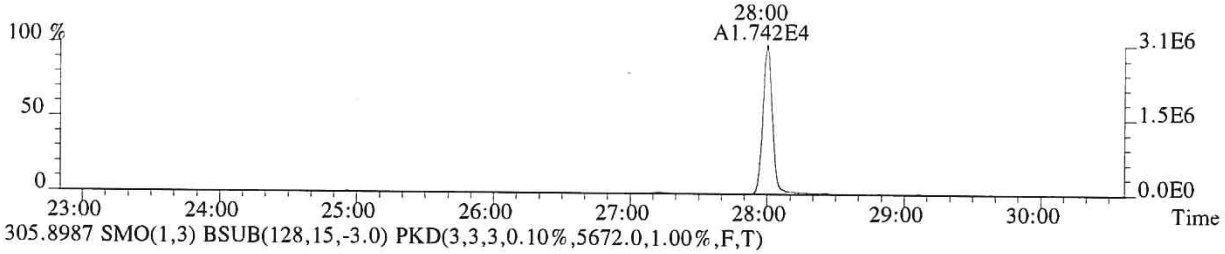
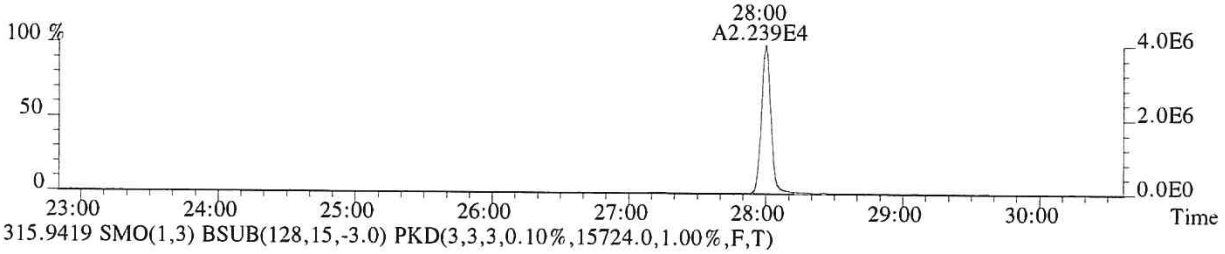
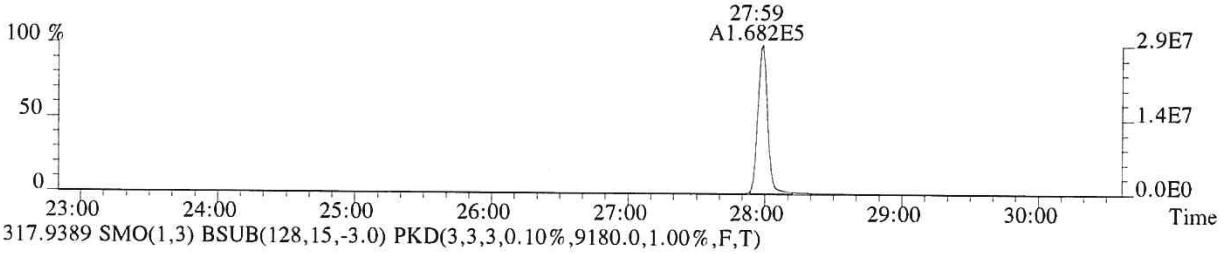
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



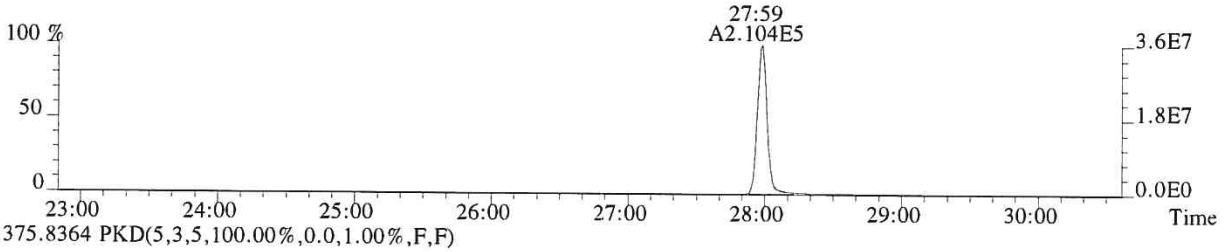
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5672.0,1.00%,F,T)



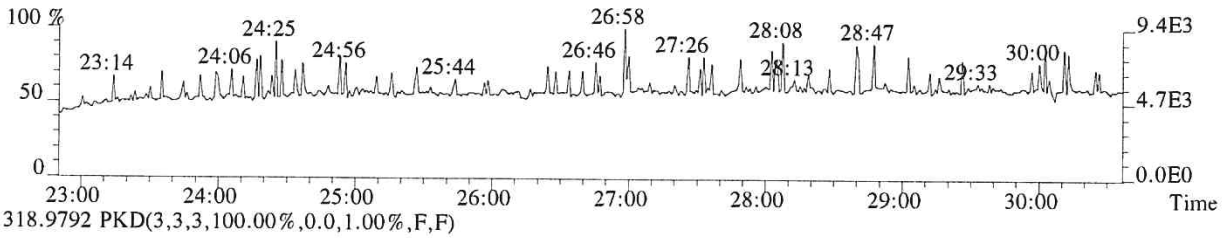
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15724.0,1.00%,F,T)



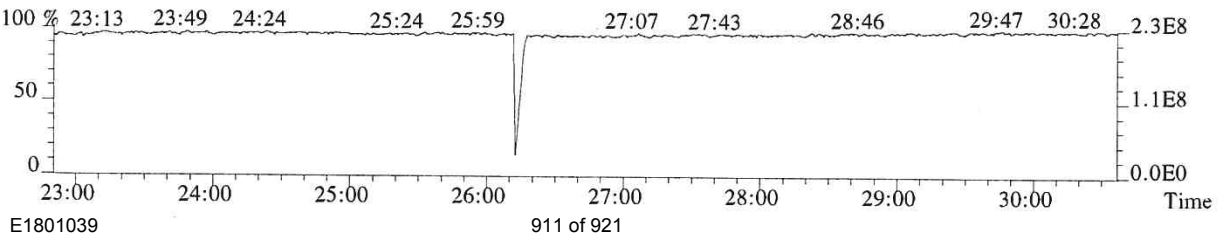
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9180.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

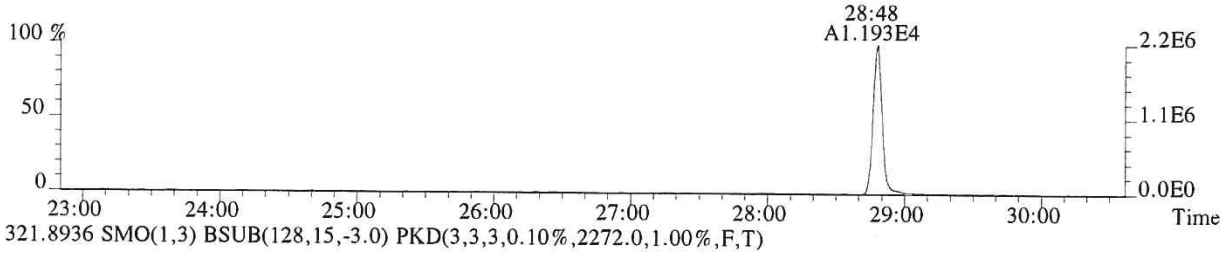


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

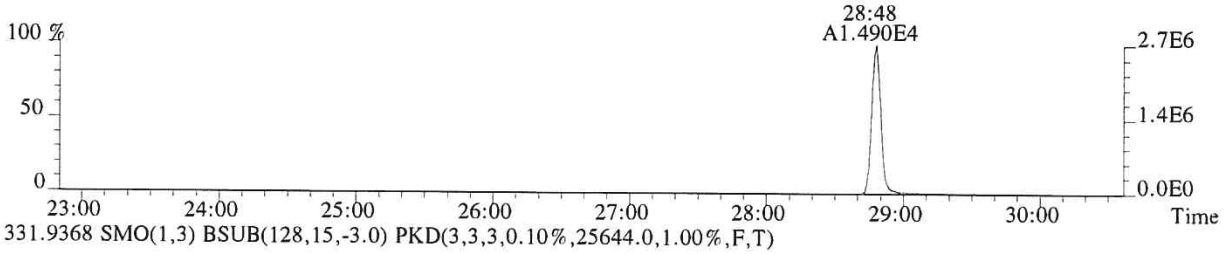


011842

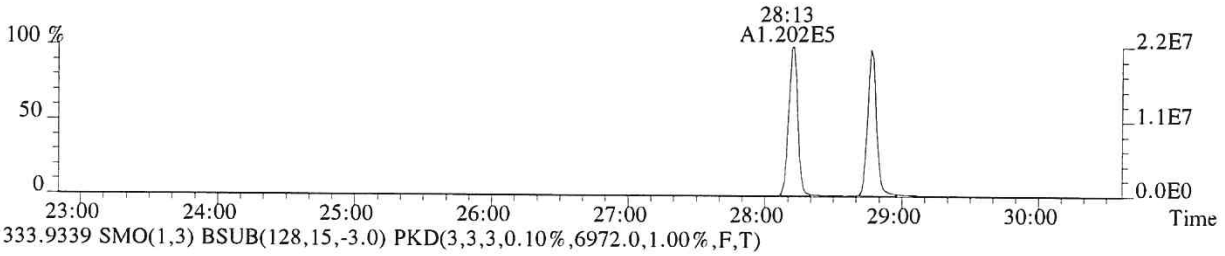
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



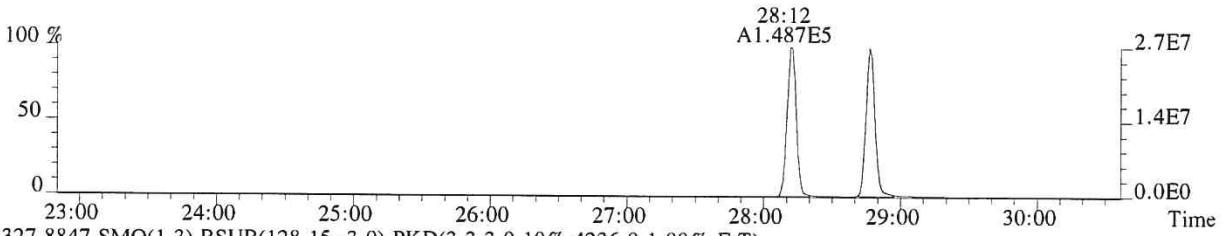
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



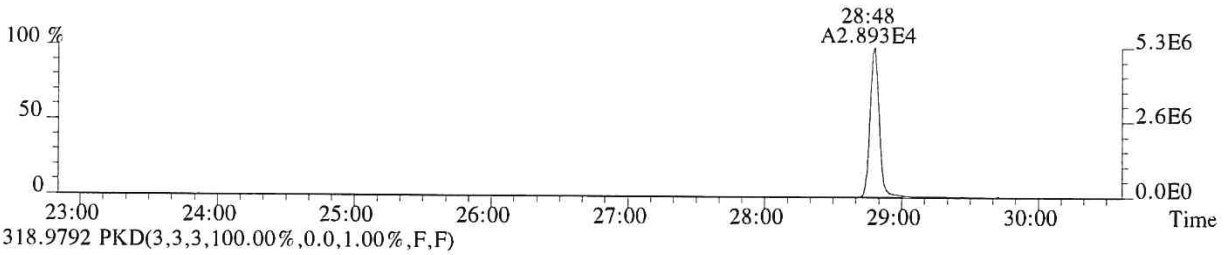
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25644.0,1.00%,F,T)



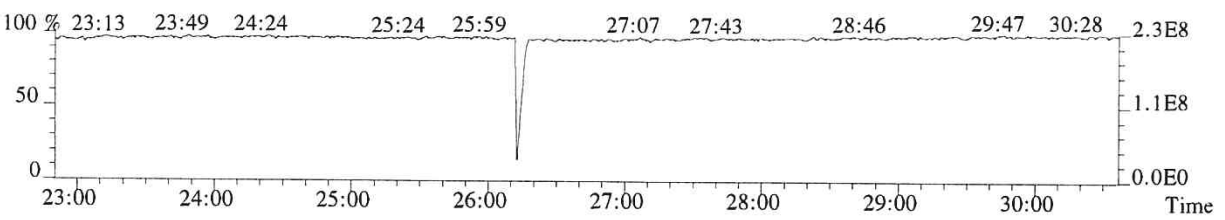
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4236.0,1.00%,F,T)

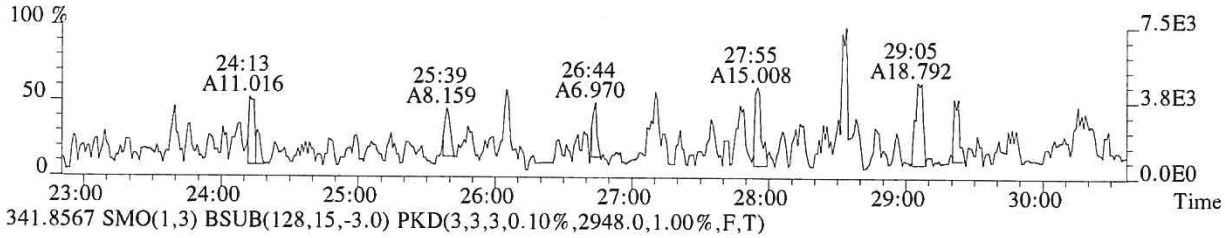


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

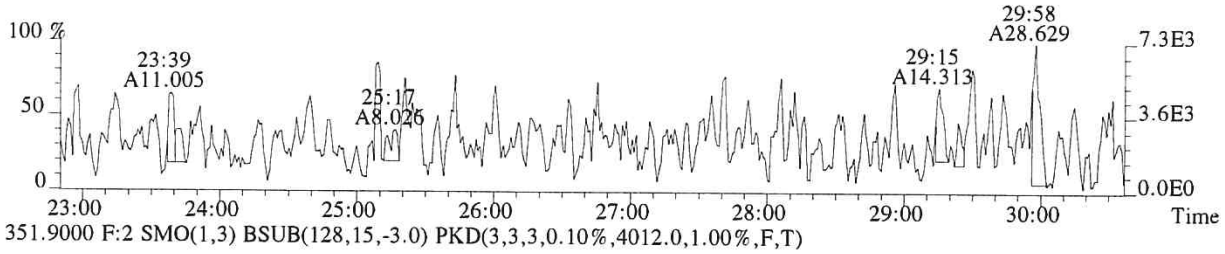


011843

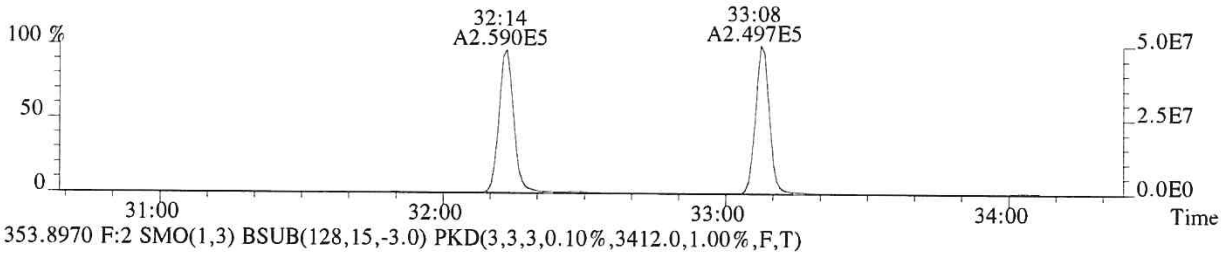
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



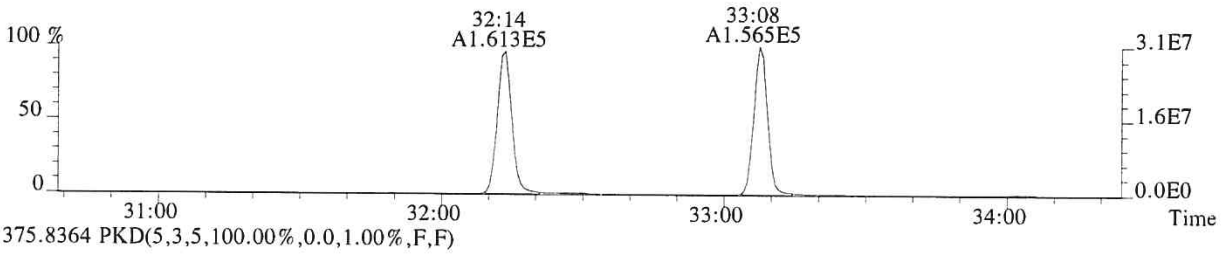
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



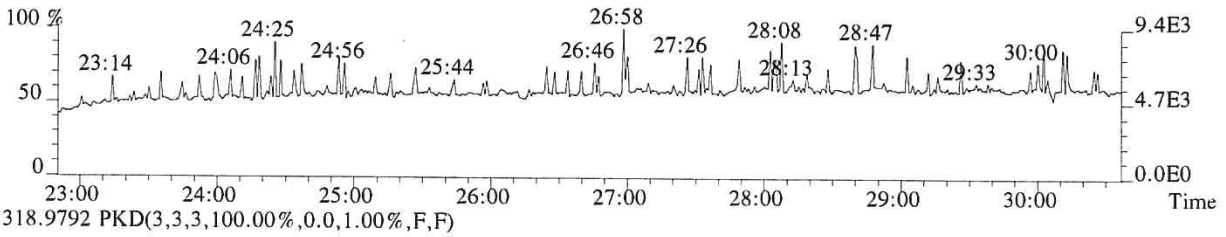
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



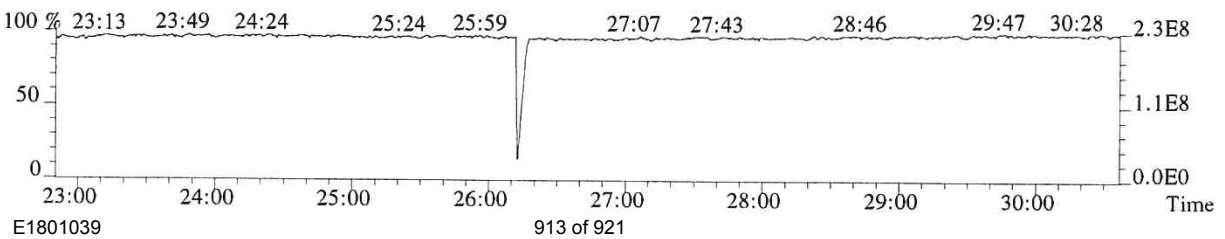
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

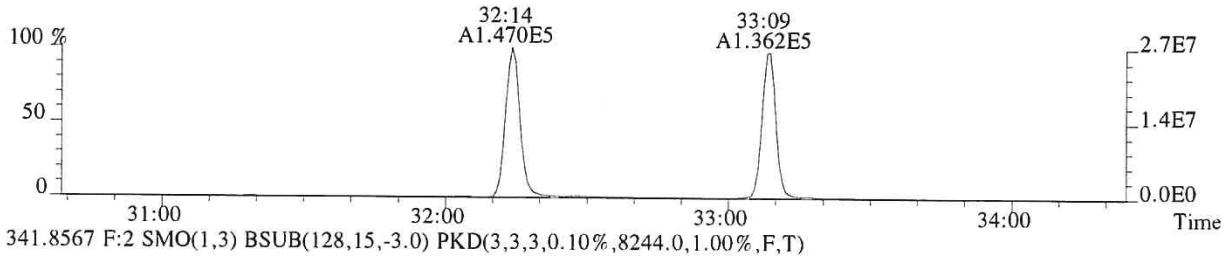


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

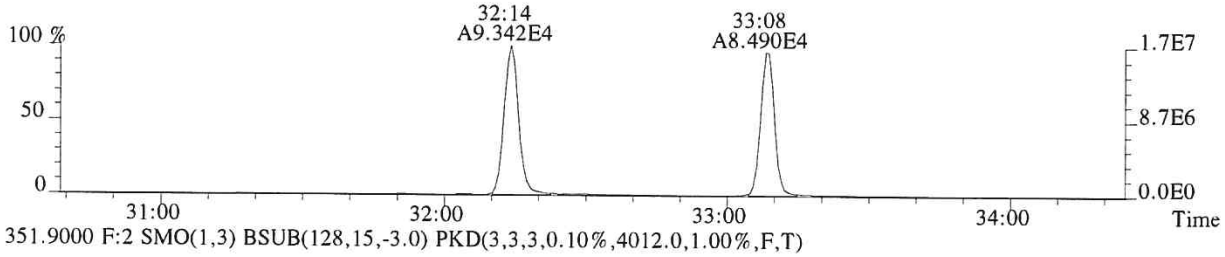


011844

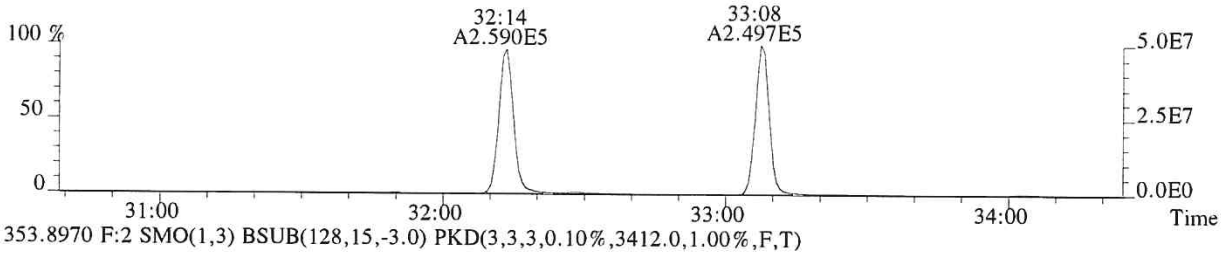
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



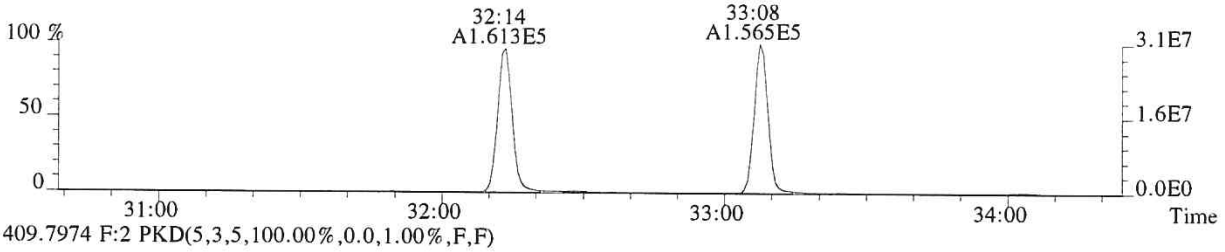
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8244.0,1.00%,F,T)



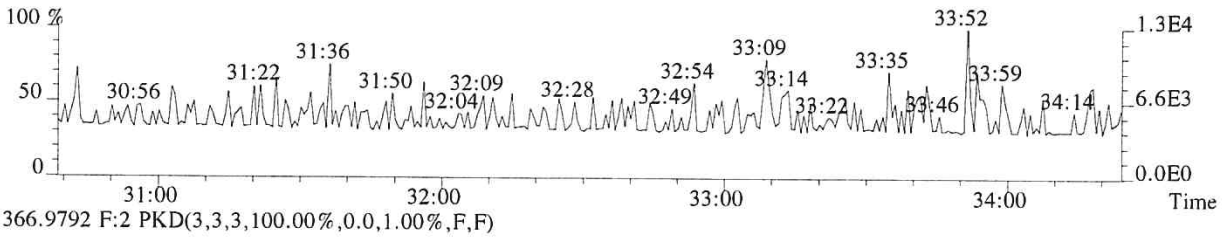
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



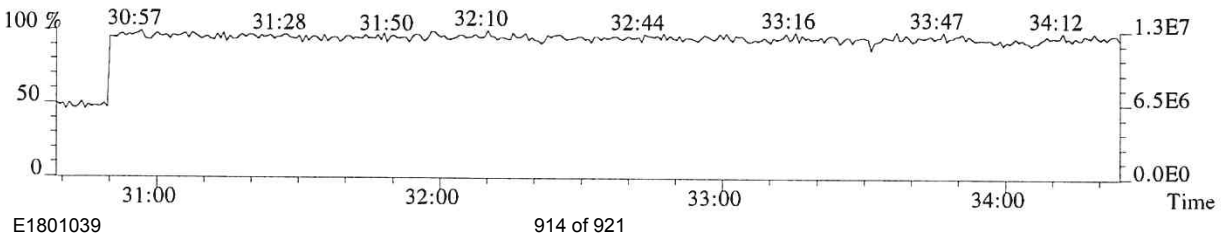
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

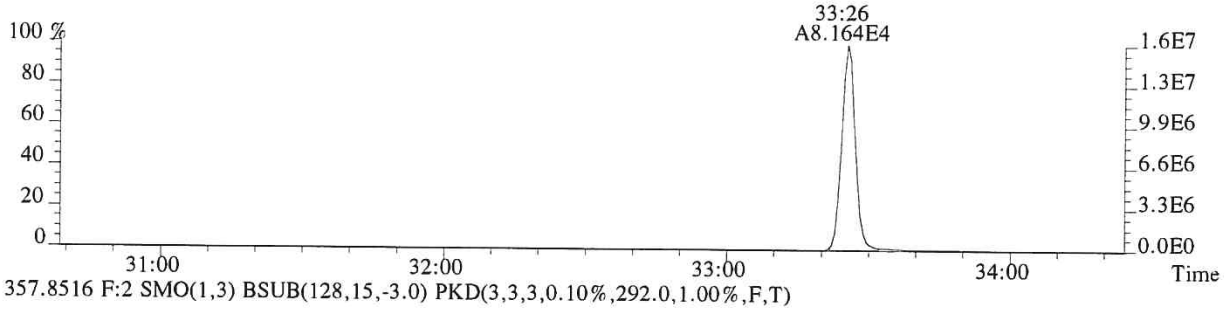


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

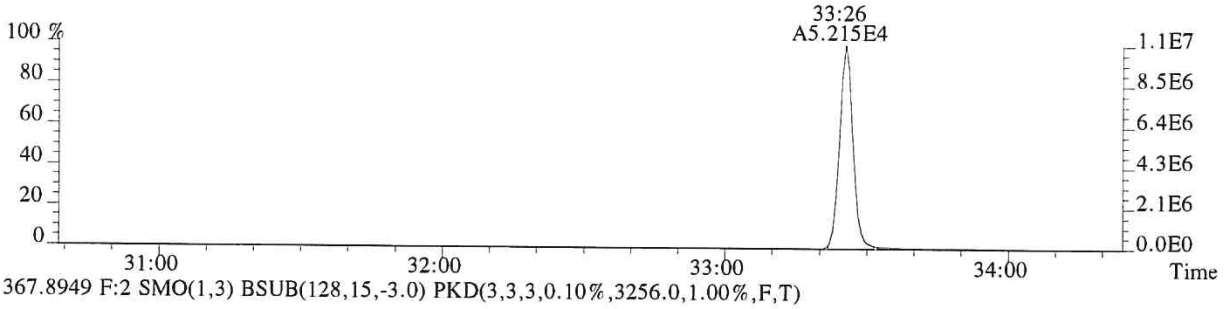


011845

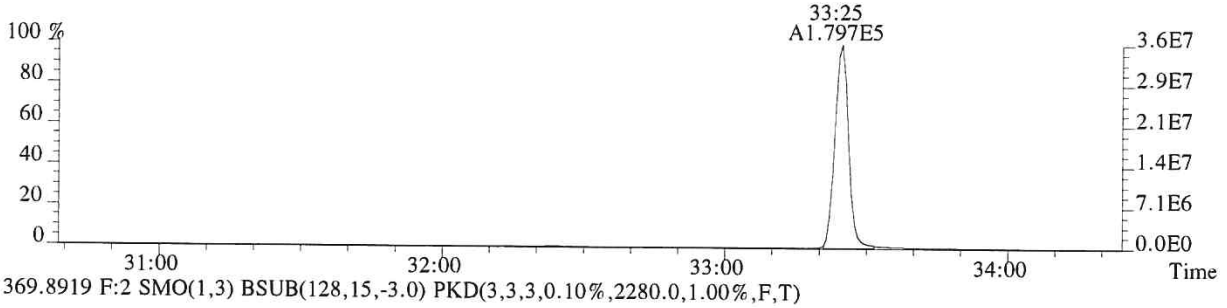
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



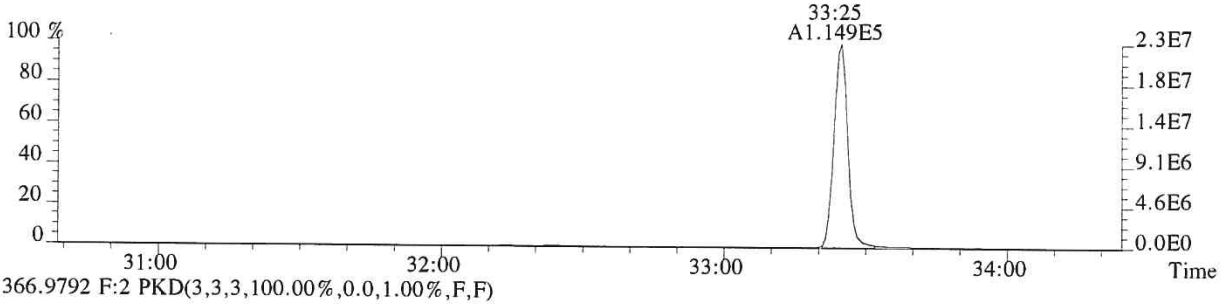
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



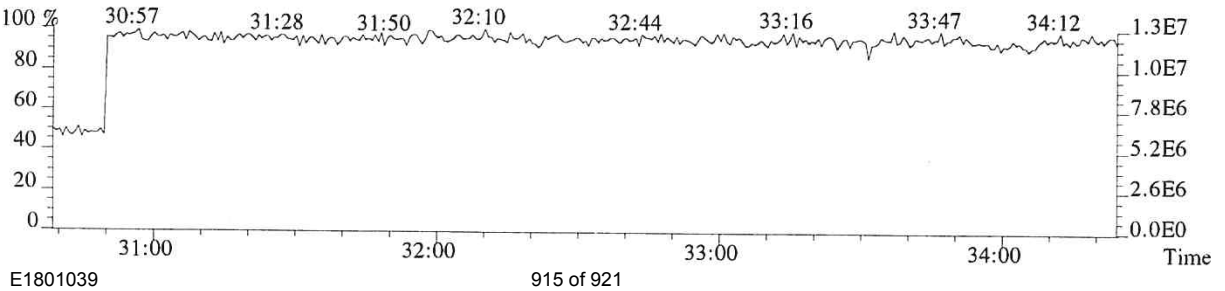
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



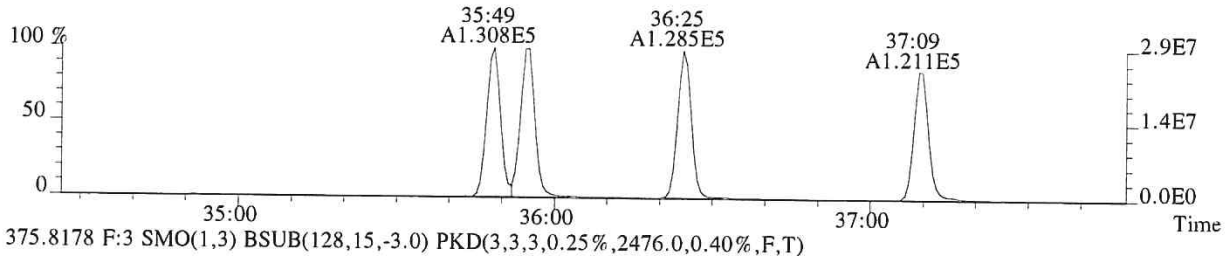
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



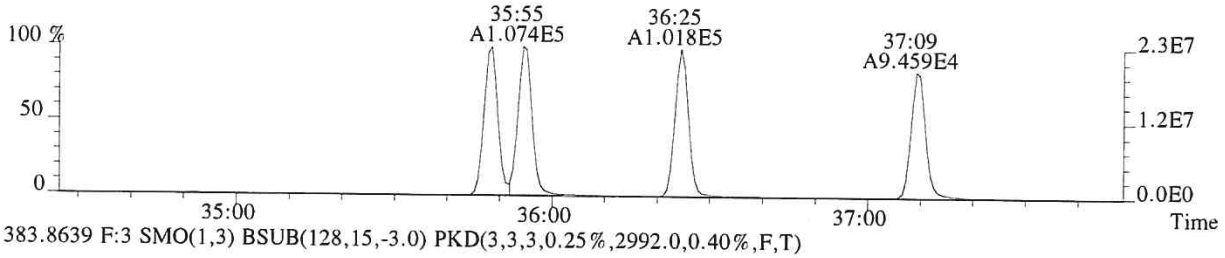
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



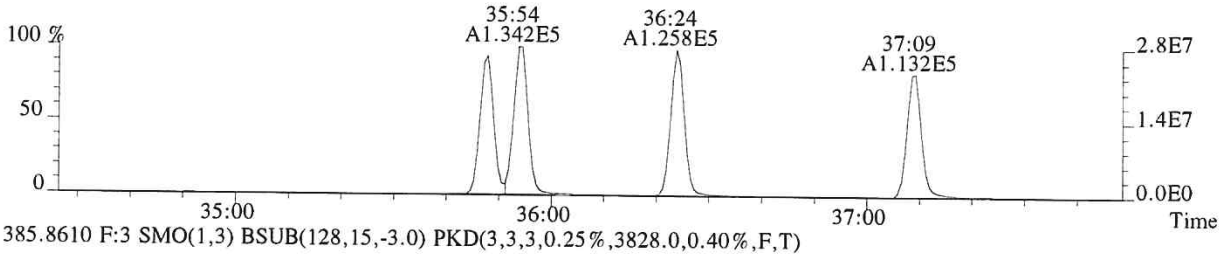
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



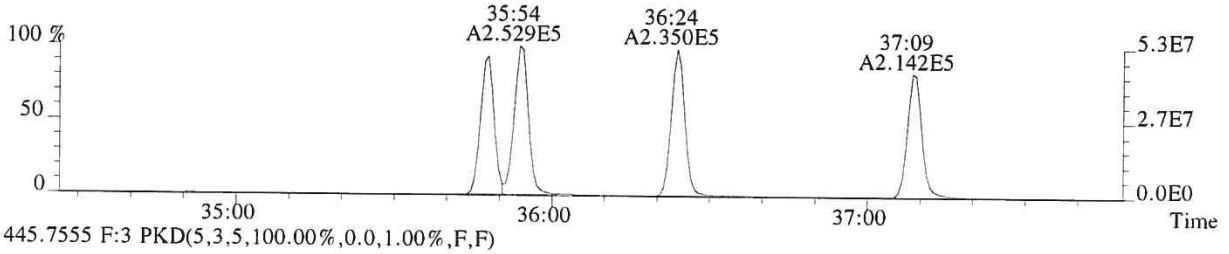
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



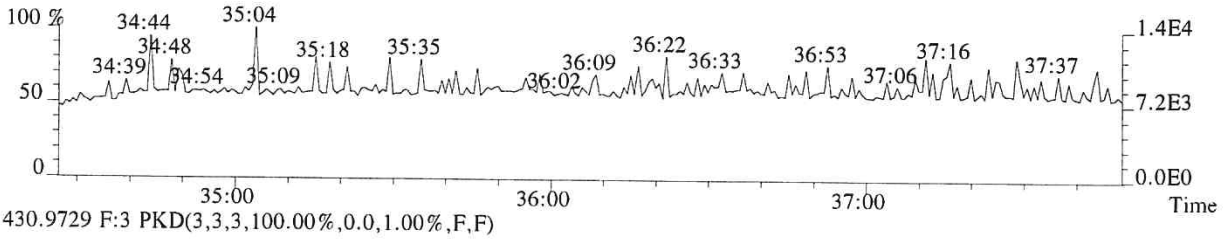
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



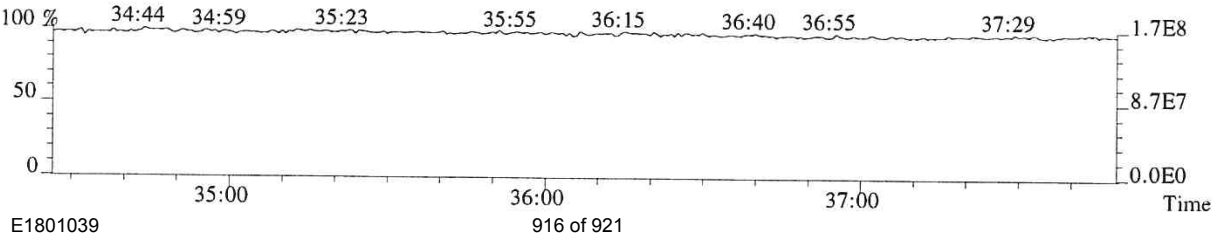
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3828.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

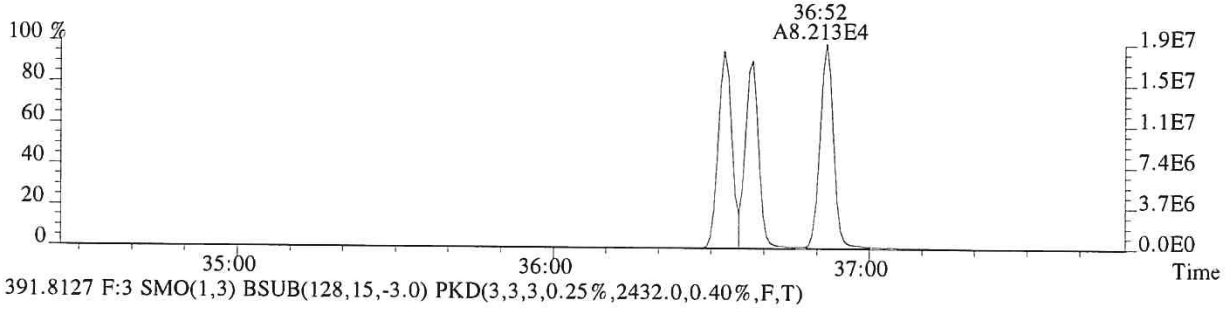


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

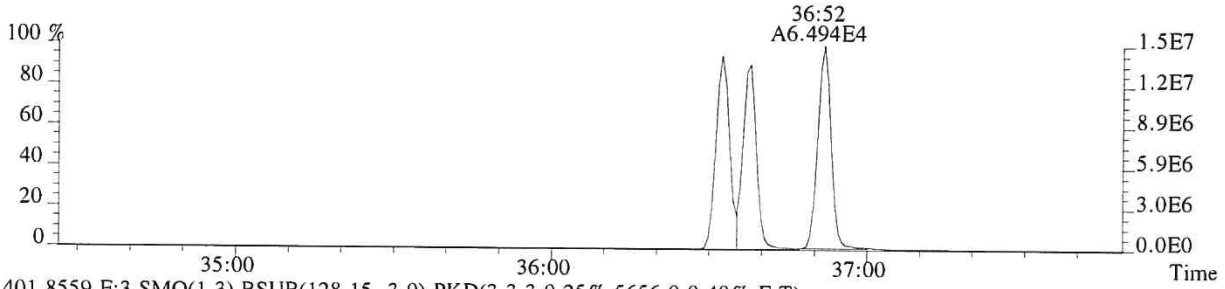


011847

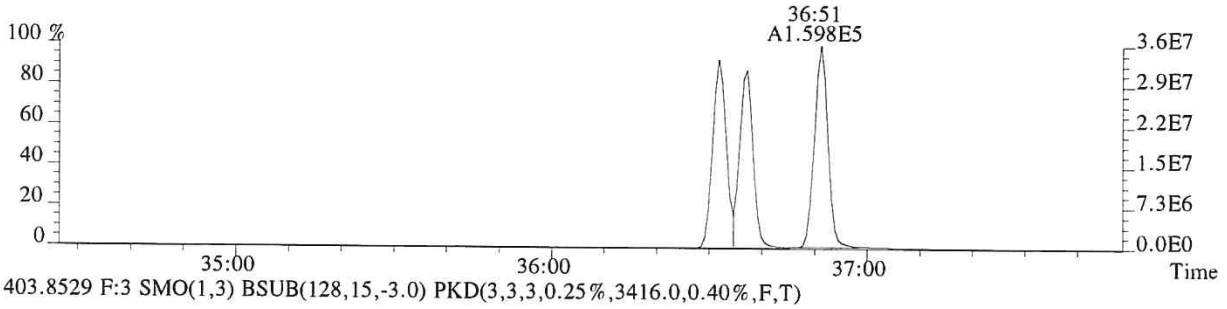
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



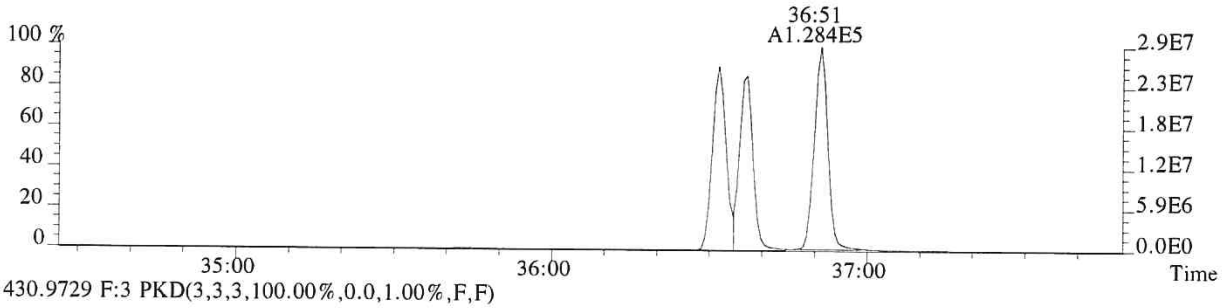
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



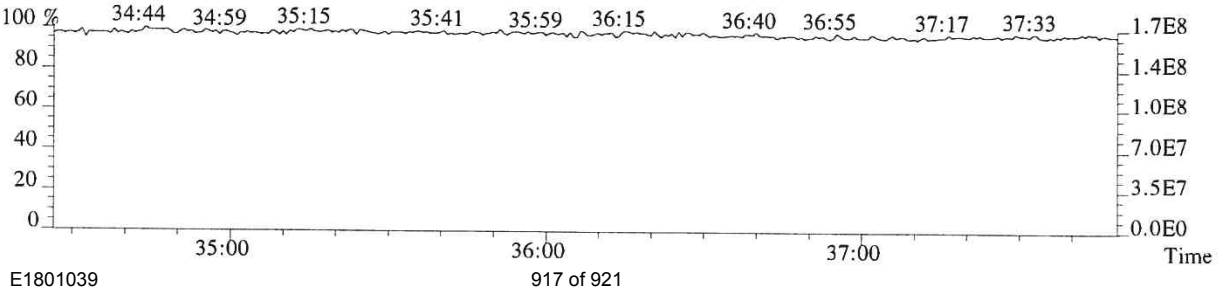
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.40%,F,T)



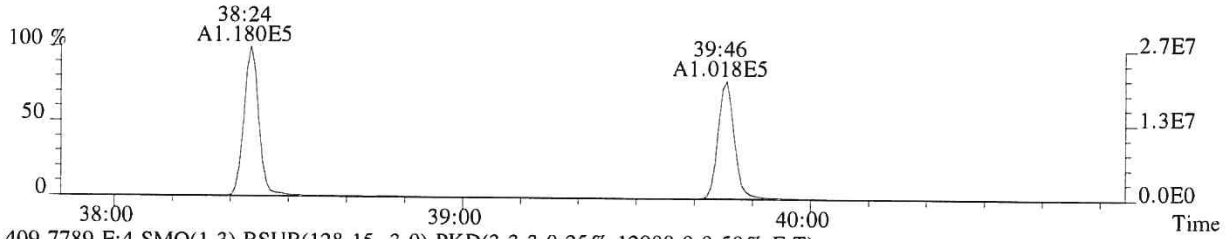
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3416.0,0.40%,F,T)



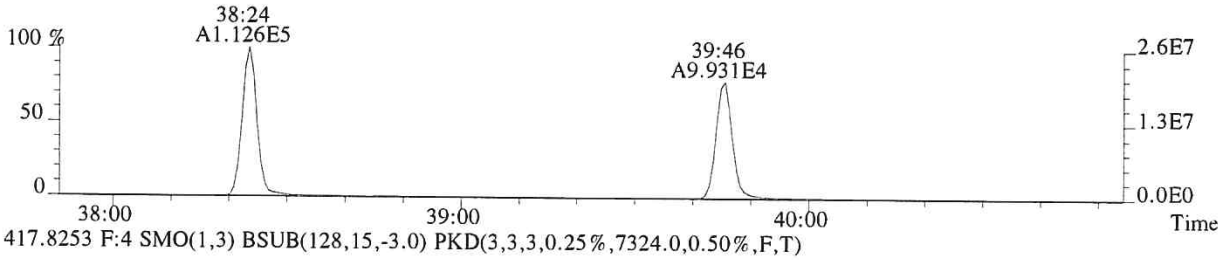
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



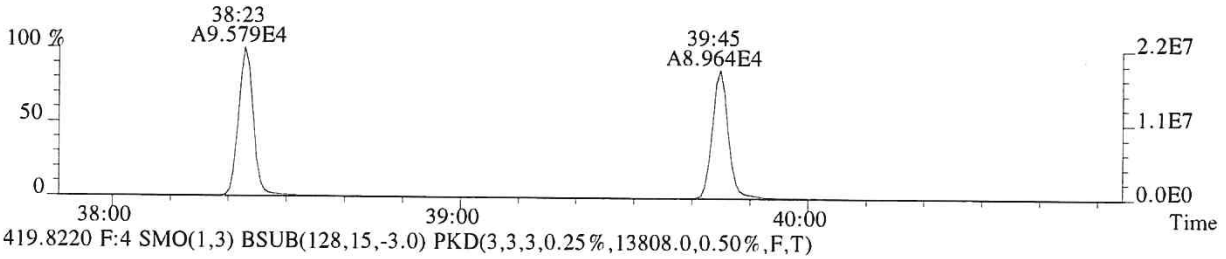
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



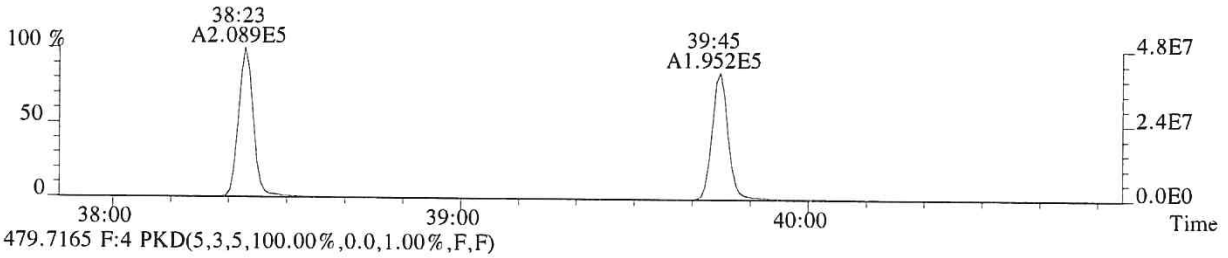
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12908.0,0.50%,F,T)



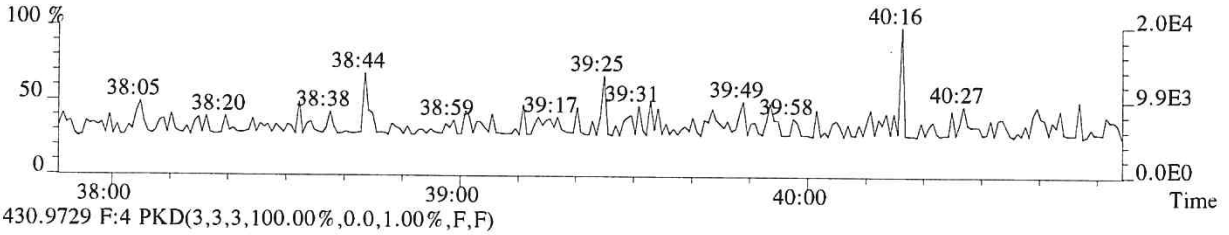
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7324.0,0.50%,F,T)



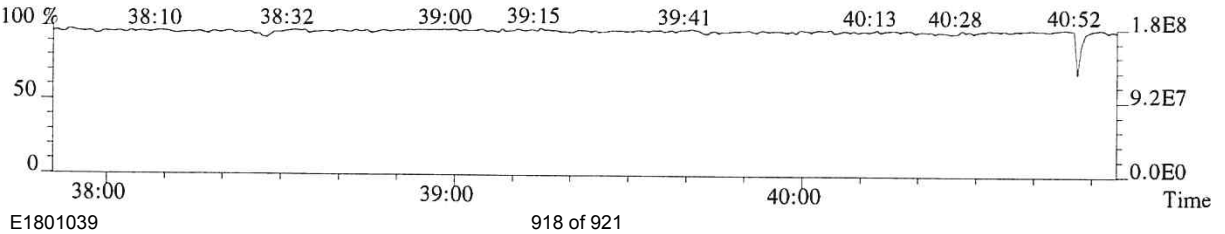
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13808.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

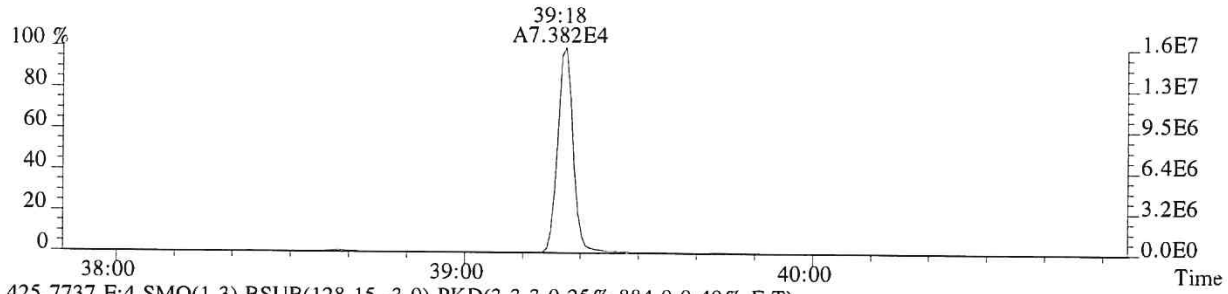


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

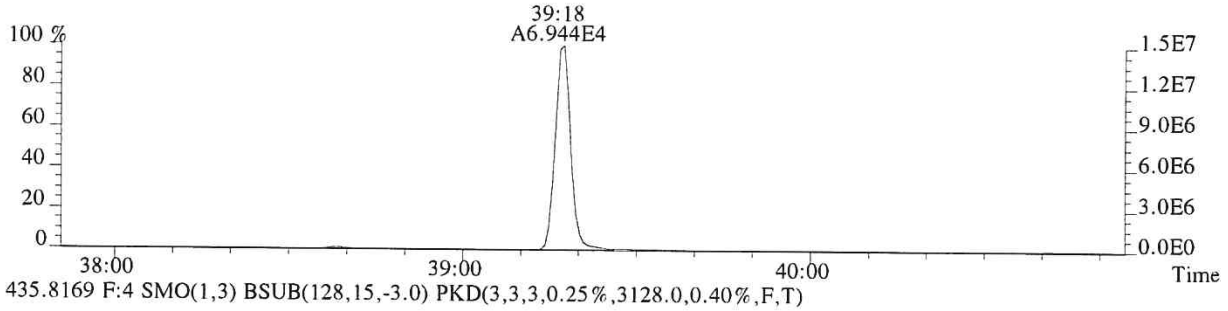


011849

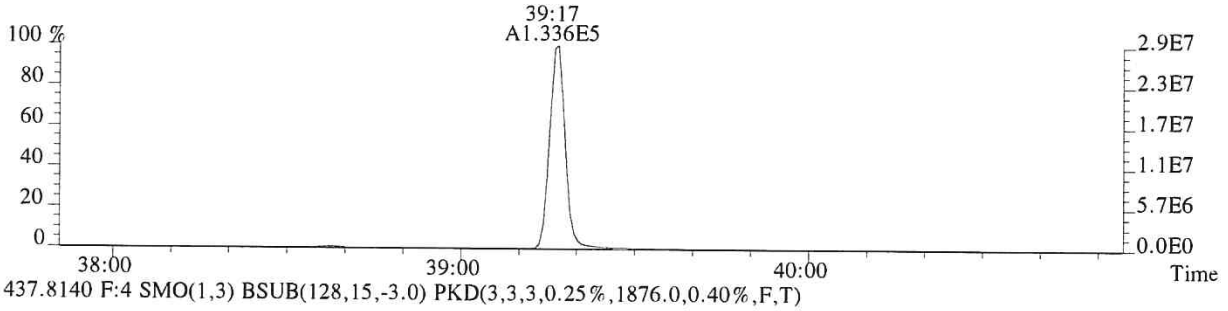
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



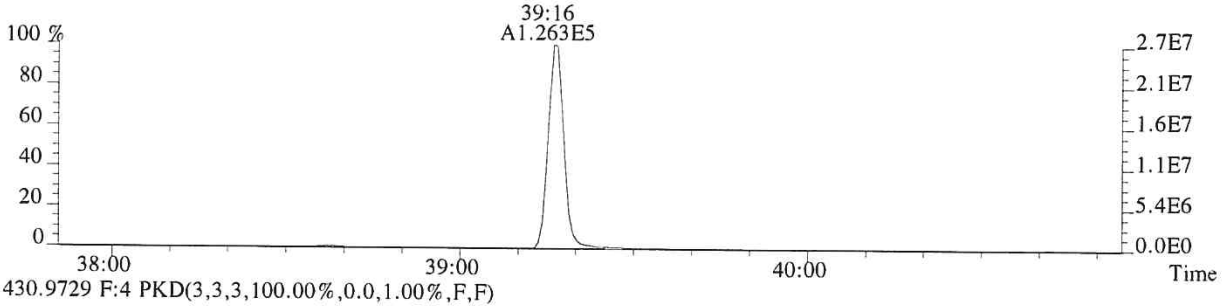
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



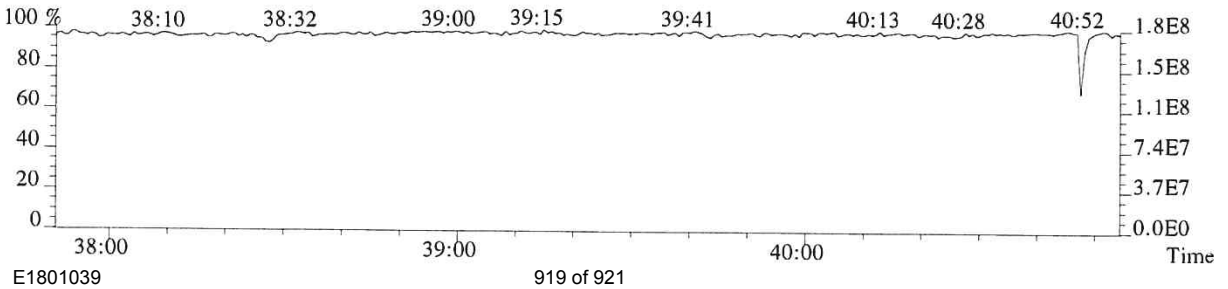
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



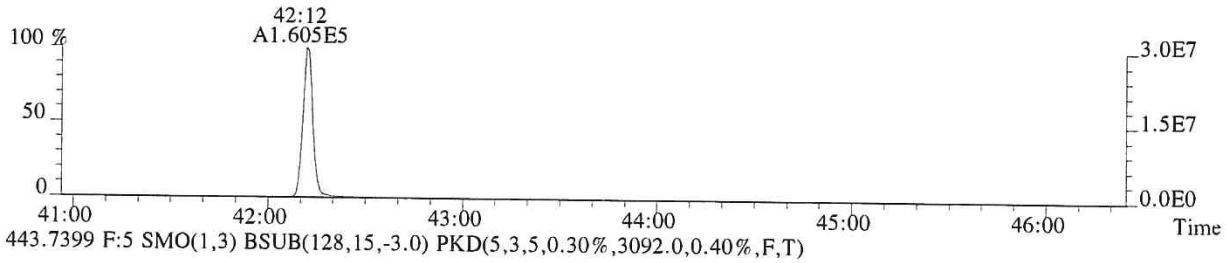
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



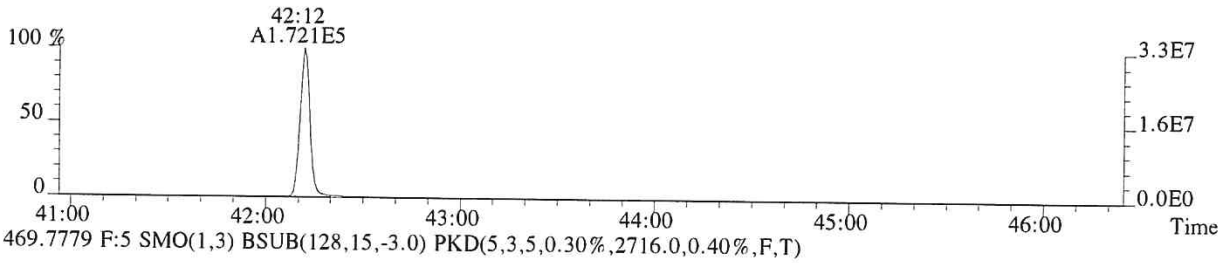
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



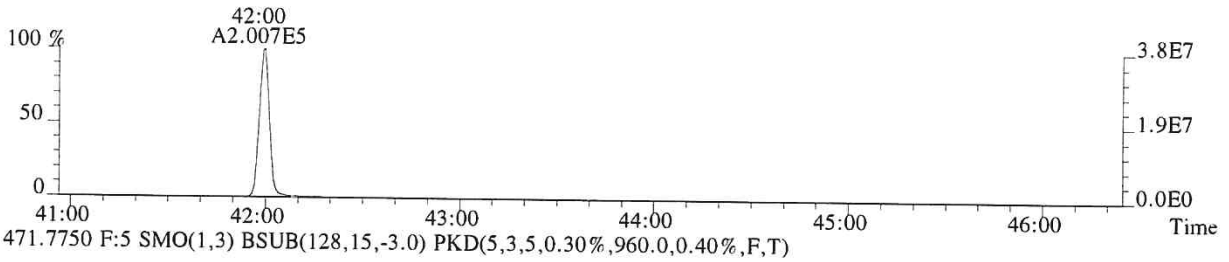
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



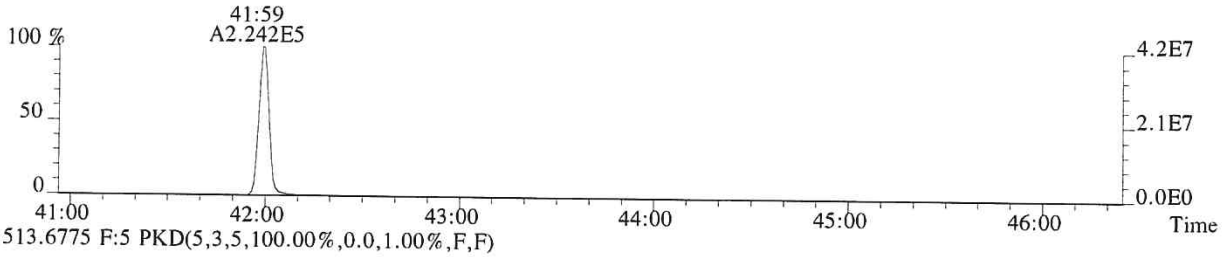
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



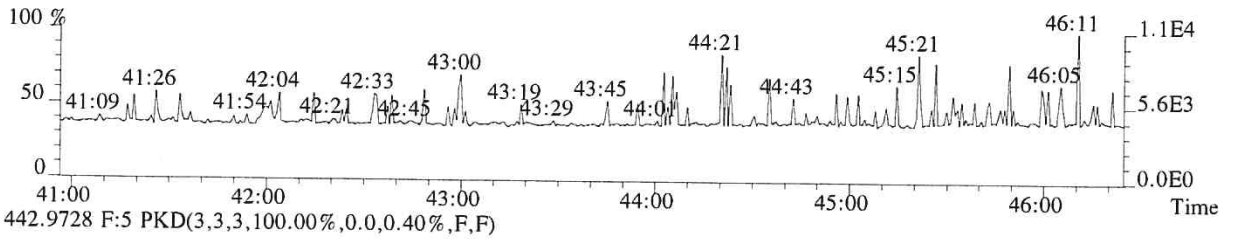
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



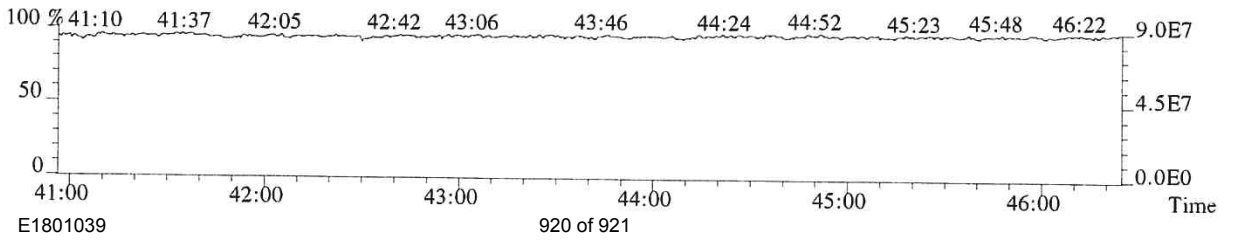
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

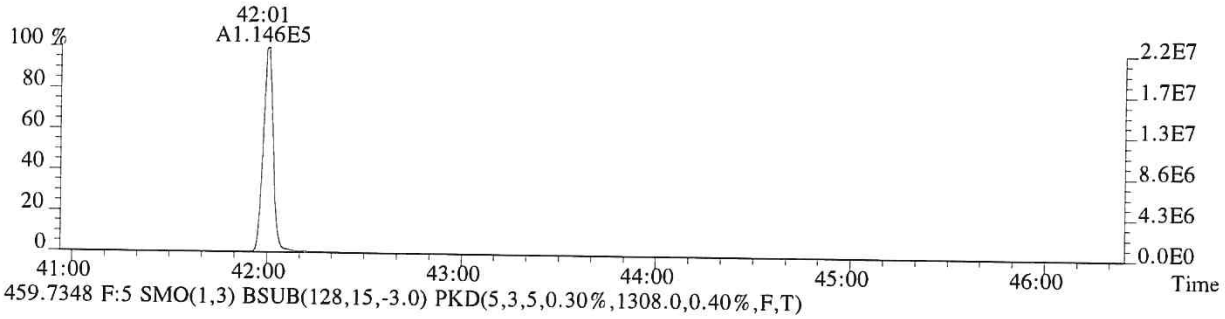


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

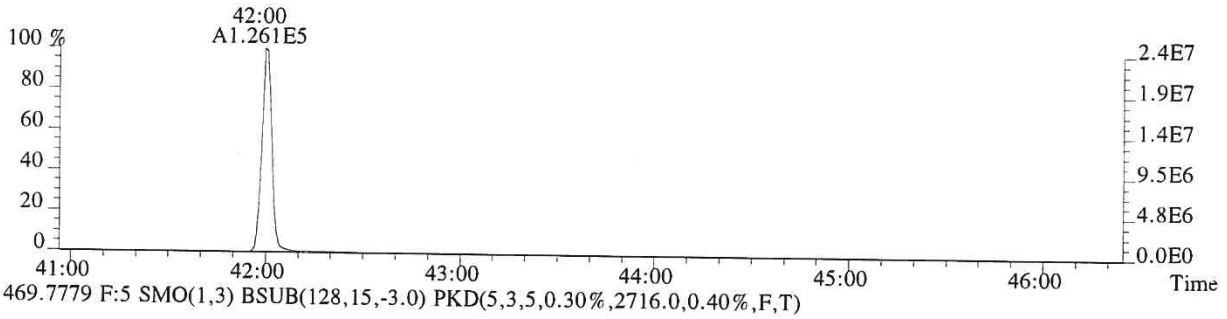


011851

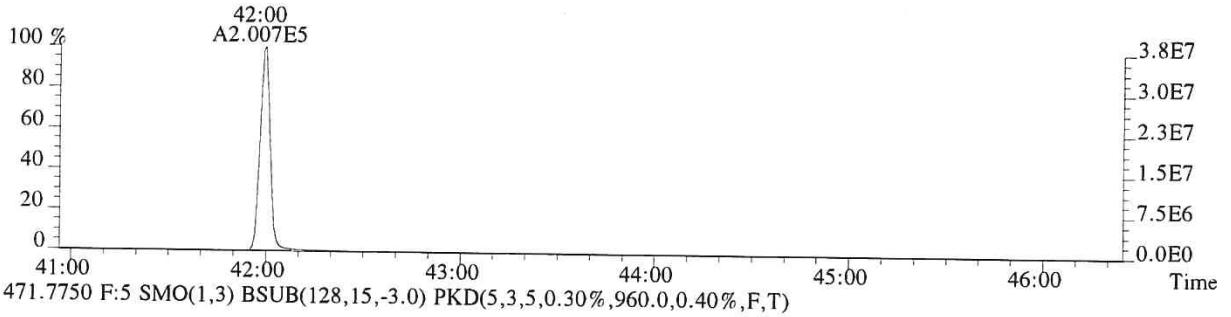
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



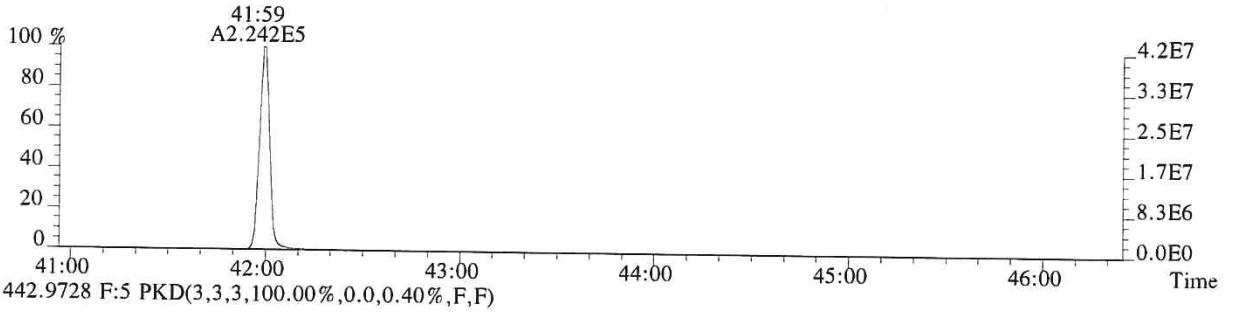
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



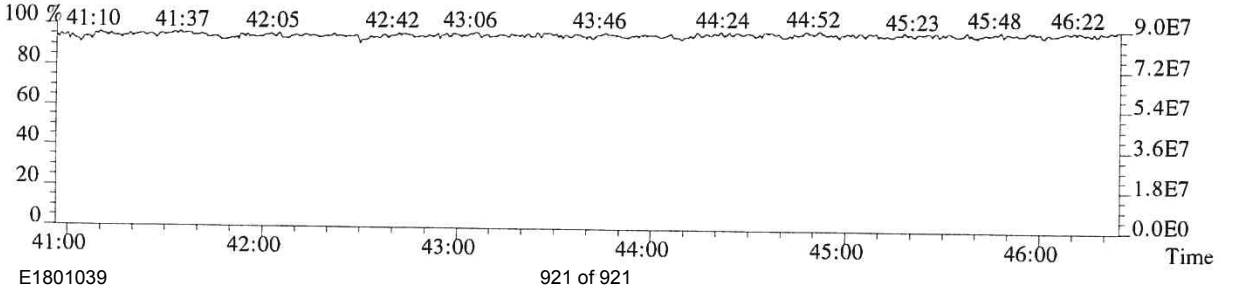
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011852

December 12, 2018 Service Request No:E1801045

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for:C1887-0501 Southern Impoundment

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 14, 2018
For your reference, these analyses have been assigned our service request number **E1801045.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Integral Consulting, Inc.	**Service Request No.:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Received:**	11/14/18
Sample Matrix:	Solid		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Thirty-four samples were received for analysis at ALS Environmental in Houston on 11/14/18.

The samples were received at 1.7°C, 3.2°C, and 0.8 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

E flags

Sample SL0146: When OCDD and/or OCDF exceed the upper method calibration limit (MCL), we use 'E' flag on the Sample Analytical Report results page when the detector is not saturated. Sample(s) are reported with an 'E' flag to denote that they had concentration greater than the high calibration point. The laboratory only dilutes when detector saturation occurs.

B flags – Method Blanks

The Method Blank EQ1800488-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

MS/MSD

EQ1800488: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

Y flags – Labeled Standards

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801045-001	SL0148	11/13/2018	1150
E1801045-002	SL0149	11/13/2018	1155
E1801045-003	SL0150	11/13/2018	1200
E1801045-004	SL0151	11/13/2018	1205
E1801045-005	SL0152	11/13/2018	1210
E1801045-006	SL0153	11/13/2018	1215
E1801045-007	SL0154	11/13/2018	1415
E1801045-008	SL0155	11/13/2018	1420
E1801045-009	SL0156	11/13/2018	1425
E1801045-010	SL0157	11/13/2018	1430
E1801045-011	SL0158	11/13/2018	1435
E1801045-012	SL0159	11/13/2018	1520
E1801045-013	SL0160	11/13/2018	1525
E1801045-014	SL0161	11/13/2018	1530
E1801045-015	SL0162	11/13/2018	1535
E1801045-016	SL0163	11/13/2018	1540
E1801045-017	SL0164	11/13/2018	1545
E1801045-018	SL0141	11/13/2018	0940
E1801045-019	SL0142	11/13/2018	0945
E1801045-020	SL0143	11/13/2018	0950
E1801045-021	SL0144	11/13/2018	0955
E1801045-022	SL0145	11/13/2018	1000
E1801045-023	SL0146	11/13/2018	1005
E1801045-024	SL0136	11/12/2018	1525
E1801045-025	SL0137	11/12/2018	1530
E1801045-026	SL0138	11/12/2018	1535
E1801045-027	SL0139	11/12/2018	1540
E1801045-028	SL0140	11/12/2018	1545
E1801045-029	SL0131	11/12/2018	1405
E1801045-030	SL0132	11/12/2018	1410
E1801045-031	SL0133	11/12/2018	1415
E1801045-032	SL0134	11/12/2018	1420
E1801045-033	SL0135	11/12/2018	1425
E1801045-034	SL0147	11/13/2018	1010

Service Request Summary

Folder #: **E1801045**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501 Southern Impoundment
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 11/14/18
Internal Due Date: 12/5/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

34 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 1A
Pressure Gas:

				HOUSTON	
				Dioxins Furans/1613B	Total Solids/ALS SOP
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**		
E1801045-006	SL0153	Sludge, Solid	11/13/18 1215	**IV**	**IV**
E1801045-017	SL0164	Sludge, Solid	11/13/18 1545	**IV**	**IV**
E1801045-023	SL0146	Sludge, Solid	11/13/18 1005	**IV**	**IV**

Service Request Summary

Folder #:	**E1801045**
Client Name:	Integral Consulting, Incorporated
Project Name:	C1887-0501 Southern Impoundment
Project Number:	

Report To:	Craig Hutchings Integral Consulting, Inc. 1205 West Bay Drive NW Olympia, WA 98502-4670 USA
Phone Number:	360-705-3534
Cell Number:	
Fax Number:	
E-mail:	chutchings@integral-corp.com

Project Chemist:	Kristin Brown
Originating Lab:	HOUSTON
Logged By:	CGRANDITS
Date Received:	11/14/18
Internal Due Date:	12/5/2018
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	N, Y
Report to MDL?:	N, Y
P.O. Number:	
EDD:	Integral-UCR

34 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 1A

Pressure Gas:

Superset Summary

Service Request: E1801045 **SuperSet Reference:** 18-0000490006 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P519244	P519240	P519290	E1801045-006
P519245	P519240	P519290	E1801045-017
P519246	P519240	P519290	E1801045-023
P519290	P519287	P519290	EQ1800488-01
P519363	P519350	P519290	EQ1800488-02
P519364	P519350	P519290	EQ1800488-03

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801045 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/07/18	JC	006, 017, 023

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/07/18	LKL	006, 017, 023

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CHAIN OF CUSTODY FORM

1045

Page 1 of 1

Project: C1887 - 0501 Southern Impoundment

Samplers: A. Lutey, O. Hargrove, C. Shaw, B. Petri

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0148	0318	11/3/18	1150	SL										X	
SL0149	0319	"	1155	"										X	
SL0150	0320	"	1200	"										X	
SL0151	0321	"	1205	"										X	
SL0152	0322	"	1210	"										X	
SL0153	0418	"	1215	"	X	X	X	X	X	X	X	X		X	
SL0154	0323	"	1415	"											0419, 0420, 0421, 0422, 0423, 0424, 0425
SL0155	0324	"	1420	"										X	
SL0156	0325	"	1425	"										X	
SL0157	0326	"	1430	"										X	
SL0158	0327	↓	1435	"										X	
SL0159	0328	"	1520	"										X	
SL0160	0329	"	1525	"										X	
SL0161	0330	"	1530	"										X	
SL0162	0574	"	1535	"										X	
SL0163	0575	"	1540	"										X	
SL0164	0426	"	1545	"	X									X	
SL0141	0210	"	0940	"											
SL0142	0314	"	0945	"										X	
SL0143	0315	↓	0950	↓										X	

Analysis Turn Time: Normal ✓ Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code:	
GW - Groundwater	SL - Soil
SW - Surface water	SD -Sediment
Other:	

Relinquished by: Amber Lutey (signature) **Date/Time:** 11/14/18 0925 **Received by:** Paul Slone (signature) **Date/Time:** 11-14-18 0927

Relinquished by: _____ (signature) **Date/Time:** _____ **Received by:** _____ (signature) 11/14/18 1212 **Date/Time:** _____

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

1645

CHAIN OF CUSTODY FORM

Project: C1887 - 0501 Southern Impoundment

Samplers: A. Lutey, O. Hargrave, C. Shaw, B. Petri

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0144	0316	11/13/18	0955	SL										X	
SL0145	0317	↓	1000											X	
SL0146	0306	↓	1005		X	X	X	X	X	X		X			0307, 0308, 0309, 0310, 0311, 0312, 0313
SL0136	0205	11/12/18	1525											X	
SL0137	0206	↓	1530											X	
SL0138	0207	↓	1535											X	
SL0139	0208	↓	1540											X	
SL0140	0209	↓	1545											X	
SL0131	0217	↓	1405											X	
SL0132	0239	↓	1410											X	
SL0133	0237	↓	1415											X	
SL0134	0240	↓	1420											X	
SL0135	0204	↓	1425											X	
SL0147	0400	11/13/18	1010			X									only analyze EPA 9040

ANALYSES REQUESTED

Analysis Turn Time: Normal ✓ Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code:	
SL - Soil	GW - Groundwater
SD -Sediment	SW - Surface water
	Other:

Relinquished by: Amber Lutey (signature) **Date/Time:** 11/14/18 0927 **Received by:** Paul Adams (signature) **Date/Time:** 11-14-18 0927

Relinquished by: _____ (signature) **Date/Time:** _____ **Received by:** CH 11/14/18 1212 (signature) **Date/Time:** _____

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

Cooler Receipt Form

ALS Environmental

Project Chemist KB

Client/Project INTEGRAL

Thermometer ID SM04

Date/Time Received: 11/14/17 Initials: CS Date/Time Logged in: 11/14/17 Initials CS

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ⊘ ALS Courier ○ Client

2. Samples received in: ⊘ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ○ No
   Were they intact? ⊘ Yes ○ No ○ N/A
   Were they signed and dated? ⊘ Yes ○ No ○ N/A
   If yes, how many and where? 2 SEALS

4. Packing Material: ○ Inserts ⊘ Baggies ⊘ Bubble Wrap ○ Gel Packs ⊘ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ⊘ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		11/14/18	1216	PS	1.7/2.1	☑
-		↓	↓	↓	3.2/3.6	☑
-					0.8/1.2	☑
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ⊘ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ⊘ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ⊘ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ⊘ Yes ○ No
10. Did sample labels and tags agree with custody documents? ⊘ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

E1801045 5
Integral Consulting, Inc.
C1887-0501 Southern Impoundment

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 327285 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/29/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801045-006	SL0153	.01	1613B/Dioxins Furans			Sludge, Solid	10.317g	Brown Mud
2	E1801045-017	SL0164	.01	1613B/Dioxins Furans			Sludge, Solid	10.713g	Brown Mud
3	E1801045-023	SL0146	.01	1613B/Dioxins Furans			Sludge, Solid	10.539g	Black Mud + Rocks
4	E1801046-001	SL0539	.01	1613B/Dioxins Furans			Sludge, Solid	10.411g	Brown Mud
5	E1801046-002	SL0540	.01	1613B/Dioxins Furans			Sludge, Solid	10.919g	Brown Mud
6	E1801046-003	SL0541	.01	1613B/Dioxins Furans			Sludge, Solid	10.976g	Brown Mud
7	E1801046-004	SL0542	.01	1613B/Dioxins Furans			Sludge, Solid	10.909g	Brown Mud
8	E1801046-005	SL0543	.01	1613B/Dioxins Furans			Sludge, Solid	10.895g	Brown Mud
9	E1801046-006	SL0544	.01	1613B/Dioxins Furans			Sludge, Solid	10.732g	Brown Mud
10	E1801056-006	SL0191	.04	1613B/Dioxins Furans			Sediment	10.626g	Brown Mud + Rocks
11	E1801056-012	SL0197	.04	1613B/Dioxins Furans			Sediment	10.151g	Brown Mud + Rocks
12	E1801056-023	SL0175	.04	1613B/Dioxins Furans			Sediment	10.629g	Black + Brown Mud
13	E1801056-039	SL0203	.04	1613B/Dioxins Furans			Sediment	10.924g	Brown Mud
14	E1801056-040	SL0204	.04	1613B/Dioxins Furans			Sediment	10.602g	Brown Mud
15	E1801056-057	SL0221	.04	1613B/Dioxins Furans			Sediment	10.729g	Brown Mud
16	E1801056-063	SL0227	.04	1613B/Dioxins Furans			Sediment	10.718g	Brown Mud
17	E1801058-011	SL0243	.02	1613B/Dioxins Furans			Sediment	10.111g	Brown Mud
18	E1801058-017	SL0249	.02	1613B/Dioxins Furans			Sediment	10.667g	Brown Mud
19	E1801058-018	SL0250	.02	1613B/Dioxins Furans			Sediment	10.538g	Brown Mud
20	E1801058-024	SL0256	.02	1613B/Dioxins Furans			Sediment	10.853g	Brown Mud
21	EQ1800488-01	MB		1613B/Dioxins Furans			Solid	10.246g	
22	EQ1800488-02	LCS		1613B/Dioxins Furans			Solid	10.279g	
23	EQ1800488-03	DLCS		1613B/Dioxins Furans			Solid	10.116g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 194946 Logbook Ref: 194946 AL 11/14/18 2-20 ng/mL Expires On: 05/13/2019

EQ1800488-02 100.00µL EQ1800488-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 195222 Logbook Ref: 195221 JG 11/29/18 2-4ngml Expires On: 01/31/2019

E1801045-006	1,000.00µL	E1801045-017	1,000.00µL	E1801045-023	1,000.00µL	E1801046-001	1,000.00µL	E1801046-001.R	1,000.00µL	E1801046-002	1,000.00µL
E1801046-002.R	1,000.00µL	E1801046-003	1,000.00µL	E1801046-003.R	1,000.00µL	E1801046-004	1,000.00µL	E1801046-004.R	1,000.00µL	E1801046-005	1,000.00µL
E1801046-006	1,000.00µL	E1801056-006	1,000.00µL	E1801056-006.R	1,000.00µL	E1801056-012	1,000.00µL	E1801056-023	1,000.00µL	E1801056-023.R	1,000.00µL
E1801056-039	1,000.00µL	E1801056-039.R	1,000.00µL	E1801056-040	1,000.00µL	E1801056-040.R	1,000.00µL	E1801056-057	1,000.00µL	E1801056-057.R	1,000.00µL
E1801056-063	1,000.00µL	E1801056-063.R	1,000.00µL	E1801058-011	1,000.00µL	E1801058-017	1,000.00µL	E1801058-017.R	1,000.00µL	E1801058-018	1,000.00µL

Preparation Information Benchsheet

Prep Run#: 327285 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/29/18 11:00 AM

E1801058-018.R	1,000.00µL	E1801058-024	1,000.00µL	EQ1800488-01	1,000.00µL	EQ1800488-02	1,000.00µL	EQ1800488-03	1,000.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801045-006	100.00µL	E1801045-017	100.00µL	E1801045-023	100.00µL	E1801046-001	100.00µL	E1801046-001.R	100.00µL	E1801046-002	100.00µL
E1801046-002.R	100.00µL	E1801046-003	100.00µL	E1801046-003.R	100.00µL	E1801046-004	100.00µL	E1801046-004.R	100.00µL	E1801046-005	100.00µL
E1801046-006	100.00µL	E1801056-006	100.00µL	E1801056-006.R	100.00µL	E1801056-012	100.00µL	E1801056-023	100.00µL	E1801056-023.R	100.00µL
E1801056-039	100.00µL	E1801056-039.R	100.00µL	E1801056-040	100.00µL	E1801056-040.R	100.00µL	E1801056-057	100.00µL	E1801056-057.R	100.00µL
E1801056-063	100.00µL	E1801056-063.R	100.00µL	E1801058-011	100.00µL	E1801058-017	100.00µL	E1801058-017.R	100.00µL	E1801058-018	100.00µL
E1801058-018.R	100.00µL	E1801058-024	100.00µL	EQ1800488-01	100.00µL	EQ1800488-02	100.00µL	EQ1800488-03	100.00µL		

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195001)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/29/18 11:00	Started:	12/4/18 09:00	Started:	12/4/18 12:00	Started:	12/5/18 10:00
Finished:	11/30/18 07:30	Finished:	12/4/18 10:00	Finished:	12/4/18 15:00	Finished:	12/5/18 13:00
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 12:15
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0153	**Units:**	ng/Kg
Lab Code:	E1801045-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 05:19
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.317g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519244	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	8.60	**K**	0.688	0.688	0.90	1.000	1
1,2,3,7,8-PeCDD	0.403	**JK**	0.206	3.00	1.83	1.000	1
1,2,3,4,7,8-HxCDD	1.01	**J**	0.0580	3.00	1.39	1.000	1
1,2,3,6,7,8-HxCDD	3.80		0.0639	3.00	1.31	1.000	1
1,2,3,7,8,9-HxCDD	1.77	**JK**	0.0594	3.00	0.90	1.007	1
1,2,3,4,6,7,8-HpCDD	69.6		0.287	3.00	1.06	1.000	1
OCDD	1510		0.134	6.00	0.91	1.000	1
2,3,7,8-TCDF	21.3		0.235	0.600	0.79	1.001	1
1,2,3,7,8-PeCDF	1.61	**J**	0.220	3.00	1.51	1.001	1
2,3,4,7,8-PeCDF	0.867	**JK**	0.221	3.00	1.05	1.001	1
1,2,3,4,7,8-HxCDF	4.59		0.0951	3.00	1.11	1.000	1
1,2,3,6,7,8-HxCDF	1.26	**J**	0.0983	3.00	1.06	1.000	1
1,2,3,7,8,9-HxCDF	0.796	**JK**	0.106	3.00	1.63	1.001	1
2,3,4,6,7,8-HxCDF	1.11	**JK**	0.102	3.00	0.87	1.000	1
1,2,3,4,6,7,8-HpCDF	19.5		0.0971	3.00	0.97	1.000	1
1,2,3,4,7,8,9-HpCDF	2.35	**J**	0.111	3.00	1.20	1.000	1
OCDF	142		0.147	6.00	0.89	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 12:15
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0153	**Units:**	ng/Kg
Lab Code:	E1801045-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 05:19
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.317g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519244	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1.02		0.688	0.688	0.86		1
Total Penta-Dioxins	ND	U	0.206	3.00			1
Total Hexa-Dioxins	30.5		0.0604	3.00	1.26		1
Total Hepta-Dioxins	168		0.287	3.00	1.06		1
Total Tetra-Furans	29.4		0.235	0.600	0.75		1
Total Penta-Furans	8.66		0.221	3.00	1.36		1
Total Hexa-Furans	19.1		0.101	3.00	1.37		1
Total Hepta-Furans	46.6		0.104	3.00	0.97		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 12:15
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0153	**Units:**	Percent
Lab Code:	E1801045-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 05:19
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.317g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519244	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	734.954	37		25-164	0.83	1.021
13C-1,2,3,7,8-PeCDD	2000	1649.016	82		25-181	1.63	1.185
13C-1,2,3,4,7,8-HxCDD	2000	1207.927	60		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1073.352	54		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1689.666	84		23-140	1.06	1.067
13C-OCDD	4000	2506.294	63		17-157	0.89	1.143
13C-2,3,7,8-TCDF	2000	931.484	47		24-169	0.82	0.992
13C-1,2,3,7,8-PeCDF	2000	1428.612	71		24-185	1.59	1.143
13C-2,3,4,7,8-PeCDF	2000	1423.869	71		21-178	1.62	1.175
13C-1,2,3,4,7,8-HxCDF	2000	997.110	50		26-152	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	957.787	48		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1137.153	57		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	995.592	50		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1138.053	57		28-143	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1399.851	70		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	407.376	51		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 12:15
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0153	**Units:**	ng/Kg
Lab Code:	E1801045-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**8.60**	0.688	0.688	1	1	8.60
1,2,3,7,8-PeCDD	**0.403**	0.206	3.00	1	1	0.403
1,2,3,4,7,8-HxCDD	**1.01**	0.0580	3.00	1	0.1	0.101
1,2,3,6,7,8-HxCDD	**3.80**	0.0639	3.00	1	0.1	0.380
1,2,3,7,8,9-HxCDD	**1.77**	0.0594	3.00	1	0.1	0.177
1,2,3,4,6,7,8-HpCDD	**69.6**	0.287	3.00	1	0.01	0.696
OCDD	**1510**	0.134	6.00	1	0.0003	0.453
2,3,7,8-TCDF	**21.3**	0.235	0.600	1	0.1	2.13
1,2,3,7,8-PeCDF	**1.61**	0.220	3.00	1	0.03	0.0483
2,3,4,7,8-PeCDF	**0.867**	0.221	3.00	1	0.3	0.260
1,2,3,4,7,8-HxCDF	**4.59**	0.0951	3.00	1	0.1	0.459
1,2,3,6,7,8-HxCDF	**1.26**	0.0983	3.00	1	0.1	0.126
1,2,3,7,8,9-HxCDF	**0.796**	0.106	3.00	1	0.1	0.0796
2,3,4,6,7,8-HxCDF	**1.11**	0.102	3.00	1	0.1	0.111
1,2,3,4,6,7,8-HpCDF	**19.5**	0.0971	3.00	1	0.01	0.195
1,2,3,4,7,8,9-HpCDF	**2.35**	0.111	3.00	1	0.01	0.0235
OCDF	**142**	0.147	6.00	1	0.0003	0.0426
		Total TEQ				14.3

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 12:15
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0153	**Units:**	Percent
Lab Code:	E1801045-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	7.866g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.8		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 15:45
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0164	**Units:**	ng/Kg
Lab Code:	E1801045-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 06:08
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.713g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519245	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	48.8		0.359	0.583	0.82	1.001	1
1,2,3,7,8-PeCDD	0.935	**JK**	0.112	2.92	1.97	1.001	1
1,2,3,4,7,8-HxCDD	0.812	**J**	0.114	2.92	1.17	1.000	1
1,2,3,6,7,8-HxCDD	2.32	**JK**	0.123	2.92	1.01	1.000	1
1,2,3,7,8,9-HxCDD	1.93	**J**	0.116	2.92	1.35	1.007	1
1,2,3,4,6,7,8-HpCDD	53.1		0.303	2.92	1.07	1.000	1
OCDD	1270		0.158	5.83	0.89	1.001	1
2,3,7,8-TCDF	100		0.117	0.583	0.75	1.000	1
1,2,3,7,8-PeCDF	3.09		0.161	2.92	1.50	1.001	1
2,3,4,7,8-PeCDF	3.17		0.169	2.92	1.40	1.001	1
1,2,3,4,7,8-HxCDF	6.30		0.0901	2.92	1.14	1.001	1
1,2,3,6,7,8-HxCDF	1.67	**J**	0.0933	2.92	1.32	1.000	1
1,2,3,7,8,9-HxCDF	0.588	**J**	0.102	2.92	1.09	1.001	1
2,3,4,6,7,8-HxCDF	1.02	**J**	0.0925	2.92	1.10	1.000	1
1,2,3,4,6,7,8-HpCDF	11.7		0.154	2.92	1.09	1.000	1
1,2,3,4,7,8,9-HpCDF	1.54	**J**	0.202	2.92	1.00	1.000	1
OCDF	60.8		0.351	5.83	0.83	1.006	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 15:45
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0164	**Units:**	ng/Kg
Lab Code:	E1801045-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 06:08
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.713g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519245	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	58.9		0.359	0.583	0.72		1
Total Penta-Dioxins	3.92		0.112	2.92	1.62		1
Total Hexa-Dioxins	36.2		0.118	2.92	1.31		1
Total Hepta-Dioxins	153		0.303	2.92	1.05		1
Total Tetra-Furans	168		0.117	0.583	0.73		1
Total Penta-Furans	13.5		0.165	2.92	1.66		1
Total Hexa-Furans	18.4		0.0942	2.92	1.10		1
Total Hepta-Furans	35.2		0.176	2.92	1.09		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 15:45
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0164	**Units:**	Percent
Lab Code:	E1801045-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 06:08
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.713g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519245	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	670.782	34		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1155.617	58		25-181	1.60	1.186
13C-1,2,3,4,7,8-HxCDD	2000	880.142	44		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	848.525	42		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	935.702	47		23-140	1.06	1.067
13C-OCDD	4000	944.737	24		17-157	0.92	1.143
13C-2,3,7,8-TCDF	2000	903.647	45		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1088.622	54		24-185	1.62	1.143
13C-2,3,4,7,8-PeCDF	2000	1073.999	54		21-178	1.62	1.176
13C-1,2,3,4,7,8-HxCDF	2000	766.260	38		26-152	0.50	0.970
13C-1,2,3,6,7,8-HxCDF	2000	736.603	37		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	826.575	41		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	767.543	38		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	689.425	34		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	752.680	38		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	392.840	49		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 15:45
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0164	**Units:**	ng/Kg
Lab Code:	E1801045-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**48.8**	0.359	0.583	1	1	48.8
1,2,3,7,8-PeCDD	**0.935**	0.112	2.92	1	1	0.935
1,2,3,4,7,8-HxCDD	**0.812**	0.114	2.92	1	0.1	0.0812
1,2,3,6,7,8-HxCDD	**2.32**	0.123	2.92	1	0.1	0.232
1,2,3,7,8,9-HxCDD	**1.93**	0.116	2.92	1	0.1	0.193
1,2,3,4,6,7,8-HpCDD	**53.1**	0.303	2.92	1	0.01	0.531
OCDD	**1270**	0.158	5.83	1	0.0003	0.381
2,3,7,8-TCDF	**100**	0.117	0.583	1	0.1	10.0
1,2,3,7,8-PeCDF	**3.09**	0.161	2.92	1	0.03	0.0927
2,3,4,7,8-PeCDF	**3.17**	0.169	2.92	1	0.3	0.951
1,2,3,4,7,8-HxCDF	**6.30**	0.0901	2.92	1	0.1	0.630
1,2,3,6,7,8-HxCDF	**1.67**	0.0933	2.92	1	0.1	0.167
1,2,3,7,8,9-HxCDF	**0.588**	0.102	2.92	1	0.1	0.0588
2,3,4,6,7,8-HxCDF	**1.02**	0.0925	2.92	1	0.1	0.102
1,2,3,4,6,7,8-HpCDF	**11.7**	0.154	2.92	1	0.01	0.117
1,2,3,4,7,8,9-HpCDF	**1.54**	0.202	2.92	1	0.01	0.0154
OCDF	**60.8**	0.351	5.83	1	0.0003	0.0182
		Total TEQ				63.3

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 15:45
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0164	**Units:**	Percent
Lab Code:	E1801045-017	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	5.656g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.0		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 10:05
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0146	**Units:**	ng/Kg
Lab Code:	E1801045-023	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 06:58
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.539g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519246	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	186		0.643	0.728	0.80	1.001	1
1,2,3,7,8-PeCDD	3.68		0.396	3.64	1.55	1.001	1
1,2,3,4,7,8-HxCDD	2.15	**JK**	0.359	3.64	0.85	1.000	1
1,2,3,6,7,8-HxCDD	12.4		0.411	3.64	1.23	1.000	1
1,2,3,7,8,9-HxCDD	6.93		0.375	3.64	1.20	1.007	1
1,2,3,4,6,7,8-HpCDD	286		1.21	3.64	1.06	1.000	1
OCDD	14500	**E**	0.390	7.28	0.90	1.000	1
2,3,7,8-TCDF	475		0.234	0.728	0.76	1.001	1
1,2,3,7,8-PeCDF	8.01		0.317	3.64	1.53	1.001	1
2,3,4,7,8-PeCDF	9.32		0.344	3.64	1.70	1.001	1
1,2,3,4,7,8-HxCDF	15.0		1.02	3.64	1.10	1.000	1
1,2,3,6,7,8-HxCDF	5.13		1.03	3.64	1.09	1.000	1
1,2,3,7,8,9-HxCDF	2.51	**J**	1.05	3.64	1.10	1.001	1
2,3,4,6,7,8-HxCDF	5.62		1.07	3.64	1.12	1.000	1
1,2,3,4,6,7,8-HpCDF	109		0.696	3.64	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	9.36		0.896	3.64	1.02	1.000	1
OCDF	4380		0.656	7.28	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 10:05
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0146	**Units:**	ng/Kg
Lab Code:	E1801045-023	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 06:58
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.539g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519246	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	207		0.643	0.728	0.73		1
Total Penta-Dioxins	21.5		0.396	3.64	1.67		1
Total Hexa-Dioxins	136		0.381	3.64	1.27		1
Total Hepta-Dioxins	697		1.21	3.64	1.06		1
Total Tetra-Furans	864		0.234	0.728	0.72		1
Total Penta-Furans	76.3		0.330	3.64	1.47		1
Total Hexa-Furans	109		1.04	3.64	1.23		1
Total Hepta-Furans	268		0.787	3.64	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 10:05
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0146	**Units:**	Percent
Lab Code:	E1801045-023	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 06:58
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.539g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519246	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519240

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	905.162	45		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1452.735	73		25-181	1.58	1.185
13C-1,2,3,4,7,8-HxCDD	2000	1185.233	59		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1050.111	53		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1120.089	56		23-140	1.07	1.067
13C-OCDD	4000	1132.769	28		17-157	0.88	1.143
13C-2,3,7,8-TCDF	2000	1171.165	59		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1333.716	67		24-185	1.58	1.142
13C-2,3,4,7,8-PeCDF	2000	1276.326	64		21-178	1.59	1.175
13C-1,2,3,4,7,8-HxCDF	2000	991.673	50		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	944.266	47		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1080.929	54		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	985.369	49		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	829.513	41		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	889.004	44		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	528.221	66		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 10:05
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0146	**Units:**	ng/Kg
Lab Code:	E1801045-023	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**186**	0.643	0.728	1	1	186
1,2,3,7,8-PeCDD	**3.68**	0.396	3.64	1	1	3.68
1,2,3,4,7,8-HxCDD	**2.15**	0.359	3.64	1	0.1	0.215
1,2,3,6,7,8-HxCDD	**12.4**	0.411	3.64	1	0.1	1.24
1,2,3,7,8,9-HxCDD	**6.93**	0.375	3.64	1	0.1	0.693
1,2,3,4,6,7,8-HpCDD	**286**	1.21	3.64	1	0.01	2.86
OCDD	**14500**	0.390	7.28	1	0.0003	4.35
2,3,7,8-TCDF	**475**	0.234	0.728	1	0.1	47.5
1,2,3,7,8-PeCDF	**8.01**	0.317	3.64	1	0.03	0.240
2,3,4,7,8-PeCDF	**9.32**	0.344	3.64	1	0.3	2.80
1,2,3,4,7,8-HxCDF	**15.0**	1.02	3.64	1	0.1	1.50
1,2,3,6,7,8-HxCDF	**5.13**	1.03	3.64	1	0.1	0.513
1,2,3,7,8,9-HxCDF	**2.51**	1.05	3.64	1	0.1	0.251
2,3,4,6,7,8-HxCDF	**5.62**	1.07	3.64	1	0.1	0.562
1,2,3,4,6,7,8-HpCDF	**109**	0.696	3.64	1	0.01	1.09
1,2,3,4,7,8,9-HpCDF	**9.36**	0.896	3.64	1	0.01	0.0936
OCDF	**4380**	0.656	7.28	1	0.0003	1.31
		Total TEQ				255

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	11/13/18 10:05
Sample Matrix:	Sludge, Solid	**Date Received:**	11/14/18 12:12
Sample Name:	SL0146	**Units:**	Percent
Lab Code:	E1801045-023	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	6.828g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	65.2		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800488-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519290	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.419	0.488			1
1,2,3,7,8-PeCDD	ND	U	0.0694	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0548	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0572	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0547	2.44			1
1,2,3,4,6,7,8-HpCDD	0.0967**JK**		0.0337	2.44	0.82	1.000	1
OCDD	0.200**JK**		0.0666	4.88	0.55	1.000	1
2,3,7,8-TCDF	0.343**JK**		0.115	0.488	0.63	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0515	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.0562	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0415	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0363	2.44			1
1,2,3,7,8,9-HxCDF	0.0508**J**		0.0466	2.44	1.22	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0427	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0294	2.44			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0394	2.44			1
OCDF	ND	U	0.143	4.88			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800488-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519290	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.419	0.488			1
Total Penta-Dioxins	ND	U	0.0694	2.44			1
Total Hexa-Dioxins	ND	U	0.0556	2.44			1
Total Hepta-Dioxins	ND	U	0.0337	2.44			1
Total Tetra-Furans	ND	U	0.115	0.488			1
Total Penta-Furans	ND	U	0.0537	2.44			1
Total Hexa-Furans	0.0508**J**		0.0415	2.44	1.22		1
Total Hepta-Furans	0.0434**J**		0.0341	2.44	1.10		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800488-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519290	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	601.967	30		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1232.457	62		25-181	1.60	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1021.258	51		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	990.134	50		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1445.852	72		23-140	1.07	1.070
13C-OCDD	4000	2263.024	57		17-157	0.91	1.151
13C-2,3,7,8-TCDF	2000	808.433	40		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1150.728	58		24-185	1.62	1.145
13C-2,3,4,7,8-PeCDF	2000	1085.788	54		21-178	1.59	1.179
13C-1,2,3,4,7,8-HxCDF	2000	890.132	45		26-152	0.54	0.970
13C-1,2,3,6,7,8-HxCDF	2000	953.383	48		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1026.900	51		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	925.376	46		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1012.807	51		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1149.672	57		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	348.230	44		35-197	NA	1.021

Accuracy & Precision

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Analyzed:**	12/11/18
Sample Matrix:	Sludge, Solid	**Date Extracted:**	11/29/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618494

	Lab Control Sample EQ1800488-02			Duplicate Lab Control Sample EQ1800488-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	76.5	97.3	79	76.7	98.9	78	70-140	<1	50
1,2,3,4,7,8-HxCDD	88.3	97.3	91	91.8	98.9	93	70-164	4	50
1,2,3,6,7,8-HxCDD	97.4	97.3	100	102	98.9	104	76-134	5	50
1,2,3,7,8,9-HxCDD	96.6	97.3	99	91.5	98.9	93	64-162	5	50
1,2,3,7,8-PeCDD	98.8	97.3	102	99.7	98.9	101	70-142	<1	50
2,3,7,8-TCDD	18.0	19.5	93	19.6	19.8	99	67-158	8	50
OCDD	194	195	100	191	198	96	78-144	2	50
1,2,3,4,6,7,8-HpCDF	91.6	97.3	94	93.2	98.9	94	82-122	2	50
1,2,3,4,7,8,9-HpCDF	95.8	97.3	99	100	98.9	101	78-138	4	50
1,2,3,4,7,8-HxCDF	98.1	97.3	101	99.8	98.9	101	72-134	2	50
1,2,3,6,7,8-HxCDF	94.7	97.3	97	99.2	98.9	100	84-130	5	50
1,2,3,7,8,9-HxCDF	92.5	97.3	95	95.3	98.9	96	78-130	3	50
1,2,3,7,8-PeCDF	90.1	97.3	93	90.8	98.9	92	80-134	<1	50
2,3,4,6,7,8-HxCDF	96.3	97.3	99	97.3	98.9	98	70-156	<1	50
2,3,4,7,8-PeCDF	98.8	97.3	102	100	98.9	101	68-160	2	50
2,3,7,8-TCDF	19.4	19.5	100	19.2	19.8	97	75-158	1	50
OCDF	209	195	108	219	198	111	63-170	4	50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:07
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.279g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519363	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.0		0.371	0.486	0.83	1.001	1
1,2,3,7,8-PeCDD	98.8		0.0819	2.43	1.59	1.000	1
1,2,3,4,7,8-HxCDD	88.3		0.0522	2.43	1.28	1.000	1
1,2,3,6,7,8-HxCDD	97.4		0.0570	2.43	1.25	1.000	1
1,2,3,7,8,9-HxCDD	96.6		0.0533	2.43	1.22	1.007	1
1,2,3,4,6,7,8-HpCDD	76.5		0.0421	2.43	1.04	1.000	1
OCDD	194		0.125	4.86	0.91	1.000	1
2,3,7,8-TCDF	19.4		0.198	0.486	0.68	1.001	1
1,2,3,7,8-PeCDF	90.1		0.149	2.43	1.50	1.000	1
2,3,4,7,8-PeCDF	98.8		0.155	2.43	1.48	1.000	1
1,2,3,4,7,8-HxCDF	98.1		0.0323	2.43	1.20	1.001	1
1,2,3,6,7,8-HxCDF	94.7		0.0299	2.43	1.21	1.000	1
1,2,3,7,8,9-HxCDF	92.5		0.0359	2.43	1.21	1.000	1
2,3,4,6,7,8-HxCDF	96.3		0.0304	2.43	1.19	1.000	1
1,2,3,4,6,7,8-HpCDF	91.6		0.129	2.43	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	95.8		0.165	2.43	0.97	1.000	1
OCDF	209		0.110	4.86	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:07
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.279g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519363	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.0		0.371	0.486	0.83		1
Total Penta-Dioxins	98.8		0.0819	2.43	1.59		1
Total Hexa-Dioxins	282		0.0541	2.43	1.28		1
Total Hepta-Dioxins	76.5		0.0421	2.43	1.04		1
Total Tetra-Furans	19.7		0.198	0.486	0.86		1
Total Penta-Furans	189		0.152	2.43	1.54		1
Total Hexa-Furans	382		0.0320	2.43	1.20		1
Total Hepta-Furans	187		0.146	2.43	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800488-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:07
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.279g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519363	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	466.307	23	**Y**	25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	825.671	41		25-181	1.62	1.191
13C-1,2,3,4,7,8-HxCDD	2000	864.506	43		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	870.765	44		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1092.489	55		23-140	1.06	1.070
13C-OCDD	4000	1640.699	41		17-157	0.89	1.151
13C-2,3,7,8-TCDF	2000	401.579	20	**Y**	24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	771.807	39		24-185	1.56	1.147
13C-2,3,4,7,8-PeCDF	2000	757.986	38		21-178	1.60	1.180
13C-1,2,3,4,7,8-HxCDF	2000	731.942	37		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	787.880	39		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	844.158	42		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	817.519	41		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	839.764	42		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	957.460	48		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	208.630	26	**Y**	35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:56
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.116g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519364	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.6		0.242	0.494	0.73	1.001	1
1,2,3,7,8-PeCDD	99.7		0.101	2.47	1.63	1.000	1
1,2,3,4,7,8-HxCDD	91.8		0.0303	2.47	1.28	1.000	1
1,2,3,6,7,8-HxCDD	102		0.0341	2.47	1.25	1.000	1
1,2,3,7,8,9-HxCDD	91.5		0.0314	2.47	1.20	1.007	1
1,2,3,4,6,7,8-HpCDD	76.7		0.0333	2.47	1.07	1.000	1
OCDD	191		0.126	4.94	0.90	1.000	1
2,3,7,8-TCDF	19.2		0.121	0.494	0.74	1.001	1
1,2,3,7,8-PeCDF	90.8		0.106	2.47	1.52	1.001	1
2,3,4,7,8-PeCDF	100		0.108	2.47	1.49	1.001	1
1,2,3,4,7,8-HxCDF	99.8		0.0342	2.47	1.21	1.000	1
1,2,3,6,7,8-HxCDF	99.2		0.0319	2.47	1.20	1.000	1
1,2,3,7,8,9-HxCDF	95.3		0.0465	2.47	1.26	1.000	1
2,3,4,6,7,8-HxCDF	97.3		0.0367	2.47	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	93.2		0.197	2.47	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	100		0.269	2.47	0.99	1.000	1
OCDF	219		0.195	4.94	0.85	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:56
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.116g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519364	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.6		0.242	0.494	0.73		1
Total Penta-Dioxins	99.7		0.101	2.47	1.63		1
Total Hexa-Dioxins	286		0.0319	2.47	1.28		1
Total Hepta-Dioxins	76.7		0.0333	2.47	1.07		1
Total Tetra-Furans	19.2		0.121	0.494	0.74		1
Total Penta-Furans	193		0.107	2.47	1.52		1
Total Hexa-Furans	392		0.0367	2.47	1.21		1
Total Hepta-Furans	193		0.230	2.47	0.99		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801045
Project:	C1887-0501 Southern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sludge, Solid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800488-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:56
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.116g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519364	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	728.406	36		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	999.237	50		25-181	1.59	1.191
13C-1,2,3,4,7,8-HxCDD	2000	935.215	47		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	886.125	44		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	974.232	49		23-140	1.06	1.070
13C-OCDD	4000	1238.088	31		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	695.555	35		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	937.057	47		24-185	1.60	1.147
13C-2,3,4,7,8-PeCDF	2000	924.290	46		21-178	1.59	1.180
13C-1,2,3,4,7,8-HxCDF	2000	799.844	40		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	843.883	42		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	795.949	40		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	808.396	40		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	804.546	40		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	878.334	44		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	336.023	42		35-197	NA	1.021

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

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Sample Response Summary

CLIENT ID.
SL0153

Run #11 Filename P519244 Samp: 1 Inj: 1 Acquired: 6-DEC-18 05:19:57
Processed: 7-DEC-18 09:55:15 Sample ID: E1801045-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	5.054e+02	6.365e+02	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	8.329e+01	5.499e+01	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:11	4.230e+01	4.012e+01	1.05	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.365e+02	2.129e+02	1.11	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	6.530e+01	6.148e+01	1.06	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	5.717e+01	6.588e+01	0.87	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	5.485e+01	3.359e+01	1.63	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	9.565e+02	9.835e+02	0.97	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:55	1.334e+02	1.112e+02	1.20	no	no	1.258
10	Unk	OCDF	42:26	4.427e+03	4.992e+03	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:48	1.296e+02	1.446e+02	0.90	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	1.794e+01	9.806e+00	1.83	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	4.546e+01	3.268e+01	1.39	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	1.528e+02	1.162e+02	1.31	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	7.436e+01	8.301e+01	0.90	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	3.562e+03	3.351e+03	1.06	yes	no	1.025
17	Unk	OCDD	42:14	3.918e+04	4.329e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	6.145e+03	7.506e+03	0.82	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:15	1.251e+04	7.849e+03	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	1.242e+04	7.666e+03	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	6.696e+03	1.305e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	7.229e+03	1.427e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	6.789e+03	1.329e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:14	6.788e+03	1.303e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	5.269e+03	1.238e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	5.715e+03	1.271e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	2.973e+03	3.603e+03	0.83	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:27	9.662e+03	5.911e+03	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	1.000e+04	7.923e+03	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:42	9.110e+03	7.237e+03	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	1.195e+04	1.130e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:13	1.105e+04	1.237e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:13	8.574e+03	1.080e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	1.811e+04	1.399e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.000e+03				no	1.014

$$\text{OCDD} = \frac{(3.918e+04 + 4.329e+04) \times 4000\ \text{pg} \times 1}{(1.105e+04 + 1.237e+04) \times 10.317\ \text{g} \times 80.8 / 100 \times 1.118} = 1511\ \text{ng/kg}$$

LM 12/10/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0153

Run #11 Filename P519244 Samp: 1 Inj: 1 Acquired: 6-DEC-18 05:19:57
Processed: 7-DEC-18 09:55:15 LAB. ID: E1801045-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.54e+04	2.72e+02	3.1e+02	1.06e+05	6.20e+02	1.7e+02
2	1,2,3,7,8-PeCDF	1.64e+04	2.64e+02	6.2e+01	1.02e+04	1.15e+03	8.9e+00
3	2,3,4,7,8-PeCDF	1.21e+04	2.64e+02	4.6e+01	1.07e+04	1.15e+03	9.3e+00
4	1,2,3,4,7,8-HxCDF	5.04e+04	5.40e+02	9.3e+01	4.57e+04	2.96e+02	1.5e+02
5	1,2,3,6,7,8-HxCDF	1.34e+04	5.40e+02	2.5e+01	1.08e+04	2.96e+02	3.6e+01
6	2,3,4,6,7,8-HxCDF	1.13e+04	5.40e+02	2.1e+01	1.39e+04	2.96e+02	4.7e+01
7	1,2,3,7,8,9-HxCDF	1.15e+04	5.40e+02	2.1e+01	6.45e+03	2.96e+02	2.2e+01
8	1,2,3,4,6,7,8-HpCDF	2.07e+05	5.00e+02	4.1e+02	2.23e+05	3.40e+02	6.6e+02
9	1,2,3,4,7,8,9-HpCDF	2.60e+04	5.00e+02	5.2e+01	2.09e+04	3.40e+02	6.1e+01
10	OCDF	7.45e+05	2.24e+02	3.3e+03	8.28e+05	4.28e+02	1.9e+03
11	2,3,7,8-TCDD	2.89e+04	1.20e+03	2.4e+01	2.62e+04	3.36e+02	7.8e+01
12	1,2,3,7,8-PeCDD	4.33e+03	6.28e+02	6.9e+00	2.80e+03	3.88e+02	7.2e+00
13	1,2,3,4,7,8-HxCDD	1.09e+04	2.16e+02	5.0e+01	8.90e+03	1.72e+02	5.2e+01
14	1,2,3,6,7,8-HxCDD	3.02e+04	2.16e+02	1.4e+02	2.80e+04	1.72e+02	1.6e+02
15	1,2,3,7,8,9-HxCDD	1.39e+04	2.16e+02	6.4e+01	1.55e+04	1.72e+02	9.0e+01
16	1,2,3,4,6,7,8-HpCDD	7.60e+05	1.20e+03	6.3e+02	7.02e+05	1.12e+03	6.2e+02
17	OCDD	6.53e+06	2.32e+02	2.8e+04	7.29e+06	2.60e+02	2.8e+04
18	13C-2,3,7,8-TCDF	1.08e+06	2.98e+03	3.6e+02	1.33e+06	2.34e+03	5.7e+02
19	13C-1,2,3,7,8-PeCDF	2.35e+06	2.80e+02	8.4e+03	1.45e+06	3.72e+02	3.9e+03
20	13C-2,3,4,7,8-PeCDF	2.45e+06	2.80e+02	8.8e+03	1.53e+06	3.72e+02	4.1e+03
21	13C-1,2,3,4,7,8-HxCDF	1.49e+06	1.96e+02	7.6e+03	2.93e+06	4.88e+02	6.0e+03
22	13C-1,2,3,6,7,8-HxCDF	1.52e+06	1.96e+02	7.8e+03	3.01e+06	4.88e+02	6.2e+03
23	13C-2,3,4,6,7,8-HxCDF	1.50e+06	1.96e+02	7.6e+03	2.94e+06	4.88e+02	6.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.42e+06	1.96e+02	7.2e+03	2.71e+06	4.88e+02	5.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.15e+06	1.32e+03	8.7e+02	2.67e+06	1.66e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.14e+06	1.32e+03	8.6e+02	2.45e+06	1.66e+03	1.5e+03
27	13C-2,3,7,8-TCDD	5.55e+05	3.77e+03	1.5e+02	6.74e+05	1.36e+03	4.9e+02
28	13C-1,2,3,7,8-PeCDD	1.92e+06	3.44e+02	5.6e+03	1.16e+06	6.48e+02	1.8e+03
29	13C-1,2,3,4,7,8-HxCDD	2.18e+06	5.88e+02	3.7e+03	1.68e+06	2.92e+02	5.7e+03
30	13C-1,2,3,6,7,8-HxCDD	1.97e+06	5.88e+02	3.4e+03	1.53e+06	2.92e+02	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.41e+06	4.36e+02	5.5e+03	2.31e+06	2.52e+02	9.2e+03
32	13C-OCDD	1.84e+06	2.28e+02	8.1e+03	2.09e+06	2.28e+02	9.2e+03
33	13C-1,2,3,4-TCDD	1.64e+06	3.77e+03	4.3e+02	2.07e+06	1.36e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.77e+06	5.88e+02	6.4e+03	2.92e+06	2.92e+02	1.0e+04
35	37Cl-2,3,7,8-TCDD	7.69e+05	5.56e+02	1.4e+03			

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Peak List Summary

CLIENT ID.
SL0153

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P519244 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 05:19:57 Processed: 7-DEC-18 09:55:15

Mass: 303.9020 305.8990 Tot Response: 1.58e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:43	1.30e+01	1.74e+01	0.75	yes	3.03e+01		n	n
2	26:46	1.11e+01	1.52e+01	0.73	yes	2.63e+01		n	n
3	27:12	1.21e+02	1.65e+02	0.74	yes	2.87e+02		n	n
4	28:00	5.05e+02	6.37e+02	0.79	yes	1.14e+03	2,3,7,8-TCDF	n	n
5	29:52	3.72e+01	5.48e+01	0.68	yes	9.20e+01		n	n

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Peak List Summary

CLIENT ID.
SL0153

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 11 File: P519244 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 05:19:57 Processed: 7-DEC-18 09:55:15

Mass: 319.8970 321.8940 Tot Response: 3.04e+01 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:06	1.41e+01	1.64e+01	0.86	yes	3.04e+01	n	n

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Peak List Summary

CLIENT ID.
SL0153

Entry: 38 Totals Name: Total Penta-Furans1

Run: 11 File: P519244 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 05:19:57 Processed: 7-DEC-18 09:55:15

Mass: 339.8600 341.8570 Tot Response: 2.50e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:50	1.52e+02	9.85e+01 1.54	yes	2.50e+02		n	n

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Peak List Summary

CLIENT ID.
SL0153

Entry: 39 Totals Name: Total Penta-Furans2

Run: 11 File: P519244 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 05:19:57 Processed: 7-DEC-18 09:55:15

Mass: 339.8600 341.8570 Tot Response: 4.65e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:20	1.43e+02	1.05e+02	1.36	yes	2.49e+02		y	y
2	31:58	4.55e+01	3.22e+01	1.41	yes	7.77e+01		n	y
3	32:16	8.33e+01	5.50e+01	1.51	yes	1.38e+02	1,2,3,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0153

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P519244 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 05:19:57 Processed: 7-DEC-18 09:55:15

Mass: 373.8210 375.8180 Tot Response: 1.86e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:46	1.08e+02	7.83e+01	1.37	yes	1.86e+02		n	n
2	34:55	3.10e+02	2.62e+02	1.18	yes	5.72e+02		n	n
3	35:17	1.78e+01	1.34e+01	1.33	yes	3.12e+01		n	n
4	35:27	2.56e+02	2.35e+02	1.09	yes	4.91e+02		n	n
5	35:53	2.36e+02	2.13e+02	1.11	yes	4.49e+02	1,2,3,4,7,8-HxCDF	n	n
6	35:59	6.53e+01	6.15e+01	1.06	yes	1.27e+02	1,2,3,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0153

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P519244 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 05:19:57 Processed: 7-DEC-18 09:55:15

Mass: 389.8160 391.8130 Tot Response: 2.26e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	5.07e+02	4.01e+02	1.26	yes	9.07e+02		n	n
2	35:49	1.04e+02	7.48e+01	1.39	yes	1.79e+02		n	n
3	36:03	4.14e+02	3.39e+02	1.22	yes	7.53e+02		n	n
4	36:09	4.49e+01	3.40e+01	1.32	yes	7.89e+01		n	n
5	36:38	4.55e+01	3.27e+01	1.39	yes	7.81e+01	1,2,3,4,7,8-HxCDD	n	n
6	36:43	1.53e+02	1.16e+02	1.31	yes	2.69e+02	1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0153

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P519244 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 05:19:57 Processed: 7-DEC-18 09:55:15

Mass: 407.7820 409.7790 Tot Response: 4.60e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:31	9.56e+02	9.84e+02	0.97	yes	1.94e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:47	6.86e+01	6.38e+01	1.08	yes	1.32e+02		n	n
3	38:55	1.28e+03	1.25e+03	1.02	yes	2.53e+03		n	n

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Peak List Summary

CLIENT ID.
SL0153

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P519244 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 05:19:57 Processed: 7-DEC-18 09:55:15

Mass: 423.7770 425.7740 Tot Response: 1.67e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:46	5.03e+03	4.73e+03	1.06	yes	9.76e+03		n	n
2	39:26	3.56e+03	3.35e+03	1.06	yes	6.91e+03	1,2,3,4,6,7,8-HpCDD	n	n

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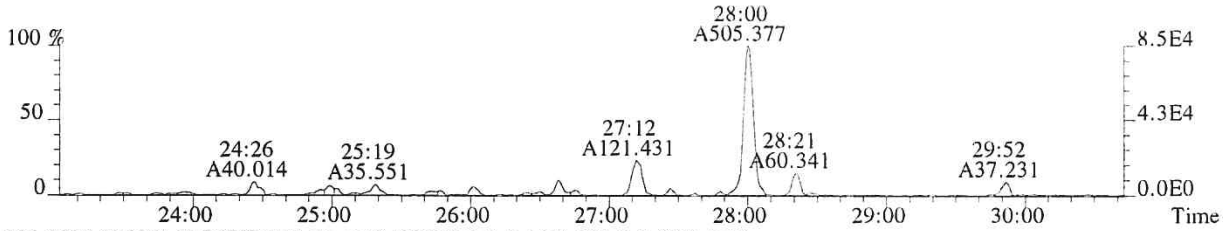
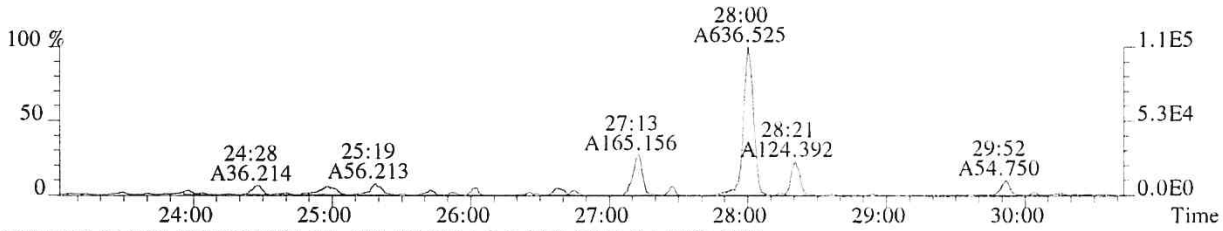
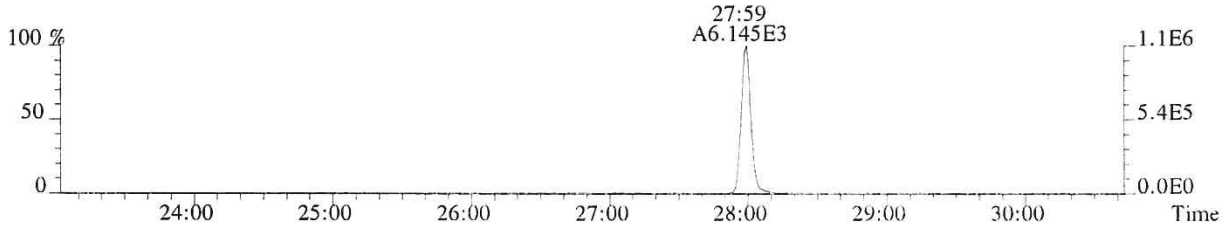
File:P519244 #1-545 Acq: 6-DEC-2018 05:19:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



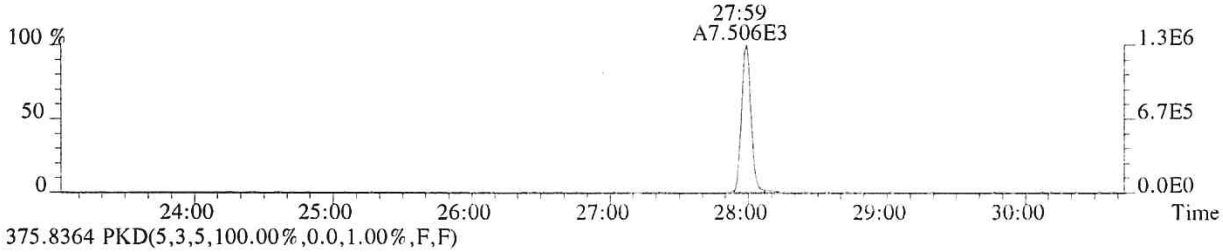
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



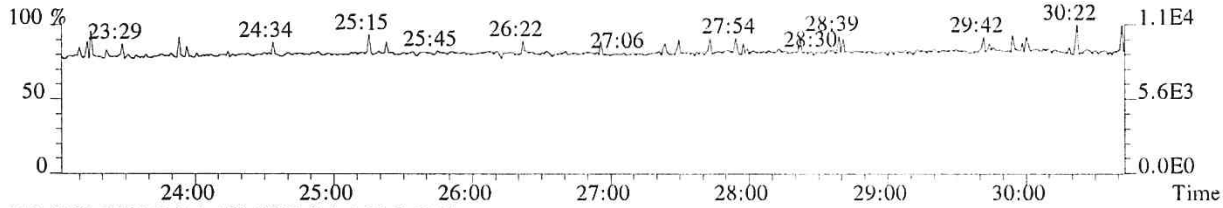
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2984.0,1.00%,F,T)



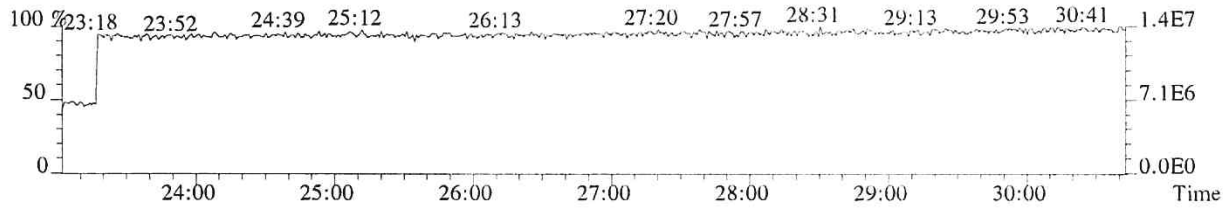
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2340.0,1.00%,F,T)



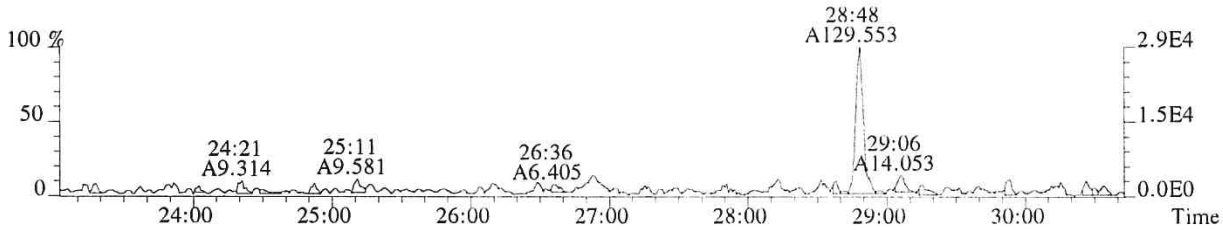
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



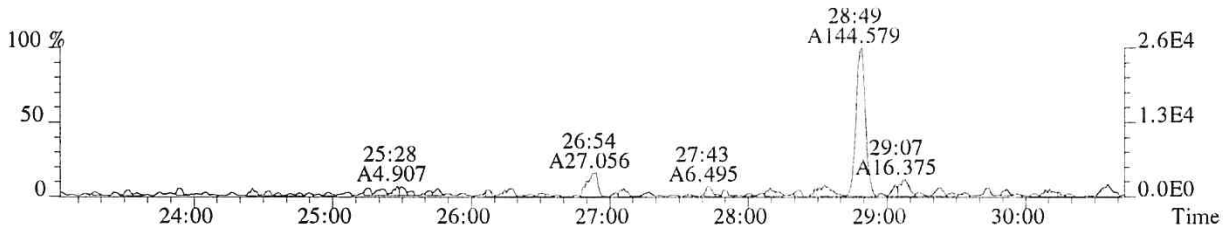
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



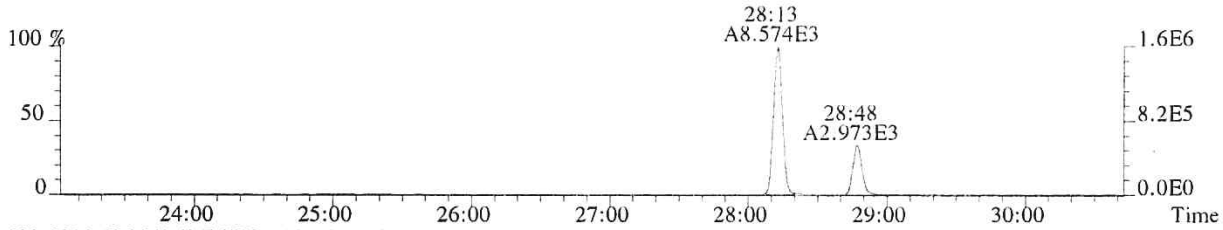
File:P519244 #1-545 Acq: 6-DEC-2018 05:19:57 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



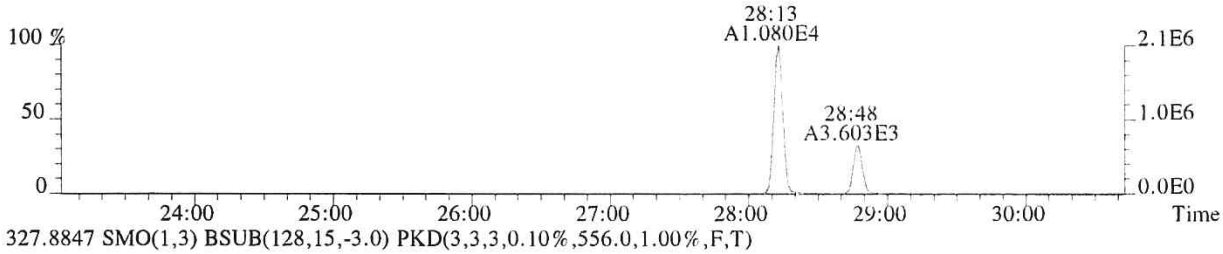
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



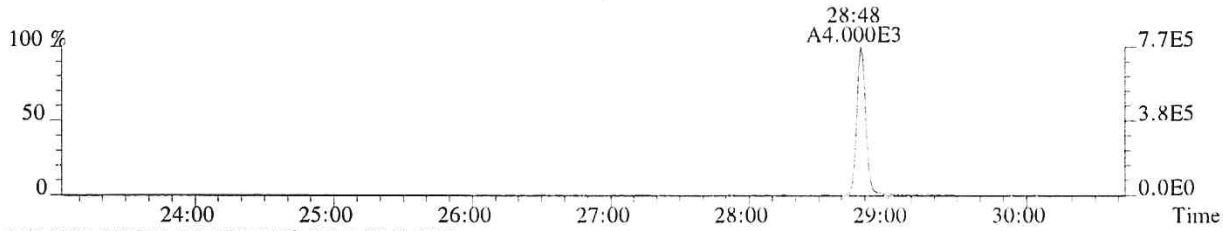
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3772.0,1.00%,F,T)



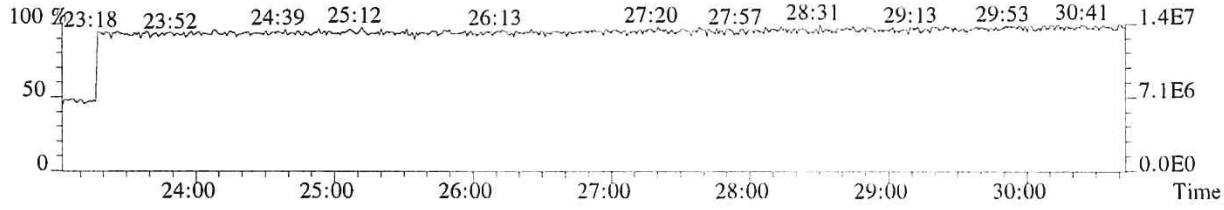
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1364.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)

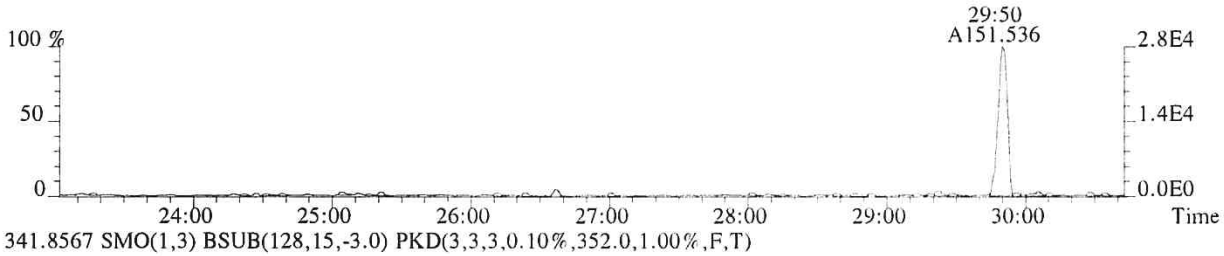


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

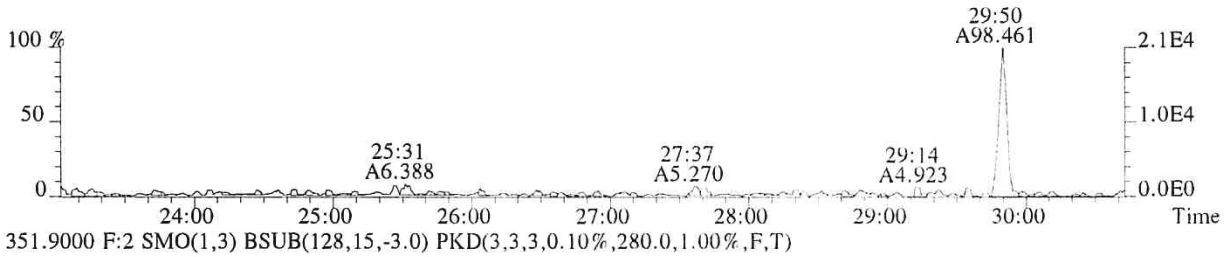


011911

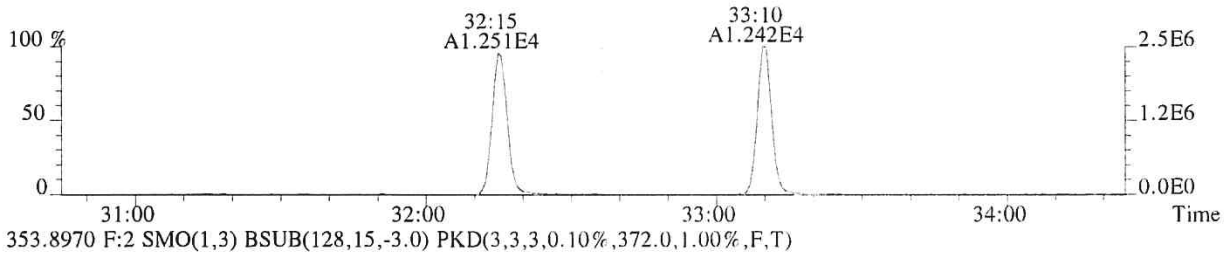
File:P519244 #1-545 Acq: 6-DEC-2018 05:19:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



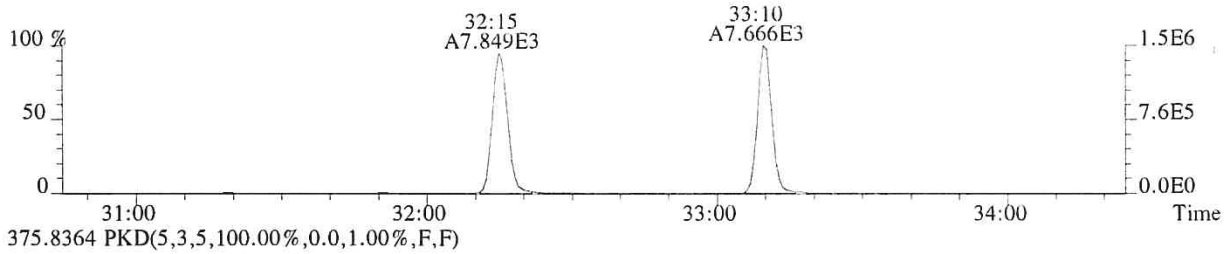
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



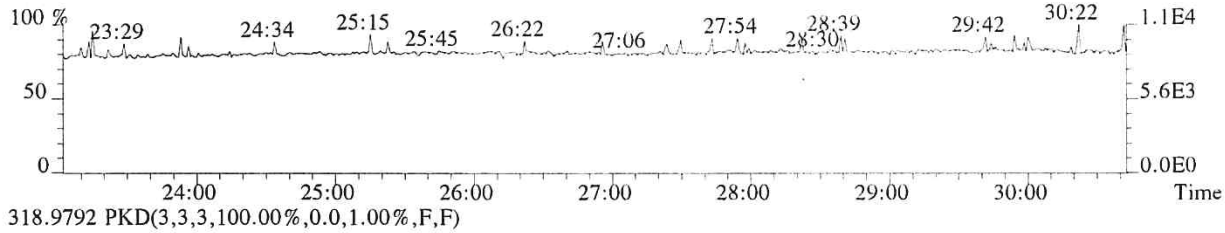
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



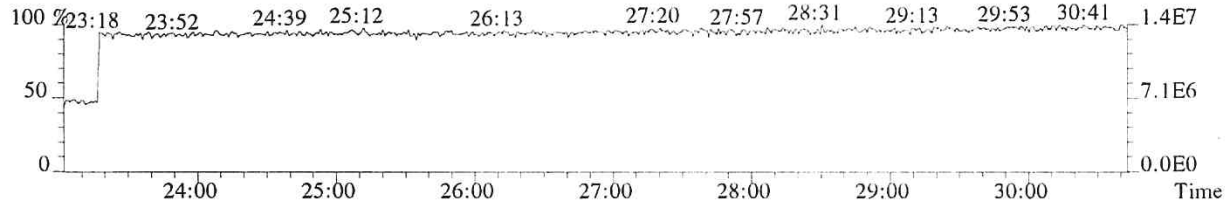
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

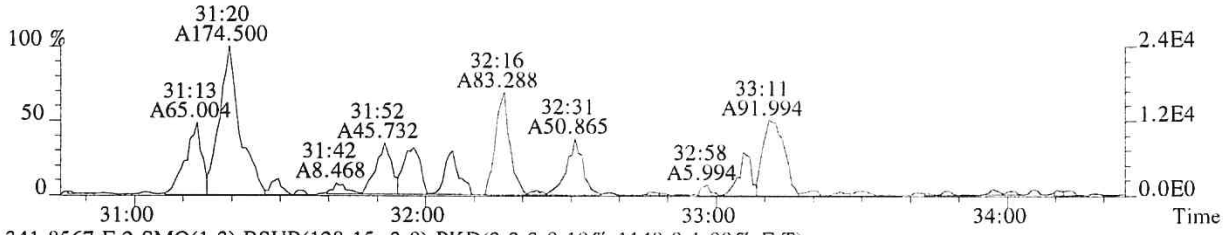


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

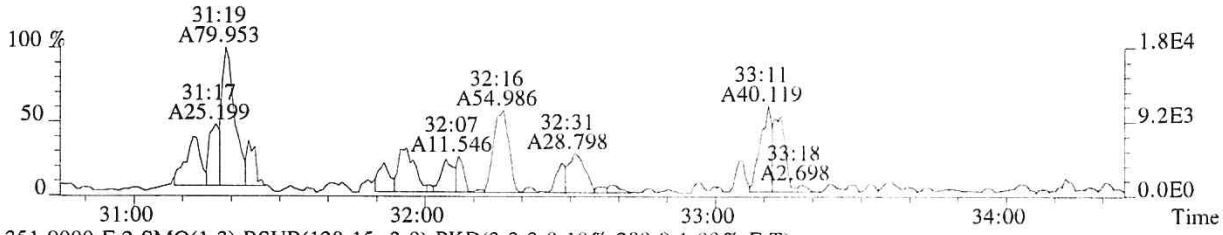


011912

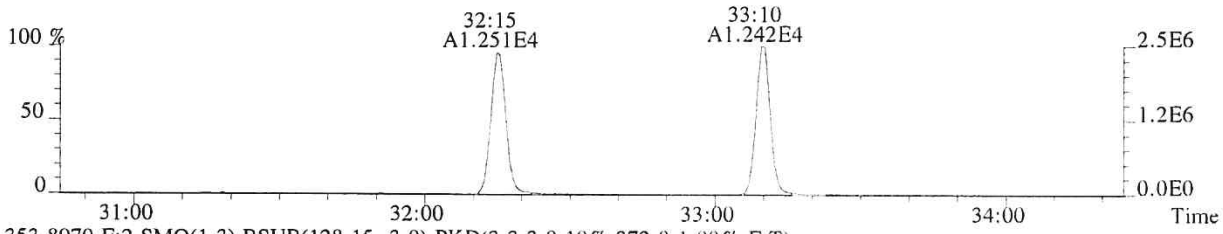
File:P519244 #1-330 Acq: 6-DEC-2018 05:19:57 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



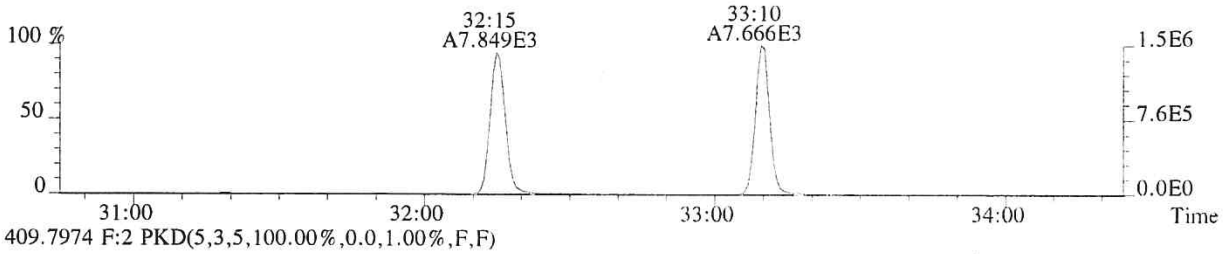
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



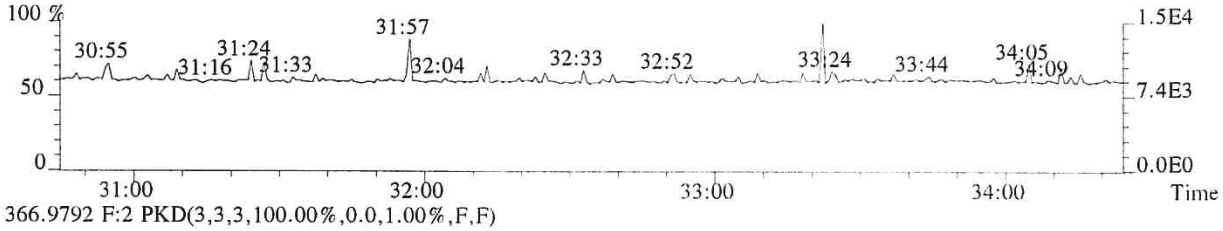
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



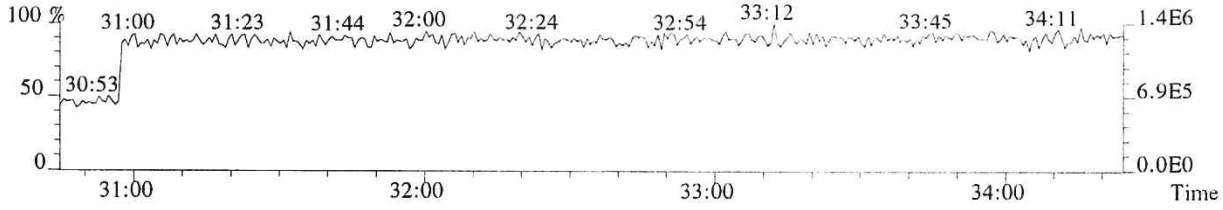
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

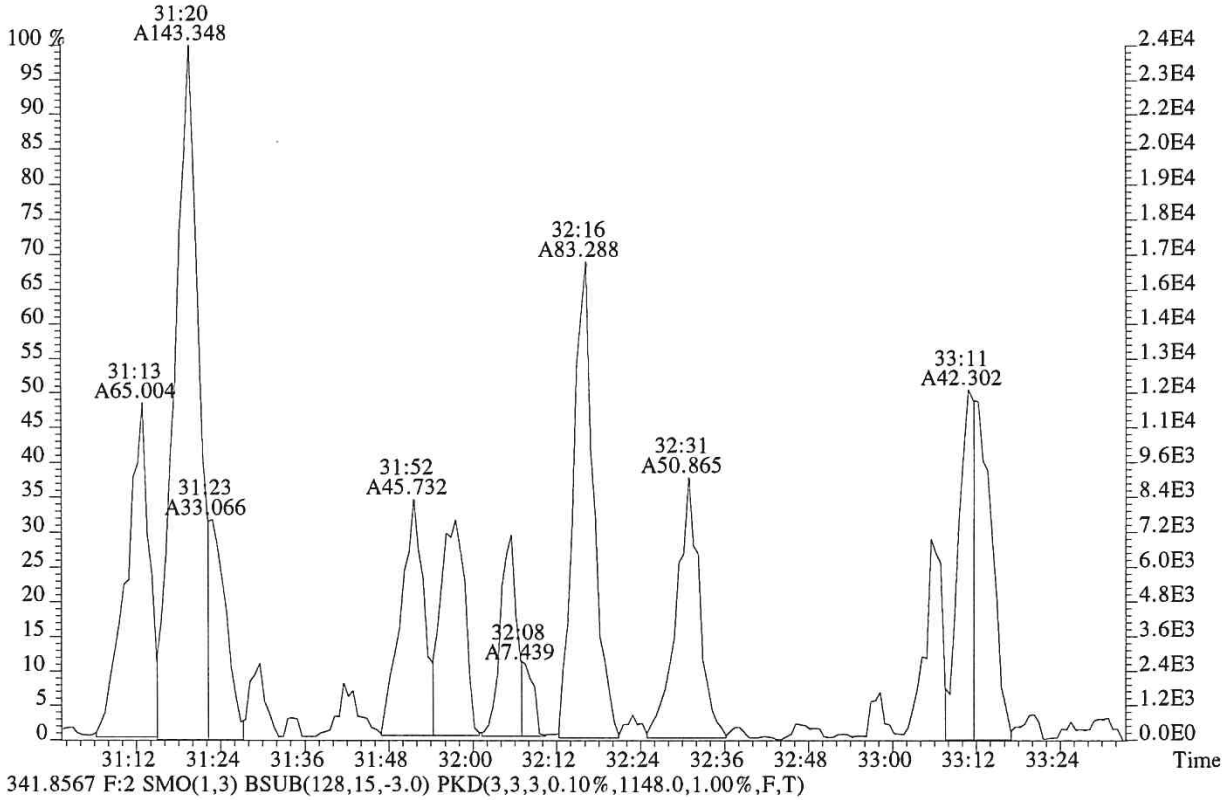


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

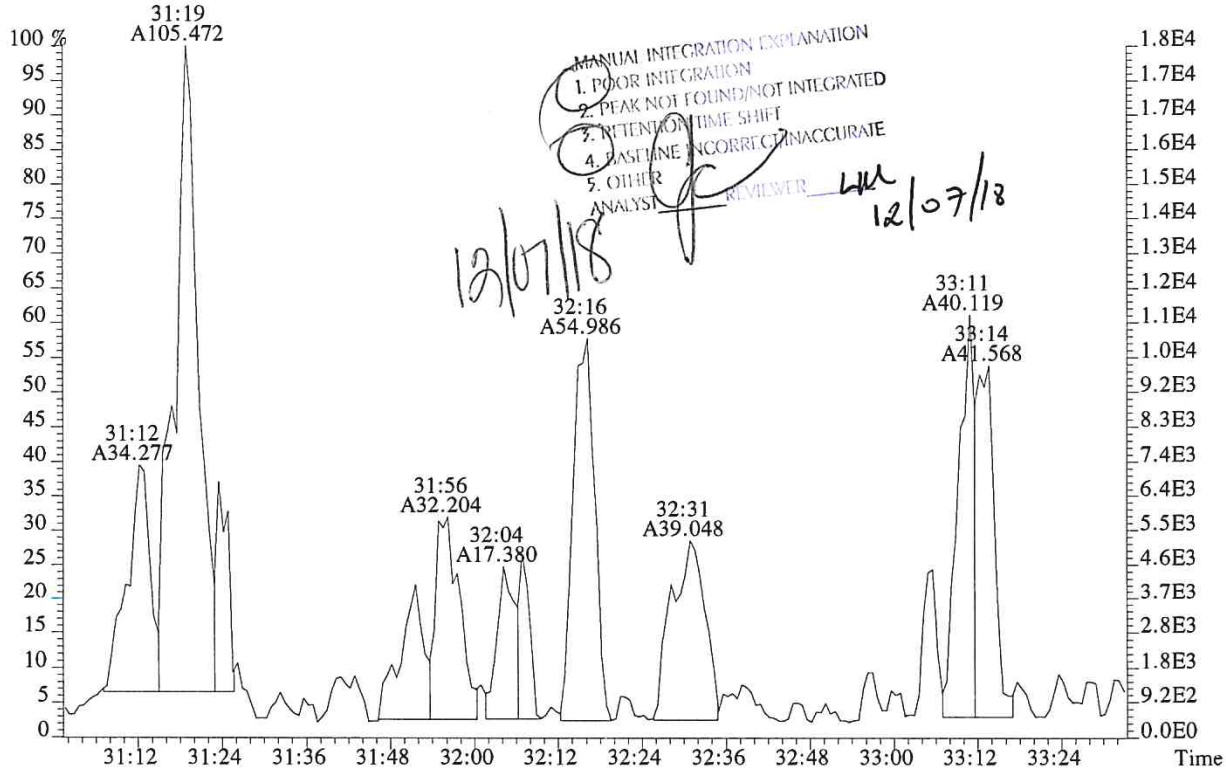


011913

File:P519244 #1-330 Acq: 6-DEC-2018 05:19:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)

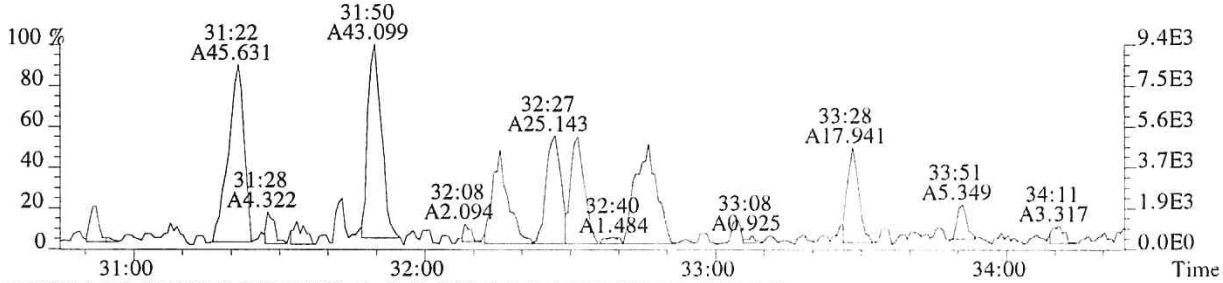


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)

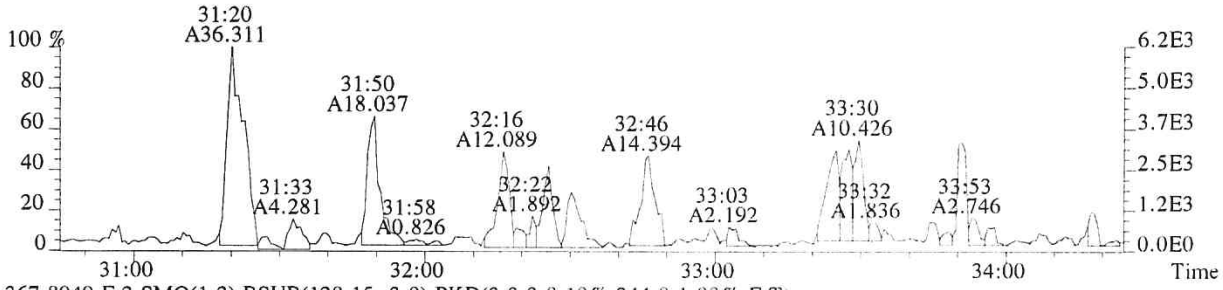


011914

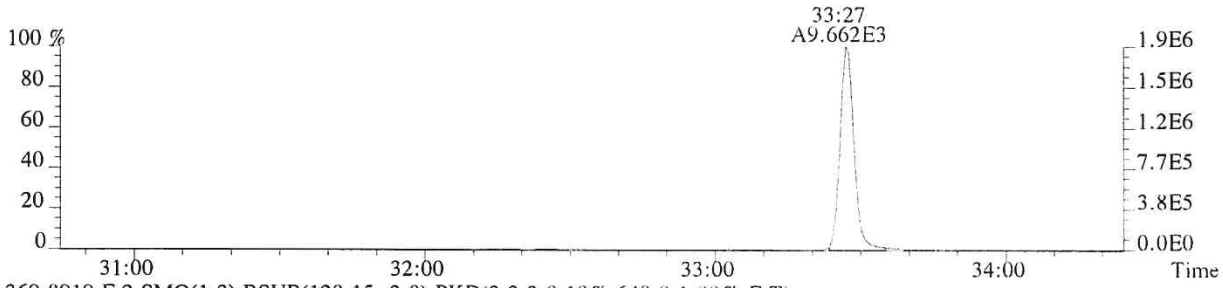
File:P519244 #1-330 Acq: 6-DEC-2018 05:19:57 Probe El+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



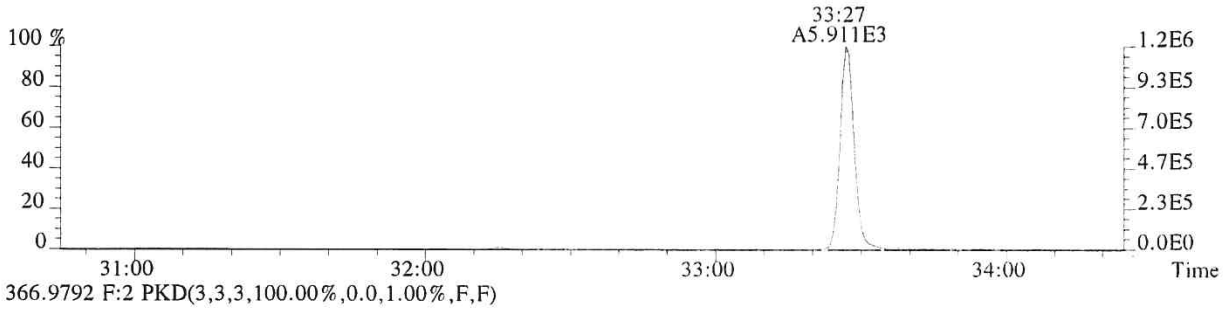
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



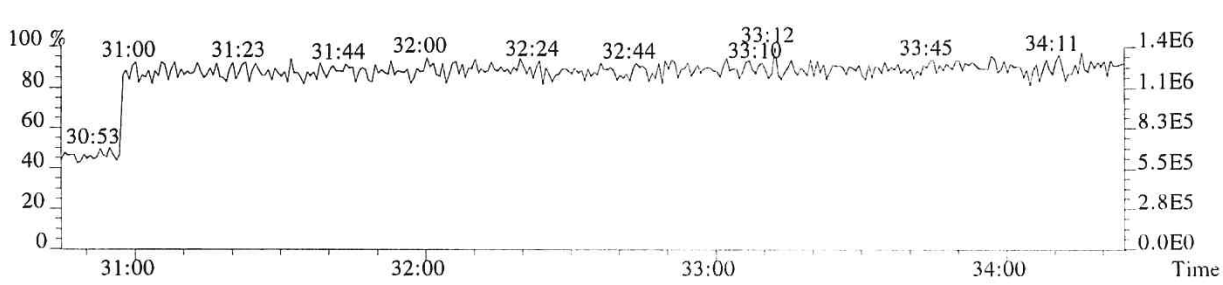
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



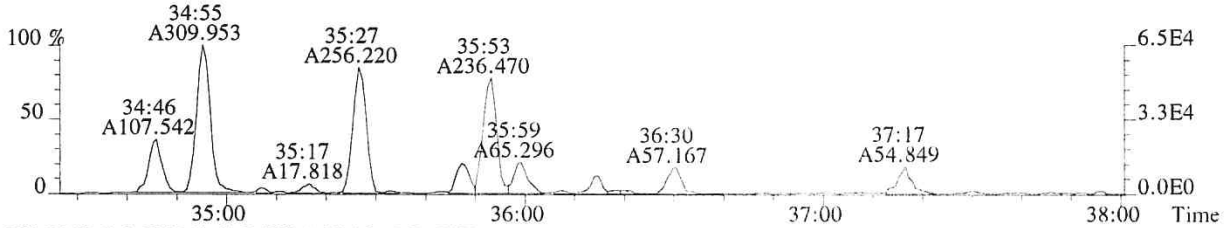
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



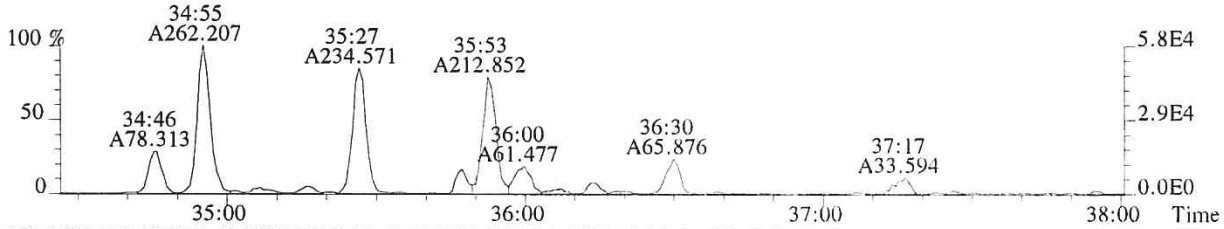
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



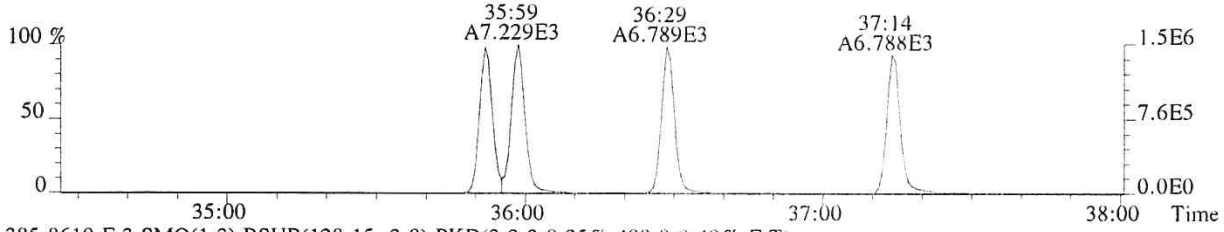
File:P519244 #1-322 Acq: 6-DEC-2018 05:19:57 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



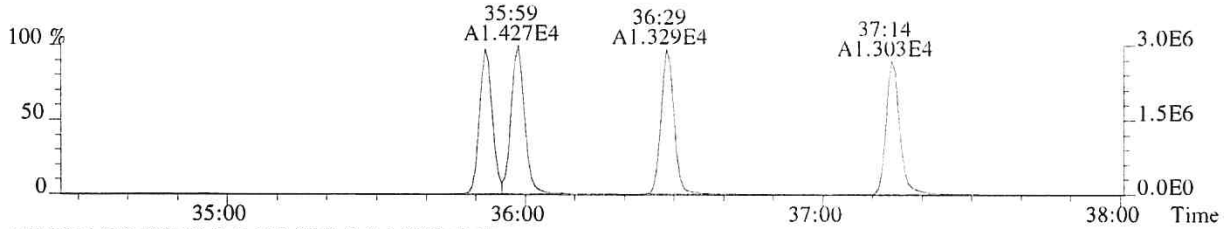
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



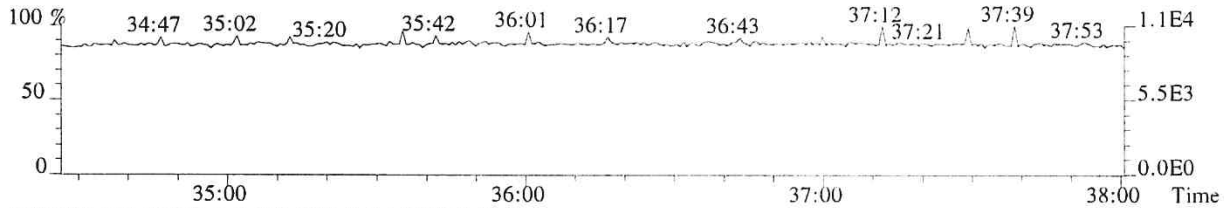
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



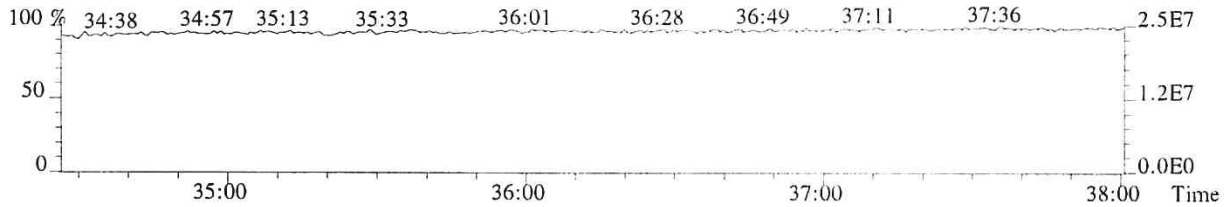
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

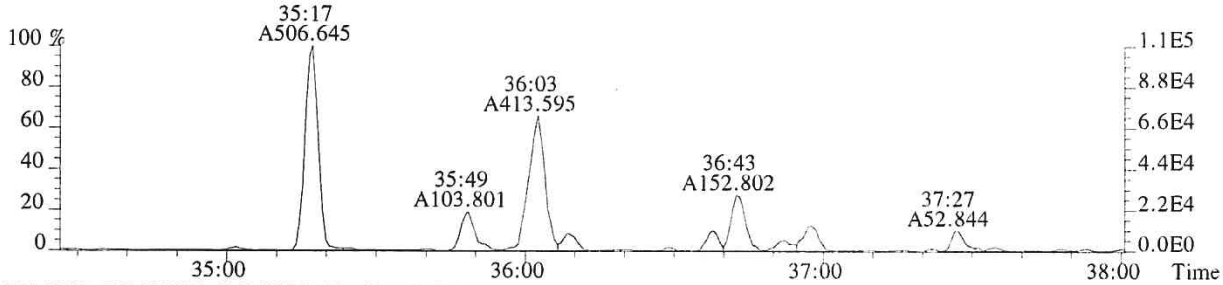


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

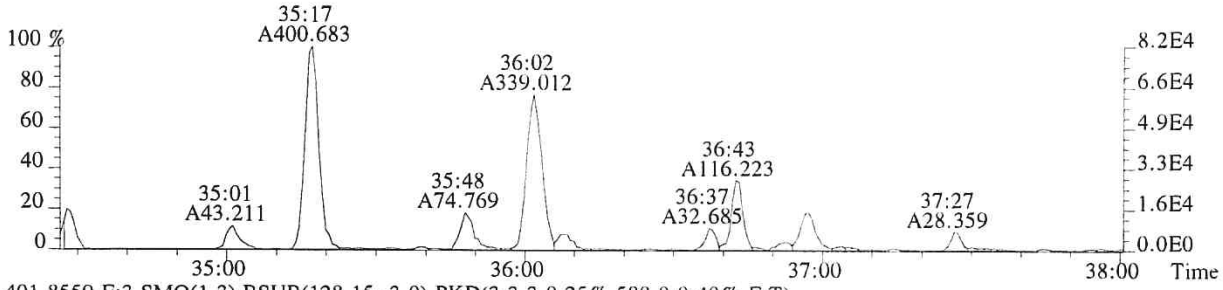


011916

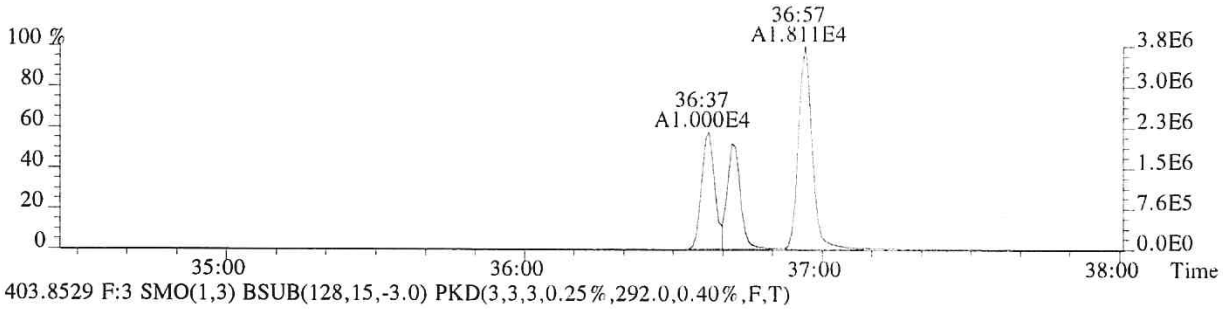
File:P519244 #1-322 Acq: 6-DEC-2018 05:19:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



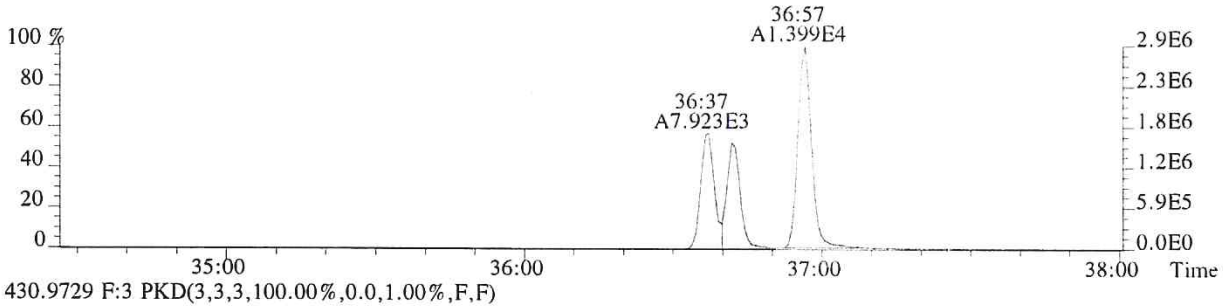
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



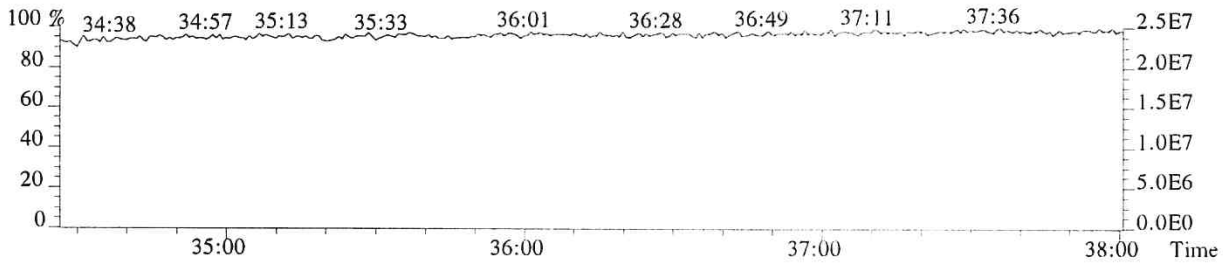
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



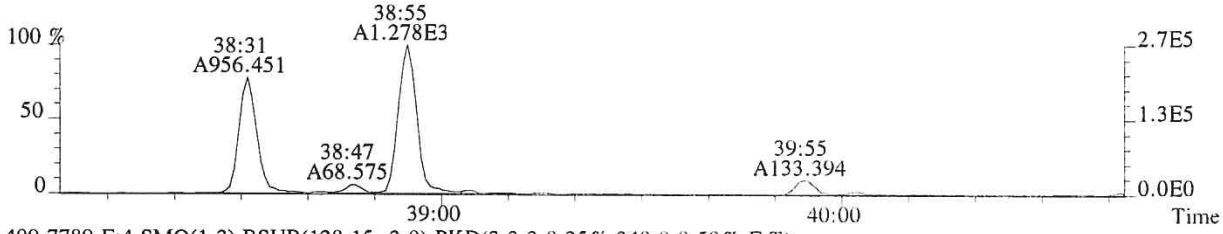
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



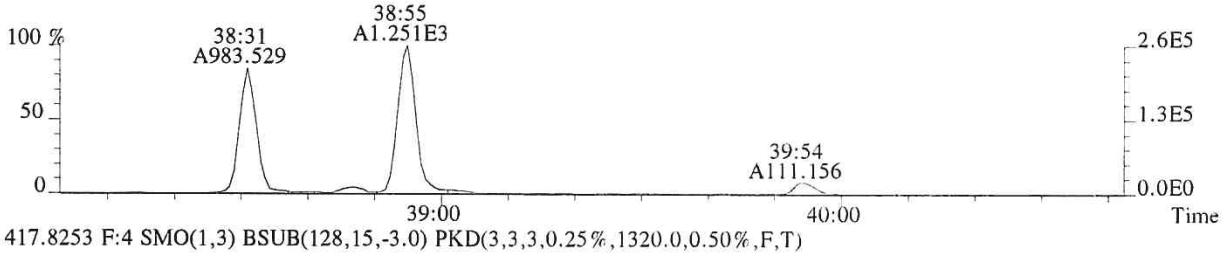
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



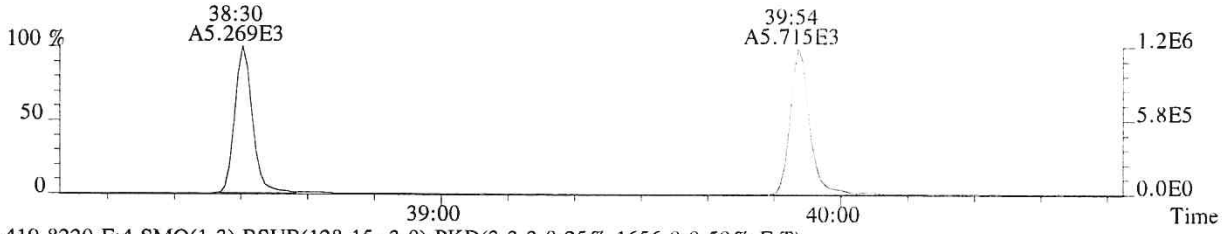
File:P519244 #1-240 Acq: 6-DEC-2018 05:19:57 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.50%,F,T)



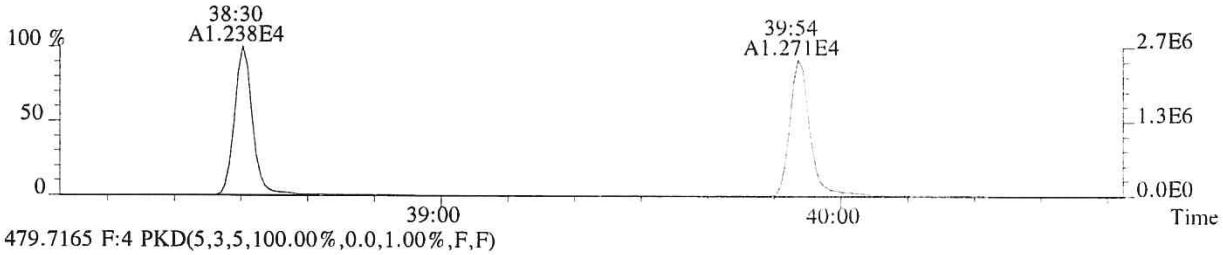
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.50%,F,T)



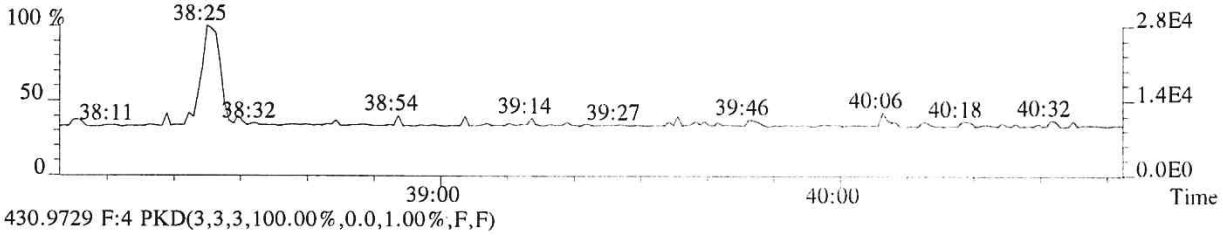
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.50%,F,T)



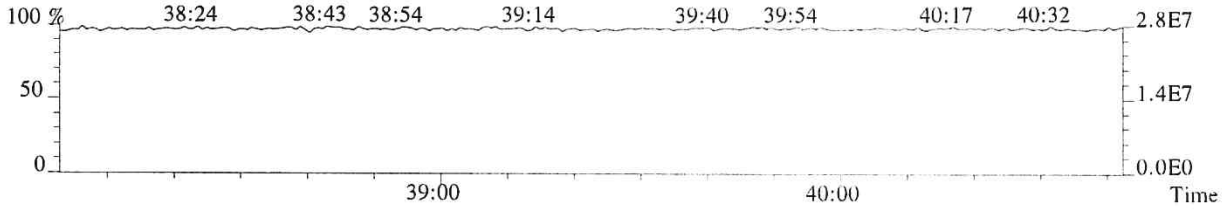
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1656.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

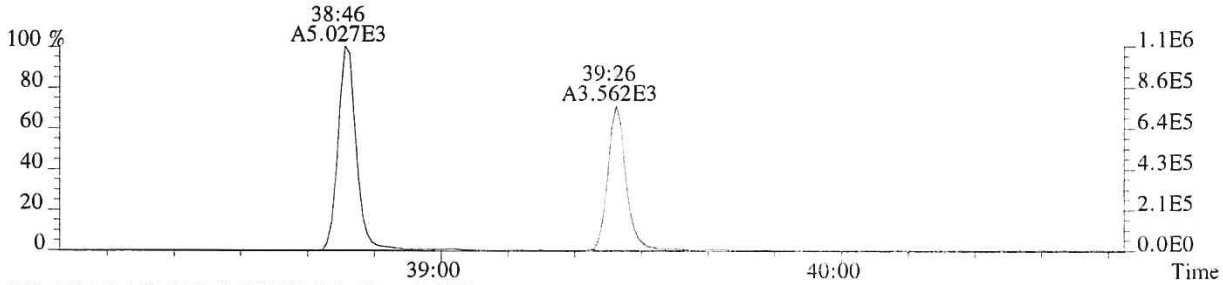


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

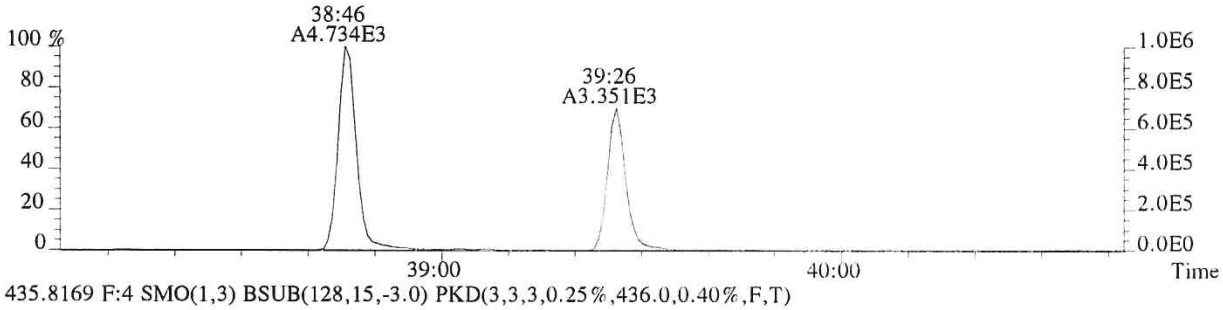


011918

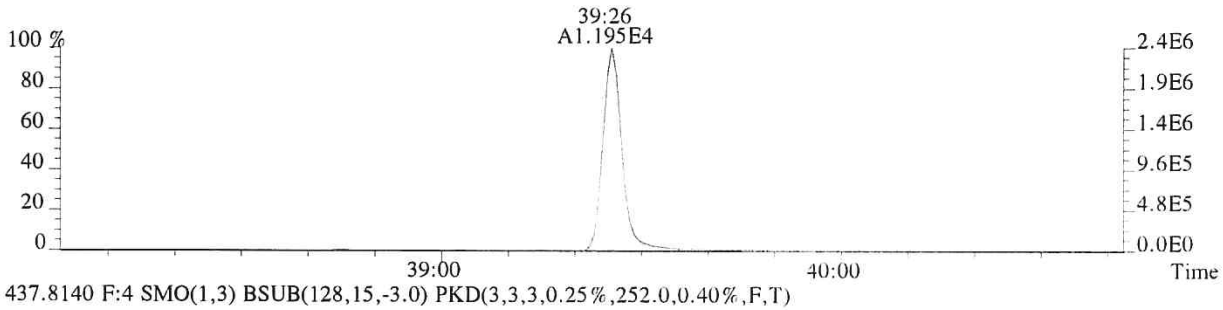
File:P519244 #1-240 Acq: 6-DEC-2018 05:19:57 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



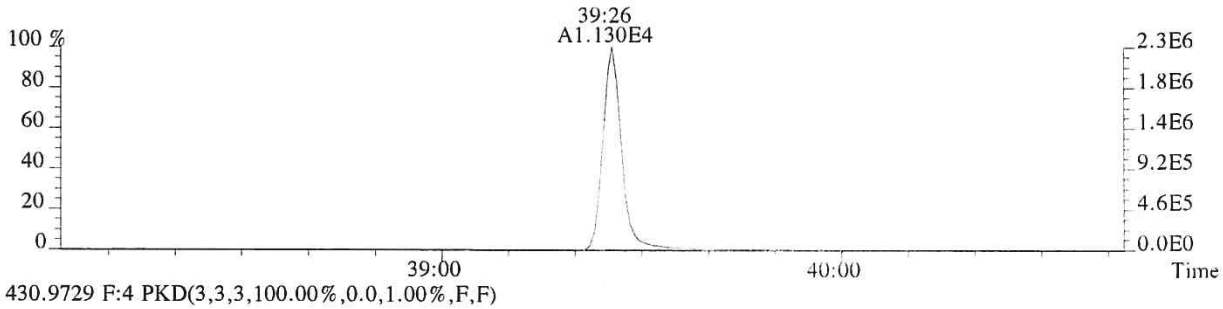
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.40%,F,T)



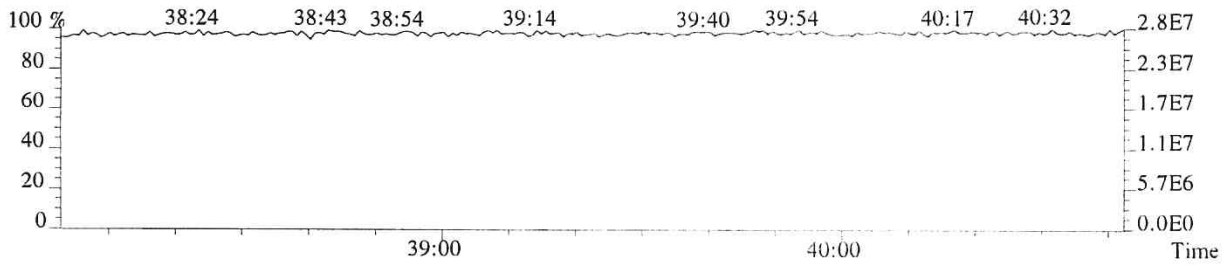
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



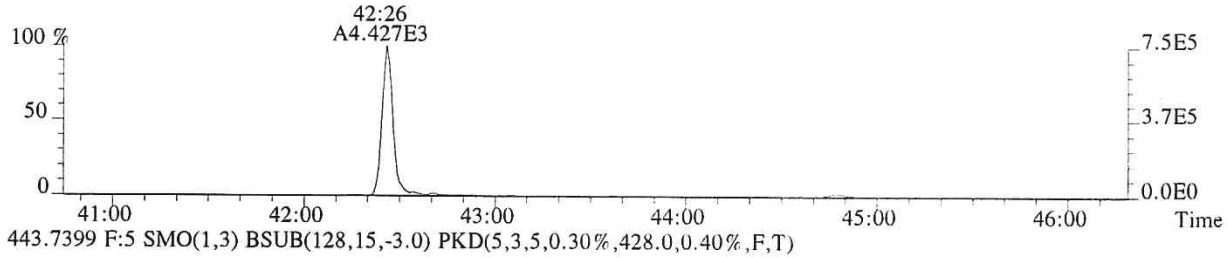
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



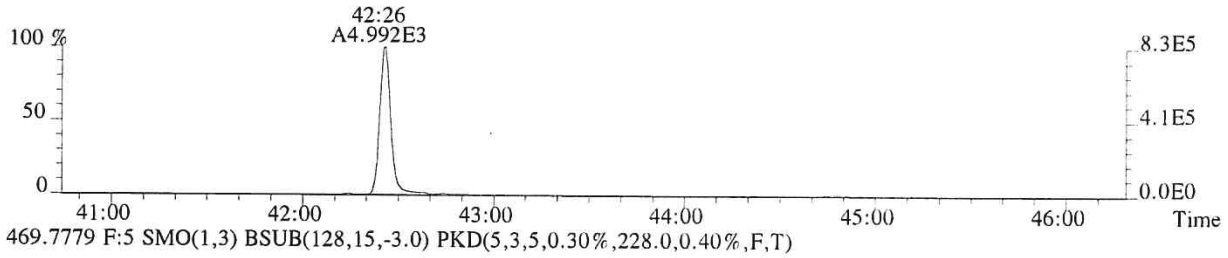
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



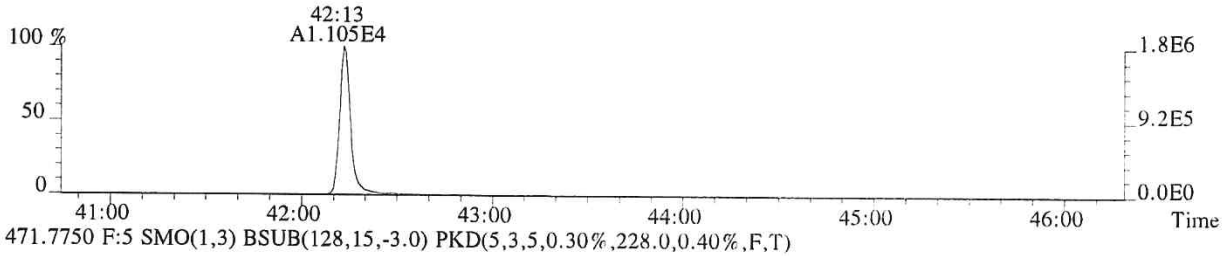
File:P519244 #1-502 Acq: 6-DEC-2018 05:19:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



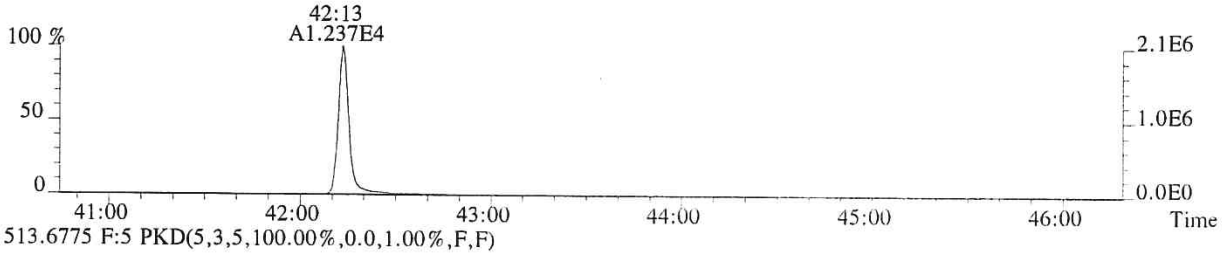
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



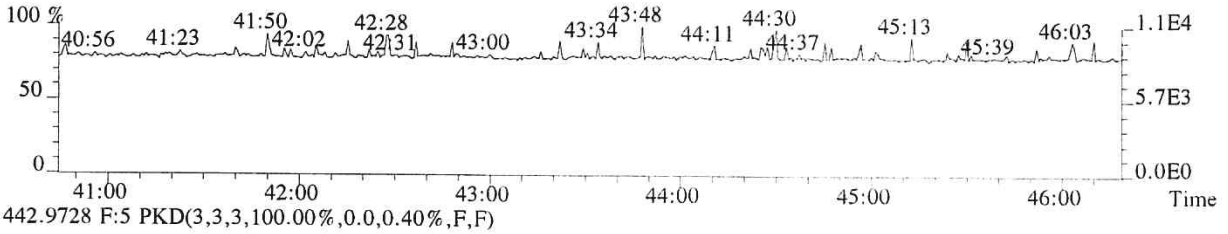
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



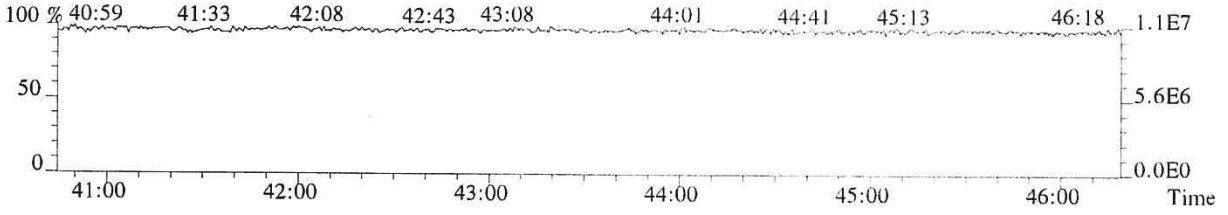
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

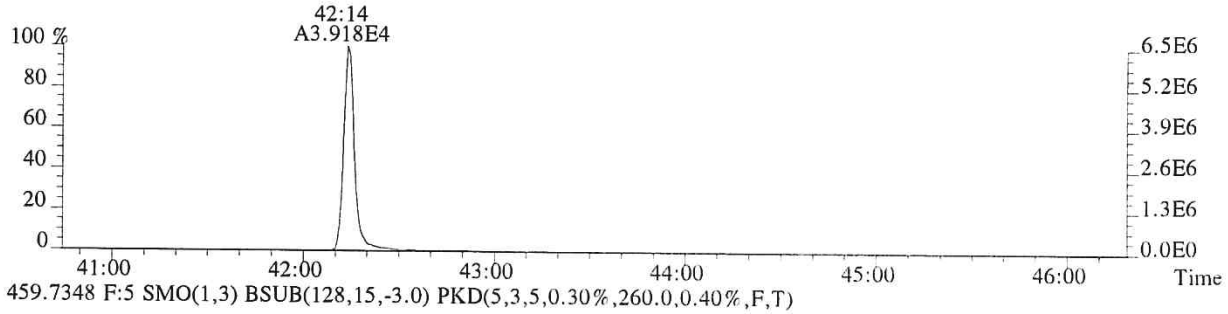


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

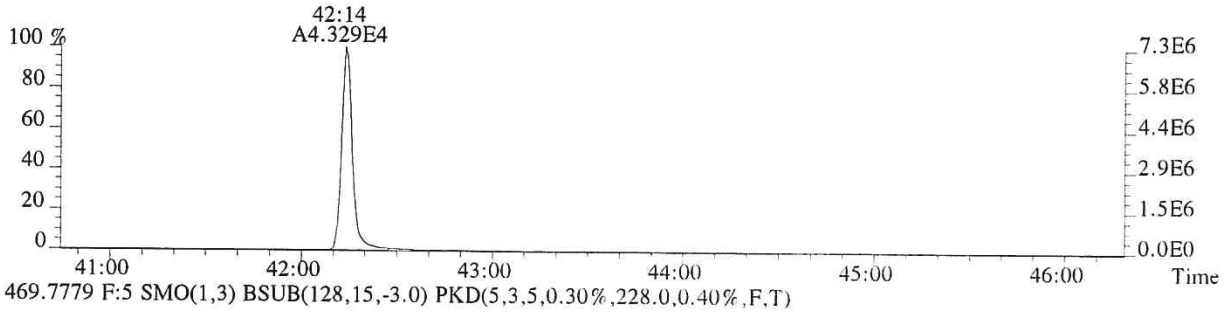


011920

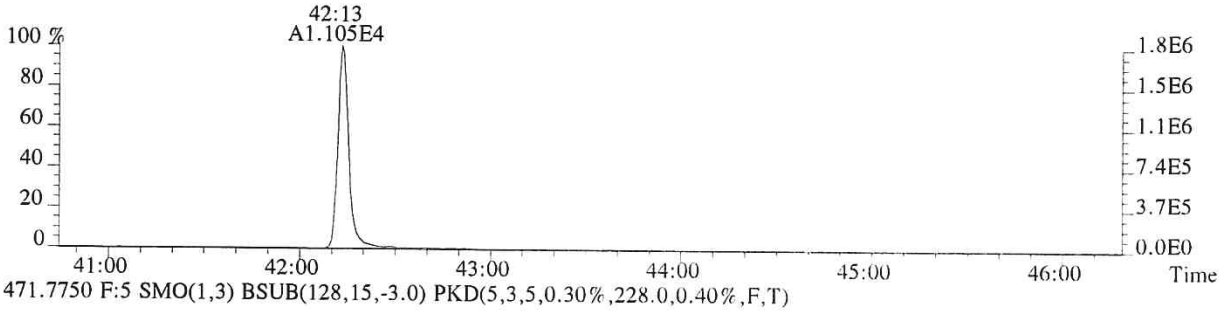
File:P519244 #1-502 Acq: 6-DEC-2018 05:19:57 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



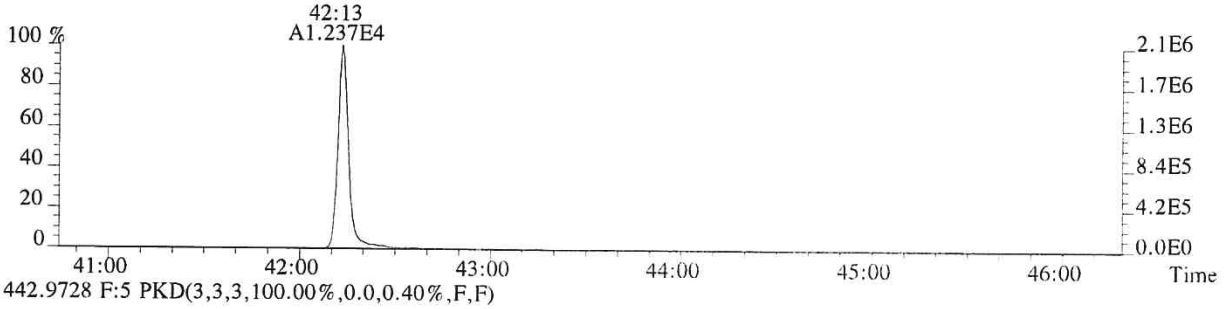
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



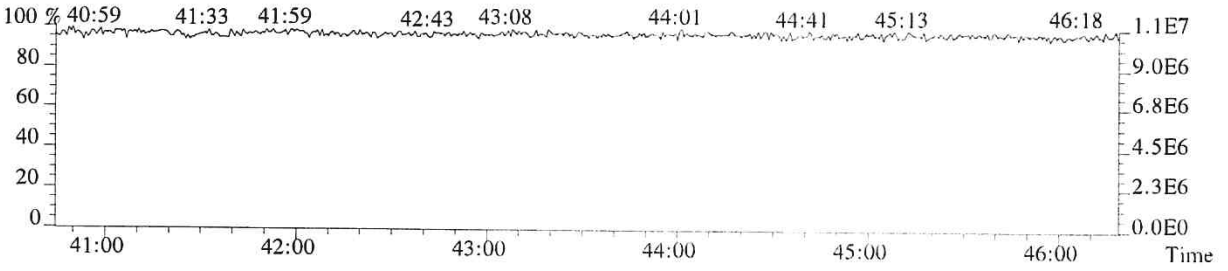
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0164

Run #12 Filename P519245 Samp: 1 Inj: 1 Acquired: 6-DEC-18 06:08:33
Processed: 7-DEC-18 09:55:16 Sample ID: E1801045-017

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:59	5.662e+03	7.543e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	3.068e+02	2.051e+02	1.50	yes	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	33:10	2.834e+02	2.024e+02	1.40	yes	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	4.865e+02	4.284e+02	1.14	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	1.421e+02	1.078e+02	1.32	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:29	7.377e+01	6.721e+01	1.10	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:16	4.073e+01	3.723e+01	1.09	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	7.123e+02	6.533e+02	1.09	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:54	7.717e+01	7.709e+01	1.00	yes	no	1.258
10	Unk	OCDF	42:27	1.335e+03	1.600e+03	0.83	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:48	1.513e+03	1.839e+03	0.82	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	7.954e+01	4.035e+01	1.97	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	4.767e+01	4.091e+01	1.17	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	1.388e+02	1.374e+02	1.01	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	1.236e+02	9.124e+01	1.35	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	2.917e+03	2.727e+03	1.07	yes	no	1.025
17	Unk	OCDD	42:15	2.378e+04	2.680e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	1.446e+04	1.811e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.358e+04	1.457e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:09	2.304e+04	1.422e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:51	9.527e+03	1.897e+04	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:58	1.053e+04	2.051e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	9.799e+03	1.927e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:14	9.246e+03	1.780e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	6.191e+03	1.388e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	5.679e+03	1.292e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:46	6.463e+03	8.296e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.650e+04	1.034e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	1.386e+04	1.067e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:42	1.364e+04	1.062e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	1.243e+04	1.175e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:13	7.956e+03	8.624e+03	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:12	2.119e+04	2.645e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	3.371e+04	2.655e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	9.486e+03				no	1.014

$$\text{OCDD} = \frac{(2.378e+04 + 2.680e+04) \times 4000 \text{ pg} \times 1}{(7.956e+03 + 8.624e+03) \times 10.713 \text{ g} \times 80.0 / 100 \times 1.118} = 1273 \text{ ng/kg}$$

LM 12/10/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0164

Run #12 Filename P519245 Samp: 1 Inj: 1 Acquired: 6-DEC-18 06:08:33
Processed: 7-DEC-18 09:55:16 LAB. ID: E1801045-017

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.84e+05	5.08e+02	1.9e+03	1.31e+06	6.08e+02	2.2e+03
2	1,2,3,7,8-PeCDF	5.62e+04	9.96e+02	5.6e+01	4.06e+04	1.04e+03	3.9e+01
3	2,3,4,7,8-PeCDF	4.60e+04	9.96e+02	4.6e+01	3.62e+04	1.04e+03	3.5e+01
4	1,2,3,4,7,8-HxCDF	1.03e+05	7.12e+02	1.4e+02	9.14e+04	4.20e+02	2.2e+02
5	1,2,3,6,7,8-HxCDF	3.19e+04	7.12e+02	4.5e+01	1.93e+04	4.20e+02	4.6e+01
6	2,3,4,6,7,8-HxCDF	1.30e+04	7.12e+02	1.8e+01	1.48e+04	4.20e+02	3.5e+01
7	1,2,3,7,8,9-HxCDF	7.98e+03	7.12e+02	1.1e+01	6.36e+03	4.20e+02	1.5e+01
8	1,2,3,4,6,7,8-HpCDF	1.61e+05	9.16e+02	1.8e+02	1.37e+05	6.20e+02	2.2e+02
9	1,2,3,4,7,8,9-HpCDF	1.23e+04	9.16e+02	1.3e+01	1.60e+04	6.20e+02	2.6e+01
10	OCDF	2.19e+05	3.04e+02	7.2e+02	2.45e+05	7.68e+02	3.2e+02
11	2,3,7,8-TCDD	2.91e+05	1.25e+03	2.3e+02	3.45e+05	6.52e+02	5.3e+02
12	1,2,3,7,8-PeCDD	1.55e+04	7.92e+02	2.0e+01	8.82e+03	1.84e+02	4.8e+01
13	1,2,3,4,7,8-HxCDD	1.07e+04	4.08e+02	2.6e+01	1.06e+04	7.12e+02	1.5e+01
14	1,2,3,6,7,8-HxCDD	2.89e+04	4.08e+02	7.1e+01	2.67e+04	7.12e+02	3.8e+01
15	1,2,3,7,8,9-HxCDD	2.55e+04	4.08e+02	6.3e+01	1.97e+04	7.12e+02	2.8e+01
16	1,2,3,4,6,7,8-HpCDD	5.74e+05	1.42e+03	4.0e+02	5.55e+05	1.15e+03	4.8e+02
17	OCDD	3.78e+06	1.92e+02	2.0e+04	4.24e+06	2.04e+02	2.1e+04
18	13C-2,3,7,8-TCDF	2.60e+06	3.92e+03	6.6e+02	3.29e+06	2.00e+03	1.6e+03
19	13C-1,2,3,7,8-PeCDF	4.43e+06	2.60e+02	1.7e+04	2.81e+06	2.44e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	4.52e+06	2.60e+02	1.7e+04	2.80e+06	2.44e+02	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	2.02e+06	4.88e+02	4.1e+03	4.13e+06	7.76e+02	5.3e+03
22	13C-1,2,3,6,7,8-HxCDF	2.14e+06	4.88e+02	4.4e+03	4.14e+06	7.76e+02	5.3e+03
23	13C-2,3,4,6,7,8-HxCDF	2.17e+06	4.88e+02	4.5e+03	4.23e+06	7.76e+02	5.5e+03
24	13C-1,2,3,7,8,9-HxCDF	1.96e+06	4.88e+02	4.0e+03	3.71e+06	7.76e+02	4.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.31e+06	1.12e+03	1.2e+03	3.02e+06	3.46e+03	8.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.07e+06	1.12e+03	9.6e+02	2.45e+06	3.46e+03	7.1e+02
27	13C-2,3,7,8-TCDD	1.27e+06	2.56e+03	5.0e+02	1.57e+06	1.04e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	3.23e+06	1.96e+02	1.6e+04	2.06e+06	5.12e+02	4.0e+03
29	13C-1,2,3,4,7,8-HxCDD	3.10e+06	5.04e+02	6.1e+03	2.40e+06	2.72e+02	8.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.87e+06	5.04e+02	5.7e+03	2.25e+06	2.72e+02	8.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.46e+06	2.52e+02	9.7e+03	2.37e+06	2.92e+02	8.1e+03
32	13C-OCDD	1.26e+06	2.84e+02	4.4e+03	1.35e+06	2.04e+02	6.6e+03
33	13C-1,2,3,4-TCDD	4.09e+06	2.56e+03	1.6e+03	5.07e+06	1.04e+03	4.9e+03
34	13C-1,2,3,7,8,9-HxCDD	7.12e+06	5.04e+02	1.4e+04	5.60e+06	2.72e+02	2.1e+04
35	37Cl-2,3,7,8-TCDD	1.86e+06	6.40e+02	2.9e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0164

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P519245 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 06:08:33 Processed: 7-DEC-18 09:55:16

Mass: 303.9020 305.8990 Tot Response: 2.21e+04 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:00	2.13e+02	0.73	yes	5.05e+02		n	n
2	26:36	2.04e+02	0.75	yes	4.77e+02		n	n
3	26:45	2.50e+02	0.79	yes	5.68e+02		n	n
4	27:11	2.14e+03	0.76	yes	4.95e+03		n	n
5	27:26	1.36e+02	0.88	yes	2.90e+02		n	n
6	27:59	5.66e+03	0.75	yes	1.32e+04	2,3,7,8-TCDF	n	n
7	28:20	5.05e+02	0.73	yes	1.20e+03		n	n
8	29:50	4.18e+02	0.85	yes	9.11e+02		n	n

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Peak List Summary

CLIENT ID.
SL0164

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P519245 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 06:08:33 Processed: 7-DEC-18 09:55:16

Mass: 319.8970 321.8940 Tot Response: 4.04e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:52	1.37e+02	1.90e+02	0.72	yes	3.26e+02		n	n
2	28:48	1.51e+03	1.84e+03	0.82	yes	3.35e+03	2,3,7,8-TCDD	n	n
3	29:05	1.50e+02	2.14e+02	0.70	yes	3.64e+02		n	n

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Peak List Summary

CLIENT ID.
SL0164

Entry: 38 Totals Name: Total Penta-Furans1

Run: 12 File: P519245 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 06:08:33 Processed: 7-DEC-18 09:55:16

Mass: 339.8600 341.8570 Tot Response: 2.78e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:49	1.61e+02	1.17e+02 1.38	yes	2.78e+02		n	n

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Peak List Summary

CLIENT ID.
SL0164

Entry: 39 Totals Name: Total Penta-Furans2

Run: 12 File: P519245 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 06:08:33 Processed: 7-DEC-18 09:55:16

Mass: 339.8600 341.8570 Tot Response: 1.87e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:19	2.99e+02	1.80e+02 1.66	yes	4.78e+02		y	y
2	31:52	5.01e+01	3.74e+01 1.34	yes	8.75e+01		y	y
3	32:05	4.33e+01	2.94e+01 1.47	yes	7.26e+01		n	y
4	32:16	3.07e+02	2.05e+02 1.50	yes	5.12e+02	1,2,3,7,8-PeCDF	n	y
5	32:30	1.17e+02	8.62e+01 1.35	yes	2.03e+02		n	y
6	33:04	1.99e+01	1.33e+01 1.50	yes	3.32e+01		y	y
7	33:10	2.83e+02	2.02e+02 1.40	yes	4.86e+02	2,3,4,7,8-PeCDF	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0164

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P519245 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 06:08:33 Processed: 7-DEC-18 09:55:16

Mass: 355.8550 357.8520 Tot Response: 4.31e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:20	8.83e+01	5.45e+01 1.62	yes	1.43e+02		n	n
2	31:48	1.66e+02	1.22e+02 1.36	yes	2.88e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0164

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P519245 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 06:08:33 Processed: 7-DEC-18 09:55:16

Mass: 373.8210 375.8180 Tot Response: 2.64e+03 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:55	2.93e+02	2.66e+02 1.10	yes	5.59e+02		n	n
2	35:27	3.43e+02	3.16e+02 1.09	yes	6.59e+02		n	n
3	35:48	1.92e+01	1.69e+01 1.13	yes	3.61e+01		n	n
4	35:53	4.87e+02	4.28e+02 1.14	yes	9.15e+02	1,2,3,4,7,8-HxCDF	n	n
5	35:59	1.42e+02	1.08e+02 1.32	yes	2.50e+02	1,2,3,6,7,8-HxCDF	n	n
6	36:29	7.38e+01	6.72e+01 1.10	yes	1.41e+02	2,3,4,6,7,8-HxCDF	n	n
7	37:16	4.07e+01	3.72e+01 1.09	yes	7.80e+01	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0164

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P519245 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 06:08:33 Processed: 7-DEC-18 09:55:16

Mass: 389.8160 391.8130 Tot Response: 3.96e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	1.30e+03	9.91e+02	1.31	yes	2.29e+03		n	n
2	35:49	5.81e+01	4.63e+01	1.26	yes	1.04e+02		n	n
3	36:02	6.01e+02	4.75e+02	1.26	yes	1.08e+03		n	n
4	36:09	6.42e+01	5.50e+01	1.17	yes	1.19e+02		n	n
5	36:38	4.77e+01	4.09e+01	1.17	yes	8.86e+01	1,2,3,4,7,8-HxCDD	n	n
6	36:53	3.66e+01	2.79e+01	1.31	yes	6.45e+01		n	n
7	36:57	1.24e+02	9.12e+01	1.35	yes	2.15e+02	1,2,3,7,8,9-HxCDD	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0164

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P519245 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 06:08:33 Processed: 7-DEC-18 09:55:16

Mass: 407.7820 409.7790 Tot Response: 3.90e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:31	7.12e+02	6.53e+02 1.09	yes	1.37e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:47	2.46e+01	2.61e+01 0.94	yes	5.07e+01		n	n
3	38:55	1.19e+03	1.14e+03 1.04	yes	2.33e+03		n	n
4	39:54	7.72e+01	7.71e+01 1.00	yes	1.54e+02	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0164

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P519245 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 06:08:33 Processed: 7-DEC-18 09:55:16

Mass: 423.7770 425.7740 Tot Response: 1.63e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:46	5.43e+03	5.18e+03 1.05	yes	1.06e+04		n	n
2	39:26	2.92e+03	2.73e+03 1.07	yes	5.64e+03	1,2,3,4,6,7,8-HpCDD	n	n

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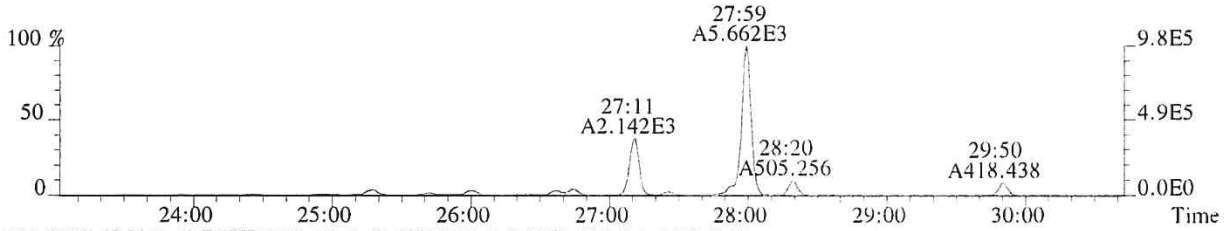
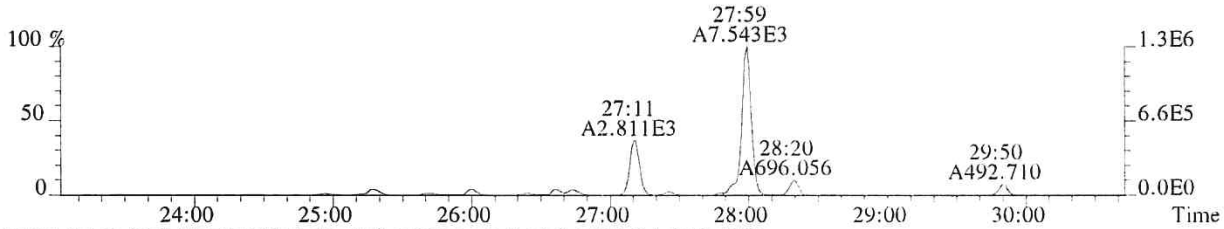
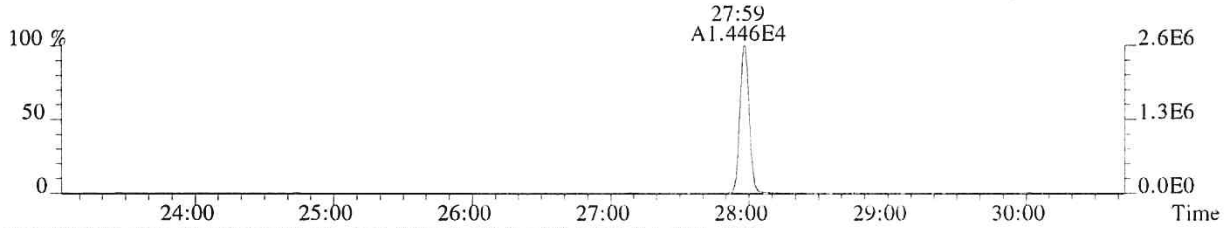
File:P519245 #1-545 Acq: 6-DEC-2018 06:08:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-017
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



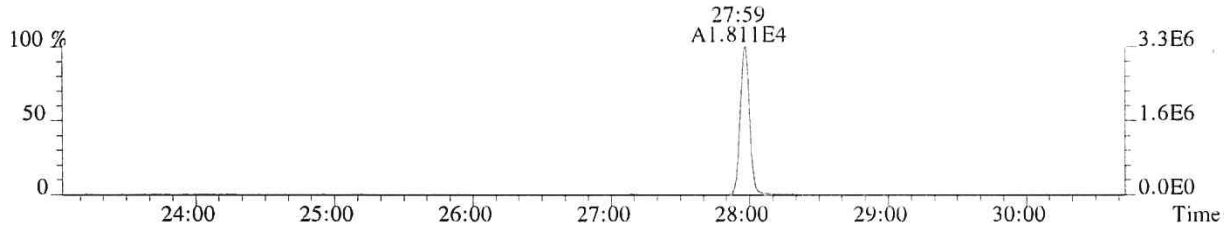
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



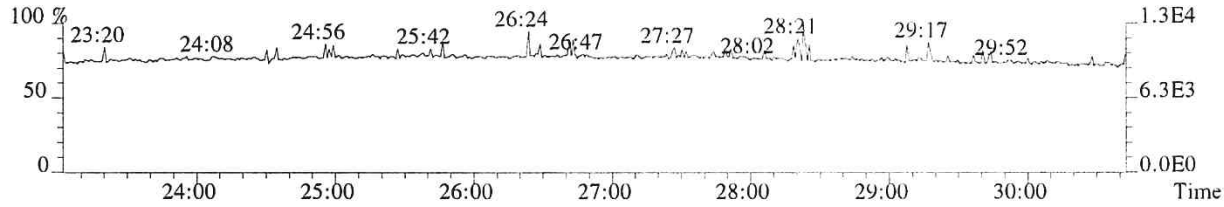
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3920.0,1.00%,F,T)



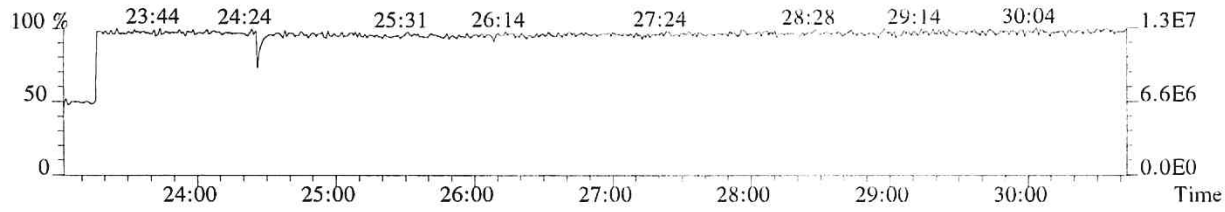
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



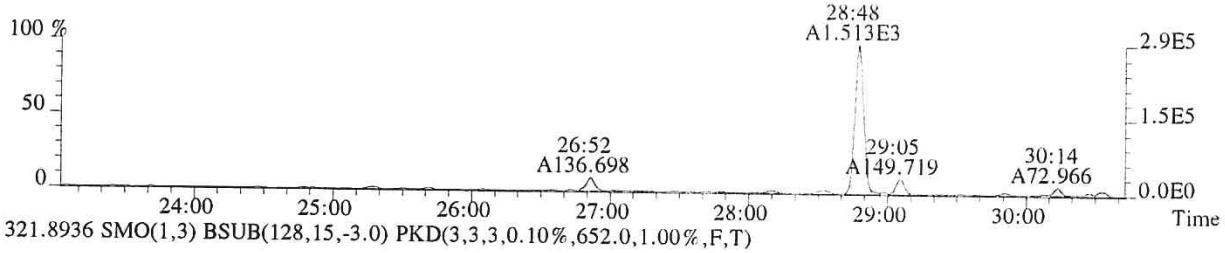
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



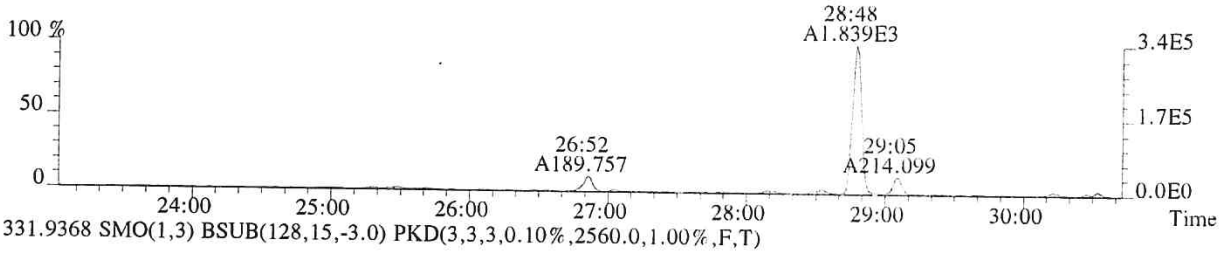
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



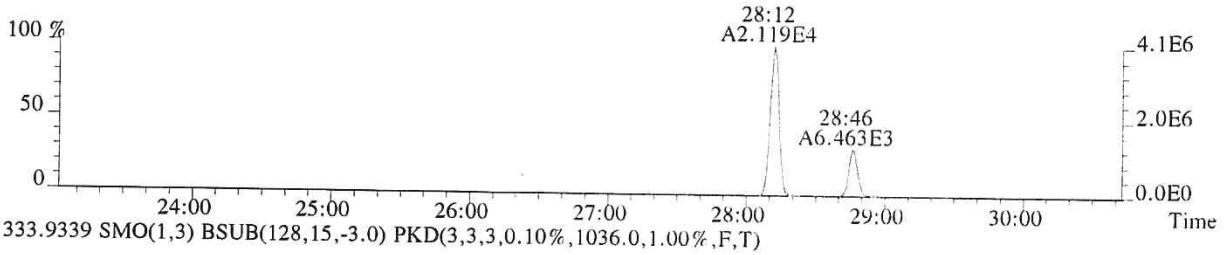
File:P519245 #1-545 Acq: 6-DEC-2018 06:08:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-017
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



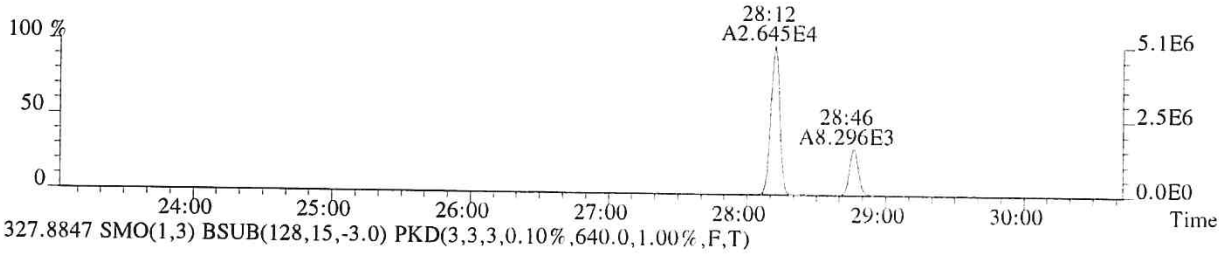
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



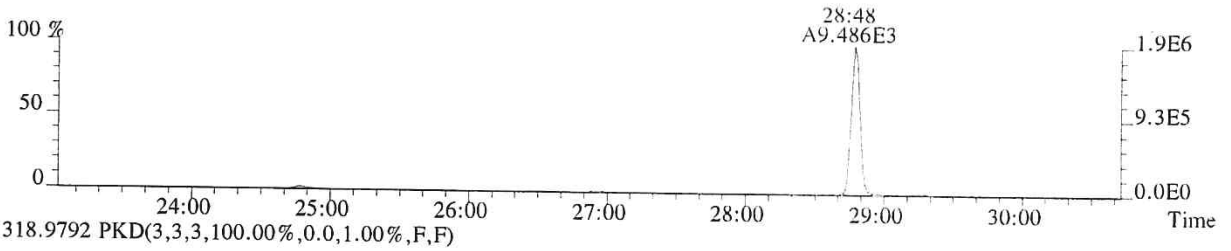
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



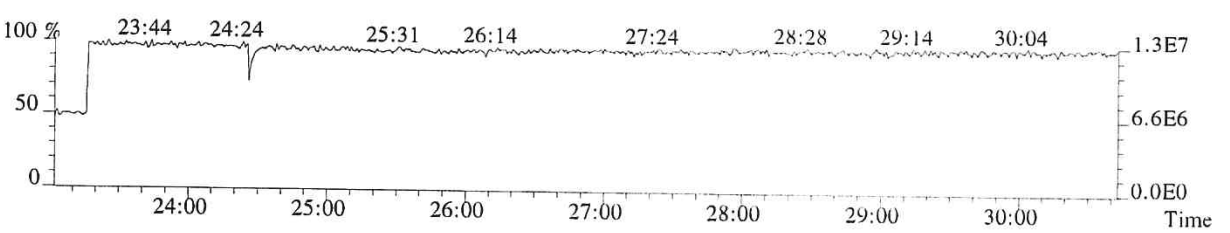
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)

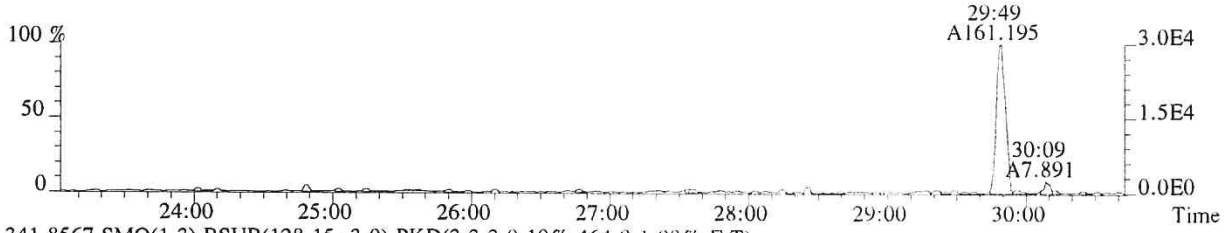


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

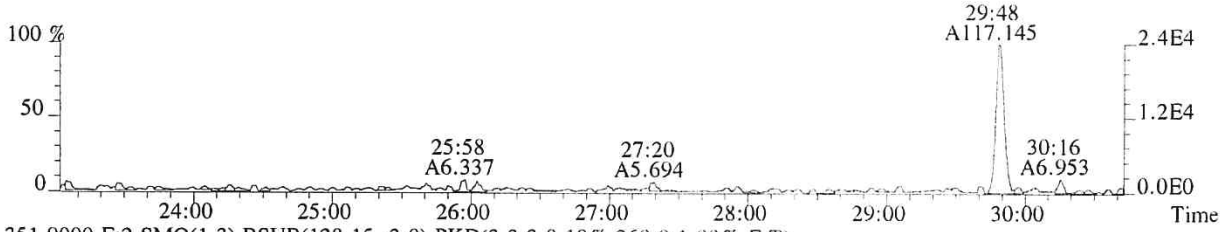


011934

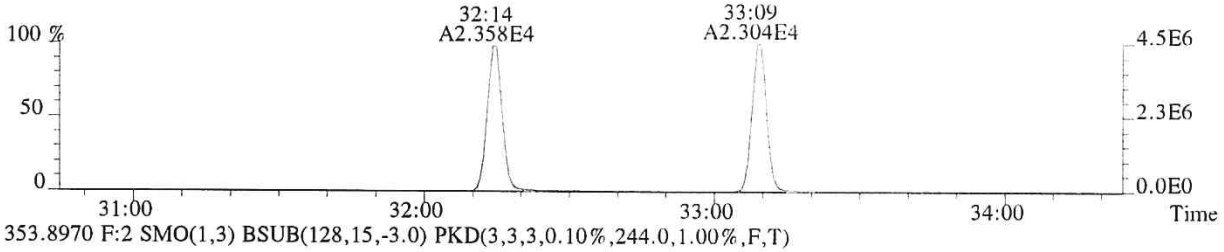
File:P519245 #1-545 Acq: 6-DEC-2018 06:08:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-017
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



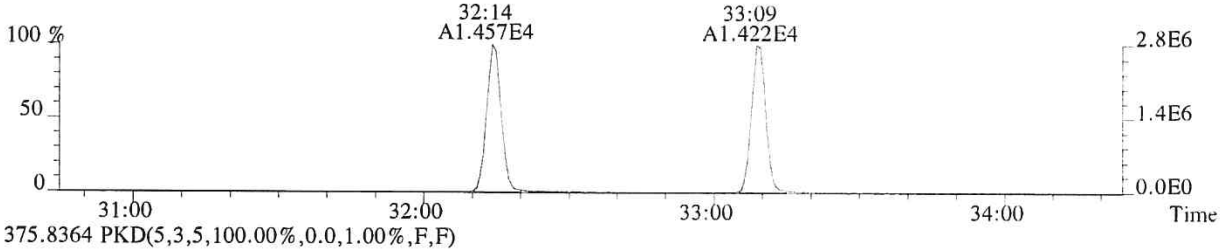
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



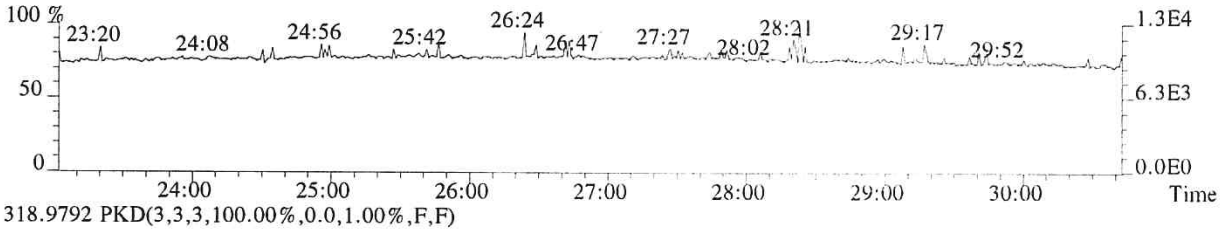
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



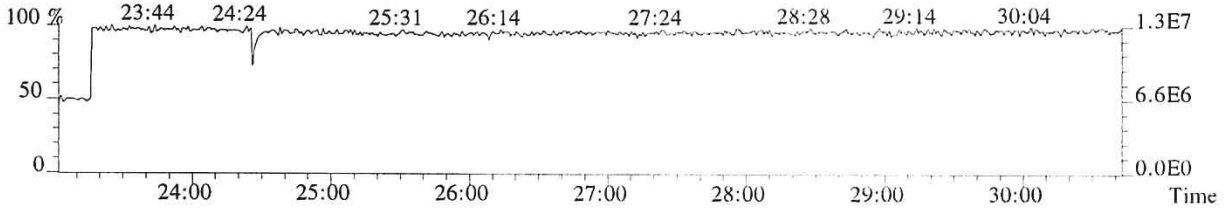
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



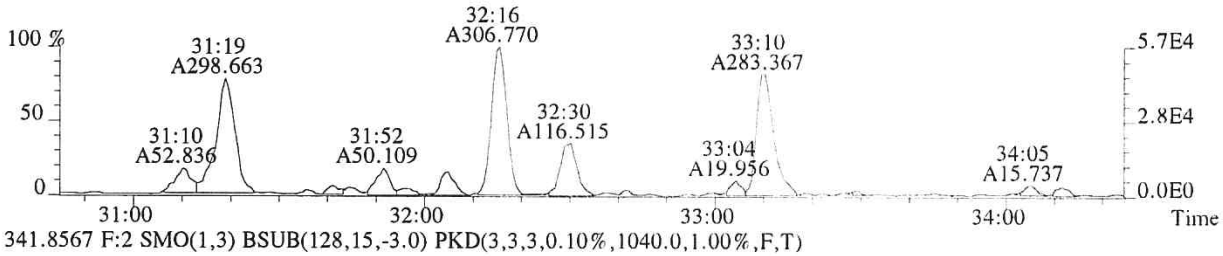
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



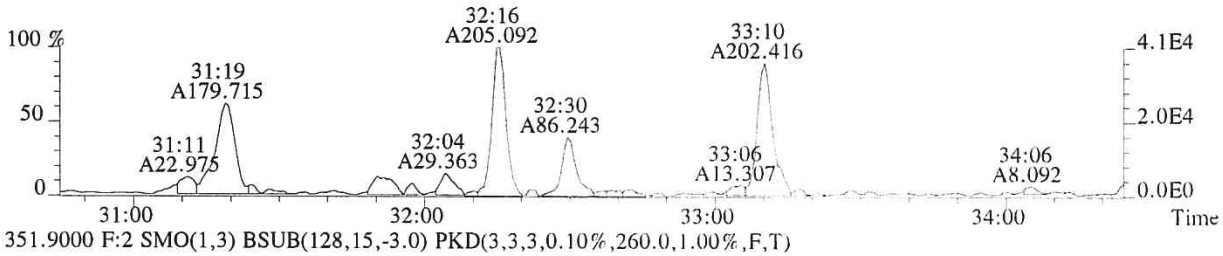
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



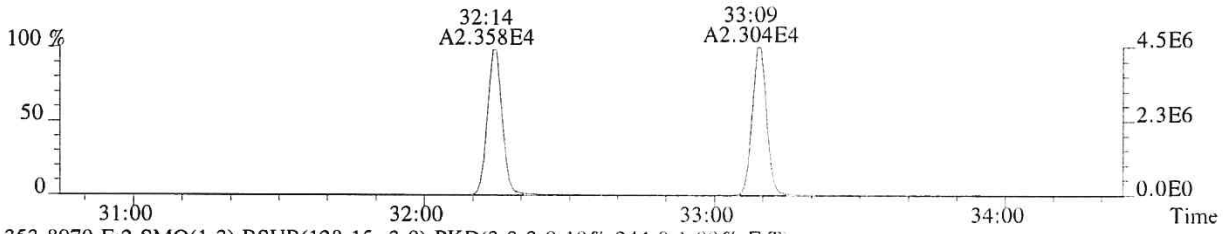
File:P519245 #1-330 Acq: 6-DEC-2018 06:08:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-017
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



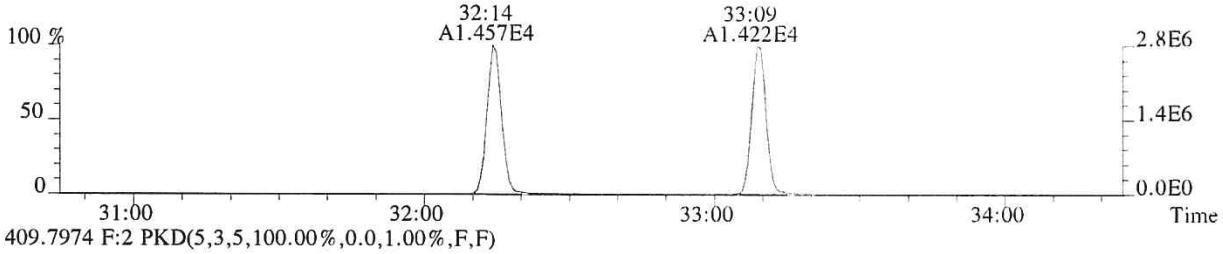
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



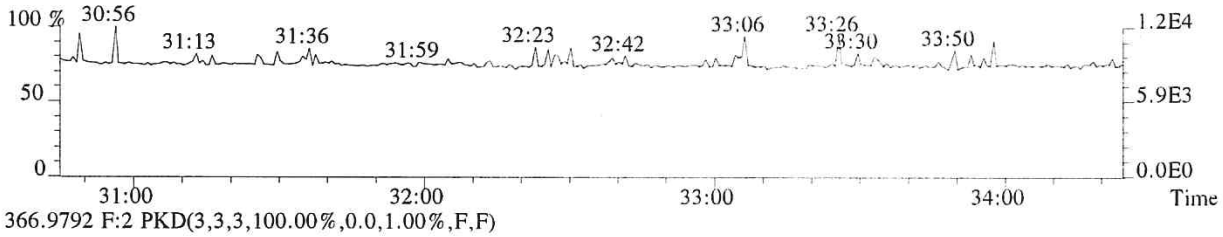
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



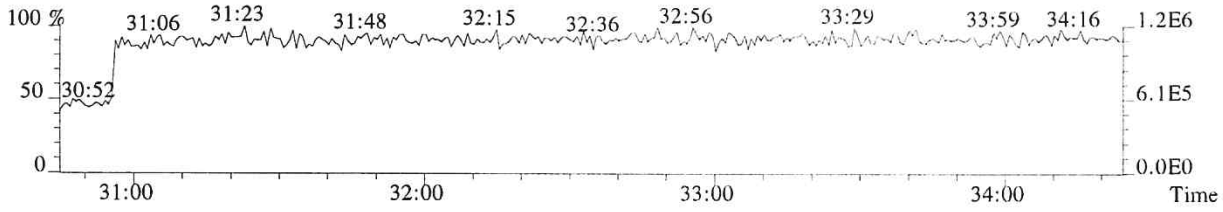
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

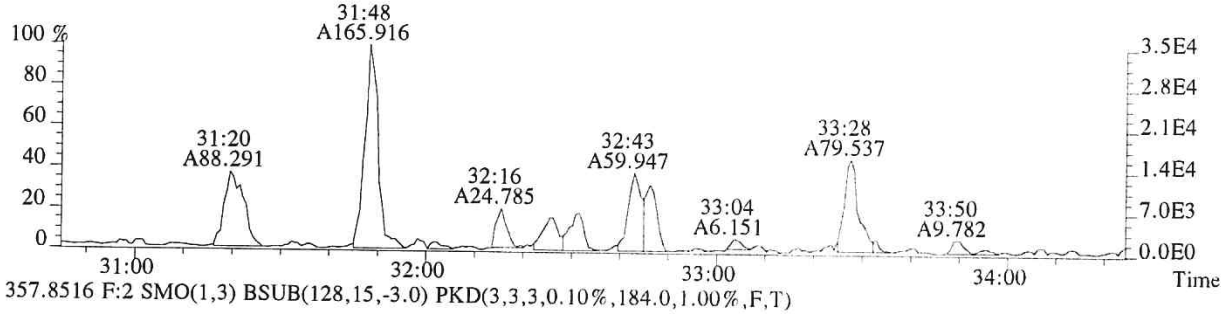


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

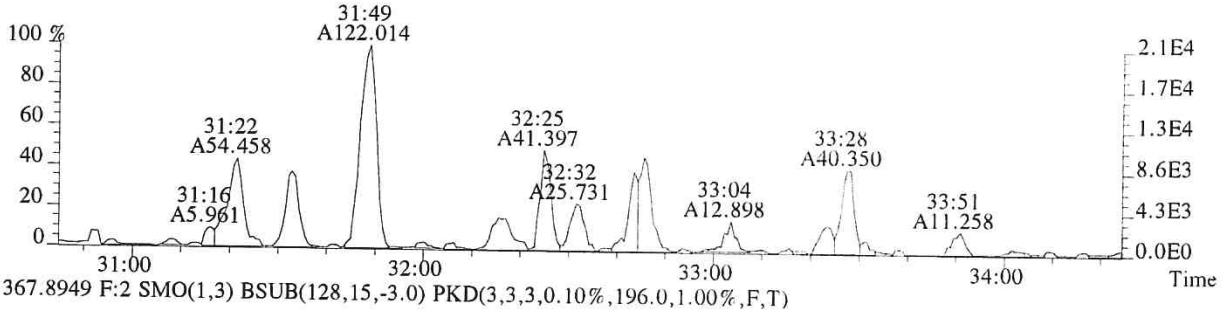


011936

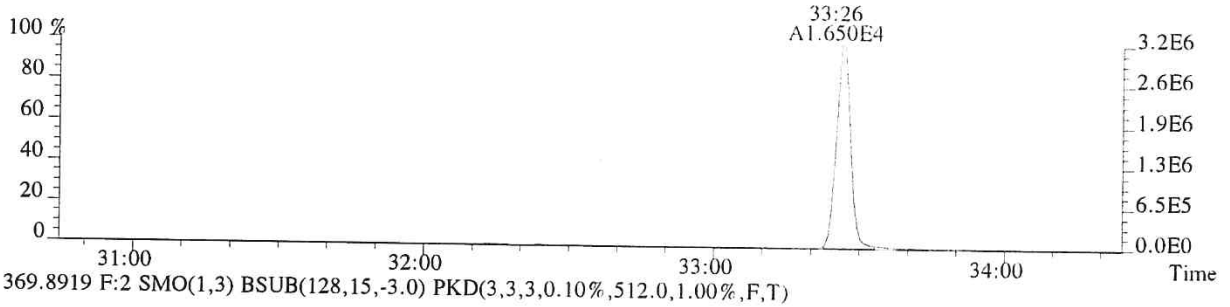
File:P519245 #1-330 Acq: 6-DEC-2018 06:08:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



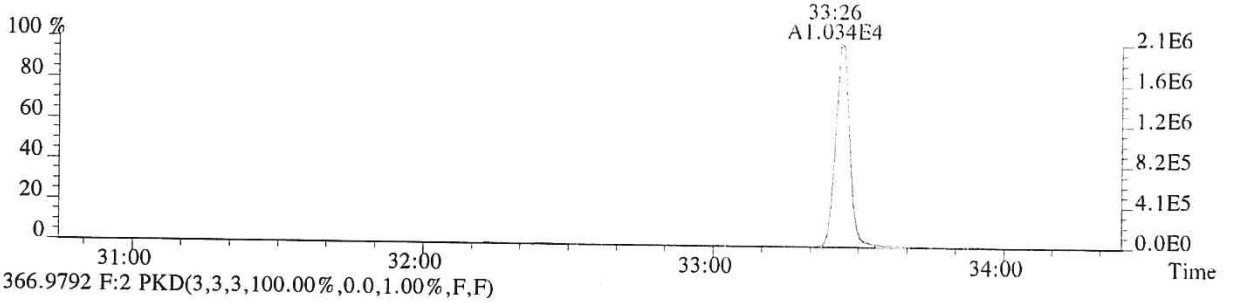
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



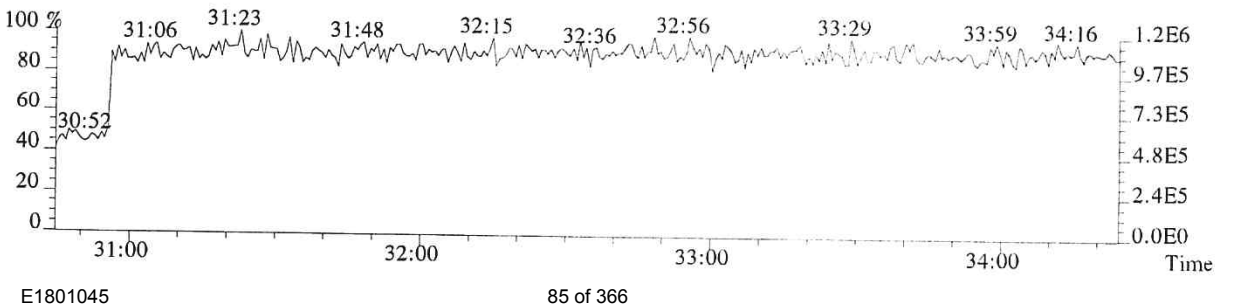
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



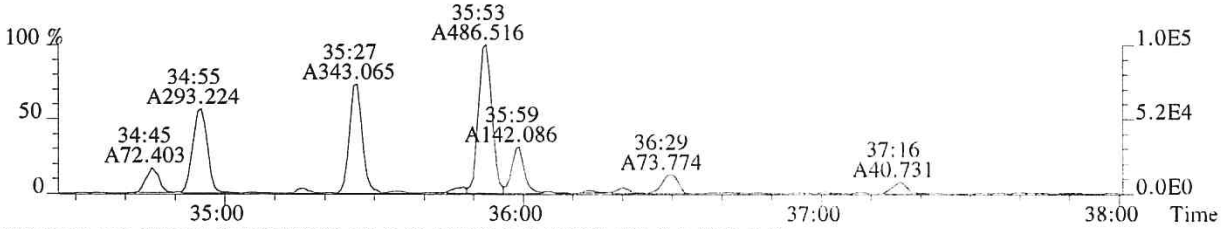
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



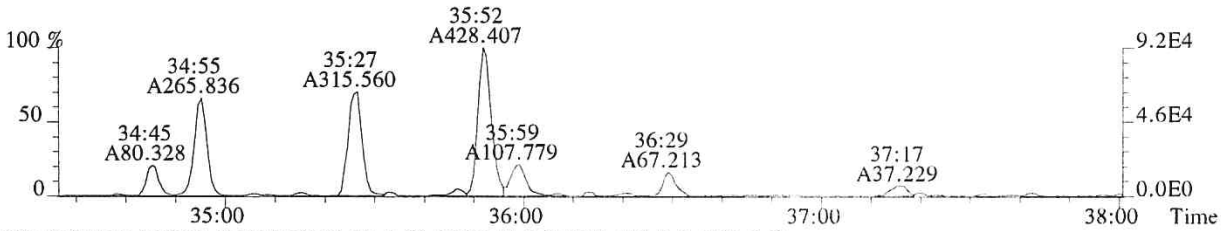
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



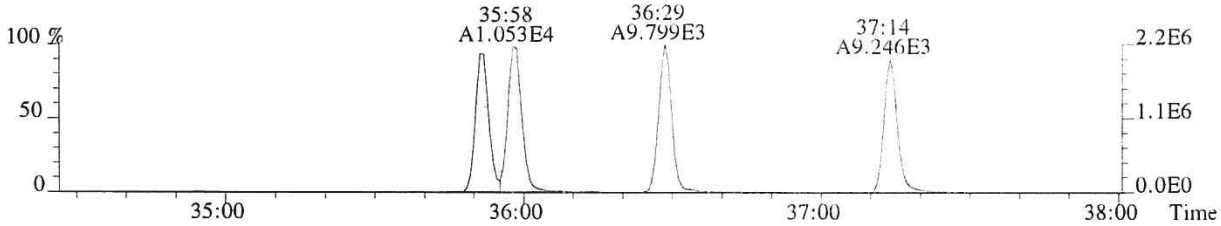
File:P519245 #1-322 Acq: 6-DEC-2018 06:08:33 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-017
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



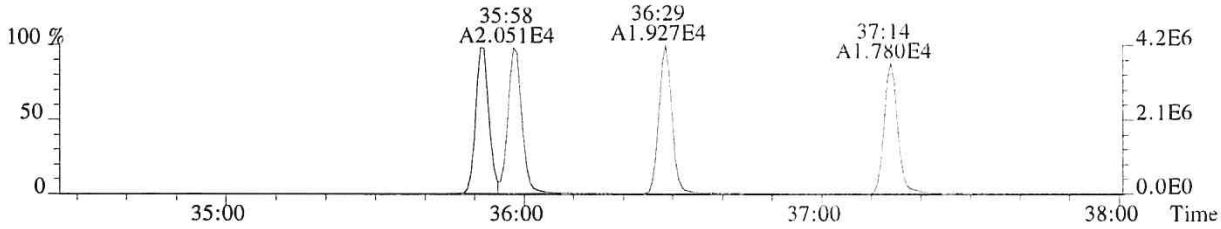
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



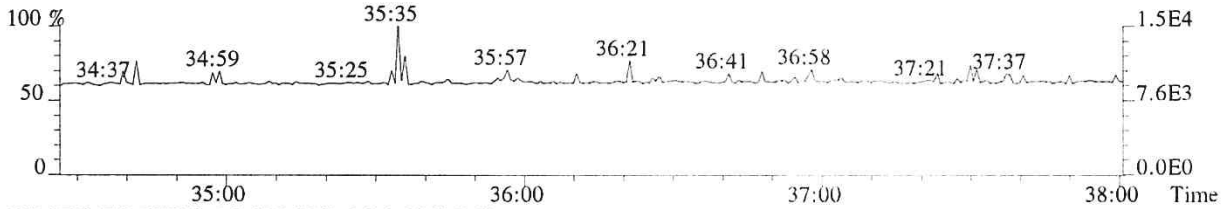
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



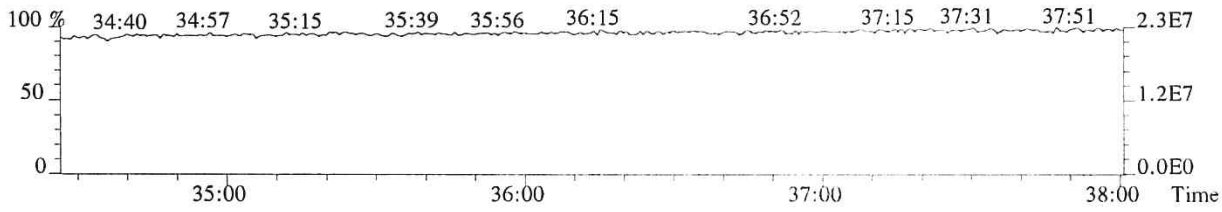
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



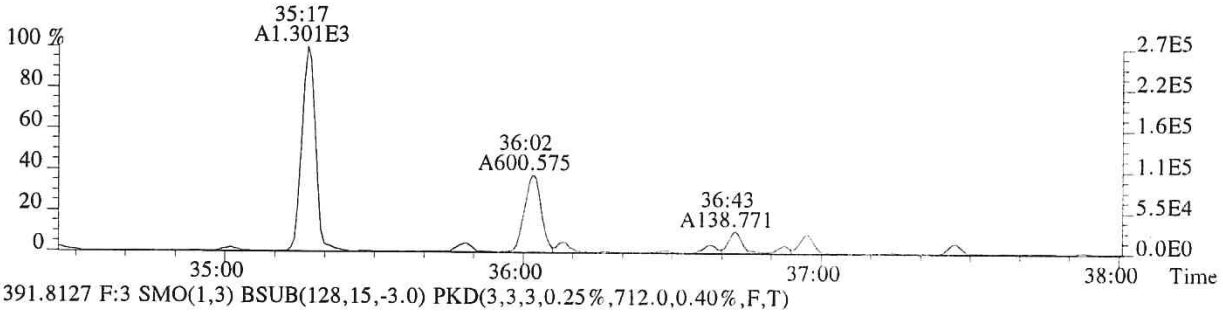
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



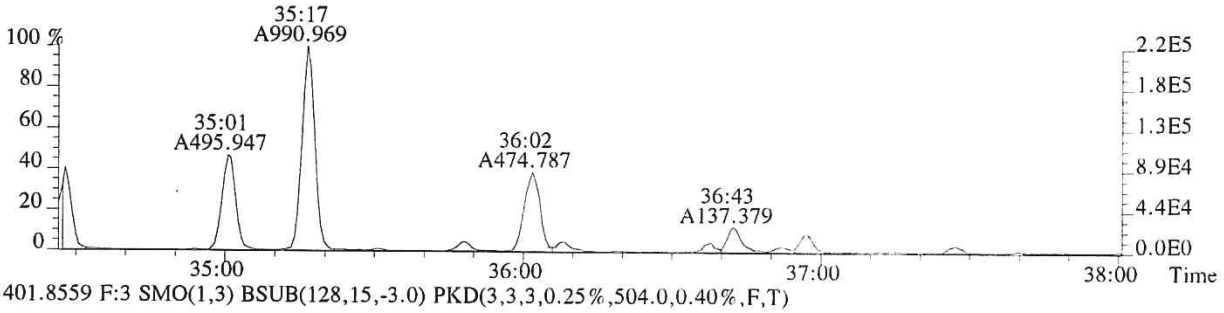
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



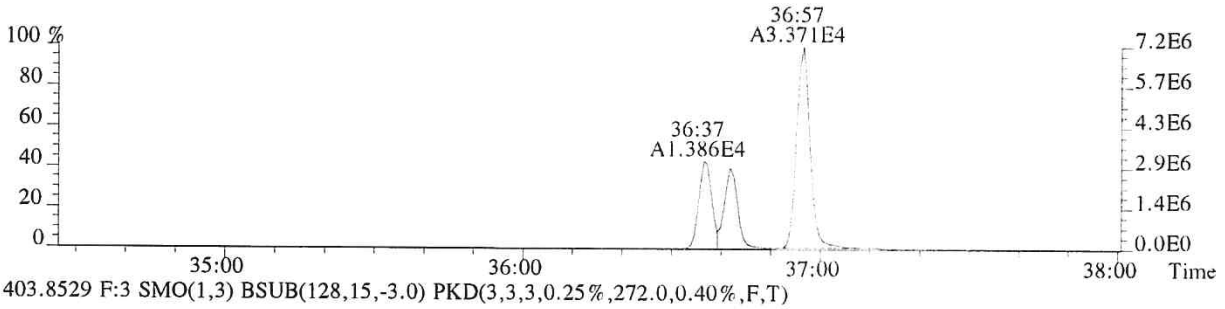
File:P519245 #1-322 Acq: 6-DEC-2018 06:08:33 Probe El+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-017
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



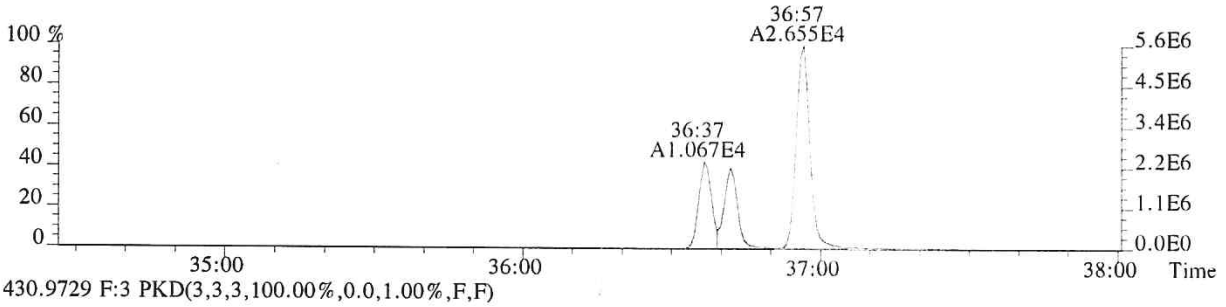
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



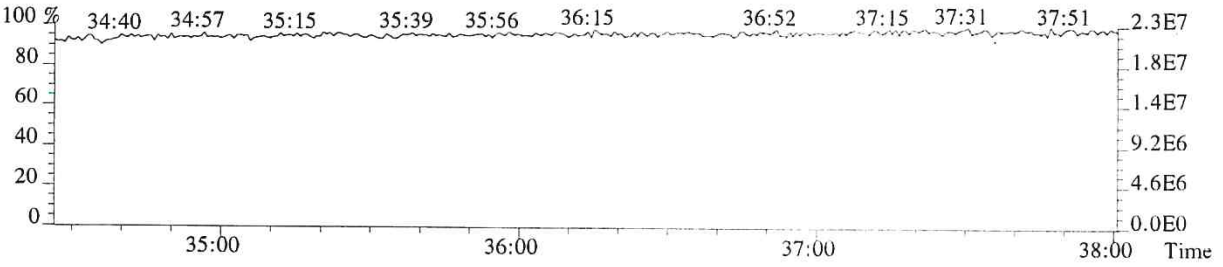
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



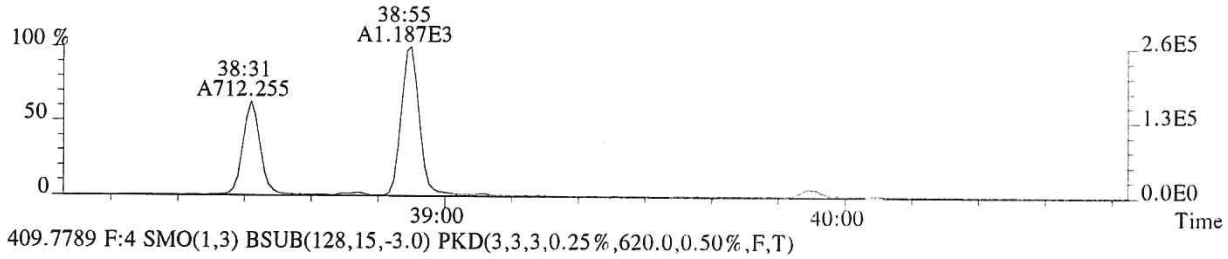
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



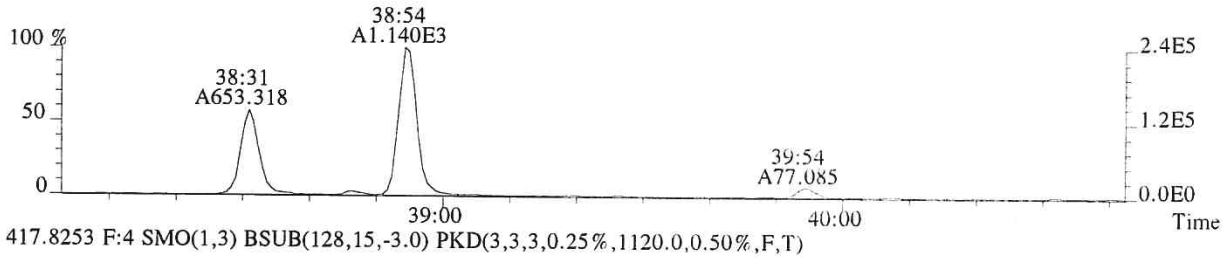
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



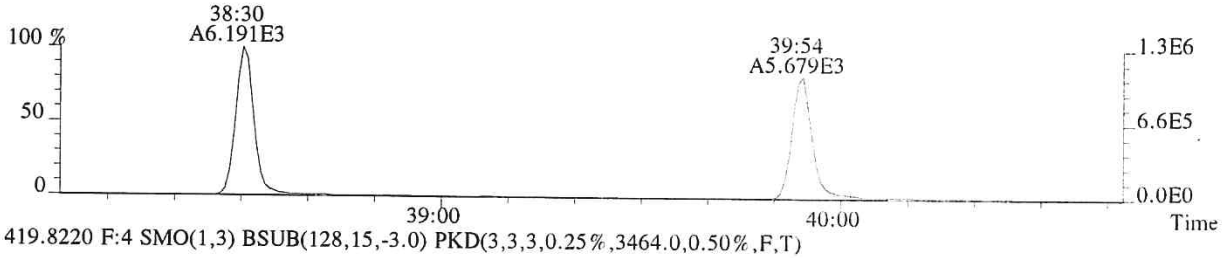
File:P519245 #1-240 Acq: 6-DEC-2018 06:08:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-017
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.50%,F,T)



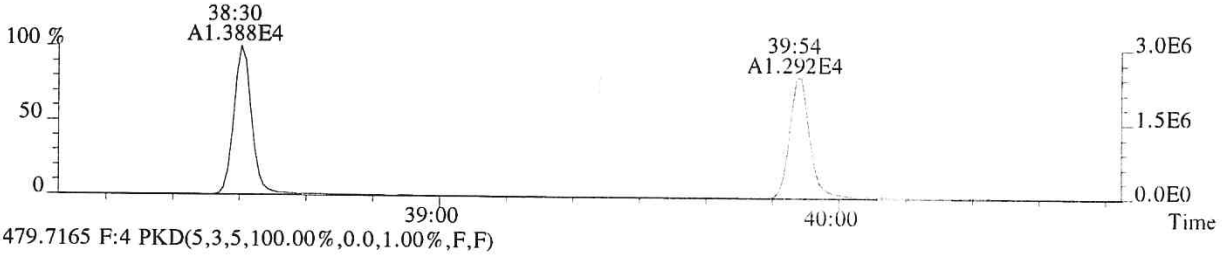
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.50%,F,T)



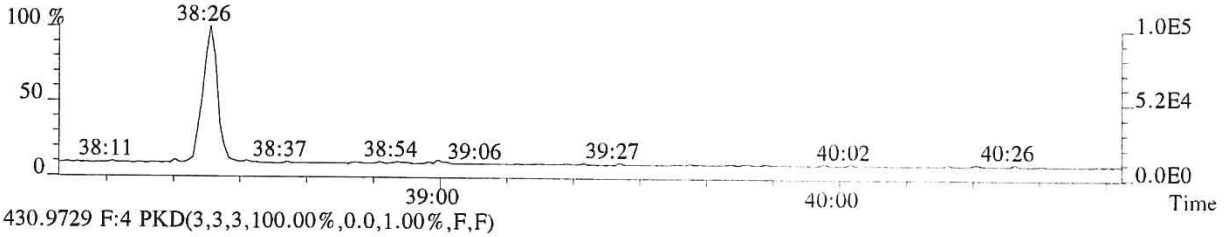
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.50%,F,T)



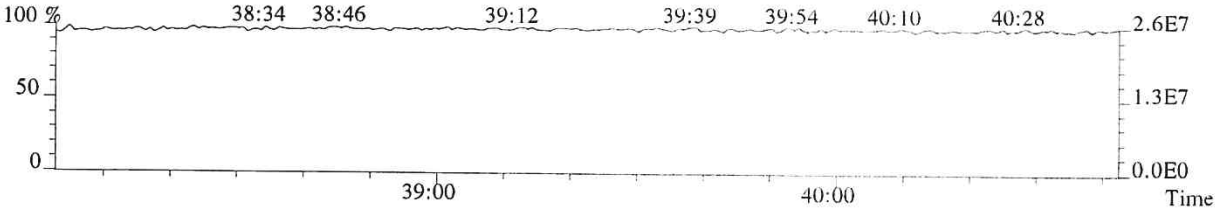
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3464.0,0.50%,F,T)



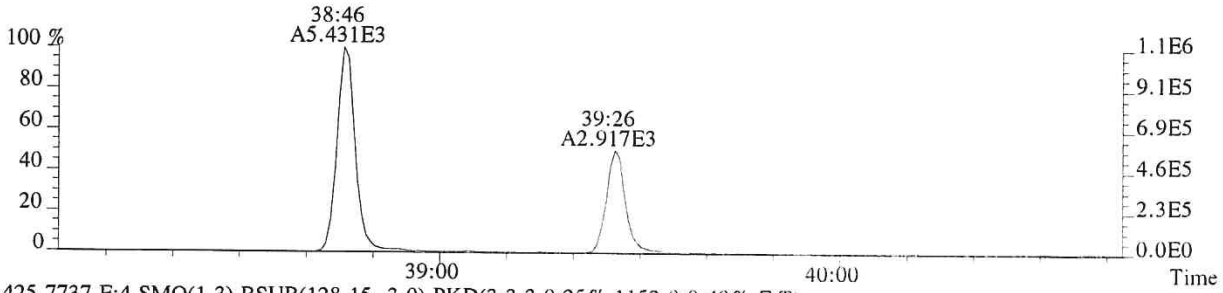
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



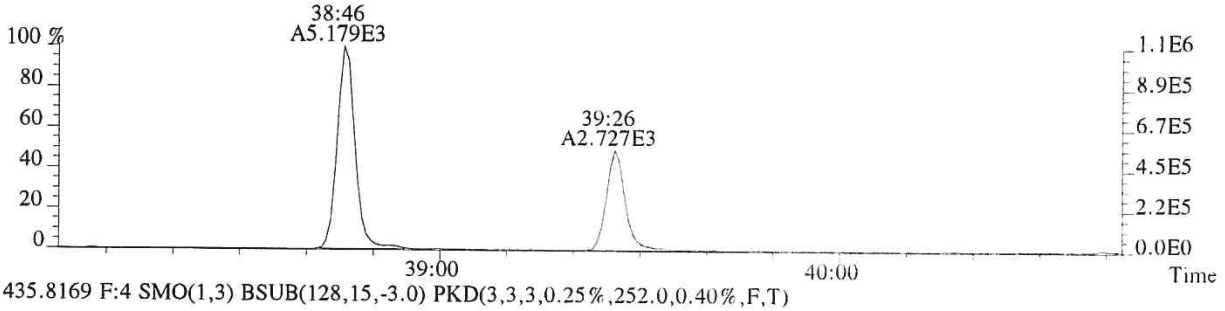
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



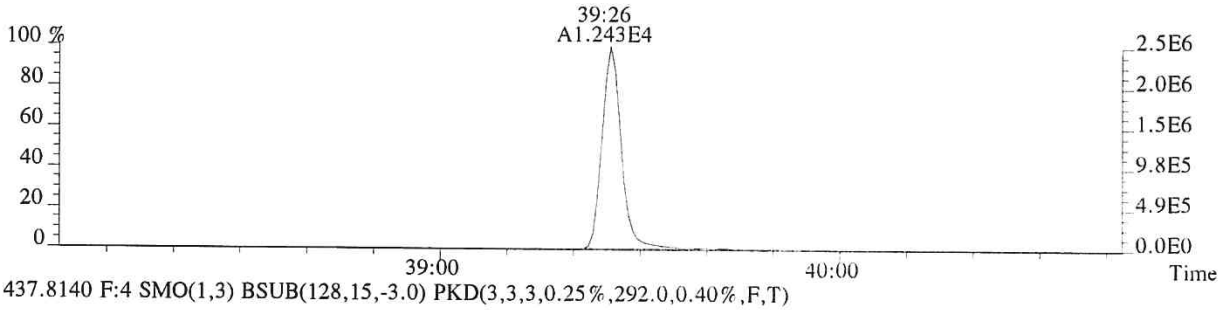
File:P519245 #1-240 Acq: 6-DEC-2018 06:08:33 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-017
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



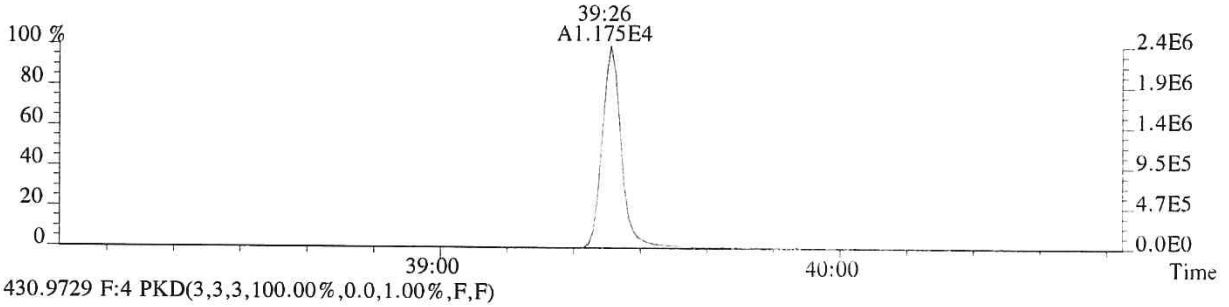
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



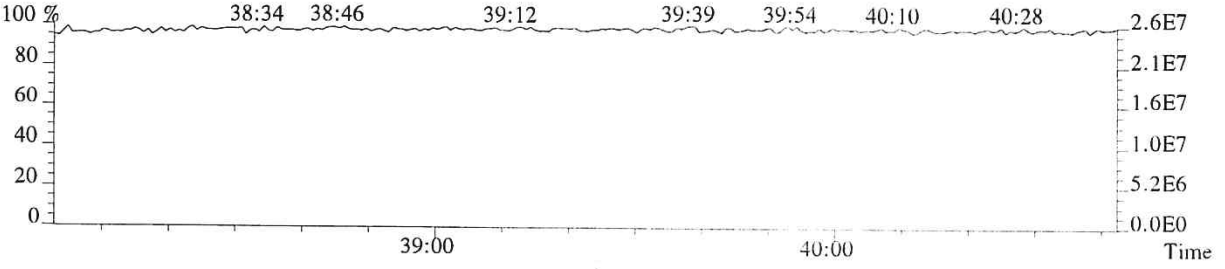
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



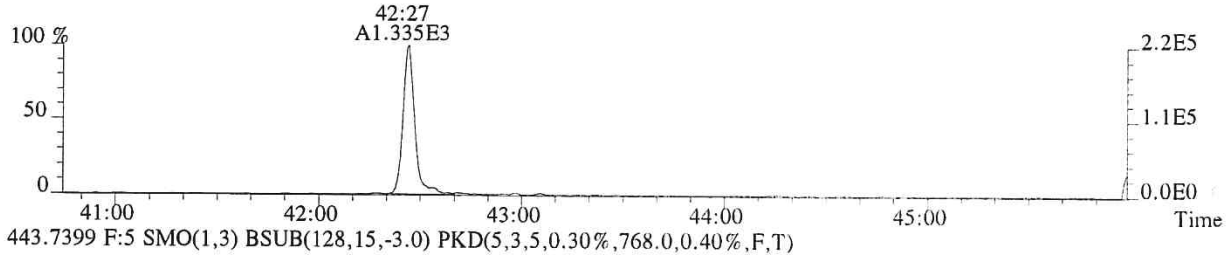
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



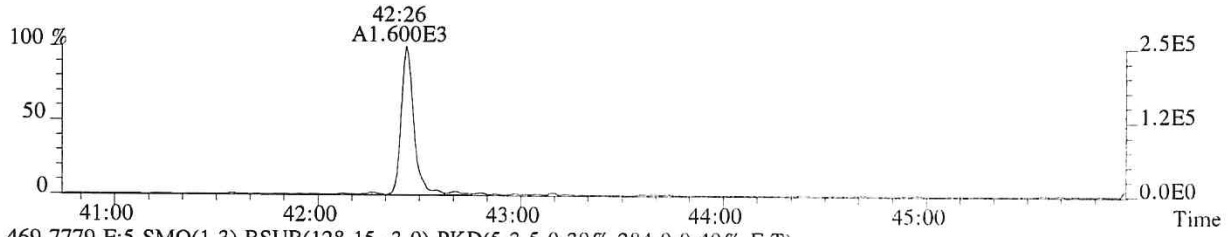
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



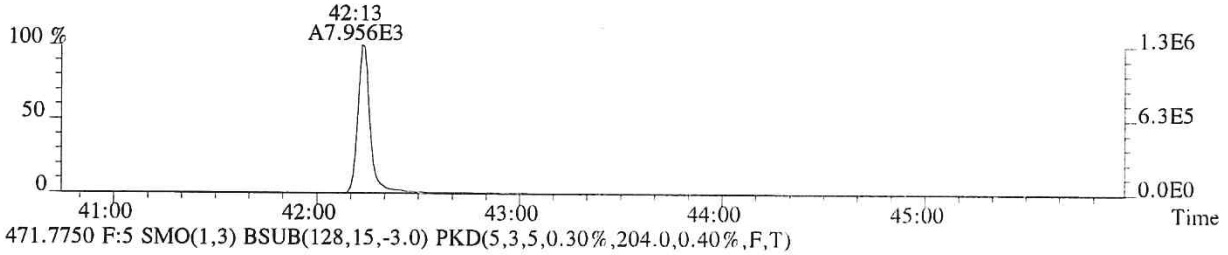
File:P519245 #1-472 Acq: 6-DEC-2018 06:08:33 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-017
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



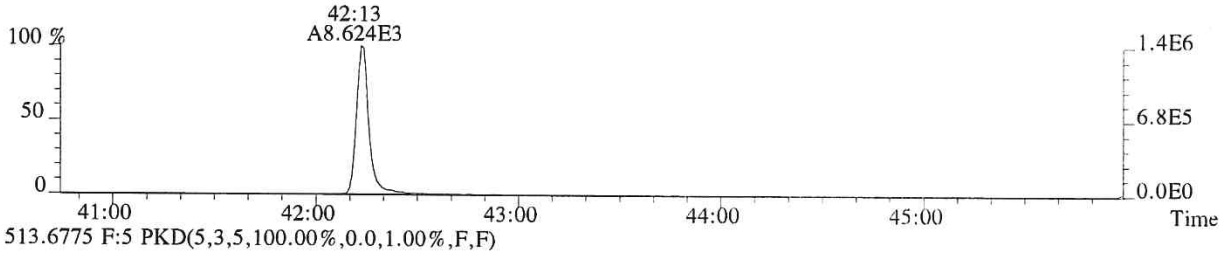
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



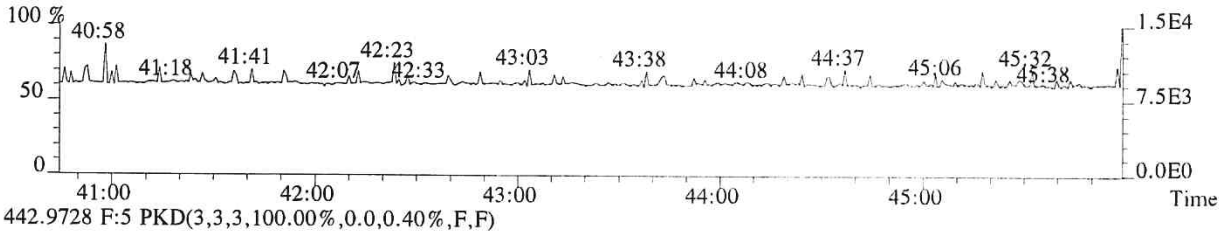
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



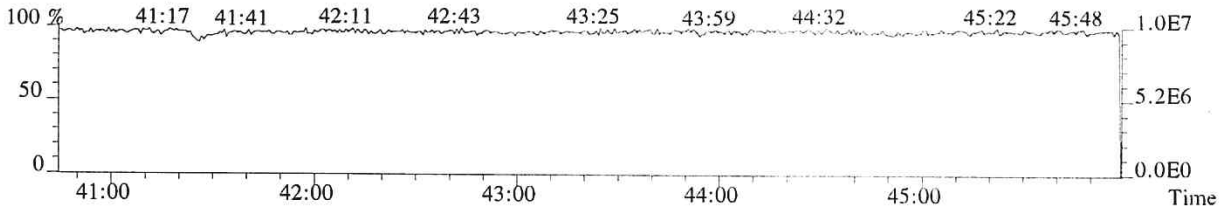
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

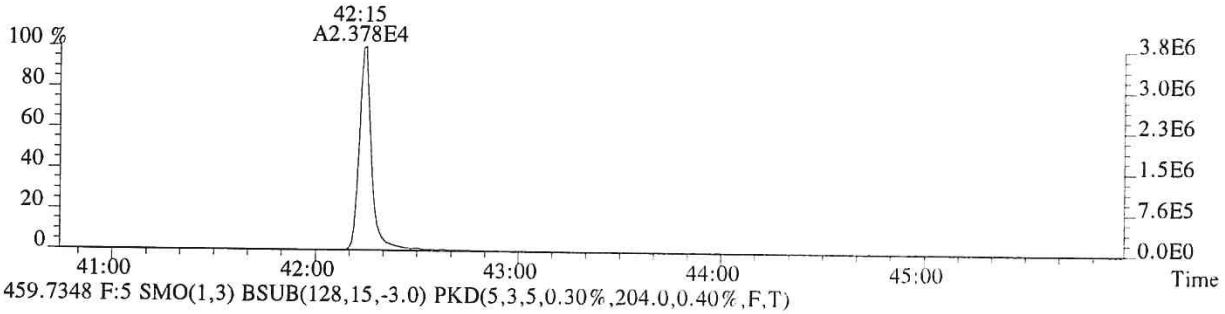


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

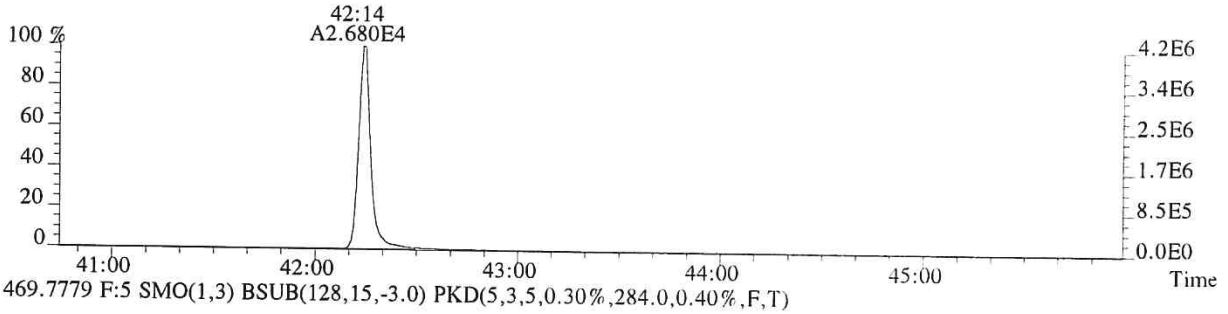


011942

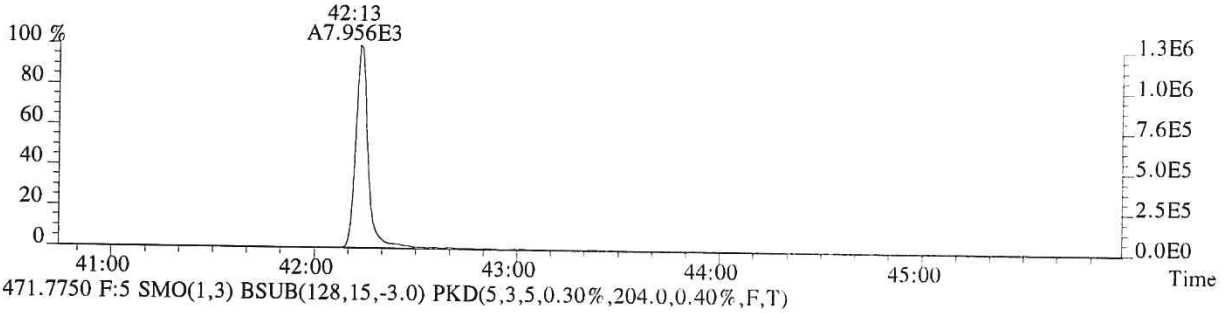
File:P519245 #1-472 Acq: 6-DEC-2018 06:08:33 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:E1801045-017
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



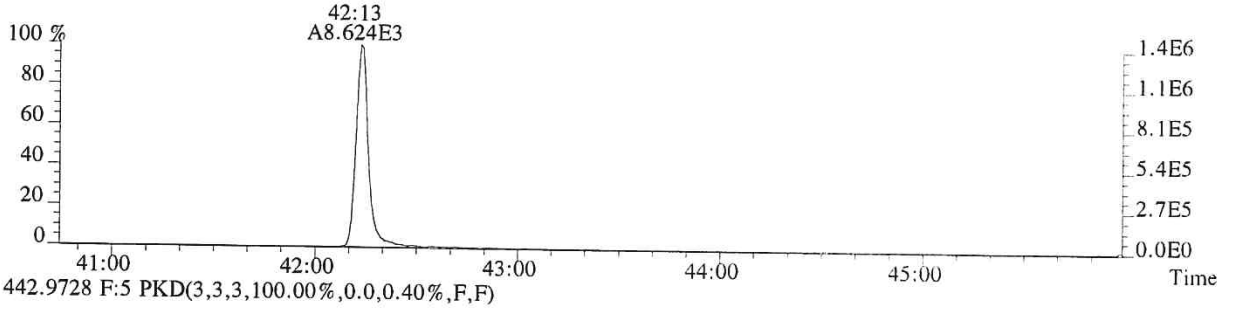
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



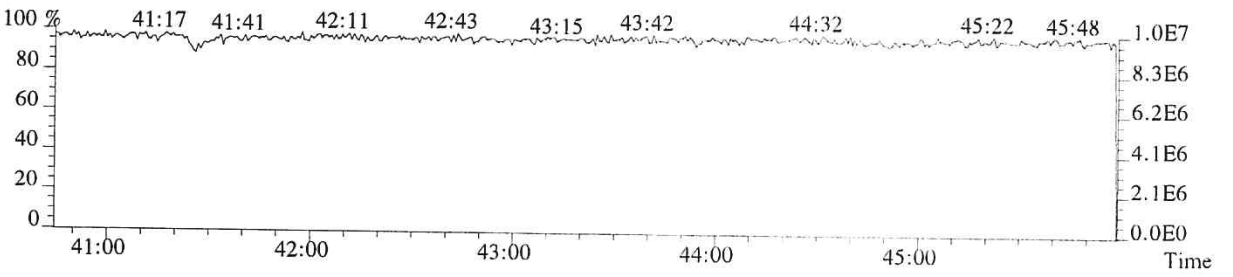
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011943

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0146

Run #13 Filename P519246 Samp: 1 Inj: 1 Acquired: 6-DEC-18 06:58:34
Processed: 7-DEC-18 09:55:16 Sample ID: E1801045-023

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.194e+04	4.218e+04	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:18	9.010e+02	5.876e+02	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:12	9.774e+02	5.762e+02	1.70	yes	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:54	1.145e+03	1.040e+03	1.10	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:01	3.964e+02	3.634e+02	1.09	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	4.076e+02	3.637e+02	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:18	1.764e+02	1.602e+02	1.10	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	5.913e+03	5.882e+03	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:56	4.340e+02	4.237e+02	1.02	yes	no	1.258
10	Unk	OCDF	42:29	9.109e+04	1.052e+05	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:50	7.007e+03	8.776e+03	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:30	2.831e+02	1.831e+02	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:39	1.355e+02	1.597e+02	0.85	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	7.097e+02	5.764e+02	1.23	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	4.195e+02	3.502e+02	1.20	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:28	1.444e+04	1.364e+04	1.06	yes	no	1.025
17	Unk	OCDD	42:17	2.525e+05	2.808e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:00	2.141e+04	2.682e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:16	3.268e+04	2.072e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:11	3.108e+04	1.951e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	1.207e+04	2.352e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:00	1.302e+04	2.539e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:31	1.238e+04	2.363e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:16	1.156e+04	2.257e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	7.312e+03	1.600e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:55	6.380e+03	1.482e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	9.985e+03	1.277e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:28	2.361e+04	1.494e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.785e+04	1.401e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:44	1.633e+04	1.265e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:27	1.444e+04	1.349e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:16	8.983e+03	1.020e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:15	2.423e+04	3.020e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	3.259e+04	2.556e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:50	1.457e+04				no	1.014

$$\text{OCDD} = \frac{(2.525e+05 + 2.808e+05) \times 4000 \text{ pg} \times 1}{(8.983e+03 + 1.020e+04) \times 10.539 \text{ g} \times 65.2 / 100 \times 1.118} = 14475 \text{ ng/kg}$$

LM 12/10/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0146

Run #13 Filename P519246 Samp: 1 Inj: 1 Acquired: 6-DEC-18 06:58:34
Processed: 7-DEC-18 09:55:16 LAB. ID: E1801045-023

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.41e+06	9.32e+02	5.8e+03	7.11e+06	1.70e+03	4.2e+03
2	1,2,3,7,8-PeCDF	1.74e+05	2.53e+03	6.9e+01	1.10e+05	2.13e+03	5.2e+01
3	2,3,4,7,8-PeCDF	1.78e+05	2.53e+03	7.0e+01	1.00e+05	2.13e+03	4.7e+01
4	1,2,3,4,7,8-HxCDF	2.48e+05	1.11e+04	2.2e+01	2.24e+05	1.72e+03	1.3e+02
5	1,2,3,6,7,8-HxCDF	8.00e+04	1.11e+04	7.2e+00	7.67e+04	1.72e+03	4.5e+01
6	2,3,4,6,7,8-HxCDF	9.72e+04	1.11e+04	8.7e+00	7.92e+04	1.72e+03	4.6e+01
7	1,2,3,7,8,9-HxCDF	3.87e+04	1.11e+04	3.5e+00	3.26e+04	1.72e+03	1.9e+01
8	1,2,3,4,6,7,8-HpCDF	1.28e+06	3.10e+03	4.1e+02	1.24e+06	3.41e+03	3.6e+02
9	1,2,3,4,7,8,9-HpCDF	9.20e+04	3.10e+03	3.0e+01	7.98e+04	3.41e+03	2.3e+01
10	OCDF	1.45e+07	4.60e+02	3.2e+04	1.65e+07	1.43e+03	1.2e+04
11	2,3,7,8-TCDD	1.36e+06	2.69e+03	5.0e+02	1.77e+06	1.68e+03	1.0e+03
12	1,2,3,7,8-PeCDD	4.78e+04	1.85e+03	2.6e+01	3.01e+04	2.12e+03	1.4e+01
13	1,2,3,4,7,8-HxCDD	3.17e+04	1.78e+03	1.8e+01	3.34e+04	1.82e+03	1.8e+01
14	1,2,3,6,7,8-HxCDD	1.51e+05	1.78e+03	8.5e+01	1.24e+05	1.82e+03	6.8e+01
15	1,2,3,7,8,9-HxCDD	8.22e+04	1.78e+03	4.6e+01	7.08e+04	1.82e+03	3.9e+01
16	1,2,3,4,6,7,8-HpCDD	2.88e+06	2.67e+03	1.1e+03	2.71e+06	6.60e+03	4.1e+02
17	OCDD	4.06e+07	3.00e+02	1.4e+05	4.49e+07	6.24e+02	7.2e+04
18	13C-2,3,7,8-TCDF	3.87e+06	9.49e+03	4.1e+02	4.79e+06	8.73e+03	5.5e+02
19	13C-1,2,3,7,8-PeCDF	6.41e+06	1.20e+04	5.4e+02	4.11e+06	8.77e+03	4.7e+02
20	13C-2,3,4,7,8-PeCDF	6.33e+06	1.20e+04	5.3e+02	3.94e+06	8.77e+03	4.5e+02
21	13C-1,2,3,4,7,8-HxCDF	2.62e+06	1.06e+03	2.5e+03	5.13e+06	5.92e+03	8.7e+02
22	13C-1,2,3,6,7,8-HxCDF	2.72e+06	1.06e+03	2.6e+03	5.35e+06	5.92e+03	9.0e+02
23	13C-2,3,4,6,7,8-HxCDF	2.72e+06	1.06e+03	2.6e+03	5.14e+06	5.92e+03	8.7e+02
24	13C-1,2,3,7,8,9-HxCDF	2.64e+06	1.06e+03	2.5e+03	5.13e+06	5.92e+03	8.7e+02
25	13C-1,2,3,4,6,7,8-HpCDF	1.59e+06	3.80e+03	4.2e+02	3.42e+06	3.23e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.26e+06	3.80e+03	3.3e+02	2.93e+06	3.23e+03	9.1e+02
27	13C-2,3,7,8-TCDD	1.98e+06	7.59e+03	2.6e+02	2.57e+06	2.65e+03	9.7e+02
28	13C-1,2,3,7,8-PeCDD	4.66e+06	1.89e+03	2.5e+03	2.95e+06	1.64e+03	1.8e+03
29	13C-1,2,3,4,7,8-HxCDD	3.95e+06	1.54e+03	2.6e+03	3.07e+06	1.26e+03	2.4e+03
30	13C-1,2,3,6,7,8-HxCDD	3.45e+06	1.54e+03	2.2e+03	2.67e+06	1.26e+03	2.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+06	1.02e+03	2.8e+03	2.60e+06	6.20e+02	4.2e+03
32	13C-OCDD	1.44e+06	7.56e+02	1.9e+03	1.63e+06	6.80e+02	2.4e+03
33	13C-1,2,3,4-TCDD	4.53e+06	7.59e+03	6.0e+02	5.65e+06	2.65e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.76e+06	1.54e+03	4.4e+03	5.28e+06	1.26e+03	4.2e+03
35	37Cl-2,3,7,8-TCDD	2.90e+06	1.48e+03	2.0e+03			

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Peak List Summary

CLIENT ID.
SL0146

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P519246 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 06:58:34 Processed: 7-DEC-18 09:55:16

Mass: 303.9020 305.8990 Tot Response: 1.35e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:58	1.48e+02	2.04e+02	0.72	yes	3.52e+02		n	n
2	24:29	4.03e+02	5.33e+02	0.76	yes	9.36e+02		n	n
3	25:01	5.80e+02	7.81e+02	0.74	yes	1.36e+03		n	n
4	25:20	1.60e+03	2.14e+03	0.75	yes	3.74e+03		n	n
5	25:45	5.52e+02	7.87e+02	0.70	yes	1.34e+03		n	n
6	26:03	1.08e+03	1.49e+03	0.72	yes	2.58e+03		n	n
7	26:25	2.24e+02	2.93e+02	0.77	yes	5.17e+02		n	n
8	26:39	8.85e+02	1.25e+03	0.71	yes	2.14e+03		n	n
9	26:47	1.01e+03	1.32e+03	0.77	yes	2.33e+03		n	n
10	27:13	1.40e+04	1.90e+04	0.74	yes	3.30e+04		n	n
11	27:28	5.89e+02	7.98e+02	0.74	yes	1.39e+03		n	n
12	28:01	3.19e+04	4.22e+04	0.76	yes	7.41e+04	2,3,7,8-TCDF	n	n
13	28:21	2.30e+03	3.04e+03	0.76	yes	5.34e+03		n	n
14	28:36	2.83e+02	3.54e+02	0.80	yes	6.37e+02		n	n
15	29:52	2.23e+03	2.81e+03	0.79	yes	5.04e+03		n	n

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Peak List Summary

CLIENT ID.
SL0146

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P519246 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 06:58:34 Processed: 7-DEC-18 09:55:16

Mass: 319.8970 321.8940 Tot Response: 1.76e+04 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:54	1.11e+02	1.52e+02	0.73	yes	2.63e+02		n	n
2	28:50	7.01e+03	8.78e+03	0.80	yes	1.58e+04	2,3,7,8-TCDD	n	n
3	29:07	6.70e+02	8.40e+02	0.80	yes	1.51e+03		n	n

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CLIENT ID.
SL0146

Entry: 38 Totals Name: Total Penta-Furans1

Run: 13 File: P519246 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 06:58:34 Processed: 7-DEC-18 09:55:16

Mass: 339.8600 341.8570 Tot Response: 3.69e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:53	2.22e+03	1.47e+03 1.51	yes	3.69e+03		n	n

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Peak List Summary

CLIENT ID.
SL0146

Entry: 39 Totals Name: Total Penta-Furans2

Run: 13 File: P519246 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 06:58:34 Processed: 7-DEC-18 09:55:16

Mass: 339.8600 341.8570 Tot Response: 9.72e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:14	3.50e+02	2.37e+02	1.47	yes	5.88e+02		n	y
2	31:22	1.89e+03	1.29e+03	1.46	yes	3.18e+03		n	y
3	31:53	5.58e+02	3.68e+02	1.52	yes	9.26e+02		n	y
4	31:58	9.56e+01	6.16e+01	1.55	yes	1.57e+02		n	y
5	32:07	2.57e+02	1.72e+02	1.49	yes	4.30e+02		n	n
6	32:18	9.01e+02	5.88e+02	1.53	yes	1.49e+03	1,2,3,7,8-PeCDF	n	n
7	32:32	5.05e+02	3.41e+02	1.48	yes	8.47e+02		n	n
8	33:12	9.77e+02	5.76e+02	1.70	yes	1.55e+03	2,3,4,7,8-PeCDF	y	y
9	33:15	3.46e+02	2.08e+02	1.66	yes	5.54e+02		y	y

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Peak List Summary

CLIENT ID.
SL0146

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P519246 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 06:58:34 Processed: 7-DEC-18 09:55:16

Mass: 355.8550 357.8520 Tot Response: 2.72e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:25	5.72e+02	3.42e+02	1.67	yes	9.15e+02		n	n
2	31:51	2.60e+02	1.69e+02	1.53	yes	4.30e+02		n	n
3	32:18	2.56e+02	1.83e+02	1.40	yes	4.39e+02		n	n
4	32:46	2.99e+02	1.72e+02	1.74	yes	4.71e+02		n	n
5	33:30	2.83e+02	1.83e+02	1.55	yes	4.66e+02	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

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SL0146

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P519246 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 06:58:34 Processed: 7-DEC-18 09:55:16

Mass: 373.8210 375.8180 Tot Response: 1.55e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:47	7.12e+02	5.79e+02	1.23	yes	1.29e+03		n	n
2	34:57	2.27e+03	1.88e+03	1.21	yes	4.15e+03		n	n
3	35:28	3.01e+03	2.62e+03	1.15	yes	5.63e+03		n	n
4	35:49	1.88e+02	1.65e+02	1.14	yes	3.53e+02		n	n
5	35:54	1.14e+03	1.04e+03	1.10	yes	2.18e+03	1,2,3,4,7,8-HxCDF	n	n
6	36:01	3.96e+02	3.63e+02	1.09	yes	7.60e+02	1,2,3,6,7,8-HxCDF	n	n
7	36:31	4.08e+02	3.64e+02	1.12	yes	7.71e+02	2,3,4,6,7,8-HxCDF	n	n
8	37:18	1.76e+02	1.60e+02	1.10	yes	3.37e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

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SL0146

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P519246 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 06:58:34 Processed: 7-DEC-18 09:55:16

Mass: 389.8160 391.8130 Tot Response: 1.48e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:19	3.60e+03	2.85e+03	1.27	yes	6.45e+03		n	n
2	35:50	5.12e+02	3.76e+02	1.36	yes	8.88e+02		n	n
3	36:04	2.71e+03	2.07e+03	1.31	yes	4.78e+03		n	n
4	36:11	2.05e+02	1.93e+02	1.06	yes	3.98e+02		n	n
5	36:45	7.10e+02	5.76e+02	1.23	yes	1.29e+03	1,2,3,6,7,8-HxCDD	n	n
6	36:55	1.50e+02	1.14e+02	1.31	yes	2.64e+02		n	n
7	36:59	4.19e+02	3.50e+02	1.20	yes	7.70e+02	1,2,3,7,8,9-HxCDD	n	n

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SL0146

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P519246 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 06:58:34 Processed: 7-DEC-18 09:55:16

Mass: 407.7820 409.7790 Tot Response: 2.76e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:32	5.91e+03	5.88e+03 1.01	yes	1.18e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:56	7.43e+03	7.49e+03 0.99	yes	1.49e+04		n	n
3	39:56	4.34e+02	4.24e+02 1.02	yes	8.58e+02	1,2,3,4,7,8,9-HpCDF	n	n

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Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P519246 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 06:58:34 Processed: 7-DEC-18 09:55:16

Mass: 423.7770 425.7740 Tot Response: 6.86e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:47	2.08e+04	1.96e+04 1.06	yes	4.05e+04		n	n
2	39:28	1.44e+04	1.36e+04 1.06	yes	2.81e+04	1,2,3,4,6,7,8-HpCDD	n	n

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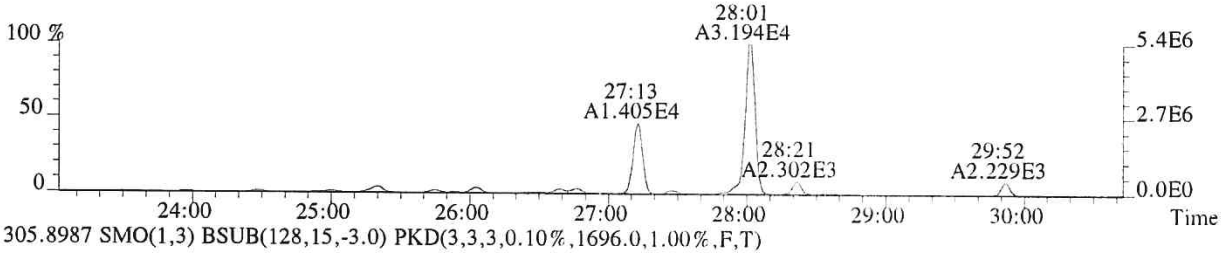
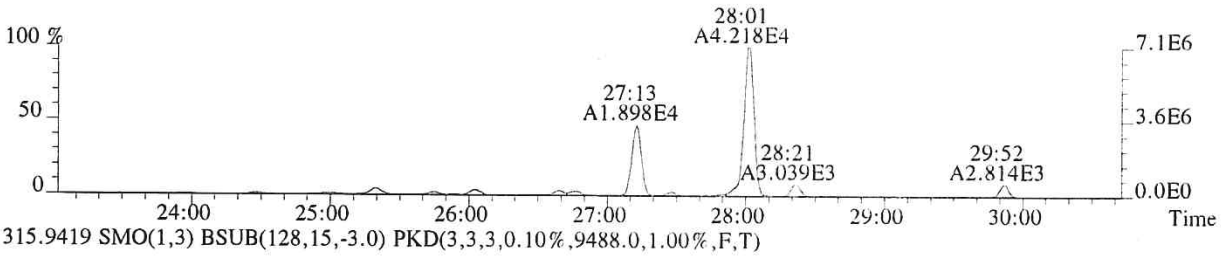
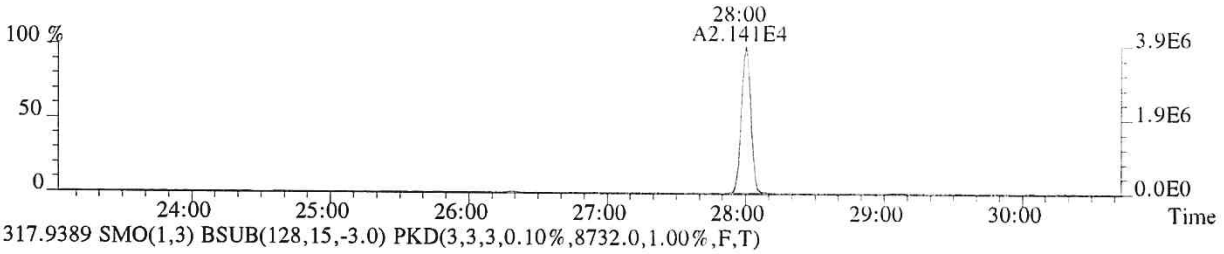
File:P519246 #1-545 Acq: 6-DEC-2018 06:58:34 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-023
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



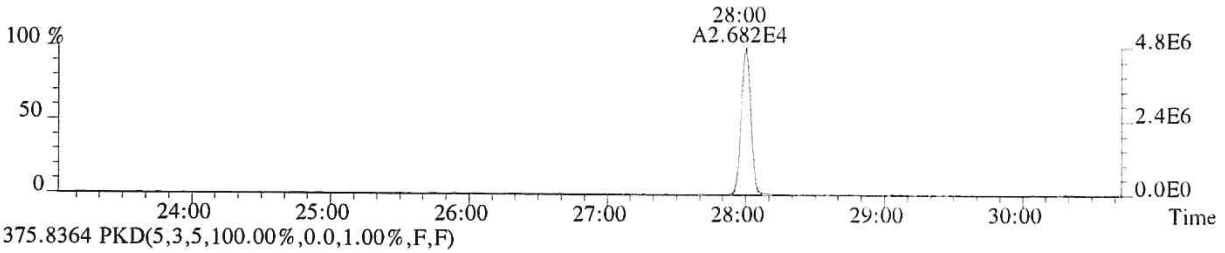
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1696.0,1.00%,F,T)



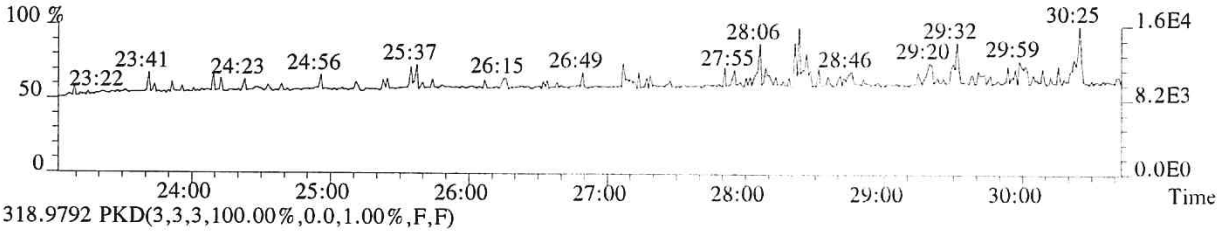
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9488.0,1.00%,F,T)



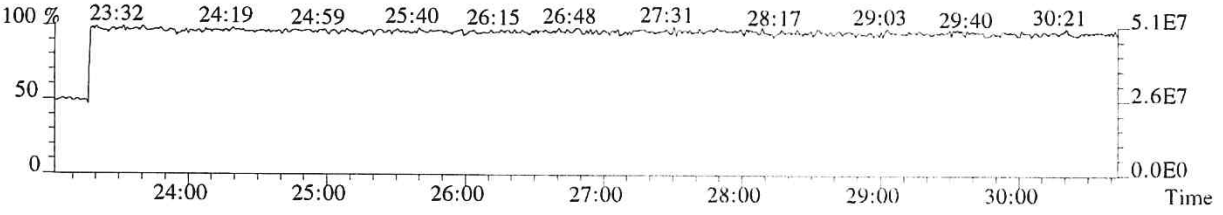
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8732.0,1.00%,F,T)



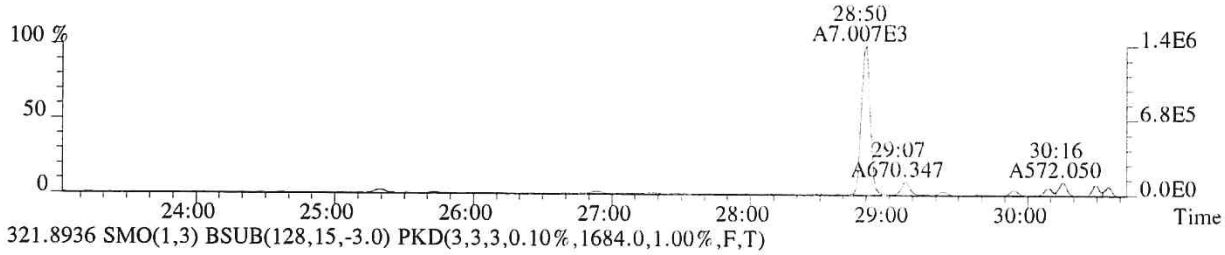
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



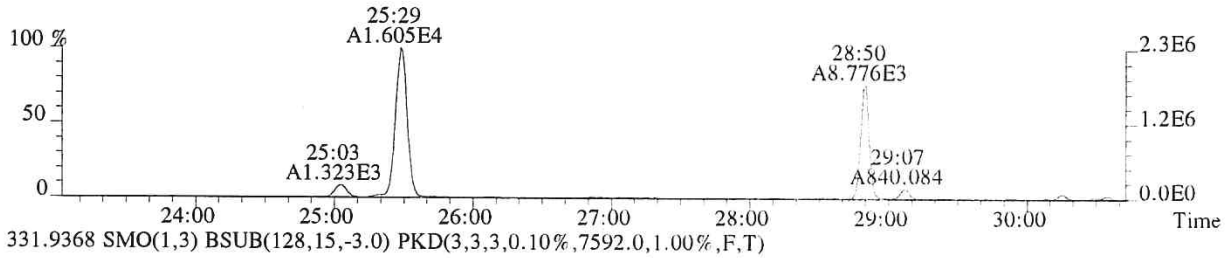
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



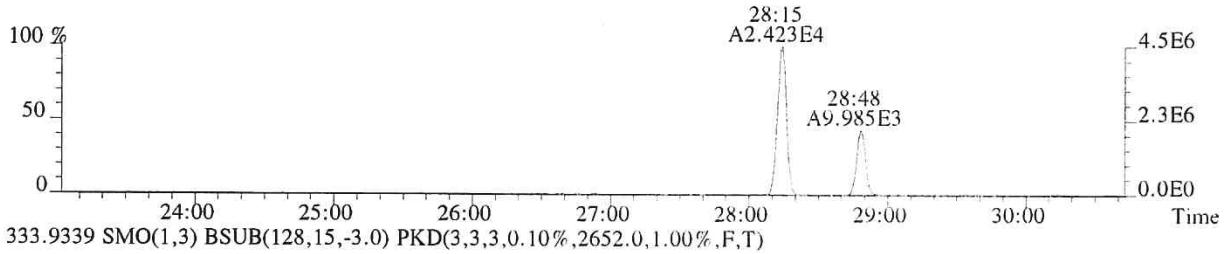
File:P519246 #1-545 Acq: 6-DEC-2018 06:58:34 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-023
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2692.0,1.00%,F,T)



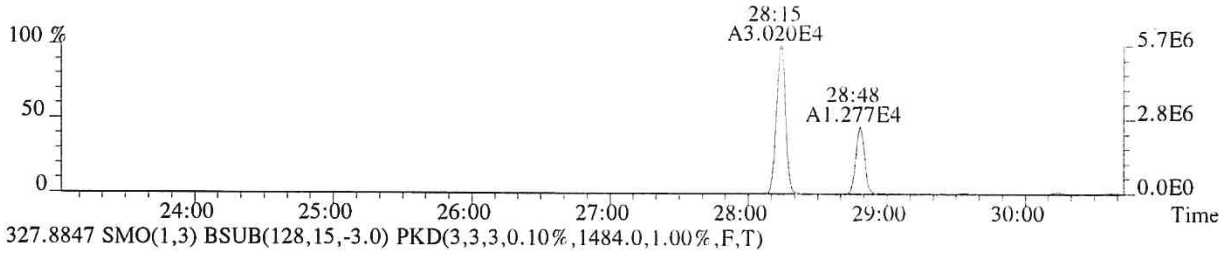
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



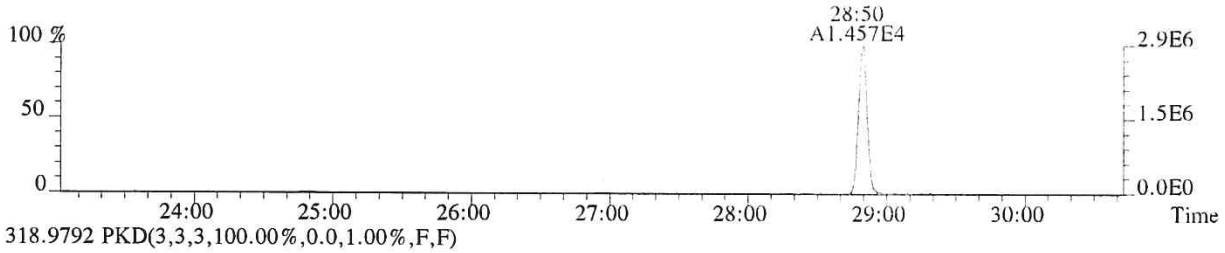
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7592.0,1.00%,F,T)



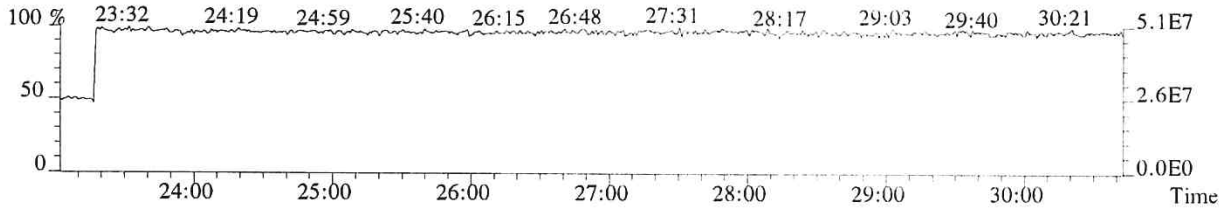
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2652.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1484.0,1.00%,F,T)



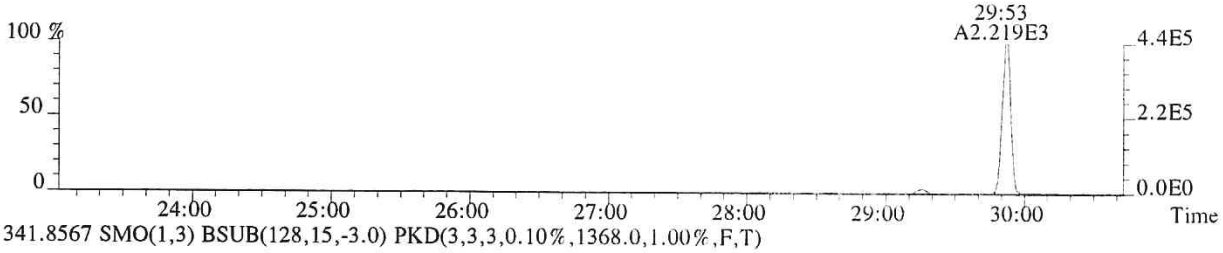
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



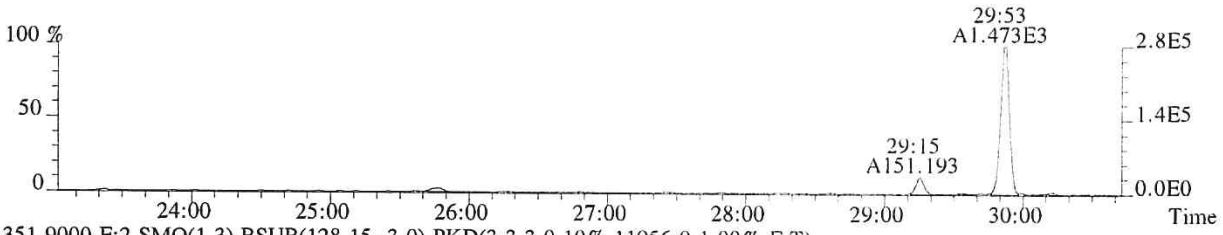
011956

File:P519246 #1-545 Acq: 6-DEC-2018 06:58:34 Probe EI+ Magnet SIR VG BioTech Mass spect
Sample#1 Exp:E1801045-023

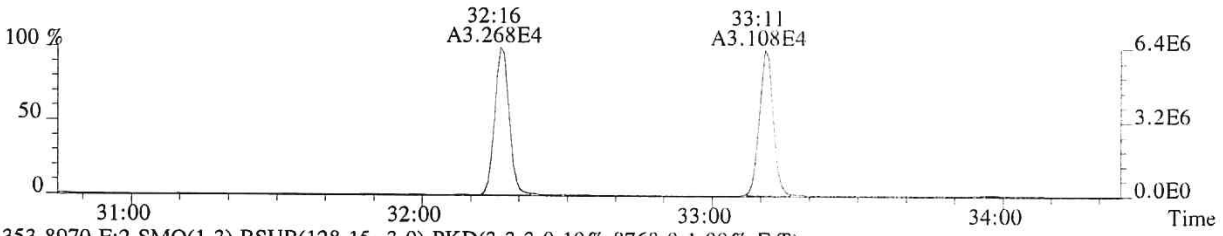
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



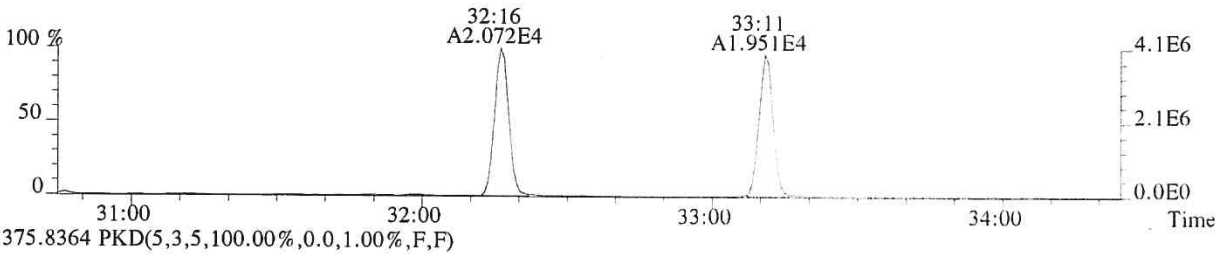
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



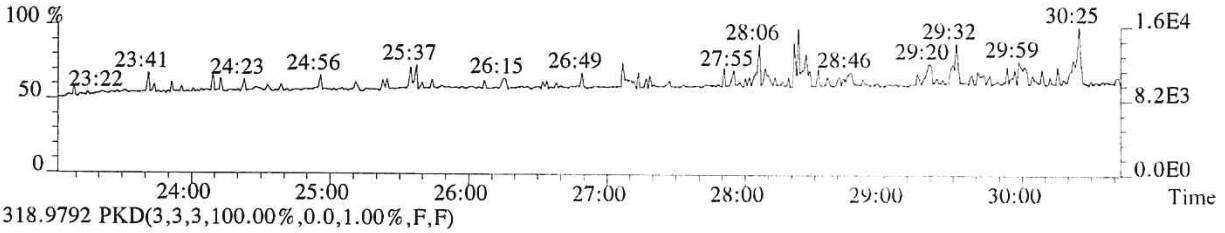
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11956.0,1.00%,F,T)



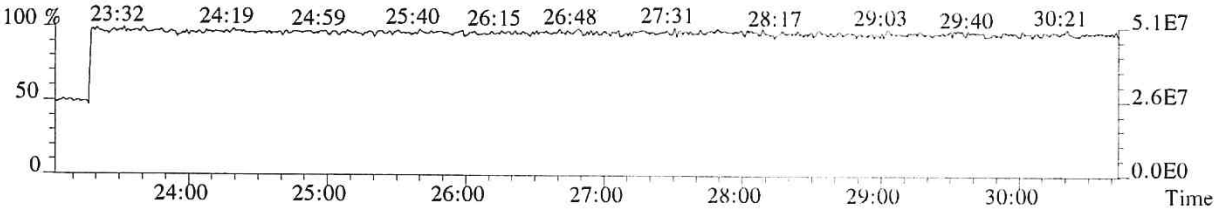
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8768.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

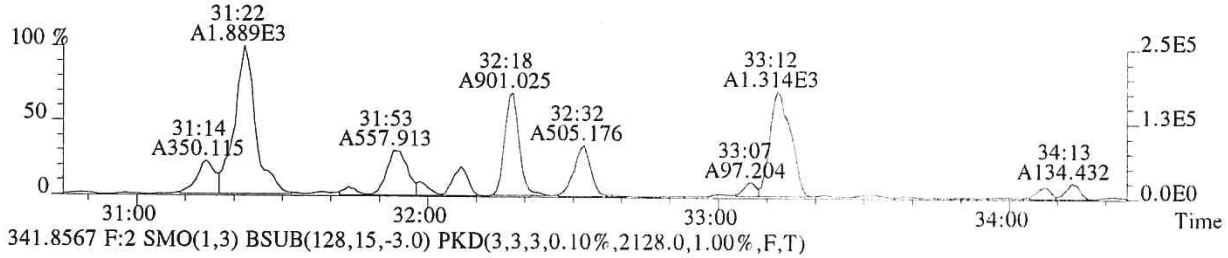


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

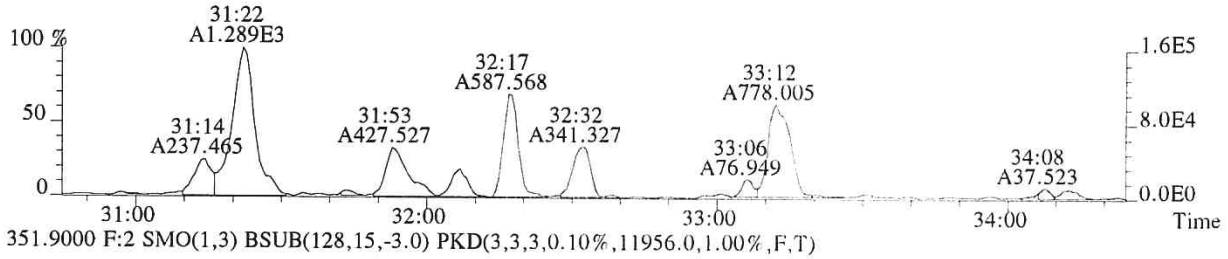


011957

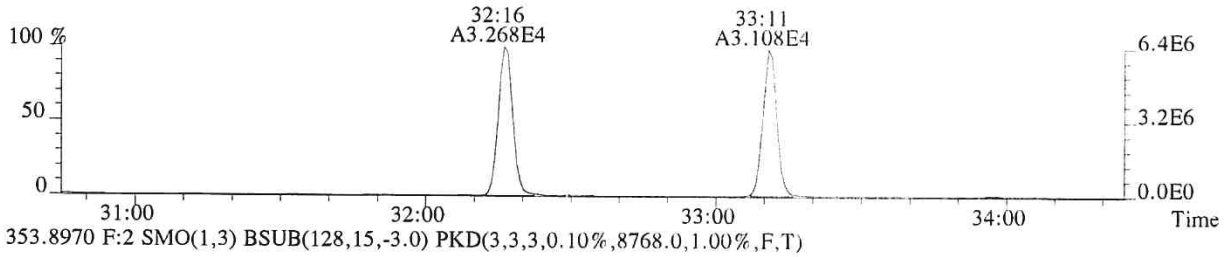
File:P519246 #1-330 Acq: 6-DEC-2018 06:58:34 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801045-023
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2532.0,1.00%,F,T)



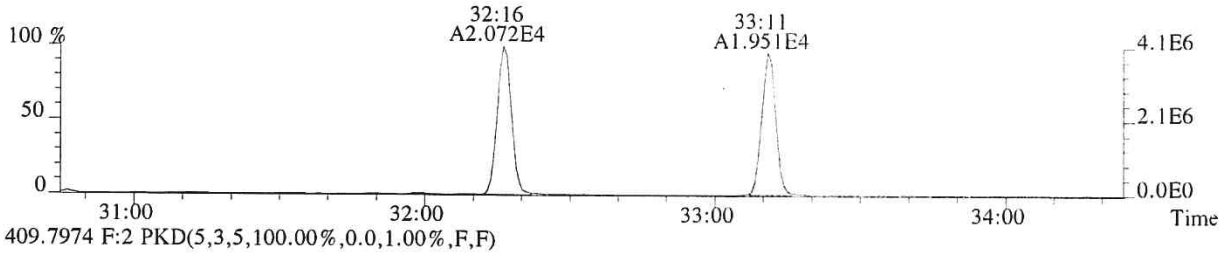
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2128.0,1.00%,F,T)



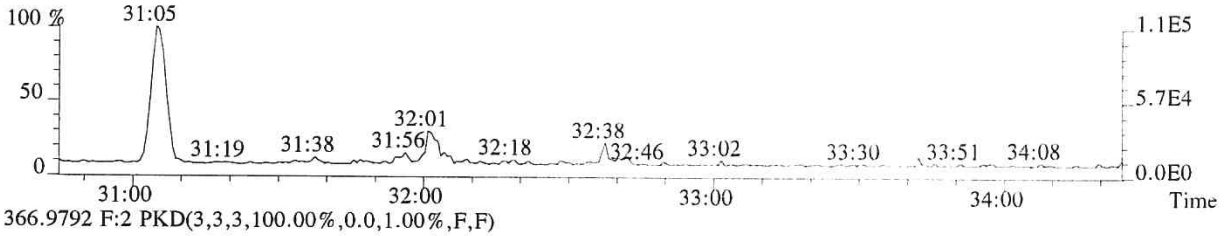
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11956.0,1.00%,F,T)



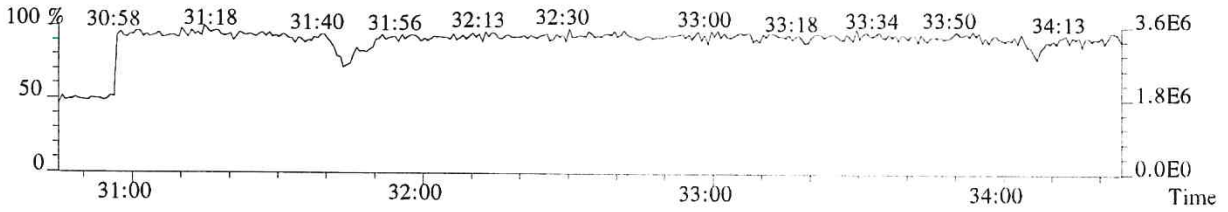
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8768.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

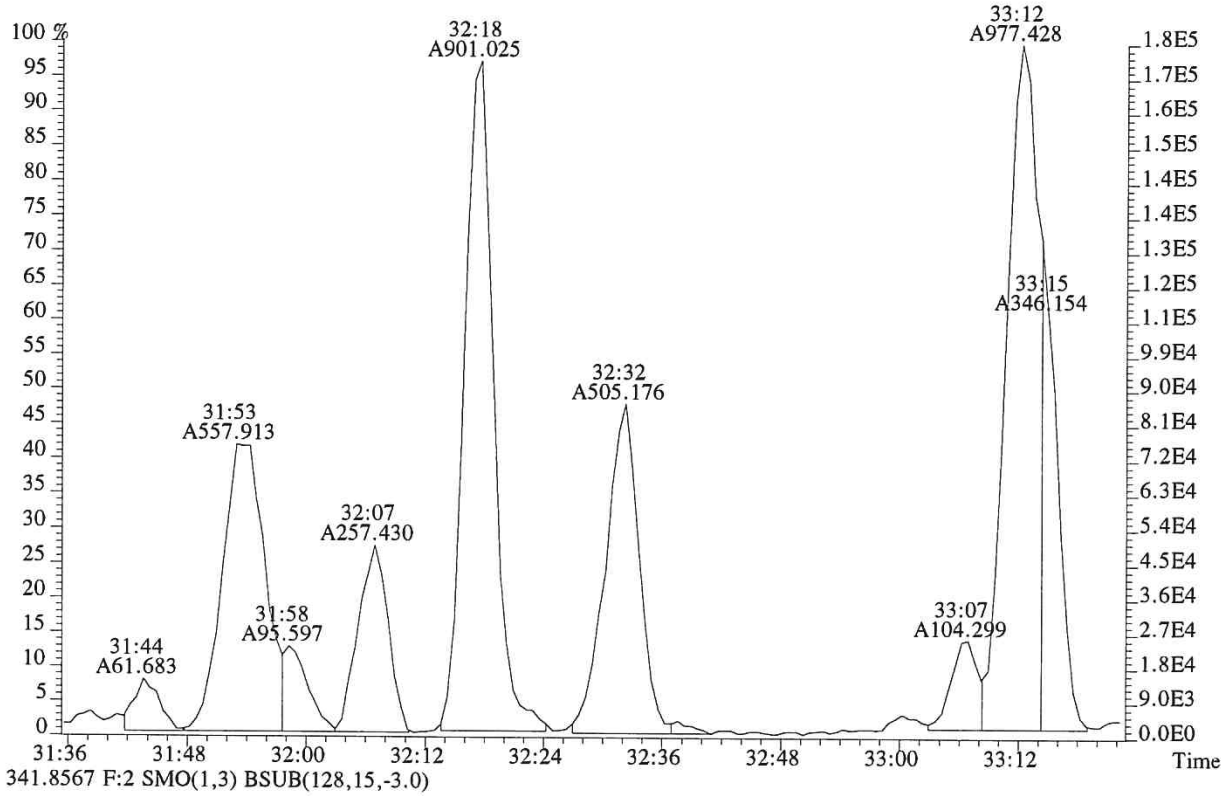


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

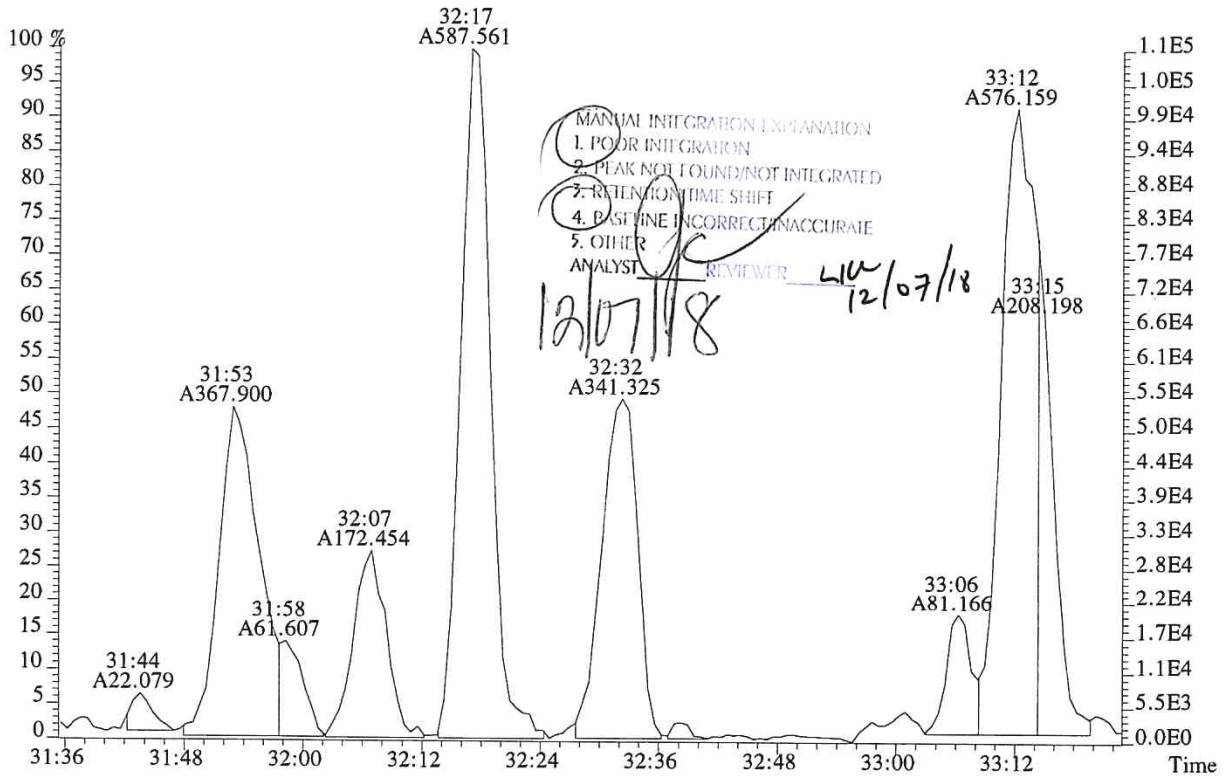


011958

File:P519246 #1-330 Acq: 6-DEC-2018 06:58:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-023
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2532.0,1.00%,F,T)

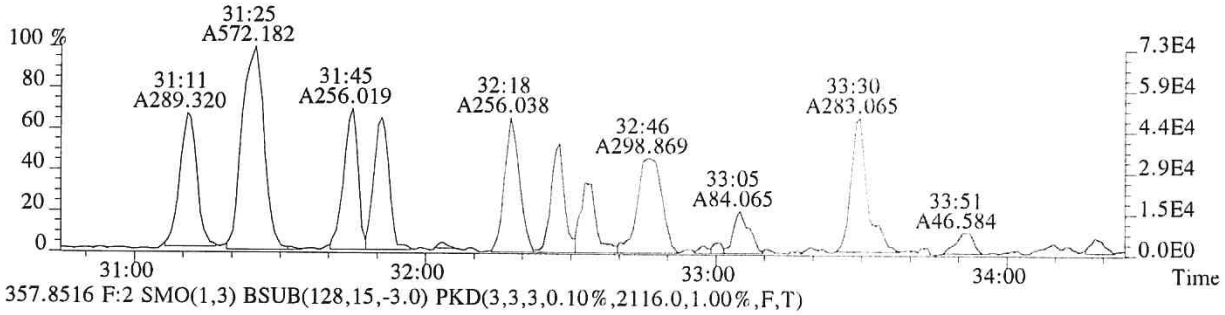


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0)

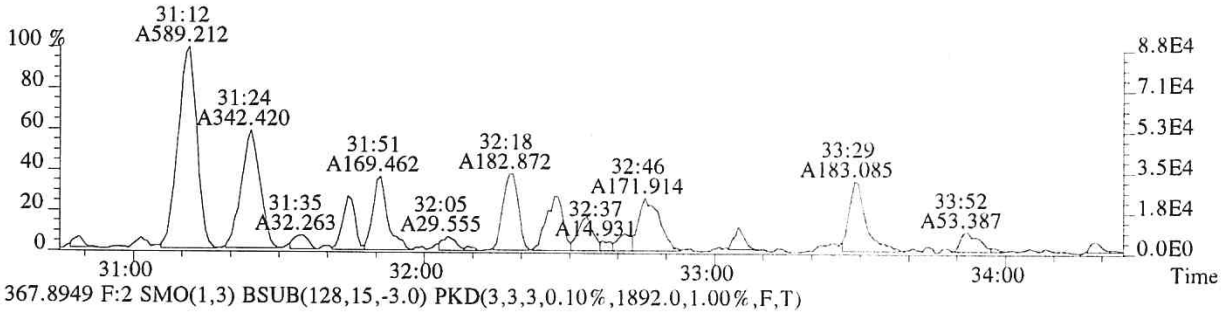


011959

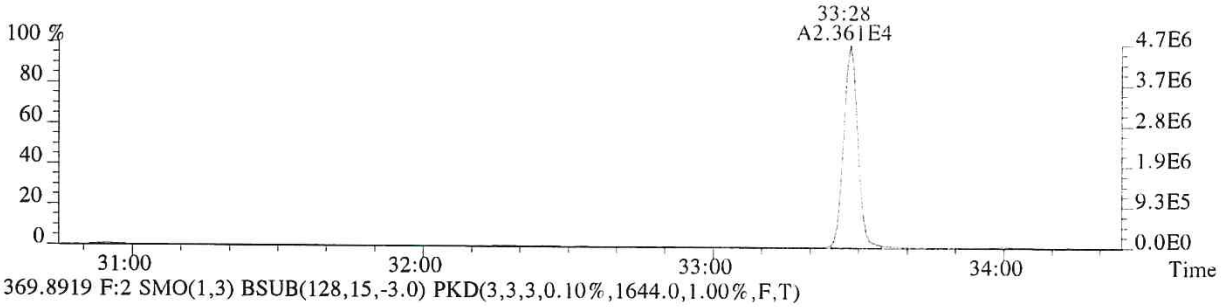
File:P519246 #1-330 Acq: 6-DEC-2018 06:58:34 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-023
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1852.0,1.00%,F,T)



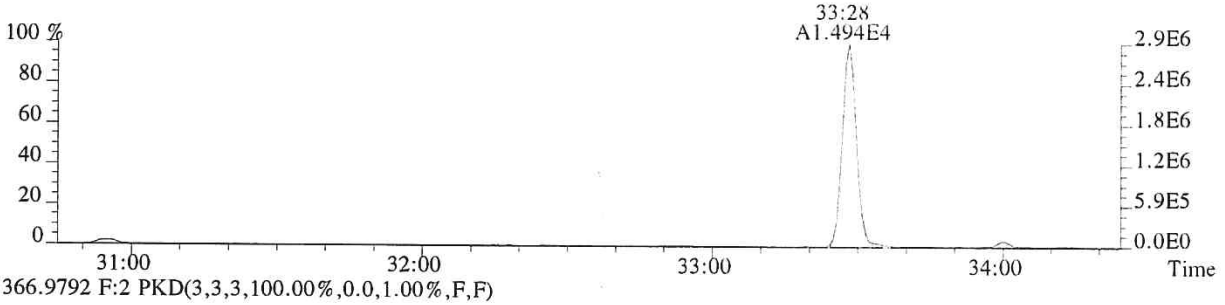
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



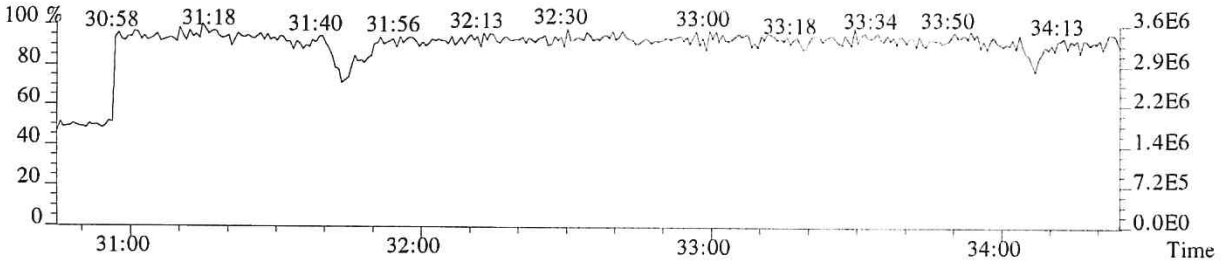
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1644.0,1.00%,F,T)

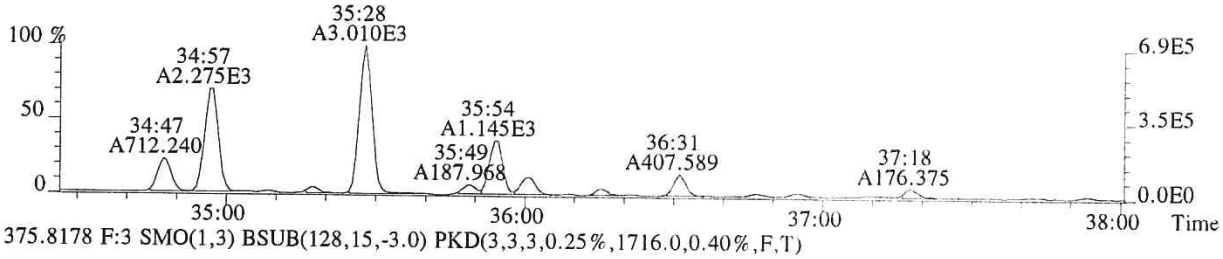


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

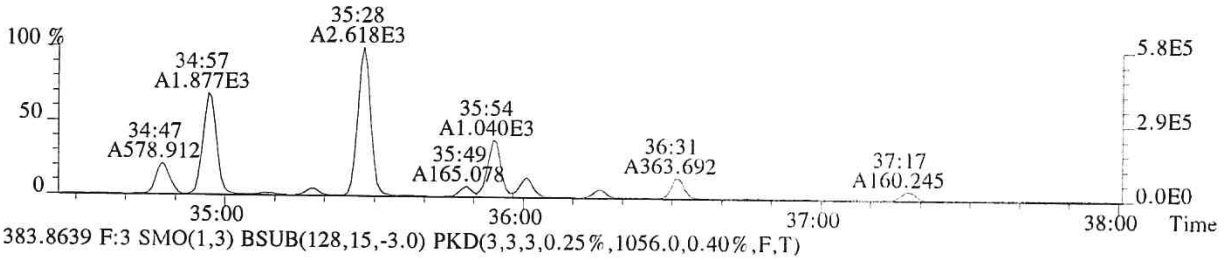


011960

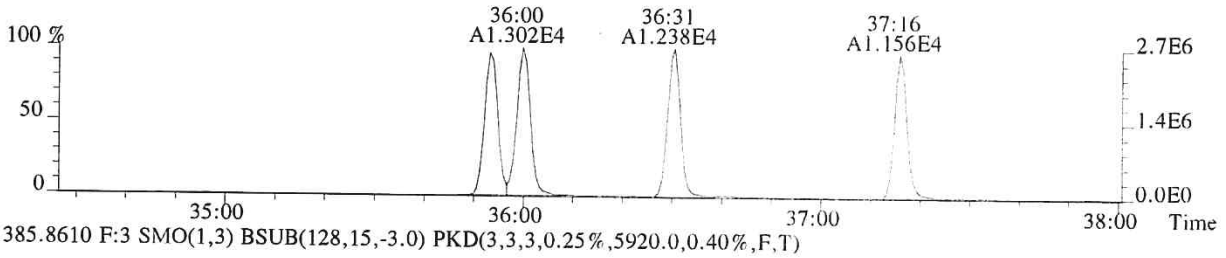
File:P519246 #1-322 Acq: 6-DEC-2018 06:58:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801045-023
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11140.0,0.40%,F,T)



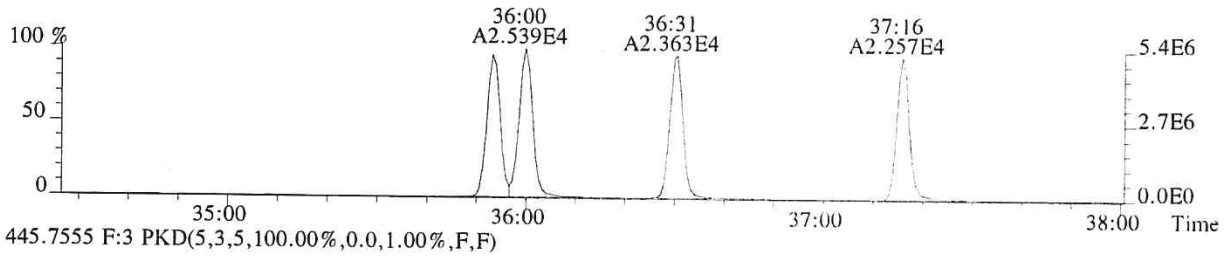
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1716.0,0.40%,F,T)



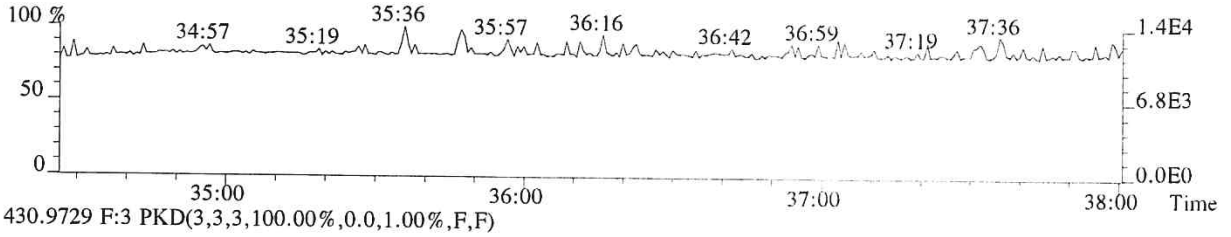
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



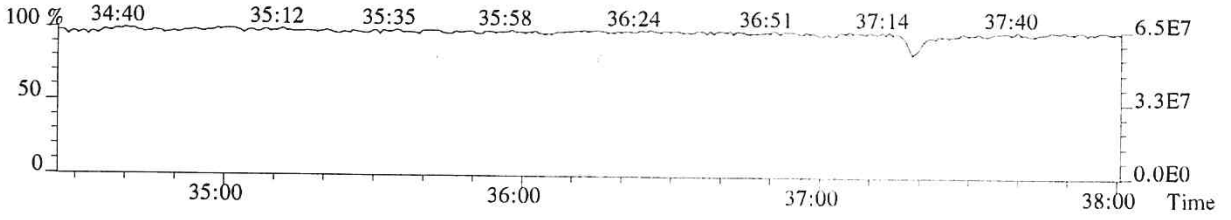
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5920.0,0.40%,F,T)



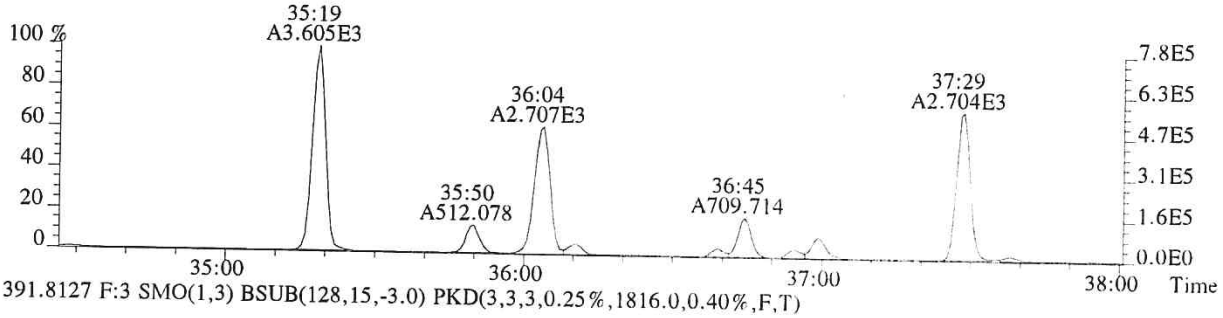
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



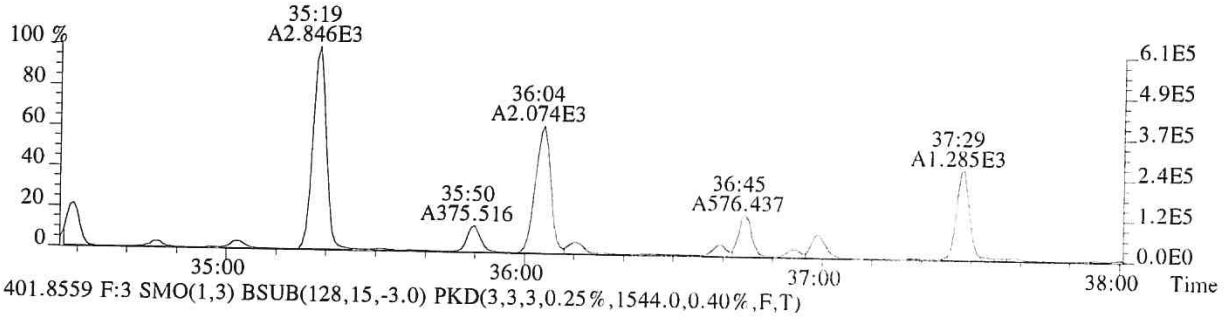
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



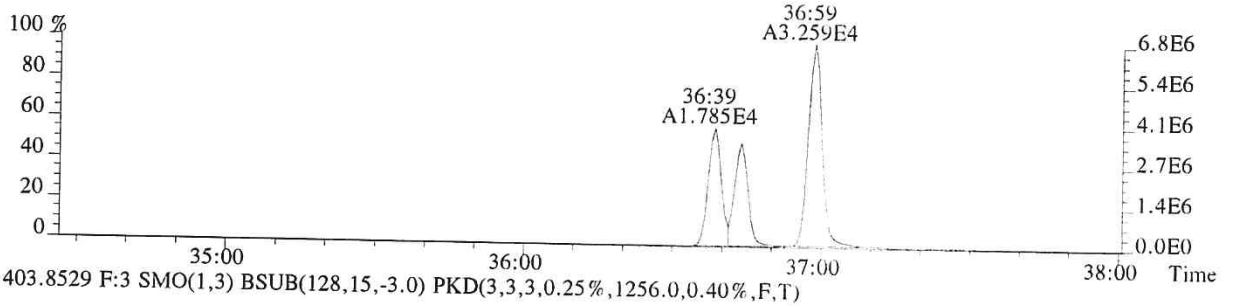
File:P519246 #1-322 Acq: 6-DEC-2018 06:58:34 Probe EI+ Magnet SIR VG BioTech Mass spectt
Sample#1 Exp:E1801045-023
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1784.0,0.40%,F,T)



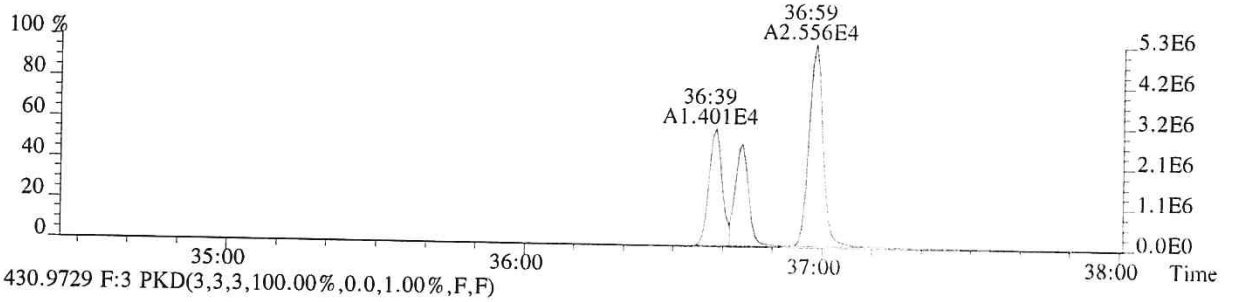
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1816.0,0.40%,F,T)



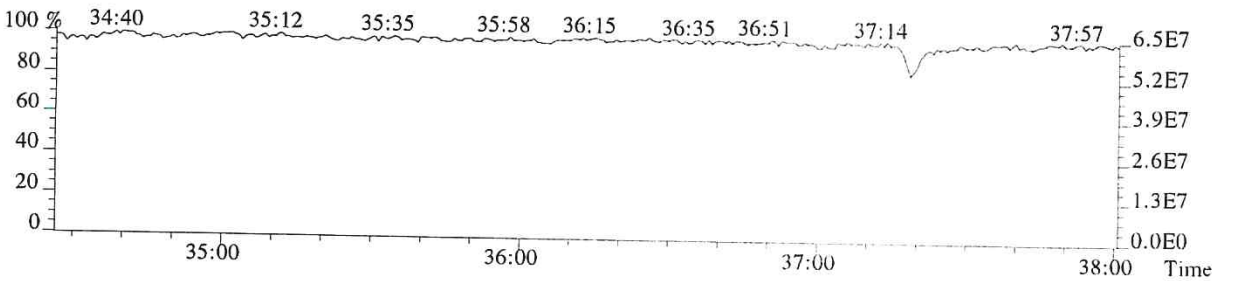
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



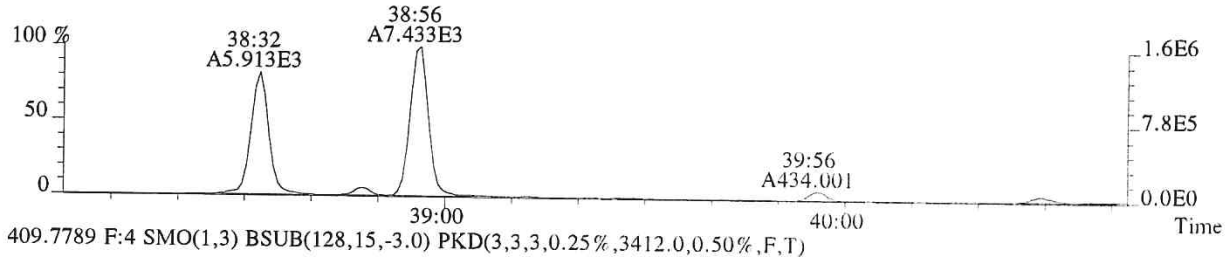
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



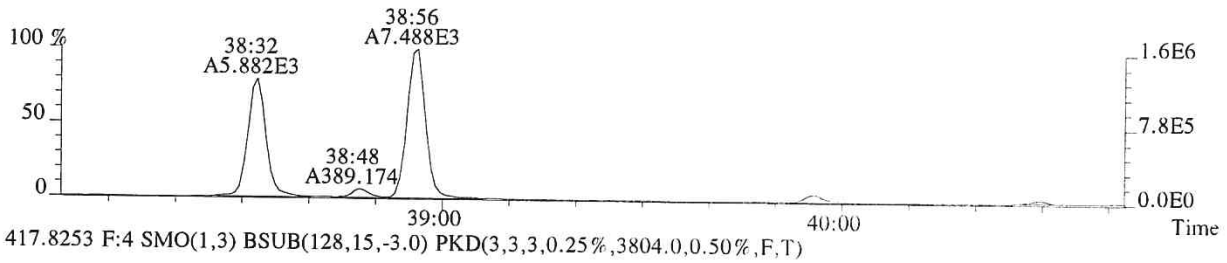
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



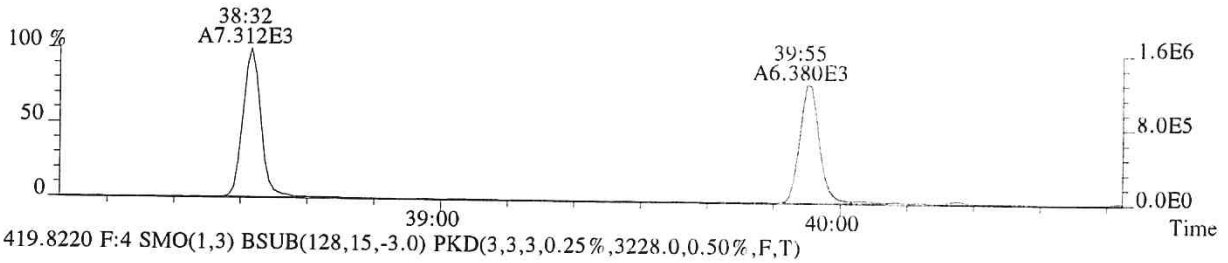
File:P519246 #1-240 Acq: 6-DEC-2018 06:58:34 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-023
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3096.0,0.50%,F,T)



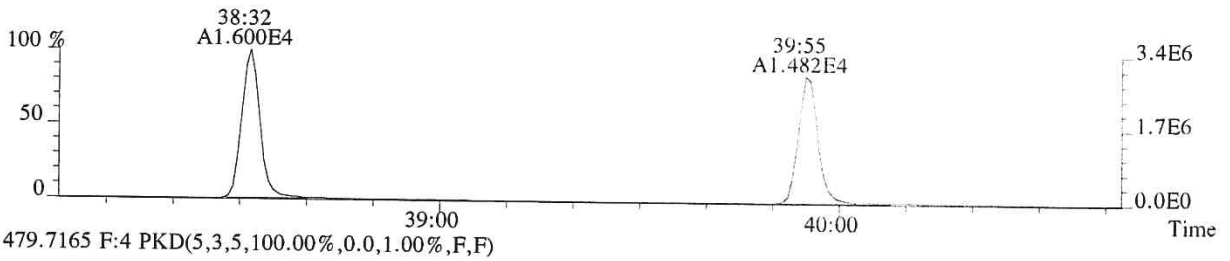
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3412.0,0.50%,F,T)



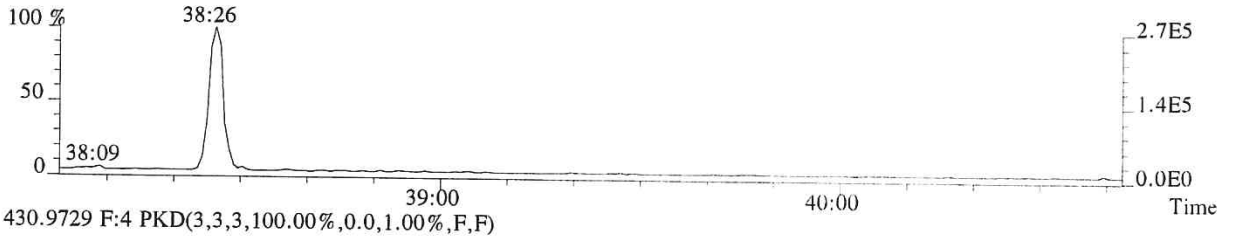
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3804.0,0.50%,F,T)



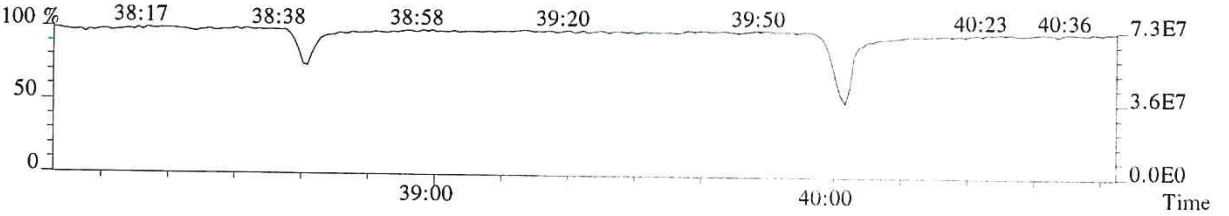
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3228.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

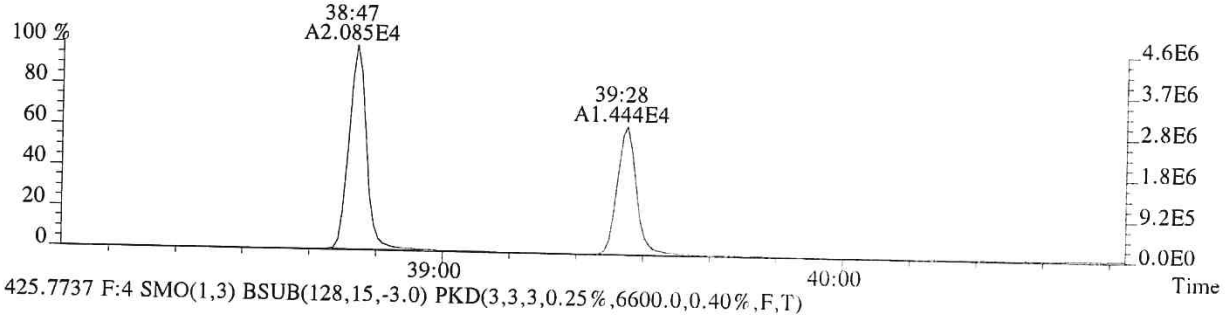


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

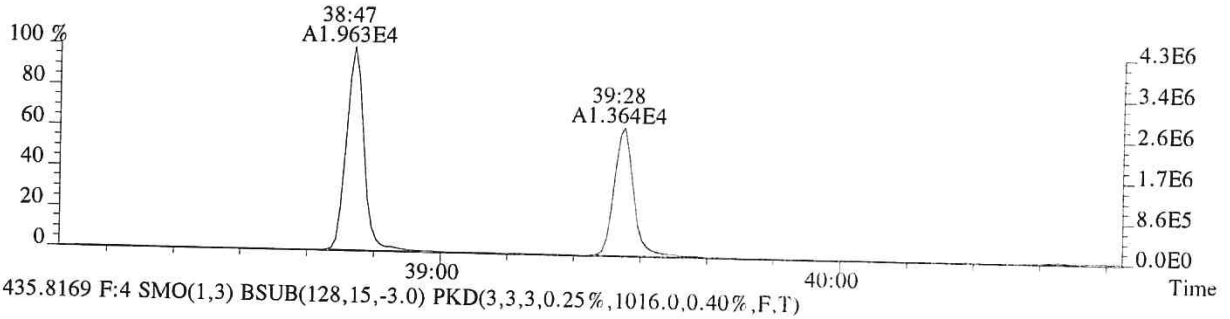


011963

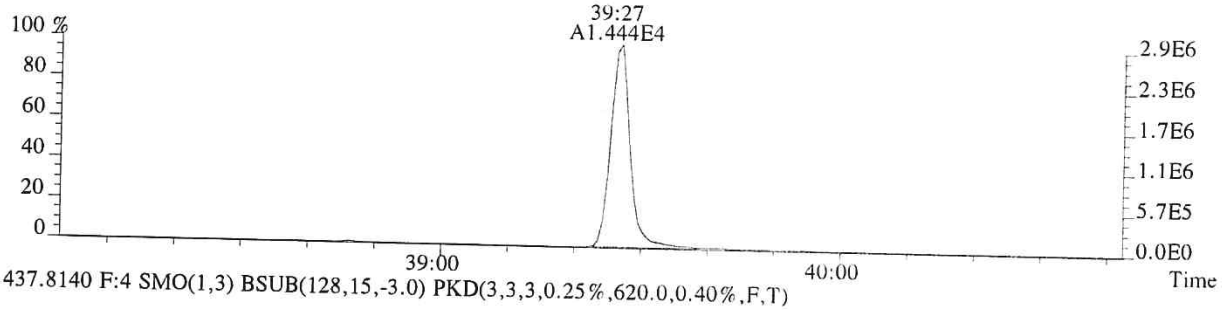
File:P519246 #1-240 Acq: 6-DEC-2018 06:58:34 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-023
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2668.0,0.40%,F,T)



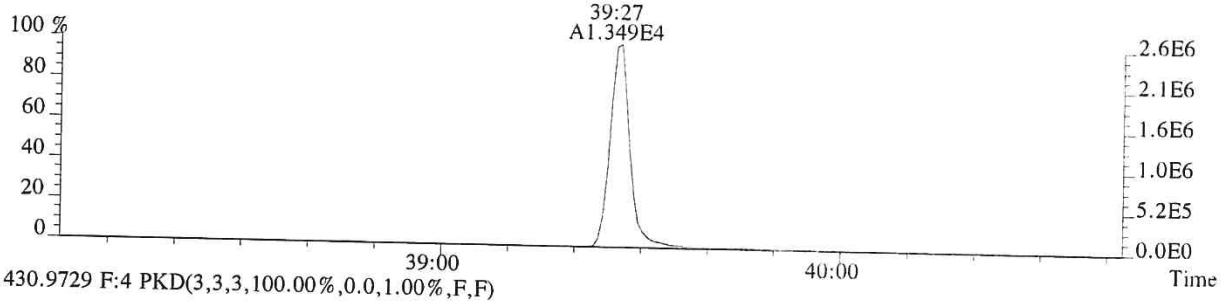
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6600.0,0.40%,F,T)



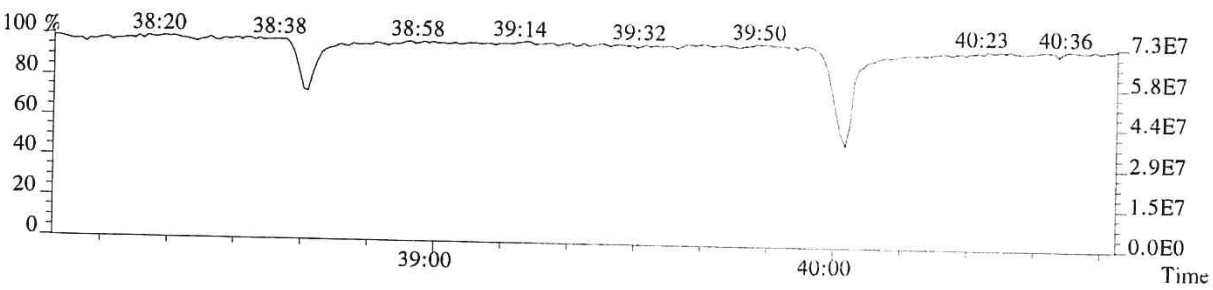
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)

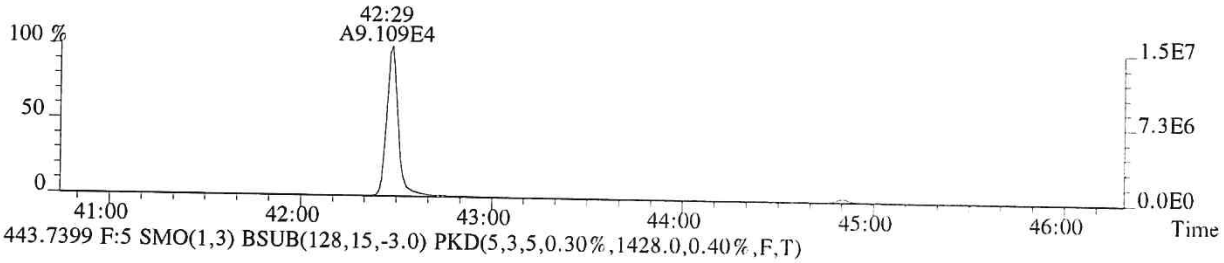


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

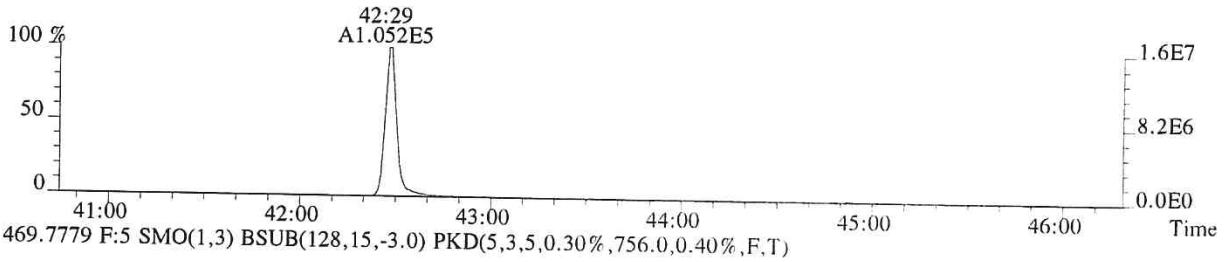


011964

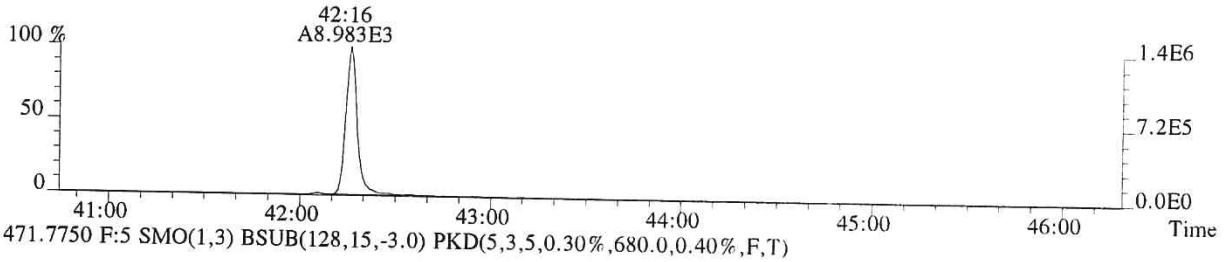
File:P519246 #1-502 Acq: 6-DEC-2018 06:58:34 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-023
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



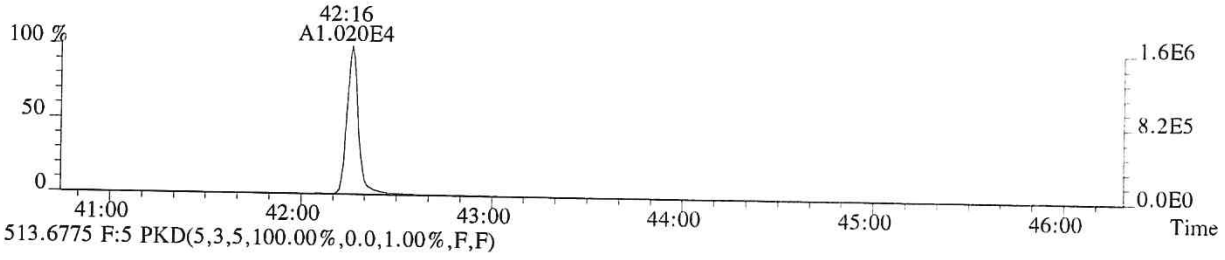
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



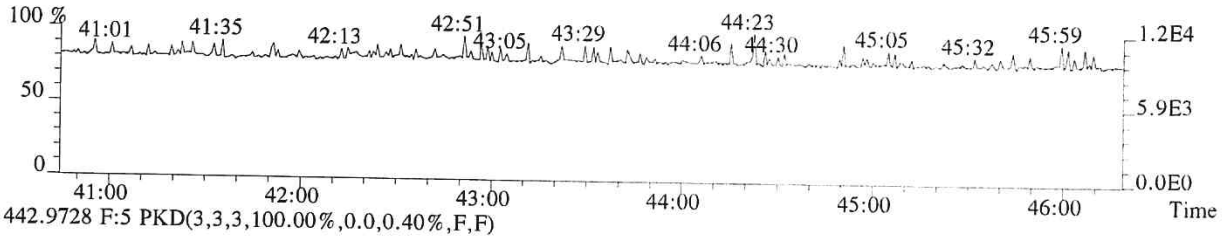
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



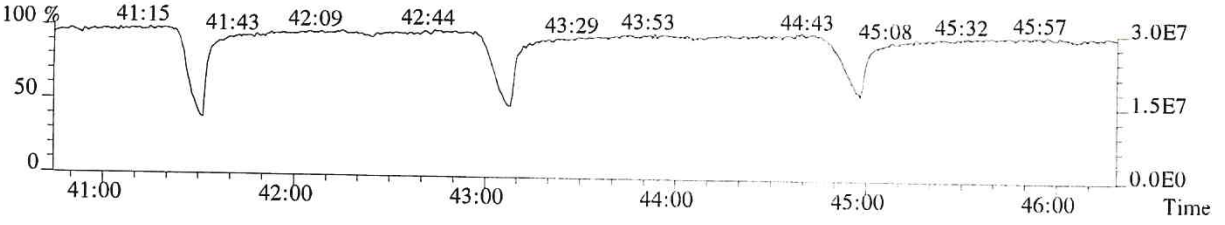
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

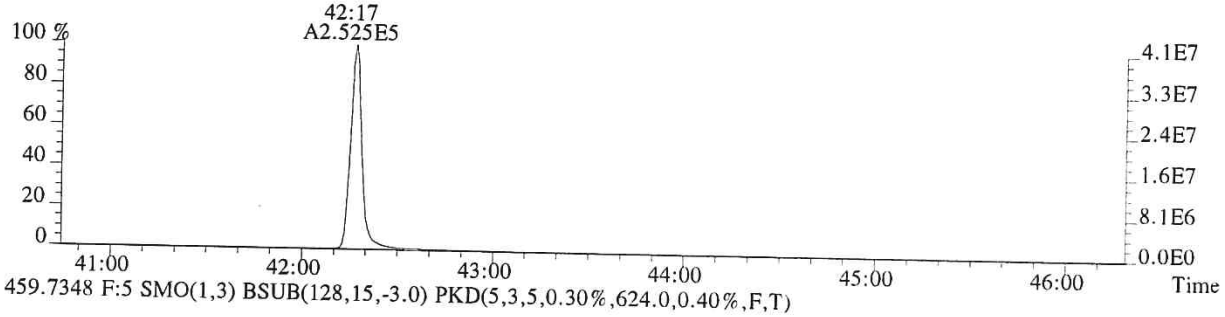


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

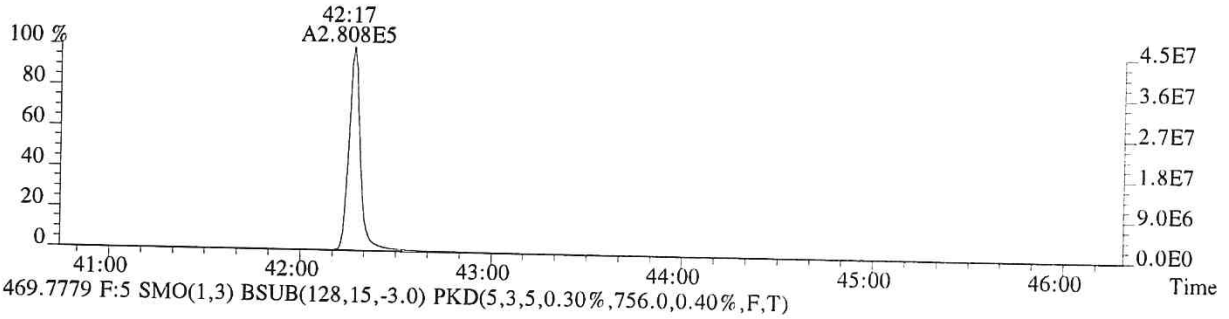


011965

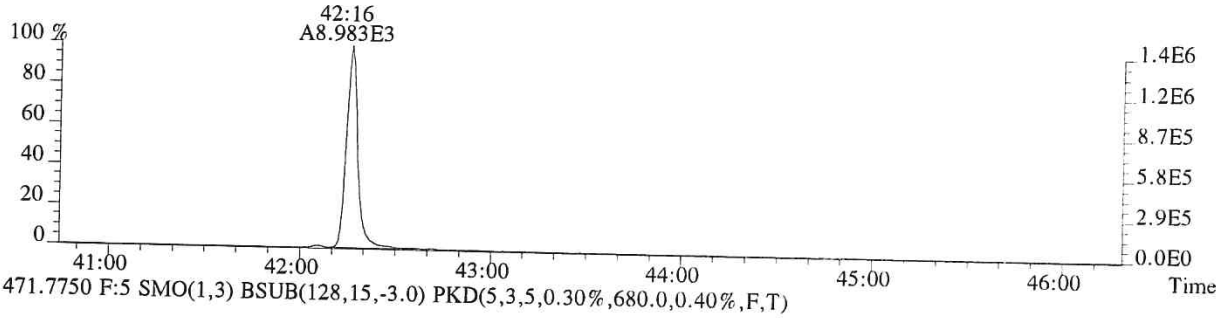
File:P519246 #1-502 Acq: 6-DEC-2018 06:58:34 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801045-023
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



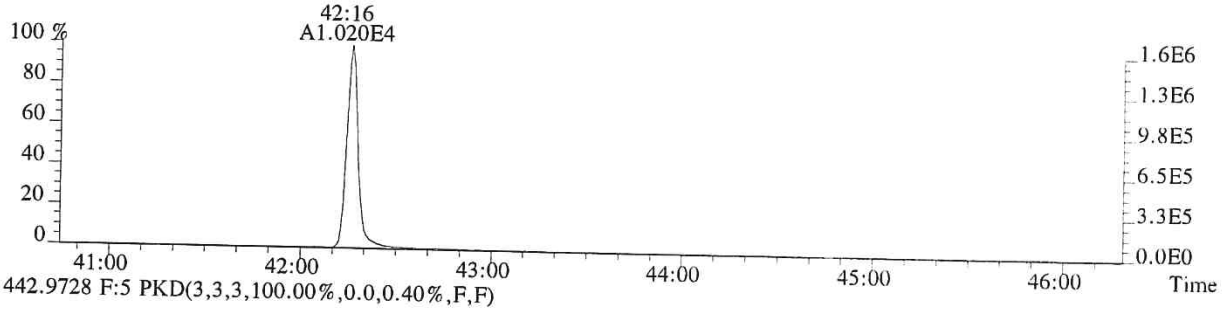
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



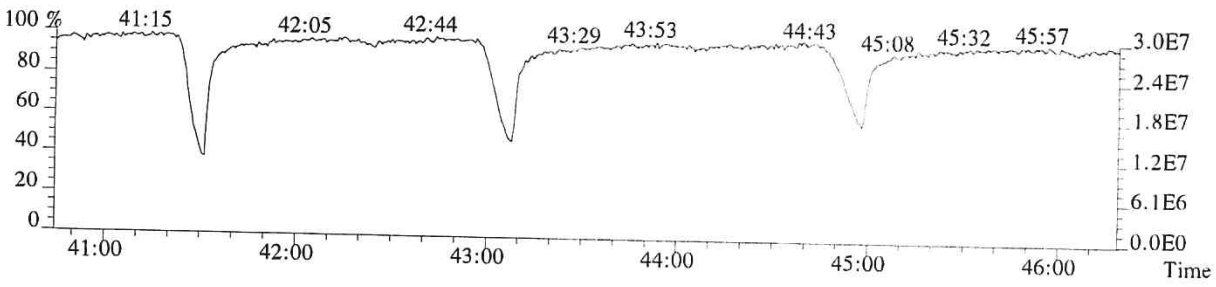
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011966

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P519290 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:33:23
Processed: 10-DEC-18 09:24:34 Sample ID: EQ1800488-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	2.636e+01	4.193e+01	0.63	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	6.901e+00	5.641e+00	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	yes	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	1.212e+01	1.478e+01	0.82	no	no	1.025
17	Unk	OCDD	42:33	1.344e+01	2.450e+01	0.55	no	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.618e+04	2.044e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	3.135e+04	1.933e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.905e+04	1.828e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.448e+04	2.701e+04	0.54	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.742e+04	3.293e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.493e+04	2.899e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:16	1.430e+04	2.780e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	1.127e+04	2.569e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	1.091e+04	2.470e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	7.381e+03	9.263e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	2.213e+04	1.384e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	2.012e+04	1.553e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:44	1.981e+04	1.568e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	2.417e+04	2.265e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:34	2.376e+04	2.602e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	2.667e+04	3.319e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	4.229e+04	3.323e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	1.057e+04				no	1.014

$$\text{OCDD} = \frac{(1.344e+01 + 2.450e+01) \times 4000\ \text{pg} \times 1}{(2.376e+04 + 2.602e+04) \times \quad \text{g} \times \quad / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P519290 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:33:23
Processed: 10-DEC-18 09:24:34 LAB. ID: EQ1800488-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.19e+03	5.20e+02	8.1e+00	6.19e+03	9.28e+02	6.7e+00
2	1,2,3,7,8-PeCDF	*	3.16e+02	*	*	6.88e+02	*
3	2,3,4,7,8-PeCDF	*	3.16e+02	*	*	6.88e+02	*
4	1,2,3,4,7,8-HxCDF	*	4.92e+02	*	*	3.60e+02	*
5	1,2,3,6,7,8-HxCDF	*	4.92e+02	*	*	3.60e+02	*
6	2,3,4,6,7,8-HxCDF	*	4.92e+02	*	*	3.60e+02	*
7	1,2,3,7,8,9-HxCDF	1.58e+03	4.92e+02	3.2e+00	1.70e+03	3.60e+02	4.7e+00
8	1,2,3,4,6,7,8-HpCDF	*	3.32e+02	*	*	2.36e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.32e+02	*	*	2.36e+02	*
10	OCDF	*	3.08e+02	*	*	8.80e+02	*
11	2,3,7,8-TCDD	*	1.90e+03	*	*	1.07e+03	*
12	1,2,3,7,8-PeCDD	*	6.96e+02	*	*	2.00e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.60e+02	*	*	5.04e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.60e+02	*	*	5.04e+02	*
15	1,2,3,7,8,9-HxCDD	*	3.60e+02	*	*	5.04e+02	*
16	1,2,3,4,6,7,8-HpCDD	2.66e+03	2.88e+02	9.2e+00	2.55e+03	2.56e+02	9.9e+00
17	OCDD	2.89e+03	1.84e+02	1.6e+01	4.32e+03	2.72e+02	1.6e+01
18	13C-2,3,7,8-TCDF	2.88e+06	6.29e+03	4.6e+02	3.66e+06	5.84e+03	6.3e+02
19	13C-1,2,3,7,8-PeCDF	5.78e+06	5.72e+02	1.0e+04	3.59e+06	9.60e+01	3.7e+04
20	13C-2,3,4,7,8-PeCDF	5.59e+06	5.72e+02	9.8e+03	3.48e+06	9.60e+01	3.6e+04
21	13C-1,2,3,4,7,8-HxCDF	2.93e+06	4.64e+02	6.3e+03	5.44e+06	7.12e+02	7.6e+03
22	13C-1,2,3,6,7,8-HxCDF	3.50e+06	4.64e+02	7.5e+03	6.70e+06	7.12e+02	9.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.97e+06	4.64e+02	6.4e+03	5.79e+06	7.12e+02	8.1e+03
24	13C-1,2,3,7,8,9-HxCDF	2.65e+06	4.64e+02	5.7e+03	5.11e+06	7.12e+02	7.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.13e+06	1.26e+03	1.7e+03	4.80e+06	9.96e+02	4.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.73e+06	1.26e+03	1.4e+03	3.84e+06	9.96e+02	3.9e+03
27	13C-2,3,7,8-TCDD	1.41e+06	6.02e+03	2.3e+02	1.77e+06	7.76e+02	2.3e+03
28	13C-1,2,3,7,8-PeCDD	4.07e+06	7.76e+02	5.2e+03	2.51e+06	8.12e+02	3.1e+03
29	13C-1,2,3,4,7,8-HxCDD	4.19e+06	7.08e+02	5.9e+03	3.20e+06	3.48e+02	9.2e+03
30	13C-1,2,3,6,7,8-HxCDD	3.97e+06	7.08e+02	5.6e+03	3.11e+06	3.48e+02	8.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.94e+06	4.64e+02	8.5e+03	3.72e+06	4.64e+02	8.0e+03
32	13C-OCDD	2.87e+06	4.08e+02	7.0e+03	3.08e+06	2.08e+02	1.5e+04
33	13C-1,2,3,4-TCDD	4.97e+06	6.02e+03	8.3e+02	6.19e+06	7.76e+02	8.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.73e+06	7.08e+02	1.1e+04	6.15e+06	3.48e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.92e+06	8.96e+02	2.1e+03			

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Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P519290 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 21:33:23 Processed: 10-DEC-18 09:24:34

Mass: 373.8210 375.8180 Tot Response: 1.25e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:17	6.90e+00	5.64e+00 1.22	yes	1.25e+01	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P519290 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 21:33:23 Processed: 10-DEC-18 09:24:34

Mass: 407.7820 409.7790 Tot Response: 1.06e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	5.54e+00	5.02e+00 1.10	yes	1.06e+01		y	y

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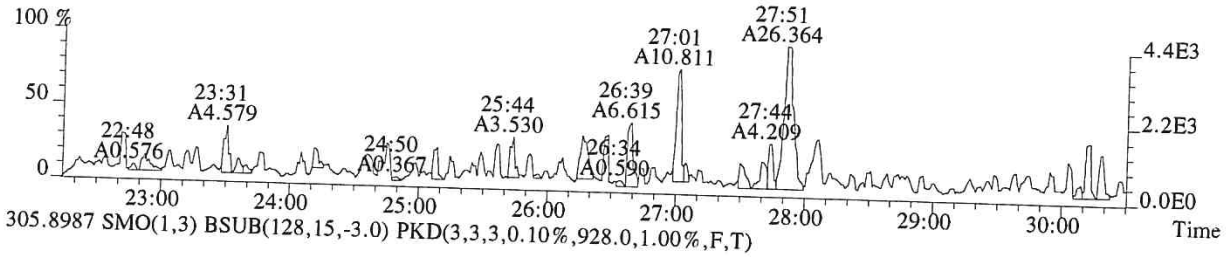
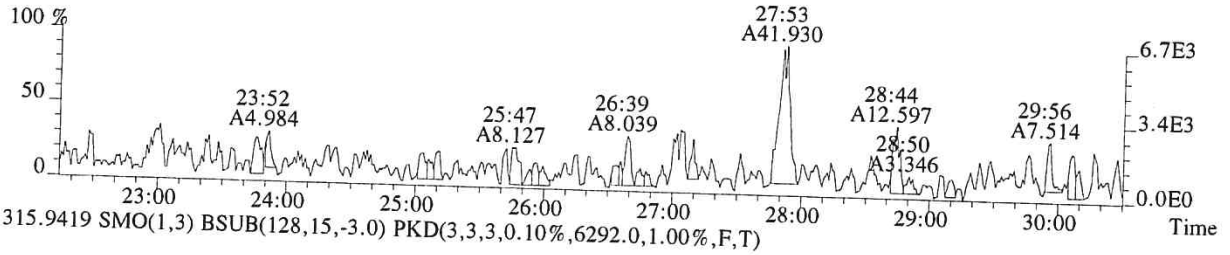
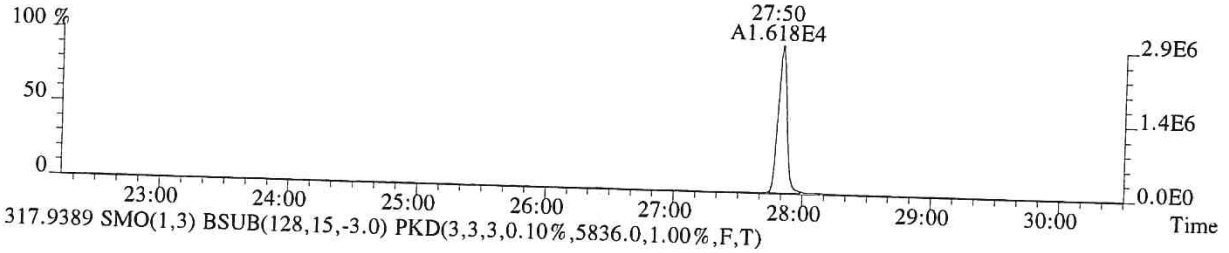
File:P519290 #1-587 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



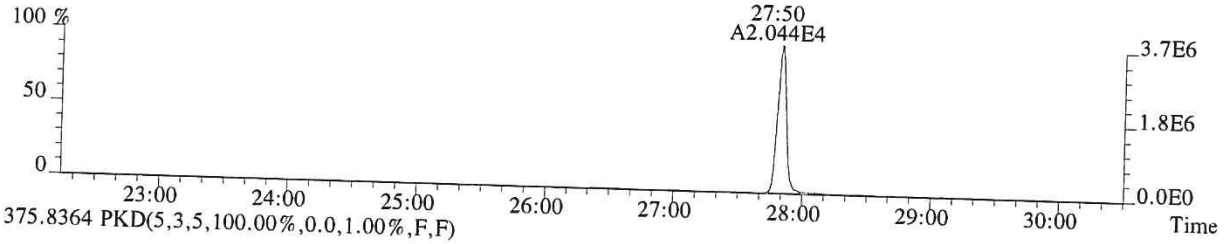
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



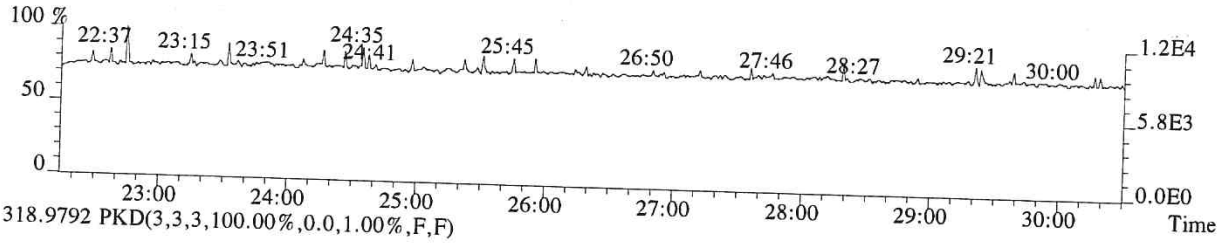
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6292.0,1.00%,F,T)



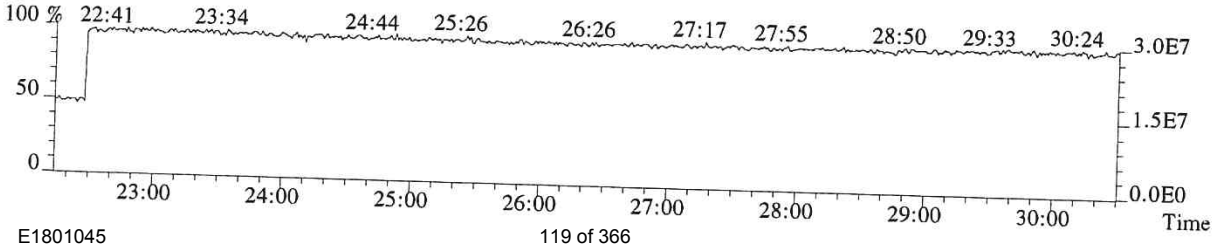
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5836.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

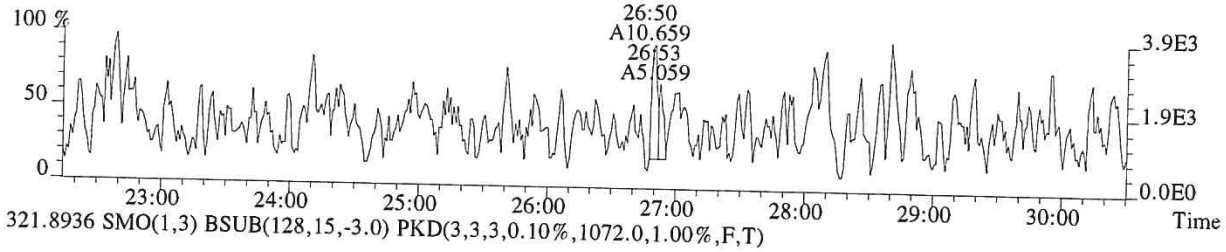


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

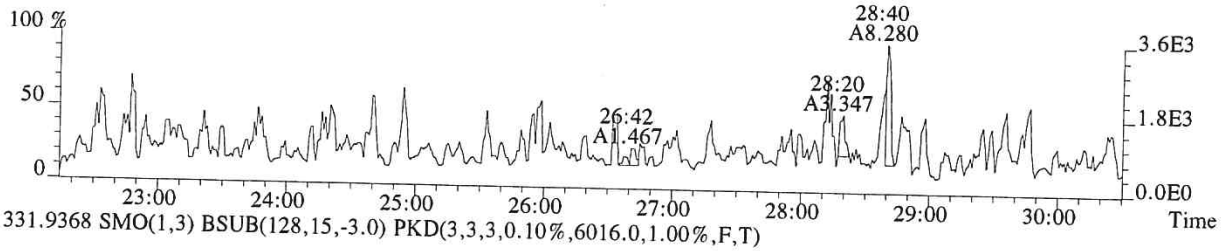


011971

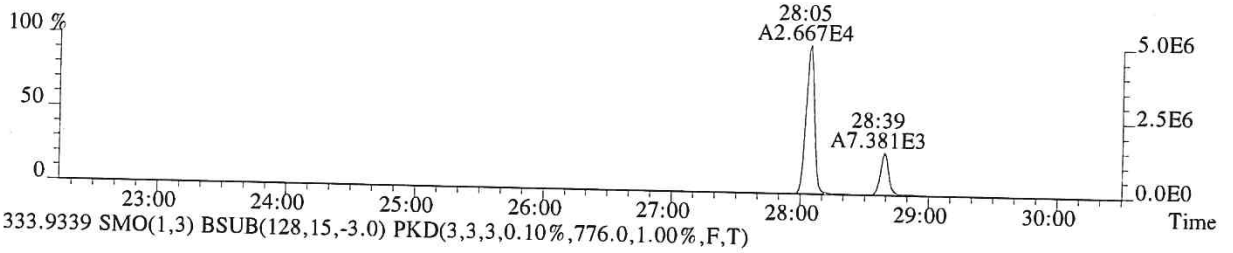
File:P519290 #1-587 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



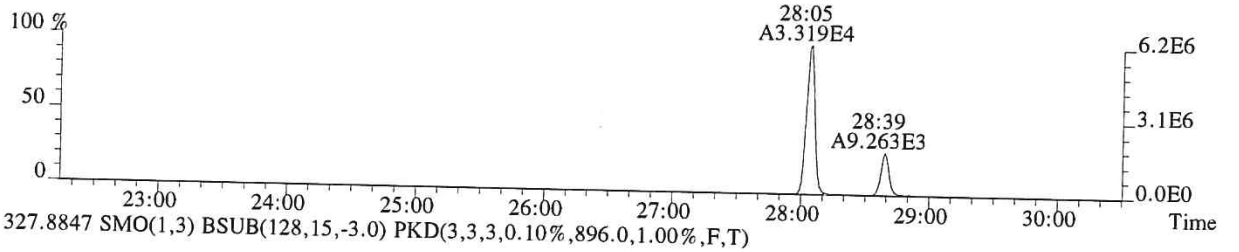
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



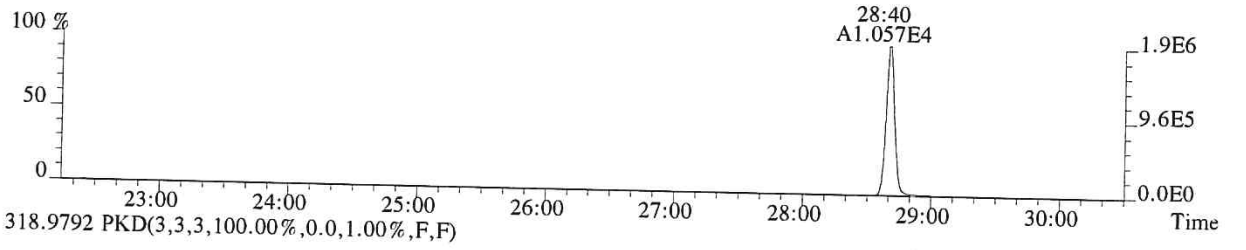
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6016.0,1.00%,F,T)



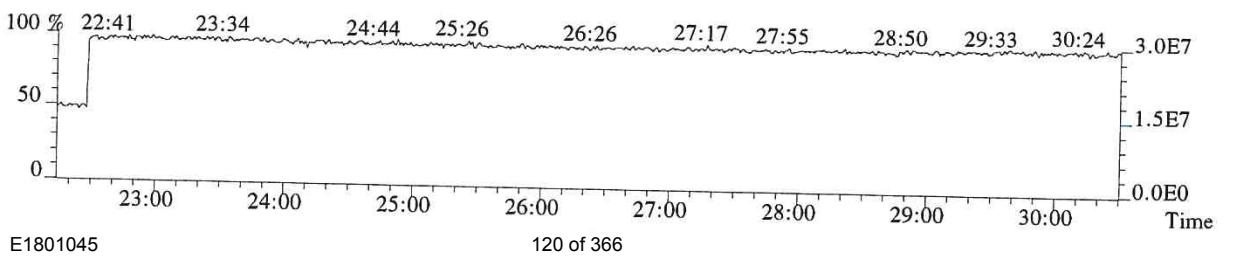
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)

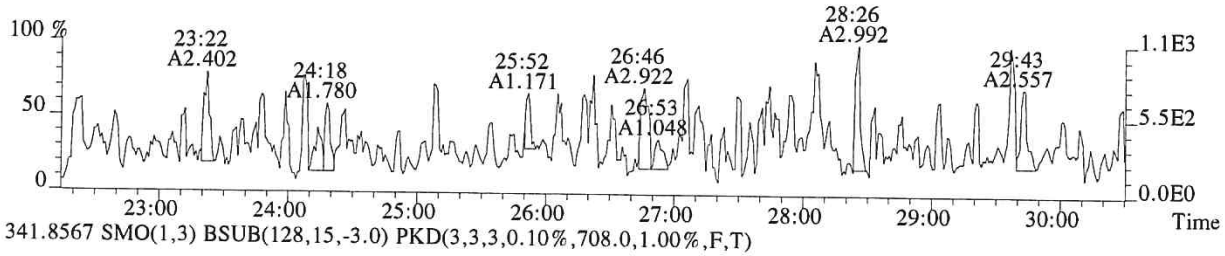


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

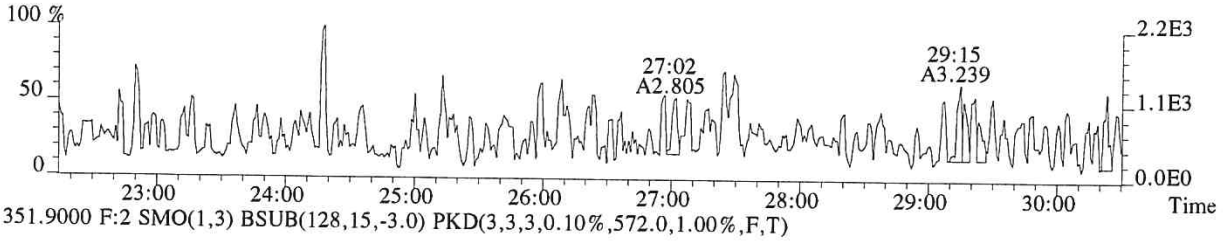


011972

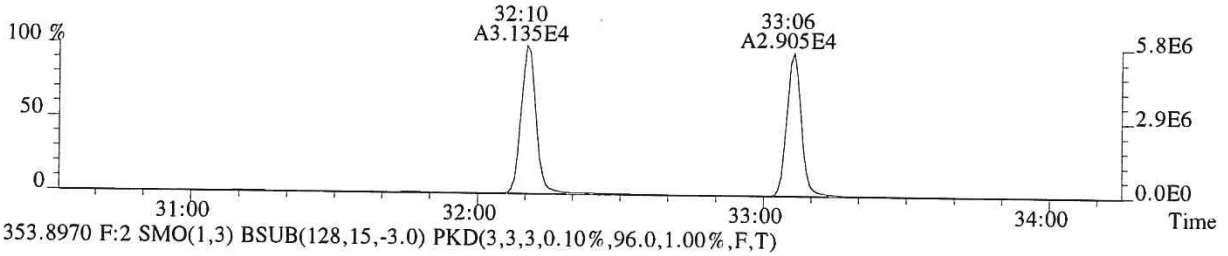
File:P519290 #1-587 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



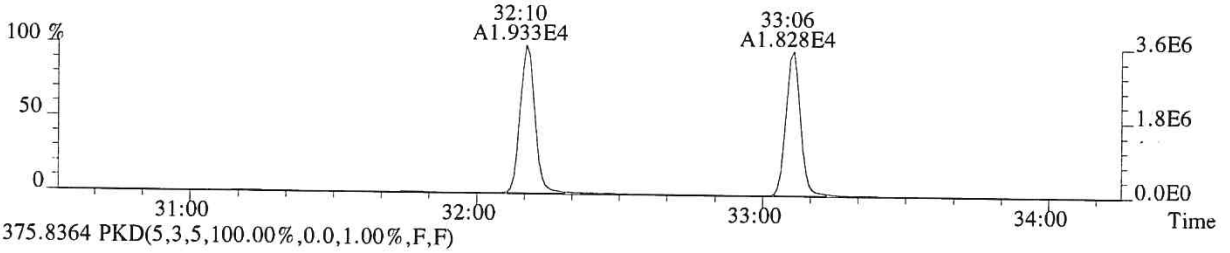
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



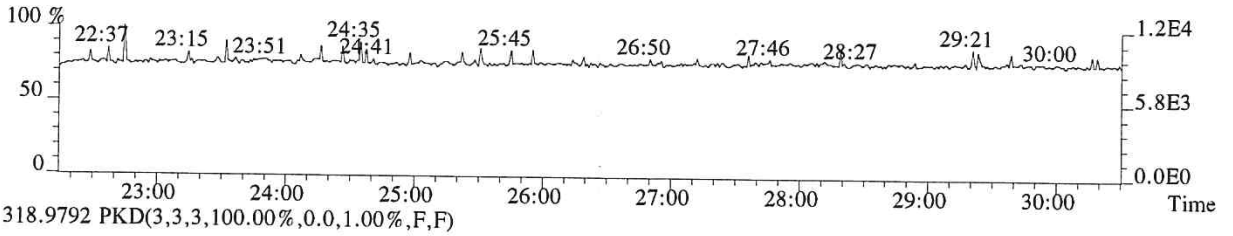
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



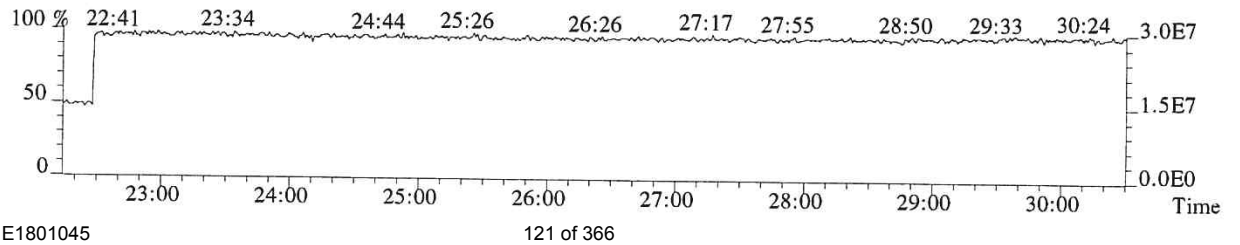
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



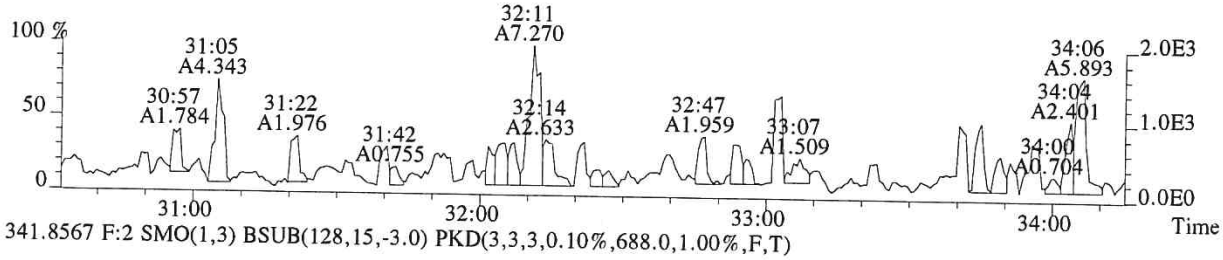
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



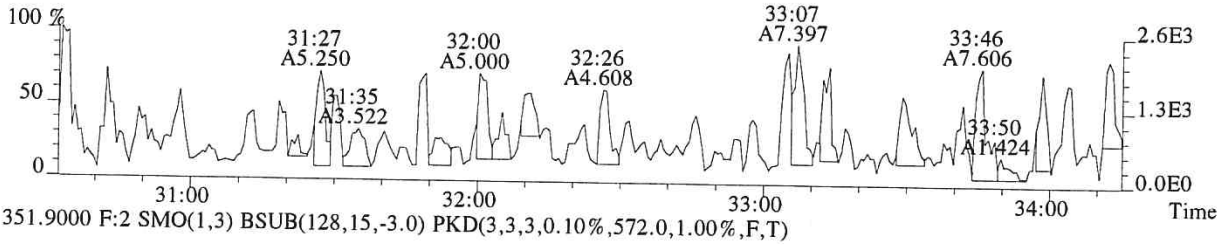
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



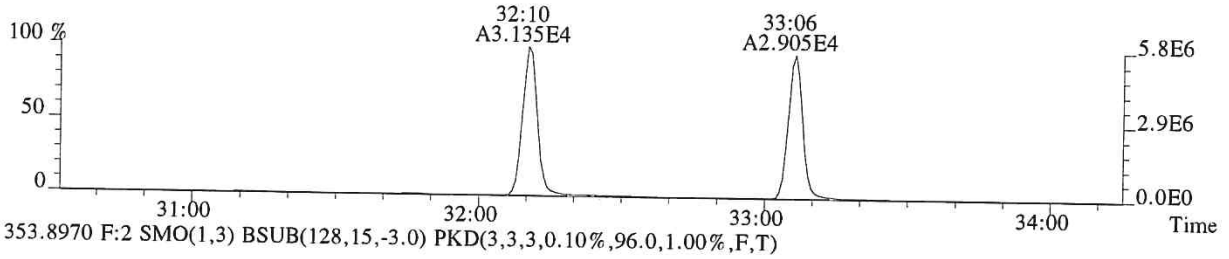
File:P519290 #1-335 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



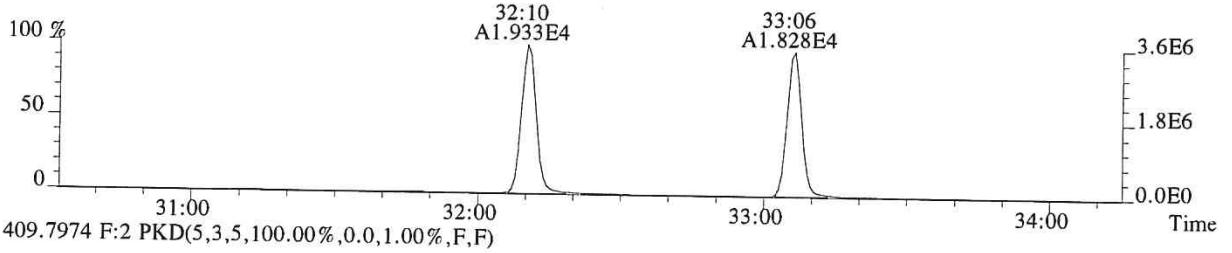
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



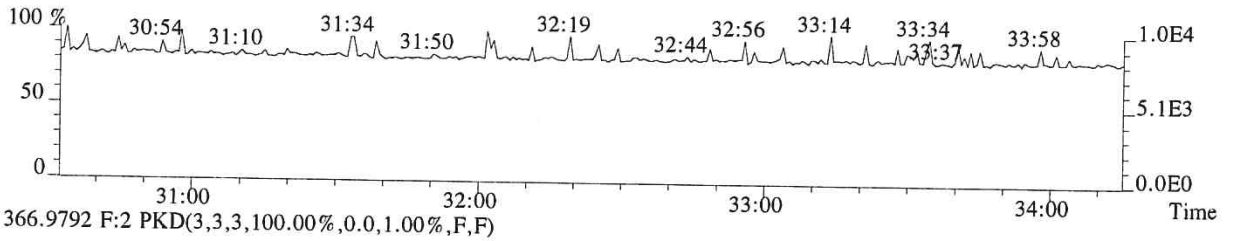
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



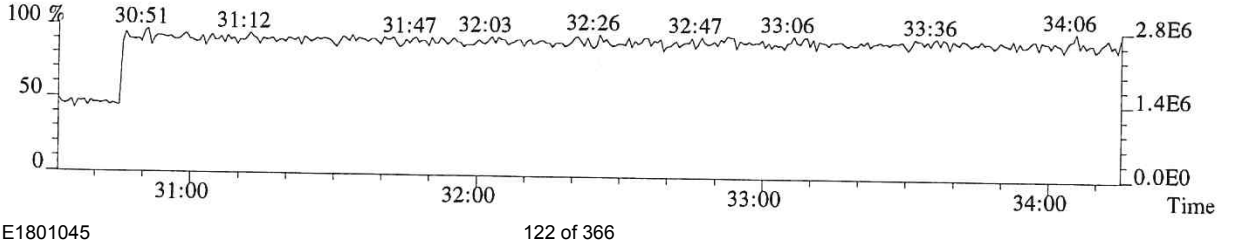
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



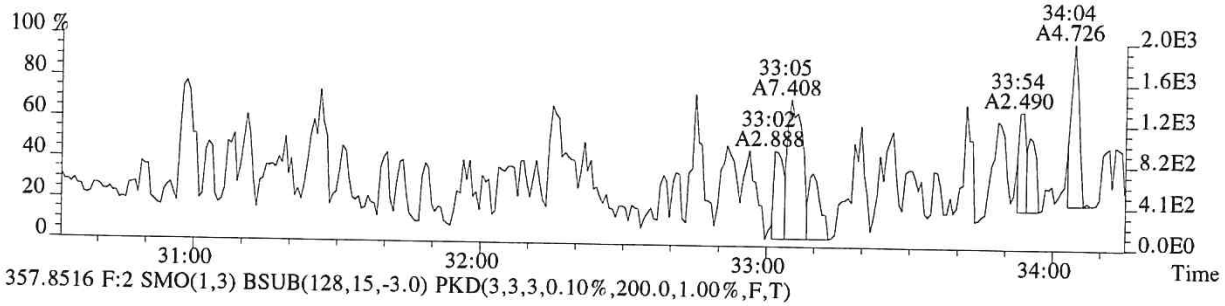
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



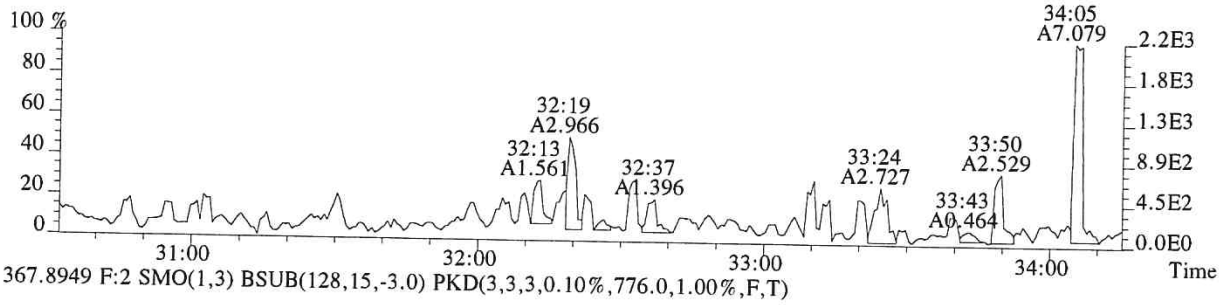
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



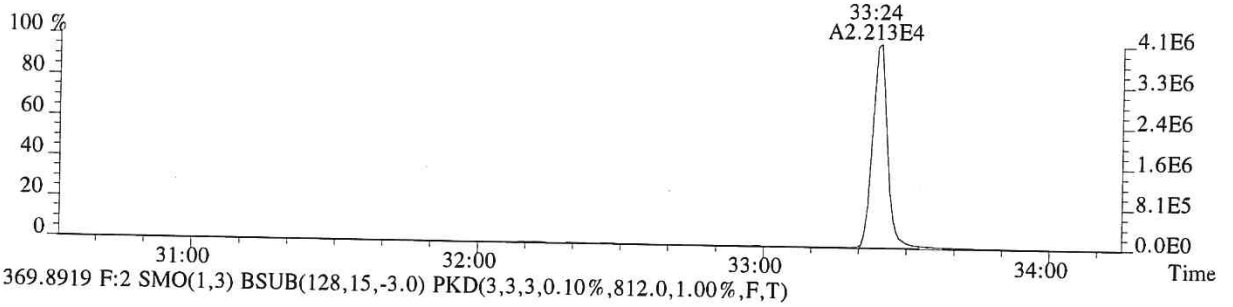
File:P519290 #1-335 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



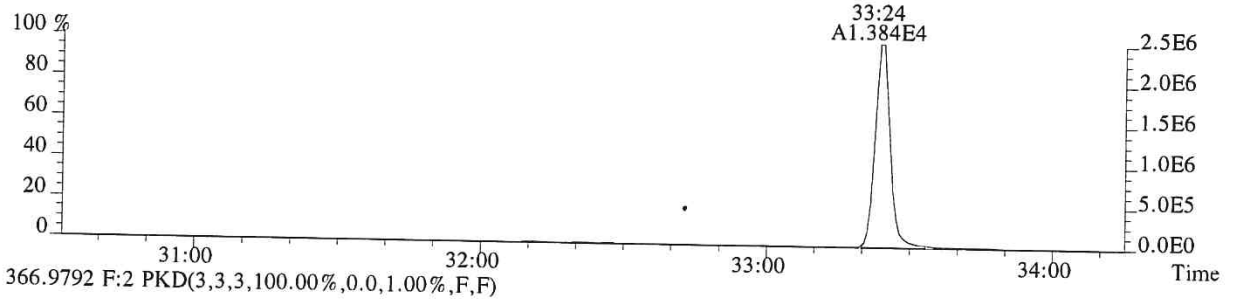
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



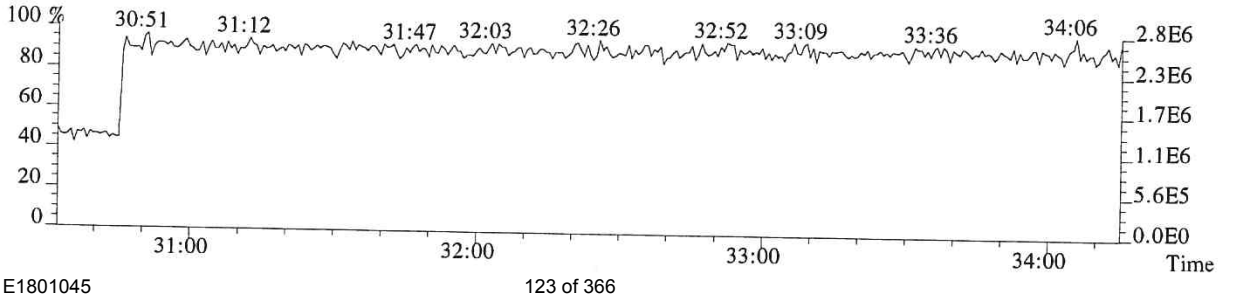
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)

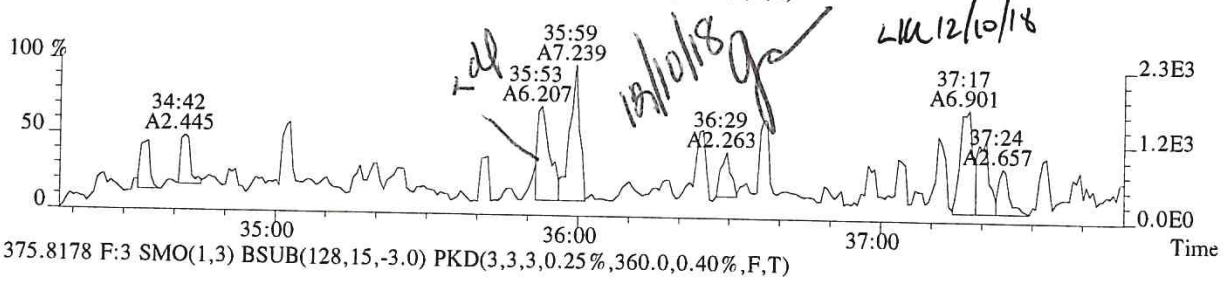


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

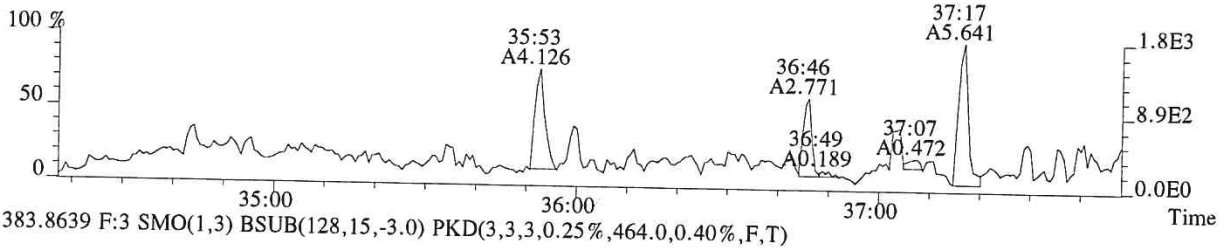


File:P519290 #1-317 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01

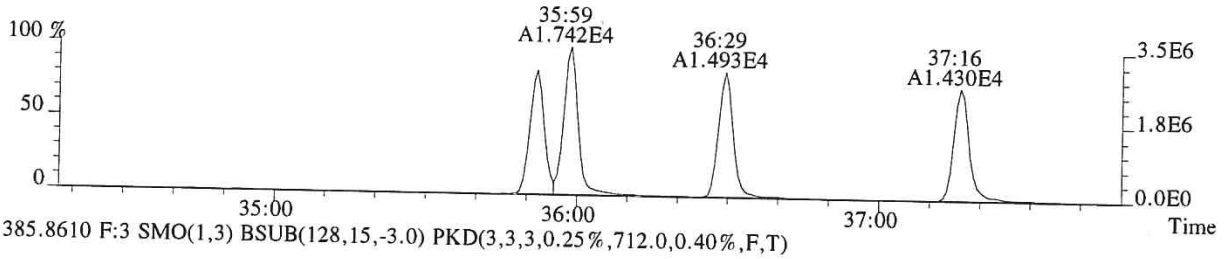
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



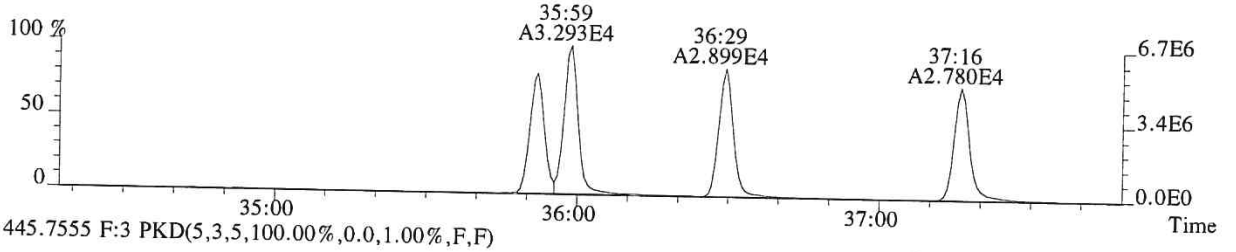
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



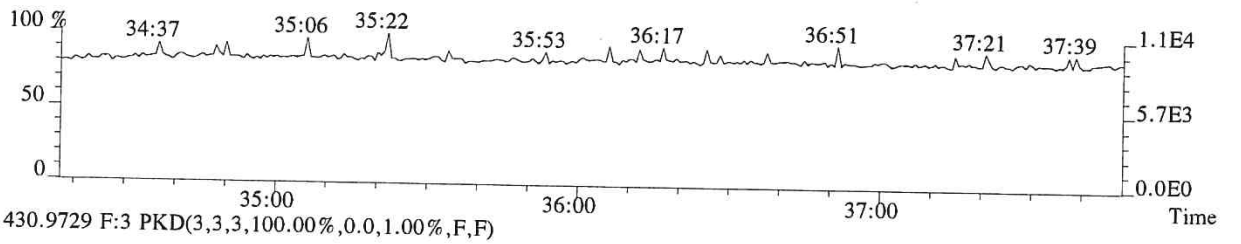
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



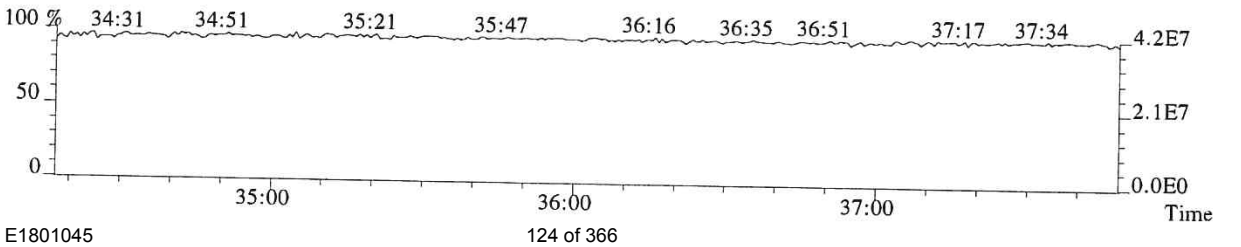
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

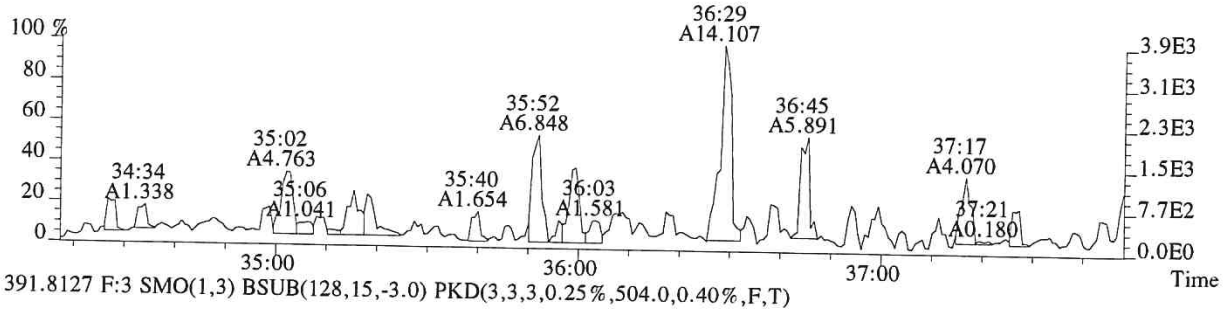


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

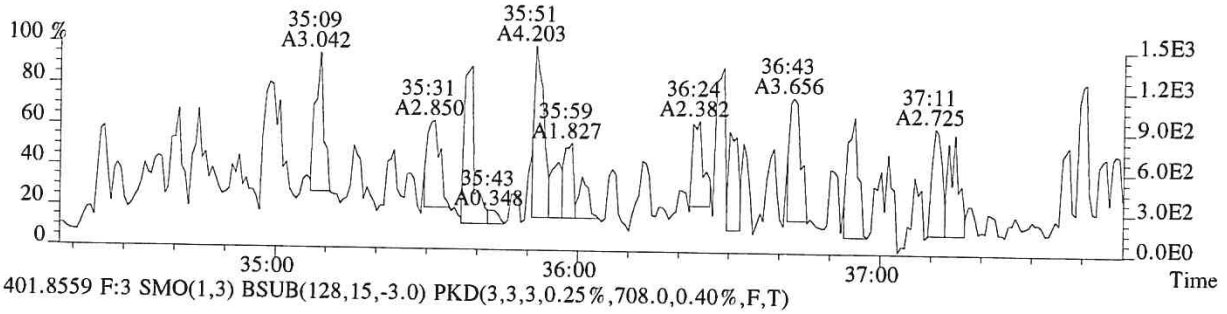


011976

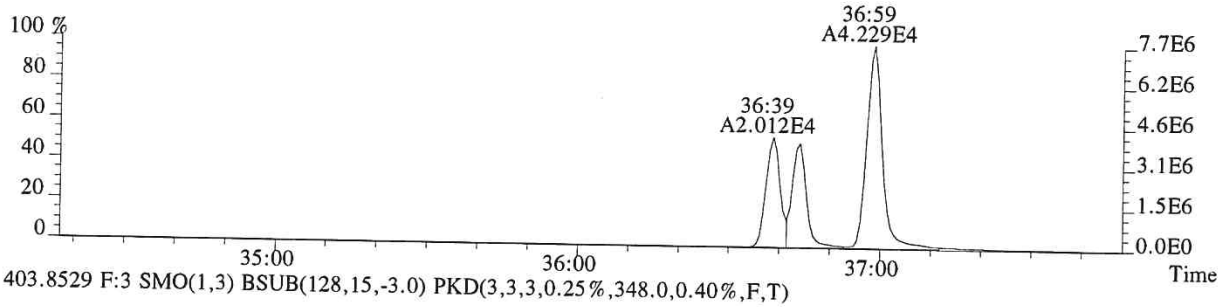
File:P519290 #1-317 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



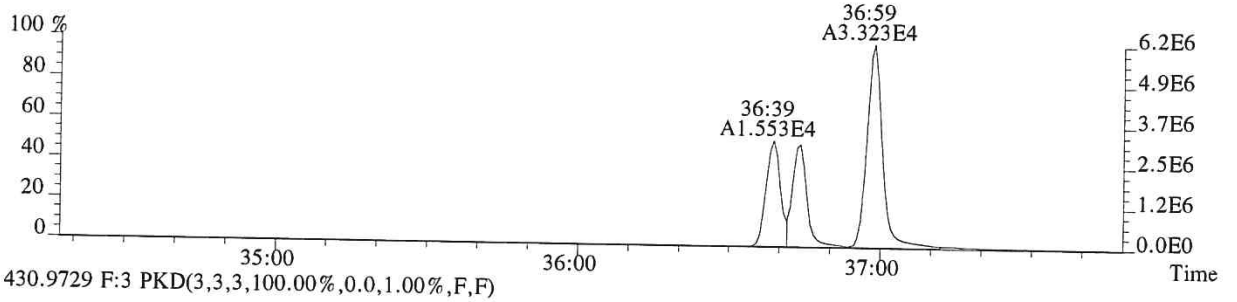
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



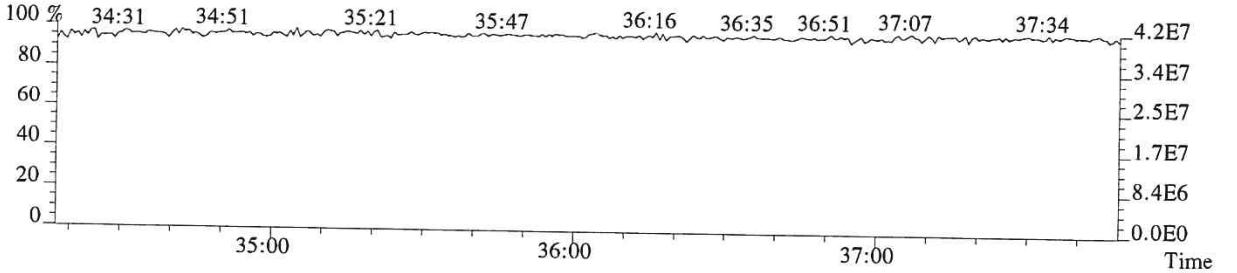
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



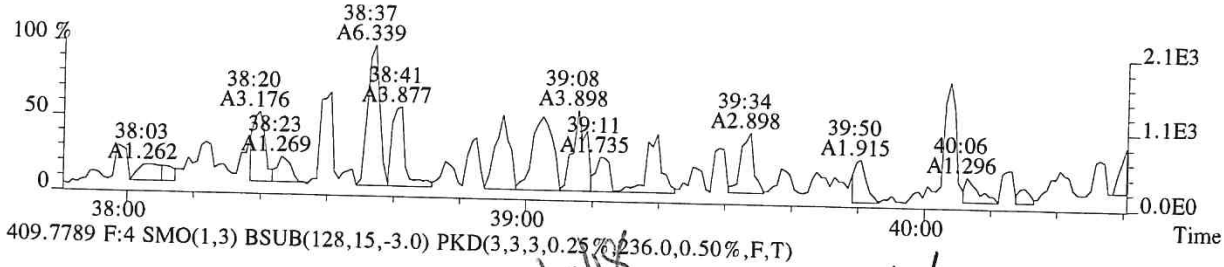
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



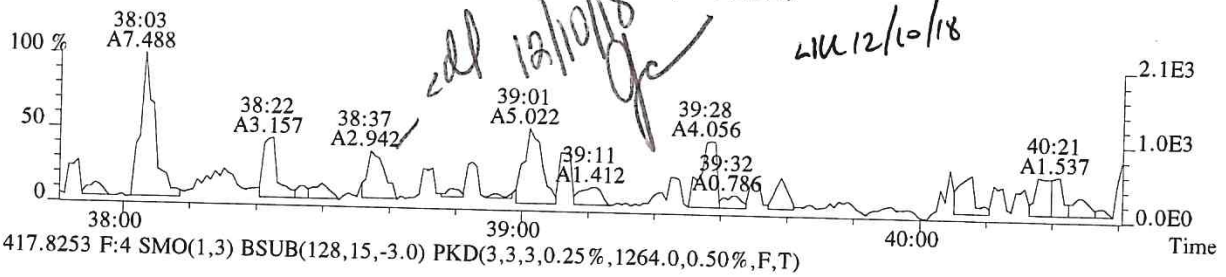
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



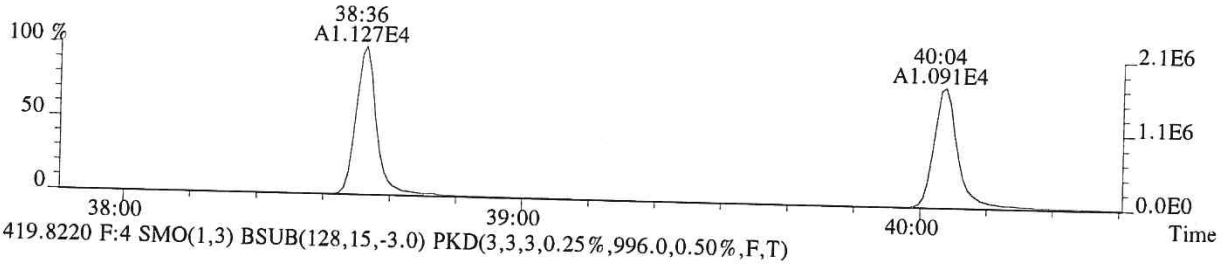
File:P519290 #1-241 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)



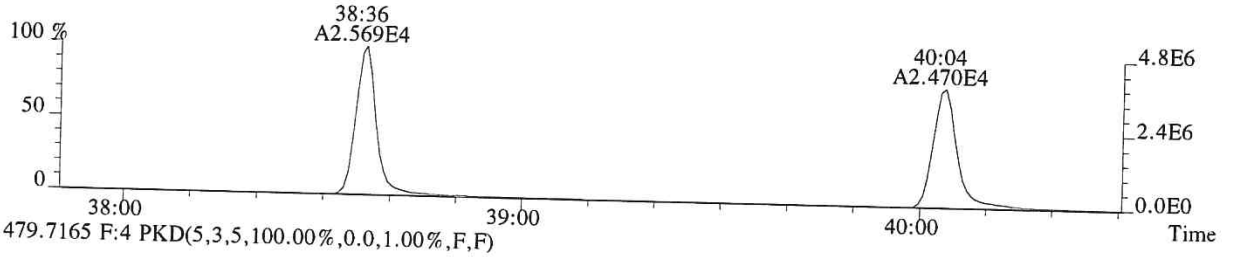
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.50%,F,T)



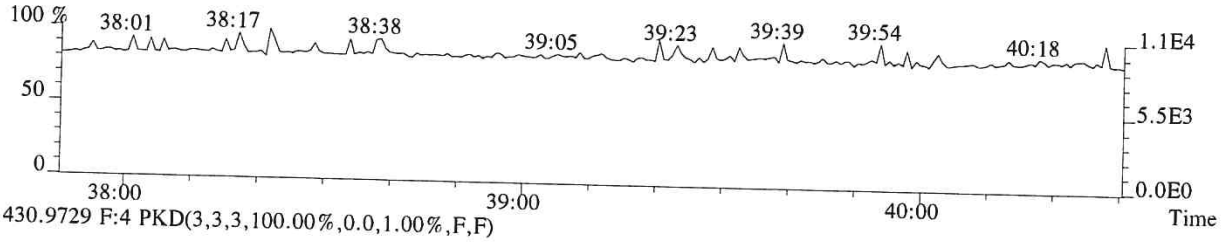
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.50%,F,T)



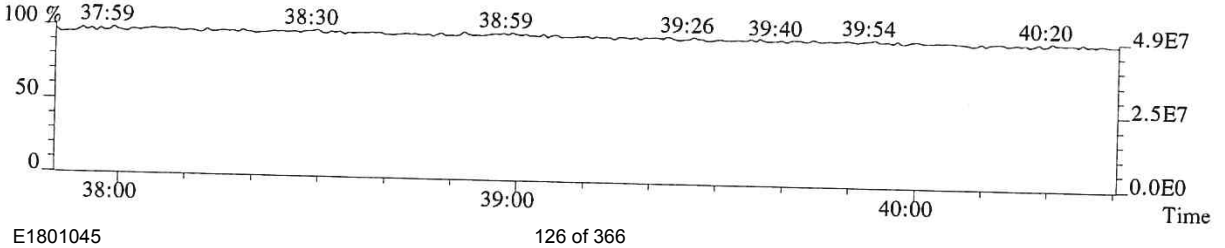
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

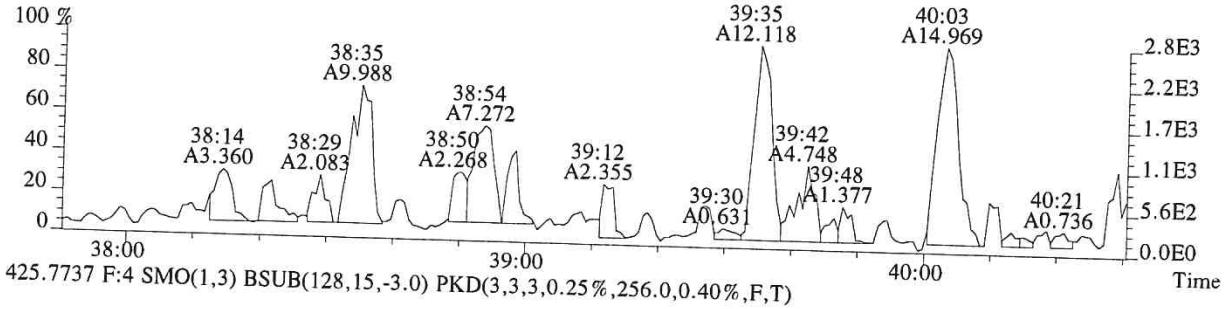


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

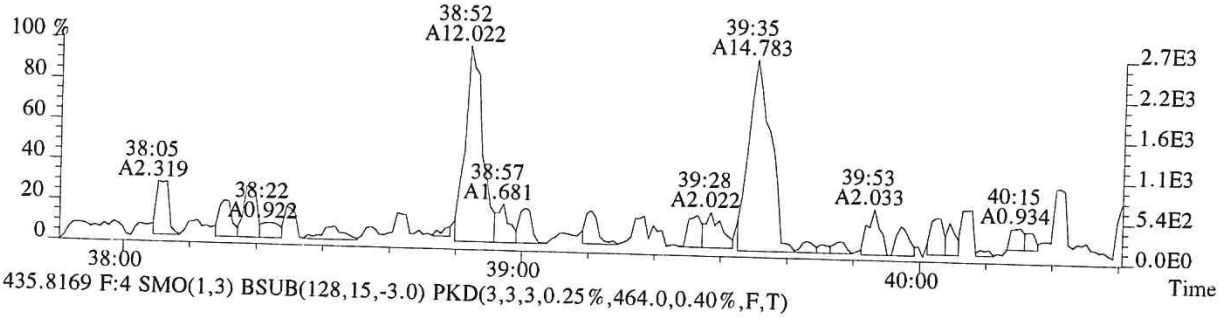


011978

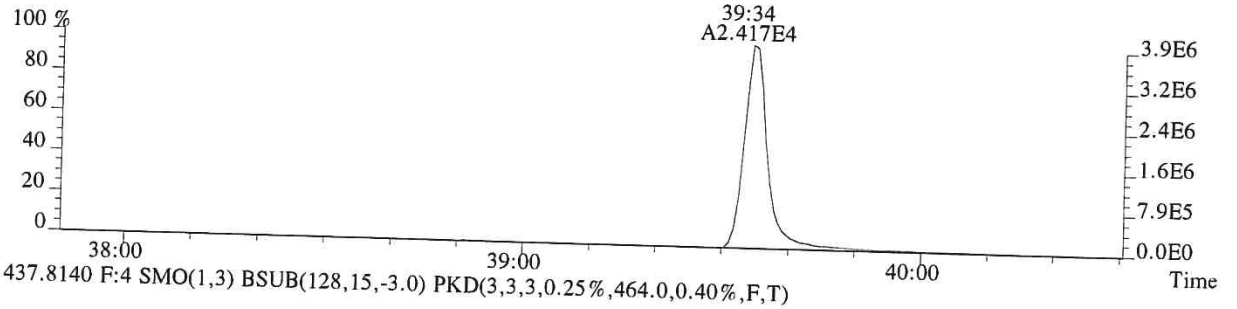
File:P519290 #1-241 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



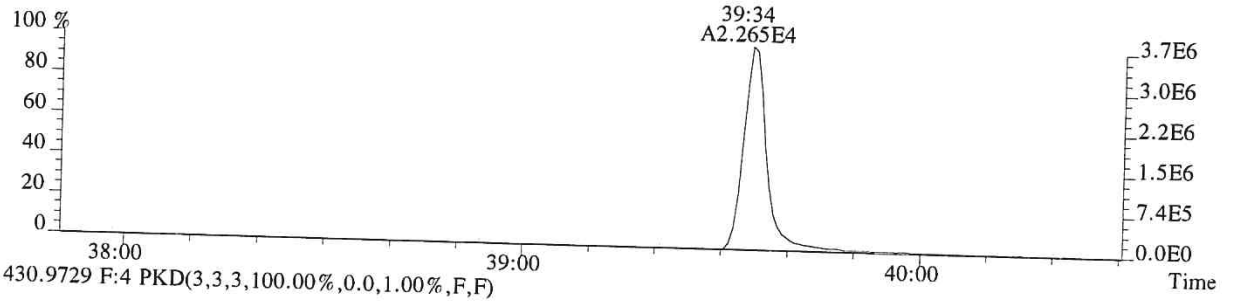
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



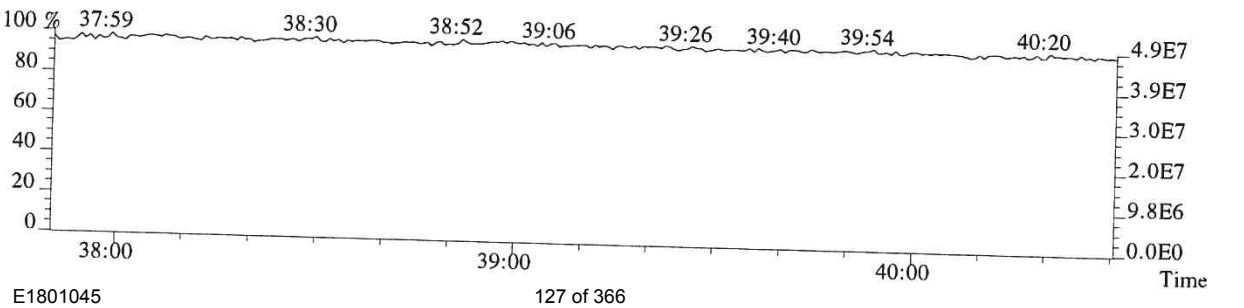
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



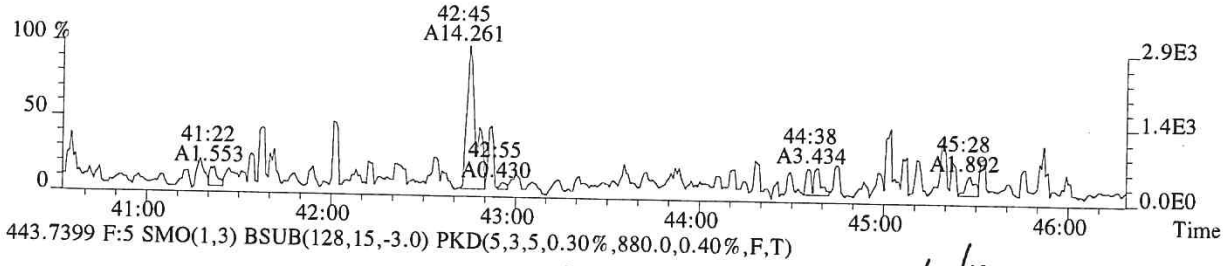
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



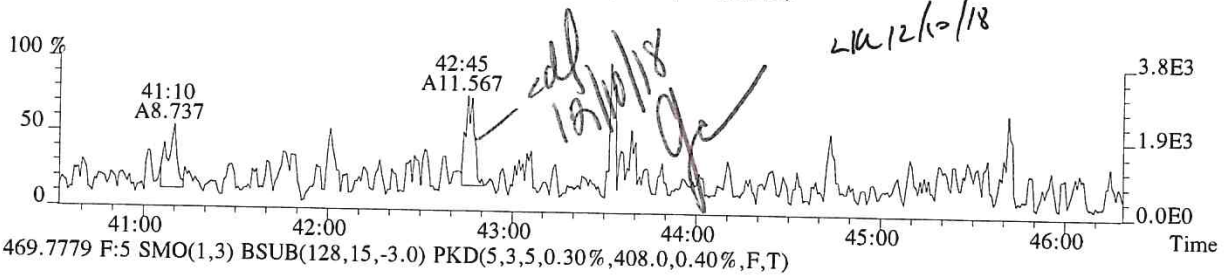
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



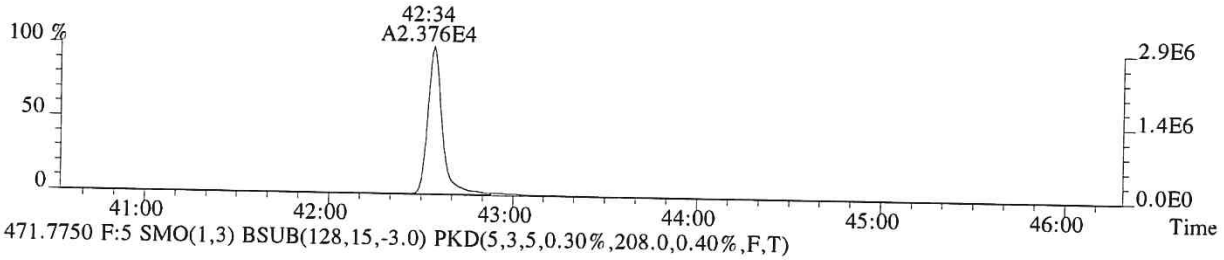
File:P519290 #1-520 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



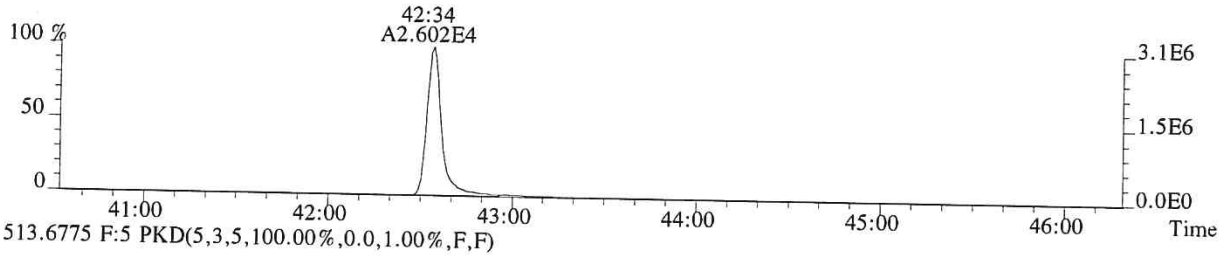
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



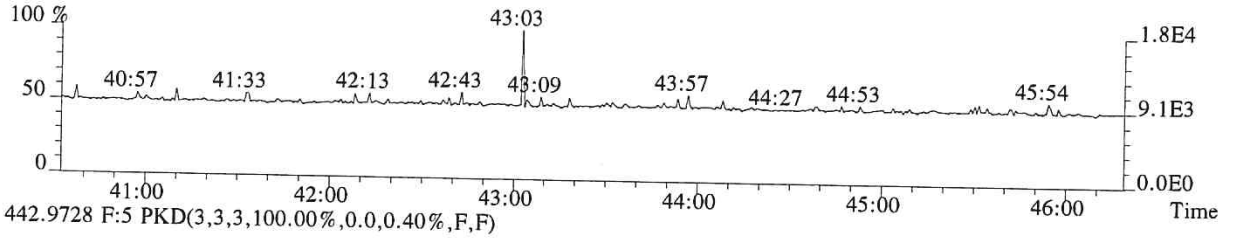
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



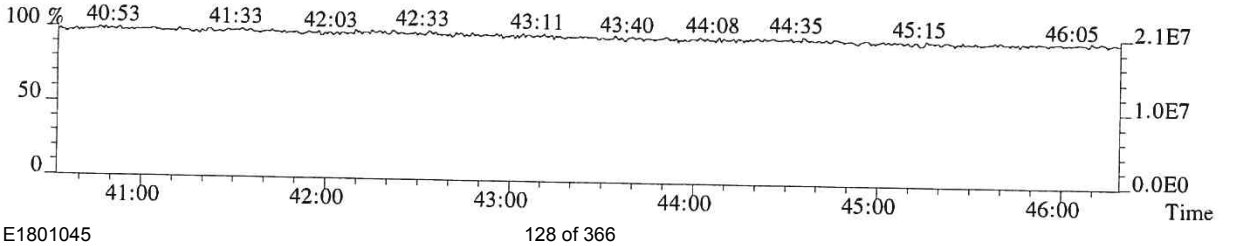
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

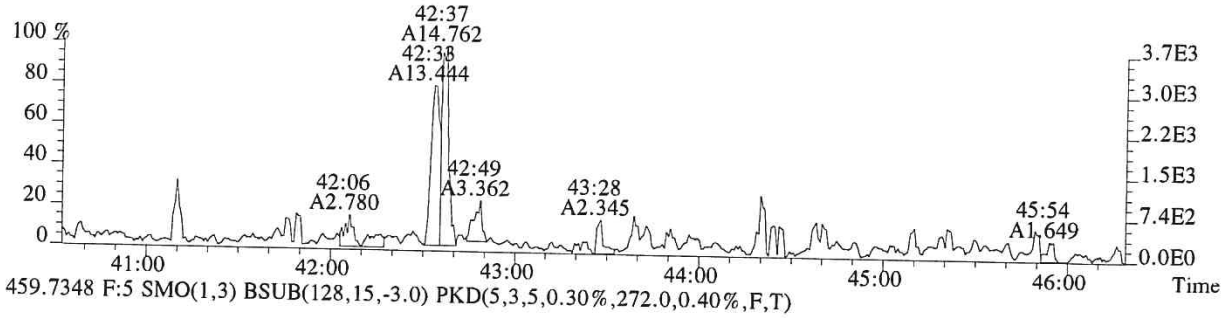


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

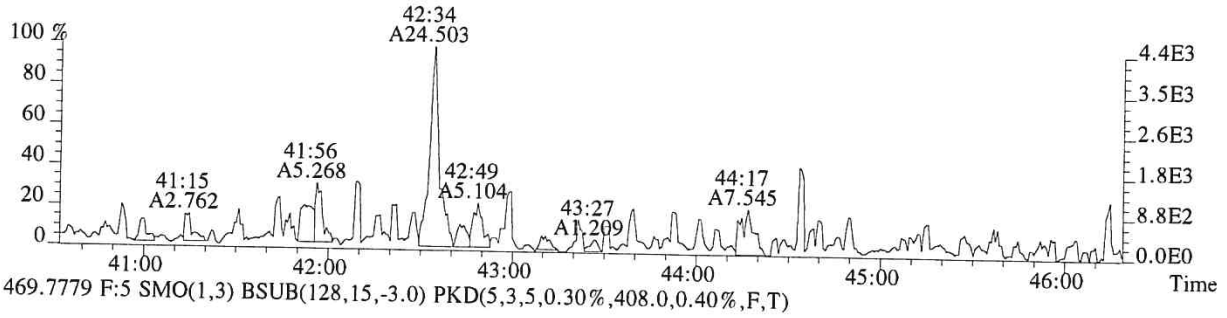


011980

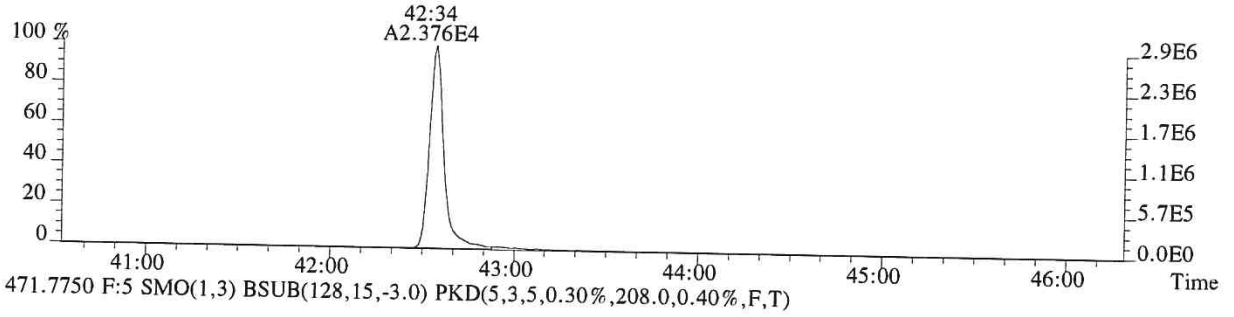
File:P519290 #1-520 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



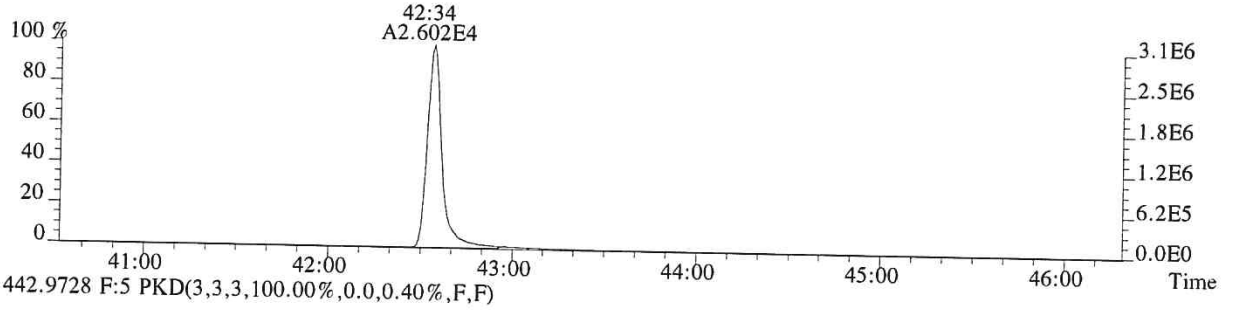
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



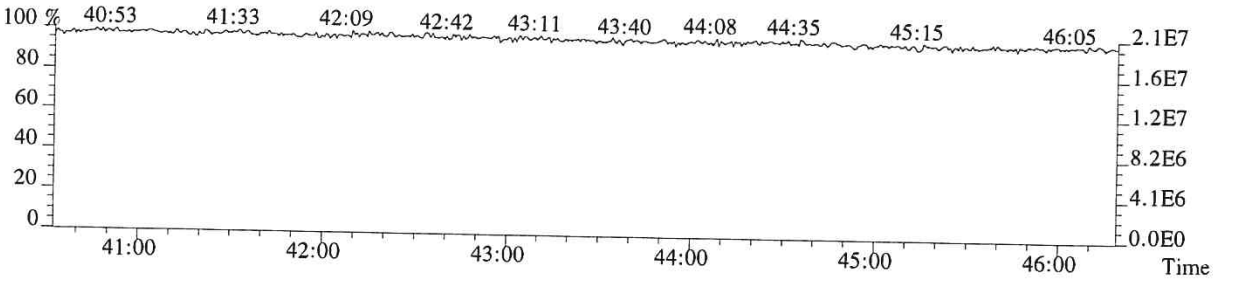
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P519363 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:07:51
Processed: 12-DEC-18 09:58:32 Sample ID: EQ1800488-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	9.372e+02	1.376e+03	0.68	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	1.296e+04	8.619e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.301e+04	8.768e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.293e+04	1.078e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.445e+04	1.190e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	1.342e+04	1.127e+04	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	1.192e+04	9.885e+03	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	1.135e+04	1.123e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	1.046e+04	1.082e+04	0.97	yes	no	1.258
10	Unk	OCDF	42:41	1.412e+04	1.646e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	7.951e+02	9.577e+02	0.83	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	9.722e+03	6.120e+03	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	9.252e+03	7.218e+03	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	1.044e+04	8.357e+03	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	1.031e+04	8.457e+03	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	8.433e+03	8.079e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:29	1.108e+04	1.220e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.085e+04	1.378e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.804e+04	1.798e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.755e+04	1.720e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.349e+04	2.603e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.624e+04	3.198e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.542e+04	2.952e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.335e+04	2.676e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.092e+04	2.458e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	1.047e+04	2.389e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	7.586e+03	9.873e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	2.020e+04	1.243e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.950e+04	1.548e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.035e+04	1.580e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	2.109e+04	1.990e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:29	1.968e+04	2.213e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	3.596e+04	4.510e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	4.939e+04	3.811e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	8.573e+03				no	1.014

$$\text{OCDD} = \frac{(1.108e+04 + 1.220e+04) \times 4000\ \text{pg} \times 1}{(1.968e+04 + 2.213e+04) \times \quad \text{g} \times \quad / 100 \times 1.118} =$$

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10450 Stancliff Rd., Suite 115
Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P519363 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:07:51
Processed: 12-DEC-18 09:58:32 LAB. ID: EQ1800488-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.61e+05	6.52e+02	2.5e+02	2.30e+05	9.44e+02	2.4e+02
2	1,2,3,7,8-PeCDF	2.38e+06	9.76e+02	2.4e+03	1.58e+06	1.62e+03	9.8e+02
3	2,3,4,7,8-PeCDF	2.50e+06	9.76e+02	2.6e+03	1.69e+06	1.62e+03	1.0e+03
4	1,2,3,4,7,8-HxCDF	2.65e+06	3.08e+02	8.6e+03	2.20e+06	3.28e+02	6.7e+03
5	1,2,3,6,7,8-HxCDF	2.73e+06	3.08e+02	8.9e+03	2.29e+06	3.28e+02	7.0e+03
6	2,3,4,6,7,8-HxCDF	2.68e+06	3.08e+02	8.7e+03	2.28e+06	3.28e+02	6.9e+03
7	1,2,3,7,8,9-HxCDF	2.25e+06	3.08e+02	7.3e+03	1.86e+06	3.28e+02	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	2.12e+06	1.34e+03	1.6e+03	2.09e+06	1.01e+03	2.1e+03
9	1,2,3,4,7,8,9-HpCDF	1.71e+06	1.34e+03	1.3e+03	1.77e+06	1.01e+03	1.8e+03
10	OCDF	1.69e+06	2.60e+02	6.5e+03	1.97e+06	5.08e+02	3.9e+03
11	2,3,7,8-TCDD	1.41e+05	1.59e+03	8.9e+01	1.81e+05	1.09e+03	1.7e+02
12	1,2,3,7,8-PeCDD	1.83e+06	7.24e+02	2.5e+03	1.17e+06	2.56e+02	4.6e+03
13	1,2,3,4,7,8-HxCDD	1.99e+06	3.64e+02	5.5e+03	1.57e+06	4.72e+02	3.3e+03
14	1,2,3,6,7,8-HxCDD	1.97e+06	3.64e+02	5.4e+03	1.61e+06	4.72e+02	3.4e+03
15	1,2,3,7,8,9-HxCDD	1.95e+06	3.64e+02	5.4e+03	1.60e+06	4.72e+02	3.4e+03
16	1,2,3,4,6,7,8-HpCDD	1.44e+06	3.12e+02	4.6e+03	1.40e+06	3.04e+02	4.6e+03
17	OCDD	1.32e+06	3.00e+02	4.4e+03	1.48e+06	4.16e+02	3.6e+03
18	13C-2,3,7,8-TCDF	1.84e+06	5.64e+03	3.3e+02	2.31e+06	3.82e+03	6.0e+02
19	13C-1,2,3,7,8-PeCDF	5.09e+06	8.56e+02	6.0e+03	3.28e+06	3.08e+02	1.1e+04
20	13C-2,3,4,7,8-PeCDF	5.25e+06	8.56e+02	6.1e+03	3.28e+06	3.08e+02	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	2.68e+06	2.56e+02	1.0e+04	5.43e+06	7.24e+02	7.5e+03
22	13C-1,2,3,6,7,8-HxCDF	3.13e+06	2.56e+02	1.2e+04	6.03e+06	7.24e+02	8.3e+03
23	13C-2,3,4,6,7,8-HxCDF	3.14e+06	2.56e+02	1.2e+04	6.03e+06	7.24e+02	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	2.50e+06	2.56e+02	9.8e+03	5.01e+06	7.24e+02	6.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.03e+06	1.00e+03	2.0e+03	4.51e+06	1.64e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.69e+06	1.00e+03	1.7e+03	3.78e+06	1.64e+03	2.3e+03
27	13C-2,3,7,8-TCDD	1.39e+06	6.64e+03	2.1e+02	1.84e+06	2.20e+03	8.4e+02
28	13C-1,2,3,7,8-PeCDD	3.75e+06	4.92e+02	7.6e+03	2.32e+06	4.64e+02	5.0e+03
29	13C-1,2,3,4,7,8-HxCDD	4.15e+06	1.26e+03	3.3e+03	3.33e+06	6.36e+02	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	3.87e+06	1.26e+03	3.1e+03	2.99e+06	6.36e+02	4.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.57e+06	5.36e+02	6.7e+03	3.36e+06	2.44e+02	1.4e+04
32	13C-OCDD	2.33e+06	3.80e+02	6.1e+03	2.66e+06	3.40e+02	7.8e+03
33	13C-1,2,3,4-TCDD	6.47e+06	6.64e+03	9.7e+02	8.20e+06	2.20e+03	3.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.33e+06	1.26e+03	7.4e+03	7.39e+06	6.36e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.58e+06	9.12e+02	1.7e+03			

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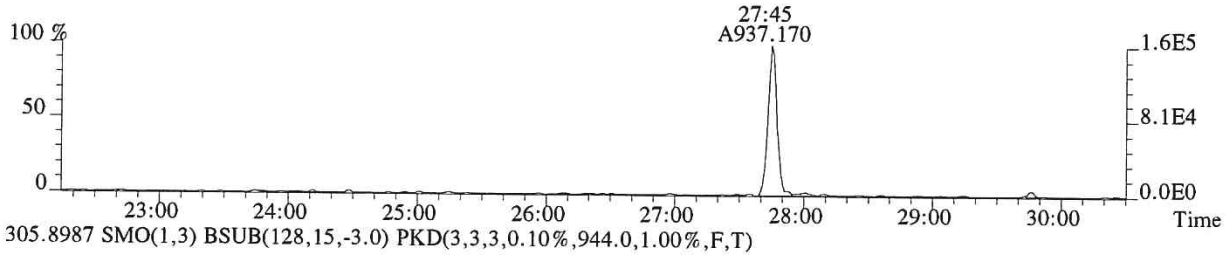
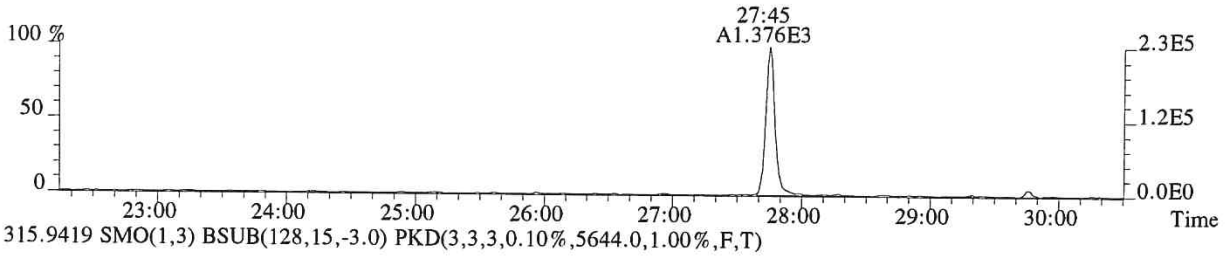
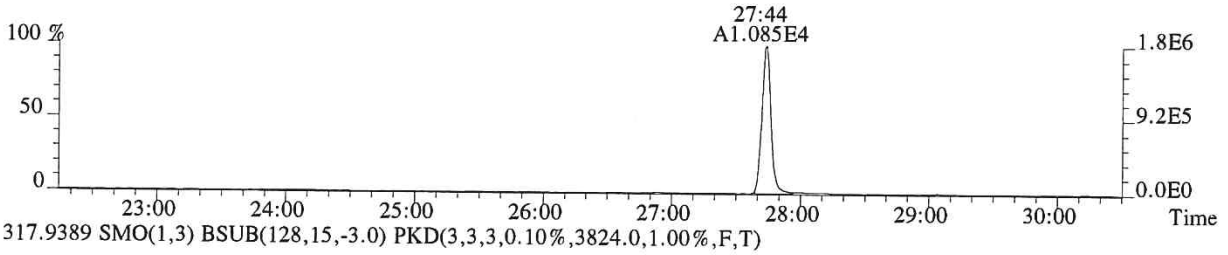
File:P519363 #1-587 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



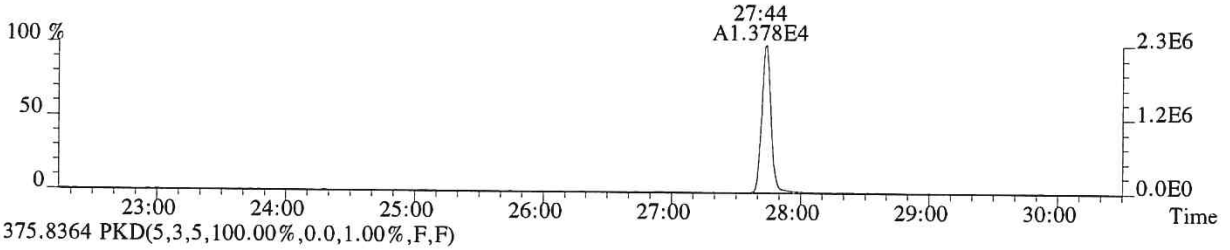
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



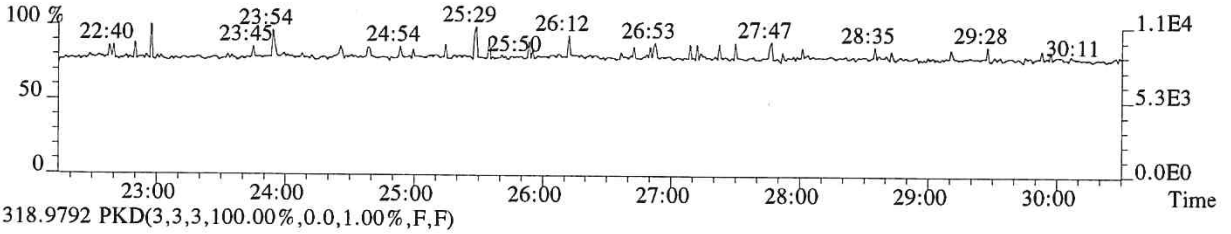
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5644.0,1.00%,F,T)



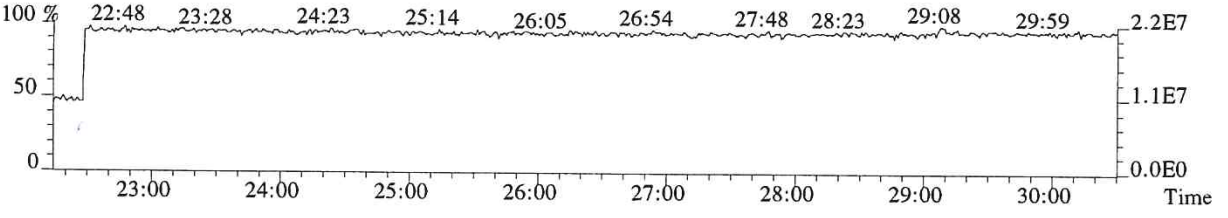
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3824.0,1.00%,F,T)



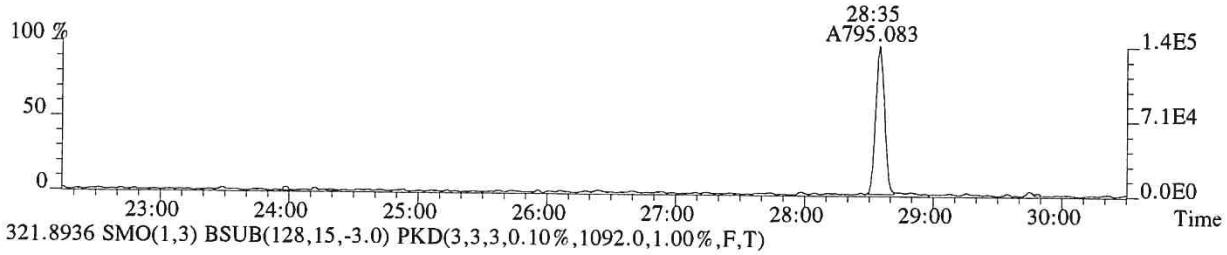
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



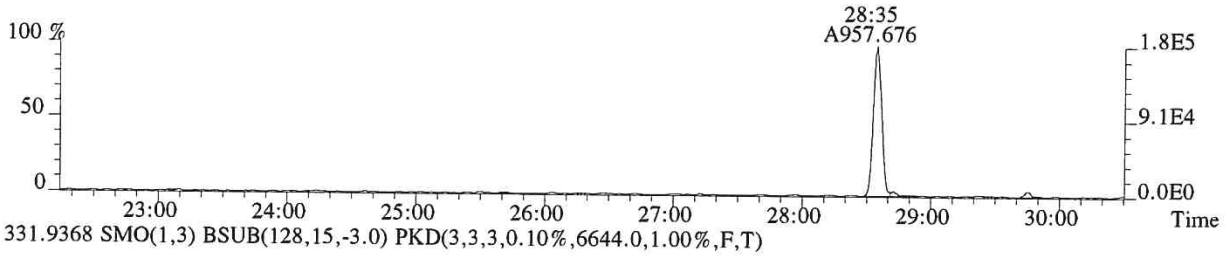
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



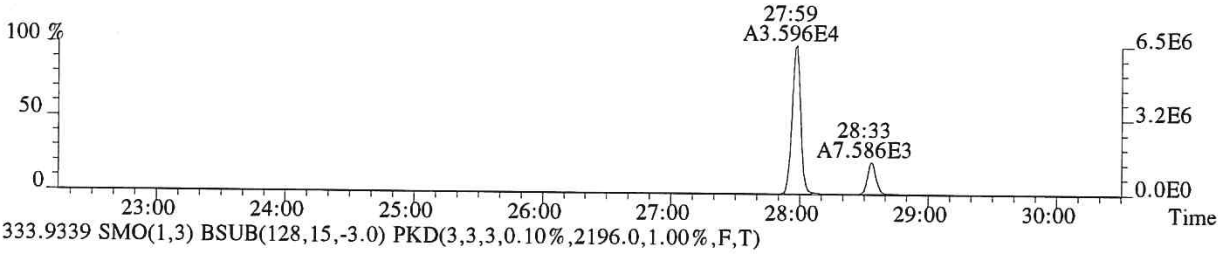
File:P519363 #1-587 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



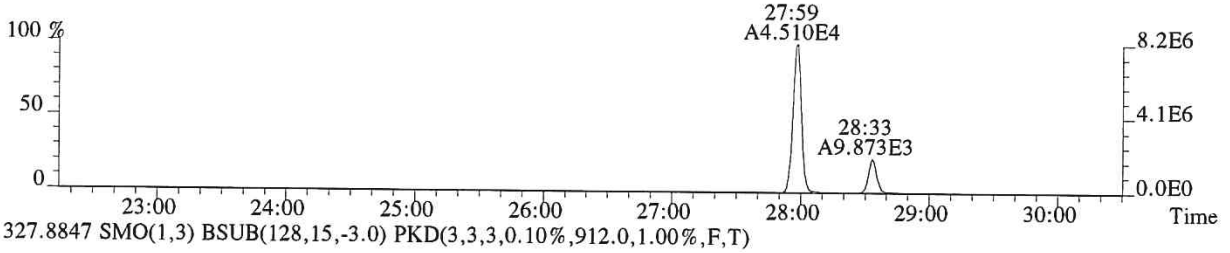
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



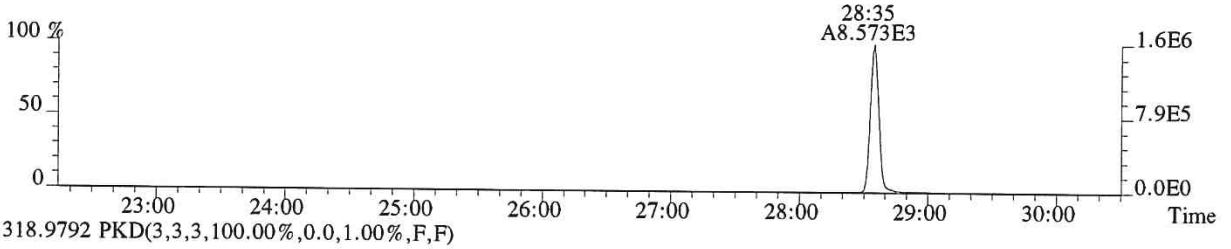
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



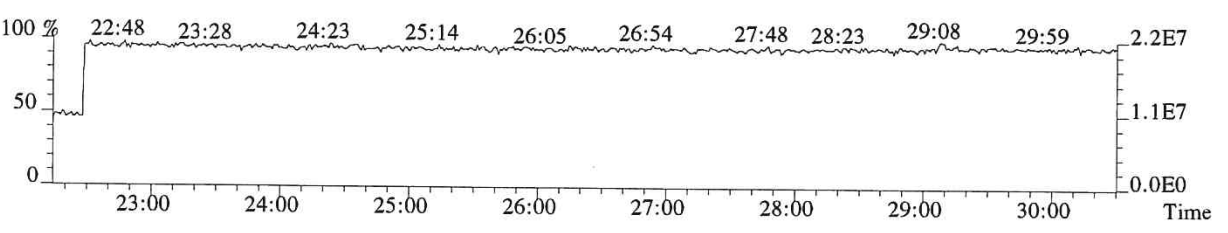
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2196.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)

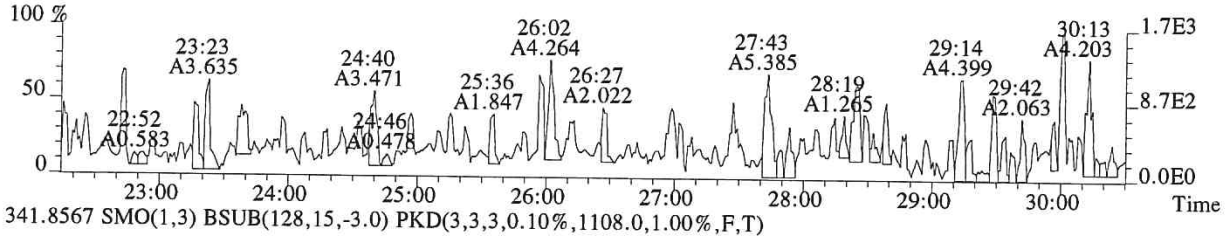


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

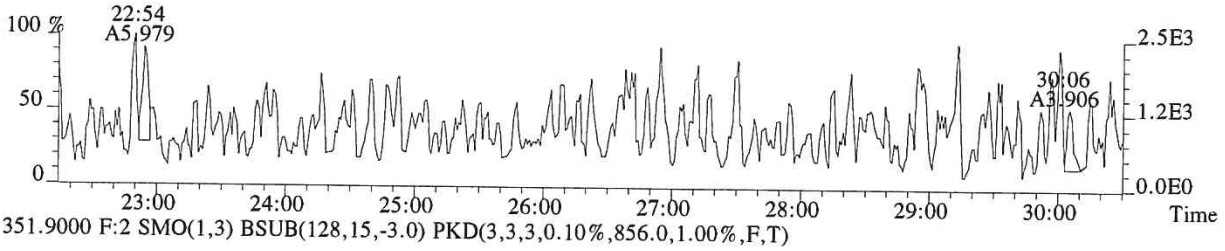


011985

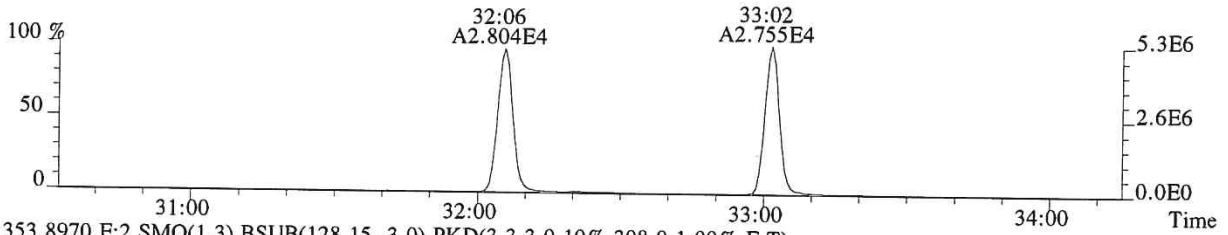
File:P519363 #1-587 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



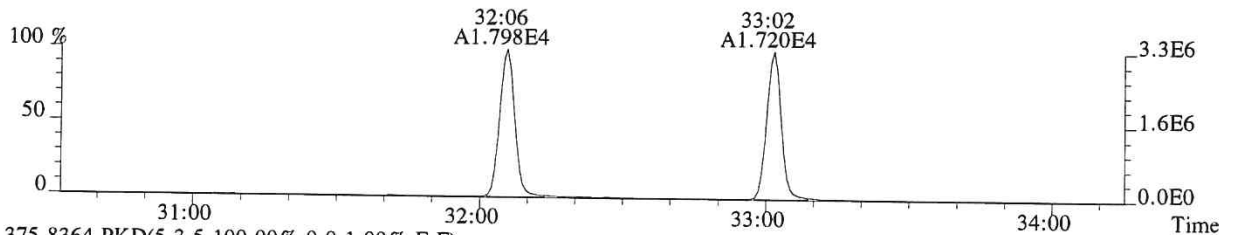
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



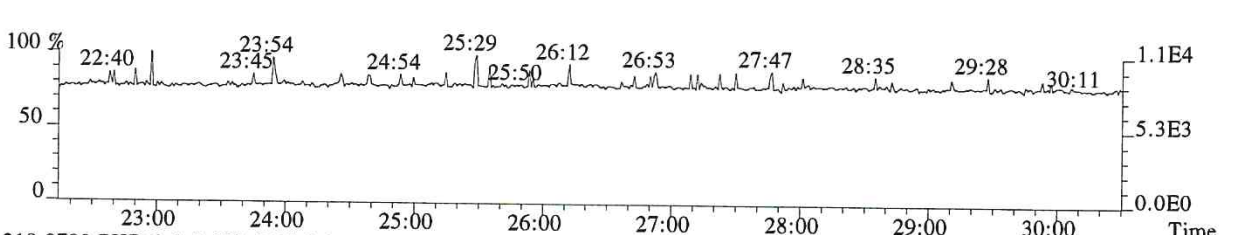
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



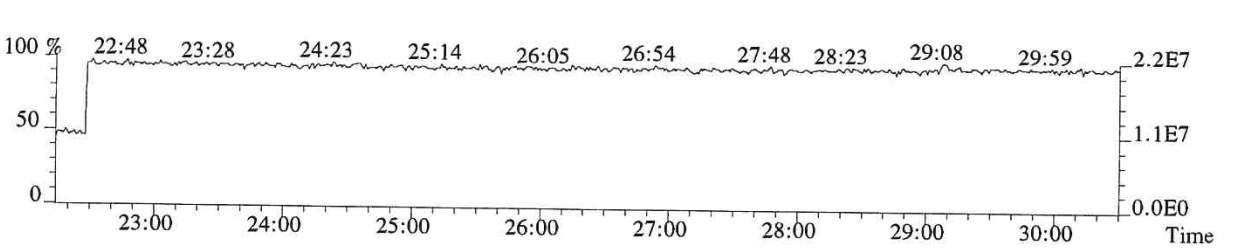
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

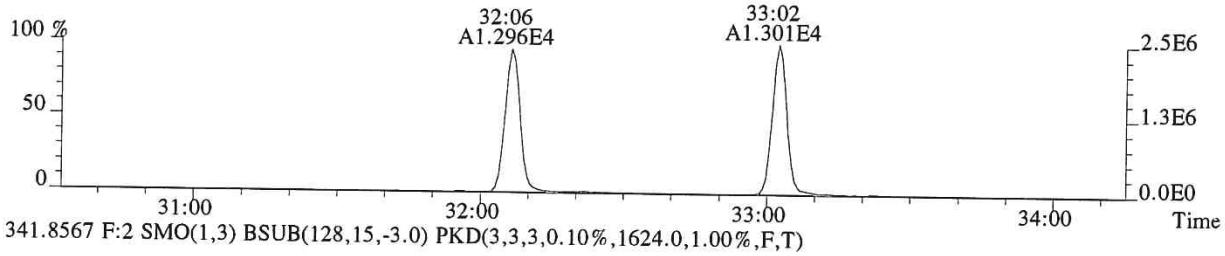


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

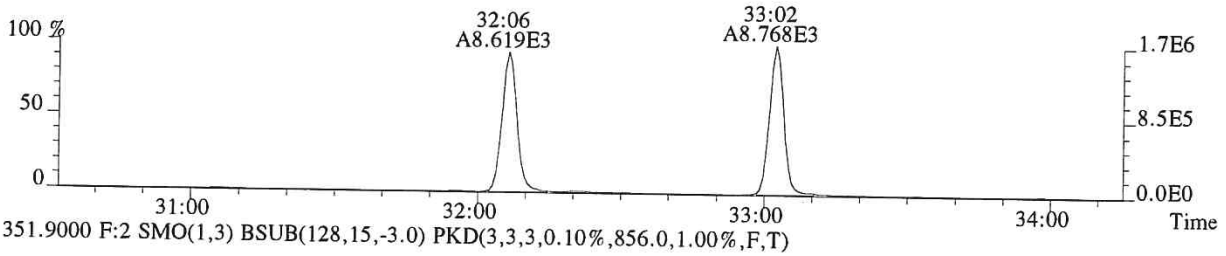


011986

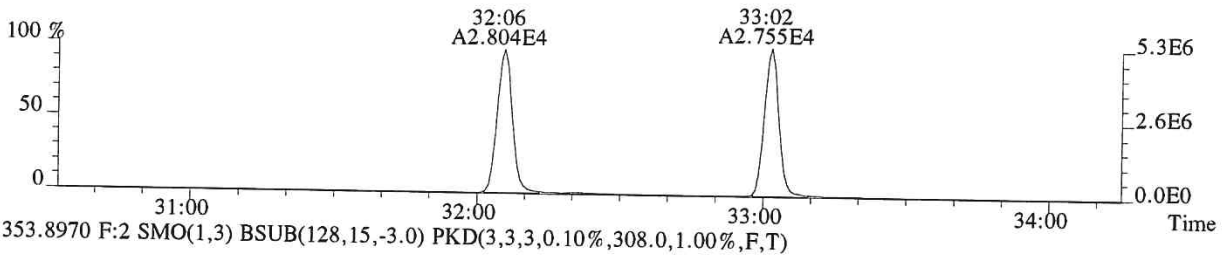
File:P519363 #1-335 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



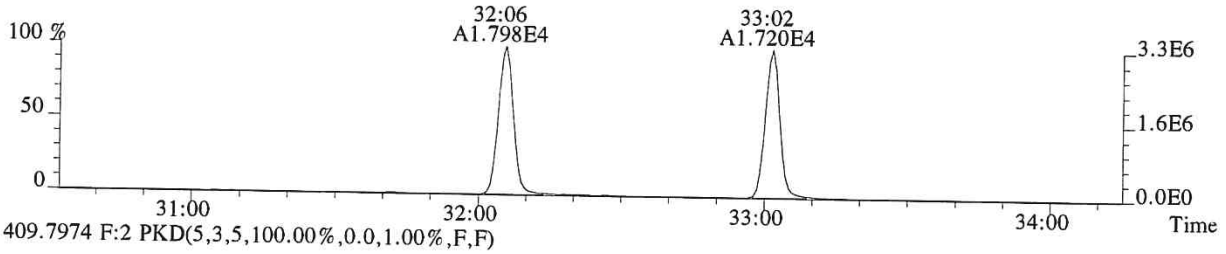
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



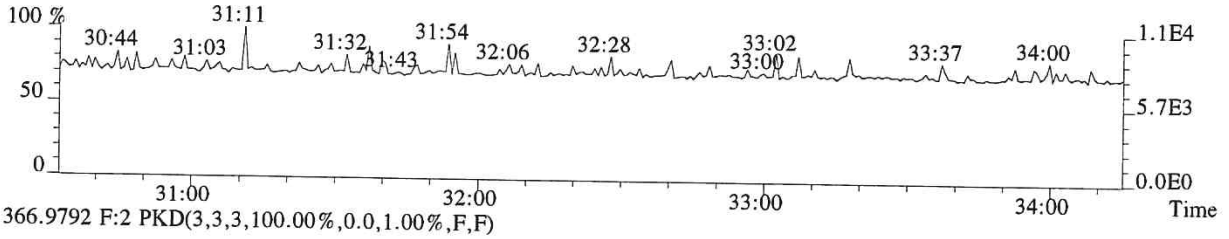
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



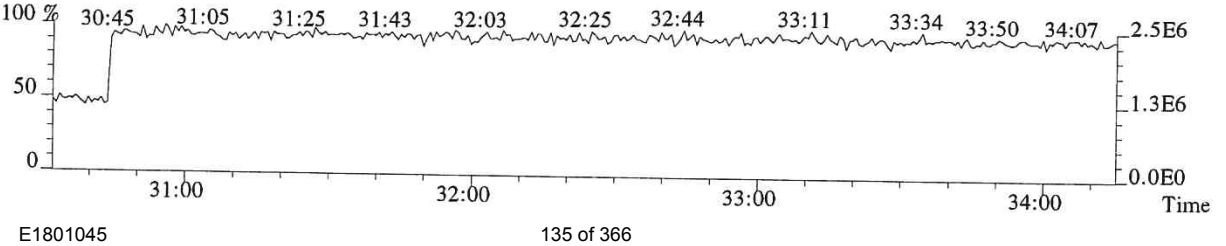
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



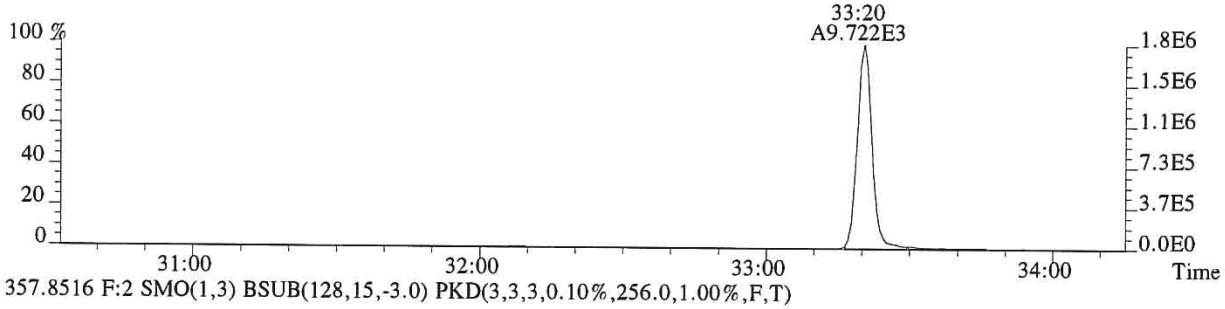
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



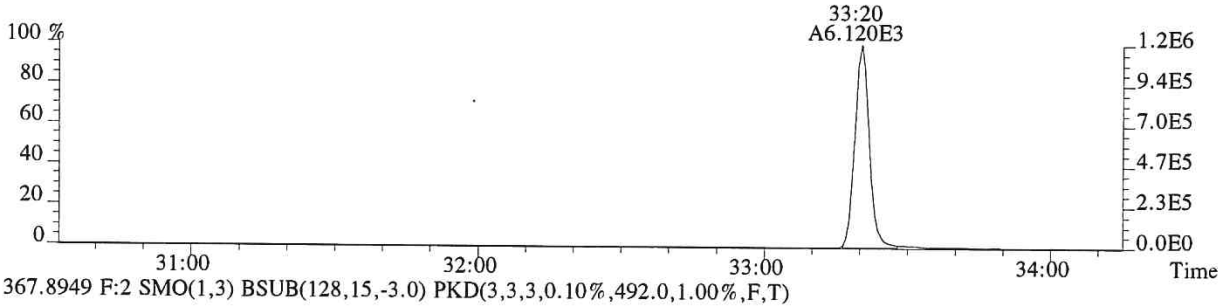
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



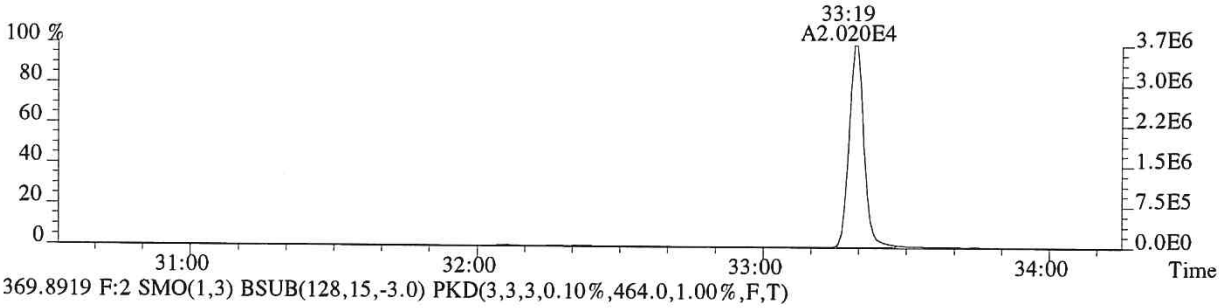
File:P519363 #1-335 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



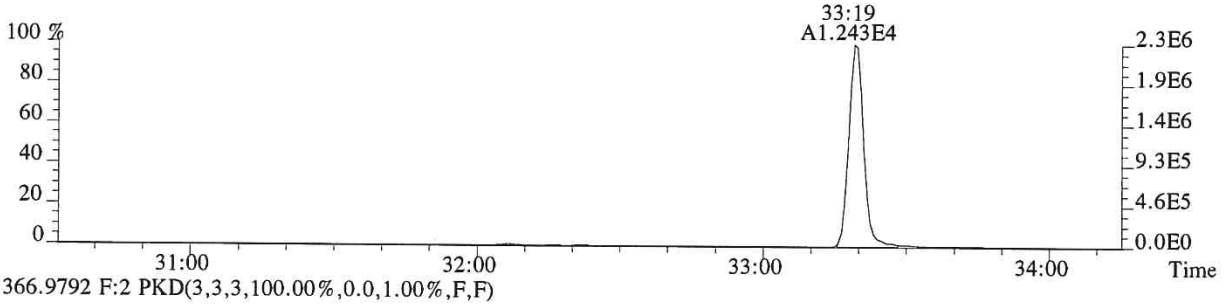
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



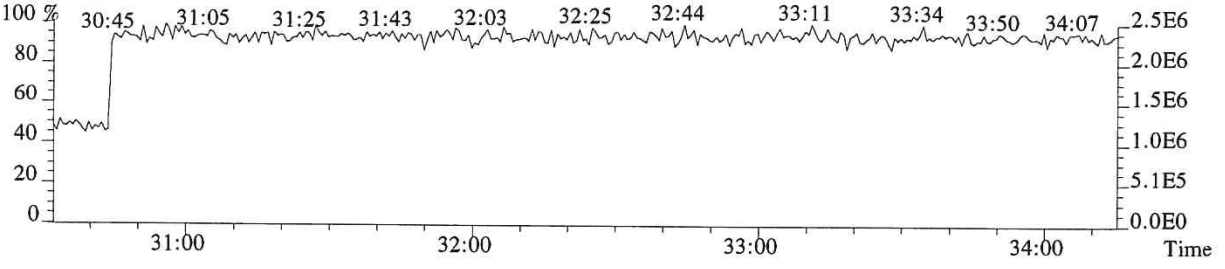
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)

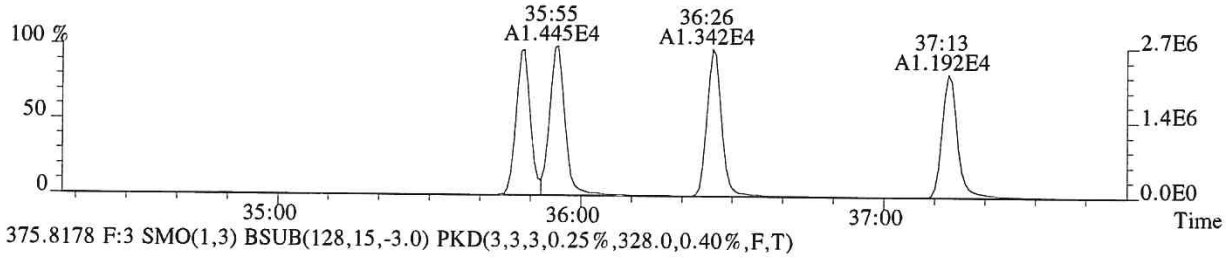


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

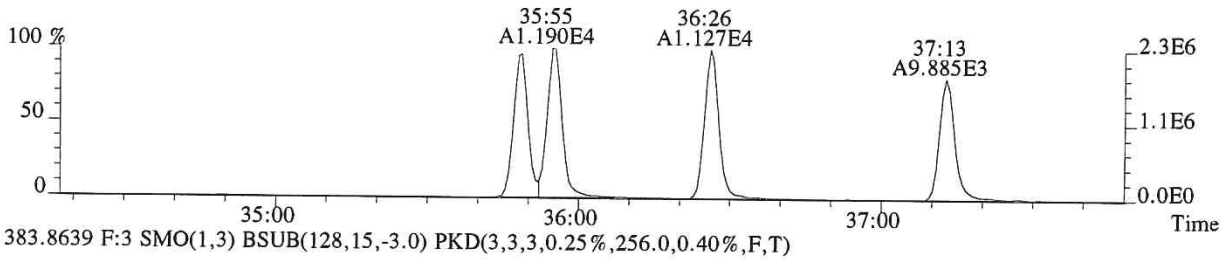


011988

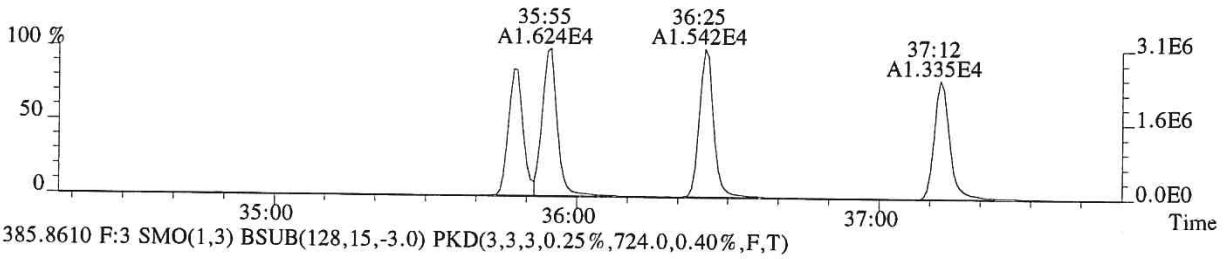
File:P519363 #1-317 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



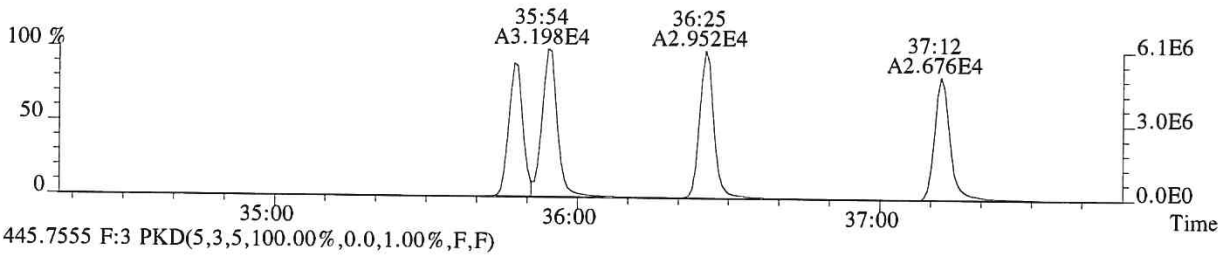
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



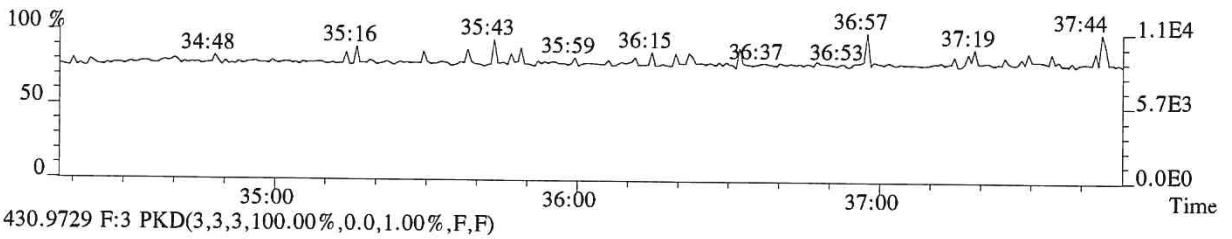
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



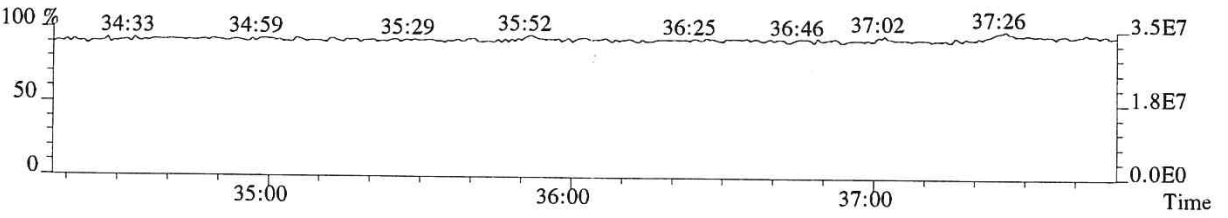
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

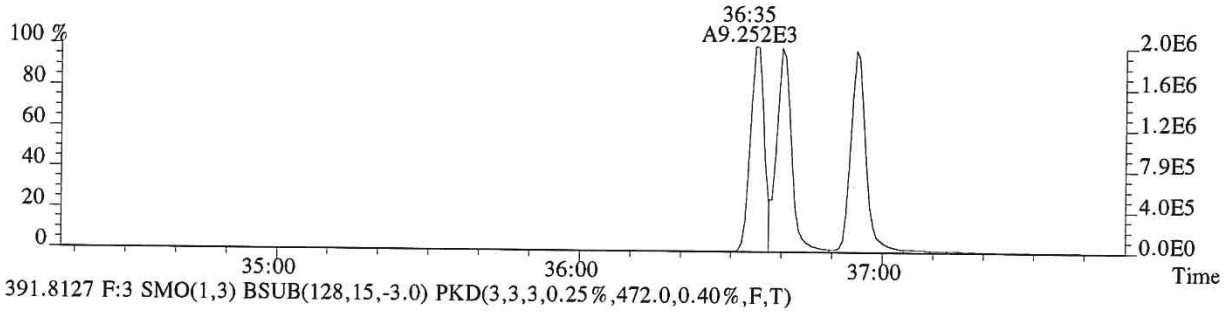


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

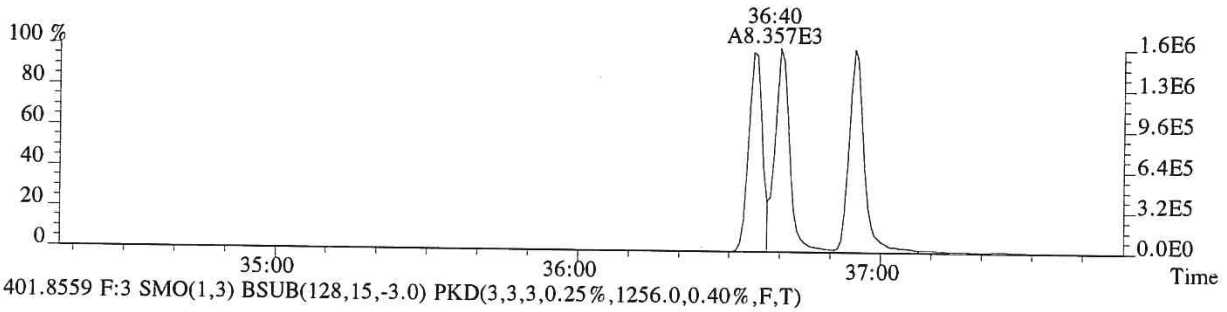


011989

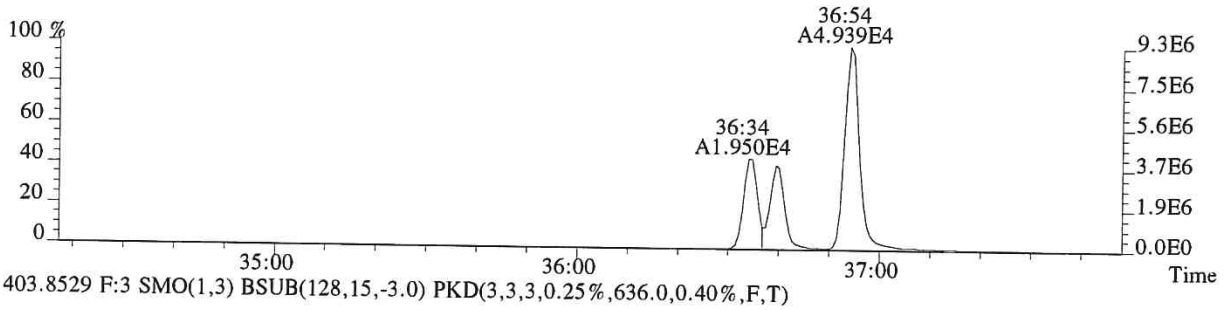
File:P519363 #1-317 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



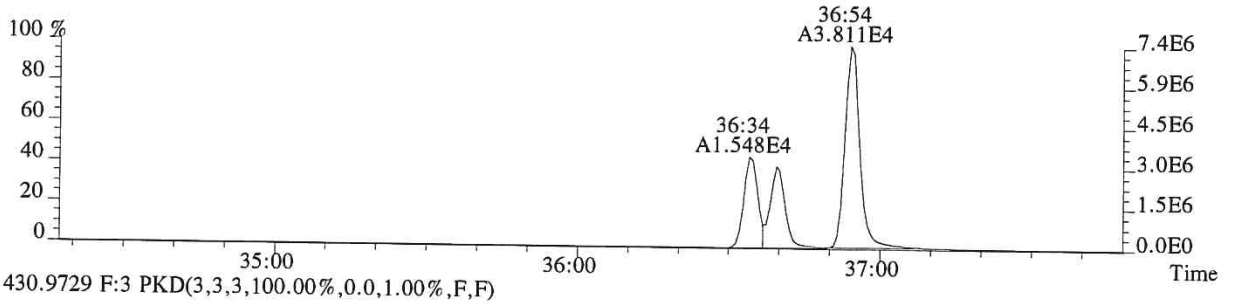
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



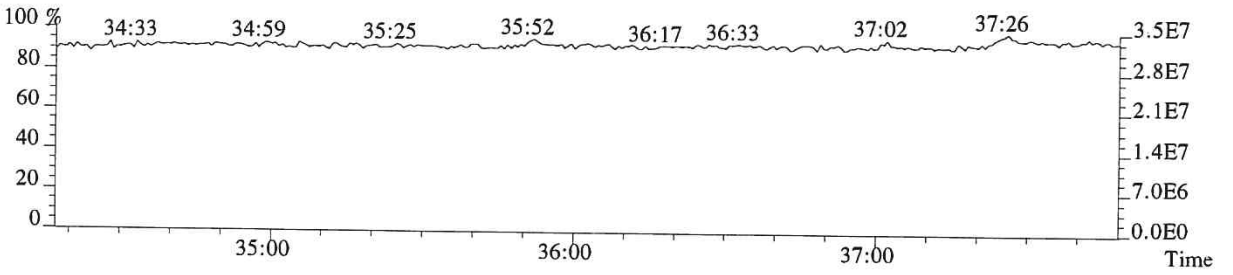
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)

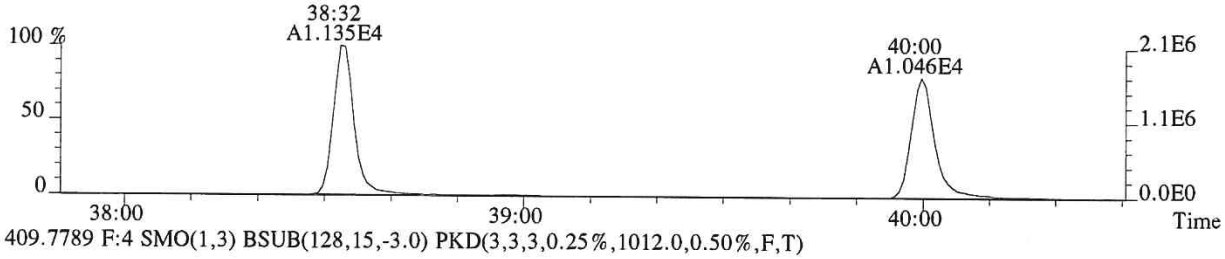


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

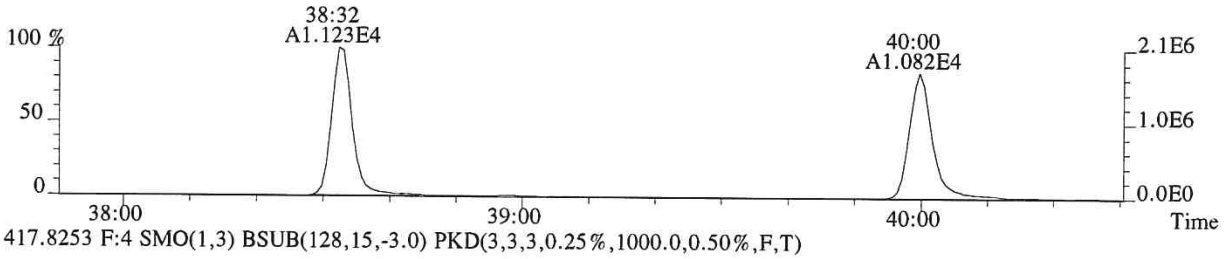


011990

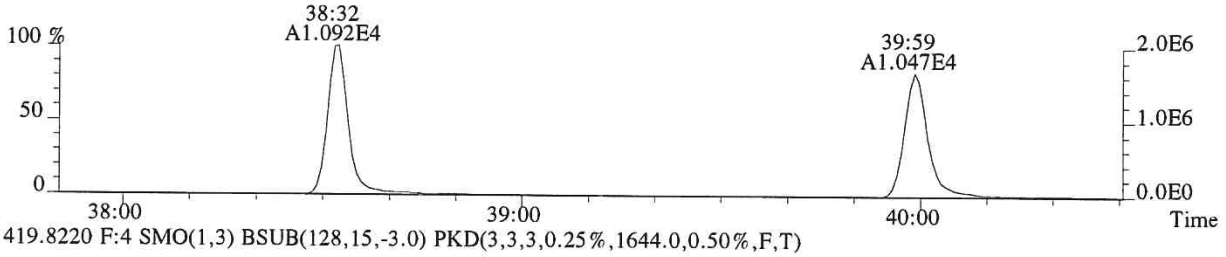
File:P519363 #1-241 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.50%,F,T)



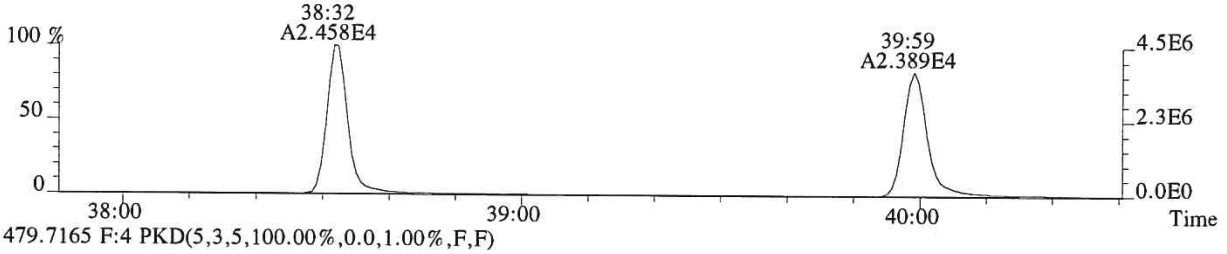
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.50%,F,T)



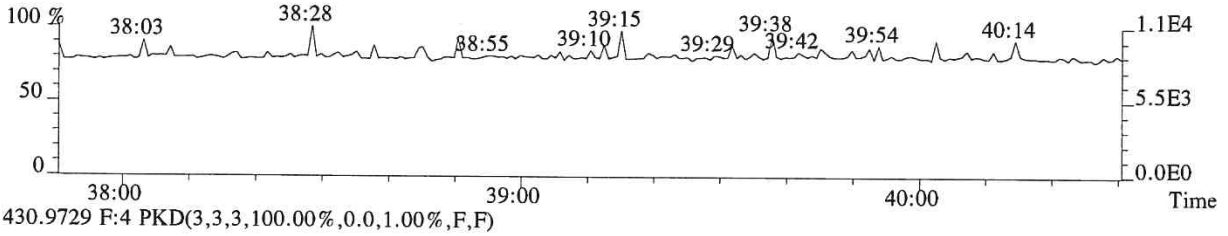
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.50%,F,T)



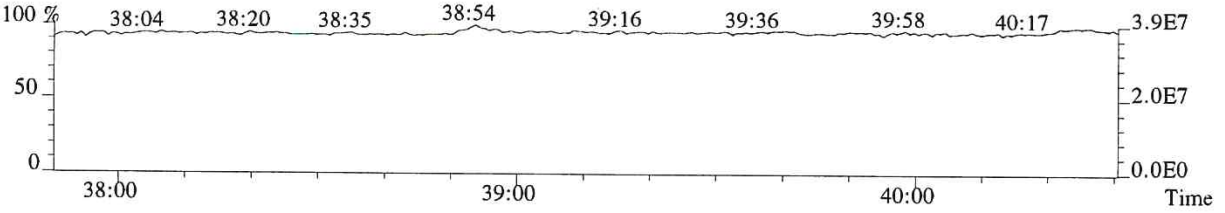
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.50%,F,T)



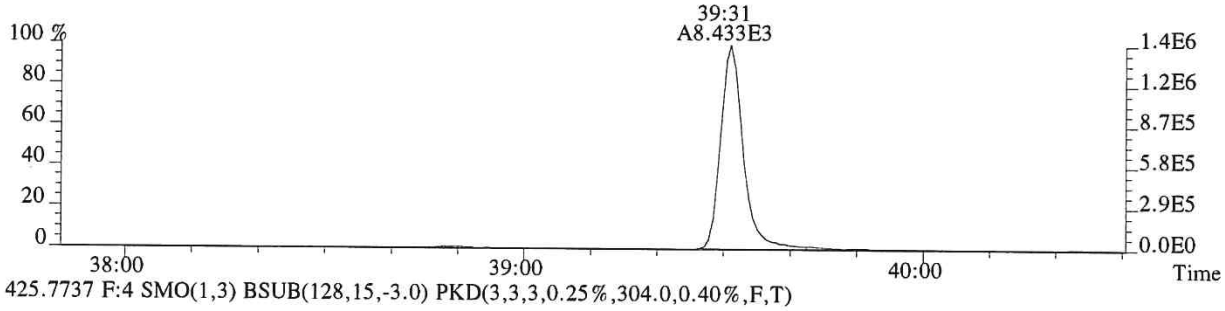
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



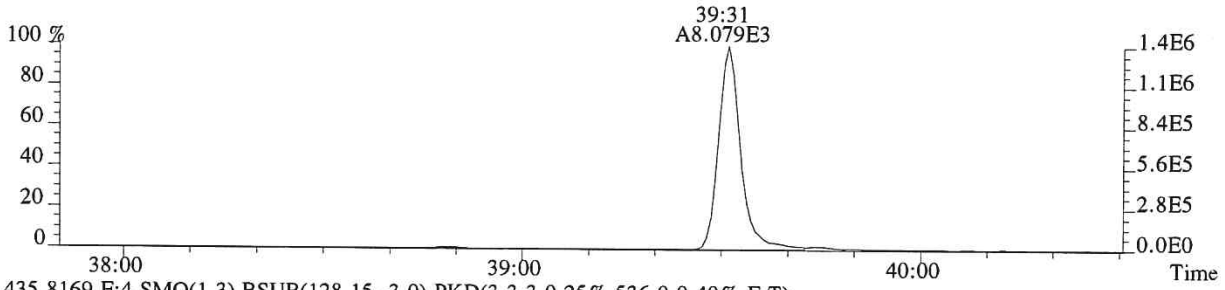
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



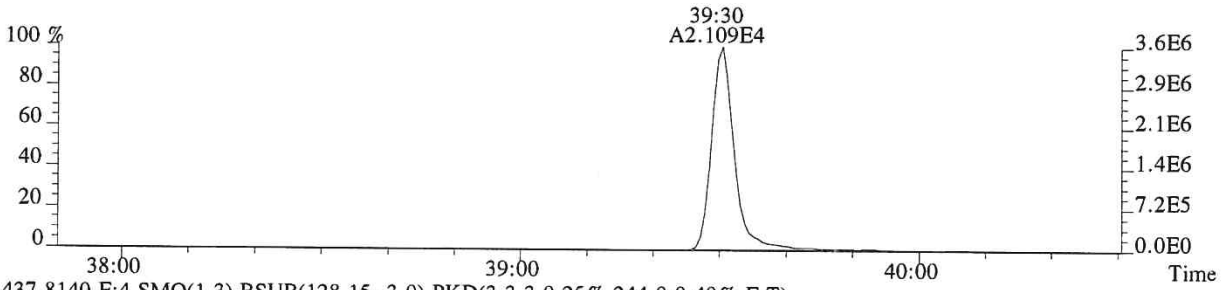
File:P519363 #1-241 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



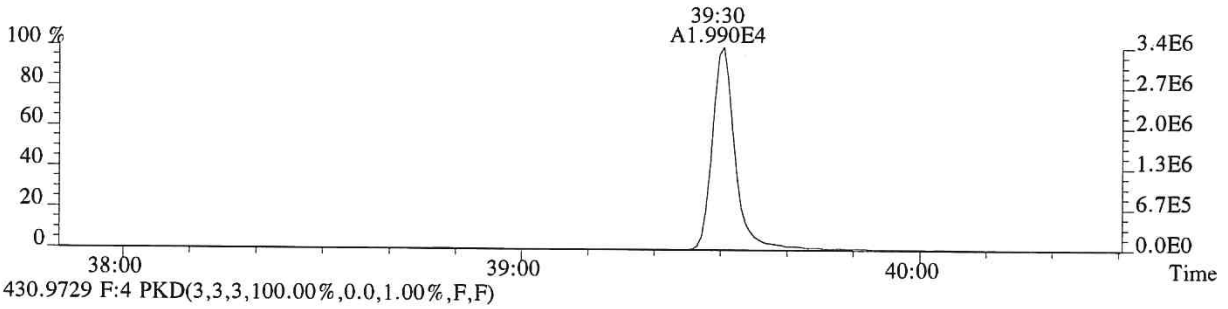
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



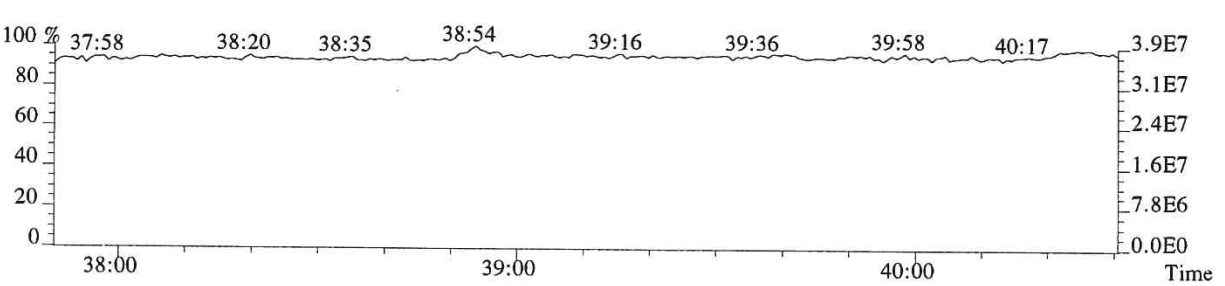
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)

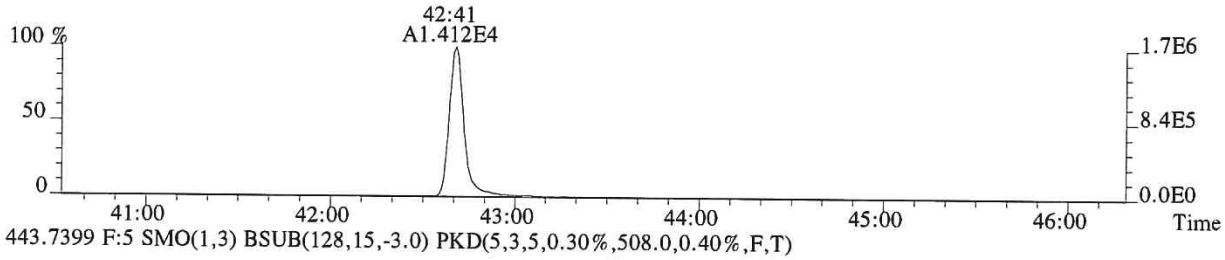


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

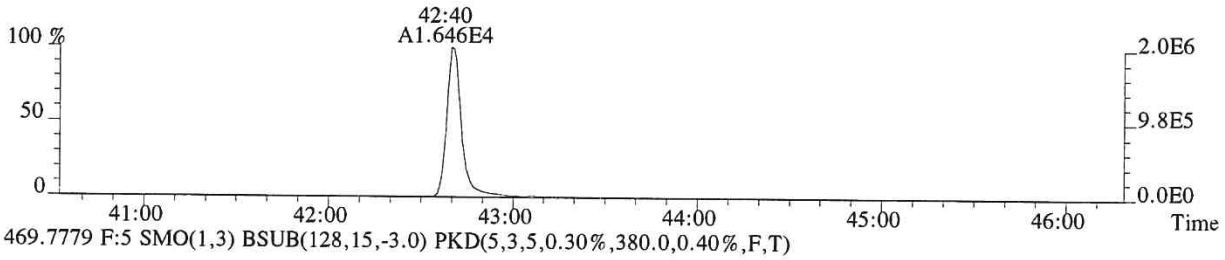


011992

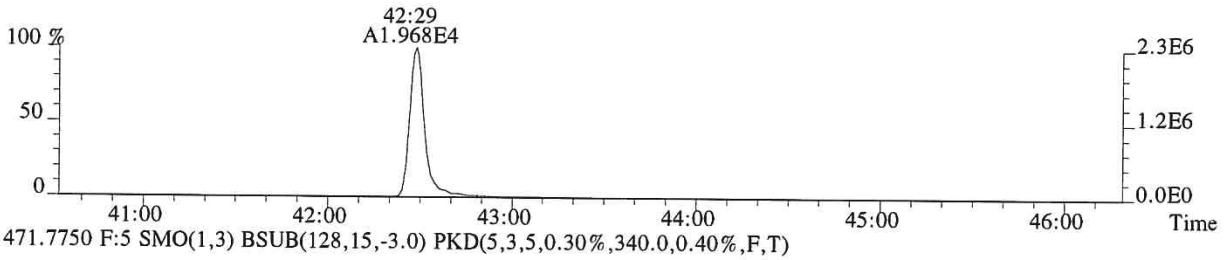
File:P519363 #1-520 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



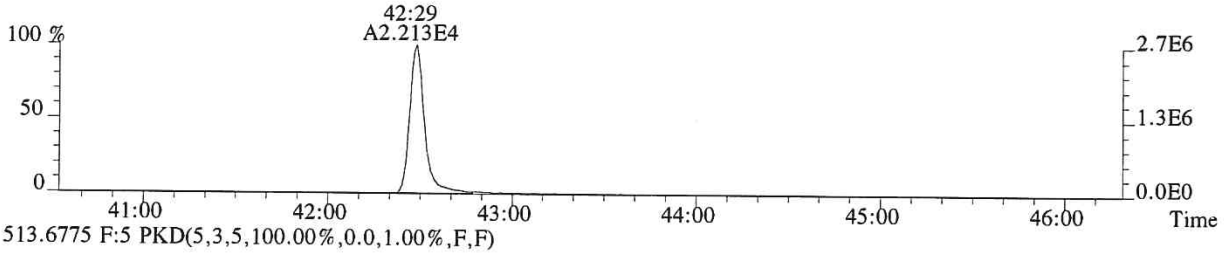
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



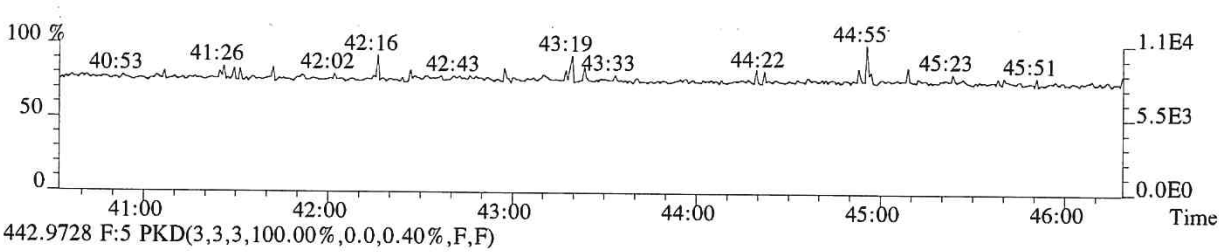
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



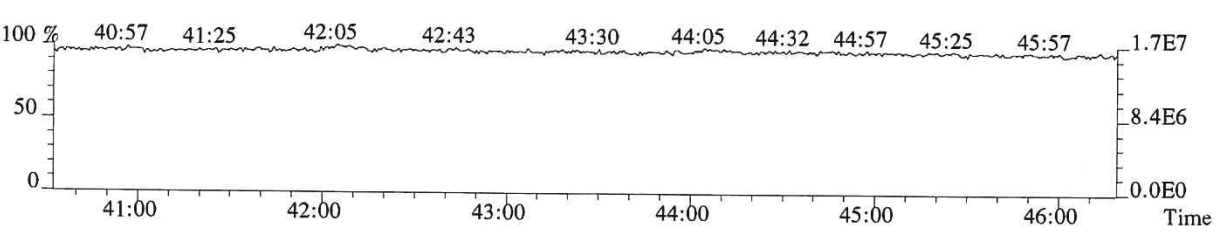
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

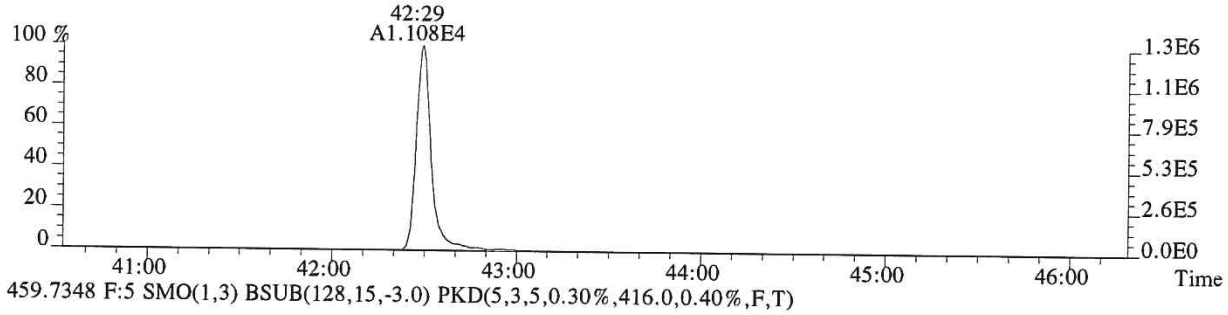


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

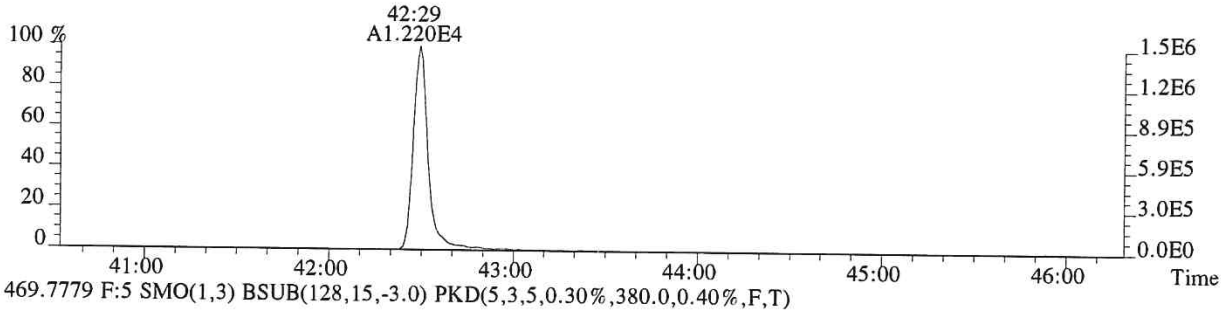


011993

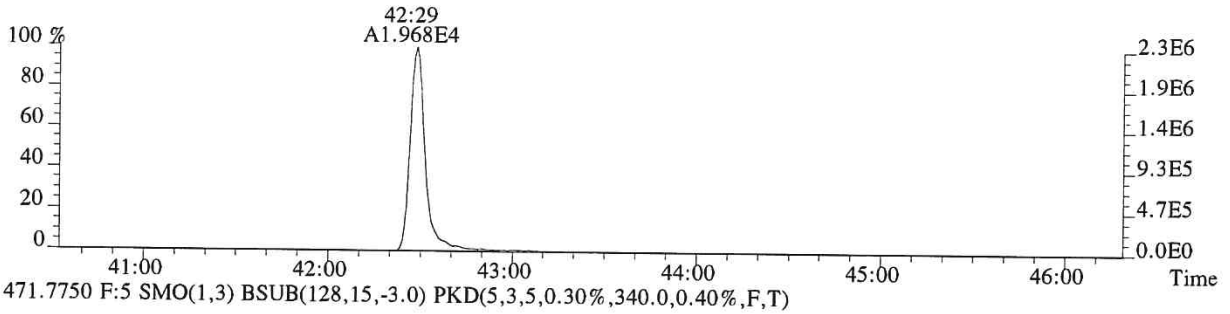
File:P519363 #1-520 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



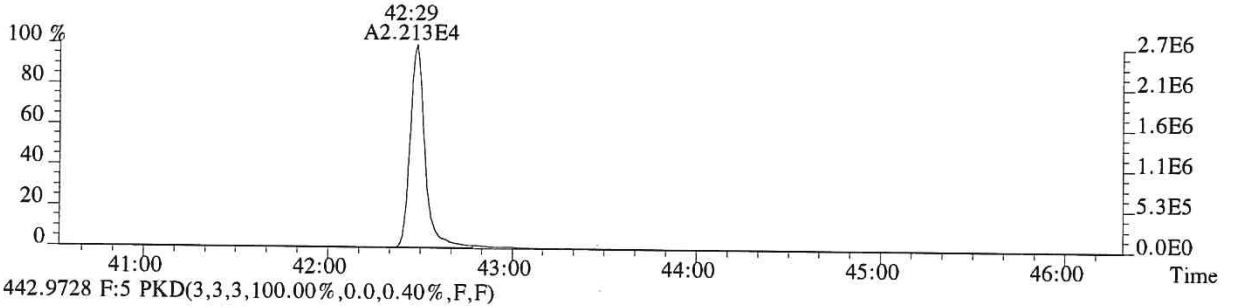
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



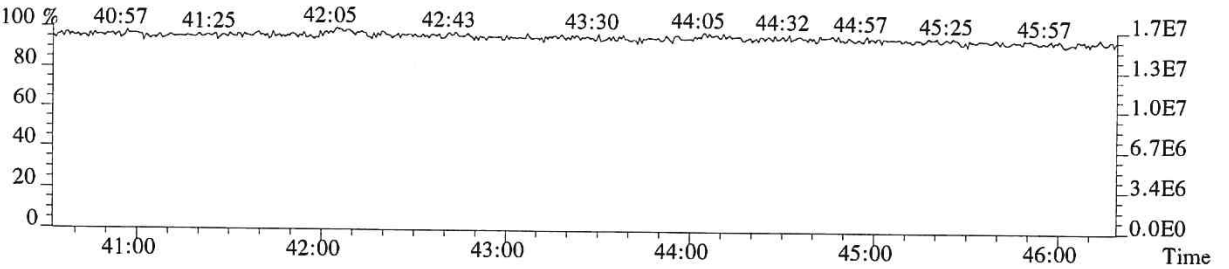
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



011994

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P519364 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:56:19
Processed: 12-DEC-18 09:58:33 Sample ID: EQ1800488-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.546e+03	2.100e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	1.467e+04	9.624e+03	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	1.484e+04	9.963e+03	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.351e+04	1.117e+04	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.509e+04	1.257e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	1.278e+04	1.030e+04	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	1.106e+04	8.766e+03	1.26	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:33	1.026e+04	1.033e+04	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	9.473e+03	9.583e+03	0.99	yes	no	1.258
10	Unk	OCDF	42:41	1.040e+04	1.217e+04	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	1.156e+03	1.582e+03	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.103e+04	6.780e+03	1.63	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	9.741e+03	7.603e+03	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	1.044e+04	8.362e+03	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	9.523e+03	7.931e+03	1.20	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	7.141e+03	6.675e+03	1.07	yes	no	1.025
17	Unk	OCDD	42:30	7.648e+03	8.525e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.767e+04	2.220e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	3.210e+04	2.012e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	3.132e+04	1.969e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.394e+04	2.713e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.669e+04	3.242e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	1.438e+04	2.788e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.214e+04	2.382e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.002e+04	2.233e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	9.077e+03	2.090e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	1.132e+04	1.417e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	2.268e+04	1.424e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	2.019e+04	1.579e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	1.971e+04	1.528e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	1.785e+04	1.691e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:29	1.420e+04	1.580e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	3.365e+04	4.212e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	4.701e+04	3.620e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	1.291e+04				no	1.014

$$\text{OCDD} = \frac{(7.648e+03 + 8.525e+03) \times 4000\ \text{pg} \times 1}{(1.420e+04 + 1.580e+04) \times \quad \text{g} \times \quad / 100 \times 1.118}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P519364 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:56:19
Processed: 12-DEC-18 09:58:33 LAB. ID: EQ1800488-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.74e+05	4.40e+02	6.2e+02	3.64e+05	1.18e+03	3.1e+02
2	1,2,3,7,8-PeCDF	2.72e+06	4.08e+02	6.7e+03	1.78e+06	1.67e+03	1.1e+03
3	2,3,4,7,8-PeCDF	2.88e+06	4.08e+02	7.1e+03	1.92e+06	1.67e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	2.81e+06	4.12e+02	6.8e+03	2.33e+06	2.84e+02	8.2e+03
5	1,2,3,6,7,8-HxCDF	2.89e+06	4.12e+02	7.0e+03	2.44e+06	2.84e+02	8.6e+03
6	2,3,4,6,7,8-HxCDF	2.58e+06	4.12e+02	6.3e+03	2.12e+06	2.84e+02	7.5e+03
7	1,2,3,7,8,9-HxCDF	1.99e+06	4.12e+02	4.8e+03	1.58e+06	2.84e+02	5.5e+03
8	1,2,3,4,6,7,8-HpCDF	1.93e+06	1.23e+03	1.6e+03	1.94e+06	2.01e+03	9.7e+02
9	1,2,3,4,7,8,9-HpCDF	1.49e+06	1.23e+03	1.2e+03	1.48e+06	2.01e+03	7.3e+02
10	OCDF	1.19e+06	2.12e+02	5.6e+03	1.40e+06	7.20e+02	1.9e+03
11	2,3,7,8-TCDD	2.19e+05	1.54e+03	1.4e+02	2.94e+05	9.72e+02	3.0e+02
12	1,2,3,7,8-PeCDD	2.16e+06	1.17e+03	1.8e+03	1.32e+06	2.40e+02	5.5e+03
13	1,2,3,4,7,8-HxCDD	2.08e+06	3.28e+02	6.3e+03	1.62e+06	1.60e+02	1.0e+04
14	1,2,3,6,7,8-HxCDD	2.03e+06	3.28e+02	6.2e+03	1.67e+06	1.60e+02	1.0e+04
15	1,2,3,7,8,9-HxCDD	1.84e+06	3.28e+02	5.6e+03	1.42e+06	1.60e+02	8.9e+03
16	1,2,3,4,6,7,8-HpCDD	1.15e+06	2.00e+02	5.7e+03	1.07e+06	1.88e+02	5.7e+03
17	OCDD	8.68e+05	2.76e+02	3.1e+03	9.85e+05	2.20e+02	4.5e+03
18	13C-2,3,7,8-TCDF	3.14e+06	6.04e+03	5.2e+02	3.92e+06	3.74e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	5.91e+06	8.56e+02	6.9e+03	3.68e+06	1.68e+02	2.2e+04
20	13C-2,3,4,7,8-PeCDF	6.09e+06	8.56e+02	7.1e+03	3.87e+06	1.68e+02	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+06	7.80e+02	3.7e+03	5.60e+06	6.84e+02	8.2e+03
22	13C-1,2,3,6,7,8-HxCDF	3.28e+06	7.80e+02	4.2e+03	6.30e+06	6.84e+02	9.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.89e+06	7.80e+02	3.7e+03	5.49e+06	6.84e+02	8.0e+03
24	13C-1,2,3,7,8,9-HxCDF	2.18e+06	7.80e+02	2.8e+03	4.28e+06	6.84e+02	6.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.87e+06	1.21e+03	1.5e+03	4.14e+06	1.76e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.42e+06	1.21e+03	1.2e+03	3.33e+06	1.76e+03	1.9e+03
27	13C-2,3,7,8-TCDD	2.09e+06	5.60e+03	3.7e+02	2.62e+06	2.35e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	4.44e+06	7.36e+02	6.0e+03	2.77e+06	1.17e+03	2.4e+03
29	13C-1,2,3,4,7,8-HxCDD	4.32e+06	1.23e+03	3.5e+03	3.34e+06	2.40e+02	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	3.79e+06	1.23e+03	3.1e+03	3.01e+06	2.40e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.87e+06	5.64e+02	5.1e+03	2.74e+06	8.04e+02	3.4e+03
32	13C-OCDD	1.63e+06	3.48e+02	4.7e+03	1.84e+06	2.20e+02	8.4e+03
33	13C-1,2,3,4-TCDD	6.22e+06	5.60e+03	1.1e+03	7.76e+06	2.35e+03	3.3e+03
34	13C-1,2,3,7,8,9-HxCDD	8.78e+06	1.23e+03	7.1e+03	6.81e+06	2.40e+02	2.8e+04
35	37Cl-2,3,7,8-TCDD	2.41e+06	8.00e+02	3.0e+03			

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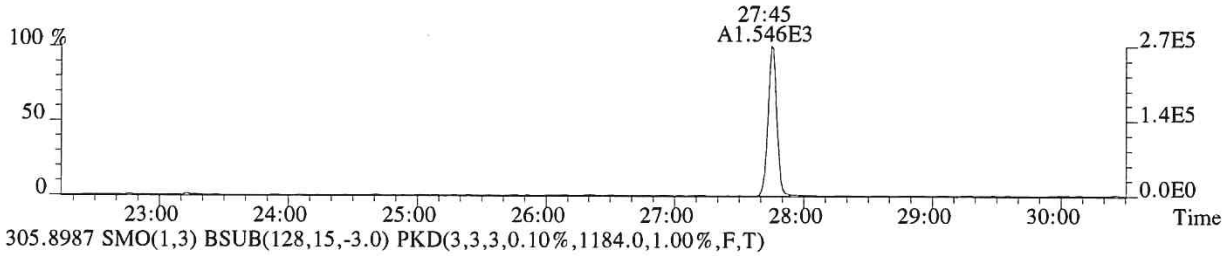
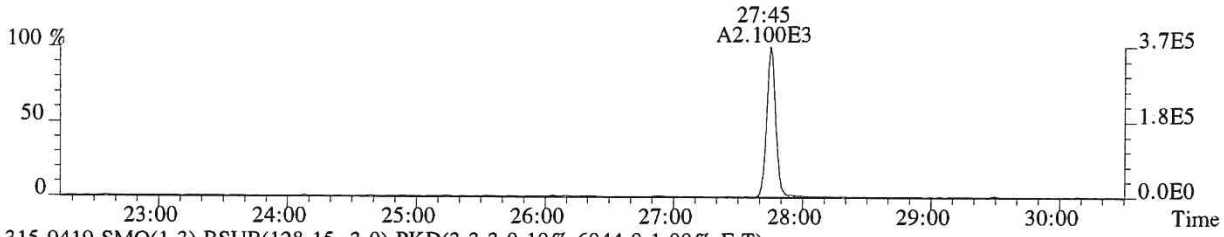
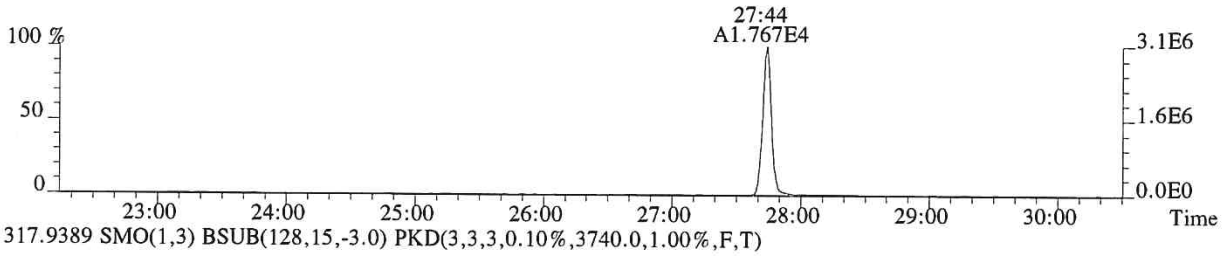
File:P519364 #1-587 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



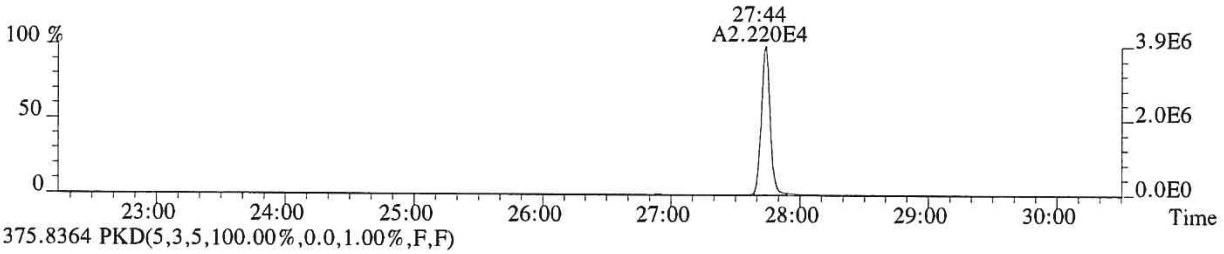
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



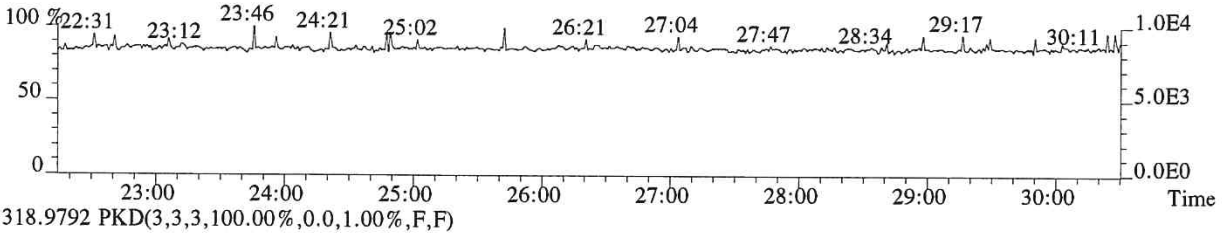
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6044.0,1.00%,F,T)



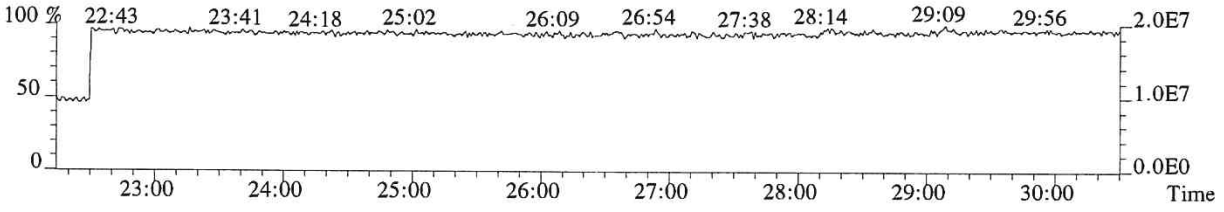
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3740.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

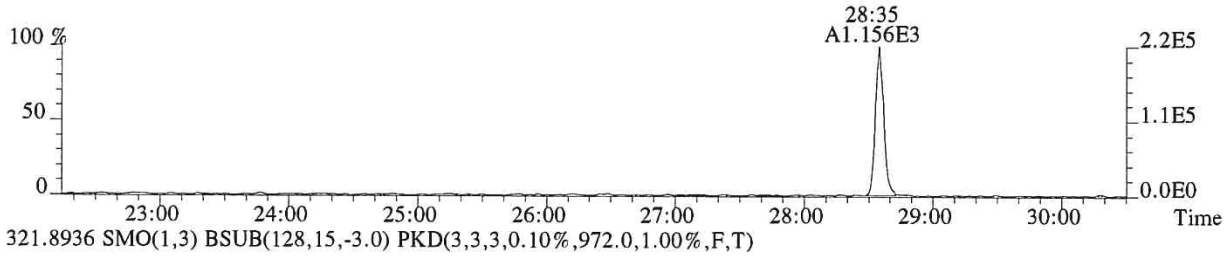


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

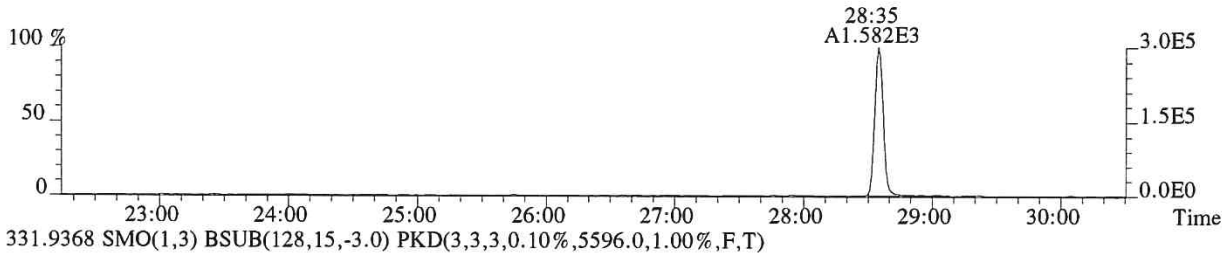


011997

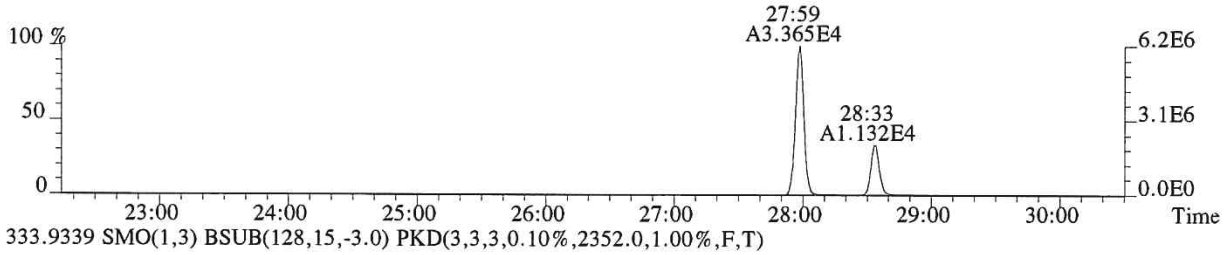
File:P519364 #1-587 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



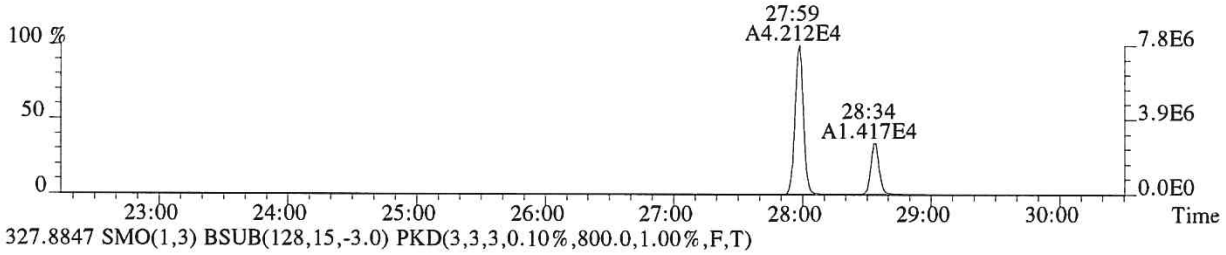
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



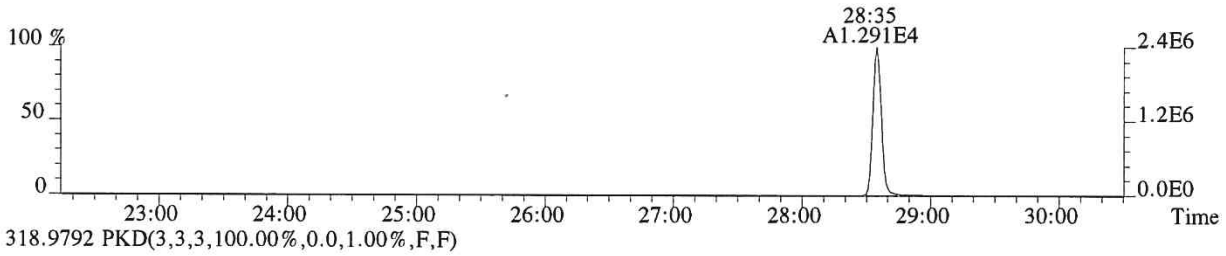
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5596.0,1.00%,F,T)



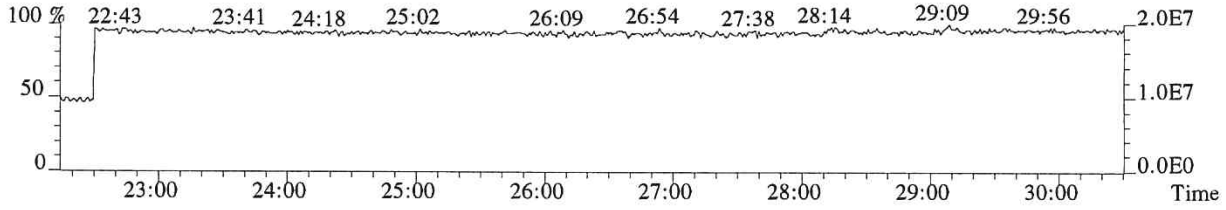
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2352.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)

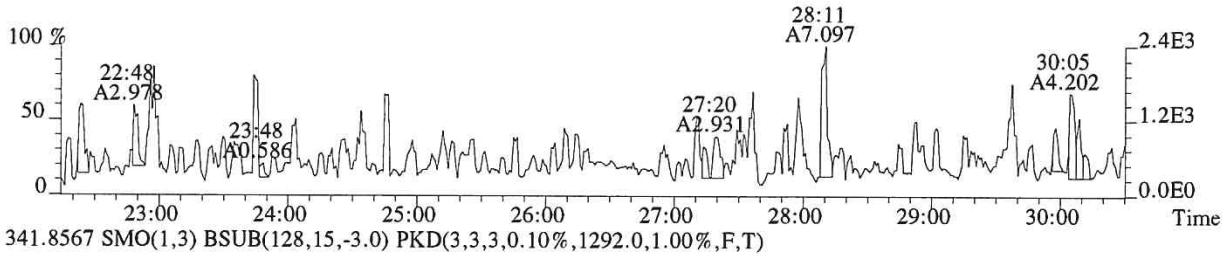


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

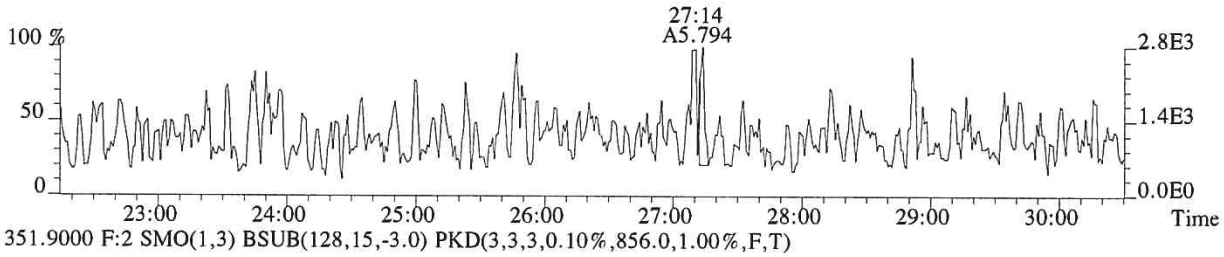


011998

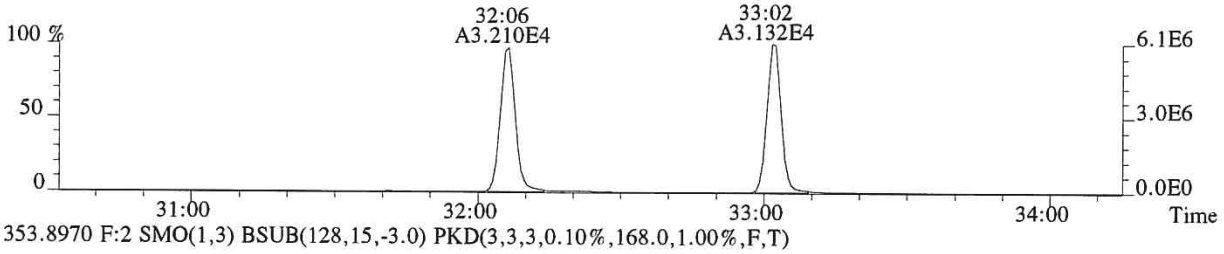
File:P519364 #1-587 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



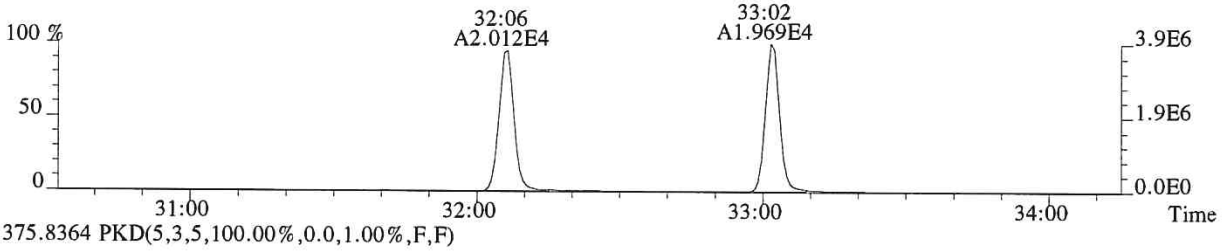
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



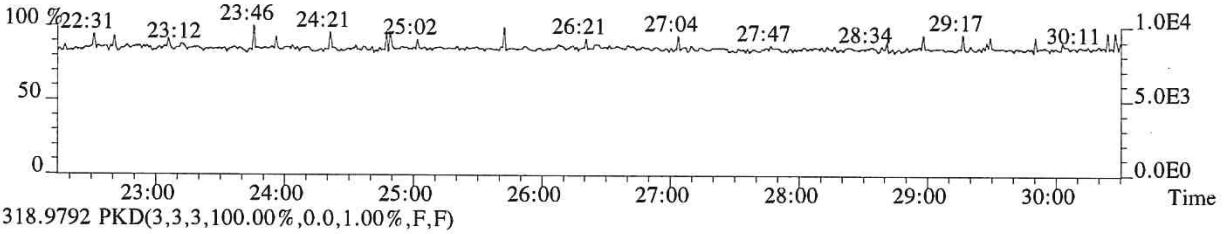
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



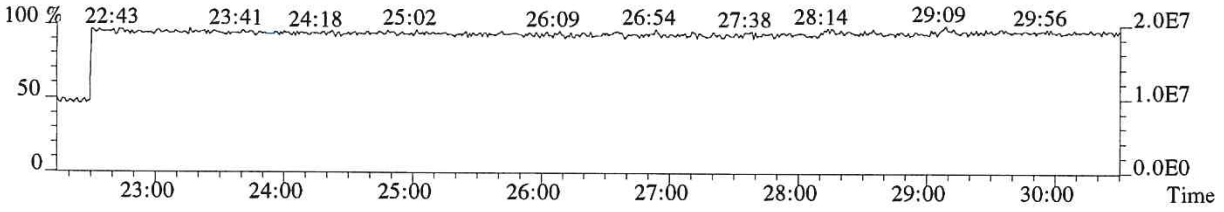
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

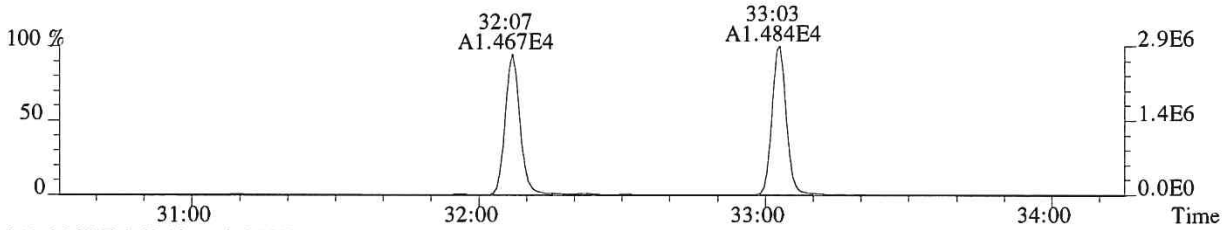


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

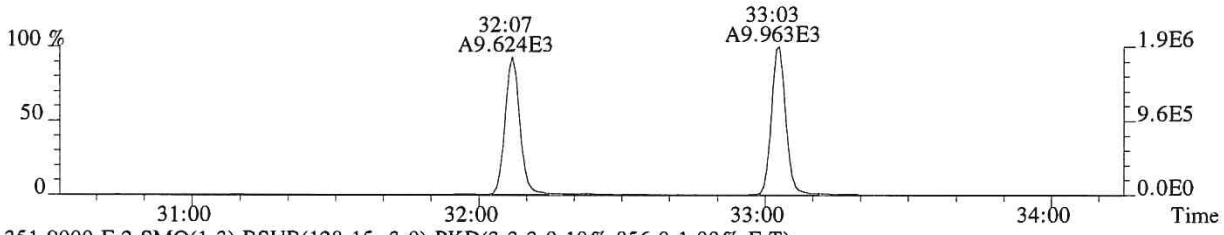


011999

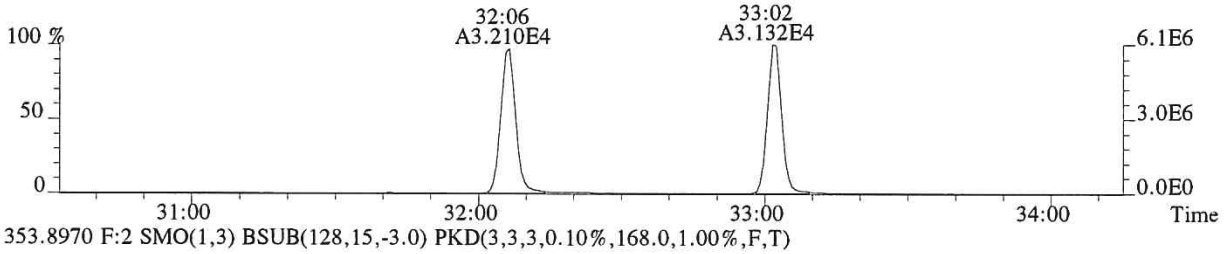
File:P519364 #1-335 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



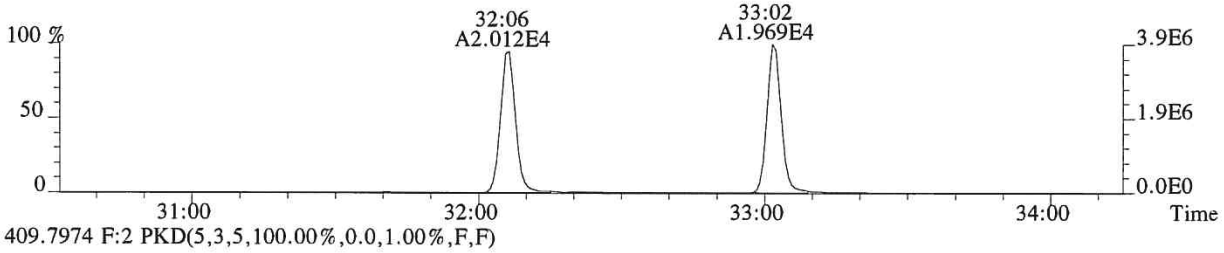
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1672.0,1.00%,F,T)



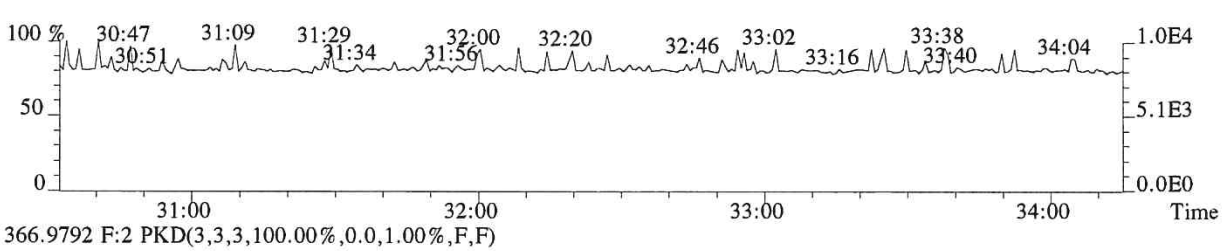
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



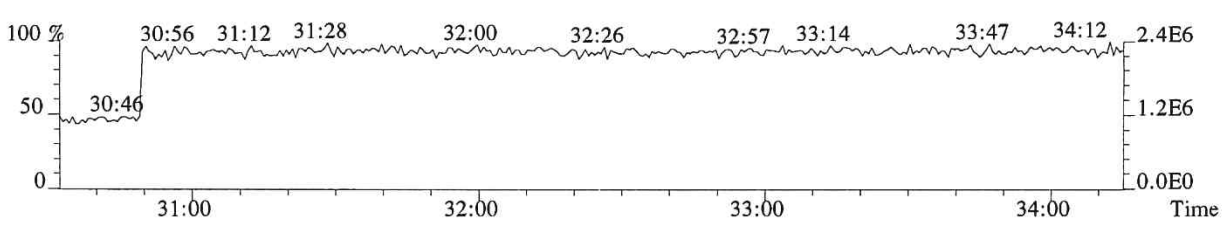
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



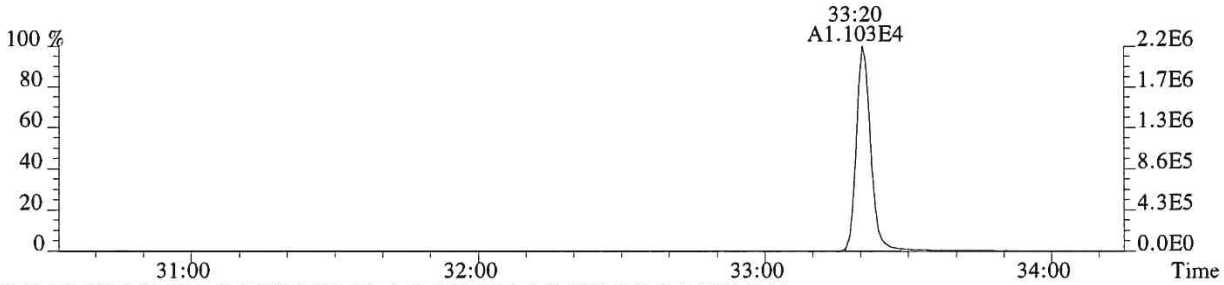
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



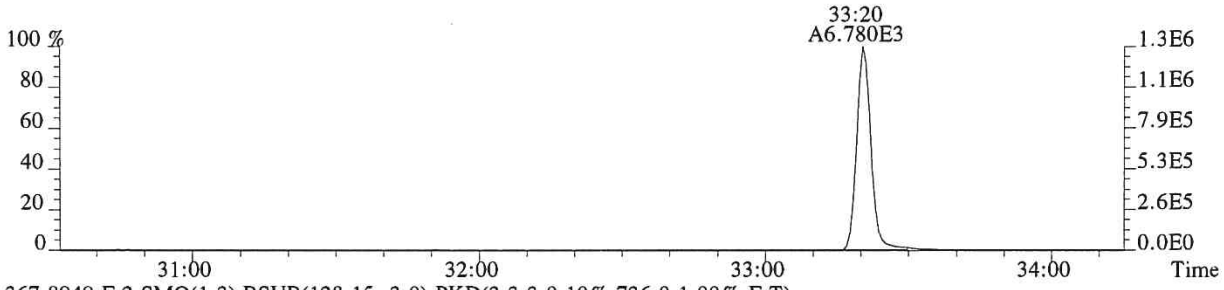
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



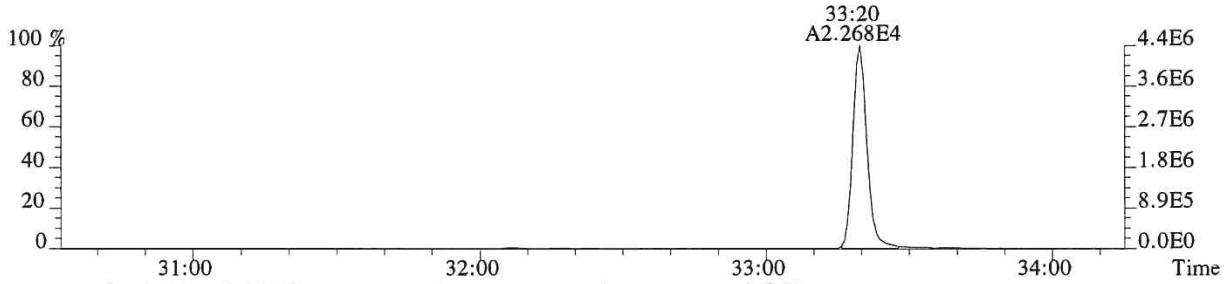
File:P519364 #1-335 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



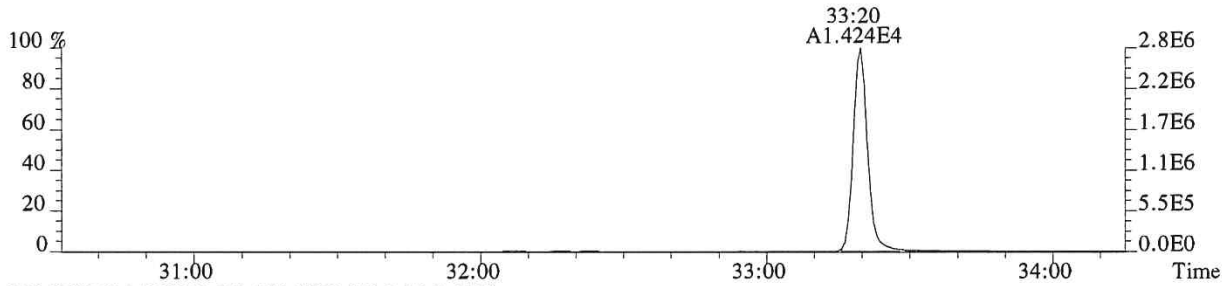
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



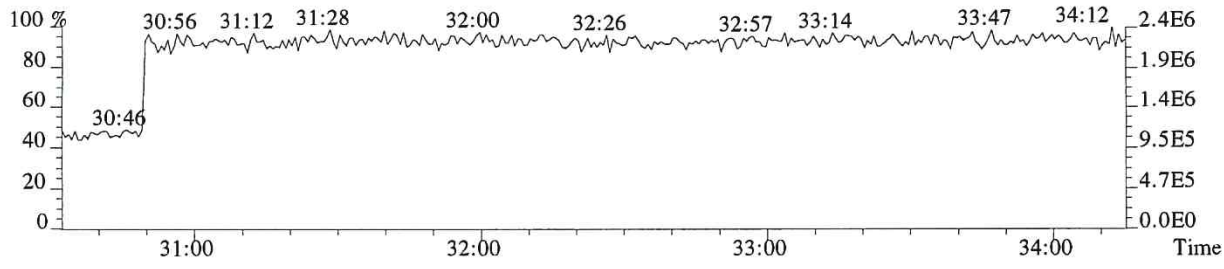
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



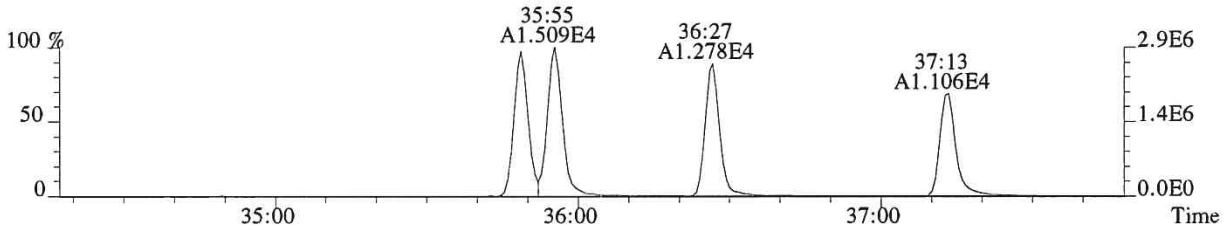
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



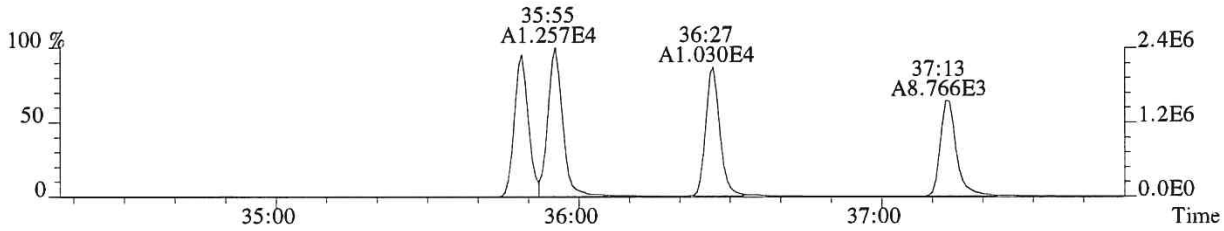
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



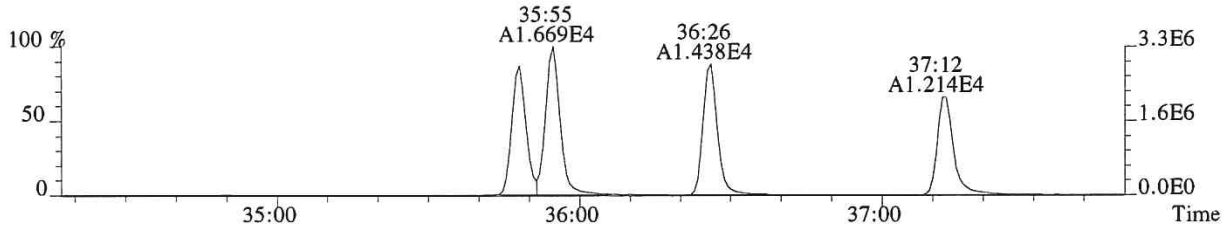
File:P519364 #1-317 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



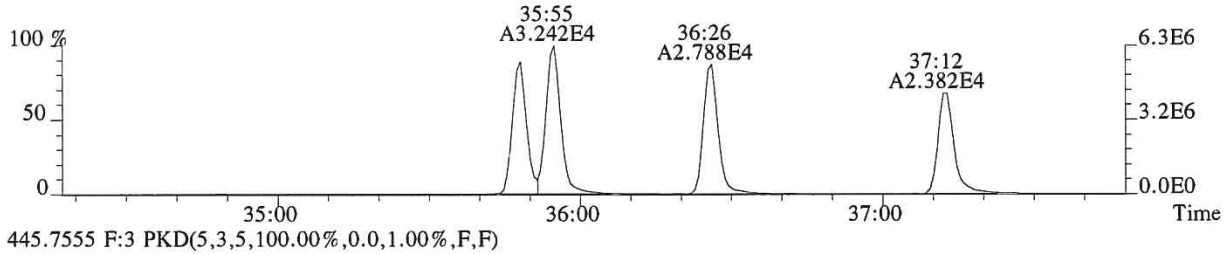
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



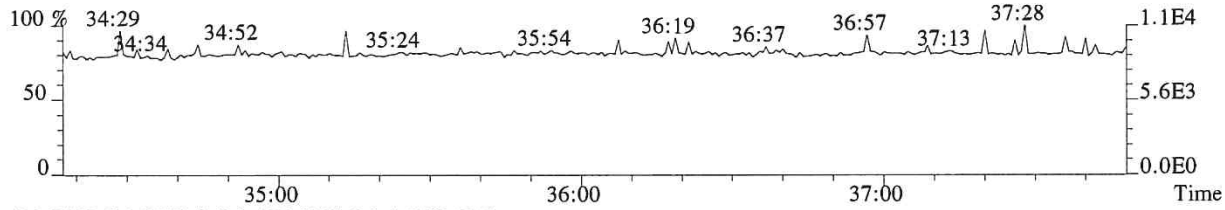
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



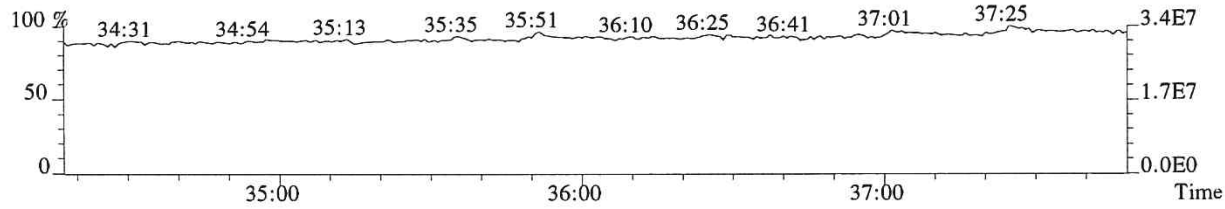
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

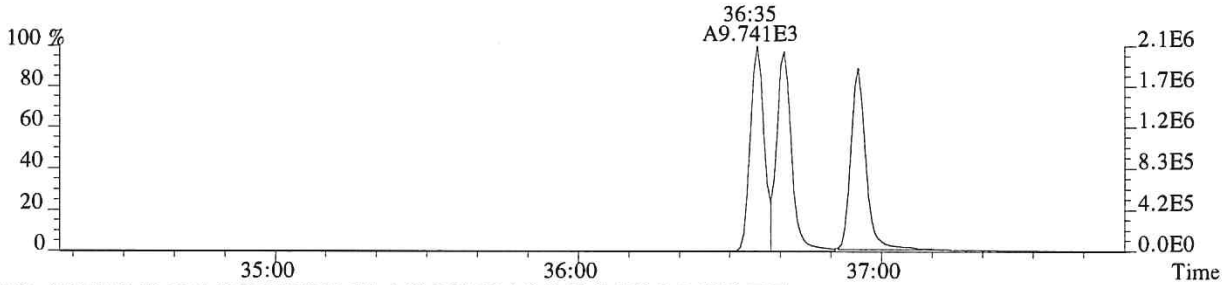


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

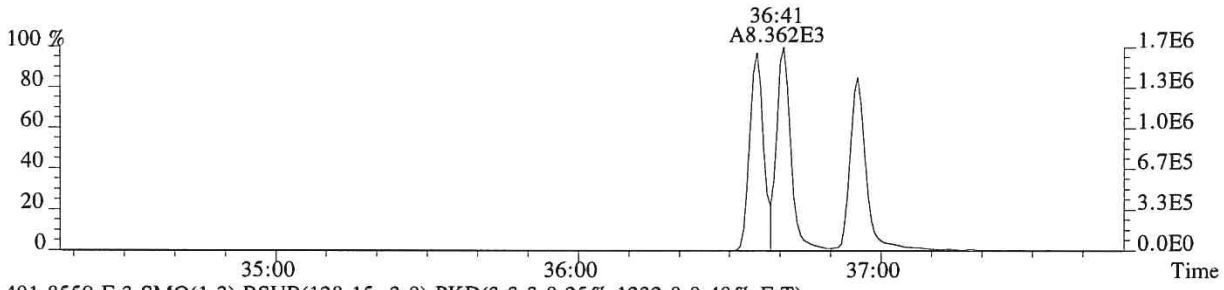


012002

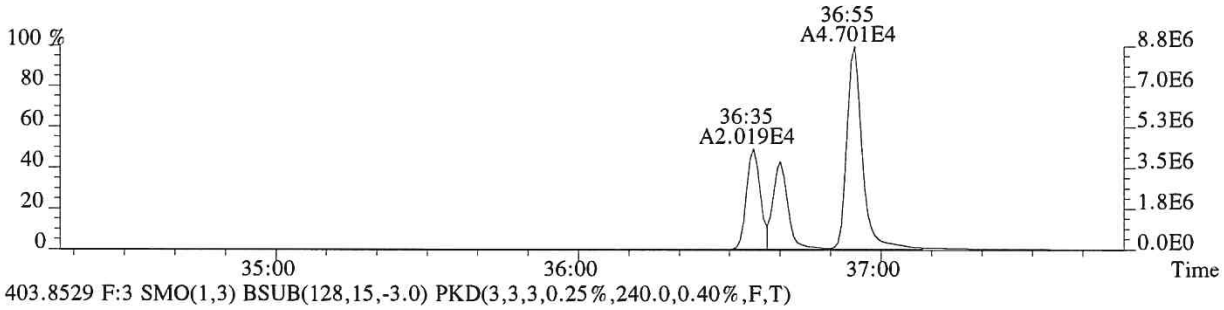
File:P519364 #1-317 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



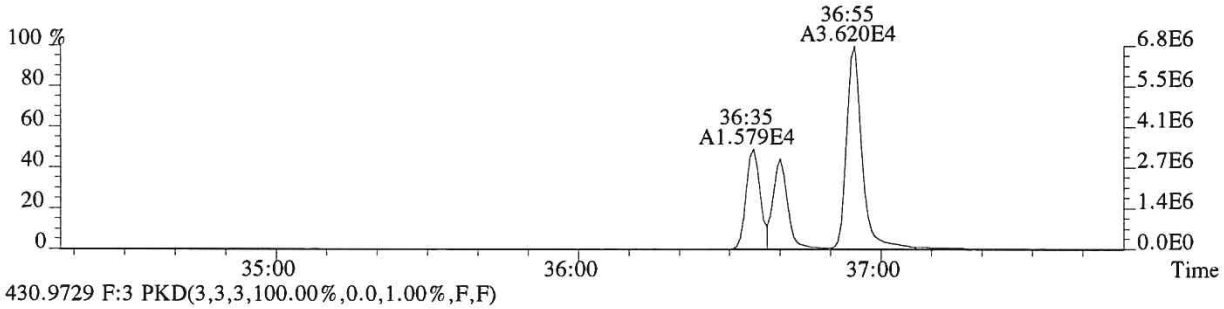
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.40%,F,T)



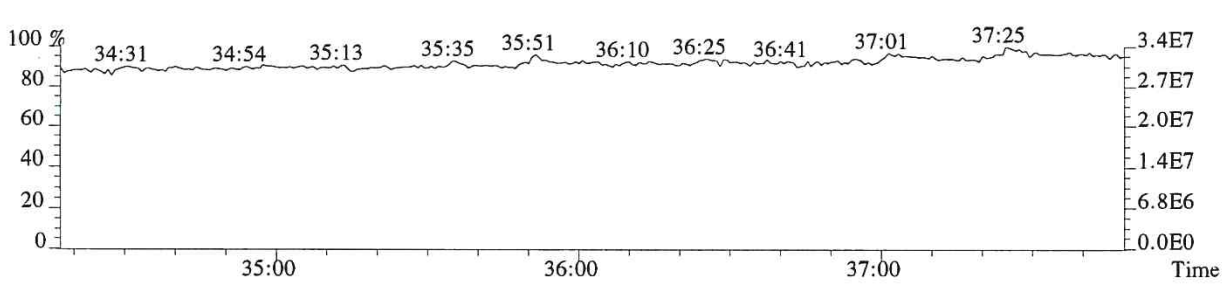
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)

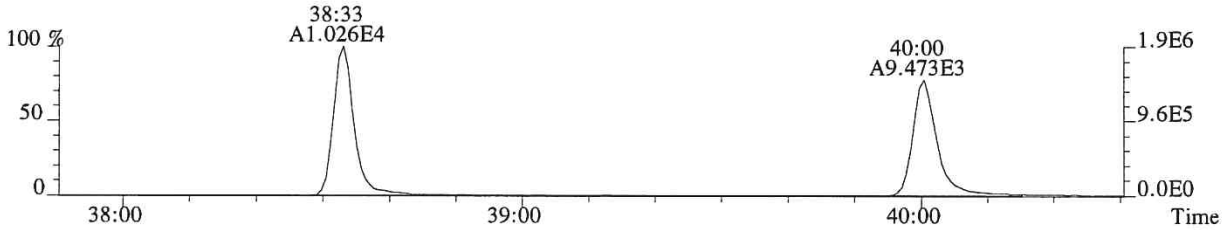


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

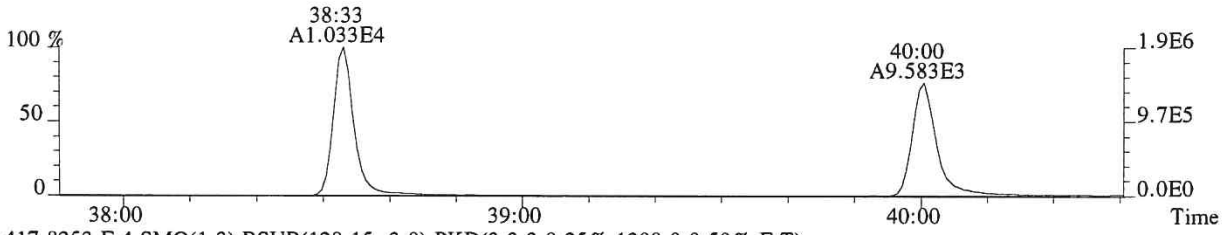


012003

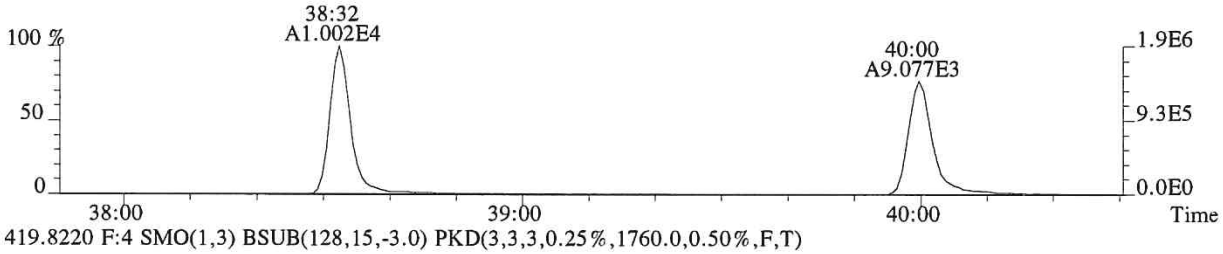
File:P519364 #1-241 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.50%,F,T)



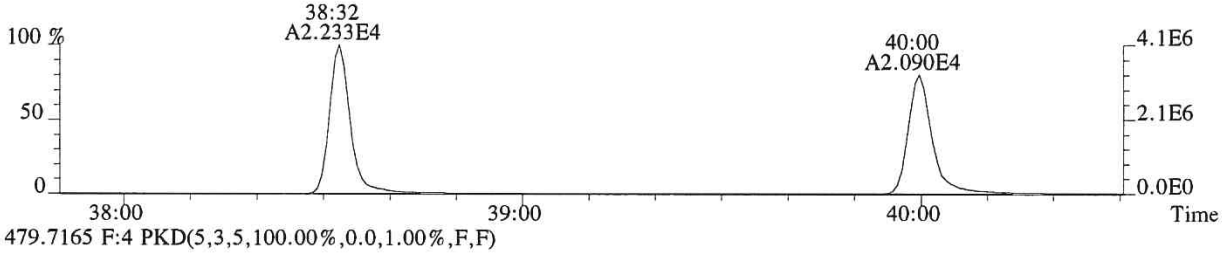
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2012.0,0.50%,F,T)



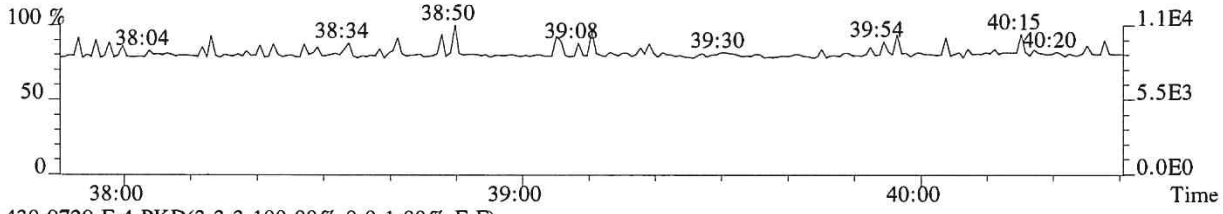
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.50%,F,T)



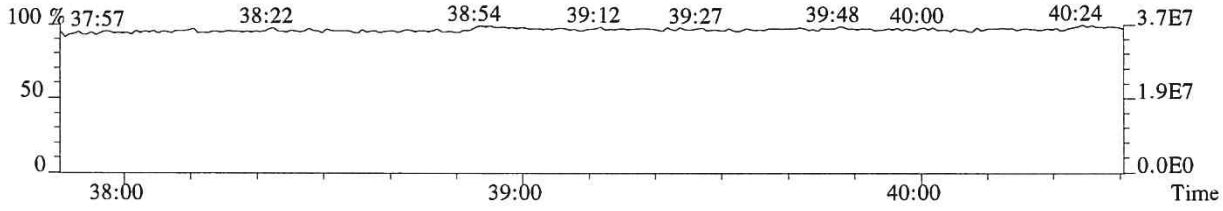
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

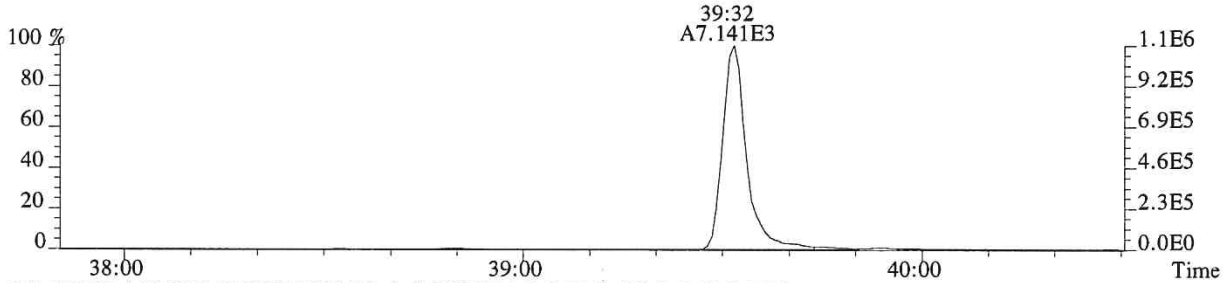


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

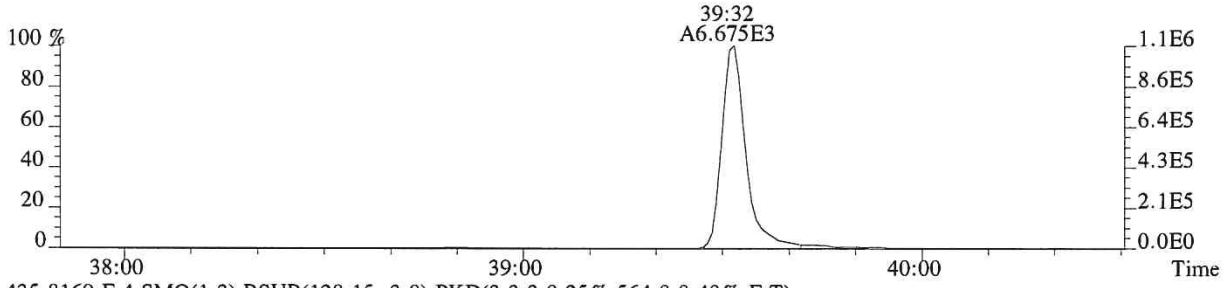


012004

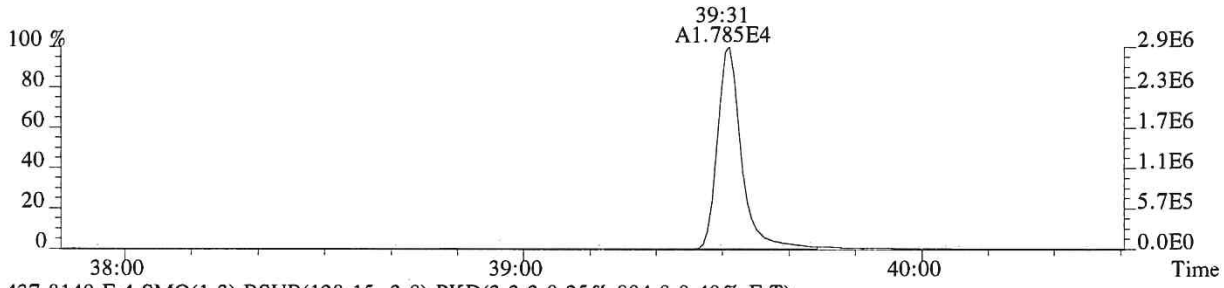
File:P519364 #1-241 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



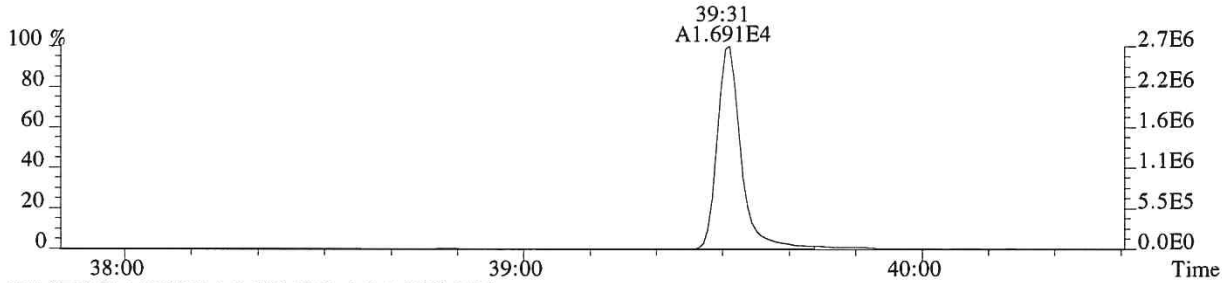
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



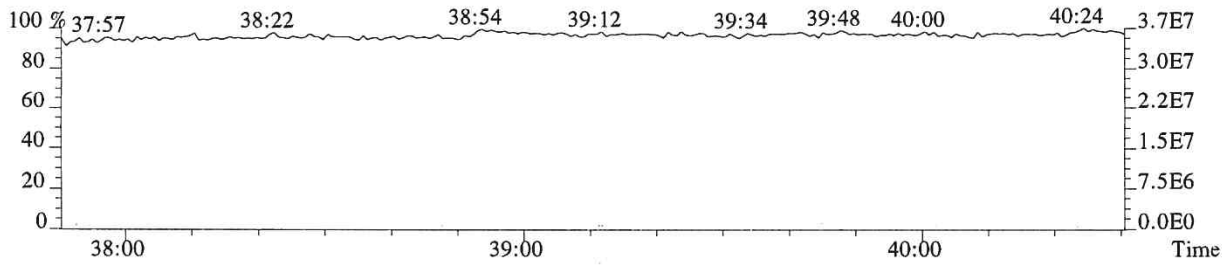
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)

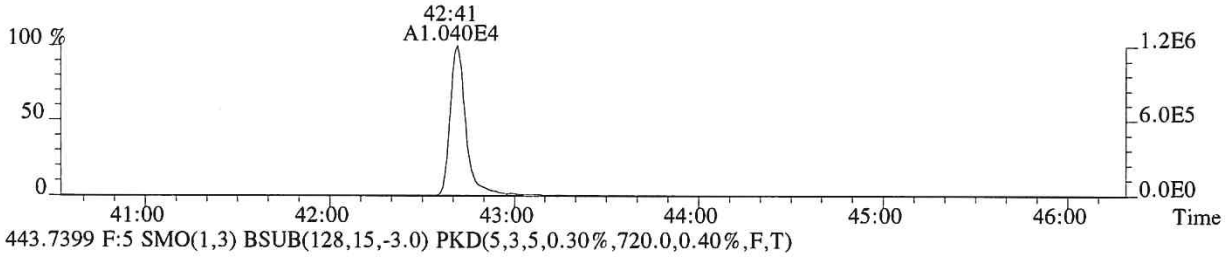


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

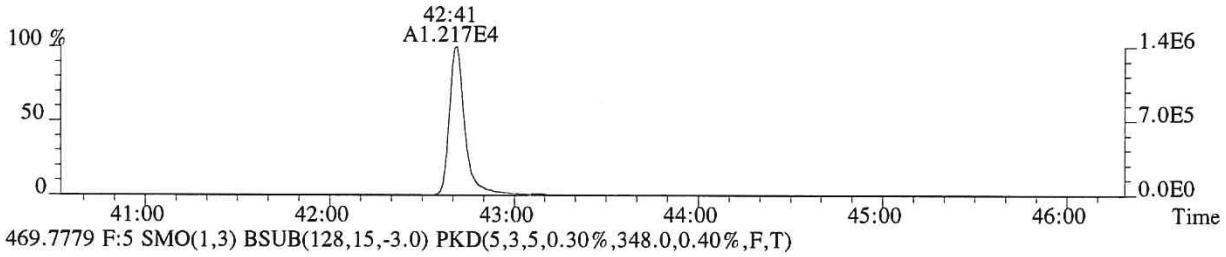


012005

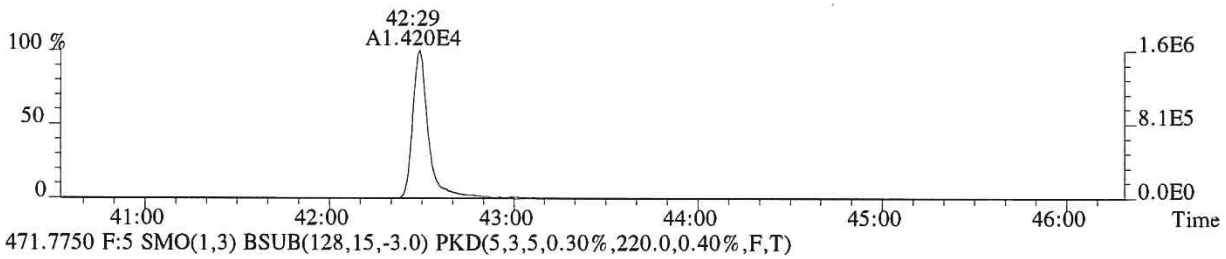
File:P519364 #1-520 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



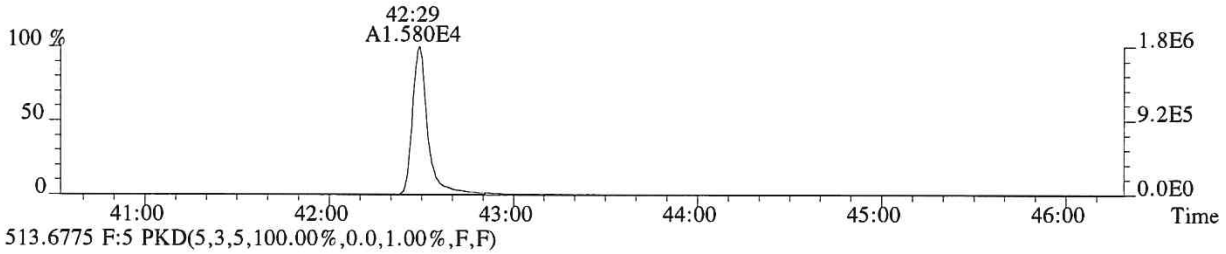
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,720.0,0.40%,F,T)



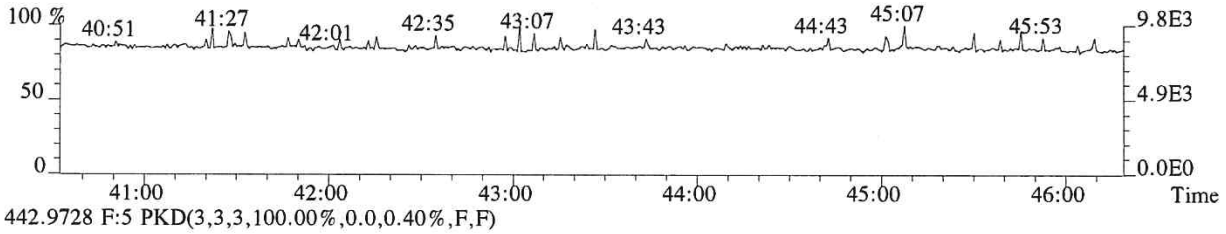
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



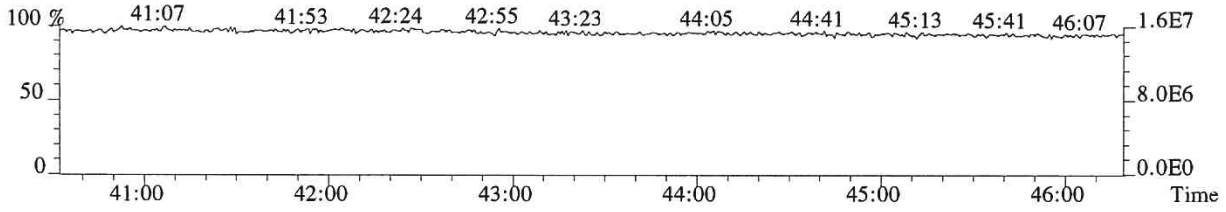
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

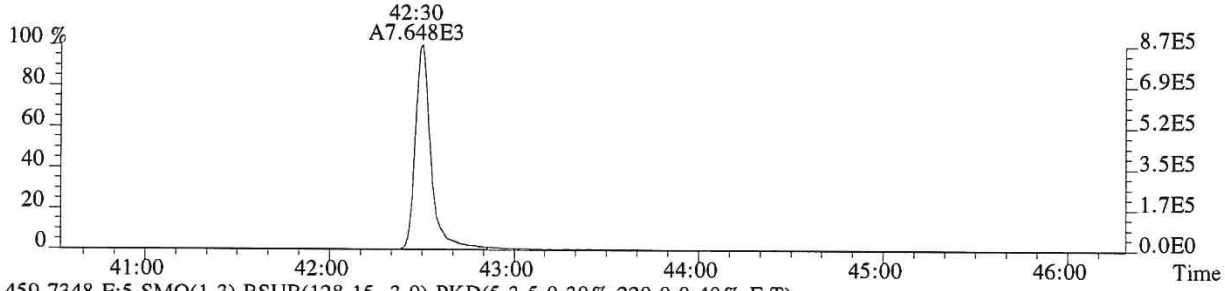


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

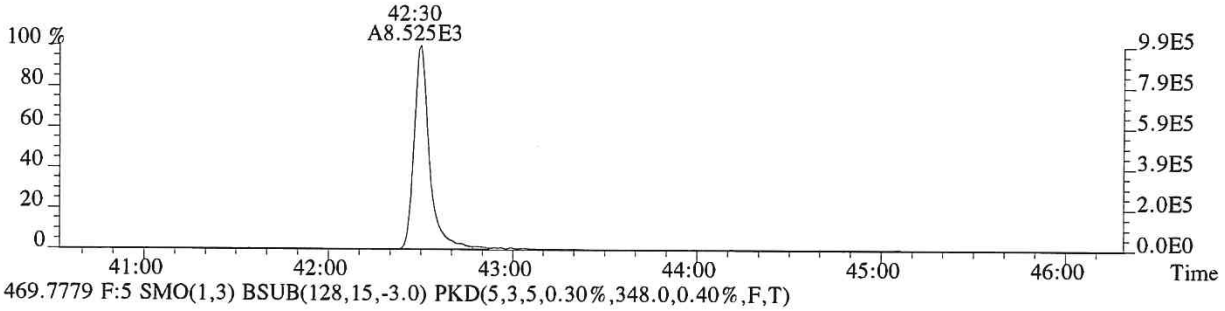


012006

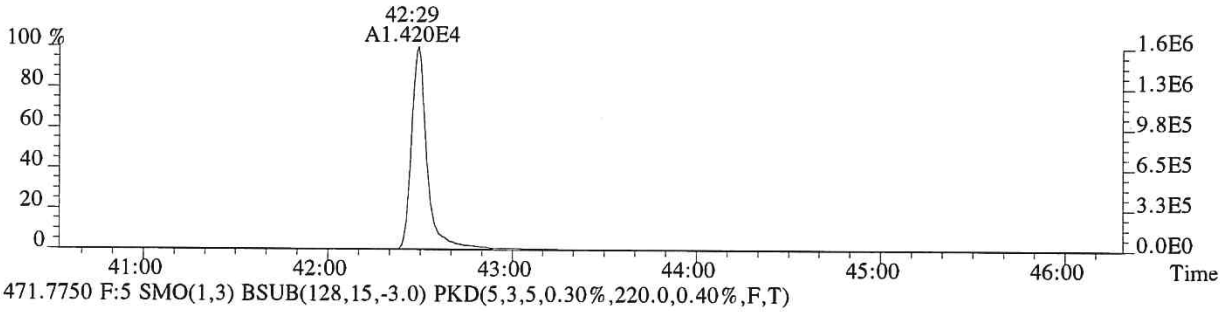
File:P519364 #1-520 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



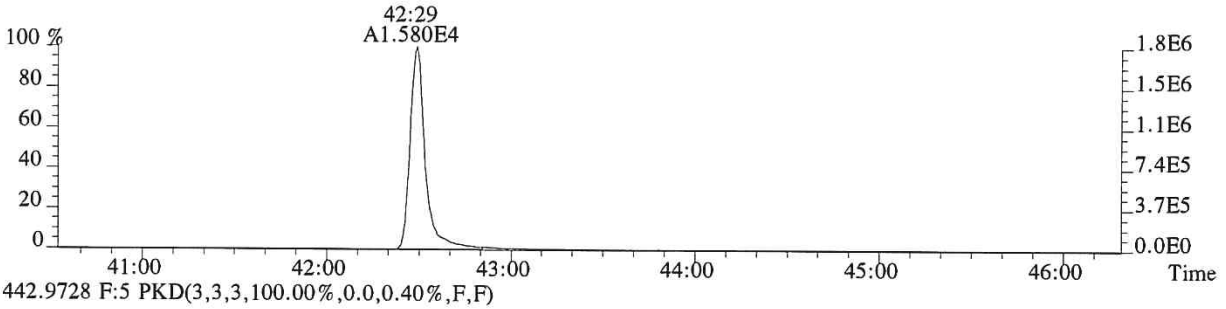
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



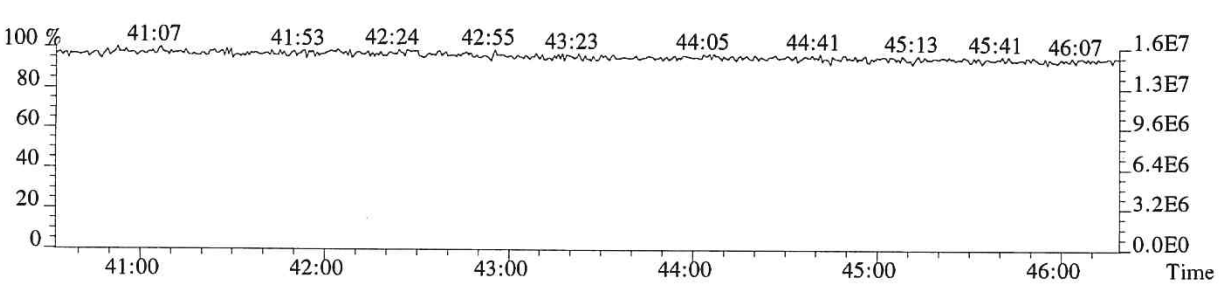
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012007

Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519240

Date: 12/06/18

Circle one: Beginning / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519240	6-DEC-18	02:06:17
192977	WINDOW DEFINE	P519241	6-DEC-18	02:54:05
METHOD BLANK	EQ1800483-01	P519242	6-DEC-18	03:42:42
METHOD BLANK	EQ1800488-01	P519243	6-DEC-18	04:31:19
SL0153	E1801045-006	P519244	6-DEC-18	05:19:57
SL0164	E1801045-017	P519245	6-DEC-18	06:08:33
SL0146	E1801045-023	P519246	6-DEC-18	06:58:34
SL0539	E1801046-001	P519247	6-DEC-18	07:46:23
SL0540	E1801046-002	P519248	6-DEC-18	08:35:00
SL0541	E1801046-003	P519249	6-DEC-18	09:23:39
SL0542	E1801046-004	P519250	6-DEC-18	10:12:15
SL0543	E1801046-005	P519251	6-DEC-18	11:01:01
SL0544	E1801046-006	P519252	6-DEC-18	11:49:47
LCS	EQ1800488-02	P519253	6-DEC-18	12:38:23
DLCS	EQ1800488-03	P519254	6-DEC-18	13:27:00

E1801045

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181205B.SPL
Last Modified: Thursday, December 06, 2018 14:14:00 Central Standard Time
Printed: Thursday, December 06, 2018 14:14:02 Central Standard Time

Page Position (1, 1)

Opus 4: P519240res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/6/18	02:06	P519240	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 02:06
2		03:54	P519241	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		03:47	P519242	MB	EQ1800483-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		04:31	P519243	MB	EQ1800488-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		05:19	P519244	E1801045-006	E1801045-006	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		06:08	P519245	E1801045-017	E1801045-017	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		06:58	P519246	E1801045-023	E1801045-023	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		07:46	P519247	E1801046-001	E1801046-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		08:35	P519248	E1801046-002	E1801046-002	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		09:23	P519249	E1801046-003	E1801046-003	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		10:12	P519250	E1801046-004	E1801046-004	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		11:01	P519251	E1801046-005	E1801046-005	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		11:49	P519252	E1801046-006	E1801046-006	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		12:38	P519253	LCS	EQ1800488-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15	↓	13:27	P519254	DLCS	EQ1800488-03	EPA1613_ALS	Dioxin_ALS	Tray1:15	↓	HRMS check 15:55
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

159 of 366

QC
12/07/18

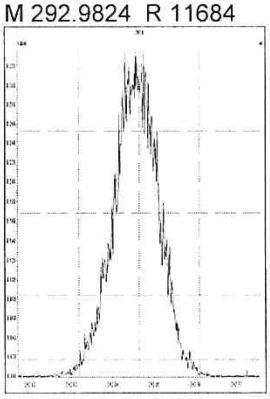
E1801045

~~E1801045~~ LG 12/06/18

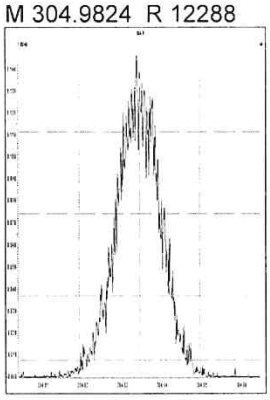
012011

Printed: Thursday, December 06, 2018 02:06:15 Central Standard Time

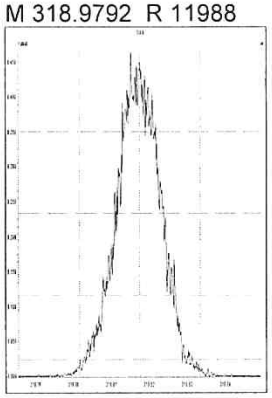
M 292.9824 R 11684



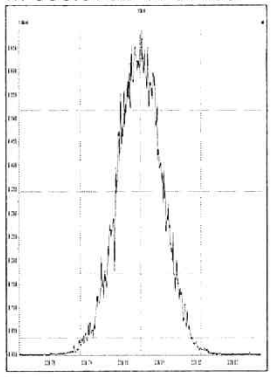
M 304.9824 R 12288



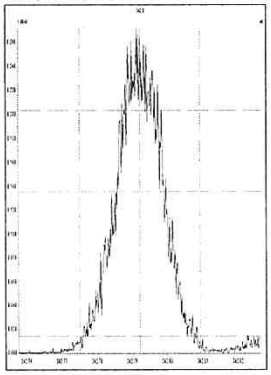
M 318.9792 R 11988



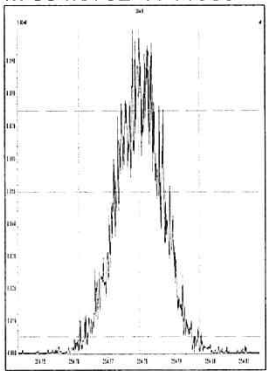
M 330.9792 R 11495



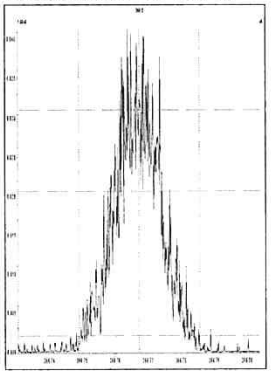
M 342.9792 R 11263



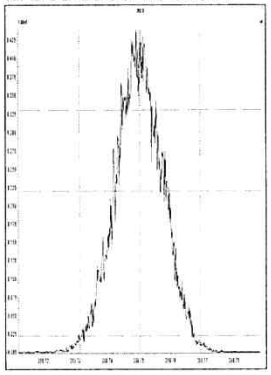
M 354.9792 R 11683



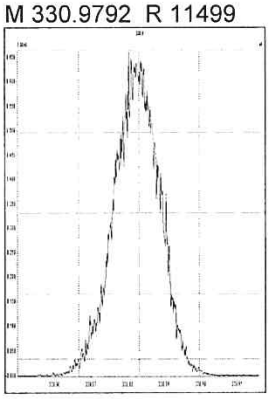
M 366.9792 R 14719



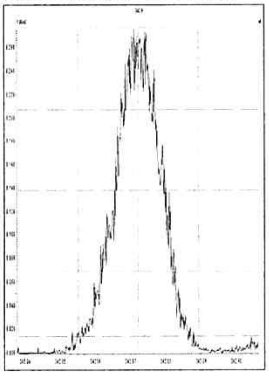
M 380.9760 R 10917



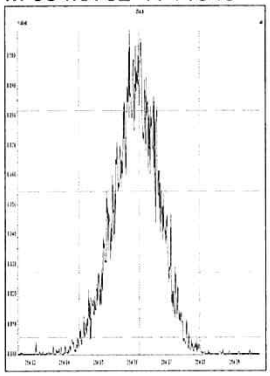
M 330.9792 R 11499



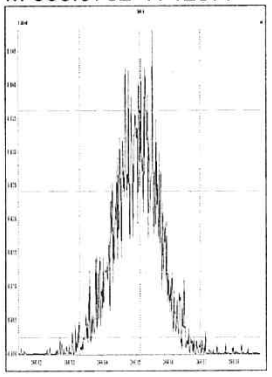
M 342.9792 R 11441



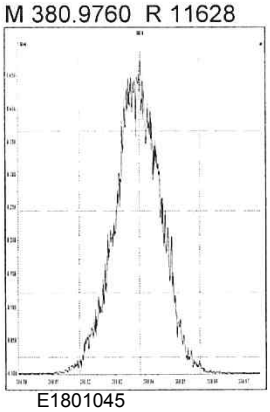
M 354.9792 R 11848



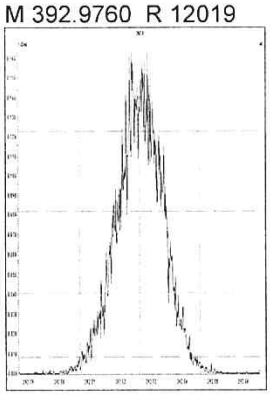
M 366.9792 R 12877



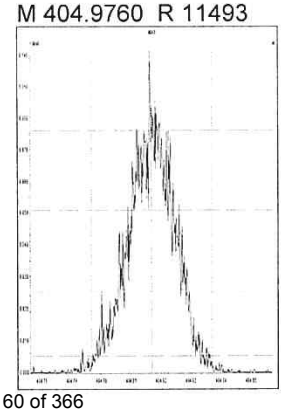
M 380.9760 R 11628



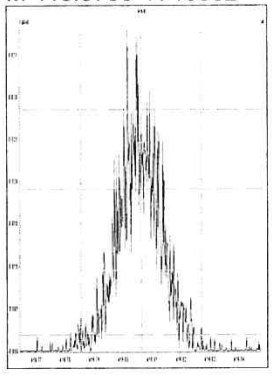
M 392.9760 R 12019



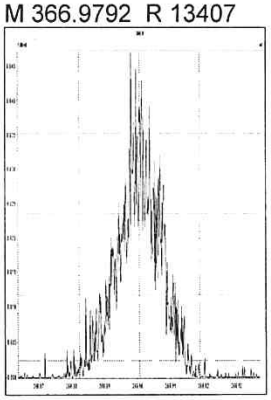
M 404.9760 R 11493



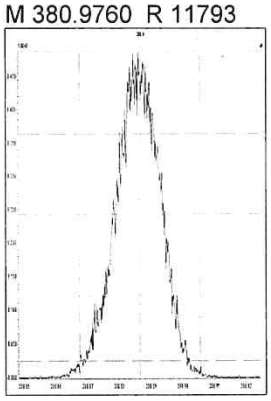
M 416.9760 R 13602



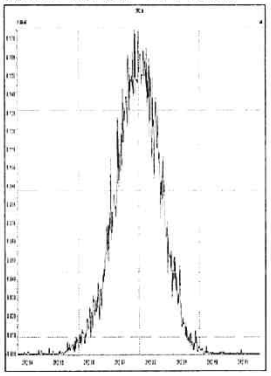
M 366.9792 R 13407



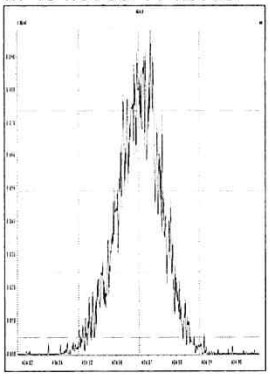
M 380.9760 R 11793



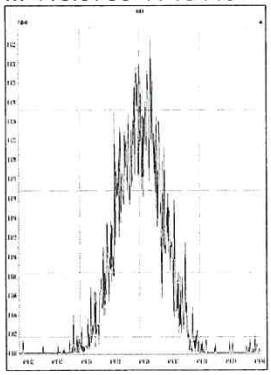
M 392.9760 R 11688



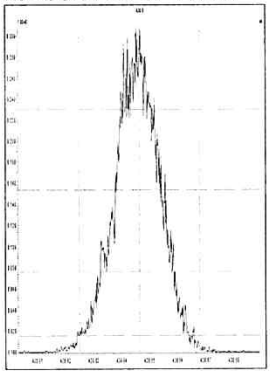
M 404.9760 R 12136



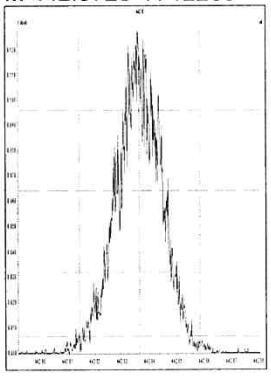
M 416.9760 R 13440



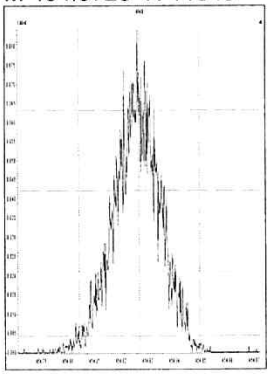
M 430.9728 R 11118



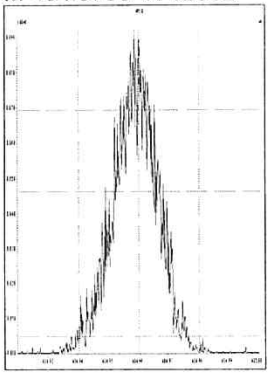
M 442.9728 R 12285



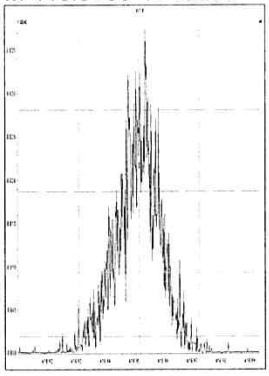
M 454.9728 R 11849



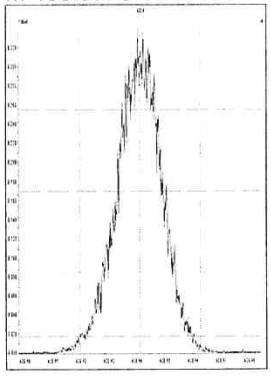
M 404.9760 R 12502



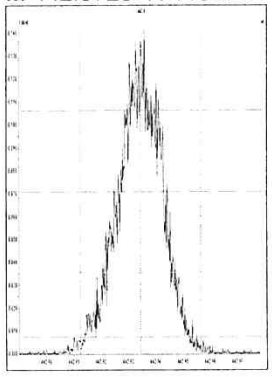
M 416.9760 R 15060



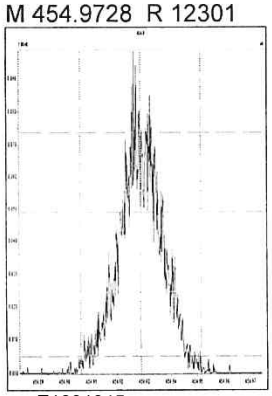
M 430.9728 R 11415



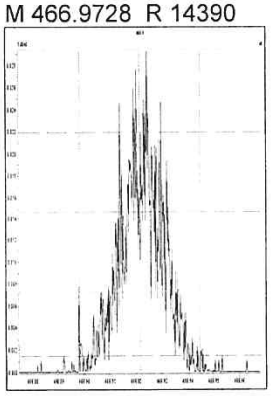
M 442.9728 R 11857



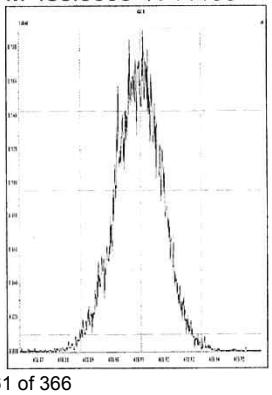
M 454.9728 R 12301



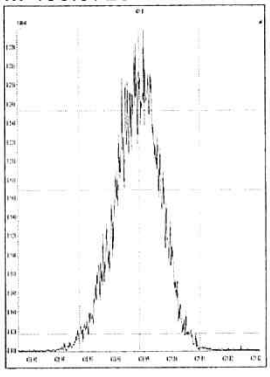
M 466.9728 R 14390



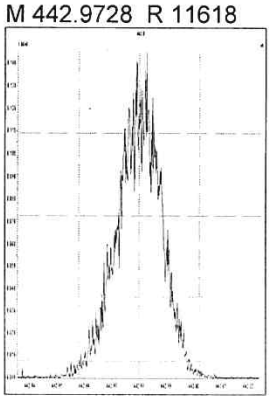
M 480.9696 R 11138



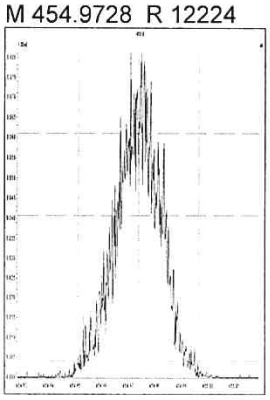
M 430.9728 R 11371



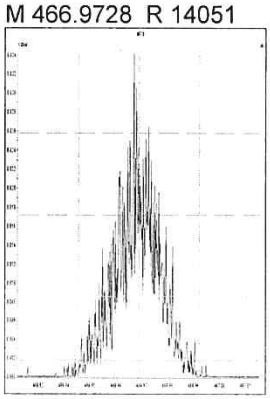
M 442.9728 R 11618



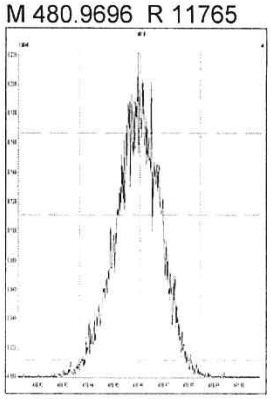
M 454.9728 R 12224



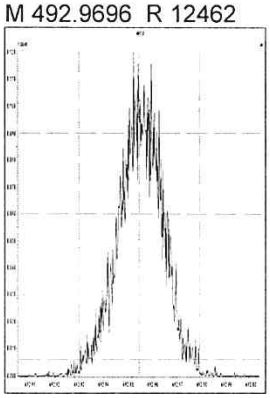
M 466.9728 R 14051



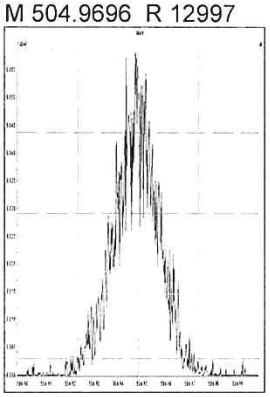
M 480.9696 R 11765



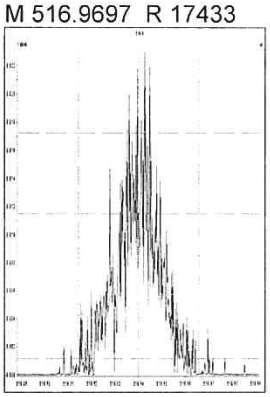
M 492.9696 R 12462



M 504.9696 R 12997



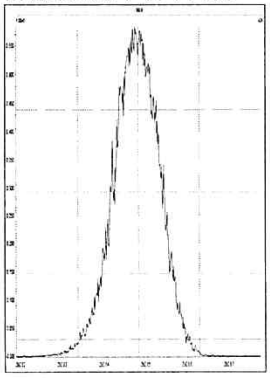
M 516.9697 R 17433



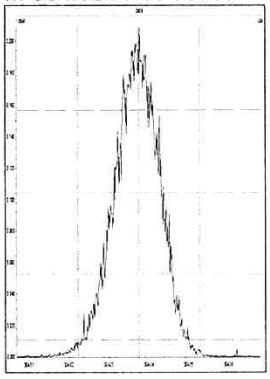
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, December 06, 2018 15:55:07 Central Standard Time

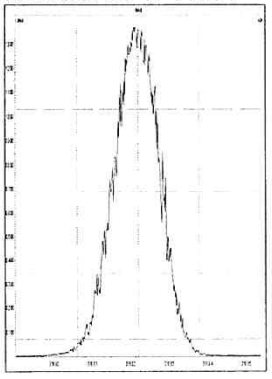
M 292.9824 R 11469



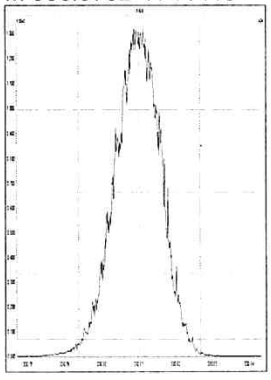
M 304.9824 R 11310



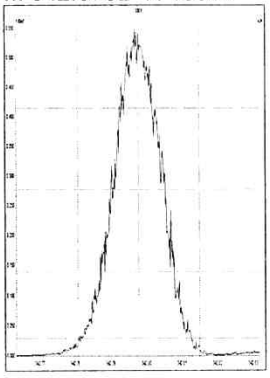
M 318.9792 R 11684



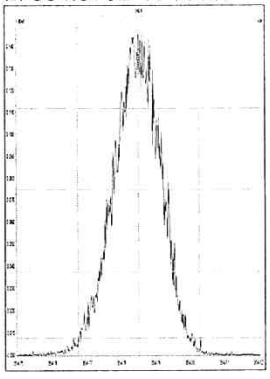
M 330.9792 R 11415



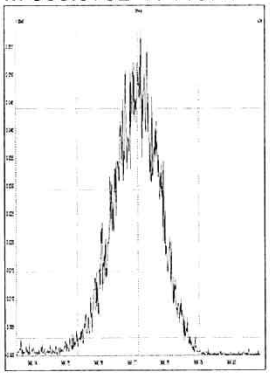
M 342.9792 R 10967



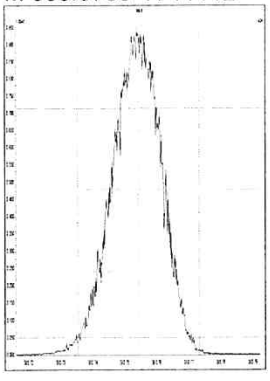
M 354.9792 R 11211



M 366.9792 R 11572



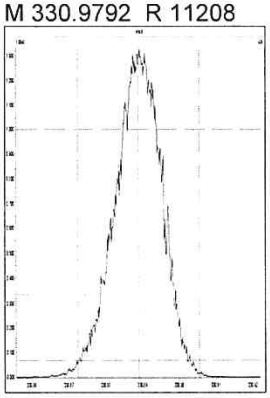
M 380.9760 R 11112



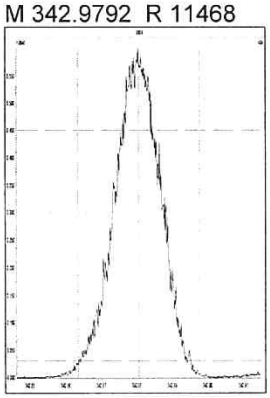
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, December 06, 2018 15:55:59 Central Standard Time

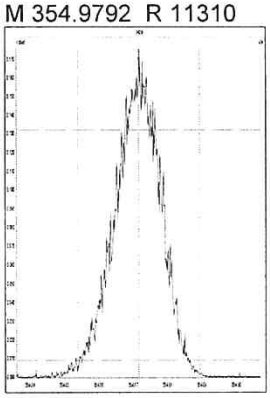
M 330.9792 R 11208



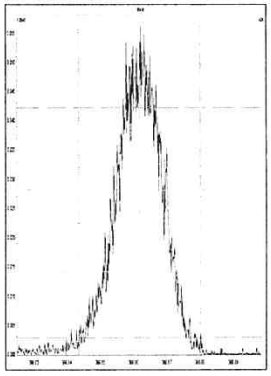
M 342.9792 R 11468



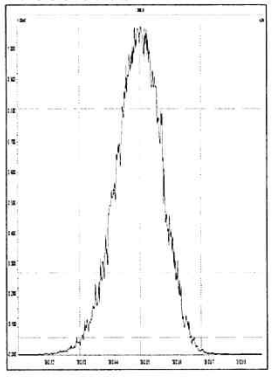
M 354.9792 R 11310



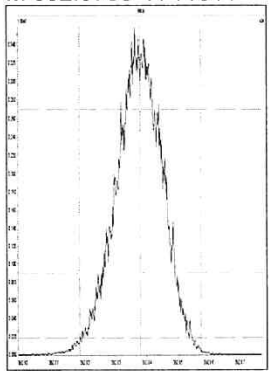
M 366.9792 R 11521



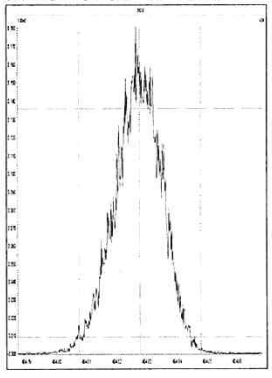
M 380.9760 R 11260



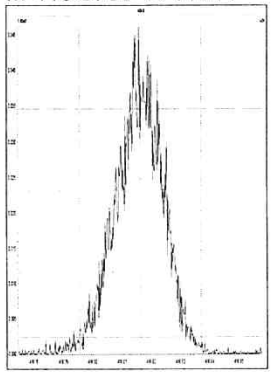
M 392.9760 R 11011



M 404.9760 R 11261



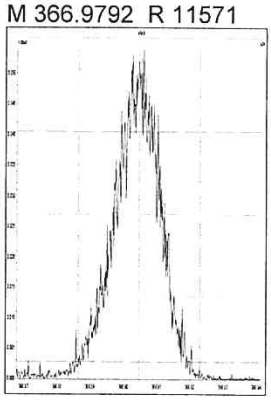
M 416.9760 R 11011



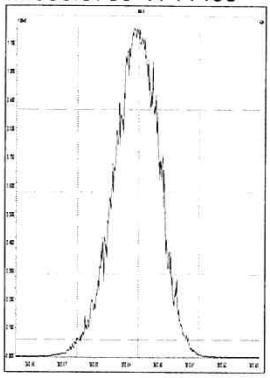
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, December 06, 2018 15:56:39 Central Standard Time

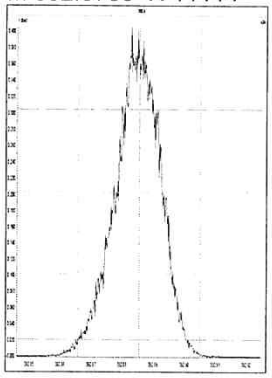
M 366.9792 R 11571



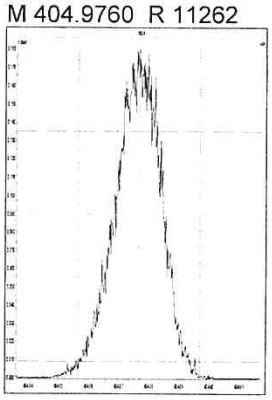
M 380.9760 R 11468



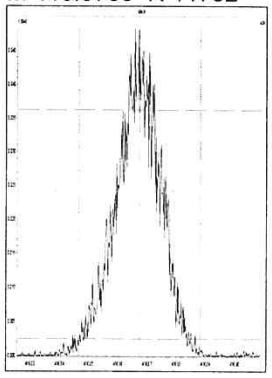
M 392.9760 R 11114



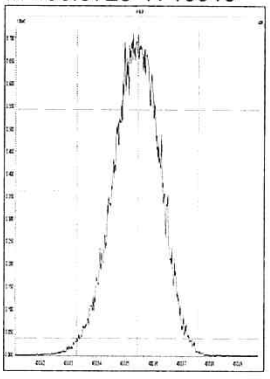
M 404.9760 R 11262



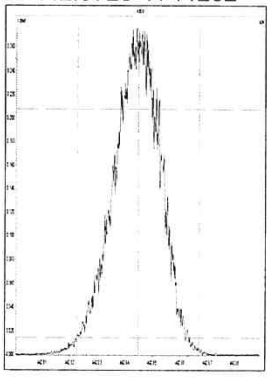
M 416.9760 R 11792



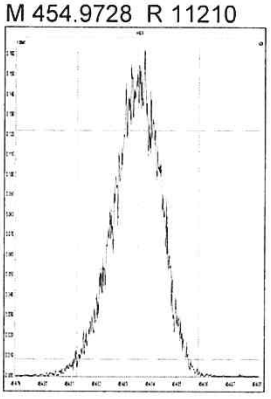
M 430.9728 R 10915



M 442.9728 R 11262



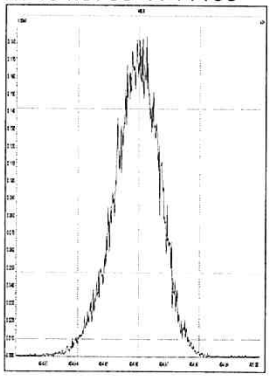
M 454.9728 R 11210



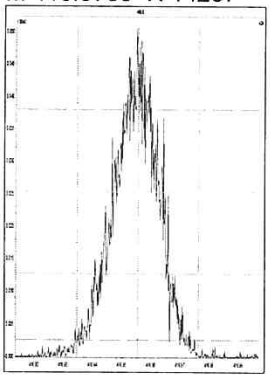
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, December 06, 2018 15:57:15 Central Standard Time

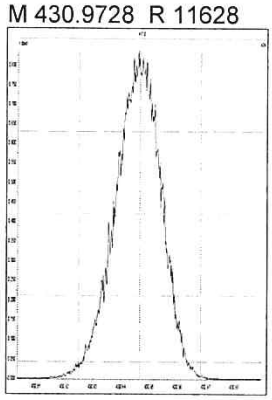
M 404.9760 R 11160



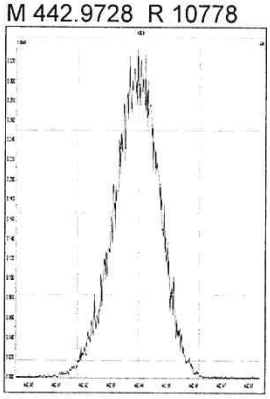
M 416.9760 R 14207



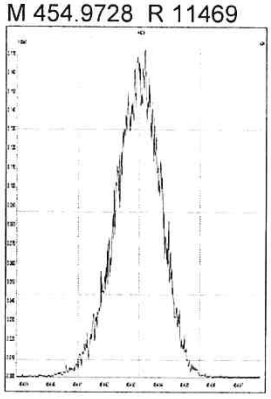
M 430.9728 R 11628



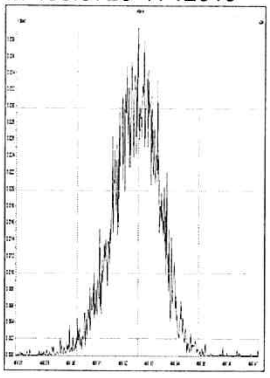
M 442.9728 R 10778



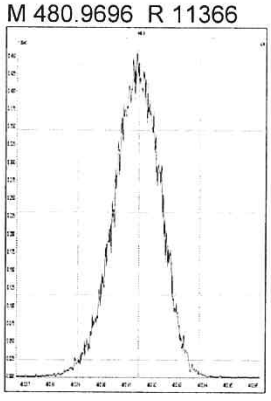
M 454.9728 R 11469



M 466.9728 R 12019



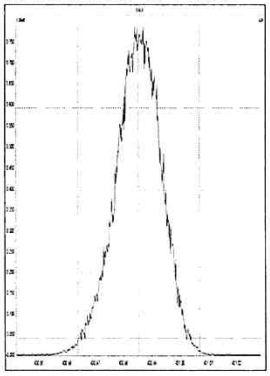
M 480.9696 R 11366



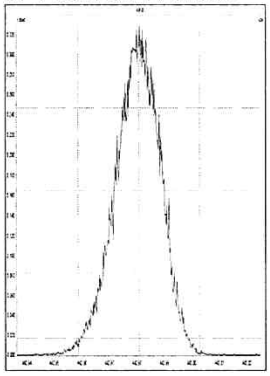
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, December 06, 2018 15:58:55 Central Standard Time

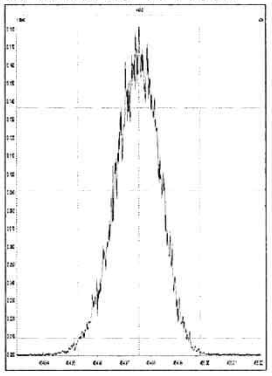
M 430.9728 R 11572



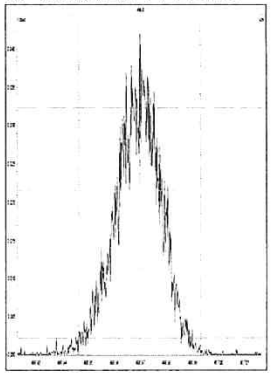
M 442.9728 R 11308



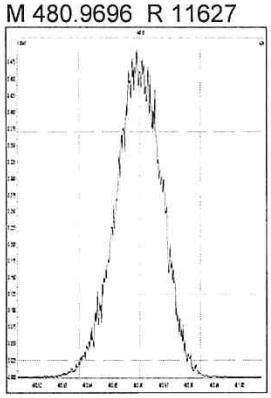
M 454.9728 R 11060



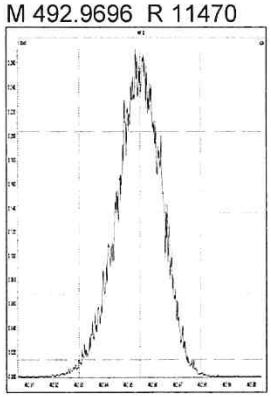
M 466.9728 R 11906



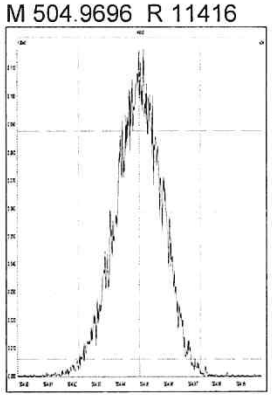
M 480.9696 R 11627



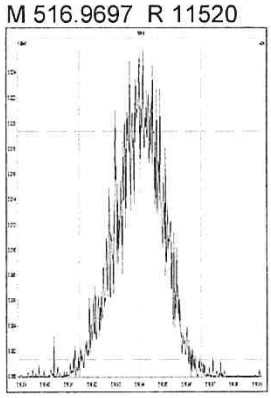
M 492.9696 R 11470



M 504.9696 R 11416



M 516.9697 R 11520



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

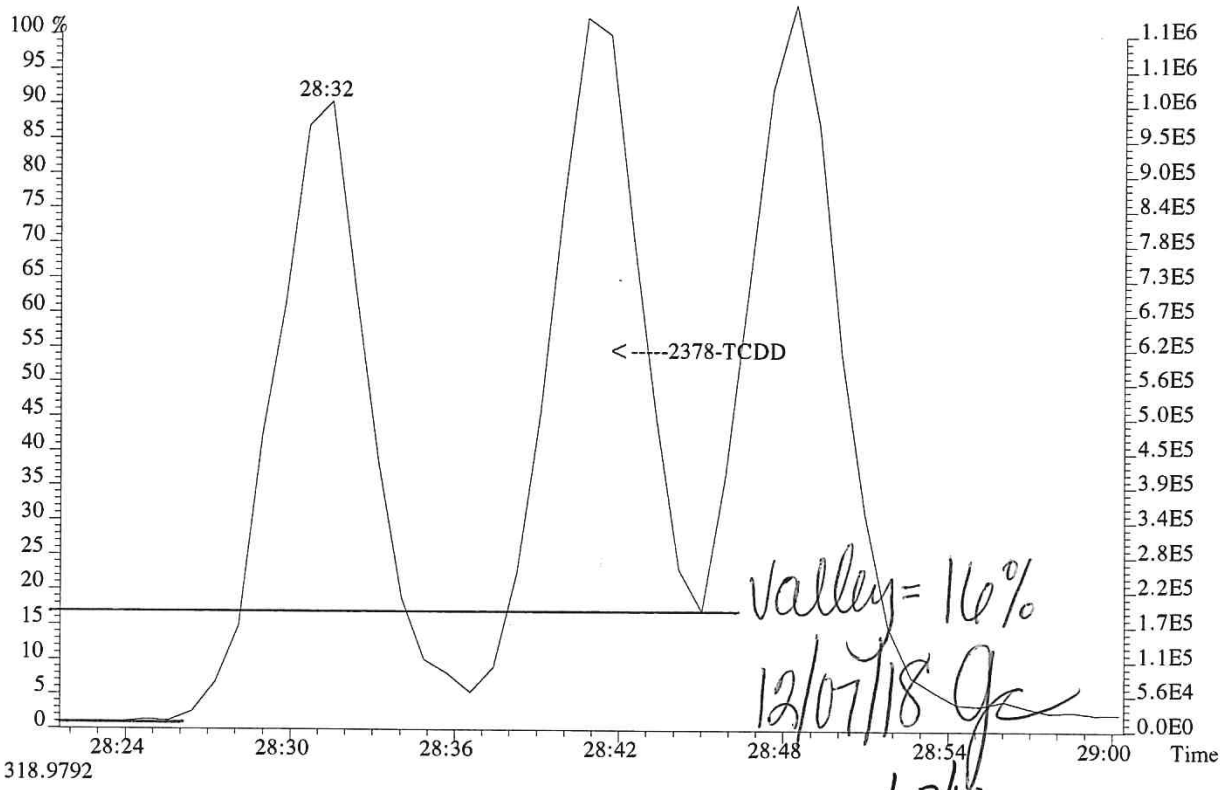
Lab File ID: P519241
Date Analyzed: 6-DEC-2018
Time Analyzed: 02:54:05

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:51
TCDD	25:18	29:42
PeCDF	29:48	34:06
PeCDD	31:22	33:51
HxCDF	34:46	37:17
HxCDD	35:17	36:53
HpCDF	38:32	39:55
HpCDD	38:46	39:27

% Valley 2378-TCDD: 16 %

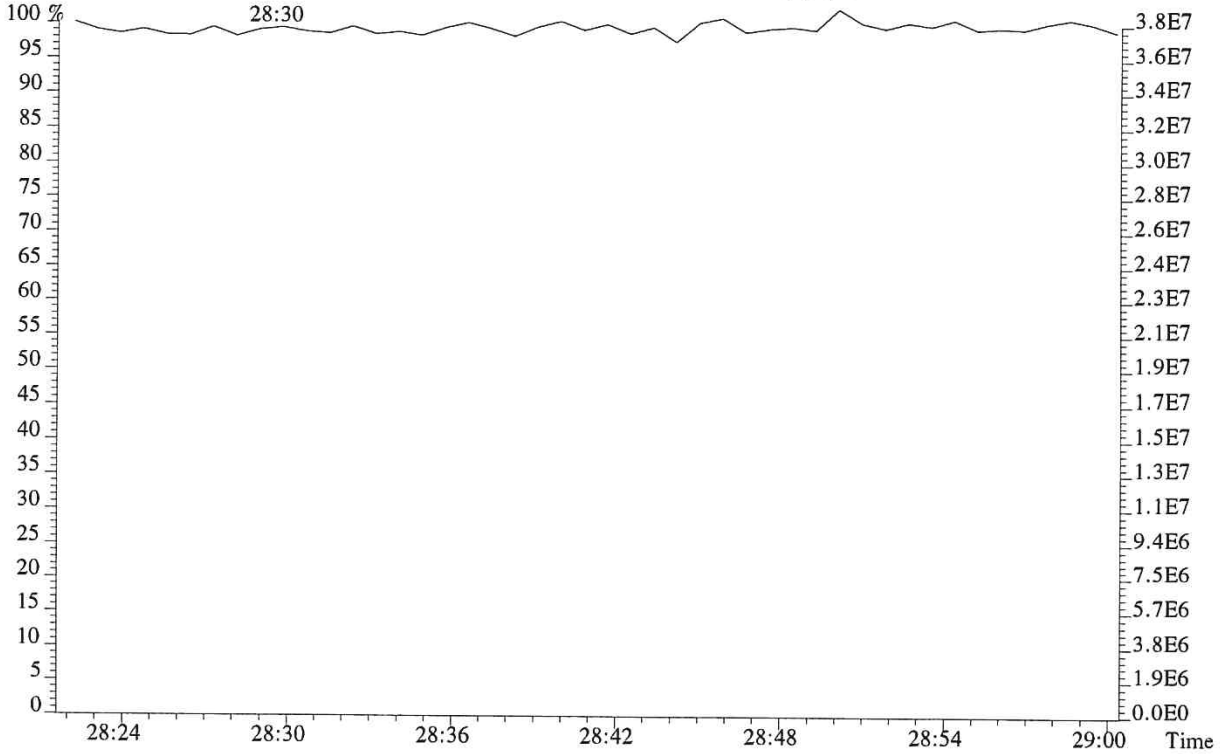
012020

File:P519241 #1-545 Acq: 6-DEC-2018 02:54:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LH 12/07/18



012021

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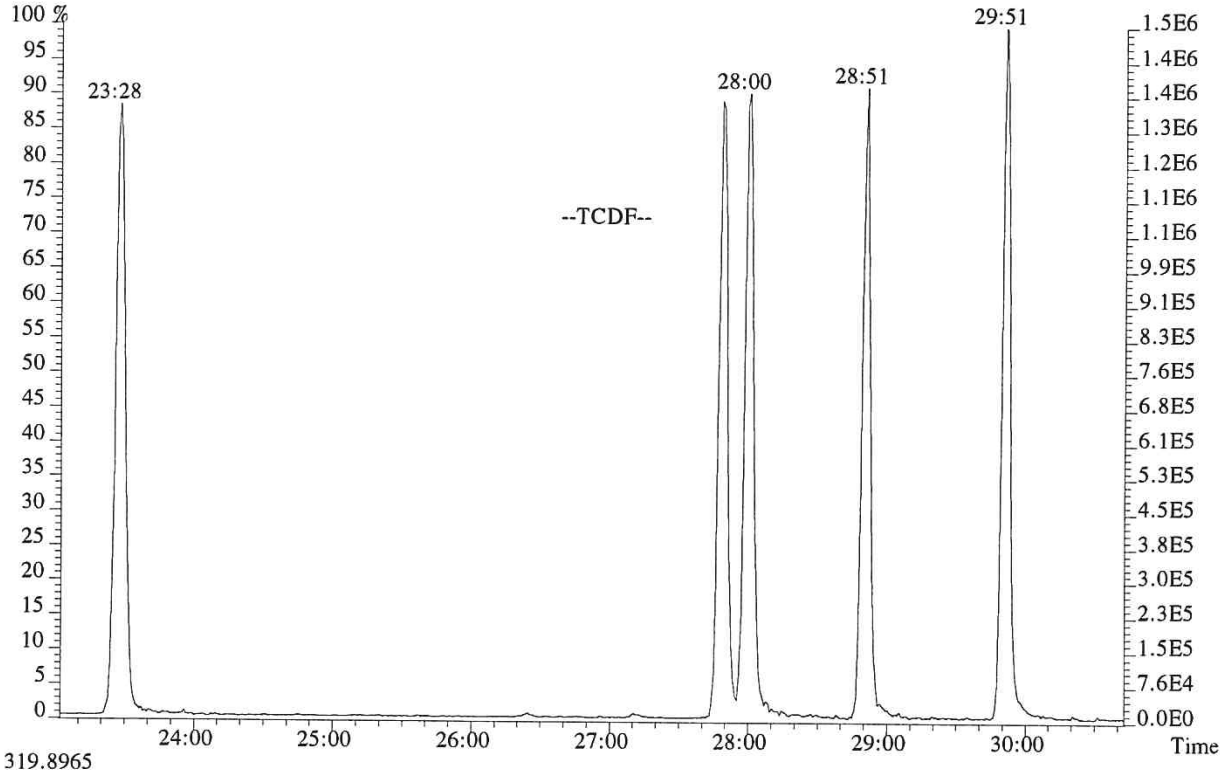
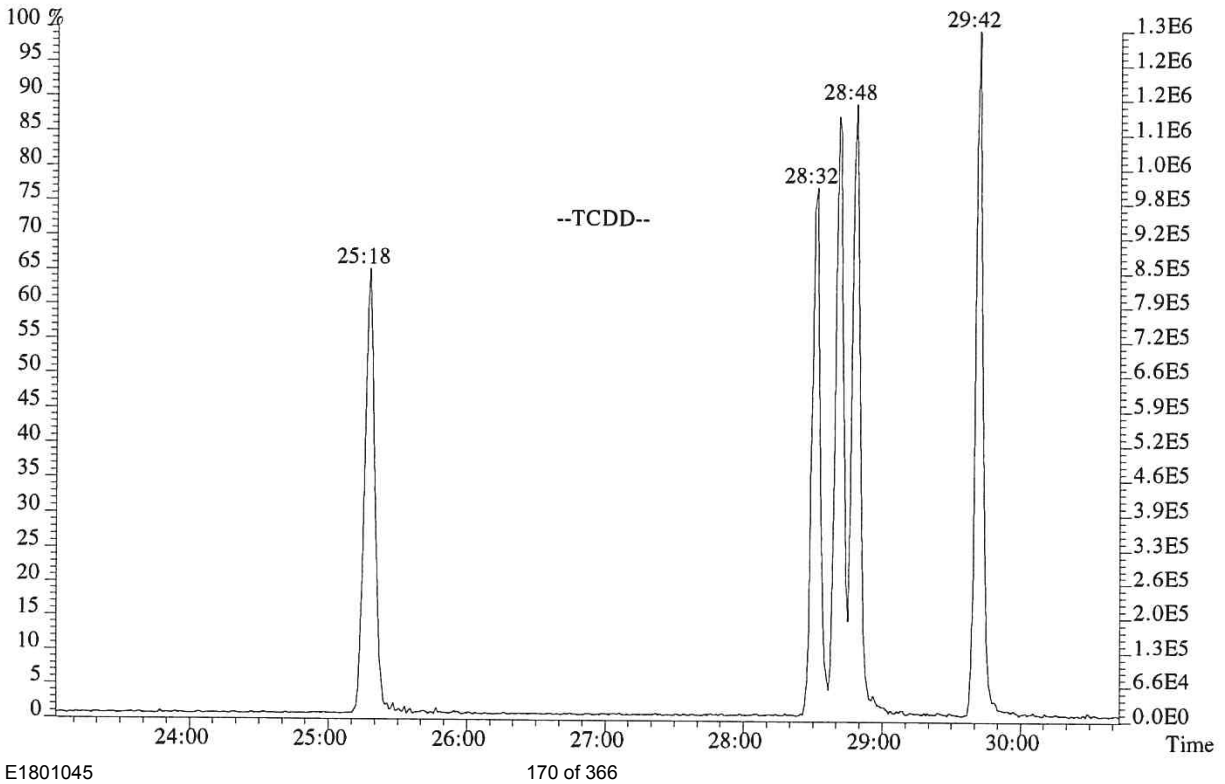
Sample#1 Exp:192977
303.9016

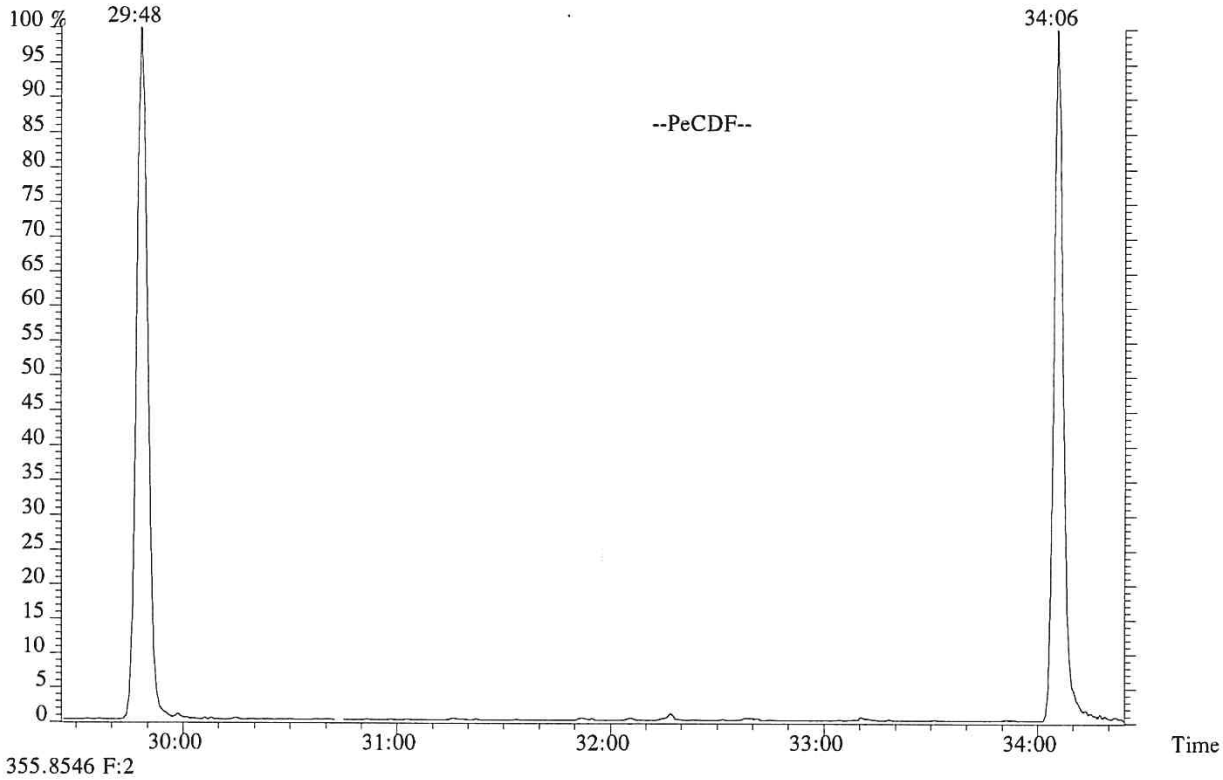


319.8965

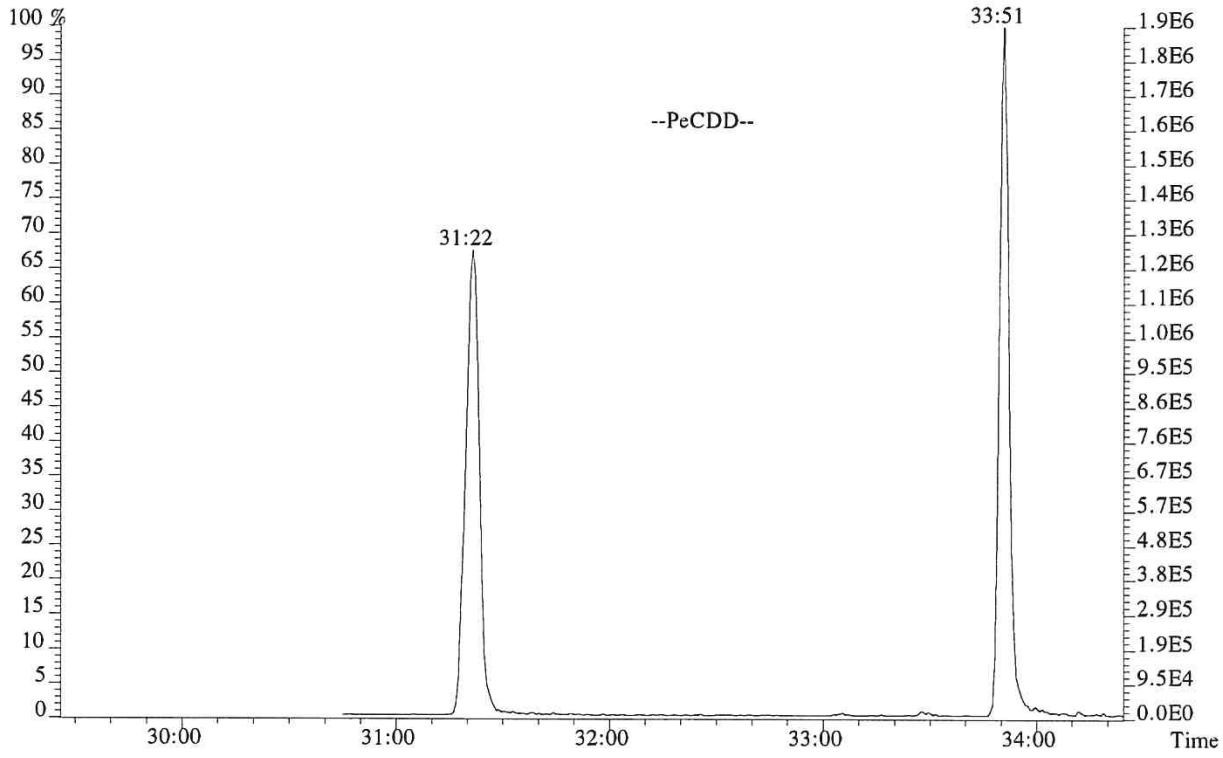


012022

File:P519241 #1-545 Acq: 6-DEC-2018 02:54:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



012023

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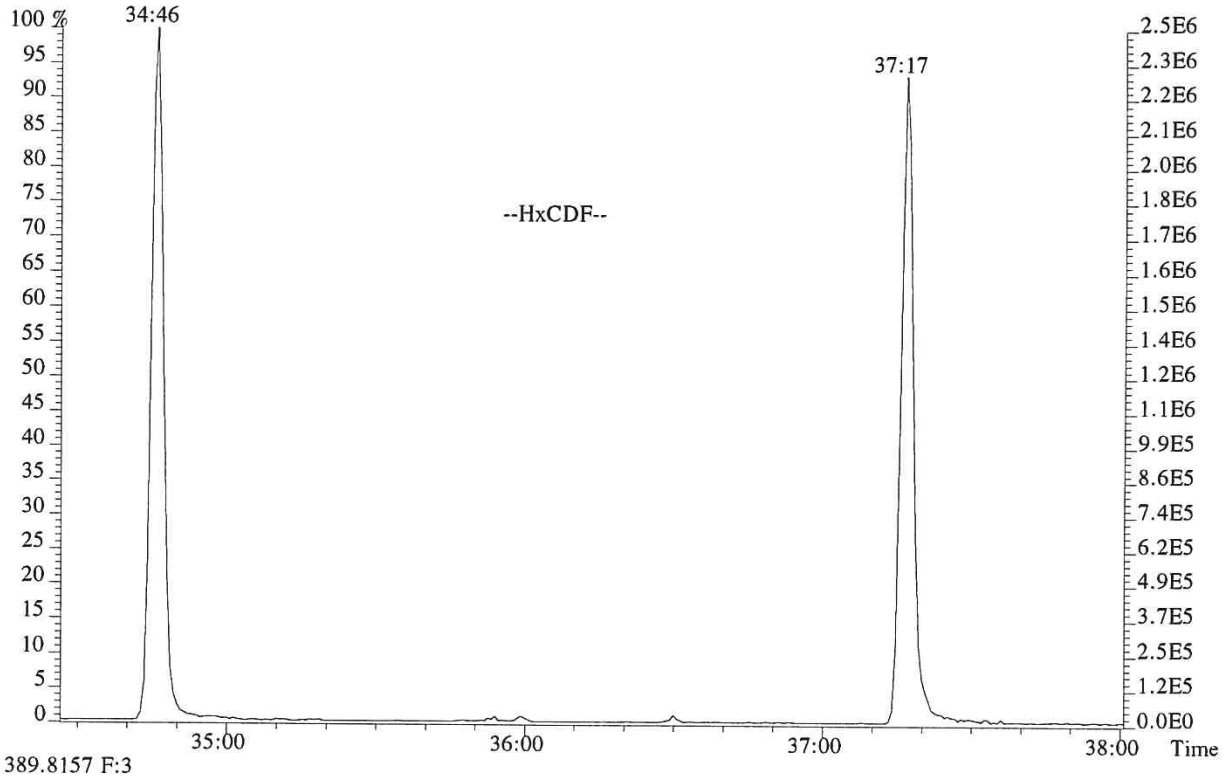
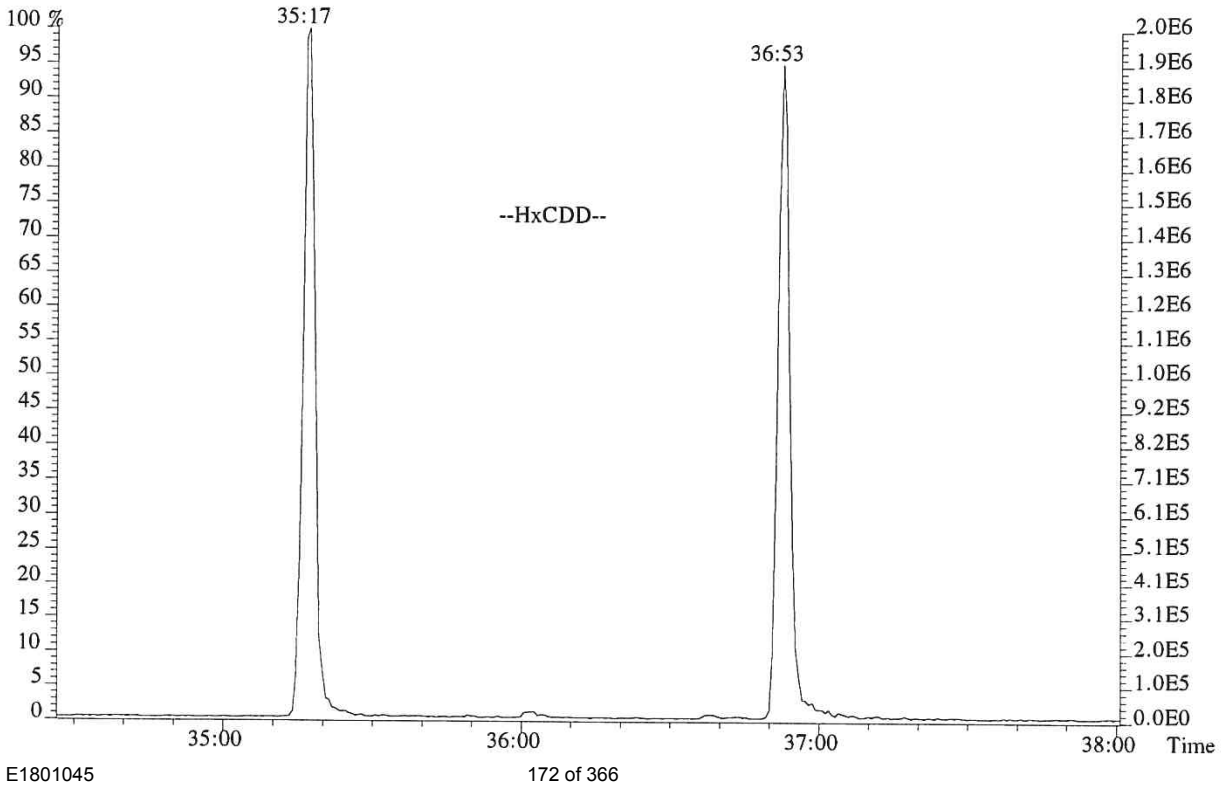
Sample#1 Exp:192977
373.8208 F:3

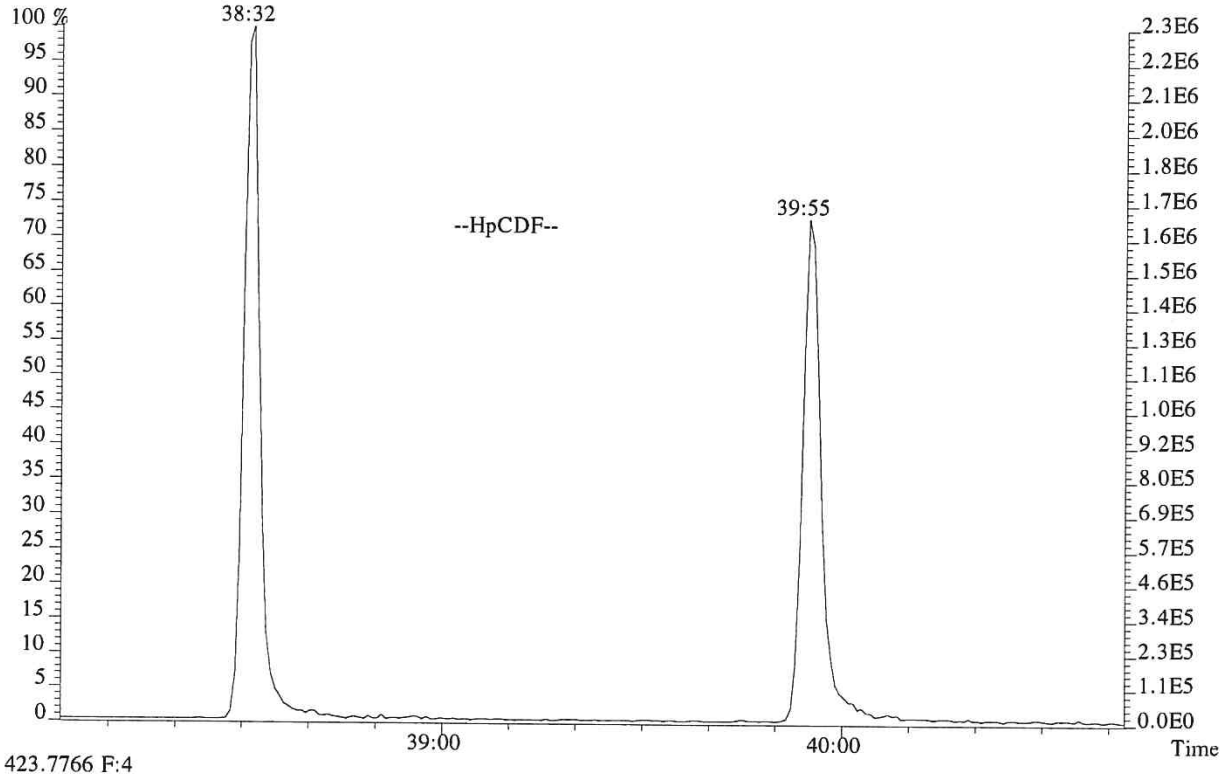


389.8157 F:3

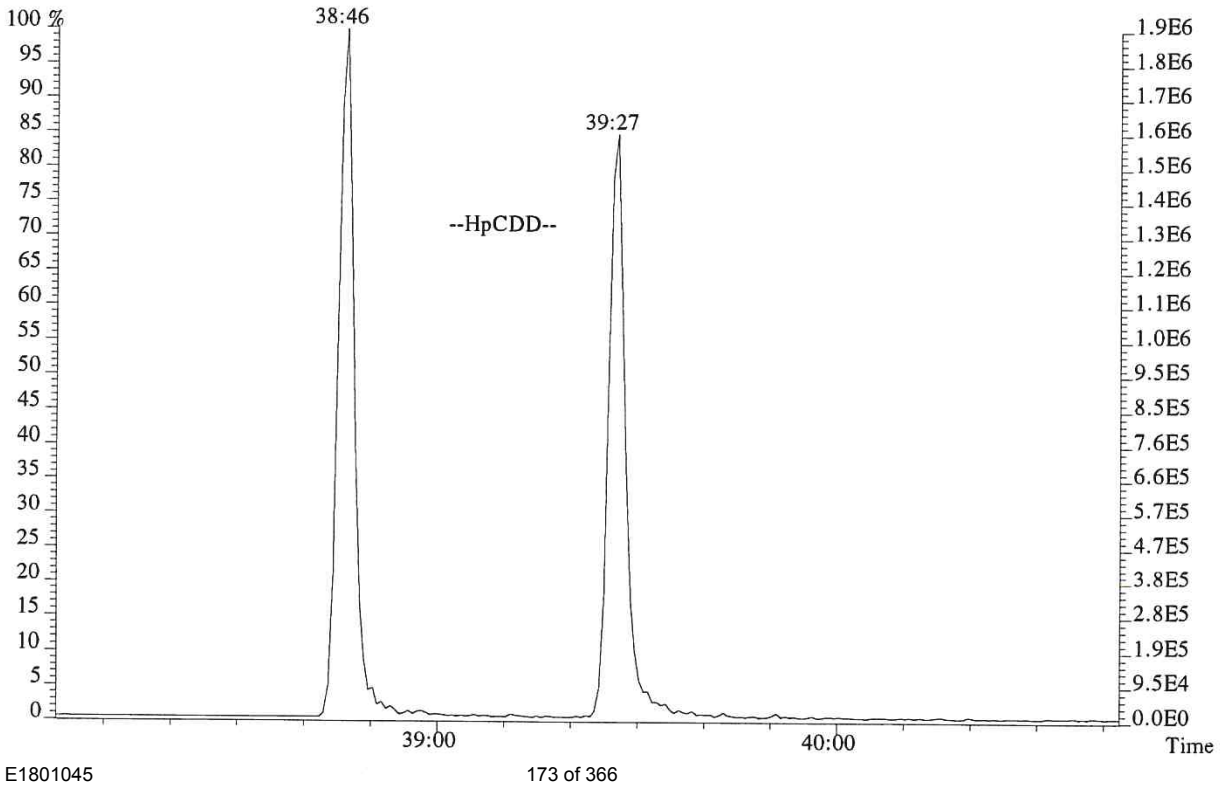


012024

File:P519241 #1-240 Acq: 6-DEC-2018 02:54:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



012025

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519240 Analysis Date: 6-DEC-18 Time: 02:06:17

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.6	7.8 - 12.9	-3.5
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	50	39 - 65	0.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	50	39 - 64	-0.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	51	39 - 64	2.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.36	1.05-1.43	53	41 - 61	5.3
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	2.5
OCDD	M+2/M+4	0.88	0.76-1.02	101	79 - 126	1.3
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.7	8.4 - 12.0	-2.9
1,2,3,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	50	41 - 60	-0.3
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	51	45 - 56	1.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	49	45 - 56	-1.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	51	44 - 57	2.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	51	45 - 55	1.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	51	43 - 58	1.4
OCDF	M+2/M+4	0.87	0.76-1.02	100	63 - 159	0.2

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519240 Analysis Date: 6-DEC-18 Time: 02:06:17

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	107	82 - 121	7.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.63	1.32-1.78	122	62 - 160	22.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	99	85 - 117	-1.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	94	85 - 118	-5.9
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	110	72 - 138	9.7
13C-OCDD	M+2/M+4	0.91	0.76-1.02	259	96 - 415	29.7
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	97	71 - 140	-3.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	115	76 - 130	14.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	117	77 - 130	16.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	76 - 131	-12.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	89	70 - 143	-10.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	99	74 - 135	-0.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-6.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	103	78 - 129	3.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	112	77 - 129	11.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.4	7.8 - 12.7	4.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519240 Samp: 1 Inj: 1 Acquired: 6-DEC-18 02:06:17
Processed: 7-DEC-18 09:55:12 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.109e+03	4.145e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:16	2.763e+04	1.848e+04	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:11	2.642e+04	1.718e+04	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.370e+04	1.997e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	2.569e+04	2.137e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:29	2.425e+04	2.039e+04	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	2.240e+04	1.803e+04	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	2.304e+04	2.245e+04	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:55	1.966e+04	1.925e+04	1.02	yes	no	1.258
10	Unk	OCDF	42:26	3.187e+04	3.666e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:48	2.466e+03	3.144e+03	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	1.897e+04	1.192e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	1.738e+04	1.406e+04	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	1.755e+04	1.403e+04	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:57	1.942e+04	1.432e+04	1.36	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:26	1.688e+04	1.604e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:15	2.672e+04	3.029e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	3.506e+04	4.431e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:15	5.628e+04	3.503e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:10	5.679e+04	3.546e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	2.481e+04	4.753e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	2.859e+04	5.472e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	2.688e+04	5.153e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:14	2.473e+04	4.723e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	2.050e+04	4.585e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	1.870e+04	4.235e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:48	2.385e+04	2.972e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:27	4.002e+04	2.454e+04	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	3.442e+04	2.657e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:42	3.326e+04	2.626e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:26	3.258e+04	3.009e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:14	4.786e+04	5.277e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.412e+04	3.007e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	3.686e+04	2.977e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.725e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519240 Samp: 1 Inj: 1 Acquired: 6-DEC-18 02:06:17
Processed: 7-DEC-18 09:55:12 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.62e+05	4.32e+02	1.3e+03	7.37e+05	7.64e+02	9.6e+02
2	1,2,3,7,8-PeCDF	5.25e+06	2.44e+02	2.1e+04	3.56e+06	5.92e+02	6.0e+03
3	2,3,4,7,8-PeCDF	5.24e+06	2.44e+02	2.1e+04	3.33e+06	5.92e+02	5.6e+03
4	1,2,3,4,7,8-HxCDF	5.37e+06	4.00e+02	1.3e+04	4.48e+06	1.92e+02	2.3e+04
5	1,2,3,6,7,8-HxCDF	5.34e+06	4.00e+02	1.3e+04	4.53e+06	1.92e+02	2.4e+04
6	2,3,4,6,7,8-HxCDF	5.31e+06	4.00e+02	1.3e+04	4.45e+06	1.92e+02	2.3e+04
7	1,2,3,7,8,9-HxCDF	4.59e+06	4.00e+02	1.1e+04	3.77e+06	1.92e+02	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.01e+06	1.60e+03	3.1e+03	4.91e+06	4.91e+03	1.0e+03
9	1,2,3,4,7,8,9-HpCDF	3.79e+06	1.60e+03	2.4e+03	3.72e+06	4.91e+03	7.6e+02
10	OCDF	5.27e+06	3.52e+02	1.5e+04	6.10e+06	7.44e+02	8.2e+03
11	2,3,7,8-TCDD	4.66e+05	1.91e+03	2.4e+02	6.34e+05	6.44e+02	9.8e+02
12	1,2,3,7,8-PeCDD	3.73e+06	4.92e+02	7.6e+03	2.36e+06	2.44e+02	9.7e+03
13	1,2,3,4,7,8-HxCDD	3.88e+06	1.96e+02	2.0e+04	3.11e+06	1.80e+02	1.7e+04
14	1,2,3,6,7,8-HxCDD	3.75e+06	1.96e+02	1.9e+04	3.06e+06	1.80e+02	1.7e+04
15	1,2,3,7,8,9-HxCDD	4.12e+06	1.96e+02	2.1e+04	3.14e+06	1.80e+02	1.7e+04
16	1,2,3,4,6,7,8-HpCDD	3.42e+06	2.44e+02	1.4e+04	3.30e+06	2.44e+02	1.4e+04
17	OCDD	4.40e+06	2.24e+02	2.0e+04	4.95e+06	2.12e+02	2.3e+04
18	13C-2,3,7,8-TCDF	6.29e+06	5.11e+03	1.2e+03	7.91e+06	2.65e+03	3.0e+03
19	13C-1,2,3,7,8-PeCDF	1.06e+07	4.00e+02	2.6e+04	6.65e+06	7.72e+02	8.6e+03
20	13C-2,3,4,7,8-PeCDF	1.13e+07	4.00e+02	2.8e+04	7.10e+06	7.72e+02	9.2e+03
21	13C-1,2,3,4,7,8-HxCDF	5.60e+06	1.68e+02	3.3e+04	1.07e+07	3.56e+02	3.0e+04
22	13C-1,2,3,6,7,8-HxCDF	6.07e+06	1.68e+02	3.6e+04	1.17e+07	3.56e+02	3.3e+04
23	13C-2,3,4,6,7,8-HxCDF	5.87e+06	1.68e+02	3.5e+04	1.13e+07	3.56e+02	3.2e+04
24	13C-1,2,3,7,8,9-HxCDF	5.00e+06	1.68e+02	3.0e+04	9.69e+06	3.56e+02	2.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.45e+06	1.86e+03	2.4e+03	9.91e+06	4.97e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.66e+06	1.86e+03	2.0e+03	8.16e+06	4.97e+03	1.6e+03
27	13C-2,3,7,8-TCDD	4.55e+06	4.18e+03	1.1e+03	5.61e+06	1.80e+03	3.1e+03
28	13C-1,2,3,7,8-PeCDD	7.93e+06	2.00e+02	4.0e+04	4.90e+06	3.44e+02	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	7.60e+06	5.48e+02	1.4e+04	5.76e+06	4.32e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	7.05e+06	5.48e+02	1.3e+04	5.59e+06	4.32e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.69e+06	2.72e+02	2.5e+04	6.18e+06	2.12e+02	2.9e+04
32	13C-OCDD	7.82e+06	2.24e+02	3.5e+04	8.57e+06	2.64e+02	3.2e+04
33	13C-1,2,3,4-TCDD	4.64e+06	4.18e+03	1.1e+03	5.74e+06	1.80e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	8.04e+06	5.48e+02	1.5e+04	6.26e+06	4.32e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	1.15e+06	9.80e+02	1.2e+03			

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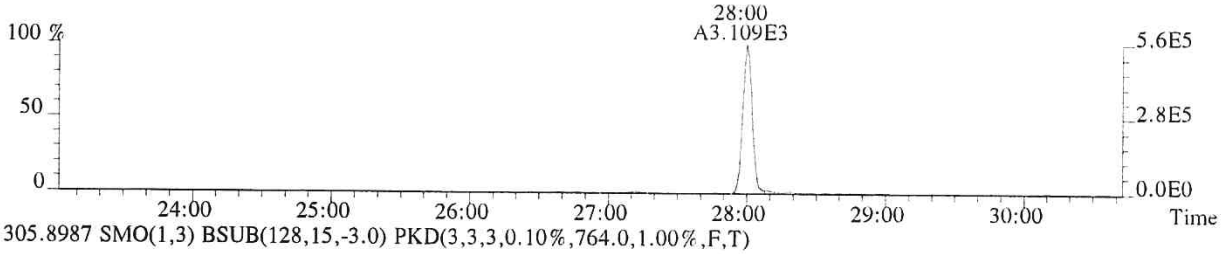
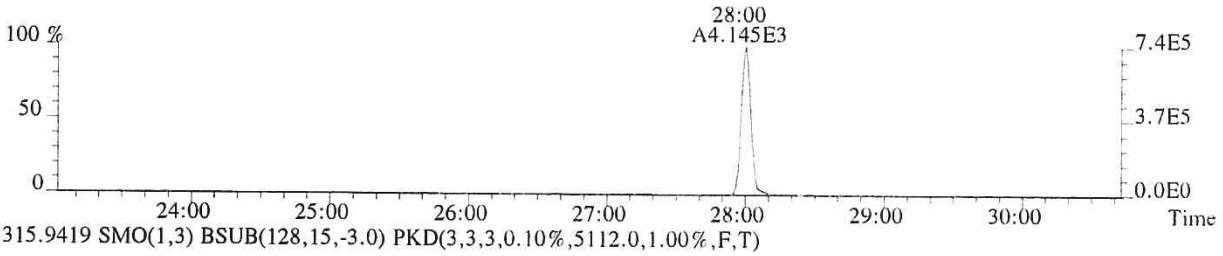
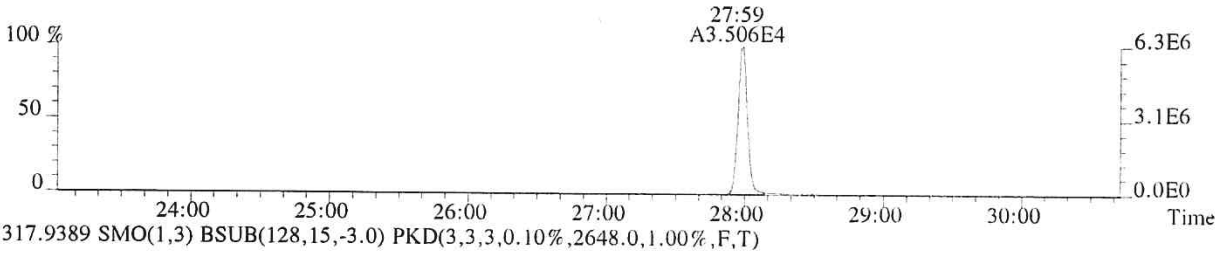
File:P519240 #1-545 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



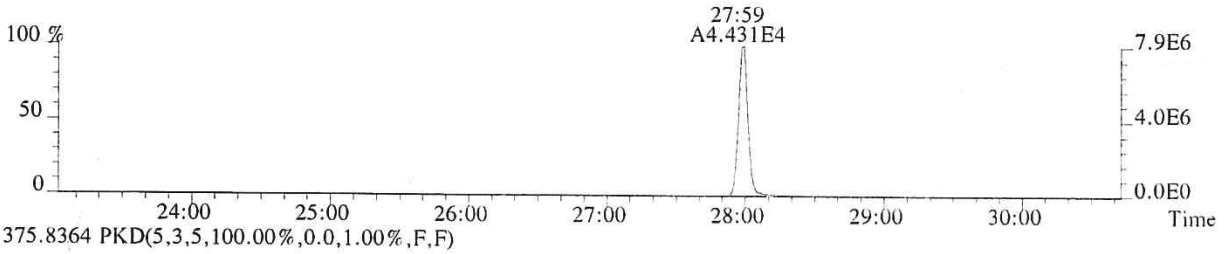
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



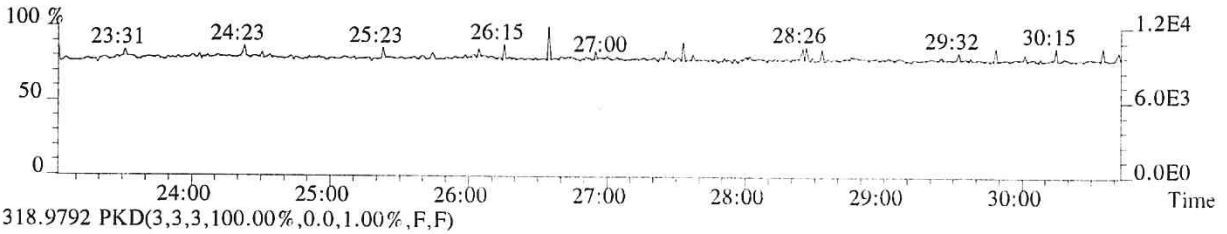
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5112.0,1.00%,F,T)



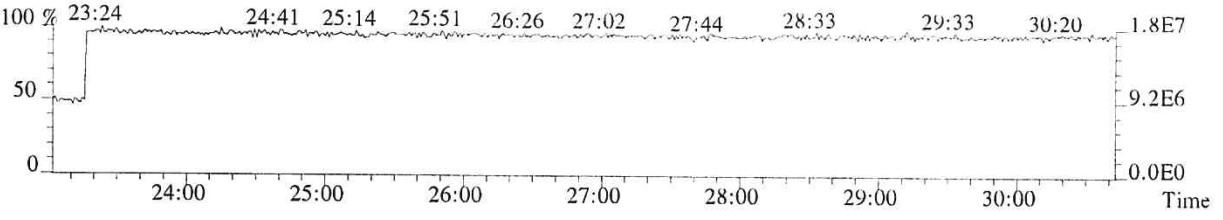
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2648.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

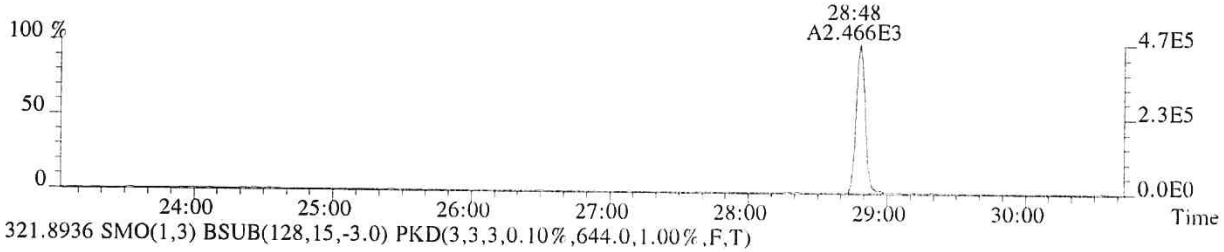


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

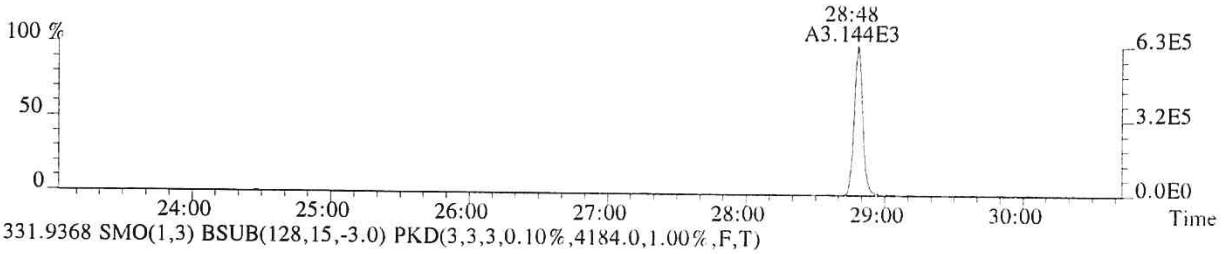


012030

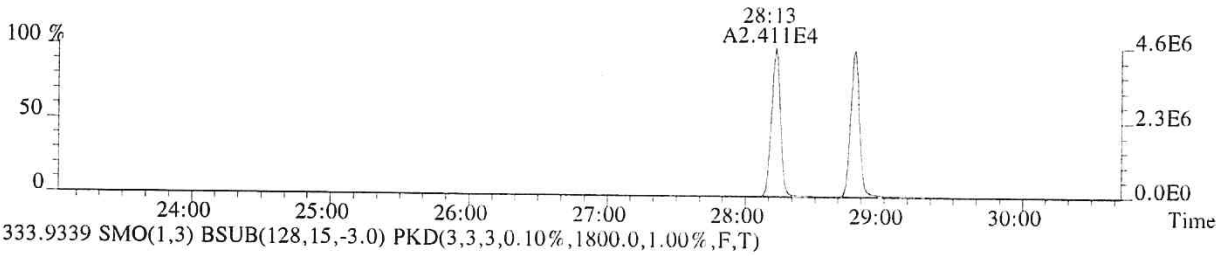
File:P519240 #1-545 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



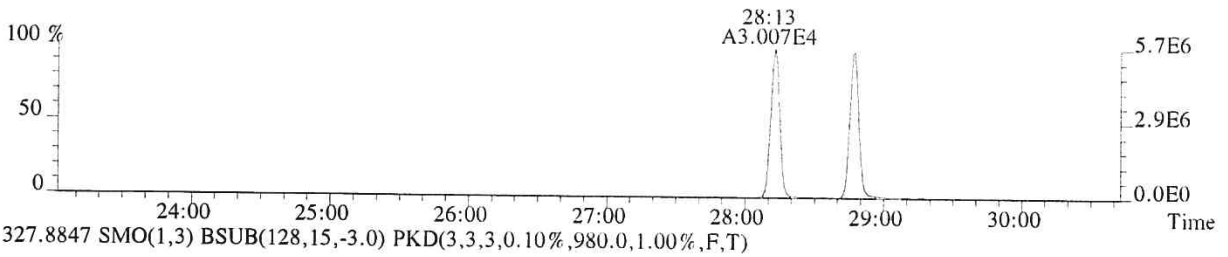
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



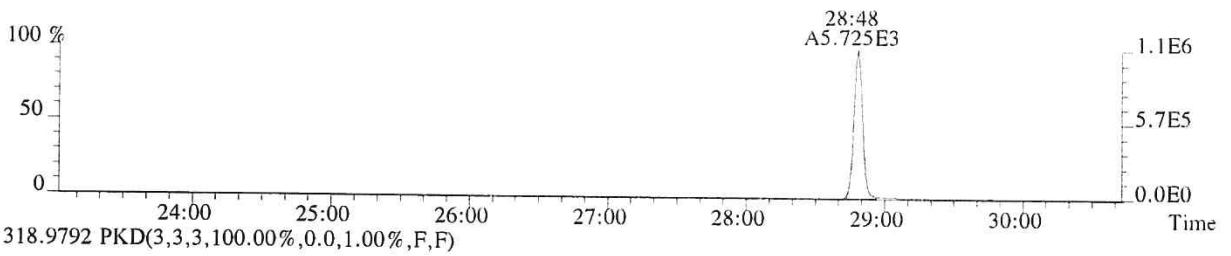
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4184.0,1.00%,F,T)



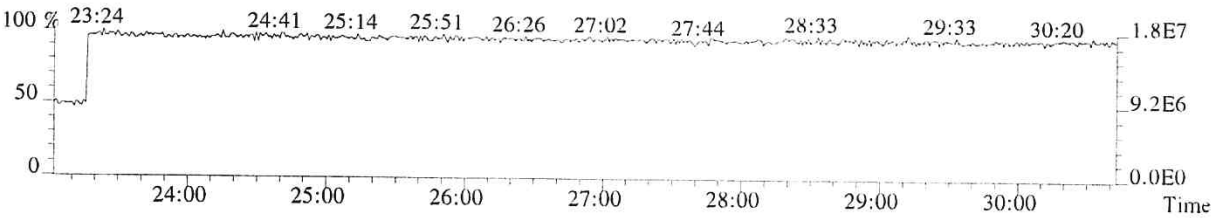
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)

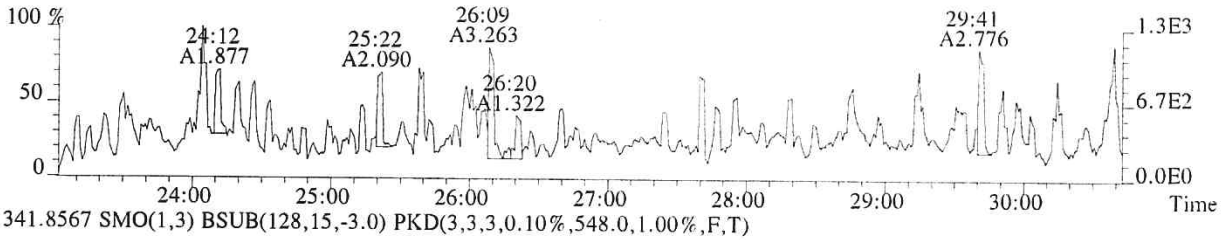


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

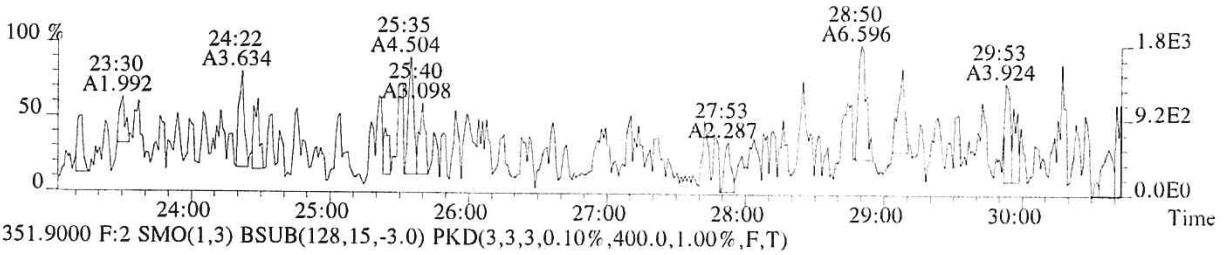


012031

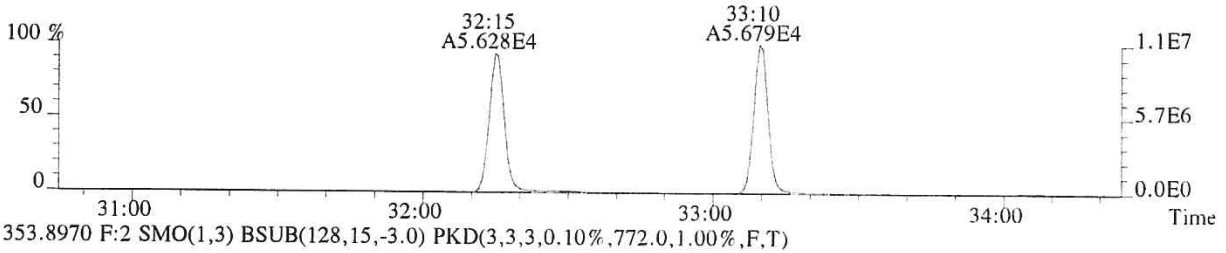
File:P519240 #1-545 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



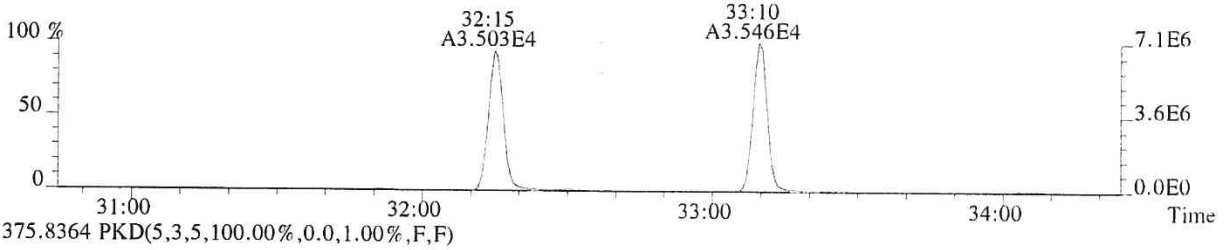
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



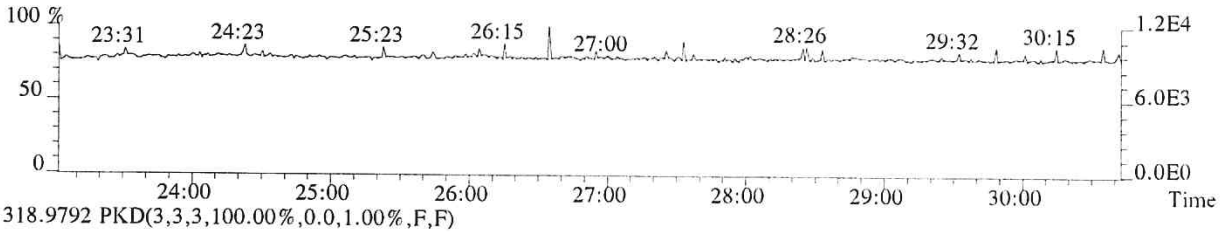
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



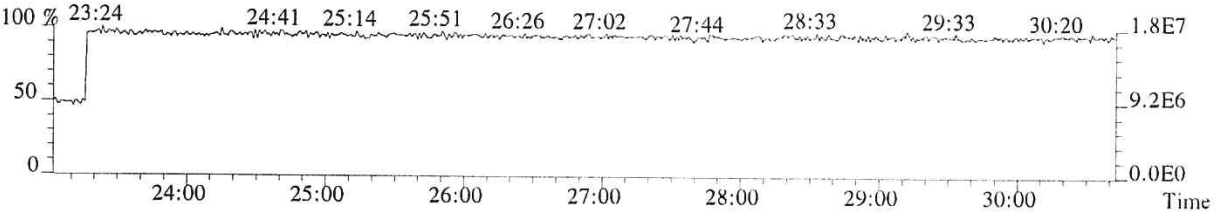
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

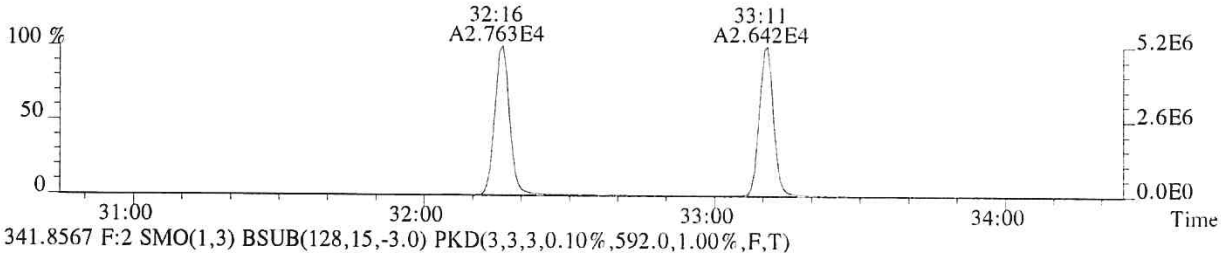


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

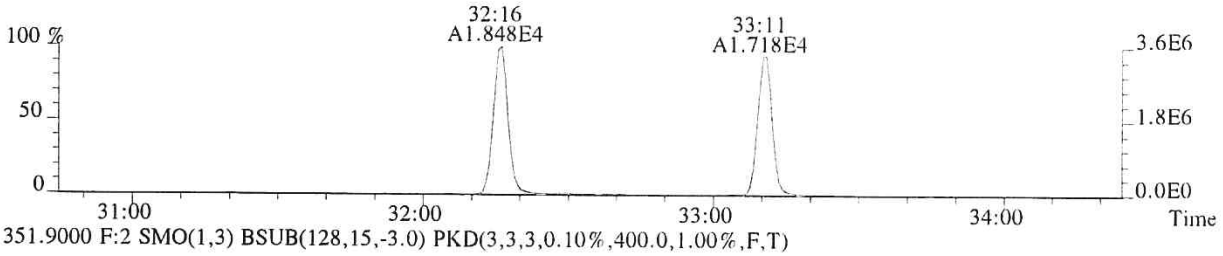


012032

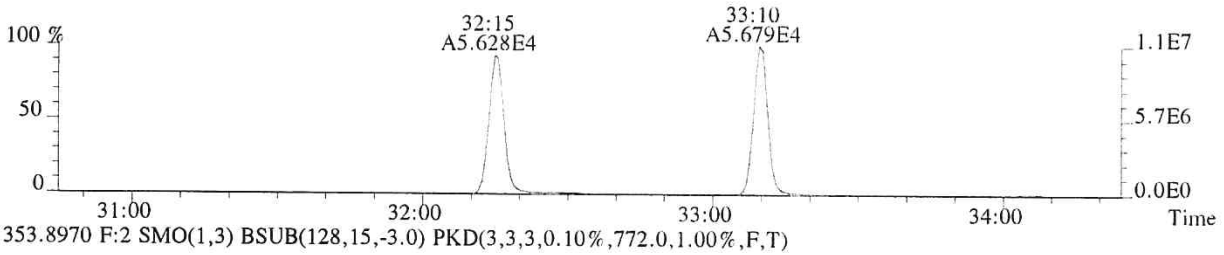
File:P519240 #1-330 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



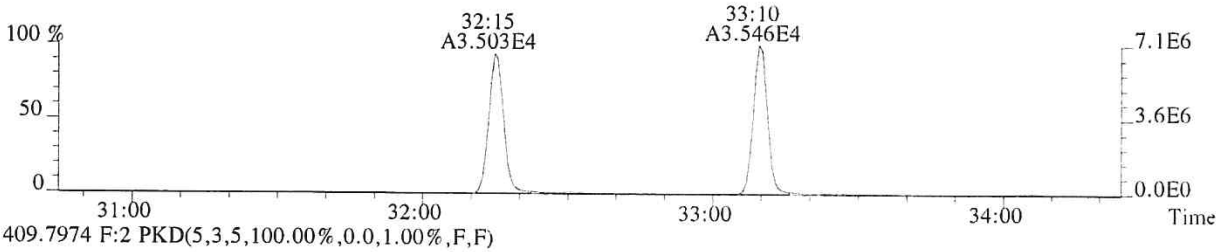
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



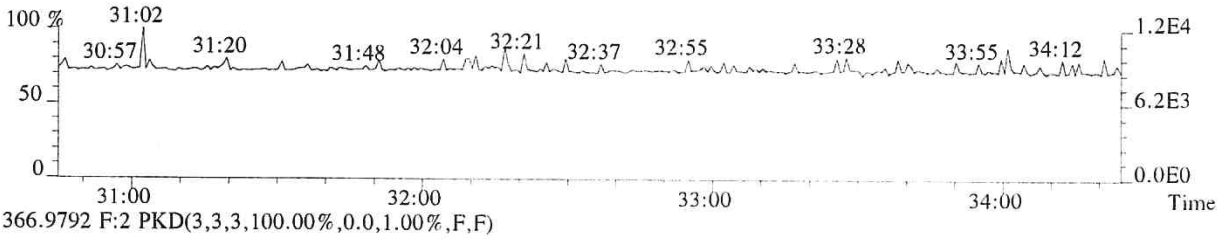
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



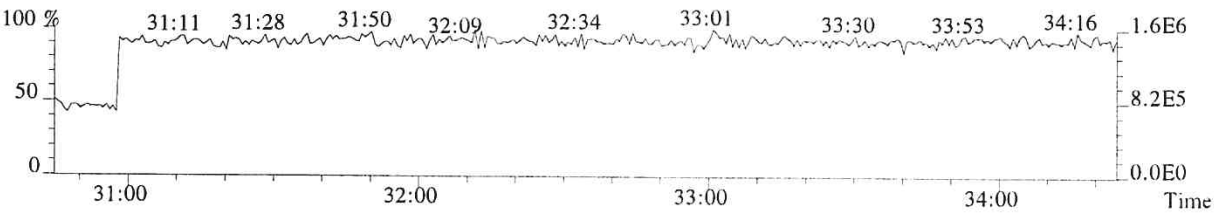
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



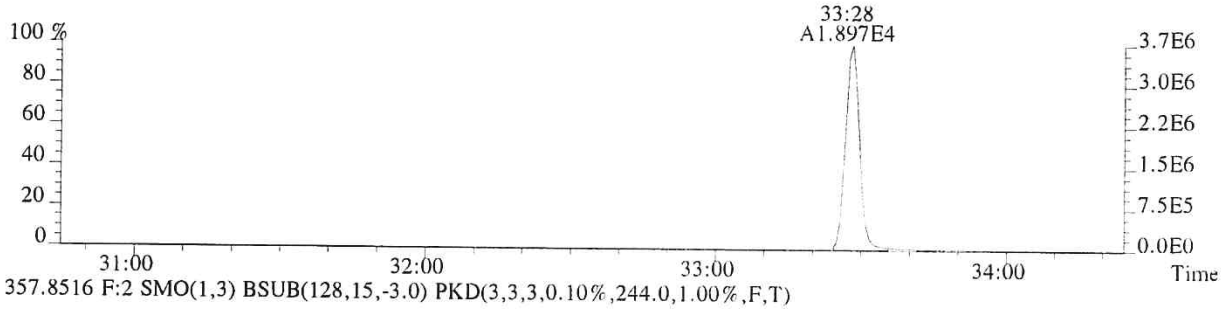
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



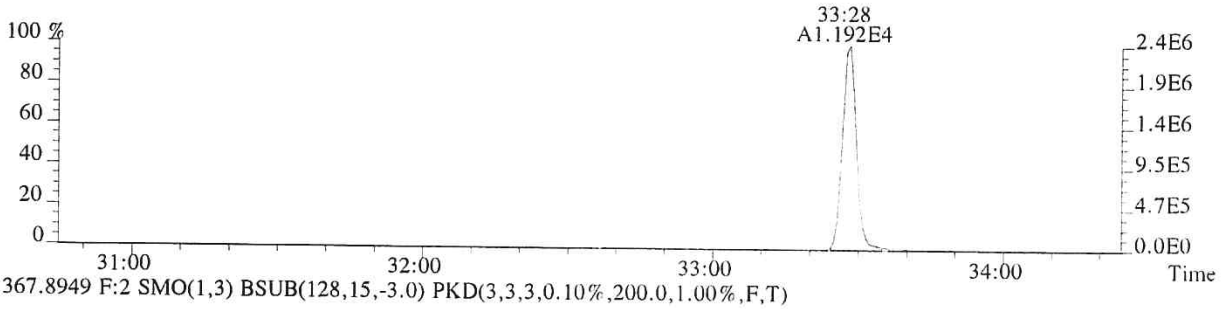
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



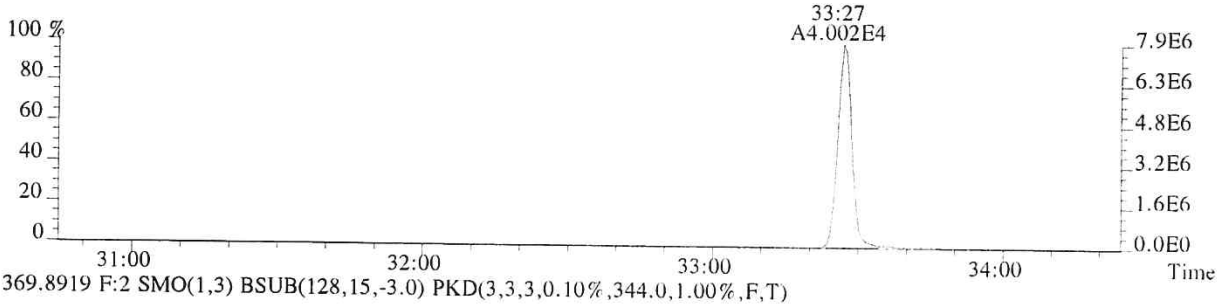
File:P519240 #1-330 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



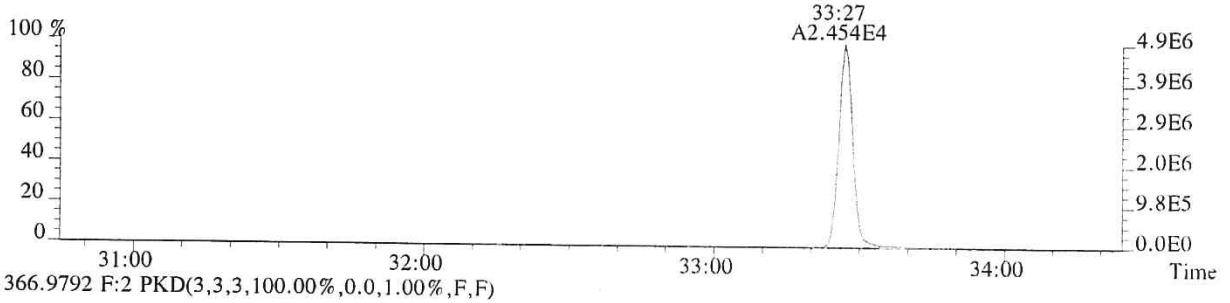
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



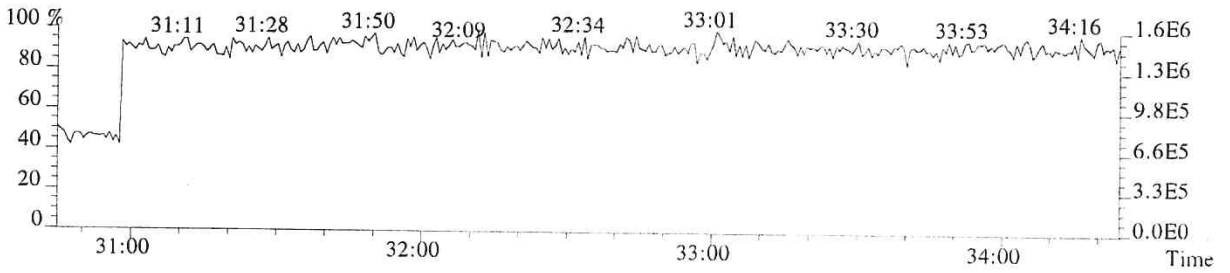
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)

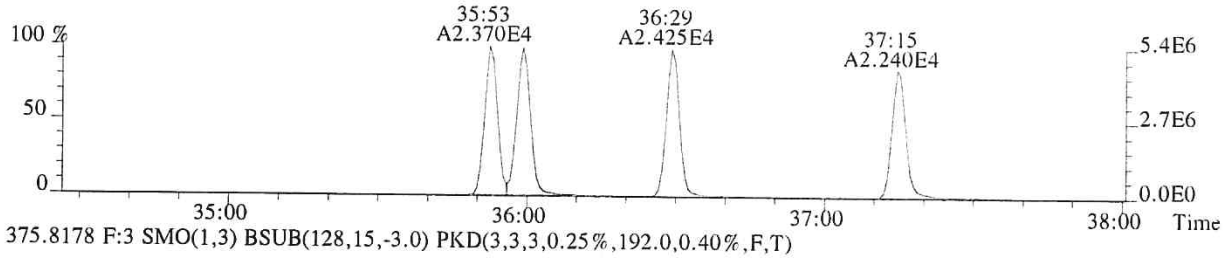


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

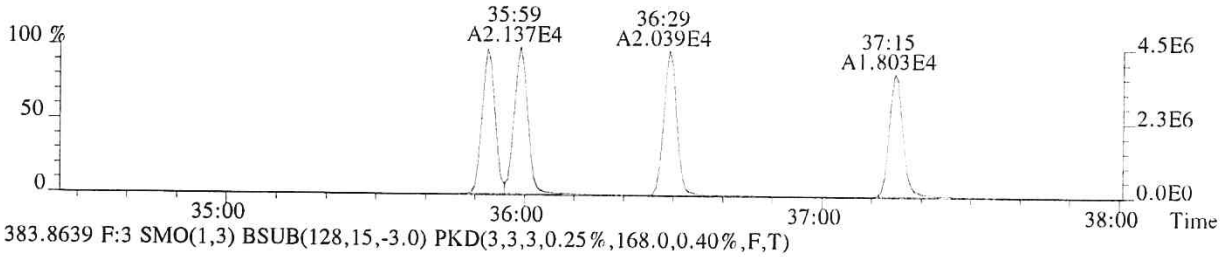


File:P519240 #1-322 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

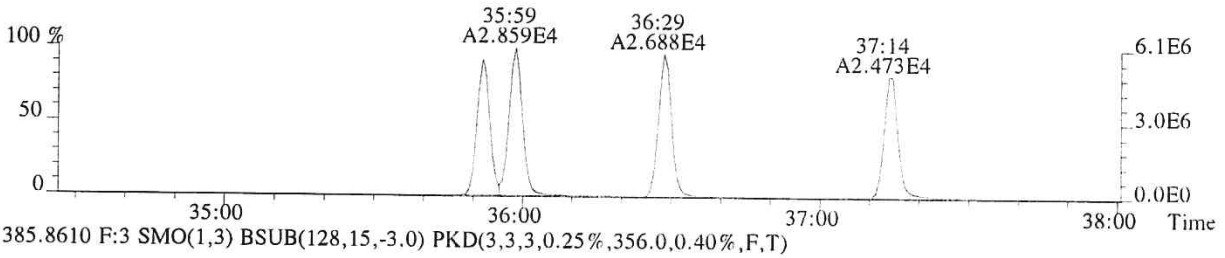
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



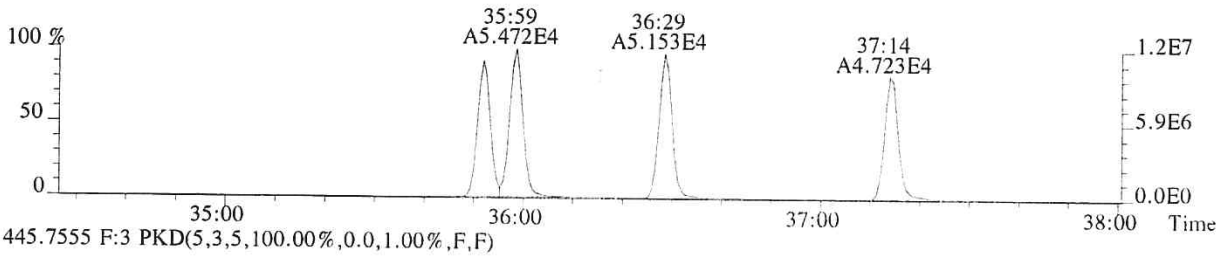
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



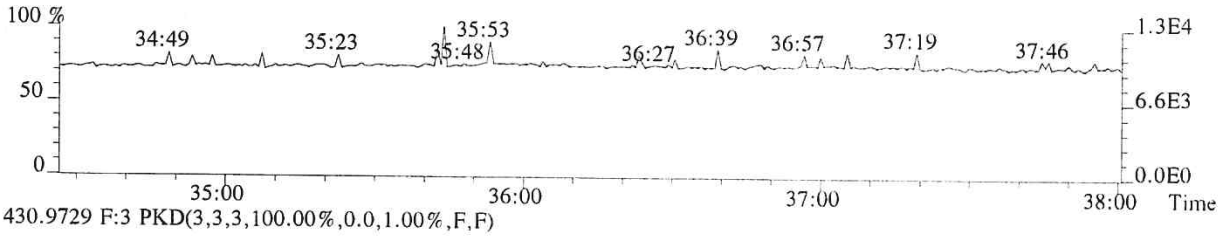
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



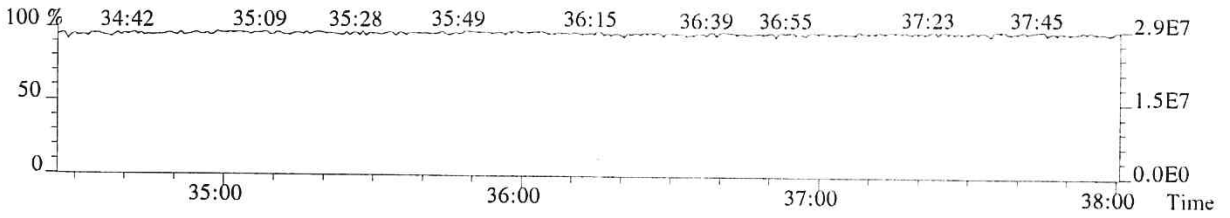
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

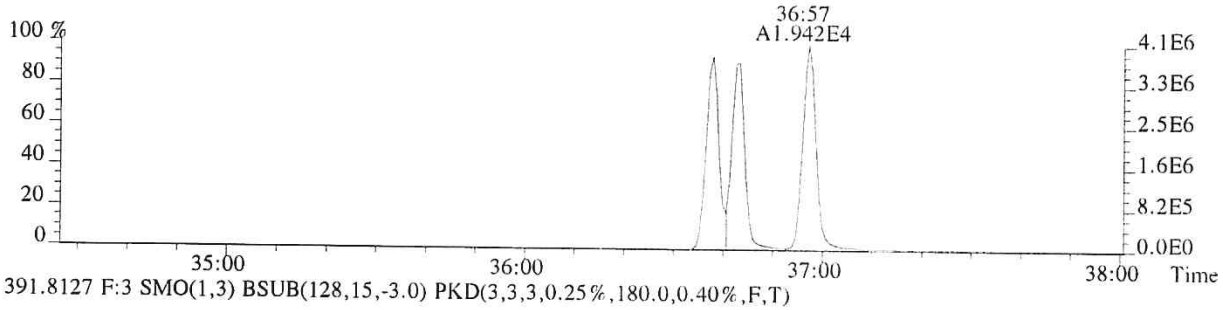


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

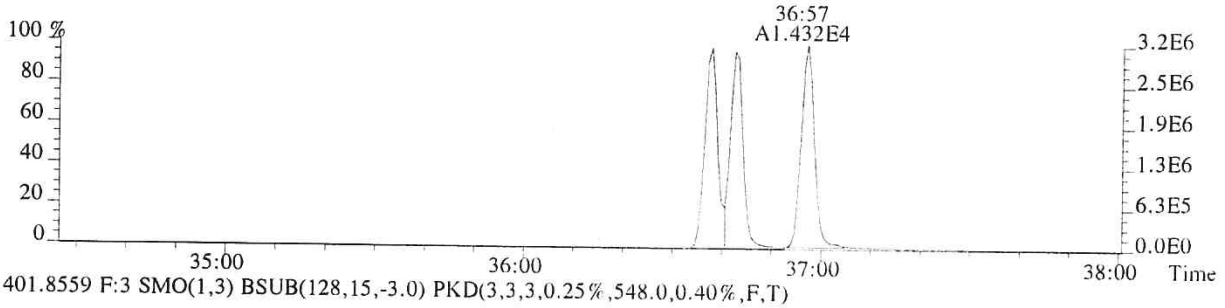


012035

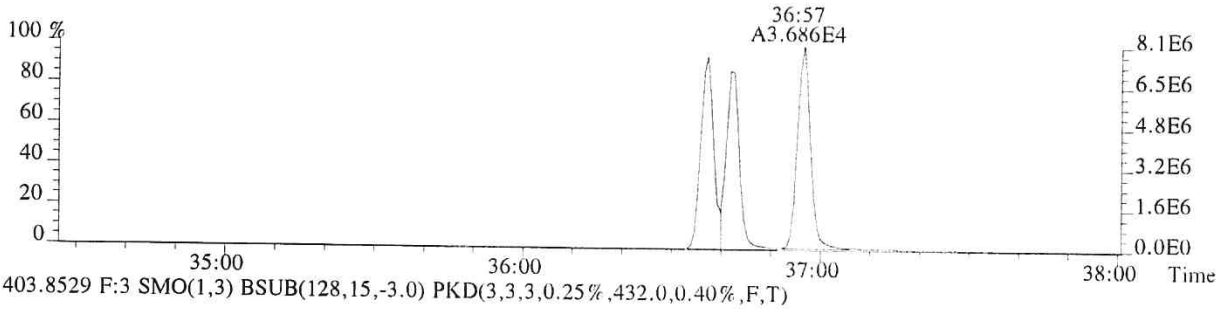
File:P519240 #1-322 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



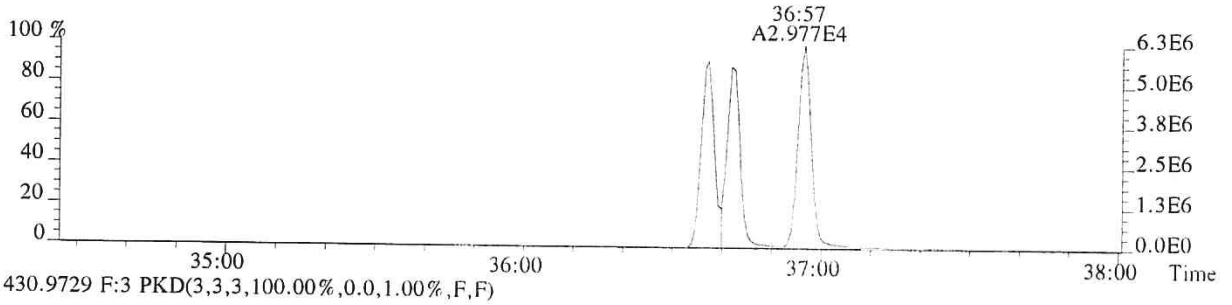
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



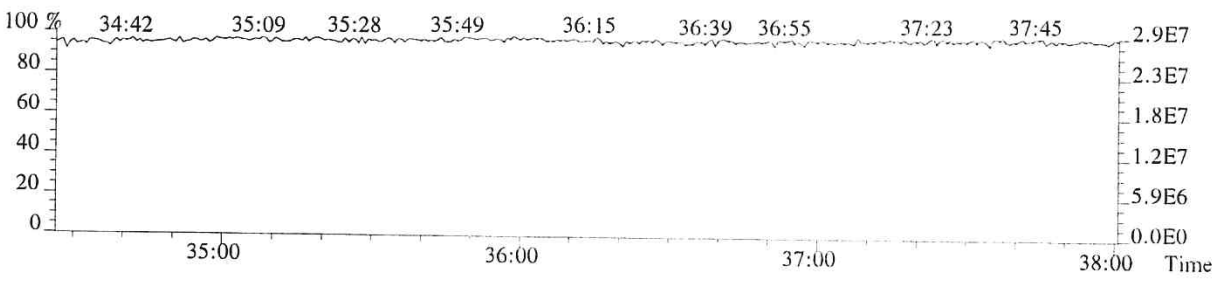
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



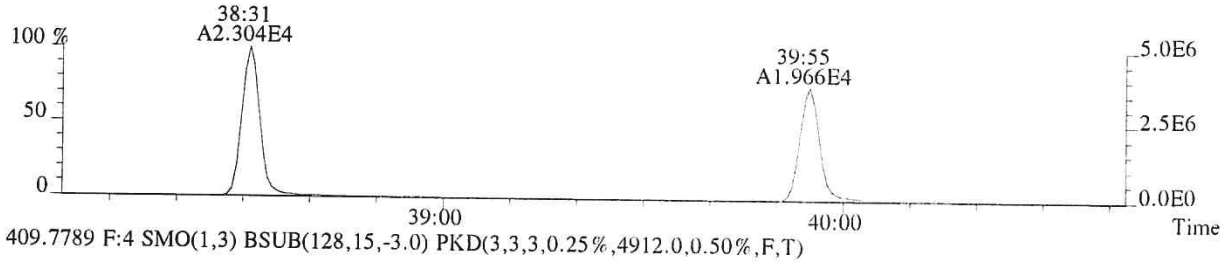
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



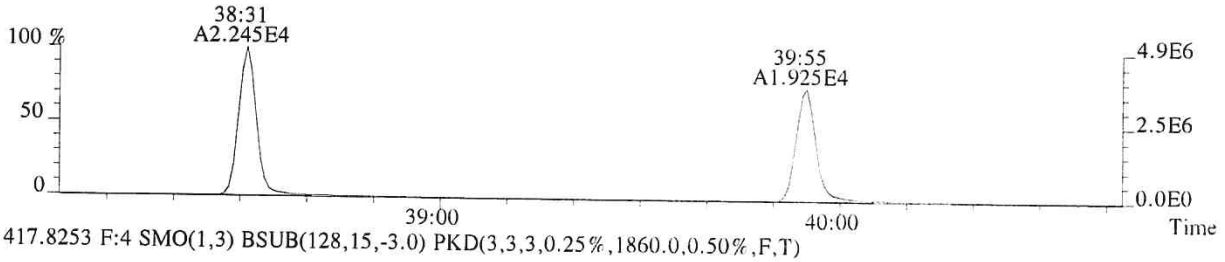
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



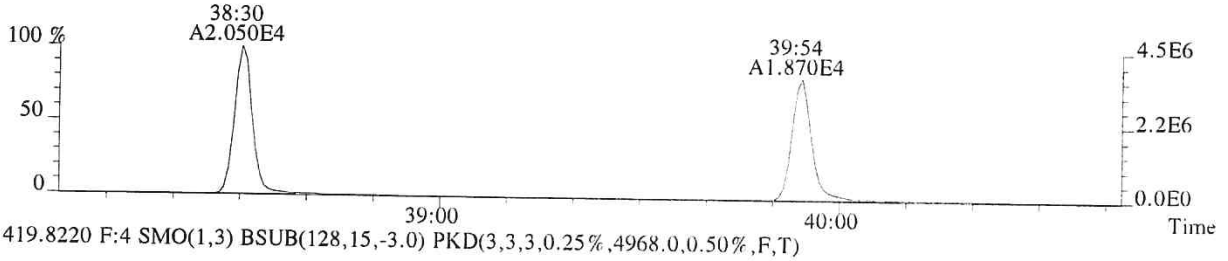
File:P519240 #1-240 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.50%,F,T)



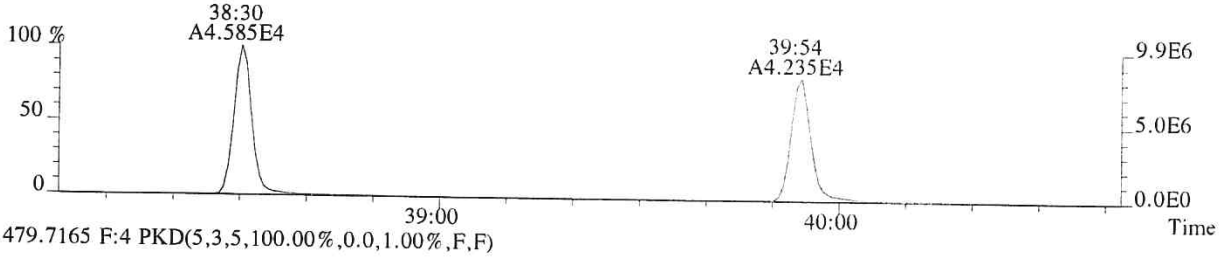
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4912.0,0.50%,F,T)



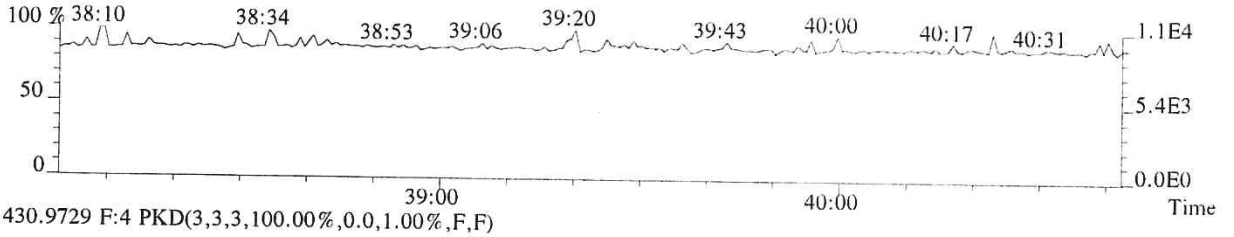
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1860.0,0.50%,F,T)



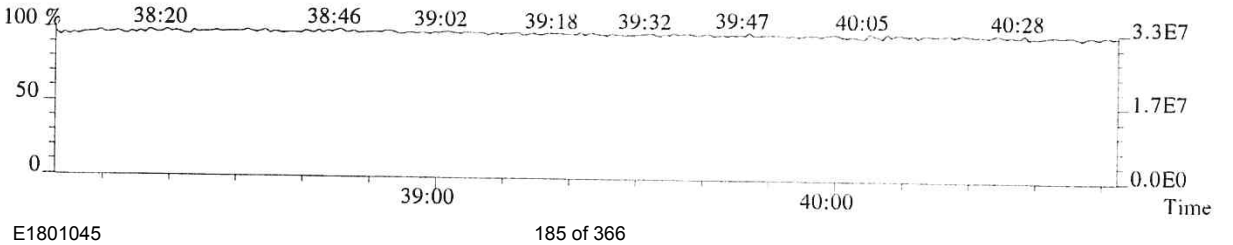
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4968.0,0.50%,F,T)



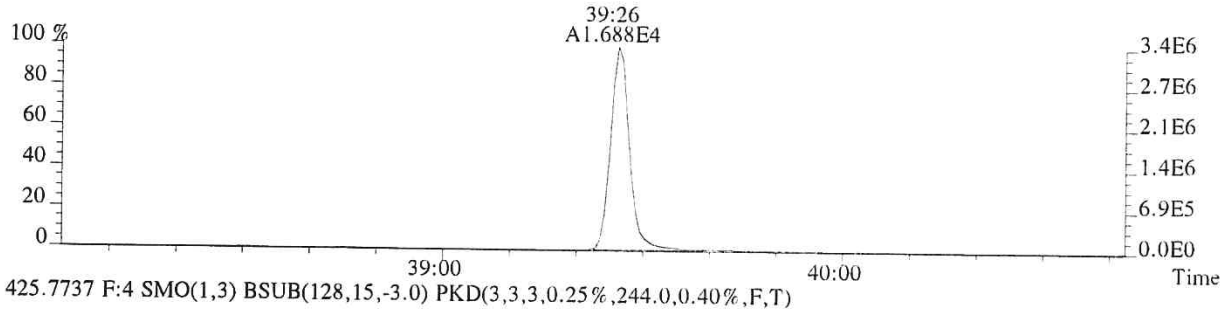
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



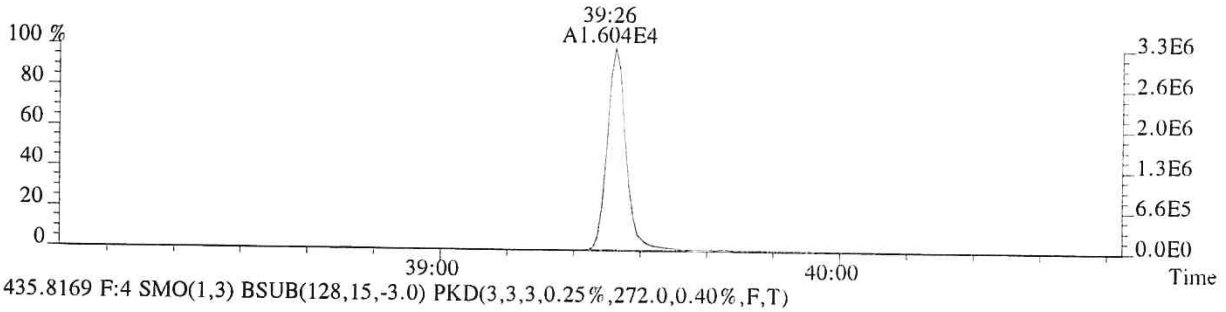
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



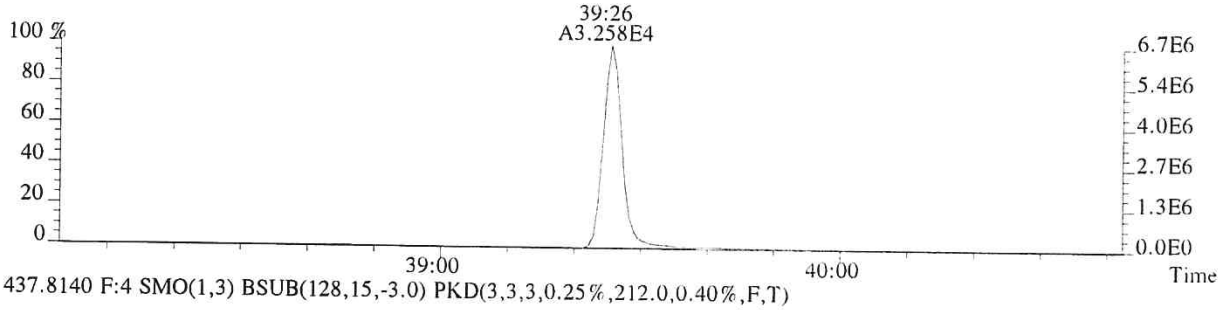
File:P519240 #1-240 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



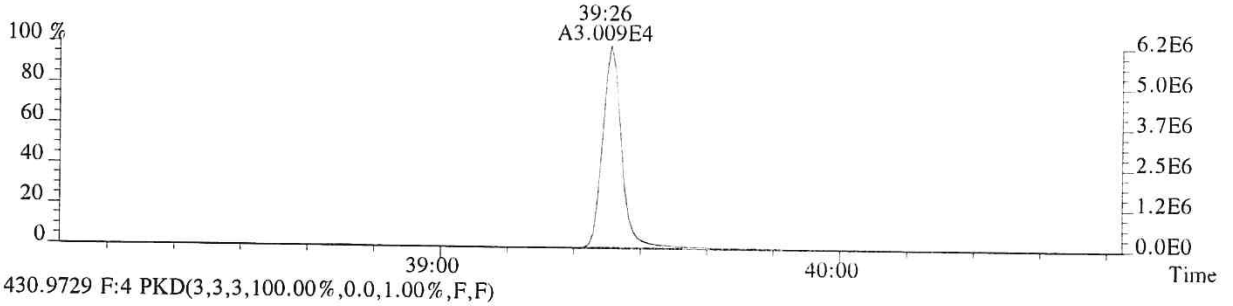
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



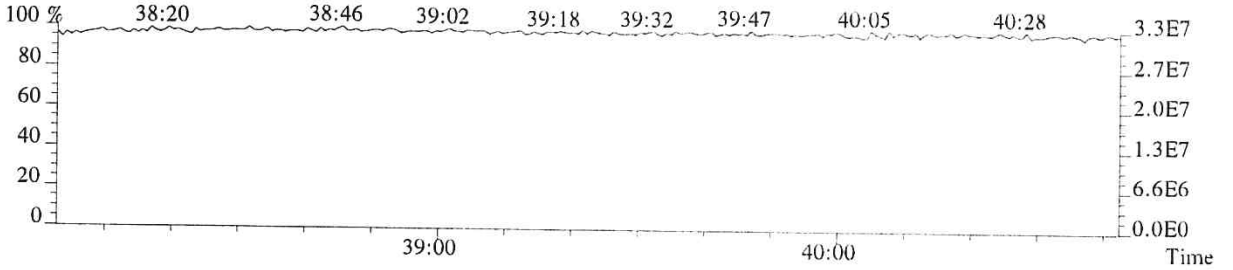
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



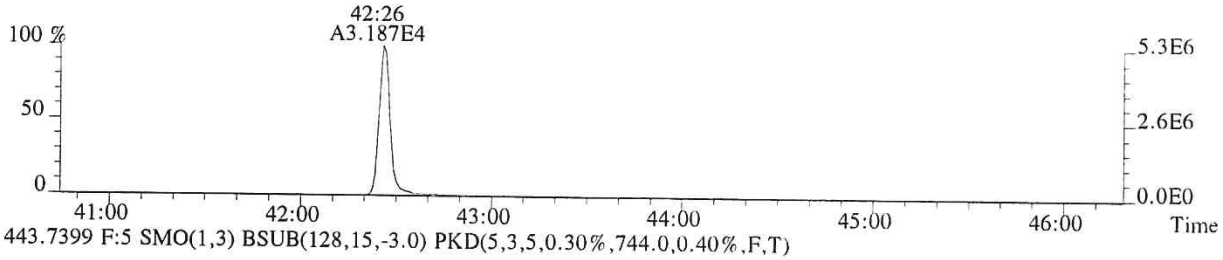
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



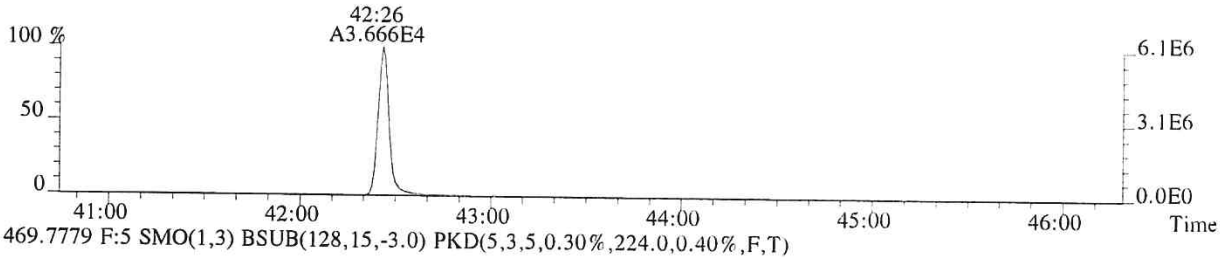
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



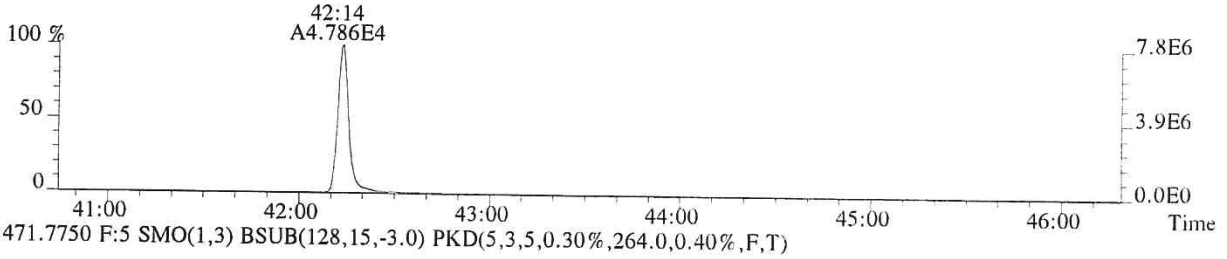
File:P519240 #1-502 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



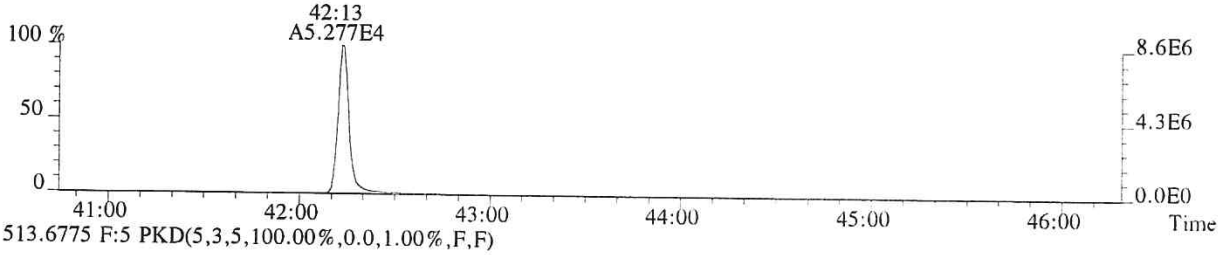
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



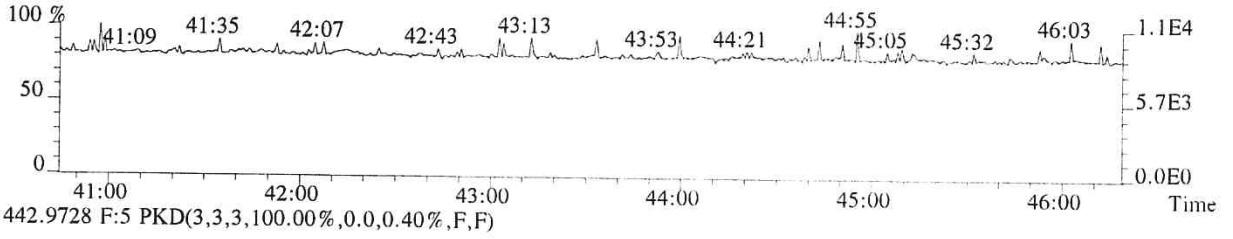
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



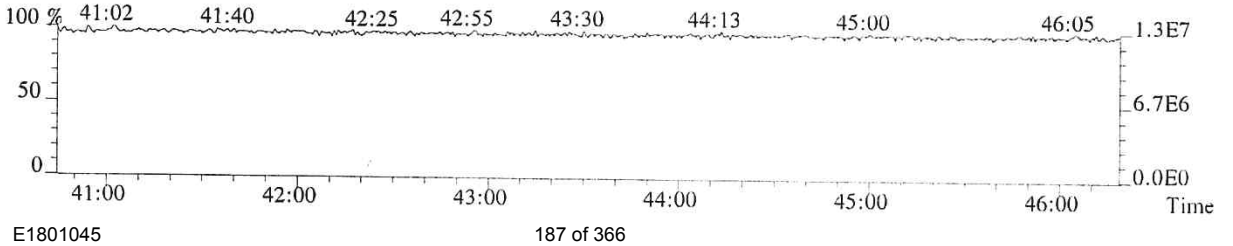
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



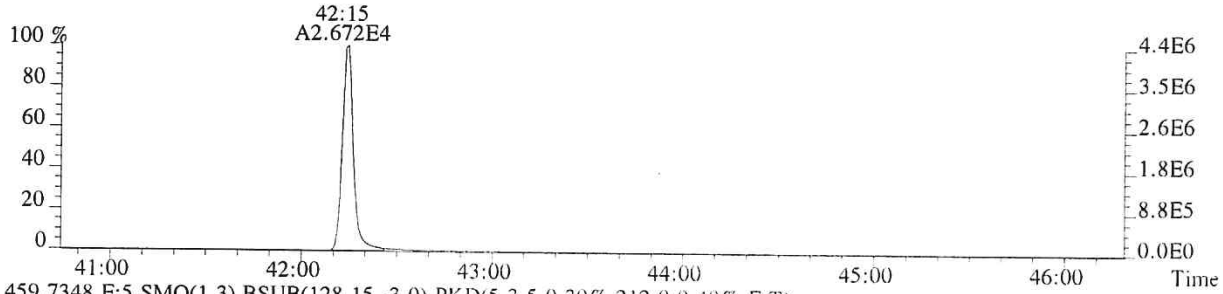
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



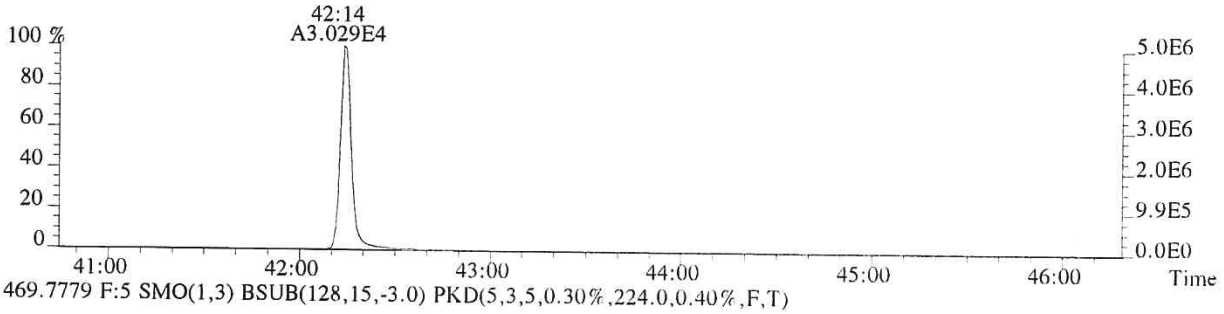
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



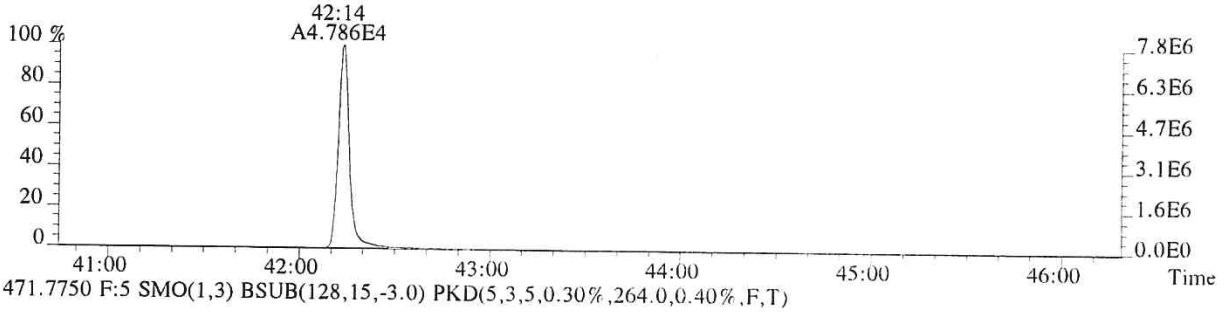
File:P519240 #1-502 Acq: 6-DEC-2018 02:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



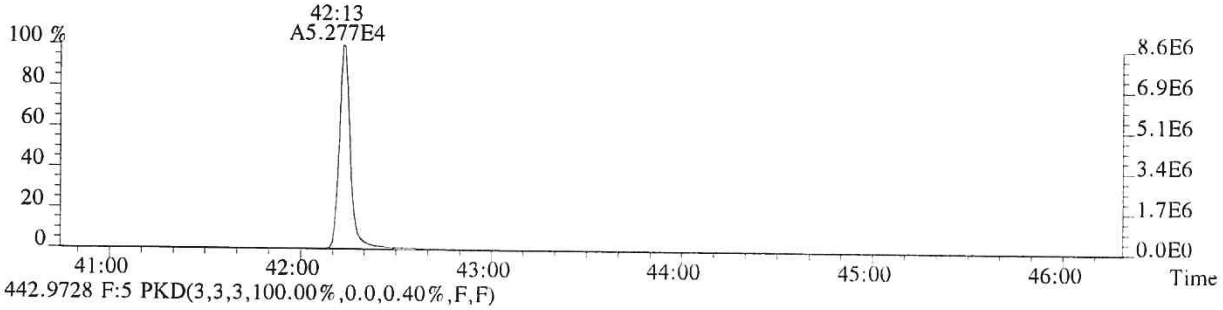
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



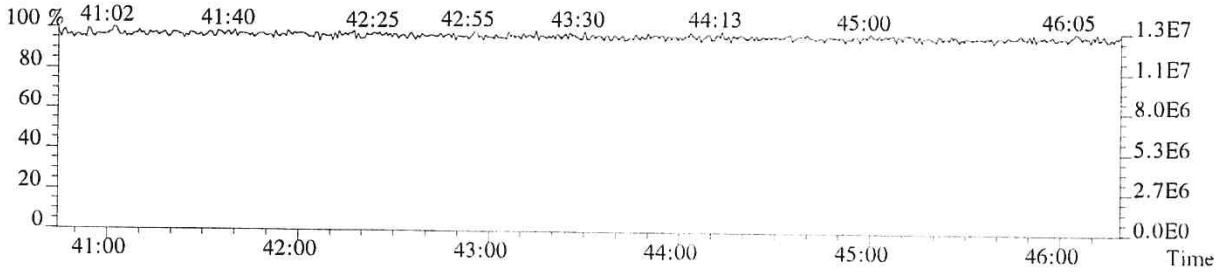
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519287

Date: 12/07/18-12/08/18 (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519287	7-DEC-18	19:08:16
192977	WINDOW DEFINE	P519288	7-DEC-18	19:56:03
METHOD BLANK	EQ1800469-01	P519289	7-DEC-18	20:44:48
METHOD BLANK	EQ1800488-01	P519290	7-DEC-18	21:33:23
SL0539	E1801046-001DL	P519291	7-DEC-18	22:22:00
SL0540	E1801046-002DL	P519292	7-DEC-18	23:10:38
SL0541	E1801046-003DL	P519293	7-DEC-18	23:59:16
SL0542	E1801046-004DL	P519294	8-DEC-18	00:47:53
SL0552	E1801055-008	P519295	8-DEC-18	01:36:30
SL0558	E1801057-006	P519296	8-DEC-18	02:25:08
SL0559	E1801057-007	P519297	8-DEC-18	03:13:44
SL0560	E1801057-008	P519298	8-DEC-18	04:02:22
SL0580	E1801065-001	P519299	8-DEC-18	04:50:59
SL0581	E1801065-002	P519300	8-DEC-18	05:39:44
SL0582	E1801065-003	P519301	8-DEC-18	06:28:20

E1801045

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181207B.SPL
Last Modified: Monday, December 10, 2018 07:32:15 Central Standard Time
Printed: Monday, December 10, 2018 07:32:17 Central Standard Time

Page Position (1, 1)

OPR54: P519287res

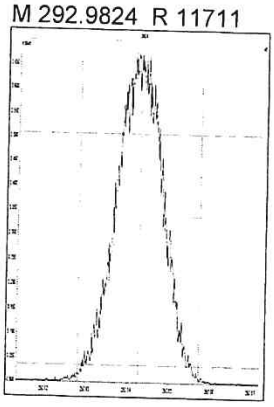
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/7/18	19:08	P519287	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMScheck 19:08
2		19:56	P519288	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		20:44	P519289	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		21:33	P519290	MB	EQ1800488-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		22:22	P519291	E1801046-001DL	E1801046-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		23:10	P519292	E1801046-002DL	E1801046-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		23:59	P519293	E1801046-003DL	E1801046-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8	12/8/18	00:47	P519294	E1801046-004DL	E1801046-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		01:36	P519295	E1801055-008	E1801055-008	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		02:25	P519296	E1801057-006	E1801057-006	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		03:13	P519297	E1801057-007	E1801057-007	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		04:02	P519298	E1801057-008	E1801057-008	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		04:50	P519299	E1801065-001	E1801065-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		05:39	P519300	E1801065-002	E1801065-002	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		06:28	P519301	E1801065-003	E1801065-003	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		07:25	P519302	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMScheck 07:25
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

191 of 366

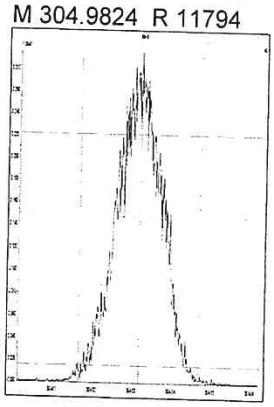
gc 12/10/18

048

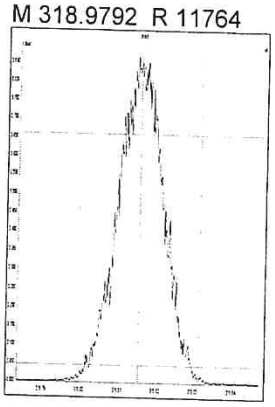
M 292.9824 R 11711



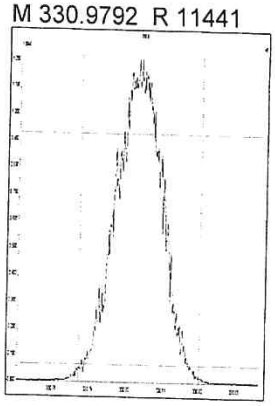
M 304.9824 R 11794



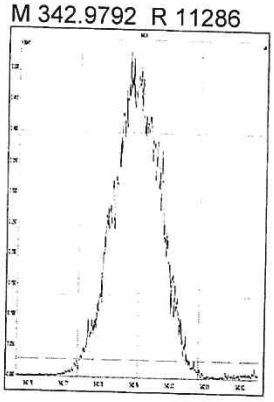
M 318.9792 R 11764



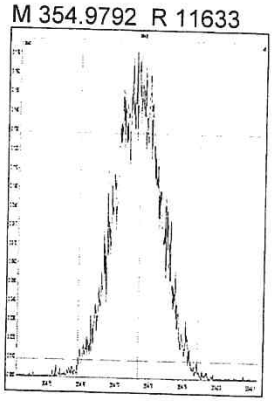
M 330.9792 R 11441



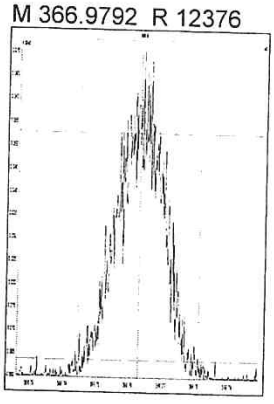
M 342.9792 R 11286



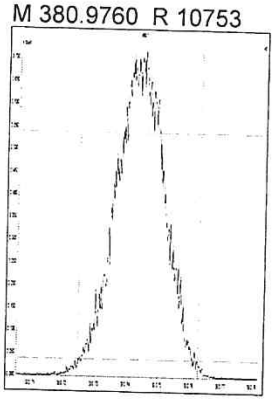
M 354.9792 R 11633



M 366.9792 R 12376



M 380.9760 R 10753



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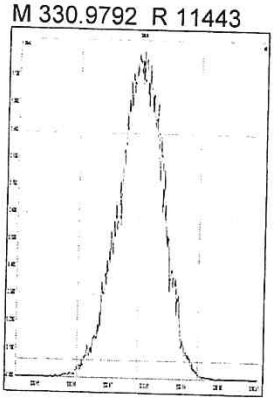
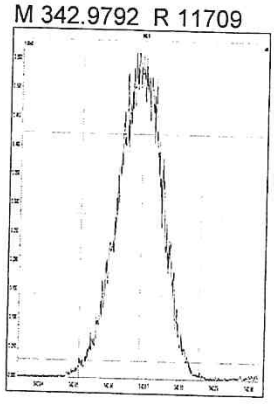
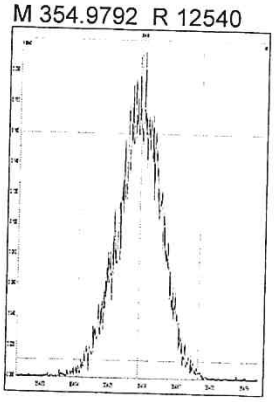


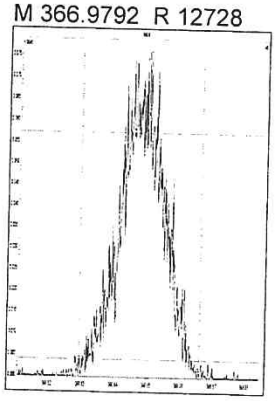
M 342.9792 R 11709



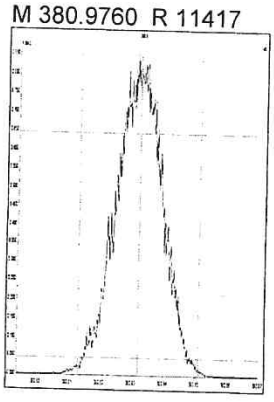
M 354.9792 R 12540



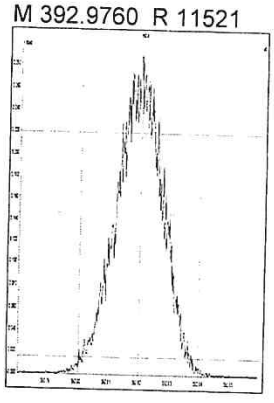
M 366.9792 R 12728



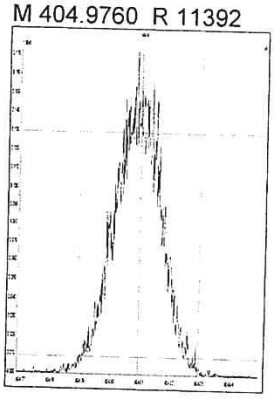
M 380.9760 R 11417



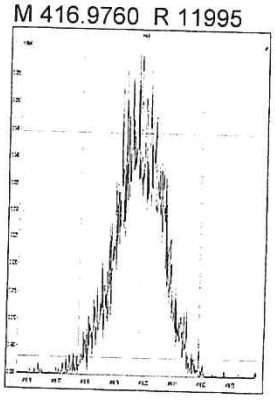
M 392.9760 R 11521



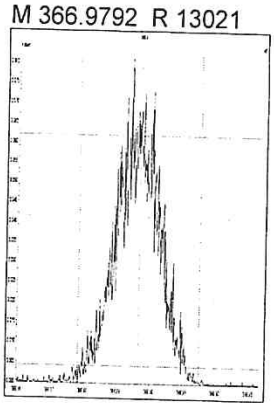
M 404.9760 R 11392



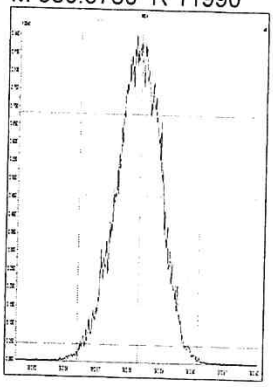
M 416.9760 R 11995



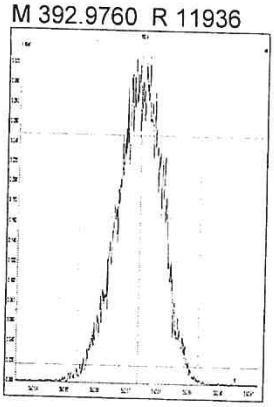
M 366.9792 R 13021



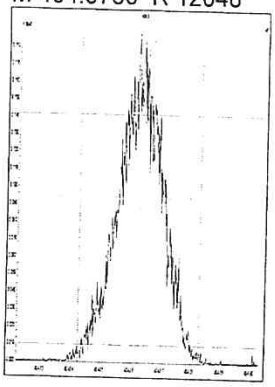
M 380.9760 R 11990



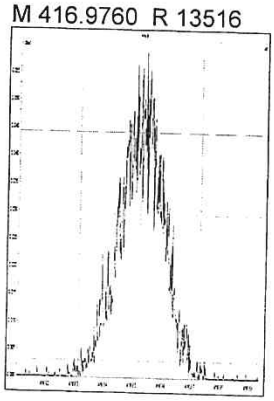
M 392.9760 R 11936



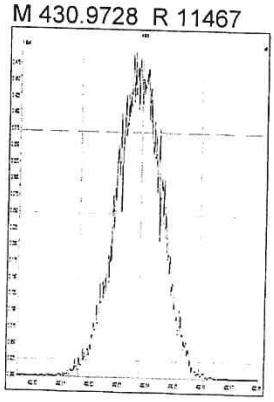
M 404.9760 R 12048



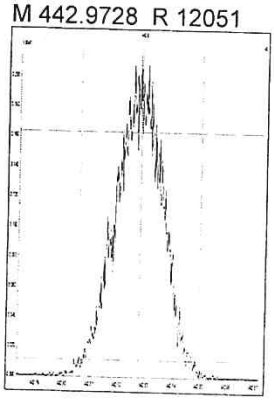
M 416.9760 R 13516



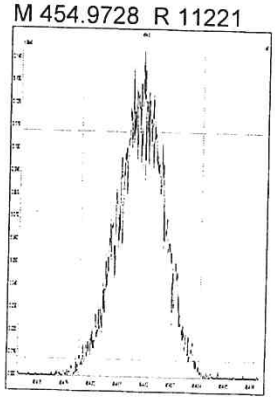
M 430.9728 R 11467



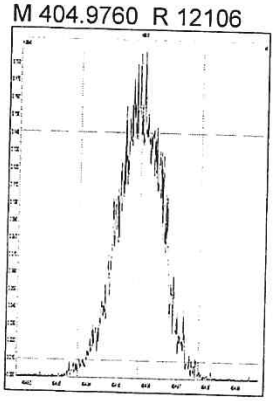
M 442.9728 R 12051



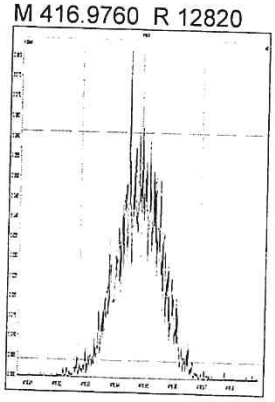
M 454.9728 R 11221



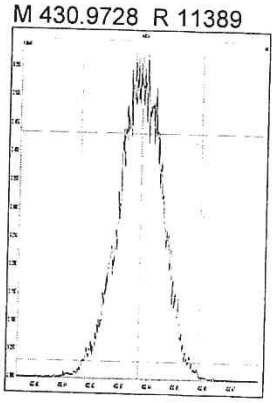
M 404.9760 R 12106



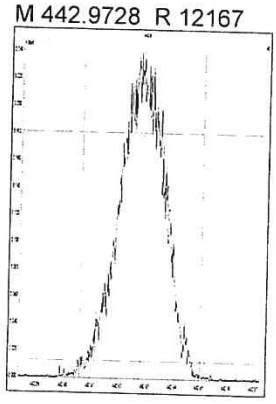
M 416.9760 R 12820



M 430.9728 R 11389



M 442.9728 R 12167



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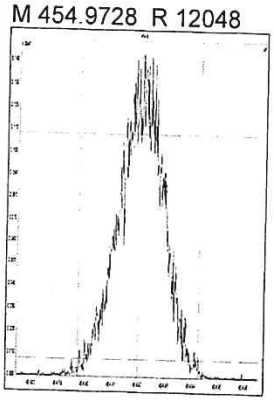
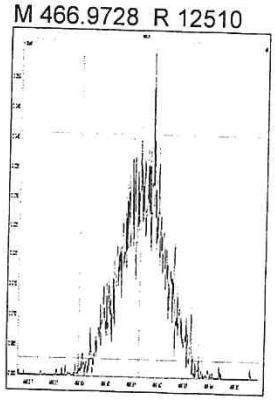
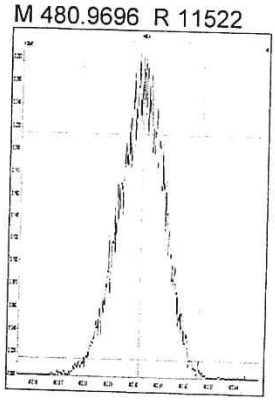


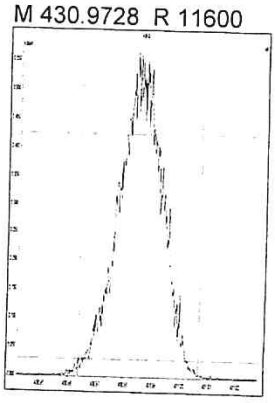
M 466.9728 R 12510



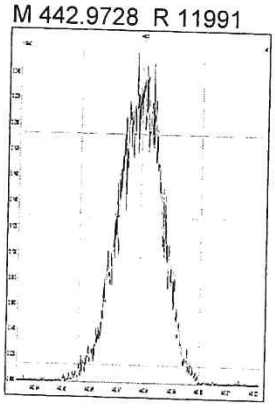
M 480.9696 R 11522



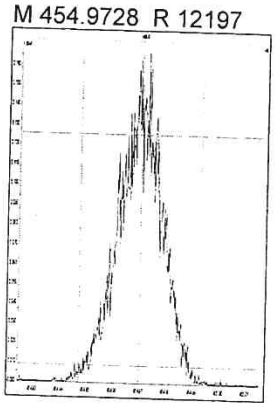
M 430.9728 R 11600



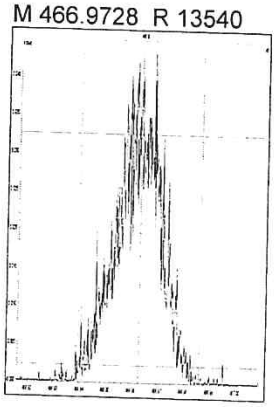
M 442.9728 R 11991



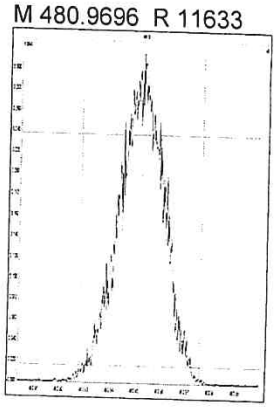
M 454.9728 R 12197



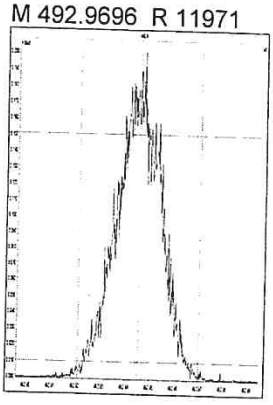
M 466.9728 R 13540



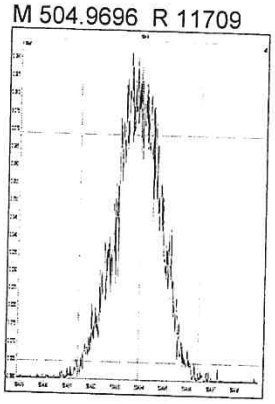
M 480.9696 R 11633



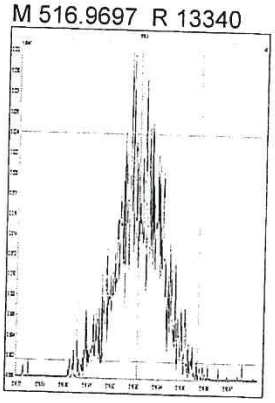
M 492.9696 R 11971



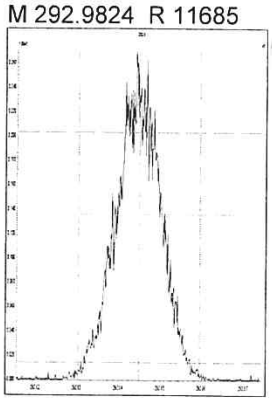
M 504.9696 R 11709



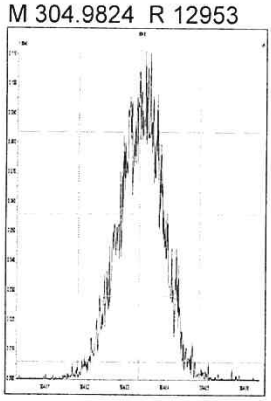
M 516.9697 R 13340



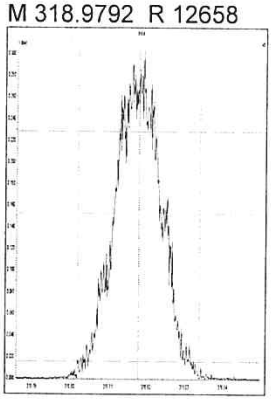
M 292.9824 R 11685



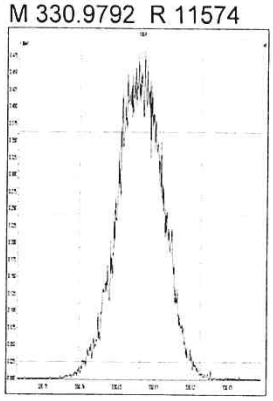
M 304.9824 R 12953



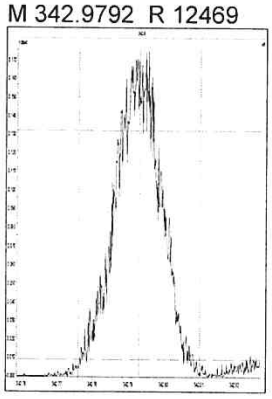
M 318.9792 R 12658



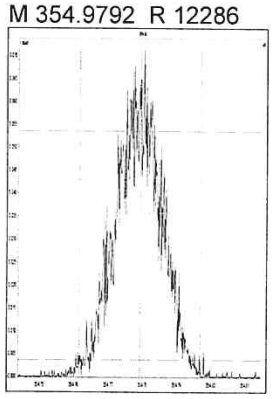
M 330.9792 R 11574



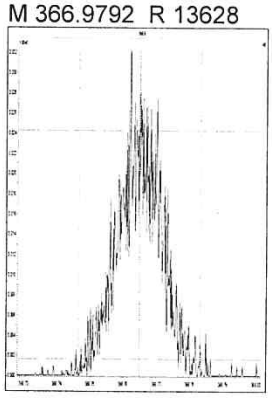
M 342.9792 R 12469



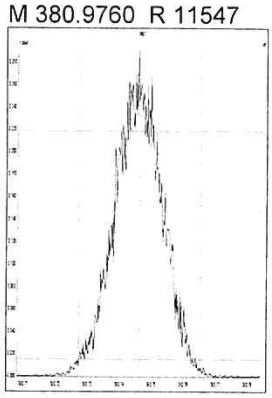
M 354.9792 R 12286



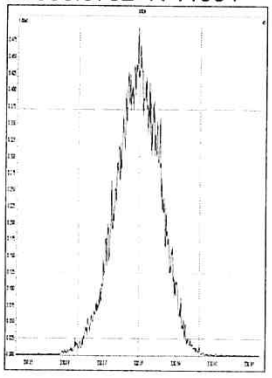
M 366.9792 R 13628



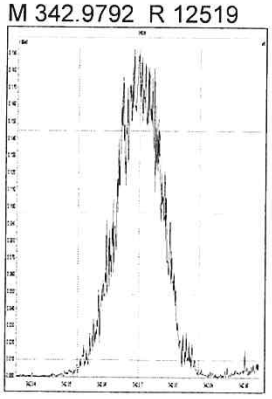
M 380.9760 R 11547



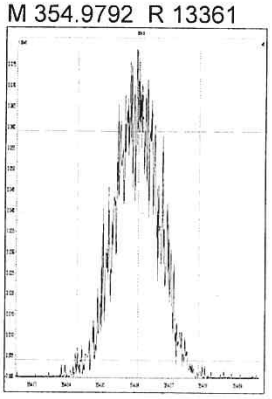
M 330.9792 R 11934



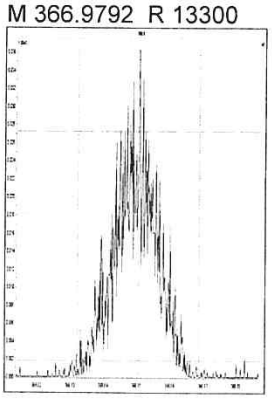
M 342.9792 R 12519



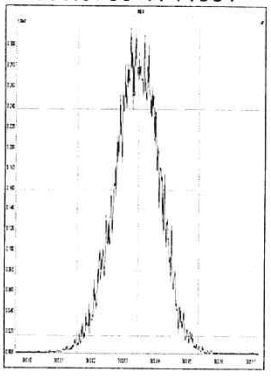
M 354.9792 R 13361



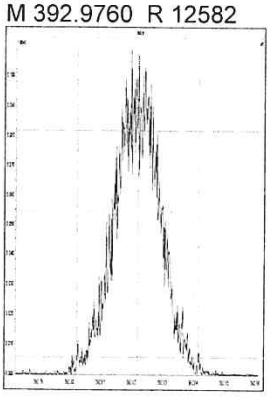
M 366.9792 R 13300



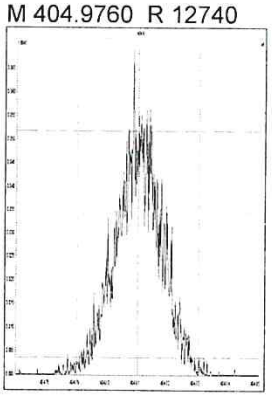
M 380.9760 R 11961



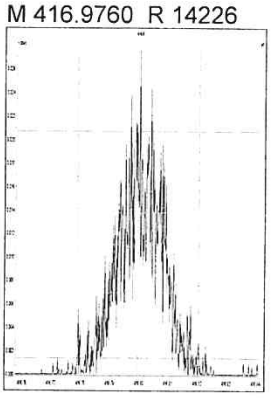
M 392.9760 R 12582



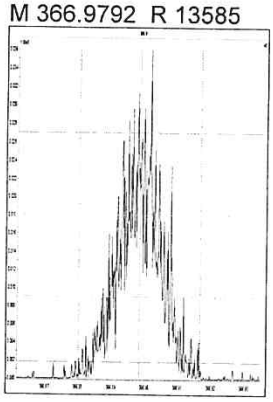
M 404.9760 R 12740



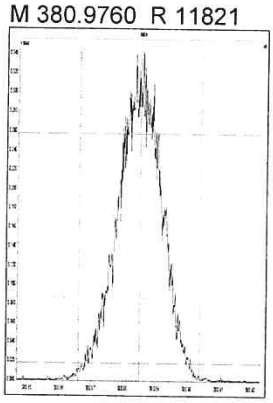
M 416.9760 R 14226



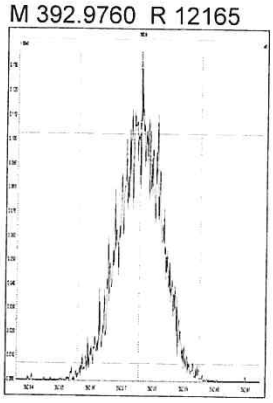
M 366.9792 R 13585



M 380.9760 R 11821



M 392.9760 R 12165



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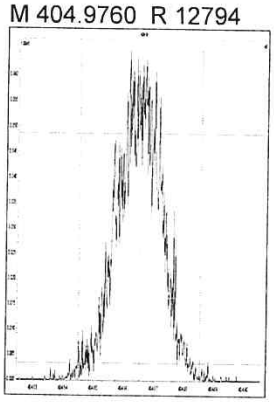
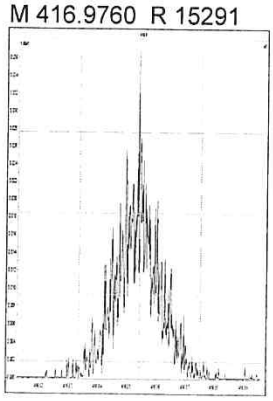
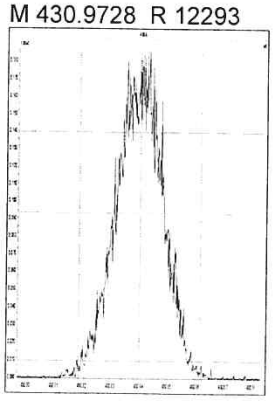


M 416.9760 R 15291



M 430.9728 R 12293



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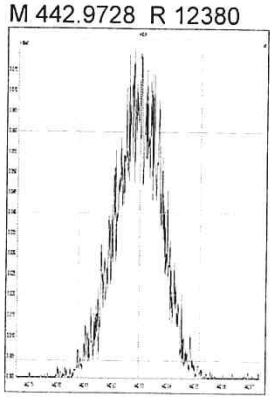
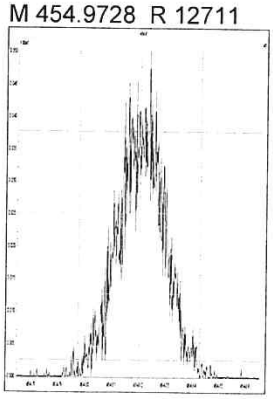
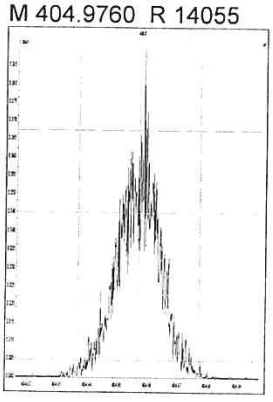


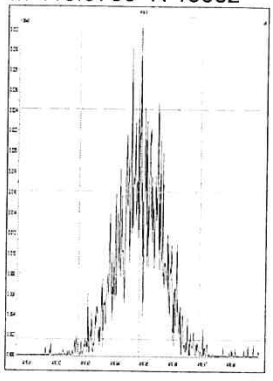
M 454.9728 R 12711



M 404.9760 R 14055



M 416.9760 R 15682



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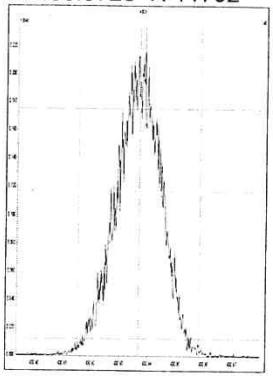

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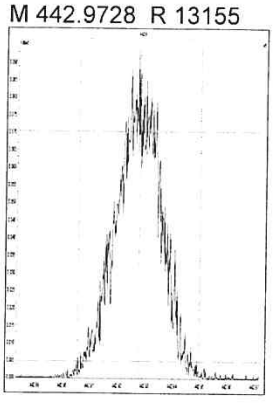
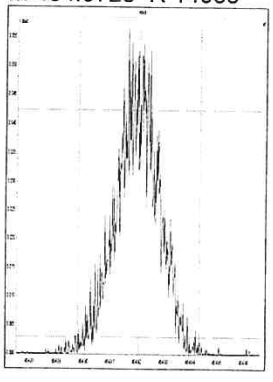
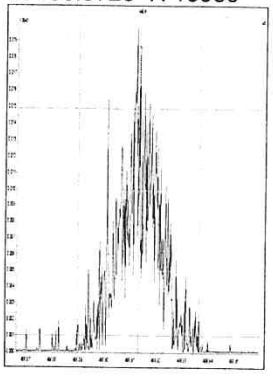


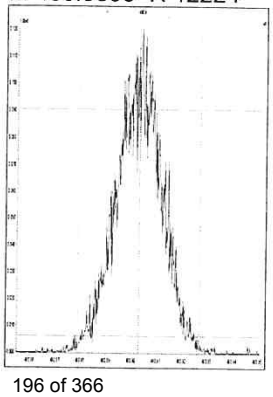
M 454.9728 R 14085



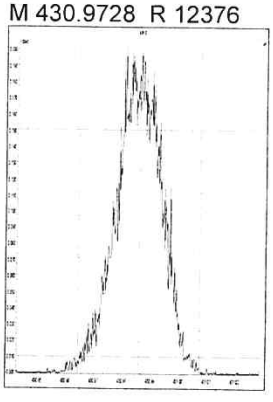
M 466.9728 R 16985



M 480.9696 R 12224

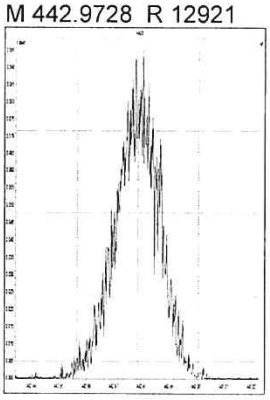


M 430.9728 R 12376



Printed: Saturday, December 08, 2018 07:25:07 Central Standard Time

M 442.9728 R 12921



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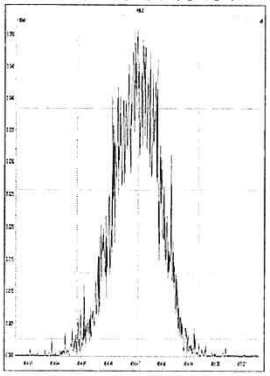

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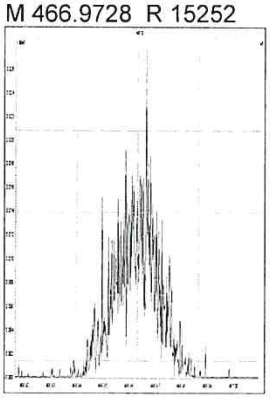

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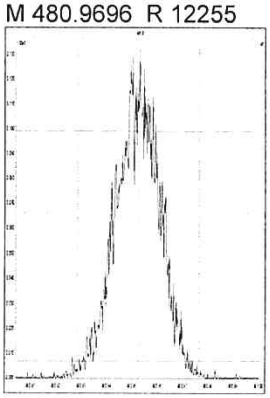

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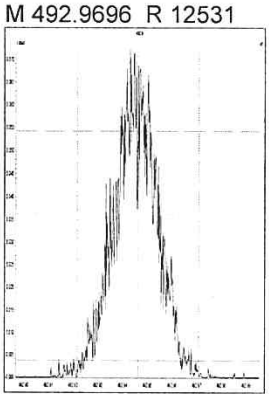
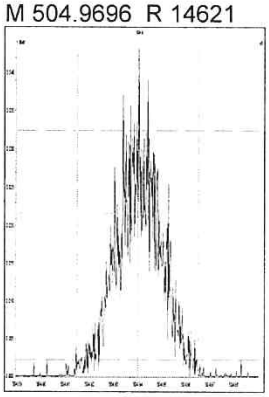


M 504.9696 R 14621



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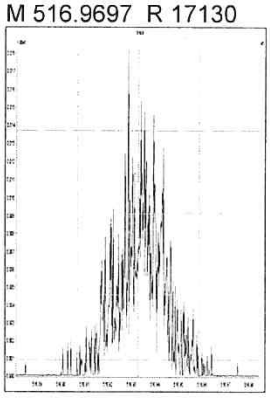


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

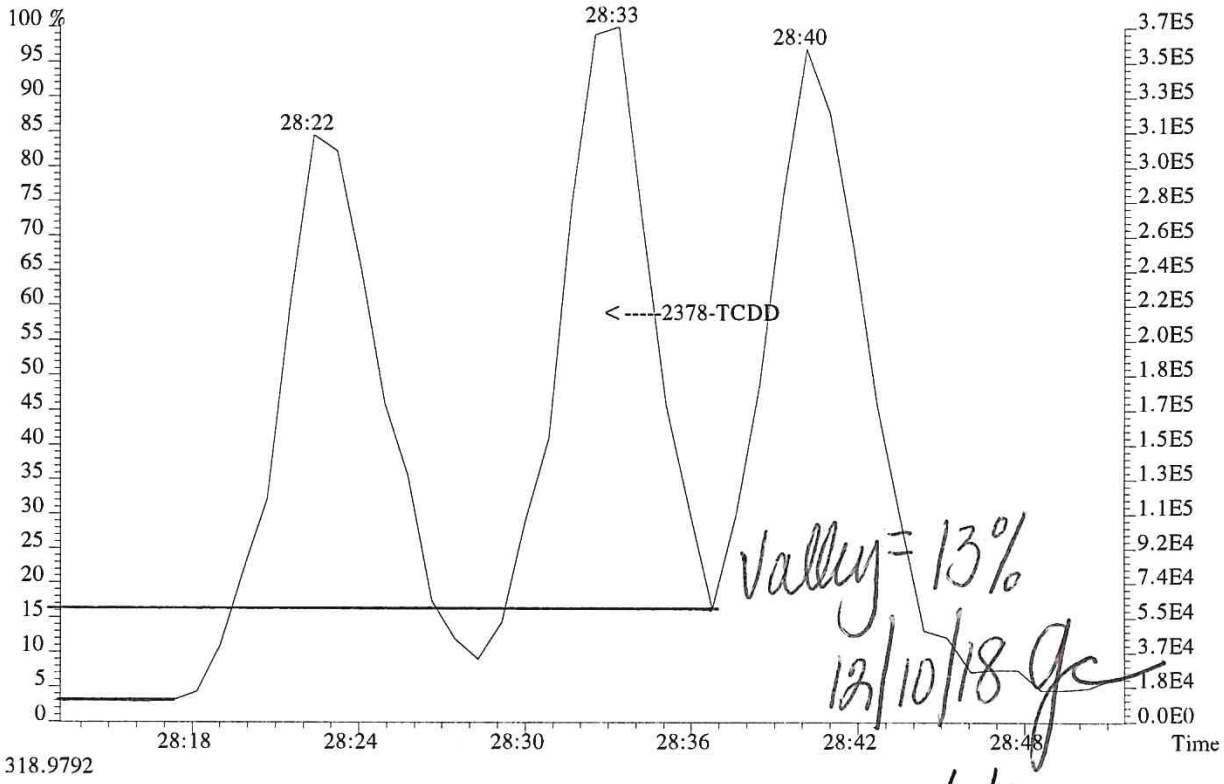
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519288
Date Analyzed: 7-DEC-2018
Time Analyzed: 19:56:03

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:17	29:44
TCDD	25:06	29:34
PeCDF	29:42	34:03
PeCDD	31:17	33:48
HxCDF	34:44	37:19
HxCDD	35:16	36:54
HpCDF	38:36	40:04
HpCDD	38:52	39:34

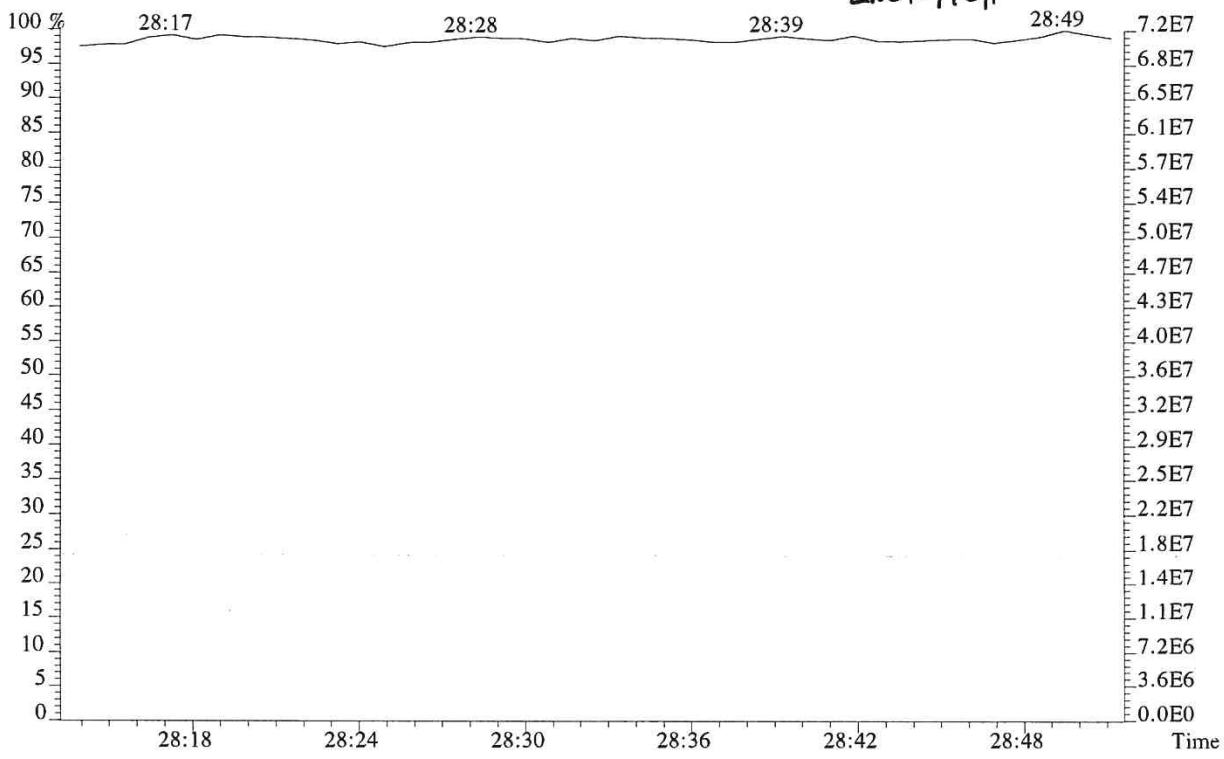
% Valley 2378-TCDD: 13 %

File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LMK 12/10/18



012051

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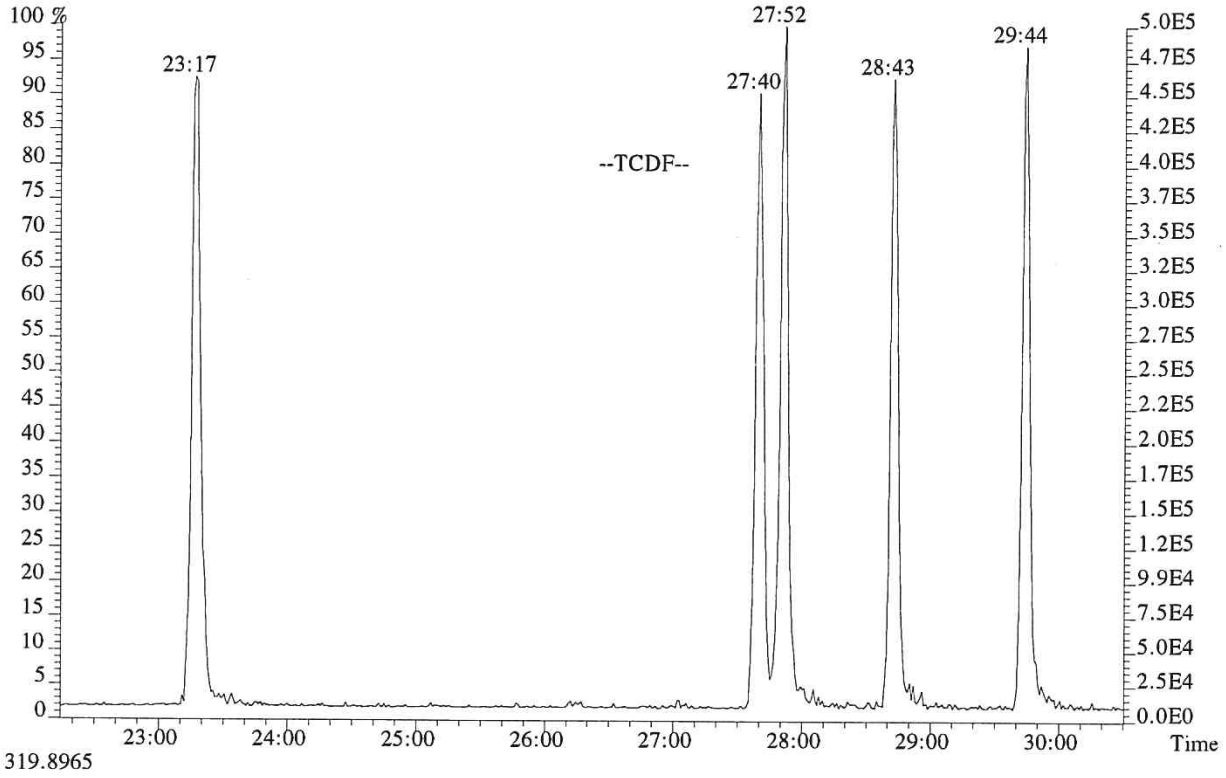
303.9016



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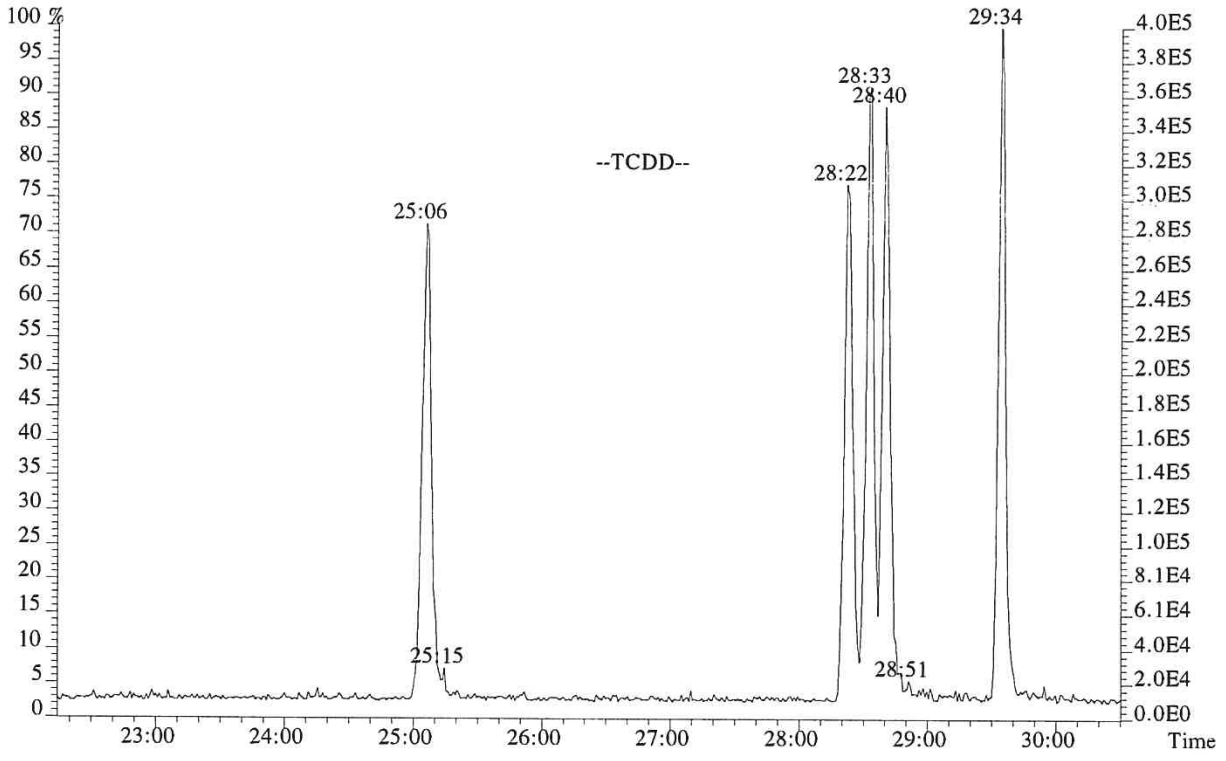

012052

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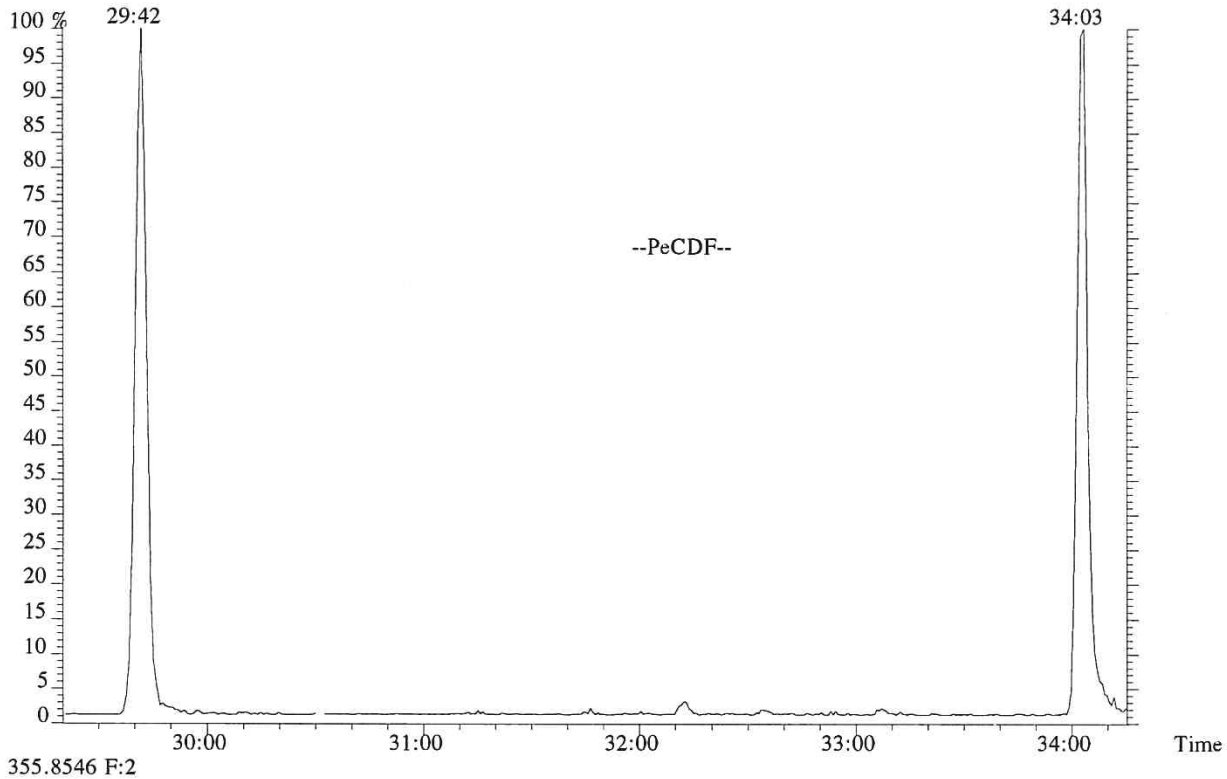
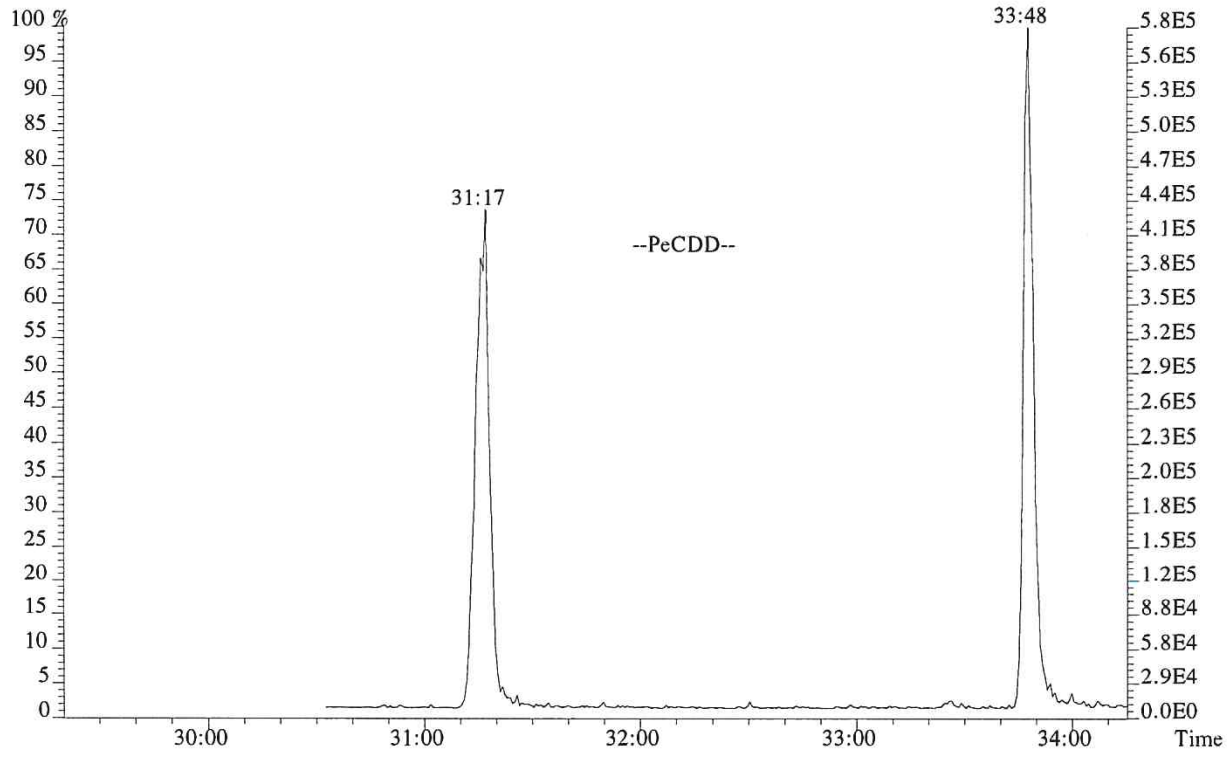
339.8597,339.8597 F:2



355.8546 F:2



012053

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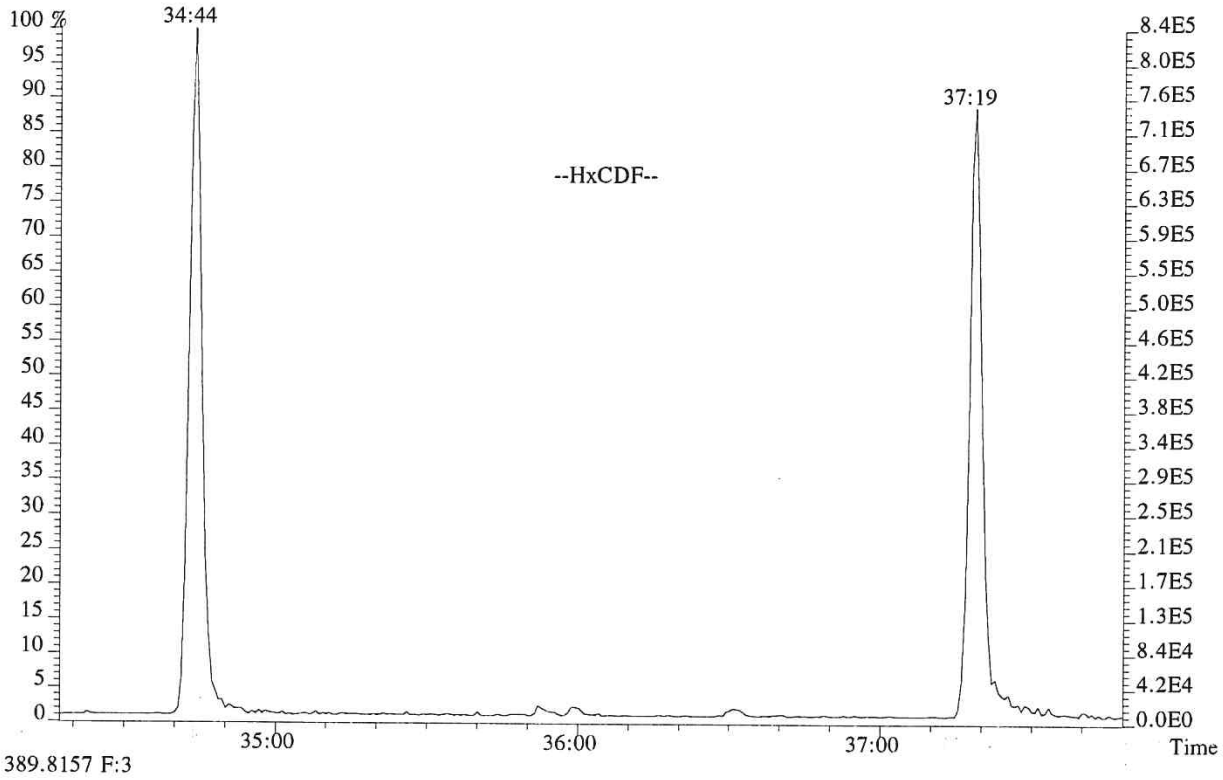
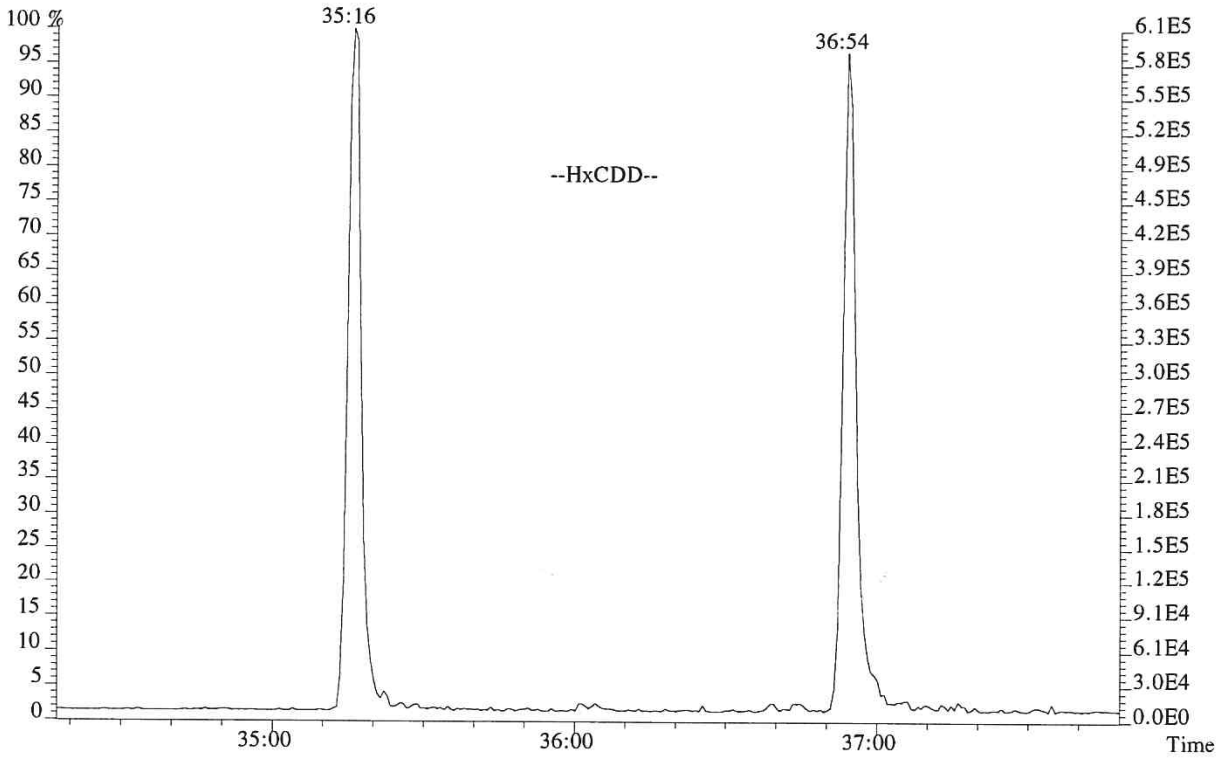
Sample#1 Exp:192977
373.8208 F:3

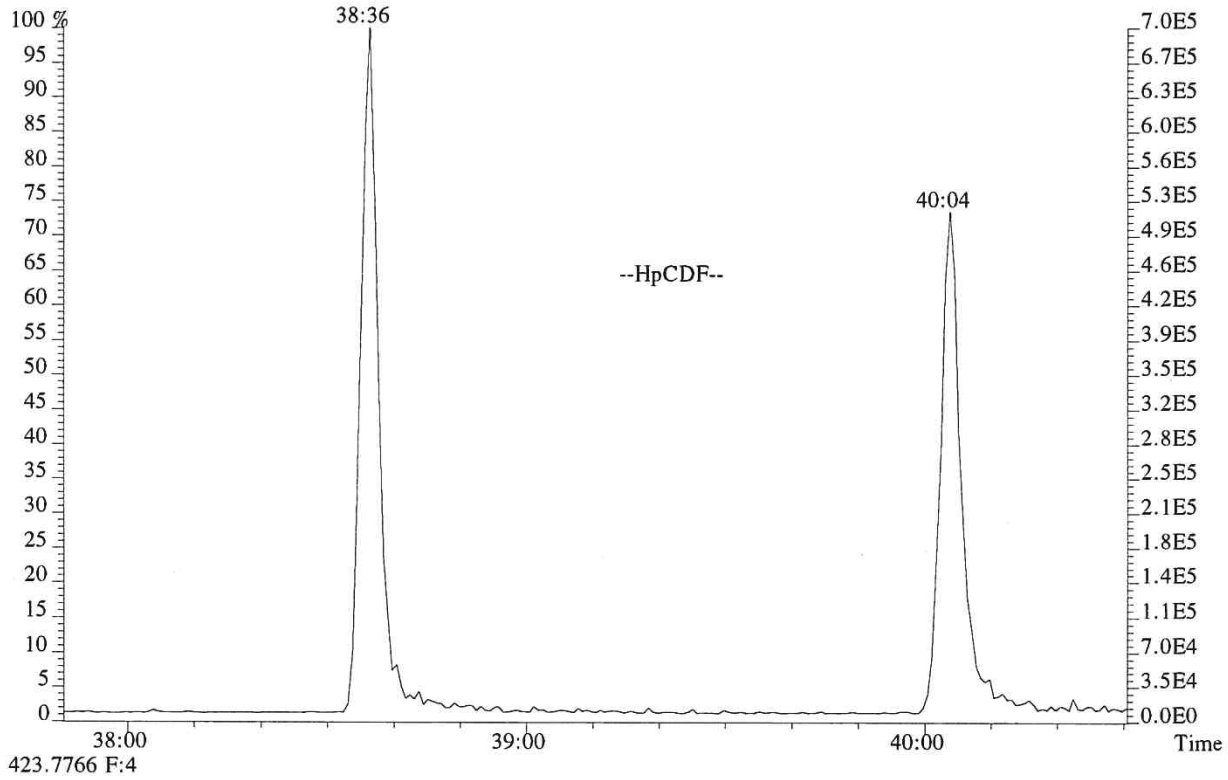


389.8157 F:3

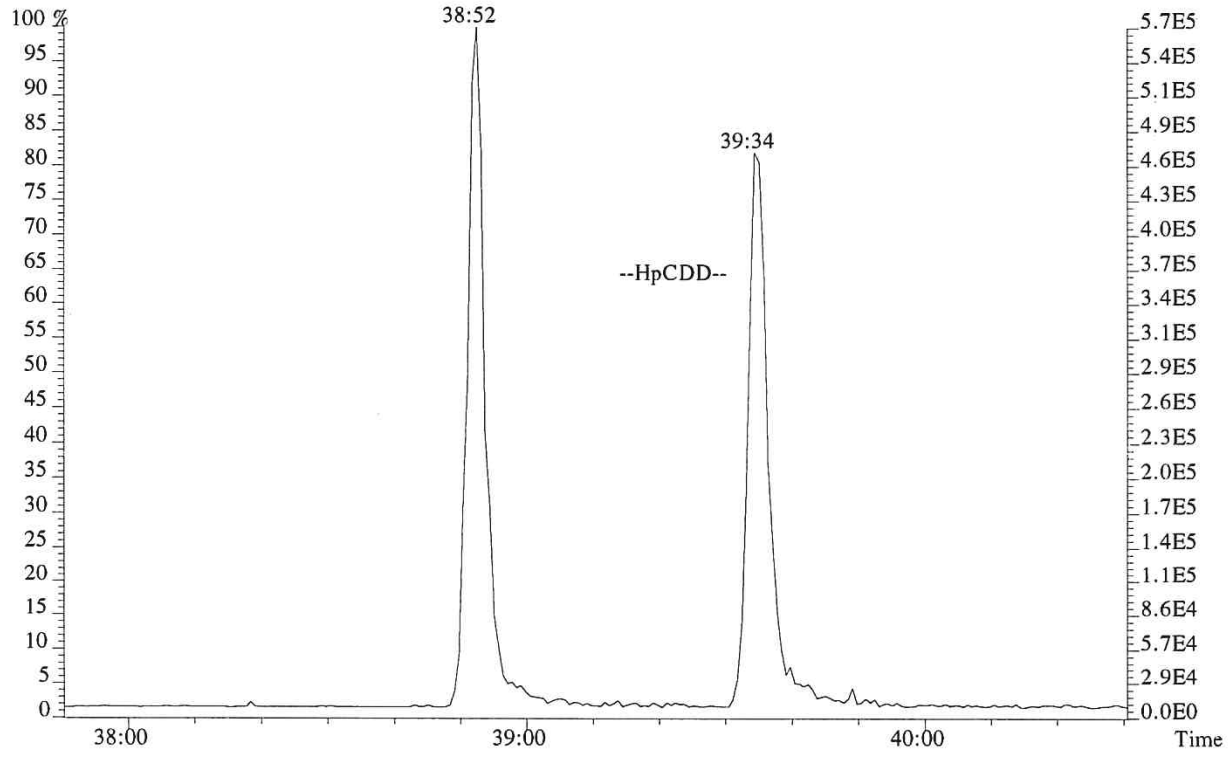


012054

File:P519288 #1-241 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



012055

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.8	7.8 - 12.9	-2.2
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	52	39 - 65	3.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	51	39 - 64	2.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	52	39 - 64	4.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	55	41 - 61	10.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	51	43 - 58	2.2
OCDD	M+2/M+4	0.90	0.76-1.02	102	79 - 126	2.0
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	10.0	8.4 - 12.0	0.5
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	0.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 61	2.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	51	43 - 58	1.9
OCDF	M+2/M+4	0.88	0.76-1.02	101	63 - 159	1.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	104	82 - 121	3.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	117	62 - 160	16.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	94	85 - 117	-5.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	93	85 - 118	-6.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	109	72 - 138	8.6
13C-OCDD	M+2/M+4	0.89	0.76-1.02	260	96 - 415	29.8
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-2.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	115	76 - 130	15.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	116	77 - 130	15.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	76 - 131	-12.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	92	70 - 143	-7.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-0.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-6.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	104	78 - 129	4.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	111	77 - 129	11.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	1.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	3.651e+03	4.952e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	3.206e+04	2.107e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	3.080e+04	1.981e+04	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	2.691e+04	2.245e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	3.028e+04	2.509e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.724e+04	2.254e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	2.554e+04	2.123e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	2.572e+04	2.571e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	2.196e+04	2.194e+04	1.00	yes	no	1.258
0	Unk	OCDF	42:45	3.662e+04	4.163e+04	0.88	yes	no	1.359
1	Unk	2,3,7,8-TCDD	28:41	2.761e+03	3.479e+03	0.79	yes	no	1.085
2	Unk	1,2,3,7,8-PeCDD	33:24	2.121e+04	1.333e+04	1.59	yes	no	0.956
3	Unk	1,2,3,4,7,8-HxCDD	36:39	1.971e+04	1.514e+04	1.30	yes	no	1.038
4	Unk	1,2,3,6,7,8-HxCDD	36:44	2.027e+04	1.584e+04	1.28	yes	no	1.038
5	Unk	1,2,3,7,8,9-HxCDD	36:59	2.150e+04	1.714e+04	1.25	yes	no	1.063
6	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.894e+04	1.774e+04	1.07	yes	no	1.025
7	Unk	OCDD	42:33	3.068e+04	3.415e+04	0.90	yes	no	1.118
8	IS	13C-2,3,7,8-TCDF	27:50	4.040e+04	5.052e+04	0.80	yes	no	1.513
9	IS	13C-1,2,3,7,8-PeCDF	32:10	6.382e+04	4.020e+04	1.59	yes	no	1.471
0	IS	13C-2,3,4,7,8-PeCDF	33:06	6.314e+04	3.999e+04	1.58	yes	no	1.457
1	IS	13C-1,2,3,4,7,8-HxCDF	35:51	2.765e+04	5.368e+04	0.52	yes	no	1.234
2	IS	13C-1,2,3,6,7,8-HxCDF	35:58	3.358e+04	6.345e+04	0.53	yes	no	1.399
3	IS	13C-2,3,4,6,7,8-HxCDF	36:29	3.020e+04	5.826e+04	0.52	yes	no	1.257
4	IS	13C-1,2,3,7,8,9-HxCDF	37:16	2.797e+04	5.320e+04	0.53	yes	no	1.086
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	2.344e+04	5.212e+04	0.45	yes	no	0.966
6	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	2.114e+04	4.735e+04	0.45	yes	no	0.820
7	IS	13C-2,3,7,8-TCDD	28:39	2.623e+04	3.259e+04	0.80	yes	no	0.924
8	IS	13C-1,2,3,7,8-PeCDD	33:24	4.289e+04	2.696e+04	1.59	yes	no	0.975
9	IS	13C-1,2,3,4,7,8-HxCDD	36:38	3.687e+04	2.852e+04	1.29	yes	no	0.925
0	IS	13C-1,2,3,6,7,8-HxCDD	36:43	3.742e+04	2.911e+04	1.29	yes	no	0.949
1	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	3.637e+04	3.368e+04	1.08	yes	no	0.858
2	IS	13C-OCDD	42:33	5.342e+04	6.023e+04	0.89	yes	no	0.582
3	RS/RT	13C-1,2,3,4-TCDD	28:05	2.717e+04	3.412e+04	0.80	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	4.200e+04	3.318e+04	1.27	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:40	6.279e+03				no	1.014

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Signal/Noise Height Ratio Summary CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	6.34e+05	5.32e+02	1.2e+03	8.78e+05	1.42e+03	6.2e+02
	1,2,3,7,8-PeCDF	5.87e+06	4.76e+02	1.2e+04	3.87e+06	1.20e+03	3.2e+03
	2,3,4,7,8-PeCDF	6.08e+06	4.76e+02	1.3e+04	3.82e+06	1.20e+03	3.2e+03
	1,2,3,4,7,8-HxCDF	5.87e+06	7.00e+02	8.4e+03	4.99e+06	6.00e+02	8.3e+03
	1,2,3,6,7,8-HxCDF	6.14e+06	7.00e+02	8.8e+03	5.11e+06	6.00e+02	8.5e+03
	2,3,4,6,7,8-HxCDF	5.95e+06	7.00e+02	8.5e+03	4.93e+06	6.00e+02	8.2e+03
	1,2,3,7,8,9-HxCDF	4.77e+06	7.00e+02	6.8e+03	3.97e+06	6.00e+02	6.6e+03
	1,2,3,4,6,7,8-HpCDF	5.16e+06	2.04e+02	2.5e+04	5.11e+06	1.60e+02	3.2e+04
	1,2,3,4,7,8,9-HpCDF	3.49e+06	2.04e+02	1.7e+04	3.55e+06	1.60e+02	2.2e+04
0	OCDF	4.67e+06	2.52e+02	1.9e+04	5.34e+06	1.02e+03	5.2e+03
1	2,3,7,8-TCDD	5.32e+05	2.04e+03	2.6e+02	6.56e+05	1.17e+03	5.6e+02
2	1,2,3,7,8-PeCDD	4.13e+06	7.76e+02	5.3e+03	2.61e+06	2.92e+02	8.9e+03
3	1,2,3,4,7,8-HxCDD	4.25e+06	3.72e+02	1.1e+04	3.20e+06	6.84e+02	4.7e+03
4	1,2,3,6,7,8-HxCDD	3.99e+06	3.72e+02	1.1e+04	3.10e+06	6.84e+02	4.5e+03
5	1,2,3,7,8,9-HxCDD	4.16e+06	3.72e+02	1.1e+04	3.22e+06	6.84e+02	4.7e+03
6	1,2,3,4,6,7,8-HpCDD	3.45e+06	4.48e+02	7.7e+03	3.25e+06	4.96e+02	6.6e+03
7	OCDD	3.99e+06	2.52e+02	1.6e+04	4.42e+06	3.00e+02	1.5e+04
8	13C-2,3,7,8-TCDF	7.22e+06	6.64e+03	1.1e+03	9.07e+06	6.70e+03	1.4e+03
9	13C-1,2,3,7,8-PeCDF	1.17e+07	8.12e+02	1.4e+04	7.35e+06	5.40e+02	1.4e+04
0	13C-2,3,4,7,8-PeCDF	1.23e+07	8.12e+02	1.5e+04	7.92e+06	5.40e+02	1.5e+04
1	13C-1,2,3,4,7,8-HxCDF	6.00e+06	9.16e+02	6.6e+03	1.18e+07	8.96e+02	1.3e+04
2	13C-1,2,3,6,7,8-HxCDF	6.90e+06	9.16e+02	7.5e+03	1.30e+07	8.96e+02	1.5e+04
3	13C-2,3,4,6,7,8-HxCDF	6.46e+06	9.16e+02	7.1e+03	1.24e+07	8.96e+02	1.4e+04
4	13C-1,2,3,7,8,9-HxCDF	5.21e+06	9.16e+02	5.7e+03	9.73e+06	8.96e+02	1.1e+04
5	13C-1,2,3,4,6,7,8-HpCDF	4.61e+06	2.22e+03	2.1e+03	1.02e+07	1.12e+03	9.2e+03
6	13C-1,2,3,4,7,8,9-HpCDF	3.39e+06	2.22e+03	1.5e+03	7.57e+06	1.12e+03	6.8e+03
7	13C-2,3,7,8-TCDD	4.99e+06	4.20e+03	1.2e+03	6.26e+06	1.75e+03	3.6e+03
8	13C-1,2,3,7,8-PeCDD	8.63e+06	1.40e+03	6.2e+03	5.45e+06	1.18e+03	4.6e+03
9	13C-1,2,3,4,7,8-HxCDD	7.82e+06	7.08e+02	1.1e+04	5.99e+06	7.16e+02	8.4e+03
0	13C-1,2,3,6,7,8-HxCDD	7.35e+06	7.08e+02	1.0e+04	5.72e+06	7.16e+02	8.0e+03
1	13C-1,2,3,4,6,7,8-HpCDD	6.49e+06	6.00e+02	1.1e+04	6.06e+06	5.16e+02	1.2e+04
2	13C-OCDD	6.87e+06	4.92e+02	1.4e+04	7.75e+06	2.76e+02	2.8e+04
3	13C-1,2,3,4-TCDD	5.19e+06	4.20e+03	1.2e+03	6.52e+06	1.75e+03	3.7e+03
4	13C-1,2,3,7,8,9-HxCDD	7.95e+06	7.08e+02	1.1e+04	6.19e+06	7.16e+02	8.6e+03
5	37Cl-2,3,7,8-TCDD	1.17e+06	1.10e+03	1.1e+03			

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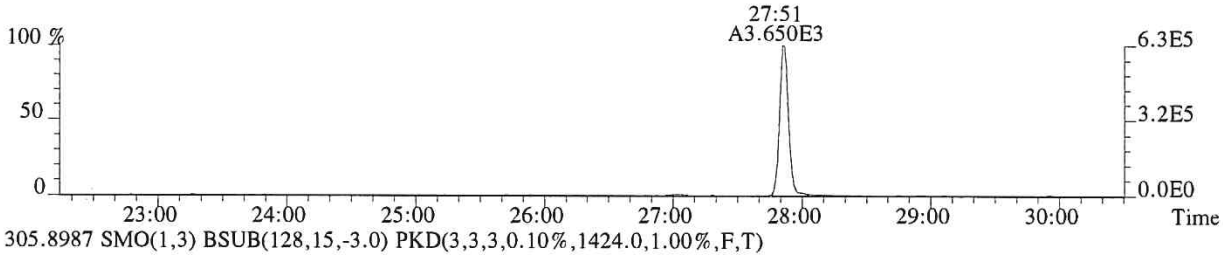
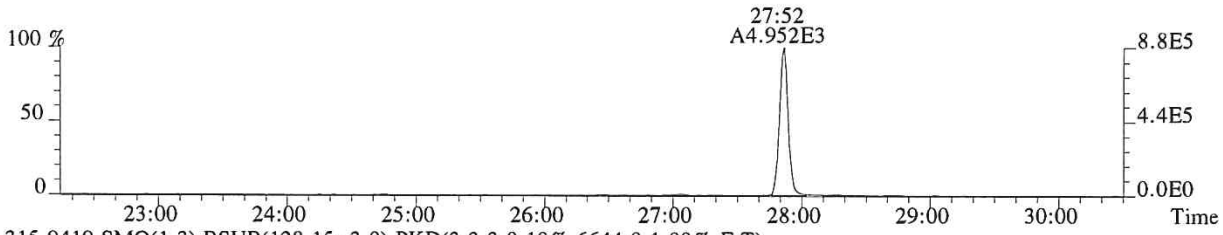
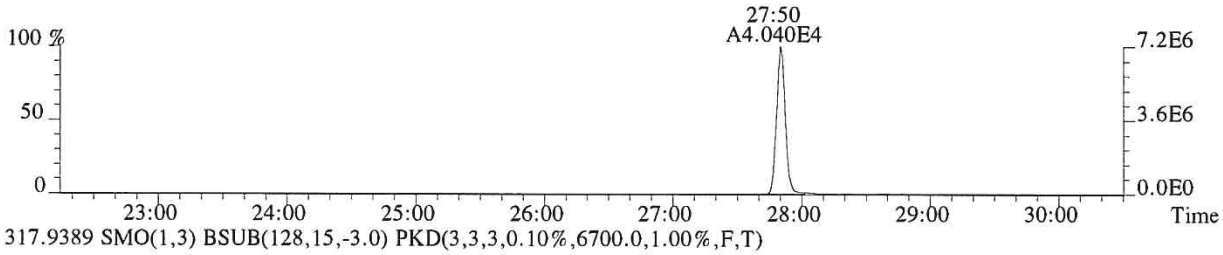
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



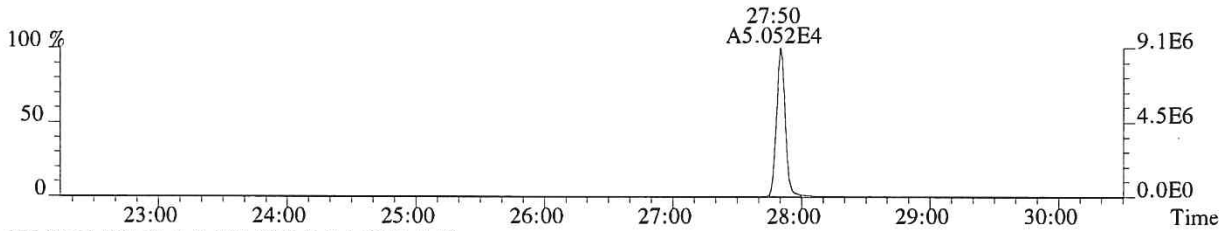
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



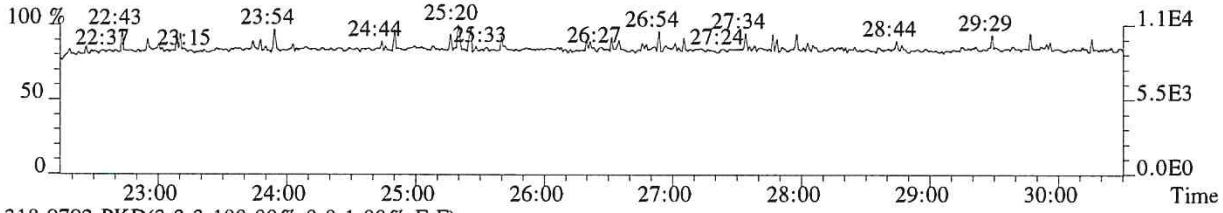
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



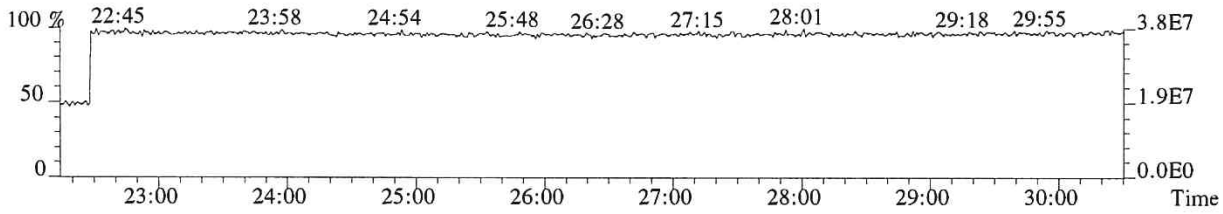
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6700.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

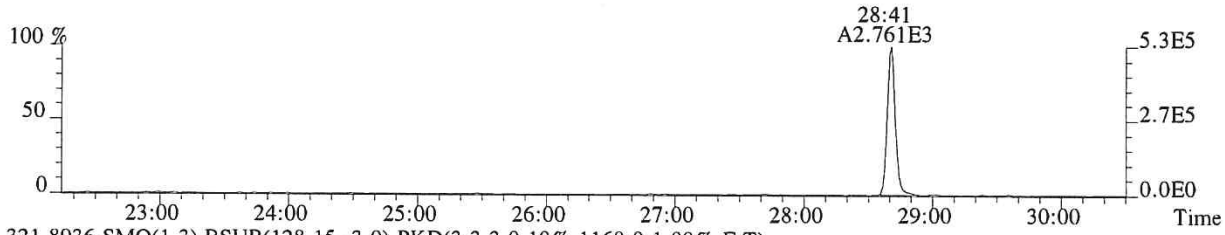


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

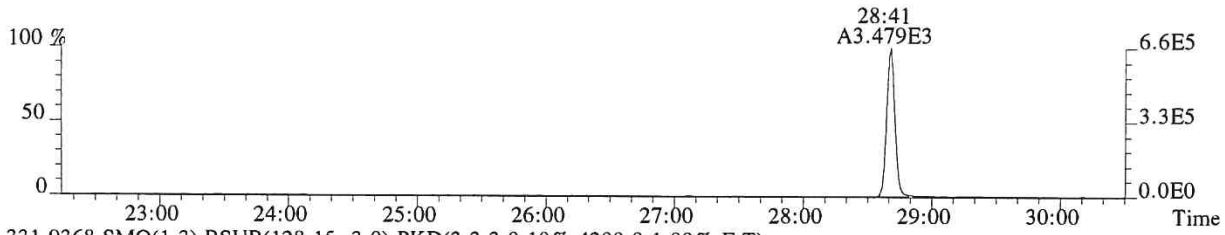


012060

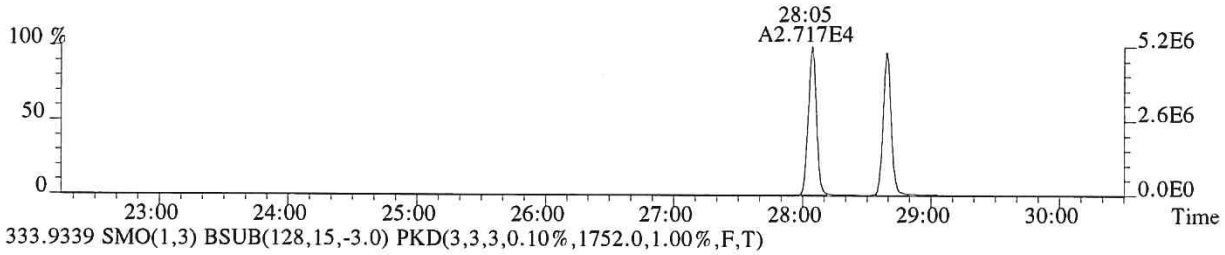
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2044.0,1.00%,F,T)



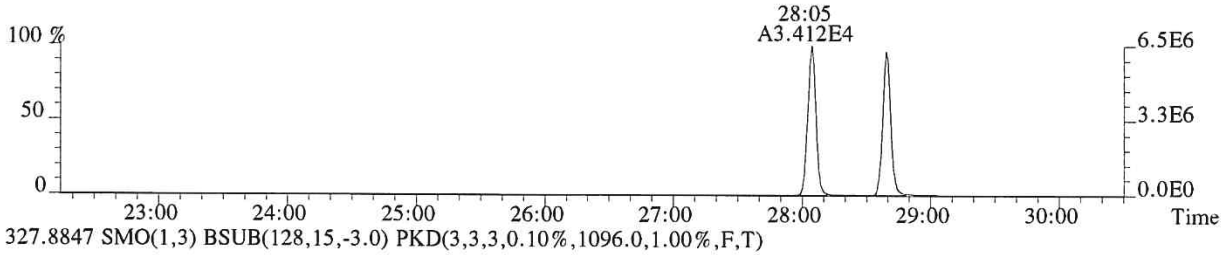
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



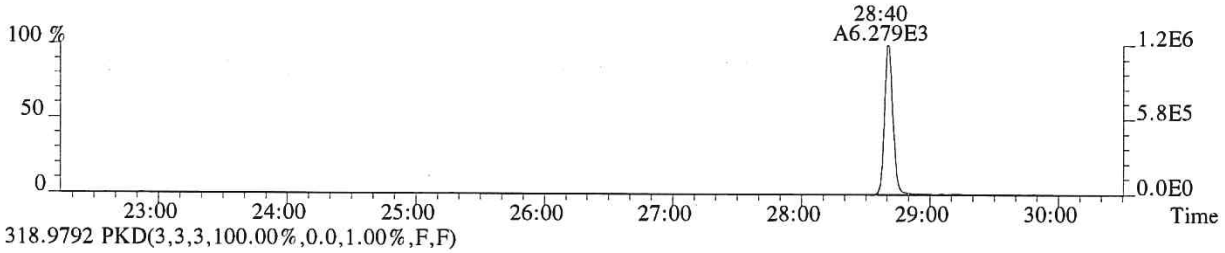
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4200.0,1.00%,F,T)



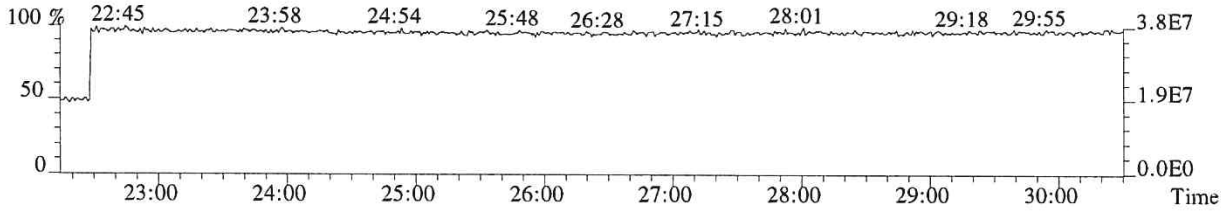
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)

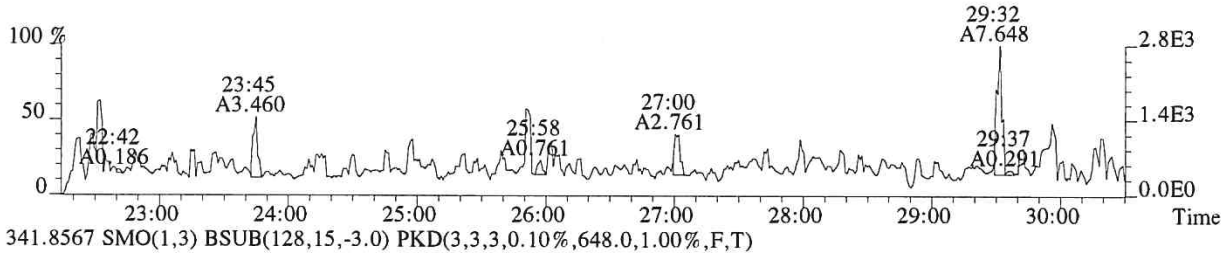


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

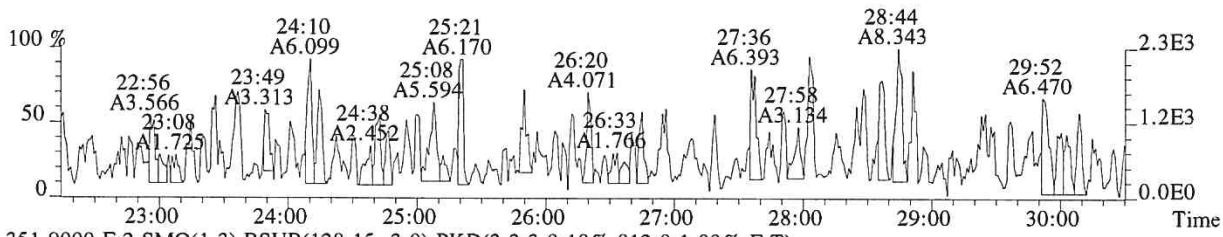


012061

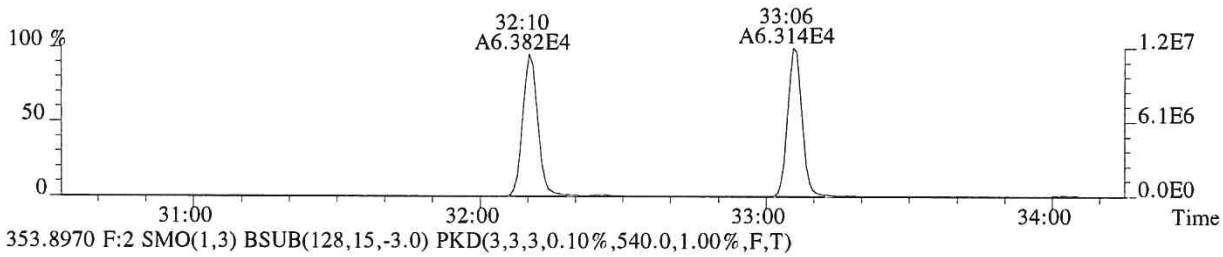
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



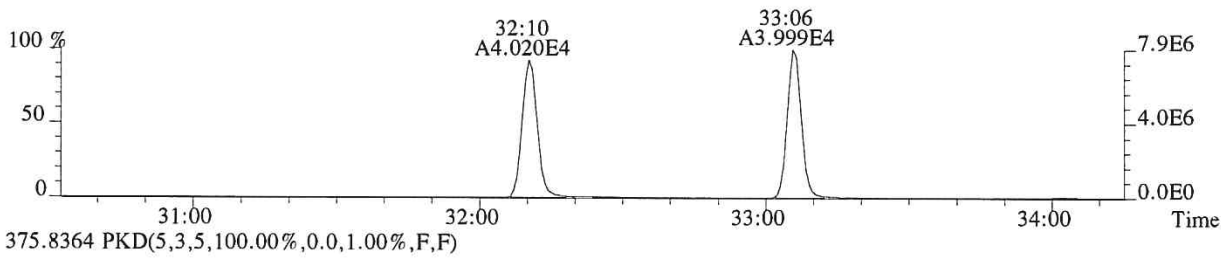
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



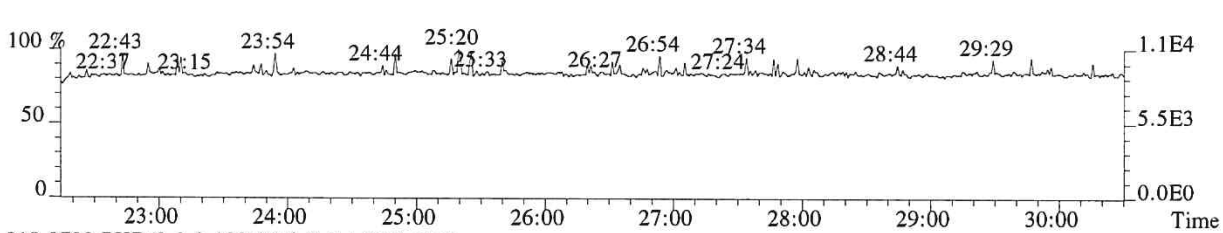
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



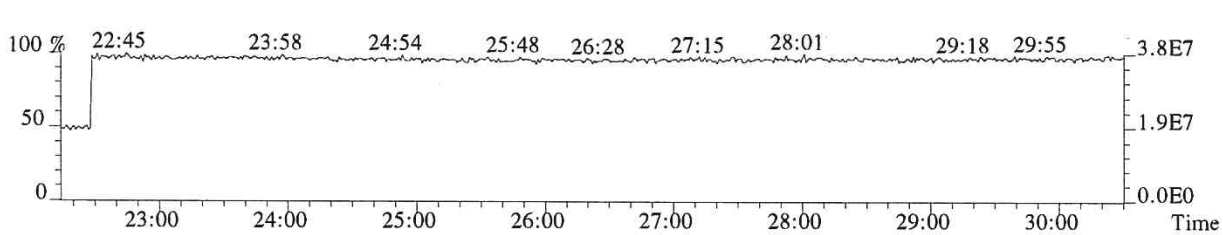
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

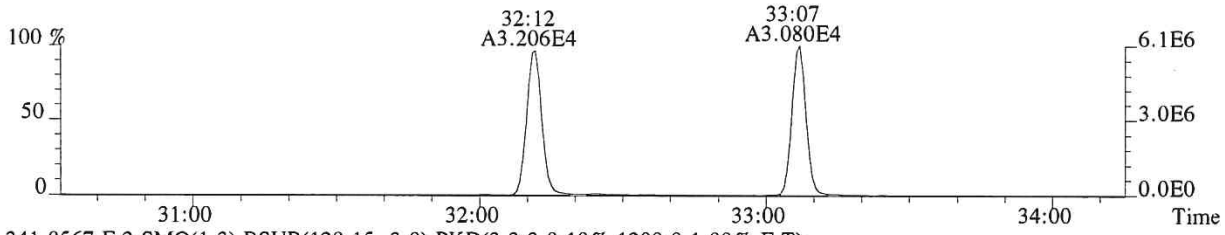


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

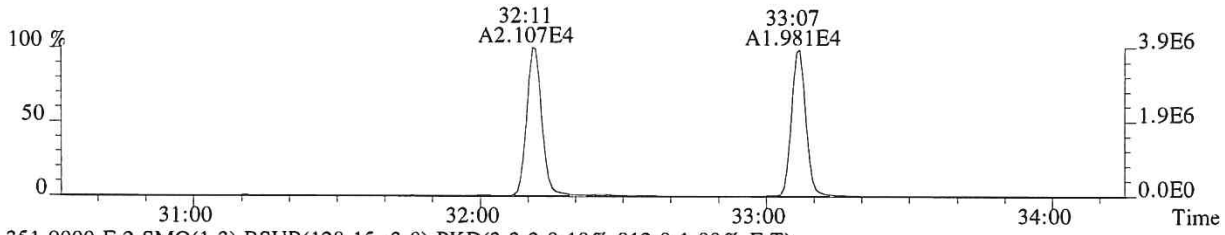


012062

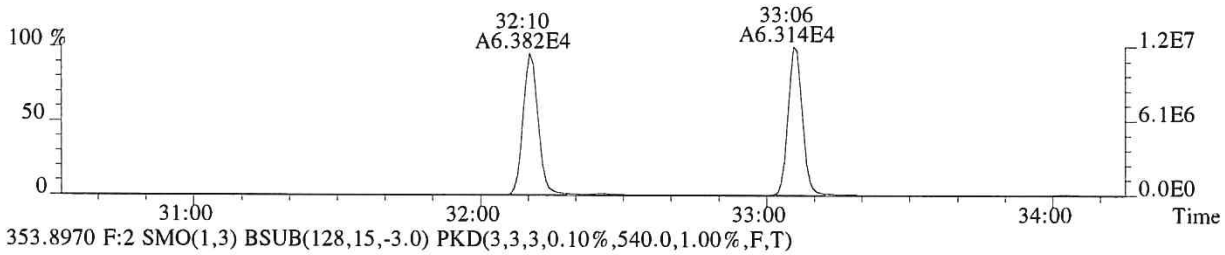
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



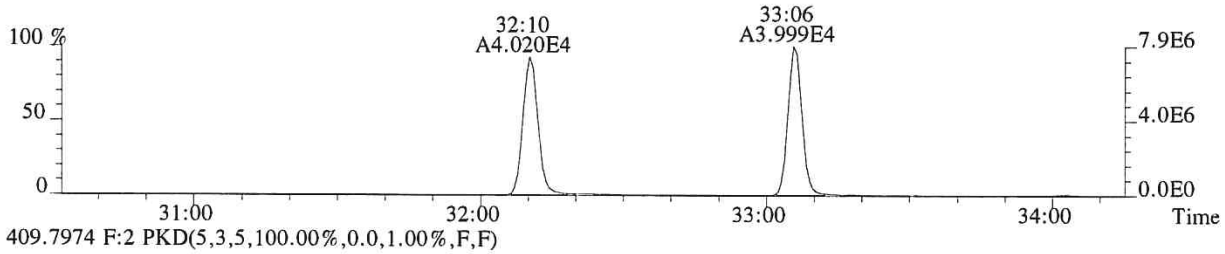
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



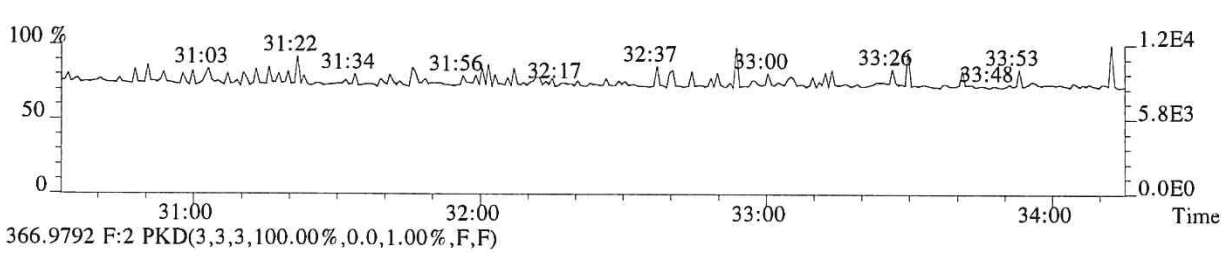
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



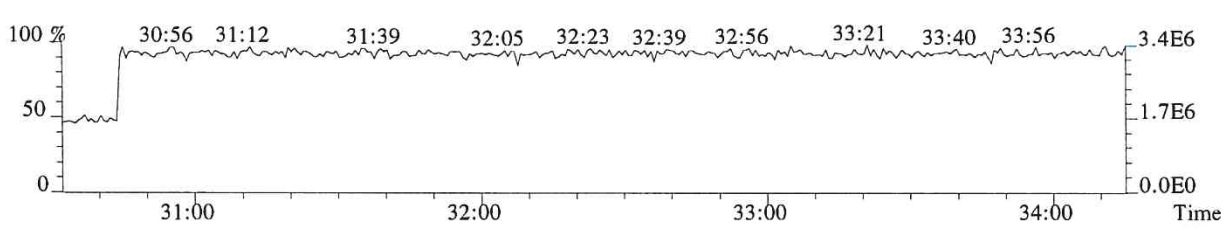
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

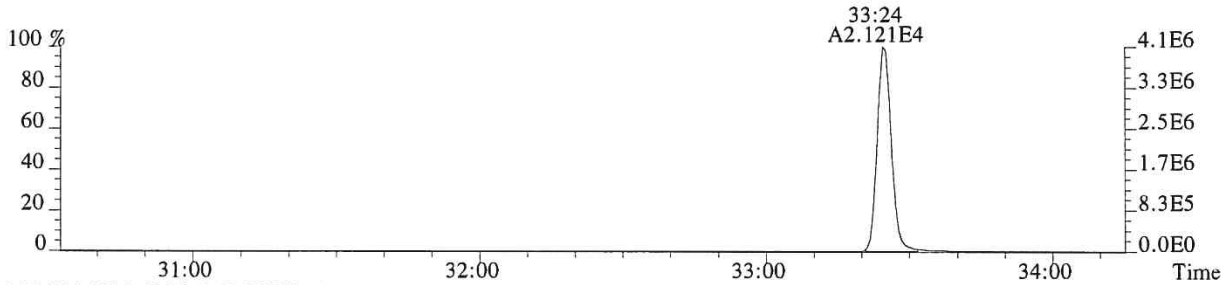


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

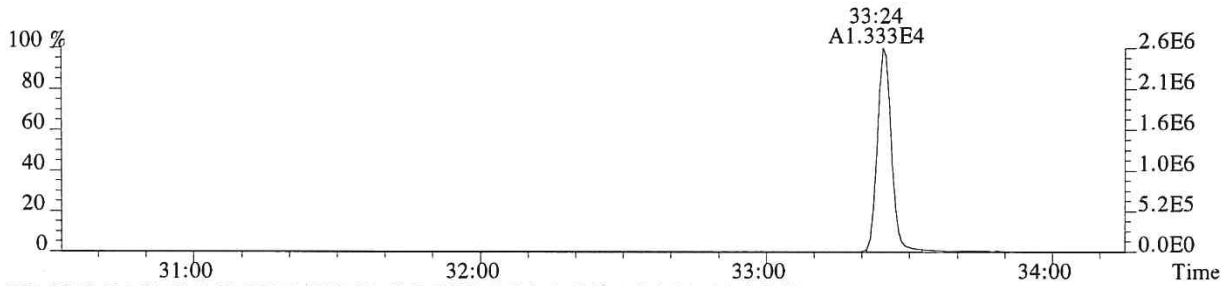


012063

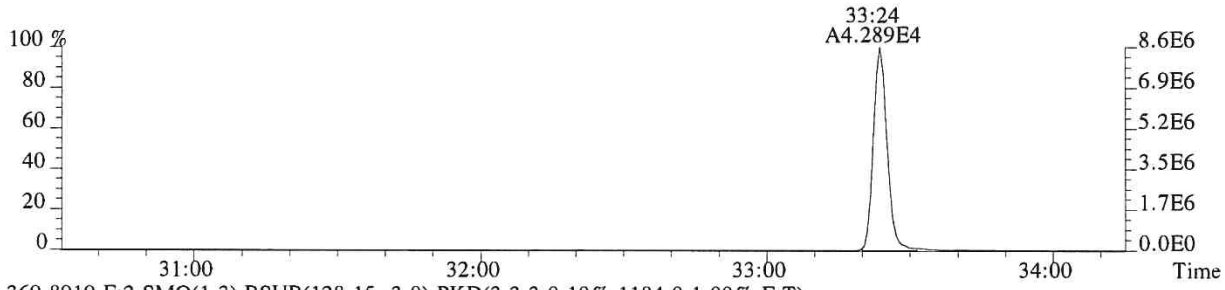
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



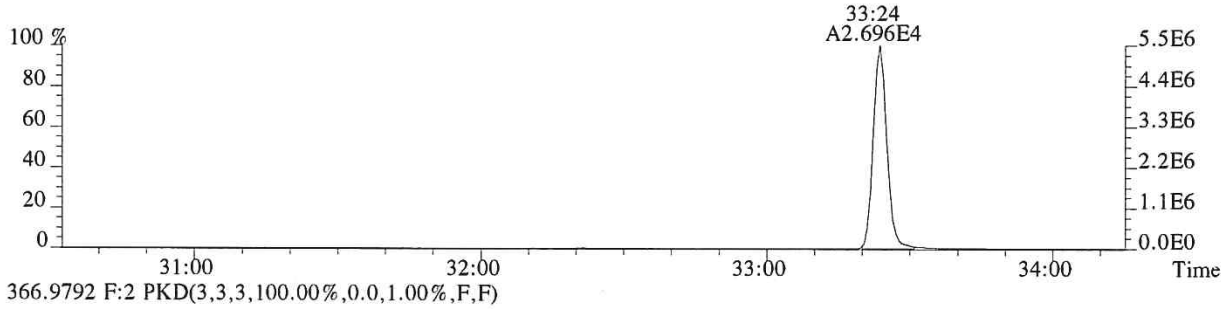
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



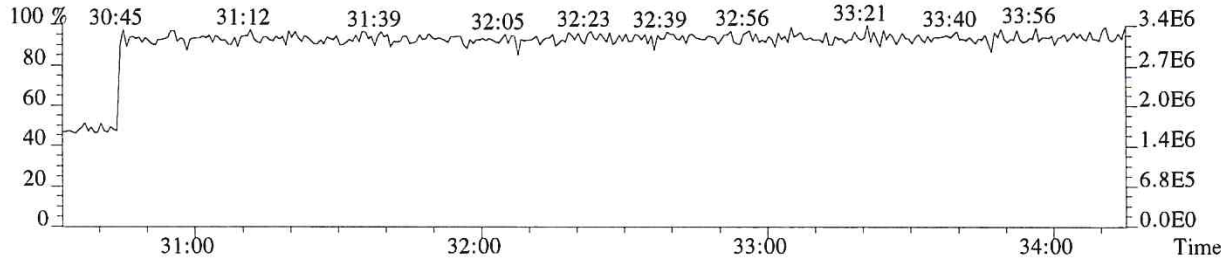
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)

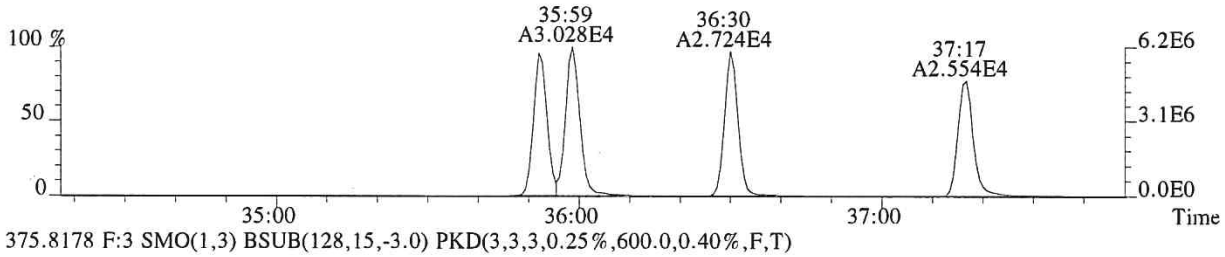


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

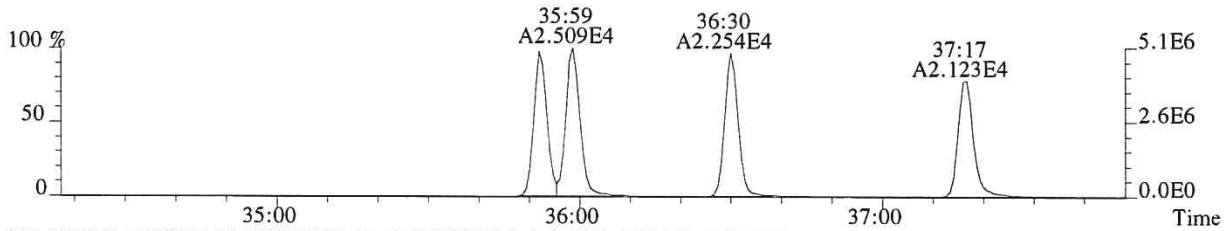


012064

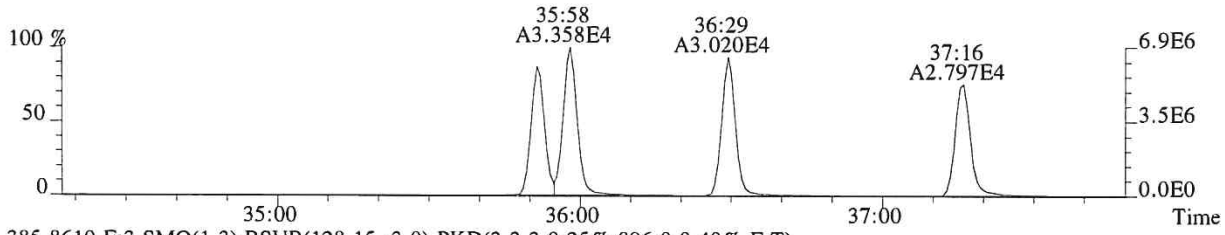
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



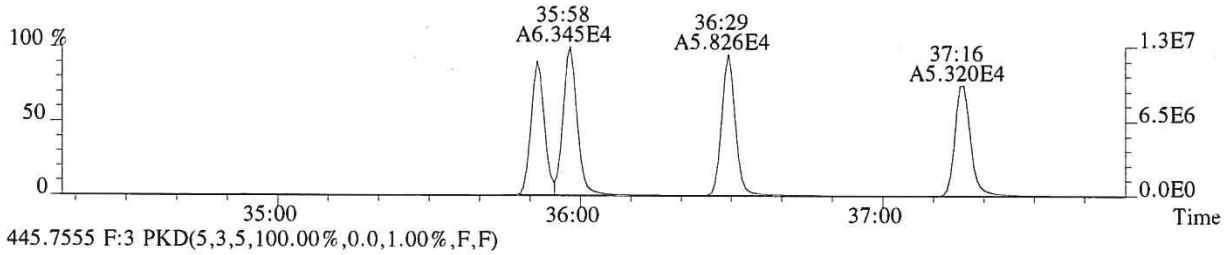
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



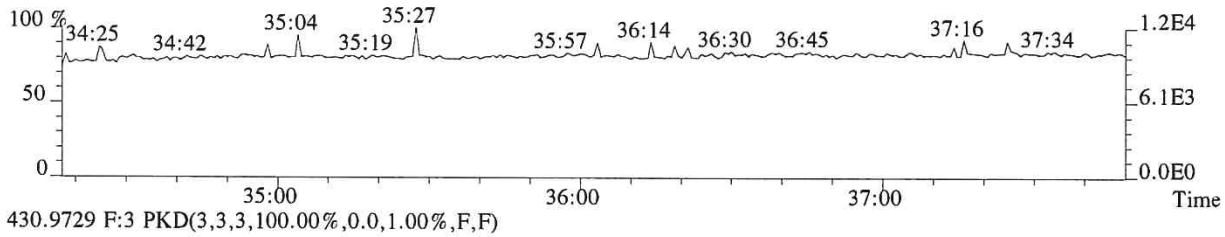
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



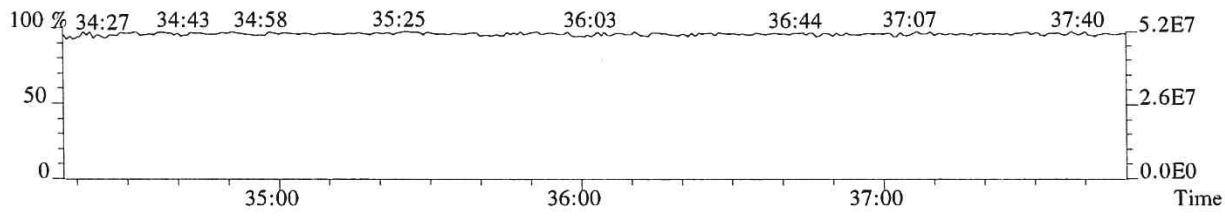
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



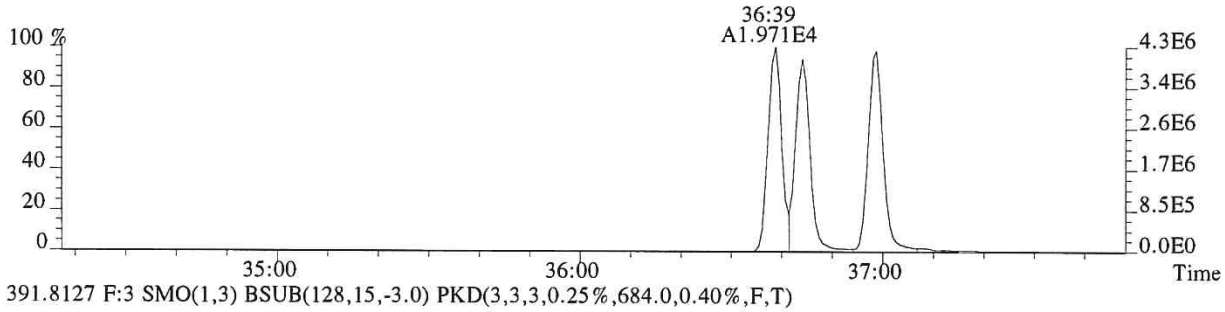
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



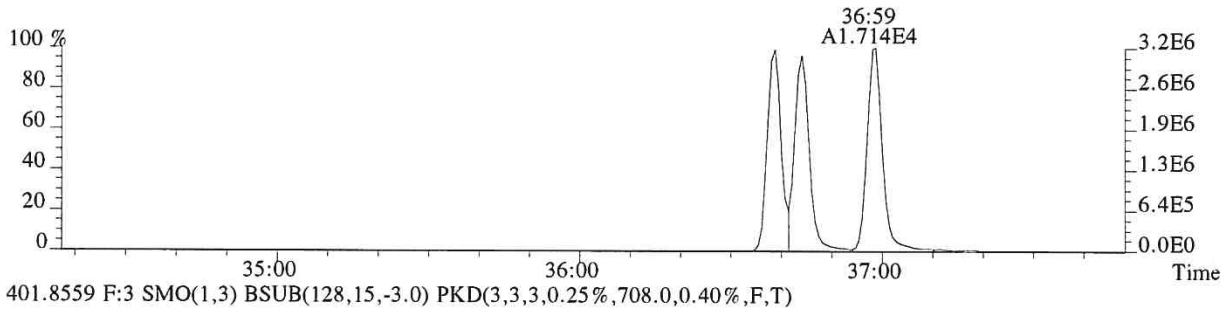
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



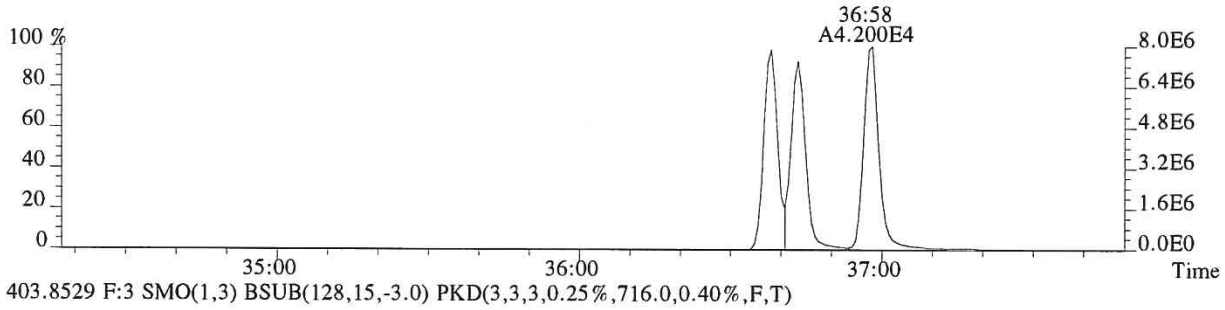
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



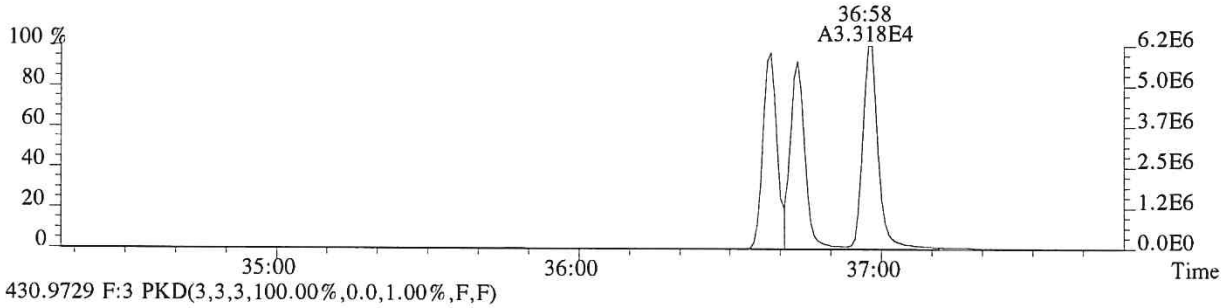
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



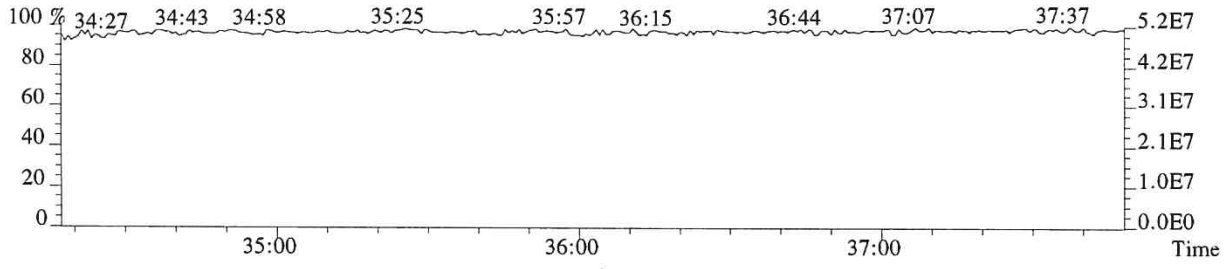
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



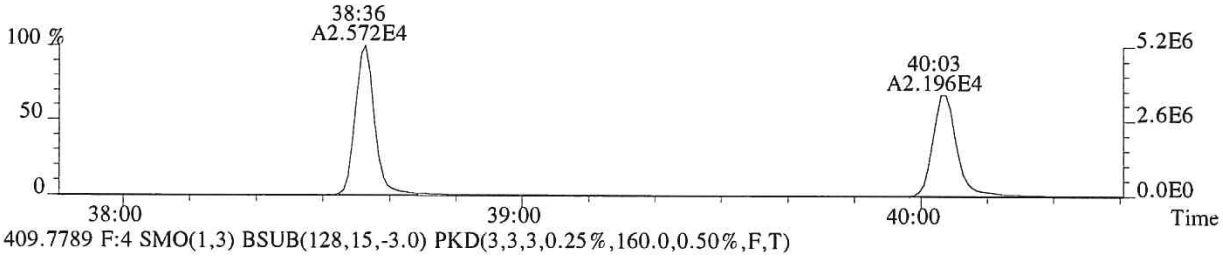
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



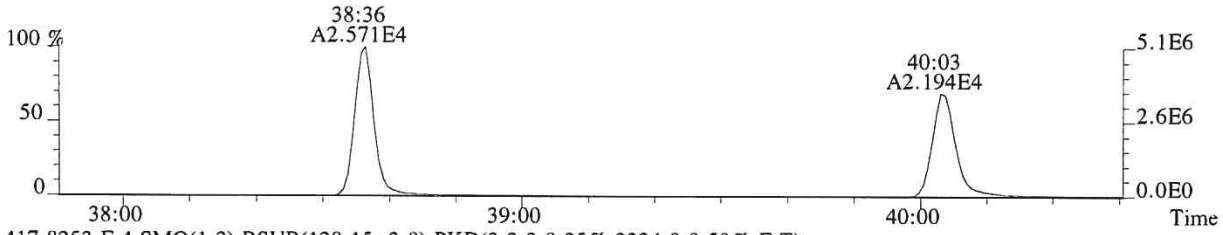
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



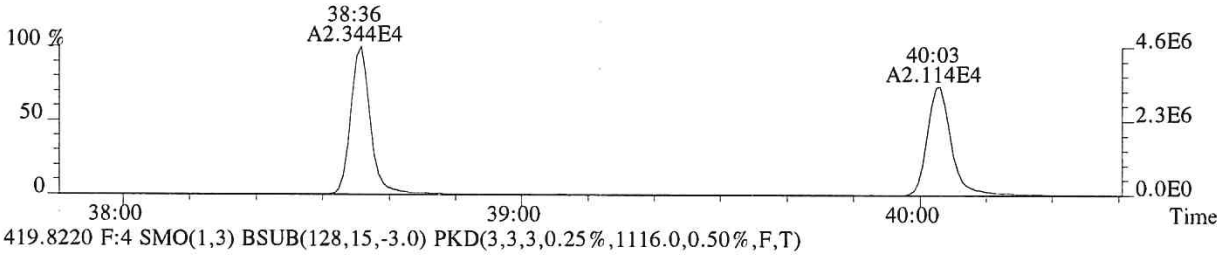
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.50%,F,T)



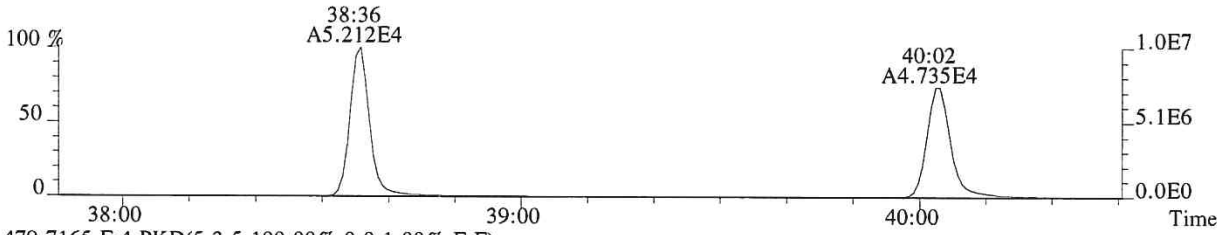
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.50%,F,T)



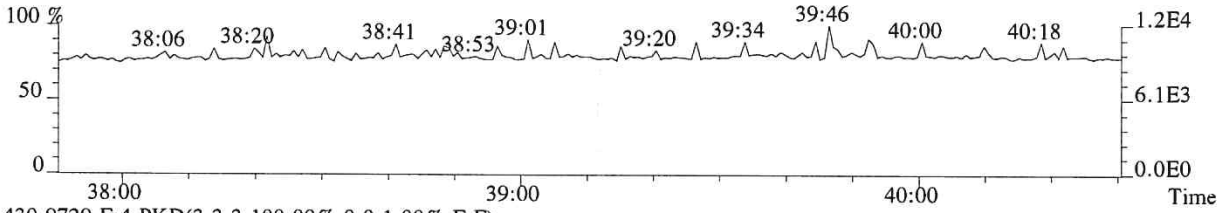
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.50%,F,T)



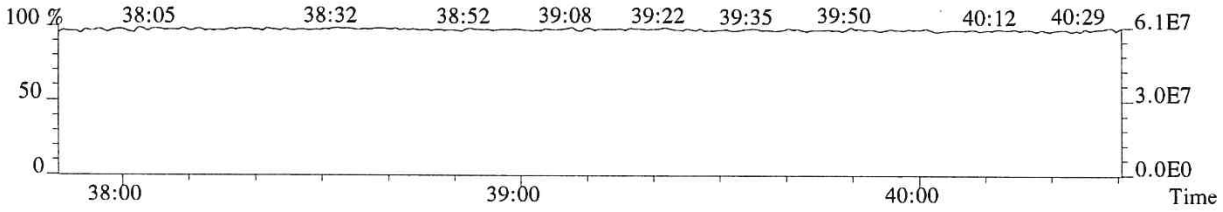
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

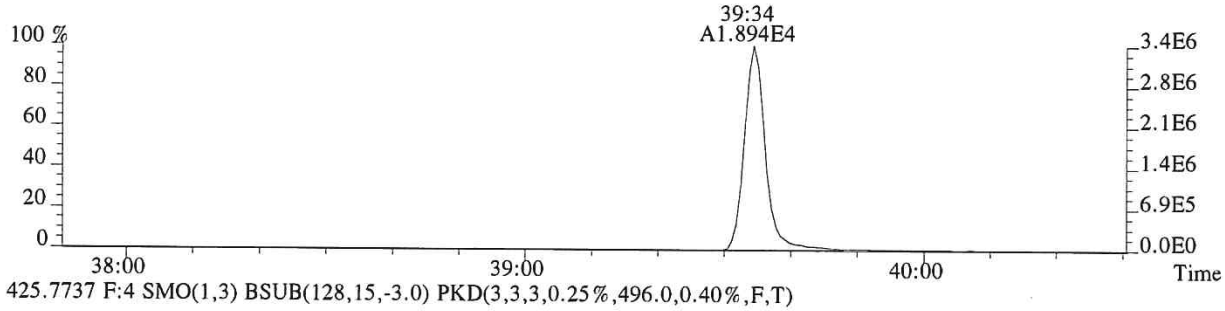


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

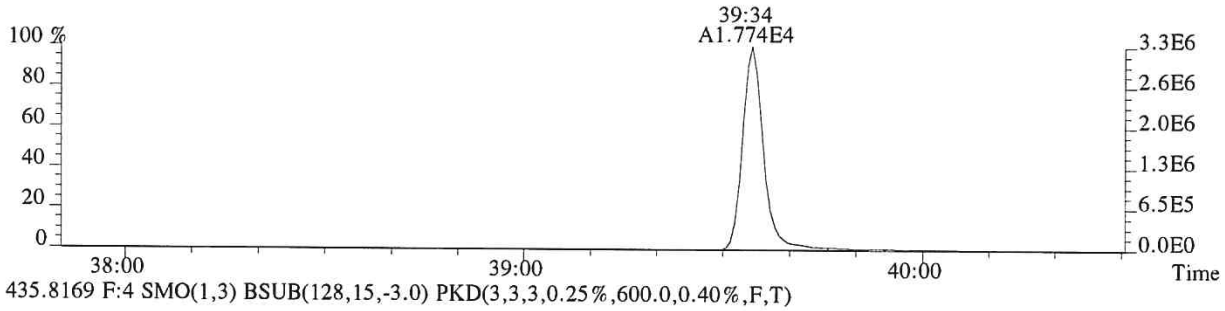


012067

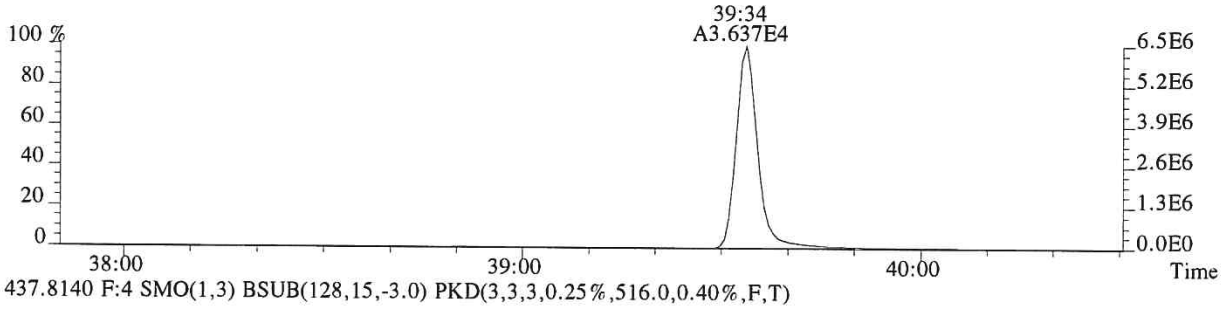
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



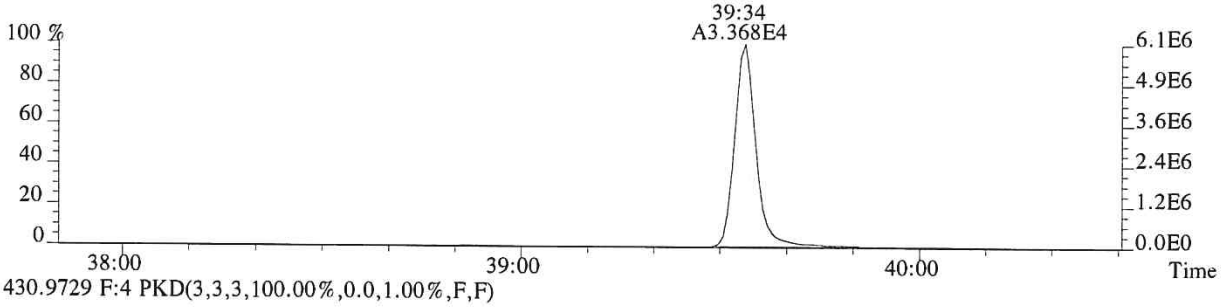
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



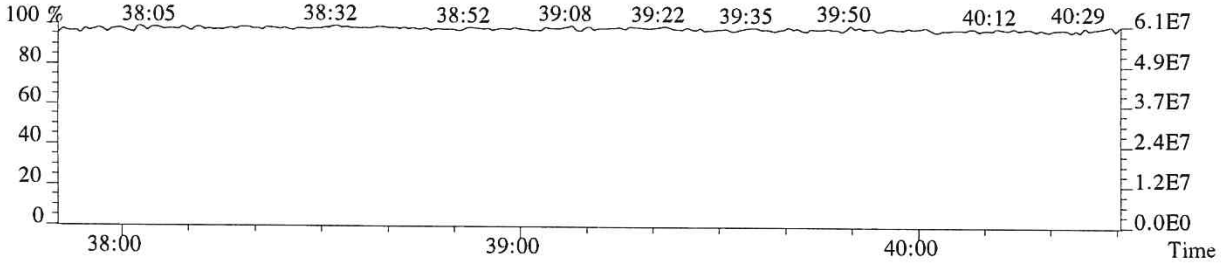
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)

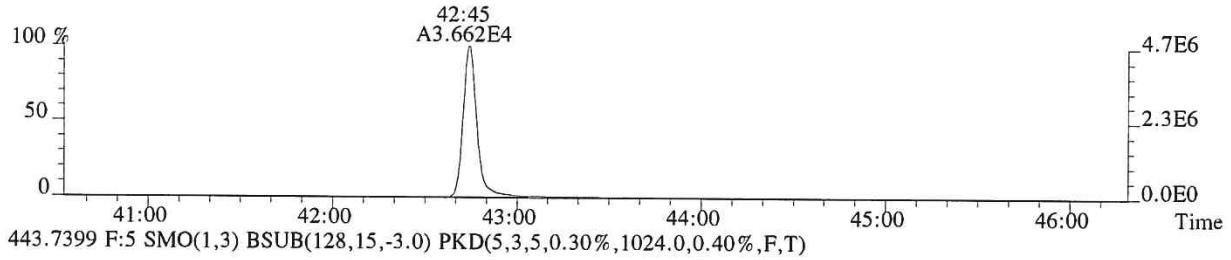


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

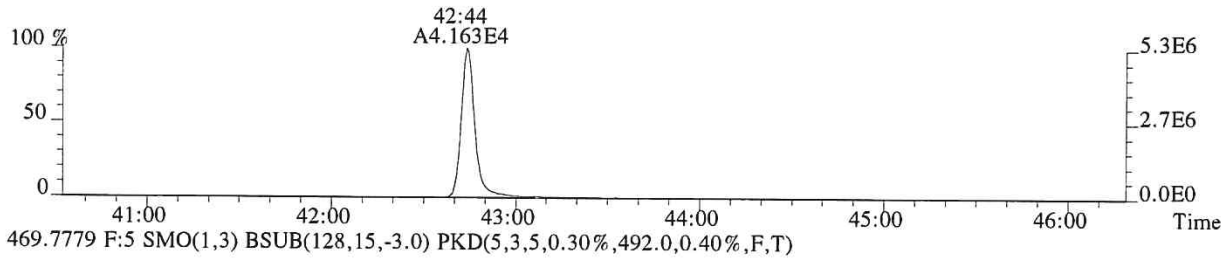


012068

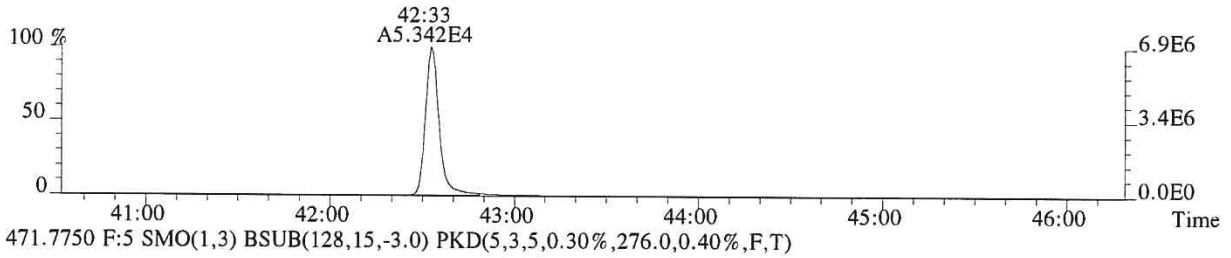
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



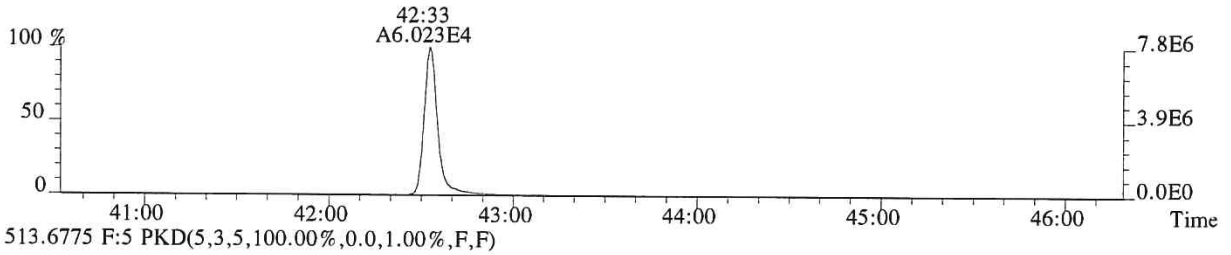
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



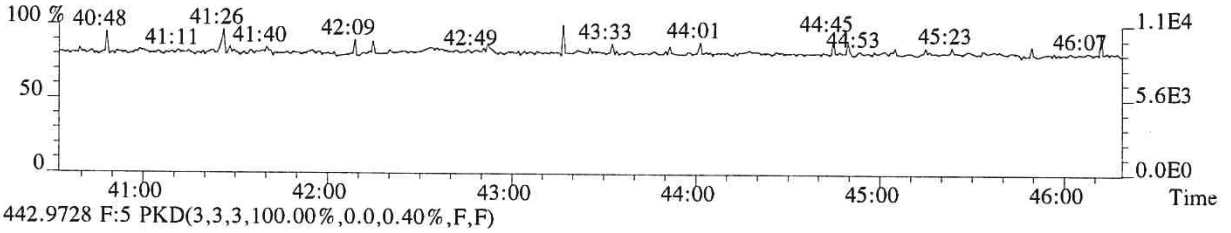
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



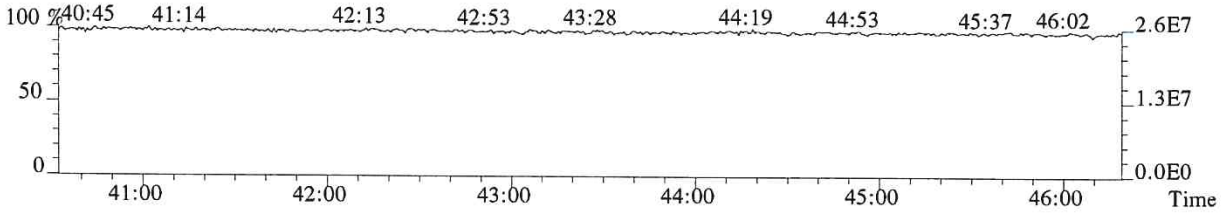
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

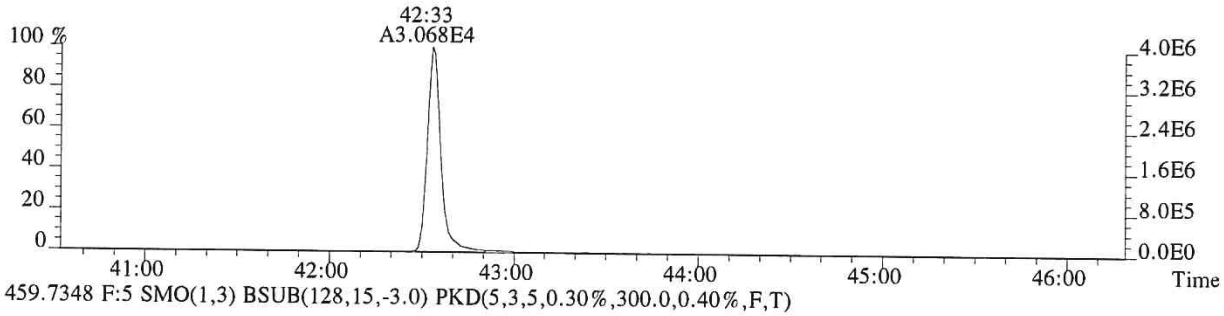


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

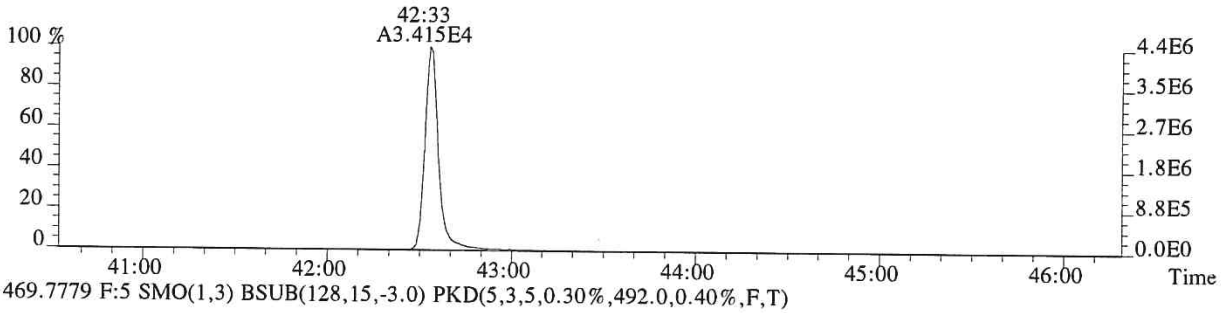


012069

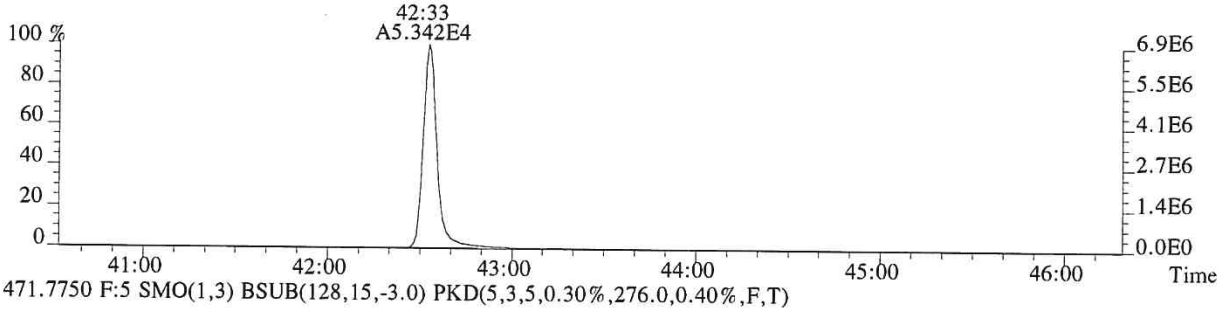
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



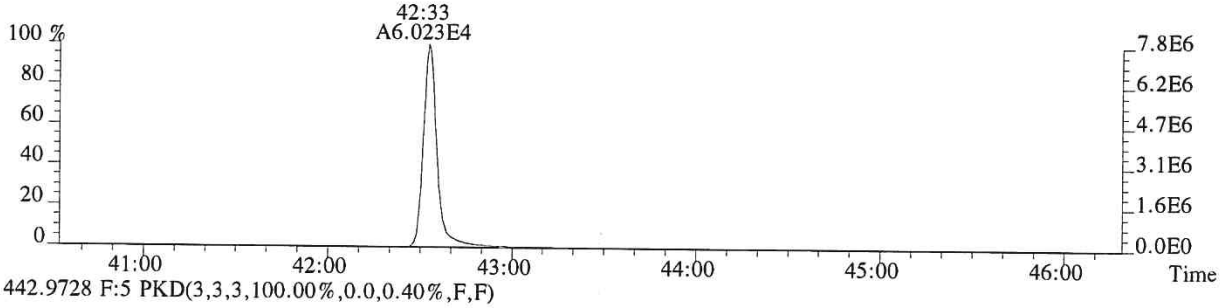
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



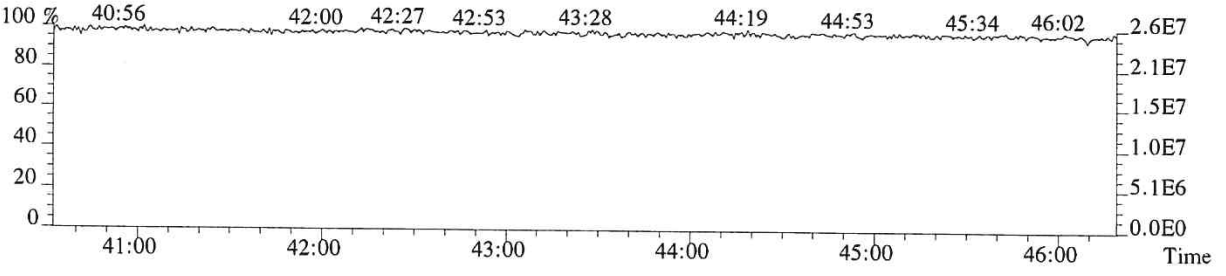
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012070

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519350

Date: 12/11/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration

	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519350	11-DEC-18	10:22:01
192977	WINDOW DEFINE	P519351	11-DEC-18	11:14:28
METHOD BLANK	EQ1800485-01	P519352	11-DEC-18	12:02:18
METHOD BLANK	EQ1800494-01	P519353	11-DEC-18	12:50:51
UU03601	K1811038-003	P519354	11-DEC-18	13:48:39
SL0572	E1801065-022	P519355	11-DEC-18	14:36:26
ASH 1 SPLP	E1801064-015	P519356	11-DEC-18	15:25:04
INFLUENT DIOXIN	E1801086-004	P519357	11-DEC-18	16:15:17
EFFLUENT DIOXIN	E1801086-005	P519358	11-DEC-18	17:05:24
3003147001	E1801087-001	P519359	11-DEC-18	17:53:12
SL0549	E1801055-004DL	P519360	11-DEC-18	18:41:50
FW0051	E1801046-007	P519361	11-DEC-18	19:30:28
FW008	E1801058-030	P519362	11-DEC-18	20:19:13
LCS	EQ1800488-02	P519363	11-DEC-18	21:07:51
DLCS	EQ1800488-03	P519364	11-DEC-18	21:56:19

E1801045

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181211A.SPL
Last Modified: Wednesday, December 12, 2018 07:00:37 Central Standard Time
Printed: Wednesday, December 12, 2018 07:00:39 Central Standard Time

Page Position (1, 1)

OPUS4: P519350res

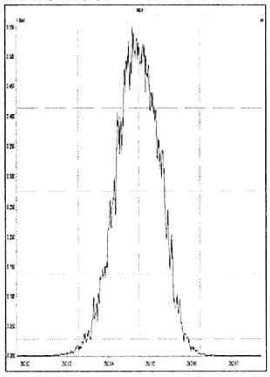
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/11/18	10:22	P519350	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	1+2HRS check 10:15
2	"	11:14	P519351	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	"	
3	"	12:02	P519352	MB	EQ1800485-01	EPA1613_ALS	Dioxin_ALS	Tray1:3	"	
4	"	12:50	P519353	MB	EQ1800494-01	EPA1613_ALS	Dioxin_ALS	Tray1:4	"	
5	"	13:48	P519354	K1811038-003	K1811038-003	EPA1613_ALS	Dioxin_ALS	Tray1:5	"	
6	"	14:36	P519355	E1801065-022	E1801065-022	EPA1613_ALS	Dioxin_ALS	Tray1:6	"	
7	"	15:25	P519356	E1801064-015	E1801064-015	EPA1613_ALS	Dioxin_ALS	Tray1:7	"	
8	"	16:15	P519357	E1801086-004	E1801086-004	EPA1613_ALS	Dioxin_ALS	Tray1:8	"	
9	"	17:05	P519358	E1801086-005	E1801086-005	EPA1613_ALS	Dioxin_ALS	Tray1:9	"	
10	"	17:53	P519359	E1801087-001	E1801087-001	EPA1613_ALS	Dioxin_ALS	Tray1:10	"	
11	"	18:41	P519360	E1801055-004DL	E1801055-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:11	"	
12	"	19:30	P519361	E1801046-007	E1801046-007	EPA1613_ALS	Dioxin_ALS	Tray1:12	"	
13	"	20:19	P519362	E1801058-030	E1801058-030	EPA1613_ALS	Dioxin_ALS	Tray1:13	"	
14	"	21:07	P519363	LCS	EQ1800488-02	EPA1613_ALS	Dioxin_ALS	Tray1:14	"	
15	"	21:56	P519364	DLCS	EQ1800488-03	EPA1613_ALS	Dioxin_ALS	Tray1:15	"	
16	↓	22:53	P519365	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	↓	1+2HRS check 22:53
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JC 12/12/18

File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:15:52 Central Standard Time

M 292.9824 R 12627



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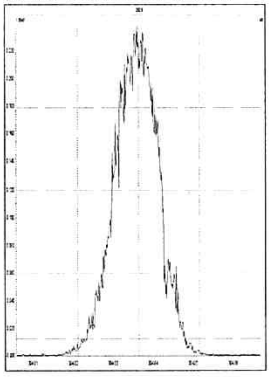

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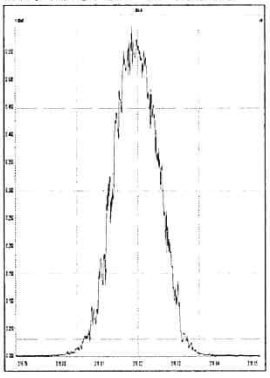
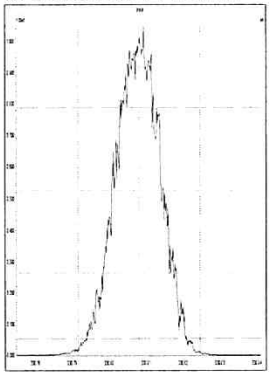


M 330.9792 R 12135



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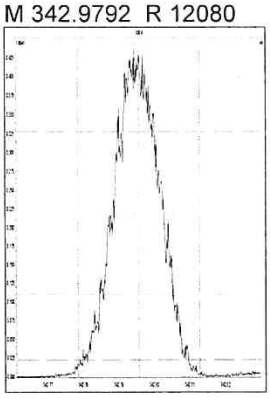

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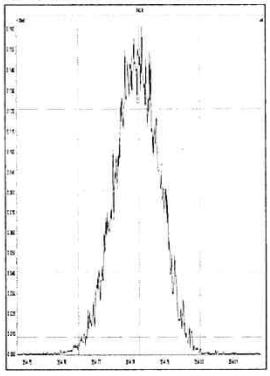

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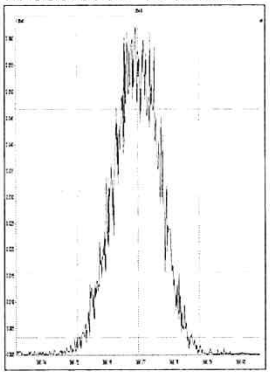
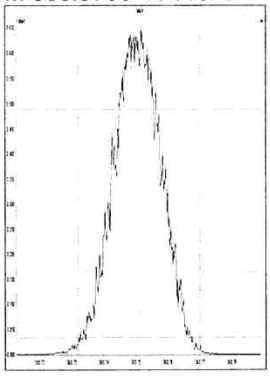


M 380.9760 R 11629



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Printed: Tuesday, December 11, 2018 10:16:35 Central Standard Time

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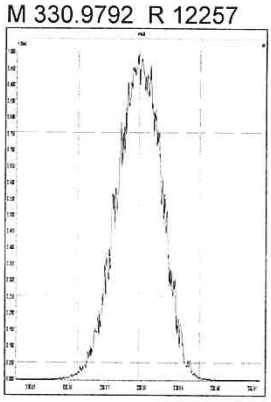
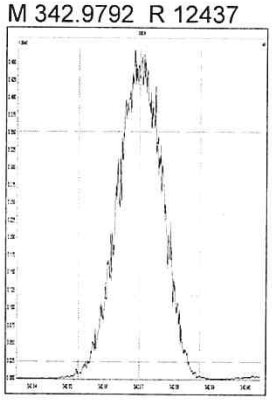
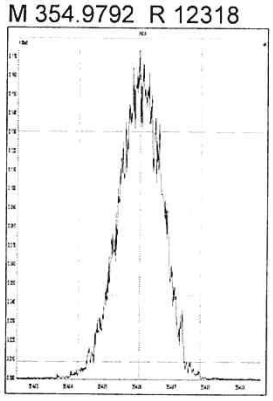


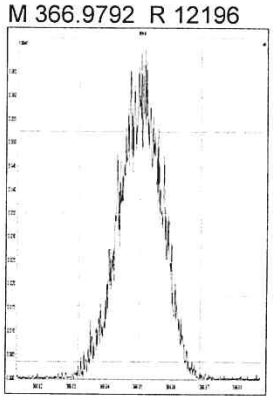
M 342.9792 R 12437



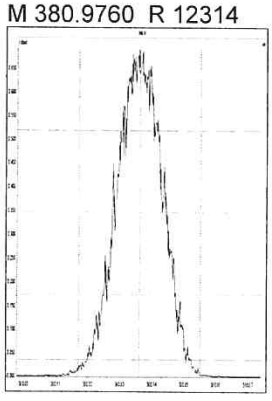
M 354.9792 R 12318



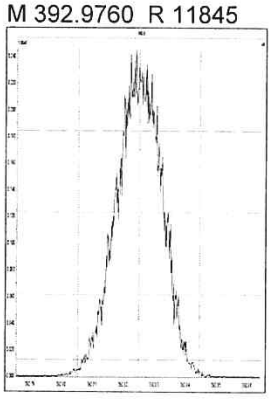
M 366.9792 R 12196



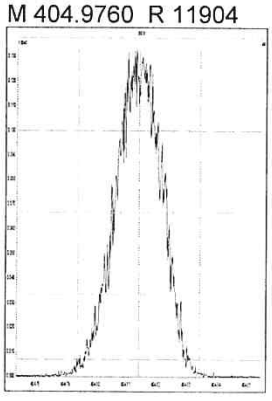
M 380.9760 R 12314



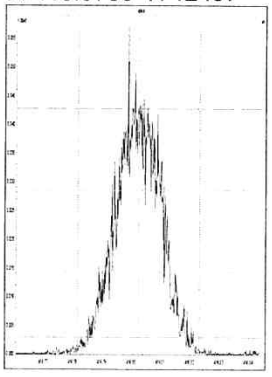
M 392.9760 R 11845



M 404.9760 R 11904



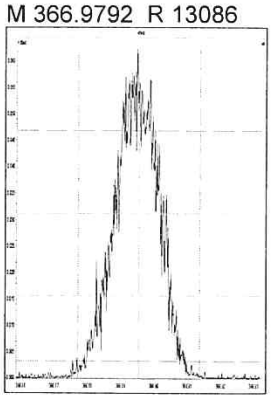
M 416.9760 R 12497



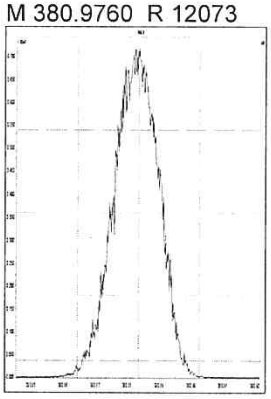
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:17:19 Central Standard Time

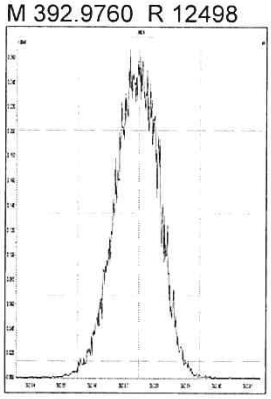
M 366.9792 R 13086



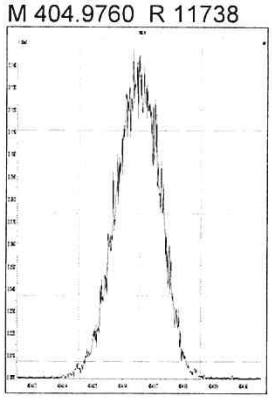
M 380.9760 R 12073



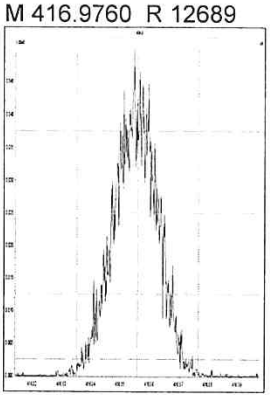
M 392.9760 R 12498



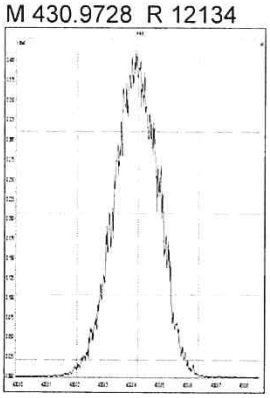
M 404.9760 R 11738



M 416.9760 R 12689



M 430.9728 R 12134



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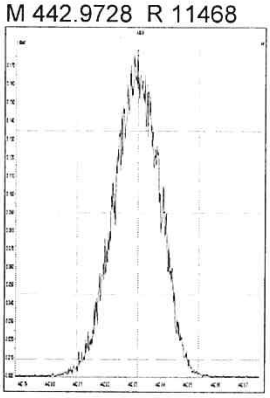
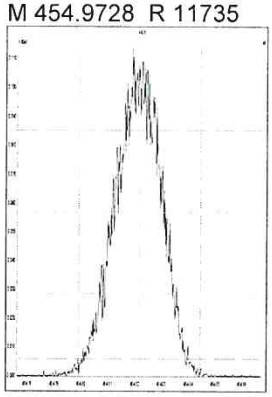


M 454.9728 R 11735



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Printed: Tuesday, December 11, 2018 10:17:58 Central Standard Time

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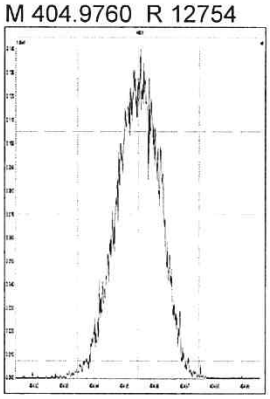

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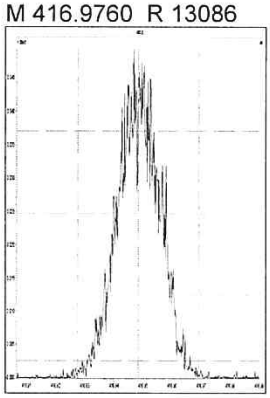

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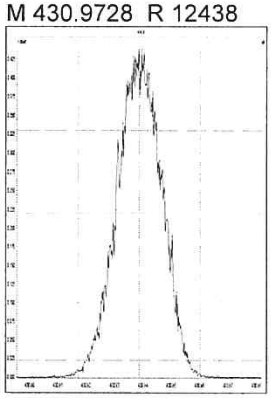
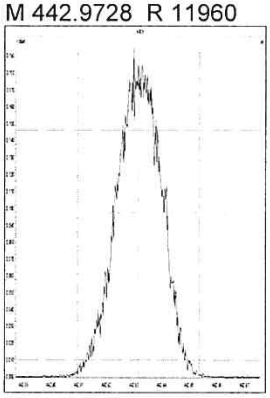


M 442.9728 R 11960



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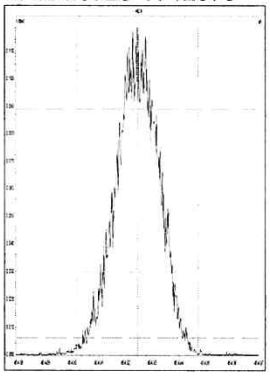

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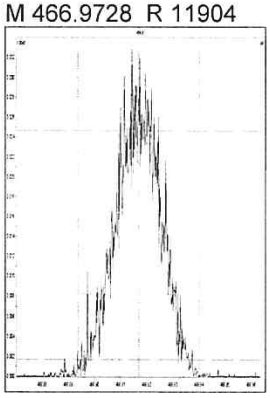
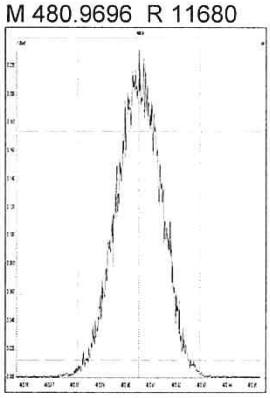


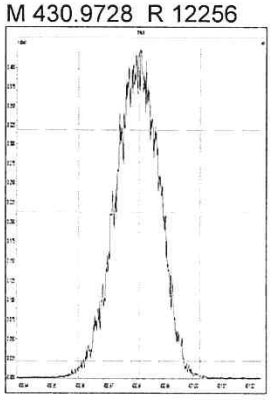
M 480.9696 R 11680



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:18:45 Central Standard Time

M 430.9728 R 12256



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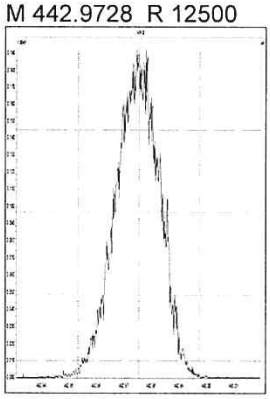

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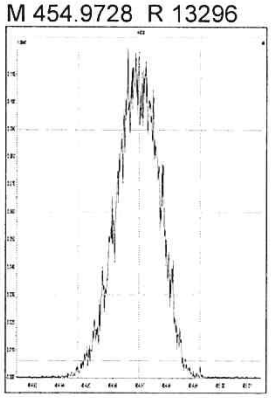
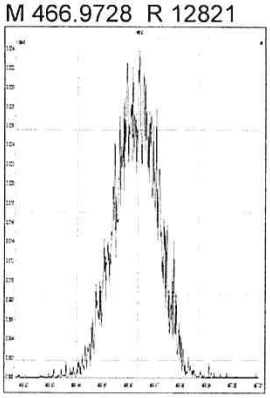
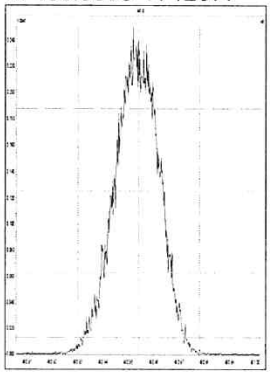


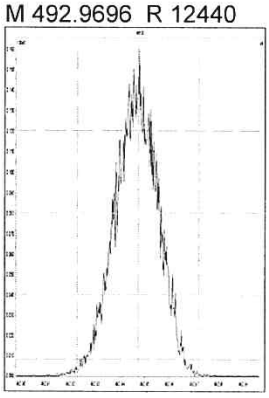
M 466.9728 R 12821



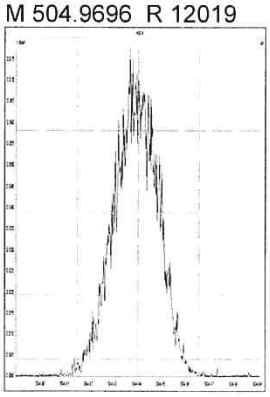
M 480.9696 R 12077



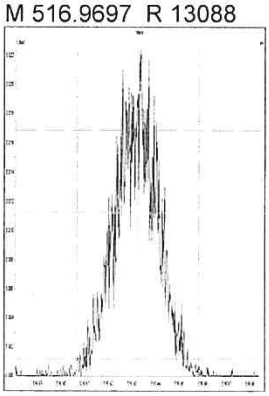
M 492.9696 R 12440



M 504.9696 R 12019

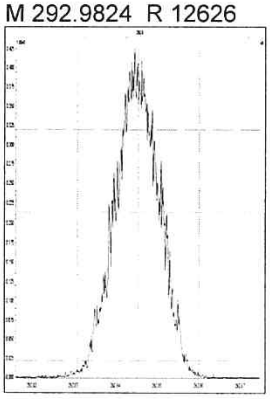


M 516.9697 R 13088

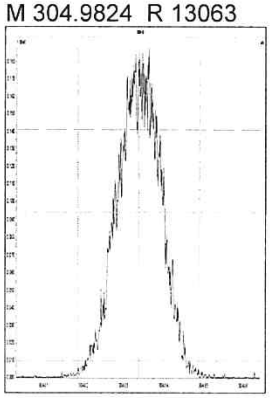


Printed: Tuesday, December 11, 2018 22:53:05 Central Standard Time

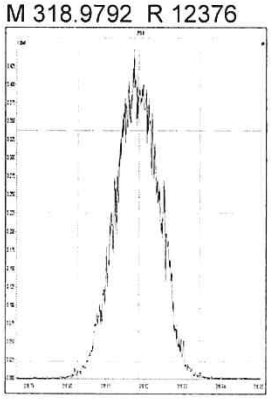
M 292.9824 R 12626



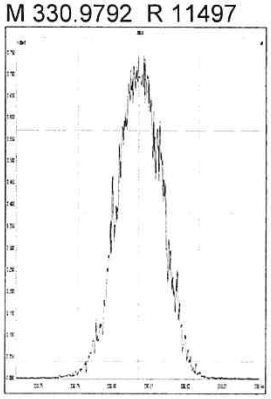
M 304.9824 R 13063



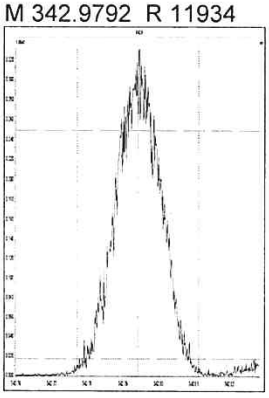
M 318.9792 R 12376



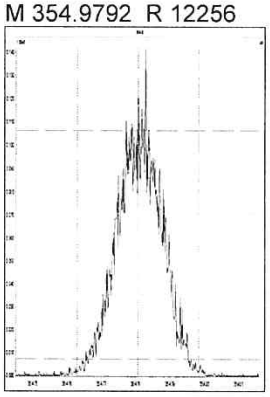
M 330.9792 R 11497



M 342.9792 R 11934



M 354.9792 R 12256



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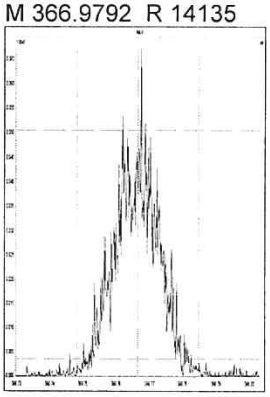
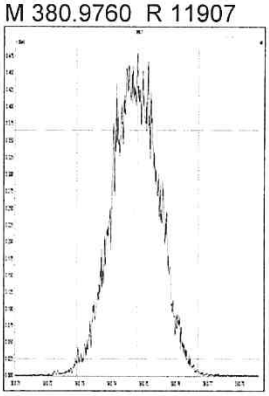


M 380.9760 R 11907



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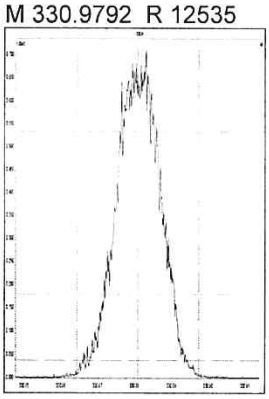

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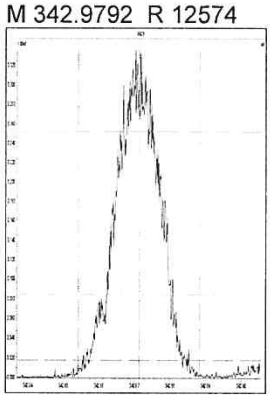

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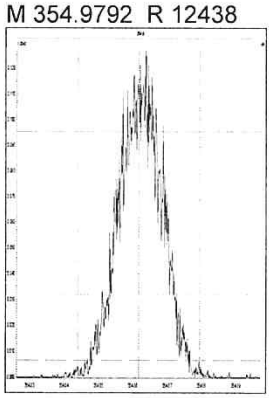

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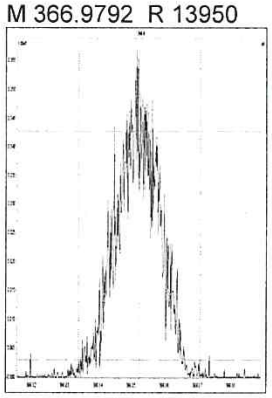

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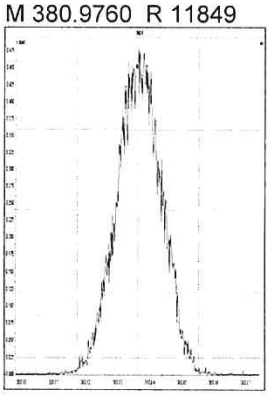

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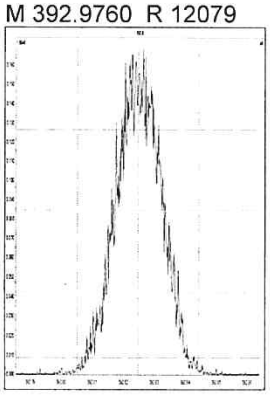
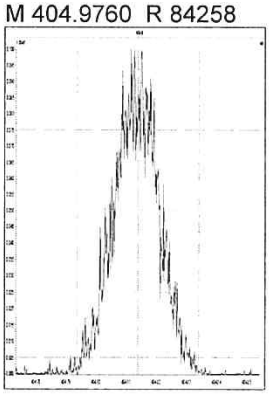
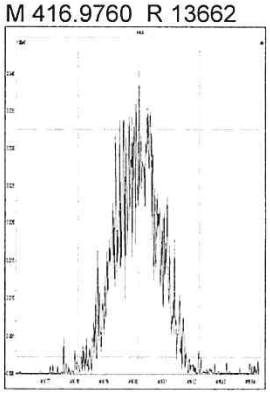


M 404.9760 R 84258



M 416.9760 R 13662



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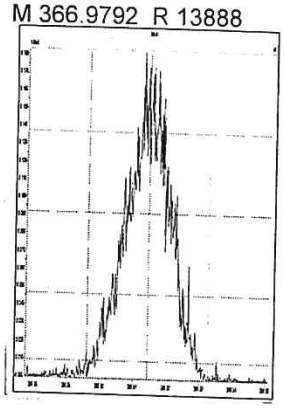
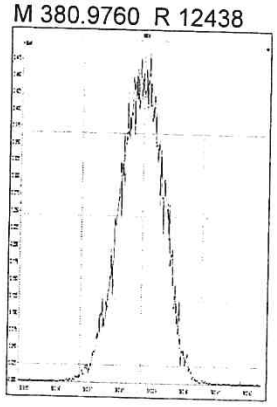


M 380.9760 R 12438



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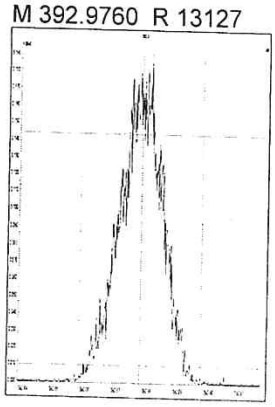

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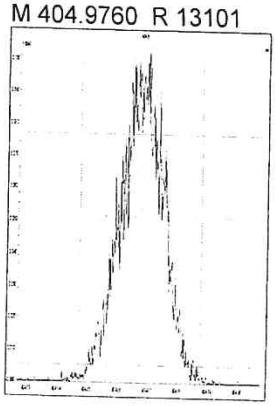

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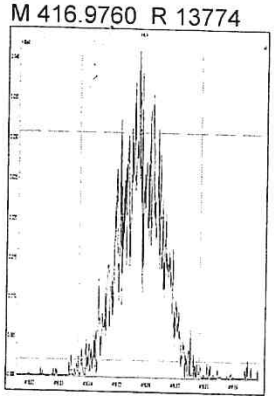

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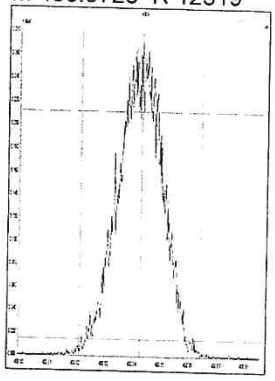

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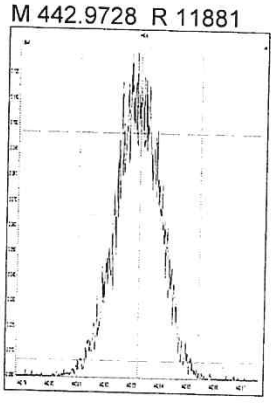

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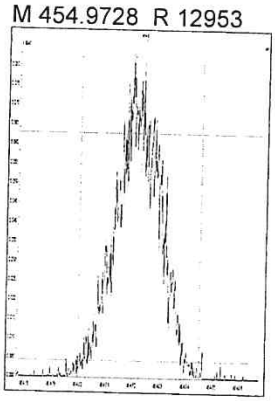

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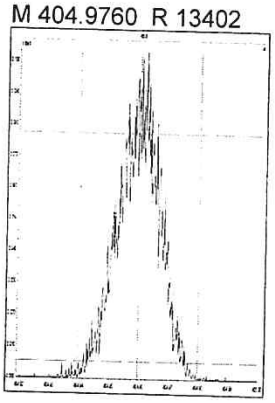

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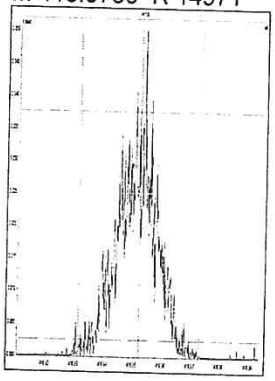

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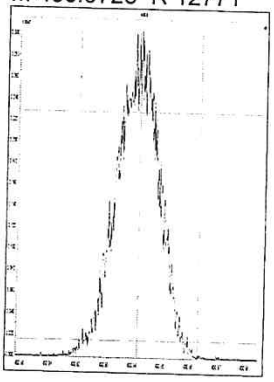

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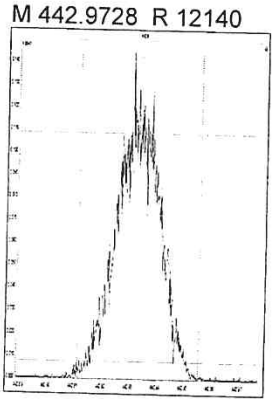

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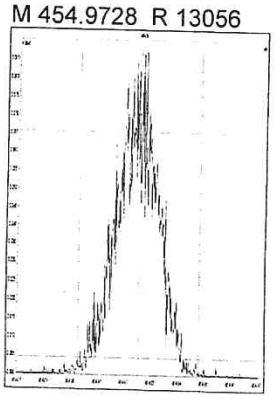

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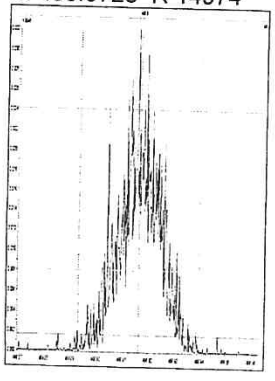

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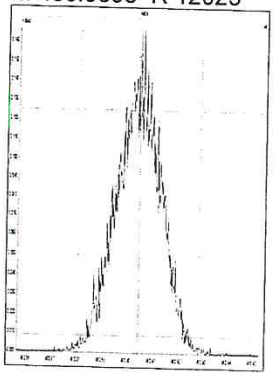

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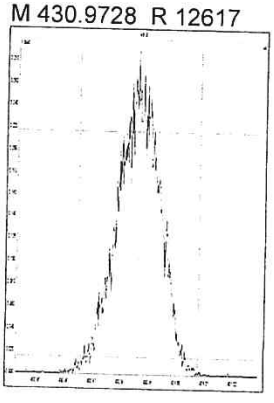

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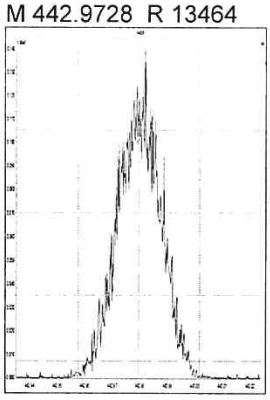

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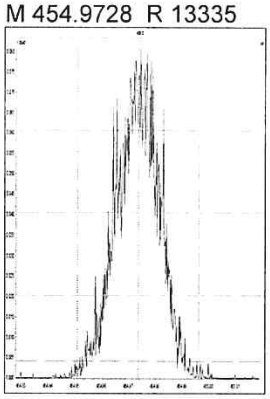

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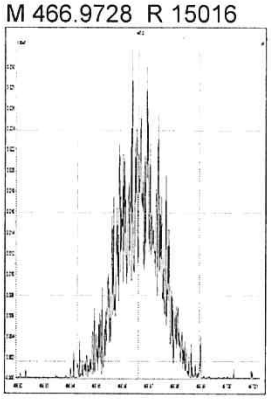

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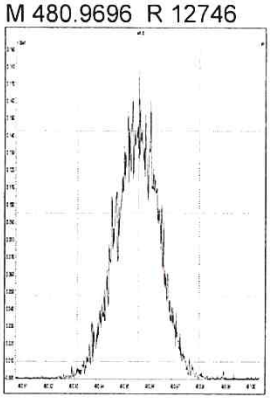

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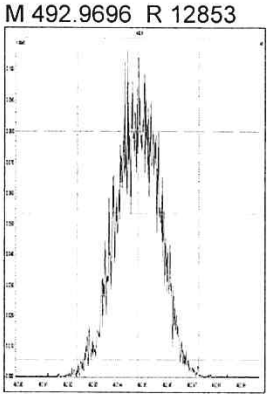

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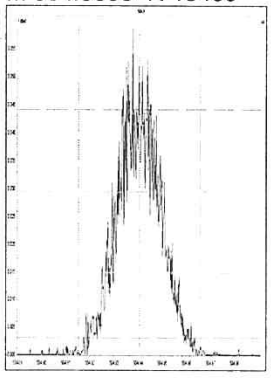
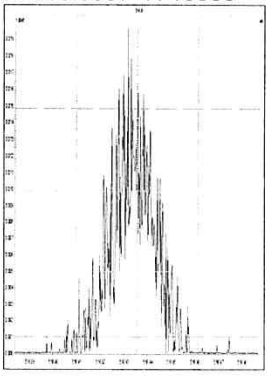


M 516.9697 R 16305



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

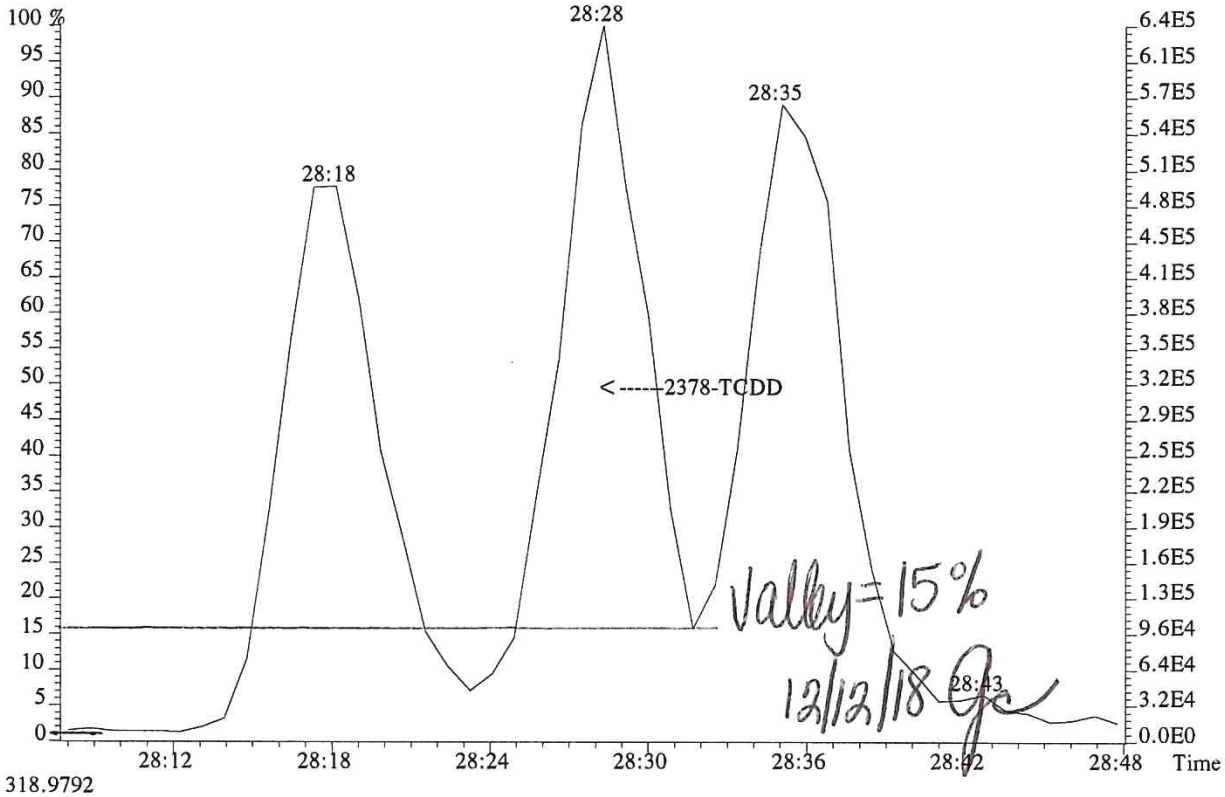
Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519351
Date Analyzed: 11-DEC-2018
Time Analyzed: 11:14:28

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:11	29:39
TCDD	24:59	29:30
PeCDF	29:37	33:59
PeCDD	31:12	33:44
HxCDF	34:41	37:15
HxCDD	35:13	36:50
HpCDF	38:32	40:00
HpCDD	38:48	39:31

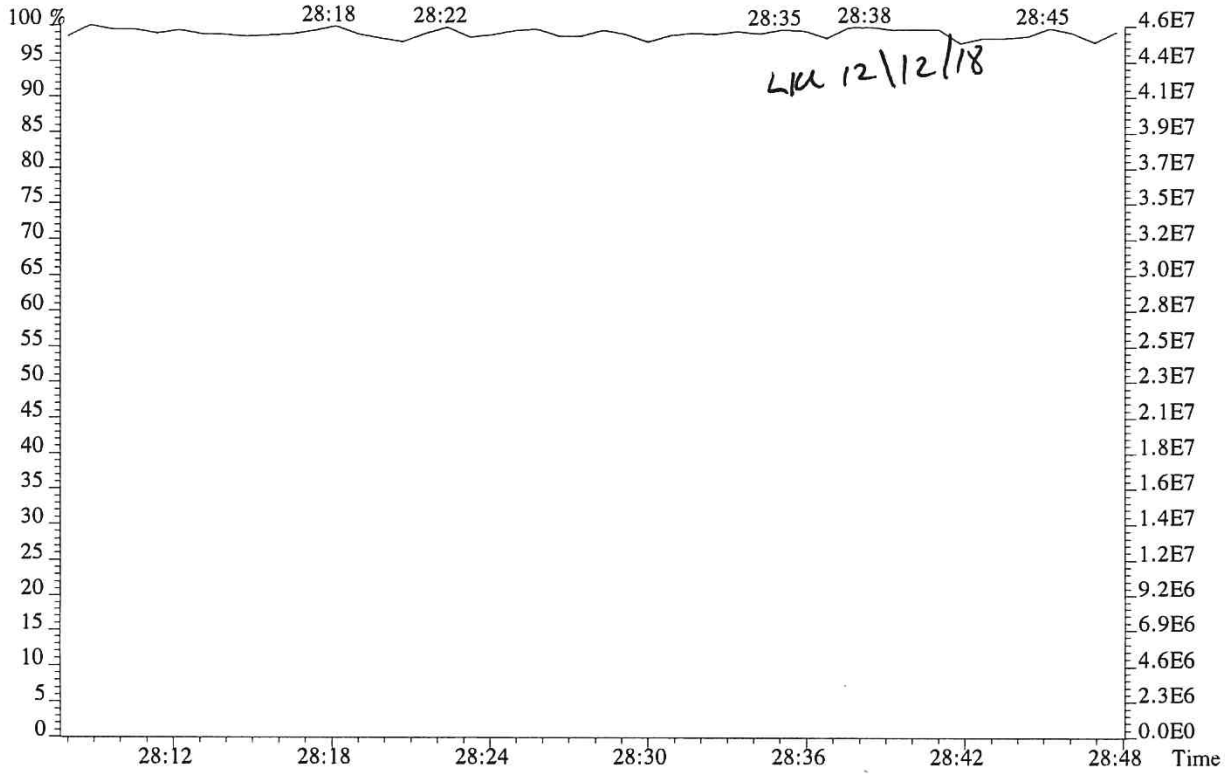
% Valley 2378-TCDD: 15 %

012082

File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792



012083

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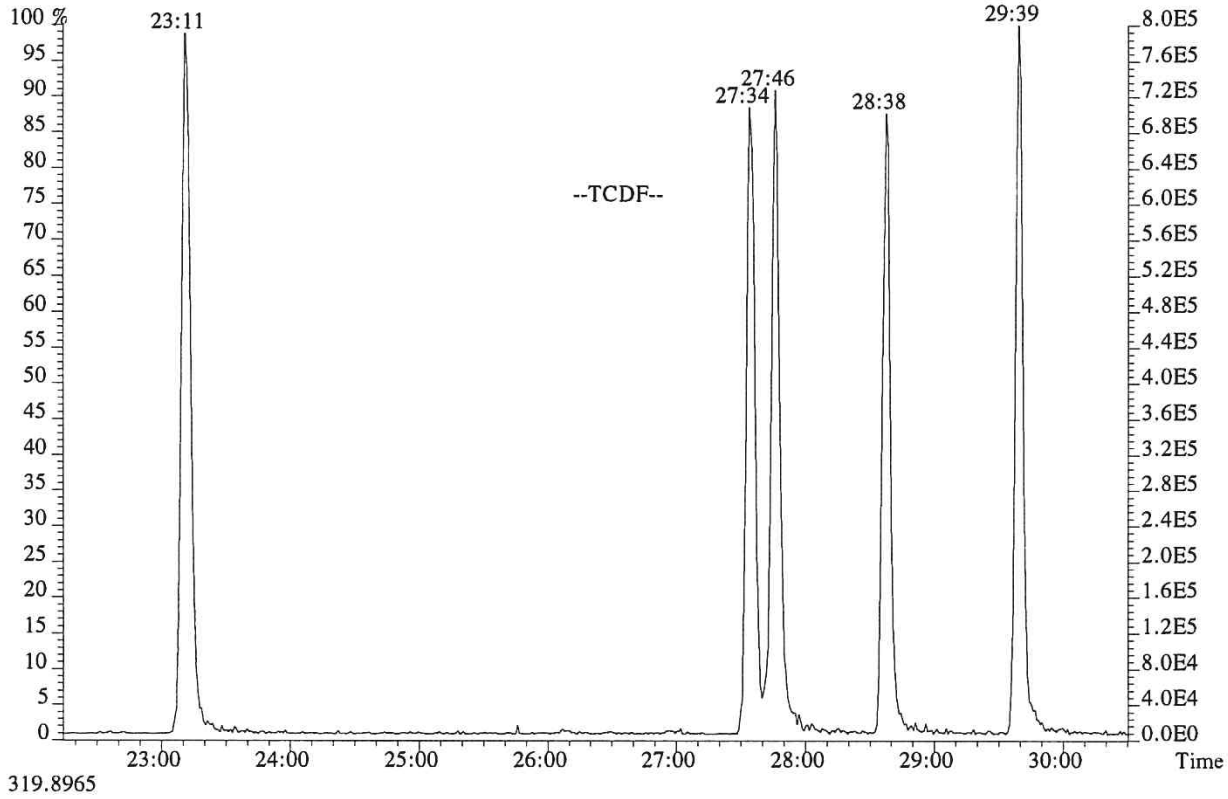
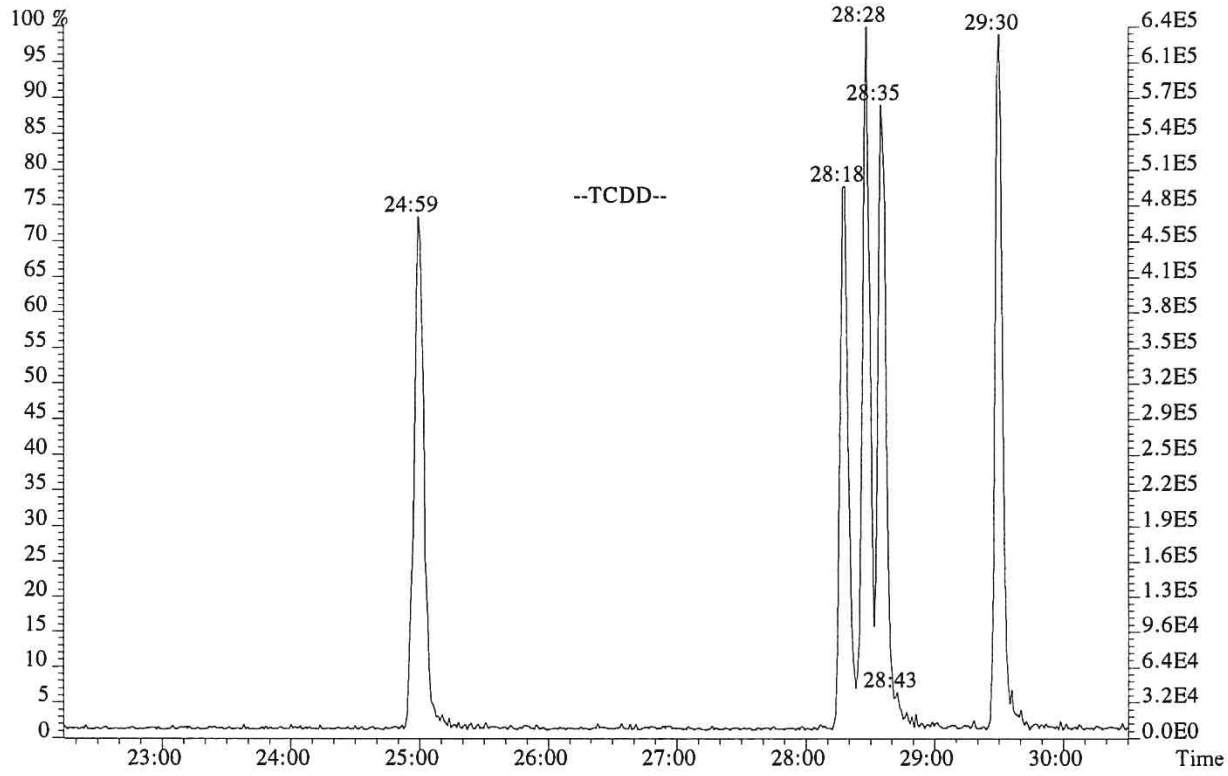
303.9016



319.8965



012084

File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
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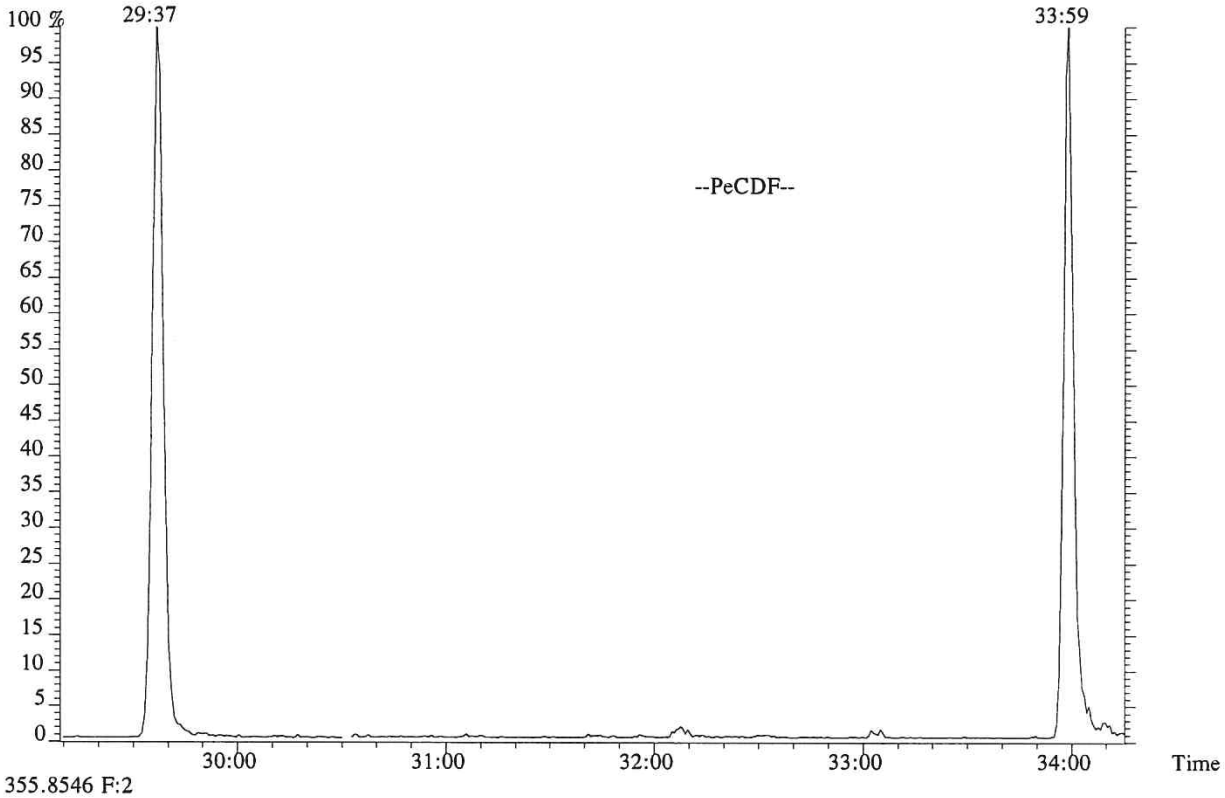
339.8597,339.8597 F:2



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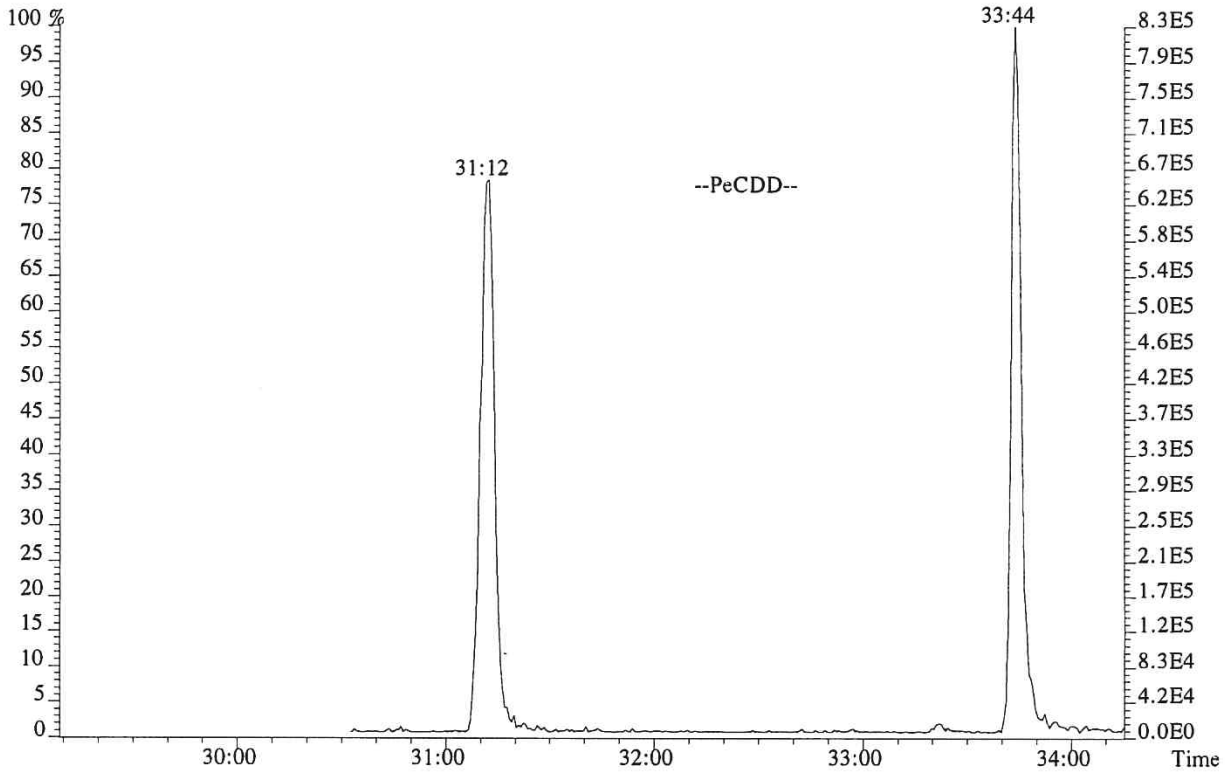

012085

File:P519351 #1-317 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
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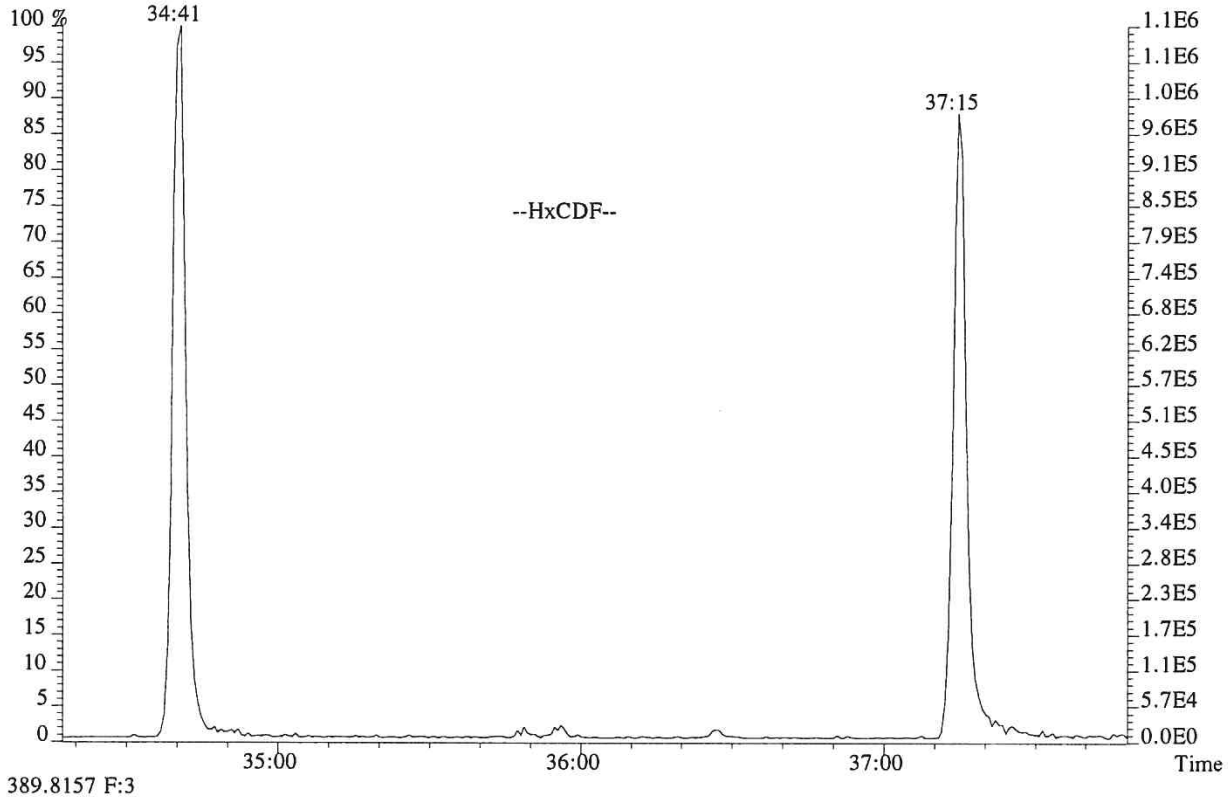
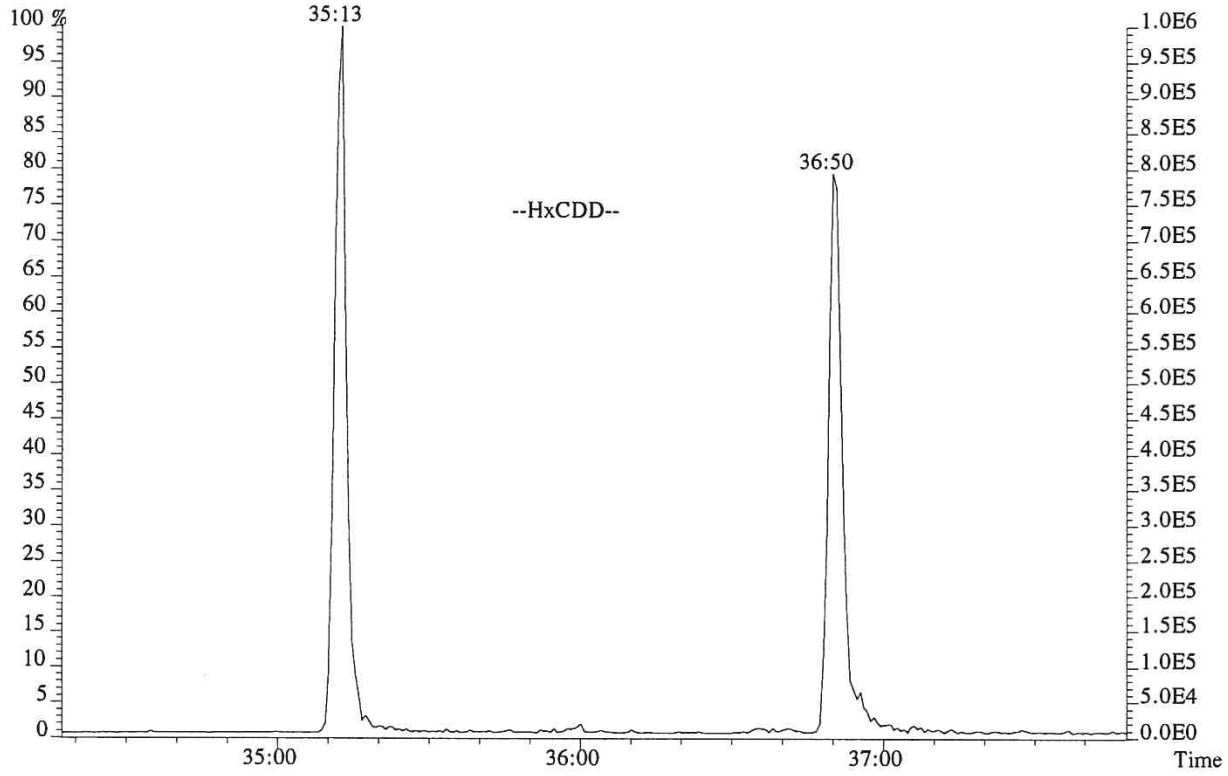
373.8208 F:3

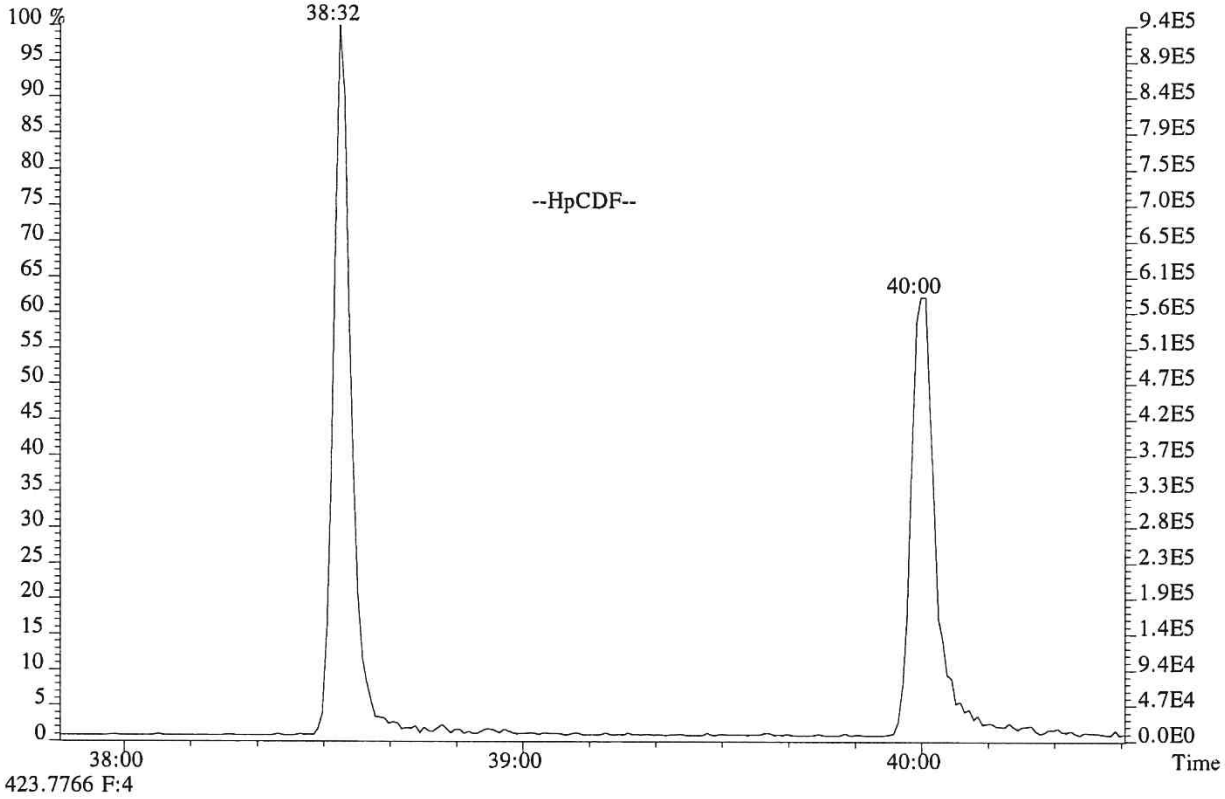


389.8157 F:3

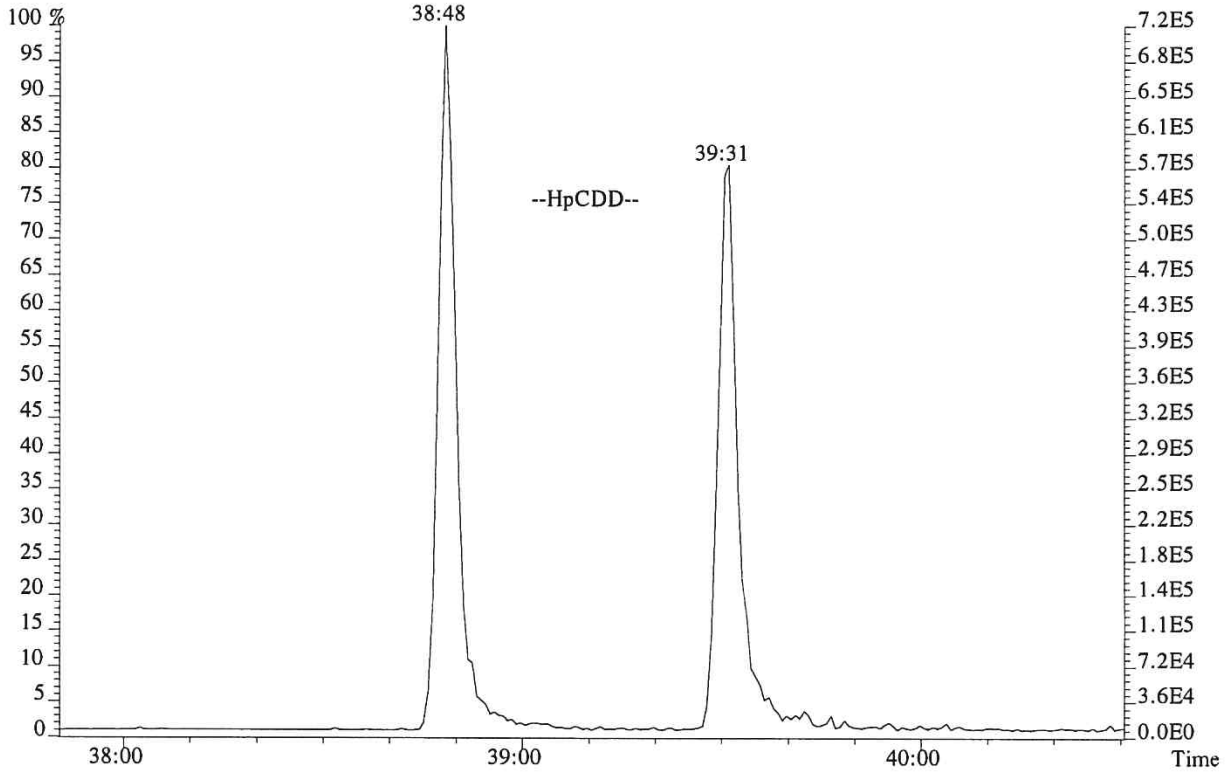


012086

File:P519351 #1-241 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



012087

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519350 Analysis Date: 11-DEC-18 Time: 10:22:01

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.4	7.8 - 12.9	-5.5
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	50	39 - 65	0.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	50	39 - 64	0.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	3.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	54	41 - 61	8.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	0.9
OCDD	M+2/M+4	0.88	0.76-1.02	100	79 - 126	0.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.8	8.4 - 12.0	-1.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 60	-1.3
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	49	41 - 61	-1.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	0.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	50	43 - 58	0.3
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-2.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519350 Analysis Date: 11-DEC-18 Time: 10:22:01

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	106	82 - 121	5.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	113	62 - 160	12.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	93	85 - 117	-6.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	95	85 - 118	-5.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	107	72 - 138	6.8
13C-OCDD	M+2/M+4	0.89	0.76-1.02	233	96 - 415	16.7
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-1.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	112	76 - 130	12.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	113	77 - 130	12.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	87	76 - 131	-12.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	70 - 143	-6.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-1.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	73 - 137	-4.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	107	77 - 129	6.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.2	7.8 - 12.7	2.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519350 Samp: 1 Inj: 1 Acquired: 11-DEC-18 10:22:01
Processed: 12-DEC-18 09:58:22 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	5.308e+03	7.001e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	4.406e+04	2.904e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.136e+04	2.740e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.543e+04	2.949e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.963e+04	3.312e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.593e+04	2.996e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	3.331e+04	2.736e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	3.483e+04	3.414e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	2.697e+04	2.740e+04	0.98	yes	no	1.258
10	Unk	OCDF	42:42	4.159e+04	4.700e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	3.844e+03	5.065e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	2.852e+04	1.810e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	2.467e+04	1.982e+04	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	2.629e+04	2.095e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.782e+04	2.213e+04	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	2.401e+04	2.264e+04	1.06	yes	no	1.025
17	Unk	OCDD	42:31	3.511e+04	3.992e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	5.910e+04	7.387e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	9.023e+04	5.608e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	8.955e+04	5.616e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	3.605e+04	7.021e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	4.469e+04	8.464e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	4.040e+04	7.823e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	3.652e+04	6.908e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	3.151e+04	7.056e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	2.613e+04	6.006e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	3.848e+04	4.842e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	5.991e+04	3.752e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	4.768e+04	3.726e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	4.968e+04	3.871e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	4.639e+04	4.383e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:30	6.314e+04	7.068e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	3.953e+04	4.928e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	5.488e+04	4.359e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	9.184e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519350 Samp: 1 Inj: 1 Acquired: 11-DEC-18 10:22:01
Processed: 12-DEC-18 09:58:22 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.33e+05	5.80e+02	1.6e+03	1.26e+06	1.14e+03	1.1e+03
2	1,2,3,7,8-PeCDF	8.13e+06	4.40e+02	1.8e+04	5.42e+06	9.84e+02	5.5e+03
3	2,3,4,7,8-PeCDF	8.16e+06	4.40e+02	1.9e+04	5.36e+06	9.84e+02	5.4e+03
4	1,2,3,4,7,8-HxCDF	7.30e+06	3.56e+02	2.1e+04	5.92e+06	3.92e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	7.85e+06	3.56e+02	2.2e+04	6.68e+06	3.92e+02	1.7e+04
6	2,3,4,6,7,8-HxCDF	7.22e+06	3.56e+02	2.0e+04	6.04e+06	3.92e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	5.99e+06	3.56e+02	1.7e+04	4.98e+06	3.92e+02	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	6.57e+06	5.59e+03	1.2e+03	6.39e+06	2.82e+03	2.3e+03
9	1,2,3,4,7,8,9-HpCDF	4.32e+06	5.59e+03	7.7e+02	4.36e+06	2.82e+03	1.5e+03
10	OCDF	4.91e+06	3.52e+02	1.4e+04	5.52e+06	5.44e+02	1.0e+04
11	2,3,7,8-TCDD	7.22e+05	1.69e+03	4.3e+02	9.34e+05	1.03e+03	9.1e+02
12	1,2,3,7,8-PeCDD	5.29e+06	4.88e+02	1.1e+04	3.37e+06	2.48e+02	1.4e+04
13	1,2,3,4,7,8-HxCDD	5.00e+06	3.28e+02	1.5e+04	3.94e+06	4.28e+02	9.2e+03
14	1,2,3,6,7,8-HxCDD	5.26e+06	3.28e+02	1.6e+04	4.13e+06	4.28e+02	9.7e+03
15	1,2,3,7,8,9-HxCDD	5.12e+06	3.28e+02	1.6e+04	4.05e+06	4.28e+02	9.5e+03
16	1,2,3,4,6,7,8-HpCDD	4.10e+06	6.36e+02	6.4e+03	3.84e+06	1.96e+02	2.0e+04
17	OCDD	4.01e+06	1.76e+02	2.3e+04	4.56e+06	3.08e+02	1.5e+04
18	13C-2,3,7,8-TCDF	1.04e+07	4.63e+03	2.2e+03	1.31e+07	4.45e+03	2.9e+03
19	13C-1,2,3,7,8-PeCDF	1.64e+07	1.20e+03	1.4e+04	1.02e+07	1.35e+03	7.6e+03
20	13C-2,3,4,7,8-PeCDF	1.70e+07	1.20e+03	1.4e+04	1.07e+07	1.35e+03	7.9e+03
21	13C-1,2,3,4,7,8-HxCDF	7.25e+06	6.72e+02	1.1e+04	1.40e+07	5.60e+02	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	8.79e+06	6.72e+02	1.3e+04	1.67e+07	5.60e+02	3.0e+04
23	13C-2,3,4,6,7,8-HxCDF	8.01e+06	6.72e+02	1.2e+04	1.55e+07	5.60e+02	2.8e+04
24	13C-1,2,3,7,8,9-HxCDF	6.47e+06	6.72e+02	9.6e+03	1.24e+07	5.60e+02	2.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.84e+06	1.65e+03	3.5e+03	1.32e+07	2.66e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.25e+06	1.65e+03	2.6e+03	9.43e+06	2.66e+03	3.5e+03
27	13C-2,3,7,8-TCDD	7.12e+06	4.84e+03	1.5e+03	8.94e+06	1.87e+03	4.8e+03
28	13C-1,2,3,7,8-PeCDD	1.14e+07	8.56e+02	1.3e+04	7.20e+06	9.88e+02	7.3e+03
29	13C-1,2,3,4,7,8-HxCDD	9.50e+06	1.08e+03	8.8e+03	7.34e+06	4.88e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	9.67e+06	1.08e+03	9.0e+03	7.57e+06	4.88e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.85e+06	6.60e+02	1.2e+04	7.47e+06	6.88e+02	1.1e+04
32	13C-OCDD	7.14e+06	9.36e+02	7.6e+03	7.97e+06	3.52e+02	2.3e+04
33	13C-1,2,3,4-TCDD	7.30e+06	4.84e+03	1.5e+03	9.12e+06	1.87e+03	4.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	1.08e+03	9.3e+03	7.85e+06	4.88e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	1.71e+06	6.16e+02	2.8e+03			

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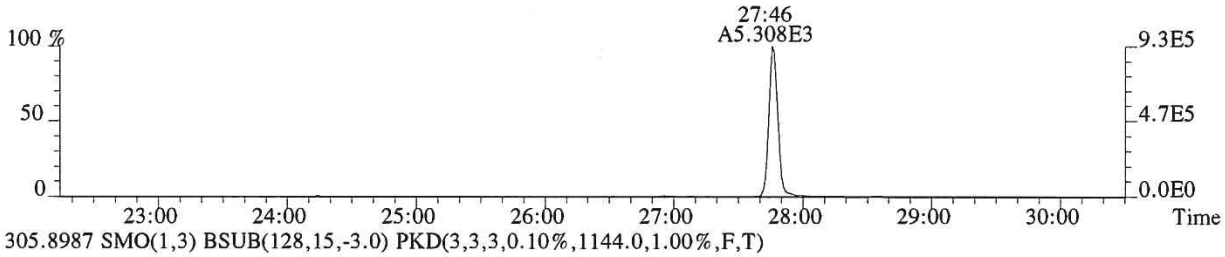
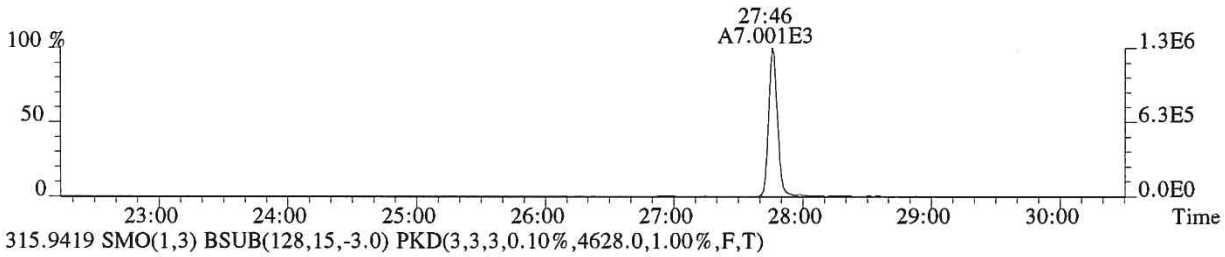
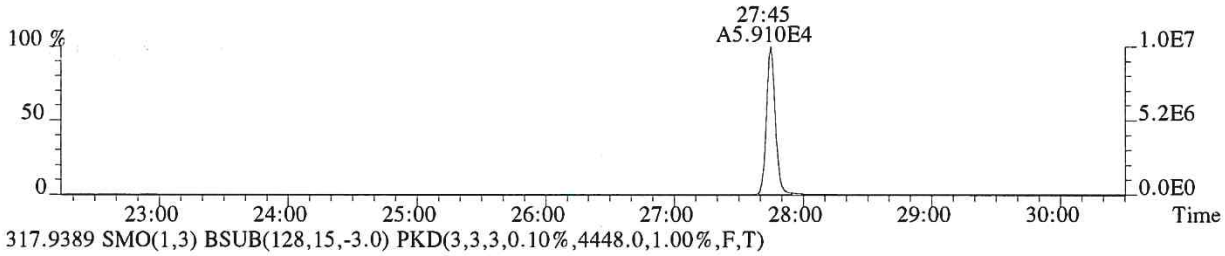
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



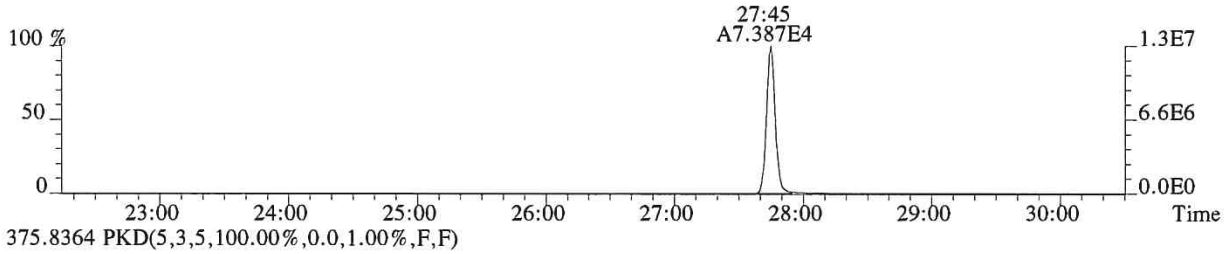
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



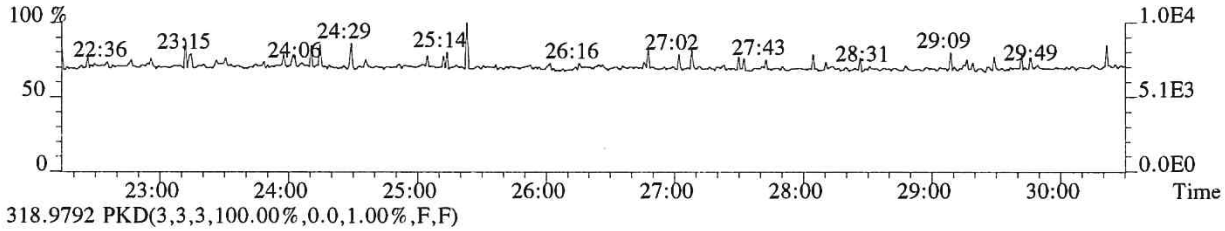
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4628.0,1.00%,F,T)



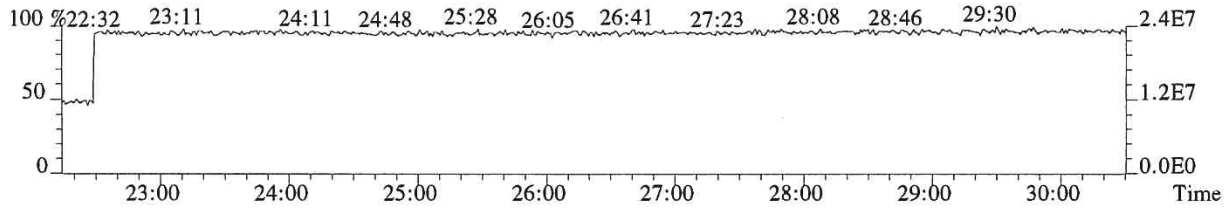
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4448.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

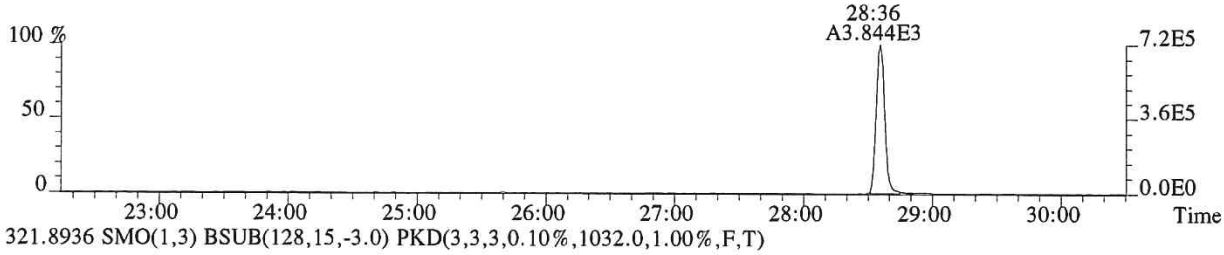


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

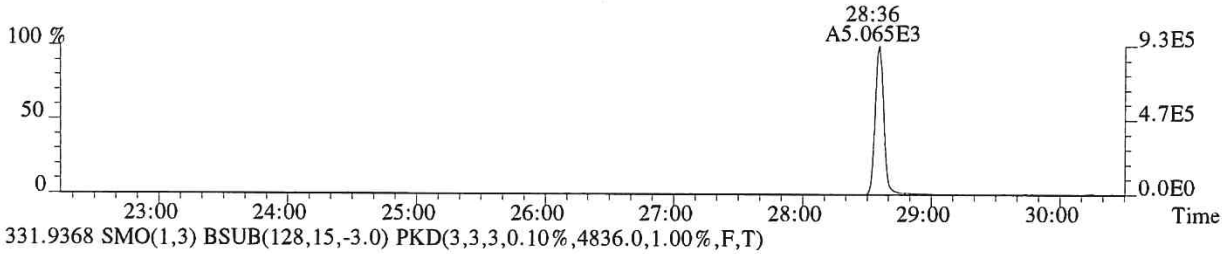


012092

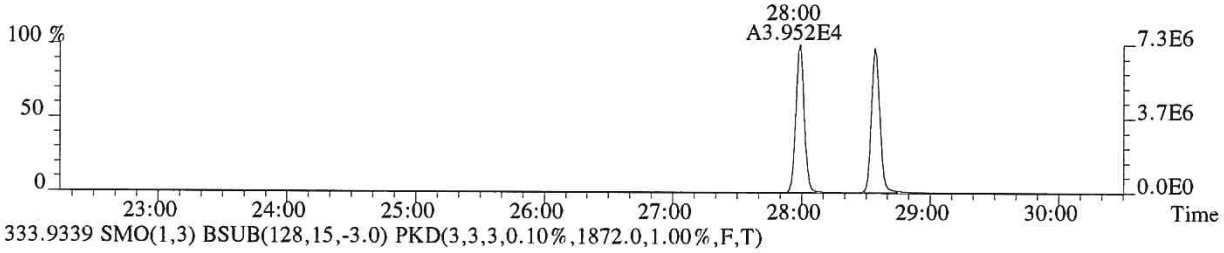
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



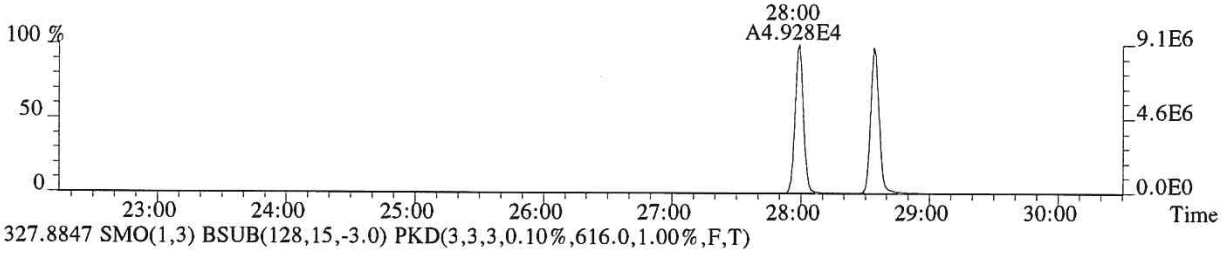
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



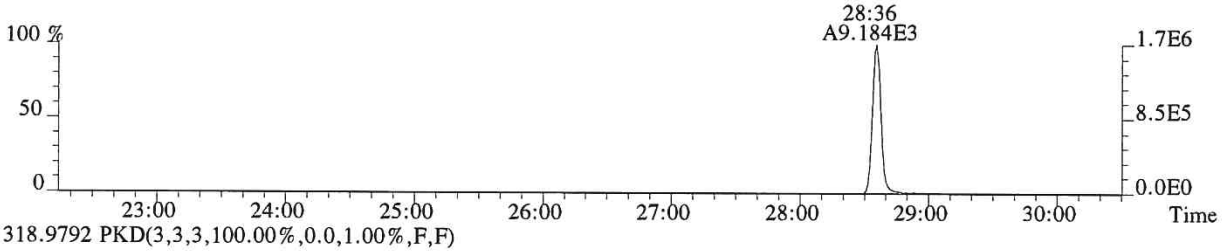
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4836.0,1.00%,F,T)



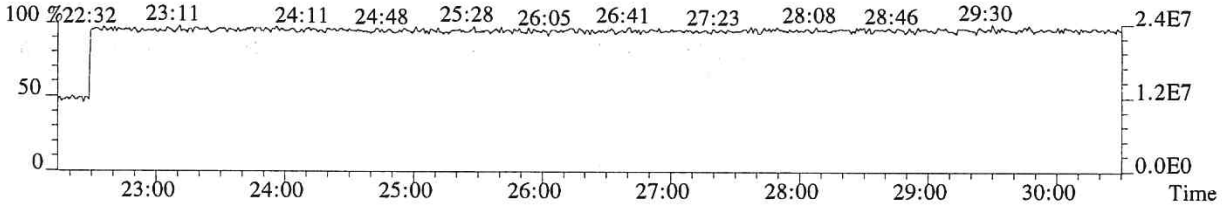
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)

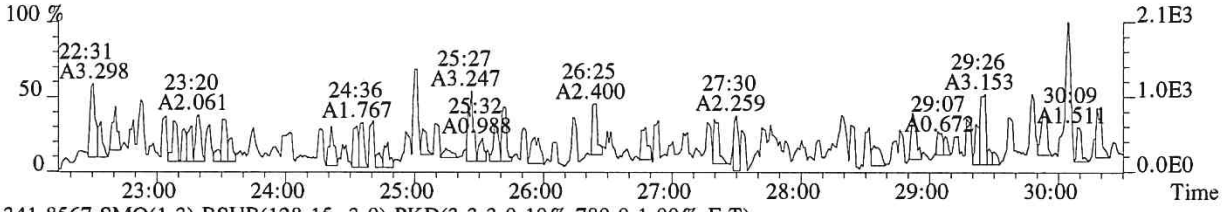


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

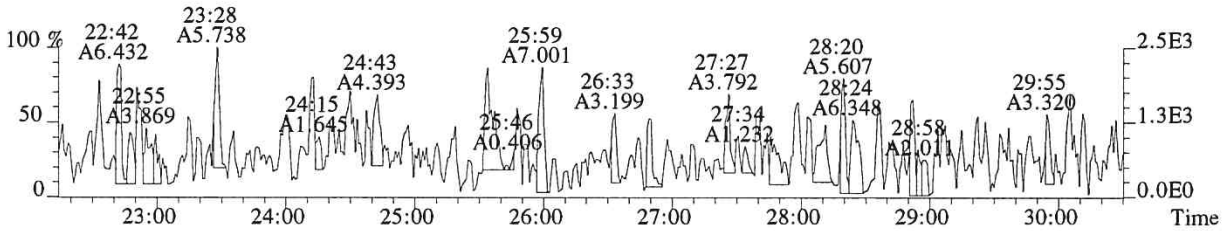


012093

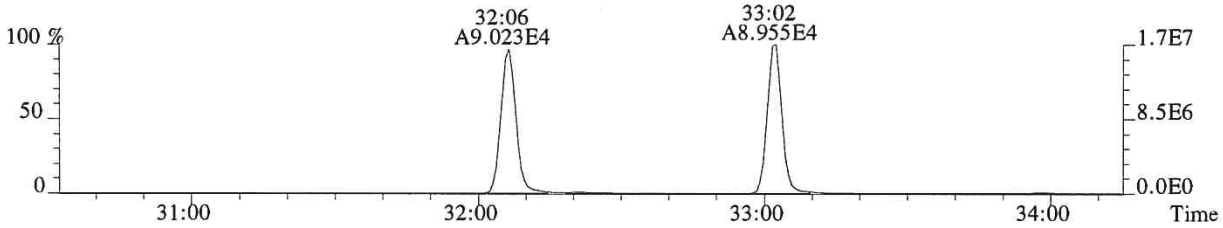
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



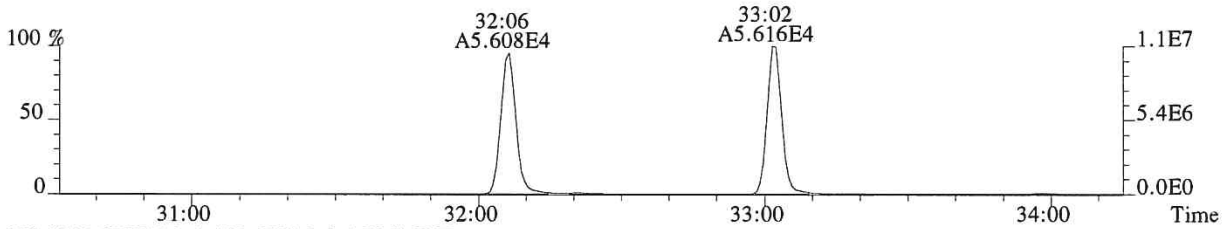
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



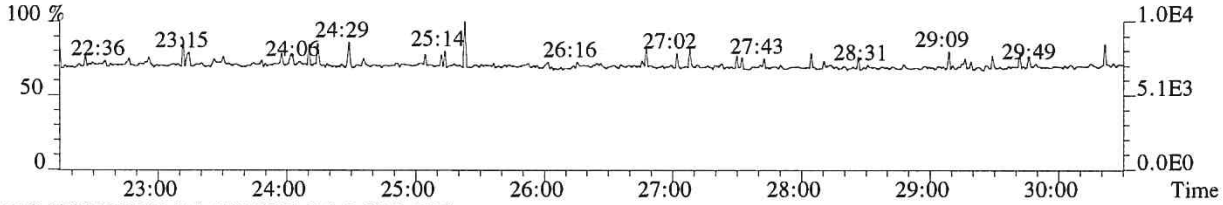
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



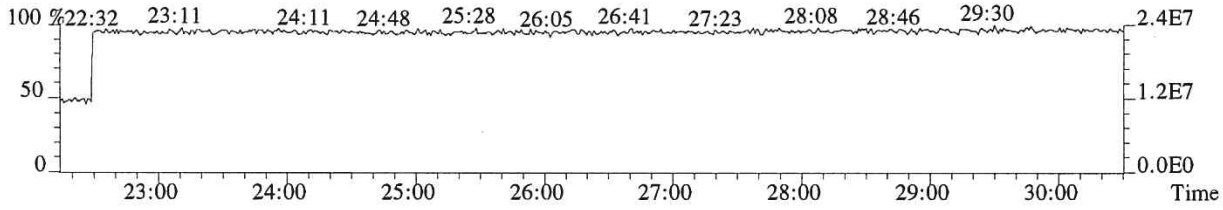
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

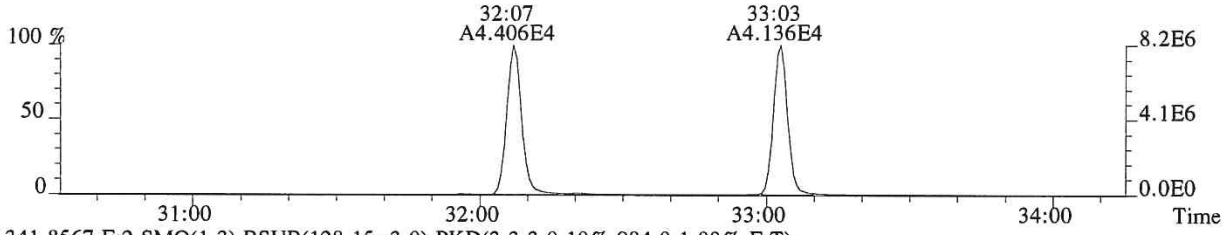


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

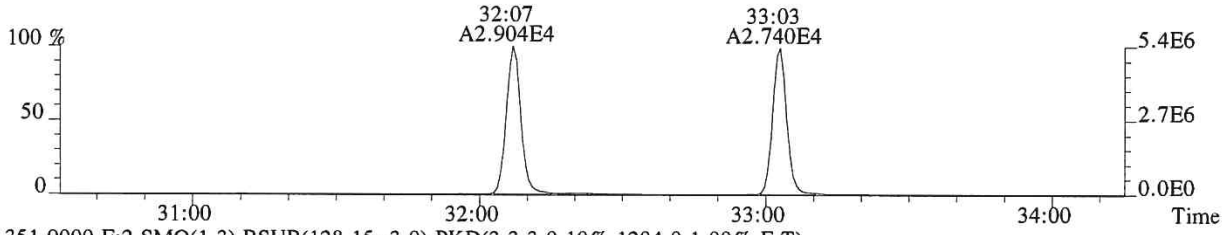


012094

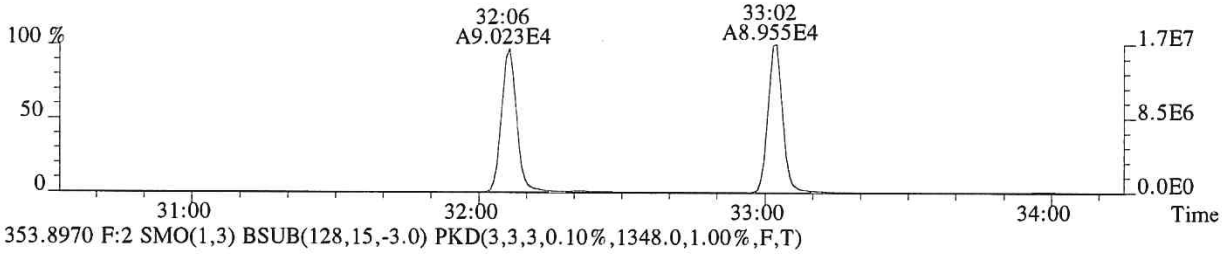
File:P519350 #1-335 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



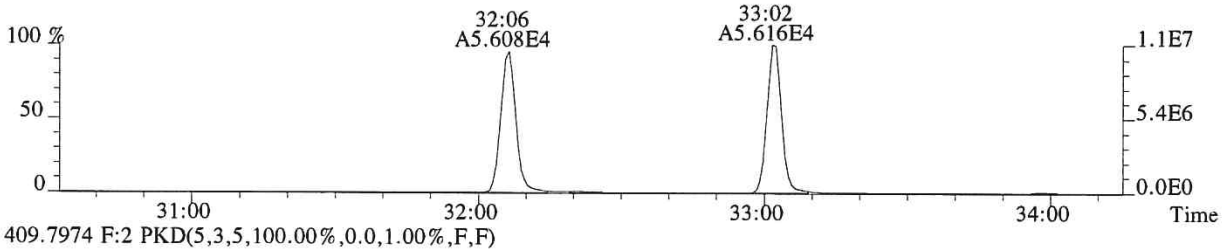
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



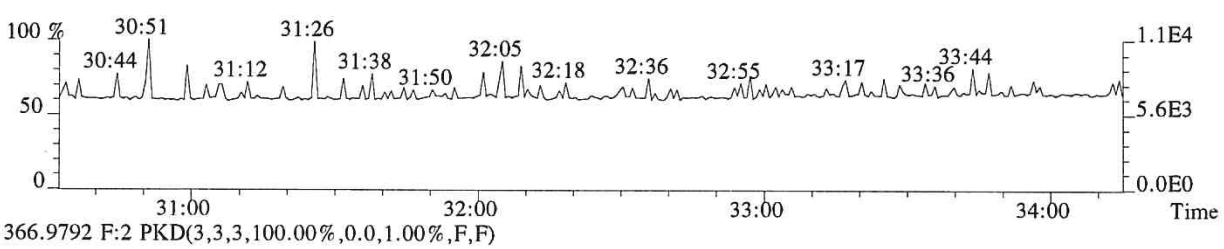
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



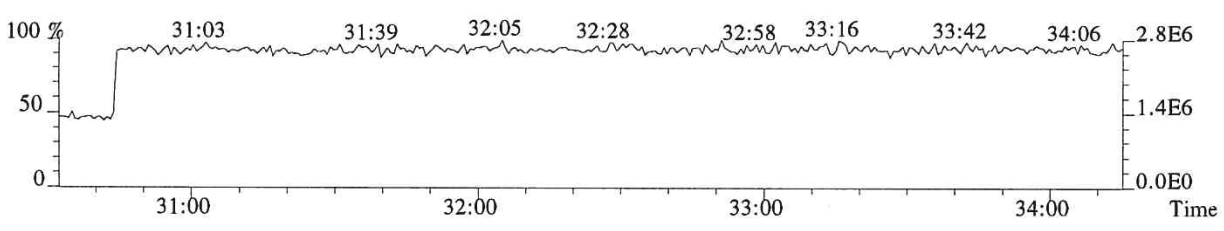
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

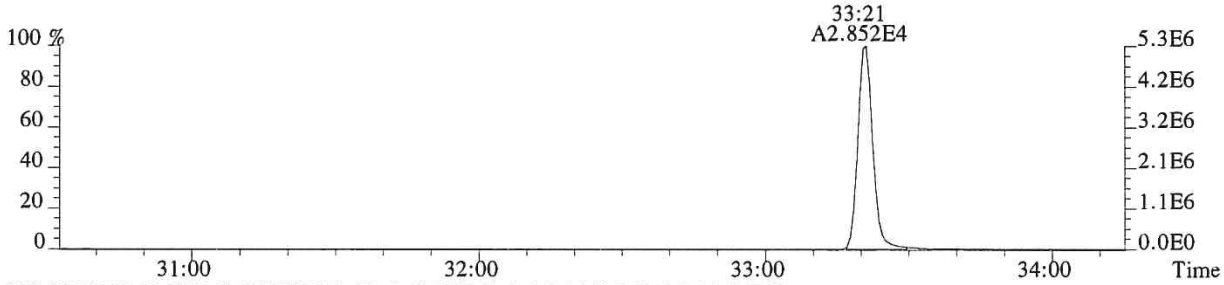


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

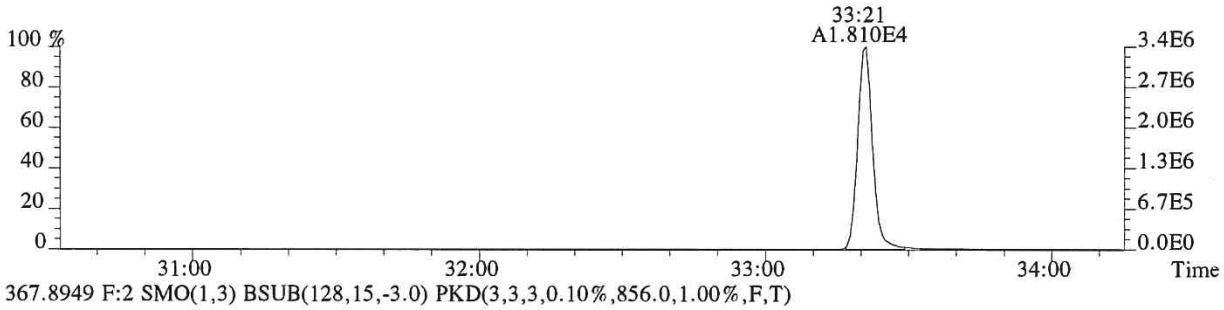


012095

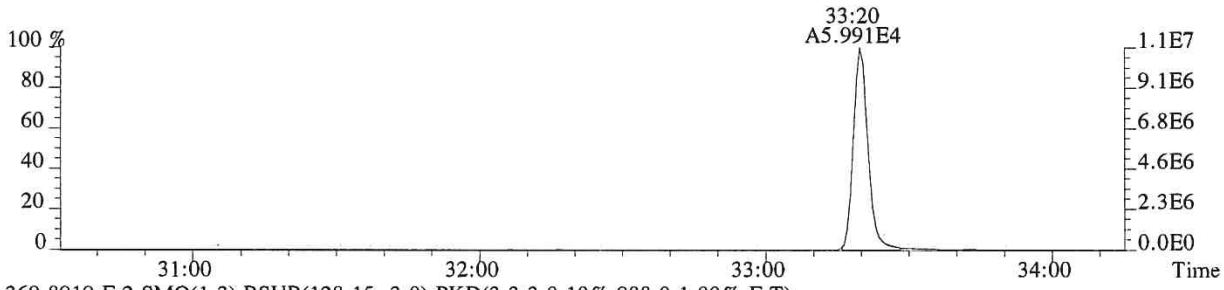
File:P519350 #1-335 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



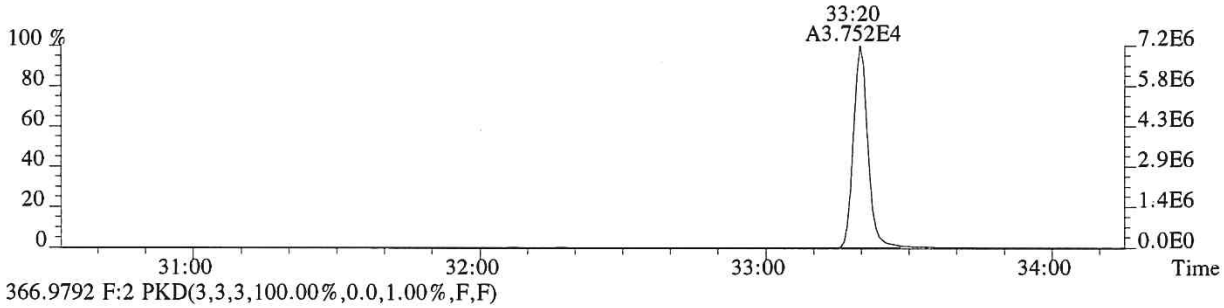
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



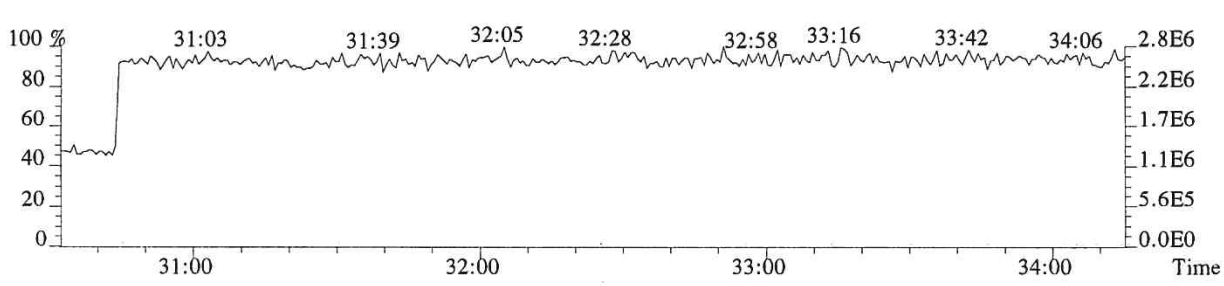
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



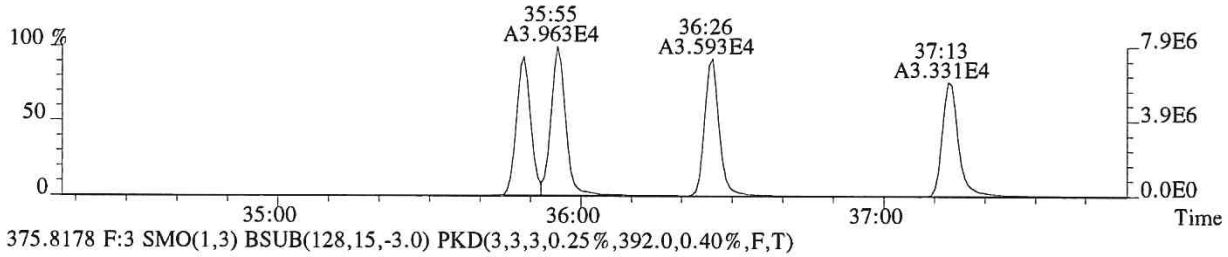
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



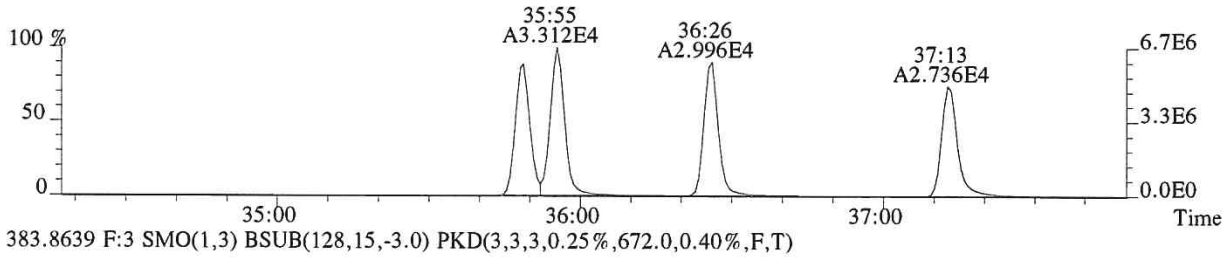
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



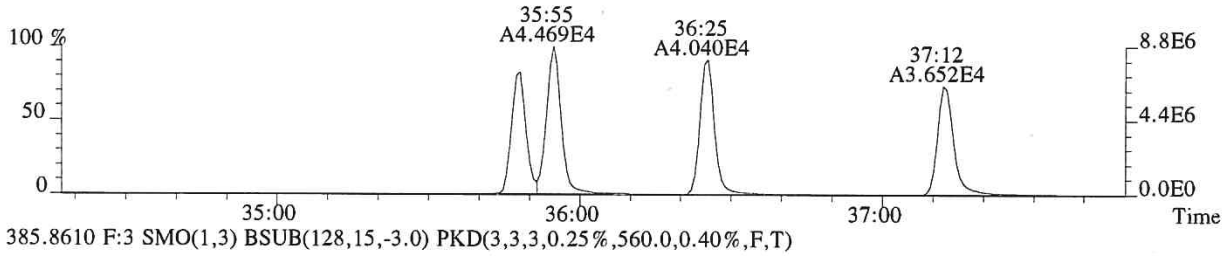
File:P519350 #1-317 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



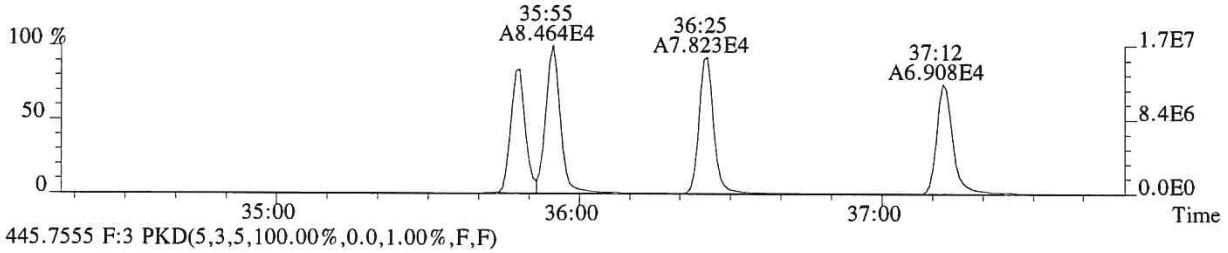
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



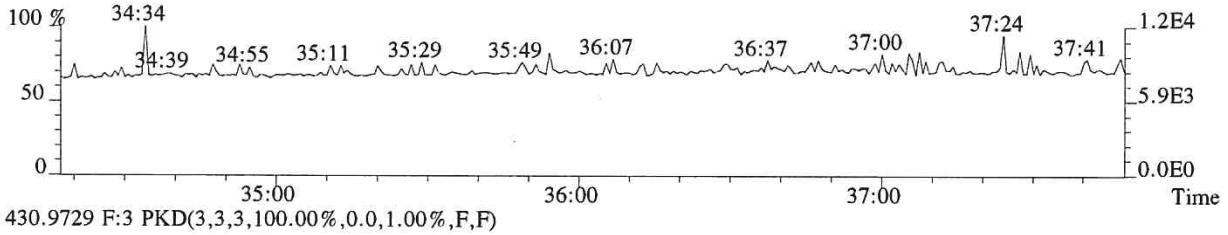
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



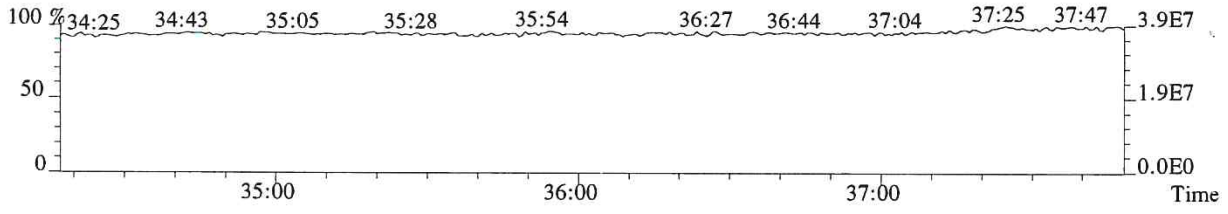
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

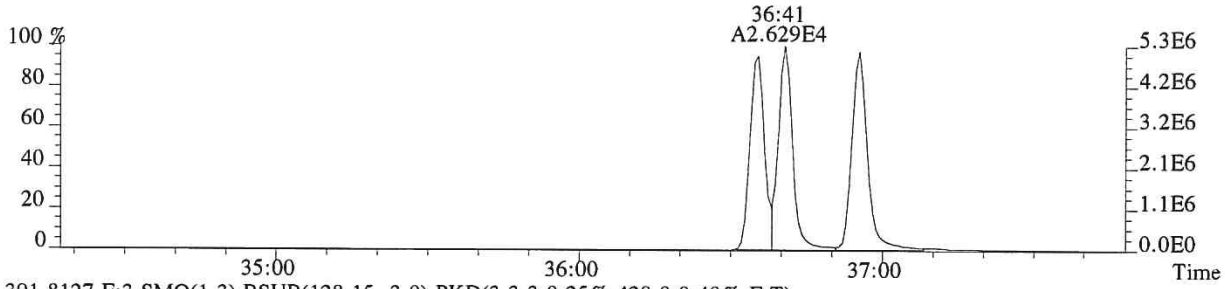


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

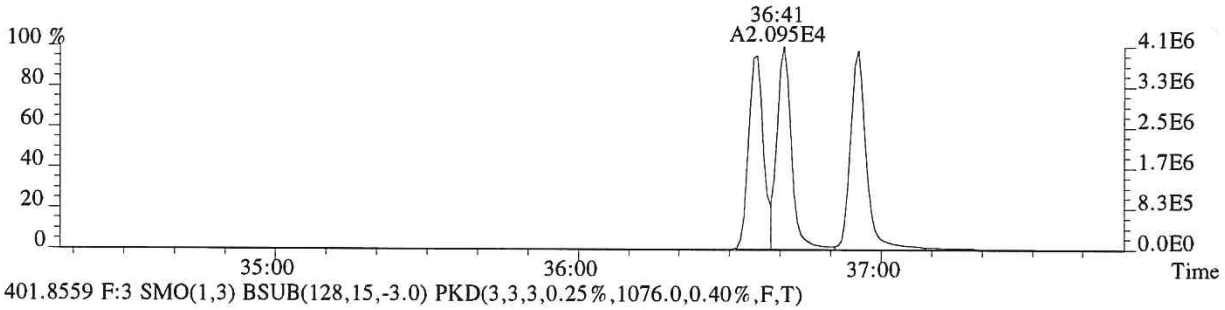


012097

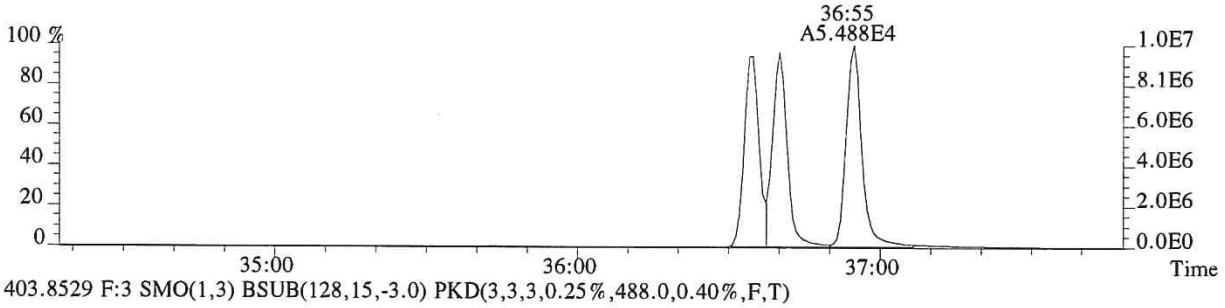
File:P519350 #1-317 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



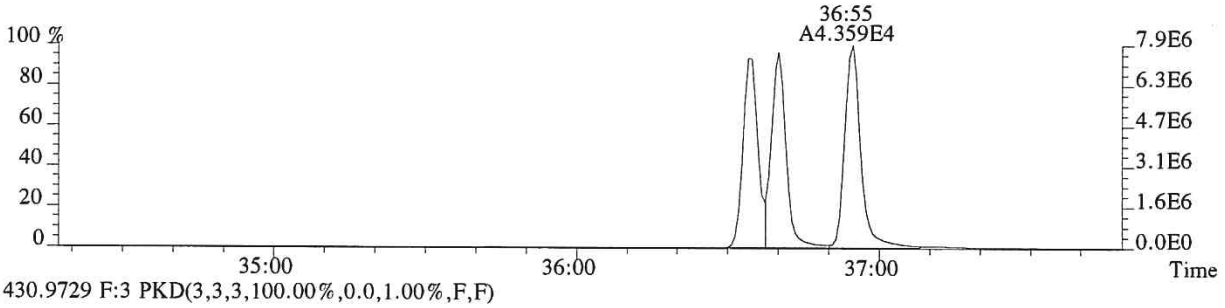
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



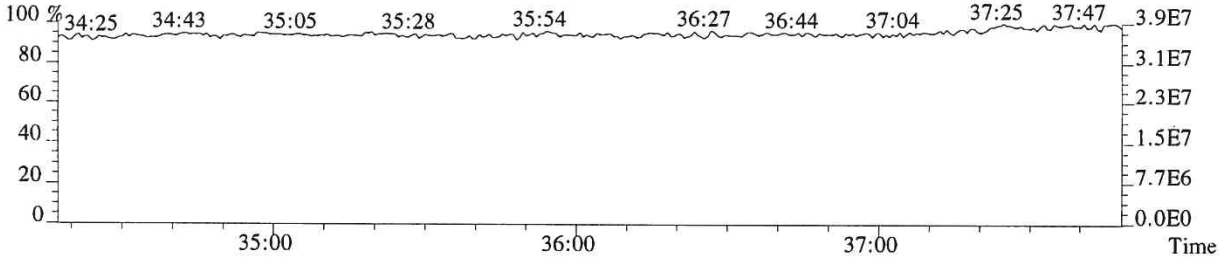
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)

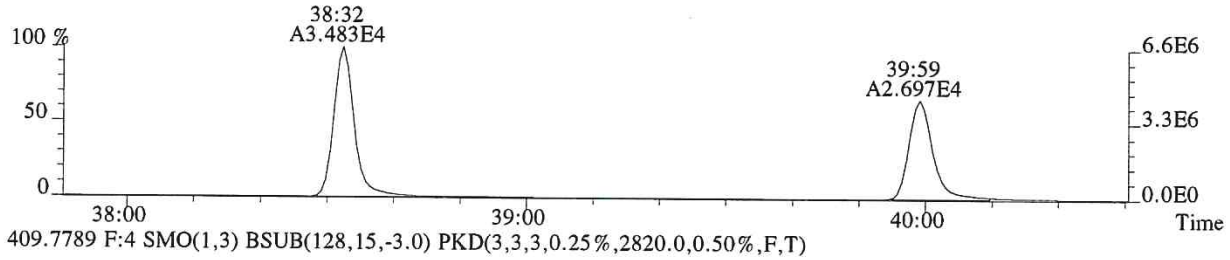


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

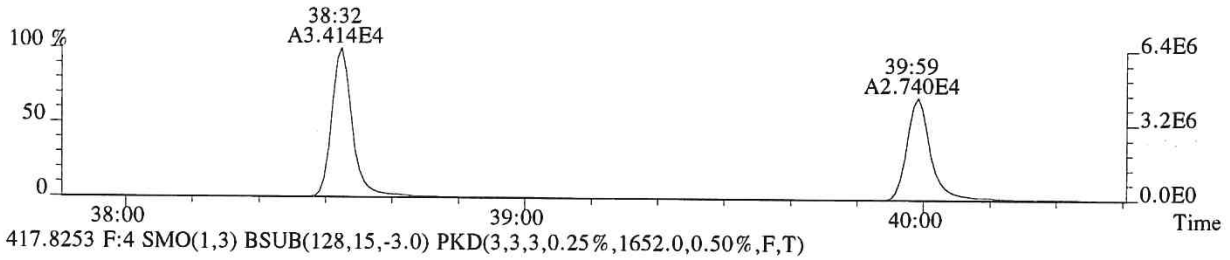


012098

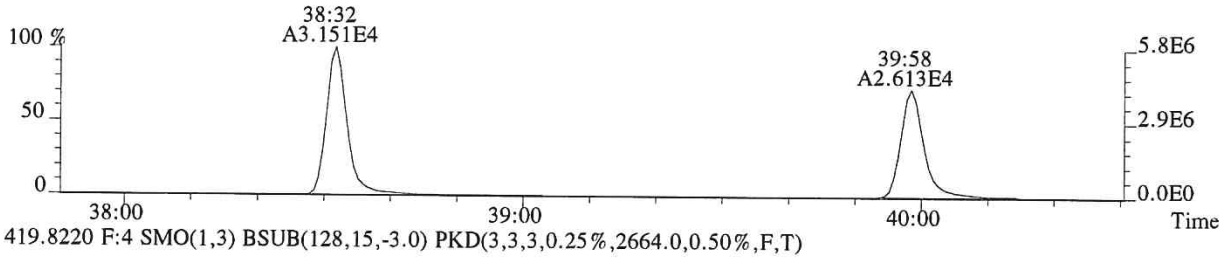
File:P519350 #1-241 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5592.0,0.50%,F,T)



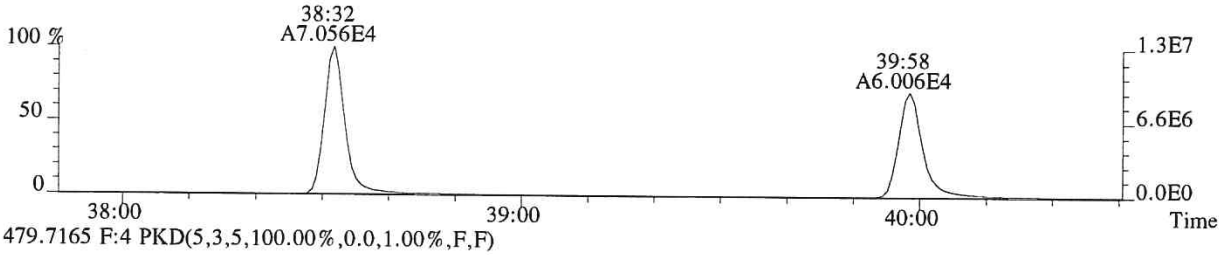
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2820.0,0.50%,F,T)



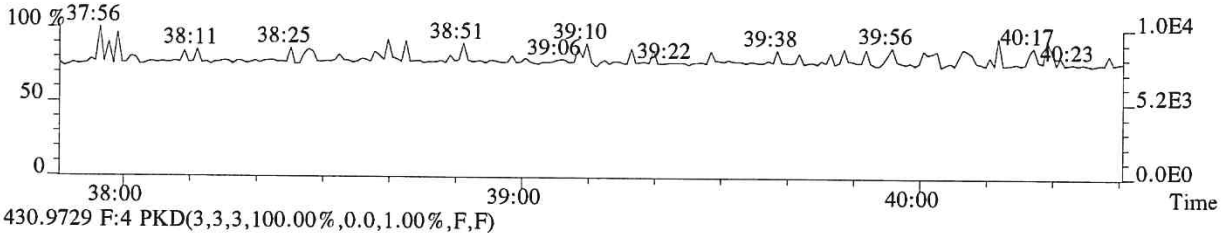
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.50%,F,T)



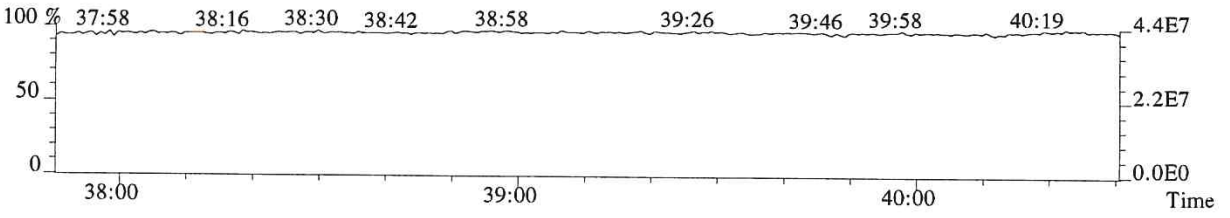
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2664.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

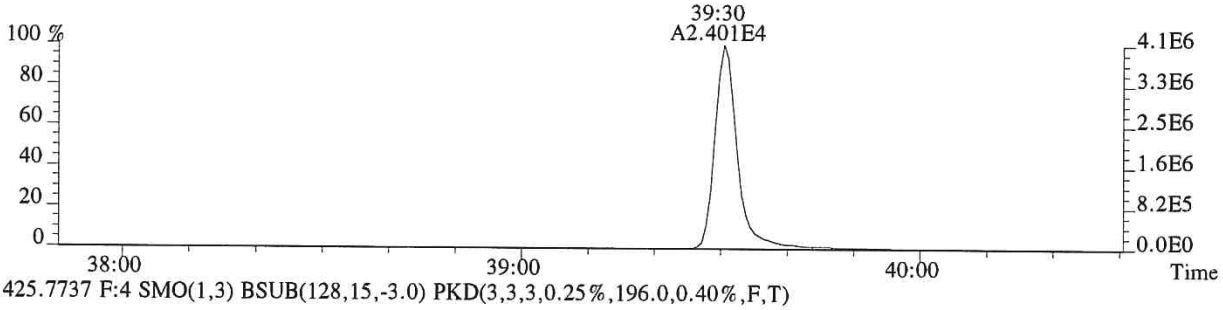


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

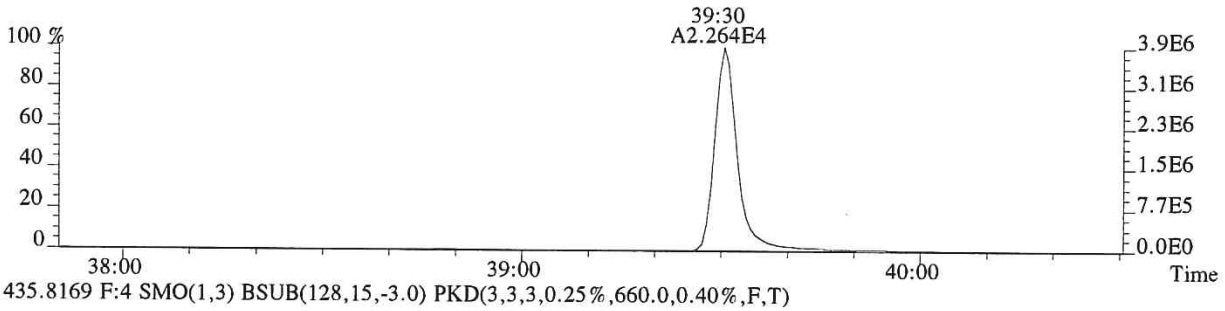


012099

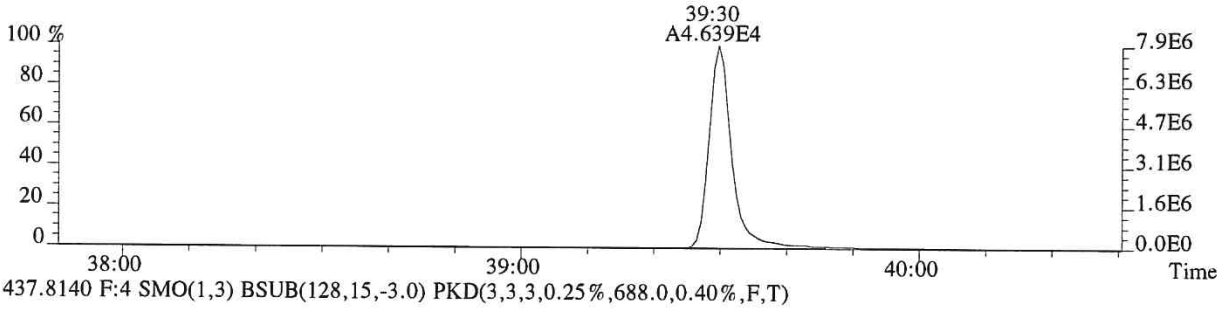
File:P519350 #1-241 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



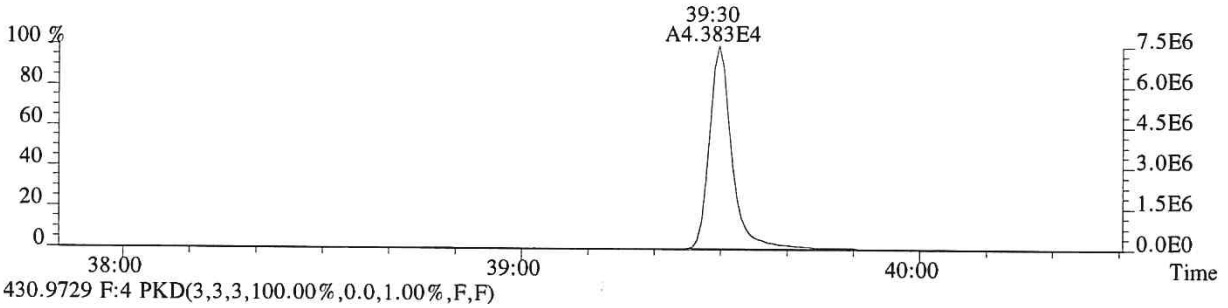
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



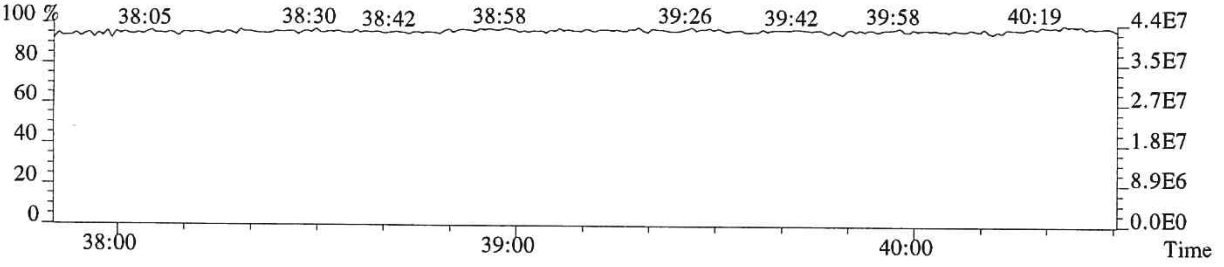
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)

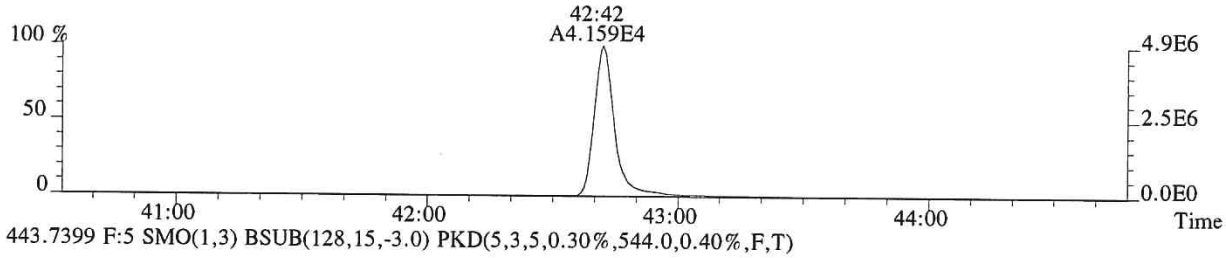


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

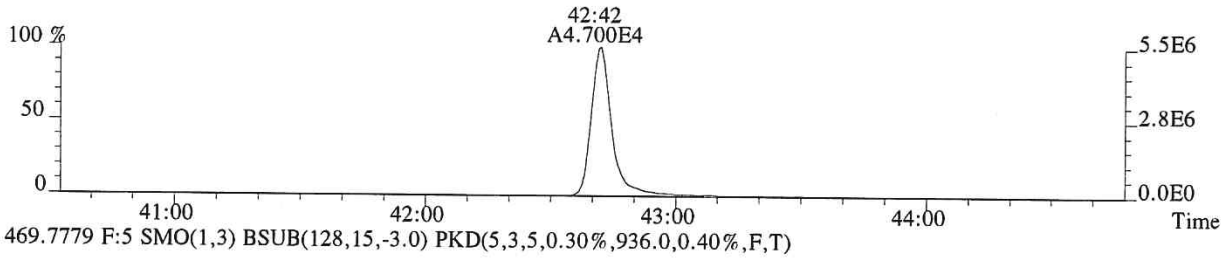


012100

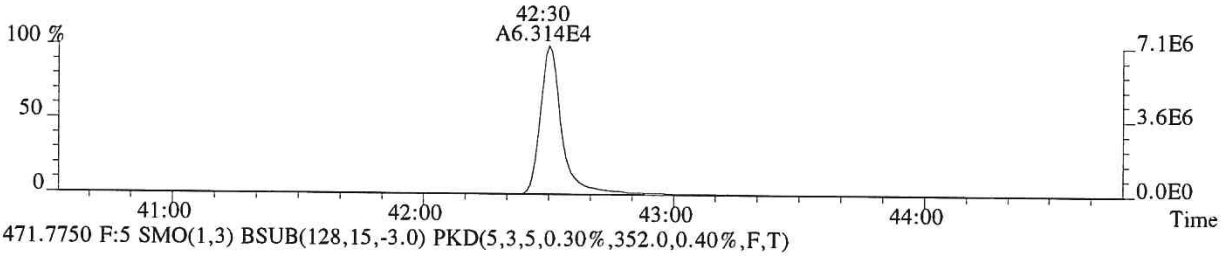
File:P519350 #1-383 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



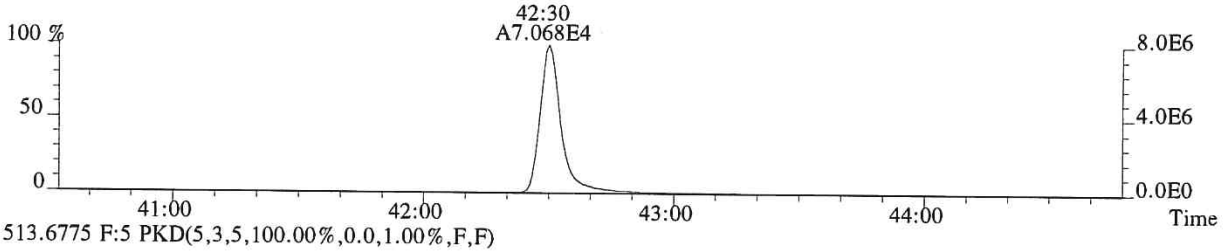
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



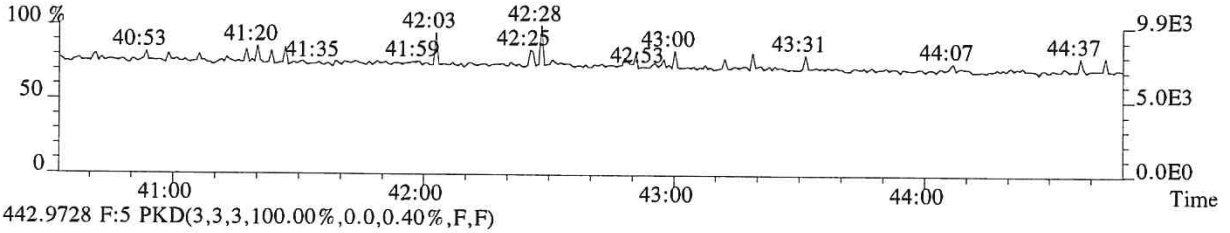
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



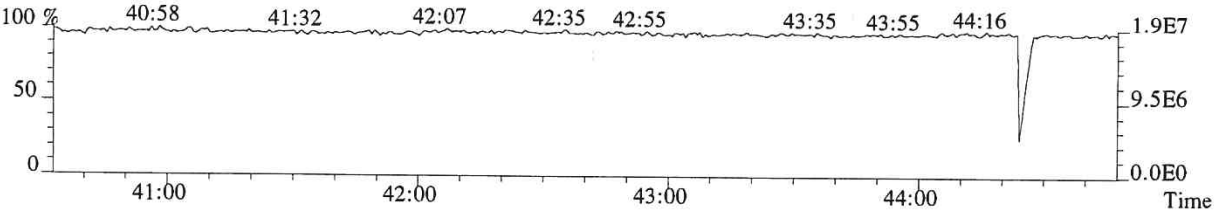
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



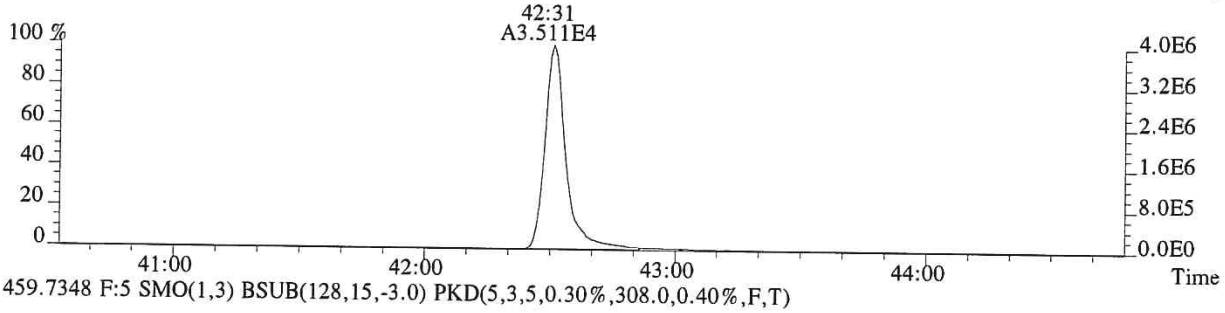
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



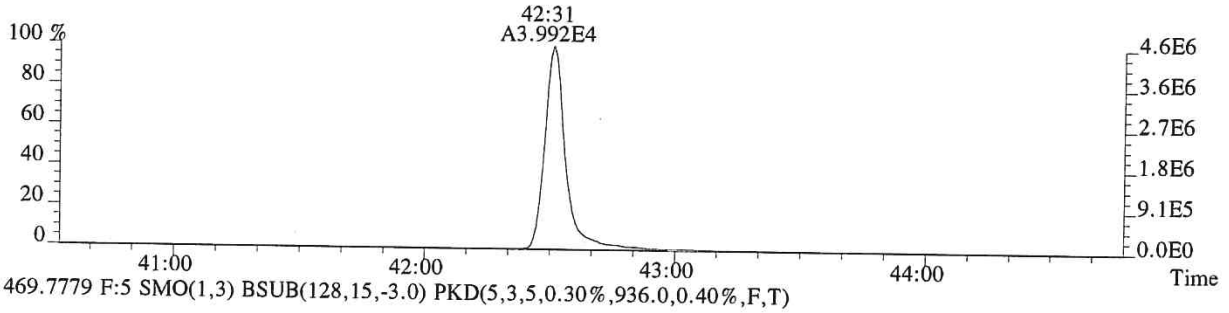
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



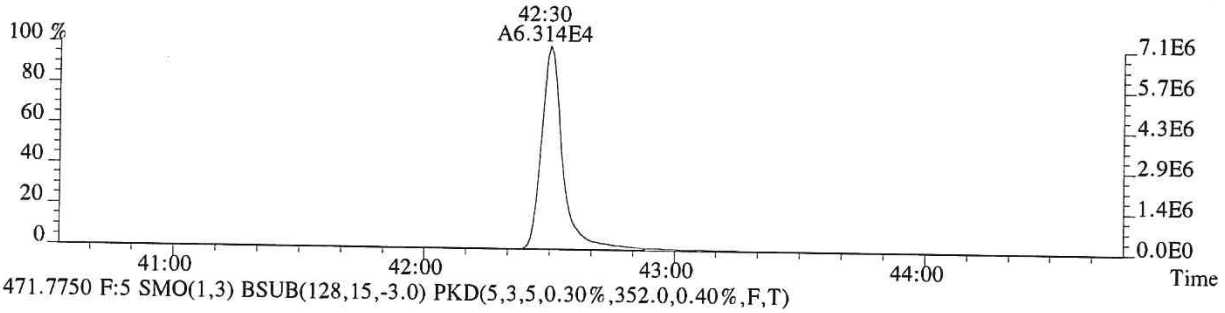
File:P519350 #1-383 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



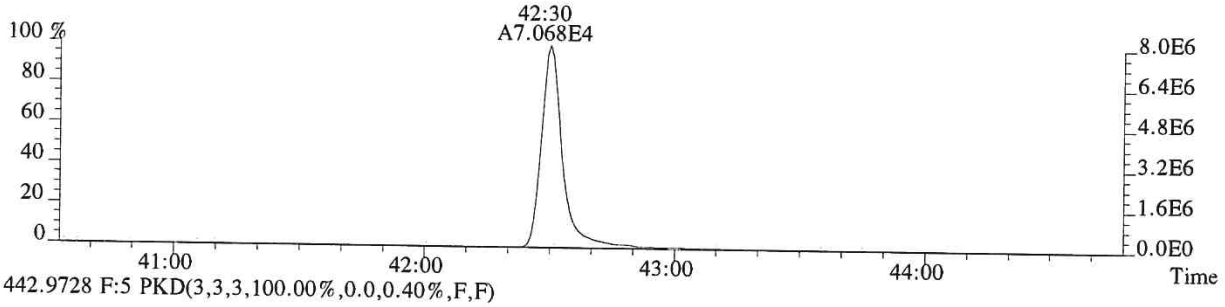
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



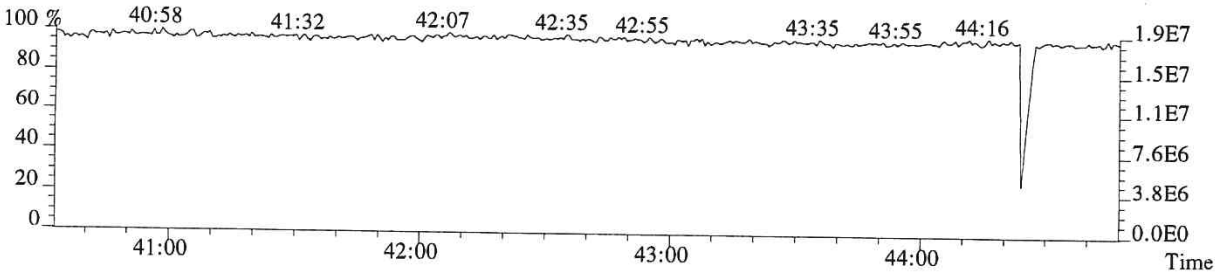
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012102

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Leung
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:39	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	YY	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ YD 1/25/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

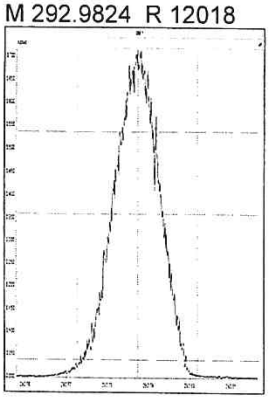
gc 01/25/18

* gc 01/25/18

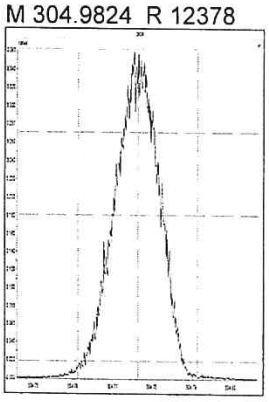
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

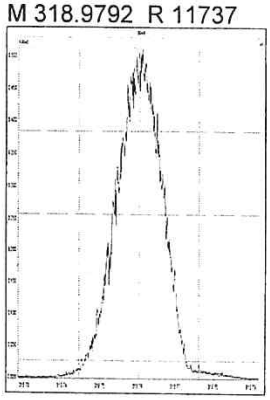
M 292.9824 R 12018



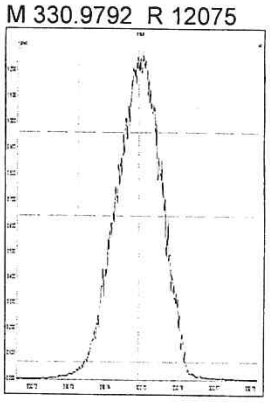
M 304.9824 R 12378



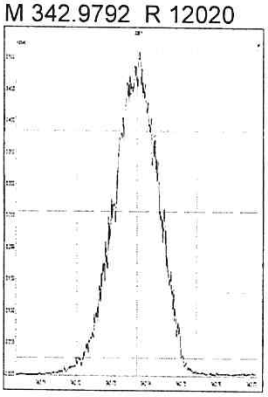
M 318.9792 R 11737



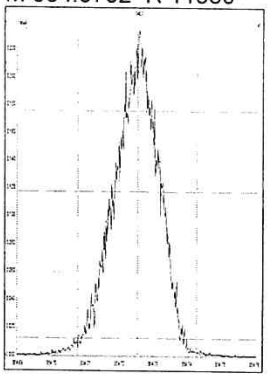
M 330.9792 R 12075



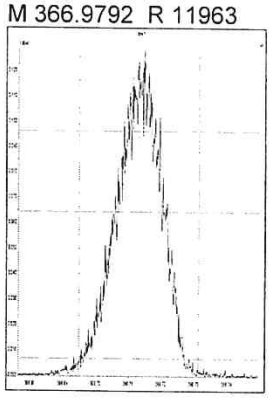
M 342.9792 R 12020



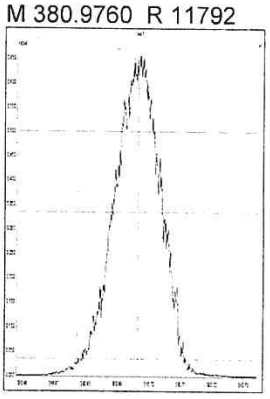
M 354.9792 R 11680



M 366.9792 R 11963



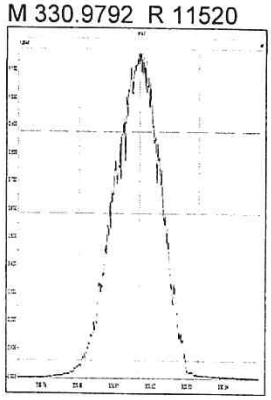
M 380.9760 R 11792



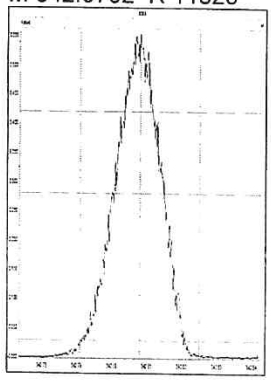
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

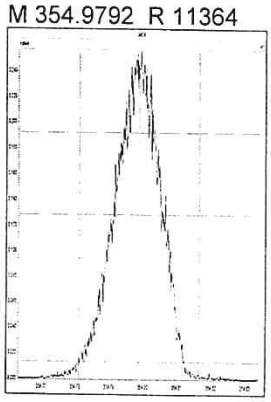
M 330.9792 R 11520



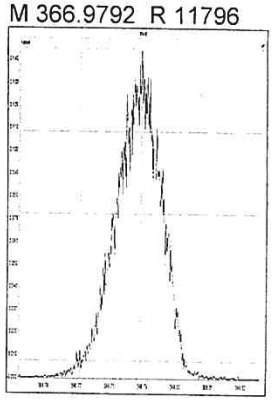
M 342.9792 R 11625



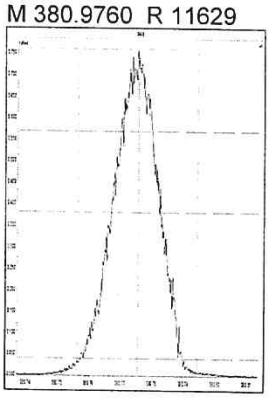
M 354.9792 R 11364



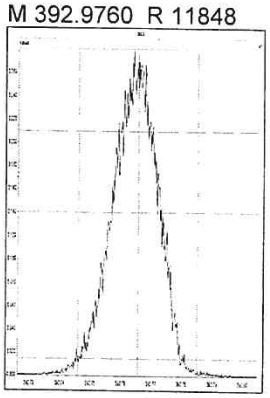
M 366.9792 R 11796



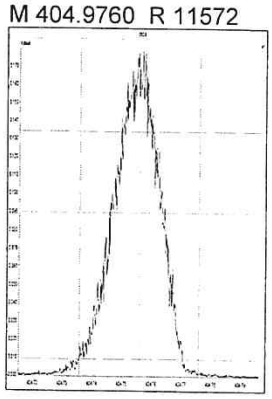
M 380.9760 R 11629



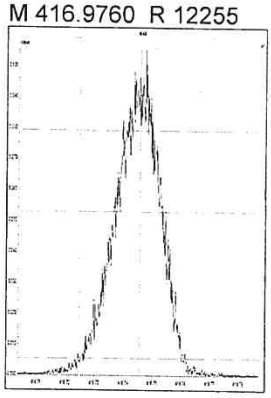
M 392.9760 R 11848



M 404.9760 R 11572



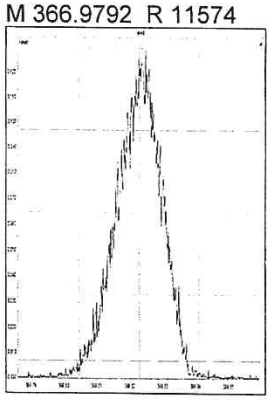
M 416.9760 R 12255



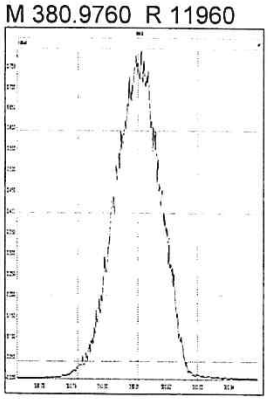
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

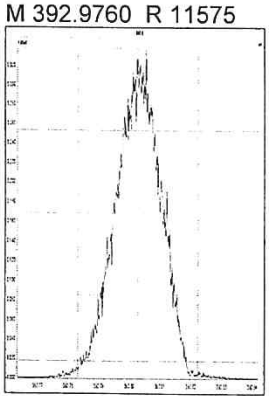
M 366.9792 R 11574



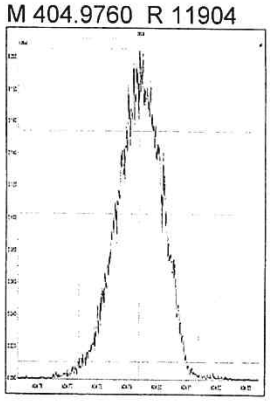
M 380.9760 R 11960



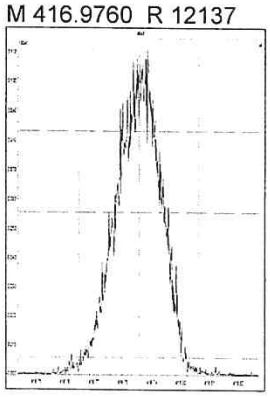
M 392.9760 R 11575



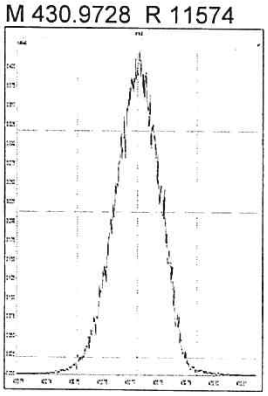
M 404.9760 R 11904



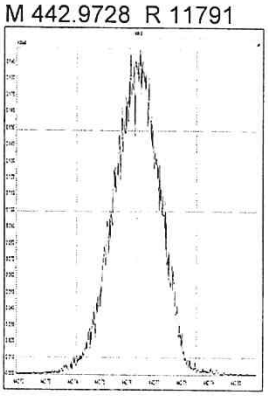
M 416.9760 R 12137



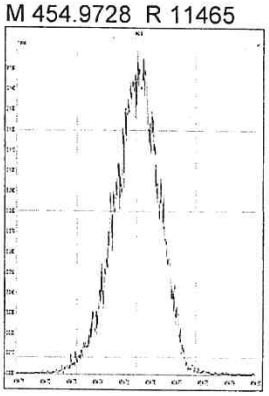
M 430.9728 R 11574



M 442.9728 R 11791



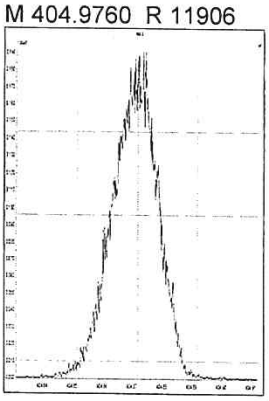
M 454.9728 R 11465



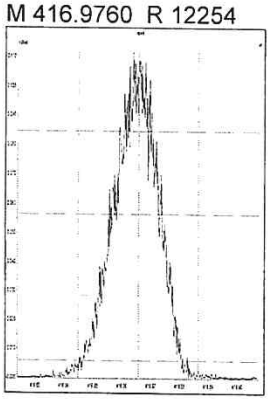
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

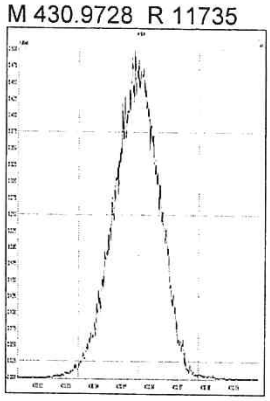
M 404.9760 R 11906



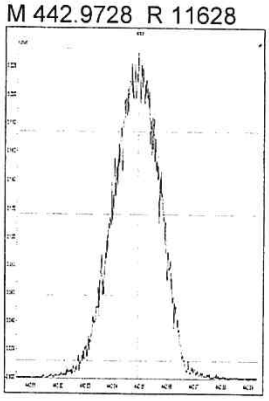
M 416.9760 R 12254



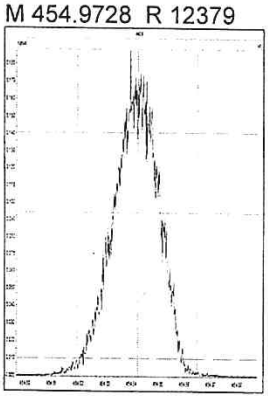
M 430.9728 R 11735



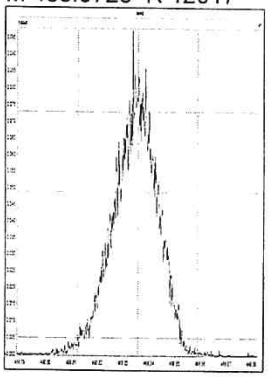
M 442.9728 R 11628



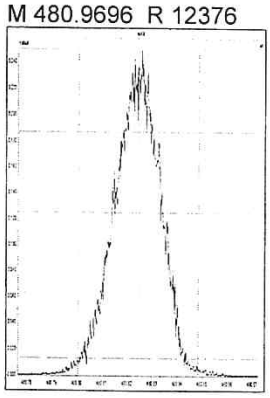
M 454.9728 R 12379



M 466.9728 R 12017



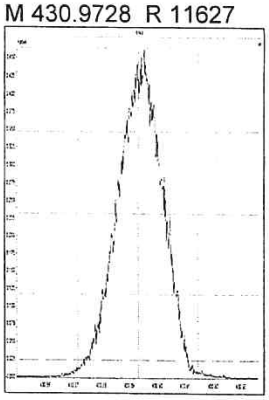
M 480.9696 R 12376



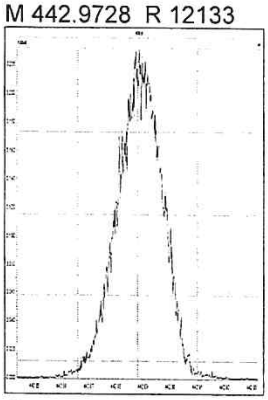
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

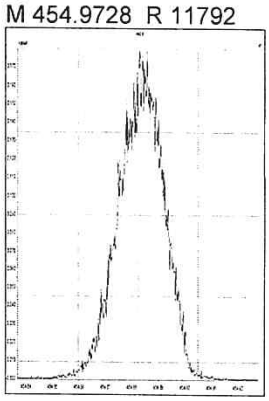
M 430.9728 R 11627



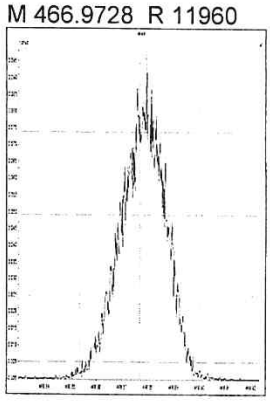
M 442.9728 R 12133



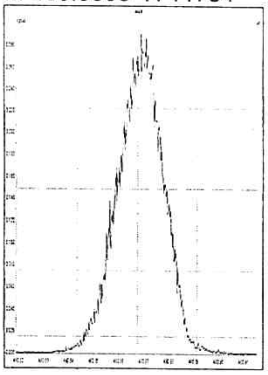
M 454.9728 R 11792



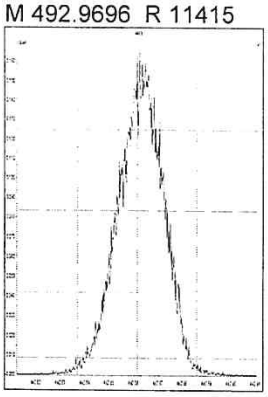
M 466.9728 R 11960



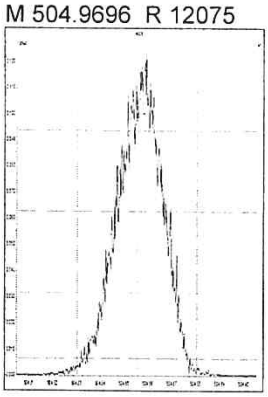
M 480.9696 R 11734



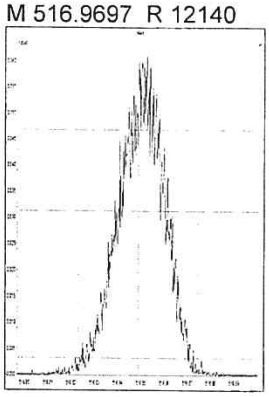
M 492.9696 R 11415



M 504.9696 R 12075



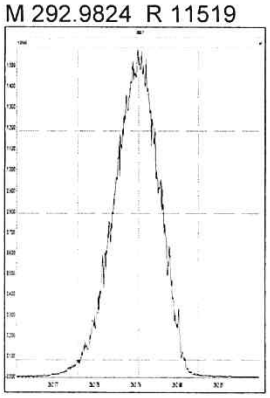
M 516.9697 R 12140



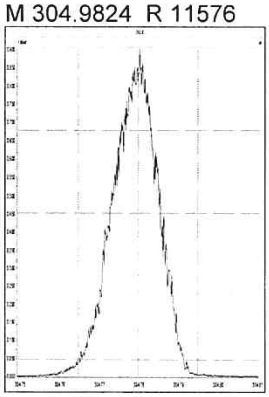
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

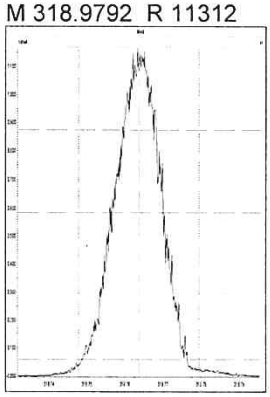
M 292.9824 R 11519



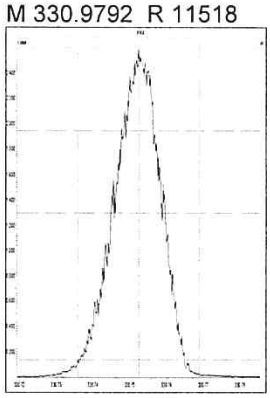
M 304.9824 R 11576



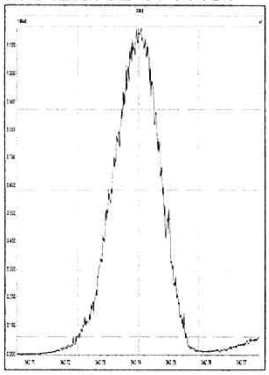
M 318.9792 R 11312



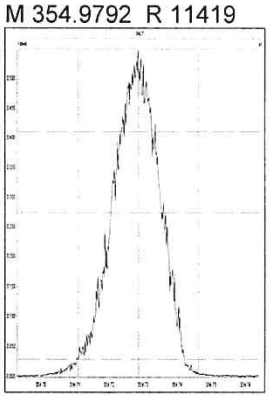
M 330.9792 R 11518



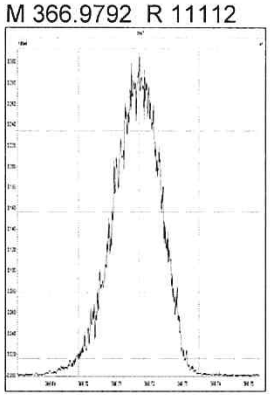
M 342.9792 R 11161



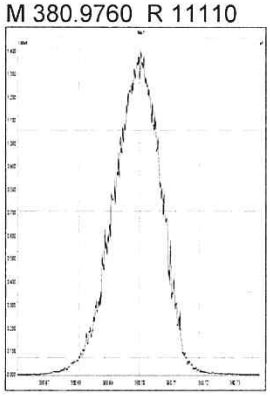
M 354.9792 R 11419



M 366.9792 R 11112



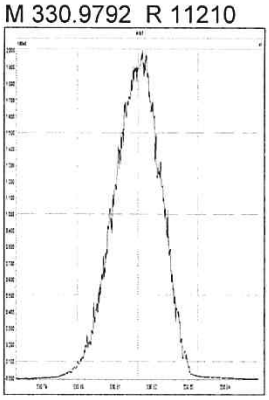
M 380.9760 R 11110



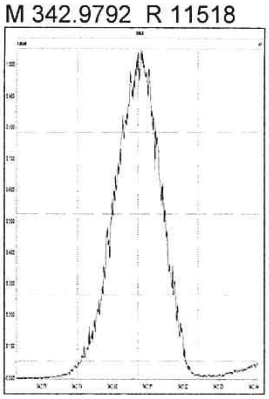
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

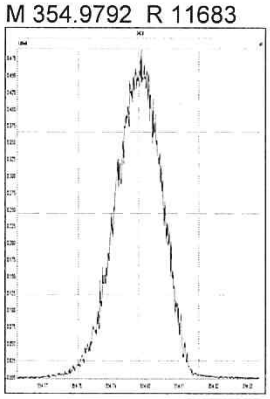
M 330.9792 R 11210



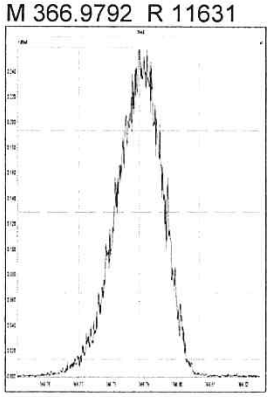
M 342.9792 R 11518



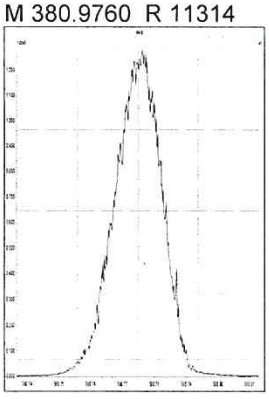
M 354.9792 R 11683



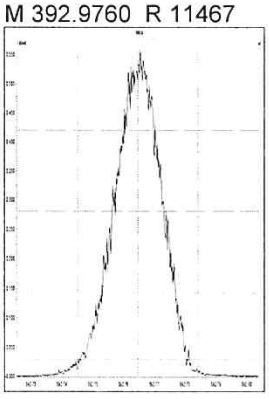
M 366.9792 R 11631



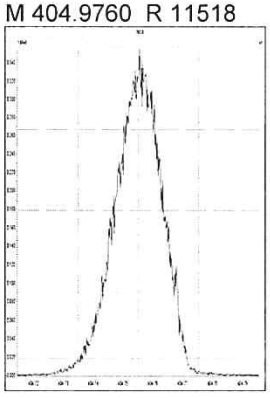
M 380.9760 R 11314



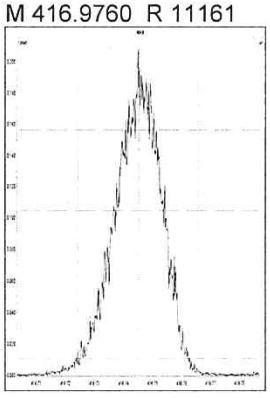
M 392.9760 R 11467



M 404.9760 R 11518



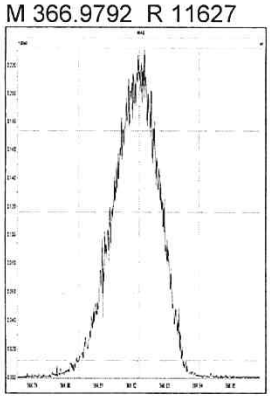
M 416.9760 R 11161



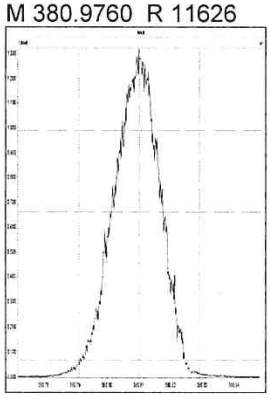
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

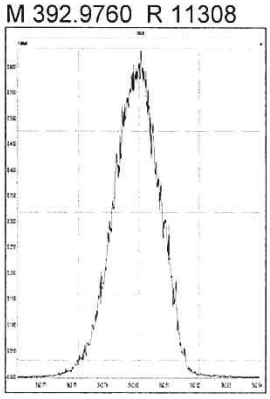
M 366.9792 R 11627



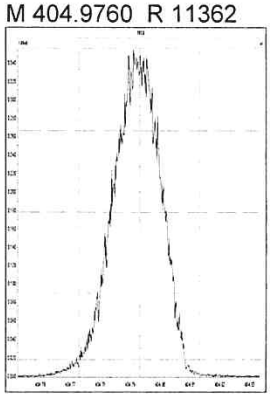
M 380.9760 R 11626



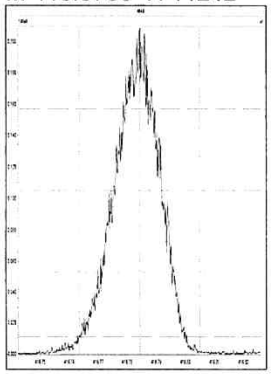
M 392.9760 R 11308



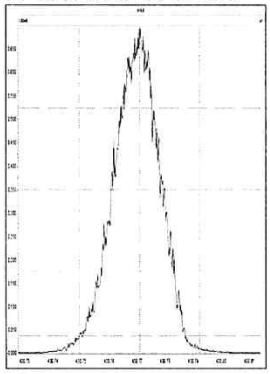
M 404.9760 R 11362



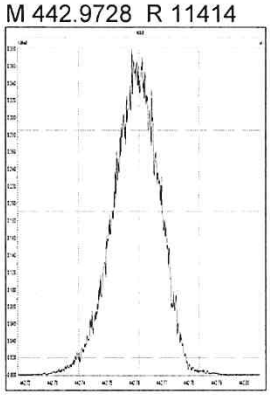
M 416.9760 R 11212



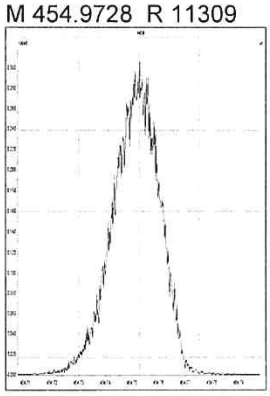
M 430.9728 R 11363



M 442.9728 R 11414



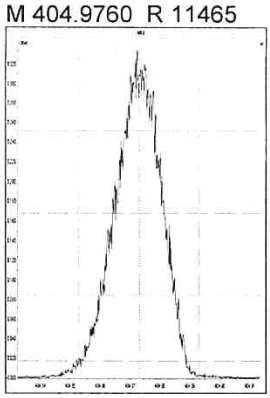
M 454.9728 R 11309



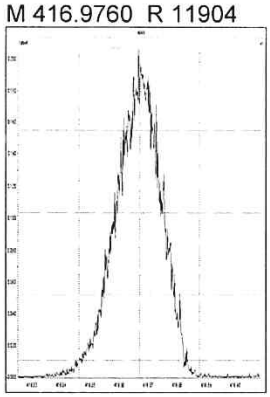
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

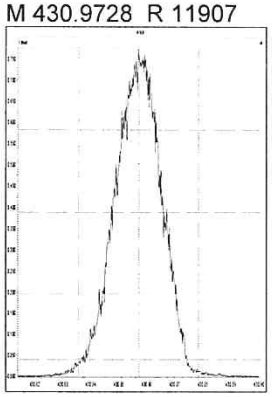
M 404.9760 R 11465



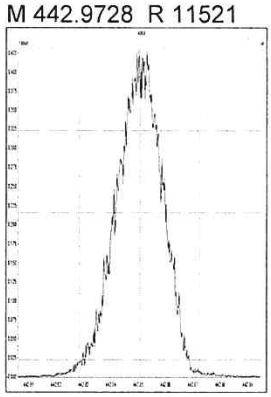
M 416.9760 R 11904



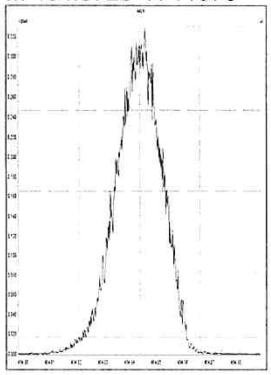
M 430.9728 R 11907



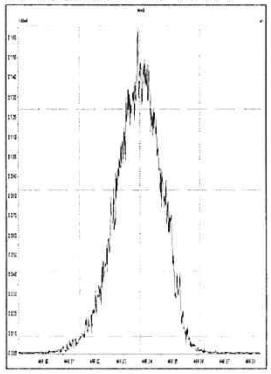
M 442.9728 R 11521



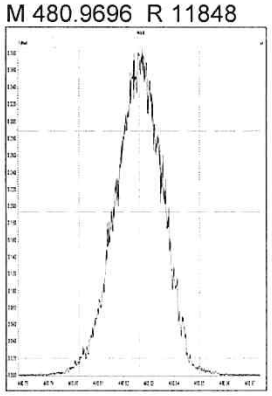
M 454.9728 R 11573



M 466.9728 R 11417



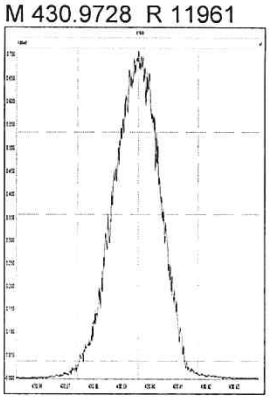
M 480.9696 R 11848



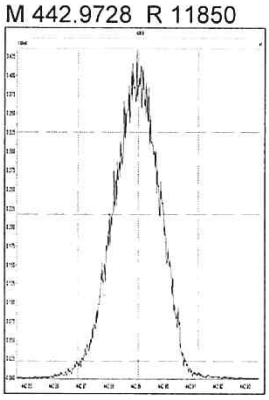
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

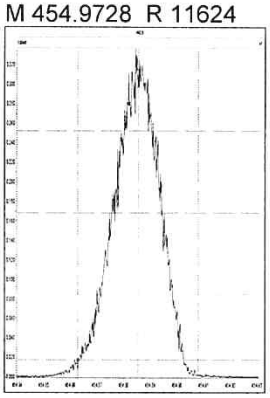
M 430.9728 R 11961



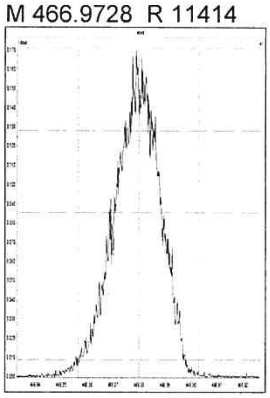
M 442.9728 R 11850



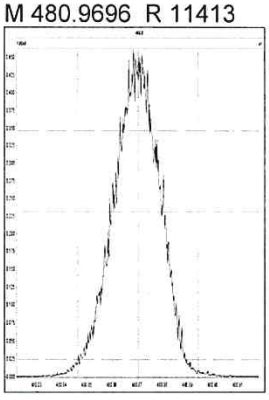
M 454.9728 R 11624



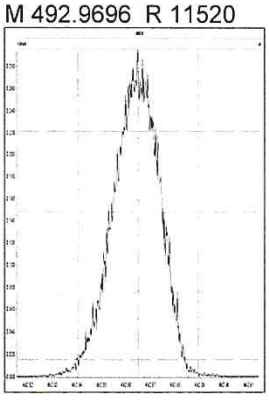
M 466.9728 R 11414



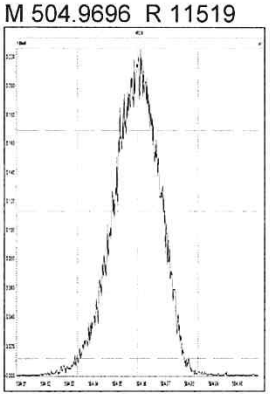
M 480.9696 R 11413



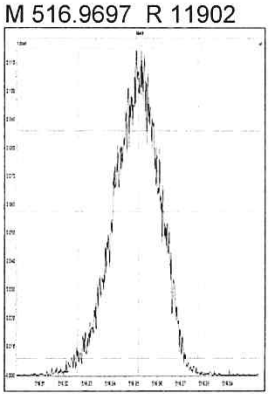
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

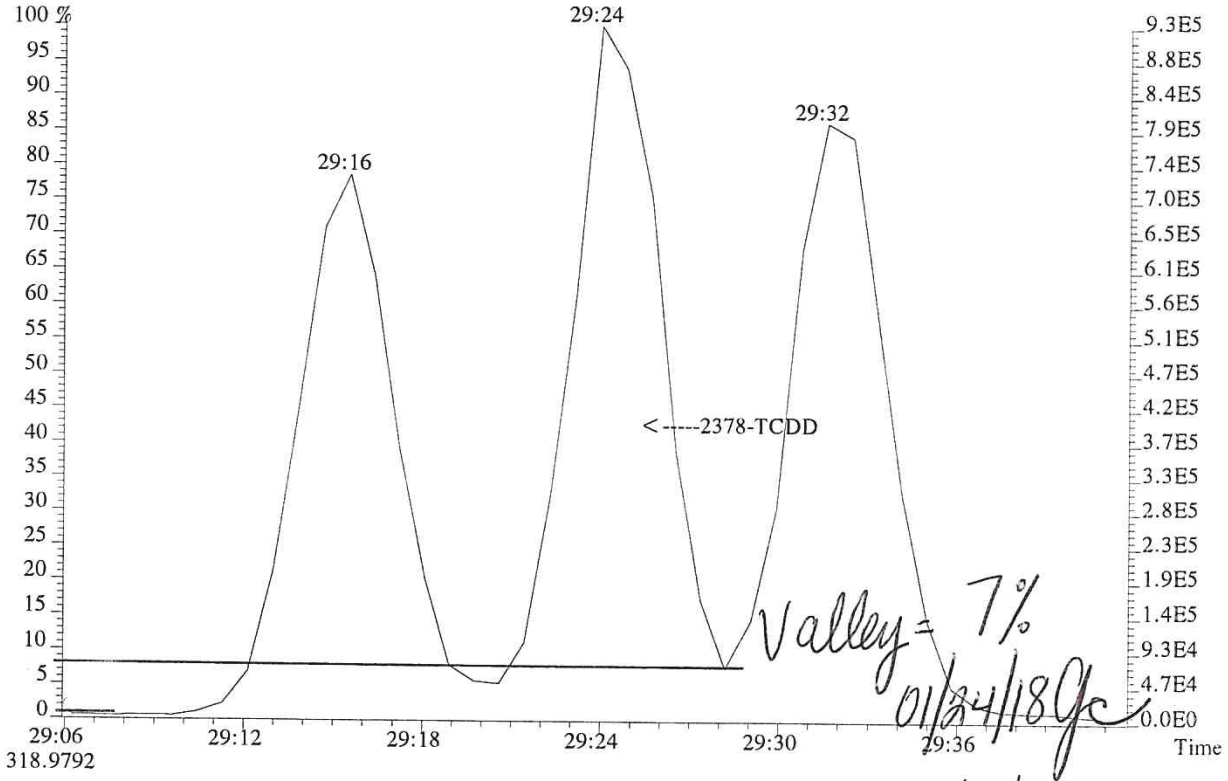
Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

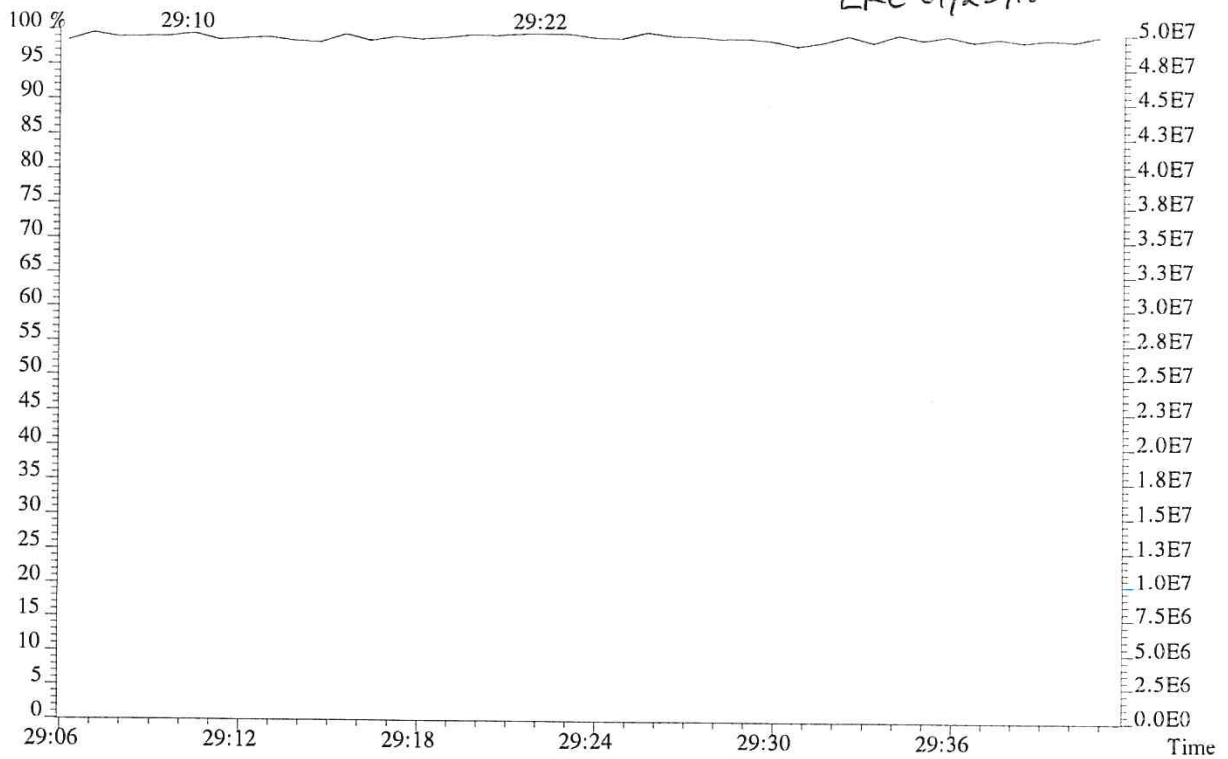
% Valley 2378-TCDD: 7 %

012118

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965

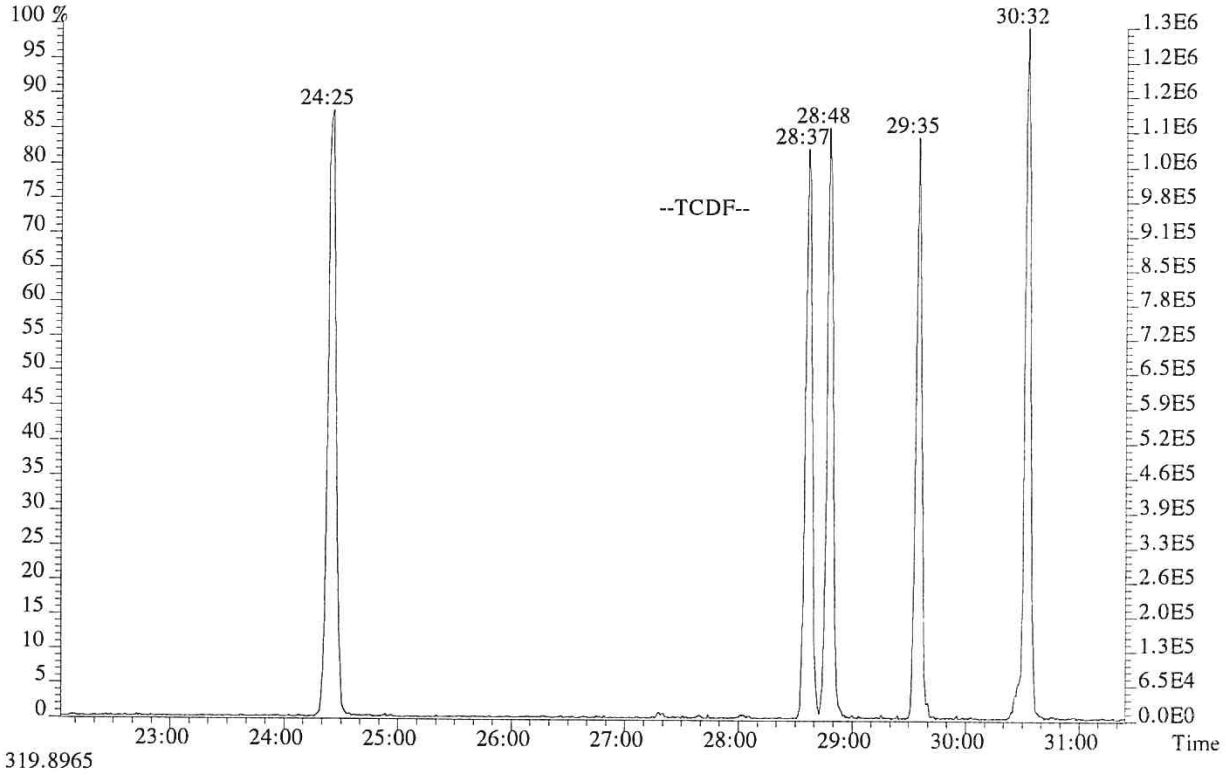


LKL 01/25/18

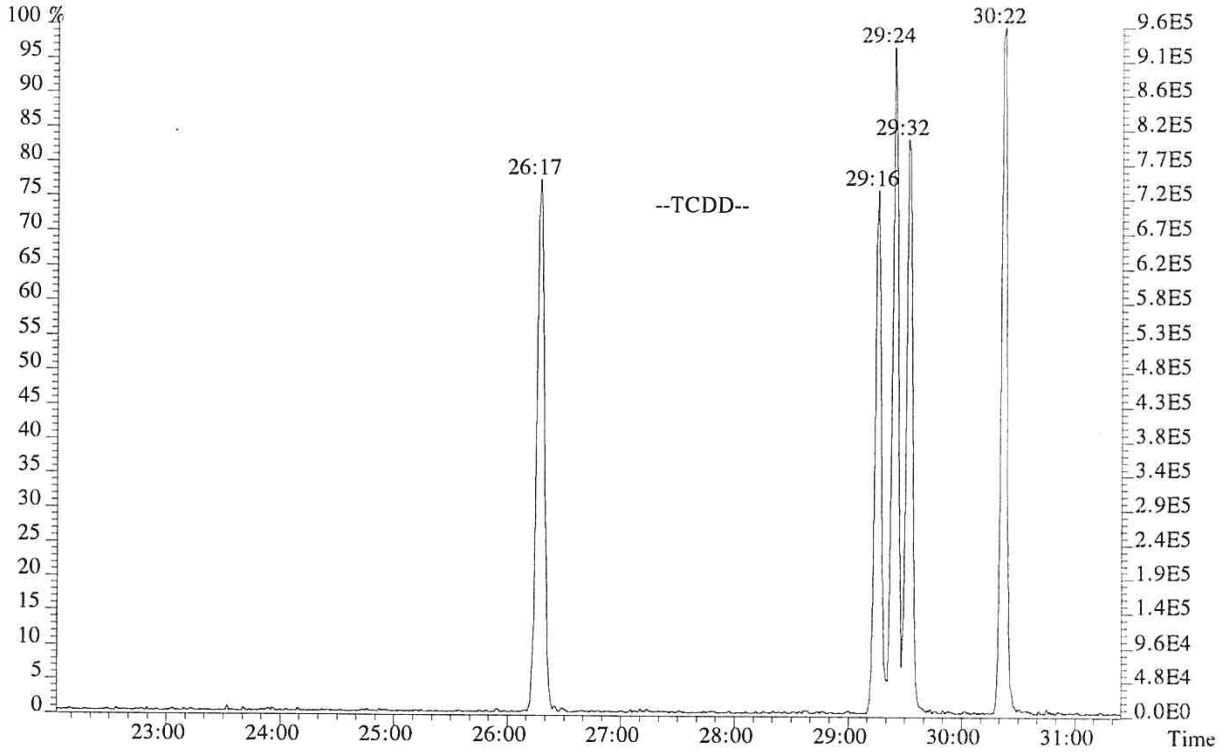


012119

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
303.9016

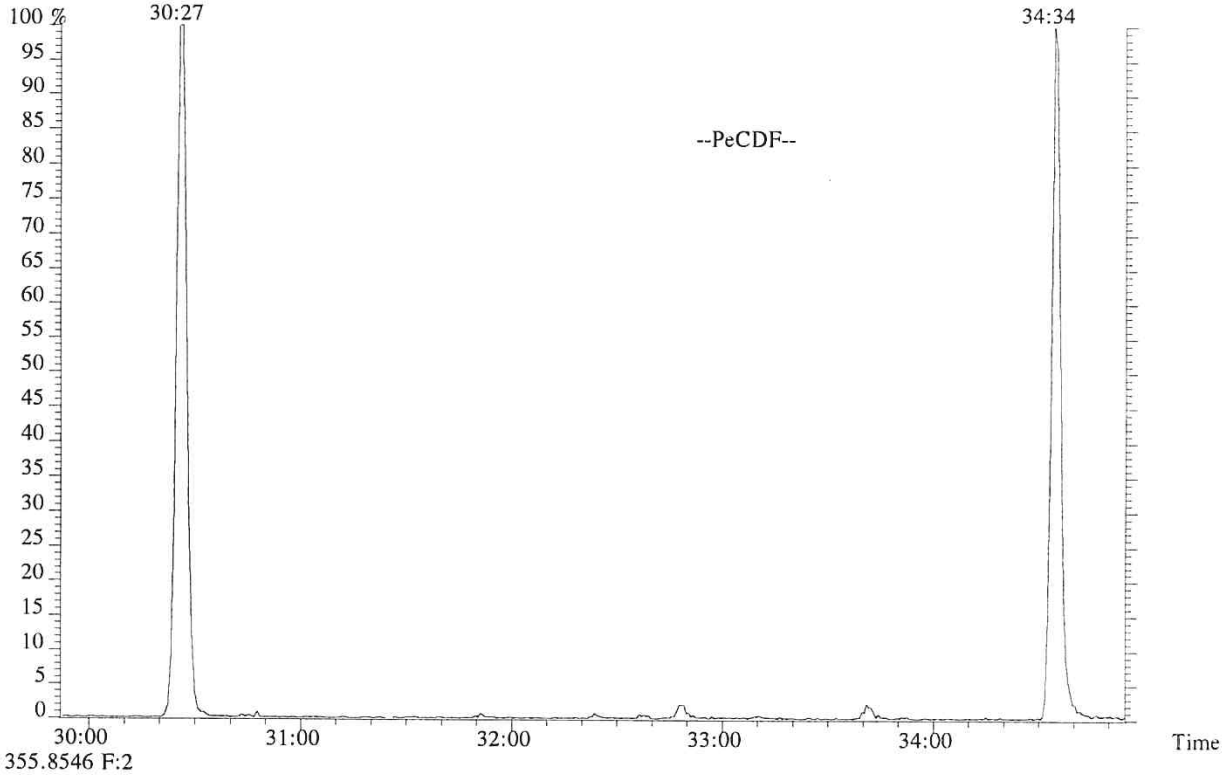


319.8965

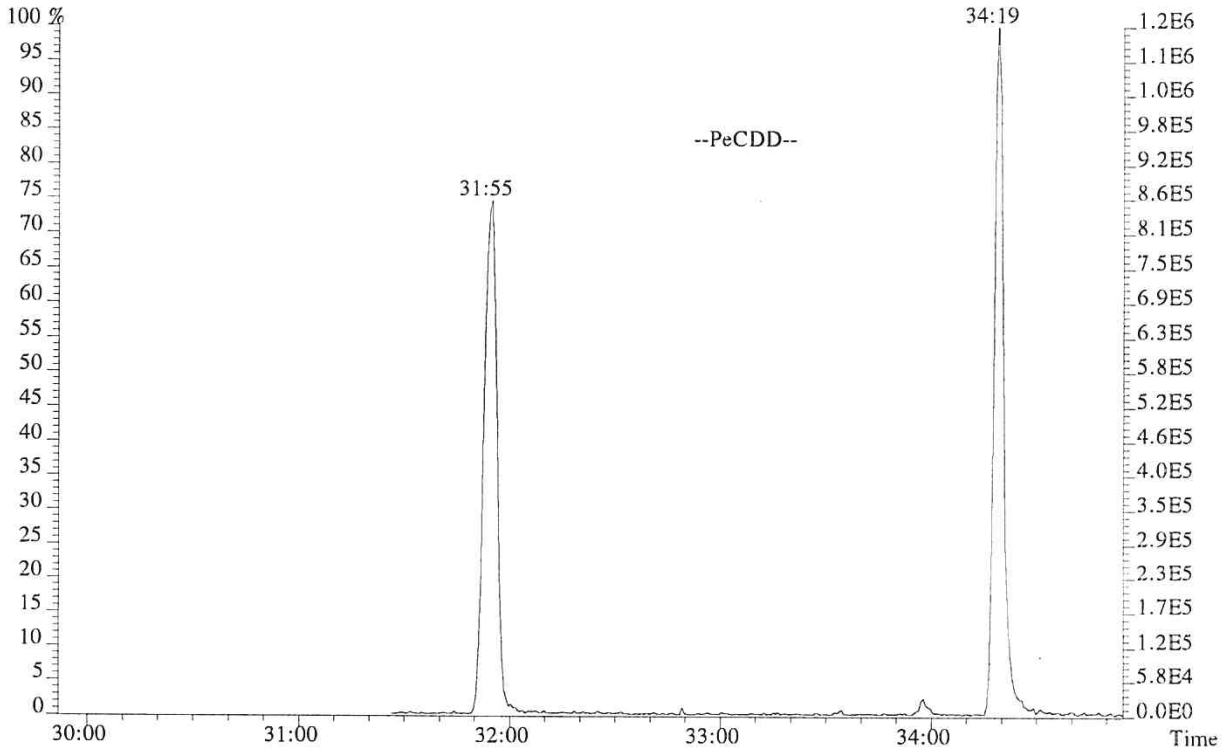


012120

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2

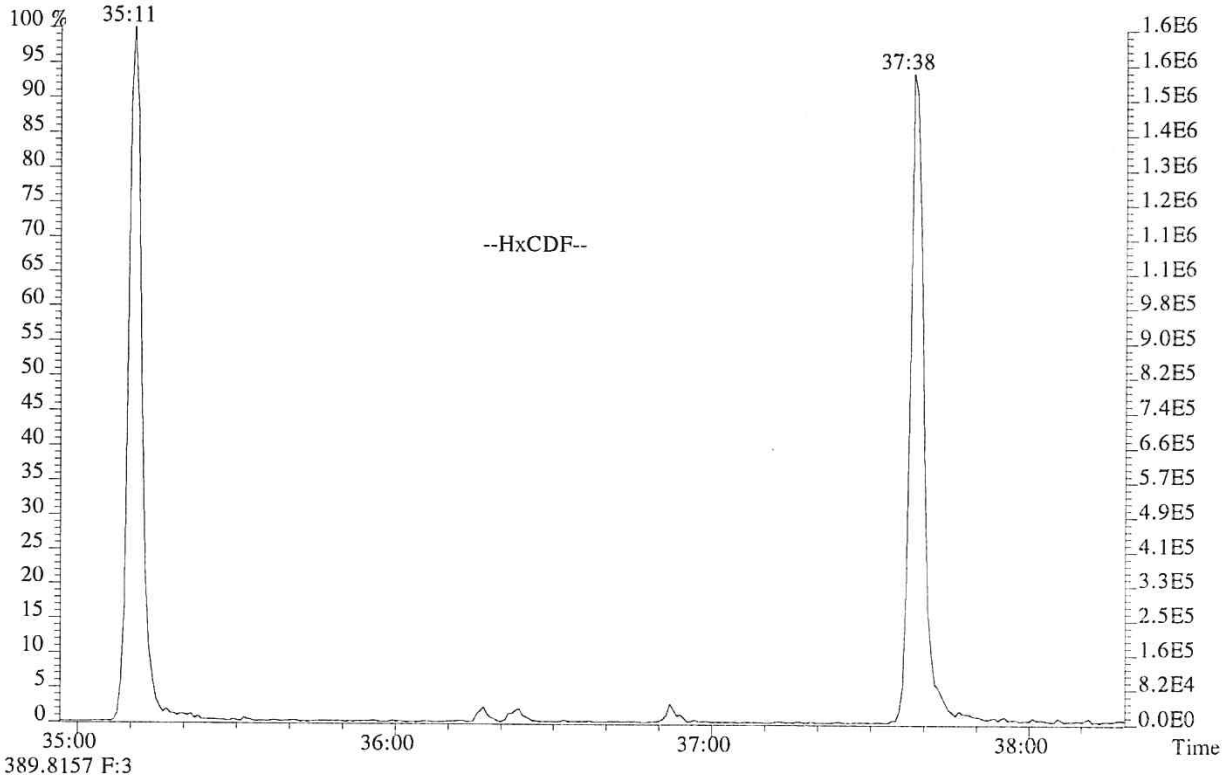


355.8546 F:2

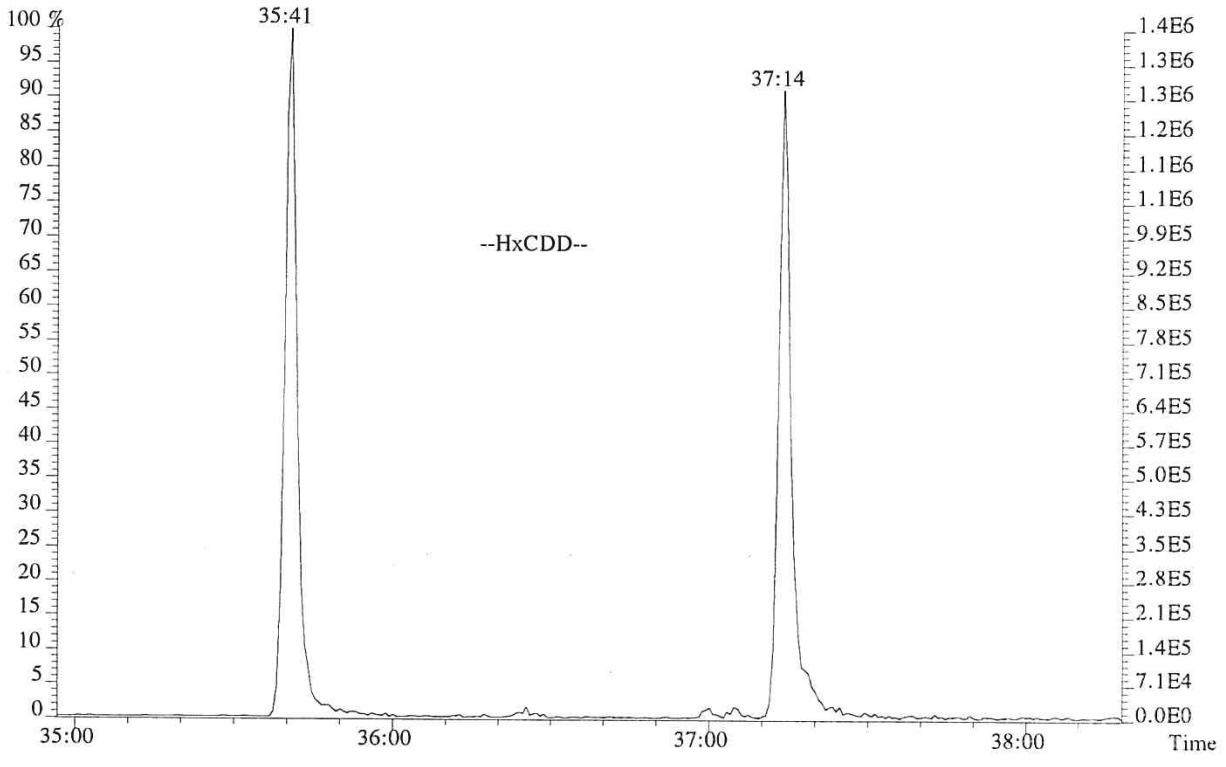


012121

File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3

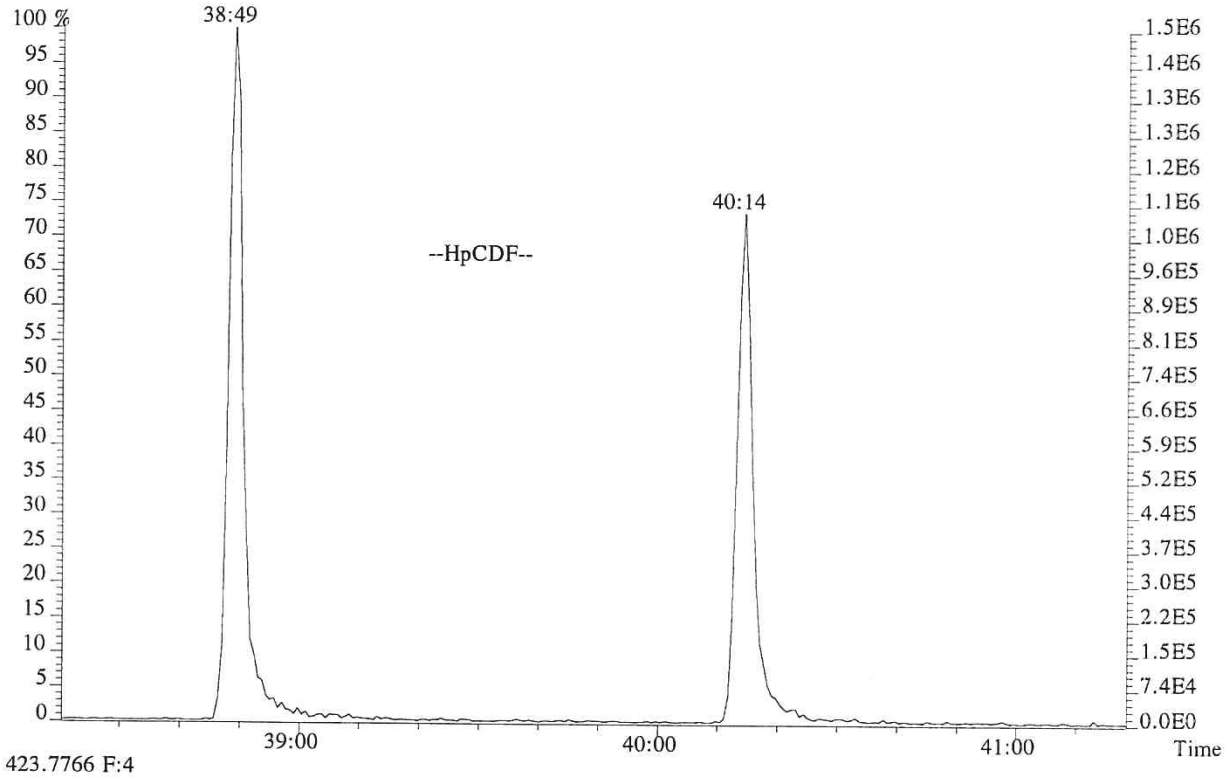


389.8157 F:3

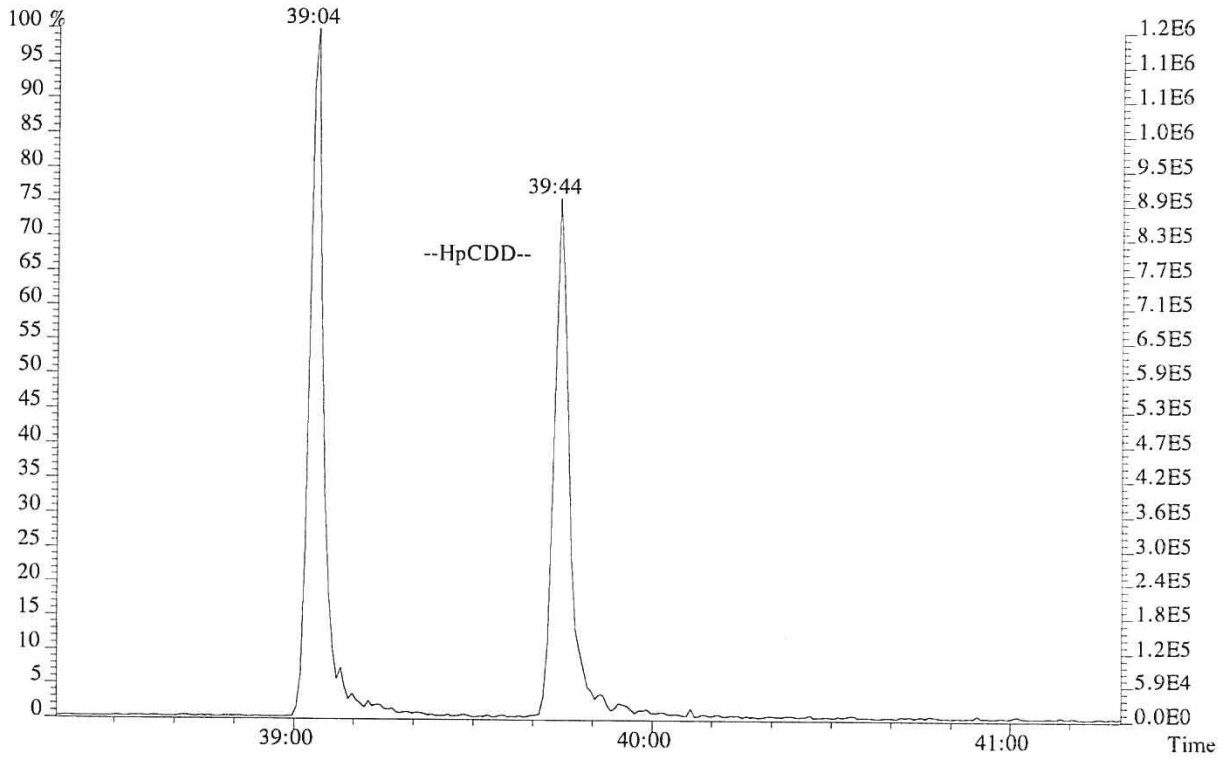


012122

File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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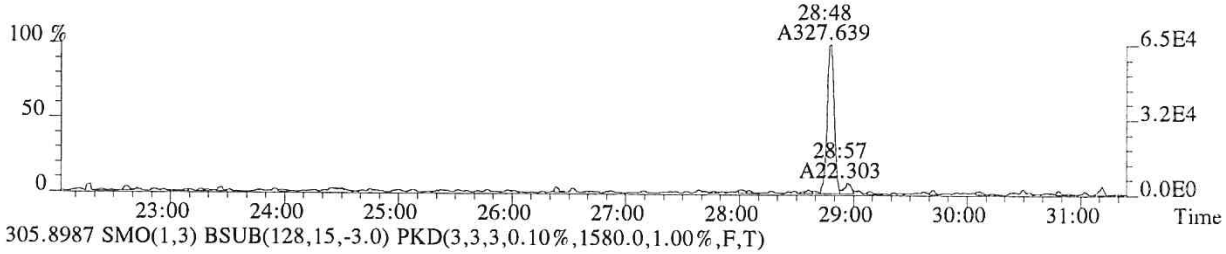
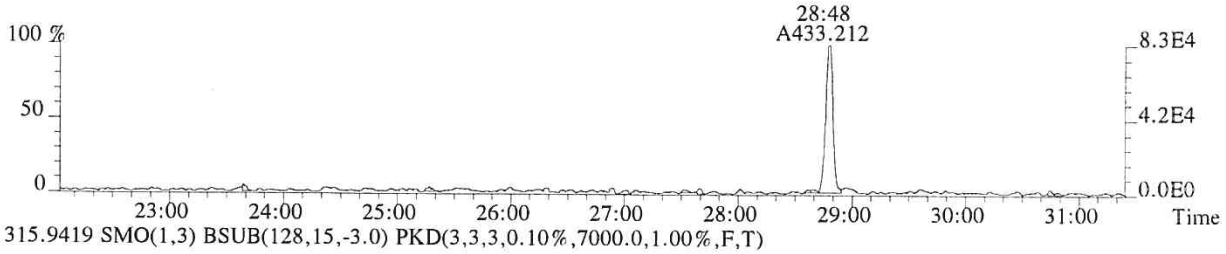
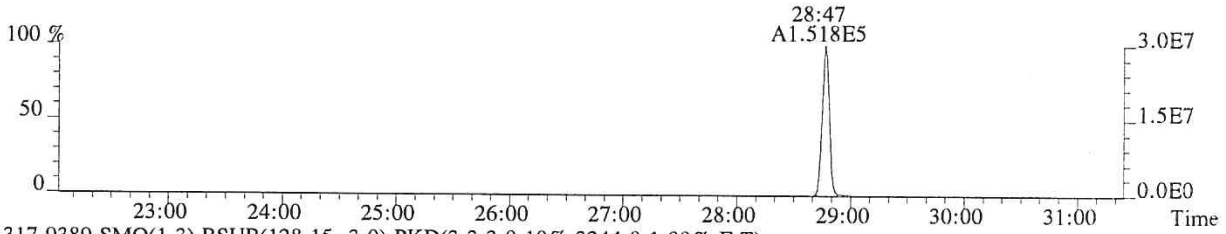
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



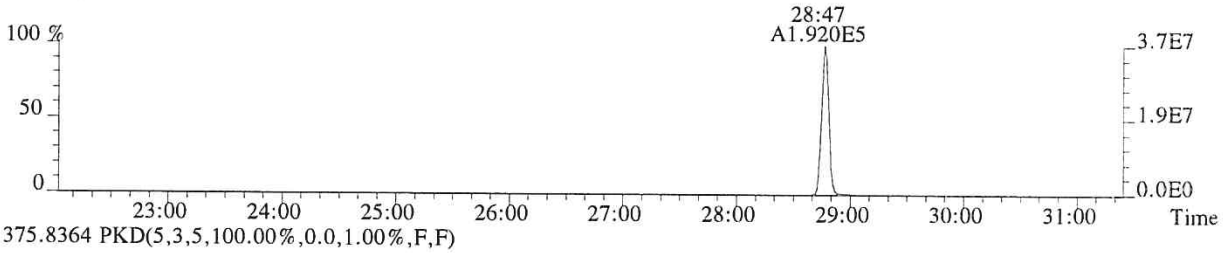
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



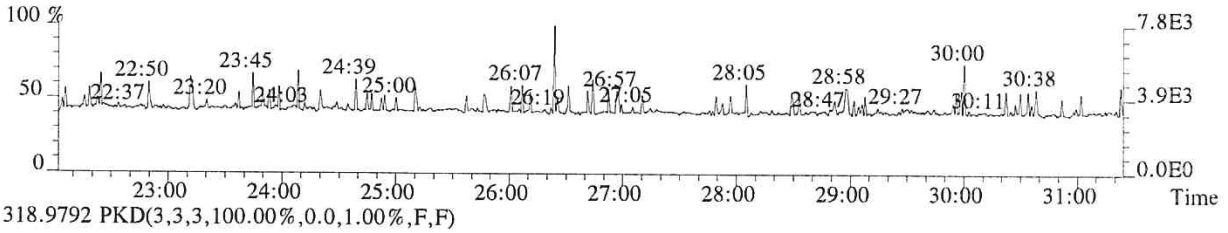
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



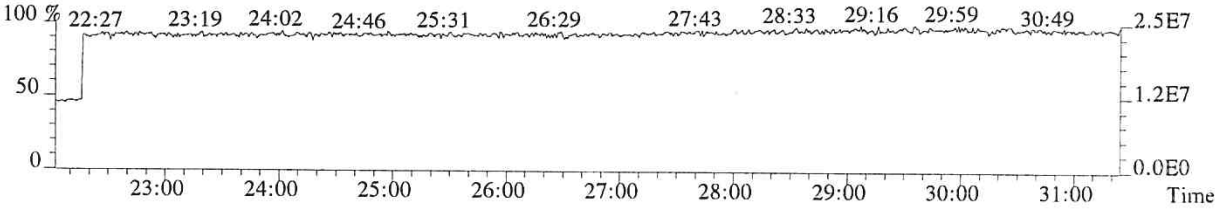
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

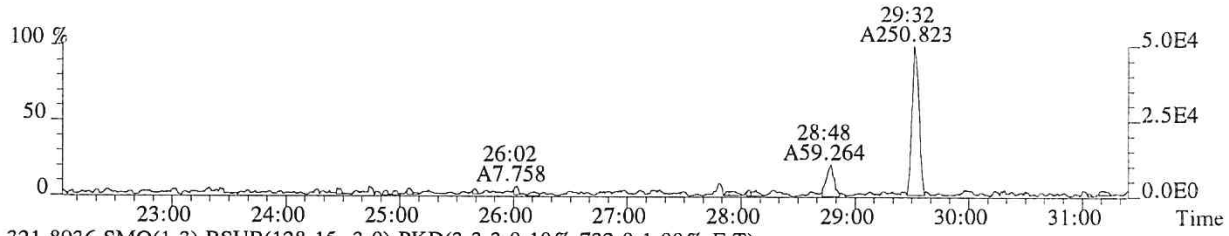


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

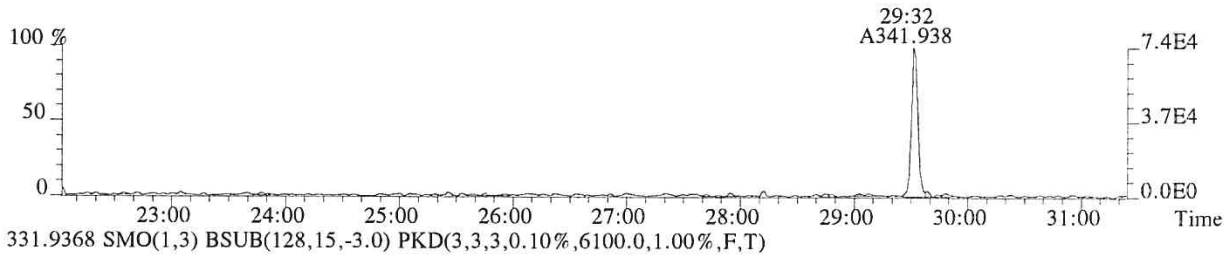


012128

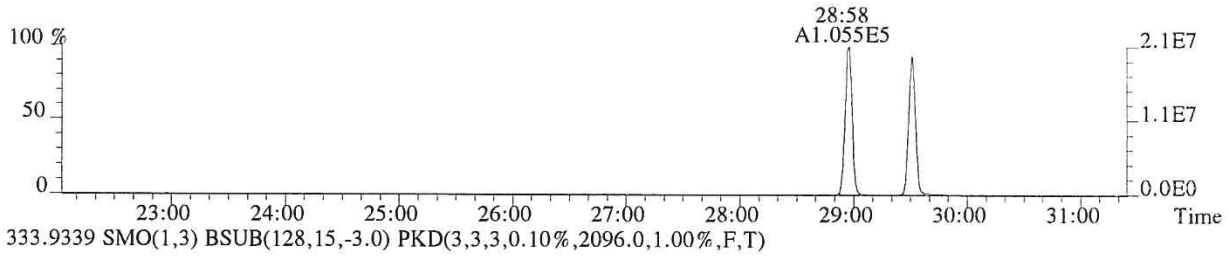
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



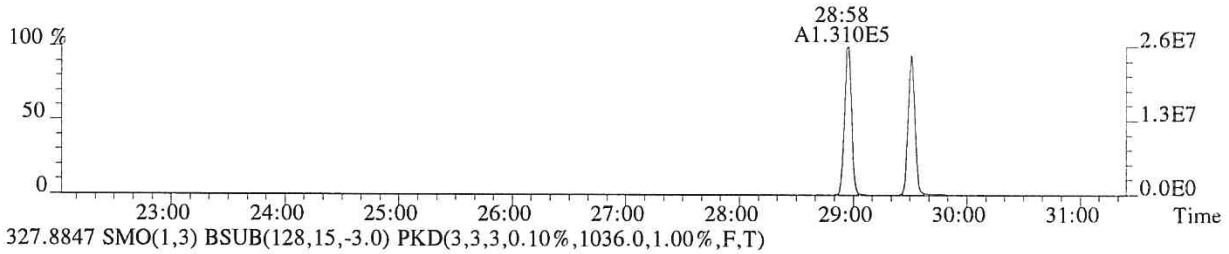
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



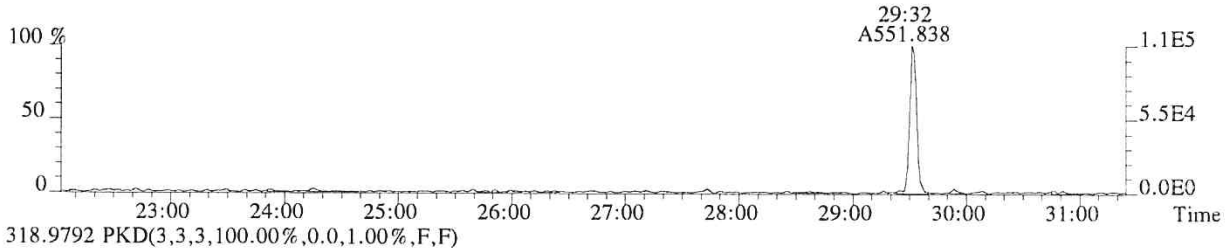
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



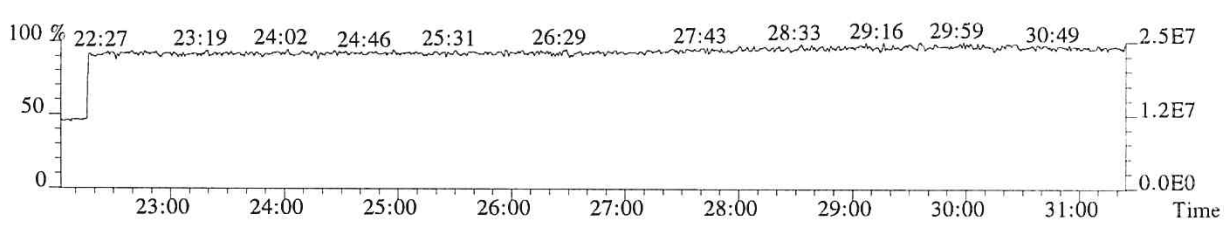
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

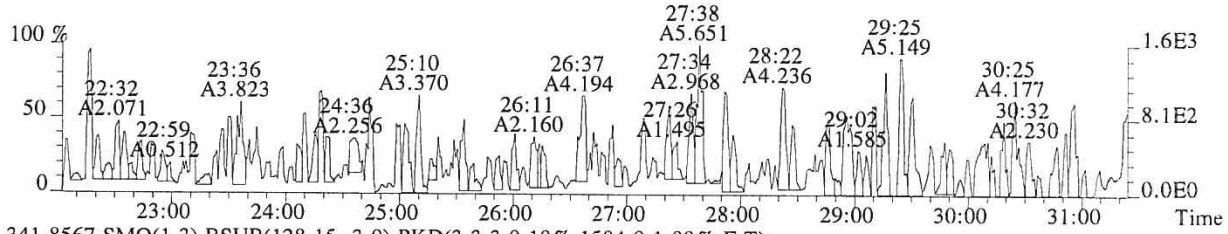


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

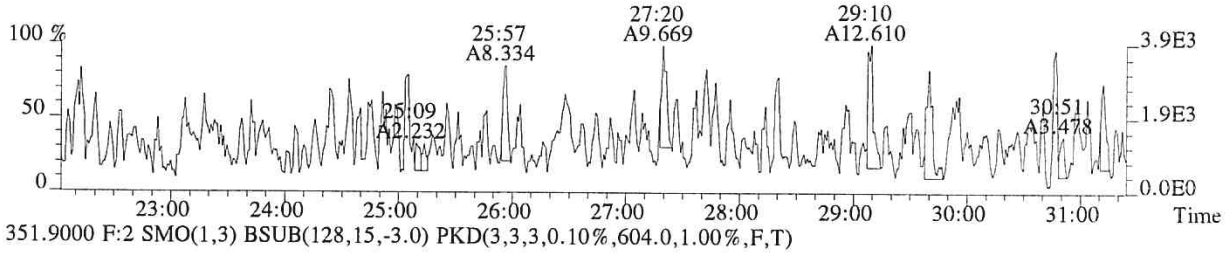


012129

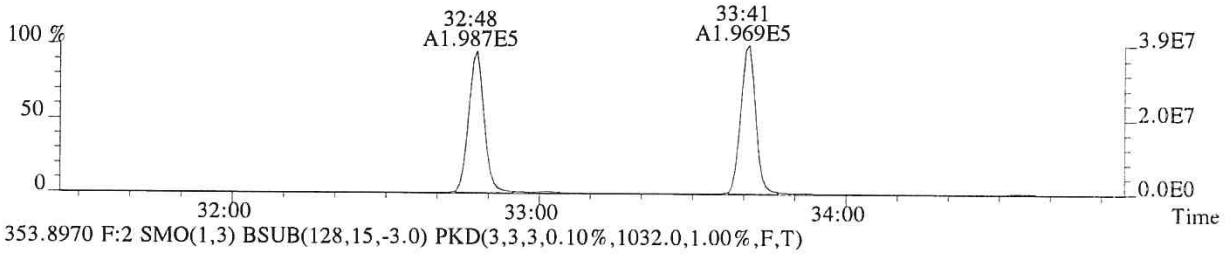
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



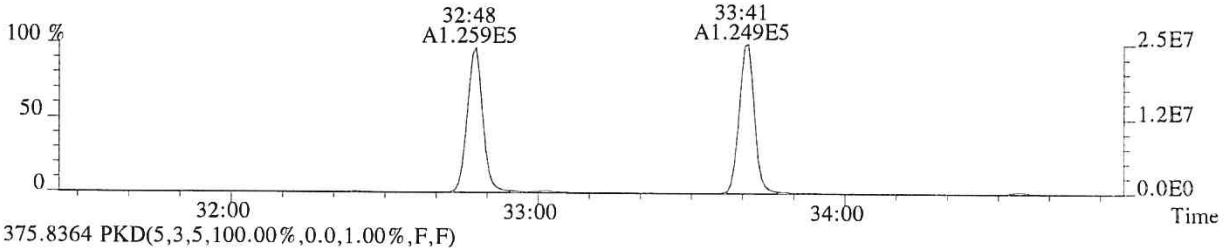
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



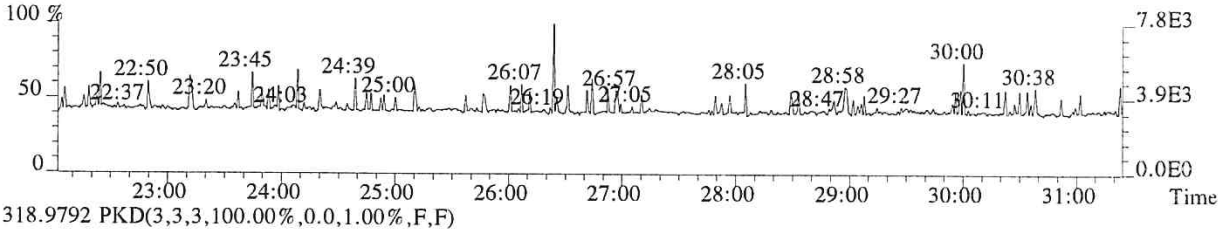
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



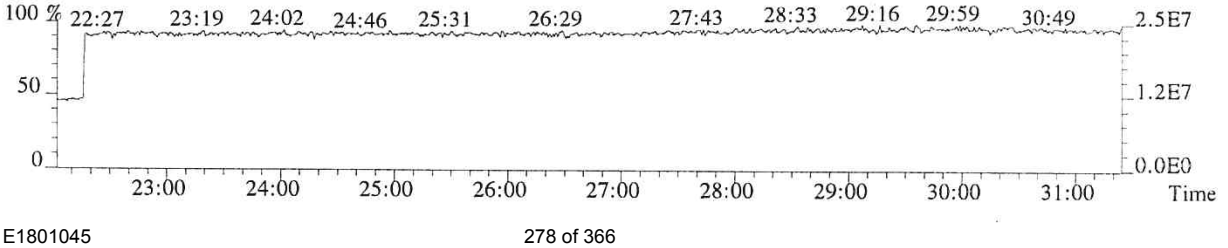
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

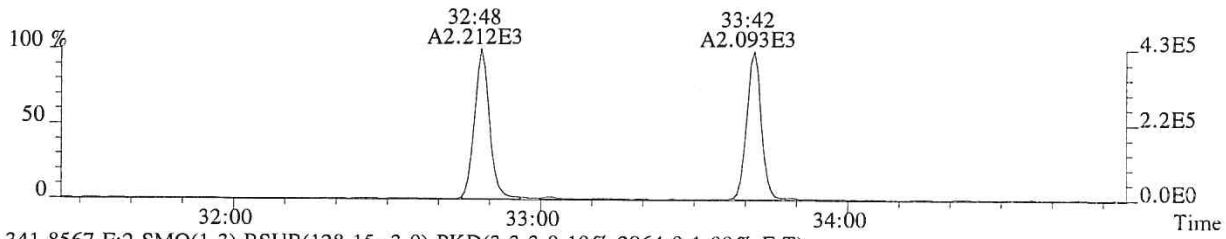


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

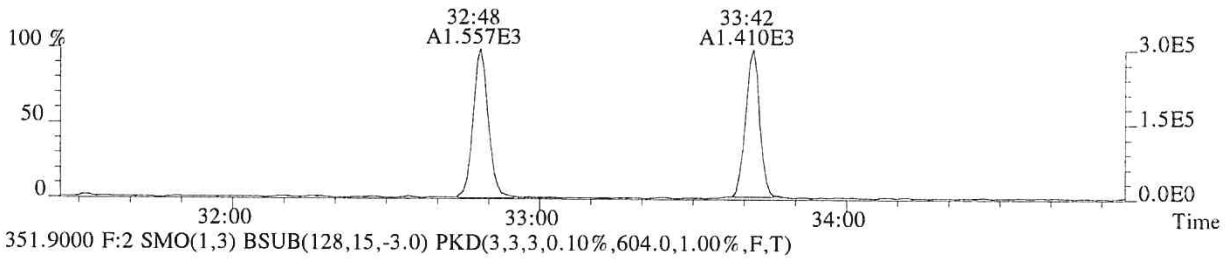


012130

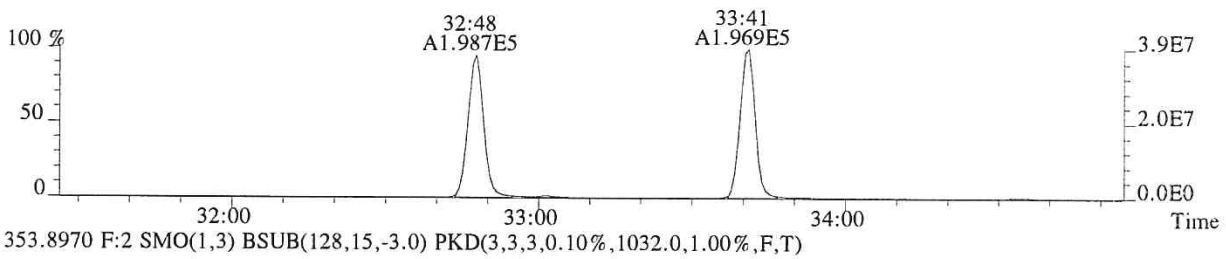
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



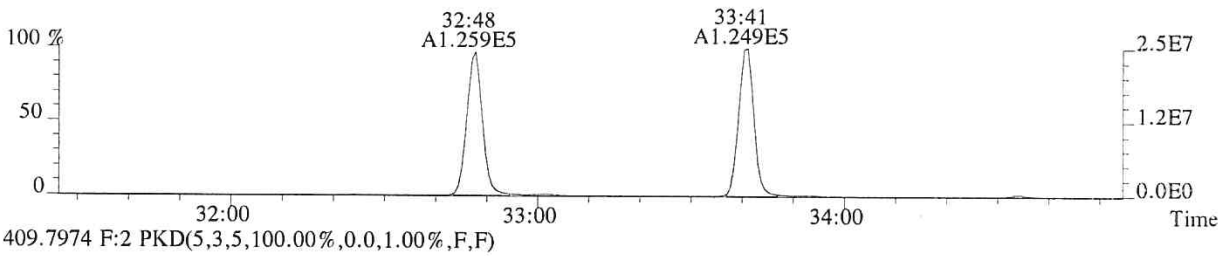
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



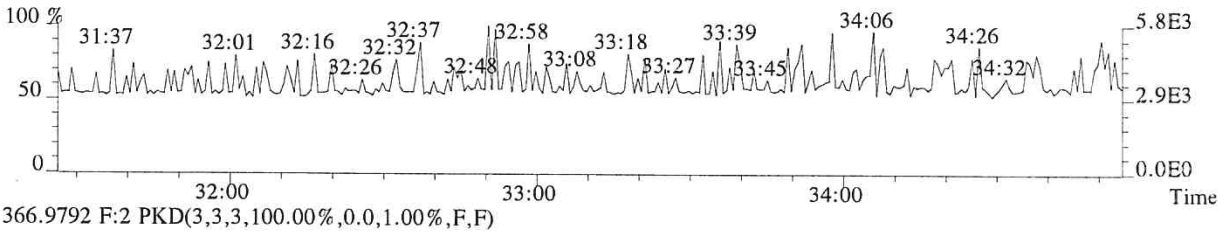
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



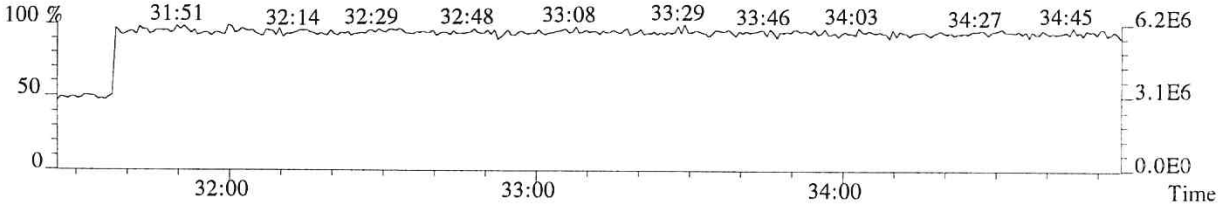
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

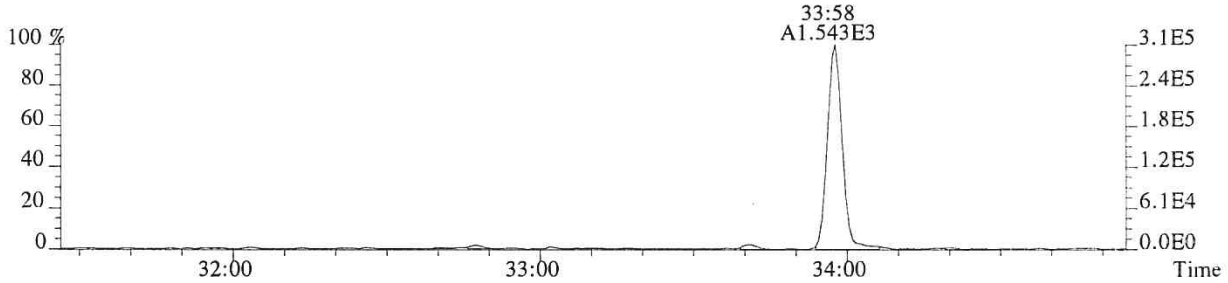


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

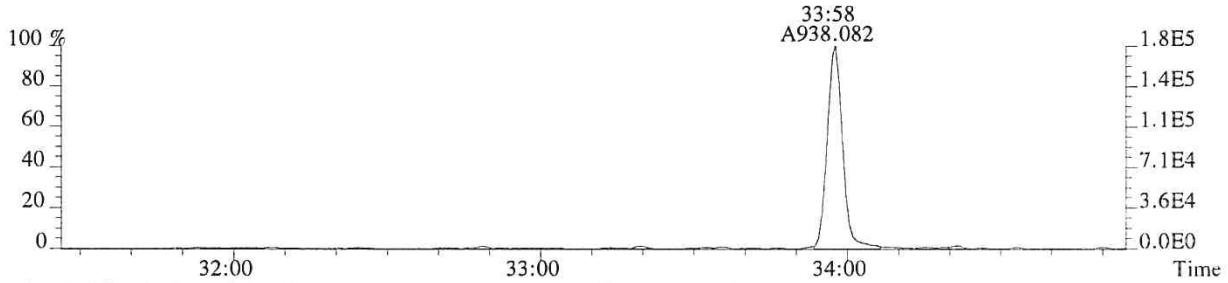


012131

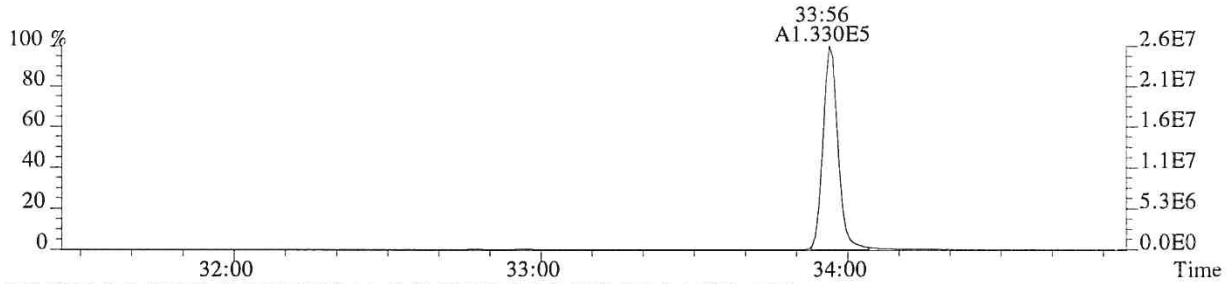
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



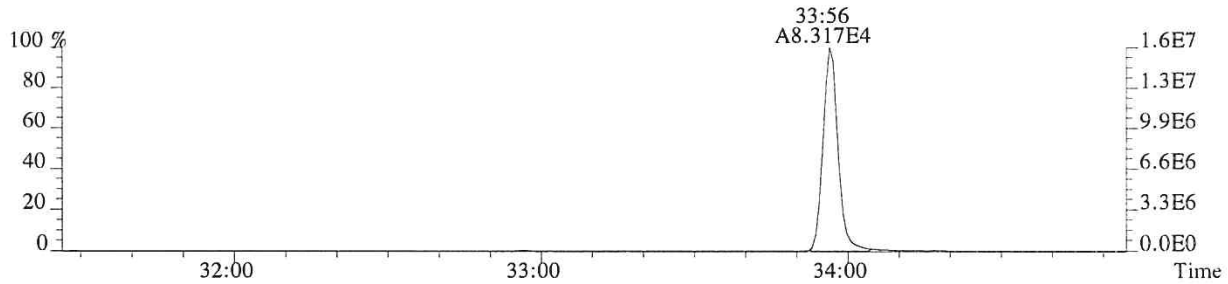
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



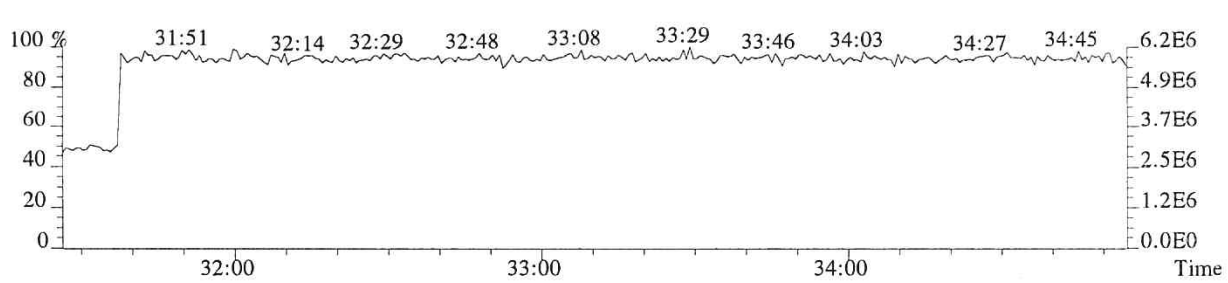
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)

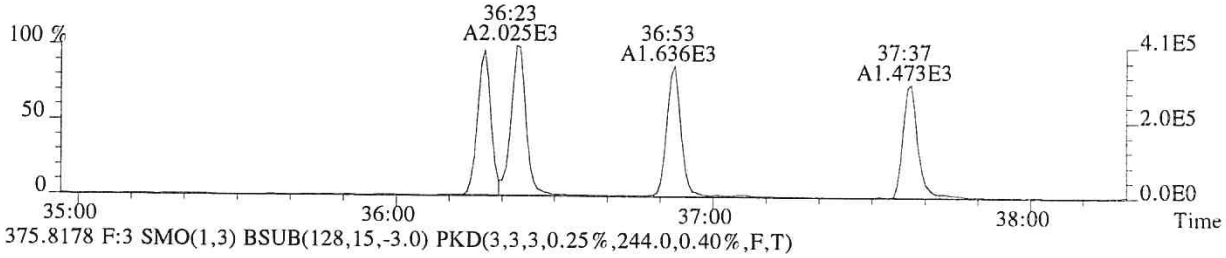


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

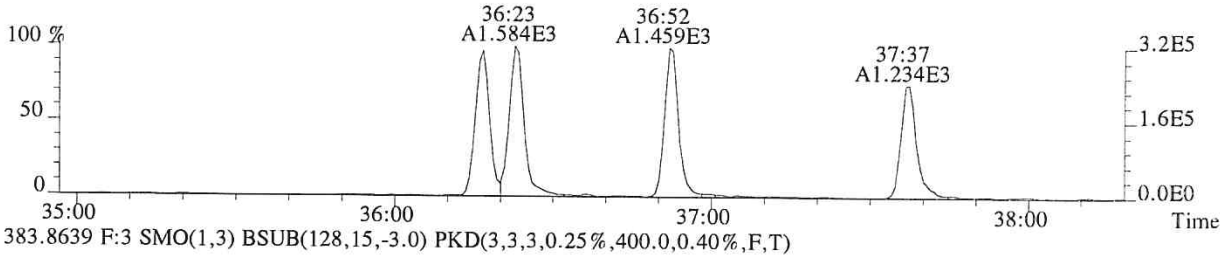


012132

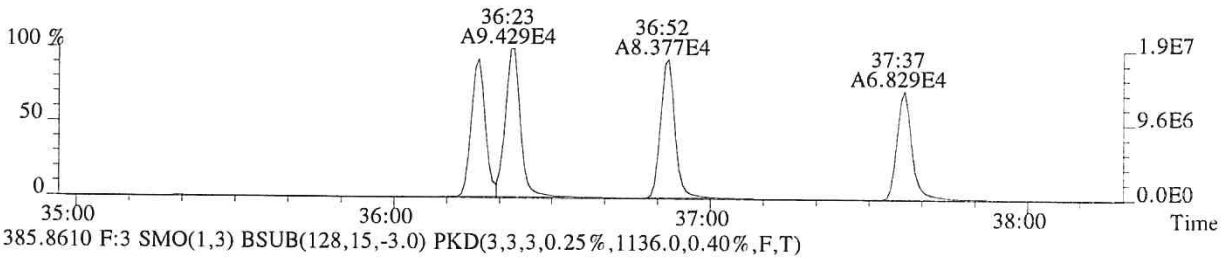
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



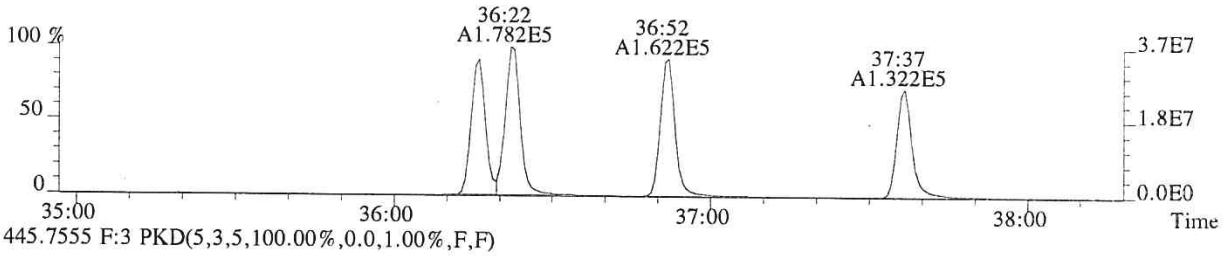
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



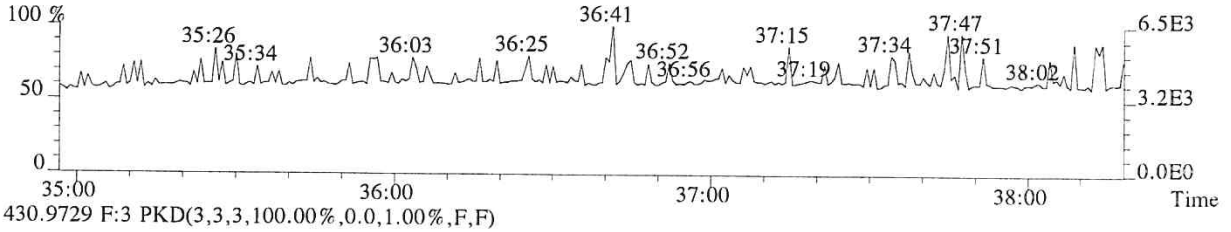
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



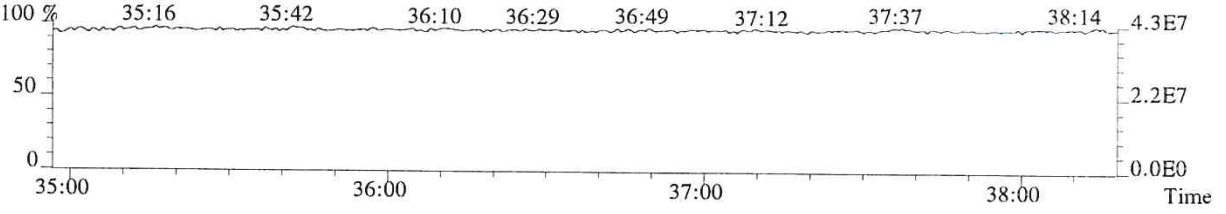
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

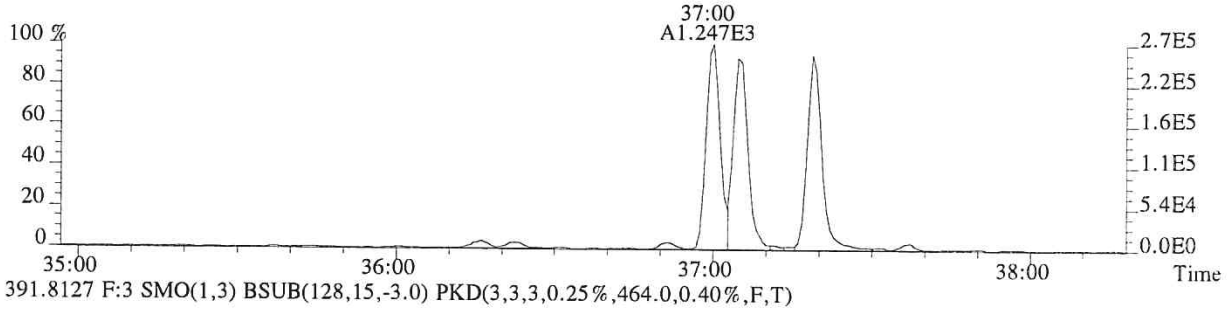


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

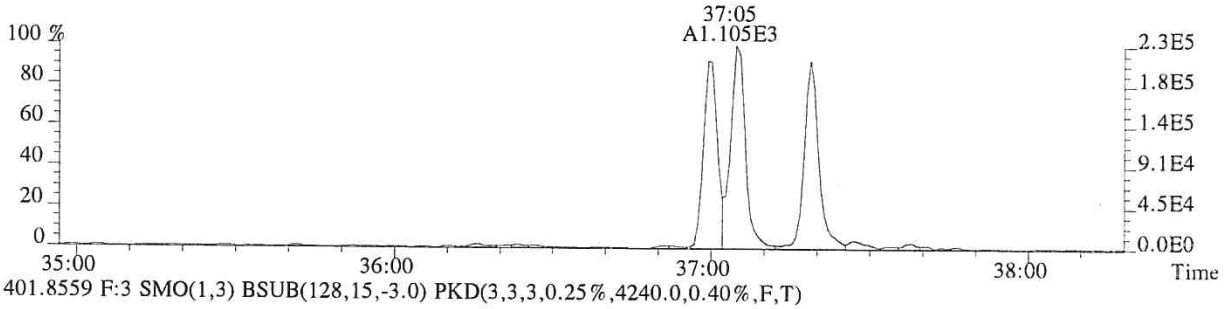


012133

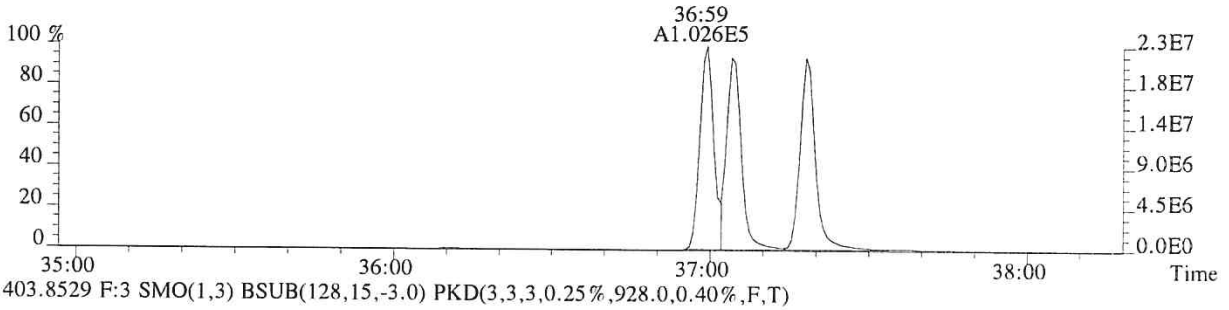
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



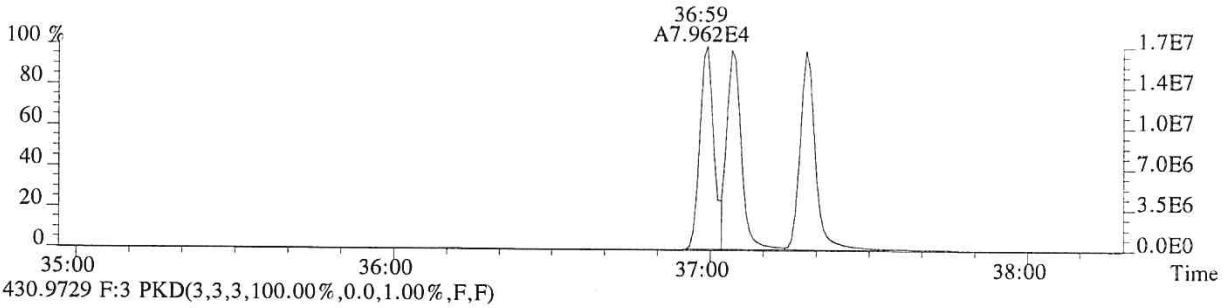
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



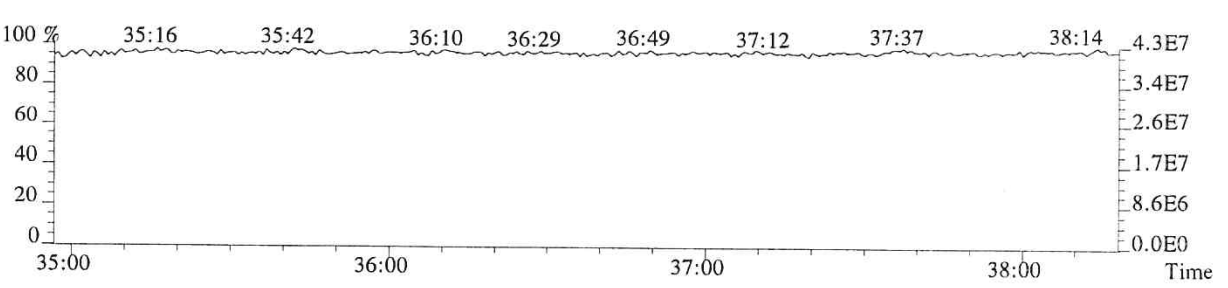
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)

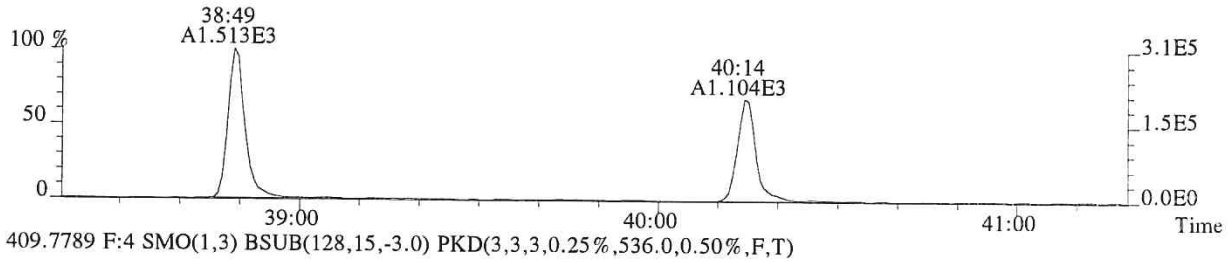


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

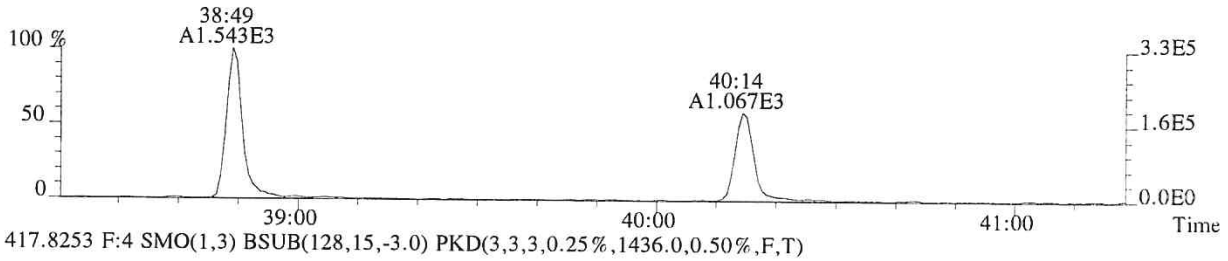


012134

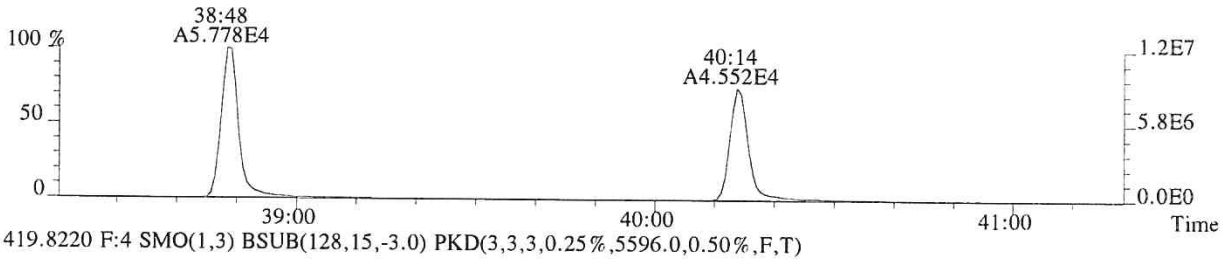
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



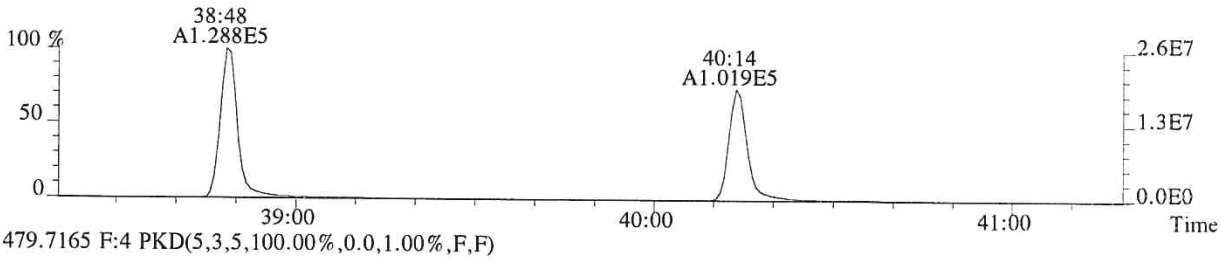
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



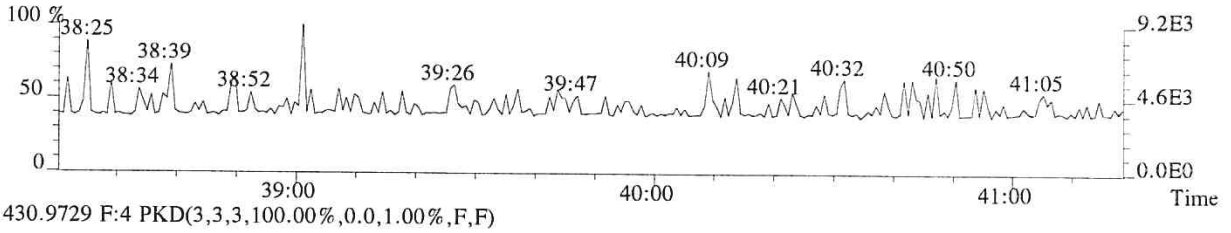
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



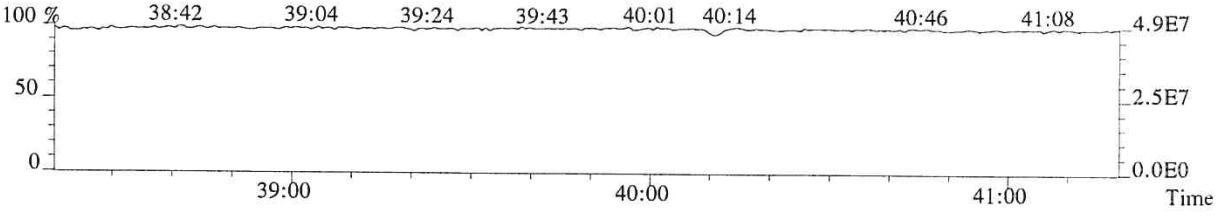
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

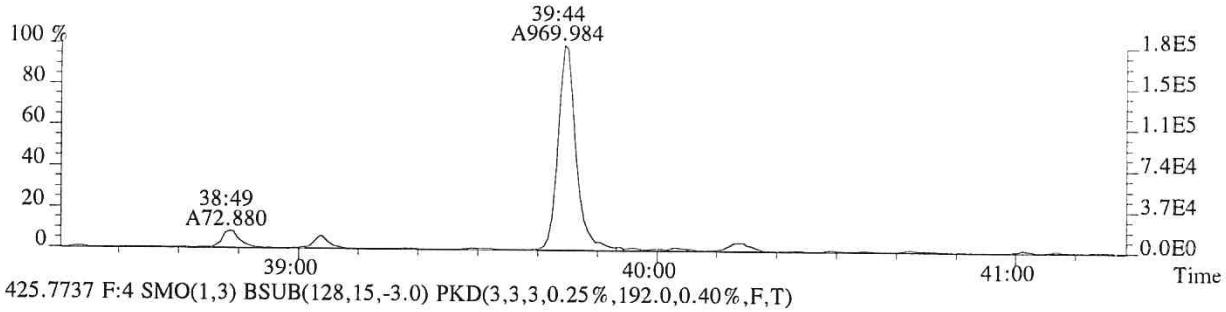


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

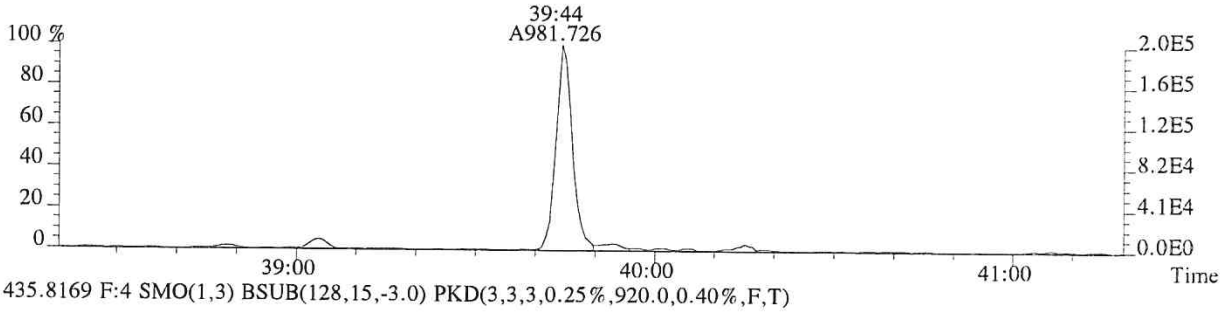


012135

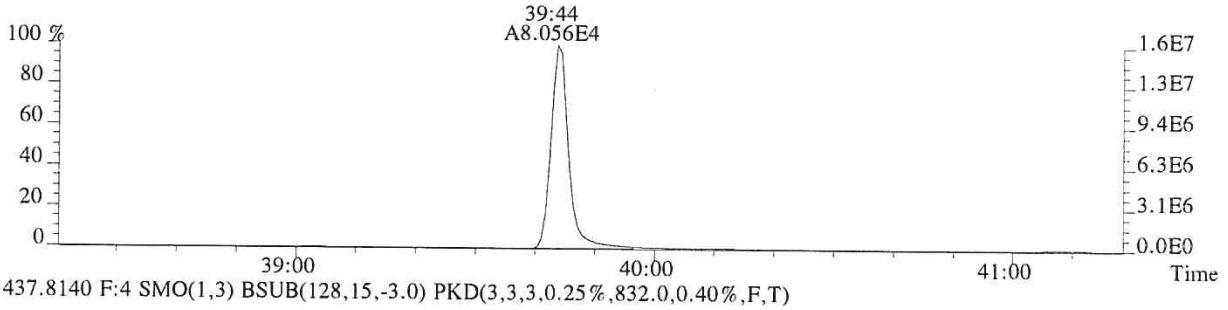
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



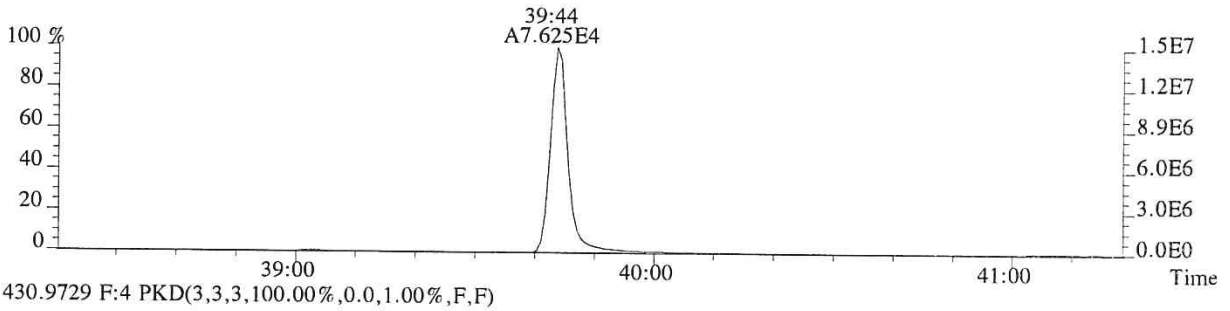
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



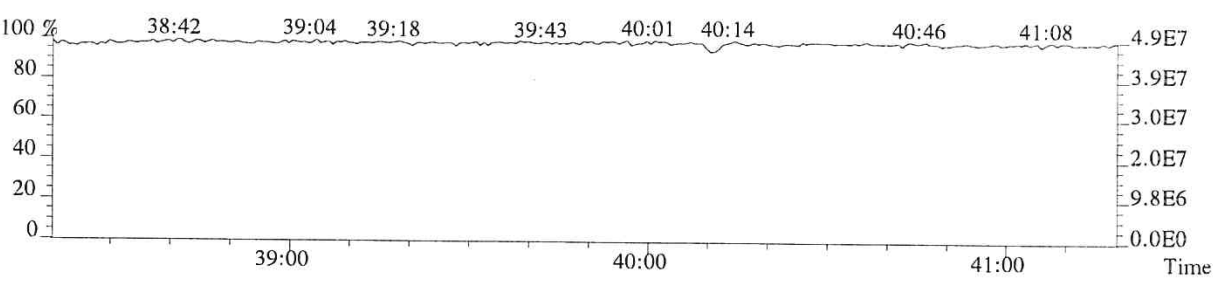
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)

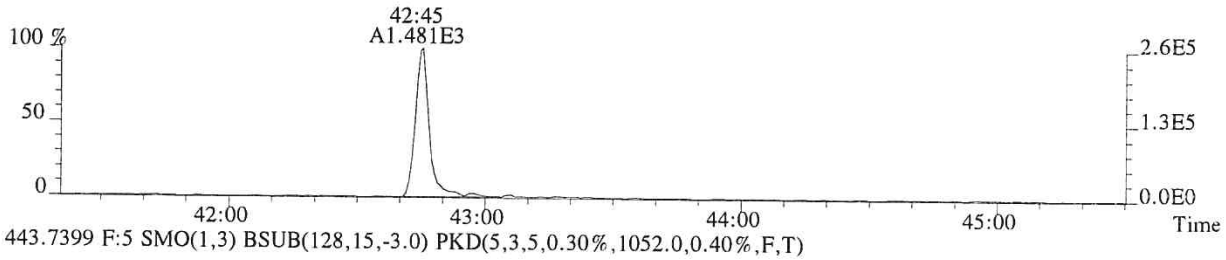


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

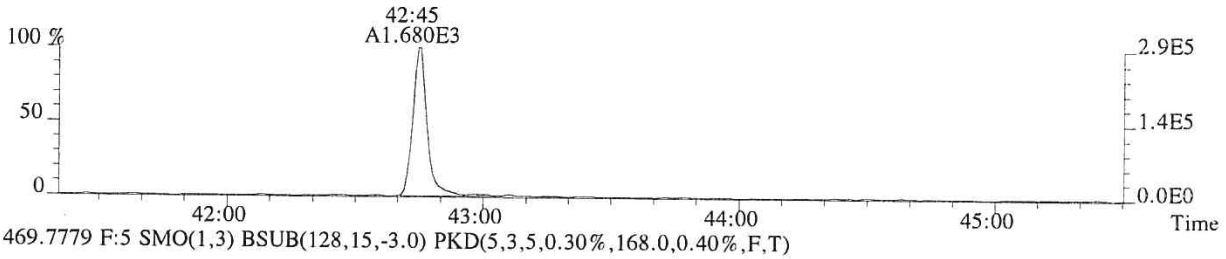


012136

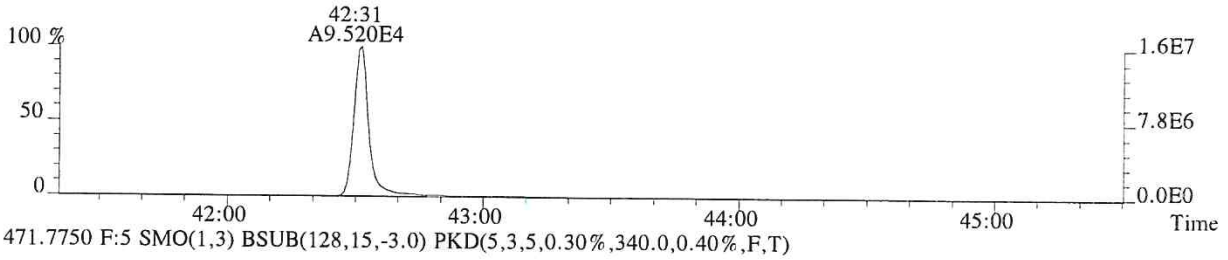
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



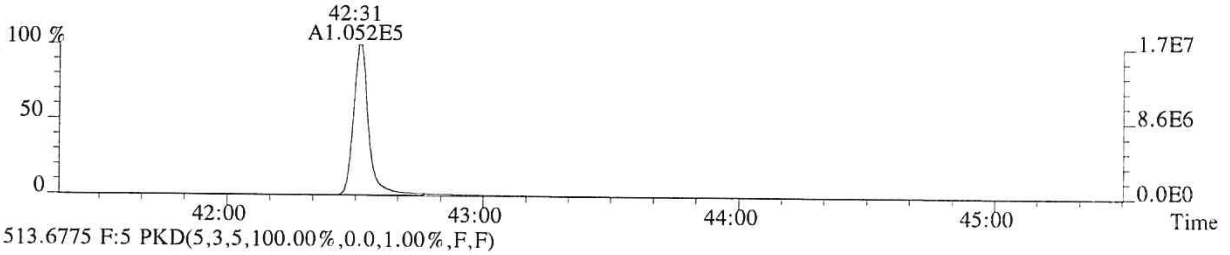
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



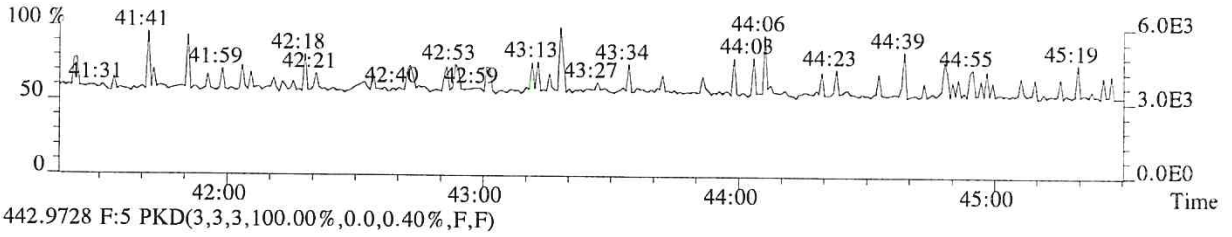
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



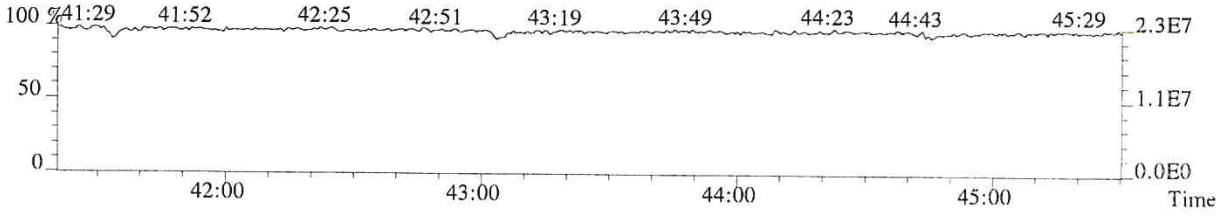
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

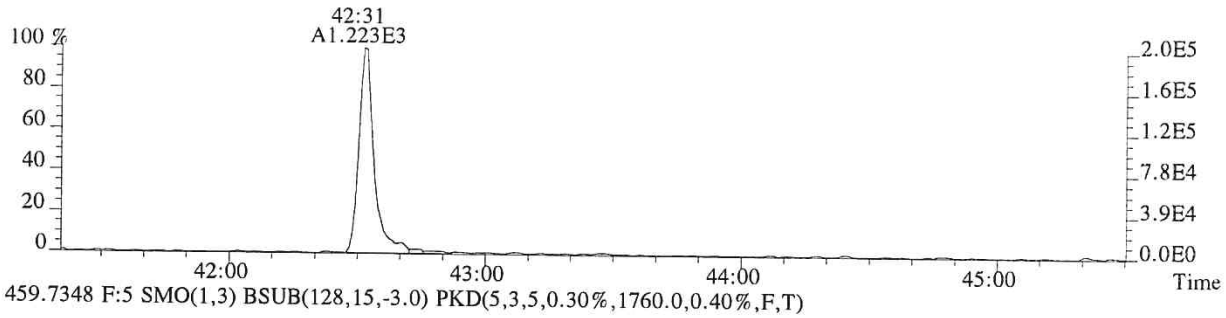


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

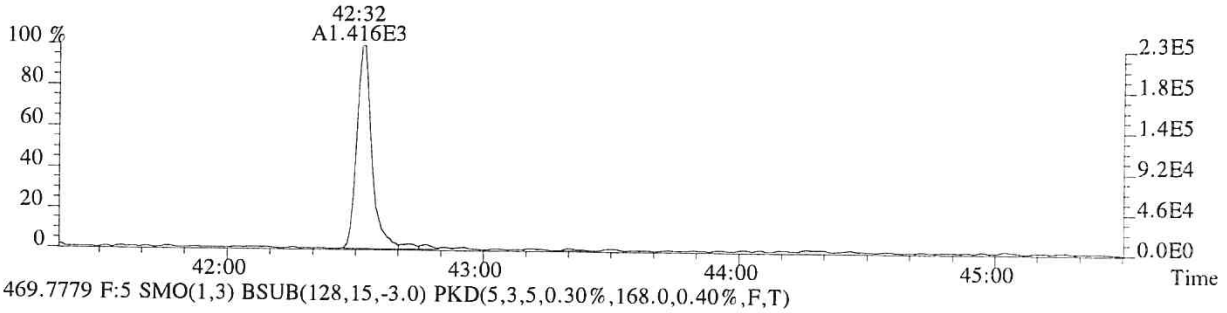


012137

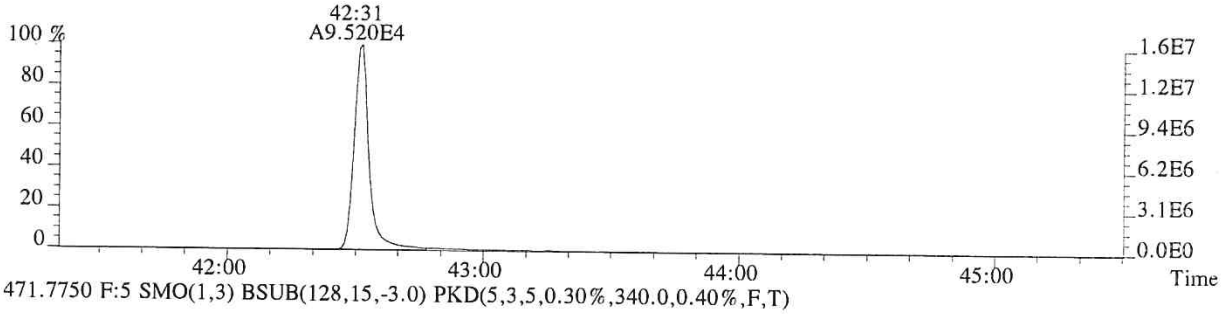
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



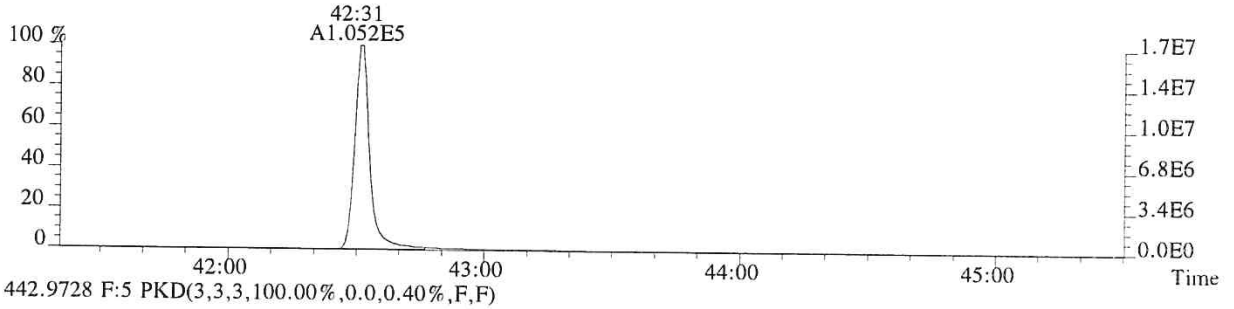
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



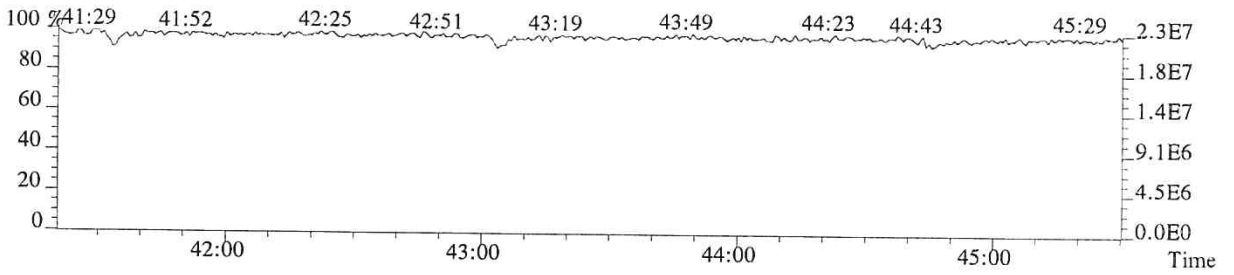
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012138

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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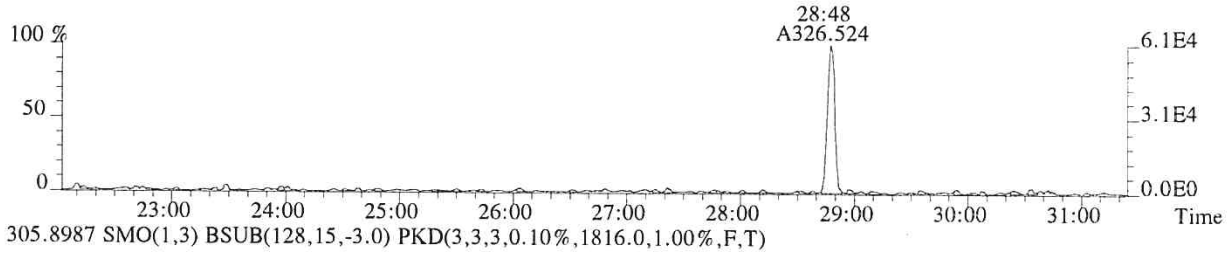
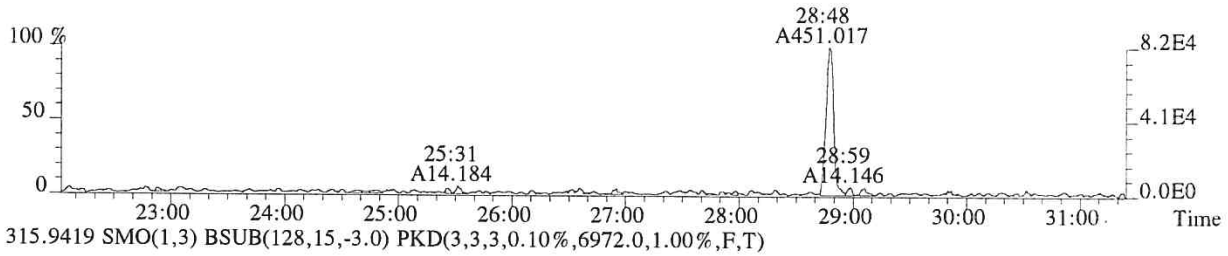
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

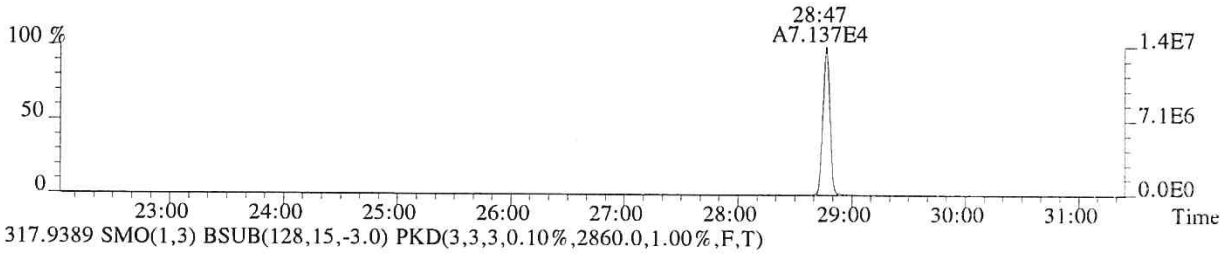
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



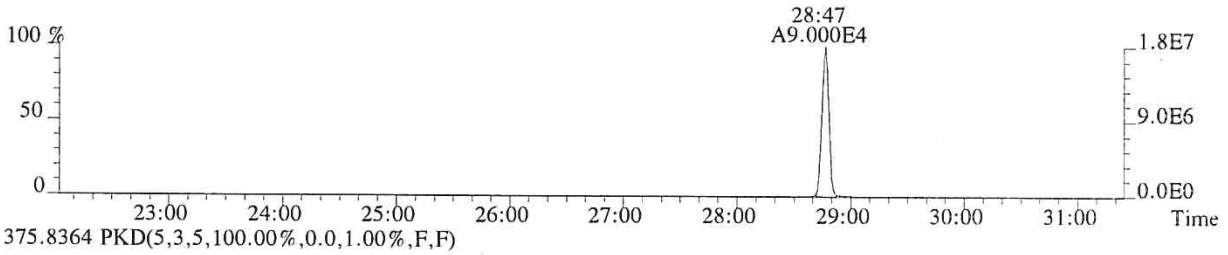
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



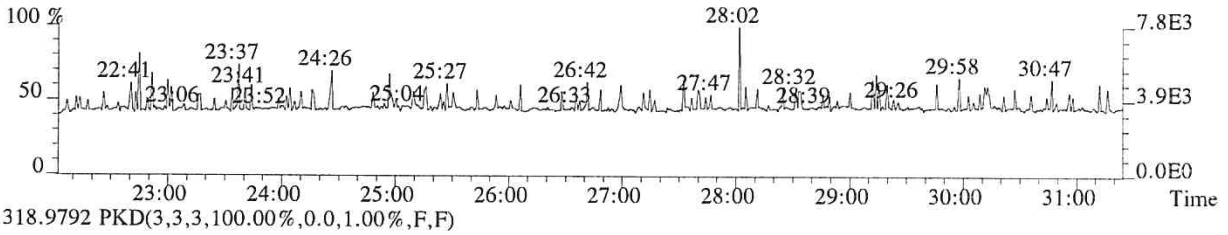
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



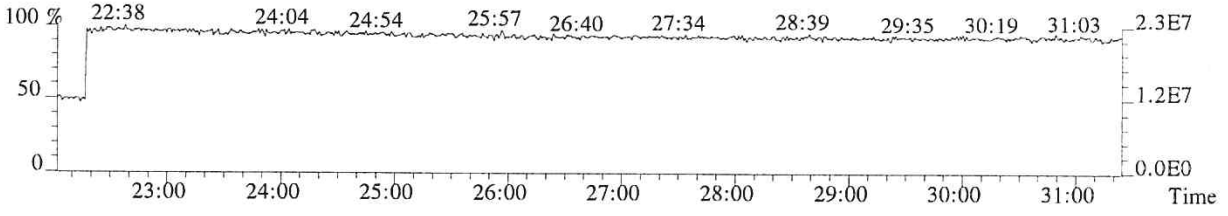
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

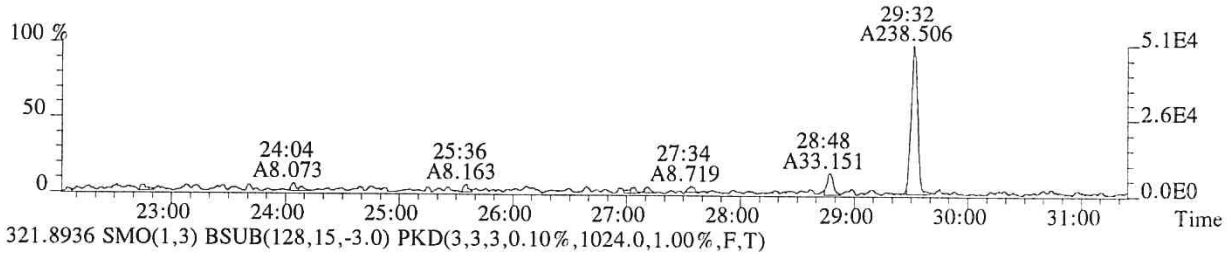


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

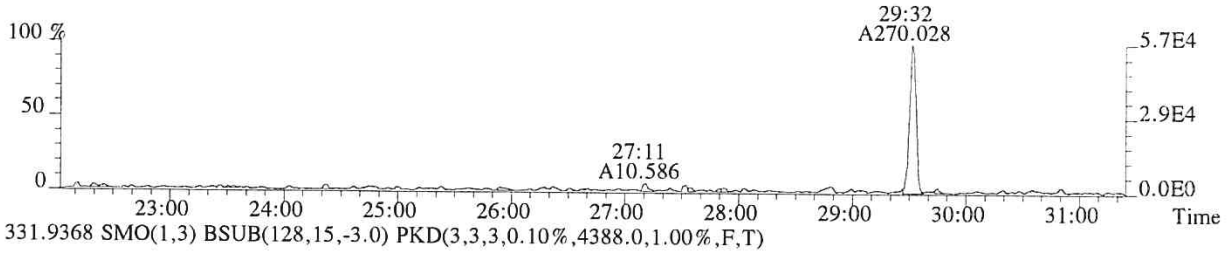


012141

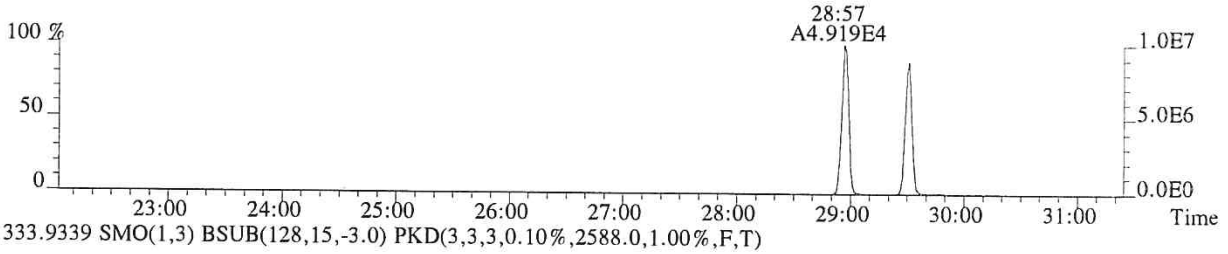
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



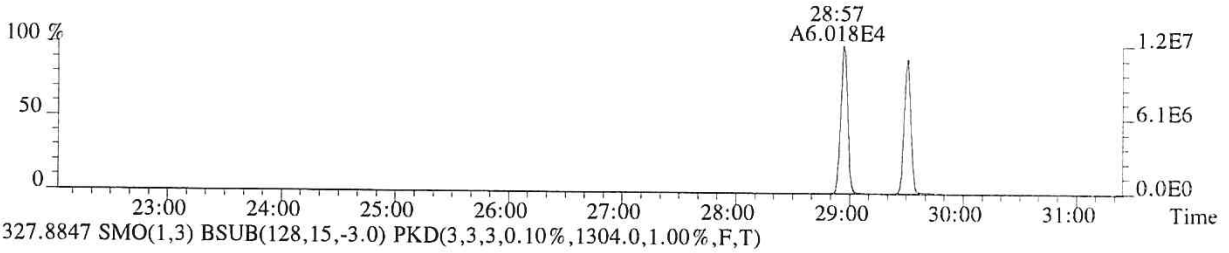
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



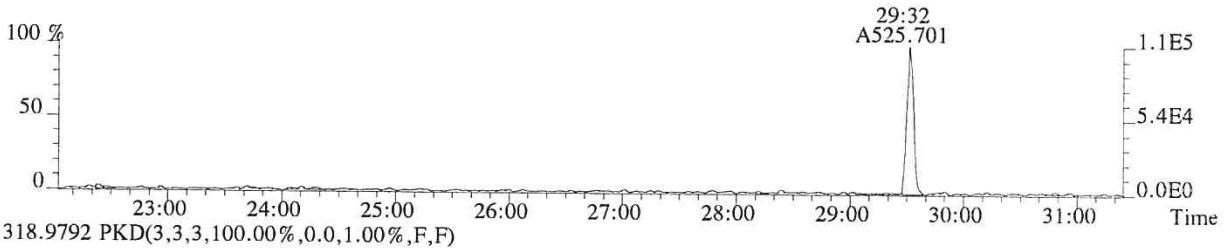
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



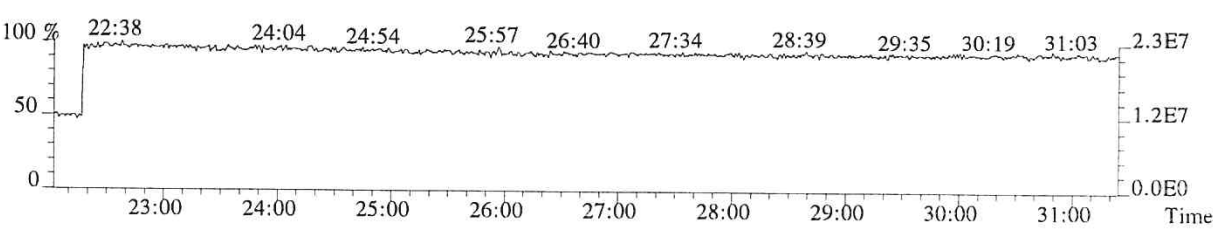
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)

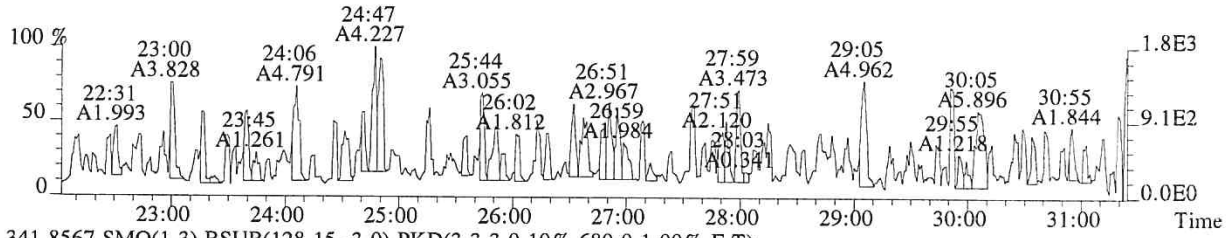


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

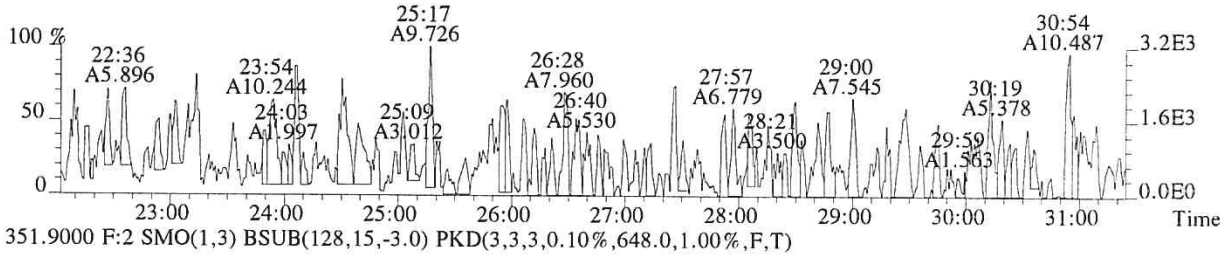


012142

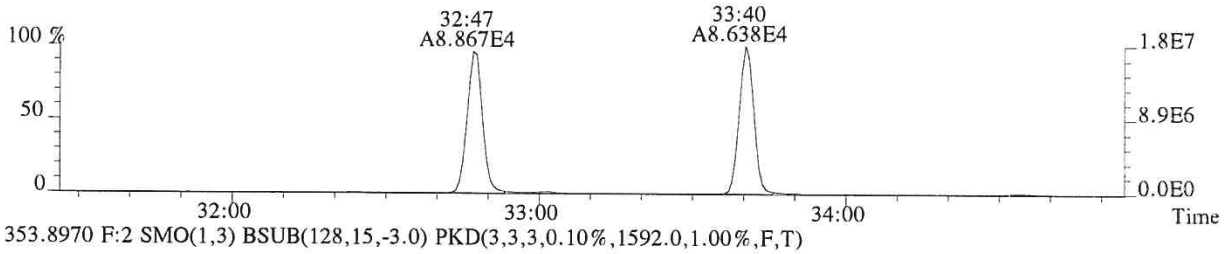
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



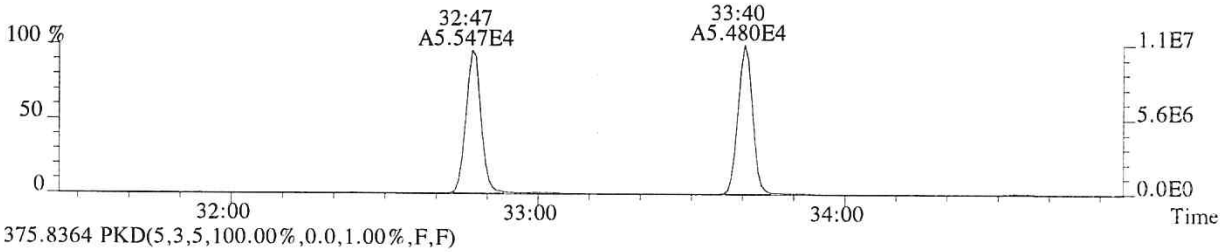
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



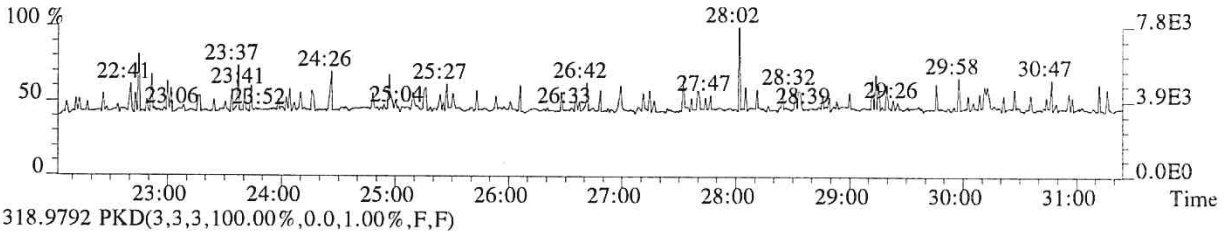
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



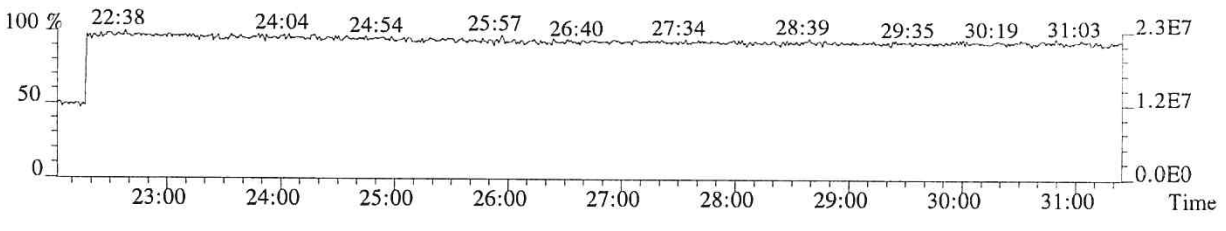
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

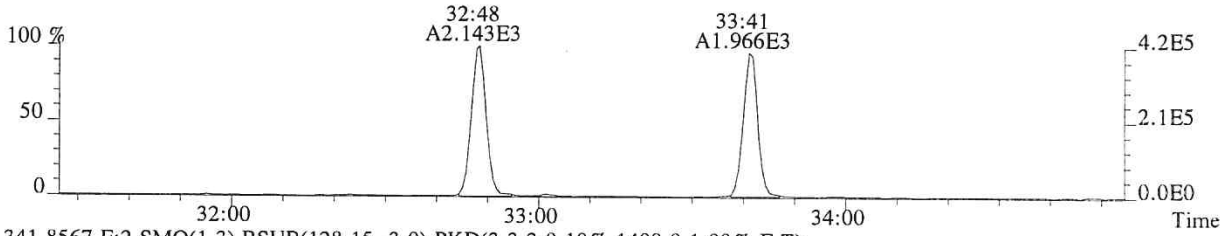


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

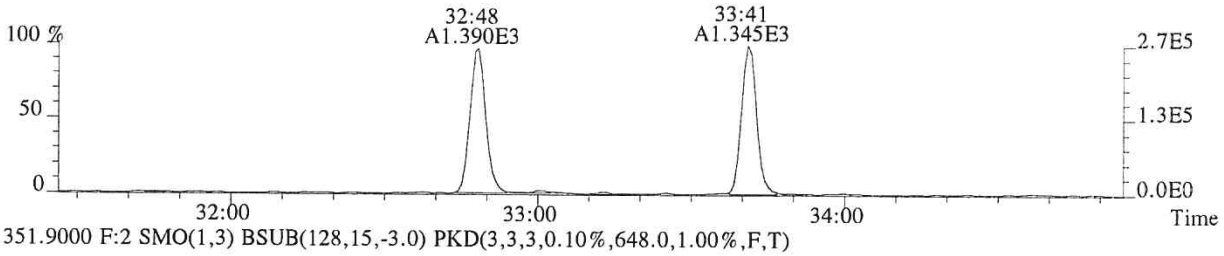


012143

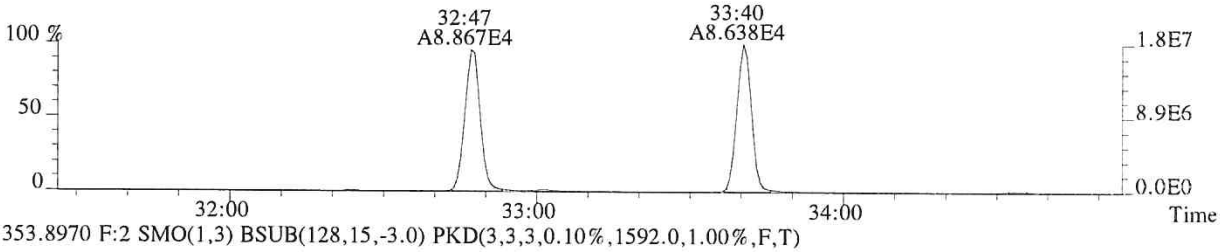
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



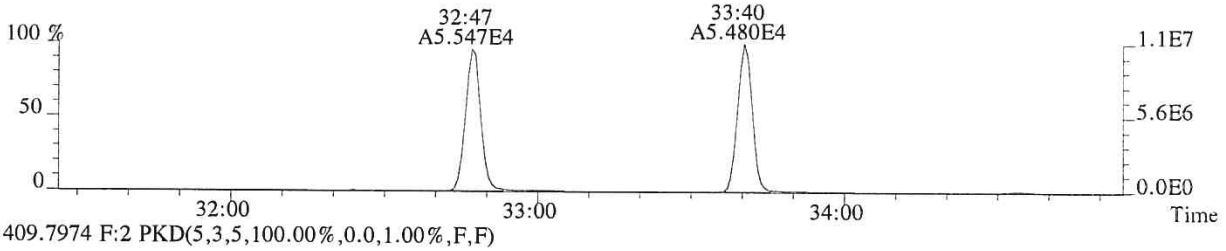
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



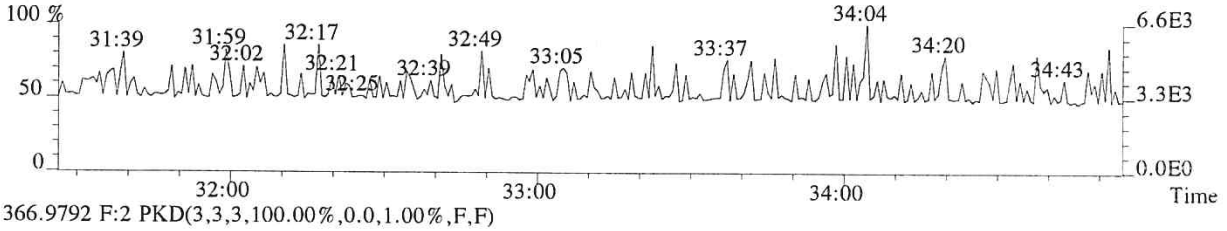
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



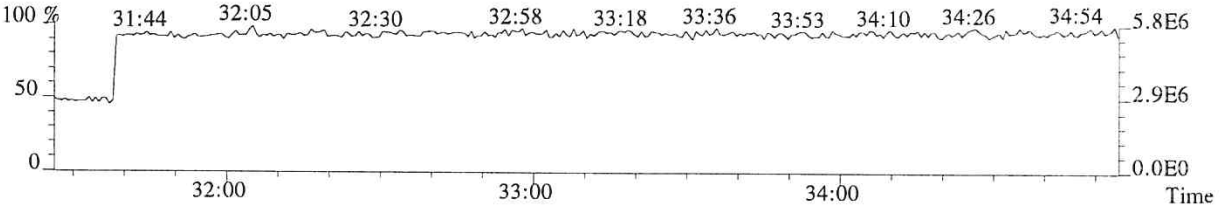
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

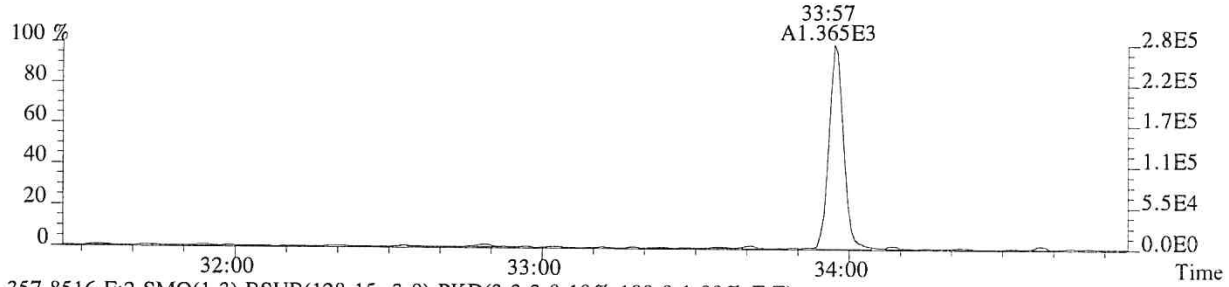


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

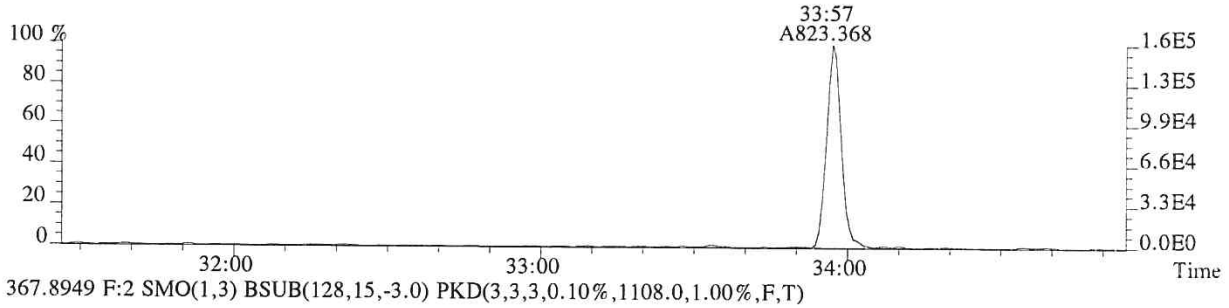


012144

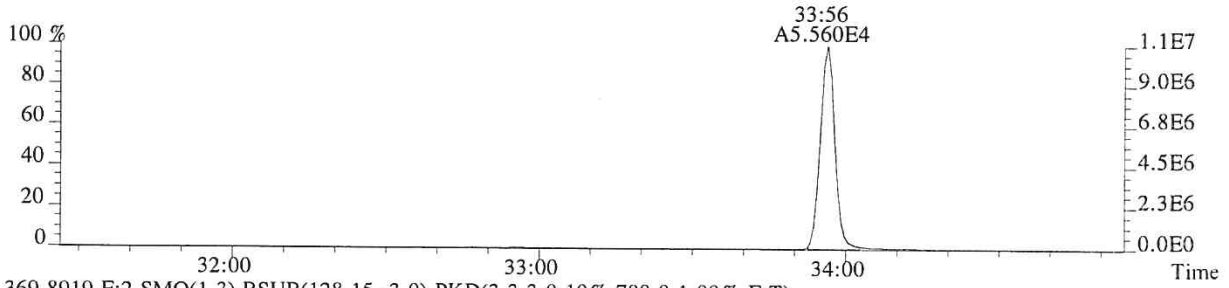
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



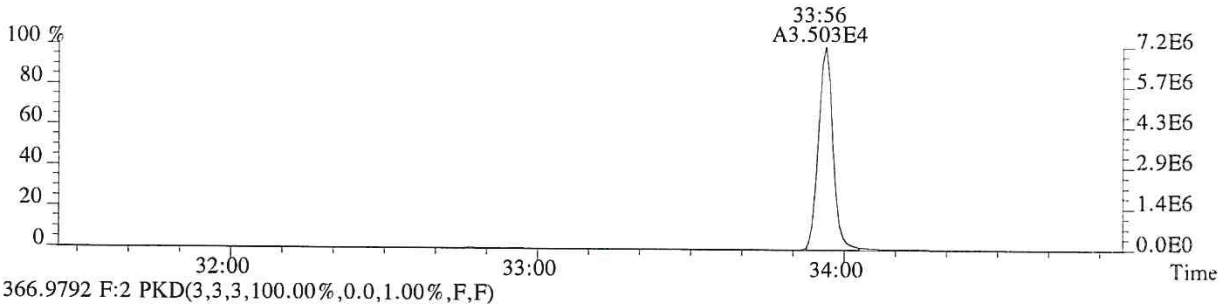
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



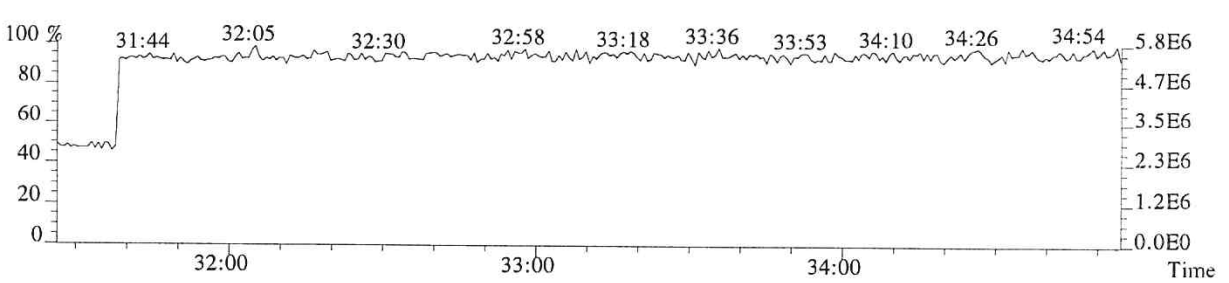
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



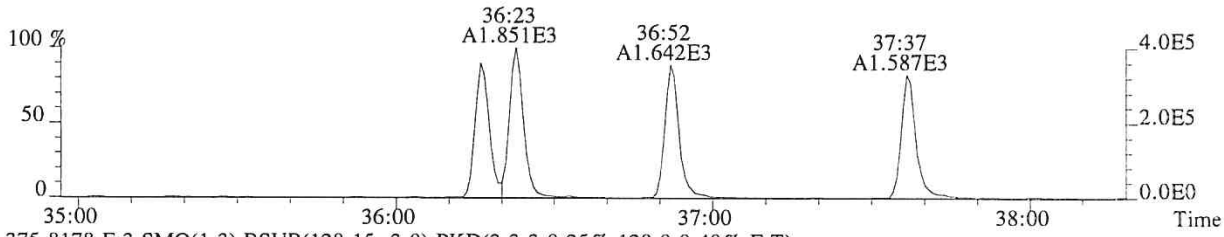
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



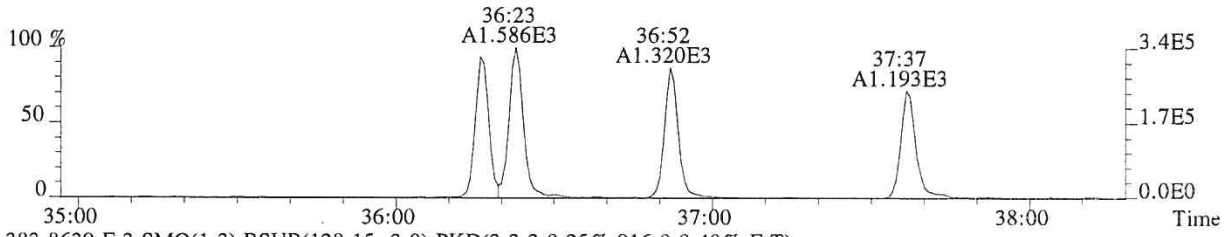
012145

File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

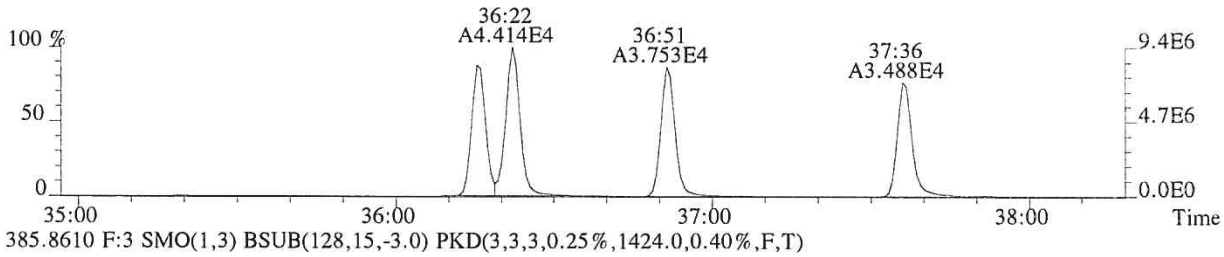
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



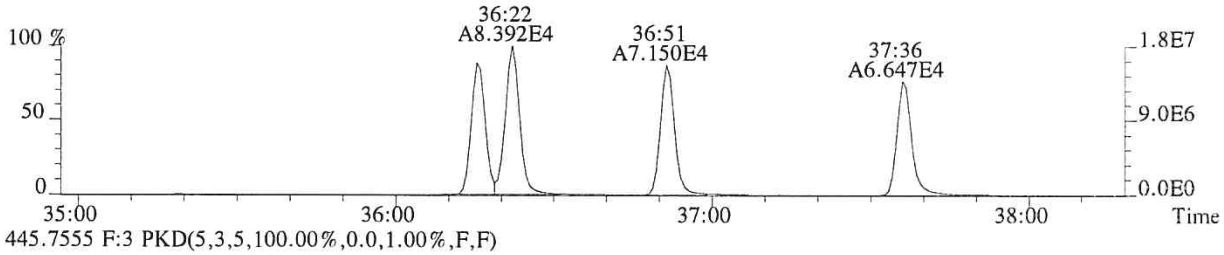
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



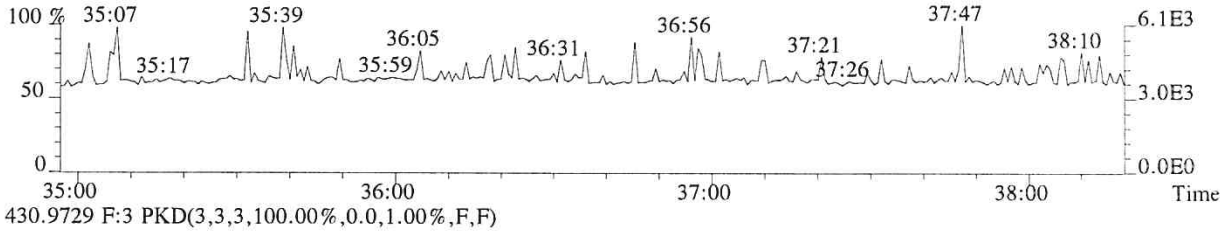
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



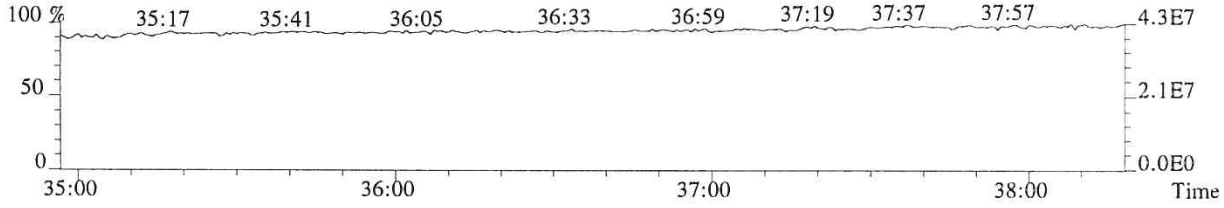
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

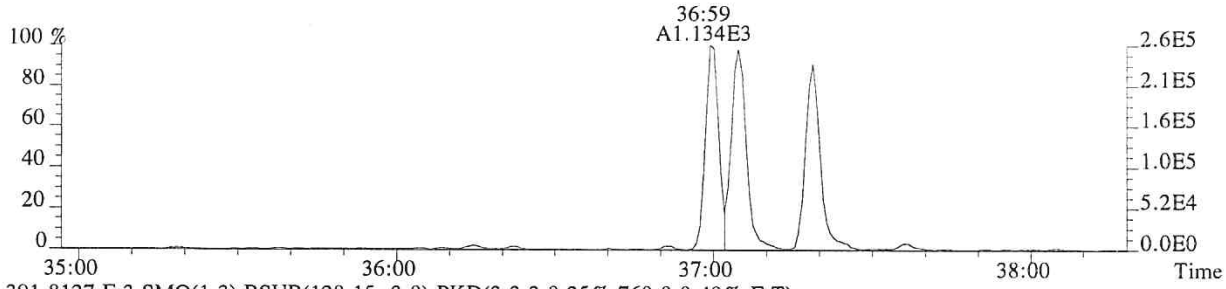


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

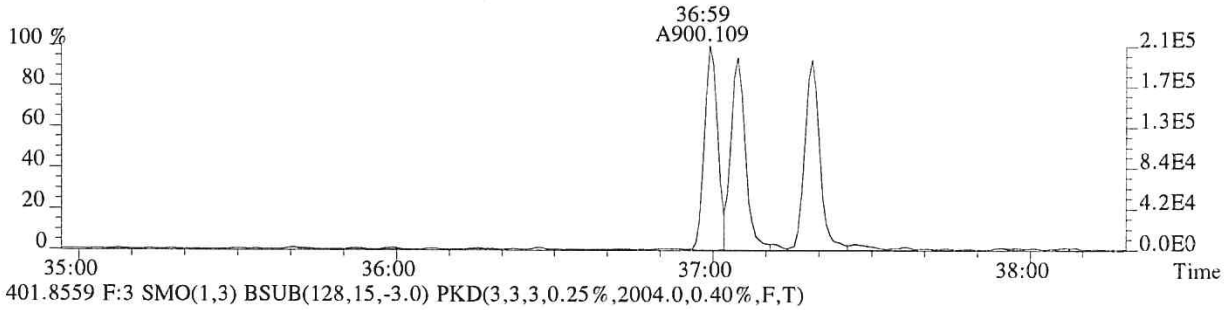


012146

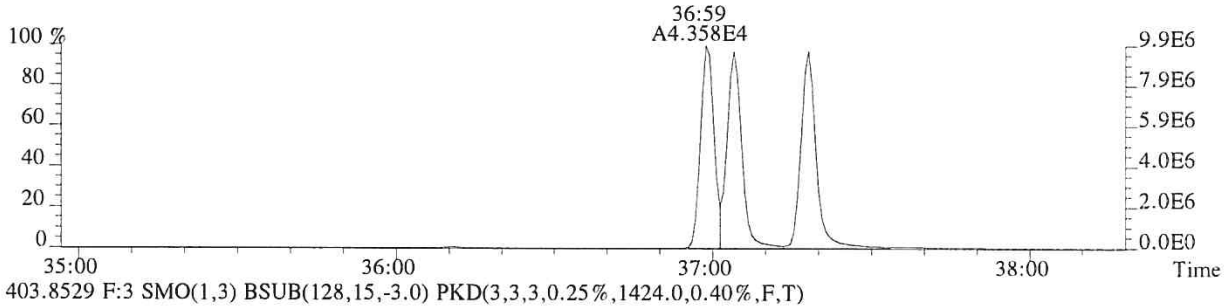
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



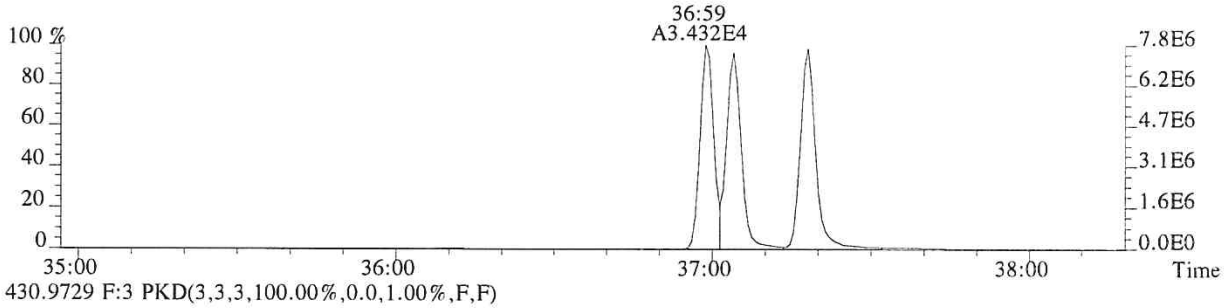
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



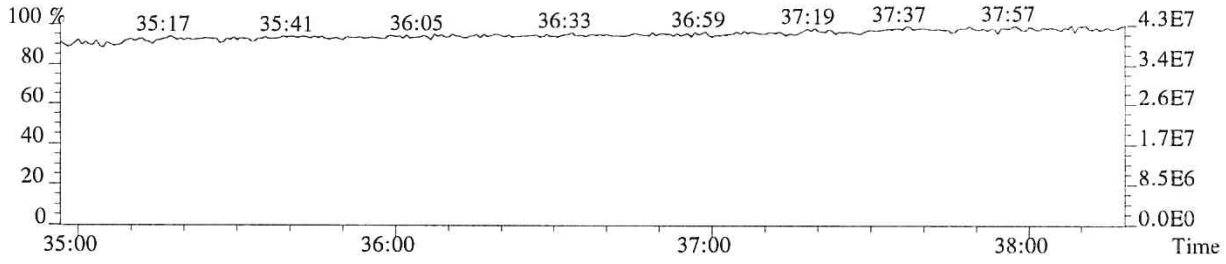
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)

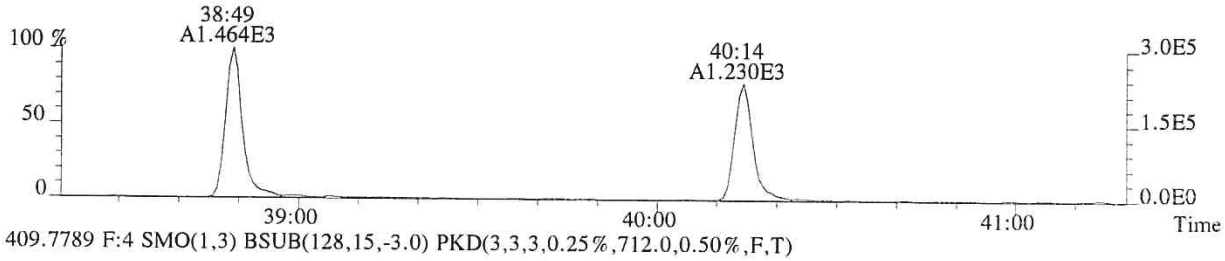


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

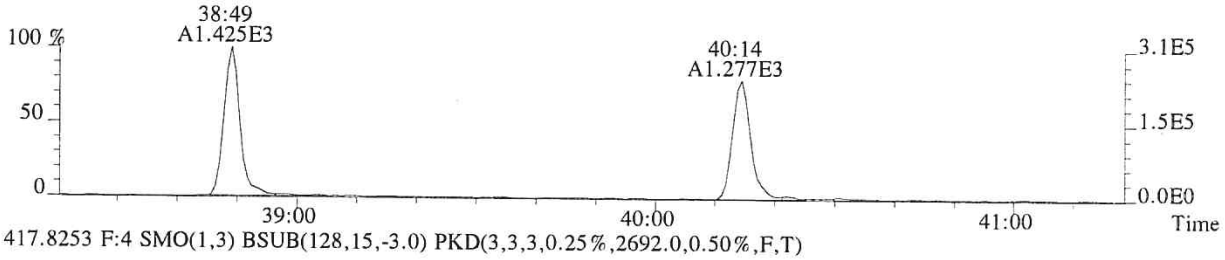


012147

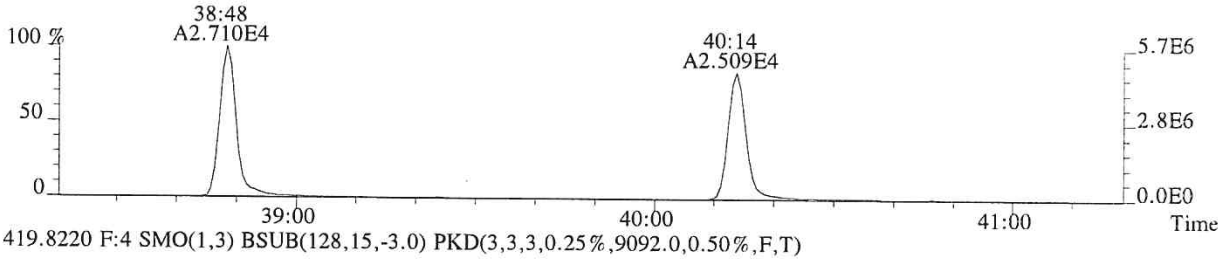
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



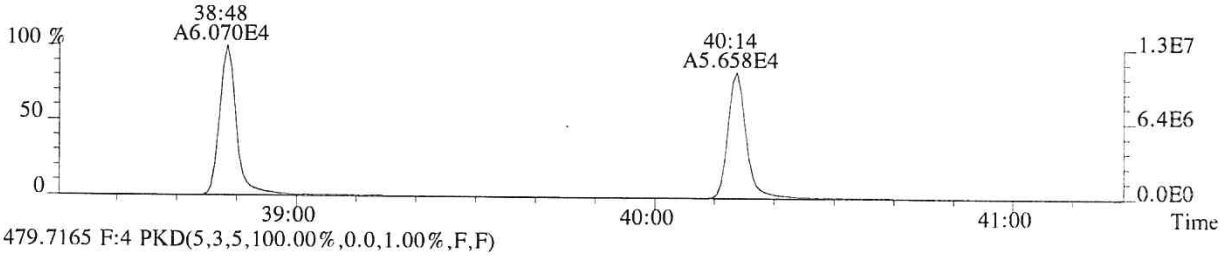
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



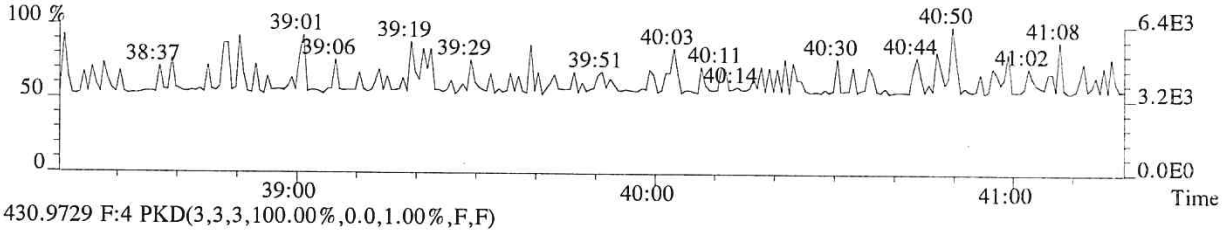
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



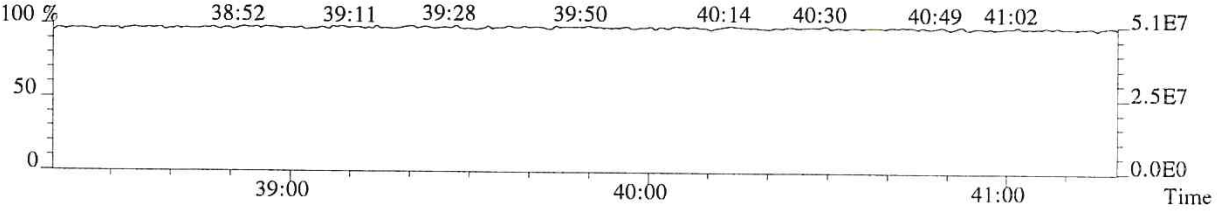
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

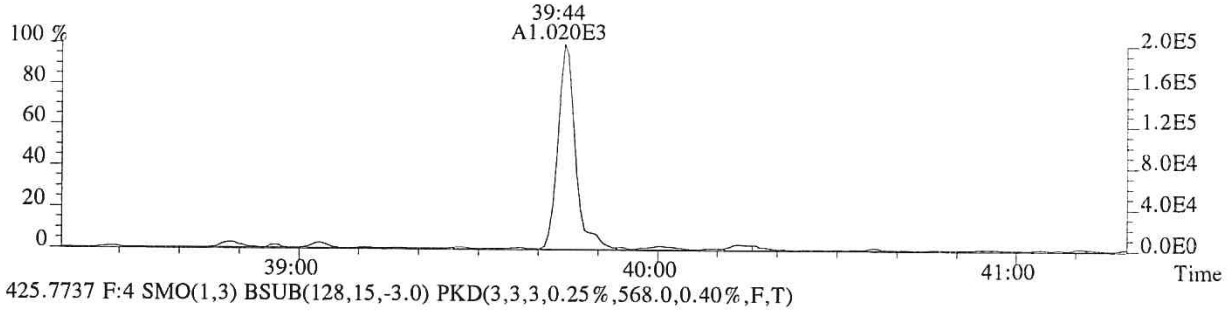


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

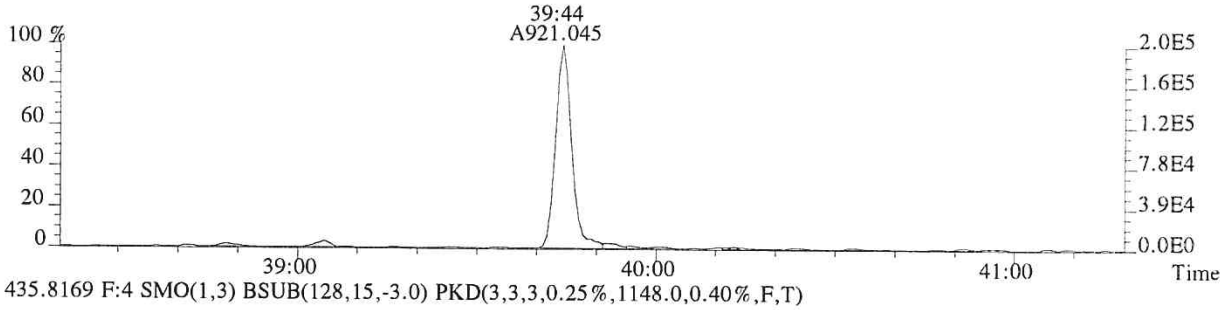


012148

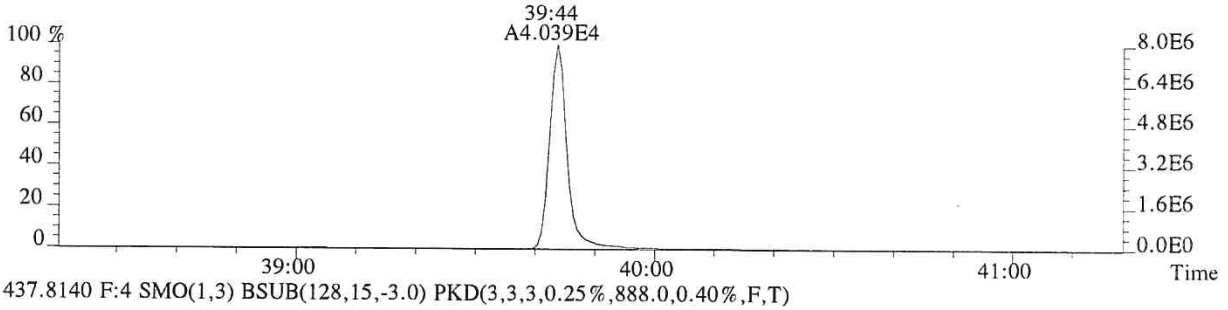
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



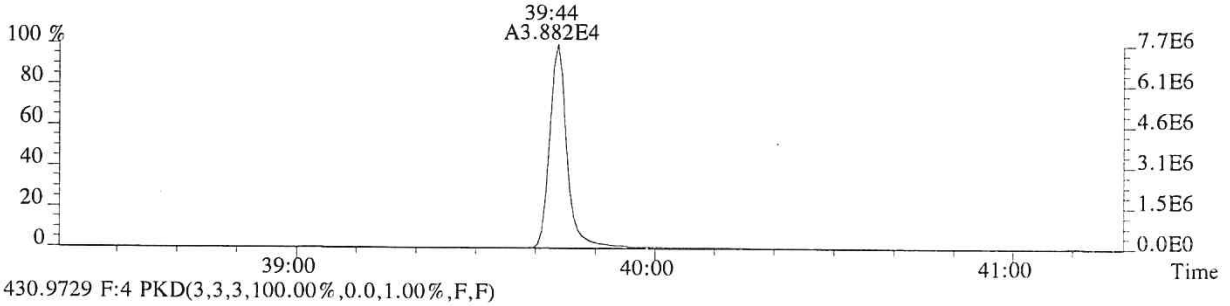
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



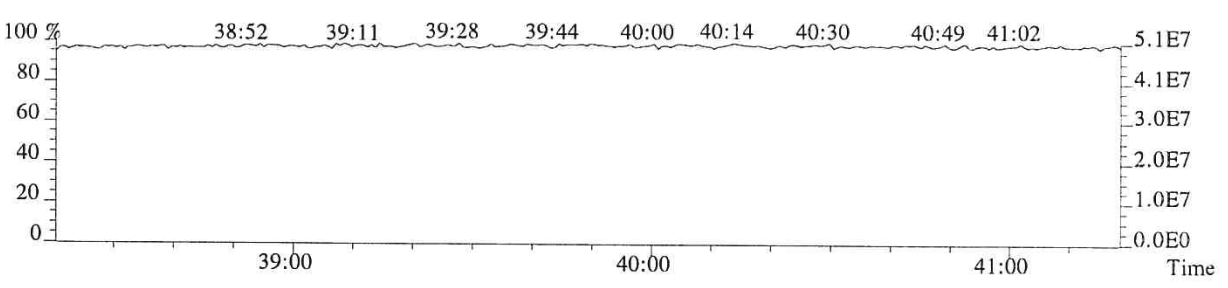
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)

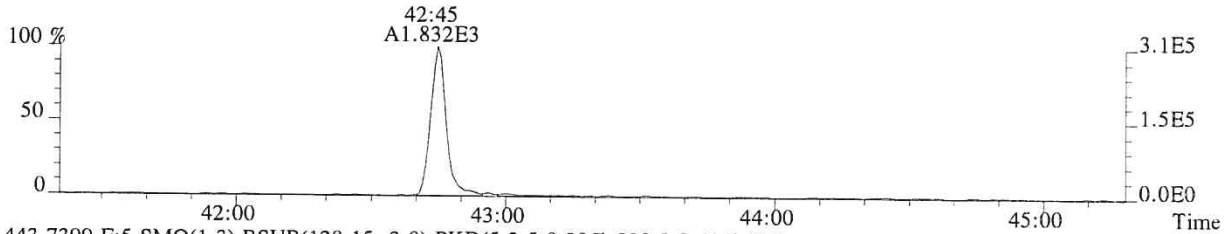


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

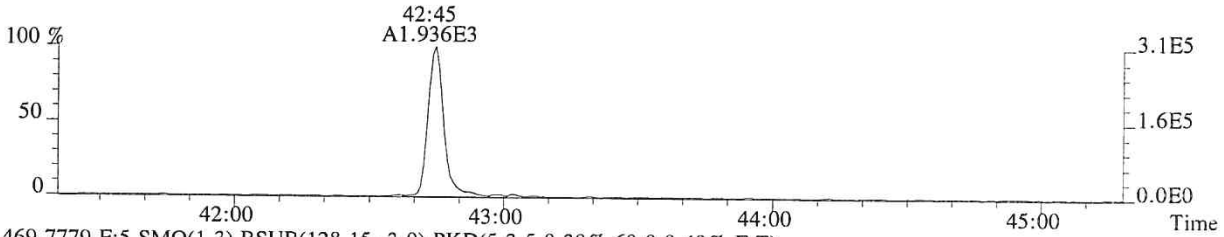


012149

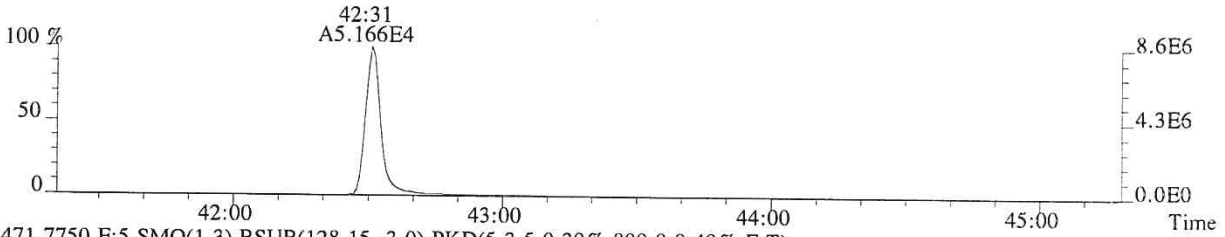
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



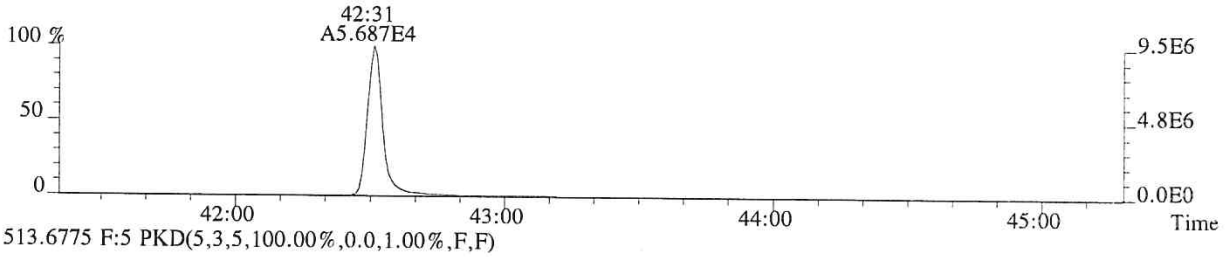
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



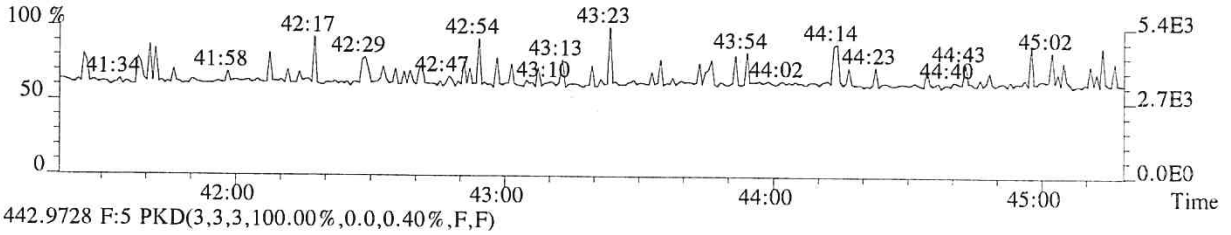
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



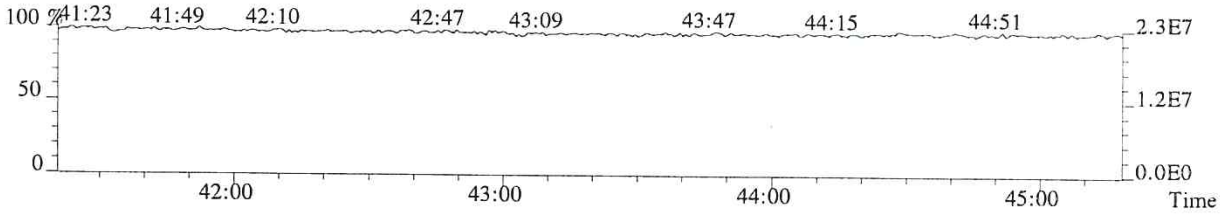
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

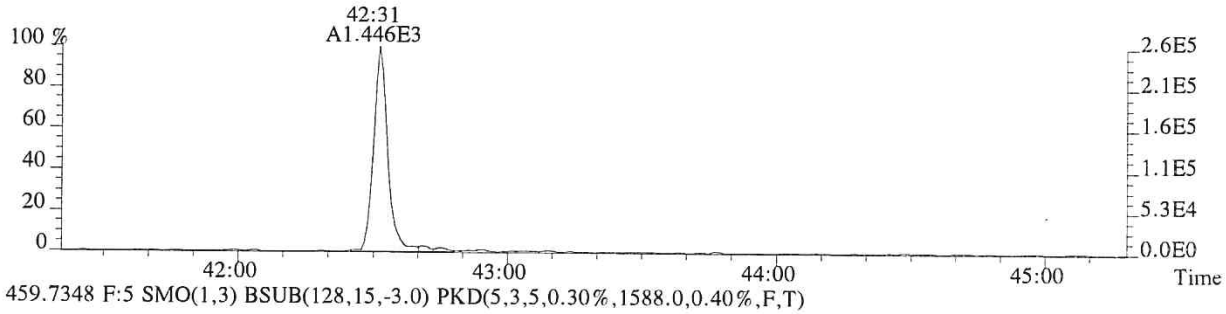


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

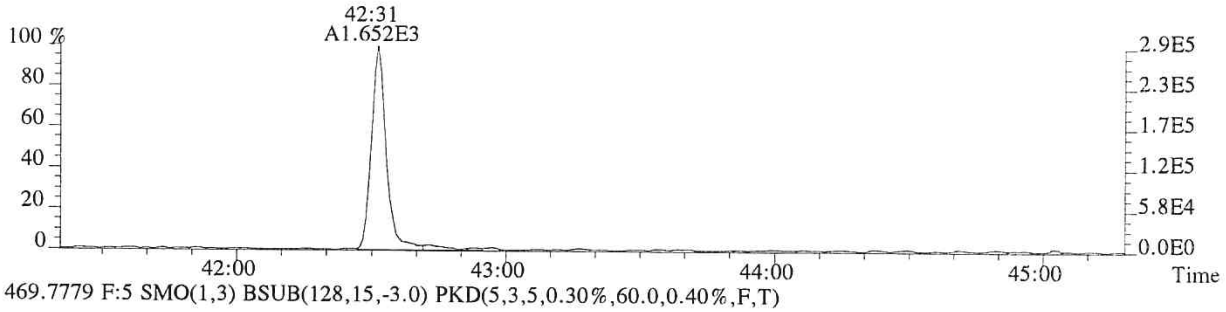


012150

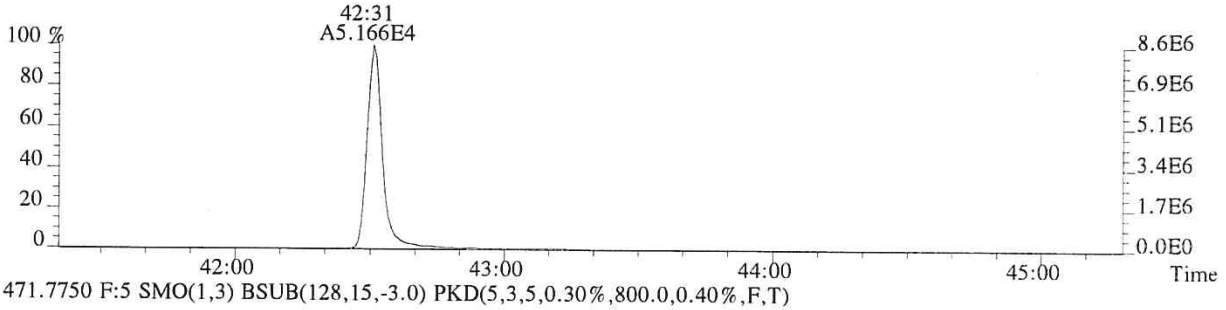
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



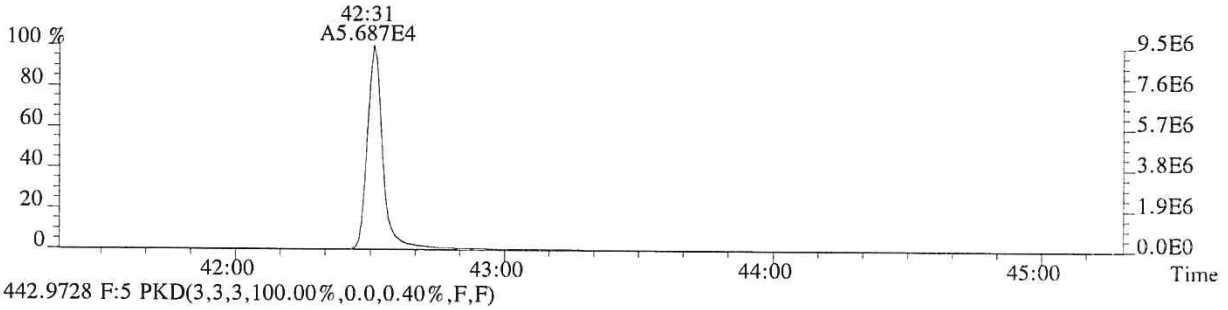
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



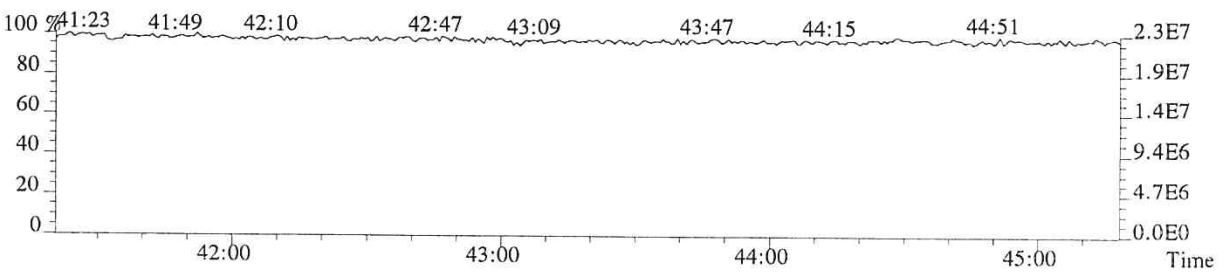
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012151

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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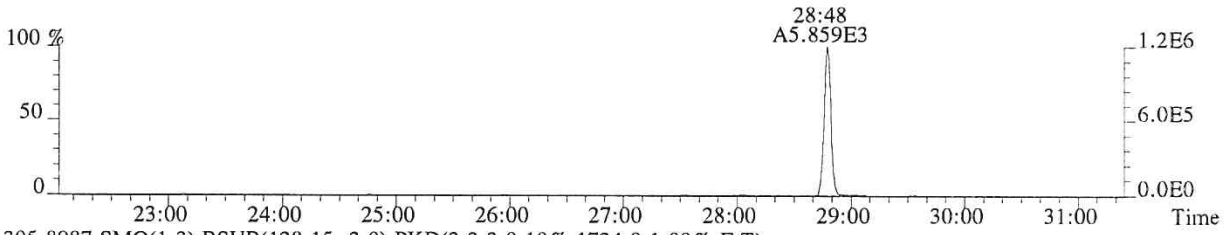
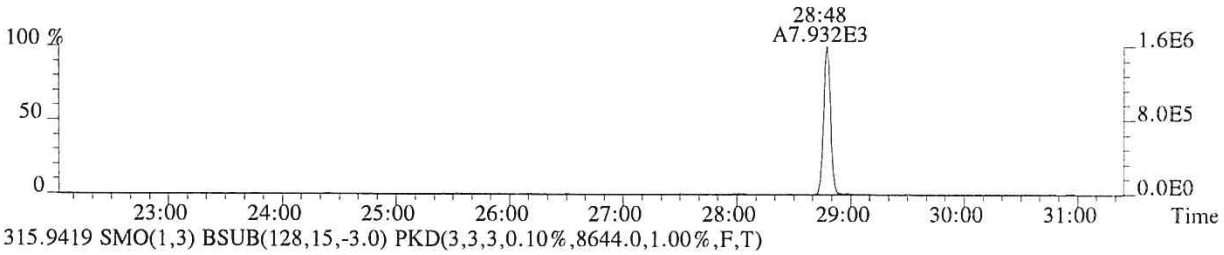
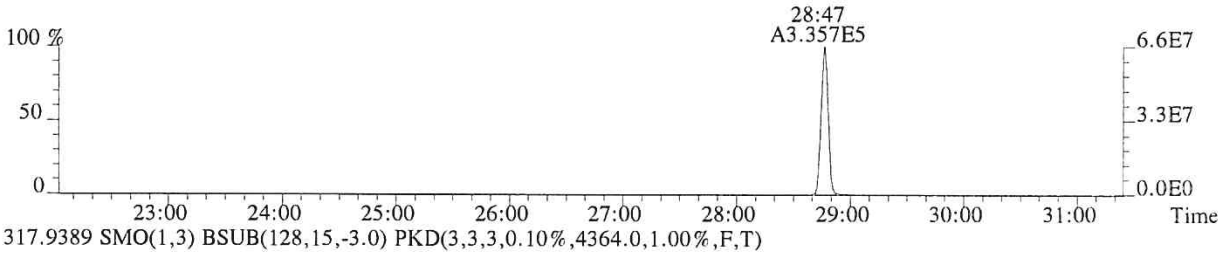
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



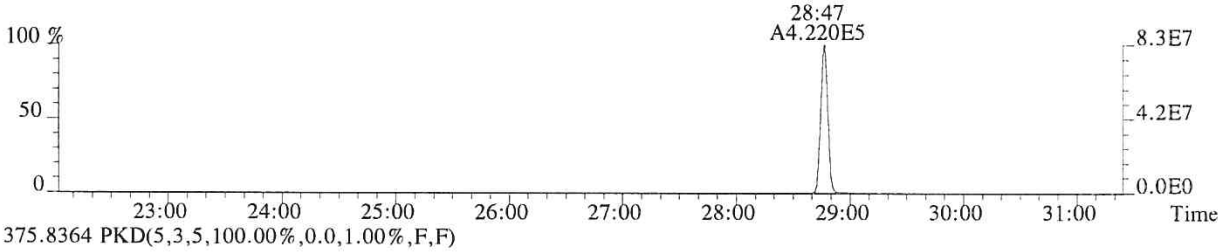
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



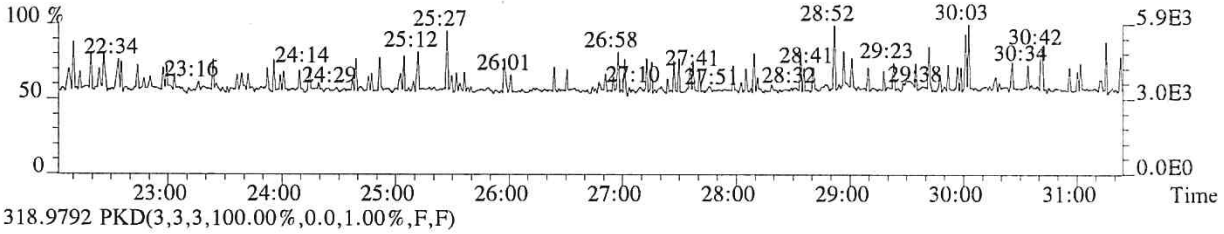
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



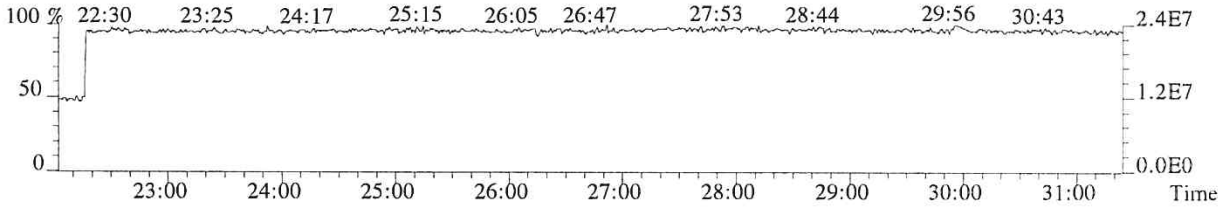
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

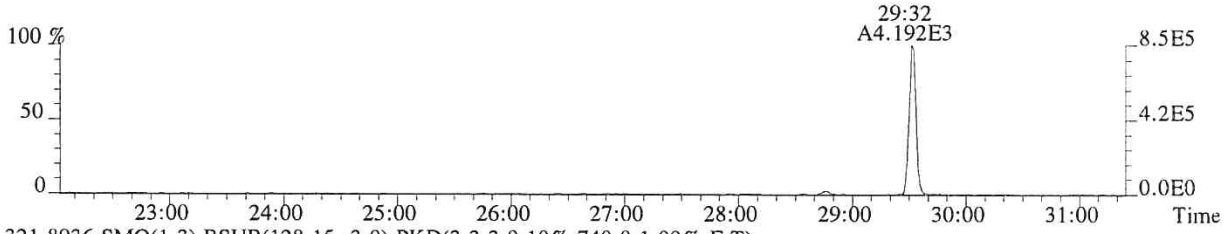


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

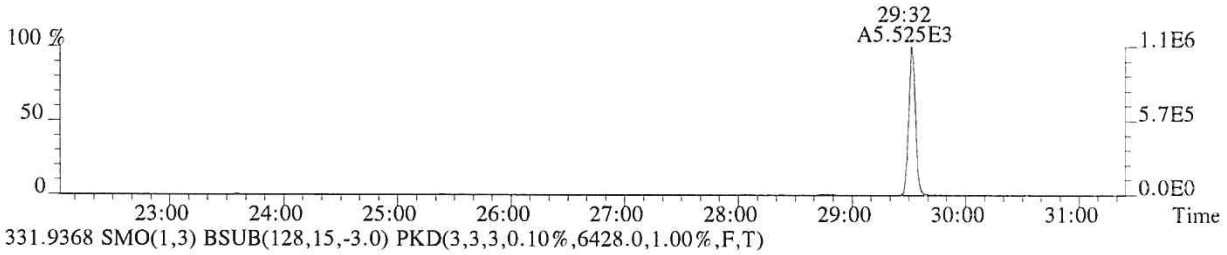


012154

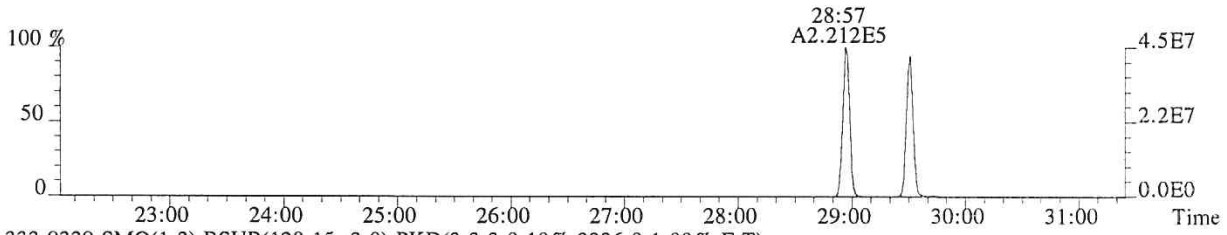
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



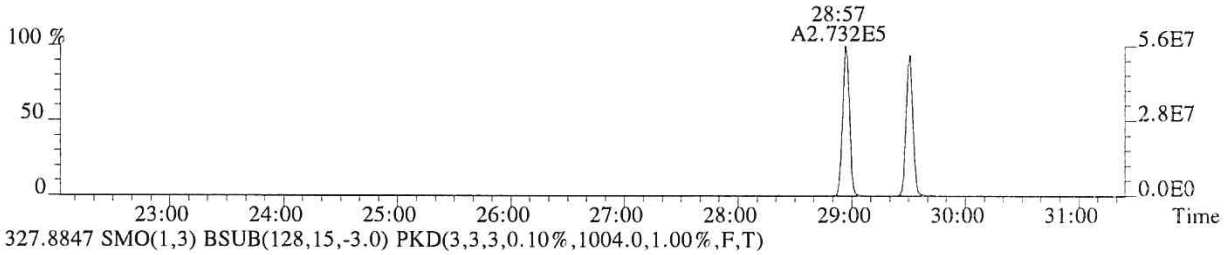
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



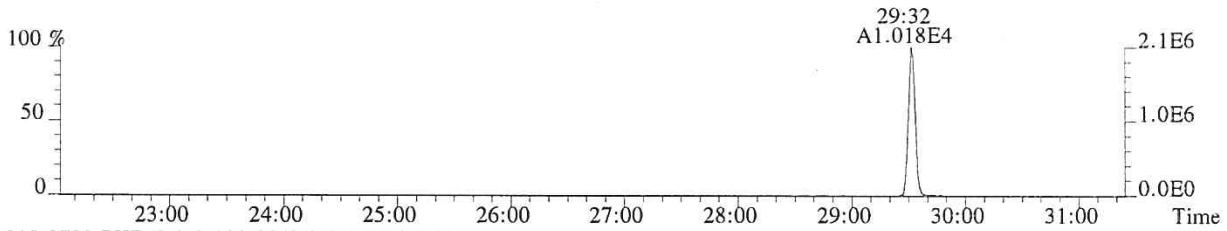
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



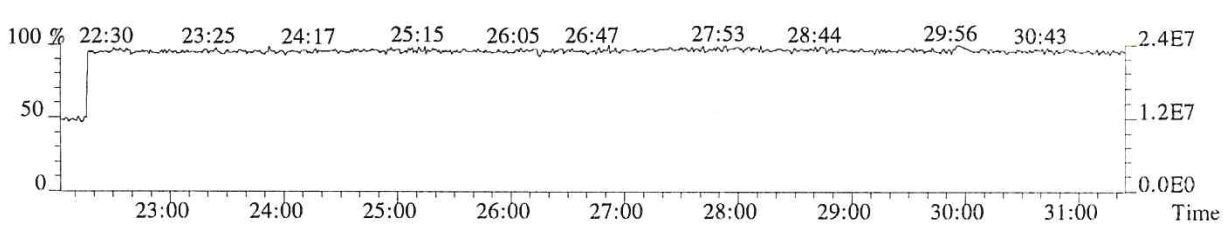
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

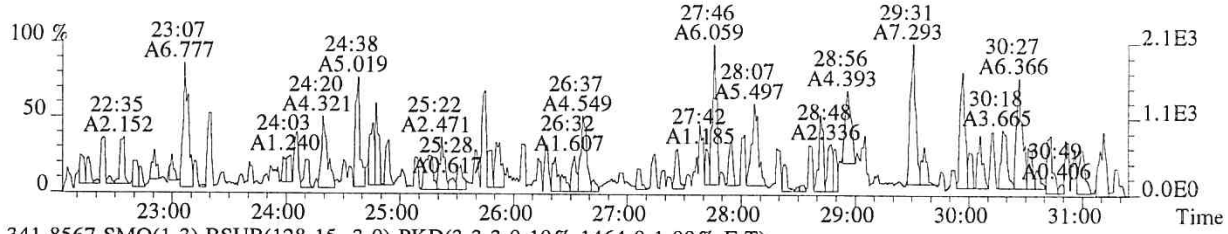


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

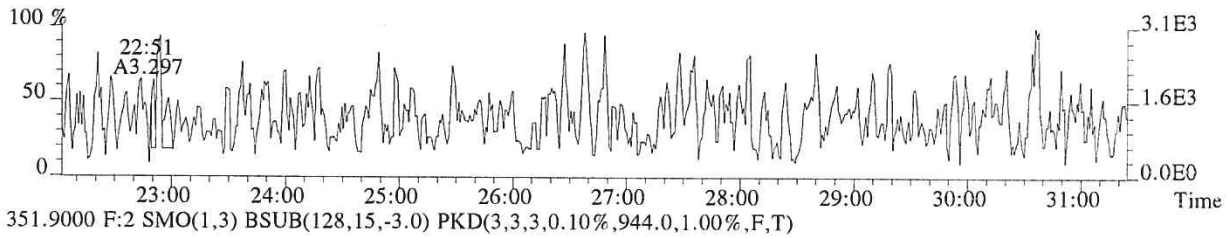


012155

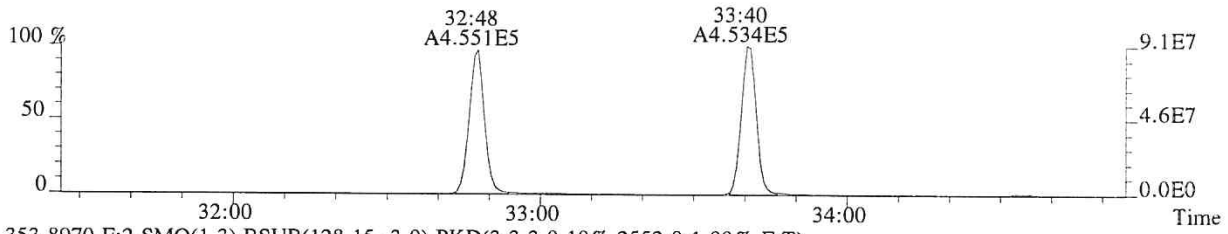
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



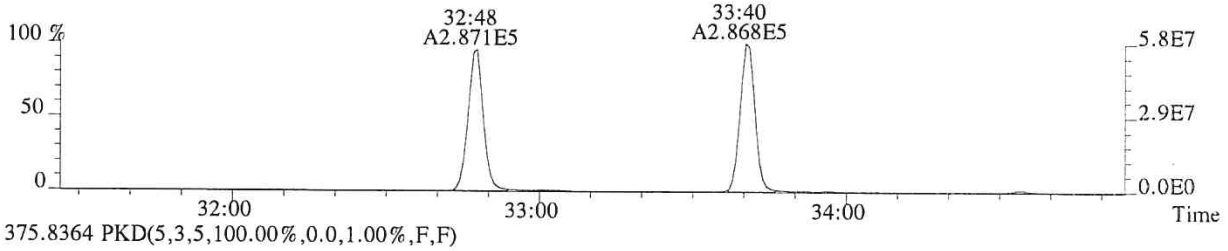
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



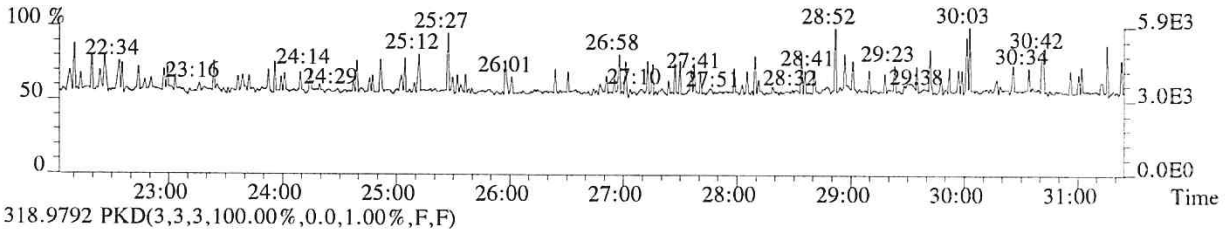
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



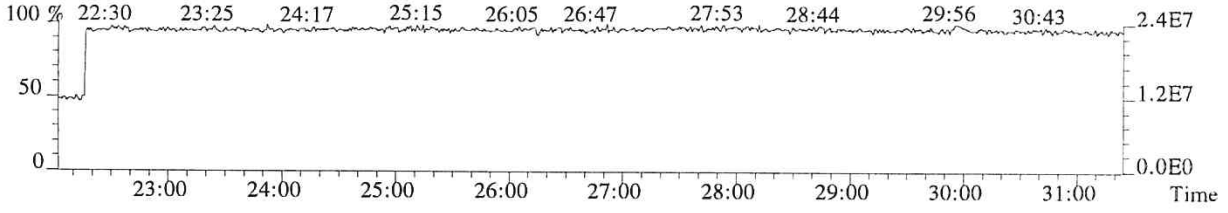
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

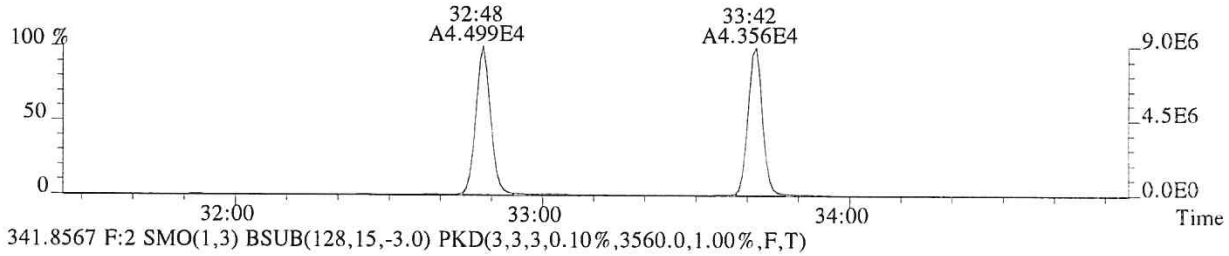


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

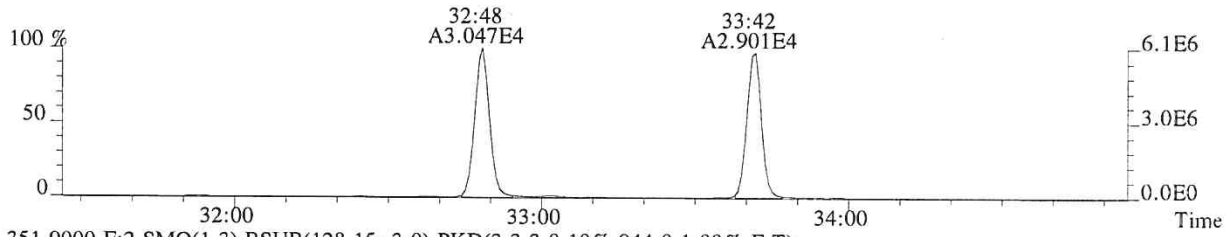


012156

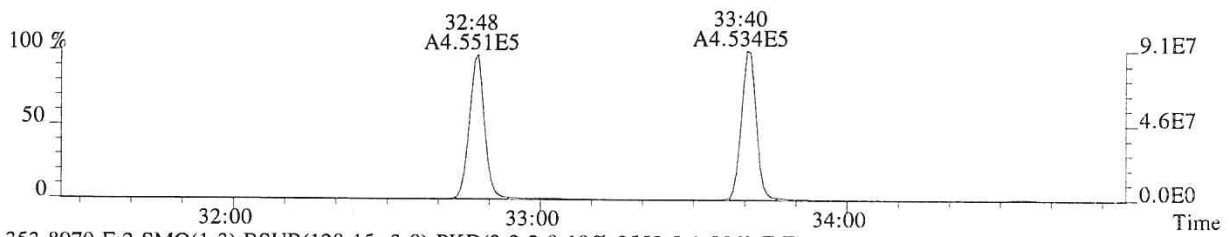
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



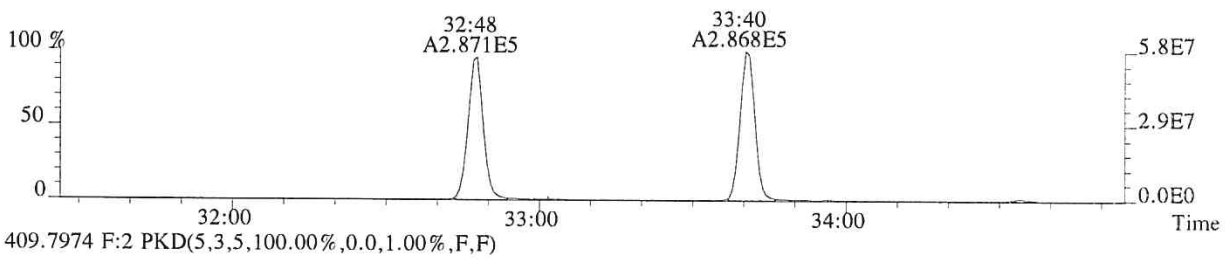
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



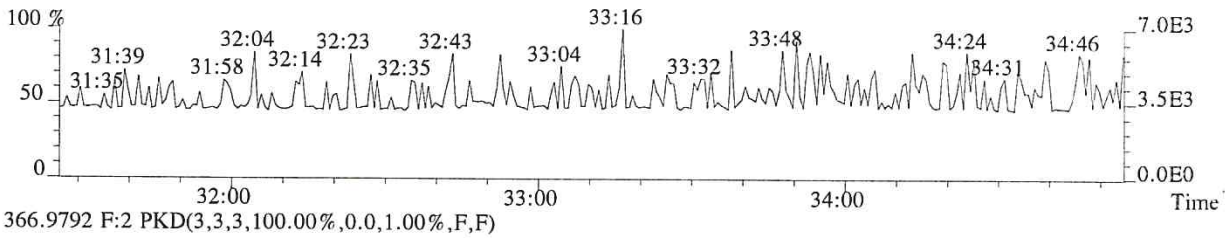
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



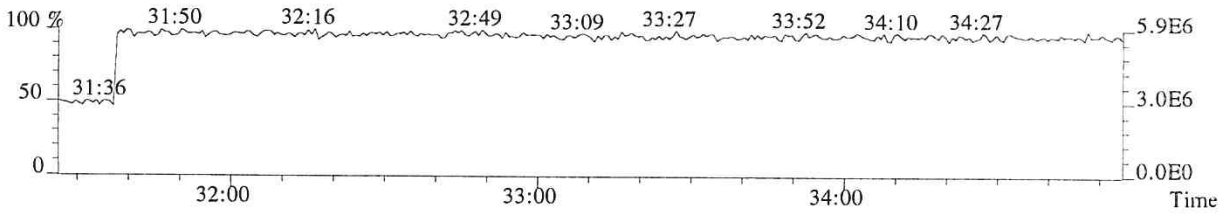
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

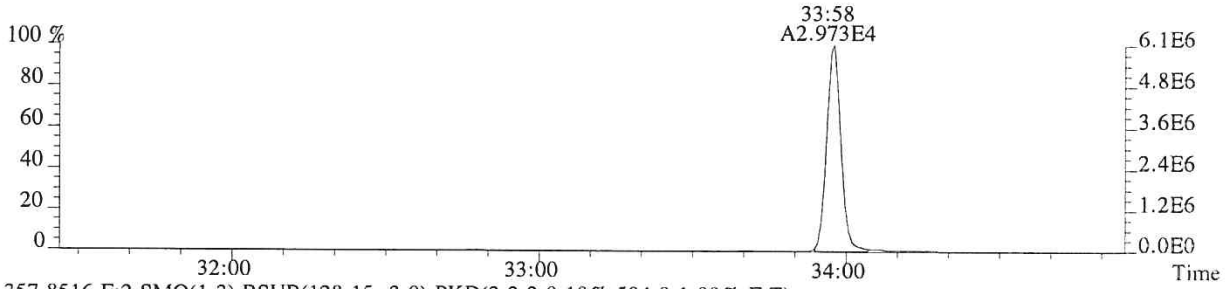


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

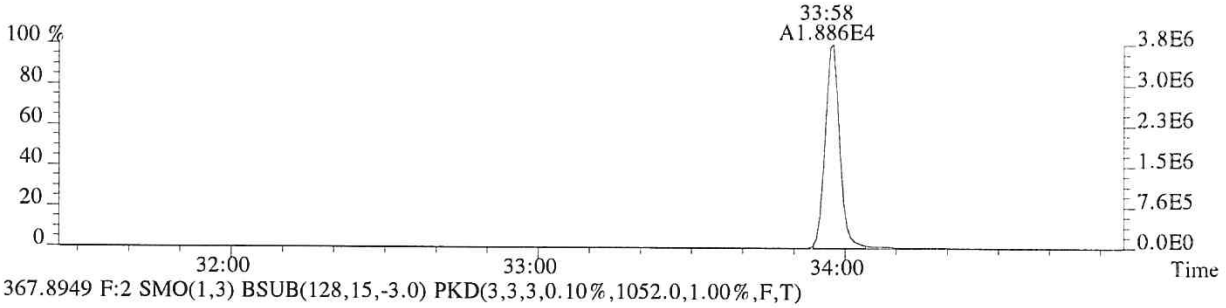


012157

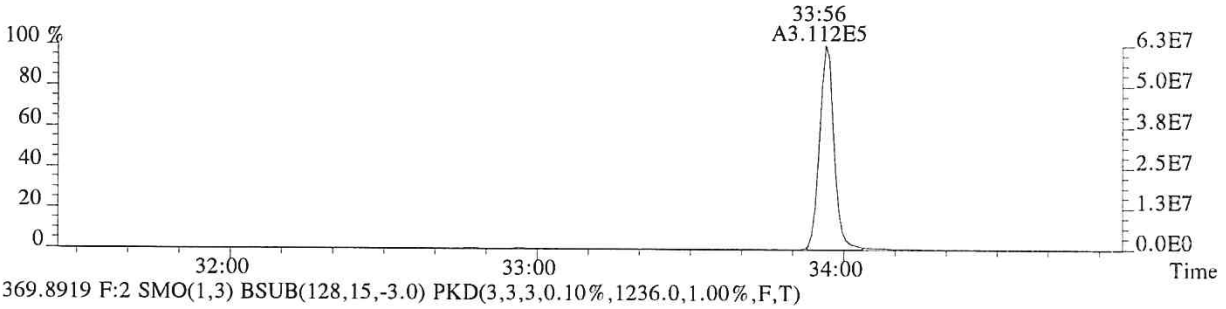
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



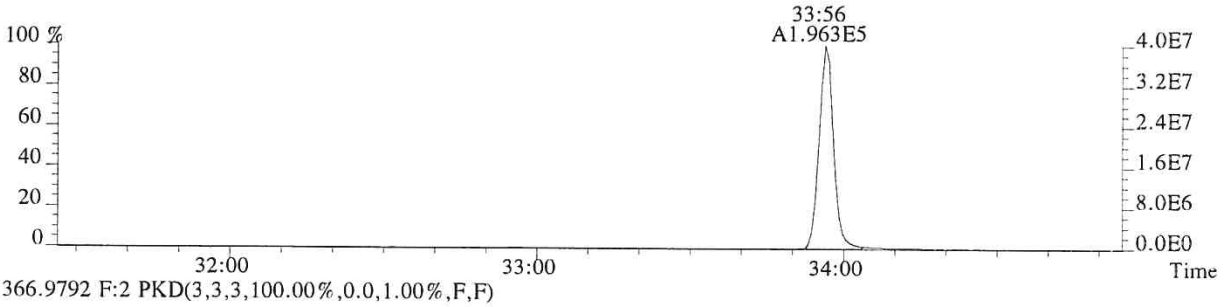
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



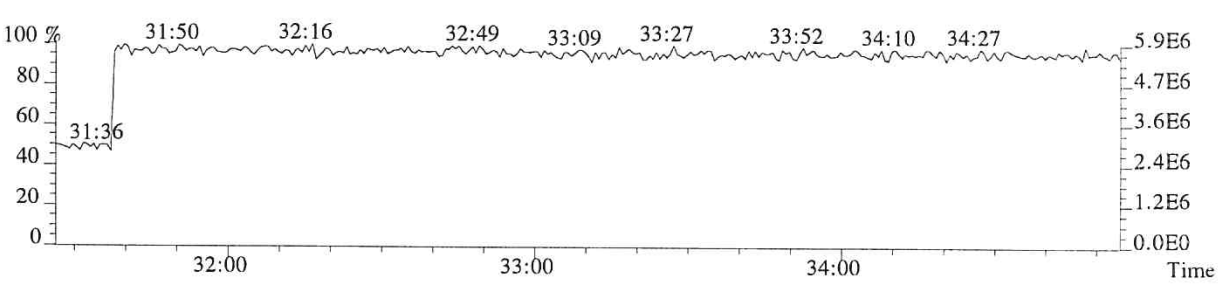
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)

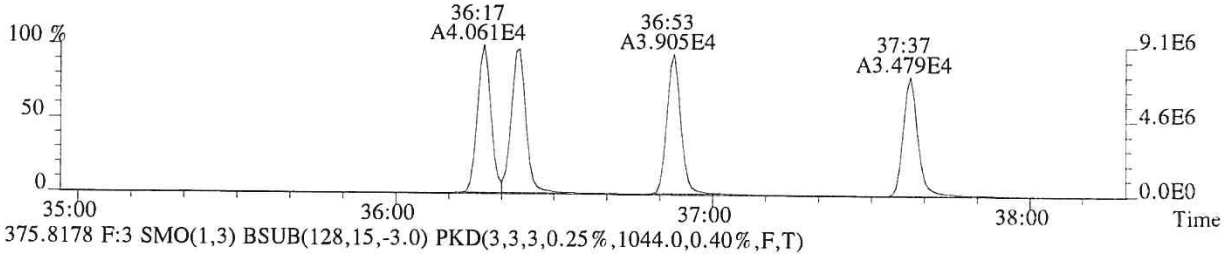


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

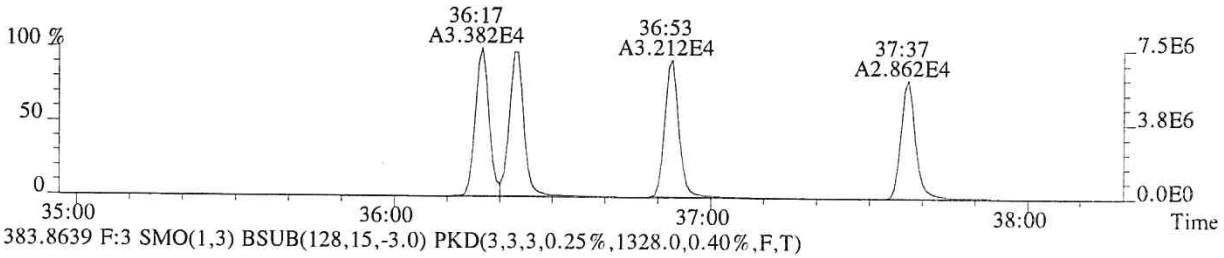


012158

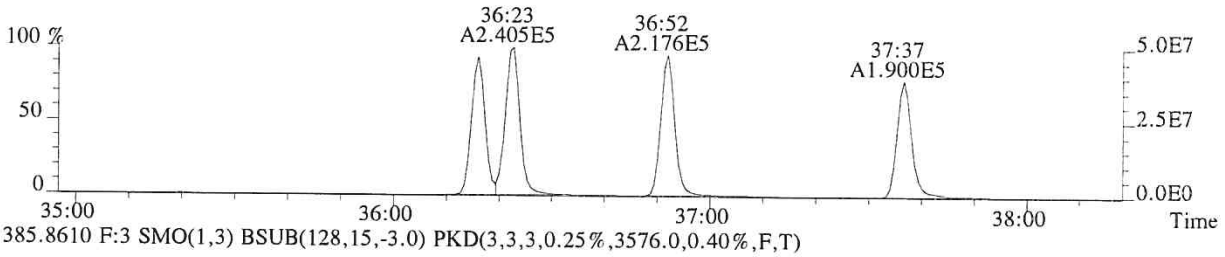
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



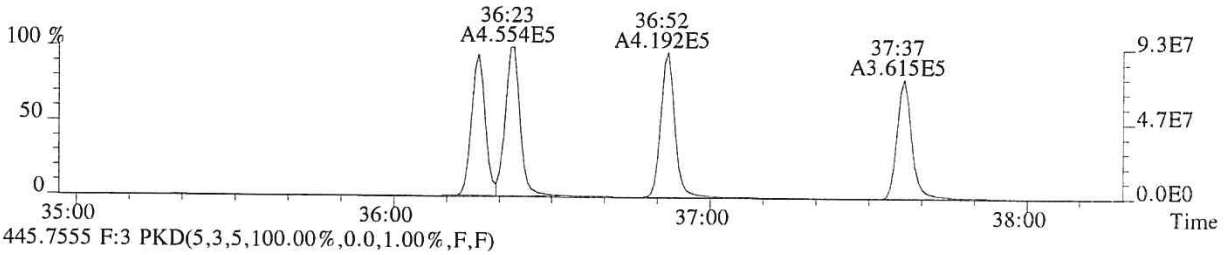
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



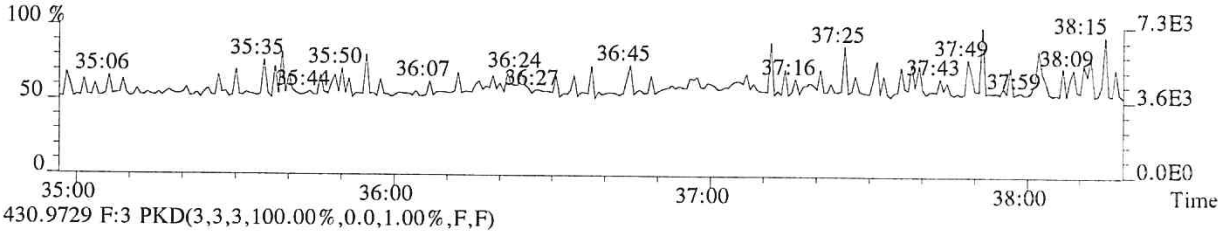
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



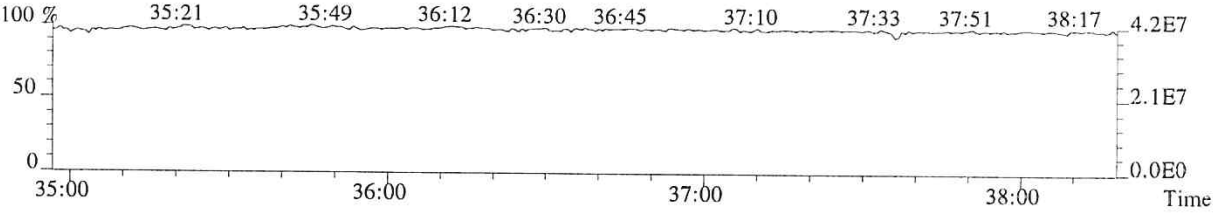
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

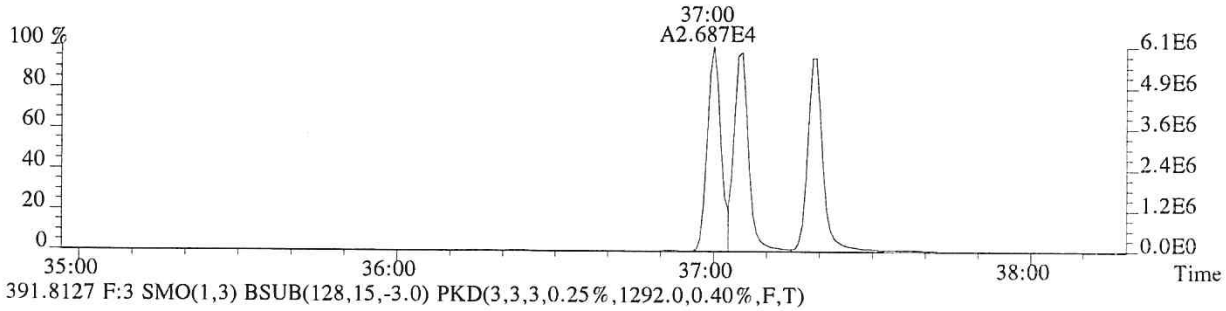


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

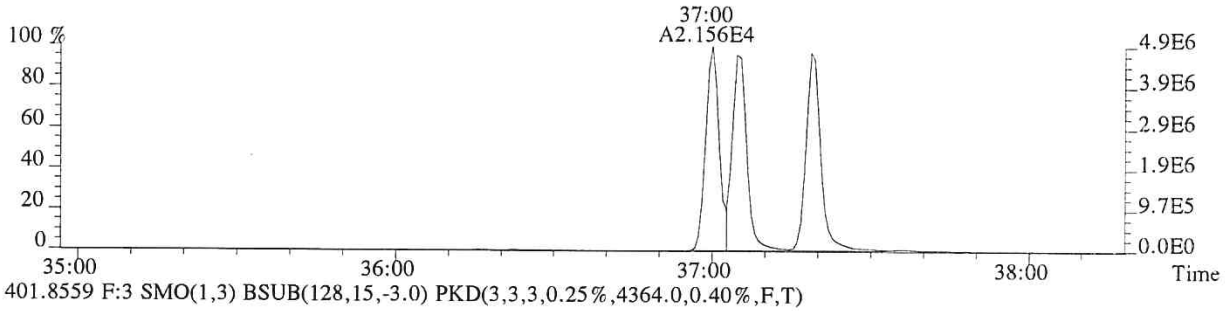


012159

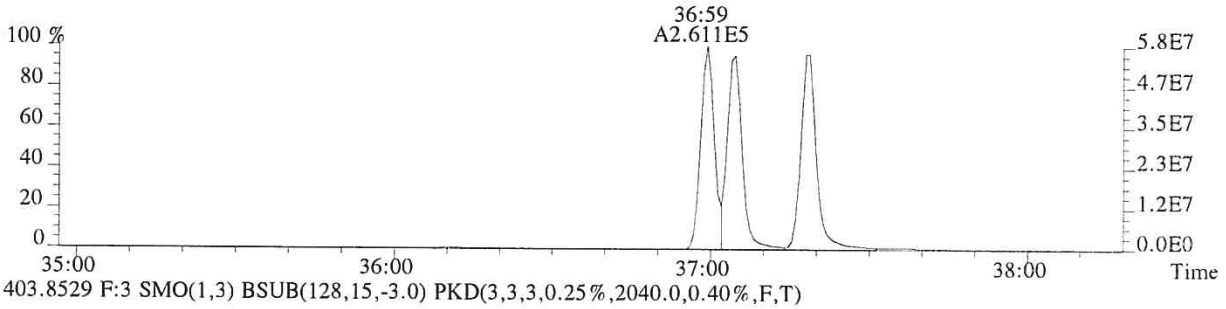
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



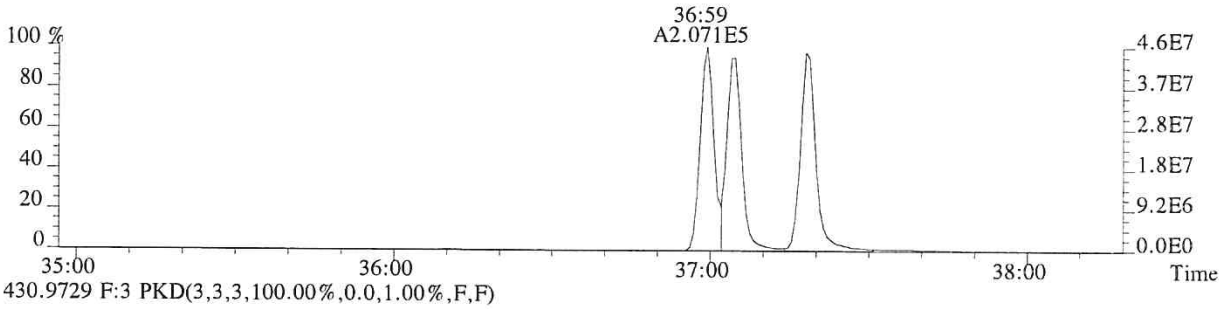
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



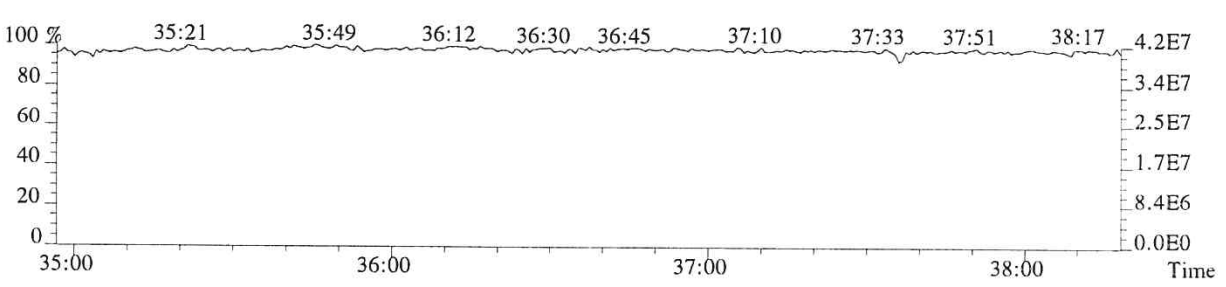
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)

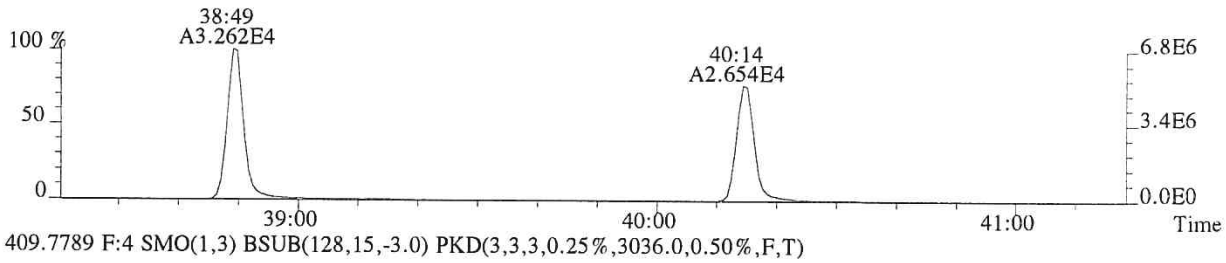


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

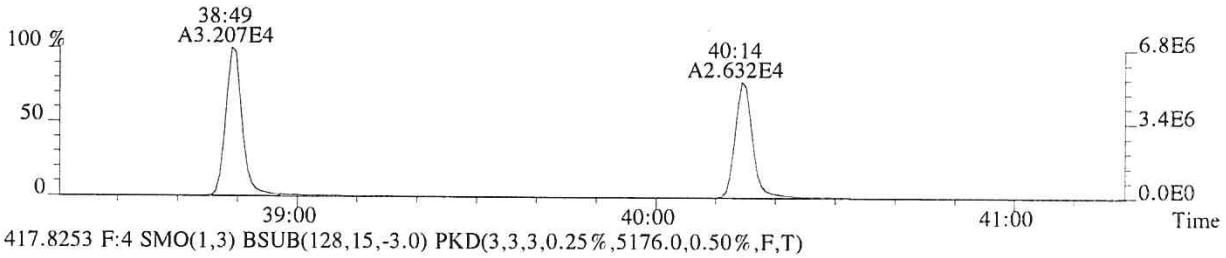


012160

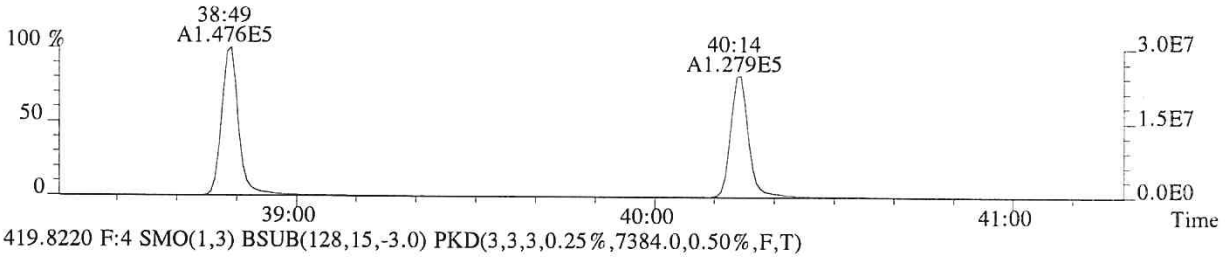
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



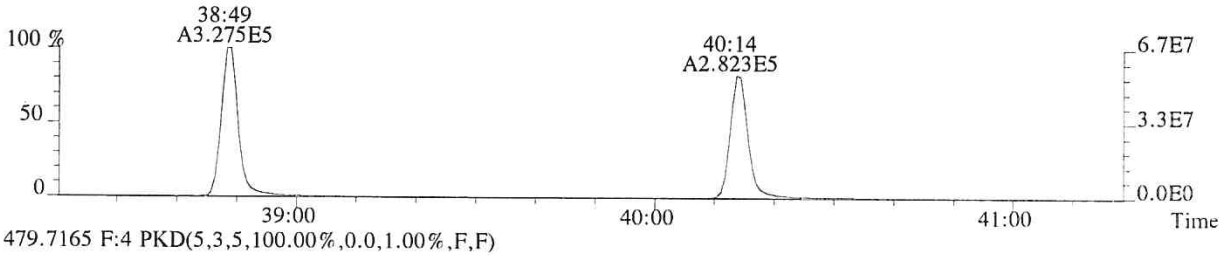
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



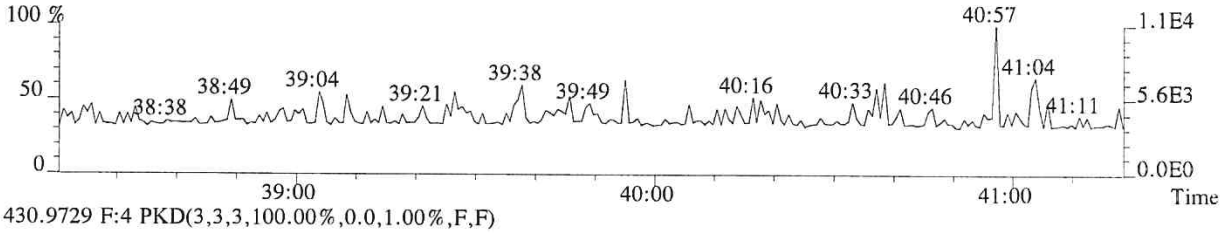
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



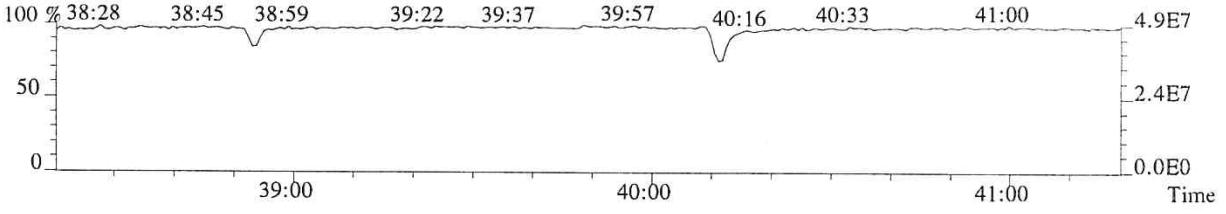
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

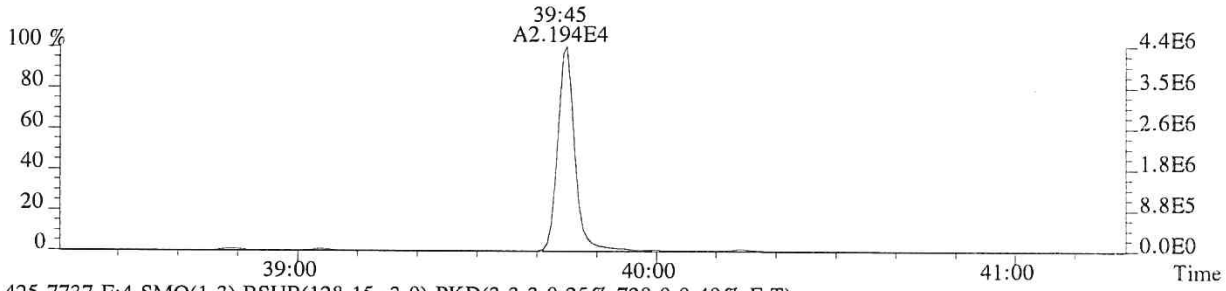


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

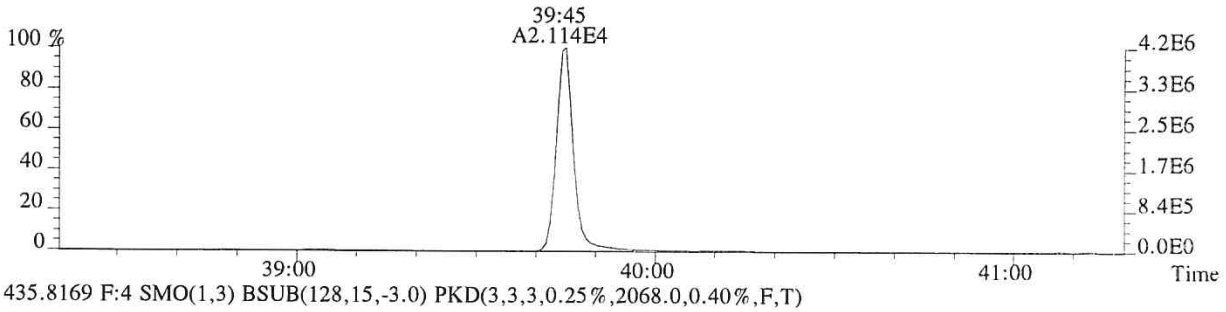


012161

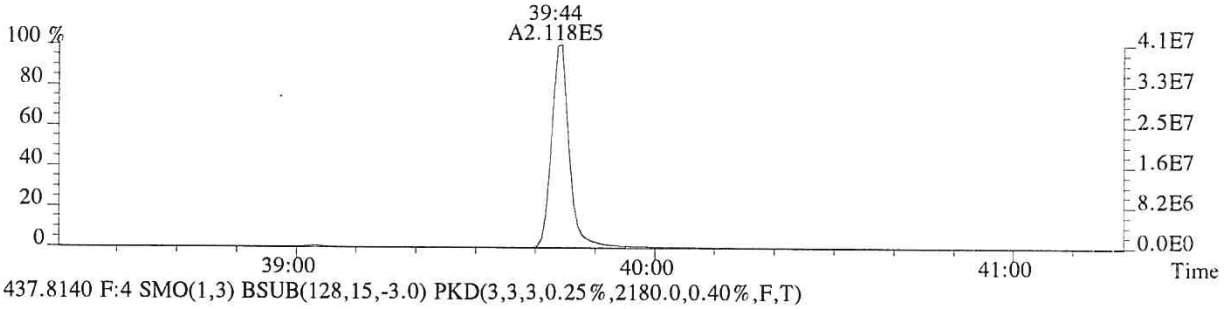
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



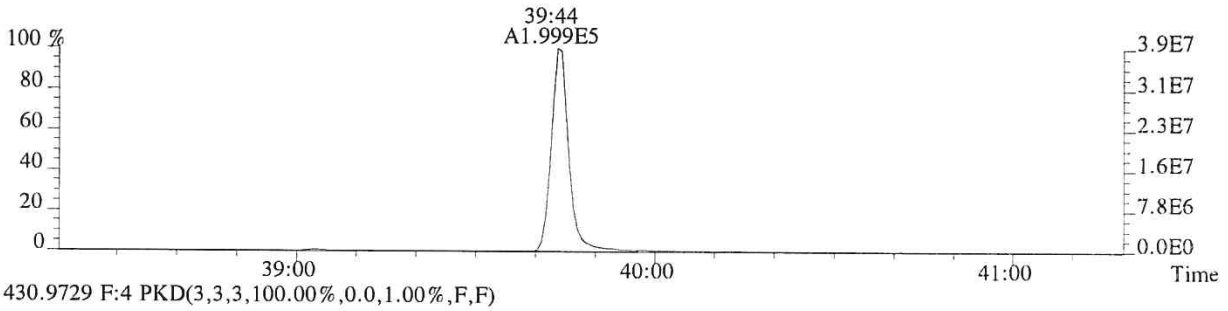
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



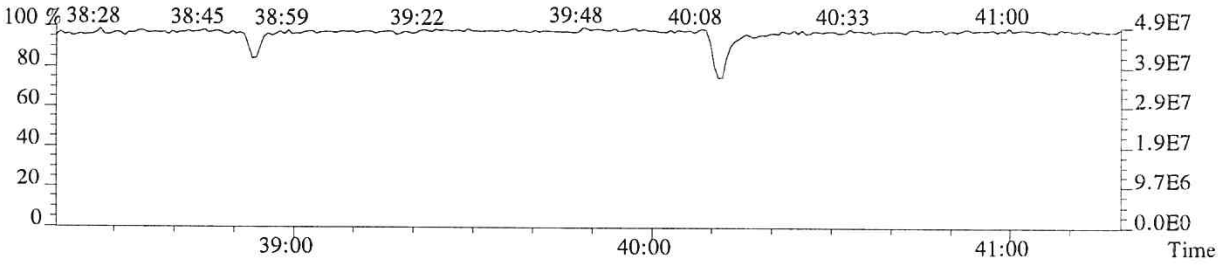
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)

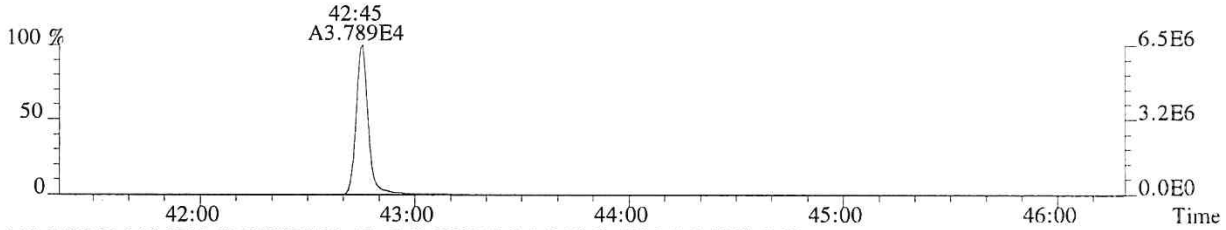


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

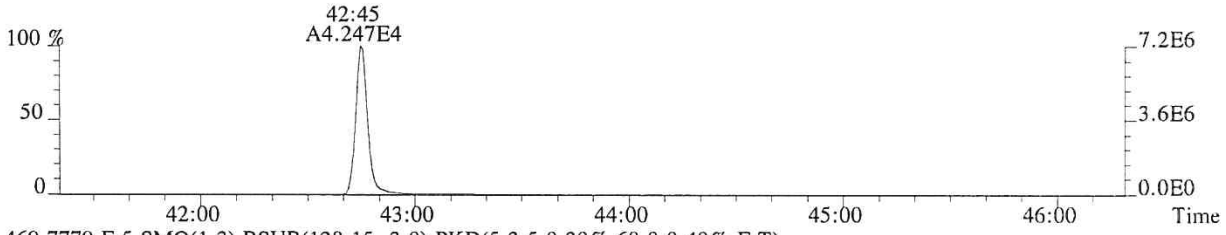


012162

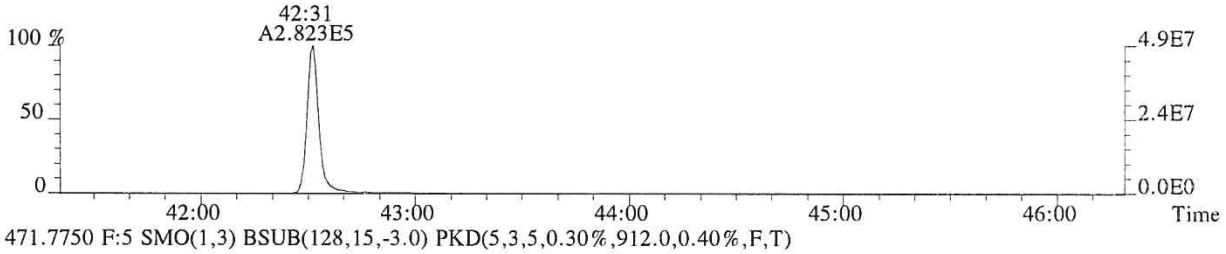
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



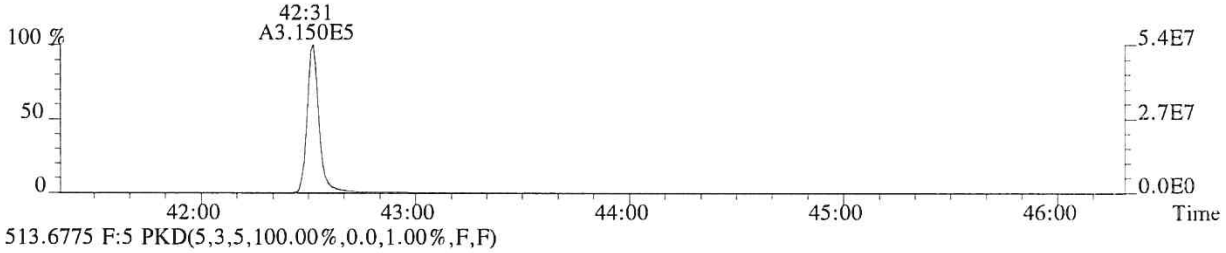
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



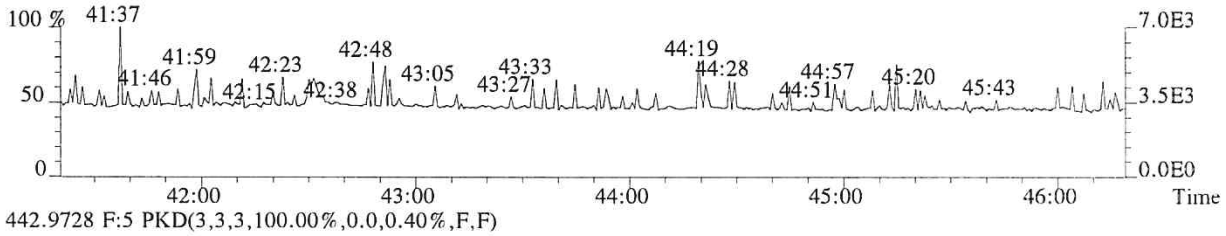
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



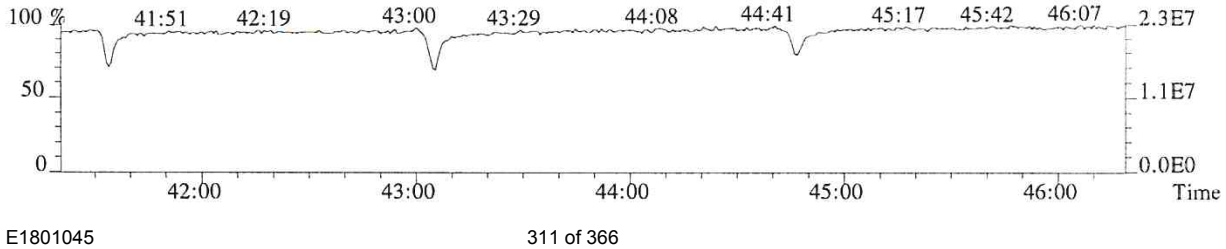
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

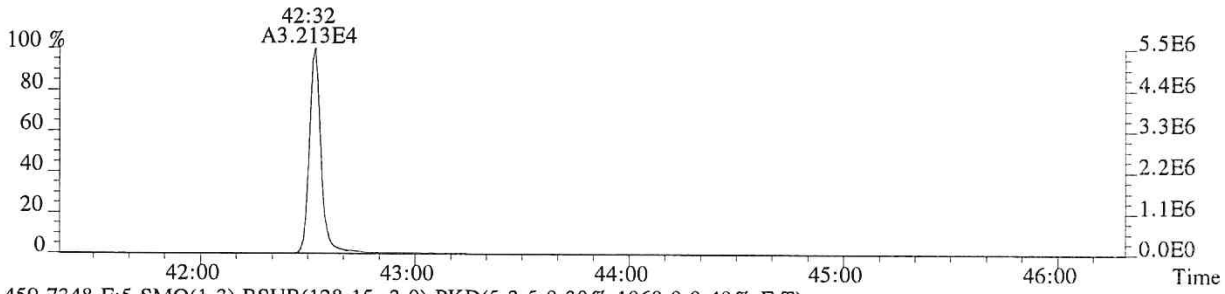


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

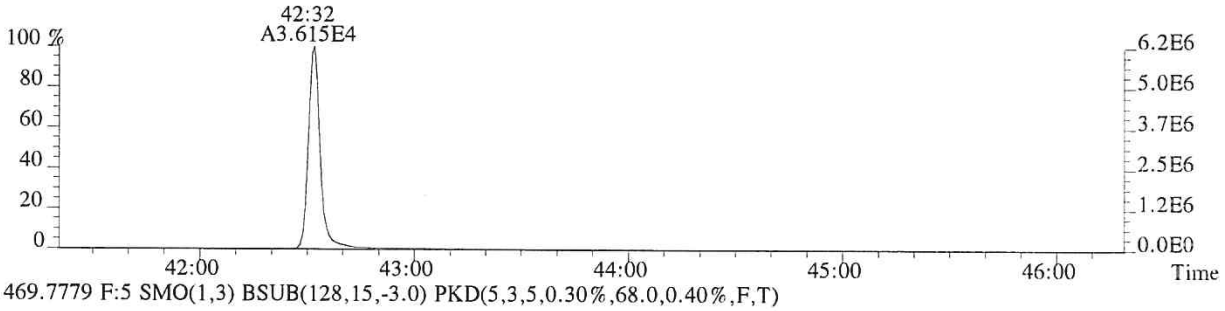


012163

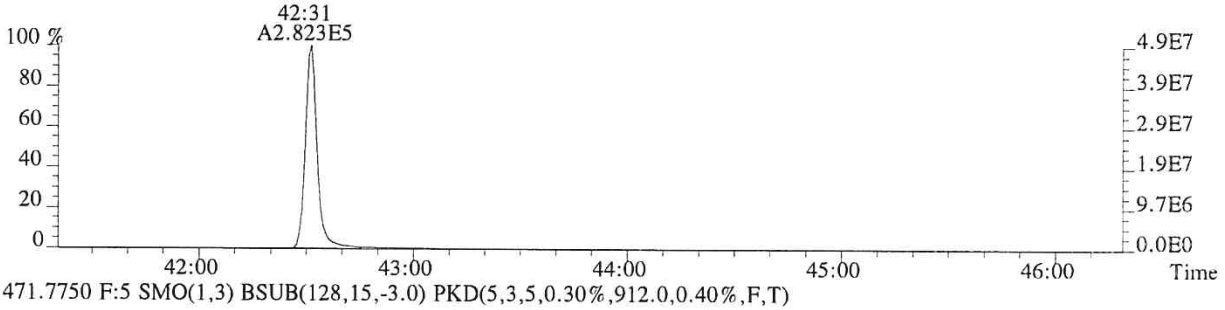
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



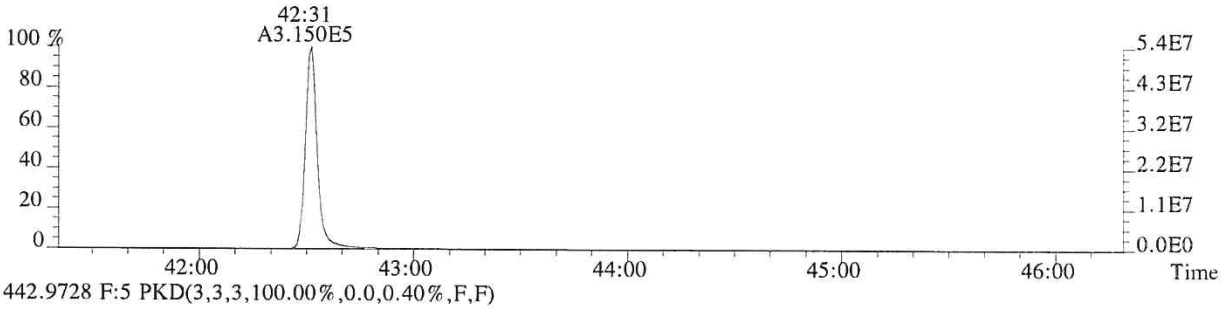
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



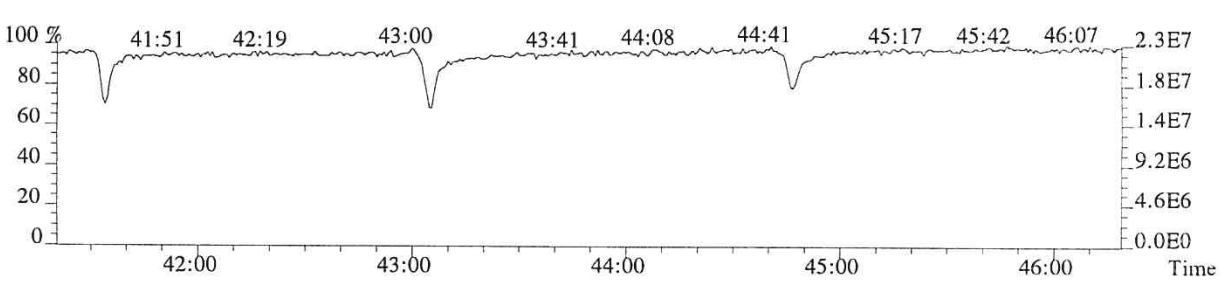
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012164

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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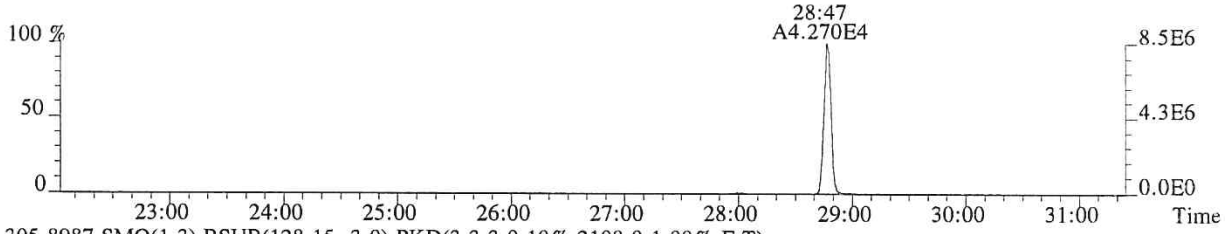
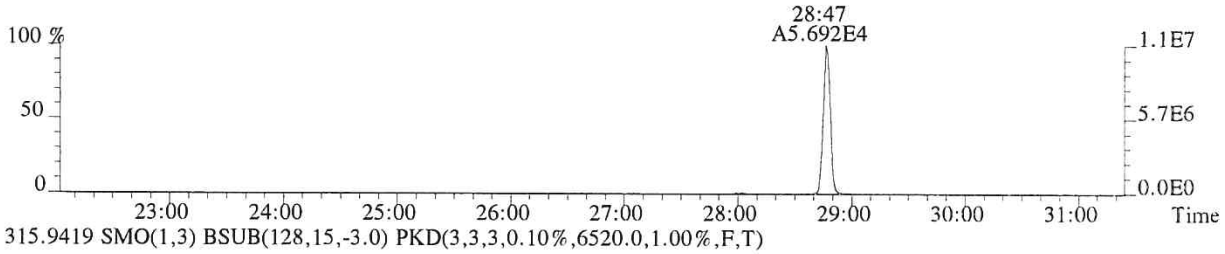
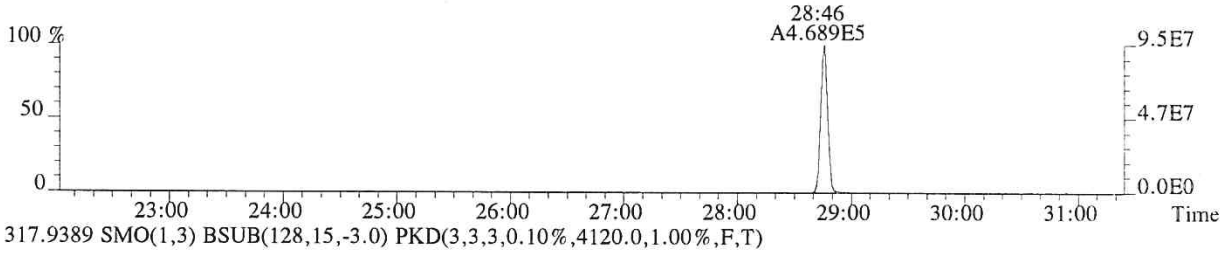
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



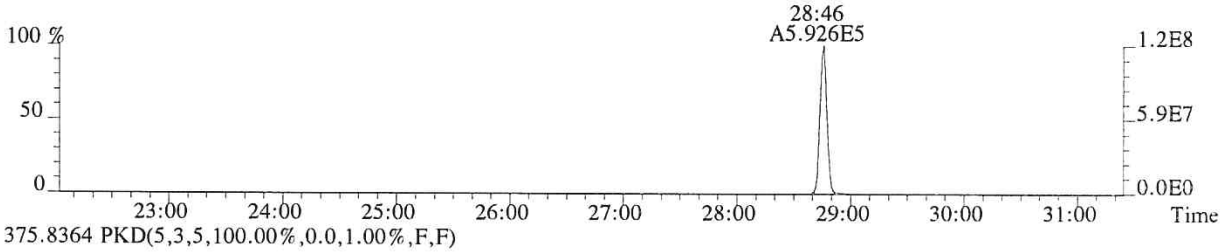
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



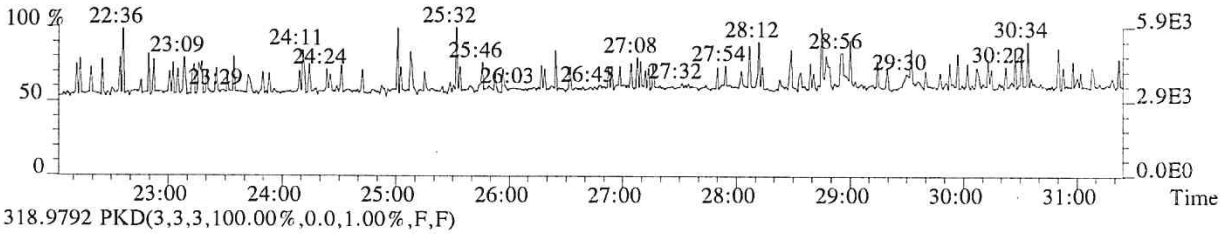
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



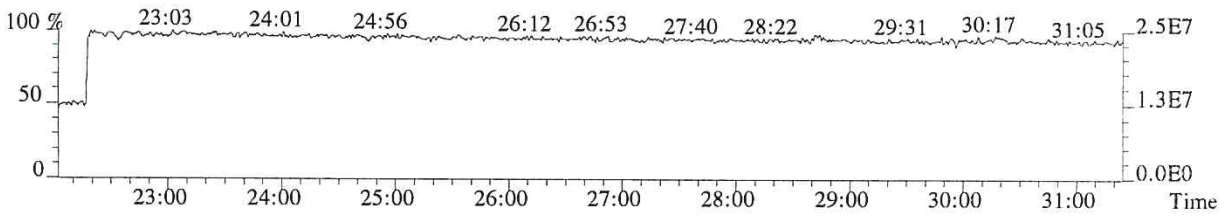
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

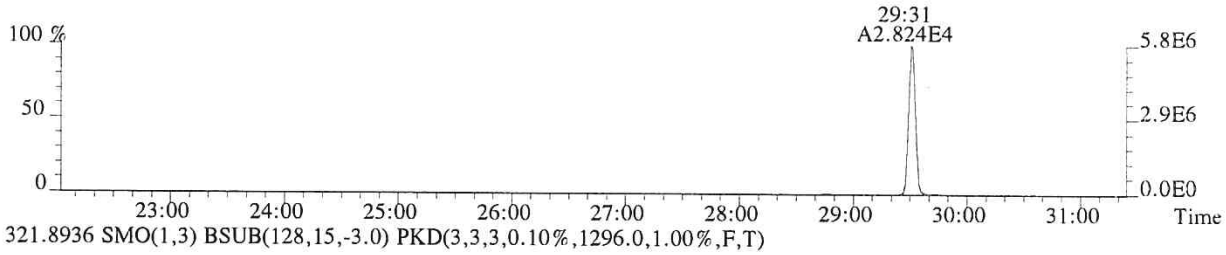


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

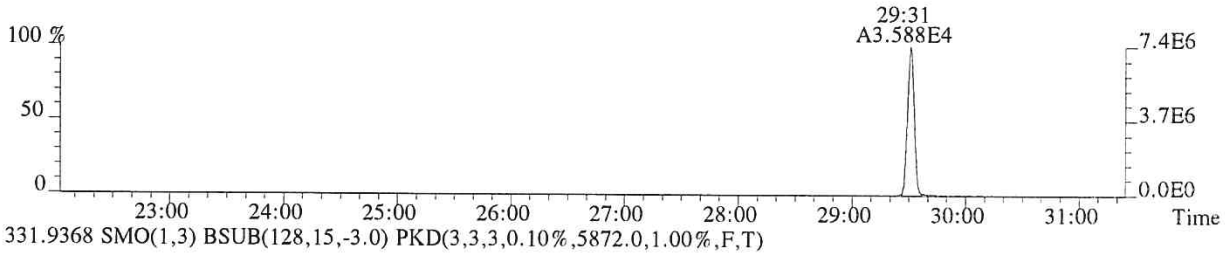


012167

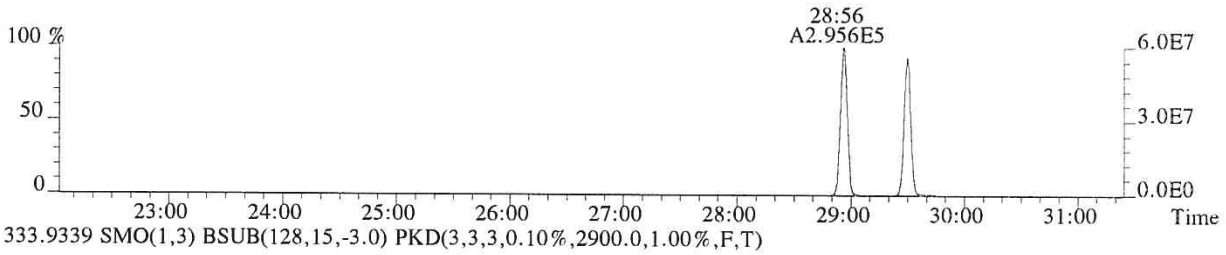
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



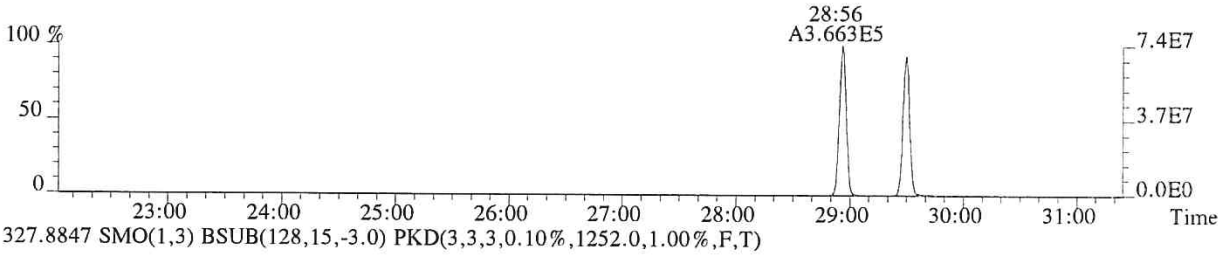
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



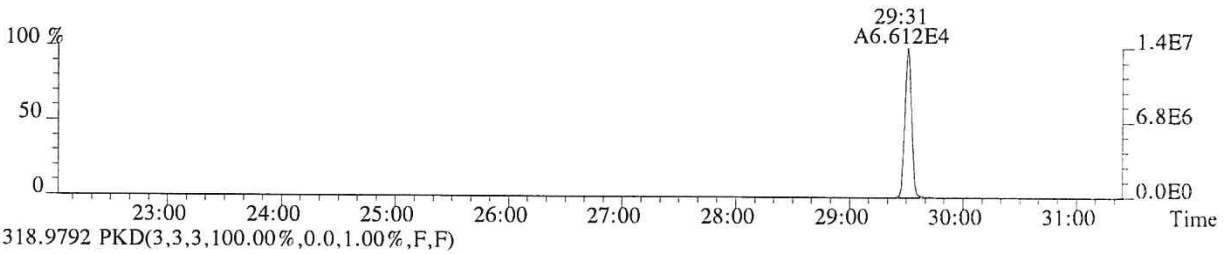
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



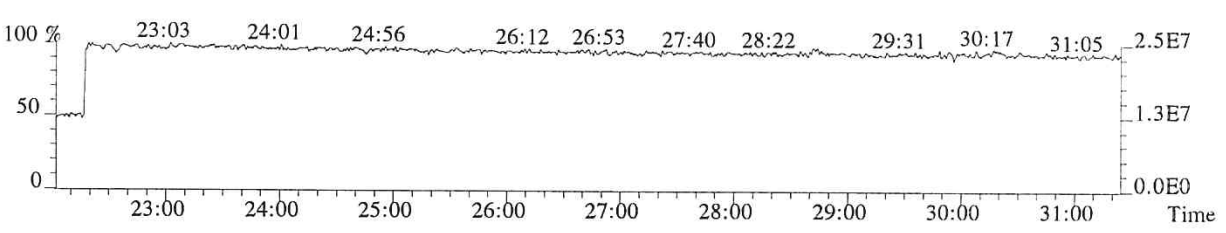
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)

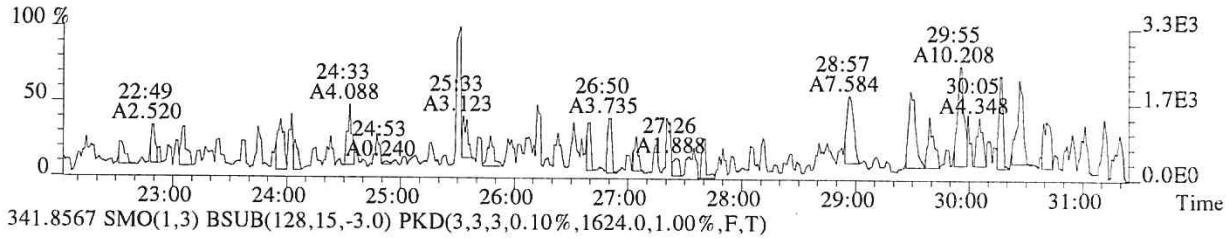


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

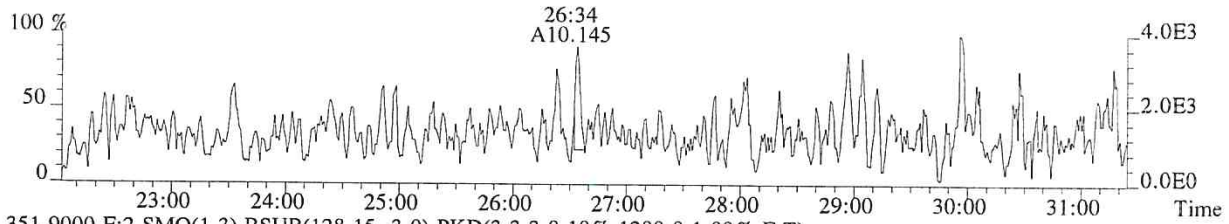


012168

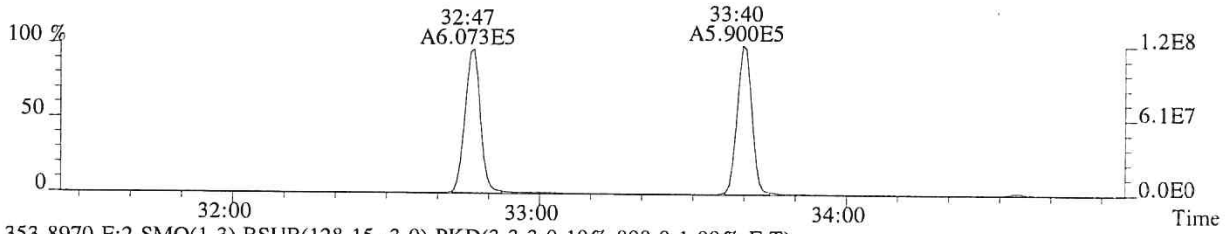
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



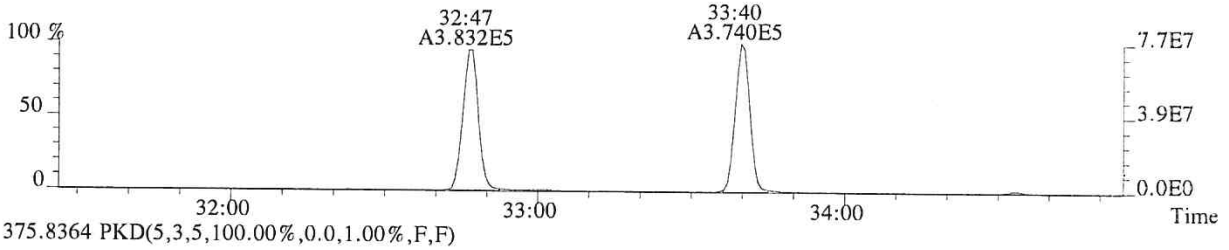
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



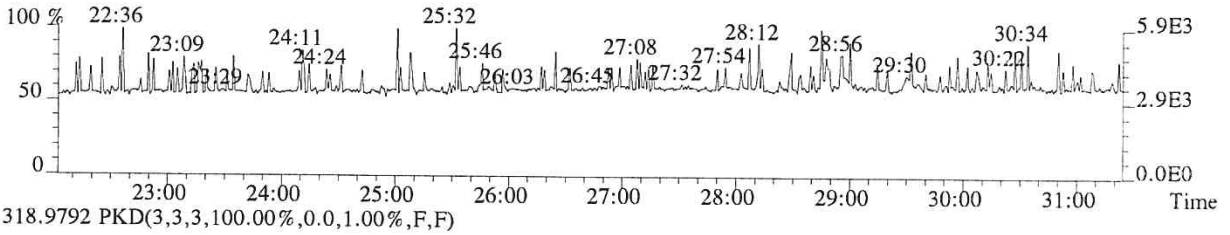
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



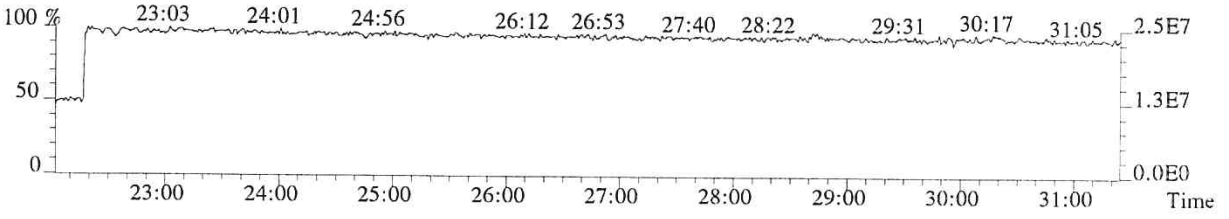
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

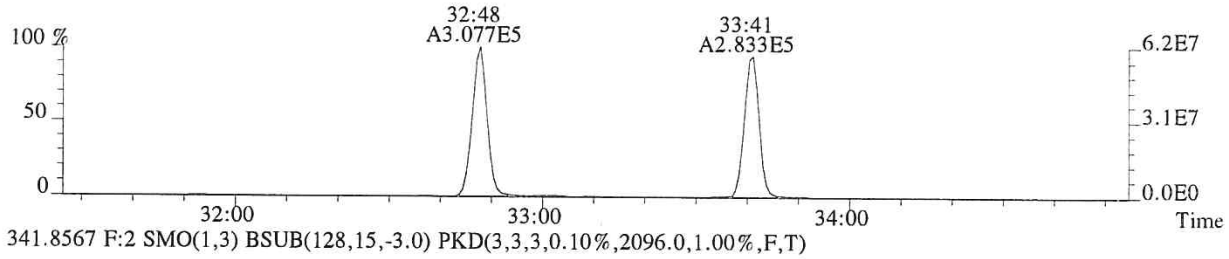


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

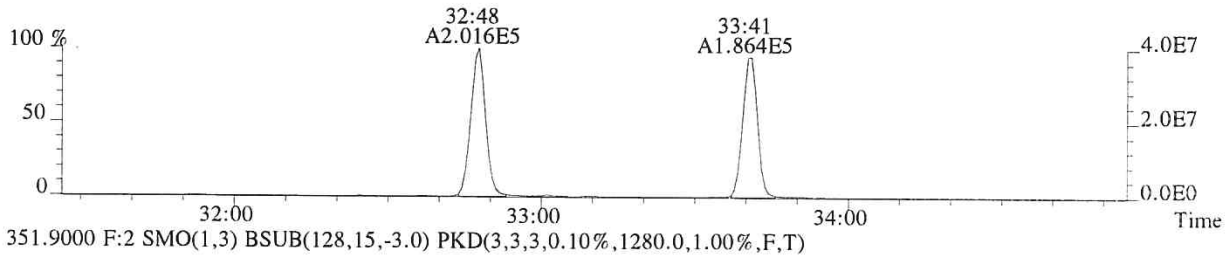


012169

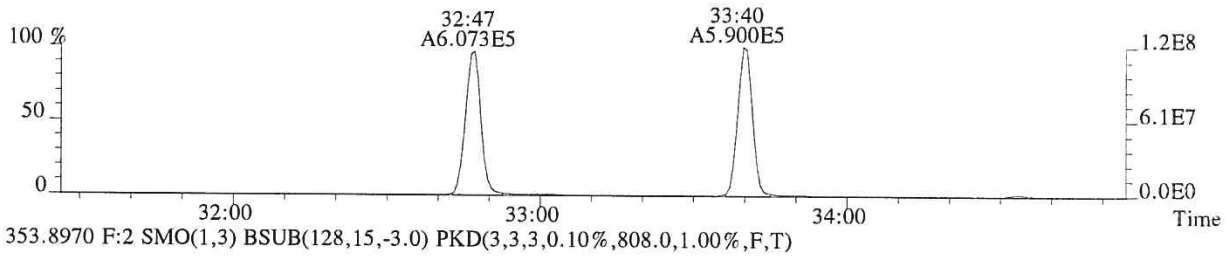
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



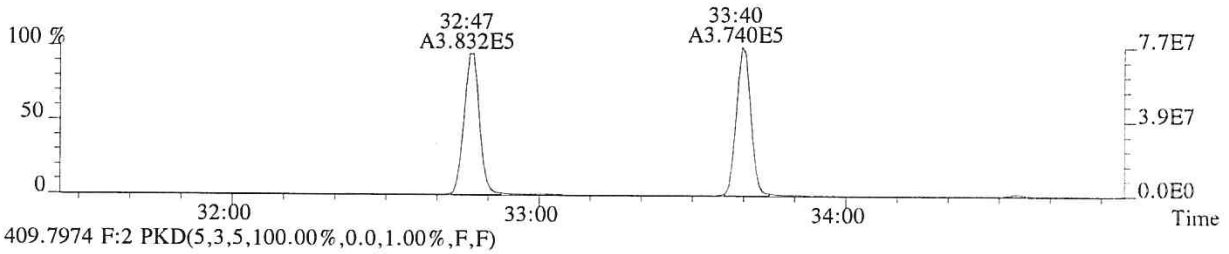
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



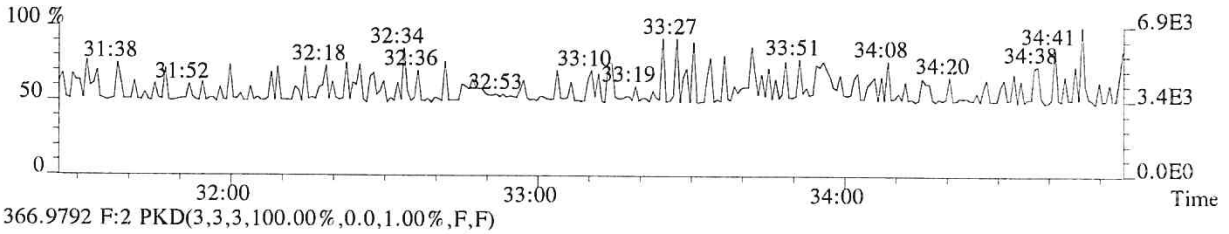
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



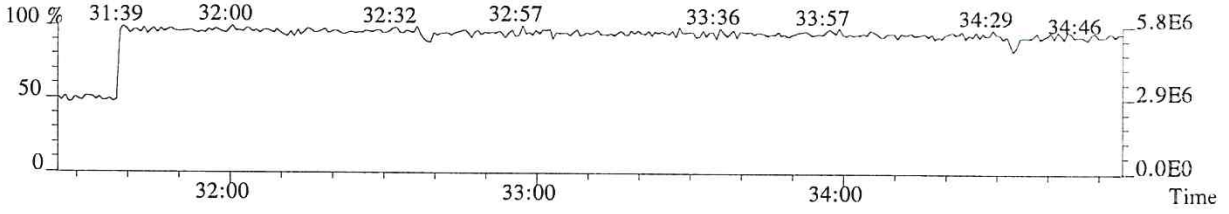
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

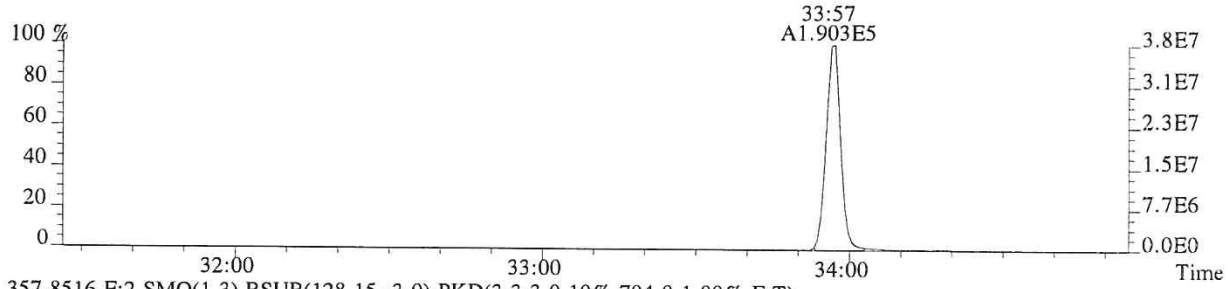


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

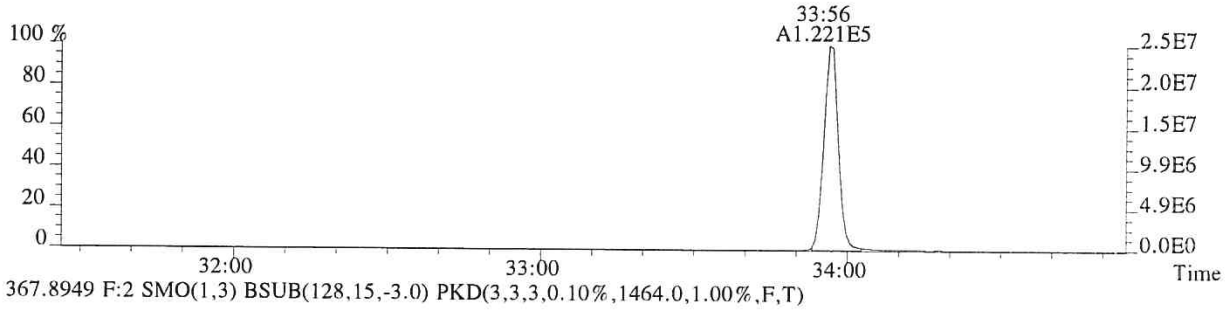


012170

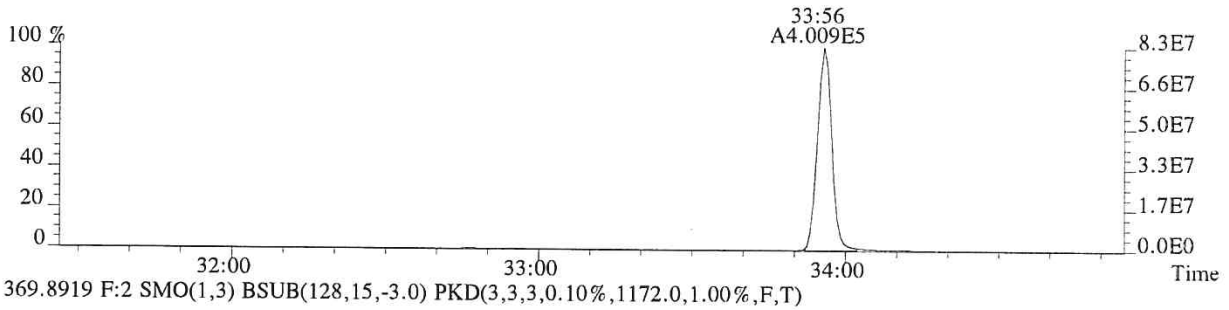
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



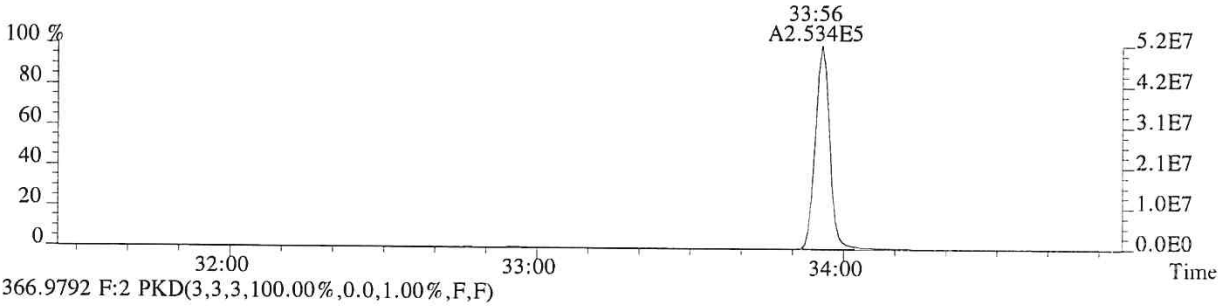
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



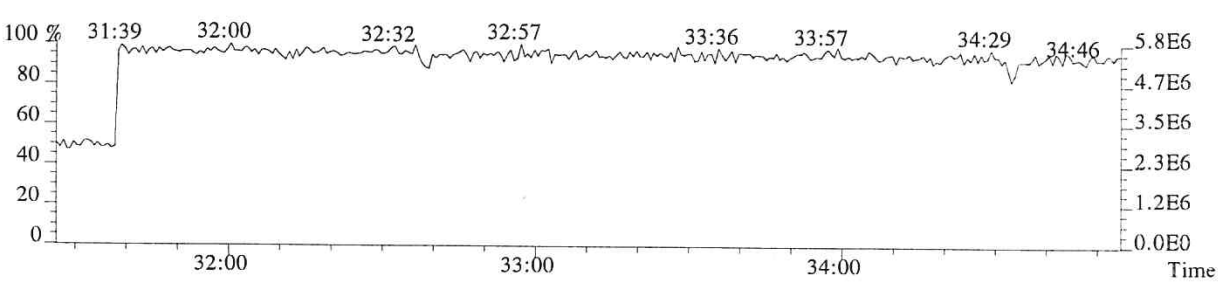
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



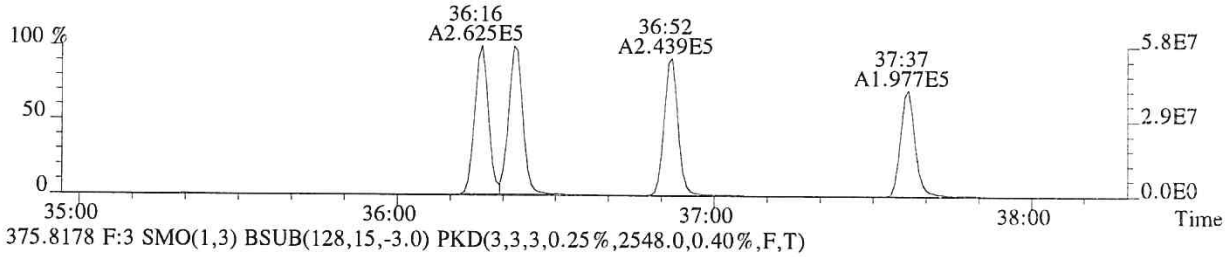
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



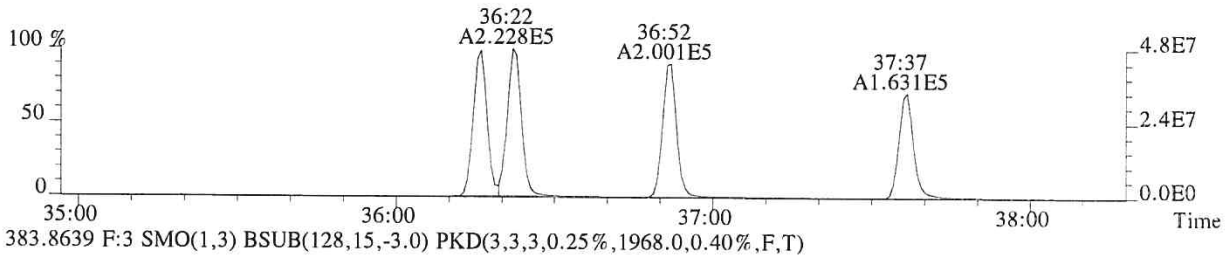
012171

File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76557

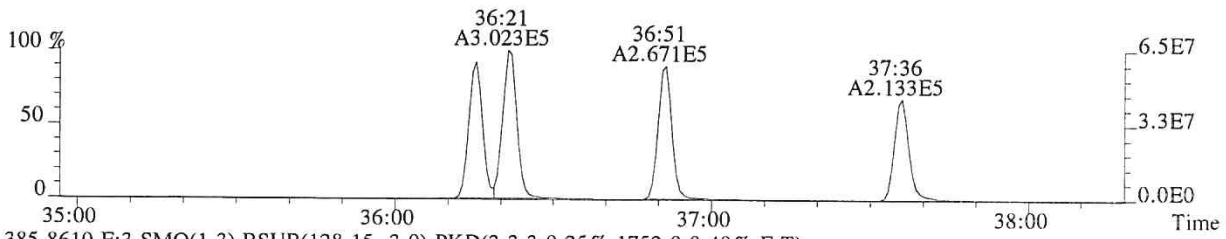
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



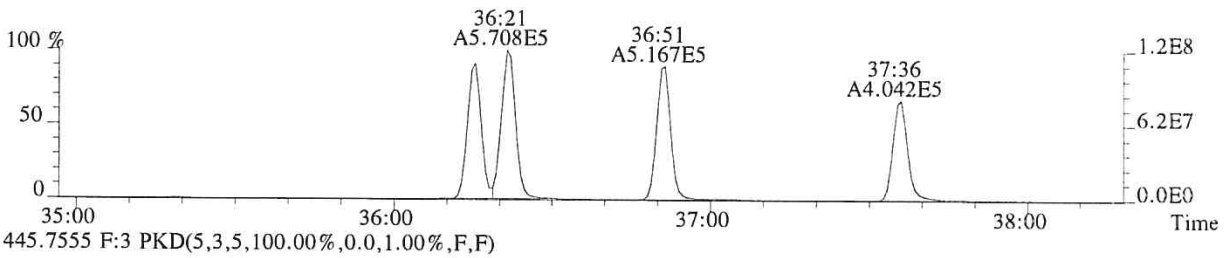
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



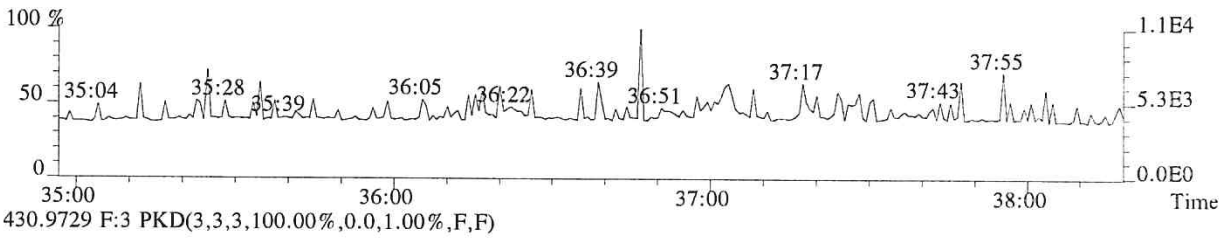
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



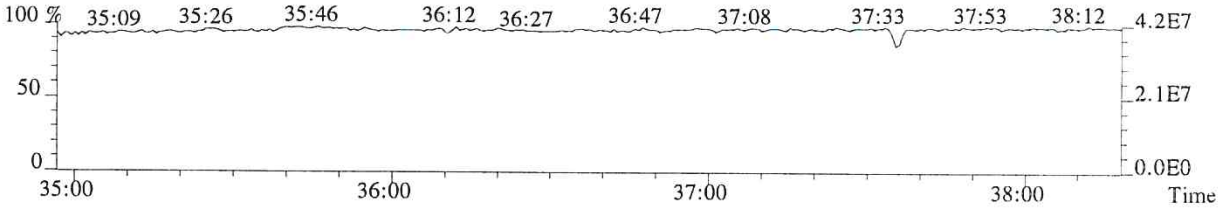
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

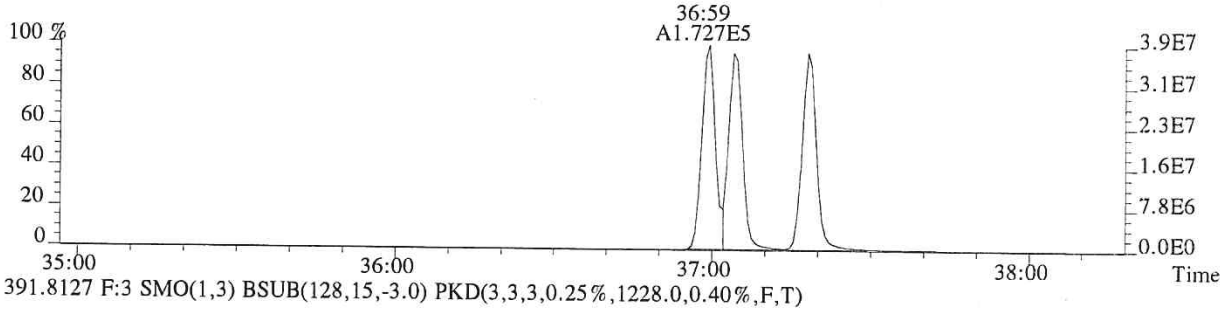


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

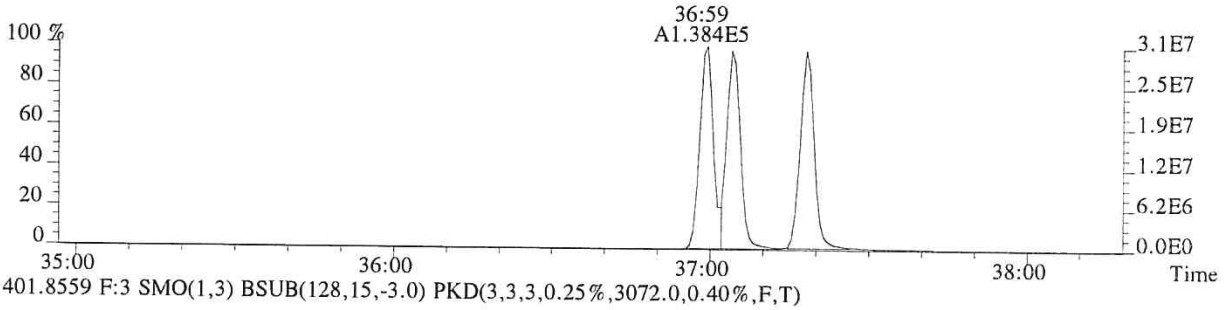


012172

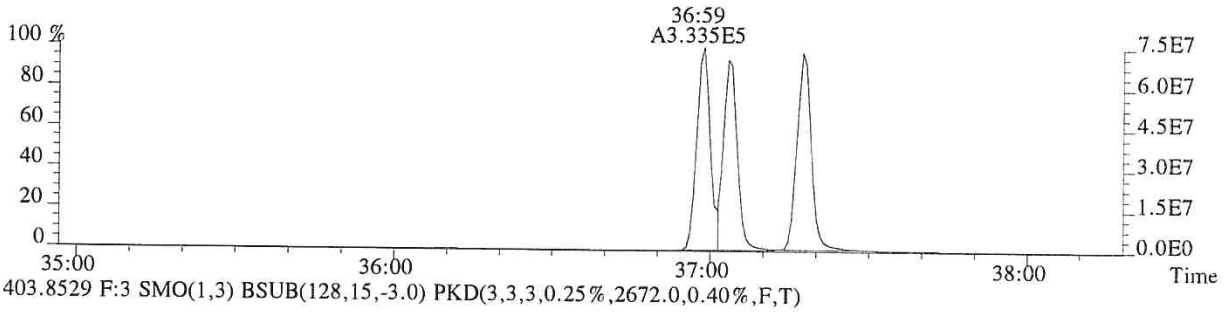
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



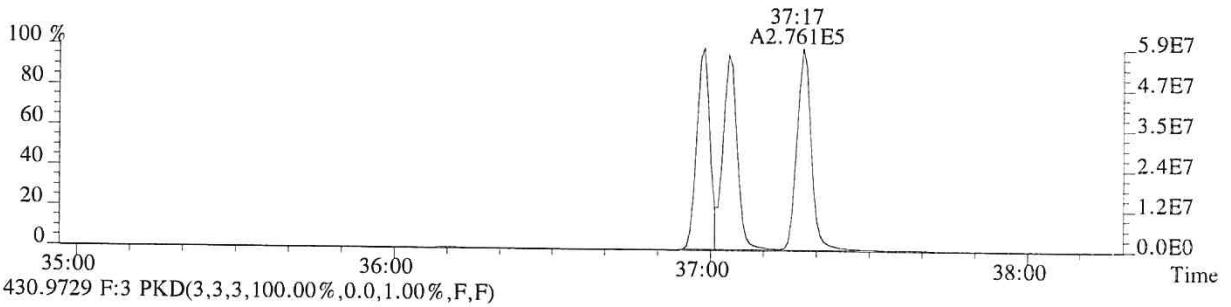
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



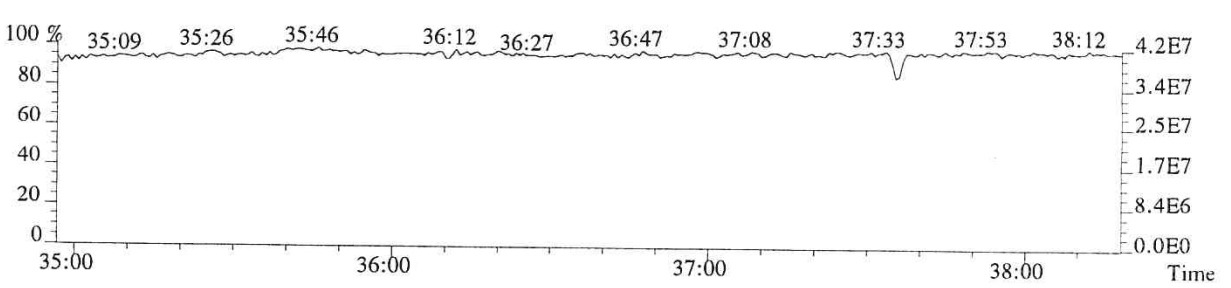
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)

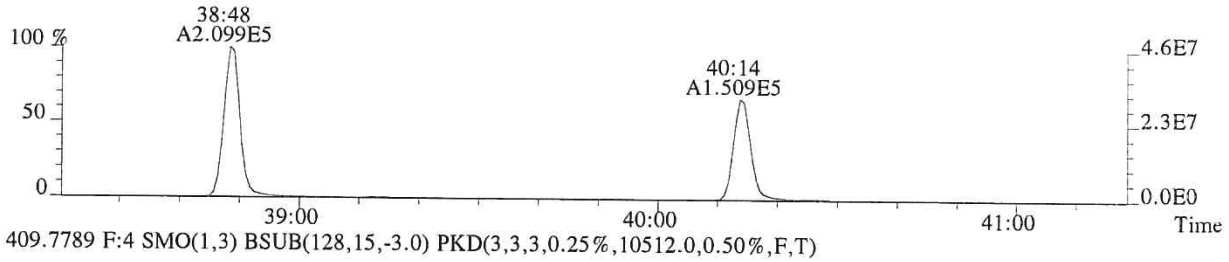


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

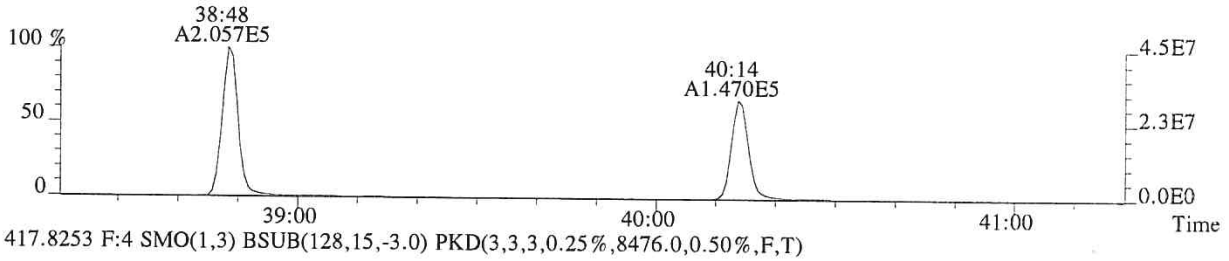


012173

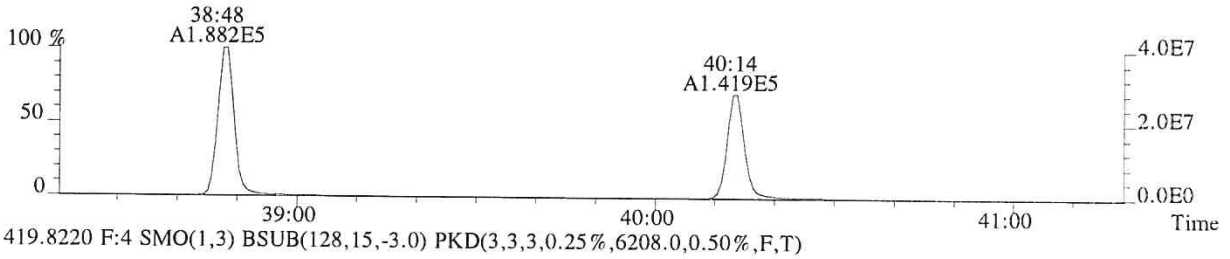
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



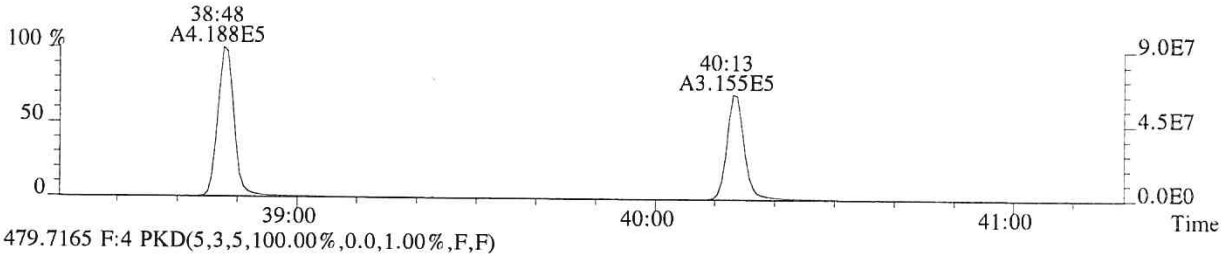
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



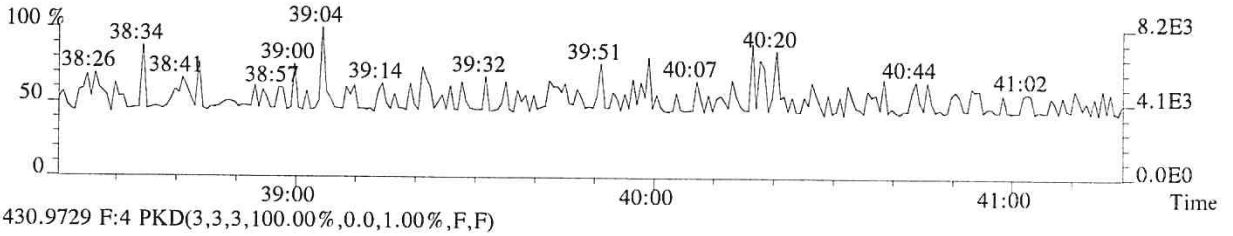
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



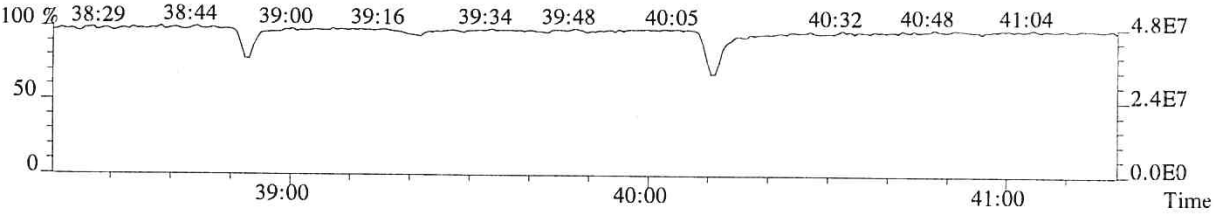
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

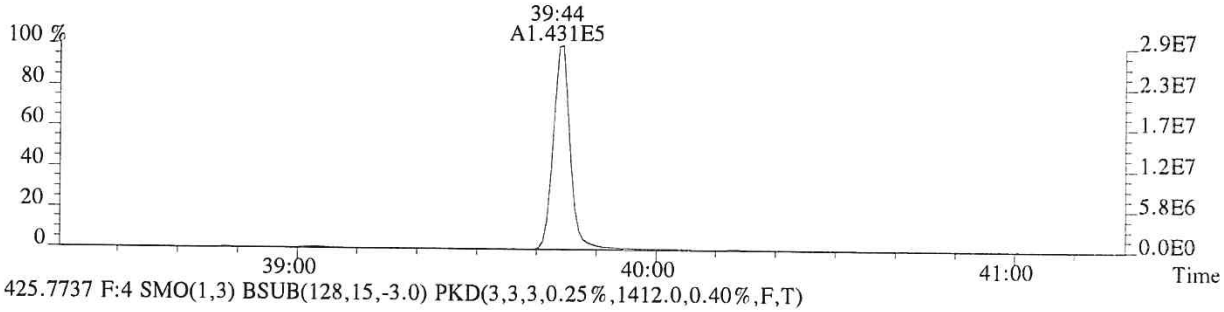


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

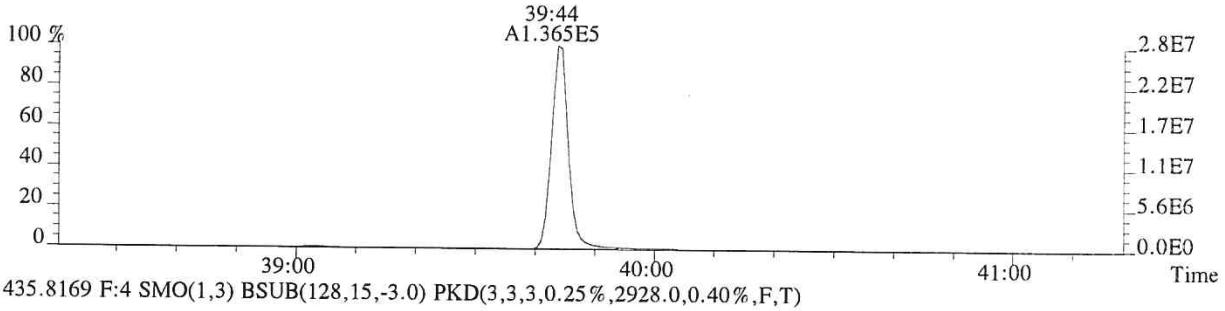


012174

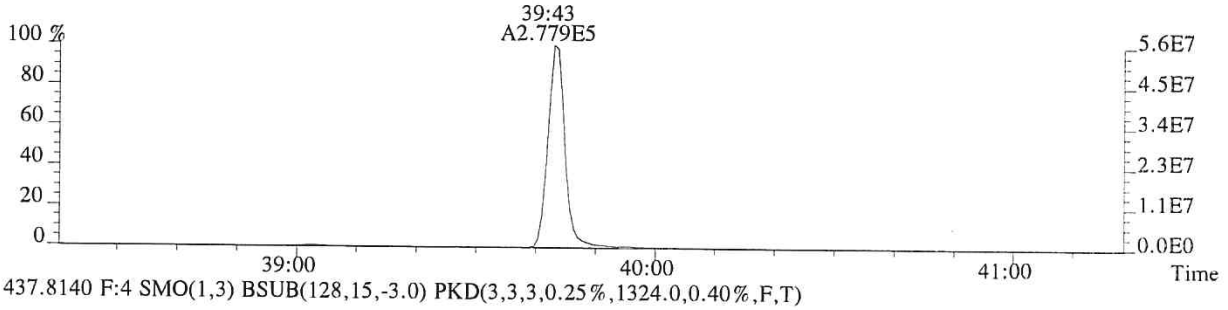
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



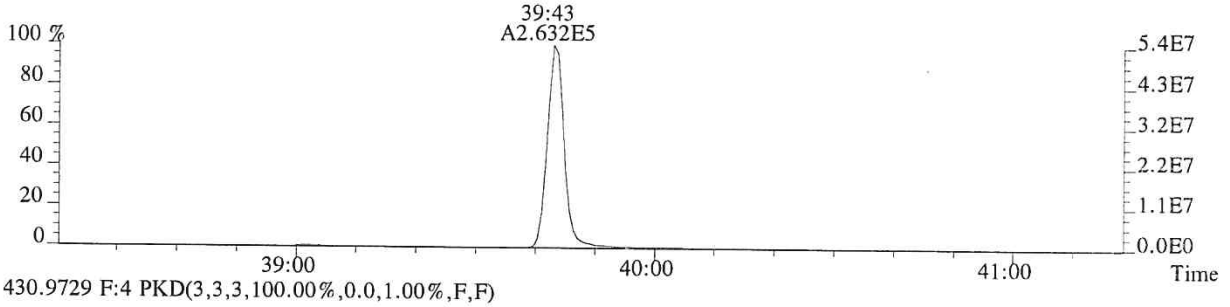
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



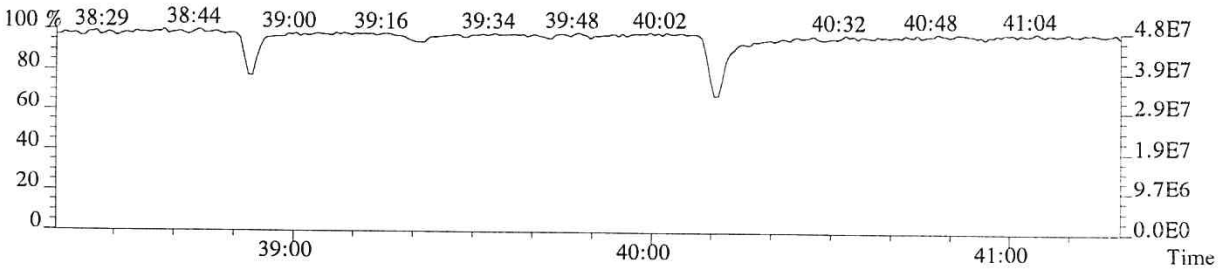
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)

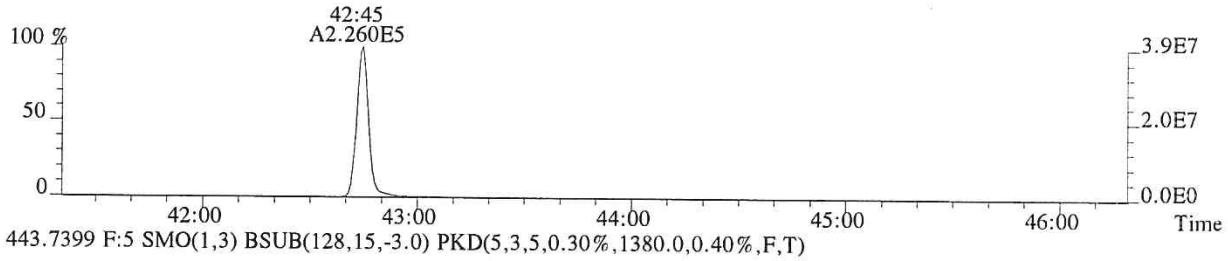


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

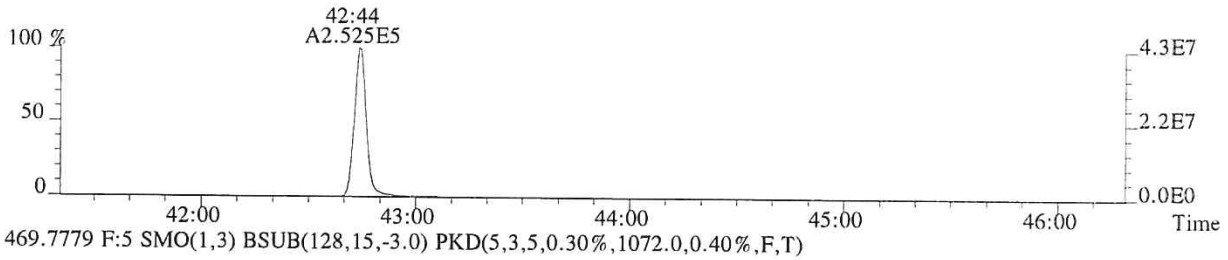


012175

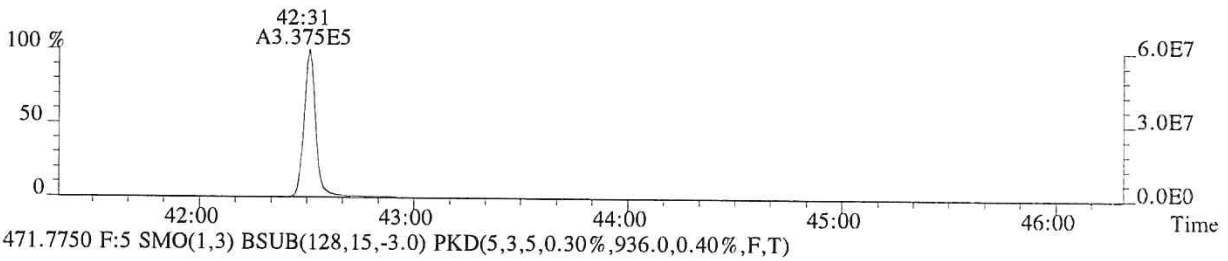
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



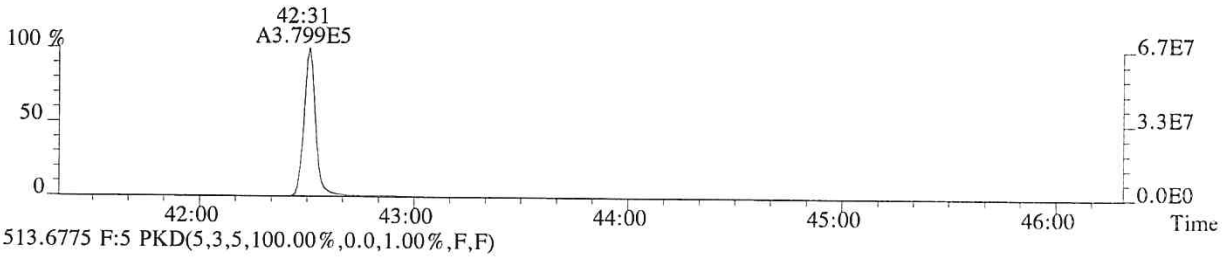
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



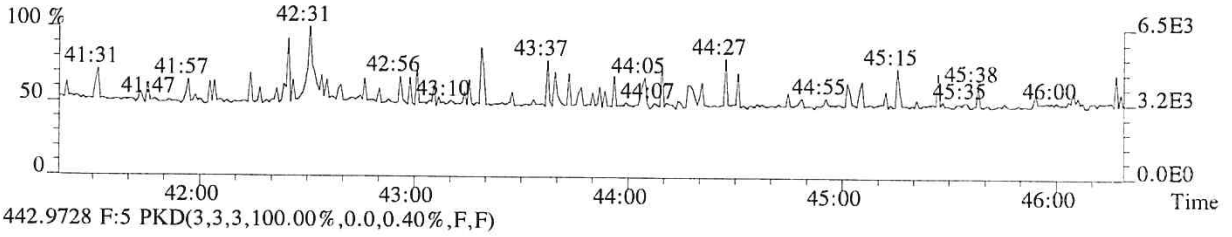
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



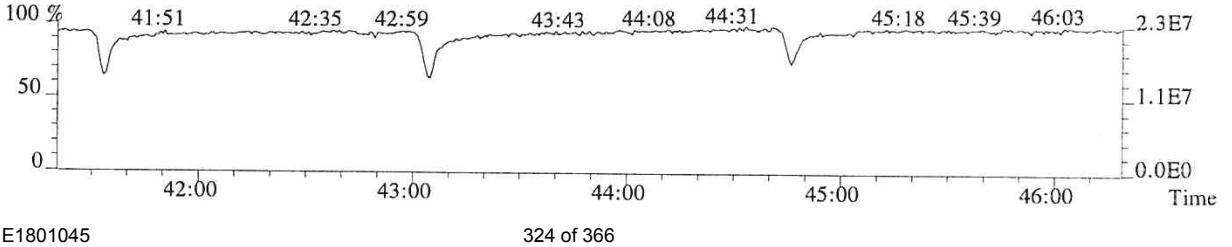
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

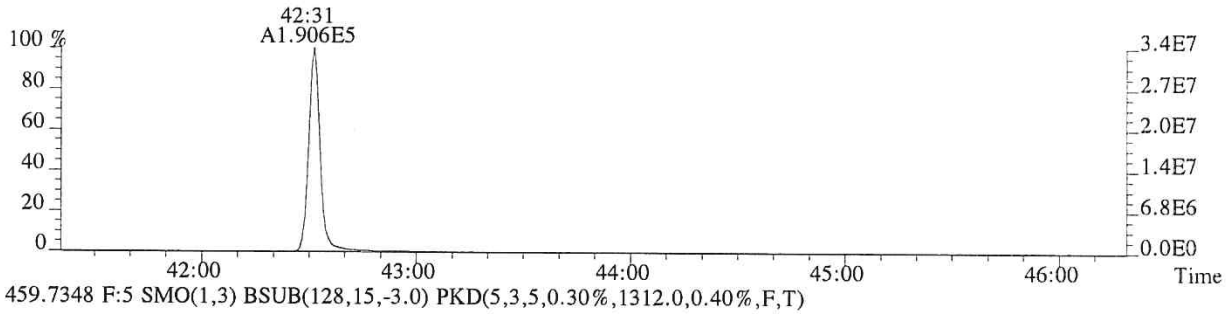


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

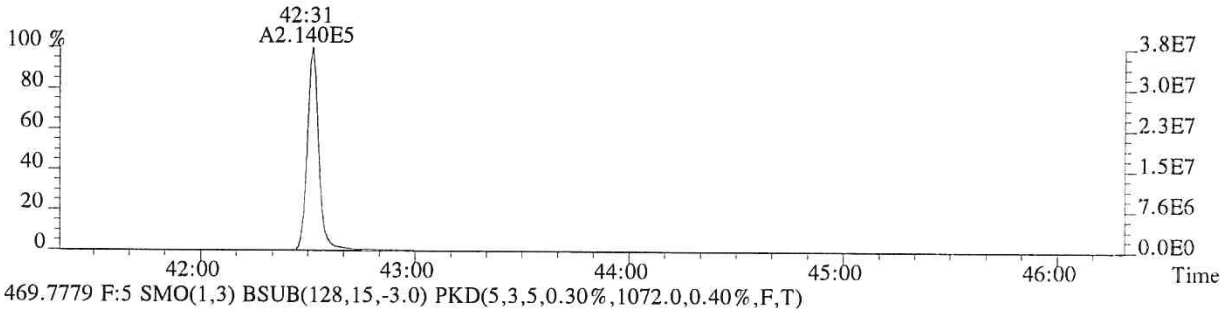


012176

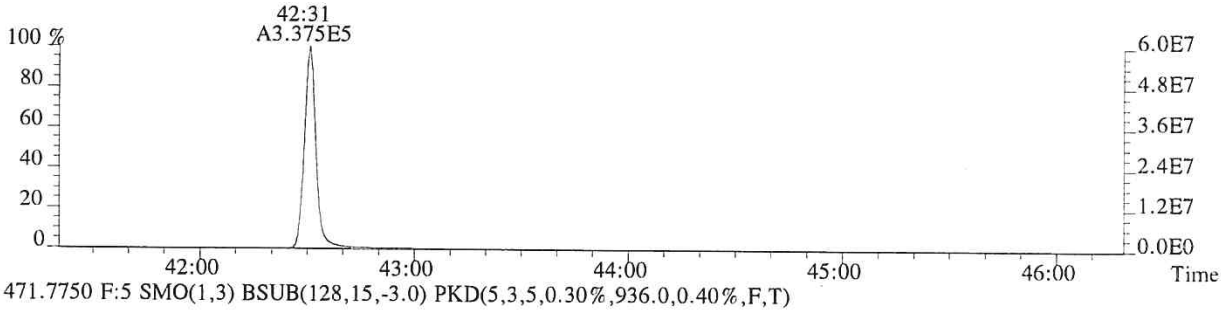
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



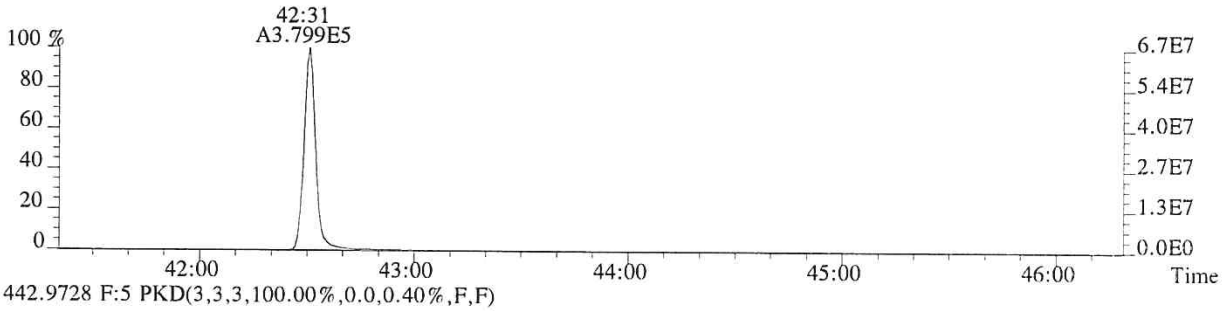
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



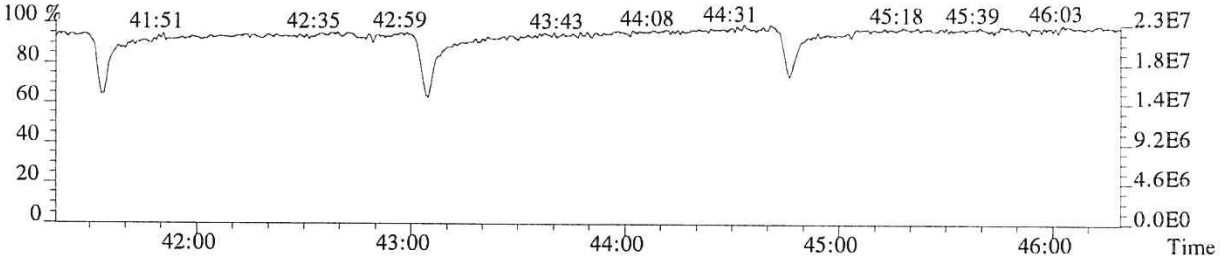
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012177

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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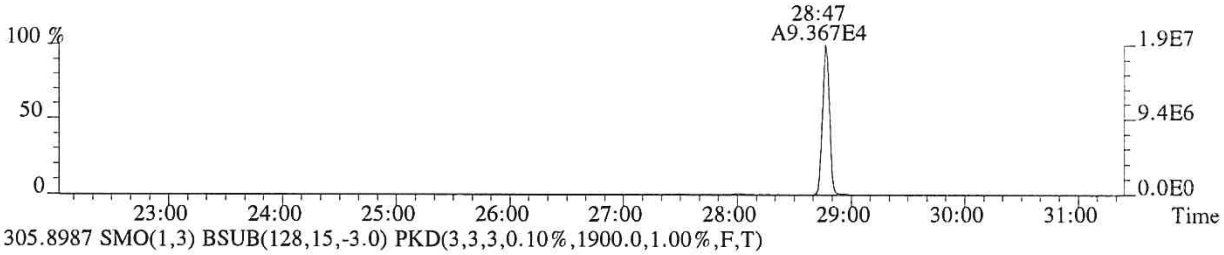
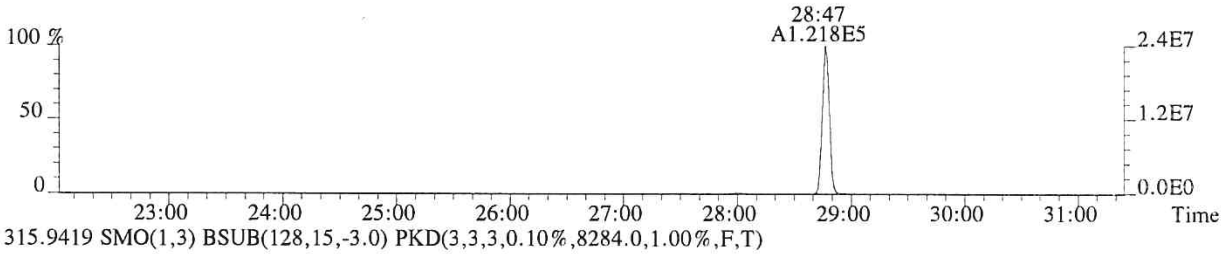
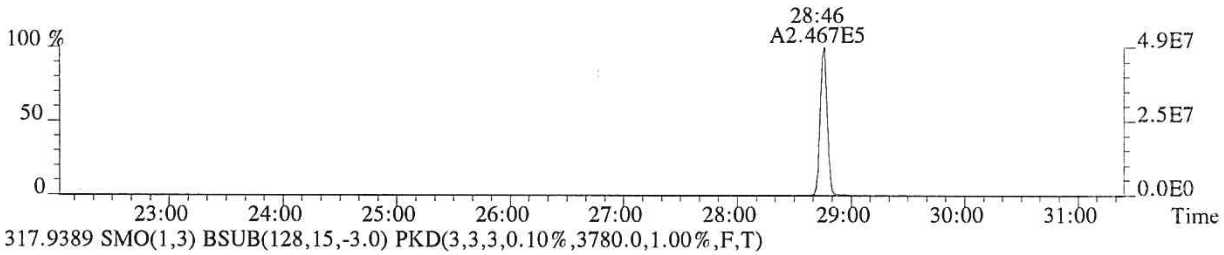
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



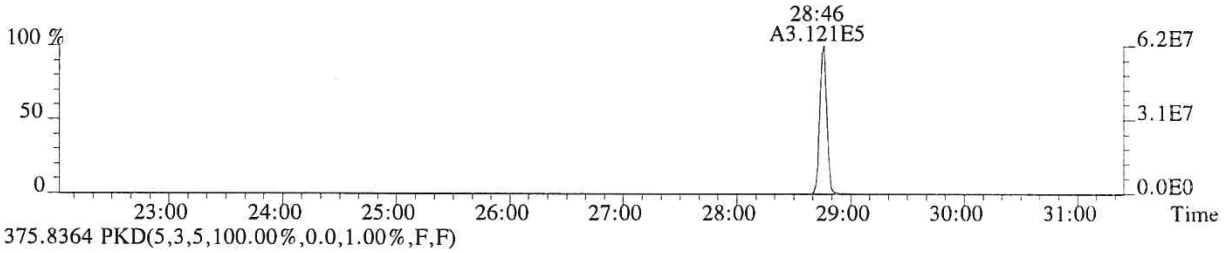
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



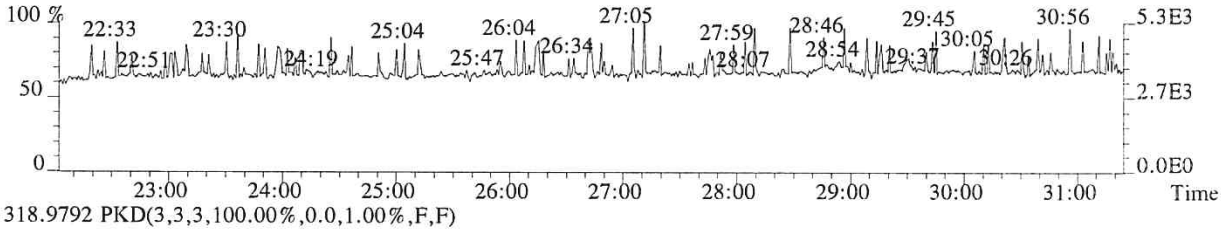
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



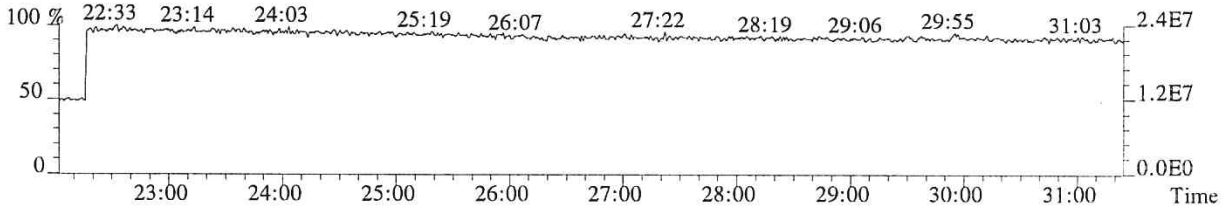
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

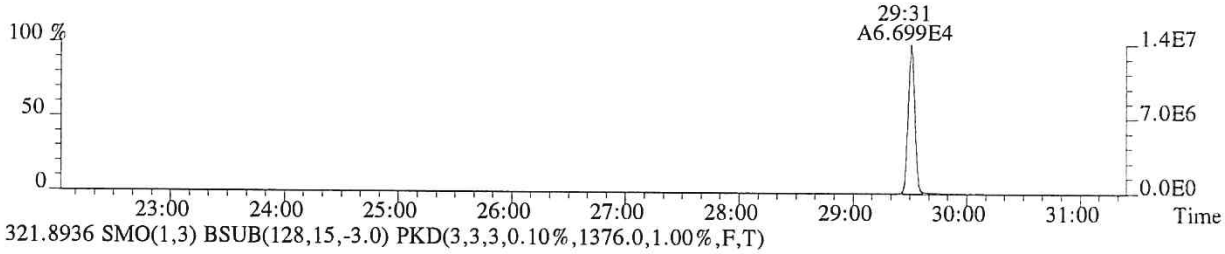


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

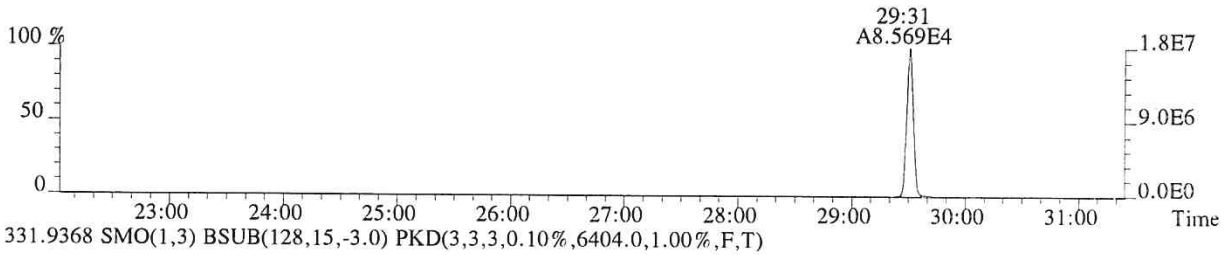


012180

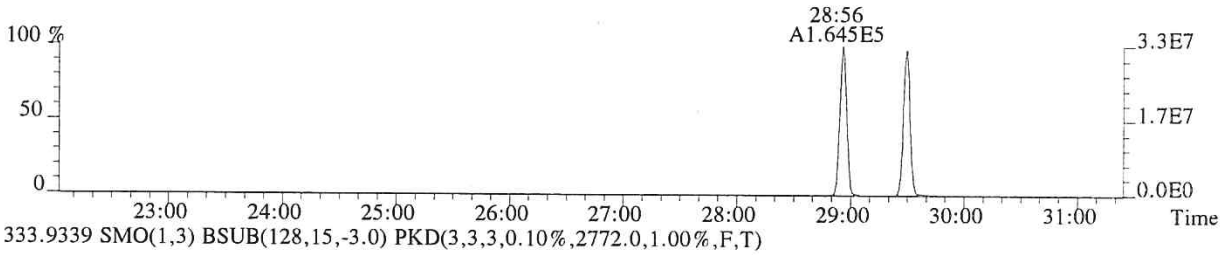
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



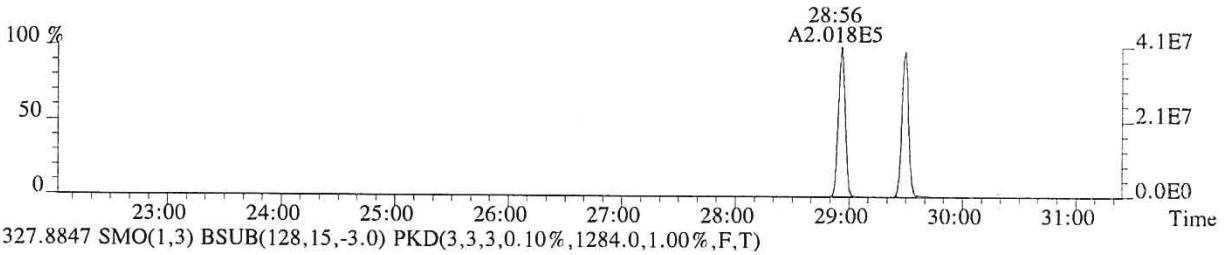
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



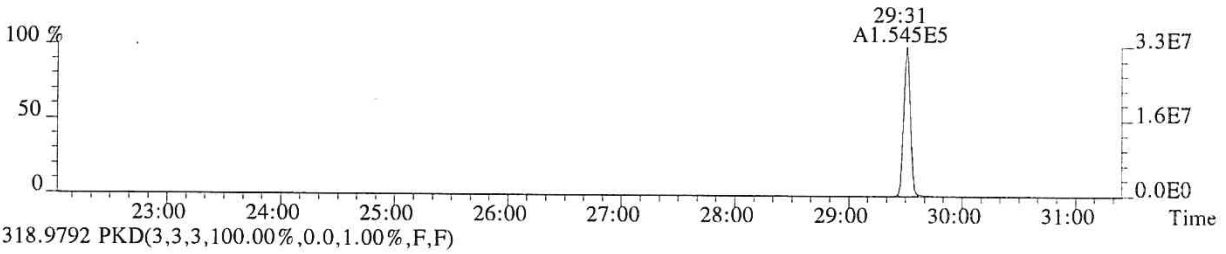
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



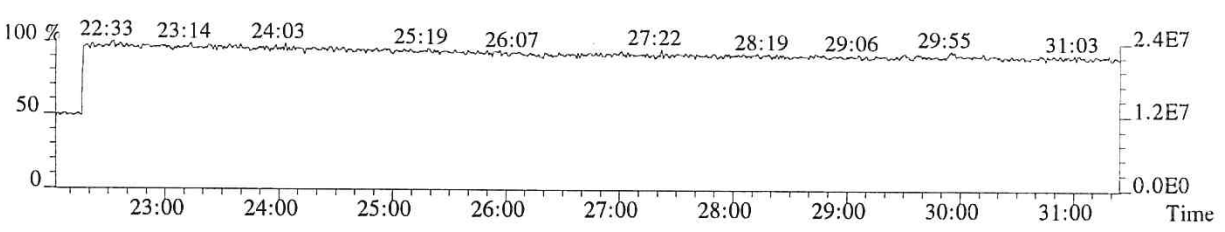
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)

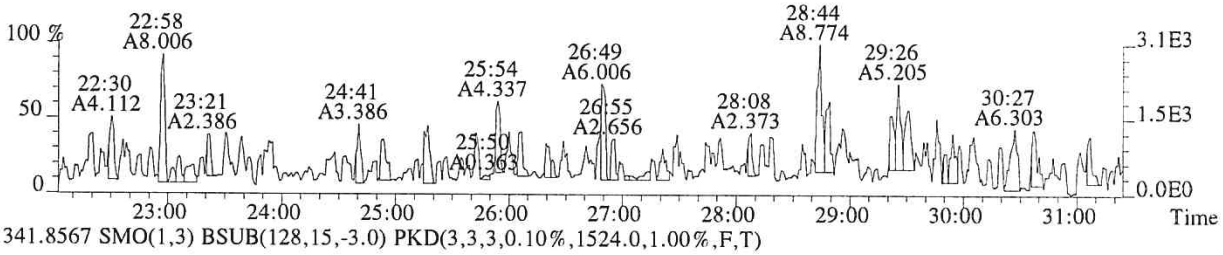


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

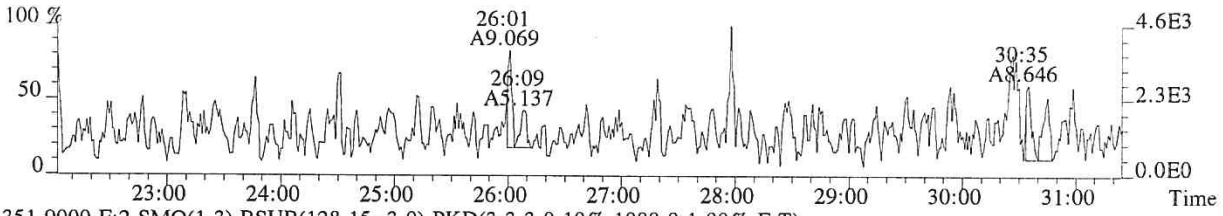


012181

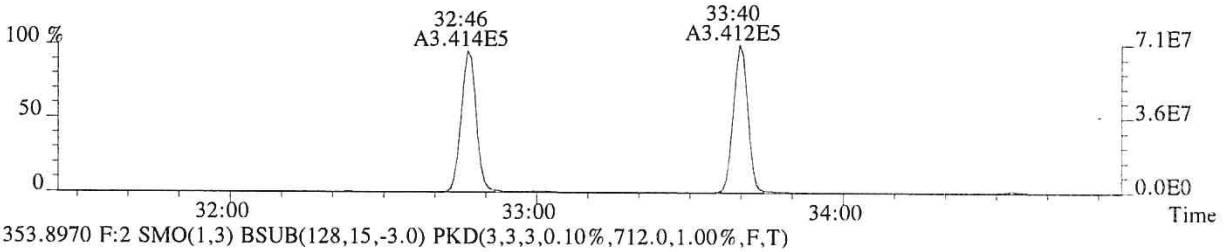
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



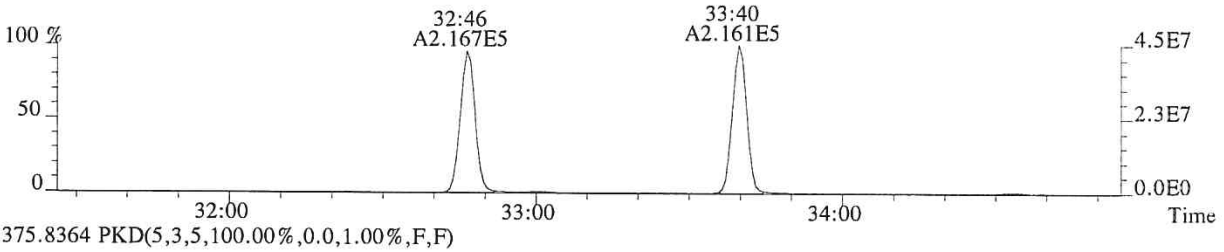
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



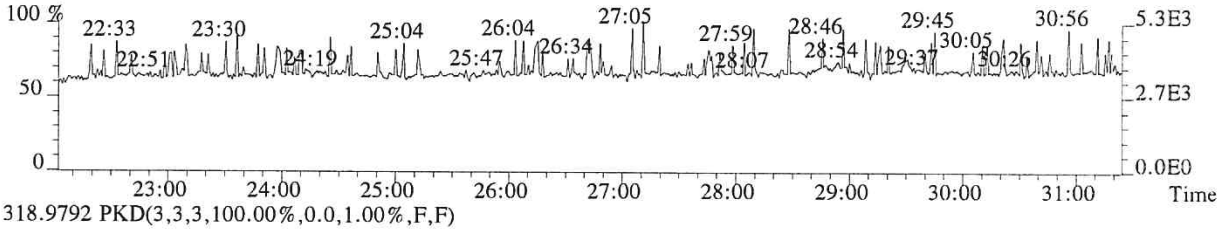
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



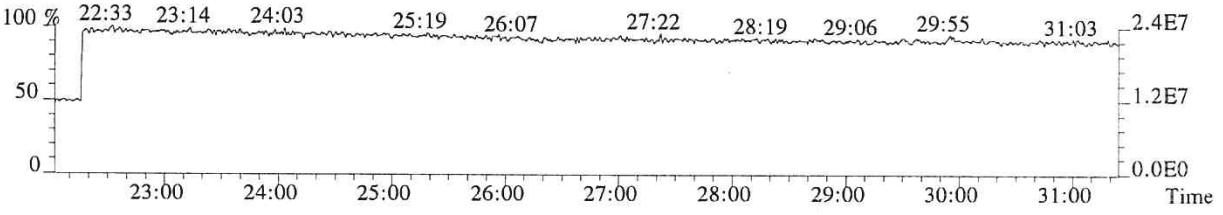
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

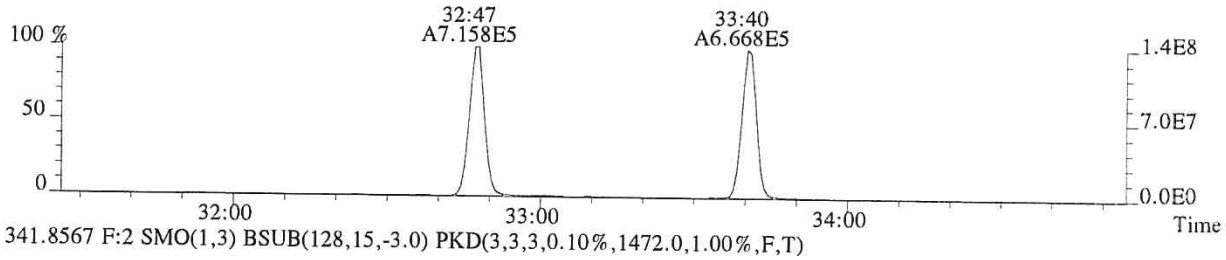


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

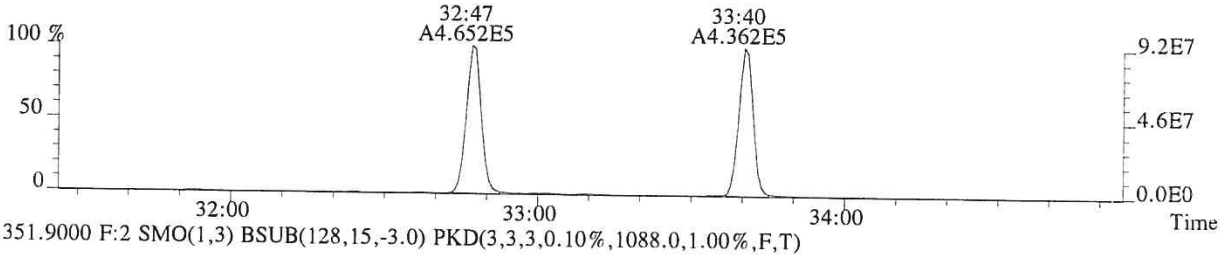


012182

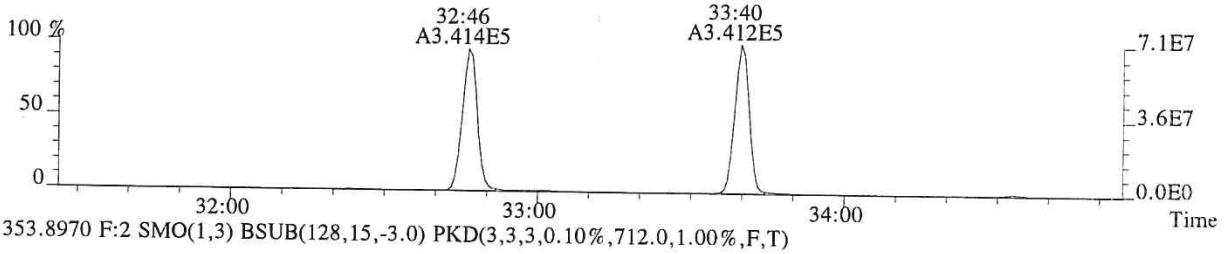
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



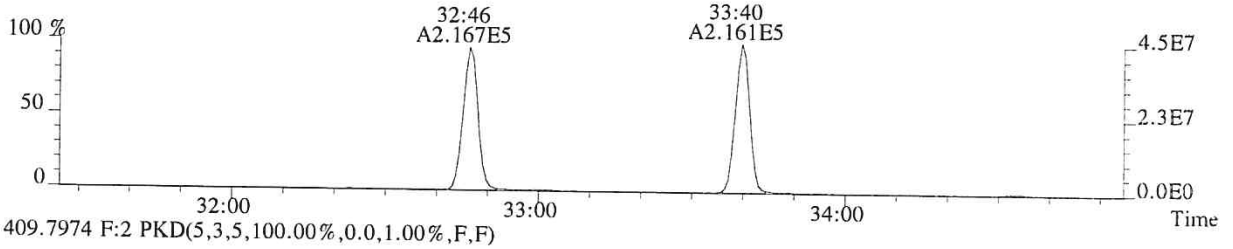
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



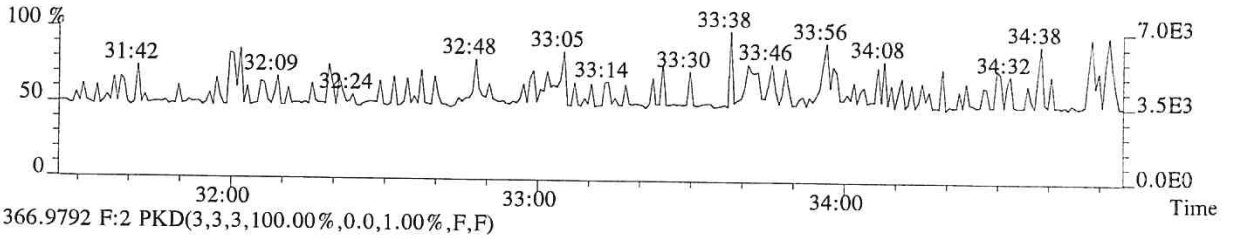
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



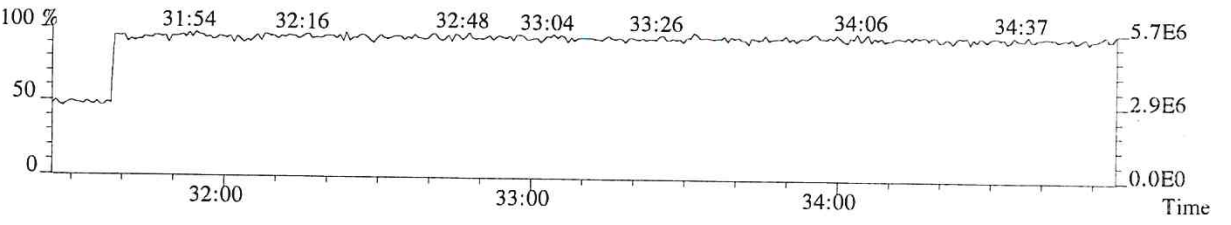
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

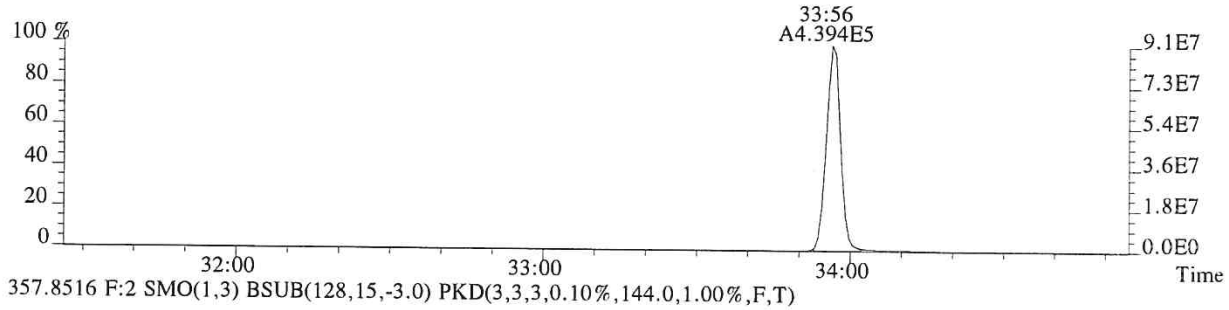


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

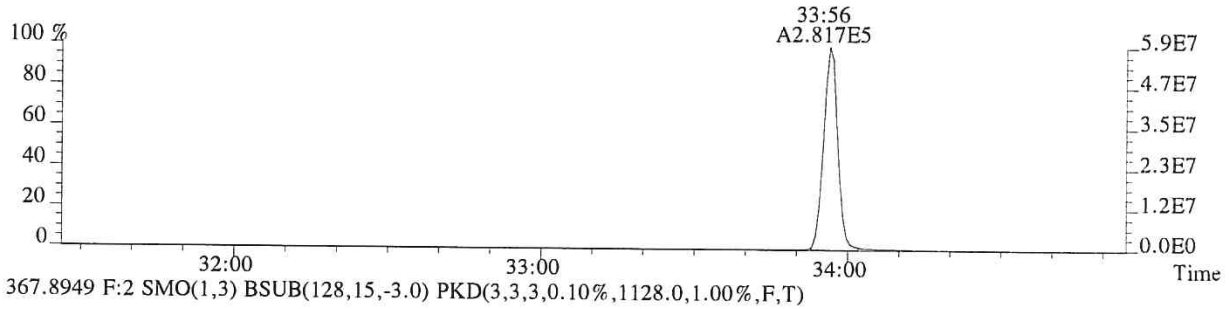


012183

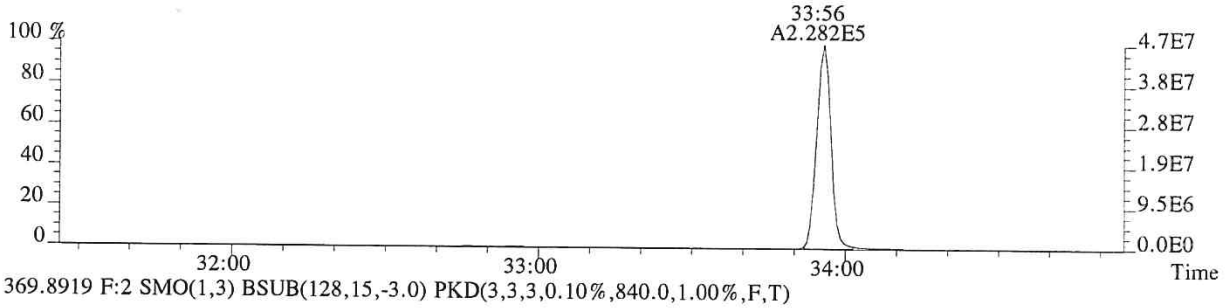
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



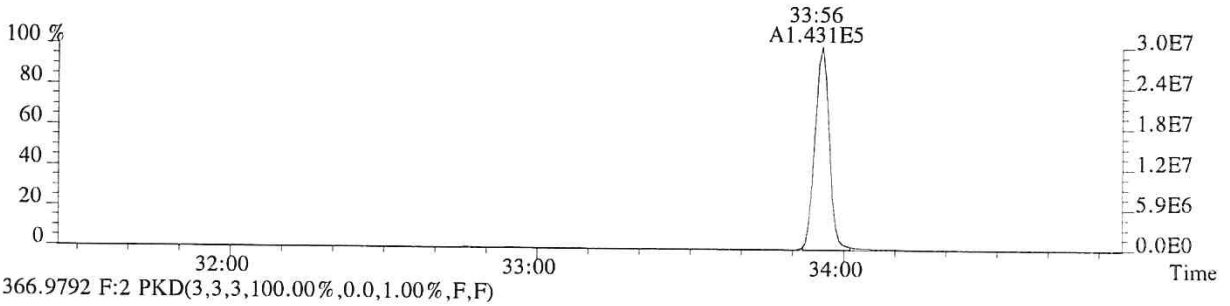
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



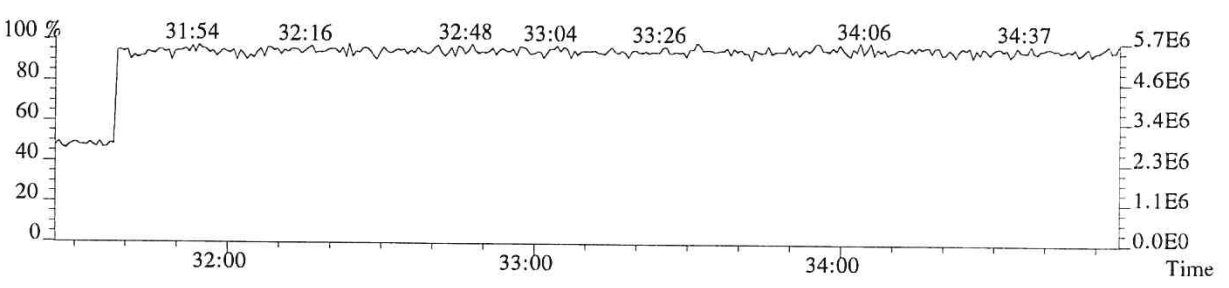
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



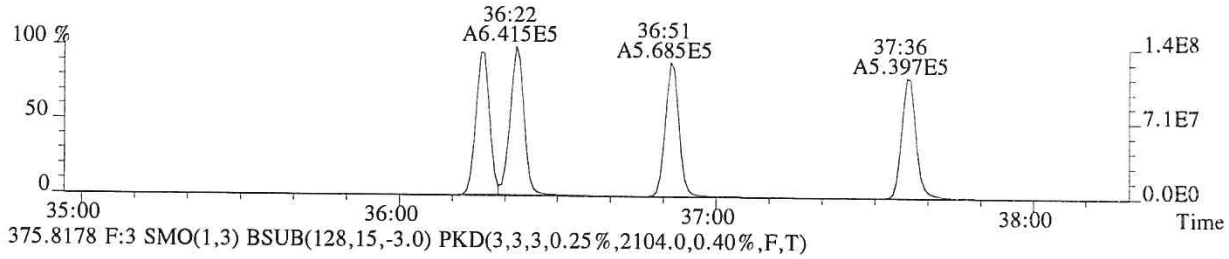
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



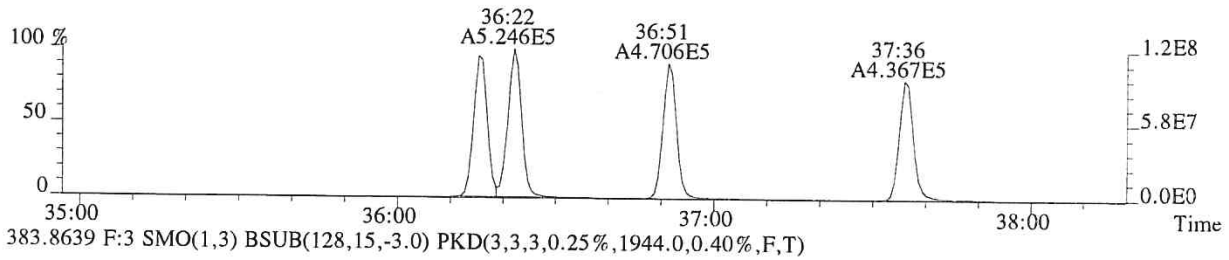
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



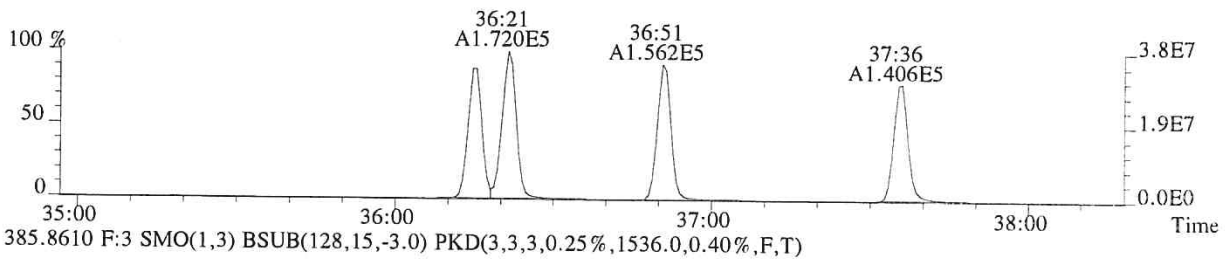
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



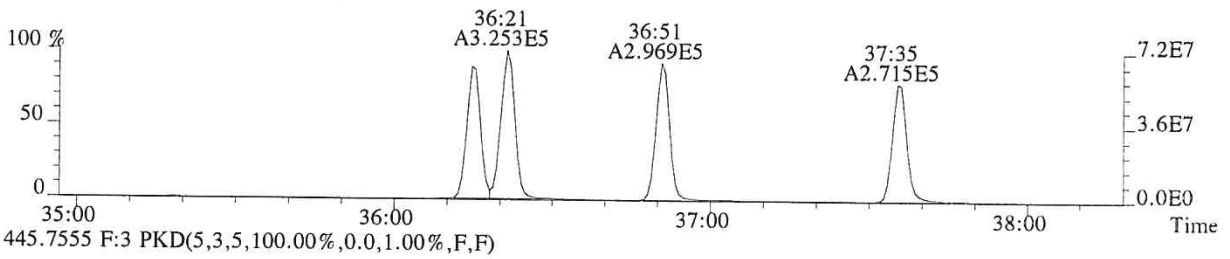
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



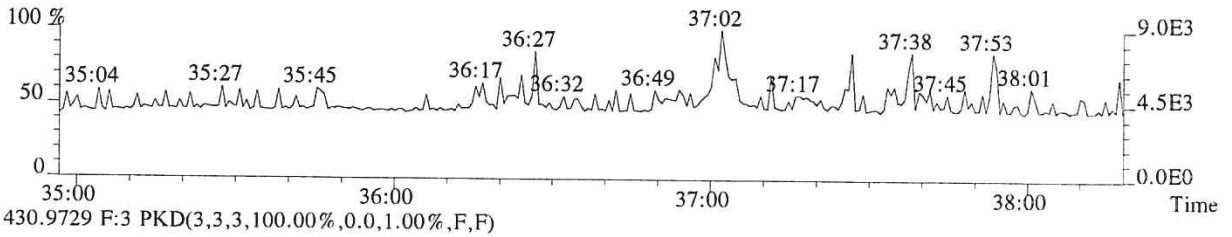
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



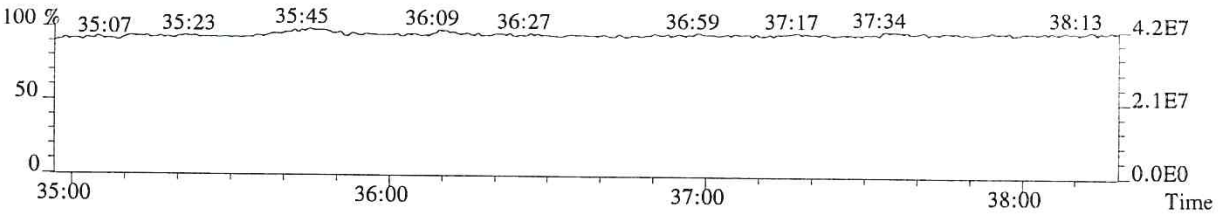
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

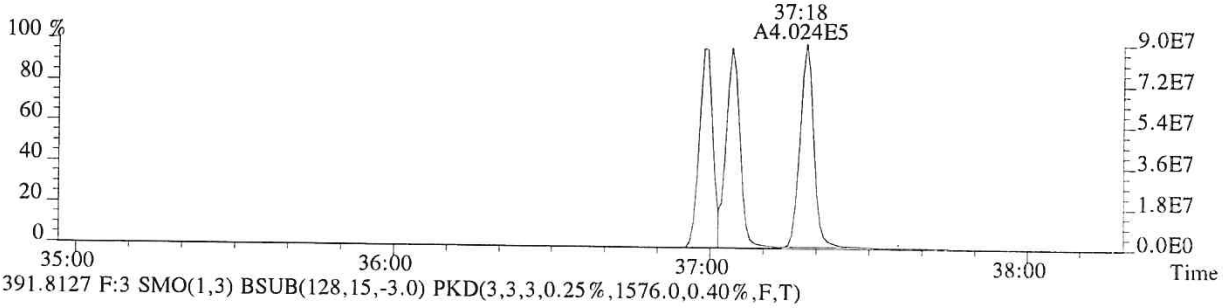


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

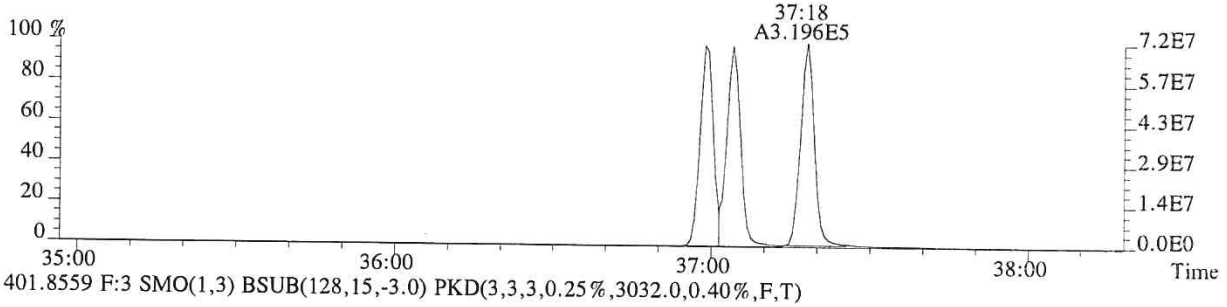


012185

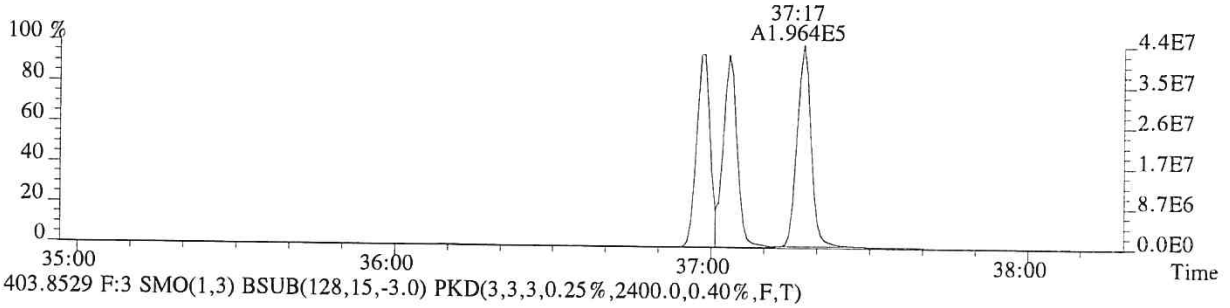
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



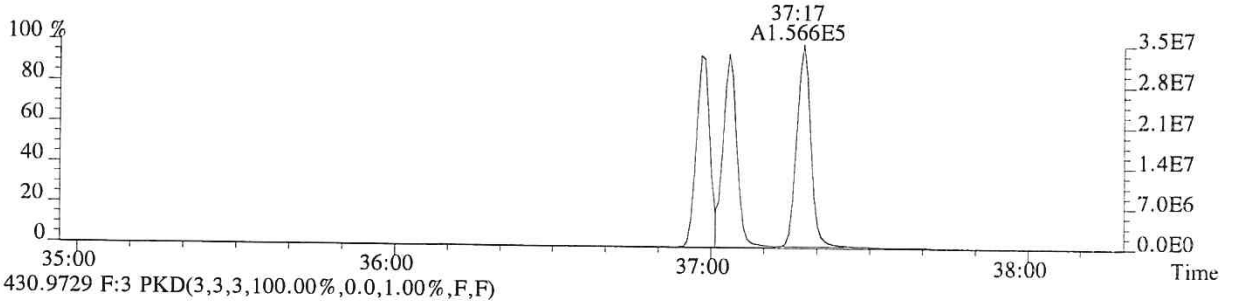
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



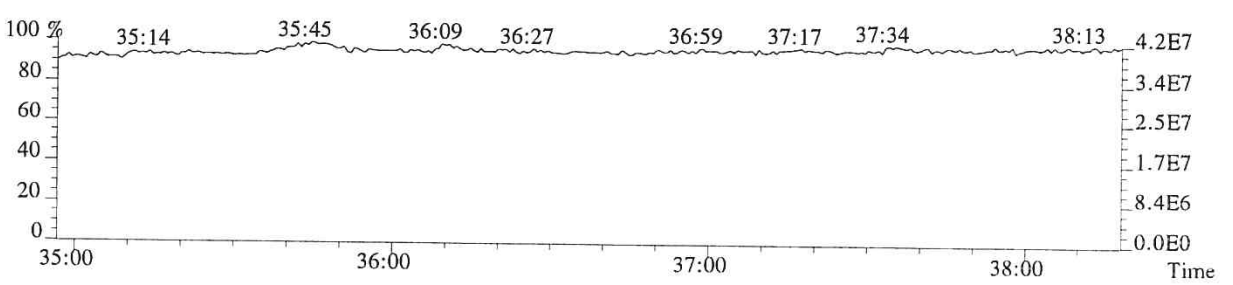
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)

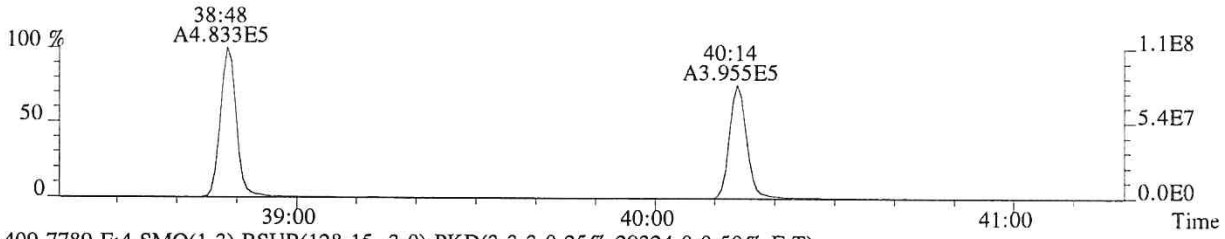


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

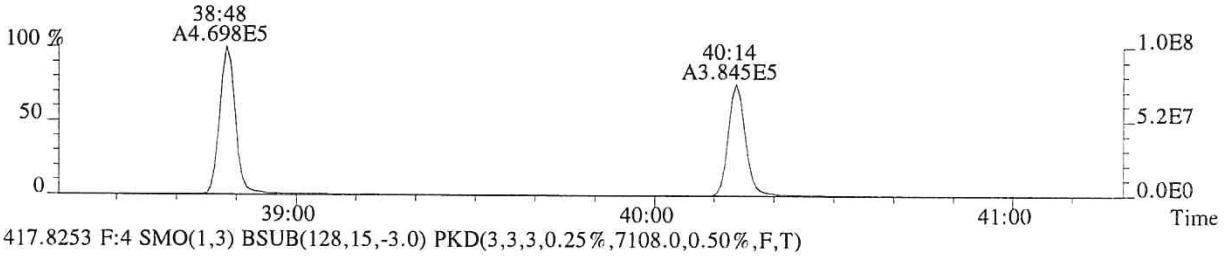


012186

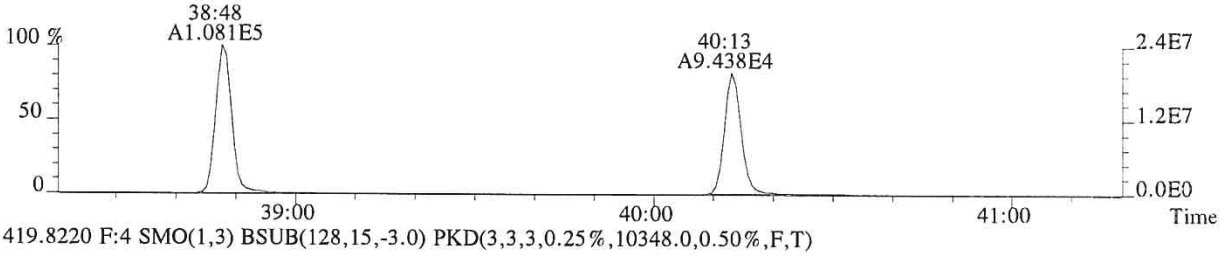
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



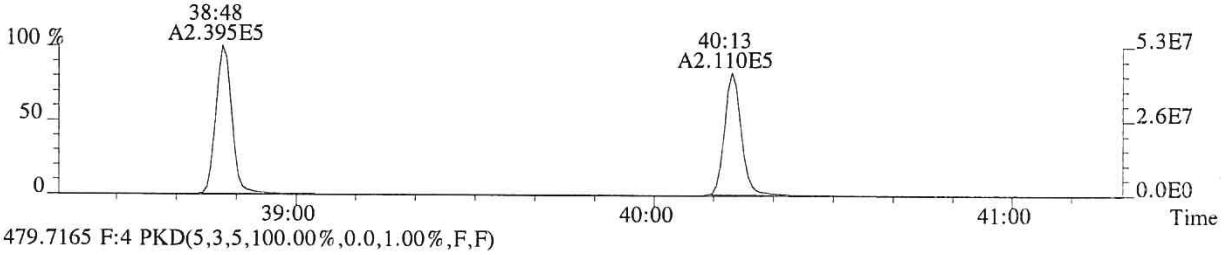
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



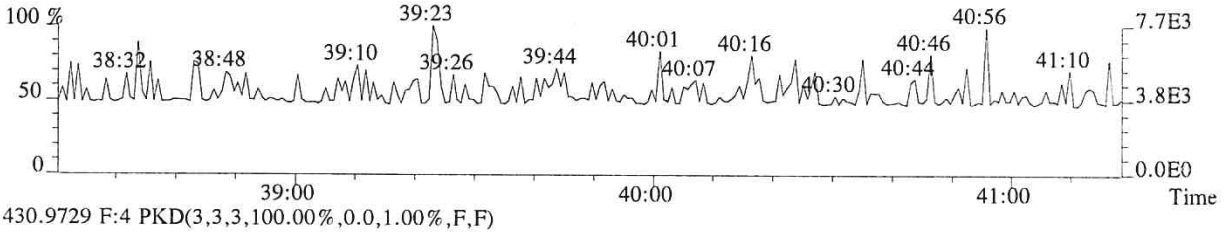
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



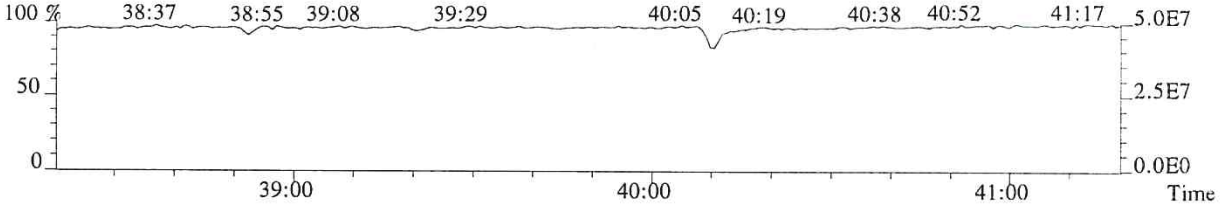
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

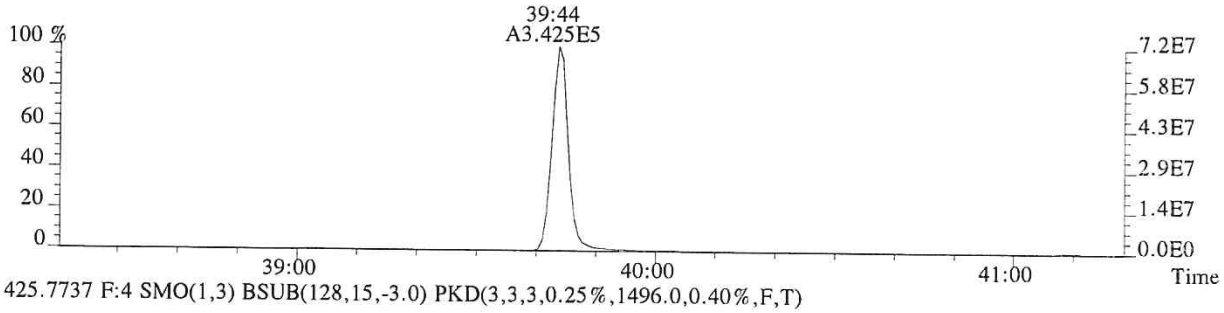


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

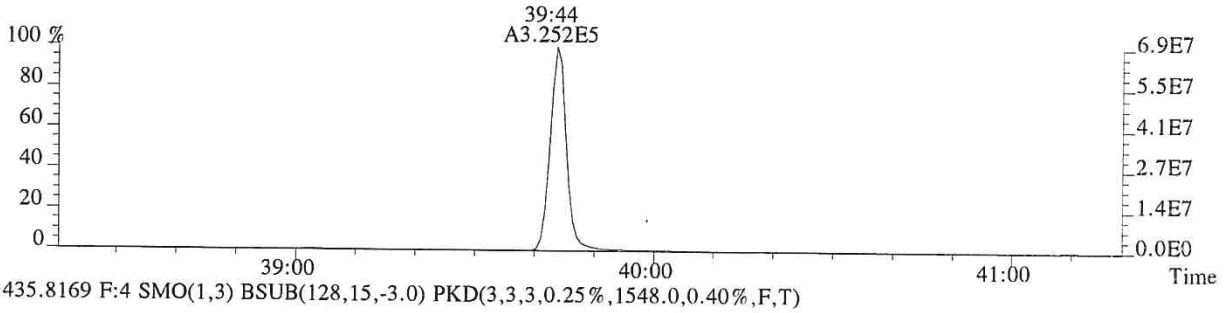


012187

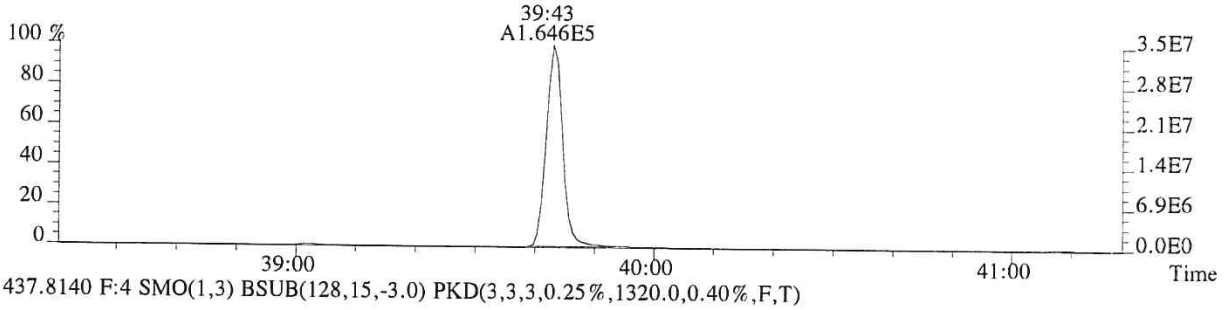
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



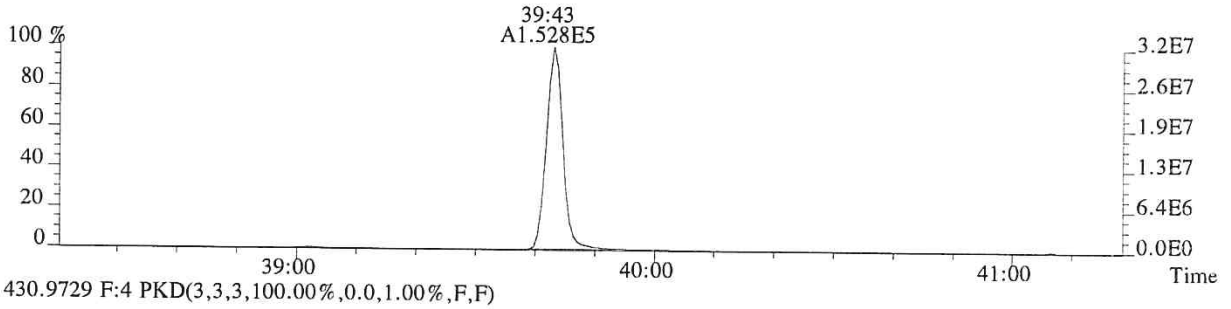
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



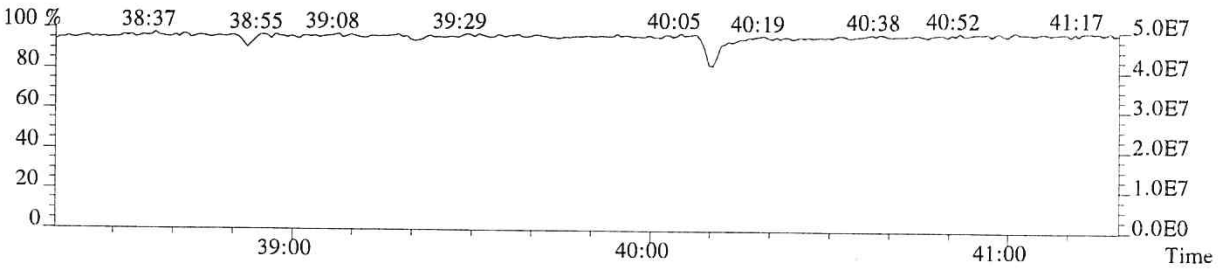
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)

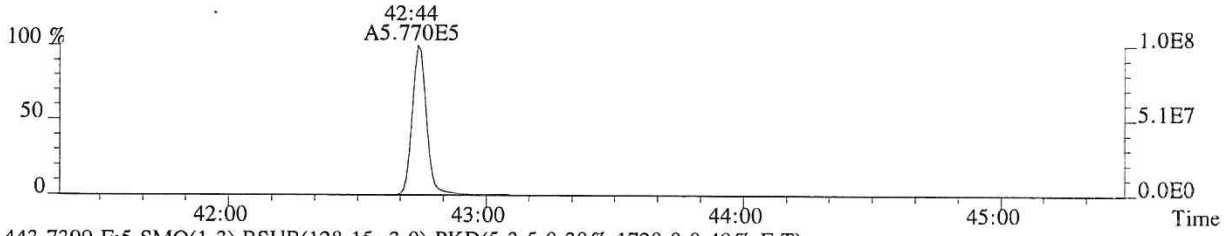


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

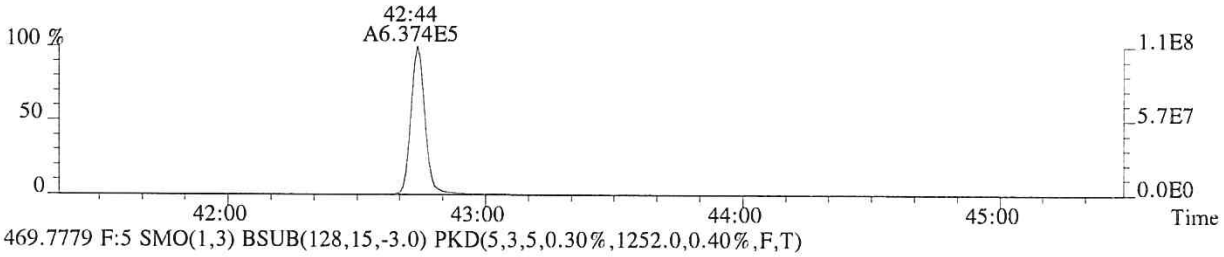


012188

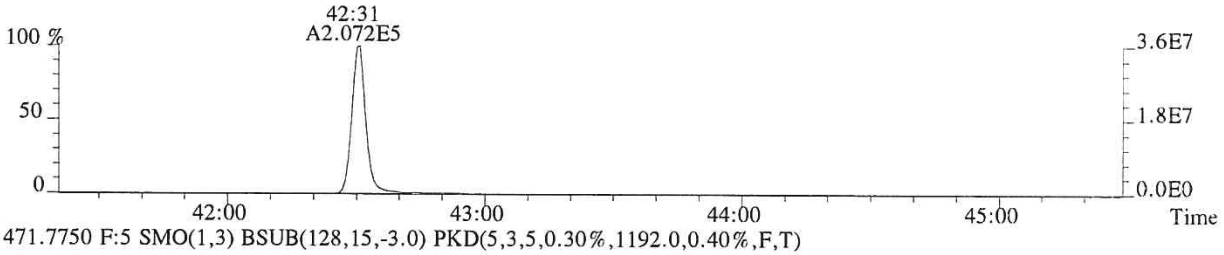
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



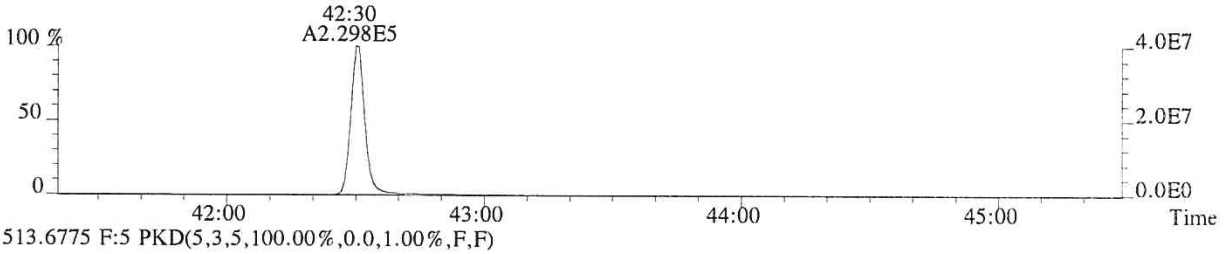
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



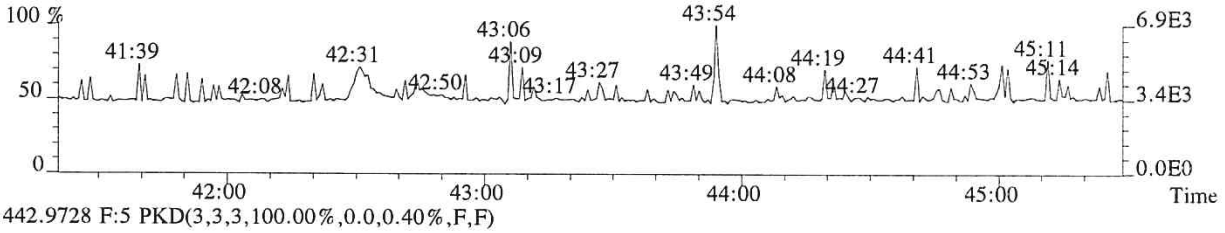
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



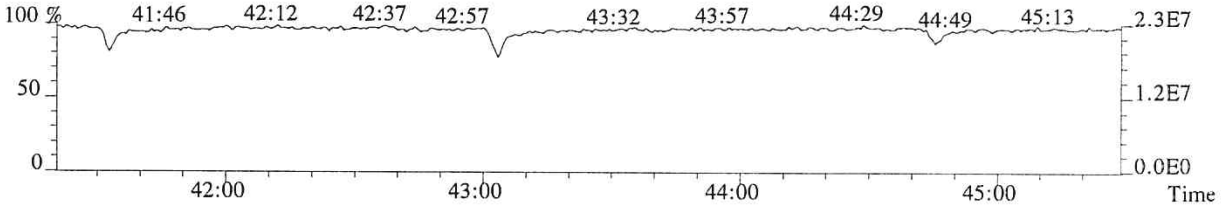
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

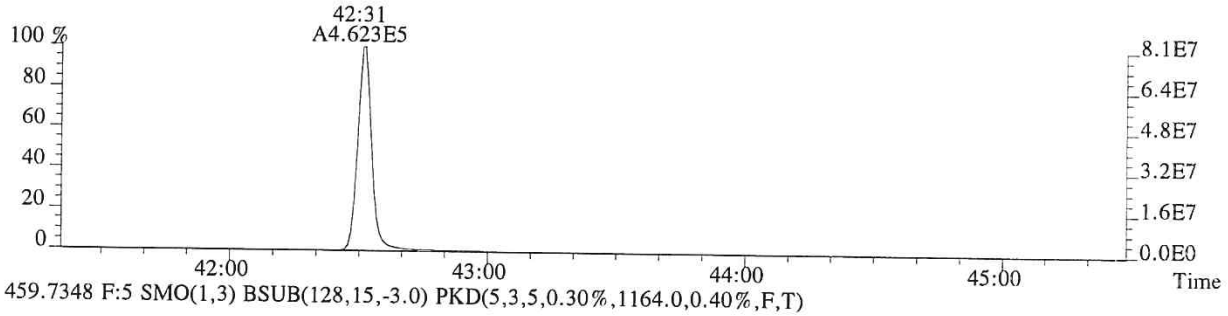


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

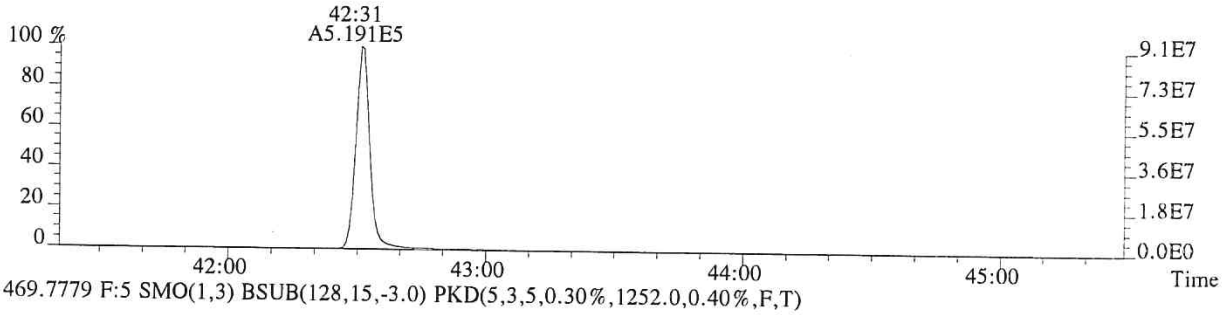


012189

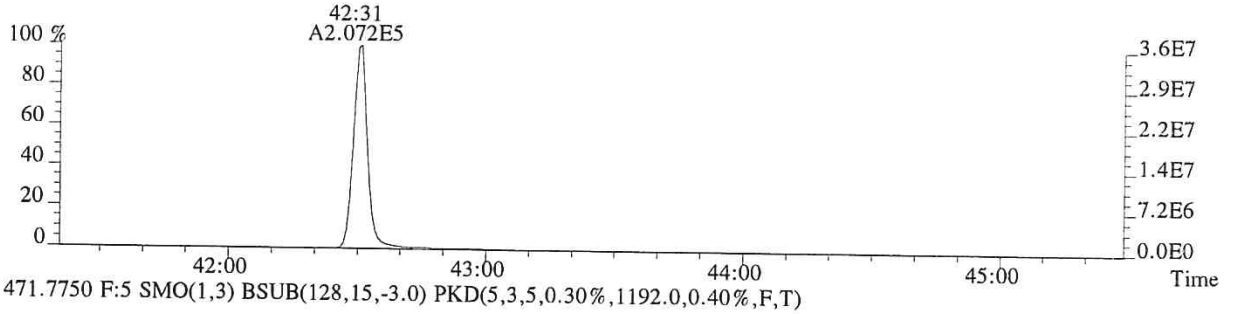
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



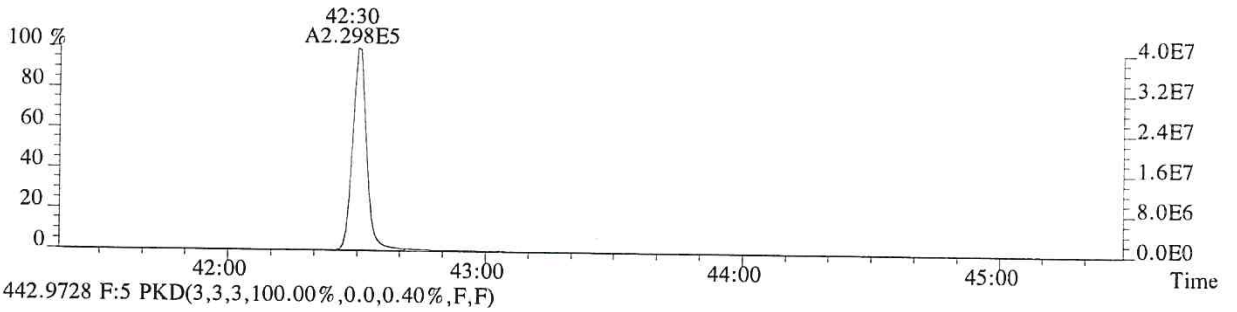
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



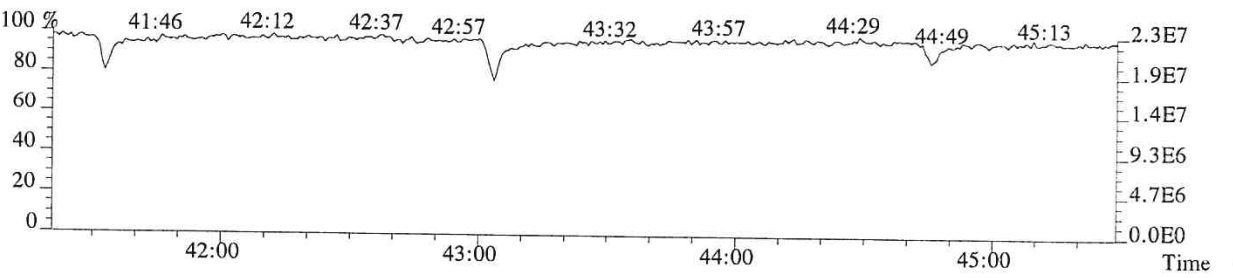
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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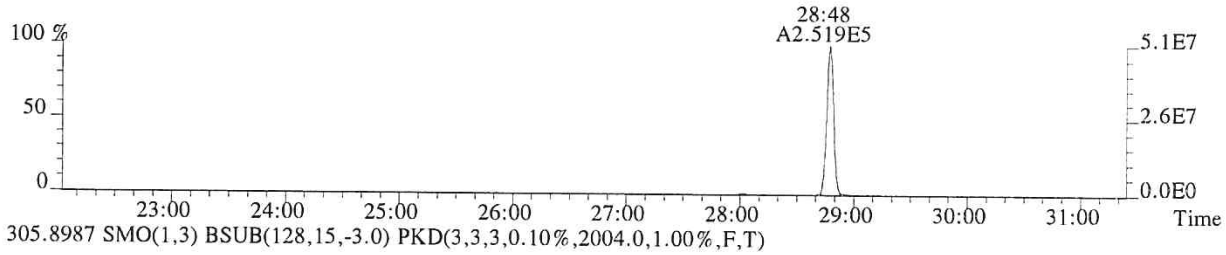
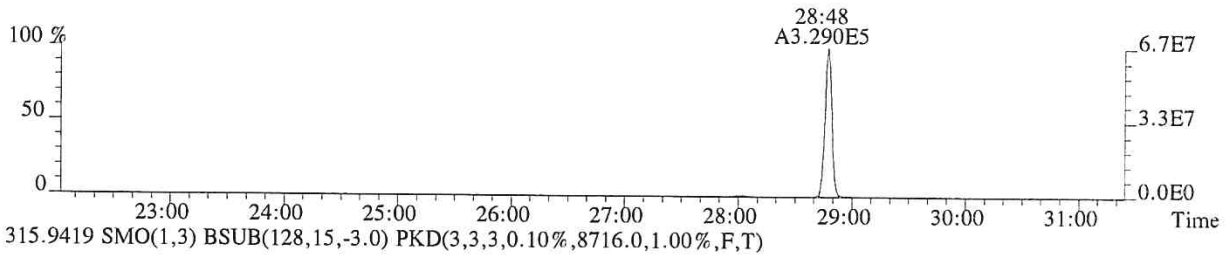
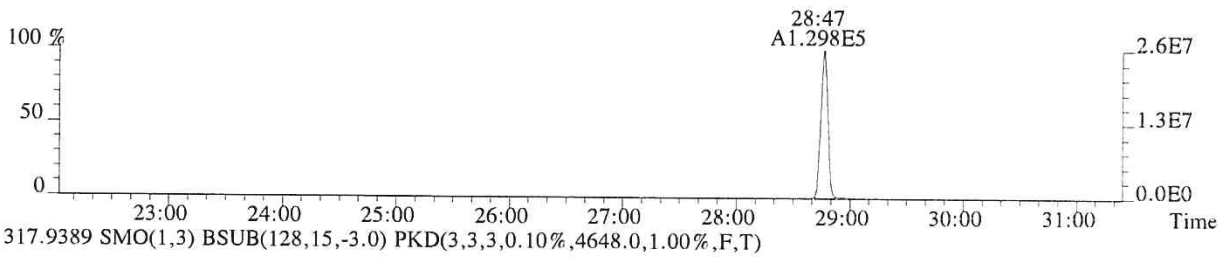
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



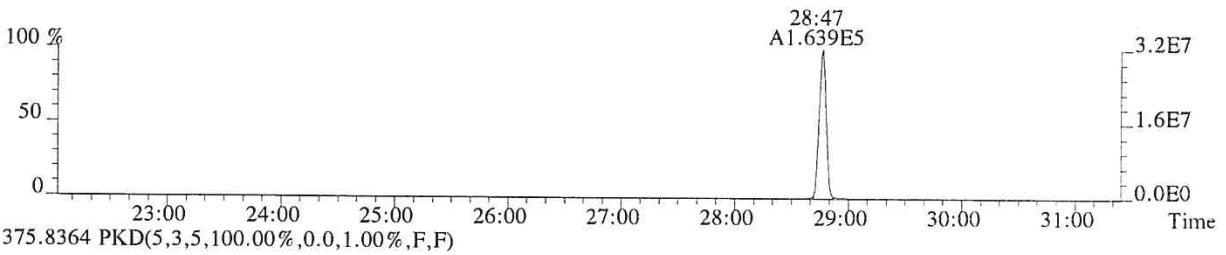
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



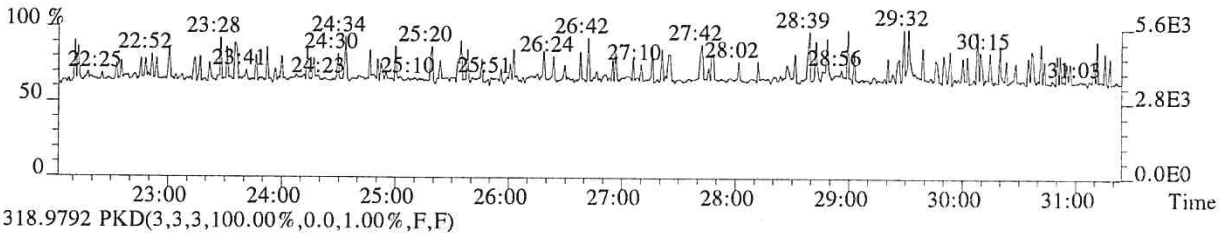
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



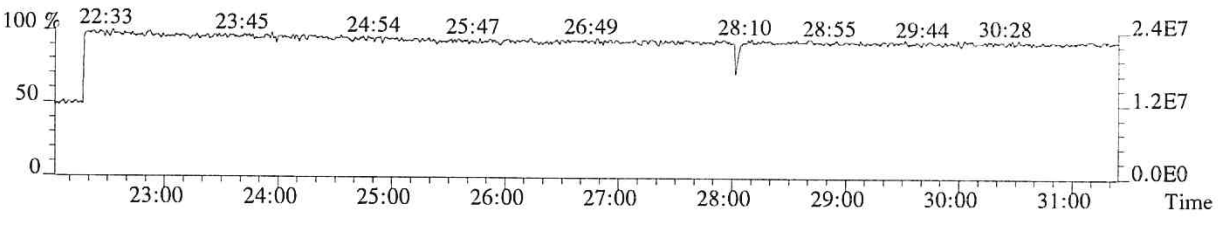
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

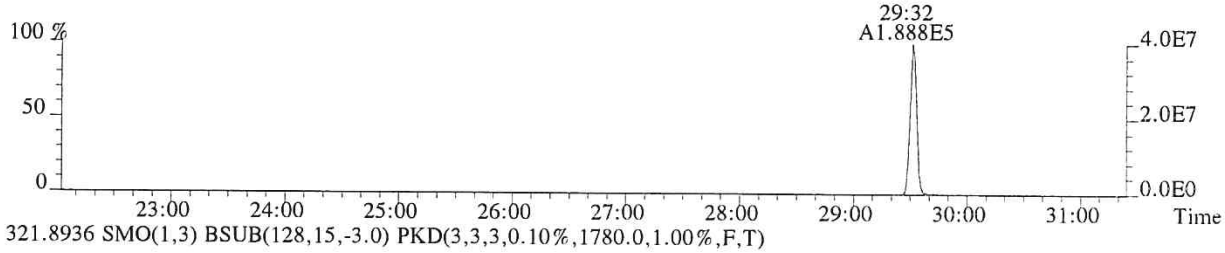


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

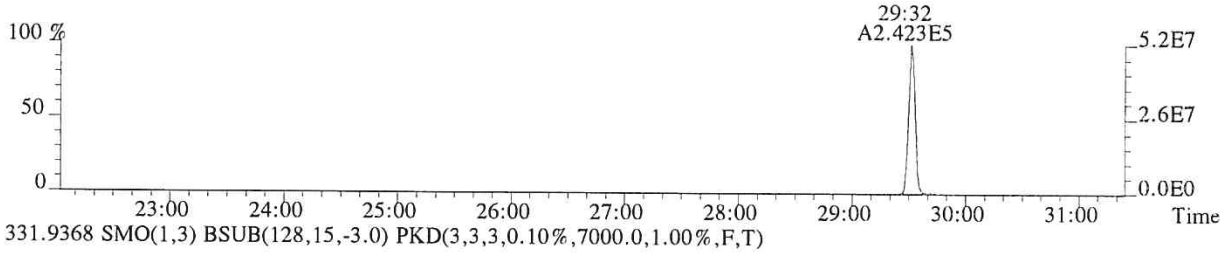


012193

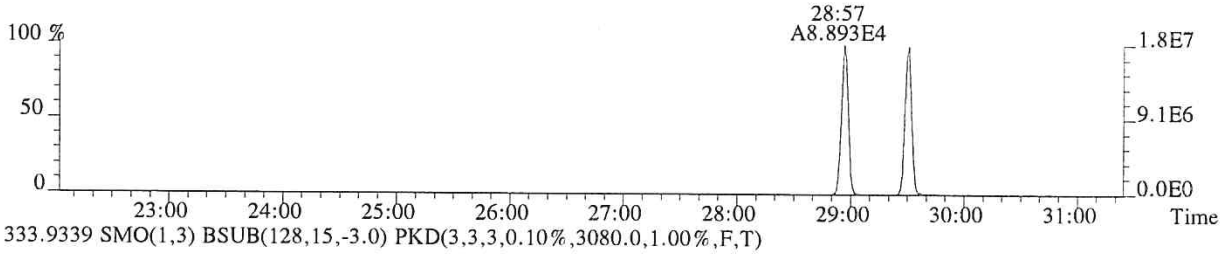
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



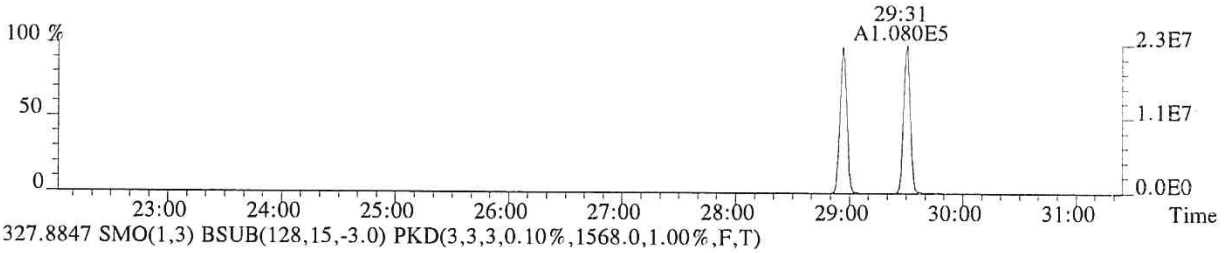
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



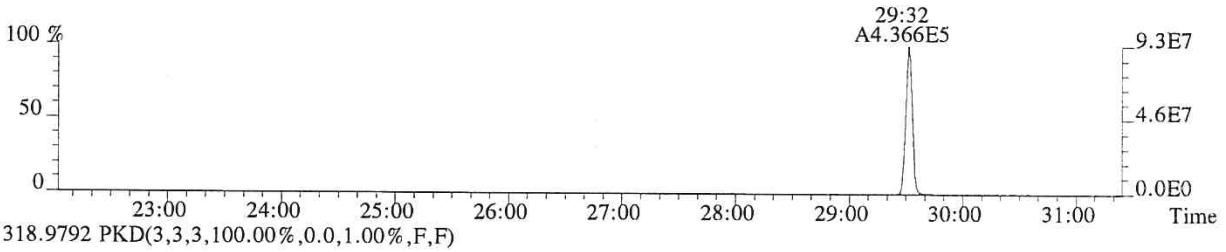
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



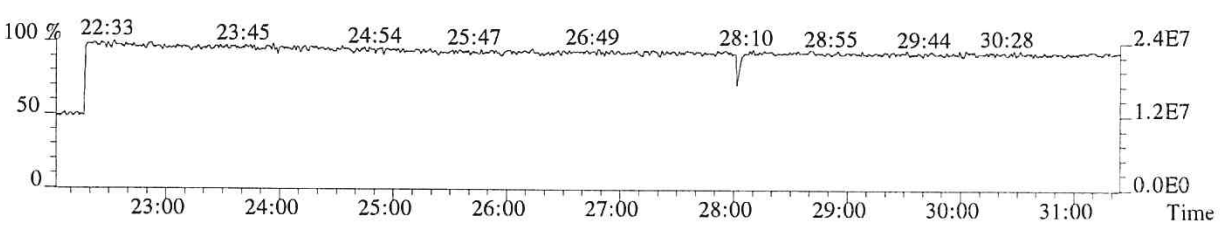
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)

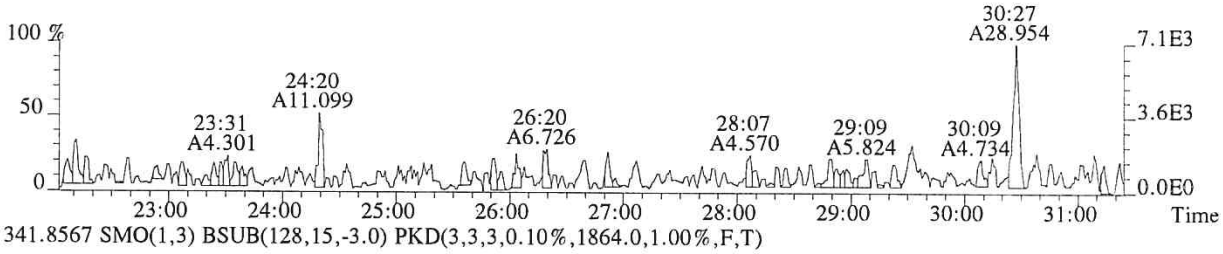


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

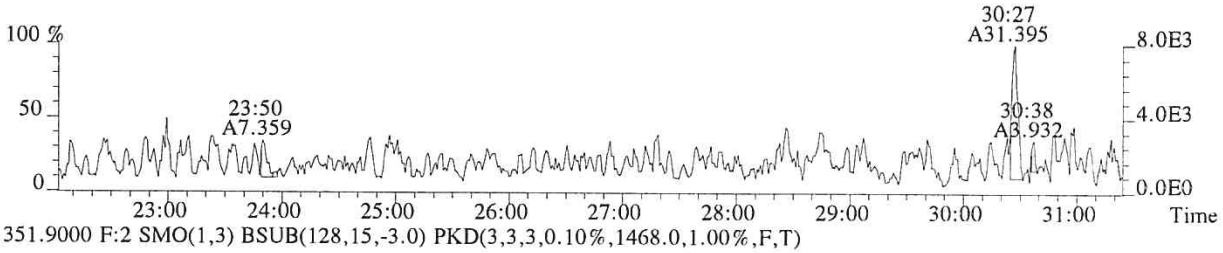


012194

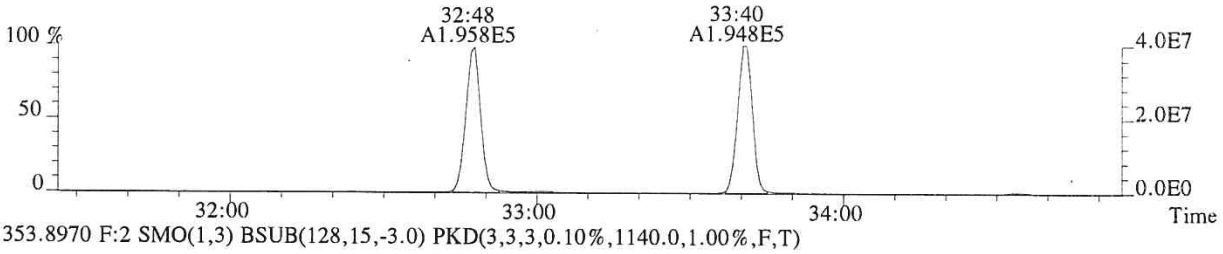
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



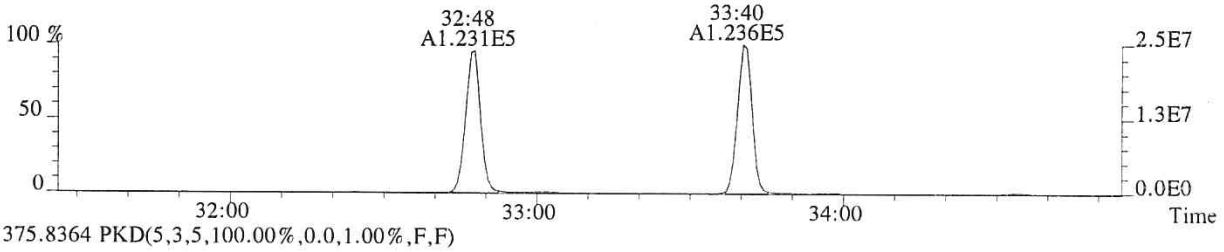
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



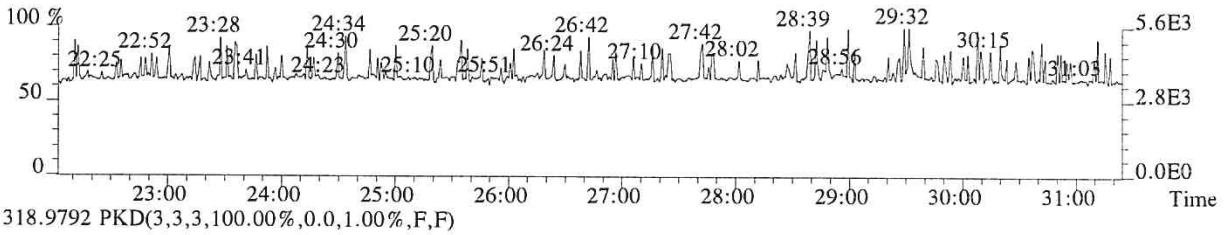
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



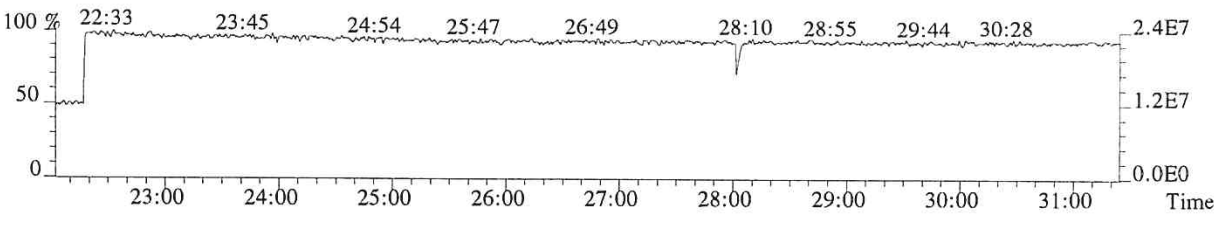
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

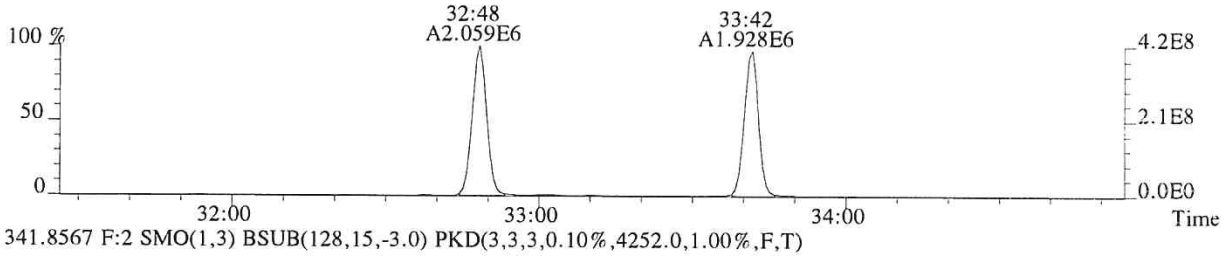


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

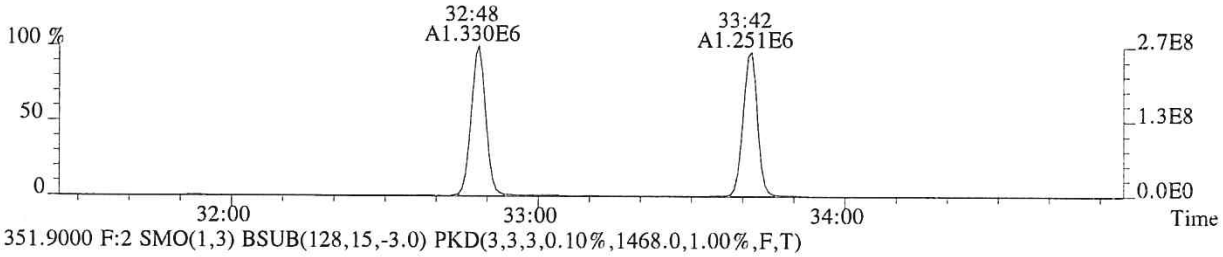


012195

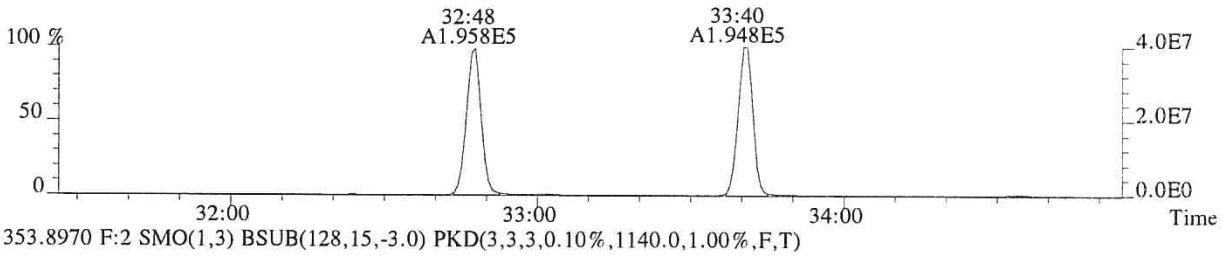
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



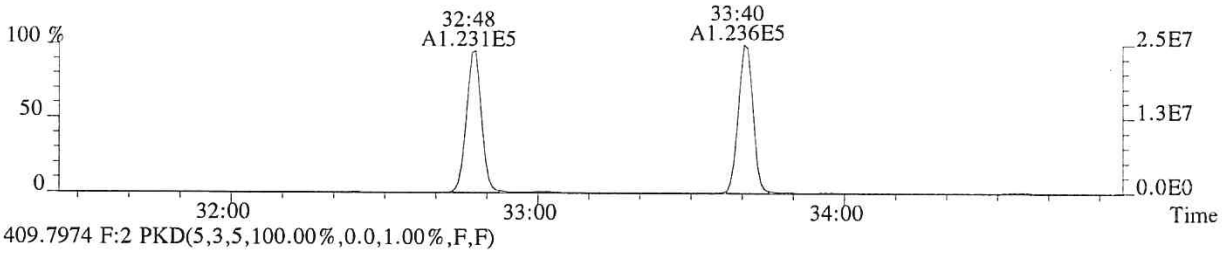
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



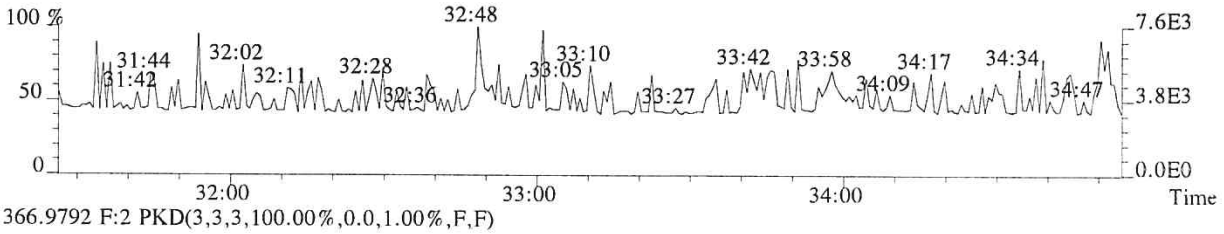
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



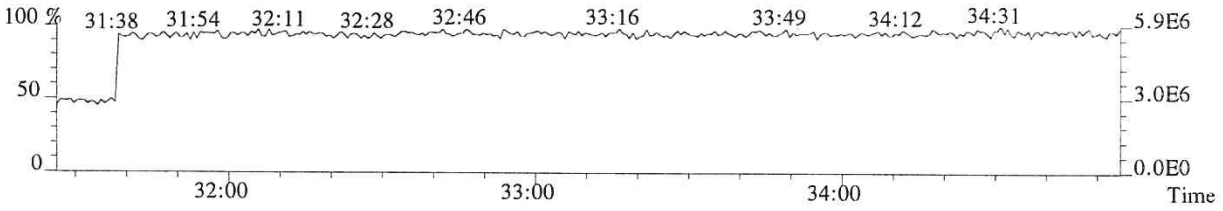
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

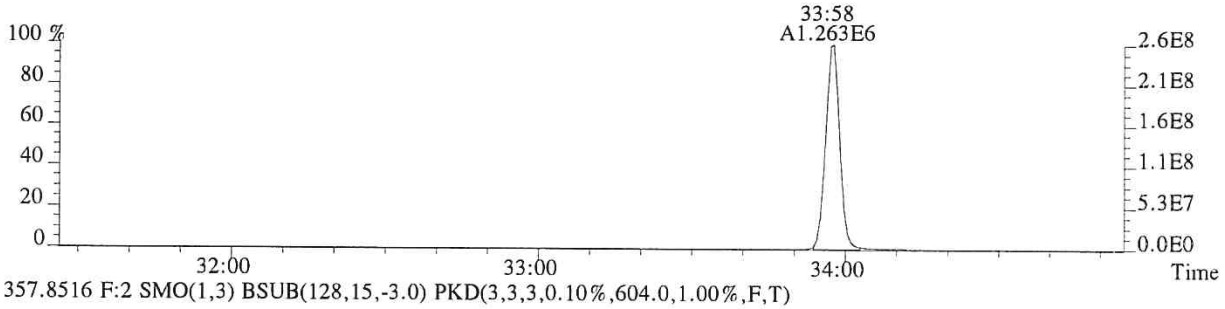


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

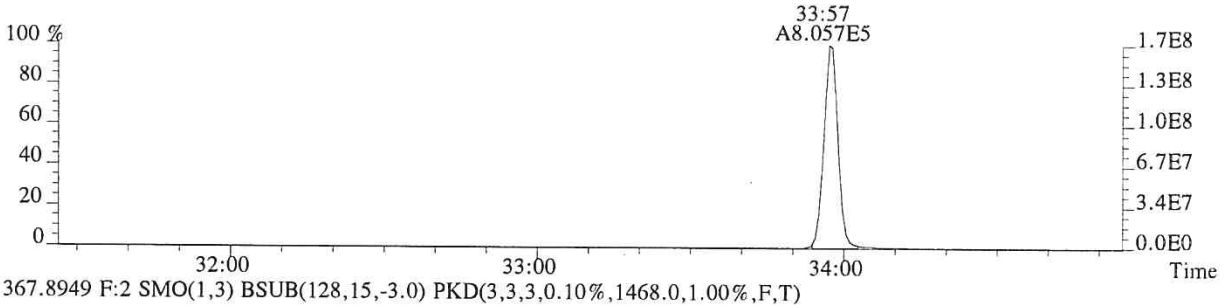


012196

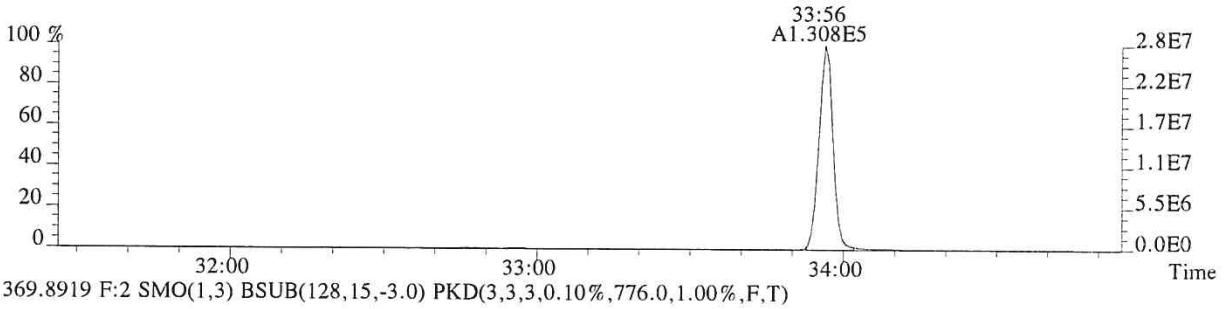
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



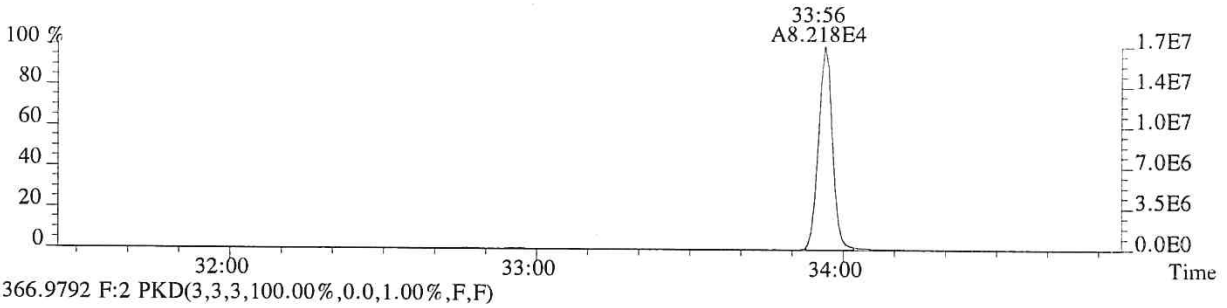
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



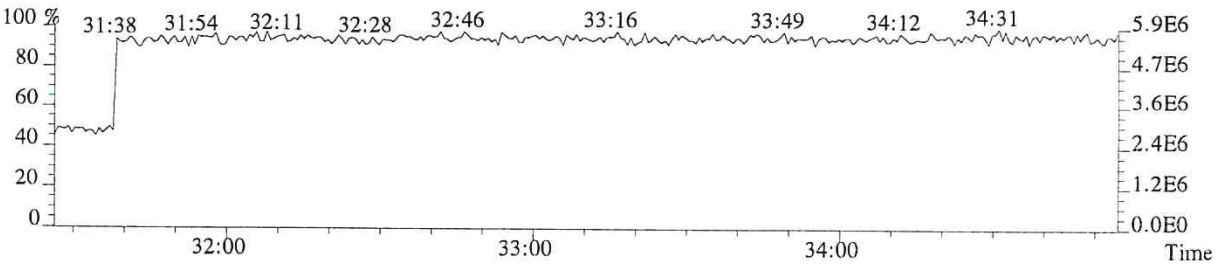
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



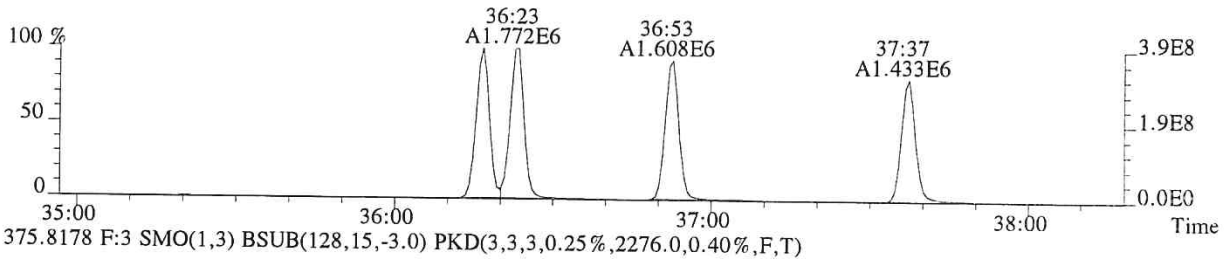
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



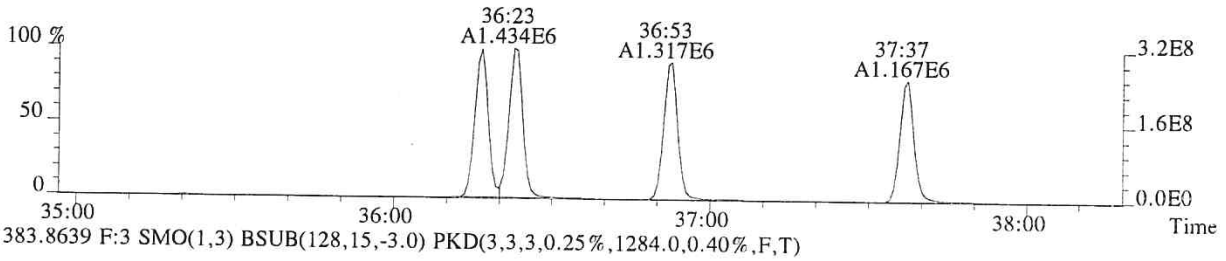
012197

File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657

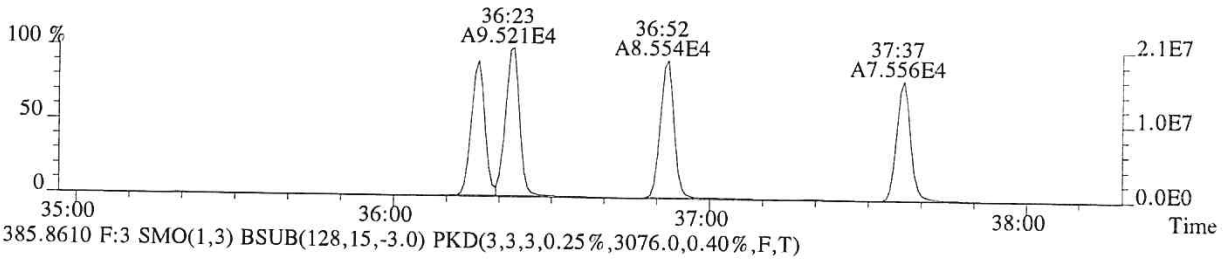
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



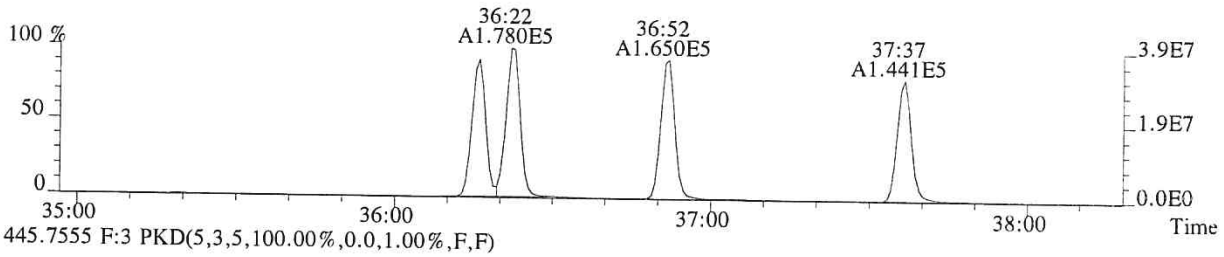
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



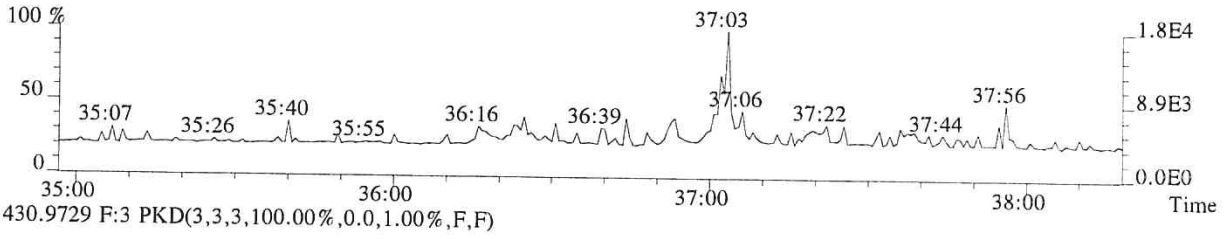
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



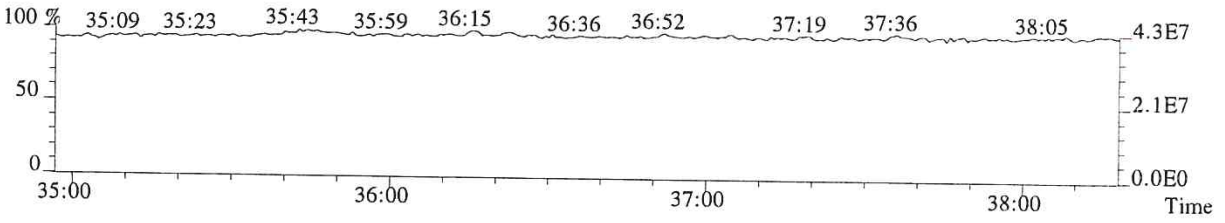
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

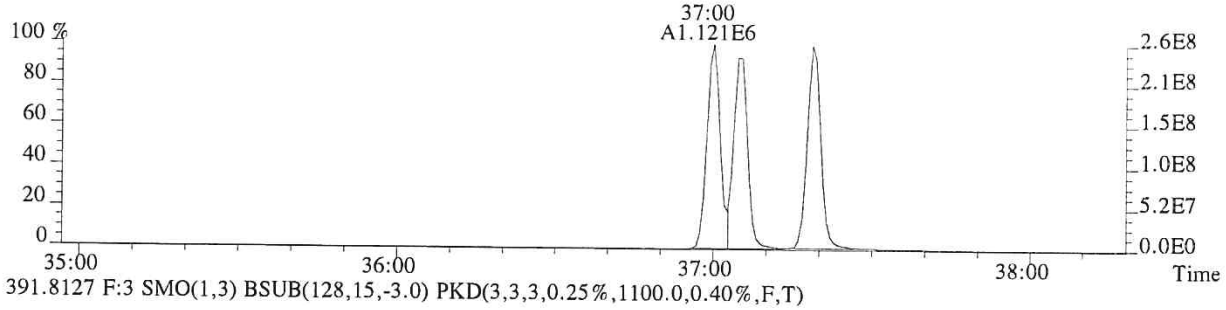


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

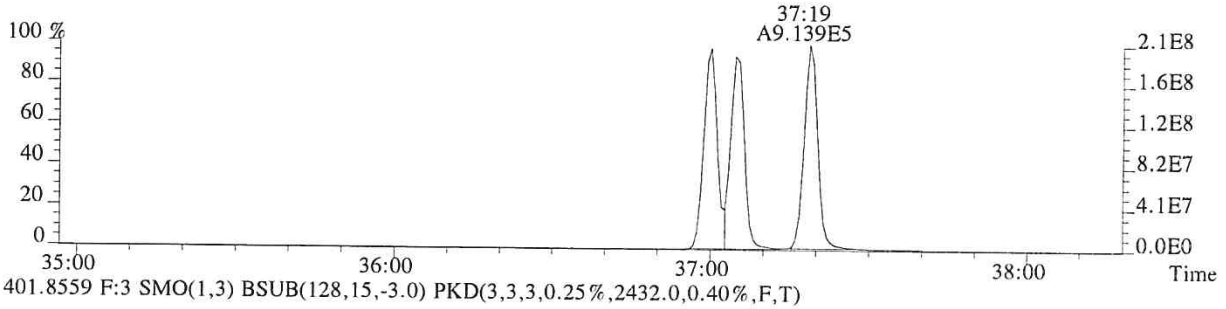


012198

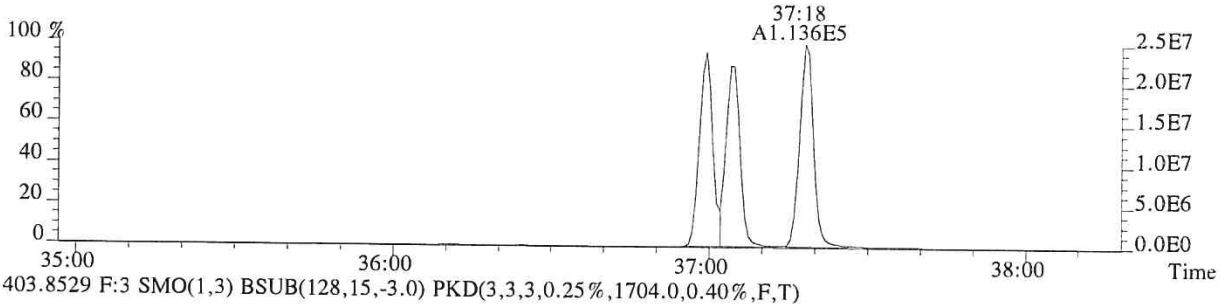
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



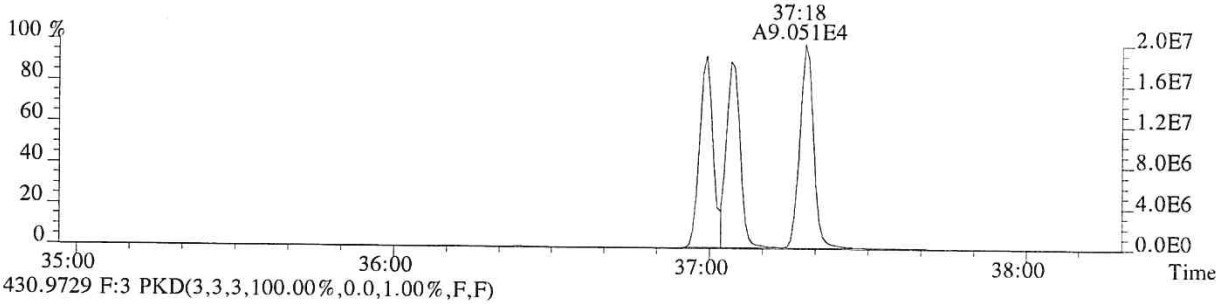
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



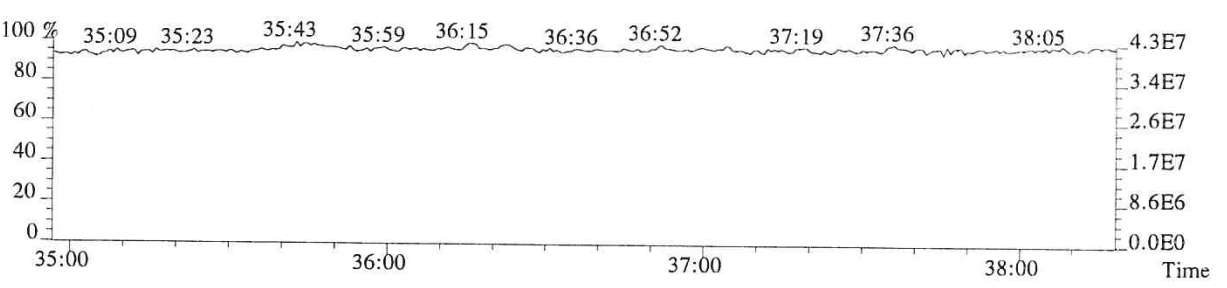
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)

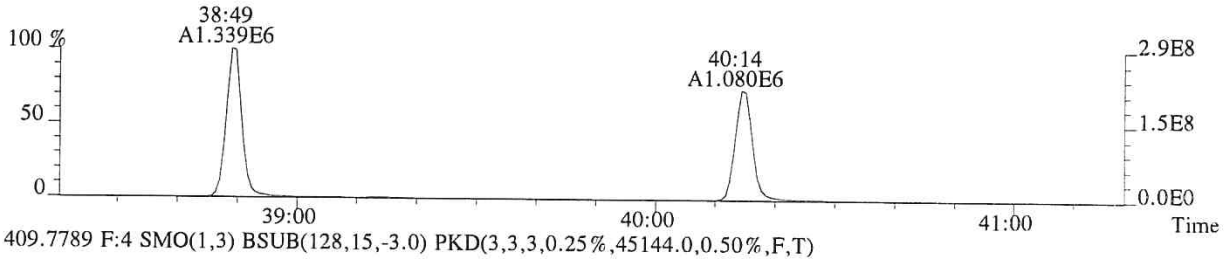


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

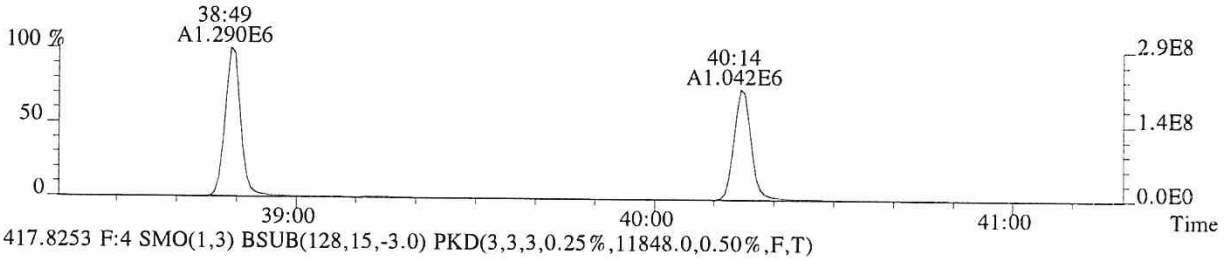


012199

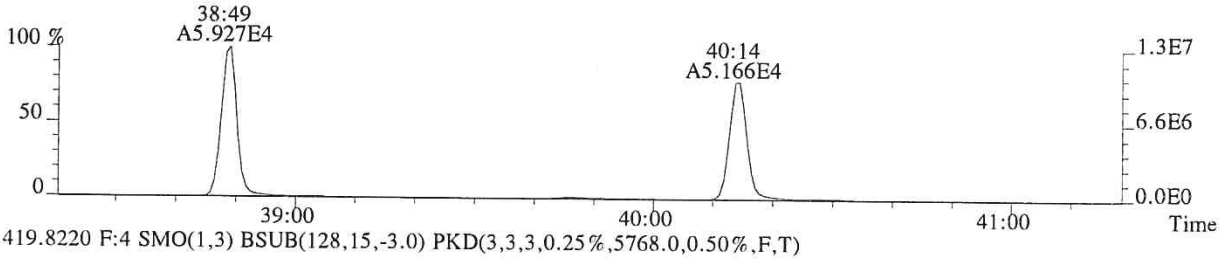
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



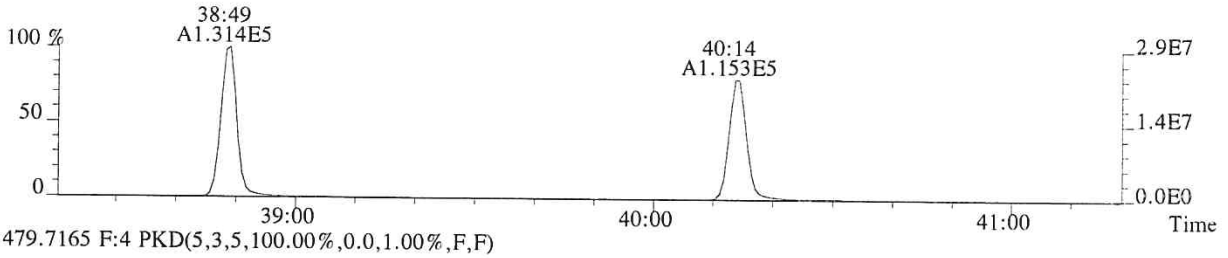
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



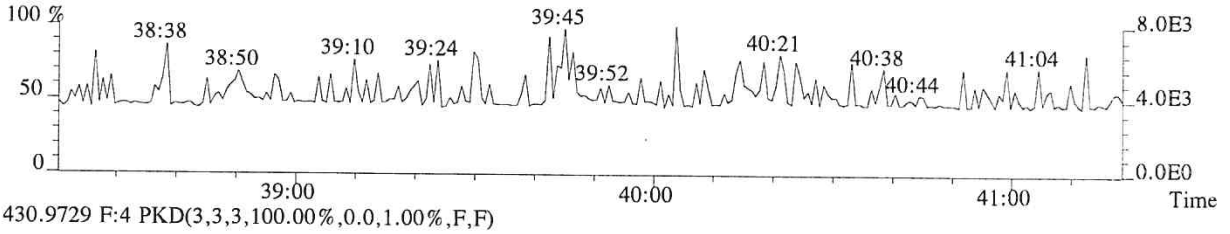
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



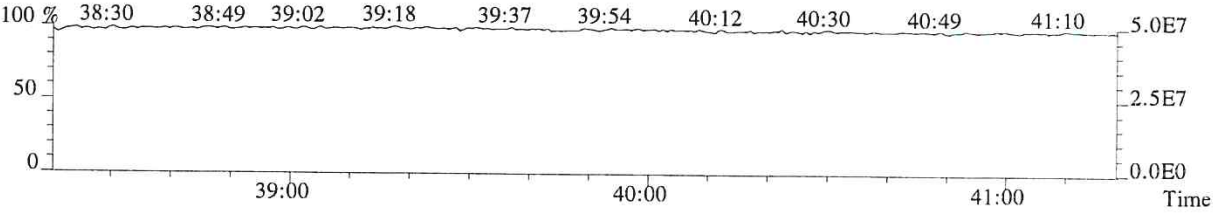
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

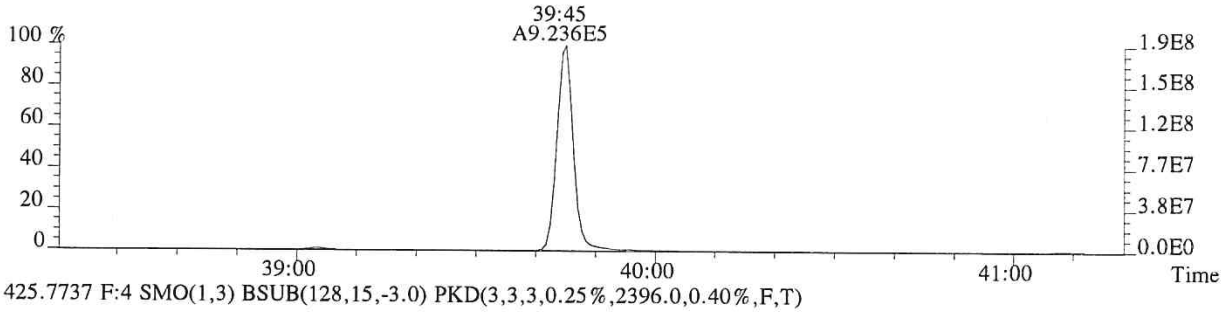


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

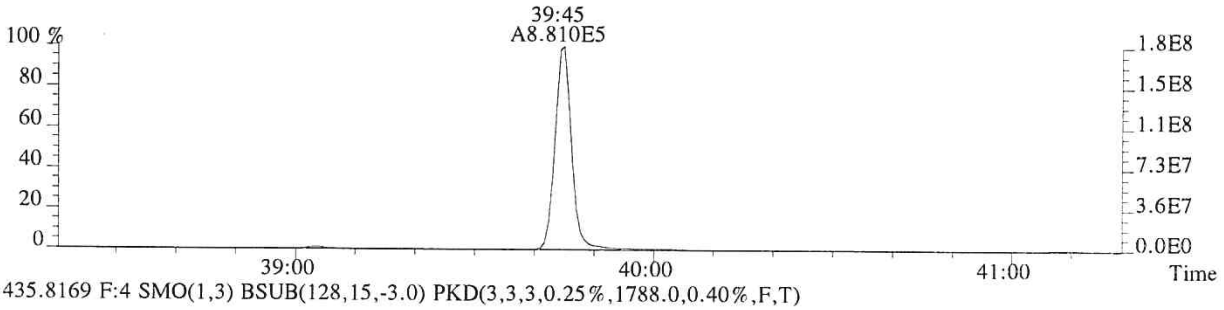


012200

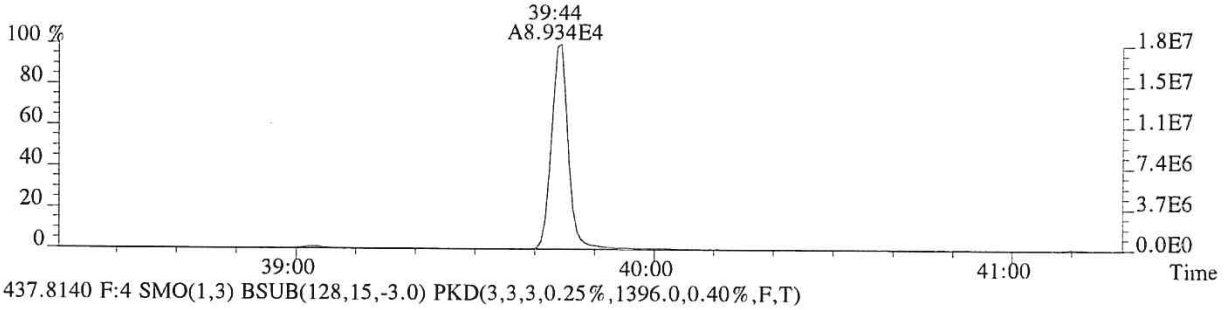
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



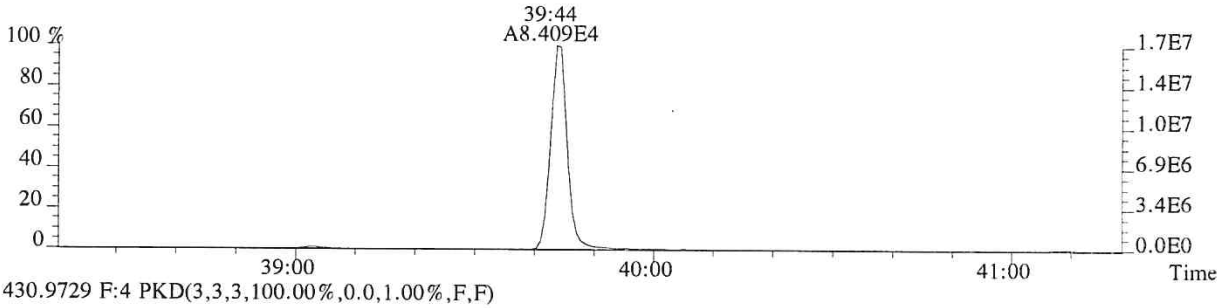
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



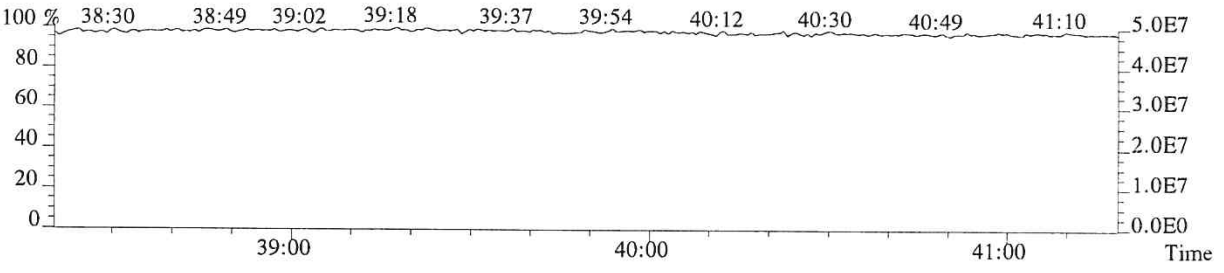
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)

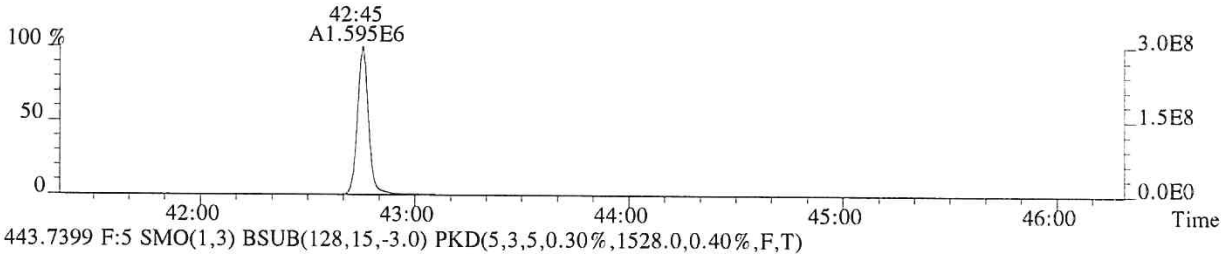


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

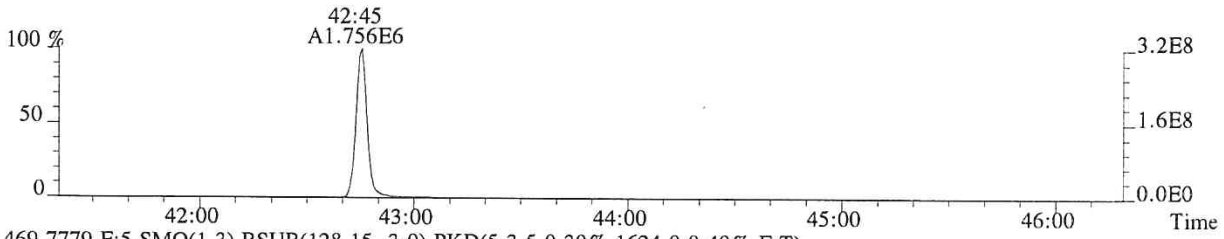


012201

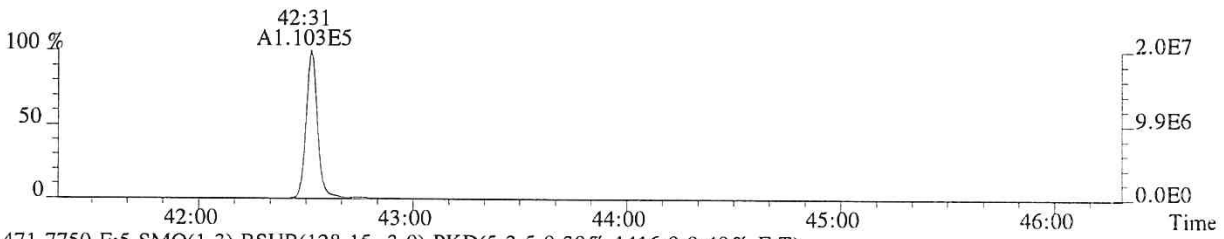
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



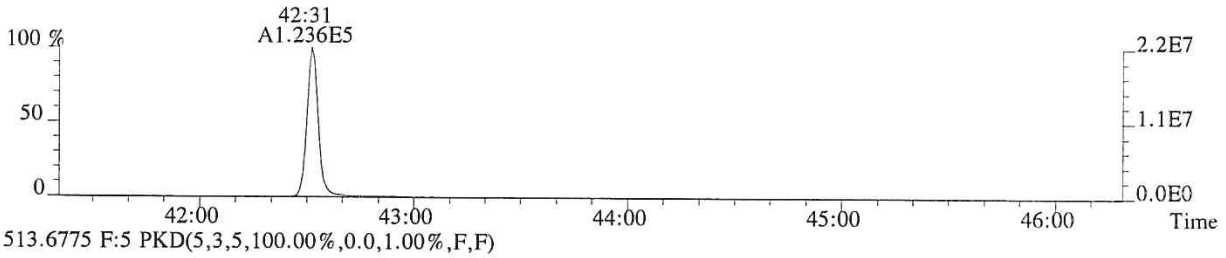
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



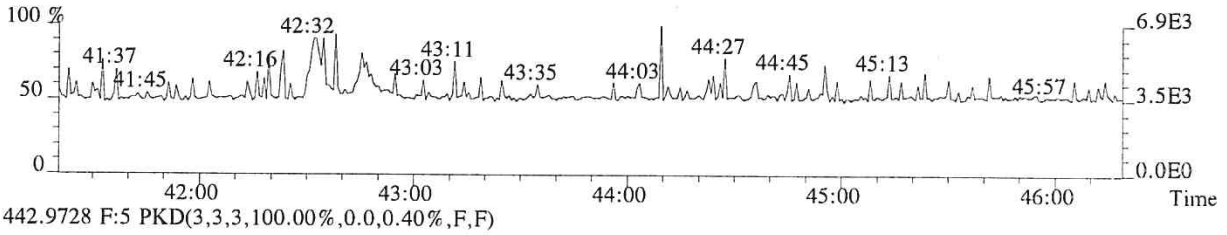
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



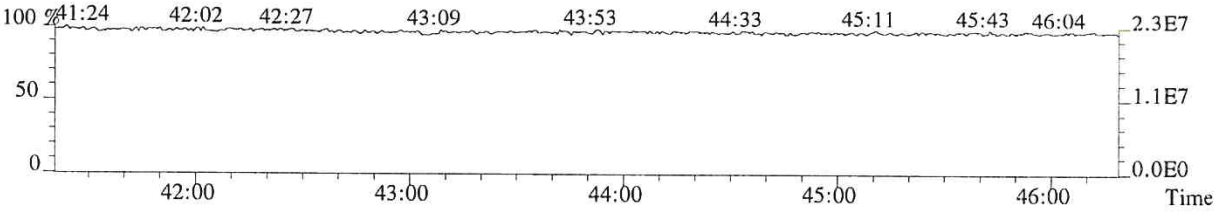
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

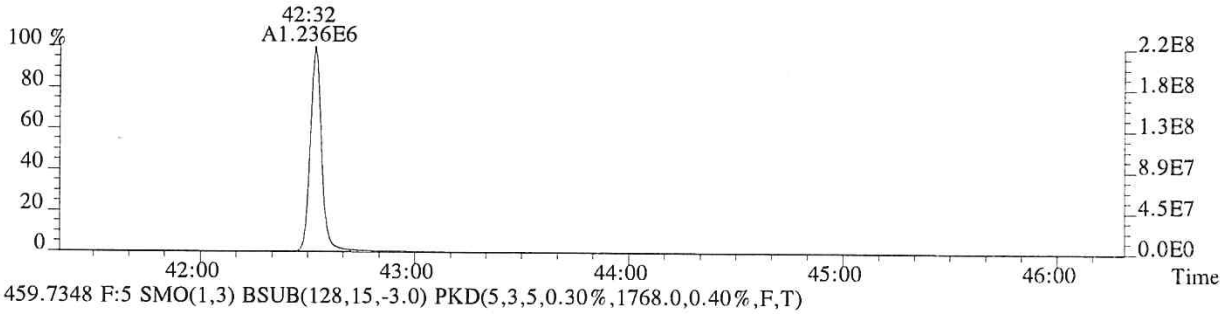


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

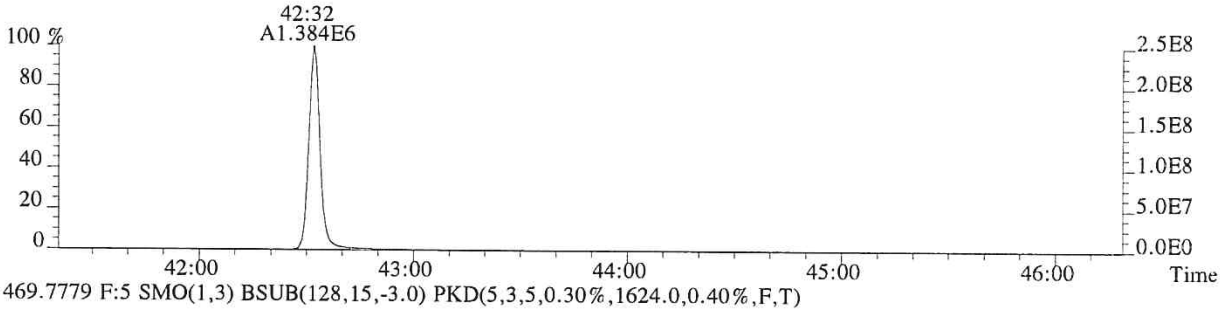


012202

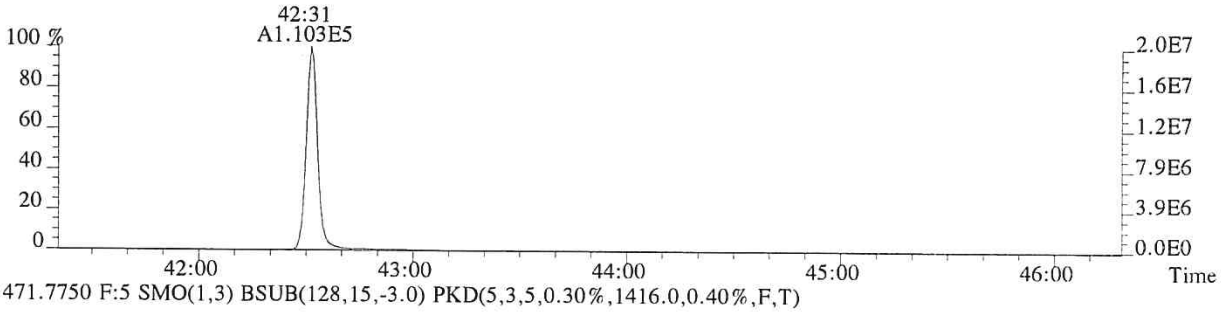
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



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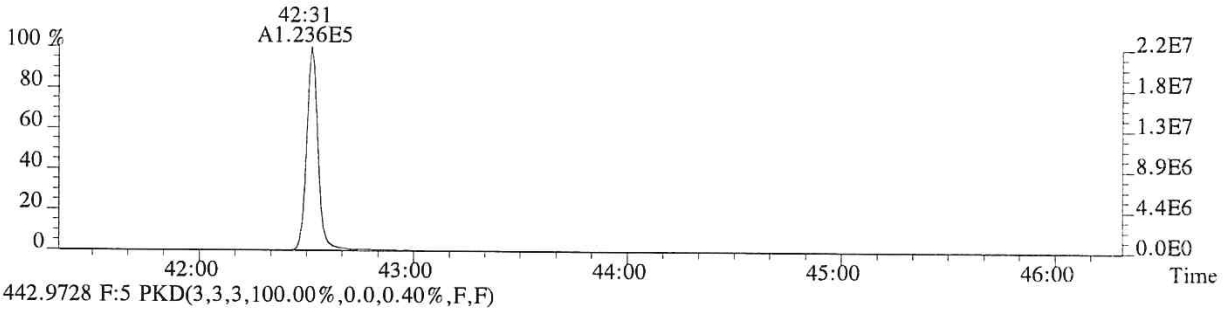
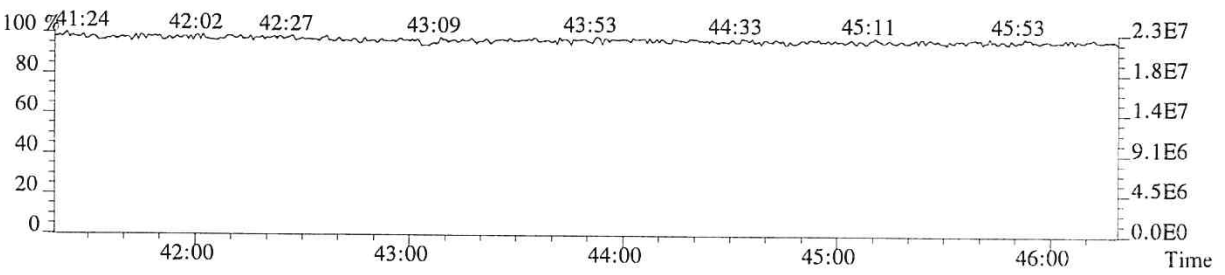


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012203

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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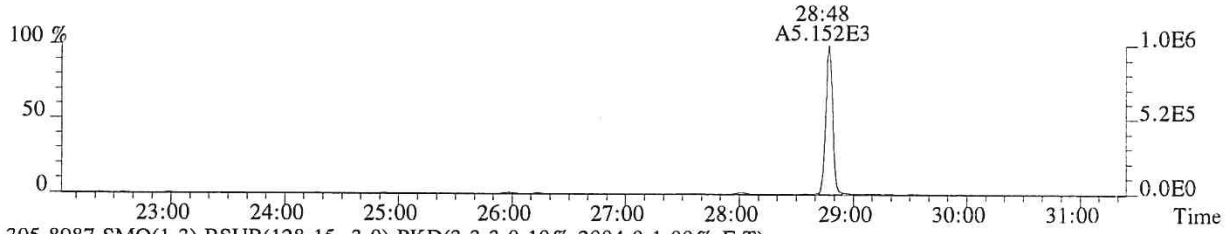
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



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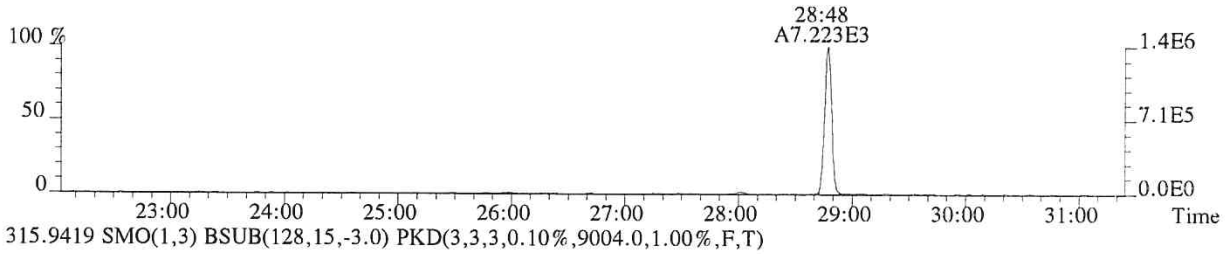
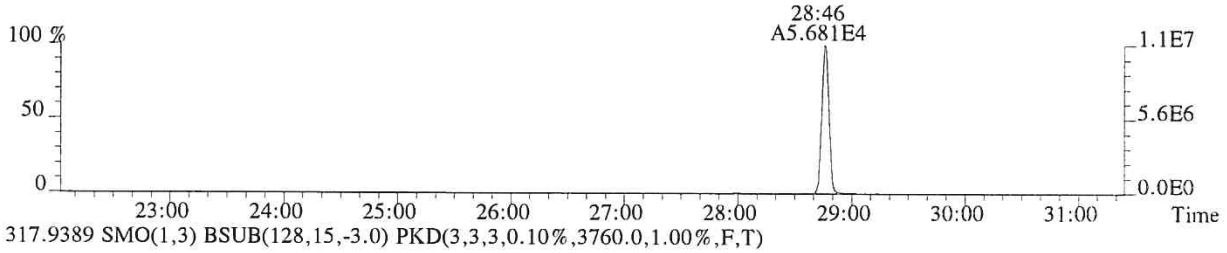
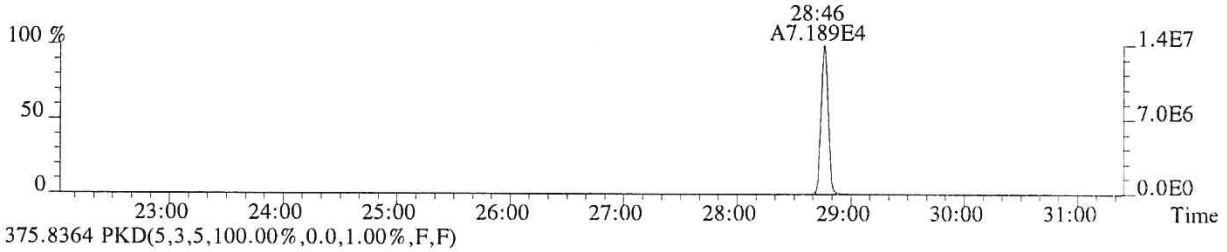


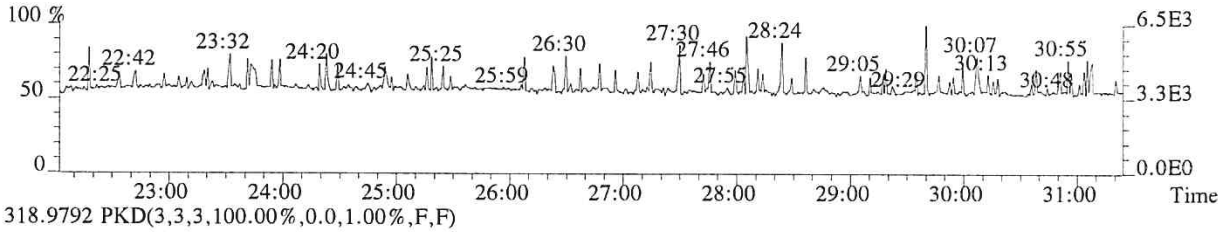
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



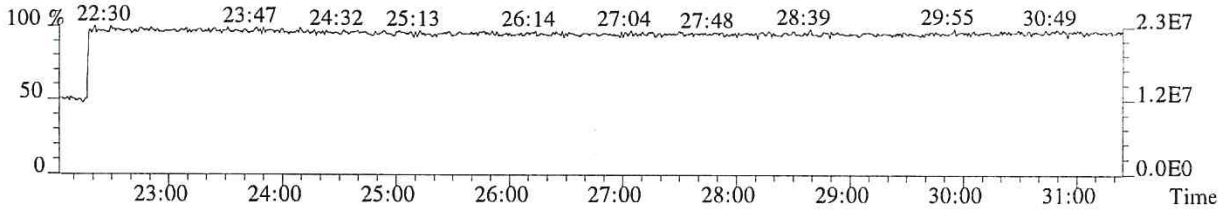
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

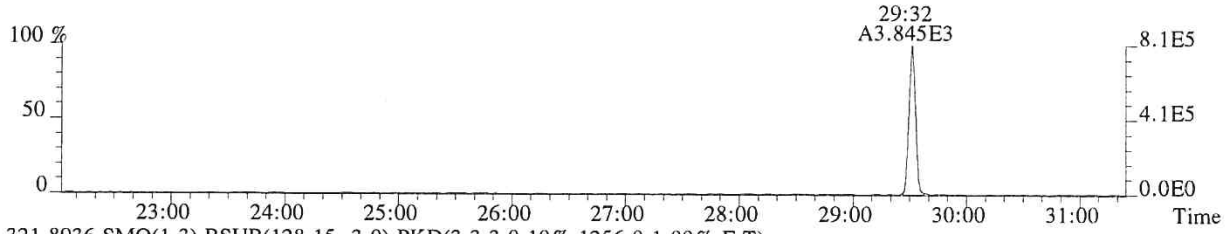


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

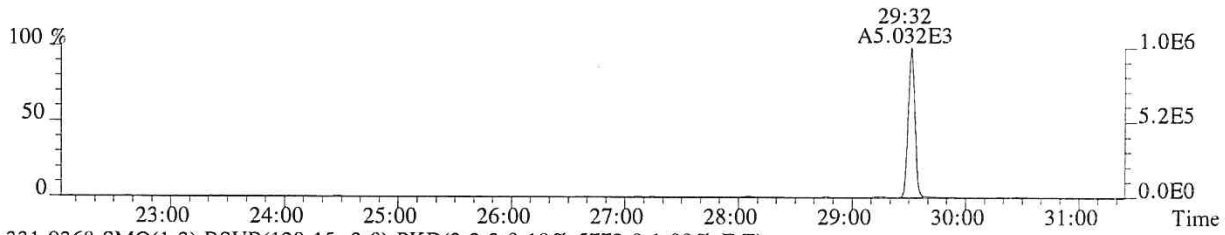


012208

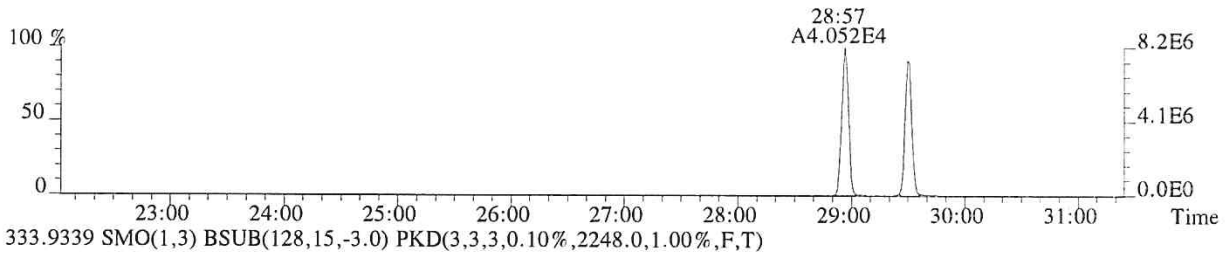
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



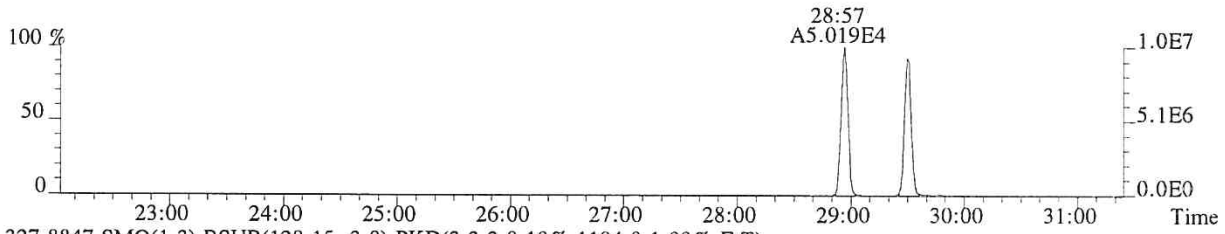
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



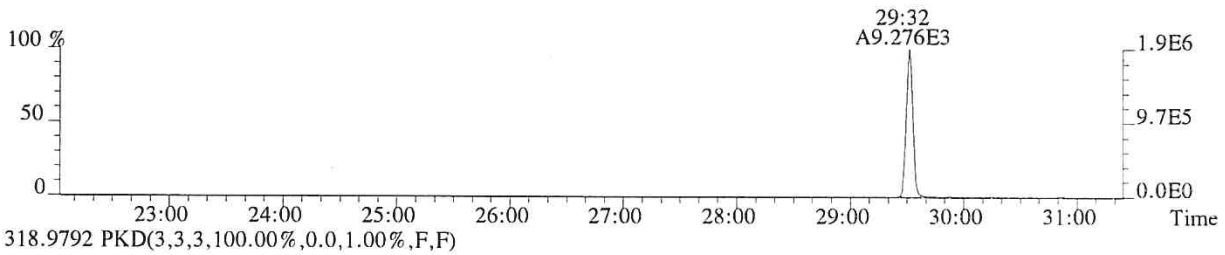
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



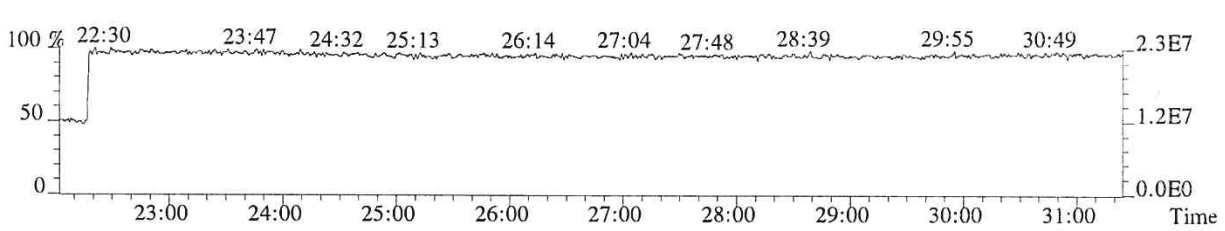
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)

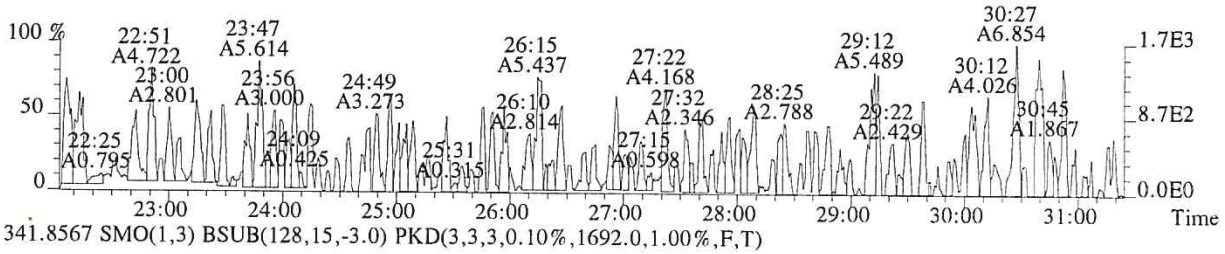


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

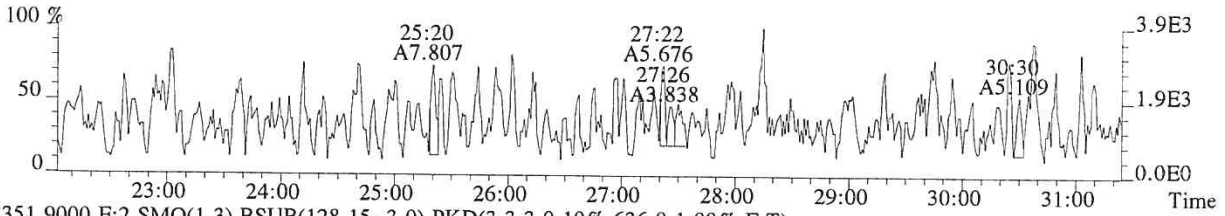


012209

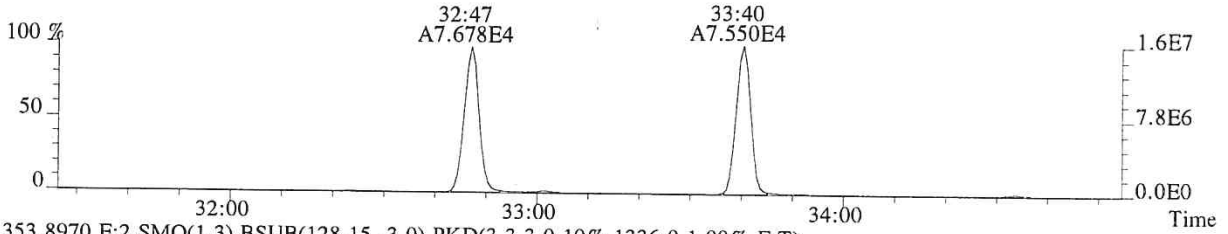
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



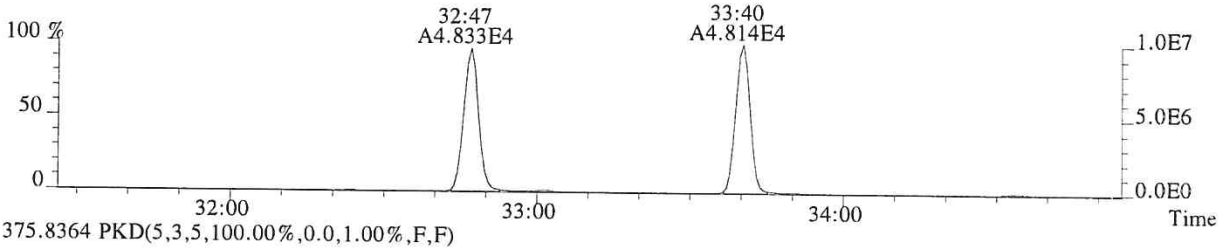
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



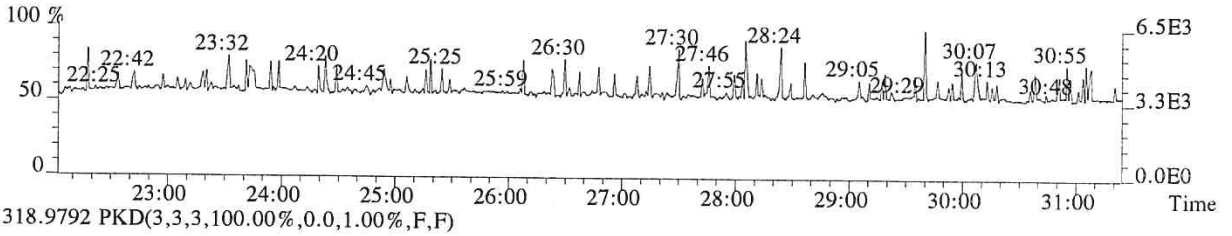
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



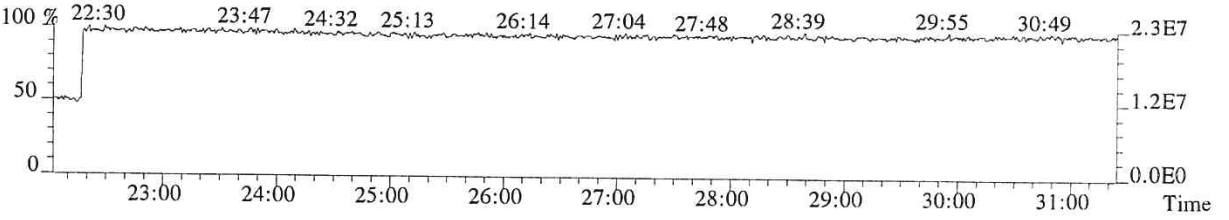
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

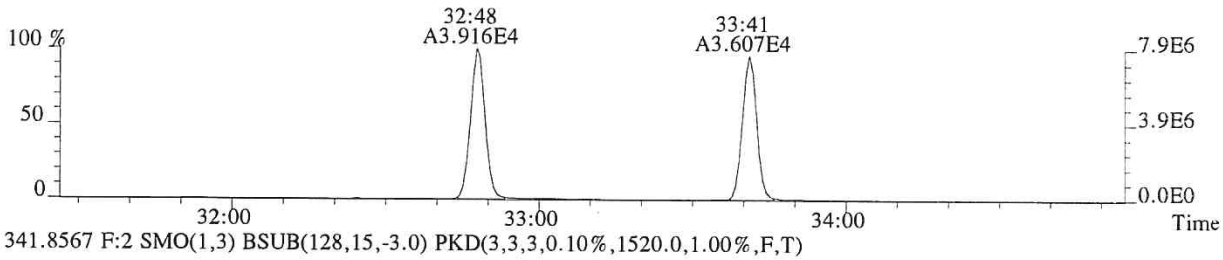


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

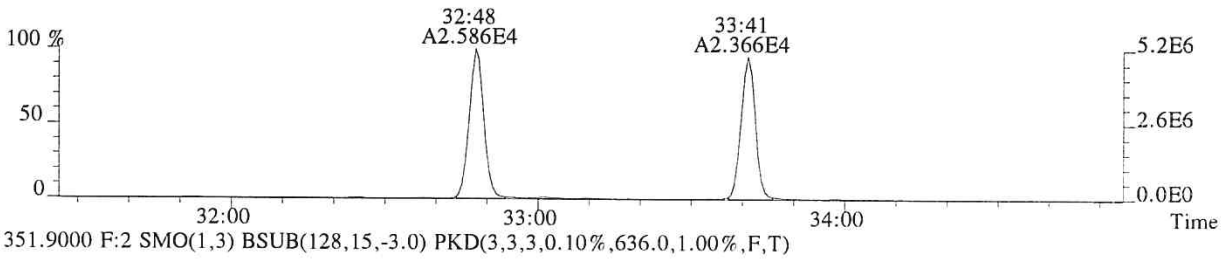


012210

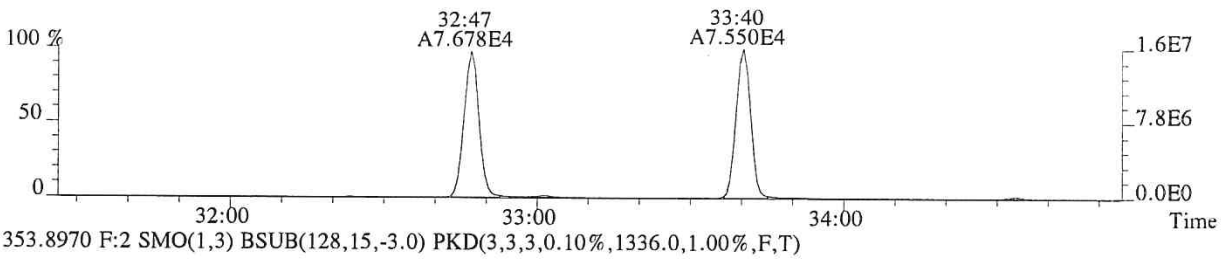
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



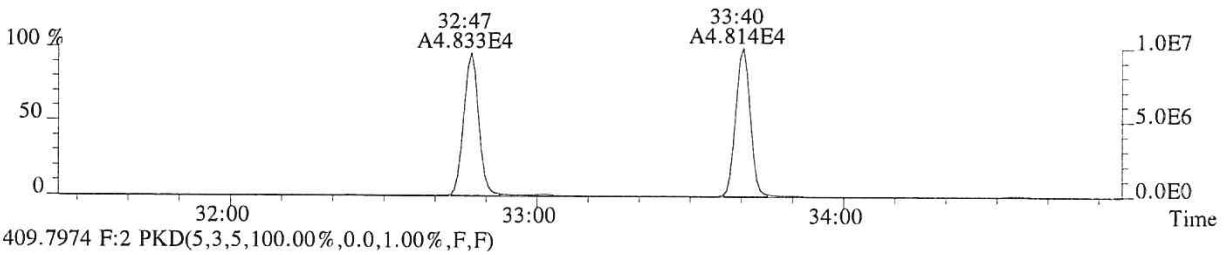
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



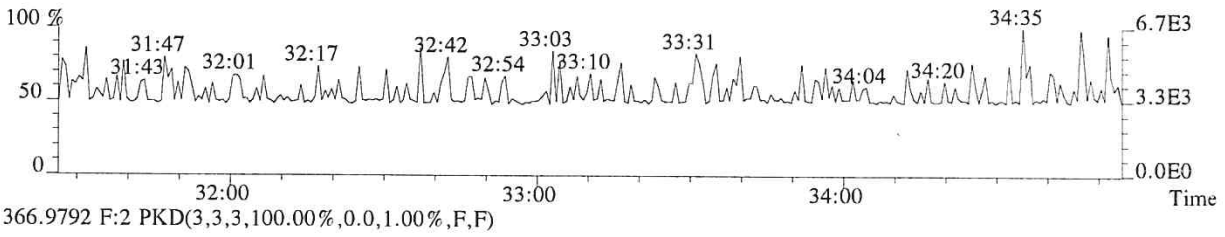
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



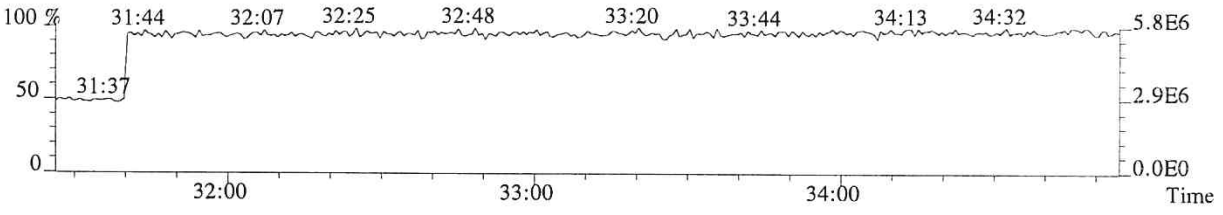
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

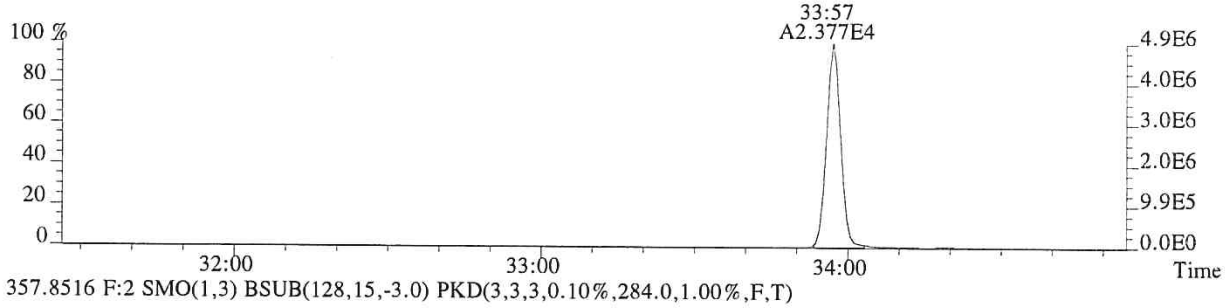


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

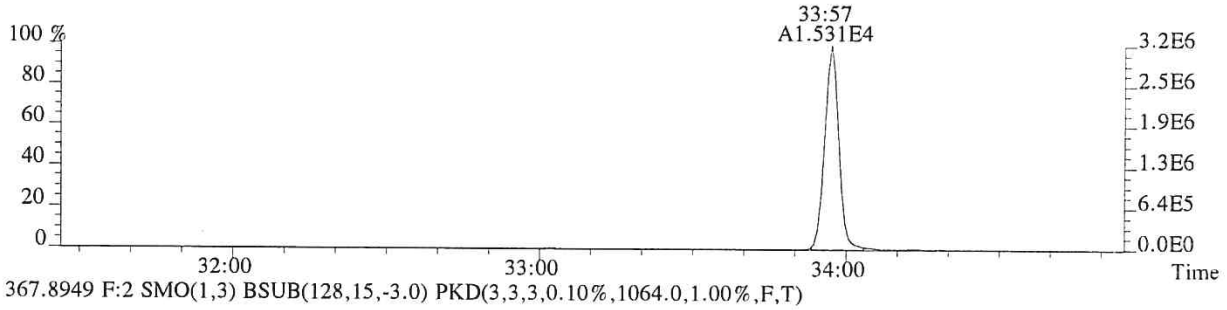


012211

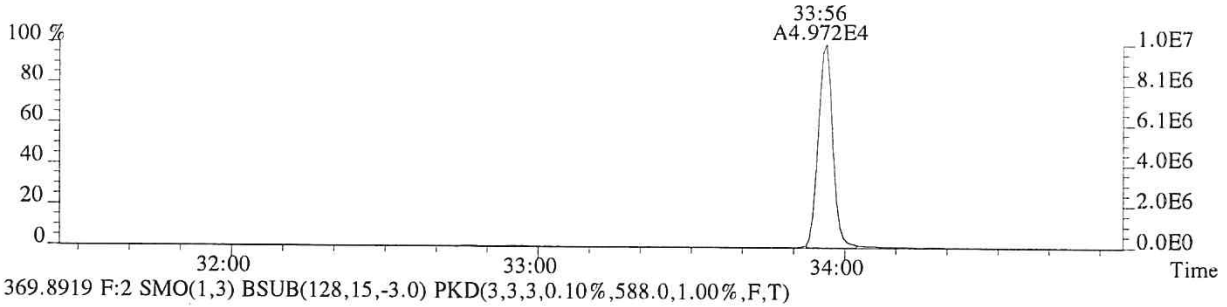
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



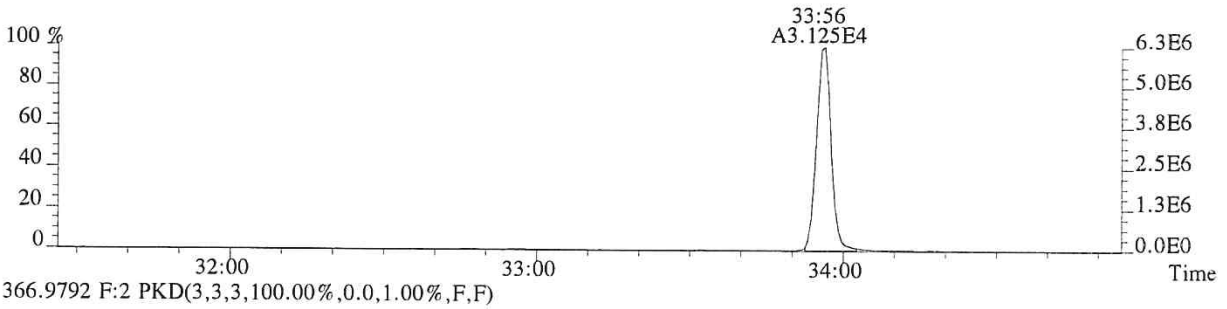
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



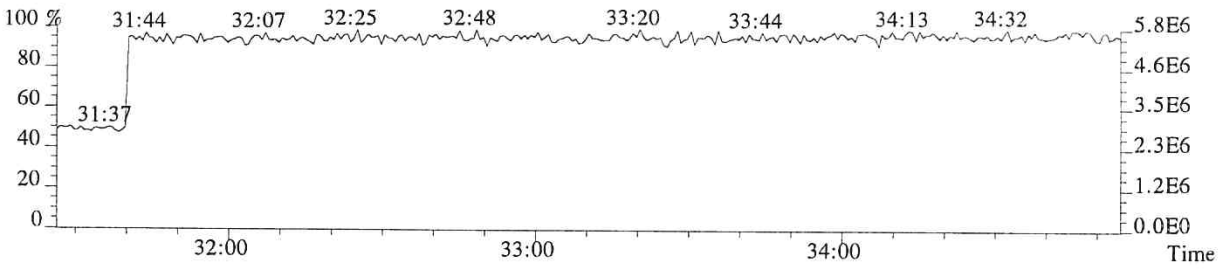
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)

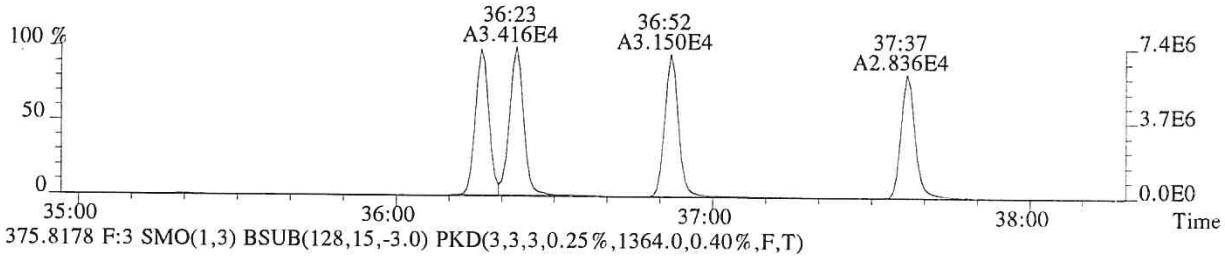


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

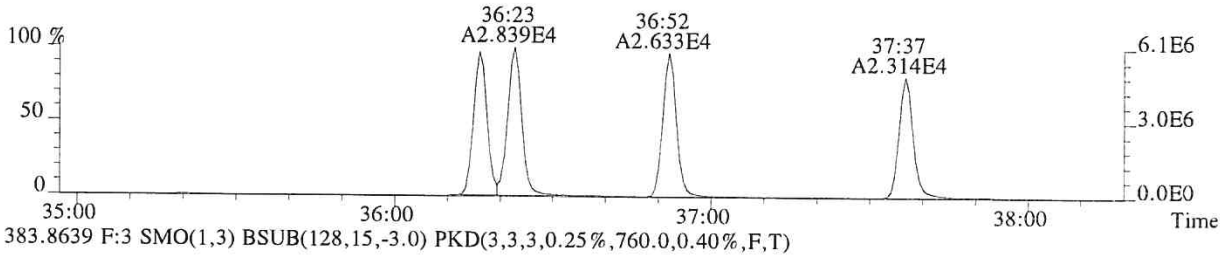


012212

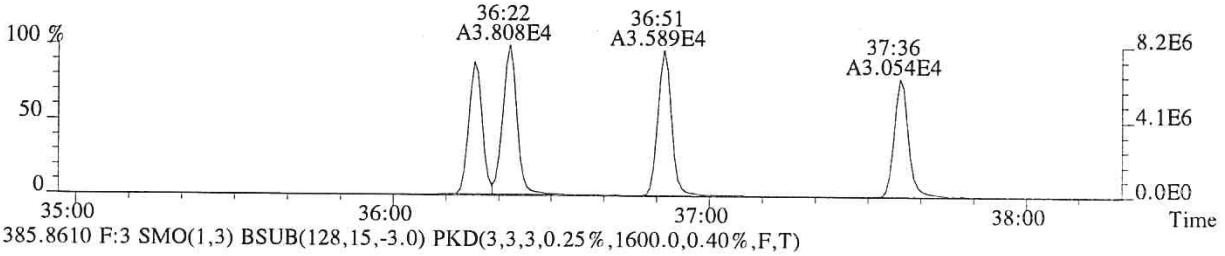
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



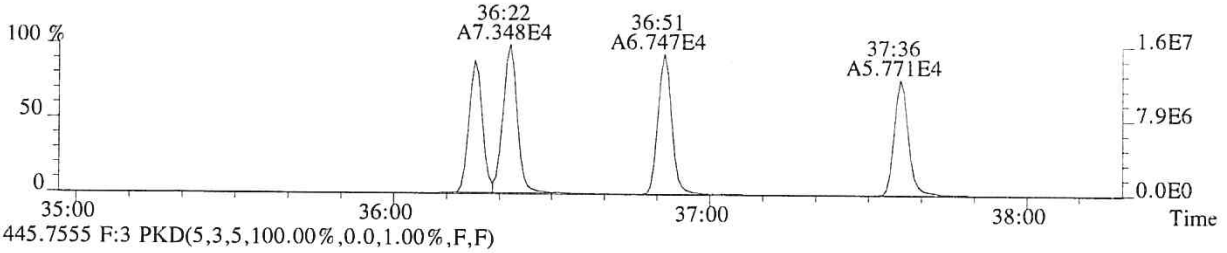
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



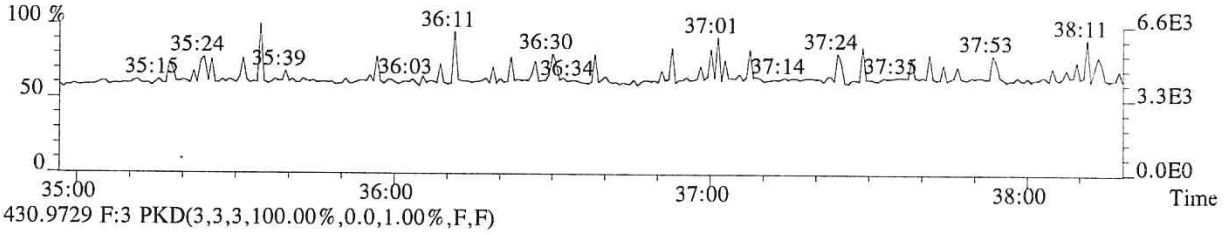
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



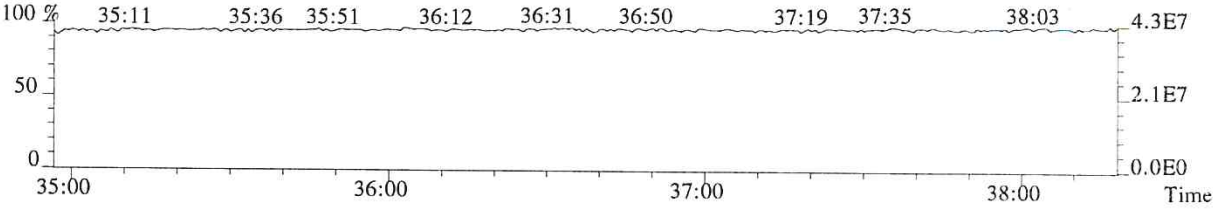
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

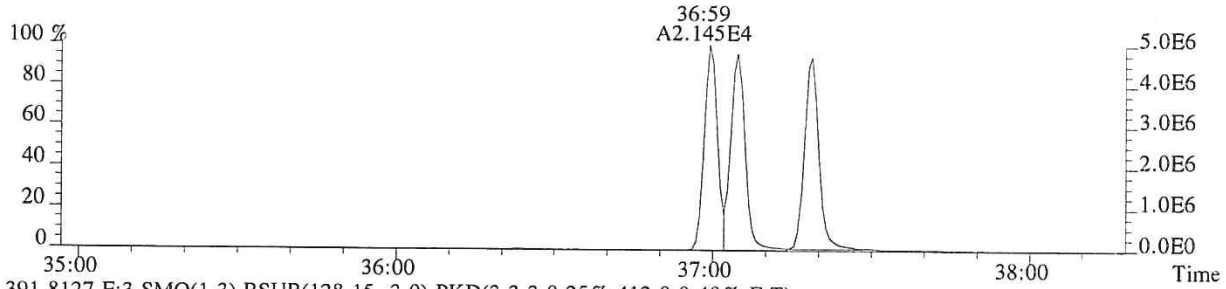


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

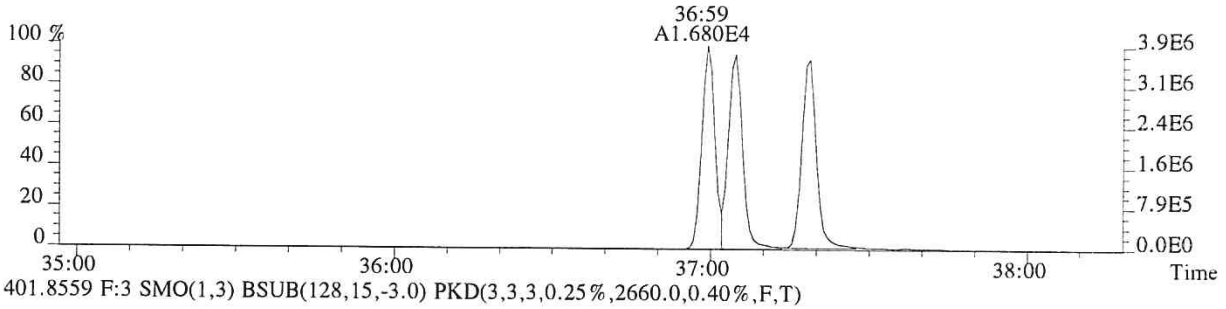


012213

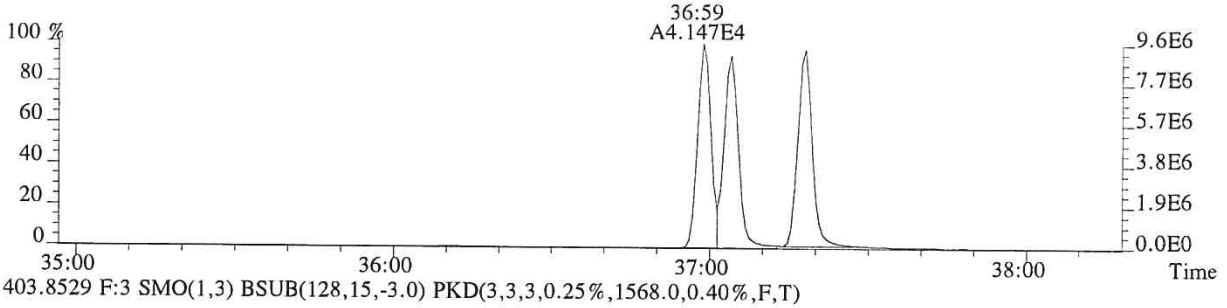
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



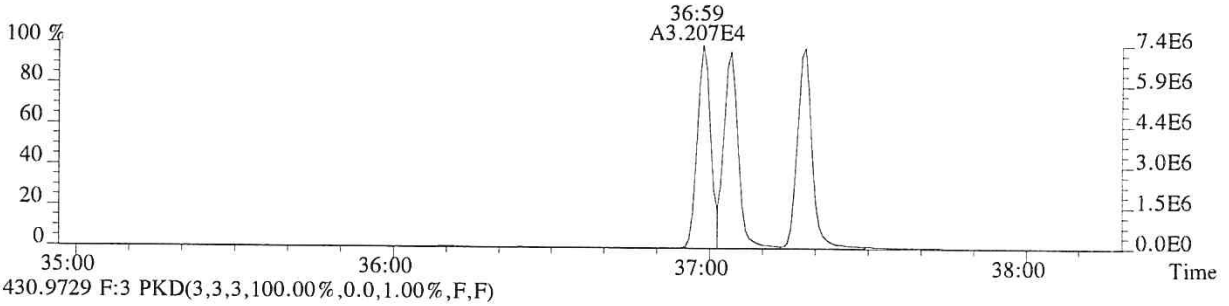
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



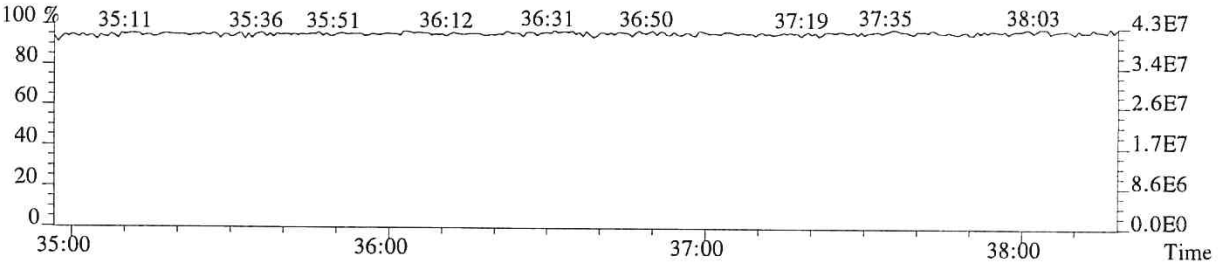
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)

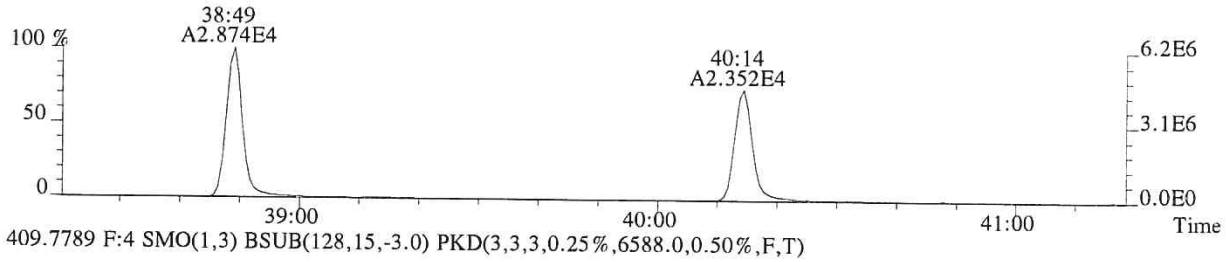


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

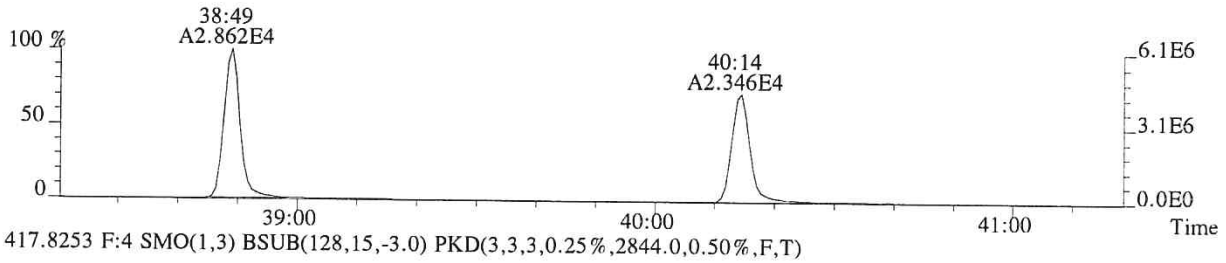


012214

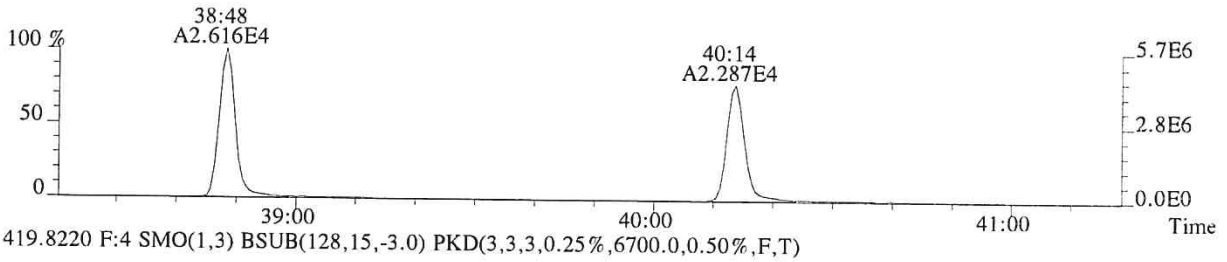
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



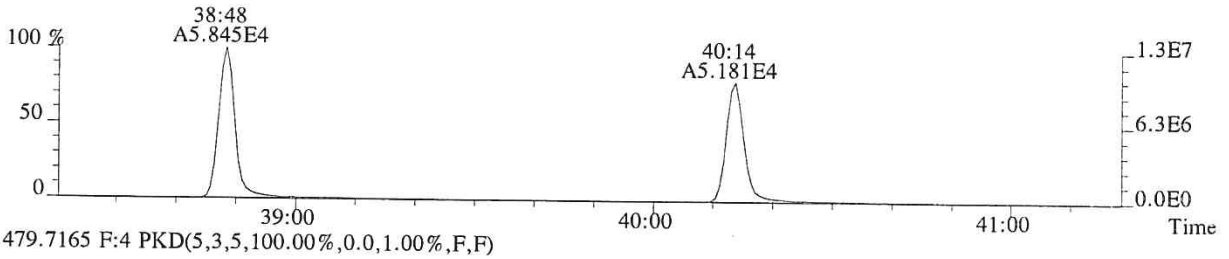
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



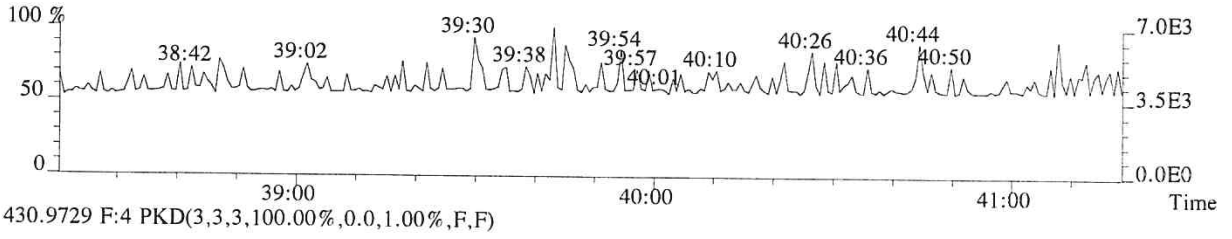
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



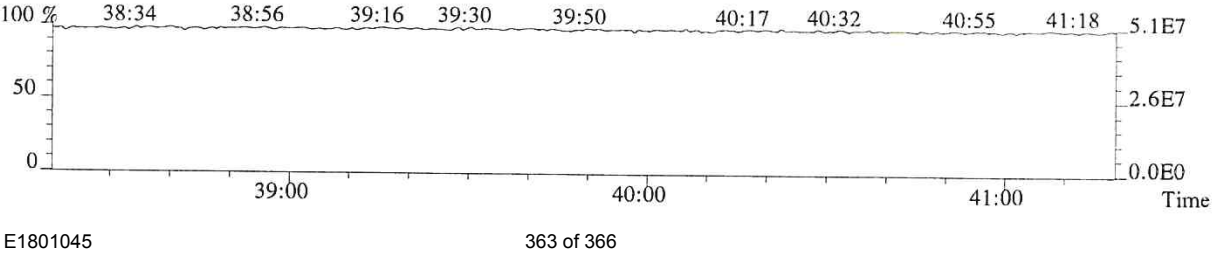
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

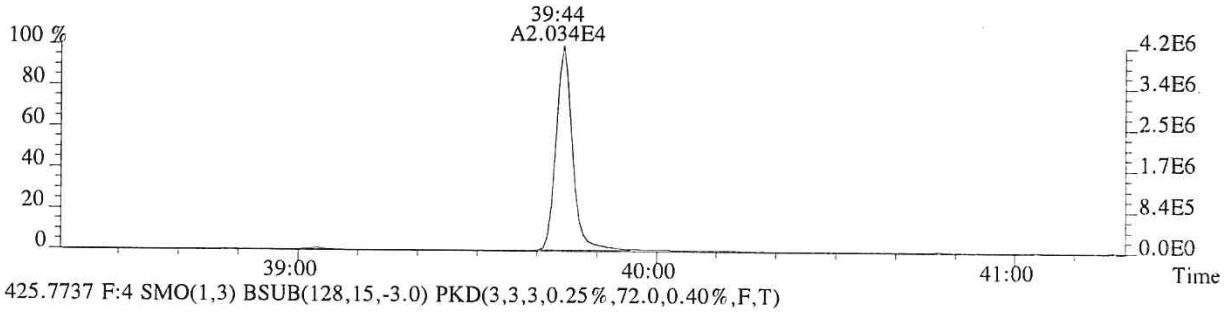


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

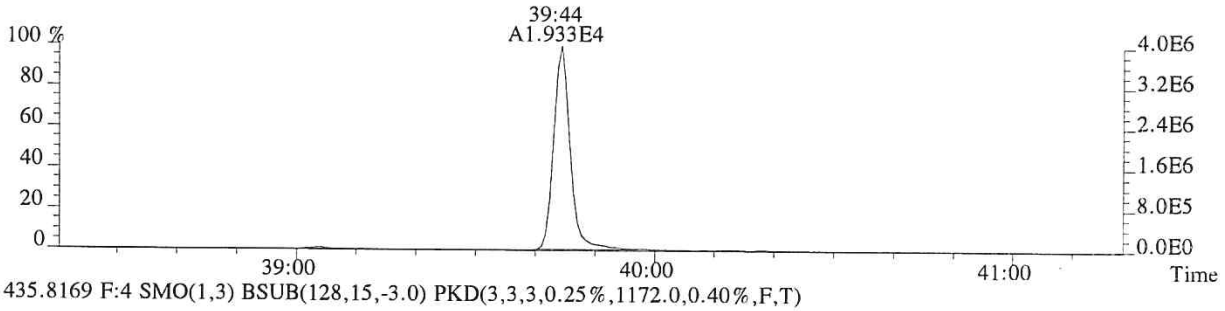


012215

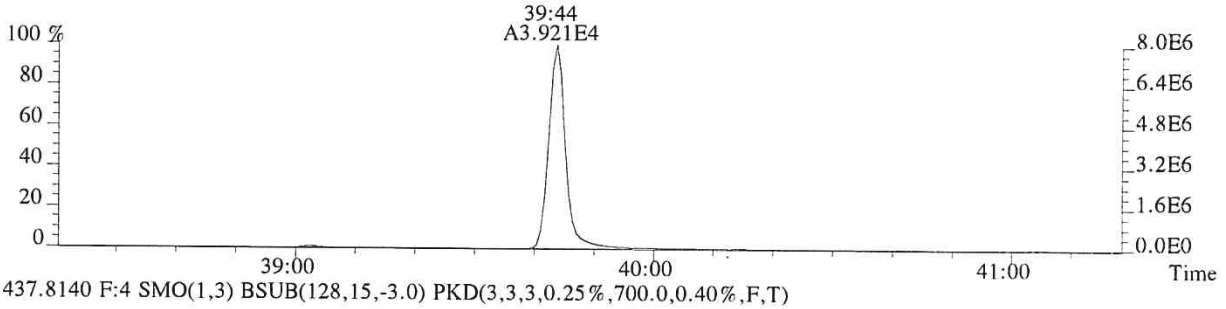
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



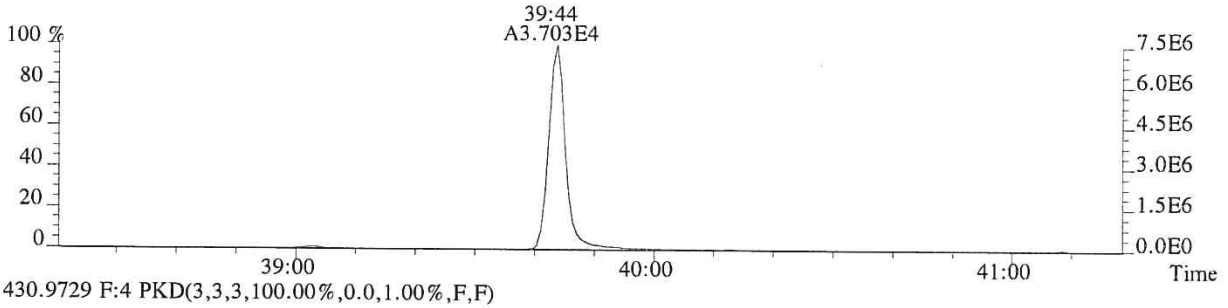
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



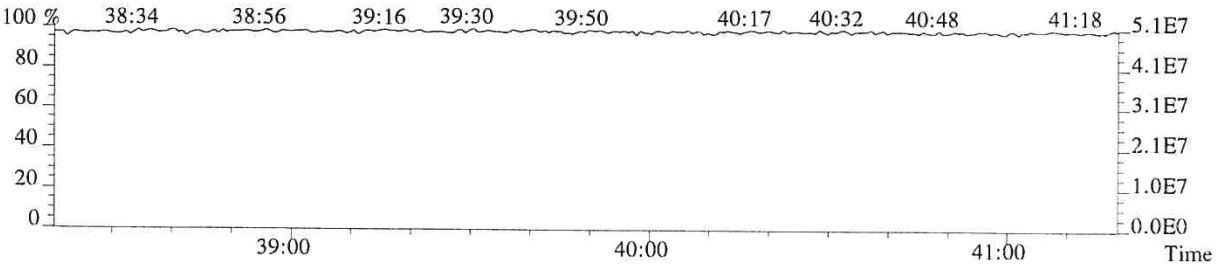
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

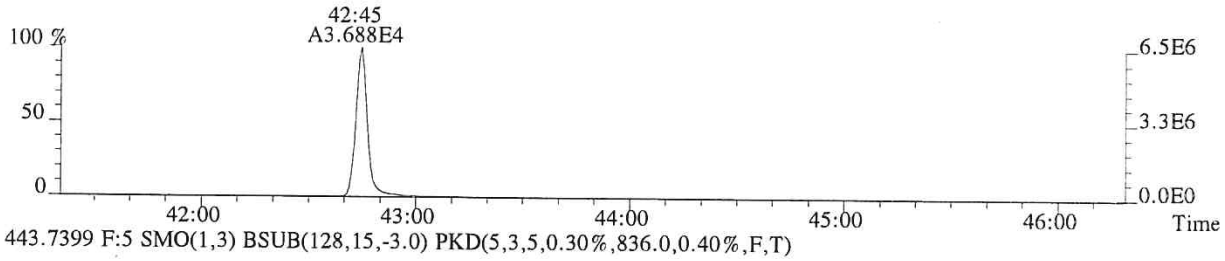


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

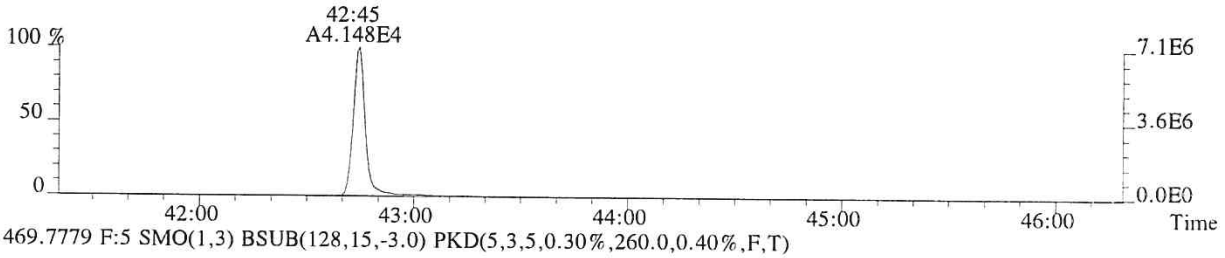


012216

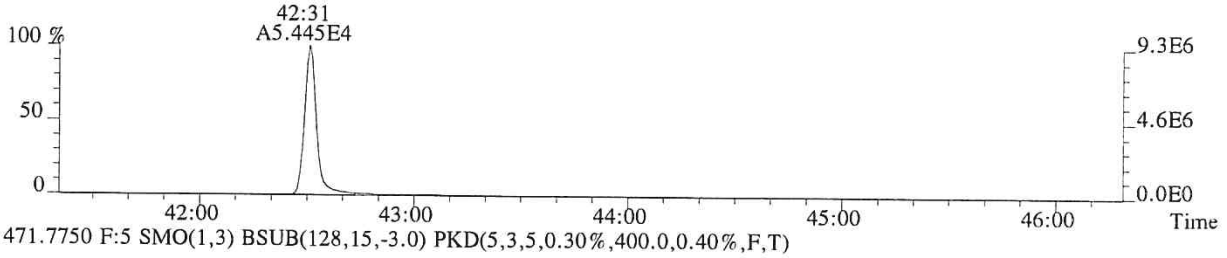
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



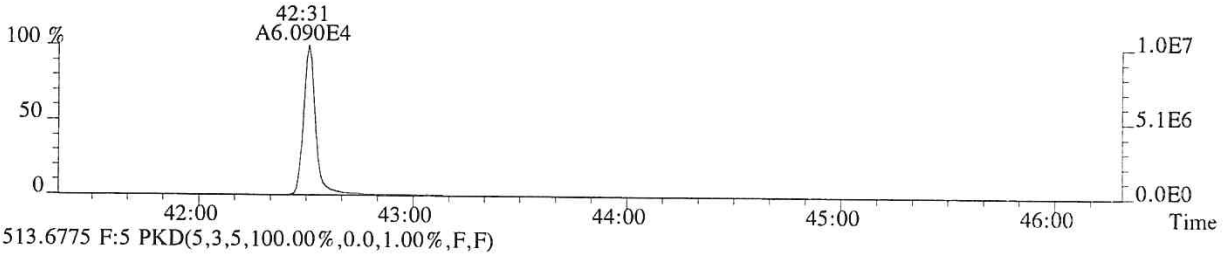
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



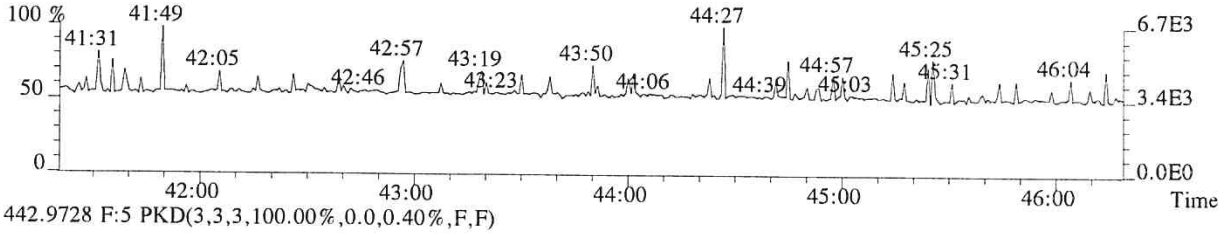
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



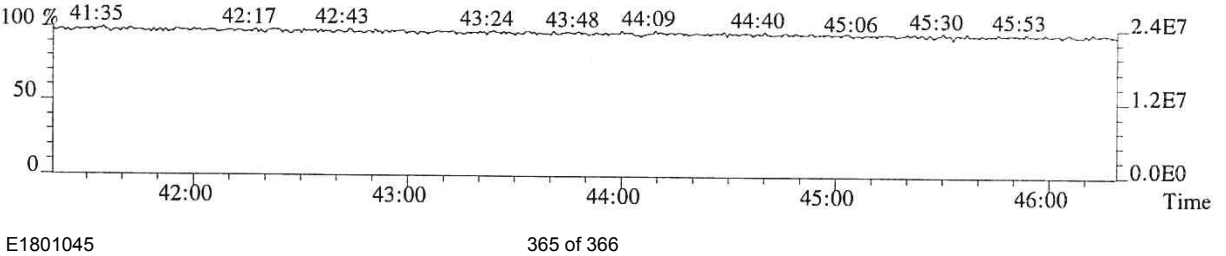
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

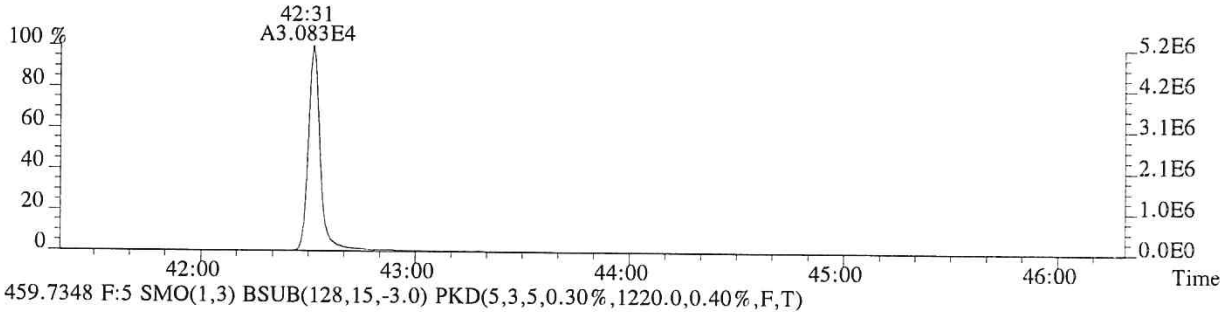


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

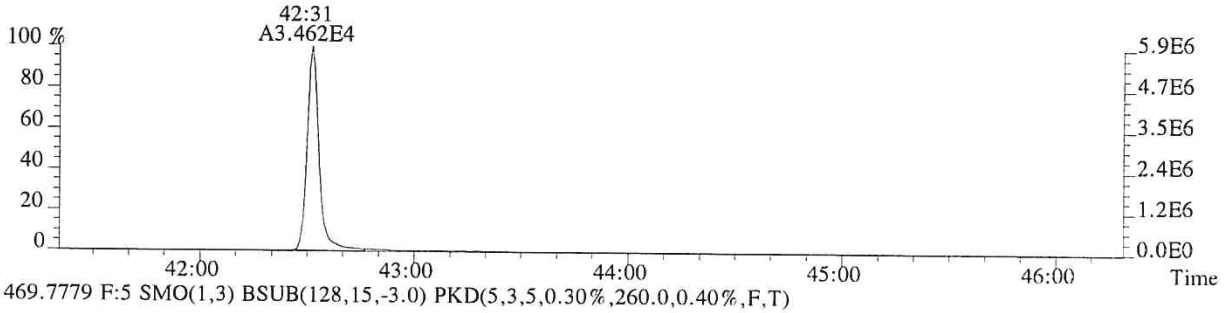


012217

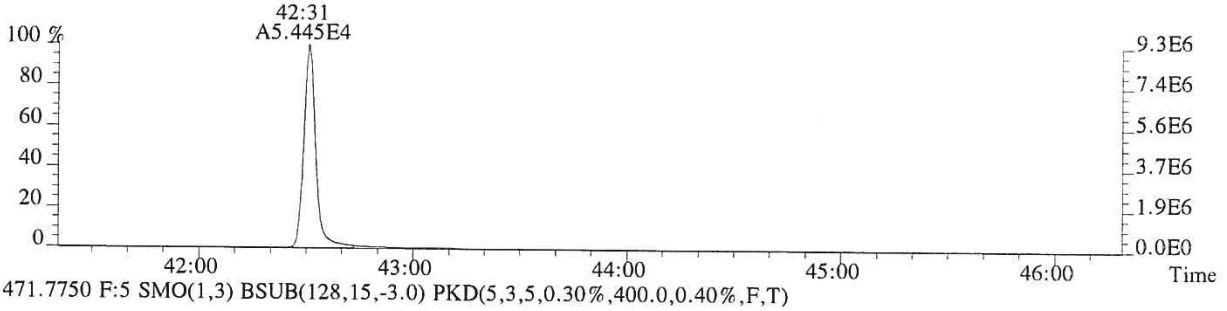
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



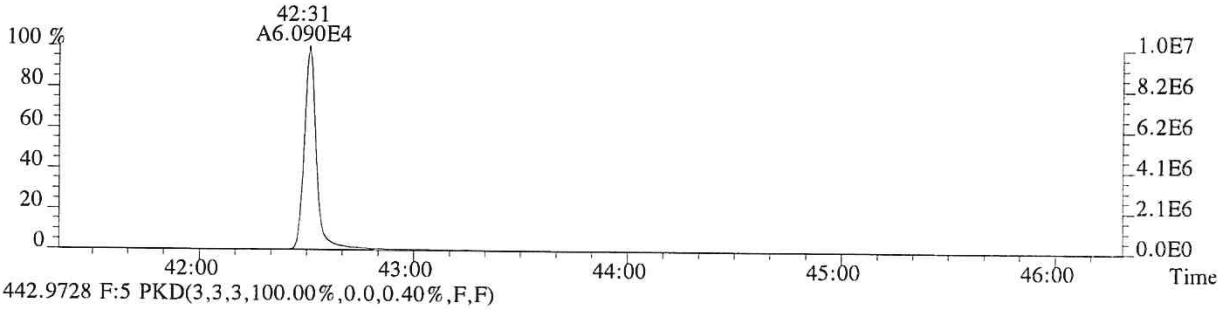
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



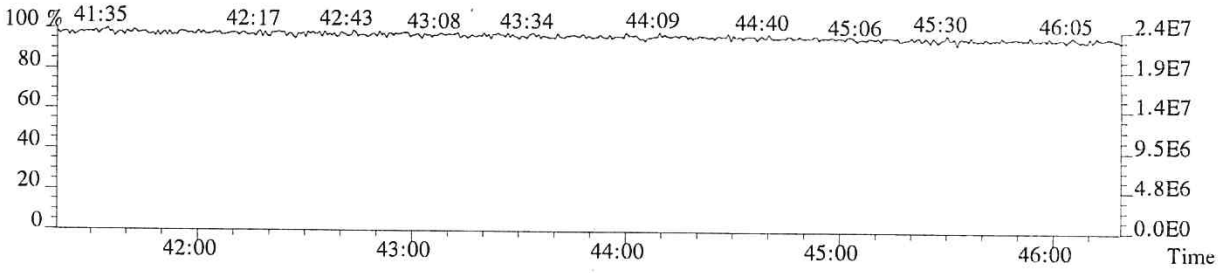
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012218

December 14, 2018 Service Request No:E1801056

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for:C1887-0501

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 16, 2018
For your reference, these analyses have been assigned our service request number **E1801056.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Integral Consulting, Inc.	**Service Request No.:**	E1801056
Project:	C1887-0501	**Date Received:**	11/16/18
Sample Matrix:	Soil/Wipe		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Sixty-nine samples were received for analysis at ALS Environmental in Houston on 11/16/18.

The samples were received at 3.3°C, 2.3°C, 2.9°C, and 2.7 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blank EQ1800488-01, EQ1800499-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

MS/MSD

EQ1800488 and EQ1800499: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

LCS/DLCS

EQ1800499: marginally low recovery for 1,2,3,4,6,7,8-HpCDD in the laboratory control sample. The duplicate laboratory control sample and the RPD were within control limits.

Y flags – Labeled Standards

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801056-001	SL0186	11/14/2018	1440
E1801056-002	SL0187	11/14/2018	1445
E1801056-003	SL0188	11/14/2018	1450
E1801056-004	SL0189	11/14/2018	1455
E1801056-005	SL0190	11/14/2018	1500
E1801056-006	SL0191	11/14/2018	1505
E1801056-007	SL0192	11/14/2018	1600
E1801056-008	SL0193	11/14/2018	1605
E1801056-009	SL0194	11/14/2018	1610
E1801056-010	SL0195	11/14/2018	1615
E1801056-011	SL0196	11/14/2018	1620
E1801056-012	SL0197	11/14/2018	1625
E1801056-013	SL0181	11/14/2018	1400
E1801056-014	SL0182	11/14/2018	1405
E1801056-015	SL0183	11/14/2018	1410
E1801056-016	SL0184	11/14/2018	1415
E1801056-017	SL0185	11/14/2018	1420
E1801056-018	SL0170	11/14/2018	1030
E1801056-019	SL0171	11/14/2018	1035
E1801056-020	SL0172	11/14/2018	1040
E1801056-021	SL0173	11/14/2018	1045
E1801056-022	SL0174	11/14/2018	1050
E1801056-023	SL0175	11/14/2018	1055
E1801056-024	SL0176	11/14/2018	1140
E1801056-025	SL0177	11/14/2018	1145
E1801056-026	SL0178	11/14/2018	1150
E1801056-027	SL0179	11/14/2018	1155
E1801056-028	SL0180	11/14/2018	1200
E1801056-029	SL0165	11/14/2018	0930
E1801056-030	SL0166	11/14/2018	0935
E1801056-031	SL0167	11/14/2018	0940
E1801056-032	SL0168	11/14/2018	0945
E1801056-033	SL0169	11/14/2018	0950
E1801056-034	SL0198	11/15/2018	0850
E1801056-035	SL0199	11/15/2018	0855
E1801056-036	SL0200	11/15/2018	0900
E1801056-037	SL0201	11/15/2018	0905
E1801056-038	SL0202	11/15/2018	0910
E1801056-039	SL0203	11/15/2018	0915
E1801056-040	SL0204	11/15/2018	0920
E1801056-042	SL0206	11/15/2018	1045
E1801056-043	SL0207	11/15/2018	1050

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801056-044	SL0208	11/15/2018	1055
E1801056-045	SL0209	11/15/2018	1100
E1801056-046	SL0210	11/15/2018	1105
E1801056-047	SL0211	11/15/2018	1320
E1801056-048	SL0212	11/15/2018	1325
E1801056-049	SL0213	11/15/2018	1330
E1801056-050	SL0214	11/15/2018	1335
E1801056-051	SL0215	11/15/2018	1340
E1801056-052	SL0216	11/15/2018	1410
E1801056-053	SL0217	11/15/2018	1415
E1801056-054	SL0218	11/15/2018	1420
E1801056-055	SL0219	11/15/2018	1425
E1801056-056	SL0220	11/15/2018	1430
E1801056-057	SL0221	11/15/2018	1435
E1801056-058	SL0222	11/15/2018	1550
E1801056-059	SL0223	11/15/2018	1555
E1801056-060	SL0224	11/15/2018	1600
E1801056-061	SL0225	11/15/2018	1605
E1801056-062	SL0226	11/15/2018	1610
E1801056-063	SL0227	11/15/2018	1615
E1801056-064	SL0228	11/15/2018	1655
E1801056-065	SL0229	11/15/2018	1700
E1801056-066	SL0230	11/15/2018	1705
E1801056-067	SL0231	11/15/2018	1710
E1801056-068	SL0232	11/15/2018	1715
E1801056-069	FW0007	11/15/2018	1745

Service Request Summary

Folder #: **E1801056**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/16/18
Internal Due Date: 12/10/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

59 -N/A N/A
7 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
1 8 oz-Glass Jar WM AMBER Teflon Liner Unpreserved
1 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 2E, E-Disposed
Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801056-006	SL0191	Sediment	11/14/18 1505	**IV**	**IV**
E1801056-012	SL0197	Sediment	11/14/18 1625	**IV**	**IV**
E1801056-023	SL0175	Sediment	11/14/18 1055	**IV**	**IV**
E1801056-039	SL0203	Sediment	11/15/18 0915	**IV**	**IV**
E1801056-040	SL0204	Sediment	11/15/18 0920	**IV**	**IV**
E1801056-057	SL0221	Sediment	11/15/18 1435	**IV**	**IV**
E1801056-063	SL0227	Sediment	11/15/18 1615	**IV**	**IV**
E1801056-069	FW0007	Wipe	11/15/18 1745	**IV**	

Service Request Summary

Folder #: **E1801056**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/16/18
Internal Due Date: 12/10/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

59	-N/A	N/A
7	8 oz-Glass Jar	WM CLEAR Teflon Liner Unpreserved
1	8 oz-Glass Jar	WM AMBER Teflon Liner Unpreserved
1	4 oz-Glass Jar	WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 2E, E-Disposed

Pressure Gas:

Superset Summary

Service Request: E1801056 **SuperSet Reference:** 18-0000490008 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P519339	P519335	P519290	E1801056-006
P519323	P519319	P519290	E1801056-023
P519259	P519255	P519290	E1801056-023.R01
P519340	P519335	P519290	E1801056-039
P519341	P519335	P519290	E1801056-040
P519324	P519319	P519290	E1801056-057
P519260	P519255	P519290	E1801056-057.R01
P519325	P519319	P519290	E1801056-063
P519261	P519255	P519290	E1801056-063.R01
P519290	P519287	P519290	EQ1800488-01
P519363	P519350	P519290	EQ1800488-02
P519364	P519350	P519290	EQ1800488-03

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P615948	P615940	P519290	E1801056-006.R01
P615949	P615940	P519290	E1801056-012
P615950	P615940	P519290	E1801056-039.R01
P615951	P615940	P519290	E1801056-040.R01
P616045	P616040	P616043	E1801056-069
P616043	P616040	P616043	EQ1800499-01
P616051	P616040	P616043	EQ1800499-02
P616052	P616040	P616043	EQ1800499-03

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801056 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/10/18	JC	006, 012, 039, 040

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/11/18	LKL	006, 012, 039, 040

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E18 01054 | DB-5MSUI (circled) | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/07/18	QC	023, 057, 063

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/10/18	LKL	023, 057, 063

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801056 | DB-5MSUI (circled) | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/12/18	JC	006DL, 039DL, 040DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/13/18	LKL	006DL, 039DL, 040DL

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801056 | (DB-5MSUI) | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/11/18	JC	023DL, 057DL, 063DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/11/18	LKL	023DL, 057DL, 063DL

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801056 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/13/18	JC	009

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/13/18	LG	009

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

E1801056 5

Integral Consulting, Inc.
C1887-0501

CHAIN OF CUSTODY FORM

Project: C1887 - 0501

Samplers: AMBER LUTEY + BEN PETRI

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SLO186	0597	11/14/18	1440	SL										X	
SLO187	0272		1445											X	
SLO188	0273		1450											X	
SLO189	0275		1455											X	
SLO190	0276		1500											X	
SLO191	0289		1505		X										
SLO192	0287		1600											X	
SLO193	0288		1605											X	
SLO194	0291		1610											X	
SLO195	0290		1615											X	
SLO196	0291 0156		1620											X	
SLO197	0156		1625		X										
SLO181	0592		1400											X	
SLO182	0593		1405											X	
SLO183	0594		1410											X	
SLO184	0595		1415											X	
SLO185	0596		1420											X	
SLO170	0578		1030											X	
SLO171	0582		1035											X	
SLO172	0584	11/14/18	1040	SL										X	

Analysis Turn Time: Normal / Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Matrix Code: GW - Groundwater; SL - Soil; SW - Surface water; SD - Sediment; Other:

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Relinquished by: _____ (signature) **Date/Time:** 11/16/18 0840 **Received by:** _____ (signature) **Date/Time:** _____

Relinquished by: _____ (signature) **Date/Time:** _____ **Received by:** _____ (signature) **Date/Time:** 11/16/18 1400

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

012236

CHAIN OF CUSTODY FORM

Project: C1887 - 0501

Samplers: AMBER LUTEY + BEN PETRI

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

ANALYSES REQUESTED

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0173	0585	11/14/18	1045	SL										X	
SL0174	0586		1050											X	
SL0175	0579		1055		X										
SL0176	0587		1140											X	
SL0177	0588		1145											X	
SL0178	0589		1150											X	
SL0179	0590		1155											X	
SL0180	0591		1200											X	
SL0165	0577 ~~0930~~		0930											X	
SL0166	0580		0935											X	
SL0167	0576		0940											X	
SL0168	0583		0945											X	
SL0169	0581	11/14/18	0950	SL										X	

Sarah Kissel 11/16/2018

Analysis Turn Time: Normal Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code: GW - Groundwater
SL - Soil SW - Surface water
SD - Sediment Other:

Relinquished by: Sarah Kissel (signature) **Date/Time:** 11/16/18 0840 **Received by:** [signature] (signature) **Date/Time:**

Relinquished by: (signature) **Date/Time:** **Received by:** [signature] 11/16/18 1400 (signature) **Date/Time:**

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

CHAIN OF CUSTODY FORM

Project: C1887 - 0501

Samplers: SARAH KISSELL + BEN PETRI

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0198	0331	11/15/18	0850	Soil										X	
SL0199	0332		0855											X	
SL0200	0333		0900											X	
SL0201	0334		0905											X	
SL0202	0336		0910											X	
SL0203	0335		0915		X										
SL0204	0434		0920		X										
SL0205	0349		0955						X						
SL0206	0337		1045											X	
SL0207	0338		1050											X	
SL0208	0339		1055											X	
SL0209	0340		1100											X	
SL0210	0341		1105											X	
SL0211	0354		1320											X	
SL0212	0355		1325											X	
SL0213	0356		1330											X	
SL0214	0357		1335											X	
SL0215	0358		1340											X	
SL0216	0292	"	1410	"										X	
SL0217	0293	11/15/18	1415	Soil										X	

Analysis Turn Time: (Normal) Rush **Rush Results Needed By:**

Rush SL0205 TAG # 0349 48HR HOLDING TIME

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code:
(SL - Soil)
GW - Groundwater
SW - Surface water
SD -Sediment
Other:

Relinquished by: Sarah Kissell (signature) **Date/Time:** 11/16/18 0840 **Received by:** (signature) **Date/Time:**

Relinquished by: (signature) **Date/Time:** **Received by:** 11/16/18 1400 (signature) **Date/Time:**

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

012238

CHAIN OF CUSTODY FORM

Project: C1887 - 0501

Samplers: SARAH KISSELL + BEN PETRI

integral consulting inc.

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0218	0294	11/15/18	1420	SL										X	
SL0219	0296		1425											X	
SL0220	0295		1430											X	
SL0221	0307		1435		X										
SL0222	0297		1550											X	
SL0223	0298		1555											X	
SL0224	0299		1600											X	
SL0225	0301		1605											X	
SL0226	0362		1610											X	
SL0227	0364		1615		X										
SL0228	0363		1655											X	
SL0229	0365		1700											X	
SL0230	0366		1705											X	
SL0231	0368		1710											X	
SL0232	0369	11/15/18	1715	SL										X	
FW0007	0962	11/15/18	1745	~~SW~~ other	X										

Sarah Kissell 11/16/2018

Analysis Turn Time: Normal Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Relinquished by: Sarah Kissell (signature) **Date/Time:** 11/16/18 0900 **Received by:** (signature) **Date/Time:**

Relinquished by: (signature) **Date/Time:** **Received by:** 11/16/18 1400 (signature) **Date/Time:**

Matrix Code:
GW - Groundwater
SL - Soil SW - Surface water SL
SD -Sediment Other: filter wipe

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

Cooler Receipt Form

ALS Environmental

Project Chemist: HB

Client/Project: INTEGRAL

Thermometer ID:

Date/Time Received: 11/16/18 Initials: CG Date/Time Logged in: 11/16/18 Initials: CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☒ Courier (ALS) ○ Client

2. Samples received in: ☑ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ☑ Yes ○ No
   Were they intact? ☒ Yes ○ No ○ N/A
   Were they signed and dated? ☒ Yes ○ No ○ N/A
   If yes, how many and where? 2 PER COOLER

4. Packing Material: ○ Inserts ☒ Baggies ☑ Bubble Wrap ○ Gel Packs ☑ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ☑ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		11/16/18	1403	PK	3.3 / 3.7	☑
-		↓	↓	↓	2.3 / 2.7	☒
-		↓	↓	↓	2.9 / 3.3	☑
-		↓	↓	↓	2.7 / 2.9	☒

6. Were custody papers properly filled out (ink, signed, dated, etc)? ☑ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ☑ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ☑ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ☑ Yes ○ No
10. Did sample labels and tags agree with custody documents? ☑ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 327285 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/29/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801045-006	SL0153	.01	1613B/Dioxins Furans			Sludge, Solid	10.317g	Brown Mud
2	E1801045-017	SL0164	.01	1613B/Dioxins Furans			Sludge, Solid	10.713g	Brown Mud
3	E1801045-023	SL0146	.01	1613B/Dioxins Furans			Sludge, Solid	10.539g	Black Mud + Rocks
4	E1801046-001	SL0539	.01	1613B/Dioxins Furans			Sludge, Solid	10.411g	Brown Mud
5	E1801046-002	SL0540	.01	1613B/Dioxins Furans			Sludge, Solid	10.919g	Brown Mud
6	E1801046-003	SL0541	.01	1613B/Dioxins Furans			Sludge, Solid	10.976g	Brown Mud
7	E1801046-004	SL0542	.01	1613B/Dioxins Furans			Sludge, Solid	10.909g	Brown Mud
8	E1801046-005	SL0543	.01	1613B/Dioxins Furans			Sludge, Solid	10.895g	Brown Mud
9	E1801046-006	SL0544	.01	1613B/Dioxins Furans			Sludge, Solid	10.732g	Brown Mud
10	E1801056-006	SL0191	.04	1613B/Dioxins Furans			Sediment	10.626g	Brown Mud + Rocks
11	E1801056-012	SL0197	.04	1613B/Dioxins Furans			Sediment	10.151g	Brown Mud + Rocks
12	E1801056-023	SL0175	.04	1613B/Dioxins Furans			Sediment	10.629g	Black + Brown Mud
13	E1801056-039	SL0203	.04	1613B/Dioxins Furans			Sediment	10.924g	Brown Mud
14	E1801056-040	SL0204	.04	1613B/Dioxins Furans			Sediment	10.602g	Brown Mud
15	E1801056-057	SL0221	.04	1613B/Dioxins Furans			Sediment	10.729g	Brown Mud
16	E1801056-063	SL0227	.04	1613B/Dioxins Furans			Sediment	10.718g	Brown Mud
17	E1801058-011	SL0243	.02	1613B/Dioxins Furans			Sediment	10.111g	Brown Mud
18	E1801058-017	SL0249	.02	1613B/Dioxins Furans			Sediment	10.667g	Brown Mud
19	E1801058-018	SL0250	.02	1613B/Dioxins Furans			Sediment	10.538g	Brown Mud
20	E1801058-024	SL0256	.02	1613B/Dioxins Furans			Sediment	10.853g	Brown Mud
21	EQ1800488-01	MB		1613B/Dioxins Furans			Solid	10.246g	
22	EQ1800488-02	LCS		1613B/Dioxins Furans			Solid	10.279g	
23	EQ1800488-03	DLCS		1613B/Dioxins Furans			Solid	10.116g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 194946 Logbook Ref: 194946 AL 11/14/18 2-20 ng/mL Expires On: 05/13/2019

EQ1800488-02 100.00µL EQ1800488-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 195222 Logbook Ref: 195221 JG 11/29/18 2-4ngml Expires On: 01/31/2019

E1801045-006	1,000.00µL	E1801045-017	1,000.00µL	E1801045-023	1,000.00µL	E1801046-001	1,000.00µL	E1801046-001.R	1,000.00µL	E1801046-002	1,000.00µL
E1801046-002.R	1,000.00µL	E1801046-003	1,000.00µL	E1801046-003.R	1,000.00µL	E1801046-004	1,000.00µL	E1801046-004.R	1,000.00µL	E1801046-005	1,000.00µL
E1801046-006	1,000.00µL	E1801056-006	1,000.00µL	E1801056-006.R	1,000.00µL	E1801056-012	1,000.00µL	E1801056-023	1,000.00µL	E1801056-023.R	1,000.00µL
E1801056-039	1,000.00µL	E1801056-039.R	1,000.00µL	E1801056-040	1,000.00µL	E1801056-040.R	1,000.00µL	E1801056-057	1,000.00µL	E1801056-057.R	1,000.00µL
E1801056-063	1,000.00µL	E1801056-063.R	1,000.00µL	E1801058-011	1,000.00µL	E1801058-017	1,000.00µL	E1801058-017.R	1,000.00µL	E1801058-018	1,000.00µL

Preparation Information Benchsheet

Prep Run#: 327285 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/29/18 11:00 AM

E1801058-018.R	1,000.00µL	E1801058-024	1,000.00µL	EQ1800488-01	1,000.00µL	EQ1800488-02	1,000.00µL	EQ1800488-03	1,000.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801045-006	100.00µL	E1801045-017	100.00µL	E1801045-023	100.00µL	E1801046-001	100.00µL	E1801046-001.R	100.00µL	E1801046-002	100.00µL
E1801046-002.R	100.00µL	E1801046-003	100.00µL	E1801046-003.R	100.00µL	E1801046-004	100.00µL	E1801046-004.R	100.00µL	E1801046-005	100.00µL
E1801046-006	100.00µL	E1801056-006	100.00µL	E1801056-006.R	100.00µL	E1801056-012	100.00µL	E1801056-023	100.00µL	E1801056-023.R	100.00µL
E1801056-039	100.00µL	E1801056-039.R	100.00µL	E1801056-040	100.00µL	E1801056-040.R	100.00µL	E1801056-057	100.00µL	E1801056-057.R	100.00µL
E1801056-063	100.00µL	E1801056-063.R	100.00µL	E1801058-011	100.00µL	E1801058-017	100.00µL	E1801058-017.R	100.00µL	E1801058-018	100.00µL
E1801058-018.R	100.00µL	E1801058-024	100.00µL	EQ1800488-01	100.00µL	EQ1800488-02	100.00µL	EQ1800488-03	100.00µL		

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195001)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/29/18 11:00	Started:	12/4/18 09:00	Started:	12/4/18 12:00	Started:	12/5/18 10:00
Finished:	11/30/18 07:30	Finished:	12/4/18 10:00	Finished:	12/4/18 15:00	Finished:	12/5/18 13:00
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

Prep Run#: 327660 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 12/5/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801046-007	FW0051	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
2	E1801056-069	FW0007	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
3	E1801058-030	FW008	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
4	E1801058-031	FW009	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
5	E1801058-032	FW010	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
6	E1801065-030	FW0052	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
7	E1801065-031	FW0053	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
8	EQ1800499-01	MB		1613B/Dioxins Furans			Wipes	0.5000Sample	
9	EQ1800499-02	LCS		1613B/Dioxins Furans			Wipes	0.5000Sample	
10	EQ1800499-03	DLCS		1613B/Dioxins Furans			Wipes	0.5000Sample	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 195317 Logbook Ref: 195317 12/3/18 2-20ngml JG Expires On: 06/01/2019

EQ1800499-02 200.00µL EQ1800499-03 200.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801046-007 100.00µL E1801056-069 100.00µL E1801058-030 100.00µL E1801058-031 100.00µL E1801058-032 100.00µL E1801065-030 100.00µL
E1801065-031 100.00µL EQ1800499-01 100.00µL EQ1800499-02 100.00µL EQ1800499-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 195390 Logbook Ref: 195388 JG 12/5/18 2-4ngml Expires On: 01/31/2019

E1801046-007 2,000.00µL E1801056-069 2,000.00µL E1801058-030 2,000.00µL E1801058-031 2,000.00µL E1801058-032 2,000.00µL E1801065-030 2,000.00µL
E1801065-031 2,000.00µL EQ1800499-01 2,000.00µL EQ1800499-02 2,000.00µL EQ1800499-03 2,000.00µL

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	sodium hydroxide (180303)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195002)		

Preparation Information Benchsheet

Prep Run#: 327660 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 12/5/18 11:00 AM

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/5/18 11:00	Started:	12/6/18 13:00	Started:	12/6/18 14:00	Started:	12/7/18 09:00
Finished:	12/6/18 07:30	Finished:	12/6/18 14:00	Finished:	12/6/18 17:00	Finished:	12/7/18 12:00
By:	ALOPEZ	By:	JGUIN	By:	JGUIN	By:	JGUIN
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

E1801056 28 of 872

012246

Analytical Results

ALS Environmental - Houston HRMS
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Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 15:05
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0191	**Units:**	ng/Kg
Lab Code:	E1801056-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 01:14
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.626g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519339	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3750		17.0	17.0	0.80	1.001	20
1,2,3,7,8-PeCDD	12.0		0.183	3.02	1.60	1.001	1
1,2,3,4,7,8-HxCDD	1.36	**J**	0.180	3.02	1.18	1.000	1
1,2,3,6,7,8-HxCDD	6.93		0.209	3.02	1.21	1.000	1
1,2,3,7,8,9-HxCDD	3.56		0.180	3.02	1.28	1.006	1
1,2,3,4,6,7,8-HpCDD	159		0.283	3.02	1.04	1.000	1
OCDD	4580		0.110	6.03	0.90	1.000	1
2,3,7,8-TCDF	6280		5.69	12.1	0.75	1.001	20
1,2,3,7,8-PeCDF	118		0.442	3.02	1.54	1.000	1
2,3,4,7,8-PeCDF	94.5		0.443	3.02	1.52	1.001	1
1,2,3,4,7,8-HxCDF	206		0.0879	3.02	1.21	1.000	1
1,2,3,6,7,8-HxCDF	49.7		0.0909	3.02	1.22	1.000	1
1,2,3,7,8,9-HxCDF	17.3		0.0886	3.02	1.28	1.001	1
2,3,4,6,7,8-HxCDF	11.6		0.0969	3.02	1.18	1.001	1
1,2,3,4,6,7,8-HpCDF	94.0		0.126	3.02	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	26.5		0.147	3.02	1.09	1.000	1
OCDF	710		0.162	6.03	0.90	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 15:05
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0191	**Units:**	ng/Kg
Lab Code:	E1801056-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 01:14
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.626g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519339	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1730		0.363	0.603	0.75		1
Total Penta-Dioxins	21.0		0.183	3.02	1.43		1
Total Hexa-Dioxins	76.4		0.189	3.02	1.25		1
Total Hepta-Dioxins	392		0.283	3.02	1.02		1
Total Tetra-Furans	5160		0.286	0.603	0.77		1
Total Penta-Furans	343		0.442	3.02	1.45		1
Total Hexa-Furans	336		0.0911	3.02	1.14		1
Total Hepta-Furans	201		0.136	3.02	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 15:05
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0191	**Units:**	Percent
Lab Code:	E1801056-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 17:22
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.626g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615948	**Blank File Name:**	P519290
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	815.322	41		25-164	0.79	1.022
13C-1,2,3,7,8-PeCDD	2000	1137.697	57		25-181	1.56	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1205.370	60		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1083.871	54		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1242.988	62		23-140	1.05	1.066
13C-OCDD	4000	1612.273	40		17-157	0.92	1.140
13C-2,3,7,8-TCDF	2000	1101.098	55		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	1046.640	52		24-185	1.58	1.149
13C-2,3,4,7,8-PeCDF	2000	1029.634	51		21-178	1.61	1.183
13C-1,2,3,4,7,8-HxCDF	2000	1040.966	52		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	978.538	49		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1061.302	53		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	984.376	49		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	857.855	43		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	937.532	47		26-138	0.46	1.079
37Cl-2,3,7,8-TCDD	800	480.150	60		35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 15:05
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0191	**Units:**	ng/Kg
Lab Code:	E1801056-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**3750**	17.0	17.0	20	1	3750
1,2,3,7,8-PeCDD	**12.0**	0.183	3.02	1	1	12.0
1,2,3,4,7,8-HxCDD	**1.36**	0.180	3.02	1	0.1	0.136
1,2,3,6,7,8-HxCDD	**6.93**	0.209	3.02	1	0.1	0.693
1,2,3,7,8,9-HxCDD	**3.56**	0.180	3.02	1	0.1	0.356
1,2,3,4,6,7,8-HpCDD	**159**	0.283	3.02	1	0.01	1.59
OCDD	**4580**	0.110	6.03	1	0.0003	1.37
2,3,7,8-TCDF	**6280**	5.69	12.1	20	0.1	628
1,2,3,7,8-PeCDF	**118**	0.442	3.02	1	0.03	3.54
2,3,4,7,8-PeCDF	**94.5**	0.443	3.02	1	0.3	28.4
1,2,3,4,7,8-HxCDF	**206**	0.0879	3.02	1	0.1	20.6
1,2,3,6,7,8-HxCDF	**49.7**	0.0909	3.02	1	0.1	4.97
1,2,3,7,8,9-HxCDF	**17.3**	0.0886	3.02	1	0.1	1.73
2,3,4,6,7,8-HxCDF	**11.6**	0.0969	3.02	1	0.1	1.16
1,2,3,4,6,7,8-HpCDF	**94.0**	0.126	3.02	1	0.01	0.940
1,2,3,4,7,8,9-HpCDF	**26.5**	0.147	3.02	1	0.01	0.265
OCDF	**710**	0.162	6.03	1	0.0003	0.213
		Total TEQ				4460

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 15:05
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0191	**Units:**	Percent
Lab Code:	E1801056-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	5.659g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	78.0		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 16:25
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0197	**Units:**	ng/Kg
Lab Code:	E1801056-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 18:10
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.151g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615949	**Blank File Name:**	P519290
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	199		1.23	1.23	0.79	1.001	1
1,2,3,7,8-PeCDD	2.60	**JK**	0.311	3.40	1.19	1.001	1
1,2,3,4,7,8-HxCDD	0.841	**JK**	0.221	3.40	2.37	1.000	1
1,2,3,6,7,8-HxCDD	4.76		0.245	3.40	1.13	1.000	1
1,2,3,7,8,9-HxCDD	3.15	**J**	0.216	3.40	1.12	1.006	1
1,2,3,4,6,7,8-HpCDD	98.1		0.340	3.40	1.00	1.000	1
OCDD	1810		0.321	6.79	0.90	1.000	1
2,3,7,8-TCDF	391		0.485	0.679	0.78	1.001	1
1,2,3,7,8-PeCDF	13.1		0.353	3.40	1.41	1.000	1
2,3,4,7,8-PeCDF	11.3		0.392	3.40	1.73	1.001	1
1,2,3,4,7,8-HxCDF	23.2		0.251	3.40	1.27	1.000	1
1,2,3,6,7,8-HxCDF	6.41		0.267	3.40	1.27	1.000	1
1,2,3,7,8,9-HxCDF	2.18	**JK**	0.292	3.40	1.51	1.001	1
2,3,4,6,7,8-HxCDF	2.20	**JK**	0.287	3.40	0.99	1.000	1
1,2,3,4,6,7,8-HpCDF	37.4		0.203	3.40	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	4.65		0.249	3.40	1.11	1.000	1
OCDF	715		0.433	6.79	0.88	1.006	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 16:25
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0197	**Units:**	ng/Kg
Lab Code:	E1801056-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 18:10
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.151g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615949	**Blank File Name:**	P519290
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	218		1.23	1.23	0.79		1
Total Penta-Dioxins	0.916	**J**	0.311	3.40	1.57		1
Total Hexa-Dioxins	23.9		0.227	3.40	1.29		1
Total Hepta-Dioxins	237		0.340	3.40	1.03		1
Total Tetra-Furans	690		0.485	0.679	0.85		1
Total Penta-Furans	45.2		0.372	3.40	1.55		1
Total Hexa-Furans	57.9		0.274	3.40	1.25		1
Total Hepta-Furans	105		0.225	3.40	1.04		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 16:25
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0197	**Units:**	Percent
Lab Code:	E1801056-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 18:10
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.151g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615949	**Blank File Name:**	P519290
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	454.157	23	**Y**	25-164	0.76	1.023
13C-1,2,3,7,8-PeCDD	2000	635.851	32		25-181	1.56	1.193
13C-1,2,3,4,7,8-HxCDD	2000	676.994	34		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	657.328	33		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	753.624	38		23-140	1.05	1.066
13C-OCDD	4000	940.111	24		17-157	0.92	1.139
13C-2,3,7,8-TCDF	2000	601.738	30		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	603.574	30		24-185	1.59	1.149
13C-2,3,4,7,8-PeCDF	2000	571.392	29		21-178	1.58	1.183
13C-1,2,3,4,7,8-HxCDF	2000	619.802	31		26-152	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	566.713	28		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	590.953	30		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	551.185	28		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	513.091	26	**Y**	28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	548.214	27		26-138	0.46	1.079
37Cl-2,3,7,8-TCDD	800	259.000	32	**Y**	35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 16:25
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0197	**Units:**	ng/Kg
Lab Code:	E1801056-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**199**	1.23	1.23	1	1	199
1,2,3,7,8-PeCDD	**2.60**	0.311	3.40	1	1	2.60
1,2,3,4,7,8-HxCDD	**0.841**	0.221	3.40	1	0.1	0.0841
1,2,3,6,7,8-HxCDD	**4.76**	0.245	3.40	1	0.1	0.476
1,2,3,7,8,9-HxCDD	**3.15**	0.216	3.40	1	0.1	0.315
1,2,3,4,6,7,8-HpCDD	**98.1**	0.340	3.40	1	0.01	0.981
OCDD	**1810**	0.321	6.79	1	0.0003	0.543
2,3,7,8-TCDF	**391**	0.485	0.679	1	0.1	39.1
1,2,3,7,8-PeCDF	**13.1**	0.353	3.40	1	0.03	0.393
2,3,4,7,8-PeCDF	**11.3**	0.392	3.40	1	0.3	3.39
1,2,3,4,7,8-HxCDF	**23.2**	0.251	3.40	1	0.1	2.32
1,2,3,6,7,8-HxCDF	**6.41**	0.267	3.40	1	0.1	0.641
1,2,3,7,8,9-HxCDF	**2.18**	0.292	3.40	1	0.1	0.218
2,3,4,6,7,8-HxCDF	**2.20**	0.287	3.40	1	0.1	0.220
1,2,3,4,6,7,8-HpCDF	**37.4**	0.203	3.40	1	0.01	0.374
1,2,3,4,7,8,9-HpCDF	**4.65**	0.249	3.40	1	0.01	0.0465
OCDF	**715**	0.433	6.79	1	0.0003	0.215
		Total TEQ				251

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 16:25
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0197	**Units:**	Percent
Lab Code:	E1801056-012	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	5.577g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	72.5		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 10:55
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0175	**Units:**	ng/Kg
Lab Code:	E1801056-023	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 12:00
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.629g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519323	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3120		29.8	29.8	0.81	1.001	20
1,2,3,7,8-PeCDD	10.5		0.216	3.09	1.67	1.001	1
1,2,3,4,7,8-HxCDD	1.64	**J**	0.119	3.09	1.18	1.000	1
1,2,3,6,7,8-HxCDD	7.45		0.134	3.09	1.22	1.000	1
1,2,3,7,8,9-HxCDD	3.52	**K**	0.124	3.09	1.03	1.007	1
1,2,3,4,6,7,8-HpCDD	193		0.0971	3.09	1.02	1.000	1
OCDD	4300		0.148	6.18	0.90	1.000	1
2,3,7,8-TCDF	5350		7.52	12.4	0.74	1.001	20
1,2,3,7,8-PeCDF	89.6		0.247	3.09	1.51	1.000	1
2,3,4,7,8-PeCDF	79.2		0.278	3.09	1.50	1.001	1
1,2,3,4,7,8-HxCDF	153		0.239	3.09	1.26	1.000	1
1,2,3,6,7,8-HxCDF	37.8		0.246	3.09	1.23	1.000	1
1,2,3,7,8,9-HxCDF	12.1		0.264	3.09	1.22	1.001	1
2,3,4,6,7,8-HxCDF	9.82		0.282	3.09	1.30	1.000	1
1,2,3,4,6,7,8-HpCDF	99.8		0.234	3.09	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	20.5		0.299	3.09	1.09	1.000	1
OCDF	2100		0.289	6.18	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 10:55
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0175	**Units:**	ng/Kg
Lab Code:	E1801056-023	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 12:00
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.629g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519323	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1620		0.617	0.618	0.76		1
Total Penta-Dioxins	16.6		0.216	3.09	1.37		1
Total Hexa-Dioxins	82.0		0.126	3.09	1.23		1
Total Hepta-Dioxins	597		0.0971	3.09	1.03		1
Total Tetra-Furans	5650		0.231	0.618	0.68		1
Total Penta-Furans	270		0.262	3.09	1.38		1
Total Hexa-Furans	266		0.258	3.09	1.26		1
Total Hepta-Furans	226		0.264	3.09	1.04		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 10:55
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0175	**Units:**	Percent
Lab Code:	E1801056-023	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 19:40
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.629g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519259	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519255

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	814.748	41		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1354.152	68		25-181	1.58	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1073.765	54		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1032.623	52		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1259.682	63		23-140	1.08	1.070
13C-OCDD	4000	1748.031	44		17-157	0.90	1.149
13C-2,3,7,8-TCDF	2000	1086.330	54		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1290.303	65		24-185	1.58	1.146
13C-2,3,4,7,8-PeCDF	2000	1226.536	61		21-178	1.59	1.179
13C-1,2,3,4,7,8-HxCDF	2000	957.675	48		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	933.259	47		26-123	0.54	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1083.590	54		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	960.202	48		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	906.477	45		28-143	0.45	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1038.873	52		26-138	0.45	1.082
37Cl-2,3,7,8-TCDD	800	525.263	66		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 10:55
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0175	**Units:**	ng/Kg
Lab Code:	E1801056-023	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**3120**	29.8	29.8	20	1	3120
1,2,3,7,8-PeCDD	**10.5**	0.216	3.09	1	1	10.5
1,2,3,4,7,8-HxCDD	**1.64**	0.119	3.09	1	0.1	0.164
1,2,3,6,7,8-HxCDD	**7.45**	0.134	3.09	1	0.1	0.745
1,2,3,7,8,9-HxCDD	**3.52**	0.124	3.09	1	0.1	0.352
1,2,3,4,6,7,8-HpCDD	**193**	0.0971	3.09	1	0.01	1.93
OCDD	**4300**	0.148	6.18	1	0.0003	1.29
2,3,7,8-TCDF	**5350**	7.52	12.4	20	0.1	535
1,2,3,7,8-PeCDF	**89.6**	0.247	3.09	1	0.03	2.69
2,3,4,7,8-PeCDF	**79.2**	0.278	3.09	1	0.3	23.8
1,2,3,4,7,8-HxCDF	**153**	0.239	3.09	1	0.1	15.3
1,2,3,6,7,8-HxCDF	**37.8**	0.246	3.09	1	0.1	3.78
1,2,3,7,8,9-HxCDF	**12.1**	0.264	3.09	1	0.1	1.21
2,3,4,6,7,8-HxCDF	**9.82**	0.282	3.09	1	0.1	0.982
1,2,3,4,6,7,8-HpCDF	**99.8**	0.234	3.09	1	0.01	0.998
1,2,3,4,7,8,9-HpCDF	**20.5**	0.299	3.09	1	0.01	0.205
OCDF	**2100**	0.289	6.18	1	0.0003	0.630
		Total TEQ				3720

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/14/18 10:55
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0175	**Units:**	Percent
Lab Code:	E1801056-023	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	5.931g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	76.1		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 09:15
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0203	**Units:**	ng/Kg
Lab Code:	E1801056-039	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 02:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.924g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519340	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	4110		18.0	18.0	0.81	1.001	20
1,2,3,7,8-PeCDD	14.6		0.144	2.97	1.76	1.001	1
1,2,3,4,7,8-HxCDD	0.731	**JK**	0.162	2.97	1.49	1.000	1
1,2,3,6,7,8-HxCDD	4.04		0.166	2.97	1.23	1.000	1
1,2,3,7,8,9-HxCDD	1.75	**JK**	0.153	2.97	1.57	1.007	1
1,2,3,4,6,7,8-HpCDD	90.7		0.112	2.97	1.04	1.000	1
OCDD	1920		0.169	5.94	0.88	1.000	1
2,3,7,8-TCDF	7270		4.72	11.9	0.75	1.001	20
1,2,3,7,8-PeCDF	148		0.190	2.97	1.54	1.001	1
2,3,4,7,8-PeCDF	117		0.207	2.97	1.56	1.001	1
1,2,3,4,7,8-HxCDF	232		0.110	2.97	1.22	1.000	1
1,2,3,6,7,8-HxCDF	57.3		0.120	2.97	1.25	1.000	1
1,2,3,7,8,9-HxCDF	18.4		0.114	2.97	1.26	1.001	1
2,3,4,6,7,8-HxCDF	13.1		0.123	2.97	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	78.4		0.211	2.97	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	25.3		0.239	2.97	1.02	1.000	1
OCDF	142		0.167	5.94	0.89	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 09:15
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0203	**Units:**	ng/Kg
Lab Code:	E1801056-039	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 02:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.924g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519340	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1970		0.446	0.594	0.88		1
Total Penta-Dioxins	23.9		0.144	2.97	1.40		1
Total Hexa-Dioxins	47.9		0.160	2.97	1.29		1
Total Hepta-Dioxins	217		0.112	2.97	1.03		1
Total Tetra-Furans	7120		0.276	0.594	0.81		1
Total Penta-Furans	418		0.198	2.97	1.36		1
Total Hexa-Furans	358		0.117	2.97	1.29		1
Total Hepta-Furans	149		0.225	2.97	1.04		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 09:15
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0203	**Units:**	Percent
Lab Code:	E1801056-039	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 18:59
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.924g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615950	**Blank File Name:**	P519290
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	758.091	38		25-164	0.78	1.023
13C-1,2,3,7,8-PeCDD	2000	1113.105	56		25-181	1.55	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1048.165	52		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1003.837	50		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1217.038	61		23-140	1.05	1.066
13C-OCDD	4000	1369.744	34		17-157	0.93	1.139
13C-2,3,7,8-TCDF	2000	1036.681	52		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	940.918	47		24-185	1.61	1.147
13C-2,3,4,7,8-PeCDF	2000	950.649	48		21-178	1.57	1.180
13C-1,2,3,4,7,8-HxCDF	2000	977.462	49		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	910.050	46		26-123	0.54	0.974
13C-1,2,3,7,8,9-HxCDF	2000	915.570	46		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	921.204	46		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	769.348	38		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	863.183	43		26-138	0.46	1.078
37Cl-2,3,7,8-TCDD	800	443.620	55		35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 09:15
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0203	**Units:**	ng/Kg
Lab Code:	E1801056-039	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**4110**	18.0	18.0	20	1	4110
1,2,3,7,8-PeCDD	**14.6**	0.144	2.97	1	1	14.6
1,2,3,4,7,8-HxCDD	**0.731**	0.162	2.97	1	0.1	0.0731
1,2,3,6,7,8-HxCDD	**4.04**	0.166	2.97	1	0.1	0.404
1,2,3,7,8,9-HxCDD	**1.75**	0.153	2.97	1	0.1	0.175
1,2,3,4,6,7,8-HpCDD	**90.7**	0.112	2.97	1	0.01	0.907
OCDD	**1920**	0.169	5.94	1	0.0003	0.576
2,3,7,8-TCDF	**7270**	4.72	11.9	20	0.1	727
1,2,3,7,8-PeCDF	**148**	0.190	2.97	1	0.03	4.44
2,3,4,7,8-PeCDF	**117**	0.207	2.97	1	0.3	35.1
1,2,3,4,7,8-HxCDF	**232**	0.110	2.97	1	0.1	23.2
1,2,3,6,7,8-HxCDF	**57.3**	0.120	2.97	1	0.1	5.73
1,2,3,7,8,9-HxCDF	**18.4**	0.114	2.97	1	0.1	1.84
2,3,4,6,7,8-HxCDF	**13.1**	0.123	2.97	1	0.1	1.31
1,2,3,4,6,7,8-HpCDF	**78.4**	0.211	2.97	1	0.01	0.784
1,2,3,4,7,8,9-HpCDF	**25.3**	0.239	2.97	1	0.01	0.253
OCDF	**142**	0.167	5.94	1	0.0003	0.0426
		Total TEQ				4930

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 09:15
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0203	**Units:**	Percent
Lab Code:	E1801056-039	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	5.685g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	77.1		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 09:20
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0204	**Units:**	ng/Kg
Lab Code:	E1801056-040	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 02:51
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.602g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519341	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2790		14.2	14.2	0.80	1.001	20
1,2,3,7,8-PeCDD	7.99	**K**	0.156	3.05	1.82	1.001	1
1,2,3,4,7,8-HxCDD	0.362	**J**	0.113	3.05	1.10	1.000	1
1,2,3,6,7,8-HxCDD	2.38	**J**	0.144	3.05	1.41	1.000	1
1,2,3,7,8,9-HxCDD	0.961	**JK**	0.118	3.05	1.49	1.007	1
1,2,3,4,6,7,8-HpCDD	47.3		0.0916	3.05	0.98	1.000	1
OCDD	1000		0.277	6.10	0.90	1.000	1
2,3,7,8-TCDF	5040		2.98	12.2	0.73	1.001	20
1,2,3,7,8-PeCDF	86.0		0.207	3.05	1.56	1.000	1
2,3,4,7,8-PeCDF	68.9		0.230	3.05	1.52	1.001	1
1,2,3,4,7,8-HxCDF	137		0.138	3.05	1.20	1.000	1
1,2,3,6,7,8-HxCDF	33.8		0.140	3.05	1.24	1.000	1
1,2,3,7,8,9-HxCDF	11.7		0.168	3.05	1.15	1.000	1
2,3,4,6,7,8-HxCDF	8.03		0.149	3.05	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	41.8		0.116	3.05	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	14.8		0.129	3.05	1.05	1.000	1
OCDF	78.6		0.285	6.10	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 09:20
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0204	**Units:**	ng/Kg
Lab Code:	E1801056-040	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 02:51
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.602g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519341	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1210		0.511	0.610	0.80		1
Total Penta-Dioxins	3.27		0.156	3.05	1.40		1
Total Hexa-Dioxins	29.1		0.123	3.05	1.21		1
Total Hepta-Dioxins	115		0.0916	3.05	1.07		1
Total Tetra-Furans	4350		0.397	0.610	0.73		1
Total Penta-Furans	236		0.218	3.05	1.37		1
Total Hexa-Furans	215		0.147	3.05	1.17		1
Total Hepta-Furans	81.2		0.122	3.05	1.05		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 09:20
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0204	**Units:**	Percent
Lab Code:	E1801056-040	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 19:48
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.602g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615951	**Blank File Name:**	P519290
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615940

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	731.455	37		25-164	0.77	1.023
13C-1,2,3,7,8-PeCDD	2000	1085.993	54		25-181	1.56	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1119.228	56		32-141	1.26	0.990
13C-1,2,3,6,7,8-HxCDD	2000	825.983	41		28-130	1.22	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1079.004	54		23-140	1.06	1.064
13C-OCDD	4000	1080.932	27		17-157	0.92	1.138
13C-2,3,7,8-TCDF	2000	1001.276	50		24-169	0.76	0.994
13C-1,2,3,7,8-PeCDF	2000	926.500	46		24-185	1.57	1.147
13C-2,3,4,7,8-PeCDF	2000	933.037	47		21-178	1.60	1.180
13C-1,2,3,4,7,8-HxCDF	2000	883.237	44		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	829.641	41		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	637.396	32		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	850.676	43		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	672.824	34		28-143	0.46	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	786.673	39		26-138	0.46	1.077
37Cl-2,3,7,8-TCDD	800	416.088	52		35-197	NA	1.024

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 09:20
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0204	**Units:**	ng/Kg
Lab Code:	E1801056-040	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2790**	14.2	14.2	20	1	2790
1,2,3,7,8-PeCDD	**7.99**	0.156	3.05	1	1	7.99
1,2,3,4,7,8-HxCDD	**0.362**	0.113	3.05	1	0.1	0.0362
1,2,3,6,7,8-HxCDD	**2.38**	0.144	3.05	1	0.1	0.238
1,2,3,7,8,9-HxCDD	**0.961**	0.118	3.05	1	0.1	0.0961
1,2,3,4,6,7,8-HpCDD	**47.3**	0.0916	3.05	1	0.01	0.473
OCDD	**1000**	0.277	6.10	1	0.0003	0.300
2,3,7,8-TCDF	**5040**	2.98	12.2	20	0.1	504
1,2,3,7,8-PeCDF	**86.0**	0.207	3.05	1	0.03	2.58
2,3,4,7,8-PeCDF	**68.9**	0.230	3.05	1	0.3	20.7
1,2,3,4,7,8-HxCDF	**137**	0.138	3.05	1	0.1	13.7
1,2,3,6,7,8-HxCDF	**33.8**	0.140	3.05	1	0.1	3.38
1,2,3,7,8,9-HxCDF	**11.7**	0.168	3.05	1	0.1	1.17
2,3,4,6,7,8-HxCDF	**8.03**	0.149	3.05	1	0.1	0.803
1,2,3,4,6,7,8-HpCDF	**41.8**	0.116	3.05	1	0.01	0.418
1,2,3,4,7,8,9-HpCDF	**14.8**	0.129	3.05	1	0.01	0.148
OCDF	**78.6**	0.285	6.10	1	0.0003	0.0236
		Total TEQ				3350

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 09:20
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0204	**Units:**	Percent
Lab Code:	E1801056-040	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	5.711g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	77.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 14:35
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0221	**Units:**	ng/Kg
Lab Code:	E1801056-057	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 12:49
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.729g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519324	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	11600		145	145	0.73	1.001	100
1,2,3,7,8-PeCDD	41.4		0.284	3.24	1.62	1.000	1
1,2,3,4,7,8-HxCDD	0.820	**JK**	0.242	3.24	1.84	1.000	1
1,2,3,6,7,8-HxCDD	6.96	**K**	0.288	3.24	1.50	1.000	1
1,2,3,7,8,9-HxCDD	3.32		0.258	3.24	1.38	1.008	1
1,2,3,4,6,7,8-HpCDD	189		0.442	3.24	1.04	1.000	1
OCDD	4410		0.275	6.47	0.89	1.000	1
2,3,7,8-TCDF	20700		52.7	64.7	0.75	1.001	100
1,2,3,7,8-PeCDF	374		0.491	3.24	1.50	1.001	1
2,3,4,7,8-PeCDF	334		0.566	3.24	1.56	1.001	1
1,2,3,4,7,8-HxCDF	634		0.481	3.24	1.21	1.000	1
1,2,3,6,7,8-HxCDF	149		0.511	3.24	1.20	1.000	1
1,2,3,7,8,9-HxCDF	47.2		0.536	3.24	1.19	1.001	1
2,3,4,6,7,8-HxCDF	30.2		0.557	3.24	1.19	1.000	1
1,2,3,4,6,7,8-HpCDF	206		0.343	3.24	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	66.3		0.459	3.24	1.07	1.000	1
OCDF	2090		0.252	6.47	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 14:35
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0221	**Units:**	ng/Kg
Lab Code:	E1801056-057	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 12:49
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.729g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519324	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	6670		0.549	0.647	0.82		1
Total Penta-Dioxins	61.2		0.284	3.24	1.41		1
Total Hexa-Dioxins	76.9		0.262	3.24	1.25		1
Total Hepta-Dioxins	435		0.442	3.24	1.05		1
Total Tetra-Furans	24300		0.270	0.647	0.72		1
Total Penta-Furans	1060		0.526	3.24	1.41		1
Total Hexa-Furans	955		0.521	3.24	1.09		1
Total Hepta-Furans	391		0.396	3.24	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 14:35
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0221	**Units:**	Percent
Lab Code:	E1801056-057	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 20:29
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.729g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519260	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519255

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	753.528	38		25-164	0.81	1.021
13C-1,2,3,7,8-PeCDD	2000	1267.190	63		25-181	1.58	1.188
13C-1,2,3,4,7,8-HxCDD	2000	1024.804	51		32-141	1.32	0.991
13C-1,2,3,6,7,8-HxCDD	2000	939.890	47		28-130	1.19	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1148.294	57		23-140	1.08	1.070
13C-OCDD	4000	1565.922	39		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	949.150	47		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1208.988	60		24-185	1.63	1.145
13C-2,3,4,7,8-PeCDF	2000	1092.980	55		21-178	1.62	1.178
13C-1,2,3,4,7,8-HxCDF	2000	887.252	44		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	852.003	43		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1028.905	51		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	888.996	44		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	827.400	41		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	937.755	47		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	523.117	65		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 14:35
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0221	**Units:**	ng/Kg
Lab Code:	E1801056-057	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**11600**	145	145	100	1	11600
1,2,3,7,8-PeCDD	**41.4**	0.284	3.24	1	1	41.4
1,2,3,4,7,8-HxCDD	**0.820**	0.242	3.24	1	0.1	0.0820
1,2,3,6,7,8-HxCDD	**6.96**	0.288	3.24	1	0.1	0.696
1,2,3,7,8,9-HxCDD	**3.32**	0.258	3.24	1	0.1	0.332
1,2,3,4,6,7,8-HpCDD	**189**	0.442	3.24	1	0.01	1.89
OCDD	**4410**	0.275	6.47	1	0.0003	1.32
2,3,7,8-TCDF	**20700**	52.7	64.7	100	0.1	2070
1,2,3,7,8-PeCDF	**374**	0.491	3.24	1	0.03	11.2
2,3,4,7,8-PeCDF	**334**	0.566	3.24	1	0.3	100
1,2,3,4,7,8-HxCDF	**634**	0.481	3.24	1	0.1	63.4
1,2,3,6,7,8-HxCDF	**149**	0.511	3.24	1	0.1	14.9
1,2,3,7,8,9-HxCDF	**47.2**	0.536	3.24	1	0.1	4.72
2,3,4,6,7,8-HxCDF	**30.2**	0.557	3.24	1	0.1	3.02
1,2,3,4,6,7,8-HpCDF	**206**	0.343	3.24	1	0.01	2.06
1,2,3,4,7,8,9-HpCDF	**66.3**	0.459	3.24	1	0.01	0.663
OCDF	**2090**	0.252	6.47	1	0.0003	0.627
		Total TEQ				13900

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 14:35
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0221	**Units:**	Percent
Lab Code:	E1801056-057	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	6.177g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	72.0		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 16:15
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0227	**Units:**	ng/Kg
Lab Code:	E1801056-063	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 13:38
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.718g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519325	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	12100		112	112	0.81	1.001	100
1,2,3,7,8-PeCDD	44.2		0.316	3.12	1.60	1.001	1
1,2,3,4,7,8-HxCDD	1.53	**J**	0.243	3.12	1.34	1.000	1
1,2,3,6,7,8-HxCDD	7.75		0.299	3.12	1.09	1.000	1
1,2,3,7,8,9-HxCDD	3.28	**K**	0.263	3.12	1.04	1.008	1
1,2,3,4,6,7,8-HpCDD	167		0.324	3.12	1.03	1.000	1
OCDD	3520		0.263	6.25	0.89	1.000	1
2,3,7,8-TCDF	19500		24.8	62.5	0.75	1.001	100
1,2,3,7,8-PeCDF	461		1.15	3.12	1.52	1.000	1
2,3,4,7,8-PeCDF	352		1.29	3.12	1.55	1.001	1
1,2,3,4,7,8-HxCDF	763		0.427	3.12	1.22	1.000	1
1,2,3,6,7,8-HxCDF	185		0.452	3.12	1.19	1.000	1
1,2,3,7,8,9-HxCDF	55.5		0.449	3.12	1.21	1.001	1
2,3,4,6,7,8-HxCDF	37.1		0.463	3.12	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	233		0.297	3.12	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	74.2		0.396	3.12	1.00	1.000	1
OCDF	2010		0.359	6.25	0.89	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 16:15
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0227	**Units:**	ng/Kg
Lab Code:	E1801056-063	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 13:38
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.718g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519325	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	7330		0.480	0.625	0.81		1
Total Penta-Dioxins	59.8		0.316	3.12	1.50		1
Total Hexa-Dioxins	73.0		0.267	3.12	1.31		1
Total Hepta-Dioxins	412		0.324	3.12	1.04		1
Total Tetra-Furans	24000		0.285	0.625	0.72		1
Total Penta-Furans	1260		1.22	3.12	1.36		1
Total Hexa-Furans	1160		0.448	3.12	1.17		1
Total Hepta-Furans	419		0.343	3.12	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 16:15
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0227	**Units:**	Percent
Lab Code:	E1801056-063	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 21:17
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.718g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519261	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519255

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	718.870	36		25-164	0.81	1.020
13C-1,2,3,7,8-PeCDD	2000	1205.002	60		25-181	1.58	1.188
13C-1,2,3,4,7,8-HxCDD	2000	987.536	49		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	851.826	43		28-130	1.29	0.992
13C-1,2,3,4,6,7,8-HpCDD	2000	1060.831	53		23-140	1.07	1.069
13C-OCDD	4000	1366.992	34		17-157	0.91	1.149
13C-2,3,7,8-TCDF	2000	965.178	48		24-169	0.82	0.991
13C-1,2,3,7,8-PeCDF	2000	1140.637	57		24-185	1.62	1.145
13C-2,3,4,7,8-PeCDF	2000	1070.526	54		21-178	1.59	1.178
13C-1,2,3,4,7,8-HxCDF	2000	839.286	42		26-152	0.51	0.969
13C-1,2,3,6,7,8-HxCDF	2000	791.903	40		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	934.390	47		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	834.293	42		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	757.683	38		28-143	0.44	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	884.590	44		26-138	0.43	1.082
37Cl-2,3,7,8-TCDD	800	445.141	56		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 16:15
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0227	**Units:**	ng/Kg
Lab Code:	E1801056-063	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**12100**	112	112	100	1	12100
1,2,3,7,8-PeCDD	**44.2**	0.316	3.12	1	1	44.2
1,2,3,4,7,8-HxCDD	**1.53**	0.243	3.12	1	0.1	0.153
1,2,3,6,7,8-HxCDD	**7.75**	0.299	3.12	1	0.1	0.775
1,2,3,7,8,9-HxCDD	**3.28**	0.263	3.12	1	0.1	0.328
1,2,3,4,6,7,8-HpCDD	**167**	0.324	3.12	1	0.01	1.67
OCDD	**3520**	0.263	6.25	1	0.0003	1.06
2,3,7,8-TCDF	**19500**	24.8	62.5	100	0.1	1950
1,2,3,7,8-PeCDF	**461**	1.15	3.12	1	0.03	13.8
2,3,4,7,8-PeCDF	**352**	1.29	3.12	1	0.3	106
1,2,3,4,7,8-HxCDF	**763**	0.427	3.12	1	0.1	76.3
1,2,3,6,7,8-HxCDF	**185**	0.452	3.12	1	0.1	18.5
1,2,3,7,8,9-HxCDF	**55.5**	0.449	3.12	1	0.1	5.55
2,3,4,6,7,8-HxCDF	**37.1**	0.463	3.12	1	0.1	3.71
1,2,3,4,6,7,8-HpCDF	**233**	0.297	3.12	1	0.01	2.33
1,2,3,4,7,8,9-HpCDF	**74.2**	0.396	3.12	1	0.01	0.742
OCDF	**2010**	0.359	6.25	1	0.0003	0.603
		Total TEQ				14300

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 16:15
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0227	**Units:**	Percent
Lab Code:	E1801056-063	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	5.697g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	74.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 17:45
Sample Matrix:	Wipe	**Date Received:**	11/16/18 14:00
Sample Name:	FW0007	**Units:**	pg
Lab Code:	E1801056-069	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 14:39
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616045	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	12.0	12.0			1
1,2,3,7,8-PeCDD	ND	U	3.30	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	2.28	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	2.48	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	2.21	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	1.95	50.0			1
OCDD	25.0**BJK**		3.53	100	0.68	1.000	1
2,3,7,8-TCDF	ND	U	5.06	10.0			1
1,2,3,7,8-PeCDF	ND	U	2.30	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.47	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	2.19	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	2.19	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	2.65	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	2.34	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	1.27	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	1.71	50.0			1
OCDF	ND	U	5.96	100			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 17:45
Sample Matrix:	Wipe	**Date Received:**	11/16/18 14:00
Sample Name:	FW0007	**Units:**	pg
Lab Code:	E1801056-069	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 14:39
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616045	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	12.0	12.0			1
Total Penta-Dioxins	ND	U	3.30	50.0			1
Total Hexa-Dioxins	ND	U	2.32	50.0			1
Total Hepta-Dioxins	ND	U	1.95	50.0			1
Total Tetra-Furans	ND	U	5.06	10.0			1
Total Penta-Furans	ND	U	2.38	50.0			1
Total Hexa-Furans	ND	U	2.33	50.0			1
Total Hepta-Furans	ND	U	1.47	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 17:45
Sample Matrix:	Wipe	**Date Received:**	11/16/18 14:00
Sample Name:	FW0007	**Units:**	Percent
Lab Code:	E1801056-069	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 14:39
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616045	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	885.388	44		25-164	0.78	1.023
13C-1,2,3,7,8-PeCDD	2000	1419.807	71		25-181	1.56	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1504.732	75		32-141	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1505.308	75		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1701.249	85		23-140	1.04	1.067
13C-OCDD	4000	1840.246	46		17-157	0.94	1.139
13C-2,3,7,8-TCDF	2000	1194.399	60		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1319.513	66		24-185	1.59	1.151
13C-2,3,4,7,8-PeCDF	2000	1260.980	63		21-178	1.60	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1315.310	66		26-152	0.55	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1285.254	64		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1265.000	63		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1278.682	64		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1188.350	59		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1142.817	57		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	561.032	70		35-197	NA	1.024

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	11/15/18 17:45
Sample Matrix:	Wipe	**Date Received:**	11/16/18 14:00
Sample Name:	FW0007	**Units:**	pg
Lab Code:	E1801056-069	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	12.0	12.0	1	1	
1,2,3,7,8-PeCDD	ND	3.30	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	2.28	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	2.48	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	2.21	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	1.95	50.0	1	0.01	
OCDD	**25.0**	3.53	100	1	0.0003	0.00750
2,3,7,8-TCDF	ND	5.06	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	2.30	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	2.47	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	2.19	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	2.19	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	2.65	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	2.34	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	1.27	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	1.71	50.0	1	0.01	
OCDF	ND	5.96	100	1	0.0003	
		Total TEQ				0.00750

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800488-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519290	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.419	0.488			1
1,2,3,7,8-PeCDD	ND	U	0.0694	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0548	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0572	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0547	2.44			1
1,2,3,4,6,7,8-HpCDD	0.0967**JK**		0.0337	2.44	0.82	1.000	1
OCDD	0.200**JK**		0.0666	4.88	0.55	1.000	1
2,3,7,8-TCDF	0.343**JK**		0.115	0.488	0.63	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0515	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.0562	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0415	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0363	2.44			1
1,2,3,7,8,9-HxCDF	0.0508**J**		0.0466	2.44	1.22	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0427	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0294	2.44			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0394	2.44			1
OCDF	ND	U	0.143	4.88			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800488-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519290	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.419	0.488			1
Total Penta-Dioxins	ND	U	0.0694	2.44			1
Total Hexa-Dioxins	ND	U	0.0556	2.44			1
Total Hepta-Dioxins	ND	U	0.0337	2.44			1
Total Tetra-Furans	ND	U	0.115	0.488			1
Total Penta-Furans	ND	U	0.0537	2.44			1
Total Hexa-Furans	0.0508**J**		0.0415	2.44	1.22		1
Total Hepta-Furans	0.0434**J**		0.0341	2.44	1.10		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800488-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519290	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	601.967	30		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1232.457	62		25-181	1.60	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1021.258	51		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	990.134	50		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1445.852	72		23-140	1.07	1.070
13C-OCDD	4000	2263.024	57		17-157	0.91	1.151
13C-2,3,7,8-TCDF	2000	808.433	40		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1150.728	58		24-185	1.62	1.145
13C-2,3,4,7,8-PeCDF	2000	1085.788	54		21-178	1.59	1.179
13C-1,2,3,4,7,8-HxCDF	2000	890.132	45		26-152	0.54	0.970
13C-1,2,3,6,7,8-HxCDF	2000	953.383	48		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1026.900	51		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	925.376	46		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1012.807	51		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1149.672	57		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	348.230	44		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800499-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 12:27
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616043	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	18.3	18.3			1
1,2,3,7,8-PeCDD	ND	U	4.42	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	2.85	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	3.23	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	2.83	50.0			1
1,2,3,4,6,7,8-HpCDD	1.84**JK**		1.70	50.0	1.21	1.000	1
OCDD	20.3**JK**		4.20	100	0.62	1.000	1
2,3,7,8-TCDF	ND	U	9.75	10.0			1
1,2,3,7,8-PeCDF	ND	U	2.98	50.0			1
2,3,4,7,8-PeCDF	ND	U	3.24	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	2.35	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	2.41	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	3.25	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	2.98	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	1.57	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	2.16	50.0			1
OCDF	ND	U	11.9	100			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800499-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 12:27
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616043	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	18.3	18.3			1
Total Penta-Dioxins	ND	U	4.42	50.0			1
Total Hexa-Dioxins	5.86**J**		2.97	50.0	1.24		1
Total Hepta-Dioxins	ND	U	1.70	50.0			1
Total Tetra-Furans	ND	U	9.75	10.0			1
Total Penta-Furans	ND	U	3.11	50.0			1
Total Hexa-Furans	ND	U	2.71	50.0			1
Total Hepta-Furans	ND	U	1.84	50.0			1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800499-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 12:27
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616043	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	621.382	31		25-164	0.75	1.023
13C-1,2,3,7,8-PeCDD	2000	1043.953	52		25-181	1.51	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1043.326	52		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1011.483	51		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1098.367	55		23-140	1.02	1.067
13C-OCDD	4000	1090.398	27		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	770.763	39		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	940.344	47		24-185	1.58	1.151
13C-2,3,4,7,8-PeCDF	2000	893.556	45		21-178	1.58	1.185
13C-1,2,3,4,7,8-HxCDF	2000	899.042	45		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	906.808	45		26-123	0.55	0.974
13C-1,2,3,7,8,9-HxCDF	2000	823.883	41		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	755.788	38		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	812.929	41		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	783.678	39		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	342.030	43		35-197	NA	1.024

Accuracy & Precision

ALS Environmental - Houston HRMS
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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Analyzed:**	12/11/18
Sample Matrix:	Sediment	**Date Extracted:**	11/29/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618494

	Lab Control Sample EQ1800488-02			Duplicate Lab Control Sample EQ1800488-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	76.5	97.3	79	76.7	98.9	78	70-140	<1	50
1,2,3,4,7,8-HxCDD	88.3	97.3	91	91.8	98.9	93	70-164	4	50
1,2,3,6,7,8-HxCDD	97.4	97.3	100	102	98.9	104	76-134	5	50
1,2,3,7,8,9-HxCDD	96.6	97.3	99	91.5	98.9	93	64-162	5	50
1,2,3,7,8-PeCDD	98.8	97.3	102	99.7	98.9	101	70-142	<1	50
2,3,7,8-TCDD	18.0	19.5	93	19.6	19.8	99	67-158	8	50
OCDD	194	195	100	191	198	96	78-144	2	50
1,2,3,4,6,7,8-HpCDF	91.6	97.3	94	93.2	98.9	94	82-122	2	50
1,2,3,4,7,8,9-HpCDF	95.8	97.3	99	100	98.9	101	78-138	4	50
1,2,3,4,7,8-HxCDF	98.1	97.3	101	99.8	98.9	101	72-134	2	50
1,2,3,6,7,8-HxCDF	94.7	97.3	97	99.2	98.9	100	84-130	5	50
1,2,3,7,8,9-HxCDF	92.5	97.3	95	95.3	98.9	96	78-130	3	50
1,2,3,7,8-PeCDF	90.1	97.3	93	90.8	98.9	92	80-134	<1	50
2,3,4,6,7,8-HxCDF	96.3	97.3	99	97.3	98.9	98	70-156	<1	50
2,3,4,7,8-PeCDF	98.8	97.3	102	100	98.9	101	68-160	2	50
2,3,7,8-TCDF	19.4	19.5	100	19.2	19.8	97	75-158	1	50
OCDF	209	195	108	219	198	111	63-170	4	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Analyzed:**	12/11/18
Sample Matrix:	Sediment	**Date Extracted:**	11/29/18

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618494

EQ1800488-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	76.5	97.3	79	70-140
1,2,3,4,7,8-HxCDD	88.3	97.3	91	70-164
1,2,3,6,7,8-HxCDD	97.4	97.3	100	76-134
1,2,3,7,8,9-HxCDD	96.6	97.3	99	64-162
1,2,3,7,8-PeCDD	98.8	97.3	102	70-142
2,3,7,8-TCDD	18.0	19.5	93	67-158
OCDD	194	195	100	78-144
1,2,3,4,6,7,8-HpCDF	91.6	97.3	94	82-122
1,2,3,4,7,8,9-HpCDF	95.8	97.3	99	78-138
1,2,3,4,7,8-HxCDF	98.1	97.3	101	72-134
1,2,3,6,7,8-HxCDF	94.7	97.3	97	84-130
1,2,3,7,8,9-HxCDF	92.5	97.3	95	78-130
1,2,3,7,8-PeCDF	90.1	97.3	93	80-134
2,3,4,6,7,8-HxCDF	96.3	97.3	99	70-156
2,3,4,7,8-PeCDF	98.8	97.3	102	68-160
2,3,7,8-TCDF	19.4	19.5	100	75-158
OCDF	209	195	108	63-170

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:07
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.279g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519363	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.0		0.371	0.486	0.83	1.001	1
1,2,3,7,8-PeCDD	98.8		0.0819	2.43	1.59	1.000	1
1,2,3,4,7,8-HxCDD	88.3		0.0522	2.43	1.28	1.000	1
1,2,3,6,7,8-HxCDD	97.4		0.0570	2.43	1.25	1.000	1
1,2,3,7,8,9-HxCDD	96.6		0.0533	2.43	1.22	1.007	1
1,2,3,4,6,7,8-HpCDD	76.5		0.0421	2.43	1.04	1.000	1
OCDD	194		0.125	4.86	0.91	1.000	1
2,3,7,8-TCDF	19.4		0.198	0.486	0.68	1.001	1
1,2,3,7,8-PeCDF	90.1		0.149	2.43	1.50	1.000	1
2,3,4,7,8-PeCDF	98.8		0.155	2.43	1.48	1.000	1
1,2,3,4,7,8-HxCDF	98.1		0.0323	2.43	1.20	1.001	1
1,2,3,6,7,8-HxCDF	94.7		0.0299	2.43	1.21	1.000	1
1,2,3,7,8,9-HxCDF	92.5		0.0359	2.43	1.21	1.000	1
2,3,4,6,7,8-HxCDF	96.3		0.0304	2.43	1.19	1.000	1
1,2,3,4,6,7,8-HpCDF	91.6		0.129	2.43	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	95.8		0.165	2.43	0.97	1.000	1
OCDF	209		0.110	4.86	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:07
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.279g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519363	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.0		0.371	0.486	0.83		1
Total Penta-Dioxins	98.8		0.0819	2.43	1.59		1
Total Hexa-Dioxins	282		0.0541	2.43	1.28		1
Total Hepta-Dioxins	76.5		0.0421	2.43	1.04		1
Total Tetra-Furans	19.7		0.198	0.486	0.86		1
Total Penta-Furans	189		0.152	2.43	1.54		1
Total Hexa-Furans	382		0.0320	2.43	1.20		1
Total Hepta-Furans	187		0.146	2.43	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800488-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:07
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.279g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519363	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	466.307	23	**Y**	25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	825.671	41		25-181	1.62	1.191
13C-1,2,3,4,7,8-HxCDD	2000	864.506	43		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	870.765	44		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1092.489	55		23-140	1.06	1.070
13C-OCDD	4000	1640.699	41		17-157	0.89	1.151
13C-2,3,7,8-TCDF	2000	401.579	20	**Y**	24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	771.807	39		24-185	1.56	1.147
13C-2,3,4,7,8-PeCDF	2000	757.986	38		21-178	1.60	1.180
13C-1,2,3,4,7,8-HxCDF	2000	731.942	37		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	787.880	39		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	844.158	42		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	817.519	41		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	839.764	42		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	957.460	48		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	208.630	26	**Y**	35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:56
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.116g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519364	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.6		0.242	0.494	0.73	1.001	1
1,2,3,7,8-PeCDD	99.7		0.101	2.47	1.63	1.000	1
1,2,3,4,7,8-HxCDD	91.8		0.0303	2.47	1.28	1.000	1
1,2,3,6,7,8-HxCDD	102		0.0341	2.47	1.25	1.000	1
1,2,3,7,8,9-HxCDD	91.5		0.0314	2.47	1.20	1.007	1
1,2,3,4,6,7,8-HpCDD	76.7		0.0333	2.47	1.07	1.000	1
OCDD	191		0.126	4.94	0.90	1.000	1
2,3,7,8-TCDF	19.2		0.121	0.494	0.74	1.001	1
1,2,3,7,8-PeCDF	90.8		0.106	2.47	1.52	1.001	1
2,3,4,7,8-PeCDF	100		0.108	2.47	1.49	1.001	1
1,2,3,4,7,8-HxCDF	99.8		0.0342	2.47	1.21	1.000	1
1,2,3,6,7,8-HxCDF	99.2		0.0319	2.47	1.20	1.000	1
1,2,3,7,8,9-HxCDF	95.3		0.0465	2.47	1.26	1.000	1
2,3,4,6,7,8-HxCDF	97.3		0.0367	2.47	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	93.2		0.197	2.47	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	100		0.269	2.47	0.99	1.000	1
OCDF	219		0.195	4.94	0.85	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:56
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.116g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519364	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.6		0.242	0.494	0.73		1
Total Penta-Dioxins	99.7		0.101	2.47	1.63		1
Total Hexa-Dioxins	286		0.0319	2.47	1.28		1
Total Hepta-Dioxins	76.7		0.0333	2.47	1.07		1
Total Tetra-Furans	19.2		0.121	0.494	0.74		1
Total Penta-Furans	193		0.107	2.47	1.52		1
Total Hexa-Furans	392		0.0367	2.47	1.21		1
Total Hepta-Furans	193		0.230	2.47	0.99		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800488-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:56
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.116g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519364	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	728.406	36		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	999.237	50		25-181	1.59	1.191
13C-1,2,3,4,7,8-HxCDD	2000	935.215	47		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	886.125	44		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	974.232	49		23-140	1.06	1.070
13C-OCDD	4000	1238.088	31		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	695.555	35		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	937.057	47		24-185	1.60	1.147
13C-2,3,4,7,8-PeCDF	2000	924.290	46		21-178	1.59	1.180
13C-1,2,3,4,7,8-HxCDF	2000	799.844	40		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	843.883	42		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	795.949	40		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	808.396	40		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	804.546	40		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	878.334	44		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	336.023	42		35-197	NA	1.021

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Analyzed:**	12/11/18
Sample Matrix:	Wipe	**Date Extracted:**	12/05/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	pg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	618605

	Lab Control Sample EQ1800499-02			Duplicate Lab Control Sample EQ1800499-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	1370	2000	69 *	1420	2000	71	70-140	3	50
1,2,3,4,7,8-HxCDD	1760	2000	88	1800	2000	90	70-164	2	50
1,2,3,6,7,8-HxCDD	1950	2000	97	1960	2000	98	76-134	<1	50
1,2,3,7,8,9-HxCDD	1820	2000	91	1850	2000	92	64-162	2	50
1,2,3,7,8-PeCDD	1950	2000	98	2020	2000	101	70-142	3	50
2,3,7,8-TCDD	541	400	135	555	400	139	67-158	3	50
OCDD	3930	4000	98	3920	4000	98	78-144	<1	50
1,2,3,4,6,7,8-HpCDF	1820	2000	91	1810	2000	90	82-122	<1	50
1,2,3,4,7,8,9-HpCDF	1800	2000	90	1800	2000	90	78-138	<1	50
1,2,3,4,7,8-HxCDF	1760	2000	88	1740	2000	87	72-134	1	50
1,2,3,6,7,8-HxCDF	1820	2000	91	1830	2000	91	84-130	<1	50
1,2,3,7,8,9-HxCDF	1740	2000	87	1790	2000	89	78-130	3	50
1,2,3,7,8-PeCDF	1620	2000	81	1620	2000	81	80-134	<1	50
2,3,4,6,7,8-HxCDF	1850	2000	92	1820	2000	91	70-156	2	50
2,3,4,7,8-PeCDF	1740	2000	87	1780	2000	89	68-160	2	50
2,3,7,8-TCDF	354	400	89	331	400	83	75-158	7	50
OCDF	3760	4000	94	3700	4000	93	63-170	2	50

ALS Group USA, Corp.
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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Analyzed:**	12/11/18
Sample Matrix:	Wipe	**Date Extracted:**	12/05/18

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	pg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	618605

EQ1800499-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	1370	2000	69 *	70-140
1,2,3,4,7,8-HxCDD	1760	2000	88	70-164
1,2,3,6,7,8-HxCDD	1950	2000	97	76-134
1,2,3,7,8,9-HxCDD	1820	2000	91	64-162
1,2,3,7,8-PeCDD	1950	2000	98	70-142
2,3,7,8-TCDD	541	400	135	67-158
OCDD	3930	4000	98	78-144
1,2,3,4,6,7,8-HpCDF	1820	2000	91	82-122
1,2,3,4,7,8,9-HpCDF	1800	2000	90	78-138
1,2,3,4,7,8-HxCDF	1760	2000	88	72-134
1,2,3,6,7,8-HxCDF	1820	2000	91	84-130
1,2,3,7,8,9-HxCDF	1740	2000	87	78-130
1,2,3,7,8-PeCDF	1620	2000	81	80-134
2,3,4,6,7,8-HxCDF	1850	2000	92	70-156
2,3,4,7,8-PeCDF	1740	2000	87	68-160
2,3,7,8-TCDF	354	400	89	75-158
OCDF	3760	4000	94	63-170

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:45
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616051	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	541		5.92	10.0	0.79	1.001	1
1,2,3,7,8-PeCDD	1950		1.02	50.0	1.53	1.001	1
1,2,3,4,7,8-HxCDD	1760		1.34	50.0	1.23	1.000	1
1,2,3,6,7,8-HxCDD	1950		1.50	50.0	1.24	1.000	1
1,2,3,7,8,9-HxCDD	1820		1.32	50.0	1.27	1.006	1
1,2,3,4,6,7,8-HpCDD	1370		0.634	50.0	1.07	1.001	1
OCDD	3930		2.06	100	0.90	1.000	1
2,3,7,8-TCDF	354		3.26	10.0	0.74	1.001	1
1,2,3,7,8-PeCDF	1620		1.88	50.0	1.53	1.000	1
2,3,4,7,8-PeCDF	1740		1.97	50.0	1.52	1.001	1
1,2,3,4,7,8-HxCDF	1760		0.670	50.0	1.28	1.000	1
1,2,3,6,7,8-HxCDF	1820		0.676	50.0	1.23	1.000	1
1,2,3,7,8,9-HxCDF	1740		0.826	50.0	1.25	1.000	1
2,3,4,6,7,8-HxCDF	1850		0.716	50.0	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	1820		2.45	50.0	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	1800		3.30	50.0	0.99	1.000	1
OCDF	3760		3.02	100	0.90	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:45
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616051	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	541		5.92	10.0	0.79		1
Total Penta-Dioxins	1950		1.02	50.0	1.53		1
Total Hexa-Dioxins	5530		1.38	50.0	1.23		1
Total Hepta-Dioxins	1370		0.634	50.0	1.07		1
Total Tetra-Furans	361		3.26	10.0	0.67		1
Total Penta-Furans	3360		1.92	50.0	1.53		1
Total Hexa-Furans	7170		0.718	50.0	1.28		1
Total Hepta-Furans	3620		2.84	50.0	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800499-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:45
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616051	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1379.145	69		25-164	0.79	1.024
13C-1,2,3,7,8-PeCDD	2000	2077.843	104		25-181	1.56	1.197
13C-1,2,3,4,7,8-HxCDD	2000	1687.372	84		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1598.825	80		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1794.902	90		23-140	1.06	1.066
13C-OCDD	4000	1922.794	48		17-157	0.91	1.139
13C-2,3,7,8-TCDF	2000	1777.501	89		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1906.634	95		24-185	1.56	1.153
13C-2,3,4,7,8-PeCDF	2000	1828.814	91		21-178	1.59	1.186
13C-1,2,3,4,7,8-HxCDF	2000	1448.419	72		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1405.252	70		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1383.466	69		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1365.154	68		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1272.217	64		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1265.684	63		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	733.439	92		35-197	NA	1.025

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:34
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616052	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	555		8.33	10.0	0.74	1.001	1
1,2,3,7,8-PeCDD	2020		2.29	50.0	1.59	1.001	1
1,2,3,4,7,8-HxCDD	1800		0.988	50.0	1.24	1.000	1
1,2,3,6,7,8-HxCDD	1960		1.10	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDD	1850		0.970	50.0	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	1420		0.708	50.0	1.04	1.000	1
OCDD	3920		1.48	100	0.90	1.000	1
2,3,7,8-TCDF	331		3.77	10.0	0.83	1.001	1
1,2,3,7,8-PeCDF	1620		2.51	50.0	1.56	1.001	1
2,3,4,7,8-PeCDF	1780		2.87	50.0	1.53	1.001	1
1,2,3,4,7,8-HxCDF	1740		0.800	50.0	1.26	1.000	1
1,2,3,6,7,8-HxCDF	1830		0.812	50.0	1.23	1.000	1
1,2,3,7,8,9-HxCDF	1790		1.05	50.0	1.27	1.000	1
2,3,4,6,7,8-HxCDF	1820		0.934	50.0	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	1810		1.77	50.0	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	1800		2.44	50.0	1.02	1.000	1
OCDF	3700		3.04	100	0.93	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:34
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616052	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	555		8.33	10.0	0.74		1
Total Penta-Dioxins	2020		2.29	50.0	1.59		1
Total Hexa-Dioxins	5620		1.02	50.0	1.24		1
Total Hepta-Dioxins	1420		0.708	50.0	1.04		1
Total Tetra-Furans	335		3.77	10.0	0.78		1
Total Penta-Furans	3400		2.68	50.0	1.56		1
Total Hexa-Furans	7170		0.890	50.0	1.26		1
Total Hepta-Furans	3610		2.07	50.0	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801056
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800499-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:34
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616052	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	842.482	42		25-164	0.76	1.022
13C-1,2,3,7,8-PeCDD	2000	1347.262	67		25-181	1.54	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1494.024	75		32-141	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1502.512	75		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1706.315	85		23-140	1.06	1.067
13C-OCDD	4000	1960.430	49		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	1088.712	54		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	1264.486	63		24-185	1.57	1.151
13C-2,3,4,7,8-PeCDF	2000	1175.771	59		21-178	1.64	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1311.605	66		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1331.396	67		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1250.468	63		29-147	0.51	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1250.711	63		28-136	0.54	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1219.583	61		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1191.130	60		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	471.492	59		35-197	NA	1.023

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0191

Run #16 Filename P615948 Samp: 1 Inj: 1 Acquired: 6-DEC-18 17:22:09
Processed: 10-DEC-18 11:32:07 Sample ID: E1801056-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	5.782e+05	7.308e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	3.613e+04	2.348e+04	1.54	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	2.667e+04	1.749e+04	1.52	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	5.273e+04	4.365e+04	1.21	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:39	1.259e+04	1.033e+04	1.22	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	2.693e+03	2.281e+03	1.18	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:57	4.183e+03	3.261e+03	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	1.743e+04	1.708e+04	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	4.689e+03	4.316e+03	1.09	yes	no	1.463
10	Unk	OCDF	41:57	7.657e+04	8.532e+04	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	1.531e+05	1.918e+05	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:09	2.298e+03	1.432e+03	1.60	yes	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:18	2.350e+02	1.991e+02	1.18	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:23	1.077e+03	8.869e+02	1.21	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	6.464e+02	5.053e+02	1.28	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	2.621e+04	2.513e+04	1.04	yes	no	1.112
17	Unk	OCDD	41:45	3.631e+05	4.051e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:36	4.328e+04	5.533e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	6.473e+04	4.085e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	6.298e+04	3.924e+04	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	2.709e+04	5.248e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	2.957e+04	5.657e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	2.791e+04	5.318e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.722e+04	5.192e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	1.806e+04	4.013e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	1.772e+04	3.830e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	2.239e+04	2.825e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	4.930e+04	3.160e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	4.038e+04	3.135e+04	1.29	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	3.613e+04	2.840e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	3.595e+04	3.430e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:44	3.359e+04	3.642e+04	0.92	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	5.539e+04	7.104e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	7.373e+04	5.809e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:26	3.297e+04				no	1.086

$$\text{OCDD} = \frac{(3.631e+05 + 4.051e+05) \times 4000\ \text{pg} \times 1}{(3.359e+04 + 3.642e+04) \times 10.6\ \text{g} \times 78.0 / 100 \times 1.157} = 4576.9\ \text{ng/kg}$$

LMI 12/11/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0191

Run #16 Filename P615948 Samp: 1 Inj: 1 Acquired: 6-DEC-18 17:22:09
Processed: 10-DEC-18 11:32:07 LAB. ID: E1801056-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.48e+07	2.71e+03	3.5e+04	1.21e+08	6.38e+03	1.9e+04
2	1,2,3,7,8-PeCDF	6.94e+06	9.34e+03	7.4e+02	4.62e+06	7.85e+03	5.9e+02
3	2,3,4,7,8-PeCDF	4.59e+06	9.34e+03	4.9e+02	2.95e+06	7.85e+03	3.8e+02
4	1,2,3,4,7,8-HxCDF	1.14e+07	2.27e+03	5.0e+03	9.54e+06	1.34e+03	7.1e+03
5	1,2,3,6,7,8-HxCDF	2.72e+06	2.27e+03	1.2e+03	2.24e+06	1.34e+03	1.7e+03
6	2,3,4,6,7,8-HxCDF	5.89e+05	2.27e+03	2.6e+02	5.16e+05	1.34e+03	3.8e+02
7	1,2,3,7,8,9-HxCDF	8.83e+05	2.27e+03	3.9e+02	6.85e+05	1.34e+03	5.1e+02
8	1,2,3,4,6,7,8-HpCDF	4.03e+06	2.59e+03	1.6e+03	3.89e+06	1.71e+03	2.3e+03
9	1,2,3,4,7,8,9-HpCDF	9.89e+05	2.59e+03	3.8e+02	9.44e+05	1.71e+03	5.5e+02
10	OCDF	1.46e+07	9.48e+02	1.5e+04	1.61e+07	1.91e+03	8.5e+03
11	2,3,7,8-TCDD	2.93e+07	4.49e+03	6.5e+03	3.68e+07	1.62e+03	2.3e+04
12	1,2,3,7,8-PeCDD	4.35e+05	2.05e+03	2.1e+02	2.72e+05	2.49e+03	1.1e+02
13	1,2,3,4,7,8-HxCDD	5.55e+04	2.14e+03	2.6e+01	4.85e+04	3.10e+03	1.6e+01
14	1,2,3,6,7,8-HxCDD	2.38e+05	2.14e+03	1.1e+02	1.93e+05	3.10e+03	6.2e+01
15	1,2,3,7,8,9-HxCDD	1.45e+05	2.14e+03	6.8e+01	1.10e+05	3.10e+03	3.5e+01
16	1,2,3,4,6,7,8-HpCDD	5.65e+06	2.69e+03	2.1e+03	5.51e+06	5.36e+03	1.0e+03
17	OCDD	7.05e+07	5.08e+02	1.4e+05	7.84e+07	9.16e+02	8.6e+04
18	13C-2,3,7,8-TCDF	7.76e+06	1.54e+04	5.0e+02	9.91e+06	1.18e+04	8.4e+02
19	13C-1,2,3,7,8-PeCDF	1.24e+07	3.73e+03	3.3e+03	7.85e+06	3.44e+03	2.3e+03
20	13C-2,3,4,7,8-PeCDF	1.30e+07	3.73e+03	3.5e+03	8.17e+06	3.44e+03	2.4e+03
21	13C-1,2,3,4,7,8-HxCDF	5.91e+06	2.74e+03	2.2e+03	1.16e+07	4.38e+03	2.6e+03
22	13C-1,2,3,6,7,8-HxCDF	6.35e+06	2.74e+03	2.3e+03	1.21e+07	4.38e+03	2.8e+03
23	13C-2,3,4,6,7,8-HxCDF	5.96e+06	2.74e+03	2.2e+03	1.16e+07	4.38e+03	2.6e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	2.74e+03	2.3e+03	1.23e+07	4.38e+03	2.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.21e+06	3.62e+03	1.2e+03	9.23e+06	6.16e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.83e+06	3.62e+03	1.1e+03	8.25e+06	6.16e+03	1.3e+03
27	13C-2,3,7,8-TCDD	4.28e+06	1.45e+04	3.0e+02	5.36e+06	6.61e+03	8.1e+02
28	13C-1,2,3,7,8-PeCDD	9.85e+06	2.99e+03	3.3e+03	6.27e+06	2.23e+03	2.8e+03
29	13C-1,2,3,4,7,8-HxCDD	9.25e+06	3.26e+03	2.8e+03	7.16e+06	2.44e+03	2.9e+03
30	13C-1,2,3,6,7,8-HxCDD	7.96e+06	3.26e+03	2.4e+03	6.31e+06	2.44e+03	2.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.86e+06	1.59e+03	4.9e+03	7.55e+06	1.96e+03	3.8e+03
32	13C-OCDD	6.47e+06	1.94e+03	3.3e+03	7.02e+06	1.26e+03	5.6e+03
33	13C-1,2,3,4-TCDD	1.00e+07	1.45e+04	6.9e+02	1.29e+07	6.61e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.63e+07	3.26e+03	5.0e+03	1.28e+07	2.44e+03	5.2e+03
35	37Cl-2,3,7,8-TCDD	6.35e+06	2.86e+03	2.2e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0191

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P615948 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 17:22:09 Processed: 10-DEC-18 11:32:07

Mass: 303.9020 305.8990 Tot Response: 2.28e+06 RRF: 1.081

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:28	4.62e+03	5.97e+03	0.77	yes	1.06e+04		n	n
2	24:46	2.48e+04	3.19e+04	0.78	yes	5.67e+04		n	n
3	25:11	7.19e+03	9.23e+03	0.78	yes	1.64e+04		n	n
4	25:30	2.02e+04	2.59e+04	0.78	yes	4.61e+04		n	n
5	26:12	1.25e+04	1.63e+04	0.77	yes	2.88e+04		n	n
6	26:17	2.74e+04	3.53e+04	0.78	yes	6.27e+04		n	n
7	26:45	2.30e+05	2.95e+05	0.78	yes	5.26e+05		n	n
8	27:01	1.13e+04	1.48e+04	0.76	yes	2.62e+04		n	n
9	27:37	5.78e+05	7.31e+05	0.79	yes	1.31e+06	2,3,7,8-TCDF	n	n
10	27:58	4.10e+04	5.28e+04	0.78	yes	9.38e+04		n	n
11	28:13	5.95e+03	7.85e+03	0.76	yes	1.38e+04		n	n
12	29:31	3.88e+04	5.00e+04	0.78	yes	8.89e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0191

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P615948 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 17:22:09 Processed: 10-DEC-18 11:32:07

Mass: 319.8970 321.8940 Tot Response: 3.82e+05 RRF: 1.049

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:24	4.36e+02	5.85e+02	0.75	yes	1.02e+03		n	n
2	28:08	2.29e+03	2.66e+03	0.86	yes	4.95e+03		n	n
3	28:26	1.53e+05	1.92e+05	0.80	yes	3.45e+05	2,3,7,8-TCDD	n	n
4	28:45	1.39e+04	1.70e+04	0.82	yes	3.09e+04		n	n

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Peak List Summary

CLIENT ID.
SL0191

Entry: 38 Totals Name: Total Penta-Furans1

Run: 16 File: P615948 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 17:22:09 Processed: 10-DEC-18 11:32:07

Mass: 339.8600 341.8570 Tot Response: 4.10e+03 RRF: 1.130

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:27	2.51e+03	1.59e+03	1.58	yes	4.10e+03	n	n

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Peak List Summary

CLIENT ID.
SL0191

Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P615948 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 17:22:09 Processed: 10-DEC-18 11:32:07

Mass: 339.8600 341.8570 Tot Response: 1.63e+05 RRF: 1.130

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:51	6.53e+02	4.50e+02	1.45	yes	1.10e+03		n	n
2	30:59	1.72e+04	1.11e+04	1.55	yes	2.83e+04		n	n
3	31:32	8.64e+02	5.91e+02	1.46	yes	1.45e+03		n	n
4	31:37	6.62e+02	4.30e+02	1.54	yes	1.09e+03		n	n
5	31:46	3.57e+03	2.22e+03	1.60	yes	5.79e+03		n	n
6	31:56	3.61e+04	2.35e+04	1.54	yes	5.96e+04	1,2,3,7,8-PeCDF	n	n
7	32:12	1.14e+04	7.40e+03	1.55	yes	1.88e+04		n	n
8	32:46	4.25e+02	2.92e+02	1.45	yes	7.17e+02		n	n
9	32:53	2.67e+04	1.75e+04	1.52	yes	4.42e+04	2,3,4,7,8-PeCDF	n	n
10	33:47	1.37e+03	9.71e+02	1.41	yes	2.34e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0191

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P615948 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 17:22:09 Processed: 10-DEC-18 11:32:07

Mass: 355.8550 357.8520 Tot Response: 6.54e+03 RRF: 0.9288

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:01	5.81e+02	4.07e+02	1.43	yes	9.88e+02		n	n
2	31:28	5.59e+02	4.20e+02	1.33	yes	9.79e+02		n	n
3	32:06	2.74e+02	2.01e+02	1.37	yes	4.74e+02		n	n
4	32:12	1.50e+02	9.43e+01	1.59	yes	2.45e+02		n	n
5	33:09	2.30e+03	1.43e+03	1.60	yes	3.73e+03	1,2,3,7,8-PeCDD	n	y
6	33:32	7.61e+01	4.80e+01	1.59	yes	1.24e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0191

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P615948 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 17:22:09 Processed: 10-DEC-18 11:32:07

Mass: 373.8210 375.8180 Tot Response: 1.55e+05 RRF: 1.324

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:25	1.07e+03	9.37e+02	1.14	yes	2.01e+03		n	n
2	34:35	6.28e+03	5.06e+03	1.24	yes	1.13e+04		n	n
3	35:07	4.93e+03	4.02e+03	1.23	yes	8.95e+03		n	n
4	35:27	3.41e+02	2.49e+02	1.37	yes	5.90e+02		n	n
5	35:33	5.27e+04	4.36e+04	1.21	yes	9.64e+04	1,2,3,4,7,8-HxCDF	n	n
6	35:39	1.26e+04	1.03e+04	1.22	yes	2.29e+04	1,2,3,6,7,8-HxCDF	n	n
7	36:11	2.69e+03	2.28e+03	1.18	yes	4.97e+03	2,3,4,6,7,8-HxCDF	n	n
8	36:57	4.18e+03	3.26e+03	1.28	yes	7.44e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0191

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P615948 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 17:22:09 Processed: 10-DEC-18 11:32:07

Mass: 389.8160 391.8130 Tot Response: 2.34e+04 RRF: 1.092

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:57	6.66e+03	5.33e+03	1.25	yes	1.20e+04		n	n
2	35:43	3.84e+03	3.08e+03	1.24	yes	6.92e+03		n	n
3	35:49	3.68e+02	2.78e+02	1.33	yes	6.46e+02		n	n
4	36:18	2.35e+02	1.99e+02	1.18	yes	4.34e+02	1,2,3,4,7,8-HxCDD	n	n
5	36:23	1.08e+03	8.87e+02	1.21	yes	1.96e+03	1,2,3,6,7,8-HxCDD	n	n
6	36:33	1.97e+02	1.40e+02	1.41	yes	3.37e+02		n	n
7	36:37	6.46e+02	5.05e+02	1.28	yes	1.15e+03	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0191

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P615948 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 17:22:09 Processed: 10-DEC-18 11:32:07

Mass: 407.7820 409.7790 Tot Response: 7.20e+04 RRF: 1.495

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:10	1.74e+04	1.71e+04	1.02	yes	3.45e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:25	3.74e+02	3.68e+02	1.02	yes	7.42e+02		n	n
3	38:33	1.41e+04	1.37e+04	1.03	yes	2.78e+04		n	n
4	39:32	4.69e+03	4.32e+03	1.09	yes	9.01e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0191

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P615948 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 17:22:09 Processed: 10-DEC-18 11:32:07

Mass: 423.7770 425.7740 Tot Response: 1.27e+05 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
								n	n
1	38:24	3.82e+04	3.73e+04	1.02	yes	7.55e+04			
2	39:03	2.62e+04	2.51e+04	1.04	yes	5.13e+04	1,2,3,4,6,7,8-HpCDD	n	n

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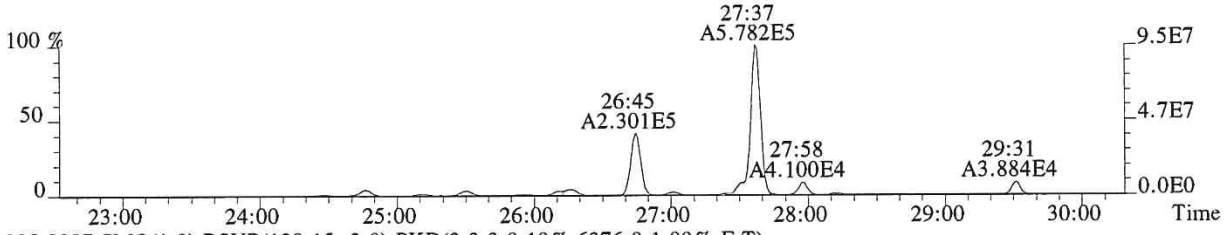
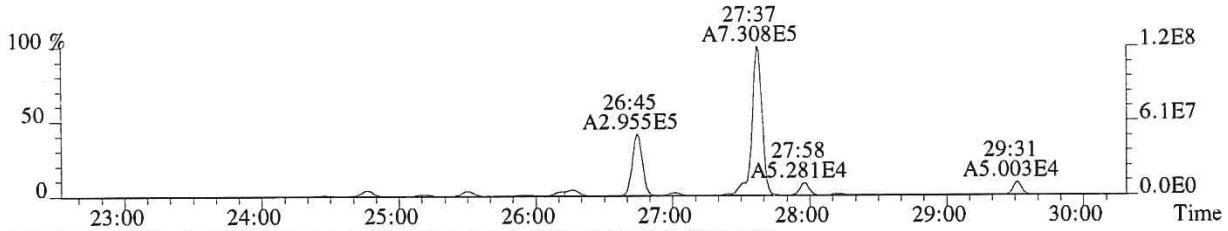
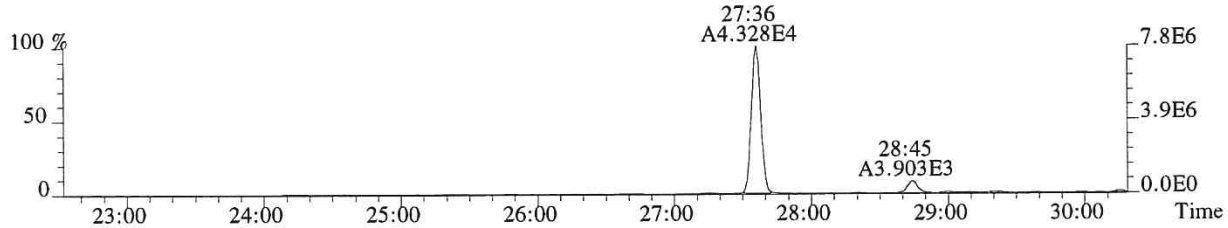
File:P615948 #1-552 Acq: 6-DEC-2018 17:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2708.0,1.00%,F,T)



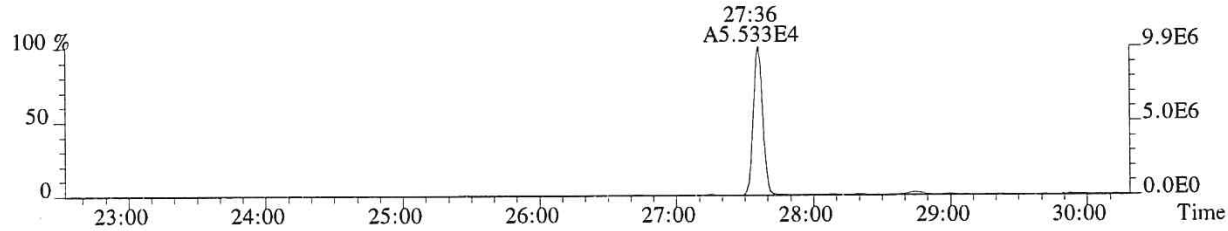
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6376.0,1.00%,F,T)



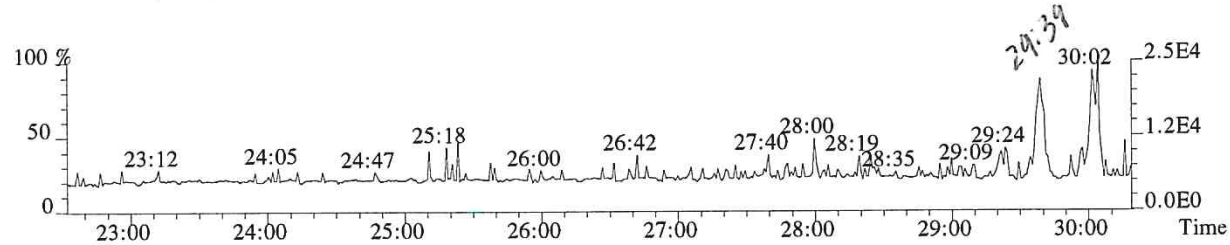
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15424.0,1.00%,F,T)



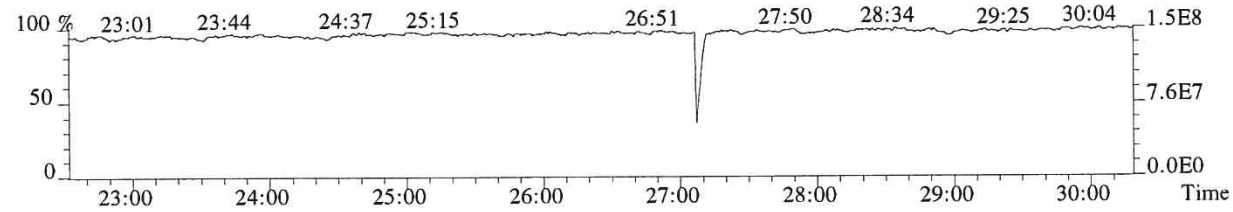
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11780.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

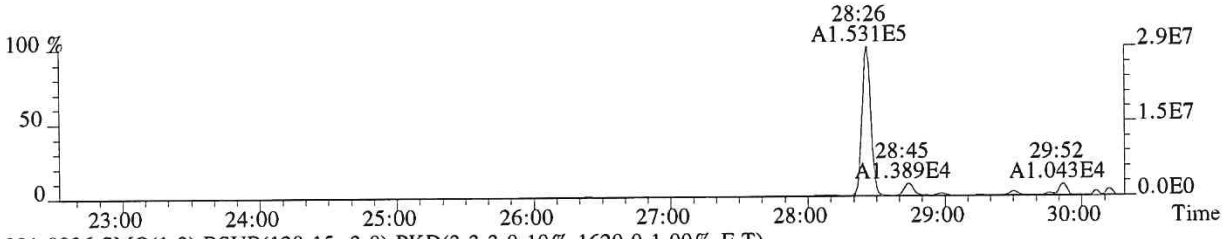


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

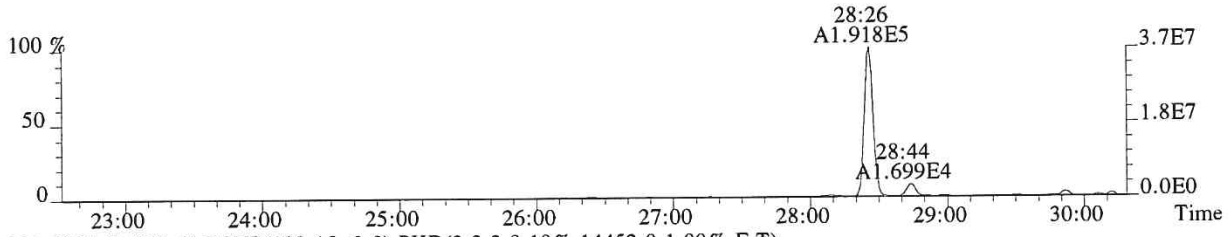


012322

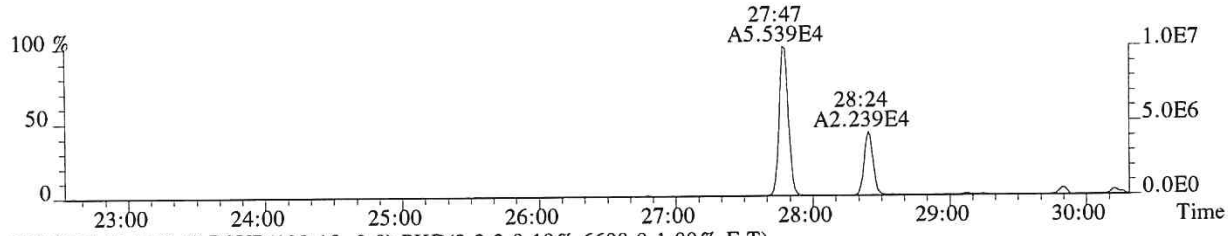
File:P615948 #1-552 Acq: 6-DEC-2018 17:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4488.0,1.00%,F,T)



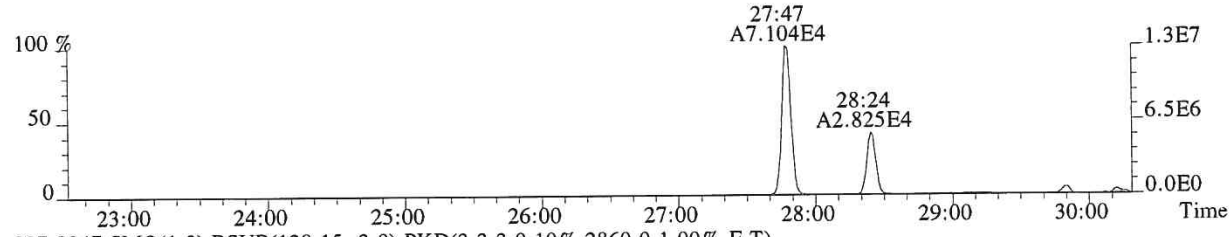
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1620.0,1.00%,F,T)



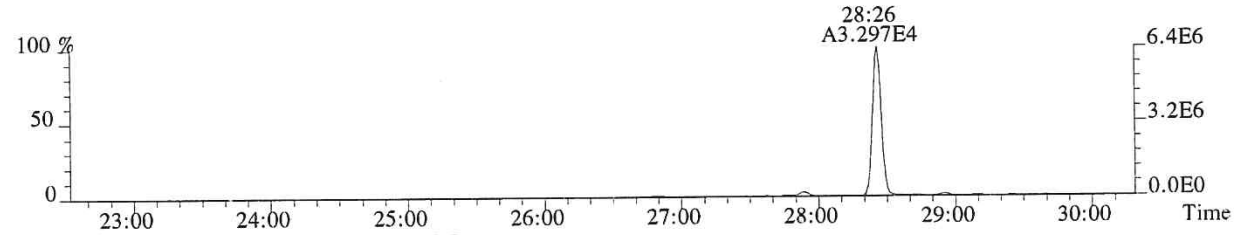
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14452.0,1.00%,F,T)



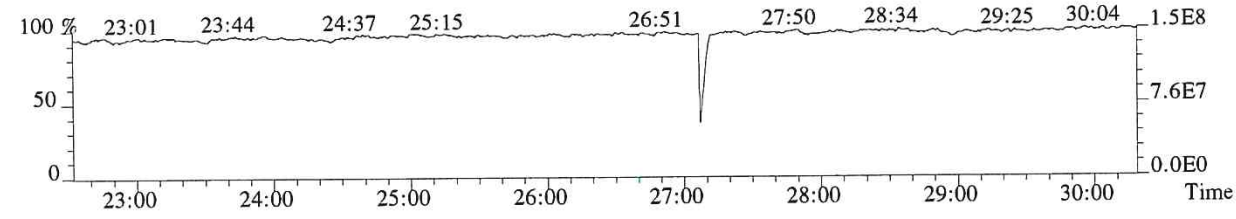
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6608.0,1.00%,F,T)



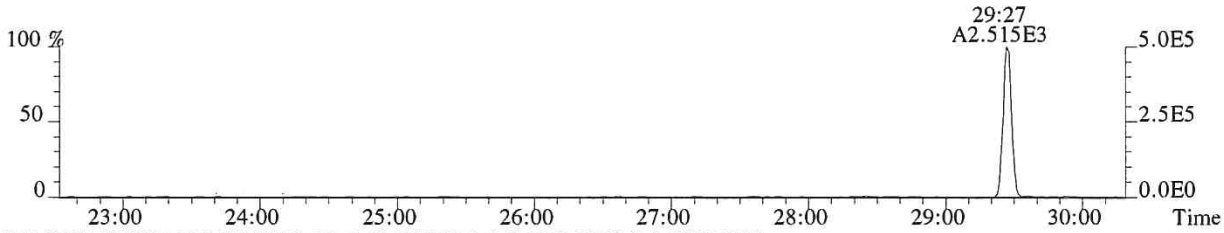
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



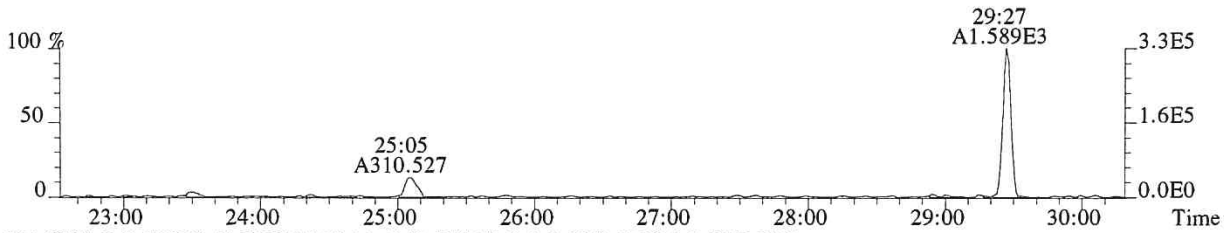
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



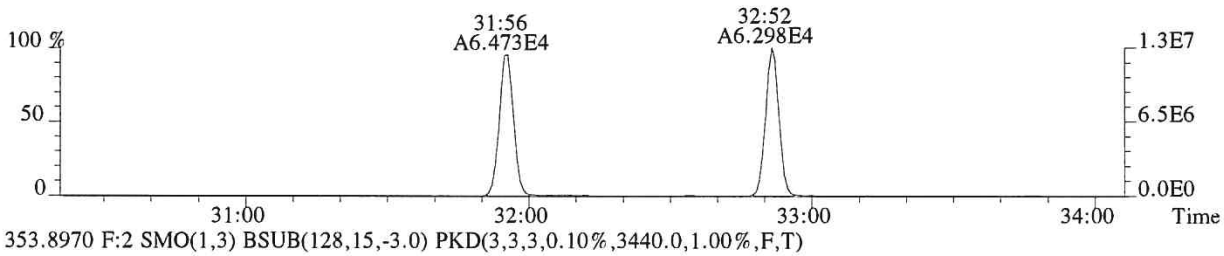
File:P615948 #1-552 Acq: 6-DEC-2018 17:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



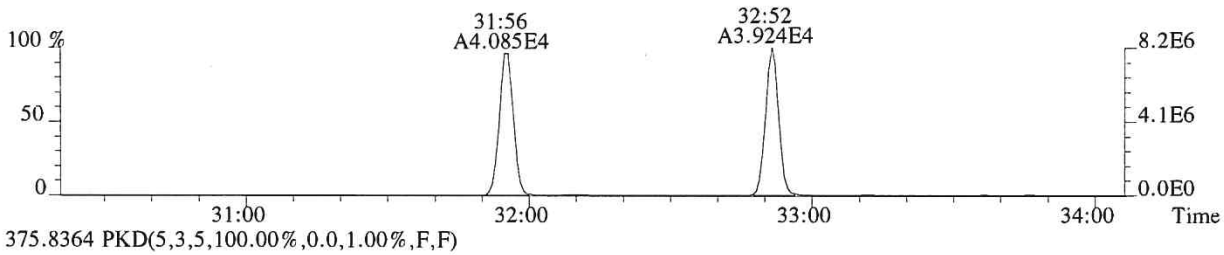
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2320.0,1.00%,F,T)



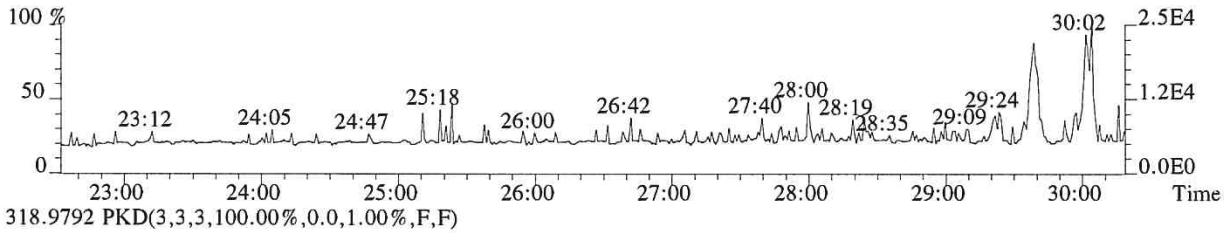
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3732.0,1.00%,F,T)



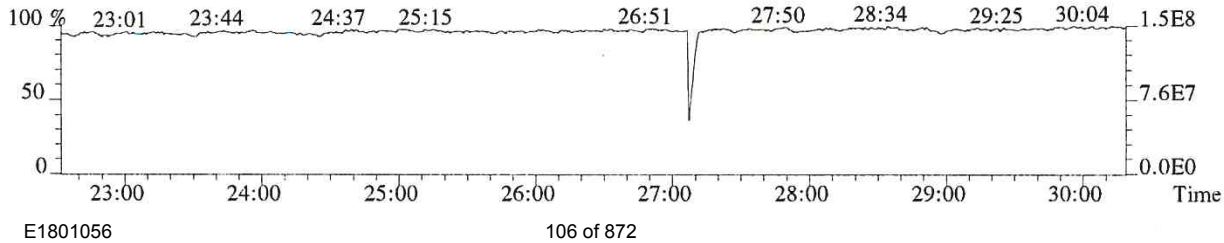
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3440.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

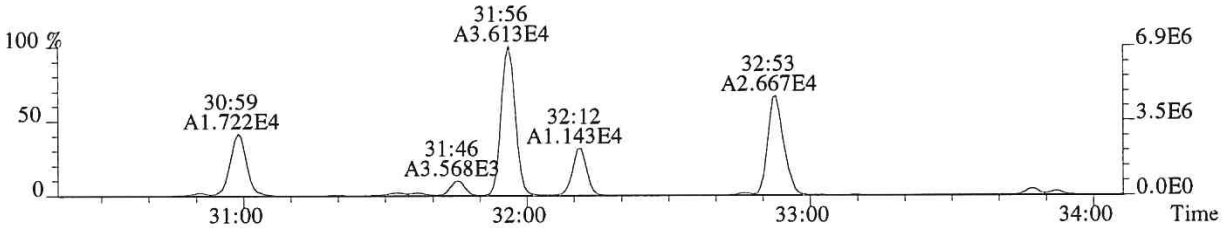


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

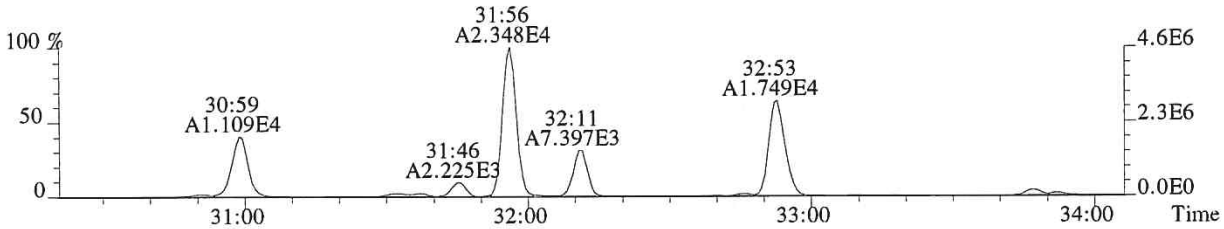


012324

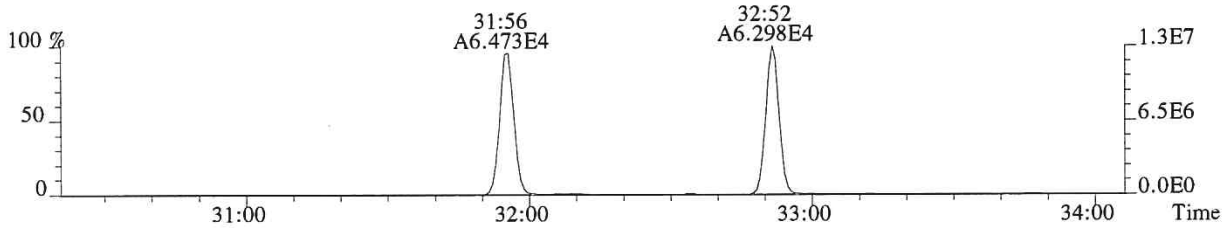
File:P615948 #1-339 Acq: 6-DEC-2018 17:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9336.0,1.00%,F,T)



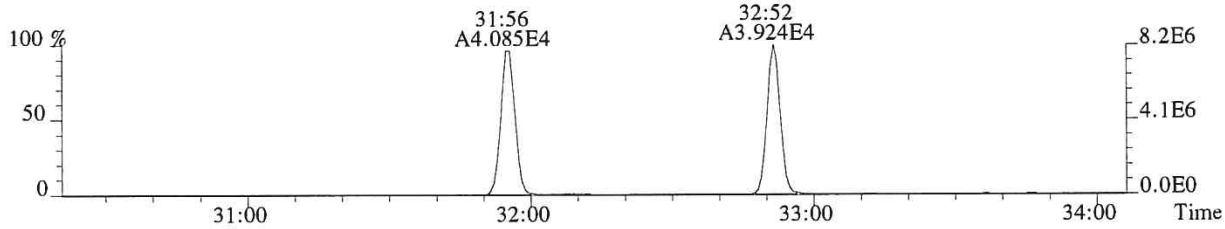
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7852.0,1.00%,F,T)



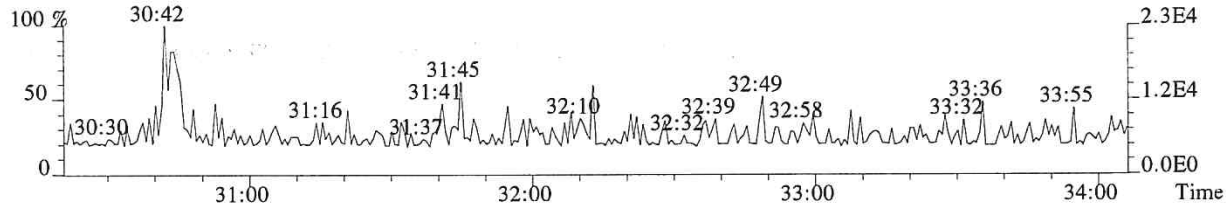
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3732.0,1.00%,F,T)



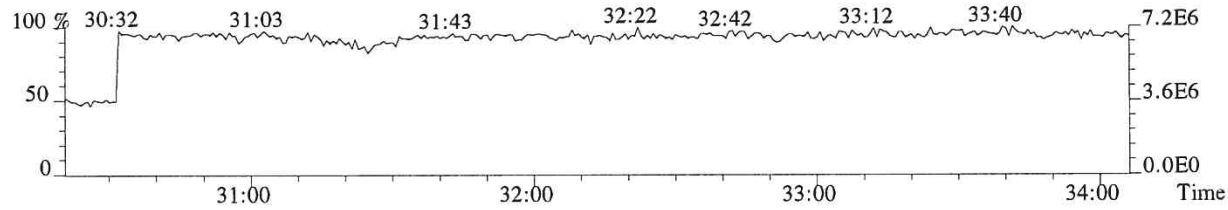
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3440.0,1.00%,F,T)



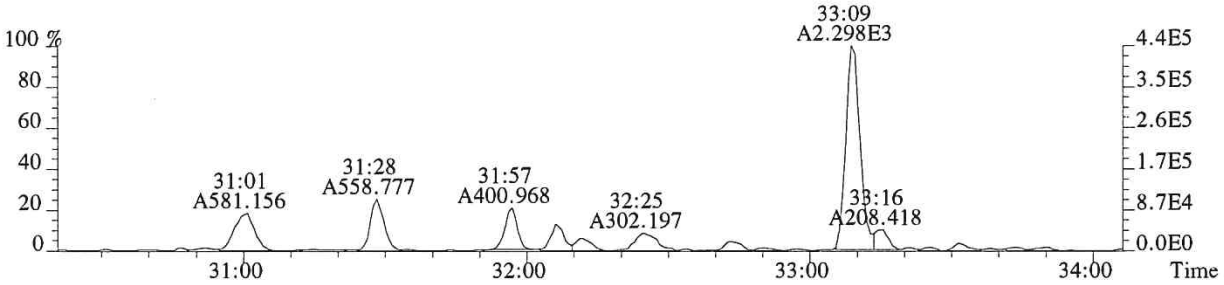
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



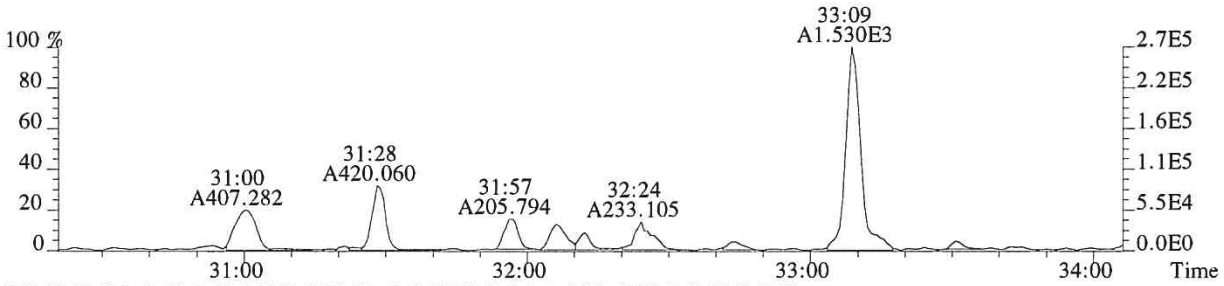
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



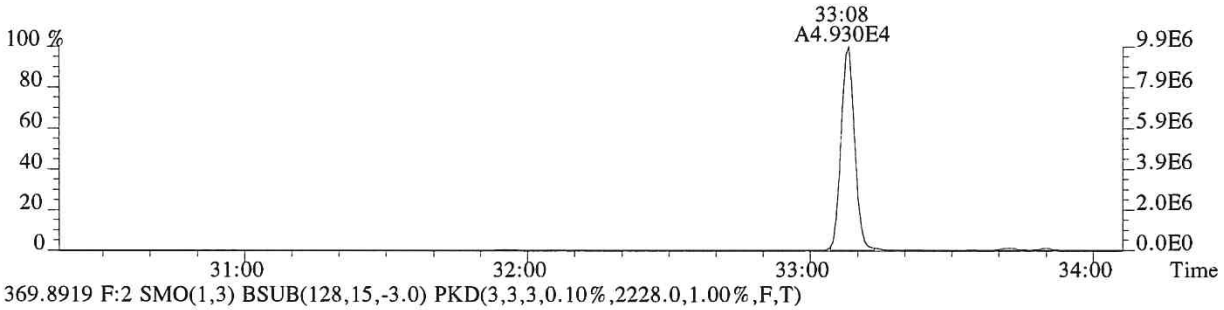
File:P615948 #1-339 Acq: 6-DEC-2018 17:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2048.0,1.00%,F,T)



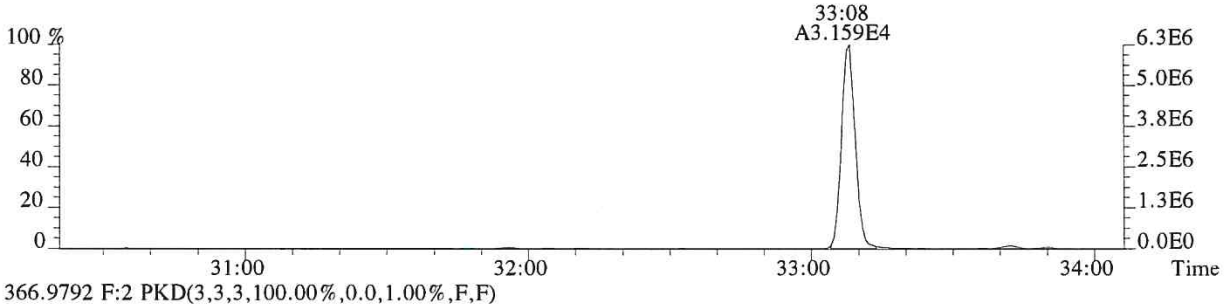
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2488.0,1.00%,F,T)



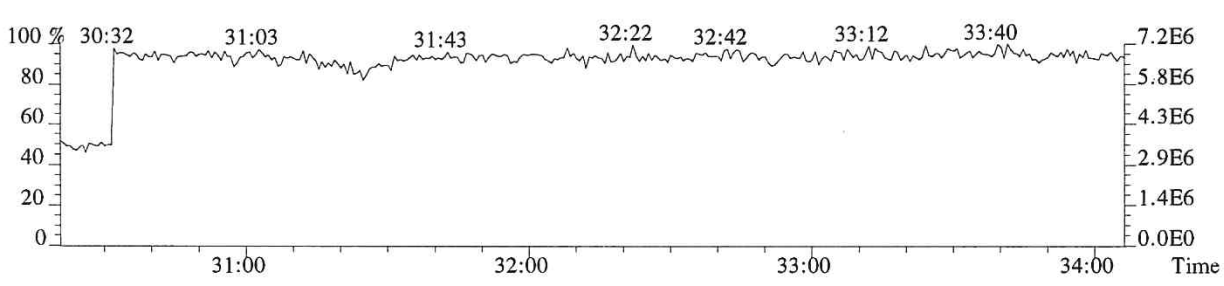
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



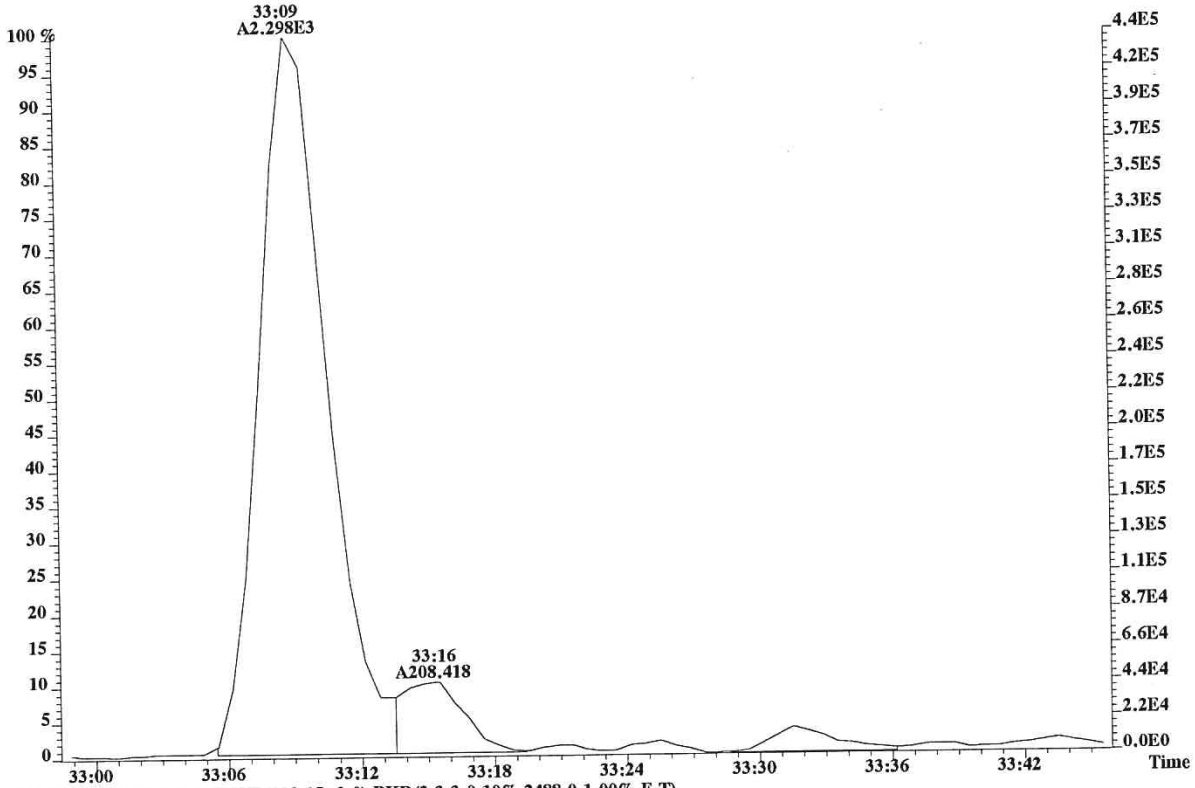
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



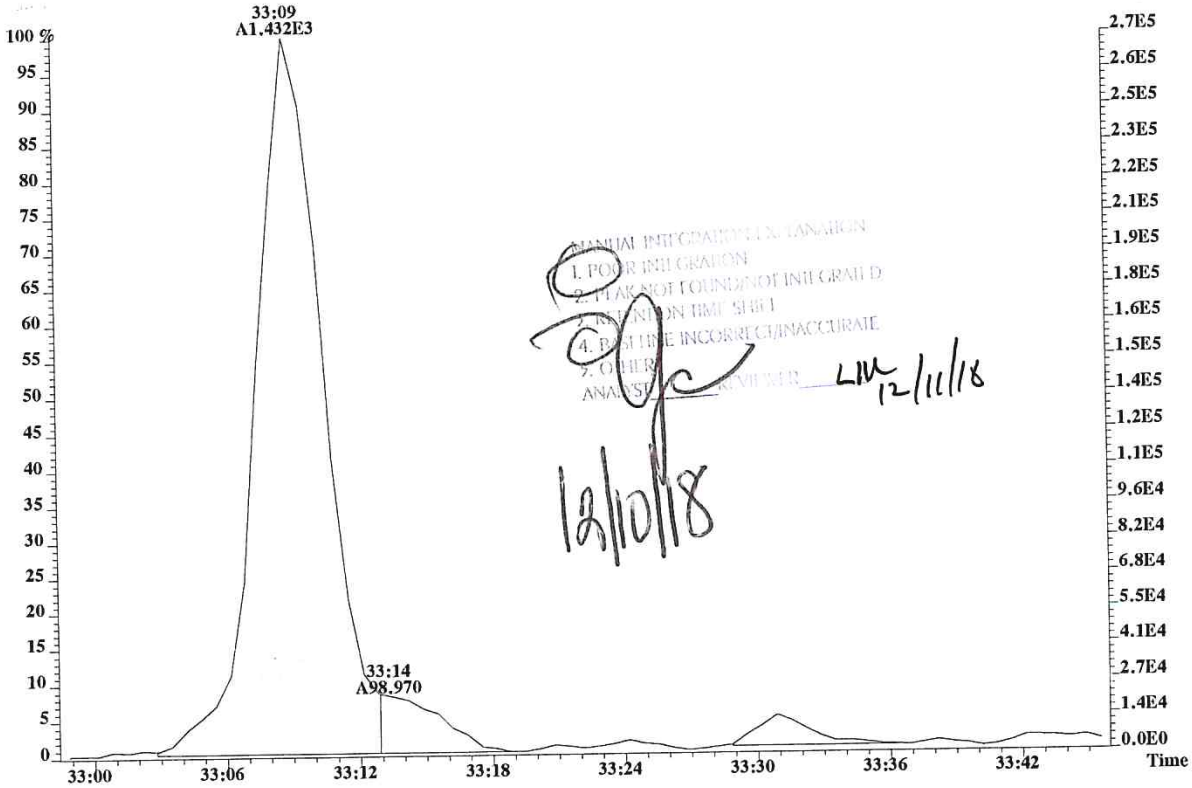
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615948 #1-339 Acq: 6-DEC-2018 17:22:09 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:E1801056-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2048.0,1.00%,F,T)



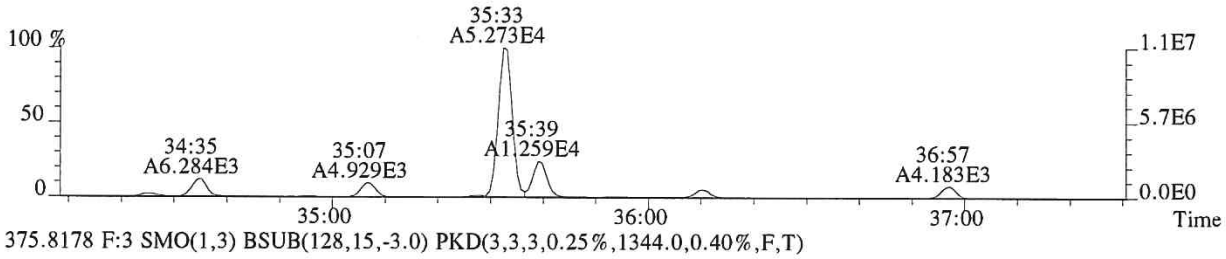
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2488.0,1.00%,F,T)



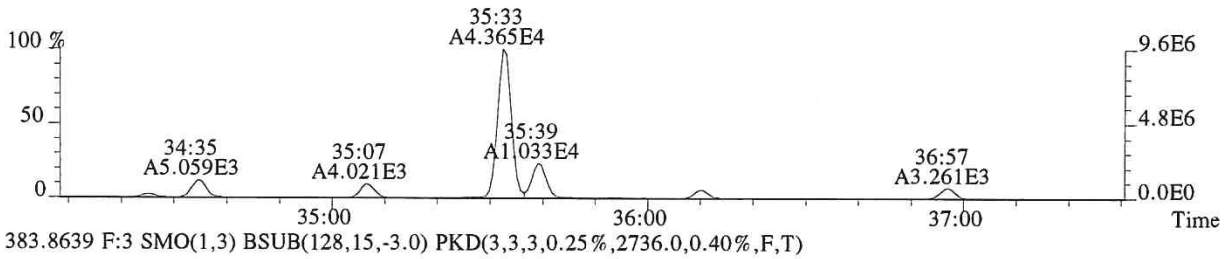
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST ___ REVIEWER ___ LM 12/11/18

12/10/18

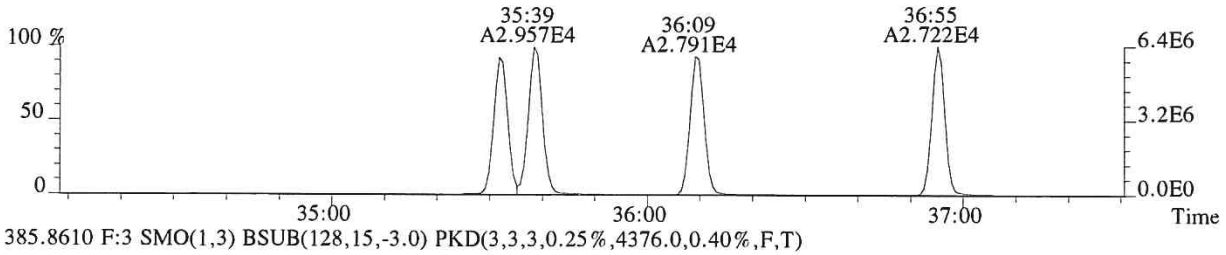
File:P615948 #1-304 Acq: 6-DEC-2018 17:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2268.0,0.40%,F,T)



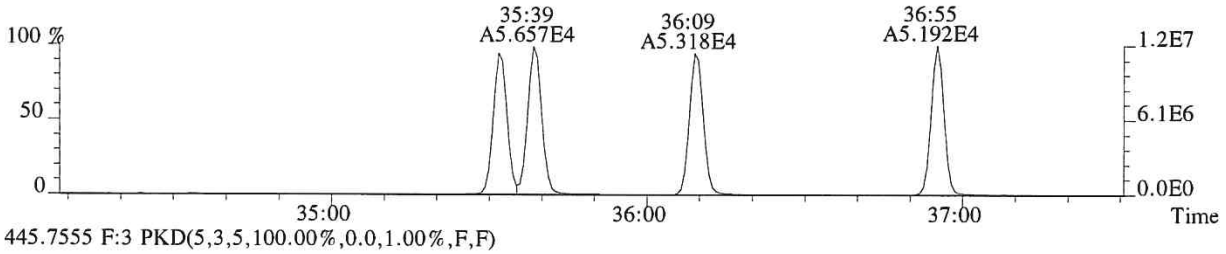
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1344.0,0.40%,F,T)



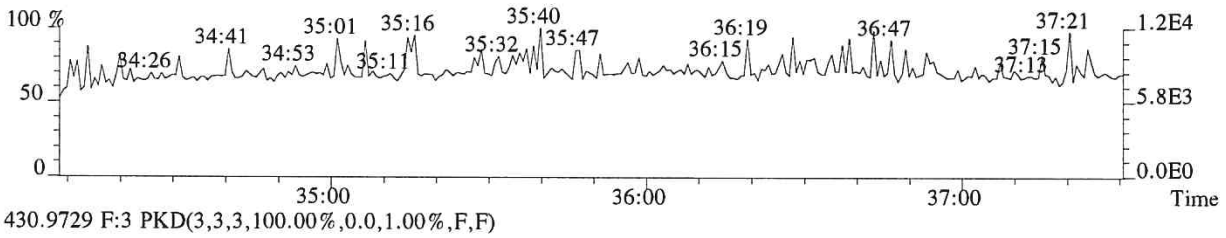
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2736.0,0.40%,F,T)



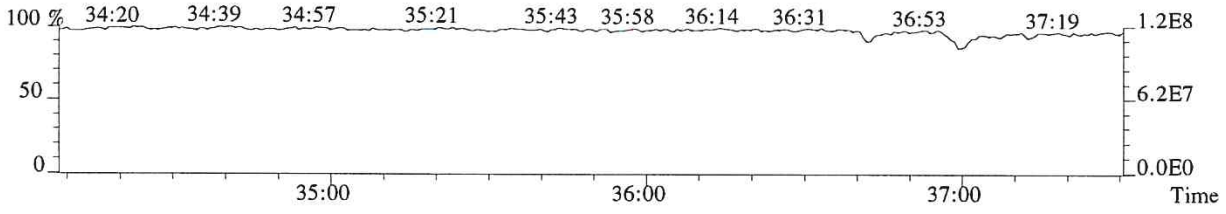
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4376.0,0.40%,F,T)



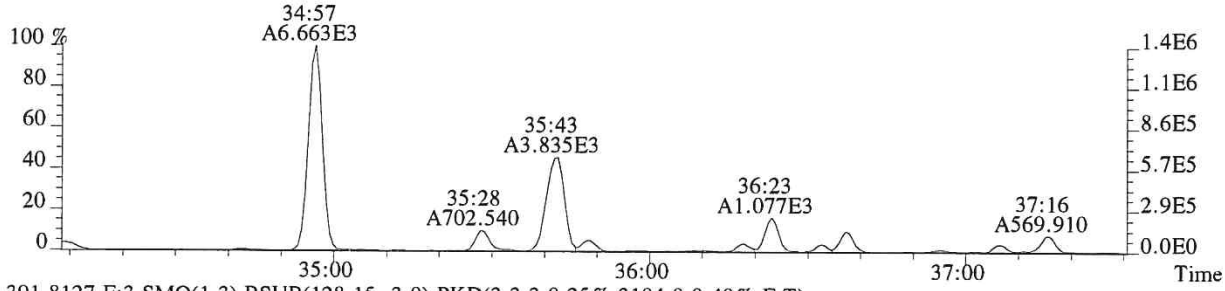
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



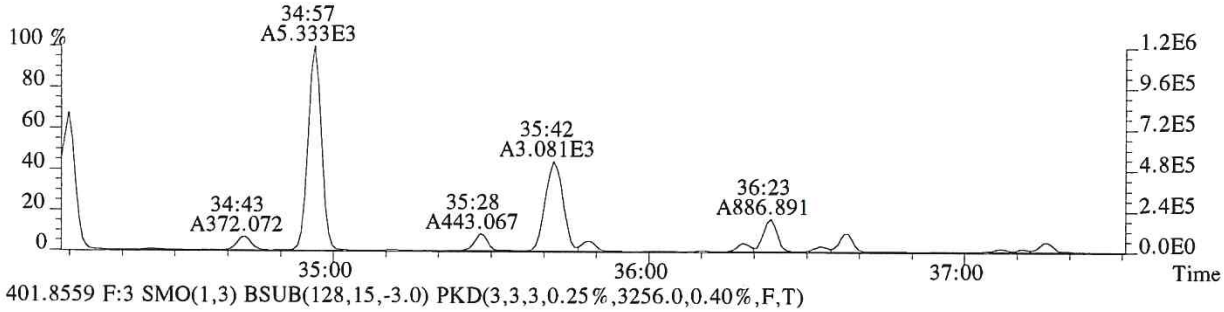
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



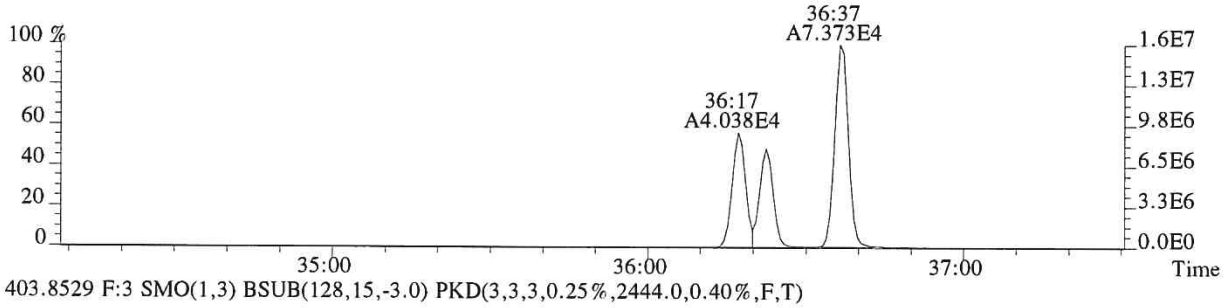
File:P615948 #1-304 Acq: 6-DEC-2018 17:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2136.0,0.40%,F,T)



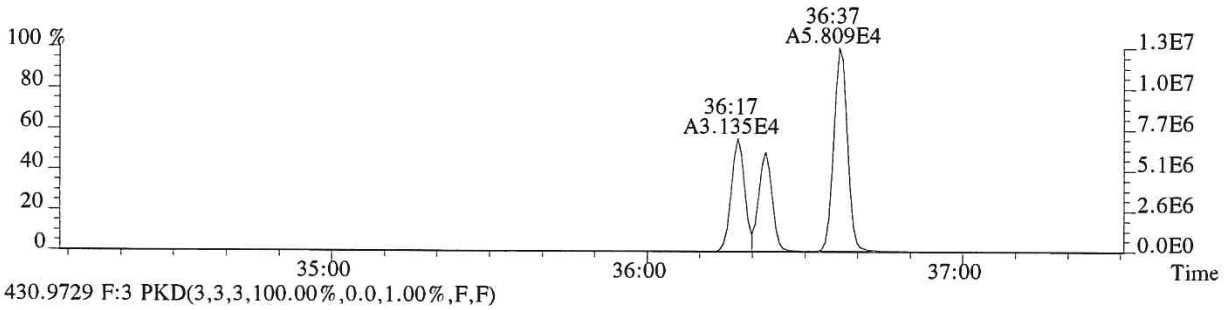
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3104.0,0.40%,F,T)



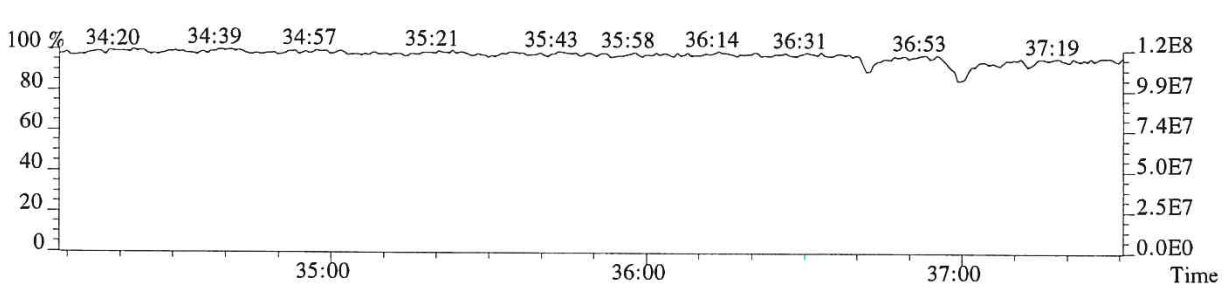
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3256.0,0.40%,F,T)



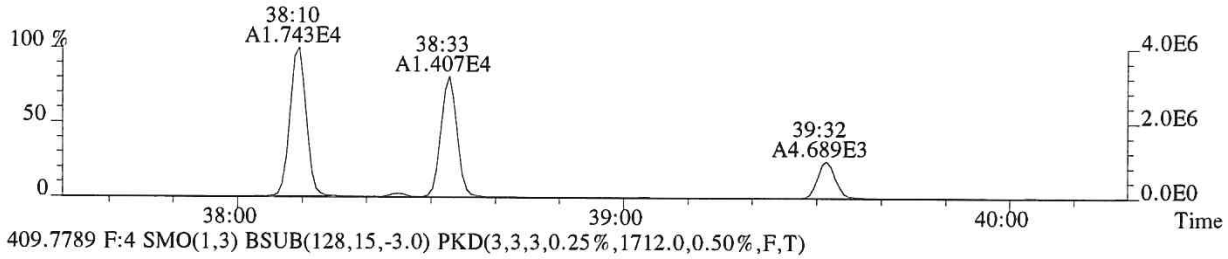
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2444.0,0.40%,F,T)



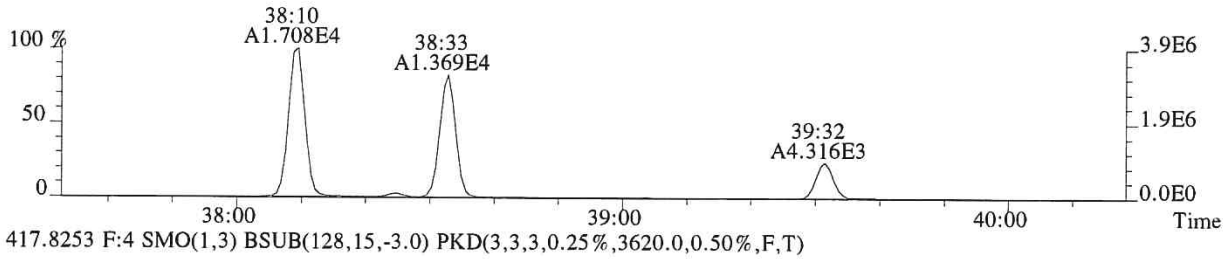
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



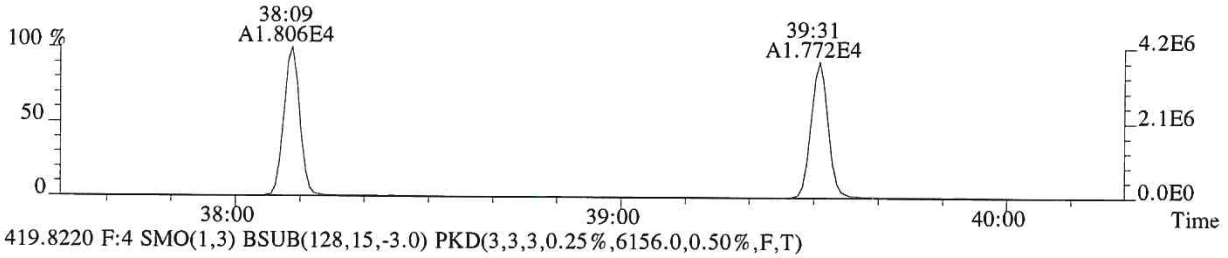
File:P615948 #1-249 Acq: 6-DEC-2018 17:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2592.0,0.50%,F,T)



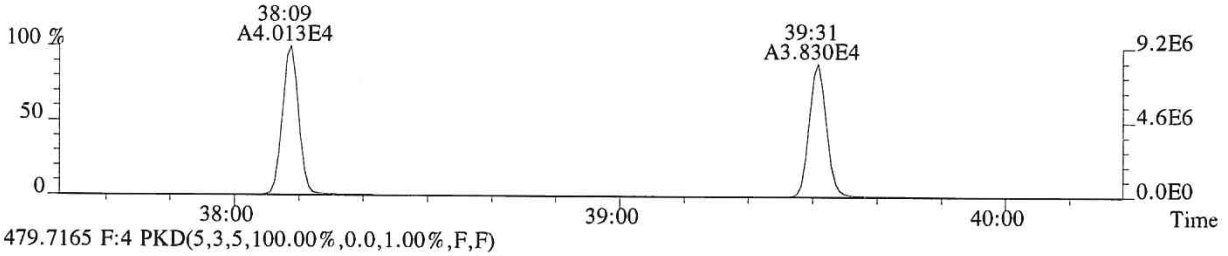
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.50%,F,T)



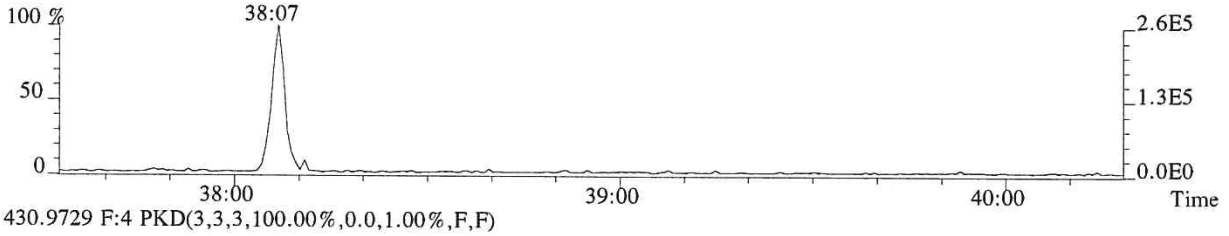
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3620.0,0.50%,F,T)



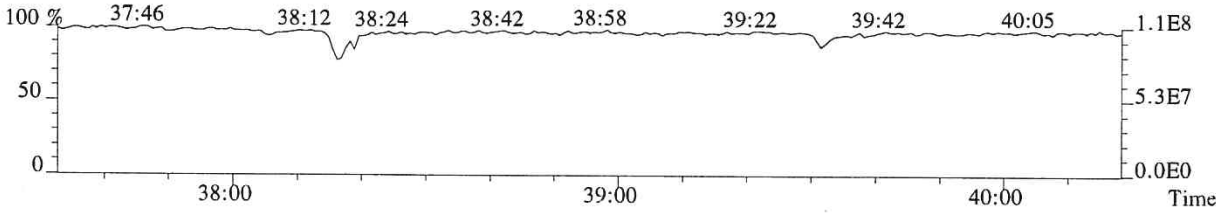
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6156.0,0.50%,F,T)



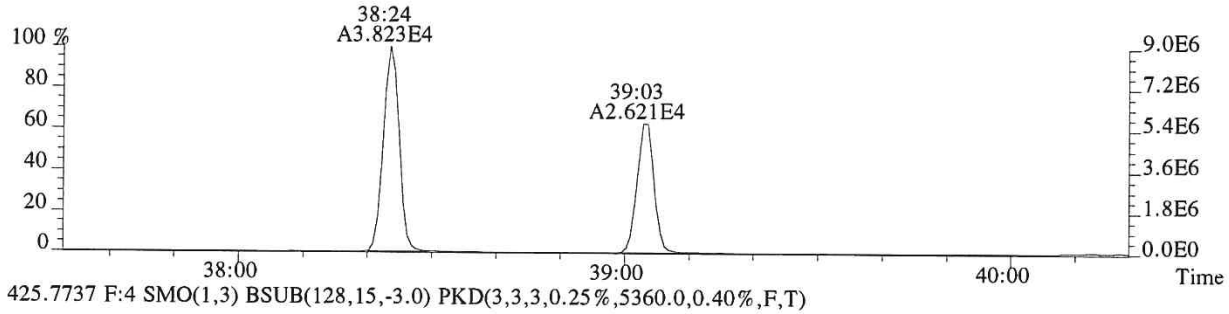
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



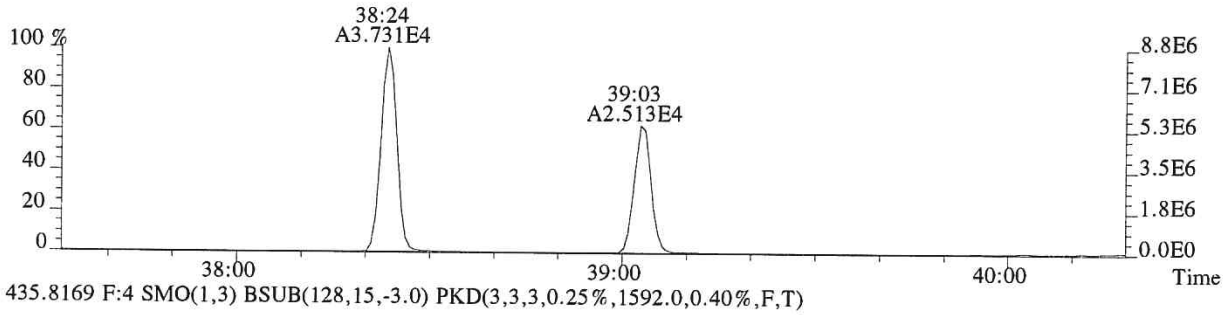
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



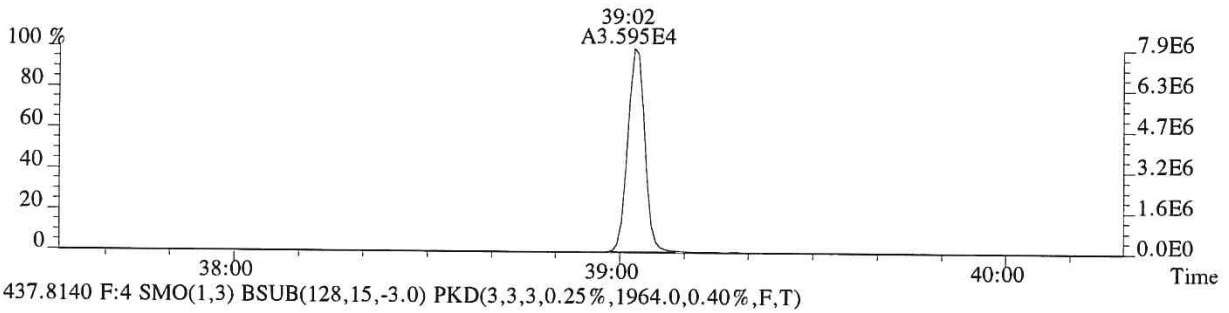
File:P615948 #1-249 Acq: 6-DEC-2018 17:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2688.0,0.40%,F,T)



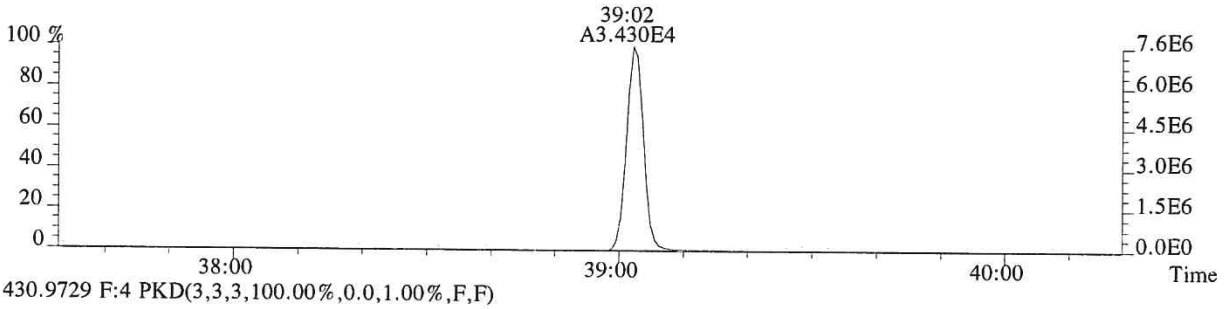
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5360.0,0.40%,F,T)



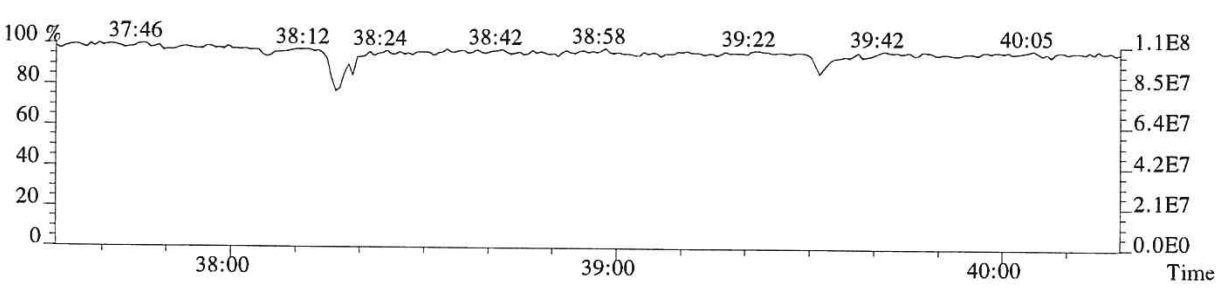
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1592.0,0.40%,F,T)



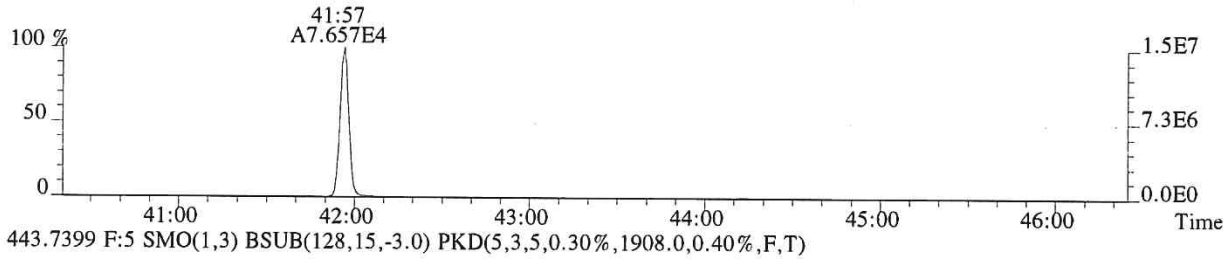
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1964.0,0.40%,F,T)



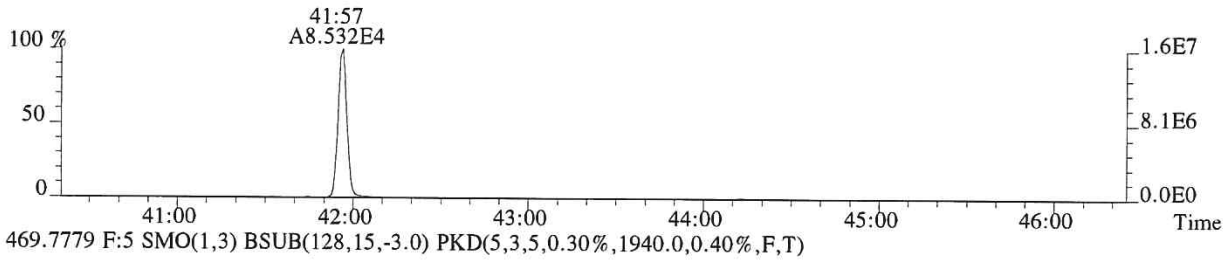
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



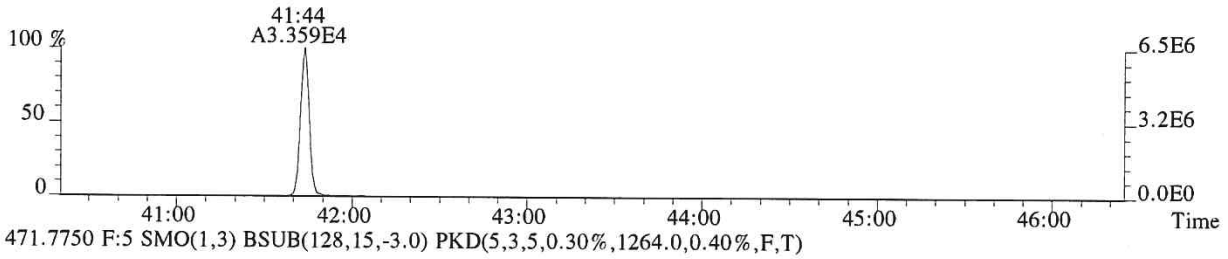
File:P615948 #1-547 Acq: 6-DEC-2018 17:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,948.0,0.40%,F,T)



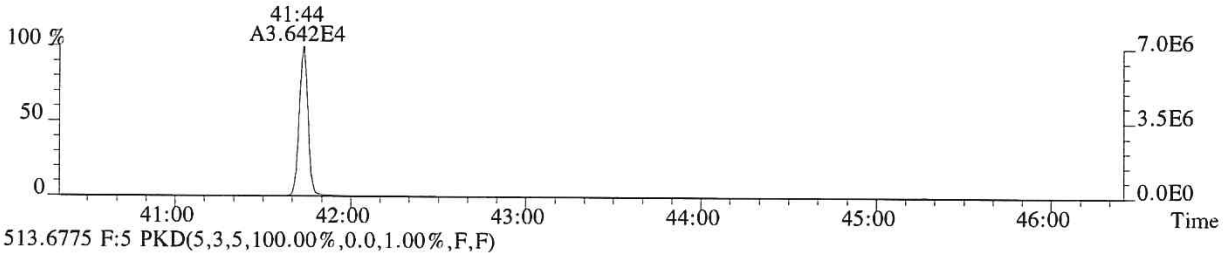
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1908.0,0.40%,F,T)



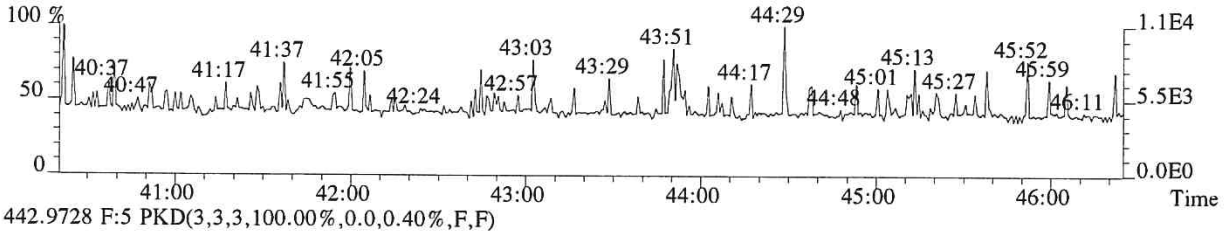
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1940.0,0.40%,F,T)



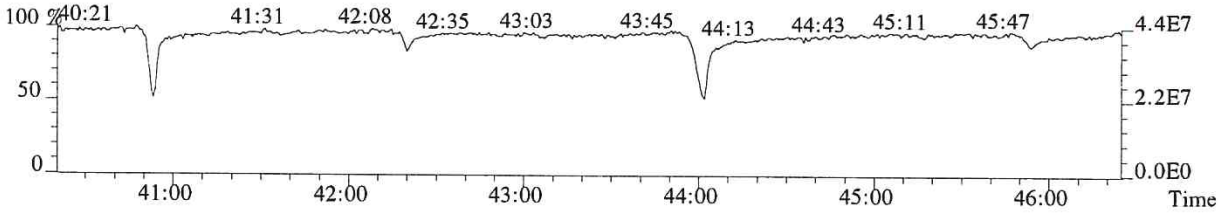
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1264.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

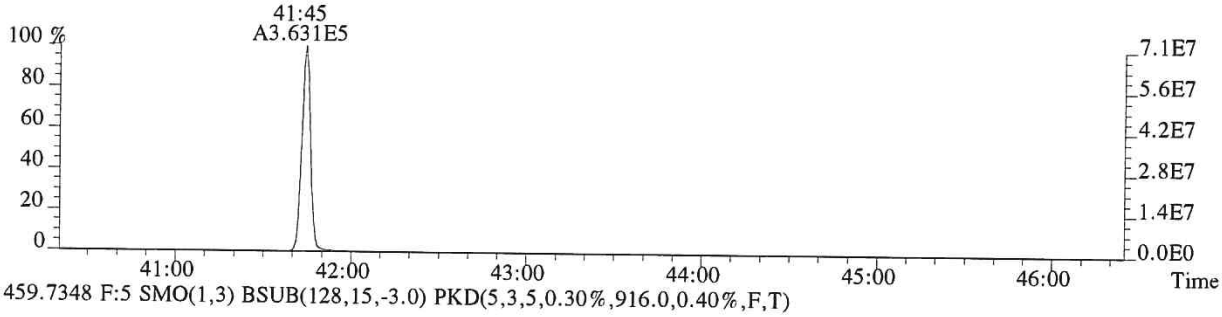


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

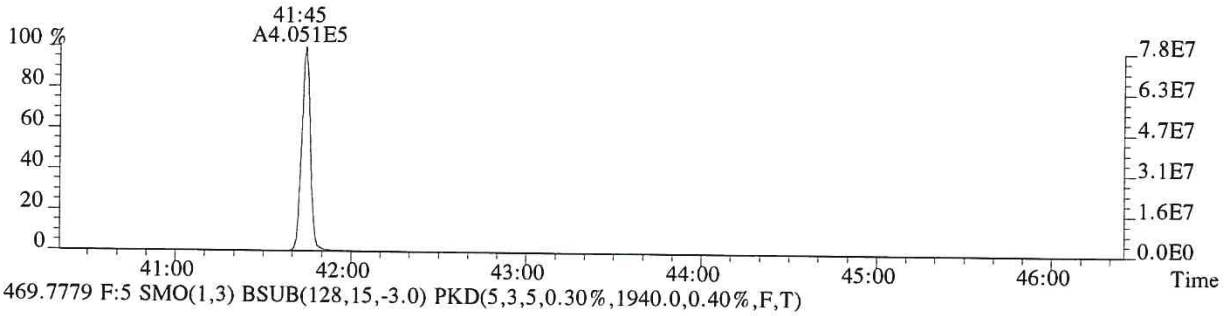


012332

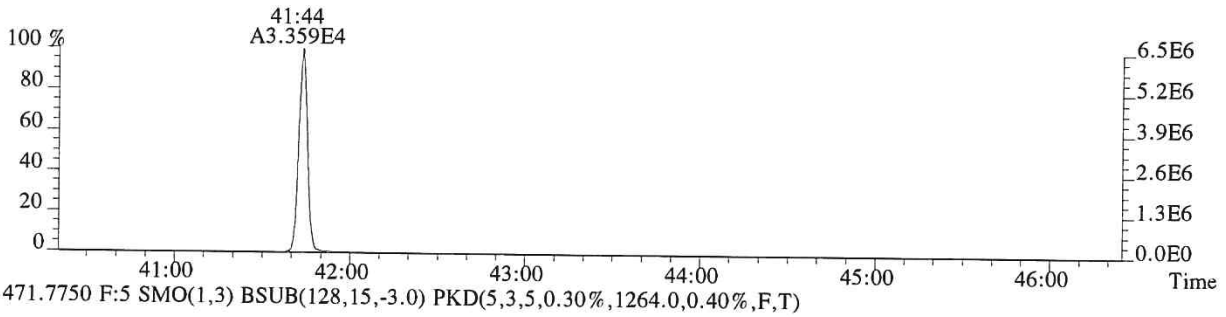
File:P615948 #1-547 Acq: 6-DEC-2018 17:22:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



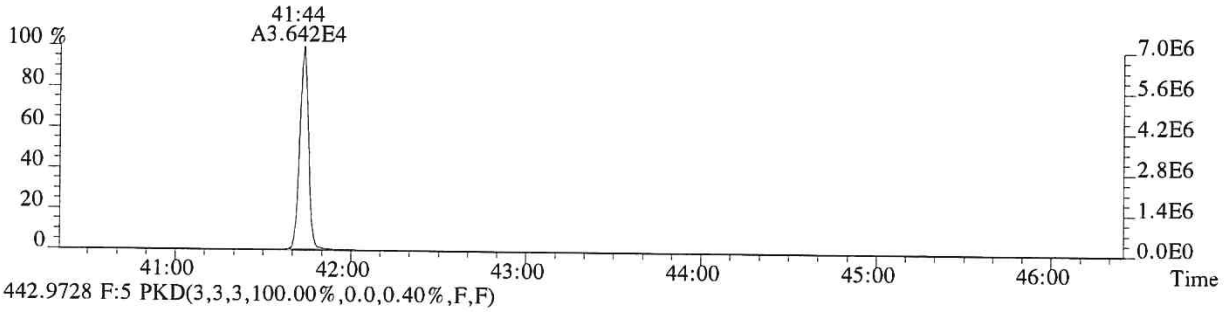
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,916.0,0.40%,F,T)



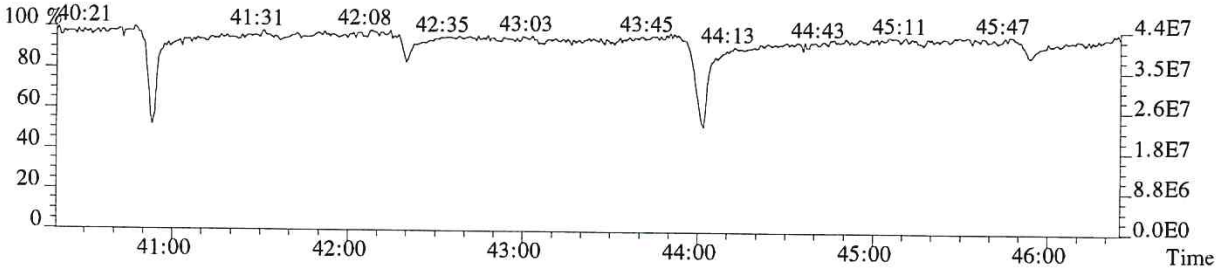
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1940.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1264.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0191

Run #11 Filename P519339 Samp: 1 Inj: 1 Acquired: 11-DEC-18 01:14:23
Processed: 12-DEC-18 13:50:55 Sample ID: E1801056-006DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	9.801e+03	1.310e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	5.969e+02	3.736e+02	1.60	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	4.323e+02	3.216e+02	1.34	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:47	7.673e+02	7.140e+02	1.07	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.716e+02	2.299e+02	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:25	4.942e+01	4.288e+01	1.15	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	6.051e+01	5.604e+01	1.08	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	2.612e+02	3.007e+02	0.87	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	7.158e+01	8.490e+01	0.84	no	no	1.258
10	Unk	OCDF	42:38	1.279e+03	1.574e+03	0.81	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:34	2.408e+03	3.021e+03	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	3.522e+01	2.042e+01	1.73	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:34	4.910e+00	6.719e+00	0.73	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:39	2.072e+01	1.755e+01	1.18	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	1.090e+01	1.176e+01	0.93	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	4.183e+02	4.278e+02	0.98	yes	no	1.025
17	Unk	OCDD	42:27	6.449e+03	7.418e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	1.493e+04	1.907e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	2.280e+04	1.419e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	2.161e+04	1.377e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	8.909e+03	1.715e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:53	1.103e+04	2.070e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	9.766e+03	1.882e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	8.811e+03	1.718e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	7.655e+03	1.747e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	6.682e+03	1.496e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	6.871e+03	8.832e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	1.508e+04	9.614e+03	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.185e+04	9.117e+03	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.295e+04	9.886e+03	1.31	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	1.419e+04	1.321e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:27	1.617e+04	1.769e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	1.084e+04	1.329e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	1.352e+04	1.076e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	5.159e+02				no	1.014

$$\text{OCDD} = \frac{(6.449e+03 + 7.418e+03) \times 4000\ \text{pg} \times 20}{(1.617e+04 + 1.769e+04) \times 10.626\text{g} \times 78.0 / 100 \times 1.118 \times 0.40} = 8839\ \text{ng/kg}$$

LM 12/13/18

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Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0191

Run #11 Filename P519339 Samp: 1 Inj: 1 Acquired: 11-DEC-18 01:14:23
Processed: 12-DEC-18 13:50:55 LAB. ID: E1801056-006DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.60e+06	2.92e+02	5.5e+03	2.11e+06	1.20e+03	1.8e+03
2	1,2,3,7,8-PeCDF	1.04e+05	4.24e+02	2.5e+02	7.04e+04	1.44e+03	4.9e+01
3	2,3,4,7,8-PeCDF	6.35e+04	4.24e+02	1.5e+02	5.34e+04	1.44e+03	3.7e+01
4	1,2,3,4,7,8-HxCDF	1.56e+05	7.00e+02	2.2e+02	1.34e+05	1.68e+02	8.0e+02
5	1,2,3,6,7,8-HxCDF	4.69e+04	7.00e+02	6.7e+01	4.08e+04	1.68e+02	2.4e+02
6	2,3,4,6,7,8-HxCDF	1.05e+04	7.00e+02	1.5e+01	9.21e+03	1.68e+02	5.5e+01
7	1,2,3,7,8,9-HxCDF	9.59e+03	7.00e+02	1.4e+01	9.81e+03	1.68e+02	5.8e+01
8	1,2,3,4,6,7,8-HpCDF	5.18e+04	6.60e+02	7.8e+01	6.19e+04	2.12e+02	2.9e+02
9	1,2,3,4,7,8,9-HpCDF	1.18e+04	6.60e+02	1.8e+01	1.47e+04	2.12e+02	7.0e+01
10	OCDF	1.58e+05	2.12e+02	7.4e+02	1.81e+05	5.56e+02	3.3e+02
11	2,3,7,8-TCDD	4.26e+05	1.25e+03	3.4e+02	5.74e+05	5.72e+02	1.0e+03
12	1,2,3,7,8-PeCDD	4.92e+03	3.28e+02	1.5e+01	3.27e+03	2.44e+02	1.3e+01
13	1,2,3,4,7,8-HxCDD	1.57e+03	3.04e+02	5.1e+00	2.01e+03	2.12e+02	9.5e+00
14	1,2,3,6,7,8-HxCDD	4.80e+03	3.04e+02	1.6e+01	4.21e+03	2.12e+02	2.0e+01
15	1,2,3,7,8,9-HxCDD	2.35e+03	3.04e+02	7.7e+00	2.72e+03	2.12e+02	1.3e+01
16	1,2,3,4,6,7,8-HpCDD	7.68e+04	2.76e+02	2.8e+02	7.14e+04	1.72e+02	4.2e+02
17	OCDD	7.40e+05	2.20e+02	3.4e+03	8.71e+05	4.20e+02	2.1e+03
18	13C-2,3,7,8-TCDF	2.66e+06	4.82e+03	5.5e+02	3.43e+06	2.95e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	4.12e+06	3.60e+02	1.1e+04	2.55e+06	4.76e+02	5.4e+03
20	13C-2,3,4,7,8-PeCDF	4.15e+06	3.60e+02	1.2e+04	2.64e+06	4.76e+02	5.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.83e+06	2.28e+02	8.0e+03	3.57e+06	1.56e+02	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.04e+06	2.28e+02	8.9e+03	3.90e+06	1.56e+02	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	1.92e+06	2.28e+02	8.4e+03	3.74e+06	1.56e+02	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	1.56e+06	2.28e+02	6.8e+03	3.04e+06	1.56e+02	1.9e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.42e+06	1.50e+03	9.4e+02	3.28e+06	1.93e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.01e+06	1.50e+03	6.8e+02	2.34e+06	1.93e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.29e+06	4.73e+03	2.7e+02	1.61e+06	1.25e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+06	4.72e+02	5.8e+03	1.76e+06	5.08e+02	3.5e+03
29	13C-1,2,3,4,7,8-HxCDD	2.54e+06	9.64e+02	2.6e+03	1.96e+06	2.00e+02	9.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.41e+06	9.64e+02	2.5e+03	1.79e+06	2.00e+02	9.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.25e+06	2.28e+02	9.8e+03	2.12e+06	1.88e+02	1.1e+04
32	13C-OCDD	1.84e+06	3.12e+02	5.9e+03	2.07e+06	1.20e+02	1.7e+04
33	13C-1,2,3,4-TCDD	2.03e+06	4.73e+03	4.3e+02	2.41e+06	1.25e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	2.47e+06	9.64e+02	2.6e+03	1.91e+06	2.00e+02	9.6e+03
35	37Cl-2,3,7,8-TCDD	9.59e+04	5.60e+02	1.7e+02			

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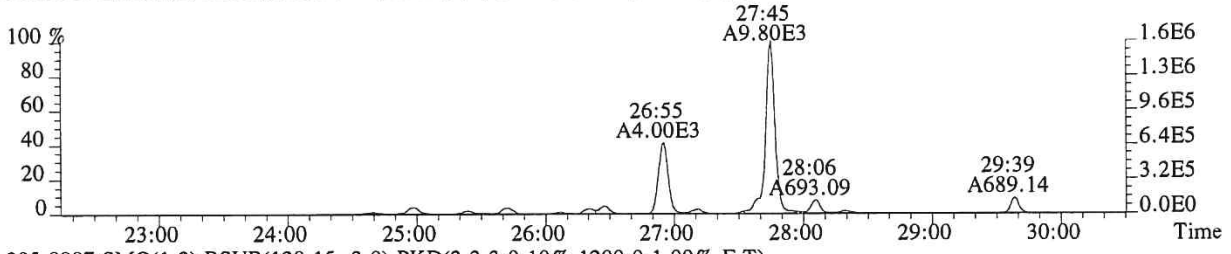
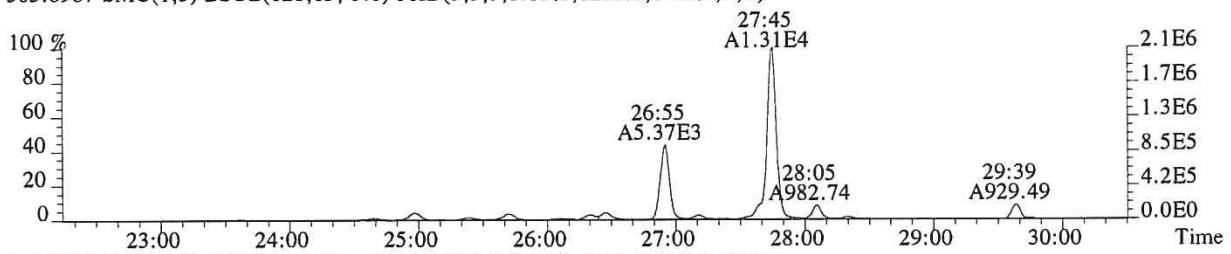
File:P519339 #1-587 Acq:11-DEC-2018 01:14:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006DL

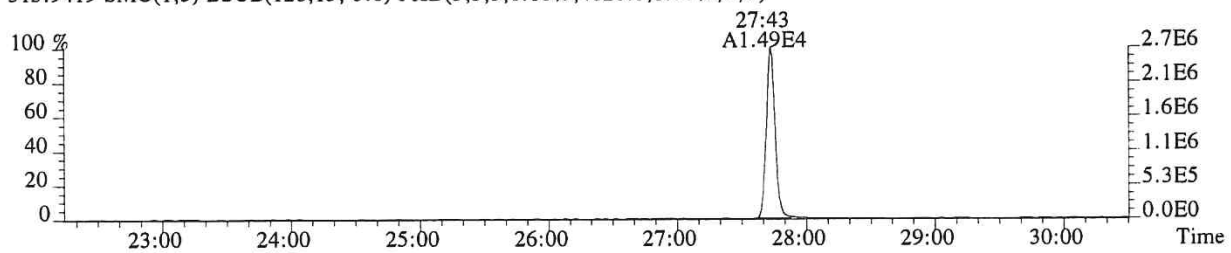
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



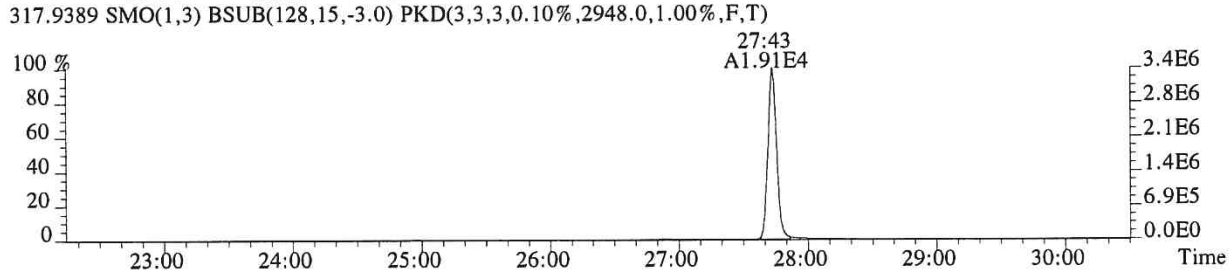
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



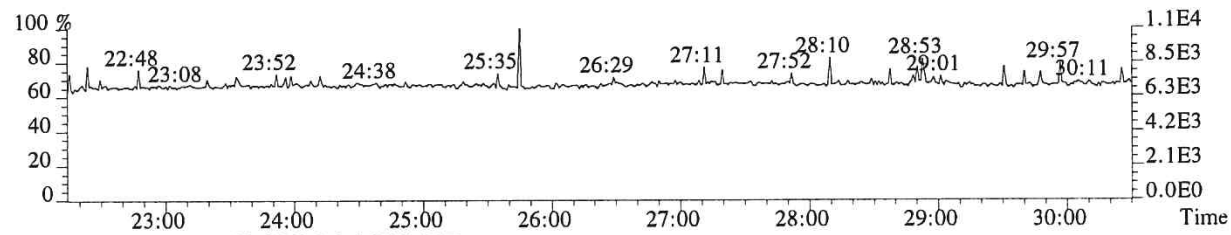
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4820.0,1.00%,F,T)



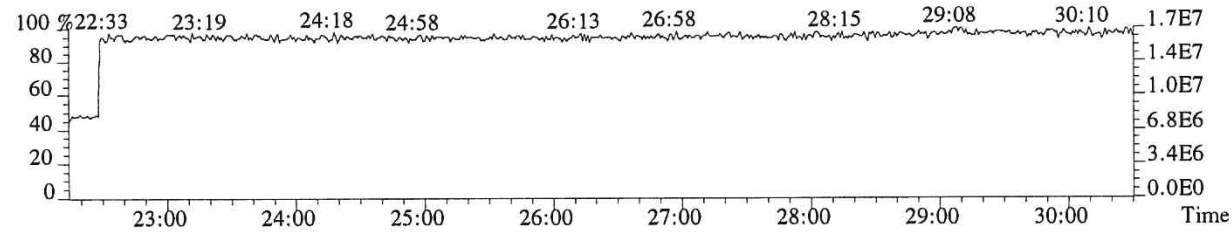
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

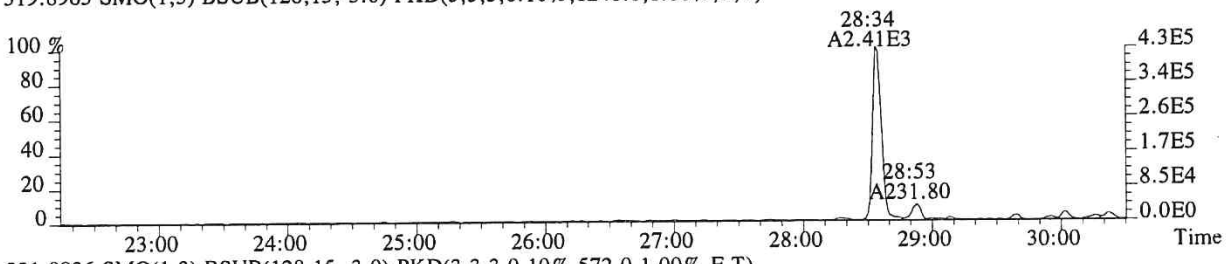


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

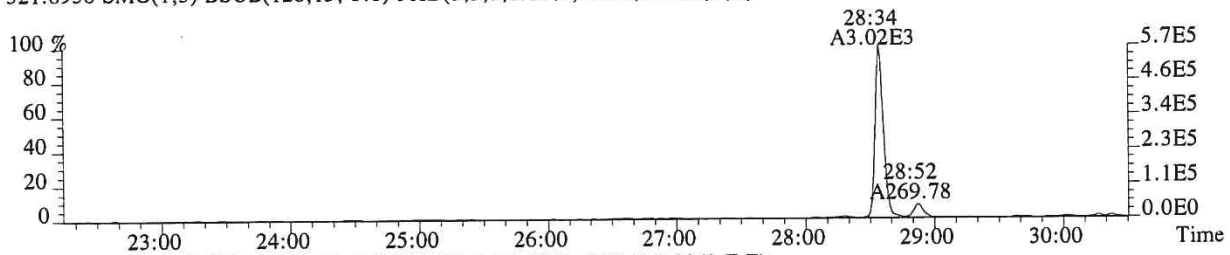


File:P519339 #1-587 Acq:11-DEC-2018 01:14:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006DL

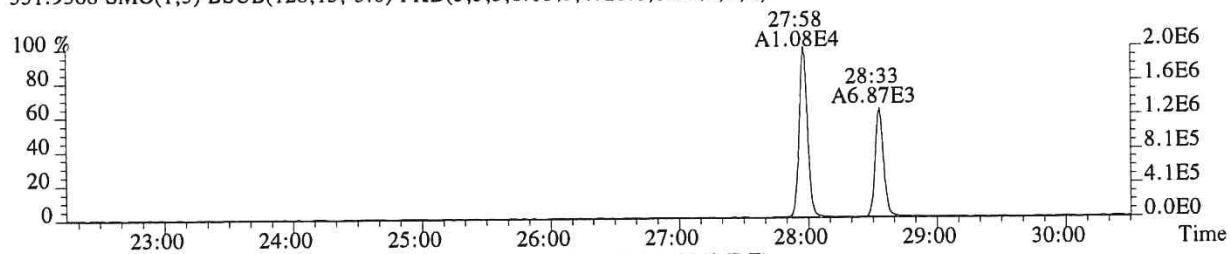
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



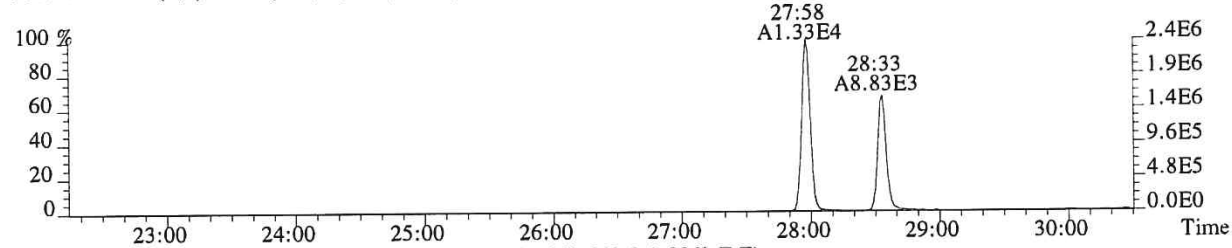
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



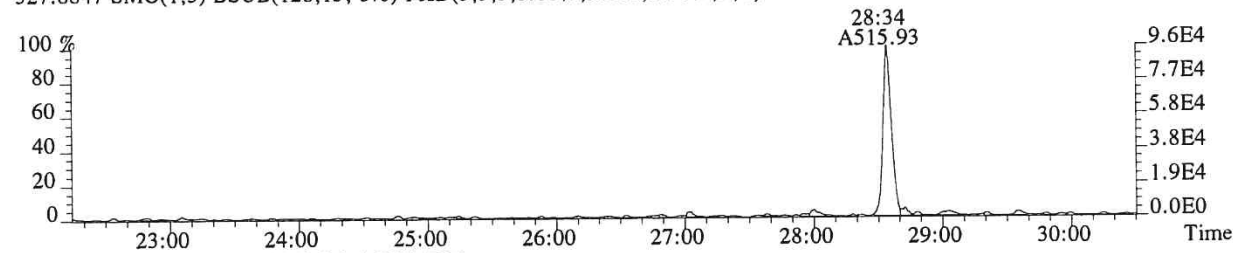
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4728.0,1.00%,F,T)



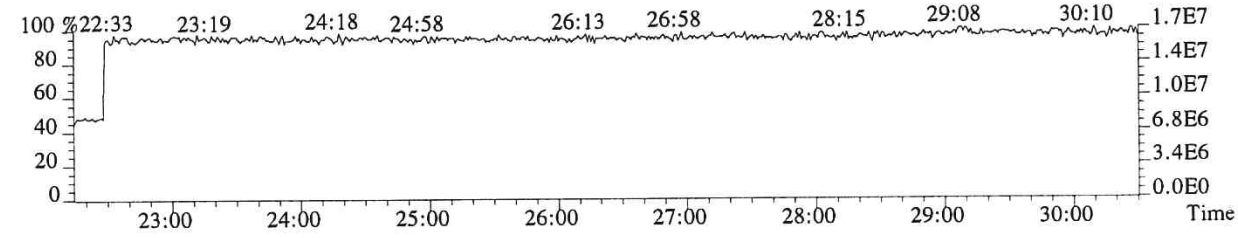
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



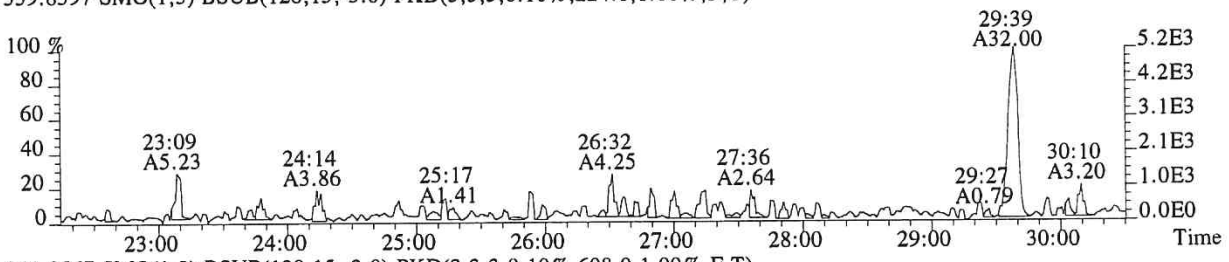
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



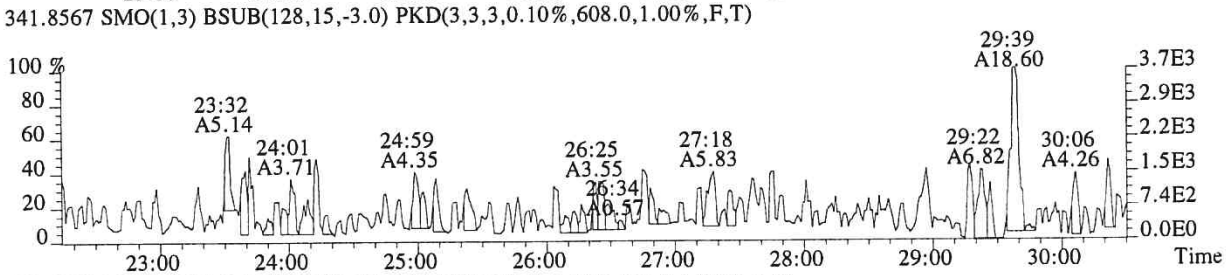
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



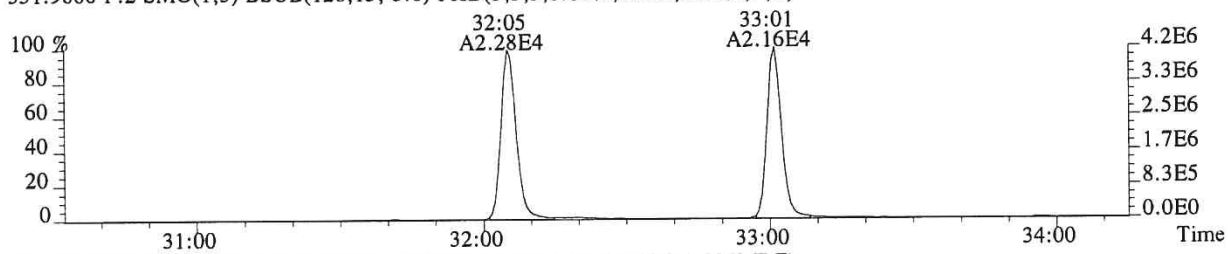
File:P519339 #1-587 Acq:11-DEC-2018 01:14:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



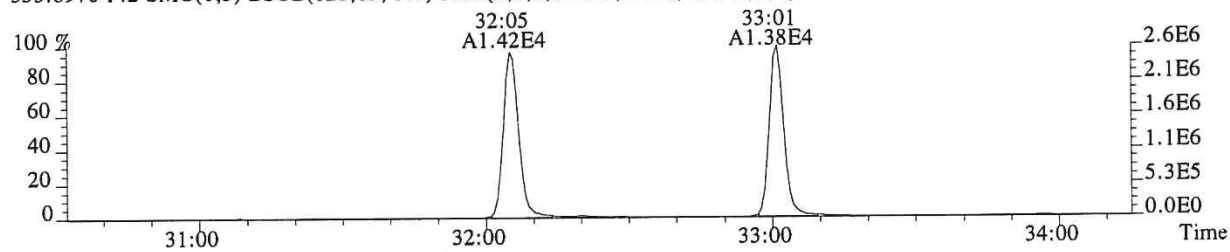
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



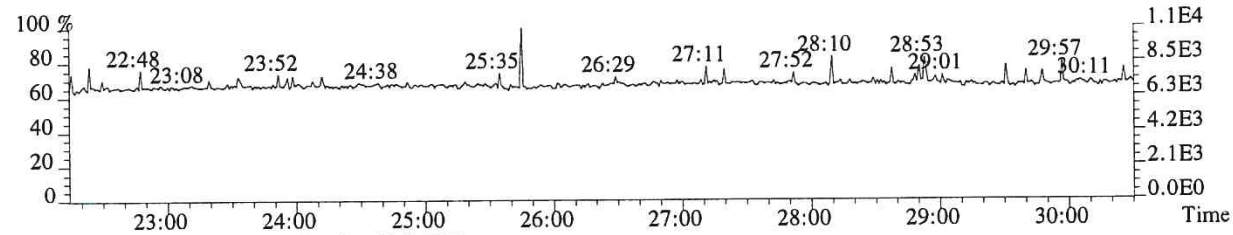
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



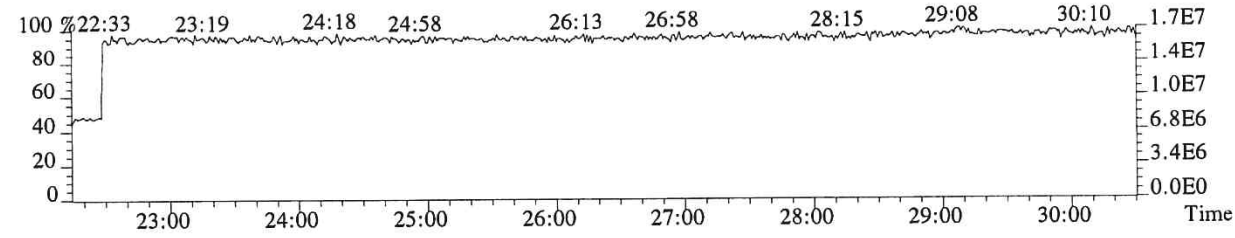
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

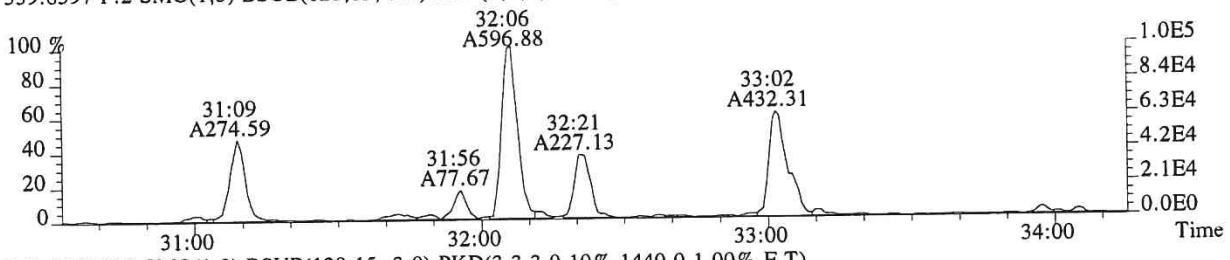


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

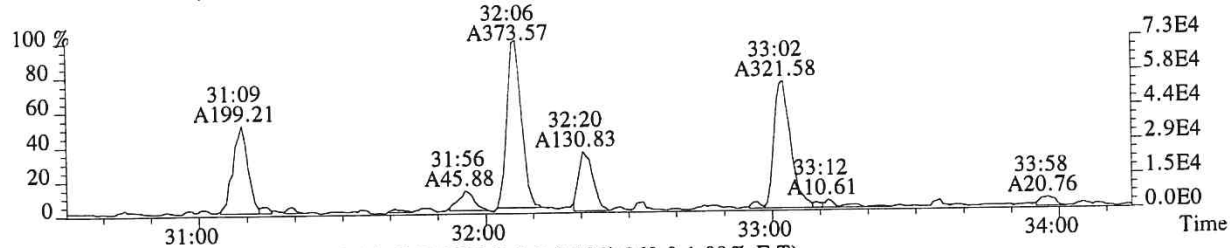


012338

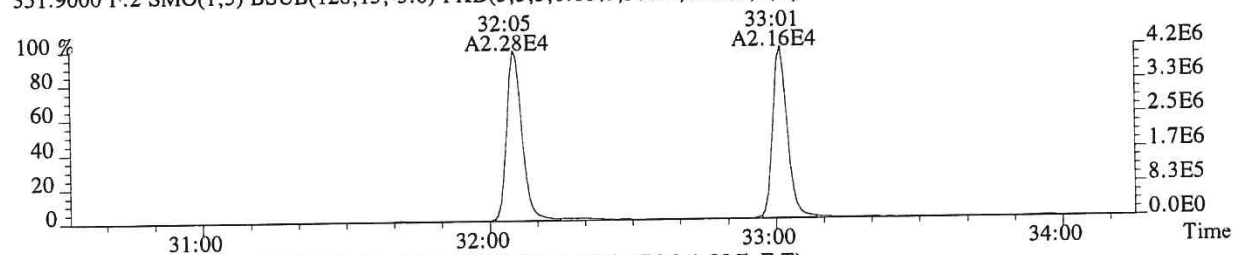
File:P519339 #1-335 Acq:11-DEC-2018 01:14:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



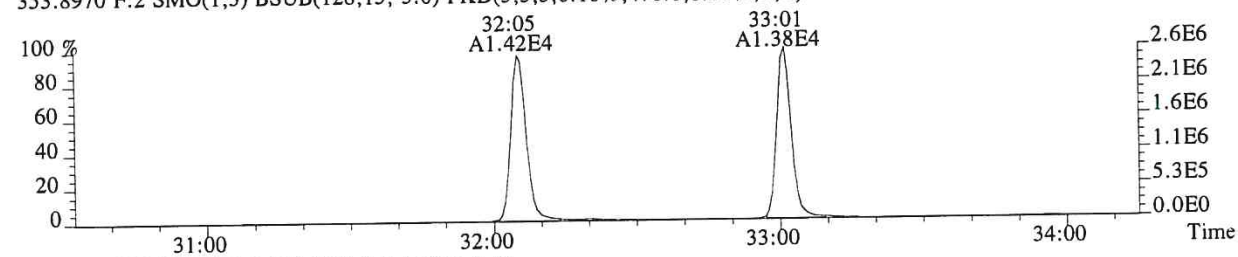
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1440.0,1.00%,F,T)



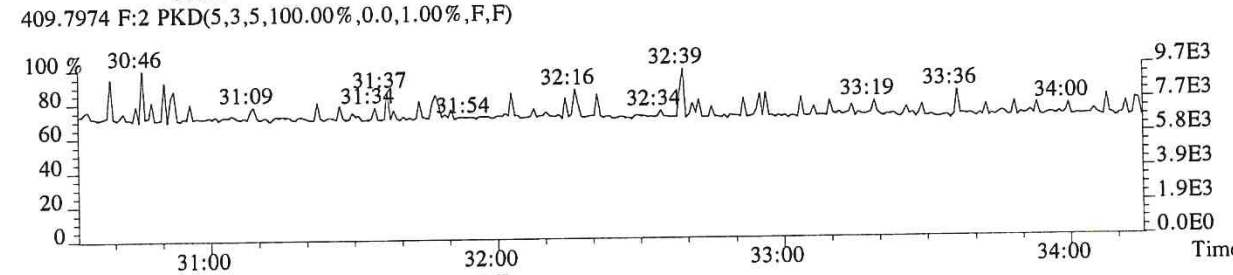
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



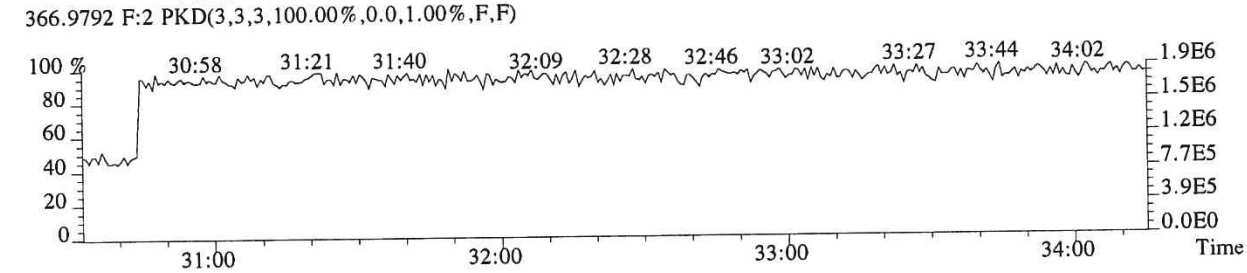
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



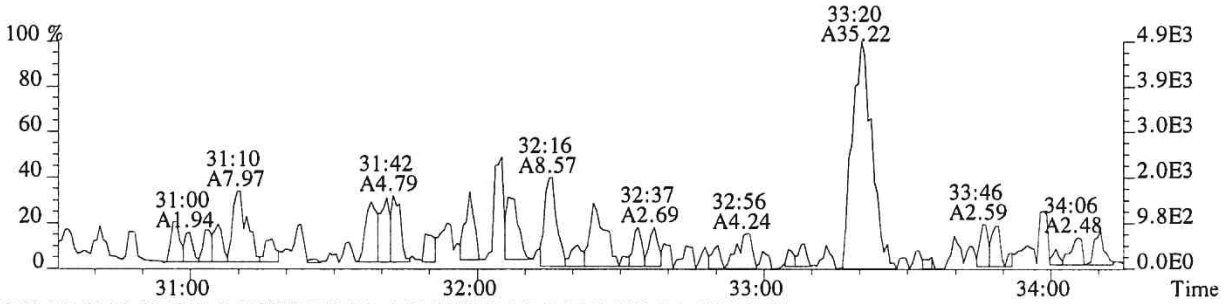
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



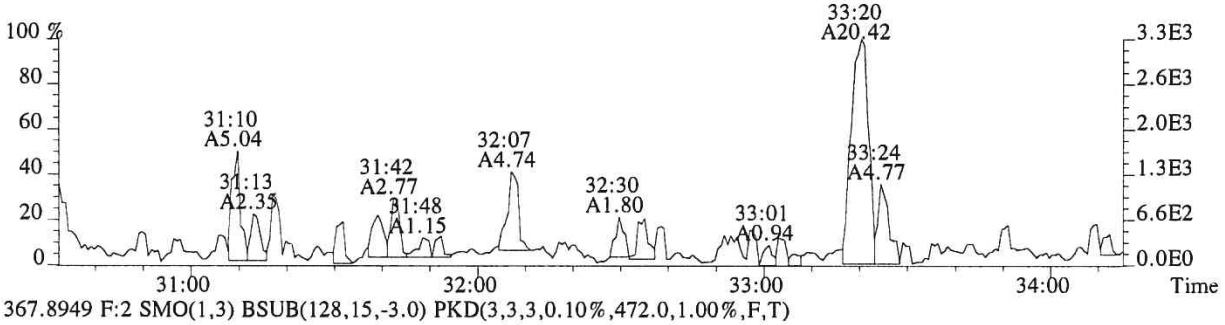
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



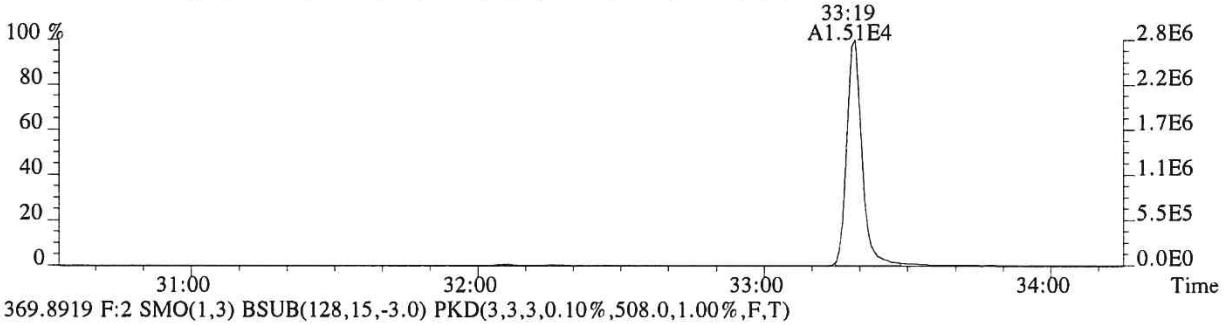
File:P519339 #1-335 Acq:11-DEC-2018 01:14:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



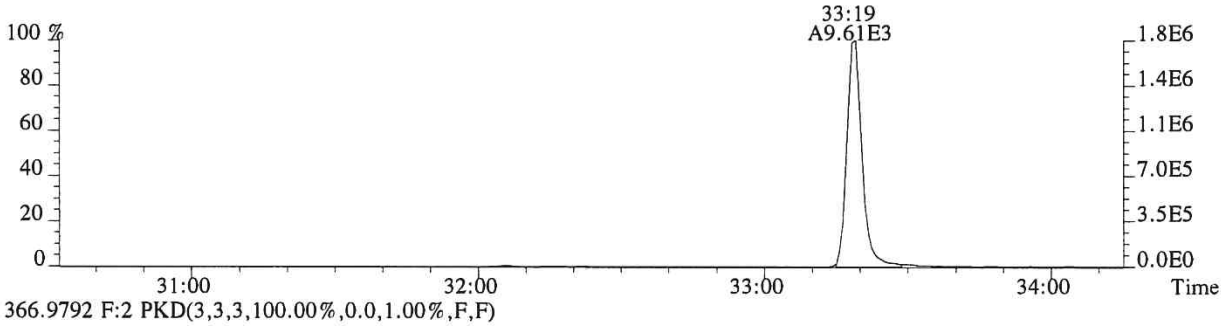
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



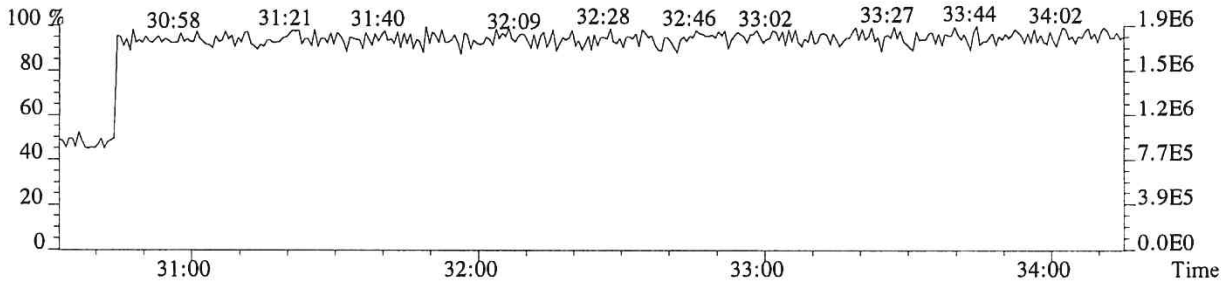
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



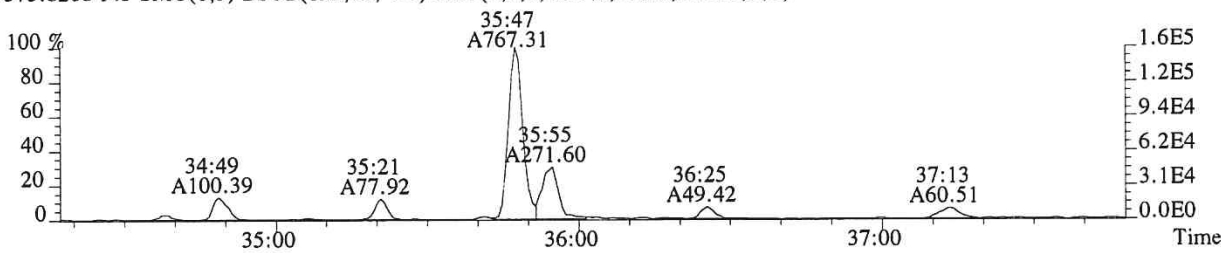
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



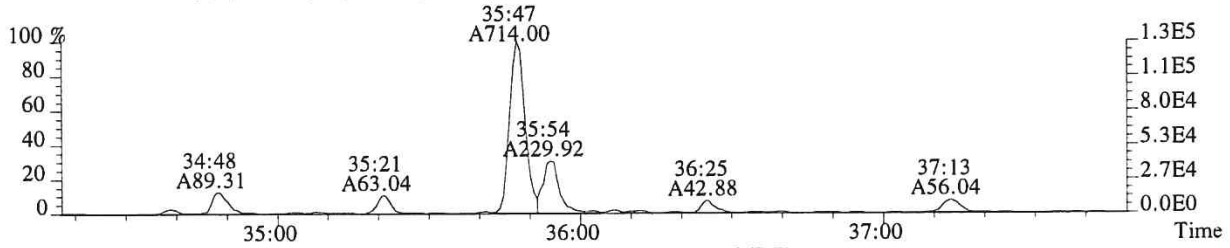
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



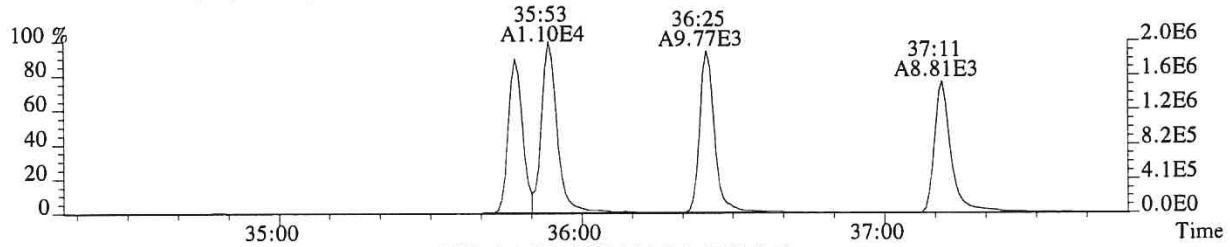
File:P519339 #1-317 Acq:11-DEC-2018 01:14:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



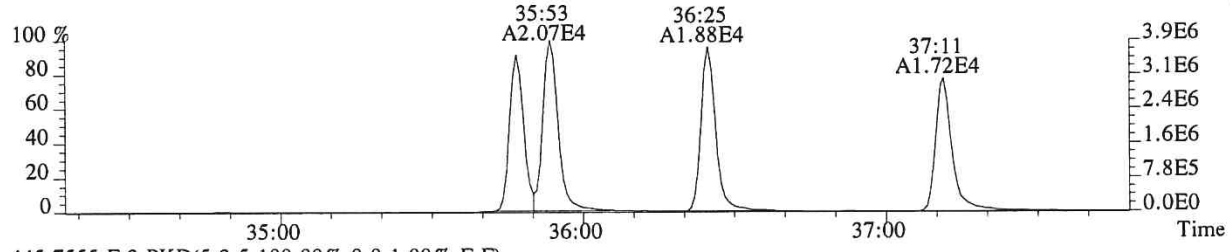
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



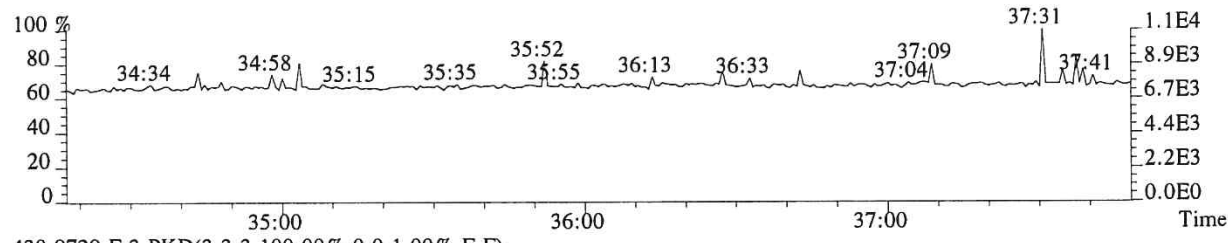
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



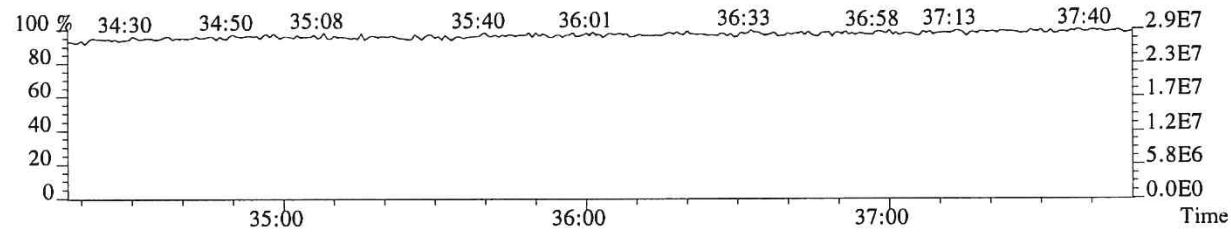
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,156.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

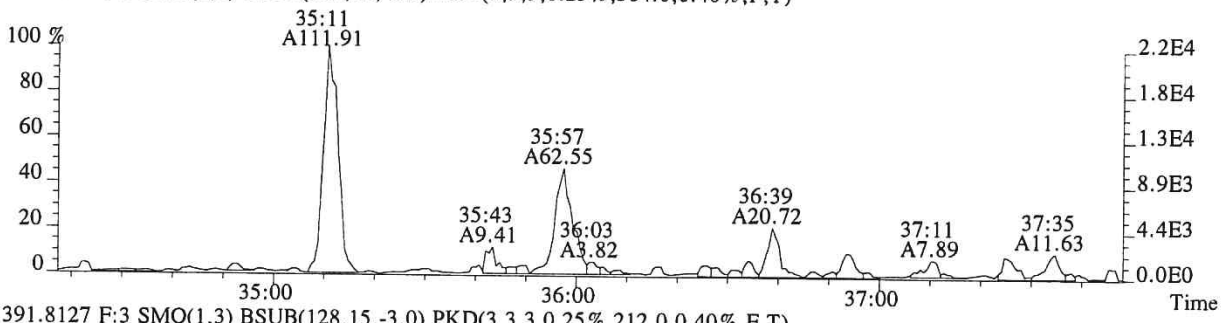


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

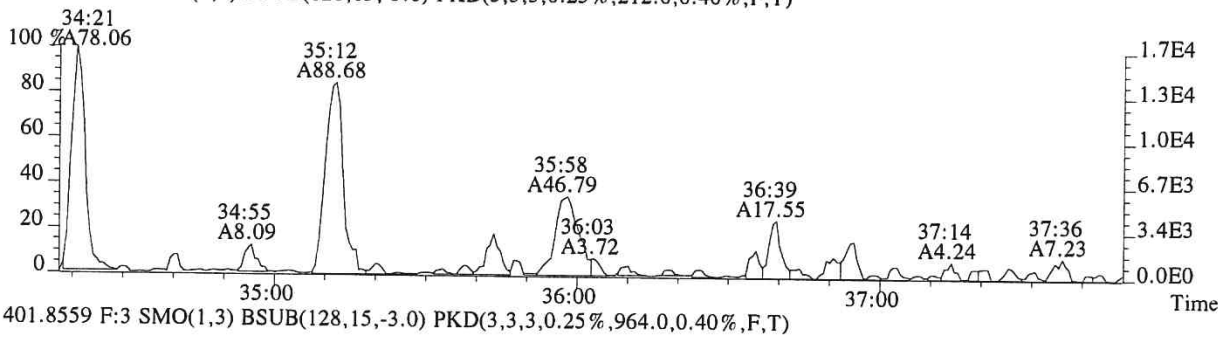


012341

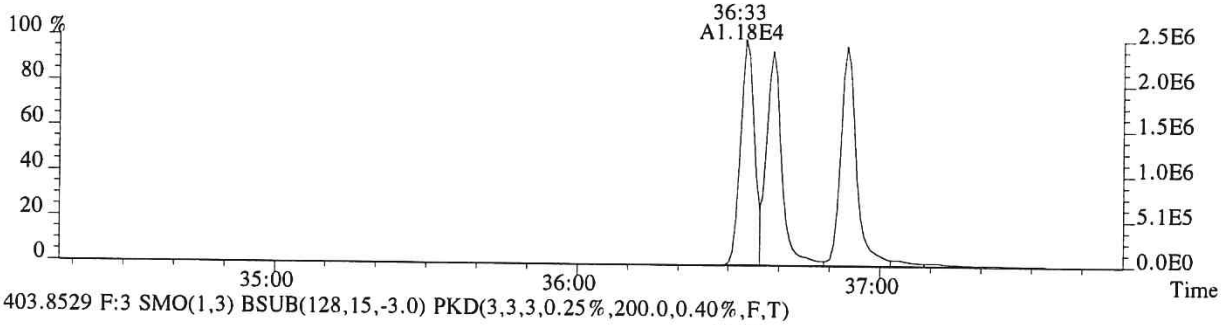
File:P519339 #1-317 Acq:11-DEC-2018 01:14:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



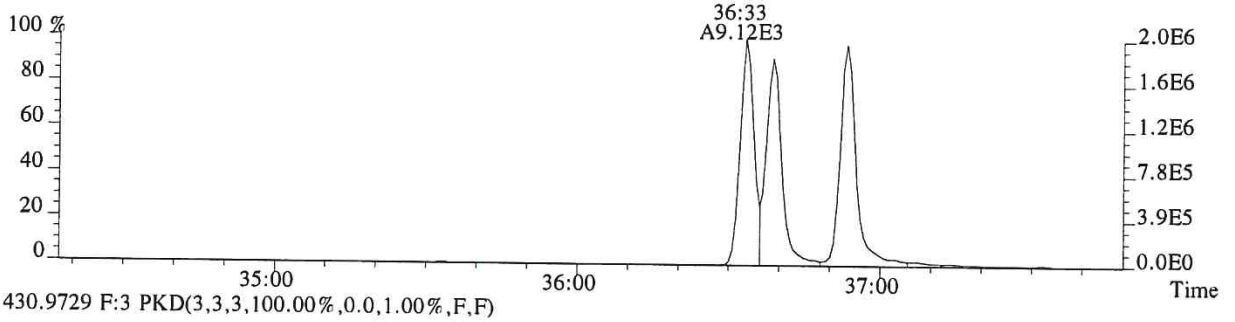
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



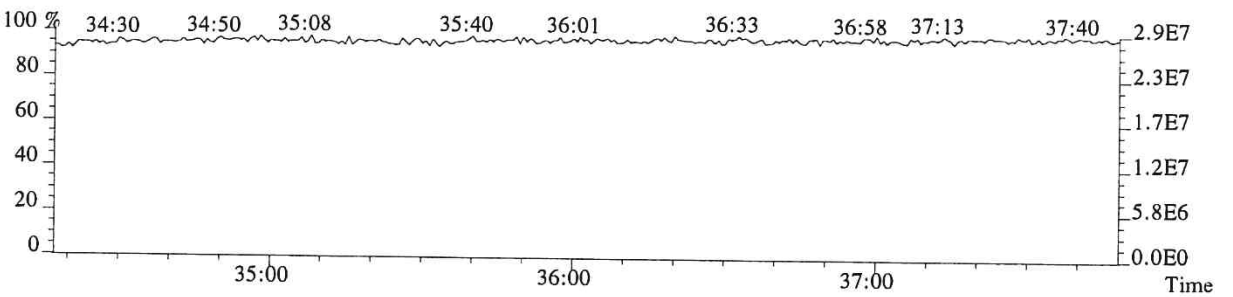
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)



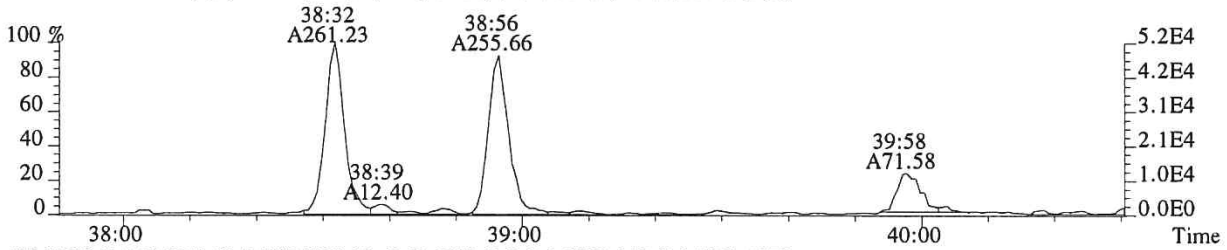
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



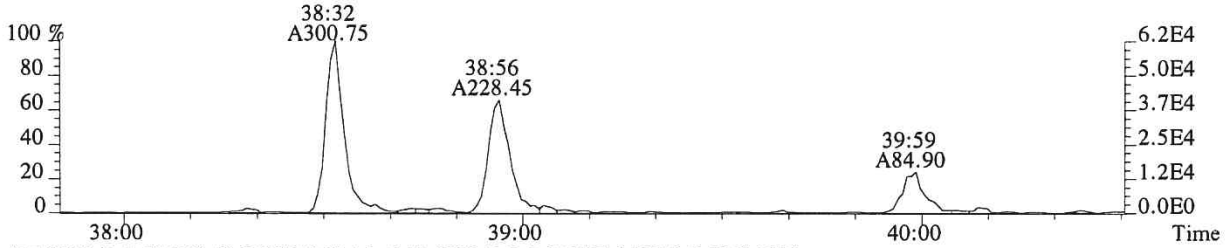
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



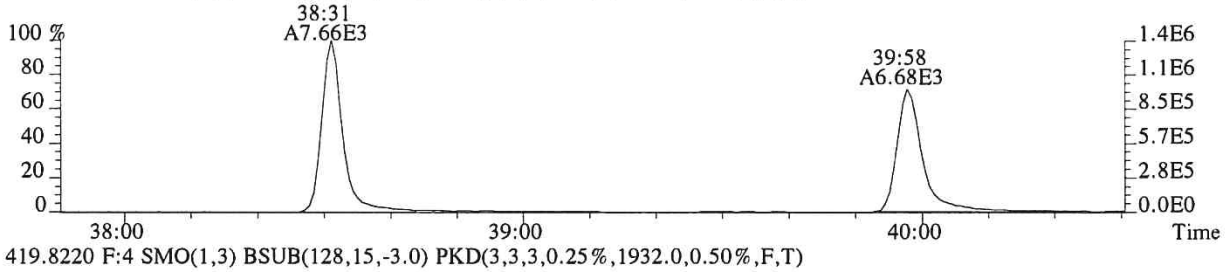
File:P519339 #1-241 Acq:11-DEC-2018 01:14:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.50%,F,T)



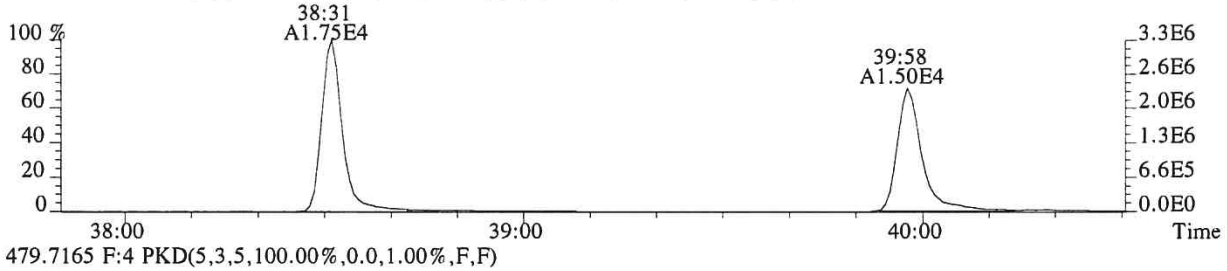
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.50%,F,T)



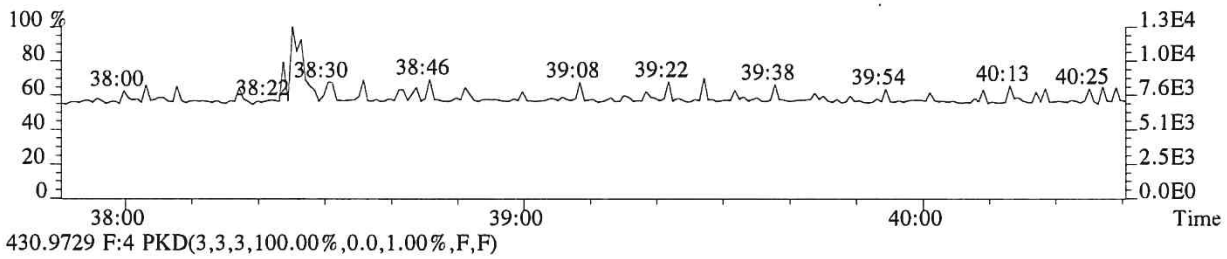
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.50%,F,T)



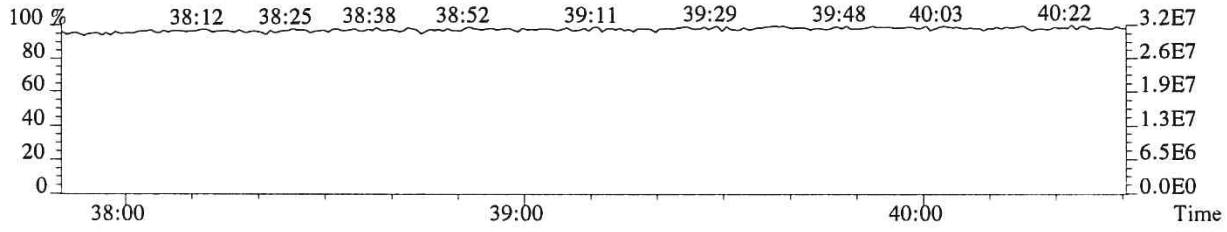
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1932.0,0.50%,F,T)



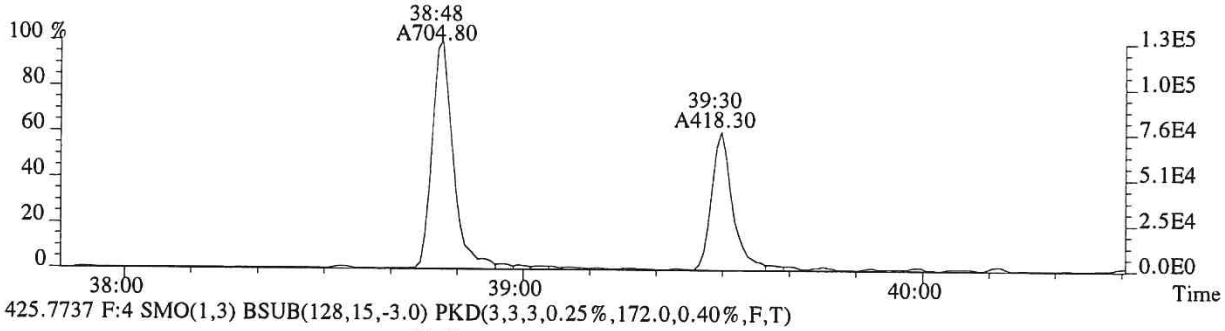
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



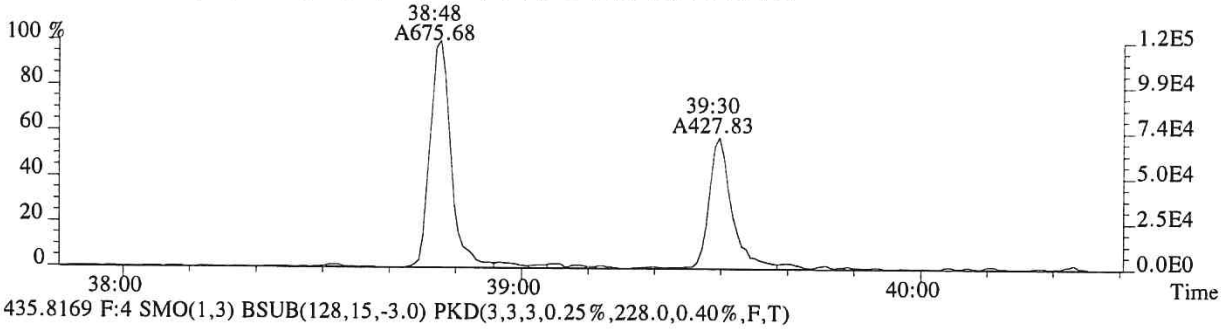
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



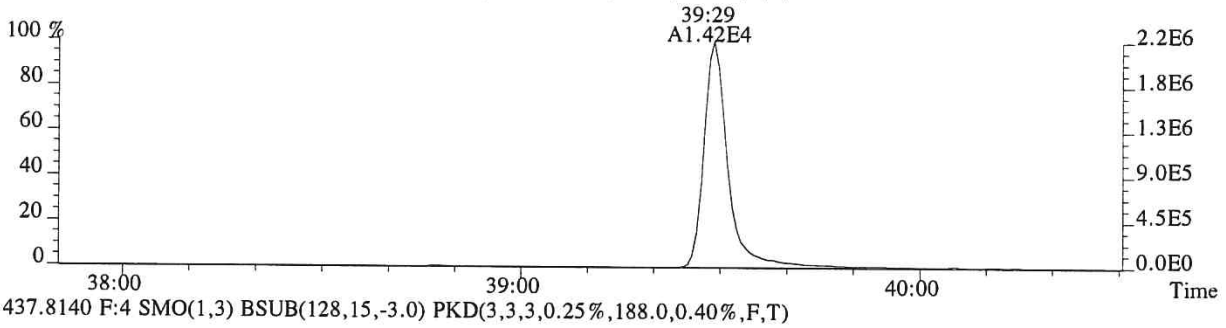
File:P519339 #1-241 Acq:11-DEC-2018 01:14:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



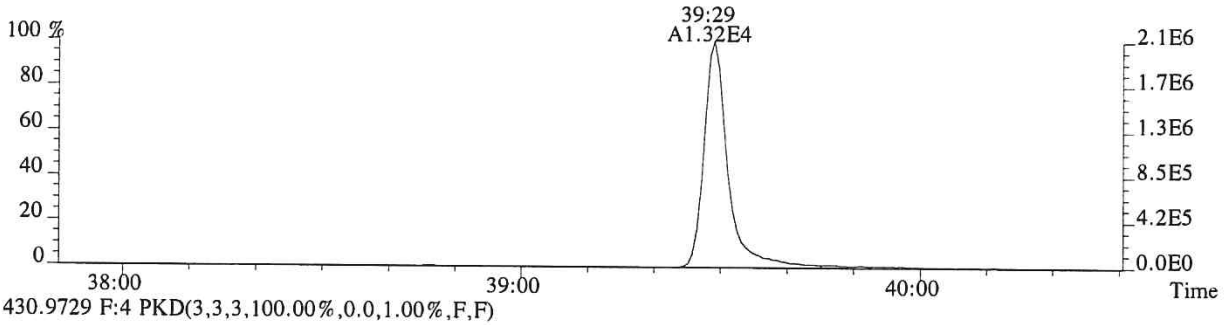
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



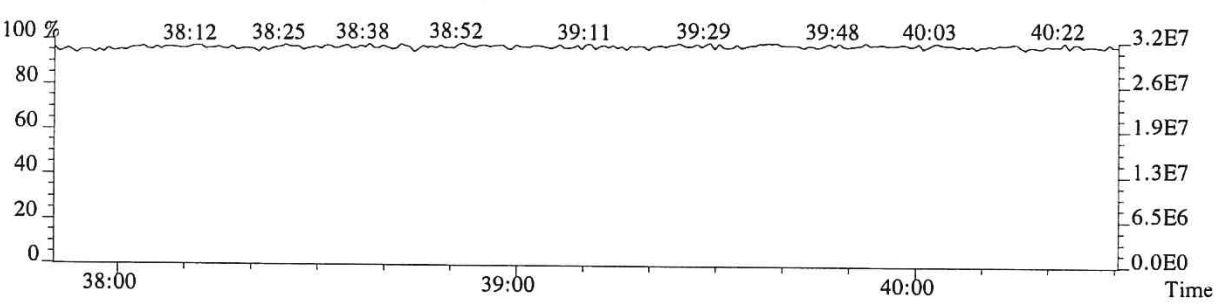
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



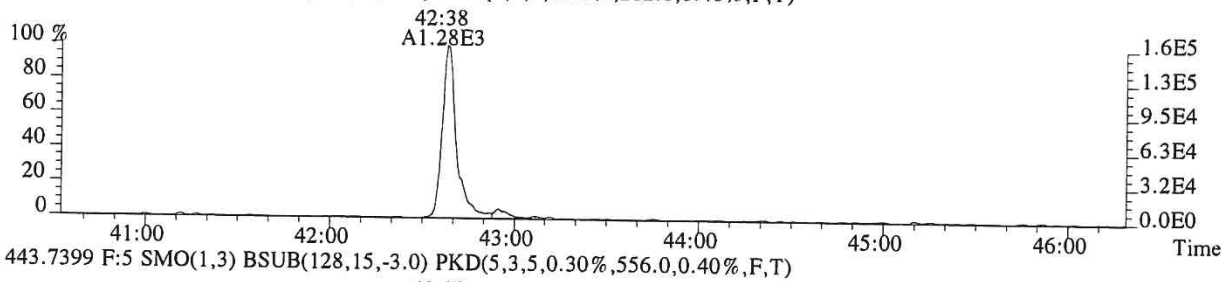
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



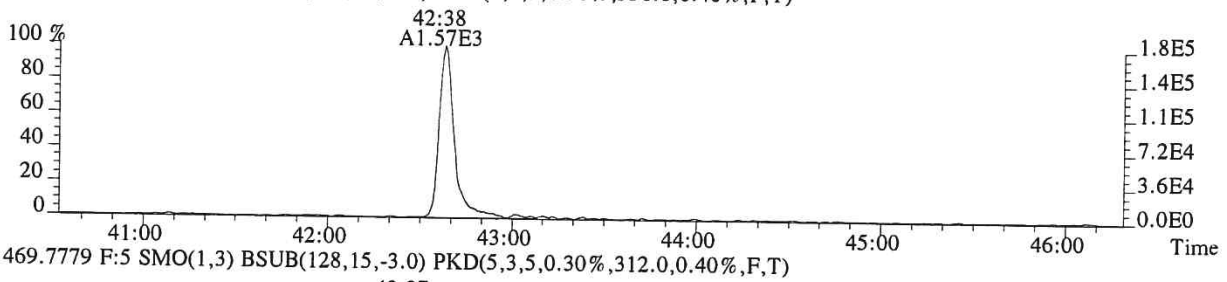
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



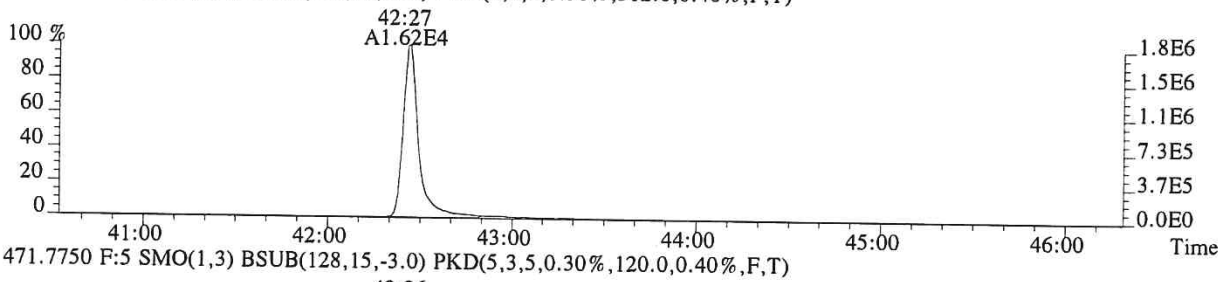
File:P519339 #1-520 Acq:11-DEC-2018 01:14:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



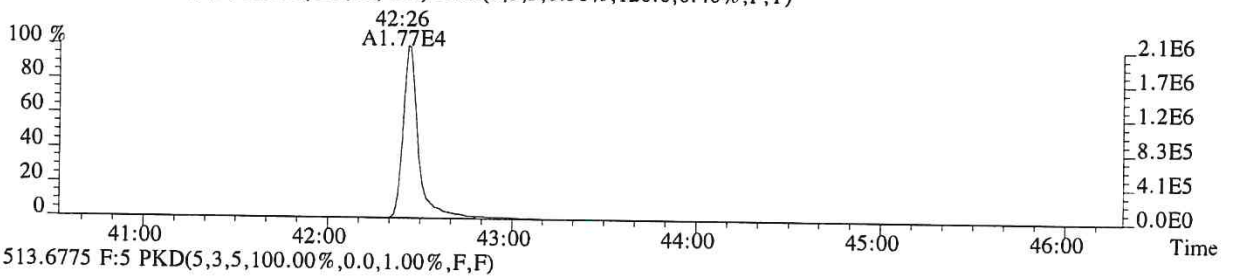
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



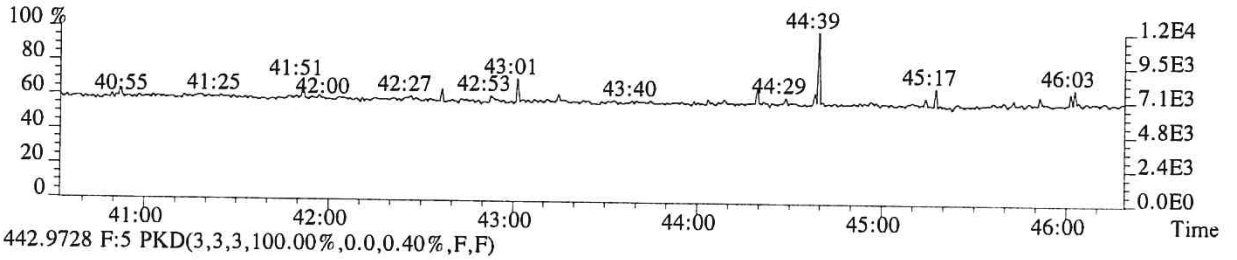
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



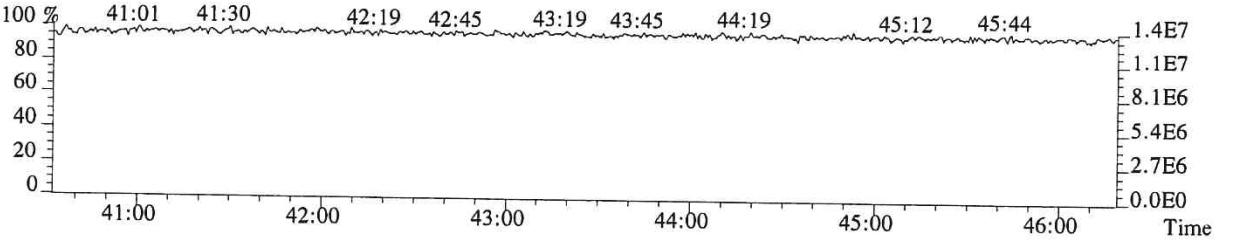
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,120.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

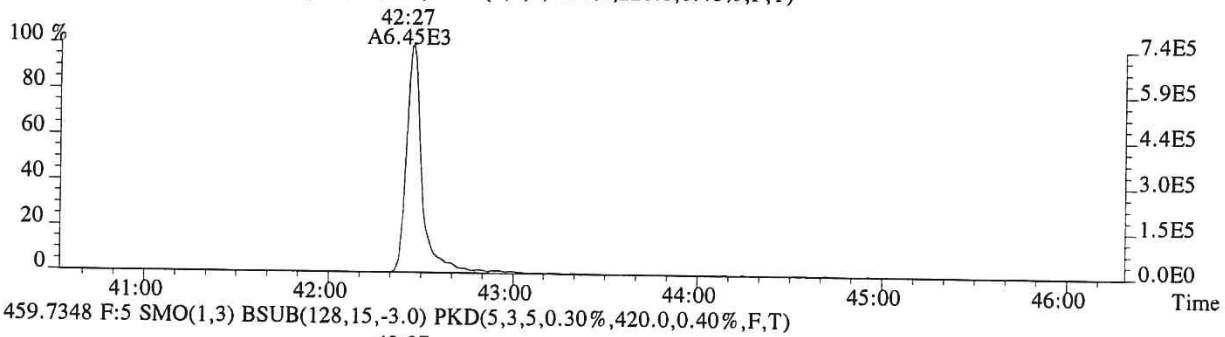


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

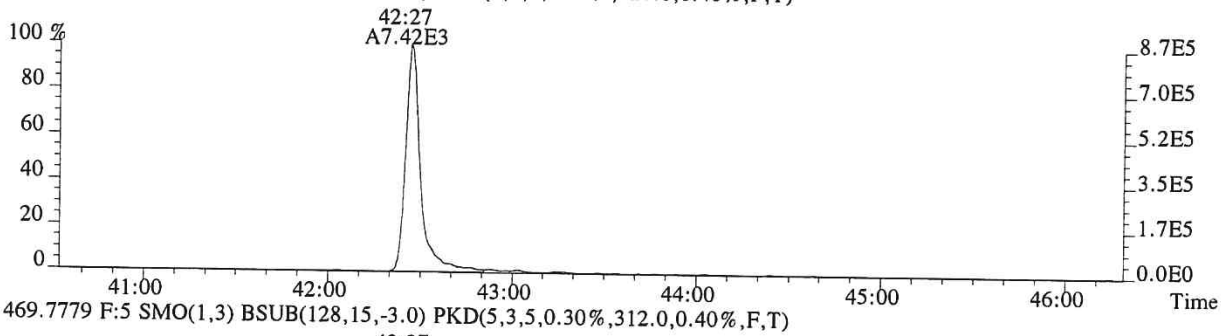


012345

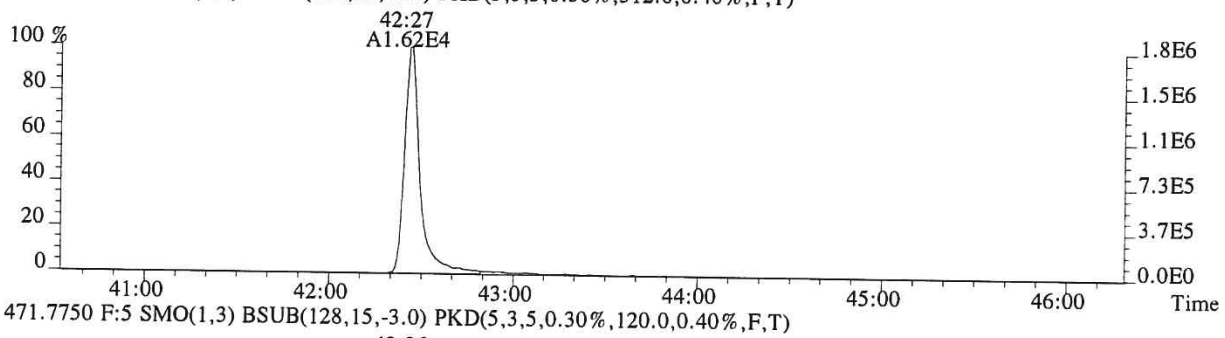
File:P519339 #1-520 Acq:11-DEC-2018 01:14:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-006DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



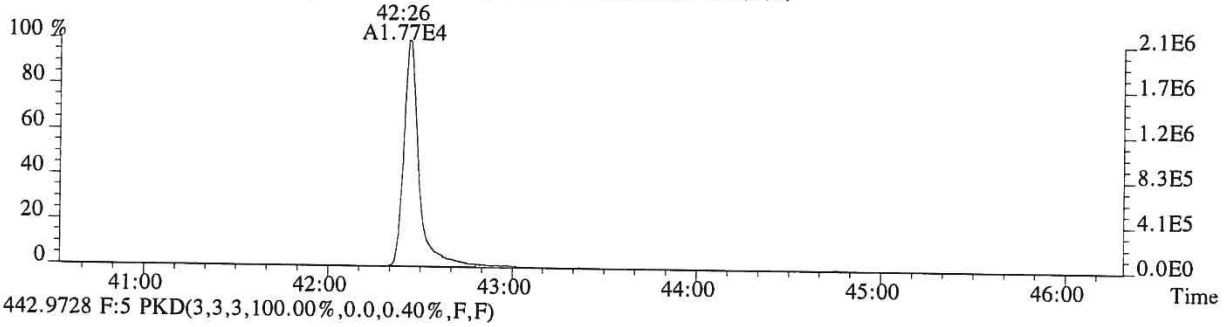
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



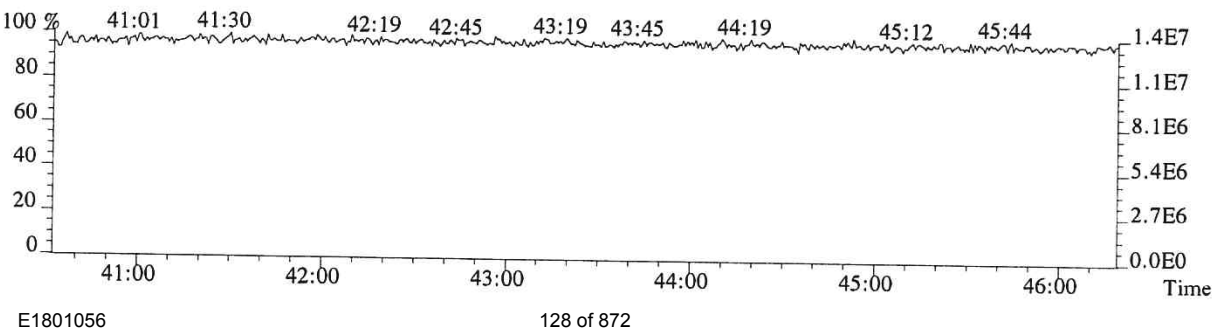
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,120.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0197

Run #17 Filename P615949 Samp: 1 Inj: 1 Acquired: 6-DEC-18 18:10:28
Processed: 10-DEC-18 11:32:08 Sample ID: E1801056-012

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	3.383e+04	4.313e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	1.816e+03	1.289e+03	1.41	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	1.521e+03	8.767e+02	1.73	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	2.934e+03	2.317e+03	1.27	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:40	7.793e+02	6.146e+02	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	2.389e+02	2.402e+02	0.99	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:58	2.873e+02	1.901e+02	1.51	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	3.399e+03	3.277e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	3.953e+02	3.552e+02	1.11	yes	no	1.463
10	Unk	OCDF	41:57	3.627e+04	4.101e+04	0.88	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	8.797e+03	1.107e+04	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:10	2.241e+02	1.888e+02	1.19	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:18	1.293e+02	5.462e+01	2.37	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:24	3.522e+02	3.123e+02	1.13	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	2.545e+02	2.281e+02	1.12	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	7.823e+03	7.843e+03	1.00	yes	no	1.112
17	Unk	OCDD	41:44	6.816e+04	7.593e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:36	2.166e+04	2.782e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	3.435e+04	2.155e+04	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	3.192e+04	2.017e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	1.498e+04	2.840e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	1.575e+04	2.993e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	1.441e+04	2.717e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	1.383e+04	2.652e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	9.741e+03	2.213e+04	0.44	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	9.438e+03	2.056e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:25	1.121e+04	1.469e+04	0.76	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	2.528e+04	1.623e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	2.068e+04	1.621e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	2.004e+04	1.579e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	1.993e+04	1.907e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:43	1.787e+04	1.951e+04	0.92	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	5.062e+04	6.545e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	6.729e+04	5.341e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:26	1.633e+04				no	1.086

$$\text{OCDD} = \frac{(6.816e+04 + 7.593e+04) \times 4000 \text{ pg} \times 1}{(1.787e+04 + 1.951e+04) \times 10.151 \text{ g} \times 72.5 / 100 \times 1.157} = 1810.8 \text{ ng/kg}$$

LLM 12/11/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0197

Run #17 Filename P615949 Samp: 1 Inj: 1 Acquired: 6-DEC-18 18:10:28
Processed: 10-DEC-18 11:32:08 LAB. ID: E1801056-012

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.31e+06	2.29e+03	2.3e+03	6.81e+06	4.47e+03	1.5e+03
2	1,2,3,7,8-PeCDF	3.49e+05	1.58e+03	2.2e+02	2.37e+05	4.76e+03	5.0e+01
3	2,3,4,7,8-PeCDF	2.52e+05	1.58e+03	1.6e+02	1.30e+05	4.76e+03	2.7e+01
4	1,2,3,4,7,8-HxCDF	6.22e+05	2.99e+03	2.1e+02	5.15e+05	1.92e+03	2.7e+02
5	1,2,3,6,7,8-HxCDF	1.73e+05	2.99e+03	5.8e+01	1.21e+05	1.92e+03	6.3e+01
6	2,3,4,6,7,8-HxCDF	4.91e+04	2.99e+03	1.6e+01	4.92e+04	1.92e+03	2.6e+01
7	1,2,3,7,8,9-HxCDF	4.56e+04	2.99e+03	1.5e+01	4.03e+04	1.92e+03	2.1e+01
8	1,2,3,4,6,7,8-HpCDF	7.44e+05	2.31e+03	3.2e+02	7.37e+05	1.00e+03	7.4e+02
9	1,2,3,4,7,8,9-HpCDF	7.71e+04	2.31e+03	3.3e+01	6.75e+04	1.00e+03	6.7e+01
10	OCDF	6.48e+06	1.14e+03	5.7e+03	7.48e+06	2.47e+03	3.0e+03
11	2,3,7,8-TCDD	1.59e+06	5.94e+03	2.7e+02	2.05e+06	3.00e+03	6.8e+02
12	1,2,3,7,8-PeCDD	3.73e+04	2.54e+03	1.5e+01	2.85e+04	8.60e+02	3.3e+01
13	1,2,3,4,7,8-HxCDD	3.20e+04	1.50e+03	2.1e+01	1.41e+04	1.38e+03	1.0e+01
14	1,2,3,6,7,8-HxCDD	7.45e+04	1.50e+03	5.0e+01	6.46e+04	1.38e+03	4.7e+01
15	1,2,3,7,8,9-HxCDD	4.71e+04	1.50e+03	3.1e+01	4.89e+04	1.38e+03	3.5e+01
16	1,2,3,4,6,7,8-HpCDD	1.69e+06	2.03e+03	8.3e+02	1.65e+06	2.64e+03	6.3e+02
17	OCDD	1.30e+07	8.12e+02	1.6e+04	1.43e+07	1.16e+03	1.2e+04
18	13C-2,3,7,8-TCDF	3.83e+06	1.68e+04	2.3e+02	4.91e+06	1.20e+04	4.1e+02
19	13C-1,2,3,7,8-PeCDF	6.55e+06	4.08e+03	1.6e+03	4.01e+06	5.30e+03	7.6e+02
20	13C-2,3,4,7,8-PeCDF	5.98e+06	4.08e+03	1.5e+03	3.90e+06	5.30e+03	7.4e+02
21	13C-1,2,3,4,7,8-HxCDF	3.21e+06	1.66e+03	1.9e+03	6.15e+06	2.14e+03	2.9e+03
22	13C-1,2,3,6,7,8-HxCDF	3.31e+06	1.66e+03	2.0e+03	6.34e+06	2.14e+03	3.0e+03
23	13C-2,3,4,6,7,8-HxCDF	3.10e+06	1.66e+03	1.9e+03	5.94e+06	2.14e+03	2.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.97e+06	1.66e+03	1.8e+03	5.69e+06	2.14e+03	2.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.23e+06	2.56e+03	8.7e+02	5.04e+06	2.18e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.93e+06	2.56e+03	7.5e+02	4.25e+06	2.18e+03	1.9e+03
27	13C-2,3,7,8-TCDD	2.06e+06	1.67e+04	1.2e+02	2.65e+06	5.22e+03	5.1e+02
28	13C-1,2,3,7,8-PeCDD	4.88e+06	2.45e+03	2.0e+03	3.11e+06	2.68e+03	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	4.67e+06	1.92e+03	2.4e+03	3.60e+06	1.68e+03	2.1e+03
30	13C-1,2,3,6,7,8-HxCDD	4.16e+06	1.92e+03	2.2e+03	3.35e+06	1.68e+03	2.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.29e+06	1.58e+03	2.7e+03	4.08e+06	7.28e+02	5.6e+03
32	13C-OCDD	3.46e+06	1.62e+03	2.1e+03	3.74e+06	9.68e+02	3.9e+03
33	13C-1,2,3,4-TCDD	9.30e+06	1.67e+04	5.6e+02	1.20e+07	5.22e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.47e+07	1.92e+03	7.7e+03	1.17e+07	1.68e+03	6.9e+03
35	37Cl-2,3,7,8-TCDD	3.04e+06	2.40e+03	1.3e+03			

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Peak List Summary

CLIENT ID.
SL0197

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P615949 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 18:10:28 Processed: 10-DEC-18 11:32:08

Mass: 303.9020 305.8990 Tot Response: 1.36e+05 RRF: 1.081

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:56	1.68e+02	1.98e+02	0.85	yes	3.66e+02		n	n
2	24:45	1.57e+03	2.19e+03	0.72	yes	3.76e+03		n	n
3	25:12	5.92e+02	6.95e+02	0.85	yes	1.29e+03		n	n
4	25:30	1.32e+03	1.66e+03	0.80	yes	2.98e+03		n	n
5	25:56	3.14e+02	4.39e+02	0.71	yes	7.53e+02		n	n
6	26:11	9.41e+02	1.24e+03	0.76	yes	2.18e+03		n	n
7	26:17	1.41e+03	1.91e+03	0.74	yes	3.32e+03		n	n
8	26:45	1.36e+04	1.75e+04	0.78	yes	3.12e+04		n	n
9	27:01	7.19e+02	9.36e+02	0.77	yes	1.66e+03		n	n
10	27:37	3.38e+04	4.31e+04	0.78	yes	7.70e+04	2,3,7,8-TCDF	n	n
11	27:58	2.55e+03	3.44e+03	0.74	yes	5.99e+03		n	n
12	29:31	2.47e+03	2.94e+03	0.84	yes	5.41e+03		n	n

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Peak List Summary

CLIENT ID.
SL0197

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P615949 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 18:10:28 Processed: 10-DEC-18 11:32:08

Mass: 319.8970 321.8940 Tot Response: 2.17e+04 RRF: 1.049

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:26	8.80e+03	1.11e+04	0.79	yes	1.99e+04	2,3,7,8-TCDD	n	n
2	28:44	8.52e+02	1.03e+03	0.83	yes	1.88e+03		n	n

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Peak List Summary

CLIENT ID.
SL0197

Entry: 38 Totals Name: Total Penta-Furans1

Run: 17 File: P615949 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 18:10:28 Processed: 10-DEC-18 11:32:08

Mass: 339.8600 341.8570 Tot Response: 1.47e+03 RRF: 1.130

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:27	9.16e+02	5.50e+02 1.66	yes	1.47e+03		n	n

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Peak List Summary

CLIENT ID.
SL0197

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P615949 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 18:10:28 Processed: 10-DEC-18 11:32:08

Mass: 339.8600 341.8570 Tot Response: 8.70e+03 RRF: 1.130

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:59	1.30e+03	8.39e+02	1.55	yes	2.14e+03		n	n
2	31:56	1.82e+03	1.29e+03	1.41	yes	3.11e+03	1,2,3,7,8-PeCDF	n	n
3	32:12	5.63e+02	3.91e+02	1.44	yes	9.54e+02		n	n
4	32:53	1.52e+03	8.77e+02	1.73	yes	2.40e+03	2,3,4,7,8-PeCDF	n	n
5	33:47	6.62e+01	3.95e+01	1.68	yes	1.06e+02		n	n

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Peak List Summary

CLIENT ID.
SL0197

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P615949 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 18:10:28 Processed: 10-DEC-18 11:32:08

Mass: 355.8550 357.8520 Tot Response: 1.30e+02 RRF: 0.9288

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:07	7.93e+01	5.06e+01 1.57	yes	1.30e+02		n	n

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Peak List Summary

CLIENT ID.
SL0197

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P615949 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 18:10:28 Processed: 10-DEC-18 11:32:08

Mass: 373.8210 375.8180 Tot Response: 1.25e+04 RRF: 1.324

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:25	3.19e+02	2.56e+02	1.25	yes	5.76e+02		n	n
2	34:35	1.14e+03	8.69e+02	1.32	yes	2.01e+03		n	n
3	34:56	4.43e+01	4.07e+01	1.09	yes	8.51e+01		n	n
4	35:07	1.63e+03	1.45e+03	1.13	yes	3.08e+03		n	n
5	35:27	6.63e+01	6.08e+01	1.09	yes	1.27e+02		n	n
6	35:33	2.93e+03	2.32e+03	1.27	yes	5.25e+03	1,2,3,4,7,8-HxCDF	n	n
7	35:40	7.79e+02	6.15e+02	1.27	yes	1.39e+03	1,2,3,6,7,8-HxCDF	n	n

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Peak List Summary

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Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P615949 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 18:10:28 Processed: 10-DEC-18 11:32:08

Mass: 389.8160 391.8130 Tot Response: 3.49e+03 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:43	1.32e+03	1.02e+03 1.29	yes	2.34e+03		n	n
2	36:24	3.52e+02	3.12e+02 1.13	yes	6.65e+02	1,2,3,6,7,8-HxCDD	n	n
3	36:37	2.55e+02	2.28e+02 1.12	yes	4.83e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0197

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P615949 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 18:10:28 Processed: 10-DEC-18 11:32:08

Mass: 407.7820 409.7790 Tot Response: 1.81e+04 RRF: 1.495

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:10	3.40e+03	3.28e+03	1.04	yes	6.68e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:25	1.32e+02	1.22e+02	1.08	yes	2.54e+02		n	n
3	38:33	5.28e+03	5.10e+03	1.04	yes	1.04e+04		n	n
4	39:32	3.95e+02	3.55e+02	1.11	yes	7.50e+02	1,2,3,4,7,8,9-HpCDF	n	n

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SL0197

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P615949 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 18:10:28 Processed: 10-DEC-18 11:32:08

Mass: 423.7770 425.7740 Tot Response: 3.79e+04 RRF: 1.112

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:24	1.13e+04	1.09e+04 1.03	yes	2.22e+04		n	n
2	39:04	7.82e+03	7.84e+03 1.00	yes	1.57e+04	1,2,3,4,6,7,8-HpCDD	n	n

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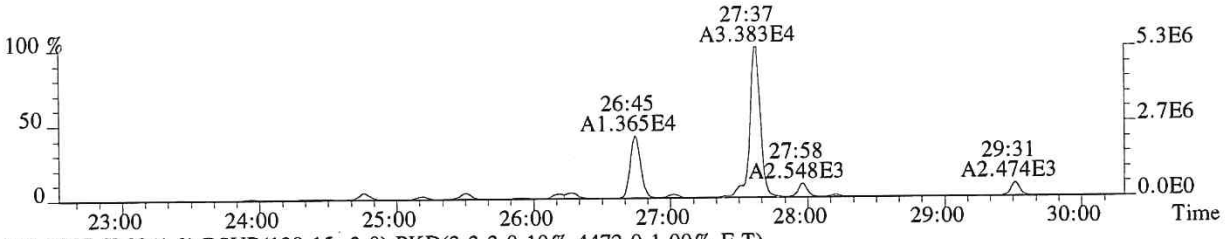
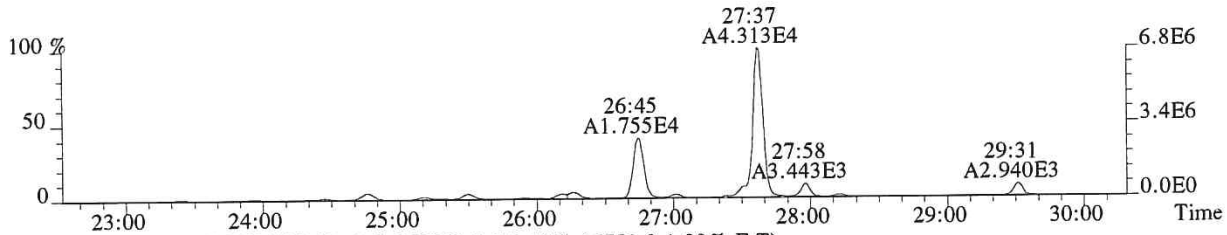
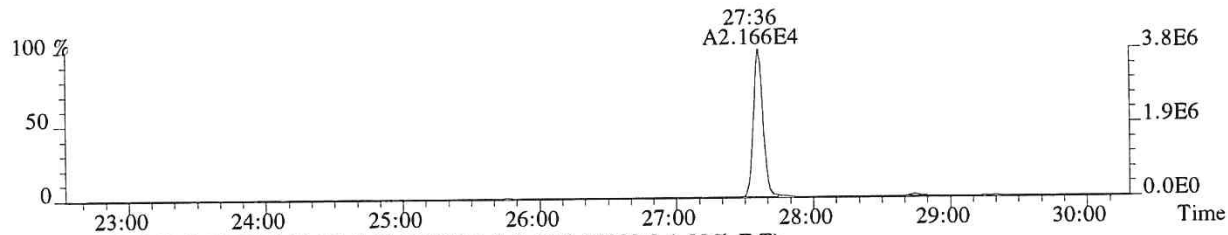
File:P615949 #1-552 Acq: 6-DEC-2018 18:10:28 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801056-012
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



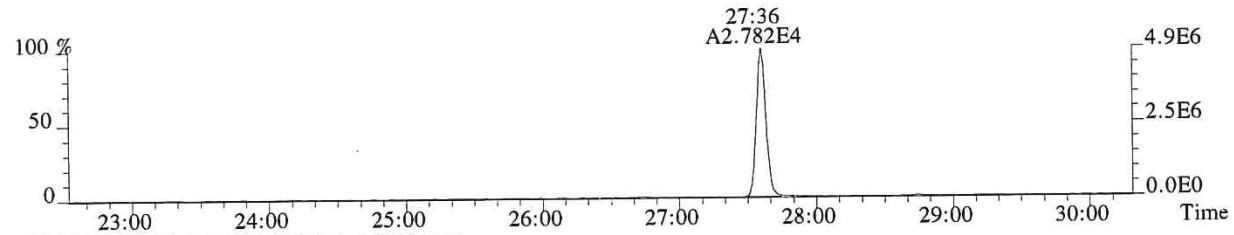
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4472.0,1.00%,F,T)



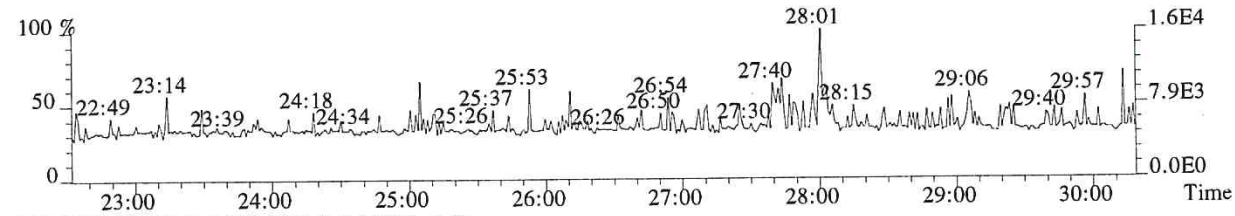
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16752.0,1.00%,F,T)



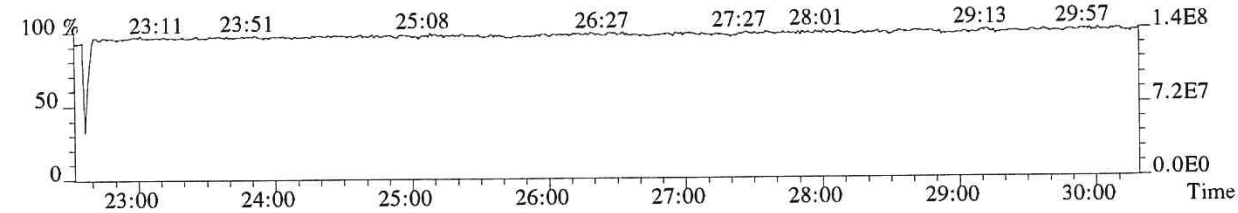
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12000.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

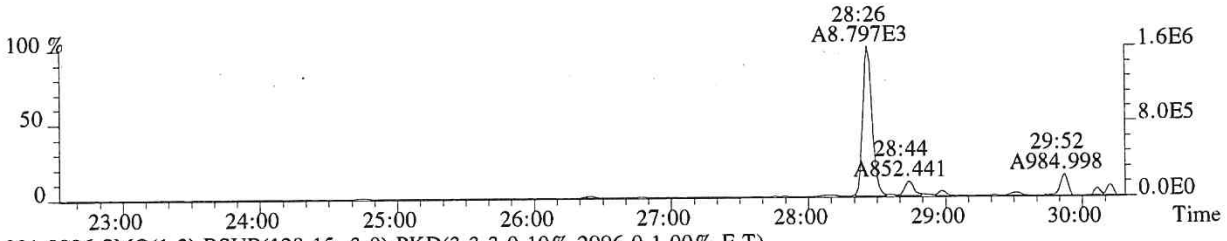


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

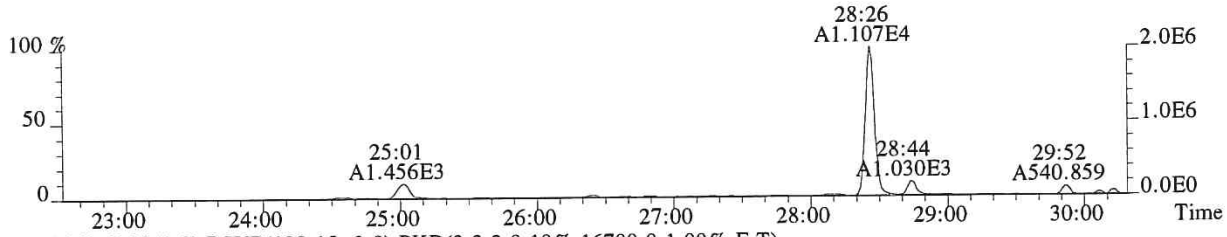


012358

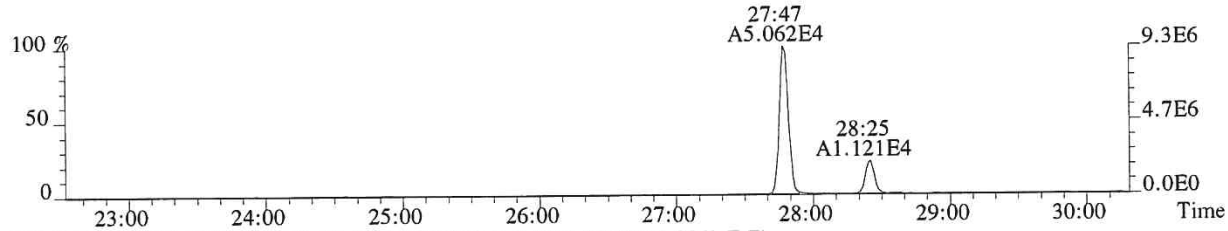
File:P615949 #1-552 Acq: 6-DEC-2018 18:10:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-012
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5944.0,1.00%,F,T)



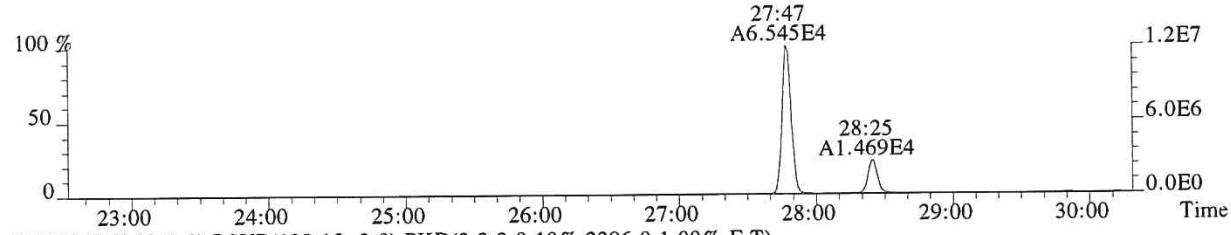
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2996.0,1.00%,F,T)



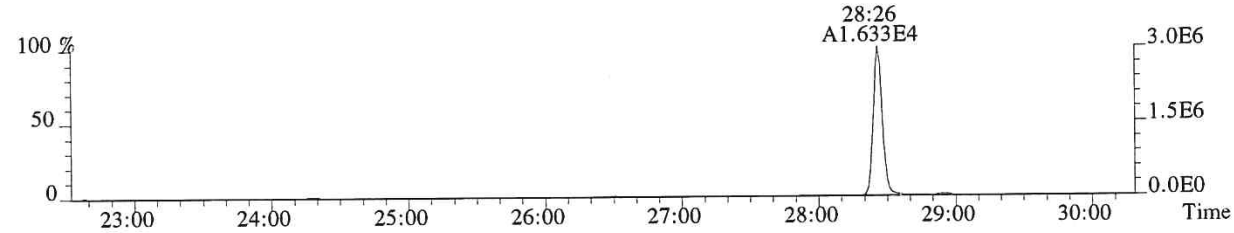
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16700.0,1.00%,F,T)



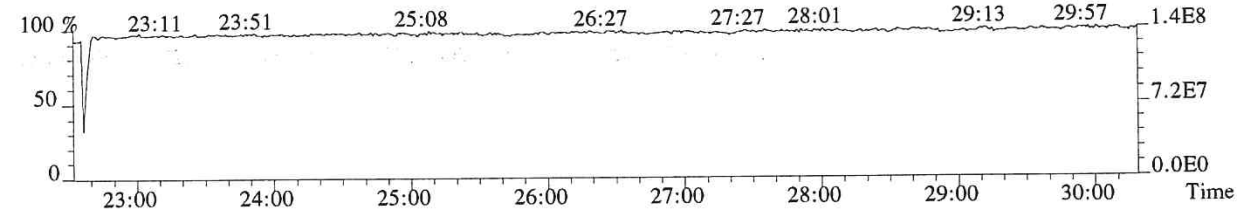
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5220.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2396.0,1.00%,F,T)

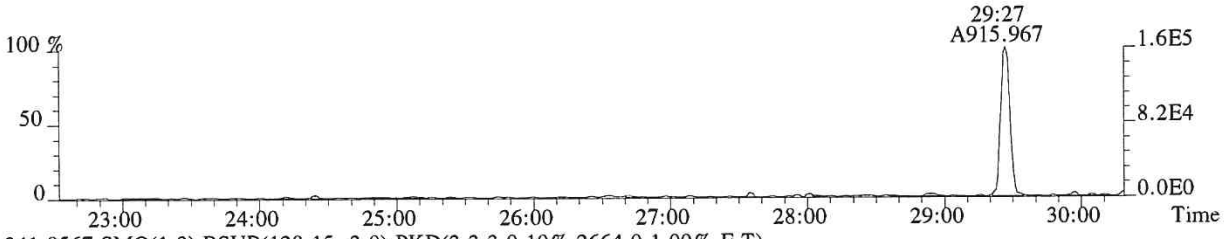


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

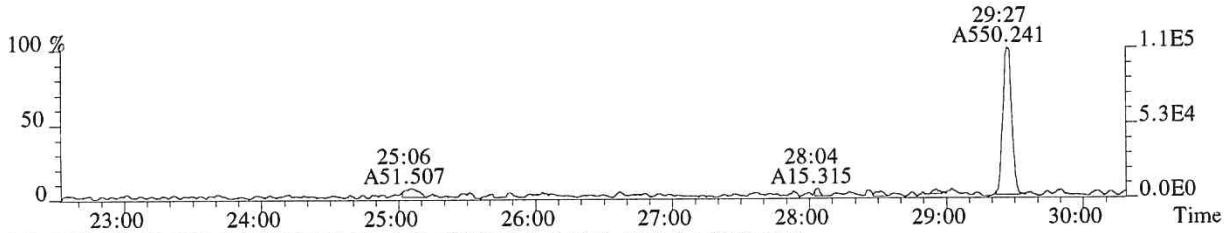


012359

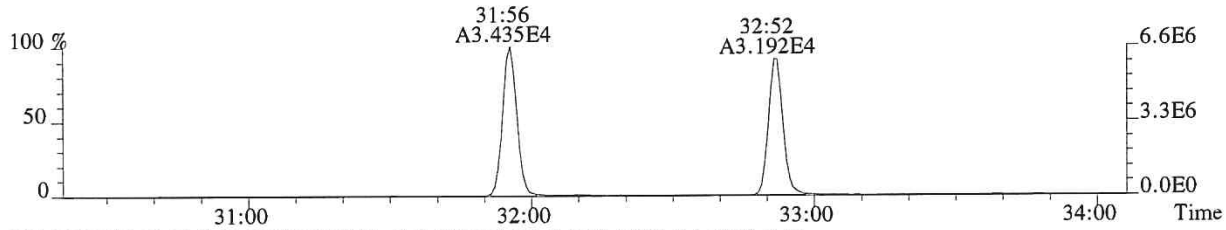
File:P615949 #1-552 Acq: 6-DEC-2018 18:10:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-012
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



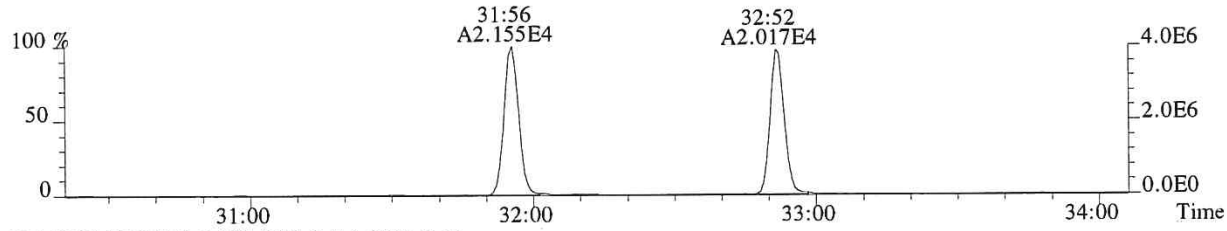
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2664.0,1.00%,F,T)



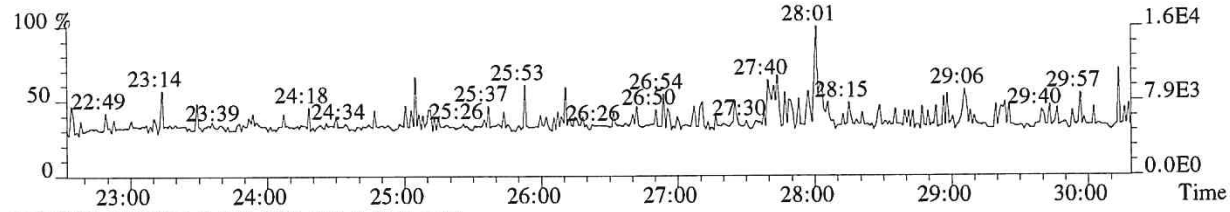
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4080.0,1.00%,F,T)



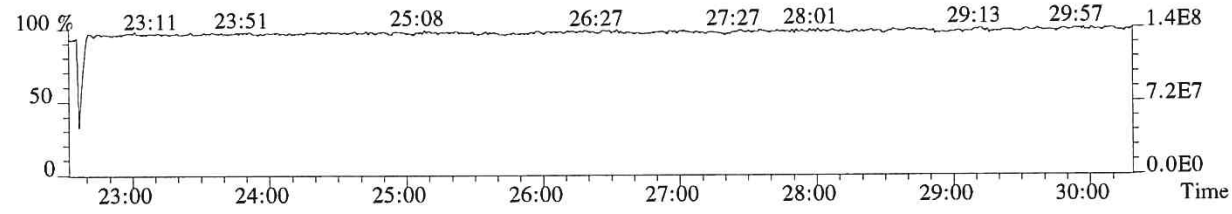
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5296.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

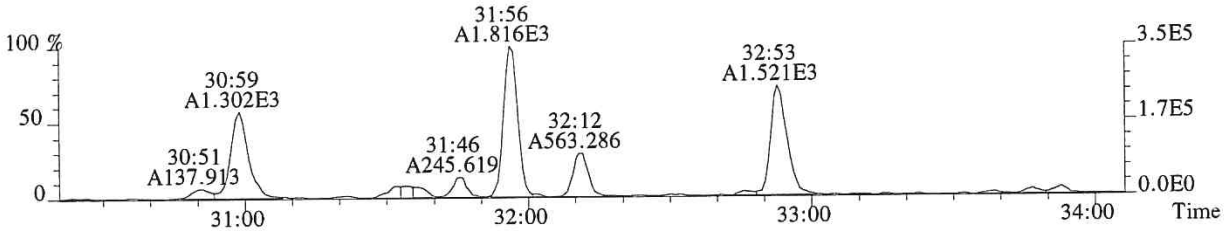


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

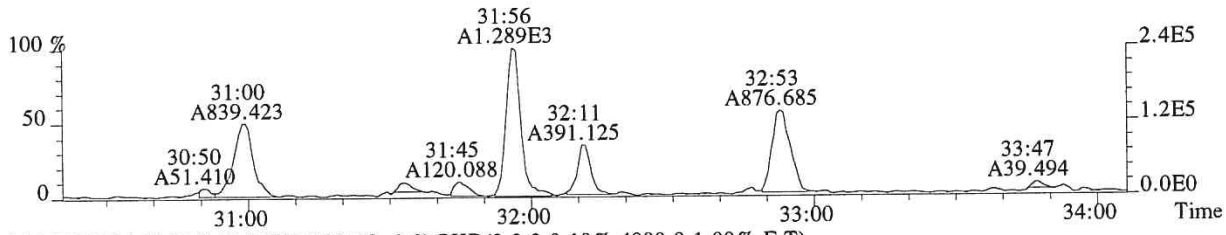


012360

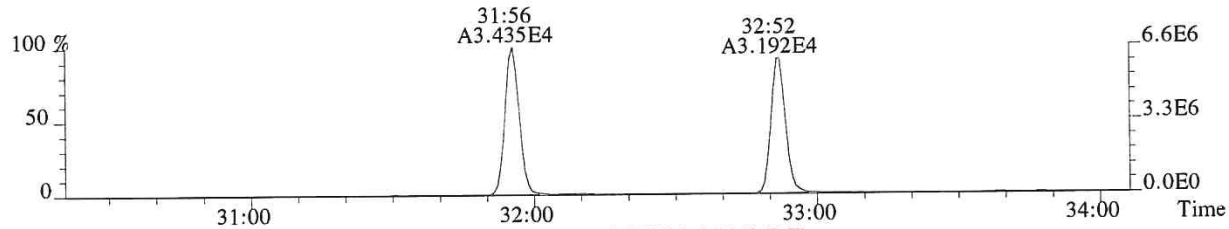
File:P615949 #1-339 Acq: 6-DEC-2018 18:10:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-012
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



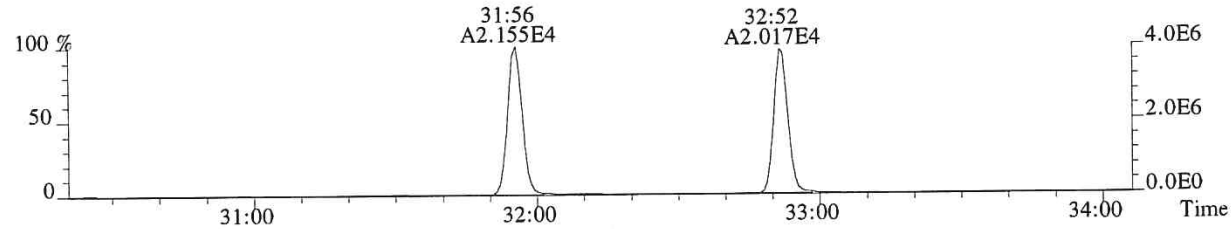
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4760.0,1.00%,F,T)



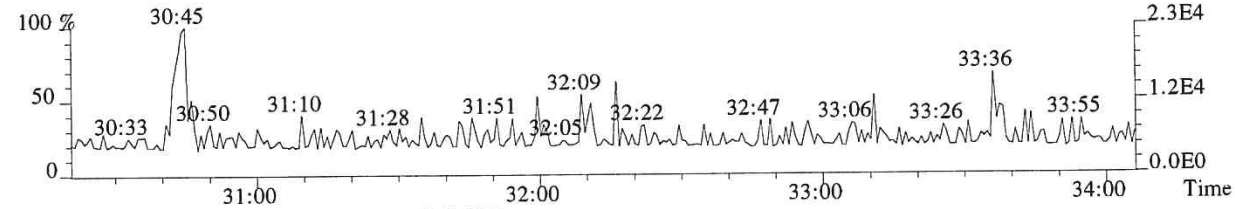
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4080.0,1.00%,F,T)



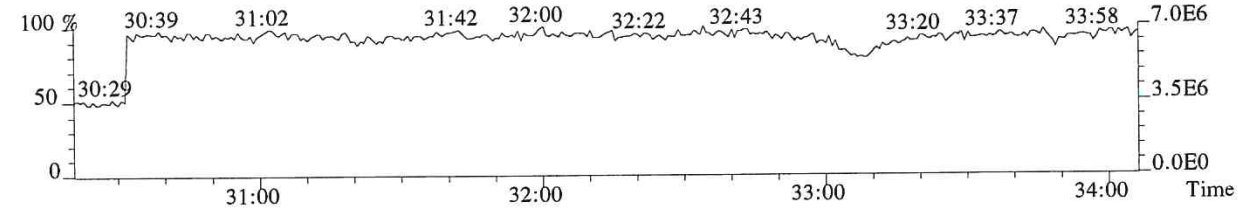
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5296.0,1.00%,F,T)



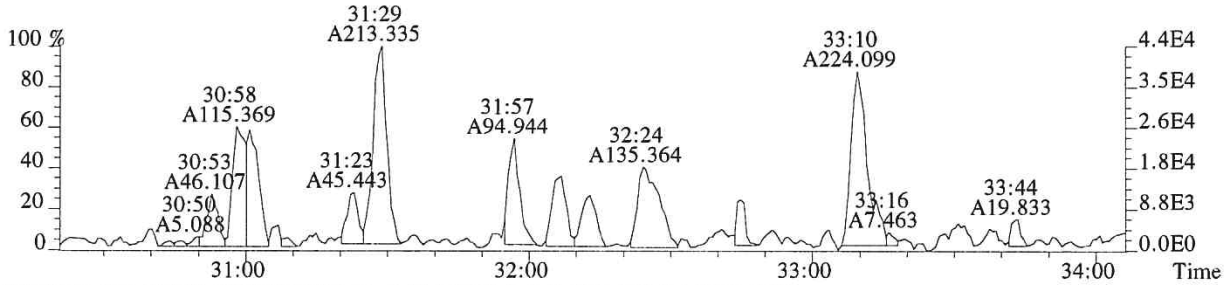
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



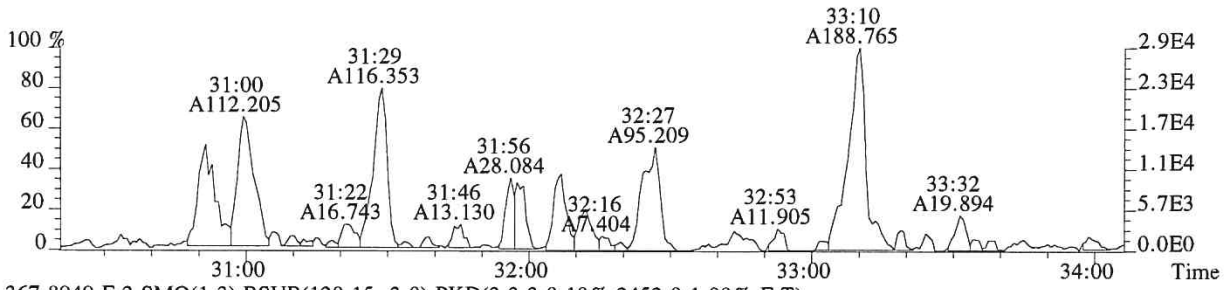
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



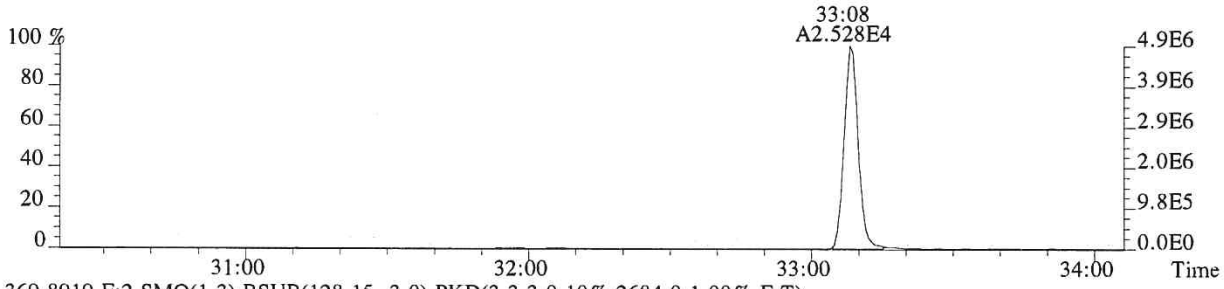
File:P615949 #1-339 Acq: 6-DEC-2018 18:10:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-012
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2544.0,1.00%,F,T)



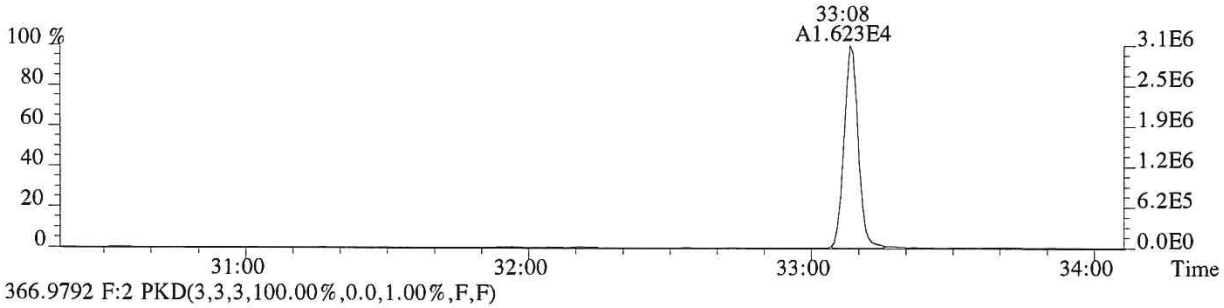
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



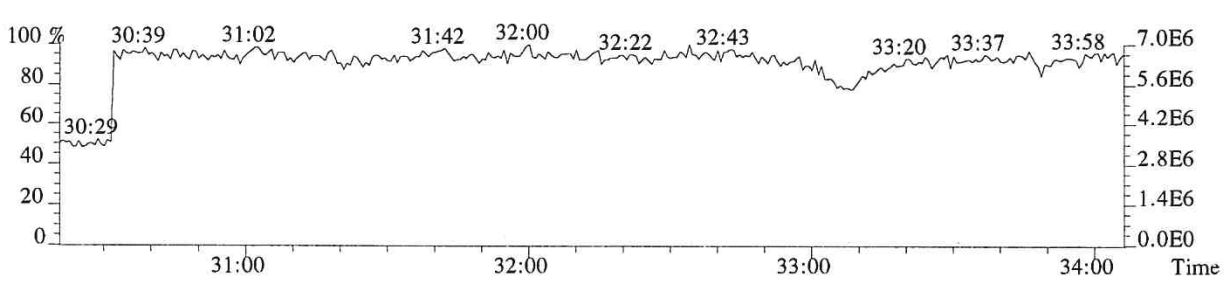
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2452.0,1.00%,F,T)



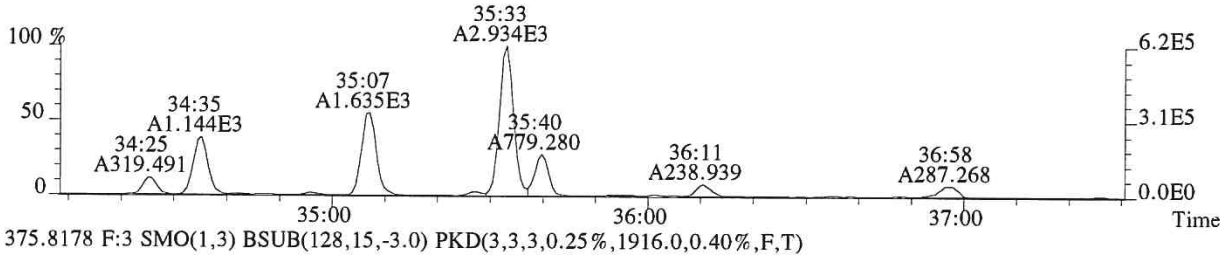
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2684.0,1.00%,F,T)



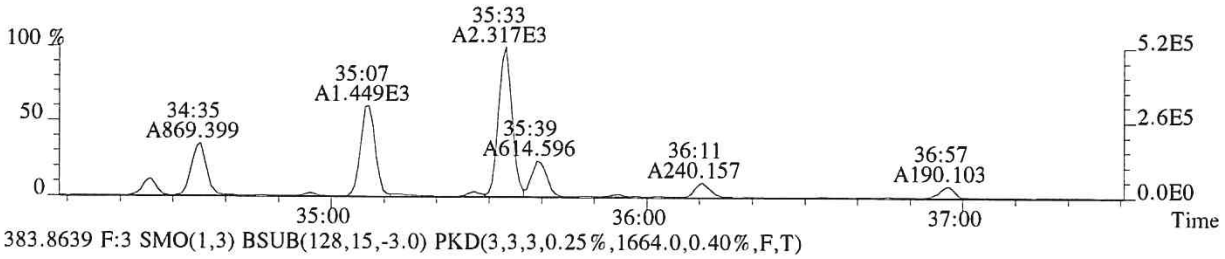
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



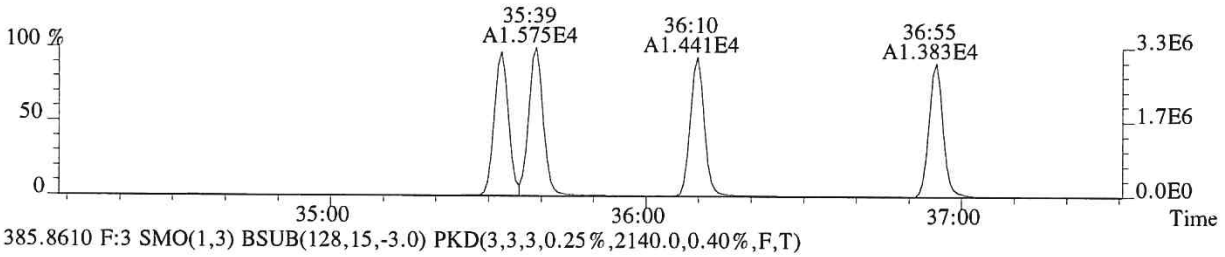
File:P615949 #1-304 Acq: 6-DEC-2018 18:10:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-012
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2988.0,0.40%,F,T)



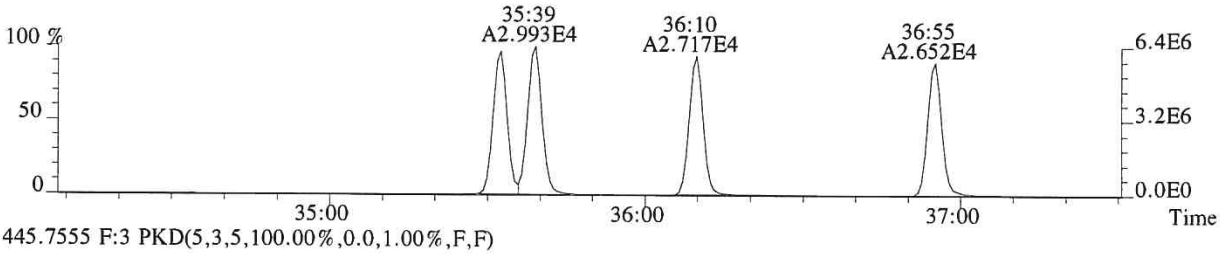
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1916.0,0.40%,F,T)



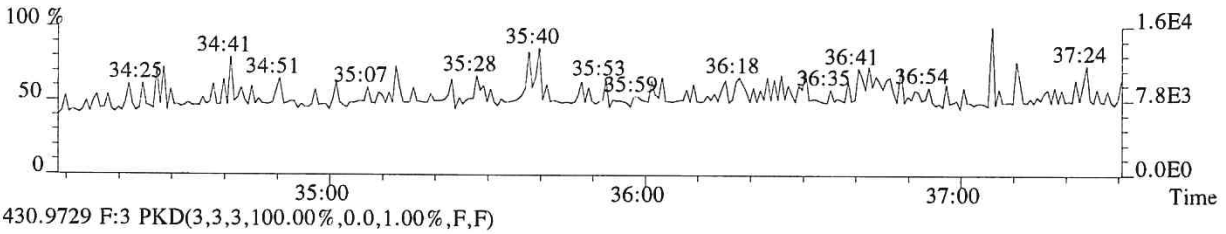
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



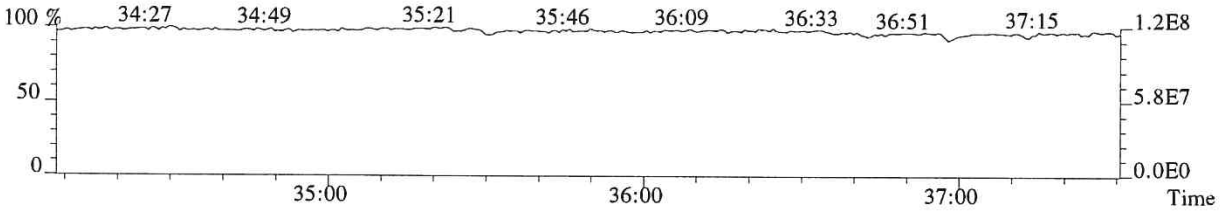
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2140.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

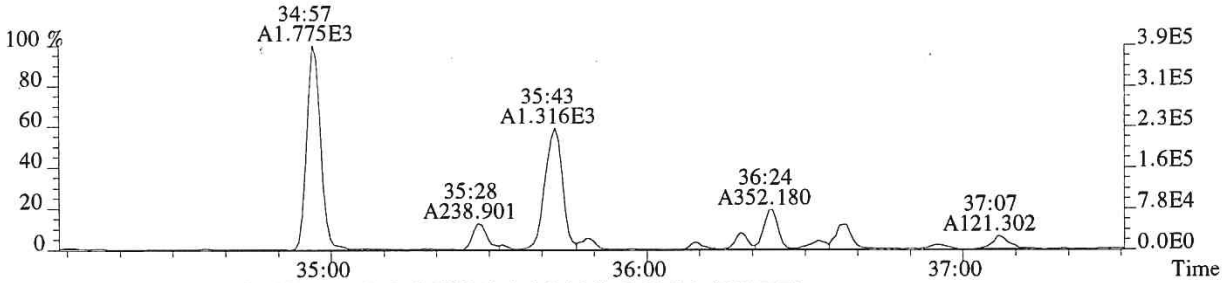


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

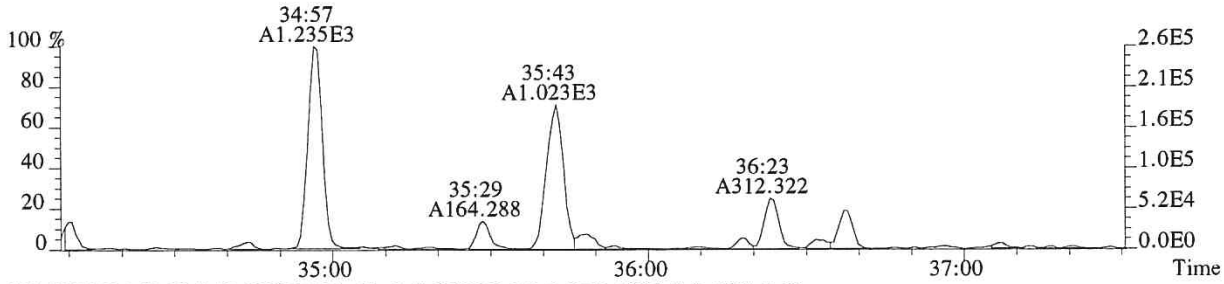


012363

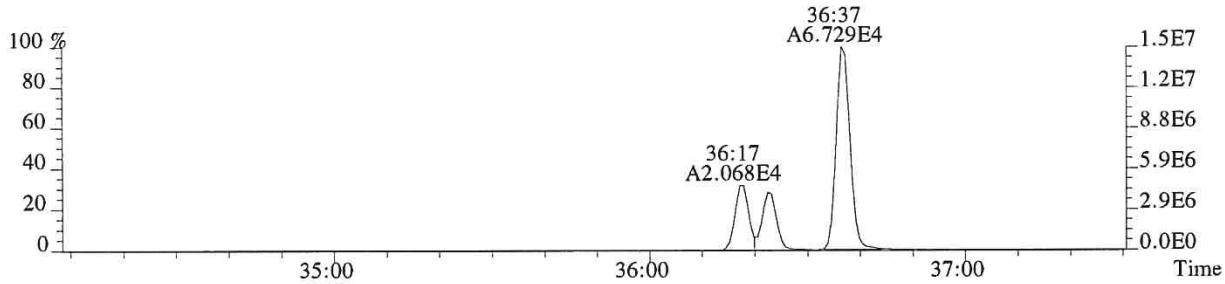
File:P615949 #1-304 Acq: 6-DEC-2018 18:10:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-012
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



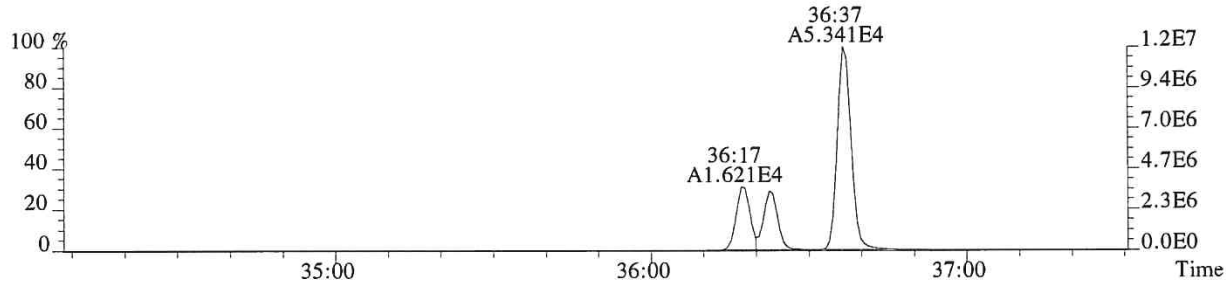
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



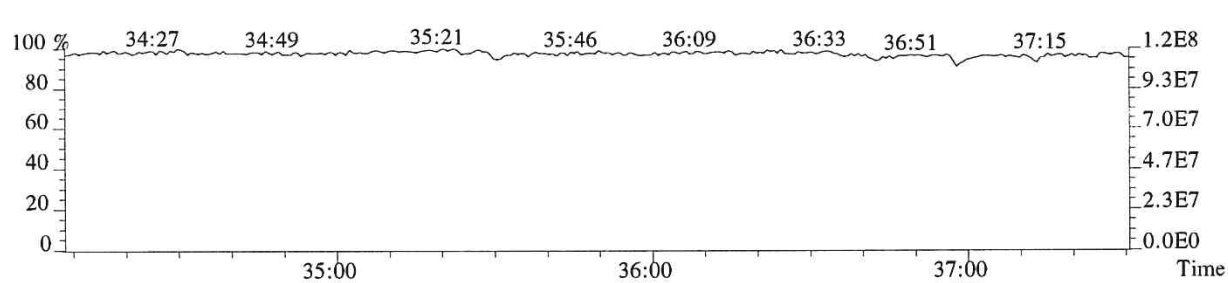
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1920.0,0.40%,F,T)



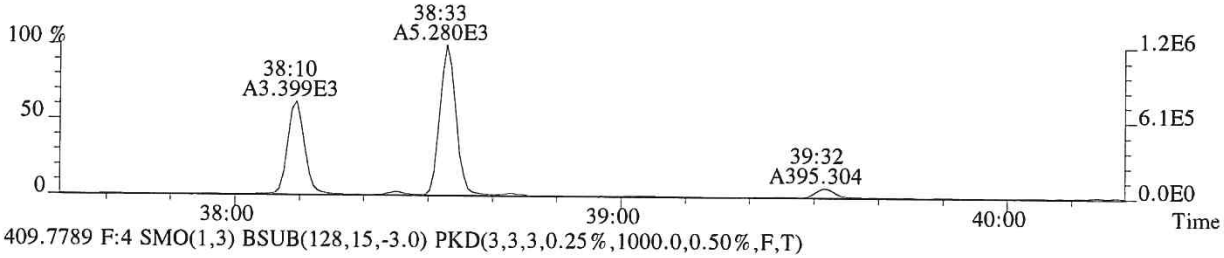
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1684.0,0.40%,F,T)



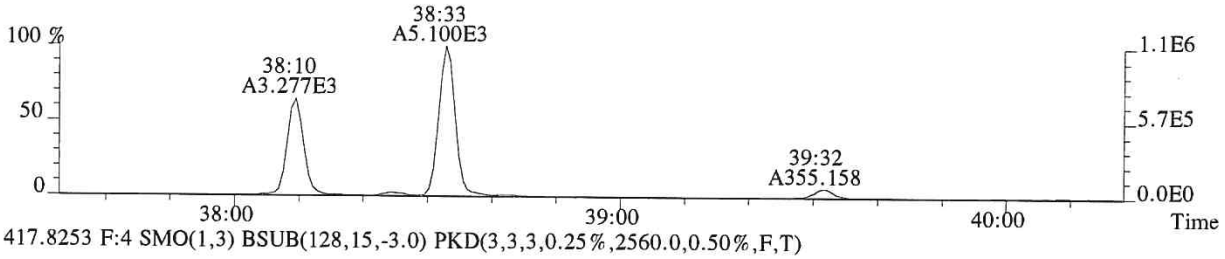
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



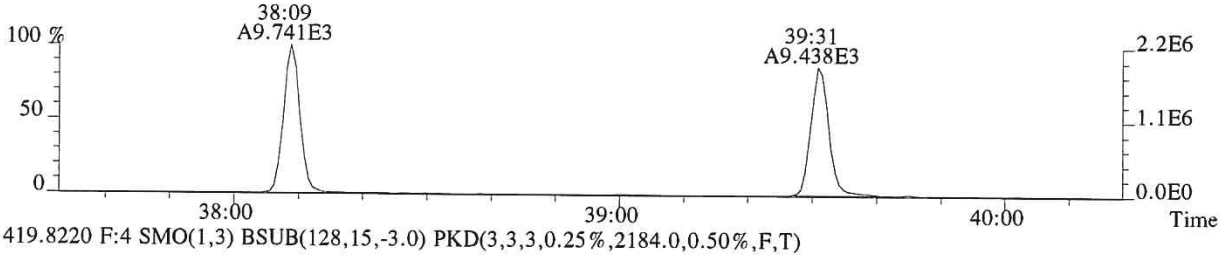
File:P615949 #1-249 Acq: 6-DEC-2018 18:10:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-012
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2312.0,0.50%,F,T)



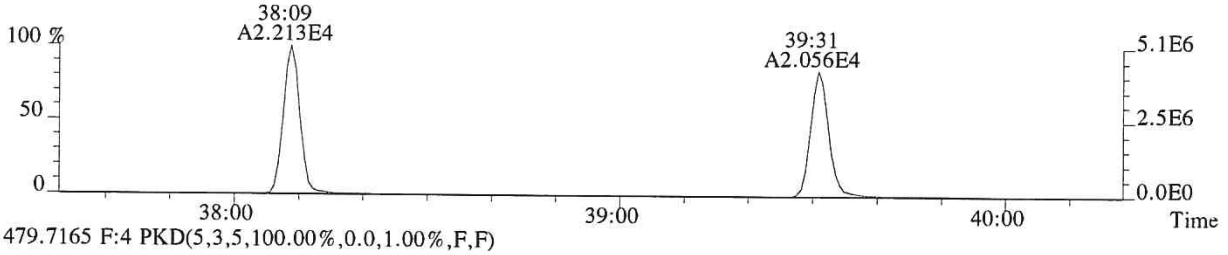
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.50%,F,T)



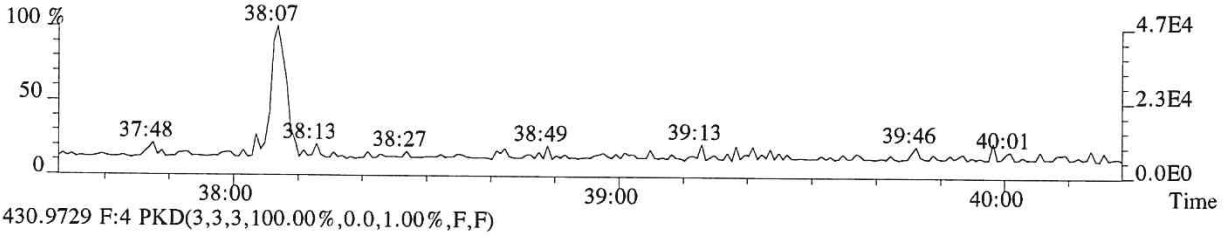
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2560.0,0.50%,F,T)



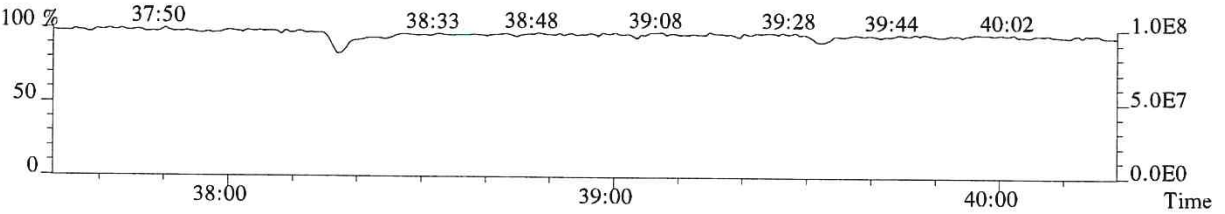
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2184.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

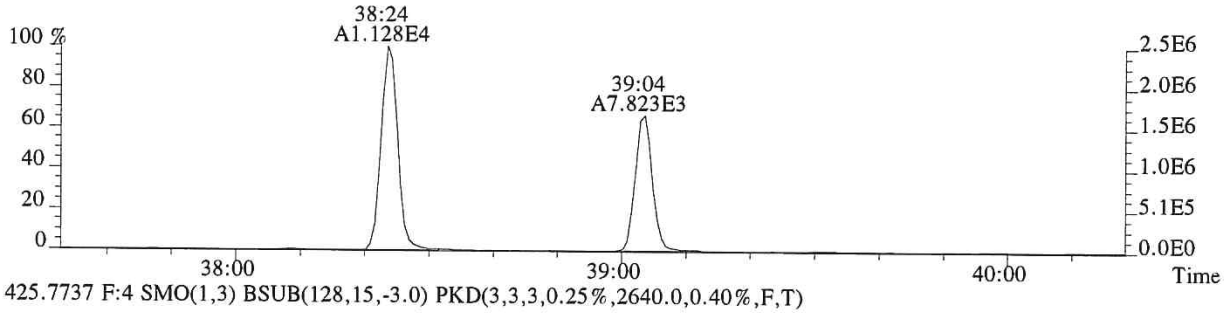


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

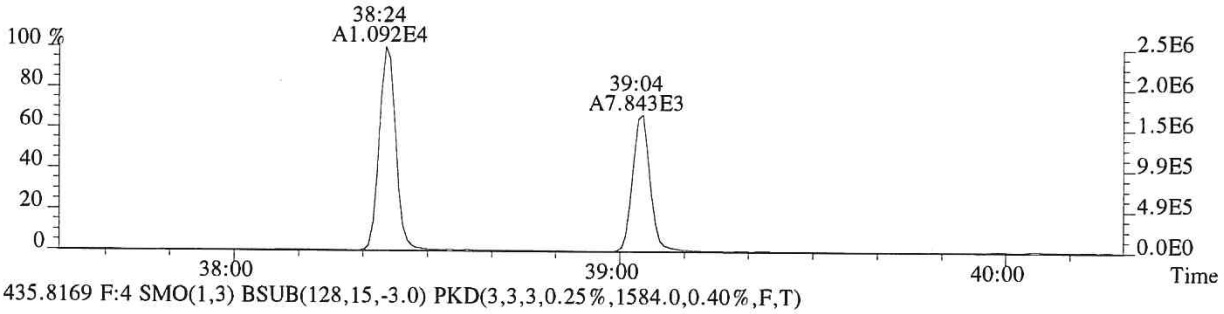


012365

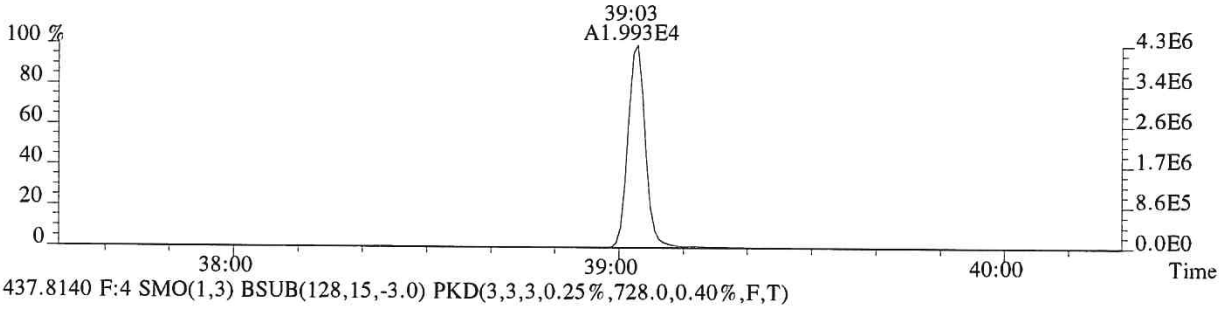
File:P615949 #1-249 Acq: 6-DEC-2018 18:10:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-012
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2028.0,0.40%,F,T)



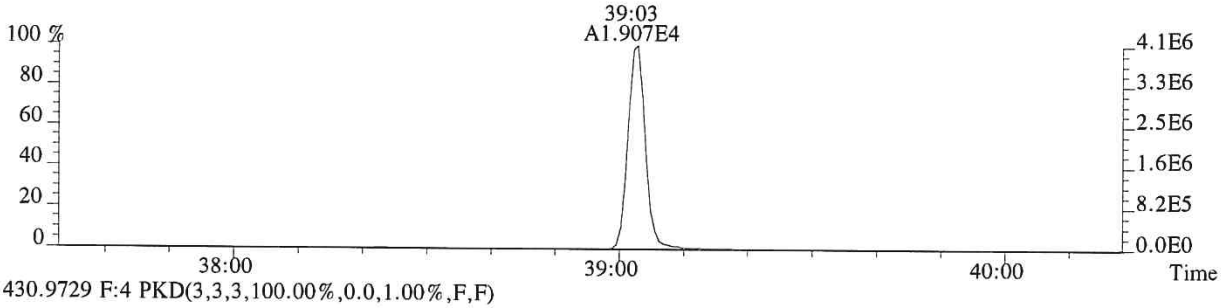
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2640.0,0.40%,F,T)



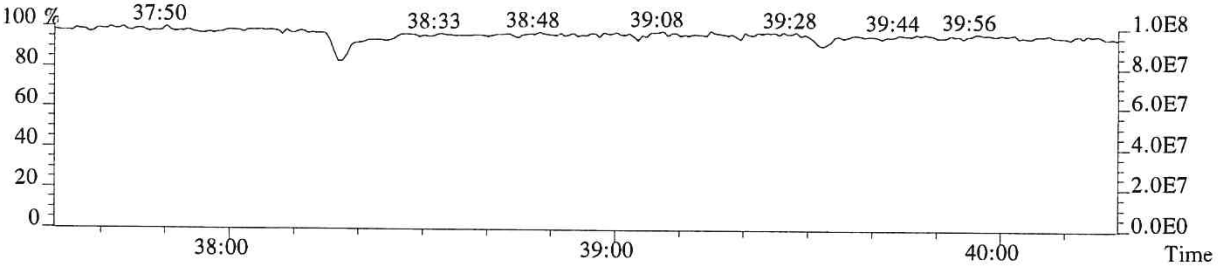
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)

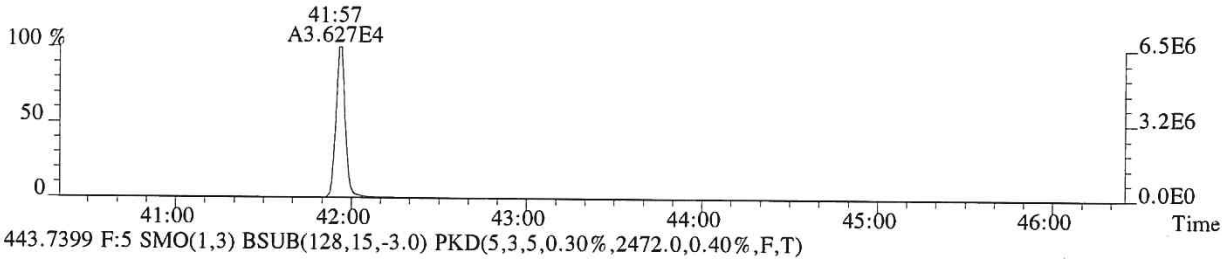


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

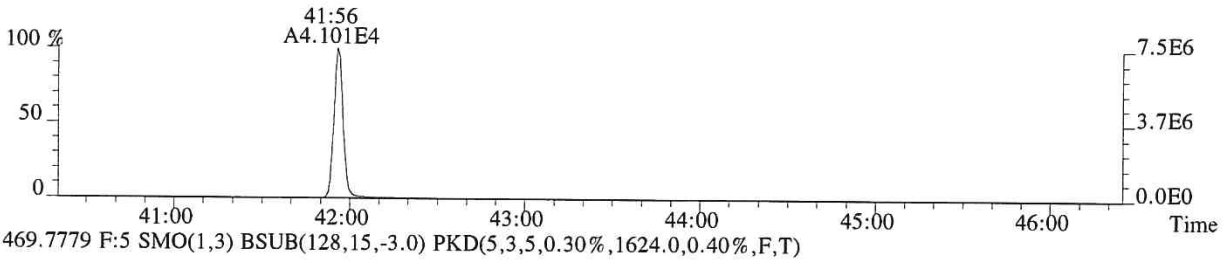


012366

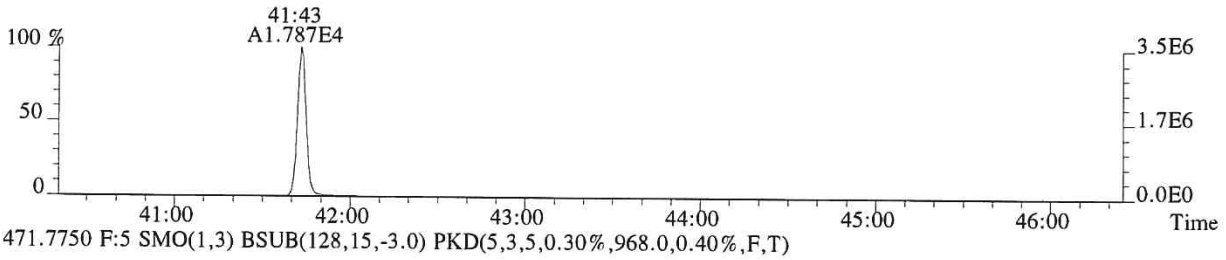
File:P615949 #1-547 Acq: 6-DEC-2018 18:10:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-012
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1140.0,0.40%,F,T)



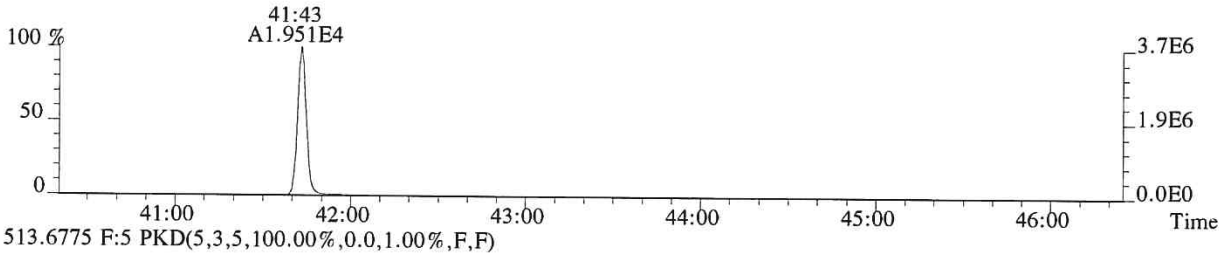
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2472.0,0.40%,F,T)



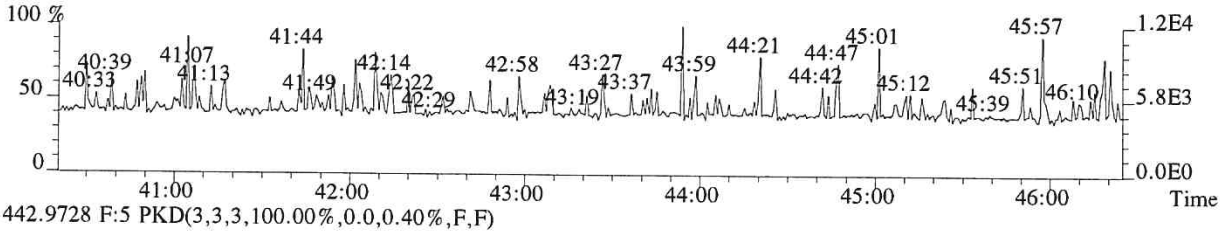
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



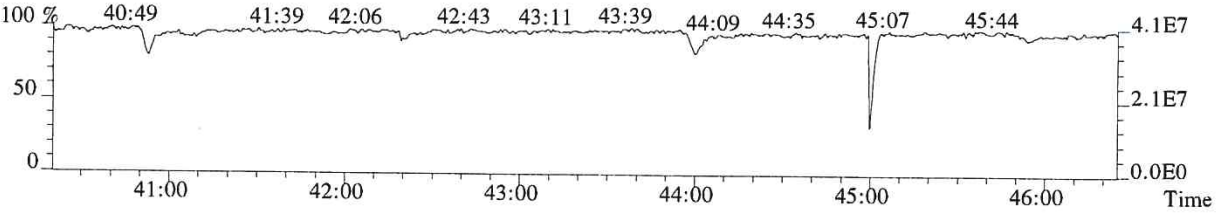
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,968.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

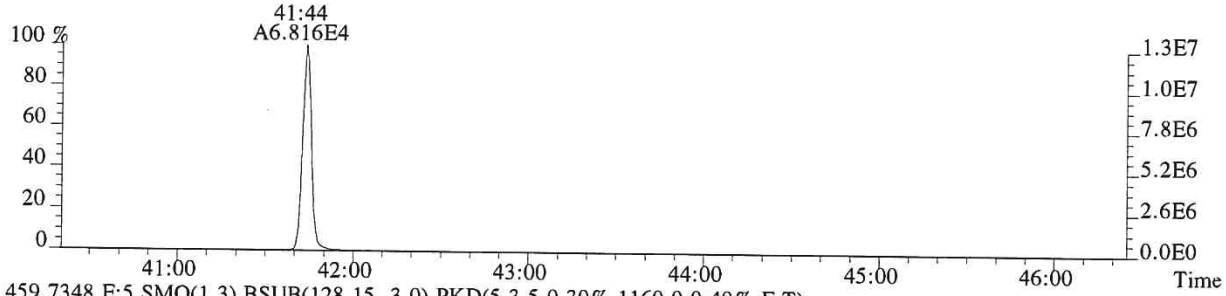


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

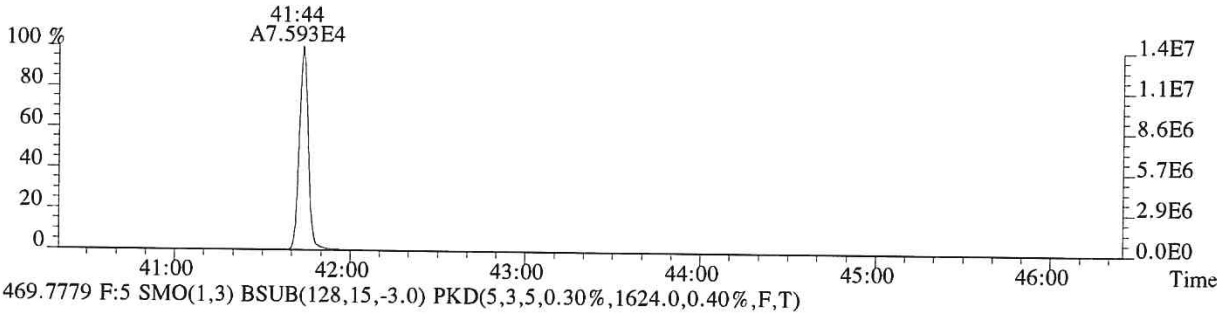


012367

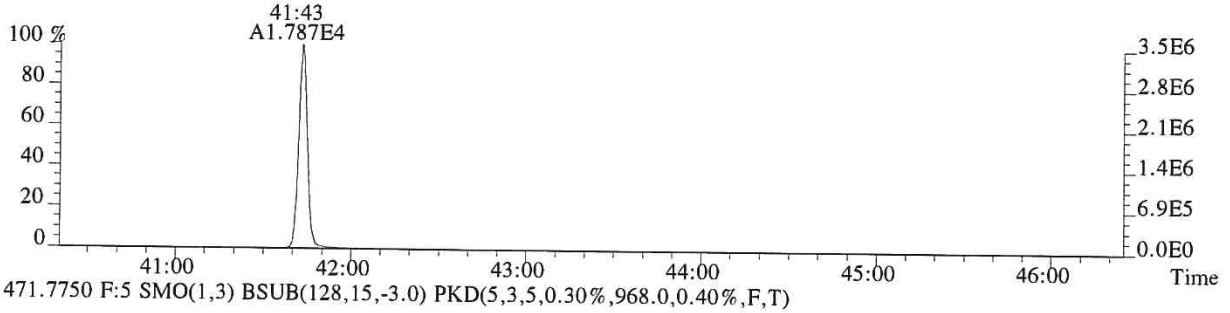
File:P615949 #1-547 Acq: 6-DEC-2018 18:10:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-012
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,812.0,0.40%,F,T)



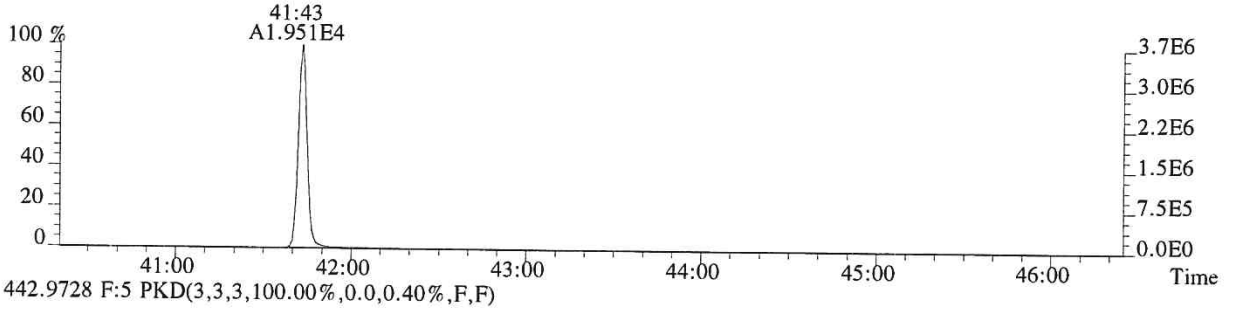
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1160.0,0.40%,F,T)



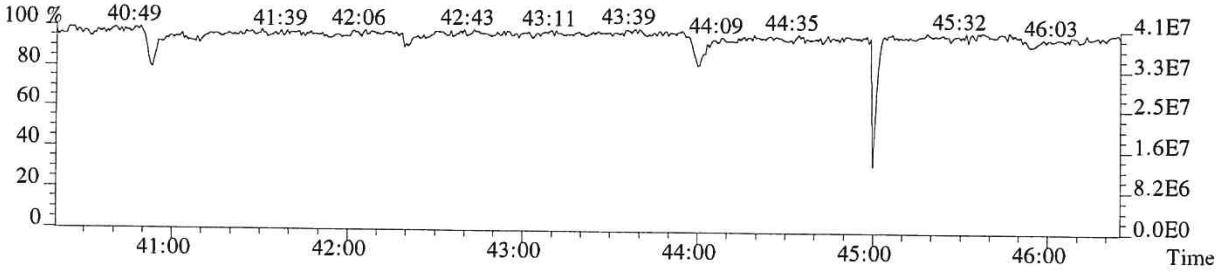
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,968.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012368

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0175

Run #11 Filename P519259 Samp: 1 Inj: 1 Acquired: 6-DEC-18 19:40:34
Processed: 7-DEC-18 13:10:11 Sample ID: E1801056-023

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:53	2.361e+05	3.052e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	1.133e+04	7.506e+03	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:08	8.904e+03	5.930e+03	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	1.575e+04	1.248e+04	1.26	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	4.011e+03	3.274e+03	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	9.772e+02	7.532e+02	1.30	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:18	1.172e+03	9.641e+02	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	7.922e+03	7.614e+03	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	1.502e+03	1.381e+03	1.09	yes	no	1.258
10	Unk	OCDF	42:42	8.805e+04	1.029e+05	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:42	5.753e+04	7.371e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:26	9.029e+02	5.411e+02	1.67	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:39	1.209e+02	1.021e+02	1.18	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:44	5.483e+02	4.492e+02	1.22	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	2.688e+02	2.609e+02	1.03	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.422e+04	1.392e+04	1.02	yes	no	1.025
17	Unk	OCDD	42:31	1.524e+05	1.698e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:52	1.960e+04	2.486e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:12	3.148e+04	1.987e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:07	2.970e+04	1.863e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.311e+04	2.534e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.484e+04	2.762e+04	0.54	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	1.326e+04	2.599e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:16	1.302e+04	2.525e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:35	8.797e+03	1.970e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	8.559e+03	1.916e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:40	8.981e+03	1.138e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	2.188e+04	1.384e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.824e+04	1.406e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	1.780e+04	1.408e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.822e+04	1.692e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:30	1.573e+04	1.739e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:06	2.424e+04	2.986e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	3.656e+04	2.850e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:42	1.441e+04				no	1.014

$$\text{OCDD} = \frac{(1.524e05 + 1.698e05) \times 4000 \text{ pg} \times 1}{(1.573e04 + 1.739e04) \times 10.629 \text{ g} \times 76.1 / 100 \times 1.118} = 4303 \text{ ng/kg}$$

LM 12/20/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0175

Run #11 Filename P519259 Samp: 1 Inj: 1 Acquired: 6-DEC-18 19:40:34
Processed: 7-DEC-18 13:10:11 LAB. ID: E1801056-023

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.98e+07	1.04e+03	3.8e+04	5.16e+07	1.81e+03	2.8e+04
2	1,2,3,7,8-PeCDF	2.26e+06	2.40e+03	9.4e+02	1.49e+06	1.71e+03	8.7e+02
3	2,3,4,7,8-PeCDF	1.39e+06	2.40e+03	5.8e+02	9.27e+05	1.71e+03	5.4e+02
4	1,2,3,4,7,8-HxCDF	3.47e+06	2.53e+03	1.4e+03	2.77e+06	1.40e+03	2.0e+03
5	1,2,3,6,7,8-HxCDF	7.94e+05	2.53e+03	3.1e+02	6.61e+05	1.40e+03	4.7e+02
6	2,3,4,6,7,8-HxCDF	1.98e+05	2.53e+03	7.8e+01	1.61e+05	1.40e+03	1.1e+02
7	1,2,3,7,8,9-HxCDF	2.04e+05	2.53e+03	8.1e+01	1.73e+05	1.40e+03	1.2e+02
8	1,2,3,4,6,7,8-HpCDF	1.61e+06	1.87e+03	8.6e+02	1.61e+06	1.18e+03	1.4e+03
9	1,2,3,4,7,8,9-HpCDF	2.63e+05	1.87e+03	1.4e+02	2.56e+05	1.18e+03	2.2e+02
10	OCDF	1.17e+07	5.08e+02	2.3e+04	1.36e+07	1.08e+03	1.3e+04
11	2,3,7,8-TCDD	1.13e+07	3.00e+03	3.8e+03	1.44e+07	1.29e+03	1.1e+04
12	1,2,3,7,8-PeCDD	1.68e+05	1.35e+03	1.2e+02	9.84e+04	9.48e+02	1.0e+02
13	1,2,3,4,7,8-HxCDD	2.90e+04	2.60e+02	1.1e+02	2.48e+04	1.24e+03	2.0e+01
14	1,2,3,6,7,8-HxCDD	1.14e+05	2.60e+02	4.4e+02	9.54e+04	1.24e+03	7.7e+01
15	1,2,3,7,8,9-HxCDD	5.58e+04	2.60e+02	2.1e+02	4.81e+04	1.24e+03	3.9e+01
16	1,2,3,4,6,7,8-HpCDD	2.80e+06	3.68e+02	7.6e+03	2.76e+06	7.28e+02	3.8e+03
17	OCDD	2.26e+07	3.32e+02	6.8e+04	2.54e+07	3.32e+02	7.7e+04
18	13C-2,3,7,8-TCDF	3.55e+06	1.02e+04	3.5e+02	4.52e+06	6.91e+03	6.5e+02
19	13C-1,2,3,7,8-PeCDF	6.23e+06	5.30e+03	1.2e+03	3.92e+06	6.82e+03	5.7e+02
20	13C-2,3,4,7,8-PeCDF	5.76e+06	5.30e+03	1.1e+03	3.70e+06	6.82e+03	5.4e+02
21	13C-1,2,3,4,7,8-HxCDF	2.89e+06	1.65e+03	1.7e+03	5.66e+06	1.27e+03	4.5e+03
22	13C-1,2,3,6,7,8-HxCDF	3.04e+06	1.65e+03	1.8e+03	5.77e+06	1.27e+03	4.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.59e+06	1.65e+03	1.6e+03	5.16e+06	1.27e+03	4.1e+03
24	13C-1,2,3,7,8,9-HxCDF	2.72e+06	1.65e+03	1.6e+03	5.31e+06	1.27e+03	4.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.84e+06	2.49e+03	7.4e+02	4.13e+06	3.57e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.56e+06	2.49e+03	6.2e+02	3.42e+06	3.57e+03	9.6e+02
27	13C-2,3,7,8-TCDD	1.72e+06	7.33e+03	2.3e+02	2.23e+06	2.31e+03	9.6e+02
28	13C-1,2,3,7,8-PeCDD	4.24e+06	6.76e+02	6.3e+03	2.63e+06	1.25e+03	2.1e+03
29	13C-1,2,3,4,7,8-HxCDD	4.25e+06	1.05e+03	4.0e+03	3.24e+06	6.72e+02	4.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.70e+06	1.05e+03	3.5e+03	2.94e+06	6.72e+02	4.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.51e+06	6.96e+02	5.0e+03	3.27e+06	4.76e+02	6.9e+03
32	13C-OCDD	2.38e+06	4.32e+02	5.5e+03	2.59e+06	2.08e+02	1.2e+04
33	13C-1,2,3,4-TCDD	4.51e+06	7.33e+03	6.2e+02	5.54e+06	2.31e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.21e+06	1.05e+03	6.9e+03	5.65e+06	6.72e+02	8.4e+03
35	37Cl-2,3,7,8-TCDD	2.82e+06	1.06e+03	2.7e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0175

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P519259 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 19:40:34 Processed: 7-DEC-18 13:10:11

Mass: 303.9020 305.8990 Tot Response: 9.57e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:48	1.55e+03	2.26e+03	0.68	yes	3.81e+03		n	n
2	25:09	8.30e+03	1.11e+04	0.75	yes	1.94e+04		n	n
3	25:33	2.12e+03	2.92e+03	0.73	yes	5.04e+03		n	n
4	25:52	6.71e+03	9.06e+03	0.74	yes	1.58e+04		n	n
5	26:16	2.01e+03	2.37e+03	0.85	yes	4.37e+03		n	n
6	26:29	4.45e+03	5.78e+03	0.77	yes	1.02e+04		n	n
7	26:36	1.03e+04	1.30e+04	0.79	yes	2.32e+04		n	n
8	27:03	1.04e+05	1.35e+05	0.77	yes	2.39e+05		n	n
9	27:19	4.32e+03	5.55e+03	0.78	yes	9.87e+03		n	n
10	27:53	2.36e+05	3.05e+05	0.77	yes	5.41e+05	2,3,7,8-TCDF	n	n
11	28:13	1.63e+04	2.14e+04	0.76	yes	3.77e+04		n	n
12	28:27	2.36e+03	3.09e+03	0.77	yes	5.45e+03		n	n
13	29:45	1.80e+04	2.34e+04	0.77	yes	4.15e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0175

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 11 File: P519259 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 19:40:34 Processed: 7-DEC-18 13:10:11

Mass: 319.8970 321.8940 Tot Response: 1.45e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:08	1.57e+02	2.06e+02	0.76	yes	3.63e+02		n	n
2	28:27	7.73e+02	1.05e+03	0.74	yes	1.82e+03		n	n
3	28:42	5.75e+04	7.37e+04	0.78	yes	1.31e+05	2,3,7,8-TCDD	n	n
4	29:00	5.21e+03	6.28e+03	0.83	yes	1.15e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0175

Entry: 39 Totals Name: Total Penta-Furans2

Run: 11 File: P519259 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 19:40:34 Processed: 7-DEC-18 13:10:11

Mass: 339.8600 341.8570 Tot Response: 5.38e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:07	3.03e+02	2.19e+02	1.38	yes	5.23e+02		n	n
2	31:16	5.64e+03	3.77e+03	1.50	yes	9.42e+03		n	n
3	31:48	5.04e+02	3.14e+02	1.61	yes	8.18e+02		n	n
4	31:54	2.59e+02	1.95e+02	1.33	yes	4.54e+02		n	n
5	32:02	1.20e+03	7.32e+02	1.64	yes	1.93e+03		n	n
6	32:12	1.13e+04	7.51e+03	1.51	yes	1.88e+04	1,2,3,7,8-PeCDF	n	n
7	32:28	3.51e+03	2.32e+03	1.52	yes	5.83e+03		n	n
8	33:02	1.58e+02	1.09e+02	1.46	yes	2.67e+02		n	n
9	33:08	8.90e+03	5.93e+03	1.50	yes	1.48e+04	2,3,4,7,8-PeCDF	n	n
10	33:55	1.58e+01	9.12e+00	1.73	yes	2.49e+01		n	n
11	34:04	5.28e+02	3.20e+02	1.65	yes	8.48e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0175

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P519259 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 19:40:34 Processed: 7-DEC-18 13:10:11

Mass: 355.8550 357.8520 Tot Response: 2.29e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:18	3.10e+02	2.26e+02	1.37	yes	5.36e+02		n	n
2	32:42	1.43e+02	8.94e+01	1.60	yes	2.33e+02		n	y
3	33:26	9.03e+02	5.41e+02	1.67	yes	1.44e+03	1,2,3,7,8-PeCDD	n	n
4	33:48	4.96e+01	3.01e+01	1.65	yes	7.97e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0175

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P519259 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 19:40:34 Processed: 7-DEC-18 13:10:11

Mass: 373.8210 375.8180 Tot Response: 4.91e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:45	5.41e+02	4.31e+02	1.26	yes	9.72e+02		n	n
2	34:54	2.34e+03	2.07e+03	1.13	yes	4.41e+03		n	n
3	35:27	2.32e+03	2.04e+03	1.14	yes	4.36e+03		n	n
4	35:53	1.58e+04	1.25e+04	1.26	yes	2.82e+04	1,2,3,4,7,8-HxCDF	n	n
5	35:59	4.01e+03	3.27e+03	1.23	yes	7.29e+03	1,2,3,6,7,8-HxCDF	n	n
6	36:31	9.77e+02	7.53e+02	1.30	yes	1.73e+03	2,3,4,6,7,8-HxCDF	n	n
7	37:18	1.17e+03	9.64e+02	1.22	yes	2.14e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0175

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P519259 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 19:40:34 Processed: 7-DEC-18 13:10:11

Mass: 389.8160 391.8130 Tot Response: 1.11e+04 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	2.96e+03	2.41e+03	1.23	yes	5.37e+03		n	n
2	35:49	4.23e+02	3.60e+02	1.18	yes	7.83e+02		n	n
3	36:03	2.05e+03	1.70e+03	1.20	yes	3.75e+03		n	n
4	36:39	1.21e+02	1.02e+02	1.18	yes	2.23e+02	1,2,3,4,7,8-HxCDD	n	n
5	36:44	5.48e+02	4.49e+02	1.22	yes	9.97e+02	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0175

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P519259 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 19:40:34 Processed: 7-DEC-18 13:10:11

Mass: 407.7820 409.7790 Tot Response: 3.41e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:36	7.92e+03	7.61e+03 1.04	yes	1.55e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:53	2.73e+02	2.75e+02 0.99	yes	5.48e+02		n	n
3	39:02	7.63e+03	7.56e+03 1.01	yes	1.52e+04		n	n
4	40:03	1.50e+03	1.38e+03 1.09	yes	2.88e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0175

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P519259 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 19:40:34 Processed: 7-DEC-18 13:10:11

Mass: 423.7770 425.7740 Tot Response: 8.70e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:52	2.99e+04	1.03	yes	5.89e+04		n	n
2	39:34	1.42e+04	1.02	yes	2.81e+04	1,2,3,4,6,7,8-HpCDD	n	n

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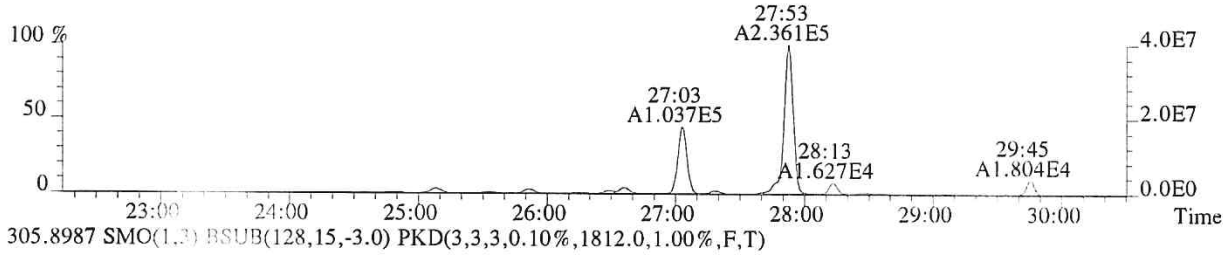
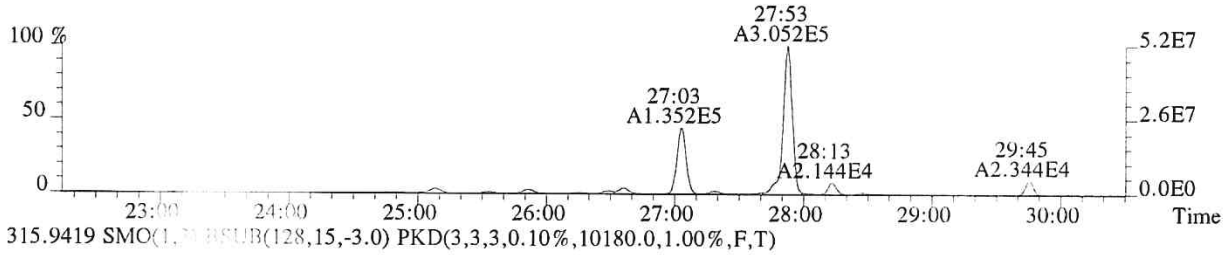
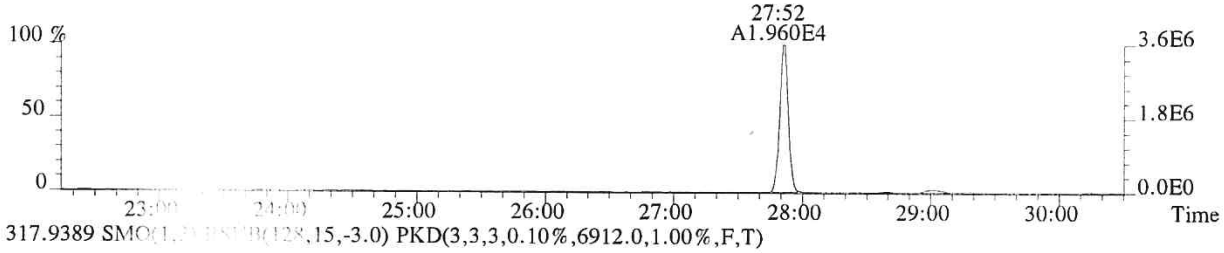
File:P519259 #1-597 Acq: 6-DEC-2018 19:40:34 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801056-023
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



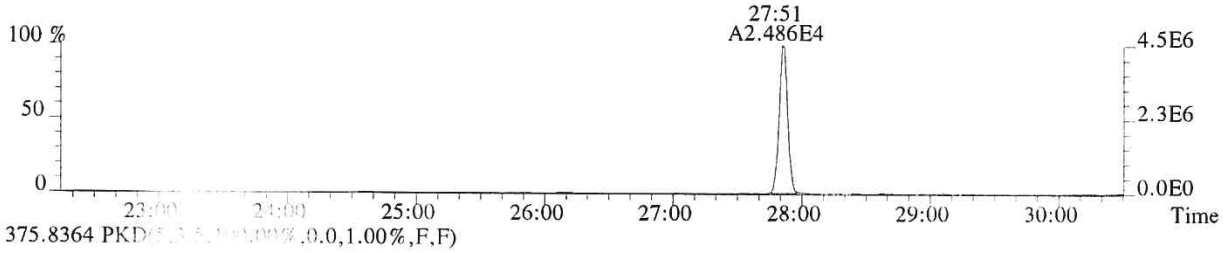
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1812.0,1.00%,F,T)



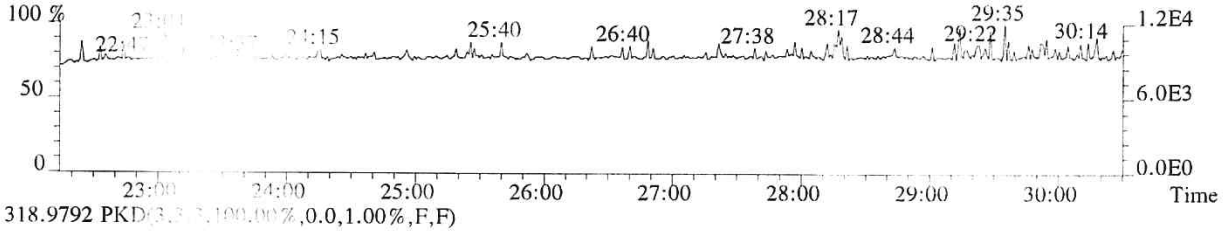
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



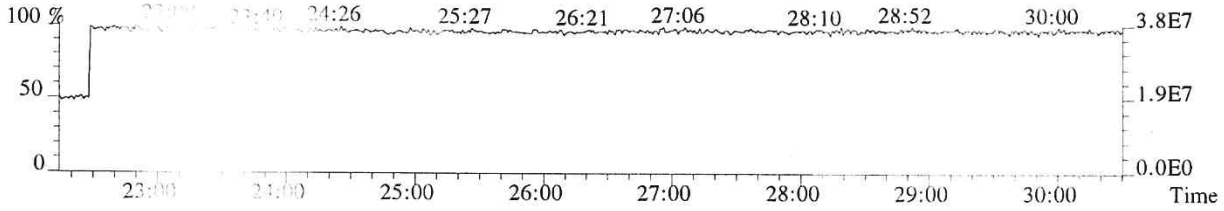
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6912.0,1.00%,F,T)



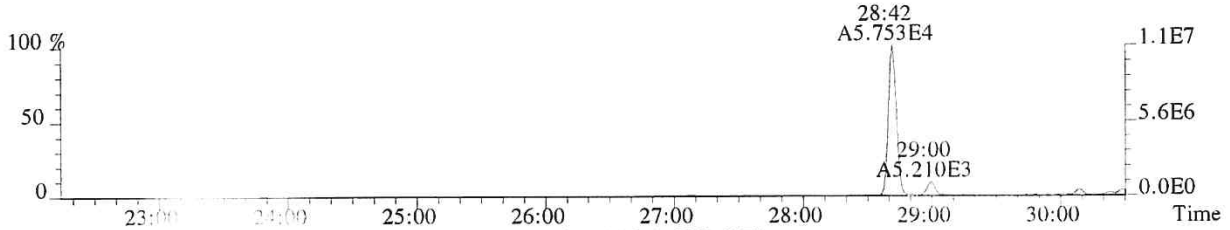
375.8364 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



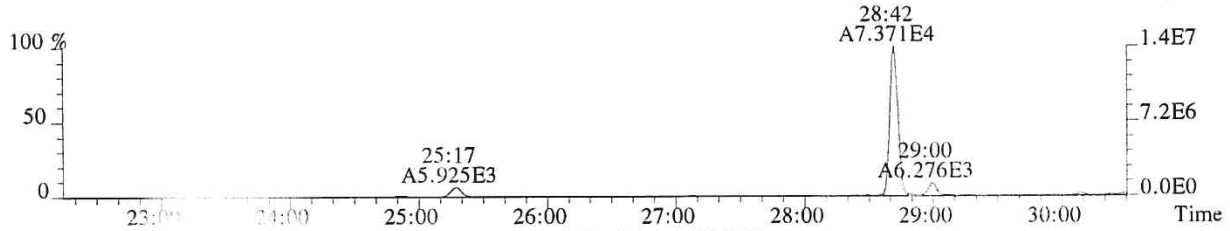
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



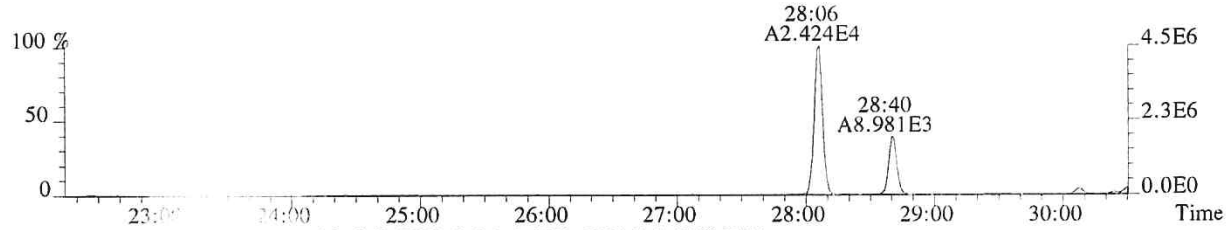
File:P519259 #1-5 [illegible] 6-DEC-2018 19:40:34 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:[illegible]
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2996.0,1.00%,F,T)



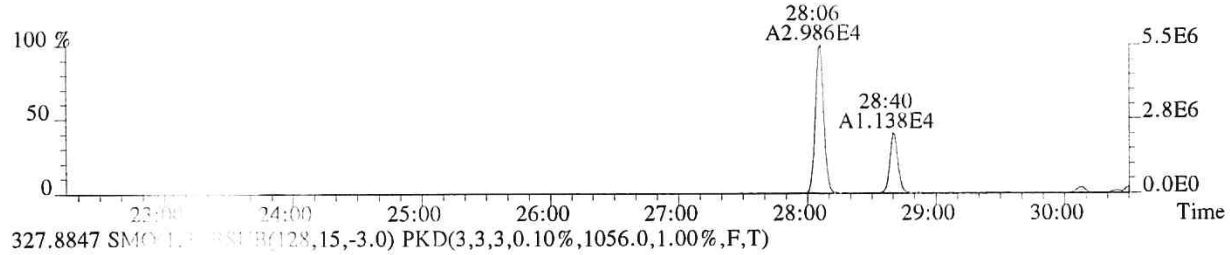
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



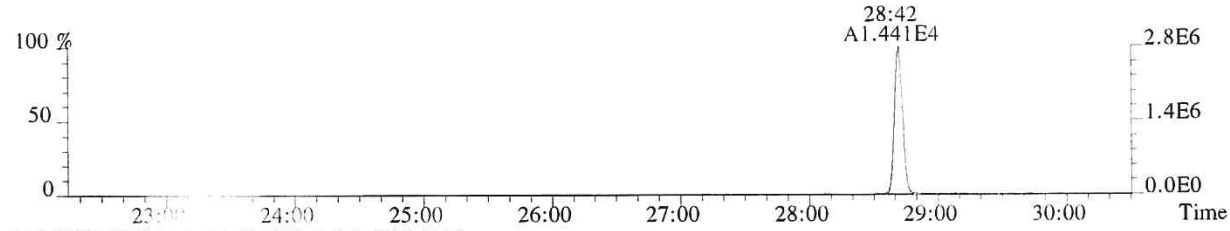
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7328.0,1.00%,F,T)



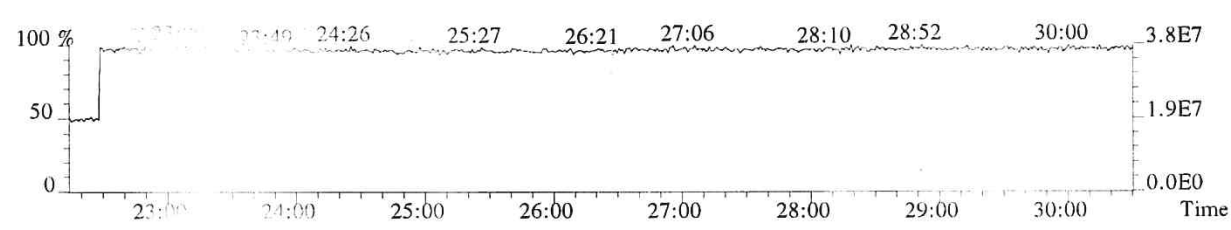
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2308.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)

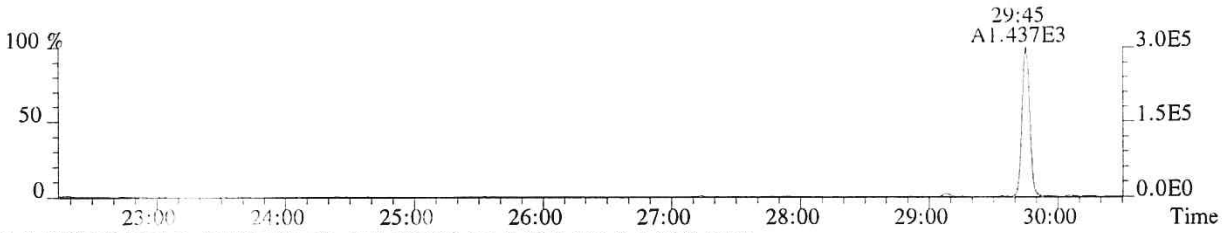


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

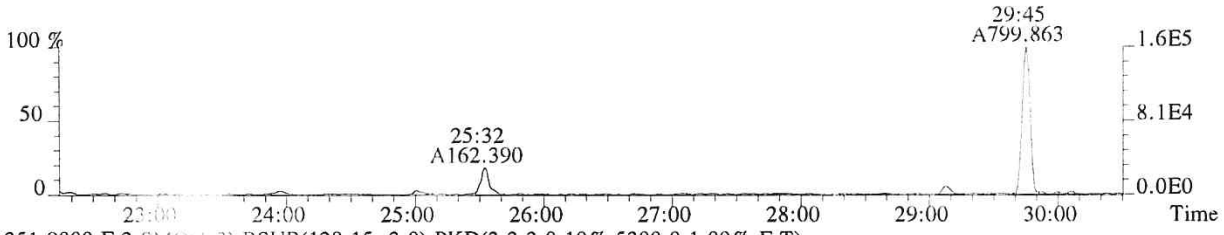


012380

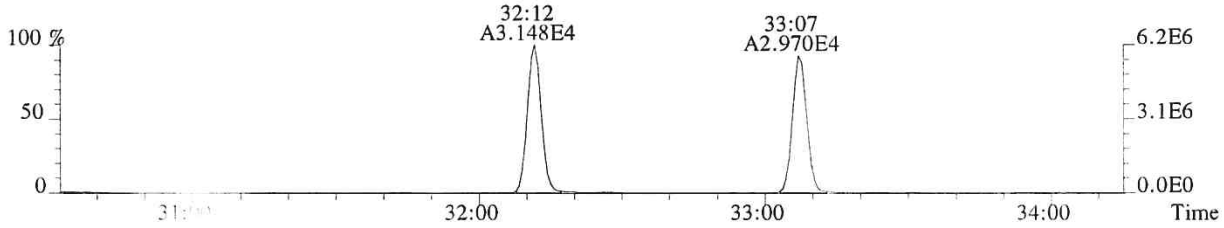
File:P519259 #1-5[illegible] Acq: 6-DEC-2018 19:40:34 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E[illegible]056-023
339.8597 SMO[illegible] BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



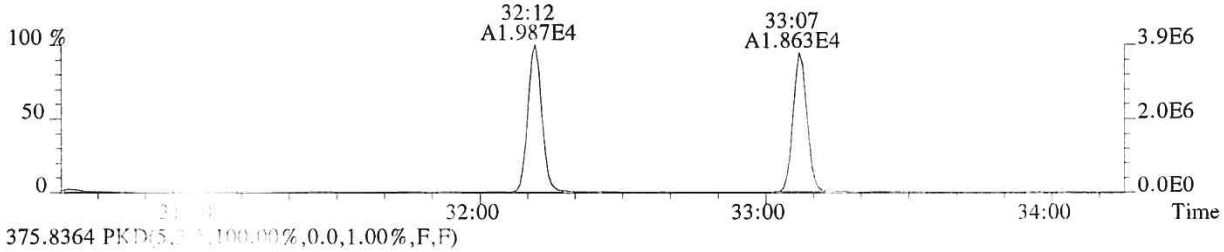
341.8567 SMO(1.3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



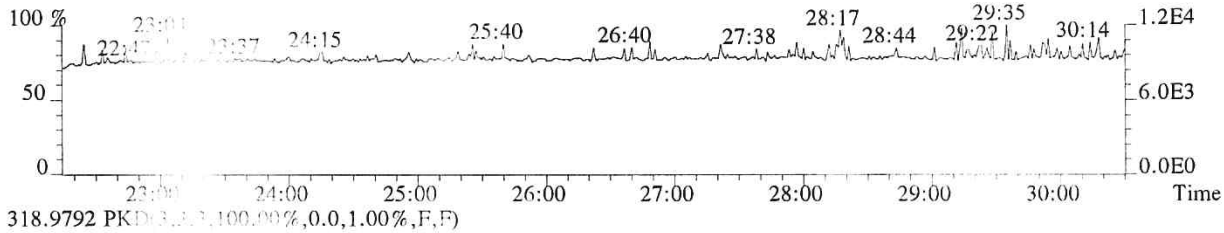
351.9000 F:2 SMO(1.3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5300.0,1.00%,F,T)



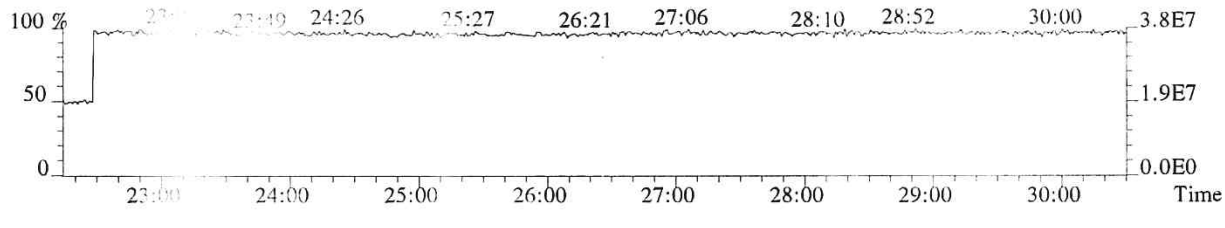
353.8970 F:2 SMO(1.3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6824.0,1.00%,F,T)



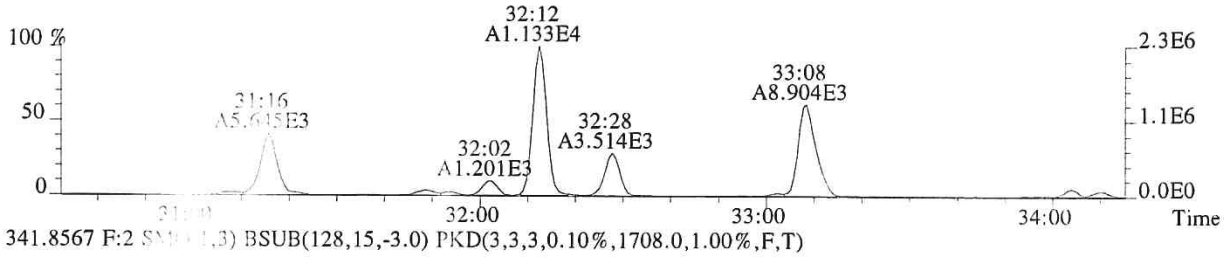
375.8364 PKD(5,3,3,100.00%,0.0,1.00%,F,F)



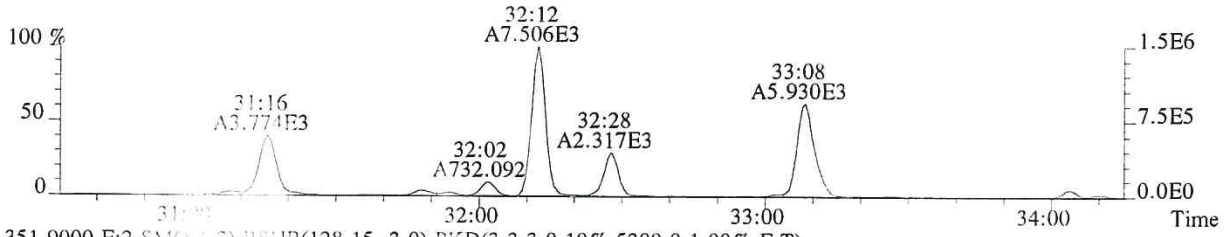
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



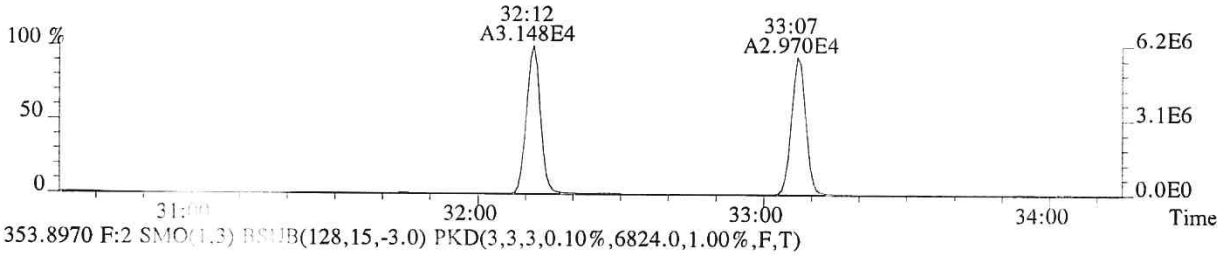
File:P519259 #1-2[illegible] Acq: 6-DEC-2018 19:40:34 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:E1801056-023
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2396.0,1.00%,F,T)



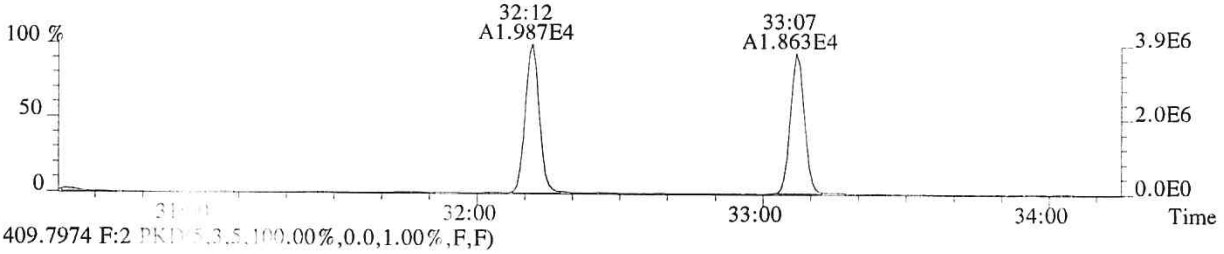
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



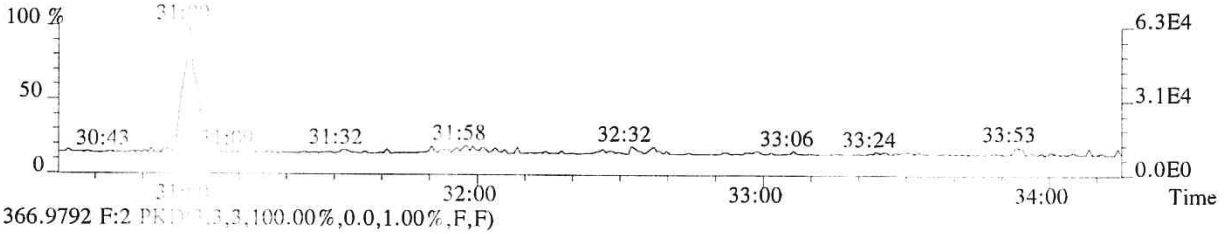
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5300.0,1.00%,F,T)



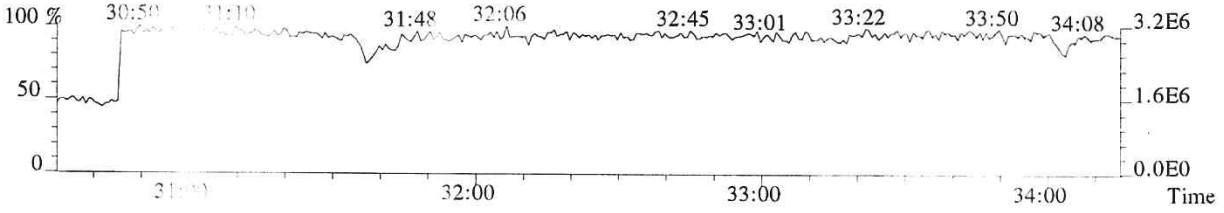
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6824.0,1.00%,F,T)



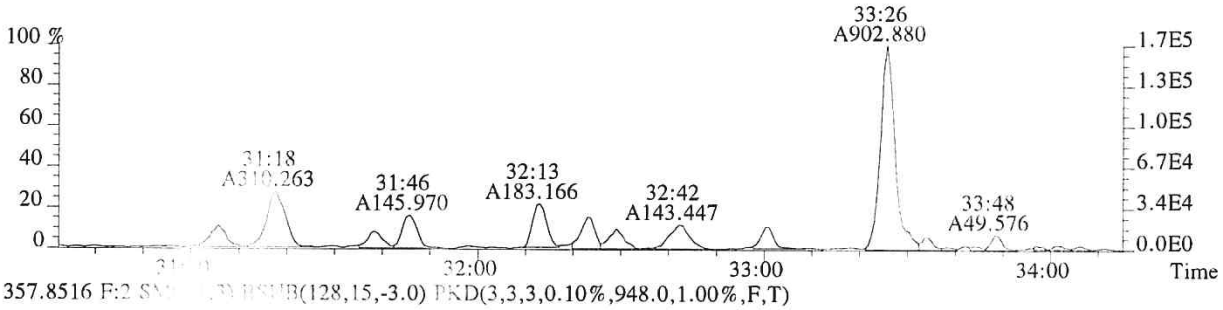
409.7974 F:2 PKD(3,3,5,100.00%,0.0,1.00%,F,F)



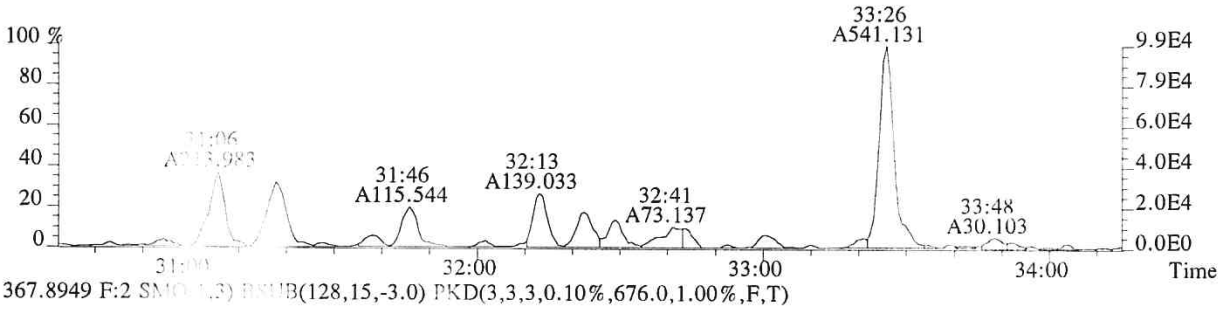
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



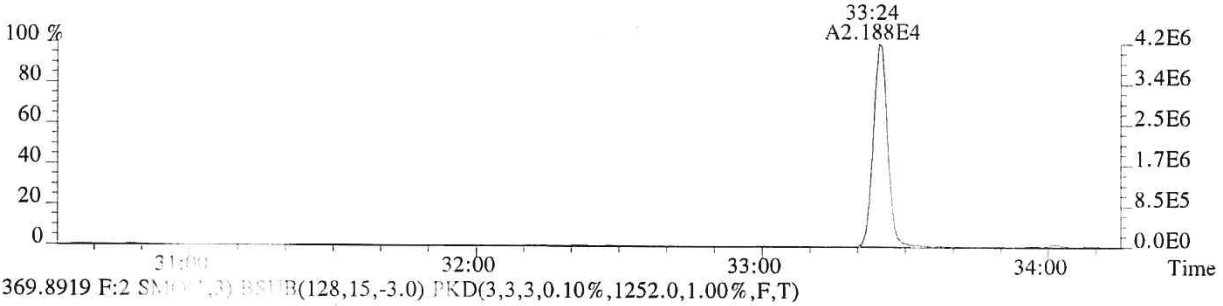
File:P519259 #1-[illegible] Acq: 6-DEC-2018 19:40:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:[illegible]
355.8546 F:2 SM[illegible] B(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



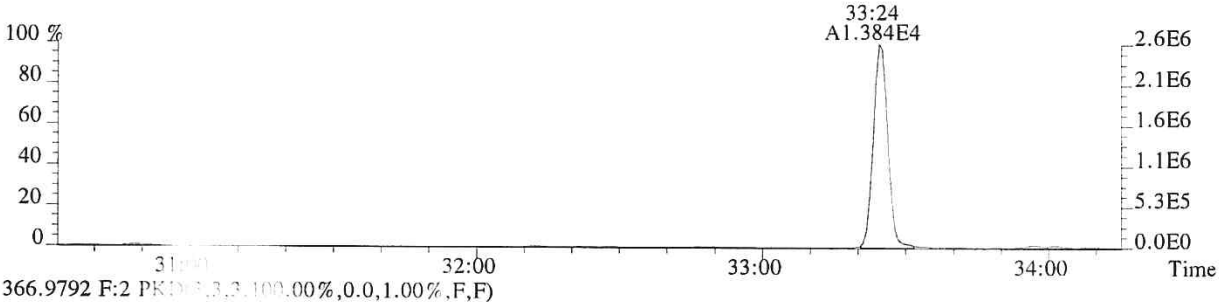
357.8516 F:2 SM[illegible] B(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



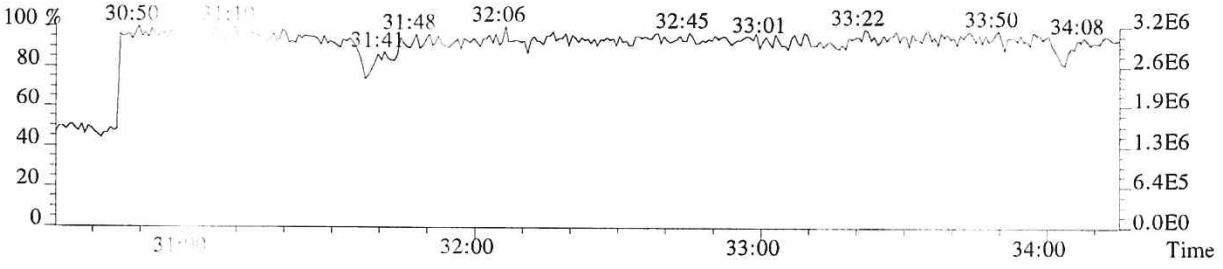
367.8949 F:2 SM[illegible] B(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



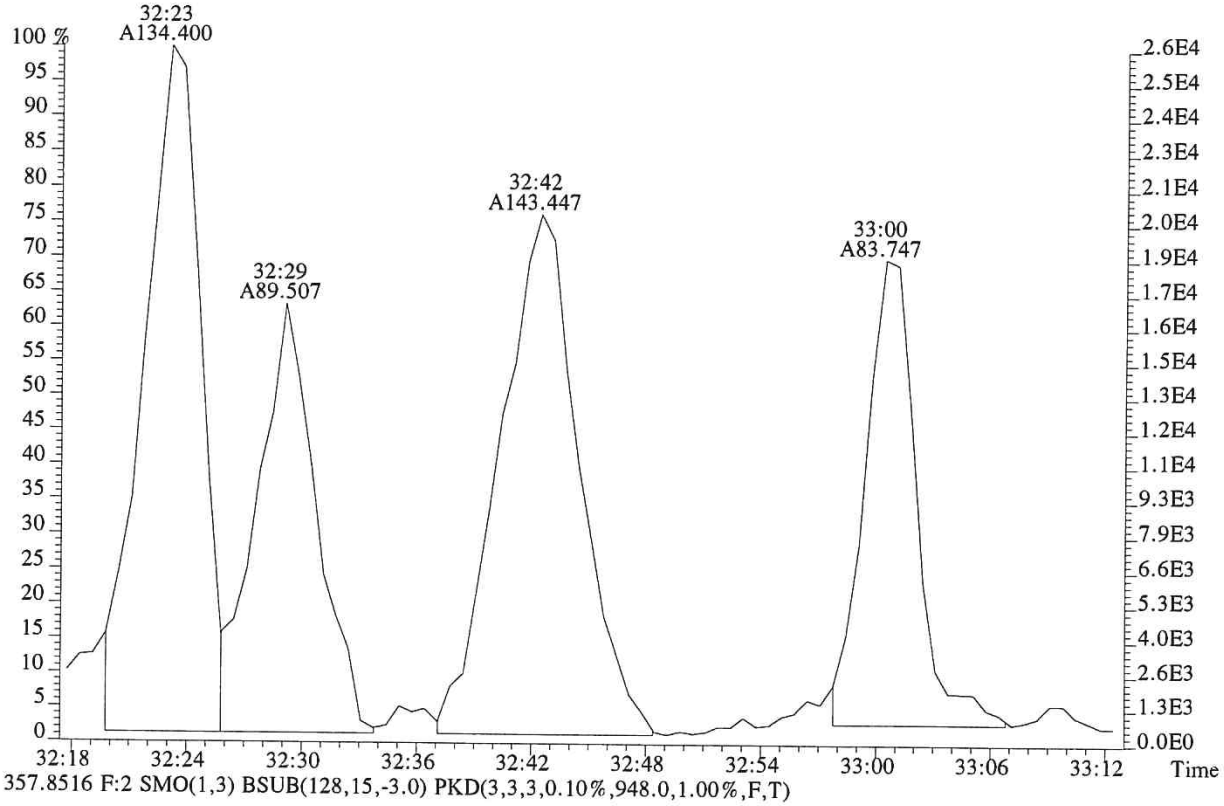
369.8919 F:2 SM[illegible] B(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



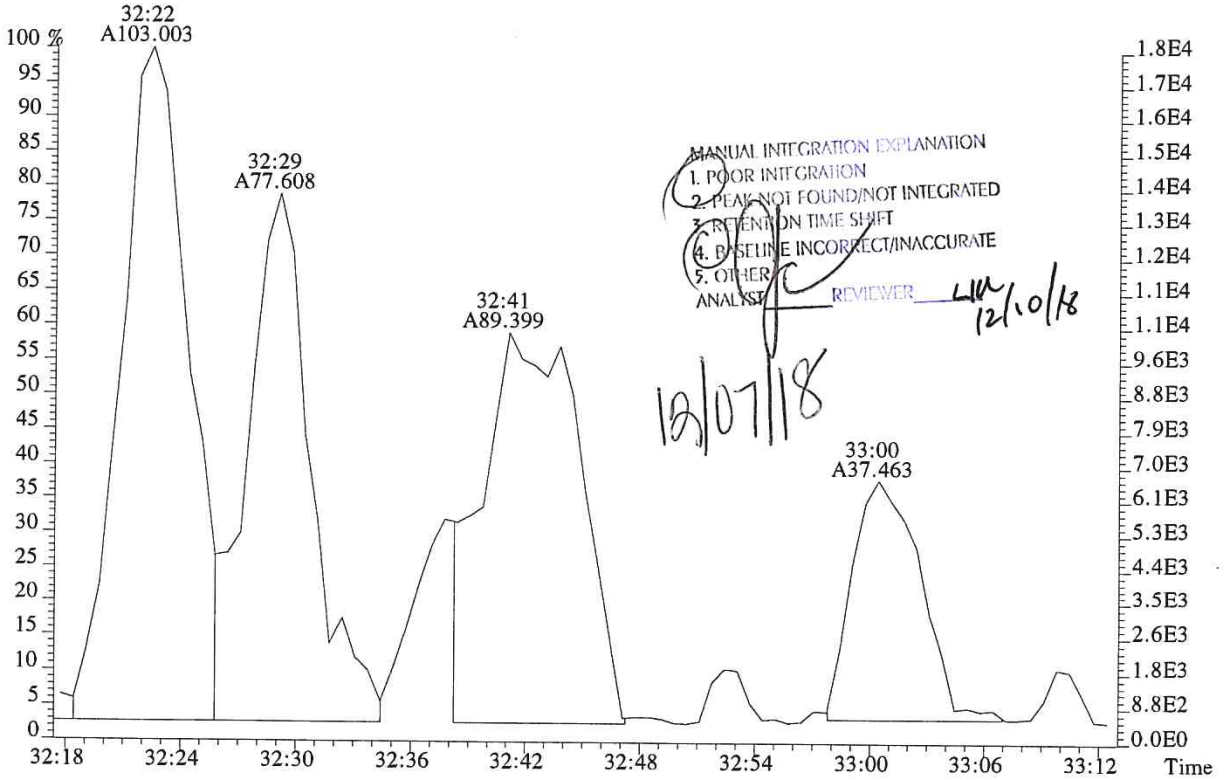
366.9792 F:2 PK[illegible]



File:P519259 #1-335 Acq: 6-DEC-2018 19:40:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-023
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



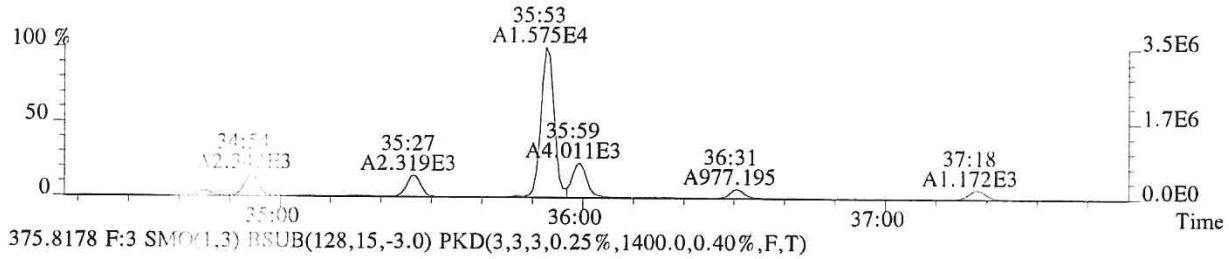
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



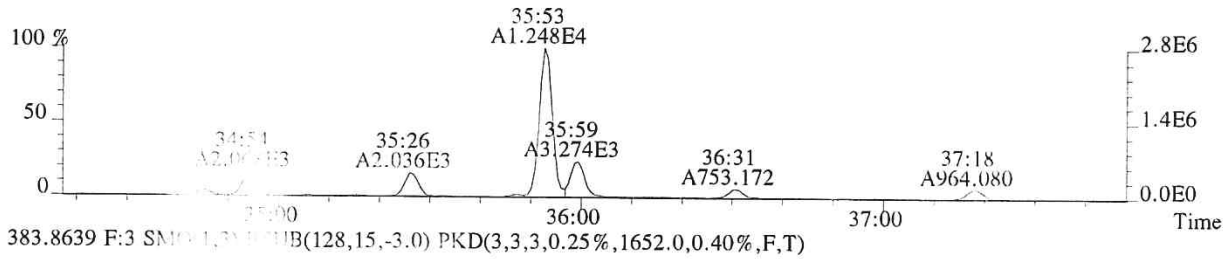
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER 12/10/18
12/07/18

012384

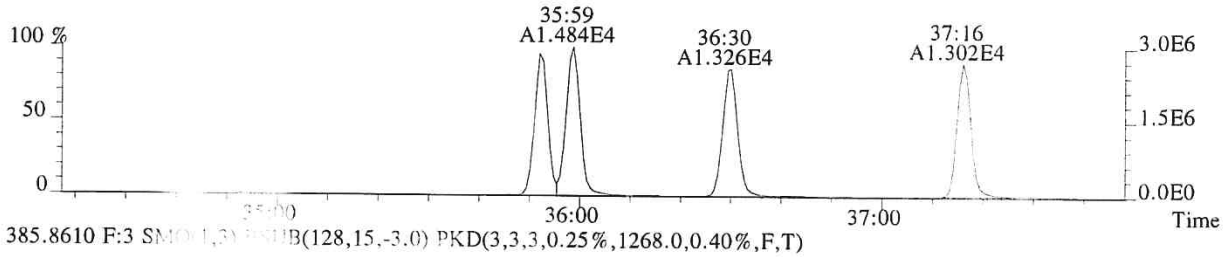
File:P519259 #1-3[illegible] Acq: 6-DEC-2018 19:40:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1[illegible]023
373.8208 F:3 SM[illegible]1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2532.0,0.40%,F,T)



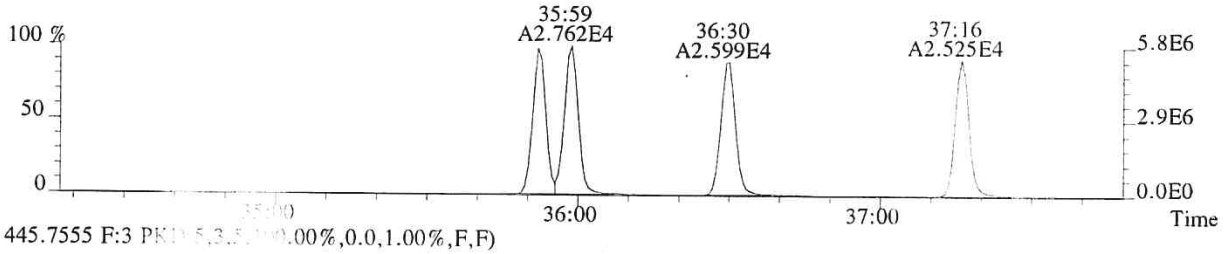
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



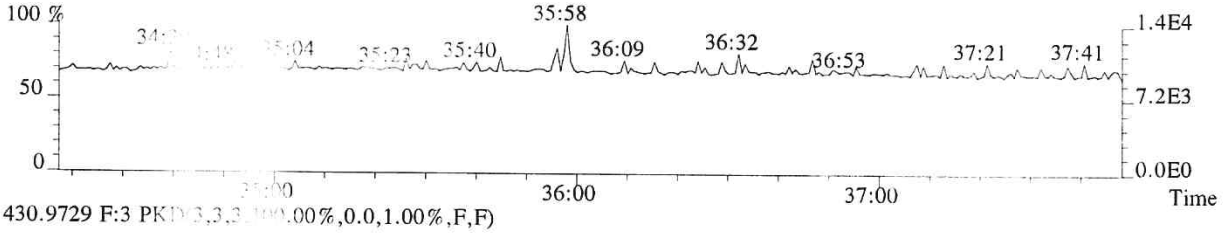
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.40%,F,T)



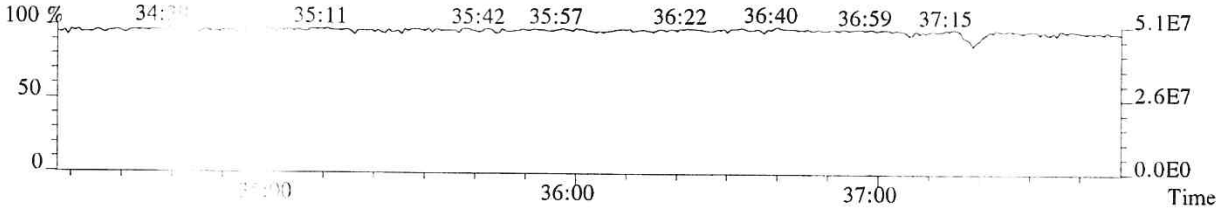
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



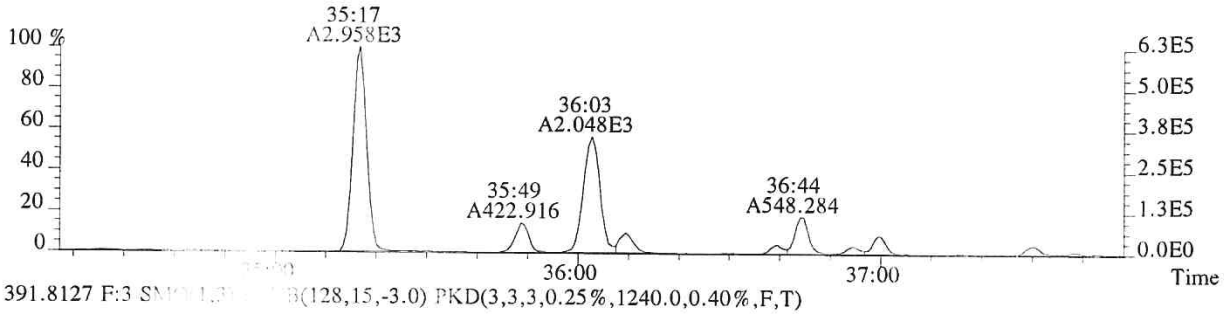
445.7555 F:3 PK[illegible]5,3,3[illegible].00%,0.0,1.00%,F,F)



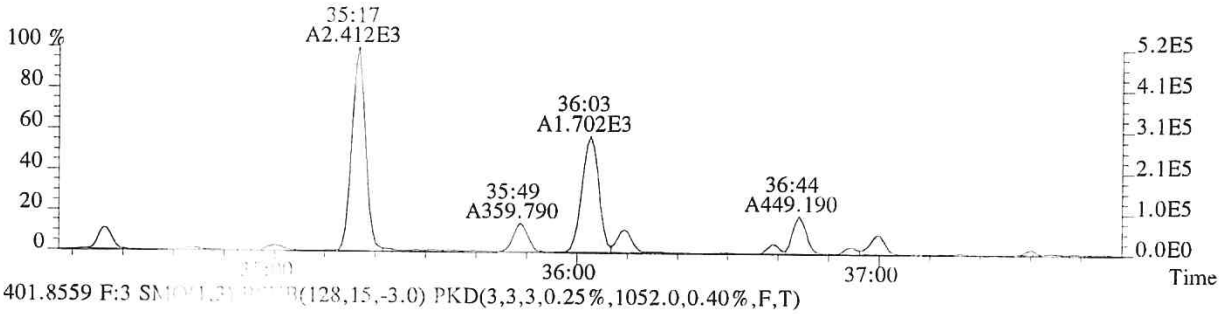
430.9729 F:3 PK[illegible]3,3,3[illegible].00%,0.0,1.00%,F,F)



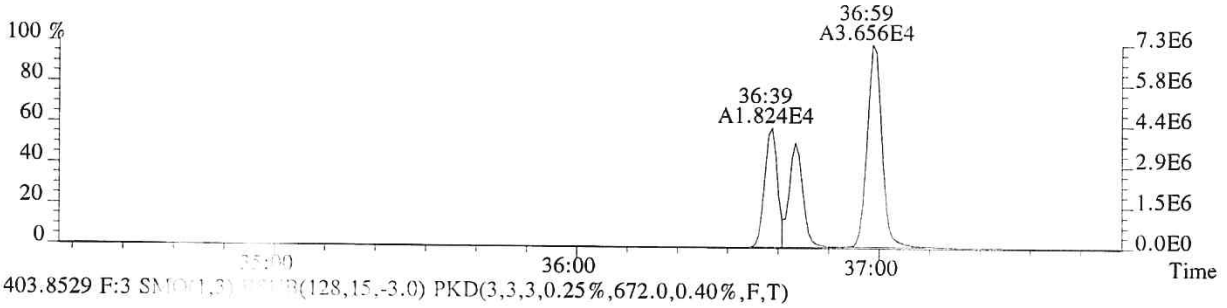
File:P519259 #1-317 Acq: 6-DEC-2018 19:40:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056 023
389.8157 F:3 SMO(1,3) RSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



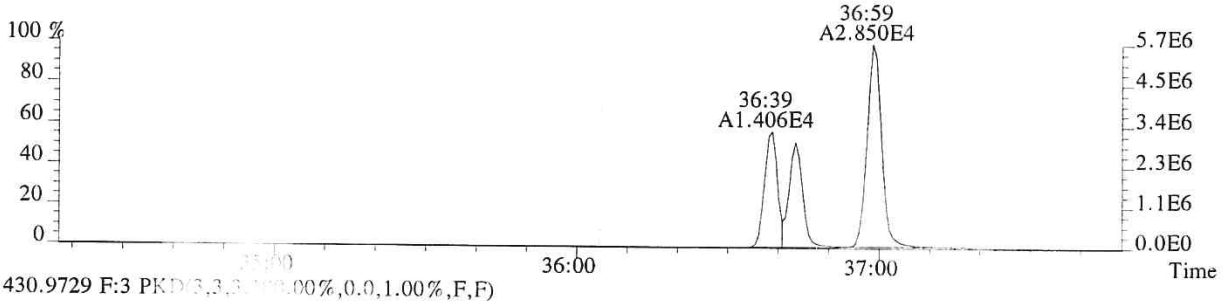
391.8127 F:3 SMO(1,3) RSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.40%,F,T)



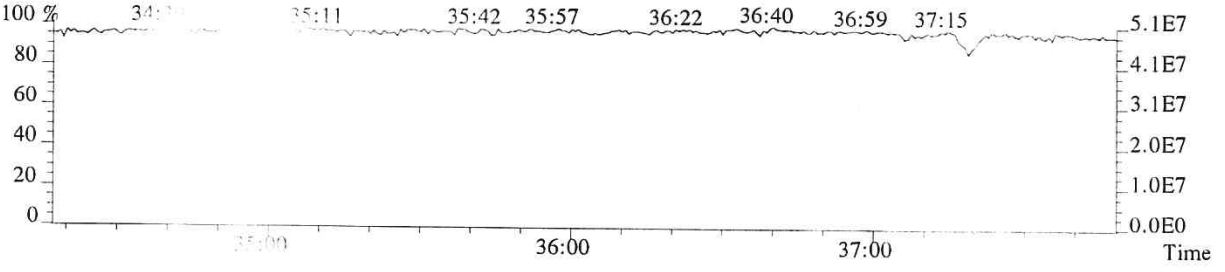
401.8559 F:3 SMO(1,3) RSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



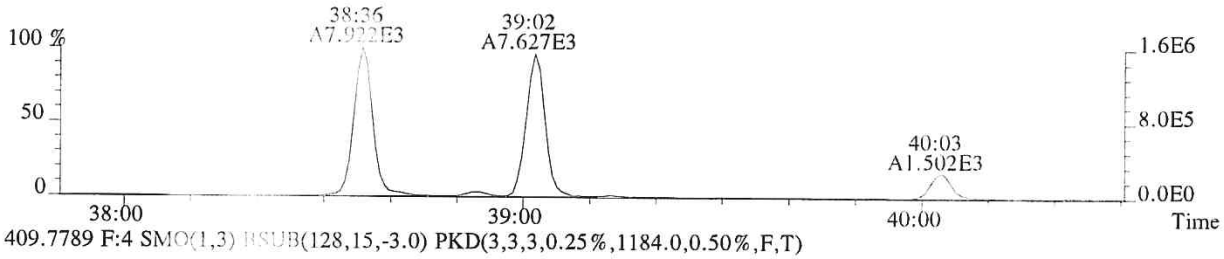
403.8529 F:3 SMO(1,3) RSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



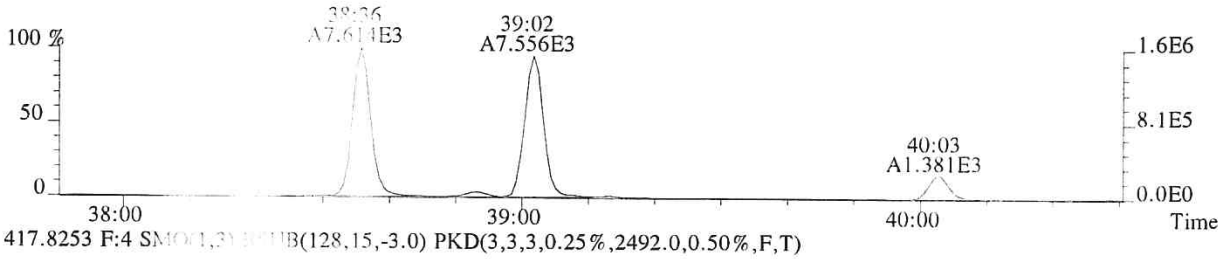
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



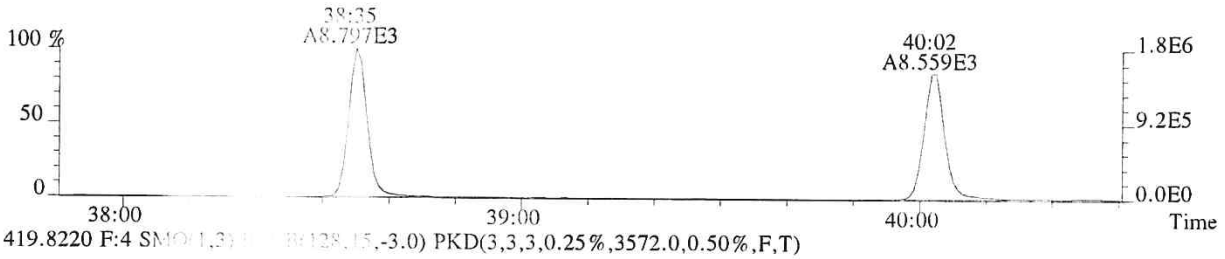
File:P519259 #1-241 Acq 6 DEC-2018 19:40:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056_123
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1868.0,0.50%,F,T)



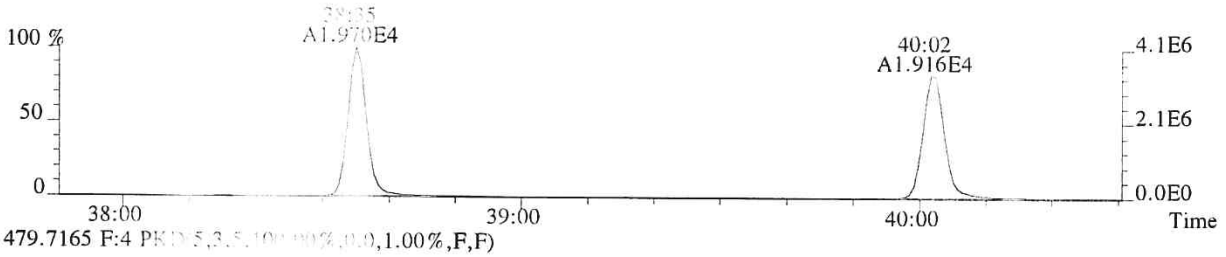
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.50%,F,T)



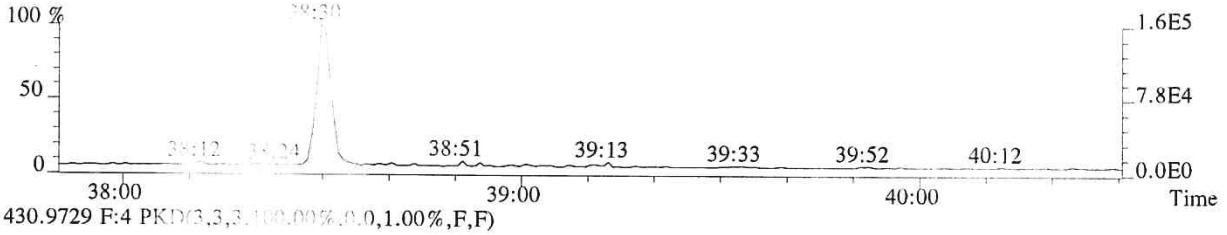
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2492.0,0.50%,F,T)



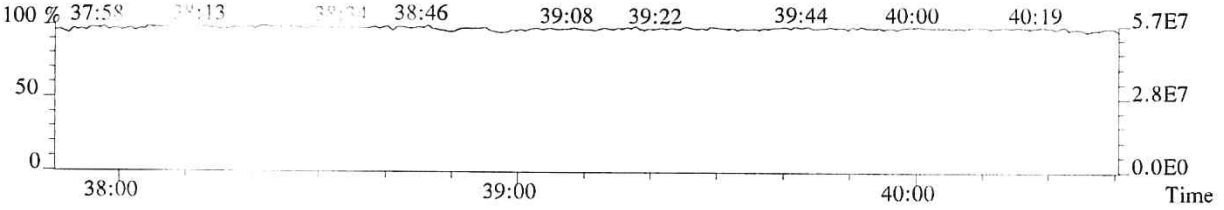
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3572.0,0.50%,F,T)



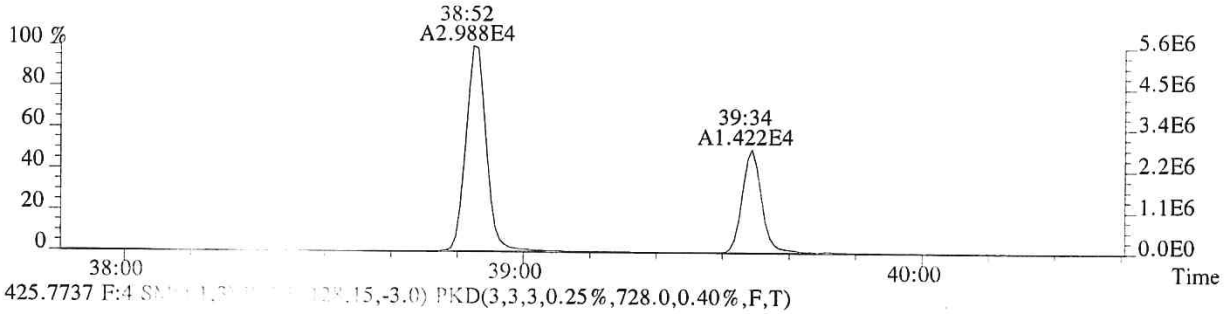
479.7165 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



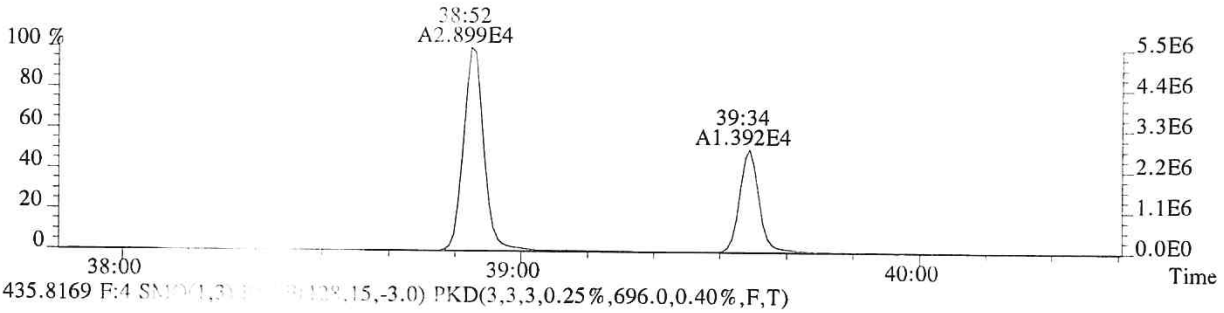
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



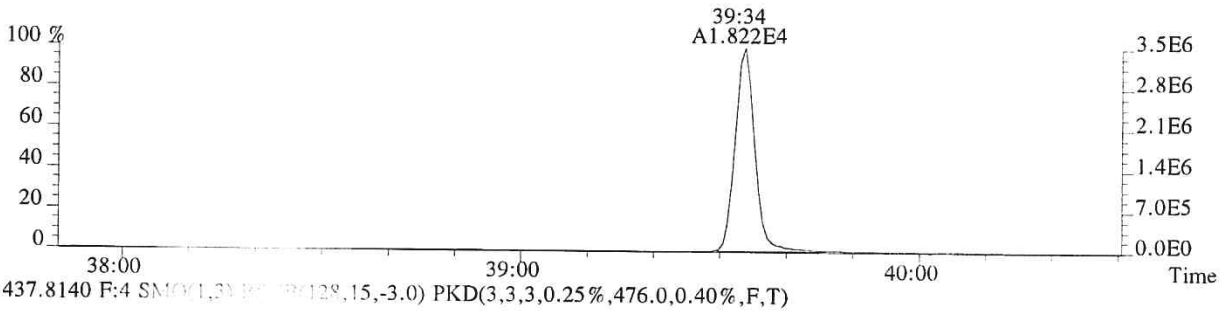
File:P519259 #1-[illegible] [illegible]DEC-2018 19:40:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:[illegible]
423.7766 F:4 SM[illegible](128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



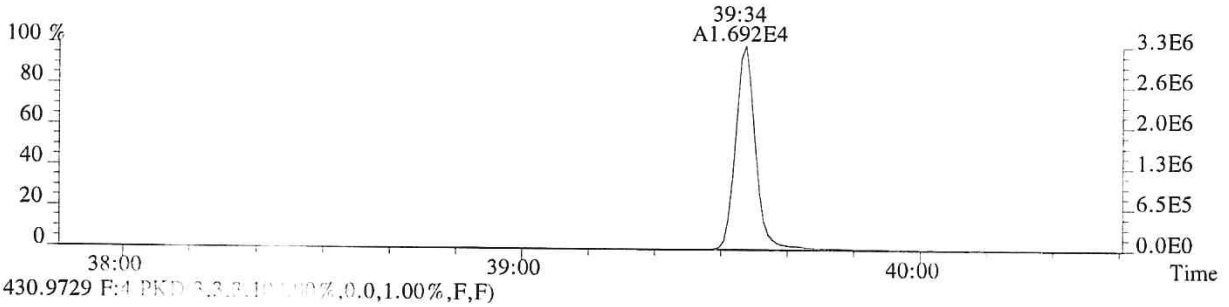
425.7737 F:4 SM[illegible](128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



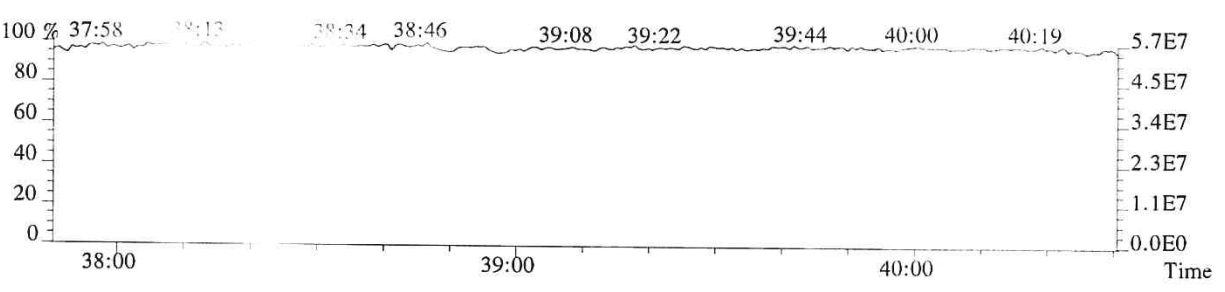
435.8169 F:4 SM[illegible](128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



437.8140 F:4 SM[illegible](128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)

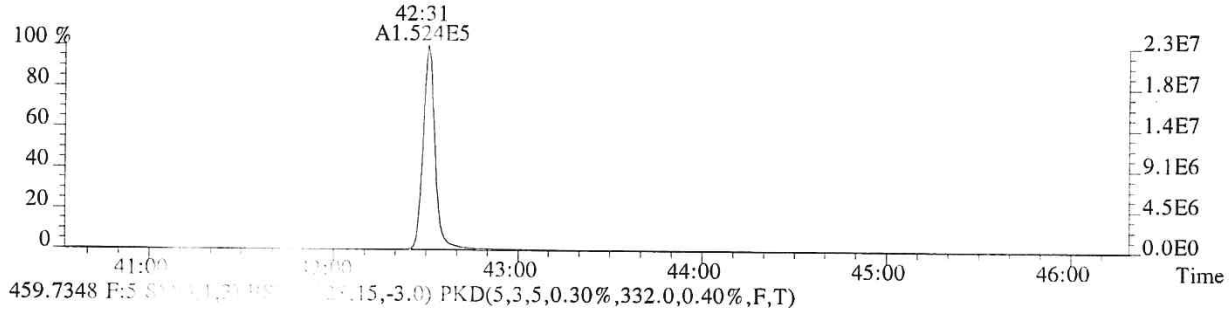


430.9729 F:4 PKD[illegible]%,0.0,1.00%,F,F)

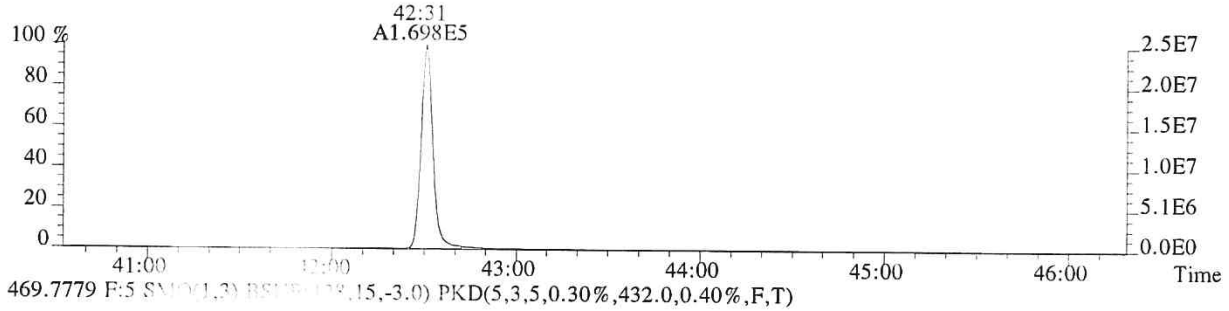


012388

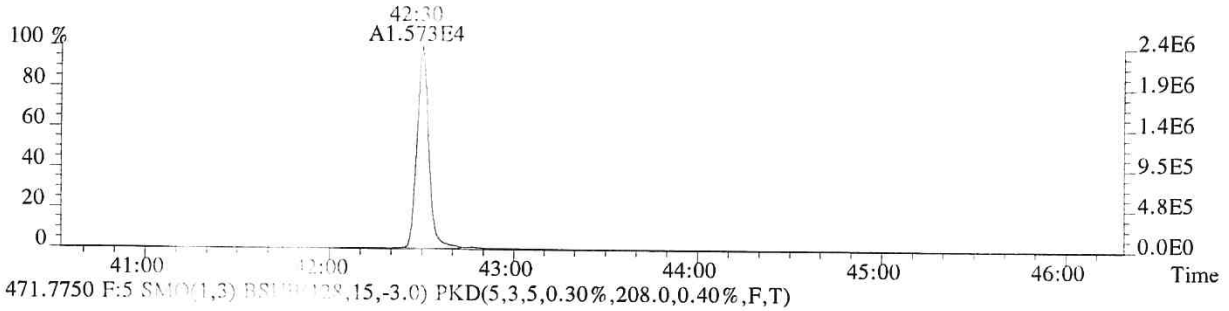
File:P519259 #1-520 Acq: 6 [illegible]-2018 19:40:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:[illegible]
457.7377 F:5 SM[illegible]1,3) BS[illegible]128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



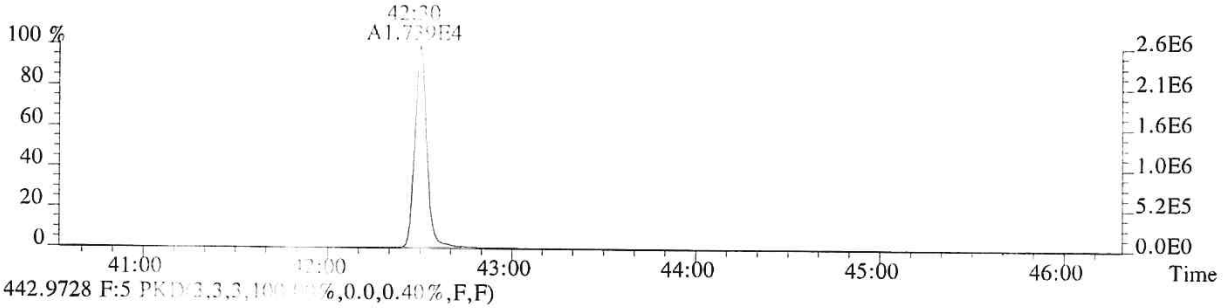
459.7348 F:5 [illegible]15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



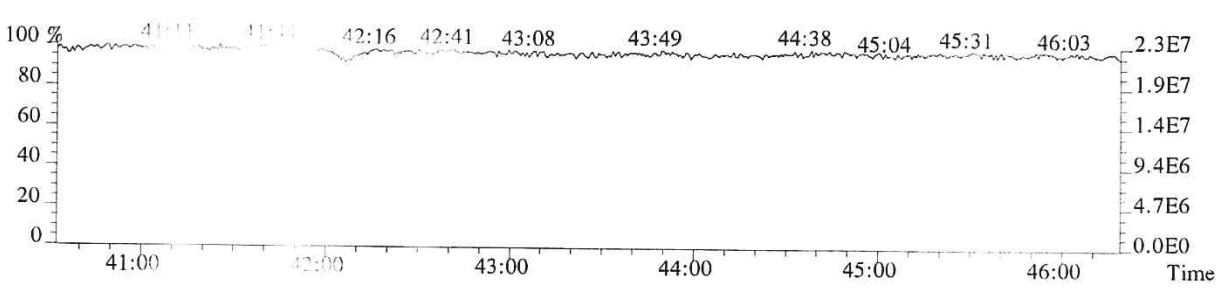
469.7779 F:5 SM[illegible]15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



471.7750 F:5 SM[illegible]15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



442.9728 F:5 PKD[illegible],0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0175

Run #11 Filename P519323 Samp: 1 Inj: 1 Acquired: 10-DEC-18 12:00:55
Processed: 11-DEC-18 15:18:34 Sample ID: E1801056-023DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	8.124e+03	1.092e+04	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	4.360e+02	2.628e+02	1.66	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	3.618e+02	2.314e+02	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:47	4.972e+02	3.645e+02	1.36	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:54	1.499e+02	1.330e+02	1.13	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:25	4.037e+01	3.499e+01	1.15	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	3.583e+01	3.160e+01	1.13	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	2.597e+02	2.289e+02	1.13	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	4.244e+01	3.622e+01	1.17	yes	no	1.258
10	Unk	OCDF	42:37	2.693e+03	3.304e+03	0.82	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	2.044e+03	2.537e+03	0.81	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	3.687e+01	2.285e+01	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	8.378e+00	4.805e+00	1.74	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:39	2.097e+01	1.968e+01	1.07	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:50	5.070e+00	3.640e+00	1.39	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:29	4.528e+02	5.180e+02	0.87	no	no	1.025
17	Unk	OCDD	42:25	4.804e+03	5.382e+03	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.521e+04	1.943e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.343e+04	1.469e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.285e+04	1.397e+04	1.64	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.434e+03	1.786e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.128e+04	2.187e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.042e+04	2.007e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	8.812e+03	1.706e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	7.945e+03	1.760e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:57	6.370e+03	1.503e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	7.303e+03	9.016e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	1.646e+04	1.019e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.281e+04	9.882e+03	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.383e+04	1.093e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	1.422e+04	1.298e+04	1.10	yes	no	0.858
32	IS	13C-OCDD	42:25	1.577e+04	1.747e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	1.134e+04	1.438e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	9.505e+03	7.093e+03	1.34	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	4.976e+02				no	1.014

$$OCDD = \frac{(4.804e+03 + 5.382e+03) \times 4000\ pg \times 20}{(1.577e+04 + 1.747e+04) \times 10.629\ g \times 76.1 / 100 \times 1.118 \times 0.44} = 6161\ ng/Kg$$

LLU 12/11/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0175

Run #11 Filename P519323 Samp: 1 Inj: 1 Acquired: 10-DEC-18 12:00:55
Processed: 11-DEC-18 15:18:34 LAB. ID: E1801056-023DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.34e+06	5.76e+02	2.3e+03	1.80e+06	1.32e+03	1.4e+03
2	1,2,3,7,8-PeCDF	7.64e+04	9.04e+02	8.5e+01	4.64e+04	1.86e+03	2.5e+01
3	2,3,4,7,8-PeCDF	5.96e+04	9.04e+02	6.6e+01	4.07e+04	1.86e+03	2.2e+01
4	1,2,3,4,7,8-HxCDF	9.63e+04	4.32e+02	2.2e+02	7.42e+04	2.16e+02	3.4e+02
5	1,2,3,6,7,8-HxCDF	2.58e+04	4.32e+02	6.0e+01	2.47e+04	2.16e+02	1.1e+02
6	2,3,4,6,7,8-HxCDF	8.24e+03	4.32e+02	1.9e+01	5.55e+03	2.16e+02	2.6e+01
7	1,2,3,7,8,9-HxCDF	9.15e+03	4.32e+02	2.1e+01	4.98e+03	2.16e+02	2.3e+01
8	1,2,3,4,6,7,8-HpCDF	5.07e+04	6.48e+02	7.8e+01	4.69e+04	3.00e+02	1.6e+02
9	1,2,3,4,7,8,9-HpCDF	7.91e+03	6.48e+02	1.2e+01	8.32e+03	3.00e+02	2.8e+01
10	OCDF	3.41e+05	2.88e+02	1.2e+03	4.18e+05	8.00e+02	5.2e+02
11	2,3,7,8-TCDD	3.70e+05	2.61e+03	1.4e+02	4.66e+05	7.24e+02	6.4e+02
12	1,2,3,7,8-PeCDD	6.29e+03	5.36e+02	1.2e+01	5.84e+03	2.92e+02	2.0e+01
13	1,2,3,4,7,8-HxCDD	2.16e+03	3.80e+02	5.7e+00	1.38e+03	7.20e+02	1.9e+00
14	1,2,3,6,7,8-HxCDD	3.67e+03	3.80e+02	9.7e+00	4.32e+03	7.20e+02	6.0e+00
15	1,2,3,7,8,9-HxCDD	1.66e+03	3.80e+02	4.4e+00	9.94e+02	7.20e+02	1.4e+00
16	1,2,3,4,6,7,8-HpCDD	8.25e+04	1.68e+02	4.9e+02	8.99e+04	2.48e+02	3.6e+02
17	OCDD	6.04e+05	2.08e+02	2.9e+03	6.66e+05	4.00e+02	1.7e+03
18	13C-2,3,7,8-TCDF	2.65e+06	7.95e+03	3.3e+02	3.44e+06	6.13e+03	5.6e+02
19	13C-1,2,3,7,8-PeCDF	4.16e+06	4.48e+02	9.3e+03	2.66e+06	8.72e+02	3.1e+03
20	13C-2,3,4,7,8-PeCDF	4.42e+06	4.48e+02	9.9e+03	2.73e+06	8.72e+02	3.1e+03
21	13C-1,2,3,4,7,8-HxCDF	1.90e+06	6.92e+02	2.8e+03	3.72e+06	1.02e+03	3.6e+03
22	13C-1,2,3,6,7,8-HxCDF	2.14e+06	6.92e+02	3.1e+03	4.16e+06	1.02e+03	4.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.07e+06	6.92e+02	3.0e+03	4.06e+06	1.02e+03	4.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.61e+06	6.92e+02	2.3e+03	3.12e+06	1.02e+03	3.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.51e+06	1.38e+03	1.1e+03	3.37e+06	2.05e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+06	1.38e+03	7.5e+02	2.44e+06	2.05e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.41e+06	5.16e+03	2.7e+02	1.69e+06	2.37e+03	7.1e+02
28	13C-1,2,3,7,8-PeCDD	3.17e+06	9.96e+02	3.2e+03	1.92e+06	9.68e+02	2.0e+03
29	13C-1,2,3,4,7,8-HxCDD	2.77e+06	7.60e+02	3.6e+03	2.16e+06	5.08e+02	4.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.57e+06	7.60e+02	3.4e+03	2.08e+06	5.08e+02	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.51e+06	3.44e+02	7.3e+03	2.26e+06	2.36e+02	9.6e+03
32	13C-OCDD	1.93e+06	4.64e+02	4.1e+03	2.13e+06	2.92e+02	7.3e+03
33	13C-1,2,3,4-TCDD	2.10e+06	5.16e+03	4.1e+02	2.69e+06	2.37e+03	1.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.16e+06	7.60e+02	1.5e+03	9.28e+05	5.08e+02	1.8e+03
35	37Cl-2,3,7,8-TCDD	8.68e+04	8.40e+02	1.0e+02			

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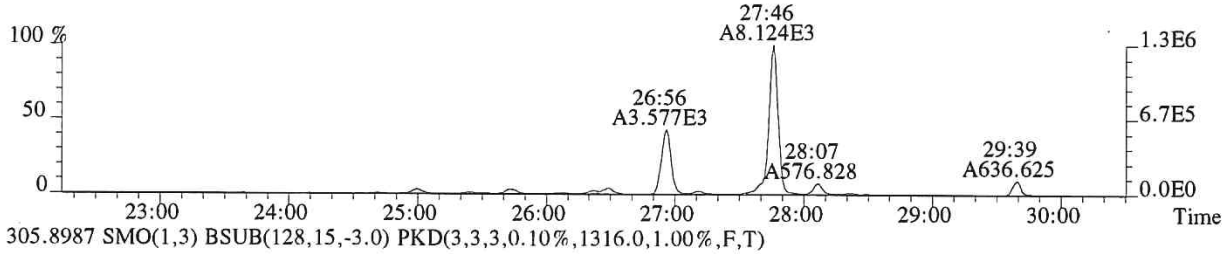
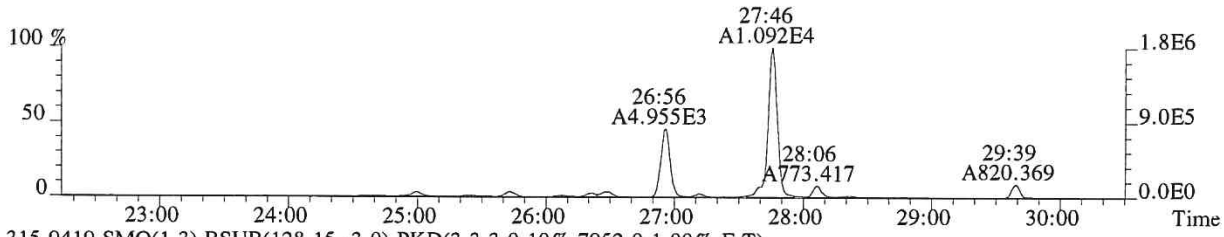
www.alsglobal.com

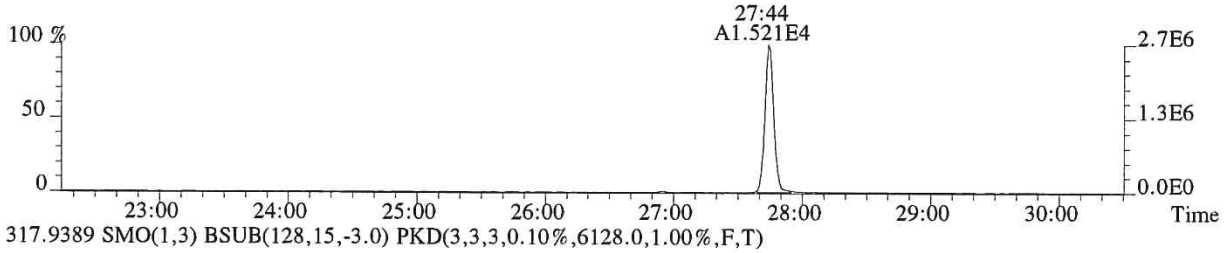
File:P519323 #1-587 Acq:10-DEC-2018 12:00:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-023DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



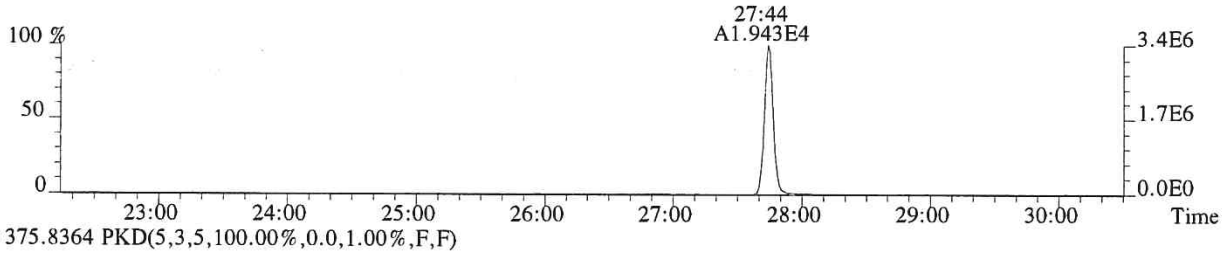
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



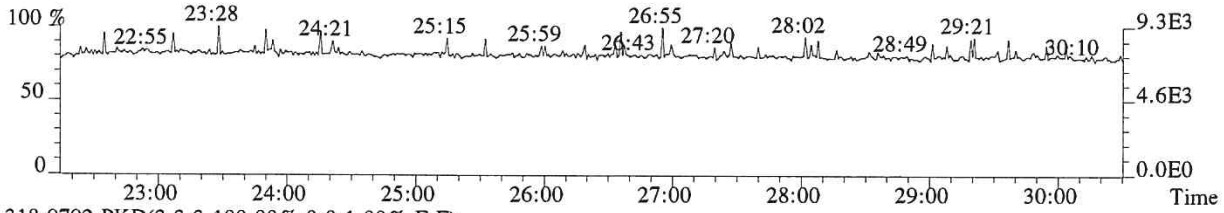
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7952.0,1.00%,F,T)



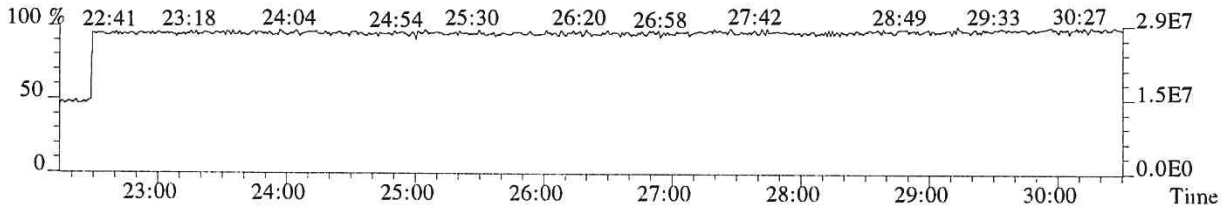
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6128.0,1.00%,F,T)



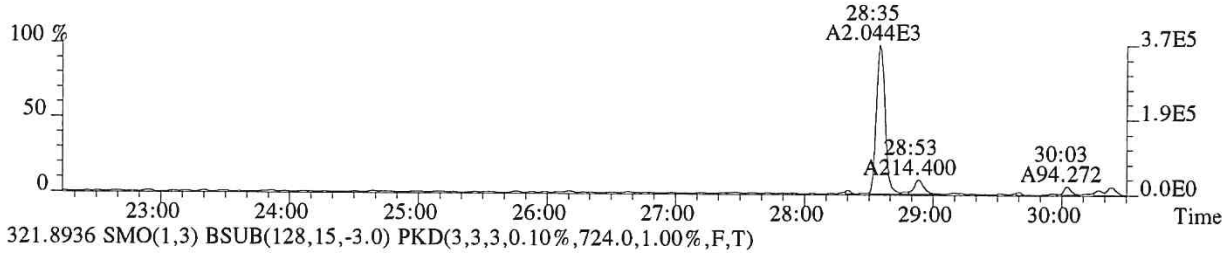
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



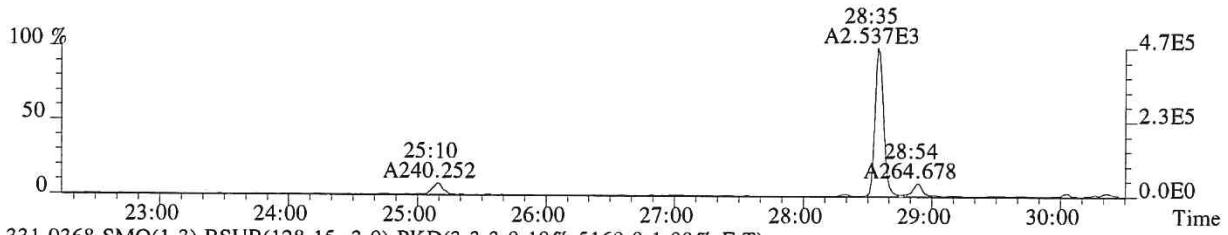
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



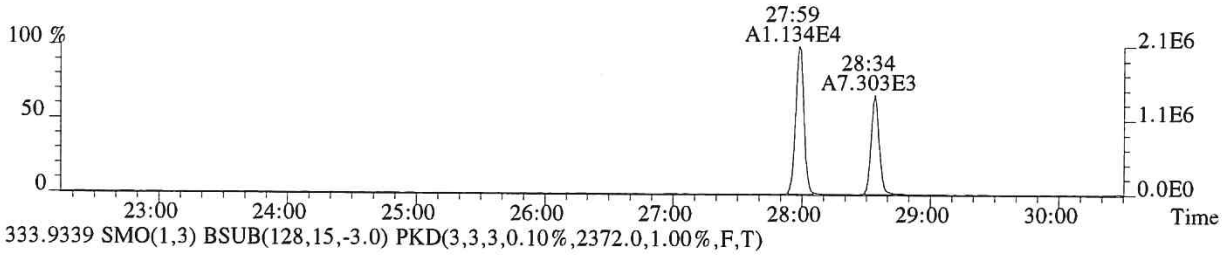
File:P519323 #1-587 Acq:10-DEC-2018 12:00:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-023DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2612.0,1.00%,F,T)



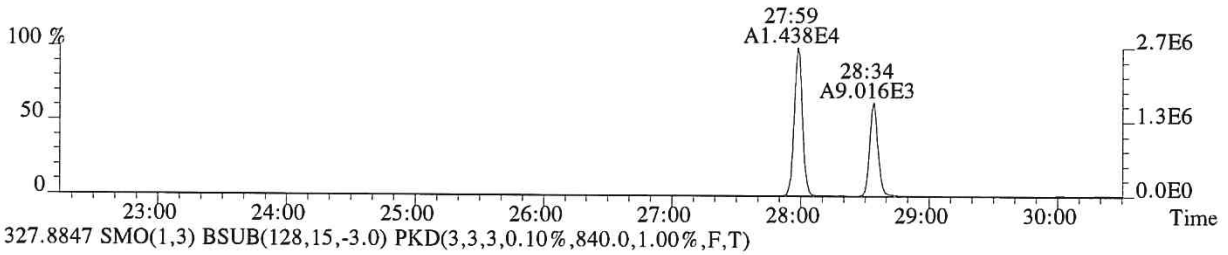
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



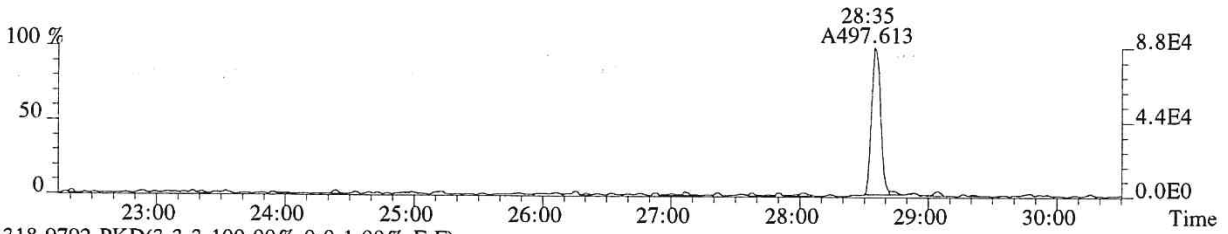
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5160.0,1.00%,F,T)



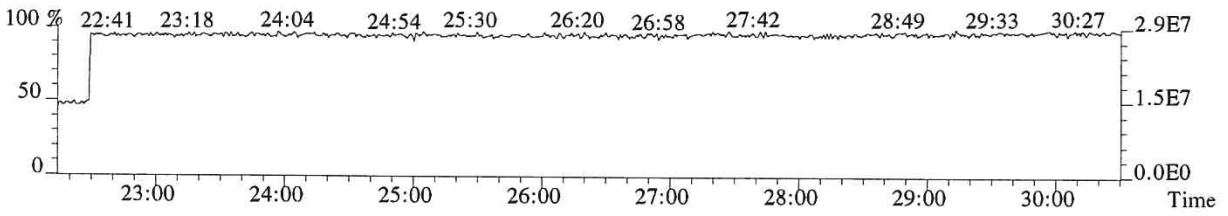
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2372.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)

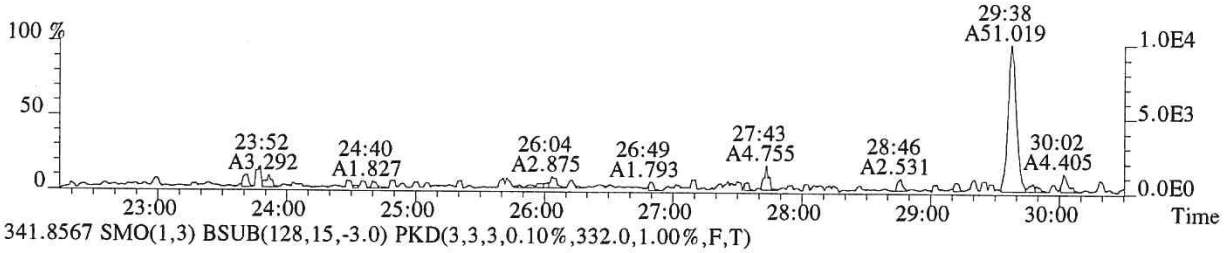


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

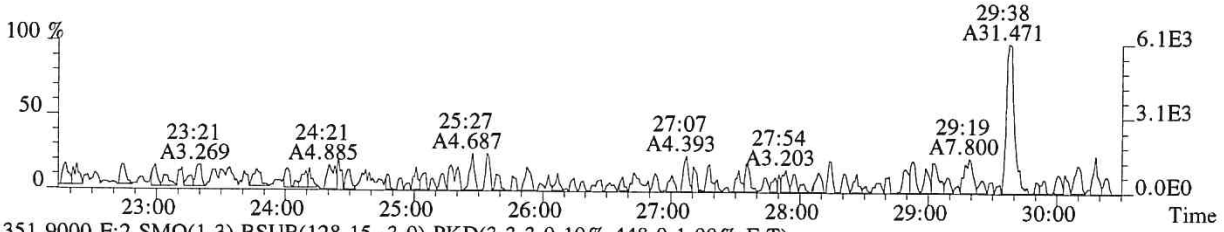


012393

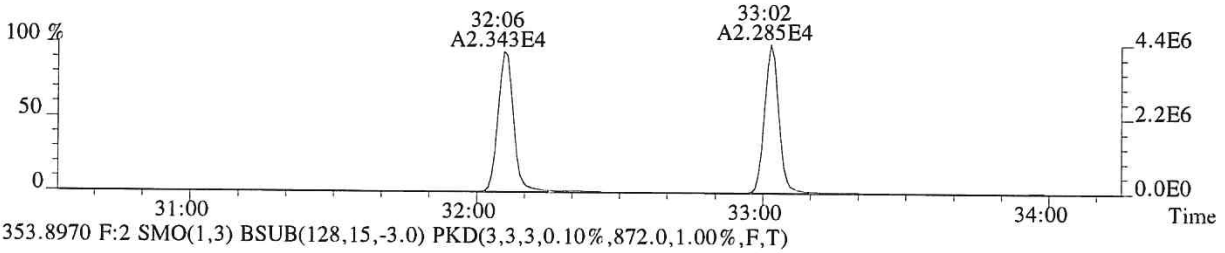
File:P519323 #1-587 Acq:10-DEC-2018 12:00:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-023DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



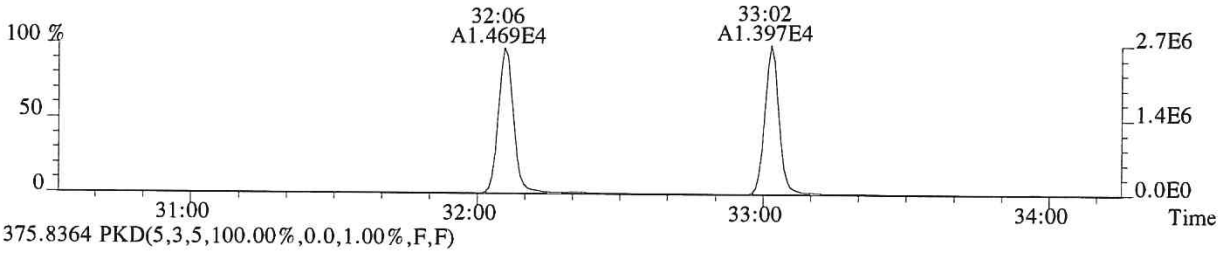
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



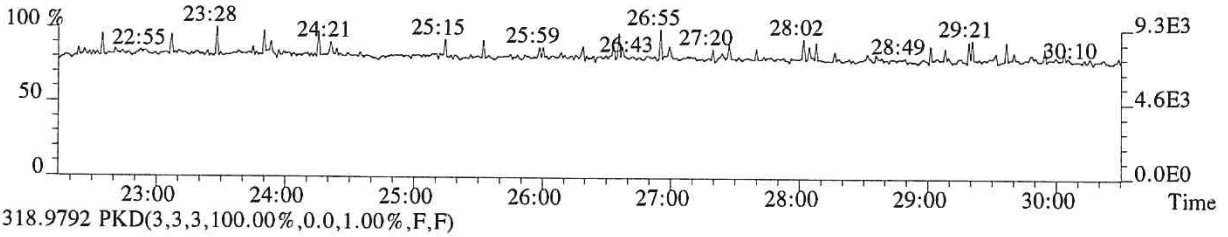
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



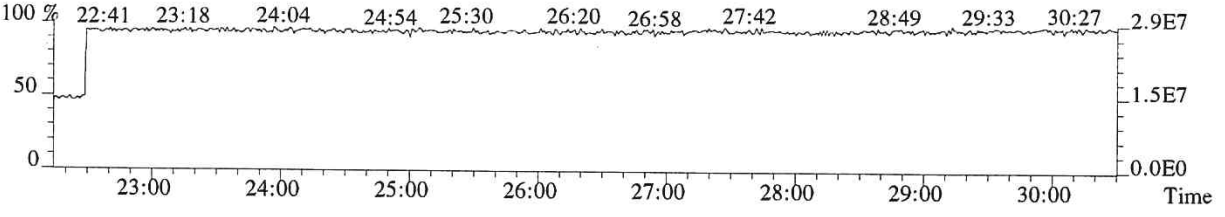
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



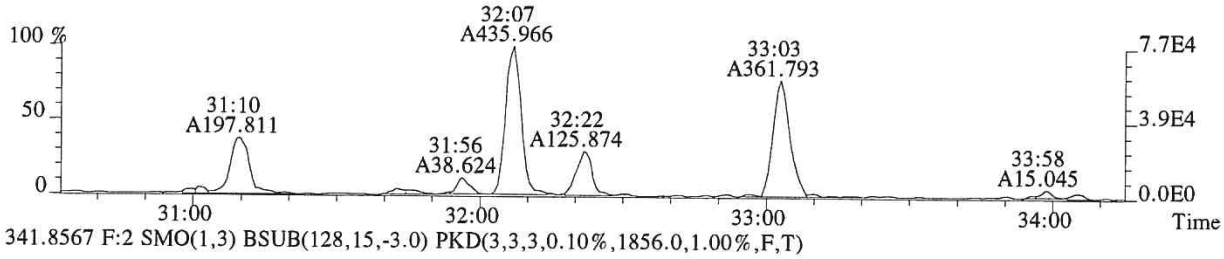
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



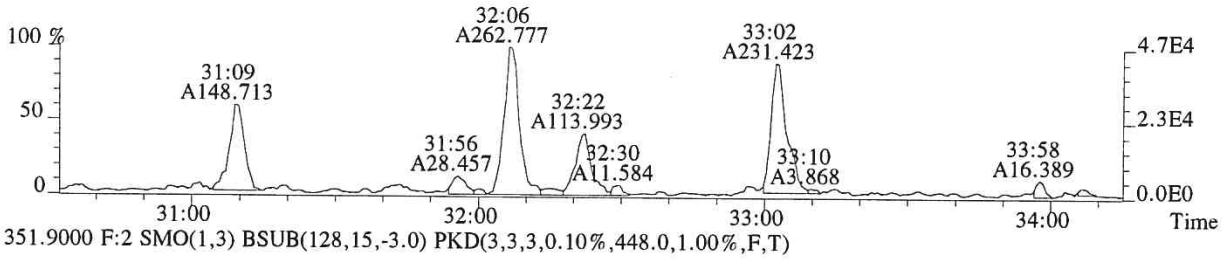
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



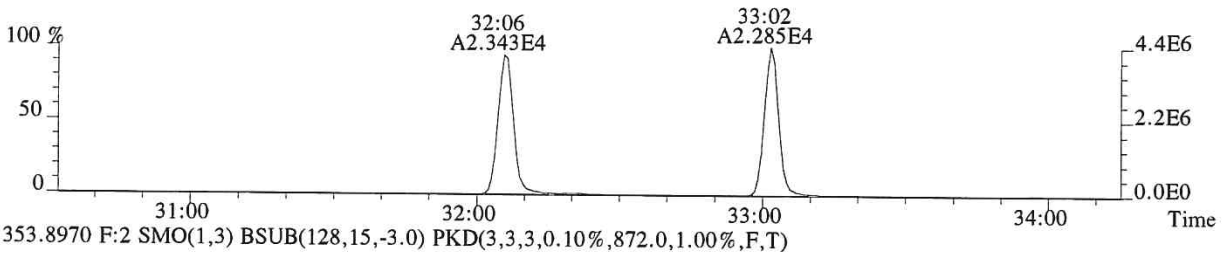
File:P519323 #1-335 Acq:10-DEC-2018 12:00:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-023DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



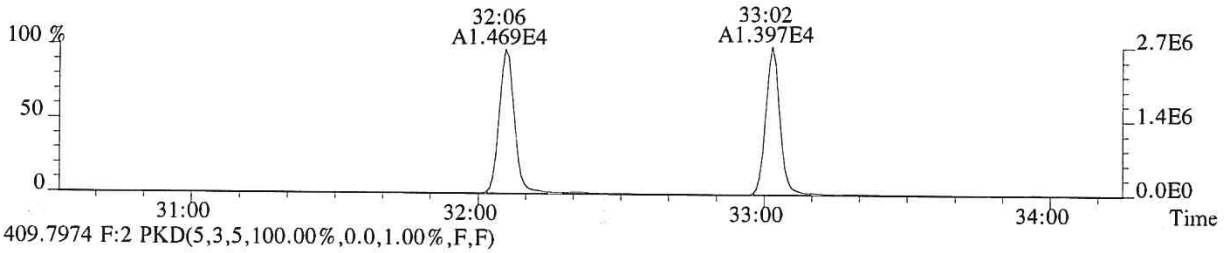
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1856.0,1.00%,F,T)



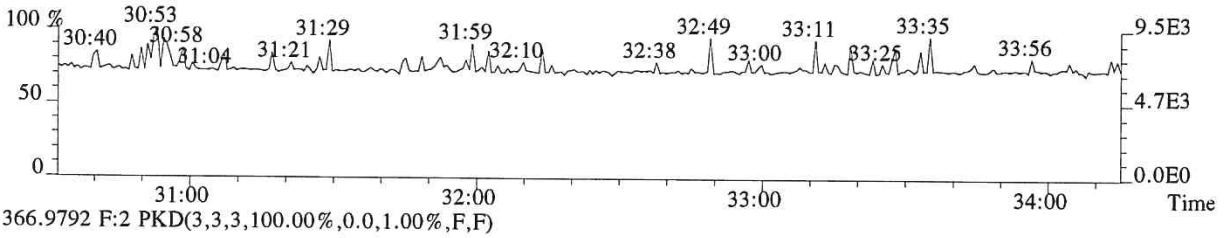
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



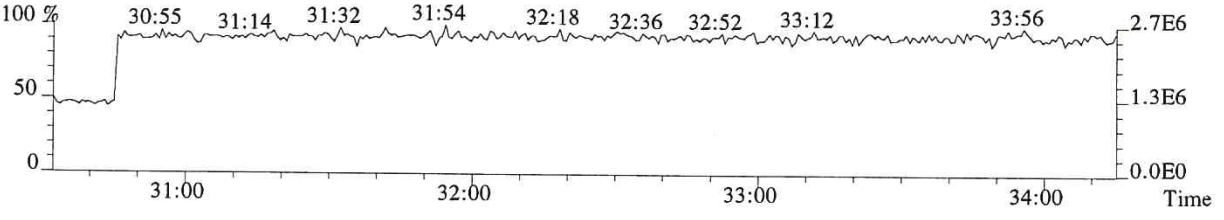
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



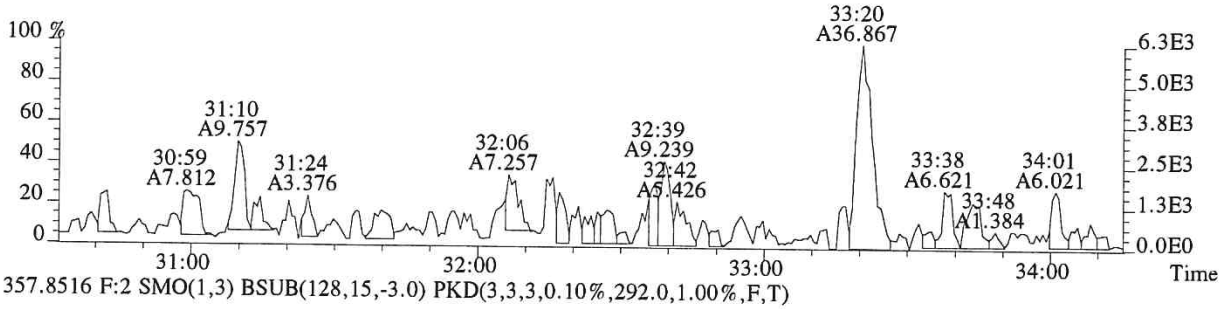
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



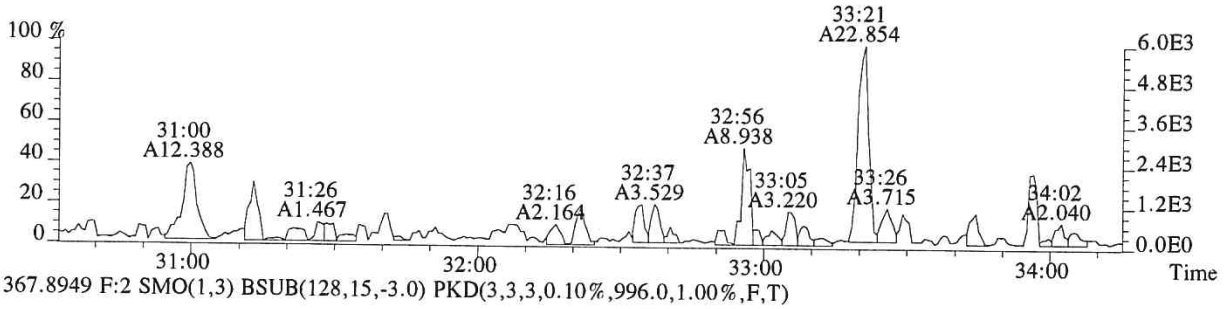
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



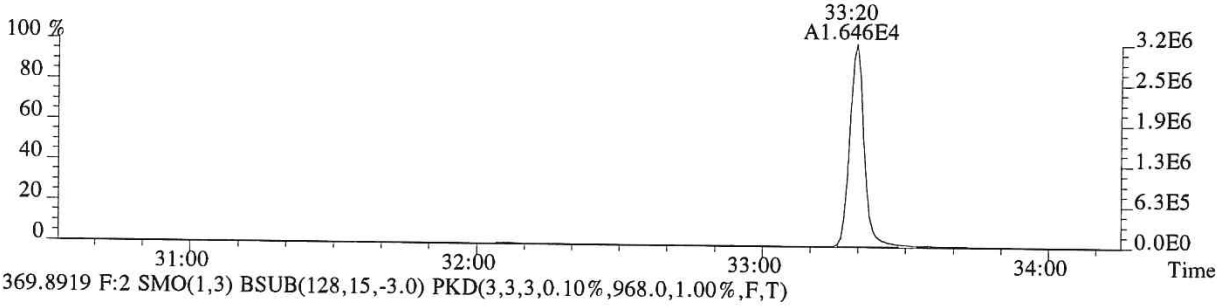
File:P519323 #1-335 Acq:10-DEC-2018 12:00:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-023DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



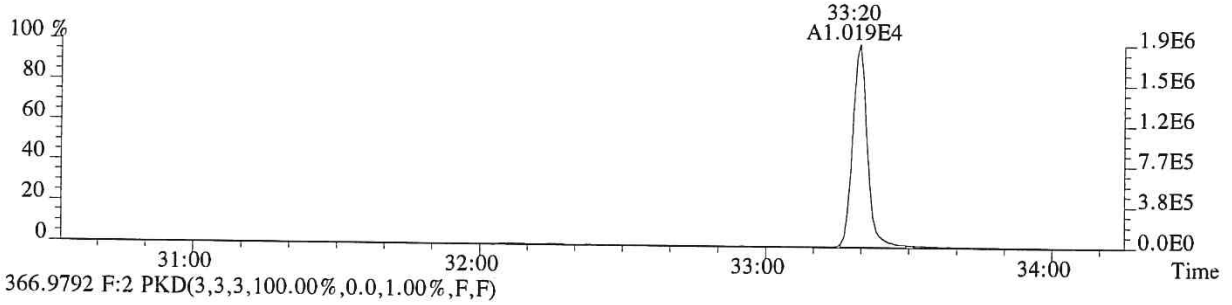
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



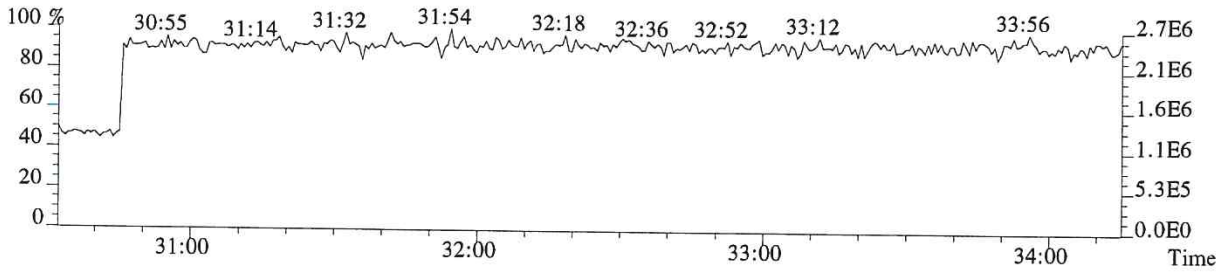
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



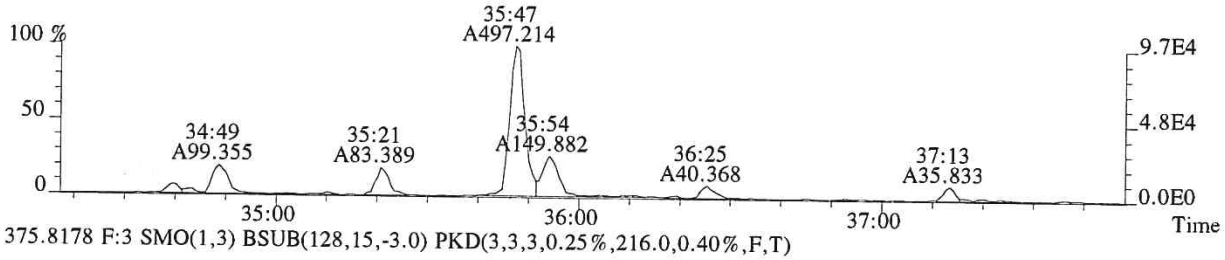
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



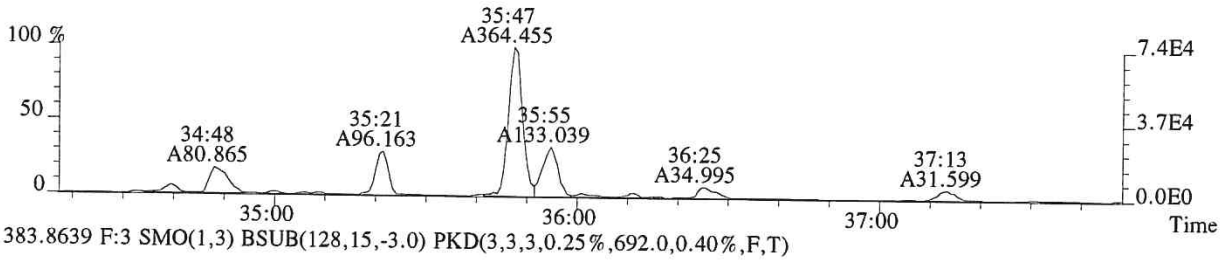
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



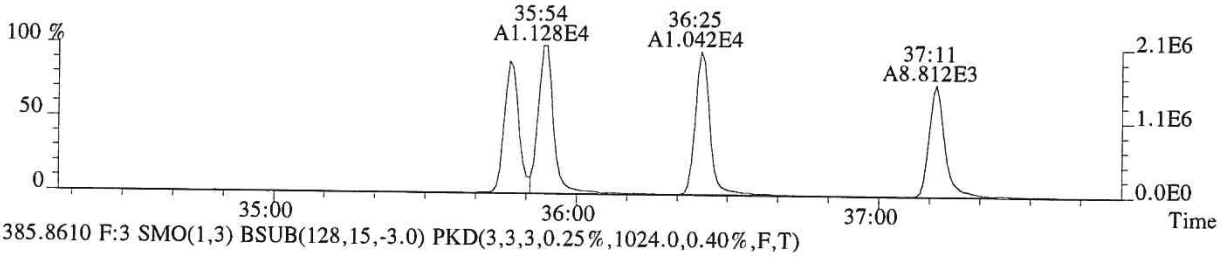
File:P519323 #1-317 Acq:10-DEC-2018 12:00:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-023DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



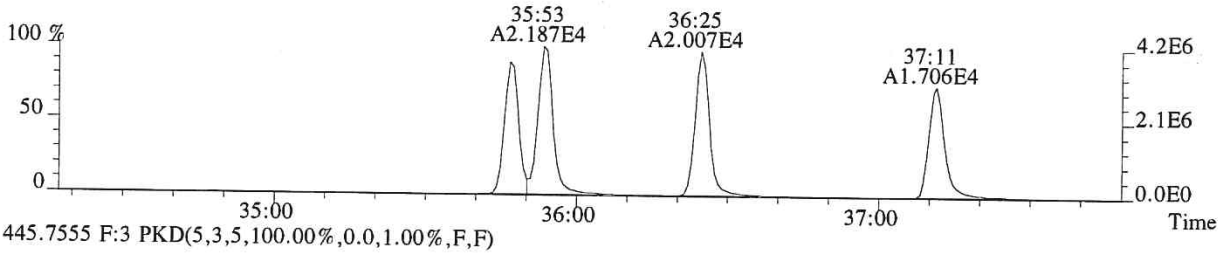
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



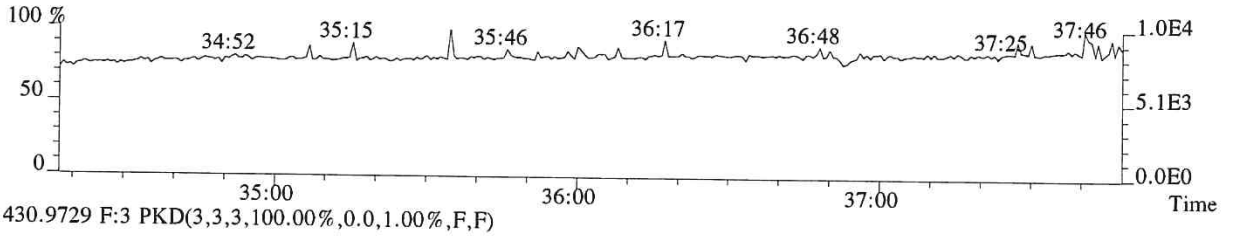
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



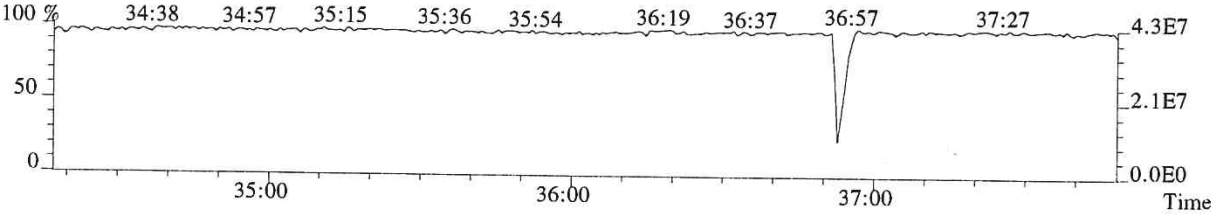
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



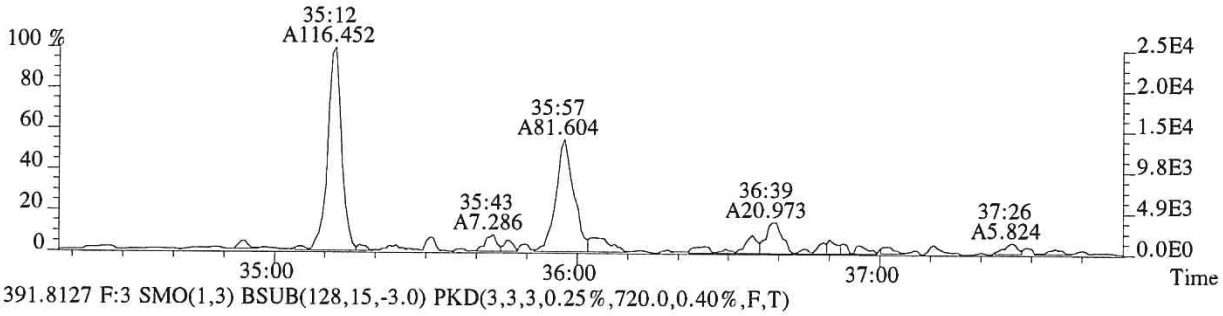
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



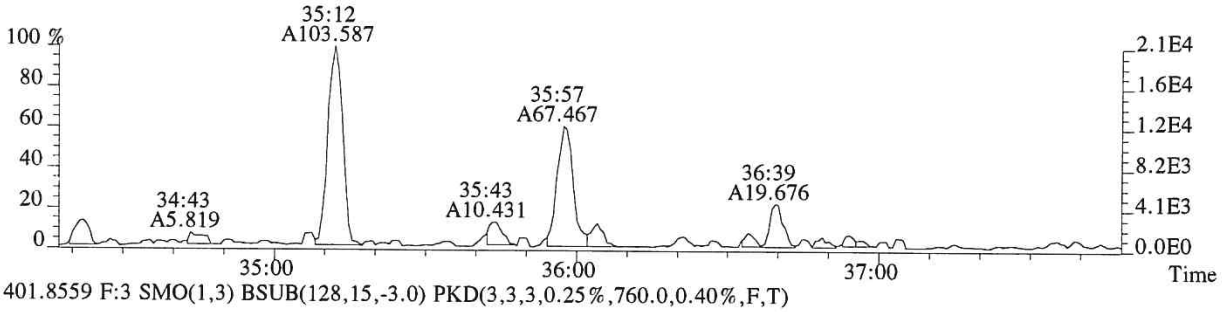
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



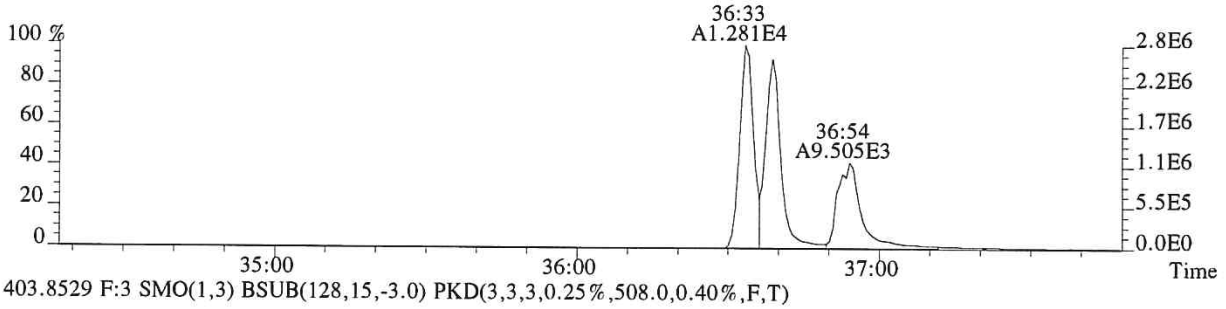
File:P519323 #1-317 Acq:10-DEC-2018 12:00:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-023DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



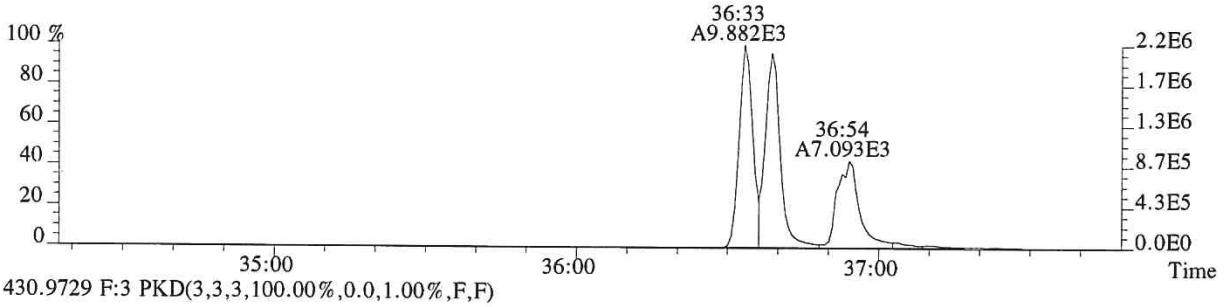
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



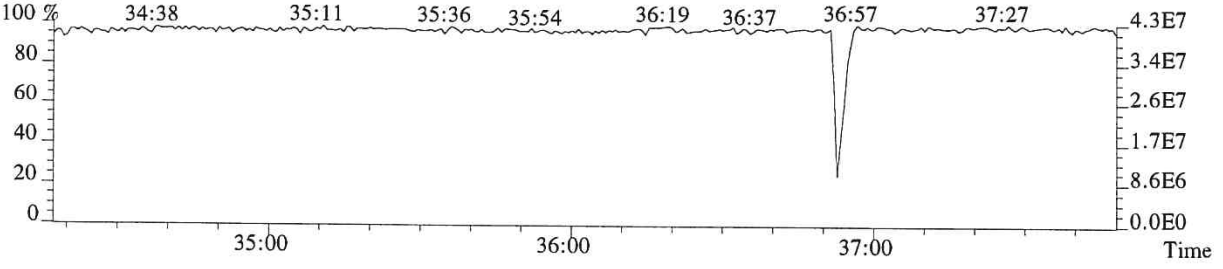
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)

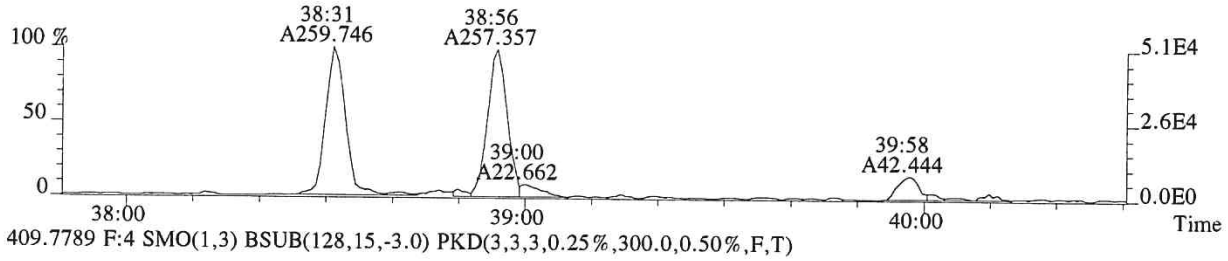


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

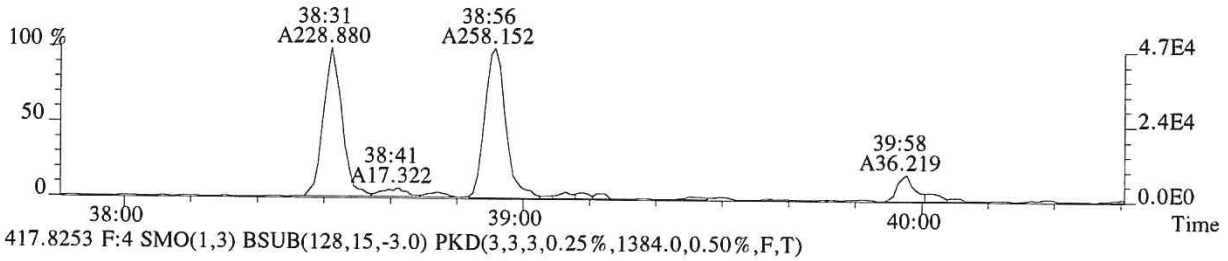


012398

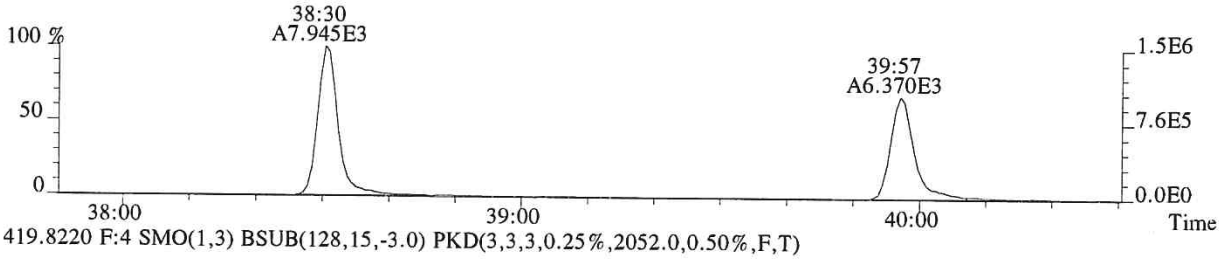
File:P519323 #1-241 Acq:10-DEC-2018 12:00:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-023DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.50%,F,T)



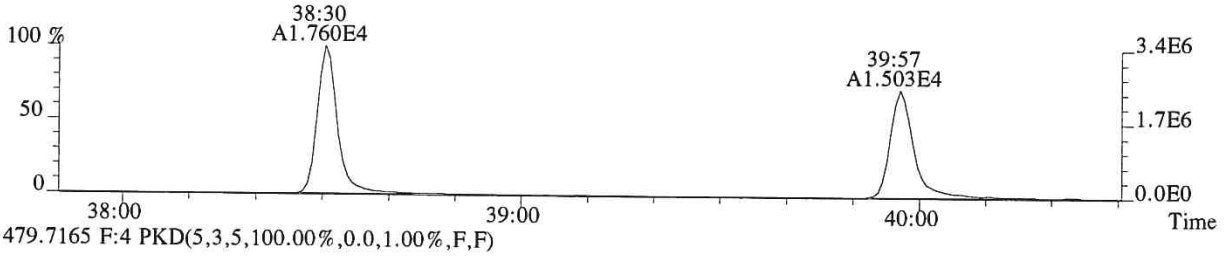
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.50%,F,T)



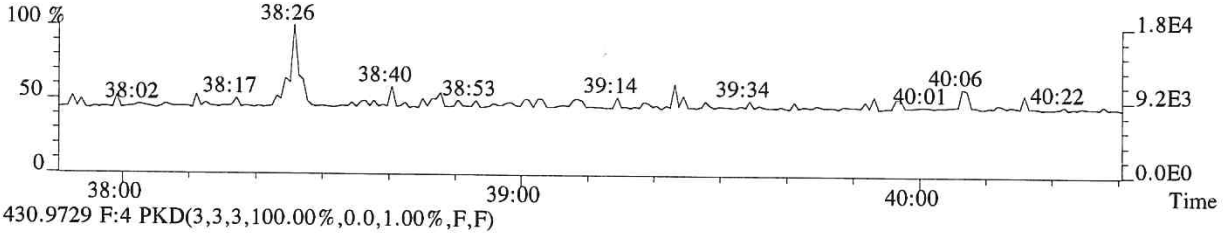
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.50%,F,T)



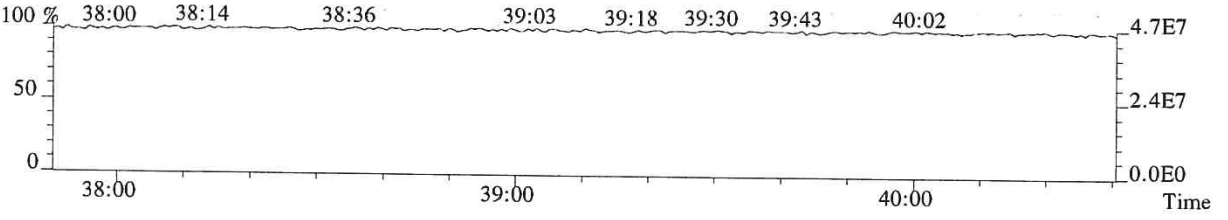
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2052.0,0.50%,F,T)



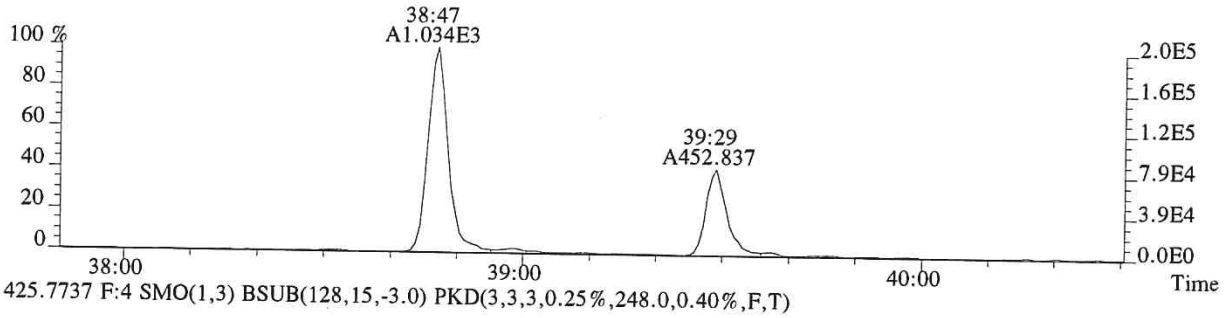
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



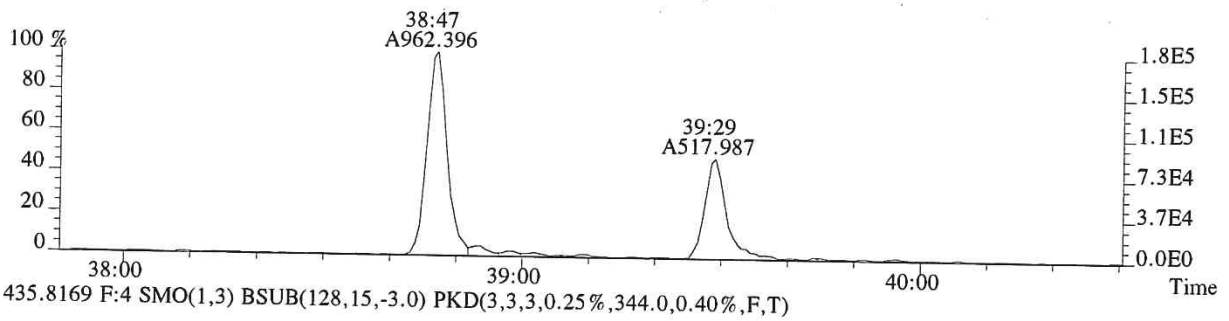
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



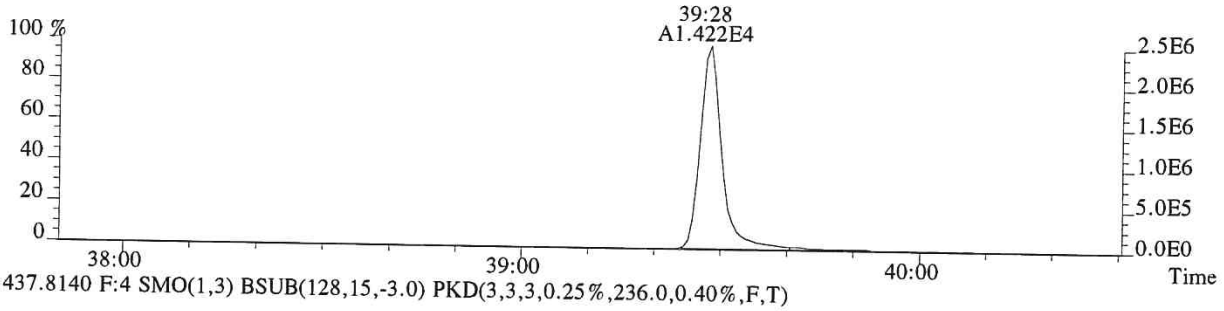
File:P519323 #1-241 Acq:10-DEC-2018 12:00:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-023DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



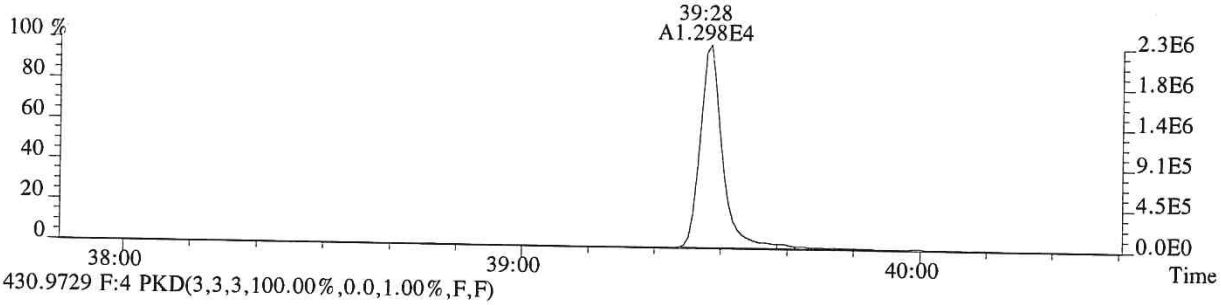
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



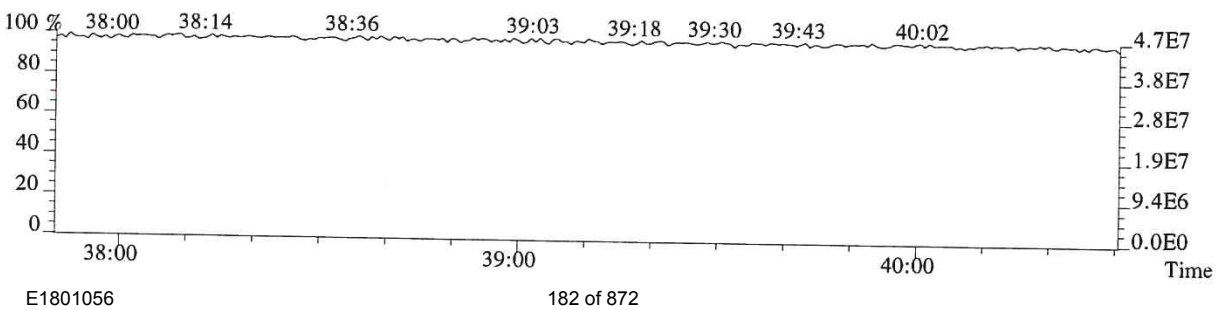
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)

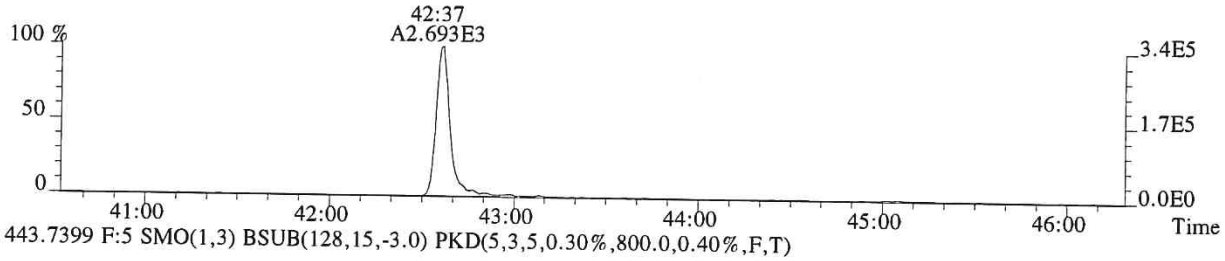


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

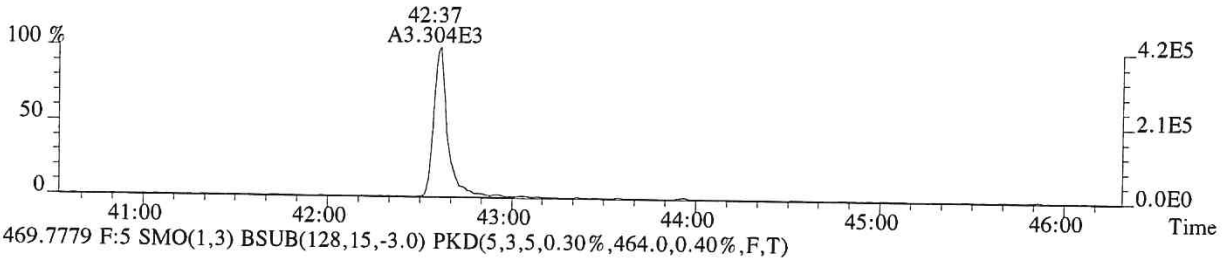


012400

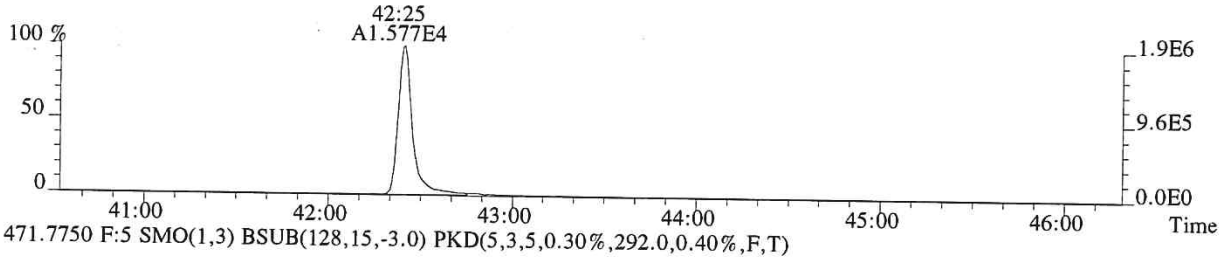
File:P519323 #1-520 Acq:10-DEC-2018 12:00:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-023DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



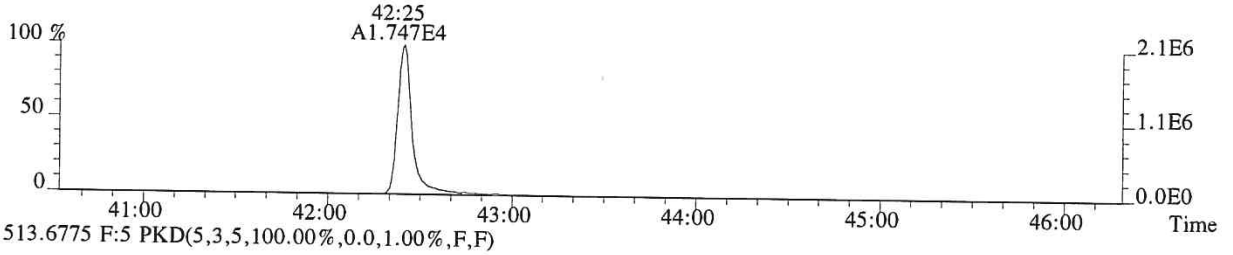
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



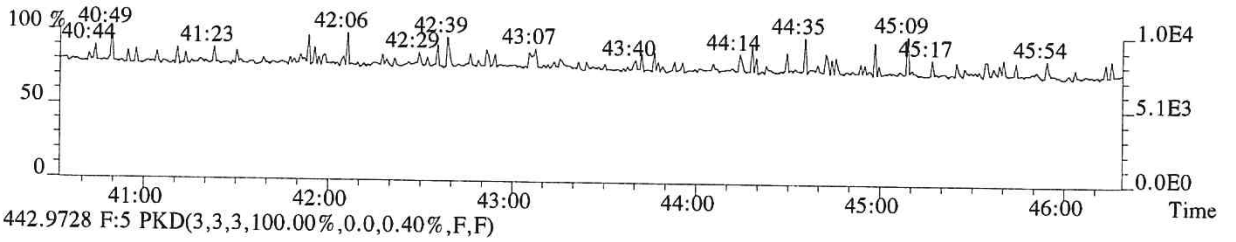
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



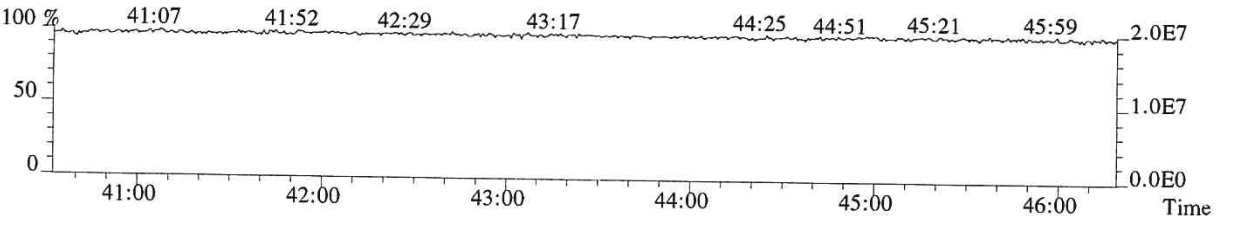
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

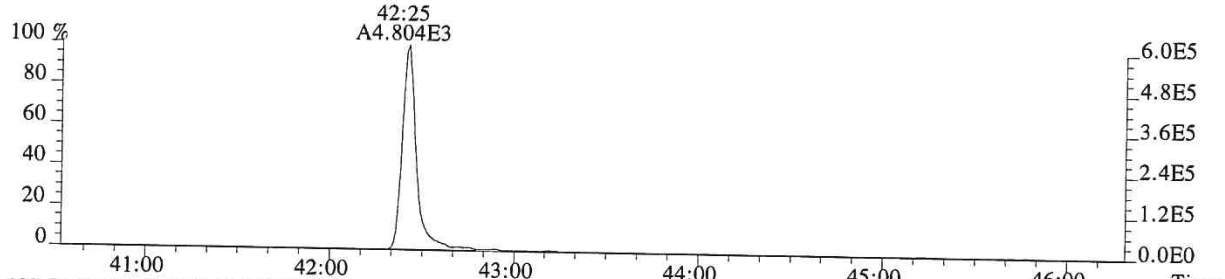


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

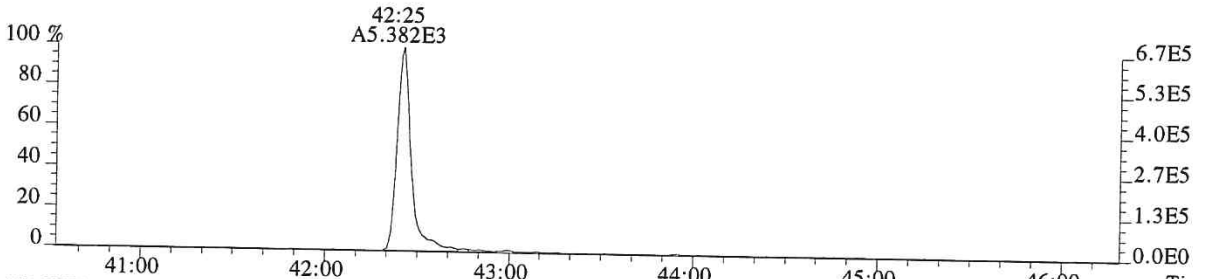


012401

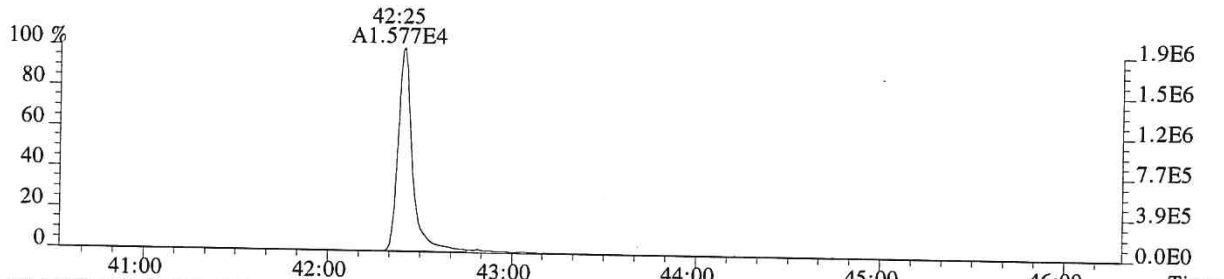
File:P519323 #1-520 Acq:10-DEC-2018 12:00:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-023DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



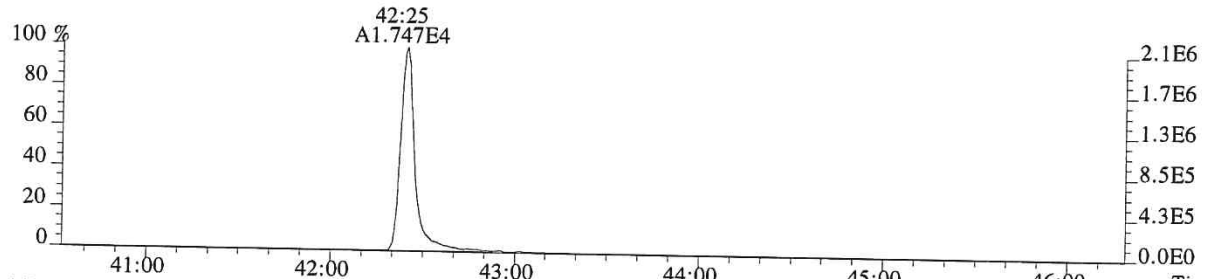
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



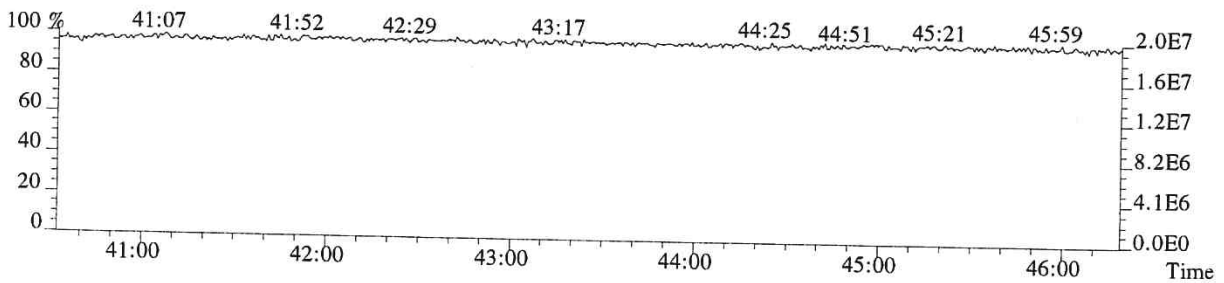
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012402

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0203

Run #18 Filename P615950 Samp: 1 Inj: 1 Acquired: 6-DEC-18 18:59:31
Processed: 10-DEC-18 11:32:10 Sample ID: E1801056-039

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:47	5.673e+05	7.253e+05	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:03	3.476e+04	2.264e+04	1.54	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:59	2.621e+04	1.676e+04	1.56	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:39	4.698e+04	3.863e+04	1.22	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:46	1.153e+04	9.216e+03	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:17	2.456e+03	1.981e+03	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:03	3.210e+03	2.552e+03	1.26	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:15	1.112e+04	1.066e+04	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:36	3.359e+03	3.307e+03	1.02	yes	no	1.463
10	Unk	OCDF	42:02	1.092e+04	1.230e+04	0.89	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:35	1.380e+05	1.737e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:16	2.409e+03	1.372e+03	1.76	yes	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:24	1.134e+02	7.626e+01	1.49	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:29	4.935e+02	4.017e+02	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:45	3.005e+02	1.914e+02	1.57	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:08	1.237e+04	1.190e+04	1.04	yes	no	1.112
17	Unk	OCDD	41:50	1.082e+05	1.223e+05	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:45	3.402e+04	4.373e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:02	4.906e+04	3.041e+04	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:58	4.828e+04	3.075e+04	1.57	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:38	2.121e+04	4.082e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:45	2.320e+04	4.330e+04	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:16	2.166e+04	4.134e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:01	1.966e+04	3.701e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:14	1.329e+04	3.003e+04	0.44	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:35	1.346e+04	2.936e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:34	1.724e+04	2.218e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:14	4.029e+04	2.597e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:24	2.914e+04	2.264e+04	1.29	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:29	2.782e+04	2.179e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:08	2.924e+04	2.785e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:49	2.376e+04	2.561e+04	0.93	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:56	4.672e+04	5.913e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:43	6.086e+04	4.857e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	2.551e+04				no	1.086

$$OCDD = \frac{(1.082e+05 + 1.223e+05) \times 4000\ pg \times 1}{(2.376e+04 + 2.561e+04) \times 10.924\ g \times 77.1 / 100 \times 1.157} = 1916\ ng/kg$$

LW 12/11/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0203

Run #18 Filename P615950 Samp: 1 Inj: 1 Acquired: 6-DEC-18 18:59:31
Processed: 10-DEC-18 11:32:10 LAB. ID: E1801056-039

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.51e+07	4.07e+03	2.3e+04	1.21e+08	2.65e+03	4.6e+04
2	1,2,3,7,8-PeCDF	6.90e+06	3.88e+03	1.8e+03	4.49e+06	2.36e+03	1.9e+03
3	2,3,4,7,8-PeCDF	4.84e+06	3.88e+03	1.2e+03	3.11e+06	2.36e+03	1.3e+03
4	1,2,3,4,7,8-HxCDF	1.01e+07	2.21e+03	4.6e+03	8.29e+06	1.35e+03	6.1e+03
5	1,2,3,6,7,8-HxCDF	2.40e+06	2.21e+03	1.1e+03	1.90e+06	1.35e+03	1.4e+03
6	2,3,4,6,7,8-HxCDF	5.42e+05	2.21e+03	2.5e+02	4.36e+05	1.35e+03	3.2e+02
7	1,2,3,7,8,9-HxCDF	7.61e+05	2.21e+03	3.4e+02	6.25e+05	1.35e+03	4.6e+02
8	1,2,3,4,6,7,8-HpCDF	2.56e+06	2.47e+03	1.0e+03	2.43e+06	2.96e+03	8.2e+02
9	1,2,3,4,7,8,9-HpCDF	7.33e+05	2.47e+03	3.0e+02	7.00e+05	2.96e+03	2.4e+02
10	OCDF	2.03e+06	6.44e+02	3.2e+03	2.32e+06	1.51e+03	1.5e+03
11	2,3,7,8-TCDD	2.74e+07	4.45e+03	6.1e+03	3.47e+07	1.58e+03	2.2e+04
12	1,2,3,7,8-PeCDD	4.21e+05	1.94e+03	2.2e+02	2.34e+05	9.36e+02	2.5e+02
13	1,2,3,4,7,8-HxCDD	2.26e+04	1.56e+03	1.4e+01	1.88e+04	1.78e+03	1.1e+01
14	1,2,3,6,7,8-HxCDD	1.11e+05	1.56e+03	7.1e+01	8.41e+04	1.78e+03	4.7e+01
15	1,2,3,7,8,9-HxCDD	6.13e+04	1.56e+03	3.9e+01	3.97e+04	1.78e+03	2.2e+01
16	1,2,3,4,6,7,8-HpCDD	2.80e+06	1.64e+03	1.7e+03	2.67e+06	1.03e+03	2.6e+03
17	OCDD	2.12e+07	6.16e+02	3.4e+04	2.39e+07	9.88e+02	2.4e+04
18	13C-2,3,7,8-TCDF	5.88e+06	1.24e+04	4.7e+02	7.46e+06	1.43e+04	5.2e+02
19	13C-1,2,3,7,8-PeCDF	1.03e+07	1.62e+03	6.4e+03	6.47e+06	4.32e+03	1.5e+03
20	13C-2,3,4,7,8-PeCDF	9.98e+06	1.62e+03	6.2e+03	6.24e+06	4.32e+03	1.4e+03
21	13C-1,2,3,4,7,8-HxCDF	4.63e+06	1.58e+03	2.9e+03	8.95e+06	1.49e+03	6.0e+03
22	13C-1,2,3,6,7,8-HxCDF	4.78e+06	1.58e+03	3.0e+03	8.85e+06	1.49e+03	5.9e+03
23	13C-2,3,4,6,7,8-HxCDF	4.66e+06	1.58e+03	3.0e+03	8.74e+06	1.49e+03	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	4.90e+06	1.58e+03	3.1e+03	9.26e+06	1.49e+03	6.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.07e+06	2.71e+03	1.1e+03	6.93e+06	2.56e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.87e+06	2.71e+03	1.1e+03	6.35e+06	2.56e+03	2.5e+03
27	13C-2,3,7,8-TCDD	3.32e+06	1.54e+04	2.2e+02	4.31e+06	4.96e+03	8.7e+02
28	13C-1,2,3,7,8-PeCDD	7.72e+06	2.07e+03	3.7e+03	5.04e+06	2.08e+03	2.4e+03
29	13C-1,2,3,4,7,8-HxCDD	6.42e+06	1.91e+03	3.4e+03	5.00e+06	1.36e+03	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	6.33e+06	1.91e+03	3.3e+03	4.98e+06	1.36e+03	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.58e+06	8.40e+02	7.8e+03	6.22e+06	2.36e+02	2.6e+04
32	13C-OCDD	4.71e+06	1.23e+03	3.8e+03	5.04e+06	1.01e+03	5.0e+03
33	13C-1,2,3,4-TCDD	8.85e+06	1.54e+04	5.8e+02	1.12e+07	4.96e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.32e+07	1.91e+03	6.9e+03	1.03e+07	1.36e+03	7.6e+03
35	37Cl-2,3,7,8-TCDD	4.99e+06	2.25e+03	2.2e+03			

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Peak List Summary

CLIENT ID.
SL0203

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P615950 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 18:59:31 Processed: 10-DEC-18 11:32:10

Mass: 303.9020 305.8990 Tot Response: 2.52e+06 RRF: 1.081

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:39	4.47e+03	5.50e+03	0.81	yes	9.97e+03		n	n
2	24:58	2.66e+04	3.38e+04	0.79	yes	6.04e+04		n	n
3	25:23	7.35e+03	9.22e+03	0.80	yes	1.66e+04		n	n
4	25:41	2.13e+04	2.72e+04	0.78	yes	4.86e+04		n	n
5	26:05	5.01e+03	6.75e+03	0.74	yes	1.18e+04		n	n
6	26:24	4.28e+04	5.48e+04	0.78	yes	9.76e+04		n	n
7	26:52	2.86e+05	3.67e+05	0.78	yes	6.54e+05		n	n
8	27:09	1.27e+04	1.68e+04	0.76	yes	2.94e+04		n	n
9	27:40	3.83e+04	5.04e+04	0.76	yes	8.87e+04		n	n
10	27:47	5.67e+05	7.25e+05	0.78	yes	1.29e+06	2,3,7,8-TCDF	n	n
11	28:07	3.75e+04	4.75e+04	0.79	yes	8.50e+04		n	n
12	28:20	6.26e+03	8.50e+03	0.74	yes	1.48e+04		n	n
13	29:37	4.86e+04	6.17e+04	0.79	yes	1.10e+05		n	n

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Peak List Summary

CLIENT ID.
SL0203

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P615950 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 18:59:31 Processed: 10-DEC-18 11:32:10

Mass: 319.8970 321.8940 Tot Response: 3.43e+05 RRF: 1.049

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:33	6.10e+02	6.90e+02	0.88	yes	1.30e+03		n	n
2	28:35	1.38e+05	1.74e+05	0.79	yes	3.12e+05	2,3,7,8-TCDD	n	n
3	28:51	1.33e+04	1.71e+04	0.78	yes	3.04e+04		n	n

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Peak List Summary

CLIENT ID.
SL0203

Entry: 38 Totals Name: Total Penta-Furans1

Run: 18 File: P615950 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 18:59:31 Processed: 10-DEC-18 11:32:10

Mass: 339.8600 341.8570 Tot Response: 2.23e+03 RRF: 1.130

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
.	29:36	1.42e+03	8.14e+02	1.74	yes	2.23e+03	n	n

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Peak List Summary

CLIENT ID.
SL0203

Entry: 39 Totals Name: Total Penta-Furans2

Run: 18 File: P615950 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 18:59:31 Processed: 10-DEC-18 11:32:10

Mass: 339.8600 341.8570 Tot Response: 1.56e+05 RRF: 1.130

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
.	31:02	5.12e+02	3.76e+02 1.36	yes	8.88e+02		n	n
2	31:13	1.72e+04	1.14e+04 1.51	yes	2.86e+04		n	n
3	31:40	3.90e+02	2.44e+02 1.60	yes	6.34e+02		n	n
4	31:44	6.39e+02	4.50e+02 1.42	yes	1.09e+03		n	n
5	31:52	3.27e+03	2.19e+03 1.50	yes	5.46e+03		n	n
6	32:03	3.48e+04	2.26e+04 1.54	yes	5.74e+04	1,2,3,7,8-PeCDF	n	n
7	32:18	1.10e+04	6.82e+03 1.61	yes	1.78e+04		n	n
8	32:52	4.60e+02	2.82e+02 1.63	yes	7.42e+02		n	n
9	32:59	2.62e+04	1.68e+04 1.56	yes	4.30e+04	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0203

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P615950 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 18:59:31 Processed: 10-DEC-18 11:32:10

Mass: 355.8550 357.8520 Tot Response: 6.19e+03 RRF: 0.9288

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:15	3.16e+02	2.25e+02	1.40	yes	5.40e+02		n	n
2	31:37	3.45e+02	2.14e+02	1.61	yes	5.59e+02		n	n
3	32:03	2.72e+02	2.04e+02	1.33	yes	4.76e+02		n	n
4	32:13	1.84e+02	1.14e+02	1.61	yes	2.98e+02		n	n
5	32:18	1.21e+02	7.92e+01	1.53	yes	2.00e+02		n	n
6	32:31	2.06e+02	1.26e+02	1.63	yes	3.32e+02		n	n
7	33:16	2.41e+03	1.37e+03	1.76	yes	3.78e+03	1,2,3,7,8-PeCDD	n	y

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CLIENT ID.
SL0203

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P615950 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 18:59:31 Processed: 10-DEC-18 11:32:10

Mass: 373.8210 375.8180 Tot Response: 1.30e+05 RRF: 1.324

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:33	4.75e+02	3.69e+02	1.29	yes	8.44e+02		n	n
2	34:41	3.90e+03	3.19e+03	1.22	yes	7.09e+03		n	n
3	35:13	2.91e+03	2.27e+03	1.28	yes	5.18e+03		n	n
4	35:39	4.70e+04	3.86e+04	1.22	yes	8.56e+04	1,2,3,4,7,8-HxCDF	n	n
5	35:46	1.15e+04	9.22e+03	1.25	yes	2.07e+04	1,2,3,6,7,8-HxCDF	n	n
6	36:17	2.46e+03	1.98e+03	1.24	yes	4.44e+03	2,3,4,6,7,8-HxCDF	n	n
7	37:03	3.21e+03	2.55e+03	1.26	yes	5.76e+03	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0203

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P615950 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 18:59:31 Processed: 10-DEC-18 11:32:10

Mass: 389.8160 391.8130 Tot Response: 1.11e+04 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:03	4.09e+03	3.18e+03 1.29	yes	7.27e+03		n	n
2	35:48	1.61e+03	1.22e+03 1.32	yes	2.84e+03		n	n
3	36:29	4.93e+02	4.02e+02 1.23	yes	8.95e+02	1,2,3,6,7,8-HxCDD	n	n
4	36:39	6.42e+01	5.88e+01 1.09	yes	1.23e+02		n	n

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Peak List Summary

CLIENT ID.
SL0203

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P615950 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 18:59:31 Processed: 10-DEC-18 11:32:10

Mass: 407.7820 409.7790 Tot Response: 4.06e+04 RRF: 1.495

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	38:15	1.11e+04	1.07e+04 1.04	yes	2.18e+04	1,2,3,4,6,7,8-HpCDF	n	n
	38:38	6.11e+03	6.05e+03 1.01	yes	1.22e+04		n	n
	39:36	3.36e+03	3.31e+03 1.02	yes	6.67e+03	1,2,3,4,7,8,9-HpCDF	n	n

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SL0203

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P615950 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 18:59:31 Processed: 10-DEC-18 11:32:10

Mass: 423.7770 425.7740 Tot Response: 5.79e+04 RRF: 1.112

	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	38:29	1.71e+04	1.03	yes	3.36e+04		n	n
	39:08	1.24e+04	1.04	yes	2.43e+04	1,2,3,4,6,7,8-HpCDD	n	n

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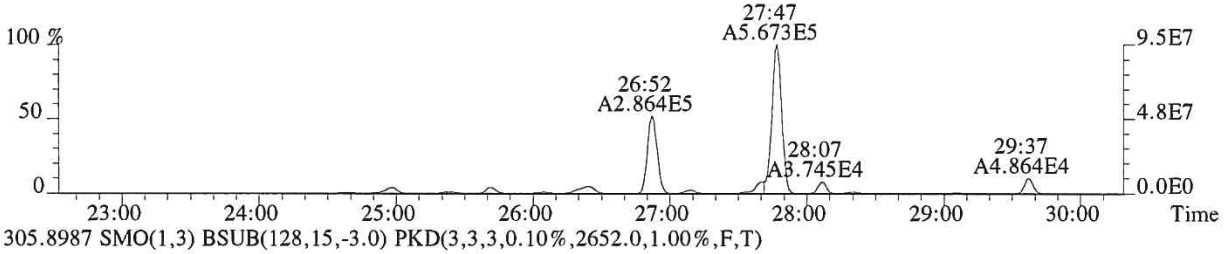
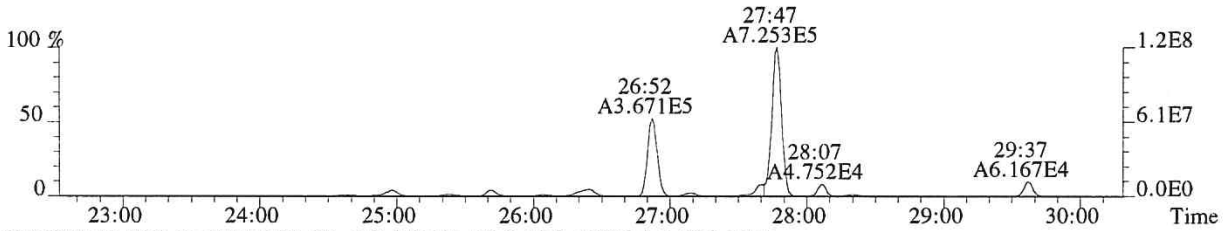
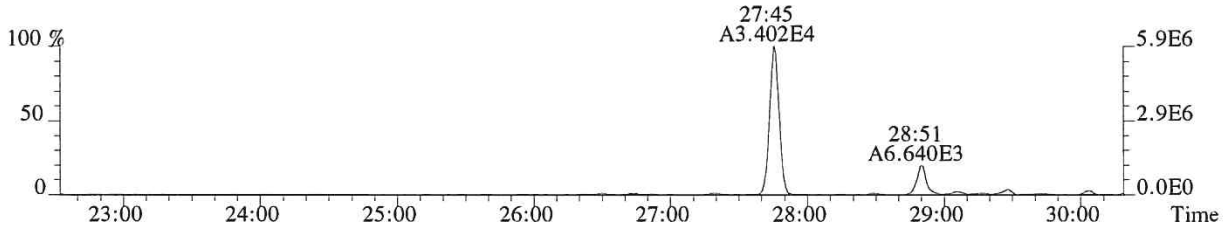
File:P615950 #1-552 Acq: 6-DEC-2018 18:59:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4068.0,1.00%,F,T)



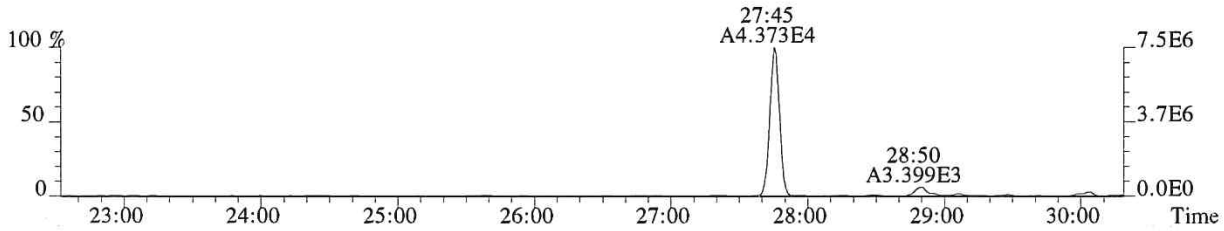
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2652.0,1.00%,F,T)



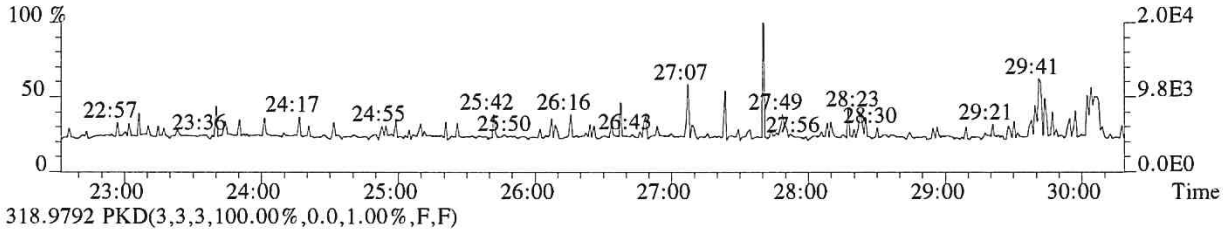
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12396.0,1.00%,F,T)



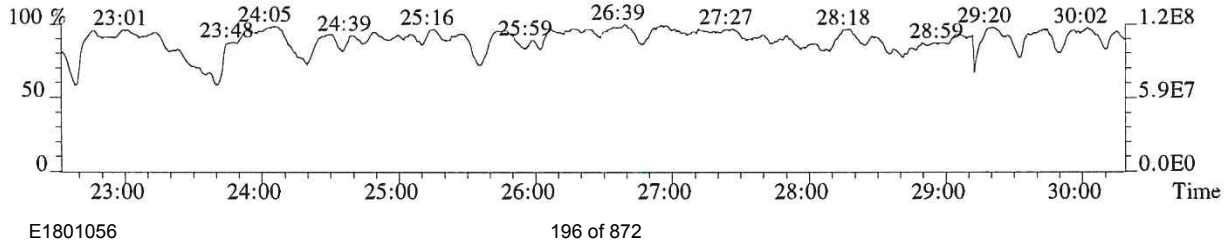
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14280.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

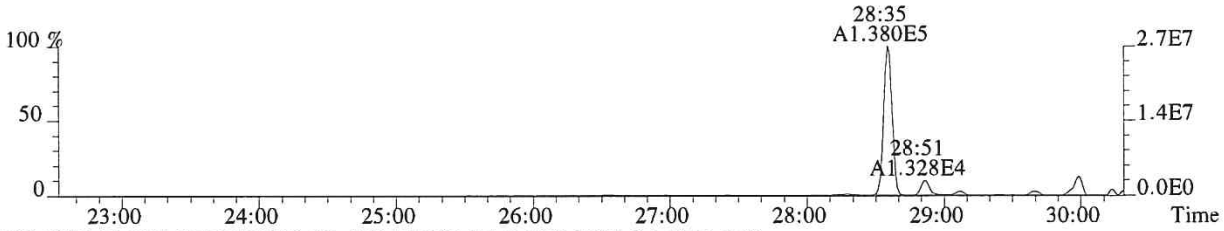


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

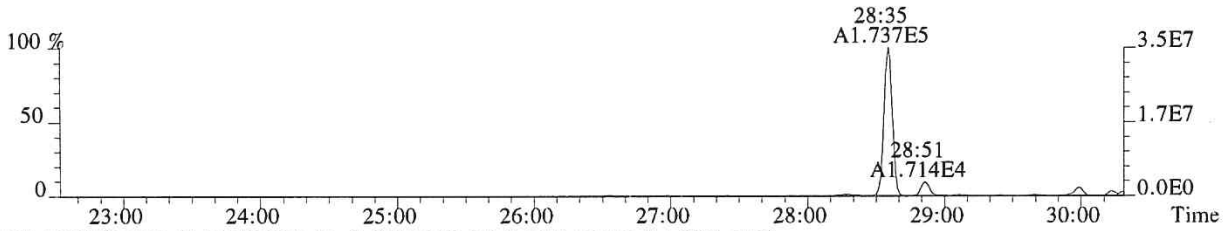


012414

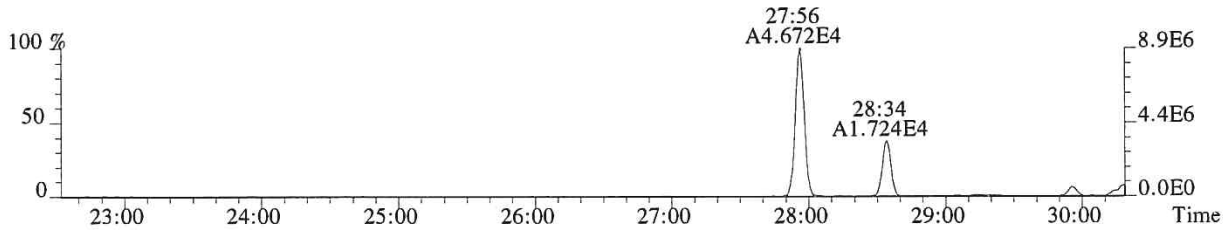
File:P615950 #1-552 Acq: 6-DEC-2018 18:59:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4448.0,1.00%,F,T)



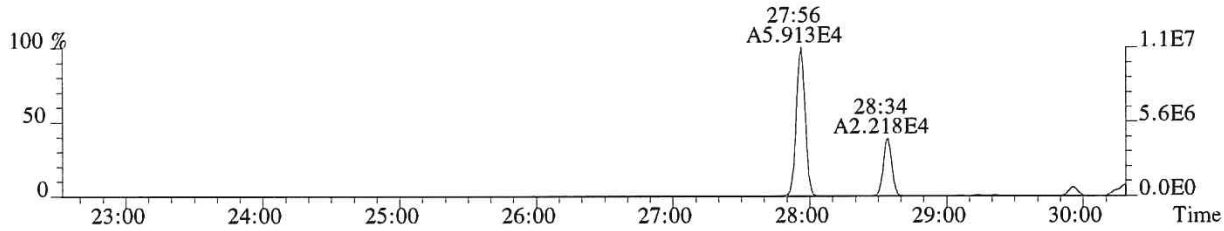
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1584.0,1.00%,F,T)



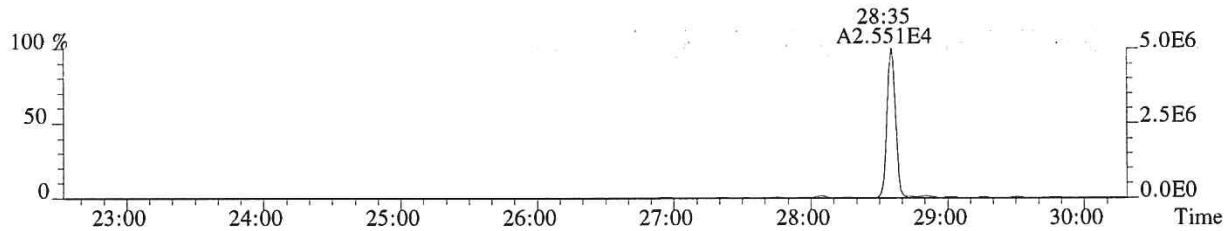
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15376.0,1.00%,F,T)



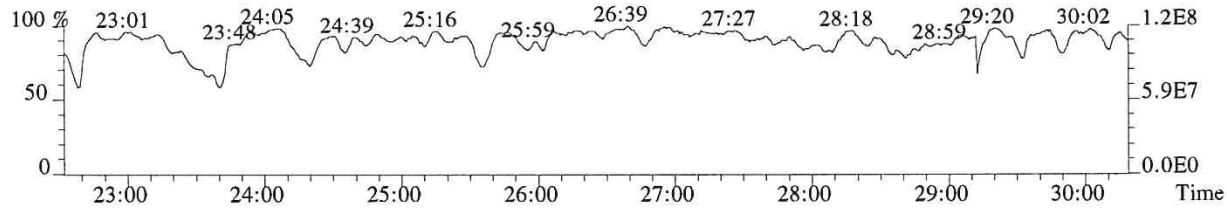
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4956.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2252.0,1.00%,F,T)

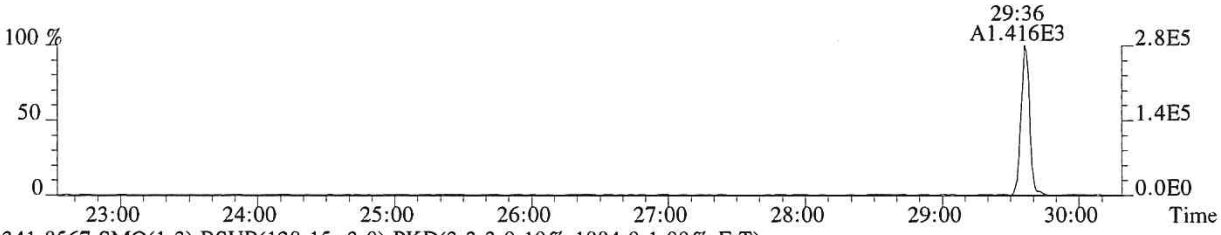


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

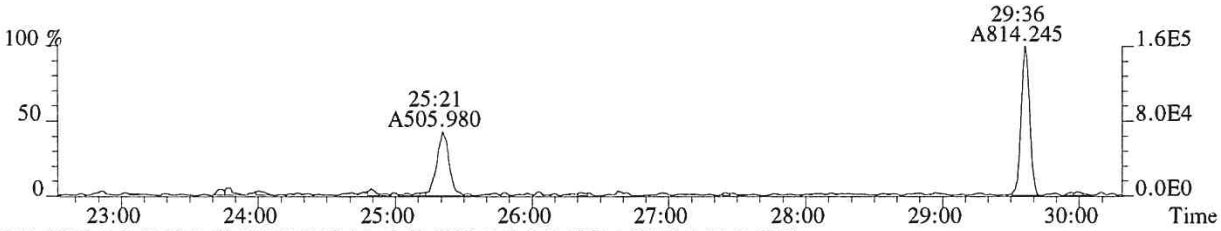


012415

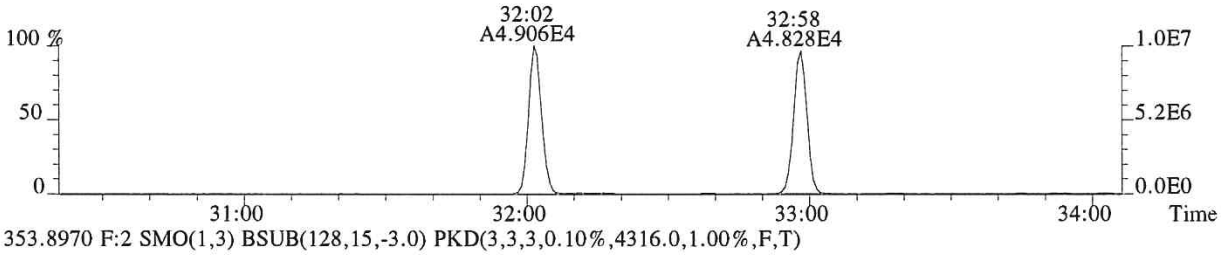
File:P615950 #1-552 Acq: 6-DEC-2018 18:59:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



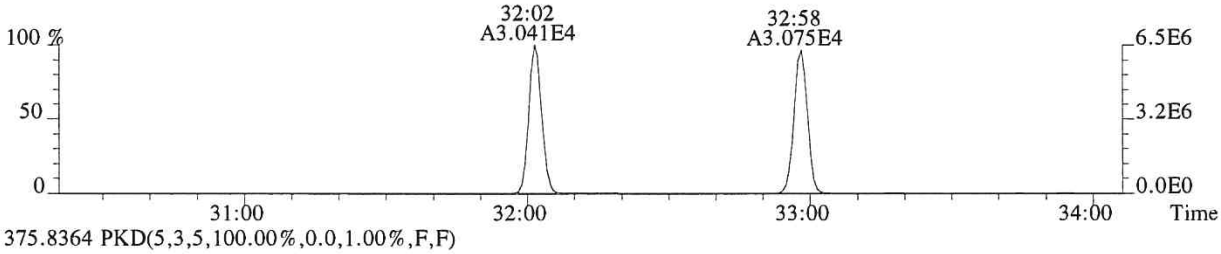
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



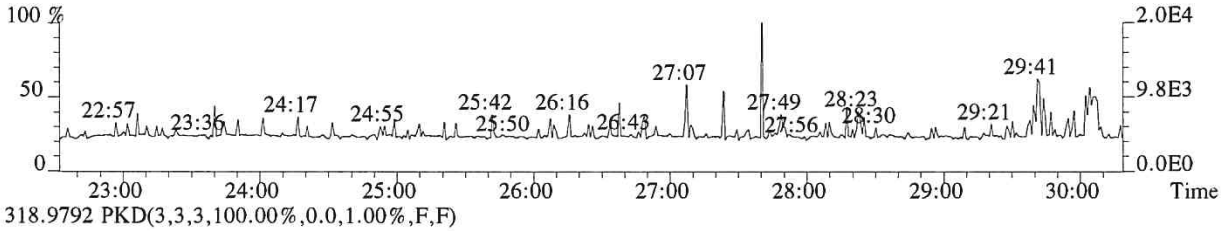
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1620.0,1.00%,F,T)



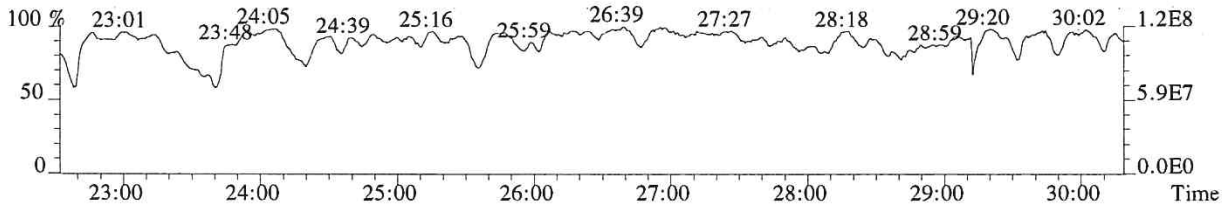
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

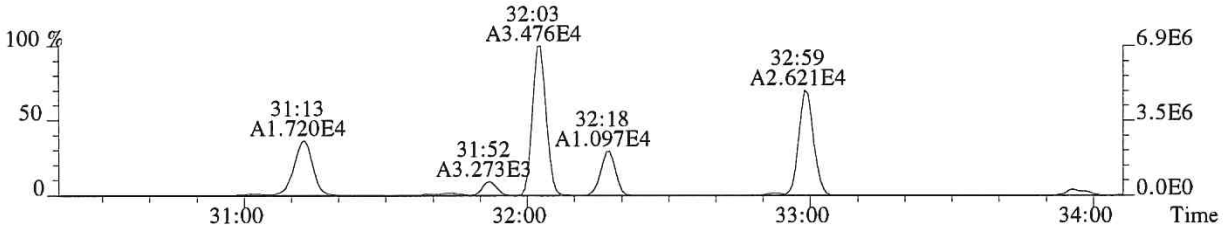


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

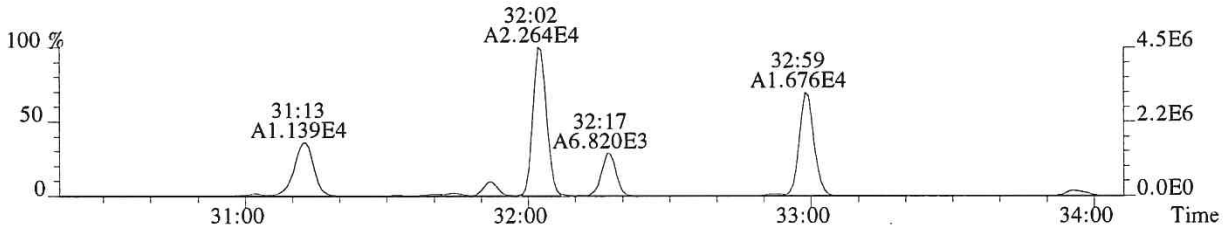


012416

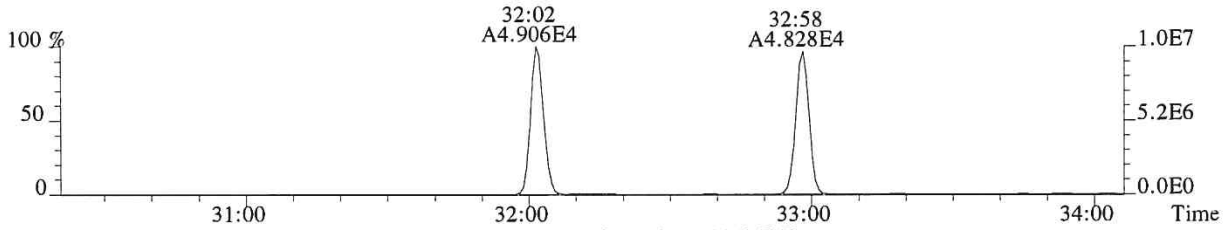
File:P615950 #1-339 Acq: 6-DEC-2018 18:59:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3880.0,1.00%,F,T)



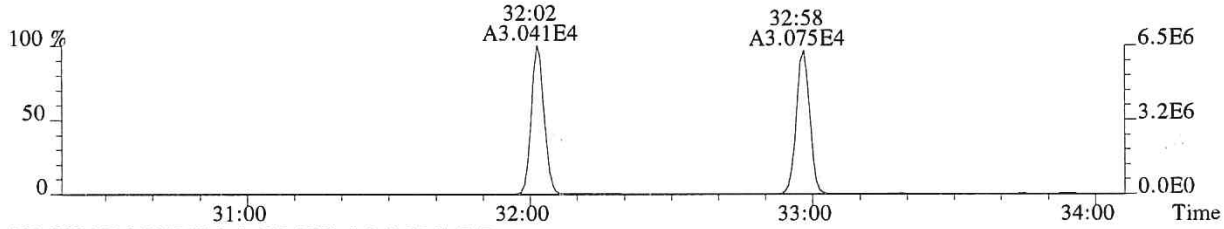
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2360.0,1.00%,F,T)



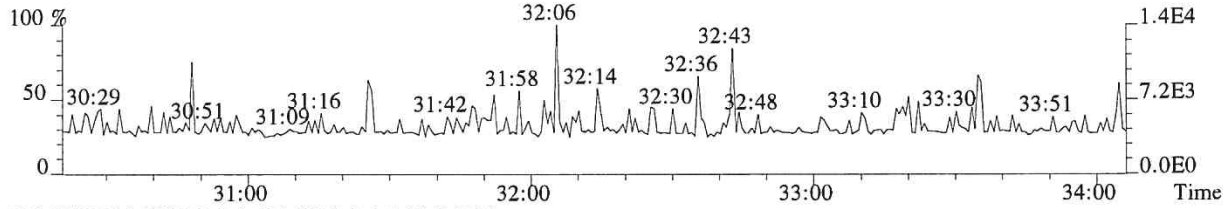
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1620.0,1.00%,F,T)



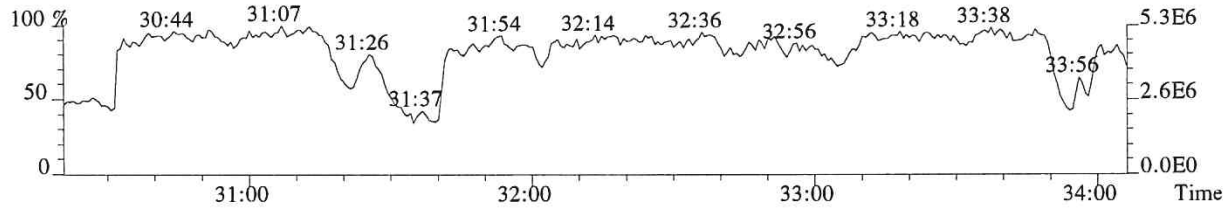
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

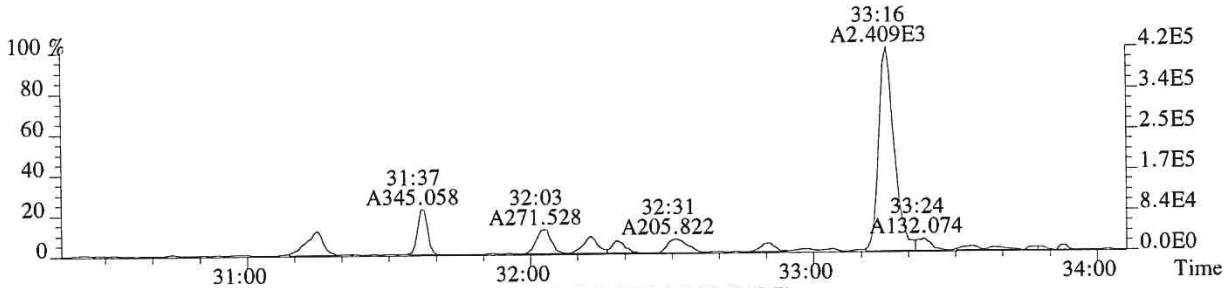


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

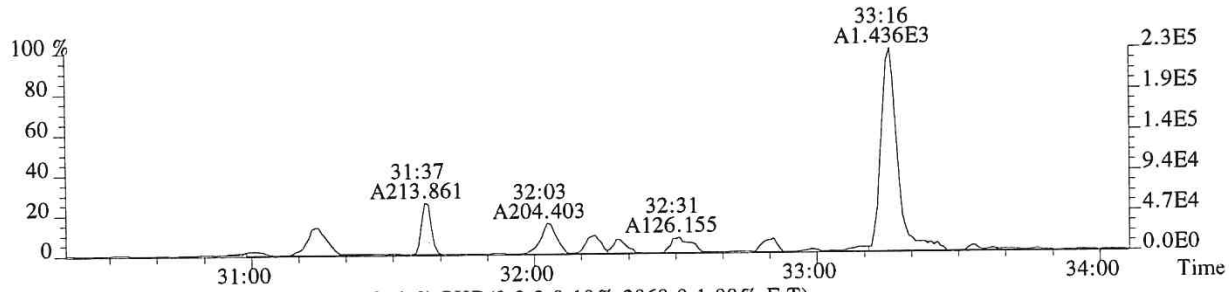


012417

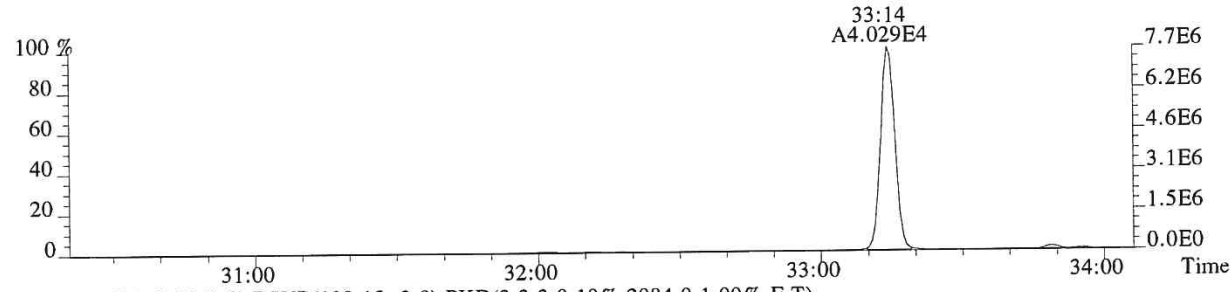
File:P615950 #1-339 Acq: 6-DEC-2018 18:59:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



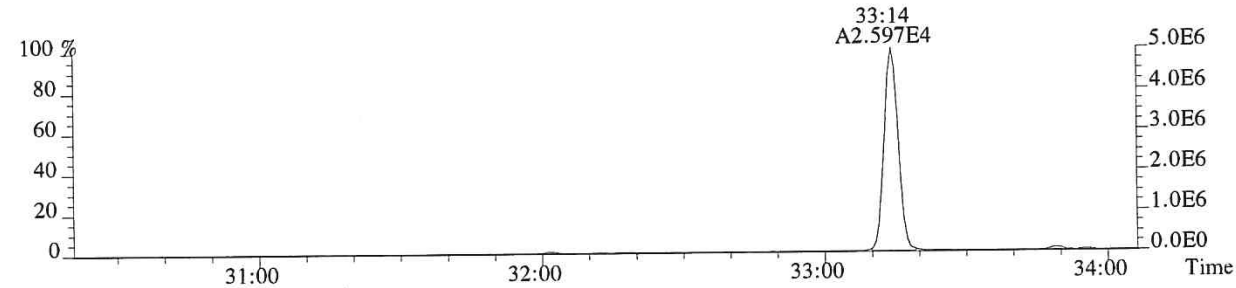
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



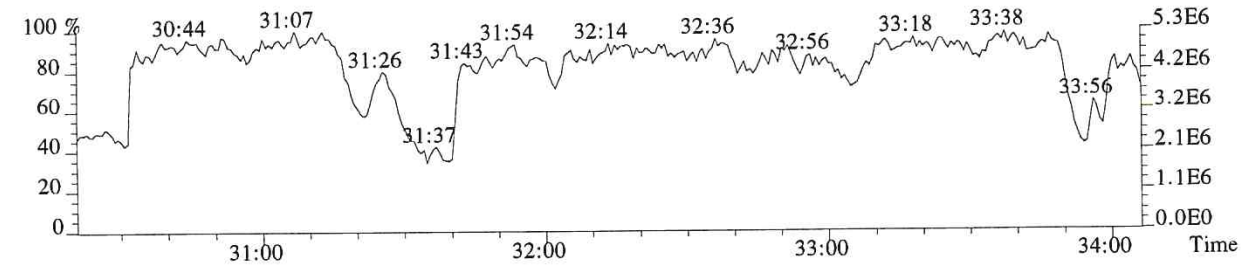
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2068.0,1.00%,F,T)



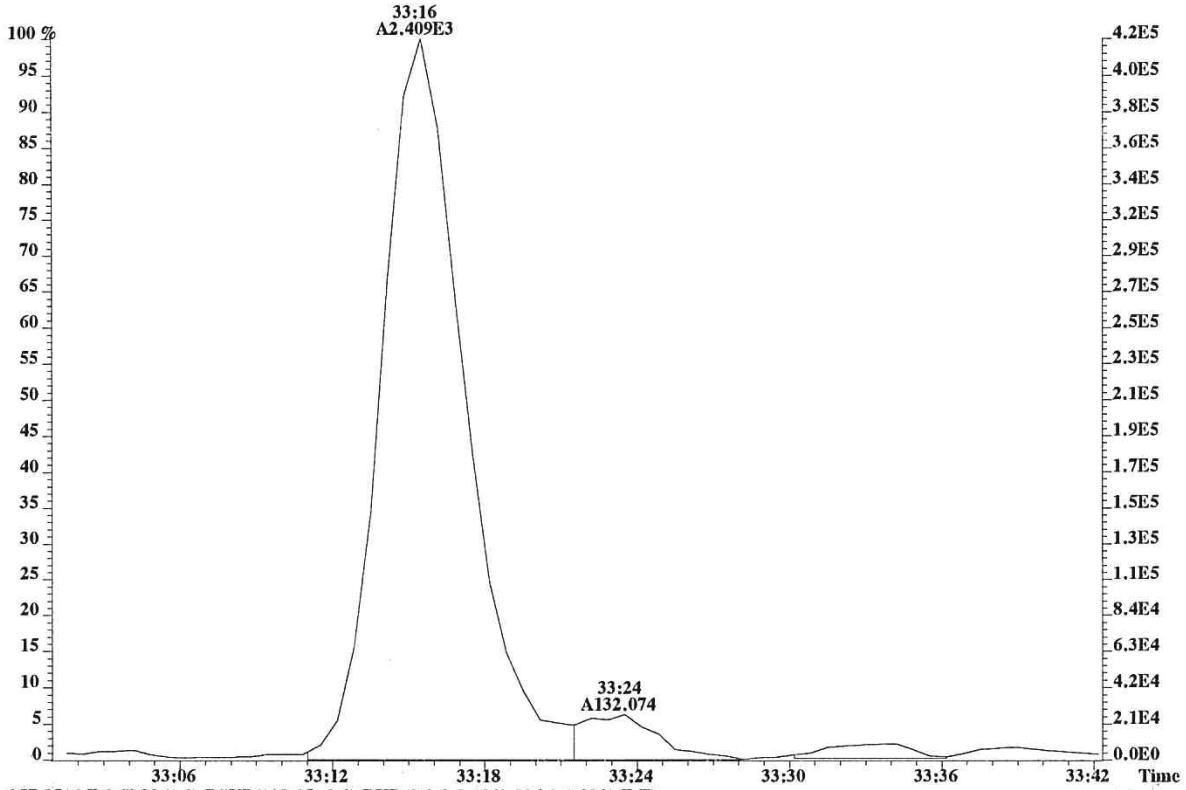
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2084.0,1.00%,F,T)



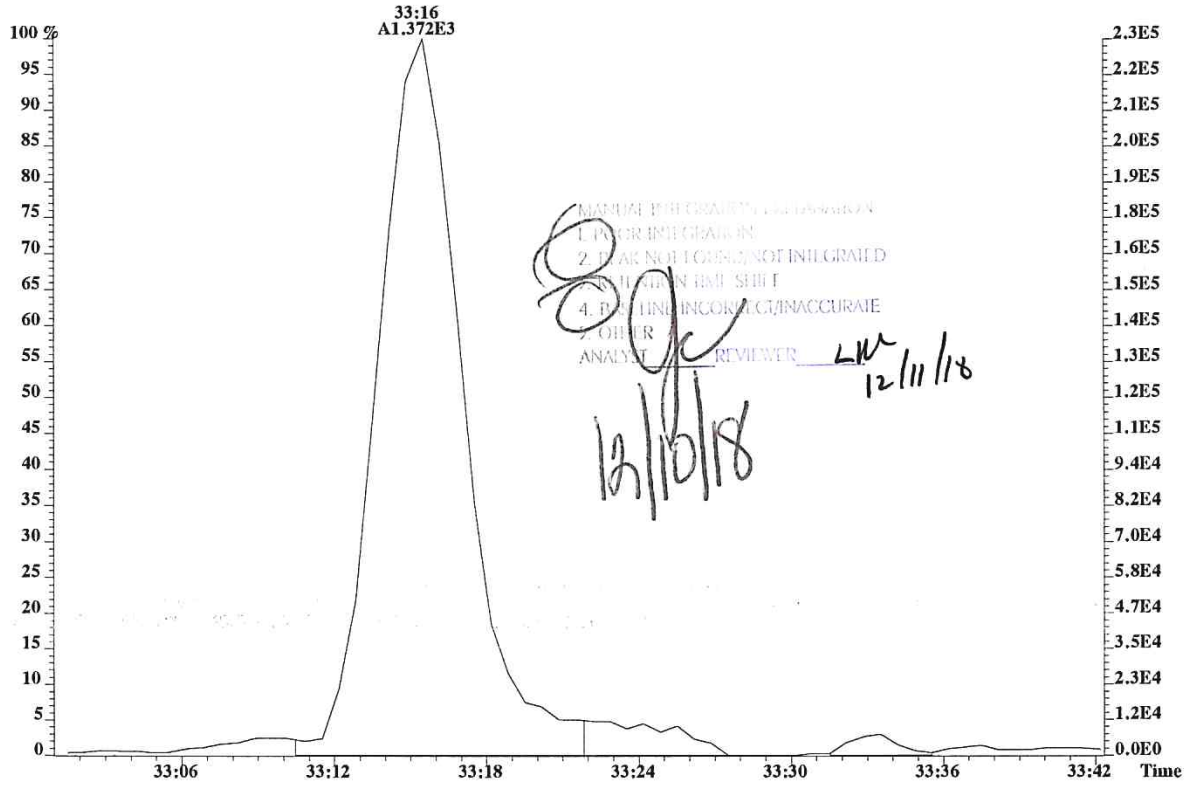
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615950 #1-339 Acq: 6-DEC-2018 18:59:31 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:E1801056-039
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)

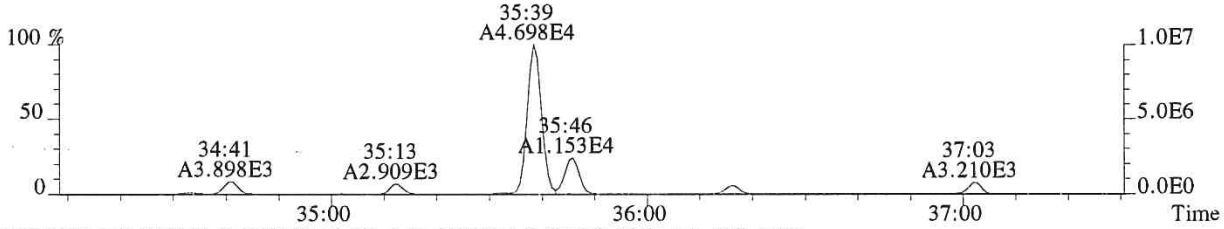


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)

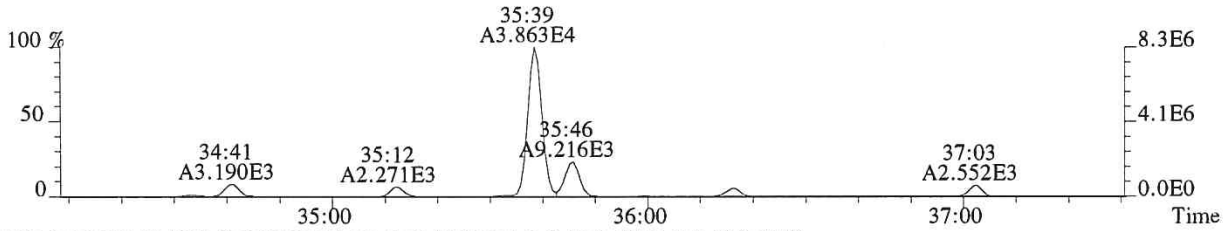


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. PEAK TIME INCORRECT/INACCURATE
5. OTHER
ANALYST JC REVIEWER LW 12/11/18
12/10/18

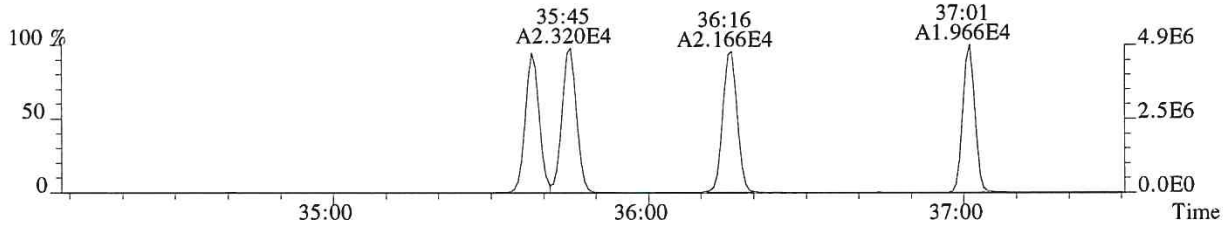
File:P615950 #1-304 Acq: 6-DEC-2018 18:59:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2208.0,0.40%,F,T)



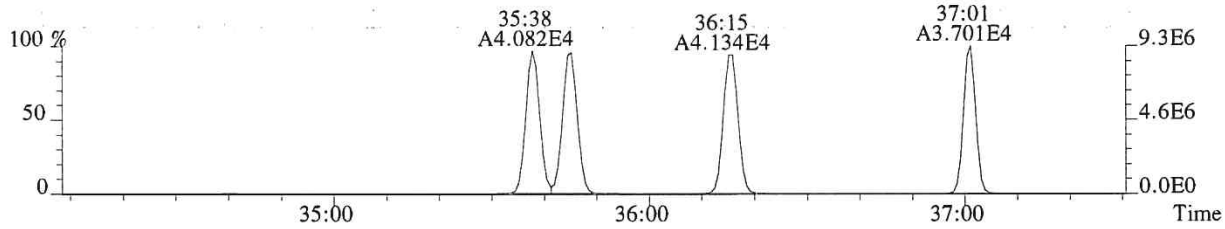
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1352.0,0.40%,F,T)



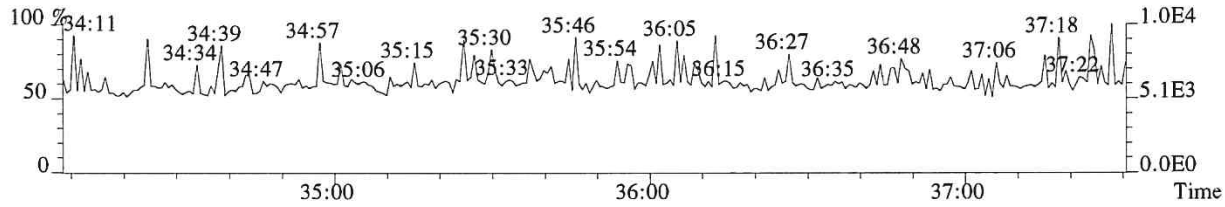
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



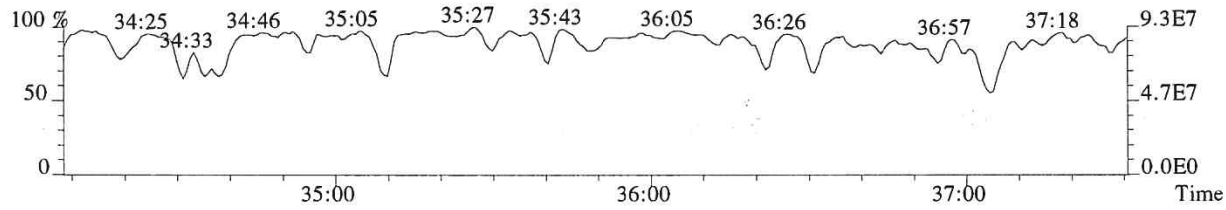
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1492.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

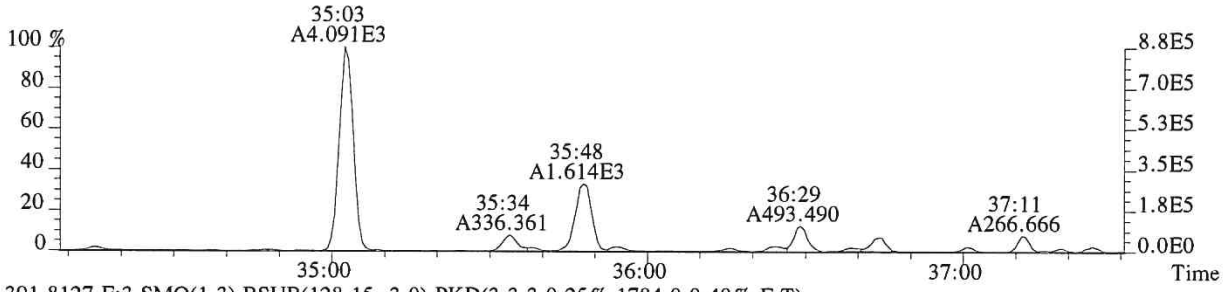


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

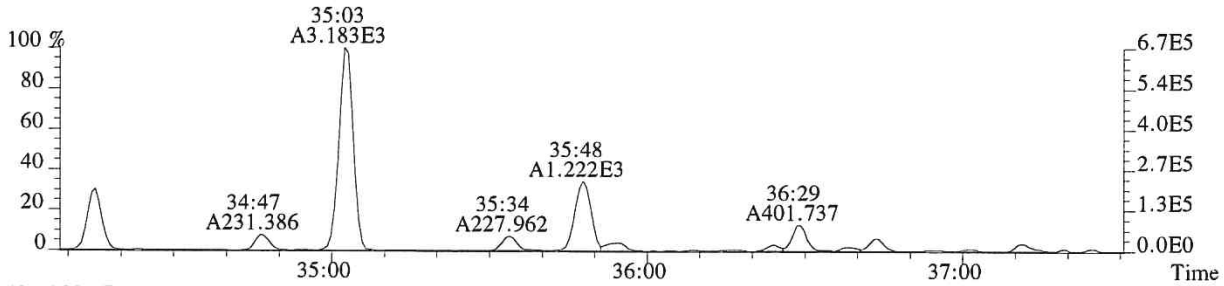


012420

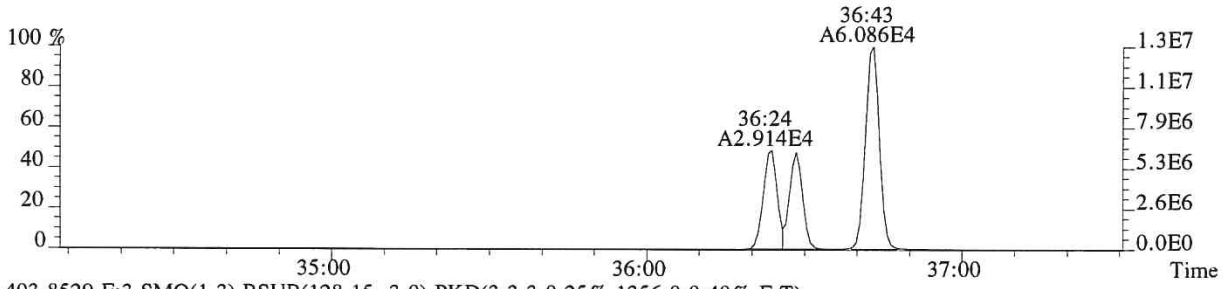
File:P615950 #1-304 Acq: 6-DEC-2018 18:59:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.40%,F,T)



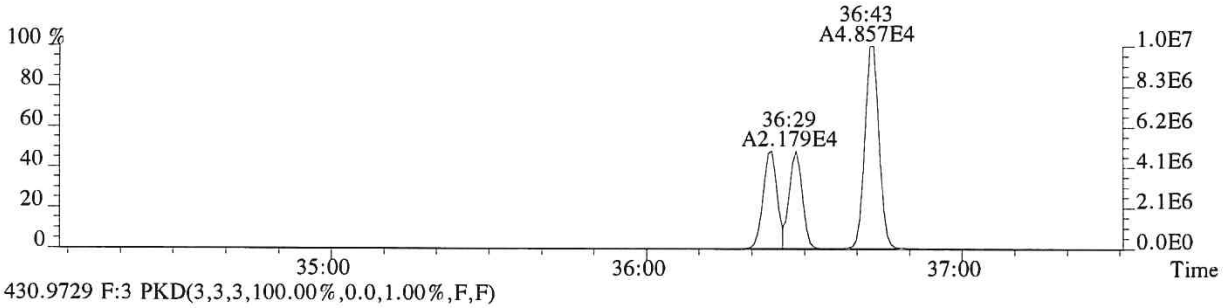
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1784.0,0.40%,F,T)



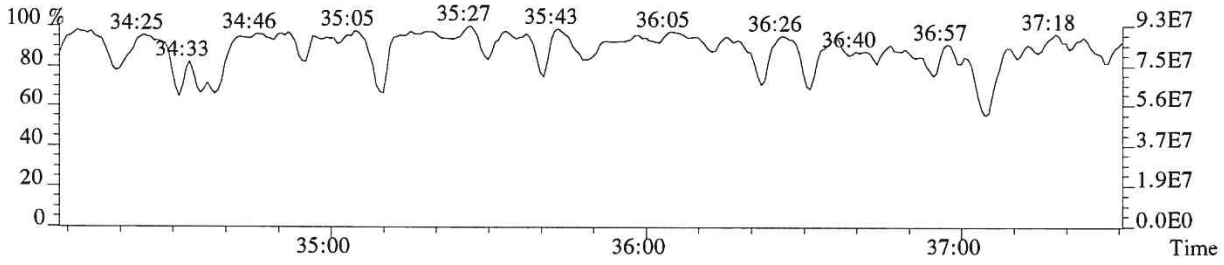
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1908.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1356.0,0.40%,F,T)

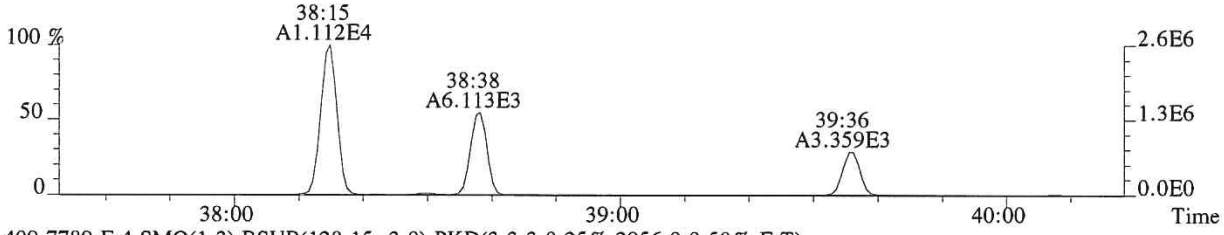


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

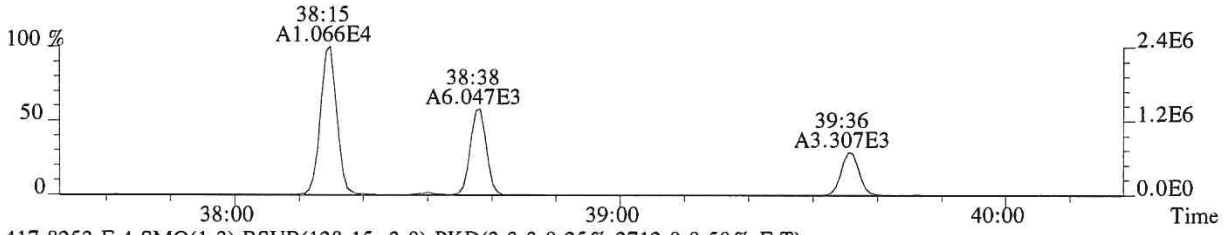


012421

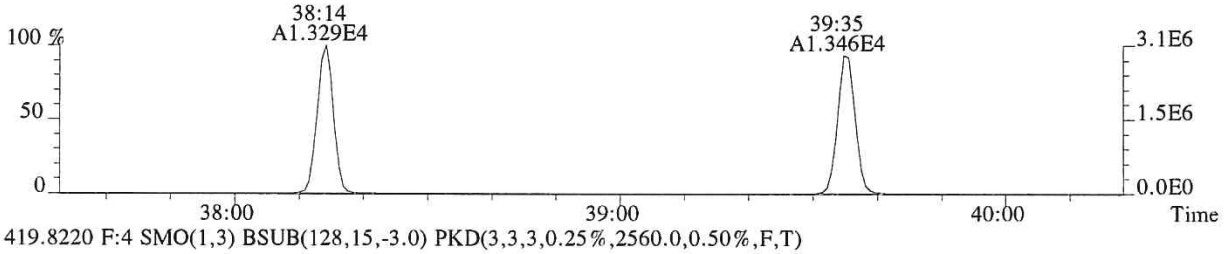
File:P615950 #1-249 Acq: 6-DEC-2018 18:59:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2468.0,0.50%,F,T)



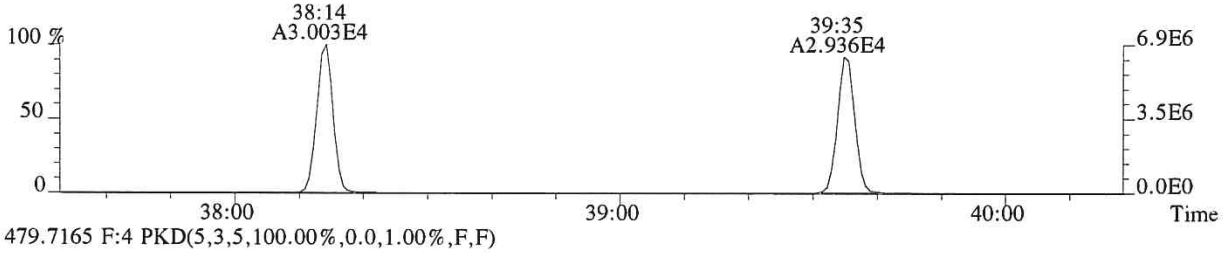
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2956.0,0.50%,F,T)



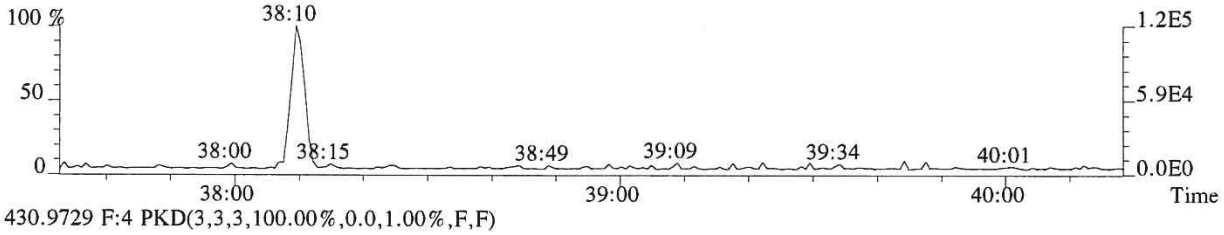
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2712.0,0.50%,F,T)



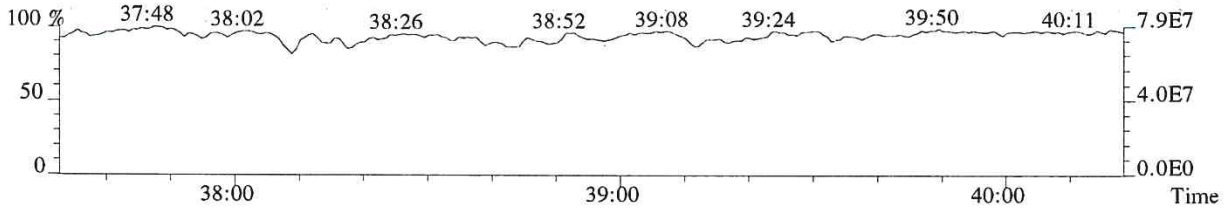
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2560.0,0.50%,F,T)



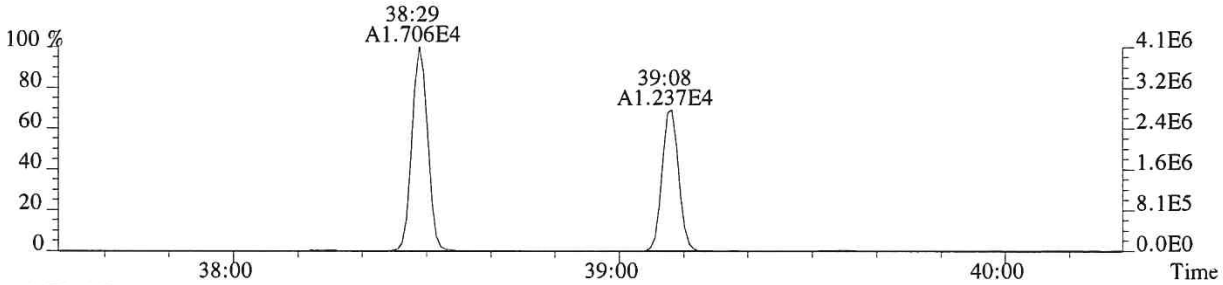
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



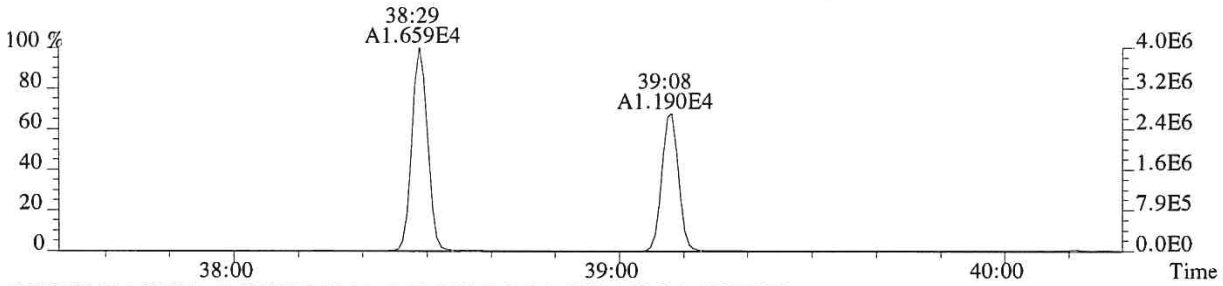
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



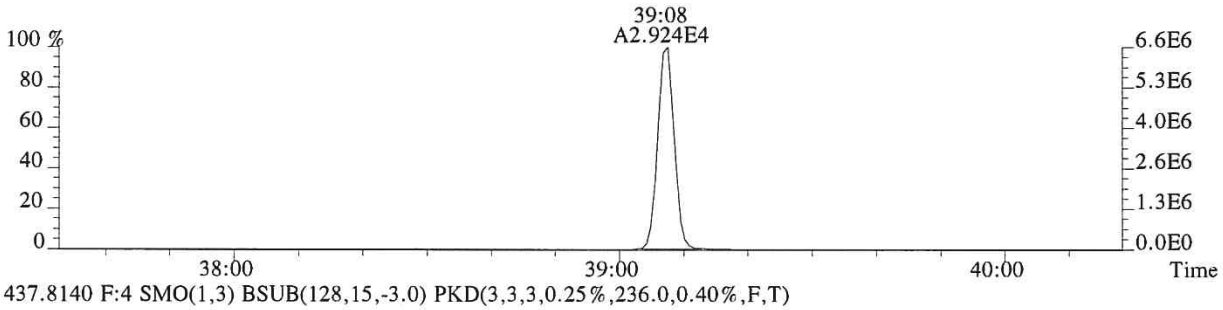
File:P615950 #1-249 Acq: 6-DEC-2018 18:59:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



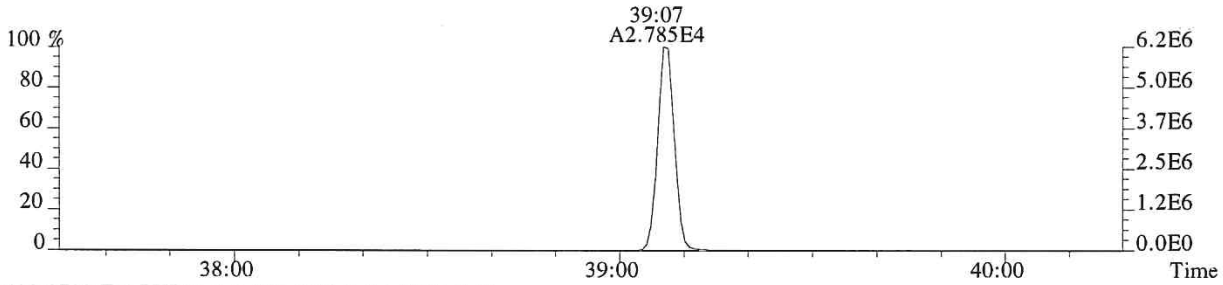
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



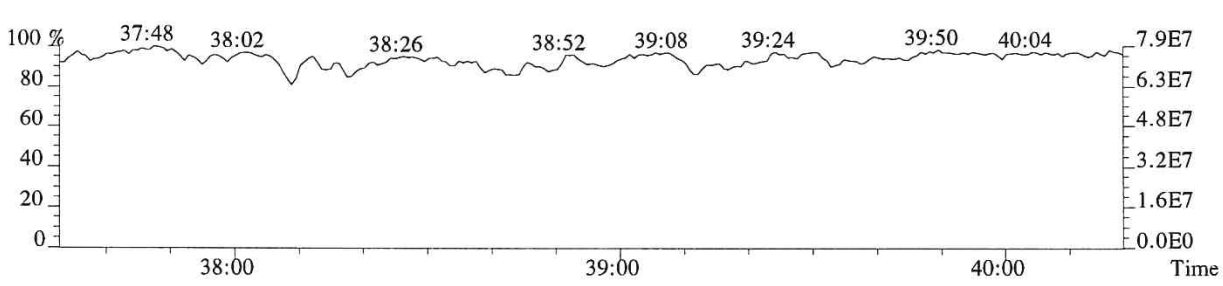
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



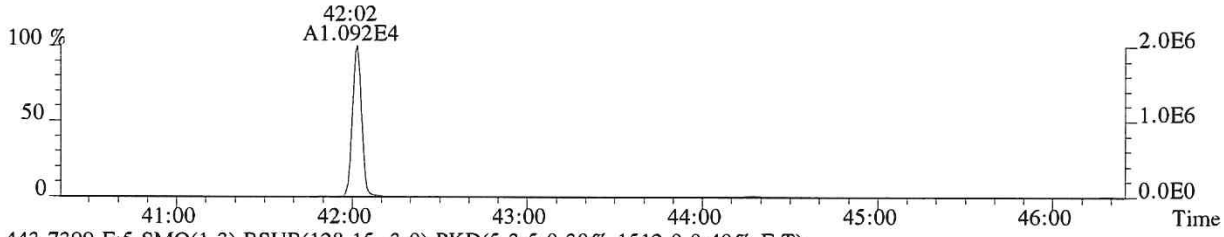
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



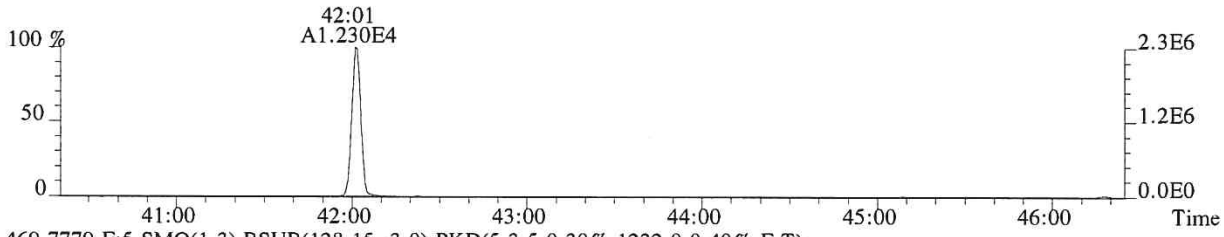
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



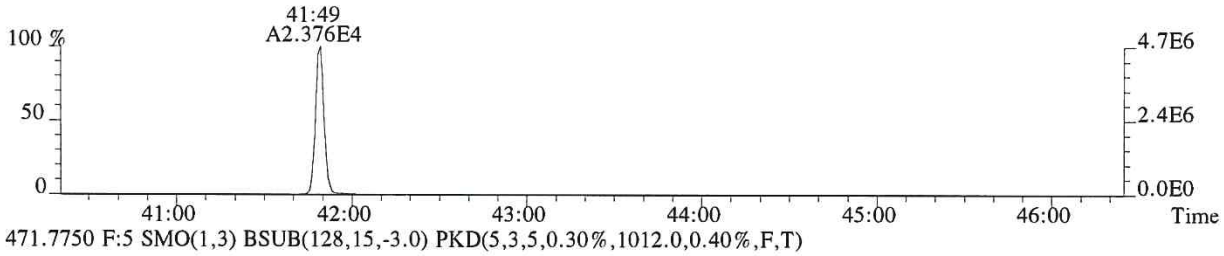
File:P615950 #1-547 Acq: 6-DEC-2018 18:59:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



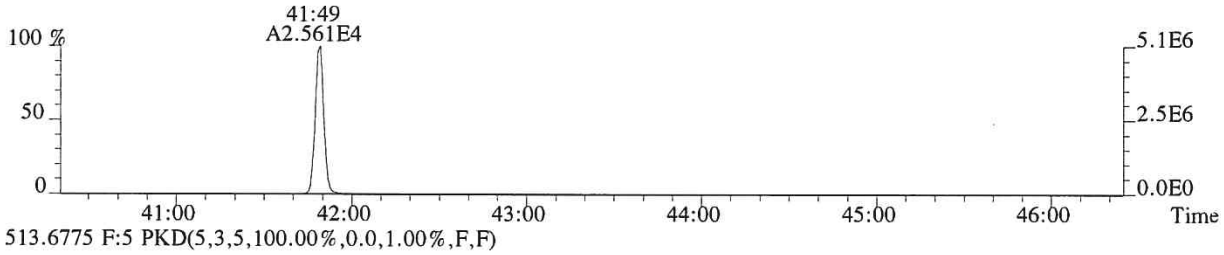
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1512.0,0.40%,F,T)



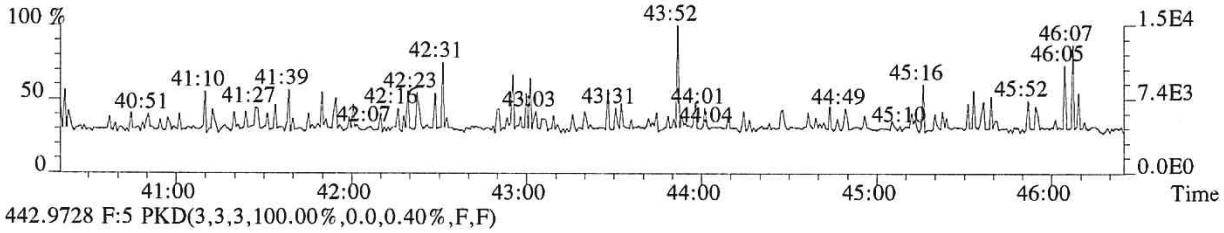
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1232.0,0.40%,F,T)



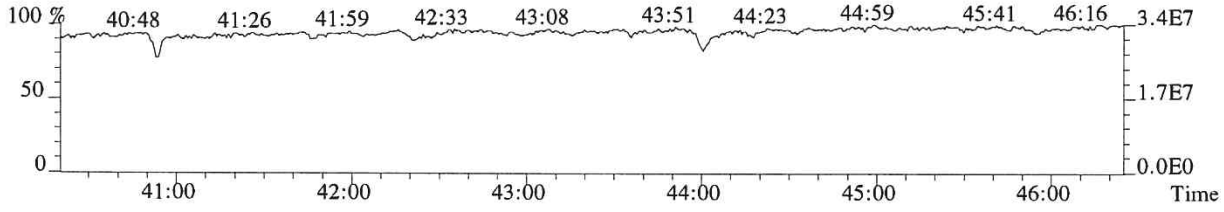
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1012.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

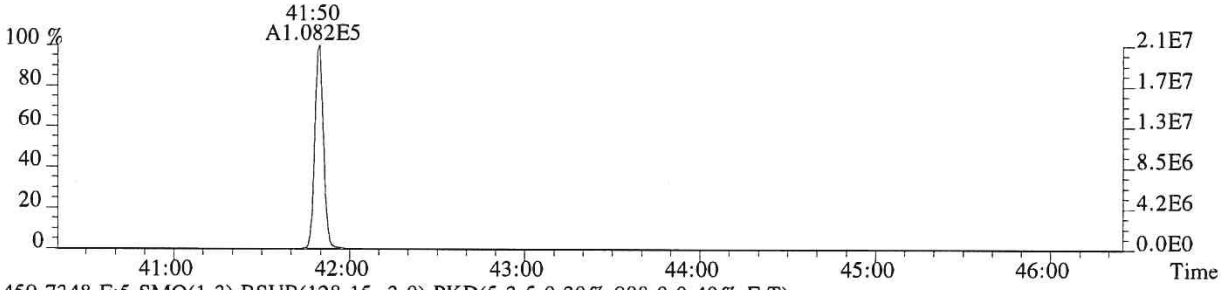


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

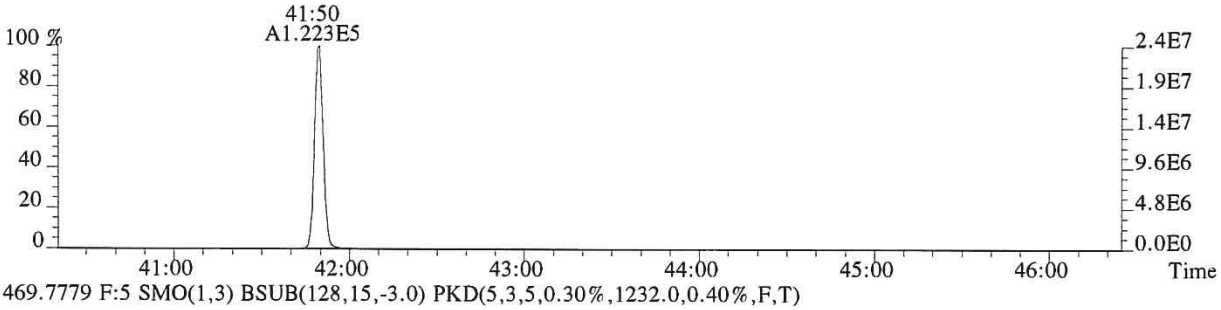


012424

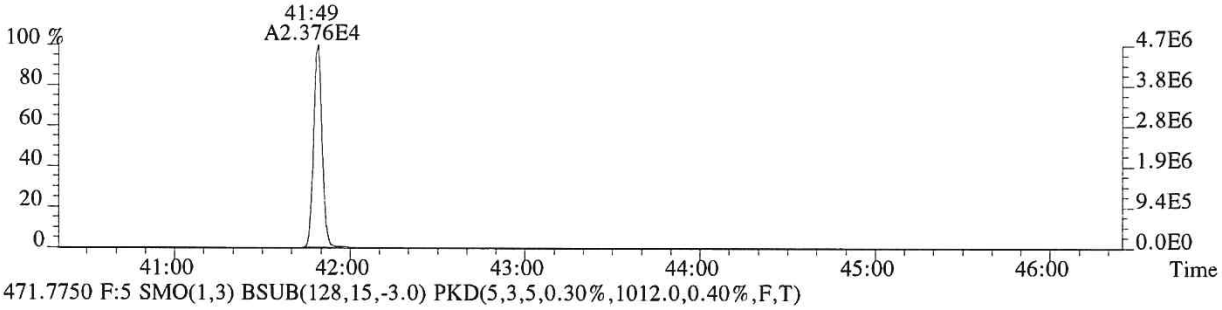
File:P615950 #1-547 Acq: 6-DEC-2018 18:59:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



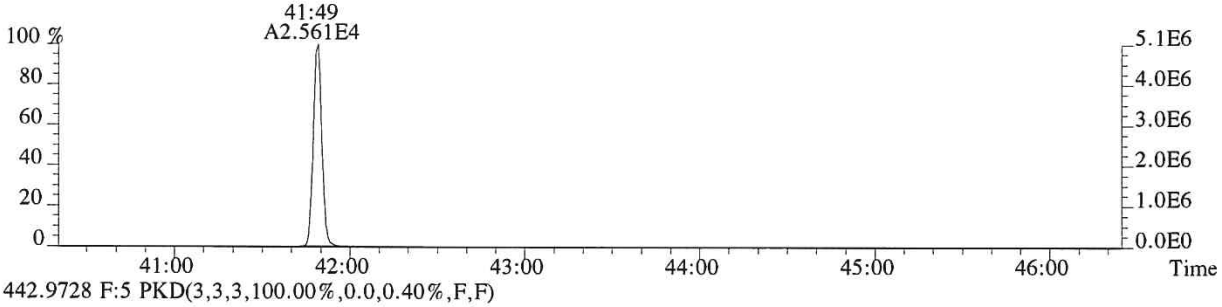
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,988.0,0.40%,F,T)



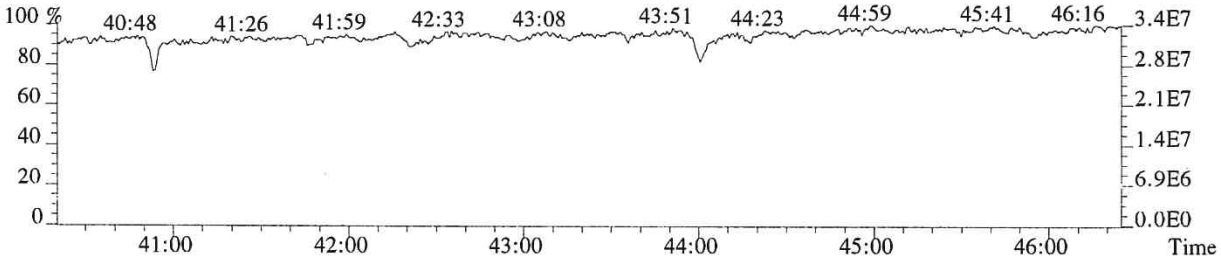
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1232.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1012.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0203

Run #12 Filename P519340 Samp: 1 Inj: 1 Acquired: 11-DEC-18 02:03:00
Processed: 12-DEC-18 13:50:56 Sample ID: E1801056-039DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.199e+04	1.592e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	7.250e+02	4.143e+02	1.75	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	4.600e+02	3.630e+02	1.27	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	8.614e+02	7.005e+02	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.306e+02	1.914e+02	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.550e+01	5.600e+01	0.63	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	6.927e+01	7.080e+01	0.98	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	2.492e+02	1.921e+02	1.30	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	4.899e+01	6.479e+01	0.76	no	no	1.258
10	Unk	OCDF	42:39	2.553e+02	2.762e+02	0.92	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	2.872e+03	3.528e+03	0.81	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	3.095e+01	2.968e+01	1.04	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:34	2.307e+00	1.136e+00	2.03	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	1.803e+01	8.357e+00	2.16	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	1.170e+01	1.241e+01	0.94	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	2.104e+02	2.649e+02	0.79	no	no	1.025
17	Unk	OCDD	42:27	2.262e+03	2.634e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.652e+04	2.072e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.593e+04	1.619e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	2.325e+04	1.473e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.827e+03	1.895e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.192e+04	2.292e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.089e+04	2.104e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	9.799e+03	1.936e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	8.285e+03	1.885e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	7.136e+03	1.656e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	7.820e+03	1.010e+04	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	1.643e+04	1.034e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.376e+04	1.056e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.391e+04	1.075e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	1.535e+04	1.419e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:27	1.663e+04	1.836e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	1.191e+04	1.520e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	1.571e+04	1.222e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	5.266e+02				no	1.014

$$\text{OCDD} = \frac{(2.262e+03 + 2.634e+03) \times 4000\ \text{pg} \times 20}{(1.663e+04 + 1.836e+04) \times 10.924\text{g} \times 77.1 / 100 \times 1.118 \times 0.34} = 3496\ \text{ng/kg}$$

LM 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0203

un #12 Filename P519340 Samp: 1 Inj: 1 Acquired: 11-DEC-18 02:03:00
rocessed: 12-DEC-18 13:50:56 LAB. ID: E1801056-039DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	2.02e+06	5.04e+02	4.0e+03	2.70e+06	7.96e+02	3.4e+03
	1,2,3,7,8-PeCDF	1.32e+05	4.84e+02	2.7e+02	8.05e+04	1.15e+03	7.0e+01
	2,3,4,7,8-PeCDF	6.39e+04	4.84e+02	1.3e+02	5.64e+04	1.15e+03	4.9e+01
	1,2,3,4,7,8-HxCDF	1.67e+05	2.64e+02	6.3e+02	1.39e+05	2.44e+02	5.7e+02
	1,2,3,6,7,8-HxCDF	4.15e+04	2.64e+02	1.6e+02	3.95e+04	2.44e+02	1.6e+02
	2,3,4,6,7,8-HxCDF	7.23e+03	2.64e+02	2.7e+01	1.12e+04	2.44e+02	4.6e+01
	1,2,3,7,8,9-HxCDF	1.19e+04	2.64e+02	4.5e+01	1.31e+04	2.44e+02	5.4e+01
	1,2,3,4,6,7,8-HpCDF	4.80e+04	4.72e+02	1.0e+02	3.37e+04	2.08e+02	1.6e+02
	1,2,3,4,7,8,9-HpCDF	9.79e+03	4.72e+02	2.1e+01	1.19e+04	2.08e+02	5.7e+01
0	OCDF	3.68e+04	2.52e+02	1.5e+02	3.74e+04	6.68e+02	5.6e+01
1	2,3,7,8-TCDD	5.26e+05	1.38e+03	3.8e+02	6.43e+05	7.32e+02	8.8e+02
2	1,2,3,7,8-PeCDD	6.99e+03	3.64e+02	1.9e+01	4.83e+03	1.84e+02	2.6e+01
3	1,2,3,4,7,8-HxCDD	6.99e+02	2.12e+02	3.3e+00	4.49e+02	2.32e+02	1.9e+00
4	1,2,3,6,7,8-HxCDD	3.95e+03	2.12e+02	1.9e+01	1.78e+03	2.32e+02	7.7e+00
5	1,2,3,7,8,9-HxCDD	2.77e+03	2.12e+02	1.3e+01	2.67e+03	2.32e+02	1.2e+01
6	1,2,3,4,6,7,8-HpCDD	3.80e+04	3.36e+02	1.1e+02	4.36e+04	1.76e+02	2.5e+02
7	OCDD	2.65e+05	2.20e+02	1.2e+03	3.25e+05	2.92e+02	1.1e+03
8	13C-2,3,7,8-TCDF	2.97e+06	4.95e+03	6.0e+02	3.69e+06	2.20e+03	1.7e+03
9	13C-1,2,3,7,8-PeCDF	4.86e+06	2.56e+02	1.9e+04	3.03e+06	3.36e+02	9.0e+03
0	13C-2,3,4,7,8-PeCDF	4.43e+06	2.56e+02	1.7e+04	2.86e+06	3.36e+02	8.5e+03
1	13C-1,2,3,4,7,8-HxCDF	2.03e+06	5.04e+02	4.0e+03	3.92e+06	2.56e+02	1.5e+04
2	13C-1,2,3,6,7,8-HxCDF	2.26e+06	5.04e+02	4.5e+03	4.35e+06	2.56e+02	1.7e+04
3	13C-2,3,4,6,7,8-HxCDF	2.22e+06	5.04e+02	4.4e+03	4.22e+06	2.56e+02	1.7e+04
4	13C-1,2,3,7,8,9-HxCDF	1.80e+06	5.04e+02	3.6e+03	3.53e+06	2.56e+02	1.4e+04
5	13C-1,2,3,4,6,7,8-HpCDF	1.52e+06	3.64e+02	4.2e+02	3.51e+06	1.92e+03	1.8e+03
6	13C-1,2,3,4,7,8,9-HpCDF	1.12e+06	3.64e+03	3.1e+02	2.62e+06	1.92e+03	1.4e+03
7	13C-2,3,7,8-TCDD	1.46e+06	4.70e+03	3.1e+02	1.92e+06	1.50e+03	1.3e+03
8	13C-1,2,3,7,8-PeCDD	3.20e+06	3.08e+02	1.0e+04	1.97e+06	6.60e+02	3.0e+03
9	13C-1,2,3,4,7,8-HxCDD	2.92e+06	4.68e+02	6.2e+03	2.21e+06	2.00e+02	1.1e+04
0	13C-1,2,3,6,7,8-HxCDD	2.63e+06	4.68e+02	5.6e+03	2.04e+06	2.00e+02	1.0e+04
1	13C-1,2,3,4,6,7,8-HpCDD	2.48e+06	2.92e+02	8.5e+03	2.39e+06	3.12e+02	7.6e+03
2	13C-OCDD	1.97e+06	2.44e+02	8.1e+03	2.11e+06	2.20e+02	9.6e+03
3	13C-1,2,3,4-TCDD	2.23e+06	4.70e+03	4.7e+02	2.80e+06	1.50e+03	1.9e+03
4	13C-1,2,3,7,8,9-HxCDD	2.89e+06	4.68e+02	6.2e+03	2.22e+06	2.00e+02	1.1e+04
5	37Cl-2,3,7,8-TCDD	1.01e+05	4.24e+02	2.4e+02			

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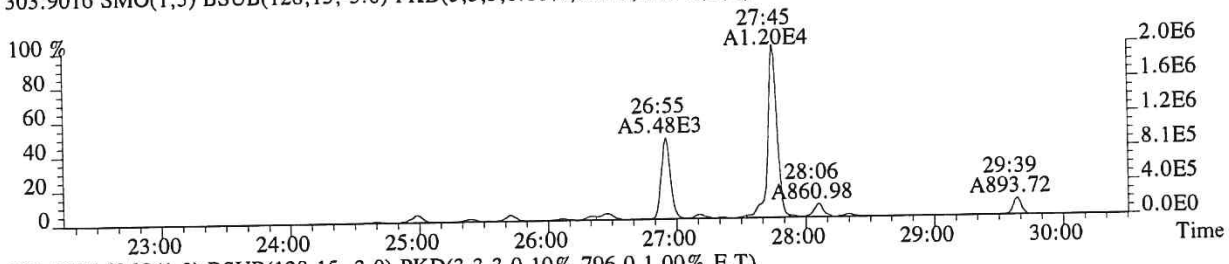
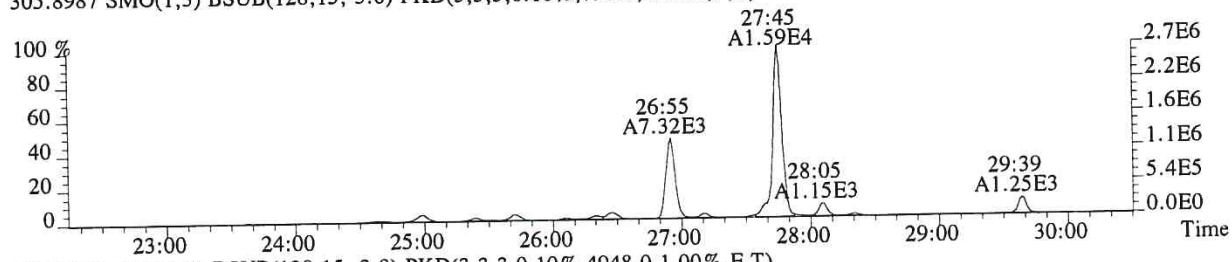
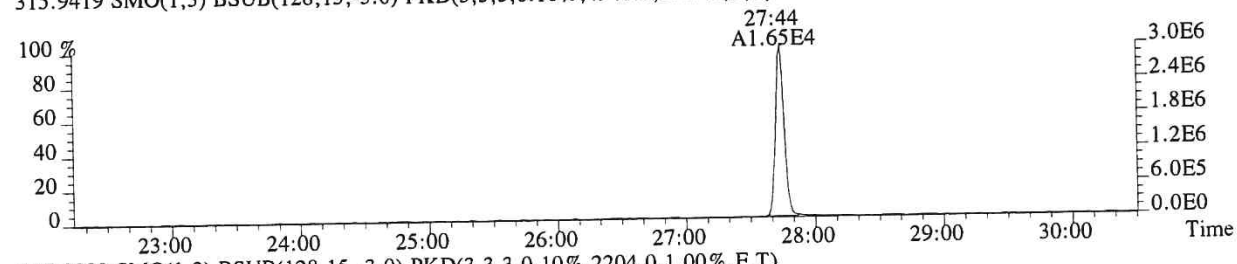
File:P519340 #1-587 Acq:11-DEC-2018 02:03:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



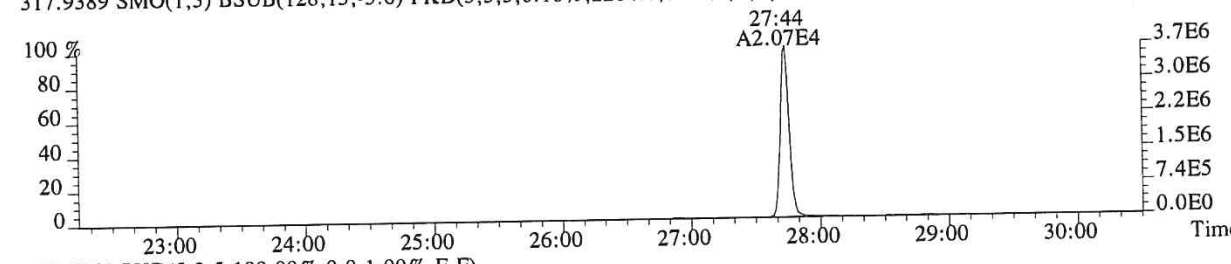
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



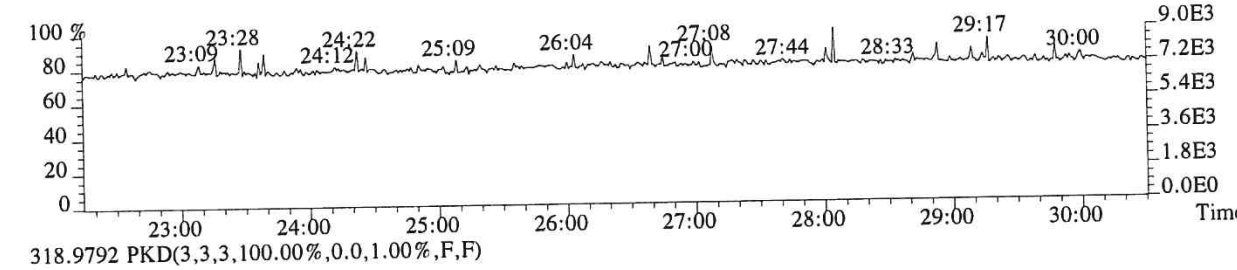
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



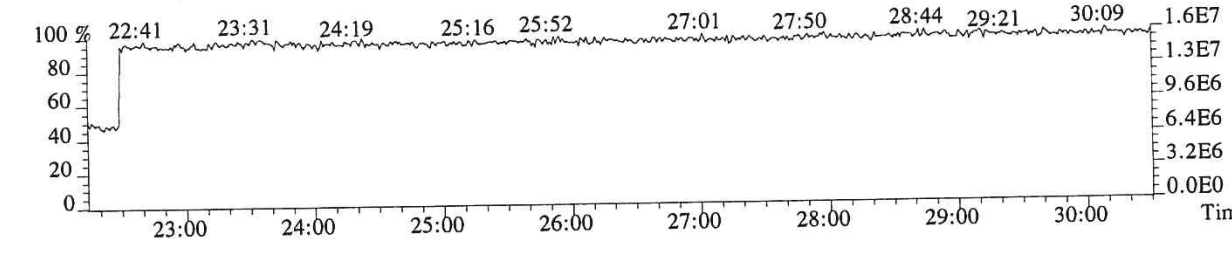
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



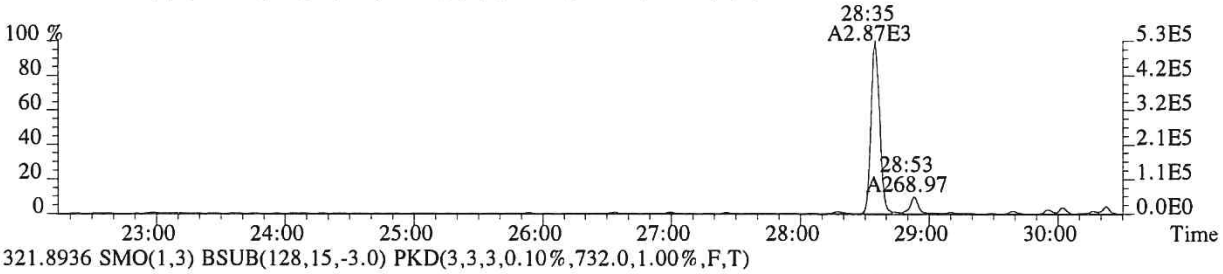
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



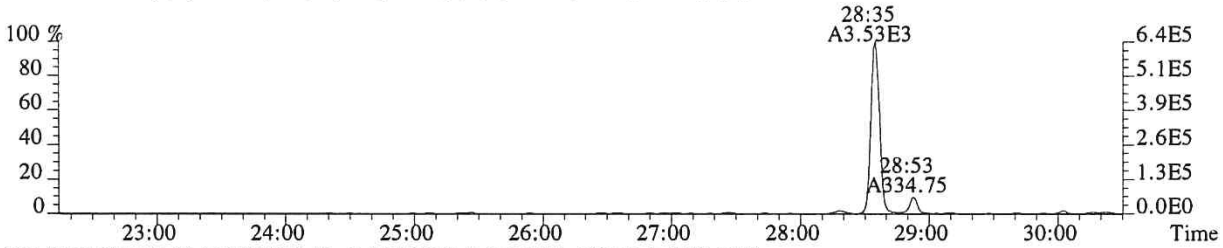
012428

File:P519340 #1-587 Acq:11-DEC-2018 02:03:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039DL

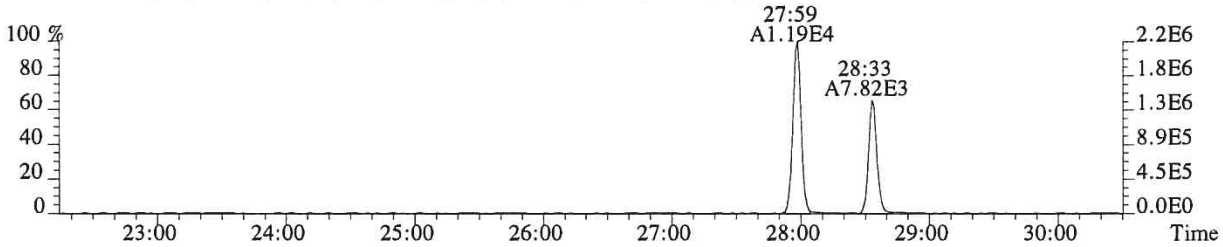
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1384.0,1.00%,F,T)



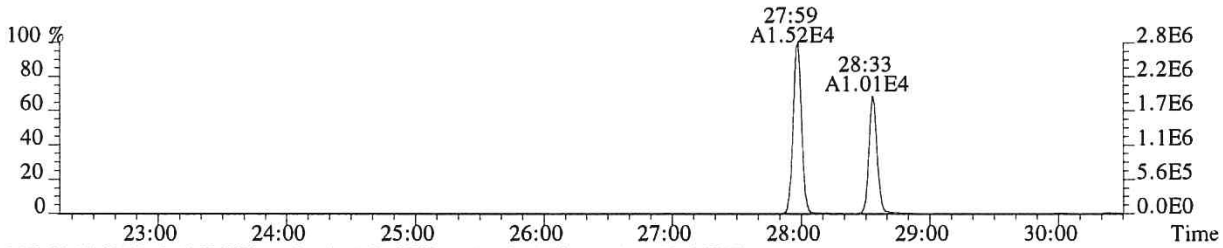
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



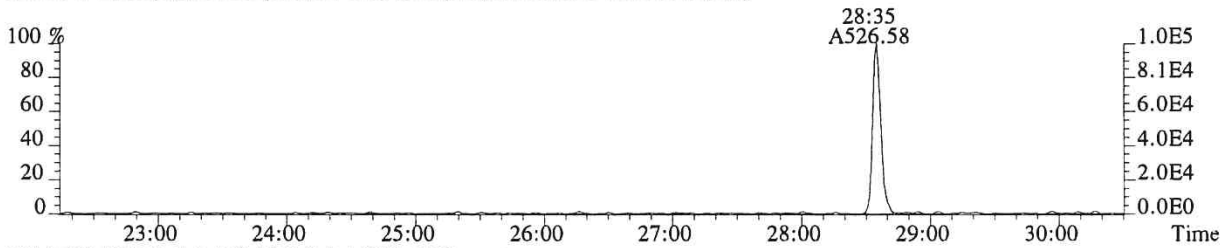
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4696.0,1.00%,F,T)



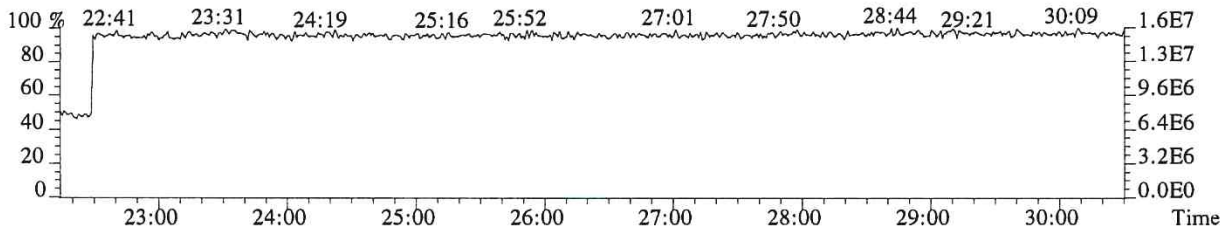
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



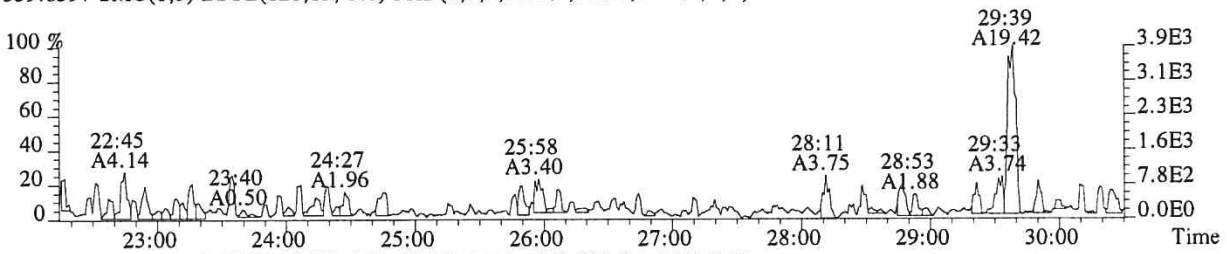
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



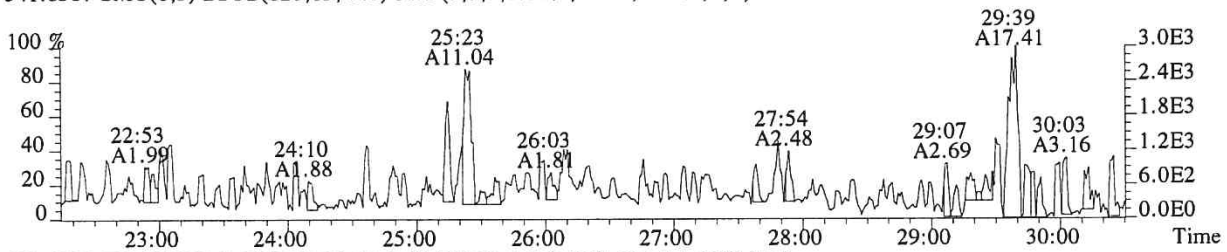
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



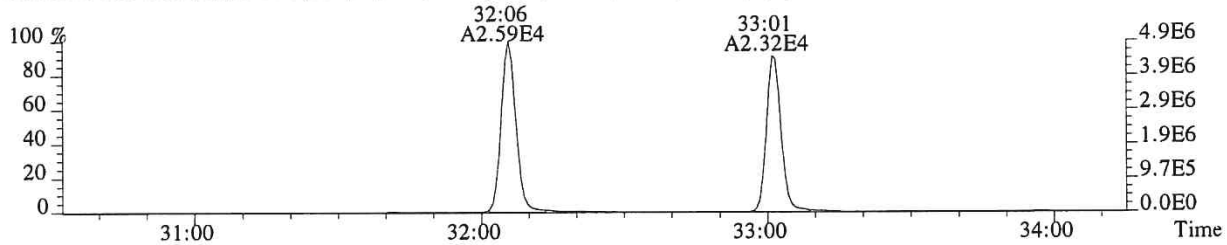
File:P519340 #1-587 Acq:11-DEC-2018 02:03:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



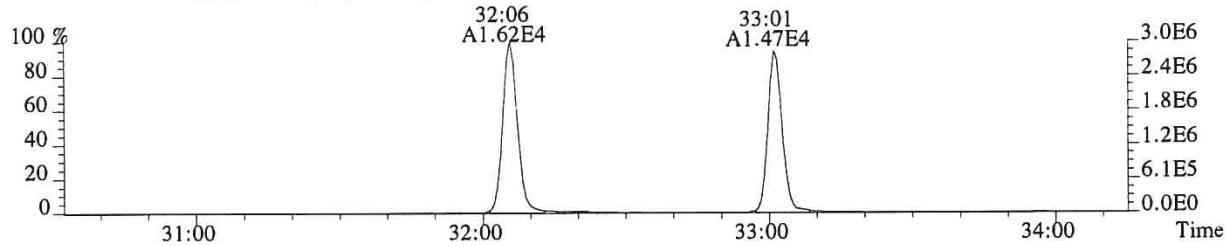
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



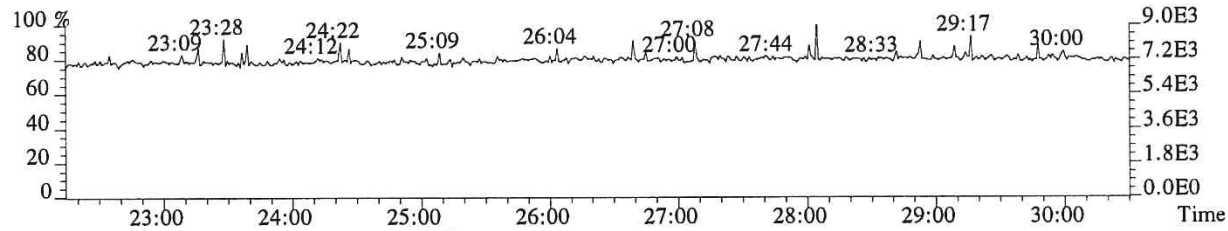
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



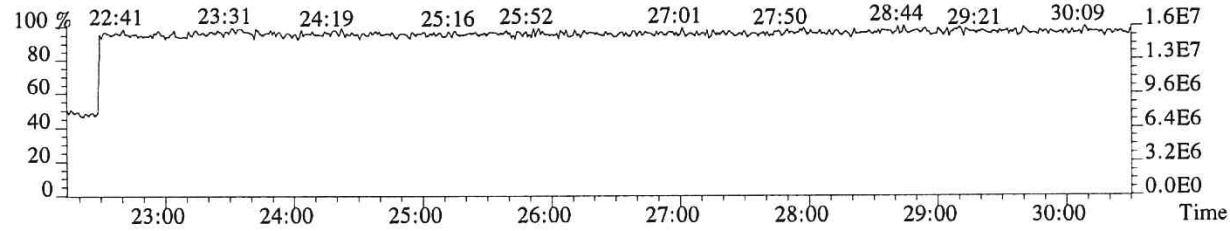
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

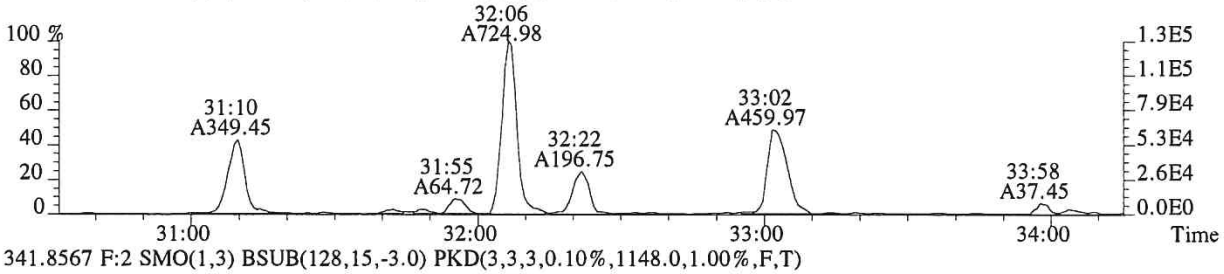


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

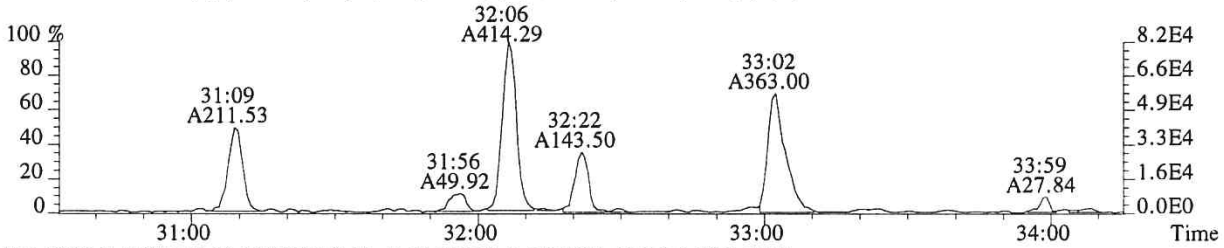


012430

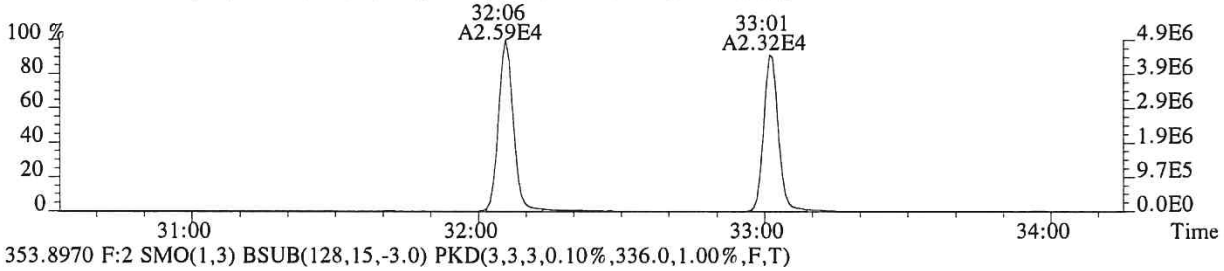
File:P519340 #1-335 Acq:11-DEC-2018 02:03:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



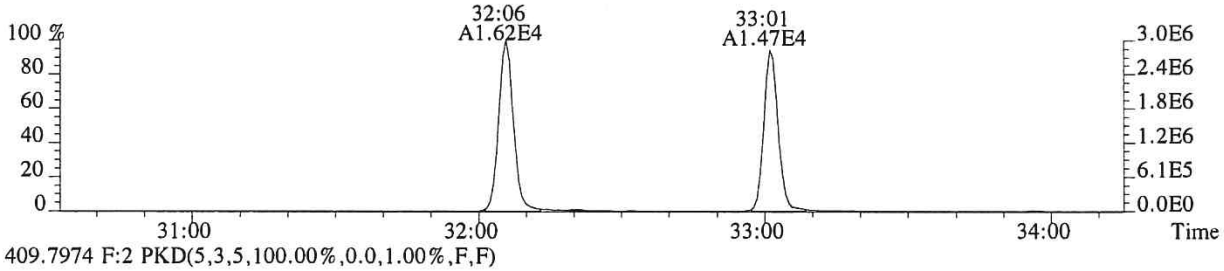
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



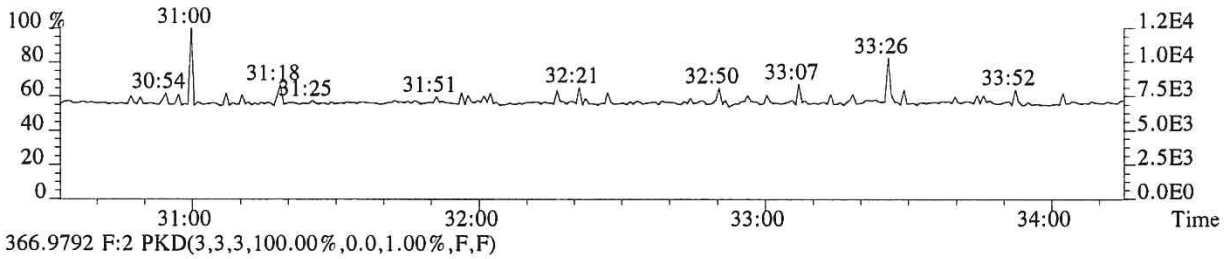
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



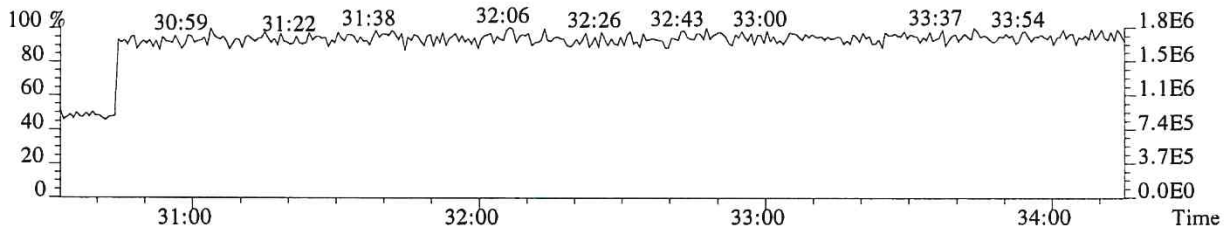
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



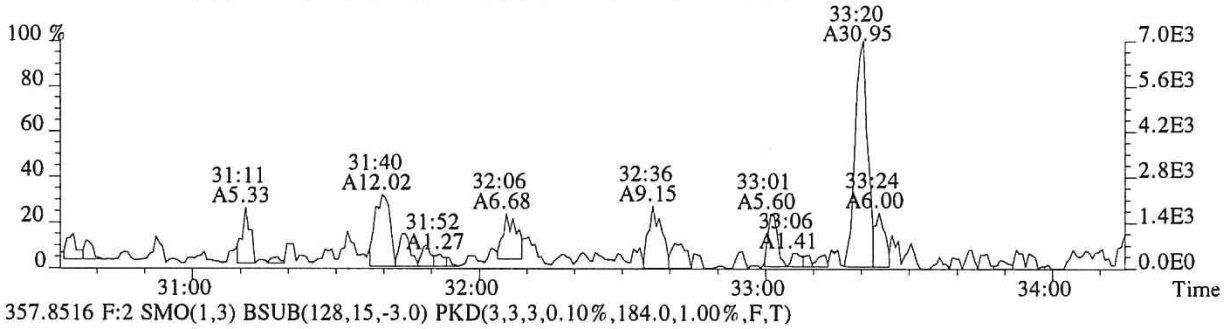
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



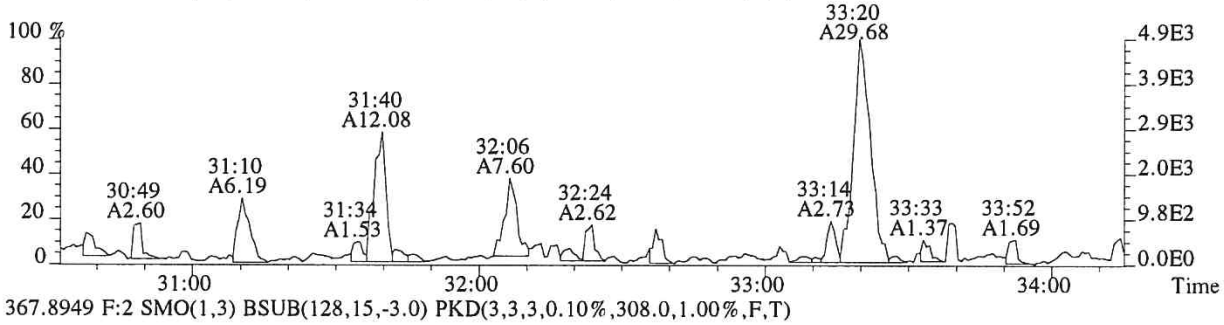
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



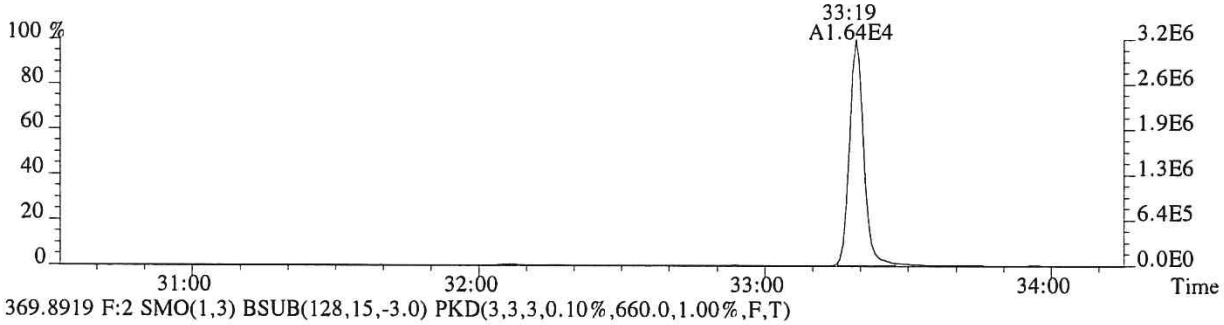
File:P519340 #1-335 Acq:11-DEC-2018 02:03:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



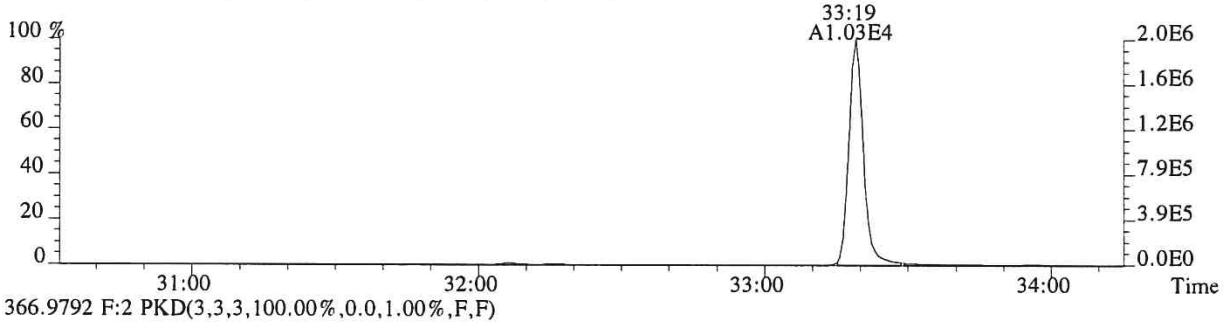
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



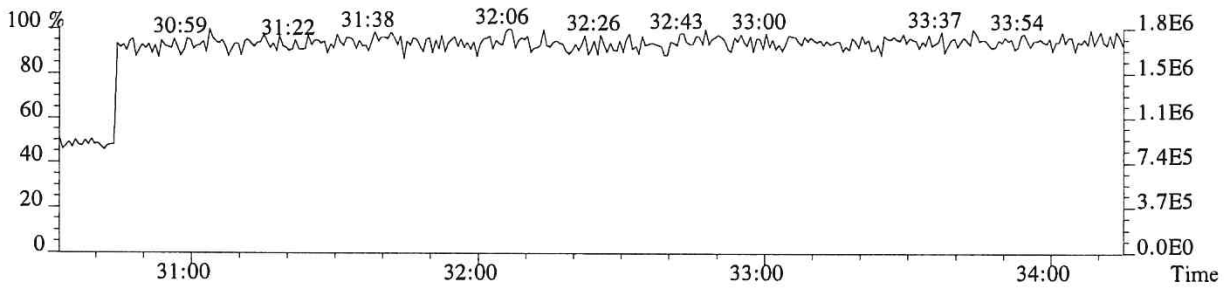
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)

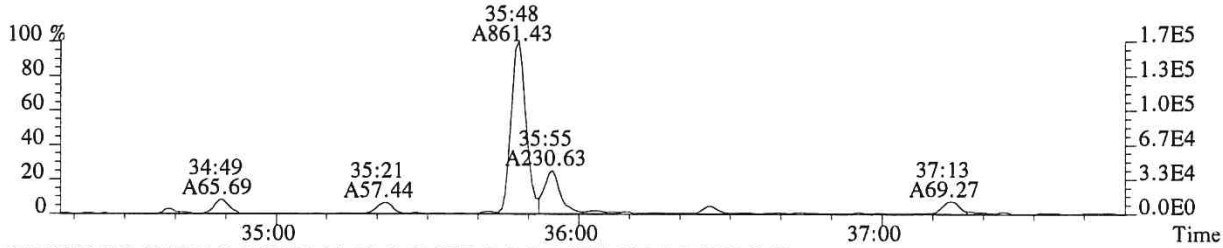


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

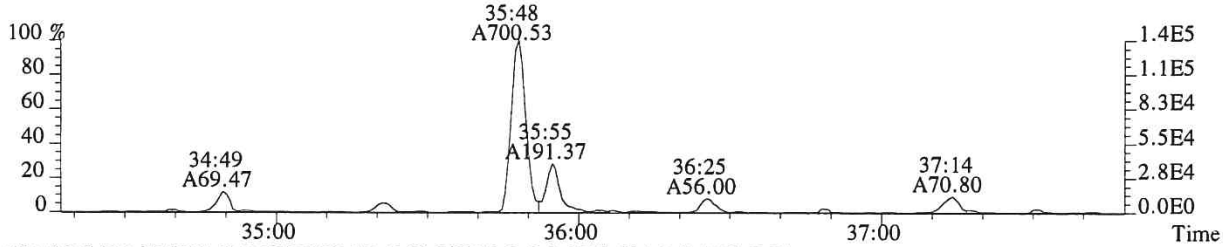


File:P519340 #1-317 Acq:11-DEC-2018 02:03:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039DL

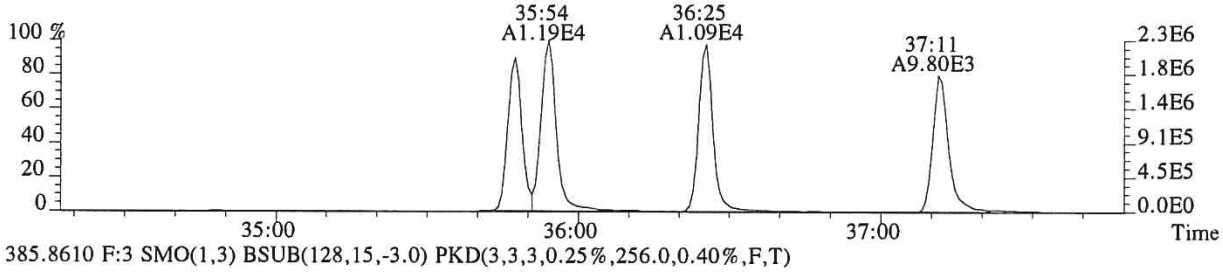
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



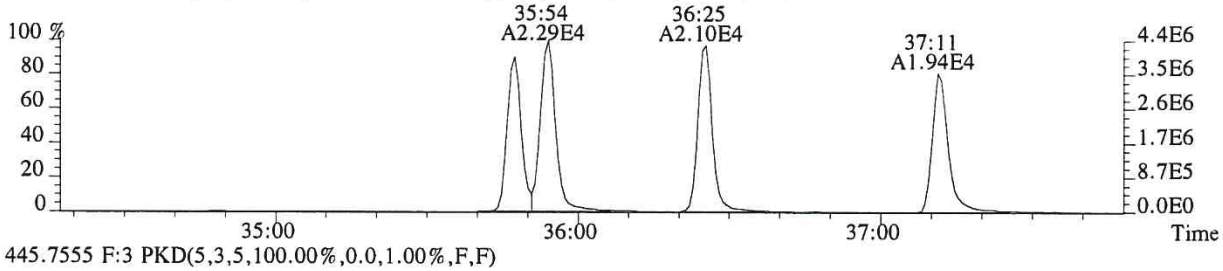
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



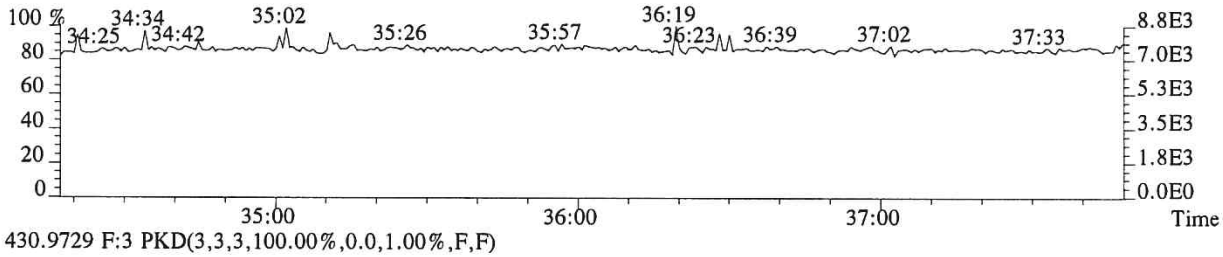
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



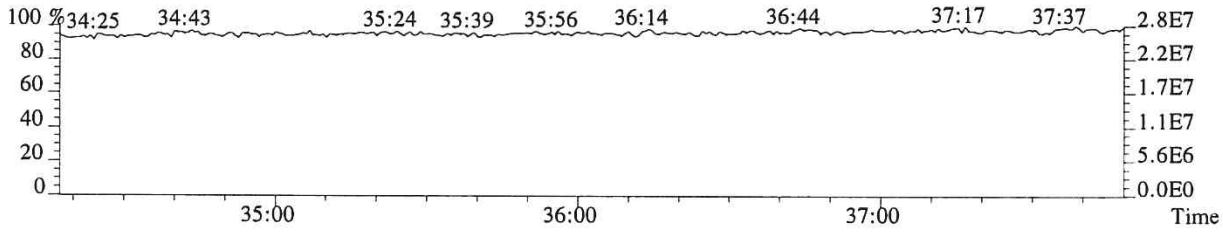
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



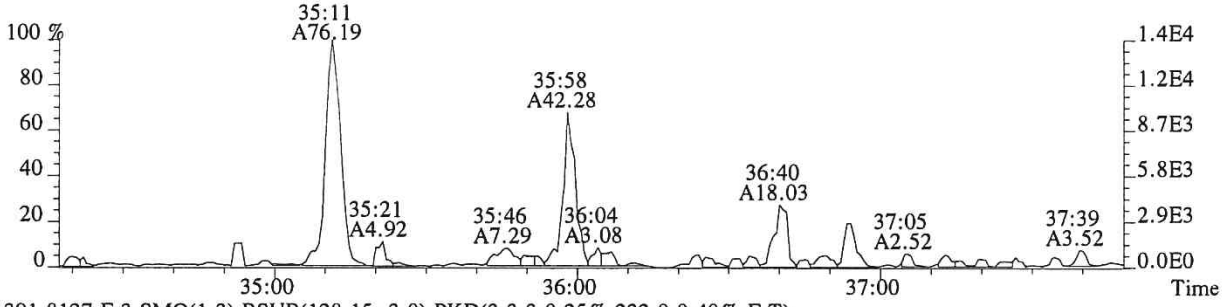
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



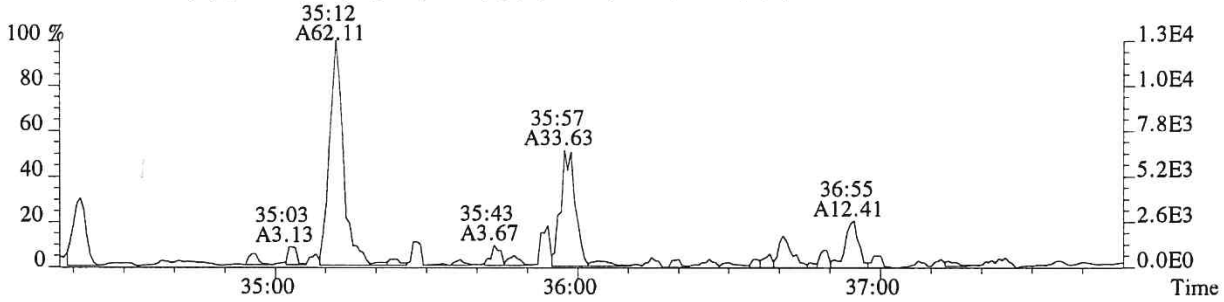
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



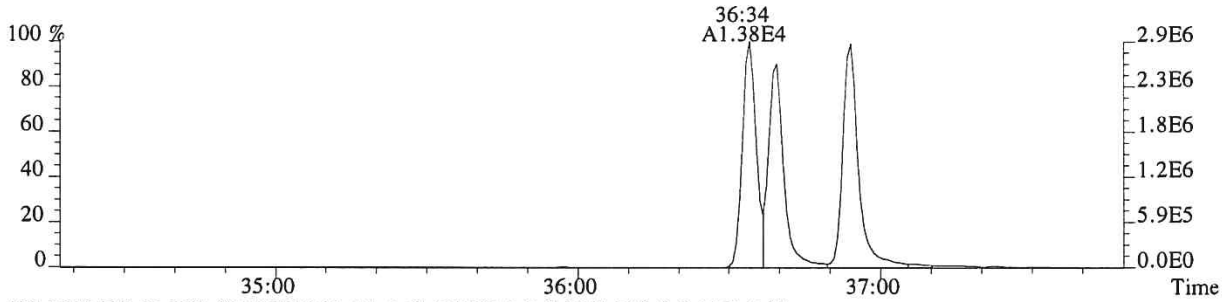
File:P519340 #1-317 Acq:11-DEC-2018 02:03:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



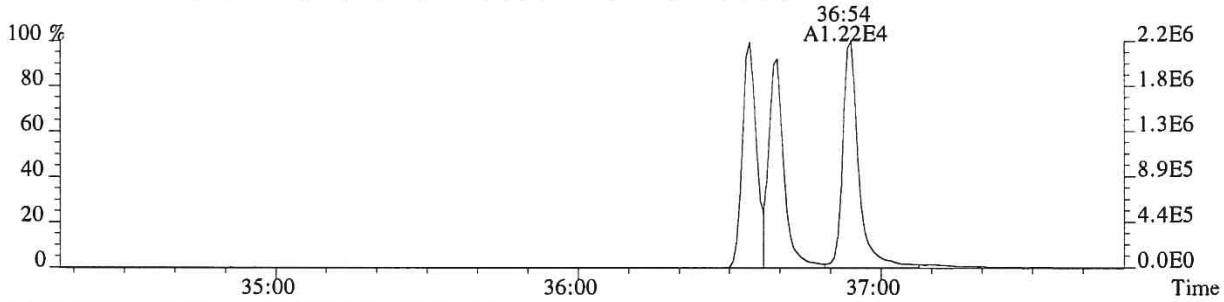
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



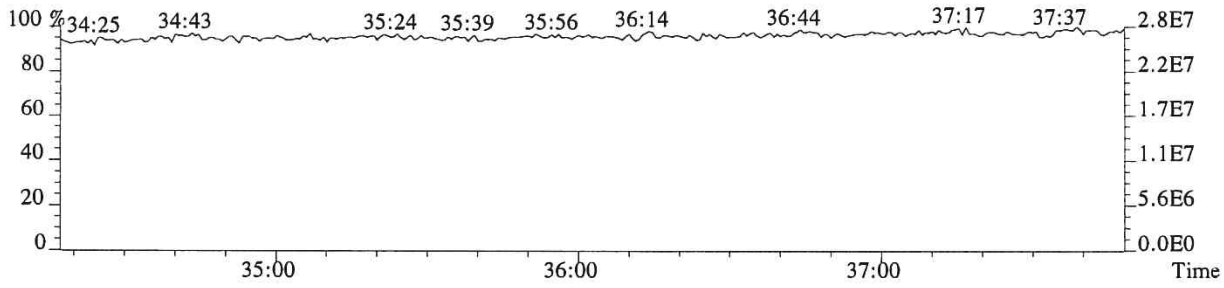
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



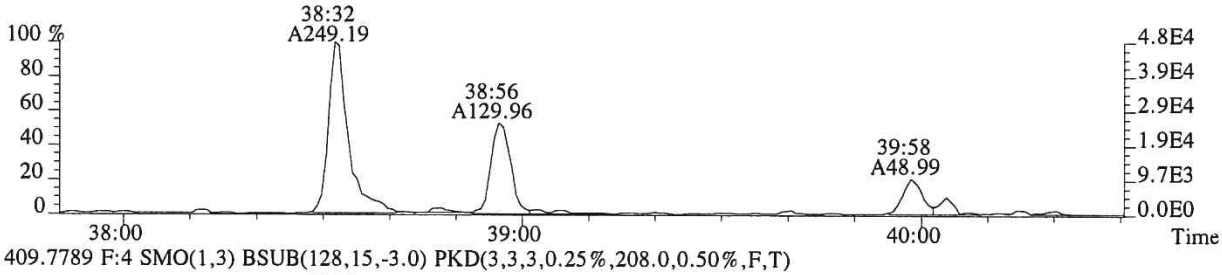
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



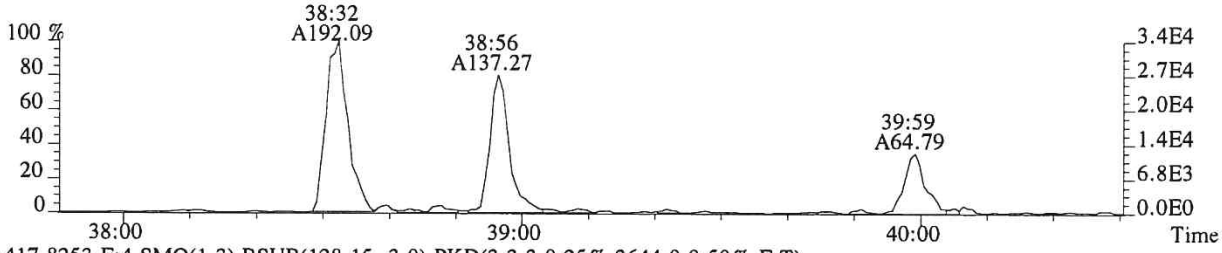
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



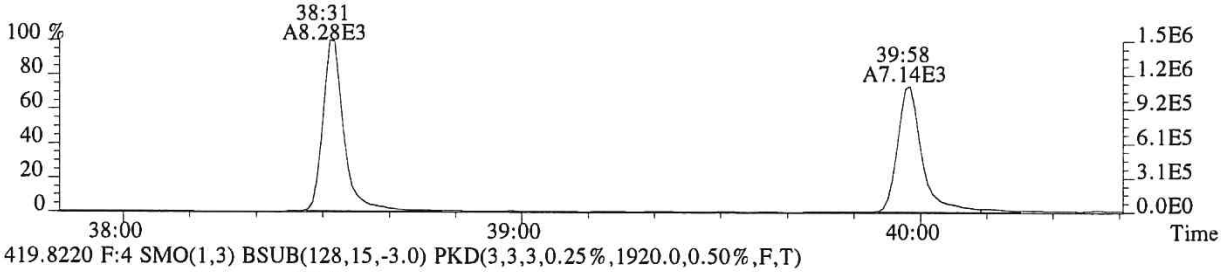
File:P519340 #1-241 Acq:11-DEC-2018 02:03:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.50%,F,T)



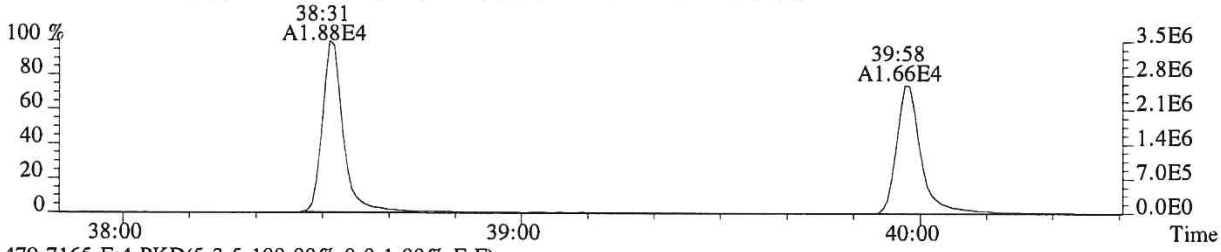
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.50%,F,T)



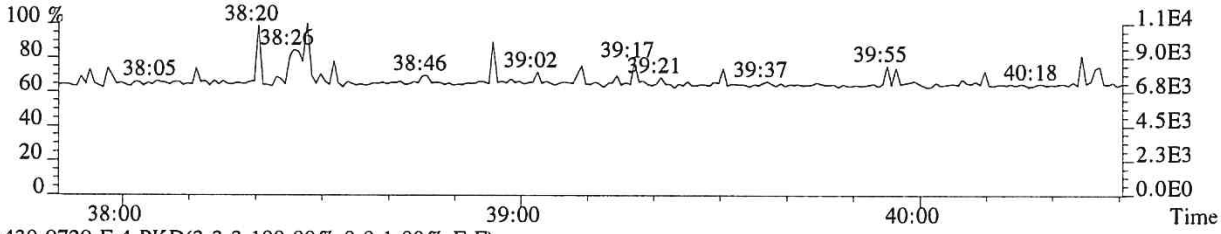
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3644.0,0.50%,F,T)



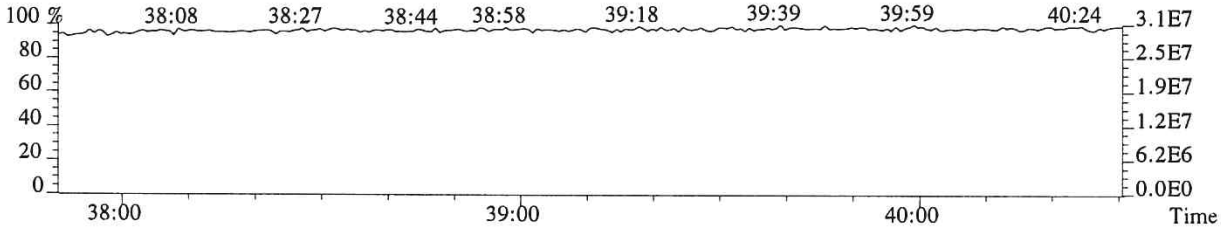
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1920.0,0.50%,F,T)



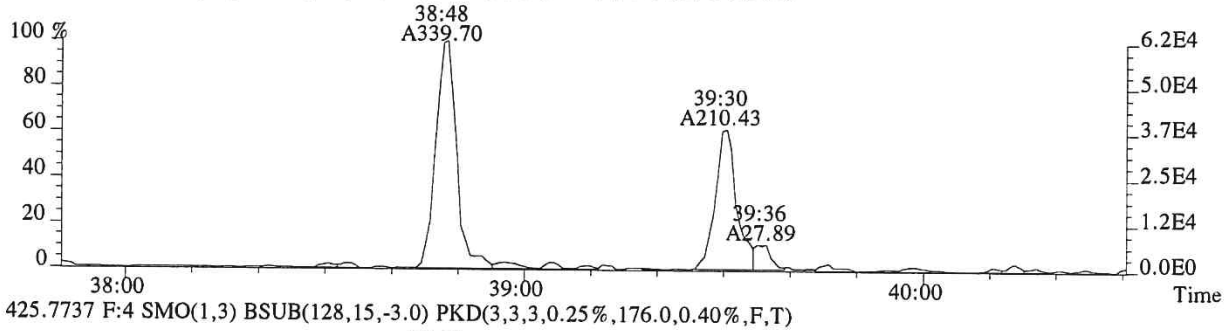
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



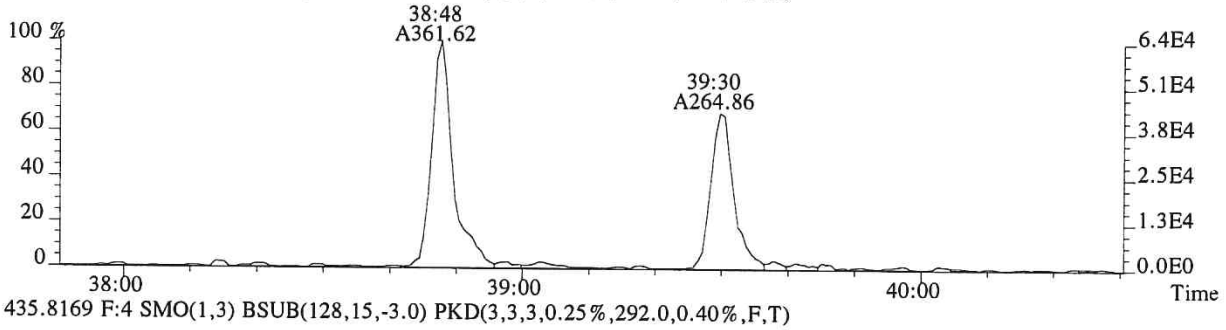
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



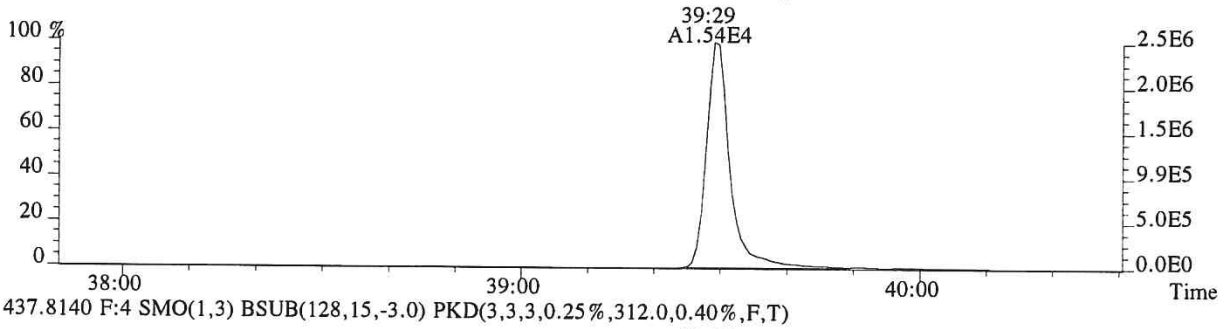
File:P519340 #1-241 Acq:11-DEC-2018 02:03:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



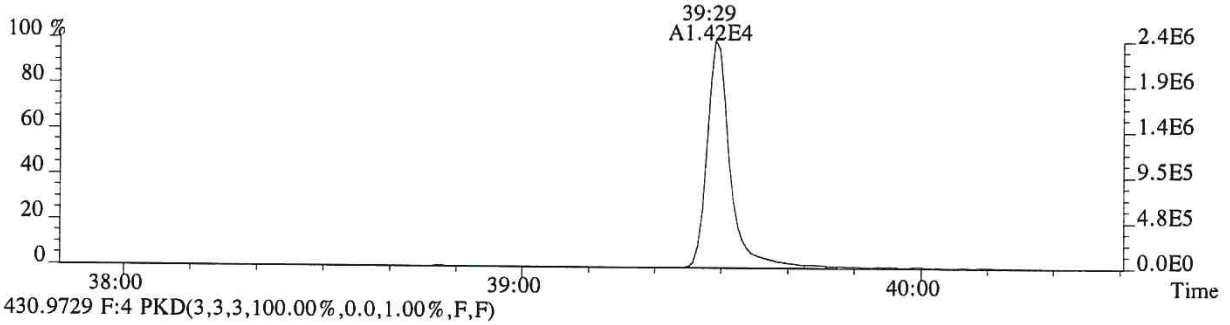
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.40%,F,T)



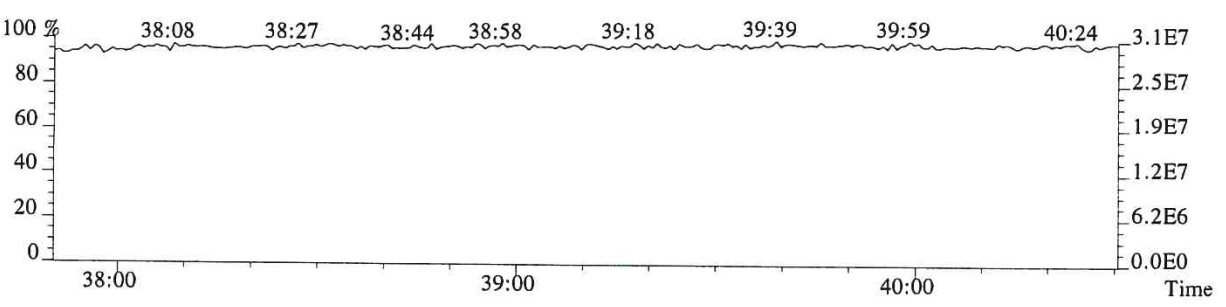
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)

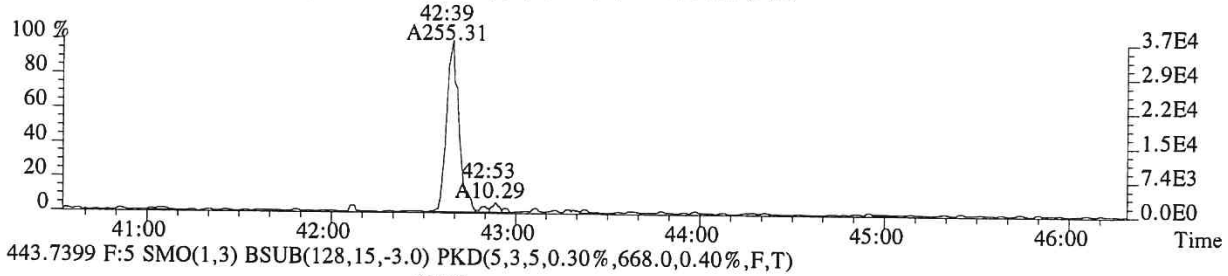


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

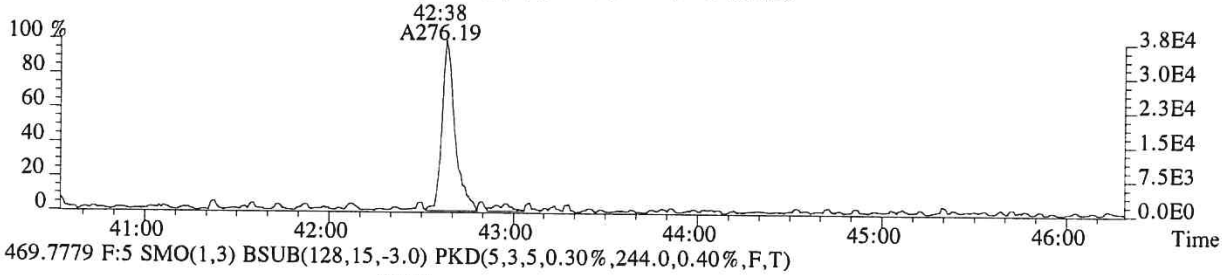


012436

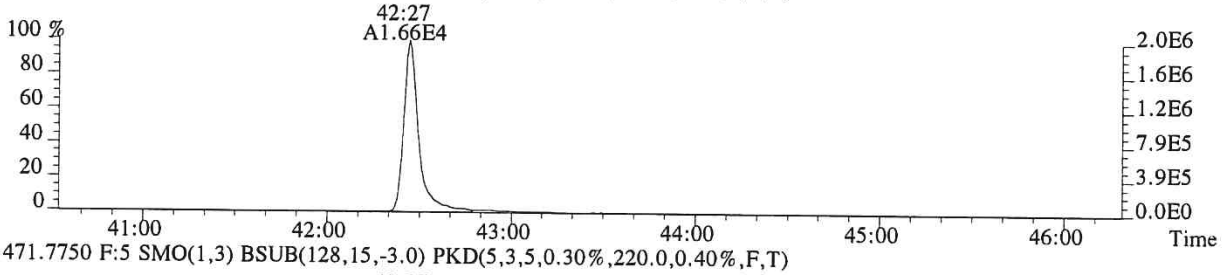
File:P519340 #1-520 Acq:11-DEC-2018 02:03:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



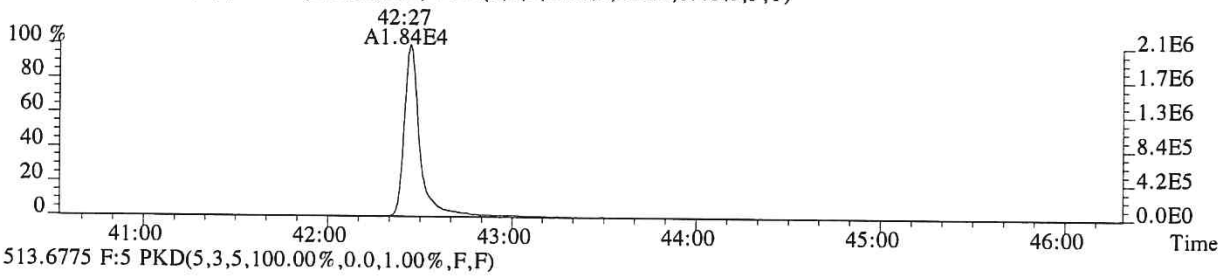
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



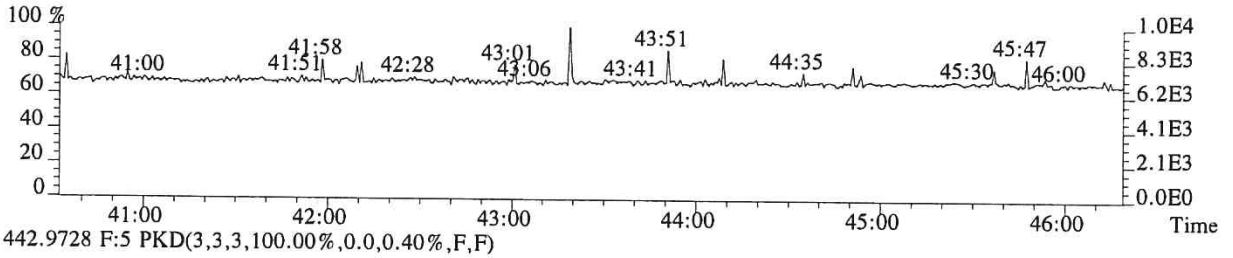
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



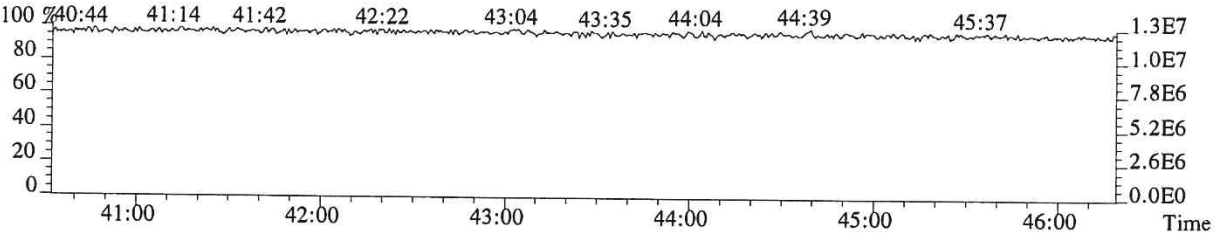
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



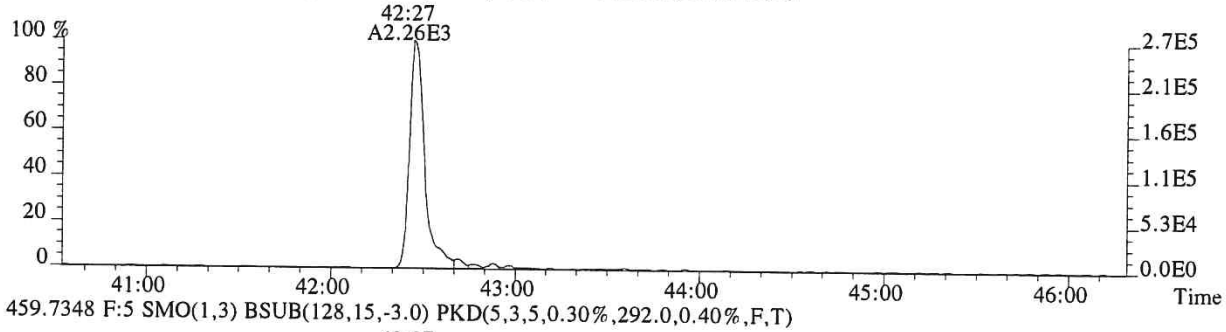
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



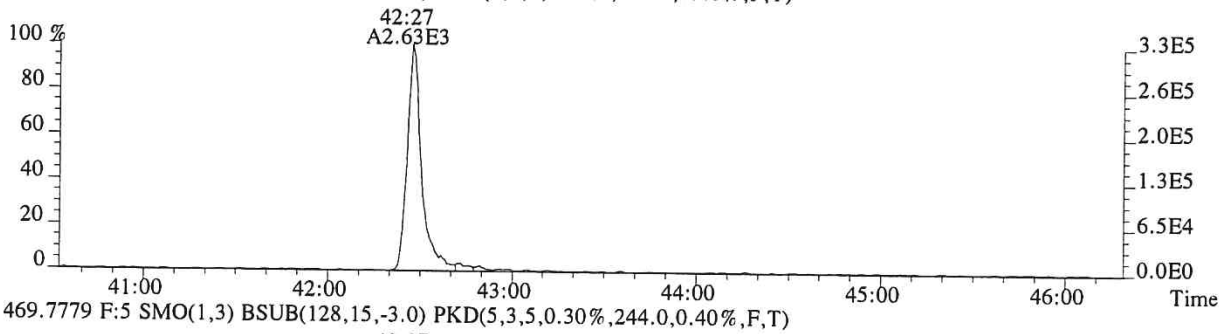
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



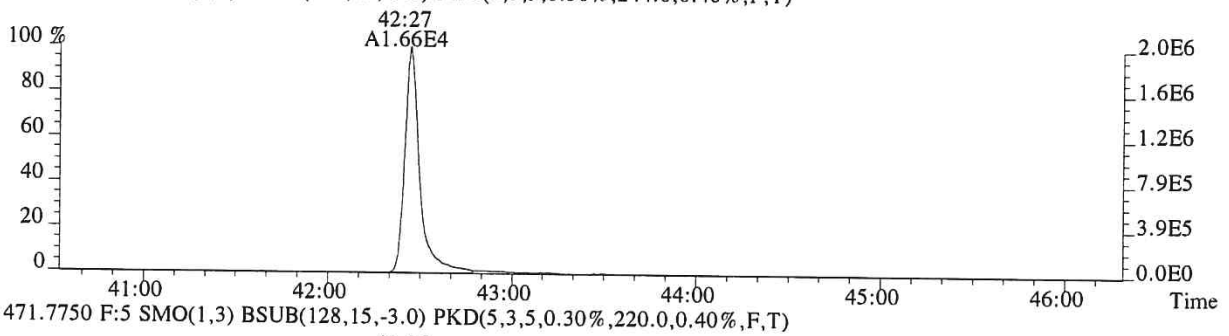
File:P519340 #1-520 Acq:11-DEC-2018 02:03:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-039DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



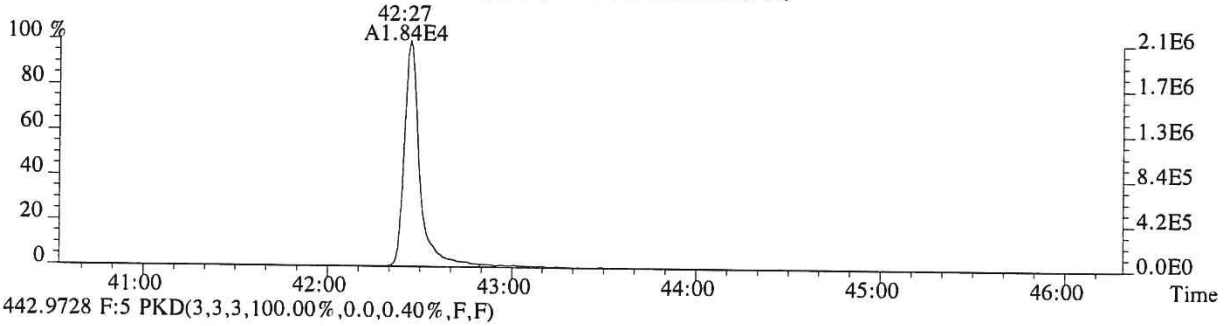
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



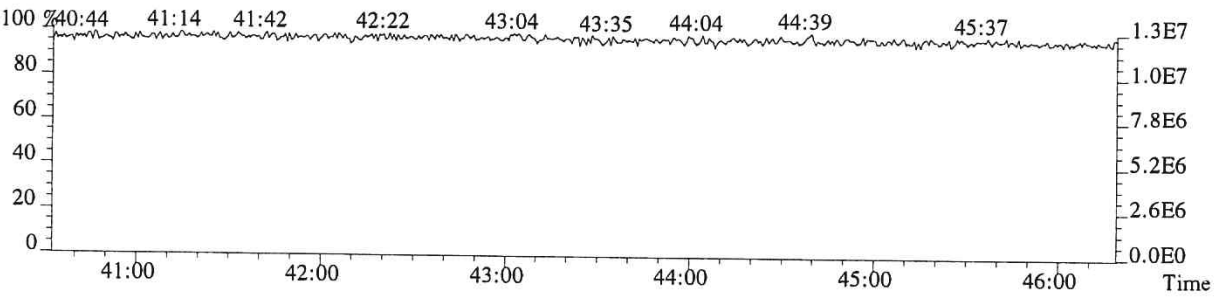
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0204

Run #19 Filename P615951 Samp: 1 Inj: 1 Acquired: 6-DEC-18 19:48:42
Processed: 10-DEC-18 11:32:12 Sample ID: E1801056-040

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:47	3.574e+05	4.572e+05	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:02	1.985e+04	1.269e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:00	1.489e+04	9.768e+03	1.52	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:40	2.535e+04	2.109e+04	1.20	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:47	6.235e+03	5.041e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:19	1.390e+03	1.160e+03	1.20	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:05	1.377e+03	1.194e+03	1.15	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:16	5.265e+03	5.014e+03	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:36	1.838e+03	1.752e+03	1.05	yes	no	1.463
10	Unk	OCDF	42:03	4.754e+03	5.483e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:36	7.935e+04	1.011e+05	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:16	1.428e+03	7.866e+02	1.82	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:27	4.782e+01	4.353e+01	1.10	yes	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:33	2.564e+02	1.823e+02	1.41	yes	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:48	1.493e+02	1.005e+02	1.49	no	yes	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:09	5.604e+03	5.728e+03	0.98	yes	no	1.112
17	Unk	OCDD	41:51	4.539e+04	5.066e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:46	3.320e+04	4.341e+04	0.76	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:02	4.874e+04	3.109e+04	1.57	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:58	4.865e+04	3.048e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:39	1.994e+04	3.829e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:47	2.174e+04	4.124e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:18	2.083e+04	3.961e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:04	1.419e+04	2.680e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:15	1.237e+04	2.699e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:36	1.276e+04	2.779e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:34	1.689e+04	2.192e+04	0.77	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:15	4.019e+04	2.577e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:26	3.207e+04	2.538e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:32	2.331e+04	1.910e+04	1.22	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:08	2.707e+04	2.552e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:51	1.938e+04	2.110e+04	0.92	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:56	4.783e+04	6.016e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:47	6.368e+04	5.001e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	2.441e+04				no	1.086

$$\text{OCDD} = \frac{(4.539e{+}04 + 5.066e{+}04) \times 4000\ \text{pg} \times 1}{(1.938e{+}04 + 2.110e{+}04) \times 10.60\ \text{g} \times 77.3/100 \times 1.157} = 1000.9\ \text{ng/kg}$$

LMI 12/11/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0204

Run #19 Filename P615951 Samp: 1 Inj: 1 Acquired: 6-DEC-18 19:48:42
Processed: 10-DEC-18 11:32:12 LAB. ID: E1801056-040

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
.	2,3,7,8-TCDF	5.52e+07	4.98e+03	1.1e+04	7.05e+07	4.09e+03	1.7e+04
2	1,2,3,7,8-PeCDF	3.92e+06	3.10e+03	1.3e+03	2.52e+06	3.53e+03	7.1e+02
3	2,3,4,7,8-PeCDF	2.71e+06	3.10e+03	8.7e+02	1.72e+06	3.53e+03	4.9e+02
4	1,2,3,4,7,8-HxCDF	5.13e+06	2.16e+03	2.4e+03	4.24e+06	1.73e+03	2.4e+03
5	1,2,3,6,7,8-HxCDF	1.34e+06	2.16e+03	6.2e+02	1.10e+06	1.73e+03	6.4e+02
6	2,3,4,6,7,8-HxCDF	2.77e+05	2.16e+03	1.3e+02	2.26e+05	1.73e+03	1.3e+02
7	1,2,3,7,8,9-HxCDF	3.49e+05	2.16e+03	1.6e+02	3.09e+05	1.73e+03	1.8e+02
8	1,2,3,4,6,7,8-HpCDF	1.24e+06	1.77e+03	7.0e+02	1.20e+06	8.88e+02	1.4e+03
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.77e+03	2.3e+02	3.59e+05	8.88e+02	4.0e+02
10	OCDF	9.00e+05	1.07e+03	8.4e+02	1.06e+06	1.78e+03	6.0e+02
11	2,3,7,8-TCDD	1.54e+07	4.22e+03	3.7e+03	1.97e+07	2.39e+03	8.2e+03
12	1,2,3,7,8-PeCDD	2.49e+05	2.02e+03	1.2e+02	1.20e+05	8.60e+02	1.4e+02
13	1,2,3,4,7,8-HxCDD	9.95e+03	1.24e+03	8.0e+00	1.20e+04	1.09e+03	1.1e+01
14	1,2,3,6,7,8-HxCDD	5.22e+04	1.24e+03	4.2e+01	4.17e+04	1.09e+03	3.8e+01
15	1,2,3,7,8,9-HxCDD	2.89e+04	1.24e+03	2.3e+01	2.13e+04	1.09e+03	2.0e+01
16	1,2,3,4,6,7,8-HpCDD	1.26e+06	1.18e+03	1.1e+03	1.25e+06	7.92e+02	1.6e+03
17	OCDD	8.66e+06	1.00e+03	8.6e+03	9.83e+06	1.03e+03	9.5e+03
18	13C-2,3,7,8-TCDF	5.62e+06	1.59e+04	3.5e+02	7.25e+06	1.26e+04	5.7e+02
19	13C-1,2,3,7,8-PeCDF	1.04e+07	2.48e+03	4.2e+03	6.55e+06	1.56e+03	4.2e+03
20	13C-2,3,4,7,8-PeCDF	9.82e+06	2.48e+03	4.0e+03	6.11e+06	1.56e+03	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	4.18e+06	2.16e+03	1.9e+03	7.98e+06	2.16e+03	3.7e+03
22	13C-1,2,3,6,7,8-HxCDF	4.53e+06	2.16e+03	2.1e+03	8.58e+06	2.16e+03	4.0e+03
23	13C-2,3,4,6,7,8-HxCDF	4.24e+06	2.16e+03	2.0e+03	8.26e+06	2.16e+03	3.8e+03
24	13C-1,2,3,7,8,9-HxCDF	3.73e+06	2.16e+03	1.7e+03	7.01e+06	2.16e+03	3.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.86e+06	1.14e+03	2.5e+03	6.38e+06	2.07e+03	3.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.74e+06	1.14e+03	2.4e+03	5.87e+06	2.07e+03	2.8e+03
27	13C-2,3,7,8-TCDD	3.26e+06	1.95e+04	1.7e+02	4.24e+06	6.06e+03	7.0e+02
28	13C-1,2,3,7,8-PeCDD	7.41e+06	2.16e+03	3.4e+03	4.71e+06	1.39e+03	3.4e+03
29	13C-1,2,3,4,7,8-HxCDD	6.55e+06	2.40e+03	2.7e+03	5.20e+06	1.87e+03	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	5.08e+06	2.40e+03	2.1e+03	4.25e+06	1.87e+03	2.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.07e+06	1.01e+03	6.0e+03	5.73e+06	1.02e+03	5.6e+03
32	13C-OCDD	3.72e+06	1.10e+03	3.4e+03	4.02e+06	3.72e+02	1.1e+04
33	13C-1,2,3,4-TCDD	8.76e+06	1.95e+04	4.5e+02	1.09e+07	6.06e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.36e+07	2.40e+03	5.7e+03	1.08e+07	1.87e+03	5.8e+03
35	37Cl-2,3,7,8-TCDD	4.72e+06	4.62e+03	1.0e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0204

Entry: 36 Totals Name: Total Tetra-Furans

Run: 19 File: P615951 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 19:48:42 Processed: 10-DEC-18 11:32:12

Mass: 303.9020 305.8990 Tot Response: 1.48e+06 RRF: 1.081

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:39	2.43e+03	3.33e+03	0.73	yes	5.77e+03		n	n
2	24:52	9.13e+02	1.16e+03	0.79	yes	2.07e+03		n	n
3	24:59	1.20e+04	1.56e+04	0.77	yes	2.76e+04		n	n
4	25:23	4.08e+03	5.81e+03	0.70	yes	9.89e+03		n	n
5	25:41	1.28e+04	1.63e+04	0.79	yes	2.92e+04		n	n
6	26:05	2.84e+03	4.01e+03	0.71	yes	6.86e+03		n	n
7	26:25	2.52e+04	3.20e+04	0.79	yes	5.72e+04		n	n
8	26:52	1.68e+05	2.13e+05	0.79	yes	3.81e+05		n	n
9	27:09	7.45e+03	9.44e+03	0.79	yes	1.69e+04		n	n
10	27:47	3.57e+05	4.57e+05	0.78	yes	8.15e+05	2,3,7,8-TCDF	n	n
11	28:07	2.25e+04	2.84e+04	0.79	yes	5.09e+04		n	n
12	28:20	4.20e+03	5.28e+03	0.80	yes	9.48e+03		n	n
13	29:38	2.85e+04	3.61e+04	0.79	yes	6.46e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0204

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 19 File: P615951 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 19:48:42 Processed: 10-DEC-18 11:32:12

Mass: 319.8970 321.8940 Tot Response: 2.01e+05 RRF: 1.049

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:18	1.28e+03	1.60e+03	0.80	yes	2.88e+03		n	n
2	28:36	7.94e+04	1.01e+05	0.78	yes	1.80e+05	2,3,7,8-TCDD	n	n
3	28:51	8.15e+03	9.62e+03	0.85	yes	1.78e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0204

ntry: 39 Totals Name: Total Penta-Furans2

un: 19 File: P615951 Sample:1 Injection:1 Function:2

cquired: 6-DEC-18 19:48:42 Processed: 10-DEC-18 11:32:12

ass: 339.8600 341.8570 Tot Response: 8.69e+04 RRF: 1.130

RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
31:04	2.78e+02	2.03e+02	1.37	yes	4.81e+02		n	n
31:15	9.34e+03	5.89e+03	1.59	yes	1.52e+04		n	n
31:34	3.80e+01	2.75e+01	1.38	yes	6.55e+01		n	n
31:44	3.22e+02	2.40e+02	1.34	yes	5.61e+02		n	n
31:52	1.78e+03	1.18e+03	1.50	yes	2.96e+03		n	n
32:02	1.99e+04	1.27e+04	1.56	yes	3.25e+04	1,2,3,7,8-PeCDF	n	n
32:17	6.26e+03	4.02e+03	1.56	yes	1.03e+04		n	n
32:45	5.44e+01	3.63e+01	1.50	yes	9.07e+01		n	n
33:00	1.49e+04	9.77e+03	1.52	yes	2.47e+04	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0204

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 19 File: P615951 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 19:48:42 Processed: 10-DEC-18 11:32:12

Mass: 355.8550 357.8520 Tot Response: 8.21e+02 RRF: 0.9288

	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	31:15	2.11e+02	1.51e+02 1.40	yes	3.62e+02		n	y
	32:02	1.60e+02	1.01e+02 1.59	yes	2.61e+02		y	y
	32:13	1.14e+02	8.33e+01 1.37	yes	1.98e+02		y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0204

Entry: 41 Totals Name: Total Hexa-Furans

Run: 19 File: P615951 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 19:48:42 Processed: 10-DEC-18 11:32:12

Mass: 373.8210 375.8180 Tot Response: 7.00e+04 RRF: 1.324

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:42	2.31e+03	1.98e+03 1.17	yes	4.29e+03		n	n
2	35:13	1.64e+03	1.28e+03 1.28	yes	2.92e+03		n	n
3	35:40	2.54e+04	2.11e+04 1.20	yes	4.64e+04	1,2,3,4,7,8-HxCDF	n	n
4	35:47	6.23e+03	5.04e+03 1.24	yes	1.13e+04	1,2,3,6,7,8-HxCDF	n	n
5	36:19	1.39e+03	1.16e+03 1.20	yes	2.55e+03	2,3,4,6,7,8-HxCDF	n	n
6	37:05	1.38e+03	1.19e+03 1.15	yes	2.57e+03	1,2,3,7,8,9-HxCDF	n	n

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Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0204

ntry: 42 Totals Name: Total Hexa-Dioxins

un: 19 File: P615951 Sample:1 Injection:1 Function:3

cquired: 6-DEC-18 19:48:42 Processed: 10-DEC-18 11:32:12

lass: 389.8160 391.8130 Tot Response: 6.42e+03 RRF: 1.092

RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
35:04	2.35e+03	1.94e+03	1.21	yes	4.29e+03		n	n
35:49	9.07e+02	6.97e+02	1.30	yes	1.60e+03		n	y
36:27	4.78e+01	4.35e+01	1.10	yes	9.13e+01	1,2,3,4,7,8-HxCDD	y	y
36:33	2.56e+02	1.82e+02	1.41	yes	4.39e+02	1,2,3,6,7,8-HxCDD	y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0204

Entry: 43 Totals Name: Total Hepta-Furans

Run: 19 File: P615951 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 19:48:42 Processed: 10-DEC-18 11:32:12

Mass: 407.7820 409.7790 Tot Response: 1.99e+04 RRF: 1.495

	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	38:16	5.27e+03	5.01e+03	1.05	yes	1.03e+04	1,2,3,4,6,7,8-HpCDF	n	n
	38:32	7.01e+01	7.16e+01	0.98	yes	1.42e+02		n	n
	38:39	2.95e+03	2.93e+03	1.01	yes	5.88e+03		n	n
	39:36	1.84e+03	1.75e+03	1.05	yes	3.59e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0204

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 19 File: P615951 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 19:48:42 Processed: 10-DEC-18 11:32:12

Mass: 423.7770 425.7740 Tot Response: 2.77e+04 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:30	8.43e+03	7.91e+03	1.07	yes	1.63e+04		n	n
2	39:09	5.60e+03	5.73e+03	0.98	yes	1.13e+04	1,2,3,4,6,7,8-HpCDD	n	n

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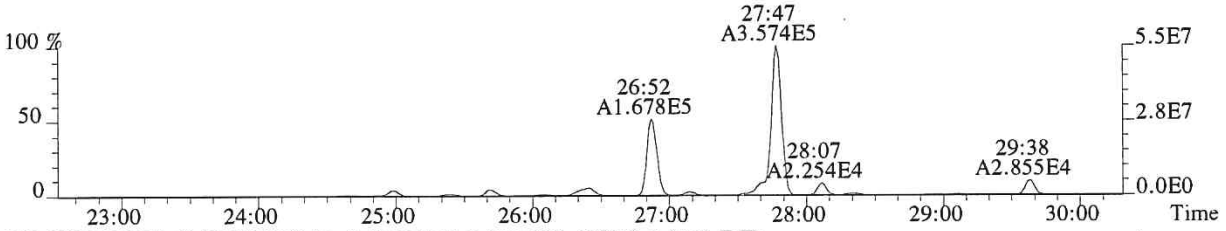
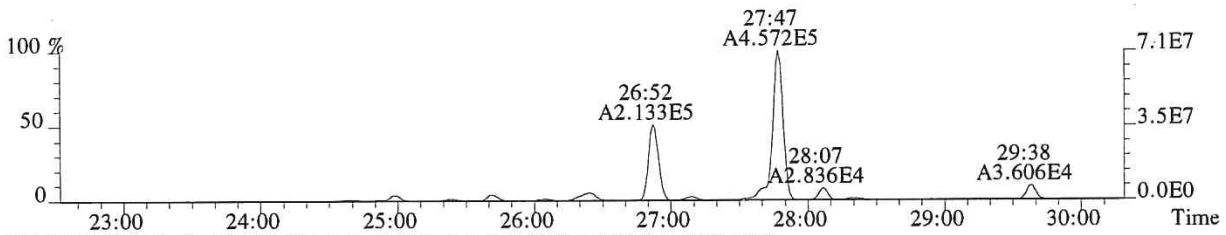
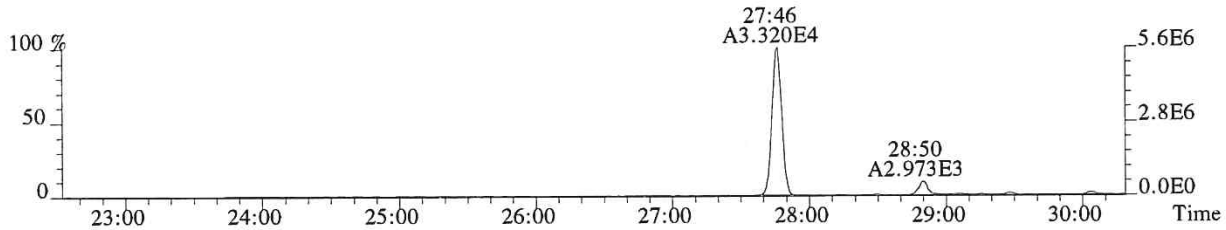
File:P615951 #1-552 Acq: 6-DEC-2018 19:48:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4984.0,1.00%,F,T)



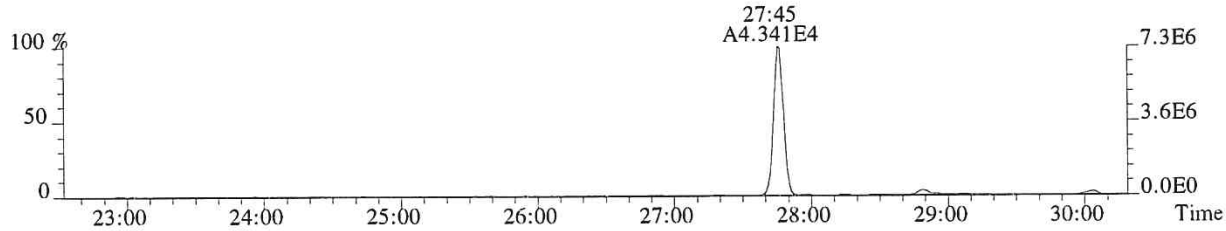
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4092.0,1.00%,F,T)



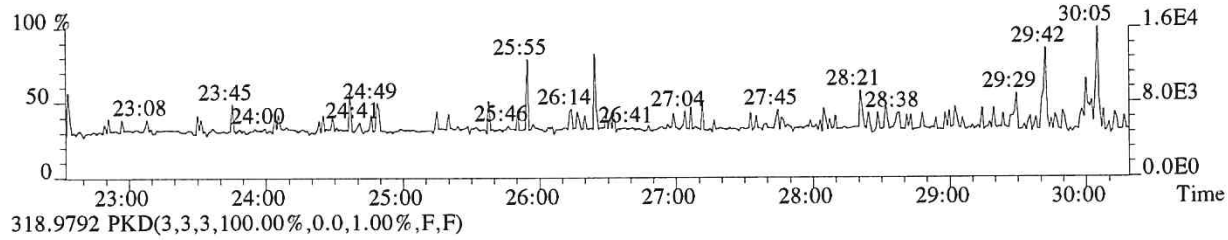
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15908.0,1.00%,F,T)



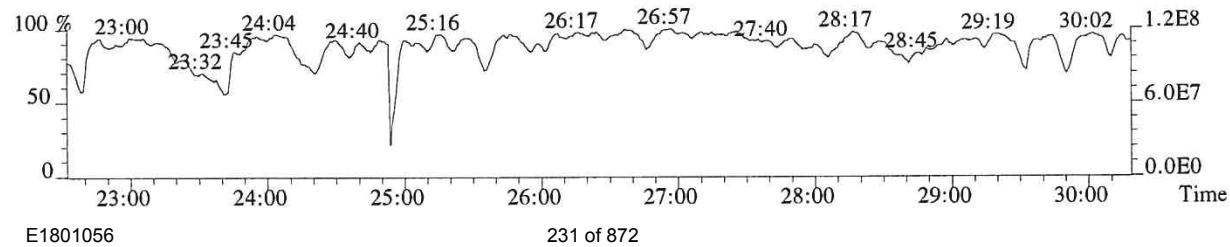
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12624.0,1.00%,F,T)



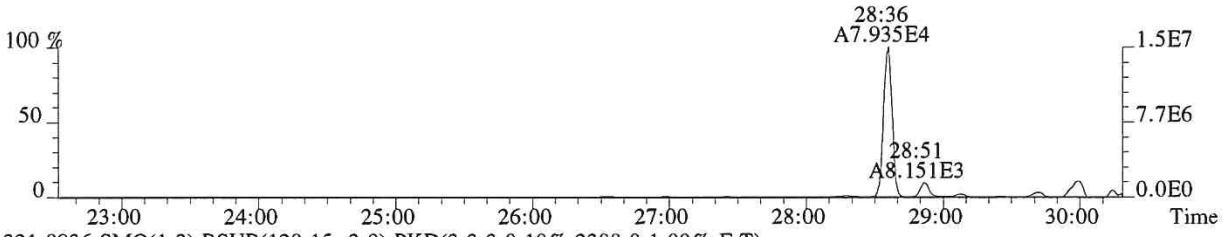
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



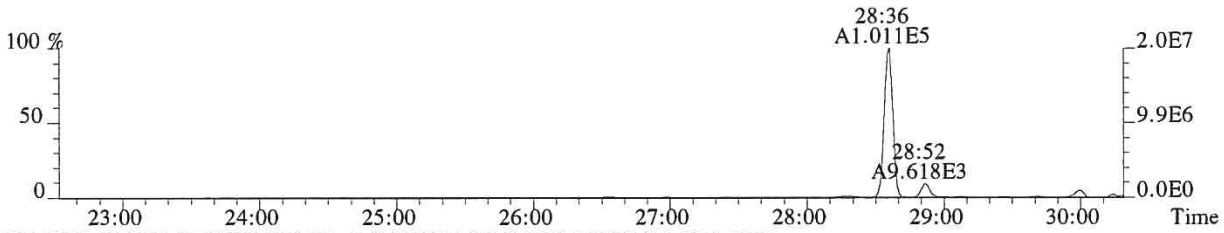
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



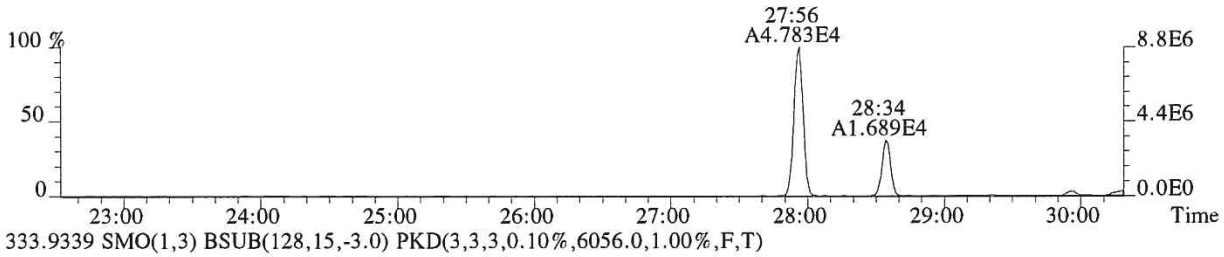
File:P615951 #1-552 Acq: 6-DEC-2018 19:48:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4224.0,1.00%,F,T)



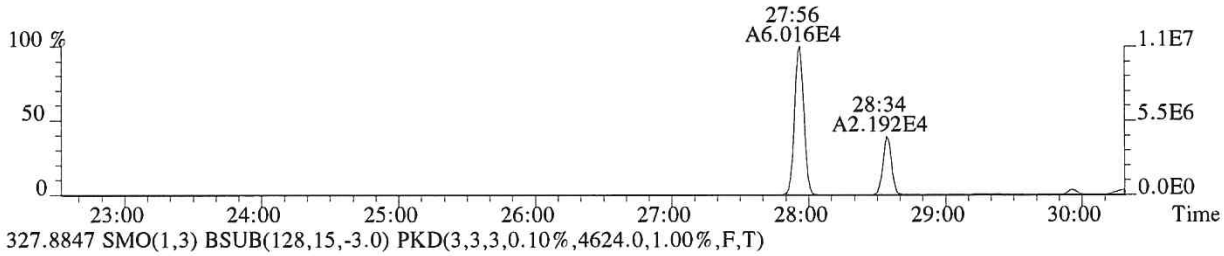
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



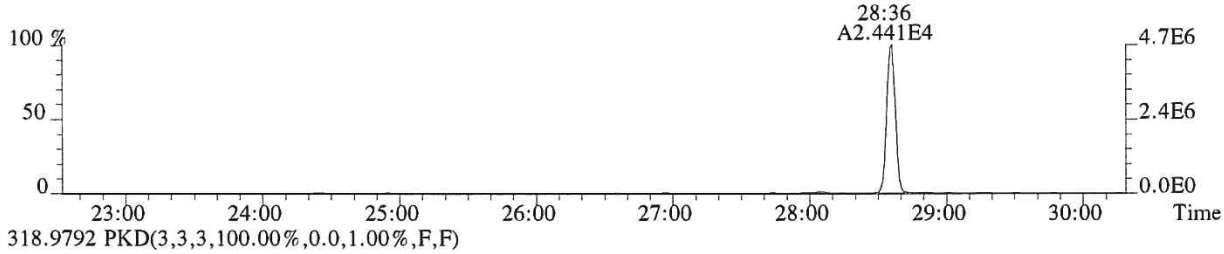
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19508.0,1.00%,F,T)



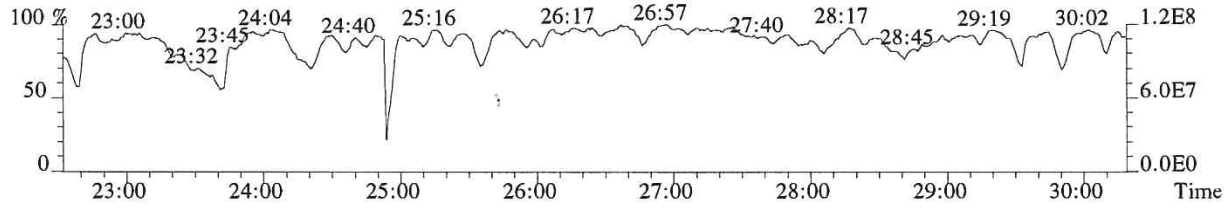
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6056.0,1.00%,F,T)



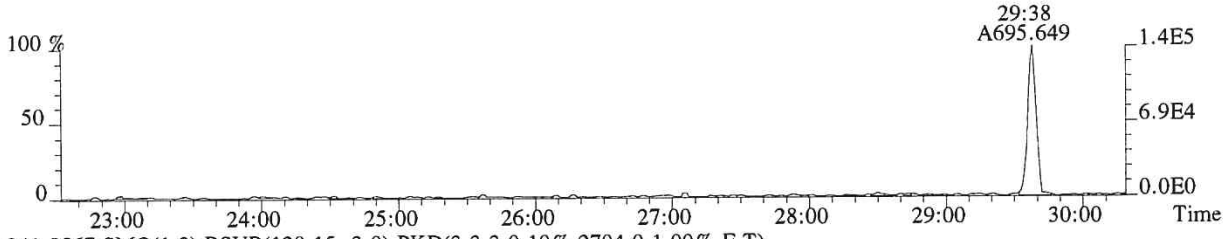
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4624.0,1.00%,F,T)



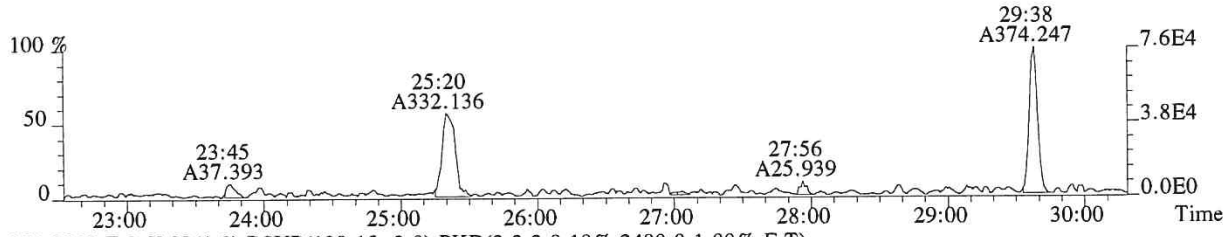
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



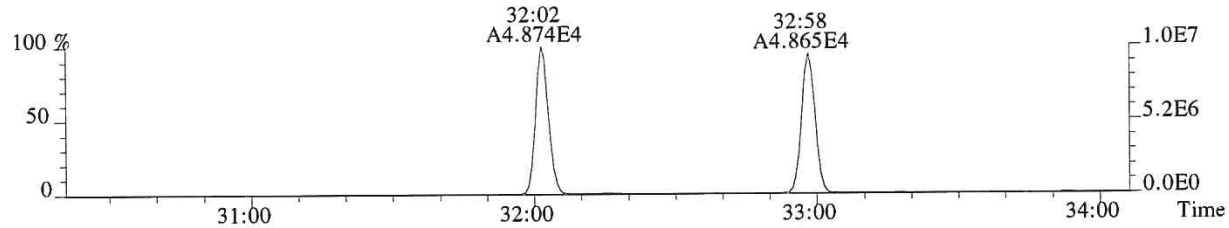
File:P615951 #1-552 Acq: 6-DEC-2018 19:48:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



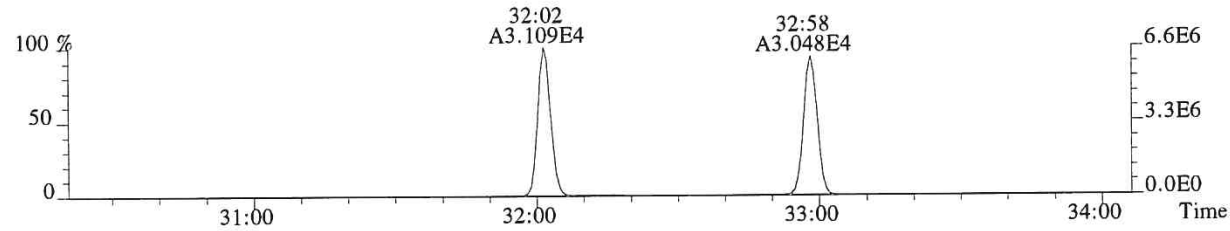
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2704.0,1.00%,F,T)



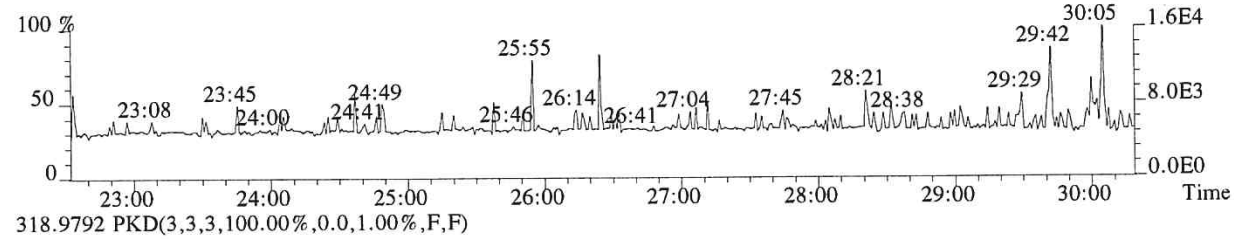
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2480.0,1.00%,F,T)



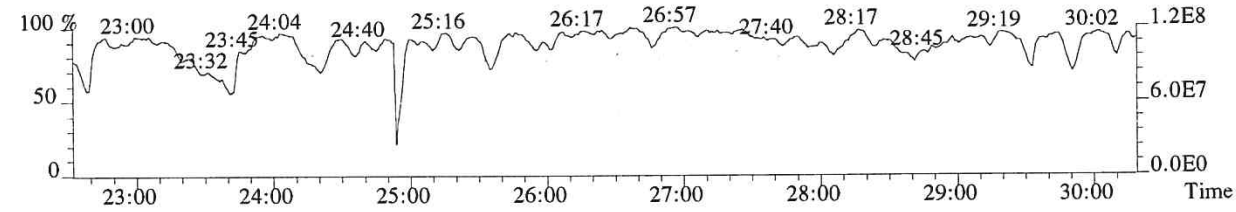
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

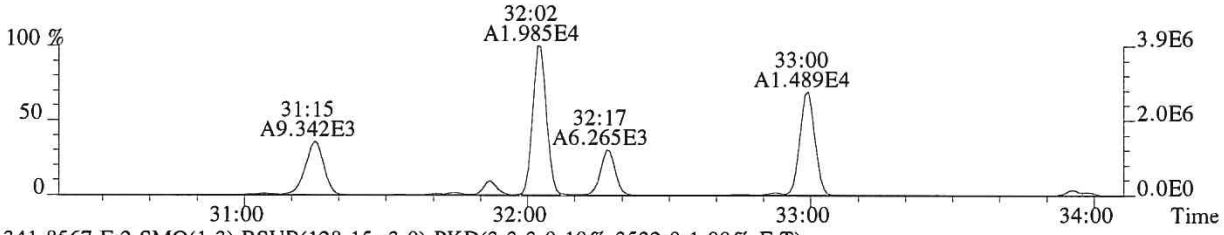


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

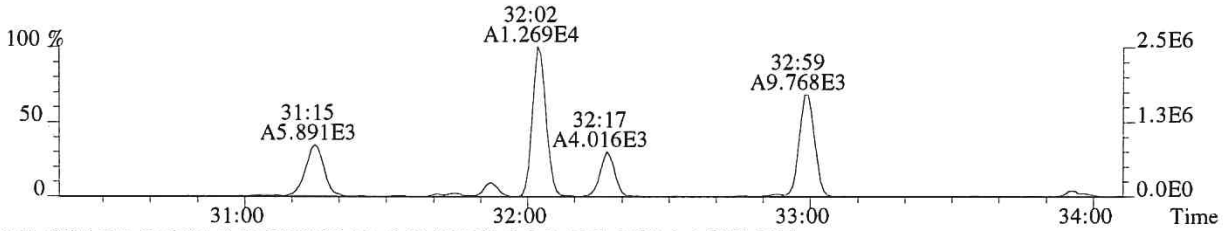


012451

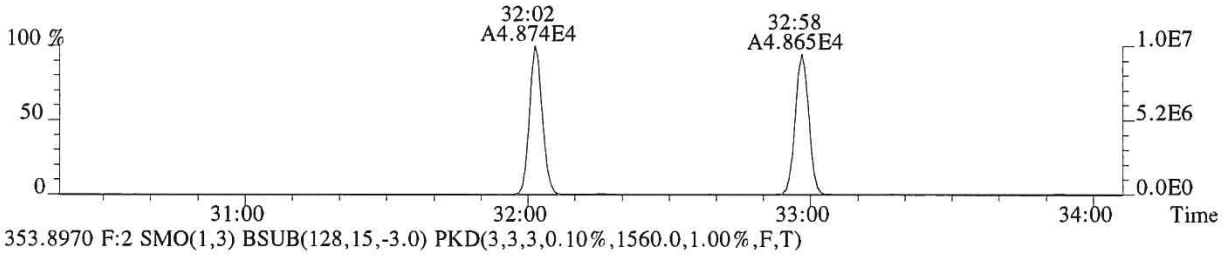
File:P615951 #1-339 Acq: 6-DEC-2018 19:48:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3100.0,1.00%,F,T)



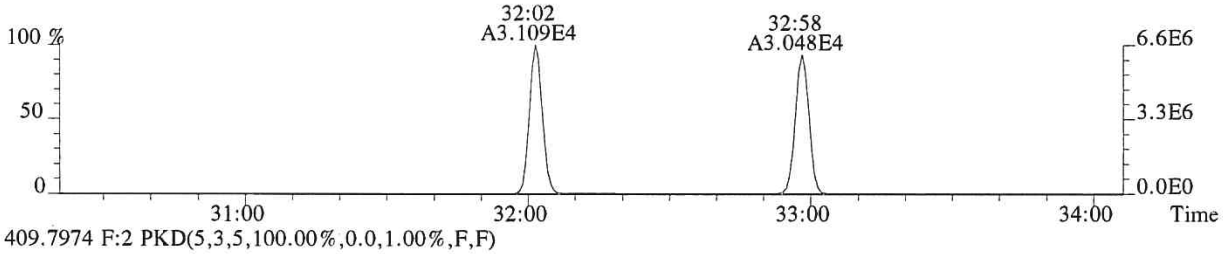
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3532.0,1.00%,F,T)



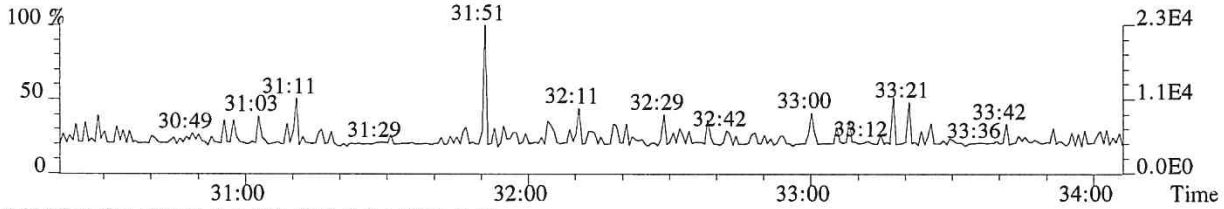
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2480.0,1.00%,F,T)



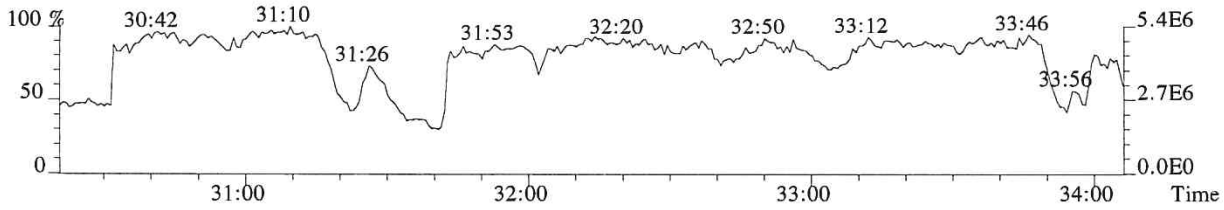
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

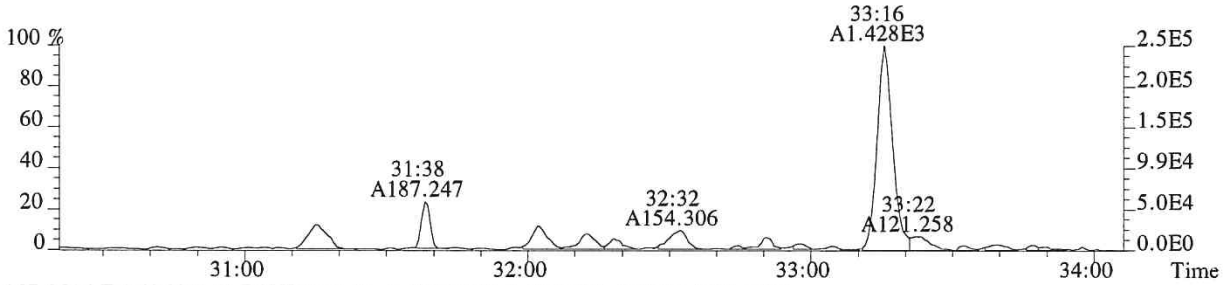


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

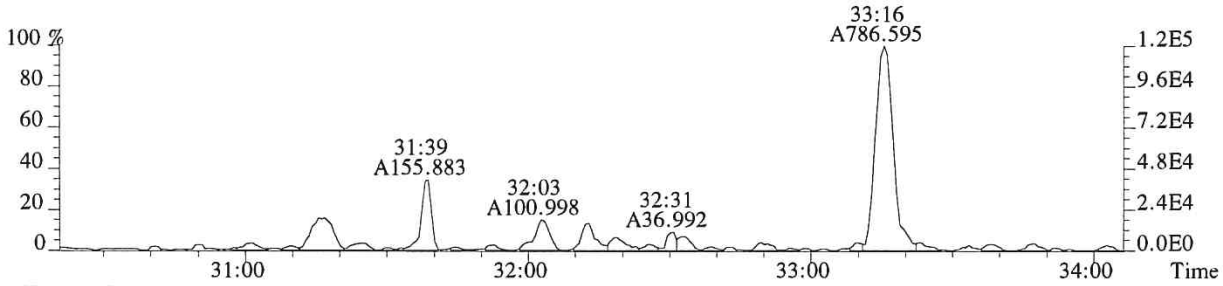


012452

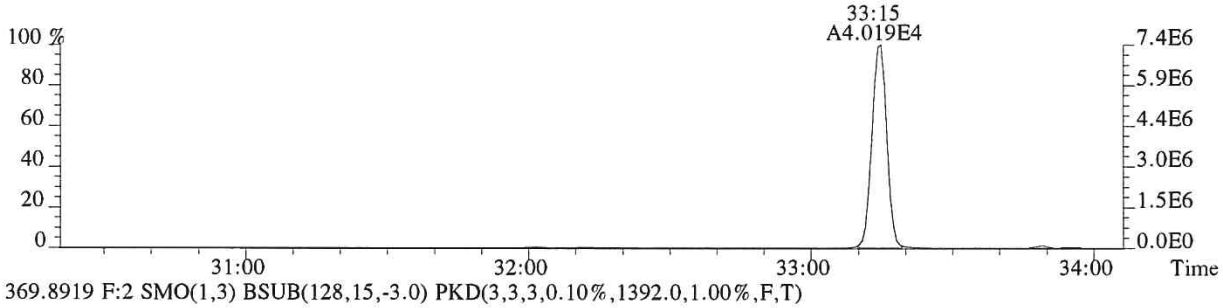
File:P615951 #1-339 Acq: 6-DEC-2018 19:48:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2016.0,1.00%,F,T)



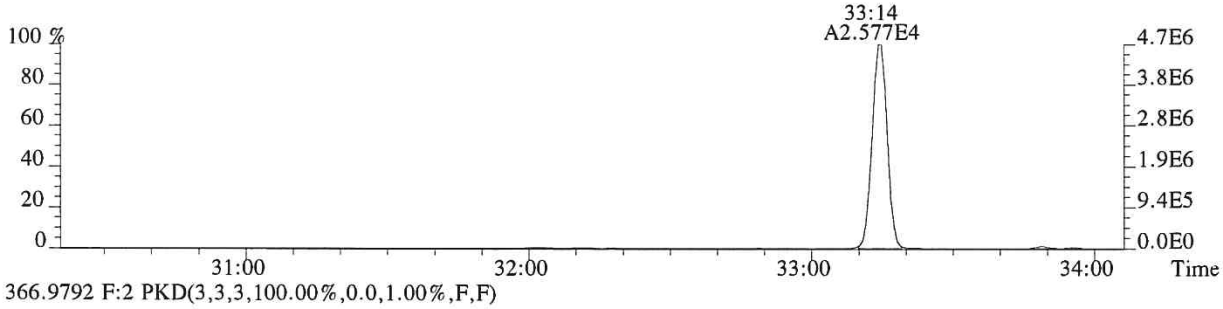
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



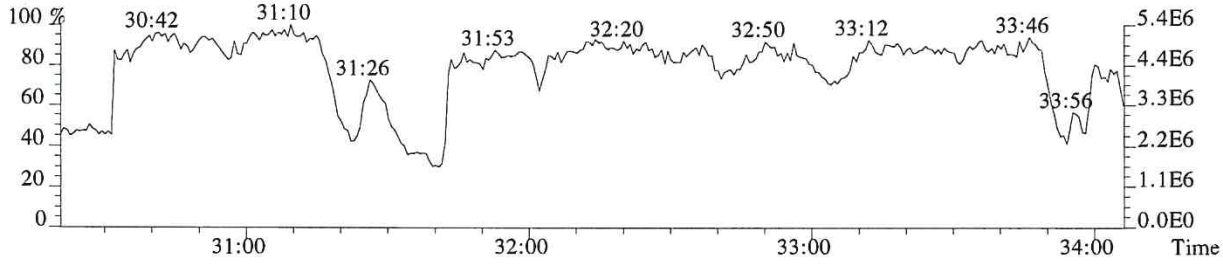
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2156.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)

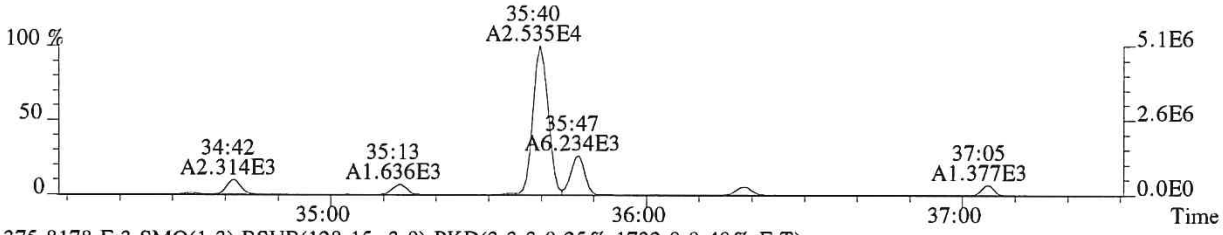


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

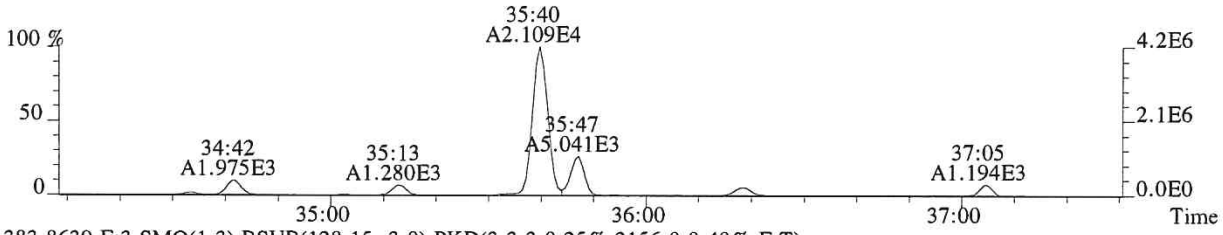


012453

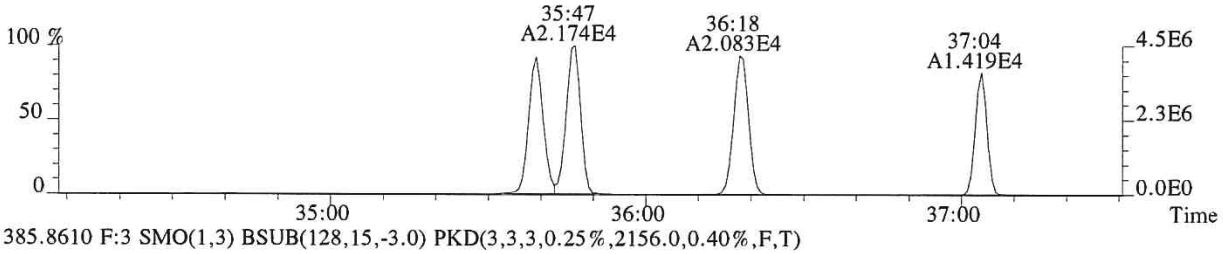
File:P615951 #1-304 Acq: 6-DEC-2018 19:48:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2160.0,0.40%,F,T)



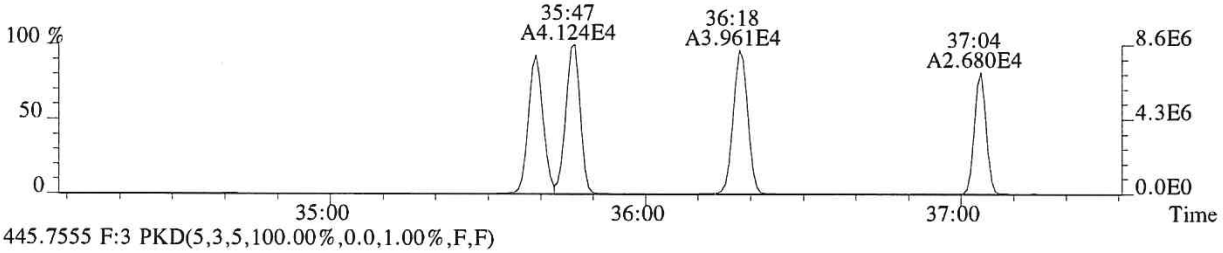
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1732.0,0.40%,F,T)



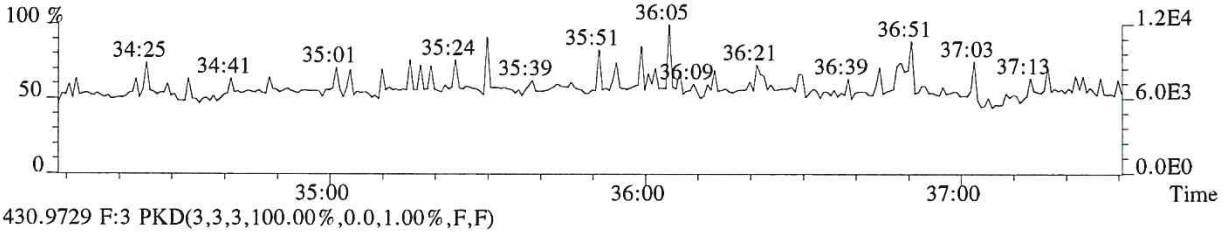
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2156.0,0.40%,F,T)



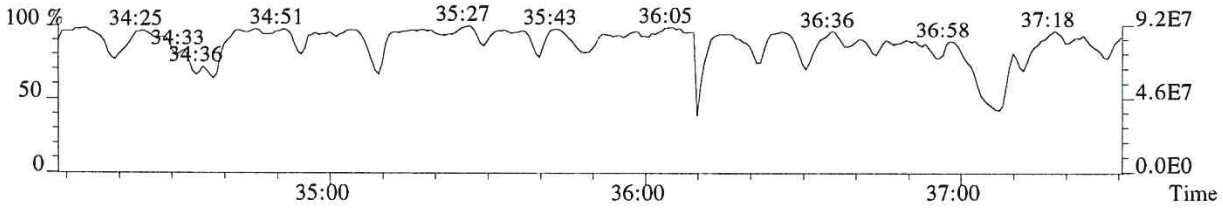
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2156.0,0.40%,F,T)



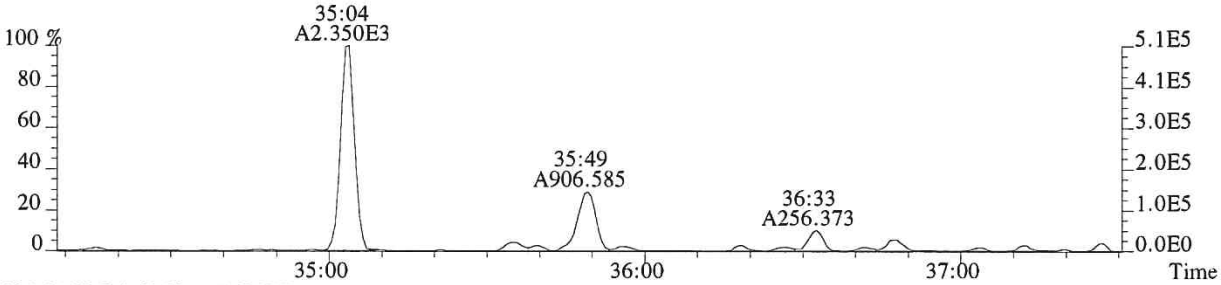
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



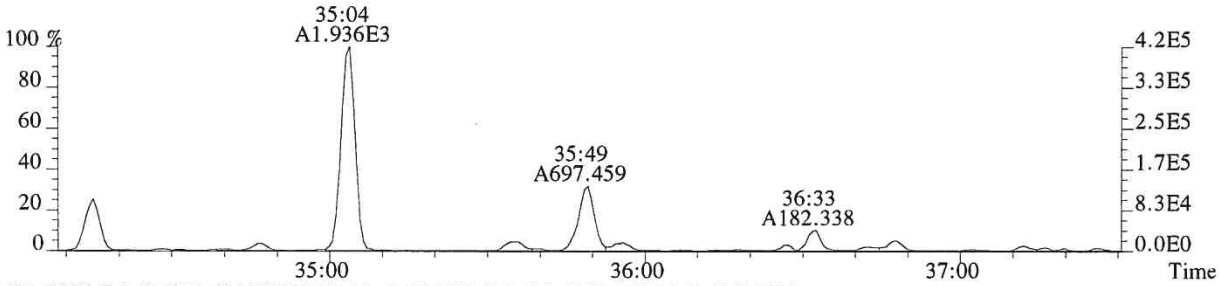
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



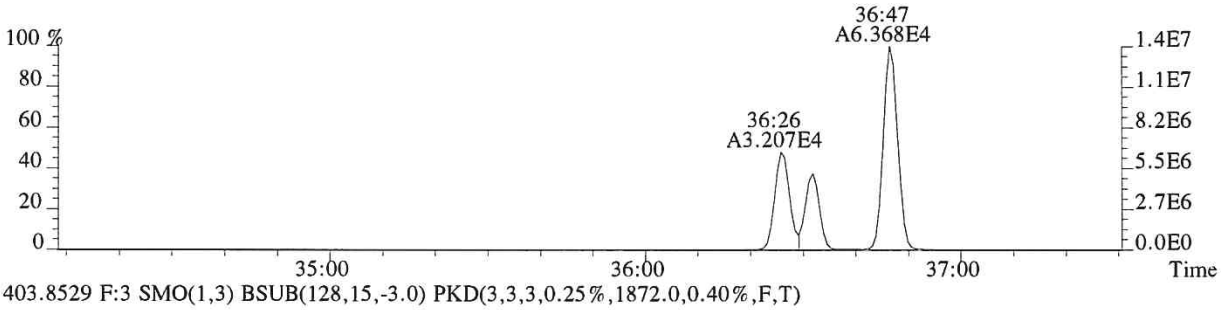
File:P615951 #1-304 Acq: 6-DEC-2018 19:48:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



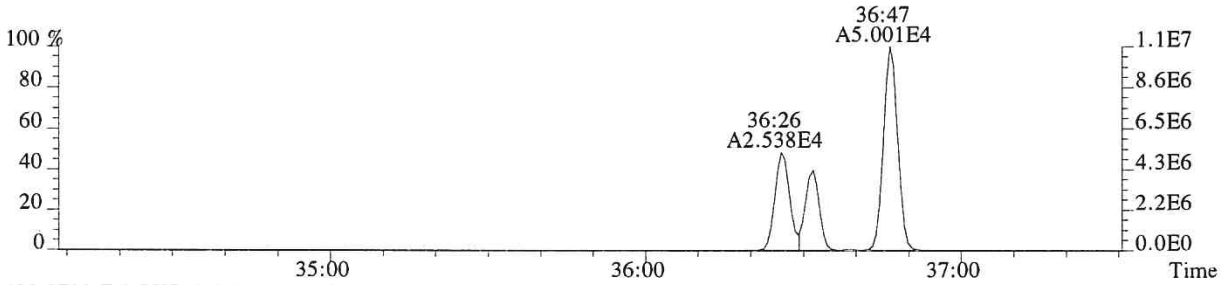
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1092.0,0.40%,F,T)



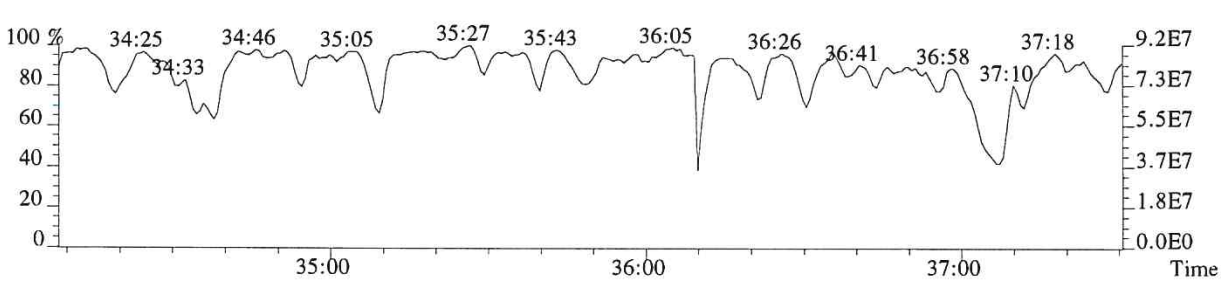
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



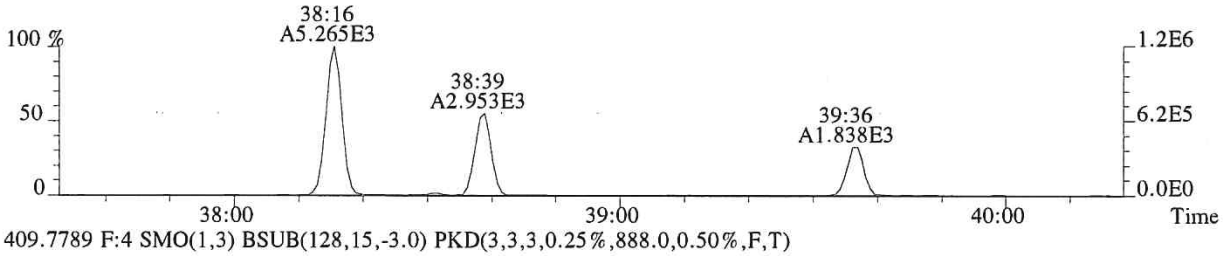
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1872.0,0.40%,F,T)



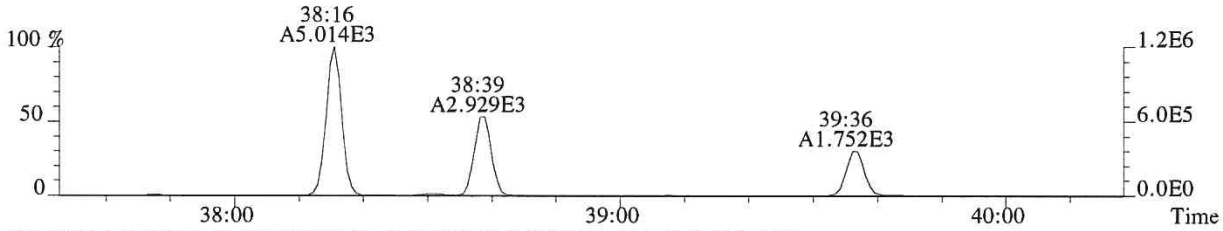
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



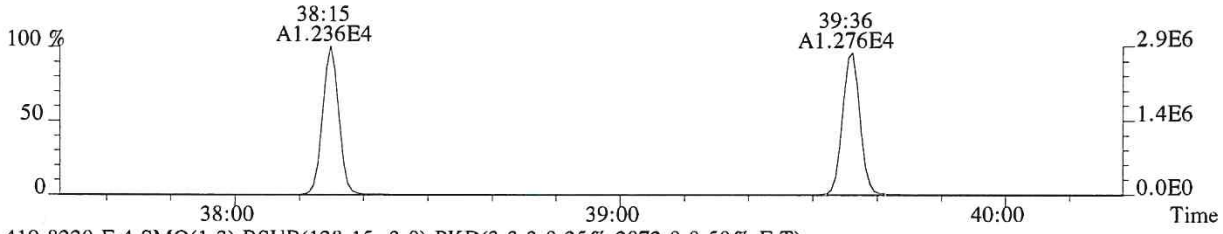
File:P615951 #1-249 Acq: 6-DEC-2018 19:48:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1772.0,0.50%,F,T)



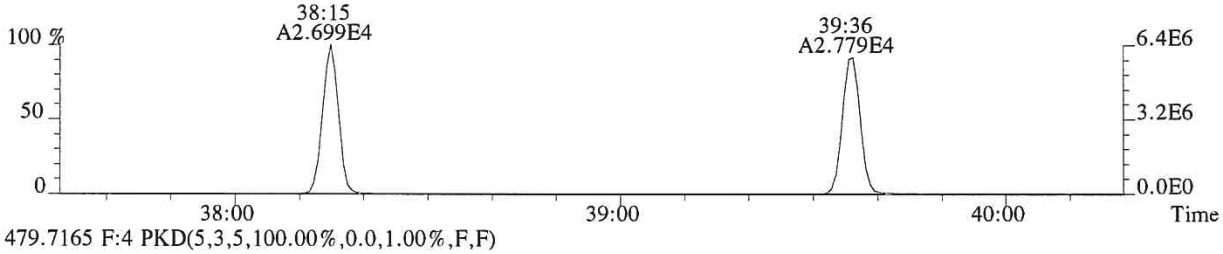
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.50%,F,T)



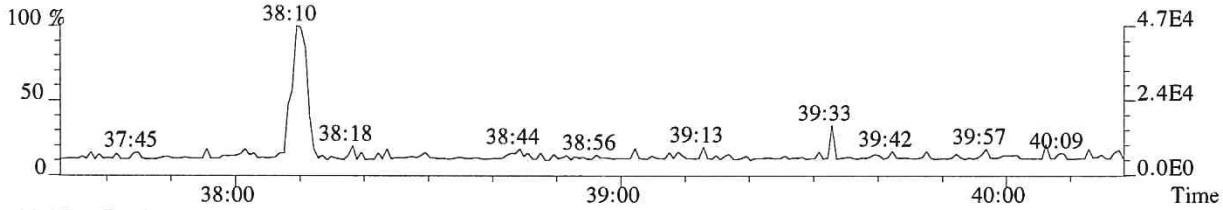
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.50%,F,T)



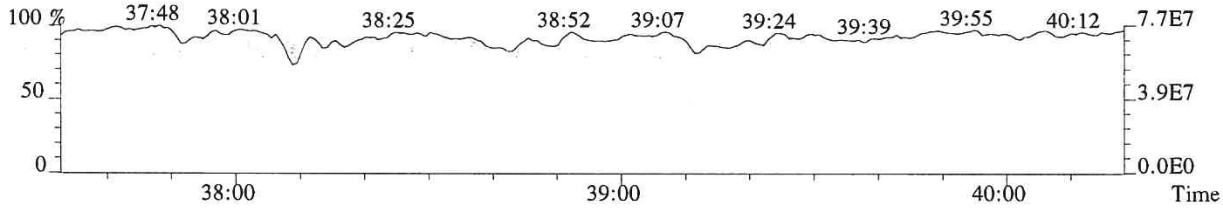
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2072.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

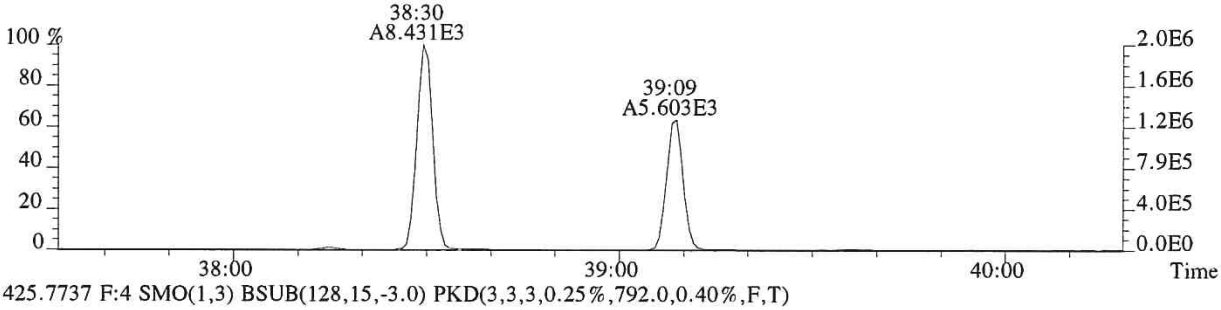


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

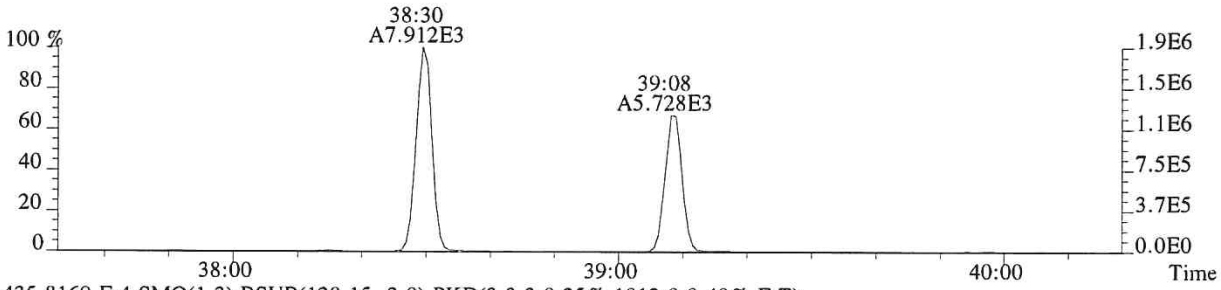


012456

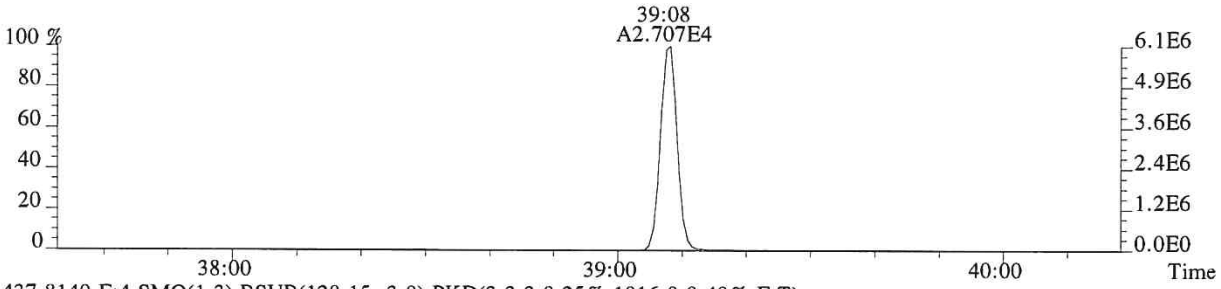
File:P615951 #1-249 Acq: 6-DEC-2018 19:48:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.40%,F,T)



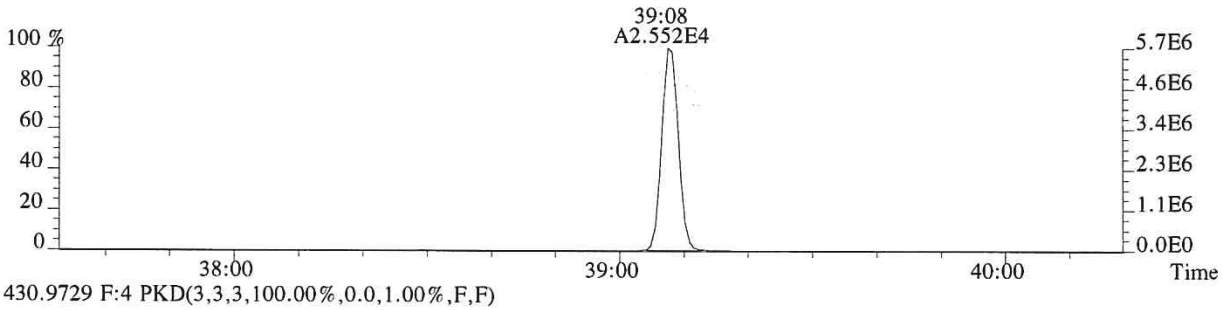
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



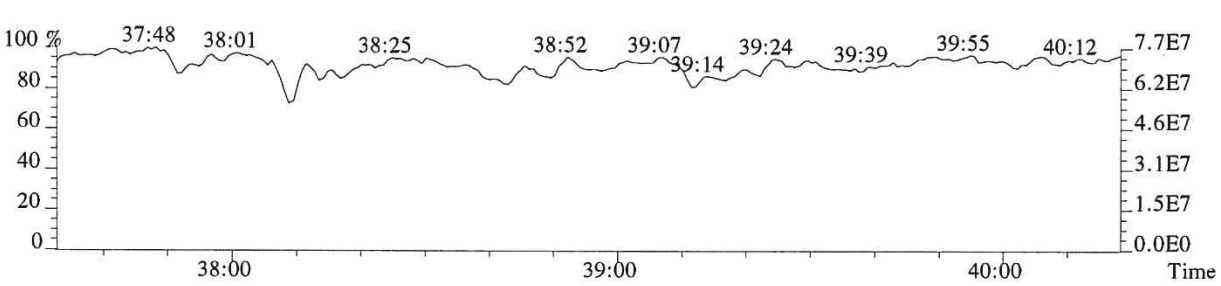
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)

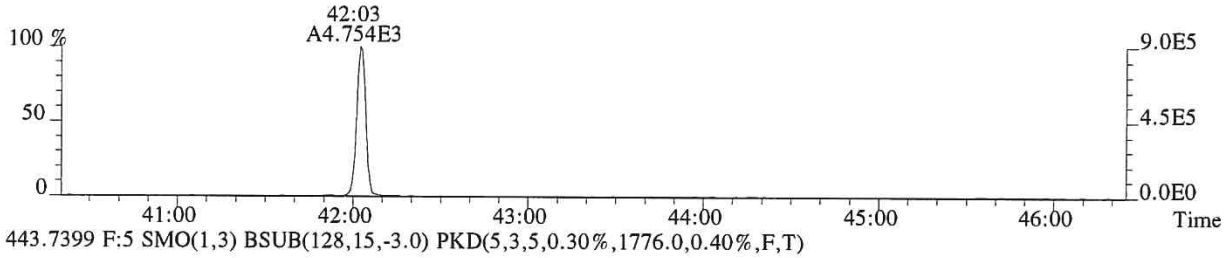


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

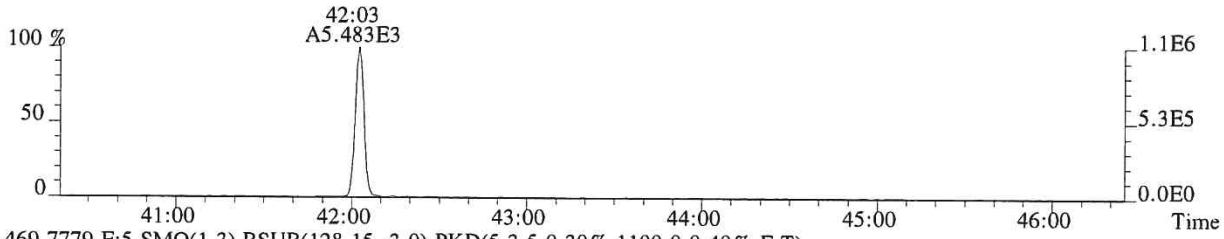


012457

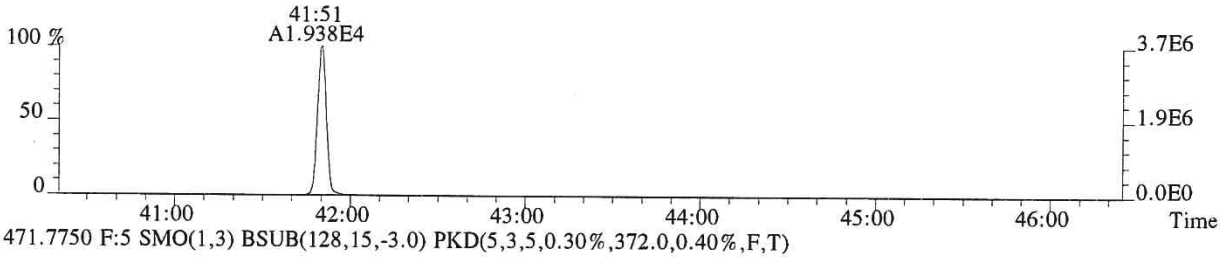
File:P615951 #1-547 Acq: 6-DEC-2018 19:48:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



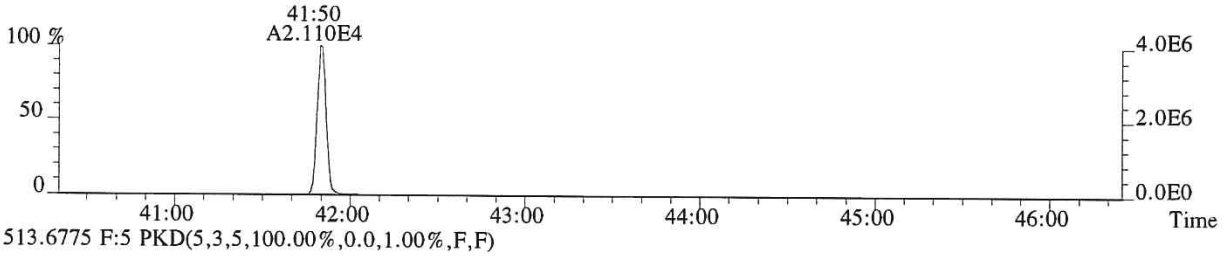
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1776.0,0.40%,F,T)



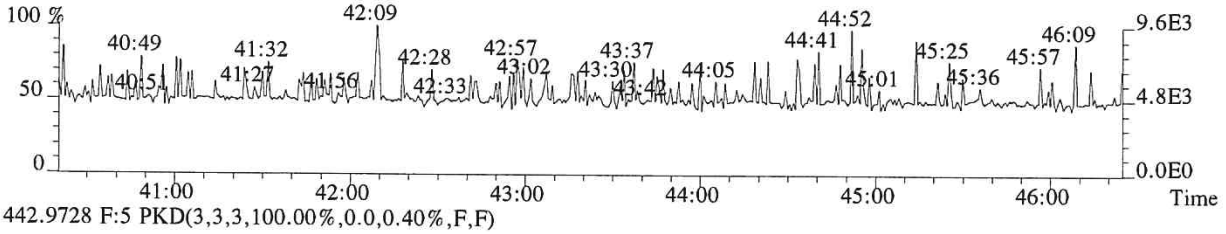
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1100.0,0.40%,F,T)



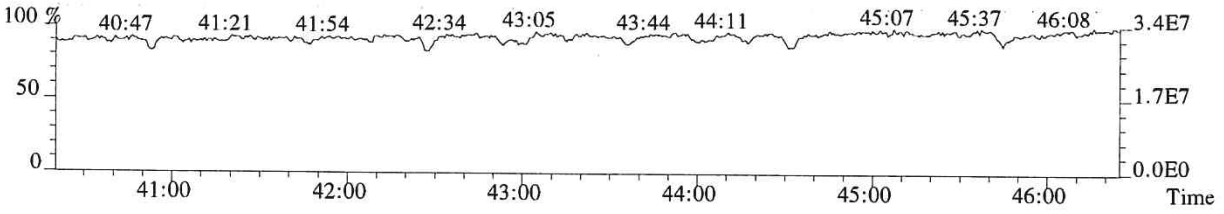
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

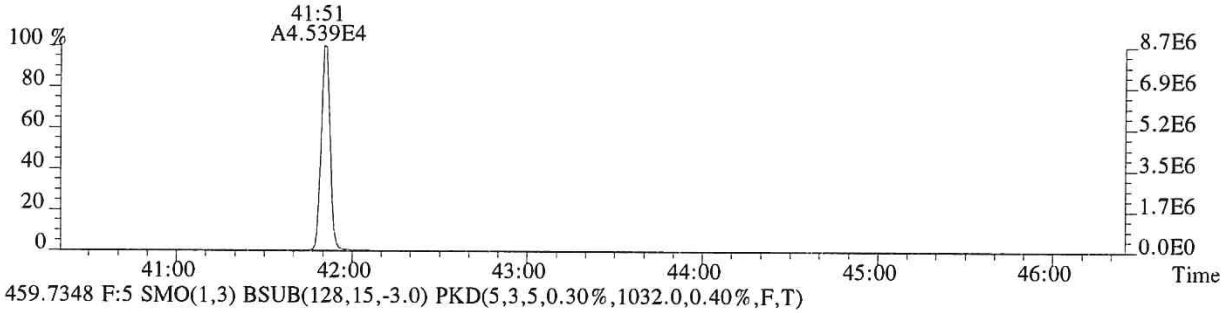


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

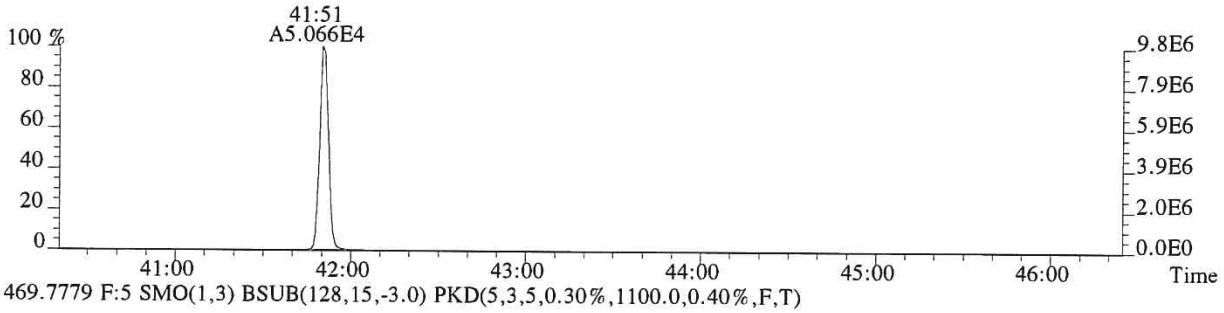


012458

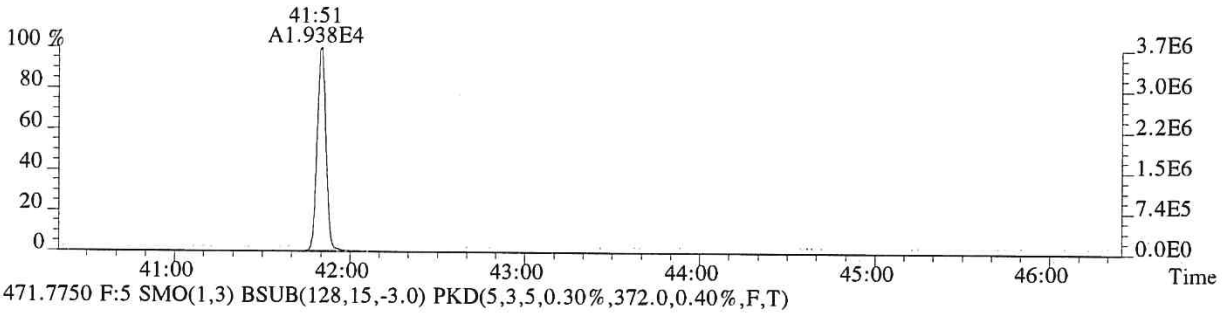
File:P615951 #1-547 Acq: 6-DEC-2018 19:48:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1004.0,0.40%,F,T)



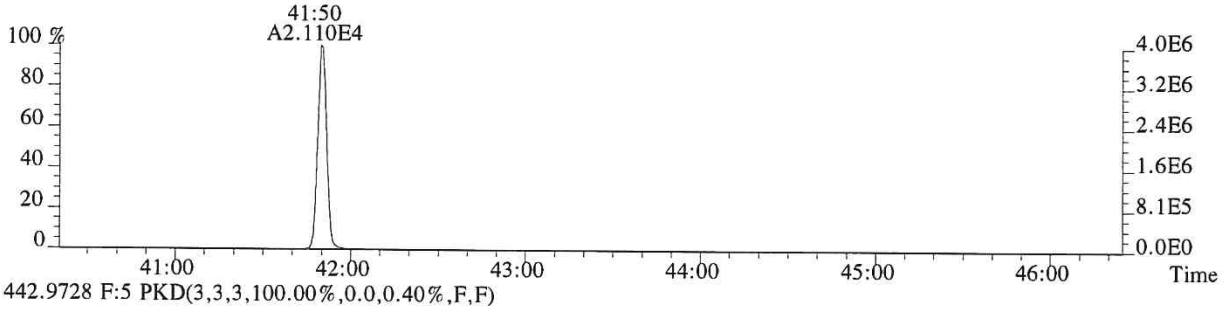
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1032.0,0.40%,F,T)



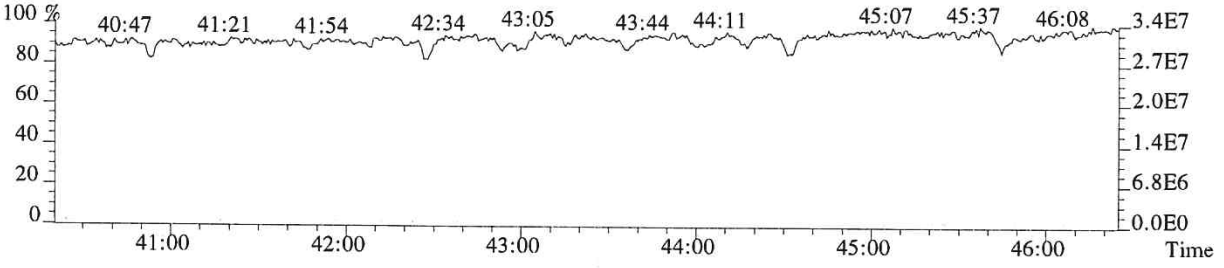
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1100.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0204

un #13 Filename P519341 Samp: 1 Inj: 1 Acquired: 11-DEC-18 02:51:38
rocessed: 12-DEC-18 13:50:57 Sample ID: E1801056-040DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	7.915e+03	1.086e+04	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	4.960e+02	3.031e+02	1.64	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	3.387e+02	2.151e+02	1.57	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	6.264e+02	5.040e+02	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.498e+02	1.436e+02	1.04	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	2.531e+01	2.512e+01	1.01	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:14	6.201e+01	6.052e+01	1.02	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	1.201e+02	1.381e+02	0.87	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	2.446e+01	3.737e+01	0.65	no	no	1.258
0	Unk	OCDF	42:38	1.382e+02	1.565e+02	0.88	yes	no	1.359
1	Unk	2,3,7,8-TCDD	28:35	1.889e+03	2.367e+03	0.80	yes	no	1.085
2	Unk	1,2,3,7,8-PeCDD	33:22	1.429e+01	2.386e+01	0.60	no	no	0.956
3	Unk	1,2,3,4,7,8-HxCDD	36:33	2.237e-01	6.163e+00	0.04	no	no	1.038
4	Unk	1,2,3,6,7,8-HxCDD	36:41	6.299e+00	1.039e+01	0.61	no	no	1.038
5	Unk	1,2,3,7,8,9-HxCDD	36:56	8.327e+00	8.244e+00	1.01	no	no	1.063
6	Unk	1,2,3,4,6,7,8-HpCDD	39:31	1.285e+02	1.081e+02	1.19	yes	no	1.025
7	Unk	OCDD	42:27	1.318e+03	1.448e+03	0.91	yes	no	1.118
8	IS	13C-2,3,7,8-TCDF	27:44	1.715e+04	2.149e+04	0.80	yes	no	1.513
9	IS	13C-1,2,3,7,8-PeCDF	32:06	2.692e+04	1.691e+04	1.59	yes	no	1.471
0	IS	13C-2,3,4,7,8-PeCDF	33:02	2.397e+04	1.529e+04	1.57	yes	no	1.457
1	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.030e+04	1.980e+04	0.52	yes	no	1.234
2	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.237e+04	2.318e+04	0.53	yes	no	1.399
3	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.144e+04	2.210e+04	0.52	yes	no	1.257
4	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.069e+04	2.077e+04	0.51	yes	no	1.086
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	8.845e+03	2.022e+04	0.44	yes	no	0.966
6	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	7.754e+03	1.754e+04	0.44	yes	no	0.820
7	IS	13C-2,3,7,8-TCDD	28:33	8.157e+03	1.035e+04	0.79	yes	no	0.924
8	IS	13C-1,2,3,7,8-PeCDD	33:19	1.712e+04	1.078e+04	1.59	yes	no	0.975
9	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.454e+04	1.126e+04	1.29	yes	no	0.925
0	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.462e+04	1.164e+04	1.26	yes	no	0.949
1	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	1.595e+04	1.500e+04	1.06	yes	no	0.858
2	IS	13C-OCDD	42:27	1.756e+04	1.945e+04	0.90	yes	no	0.582
3	RS/RT	13C-1,2,3,4-TCDD	27:59	1.226e+04	1.564e+04	0.78	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	1.522e+04	1.281e+04	1.19	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:35	5.914e+02				no	1.014

$$\text{OCDD} = \frac{(1.318e+03 + 1.448e+03) \times 4000 \text{ pg} \times 20}{(1.756e+04 + 1.945e+04) \times 10.602 \text{ g} \times 77.3/100 \times 1.118 \times 0.27} = 2416.6 \text{ ng/kg}$$

LH 12/13/18

LS ENVIRONMENTAL -- HOUSTON HRMS
0450 Stancliff Rd., Suite 115
ouston, TX 77099
ffice(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0204

un #13 Filename P519341 Samp: 1 Inj: 1 Acquired: 11-DEC-18 02:51:38
rocessed: 12-DEC-18 13:50:57 LAB. ID: E1801056-040DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	1.30e+06	3.60e+02	3.6e+03	1.78e+06	4.20e+02	4.2e+03
	1,2,3,7,8-PeCDF	8.00e+04	6.08e+02	1.3e+02	5.31e+04	4.76e+02	1.1e+02
	2,3,4,7,8-PeCDF	5.16e+04	6.08e+02	8.5e+01	3.57e+04	4.76e+02	7.5e+01
	1,2,3,4,7,8-HxCDF	1.26e+05	2.04e+02	6.2e+02	1.06e+05	1.72e+02	6.1e+02
	1,2,3,6,7,8-HxCDF	2.70e+04	2.04e+02	1.3e+02	2.43e+04	1.72e+02	1.4e+02
	2,3,4,6,7,8-HxCDF	5.62e+03	2.04e+02	2.8e+01	5.14e+03	1.72e+02	3.0e+01
	1,2,3,7,8,9-HxCDF	1.05e+04	2.04e+02	5.1e+01	9.59e+03	1.72e+02	5.6e+01
	1,2,3,4,6,7,8-HpCDF	2.66e+04	2.20e+02	1.2e+02	2.87e+04	2.68e+02	1.1e+02
	1,2,3,4,7,8,9-HpCDF	4.78e+03	2.20e+02	2.2e+01	5.93e+03	2.68e+02	2.2e+01
0	OCDF	1.83e+04	2.04e+02	9.0e+01	2.04e+04	3.52e+02	5.8e+01
1	2,3,7,8-TCDD	3.48e+05	1.18e+03	3.0e+02	4.57e+05	4.48e+02	1.0e+03
2	1,2,3,7,8-PeCDD	2.62e+03	3.64e+02	7.2e+00	5.49e+03	2.92e+02	1.9e+01
3	1,2,3,4,7,8-HxCDD	7.51e+01	2.16e+02	3.5e-01	1.54e+03	2.84e+02	5.4e+00
4	1,2,3,6,7,8-HxCDD	1.29e+03	2.16e+02	6.0e+00	2.18e+03	2.84e+02	7.7e+00
5	1,2,3,7,8,9-HxCDD	1.56e+03	2.16e+02	7.2e+00	1.56e+03	2.84e+02	5.5e+00
6	1,2,3,4,6,7,8-HpCDD	2.23e+04	2.44e+02	9.1e+01	2.39e+04	2.60e+02	9.2e+01
7	OCDD	1.52e+05	1.60e+02	9.5e+02	1.75e+05	3.48e+02	5.0e+02
8	13C-2,3,7,8-TCDF	3.00e+06	4.45e+03	6.7e+02	3.77e+06	2.95e+03	1.3e+03
9	13C-1,2,3,7,8-PeCDF	5.05e+06	3.76e+02	1.3e+04	3.15e+06	3.20e+02	9.9e+03
0	13C-2,3,4,7,8-PeCDF	4.59e+06	3.76e+02	1.2e+04	2.95e+06	3.20e+02	9.2e+03
1	13C-1,2,3,4,7,8-HxCDF	2.19e+06	2.08e+02	1.1e+04	4.13e+06	4.32e+02	9.6e+03
2	13C-1,2,3,6,7,8-HxCDF	2.38e+06	2.08e+02	1.1e+04	4.45e+06	4.32e+02	1.0e+04
3	13C-2,3,4,6,7,8-HxCDF	2.33e+06	2.08e+02	1.1e+04	4.42e+06	4.32e+02	1.0e+04
4	13C-1,2,3,7,8,9-HxCDF	2.00e+06	2.08e+02	9.6e+03	3.90e+06	4.32e+02	9.0e+03
5	13C-1,2,3,4,6,7,8-HpCDF	1.70e+06	2.40e+03	7.1e+02	3.79e+06	7.05e+03	5.4e+02
6	13C-1,2,3,4,7,8,9-HpCDF	1.21e+06	2.40e+03	5.0e+02	2.76e+06	7.05e+03	3.9e+02
7	13C-2,3,7,8-TCDD	1.53e+06	4.35e+03	3.5e+02	1.96e+06	1.58e+03	1.2e+03
8	13C-1,2,3,7,8-PeCDD	3.29e+06	3.40e+02	9.7e+03	2.09e+06	6.60e+02	3.2e+03
9	13C-1,2,3,4,7,8-HxCDD	3.15e+06	5.92e+02	5.3e+03	2.42e+06	2.00e+02	1.2e+04
0	13C-1,2,3,6,7,8-HxCDD	2.74e+06	5.92e+02	4.6e+03	2.21e+06	2.00e+02	1.1e+04
1	13C-1,2,3,4,6,7,8-HpCDD	2.63e+06	2.52e+02	1.0e+04	2.40e+06	2.48e+02	9.7e+03
2	13C-OCDD	2.04e+06	2.28e+02	8.9e+03	2.26e+06	2.76e+02	8.2e+03
3	13C-1,2,3,4-TCDD	2.31e+06	4.35e+03	5.3e+02	2.87e+06	1.58e+03	1.8e+03
4	13C-1,2,3,7,8,9-HxCDD	2.94e+06	5.92e+02	5.0e+03	2.31e+06	2.00e+02	1.2e+04
5	37Cl-2,3,7,8-TCDD	1.01e+05	7.12e+02	1.4e+02			

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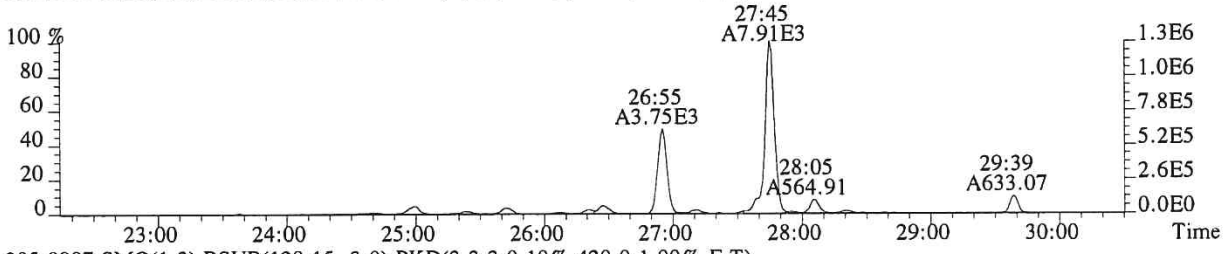
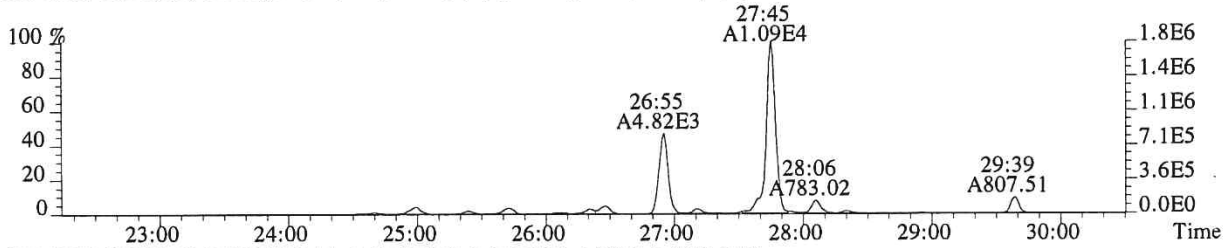
File:P519341 #1-587 Acq:11-DEC-2018 02:51:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040DL

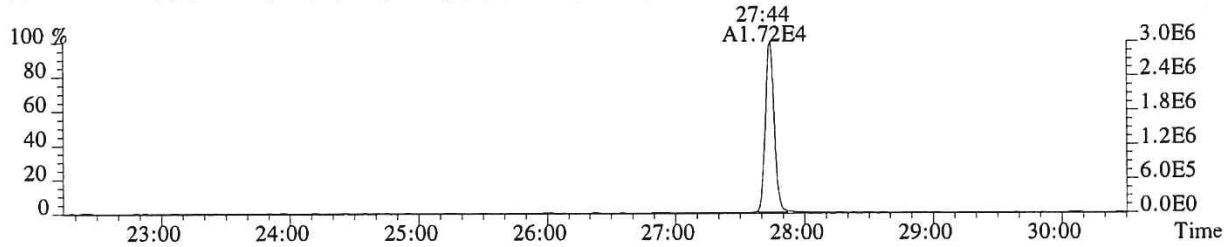
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



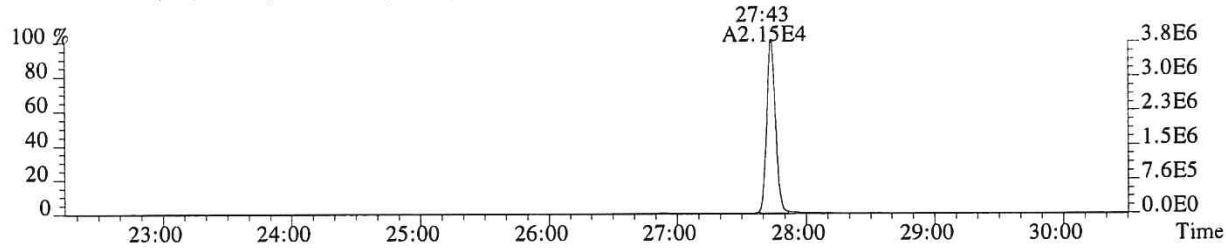
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



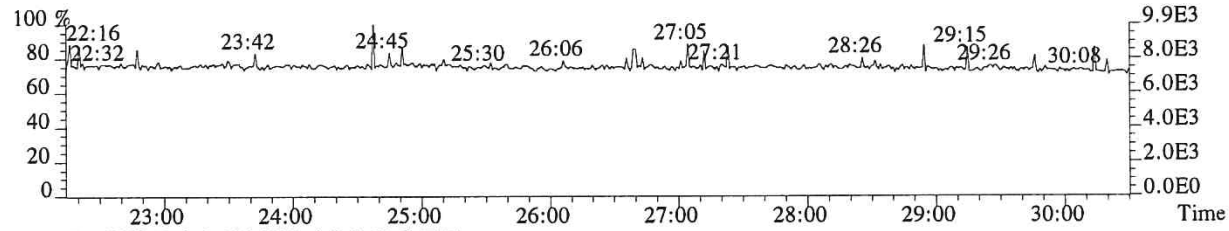
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4448.0,1.00%,F,T)



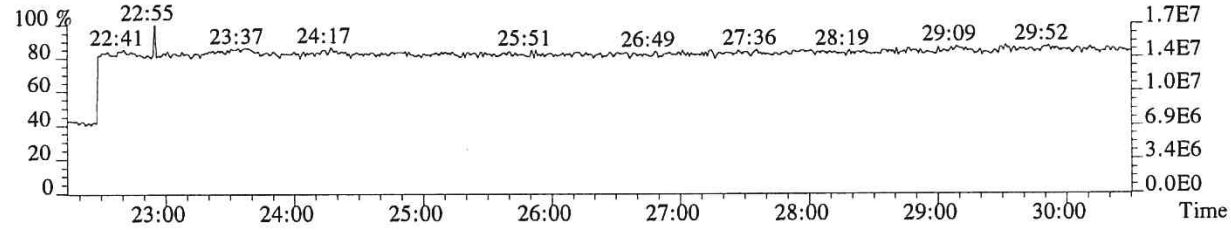
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2952.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

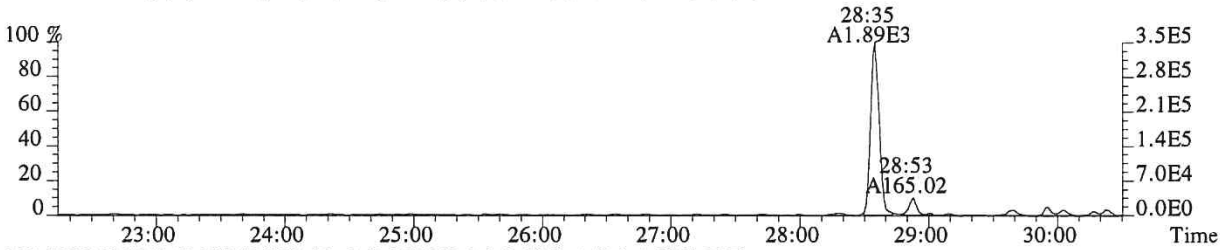


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

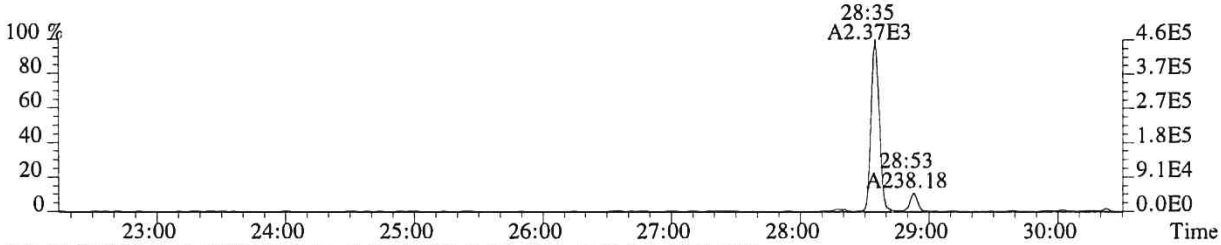


012462

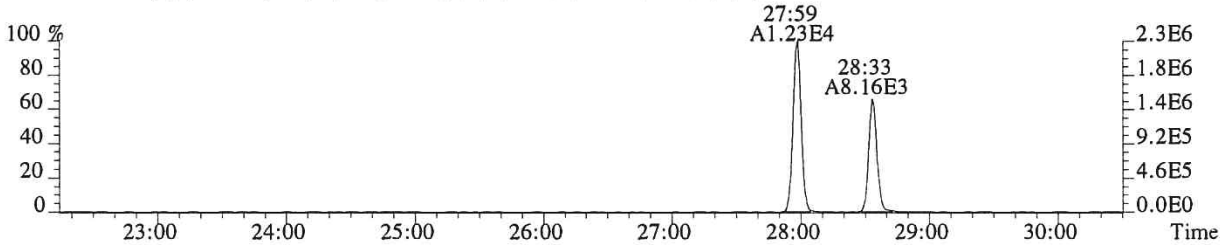
File:P519341 #1-587 Acq:11-DEC-2018 02:51:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



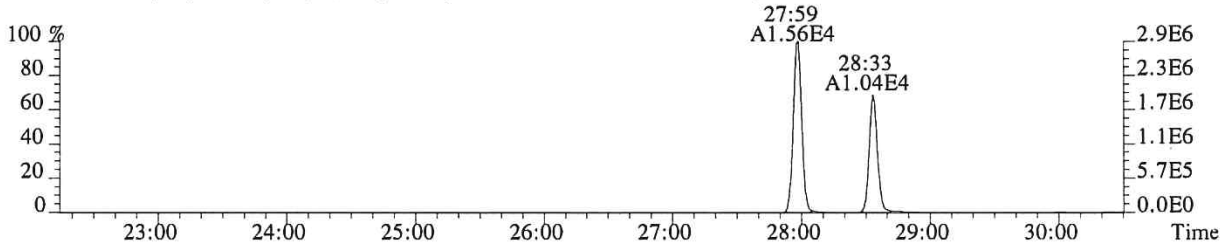
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



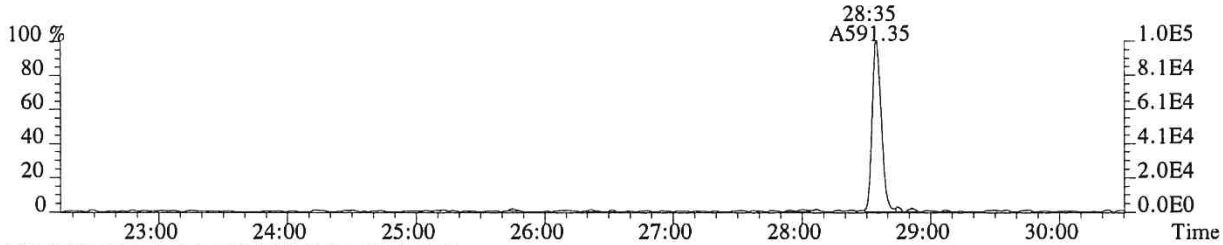
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4352.0,1.00%,F,T)



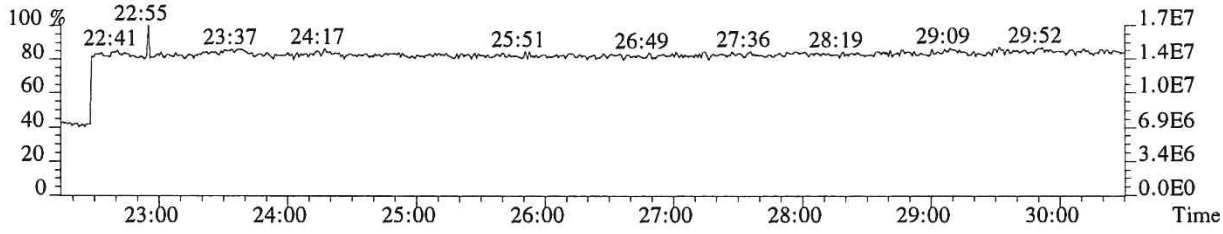
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)

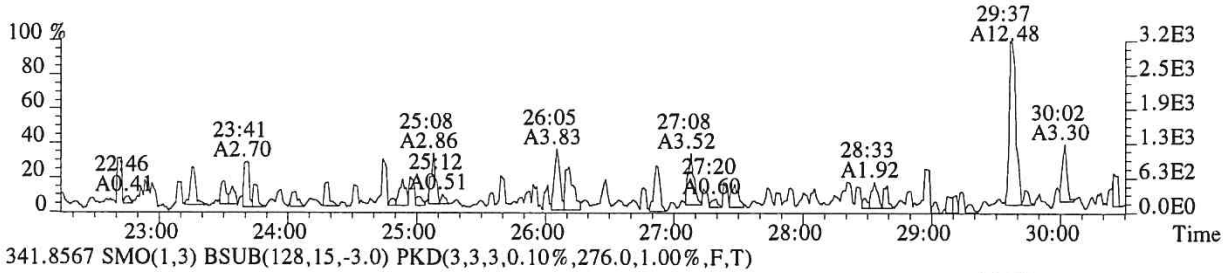


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

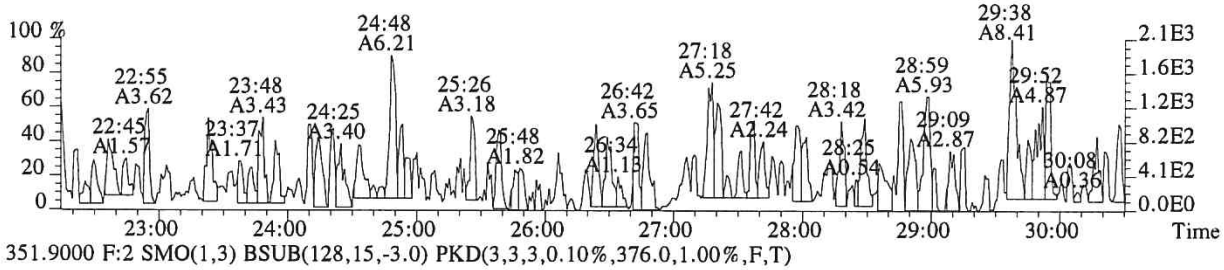


012463

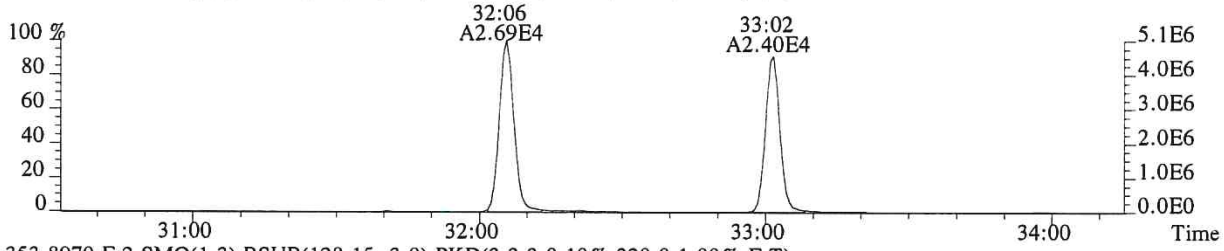
File:P519341 #1-587 Acq:11-DEC-2018 02:51:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



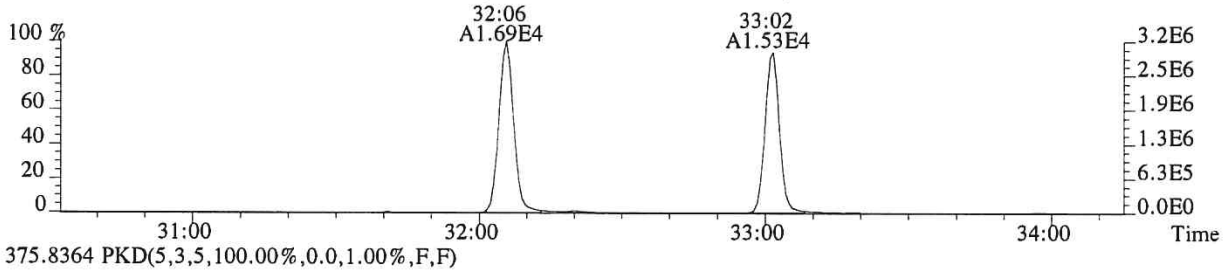
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



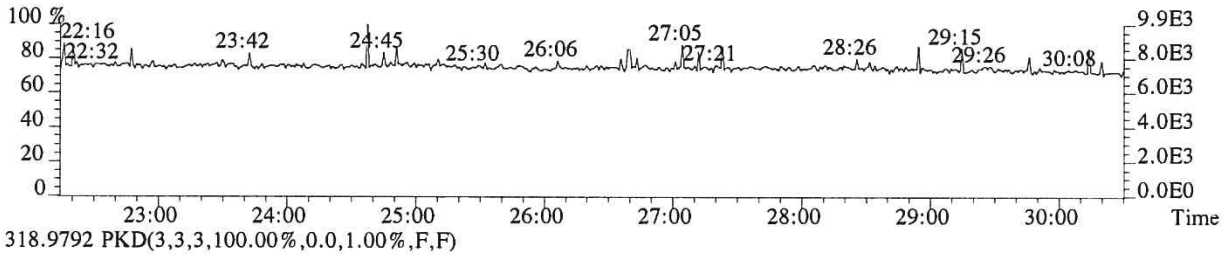
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



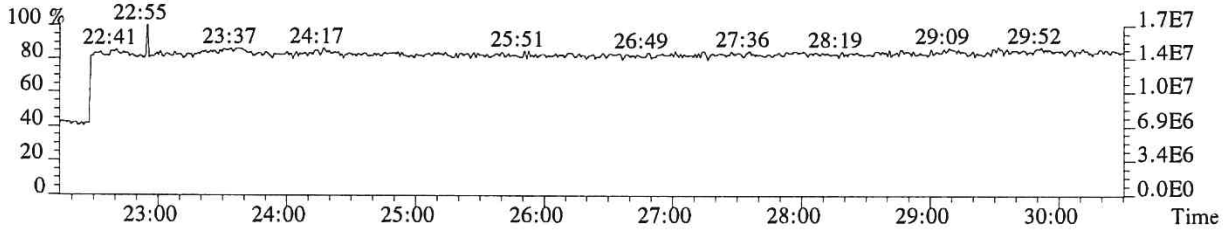
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



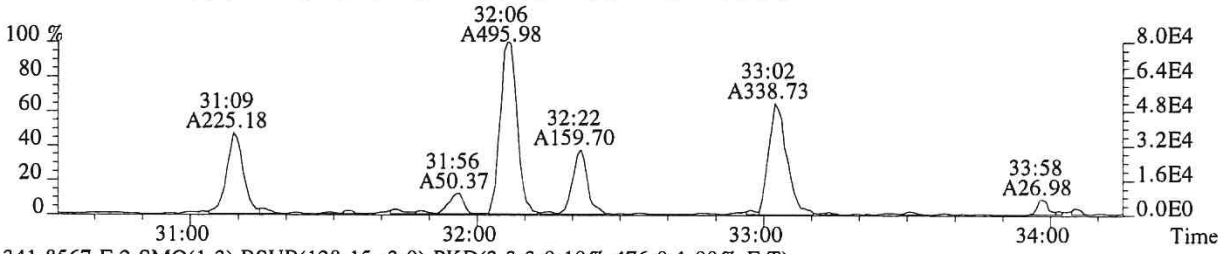
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



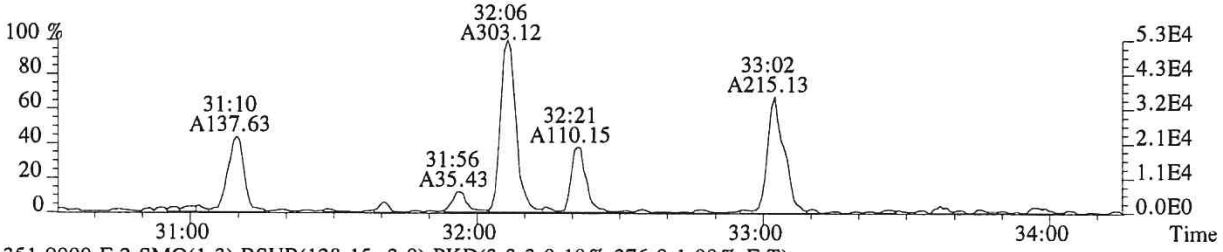
012464

File:P519341 #1-335 Acq:11-DEC-2018 02:51:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040DL

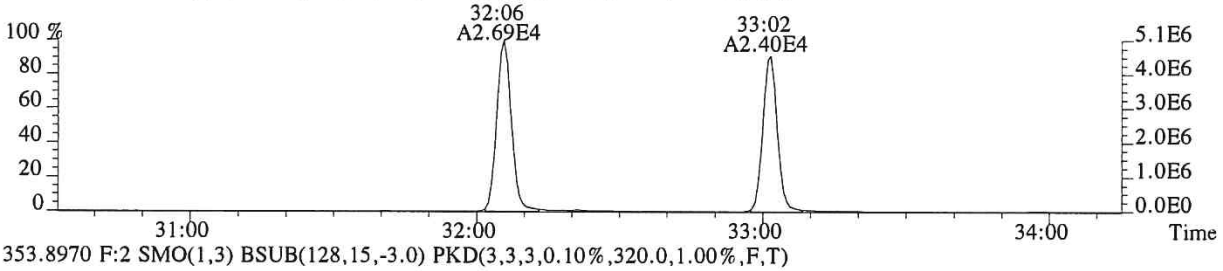
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



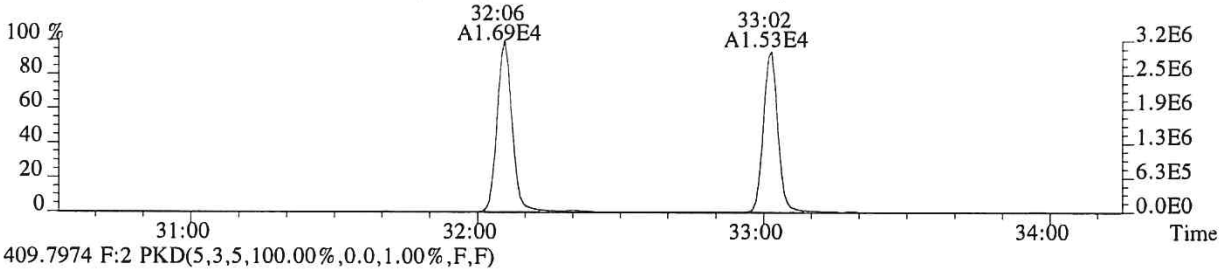
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



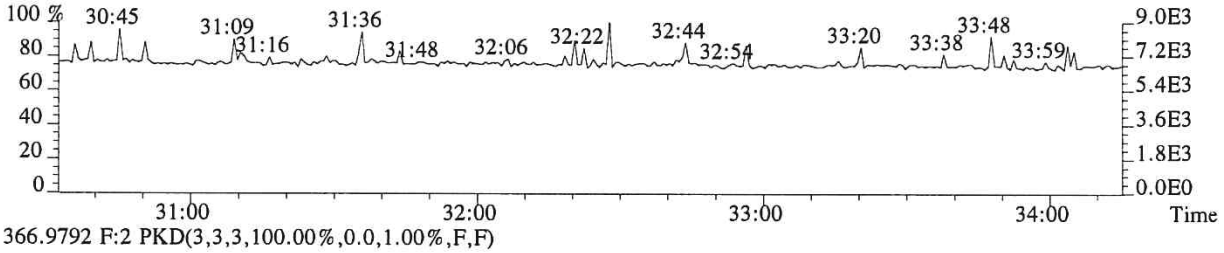
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



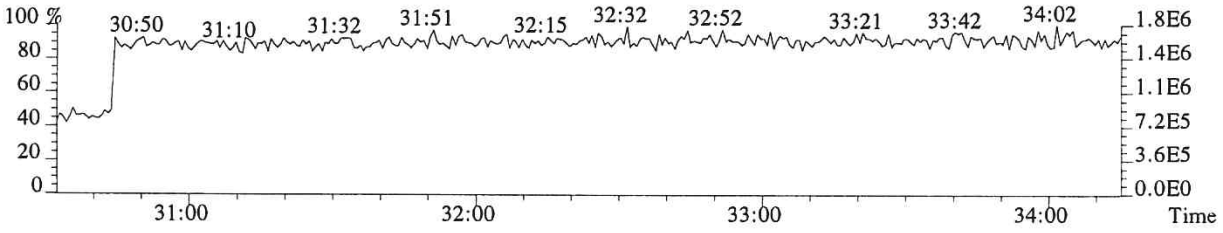
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



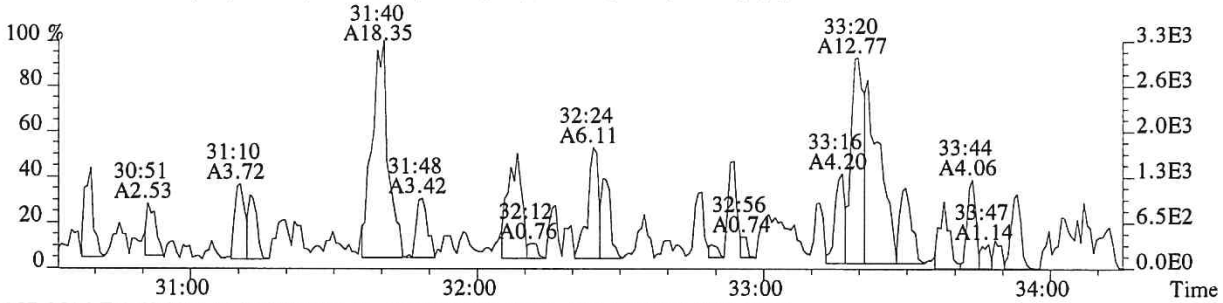
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



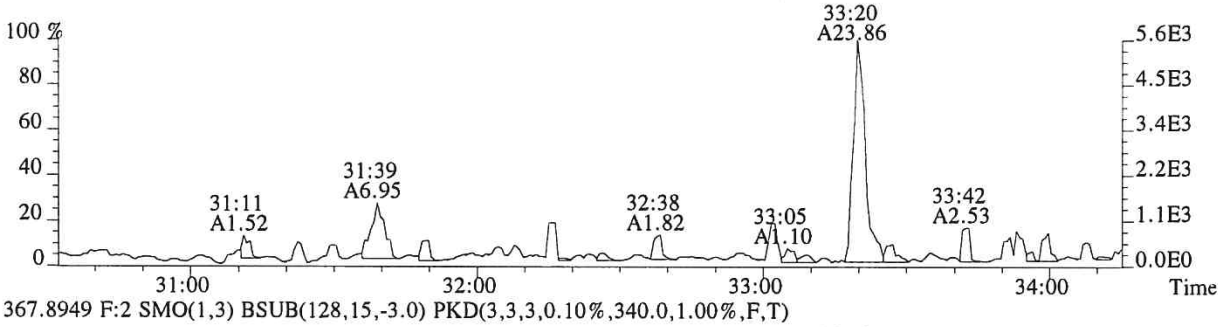
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



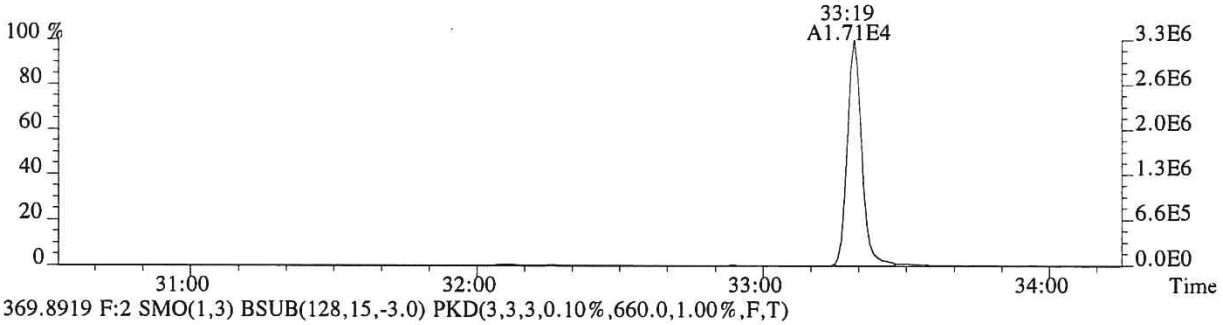
File:P519341 #1-335 Acq:11-DEC-2018 02:51:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



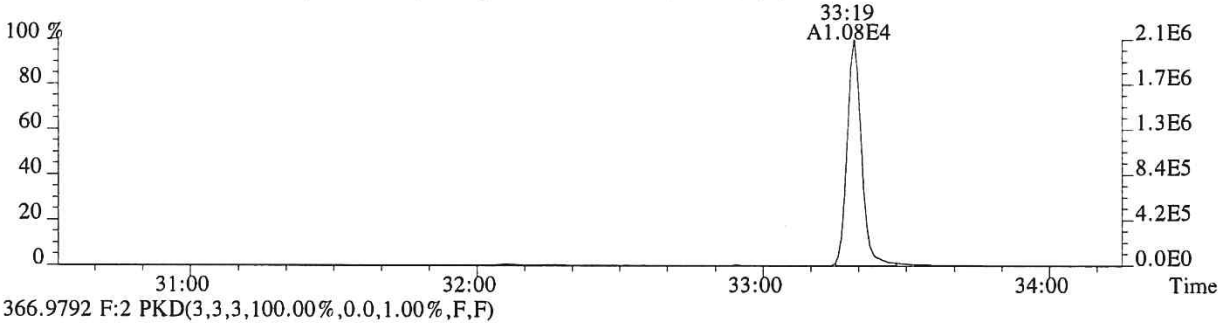
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



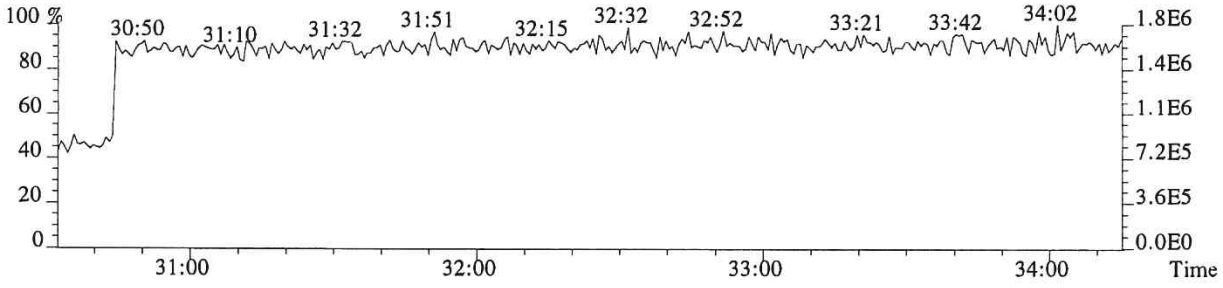
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)

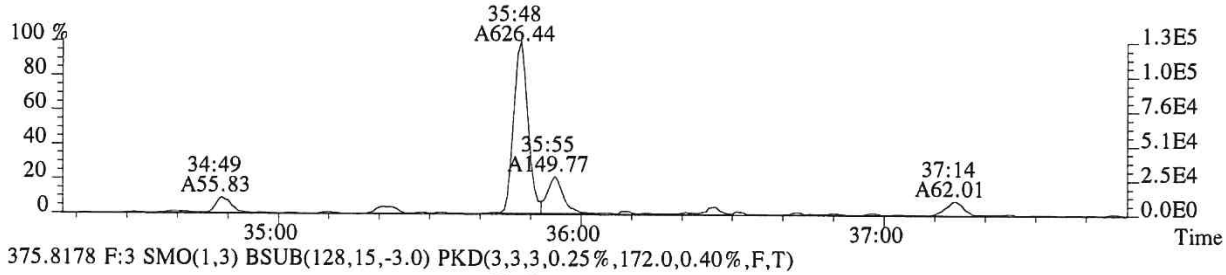


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

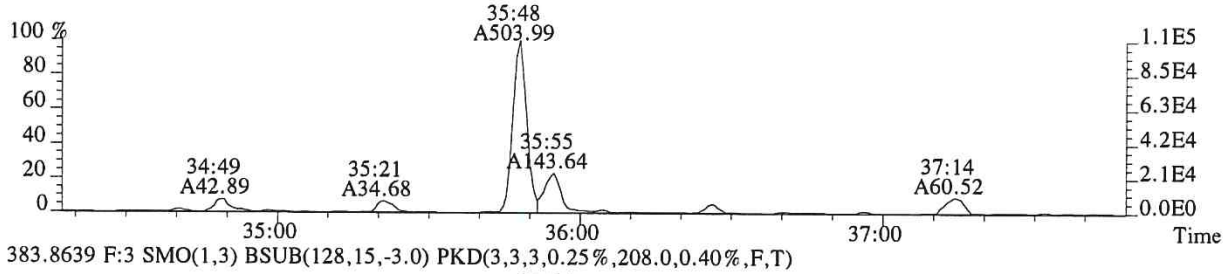


File:P519341 #1-317 Acq:11-DEC-2018 02:51:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040DL

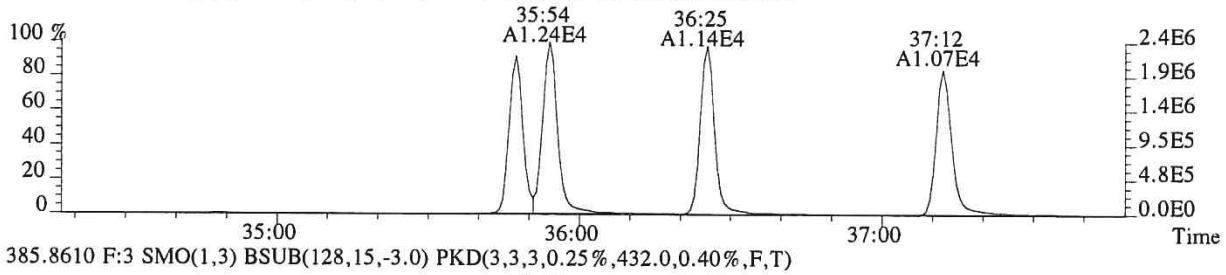
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



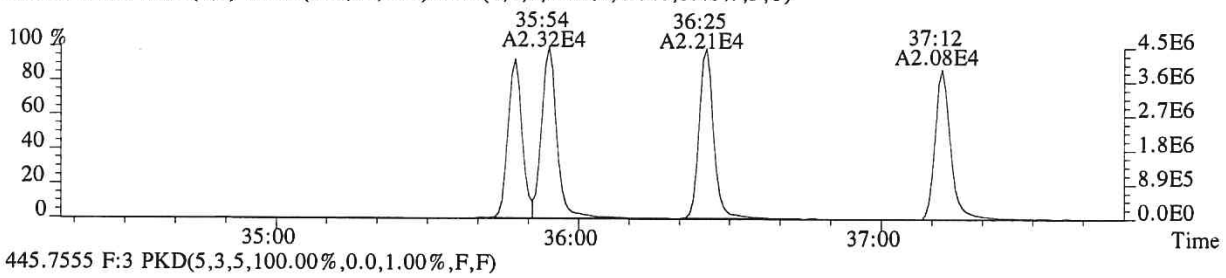
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



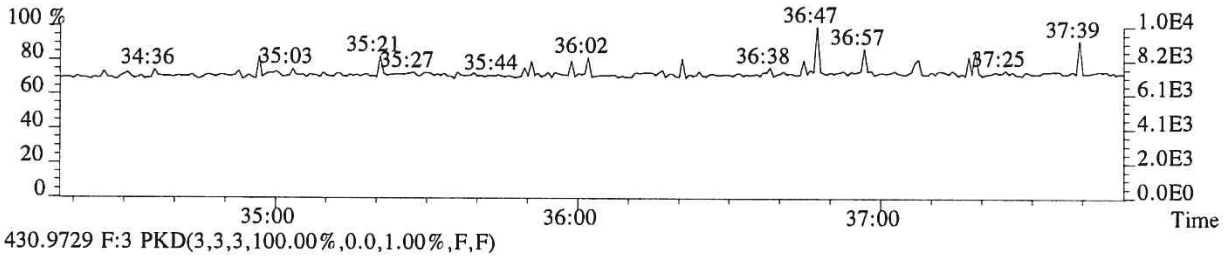
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)



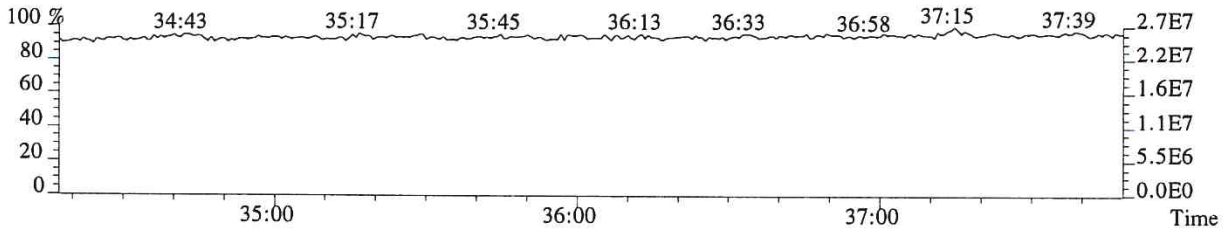
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



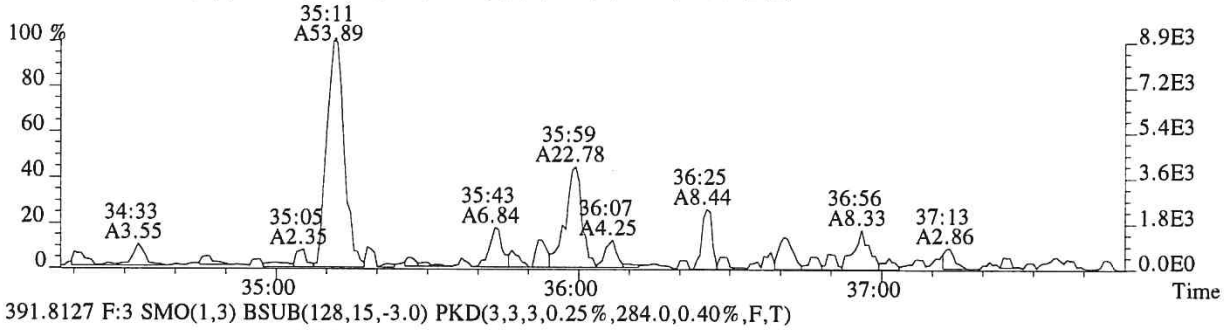
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



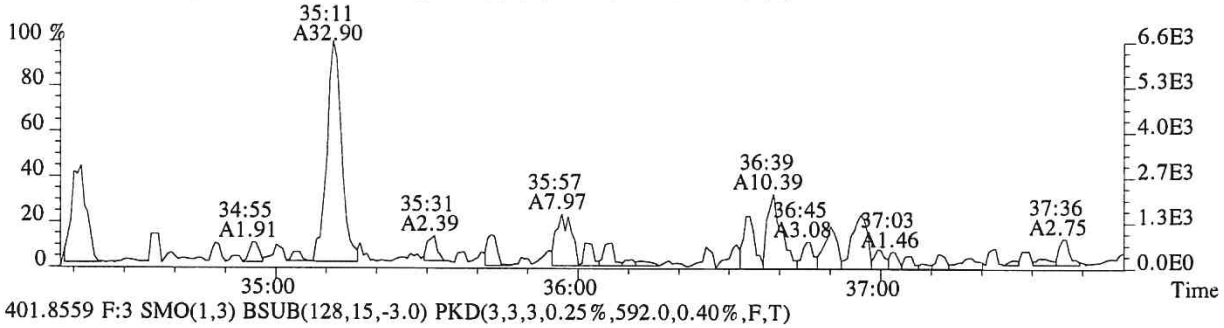
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



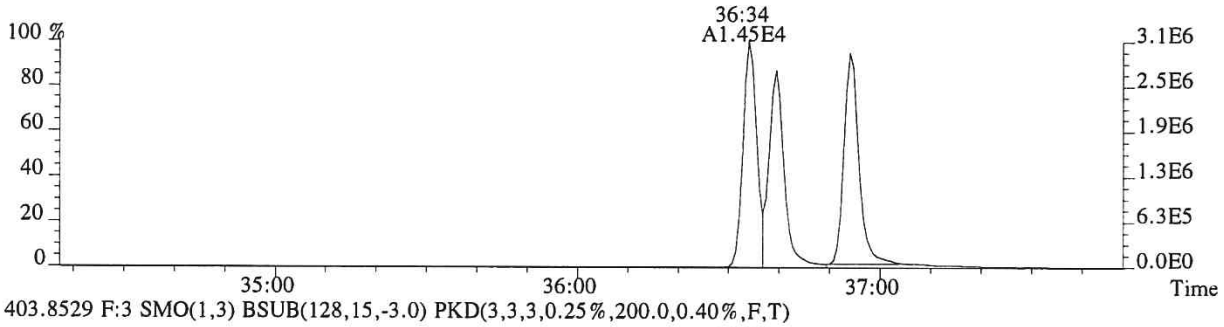
File:P519341 #1-317 Acq:11-DEC-2018 02:51:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



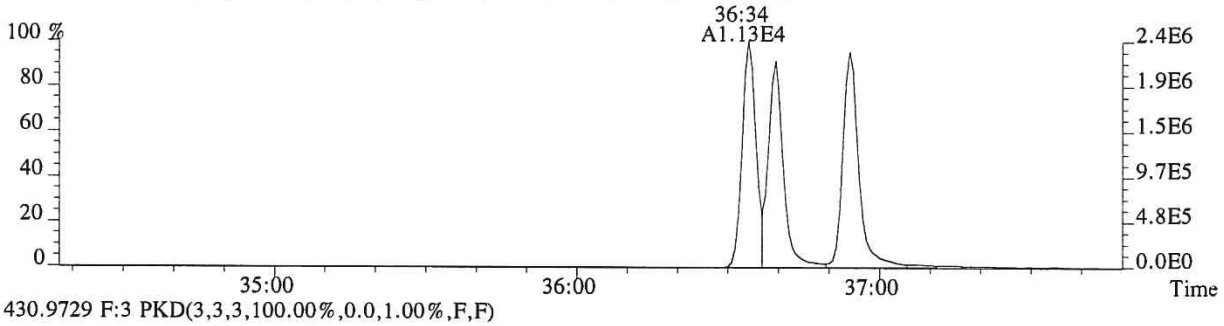
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



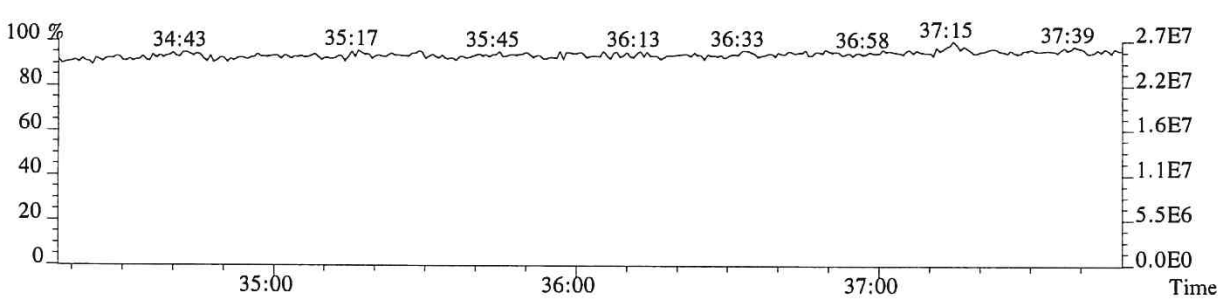
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



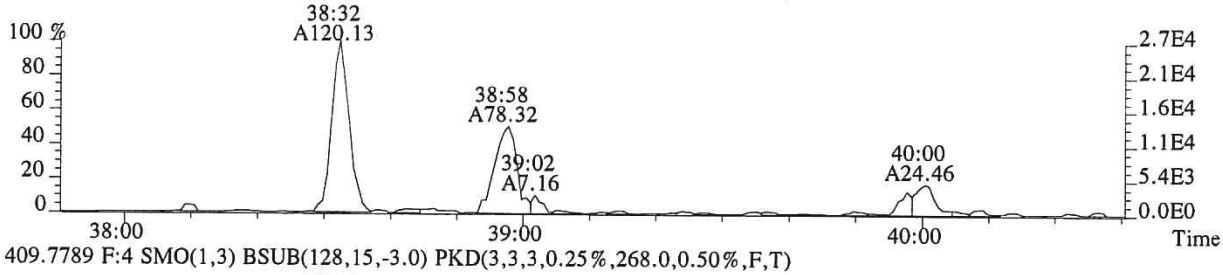
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



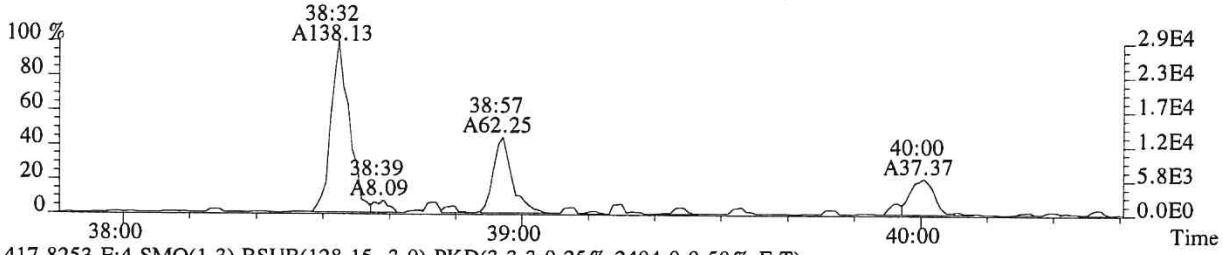
012468

File:P519341 #1-241 Acq:11-DEC-2018 02:51:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040DL

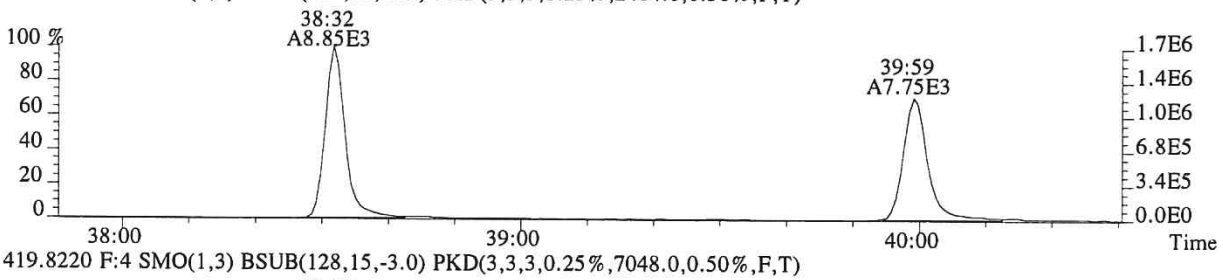
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.50%,F,T)



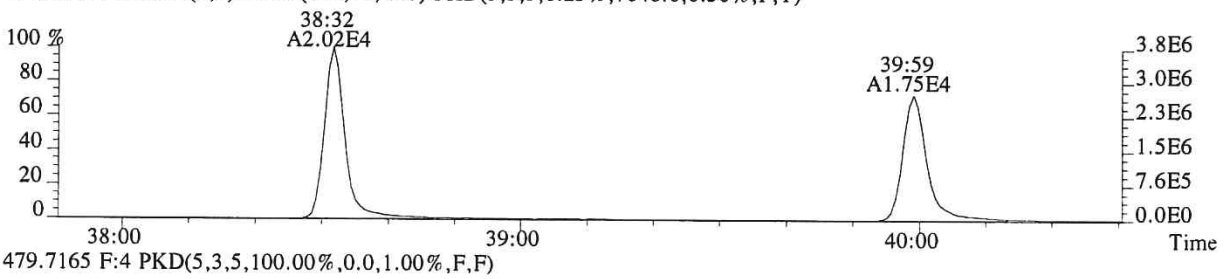
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.50%,F,T)



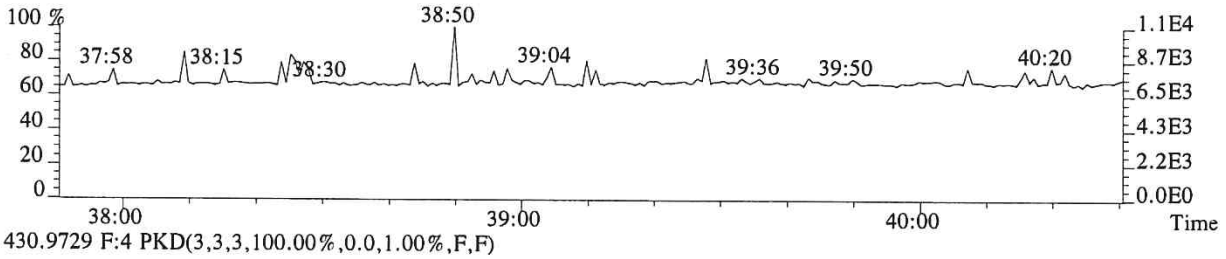
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2404.0,0.50%,F,T)



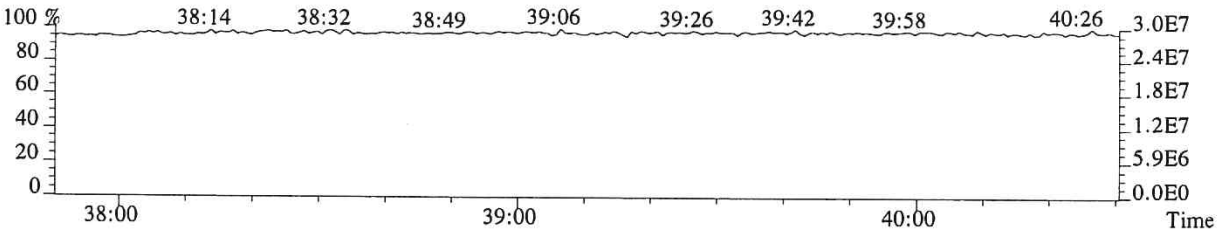
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7048.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

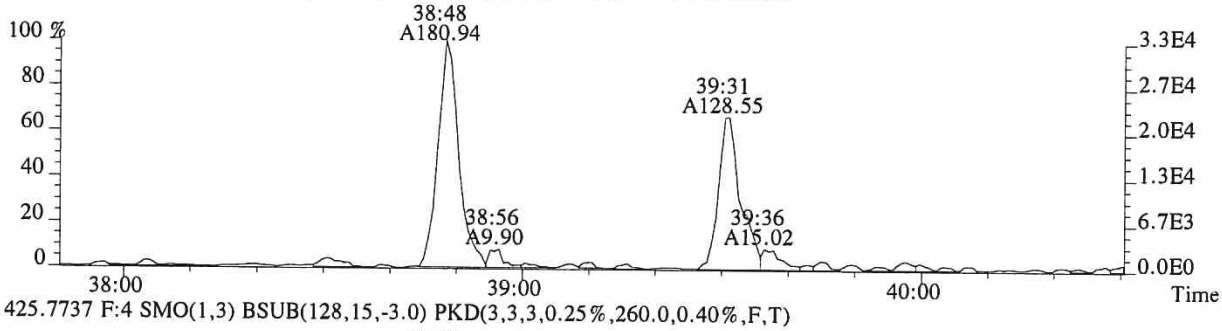


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

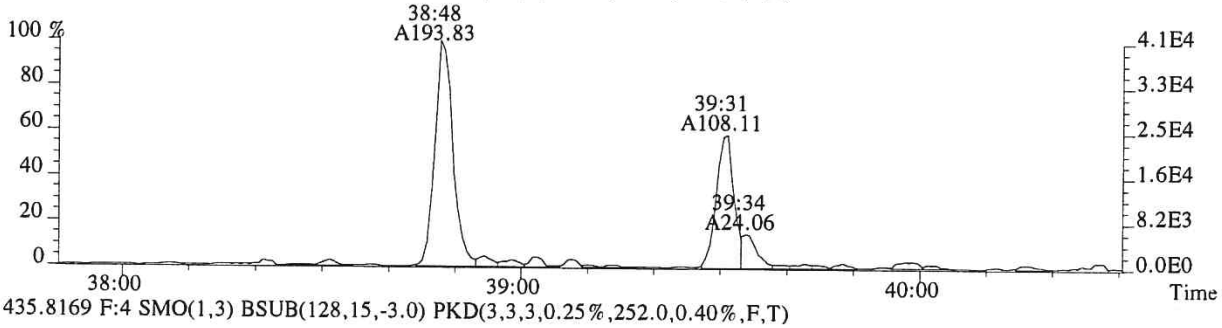


012469

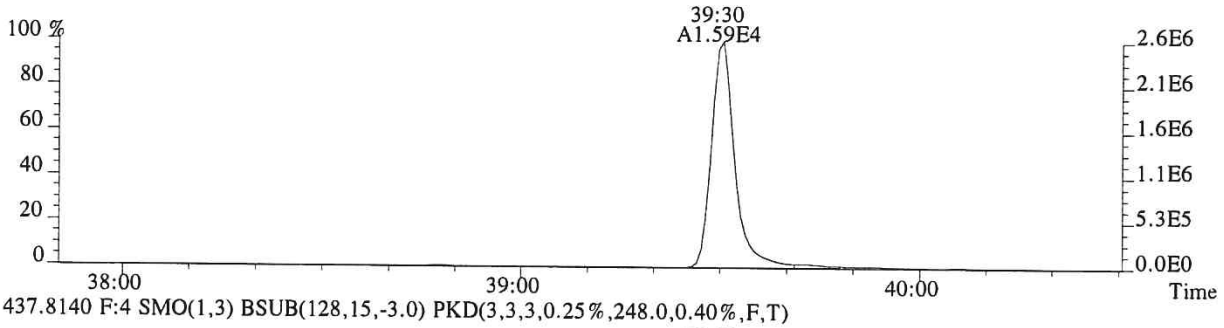
File:P519341 #1-241 Acq:11-DEC-2018 02:51:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



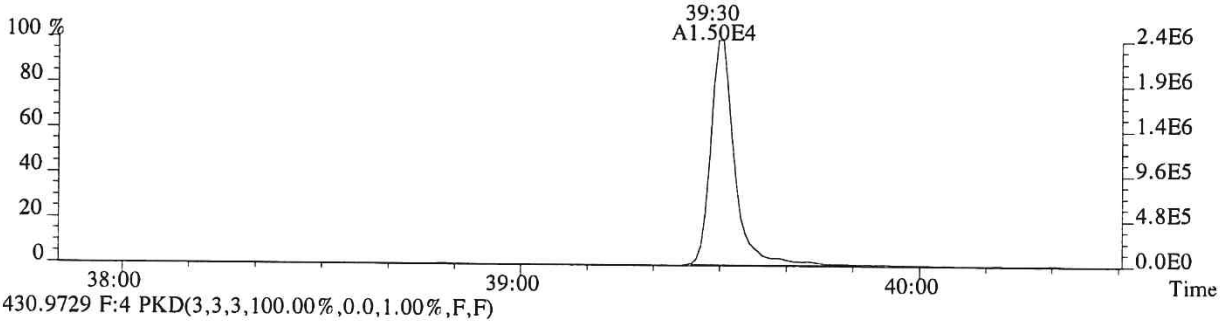
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



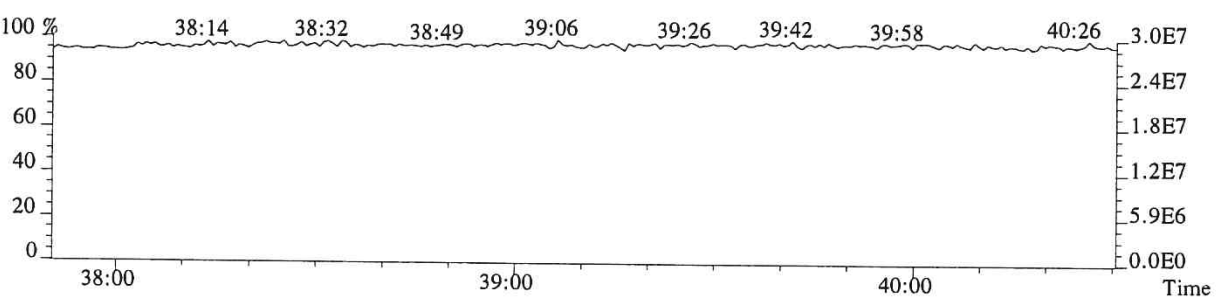
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



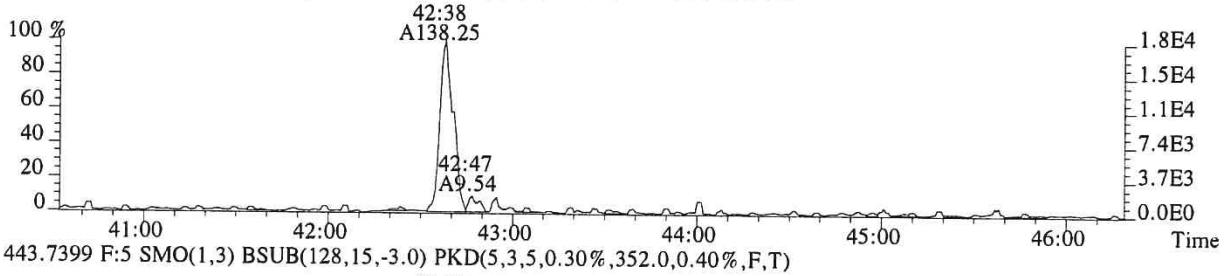
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



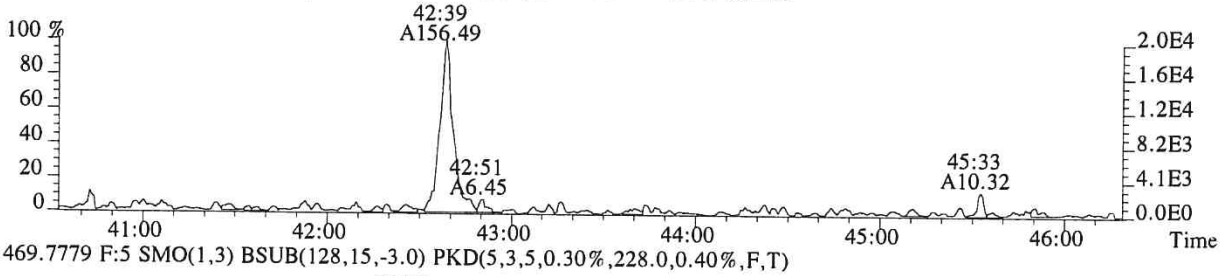
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



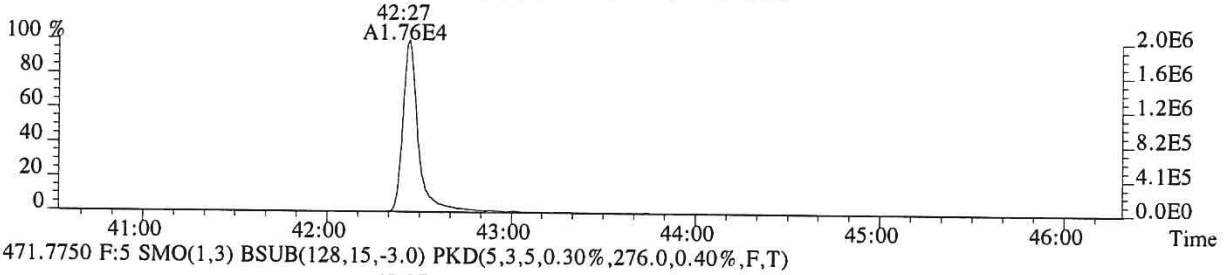
File:P519341 #1-520 Acq:11-DEC-2018 02:51:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



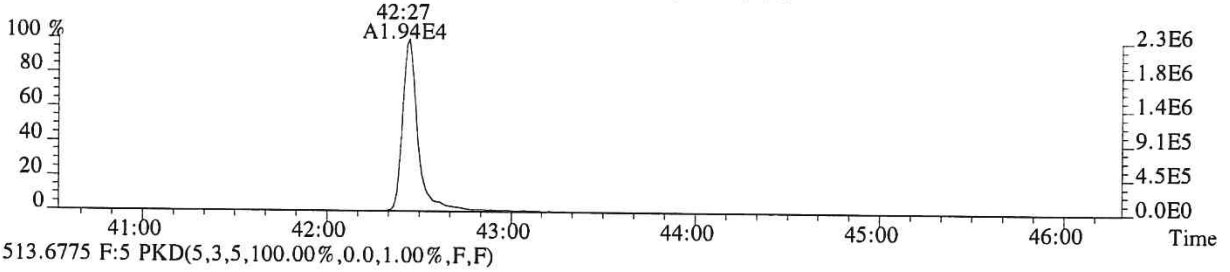
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



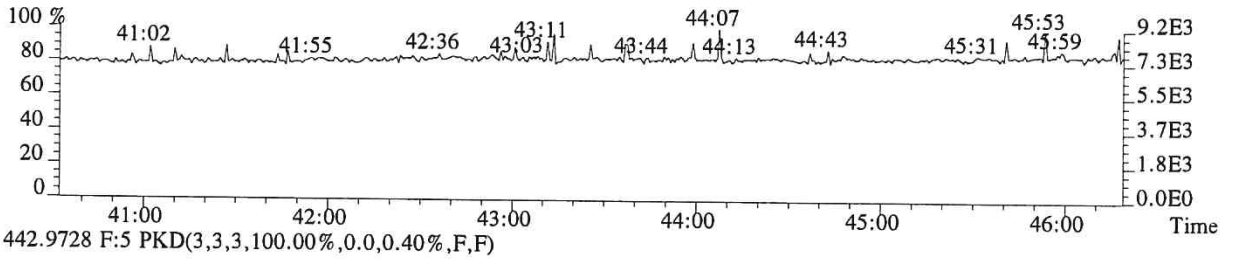
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



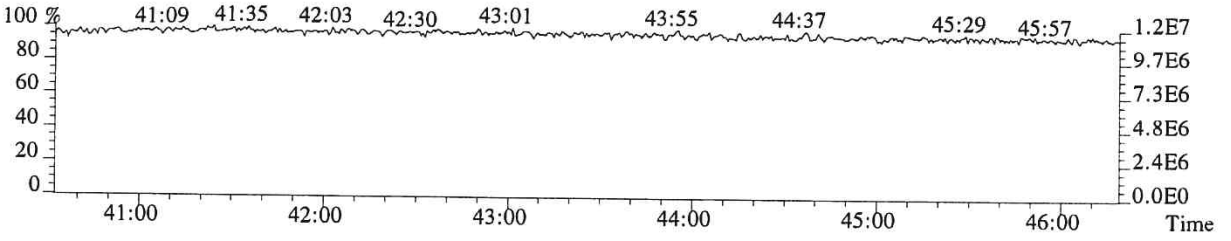
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

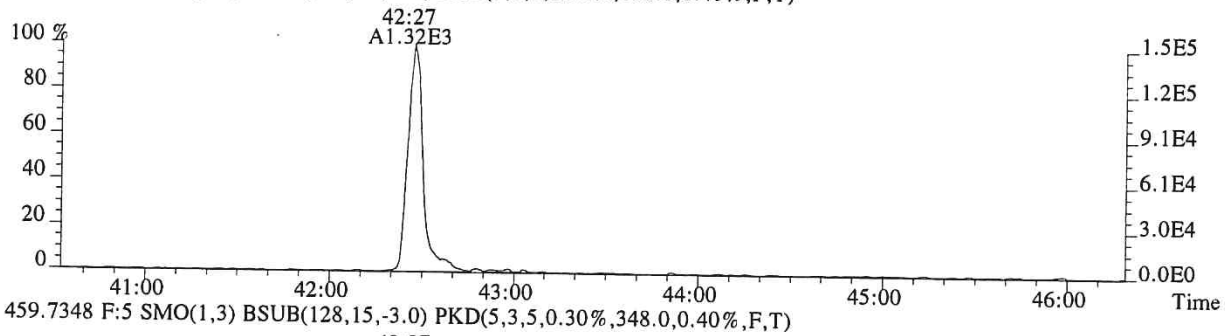


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

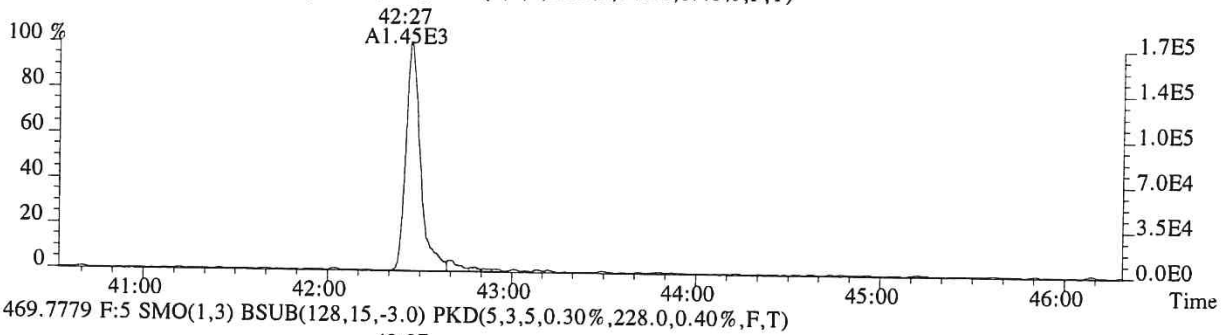


012471

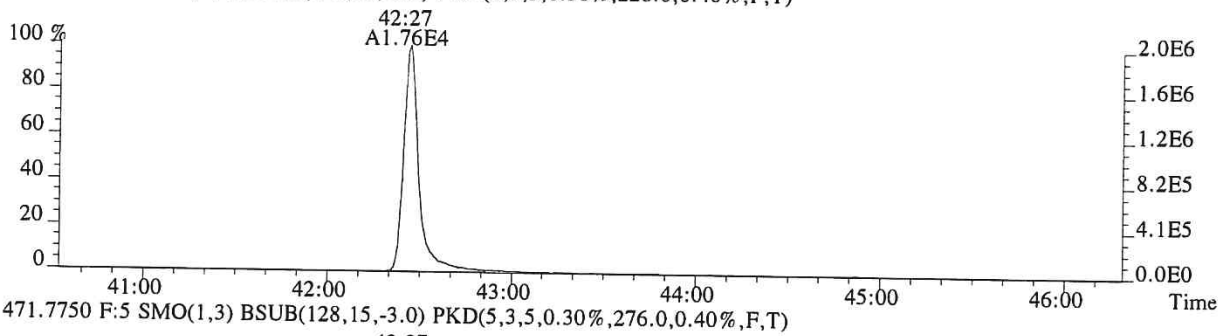
File:P519341 #1-520 Acq:11-DEC-2018 02:51:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-040DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



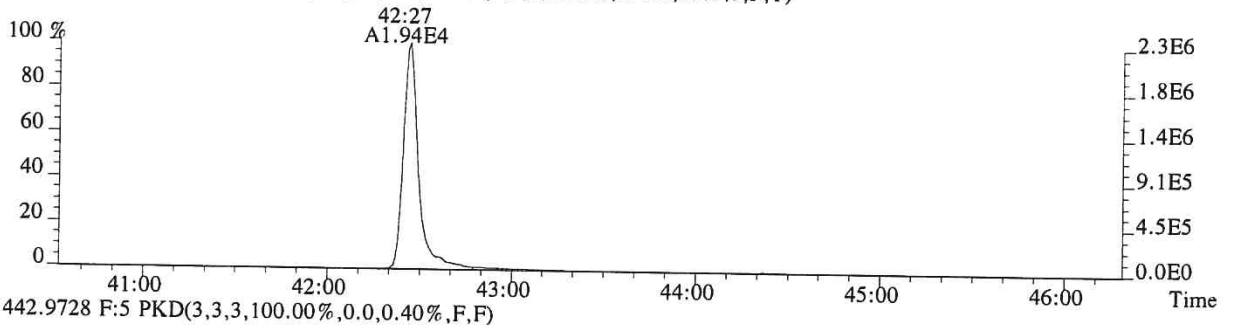
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



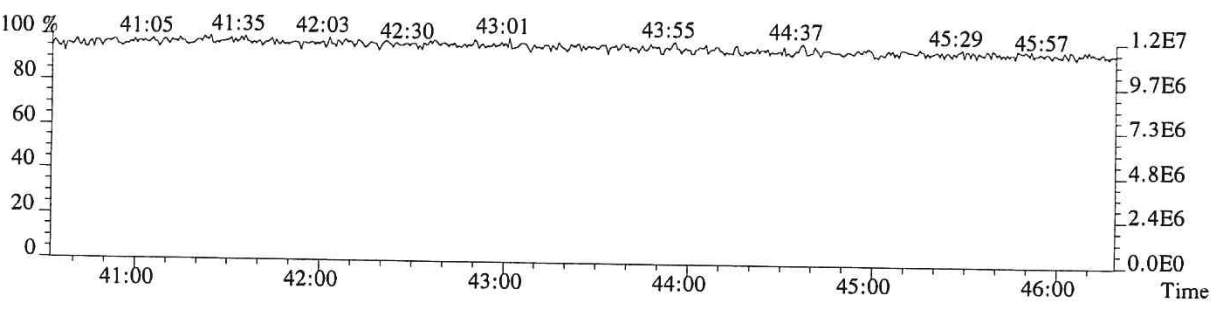
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0221

Run #12 Filename P519260 Samp: 1 Inj: 1 Acquired: 6-DEC-18 20:29:10
Processed: 7-DEC-18 13:10:11 Sample ID: E1801056-057

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:54	8.765e+05	1.130e+06	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:14	4.354e+04	2.910e+04	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:09	3.349e+04	2.153e+04	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	5.791e+04	4.789e+04	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:00	1.397e+04	1.161e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	2.602e+03	2.192e+03	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	4.201e+03	3.516e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	1.437e+04	1.416e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	4.236e+03	3.974e+03	1.07	yes	no	1.258
10	Unk	OCDF	42:45	7.721e+04	8.838e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:44	2.190e+05	2.773e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:26	3.257e+03	2.016e+03	1.62	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:40	8.493e+01	4.614e+01	1.84	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	5.511e+02	3.682e+02	1.50	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:01	2.408e+02	1.743e+02	1.38	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.249e+04	1.196e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:33	1.355e+05	1.524e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:54	1.779e+04	2.229e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:13	3.075e+04	1.889e+04	1.63	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.746e+04	1.697e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	1.236e+04	2.394e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.343e+04	2.607e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:31	1.264e+04	2.439e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	1.278e+04	2.425e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	8.110e+03	1.839e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	7.818e+03	1.768e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:43	8.696e+03	1.073e+04	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:26	2.113e+04	1.335e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.788e+04	1.353e+04	1.32	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:44	1.609e+04	1.347e+04	1.19	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.692e+04	1.572e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:33	1.434e+04	1.589e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:08	2.501e+04	3.081e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	3.743e+04	2.886e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:44	1.480e+04				no	1.014

$$\text{OCDD} = \frac{(1.355e+05 + 1.524e+05) \times 4000 \text{ pg} \times 1}{(1.434e+04 + 1.589e+04) \times 10.729 \text{ g} \times 72.0 / 100 \times 1.118} = 4410 \text{ ng/kg}$$

LM 12/10/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0221

Run #12 Filename P519260 Samp: 1 Inj: 1 Acquired: 6-DEC-18 20:29:10
Processed: 7-DEC-18 13:10:11 LAB. ID: E1801056-057

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.48e+08	1.05e+03	1.4e+05	1.90e+08	1.80e+03	1.1e+05
2	1,2,3,7,8-PeCDF	8.18e+06	2.84e+03	2.9e+03	5.49e+06	4.41e+03	1.2e+03
3	2,3,4,7,8-PeCDF	5.47e+06	2.84e+03	1.9e+03	3.48e+06	4.41e+03	7.9e+02
4	1,2,3,4,7,8-HxCDF	1.26e+07	4.66e+03	2.7e+03	1.03e+07	2.36e+03	4.4e+03
5	1,2,3,6,7,8-HxCDF	2.76e+06	4.66e+03	5.9e+02	2.25e+06	2.36e+03	9.5e+02
6	2,3,4,6,7,8-HxCDF	5.34e+05	4.66e+03	1.1e+02	4.36e+05	2.36e+03	1.8e+02
7	1,2,3,7,8,9-HxCDF	7.66e+05	4.66e+03	1.6e+02	6.18e+05	2.36e+03	2.6e+02
8	1,2,3,4,6,7,8-HpCDF	2.84e+06	2.45e+03	1.2e+03	2.81e+06	1.33e+03	2.1e+03
9	1,2,3,4,7,8,9-HpCDF	6.87e+05	2.45e+03	2.8e+02	6.61e+05	1.33e+03	5.0e+02
10	OCDF	1.03e+07	4.04e+02	2.5e+04	1.18e+07	6.92e+02	1.7e+04
11	2,3,7,8-TCDD	4.62e+07	2.12e+03	2.2e+04	5.85e+07	1.66e+03	3.5e+04
12	1,2,3,7,8-PeCDD	6.21e+05	1.63e+03	3.8e+02	3.73e+05	1.34e+03	2.8e+02
13	1,2,3,4,7,8-HxCDD	2.18e+04	3.08e+02	7.1e+01	1.20e+04	2.52e+03	4.8e+00
14	1,2,3,6,7,8-HxCDD	1.17e+05	3.08e+02	3.8e+02	7.78e+04	2.52e+03	3.1e+01
15	1,2,3,7,8,9-HxCDD	4.89e+04	3.08e+02	1.6e+02	3.71e+04	2.52e+03	1.5e+01
16	1,2,3,4,6,7,8-HpCDD	2.17e+06	6.60e+02	3.3e+03	2.08e+06	3.32e+03	6.3e+02
17	OCDD	1.84e+07	2.80e+02	6.6e+04	2.05e+07	7.04e+02	2.9e+04
18	13C-2,3,7,8-TCDF	3.25e+06	1.24e+04	2.6e+02	3.99e+06	6.35e+03	6.3e+02
19	13C-1,2,3,7,8-PeCDF	5.84e+06	6.68e+03	8.7e+02	3.58e+06	7.17e+03	5.0e+02
20	13C-2,3,4,7,8-PeCDF	5.32e+06	6.68e+03	8.0e+02	3.30e+06	7.17e+03	4.6e+02
21	13C-1,2,3,4,7,8-HxCDF	2.72e+06	2.20e+03	1.2e+03	5.19e+06	3.53e+03	1.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.71e+06	2.20e+03	1.2e+03	5.17e+06	3.53e+03	1.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.49e+06	2.20e+03	1.1e+03	4.86e+06	3.53e+03	1.4e+03
24	13C-1,2,3,7,8,9-HxCDF	2.54e+06	2.20e+03	1.2e+03	4.87e+06	3.53e+03	1.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.62e+06	2.98e+03	5.4e+02	3.64e+06	4.82e+03	7.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.31e+06	2.98e+03	4.4e+02	2.92e+06	4.82e+03	6.0e+02
27	13C-2,3,7,8-TCDD	1.81e+06	6.74e+03	2.7e+02	2.29e+06	2.04e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	4.33e+06	9.20e+02	4.7e+03	2.74e+06	8.44e+02	3.2e+03
29	13C-1,2,3,4,7,8-HxCDD	4.05e+06	9.60e+02	4.2e+03	3.21e+06	1.01e+03	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	3.40e+06	9.60e+02	3.5e+03	2.72e+06	1.01e+03	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.94e+06	1.28e+03	2.3e+03	2.73e+06	7.16e+02	3.8e+03
32	13C-OCDD	1.96e+06	7.12e+02	2.8e+03	2.18e+06	3.56e+02	6.1e+03
33	13C-1,2,3,4-TCDD	4.62e+06	6.74e+03	6.9e+02	5.69e+06	2.04e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	7.44e+06	9.60e+02	7.7e+03	5.91e+06	1.01e+03	5.9e+03
35	37Cl-2,3,7,8-TCDD	3.10e+06	3.38e+03	9.2e+02			

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Peak List Summary

CLIENT ID.
SL0221

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P519260 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 20:29:10 Processed: 7-DEC-18 13:10:11

Mass: 303.9020 305.8990 Tot Response: 3.54e+06 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:52	5.22e+03	7.21e+03	0.72	yes	1.24e+04		n	n
2	25:11	3.14e+04	4.15e+04	0.76	yes	7.29e+04		n	n
3	25:36	7.94e+03	1.08e+04	0.74	yes	1.87e+04		n	n
4	25:54	2.60e+04	3.42e+04	0.76	yes	6.02e+04		n	n
5	26:17	6.74e+03	8.76e+03	0.77	yes	1.55e+04		n	n
6	26:31	1.77e+04	2.36e+04	0.75	yes	4.13e+04		n	n
7	26:38	3.80e+04	4.98e+04	0.76	yes	8.77e+04		n	n
8	27:05	3.81e+05	4.95e+05	0.77	yes	8.76e+05		n	n
9	27:21	1.64e+04	2.17e+04	0.76	yes	3.81e+04		n	n
10	27:54	8.76e+05	1.13e+06	0.78	yes	2.01e+06	2,3,7,8-TCDF	n	n
11	28:16	5.58e+04	7.36e+04	0.76	yes	1.29e+05		n	n
12	28:30	8.94e+03	1.15e+04	0.78	yes	2.04e+04		n	n
13	29:47	6.98e+04	9.13e+04	0.76	yes	1.61e+05		n	n

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Peak List Summary

CLIENT ID.
SL0221

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P519260 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 20:29:10 Processed: 7-DEC-18 13:10:11

Mass: 319.8970 321.8940 Tot Response: 5.43e+05 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:28	2.67e+03	3.25e+03 0.82	yes	5.92e+03		n	n
2	28:44	2.19e+05	2.77e+05 0.79	yes	4.96e+05	2,3,7,8-TCDD	n	n
3	29:01	1.81e+04	2.28e+04 0.80	yes	4.10e+04		n	n

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SL0221

Entry: 39 Totals Name: Total Penta-Furans2

Run: 12 File: P519260 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 20:29:10 Processed: 7-DEC-18 13:10:11

Mass: 339.8600 341.8570 Tot Response: 1.91e+05 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:09	3.91e+02	2.77e+02	1.41	yes	6.67e+02		n	n
2	31:17	1.79e+04	1.20e+04	1.49	yes	2.99e+04		n	n
3	31:50	8.63e+02	5.35e+02	1.62	yes	1.40e+03		n	n
4	31:56	7.54e+02	4.78e+02	1.58	yes	1.23e+03		n	n
5	32:03	3.96e+03	2.63e+03	1.51	yes	6.59e+03		n	n
6	32:14	4.35e+04	2.91e+04	1.50	yes	7.26e+04	1,2,3,7,8-PeCDF	n	n
7	32:29	1.23e+04	8.27e+03	1.49	yes	2.06e+04		n	n
8	33:09	3.35e+04	2.15e+04	1.56	yes	5.50e+04	2,3,4,7,8-PeCDF	n	n
9	34:05	1.86e+03	1.23e+03	1.51	yes	3.09e+03		n	n

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CLIENT ID.
SL0221

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P519260 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 20:29:10 Processed: 7-DEC-18 13:10:11

Mass: 355.8550 357.8520 Tot Response: 7.79e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:18	3.13e+02	2.21e+02	1.41	yes	5.35e+02		n	n
2	31:47	3.17e+02	2.00e+02	1.58	yes	5.17e+02		n	n
3	32:15	3.27e+02	2.09e+02	1.57	yes	5.36e+02		n	n
4	32:24	1.99e+02	1.14e+02	1.74	yes	3.13e+02		n	n
5	32:30	1.27e+02	7.94e+01	1.60	yes	2.06e+02		n	n
6	32:43	1.72e+02	1.05e+02	1.64	yes	2.77e+02		n	n
7	33:02	7.90e+01	5.90e+01	1.34	yes	1.38e+02		n	n
8	33:26	3.26e+03	2.02e+03	1.62	yes	5.27e+03	1,2,3,7,8-PeCDD	n	n

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SL0221

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P519260 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 20:29:10 Processed: 7-DEC-18 13:10:11

Mass: 373.8210 375.8180 Tot Response: 1.59e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:46	5.94e+02	5.47e+02	1.09	yes	1.14e+03		n	n
2	34:56	4.62e+03	3.90e+03	1.18	yes	8.52e+03		n	n
3	35:27	3.16e+03	2.75e+03	1.15	yes	5.90e+03		n	n
4	35:53	5.79e+04	4.79e+04	1.21	yes	1.06e+05	1,2,3,4,7,8-HxCDF	n	n
5	36:00	1.40e+04	1.16e+04	1.20	yes	2.56e+04	1,2,3,6,7,8-HxCDF	n	n
6	36:31	2.60e+03	2.19e+03	1.19	yes	4.79e+03	2,3,4,6,7,8-HxCDF	n	n
7	37:19	4.20e+03	3.52e+03	1.19	yes	7.72e+03	1,2,3,7,8,9-HxCDF	n	n

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SL0221

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P519260 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 20:29:10 Processed: 7-DEC-18 13:10:11

Mass: 389.8160 391.8130 Tot Response: 9.48e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:18	2.95e+03	2.36e+03	1.25	yes	5.31e+03	n	n
2	35:49	2.67e+02	2.06e+02	1.30	yes	4.73e+02	n	n
3	36:04	1.65e+03	1.32e+03	1.25	yes	2.97e+03	n	n
4	36:10	1.03e+02	7.26e+01	1.42	yes	1.75e+02	n	n
5	36:15	1.28e+01	1.13e+01	1.13	yes	2.42e+01	n	n
6	36:55	6.42e+01	4.75e+01	1.35	yes	1.12e+02	n	n
7	37:01	2.41e+02	1.74e+02	1.38	yes	4.15e+02 1,2,3,7,8,9-HxCDD	n	n

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Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P519260 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 20:29:10 Processed: 7-DEC-18 13:10:11

Mass: 407.7820 409.7790 Tot Response: 5.23e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:36	1.44e+04	1.02	yes	2.85e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	39:01	8.02e+03	1.06	yes	1.56e+04		n	n
3	40:04	4.24e+03	1.07	yes	8.21e+03	1,2,3,4,7,8,9-HpCDF	n	n

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SL0221

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P519260 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 20:29:10 Processed: 7-DEC-18 13:10:11

Mass: 423.7770 425.7740 Tot Response: 5.62e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:53	1.63e+04	1.55e+04 1.05	yes	3.18e+04		n	n
2	39:34	1.25e+04	1.20e+04 1.04	yes	2.44e+04	1,2,3,4,6,7,8-HpCDD	n	n

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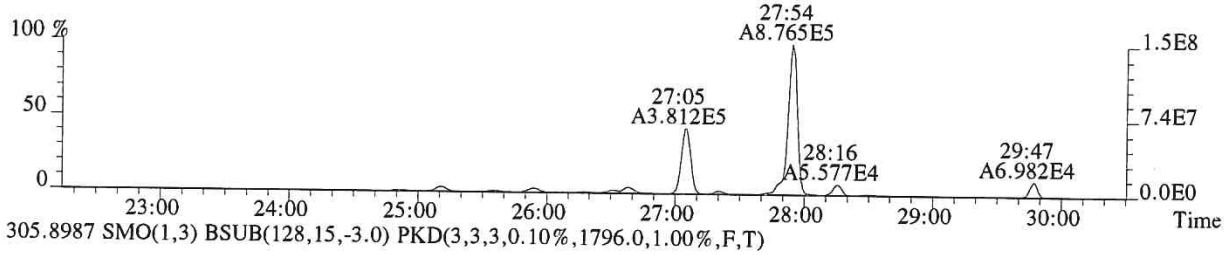
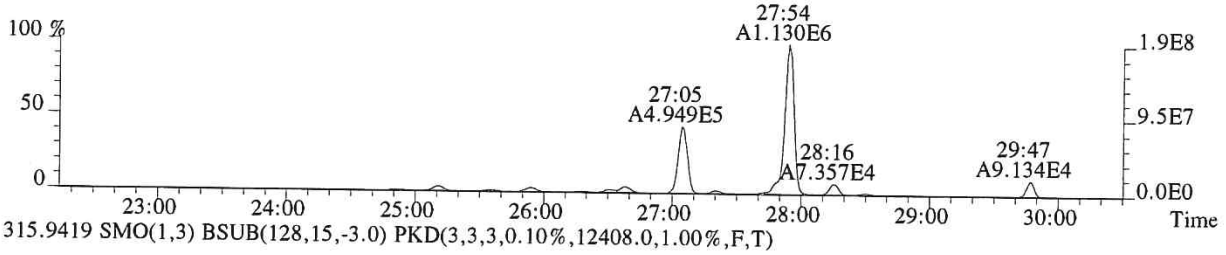
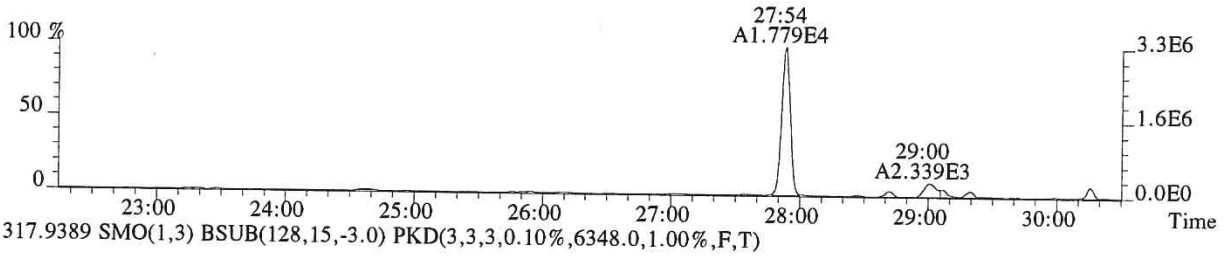
File:P519260 #1-587 Acq: 6-DEC-2018 20:29:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



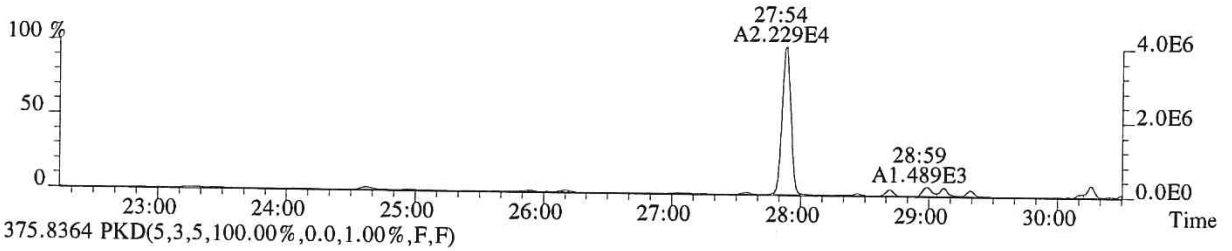
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



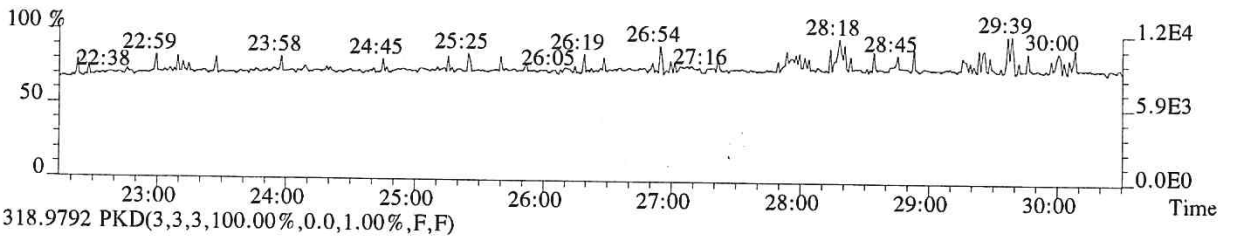
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12408.0,1.00%,F,T)



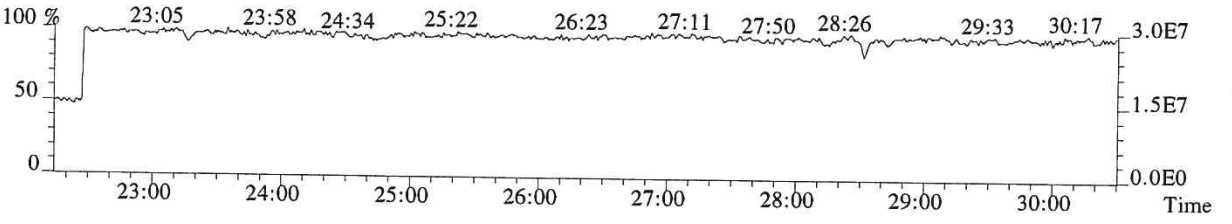
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6348.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

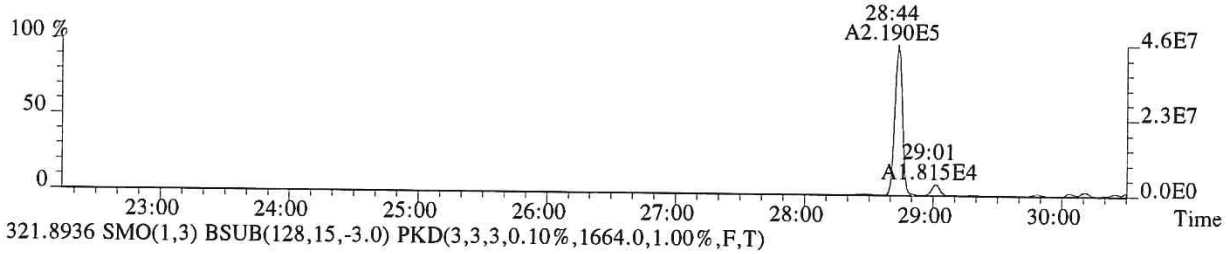


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

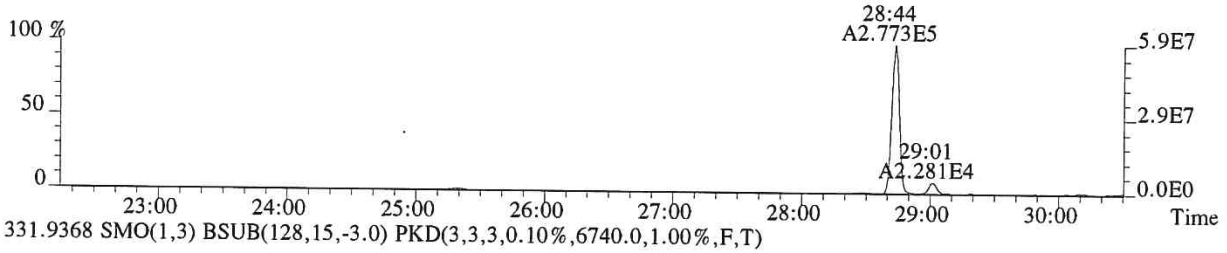


012483

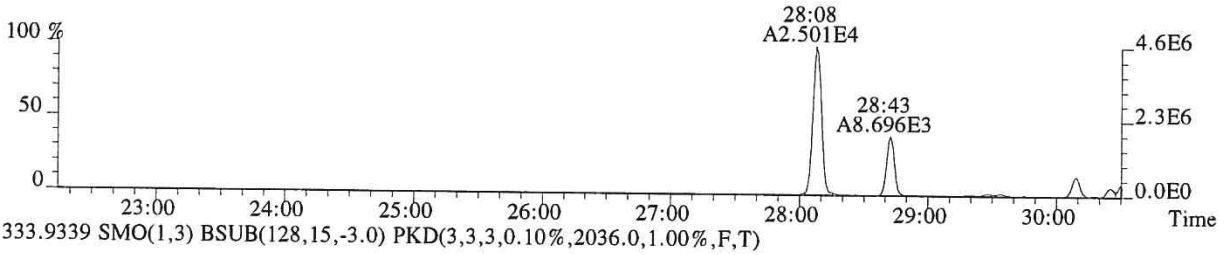
File:P519260 #1-587 Acq: 6-DEC-2018 20:29:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2120.0,1.00%,F,T)



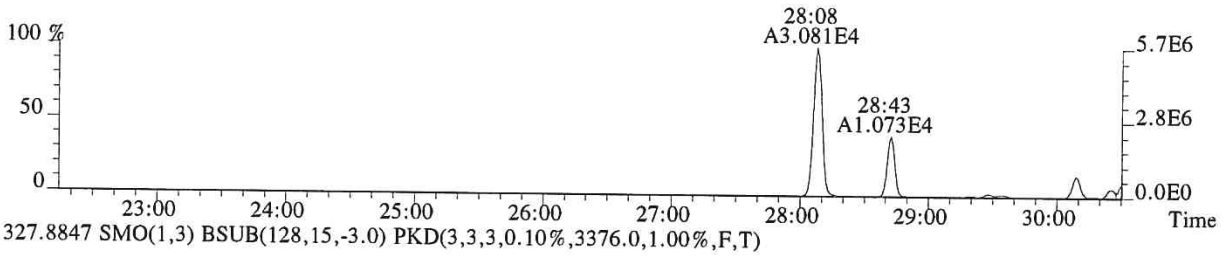
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



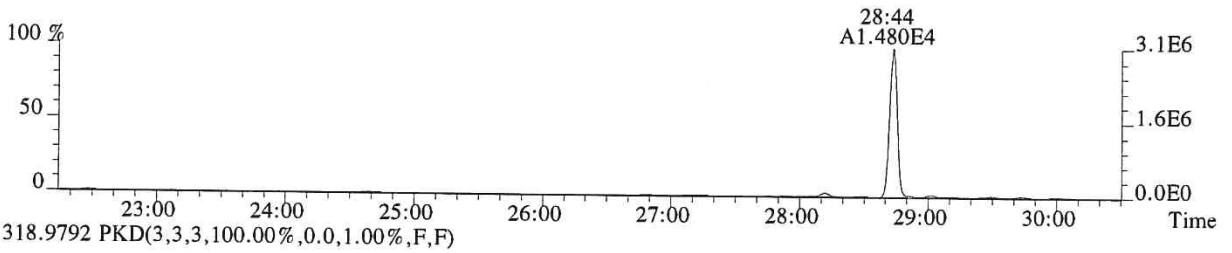
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6740.0,1.00%,F,T)



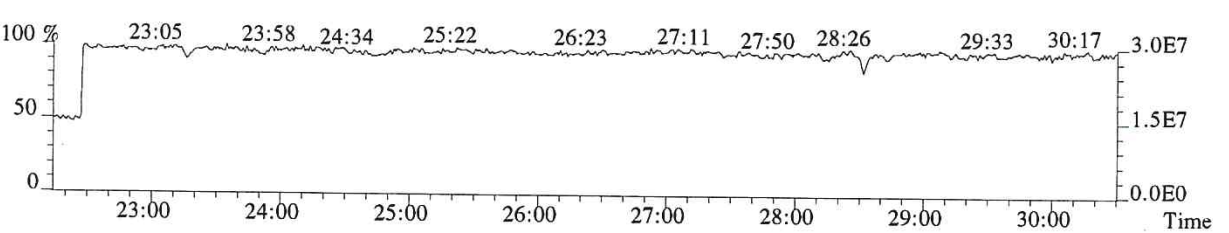
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3376.0,1.00%,F,T)

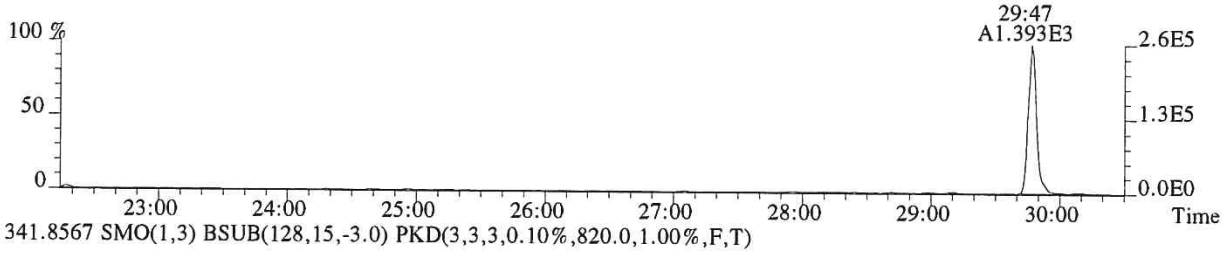


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

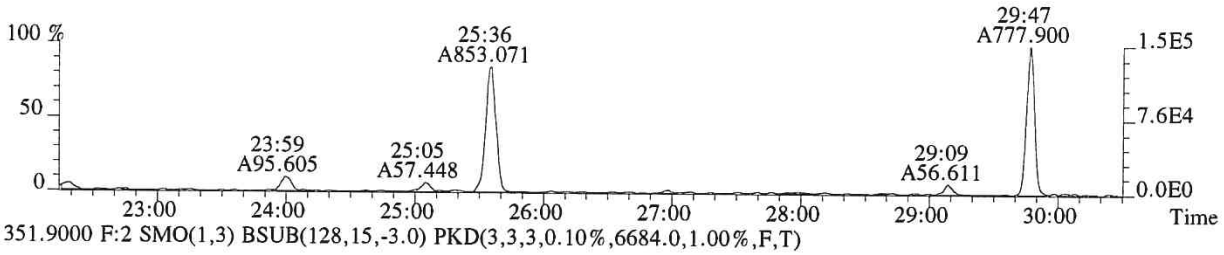


012484

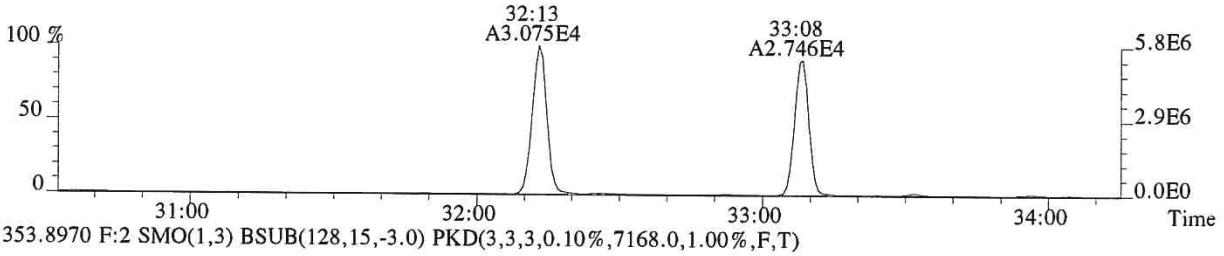
File:P519260 #1-587 Acq: 6-DEC-2018 20:29:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



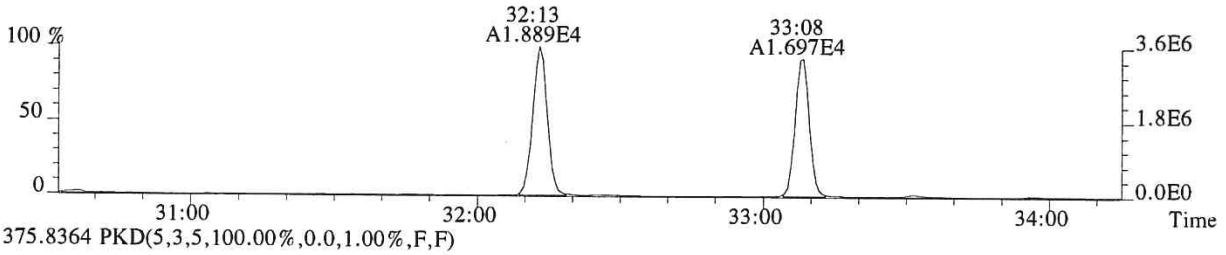
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



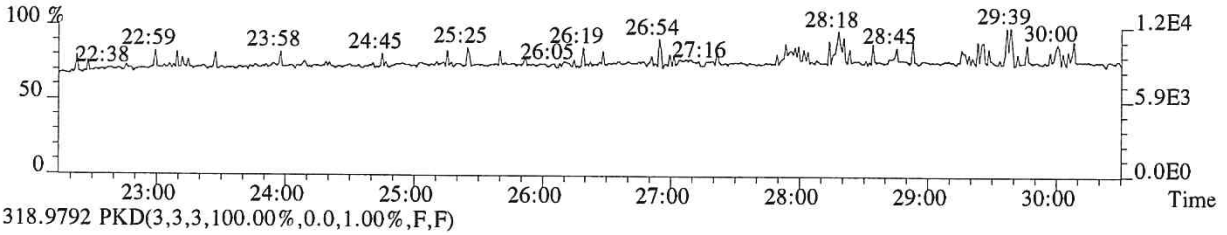
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6684.0,1.00%,F,T)



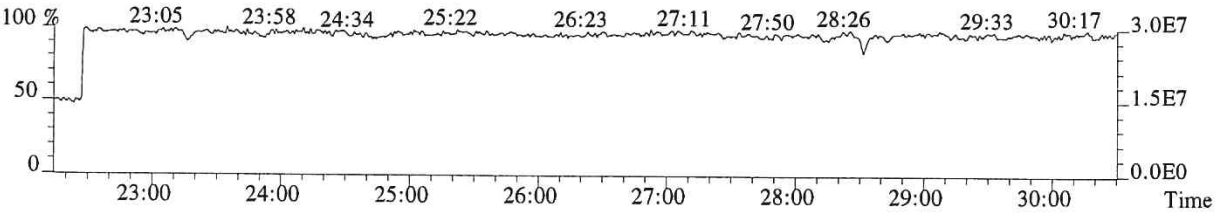
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7168.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

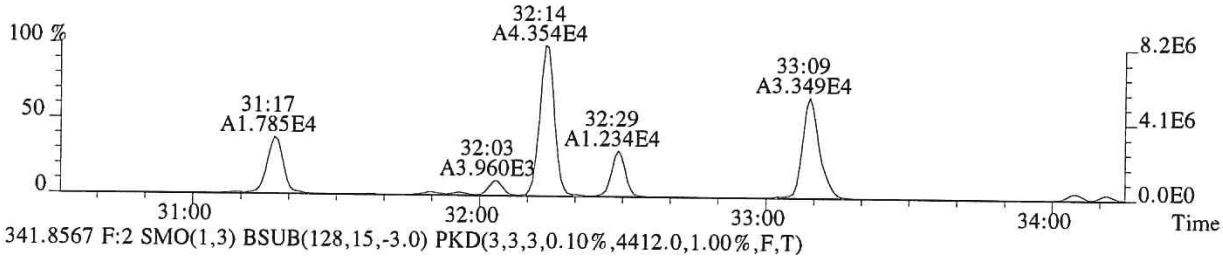


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

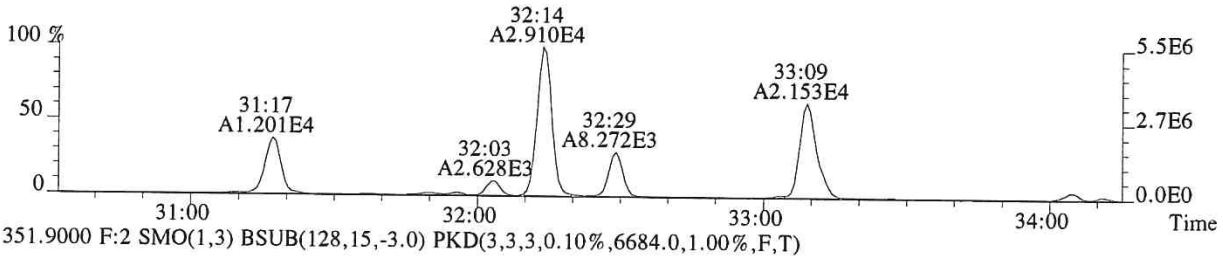


012485

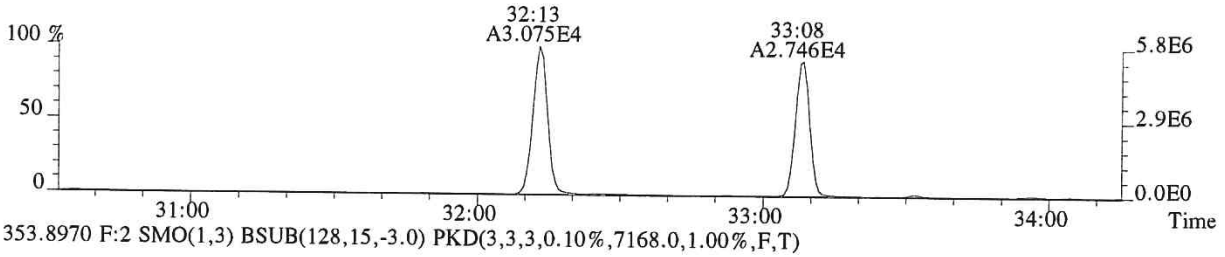
File:P519260 #1-335 Acq: 6-DEC-2018 20:29:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2844.0,1.00%,F,T)



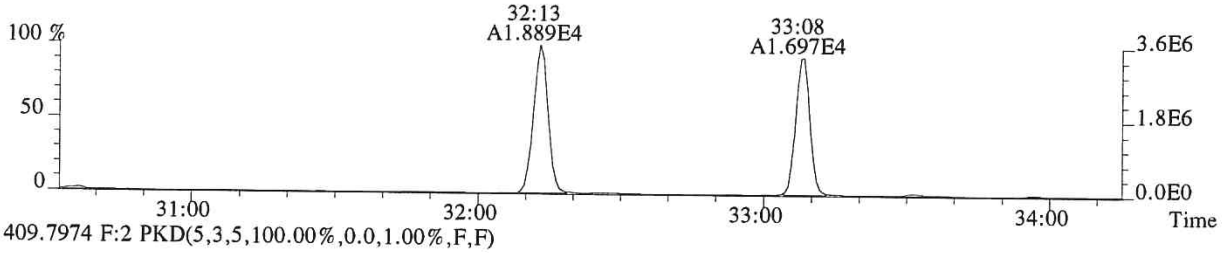
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4412.0,1.00%,F,T)



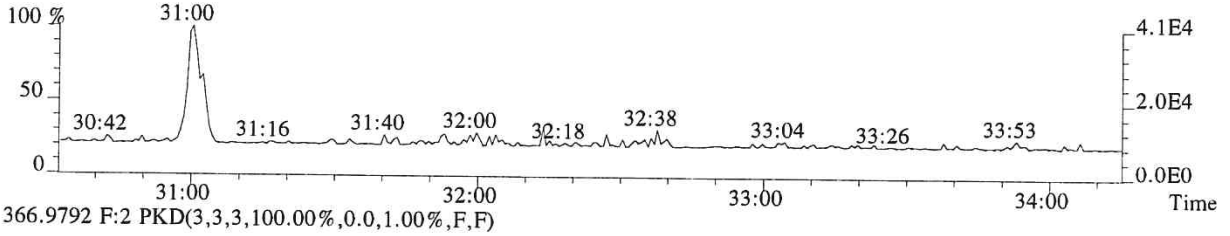
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6684.0,1.00%,F,T)



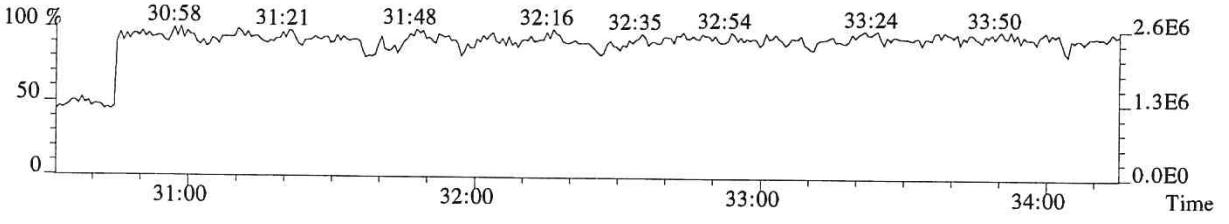
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7168.0,1.00%,F,T)



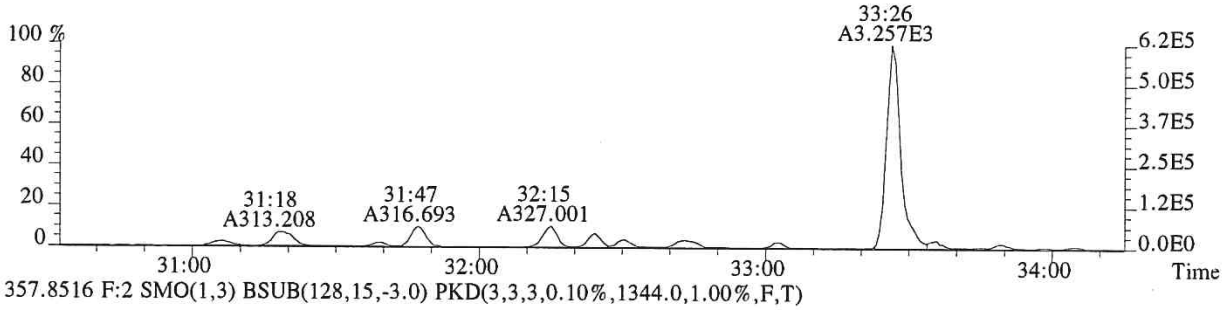
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



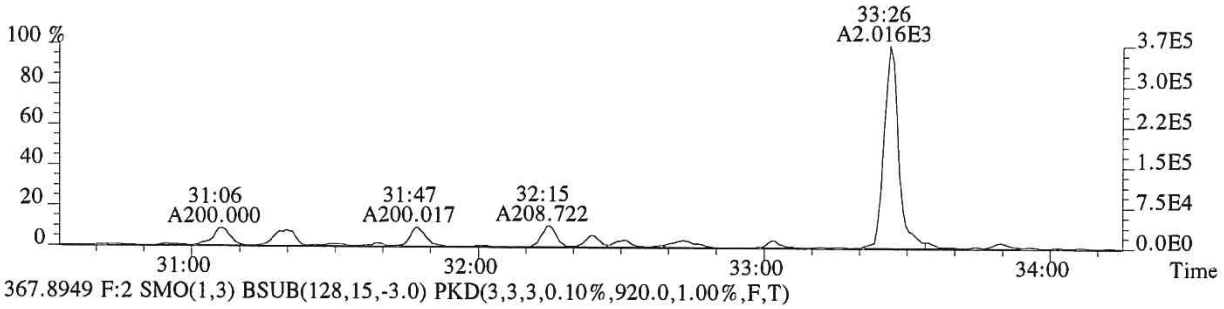
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



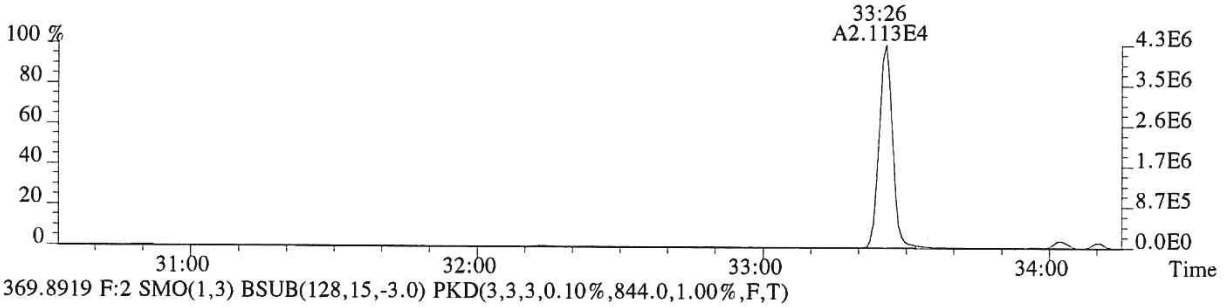
File:P519260 #1-335 Acq: 6-DEC-2018 20:29:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



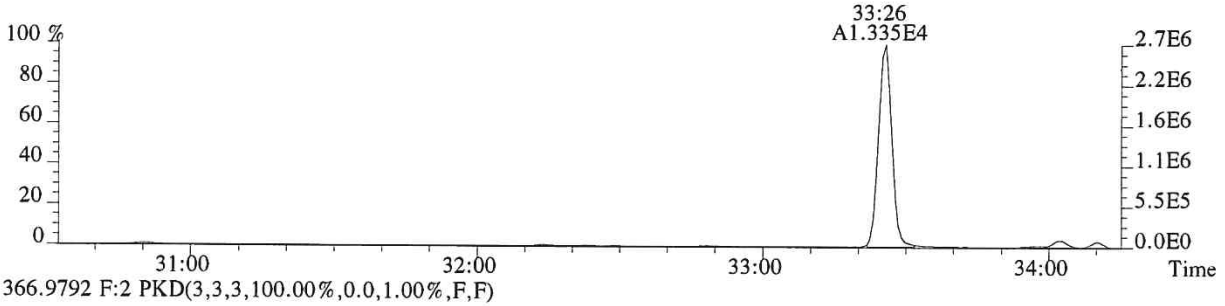
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1344.0,1.00%,F,T)



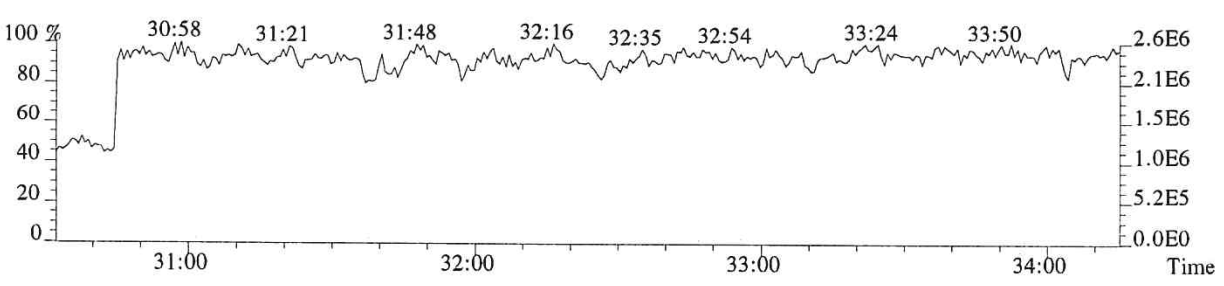
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



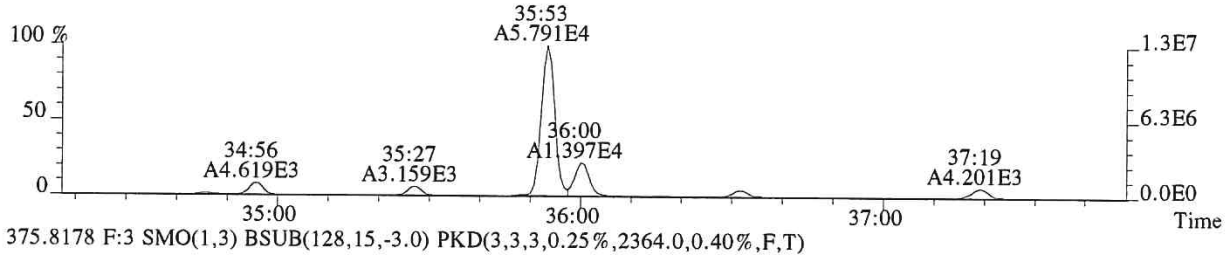
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



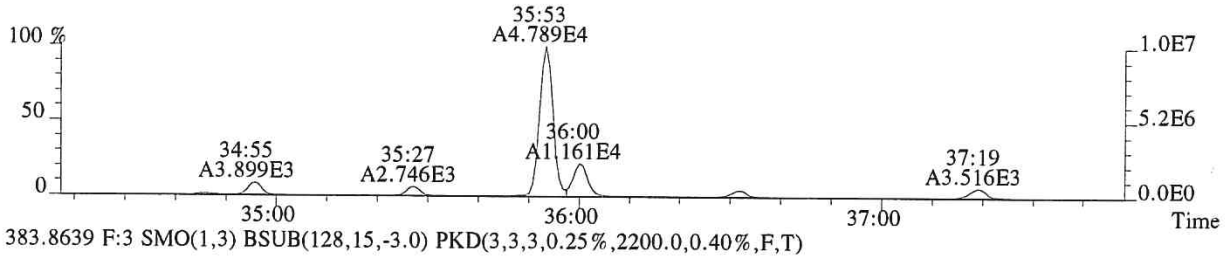
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



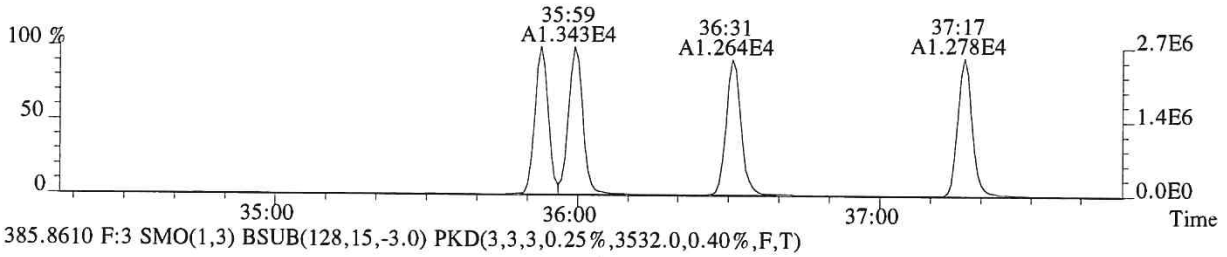
File:P519260 #1-317 Acq: 6-DEC-2018 20:29:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4664.0,0.40%,F,T)



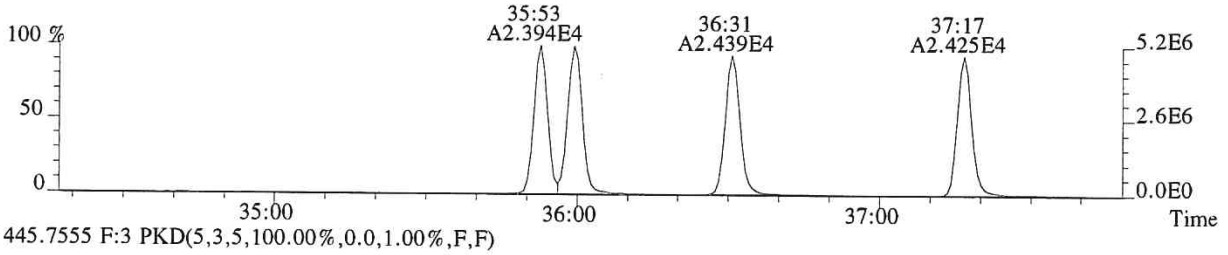
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2364.0,0.40%,F,T)



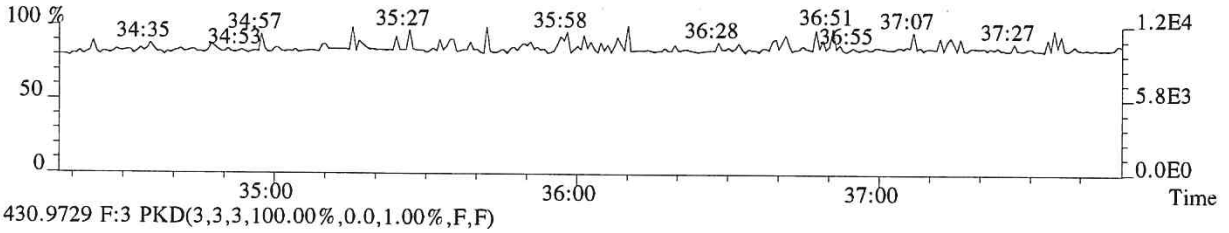
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2200.0,0.40%,F,T)



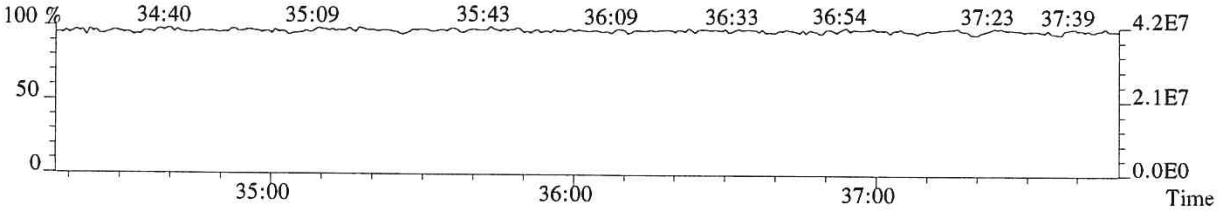
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3532.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

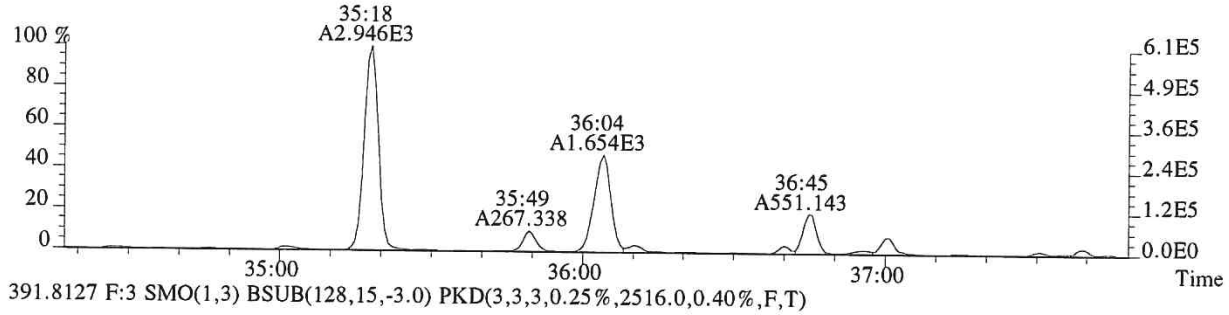


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

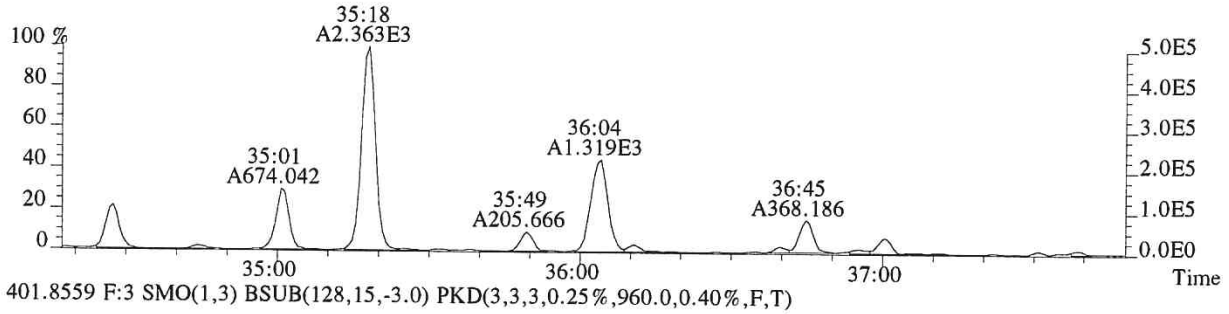


012488

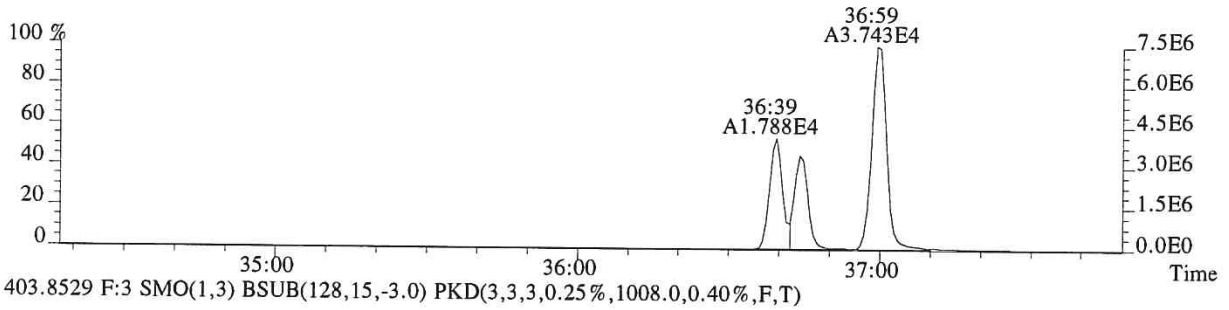
File:P519260 #1-317 Acq: 6-DEC-2018 20:29:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



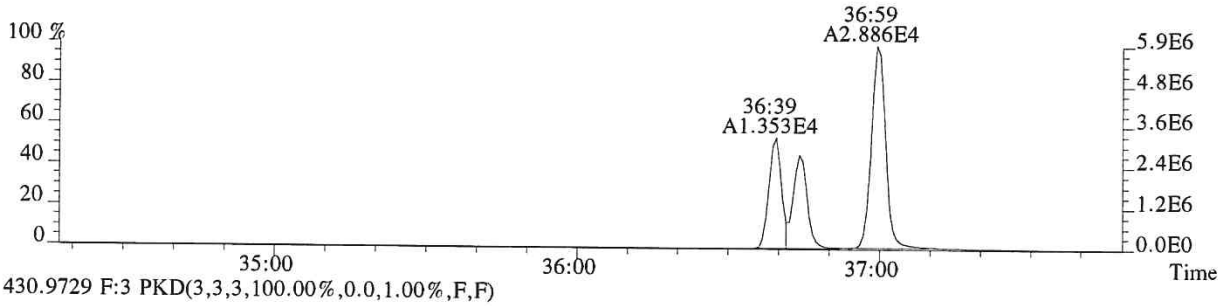
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2516.0,0.40%,F,T)



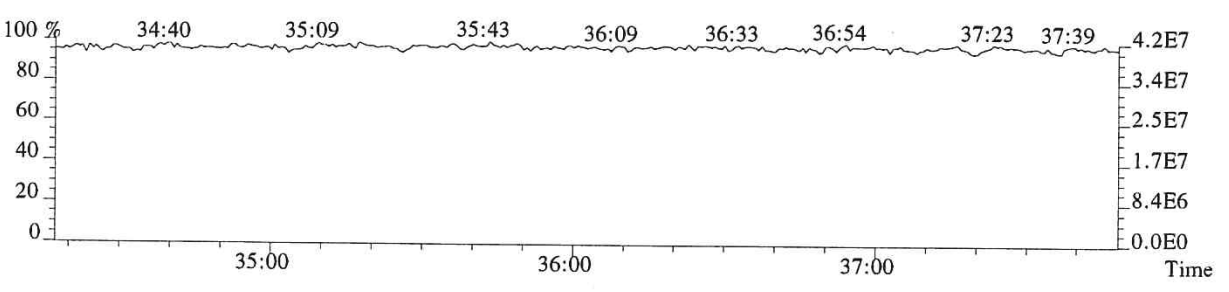
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)

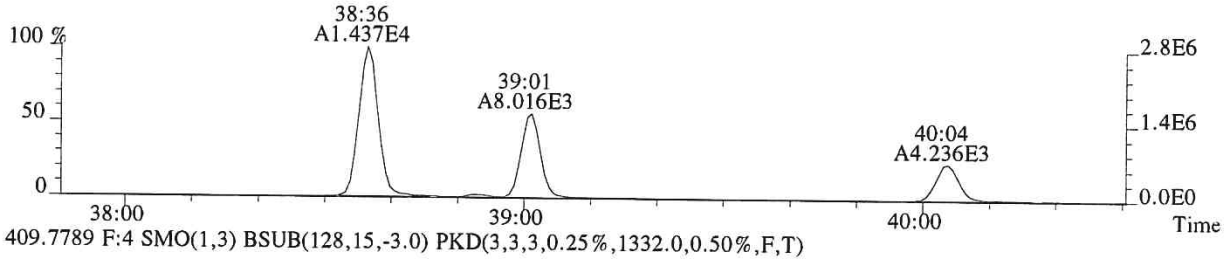


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

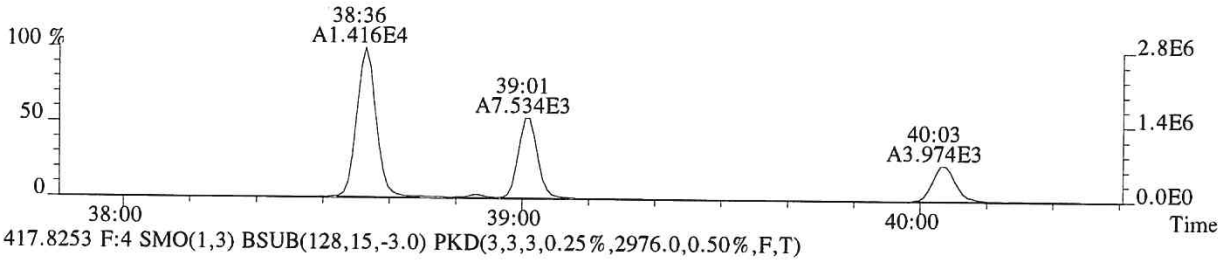


012489

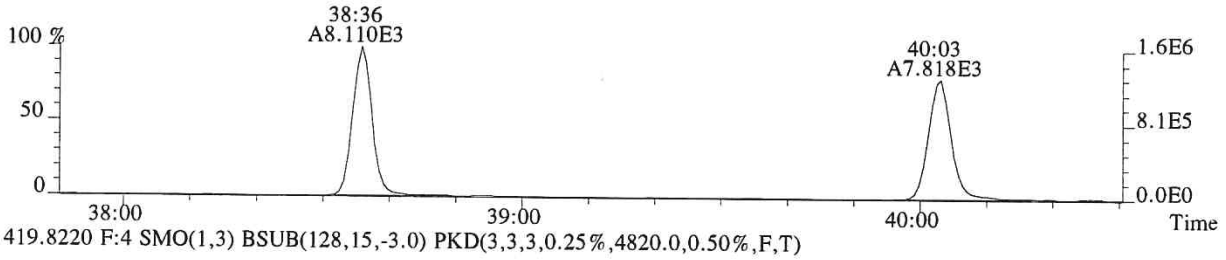
File:P519260 #1-241 Acq: 6-DEC-2018 20:29:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2448.0,0.50%,F,T)



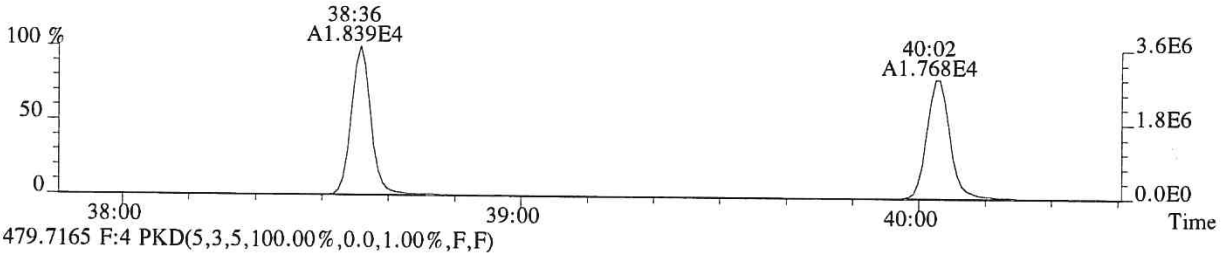
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.50%,F,T)



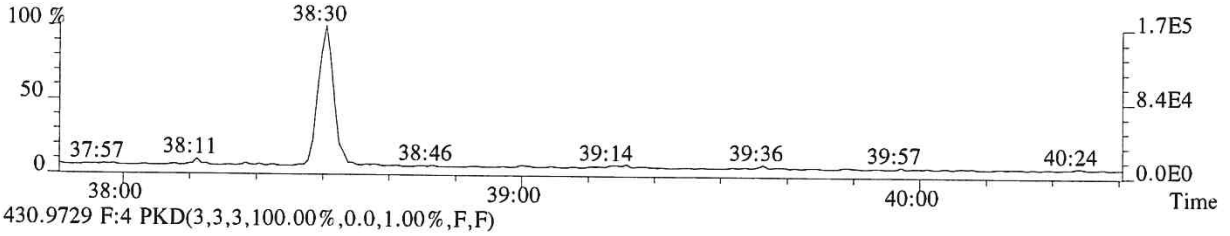
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2976.0,0.50%,F,T)



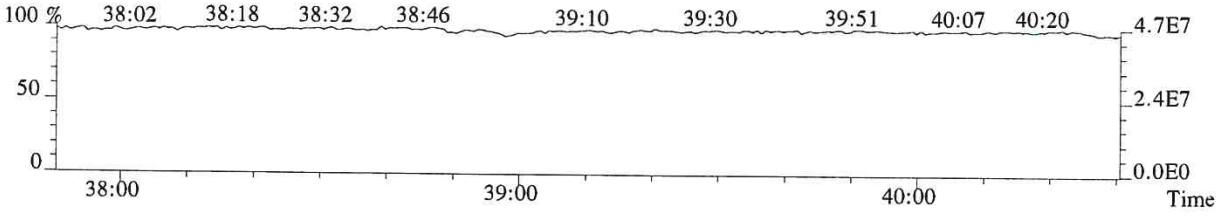
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4820.0,0.50%,F,T)



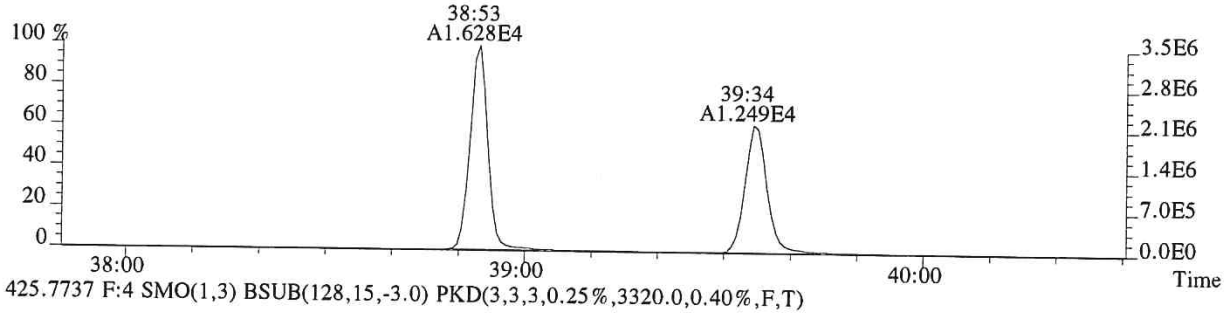
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



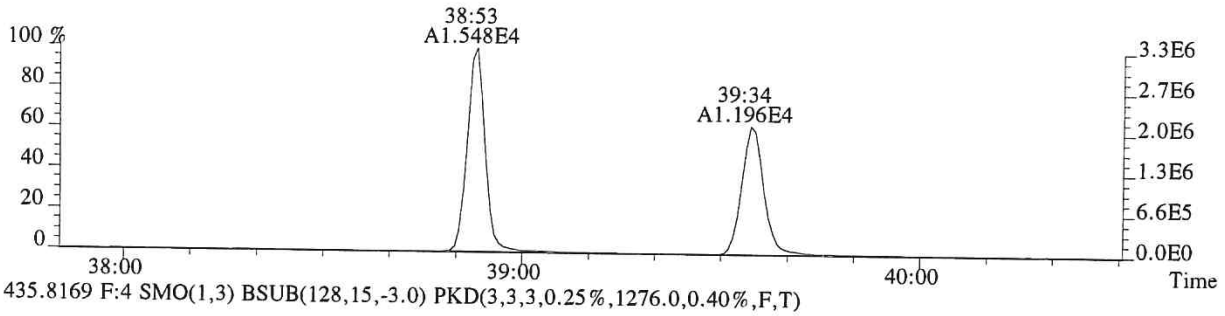
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



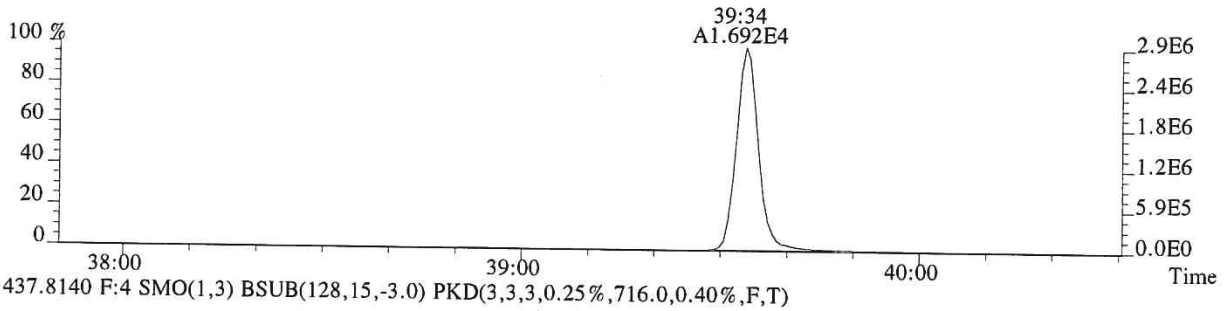
File:P519260 #1-241 Acq: 6-DEC-2018 20:29:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



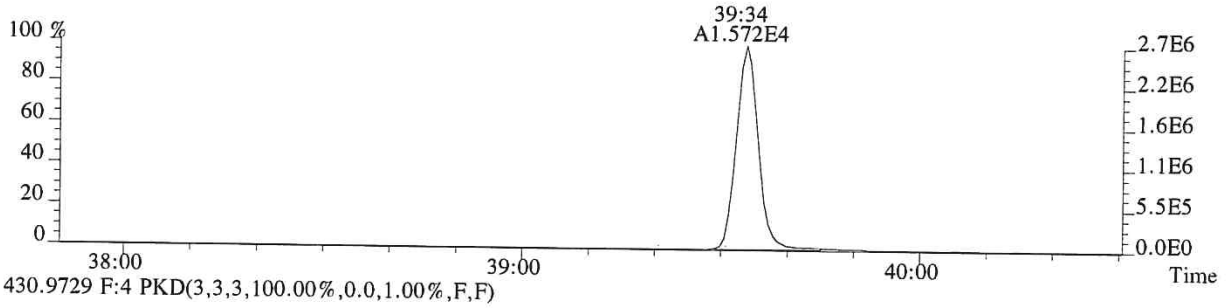
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3320.0,0.40%,F,T)



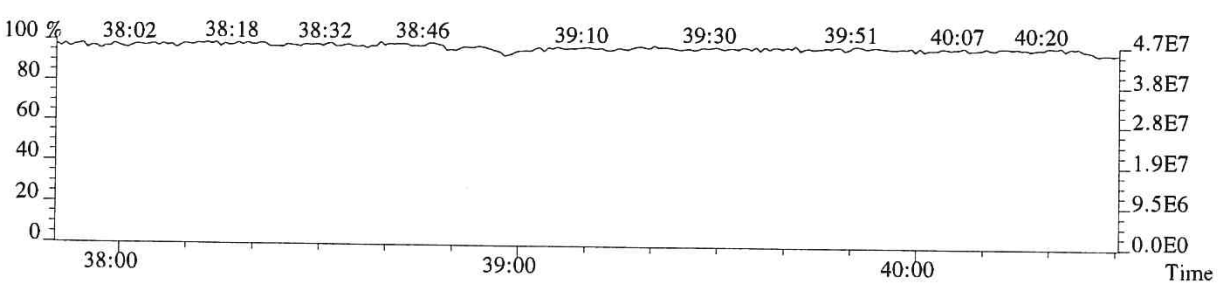
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1276.0,0.40%,F,T)



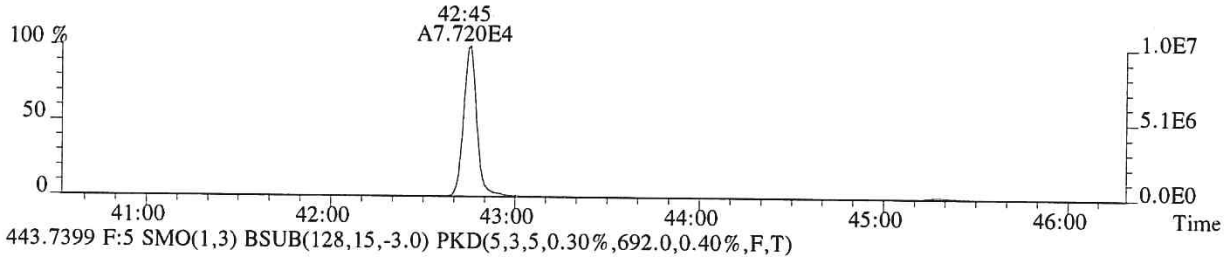
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



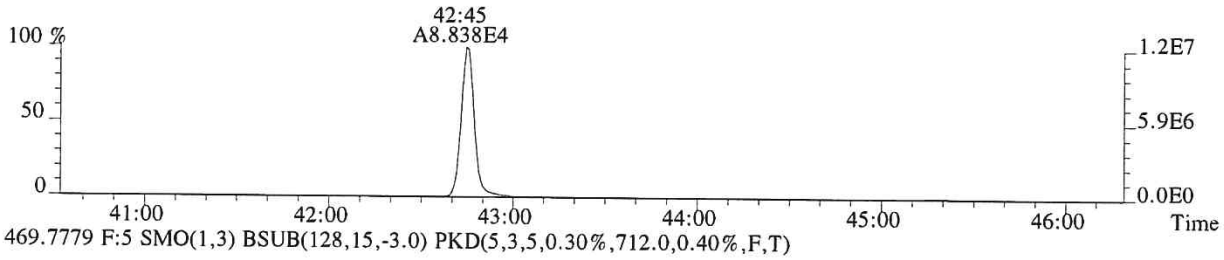
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



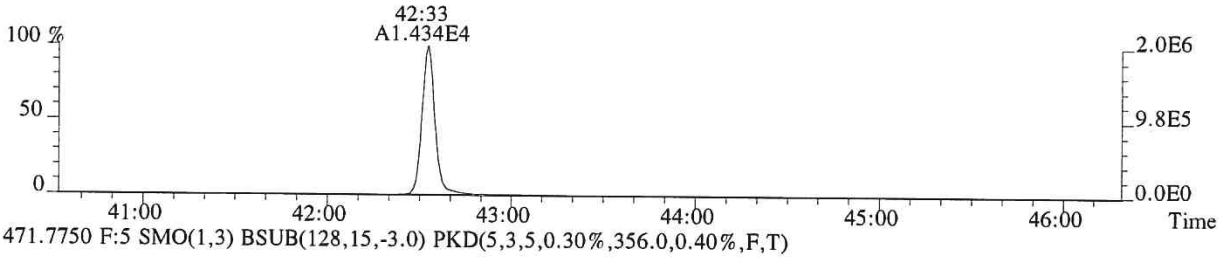
File:P519260 #1-520 Acq: 6-DEC-2018 20:29:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



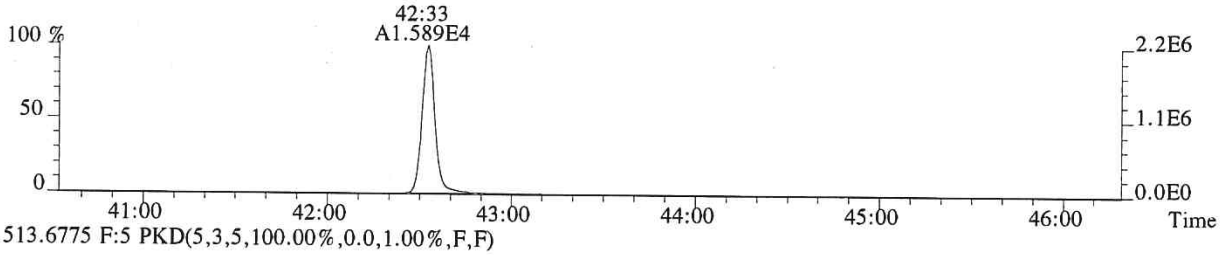
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



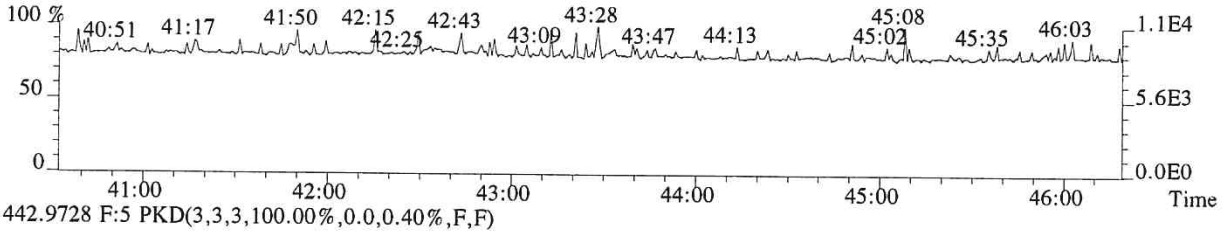
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



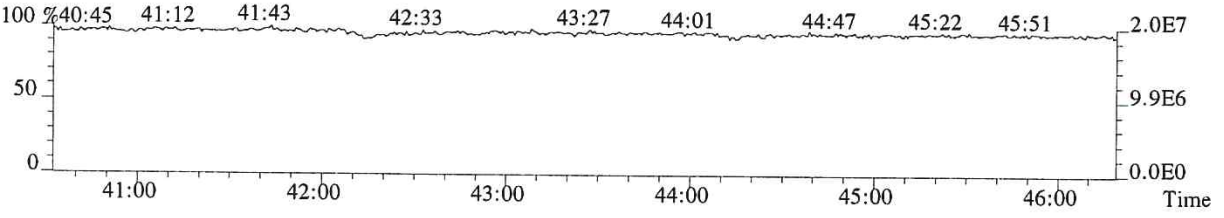
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

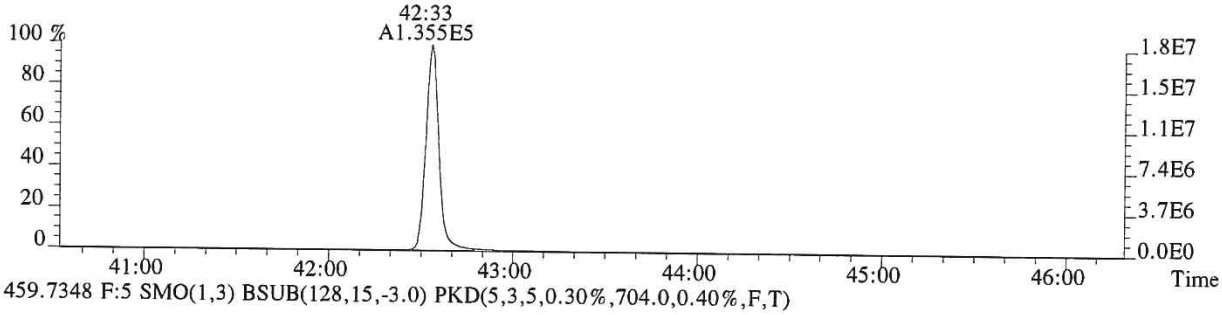


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

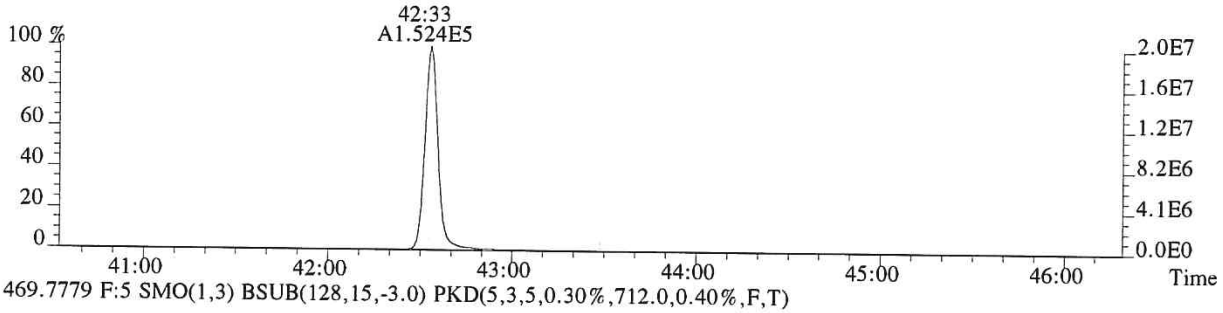


012492

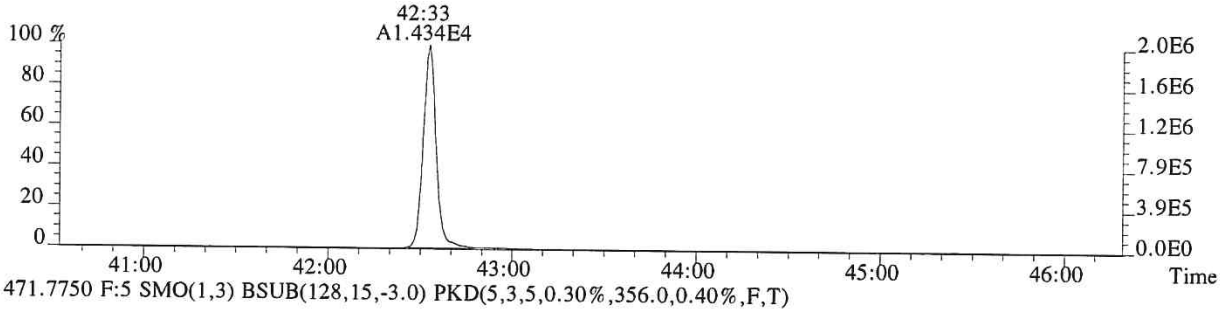
File:P519260 #1-520 Acq: 6-DEC-2018 20:29:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



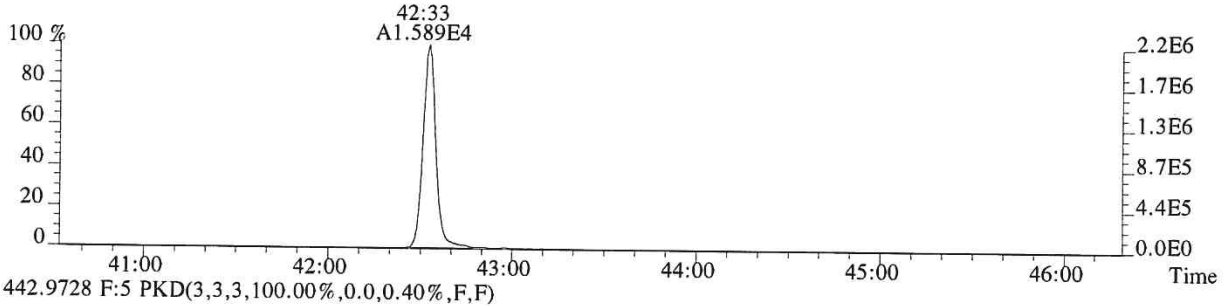
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,704.0,0.40%,F,T)



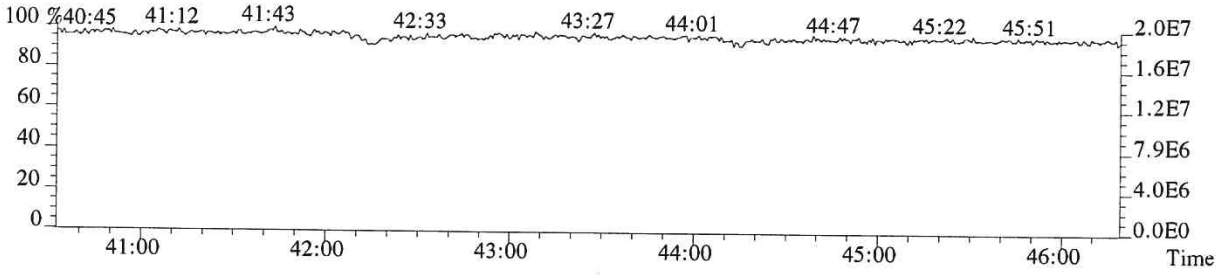
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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Sample Response Summary

CLIENT ID.
SL0221

Run #12 Filename P519324 Samp: 1 Inj: 1 Acquired: 10-DEC-18 12:49:32
Processed: 11-DEC-18 15:18:35 Sample ID: E1801056-057DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	4.740e+03	6.308e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	2.473e+02	1.839e+02	1.34	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.892e+02	1.600e+02	1.18	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	3.093e+02	2.576e+02	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.136e+01	6.820e+01	1.05	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.293e+01	3.306e+00	3.91	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	3.027e+01	1.465e+01	2.07	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	6.120e+01	8.305e+01	0.74	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	2.464e+01	1.859e+01	1.33	no	no	1.258
10	Unk	OCDF	42:36	3.578e+02	4.152e+02	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	1.160e+03	1.583e+03	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:22	2.123e+01	2.962e+00	7.17	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:33	3.138e+00	8.620e-01	3.64	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:29	6.667e+01	7.630e+01	0.87	no	no	1.025
17	Unk	OCDD	42:25	6.878e+02	7.529e+02	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	1.386e+04	1.736e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.145e+04	1.312e+04	1.63	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.024e+04	1.257e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	8.178e+03	1.608e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	9.864e+03	1.935e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	9.468e+03	1.823e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	7.705e+03	1.472e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	7.151e+03	1.593e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:57	5.769e+03	1.333e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	6.597e+03	8.221e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	1.439e+04	9.315e+03	1.54	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.173e+04	9.007e+03	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.198e+04	9.174e+03	1.31	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	1.219e+04	1.174e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:25	1.411e+04	1.546e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	9.848e+03	1.243e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	1.339e+04	9.753e+03	1.37	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	1.032e+02				no	1.014

$$\text{OCDD} = \frac{(6.878e{+}02 + 7.529e{+}02) \times 4000\ \text{pg} \times 100}{(1.411e{+}04 + 1.546e{+}04) \times 10.729\ \text{g} \times 72.0 / 100 \times 1.118 \times 0.39} = 5786\ \text{ng/kg}$$

LLW 12/11/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0221

Run #12 Filename P519324 Samp: 1 Inj: 1 Acquired: 10-DEC-18 12:49:32
Processed: 11-DEC-18 15:18:35 LAB. ID: E1801056-057DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.95e+05	5.56e+02	1.4e+03	1.04e+06	1.43e+03	7.3e+02
2	1,2,3,7,8-PeCDF	4.77e+04	7.28e+02	6.6e+01	3.29e+04	1.17e+03	2.8e+01
3	2,3,4,7,8-PeCDF	3.44e+04	7.28e+02	4.7e+01	2.61e+04	1.17e+03	2.2e+01
4	1,2,3,4,7,8-HxCDF	6.46e+04	7.28e+02	8.9e+01	5.18e+04	4.76e+02	1.1e+02
5	1,2,3,6,7,8-HxCDF	1.29e+04	7.28e+02	1.8e+01	1.14e+04	4.76e+02	2.4e+01
6	2,3,4,6,7,8-HxCDF	2.54e+03	7.28e+02	3.5e+00	1.38e+03	4.76e+02	2.9e+00
7	1,2,3,7,8,9-HxCDF	4.89e+03	7.28e+02	6.7e+00	2.56e+03	4.76e+02	5.4e+00
8	1,2,3,4,6,7,8-HpCDF	1.24e+04	5.32e+02	2.3e+01	1.55e+04	2.12e+02	7.3e+01
9	1,2,3,4,7,8,9-HpCDF	4.50e+03	5.32e+02	8.4e+00	4.14e+03	2.12e+02	2.0e+01
10	OCDF	4.38e+04	3.16e+02	1.4e+02	5.32e+04	6.24e+02	8.5e+01
11	2,3,7,8-TCDD	2.08e+05	1.88e+03	1.1e+02	2.88e+05	6.20e+02	4.6e+02
12	1,2,3,7,8-PeCDD	3.63e+03	1.01e+03	3.6e+00	9.22e+02	3.36e+02	2.7e+00
13	1,2,3,4,7,8-HxCDD	8.87e+02	4.04e+02	2.2e+00	2.14e+02	2.12e+02	1.0e+00
14	1,2,3,6,7,8-HxCDD	*	4.04e+02	*	*	2.12e+02	*
15	1,2,3,7,8,9-HxCDD	*	4.04e+02	*	*	2.12e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.31e+04	3.08e+02	4.3e+01	1.22e+04	3.16e+02	3.9e+01
17	OCDD	9.19e+04	1.96e+02	4.7e+02	8.79e+04	4.88e+02	1.8e+02
18	13C-2,3,7,8-TCDF	2.45e+06	7.62e+03	3.2e+02	3.04e+06	4.84e+03	6.3e+02
19	13C-1,2,3,7,8-PeCDF	3.79e+06	6.32e+02	6.0e+03	2.34e+06	4.64e+02	5.0e+03
20	13C-2,3,4,7,8-PeCDF	3.86e+06	6.32e+02	6.1e+03	2.40e+06	4.64e+02	5.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.71e+06	4.72e+02	3.6e+03	3.38e+06	7.72e+02	4.4e+03
22	13C-1,2,3,6,7,8-HxCDF	1.92e+06	4.72e+02	4.1e+03	3.70e+06	7.72e+02	4.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.87e+06	4.72e+02	4.0e+03	3.56e+06	7.72e+02	4.6e+03
24	13C-1,2,3,7,8,9-HxCDF	1.39e+06	4.72e+02	2.9e+03	2.71e+06	7.72e+02	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.33e+06	5.44e+02	2.4e+03	2.96e+06	1.86e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	9.16e+05	5.44e+02	1.7e+03	2.16e+06	1.86e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.19e+06	5.30e+03	2.2e+02	1.52e+06	1.57e+03	9.7e+02
28	13C-1,2,3,7,8-PeCDD	2.65e+06	7.00e+02	3.8e+03	1.69e+06	9.76e+02	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	2.52e+06	9.52e+02	2.6e+03	1.87e+06	5.64e+02	3.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.24e+06	9.52e+02	2.4e+03	1.73e+06	5.64e+02	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.12e+06	3.52e+02	6.0e+03	1.97e+06	2.84e+02	6.9e+03
32	13C-OCDD	1.77e+06	4.60e+02	3.8e+03	1.89e+06	1.32e+02	1.4e+04
33	13C-1,2,3,4-TCDD	1.80e+06	5.30e+03	3.4e+02	2.32e+06	1.57e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	2.35e+06	9.52e+02	2.5e+03	1.78e+06	5.64e+02	3.2e+03
35	37Cl-2,3,7,8-TCDD	2.39e+04	9.40e+02	2.5e+01			

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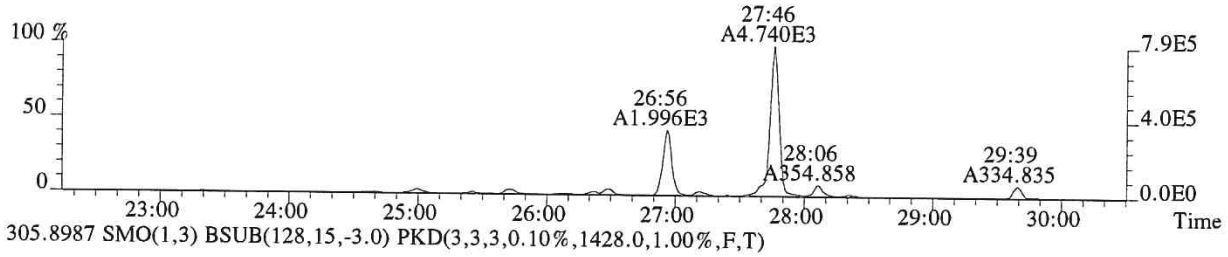
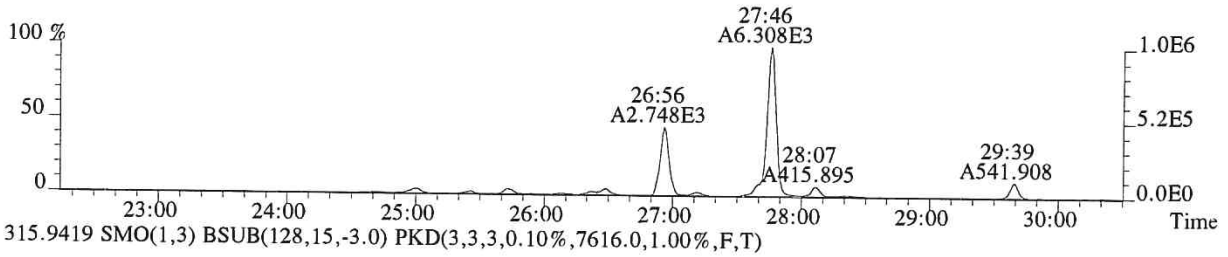
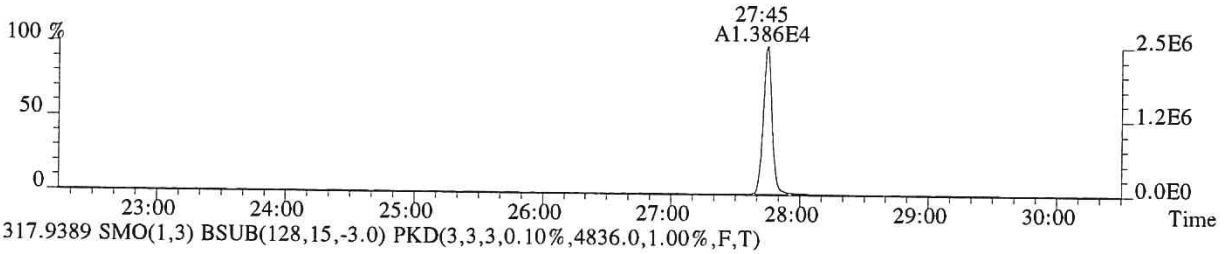
File:P519324 #1-587 Acq:10-DEC-2018 12:49:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



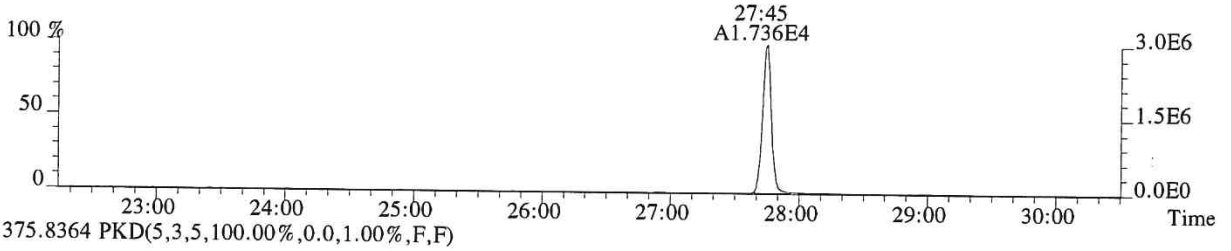
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



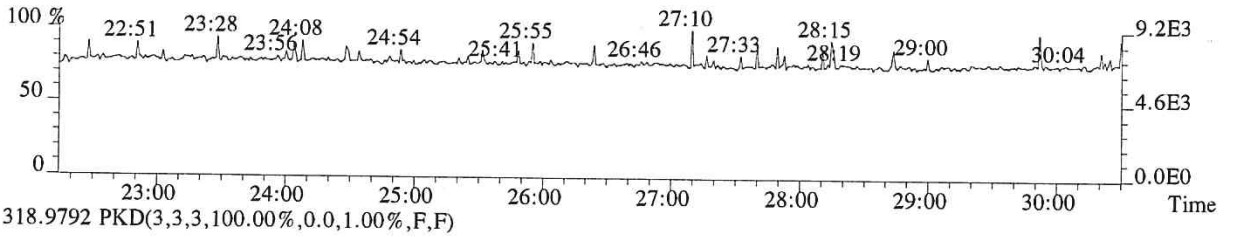
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7616.0,1.00%,F,T)



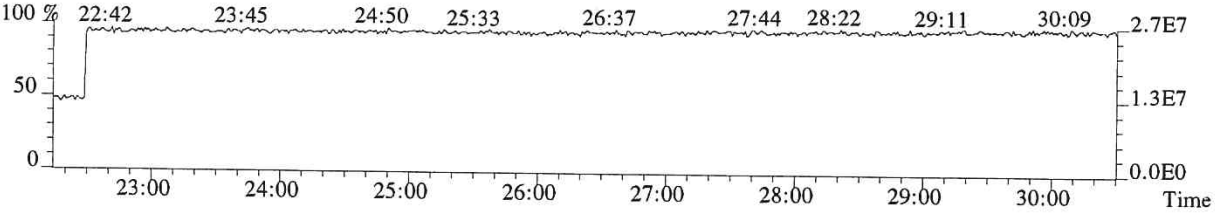
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4836.0,1.00%,F,T)



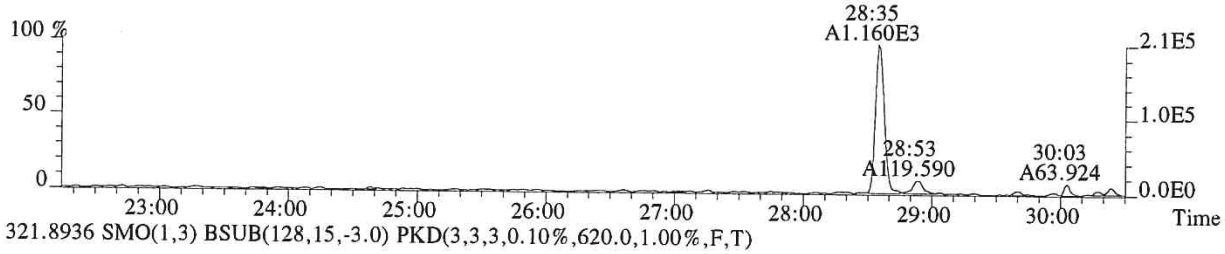
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



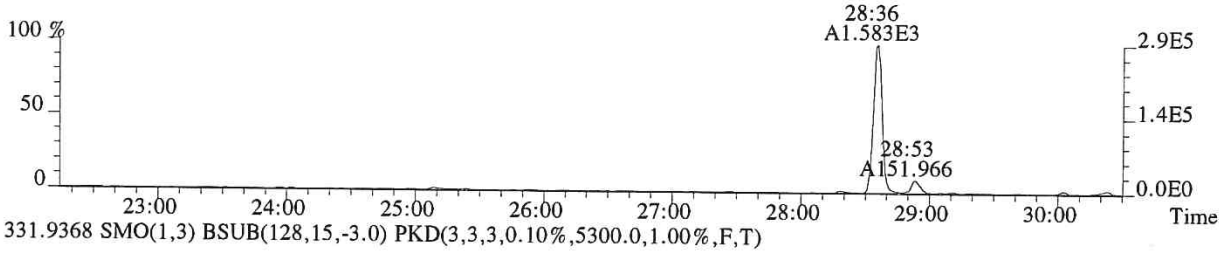
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



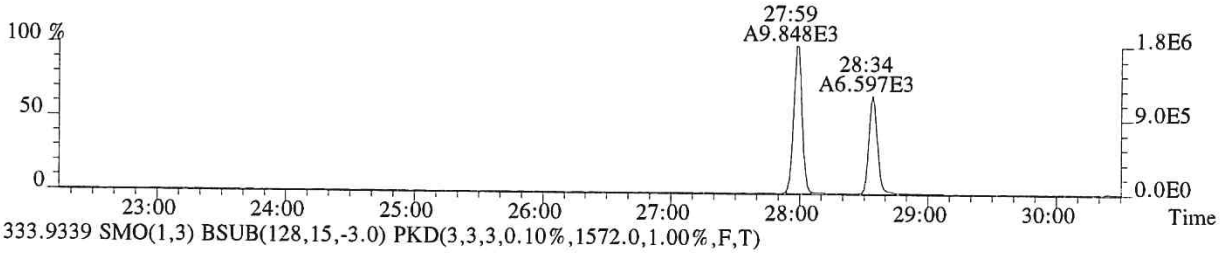
File:P519324 #1-587 Acq:10-DEC-2018 12:49:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



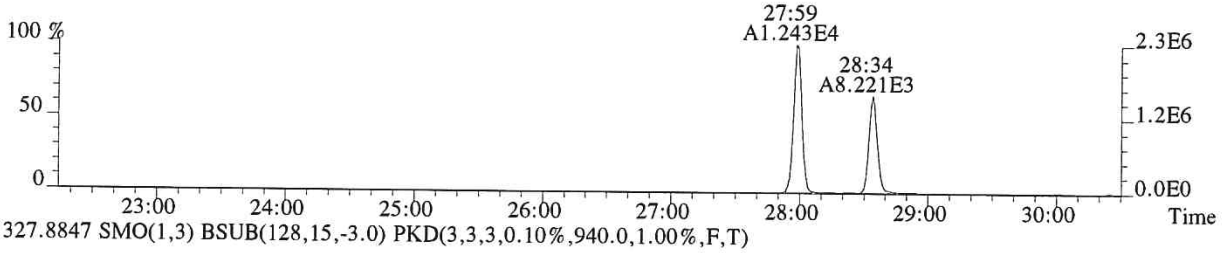
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



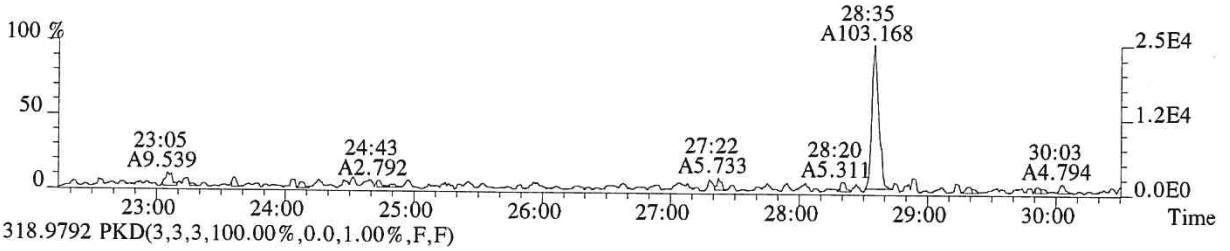
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5300.0,1.00%,F,T)



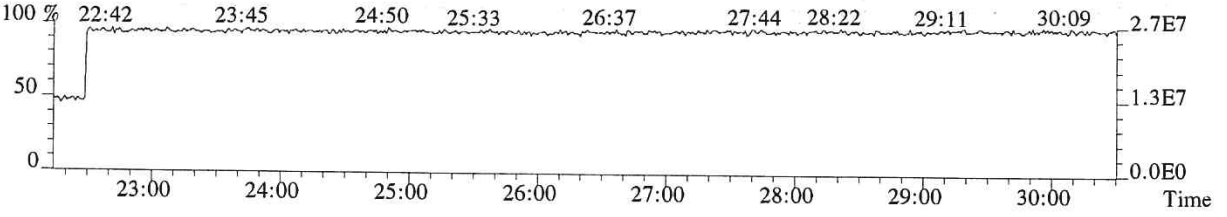
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1572.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)

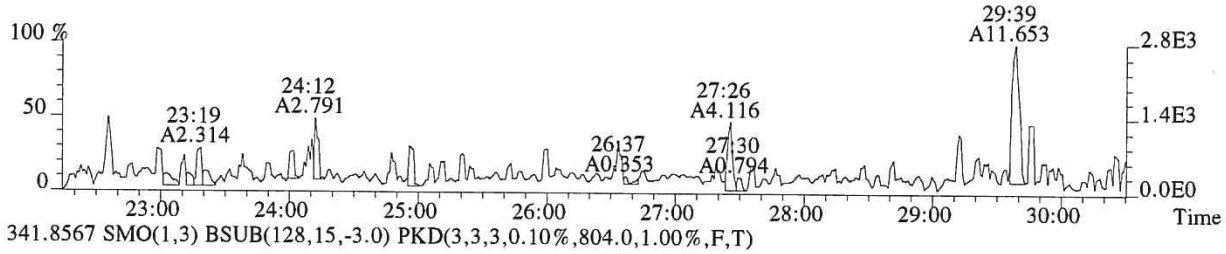


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

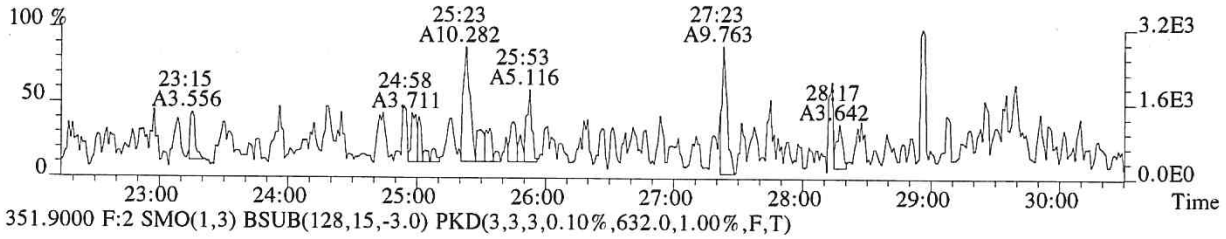


012497

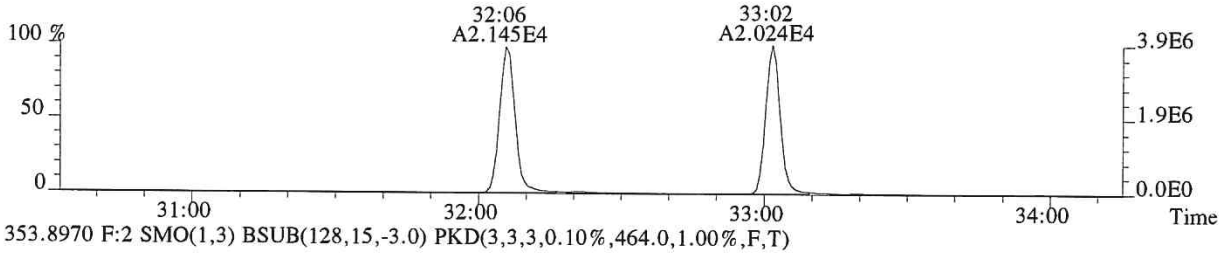
File:P519324 #1-587 Acq:10-DEC-2018 12:49:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



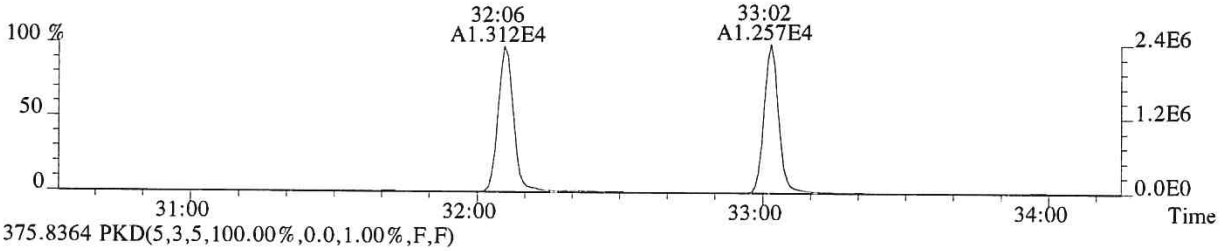
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



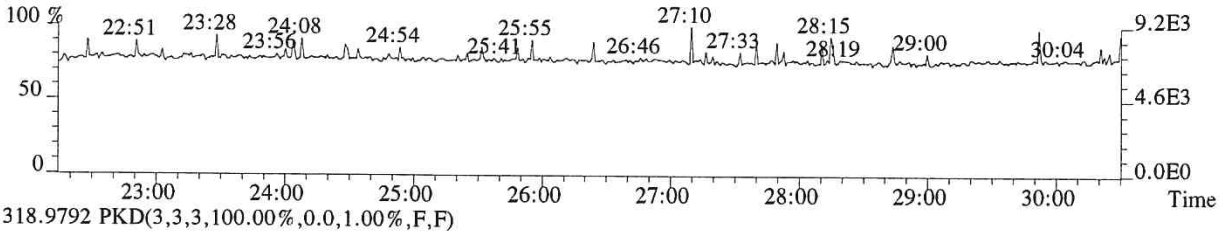
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



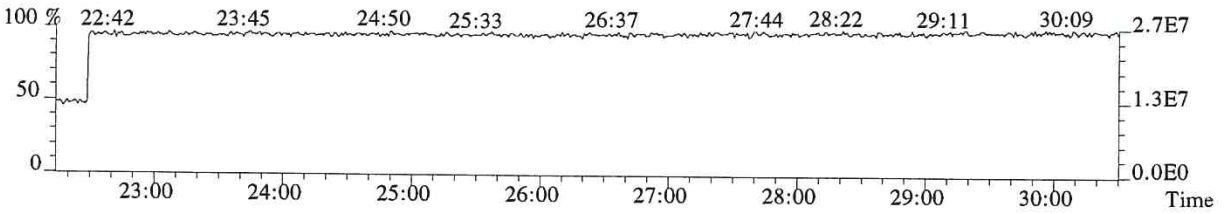
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

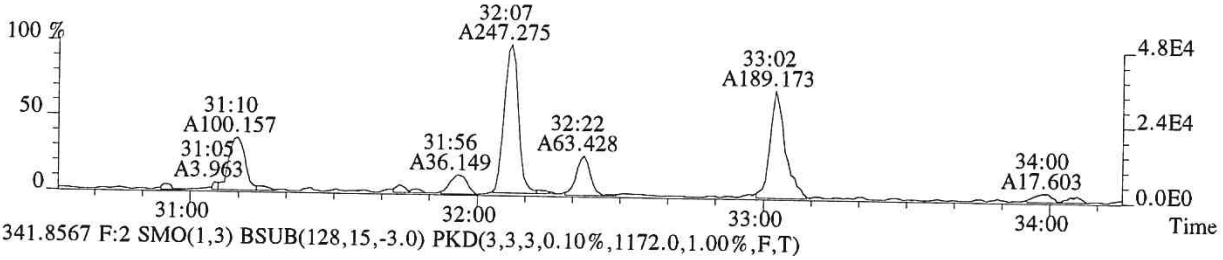


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

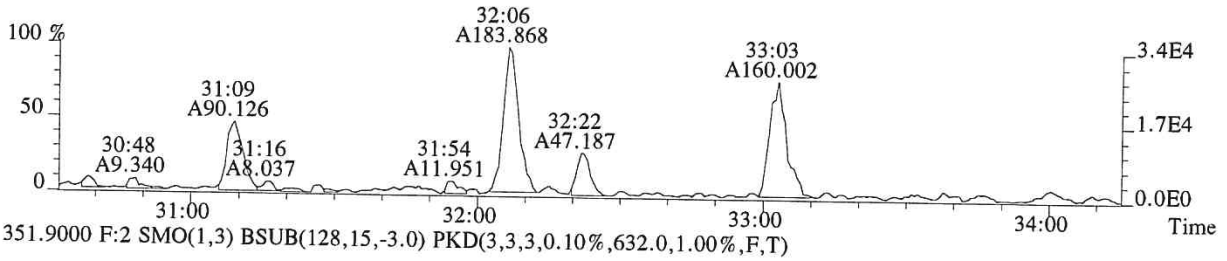


012498

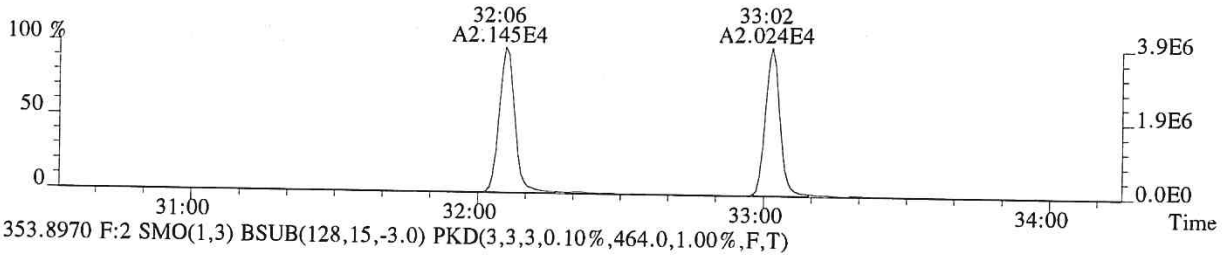
File:P519324 #1-335 Acq:10-DEC-2018 12:49:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



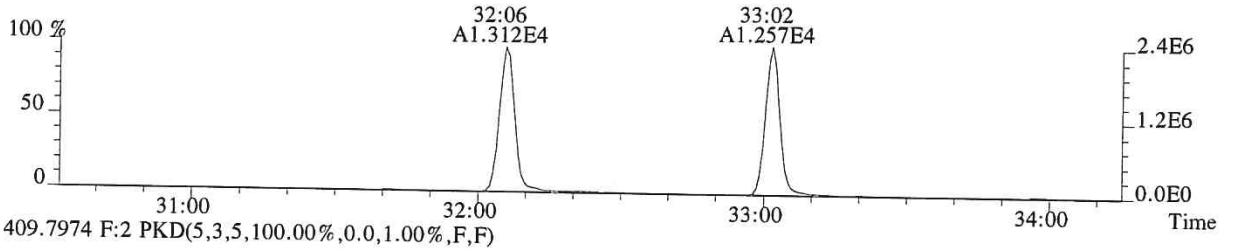
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



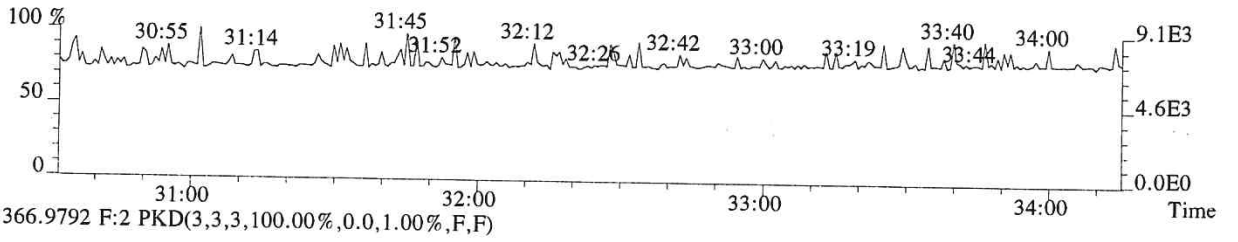
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



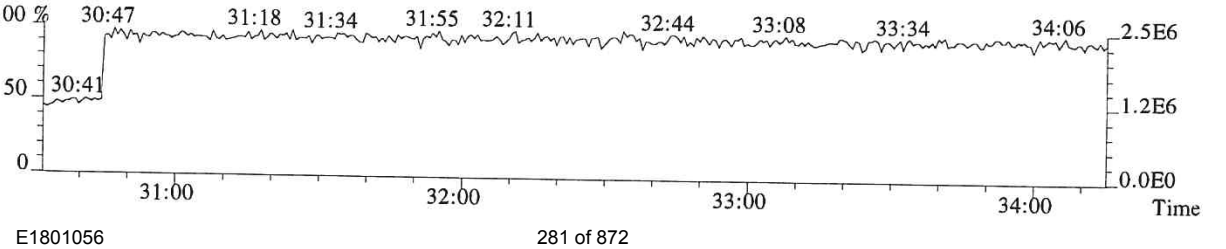
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



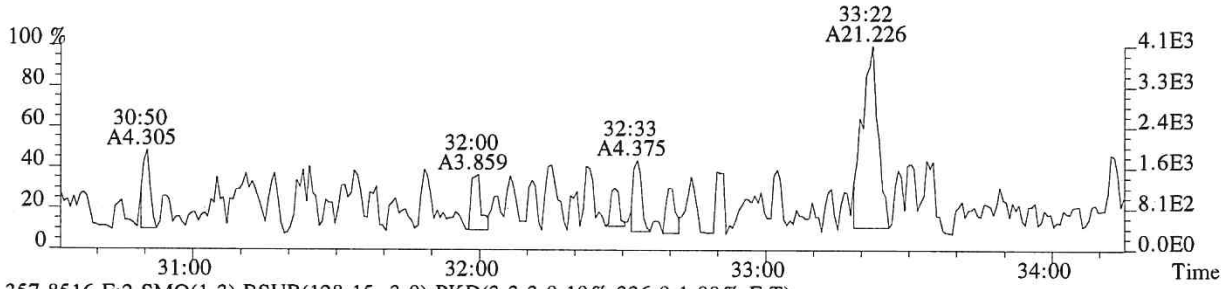
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



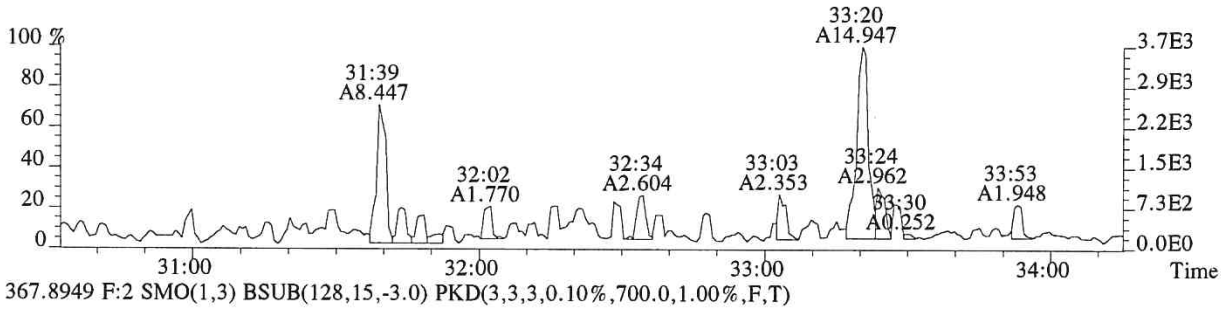
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



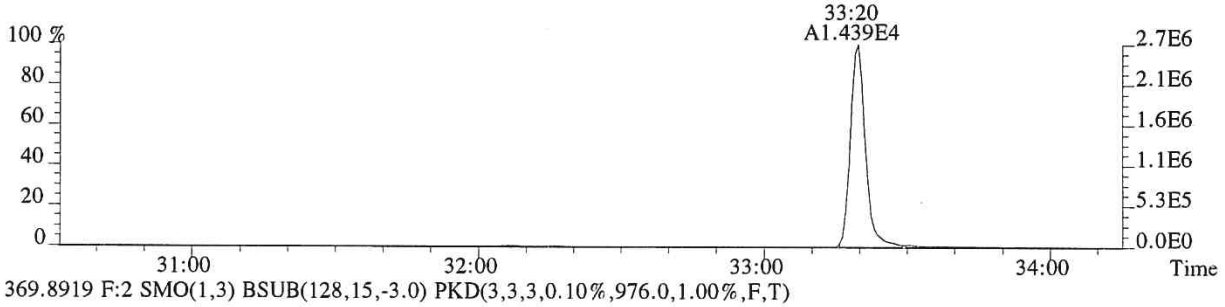
File:P519324 #1-335 Acq:10-DEC-2018 12:49:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



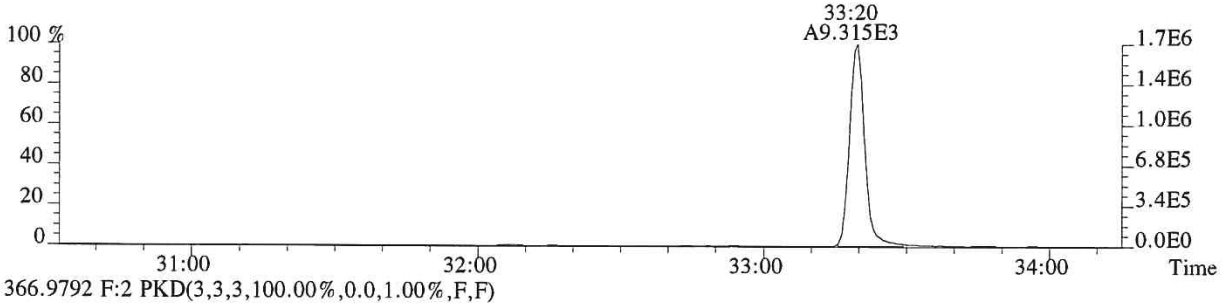
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



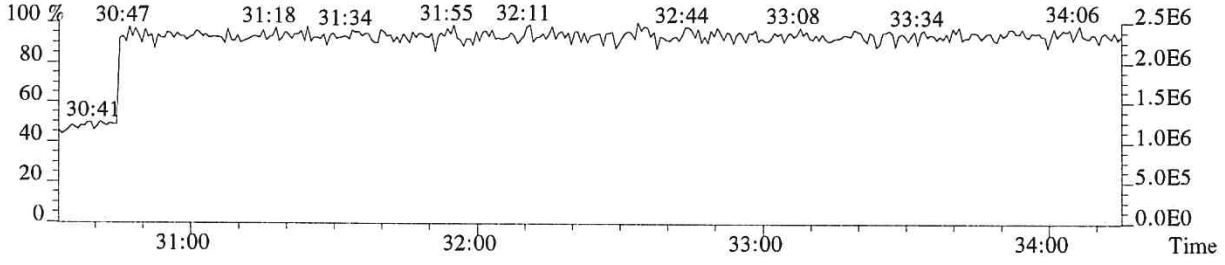
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)

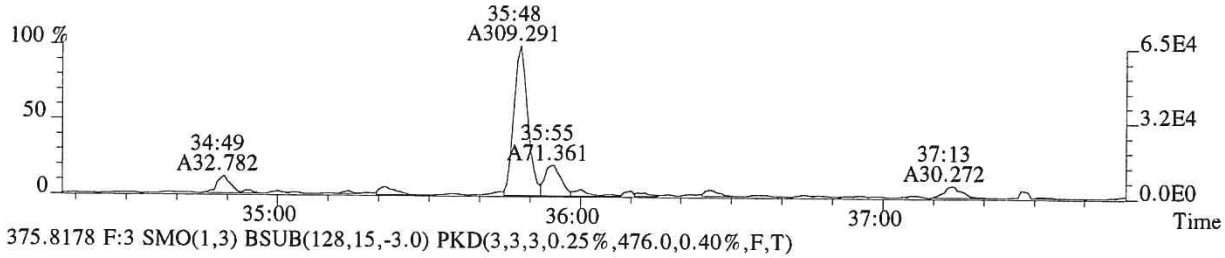


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

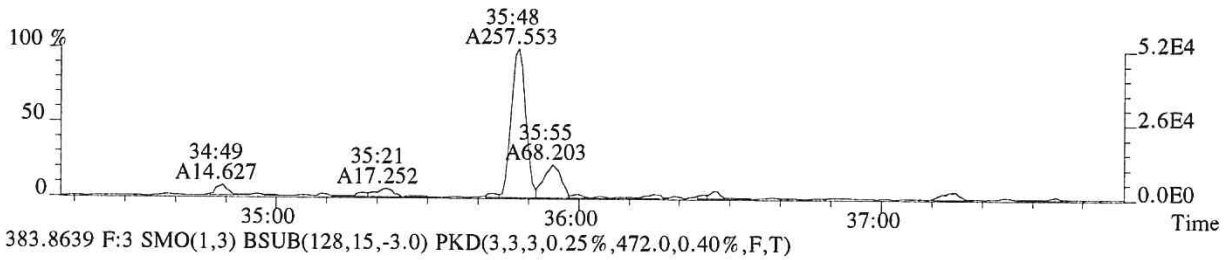


012500

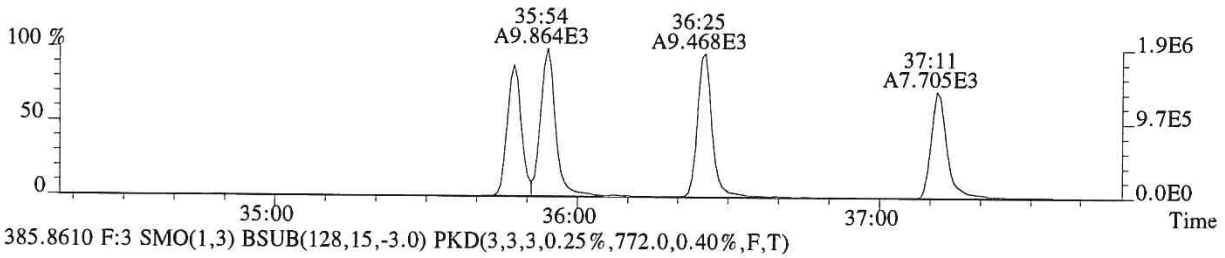
File:P519324 #1-317 Acq:10-DEC-2018 12:49:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



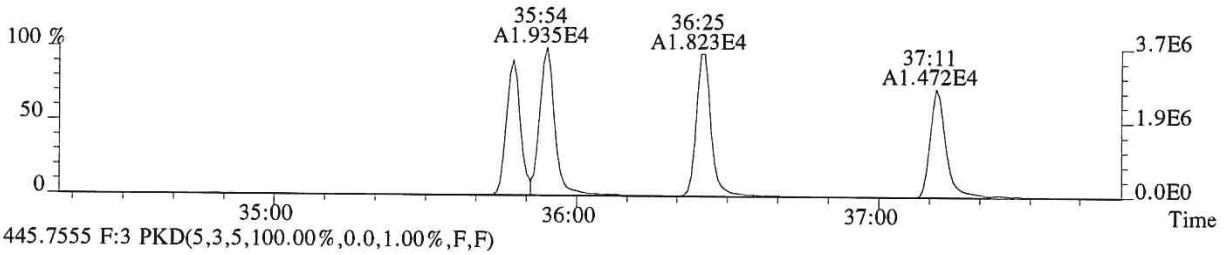
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



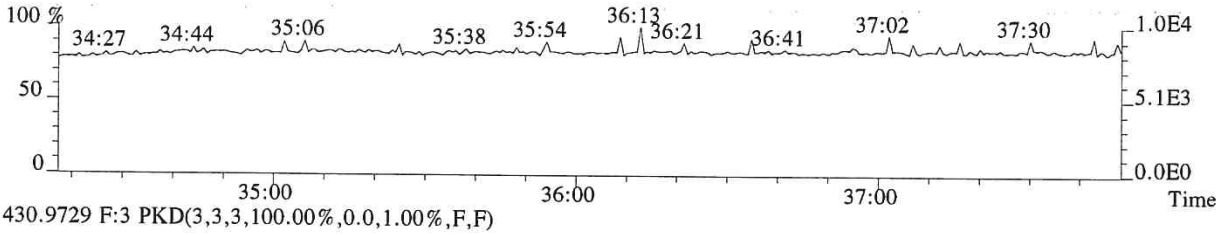
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



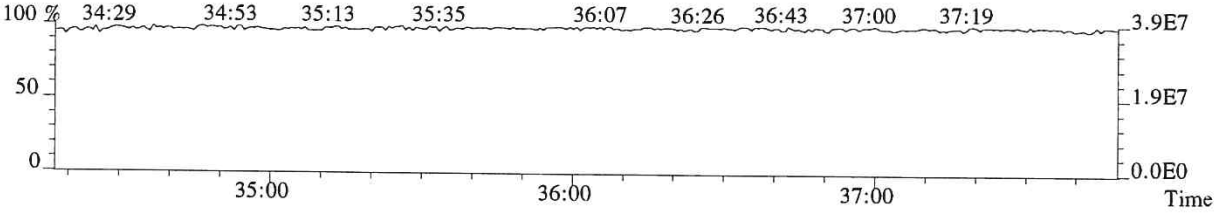
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

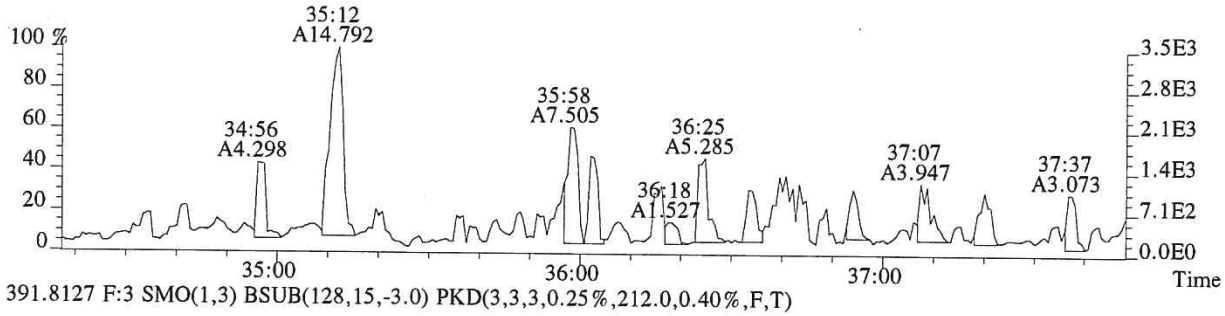


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

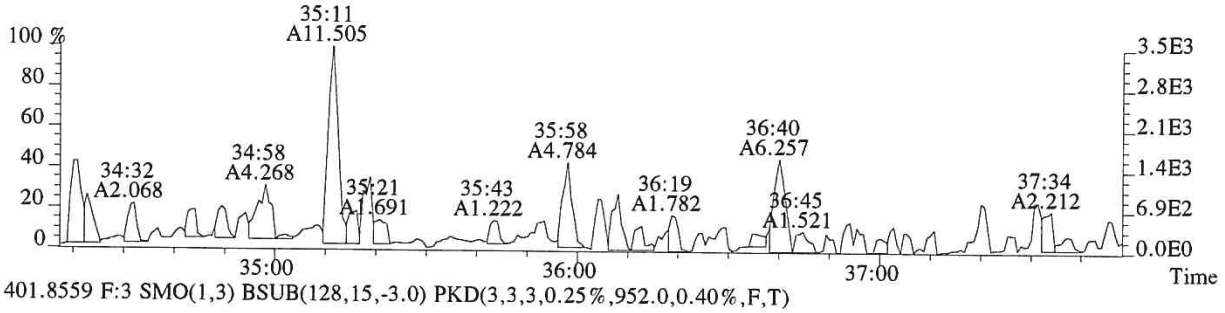


012501

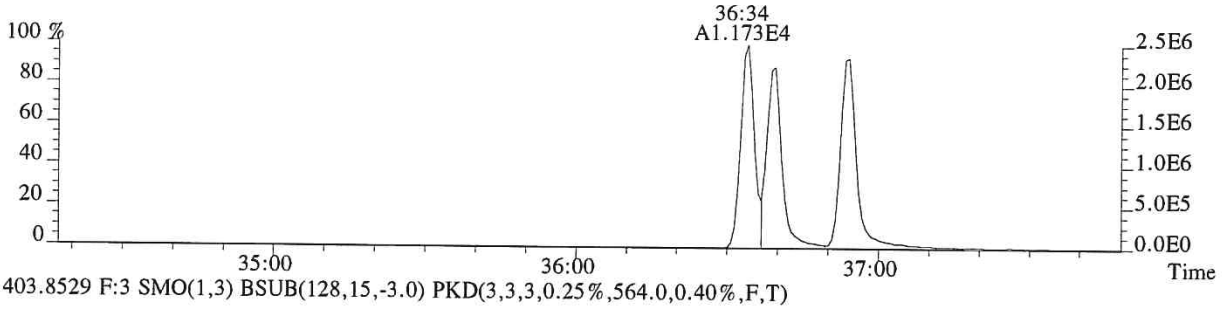
File:P519324 #1-317 Acq:10-DEC-2018 12:49:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



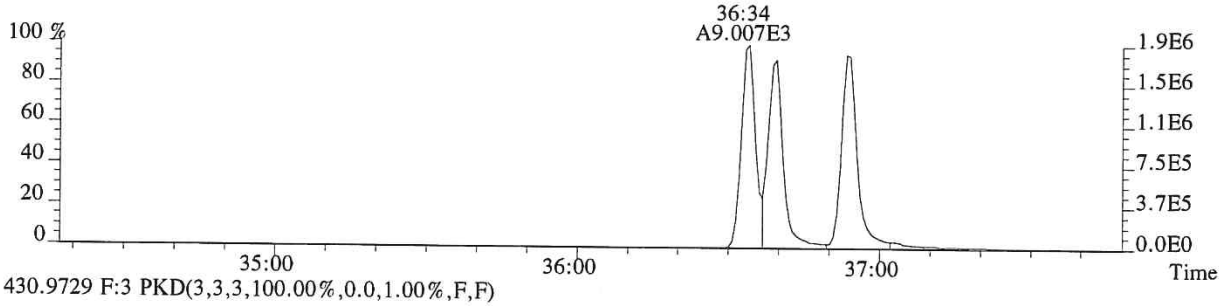
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



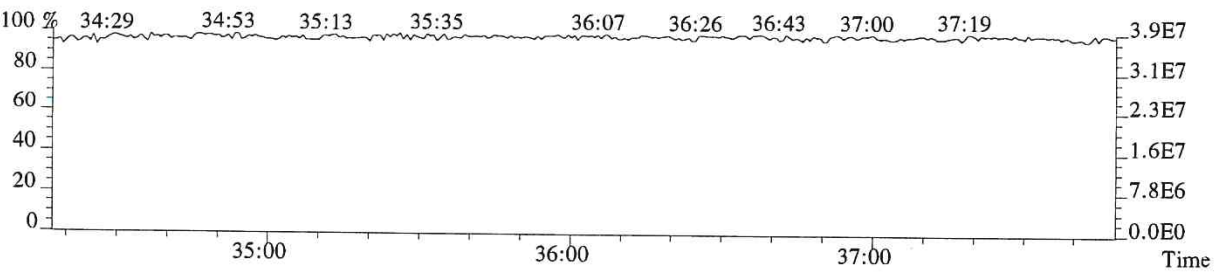
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)

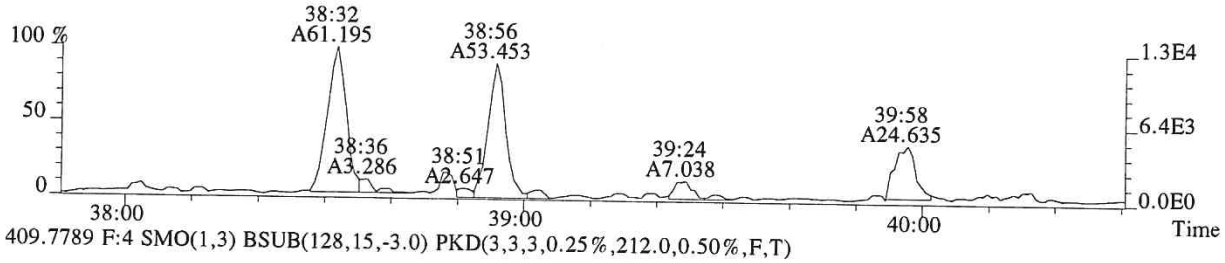


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

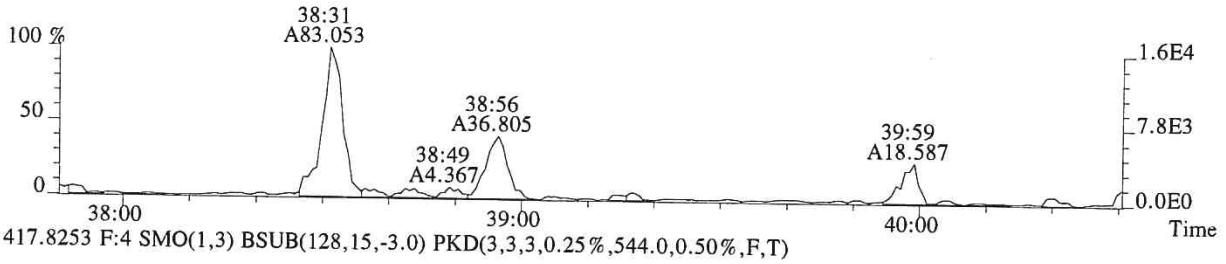


012502

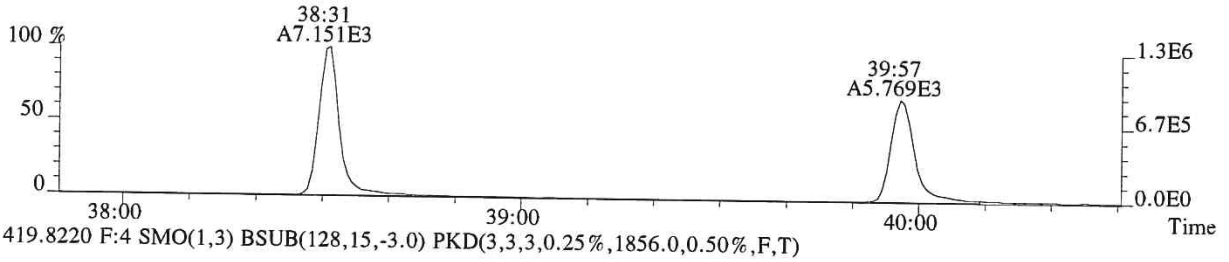
File:P519324 #1-241 Acq:10-DEC-2018 12:49:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.50%,F,T)



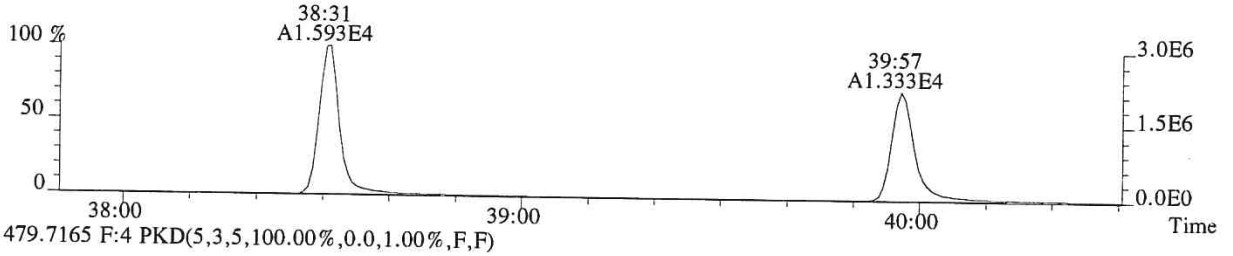
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.50%,F,T)



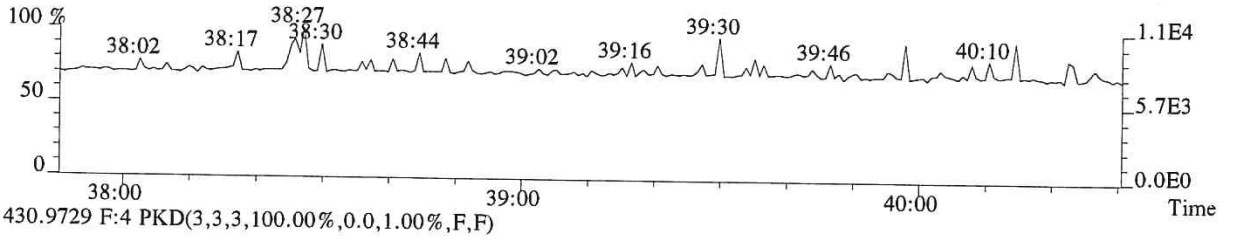
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.50%,F,T)



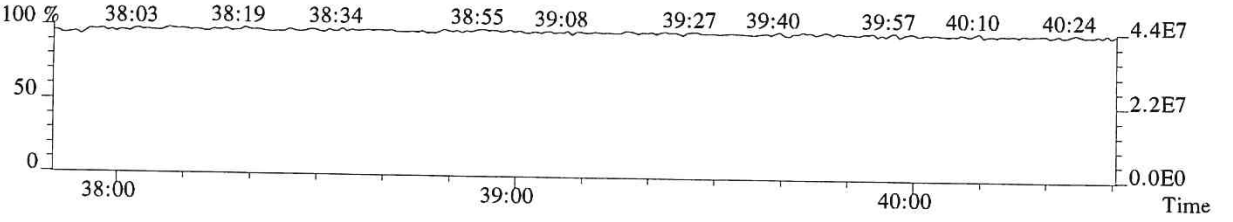
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

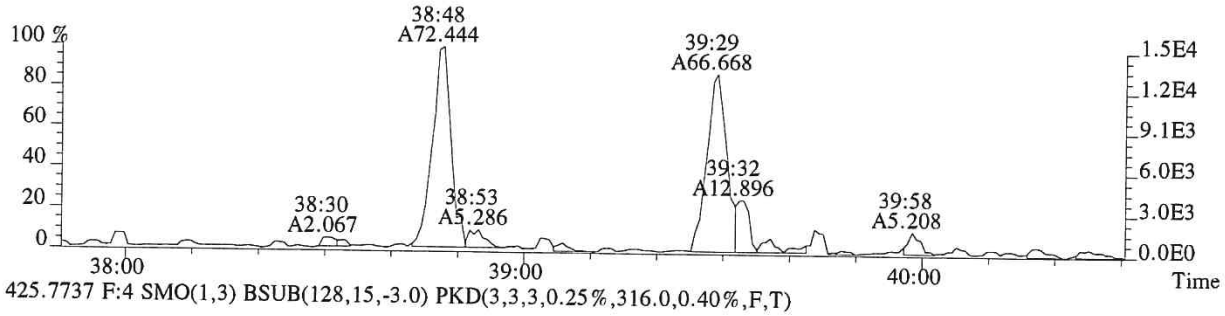


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

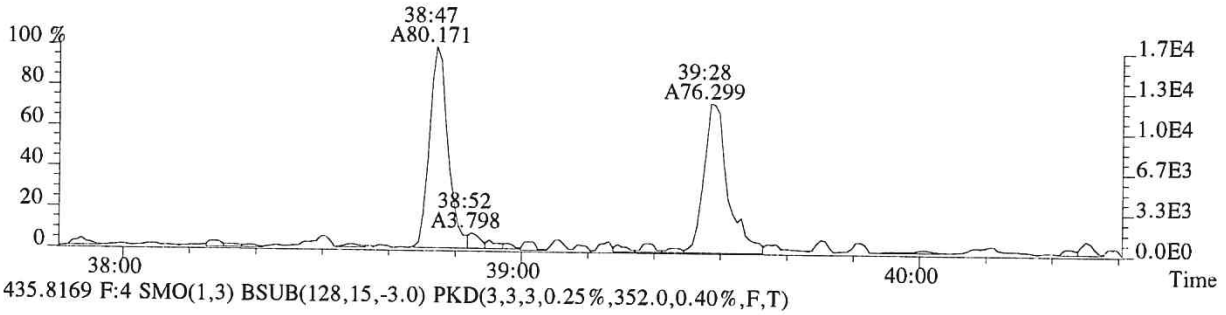


012503

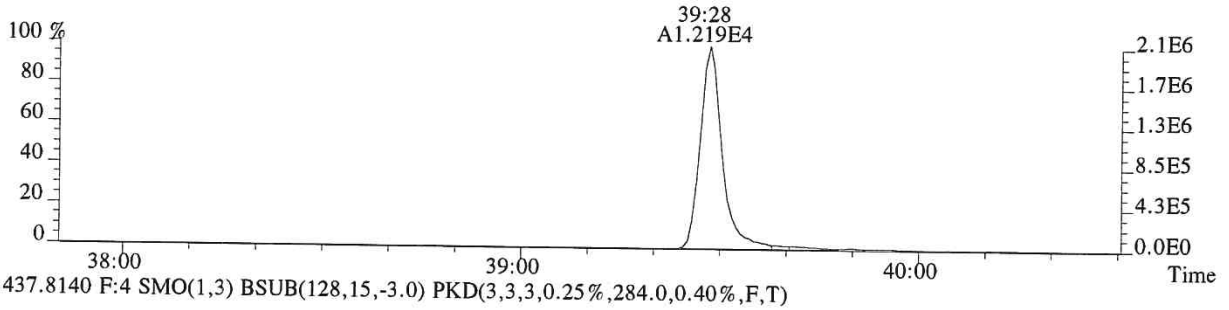
File:P519324 #1-241 Acq:10-DEC-2018 12:49:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



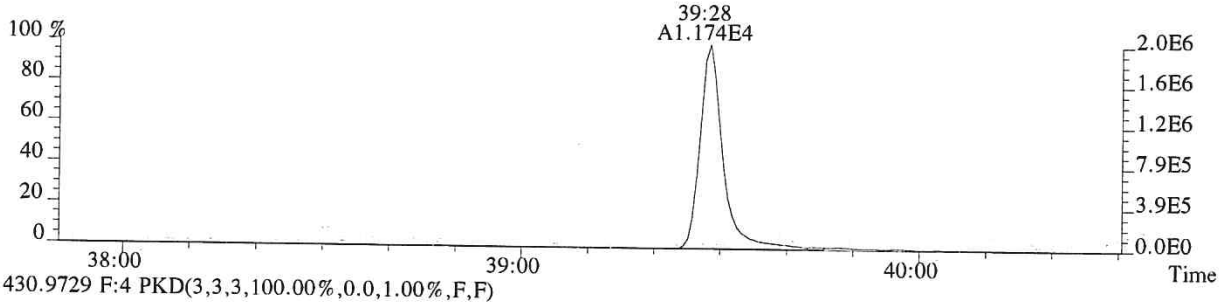
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



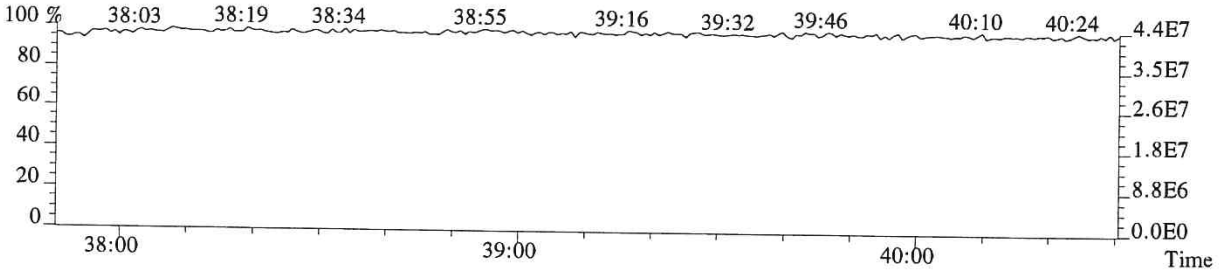
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



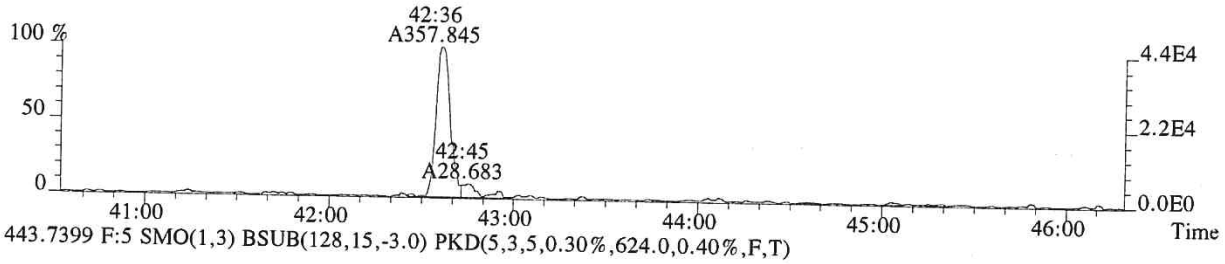
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



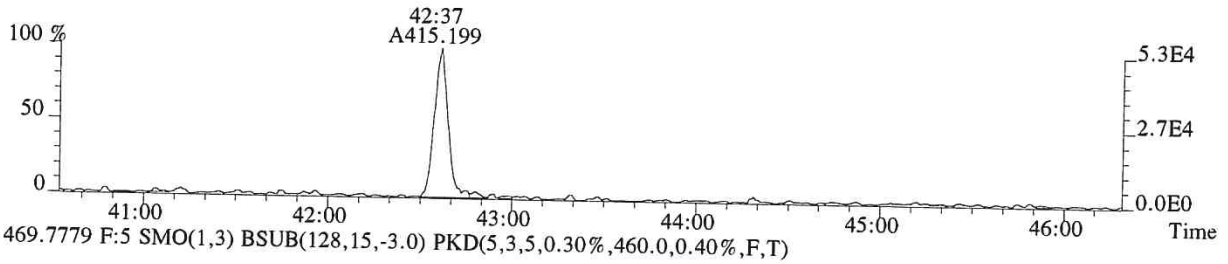
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



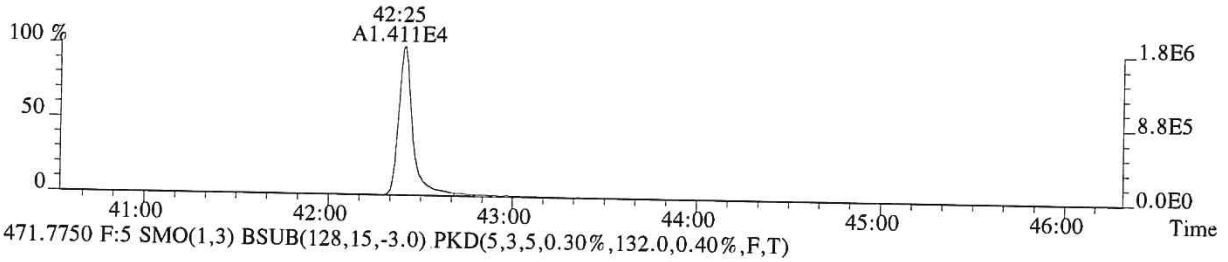
File:P519324 #1-520 Acq:10-DEC-2018 12:49:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



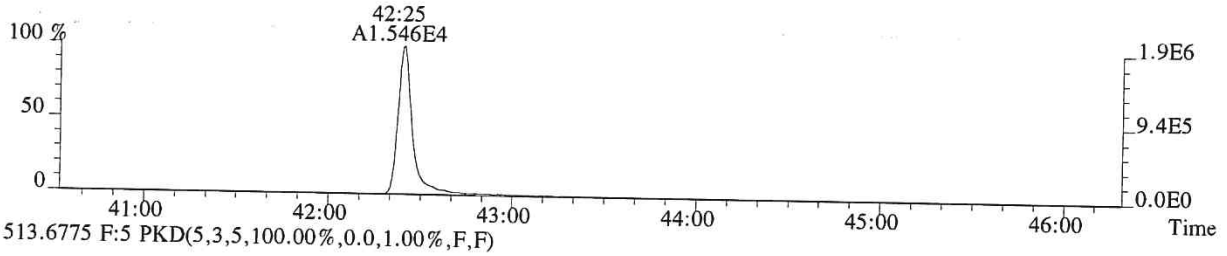
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



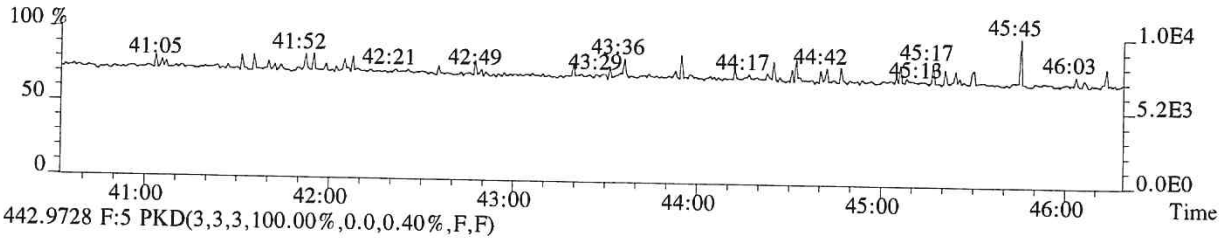
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



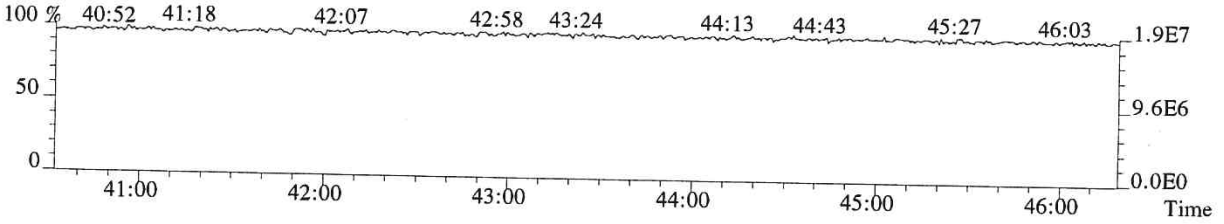
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,132.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

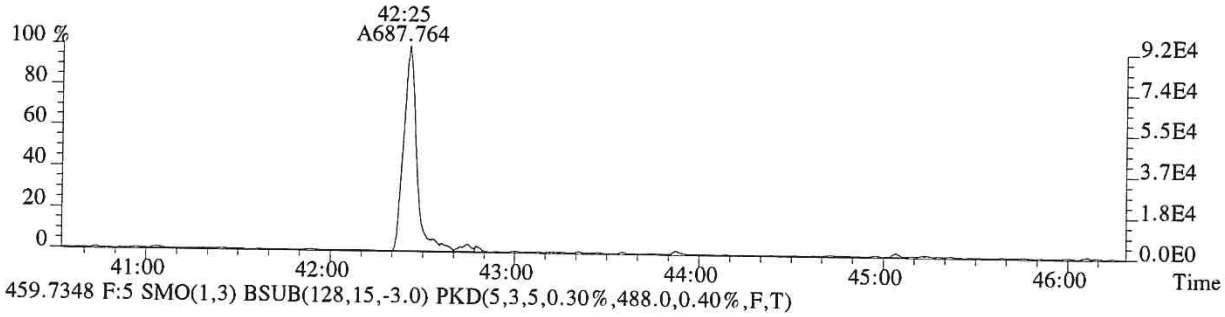


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

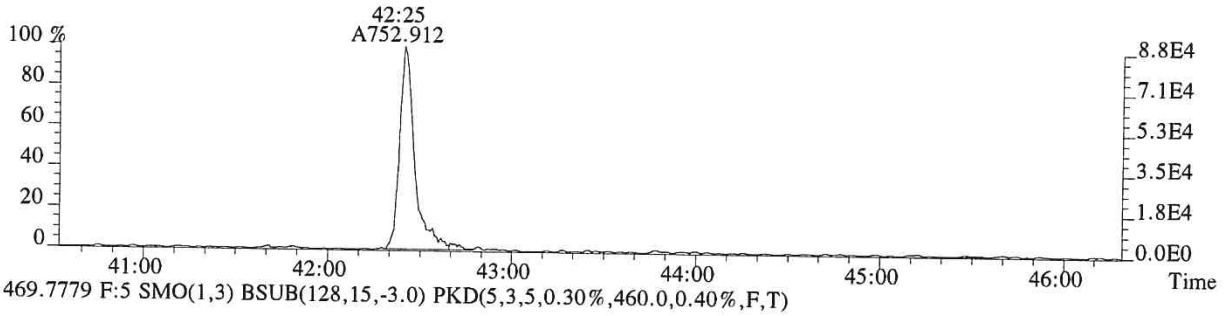


012505

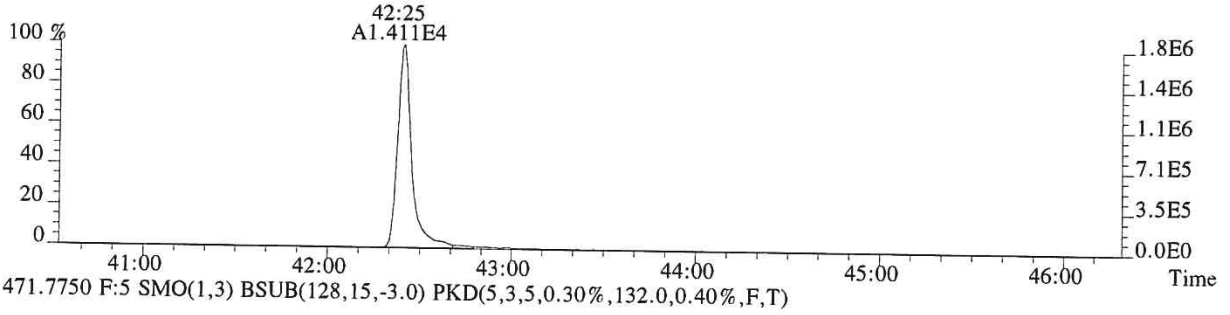
File:P519324 #1-520 Acq:10-DEC-2018 12:49:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-057DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



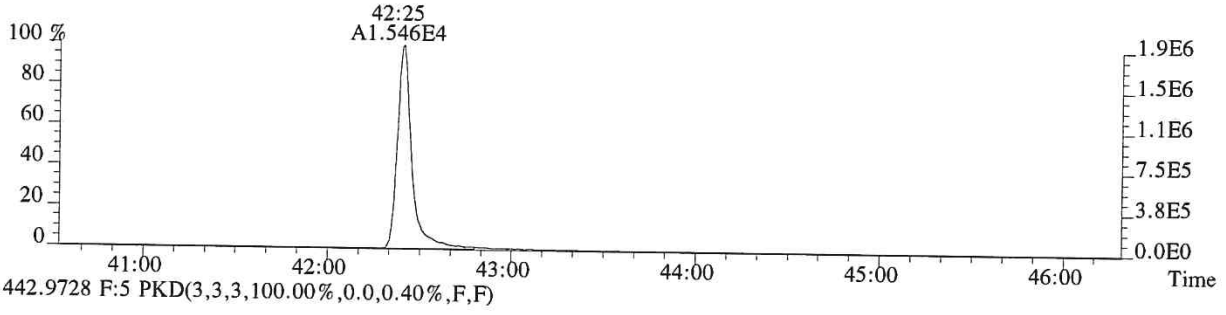
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



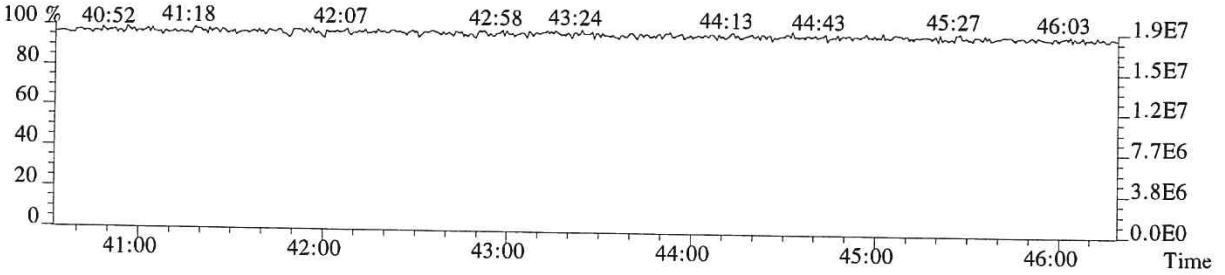
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,132.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0227

Run #13 Filename P519261 Samp: 1 Inj: 1 Acquired: 6-DEC-18 21:17:47
Processed: 7-DEC-18 13:10:12 Sample ID: E1801056-063

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:55	8.927e+05	1.146e+06	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:14	5.172e+04	3.408e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:10	3.510e+04	2.261e+04	1.55	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:55	6.748e+04	5.532e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:02	1.630e+04	1.366e+04	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:33	3.115e+03	2.514e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:21	4.602e+03	3.799e+03	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	1.506e+04	1.501e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:05	4.426e+03	4.406e+03	1.00	yes	no	1.258
10	Unk	OCDF	42:45	6.677e+04	7.533e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:44	2.321e+05	2.936e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:28	3.346e+03	2.097e+03	1.60	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:41	1.084e+02	8.072e+01	1.34	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:46	4.420e+02	4.068e+02	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:03	2.170e+02	2.090e+02	1.04	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	1.032e+04	1.003e+04	1.03	yes	no	1.025
17	Unk	OCDD	42:34	9.655e+04	1.080e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:54	1.798e+04	2.199e+04	0.82	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.837e+04	1.755e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:09	2.620e+04	1.647e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:54	1.136e+04	2.241e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:01	1.241e+04	2.369e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:33	1.161e+04	2.257e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	1.105e+04	2.203e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	7.340e+03	1.653e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:05	7.157e+03	1.650e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:43	8.142e+03	1.003e+04	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.970e+04	1.245e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:41	1.670e+04	1.307e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.485e+04	1.150e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	1.536e+04	1.430e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:33	1.240e+04	1.356e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:09	2.417e+04	3.056e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:02	3.649e+04	2.871e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:44	1.235e+04				no	1.014

$$\text{OCDD} = \frac{(9.655e+04 + 1.080e+05) \times 4000\ \text{pg} \times 1}{(1.240e+04 + 1.356e+04) \times 10.718\ \text{g} \times 74.7 / 100 \times 1.118} = 3521\ \text{ng/kg}$$

LWA 12/10/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0227

Run #13 Filename P519261 Samp: 1 Inj: 1 Acquired: 6-DEC-18 21:17:47
Processed: 7-DEC-18 13:10:12 LAB. ID: E1801056-063

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.47e+08	1.06e+03	1.4e+05	1.87e+08	1.90e+03	9.9e+04
2	1,2,3,7,8-PeCDF	1.00e+07	8.73e+03	1.2e+03	6.66e+06	8.15e+03	8.2e+02
3	2,3,4,7,8-PeCDF	5.84e+06	8.73e+03	6.7e+02	3.81e+06	8.15e+03	4.7e+02
4	1,2,3,4,7,8-HxCDF	1.38e+07	2.87e+03	4.8e+03	1.13e+07	2.70e+03	4.2e+03
5	1,2,3,6,7,8-HxCDF	3.00e+06	2.87e+03	1.0e+03	2.51e+06	2.70e+03	9.3e+02
6	2,3,4,6,7,8-HxCDF	6.34e+05	2.87e+03	2.2e+02	5.28e+05	2.70e+03	2.0e+02
7	1,2,3,7,8,9-HxCDF	8.09e+05	2.87e+03	2.8e+02	6.86e+05	2.70e+03	2.5e+02
8	1,2,3,4,6,7,8-HpCDF	3.35e+06	2.77e+03	1.2e+03	3.28e+06	6.20e+02	5.3e+03
9	1,2,3,4,7,8,9-HpCDF	8.14e+05	2.77e+03	2.9e+02	8.10e+05	6.20e+02	1.3e+03
10	OCDF	9.06e+06	2.20e+02	4.1e+04	1.01e+07	1.17e+03	8.7e+03
11	2,3,7,8-TCDD	4.57e+07	2.39e+03	1.9e+04	5.75e+07	6.24e+02	9.2e+04
12	1,2,3,7,8-PeCDD	5.83e+05	1.19e+03	4.9e+02	3.74e+05	1.78e+03	2.1e+02
13	1,2,3,4,7,8-HxCDD	3.01e+04	5.44e+02	5.5e+01	2.12e+04	2.19e+03	9.7e+00
14	1,2,3,6,7,8-HxCDD	8.93e+04	5.44e+02	1.6e+02	8.41e+04	2.19e+03	3.8e+01
15	1,2,3,7,8,9-HxCDD	4.18e+04	5.44e+02	7.7e+01	3.42e+04	2.19e+03	1.6e+01
16	1,2,3,4,6,7,8-HpCDD	2.03e+06	2.37e+03	8.6e+02	1.98e+06	7.36e+02	2.7e+03
17	OCDD	1.29e+07	3.08e+02	4.2e+04	1.46e+07	5.28e+02	2.8e+04
18	13C-2,3,7,8-TCDF	3.10e+06	8.69e+03	3.6e+02	3.77e+06	7.98e+03	4.7e+02
19	13C-1,2,3,7,8-PeCDF	5.57e+06	6.32e+03	8.8e+02	3.45e+06	8.10e+03	4.3e+02
20	13C-2,3,4,7,8-PeCDF	5.22e+06	6.32e+03	8.3e+02	3.32e+06	8.10e+03	4.1e+02
21	13C-1,2,3,4,7,8-HxCDF	2.31e+06	2.56e+03	9.0e+02	4.51e+06	5.50e+03	8.2e+02
22	13C-1,2,3,6,7,8-HxCDF	2.32e+06	2.56e+03	9.1e+02	4.55e+06	5.50e+03	8.3e+02
23	13C-2,3,4,6,7,8-HxCDF	2.32e+06	2.56e+03	9.1e+02	4.41e+06	5.50e+03	8.0e+02
24	13C-1,2,3,7,8,9-HxCDF	2.25e+06	2.56e+03	8.8e+02	4.51e+06	5.50e+03	8.2e+02
25	13C-1,2,3,4,6,7,8-HpCDF	1.60e+06	3.04e+03	5.3e+02	3.71e+06	2.40e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.28e+06	3.04e+03	4.2e+02	2.97e+06	2.40e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.60e+06	5.26e+03	3.0e+02	2.00e+06	3.35e+03	6.0e+02
28	13C-1,2,3,7,8-PeCDD	3.79e+06	1.20e+03	3.2e+03	2.35e+06	1.50e+03	1.6e+03
29	13C-1,2,3,4,7,8-HxCDD	3.79e+06	1.26e+03	3.0e+03	2.97e+06	1.28e+03	2.3e+03
30	13C-1,2,3,6,7,8-HxCDD	3.08e+06	1.26e+03	2.4e+03	2.41e+06	1.28e+03	1.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.02e+06	8.44e+02	3.6e+03	2.81e+06	7.52e+02	3.7e+03
32	13C-OCDD	1.69e+06	9.24e+02	1.8e+03	1.85e+06	2.28e+02	8.1e+03
33	13C-1,2,3,4-TCDD	4.56e+06	5.26e+03	8.7e+02	5.70e+06	3.35e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	7.03e+06	1.26e+03	5.6e+03	5.54e+06	1.28e+03	4.3e+03
35	37Cl-2,3,7,8-TCDD	2.46e+06	1.07e+03	2.3e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0227

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P519261 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 21:17:47 Processed: 7-DEC-18 13:10:12

Mass: 303.9020 305.8990 Tot Response: 3.61e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:53	5.98e+03	8.34e+03	0.72	yes	1.43e+04		n	n
2	25:12	3.34e+04	4.47e+04	0.75	yes	7.81e+04		n	n
3	25:37	8.42e+03	1.13e+04	0.74	yes	1.97e+04		n	n
4	25:55	2.84e+04	3.67e+04	0.77	yes	6.51e+04		n	n
5	26:18	6.76e+03	8.50e+03	0.79	yes	1.53e+04		n	n
6	26:32	1.87e+04	2.50e+04	0.75	yes	4.37e+04		n	n
7	26:39	3.69e+04	4.92e+04	0.75	yes	8.61e+04		n	n
8	27:05	3.88e+05	5.01e+05	0.77	yes	8.89e+05		n	n
9	27:22	1.70e+04	2.28e+04	0.74	yes	3.98e+04		n	n
10	27:55	8.93e+05	1.15e+06	0.78	yes	2.04e+06	2,3,7,8-TCDF	n	n
11	28:16	6.08e+04	7.89e+04	0.77	yes	1.40e+05		n	n
12	28:30	9.95e+03	1.35e+04	0.74	yes	2.35e+04		n	n
13	29:48	7.02e+04	9.04e+04	0.78	yes	1.61e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0227

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P519261 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 21:17:47 Processed: 7-DEC-18 13:10:12

Mass: 319.8970 321.8940 Tot Response: 5.79e+05 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:29	2.87e+03	3.55e+03	0.81	yes	6.41e+03		n	n
2	28:44	2.32e+05	2.94e+05	0.79	yes	5.26e+05	2,3,7,8-TCDD	n	n
3	29:02	2.05e+04	2.62e+04	0.78	yes	4.67e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0227

Entry: 38 Totals Name: Total Penta-Furans1

Run: 13 File: P519261 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 21:17:47 Processed: 7-DEC-18 13:10:12

Mass: 339.8600 341.8570 Tot Response: 3.40e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:48	2.11e+03	1.29e+03 1.63	yes	3.40e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0227

Entry: 39 Totals Name: Total Penta-Furans2

Run: 13 File: P519261 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 21:17:47 Processed: 7-DEC-18 13:10:12

Mass: 339.8600 341.8570 Tot Response: 2.18e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:10	5.45e+02	4.01e+02	1.36	yes	9.46e+02		n	n
2	31:19	2.27e+04	1.48e+04	1.53	yes	3.74e+04		n	n
3	31:50	8.20e+02	5.70e+02	1.44	yes	1.39e+03		n	n
4	31:56	7.27e+02	5.40e+02	1.35	yes	1.27e+03		n	n
5	32:04	4.03e+03	2.79e+03	1.44	yes	6.82e+03		n	n
6	32:14	5.17e+04	3.41e+04	1.52	yes	8.58e+04	1,2,3,7,8-PeCDF	n	n
7	32:30	1.42e+04	9.34e+03	1.52	yes	2.35e+04		n	n
8	33:10	3.51e+04	2.26e+04	1.55	yes	5.77e+04	2,3,4,7,8-PeCDF	n	n
9	34:06	1.78e+03	1.16e+03	1.53	yes	2.94e+03		n	n

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Peak List Summary

CLIENT ID.
SL0227

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P519261 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 21:17:47 Processed: 7-DEC-18 13:10:12

Mass: 355.8550 357.8520 Tot Response: 7.36e+03 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:21	3.60e+02	2.39e+02	1.50	yes	5.99e+02		n	n
2	31:48	1.88e+02	1.09e+02	1.72	yes	2.97e+02		n	n
3	32:15	2.57e+02	1.56e+02	1.65	yes	4.12e+02		n	n
4	32:31	1.10e+02	7.58e+01	1.45	yes	1.86e+02		n	n
5	32:43	1.61e+02	1.12e+02	1.44	yes	2.73e+02		n	n
6	33:03	9.23e+01	5.59e+01	1.65	yes	1.48e+02		n	n
7	33:28	3.35e+03	2.10e+03	1.60	yes	5.44e+03	1,2,3,7,8-PeCDD	n	n

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CLIENT ID.
SL0227

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P519261 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 21:17:47 Processed: 7-DEC-18 13:10:12

Mass: 373.8210 375.8180 Tot Response: 1.86e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:47	7.35e+02	6.29e+02	1.17	yes	1.36e+03		n	n
2	34:56	5.85e+03	4.71e+03	1.24	yes	1.06e+04		n	n
3	35:28	3.77e+03	3.04e+03	1.24	yes	6.81e+03		n	n
4	35:55	6.75e+04	5.53e+04	1.22	yes	1.23e+05	1,2,3,4,7,8-HxCDF	n	n
5	36:02	1.63e+04	1.37e+04	1.19	yes	3.00e+04	1,2,3,6,7,8-HxCDF	n	n
6	36:33	3.12e+03	2.51e+03	1.24	yes	5.63e+03	2,3,4,6,7,8-HxCDF	n	n
7	37:21	4.60e+03	3.80e+03	1.21	yes	8.40e+03	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0227

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P519261 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 21:17:47 Processed: 7-DEC-18 13:10:12

Mass: 389.8160 391.8130 Tot Response: 8.53e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:19	2.22e+03	1.70e+03	1.31	yes	3.92e+03	n	n
2	35:50	2.84e+02	2.20e+02	1.29	yes	5.04e+02	n	n
3	36:05	1.47e+03	1.20e+03	1.23	yes	2.67e+03	n	n
4	36:11	1.41e+02	1.19e+02	1.18	yes	2.60e+02	n	n
5	36:41	1.08e+02	8.07e+01	1.34	yes	1.89e+02 1,2,3,4,7,8-HxCDD	n	n
6	36:46	4.42e+02	4.07e+02	1.09	yes	8.49e+02 1,2,3,6,7,8-HxCDD	n	n
7	36:57	7.66e+01	5.51e+01	1.39	yes	1.32e+02	n	n

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Peak List Summary

CLIENT ID.
SL0227

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P519261 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 21:17:47 Processed: 7-DEC-18 13:10:12

Mass: 407.7820 409.7790 Tot Response: 5.29e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:38	1.51e+04	1.50e+04 1.00	yes	3.01e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:55	2.38e+02	2.12e+02 1.12	yes	4.50e+02		n	n
3	39:04	6.80e+03	6.71e+03 1.01	yes	1.35e+04		n	n
4	40:05	4.43e+03	4.41e+03 1.00	yes	8.83e+03	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0227

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P519261 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 21:17:47 Processed: 7-DEC-18 13:10:12

Mass: 423.7770 425.7740 Tot Response: 5.01e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	1.51e+04	1.46e+04	1.04	yes	2.97e+04		n	n
2	39:36	1.03e+04	1.00e+04	1.03	yes	2.04e+04	1,2,3,4,6,7,8-HpCDD	n	n

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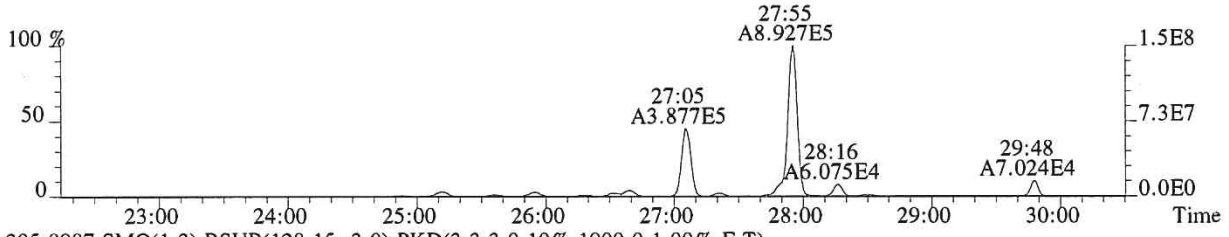
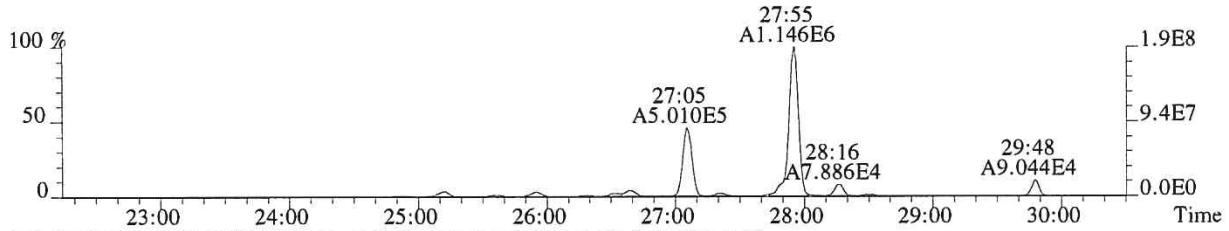
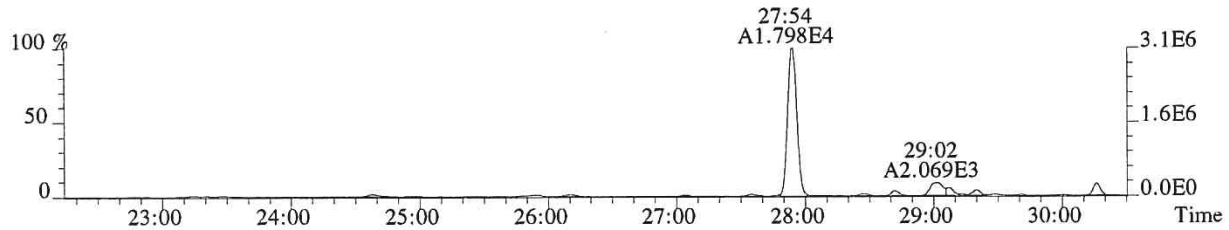
File:P519261 #1-587 Acq: 6-DEC-2018 21:17:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



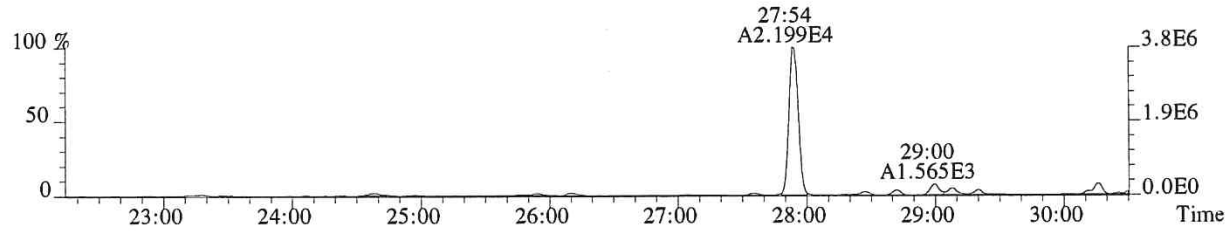
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



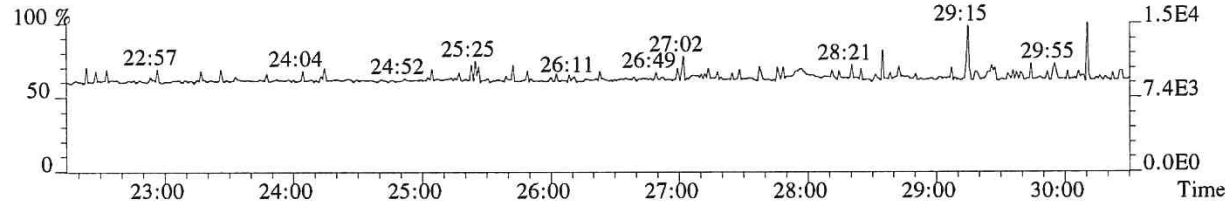
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8688.0,1.00%,F,T)



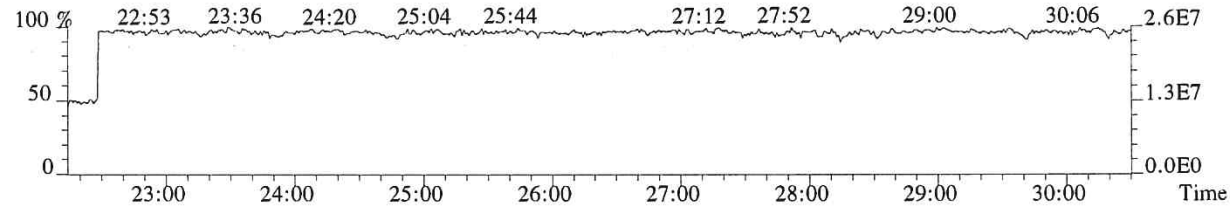
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7984.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

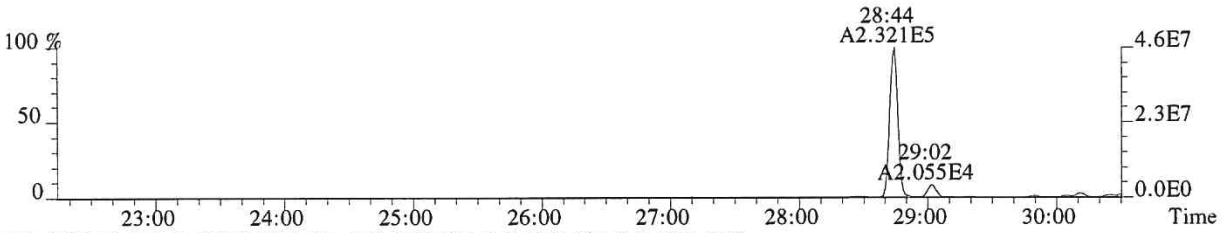


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

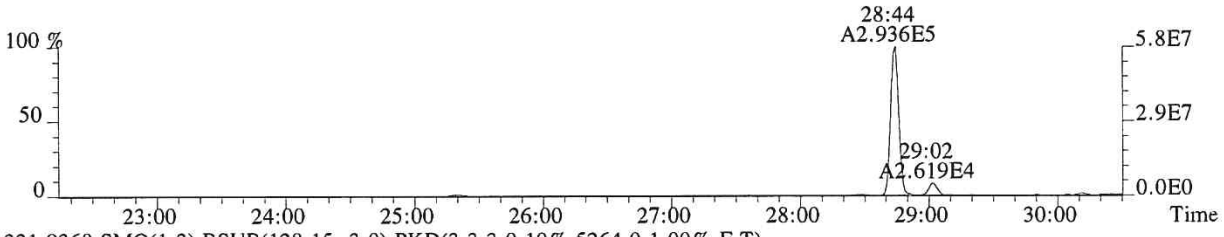


012518

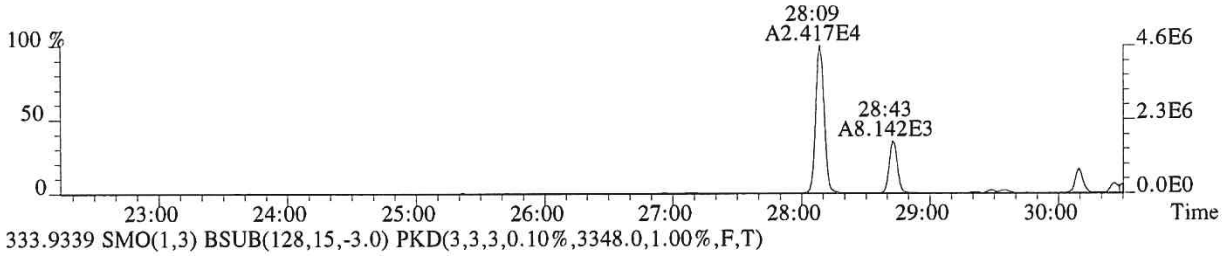
File:P519261 #1-587 Acq: 6-DEC-2018 21:17:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



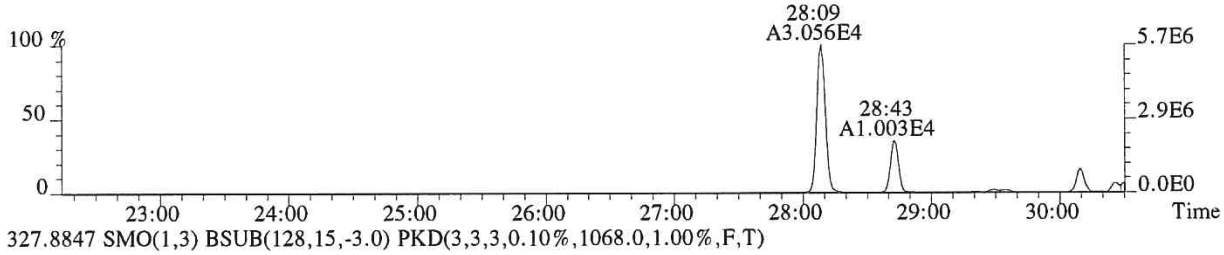
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



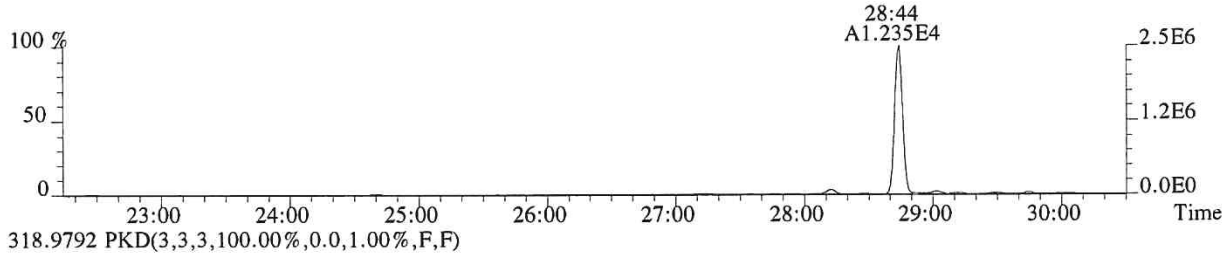
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5264.0,1.00%,F,T)



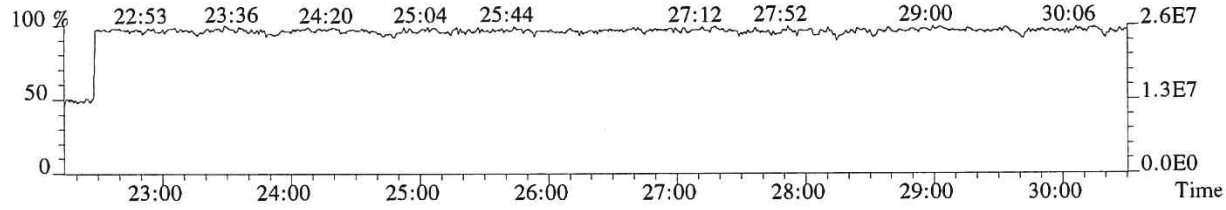
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3348.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)

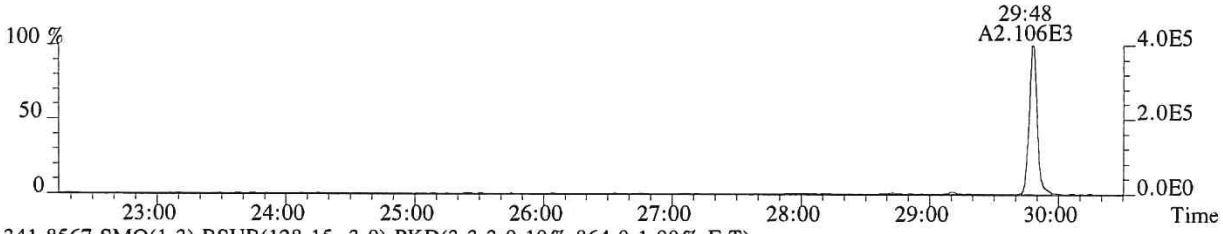


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

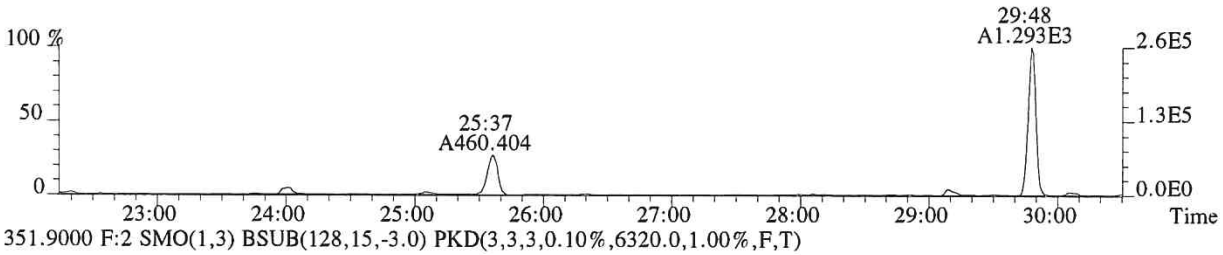


012519

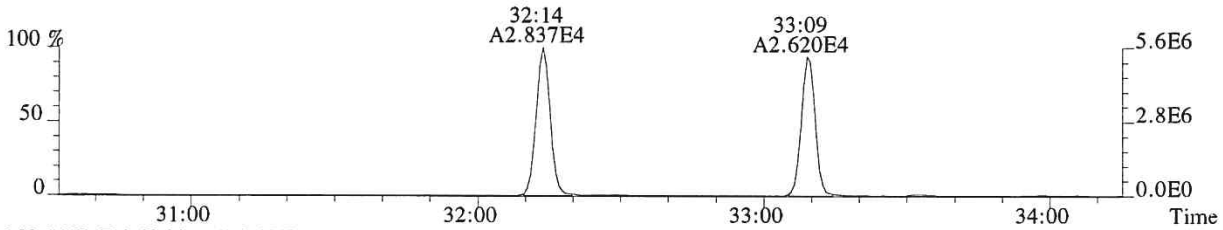
File:P519261 #1-587 Acq: 6-DEC-2018 21:17:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



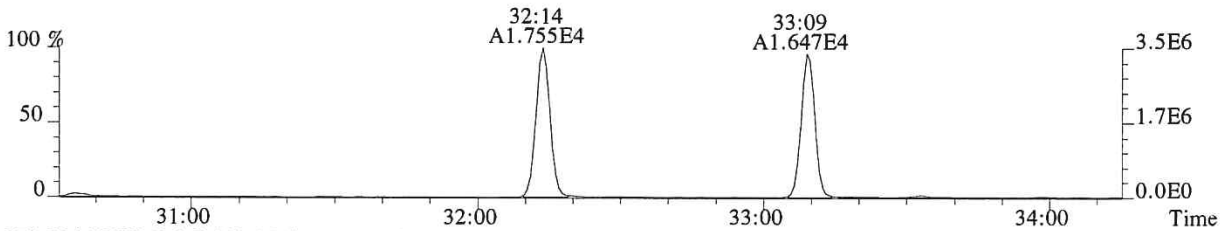
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



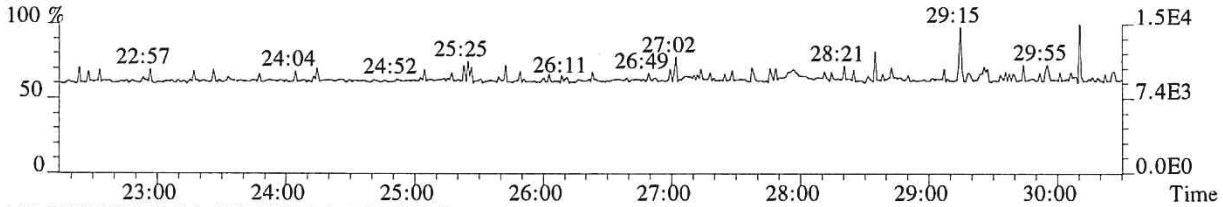
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6320.0,1.00%,F,T)



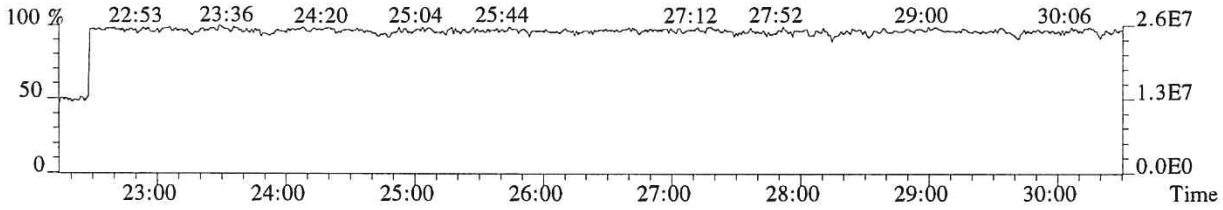
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8096.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

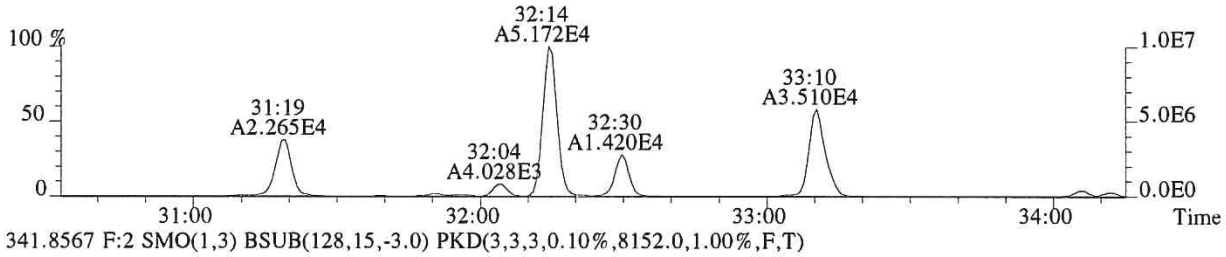


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

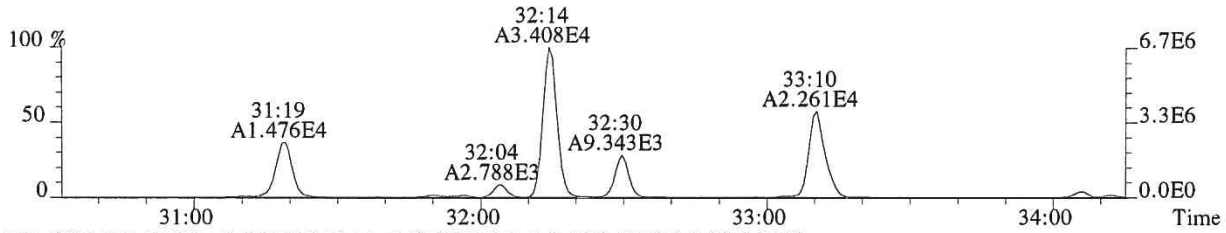


012520

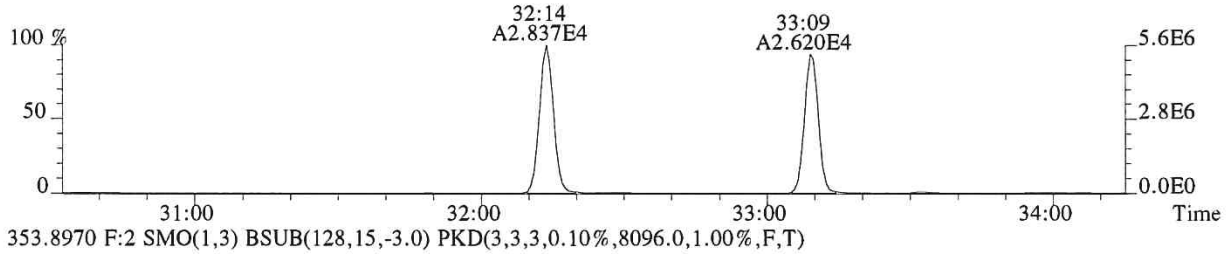
File:P519261 #1-335 Acq: 6-DEC-2018 21:17:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8732.0,1.00%,F,T)



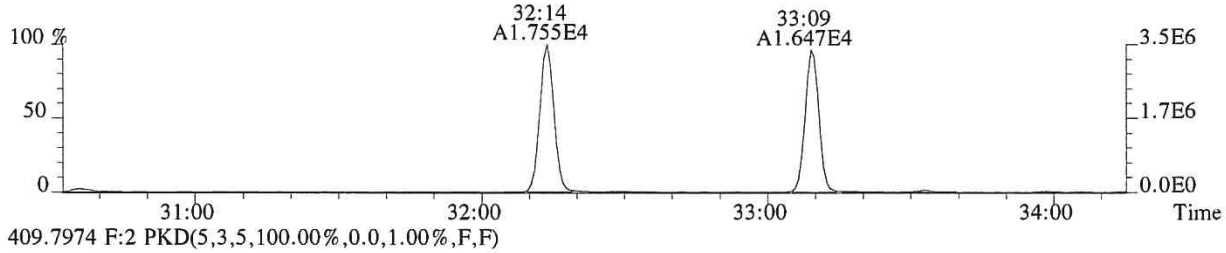
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8152.0,1.00%,F,T)



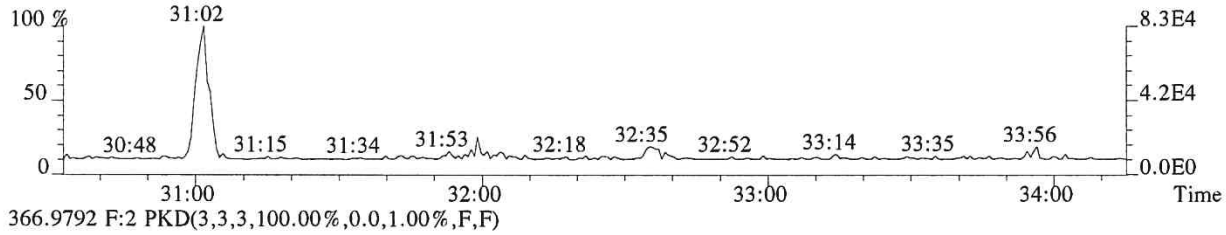
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6320.0,1.00%,F,T)



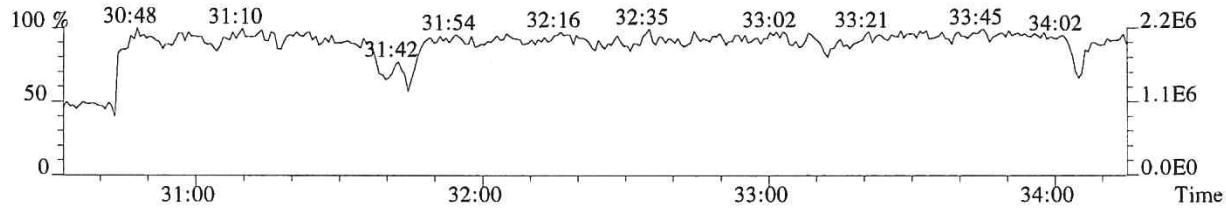
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8096.0,1.00%,F,T)



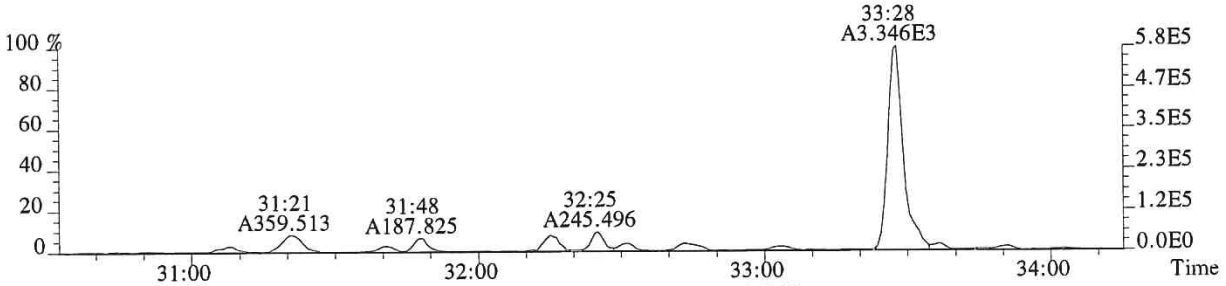
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



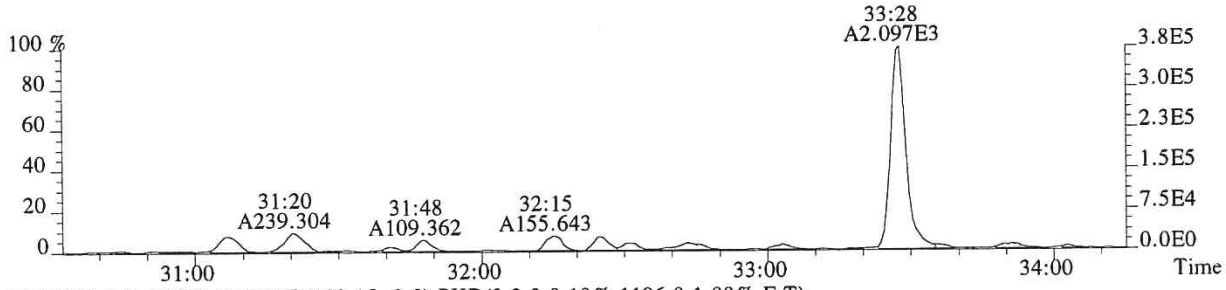
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



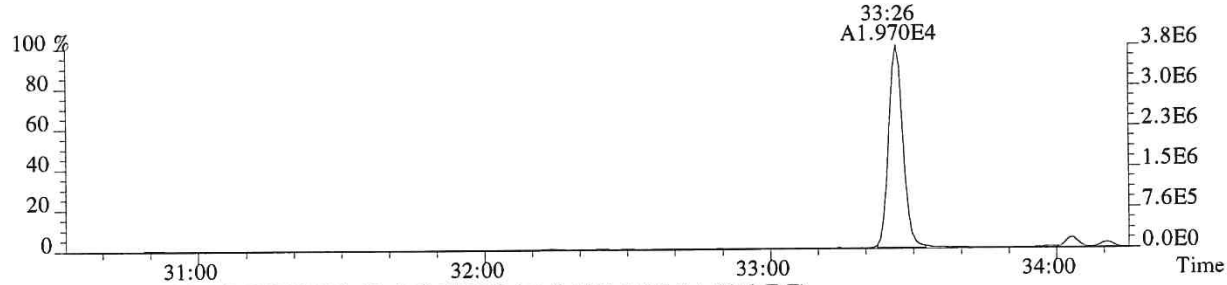
File:P519261 #1-335 Acq: 6-DEC-2018 21:17:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



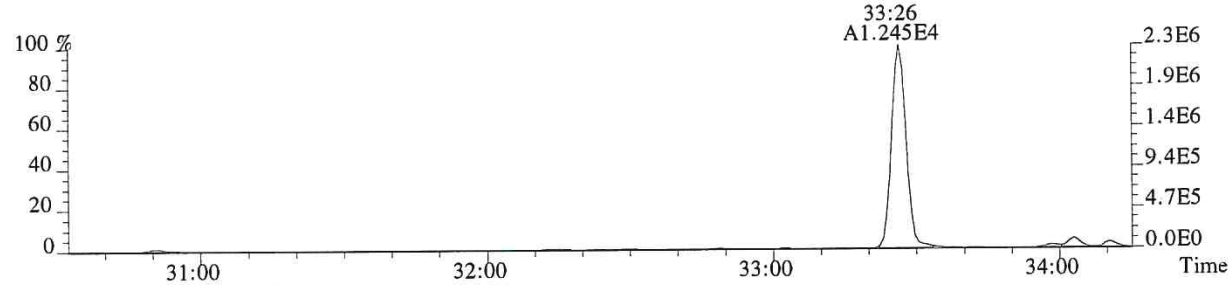
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



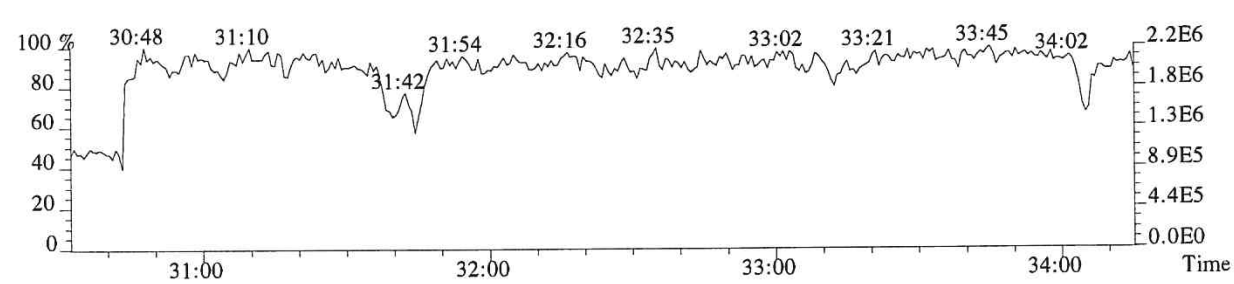
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



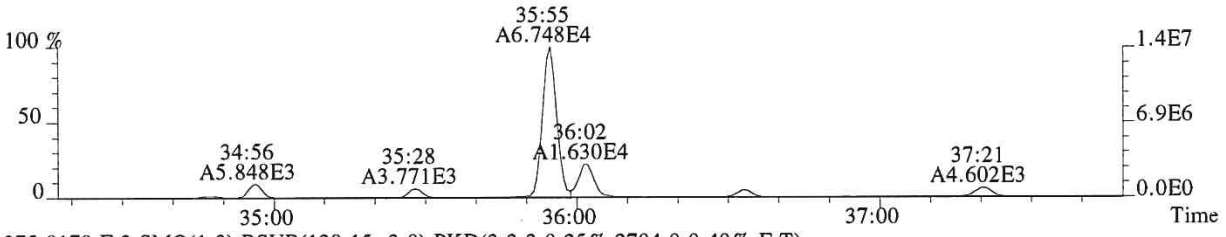
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



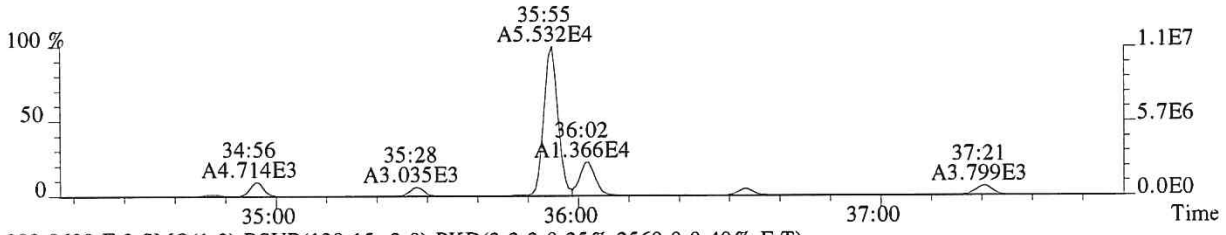
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



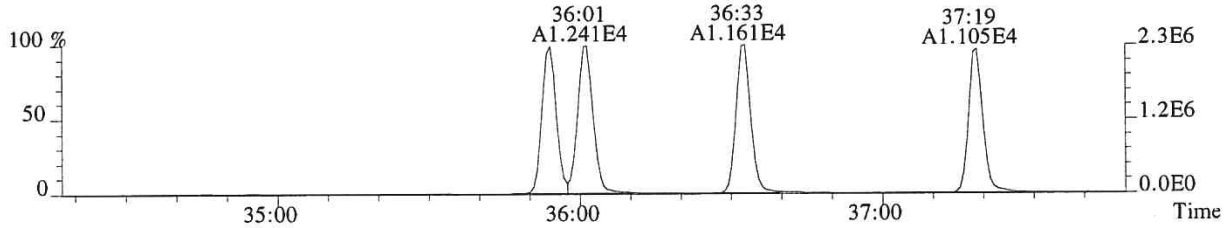
File:P519261 #1-317 Acq: 6-DEC-2018 21:17:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2872.0,0.40%,F,T)



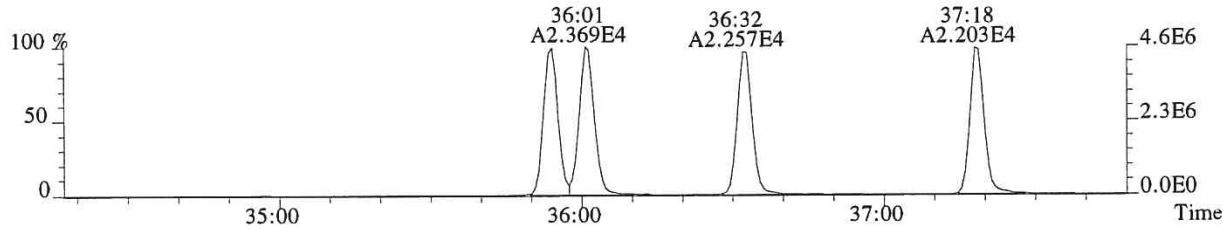
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2704.0,0.40%,F,T)



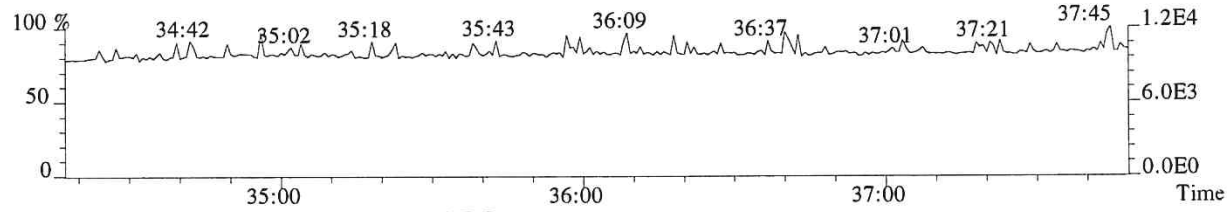
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2560.0,0.40%,F,T)



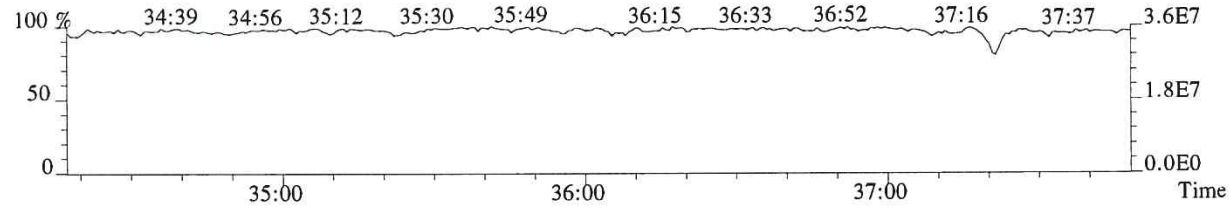
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5500.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

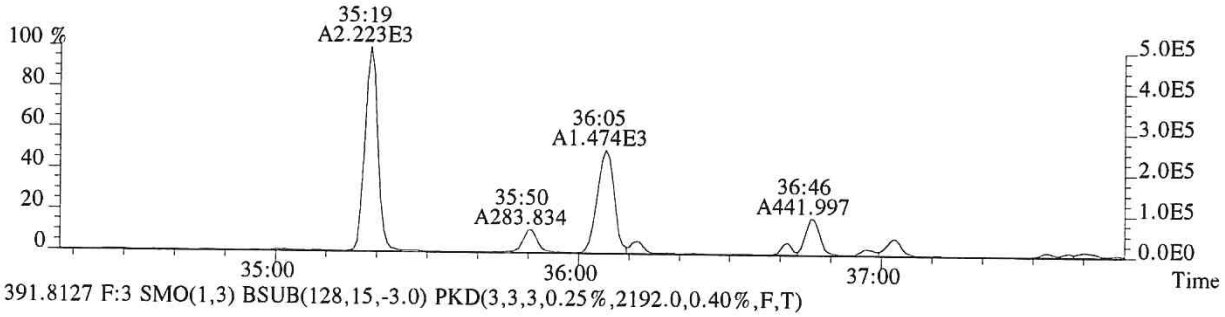


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

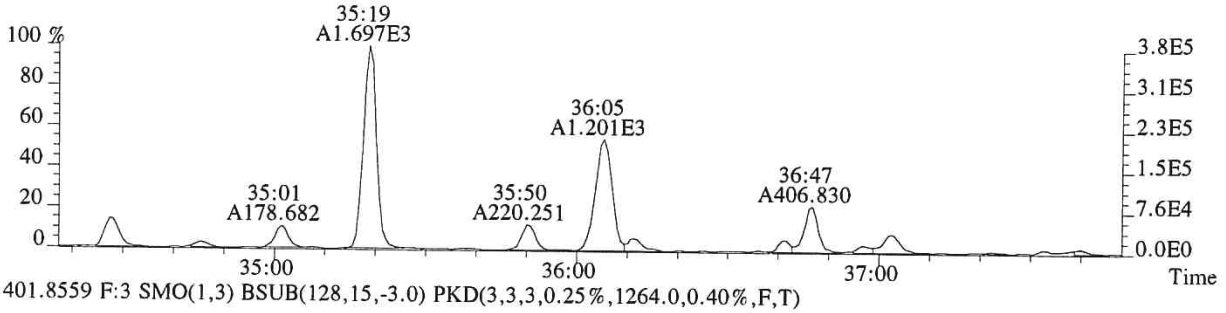


012523

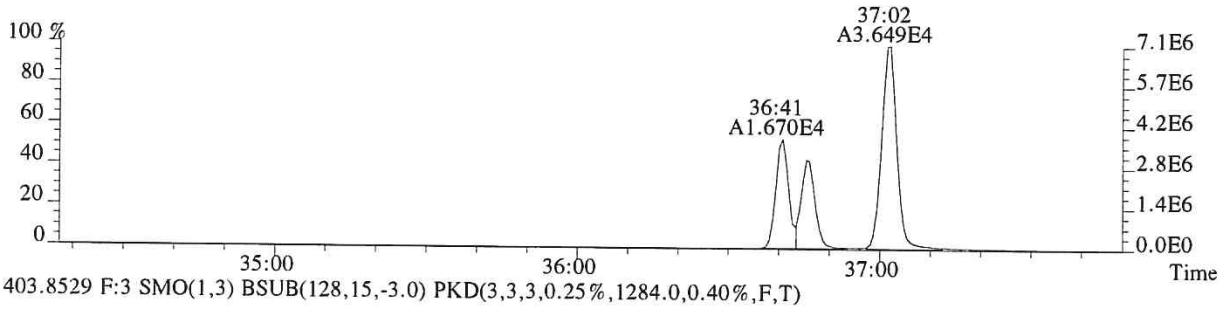
File:P519261 #1-317 Acq: 6-DEC-2018 21:17:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



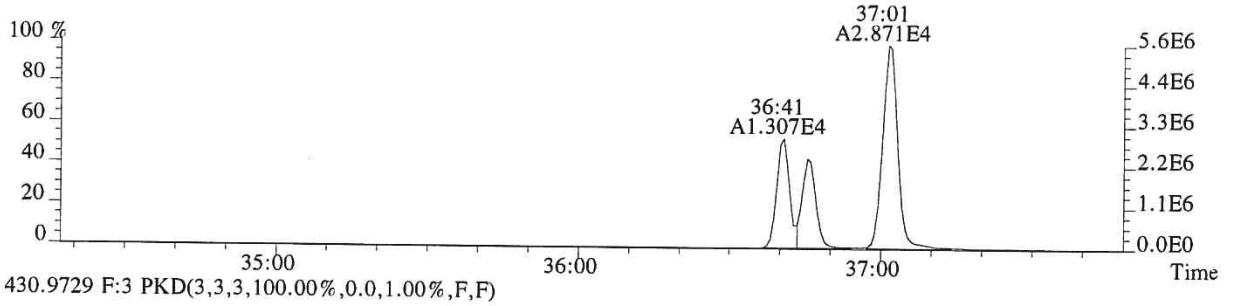
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2192.0,0.40%,F,T)



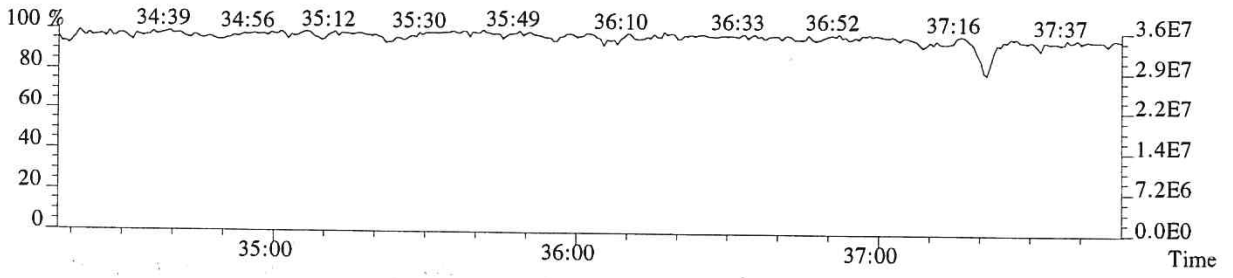
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)

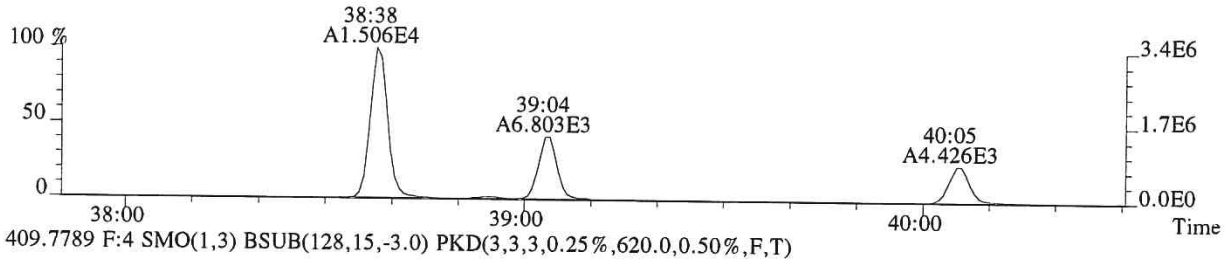


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

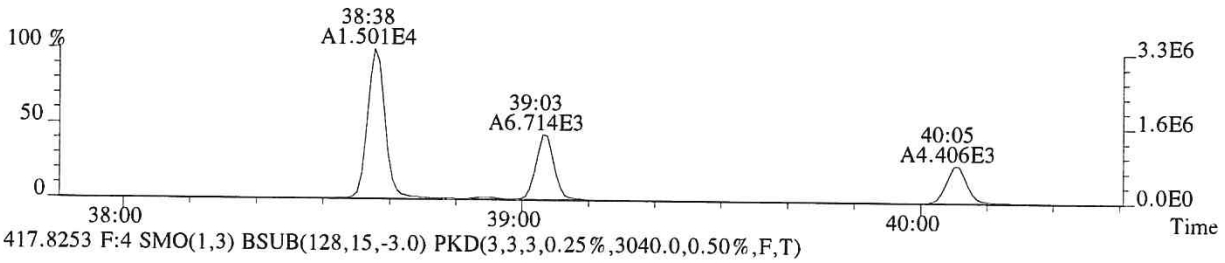


012524

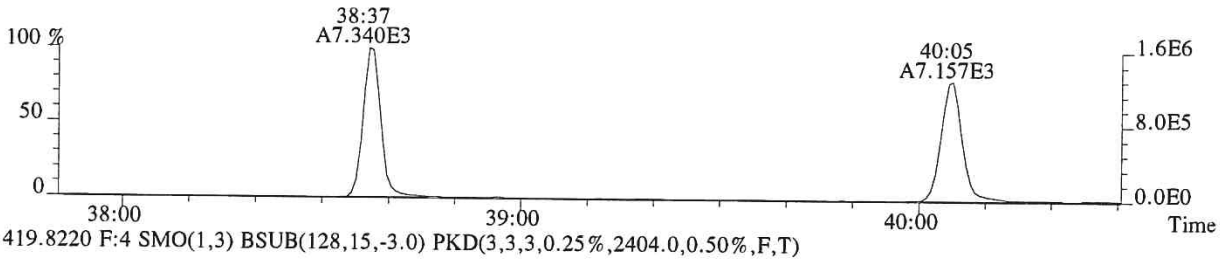
File:P519261 #1-241 Acq: 6-DEC-2018 21:17:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2772.0,0.50%,F,T)



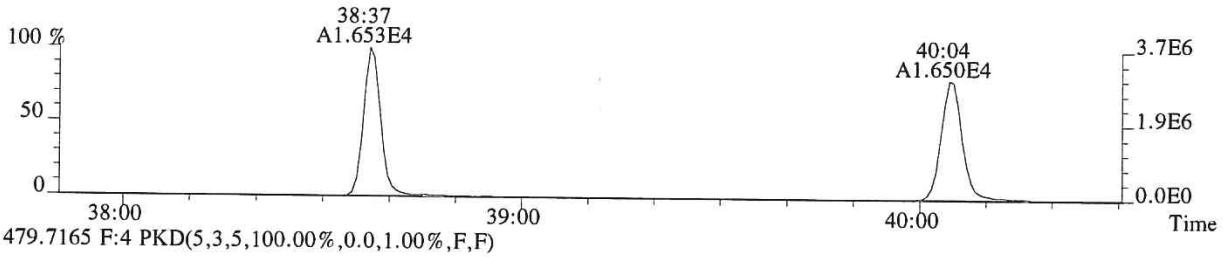
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.50%,F,T)



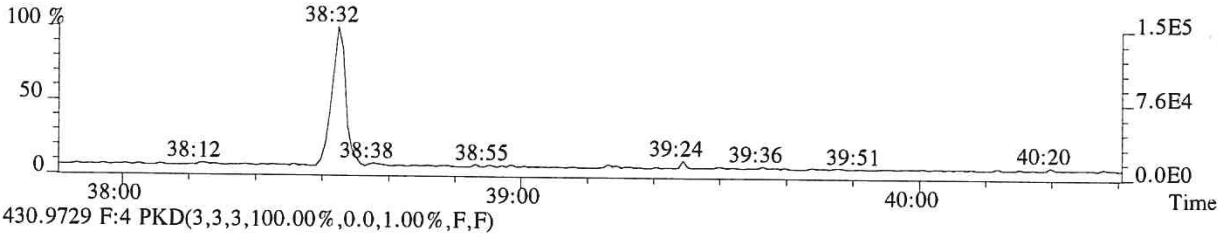
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.50%,F,T)



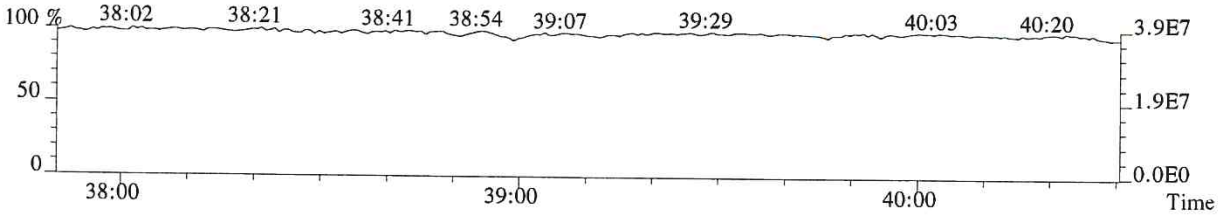
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2404.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

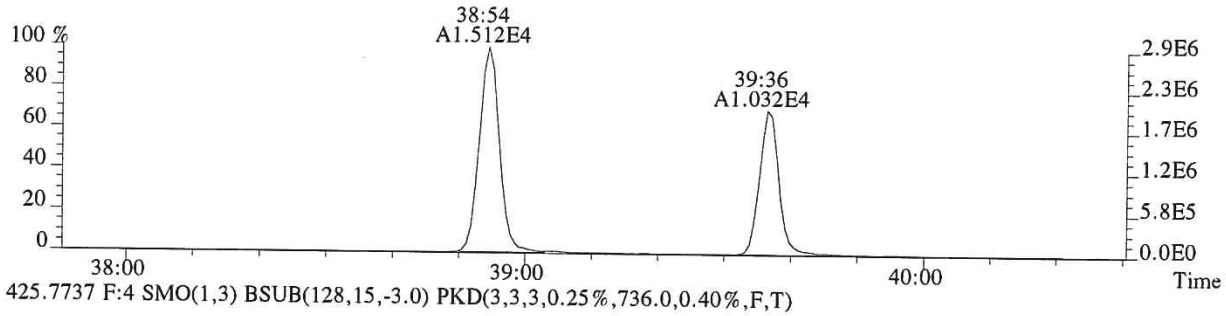


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

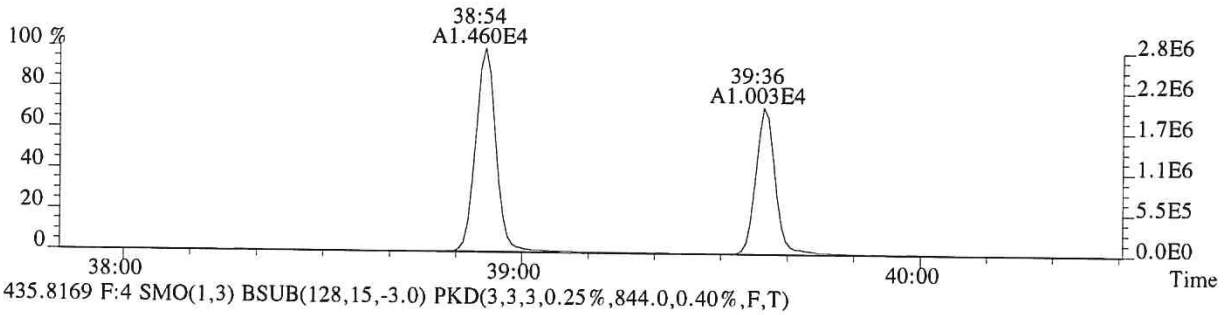


012525

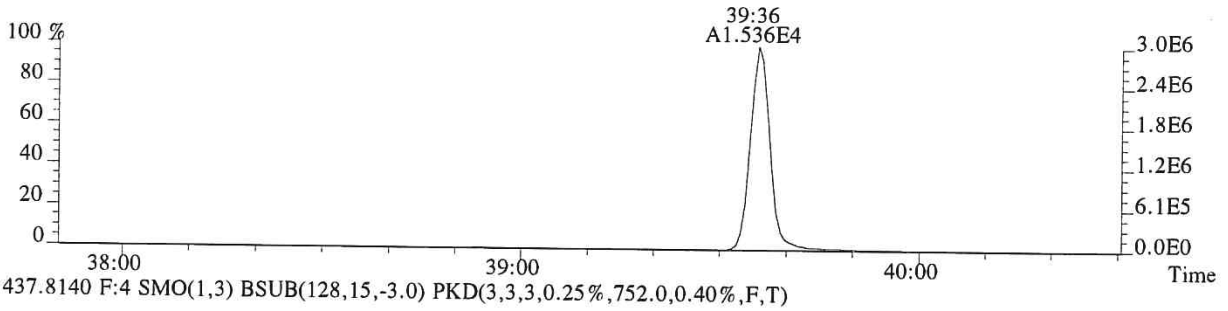
File:P519261 #1-241 Acq: 6-DEC-2018 21:17:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2368.0,0.40%,F,T)



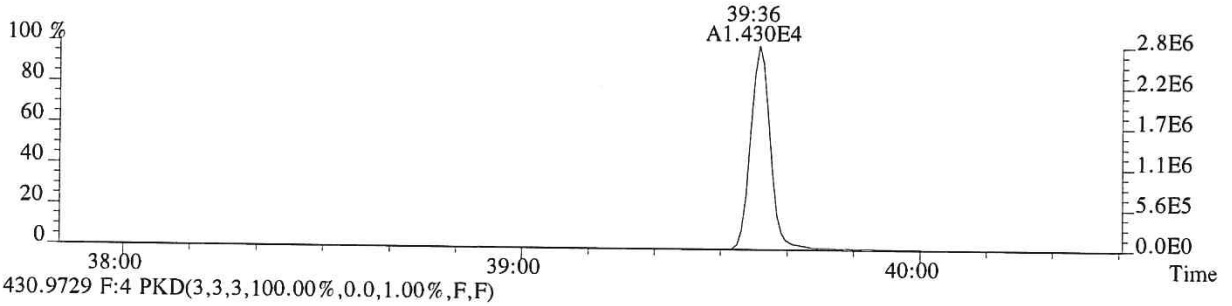
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



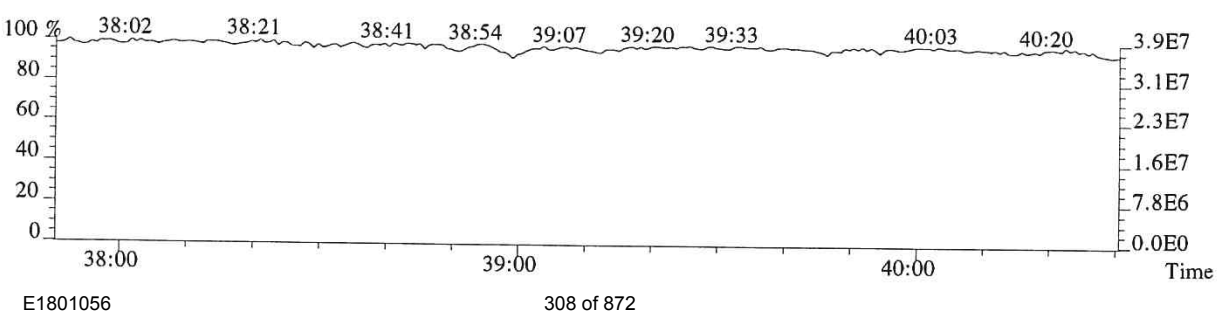
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)

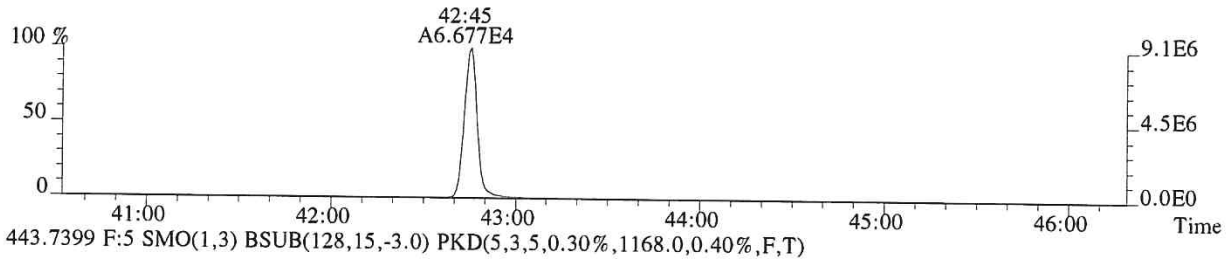


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

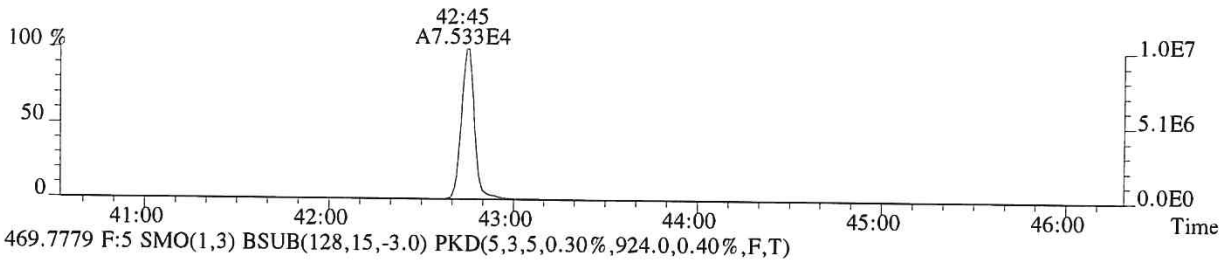


012526

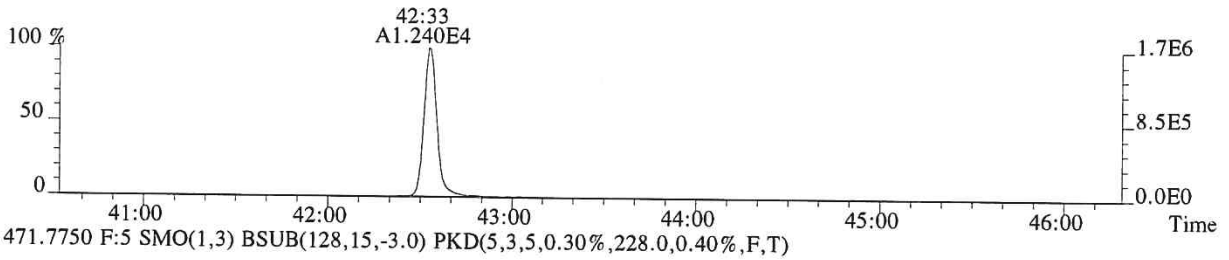
File:P519261 #1-520 Acq: 6-DEC-2018 21:17:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



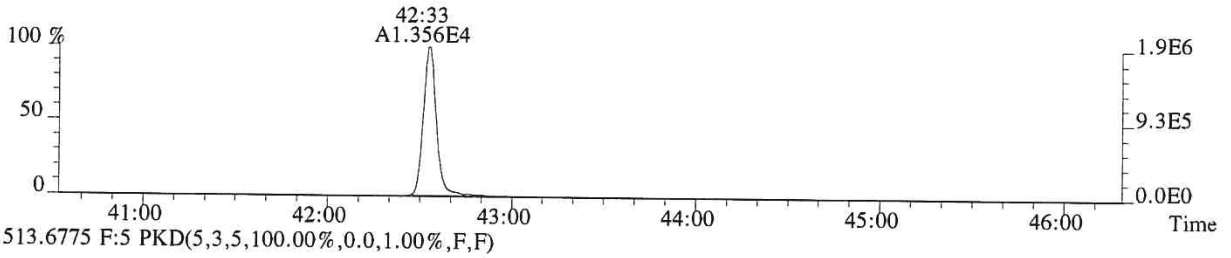
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1168.0,0.40%,F,T)



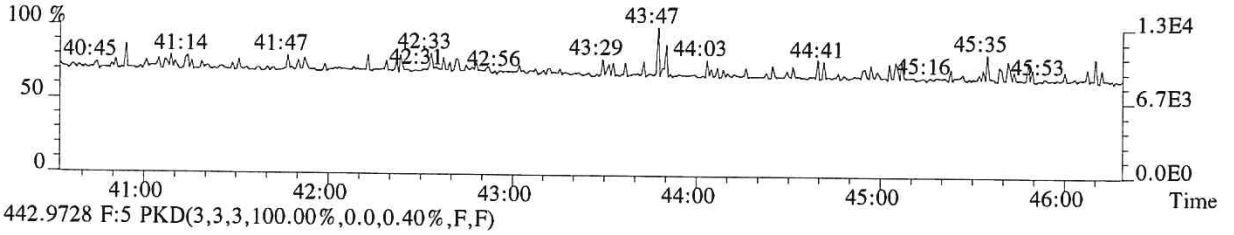
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,924.0,0.40%,F,T)



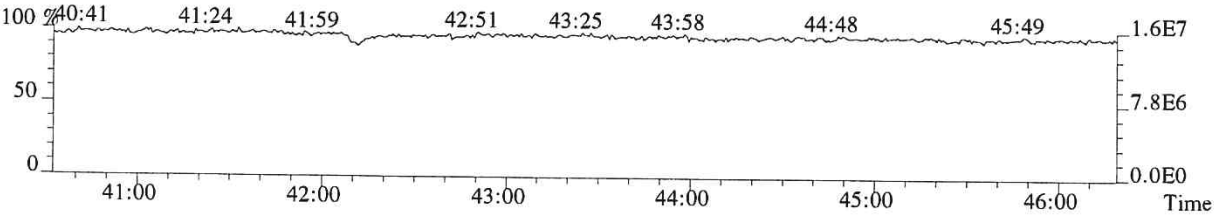
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



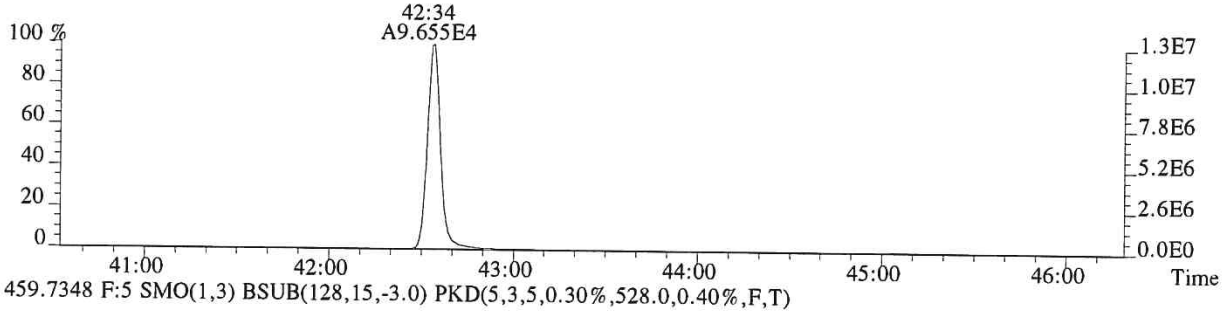
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



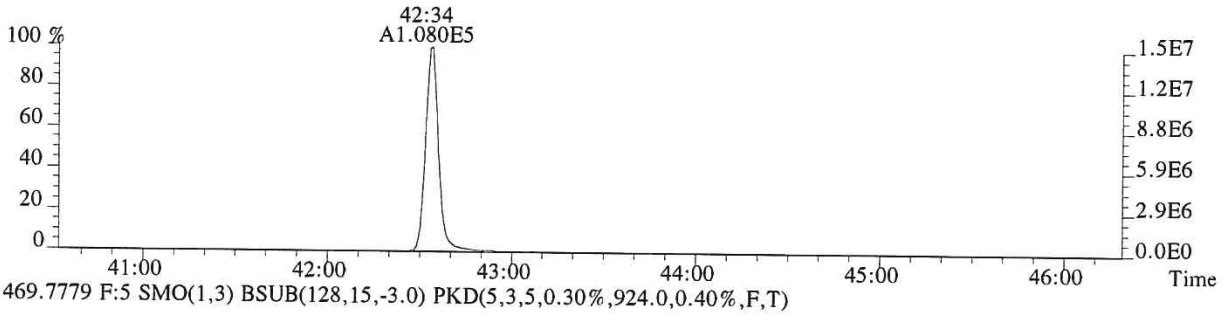
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



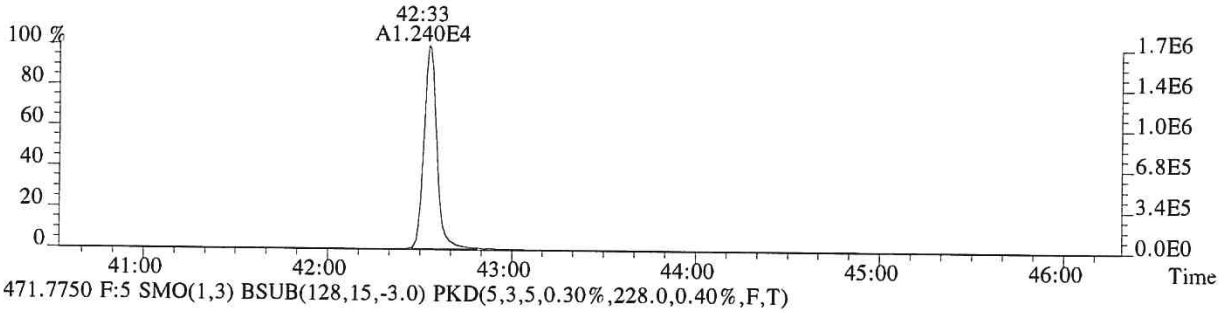
File:P519261 #1-520 Acq: 6-DEC-2018 21:17:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



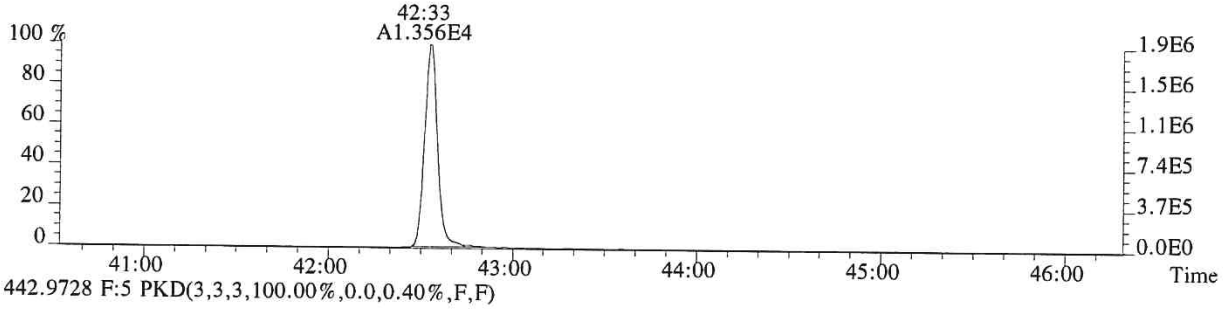
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



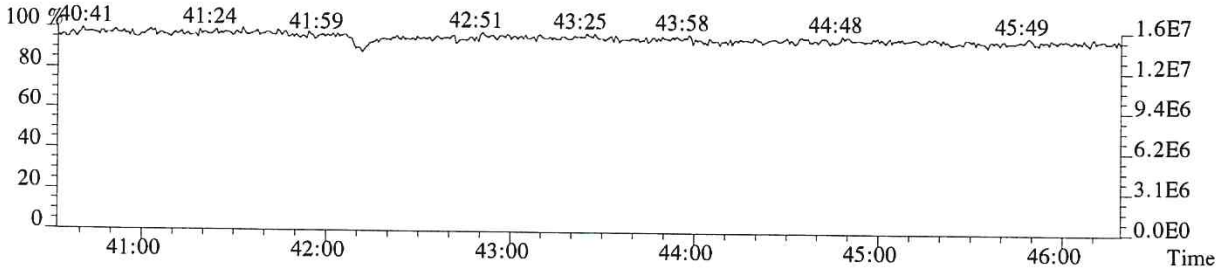
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,924.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012528

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0227

Run #13 Filename P519325 Samp: 1 Inj: 1 Acquired: 10-DEC-18 13:38:17
Processed: 11-DEC-18 15:18:36 Sample ID: E1801056-063DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	4.382e+03	5.811e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	2.626e+02	1.947e+02	1.35	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.743e+02	1.126e+02	1.55	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	3.375e+02	2.642e+02	1.28	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:54	8.197e+01	7.428e+01	1.10	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	1.985e+01	1.512e+01	1.31	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	3.618e+01	2.511e+01	1.44	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:30	6.911e+01	6.982e+01	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	1.250e+01	2.010e+01	0.62	no	no	1.258
10	Unk	OCDF	42:37	2.989e+02	3.766e+02	0.79	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	1.165e+03	1.440e+03	0.81	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	2.221e+01	5.757e+00	3.86	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	2.821e+00	6.211e+00	0.45	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:28	6.568e+01	3.858e+01	1.70	no	no	1.025
17	Unk	OCDD	42:26	4.851e+02	5.546e+02	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.286e+04	1.600e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	1.999e+04	1.247e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	1.865e+04	1.175e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	7.740e+03	1.494e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:53	9.352e+03	1.825e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	8.620e+03	1.718e+04	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	7.140e+03	1.426e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	6.577e+03	1.522e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:56	5.398e+03	1.244e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	6.019e+03	7.702e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	1.341e+04	8.400e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.071e+04	8.552e+03	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.104e+04	8.804e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	1.190e+04	1.108e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:25	1.341e+04	1.483e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	9.426e+03	1.189e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	1.279e+04	9.883e+03	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	7.877e+01				no	1.014

$$\text{OCDD} = \frac{(4.851e+02 + 5.546e+02) \times 4000\ \text{pg} \times 100}{(1.341e+04 + 1.483e+04) \times 10.718\ \text{g} \times 74.7 / 100 \times 1.118 \times 0.34} = 4838.9\ \text{ng/kg}$$

LMK 12/11/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0227

Run #13 Filename P519325 Samp: 1 Inj: 1 Acquired: 10-DEC-18 13:38:17
Processed: 11-DEC-18 15:18:36 LAB. ID: E1801056-063DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.01e+05	2.64e+02	2.7e+03	9.38e+05	6.44e+02	1.5e+03
2	1,2,3,7,8-PeCDF	4.26e+04	3.44e+02	1.2e+02	4.05e+04	6.80e+02	6.0e+01
3	2,3,4,7,8-PeCDF	2.56e+04	3.44e+02	7.4e+01	1.71e+04	6.80e+02	2.5e+01
4	1,2,3,4,7,8-HxCDF	7.16e+04	4.48e+02	1.6e+02	5.04e+04	5.12e+02	9.9e+01
5	1,2,3,6,7,8-HxCDF	1.24e+04	4.48e+02	2.8e+01	1.23e+04	5.12e+02	2.4e+01
6	2,3,4,6,7,8-HxCDF	4.46e+03	4.48e+02	1.0e+01	3.35e+03	5.12e+02	6.5e+00
7	1,2,3,7,8,9-HxCDF	6.11e+03	4.48e+02	1.4e+01	5.84e+03	5.12e+02	1.1e+01
8	1,2,3,4,6,7,8-HpCDF	1.54e+04	1.28e+02	1.2e+02	1.40e+04	2.72e+02	5.1e+01
9	1,2,3,4,7,8,9-HpCDF	3.12e+03	1.28e+02	2.4e+01	3.02e+03	2.72e+02	1.1e+01
10	OCDF	3.78e+04	2.04e+02	1.9e+02	4.51e+04	6.40e+02	7.0e+01
11	2,3,7,8-TCDD	2.17e+05	1.43e+03	1.5e+02	2.66e+05	3.28e+02	8.1e+02
12	1,2,3,7,8-PeCDD	4.26e+03	3.56e+02	1.2e+01	1.40e+03	2.20e+02	6.3e+00
13	1,2,3,4,7,8-HxCDD	*	3.16e+02	*	*	3.32e+02	*
14	1,2,3,6,7,8-HxCDD	8.22e+02	3.16e+02	2.6e+00	1.97e+03	3.32e+02	5.9e+00
15	1,2,3,7,8,9-HxCDD	*	3.16e+02	*	*	3.32e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.30e+04	3.16e+02	4.1e+01	5.72e+03	2.00e+02	2.9e+01
17	OCDD	6.18e+04	1.76e+02	3.5e+02	7.04e+04	1.76e+02	4.0e+02
18	13C-2,3,7,8-TCDF	2.26e+06	6.53e+03	3.5e+02	2.78e+06	5.20e+03	5.3e+02
19	13C-1,2,3,7,8-PeCDF	3.55e+06	5.20e+02	6.8e+03	2.21e+06	2.32e+02	9.5e+03
20	13C-2,3,4,7,8-PeCDF	3.55e+06	5.20e+02	6.8e+03	2.21e+06	2.32e+02	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.63e+06	3.96e+02	4.1e+03	3.14e+06	5.92e+02	5.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.81e+06	3.96e+02	4.6e+03	3.50e+06	5.92e+02	5.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.68e+06	3.96e+02	4.2e+03	3.36e+06	5.92e+02	5.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.27e+06	3.96e+02	3.2e+03	2.62e+06	5.92e+02	4.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.23e+06	1.83e+03	6.7e+02	2.79e+06	1.55e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.62e+05	1.83e+03	4.7e+02	2.03e+06	1.55e+03	1.3e+03
27	13C-2,3,7,8-TCDD	1.10e+06	3.92e+03	2.8e+02	1.41e+06	2.06e+03	6.9e+02
28	13C-1,2,3,7,8-PeCDD	2.55e+06	6.72e+02	3.8e+03	1.57e+06	9.52e+02	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	2.28e+06	6.48e+02	3.5e+03	1.77e+06	3.44e+02	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.06e+06	6.48e+02	3.2e+03	1.66e+06	3.44e+02	4.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.03e+06	2.20e+02	9.2e+03	1.90e+06	2.88e+02	6.6e+03
32	13C-OCDD	1.63e+06	1.84e+02	8.9e+03	1.82e+06	2.32e+02	7.9e+03
33	13C-1,2,3,4-TCDD	1.70e+06	3.92e+03	4.3e+02	2.21e+06	2.06e+03	1.1e+03
34	13C-1,2,3,7,8,9-HxCDD	2.31e+06	6.48e+02	3.6e+03	1.76e+06	3.44e+02	5.1e+03
35	37Cl-2,3,7,8-TCDD	1.73e+04	6.72e+02	2.6e+01			

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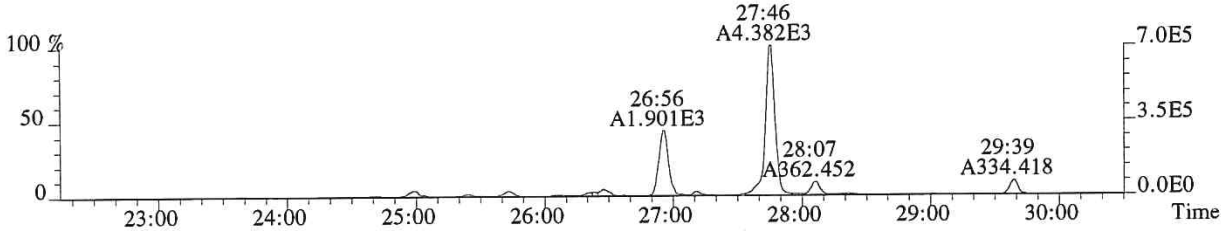
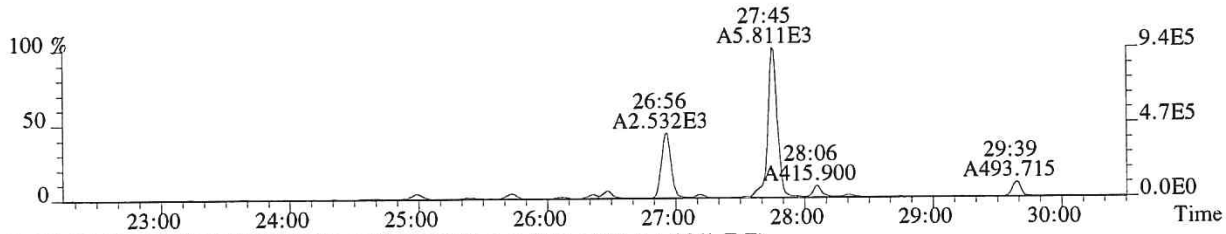
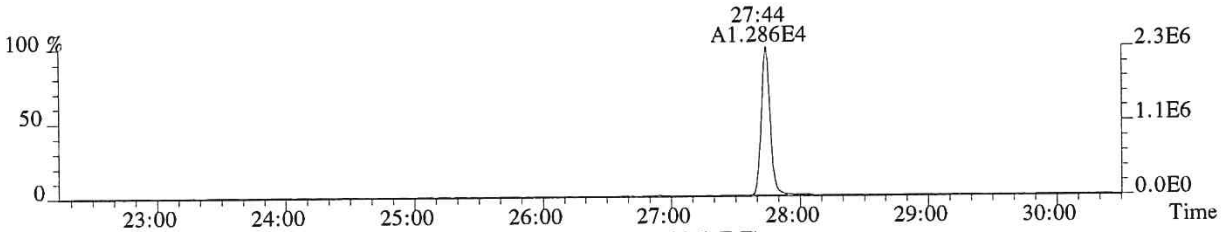
File:P519325 #1-587 Acq:10-DEC-2018 13:38:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



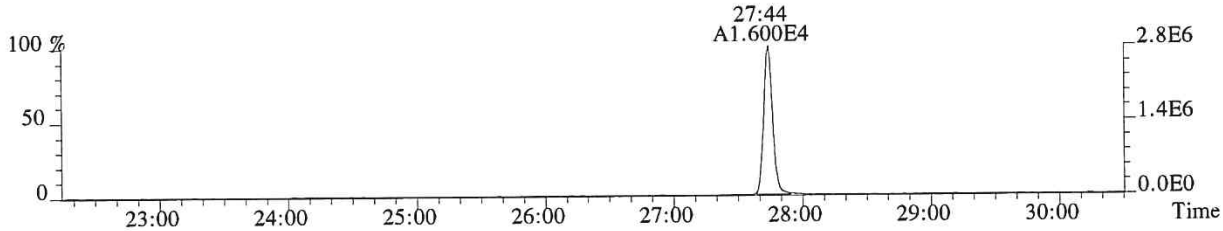
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



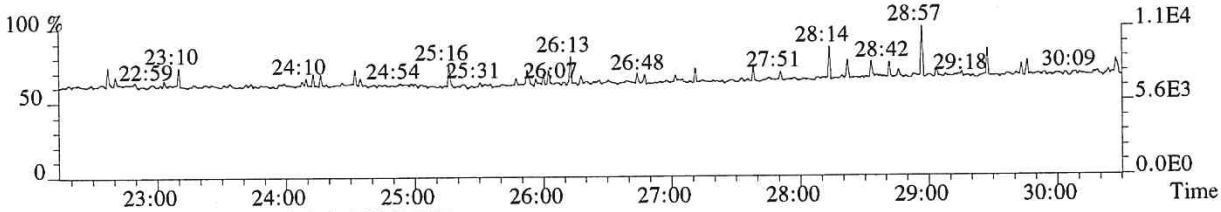
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6532.0,1.00%,F,T)



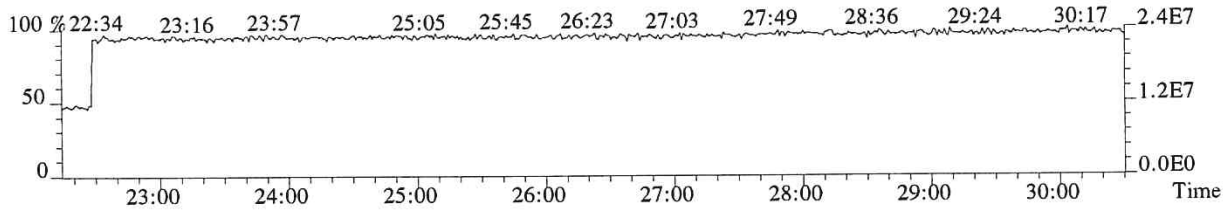
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5204.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

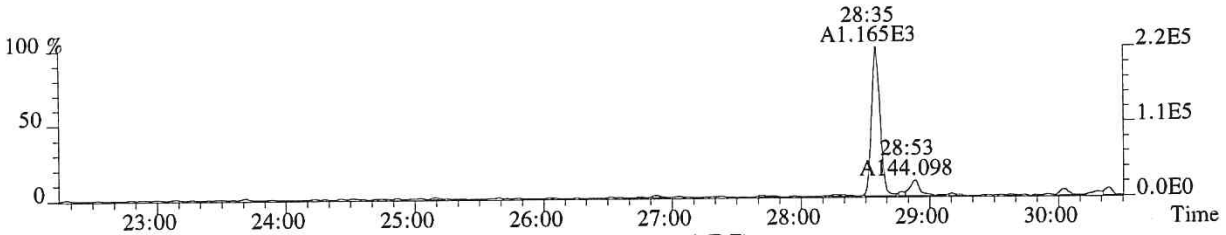


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

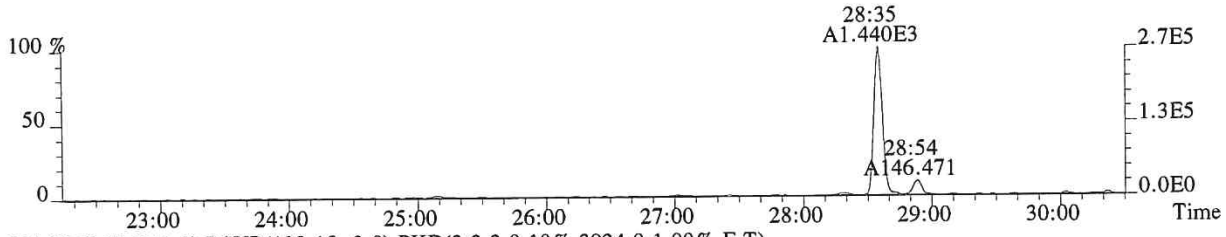


012531

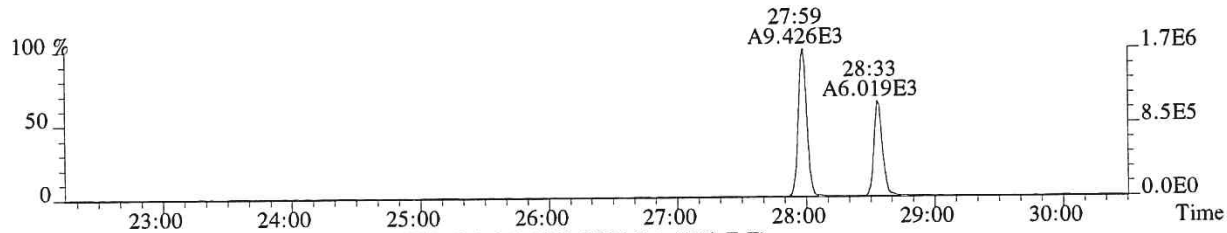
File:P519325 #1-587 Acq:10-DEC-2018 13:38:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



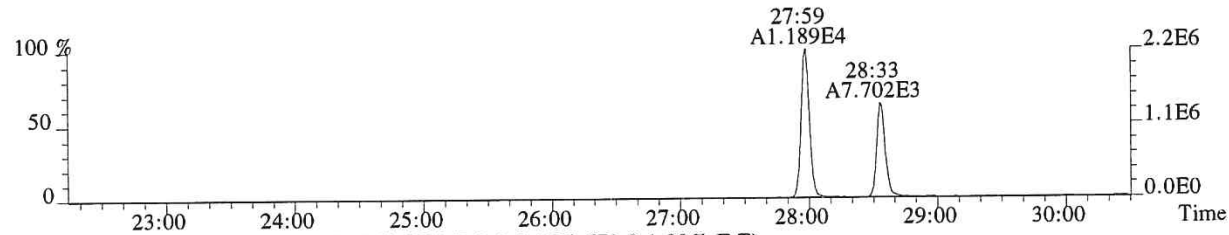
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



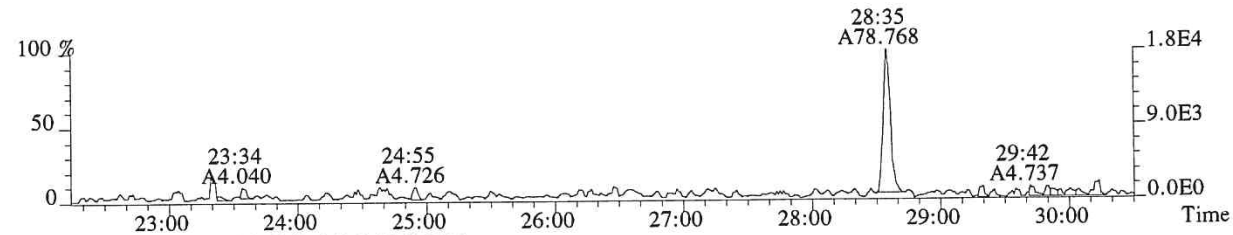
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3924.0,1.00%,F,T)



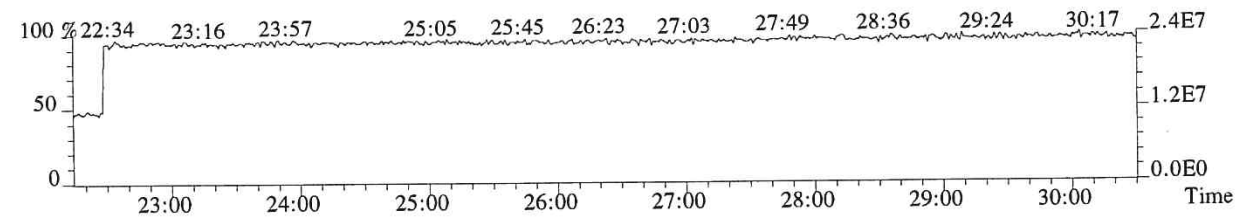
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



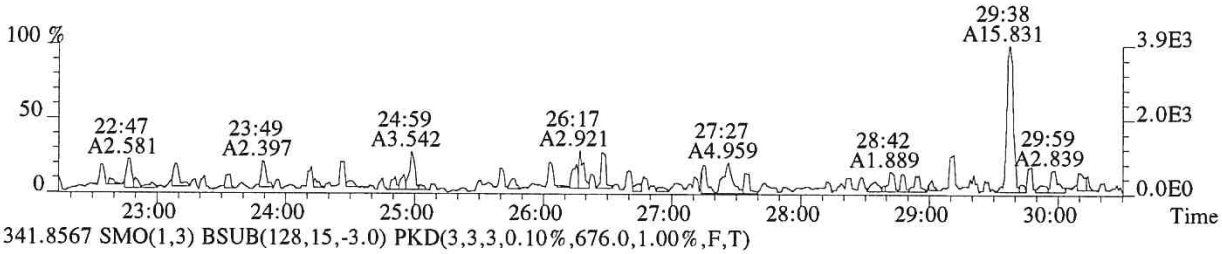
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



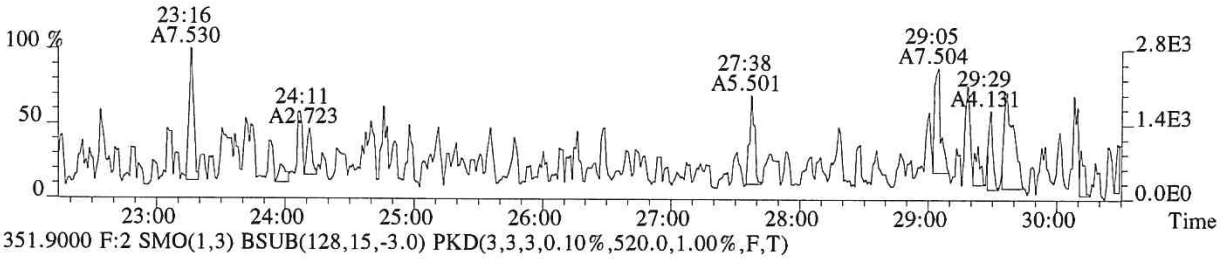
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



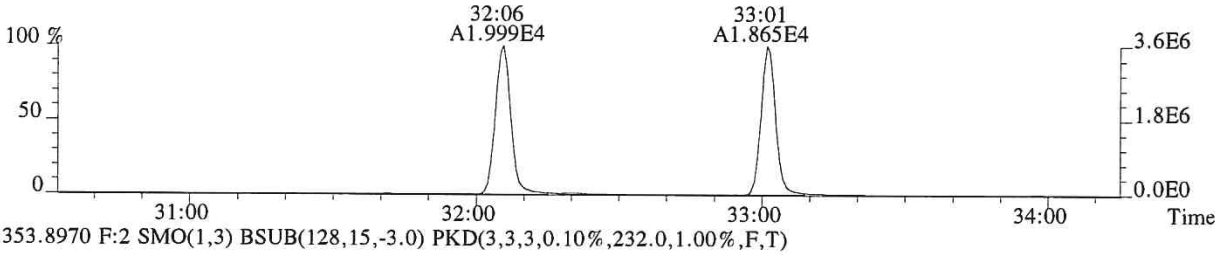
File:P519325 #1-587 Acq:10-DEC-2018 13:38:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



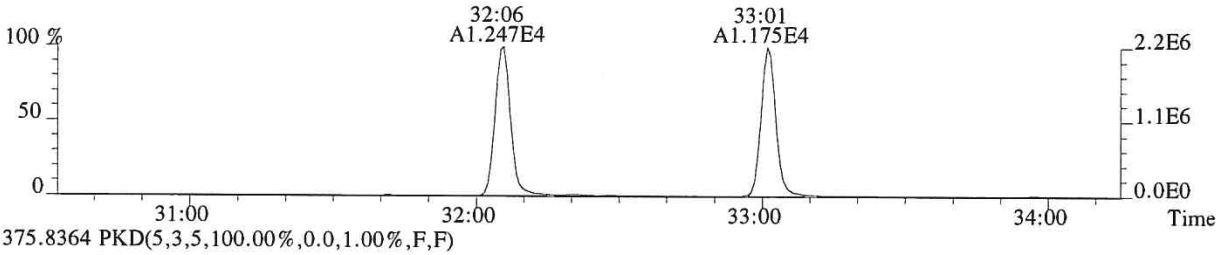
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



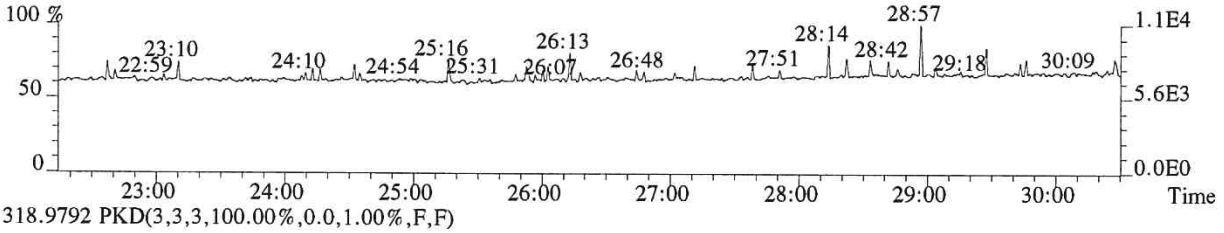
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



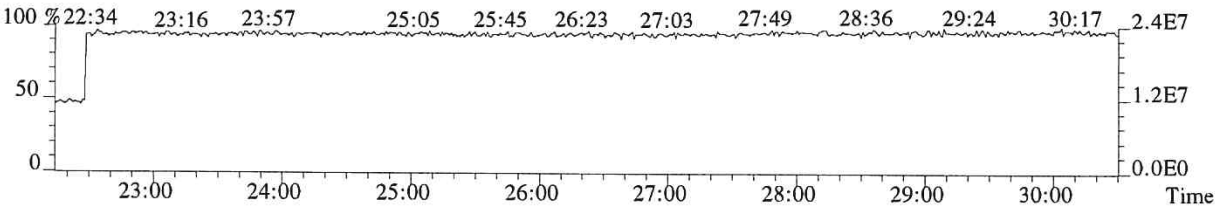
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

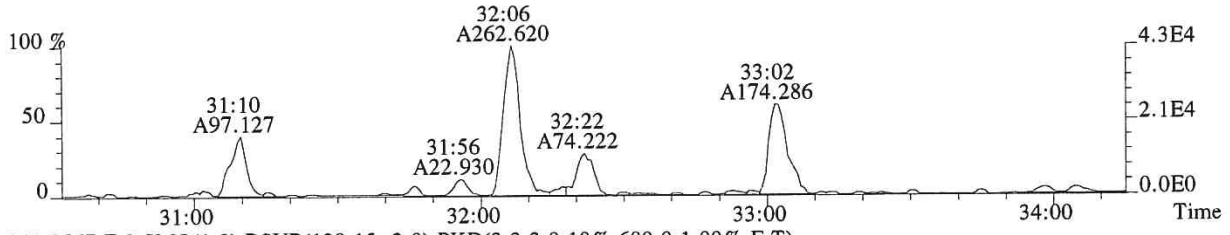


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

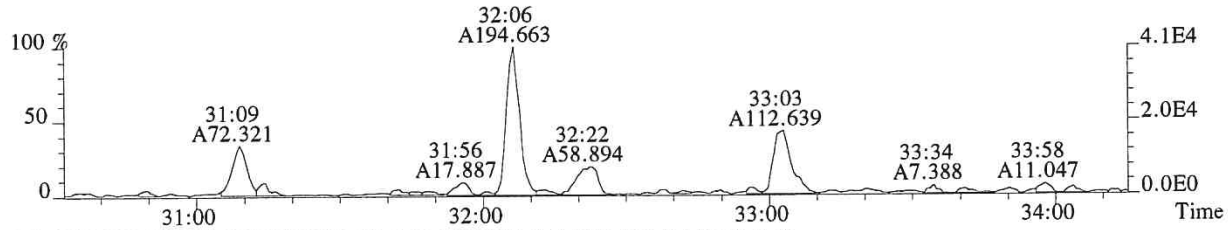


012533

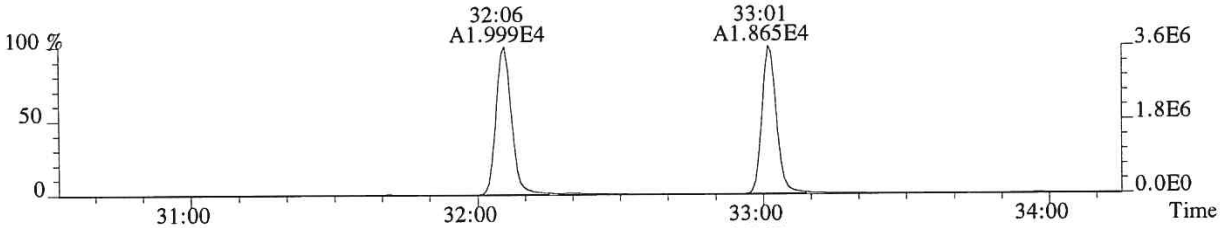
File:P519325 #1-335 Acq:10-DEC-2018 13:38:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



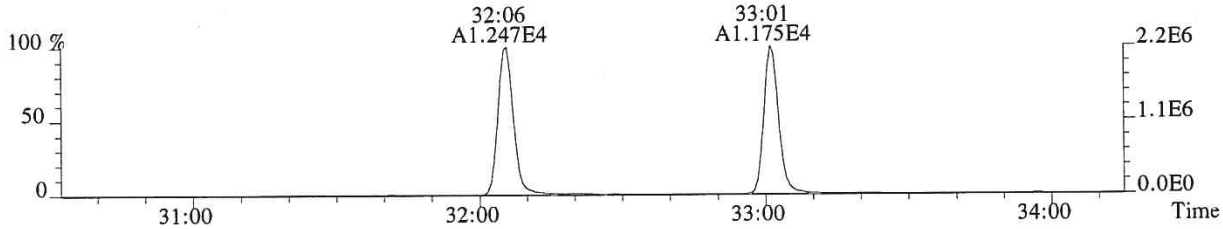
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



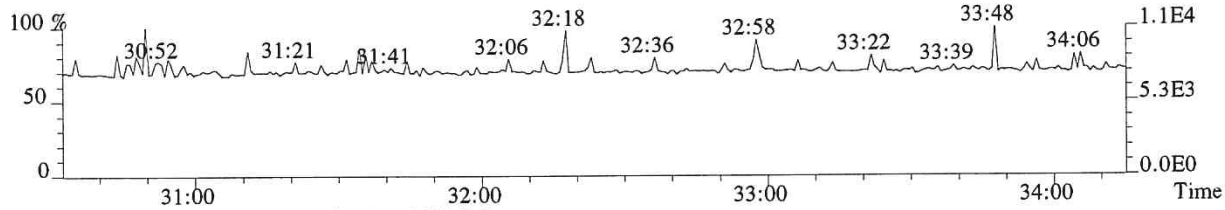
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



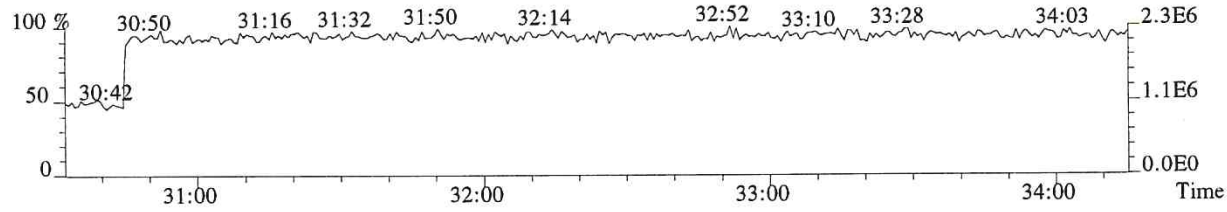
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



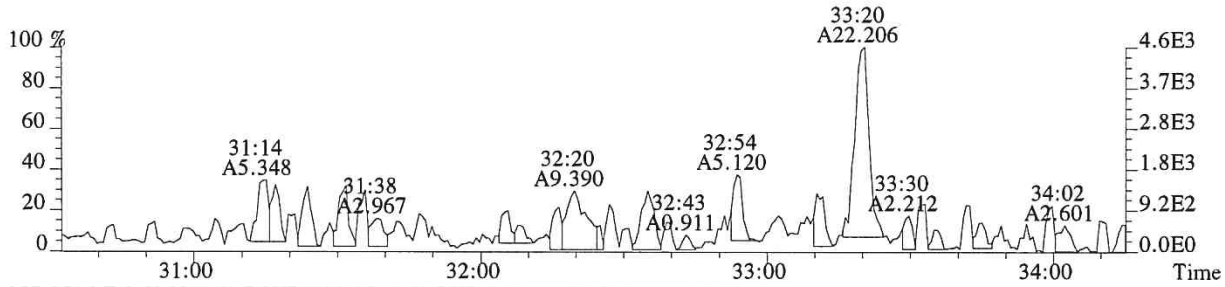
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



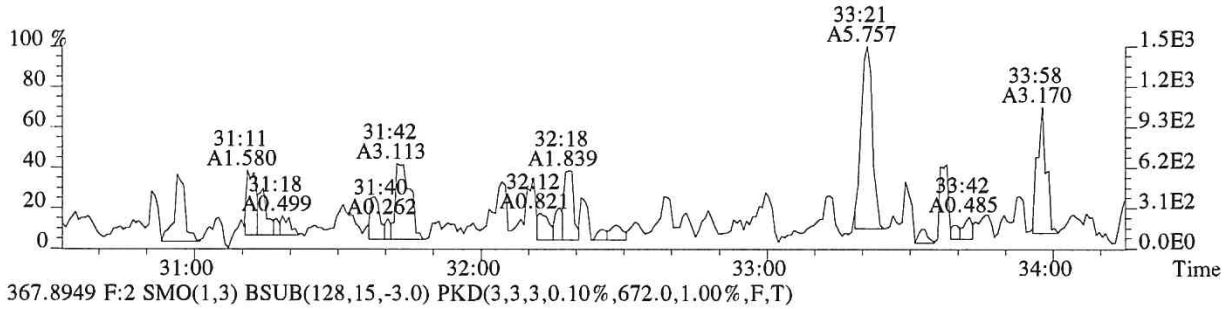
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



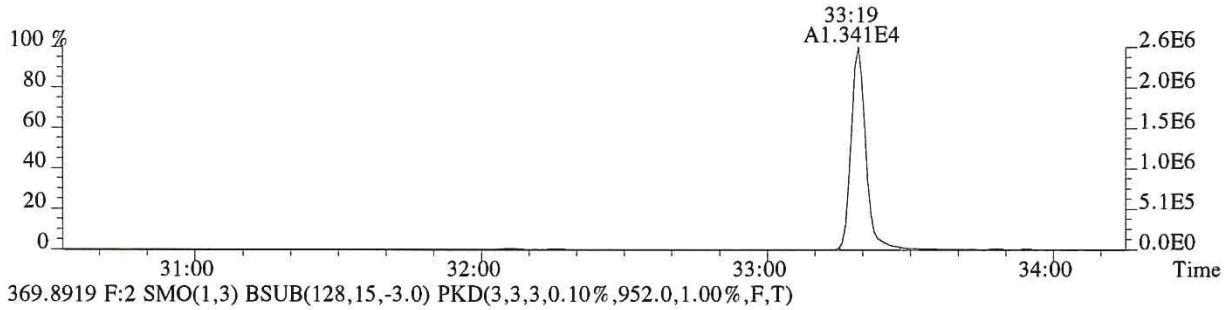
File:P519325 #1-335 Acq:10-DEC-2018 13:38:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



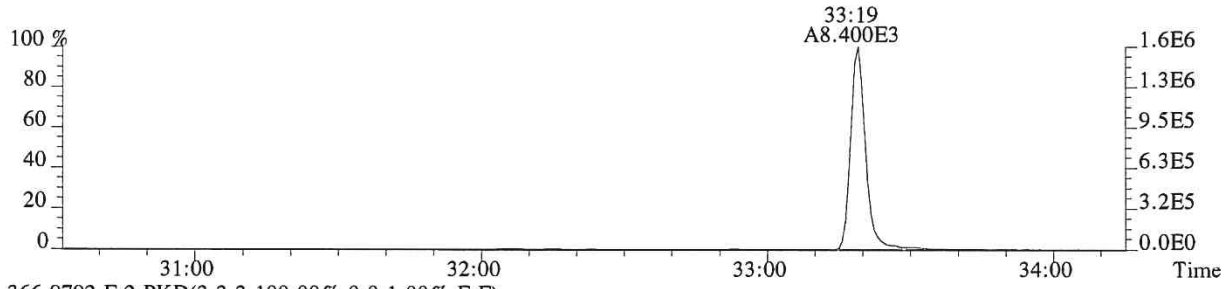
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



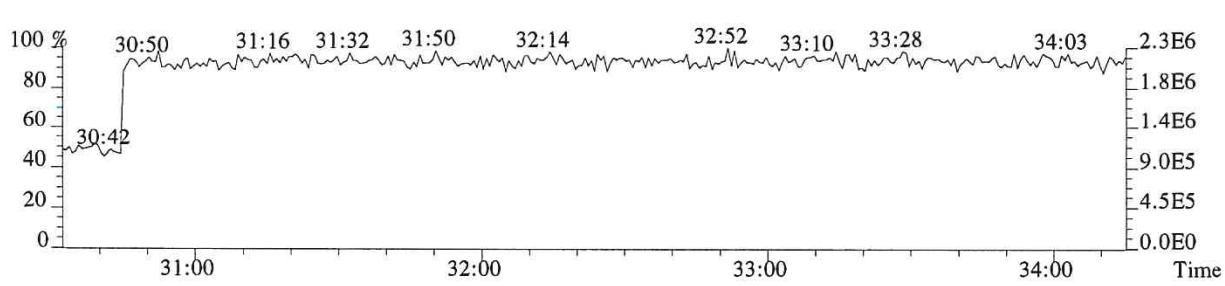
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



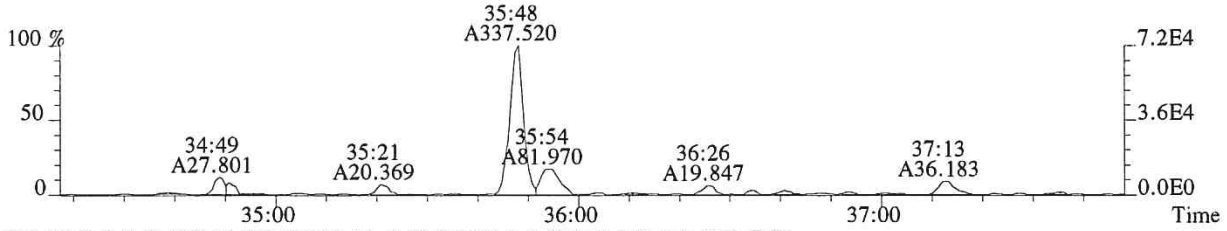
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



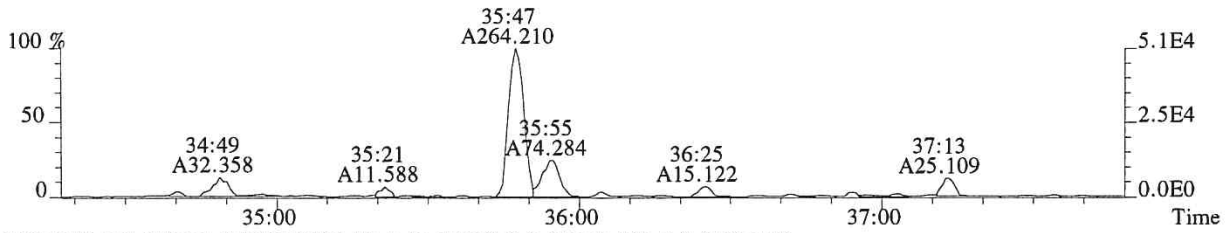
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



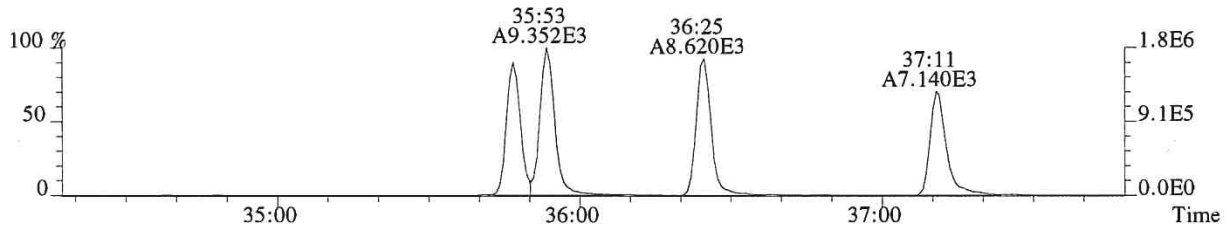
File:P519325 #1-317 Acq:10-DEC-2018 13:38:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



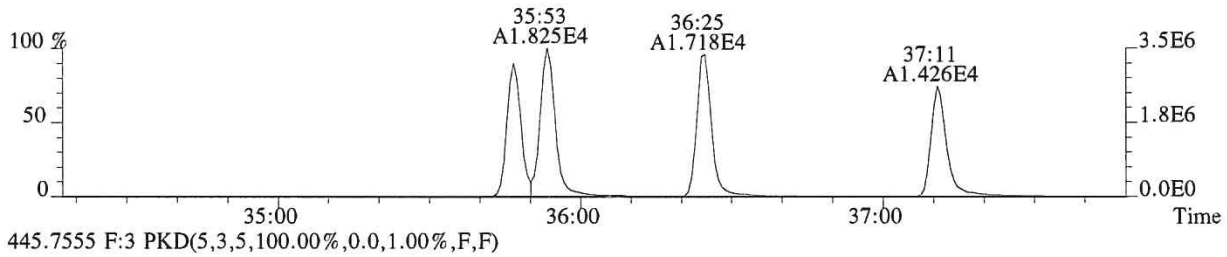
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



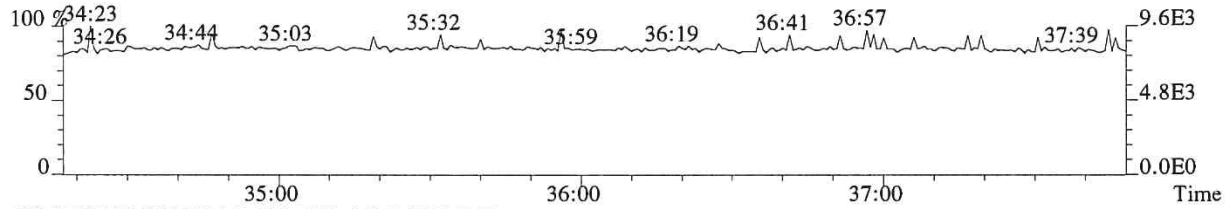
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



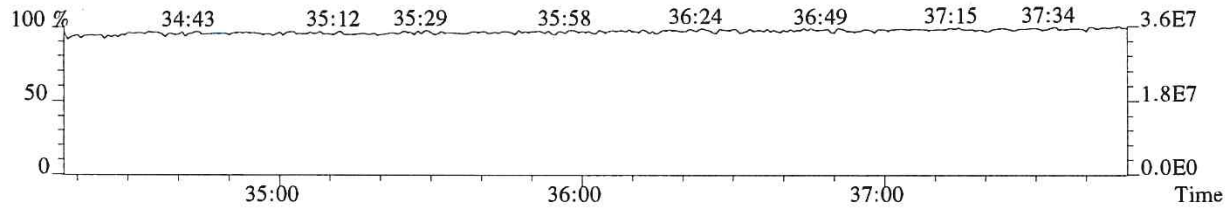
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

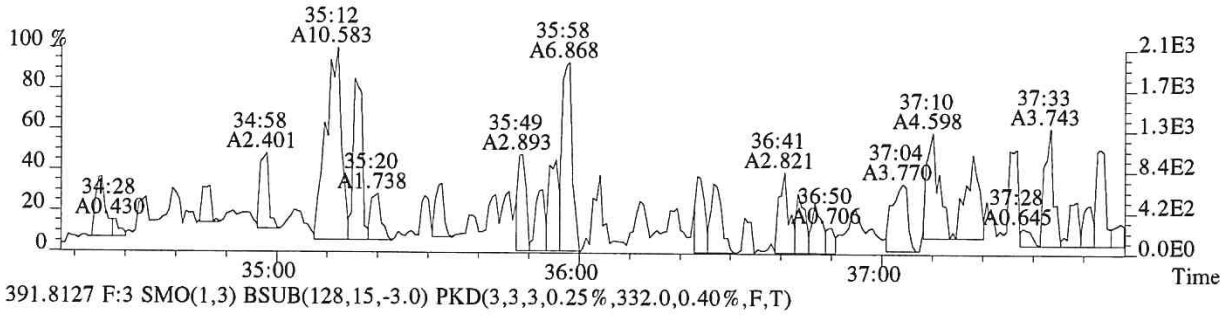


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

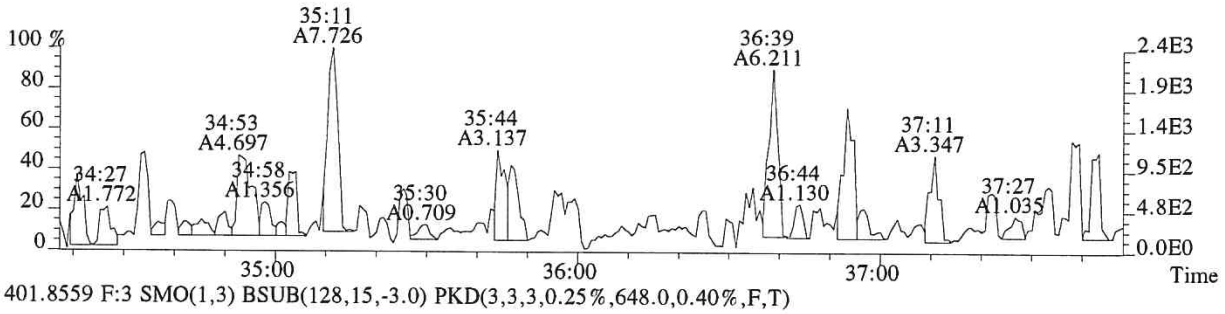


012536

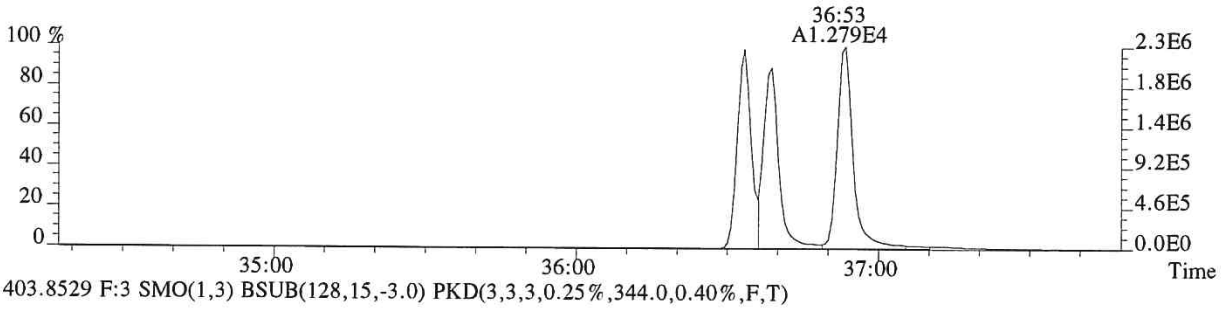
File:P519325 #1-317 Acq:10-DEC-2018 13:38:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



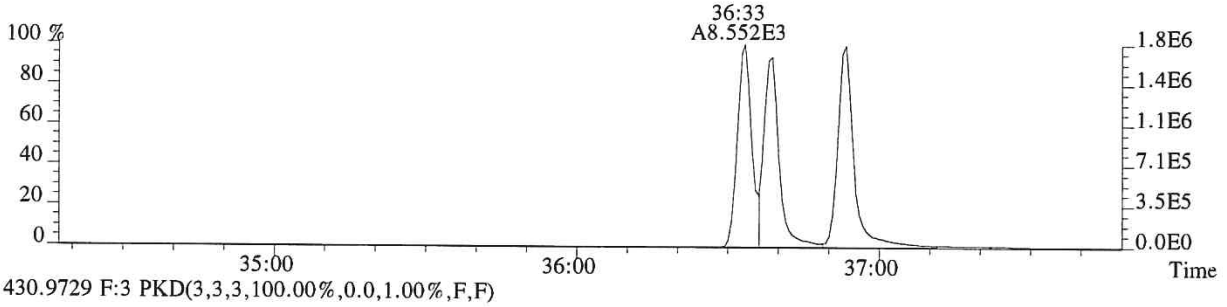
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



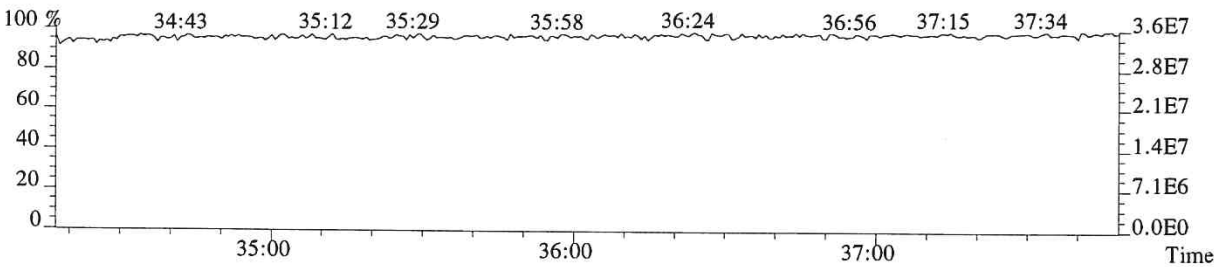
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



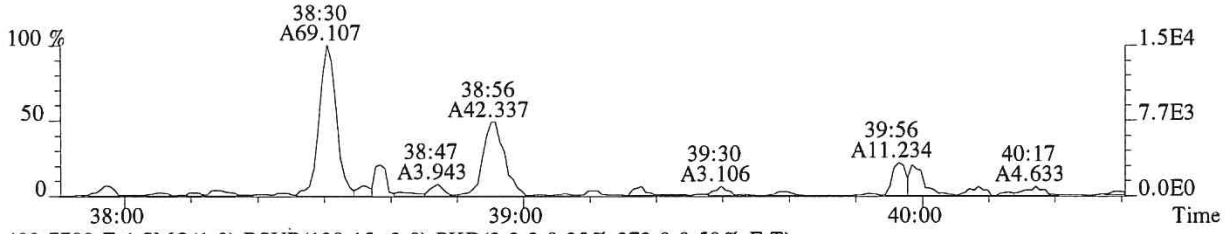
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



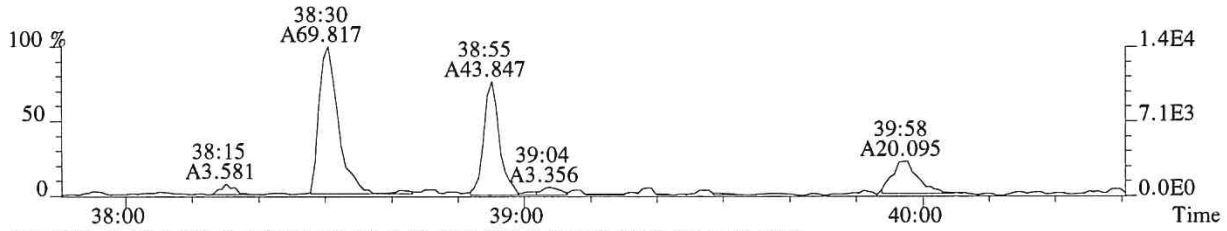
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



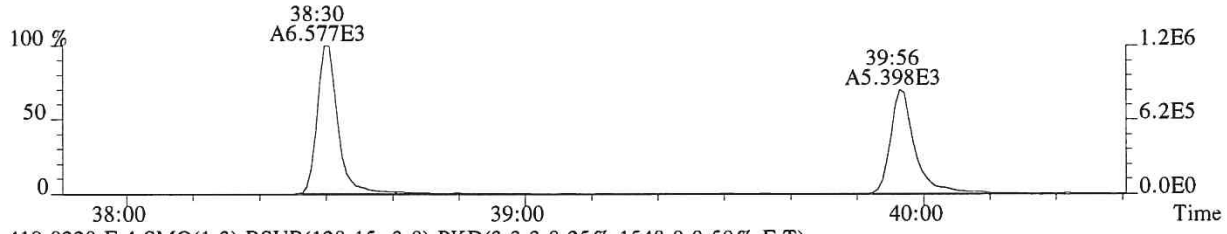
File:P519325 #1-241 Acq:10-DEC-2018 13:38:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.50%,F,T)



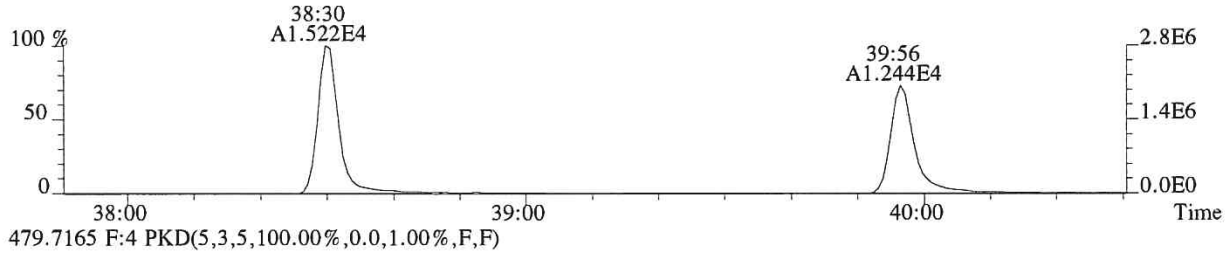
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.50%,F,T)



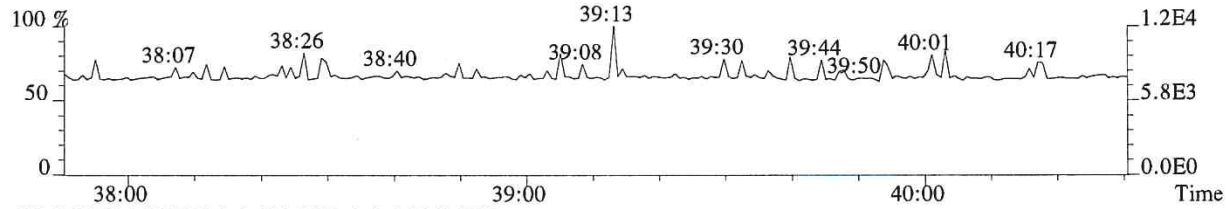
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1832.0,0.50%,F,T)



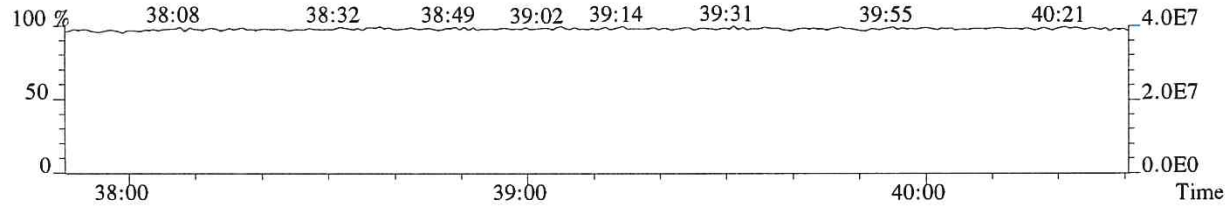
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

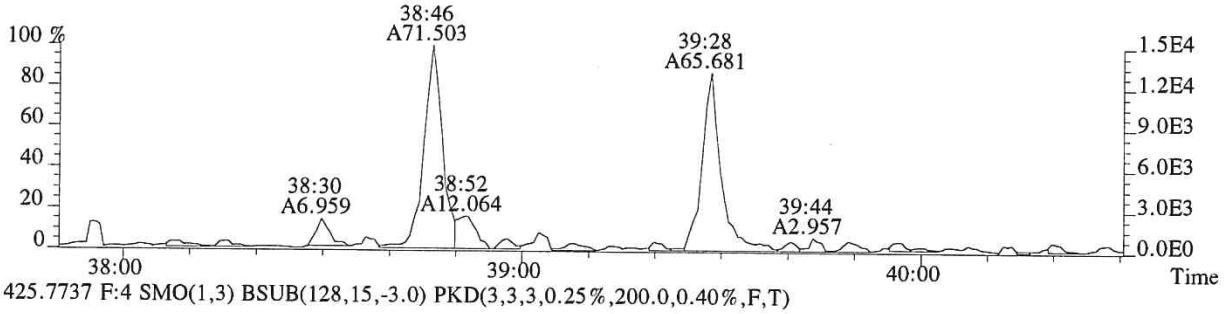


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

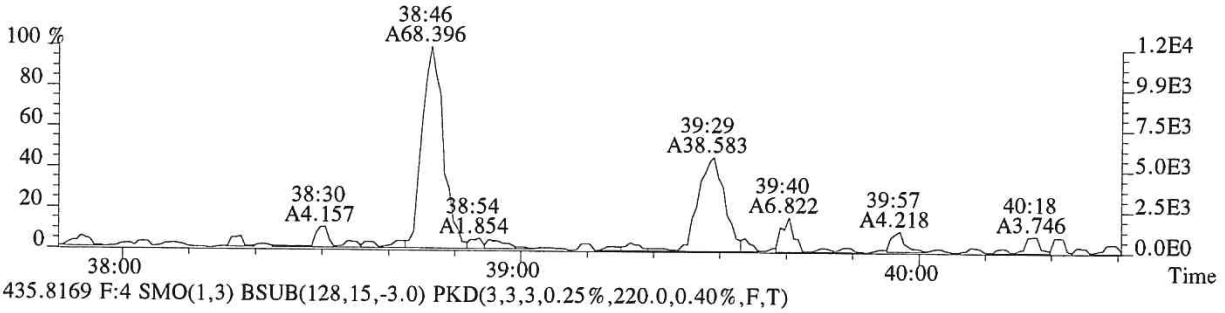


012538

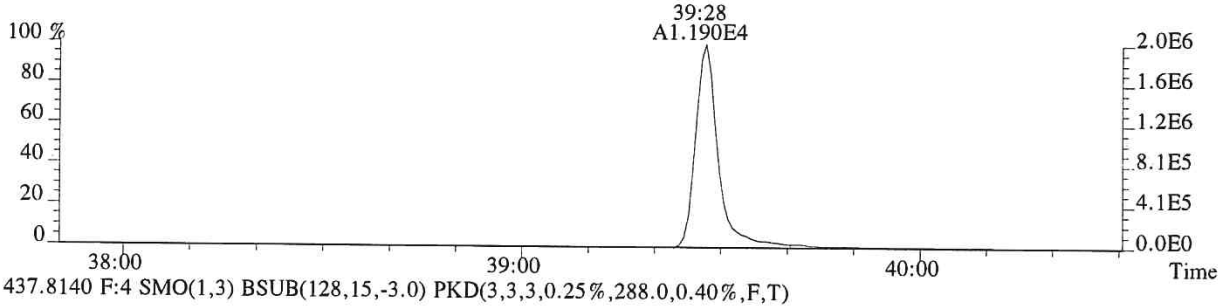
File:P519325 #1-241 Acq:10-DEC-2018 13:38:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



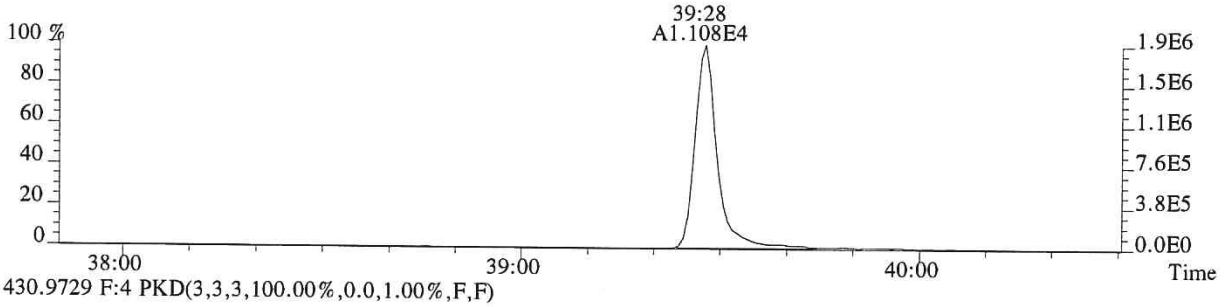
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



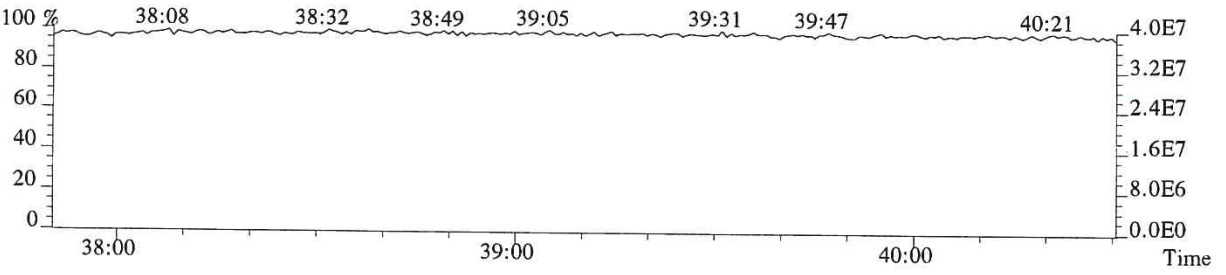
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)

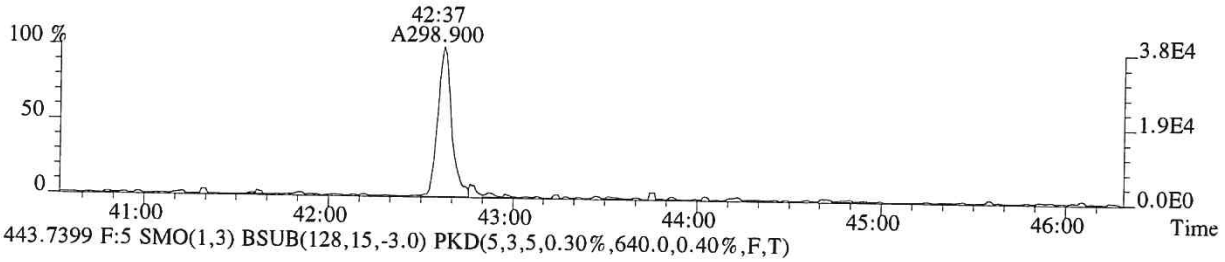


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

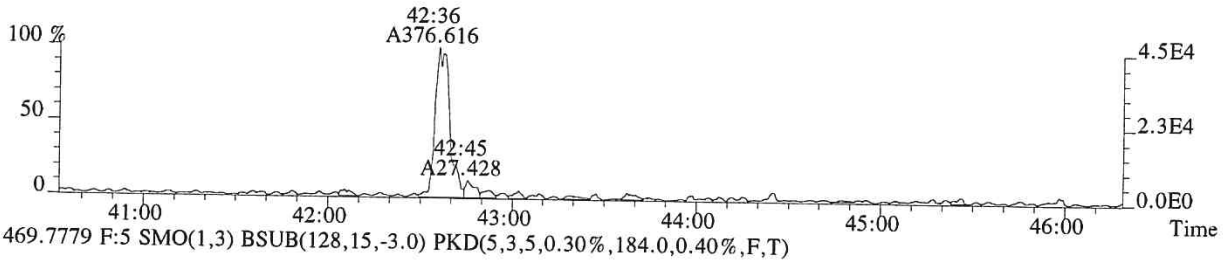


012539

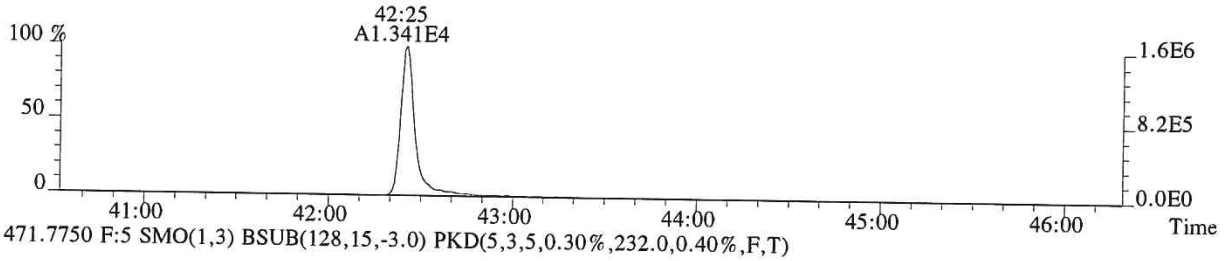
File:P519325 #1-520 Acq:10-DEC-2018 13:38:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



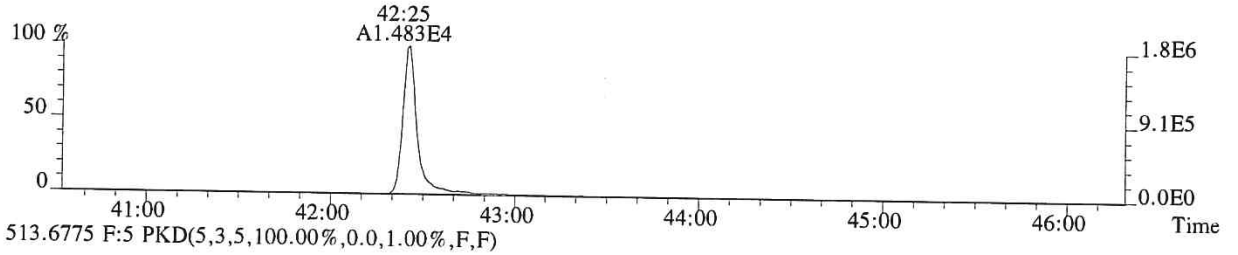
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



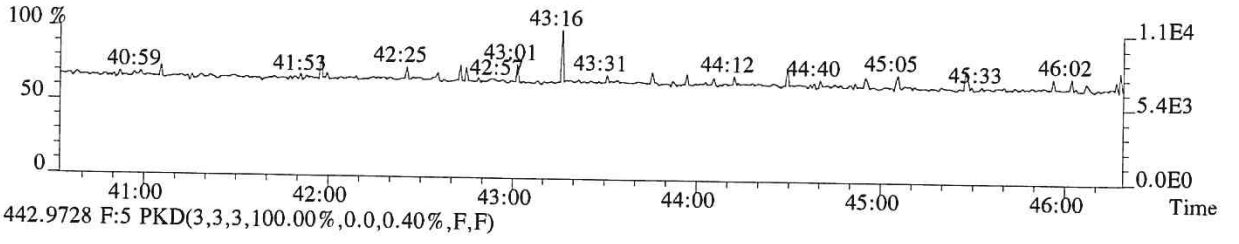
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



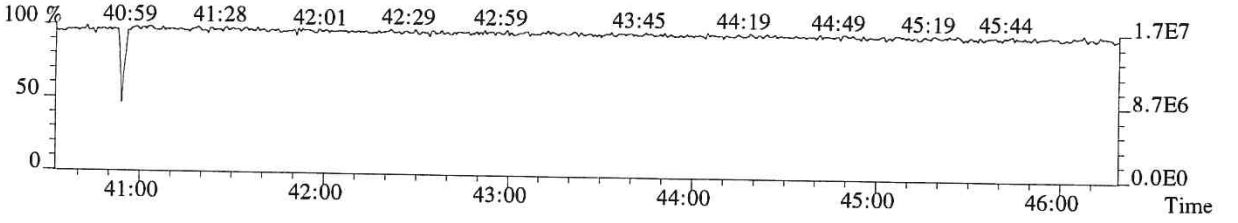
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

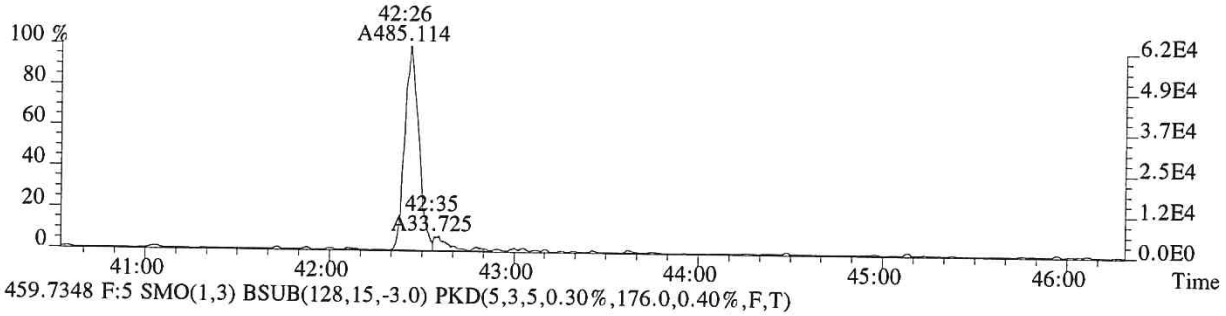


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

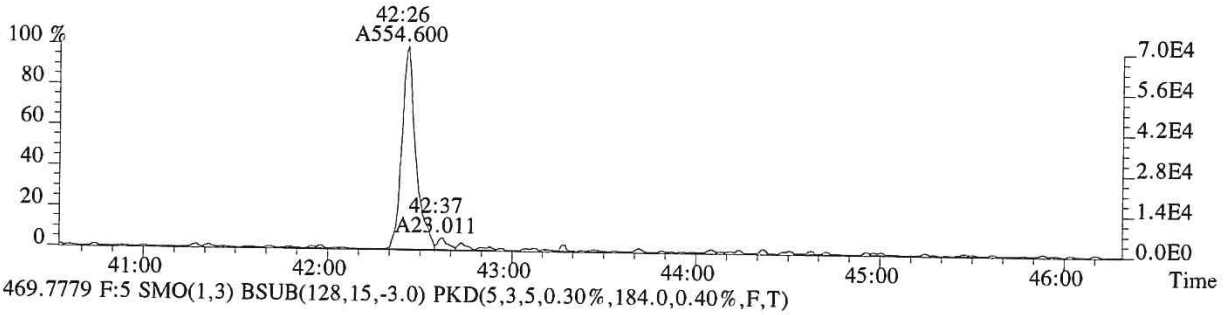


012540

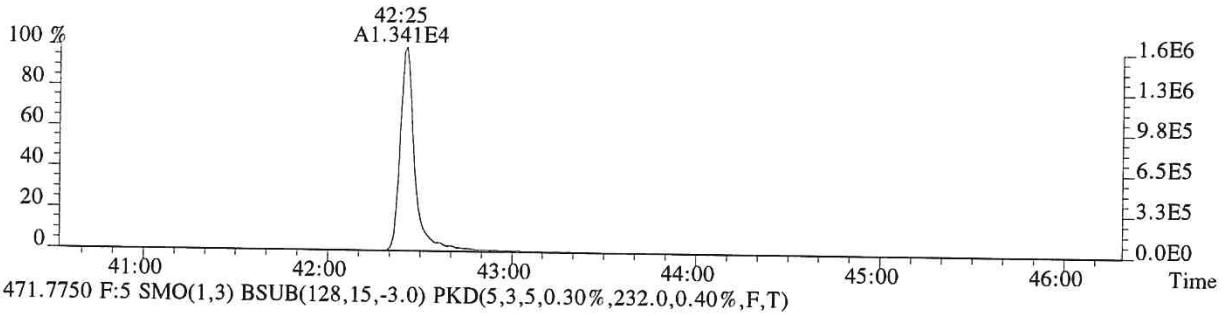
File:P519325 #1-520 Acq:10-DEC-2018 13:38:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-063DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



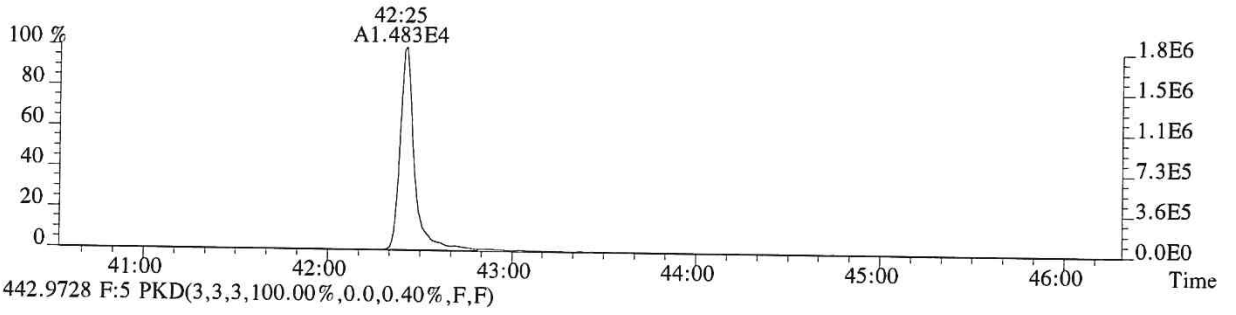
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



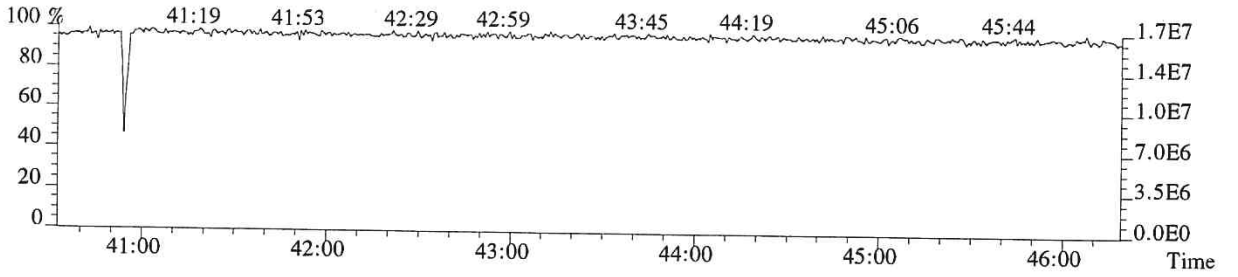
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
FW0007

Run #12 Filename P616045 Samp: 1 Inj: 1 Acquired: 11-DEC-18 14:39:28
Processed: 12-DEC-18 16:11:31 Sample ID: E1801056-069

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	yes	1.112
17	Unk	OCDD	41:40	9.099e+01	1.345e+02	0.68	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:30	2.927e+04	3.712e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	5.073e+04	3.187e+04	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:48	4.786e+04	2.984e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:30	2.380e+04	4.355e+04	0.55	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	2.570e+04	5.008e+04	0.51	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:07	2.402e+04	4.653e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.168e+04	4.150e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	1.701e+04	3.697e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.412e+04	3.163e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:19	1.499e+04	1.914e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:05	3.820e+04	2.445e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:14	3.324e+04	2.673e+04	1.24	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	3.338e+04	2.664e+04	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:00	3.281e+04	3.158e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	41:40	2.590e+04	2.761e+04	0.94	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:41	3.403e+04	4.443e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	4.890e+04	3.939e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:21	2.391e+04				no	1.086

$$\text{OCDD} = \frac{(9.099e{+}01 + 1.345e{+}02) \times 4000\ \text{pg} \times 1}{(2.590e{+}04 + 2.761e{+}04) \times \quad \text{g} \times .5 \ / \ 100 \times 1.157} = 24.9635\ \text{pg}$$

LG 12/13/18

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wipe

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW0007

Run #12 Filename P616045 Samp: 1 Inj: 1 Acquired: 11-DEC-18 14:39:28
Processed: 12-DEC-18 16:11:31 LAB. ID: E1801056-069

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	2.41e+03	*	*	3.32e+03	*
2	1,2,3,7,8-PeCDF	*	1.25e+03	*	*	2.72e+03	*
3	2,3,4,7,8-PeCDF	*	1.25e+03	*	*	2.72e+03	*
4	1,2,3,4,7,8-HxCDF	*	2.30e+03	*	*	2.04e+03	*
5	1,2,3,6,7,8-HxCDF	*	2.30e+03	*	*	2.04e+03	*
6	2,3,4,6,7,8-HxCDF	*	2.30e+03	*	*	2.04e+03	*
7	1,2,3,7,8,9-HxCDF	*	2.30e+03	*	*	2.04e+03	*
8	1,2,3,4,6,7,8-HpCDF	*	9.96e+02	*	*	1.24e+03	*
9	1,2,3,4,7,8,9-HpCDF	*	9.96e+02	*	*	1.24e+03	*
10	OCDF	*	8.80e+02	*	*	3.74e+03	*
11	2,3,7,8-TCDD	*	4.12e+03	*	*	3.23e+03	*
12	1,2,3,7,8-PeCDD	*	2.72e+03	*	*	8.92e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.72e+03	*	*	1.56e+03	*
14	1,2,3,6,7,8-HxCDD	*	1.72e+03	*	*	1.56e+03	*
15	1,2,3,7,8,9-HxCDD	*	1.72e+03	*	*	1.56e+03	*
16	1,2,3,4,6,7,8-HpCDD	*	1.54e+03	*	*	1.42e+03	*
17	OCDD	1.75e+04	4.28e+02	4.1e+01	2.32e+04	1.58e+03	1.5e+01
18	13C-2,3,7,8-TCDF	4.62e+06	1.68e+04	2.8e+02	5.81e+06	1.45e+04	4.0e+02
19	13C-1,2,3,7,8-PeCDF	9.24e+06	1.46e+03	6.3e+03	5.72e+06	1.48e+03	3.9e+03
20	13C-2,3,4,7,8-PeCDF	8.95e+06	1.46e+03	6.1e+03	5.57e+06	1.48e+03	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	4.87e+06	2.41e+03	2.0e+03	9.21e+06	3.38e+03	2.7e+03
22	13C-1,2,3,6,7,8-HxCDF	5.20e+06	2.41e+03	2.2e+03	1.02e+07	3.38e+03	3.0e+03
23	13C-2,3,4,6,7,8-HxCDF	4.95e+06	2.41e+03	2.1e+03	9.52e+06	3.38e+03	2.8e+03
24	13C-1,2,3,7,8,9-HxCDF	4.26e+06	2.41e+03	1.8e+03	8.23e+06	3.38e+03	2.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.67e+06	3.42e+03	1.1e+03	7.82e+06	3.47e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.76e+06	3.42e+03	8.1e+02	6.12e+06	3.47e+03	1.8e+03
27	13C-2,3,7,8-TCDD	2.57e+06	2.08e+04	1.2e+02	3.26e+06	8.64e+03	3.8e+02
28	13C-1,2,3,7,8-PeCDD	7.12e+06	3.46e+03	2.1e+03	4.62e+06	3.44e+03	1.3e+03
29	13C-1,2,3,4,7,8-HxCDD	7.37e+06	3.19e+03	2.3e+03	6.02e+06	2.15e+03	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	6.90e+06	3.19e+03	2.2e+03	5.55e+06	2.15e+03	2.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.95e+06	1.96e+03	3.6e+03	6.63e+06	1.07e+03	6.2e+03
32	13C-OCDD	4.77e+06	9.64e+02	5.0e+03	5.06e+06	9.52e+02	5.3e+03
33	13C-1,2,3,4-TCDD	5.95e+06	2.08e+04	2.9e+02	7.67e+06	8.64e+03	8.9e+02
34	13C-1,2,3,7,8,9-HxCDD	1.02e+07	3.19e+03	3.2e+03	8.13e+06	2.15e+03	3.8e+03
35	37Cl-2,3,7,8-TCDD	4.11e+06	2.51e+03	1.6e+03			

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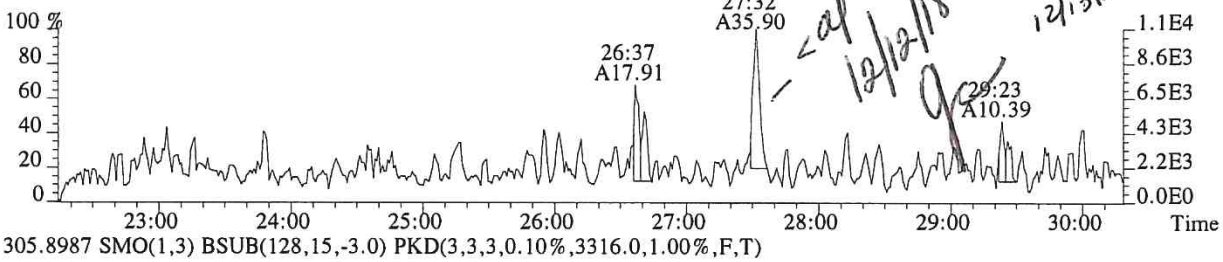
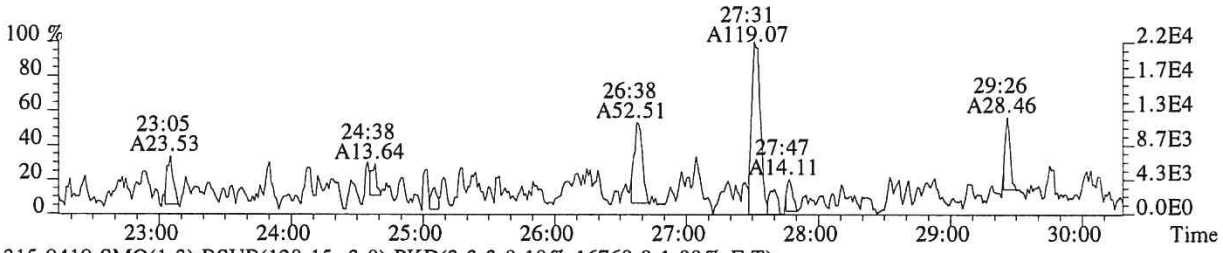
File:P616045 #1-573 Acq:11-DEC-2018 14:39:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-069

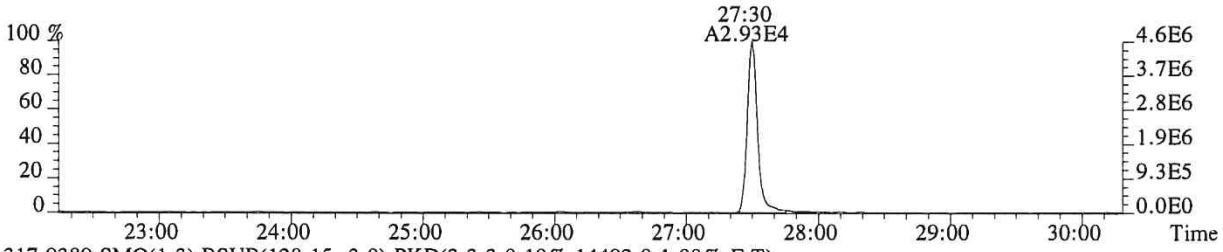
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2412.0,1.00%,F,T)



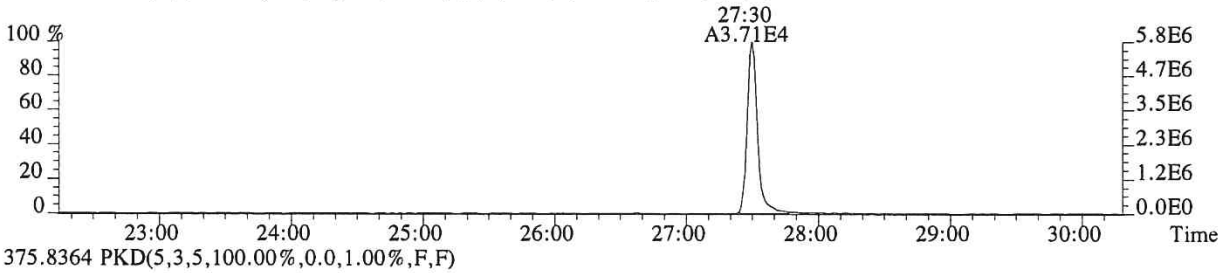
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3316.0,1.00%,F,T)



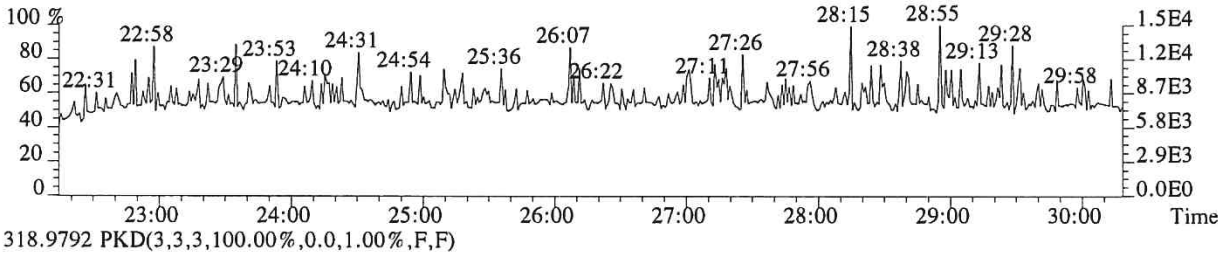
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16768.0,1.00%,F,T)



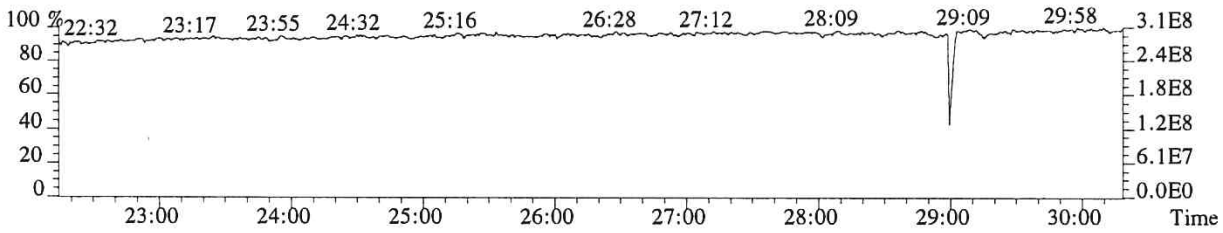
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14492.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

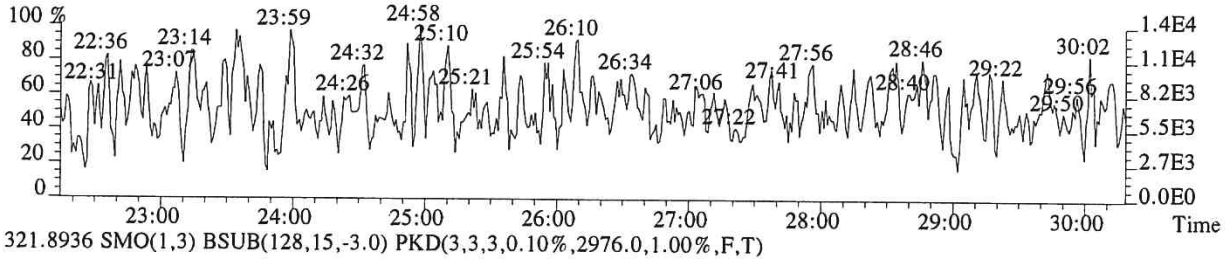


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

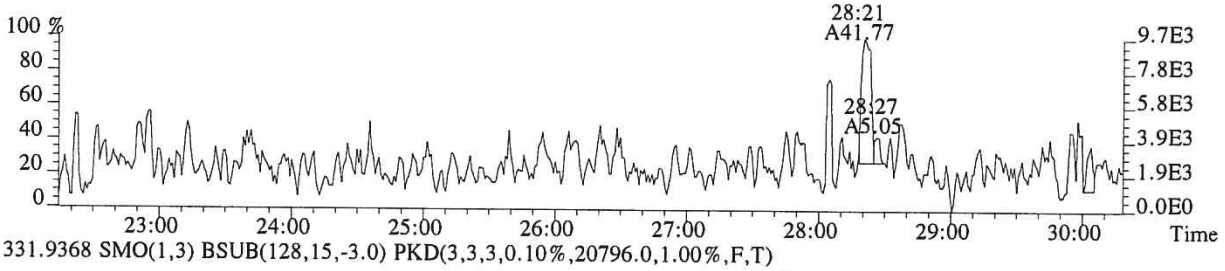


012544

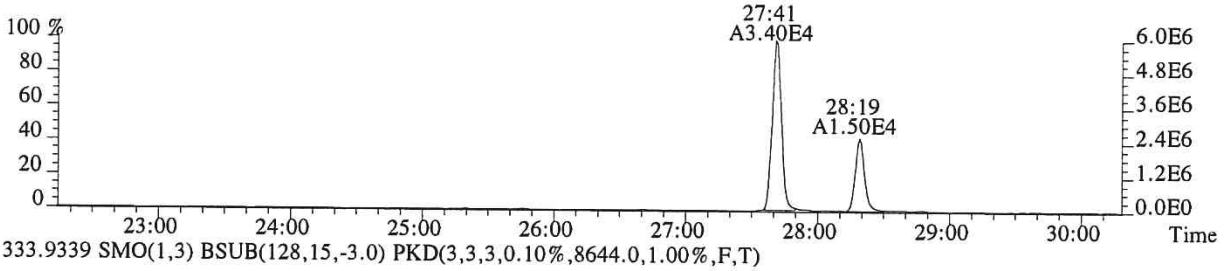
File:P616045 #1-573 Acq:11-DEC-2018 14:39:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-069
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9412.0,1.00%,F,T)



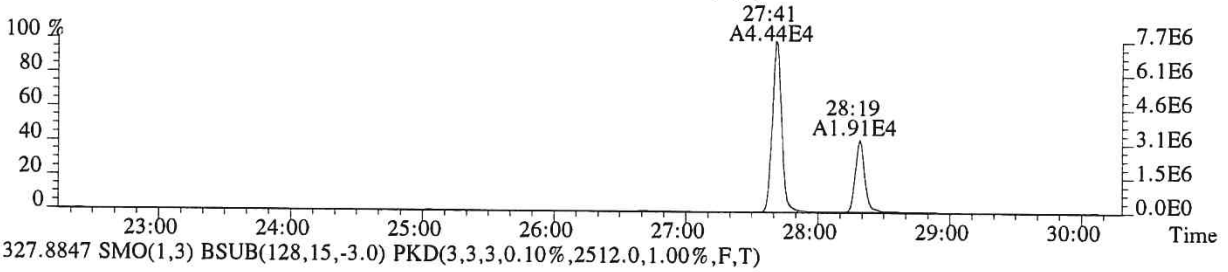
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2976.0,1.00%,F,T)



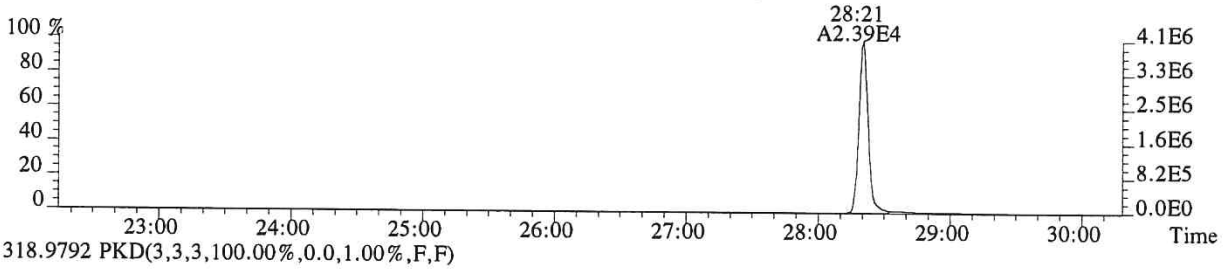
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20796.0,1.00%,F,T)



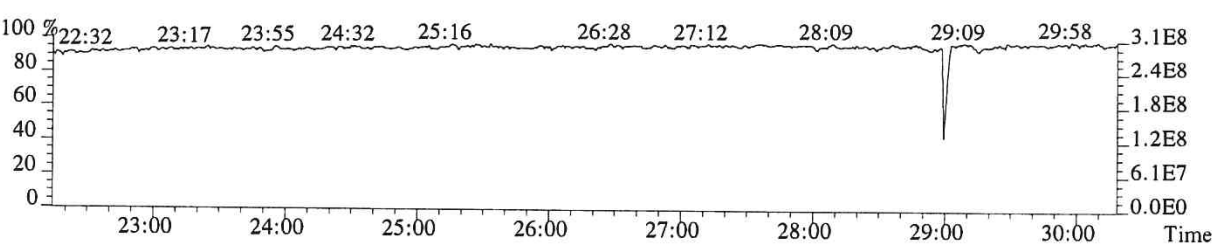
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2512.0,1.00%,F,T)

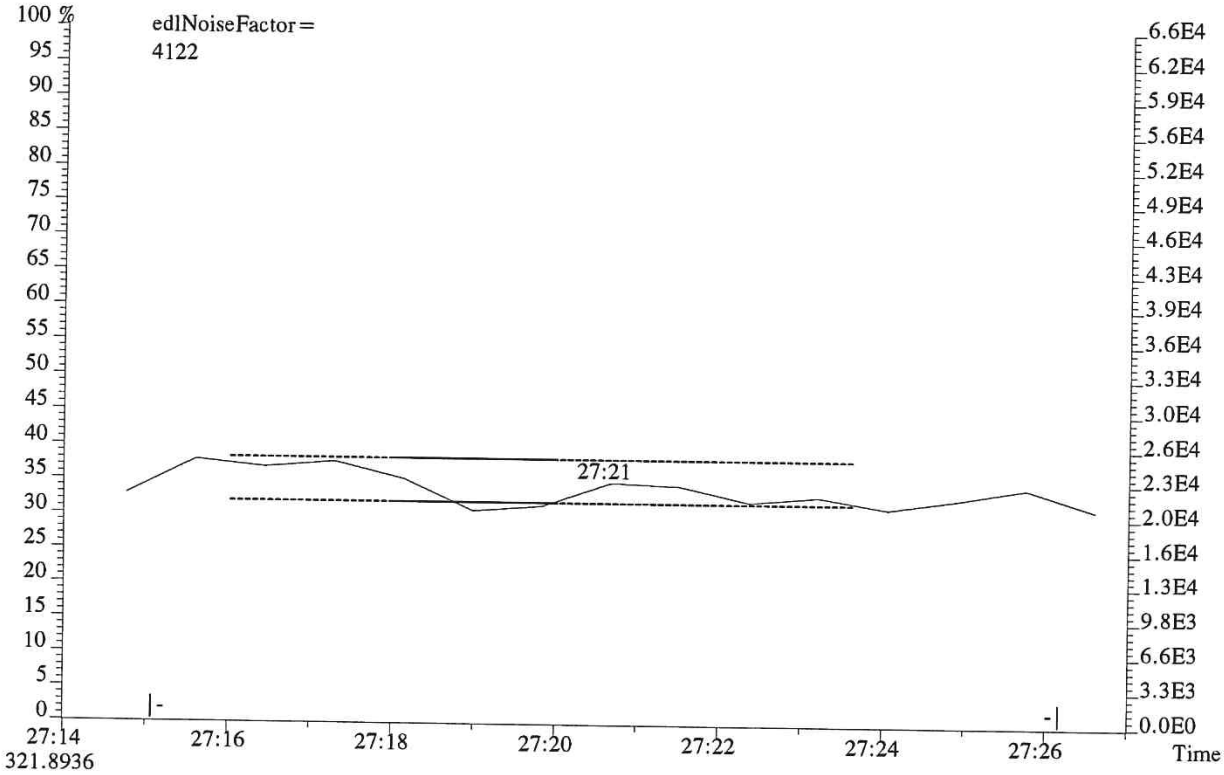


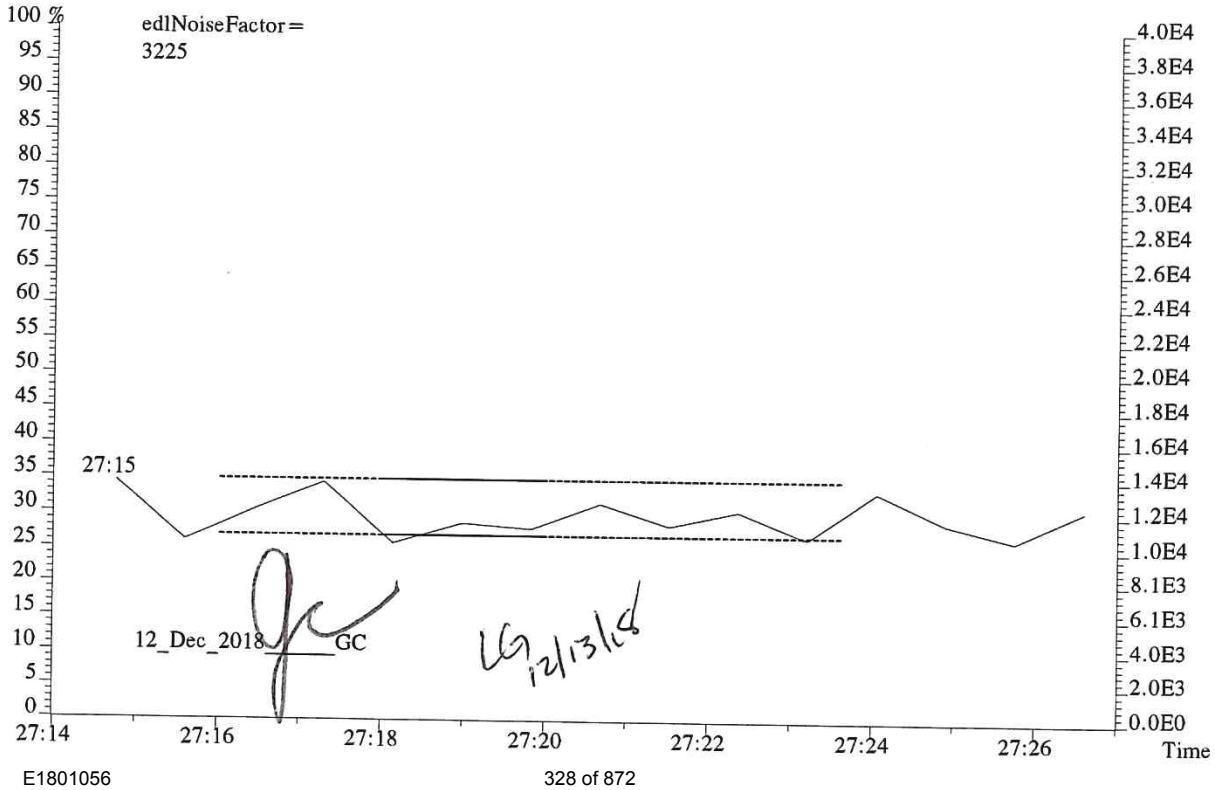
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



012545

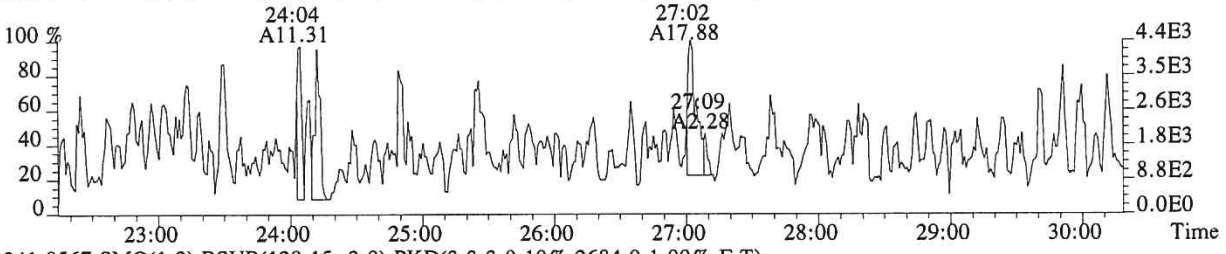
File:P616045 #1-573 Acq:11-DEC-2018 14:39:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-069
319.8965



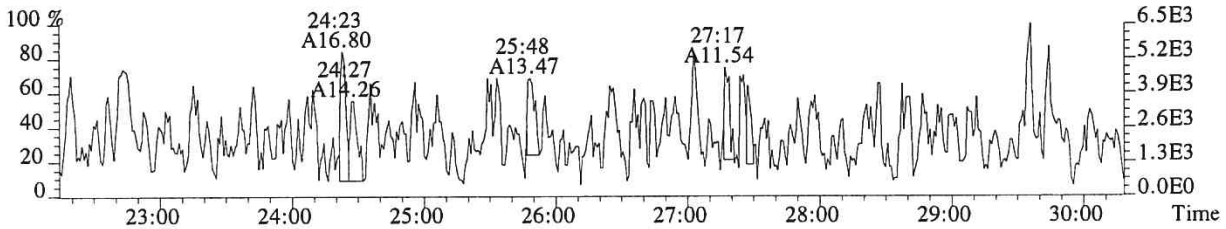


012546

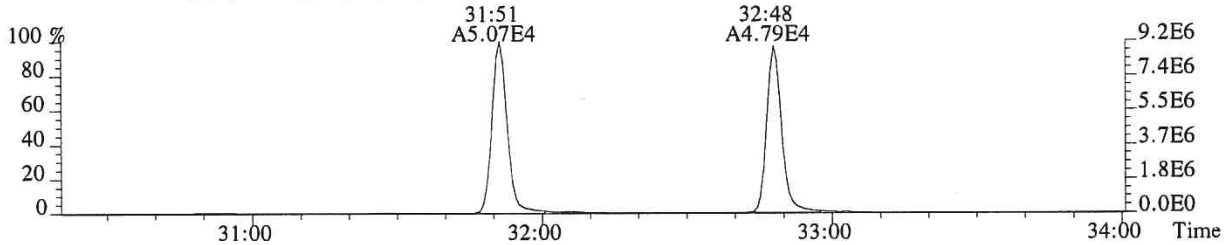
File:P616045 #1-573 Acq:11-DEC-2018 14:39:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-069
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



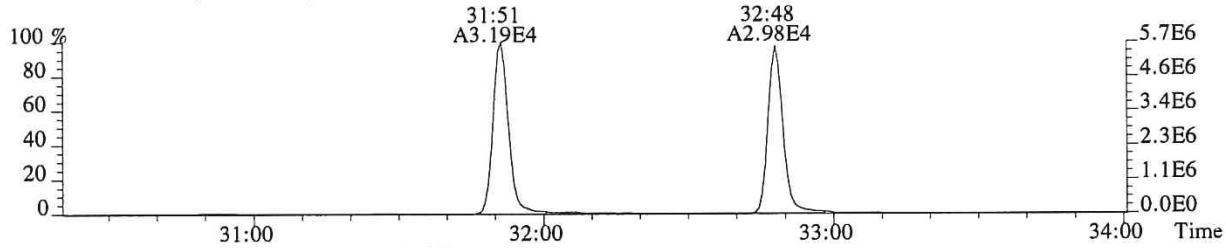
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2684.0,1.00%,F,T)



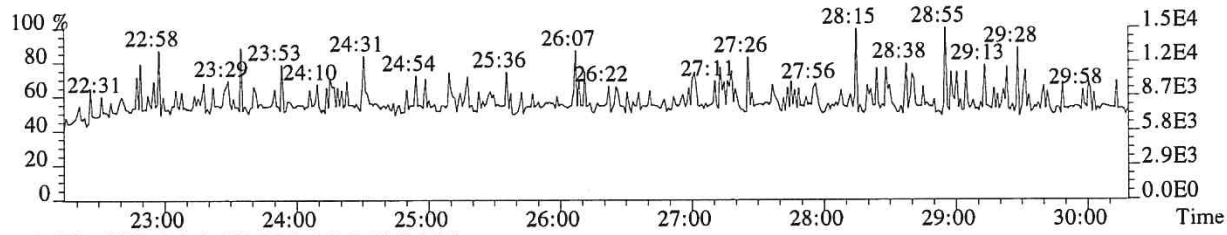
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



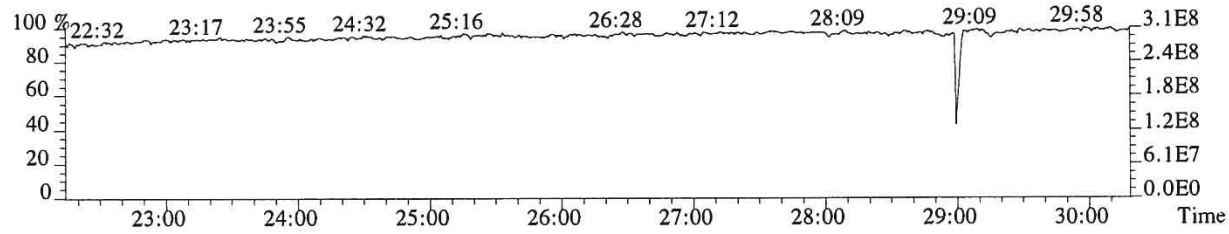
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

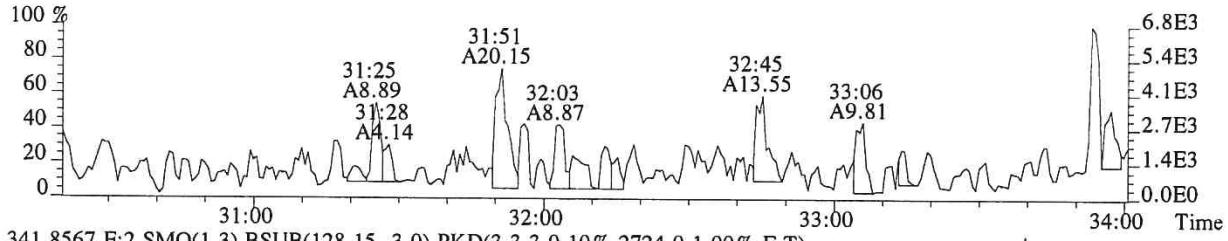


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

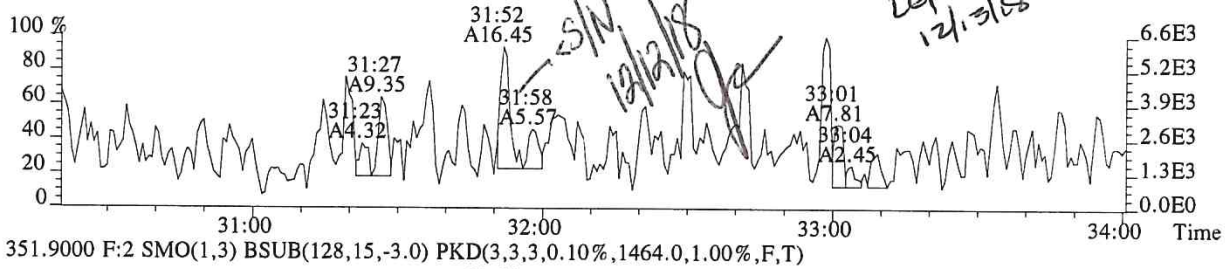


012547

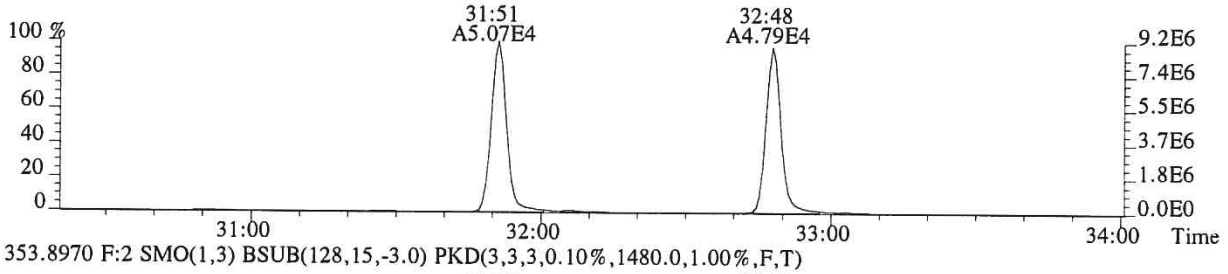
File:P616045 #1-331 Acq:11-DEC-2018 14:39:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-069
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



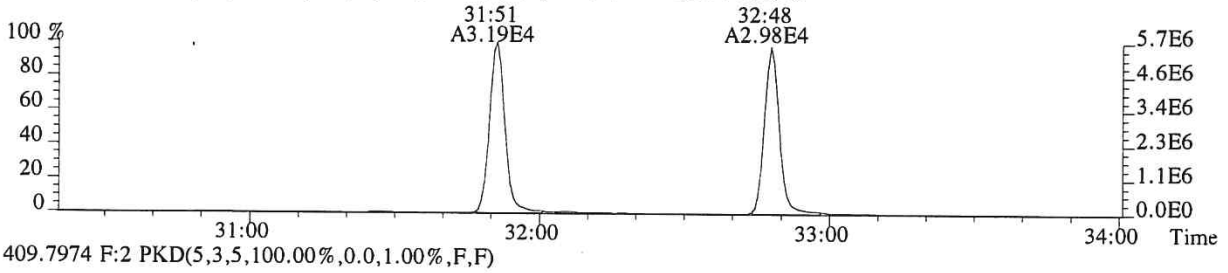
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2724.0,1.00%,F,T)



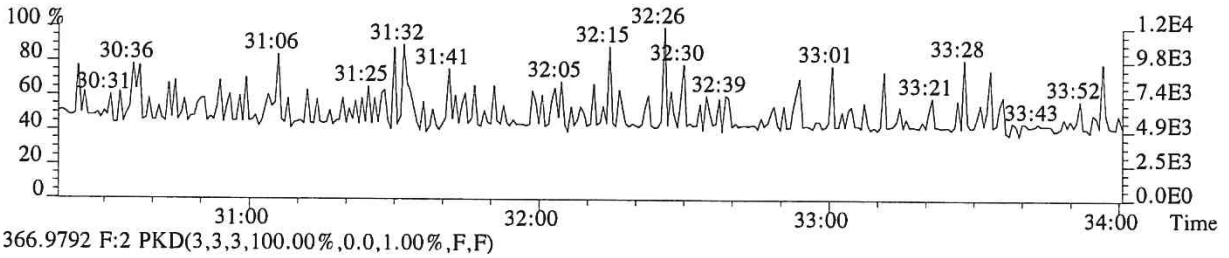
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



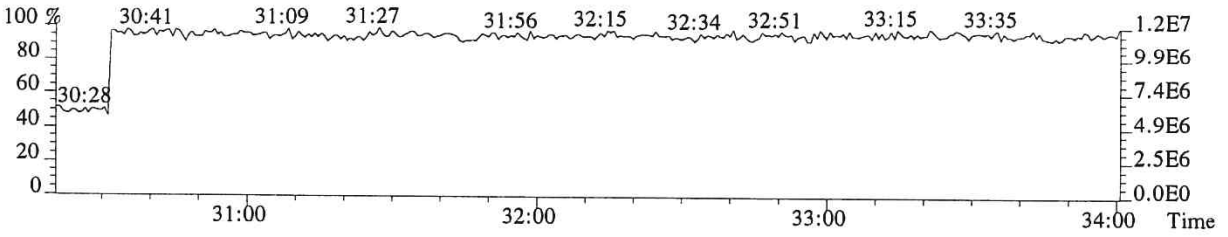
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

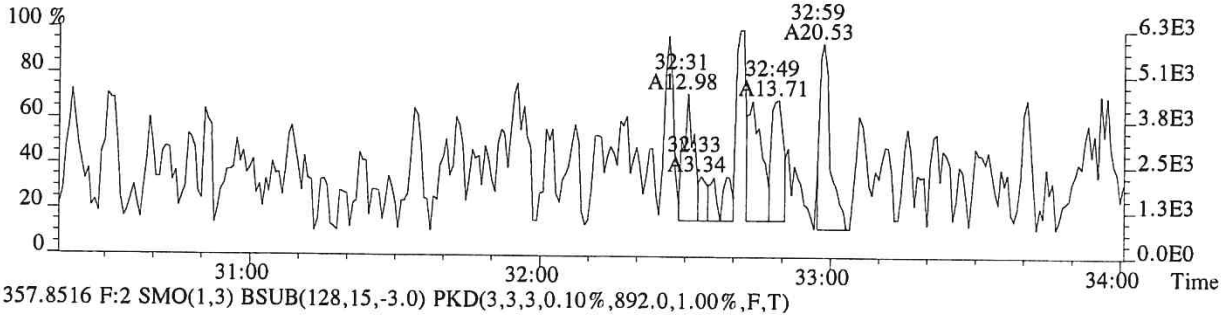


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

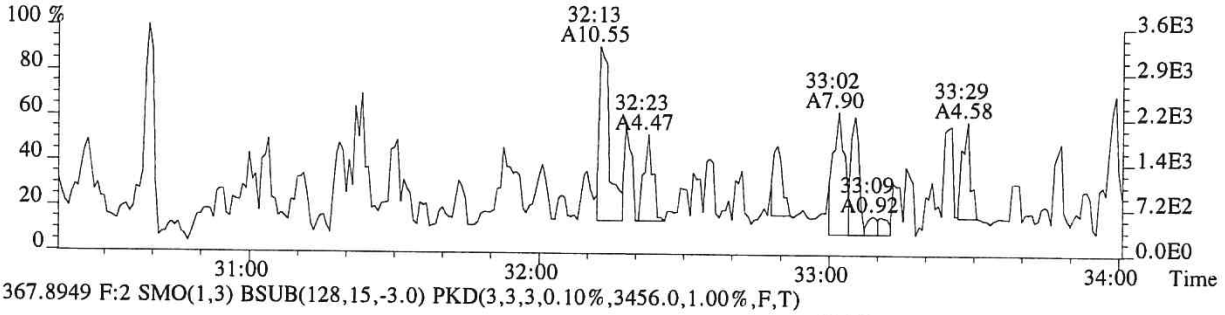


012548

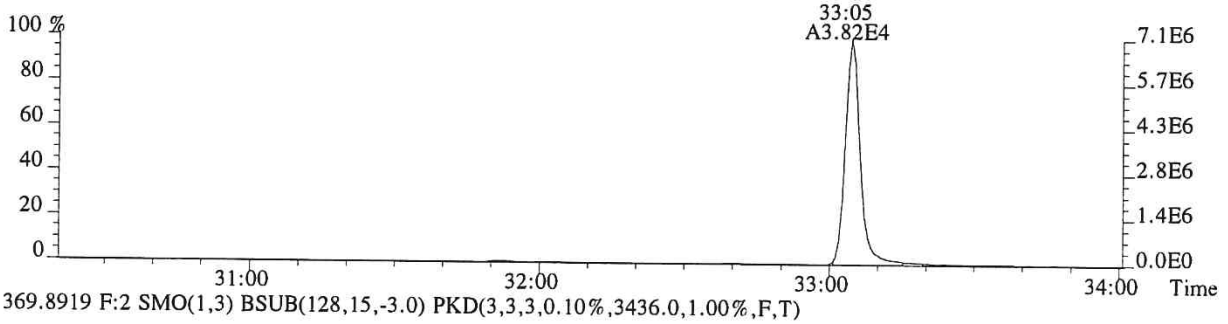
File:P616045 #1-331 Acq:11-DEC-2018 14:39:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-069
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2724.0,1.00%,F,T)



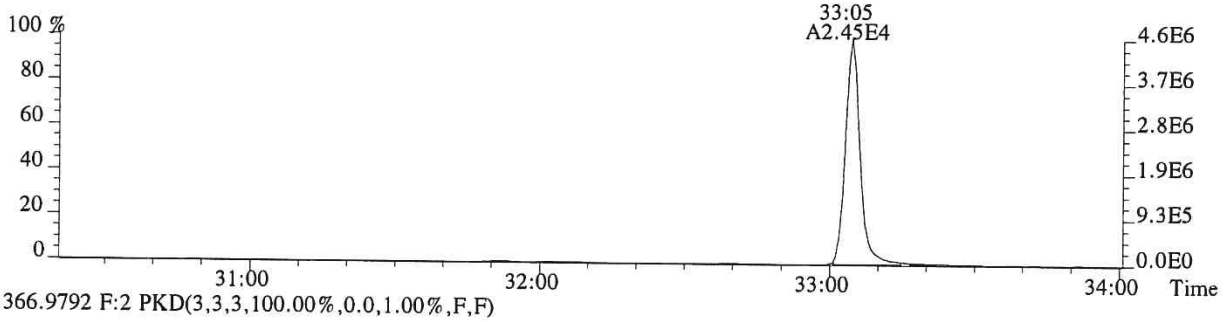
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



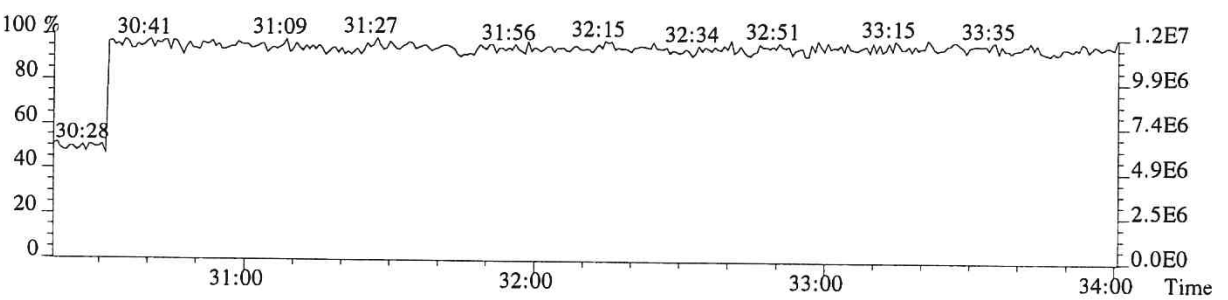
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3456.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)

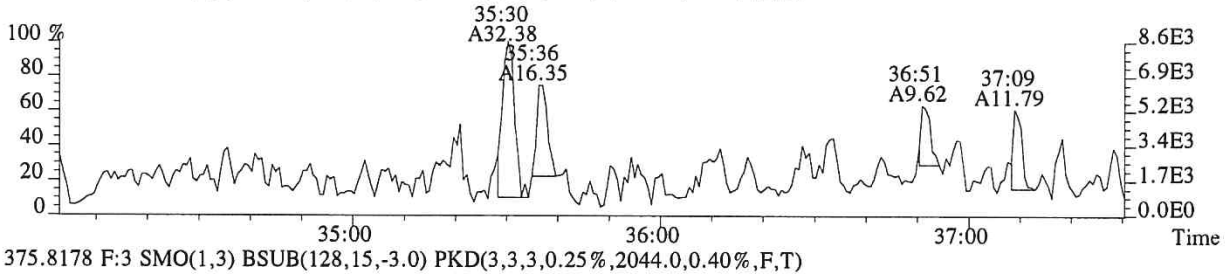


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

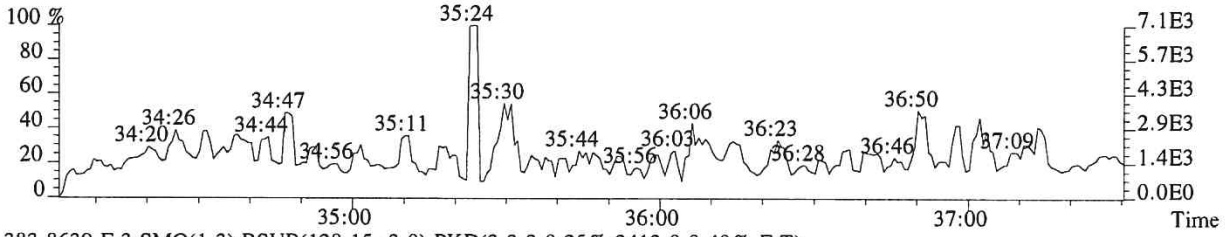


File:P616045 #1-312 Acq:11-DEC-2018 14:39:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-069

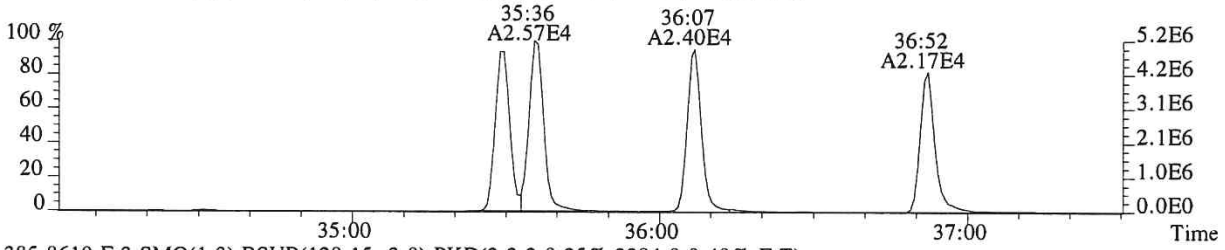
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2304.0,0.40%,F,T)



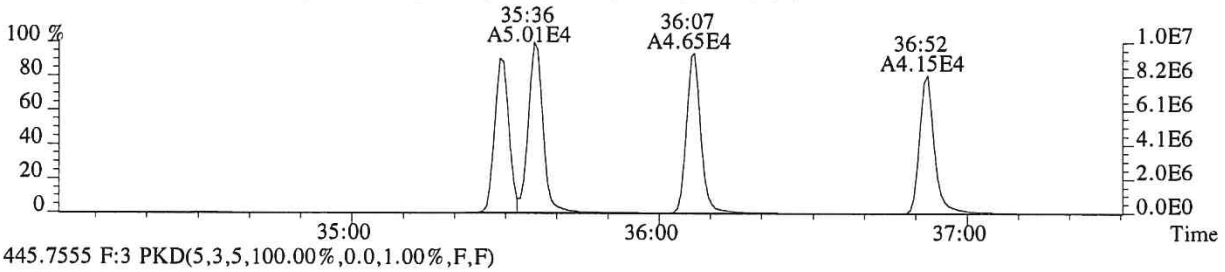
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2044.0,0.40%,F,T)



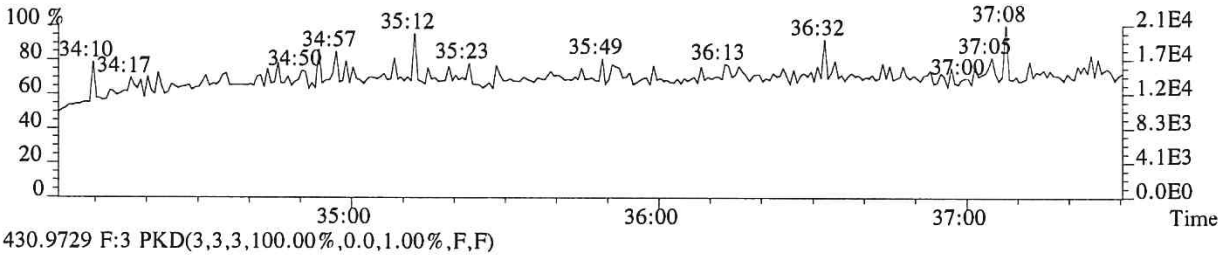
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2412.0,0.40%,F,T)



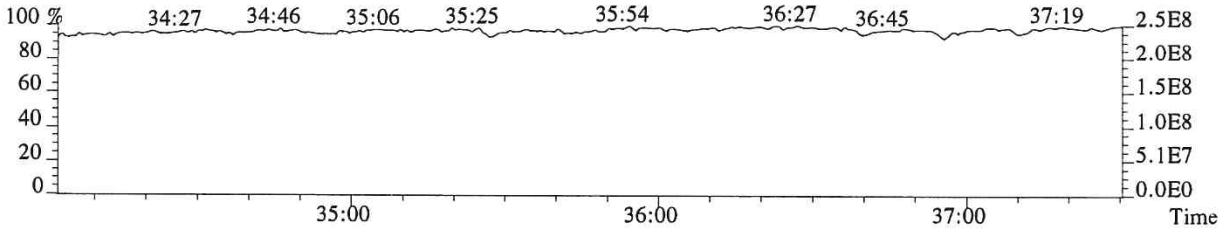
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3384.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

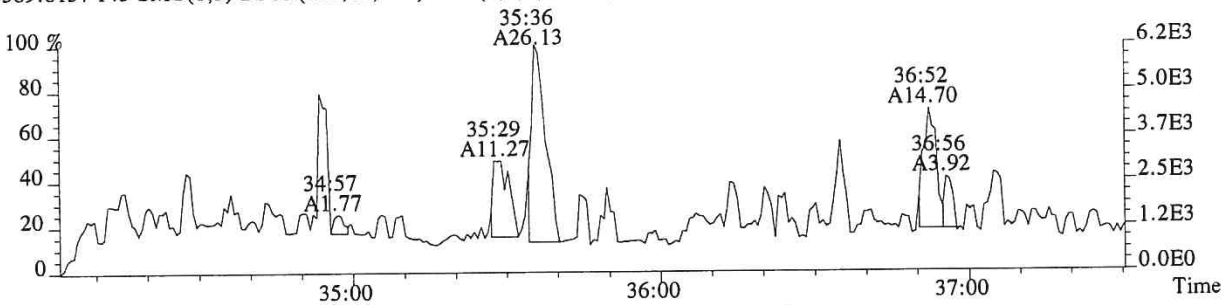


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

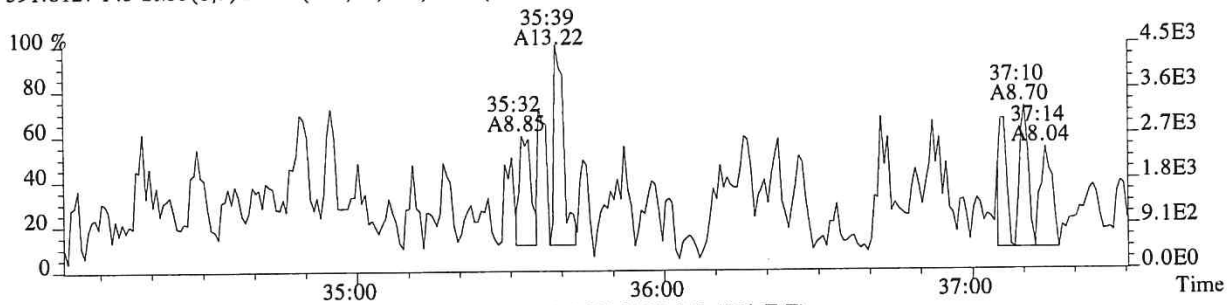


012550

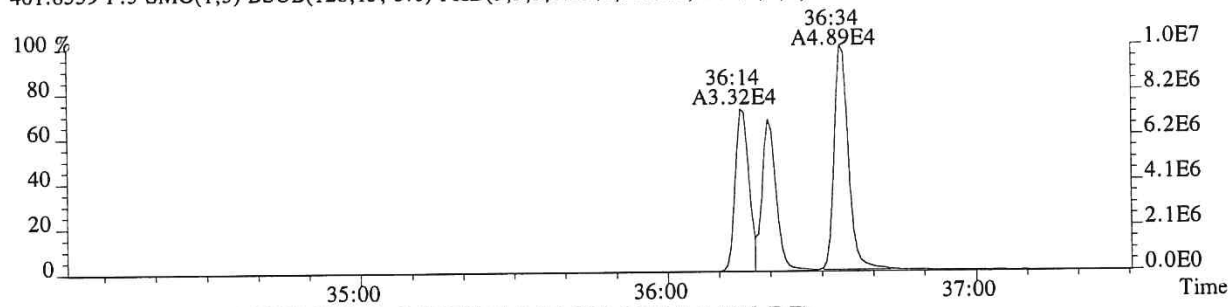
File:P616045 #1-312 Acq:11-DEC-2018 14:39:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-069
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1716.0,0.40%,F,T)



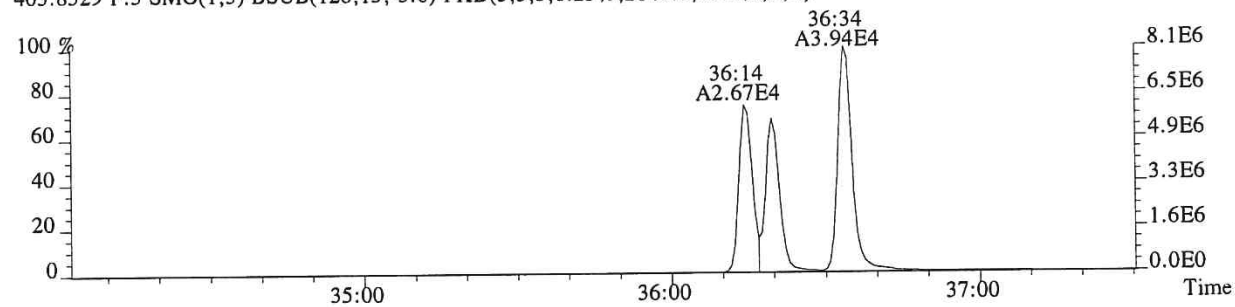
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.40%,F,T)



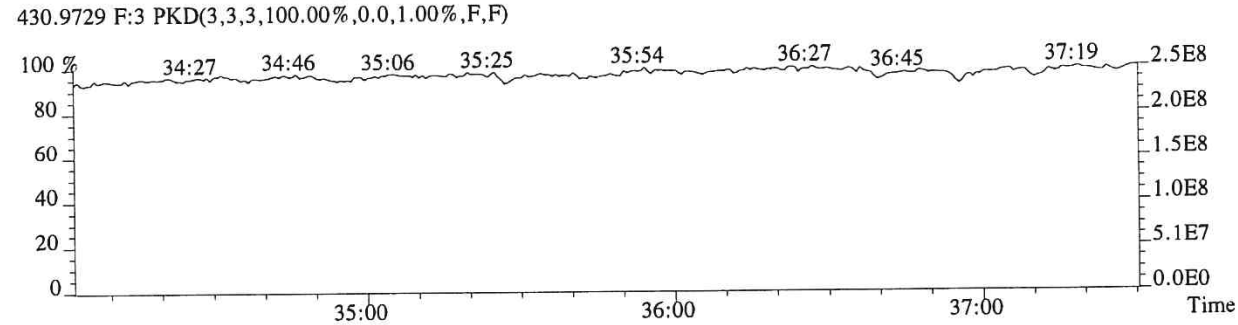
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3188.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2148.0,0.40%,F,T)

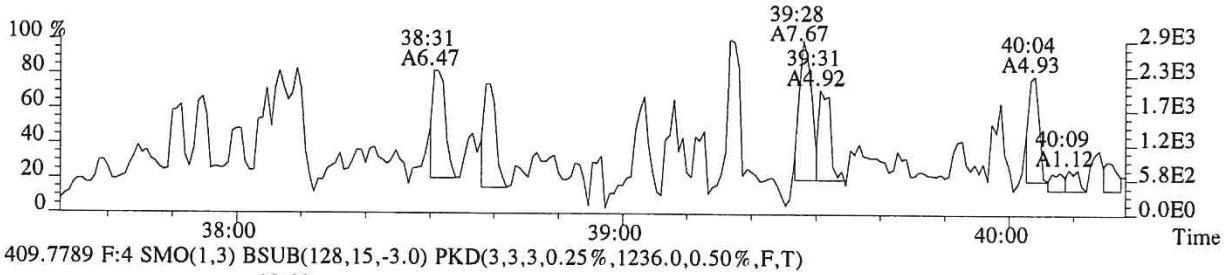


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

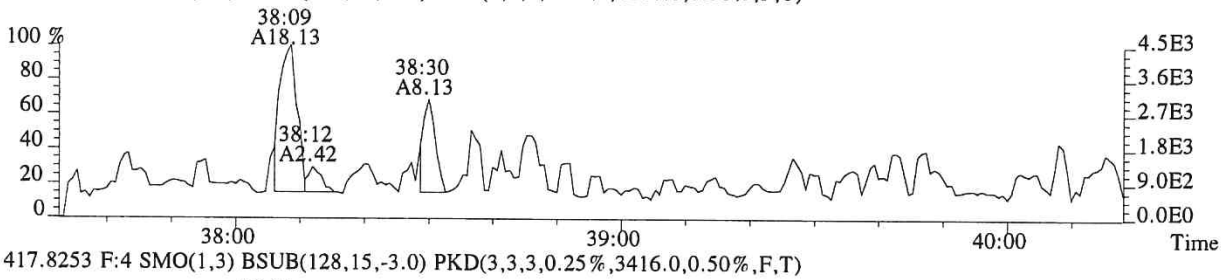


012551

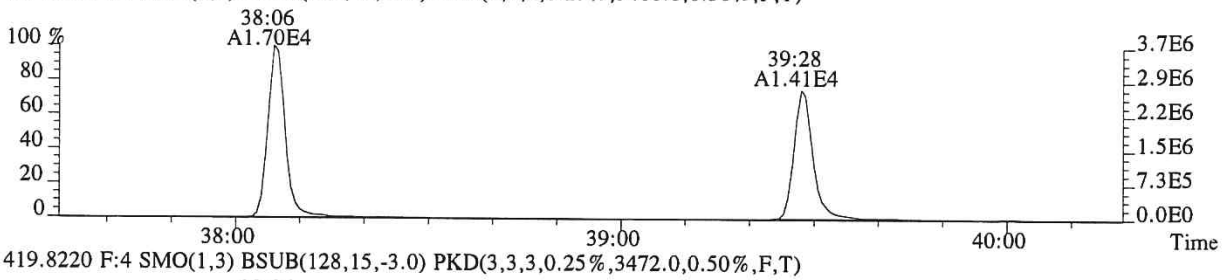
File:P616045 #1-249 Acq:11-DEC-2018 14:39:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-069
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.50%,F,T)



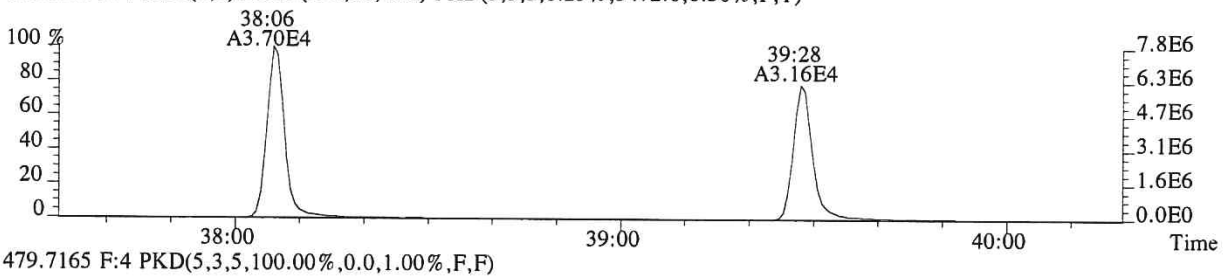
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.50%,F,T)



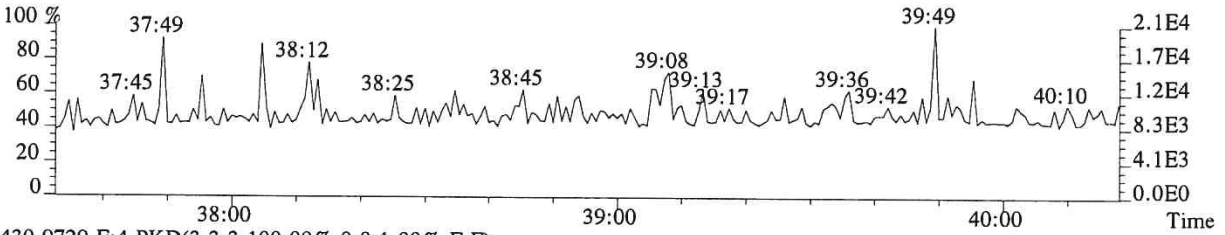
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3416.0,0.50%,F,T)



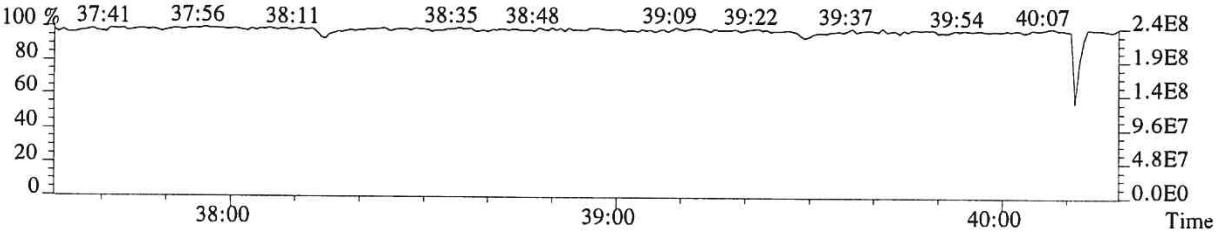
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3472.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

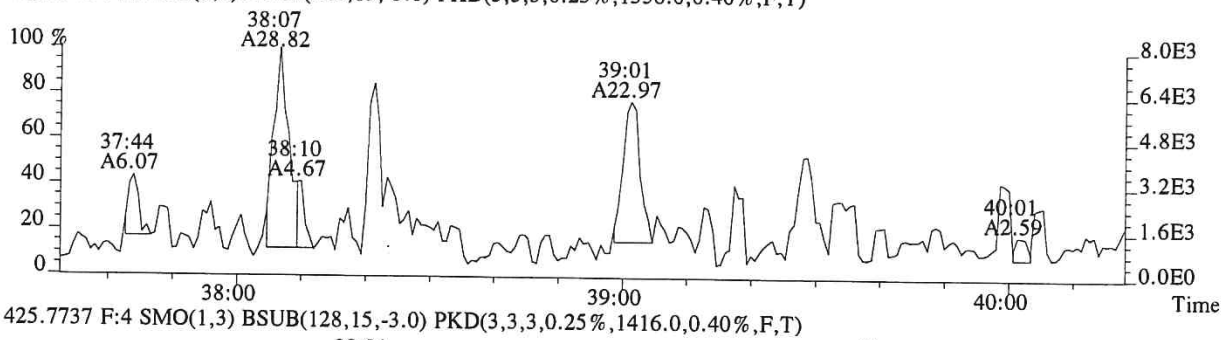


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

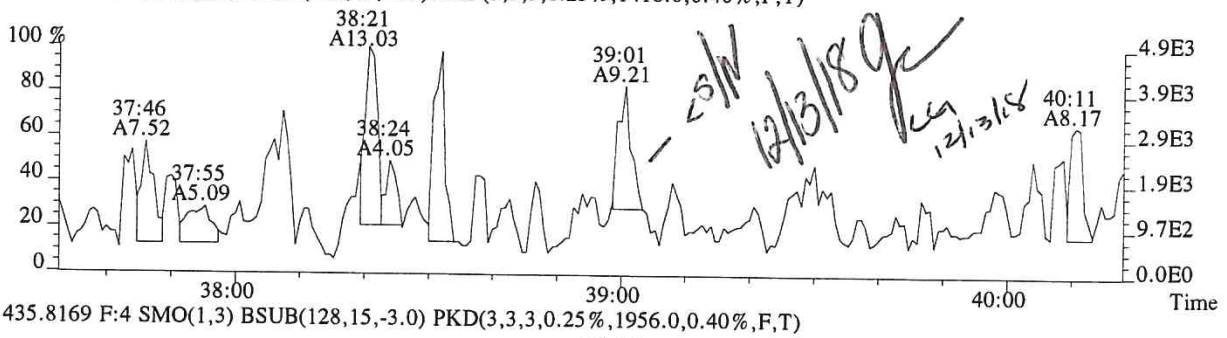


012552

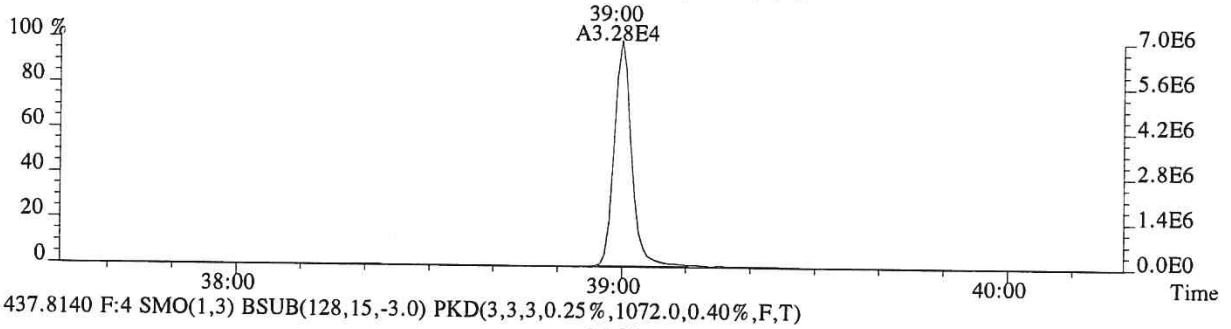
File:P616045 #1-249 Acq:11-DEC-2018 14:39:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-069
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



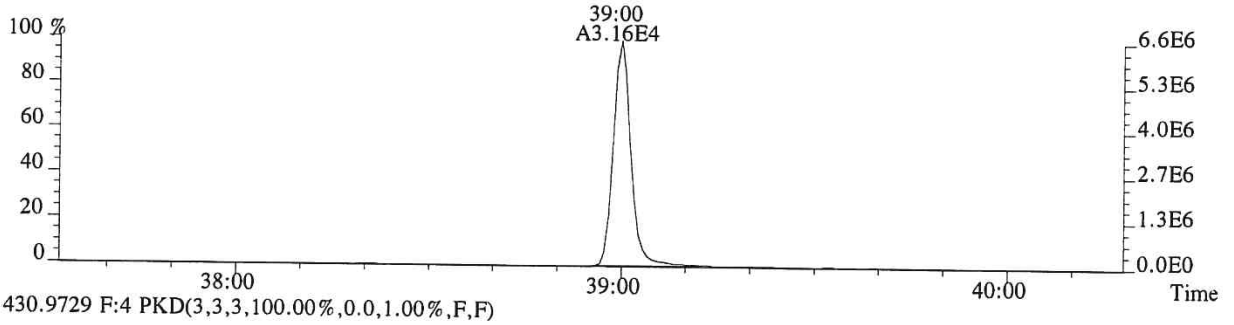
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1416.0,0.40%,F,T)



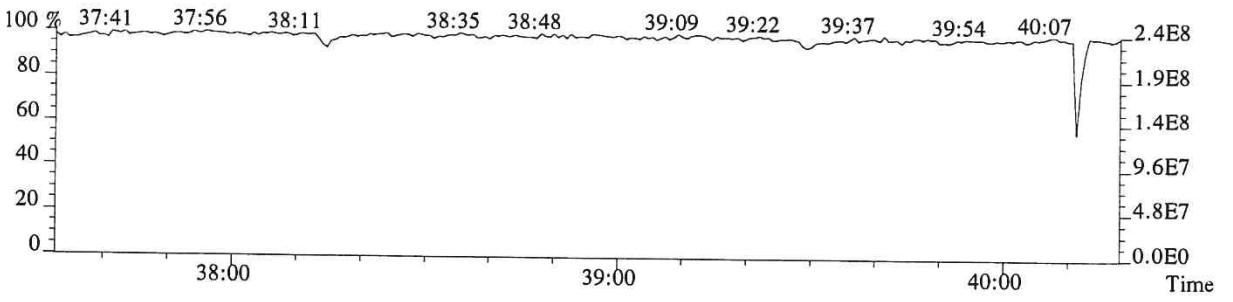
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1956.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1072.0,0.40%,F,T)

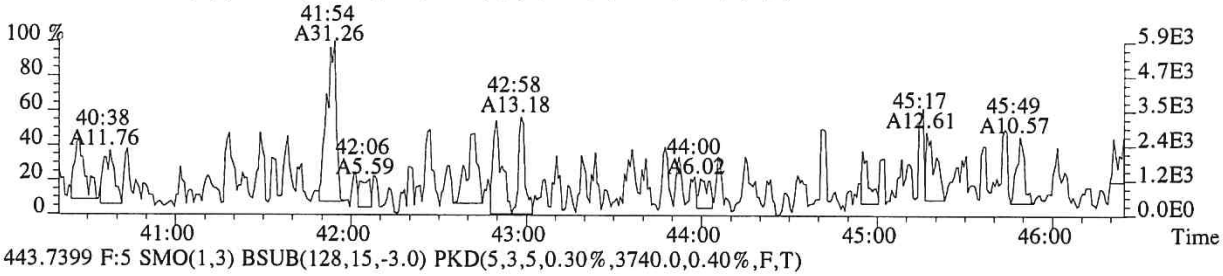


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

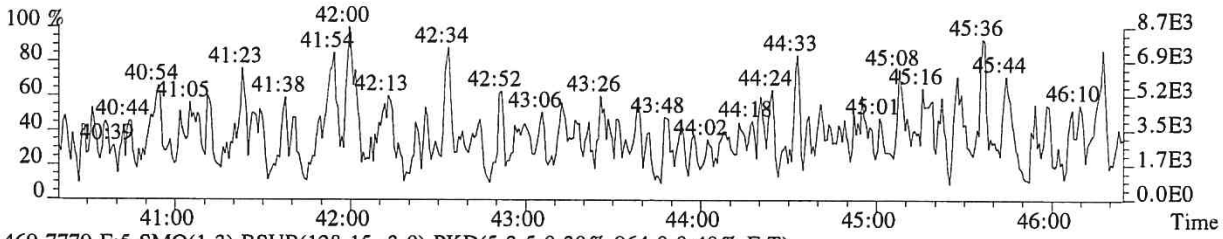


012553

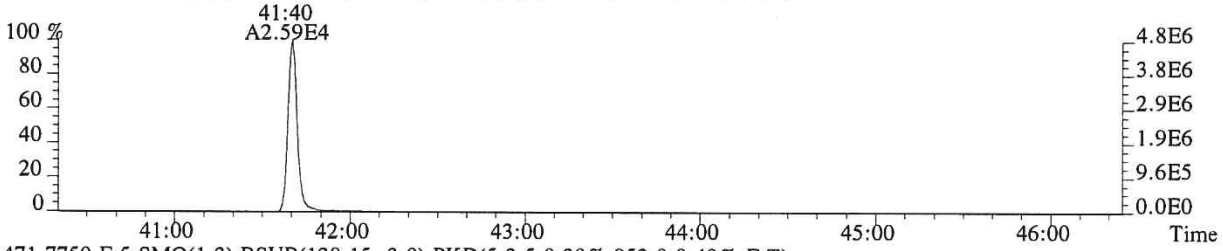
File:P616045 #1-547 Acq:11-DEC-2018 14:39:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-069
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



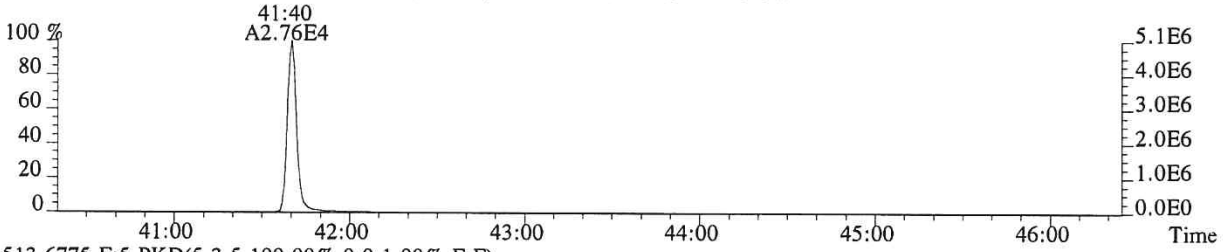
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3740.0,0.40%,F,T)



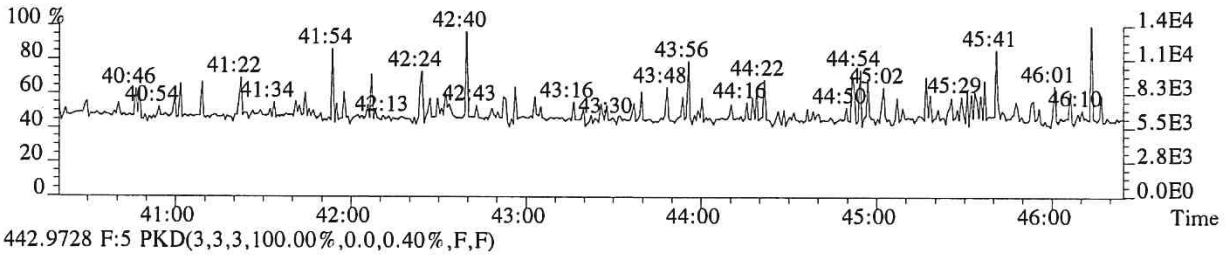
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,964.0,0.40%,F,T)



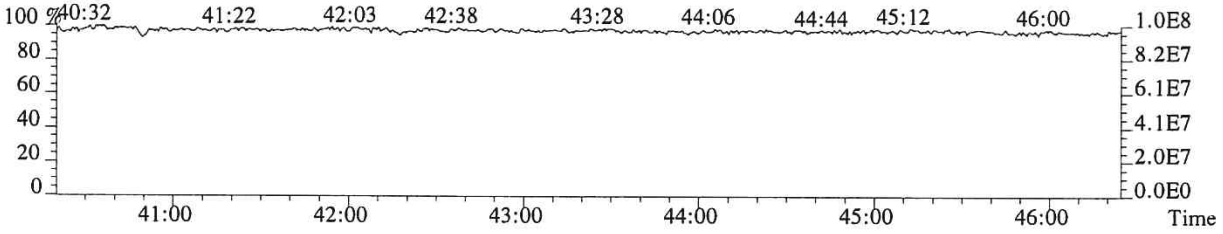
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,952.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

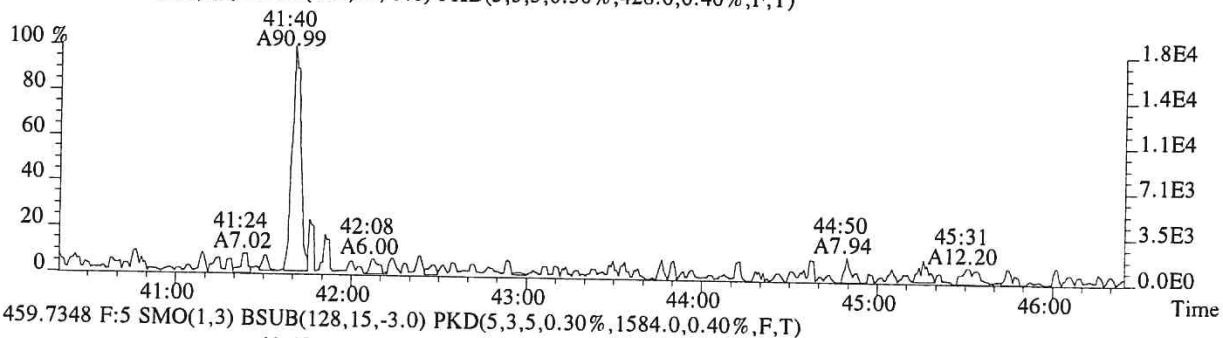


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

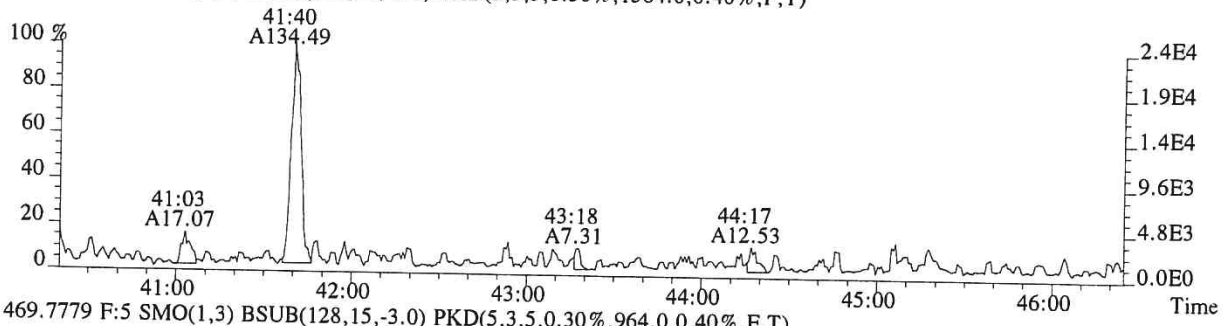


012554

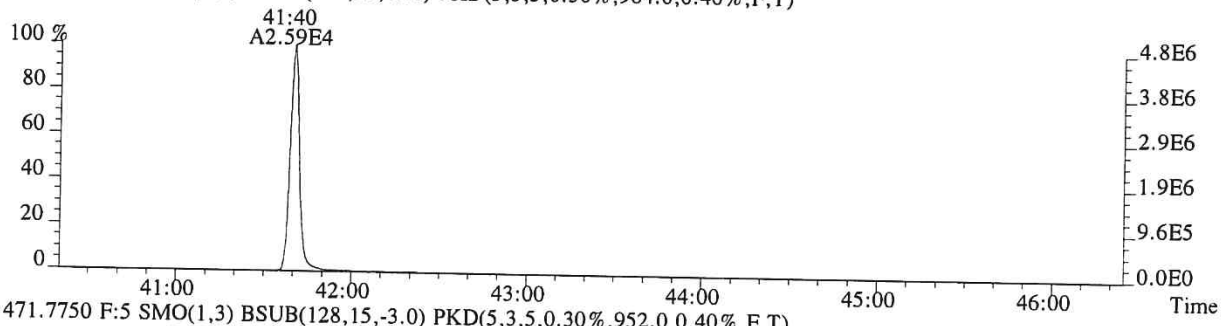
File:P616045 #1-547 Acq:11-DEC-2018 14:39:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801056-069
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



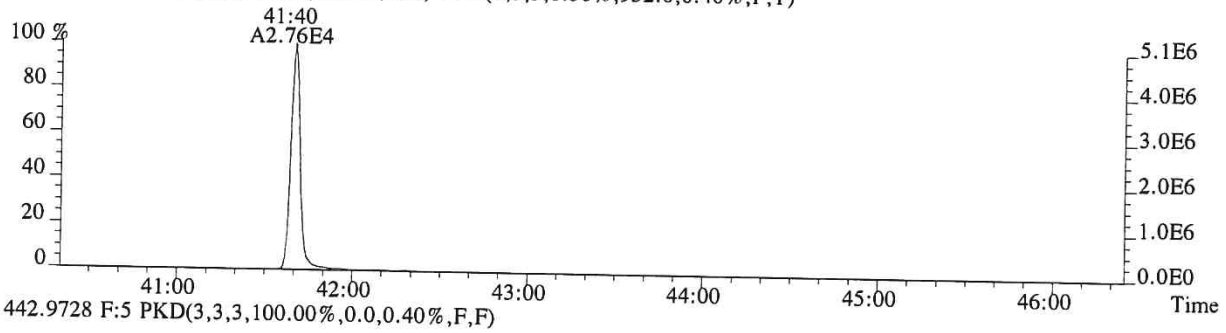
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1584.0,0.40%,F,T)



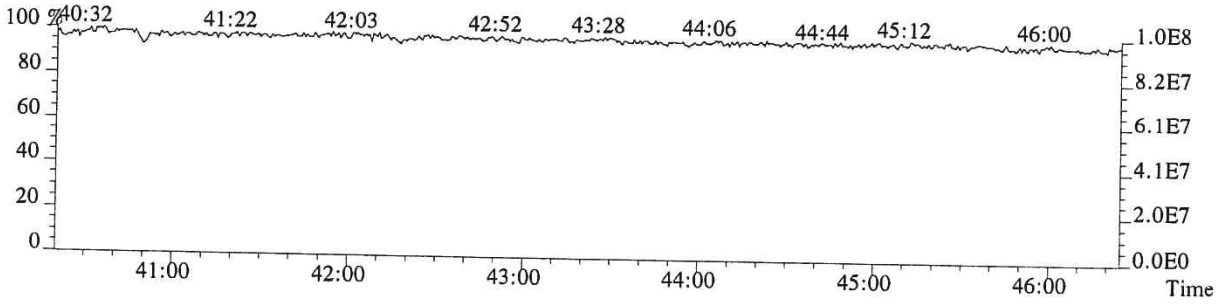
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,964.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,952.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P519290 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:33:23
Processed: 10-DEC-18 09:24:34 Sample ID: EQ1800488-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	2.636e+01	4.193e+01	0.63	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	6.901e+00	5.641e+00	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	yes	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	1.212e+01	1.478e+01	0.82	no	no	1.025
17	Unk	OCDD	42:33	1.344e+01	2.450e+01	0.55	no	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.618e+04	2.044e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	3.135e+04	1.933e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.905e+04	1.828e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.448e+04	2.701e+04	0.54	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.742e+04	3.293e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.493e+04	2.899e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:16	1.430e+04	2.780e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	1.127e+04	2.569e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	1.091e+04	2.470e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	7.381e+03	9.263e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	2.213e+04	1.384e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	2.012e+04	1.553e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:44	1.981e+04	1.568e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	2.417e+04	2.265e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:34	2.376e+04	2.602e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	2.667e+04	3.319e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	4.229e+04	3.323e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	1.057e+04				no	1.014

$$\text{OCDD} = \frac{(1.344e+01 + 2.450e+01) \times 4000\ \text{pg} \times 1}{(2.376e+04 + 2.602e+04) \times \quad \text{g} \times \quad / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P519290 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:33:23
Processed: 10-DEC-18 09:24:34 LAB. ID: EQ1800488-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.19e+03	5.20e+02	8.1e+00	6.19e+03	9.28e+02	6.7e+00
2	1,2,3,7,8-PeCDF	*	3.16e+02	*	*	6.88e+02	*
3	2,3,4,7,8-PeCDF	*	3.16e+02	*	*	6.88e+02	*
4	1,2,3,4,7,8-HxCDF	*	4.92e+02	*	*	3.60e+02	*
5	1,2,3,6,7,8-HxCDF	*	4.92e+02	*	*	3.60e+02	*
6	2,3,4,6,7,8-HxCDF	*	4.92e+02	*	*	3.60e+02	*
7	1,2,3,7,8,9-HxCDF	1.58e+03	4.92e+02	3.2e+00	1.70e+03	3.60e+02	4.7e+00
8	1,2,3,4,6,7,8-HpCDF	*	3.32e+02	*	*	2.36e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.32e+02	*	*	2.36e+02	*
10	OCDF	*	3.08e+02	*	*	8.80e+02	*
11	2,3,7,8-TCDD	*	1.90e+03	*	*	1.07e+03	*
12	1,2,3,7,8-PeCDD	*	6.96e+02	*	*	2.00e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.60e+02	*	*	5.04e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.60e+02	*	*	5.04e+02	*
15	1,2,3,7,8,9-HxCDD	*	3.60e+02	*	*	5.04e+02	*
16	1,2,3,4,6,7,8-HpCDD	2.66e+03	2.88e+02	9.2e+00	2.55e+03	2.56e+02	9.9e+00
17	OCDD	2.89e+03	1.84e+02	1.6e+01	4.32e+03	2.72e+02	1.6e+01
18	13C-2,3,7,8-TCDF	2.88e+06	6.29e+03	4.6e+02	3.66e+06	5.84e+03	6.3e+02
19	13C-1,2,3,7,8-PeCDF	5.78e+06	5.72e+02	1.0e+04	3.59e+06	9.60e+01	3.7e+04
20	13C-2,3,4,7,8-PeCDF	5.59e+06	5.72e+02	9.8e+03	3.48e+06	9.60e+01	3.6e+04
21	13C-1,2,3,4,7,8-HxCDF	2.93e+06	4.64e+02	6.3e+03	5.44e+06	7.12e+02	7.6e+03
22	13C-1,2,3,6,7,8-HxCDF	3.50e+06	4.64e+02	7.5e+03	6.70e+06	7.12e+02	9.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.97e+06	4.64e+02	6.4e+03	5.79e+06	7.12e+02	8.1e+03
24	13C-1,2,3,7,8,9-HxCDF	2.65e+06	4.64e+02	5.7e+03	5.11e+06	7.12e+02	7.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.13e+06	1.26e+03	1.7e+03	4.80e+06	9.96e+02	4.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.73e+06	1.26e+03	1.4e+03	3.84e+06	9.96e+02	3.9e+03
27	13C-2,3,7,8-TCDD	1.41e+06	6.02e+03	2.3e+02	1.77e+06	7.76e+02	2.3e+03
28	13C-1,2,3,7,8-PeCDD	4.07e+06	7.76e+02	5.2e+03	2.51e+06	8.12e+02	3.1e+03
29	13C-1,2,3,4,7,8-HxCDD	4.19e+06	7.08e+02	5.9e+03	3.20e+06	3.48e+02	9.2e+03
30	13C-1,2,3,6,7,8-HxCDD	3.97e+06	7.08e+02	5.6e+03	3.11e+06	3.48e+02	8.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.94e+06	4.64e+02	8.5e+03	3.72e+06	4.64e+02	8.0e+03
32	13C-OCDD	2.87e+06	4.08e+02	7.0e+03	3.08e+06	2.08e+02	1.5e+04
33	13C-1,2,3,4-TCDD	4.97e+06	6.02e+03	8.3e+02	6.19e+06	7.76e+02	8.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.73e+06	7.08e+02	1.1e+04	6.15e+06	3.48e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.92e+06	8.96e+02	2.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P519290 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 21:33:23 Processed: 10-DEC-18 09:24:34

Mass: 373.8210 375.8180 Tot Response: 1.25e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:17	6.90e+00	5.64e+00 1.22	yes	1.25e+01	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P519290 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 21:33:23 Processed: 10-DEC-18 09:24:34

Mass: 407.7820 409.7790 Tot Response: 1.06e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	5.54e+00	5.02e+00 1.10	yes	1.06e+01		y	y

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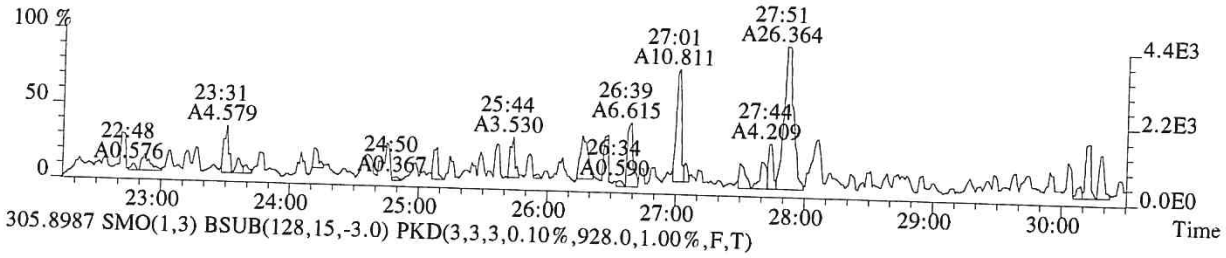
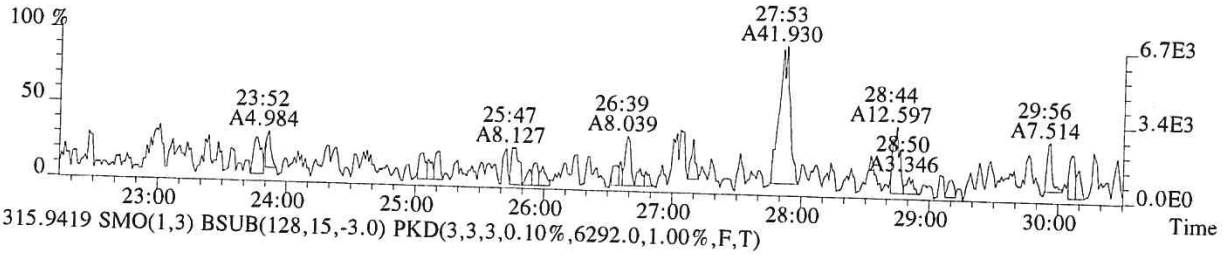
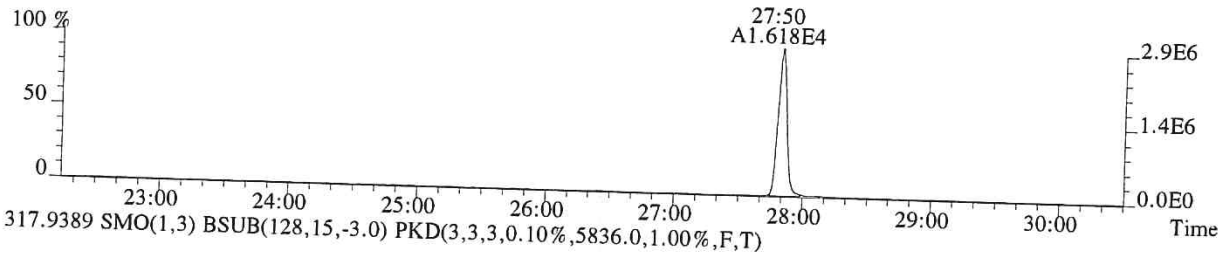
File:P519290 #1-587 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



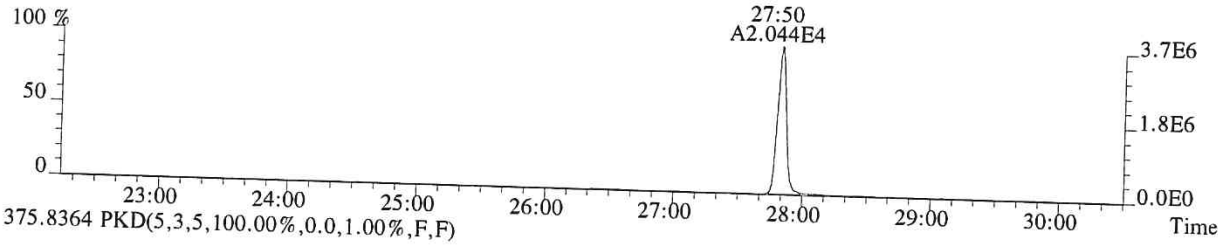
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



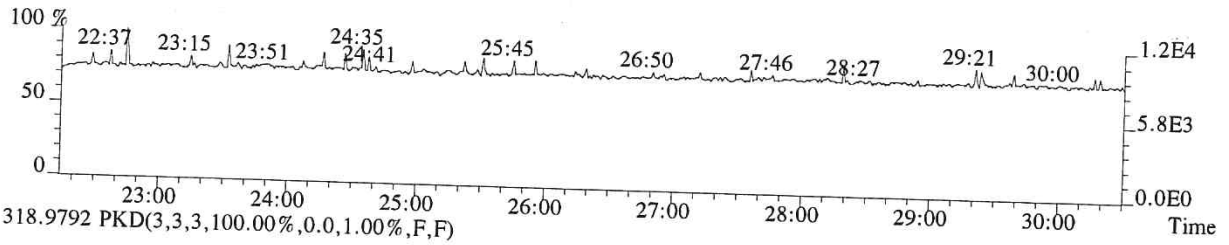
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6292.0,1.00%,F,T)



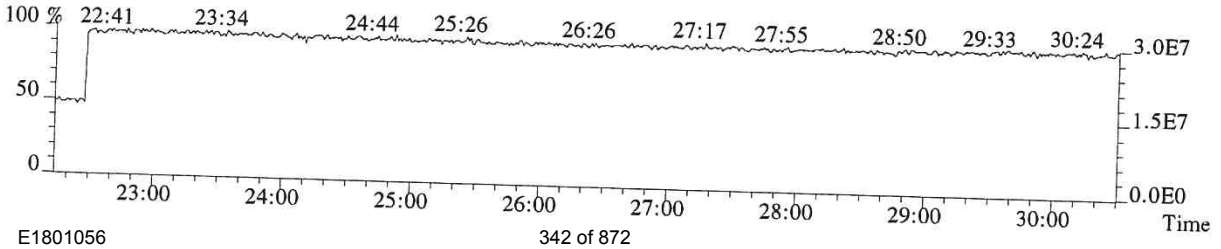
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5836.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

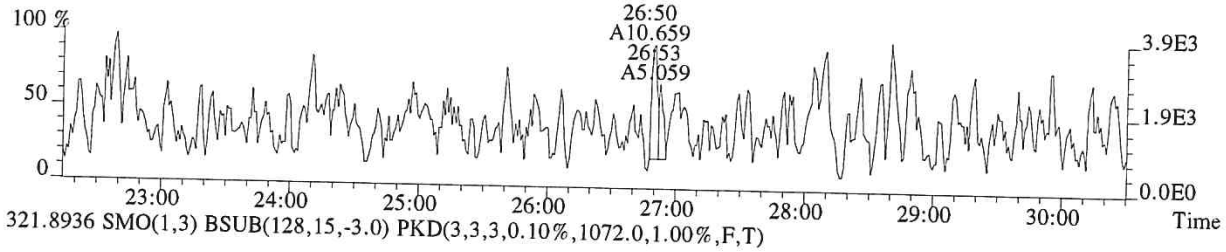


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

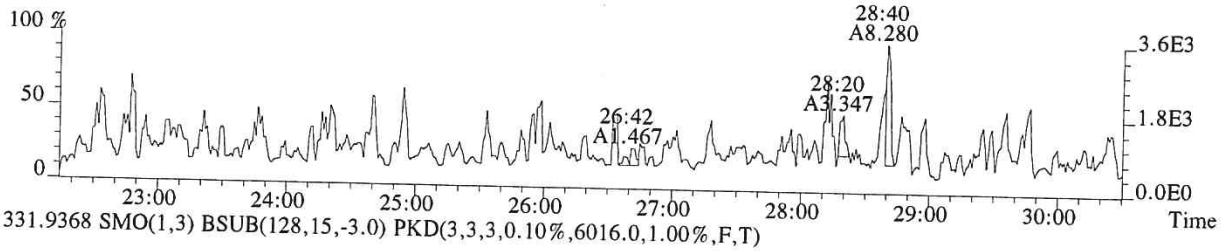


012560

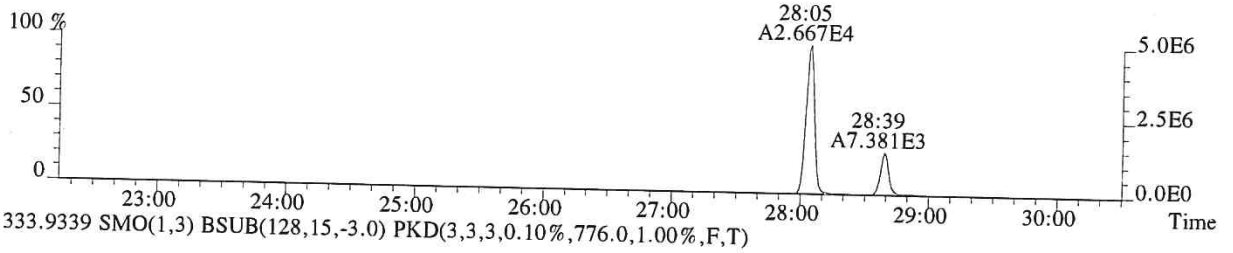
File:P519290 #1-587 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



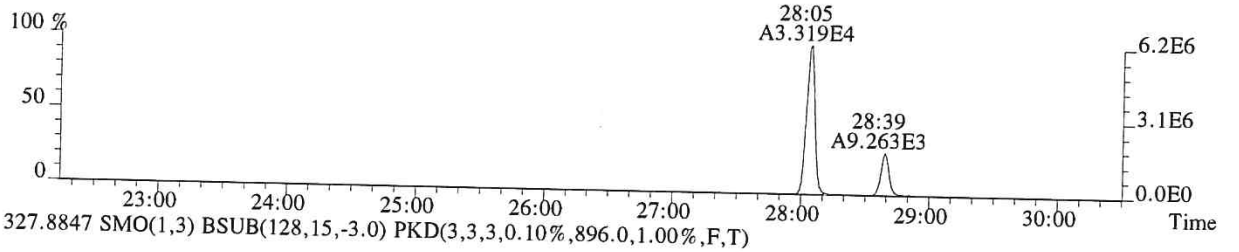
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



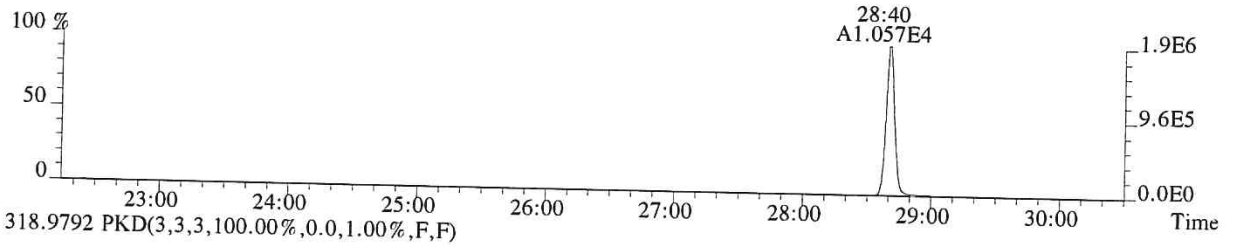
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6016.0,1.00%,F,T)



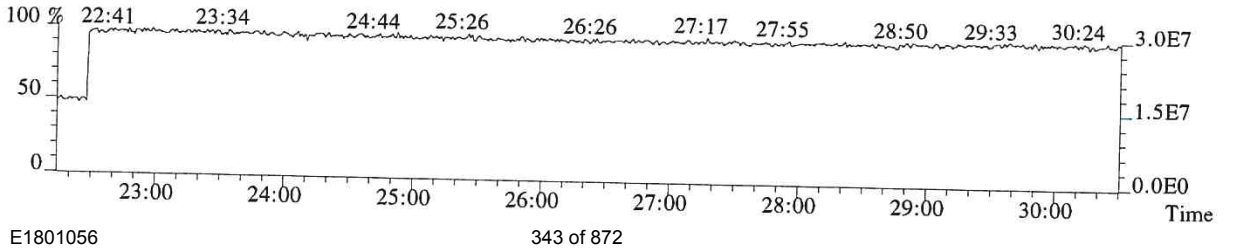
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)

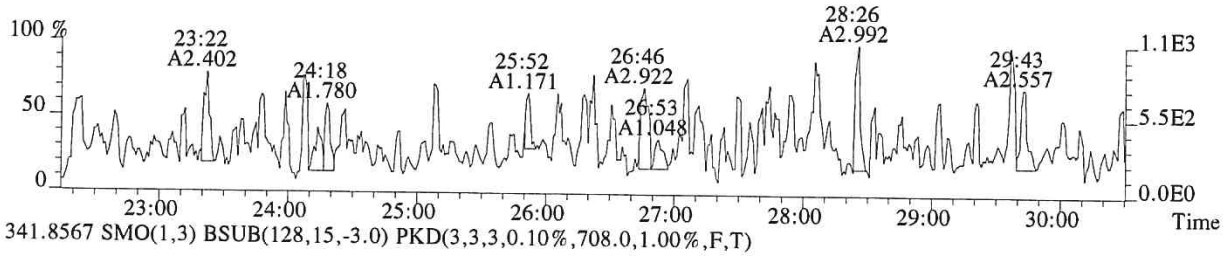


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

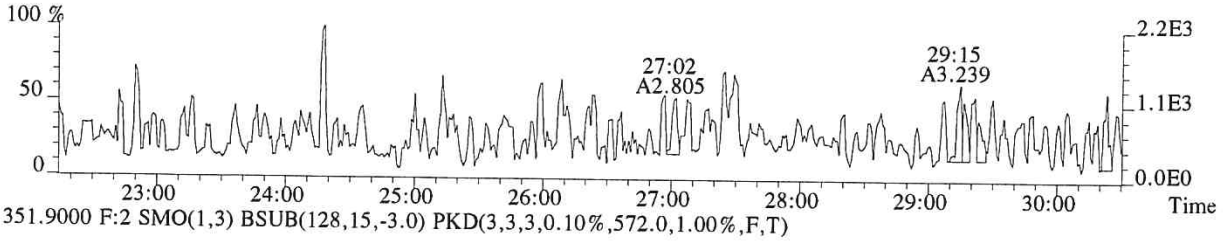


012561

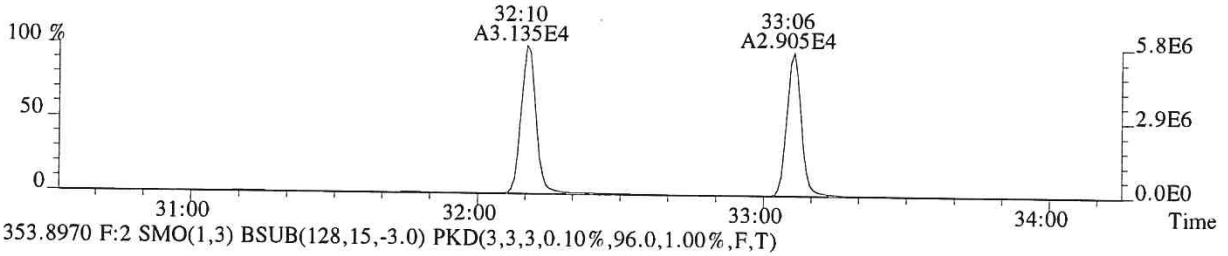
File:P519290 #1-587 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



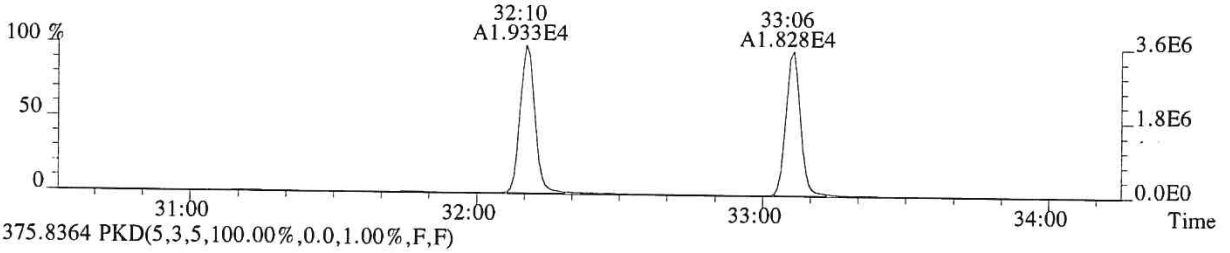
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



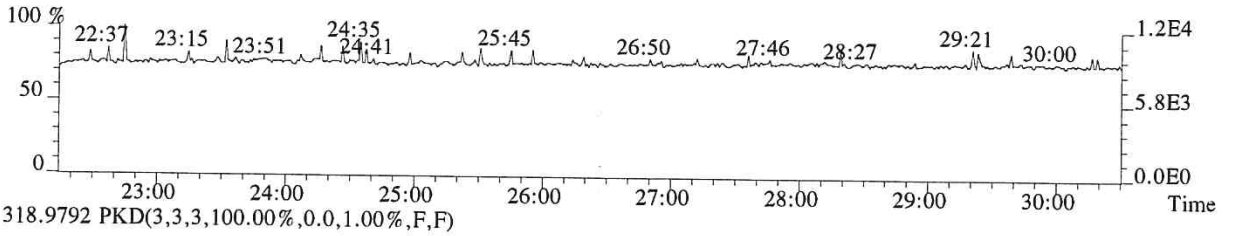
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



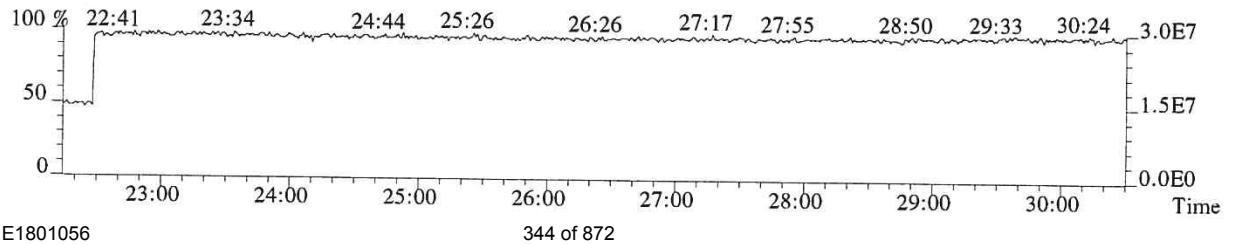
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

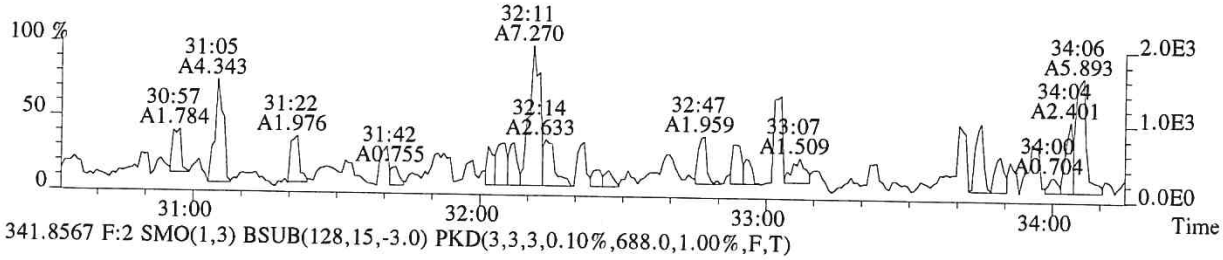


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

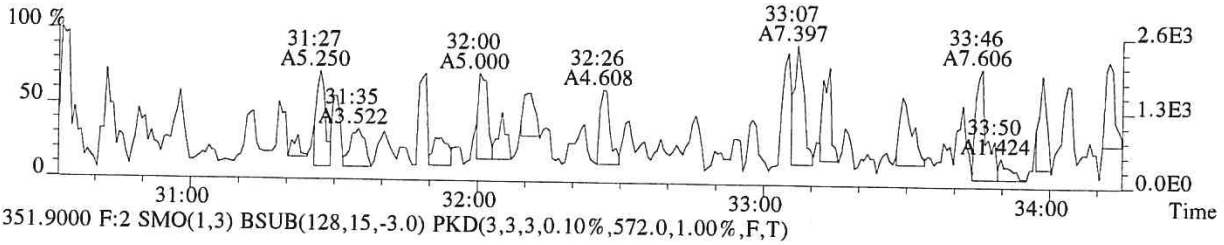


012562

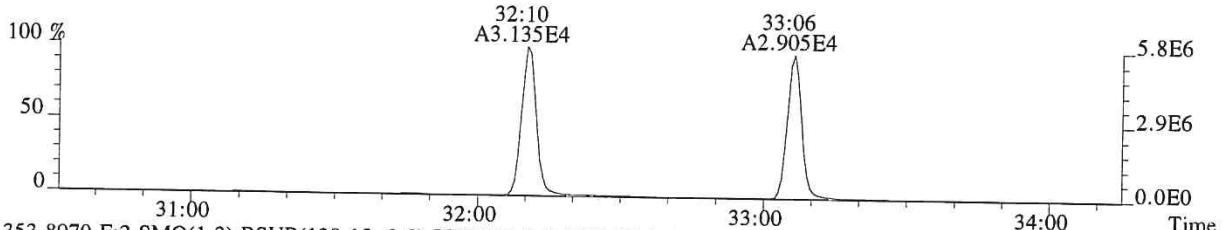
File:P519290 #1-335 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



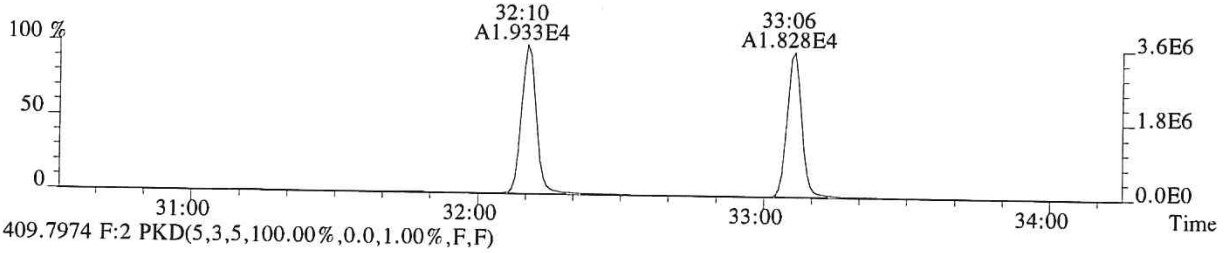
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



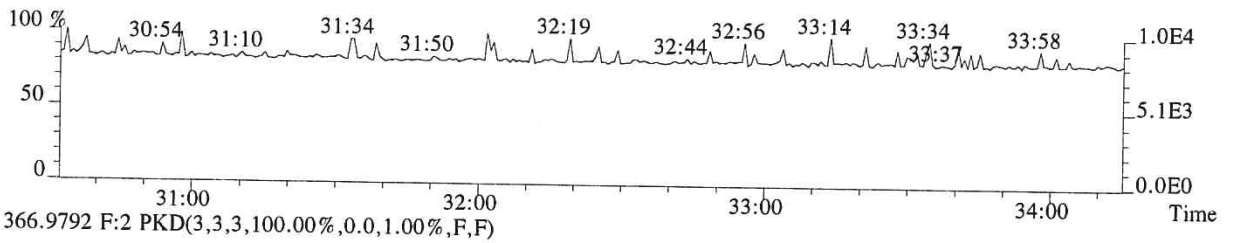
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



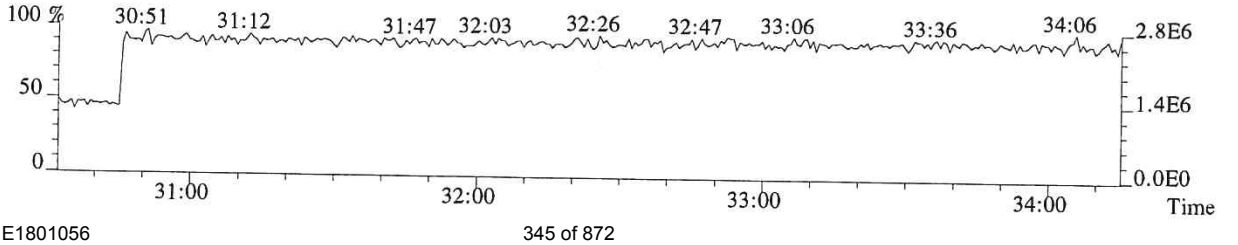
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



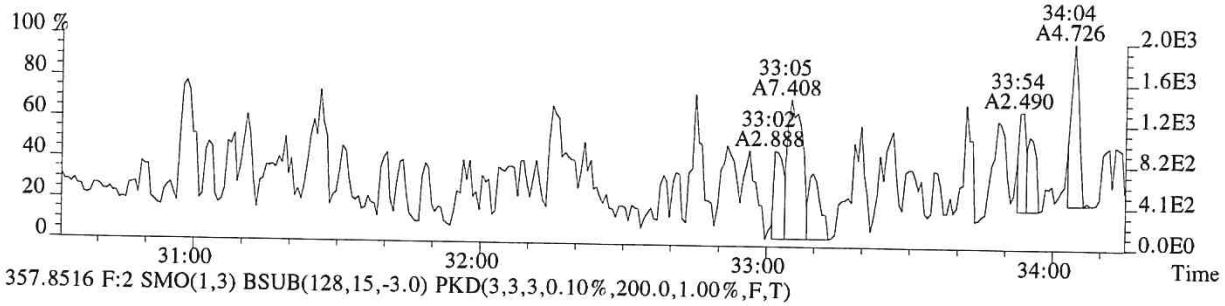
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



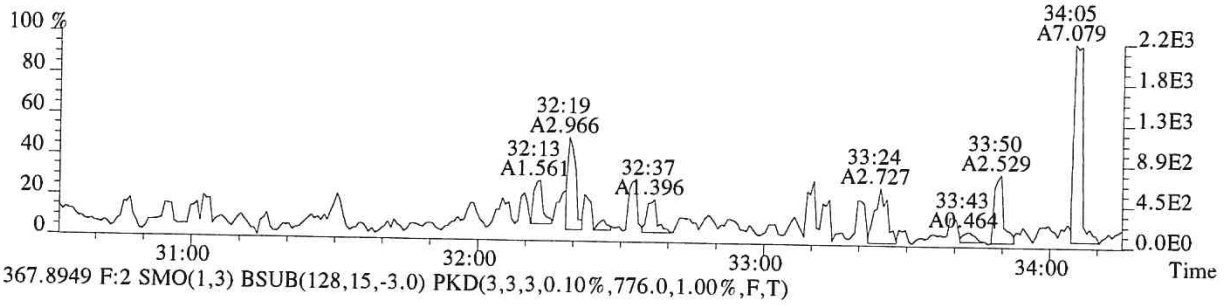
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



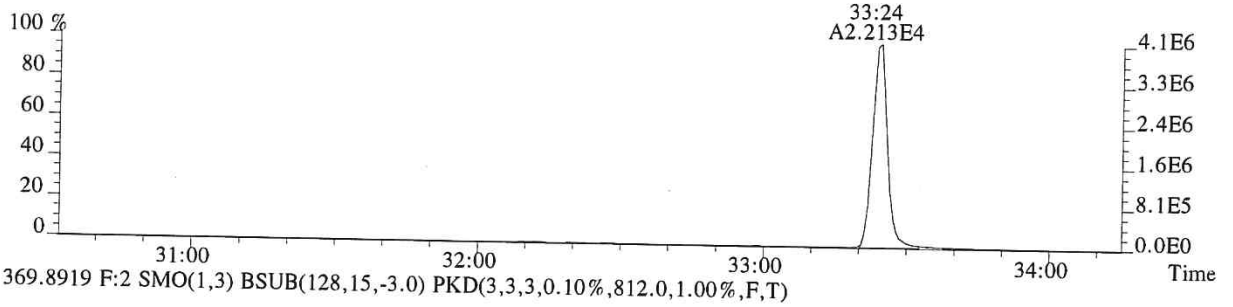
File:P519290 #1-335 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



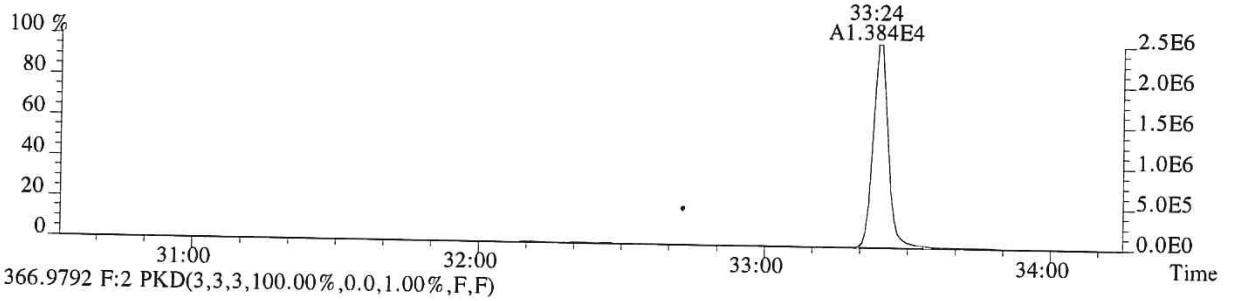
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



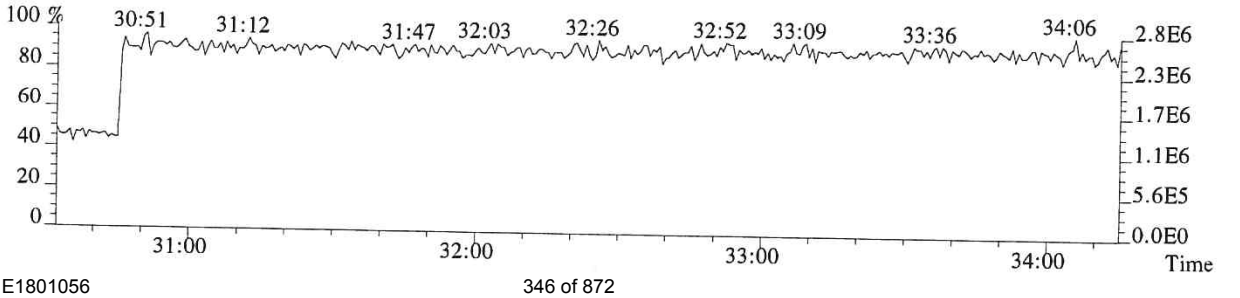
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



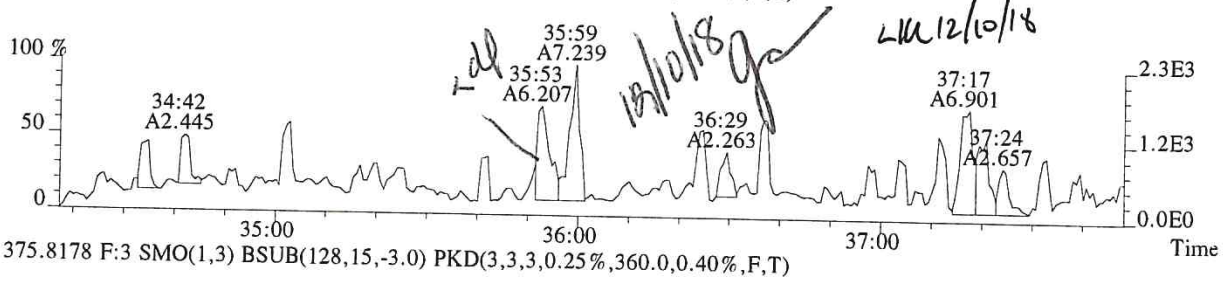
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



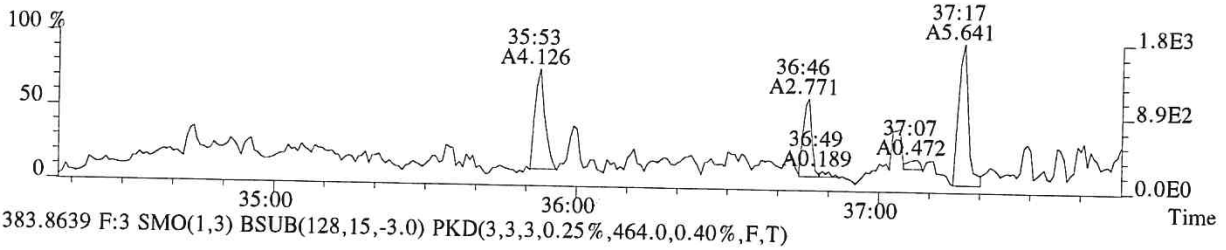
012564

File:P519290 #1-317 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01

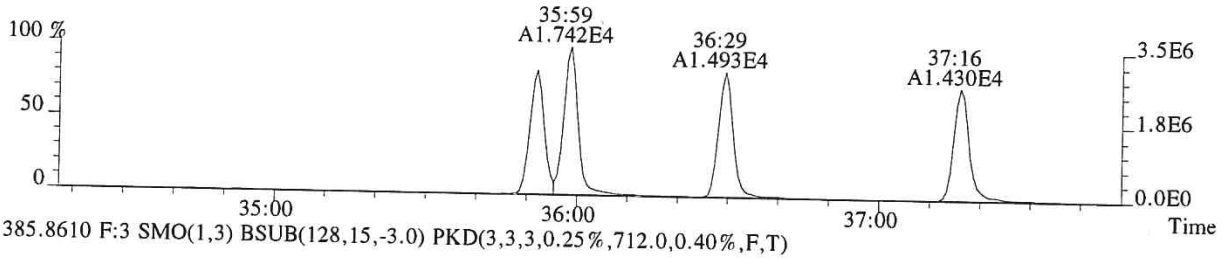
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



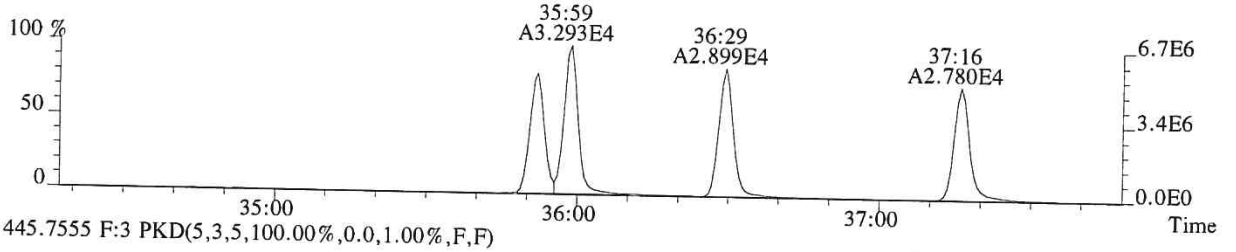
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



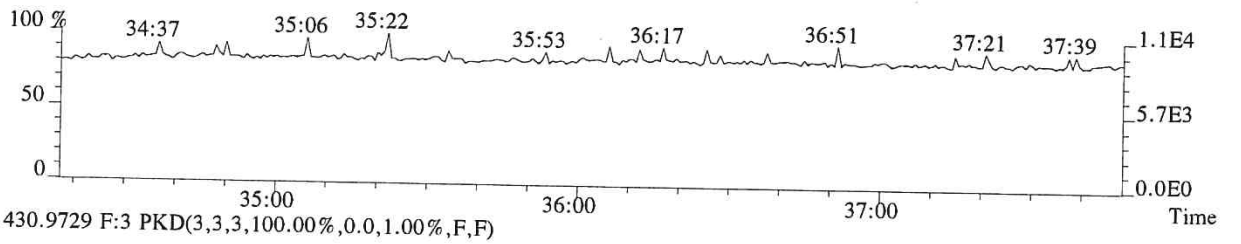
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



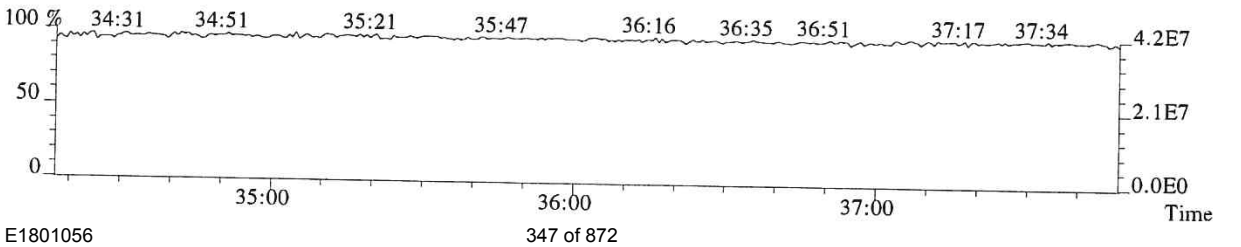
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

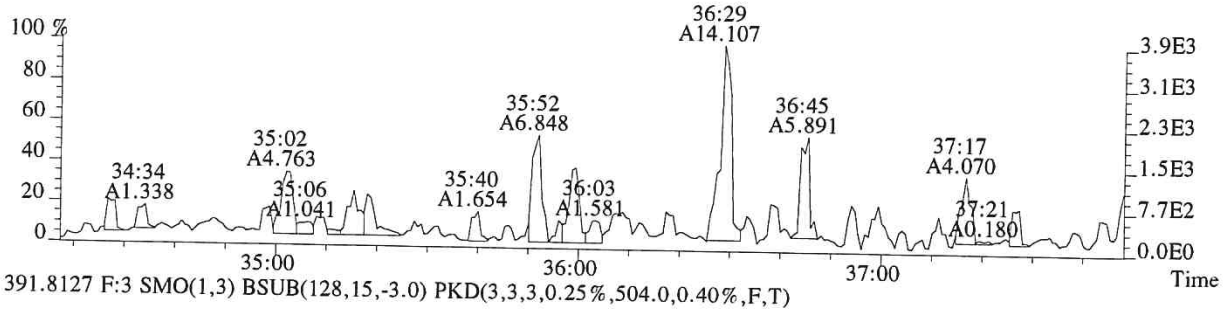


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

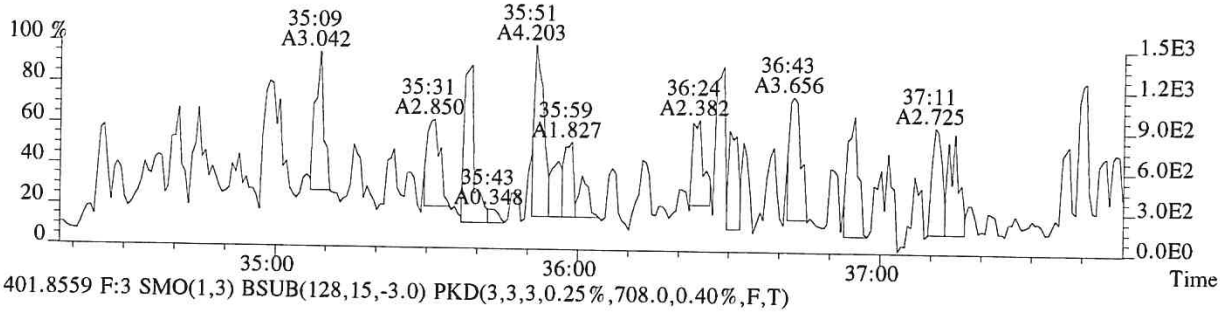


012565

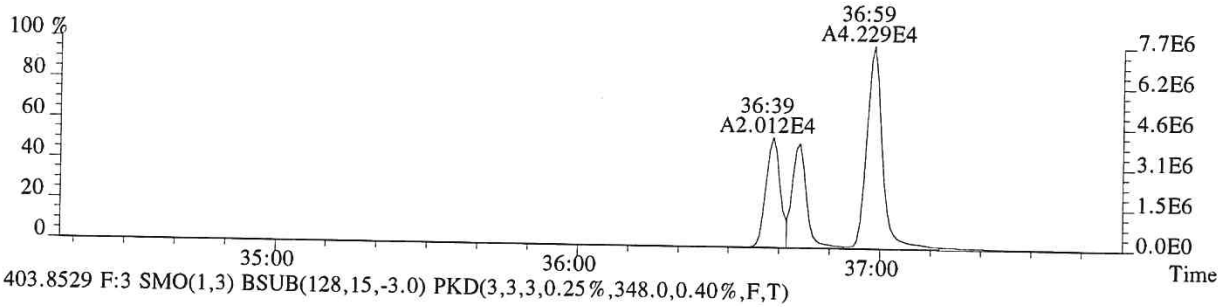
File:P519290 #1-317 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



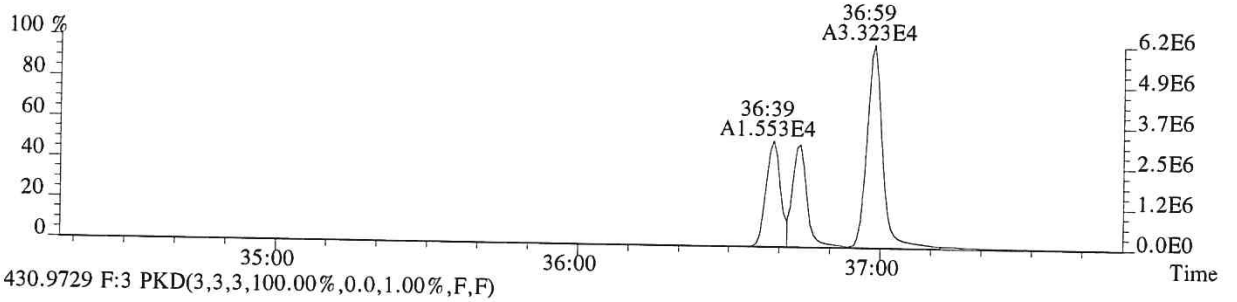
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



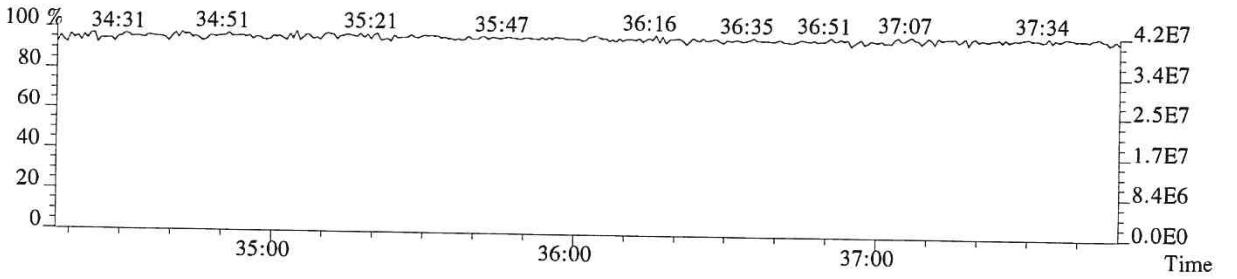
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



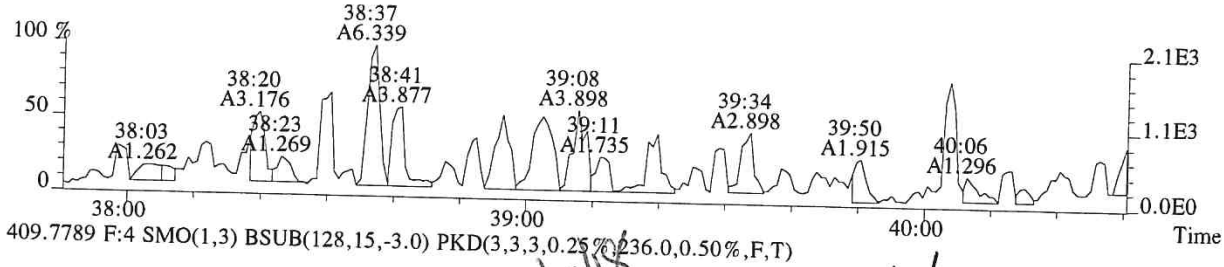
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



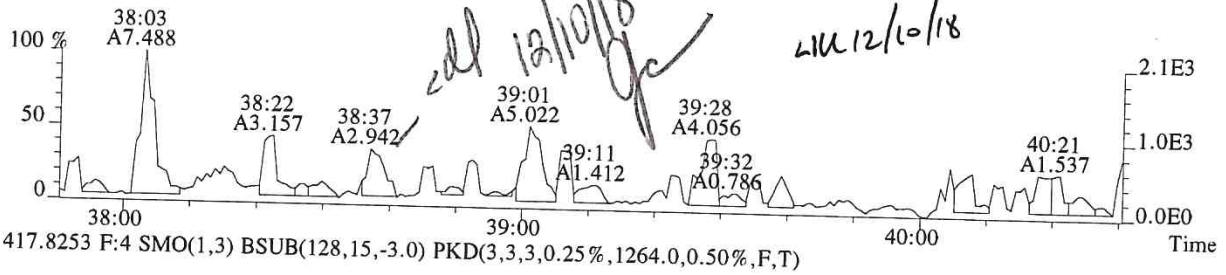
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



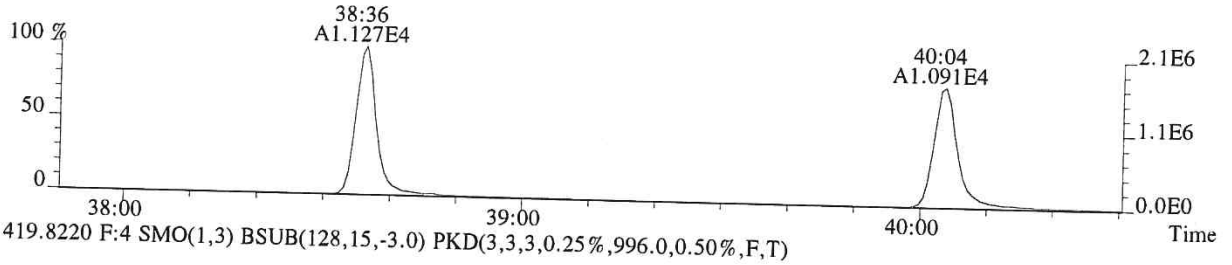
File:P519290 #1-241 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)



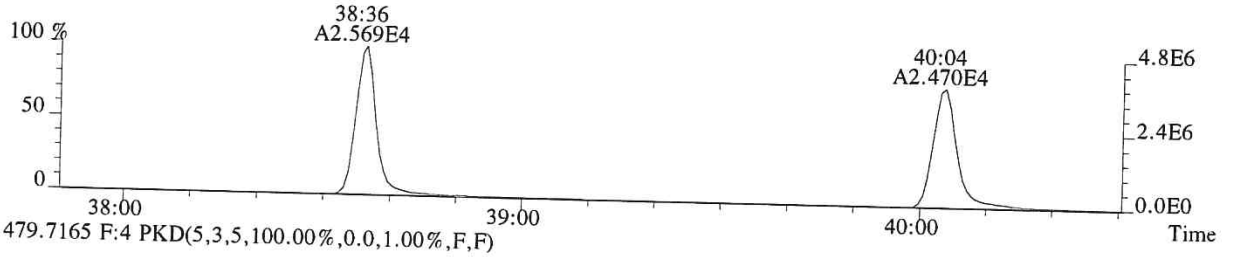
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.50%,F,T)



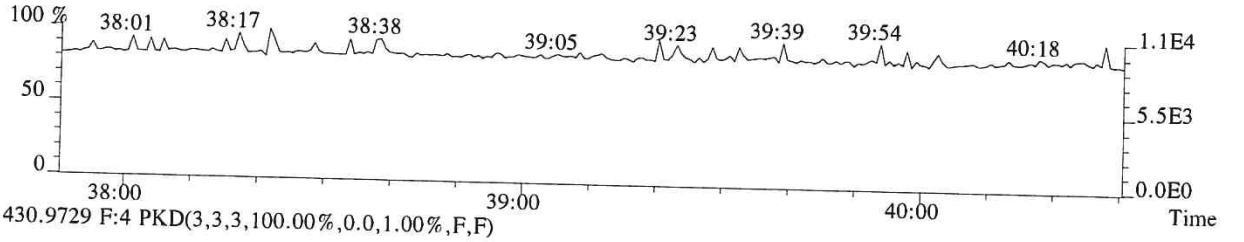
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.50%,F,T)



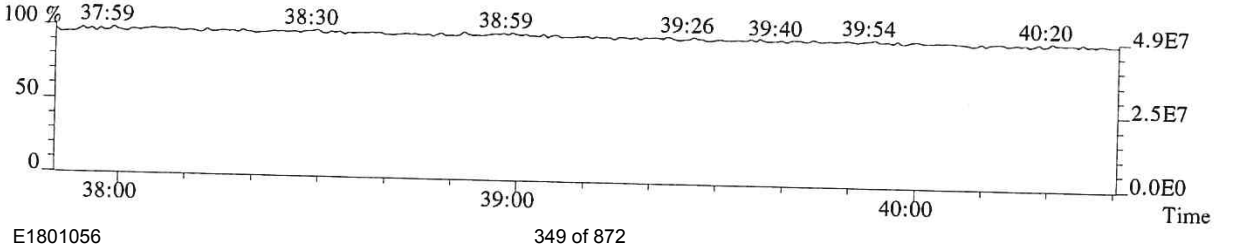
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

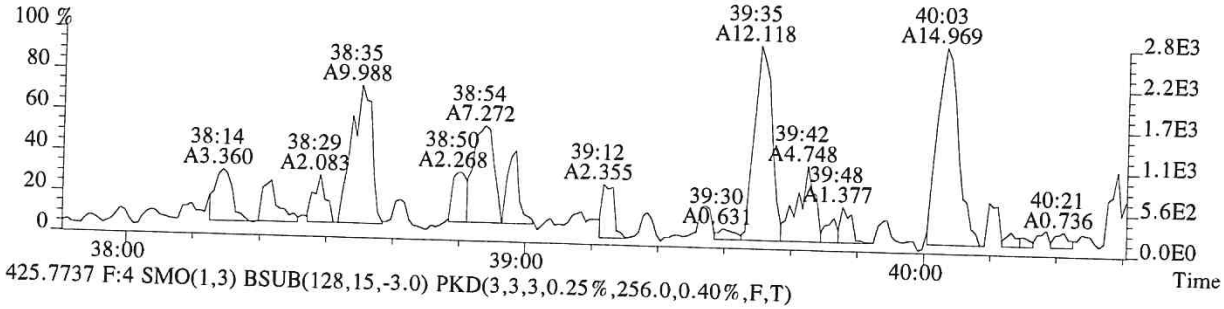


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

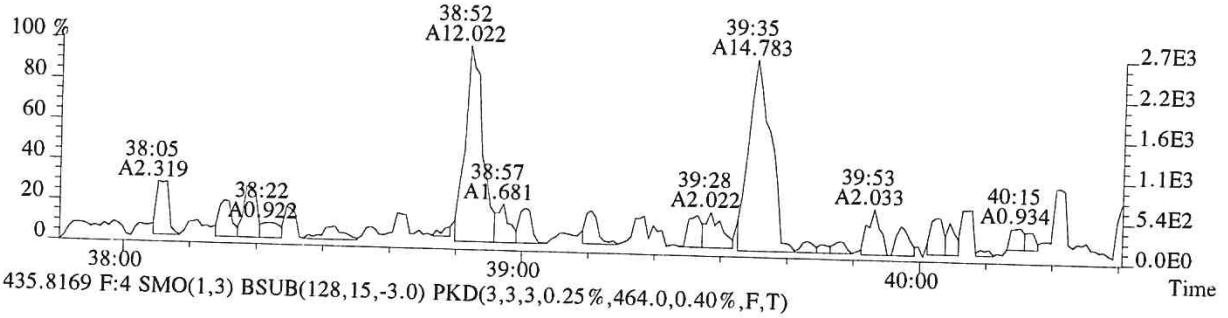


012567

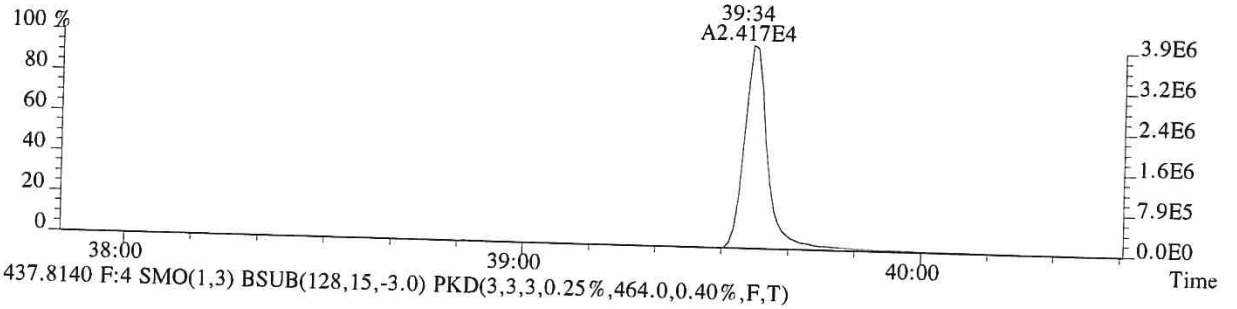
File:P519290 #1-241 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



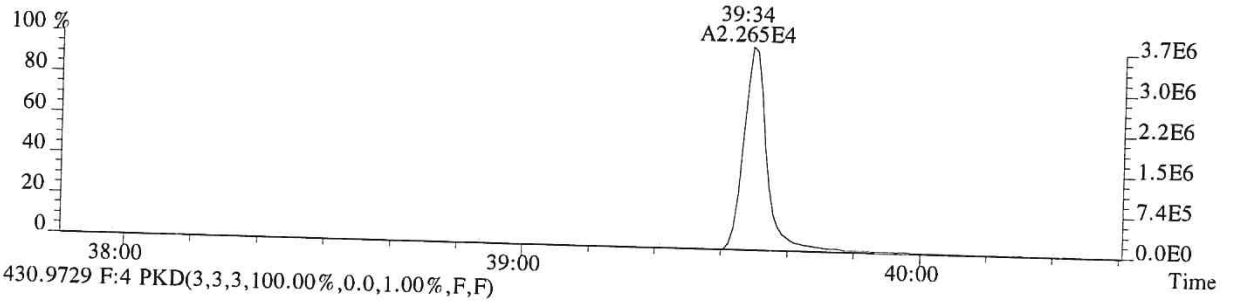
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



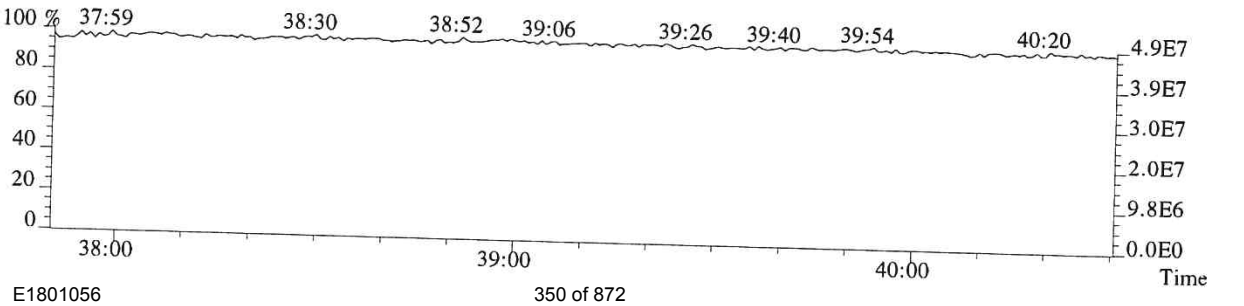
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)

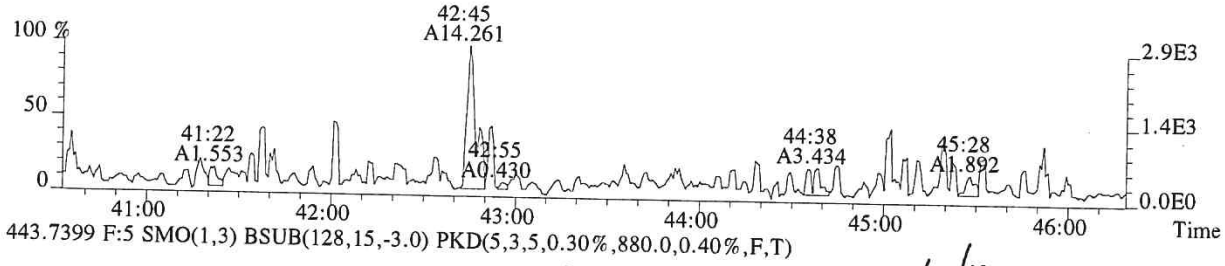


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

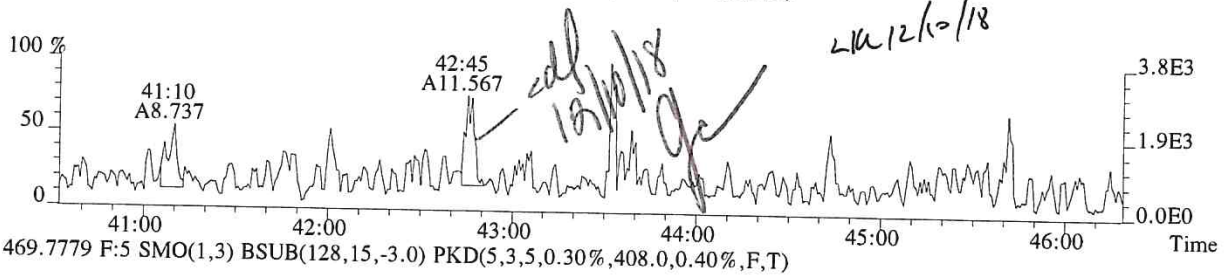


012568

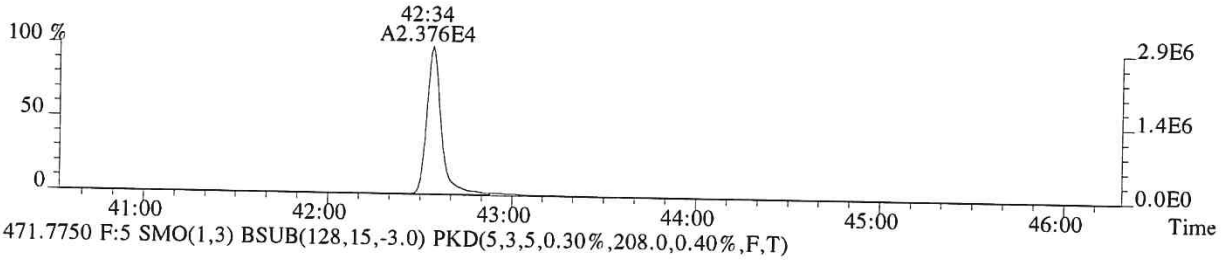
File:P519290 #1-520 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



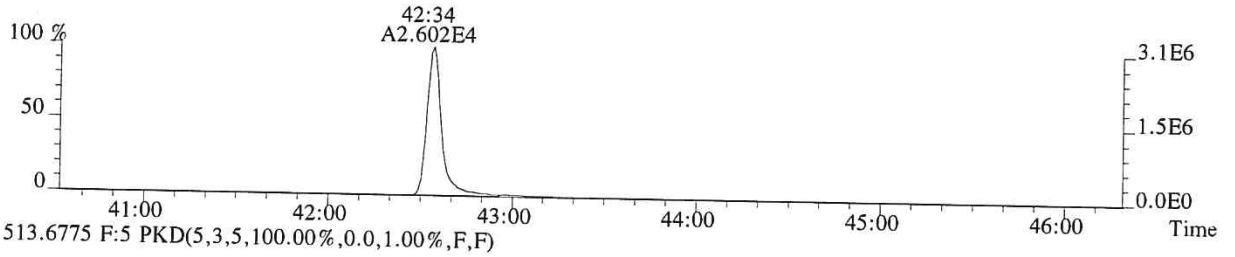
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



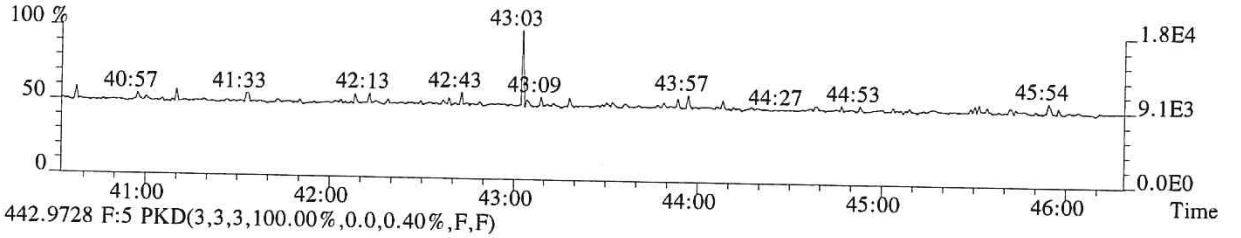
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



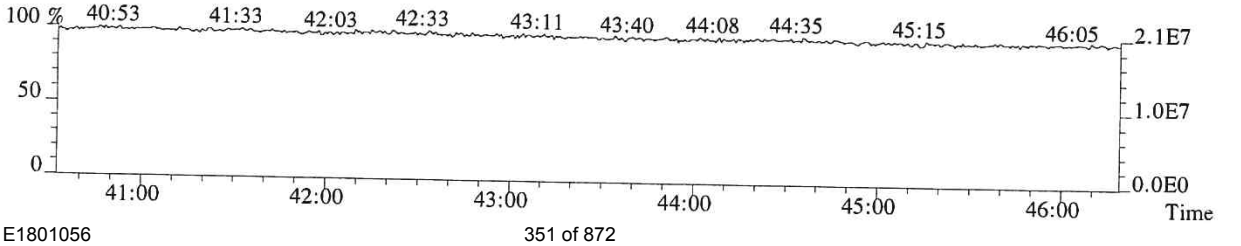
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

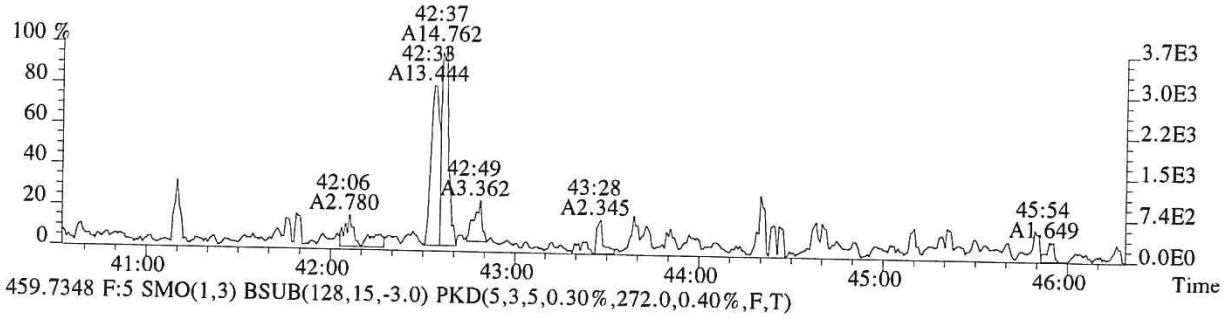


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

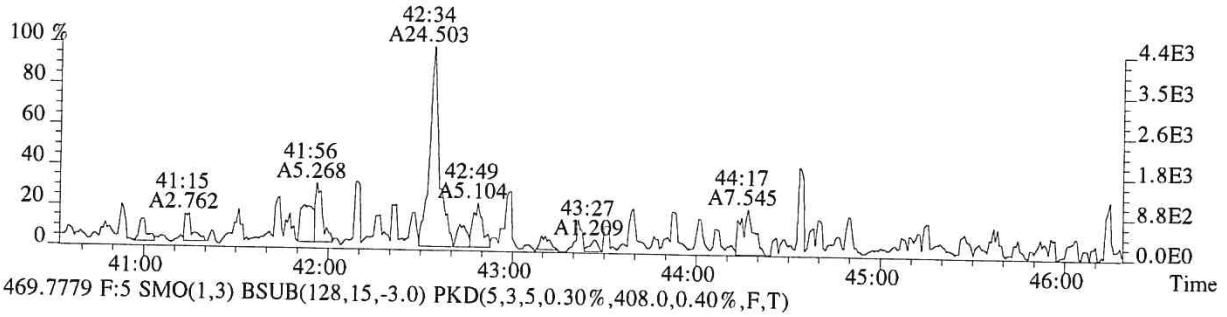


012569

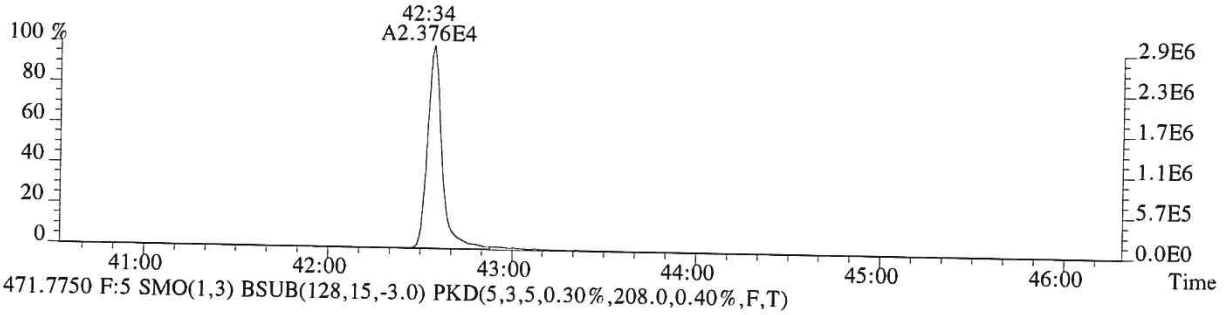
File:P519290 #1-520 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



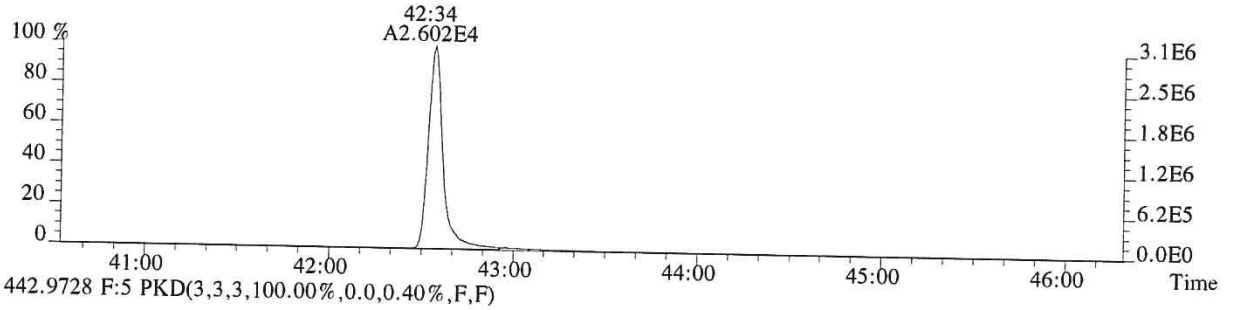
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



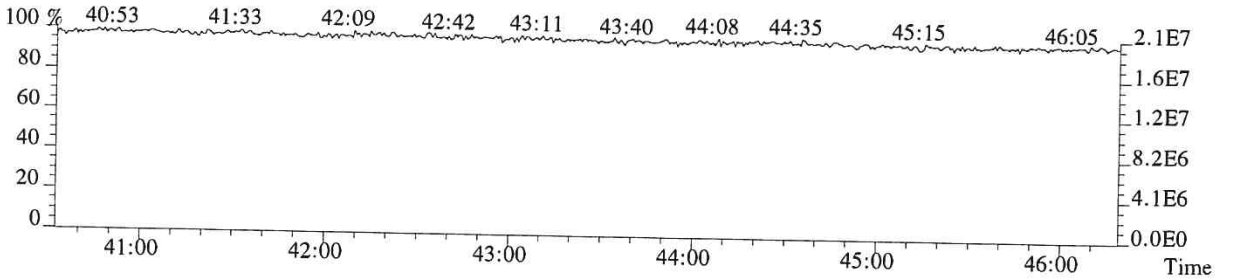
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012570

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P519363 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:07:51
Processed: 12-DEC-18 09:58:32 Sample ID: EQ1800488-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	9.372e+02	1.376e+03	0.68	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	1.296e+04	8.619e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.301e+04	8.768e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.293e+04	1.078e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.445e+04	1.190e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	1.342e+04	1.127e+04	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	1.192e+04	9.885e+03	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	1.135e+04	1.123e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	1.046e+04	1.082e+04	0.97	yes	no	1.258
10	Unk	OCDF	42:41	1.412e+04	1.646e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	7.951e+02	9.577e+02	0.83	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	9.722e+03	6.120e+03	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	9.252e+03	7.218e+03	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	1.044e+04	8.357e+03	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	1.031e+04	8.457e+03	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	8.433e+03	8.079e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:29	1.108e+04	1.220e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.085e+04	1.378e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.804e+04	1.798e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.755e+04	1.720e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.349e+04	2.603e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.624e+04	3.198e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.542e+04	2.952e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.335e+04	2.676e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.092e+04	2.458e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	1.047e+04	2.389e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	7.586e+03	9.873e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	2.020e+04	1.243e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.950e+04	1.548e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.035e+04	1.580e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	2.109e+04	1.990e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:29	1.968e+04	2.213e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	3.596e+04	4.510e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	4.939e+04	3.811e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	8.573e+03				no	1.014

$$\text{OCDD} = \frac{(1.108e+04 + 1.220e+04) \times 4000\ \text{pg} \times 1}{(1.968e+04 + 2.213e+04) \times \quad \text{g} \times \quad / 100 \times 1.118} =$$

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10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P519363 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:07:51
Processed: 12-DEC-18 09:58:32 LAB. ID: EQ1800488-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.61e+05	6.52e+02	2.5e+02	2.30e+05	9.44e+02	2.4e+02
2	1,2,3,7,8-PeCDF	2.38e+06	9.76e+02	2.4e+03	1.58e+06	1.62e+03	9.8e+02
3	2,3,4,7,8-PeCDF	2.50e+06	9.76e+02	2.6e+03	1.69e+06	1.62e+03	1.0e+03
4	1,2,3,4,7,8-HxCDF	2.65e+06	3.08e+02	8.6e+03	2.20e+06	3.28e+02	6.7e+03
5	1,2,3,6,7,8-HxCDF	2.73e+06	3.08e+02	8.9e+03	2.29e+06	3.28e+02	7.0e+03
6	2,3,4,6,7,8-HxCDF	2.68e+06	3.08e+02	8.7e+03	2.28e+06	3.28e+02	6.9e+03
7	1,2,3,7,8,9-HxCDF	2.25e+06	3.08e+02	7.3e+03	1.86e+06	3.28e+02	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	2.12e+06	1.34e+03	1.6e+03	2.09e+06	1.01e+03	2.1e+03
9	1,2,3,4,7,8,9-HpCDF	1.71e+06	1.34e+03	1.3e+03	1.77e+06	1.01e+03	1.8e+03
10	OCDF	1.69e+06	2.60e+02	6.5e+03	1.97e+06	5.08e+02	3.9e+03
11	2,3,7,8-TCDD	1.41e+05	1.59e+03	8.9e+01	1.81e+05	1.09e+03	1.7e+02
12	1,2,3,7,8-PeCDD	1.83e+06	7.24e+02	2.5e+03	1.17e+06	2.56e+02	4.6e+03
13	1,2,3,4,7,8-HxCDD	1.99e+06	3.64e+02	5.5e+03	1.57e+06	4.72e+02	3.3e+03
14	1,2,3,6,7,8-HxCDD	1.97e+06	3.64e+02	5.4e+03	1.61e+06	4.72e+02	3.4e+03
15	1,2,3,7,8,9-HxCDD	1.95e+06	3.64e+02	5.4e+03	1.60e+06	4.72e+02	3.4e+03
16	1,2,3,4,6,7,8-HpCDD	1.44e+06	3.12e+02	4.6e+03	1.40e+06	3.04e+02	4.6e+03
17	OCDD	1.32e+06	3.00e+02	4.4e+03	1.48e+06	4.16e+02	3.6e+03
18	13C-2,3,7,8-TCDF	1.84e+06	5.64e+03	3.3e+02	2.31e+06	3.82e+03	6.0e+02
19	13C-1,2,3,7,8-PeCDF	5.09e+06	8.56e+02	6.0e+03	3.28e+06	3.08e+02	1.1e+04
20	13C-2,3,4,7,8-PeCDF	5.25e+06	8.56e+02	6.1e+03	3.28e+06	3.08e+02	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	2.68e+06	2.56e+02	1.0e+04	5.43e+06	7.24e+02	7.5e+03
22	13C-1,2,3,6,7,8-HxCDF	3.13e+06	2.56e+02	1.2e+04	6.03e+06	7.24e+02	8.3e+03
23	13C-2,3,4,6,7,8-HxCDF	3.14e+06	2.56e+02	1.2e+04	6.03e+06	7.24e+02	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	2.50e+06	2.56e+02	9.8e+03	5.01e+06	7.24e+02	6.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.03e+06	1.00e+03	2.0e+03	4.51e+06	1.64e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.69e+06	1.00e+03	1.7e+03	3.78e+06	1.64e+03	2.3e+03
27	13C-2,3,7,8-TCDD	1.39e+06	6.64e+03	2.1e+02	1.84e+06	2.20e+03	8.4e+02
28	13C-1,2,3,7,8-PeCDD	3.75e+06	4.92e+02	7.6e+03	2.32e+06	4.64e+02	5.0e+03
29	13C-1,2,3,4,7,8-HxCDD	4.15e+06	1.26e+03	3.3e+03	3.33e+06	6.36e+02	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	3.87e+06	1.26e+03	3.1e+03	2.99e+06	6.36e+02	4.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.57e+06	5.36e+02	6.7e+03	3.36e+06	2.44e+02	1.4e+04
32	13C-OCDD	2.33e+06	3.80e+02	6.1e+03	2.66e+06	3.40e+02	7.8e+03
33	13C-1,2,3,4-TCDD	6.47e+06	6.64e+03	9.7e+02	8.20e+06	2.20e+03	3.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.33e+06	1.26e+03	7.4e+03	7.39e+06	6.36e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.58e+06	9.12e+02	1.7e+03			

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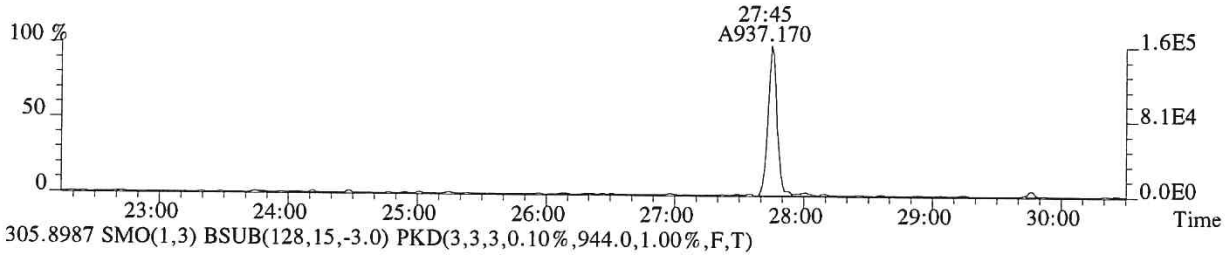
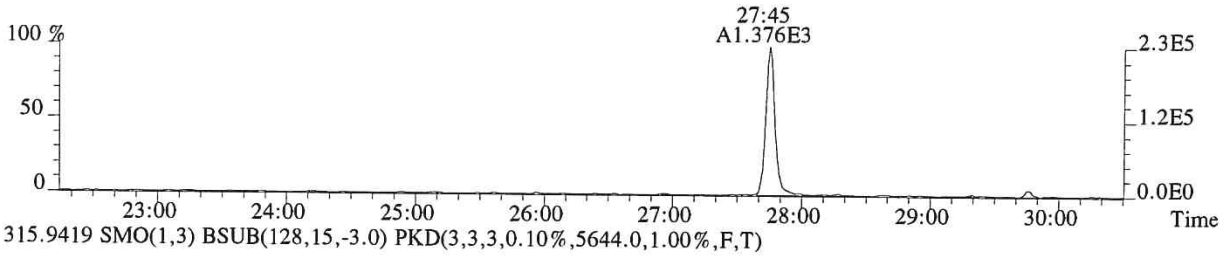
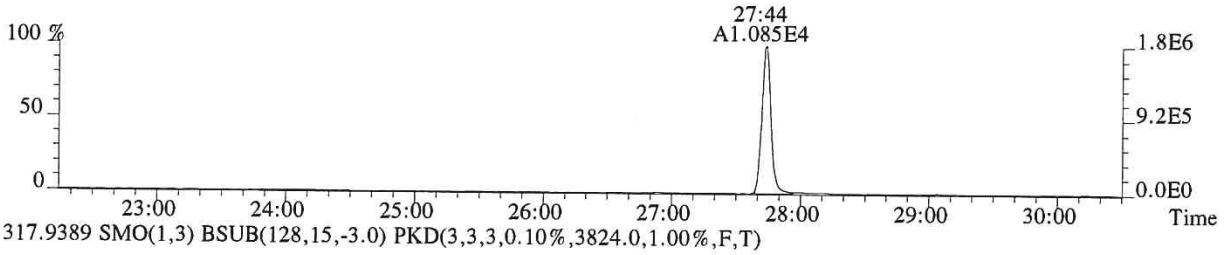
File:P519363 #1-587 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



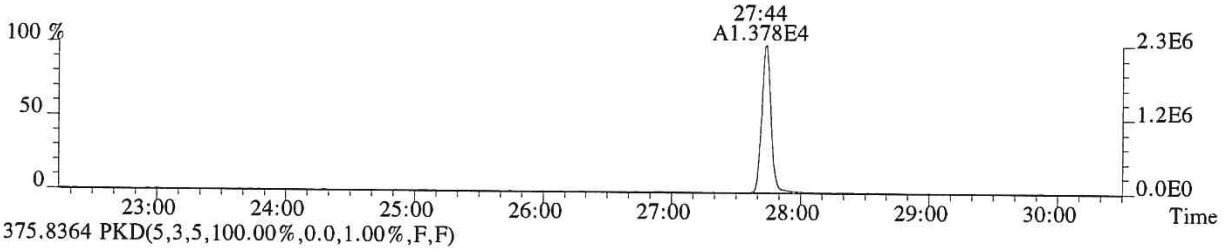
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



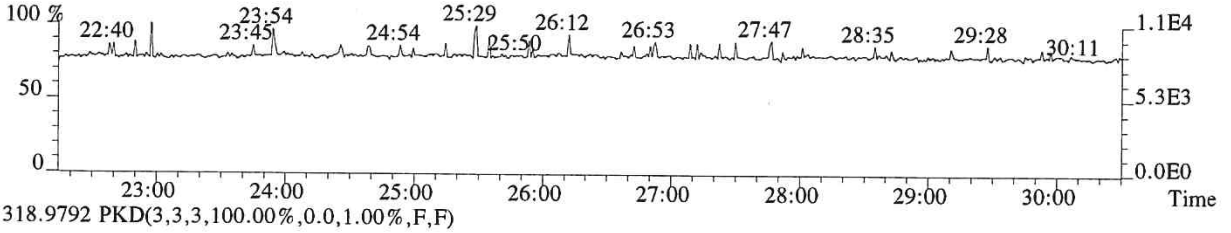
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5644.0,1.00%,F,T)



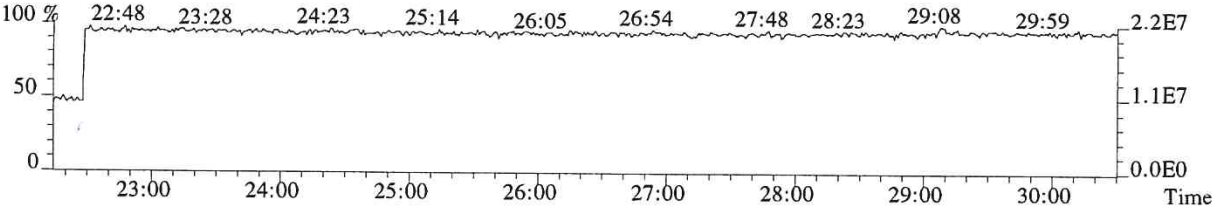
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3824.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

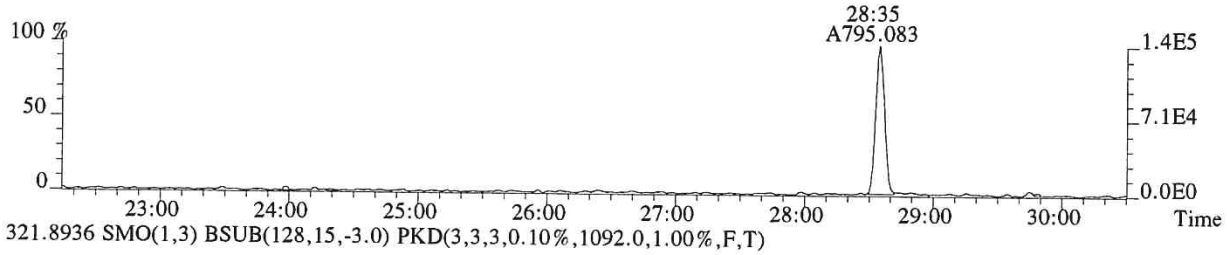


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

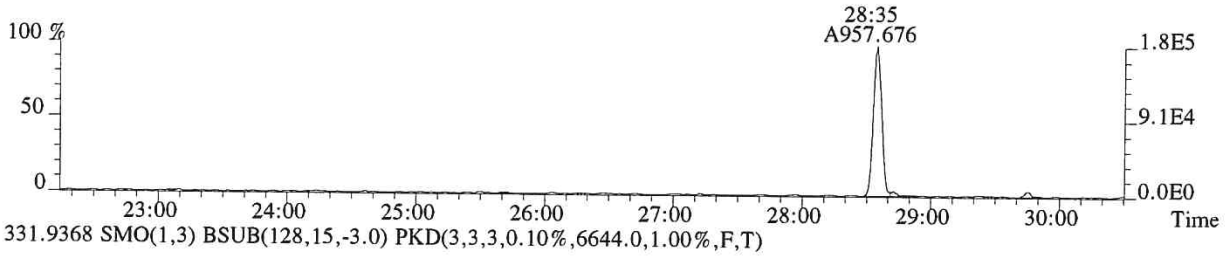


012573

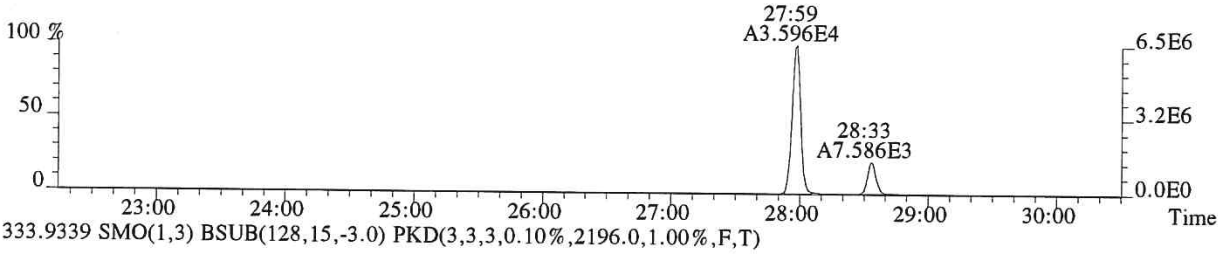
File:P519363 #1-587 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



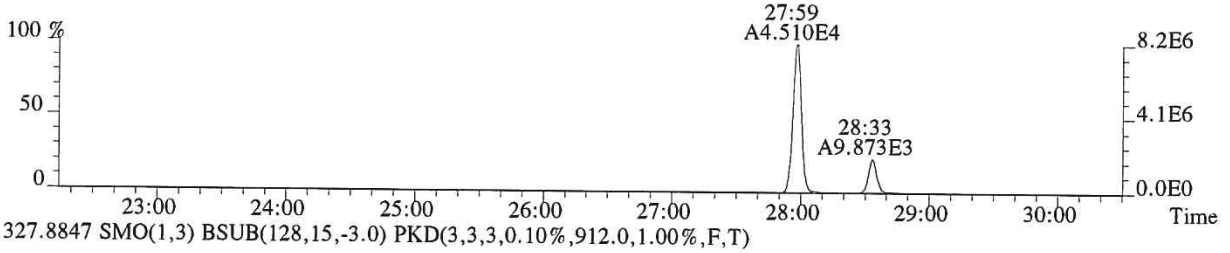
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



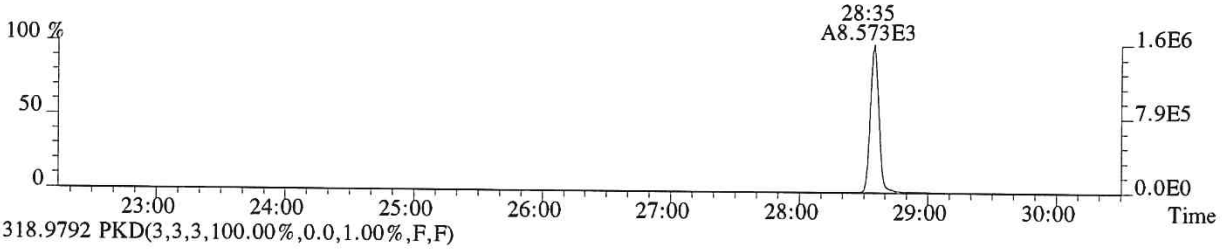
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



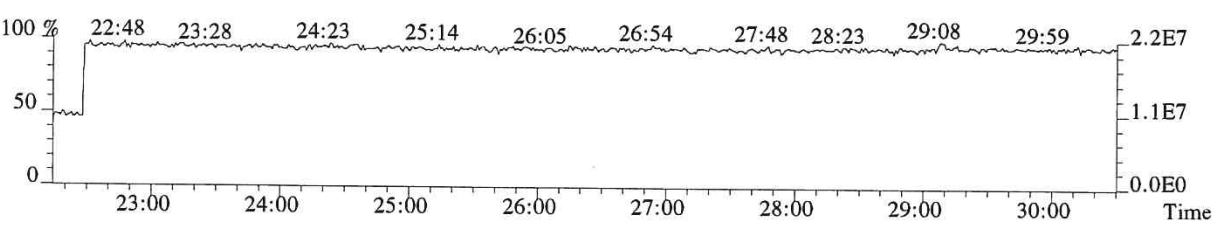
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2196.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)

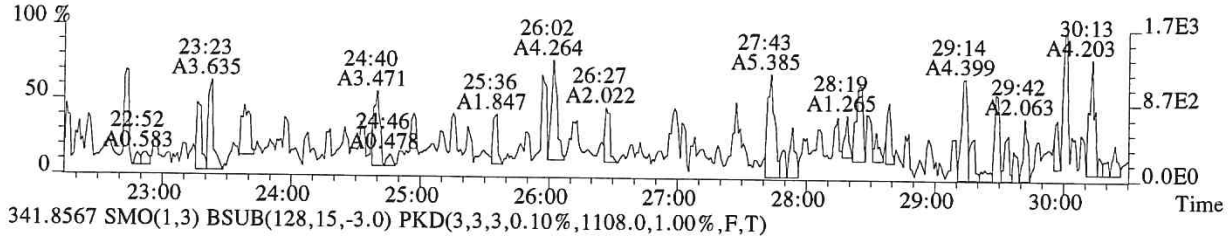


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

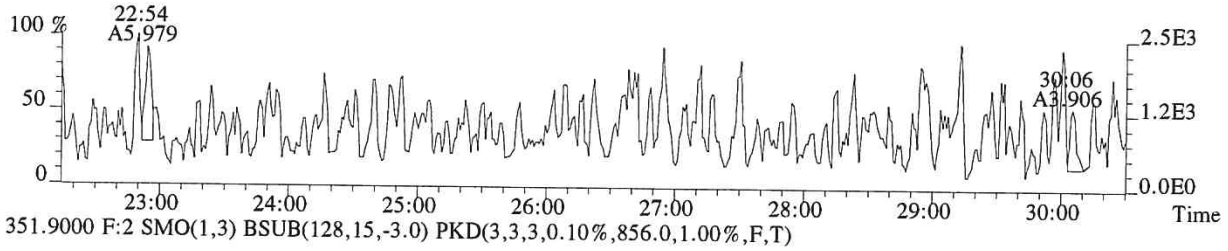


012574

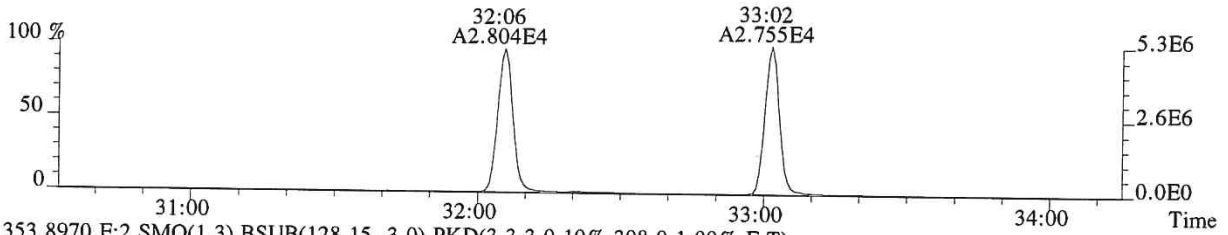
File:P519363 #1-587 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



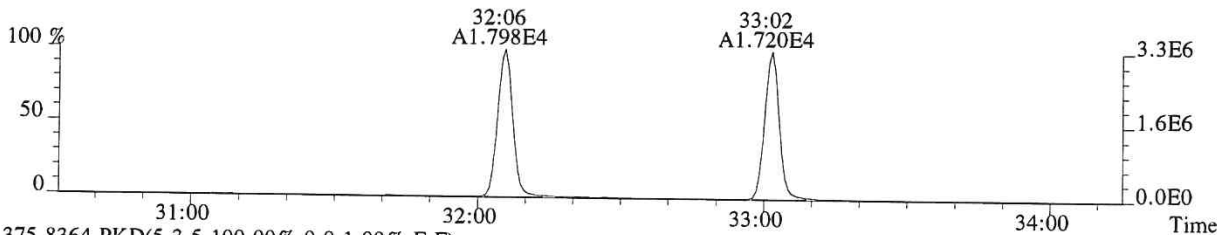
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



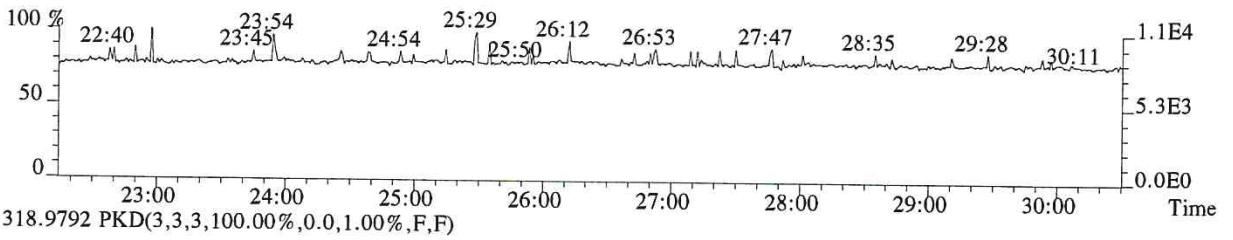
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



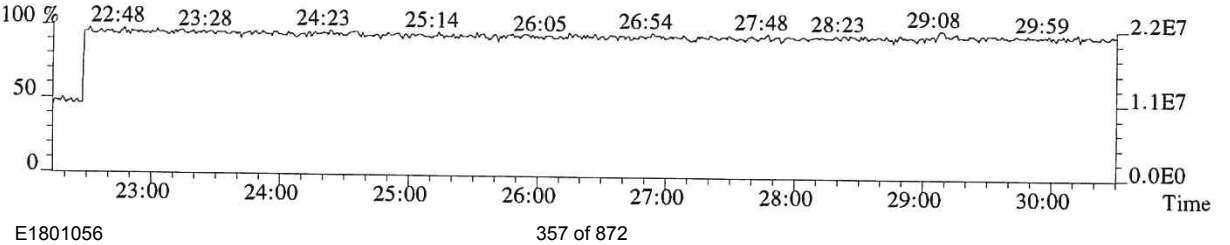
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

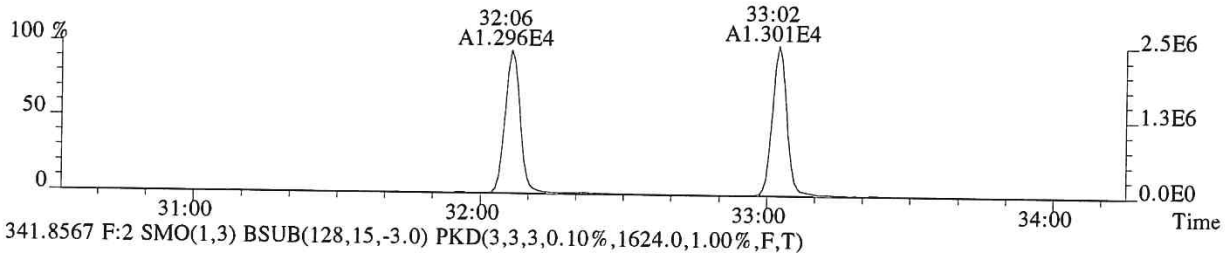


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

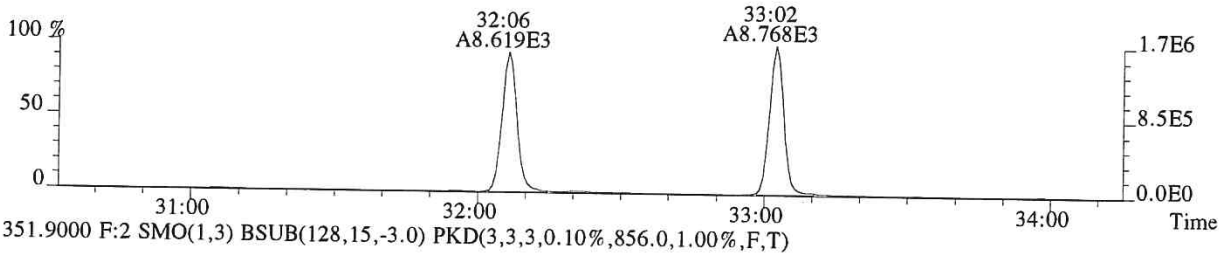


012575

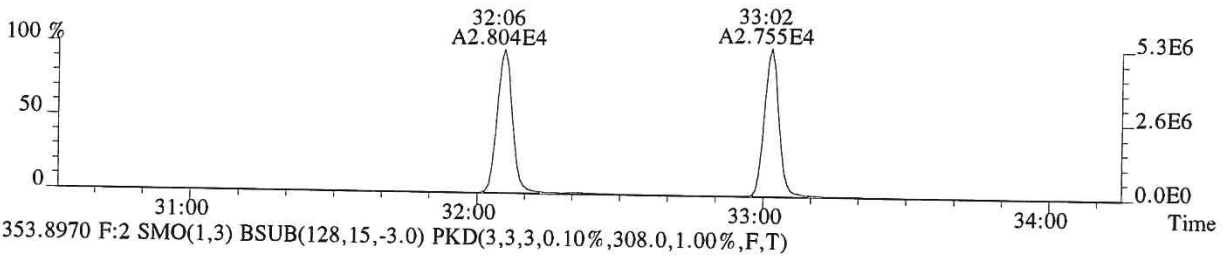
File:P519363 #1-335 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



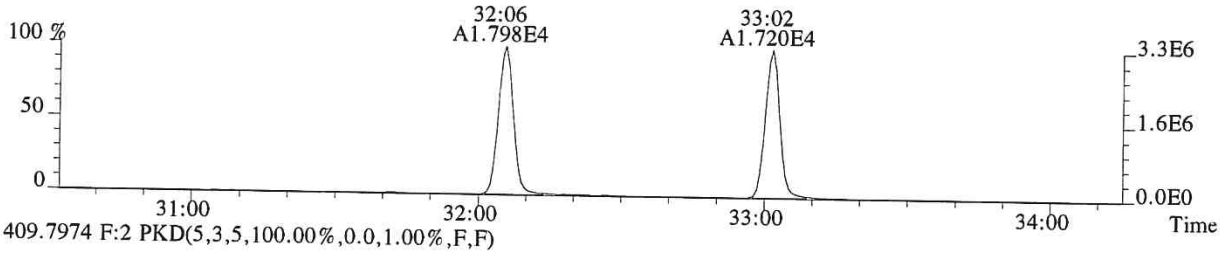
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



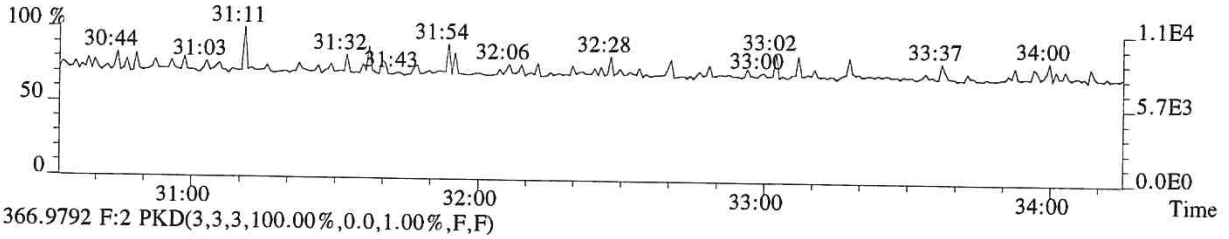
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



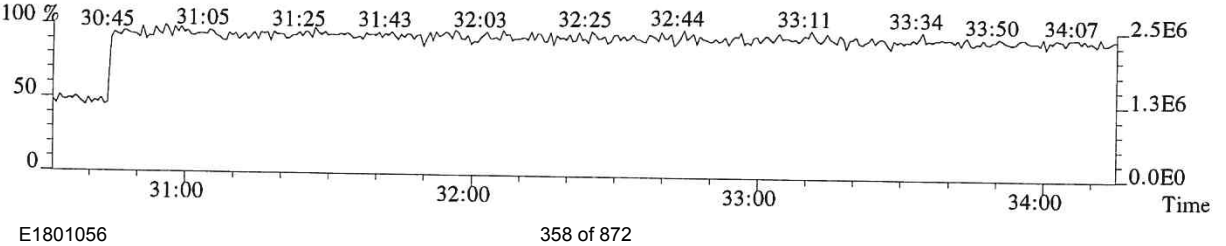
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

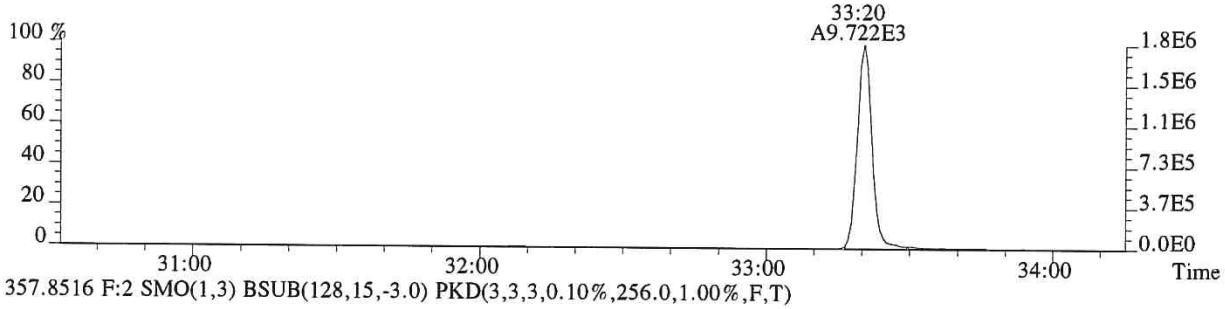


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

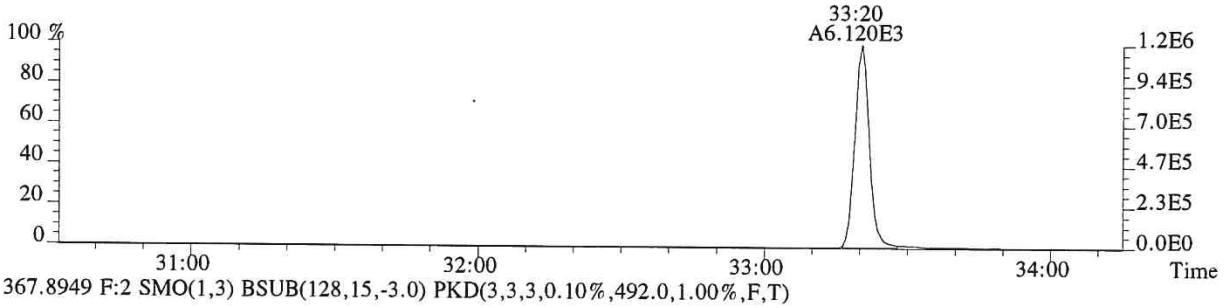


012576

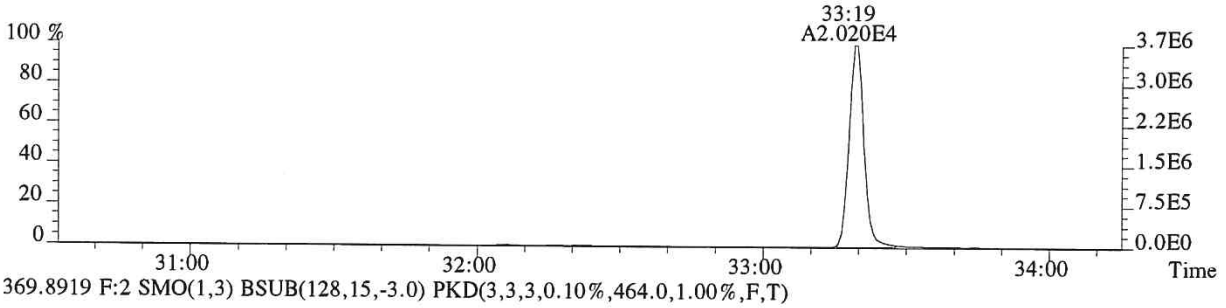
File:P519363 #1-335 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



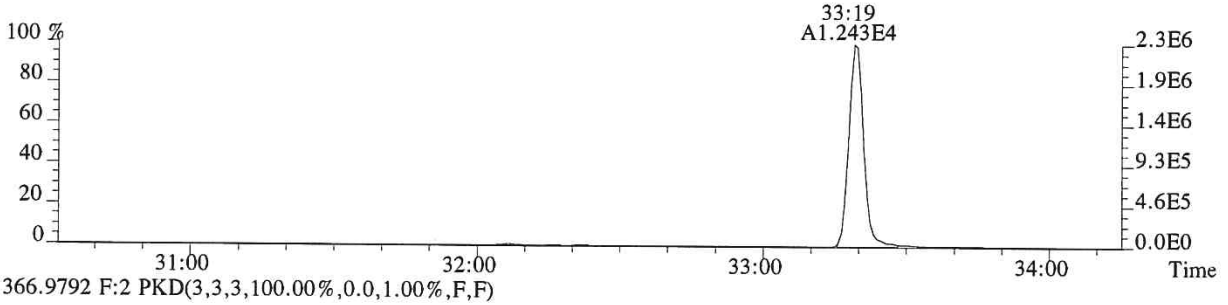
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



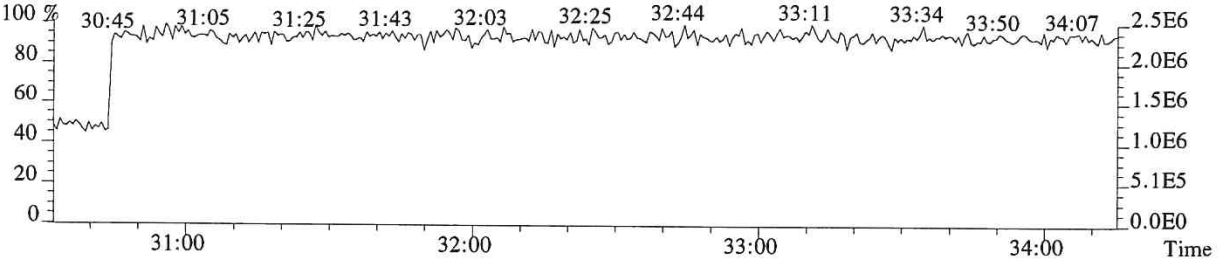
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)

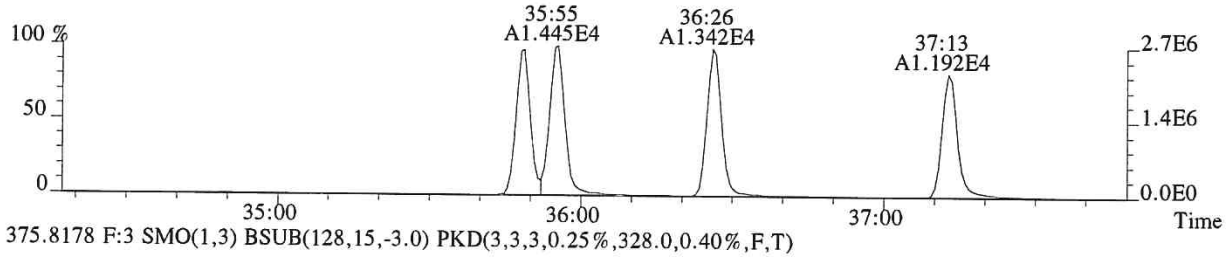


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

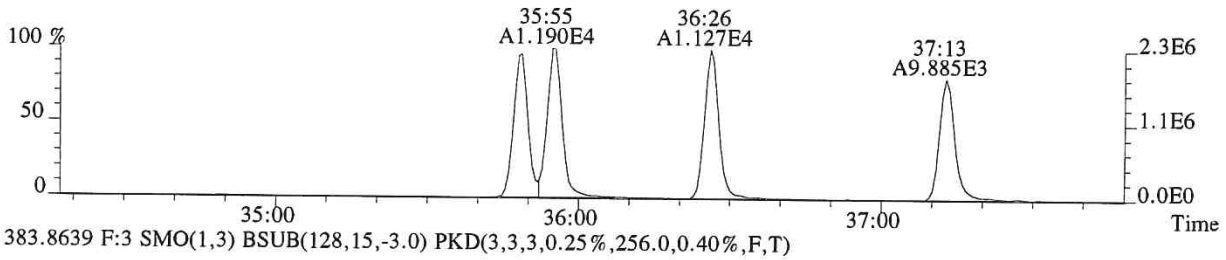


012577

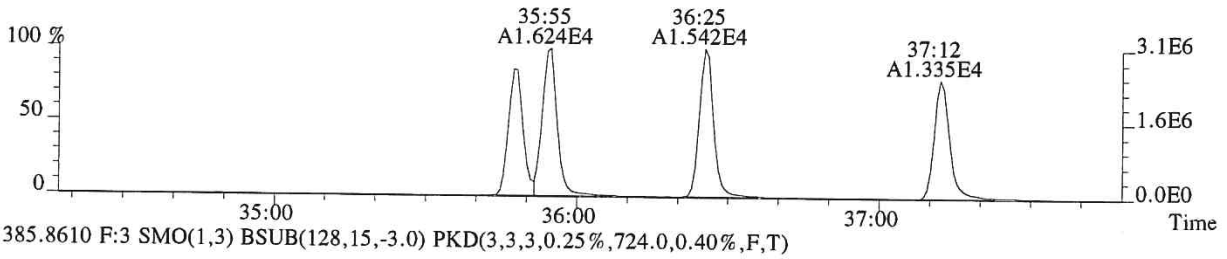
File:P519363 #1-317 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



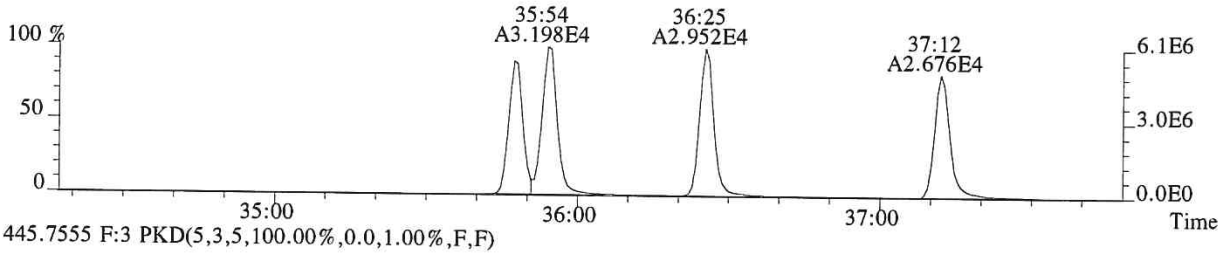
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



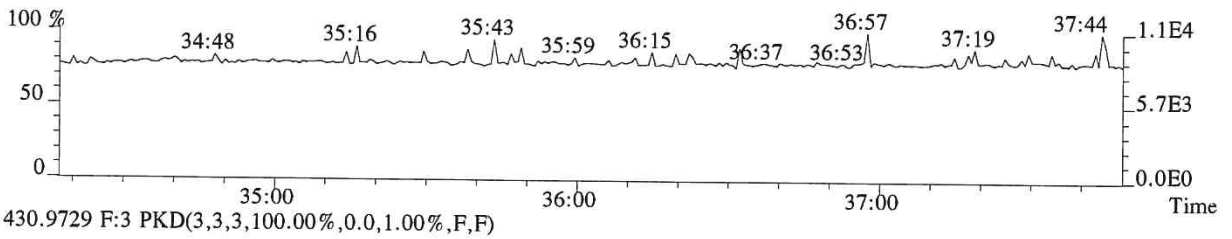
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



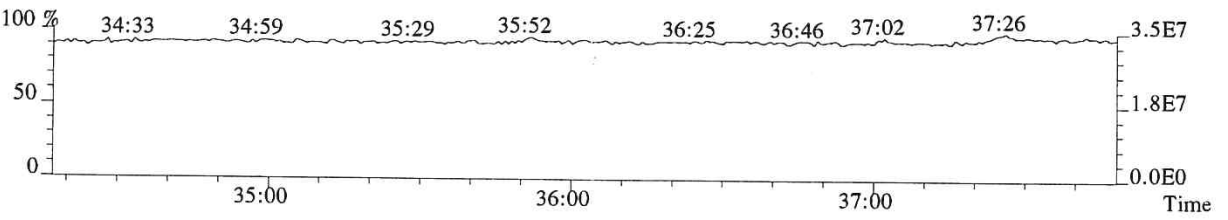
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

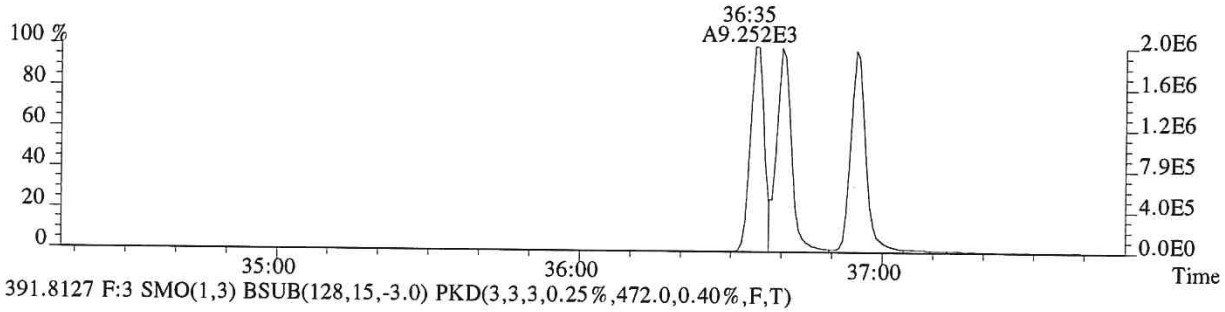


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

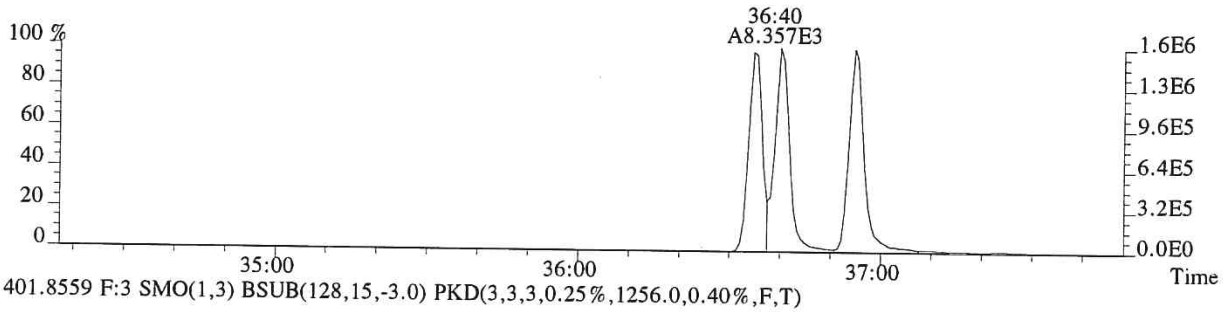


012578

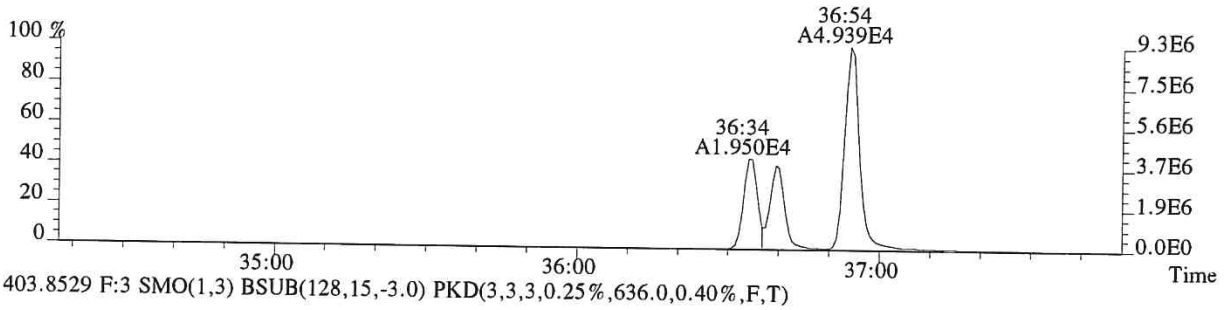
File:P519363 #1-317 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



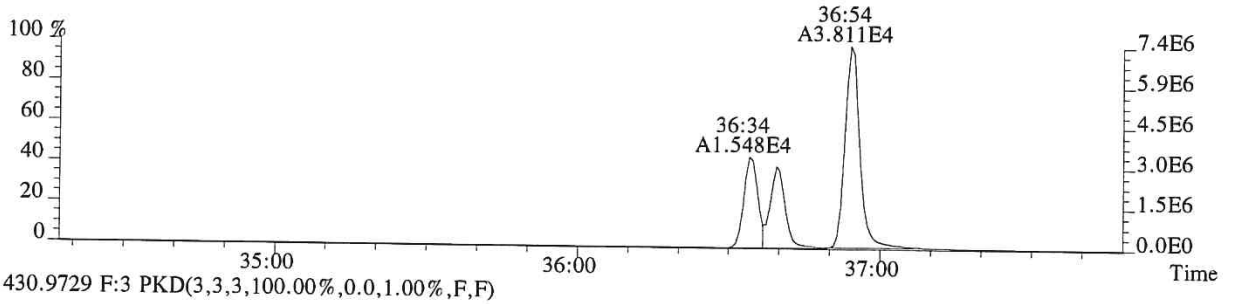
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



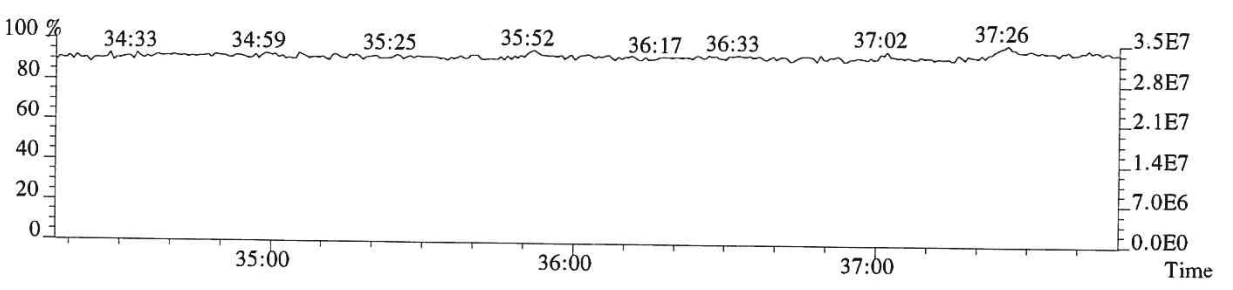
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)

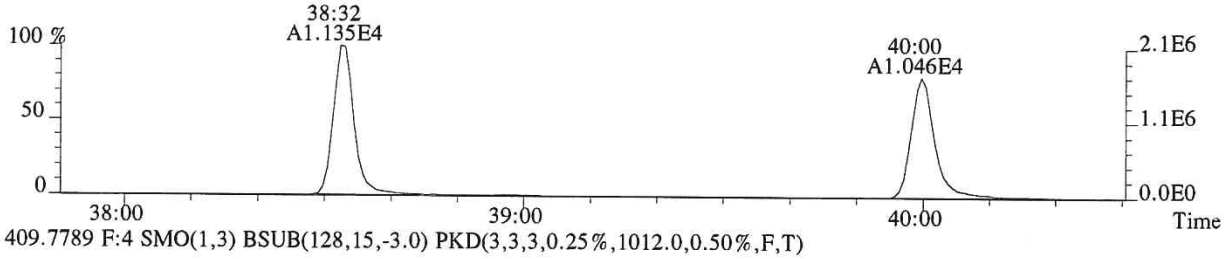


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

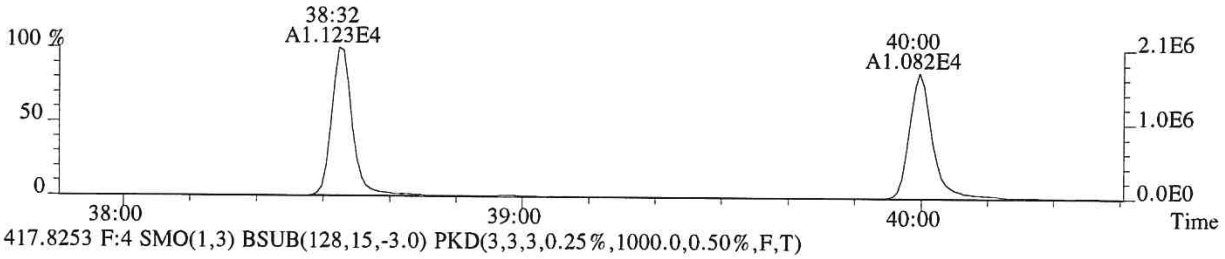


012579

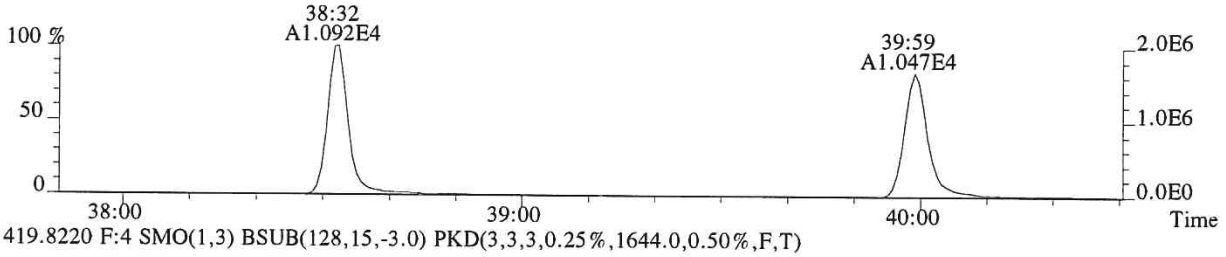
File:P519363 #1-241 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.50%,F,T)



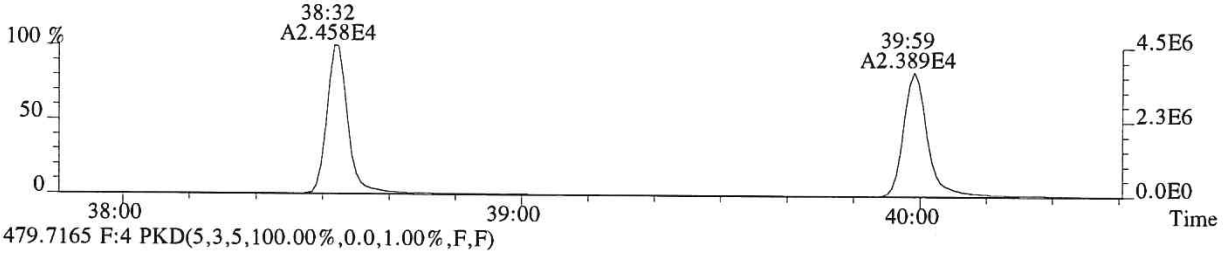
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.50%,F,T)



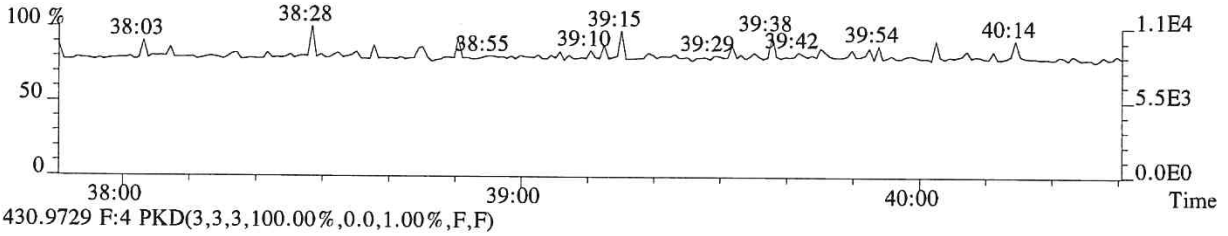
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.50%,F,T)



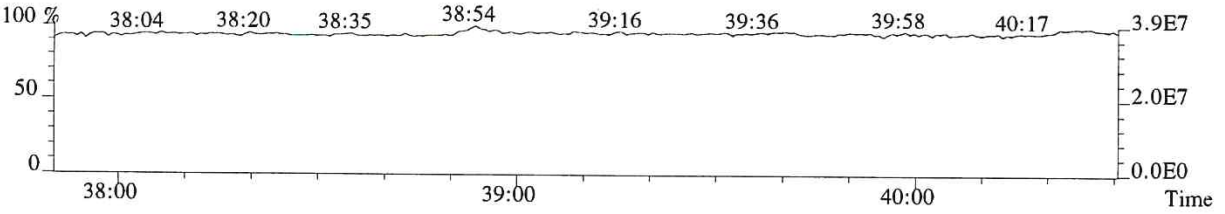
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.50%,F,T)



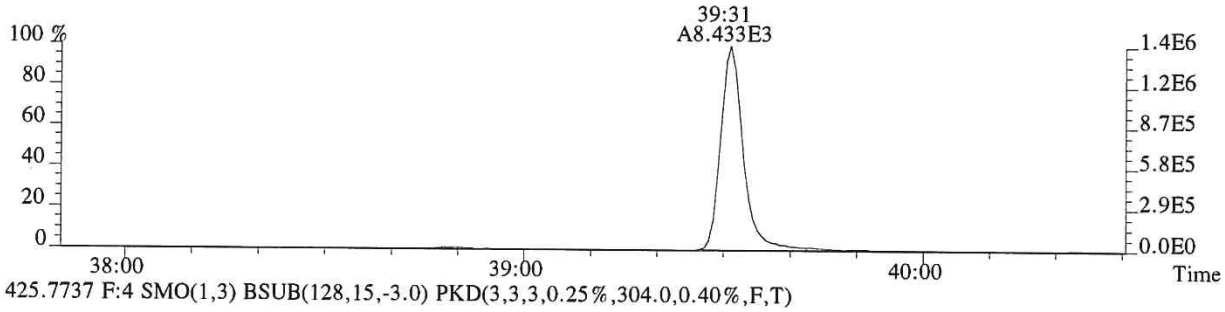
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



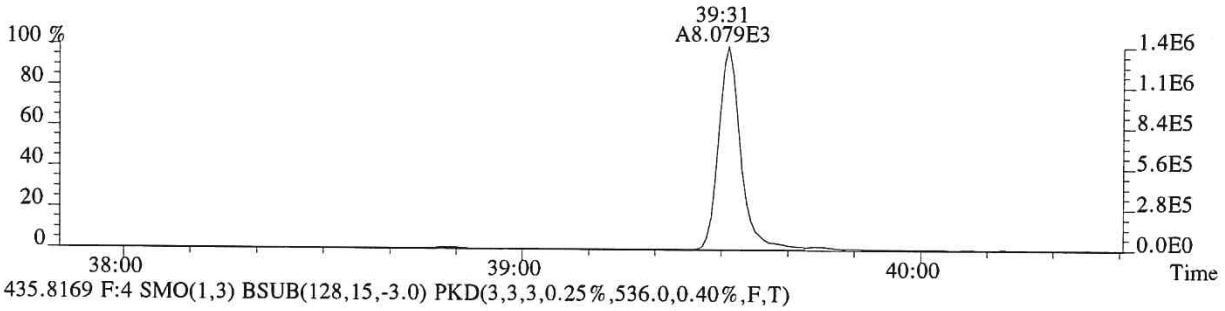
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



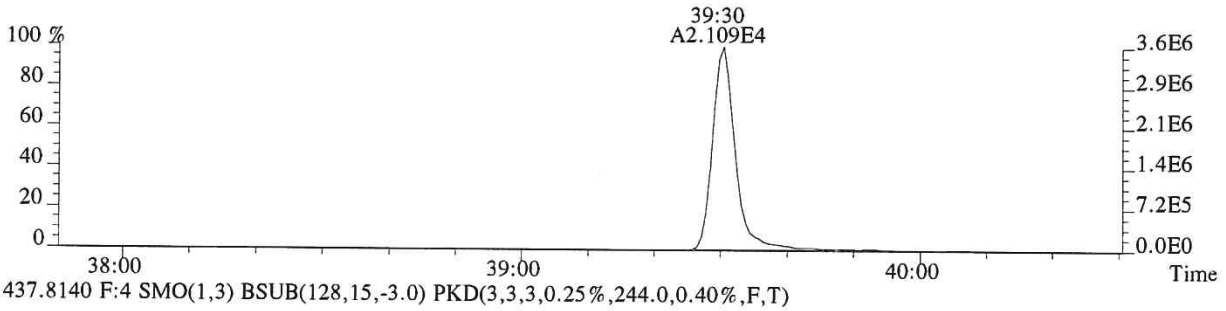
File:P519363 #1-241 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



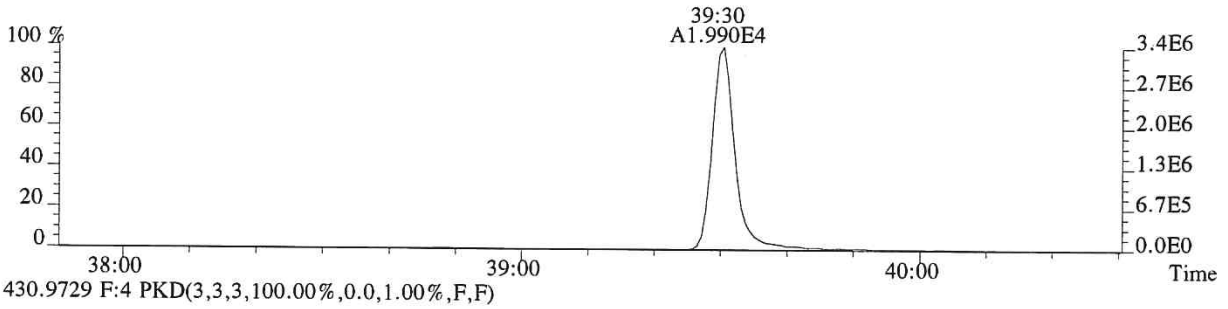
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



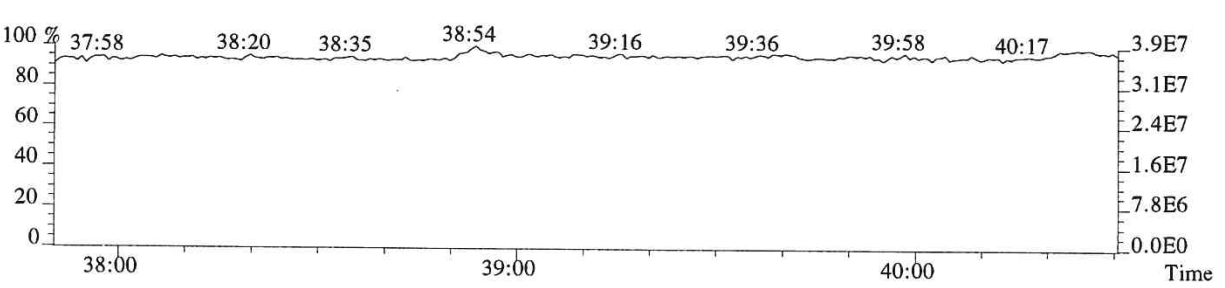
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



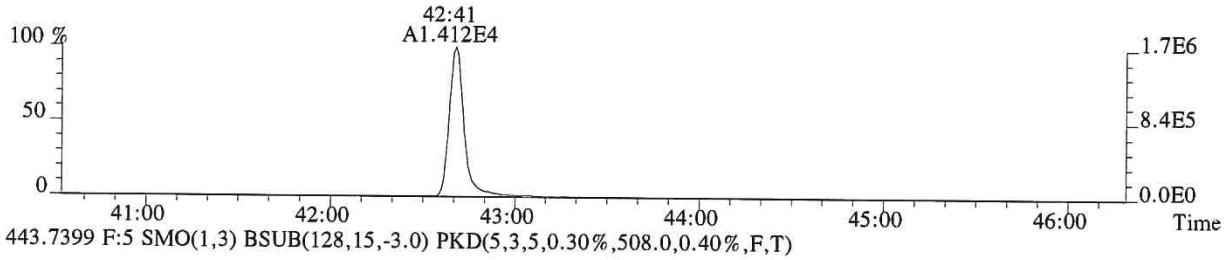
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



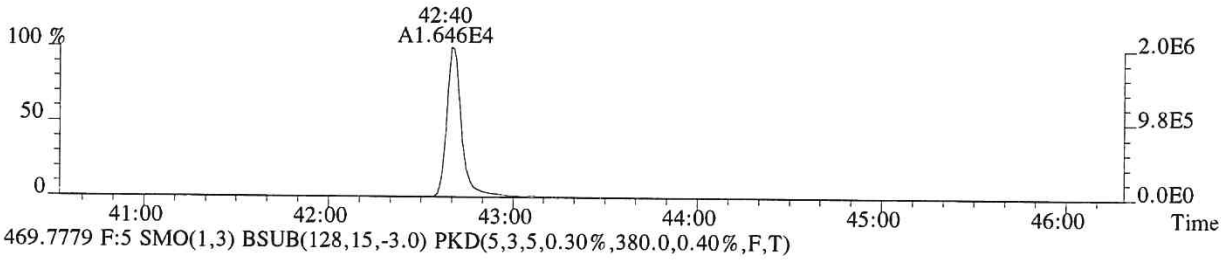
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



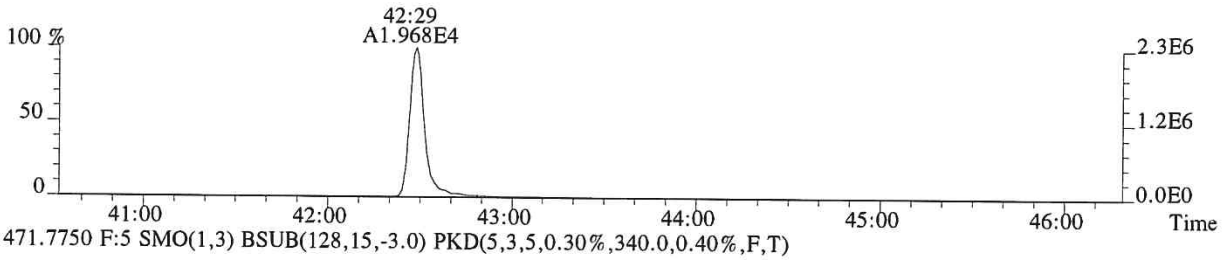
File:P519363 #1-520 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



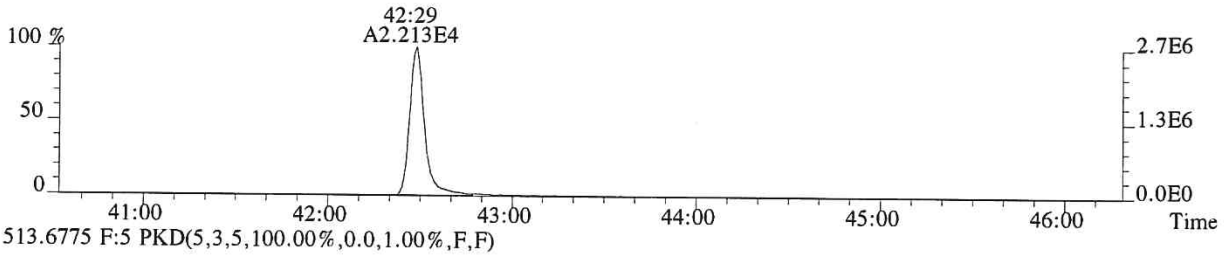
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



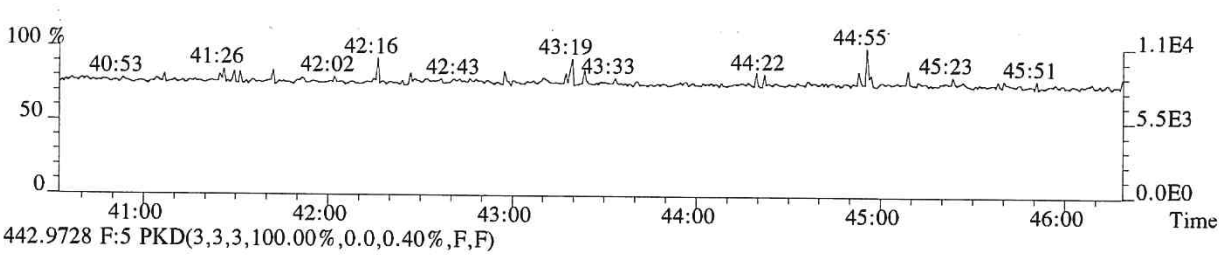
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



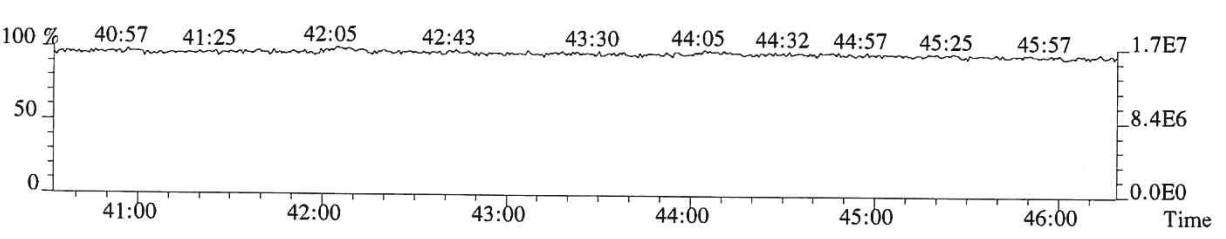
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

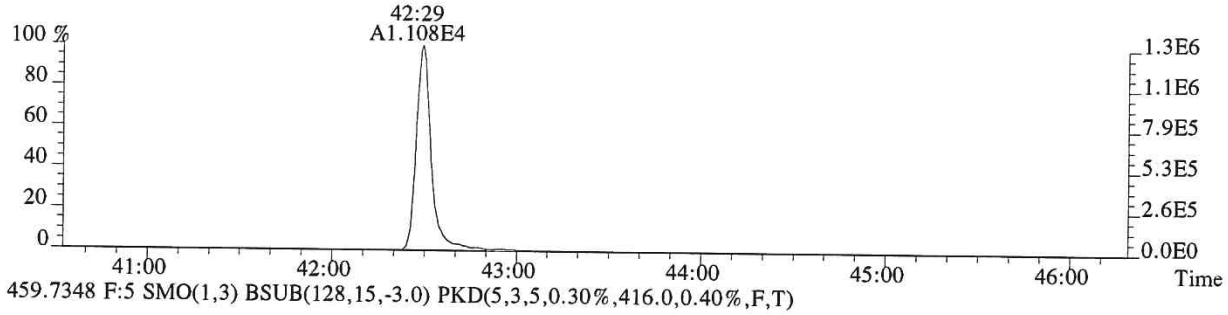


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

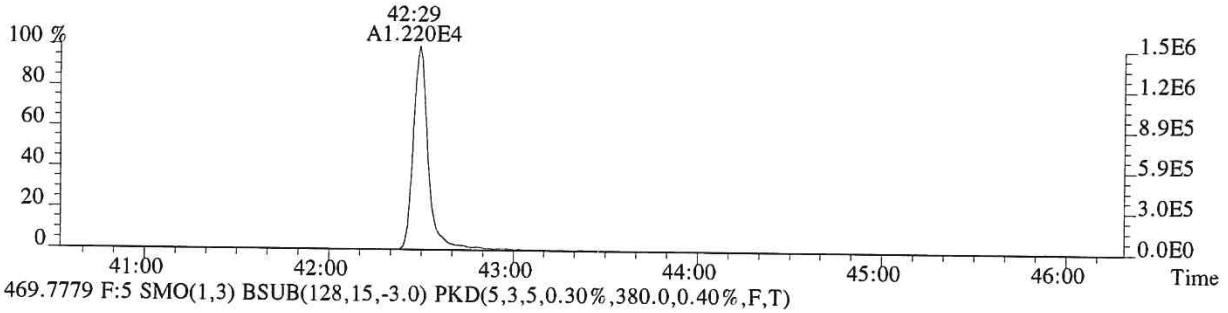


012582

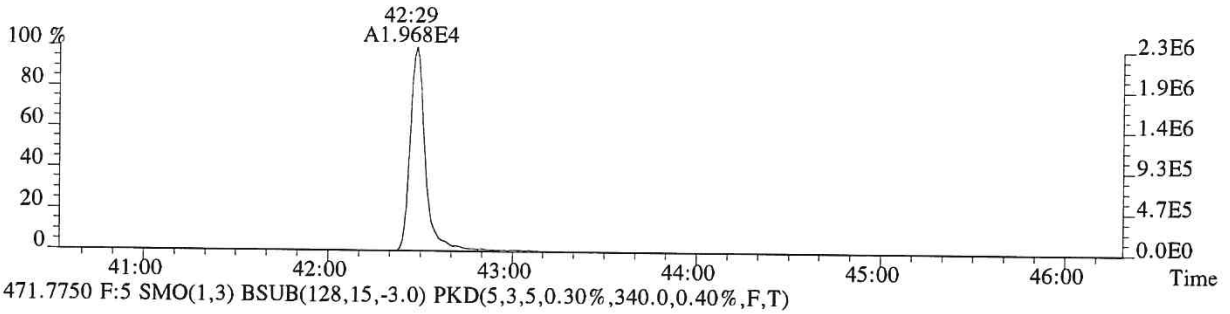
File:P519363 #1-520 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



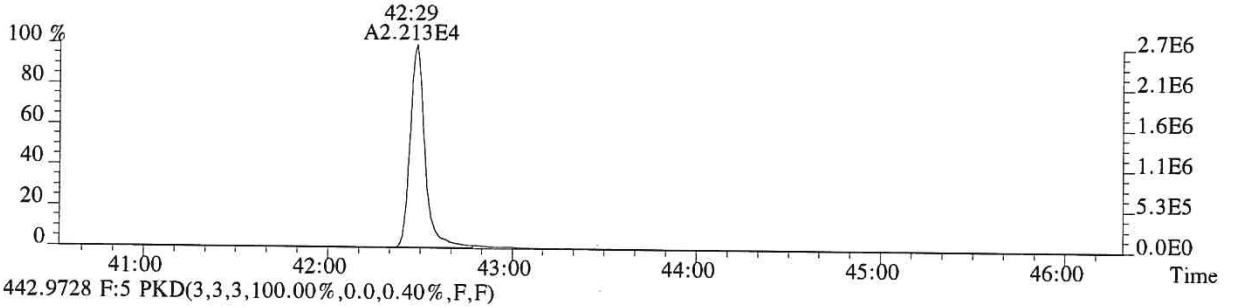
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



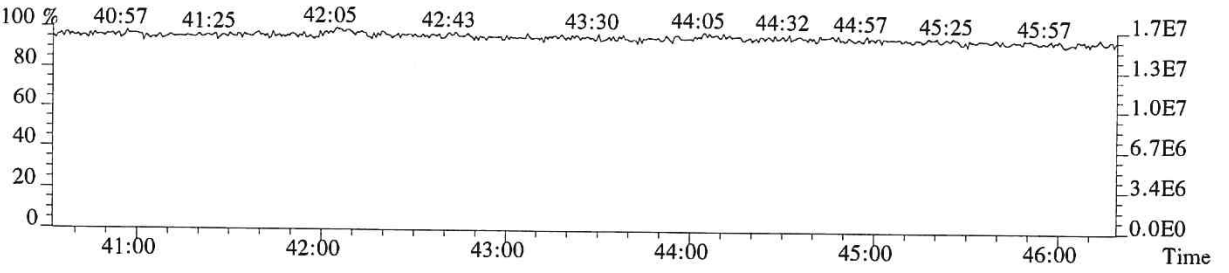
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012583

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P519364 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:56:19
Processed: 12-DEC-18 09:58:33 Sample ID: EQ1800488-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.546e+03	2.100e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	1.467e+04	9.624e+03	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	1.484e+04	9.963e+03	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.351e+04	1.117e+04	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.509e+04	1.257e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	1.278e+04	1.030e+04	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	1.106e+04	8.766e+03	1.26	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:33	1.026e+04	1.033e+04	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	9.473e+03	9.583e+03	0.99	yes	no	1.258
10	Unk	OCDF	42:41	1.040e+04	1.217e+04	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	1.156e+03	1.582e+03	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.103e+04	6.780e+03	1.63	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	9.741e+03	7.603e+03	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	1.044e+04	8.362e+03	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	9.523e+03	7.931e+03	1.20	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	7.141e+03	6.675e+03	1.07	yes	no	1.025
17	Unk	OCDD	42:30	7.648e+03	8.525e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.767e+04	2.220e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	3.210e+04	2.012e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	3.132e+04	1.969e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.394e+04	2.713e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.669e+04	3.242e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	1.438e+04	2.788e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.214e+04	2.382e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.002e+04	2.233e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	9.077e+03	2.090e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	1.132e+04	1.417e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	2.268e+04	1.424e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	2.019e+04	1.579e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	1.971e+04	1.528e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	1.785e+04	1.691e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:29	1.420e+04	1.580e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	3.365e+04	4.212e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	4.701e+04	3.620e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	1.291e+04				no	1.014

$$\text{OCDD} = \frac{(7.648e+03 + 8.525e+03) \times 4000\ \text{pg} \times 1}{(1.420e+04 + 1.580e+04) \times \quad \text{g} \times \quad / 100 \times 1.118}$$

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10450 Stancliff Rd., Suite 115
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P519364 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:56:19
Processed: 12-DEC-18 09:58:33 LAB. ID: EQ1800488-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.74e+05	4.40e+02	6.2e+02	3.64e+05	1.18e+03	3.1e+02
2	1,2,3,7,8-PeCDF	2.72e+06	4.08e+02	6.7e+03	1.78e+06	1.67e+03	1.1e+03
3	2,3,4,7,8-PeCDF	2.88e+06	4.08e+02	7.1e+03	1.92e+06	1.67e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	2.81e+06	4.12e+02	6.8e+03	2.33e+06	2.84e+02	8.2e+03
5	1,2,3,6,7,8-HxCDF	2.89e+06	4.12e+02	7.0e+03	2.44e+06	2.84e+02	8.6e+03
6	2,3,4,6,7,8-HxCDF	2.58e+06	4.12e+02	6.3e+03	2.12e+06	2.84e+02	7.5e+03
7	1,2,3,7,8,9-HxCDF	1.99e+06	4.12e+02	4.8e+03	1.58e+06	2.84e+02	5.5e+03
8	1,2,3,4,6,7,8-HpCDF	1.93e+06	1.23e+03	1.6e+03	1.94e+06	2.01e+03	9.7e+02
9	1,2,3,4,7,8,9-HpCDF	1.49e+06	1.23e+03	1.2e+03	1.48e+06	2.01e+03	7.3e+02
10	OCDF	1.19e+06	2.12e+02	5.6e+03	1.40e+06	7.20e+02	1.9e+03
11	2,3,7,8-TCDD	2.19e+05	1.54e+03	1.4e+02	2.94e+05	9.72e+02	3.0e+02
12	1,2,3,7,8-PeCDD	2.16e+06	1.17e+03	1.8e+03	1.32e+06	2.40e+02	5.5e+03
13	1,2,3,4,7,8-HxCDD	2.08e+06	3.28e+02	6.3e+03	1.62e+06	1.60e+02	1.0e+04
14	1,2,3,6,7,8-HxCDD	2.03e+06	3.28e+02	6.2e+03	1.67e+06	1.60e+02	1.0e+04
15	1,2,3,7,8,9-HxCDD	1.84e+06	3.28e+02	5.6e+03	1.42e+06	1.60e+02	8.9e+03
16	1,2,3,4,6,7,8-HpCDD	1.15e+06	2.00e+02	5.7e+03	1.07e+06	1.88e+02	5.7e+03
17	OCDD	8.68e+05	2.76e+02	3.1e+03	9.85e+05	2.20e+02	4.5e+03
18	13C-2,3,7,8-TCDF	3.14e+06	6.04e+03	5.2e+02	3.92e+06	3.74e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	5.91e+06	8.56e+02	6.9e+03	3.68e+06	1.68e+02	2.2e+04
20	13C-2,3,4,7,8-PeCDF	6.09e+06	8.56e+02	7.1e+03	3.87e+06	1.68e+02	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+06	7.80e+02	3.7e+03	5.60e+06	6.84e+02	8.2e+03
22	13C-1,2,3,6,7,8-HxCDF	3.28e+06	7.80e+02	4.2e+03	6.30e+06	6.84e+02	9.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.89e+06	7.80e+02	3.7e+03	5.49e+06	6.84e+02	8.0e+03
24	13C-1,2,3,7,8,9-HxCDF	2.18e+06	7.80e+02	2.8e+03	4.28e+06	6.84e+02	6.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.87e+06	1.21e+03	1.5e+03	4.14e+06	1.76e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.42e+06	1.21e+03	1.2e+03	3.33e+06	1.76e+03	1.9e+03
27	13C-2,3,7,8-TCDD	2.09e+06	5.60e+03	3.7e+02	2.62e+06	2.35e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	4.44e+06	7.36e+02	6.0e+03	2.77e+06	1.17e+03	2.4e+03
29	13C-1,2,3,4,7,8-HxCDD	4.32e+06	1.23e+03	3.5e+03	3.34e+06	2.40e+02	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	3.79e+06	1.23e+03	3.1e+03	3.01e+06	2.40e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.87e+06	5.64e+02	5.1e+03	2.74e+06	8.04e+02	3.4e+03
32	13C-OCDD	1.63e+06	3.48e+02	4.7e+03	1.84e+06	2.20e+02	8.4e+03
33	13C-1,2,3,4-TCDD	6.22e+06	5.60e+03	1.1e+03	7.76e+06	2.35e+03	3.3e+03
34	13C-1,2,3,7,8,9-HxCDD	8.78e+06	1.23e+03	7.1e+03	6.81e+06	2.40e+02	2.8e+04
35	37Cl-2,3,7,8-TCDD	2.41e+06	8.00e+02	3.0e+03			

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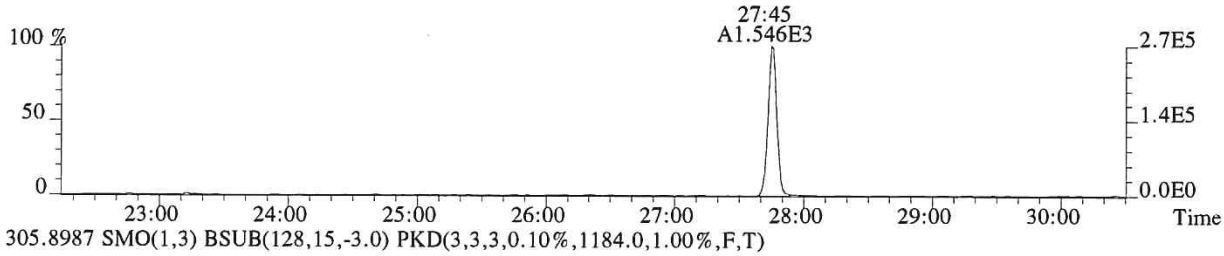
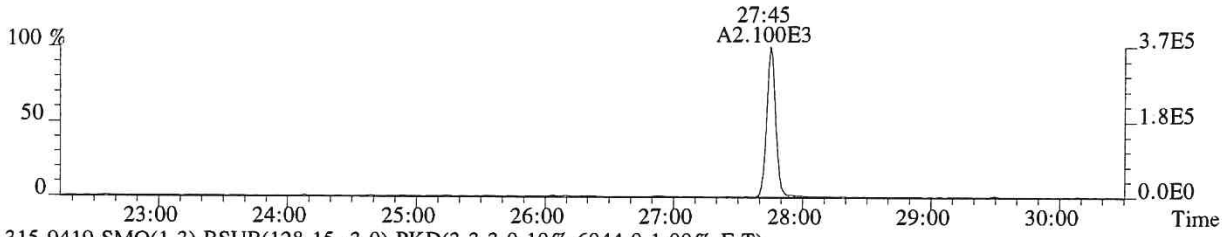
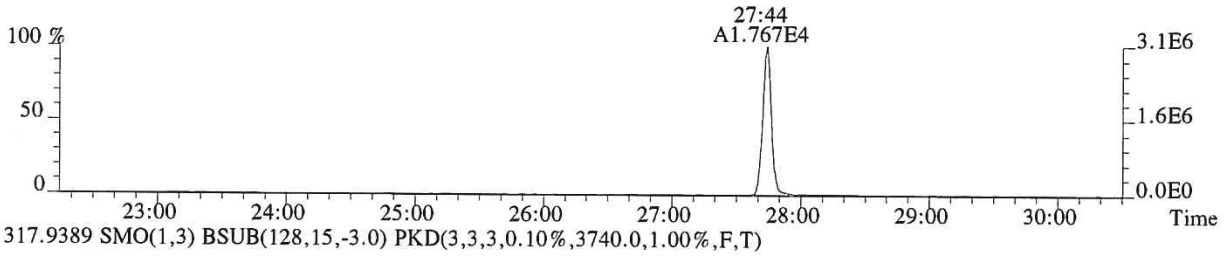
File:P519364 #1-587 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



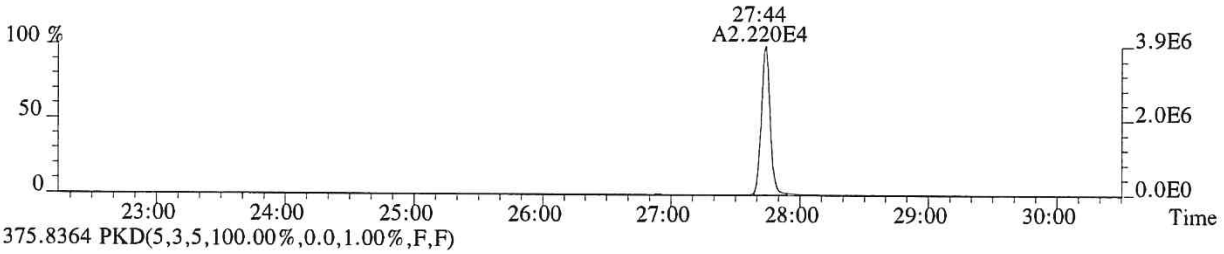
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



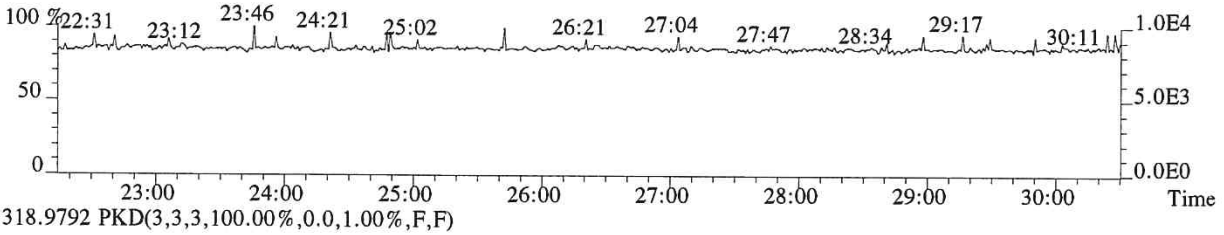
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6044.0,1.00%,F,T)



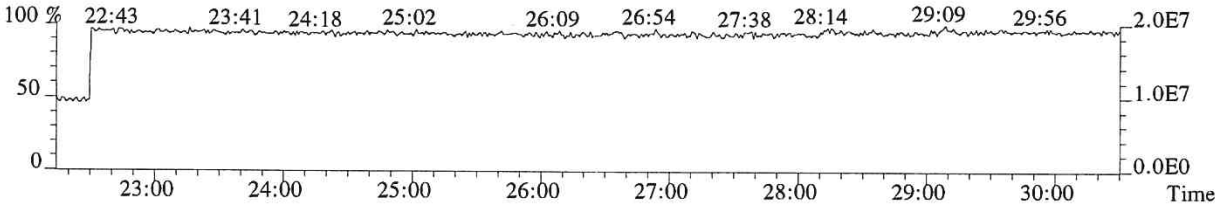
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3740.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

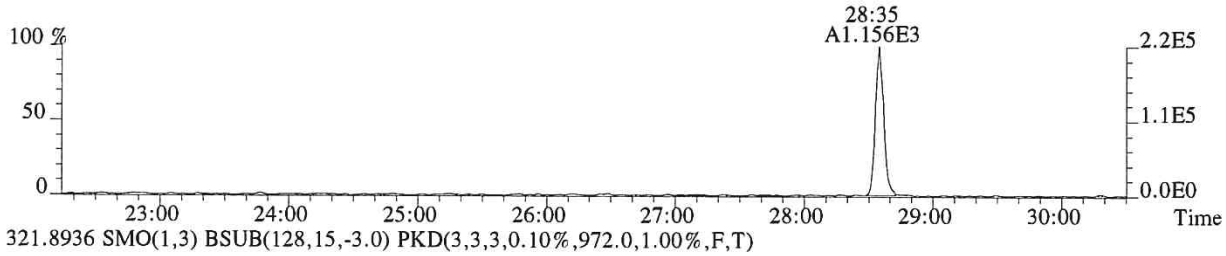


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

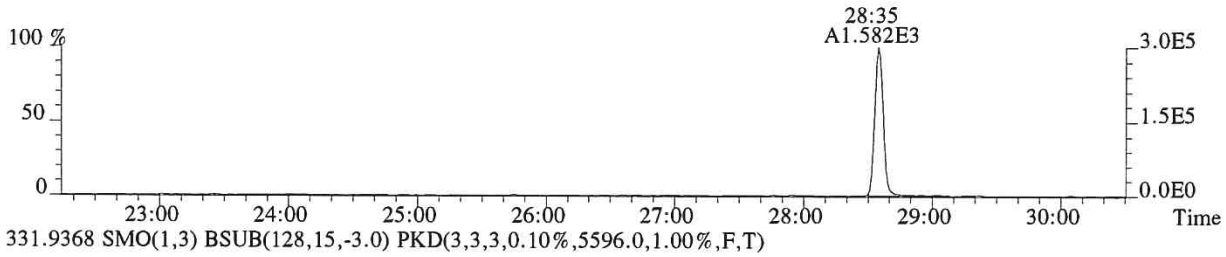


012586

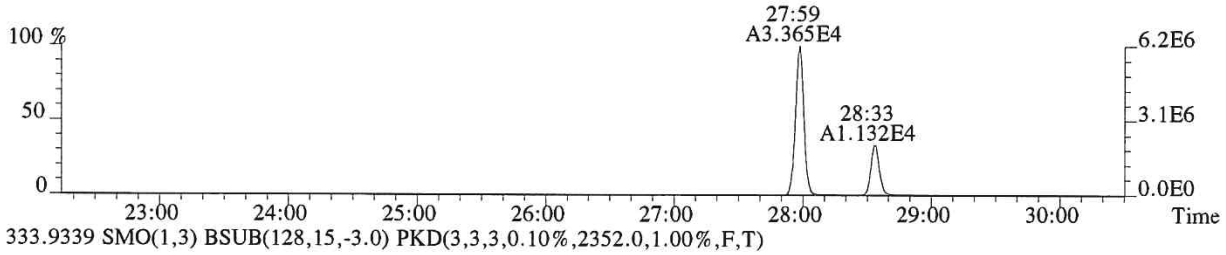
File:P519364 #1-587 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



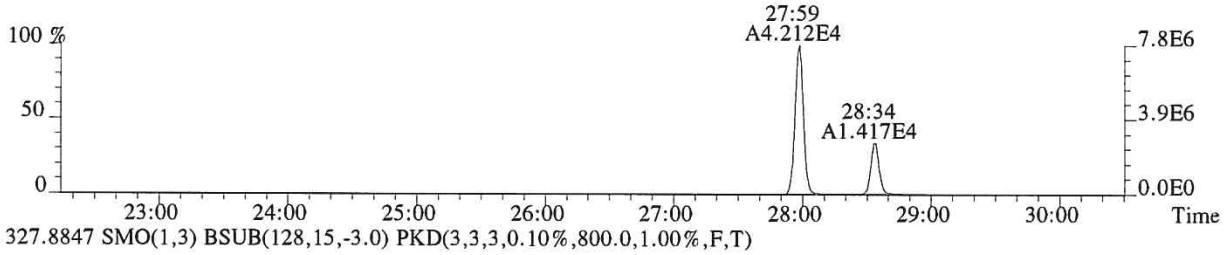
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



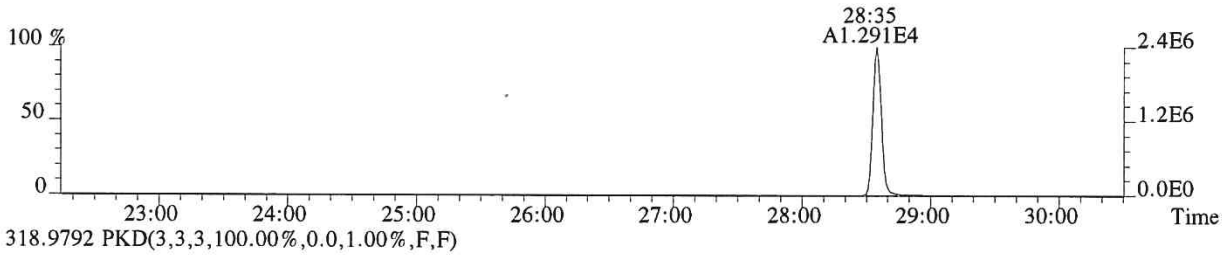
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5596.0,1.00%,F,T)



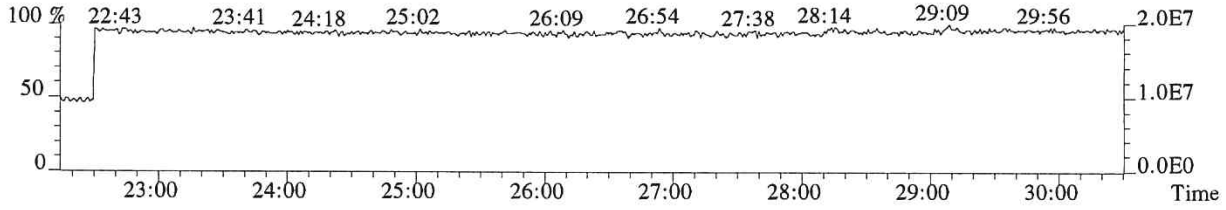
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2352.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)

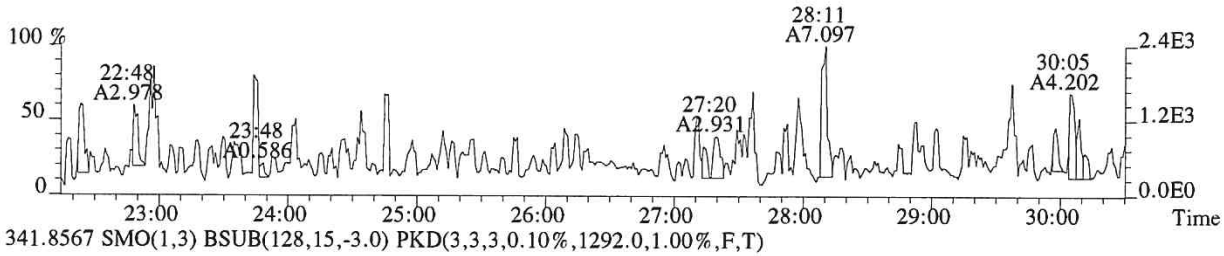


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

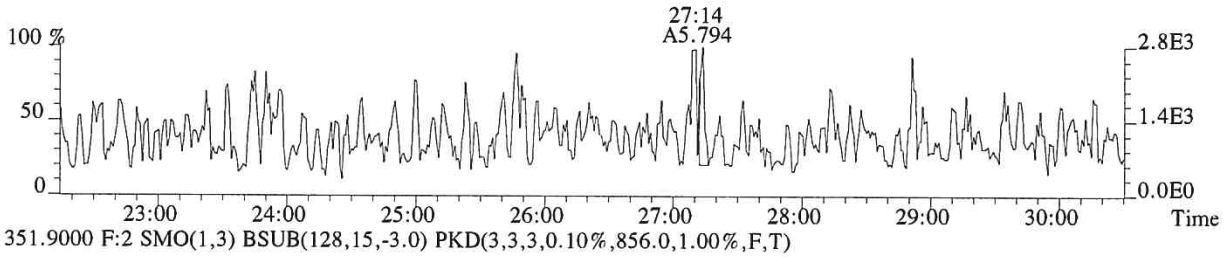


012587

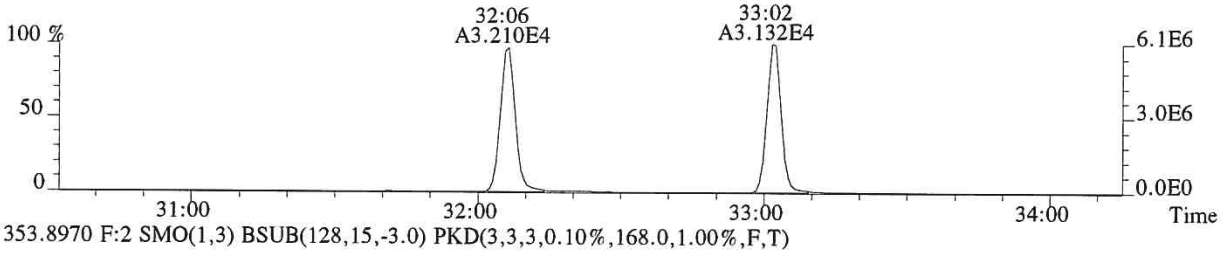
File:P519364 #1-587 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



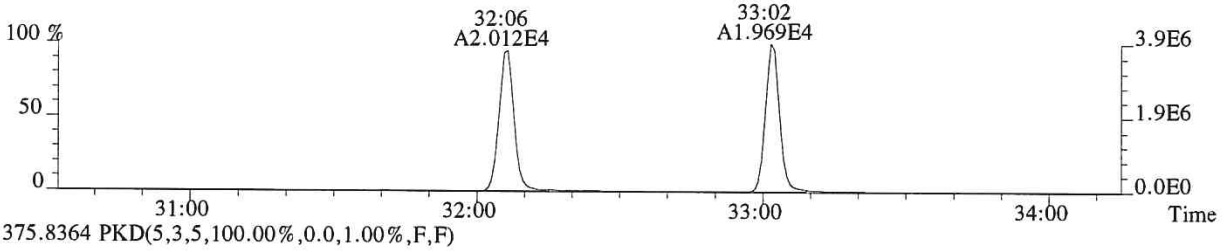
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



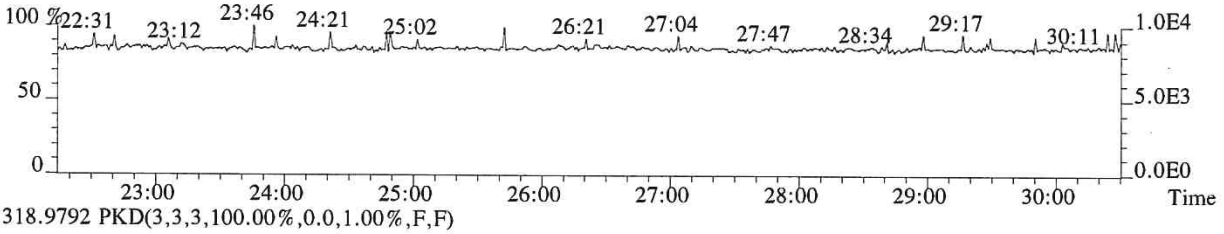
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



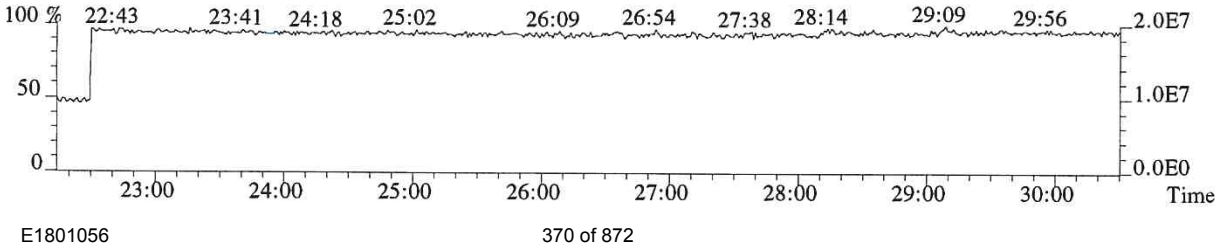
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

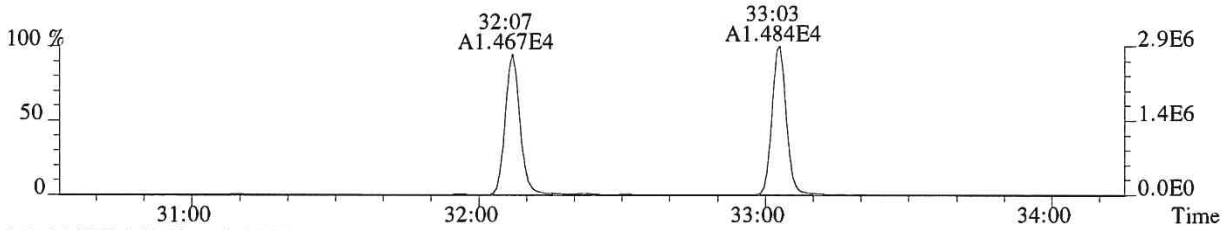


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

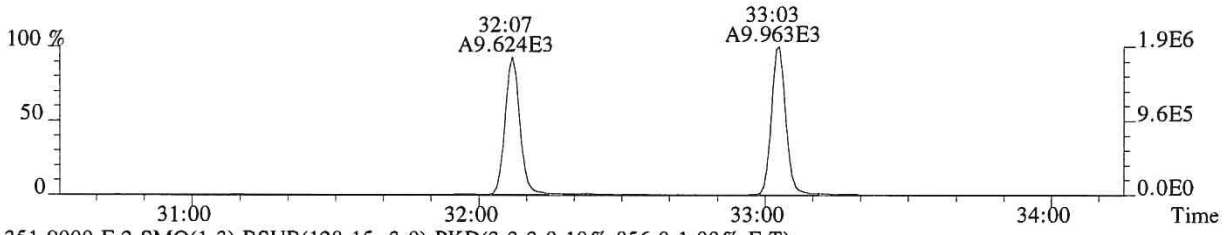


012588

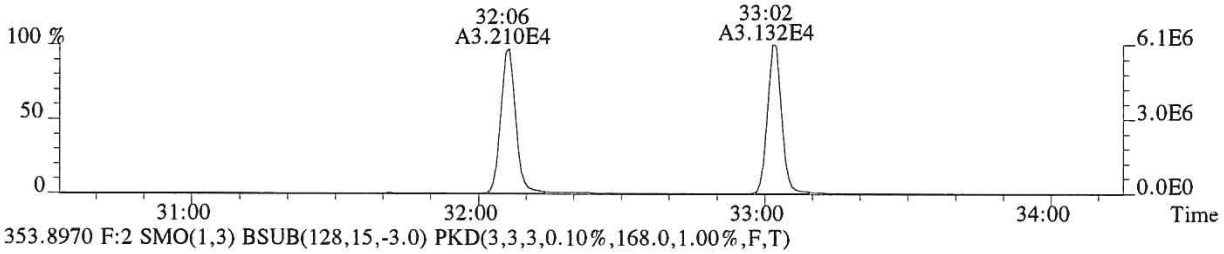
File:P519364 #1-335 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



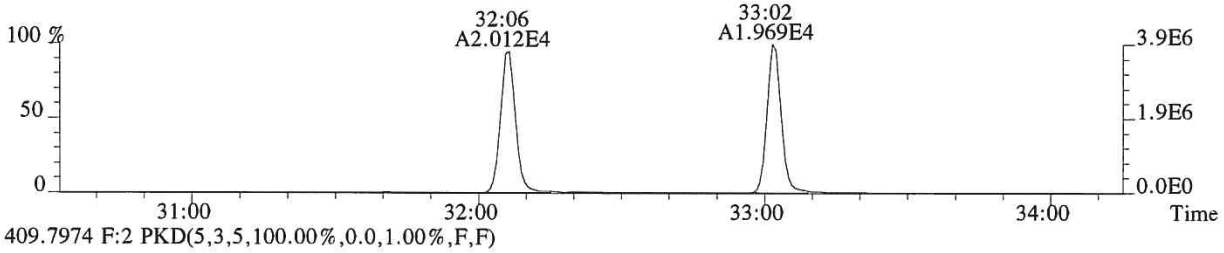
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1672.0,1.00%,F,T)



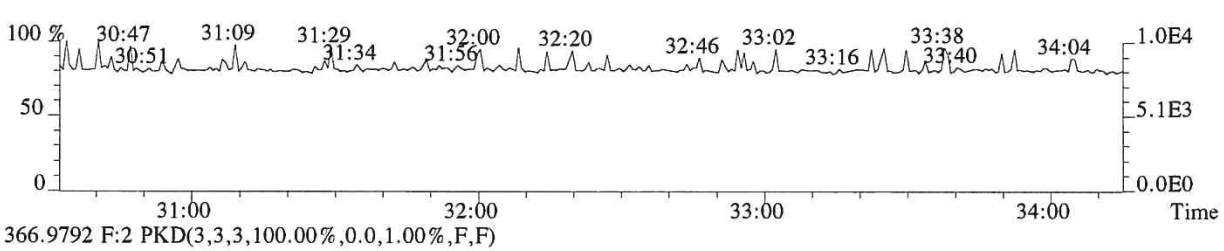
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



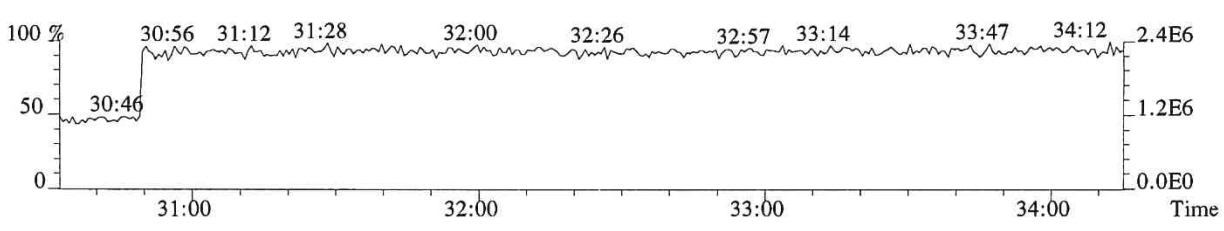
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

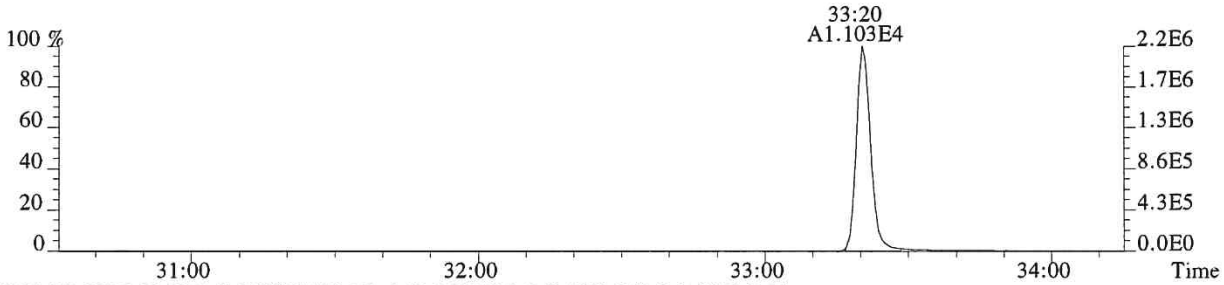


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

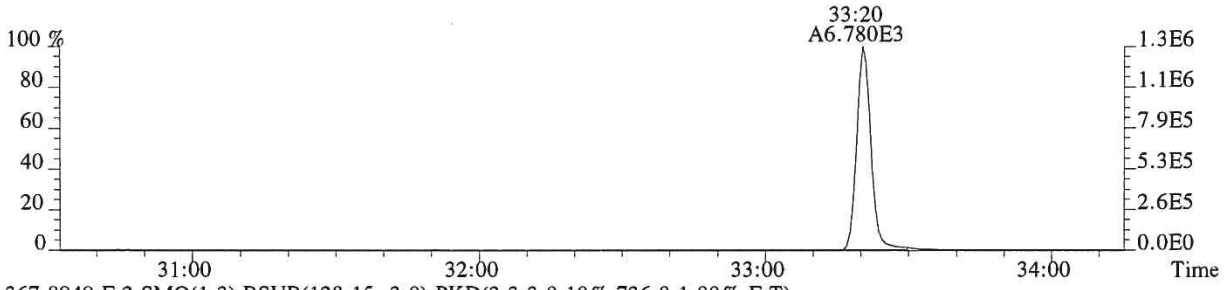


012589

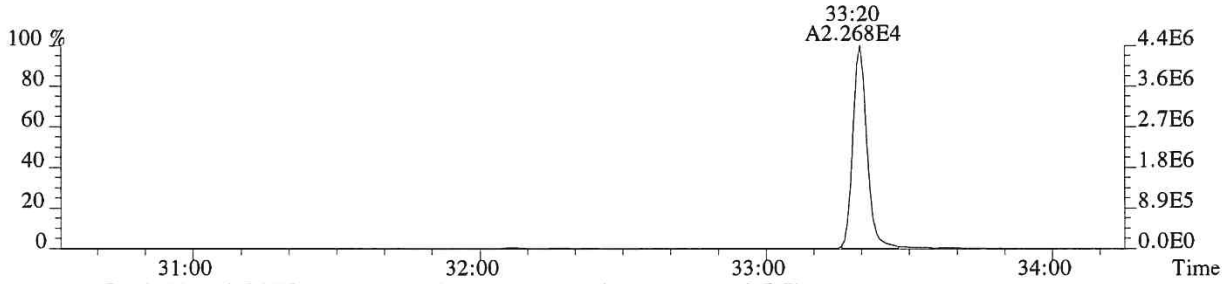
File:P519364 #1-335 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



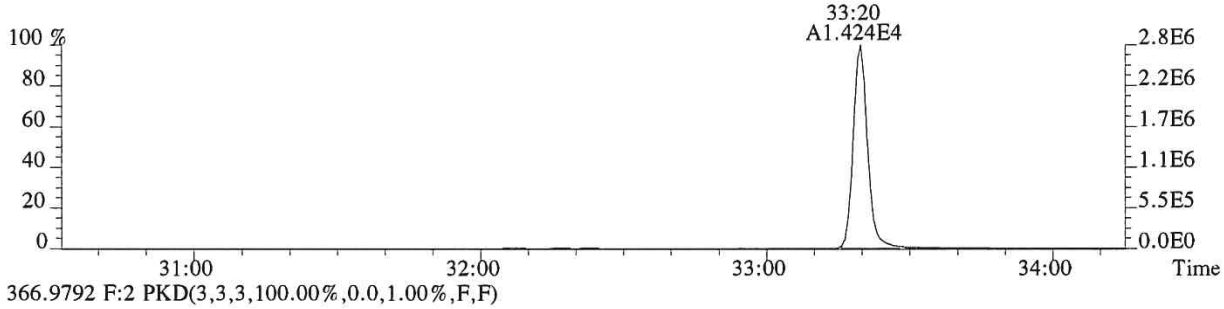
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



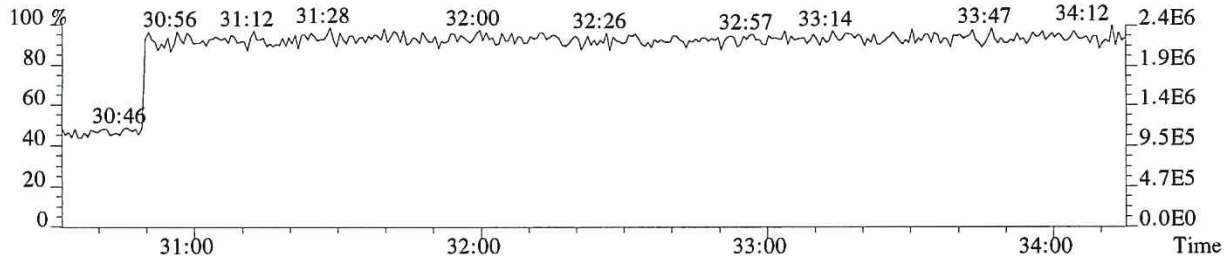
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



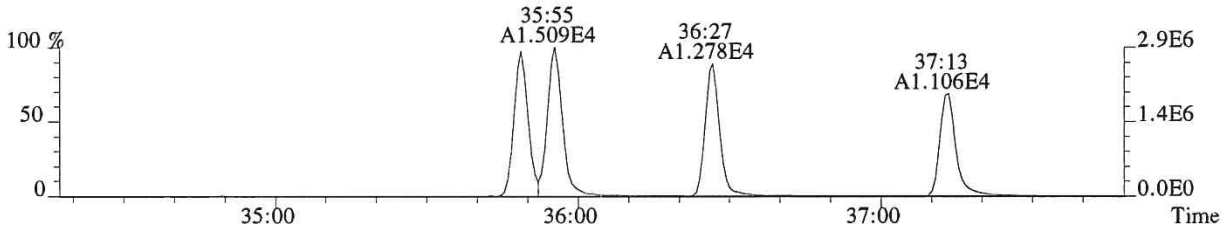
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



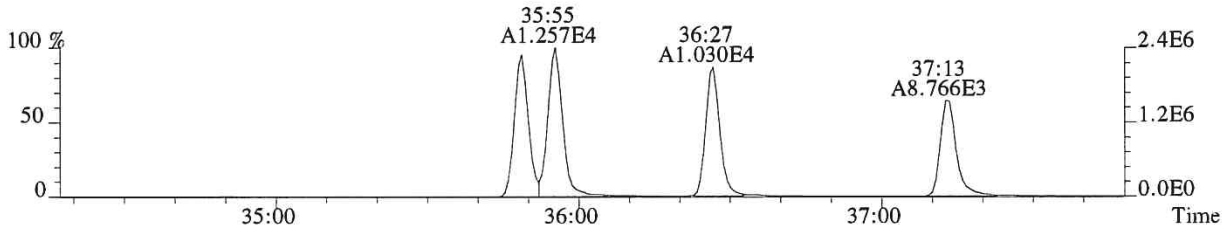
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



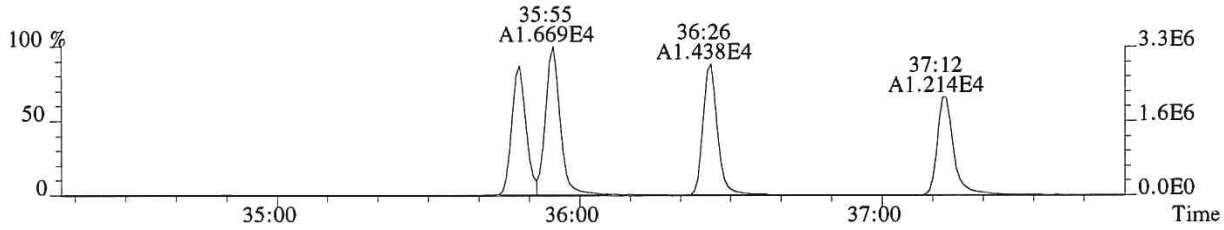
File:P519364 #1-317 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



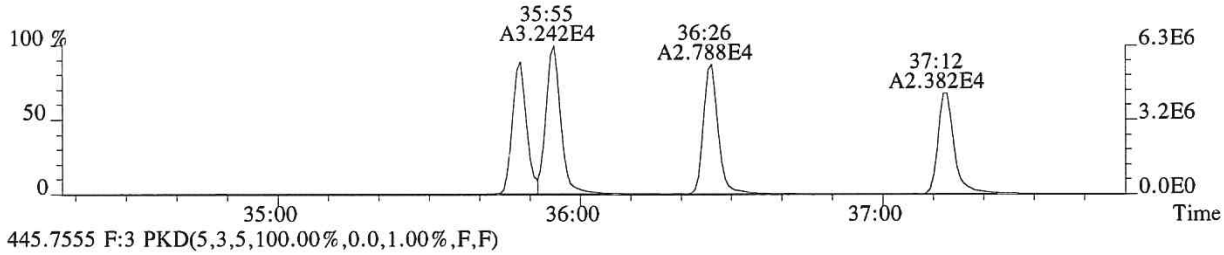
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



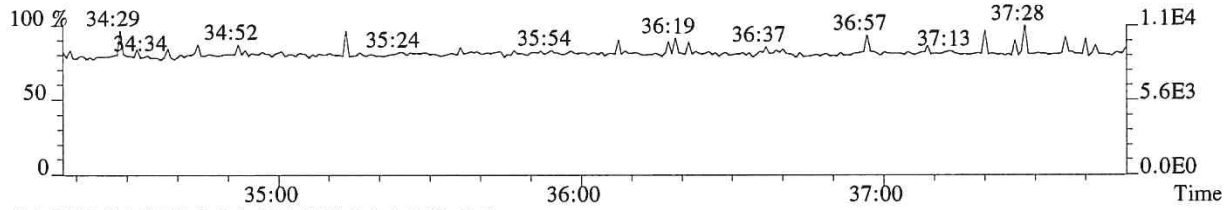
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



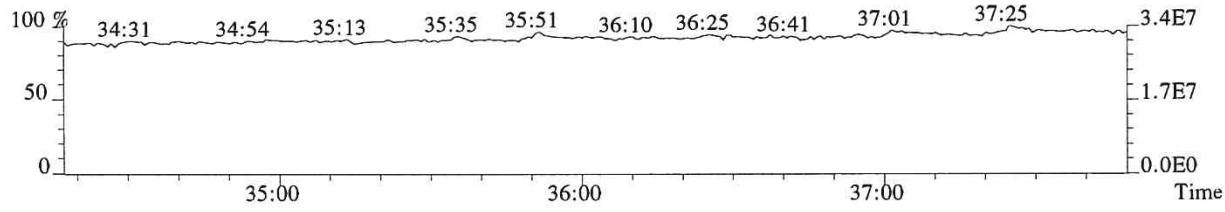
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

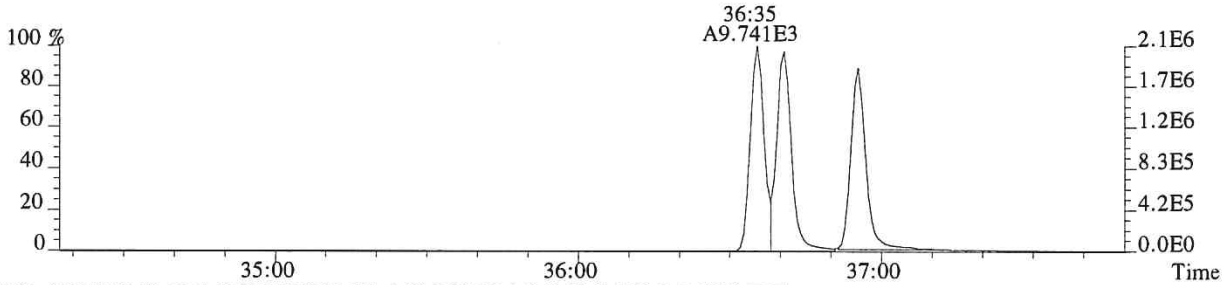


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

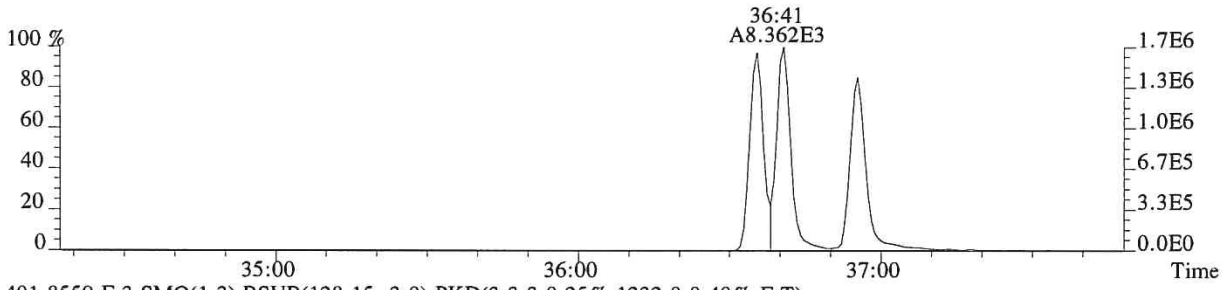


012591

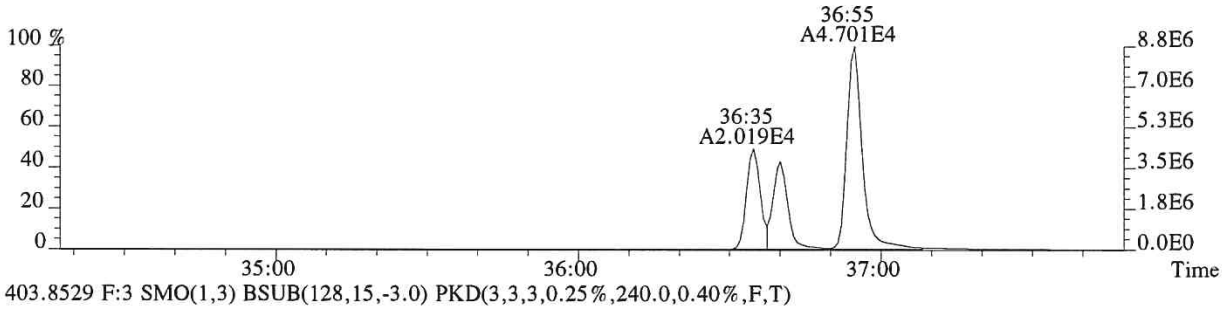
File:P519364 #1-317 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



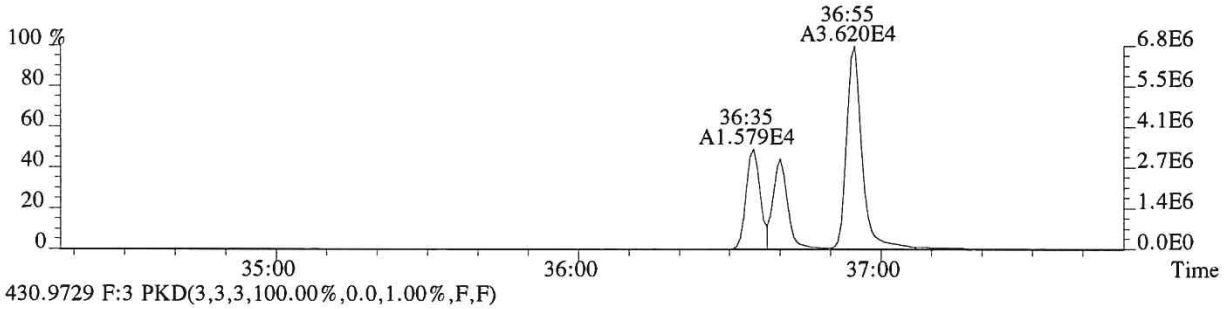
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.40%,F,T)



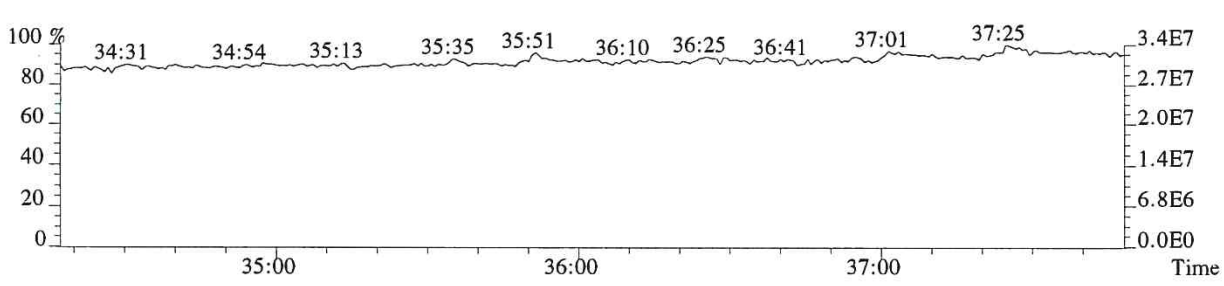
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)

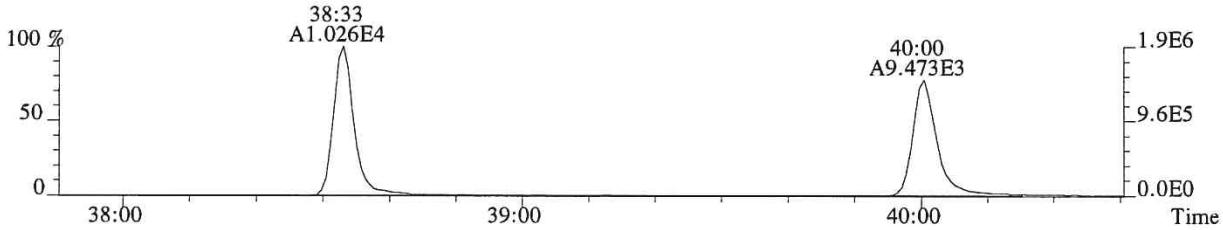


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

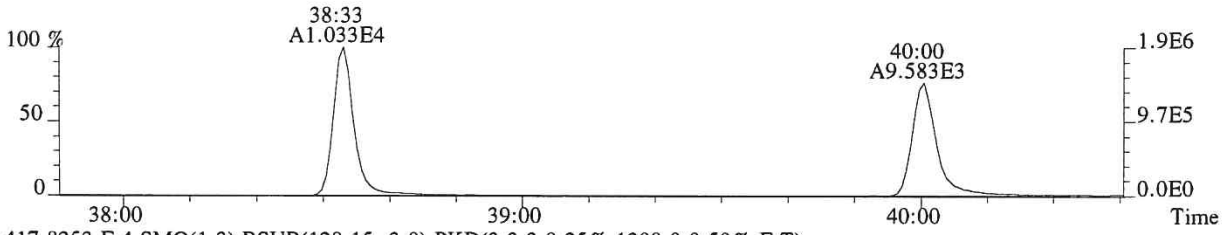


012592

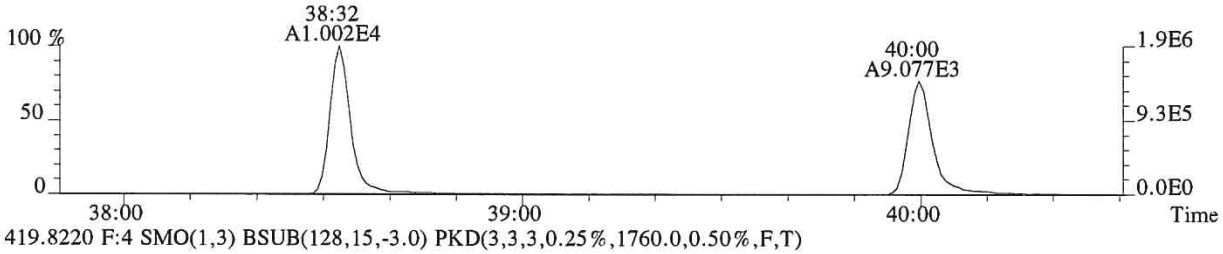
File:P519364 #1-241 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.50%,F,T)



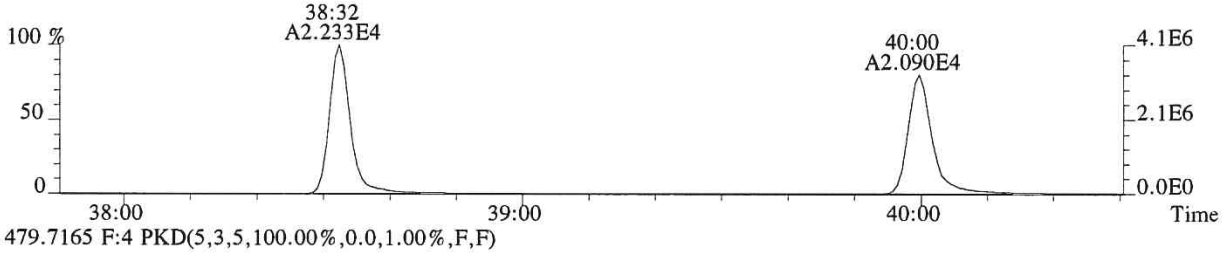
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2012.0,0.50%,F,T)



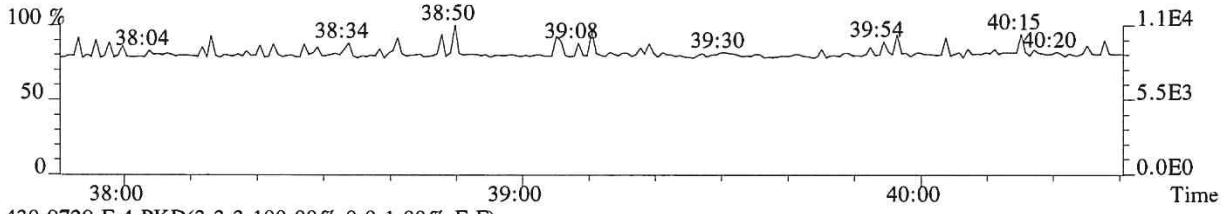
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.50%,F,T)



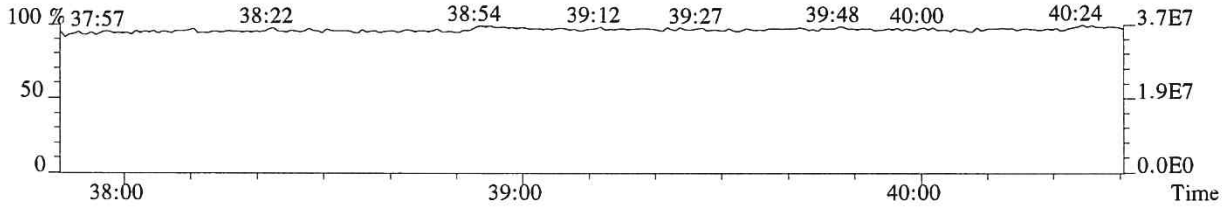
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.50%,F,T)



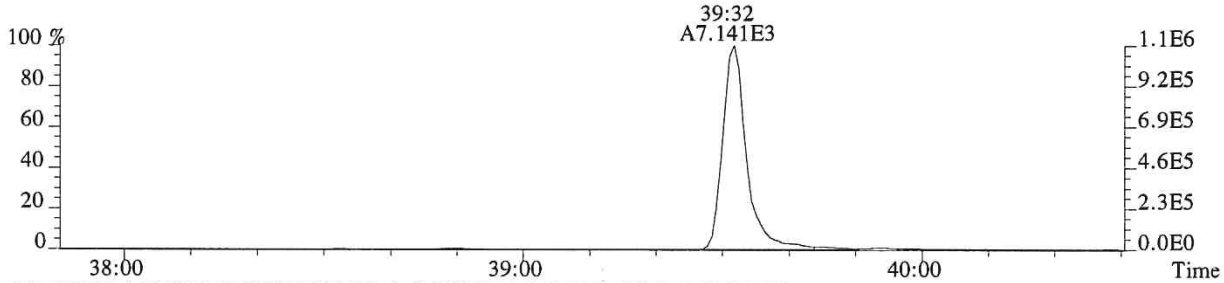
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



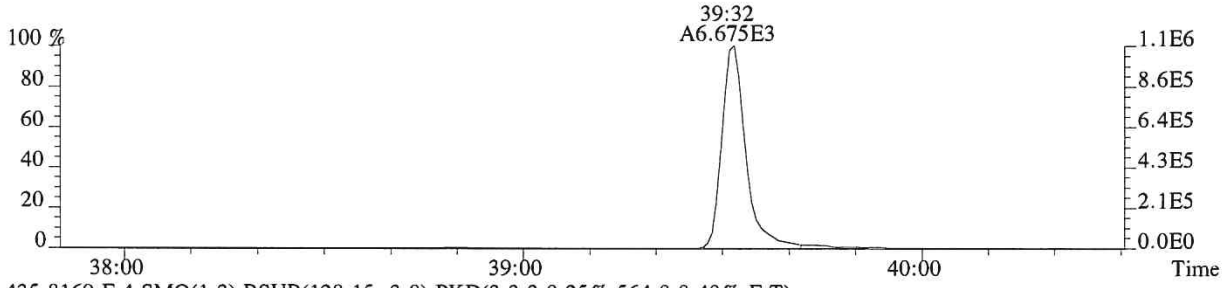
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



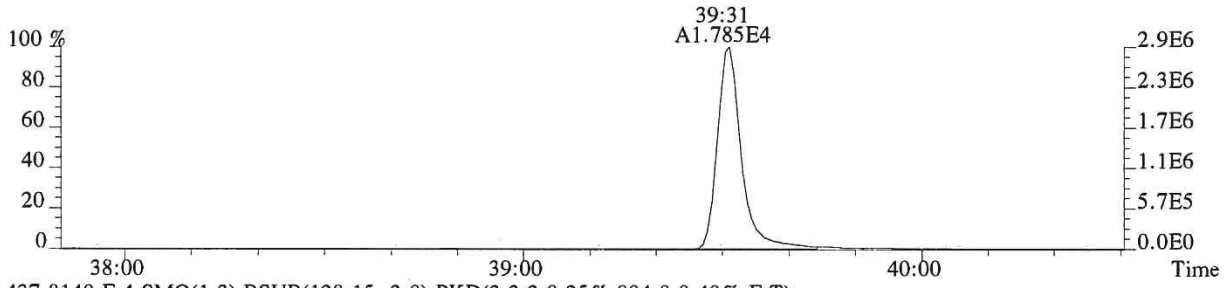
File:P519364 #1-241 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



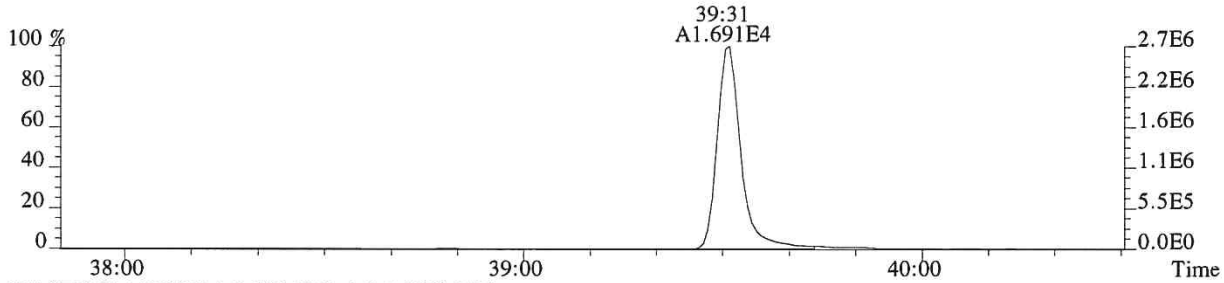
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



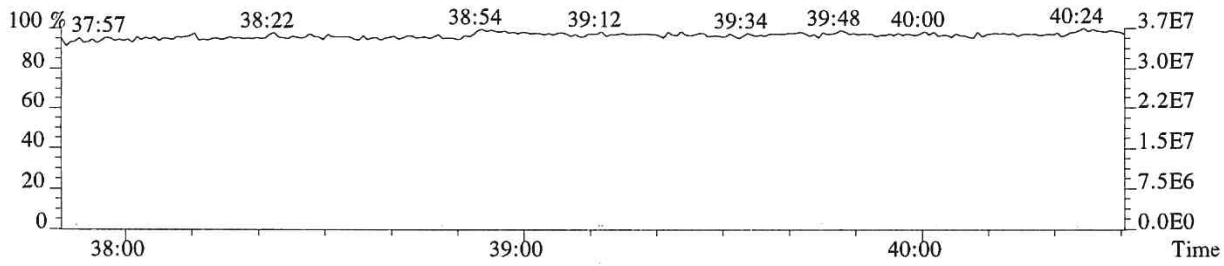
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



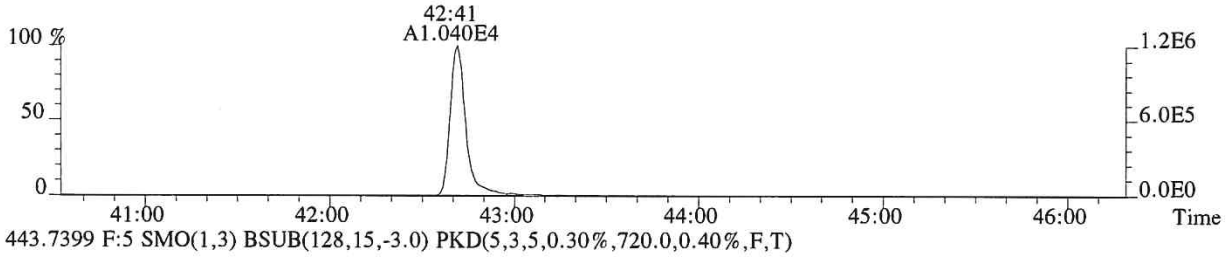
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



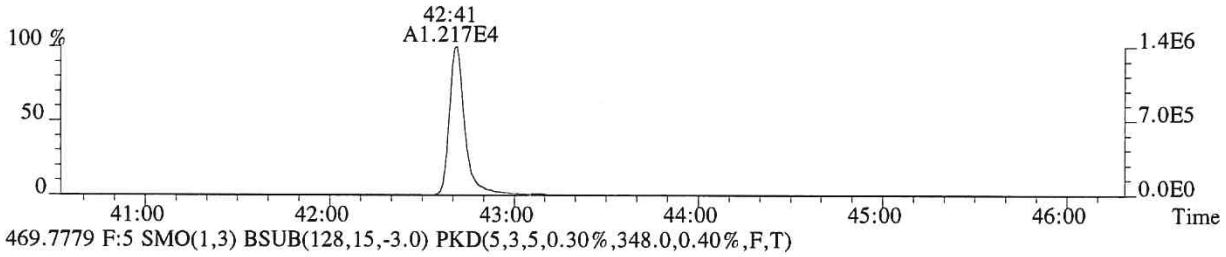
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



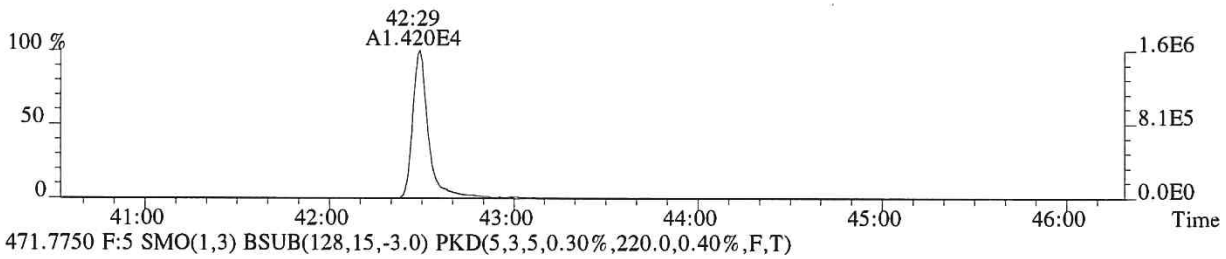
File:P519364 #1-520 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



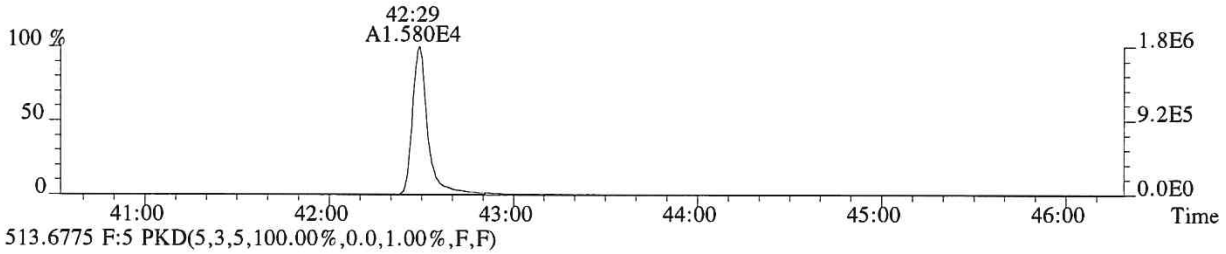
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,720.0,0.40%,F,T)



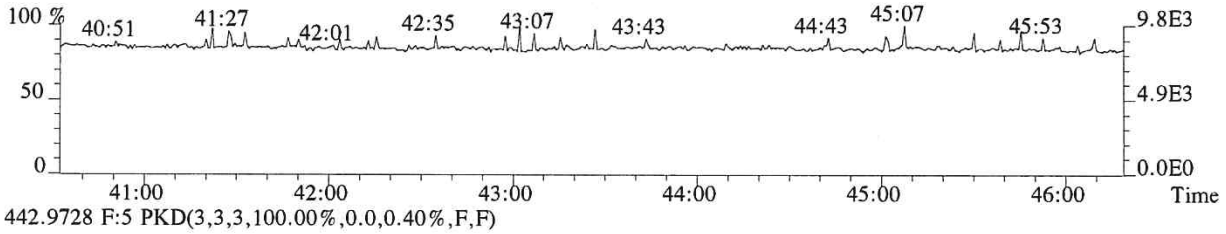
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



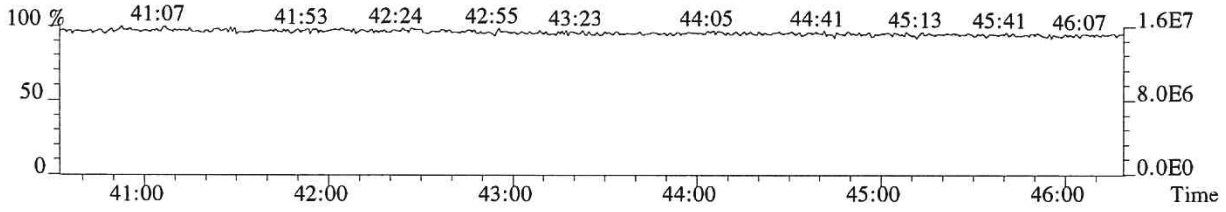
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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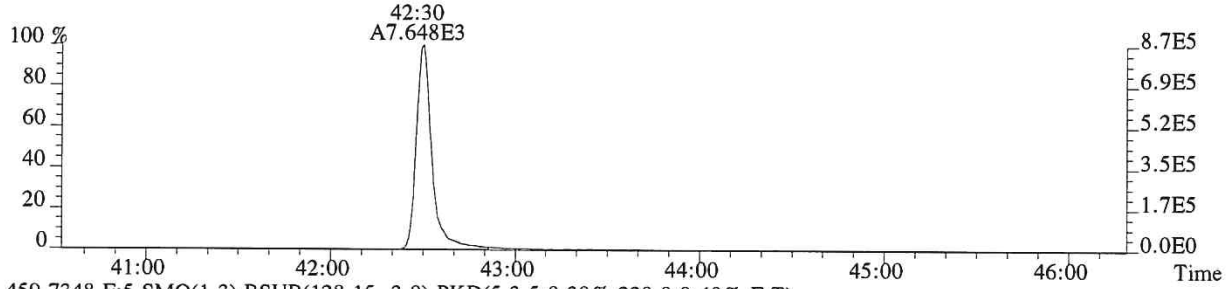
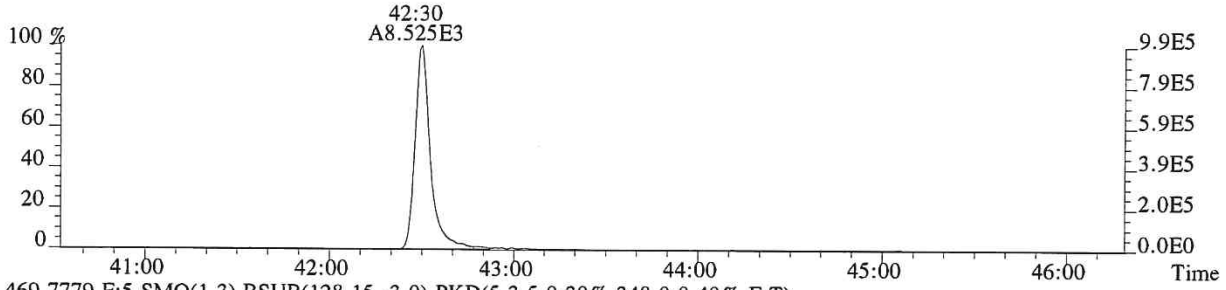
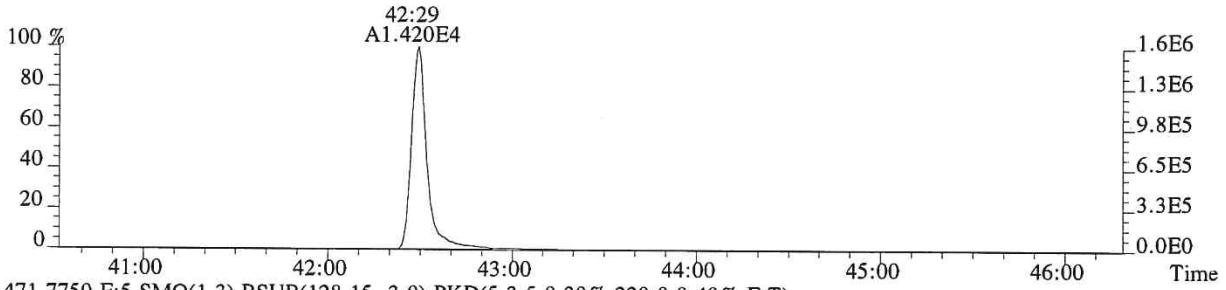
File:P519364 #1-520 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



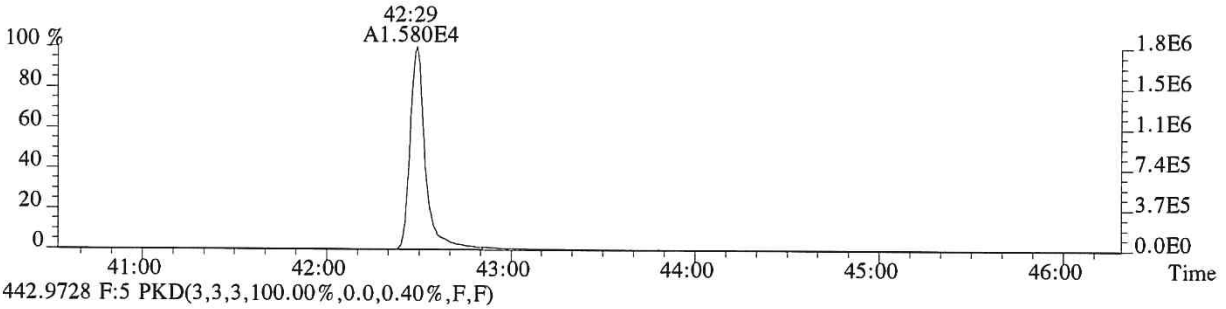
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



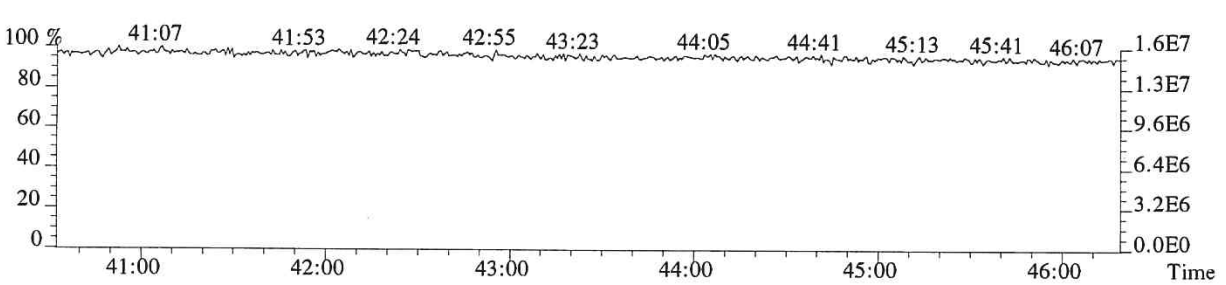
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P616043 Samp: 1 Inj: 1 Acquired: 11-DEC-18 12:27:41
Processed: 12-DEC-18 16:11:27 Sample ID: EQ1800499-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	1.001e+01	8.252e+00	1.21	no	yes	1.112
17	Unk	OCDD	41:42	3.477e+01	5.631e+01	0.62	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:30	1.477e+04	1.886e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	2.829e+04	1.792e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:49	2.645e+04	1.677e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:30	1.254e+04	2.391e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	1.500e+04	2.734e+04	0.55	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:07	1.123e+04	2.178e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	1.095e+04	2.163e+04	0.51	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	9.248e+03	1.999e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	7.635e+03	1.720e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:19	8.050e+03	1.075e+04	0.75	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:05	2.175e+04	1.442e+04	1.51	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:15	1.828e+04	1.465e+04	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	1.791e+04	1.402e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	1.664e+04	1.628e+04	1.02	yes	no	0.857
32	IS	13C-OCDD	41:41	1.180e+04	1.330e+04	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:41	2.703e+04	3.456e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	3.937e+04	3.054e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:21	1.144e+04				no	1.086

$$\text{OCDD} = \frac{(3.477e+01 + 5.631e+01) \times 4000\ \text{pg} \times 1}{(1.180e+04 + 1.330e+04) \times \text{g} \times / 100 \times 1.157} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P616043 Samp: 1 Inj: 1 Acquired: 11-DEC-18 12:27:41
Processed: 12-DEC-18 16:11:27 LAB. ID: EQ1800499-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.45e+03	*	*	4.19e+03	*
2	1,2,3,7,8-PeCDF	*	8.92e+02	*	*	1.86e+03	*
3	2,3,4,7,8-PeCDF	*	8.92e+02	*	*	1.86e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.64e+03	*	*	9.20e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.64e+03	*	*	9.20e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.64e+03	*	*	9.20e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.64e+03	*	*	9.20e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	8.68e+02	*	*	5.76e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	8.68e+02	*	*	5.76e+02	*
10	OCDF	*	9.72e+02	*	*	2.94e+03	*
11	2,3,7,8-TCDD	*	4.27e+03	*	*	1.78e+03	*
12	1,2,3,7,8-PeCDD	*	1.80e+03	*	*	8.08e+02	*
13	1,2,3,4,7,8-HxCDD	*	9.24e+02	*	*	1.27e+03	*
14	1,2,3,6,7,8-HxCDD	*	9.24e+02	*	*	1.27e+03	*
15	1,2,3,7,8,9-HxCDD	*	9.24e+02	*	*	1.27e+03	*
16	1,2,3,4,6,7,8-HpCDD	3.12e+03	6.00e+02	5.2e+00	2.49e+03	6.20e+02	4.0e+00
17	OCDD	5.96e+03	6.08e+02	9.8e+00	1.10e+04	4.16e+02	2.6e+01
18	13C-2,3,7,8-TCDF	2.35e+06	1.06e+04	2.2e+02	2.98e+06	1.02e+04	2.9e+02
19	13C-1,2,3,7,8-PeCDF	4.84e+06	1.86e+03	2.6e+03	3.09e+06	5.84e+02	5.3e+03
20	13C-2,3,4,7,8-PeCDF	4.68e+06	1.86e+03	2.5e+03	2.98e+06	5.84e+02	5.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.64e+06	9.36e+02	2.8e+03	5.02e+06	2.52e+03	2.0e+03
22	13C-1,2,3,6,7,8-HxCDF	2.94e+06	9.36e+02	3.1e+03	5.22e+06	2.52e+03	2.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.26e+06	9.36e+02	2.4e+03	4.44e+06	2.52e+03	1.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.04e+06	9.36e+02	2.2e+03	3.91e+06	2.52e+03	1.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.89e+06	4.73e+03	4.0e+02	4.15e+06	3.78e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+06	4.73e+03	3.0e+02	3.13e+06	3.78e+03	8.3e+02
27	13C-2,3,7,8-TCDD	1.35e+06	1.38e+04	9.8e+01	1.78e+06	5.92e+03	3.0e+02
28	13C-1,2,3,7,8-PeCDD	3.84e+06	2.64e+03	1.5e+03	2.50e+06	2.18e+03	1.1e+03
29	13C-1,2,3,4,7,8-HxCDD	3.95e+06	1.54e+03	2.6e+03	3.20e+06	1.14e+03	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.59e+06	1.54e+03	2.3e+03	2.80e+06	1.14e+03	2.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.25e+06	1.64e+03	2.0e+03	3.17e+06	7.56e+02	4.2e+03
32	13C-OCDD	1.99e+06	6.60e+02	3.0e+03	2.21e+06	6.64e+02	3.3e+03
33	13C-1,2,3,4-TCDD	4.62e+06	1.38e+04	3.3e+02	5.96e+06	5.92e+03	1.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.78e+06	1.54e+03	5.0e+03	6.00e+06	1.14e+03	5.3e+03
35	37Cl-2,3,7,8-TCDD	1.93e+06	1.23e+03	1.6e+03			

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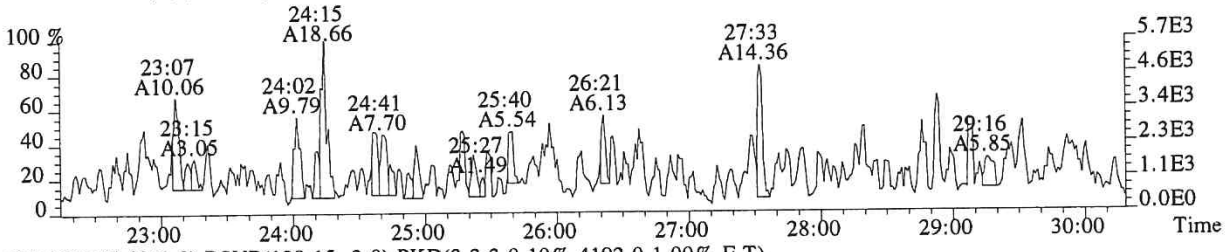
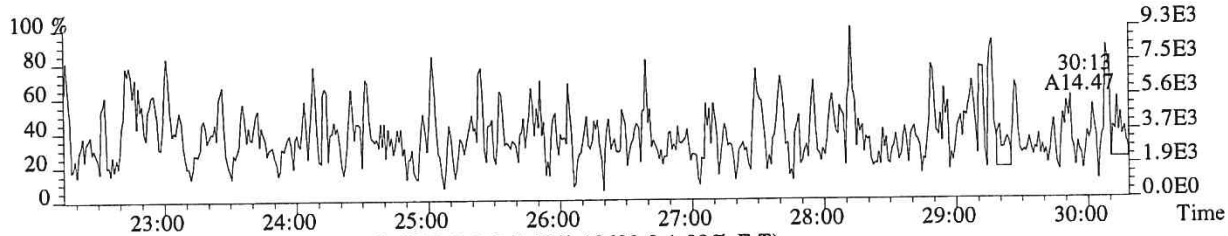
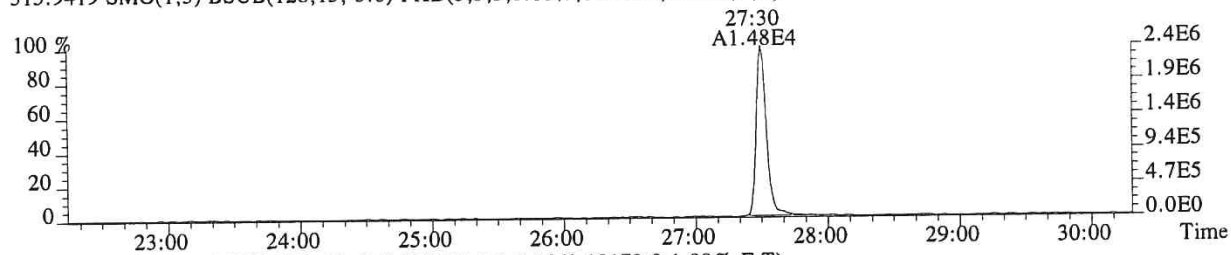
File:P616043 #1-573 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



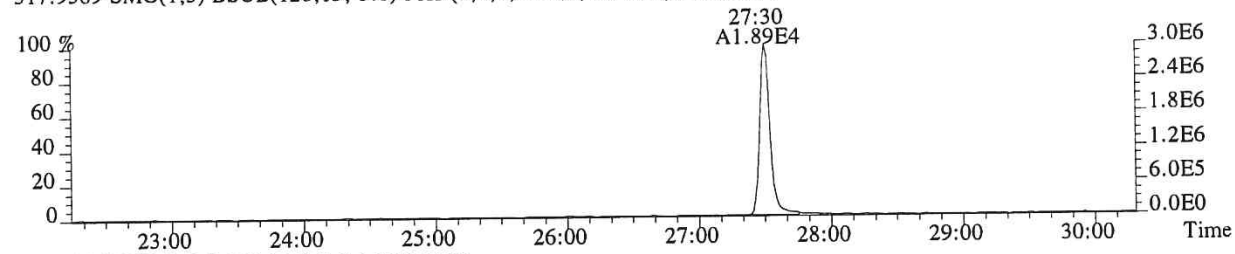
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4192.0,1.00%,F,T)



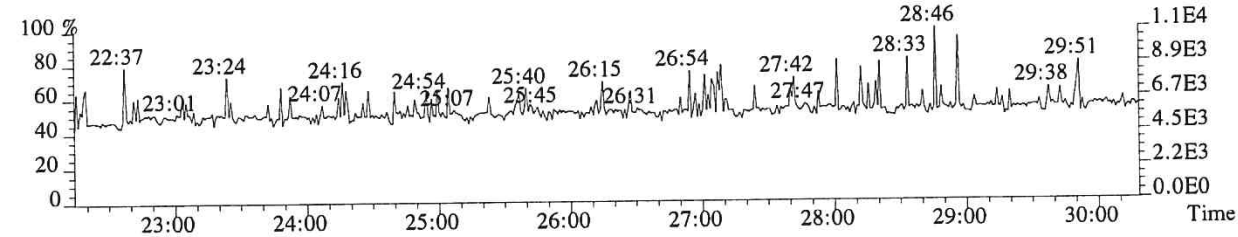
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10600.0,1.00%,F,T)



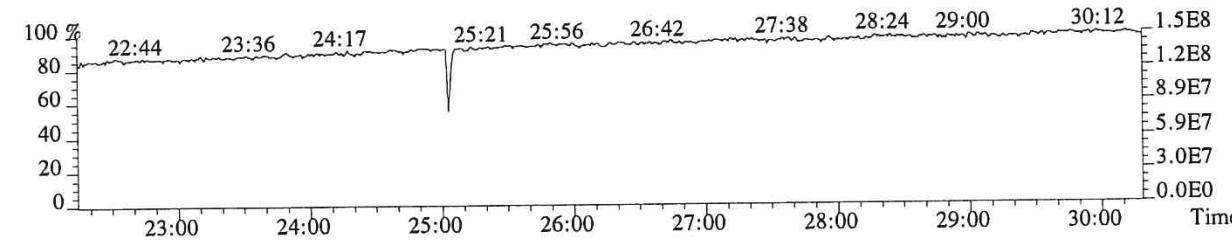
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10172.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

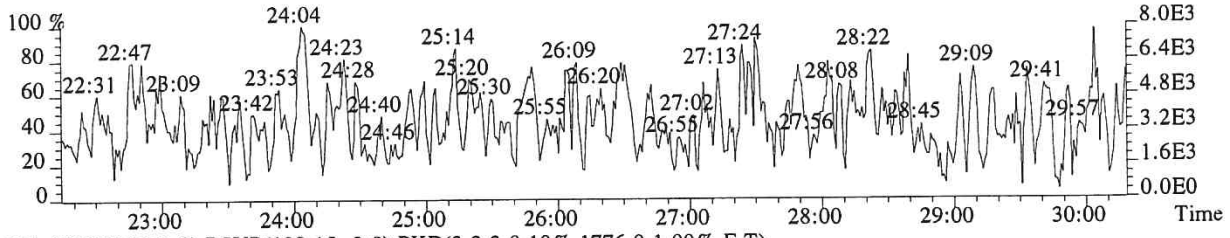


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

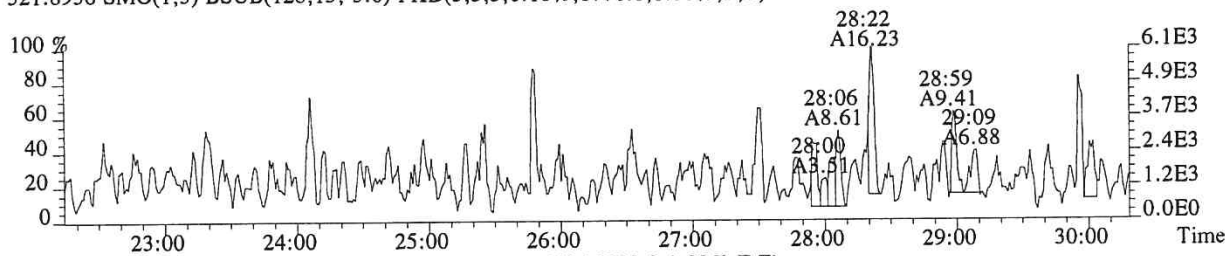


012599

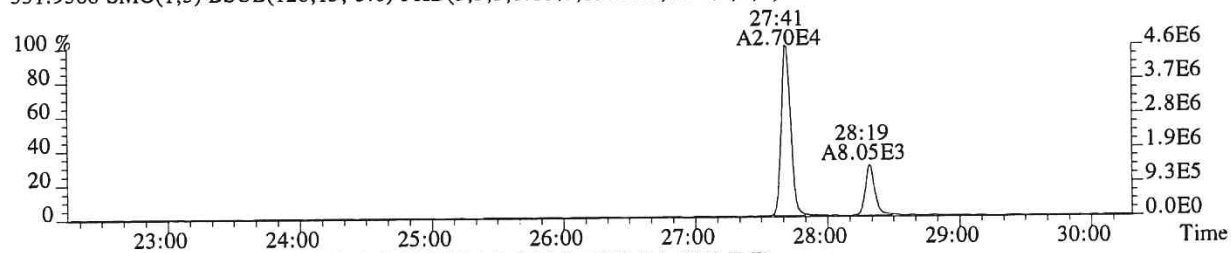
File:P616043 #1-573 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4268.0,1.00%,F,T)



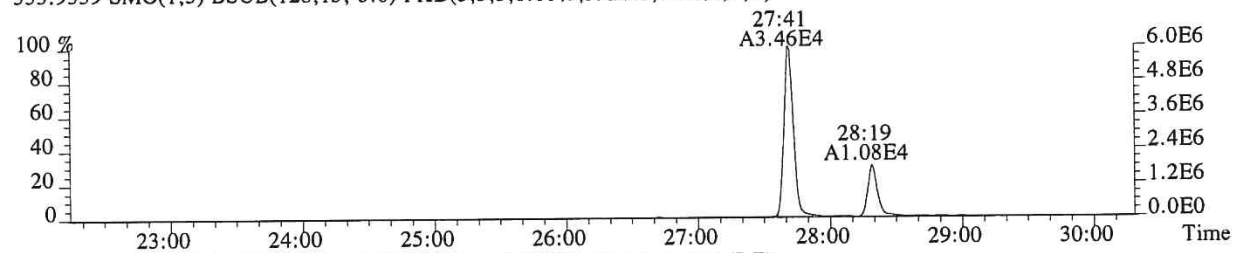
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



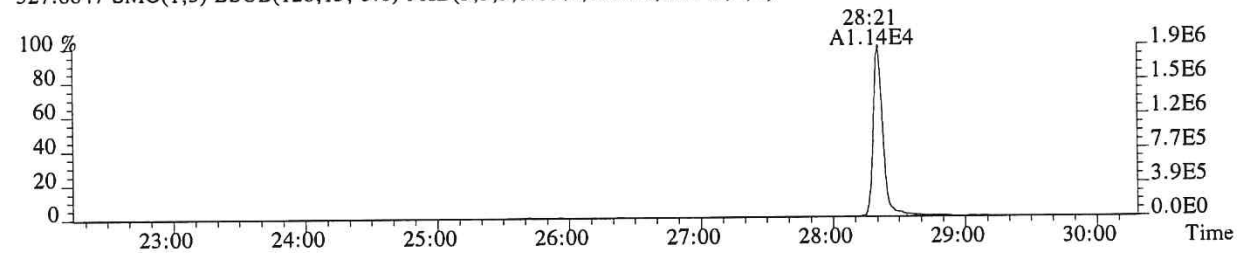
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13780.0,1.00%,F,T)



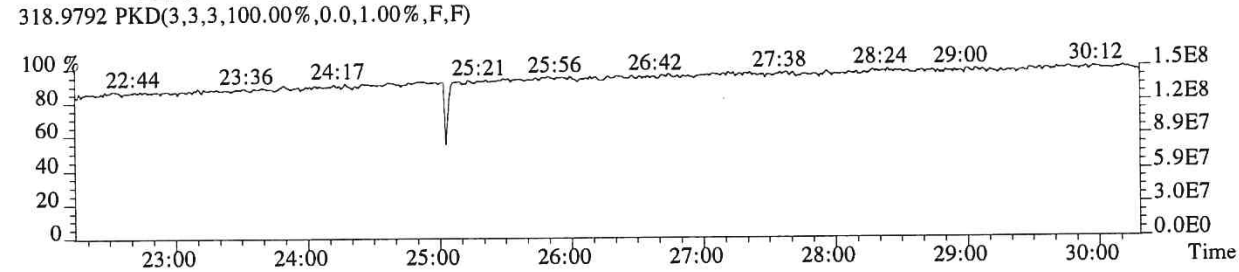
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5920.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)

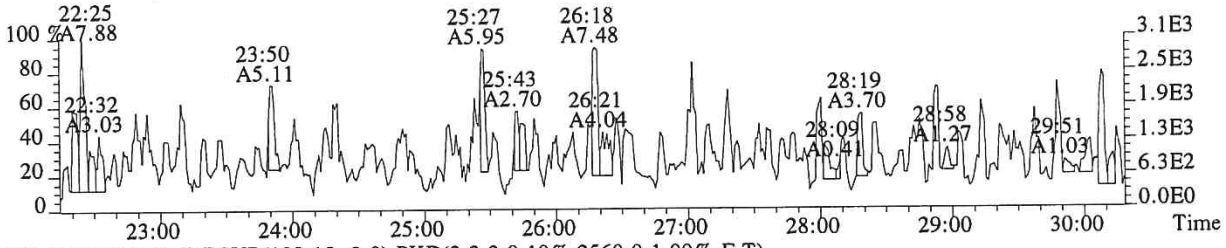


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

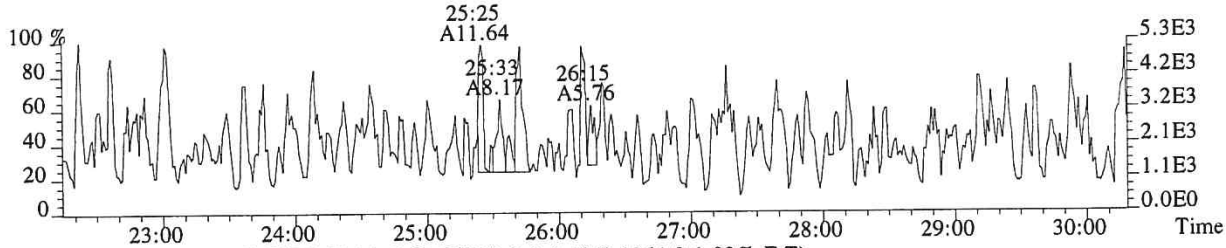


012600

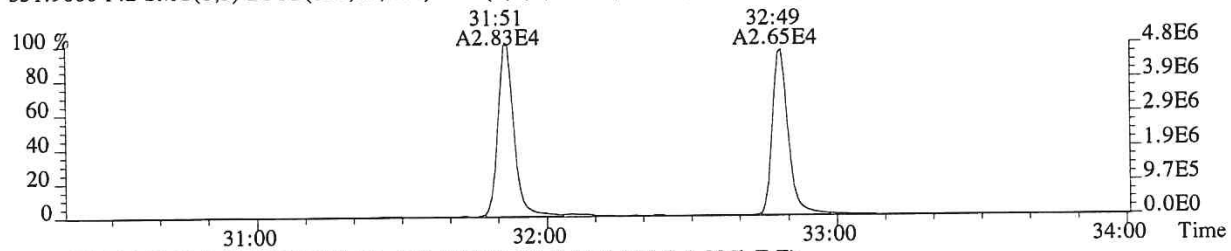
File:P616043 #1-573 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



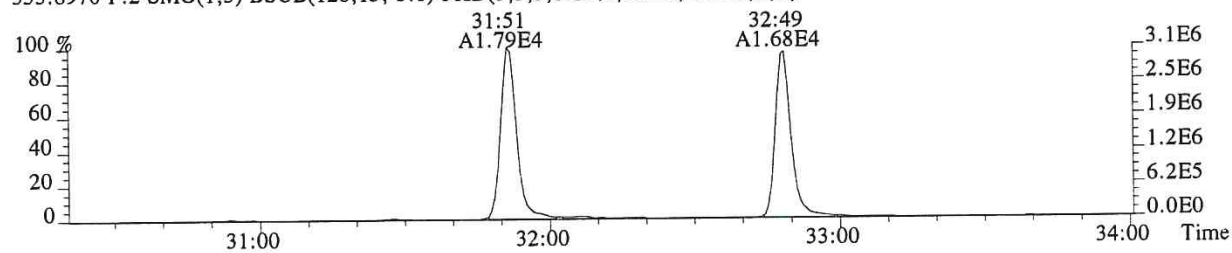
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



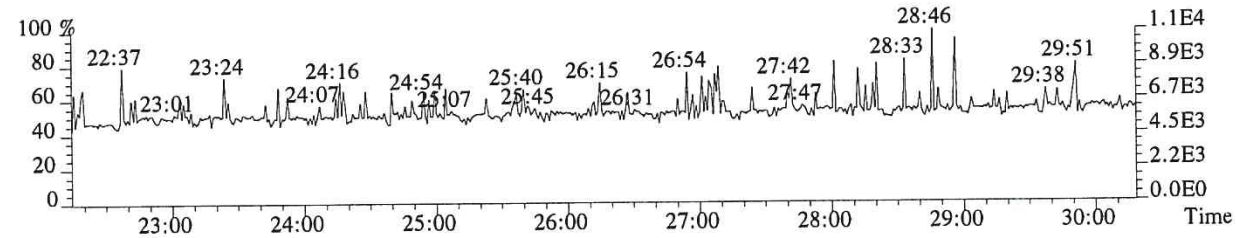
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



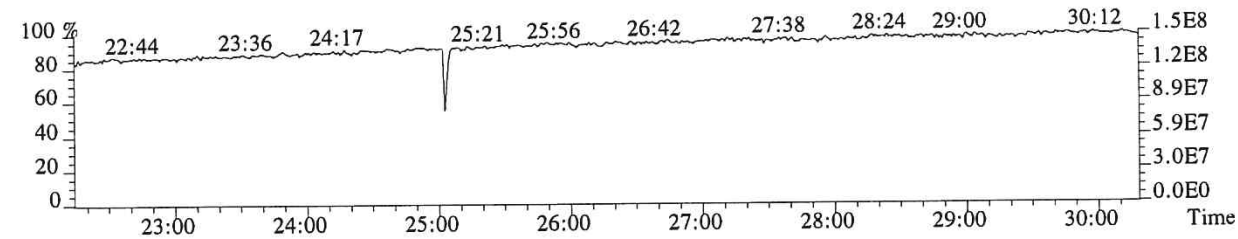
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

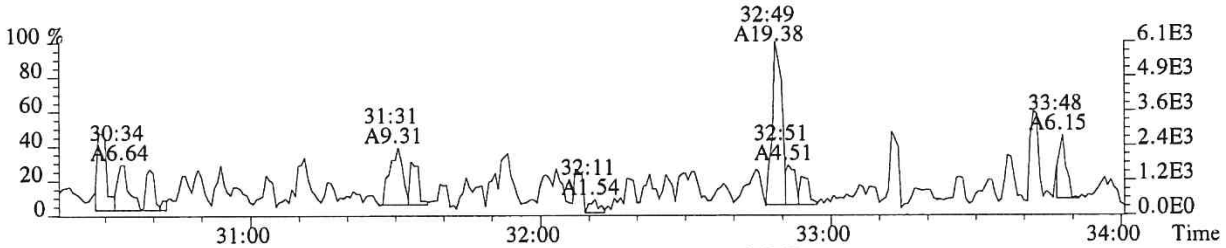


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

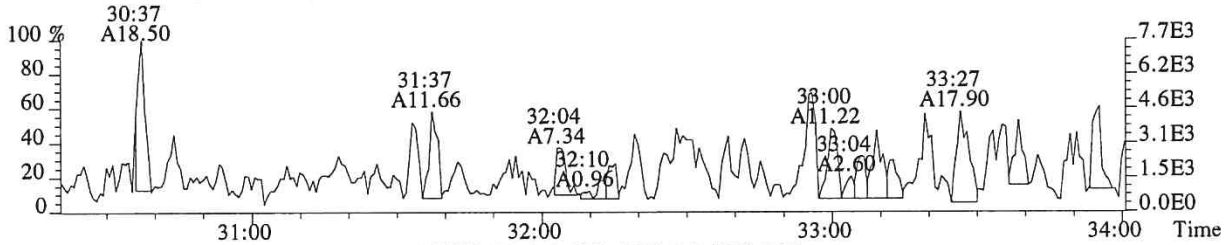


012601

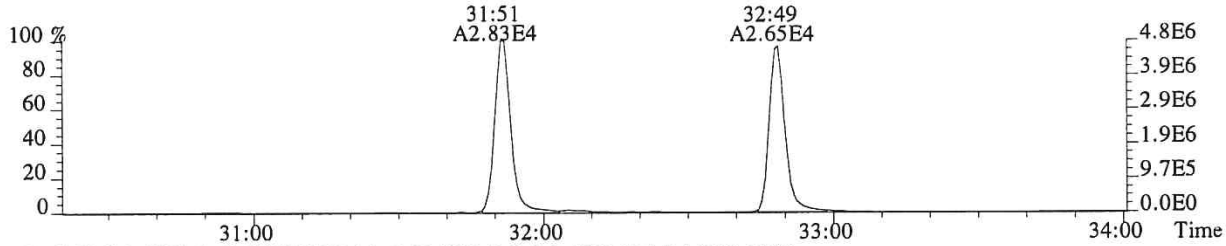
File:P616043 #1-331 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



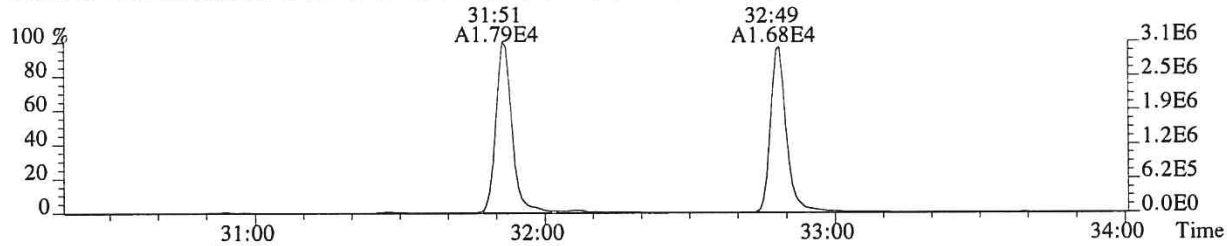
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1856.0,1.00%,F,T)



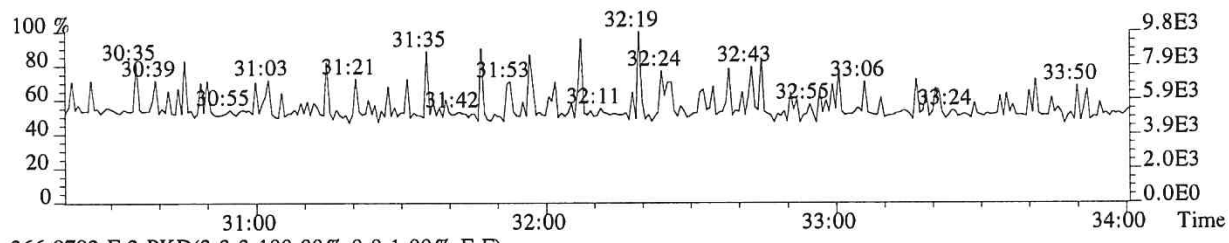
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



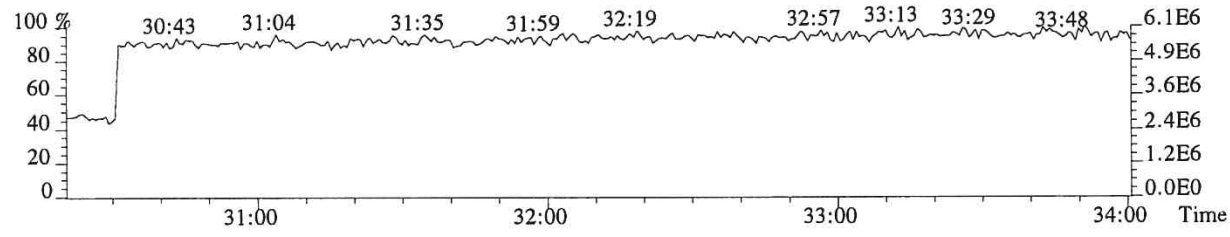
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



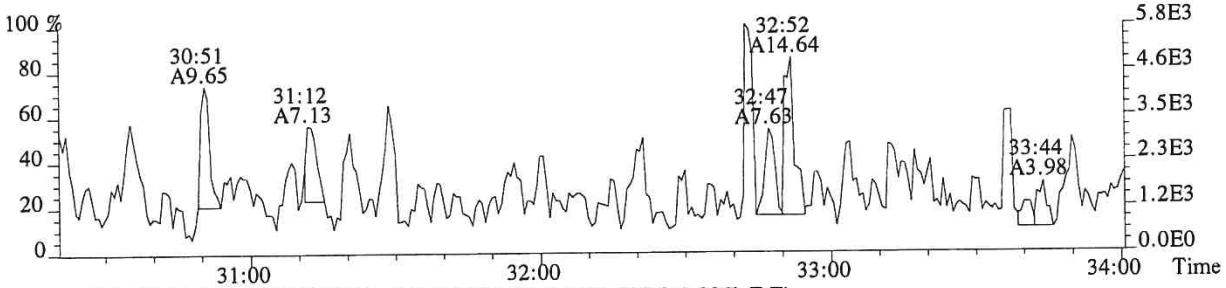
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



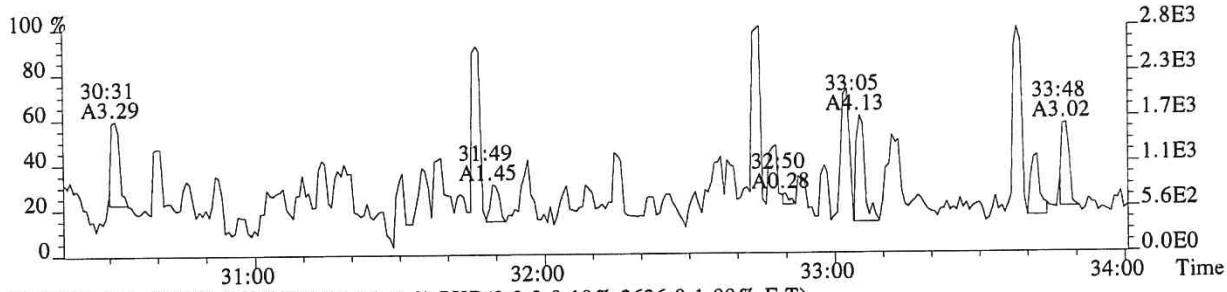
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



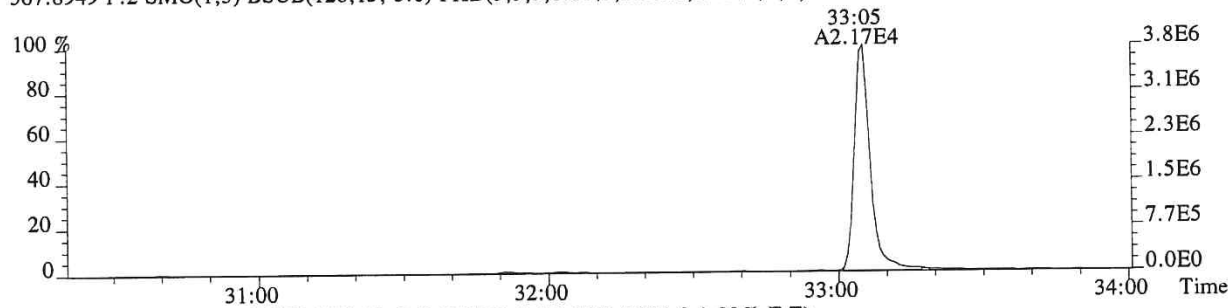
File:P616043 #1-331 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



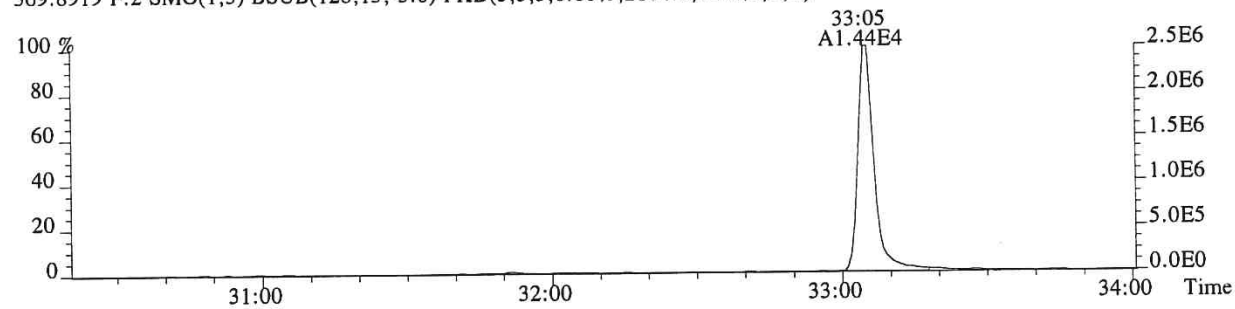
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



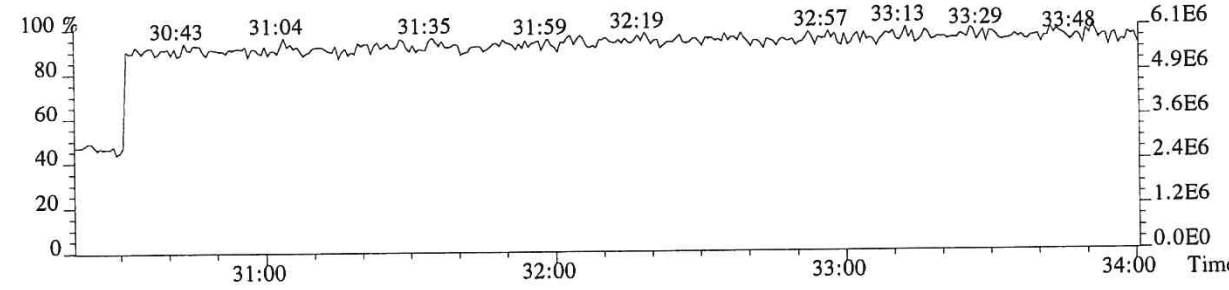
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2184.0,1.00%,F,T)

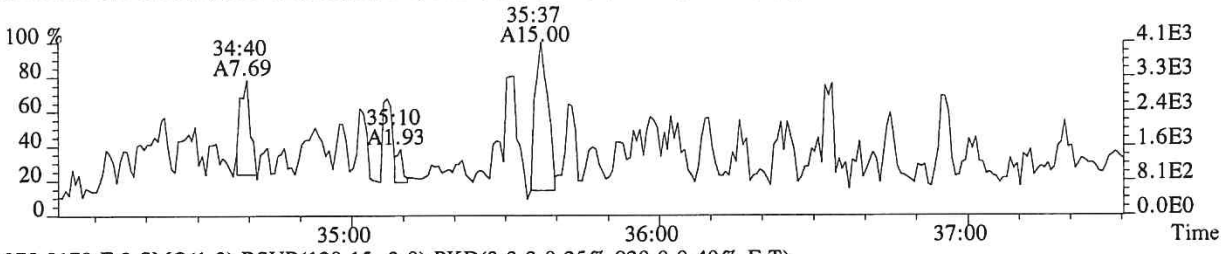


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

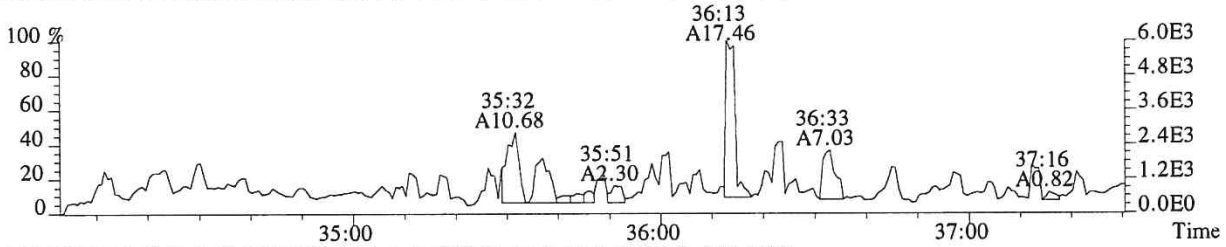


012603

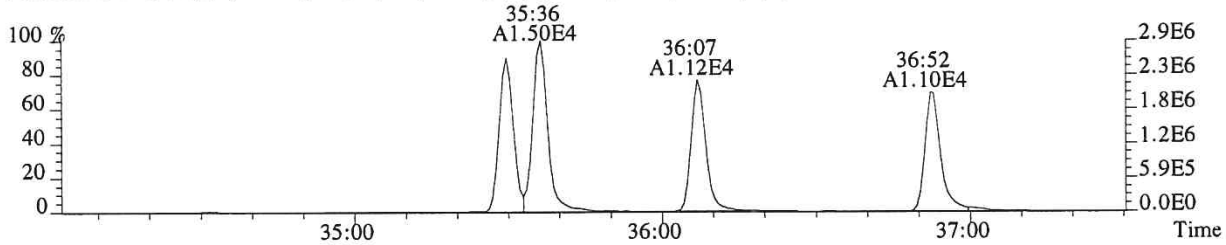
File:P616043 #1-312 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.40%,F,T)



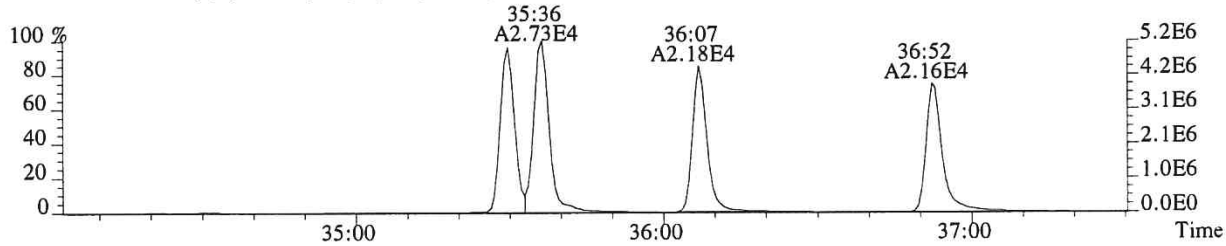
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



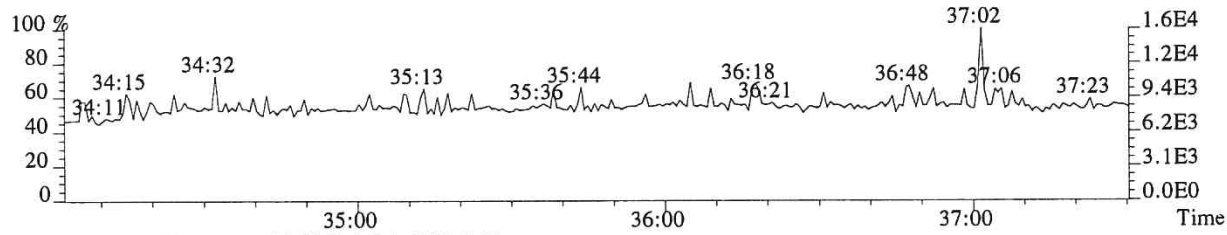
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



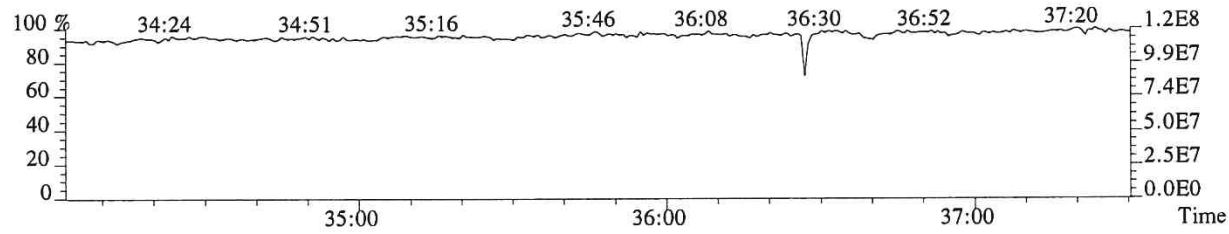
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2524.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

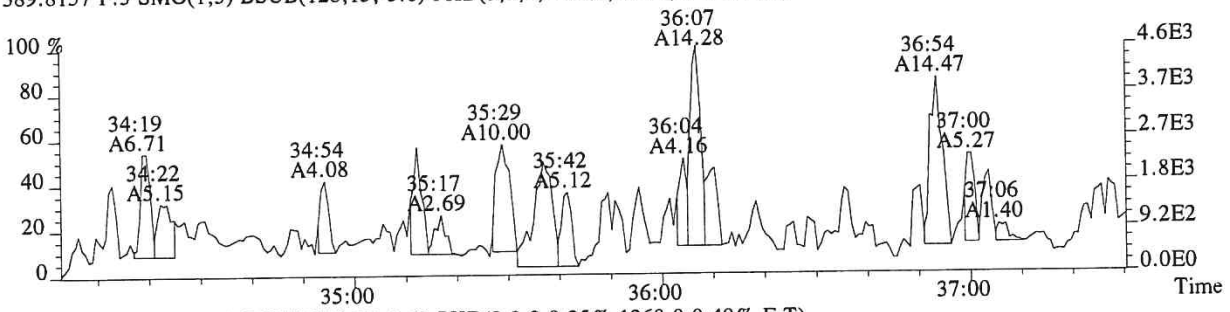


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

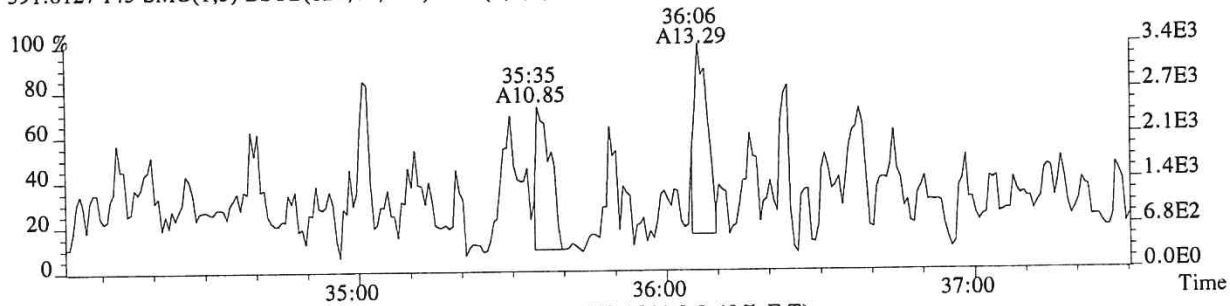


012604

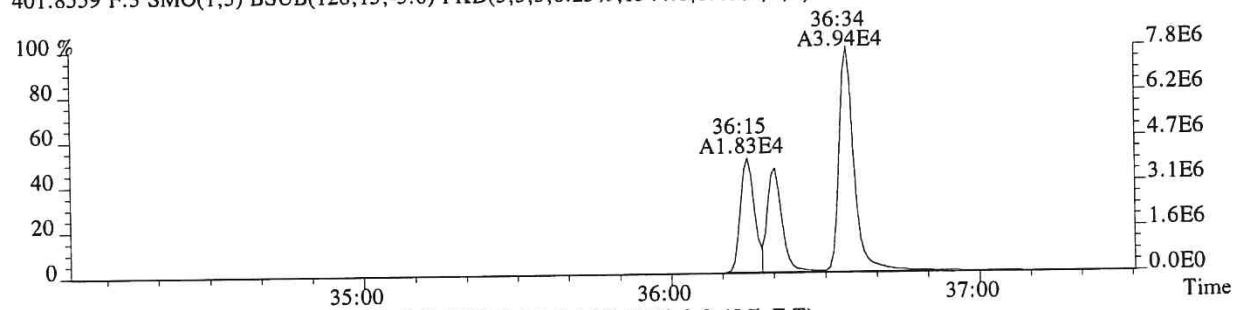
File:P616043 #1-312 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



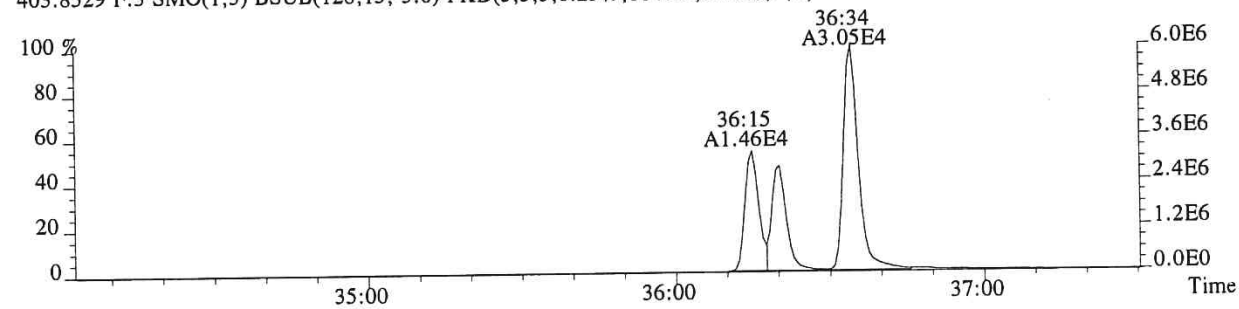
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



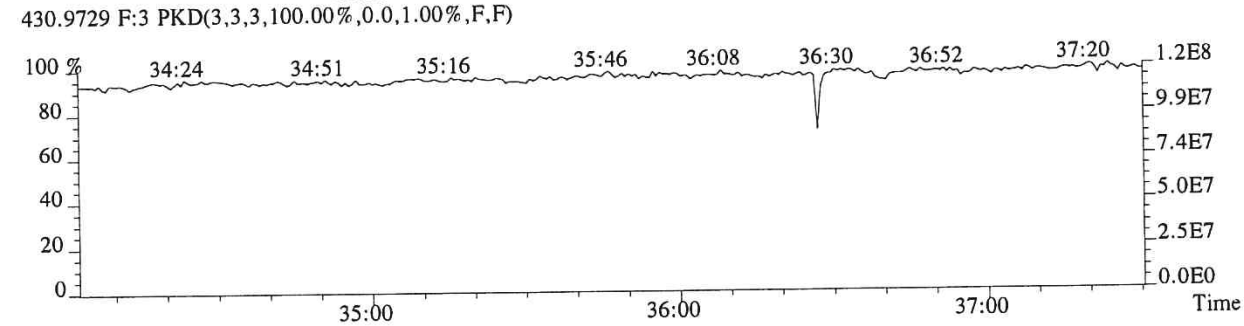
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)

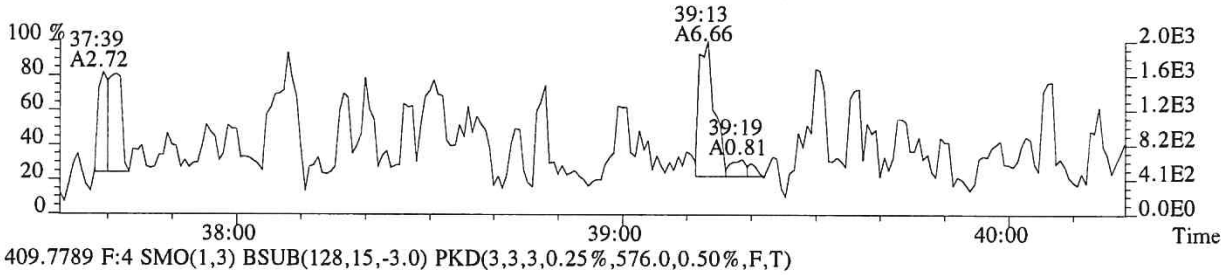


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

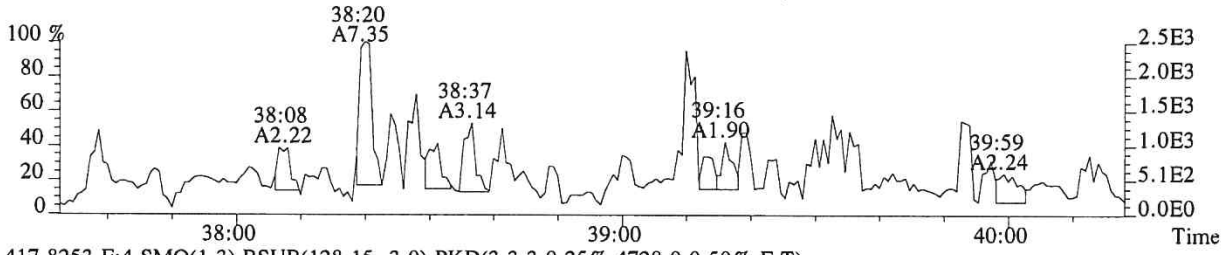


012605

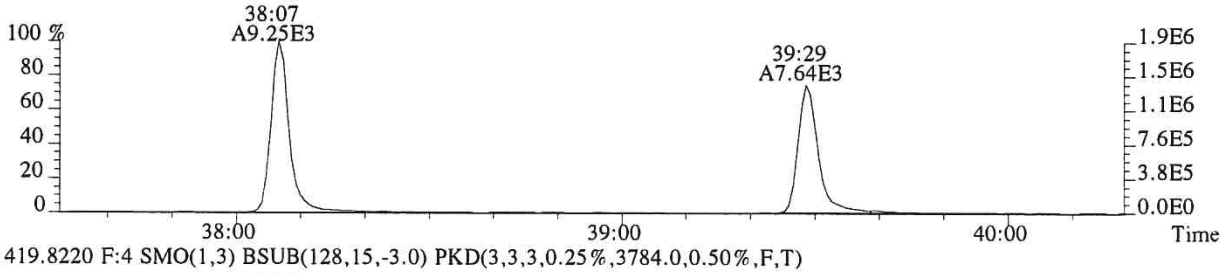
File:P616043 #1-249 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.50%,F,T)



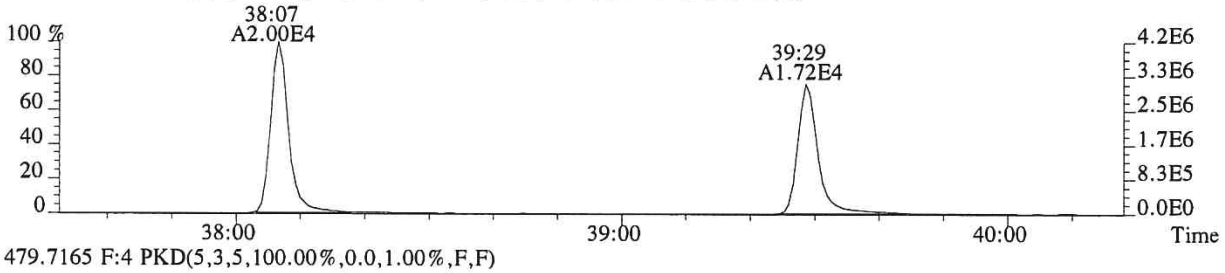
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.50%,F,T)



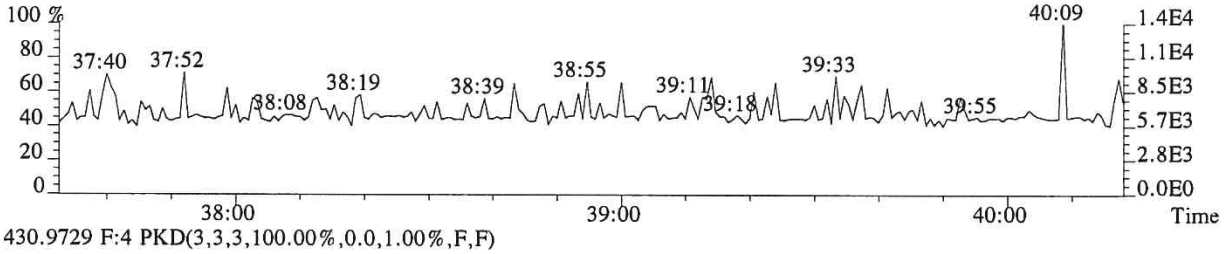
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4728.0,0.50%,F,T)



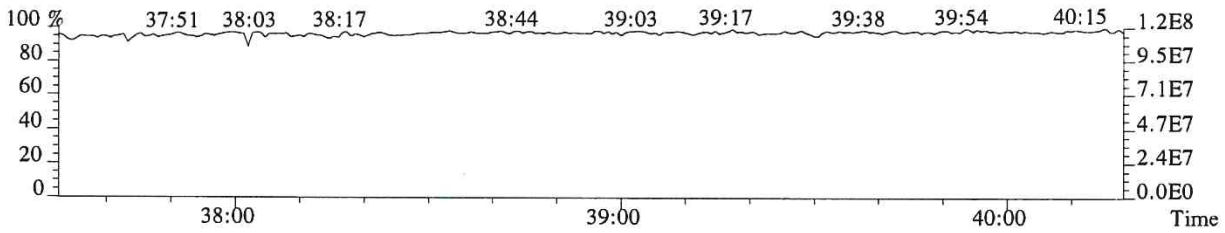
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3784.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

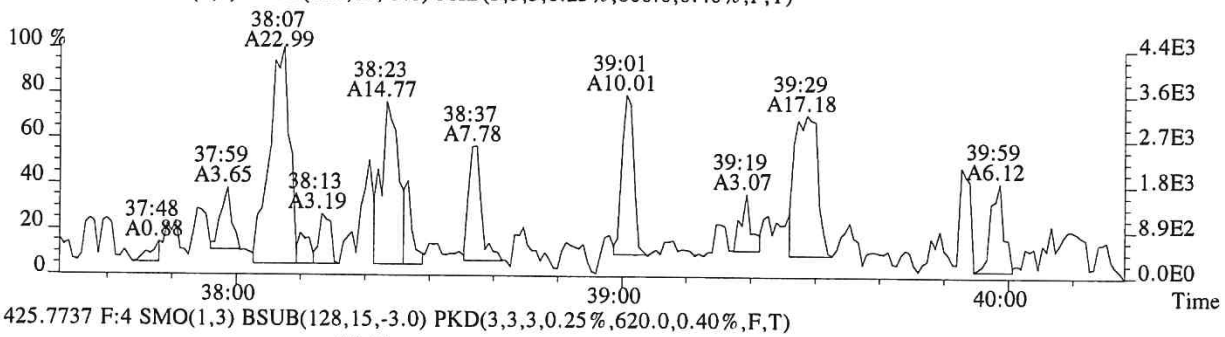


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

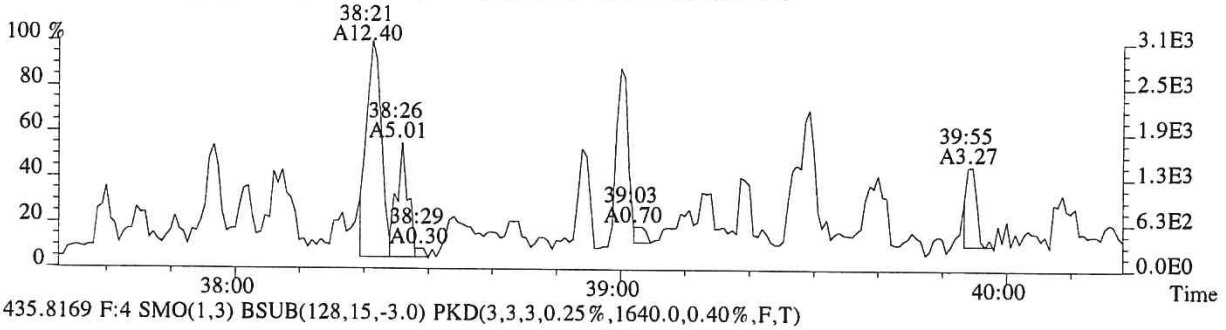


012606

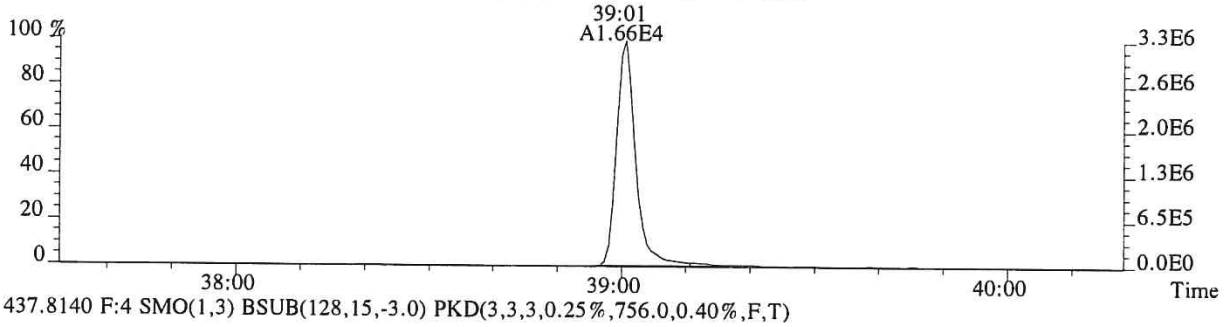
File:P616043 #1-249 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



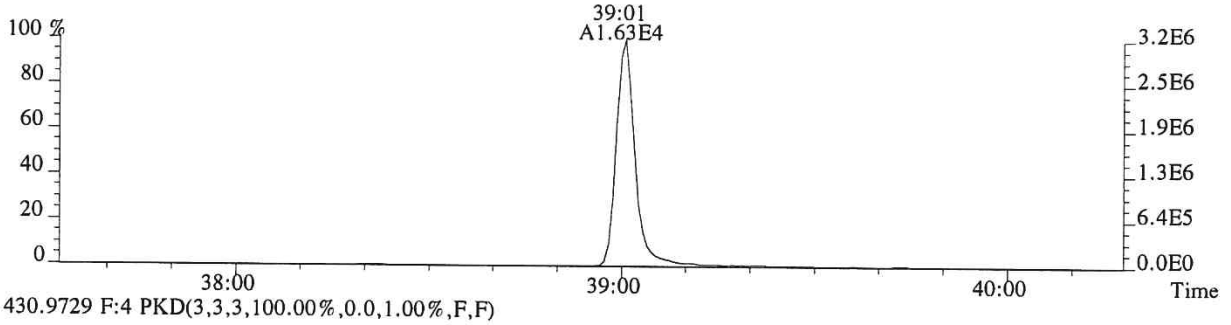
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



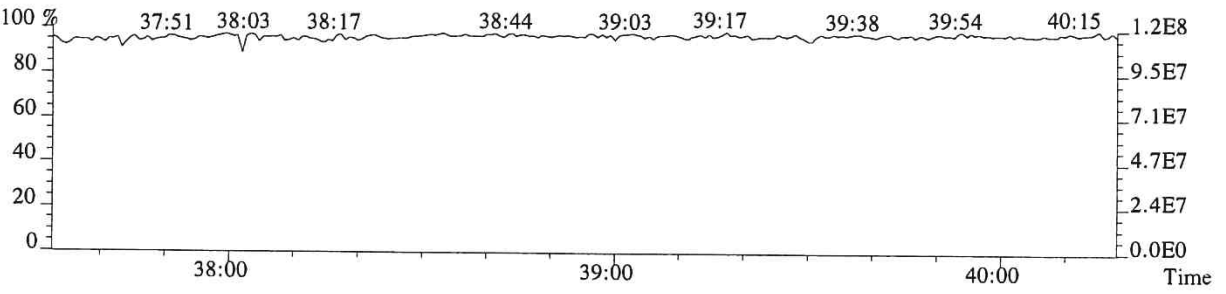
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1640.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)

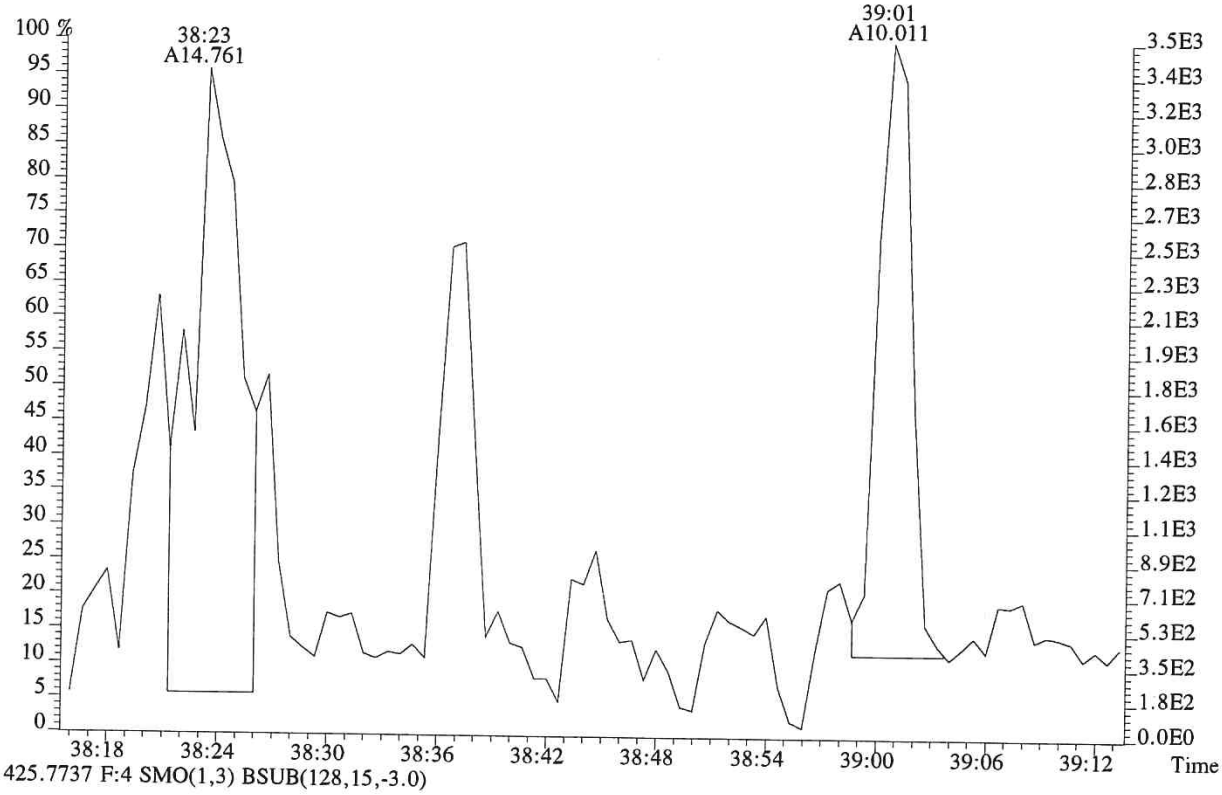


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

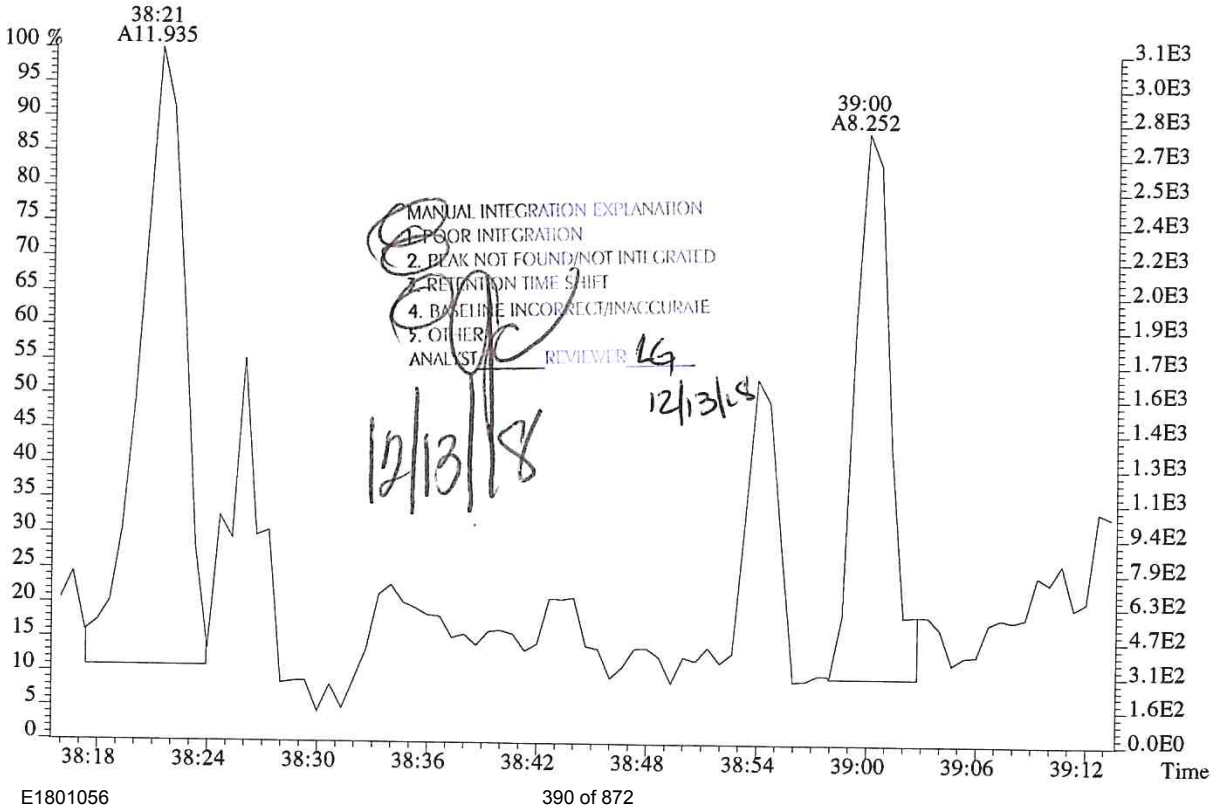


012607

File:P616043 #1-249 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0)



425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0)

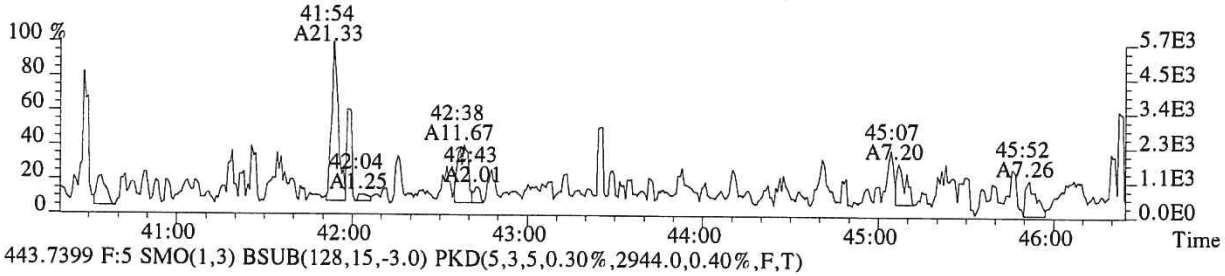


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST RC REVIEWER LG
12/13/18
12/13/18

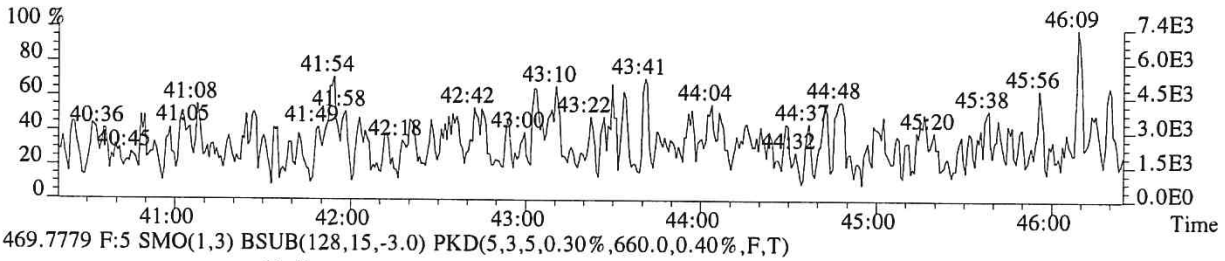
012608

File:P616043 #1-547 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

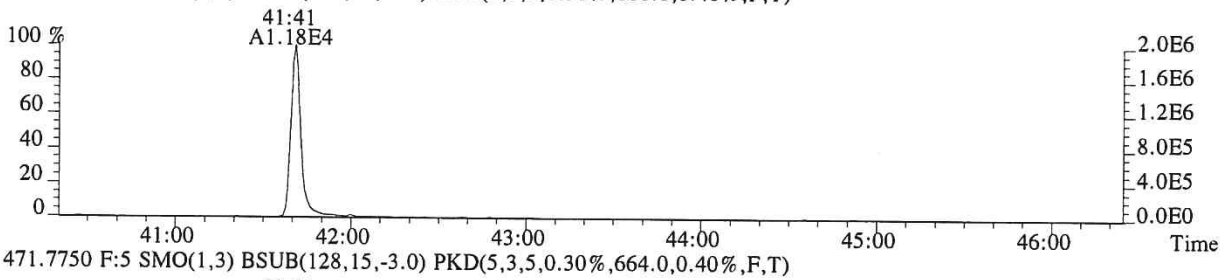
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,972.0,0.40%,F,T)



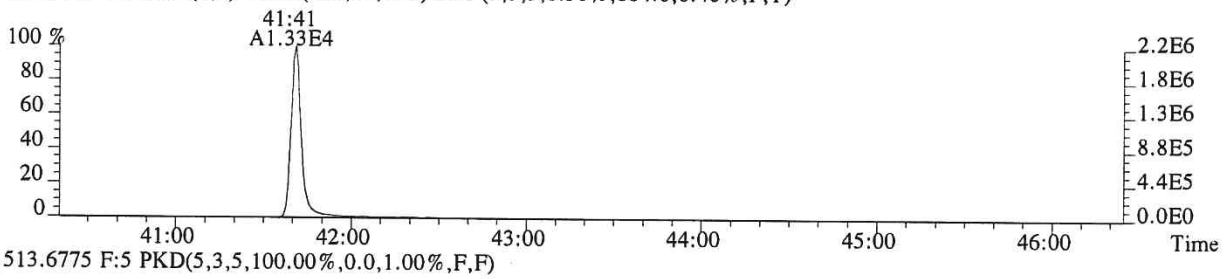
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2944.0,0.40%,F,T)



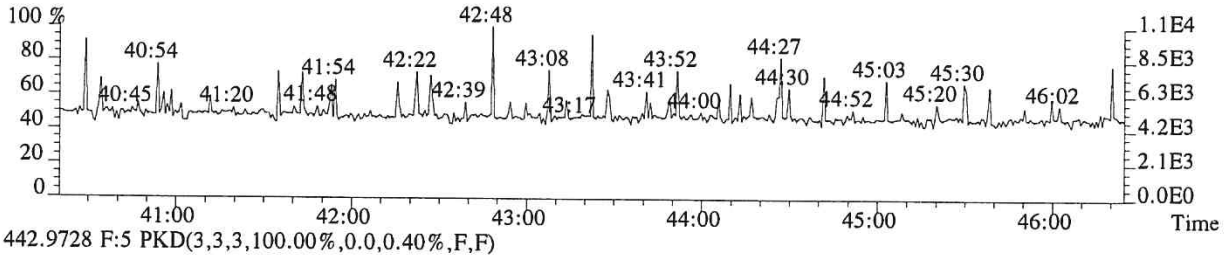
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



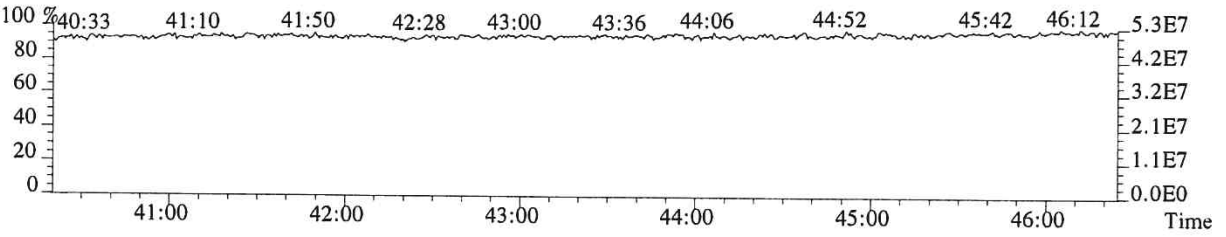
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

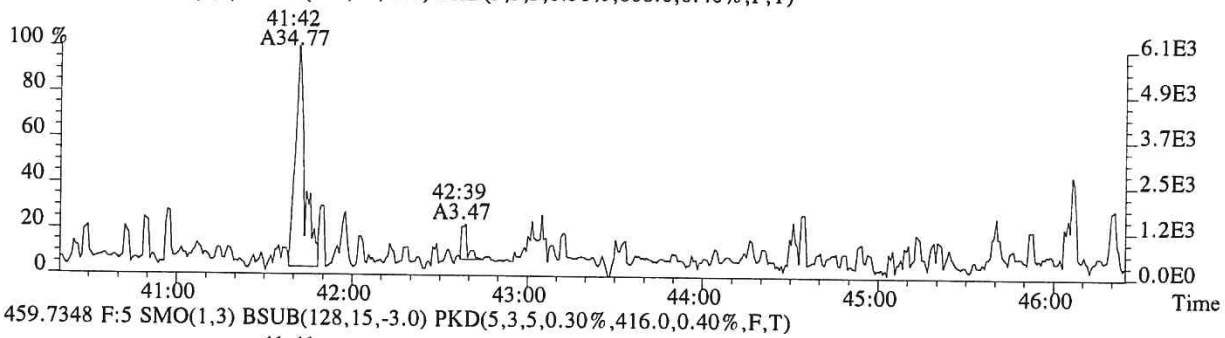


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

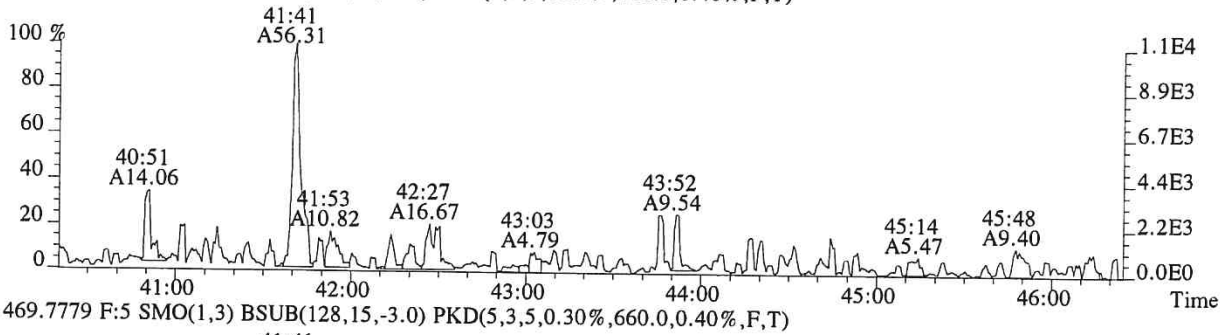


012609

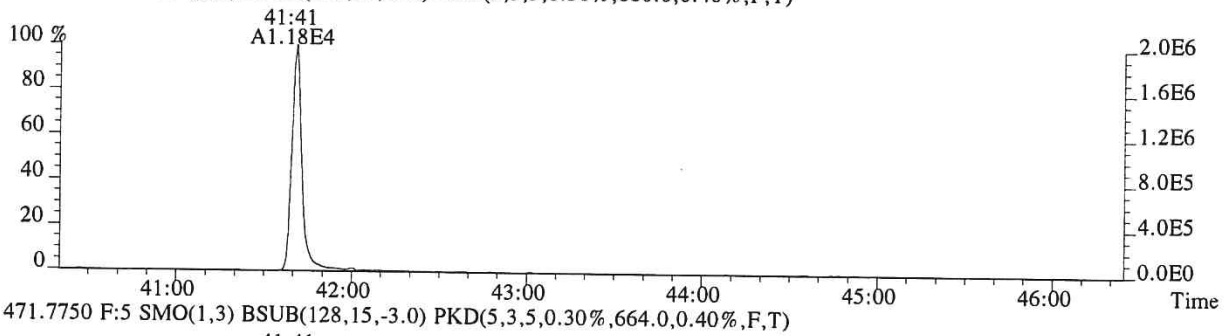
File:P616043 #1-547 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



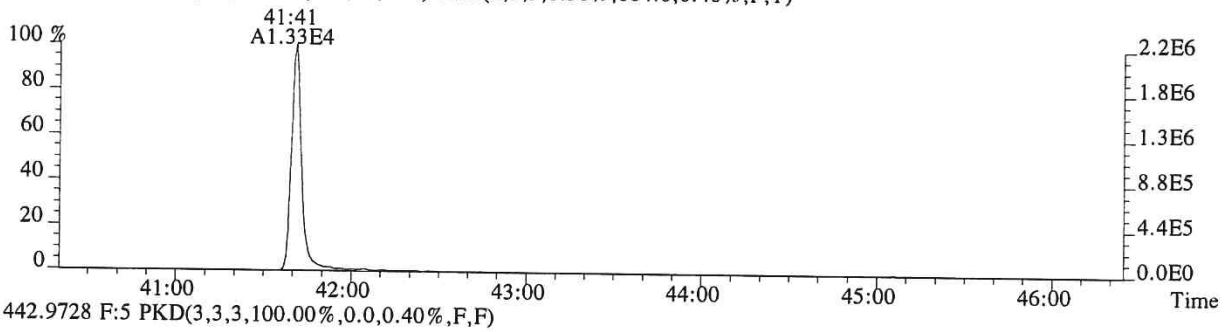
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



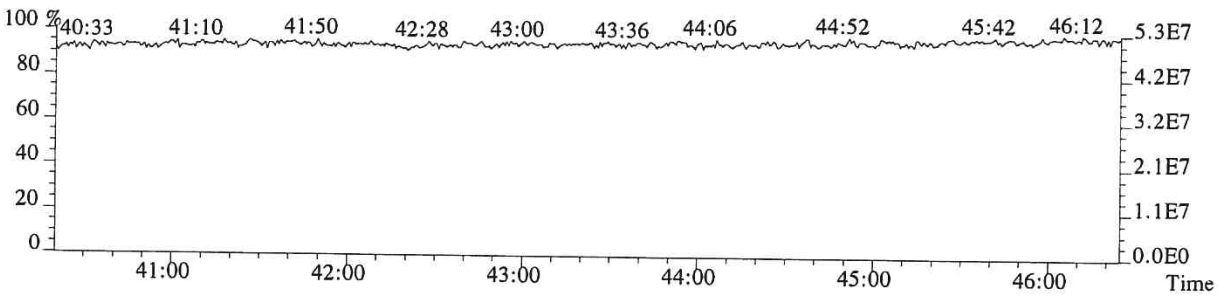
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012610

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #18 Filename P616051 Samp: 1 Inj: 1 Acquired: 11-DEC-18 19:45:05
Processed: 12-DEC-18 16:11:42 Sample ID: EQ1800499-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:30	3.949e+03	5.314e+03	0.74	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:51	3.305e+04	2.161e+04	1.53	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:48	3.202e+04	2.105e+04	1.52	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:30	3.219e+04	2.506e+04	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	3.317e+04	2.702e+04	1.23	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:07	3.002e+04	2.507e+04	1.20	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:52	2.711e+04	2.164e+04	1.25	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	2.500e+04	2.452e+04	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	2.050e+04	2.068e+04	0.99	yes	no	1.463
10	Unk	OCDF	41:52	2.423e+04	2.681e+04	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:20	3.272e+03	4.124e+03	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:05	2.468e+04	1.608e+04	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:15	2.165e+04	1.757e+04	1.23	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:20	2.252e+04	1.815e+04	1.24	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:34	2.360e+04	1.858e+04	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	1.658e+04	1.545e+04	1.07	yes	no	1.112
17	Unk	OCDD	41:40	1.860e+04	2.074e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:28	4.281e+04	5.403e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	7.131e+04	4.568e+04	1.56	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:47	6.777e+04	4.268e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:29	3.166e+04	6.005e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	3.559e+04	6.687e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:06	3.189e+04	6.126e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.912e+04	5.633e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	2.232e+04	4.915e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.904e+04	4.361e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:18	2.292e+04	2.918e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:04	5.480e+04	3.506e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:14	4.674e+04	3.643e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	4.391e+04	3.493e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	4.332e+04	4.070e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:40	3.289e+04	3.626e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:38	3.371e+04	4.319e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	5.990e+04	4.928e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:19	3.064e+04				no	1.086

$$\text{OCDD} = \frac{(1.860e+04 + 2.074e+04) \times 4000\ \text{pg} \times 1}{(3.289e+04 + 3.626e+04) \times \quad \text{g} \times \quad / 100 \times 1.157} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #18 Filename P616051 Samp: 1 Inj: 1 Acquired: 11-DEC-18 19:45:05
Processed: 12-DEC-18 16:11:42 LAB. ID: EQ1800499-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.53e+05	1.89e+03	3.5e+02	8.69e+05	3.57e+03	2.4e+02
2	1,2,3,7,8-PeCDF	5.93e+06	8.40e+02	7.1e+03	3.88e+06	3.68e+03	1.1e+03
3	2,3,4,7,8-PeCDF	5.86e+06	8.40e+02	7.0e+03	3.91e+06	3.68e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	6.79e+06	1.01e+03	6.7e+03	5.26e+06	8.16e+02	6.4e+03
5	1,2,3,6,7,8-HxCDF	6.72e+06	1.01e+03	6.7e+03	5.35e+06	8.16e+02	6.6e+03
6	2,3,4,6,7,8-HxCDF	6.37e+06	1.01e+03	6.3e+03	5.25e+06	8.16e+02	6.4e+03
7	1,2,3,7,8,9-HxCDF	5.30e+06	1.01e+03	5.3e+03	4.30e+06	8.16e+02	5.3e+03
8	1,2,3,4,6,7,8-HpCDF	5.40e+06	3.58e+03	1.5e+03	5.15e+06	2.17e+03	2.4e+03
9	1,2,3,4,7,8,9-HpCDF	3.95e+06	3.58e+03	1.1e+03	3.91e+06	2.17e+03	1.8e+03
10	OCDF	4.15e+06	4.08e+02	1.0e+04	4.55e+06	2.44e+03	1.9e+03
11	2,3,7,8-TCDD	5.63e+05	3.44e+03	1.6e+02	6.92e+05	2.10e+03	3.3e+02
12	1,2,3,7,8-PeCDD	4.40e+06	1.08e+03	4.1e+03	2.91e+06	5.16e+02	5.6e+03
13	1,2,3,4,7,8-HxCDD	4.68e+06	9.60e+02	4.9e+03	3.76e+06	1.63e+03	2.3e+03
14	1,2,3,6,7,8-HxCDD	4.56e+06	9.60e+02	4.8e+03	3.71e+06	1.63e+03	2.3e+03
15	1,2,3,7,8,9-HxCDD	4.74e+06	9.60e+02	4.9e+03	3.69e+06	1.63e+03	2.3e+03
16	1,2,3,4,6,7,8-HpCDD	3.37e+06	7.36e+02	4.6e+03	3.17e+06	4.72e+02	6.7e+03
17	OCDD	3.21e+06	3.80e+02	8.5e+03	3.60e+06	1.06e+03	3.4e+03
18	13C-2,3,7,8-TCDF	6.79e+06	8.50e+03	8.0e+02	8.68e+06	7.20e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	1.27e+07	1.59e+03	8.0e+03	8.10e+06	2.44e+03	3.3e+03
20	13C-2,3,4,7,8-PeCDF	1.28e+07	1.59e+03	8.1e+03	7.98e+06	2.44e+03	3.3e+03
21	13C-1,2,3,4,7,8-HxCDF	6.62e+06	9.12e+02	7.3e+03	1.26e+07	2.06e+03	6.1e+03
22	13C-1,2,3,6,7,8-HxCDF	7.24e+06	9.12e+02	7.9e+03	1.35e+07	2.06e+03	6.5e+03
23	13C-2,3,4,6,7,8-HxCDF	6.81e+06	9.12e+02	7.5e+03	1.30e+07	2.06e+03	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	5.73e+06	9.12e+02	6.3e+03	1.10e+07	2.06e+03	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.81e+06	5.04e+03	9.5e+02	1.06e+07	6.10e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.63e+06	5.04e+03	7.2e+02	8.26e+06	6.10e+03	1.4e+03
27	13C-2,3,7,8-TCDD	3.88e+06	1.57e+04	2.5e+02	5.03e+06	7.22e+03	7.0e+02
28	13C-1,2,3,7,8-PeCDD	1.02e+07	2.14e+03	4.8e+03	6.57e+06	2.87e+03	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	1.02e+07	2.95e+03	3.5e+03	7.83e+06	1.30e+03	6.0e+03
30	13C-1,2,3,6,7,8-HxCDD	9.06e+06	2.95e+03	3.1e+03	7.21e+06	1.30e+03	5.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.69e+06	1.42e+03	6.1e+03	8.35e+06	7.68e+02	1.1e+04
32	13C-OCDD	5.68e+06	1.31e+03	4.3e+03	6.32e+06	6.28e+02	1.0e+04
33	13C-1,2,3,4-TCDD	5.53e+06	1.57e+04	3.5e+02	7.14e+06	7.22e+03	9.9e+02
34	13C-1,2,3,7,8,9-HxCDD	1.22e+07	2.95e+03	4.1e+03	9.92e+06	1.30e+03	7.7e+03
35	37Cl-2,3,7,8-TCDD	5.27e+06	3.39e+03	1.6e+03			

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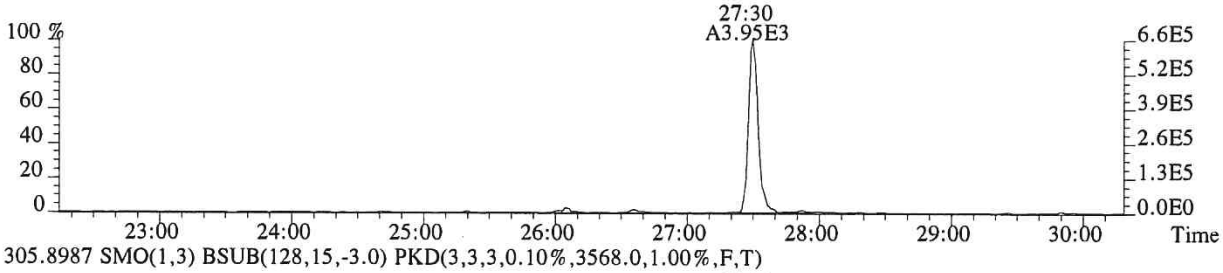
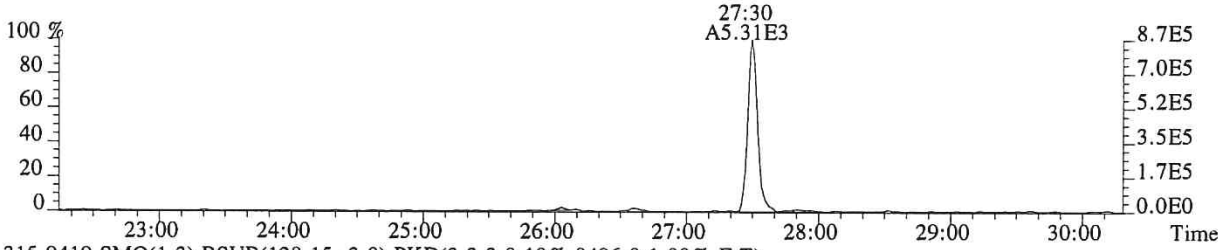
File:P616051 #1-573 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

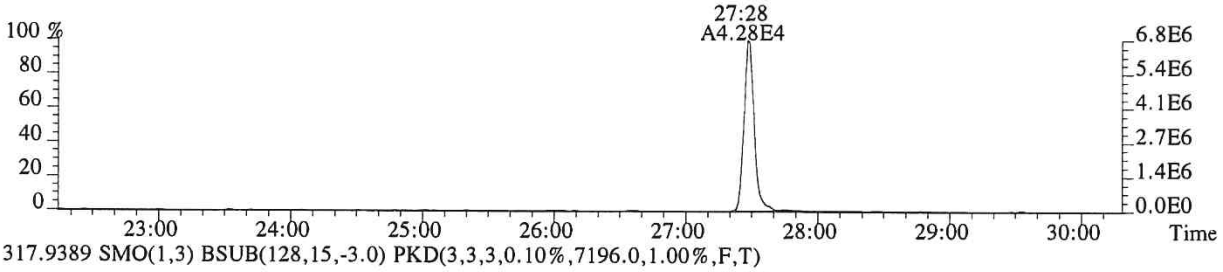
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



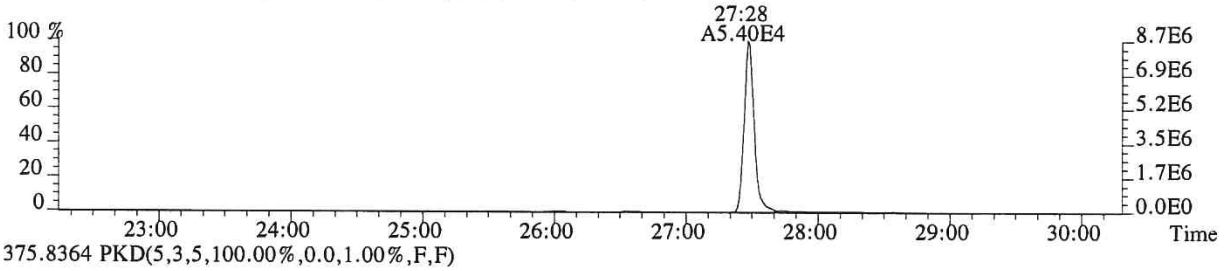
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3568.0,1.00%,F,T)



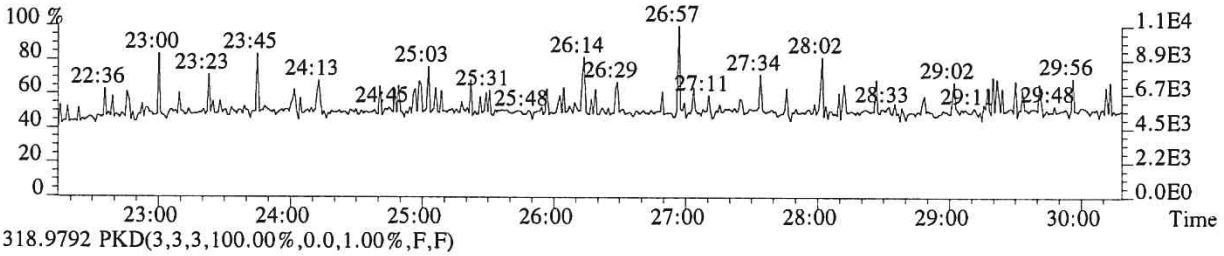
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8496.0,1.00%,F,T)



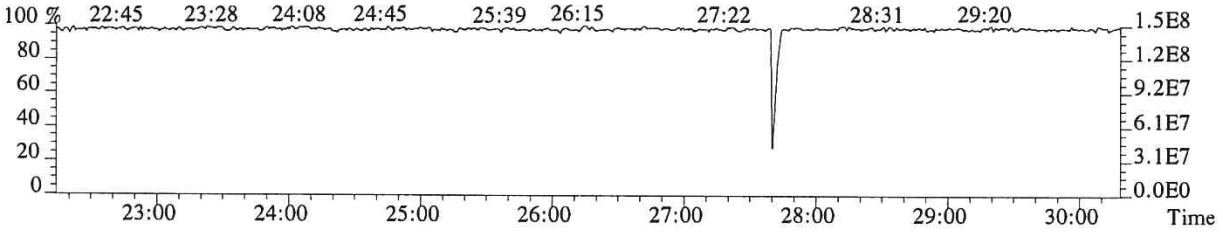
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7196.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



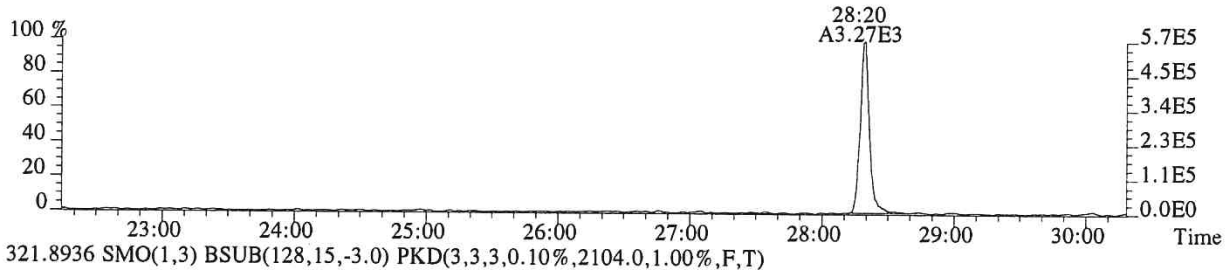
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



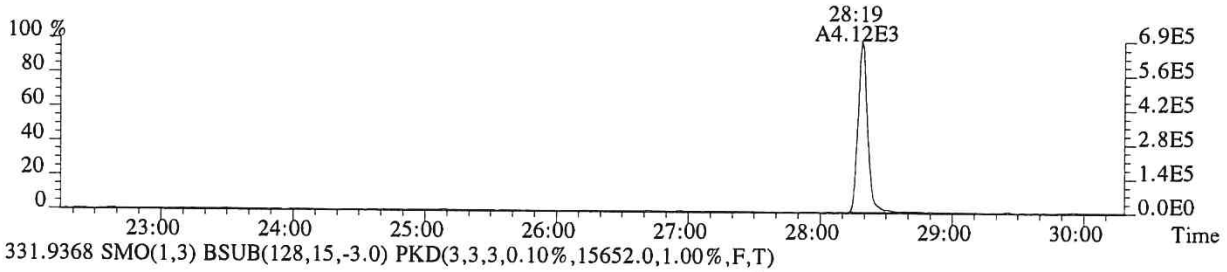
012613

File:P616051 #1-573 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

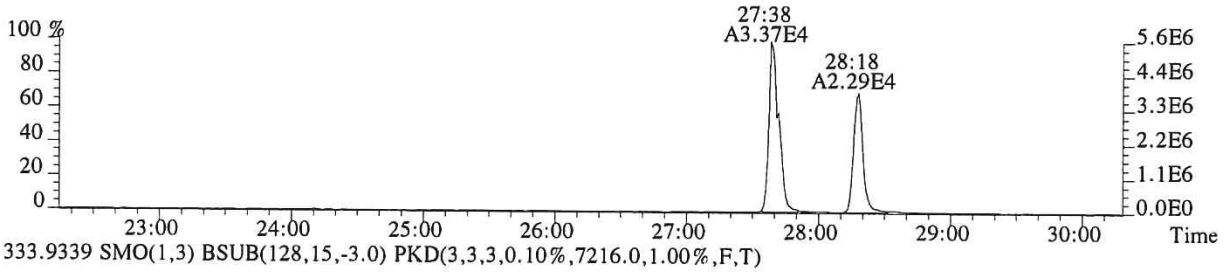
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3444.0,1.00%,F,T)



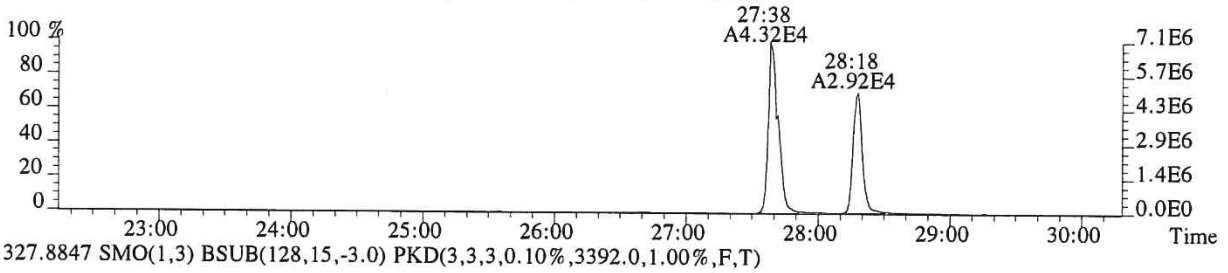
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2104.0,1.00%,F,T)



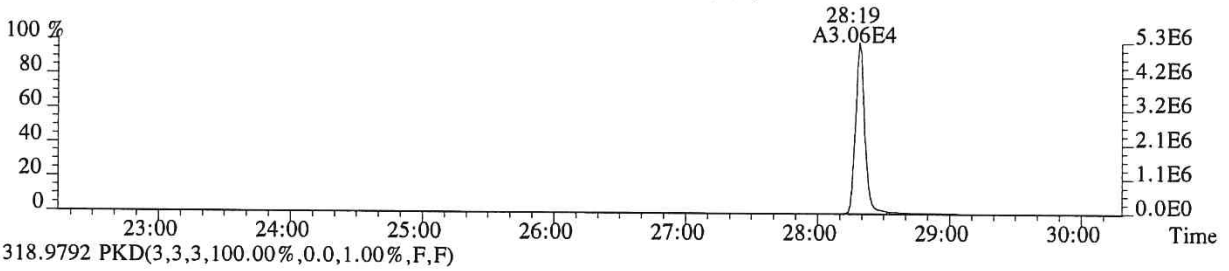
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15652.0,1.00%,F,T)



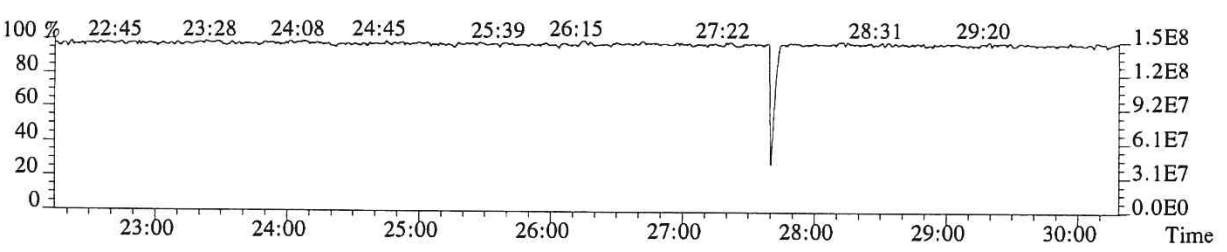
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7216.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3392.0,1.00%,F,T)

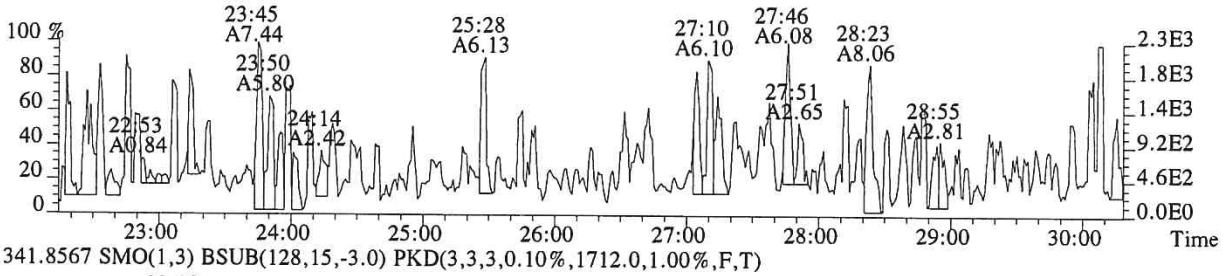


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

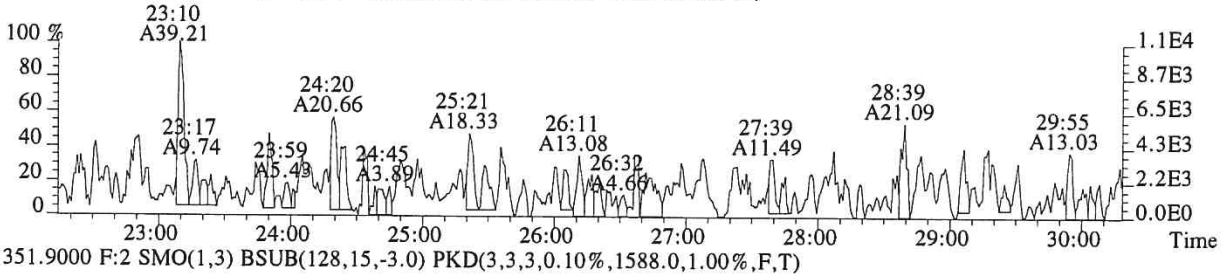


012614

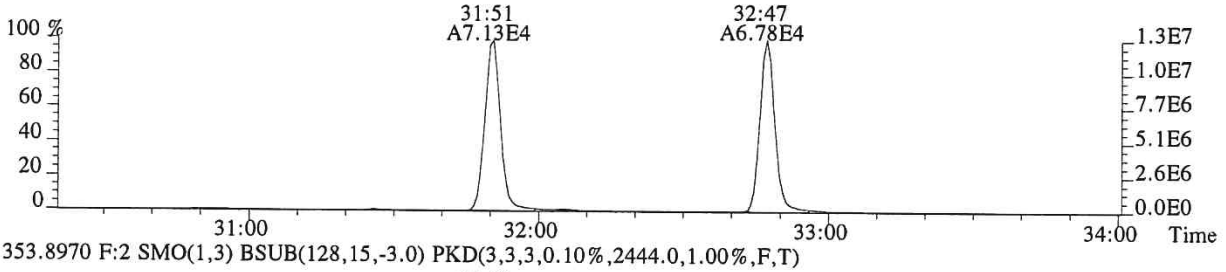
File:P616051 #1-573 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



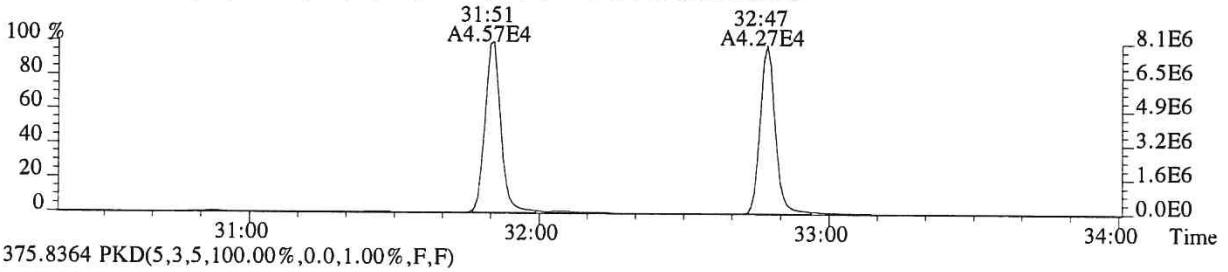
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



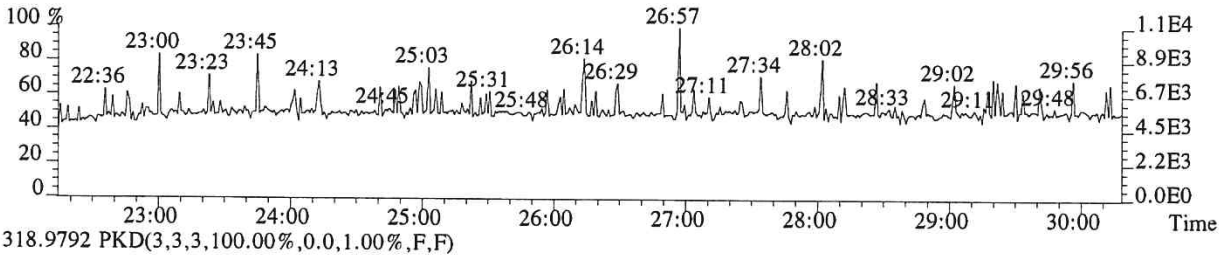
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



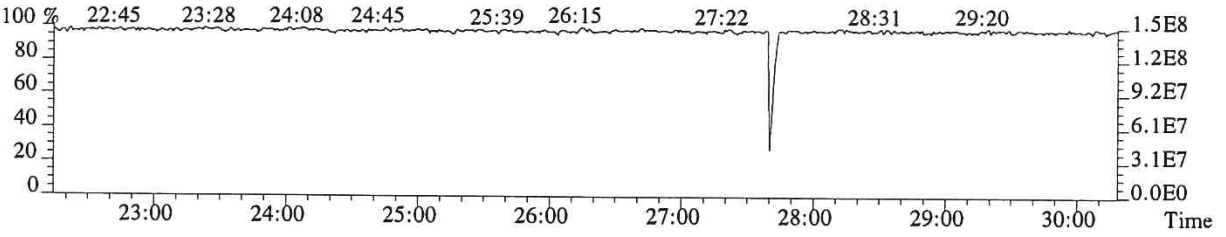
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2444.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



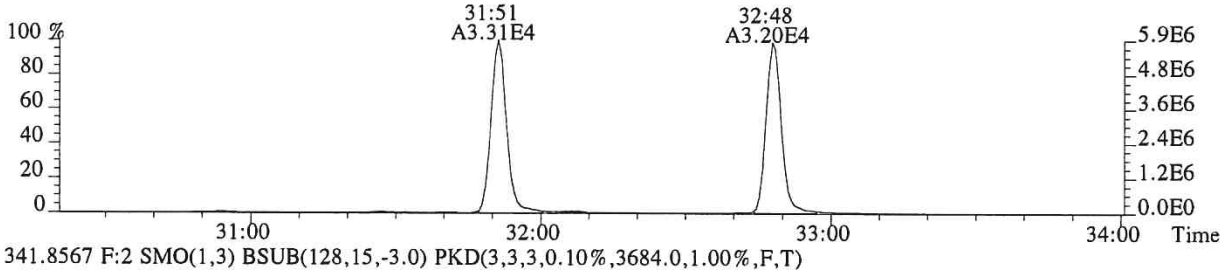
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



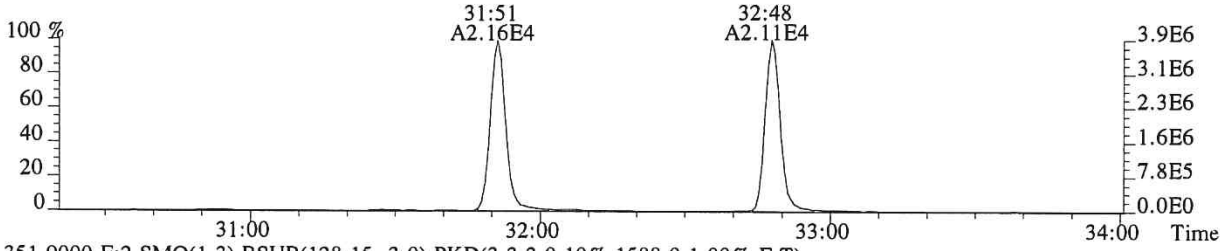
012615

File:P616051 #1-331 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

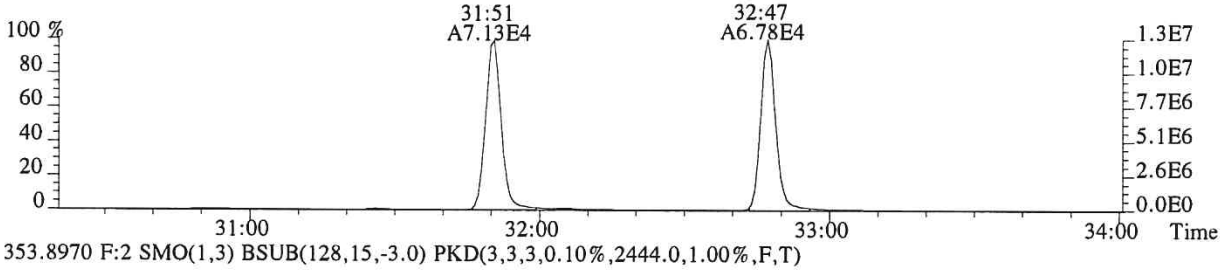
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



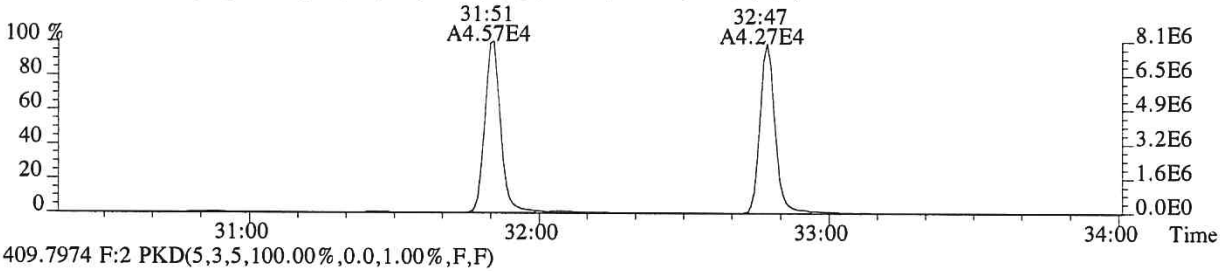
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3684.0,1.00%,F,T)



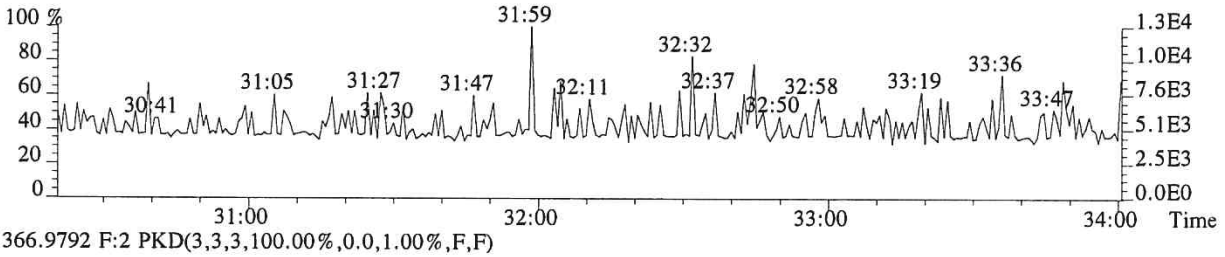
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



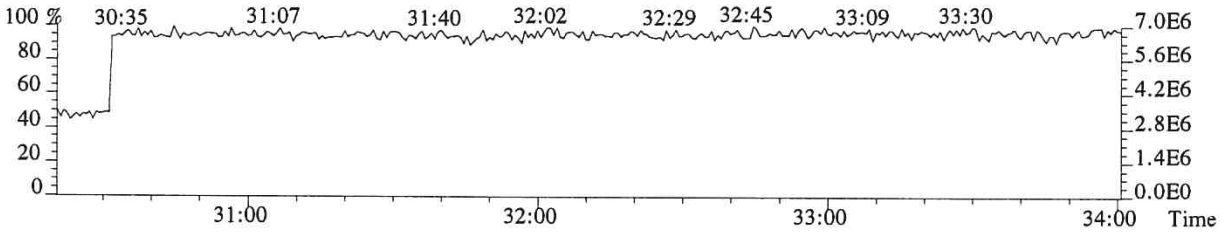
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2444.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

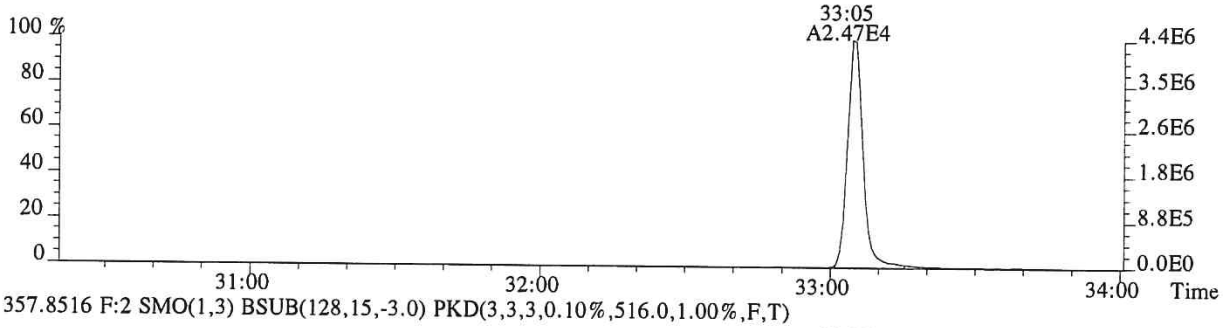


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

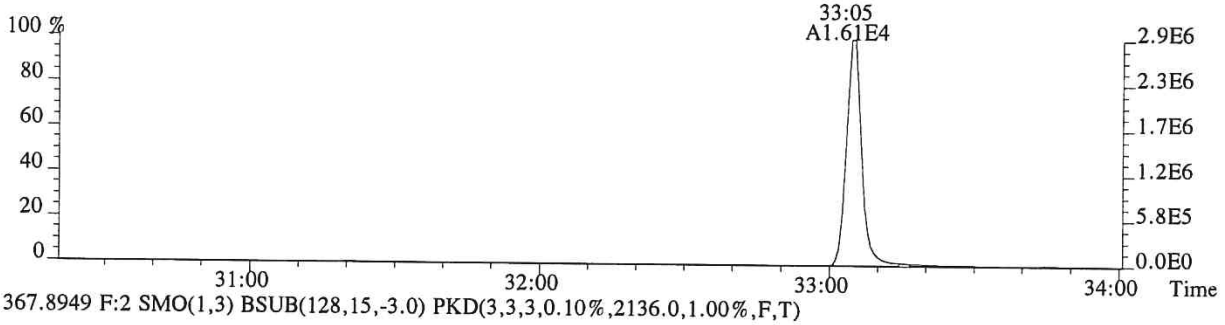


012616

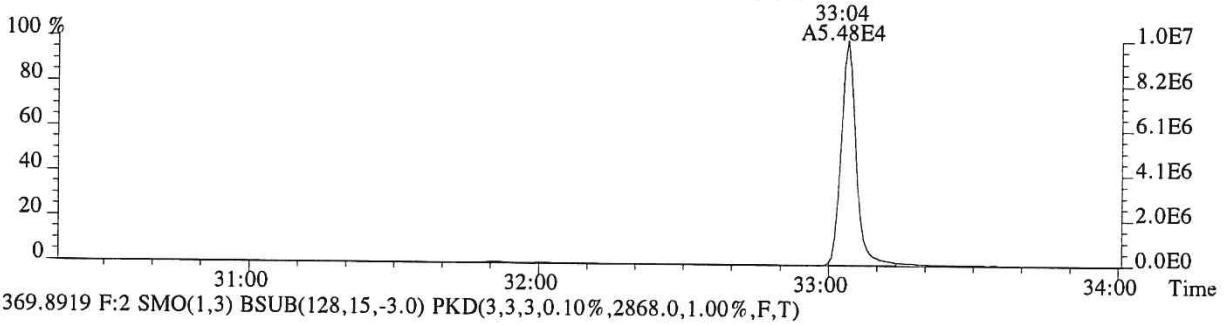
File:P616051 #1-331 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



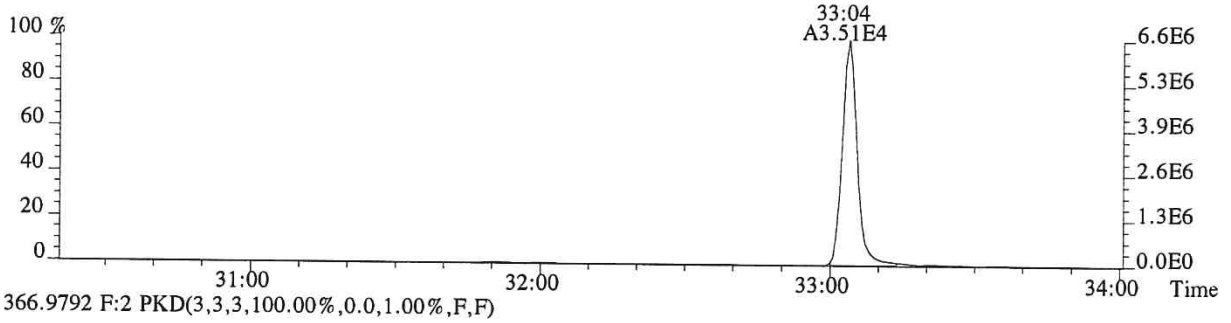
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



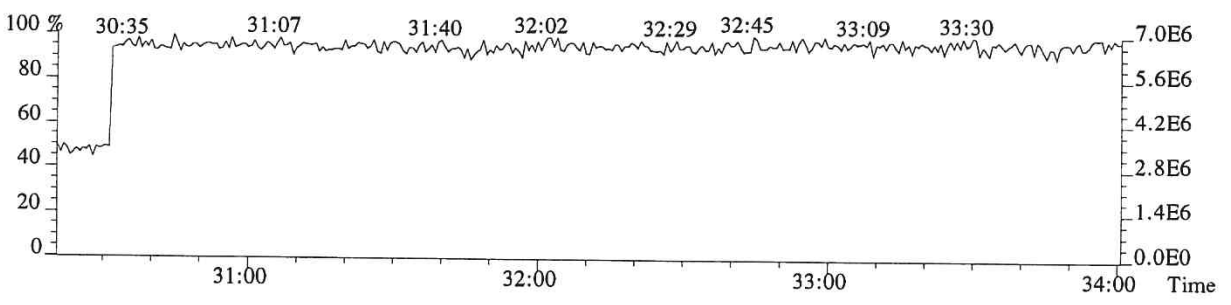
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2868.0,1.00%,F,T)



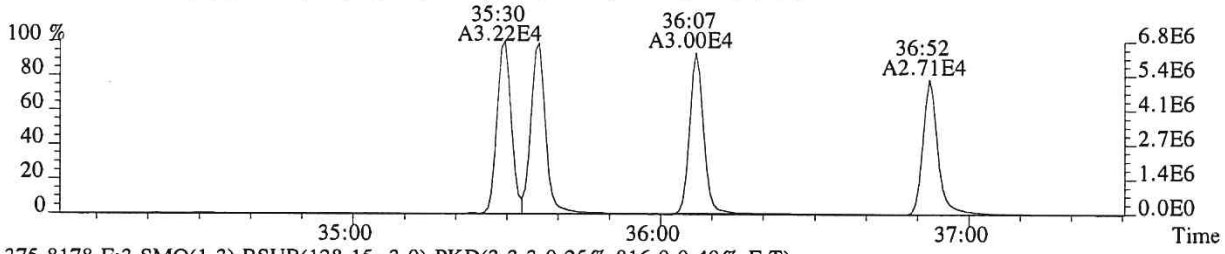
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



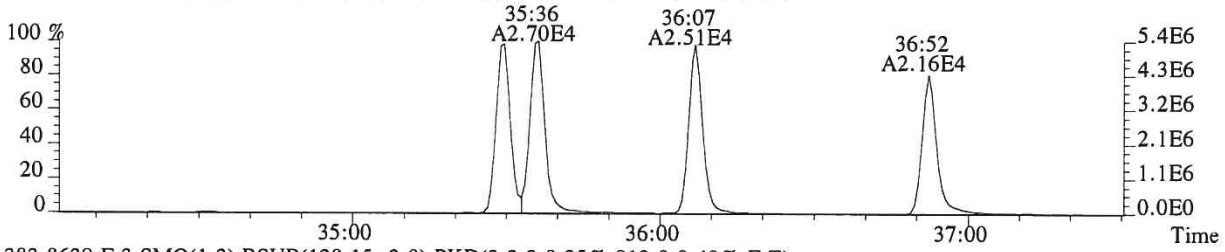
012617

File:P616051 #1-312 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

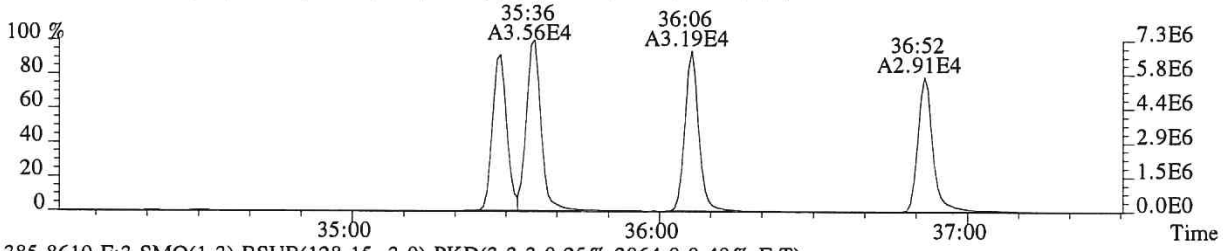
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



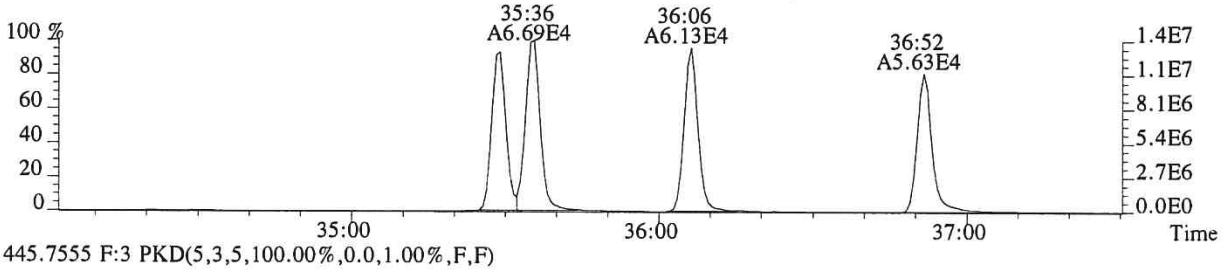
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



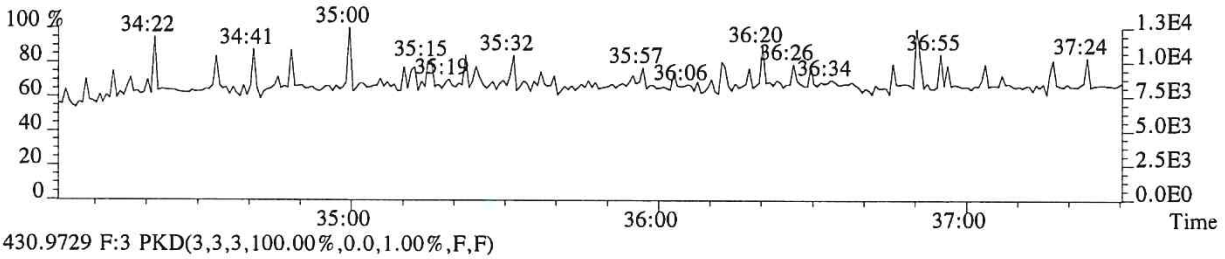
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



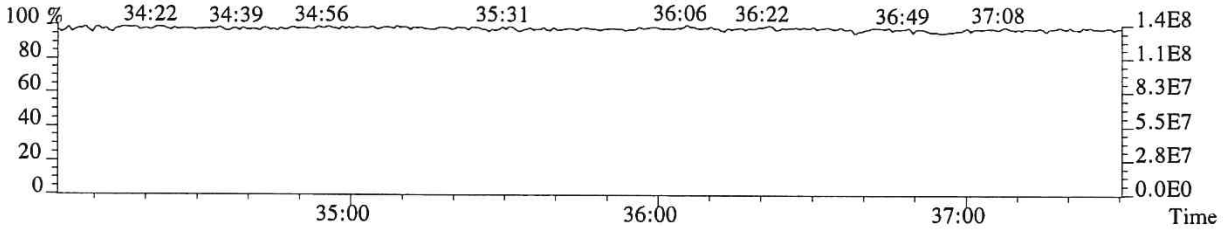
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2064.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

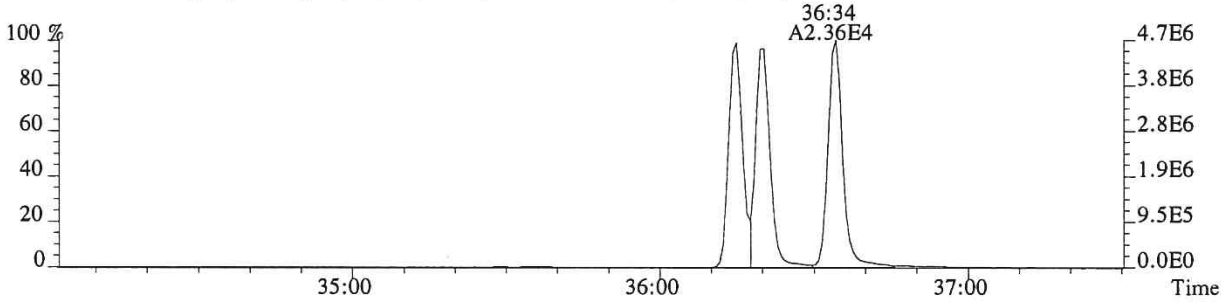


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

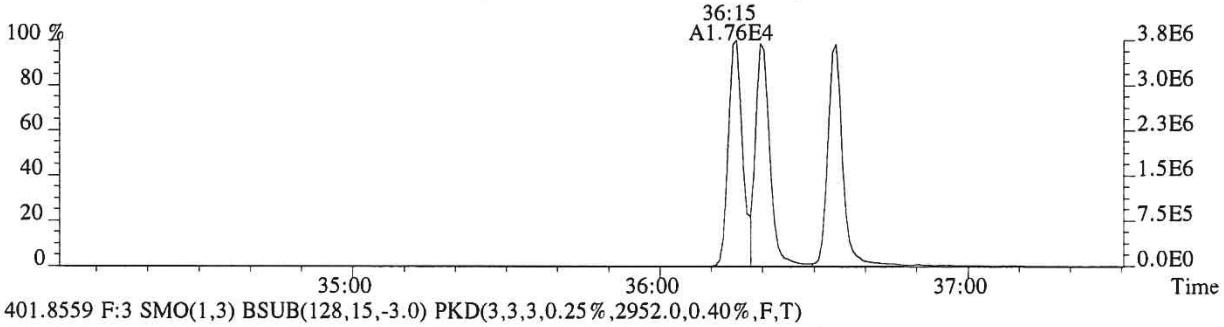


012618

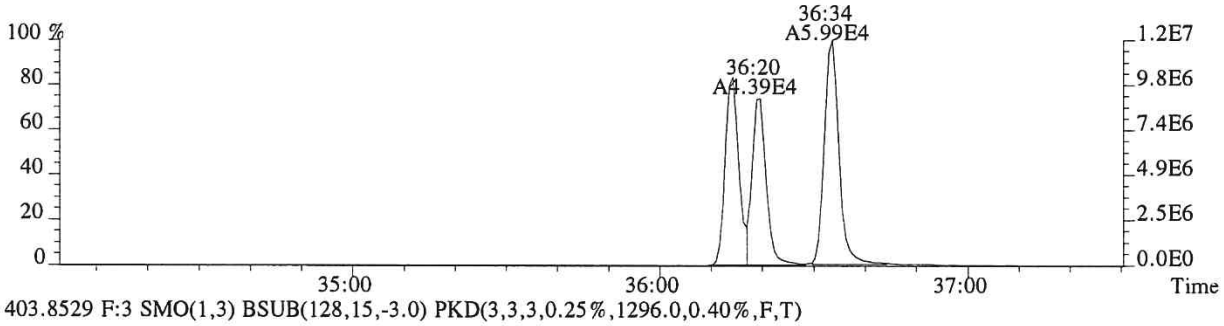
File:P616051 #1-312 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



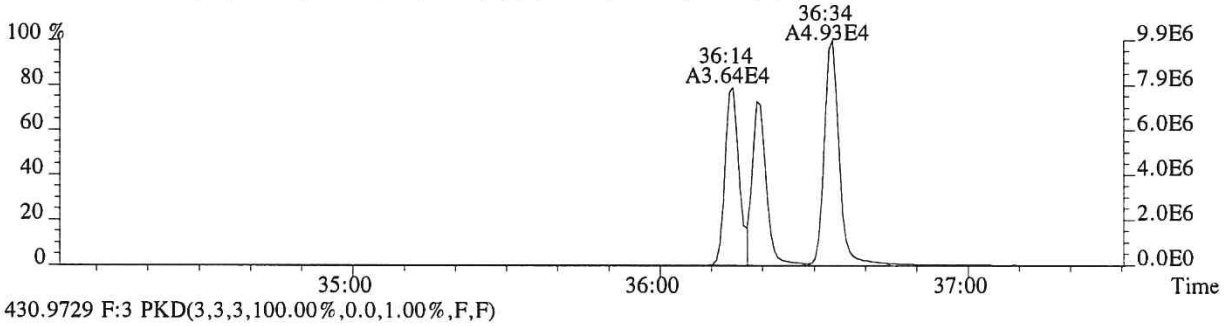
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.40%,F,T)



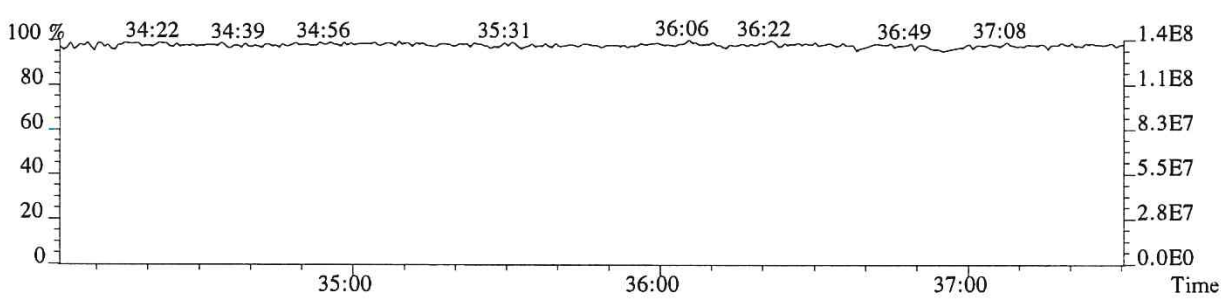
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2952.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)

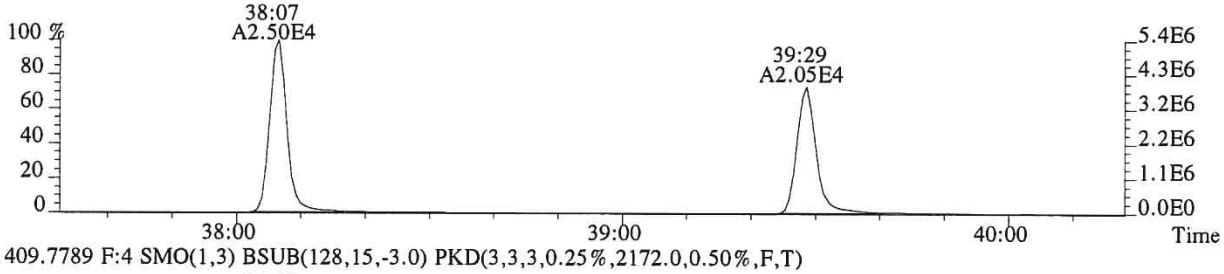


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

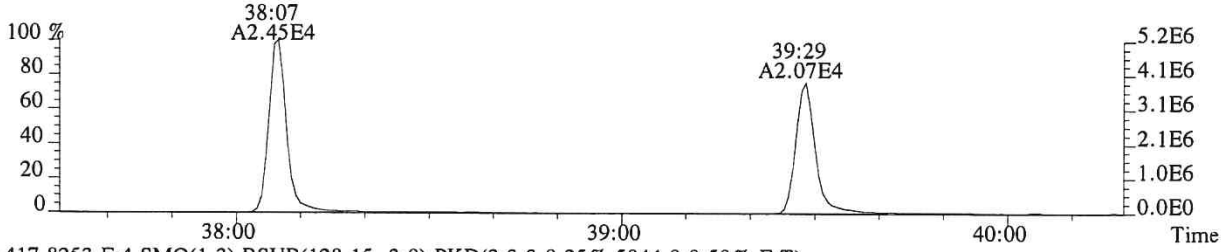


File:P616051 #1-249 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

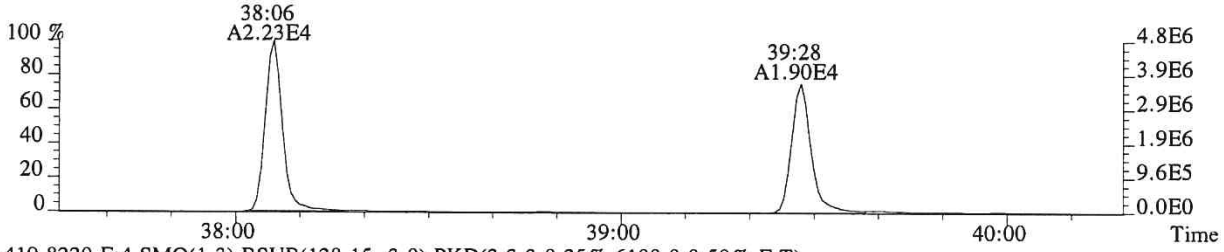
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3584.0,0.50%,F,T)



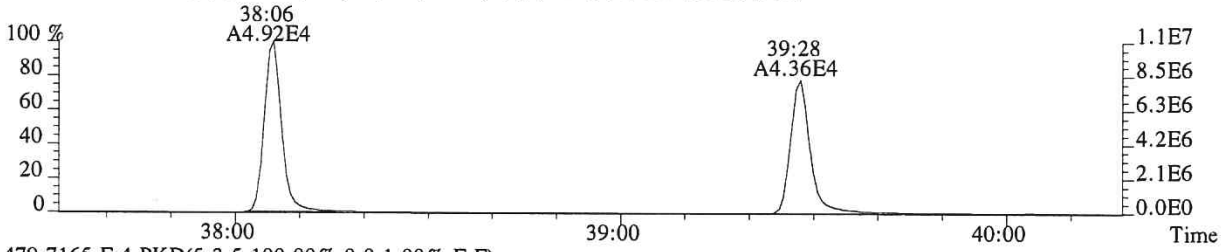
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2172.0,0.50%,F,T)



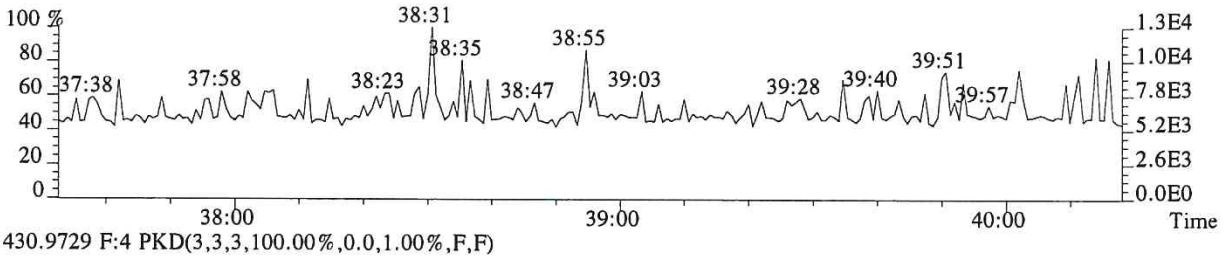
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5044.0,0.50%,F,T)



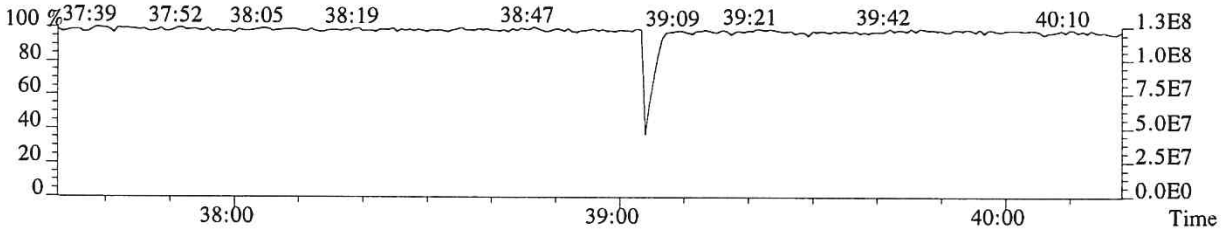
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6100.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

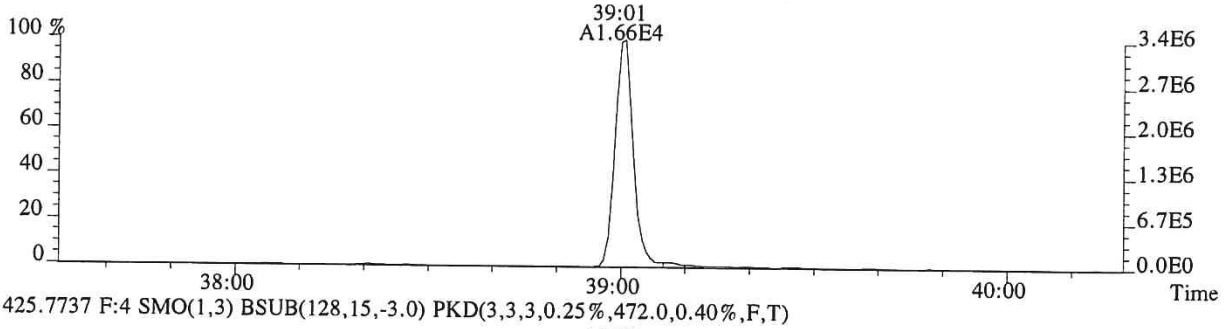


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

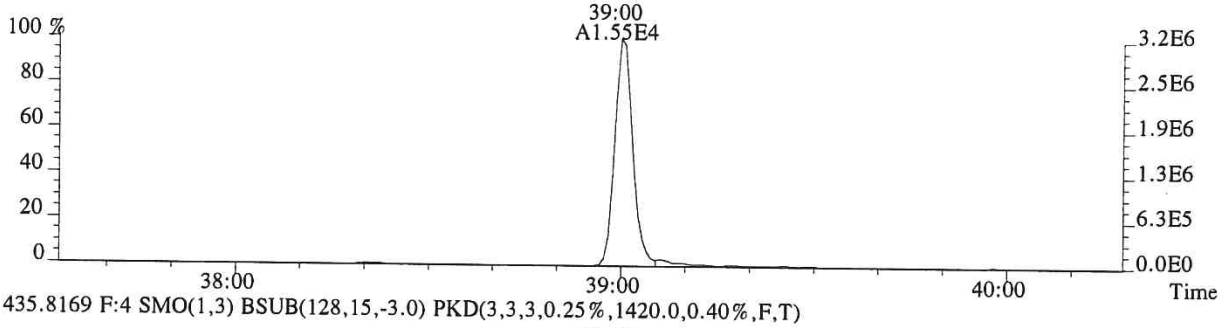


012620

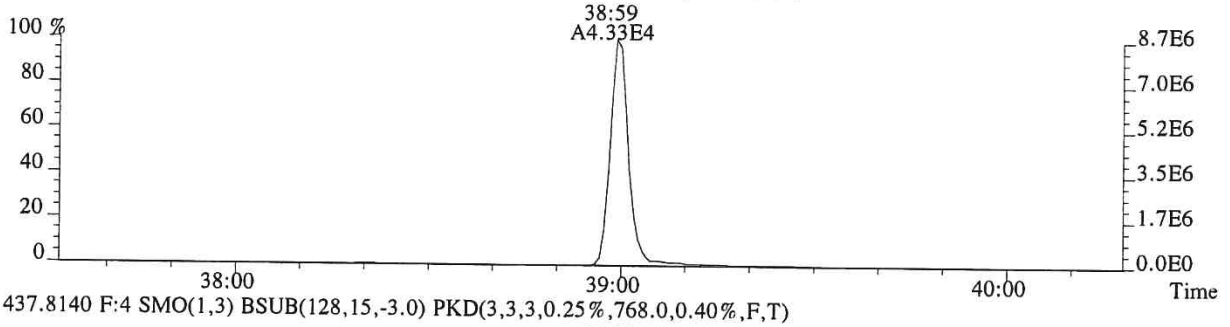
File:P616051 #1-249 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



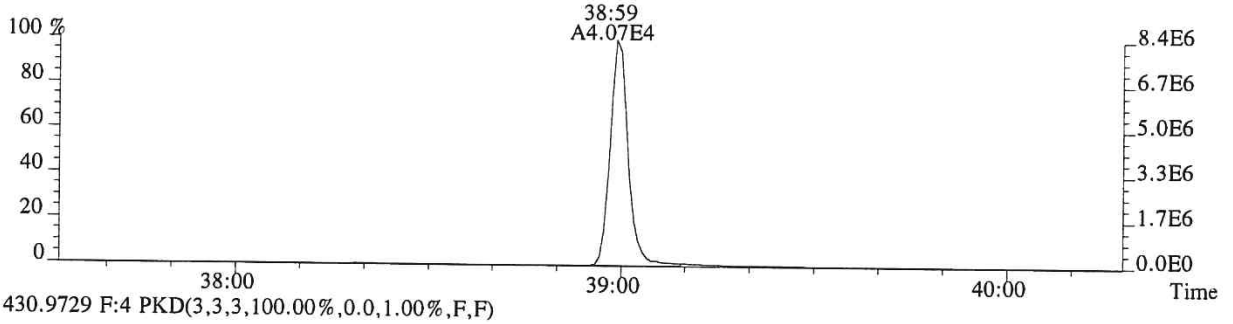
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



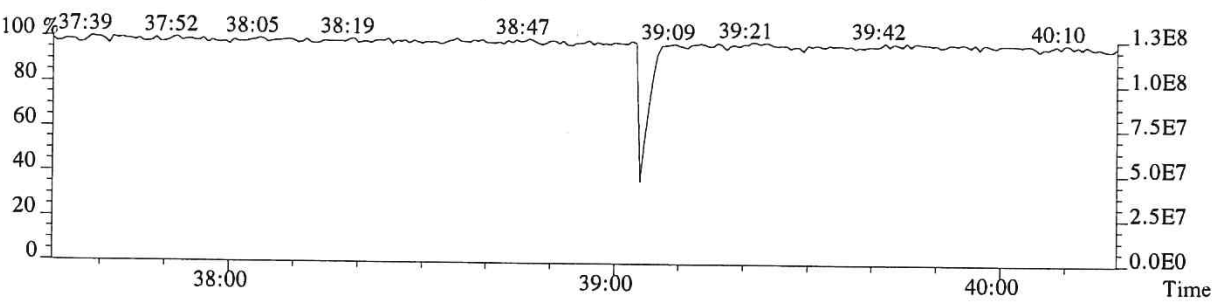
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)

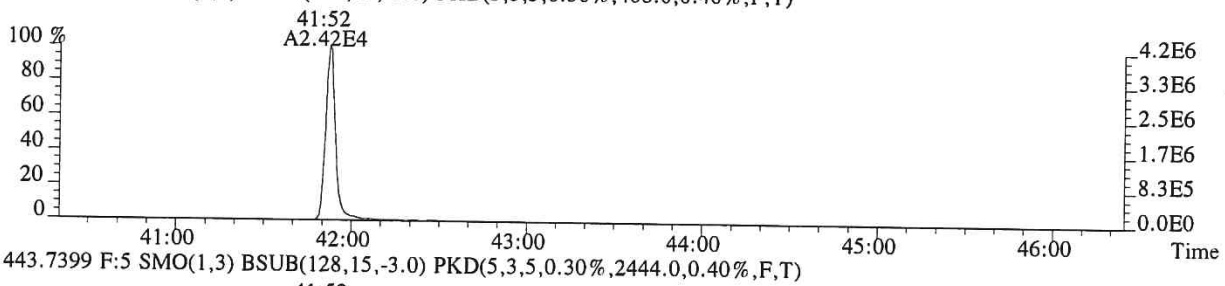


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

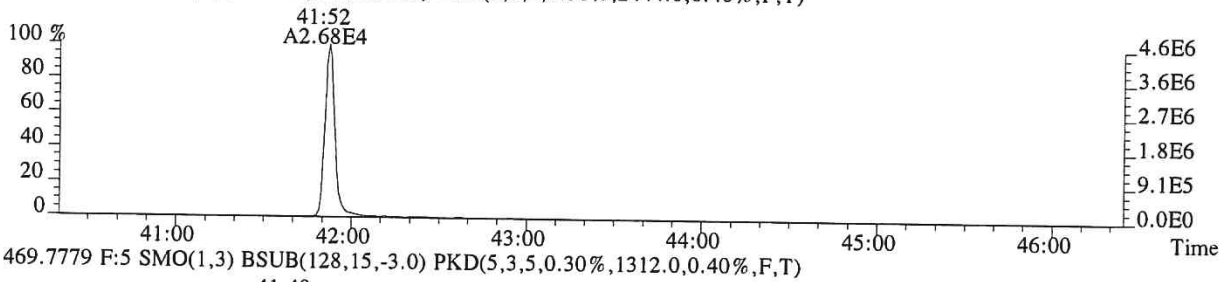


File:P616051 #1-547 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

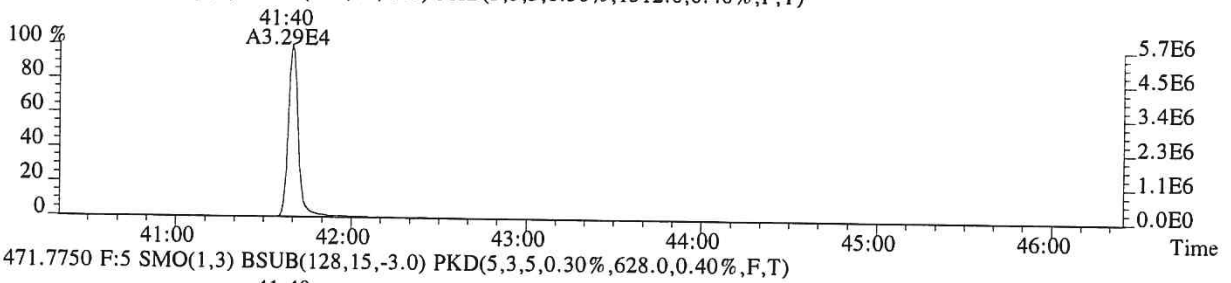
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



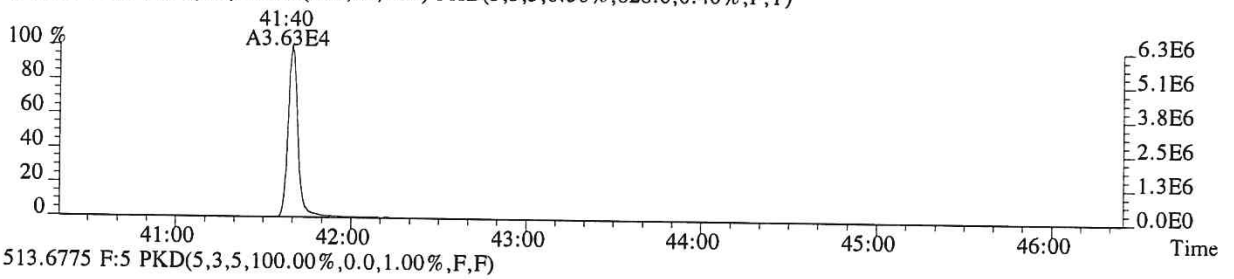
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2444.0,0.40%,F,T)



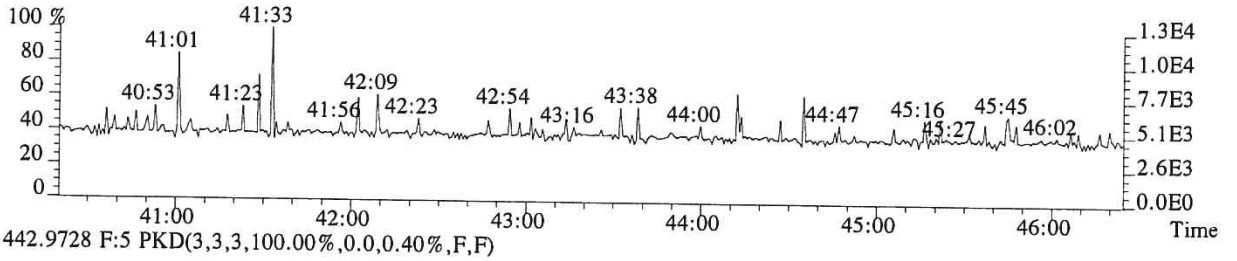
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



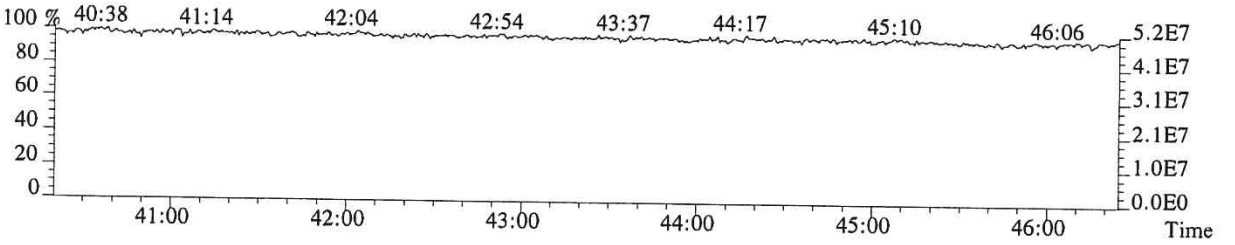
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



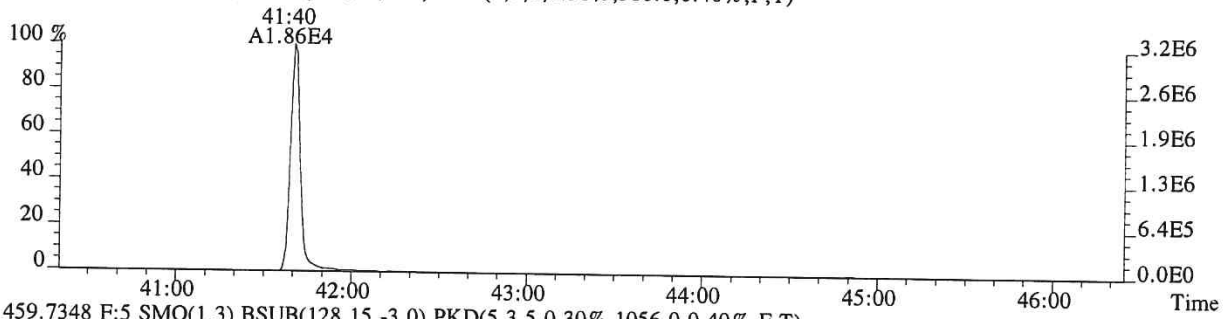
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



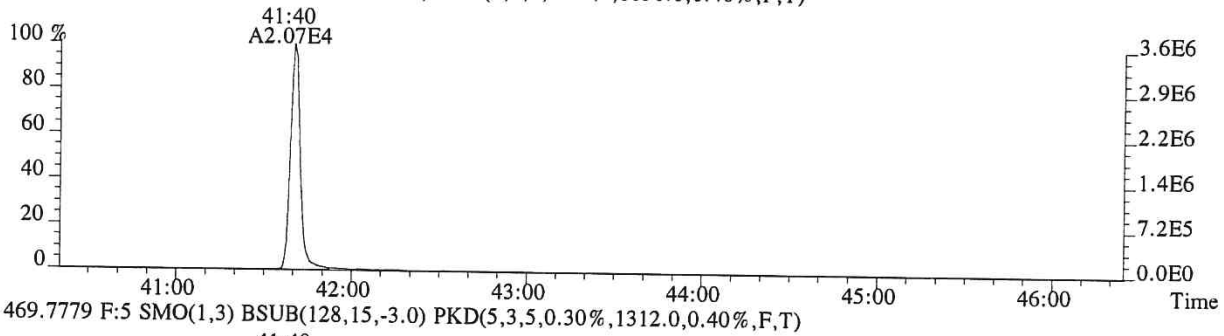
012622

File:P616051 #1-547 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

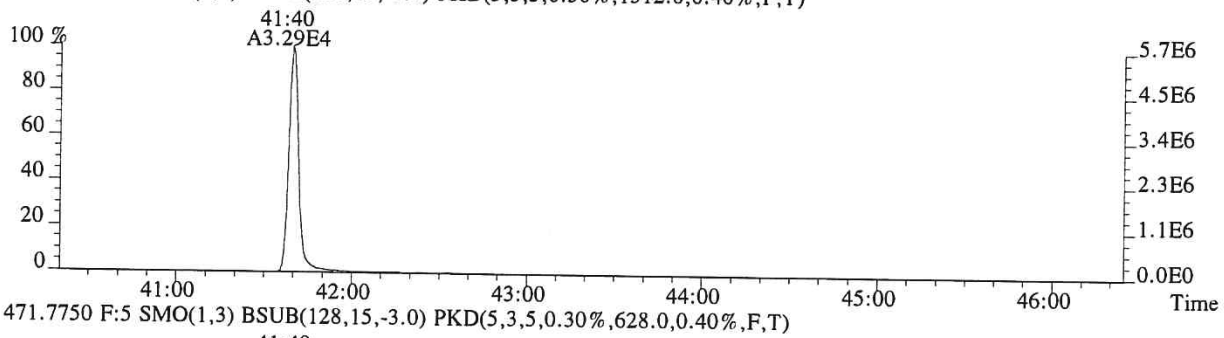
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



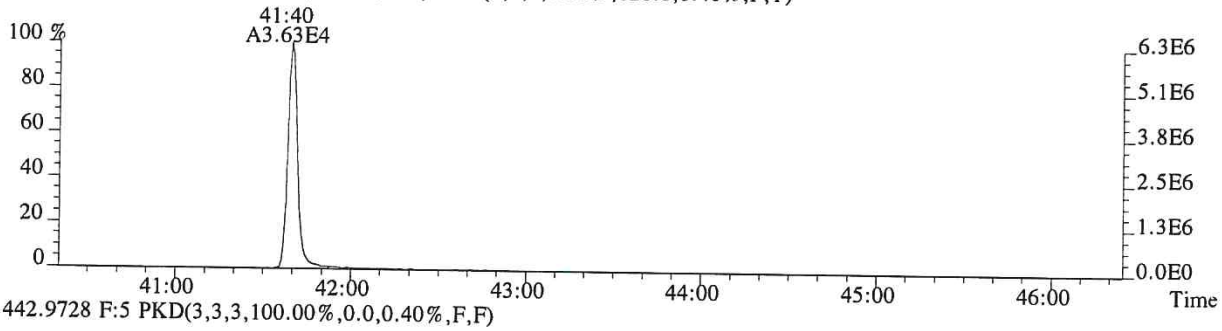
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1056.0,0.40%,F,T)



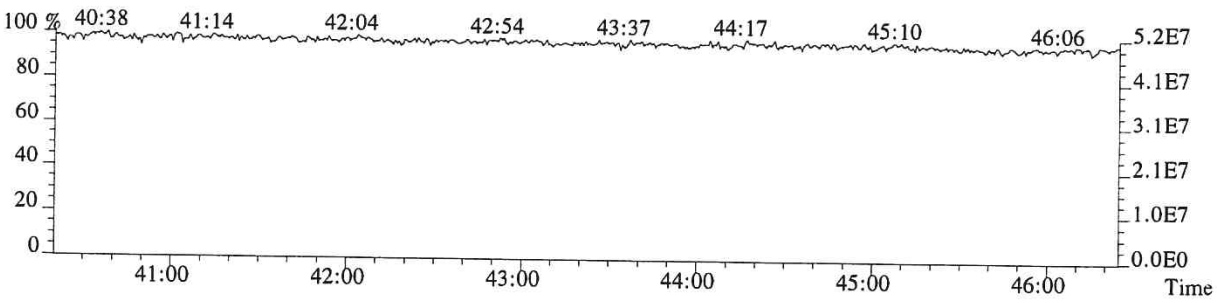
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012623

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

un #19 Filename P616052 Samp: 1 Inj: 1 Acquired: 11-DEC-18 20:34:15
rocessed: 12-DEC-18 16:11:44 Sample ID: EQ1800499-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:30	3.213e+03	3.891e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:51	2.960e+04	1.904e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:48	2.810e+04	1.842e+04	1.53	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:29	2.764e+04	2.202e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	3.077e+04	2.498e+04	1.23	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:07	2.646e+04	2.181e+04	1.21	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:52	2.461e+04	1.938e+04	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:06	2.291e+04	2.287e+04	1.00	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	1.904e+04	1.874e+04	1.02	yes	no	1.463
0	Unk	OCDF	41:52	2.393e+04	2.585e+04	0.93	yes	no	1.571
1	Unk	2,3,7,8-TCDD	28:19	2.630e+03	3.565e+03	0.74	yes	no	1.049
2	Unk	1,2,3,7,8-PeCDD	33:05	2.244e+04	1.413e+04	1.59	yes	no	0.929
3	Unk	1,2,3,4,7,8-HxCDD	36:14	1.911e+04	1.545e+04	1.24	yes	no	1.071
4	Unk	1,2,3,6,7,8-HxCDD	36:20	2.081e+04	1.665e+04	1.25	yes	no	1.060
5	Unk	1,2,3,7,8,9-HxCDD	36:34	2.125e+04	1.670e+04	1.27	yes	no	1.145
6	Unk	1,2,3,4,6,7,8-HpCDD	39:00	1.562e+04	1.501e+04	1.04	yes	no	1.112
7	Unk	OCDD	41:40	1.837e+04	2.049e+04	0.90	yes	no	1.157
8	IS	13C-2,3,7,8-TCDF	27:28	3.525e+04	4.407e+04	0.80	yes	no	1.417
9	IS	13C-1,2,3,7,8-PeCDF	31:50	6.336e+04	4.040e+04	1.57	yes	no	1.596
0	IS	13C-2,3,4,7,8-PeCDF	32:47	5.895e+04	3.601e+04	1.64	yes	no	1.571
1	IS	13C-1,2,3,4,7,8-HxCDF	35:28	2.759e+04	5.309e+04	0.52	yes	no	1.160
2	IS	13C-1,2,3,6,7,8-HxCDF	35:35	3.241e+04	6.190e+04	0.52	yes	no	1.336
3	IS	13C-2,3,4,6,7,8-HxCDF	36:06	2.893e+04	5.397e+04	0.54	yes	no	1.250
4	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.519e+04	4.985e+04	0.51	yes	no	1.131
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:05	2.073e+04	4.584e+04	0.45	yes	no	1.029
6	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.764e+04	3.964e+04	0.45	yes	no	0.907
7	IS	13C-2,3,7,8-TCDD	28:17	1.841e+04	2.415e+04	0.76	yes	no	0.983
8	IS	13C-1,2,3,7,8-PeCDD	33:04	4.723e+04	3.069e+04	1.54	yes	no	1.125
9	IS	13C-1,2,3,4,7,8-HxCDD	36:14	3.967e+04	3.187e+04	1.24	yes	no	0.903
0	IS	13C-1,2,3,6,7,8-HxCDD	36:19	4.018e+04	3.179e+04	1.26	yes	no	0.903
1	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	3.986e+04	3.773e+04	1.06	yes	no	0.857
2	IS	13C-OCDD	41:40	3.220e+04	3.629e+04	0.89	yes	no	0.659
3	RS/RT	13C-1,2,3,4-TCDD	27:40	4.523e+04	5.761e+04	0.79	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:33	5.878e+04	4.730e+04	1.24	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:19	2.634e+04				no	1.086

$$\text{OCDD} = \frac{(1.837e+04 + 2.049e+04) \times 4000\ \text{pg} \times 1}{(3.220e+04 + 3.629e+04) \times \text{g} \times / 100 \times 1.157} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

un #19 Filename P616052 Samp: 1 Inj: 1 Acquired: 11-DEC-18 20:34:15
rocessed: 12-DEC-18 16:11:44 LAB. ID: EQ1800499-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	4.98e+05	1.91e+03	2.6e+02	6.00e+05	3.12e+03	1.9e+02
	1,2,3,7,8-PeCDF	5.27e+06	9.88e+02	5.3e+03	3.37e+06	4.39e+03	7.7e+02
	2,3,4,7,8-PeCDF	5.19e+06	9.88e+02	5.2e+03	3.37e+06	4.39e+03	7.7e+02
	1,2,3,4,7,8-HxCDF	5.98e+06	6.64e+02	9.0e+03	4.74e+06	1.30e+03	3.7e+03
	1,2,3,6,7,8-HxCDF	5.99e+06	6.64e+02	9.0e+03	4.90e+06	1.30e+03	3.8e+03
	2,3,4,6,7,8-HxCDF	5.39e+06	6.64e+02	8.1e+03	4.36e+06	1.30e+03	3.4e+03
	1,2,3,7,8,9-HxCDF	4.63e+06	6.64e+02	7.0e+03	3.74e+06	1.30e+03	2.9e+03
	1,2,3,4,6,7,8-HpCDF	4.69e+06	1.85e+03	2.5e+03	4.74e+06	1.85e+03	2.6e+03
	1,2,3,4,7,8,9-HpCDF	3.45e+06	1.85e+03	1.9e+03	3.32e+06	1.85e+03	1.8e+03
.0	OCDF	4.07e+06	9.04e+02	4.5e+03	4.38e+06	1.94e+03	2.3e+03
.1	2,3,7,8-TCDD	4.62e+05	3.86e+03	1.2e+02	6.13e+05	2.40e+03	2.6e+02
.2	1,2,3,7,8-PeCDD	4.09e+06	2.00e+03	2.0e+03	2.57e+06	9.12e+02	2.8e+03
.3	1,2,3,4,7,8-HxCDD	4.28e+06	7.12e+02	6.0e+03	3.41e+06	9.88e+02	3.5e+03
.4	1,2,3,6,7,8-HxCDD	4.28e+06	7.12e+02	6.0e+03	3.36e+06	9.88e+02	3.4e+03
.5	1,2,3,7,8,9-HxCDD	4.20e+06	7.12e+02	5.9e+03	3.33e+06	9.88e+02	3.4e+03
.6	1,2,3,4,6,7,8-HpCDD	3.05e+06	5.44e+02	5.6e+03	2.95e+06	6.72e+02	4.4e+03
.7	OCDD	3.26e+06	3.92e+02	8.3e+03	3.55e+06	6.24e+02	5.7e+03
18	13C-2,3,7,8-TCDF	5.50e+06	9.40e+03	5.8e+02	6.79e+06	6.86e+03	9.9e+02
19	13C-1,2,3,7,8-PeCDF	1.13e+07	1.12e+03	1.0e+04	7.17e+06	1.19e+03	6.0e+03
20	13C-2,3,4,7,8-PeCDF	1.05e+07	1.12e+03	9.4e+03	6.46e+06	1.19e+03	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	5.82e+06	1.37e+03	4.2e+03	1.15e+07	2.30e+03	5.0e+03
22	13C-1,2,3,6,7,8-HxCDF	6.36e+06	1.37e+03	4.6e+03	1.23e+07	2.30e+03	5.3e+03
23	13C-2,3,4,6,7,8-HxCDF	5.63e+06	1.37e+03	4.1e+03	1.07e+07	2.30e+03	4.7e+03
24	13C-1,2,3,7,8,9-HxCDF	4.81e+06	1.37e+03	3.5e+03	9.38e+06	2.30e+03	4.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.27e+06	2.47e+03	1.7e+03	9.45e+06	6.68e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.22e+06	2.47e+03	1.3e+03	7.09e+06	6.68e+03	1.1e+03
27	13C-2,3,7,8-TCDD	3.08e+06	1.85e+04	1.7e+02	4.05e+06	5.16e+03	7.8e+02
28	13C-1,2,3,7,8-PeCDD	8.36e+06	2.00e+03	4.2e+03	5.35e+06	1.80e+03	3.0e+03
29	13C-1,2,3,4,7,8-HxCDD	8.86e+06	2.53e+03	3.5e+03	7.13e+06	1.50e+03	4.8e+03
30	13C-1,2,3,6,7,8-HxCDD	8.20e+06	2.53e+03	3.2e+03	6.40e+06	1.50e+03	4.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.89e+06	8.52e+02	9.3e+03	7.48e+06	9.56e+02	7.8e+03
32	13C-OCDD	5.59e+06	1.28e+03	4.4e+03	6.29e+06	6.32e+02	9.9e+03
33	13C-1,2,3,4-TCDD	7.67e+06	1.85e+04	4.1e+02	9.73e+06	5.16e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.19e+07	2.53e+03	4.7e+03	9.40e+06	1.50e+03	6.3e+03
35	37Cl-2,3,7,8-TCDD	4.52e+06	3.52e+03	1.3e+03			

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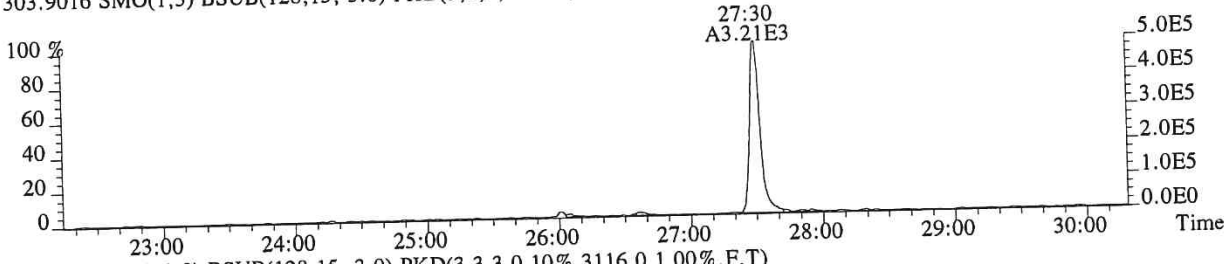
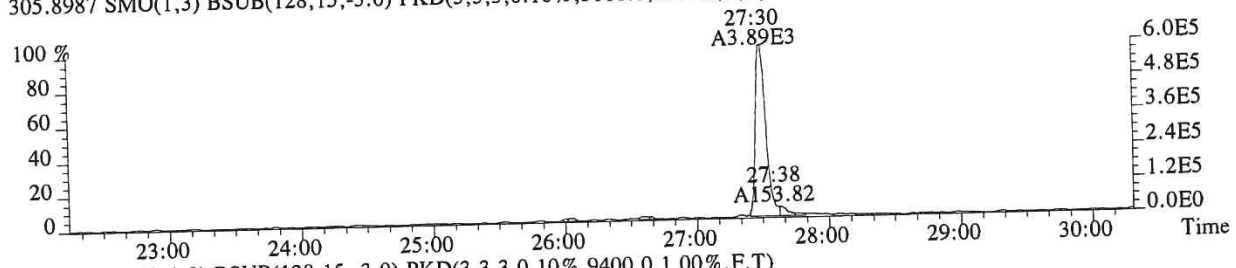
File:P616052 #1-573 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

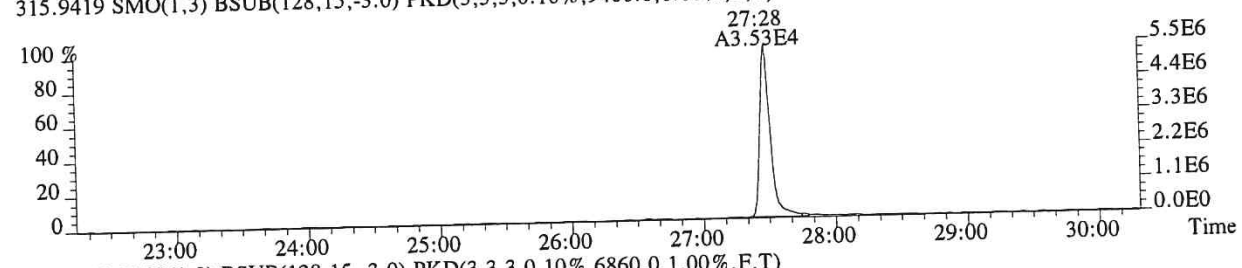
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



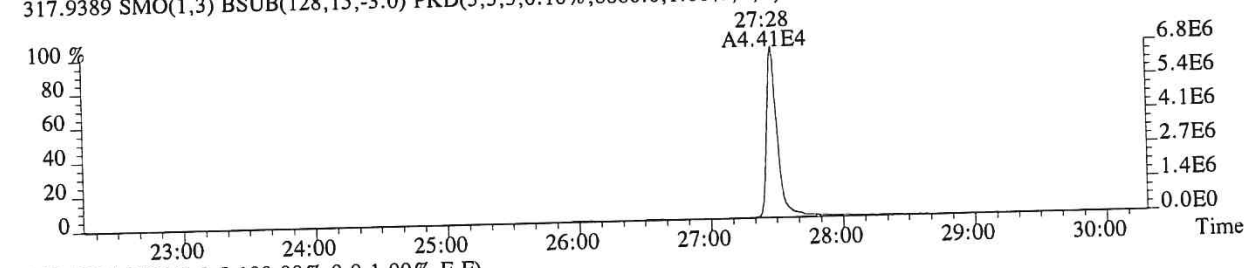
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3116.0,1.00%,F,T)



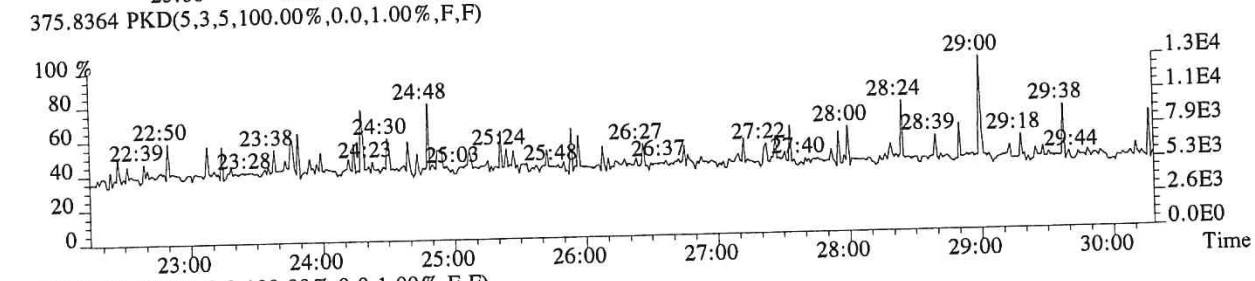
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9400.0,1.00%,F,T)



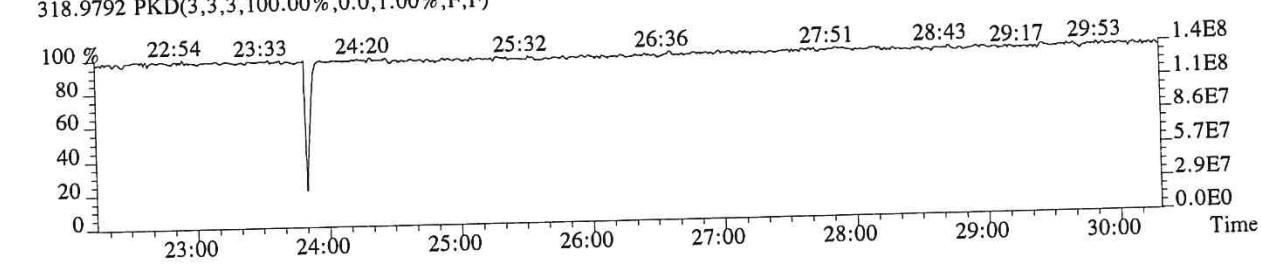
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



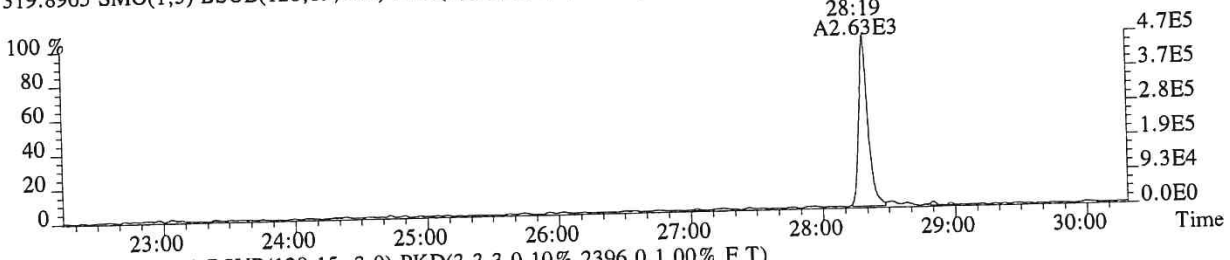
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



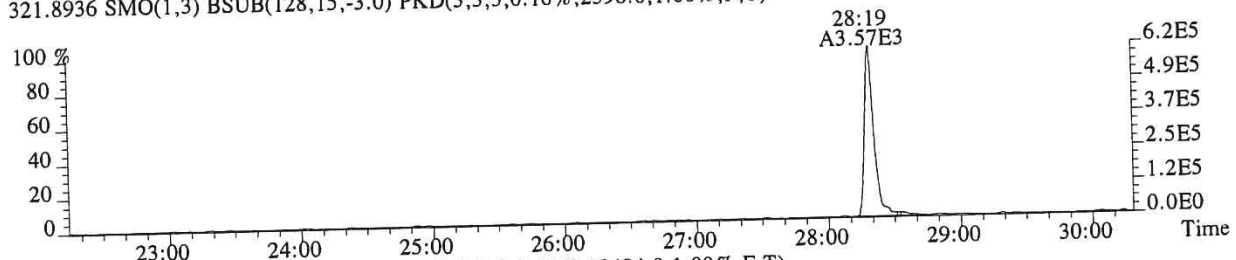
012626

File:P616052 #1-573 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

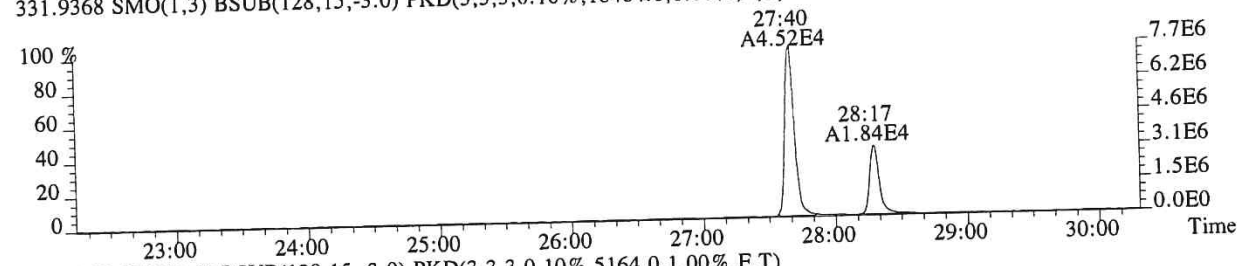
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3864.0,1.00%,F,T)



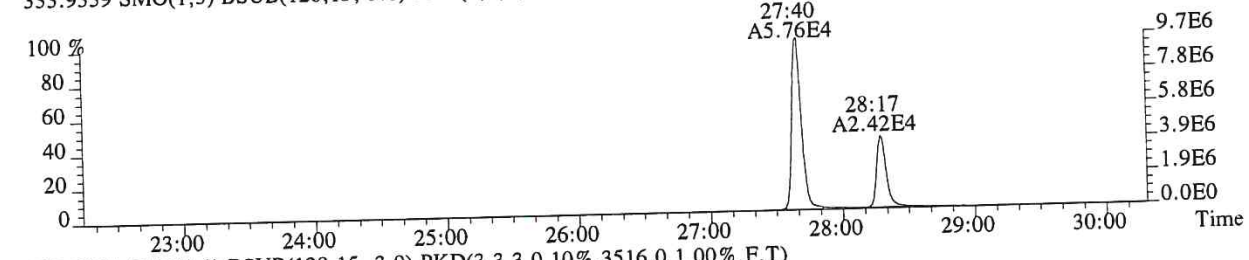
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2396.0,1.00%,F,T)



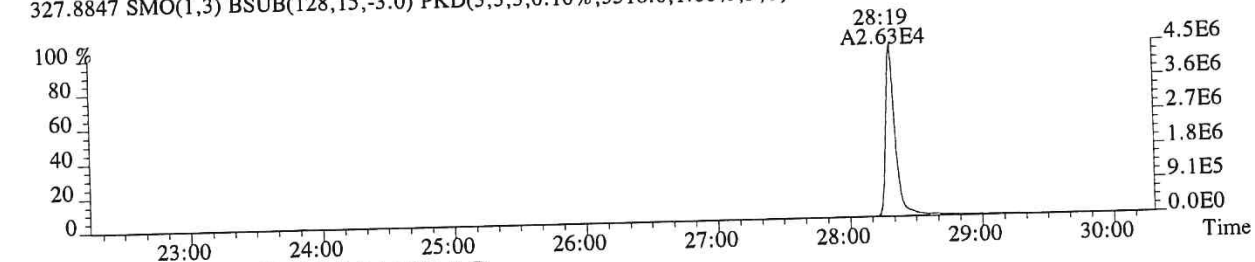
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18484.0,1.00%,F,T)



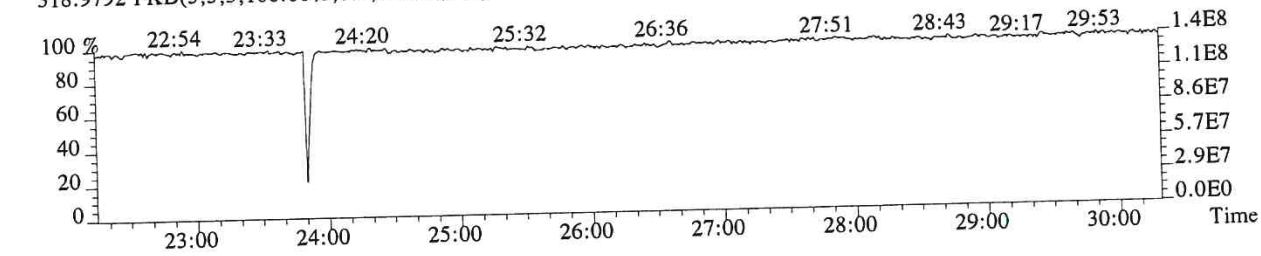
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5164.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3516.0,1.00%,F,T)



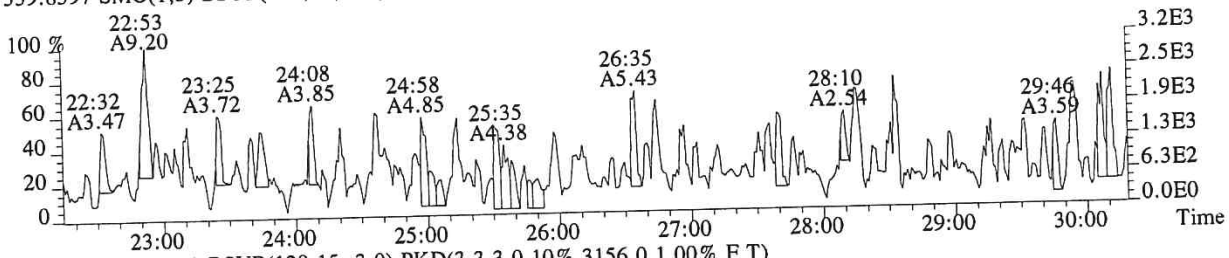
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



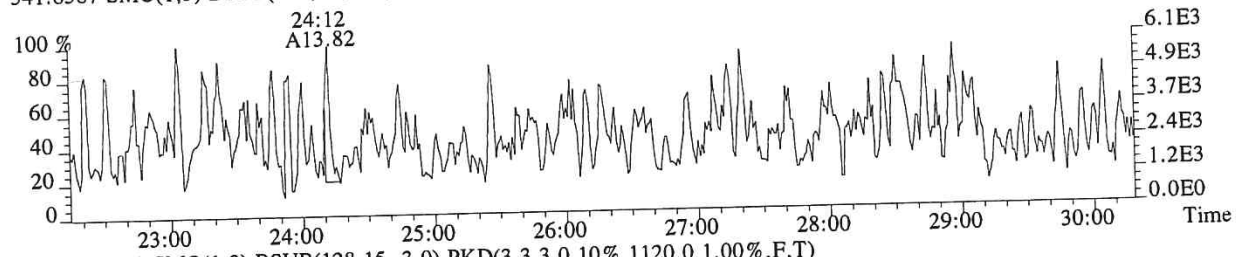
012627

File:P616052 #1-573 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:DLCS

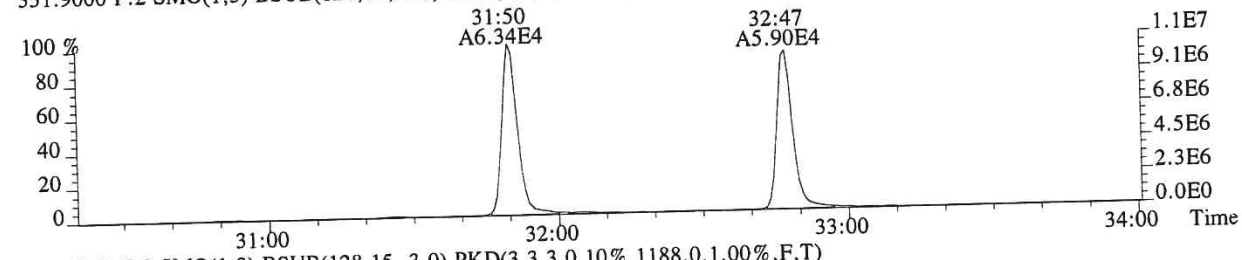
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



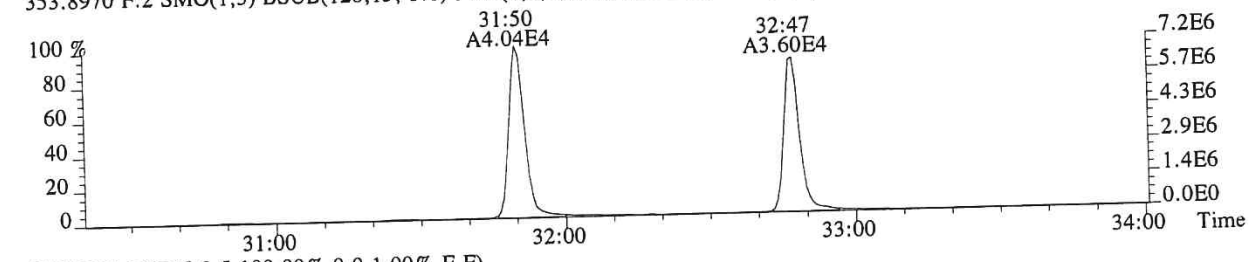
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3156.0,1.00%,F,T)



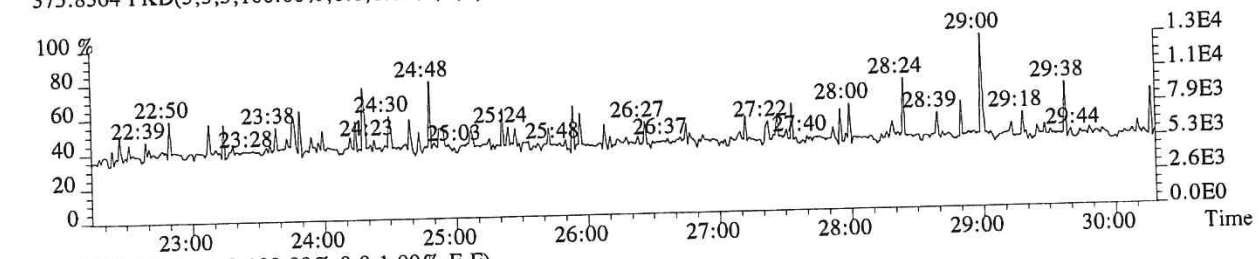
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



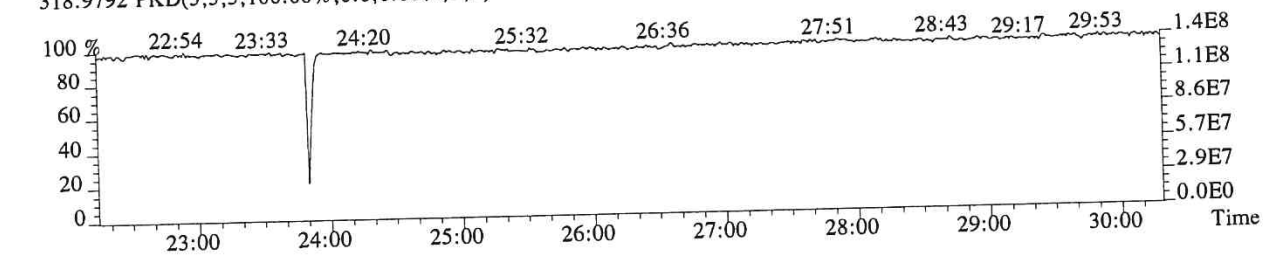
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



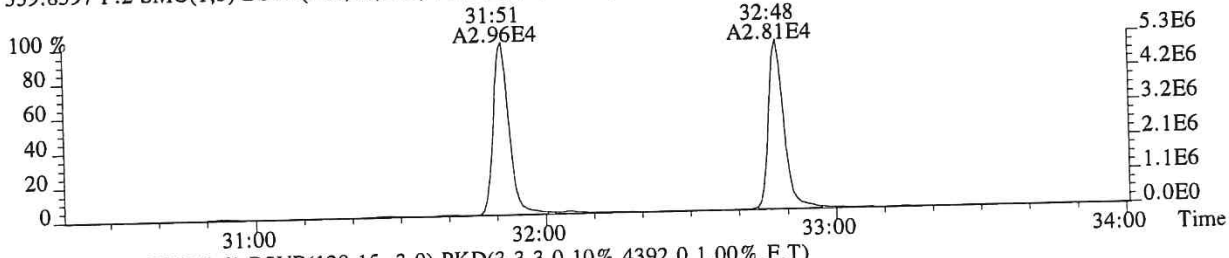
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



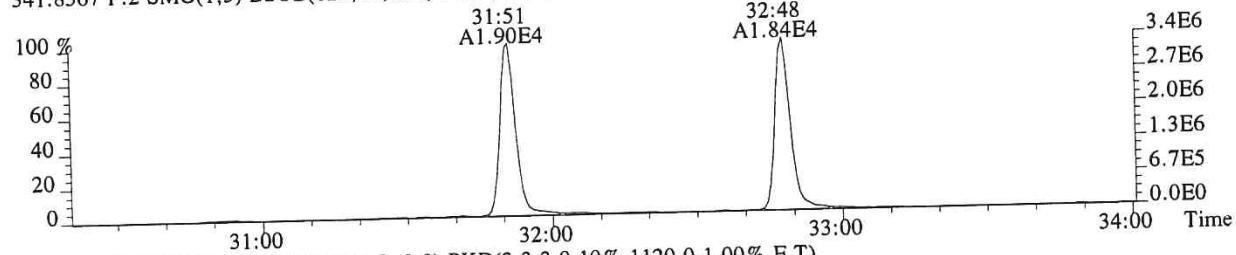
012628

File:P616052 #1-331 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

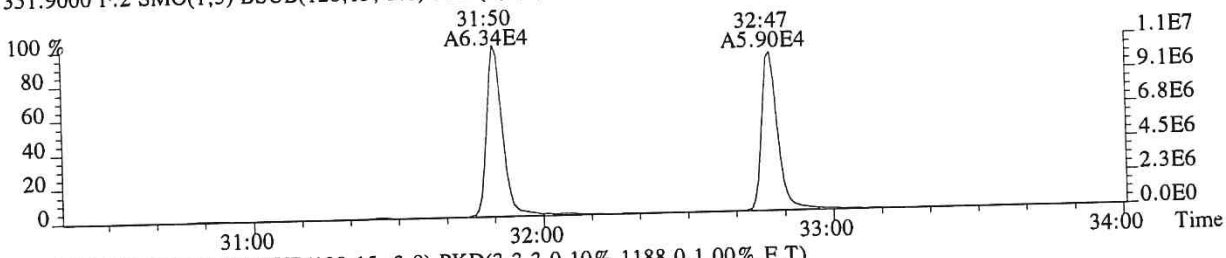
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



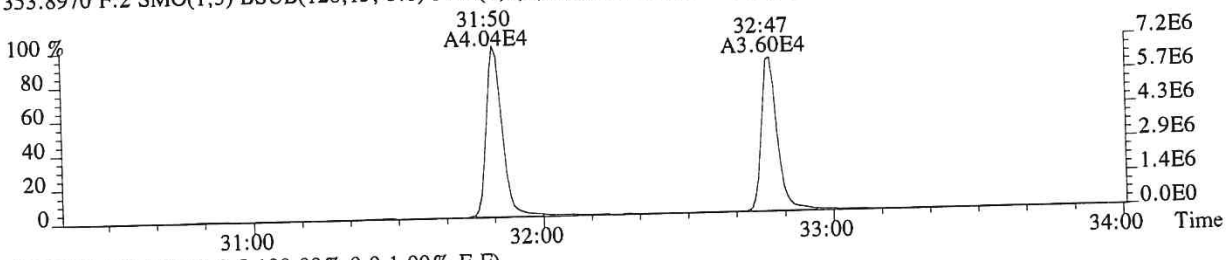
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



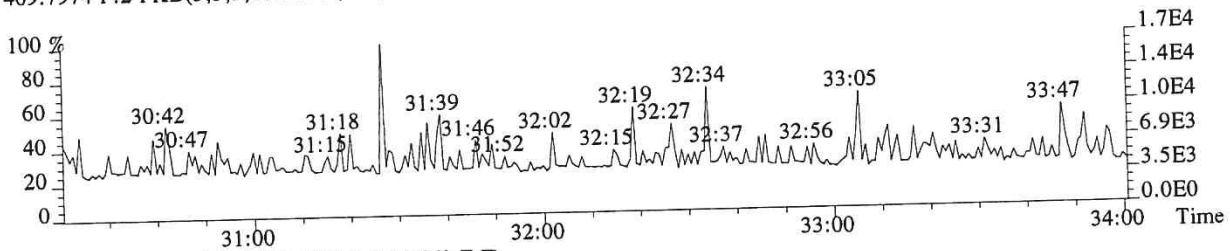
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



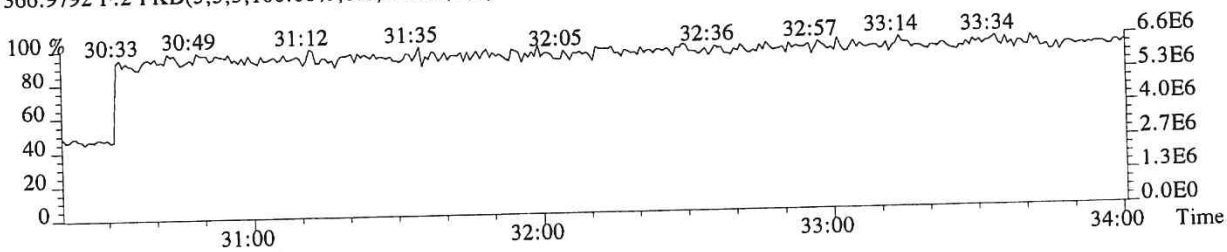
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



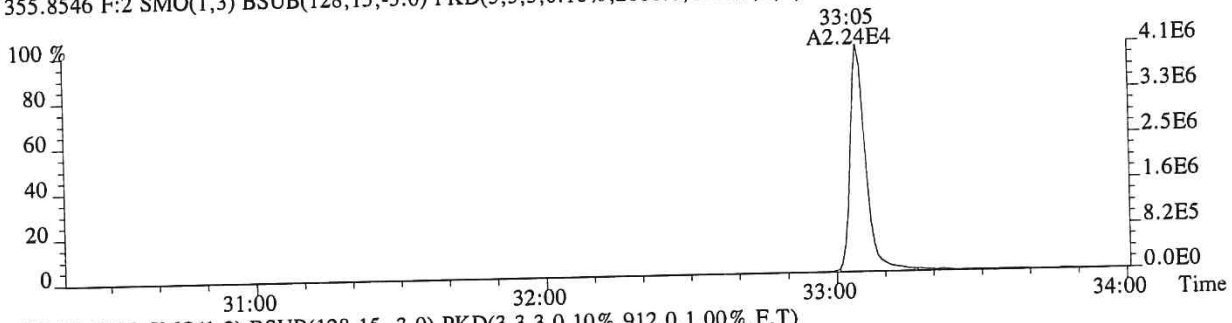
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



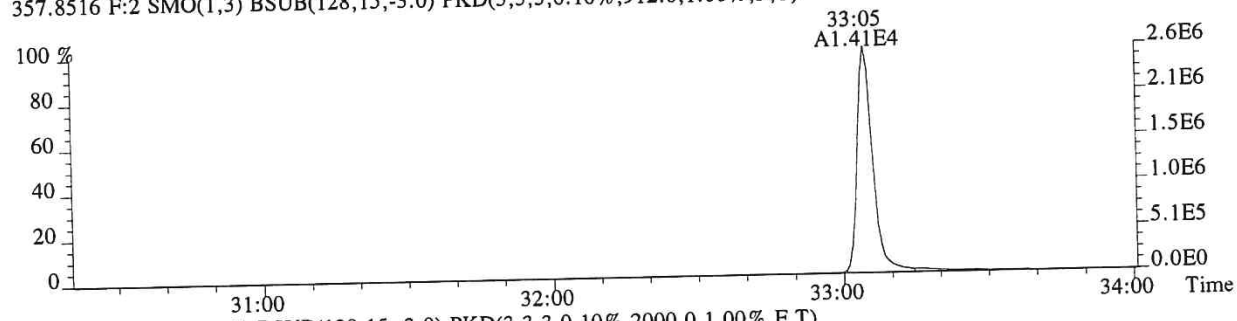
012629

File:P616052 #1-331 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

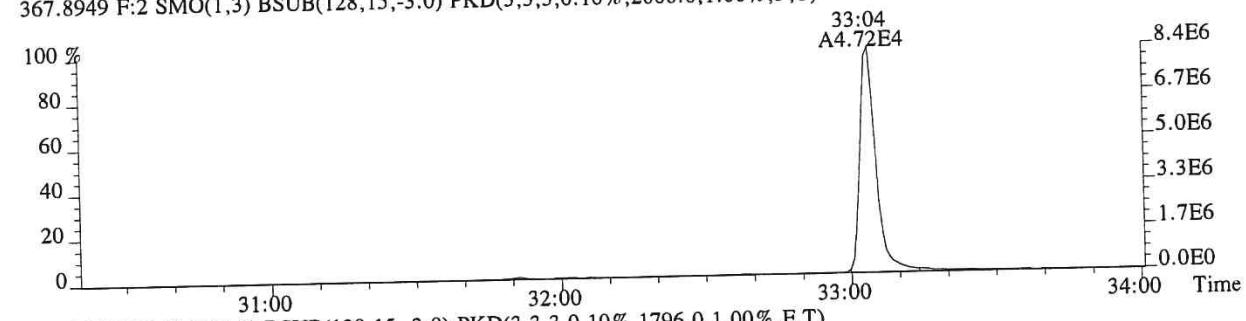
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



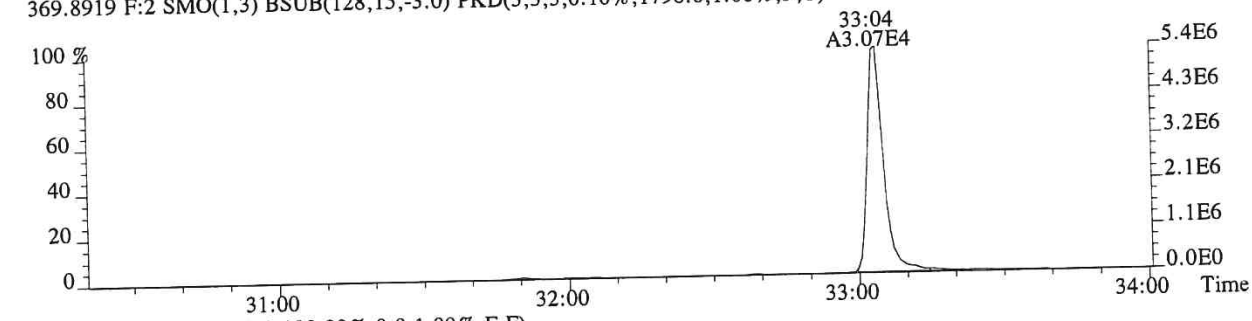
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



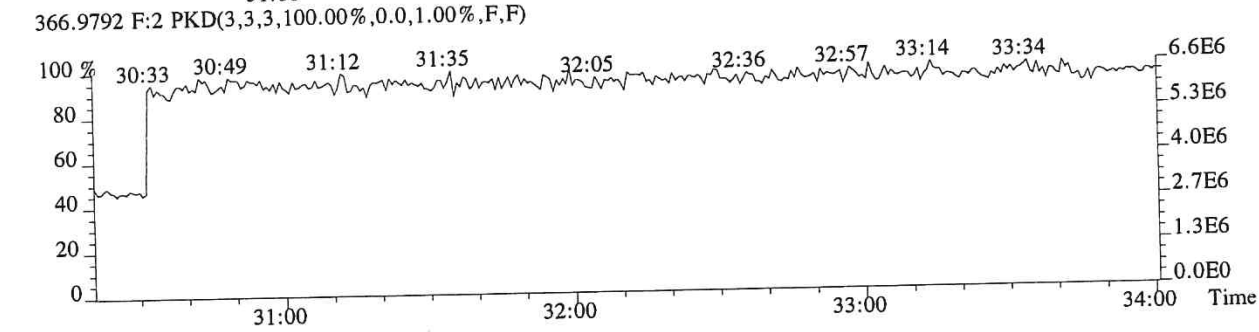
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)

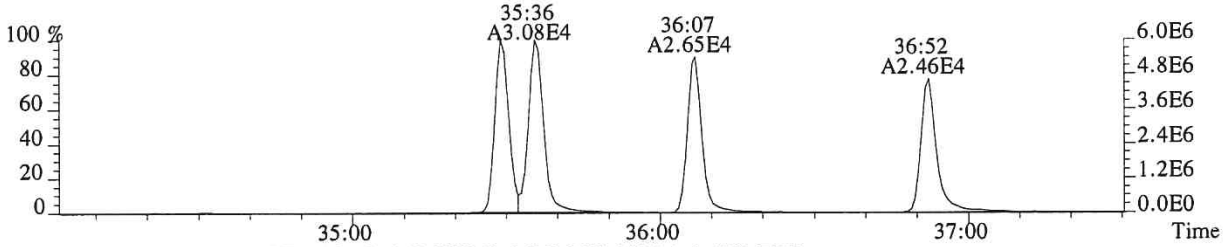


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

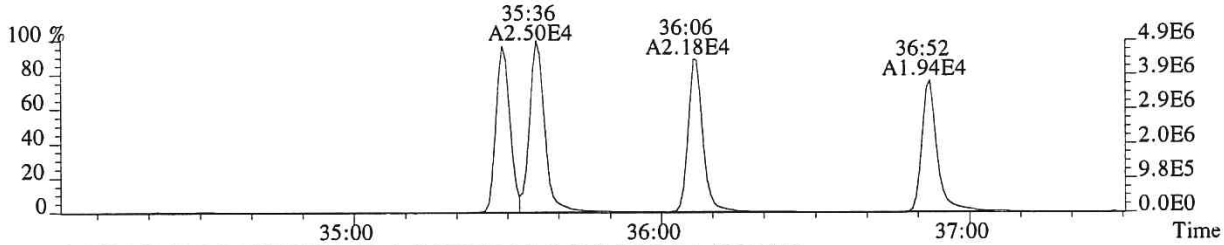


File:P616052 #1-312 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

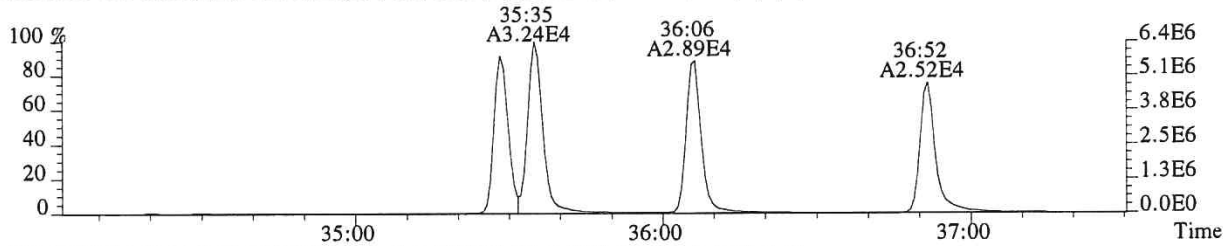
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



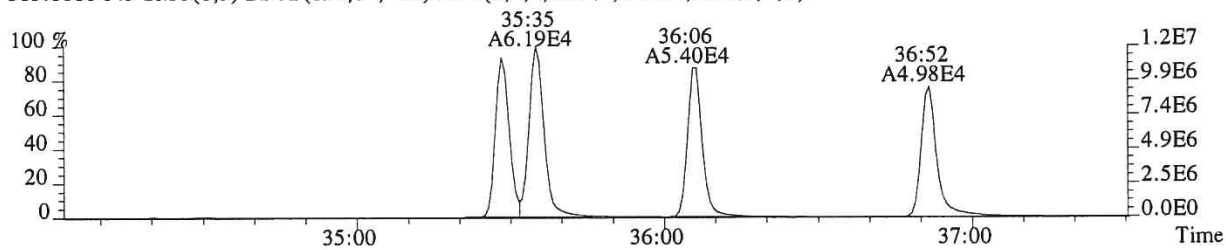
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



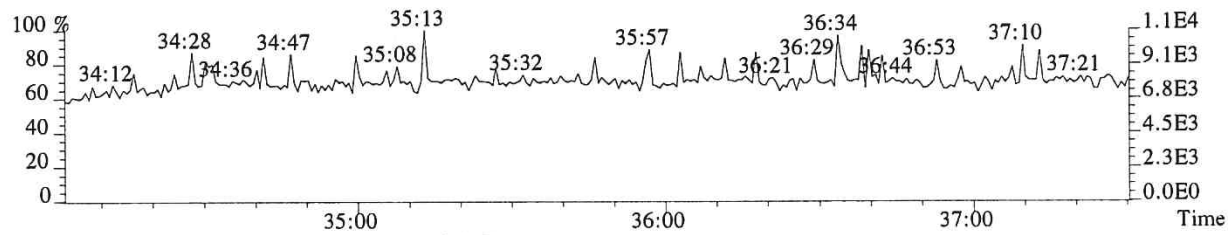
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1372.0,0.40%,F,T)



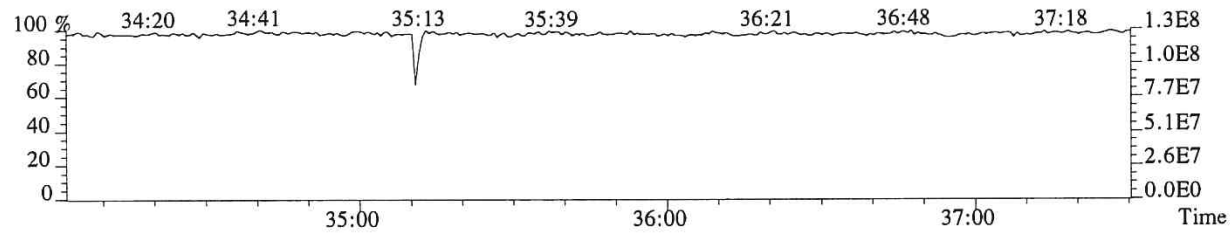
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

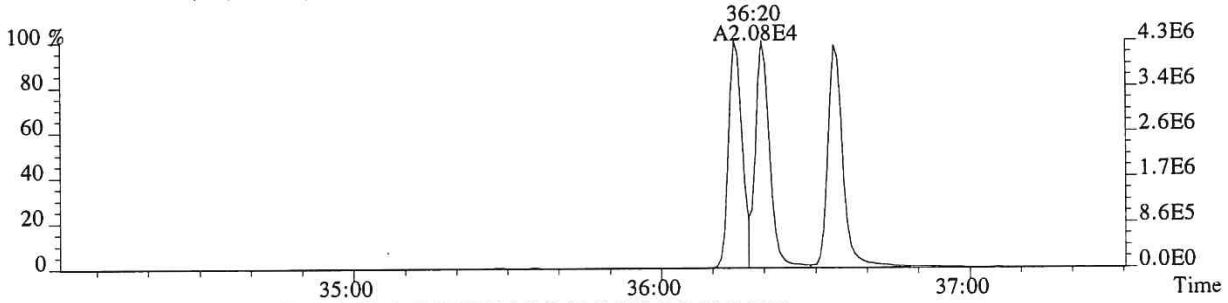


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

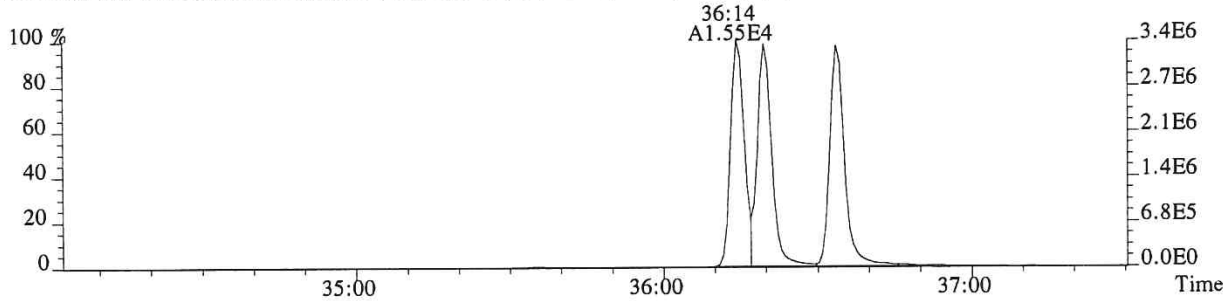


File:P616052 #1-312 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

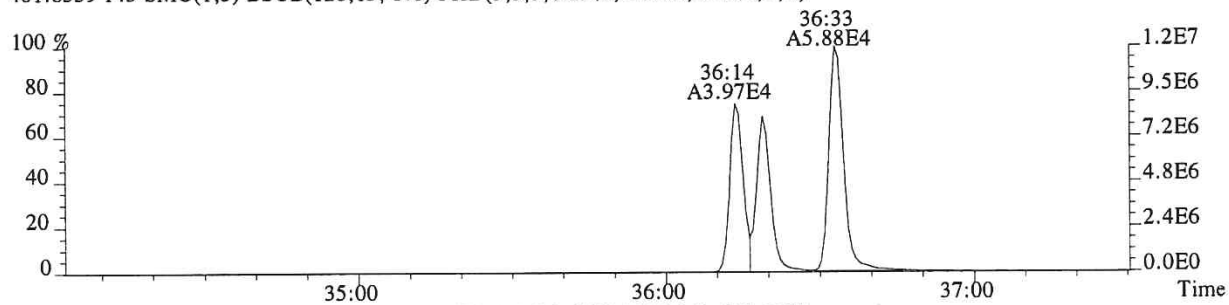
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



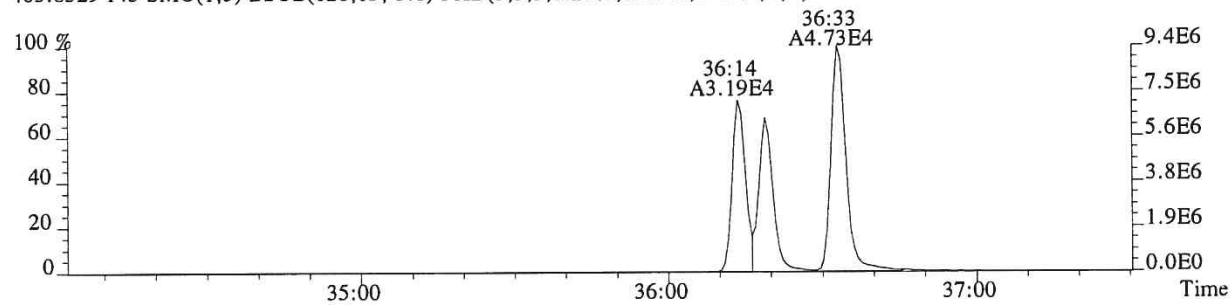
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



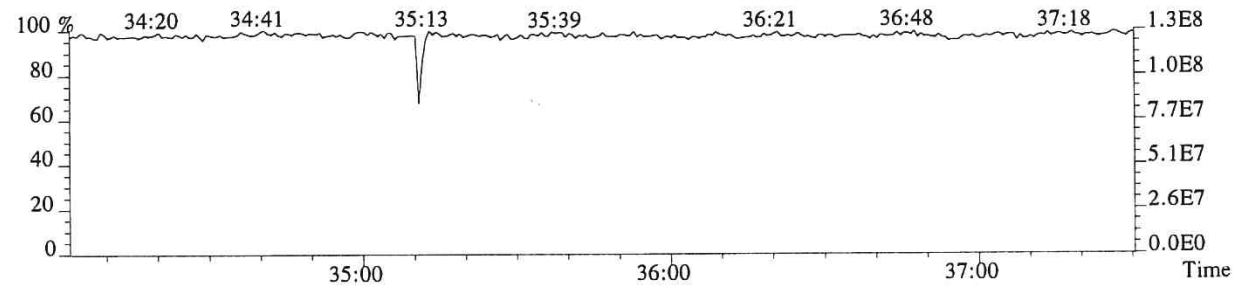
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2532.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)

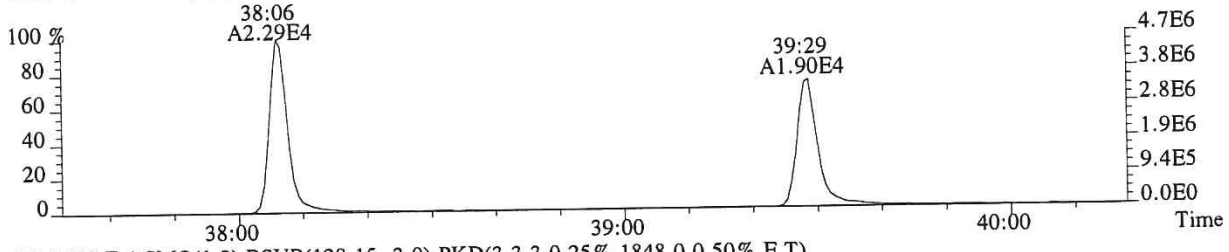


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

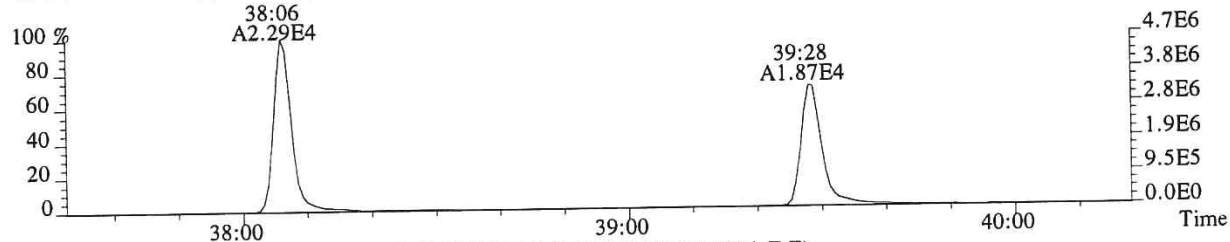


012632

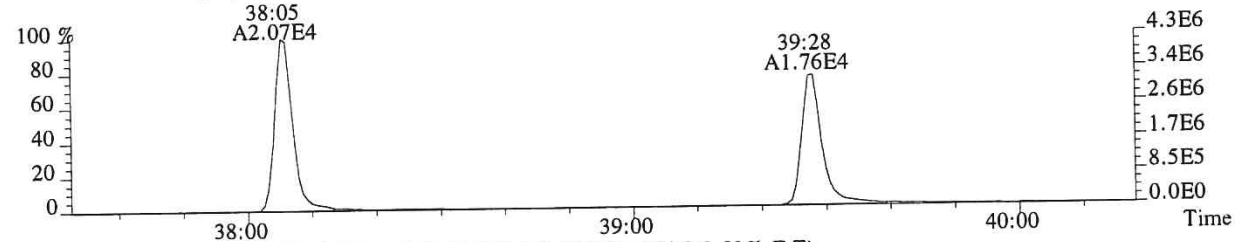
File:P616052 #1-249 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1852.0,0.50%,F,T)



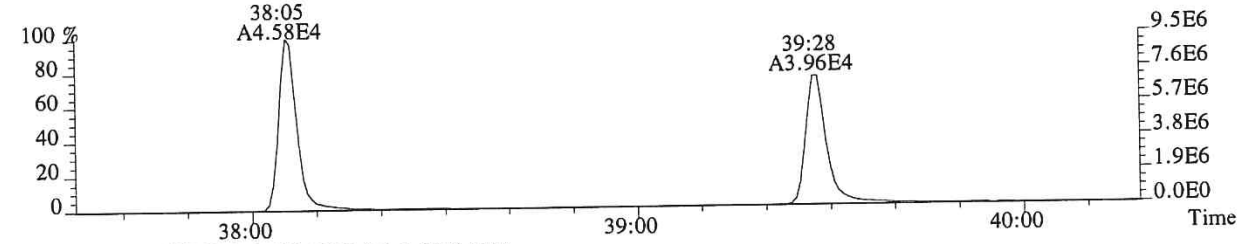
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.50%,F,T)



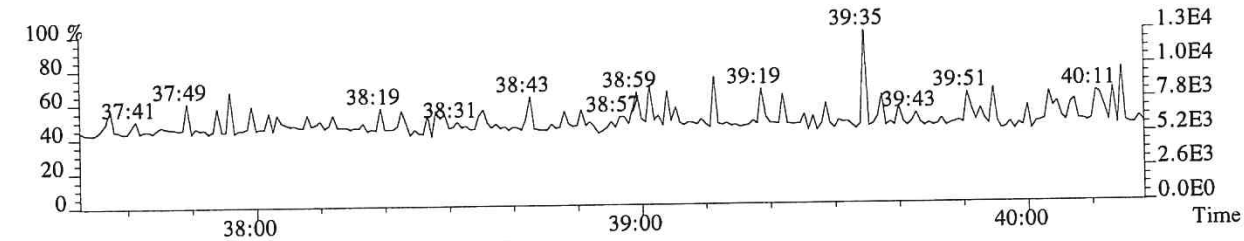
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2472.0,0.50%,F,T)



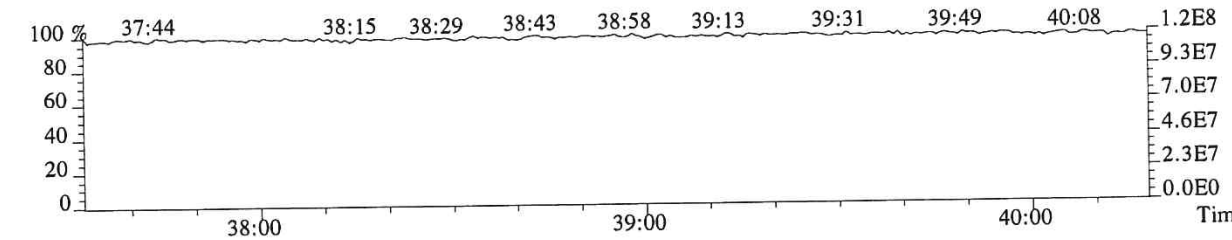
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6676.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



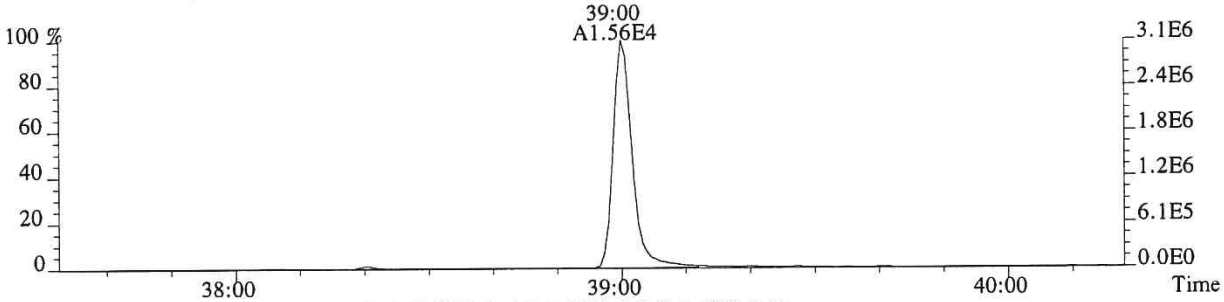
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



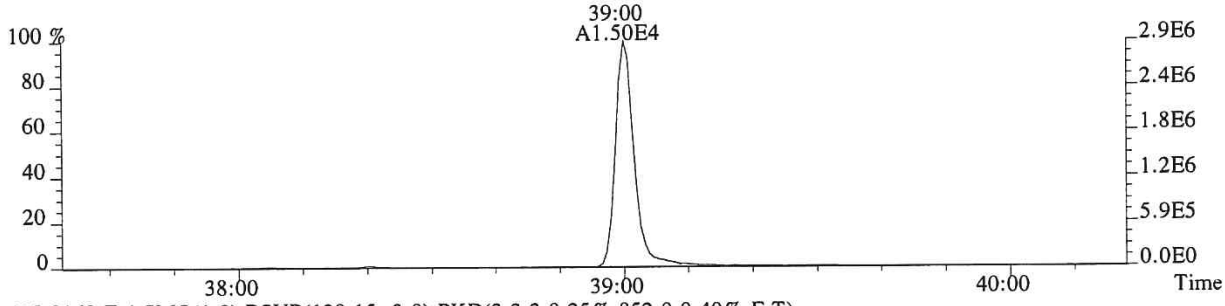
012633

File:P616052 #1-249 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

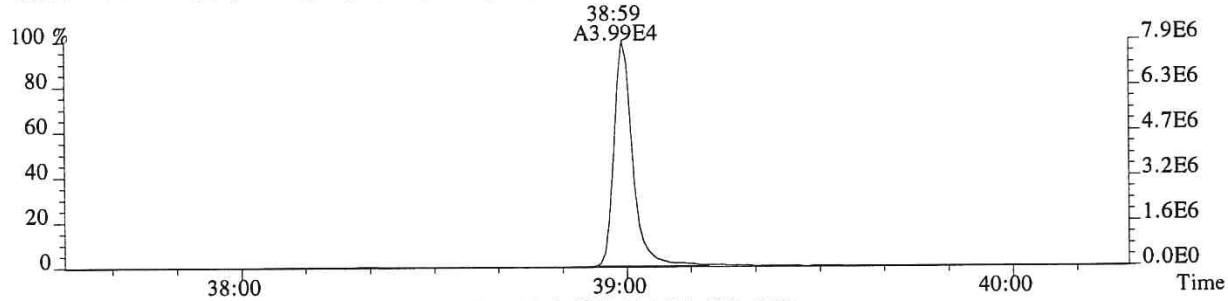
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



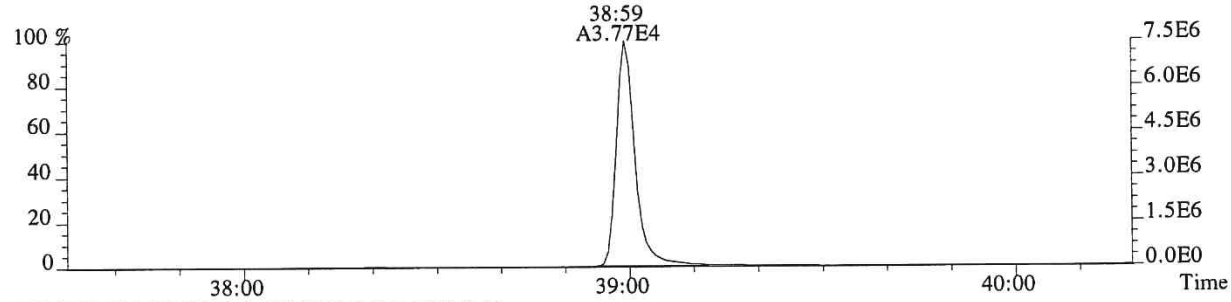
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



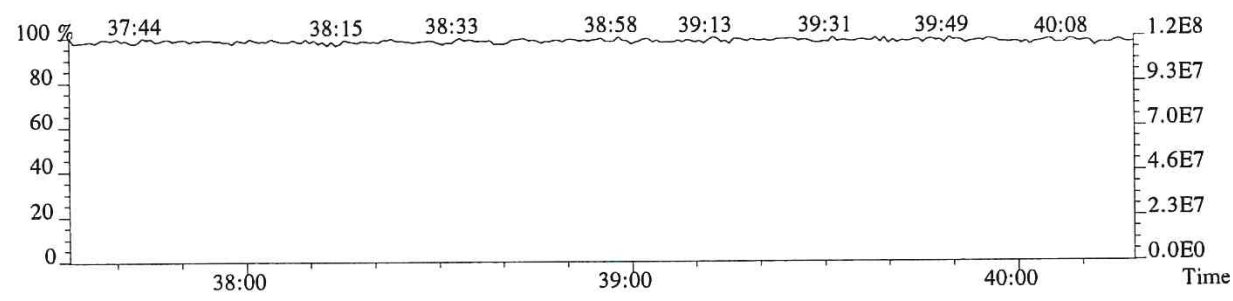
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)

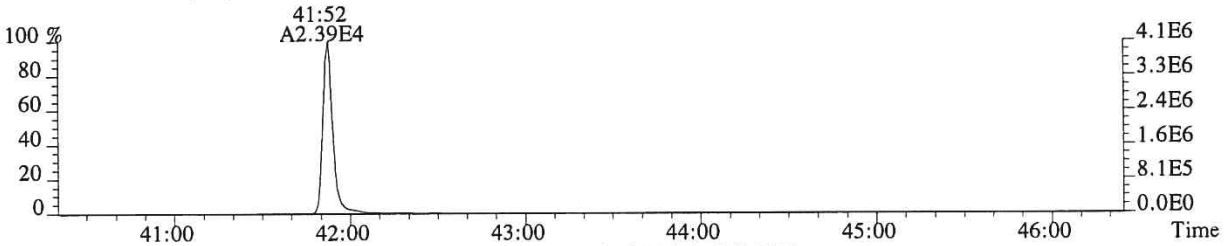


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

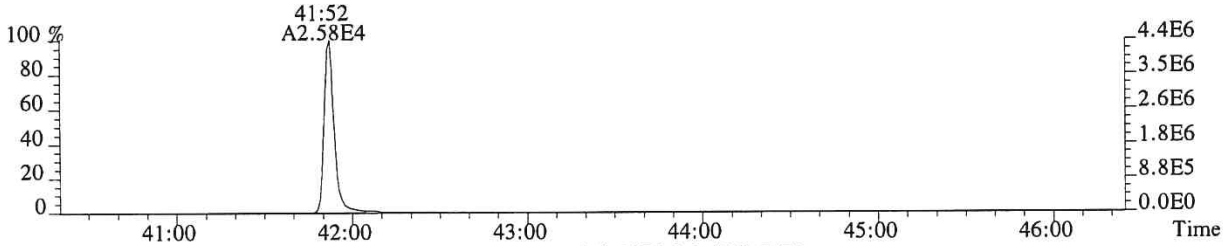


File:P616052 #1-547 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

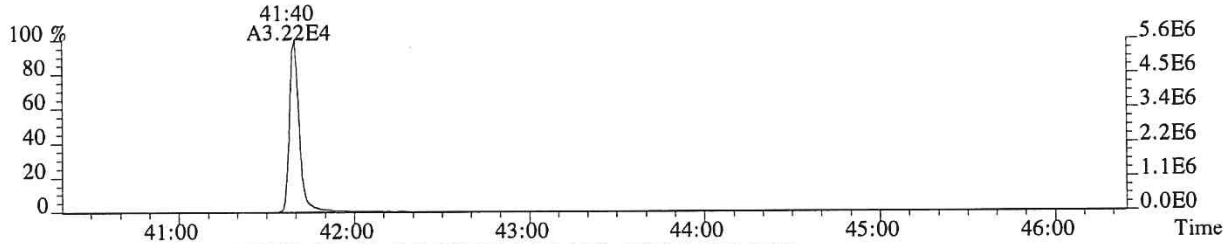
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,904.0,0.40%,F,T)



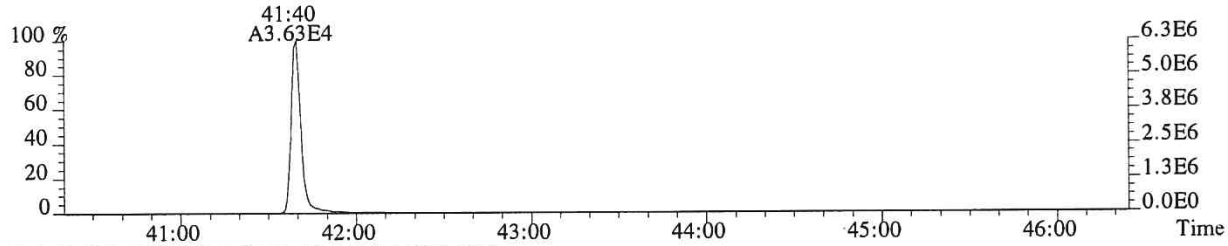
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1944.0,0.40%,F,T)



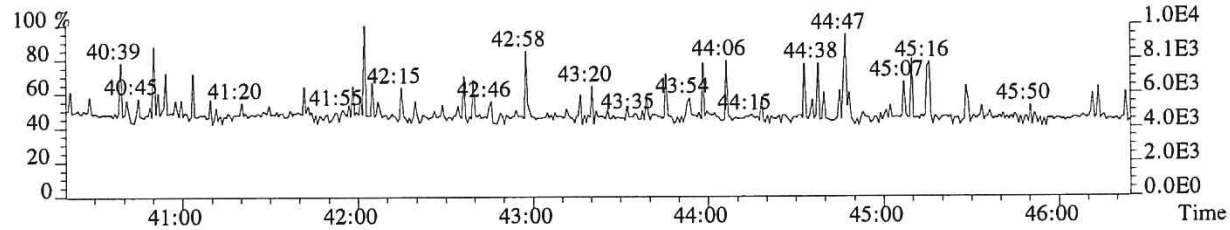
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



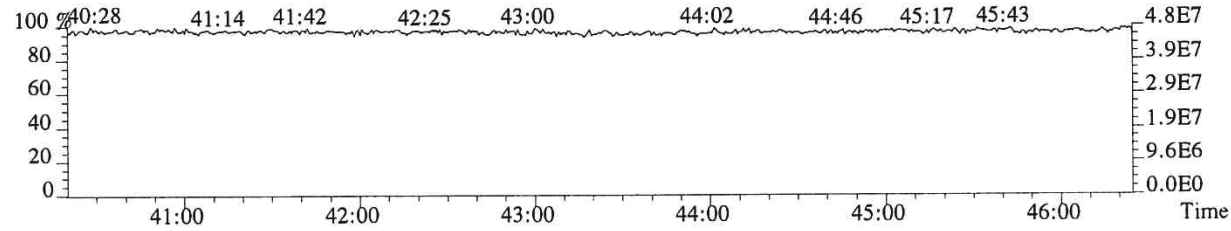
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

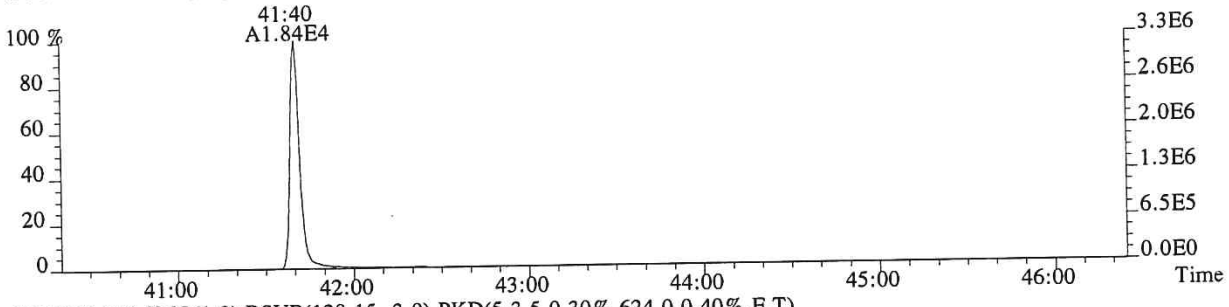


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

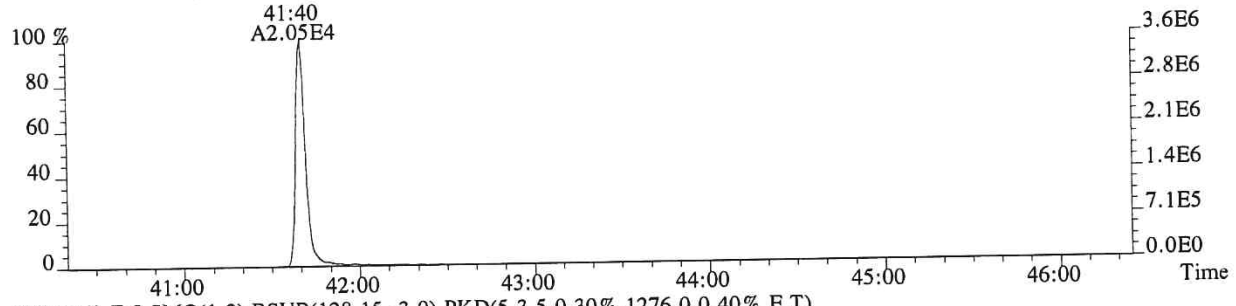


012635

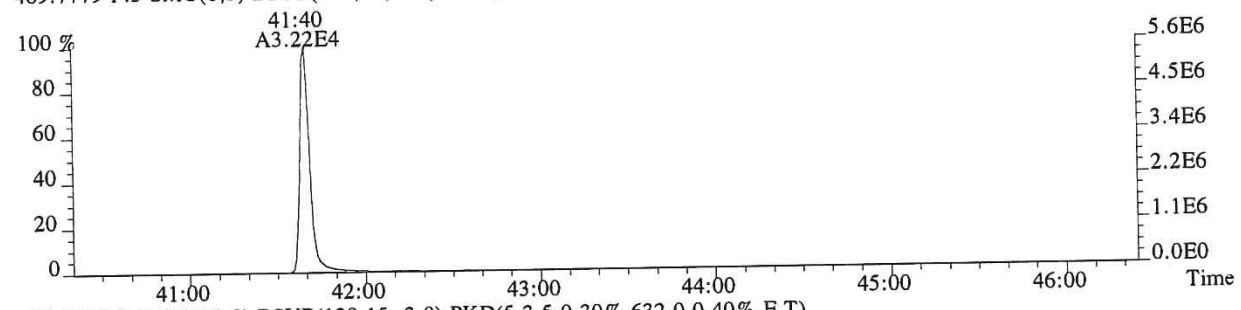
File:P616052 #1-547 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



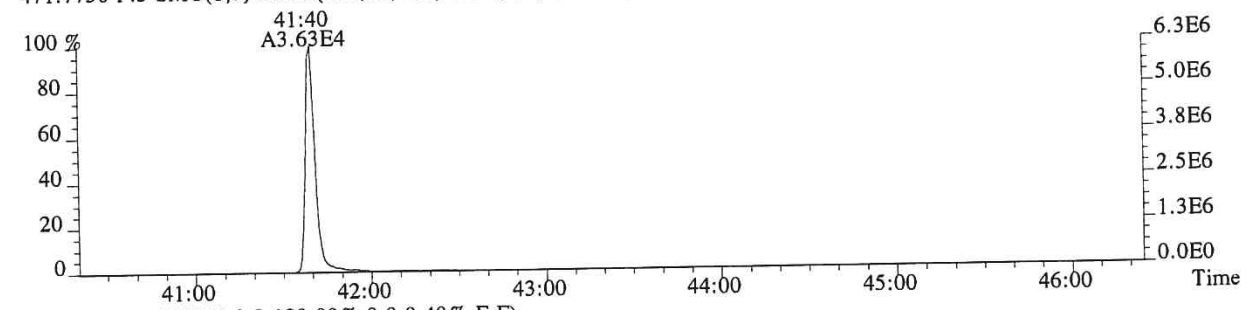
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



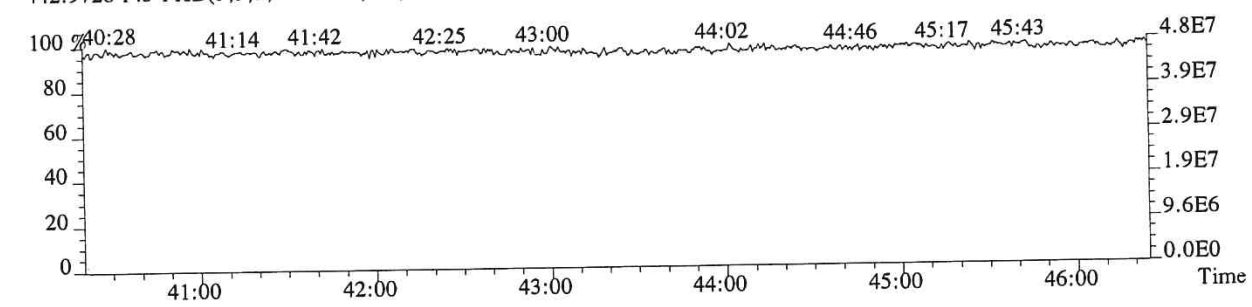
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012636

Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519255

Date: 12/06/18 - 12/07/18 (Beginning) / Ending — Circle one:

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519255	6-DEC-18	16:20:56
192977	WINDOW DEFINE	P519256	6-DEC-18	17:15:32
METHOD BLANK	EQ1800485-01	P519257	6-DEC-18	18:03:19
METHOD BLANK	EQ1800496-01	P519258	6-DEC-18	18:51:56
SL0175	E1801056-023	P519259	6-DEC-18	19:40:34
SL0221	E1801056-057	P519260	6-DEC-18	20:29:10
SL0227	E1801056-063	P519261	6-DEC-18	21:17:47
SL0243	E1801058-011	P519262	6-DEC-18	22:06:25
SL0249	E1801058-017	P519263	6-DEC-18	22:55:02
SL0250	E1801058-018	P519264	6-DEC-18	23:43:40
SL0256	E1801058-024	P519265	7-DEC-18	00:32:18
COLUMBUS BLEACH PL	K1811351-001	P519266	7-DEC-18	01:20:55
18-C036150	K1811360-001	P519267	7-DEC-18	02:09:32
LCS	EQ1800496-02	P519268	7-DEC-18	02:58:10
DLCS	EQ1800496-03	P519269	7-DEC-18	03:46:47

E1801056

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181206.SPL
Last Modified: Friday, December 07, 2018 06:45:00 Central Standard Time
Printed: Friday, December 07, 2018 06:45:02 Central Standard Time

Page Position (1, 1)

Opus 4: P519255res

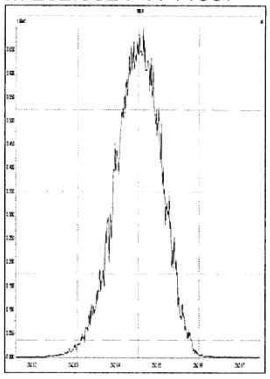
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/6/18	16:20	P519255	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	1+RLS check 16:16
2		17:15	P519256	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		18:03	P519257	MB	EQ1800485-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		18:51	P519258	MB	EQ1800496-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		19:40	P519259	E1801056-023	E1801056-023	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		20:29	P519260	E1801056-057	E1801056-057	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		21:17	P519261	E1801056-063	E1801056-063	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		22:06	P519262	E1801058-011	E1801058-011	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		22:55	P519263	E1801058-017	E1801058-017	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		23:43	P519264	E1801058-018	E1801058-018	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11	12/7/18	00:32	P519265	E1801058-024	E1801058-024	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		01:20	P519266	K1811351-001	K1811351-001	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		02:09	P519267	K1811360-001	K1811360-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		02:58	P519268	LCS	EQ1800496-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		03:46	P519269	DLCS	EQ1800496-03	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		04:43	P519270	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		1+ RLS check 04:37
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 12/07/18

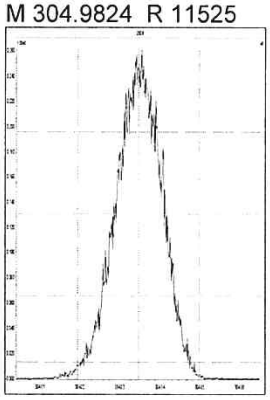
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, December 06, 2018 16:16:52 Central Standard Time

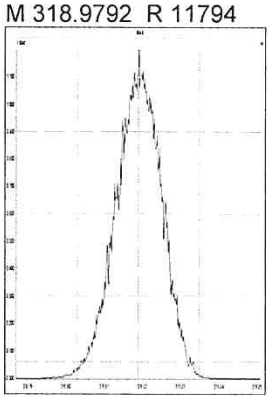
M 292.9824 R 11307



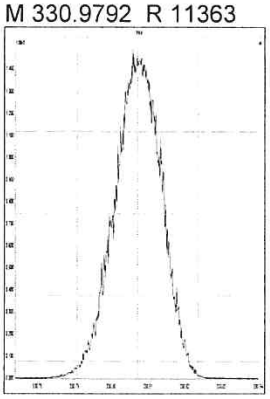
M 304.9824 R 11525



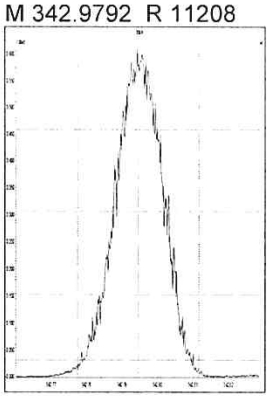
M 318.9792 R 11794



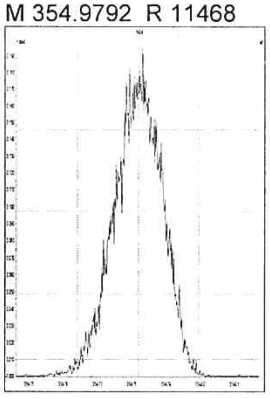
M 330.9792 R 11363



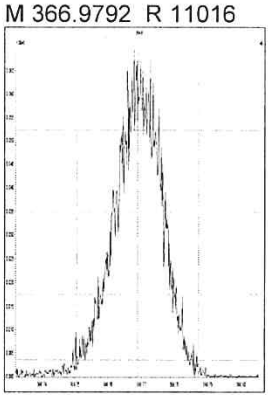
M 342.9792 R 11208



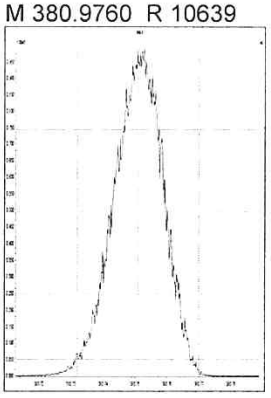
M 354.9792 R 11468



M 366.9792 R 11016



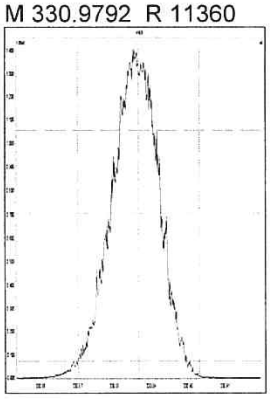
M 380.9760 R 10639



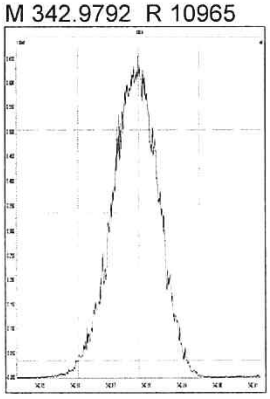
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, December 06, 2018 16:17:32 Central Standard Time

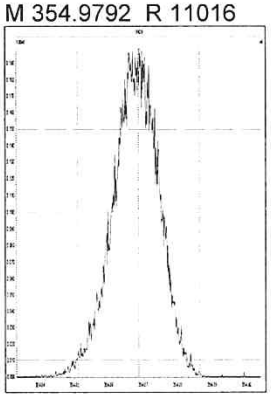
M 330.9792 R 11360



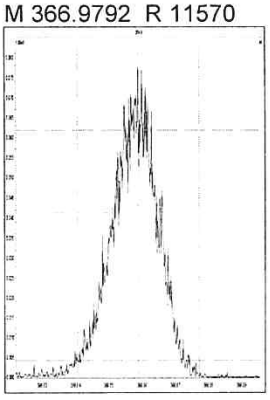
M 342.9792 R 10965



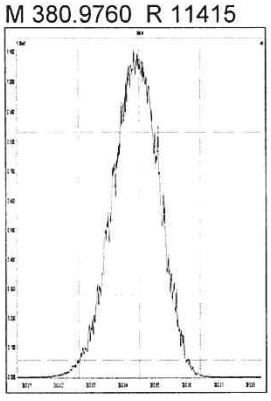
M 354.9792 R 11016



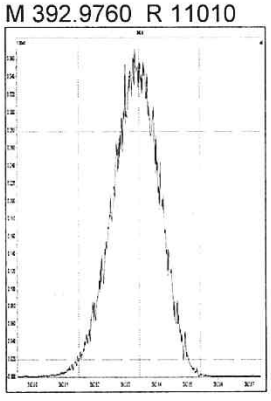
M 366.9792 R 11570



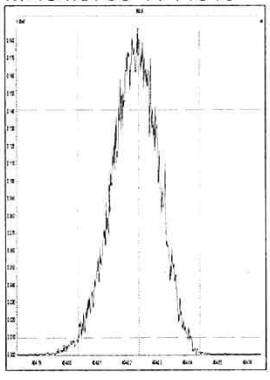
M 380.9760 R 11415



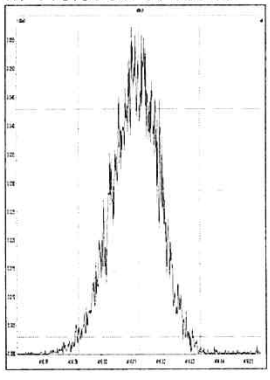
M 392.9760 R 11010



M 404.9760 R 11013



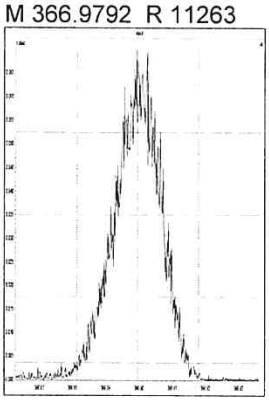
M 416.9760 R 10919



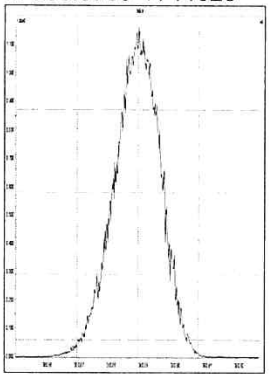
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, December 06, 2018 16:18:20 Central Standard Time

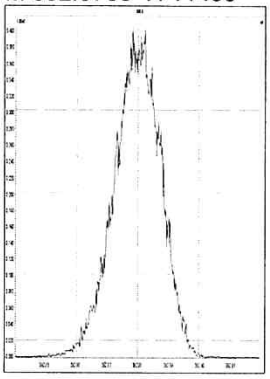
M 366.9792 R 11263



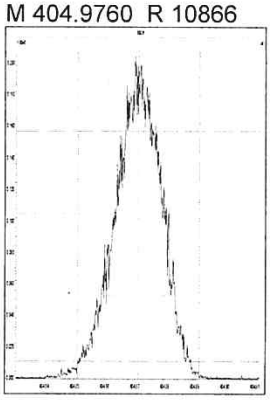
M 380.9760 R 11628



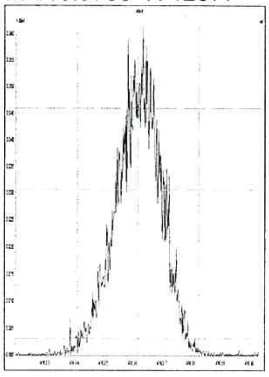
M 392.9760 R 11466



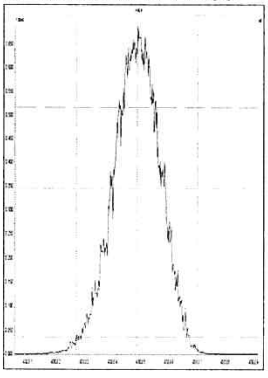
M 404.9760 R 10866



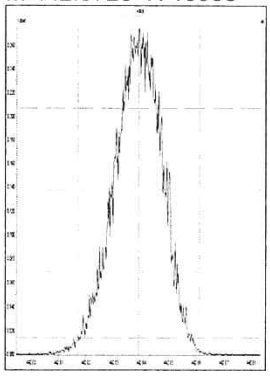
M 416.9760 R 12077



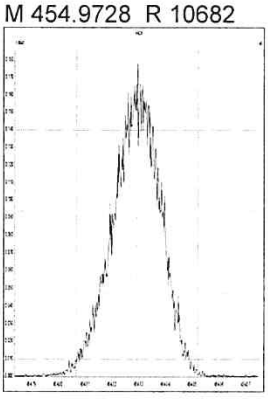
M 430.9728 R 11259



M 442.9728 R 10965



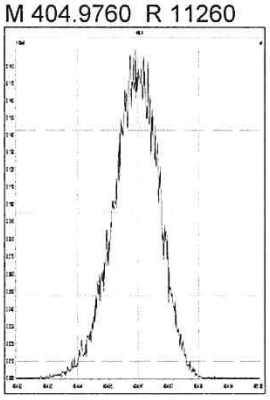
M 454.9728 R 10682



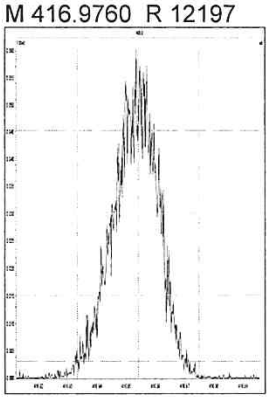
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, December 06, 2018 16:19:02 Central Standard Time

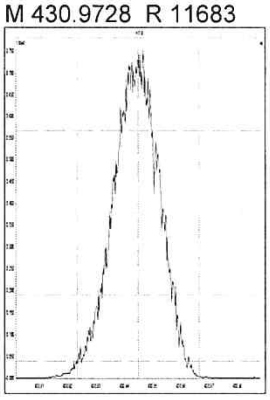
M 404.9760 R 11260



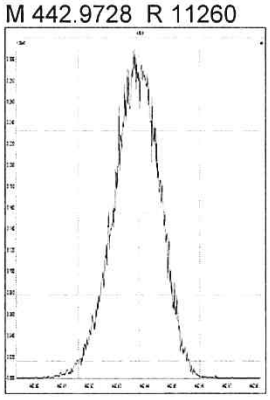
M 416.9760 R 12197



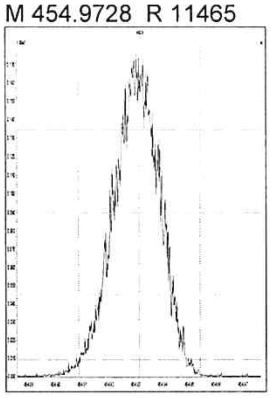
M 430.9728 R 11683



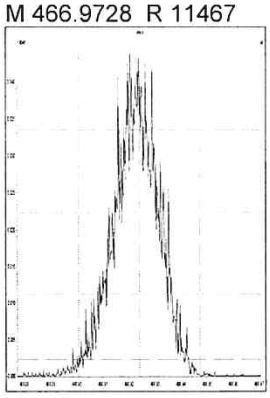
M 442.9728 R 11260



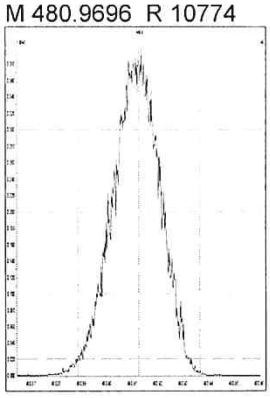
M 454.9728 R 11465



M 466.9728 R 11467



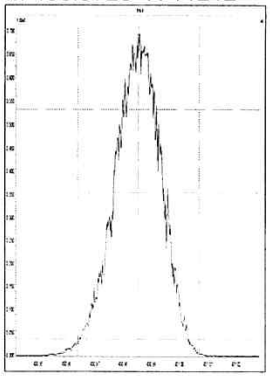
M 480.9696 R 10774



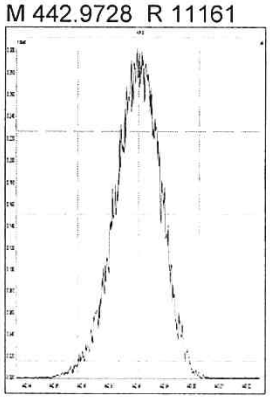
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, December 06, 2018 16:20:00 Central Standard Time

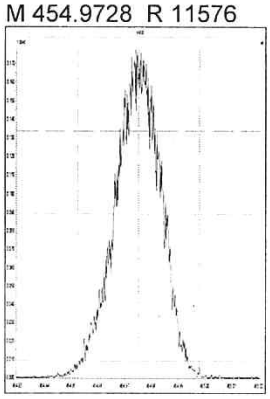
M 430.9728 R 11212



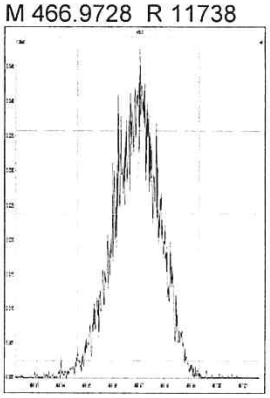
M 442.9728 R 11161



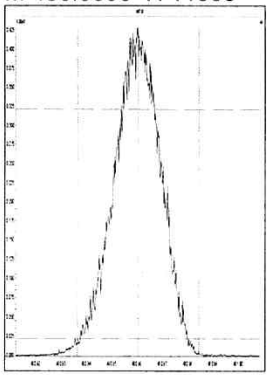
M 454.9728 R 11576



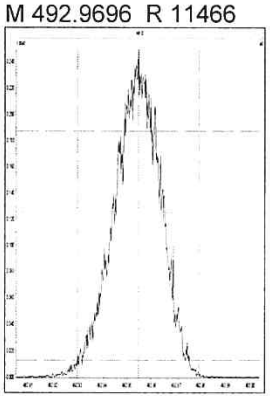
M 466.9728 R 11738



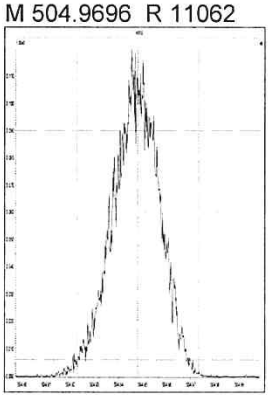
M 480.9696 R 11308



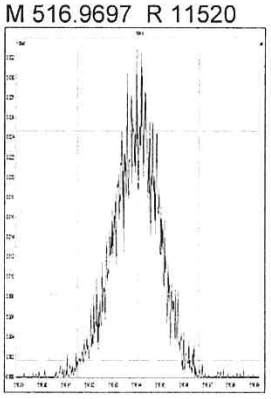
M 492.9696 R 11466



M 504.9696 R 11062



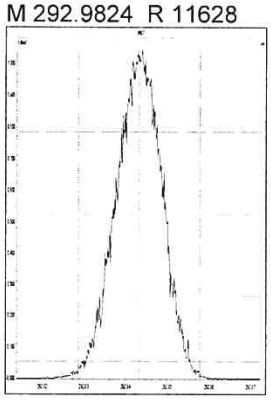
M 516.9697 R 11520



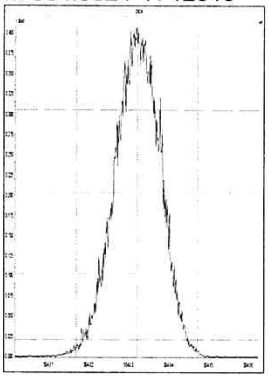
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:37:46 Central Standard Time

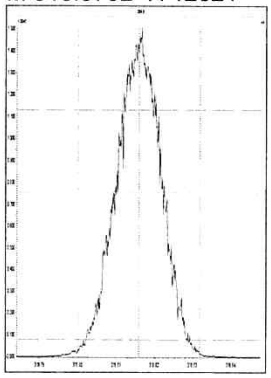
M 292.9824 R 11628



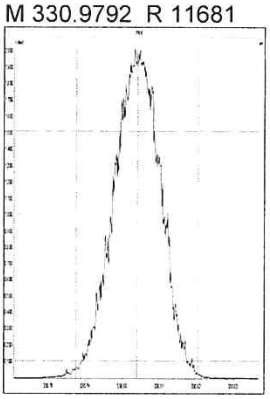
M 304.9824 R 12319



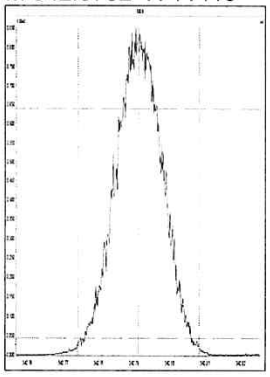
M 318.9792 R 12021



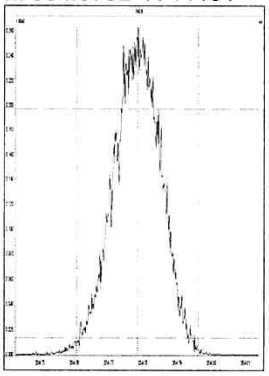
M 330.9792 R 11681



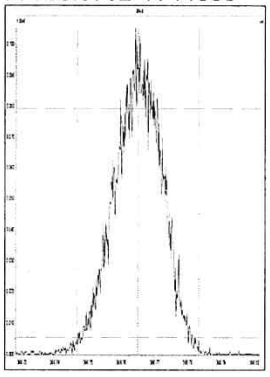
M 342.9792 R 11413



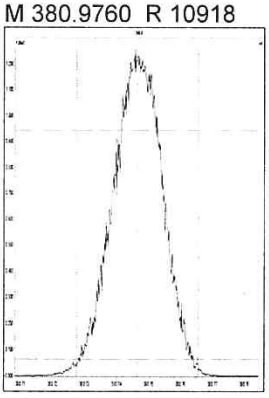
M 354.9792 R 11161



M 366.9792 R 11366



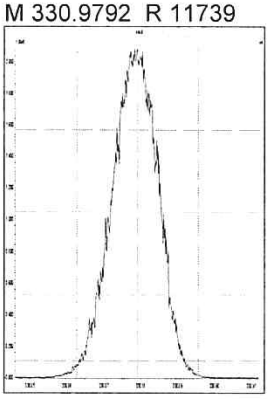
M 380.9760 R 10918



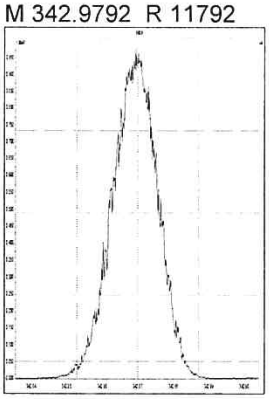
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:38:25 Central Standard Time

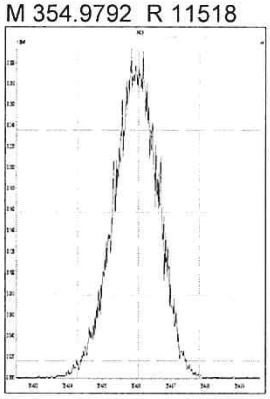
M 330.9792 R 11739



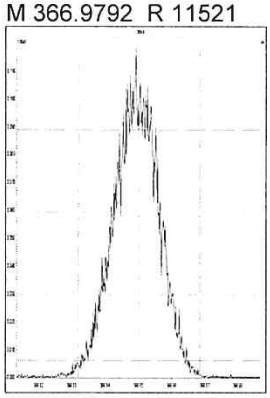
M 342.9792 R 11792



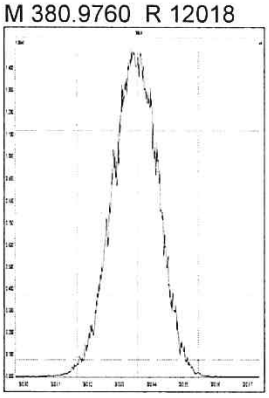
M 354.9792 R 11518



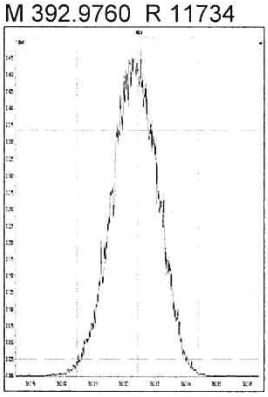
M 366.9792 R 11521



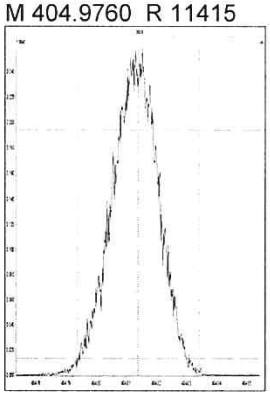
M 380.9760 R 12018



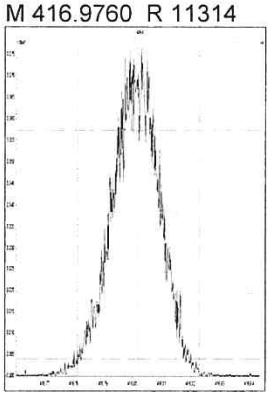
M 392.9760 R 11734



M 404.9760 R 11415



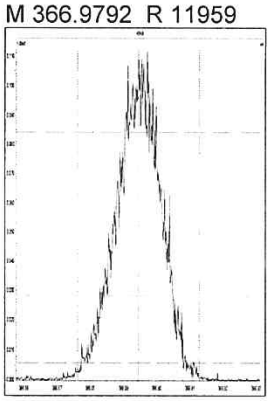
M 416.9760 R 11314



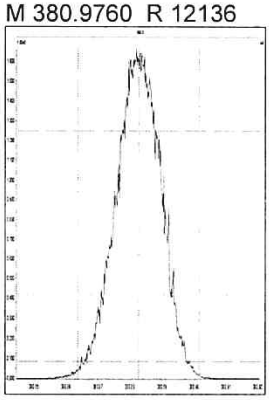
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:39:05 Central Standard Time

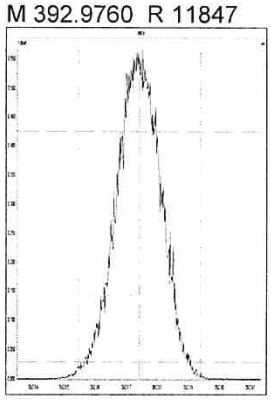
M 366.9792 R 11959



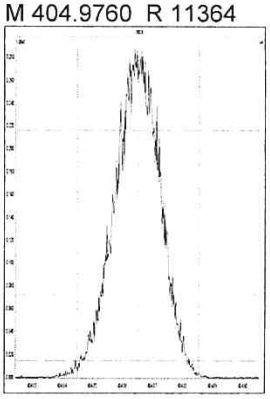
M 380.9760 R 12136



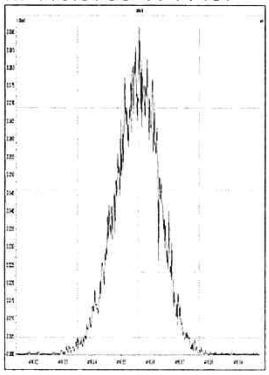
M 392.9760 R 11847



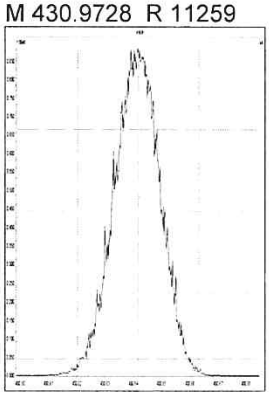
M 404.9760 R 11364



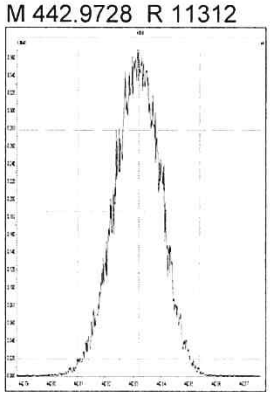
M 416.9760 R 11467



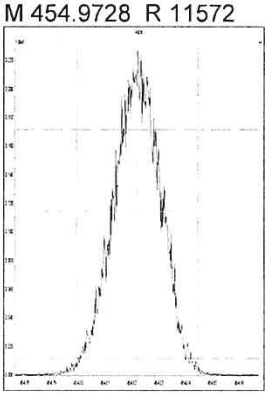
M 430.9728 R 11259



M 442.9728 R 11312



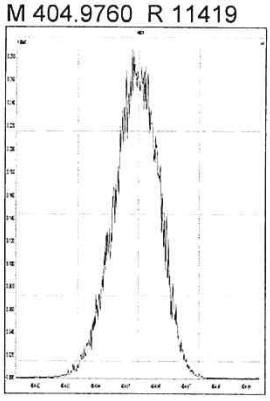
M 454.9728 R 11572



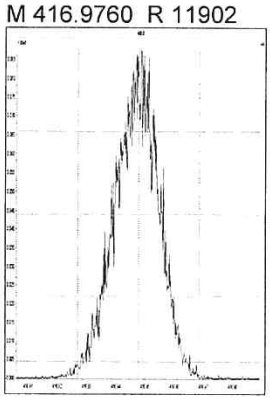
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:39:45 Central Standard Time

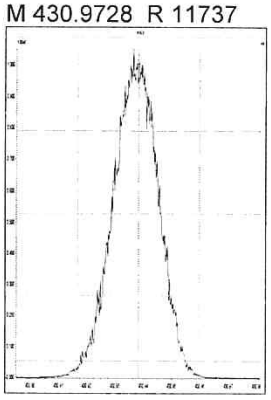
M 404.9760 R 11419



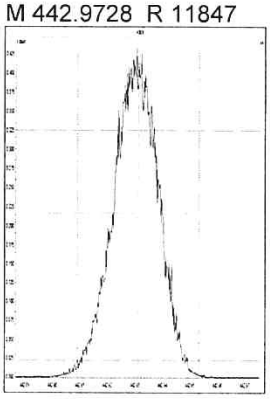
M 416.9760 R 11902



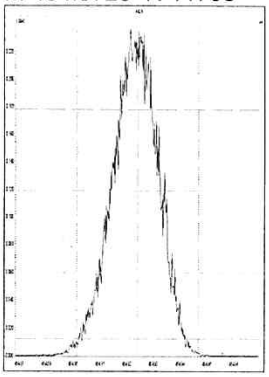
M 430.9728 R 11737



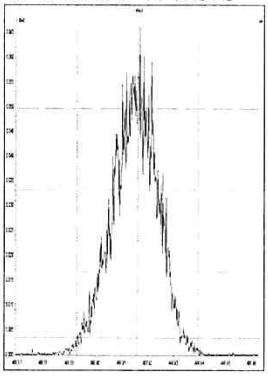
M 442.9728 R 11847



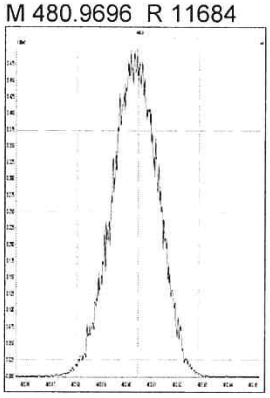
M 454.9728 R 11793



M 466.9728 R 12376



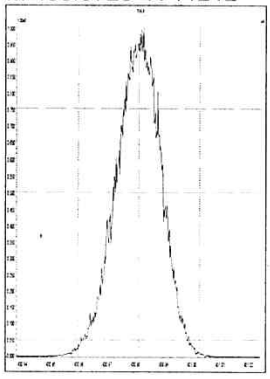
M 480.9696 R 11684



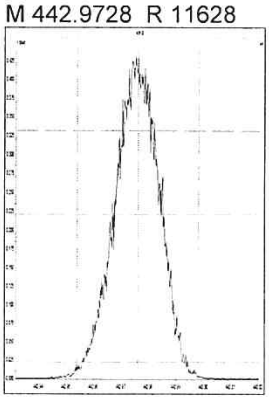
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:40:27 Central Standard Time

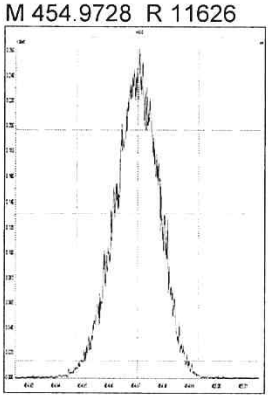
M 430.9728 R 11212



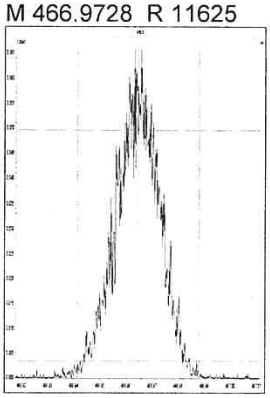
M 442.9728 R 11628



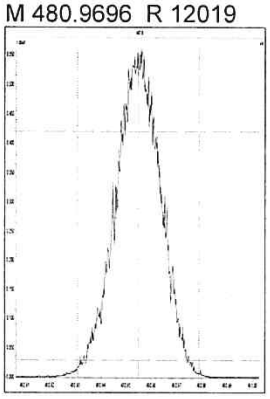
M 454.9728 R 11626



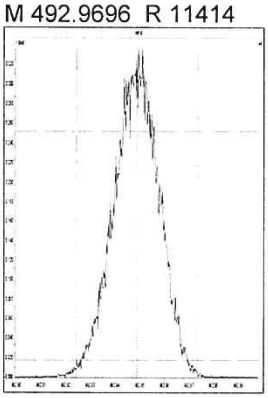
M 466.9728 R 11625



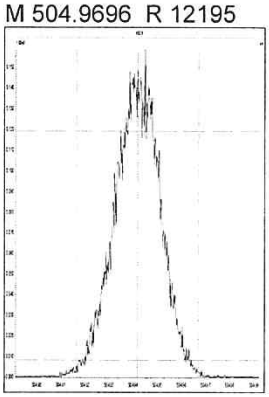
M 480.9696 R 12019



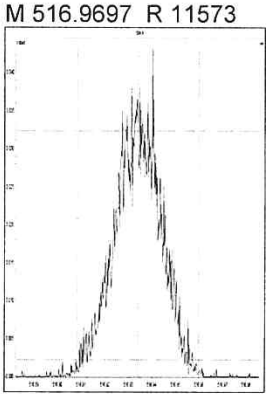
M 492.9696 R 11414



M 504.9696 R 12195



M 516.9697 R 11573



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

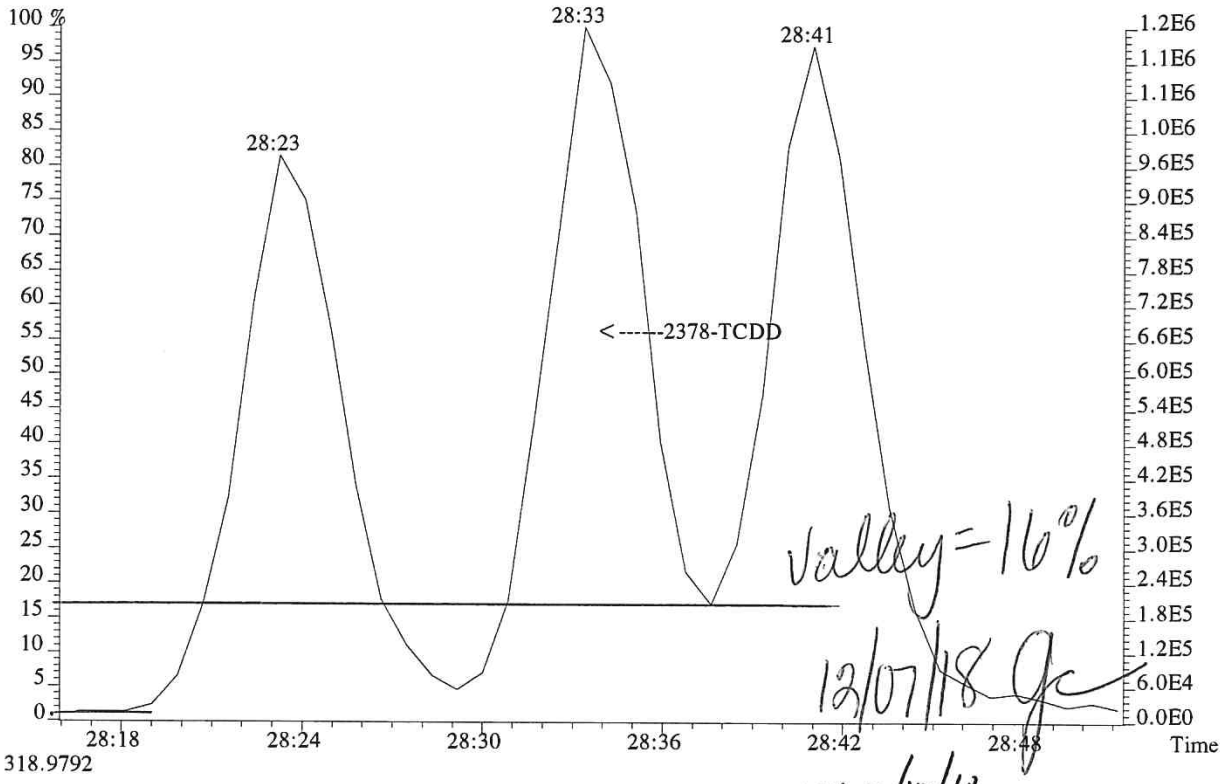
Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P519256
Date Analyzed: 6-DEC-2018
Time Analyzed: 17:15:32

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:18	29:44
TCDD	25:07	29:35
PeCDF	29:42	34:03
PeCDD	31:16	33:48
HxCDF	34:44	37:18
HxCDD	35:16	36:54
HpCDF	38:36	40:03
HpCDD	38:51	39:34

% Valley 2378-TCDD: 16 %

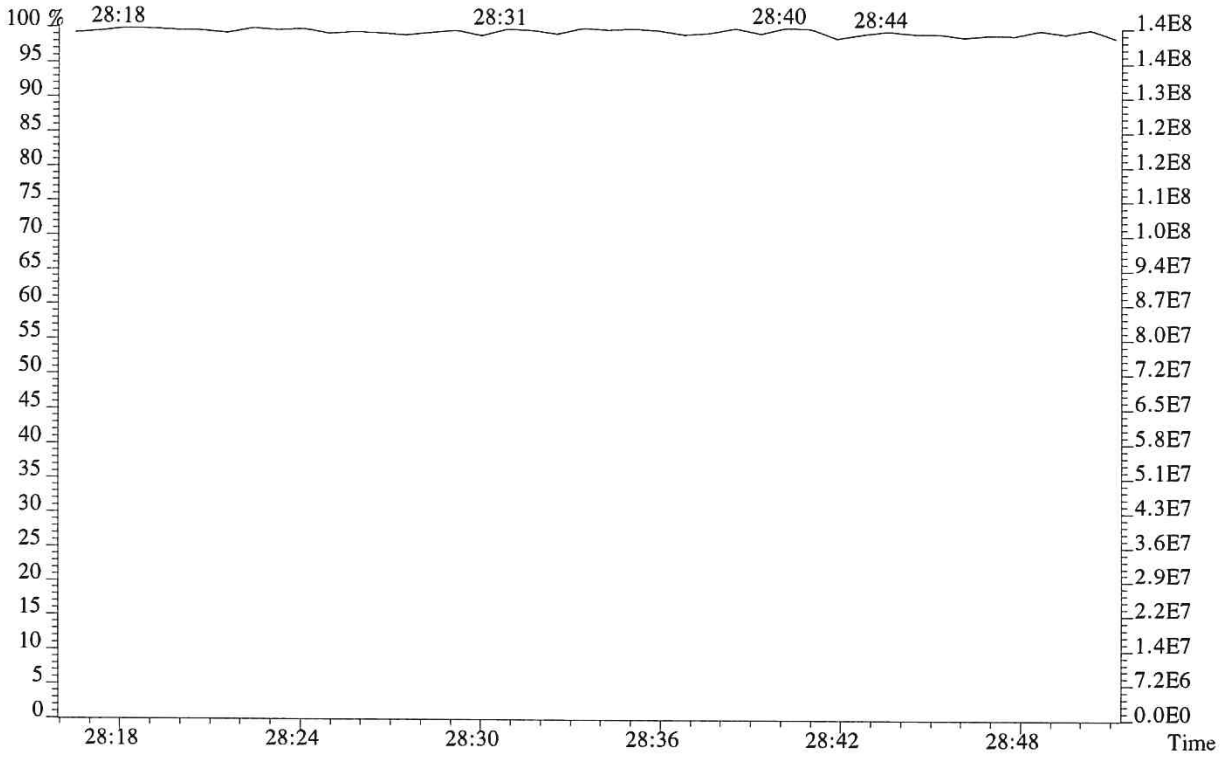
012651

File:P519256 #1-587 Acq: 6-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LM 12/10/18



012652

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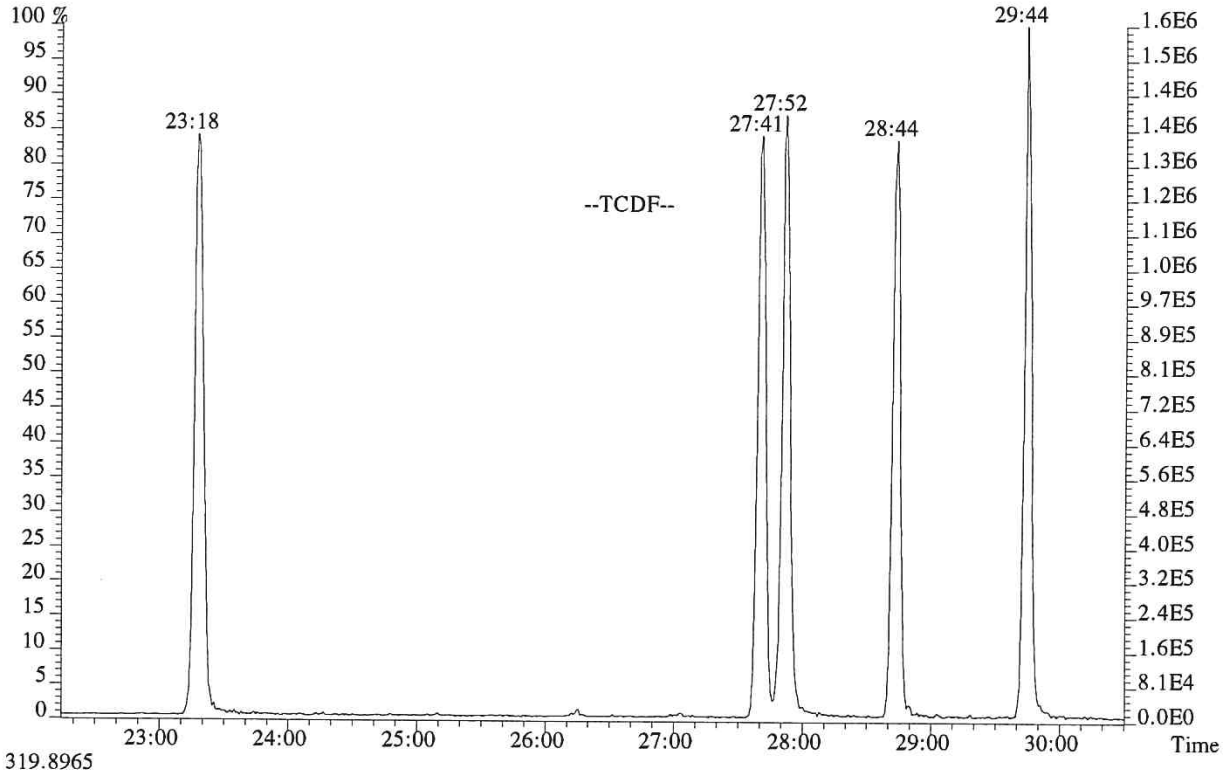
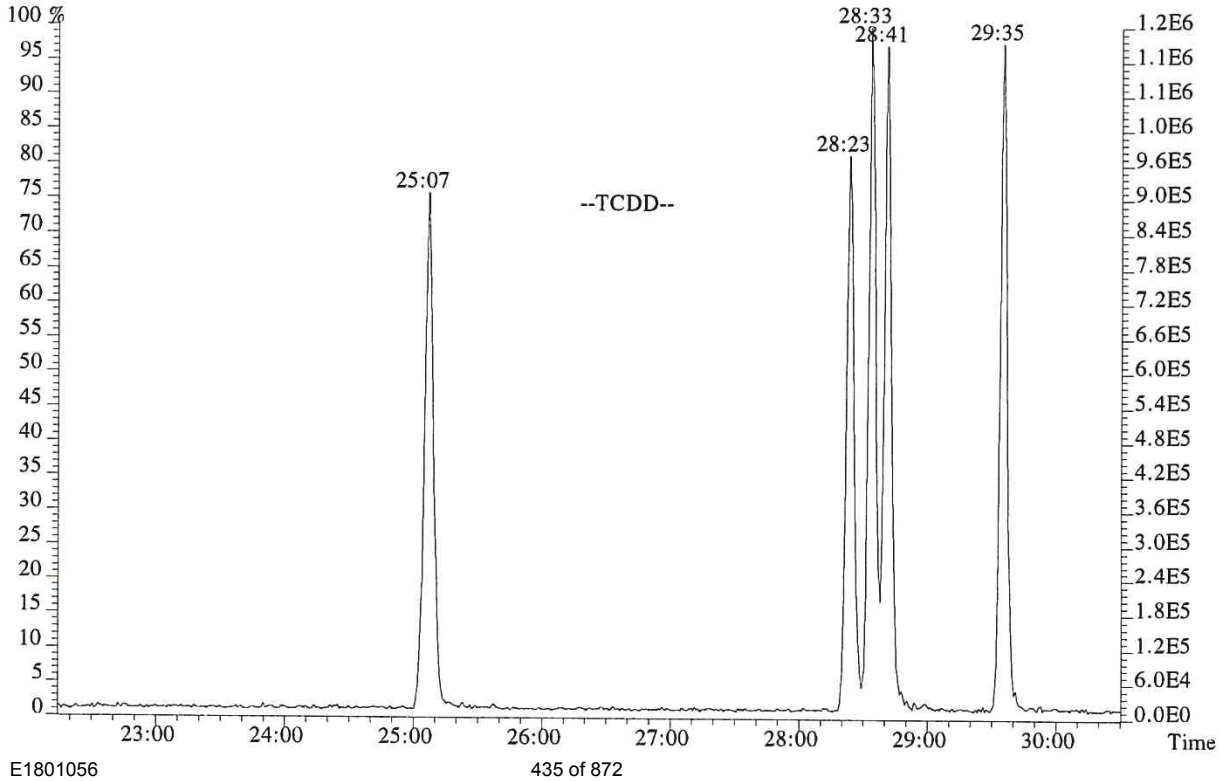
Sample#1 Exp:192977
303.9016

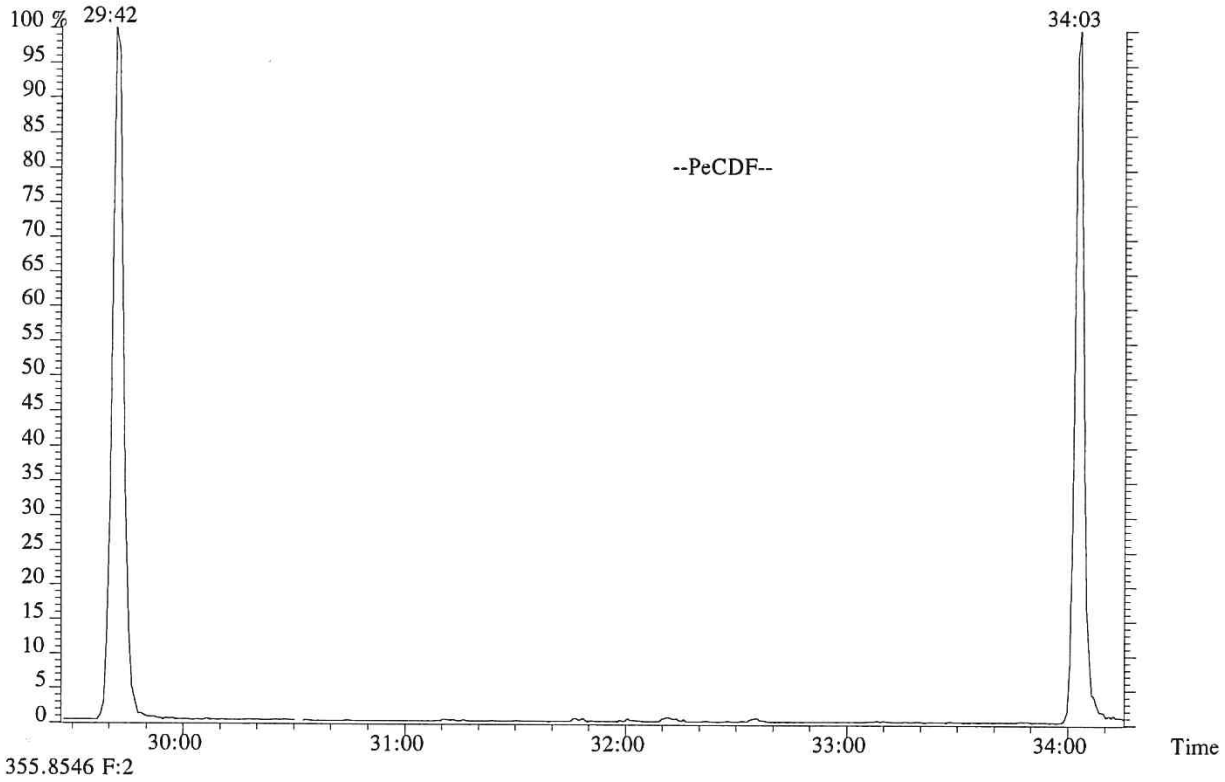


319.8965

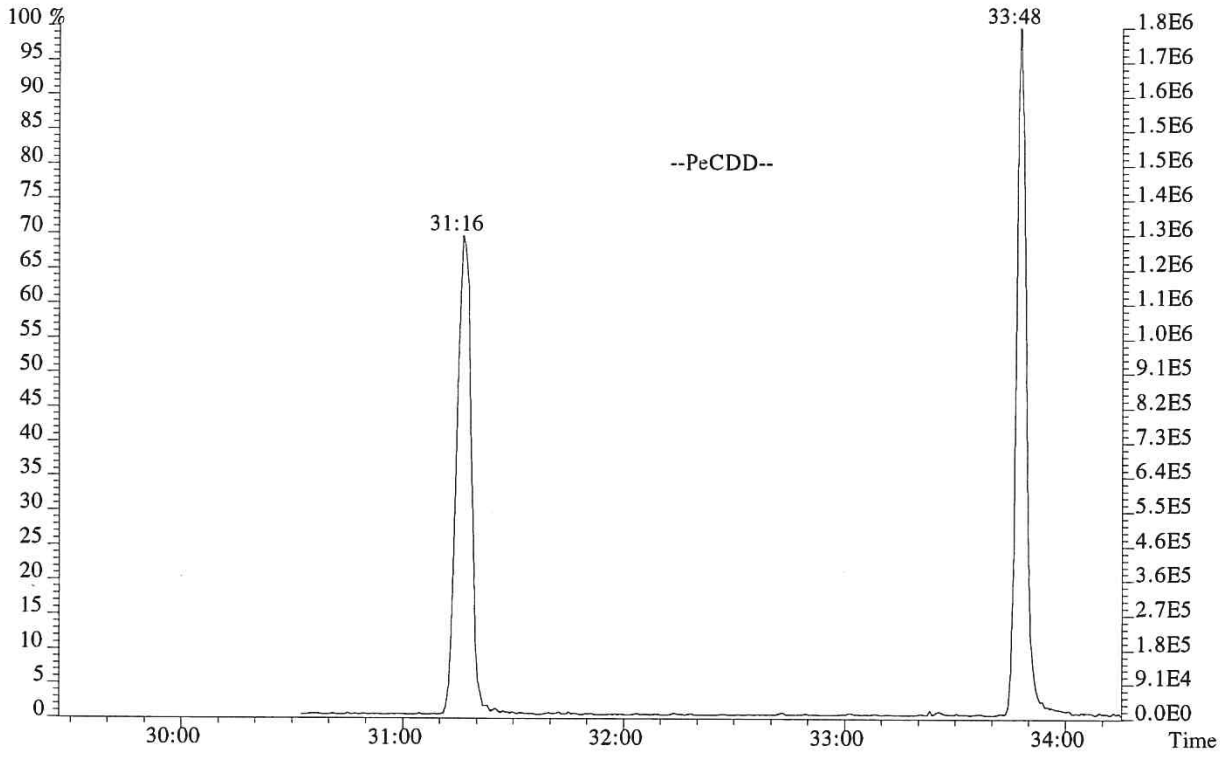


012653

File:P519256 #1-587 Acq: 6-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



012654

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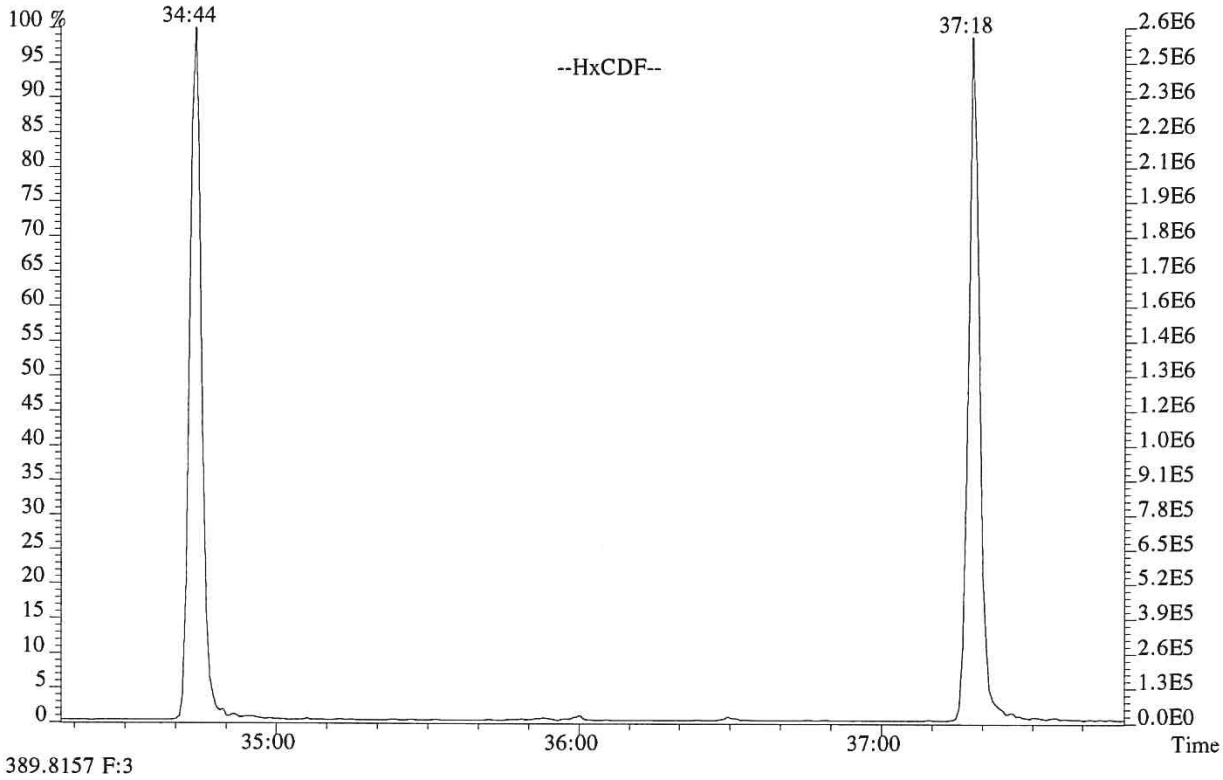
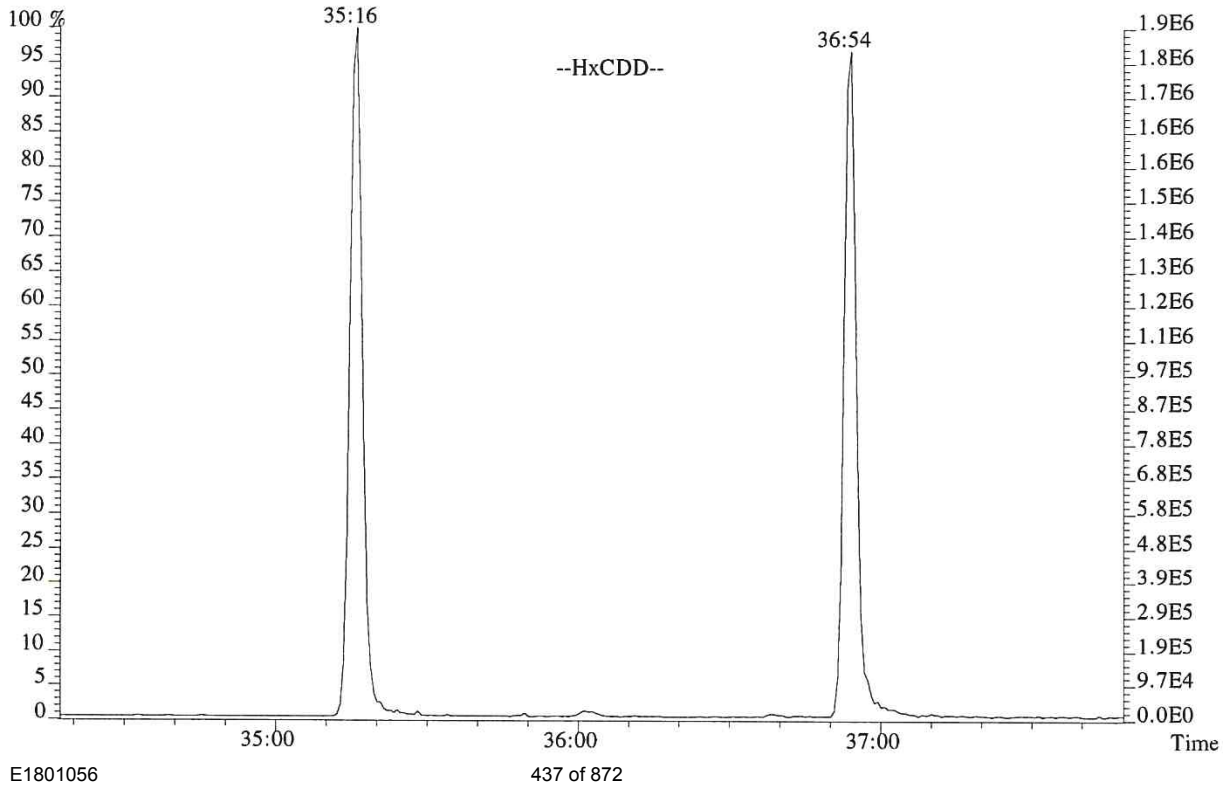
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



012655

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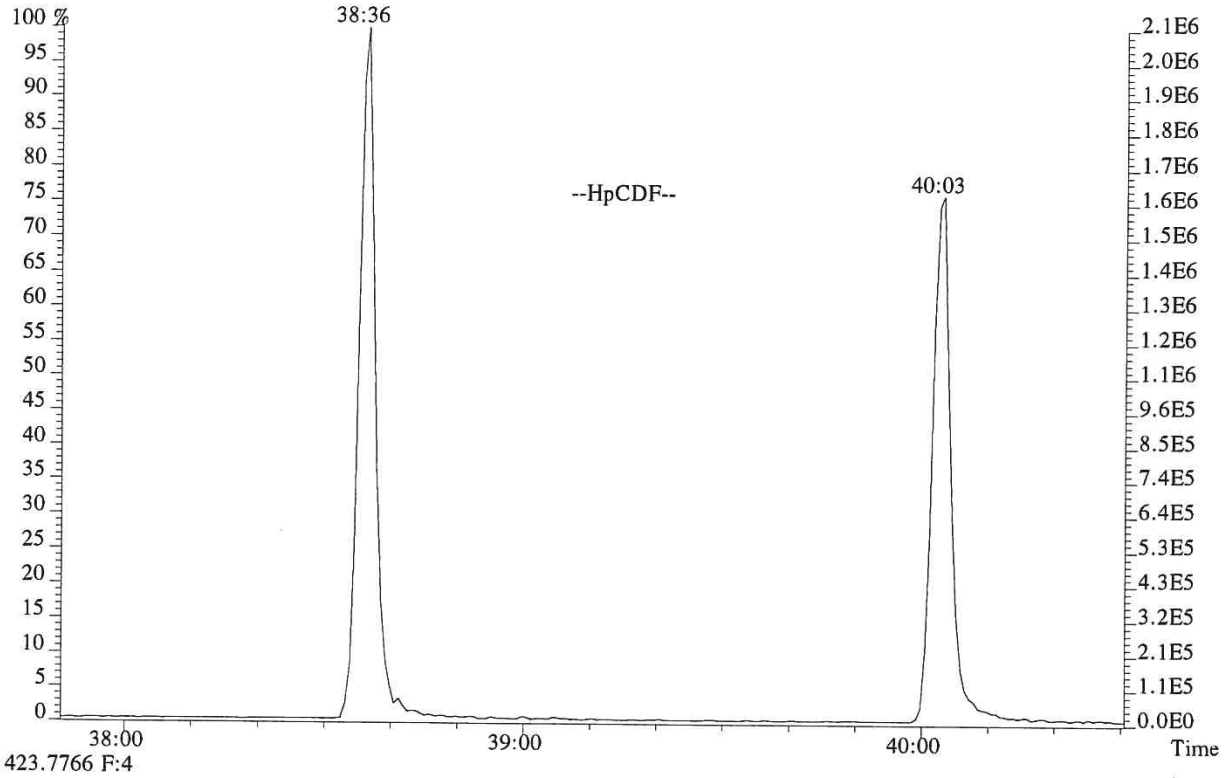
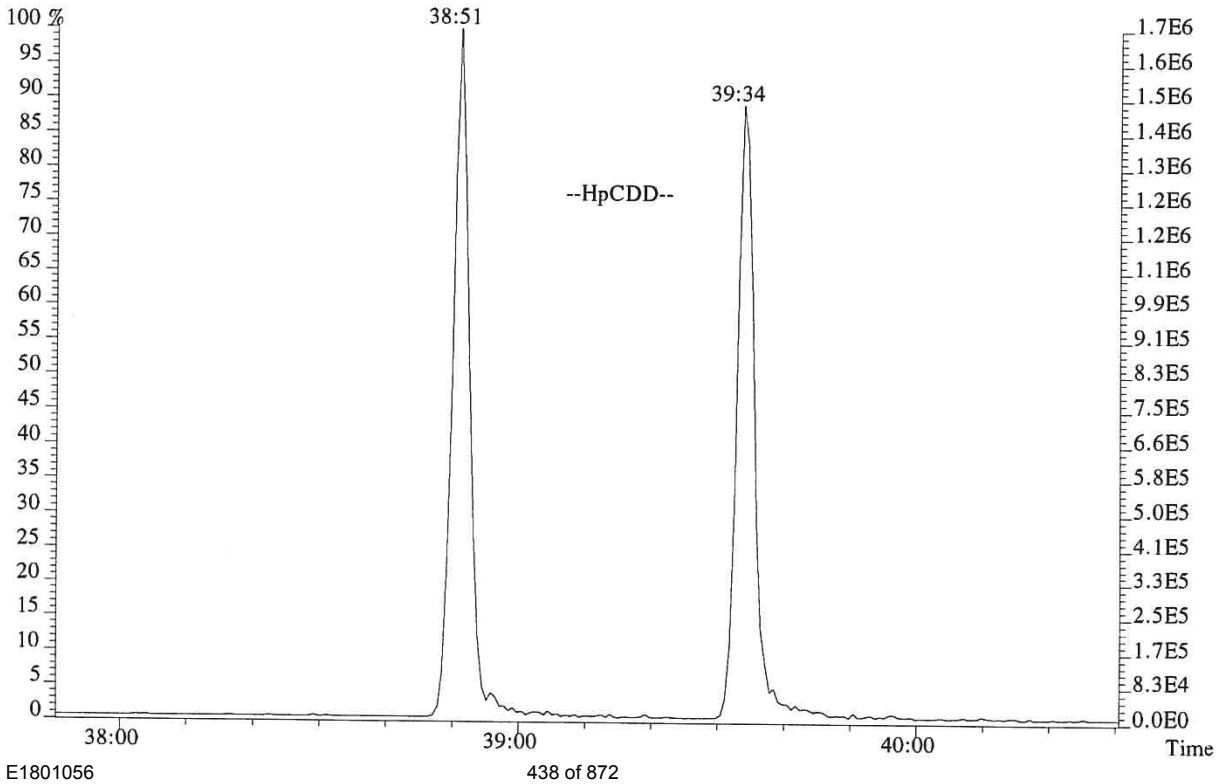
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



012656

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519255 Analysis Date: 6-DEC-18 Time: 16:20:56

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.6	7.8 - 12.9	-3.6
1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	51	39 - 65	2.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	50	39 - 64	0.5
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	51	39 - 64	1.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	53	41 - 61	6.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	51	43 - 58	2.9
OCDD	M+2/M+4	0.88	0.76-1.02	103	79 - 126	3.1
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.3	8.4 - 12.0	2.8
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	50	41 - 60	-0.5
2,3,4,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	50	41 - 61	-0.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	3.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	52	44 - 57	3.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	50	45 - 56	0.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	52	44 - 57	3.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	50	45 - 55	0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	-0.1
OCDF	M+2/M+4	0.89	0.76-1.02	101	63 - 159	0.9

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519255 Analysis Date: 6-DEC-18 Time: 16:20:56

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	108	82 - 121	7.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.32-1.78	125	62 - 160	24.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	97	85 - 117	-3.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	93	85 - 118	-7.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	101	72 - 138	1.4
13C-OCDD	M+2/M+4	0.91	0.76-1.02	241	96 - 415	20.4
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	100	71 - 140	-0.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	121	76 - 130	21.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	124	77 - 130	23.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	87	76 - 131	-12.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	89	70 - 143	-11.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	97	74 - 135	-3.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	73 - 137	-6.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	98	78 - 129	-1.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	104	77 - 129	4.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.8	7.8 - 12.7	8.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519255 Samp: 1 Inj: 1 Acquired: 6-DEC-18 16:20:56
Processed: 7-DEC-18 13:10:07 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	2.446e+03	3.168e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	2.075e+04	1.373e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:06	1.987e+04	1.321e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:51	1.808e+04	1.485e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:58	1.966e+04	1.598e+04	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:29	1.833e+04	1.508e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	1.674e+04	1.336e+04	1.25	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:35	1.607e+04	1.593e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:02	1.339e+04	1.323e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:41	2.248e+04	2.523e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	1.776e+03	2.215e+03	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	1.418e+04	8.804e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	1.285e+04	1.029e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	1.276e+04	1.026e+04	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:58	1.393e+04	1.100e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	1.179e+04	1.096e+04	1.08	yes	no	1.025
17	Unk	OCDD	42:31	1.878e+04	2.132e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	2.570e+04	3.227e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	4.208e+04	2.639e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	4.256e+04	2.660e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:51	1.822e+04	3.528e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:57	2.118e+04	4.028e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:28	2.017e+04	3.818e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	1.782e+04	3.440e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:34	1.459e+04	3.249e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:01	1.313e+04	2.923e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	1.699e+04	2.117e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:23	2.888e+04	1.783e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	2.504e+04	1.933e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	2.458e+04	1.913e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:32	2.243e+04	2.073e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:30	3.309e+04	3.649e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	1.701e+04	2.136e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	2.776e+04	2.187e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	4.216e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519255 Samp: 1 Inj: 1 Acquired: 6-DEC-18 16:20:56
Processed: 7-DEC-18 13:10:07 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.30e+05	6.68e+02	6.4e+02	5.73e+05	1.18e+03	4.8e+02
2	1,2,3,7,8-PeCDF	3.91e+06	5.40e+02	7.2e+03	2.59e+06	5.76e+02	4.5e+03
3	2,3,4,7,8-PeCDF	4.04e+06	5.40e+02	7.5e+03	2.69e+06	5.76e+02	4.7e+03
4	1,2,3,4,7,8-HxCDF	3.96e+06	6.96e+02	5.7e+03	3.26e+06	3.36e+02	9.7e+03
5	1,2,3,6,7,8-HxCDF	4.38e+06	6.96e+02	6.3e+03	3.58e+06	3.36e+02	1.1e+04
6	2,3,4,6,7,8-HxCDF	3.78e+06	6.96e+02	5.4e+03	3.09e+06	3.36e+02	9.2e+03
7	1,2,3,7,8,9-HxCDF	3.39e+06	6.96e+02	4.9e+03	2.70e+06	3.36e+02	8.0e+03
8	1,2,3,4,6,7,8-HpCDF	3.39e+06	4.88e+02	7.0e+03	3.33e+06	2.73e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	2.42e+06	4.88e+02	5.0e+03	2.38e+06	2.73e+03	8.7e+02
10	OCDF	3.25e+06	3.64e+02	8.9e+03	3.64e+06	9.52e+02	3.8e+03
11	2,3,7,8-TCDD	3.32e+05	1.98e+03	1.7e+02	4.19e+05	1.08e+03	3.9e+02
12	1,2,3,7,8-PeCDD	2.86e+06	6.04e+02	4.7e+03	1.75e+06	3.40e+02	5.1e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	4.12e+02	7.0e+03	2.33e+06	3.20e+02	7.3e+03
14	1,2,3,6,7,8-HxCDD	2.74e+06	4.12e+02	6.6e+03	2.20e+06	3.20e+02	6.9e+03
15	1,2,3,7,8,9-HxCDD	2.89e+06	4.12e+02	7.0e+03	2.32e+06	3.20e+02	7.3e+03
16	1,2,3,4,6,7,8-HpCDD	2.36e+06	3.04e+02	7.8e+03	2.23e+06	2.52e+02	8.9e+03
17	OCDD	2.70e+06	2.52e+02	1.1e+04	3.05e+06	2.44e+02	1.3e+04
18	13C-2,3,7,8-TCDF	4.66e+06	7.11e+03	6.5e+02	5.93e+06	5.74e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	7.84e+06	2.76e+02	2.8e+04	4.97e+06	3.76e+02	1.3e+04
20	13C-2,3,4,7,8-PeCDF	8.49e+06	2.76e+02	3.1e+04	5.31e+06	3.76e+02	1.4e+04
21	13C-1,2,3,4,7,8-HxCDF	4.01e+06	2.84e+02	1.4e+04	7.71e+06	5.04e+02	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.71e+06	2.84e+02	1.7e+04	8.96e+06	5.04e+02	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	4.16e+06	2.84e+02	1.5e+04	7.93e+06	5.04e+02	1.6e+04
24	13C-1,2,3,7,8,9-HxCDF	3.60e+06	2.84e+02	1.3e+04	7.01e+06	5.04e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+06	2.10e+03	1.5e+03	6.79e+06	1.34e+03	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.30e+06	2.10e+03	1.1e+03	5.23e+06	1.34e+03	3.9e+03
27	13C-2,3,7,8-TCDD	3.32e+06	7.38e+03	4.5e+02	4.08e+06	2.24e+03	1.8e+03
28	13C-1,2,3,7,8-PeCDD	5.87e+06	5.92e+02	9.9e+03	3.64e+06	1.09e+03	3.3e+03
29	13C-1,2,3,4,7,8-HxCDD	5.57e+06	7.60e+02	7.3e+03	4.28e+06	2.20e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	5.25e+06	7.60e+02	6.9e+03	4.07e+06	2.20e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.55e+06	5.24e+02	8.7e+03	4.22e+06	3.72e+02	1.1e+04
32	13C-OCDD	4.71e+06	2.92e+02	1.6e+04	5.15e+06	2.40e+02	2.1e+04
33	13C-1,2,3,4-TCDD	3.21e+06	7.38e+03	4.3e+02	3.95e+06	2.24e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	5.58e+06	7.60e+02	7.3e+03	4.38e+06	2.20e+02	2.0e+04
35	37Cl-2,3,7,8-TCDD	8.06e+05	6.80e+02	1.2e+03			

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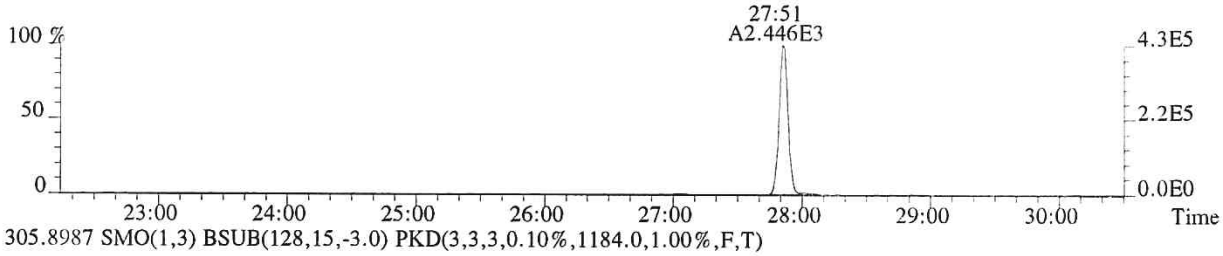
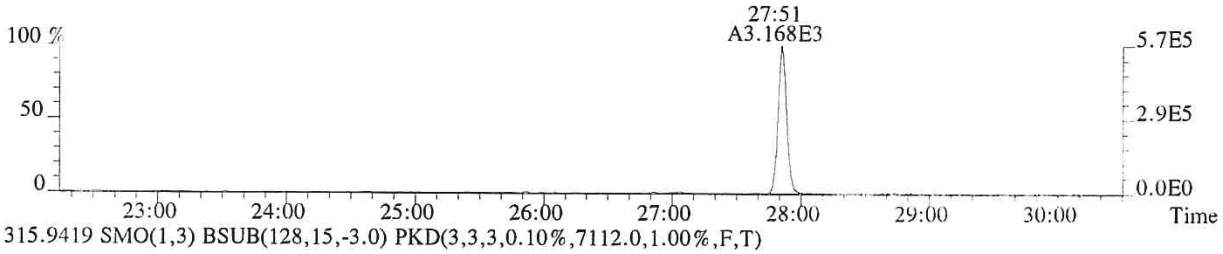
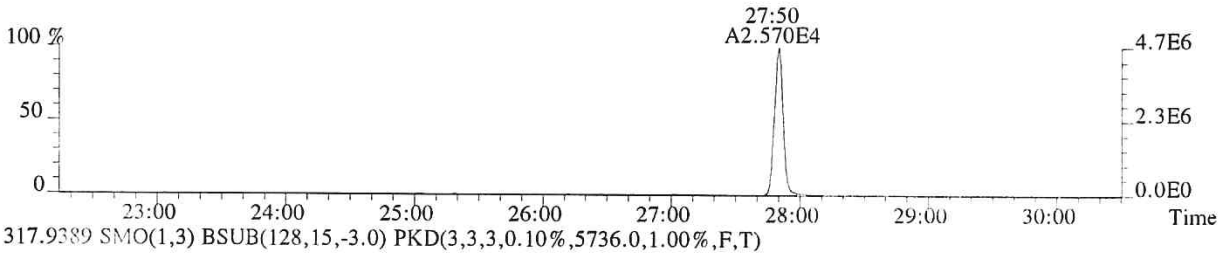
File:P519255 #1-587 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



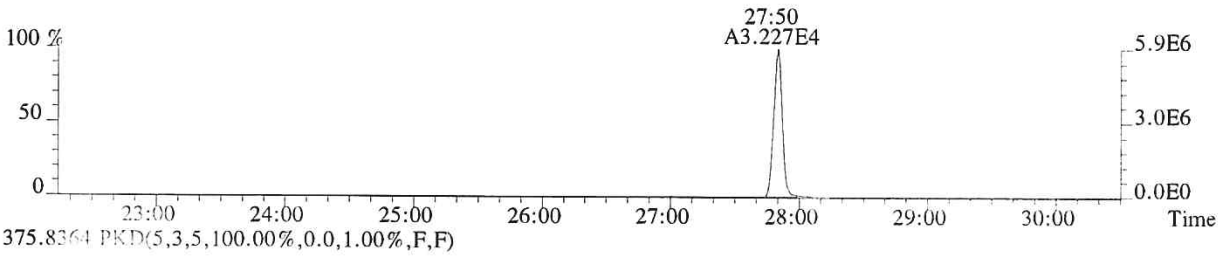
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



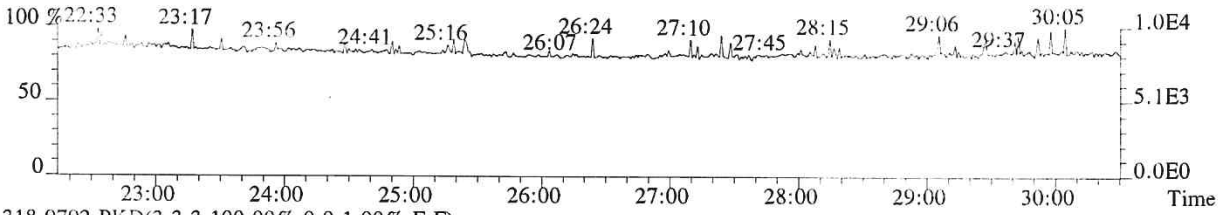
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7112.0,1.00%,F,T)



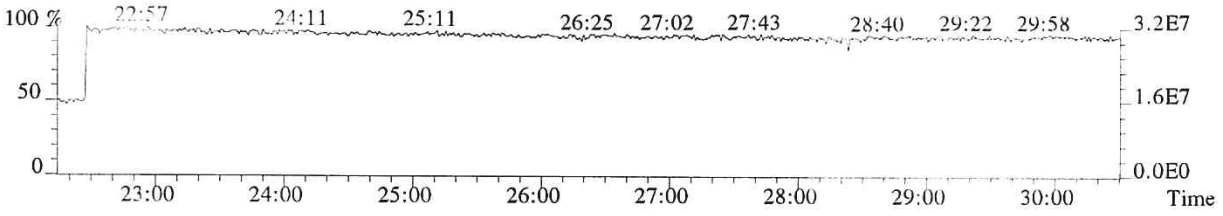
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5736.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

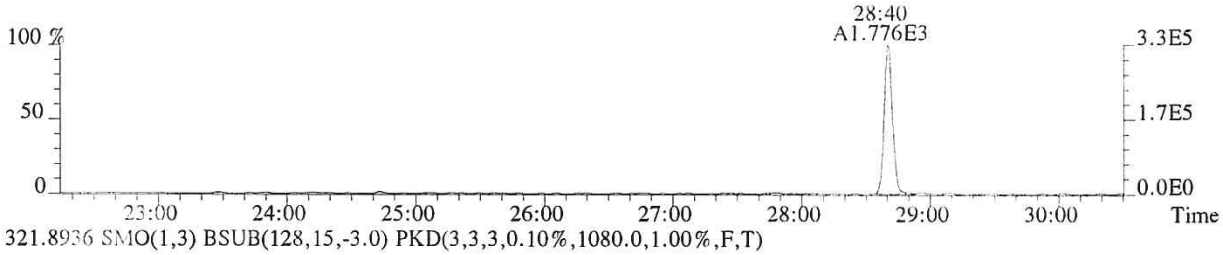


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

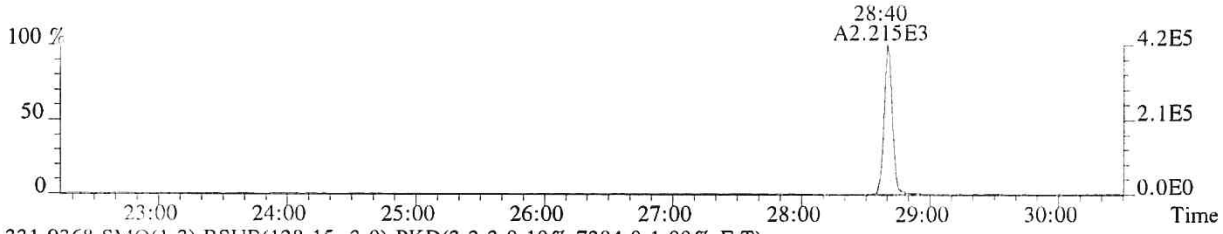


012661

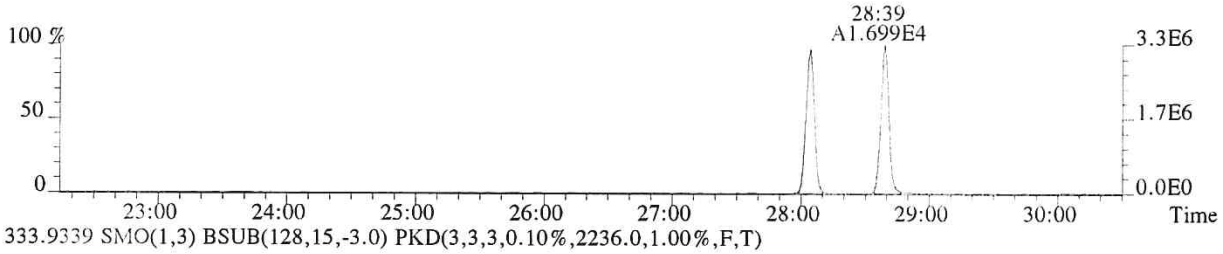
File:P519255 #1-587 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spect
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



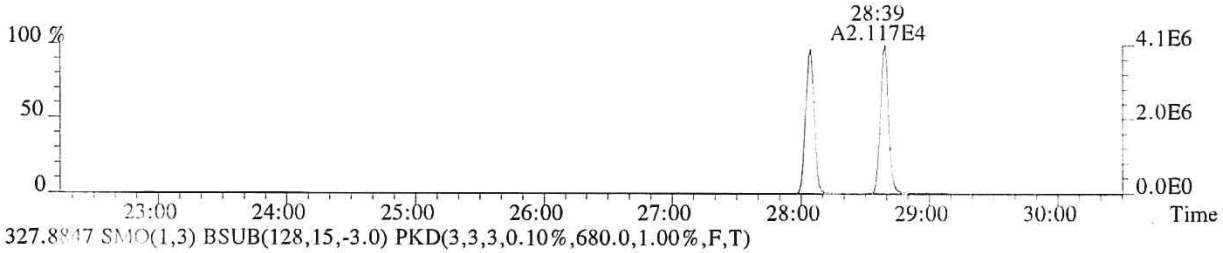
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



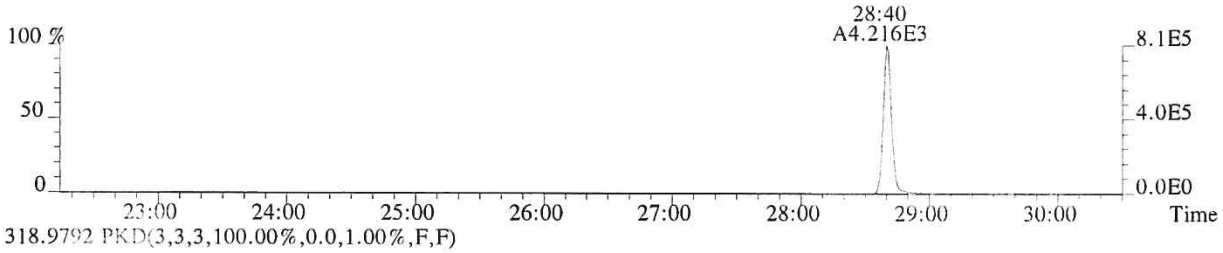
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7384.0,1.00%,F,T)



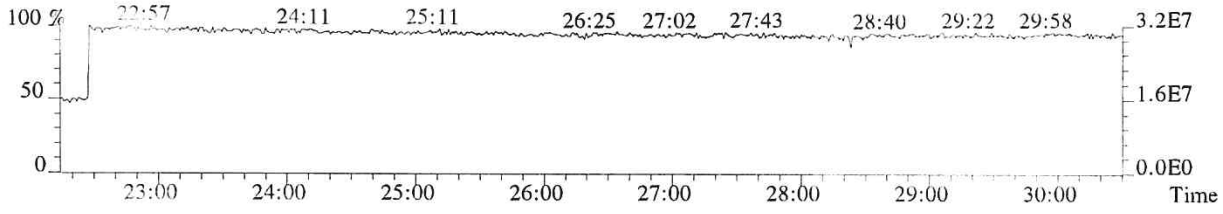
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2236.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)

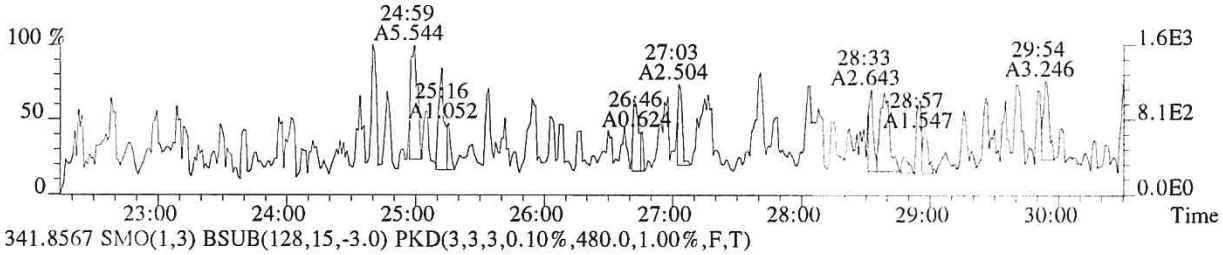


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

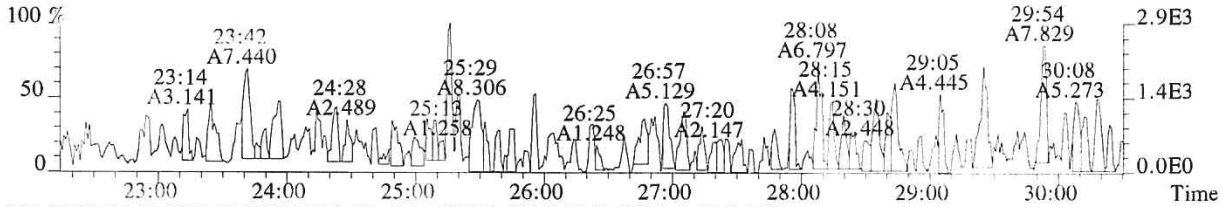


012662

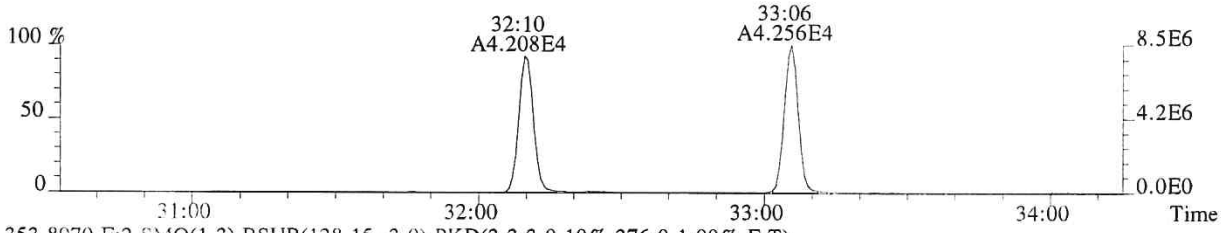
File:P519255 #1-587 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



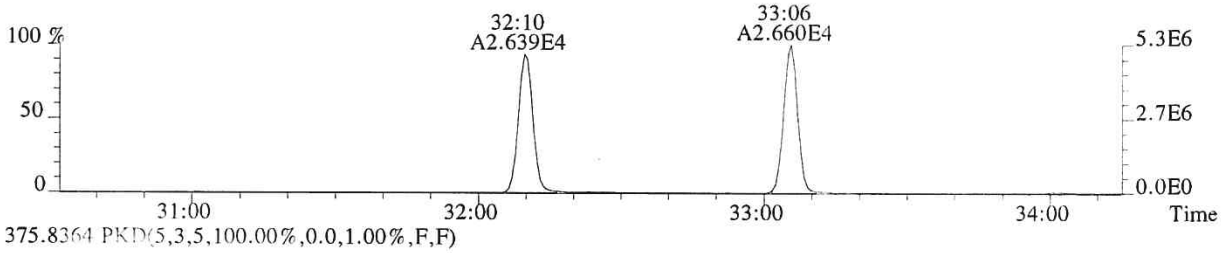
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



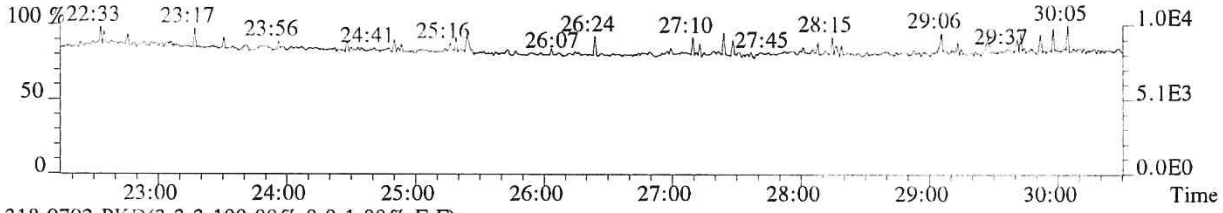
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



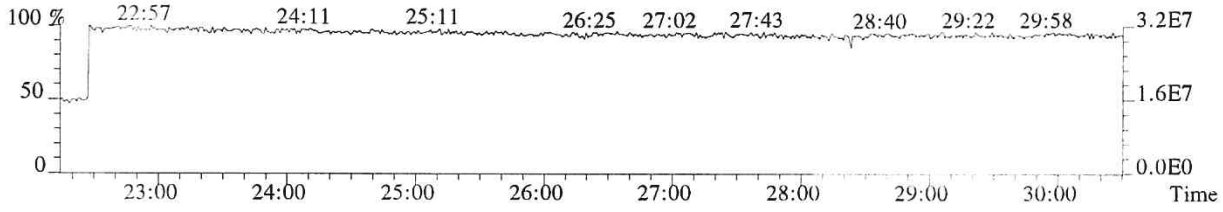
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

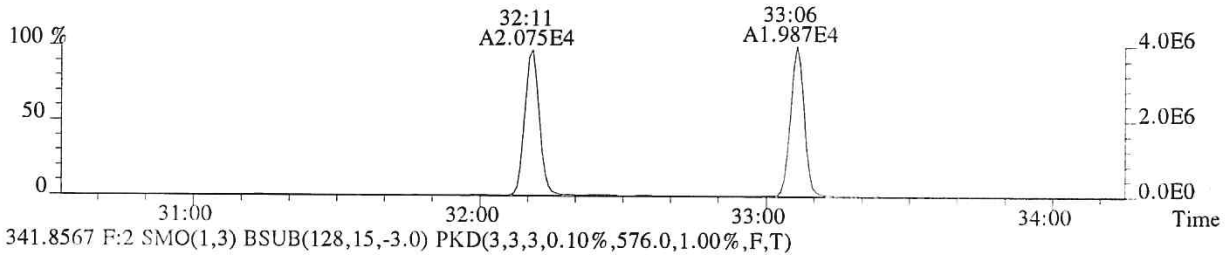


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

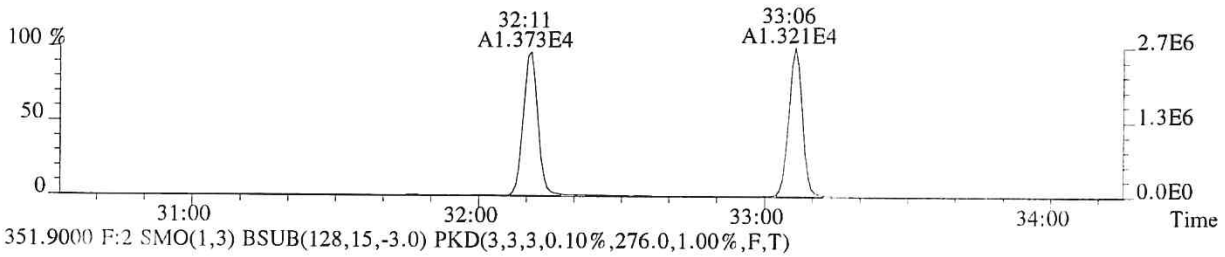


012663

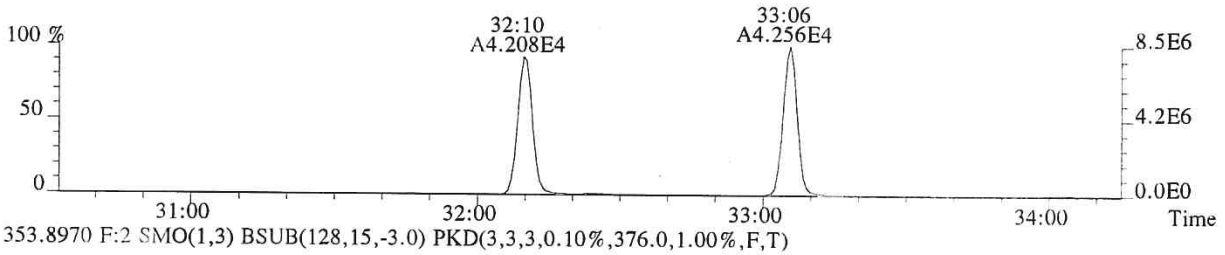
File:P519255 #1-335 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



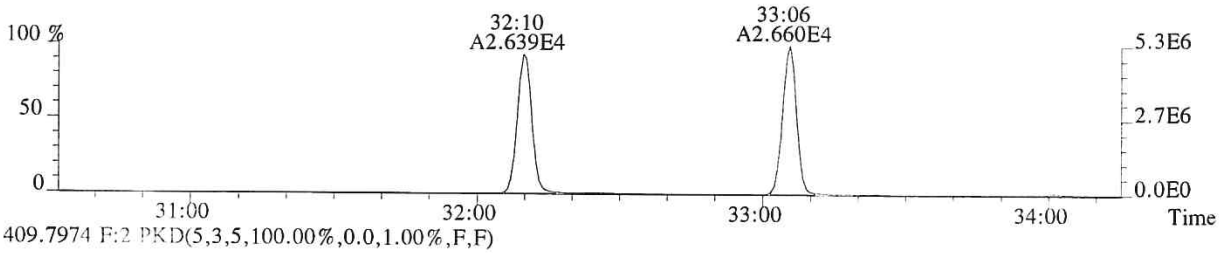
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



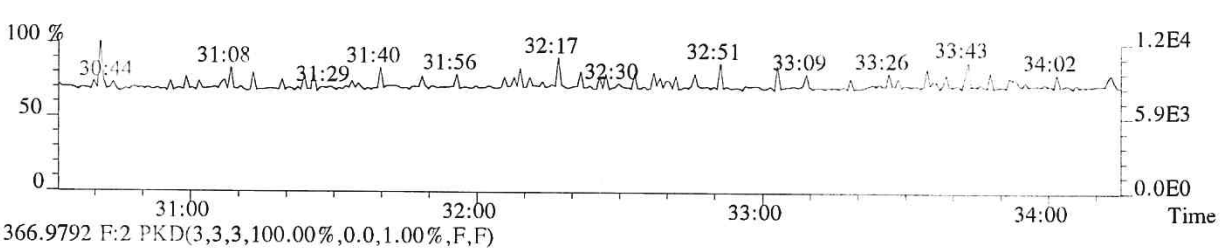
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



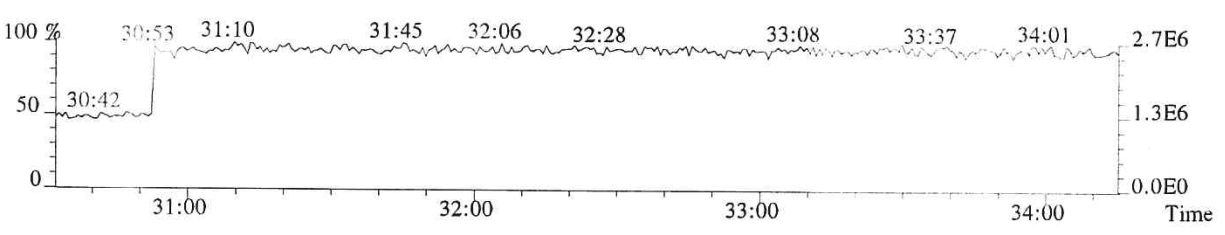
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



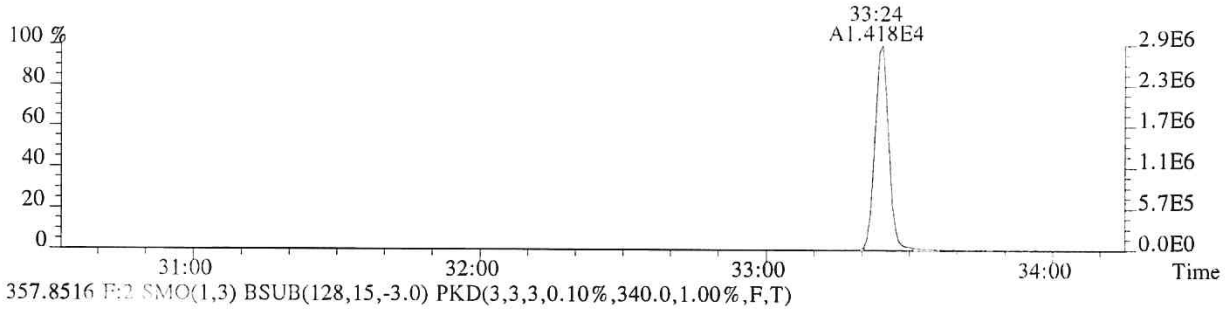
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



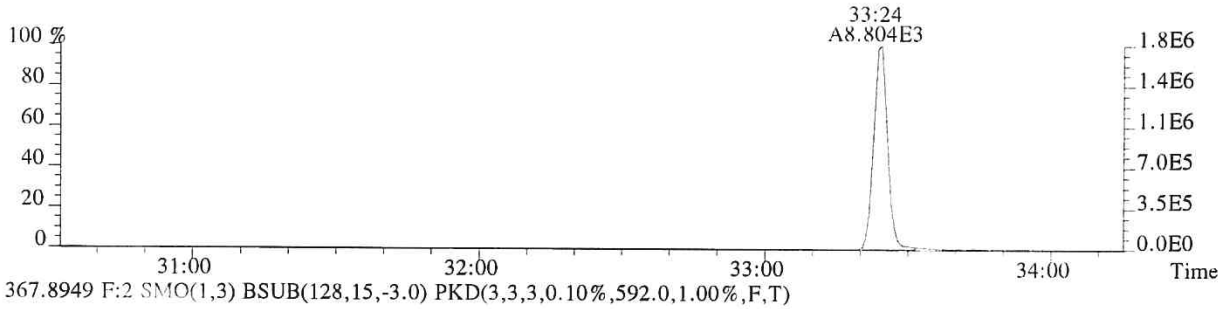
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



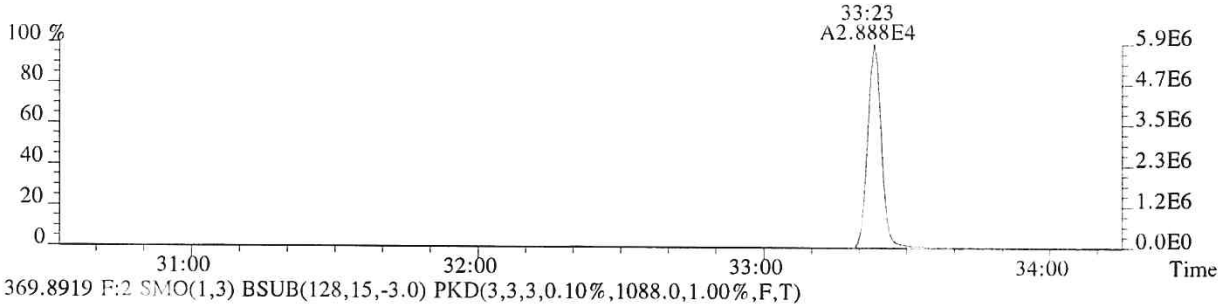
File:P519255 #1-335 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



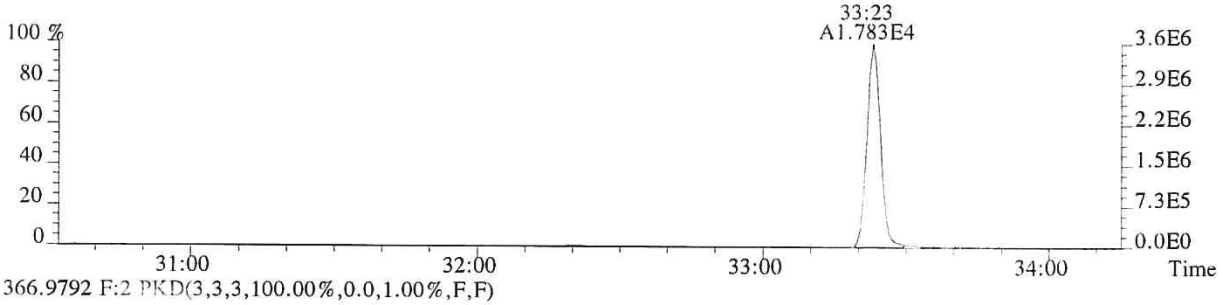
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



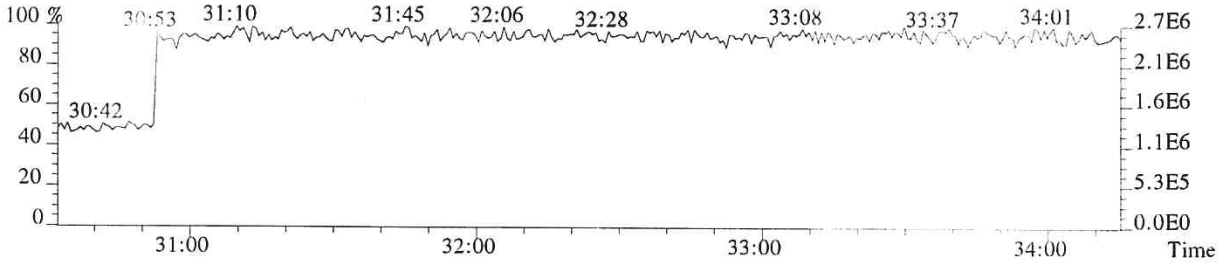
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)

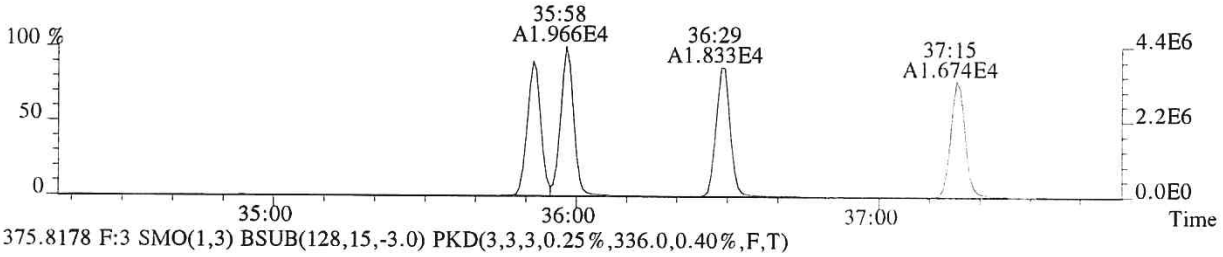


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

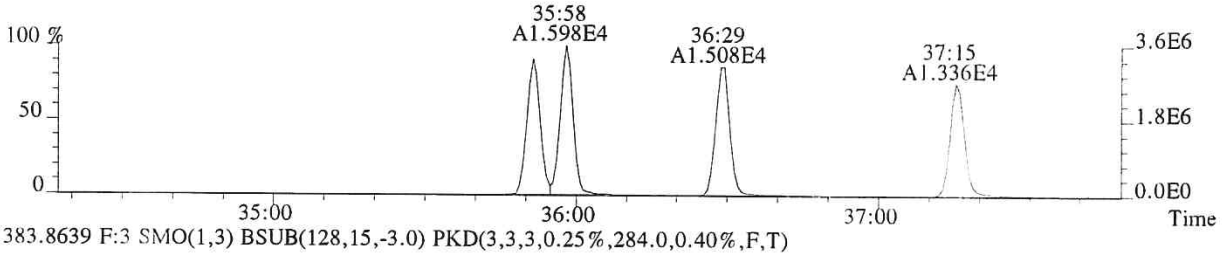


012665

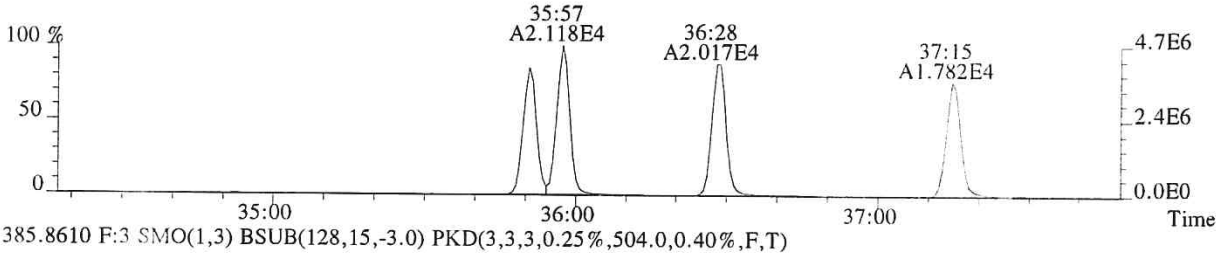
File:P519255 #1-317 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



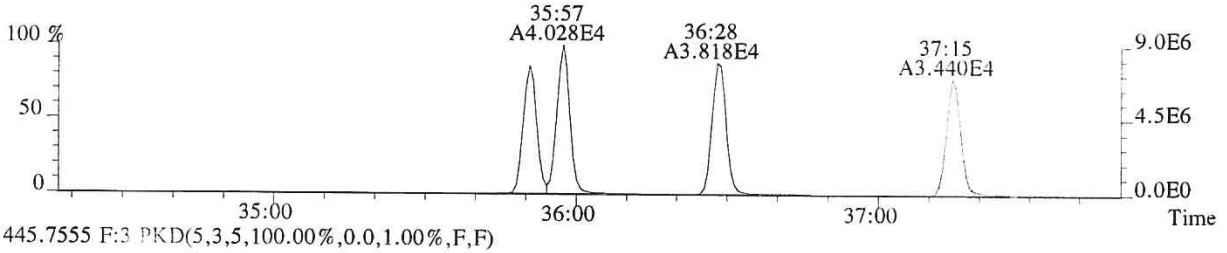
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



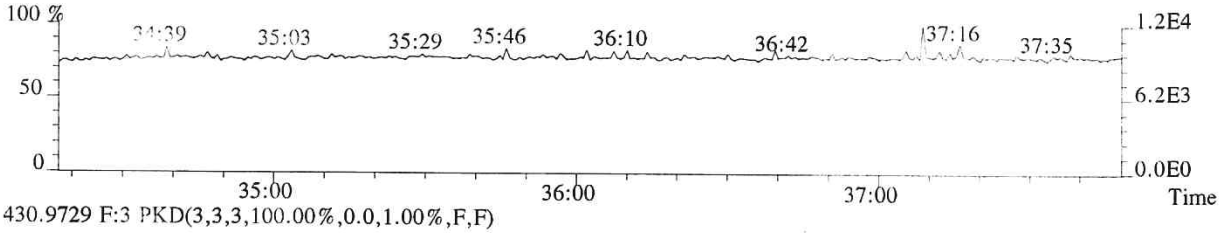
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



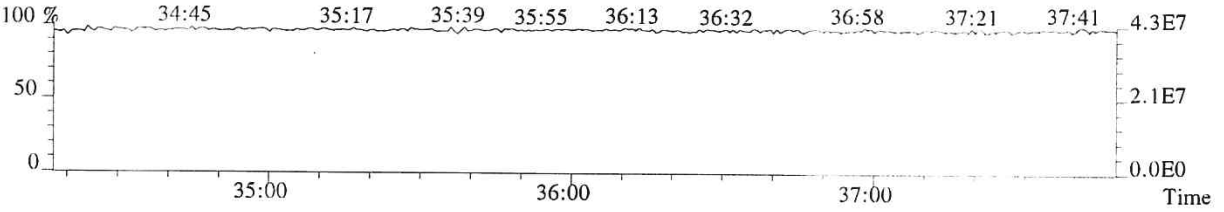
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

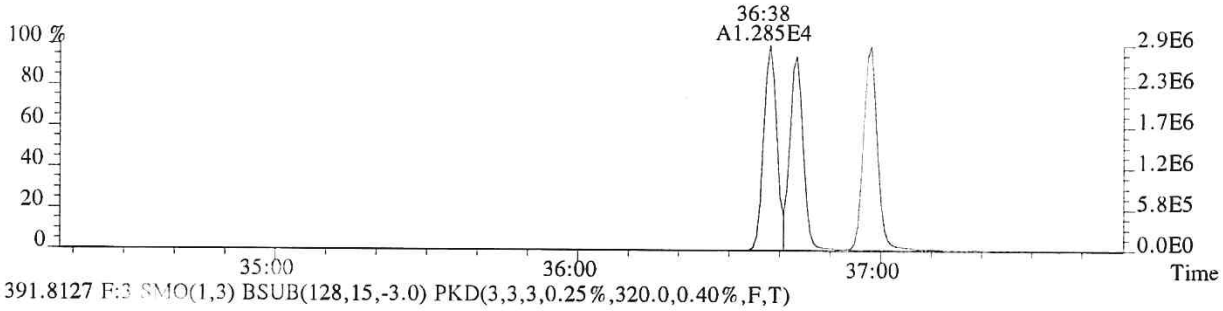


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

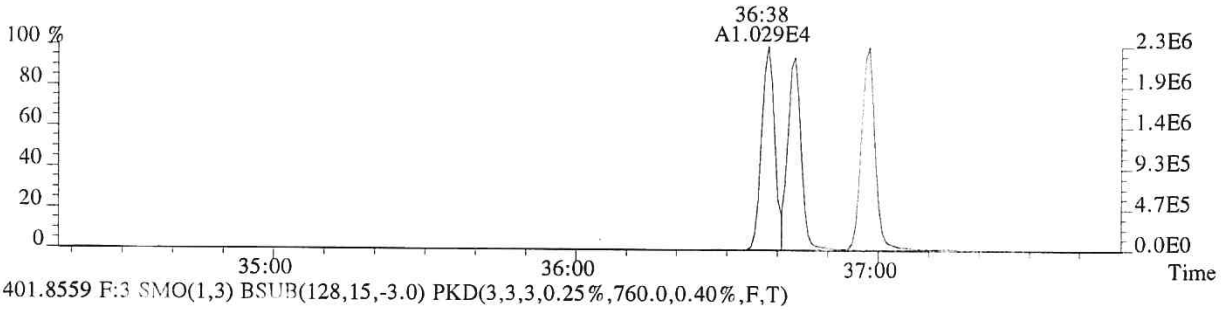


012666

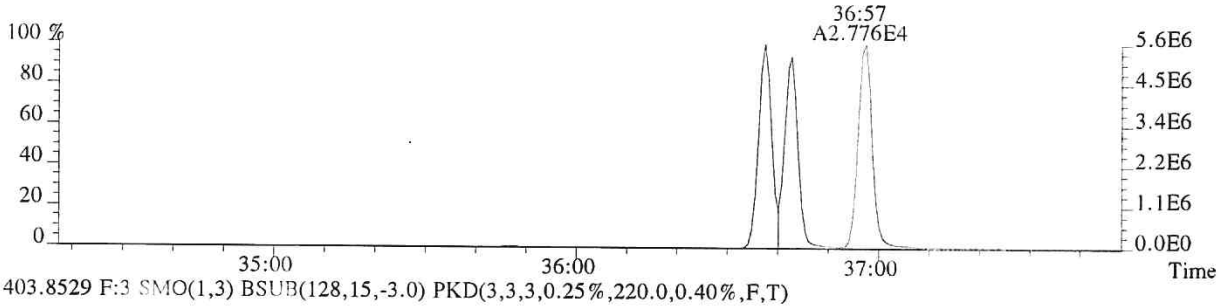
File:P519255 #1-317 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



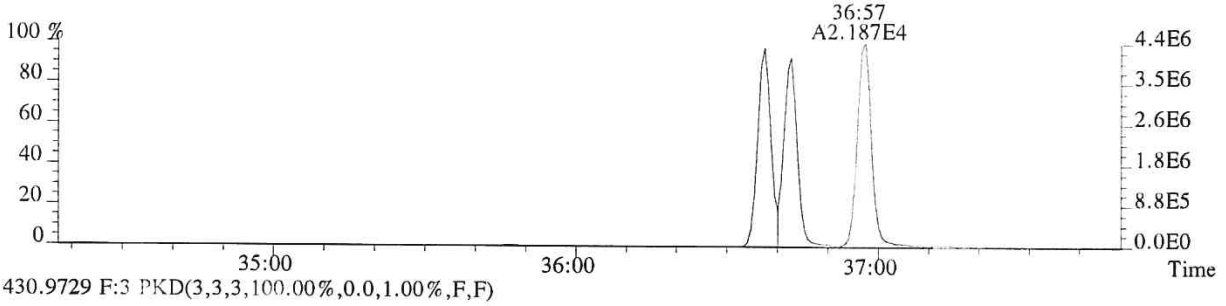
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



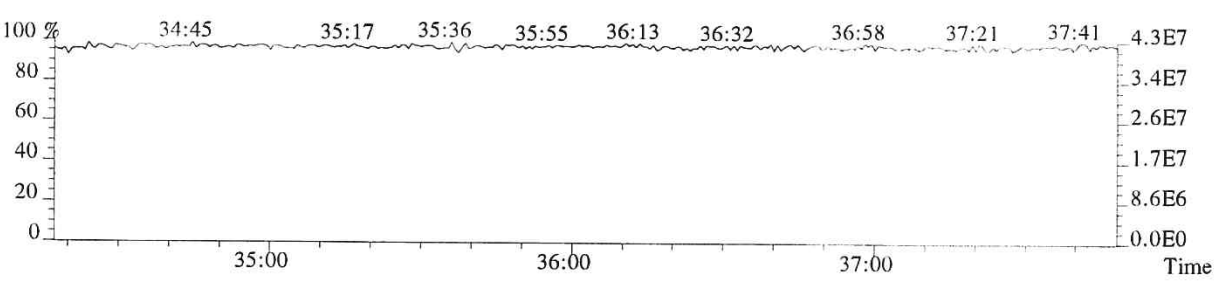
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)

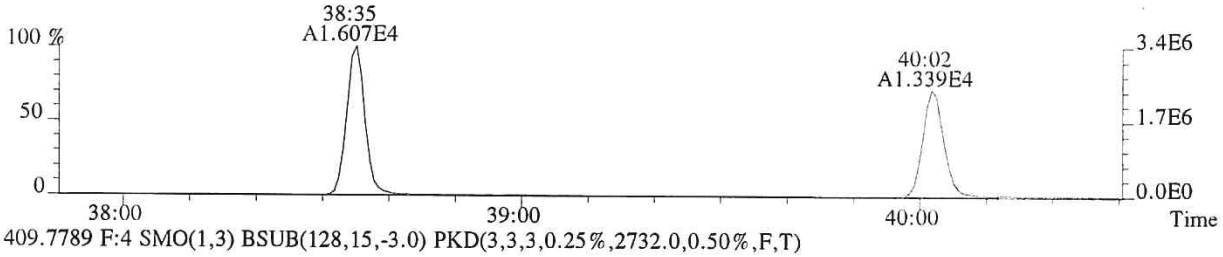


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

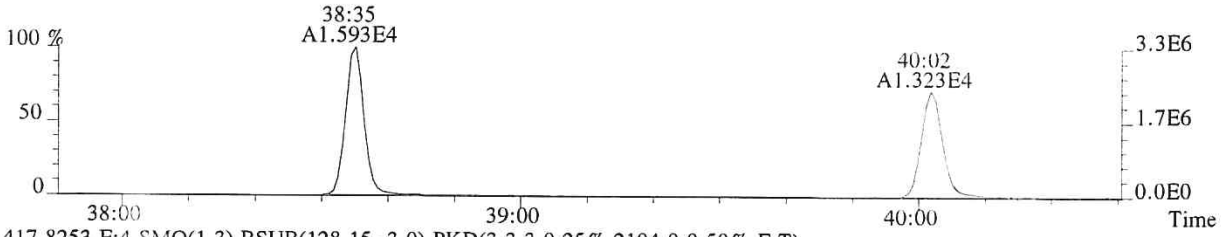


012667

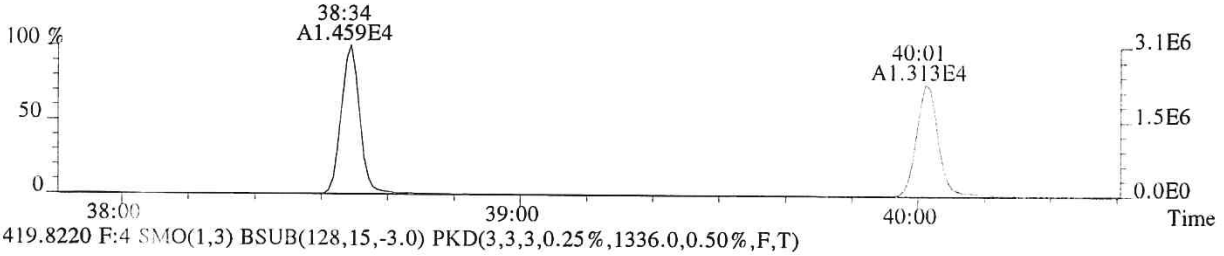
File:P519255 #1-241 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.50%,F,T)



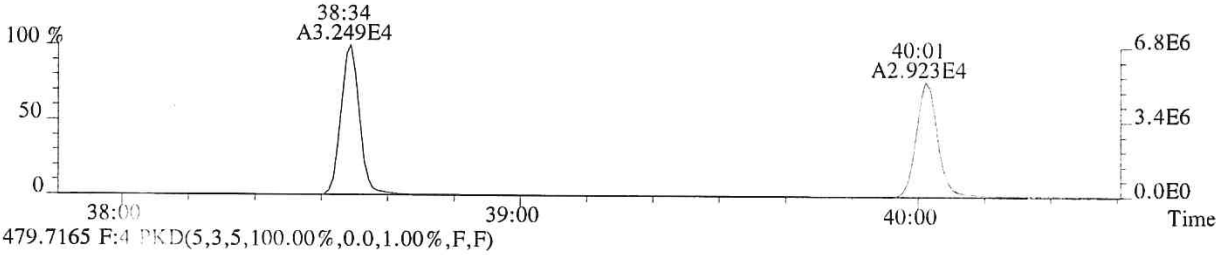
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2732.0,0.50%,F,T)



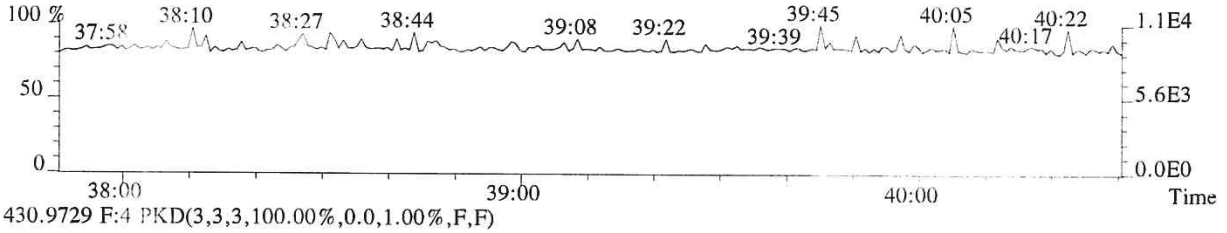
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.50%,F,T)



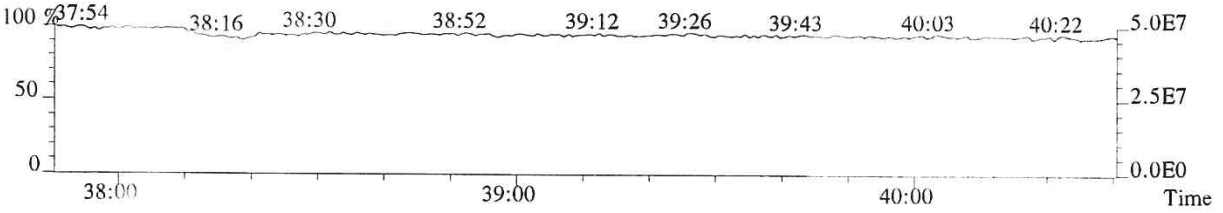
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

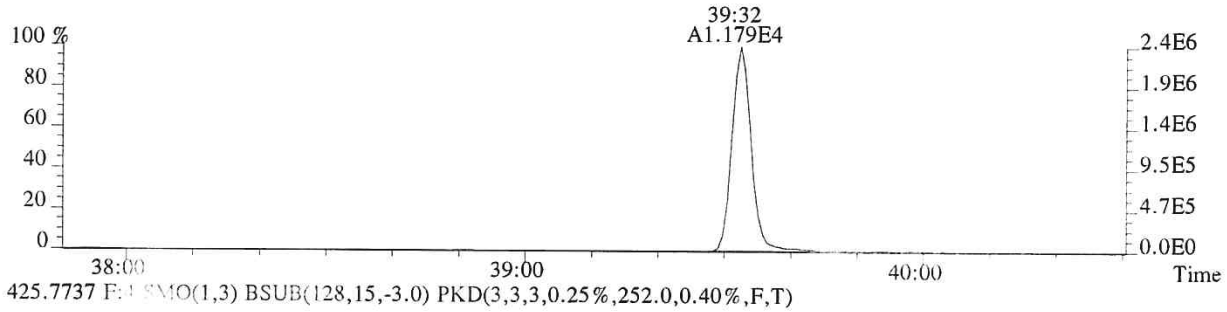


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

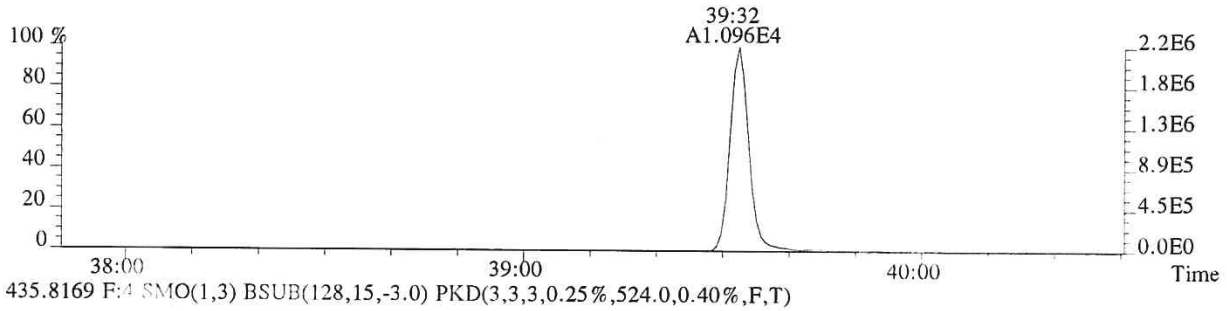


012668

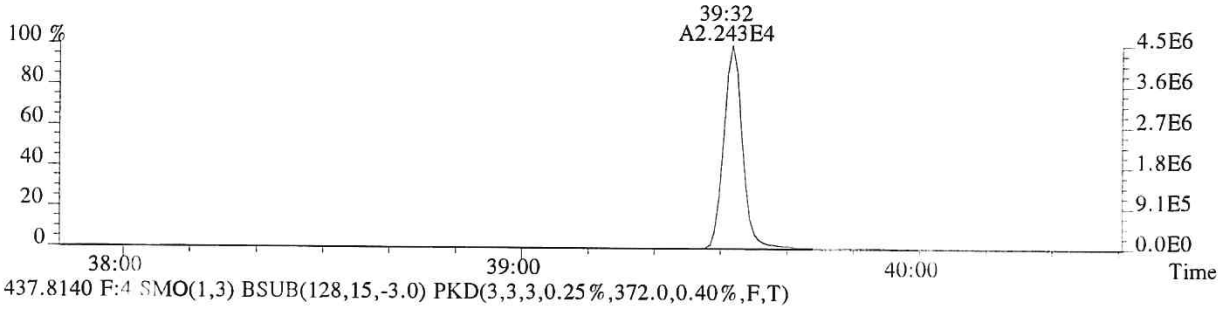
File:P519255 #1-241 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



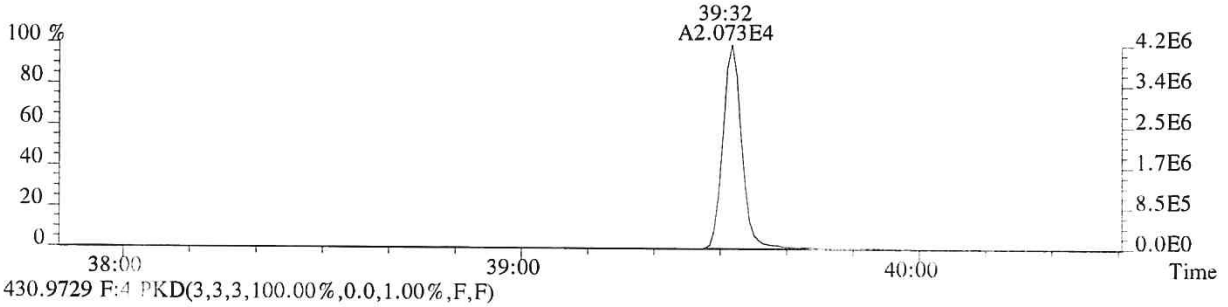
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



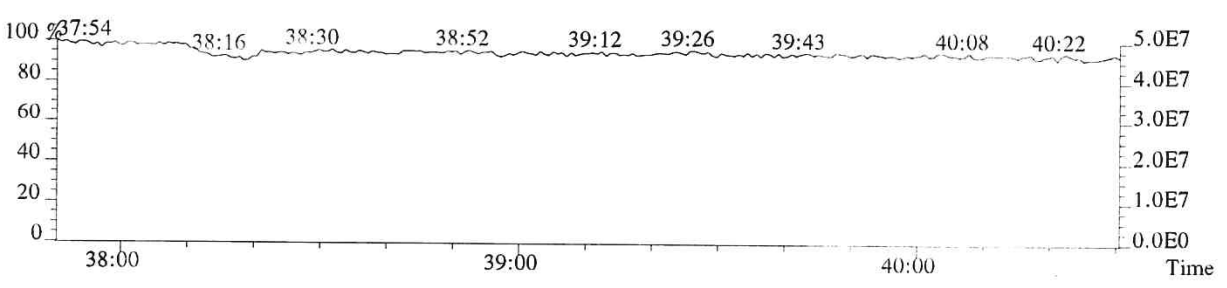
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)

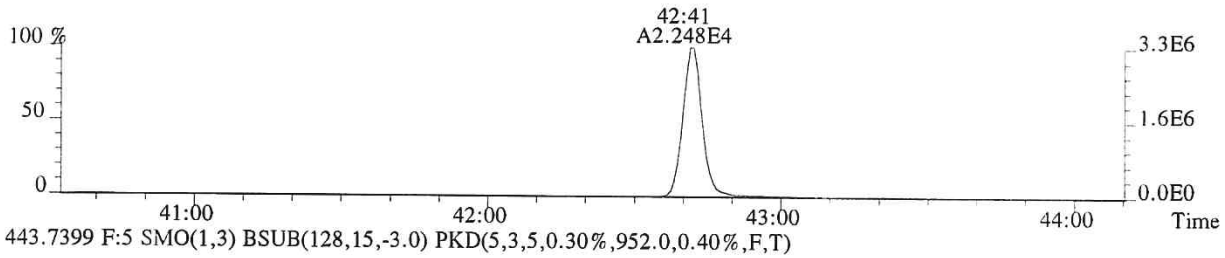


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

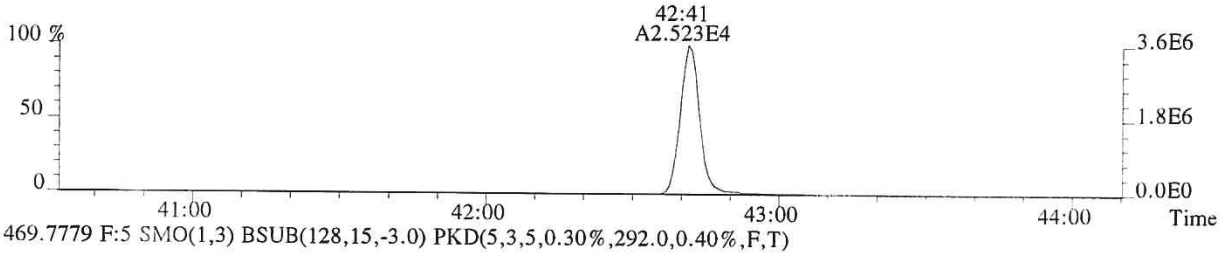


012669

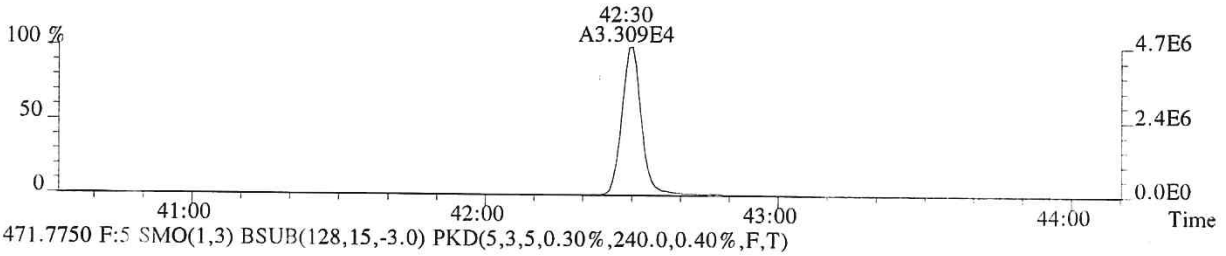
File:P519255 #1-327 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectt
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



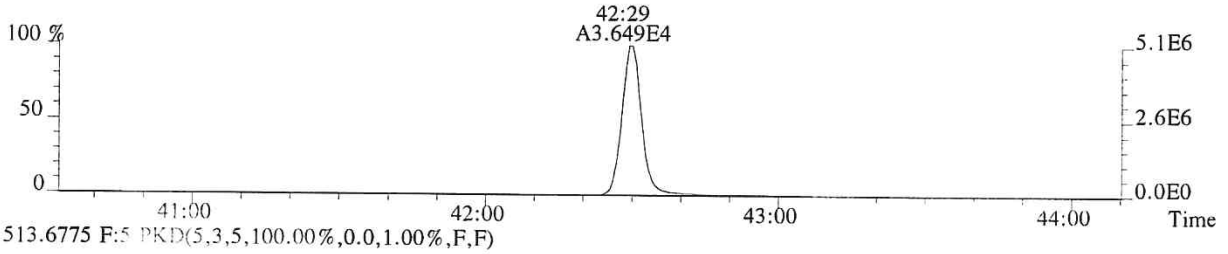
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,952.0,0.40%,F,T)



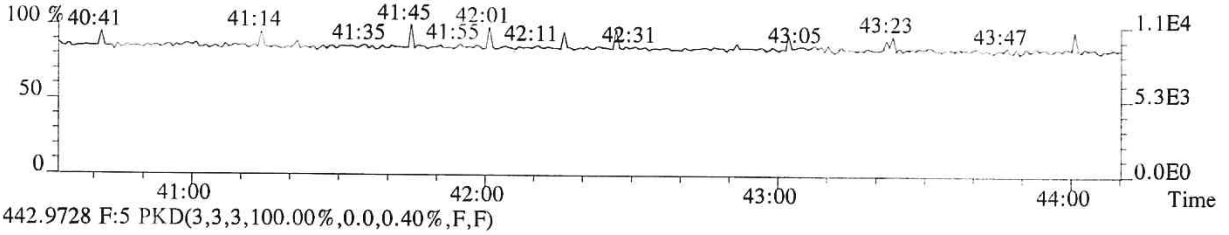
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



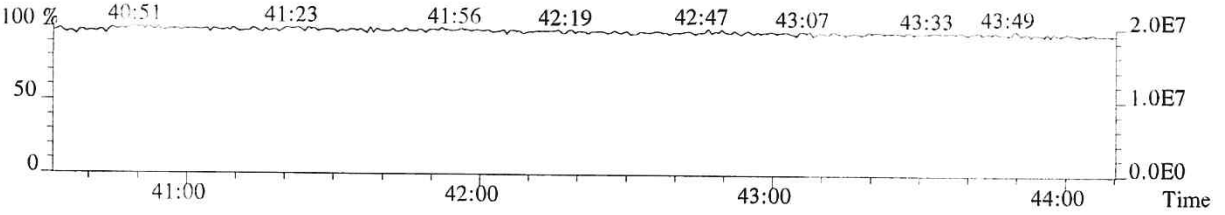
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

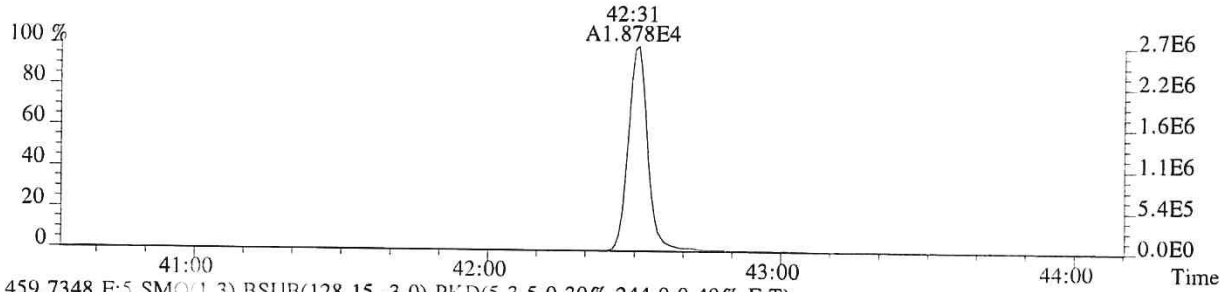


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

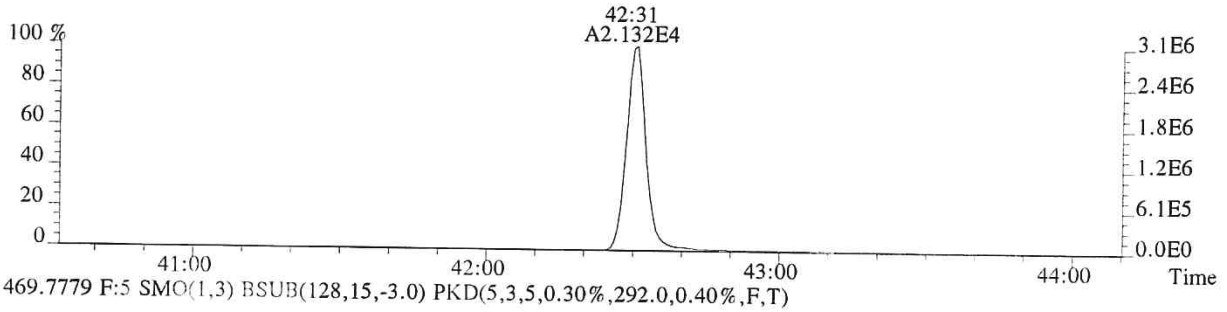


012670

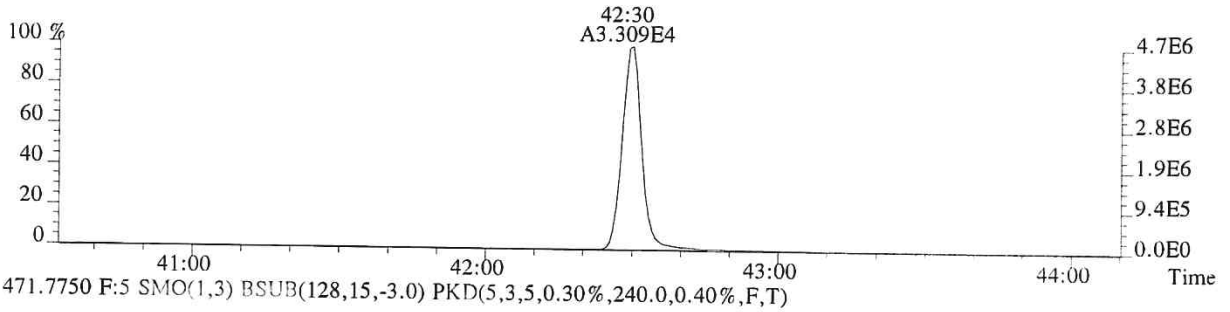
File:P519255 #1-327 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



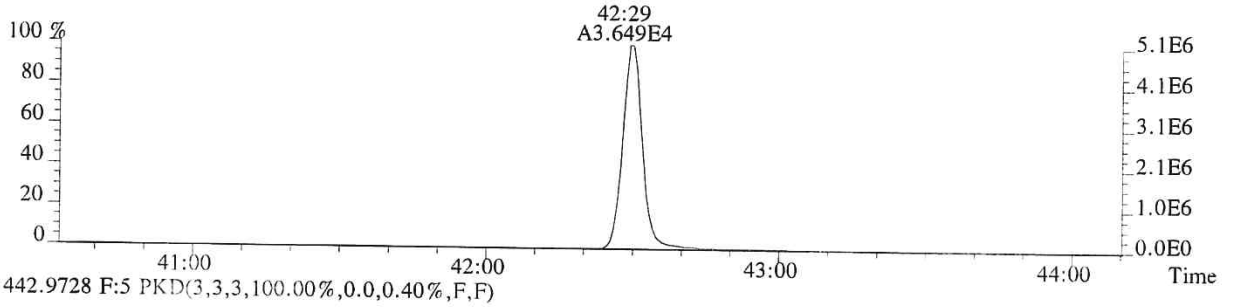
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



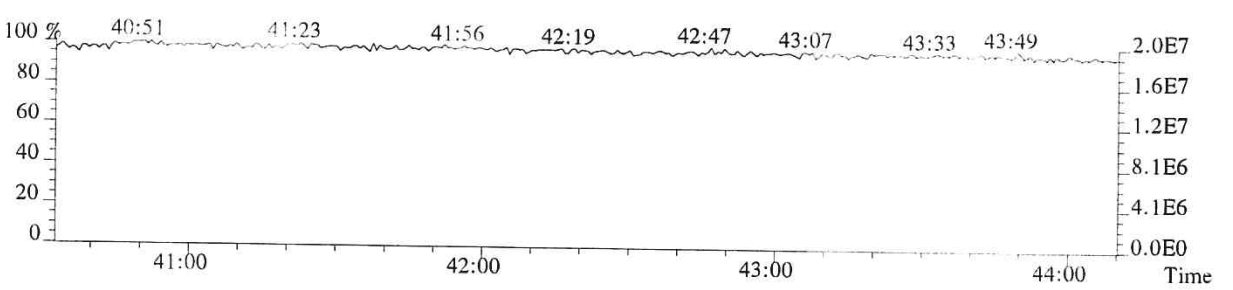
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012671

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519287

Date: 12/07/18-12/08/18 (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519287	7-DEC-18	19:08:16
192977	WINDOW DEFINE	P519288	7-DEC-18	19:56:03
METHOD BLANK	EQ1800469-01	P519289	7-DEC-18	20:44:48
METHOD BLANK	EQ1800488-01	P519290	7-DEC-18	21:33:23
SL0539	E1801046-001DL	P519291	7-DEC-18	22:22:00
SL0540	E1801046-002DL	P519292	7-DEC-18	23:10:38
SL0541	E1801046-003DL	P519293	7-DEC-18	23:59:16
SL0542	E1801046-004DL	P519294	8-DEC-18	00:47:53
SL0552	E1801055-008	P519295	8-DEC-18	01:36:30
SL0558	E1801057-006	P519296	8-DEC-18	02:25:08
SL0559	E1801057-007	P519297	8-DEC-18	03:13:44
SL0560	E1801057-008	P519298	8-DEC-18	04:02:22
SL0580	E1801065-001	P519299	8-DEC-18	04:50:59
SL0581	E1801065-002	P519300	8-DEC-18	05:39:44
SL0582	E1801065-003	P519301	8-DEC-18	06:28:20

E1801056

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181207B.SPL
Last Modified: Monday, December 10, 2018 07:32:15 Central Standard Time
Printed: Monday, December 10, 2018 07:32:17 Central Standard Time

Page Position (1, 1)

OPR54: P519287res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/7/18	19:08	P519287	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMScheck 19:08
2		19:56	P519288	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		20:44	P519289	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		21:33	P519290	MB	EQ1800488-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		22:22	P519291	E1801046-001DL	E1801046-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		23:10	P519292	E1801046-002DL	E1801046-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		23:59	P519293	E1801046-003DL	E1801046-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8	12/8/18	00:47	P519294	E1801046-004DL	E1801046-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		01:36	P519295	E1801055-008	E1801055-008	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		02:25	P519296	E1801057-006	E1801057-006	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		03:13	P519297	E1801057-007	E1801057-007	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		04:02	P519298	E1801057-008	E1801057-008	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		04:50	P519299	E1801065-001	E1801065-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		05:39	P519300	E1801065-002	E1801065-002	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		06:28	P519301	E1801065-003	E1801065-003	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		07:25	P519302	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMScheck 07:25
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

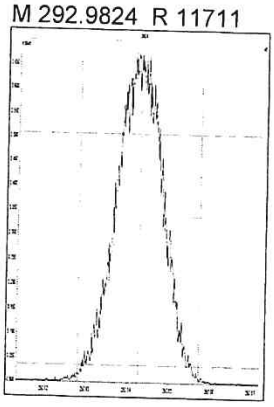
456 of 872

gc 12/10/18

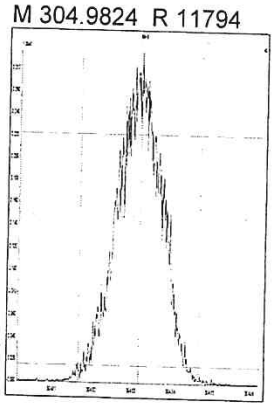
048

012674

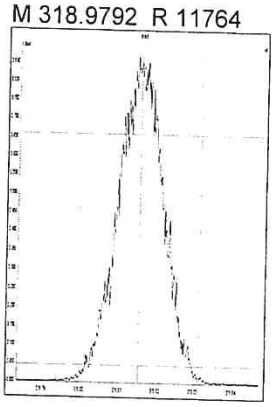
M 292.9824 R 11711



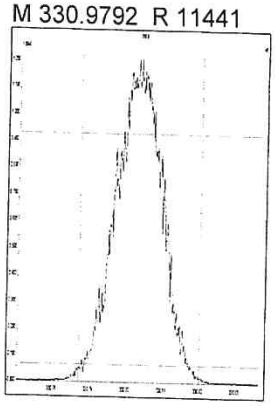
M 304.9824 R 11794



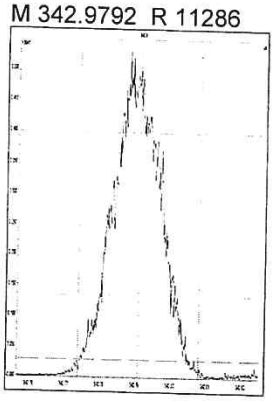
M 318.9792 R 11764



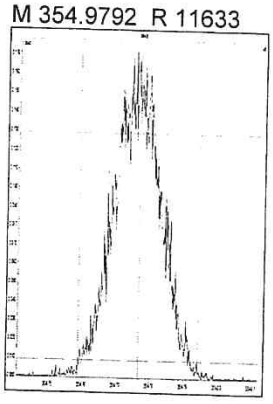
M 330.9792 R 11441



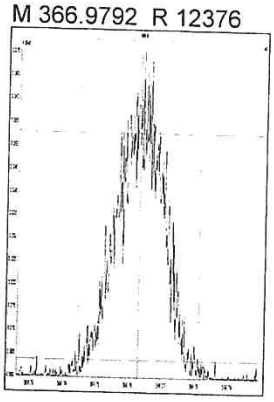
M 342.9792 R 11286



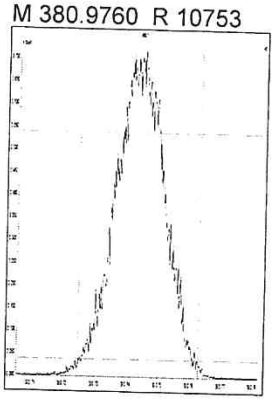
M 354.9792 R 11633



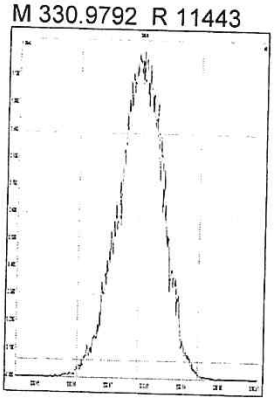
M 366.9792 R 12376



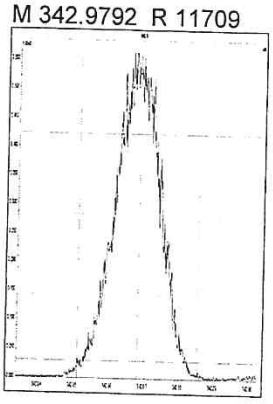
M 380.9760 R 10753



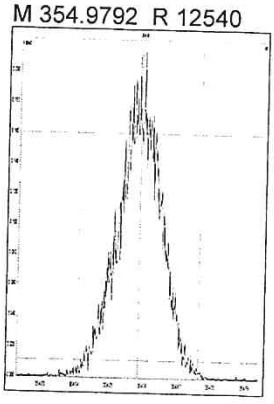
M 330.9792 R 11443



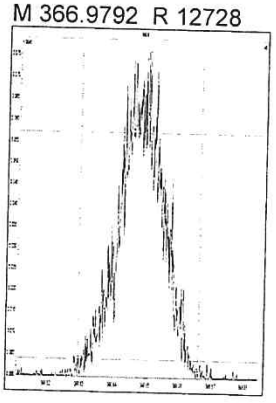
M 342.9792 R 11709



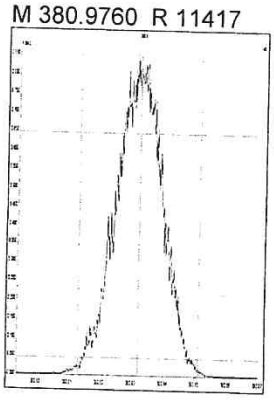
M 354.9792 R 12540



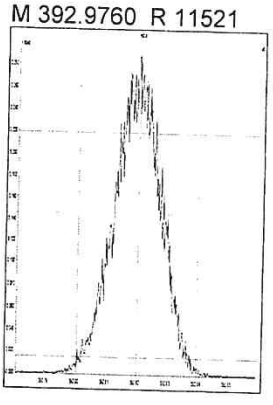
M 366.9792 R 12728



M 380.9760 R 11417



M 392.9760 R 11521



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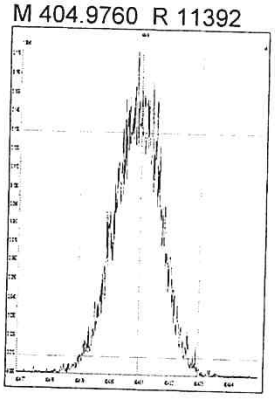
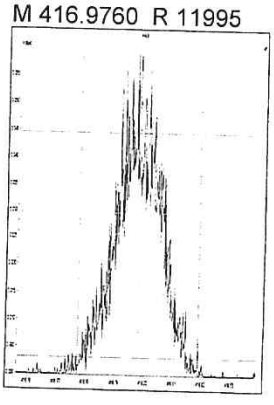


M 416.9760 R 11995



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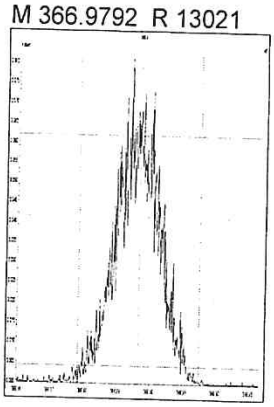
M 366.9792 R 13021



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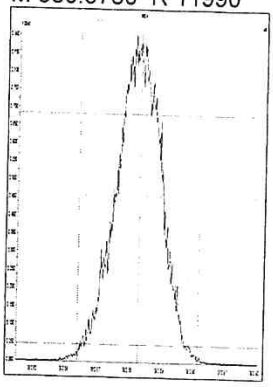

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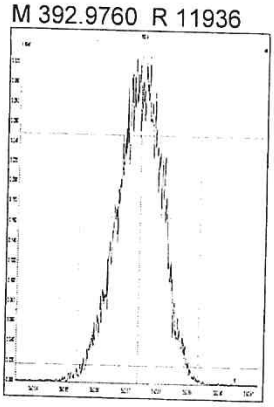
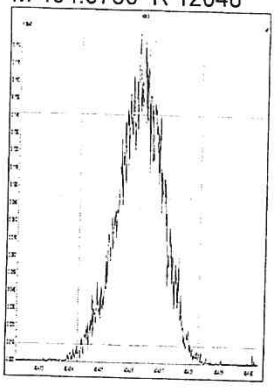


M 404.9760 R 12048



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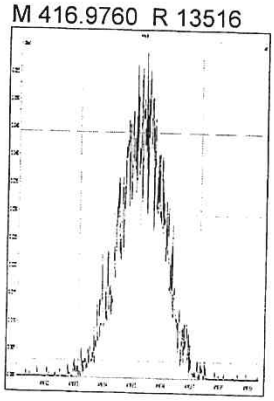
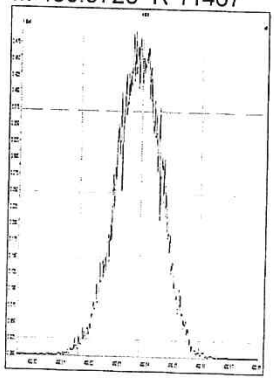
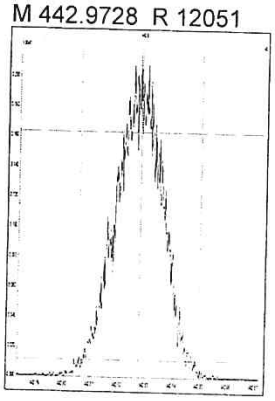


M 430.9728 R 11467



M 442.9728 R 12051



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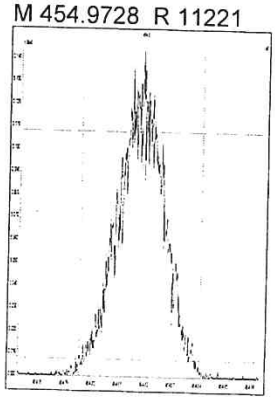

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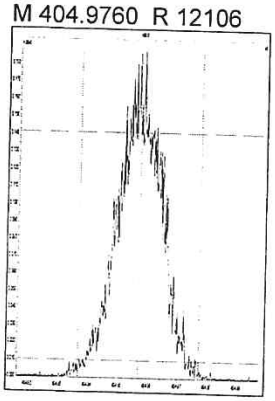
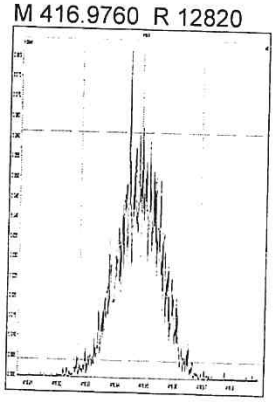


M 416.9760 R 12820



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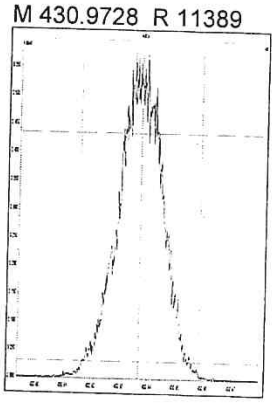
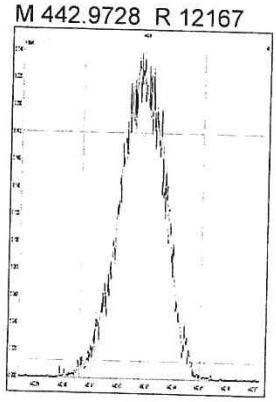
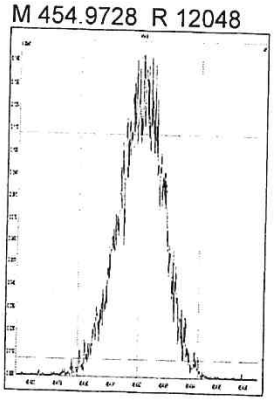


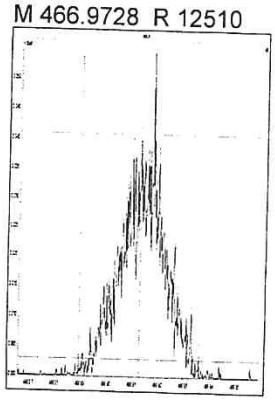
M 442.9728 R 12167



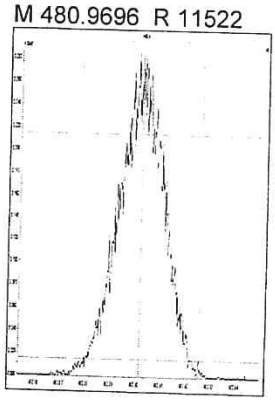
M 454.9728 R 12048



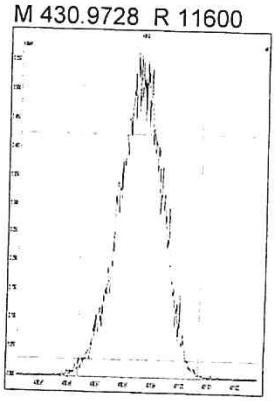
M 466.9728 R 12510



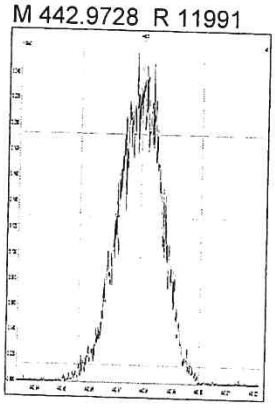
M 480.9696 R 11522



M 430.9728 R 11600



M 442.9728 R 11991



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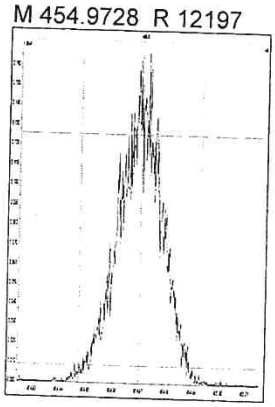
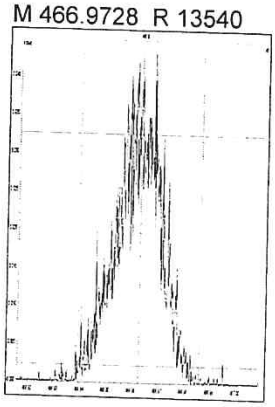
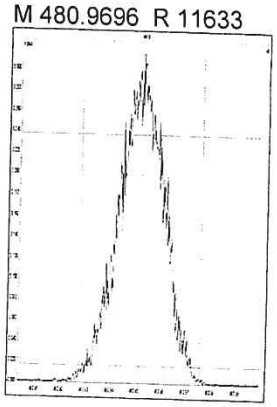


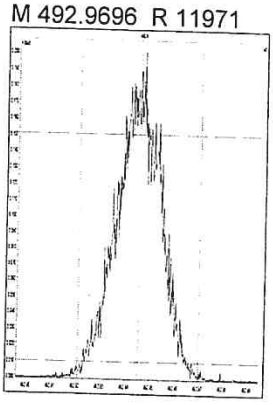
M 466.9728 R 13540



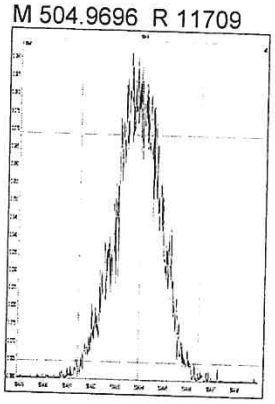
M 480.9696 R 11633



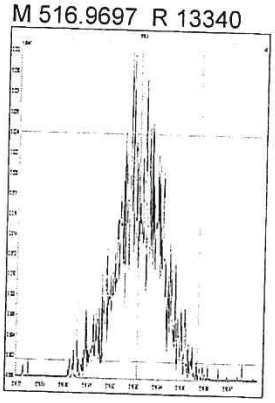
M 492.9696 R 11971



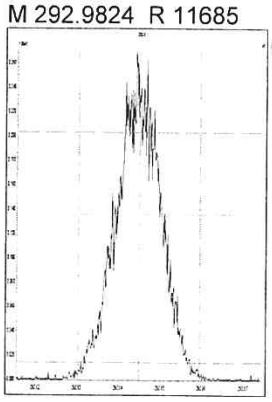
M 504.9696 R 11709



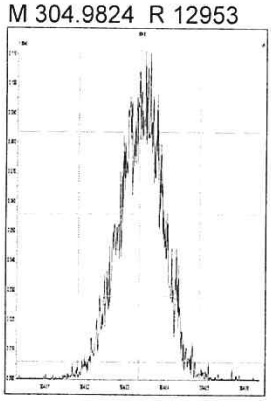
M 516.9697 R 13340



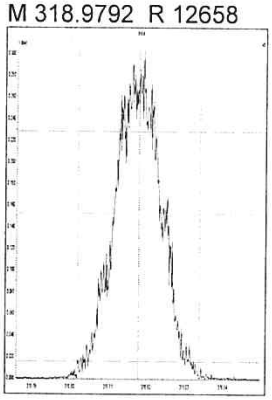
M 292.9824 R 11685



M 304.9824 R 12953



M 318.9792 R 12658



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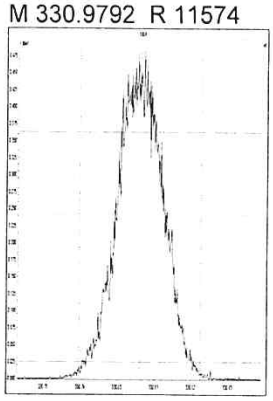
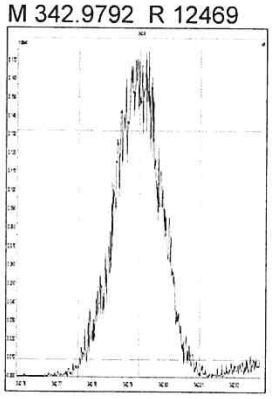
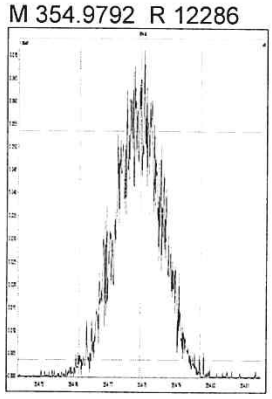


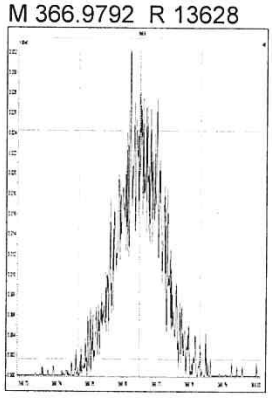
M 342.9792 R 12469



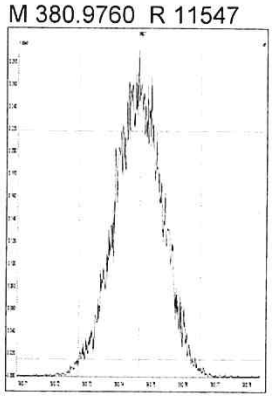
M 354.9792 R 12286



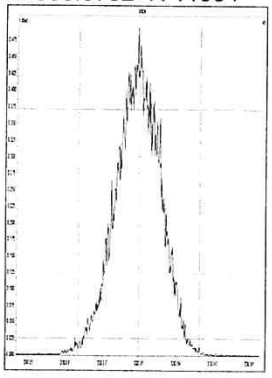
M 366.9792 R 13628



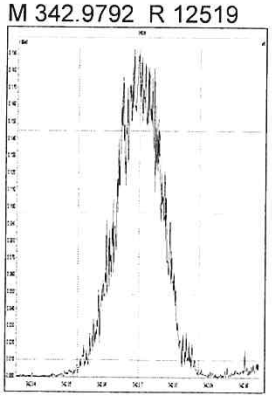
M 380.9760 R 11547



M 330.9792 R 11934



M 342.9792 R 12519



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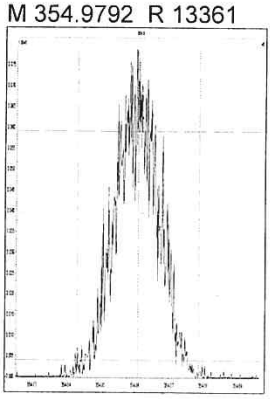
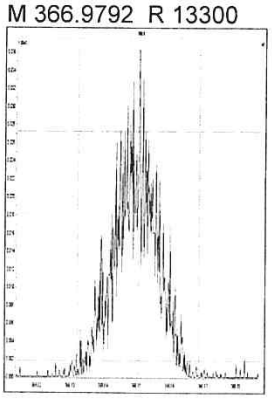
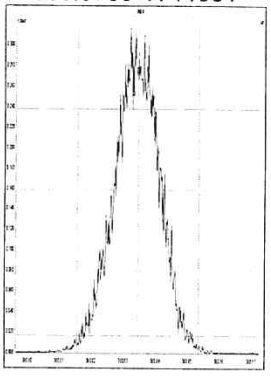


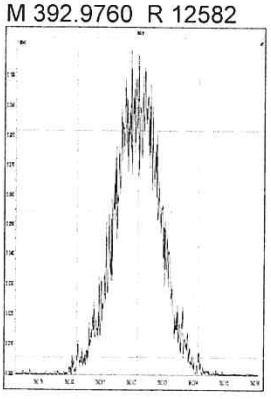
M 366.9792 R 13300



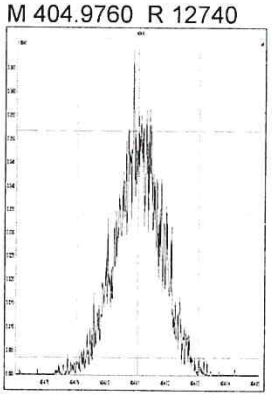
M 380.9760 R 11961



M 392.9760 R 12582



M 404.9760 R 12740



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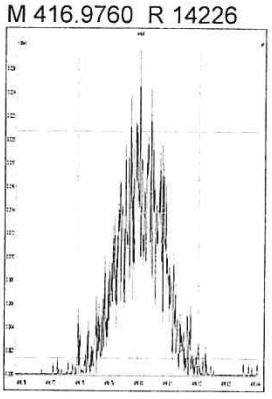
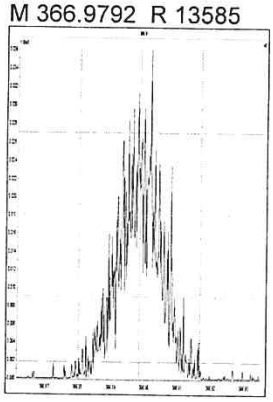
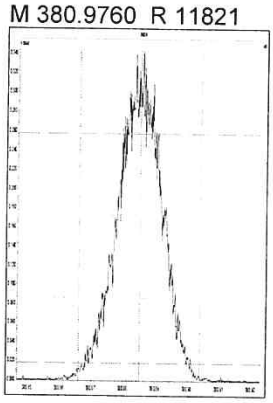


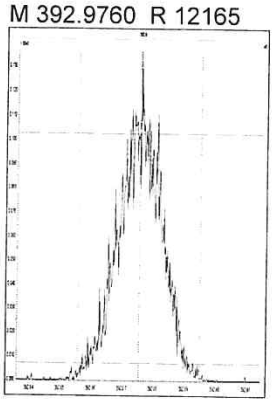
M 366.9792 R 13585



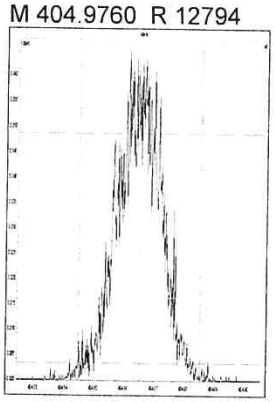
M 380.9760 R 11821



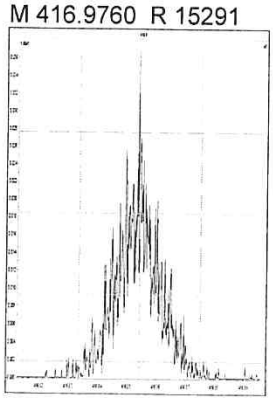
M 392.9760 R 12165



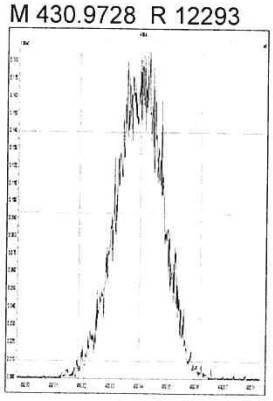
M 404.9760 R 12794



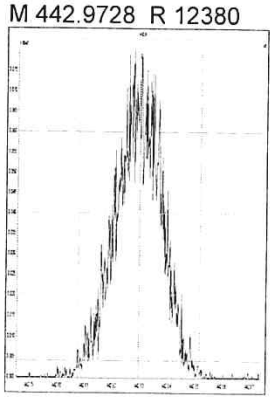
M 416.9760 R 15291



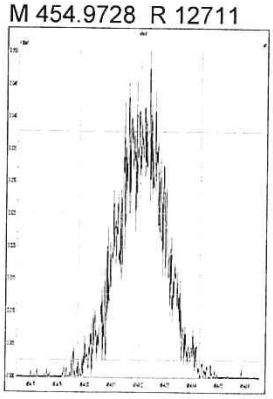
M 430.9728 R 12293



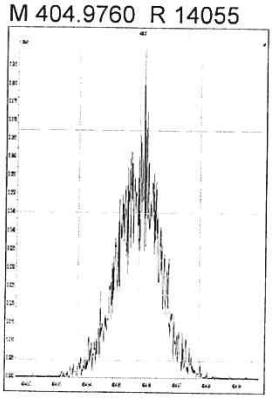
M 442.9728 R 12380



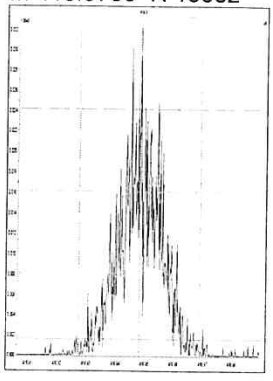
M 454.9728 R 12711



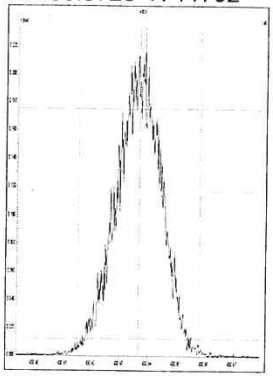
M 404.9760 R 14055



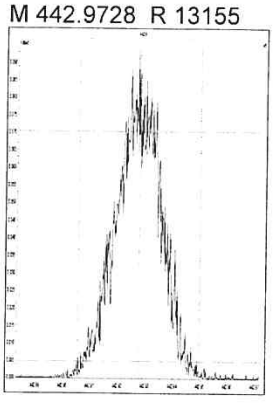
M 416.9760 R 15682



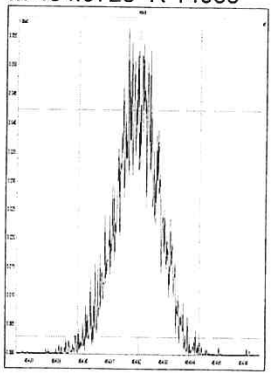
M 430.9728 R 11792



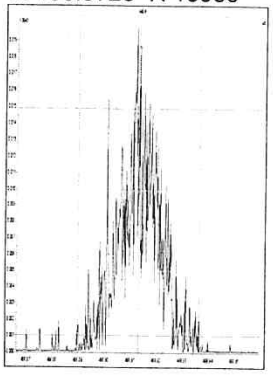
M 442.9728 R 13155



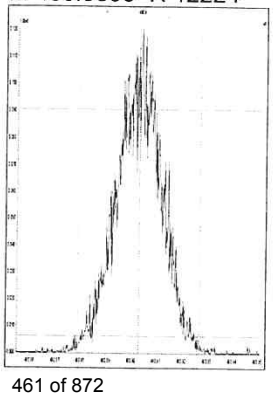
M 454.9728 R 14085



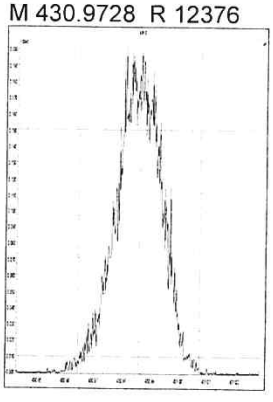
M 466.9728 R 16985



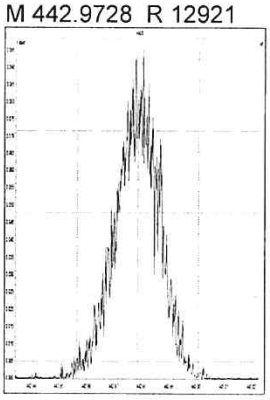
M 480.9696 R 12224



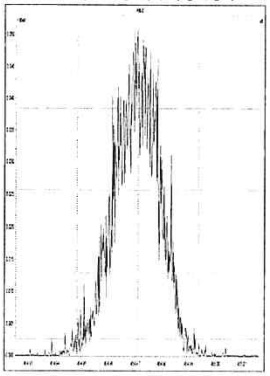
M 430.9728 R 12376



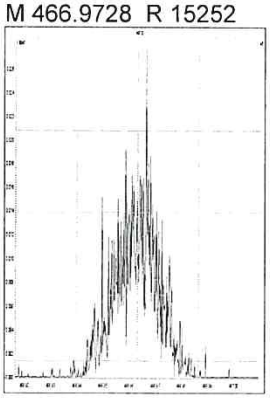
M 442.9728 R 12921



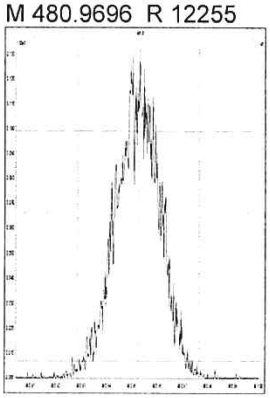
M 454.9728 R 13404



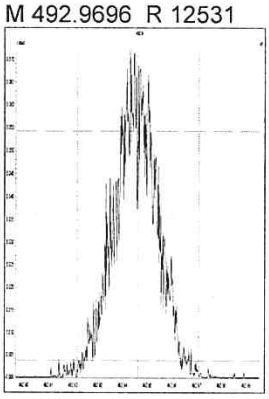
M 466.9728 R 15252



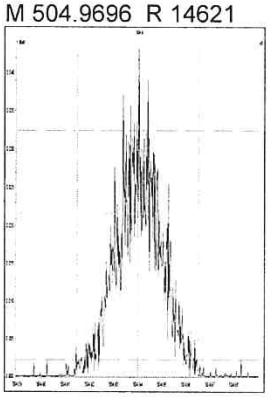
M 480.9696 R 12255



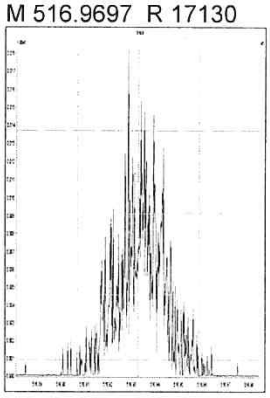
M 492.9696 R 12531



M 504.9696 R 14621



M 516.9697 R 17130



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

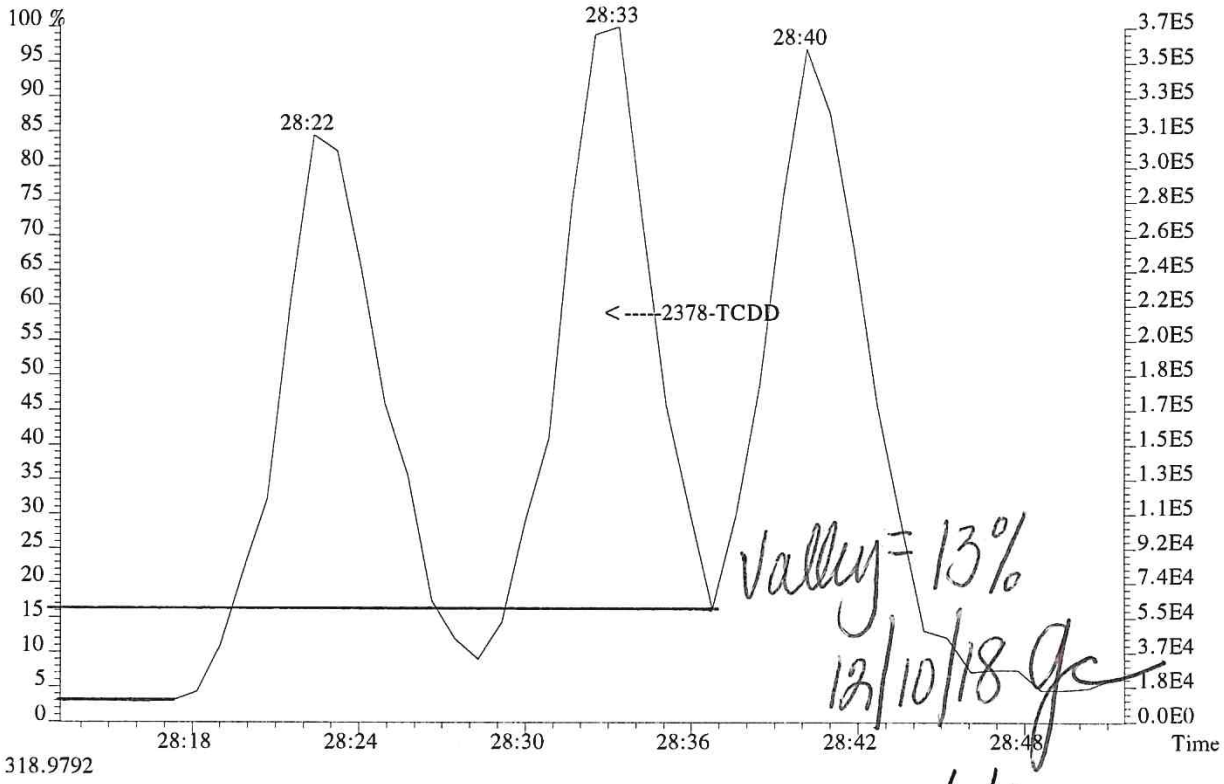
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P519288
Date Analyzed: 7-DEC-2018
Time Analyzed: 19:56:03

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:17	29:44
TCDD	25:06	29:34
PeCDF	29:42	34:03
PeCDD	31:17	33:48
HxCDF	34:44	37:19
HxCDD	35:16	36:54
HpCDF	38:36	40:04
HpCDD	38:52	39:34

% Valley 2378-TCDD: 13 %

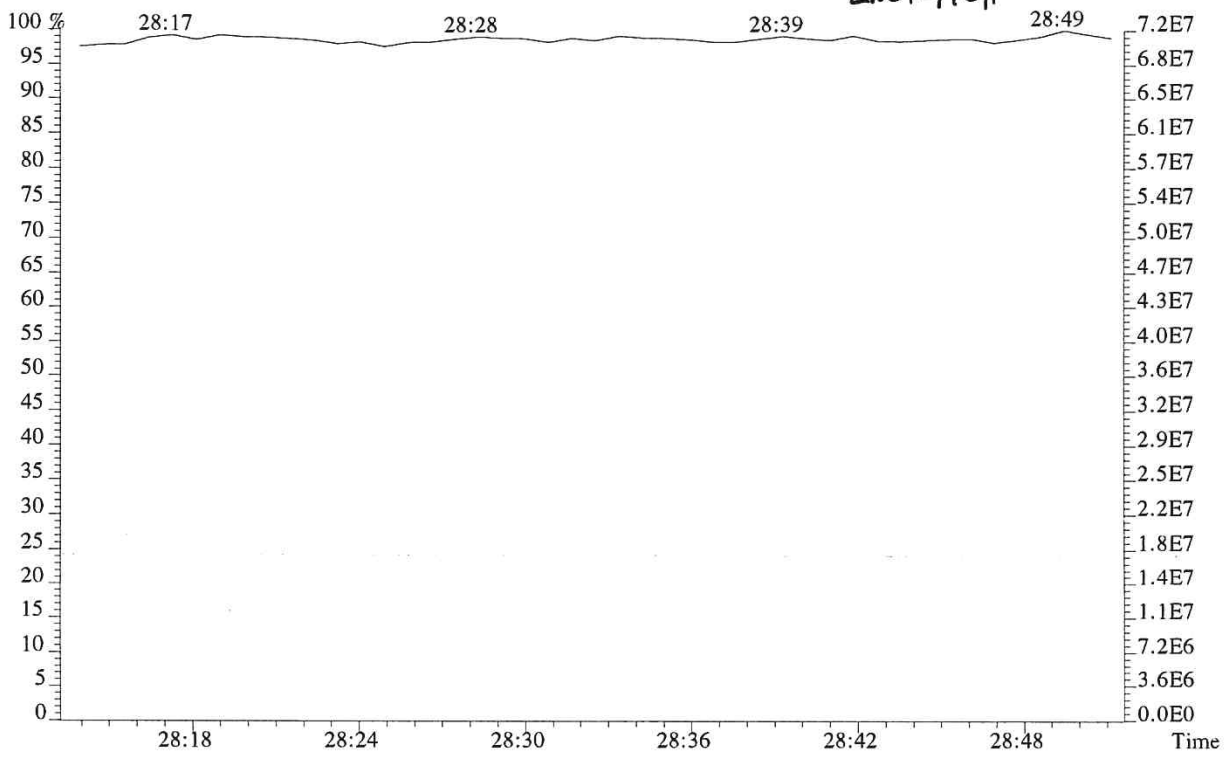
File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



Valley = 13%
12/10/18 gc

318.9792

LMK 12/10/18



012682

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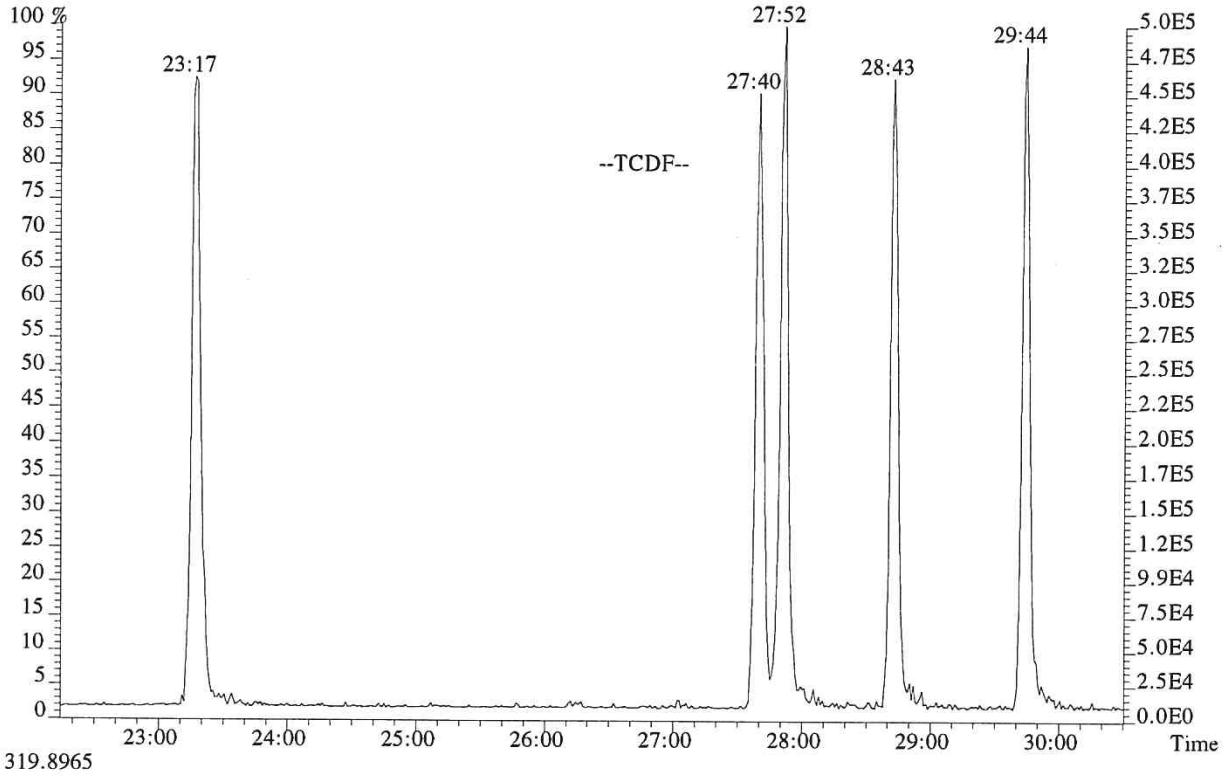
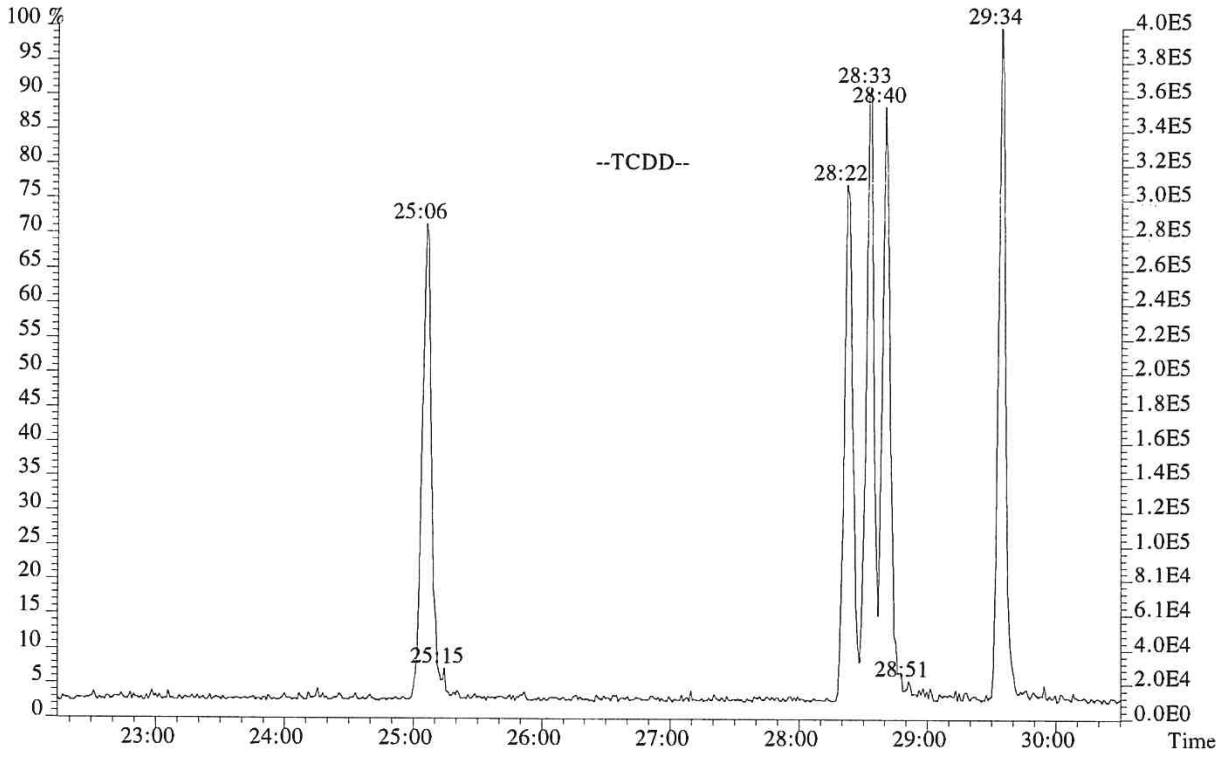
Sample#1 Exp:192977
303.9016

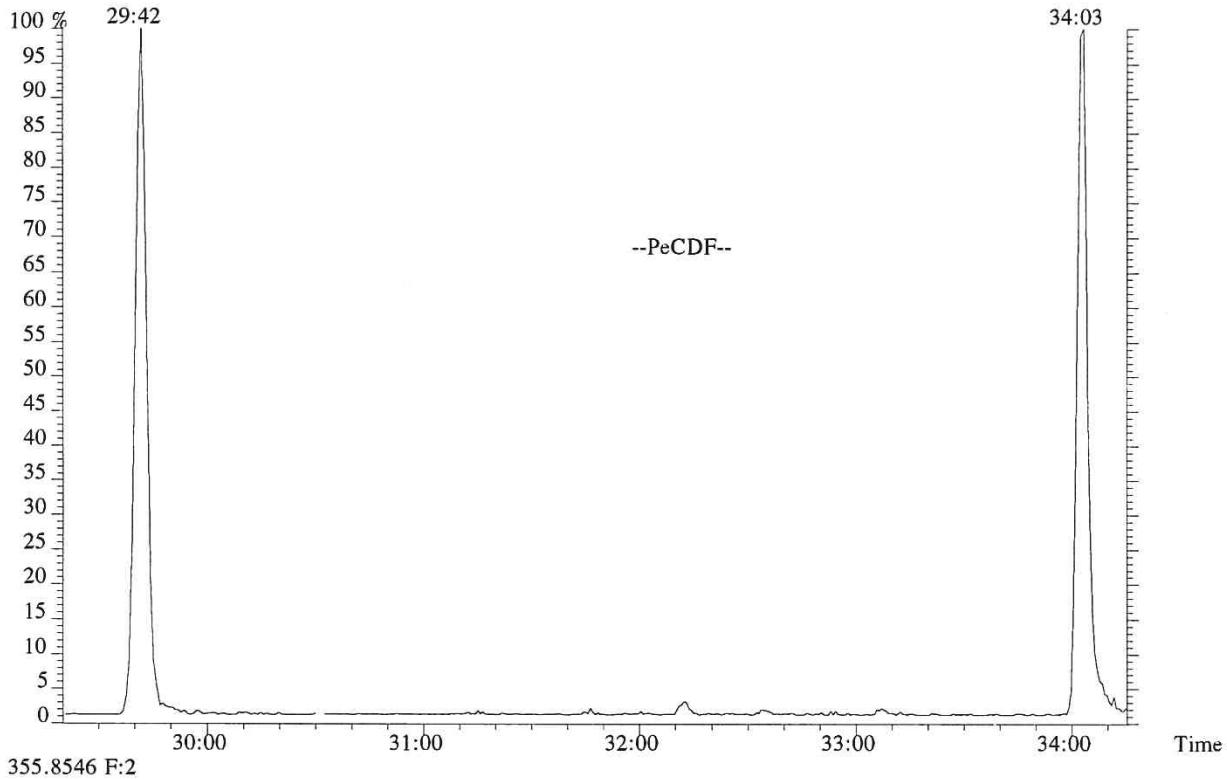


319.8965

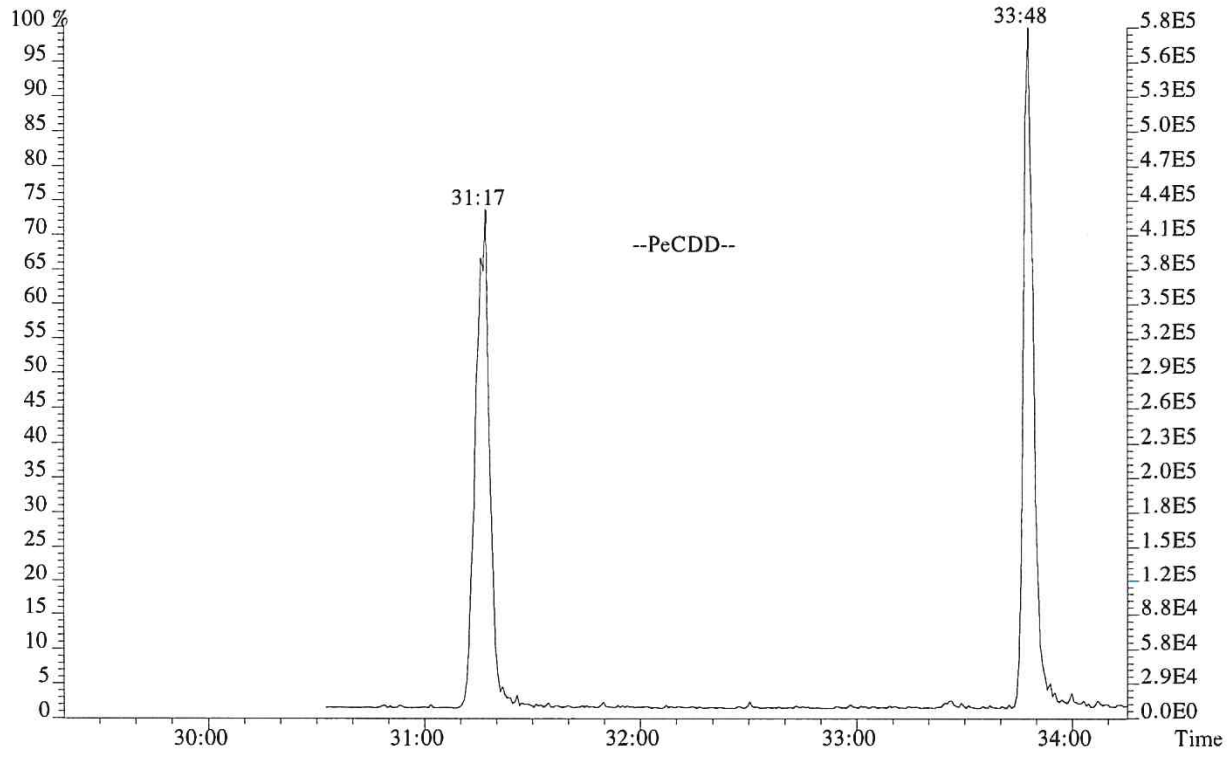


012683

File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2

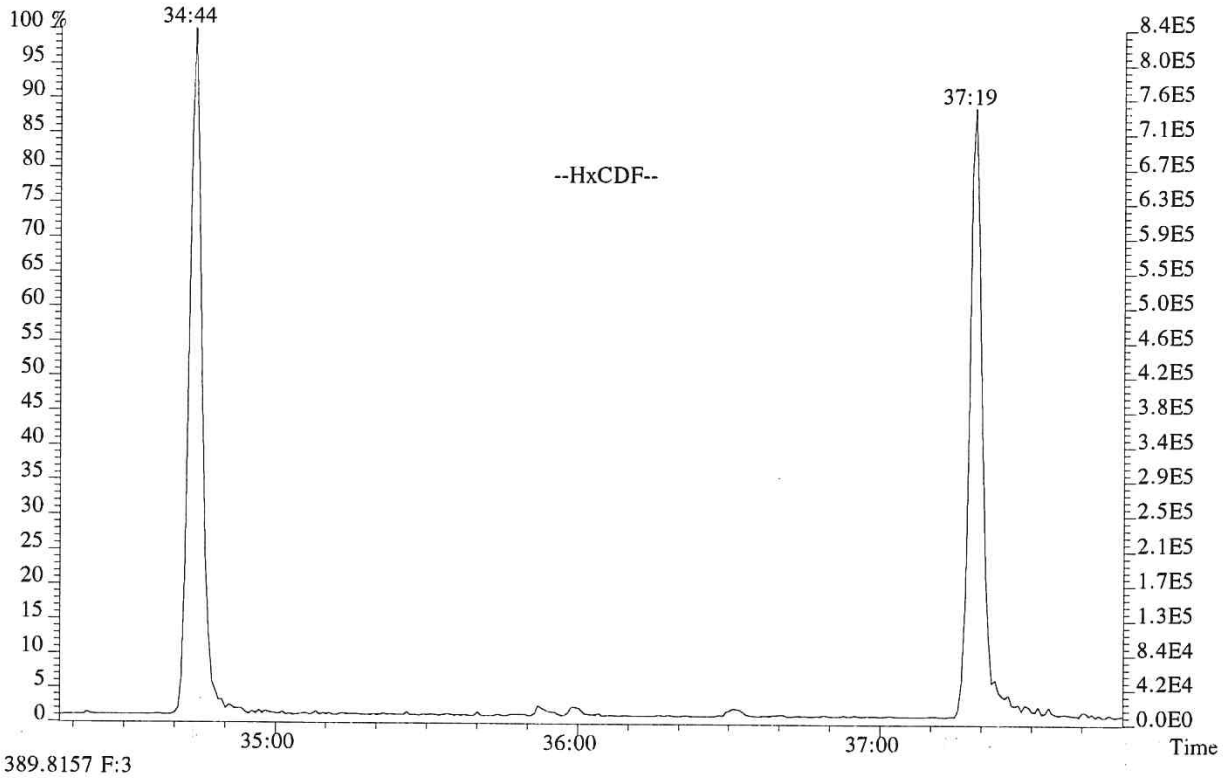


355.8546 F:2

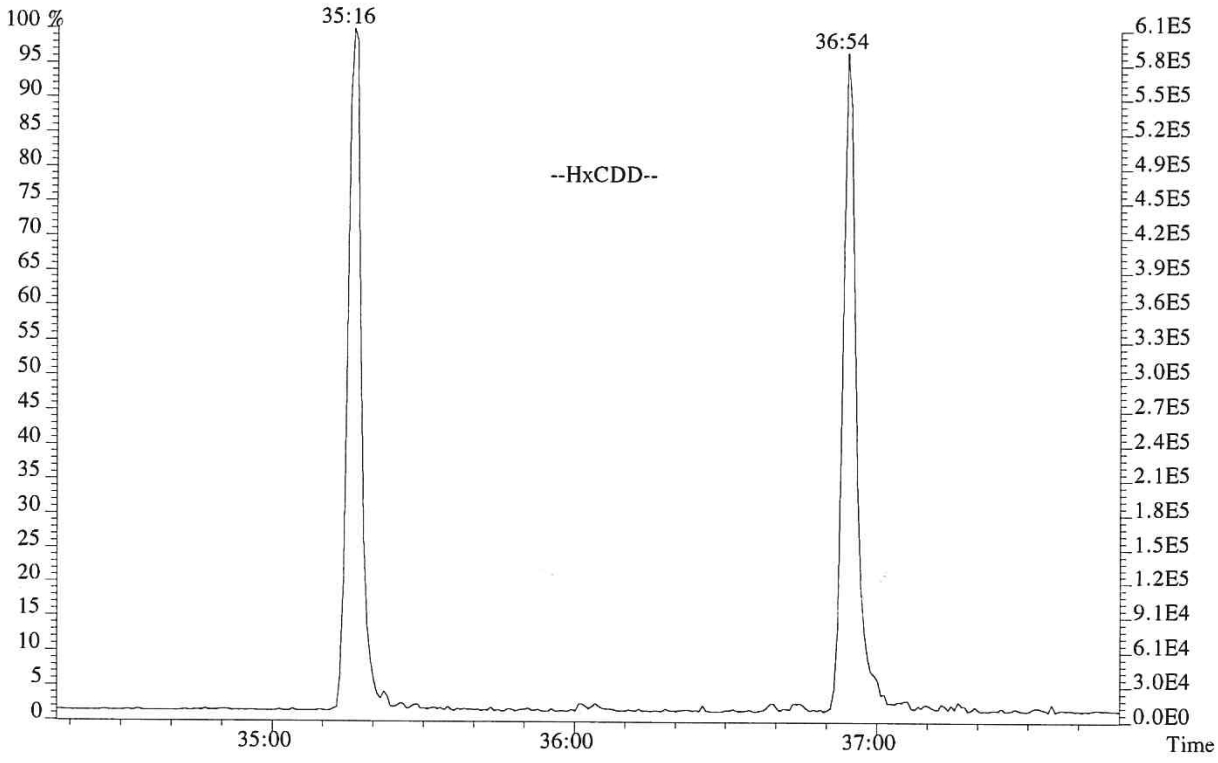


012684

File:P519288 #1-317 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3

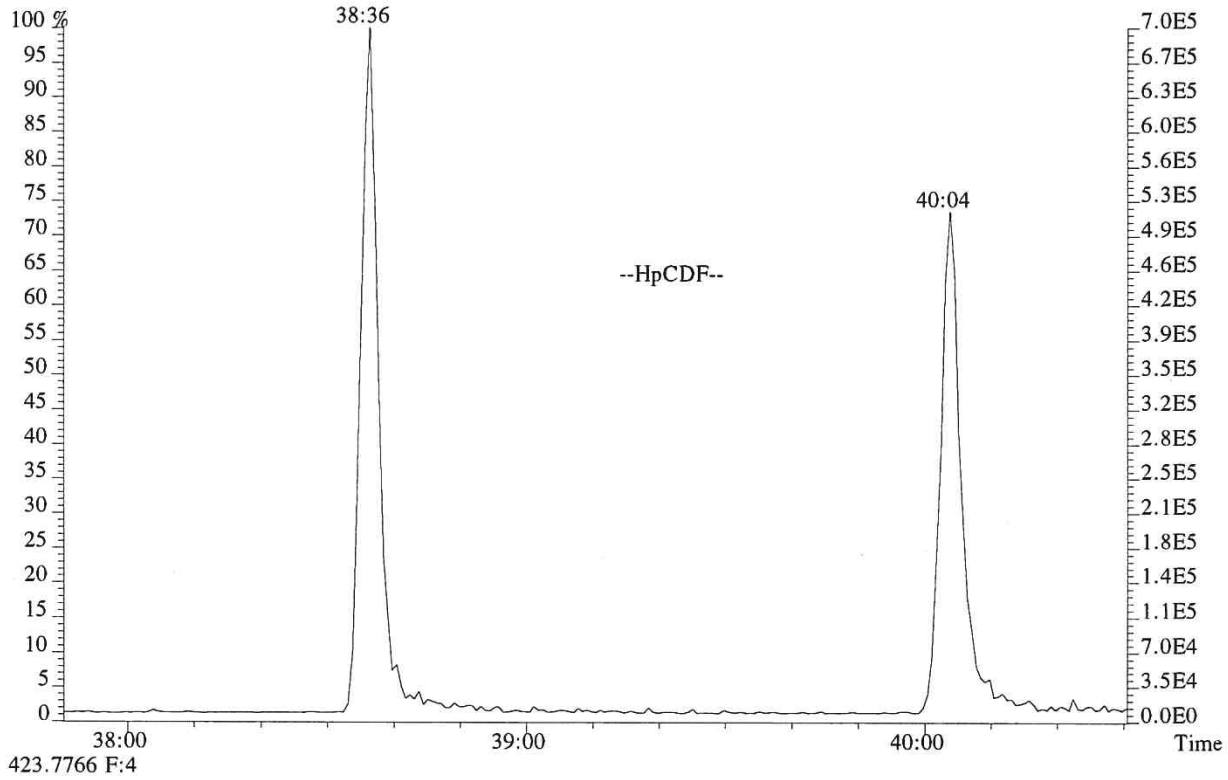


389.8157 F:3

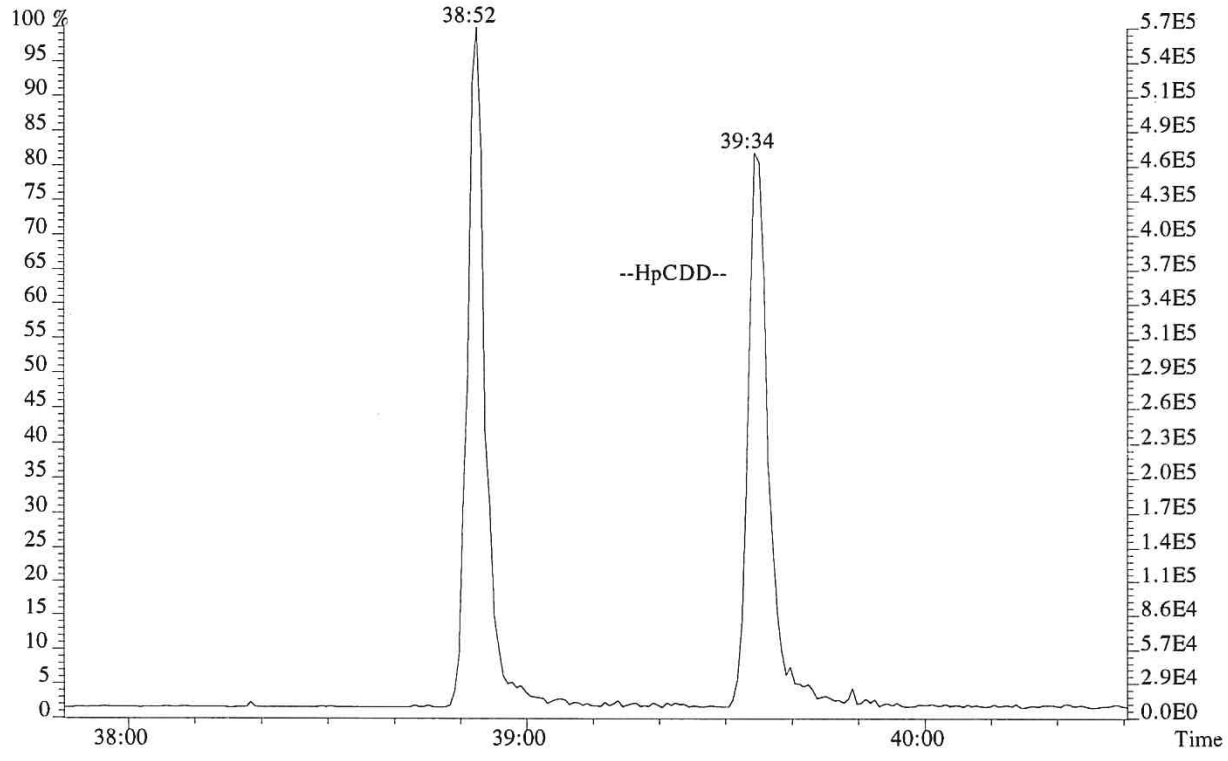


012685

File:P519288 #1-241 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



012686

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.8	7.8 - 12.9	-2.2
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	52	39 - 65	3.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	51	39 - 64	2.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	52	39 - 64	4.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	55	41 - 61	10.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	51	43 - 58	2.2
OCDD	M+2/M+4	0.90	0.76-1.02	102	79 - 126	2.0
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	10.0	8.4 - 12.0	0.5
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	0.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 61	2.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	51	43 - 58	1.9
OCDF	M+2/M+4	0.88	0.76-1.02	101	63 - 159	1.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	104	82 - 121	3.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	117	62 - 160	16.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	94	85 - 117	-5.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	93	85 - 118	-6.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	109	72 - 138	8.6
13C-OCDD	M+2/M+4	0.89	0.76-1.02	260	96 - 415	29.8
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-2.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	115	76 - 130	15.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	116	77 - 130	15.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	76 - 131	-12.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	92	70 - 143	-7.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-0.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-6.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	104	78 - 129	4.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	111	77 - 129	11.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	1.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	3.651e+03	4.952e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	3.206e+04	2.107e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	3.080e+04	1.981e+04	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	2.691e+04	2.245e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	3.028e+04	2.509e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.724e+04	2.254e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	2.554e+04	2.123e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	2.572e+04	2.571e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	2.196e+04	2.194e+04	1.00	yes	no	1.258
0	Unk	OCDF	42:45	3.662e+04	4.163e+04	0.88	yes	no	1.359
1	Unk	2,3,7,8-TCDD	28:41	2.761e+03	3.479e+03	0.79	yes	no	1.085
2	Unk	1,2,3,7,8-PeCDD	33:24	2.121e+04	1.333e+04	1.59	yes	no	0.956
3	Unk	1,2,3,4,7,8-HxCDD	36:39	1.971e+04	1.514e+04	1.30	yes	no	1.038
4	Unk	1,2,3,6,7,8-HxCDD	36:44	2.027e+04	1.584e+04	1.28	yes	no	1.038
5	Unk	1,2,3,7,8,9-HxCDD	36:59	2.150e+04	1.714e+04	1.25	yes	no	1.063
6	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.894e+04	1.774e+04	1.07	yes	no	1.025
7	Unk	OCDD	42:33	3.068e+04	3.415e+04	0.90	yes	no	1.118
8	IS	13C-2,3,7,8-TCDF	27:50	4.040e+04	5.052e+04	0.80	yes	no	1.513
9	IS	13C-1,2,3,7,8-PeCDF	32:10	6.382e+04	4.020e+04	1.59	yes	no	1.471
0	IS	13C-2,3,4,7,8-PeCDF	33:06	6.314e+04	3.999e+04	1.58	yes	no	1.457
1	IS	13C-1,2,3,4,7,8-HxCDF	35:51	2.765e+04	5.368e+04	0.52	yes	no	1.234
2	IS	13C-1,2,3,6,7,8-HxCDF	35:58	3.358e+04	6.345e+04	0.53	yes	no	1.399
3	IS	13C-2,3,4,6,7,8-HxCDF	36:29	3.020e+04	5.826e+04	0.52	yes	no	1.257
4	IS	13C-1,2,3,7,8,9-HxCDF	37:16	2.797e+04	5.320e+04	0.53	yes	no	1.086
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	2.344e+04	5.212e+04	0.45	yes	no	0.966
6	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	2.114e+04	4.735e+04	0.45	yes	no	0.820
7	IS	13C-2,3,7,8-TCDD	28:39	2.623e+04	3.259e+04	0.80	yes	no	0.924
8	IS	13C-1,2,3,7,8-PeCDD	33:24	4.289e+04	2.696e+04	1.59	yes	no	0.975
9	IS	13C-1,2,3,4,7,8-HxCDD	36:38	3.687e+04	2.852e+04	1.29	yes	no	0.925
0	IS	13C-1,2,3,6,7,8-HxCDD	36:43	3.742e+04	2.911e+04	1.29	yes	no	0.949
1	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	3.637e+04	3.368e+04	1.08	yes	no	0.858
2	IS	13C-OCDD	42:33	5.342e+04	6.023e+04	0.89	yes	no	0.582
3	RS/RT	13C-1,2,3,4-TCDD	28:05	2.717e+04	3.412e+04	0.80	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	4.200e+04	3.318e+04	1.27	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:40	6.279e+03				no	1.014

LS ENVIRONMENTAL
0450 Stancliff Rd, Suite 115
ouston, TX 77099
ffice(713)266-1599. Fax(713)266-0130

ww.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	6.34e+05	5.32e+02	1.2e+03	8.78e+05	1.42e+03	6.2e+02
	1,2,3,7,8-PeCDF	5.87e+06	4.76e+02	1.2e+04	3.87e+06	1.20e+03	3.2e+03
	2,3,4,7,8-PeCDF	6.08e+06	4.76e+02	1.3e+04	3.82e+06	1.20e+03	3.2e+03
	1,2,3,4,7,8-HxCDF	5.87e+06	7.00e+02	8.4e+03	4.99e+06	6.00e+02	8.3e+03
	1,2,3,6,7,8-HxCDF	6.14e+06	7.00e+02	8.8e+03	5.11e+06	6.00e+02	8.5e+03
	2,3,4,6,7,8-HxCDF	5.95e+06	7.00e+02	8.5e+03	4.93e+06	6.00e+02	8.2e+03
	1,2,3,7,8,9-HxCDF	4.77e+06	7.00e+02	6.8e+03	3.97e+06	6.00e+02	6.6e+03
	1,2,3,4,6,7,8-HpCDF	5.16e+06	2.04e+02	2.5e+04	5.11e+06	1.60e+02	3.2e+04
	1,2,3,4,7,8,9-HpCDF	3.49e+06	2.04e+02	1.7e+04	3.55e+06	1.60e+02	2.2e+04
0	OCDF	4.67e+06	2.52e+02	1.9e+04	5.34e+06	1.02e+03	5.2e+03
1	2,3,7,8-TCDD	5.32e+05	2.04e+03	2.6e+02	6.56e+05	1.17e+03	5.6e+02
2	1,2,3,7,8-PeCDD	4.13e+06	7.76e+02	5.3e+03	2.61e+06	2.92e+02	8.9e+03
3	1,2,3,4,7,8-HxCDD	4.25e+06	3.72e+02	1.1e+04	3.20e+06	6.84e+02	4.7e+03
4	1,2,3,6,7,8-HxCDD	3.99e+06	3.72e+02	1.1e+04	3.10e+06	6.84e+02	4.5e+03
5	1,2,3,7,8,9-HxCDD	4.16e+06	3.72e+02	1.1e+04	3.22e+06	6.84e+02	4.7e+03
6	1,2,3,4,6,7,8-HpCDD	3.45e+06	4.48e+02	7.7e+03	3.25e+06	4.96e+02	6.6e+03
7	OCDD	3.99e+06	2.52e+02	1.6e+04	4.42e+06	3.00e+02	1.5e+04
8	13C-2,3,7,8-TCDF	7.22e+06	6.64e+03	1.1e+03	9.07e+06	6.70e+03	1.4e+03
9	13C-1,2,3,7,8-PeCDF	1.17e+07	8.12e+02	1.4e+04	7.35e+06	5.40e+02	1.4e+04
0	13C-2,3,4,7,8-PeCDF	1.23e+07	8.12e+02	1.5e+04	7.92e+06	5.40e+02	1.5e+04
1	13C-1,2,3,4,7,8-HxCDF	6.00e+06	9.16e+02	6.6e+03	1.18e+07	8.96e+02	1.3e+04
2	13C-1,2,3,6,7,8-HxCDF	6.90e+06	9.16e+02	7.5e+03	1.30e+07	8.96e+02	1.5e+04
3	13C-2,3,4,6,7,8-HxCDF	6.46e+06	9.16e+02	7.1e+03	1.24e+07	8.96e+02	1.4e+04
4	13C-1,2,3,7,8,9-HxCDF	5.21e+06	9.16e+02	5.7e+03	9.73e+06	8.96e+02	1.1e+04
5	13C-1,2,3,4,6,7,8-HpCDF	4.61e+06	2.22e+03	2.1e+03	1.02e+07	1.12e+03	9.2e+03
6	13C-1,2,3,4,7,8,9-HpCDF	3.39e+06	2.22e+03	1.5e+03	7.57e+06	1.12e+03	6.8e+03
7	13C-2,3,7,8-TCDD	4.99e+06	4.20e+03	1.2e+03	6.26e+06	1.75e+03	3.6e+03
8	13C-1,2,3,7,8-PeCDD	8.63e+06	1.40e+03	6.2e+03	5.45e+06	1.18e+03	4.6e+03
9	13C-1,2,3,4,7,8-HxCDD	7.82e+06	7.08e+02	1.1e+04	5.99e+06	7.16e+02	8.4e+03
0	13C-1,2,3,6,7,8-HxCDD	7.35e+06	7.08e+02	1.0e+04	5.72e+06	7.16e+02	8.0e+03
1	13C-1,2,3,4,6,7,8-HpCDD	6.49e+06	6.00e+02	1.1e+04	6.06e+06	5.16e+02	1.2e+04
2	13C-OCDD	6.87e+06	4.92e+02	1.4e+04	7.75e+06	2.76e+02	2.8e+04
3	13C-1,2,3,4-TCDD	5.19e+06	4.20e+03	1.2e+03	6.52e+06	1.75e+03	3.7e+03
4	13C-1,2,3,7,8,9-HxCDD	7.95e+06	7.08e+02	1.1e+04	6.19e+06	7.16e+02	8.6e+03
5	37Cl-2,3,7,8-TCDD	1.17e+06	1.10e+03	1.1e+03			

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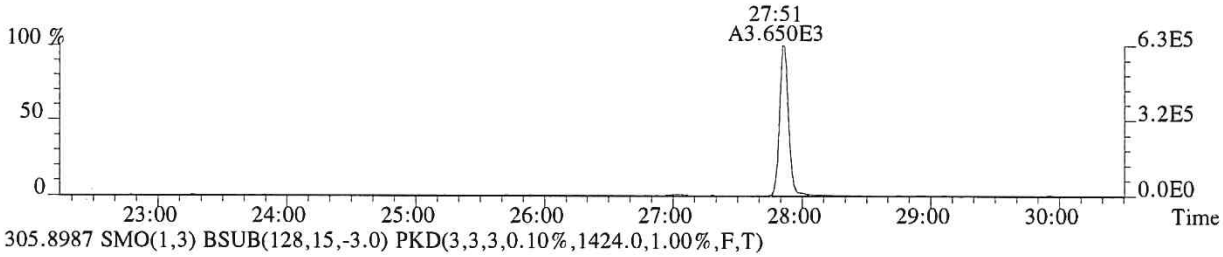
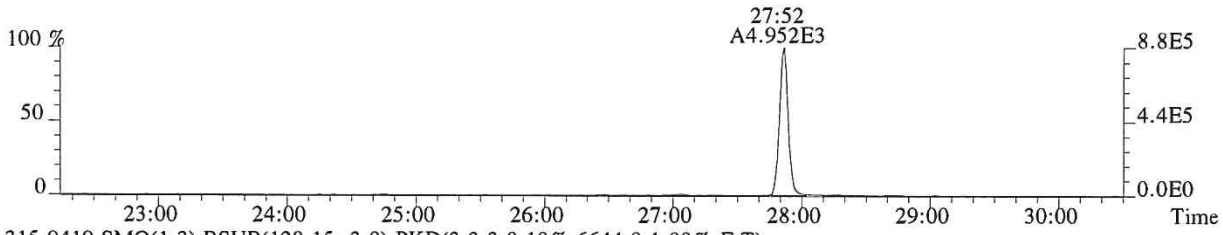
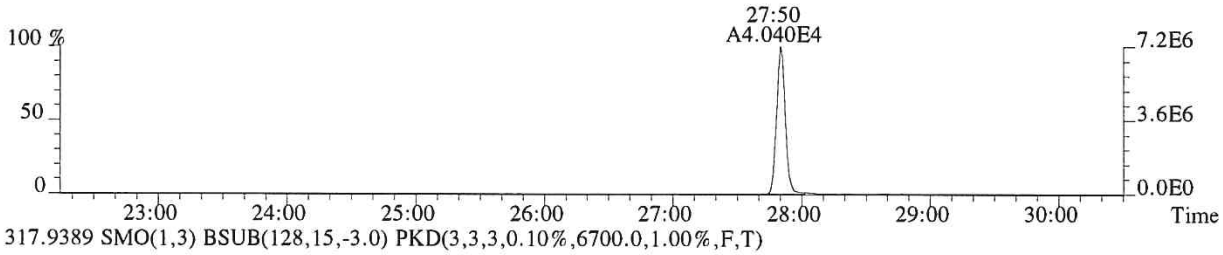
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



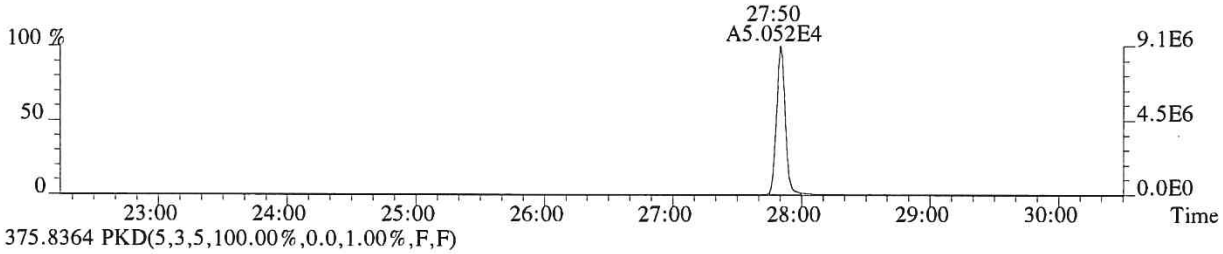
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



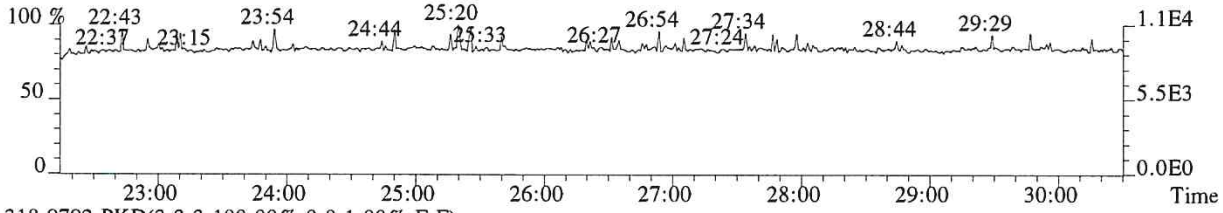
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



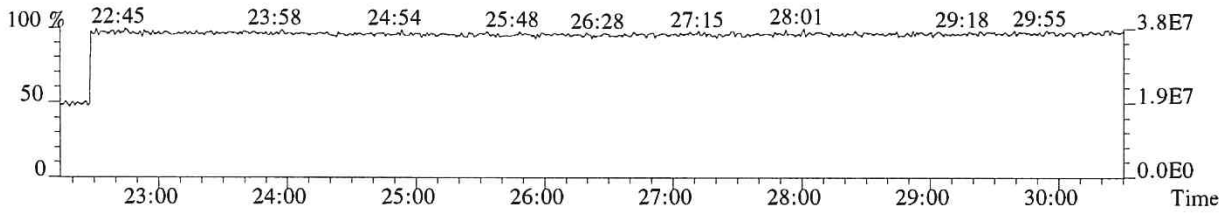
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6700.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

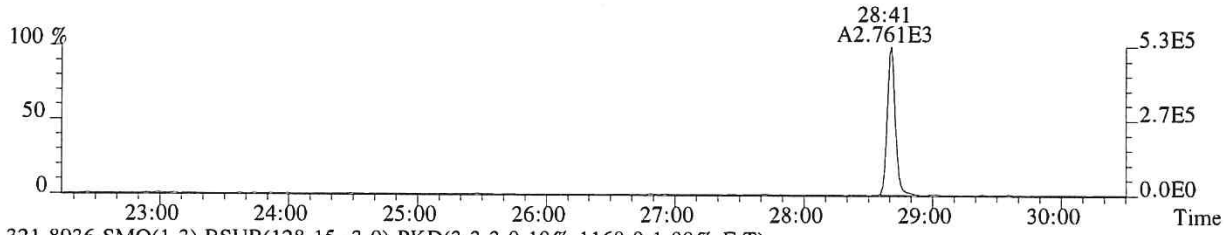


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

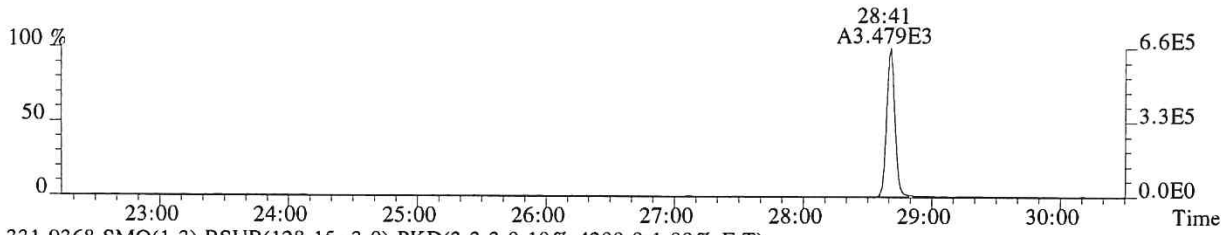


012691

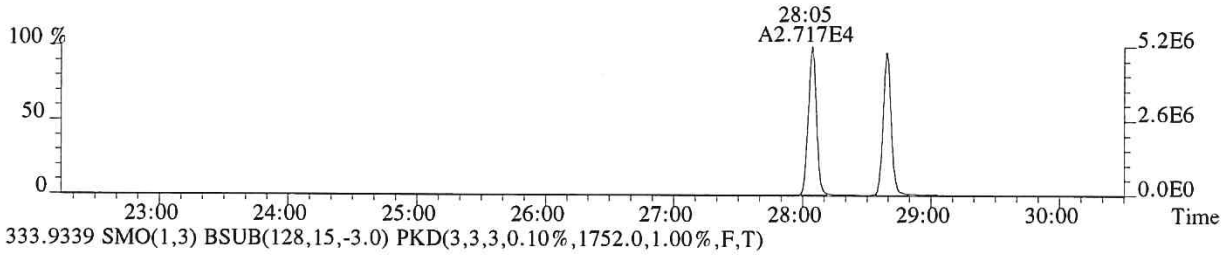
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2044.0,1.00%,F,T)



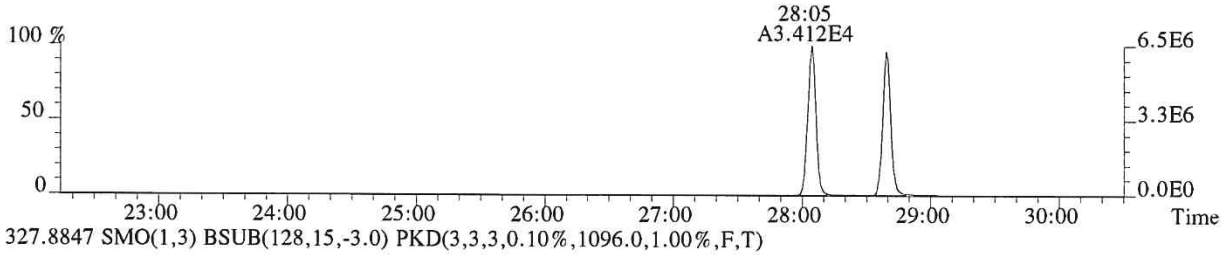
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



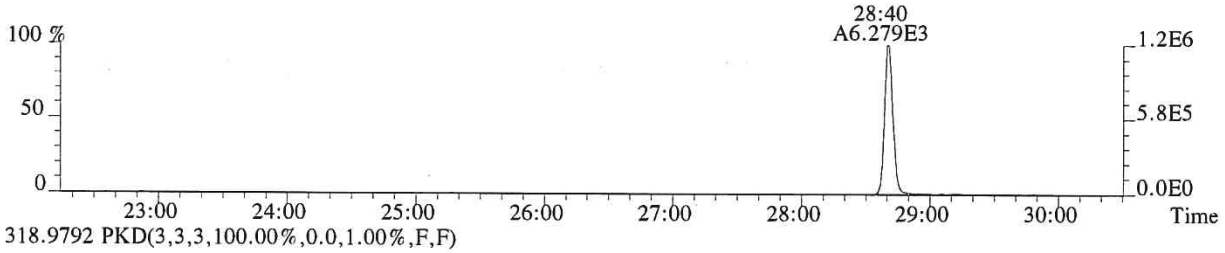
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4200.0,1.00%,F,T)



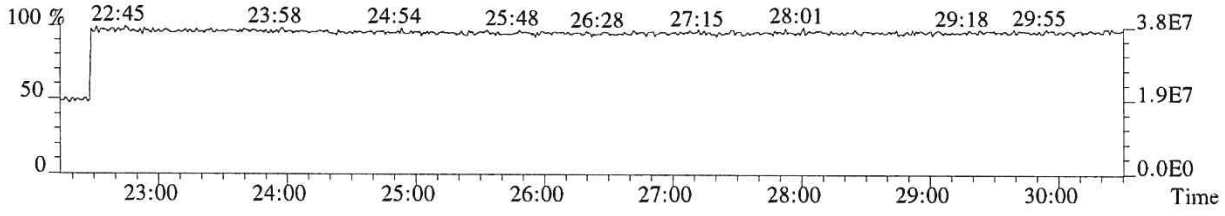
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)

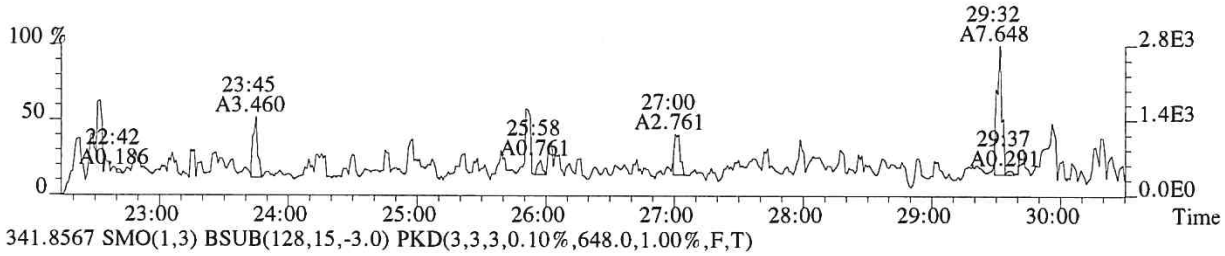


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

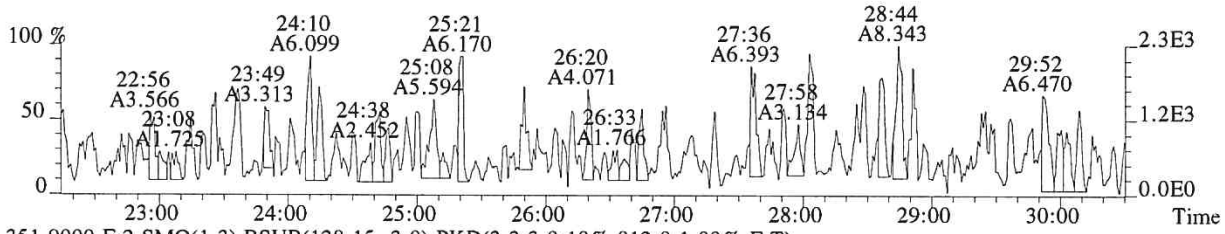


012692

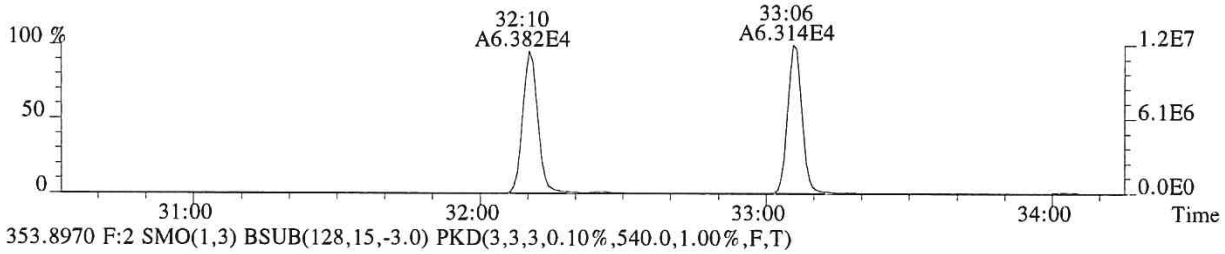
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



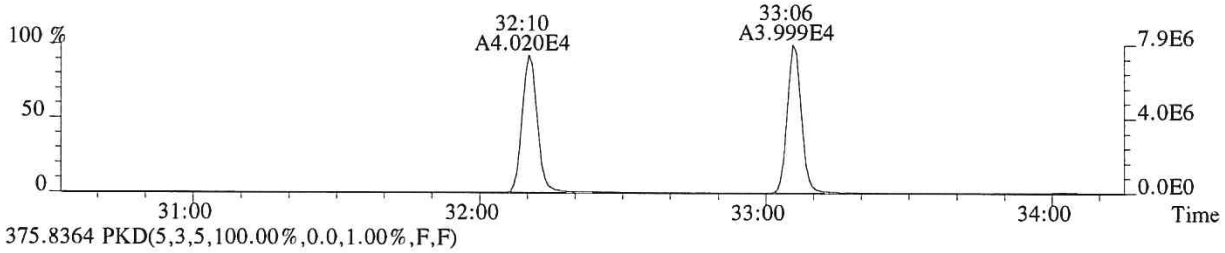
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



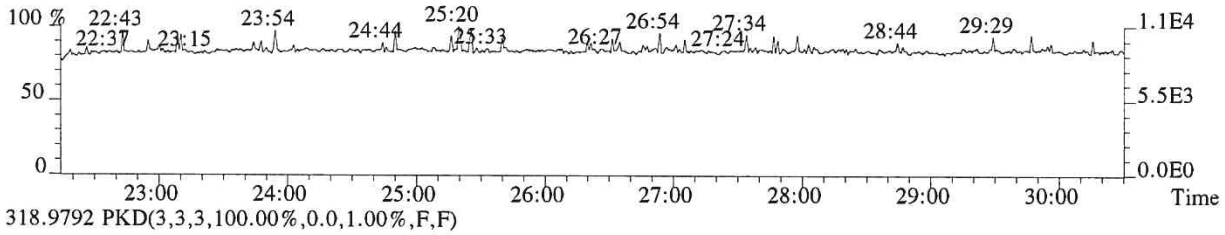
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



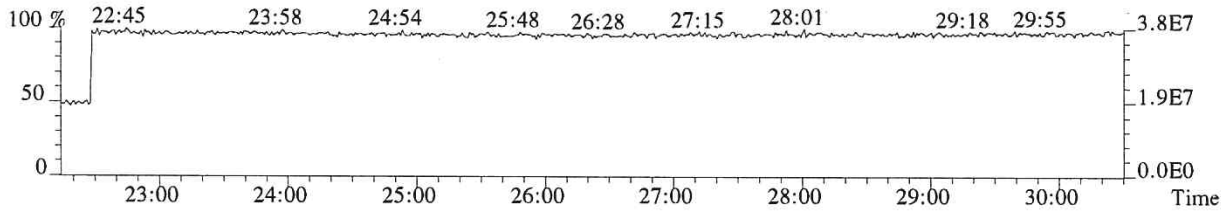
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

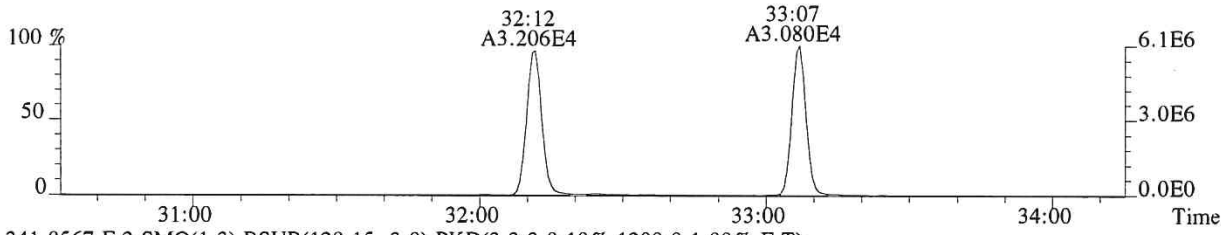


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

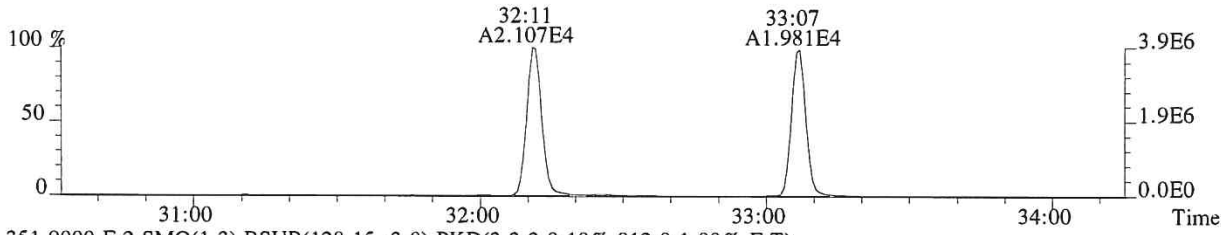


012693

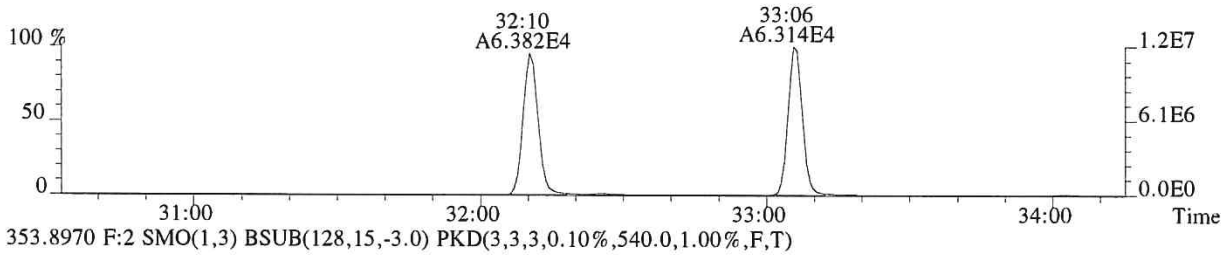
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



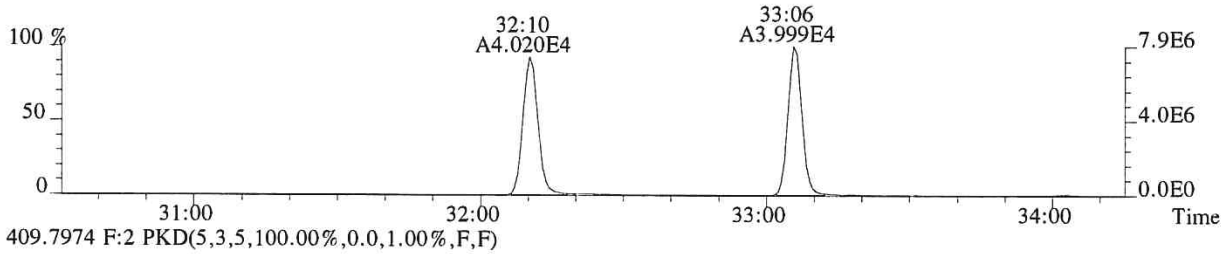
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



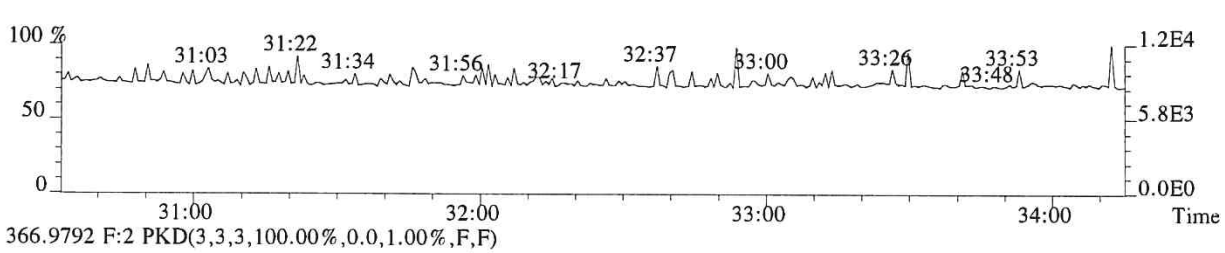
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



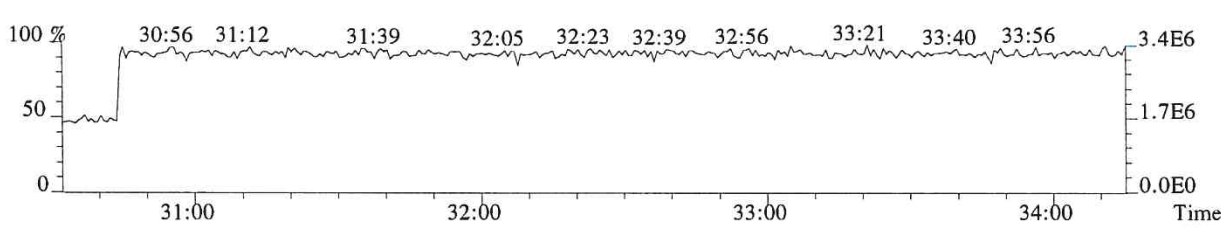
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

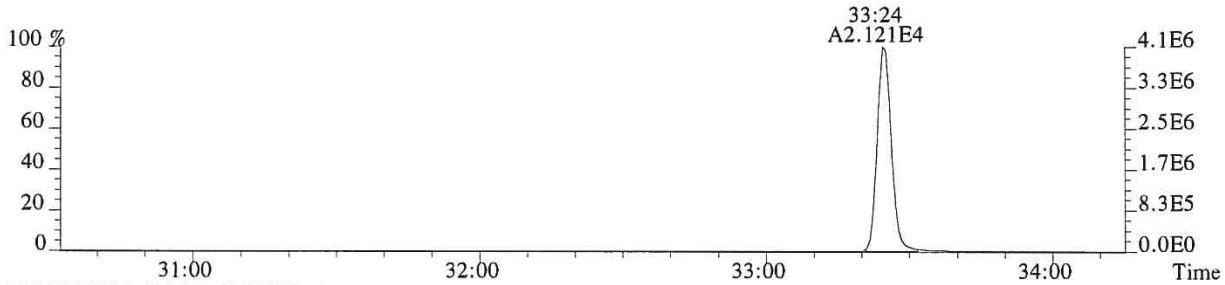


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

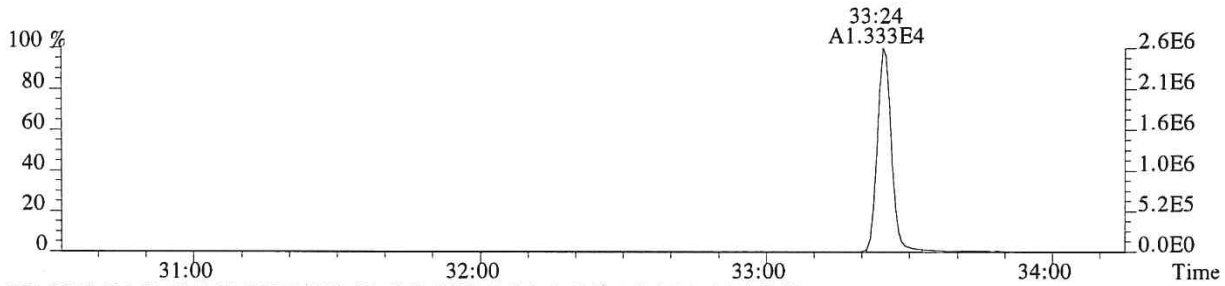


012694

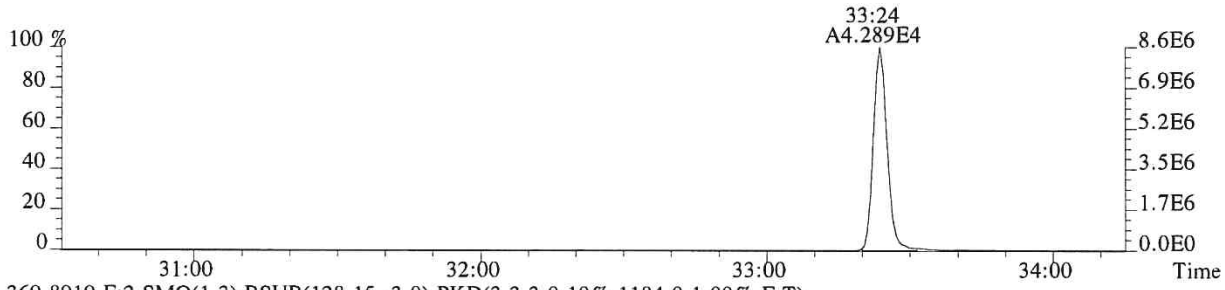
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



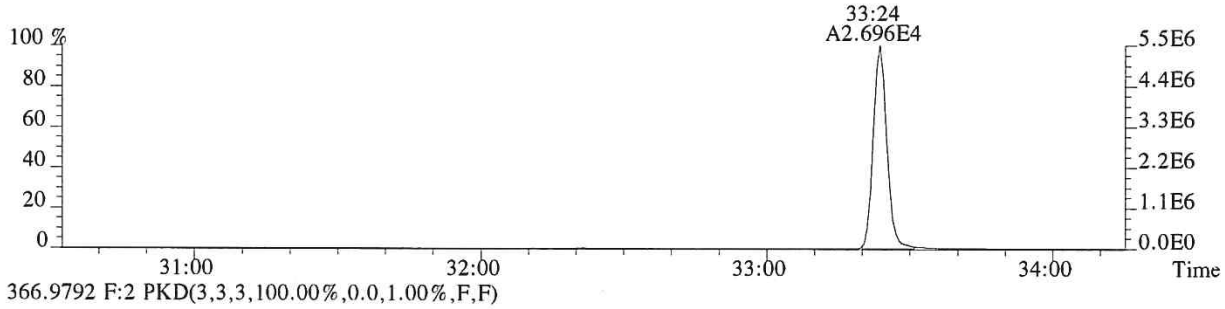
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



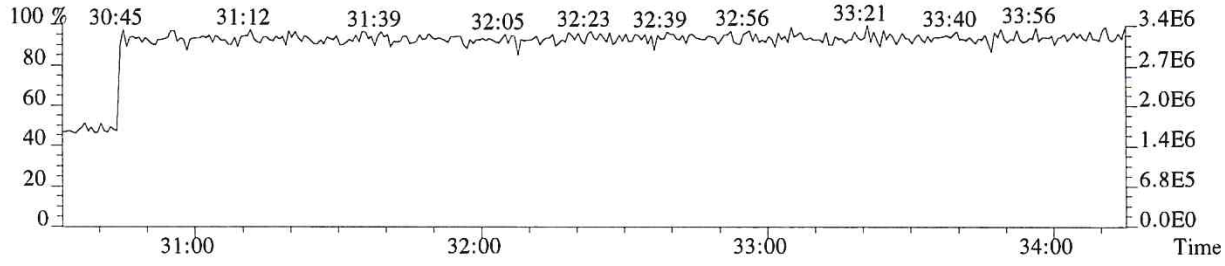
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)

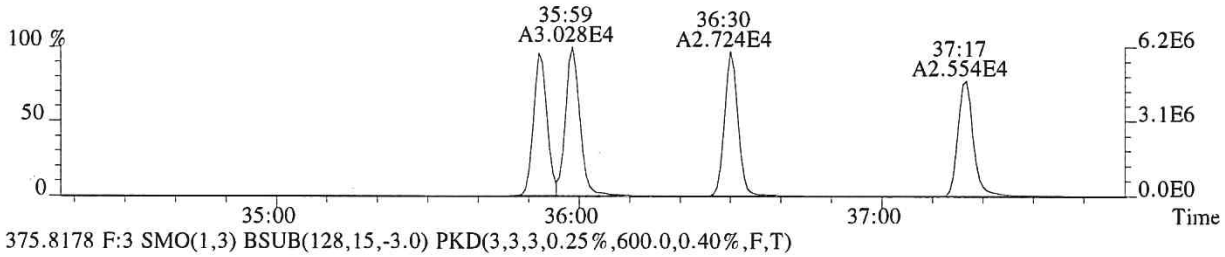


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

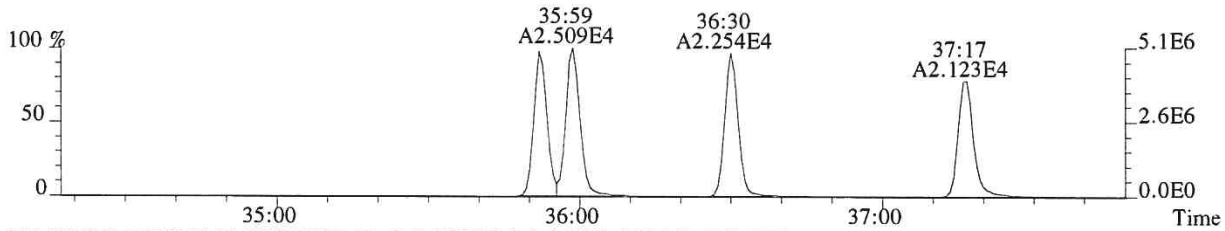


012695

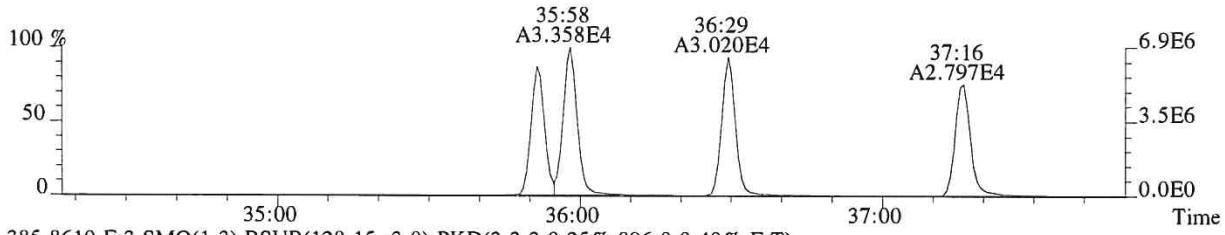
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



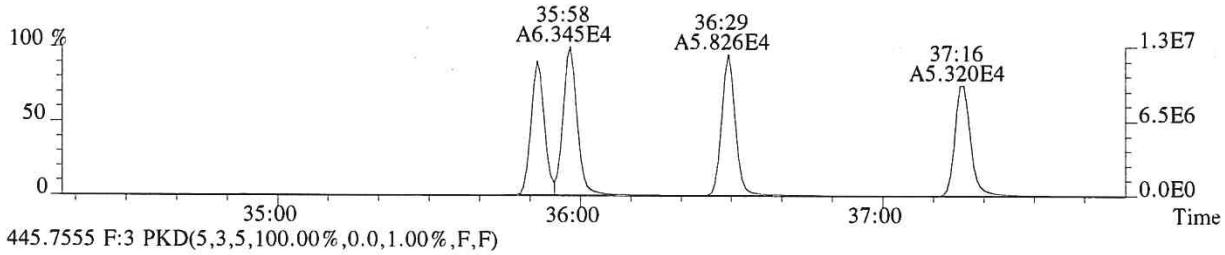
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



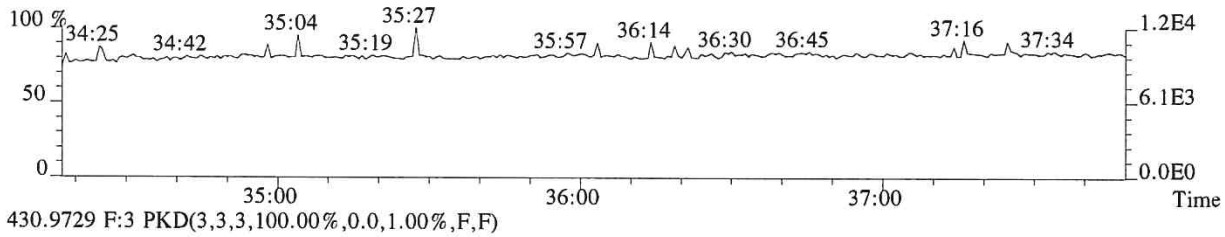
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



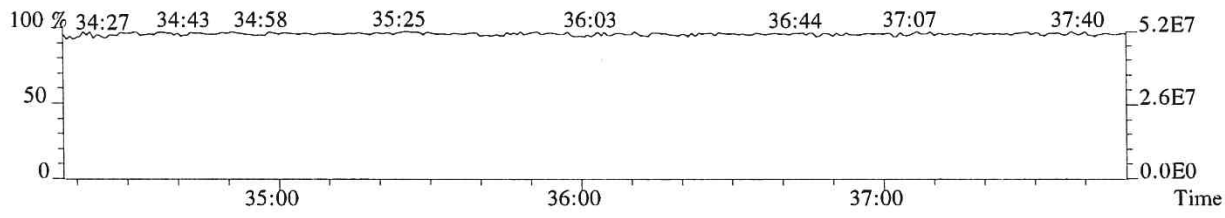
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

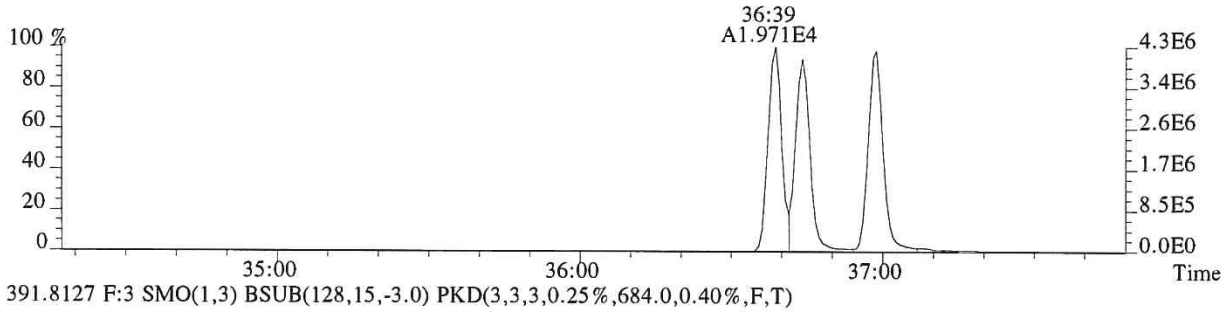


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

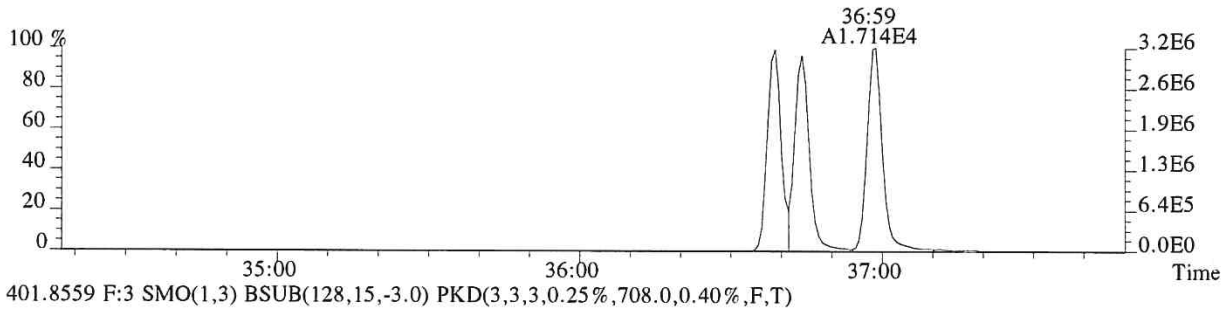


012696

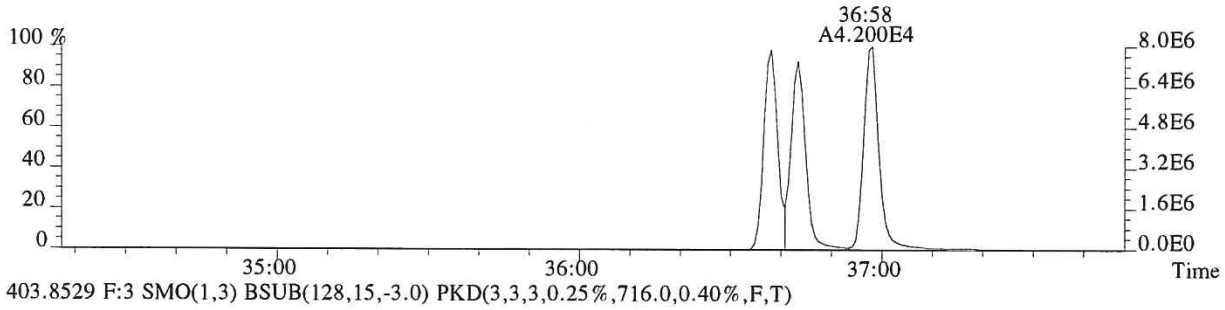
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



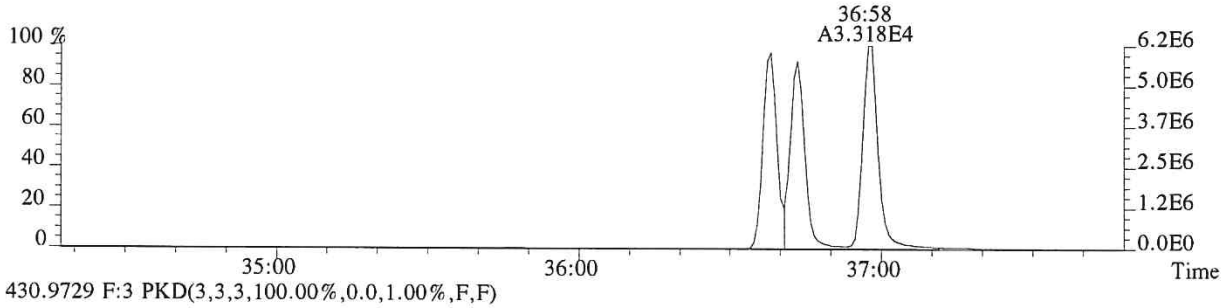
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



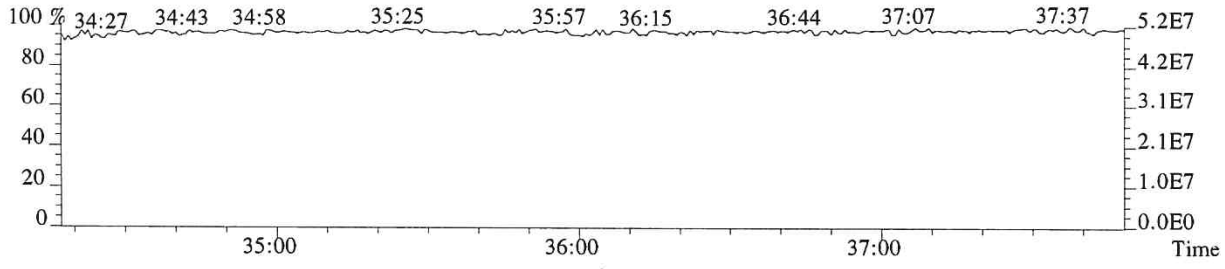
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)

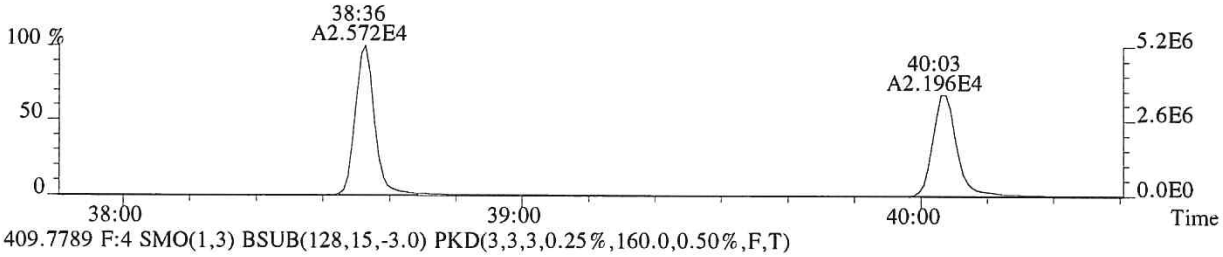


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

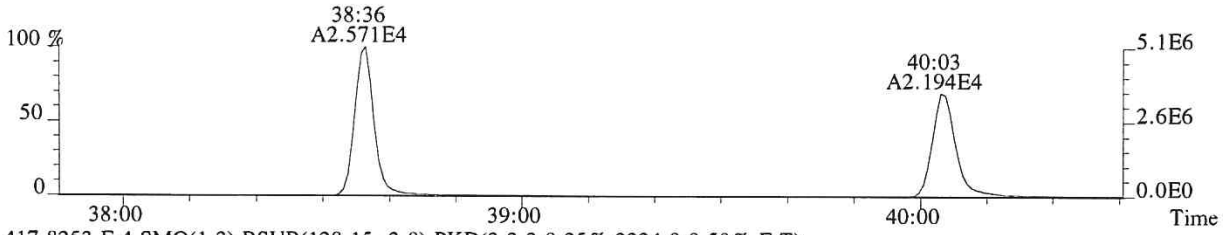


012697

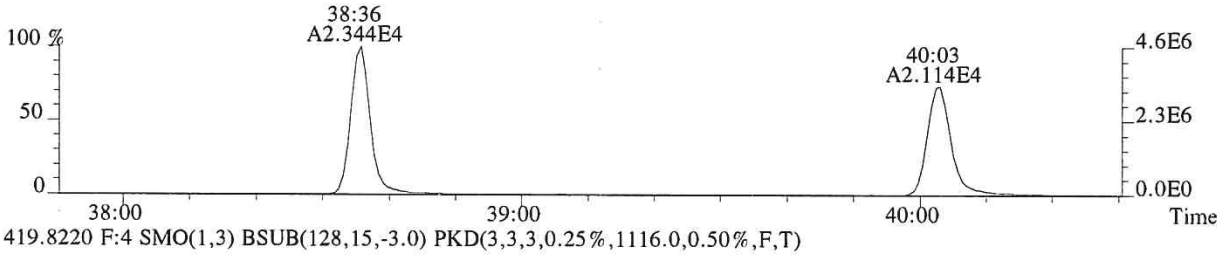
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.50%,F,T)



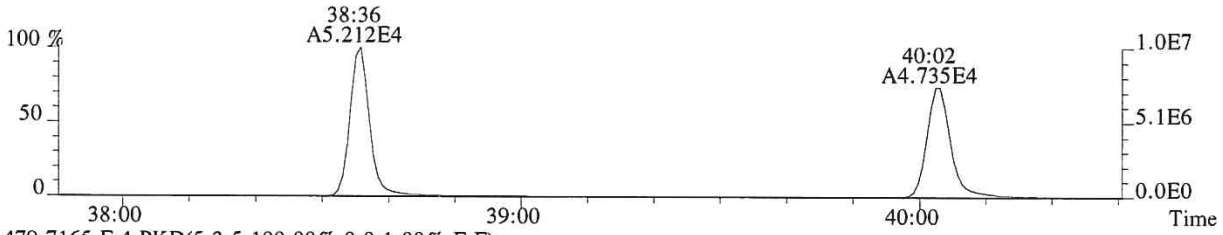
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.50%,F,T)



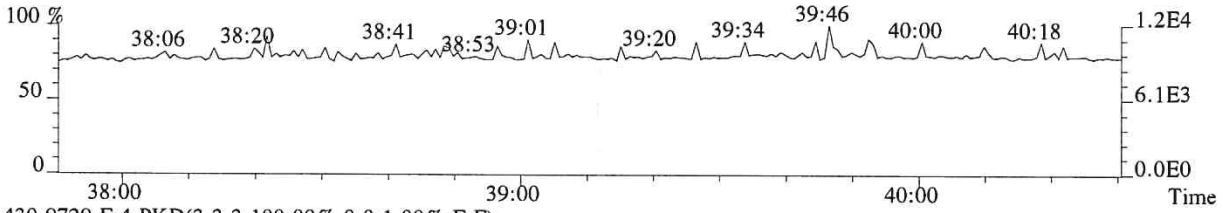
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.50%,F,T)



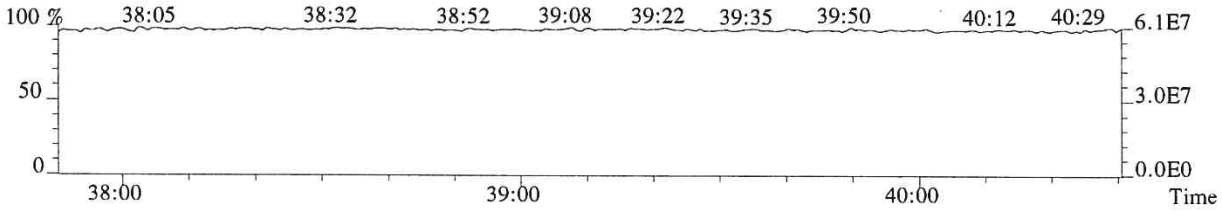
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

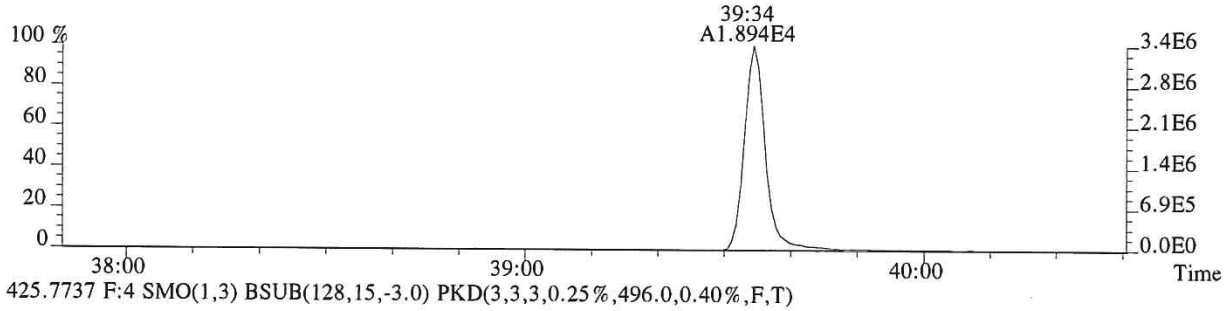


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

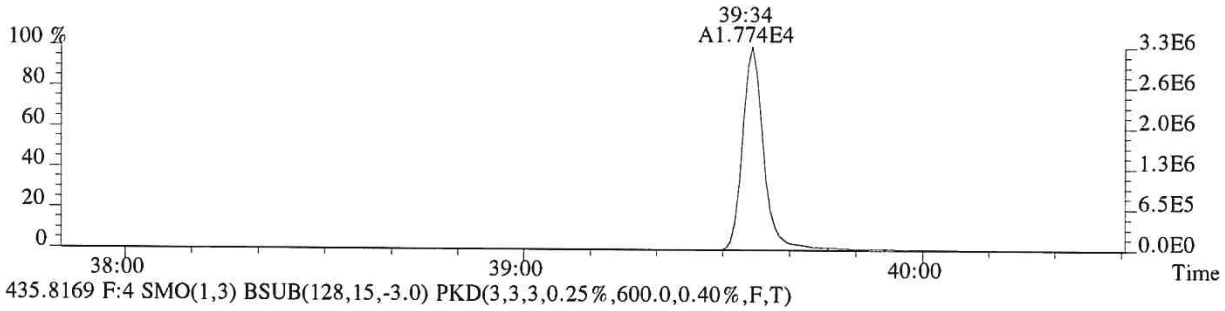


012698

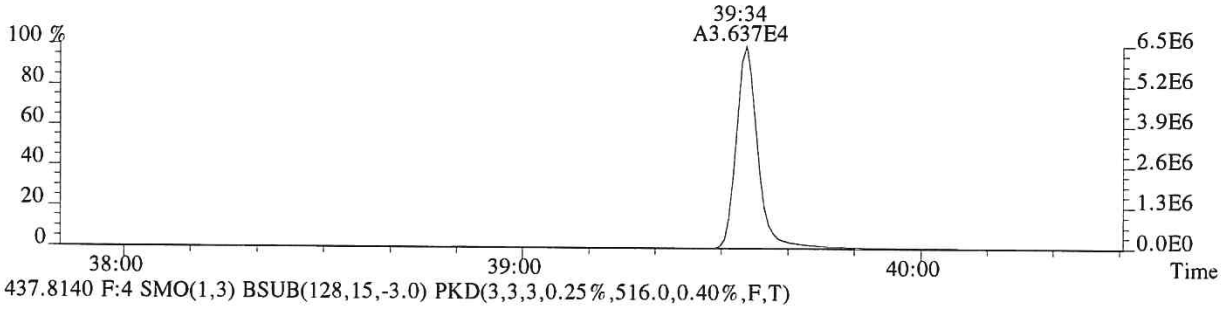
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



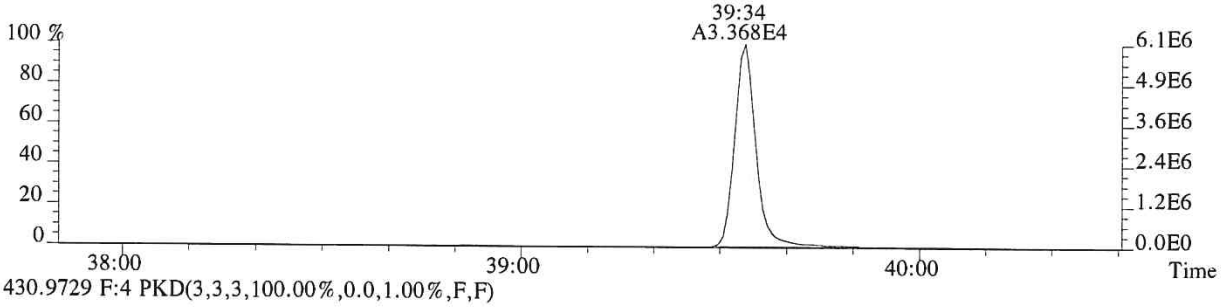
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



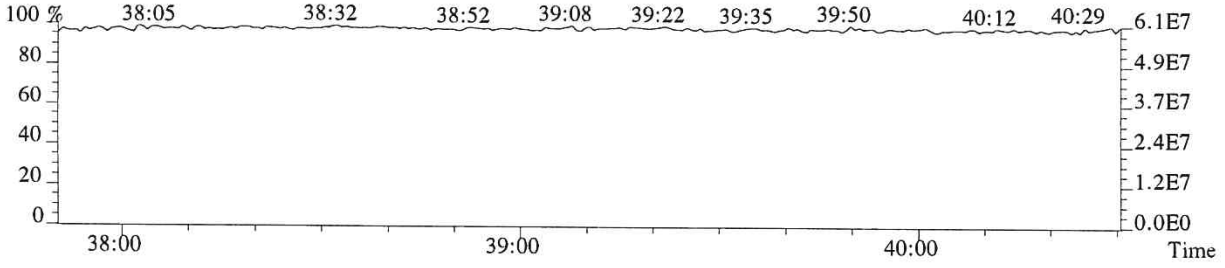
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)

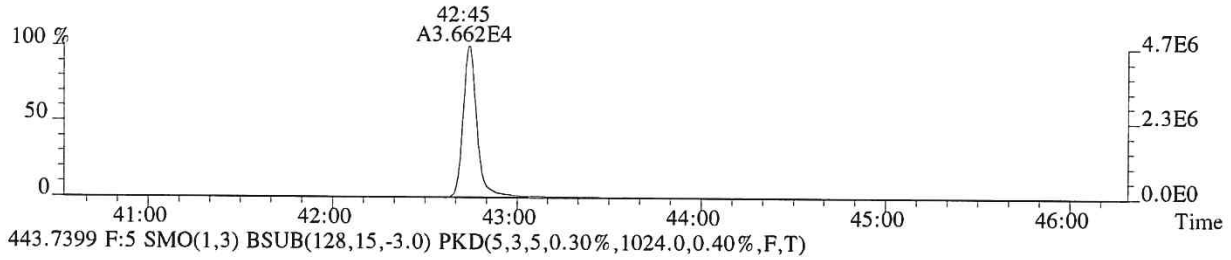


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

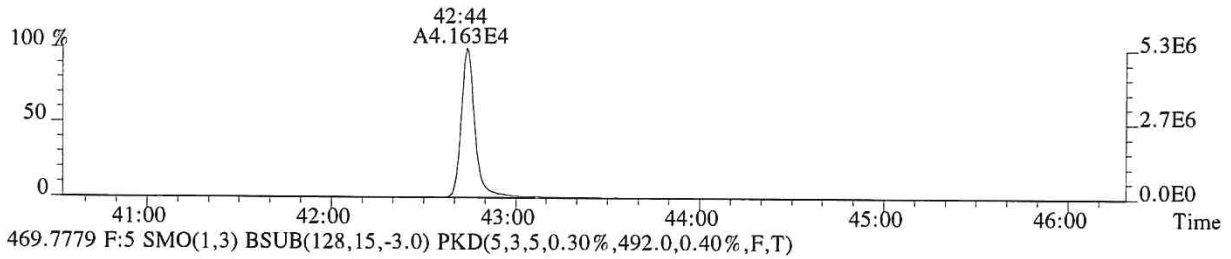


012699

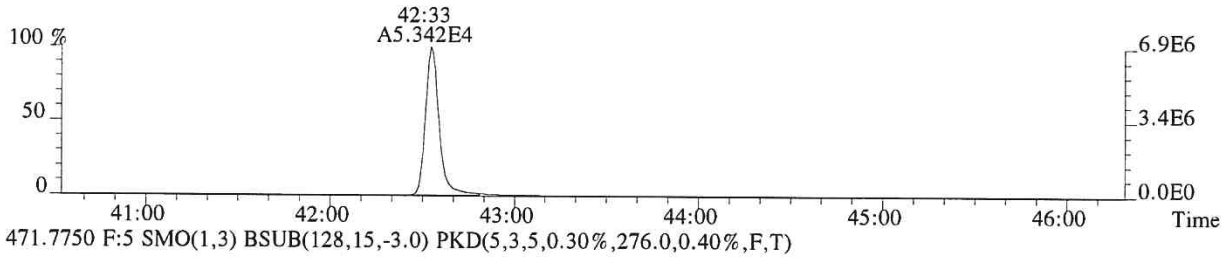
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



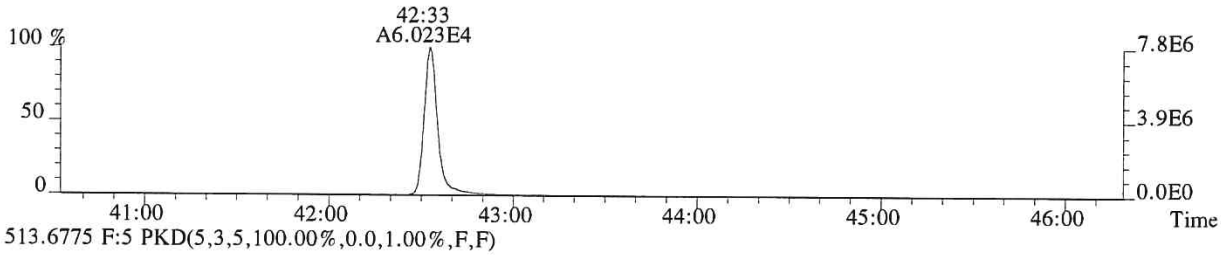
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



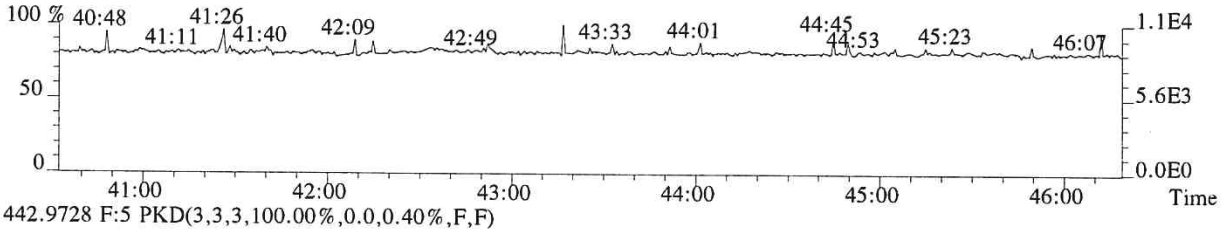
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



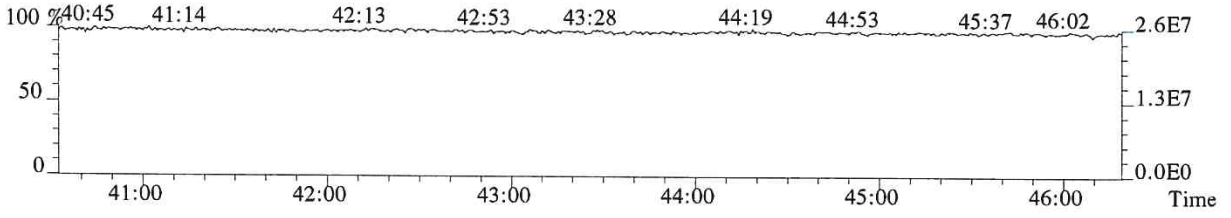
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

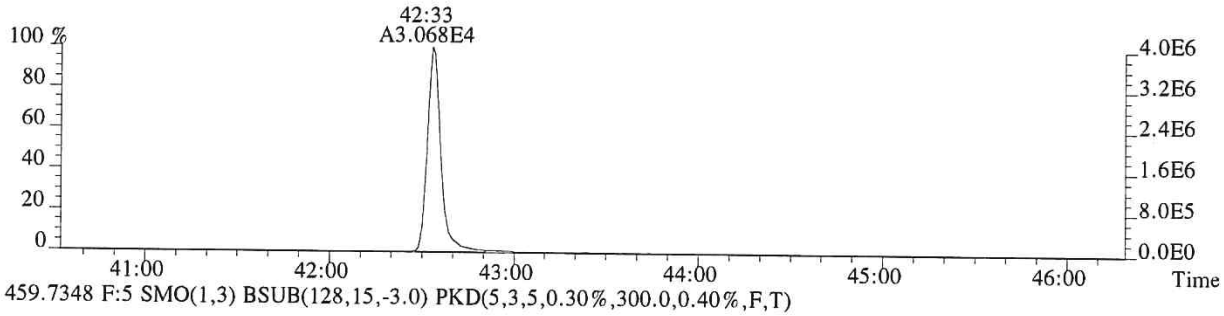


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

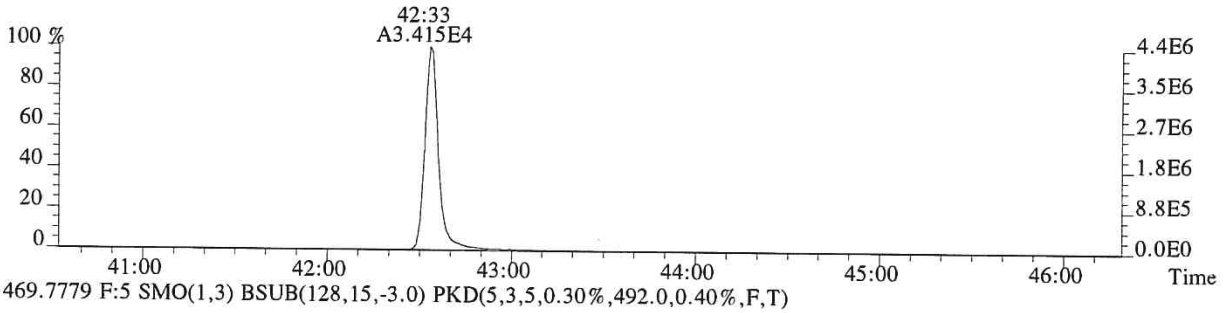


012700

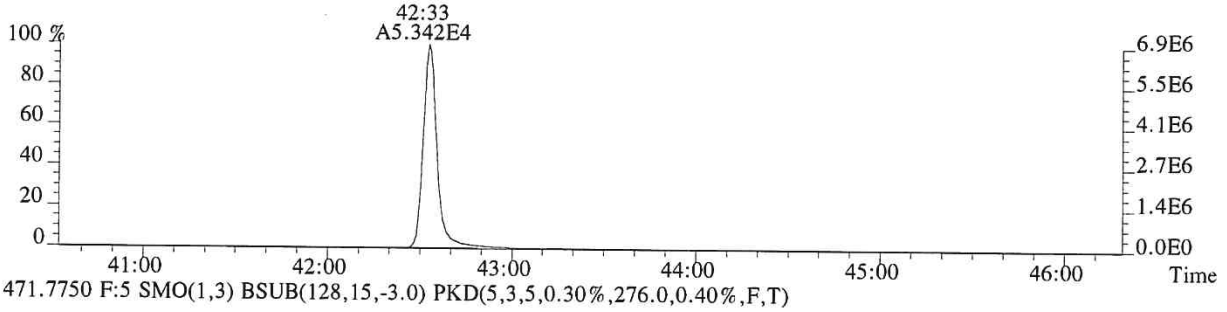
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



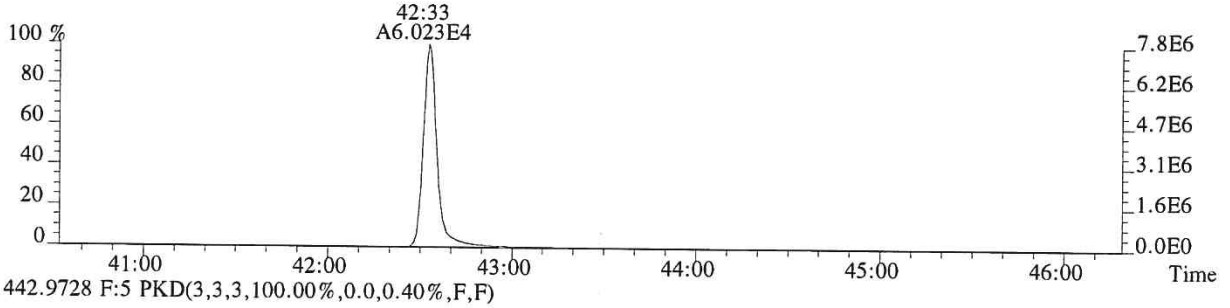
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



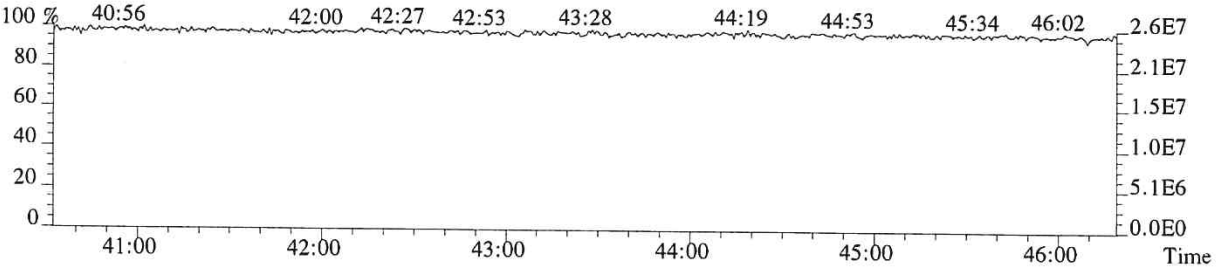
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012701

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519319

Date: 12/10/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519319	10-DEC-18	08:43:37
192977	WINDOW DEFINE	P519320	10-DEC-18	09:34:53
METHOD BLANK	EQ1800469-01	P519321	10-DEC-18	10:24:28
METHOD BLANK	EQ1800496-01	P519322	10-DEC-18	11:12:15
SL0175	E1801056-023DL	P519323	10-DEC-18	12:00:55
SL0221	E1801056-057DL	P519324	10-DEC-18	12:49:32
SL0227	E1801056-063DL	P519325	10-DEC-18	13:38:17
SL0249	E1801058-017DL	P519326	10-DEC-18	14:27:45
SL0250	E1801058-018DL	P519327	10-DEC-18	15:16:55
SL0553	E1801057-001DL	P519328	10-DEC-18	16:05:14
SL0556	E1801057-004DL	P519329	10-DEC-18	16:53:18
SL0559	E1801057-007DL	P519330	10-DEC-18	17:41:56
SL0560	E1801057-008DL	P519331	10-DEC-18	18:30:33
LCS	EQ1800498-02	P519332	10-DEC-18	19:19:11
DLCS	EQ1800498-03	P519333	10-DEC-18	20:07:48

E1801056

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181210A.SPL
Last Modified: Tuesday, December 11, 2018 06:34:31 Central Standard Time
Printed: Tuesday, December 11, 2018 06:34:33 Central Standard Time

Page Position (1, 1)

OPUS 4: P519319res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/10/18	08:43	P519319	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 08:39
2		09:34	P519320	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		10:24	P519321	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		11:12	P519322	MB	EQ1800496-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:00	P519323	E1801056-023DL	E1801056-023DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		12:49	P519324	E1801056-057DL	E1801056-057DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		13:38	P519325	E1801056-063DL	E1801056-063DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		14:27	P519326	E1801058-017DL	E1801058-017DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		15:16	P519327	E1801058-018DL	E1801058-018DL	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:05	P519328	E1801057-001DL	E1801057-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		16:53	P519329	E1801057-004DL	E1801057-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		17:41	P519330	E1801057-007DL	E1801057-007DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		18:30	P519331	E1801057-008DL	E1801057-008DL	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		19:19	P519332	LCS	EQ1800498-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		20:07	P519333	DLCS	EQ1800498-03	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		21:04	P519334	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 21:04
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

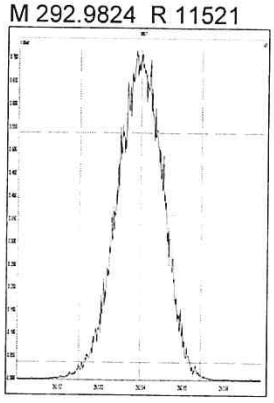
JC 12/11/18

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

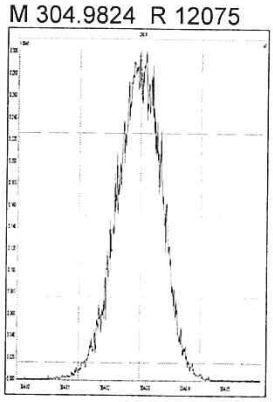
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:39:35 Central Standard Time

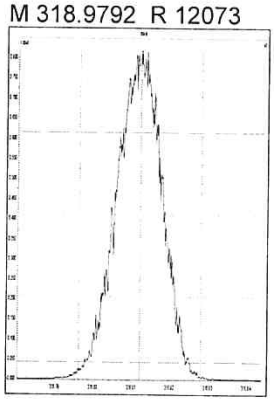
M 292.9824 R 11521



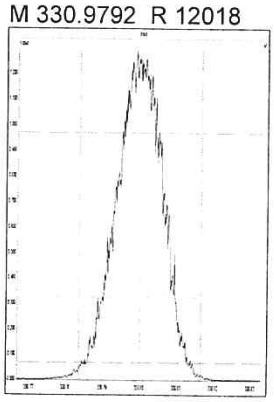
M 304.9824 R 12075



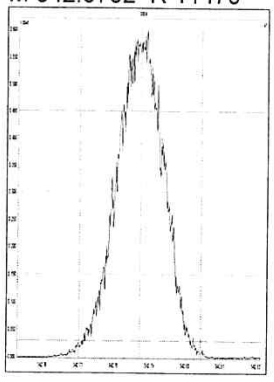
M 318.9792 R 12073



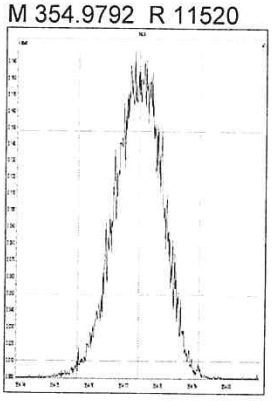
M 330.9792 R 12018



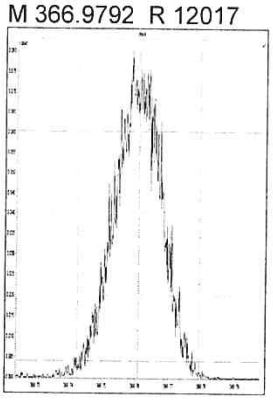
M 342.9792 R 11470



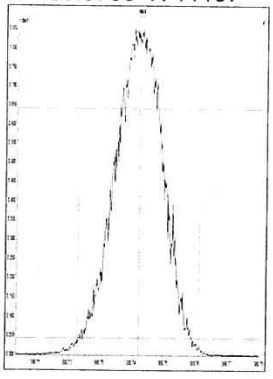
M 354.9792 R 11520



M 366.9792 R 12017



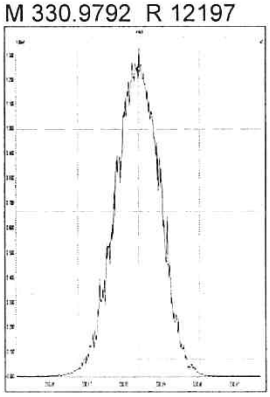
M 380.9760 R 11157



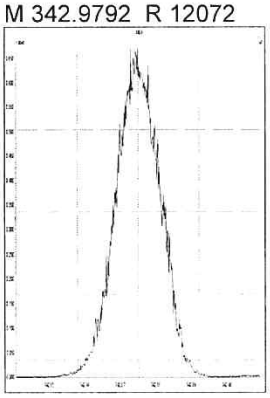
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:40:10 Central Standard Time

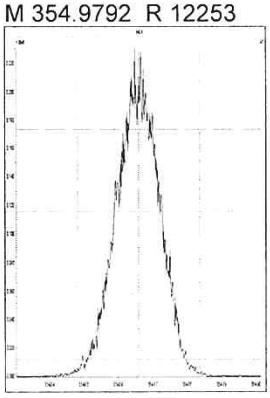
M 330.9792 R 12197



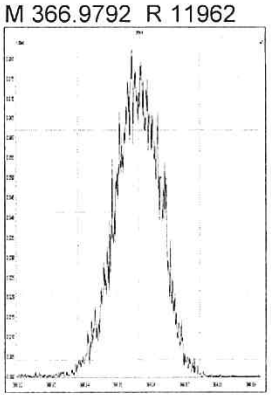
M 342.9792 R 12072



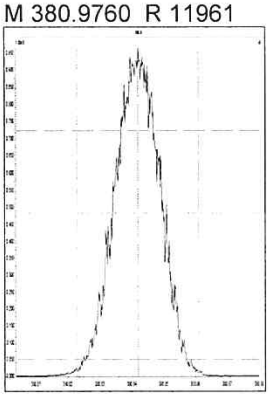
M 354.9792 R 12253



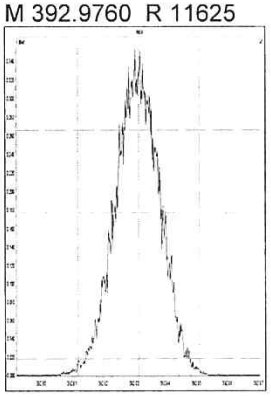
M 366.9792 R 11962



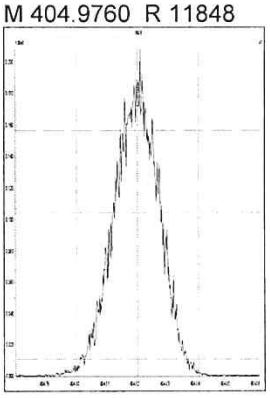
M 380.9760 R 11961



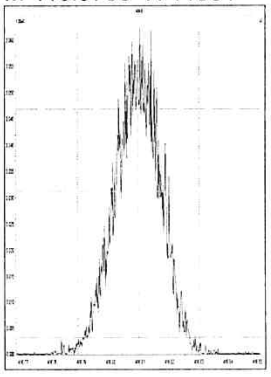
M 392.9760 R 11625



M 404.9760 R 11848



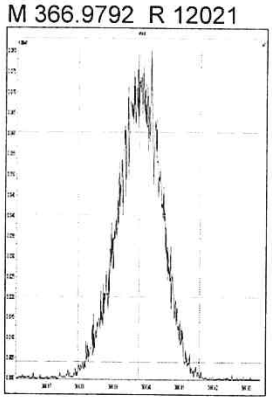
M 416.9760 R 11361



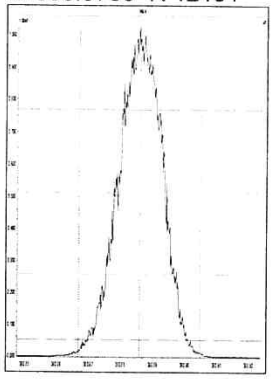
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:41:10 Central Standard Time

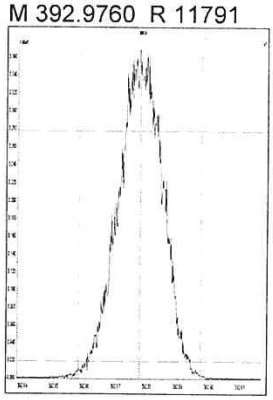
M 366.9792 R 12021



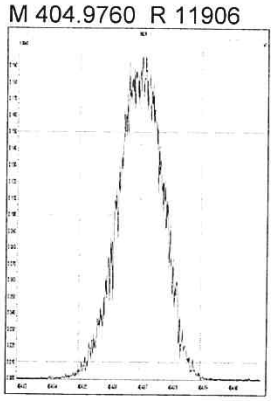
M 380.9760 R 12191



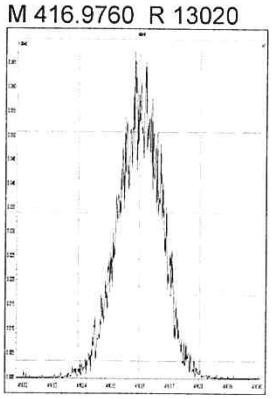
M 392.9760 R 11791



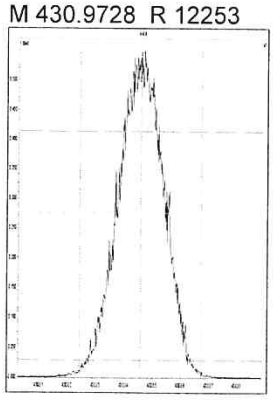
M 404.9760 R 11906



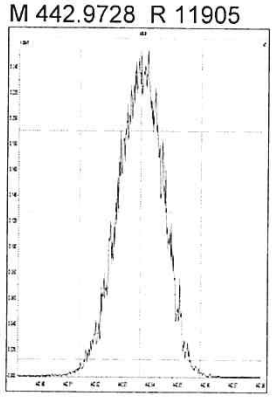
M 416.9760 R 13020



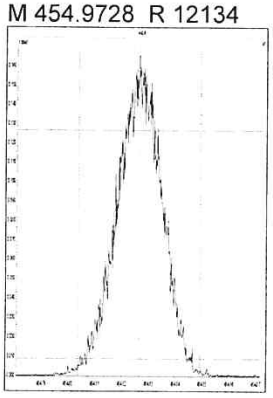
M 430.9728 R 12253



M 442.9728 R 11905



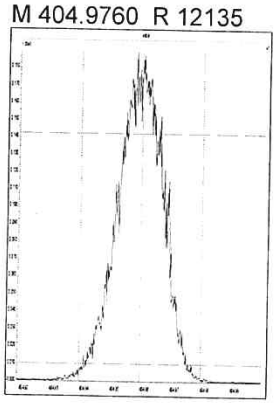
M 454.9728 R 12134



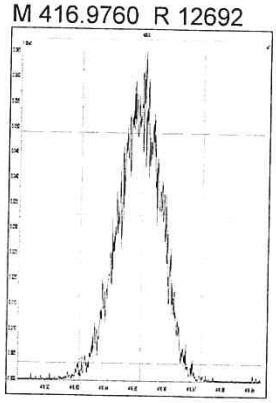
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:41:54 Central Standard Time

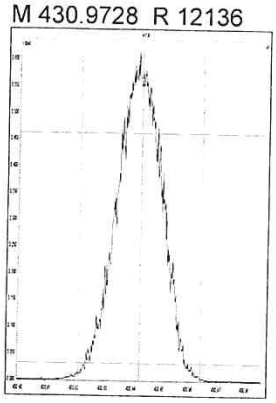
M 404.9760 R 12135



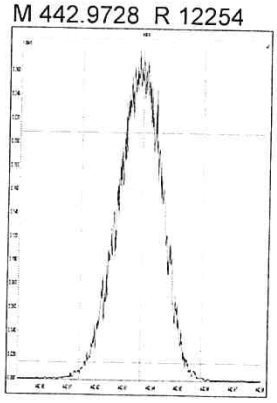
M 416.9760 R 12692



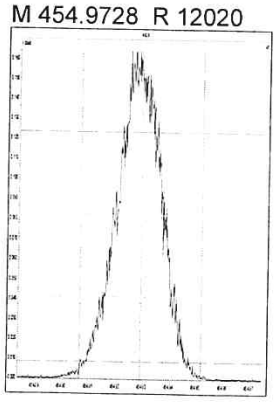
M 430.9728 R 12136



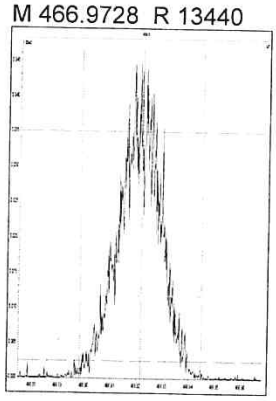
M 442.9728 R 12254



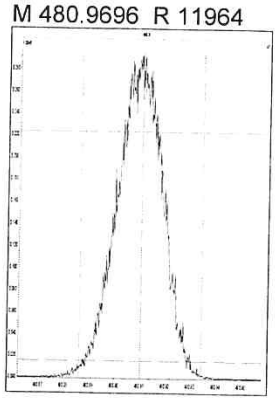
M 454.9728 R 12020



M 466.9728 R 13440



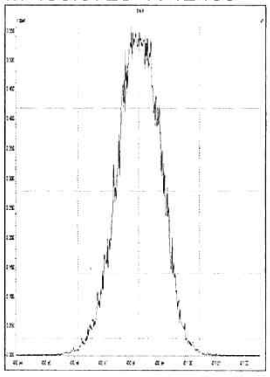
M 480.9696 R 11964



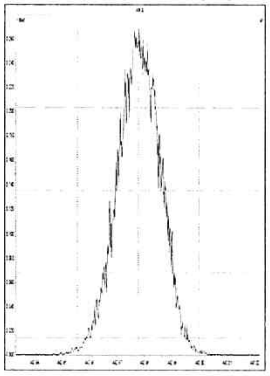
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:42:56 Central Standard Time

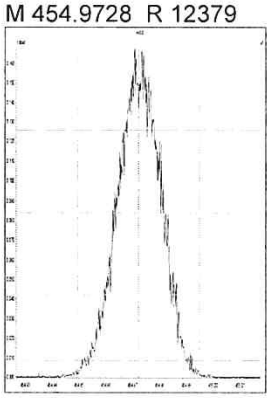
M 430.9728 R 12439



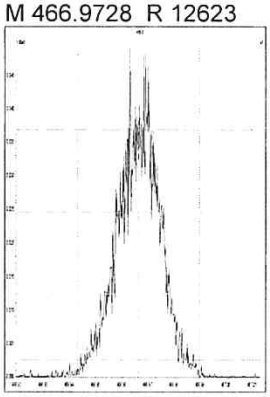
M 442.9728 R 12019



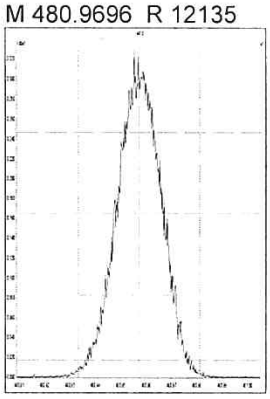
M 454.9728 R 12379



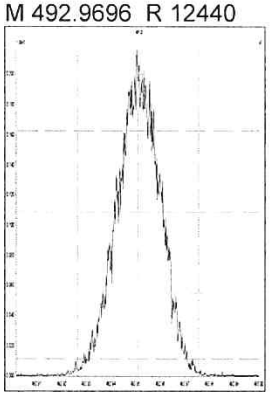
M 466.9728 R 12623



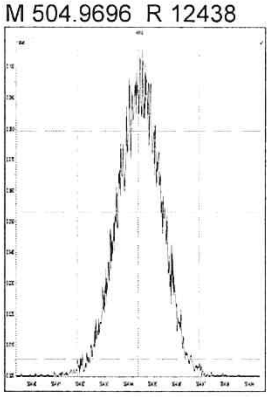
M 480.9696 R 12135



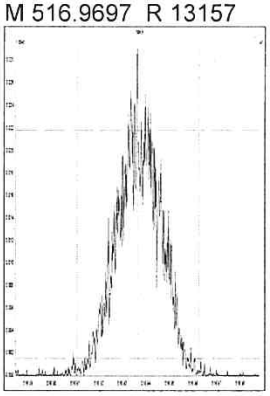
M 492.9696 R 12440



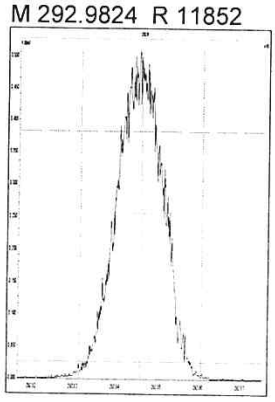
M 504.9696 R 12438



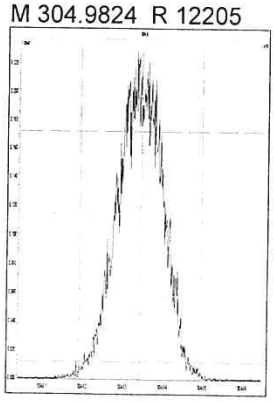
M 516.9697 R 13157



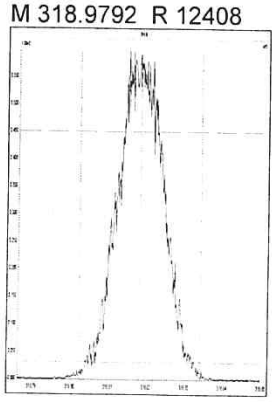
M 292.9824 R 11852



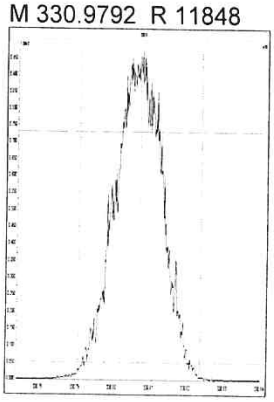
M 304.9824 R 12205



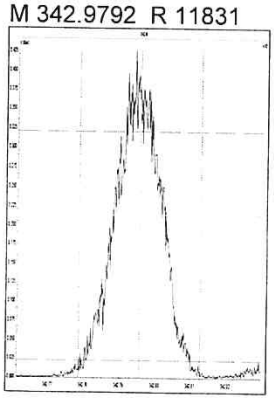
M 318.9792 R 12408



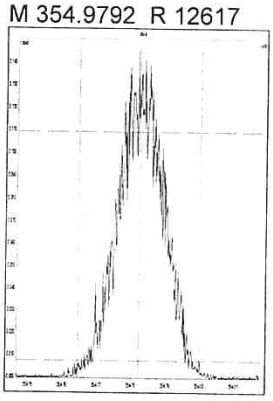
M 330.9792 R 11848



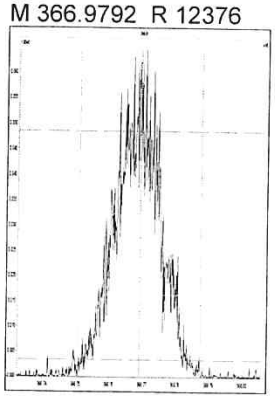
M 342.9792 R 11831



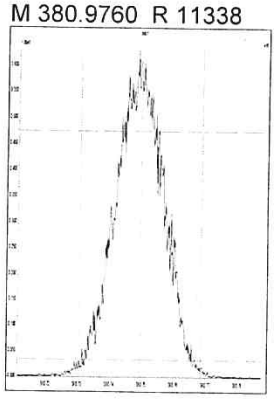
M 354.9792 R 12617



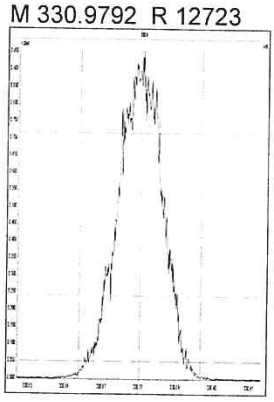
M 366.9792 R 12376



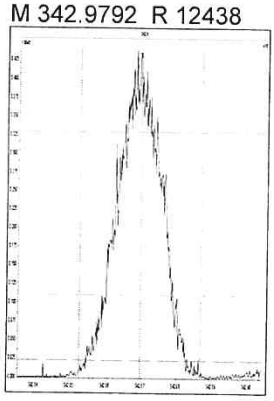
M 380.9760 R 11338



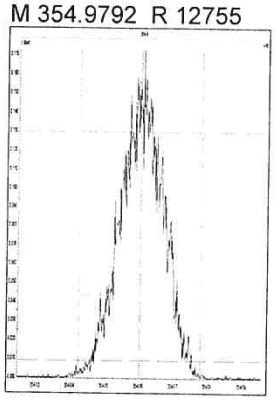
M 330.9792 R 12723



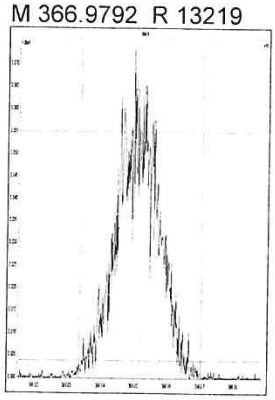
M 342.9792 R 12438



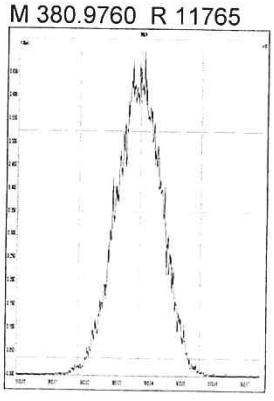
M 354.9792 R 12755



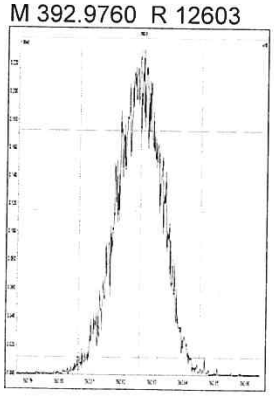
M 366.9792 R 13219



M 380.9760 R 11765



M 392.9760 R 12603



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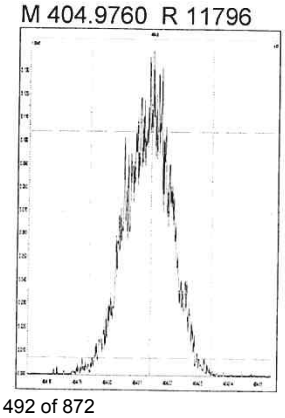

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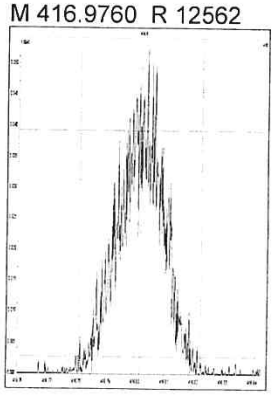

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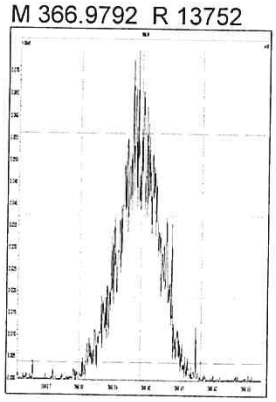

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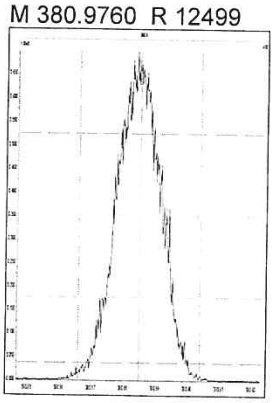

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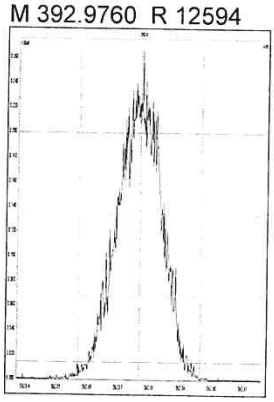

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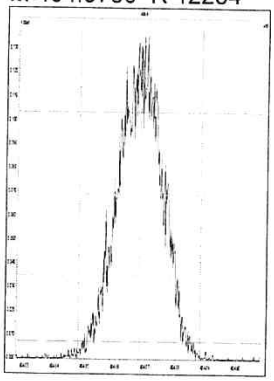

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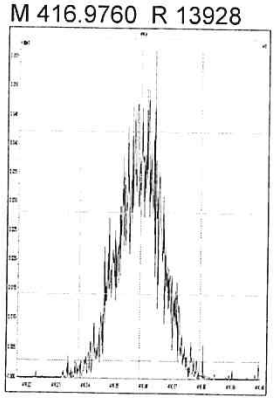
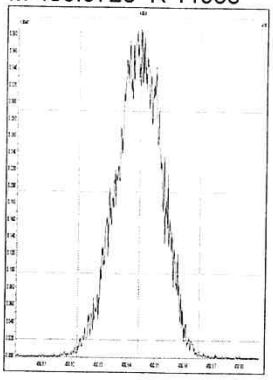


M 430.9728 R 11938



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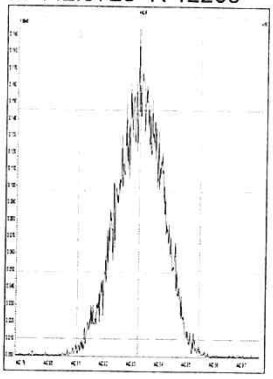

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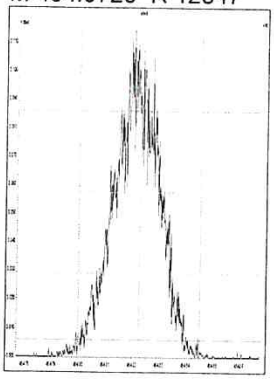

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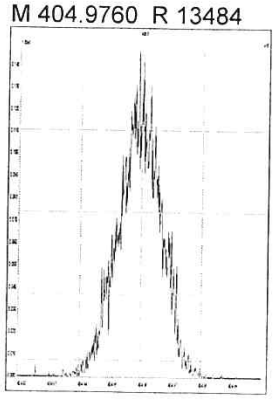

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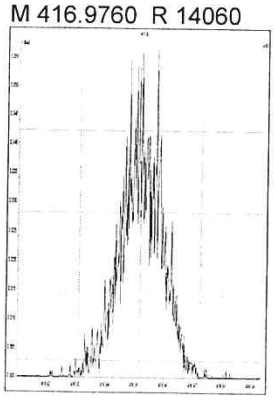

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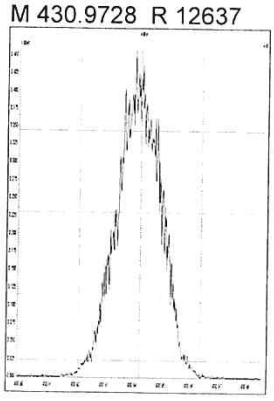
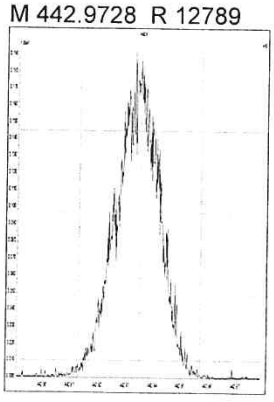
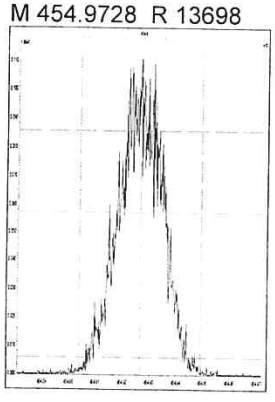


M 442.9728 R 12789



M 454.9728 R 13698



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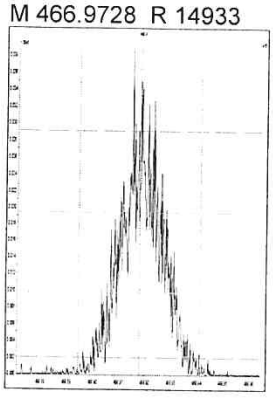

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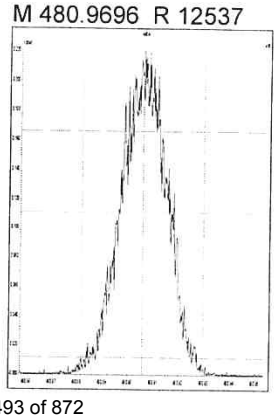

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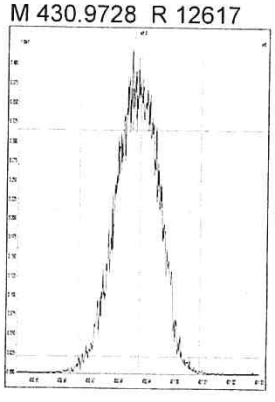

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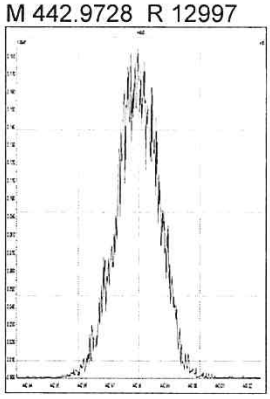

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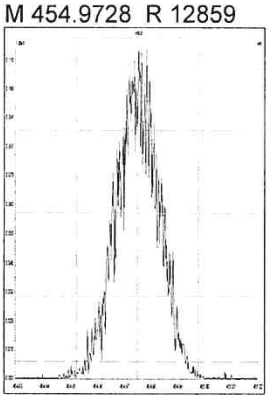

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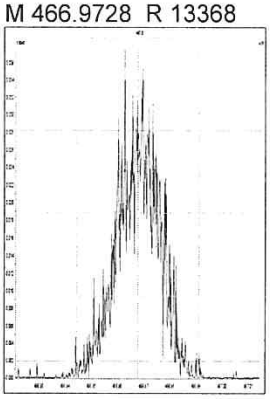

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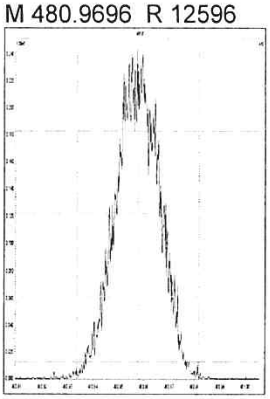

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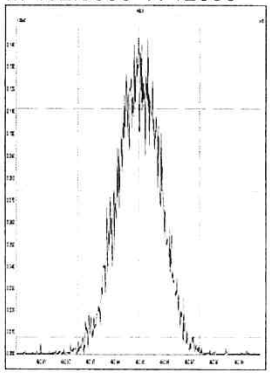

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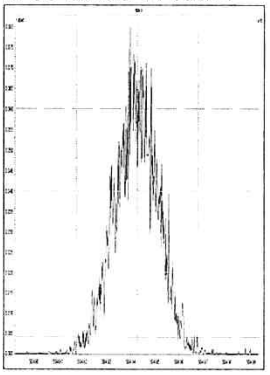

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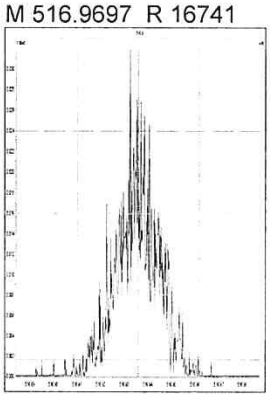


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

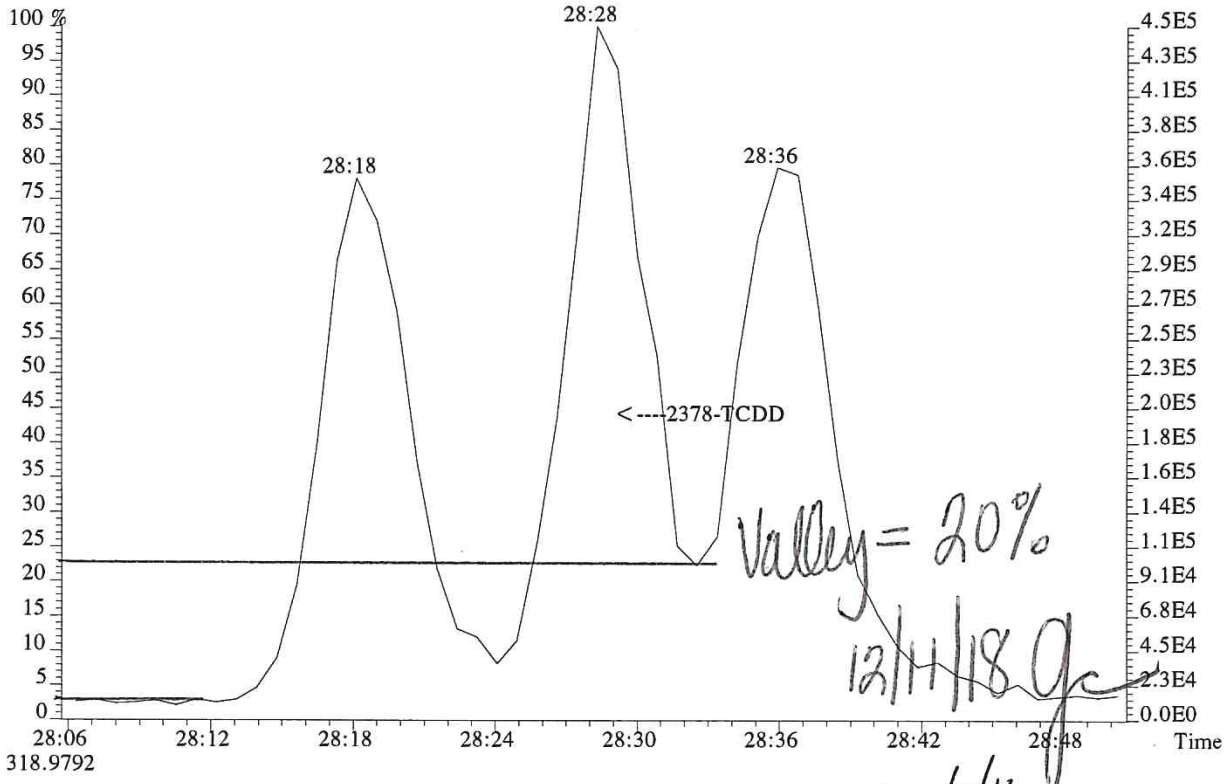
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519320
Date Analyzed: 10-DEC-2018
Time Analyzed: 09:34:53

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:12	29:40
TCDD	25:01	29:30
PeCDF	29:38	33:59
PeCDD	31:12	33:43
HxCDF	34:40	37:14
HxCDD	35:12	36:50
HpCDF	38:32	39:58
HpCDD	38:48	39:30

% Valley 2378-TCDD: 20 %

File:P519320 #1-587 Acq:10-DEC-2018 09:34:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



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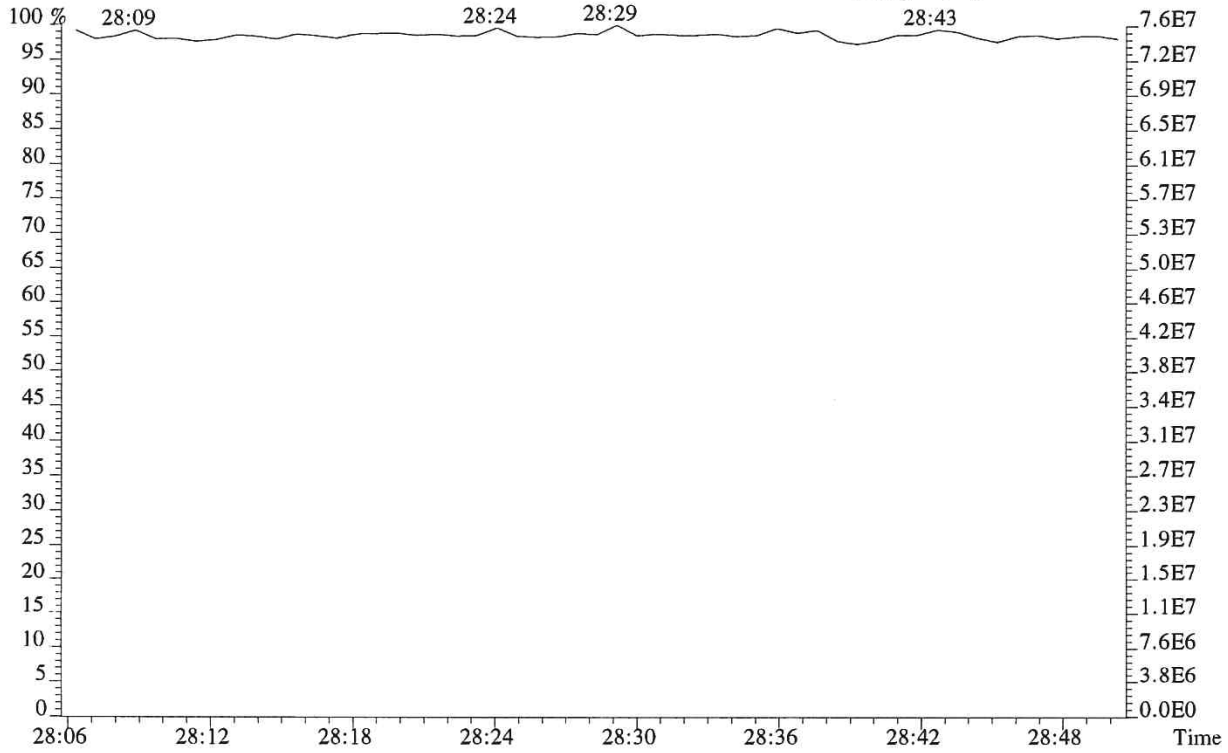
LM 12/11/18



012714

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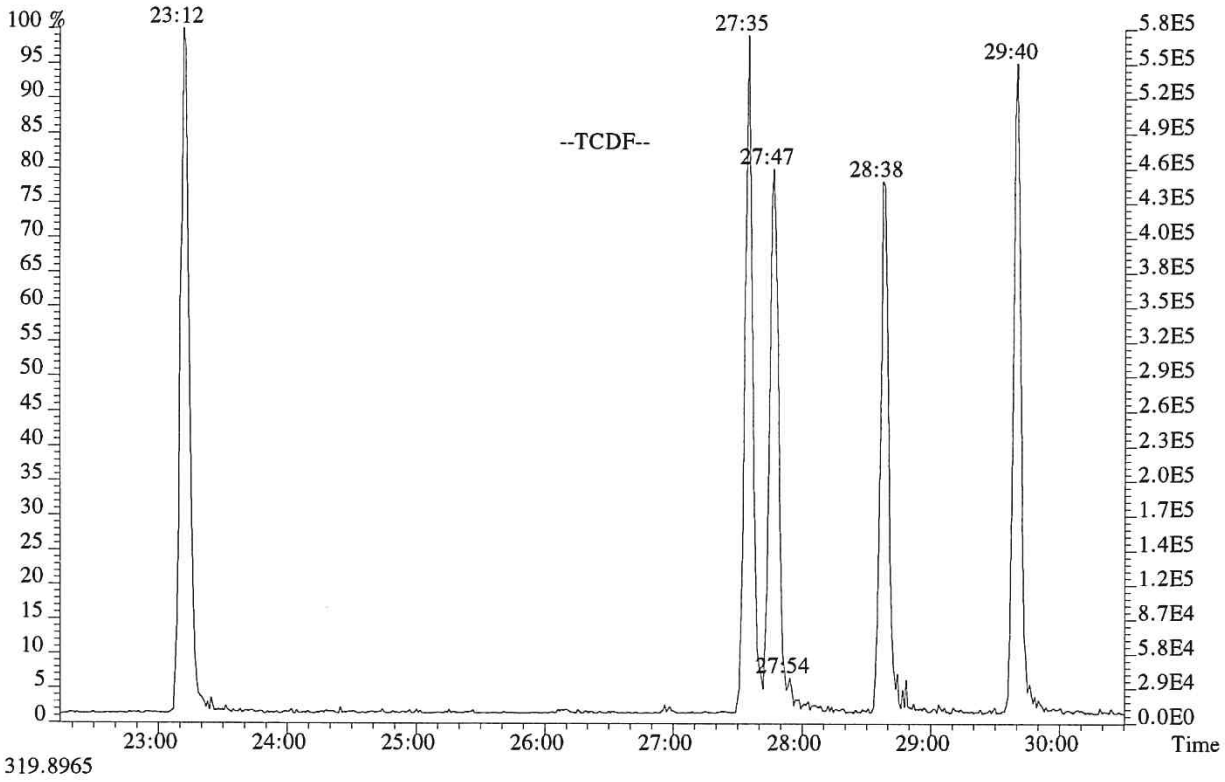
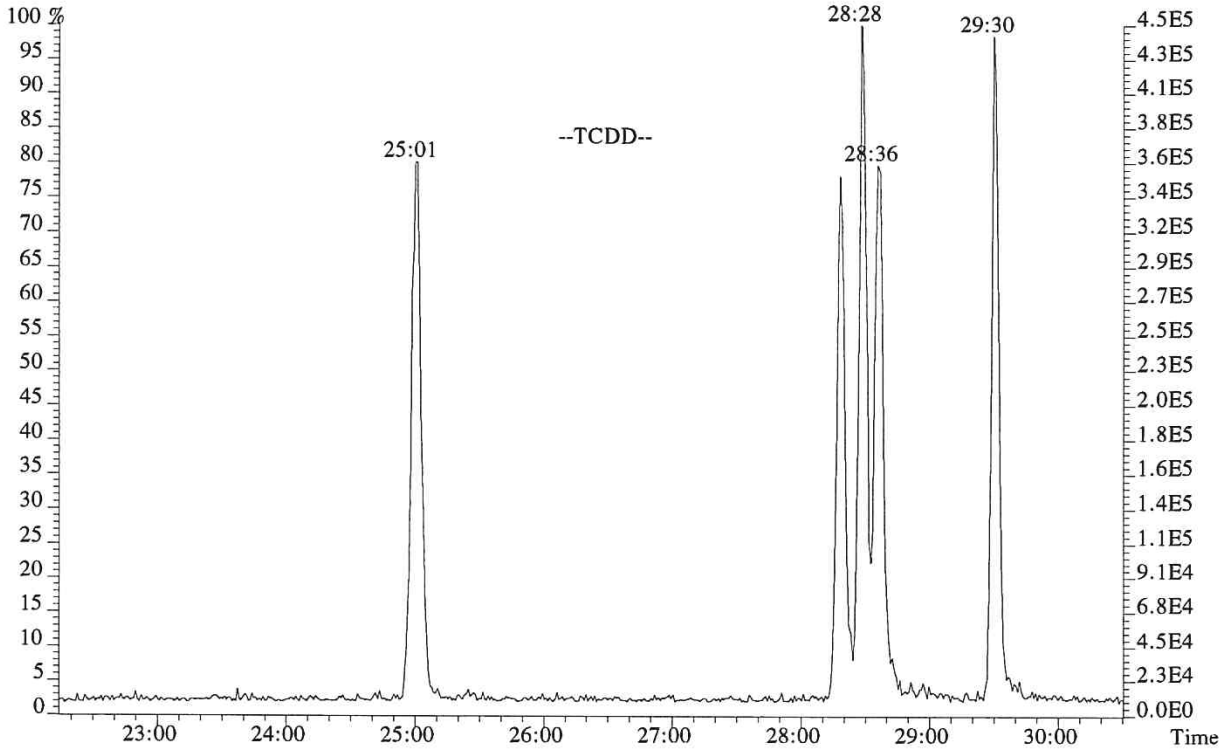


319.8965



012715

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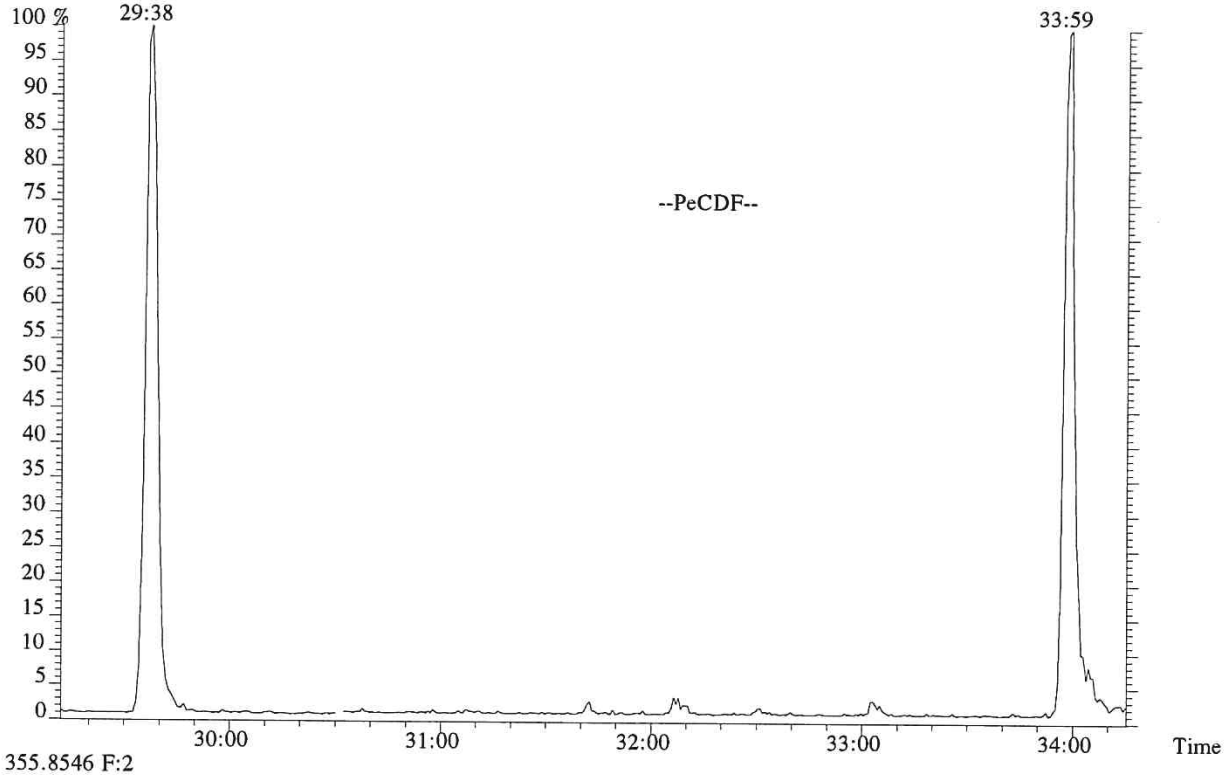
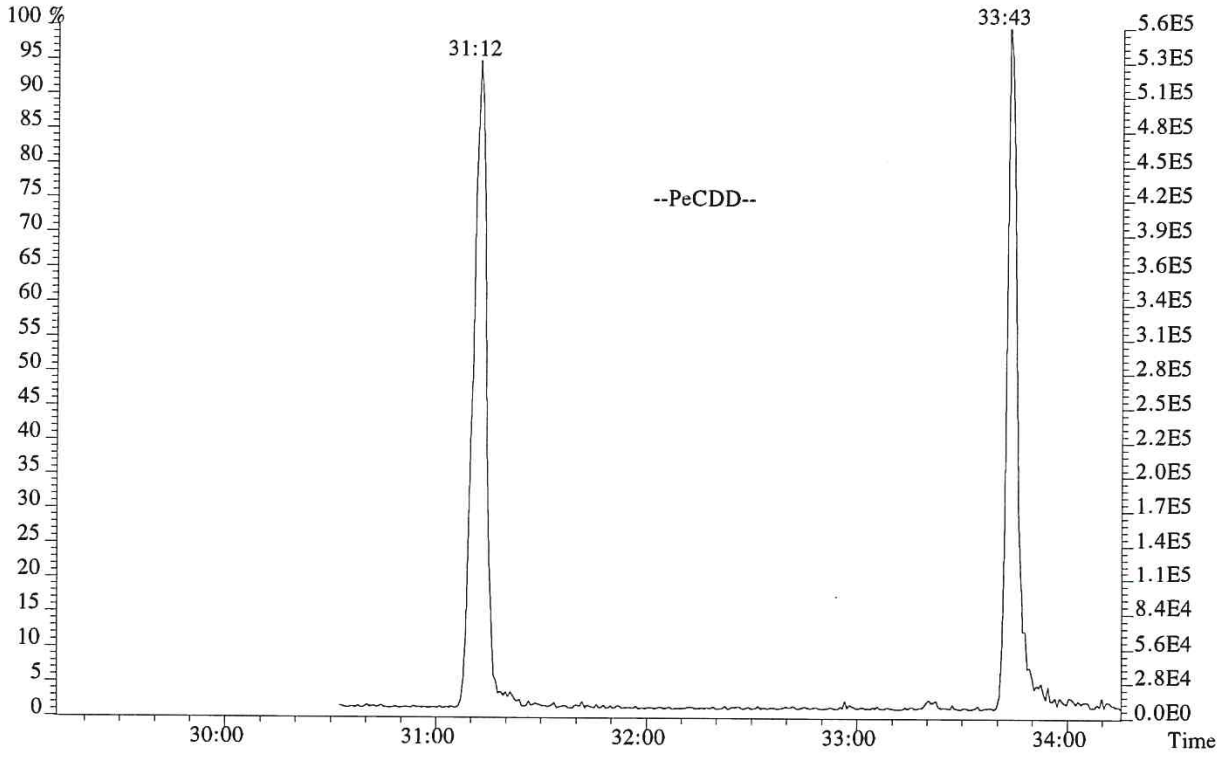
339.8597,339.8597 F:2



355.8546 F:2



012716

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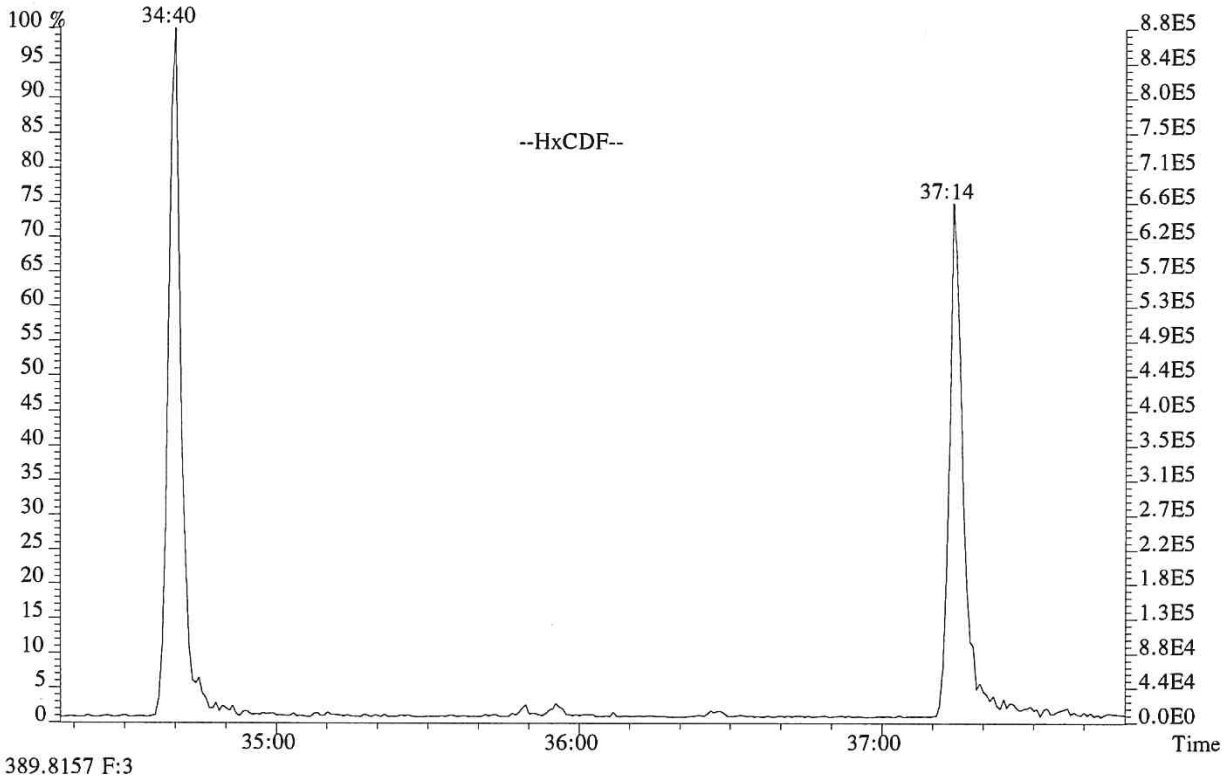
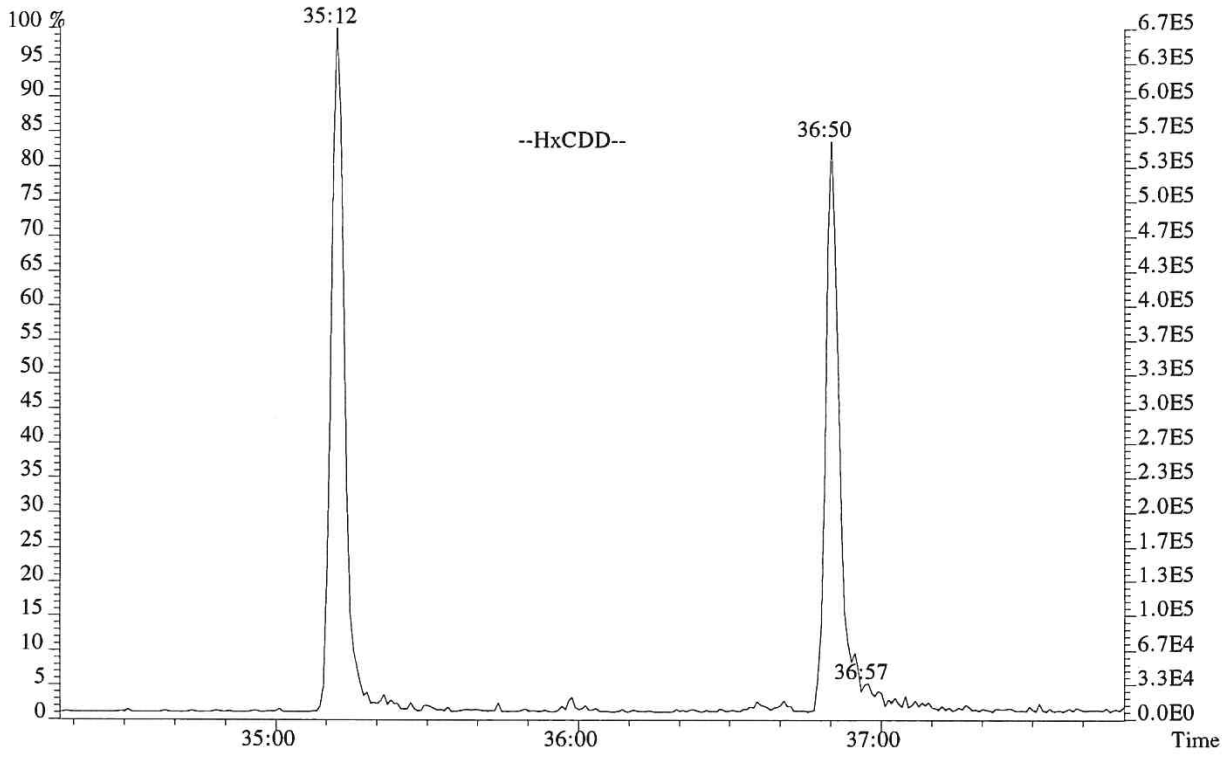


389.8157 F:3



012717

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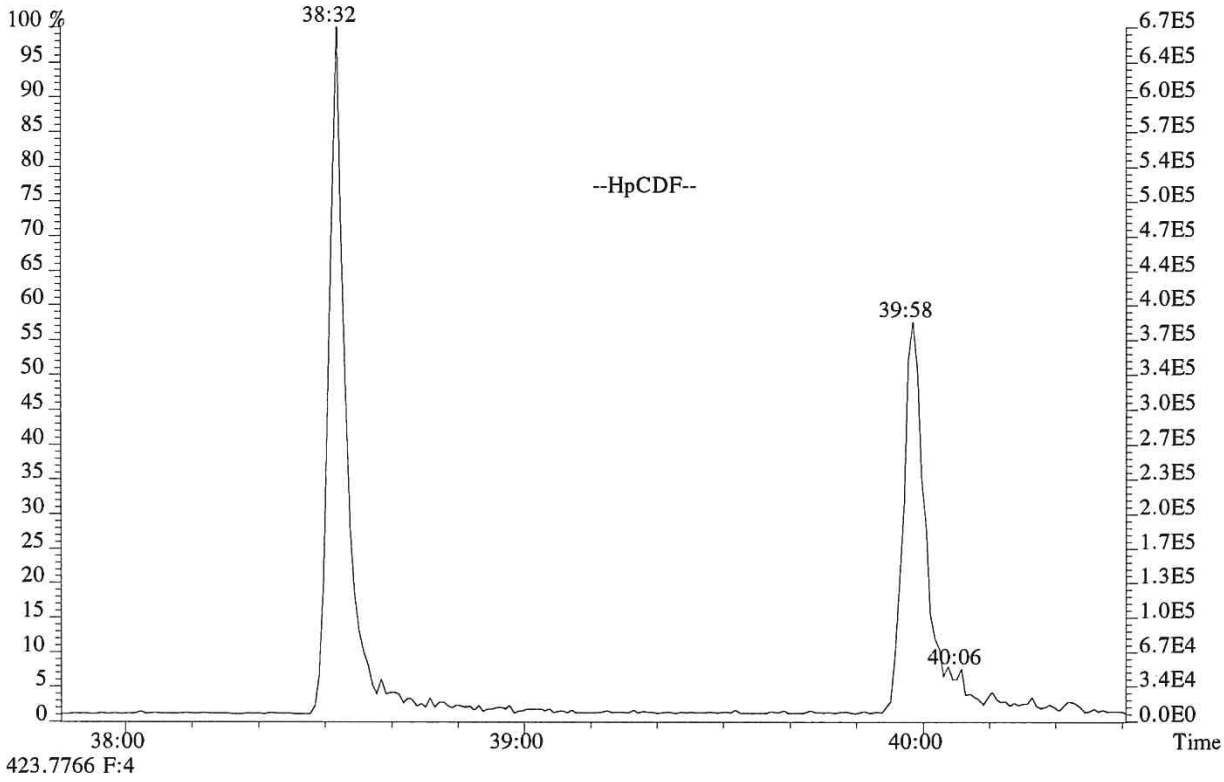
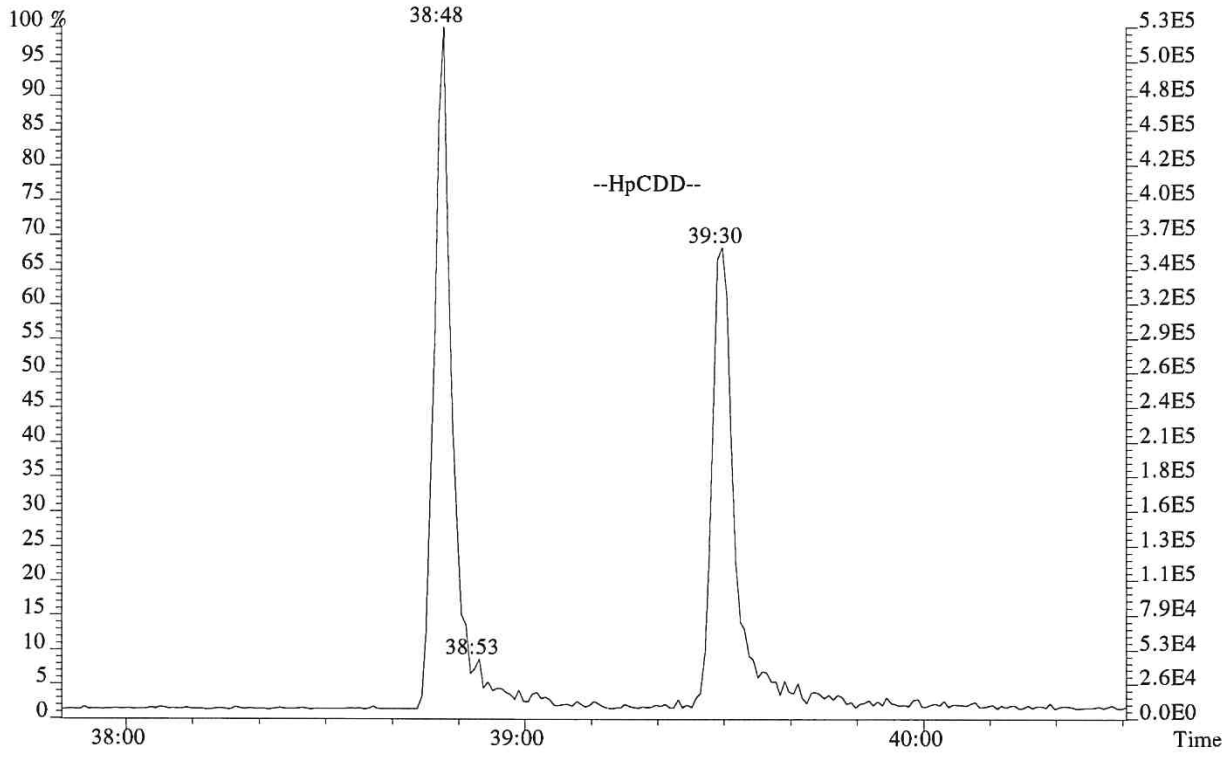
407.7818 F:4



423.7766 F:4



012718

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519319 Analysis Date: 10-DEC-18 Time: 08:43:37

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.8	7.8 - 12.9	-1.7
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	-1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	54	41 - 61	7.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	50	43 - 58	-0.2
OCDD	M+2/M+4	0.90	0.76-1.02	99	79 - 126	-0.7
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.6	8.4 - 12.0	-3.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	-0.5
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	50	41 - 61	-0.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	50	45 - 56	0.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	-0.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	50	44 - 57	1.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	50	45 - 55	0.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.4
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-2.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519319 Analysis Date: 10-DEC-18 Time: 08:43:37

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-2.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	107	62 - 160	6.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	86	85 - 117	-14.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	101	85 - 118	0.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	94	72 - 138	-5.8
13C-OCDD	M+2/M+4	0.90	0.76-1.02	216	96 - 415	8.2
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	93	71 - 140	-7.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	103	76 - 130	2.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	106	77 - 130	6.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	83	76 - 131	-17.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	70 - 143	-4.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	85	74 - 135	-15.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	91	73 - 137	-9.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	95	78 - 129	-4.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	89	77 - 129	-11.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.5	7.8 - 12.7	-4.7

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519319 Samp: 1 Inj: 1 Acquired: 10-DEC-18 08:43:37
Processed: 11-DEC-18 15:18:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:48	5.306e+03	7.058e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:08	4.475e+04	2.952e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.329e+04	2.830e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.408e+04	2.857e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	4.159e+04	3.445e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.540e+04	2.999e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:12	2.969e+04	2.408e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	3.257e+04	3.146e+04	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	2.356e+04	2.347e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:35	3.990e+04	4.514e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:37	4.077e+03	5.309e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	2.919e+04	1.885e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	2.353e+04	1.866e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	2.847e+04	2.253e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.836e+04	2.256e+04	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:28	2.187e+04	2.028e+04	1.08	yes	no	1.025
17	Unk	OCDD	42:23	3.386e+04	3.752e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:46	6.030e+04	7.611e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:07	9.068e+04	5.677e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	9.205e+04	5.837e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	3.514e+04	6.920e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	4.665e+04	8.929e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	3.964e+04	7.706e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	3.177e+04	6.190e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	2.921e+04	6.472e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:56	2.258e+04	5.193e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:35	3.909e+04	4.892e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	6.261e+04	3.883e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	4.579e+04	3.531e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	5.463e+04	4.289e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	4.307e+04	3.937e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:23	6.087e+04	6.772e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	4.342e+04	5.398e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	5.713e+04	4.493e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:37	9.407e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519319 Samp: 1 Inj: 1 Acquired: 10-DEC-18 08:43:37
Processed: 11-DEC-18 15:18:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.83e+05	6.04e+02	1.5e+03	1.18e+06	2.18e+03	5.4e+02
2	1,2,3,7,8-PeCDF	7.71e+06	4.68e+02	1.6e+04	5.02e+06	3.74e+03	1.3e+03
3	2,3,4,7,8-PeCDF	7.80e+06	4.68e+02	1.7e+04	5.22e+06	3.74e+03	1.4e+03
4	1,2,3,4,7,8-HxCDF	6.80e+06	5.16e+02	1.3e+04	5.62e+06	6.20e+02	9.1e+03
5	1,2,3,6,7,8-HxCDF	7.29e+06	5.16e+02	1.4e+04	6.03e+06	6.20e+02	9.7e+03
6	2,3,4,6,7,8-HxCDF	6.83e+06	5.16e+02	1.3e+04	5.61e+06	6.20e+02	9.0e+03
7	1,2,3,7,8,9-HxCDF	5.01e+06	5.16e+02	9.7e+03	4.06e+06	6.20e+02	6.6e+03
8	1,2,3,4,6,7,8-HpCDF	5.95e+06	4.45e+03	1.3e+03	5.72e+06	4.35e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.44e+06	4.45e+03	7.7e+02	3.46e+06	4.35e+03	8.0e+02
10	OCDF	4.72e+06	2.92e+02	1.6e+04	5.36e+06	7.40e+02	7.2e+03
11	2,3,7,8-TCDD	7.27e+05	1.90e+03	3.8e+02	9.05e+05	9.20e+02	9.8e+02
12	1,2,3,7,8-PeCDD	5.13e+06	6.08e+02	8.4e+03	3.28e+06	3.20e+02	1.0e+04
13	1,2,3,4,7,8-HxCDD	4.96e+06	4.60e+02	1.1e+04	3.94e+06	9.92e+02	4.0e+03
14	1,2,3,6,7,8-HxCDD	5.01e+06	4.60e+02	1.1e+04	3.94e+06	9.92e+02	4.0e+03
15	1,2,3,7,8,9-HxCDD	4.61e+06	4.60e+02	1.0e+04	3.69e+06	9.92e+02	3.7e+03
16	1,2,3,4,6,7,8-HpCDD	3.48e+06	3.68e+02	9.5e+03	3.36e+06	3.52e+02	9.5e+03
17	OCDD	3.92e+06	2.24e+02	1.7e+04	4.35e+06	1.48e+02	2.9e+04
18	13C-2,3,7,8-TCDF	1.01e+07	8.30e+03	1.2e+03	1.28e+07	5.92e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	1.51e+07	8.24e+02	1.8e+04	9.47e+06	4.32e+02	2.2e+04
20	13C-2,3,4,7,8-PeCDF	1.68e+07	8.24e+02	2.0e+04	1.07e+07	4.32e+02	2.5e+04
21	13C-1,2,3,4,7,8-HxCDF	6.89e+06	3.28e+02	2.1e+04	1.35e+07	7.16e+02	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	8.06e+06	3.28e+02	2.5e+04	1.54e+07	7.16e+02	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	7.55e+06	3.28e+02	2.3e+04	1.45e+07	7.16e+02	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	5.37e+06	3.28e+02	1.6e+04	1.04e+07	7.16e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.27e+06	6.60e+03	8.0e+02	1.18e+07	1.72e+04	6.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.32e+06	6.60e+03	5.0e+02	7.49e+06	1.72e+04	4.4e+02
27	13C-2,3,7,8-TCDD	6.93e+06	8.50e+03	8.1e+02	8.64e+06	3.41e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	1.07e+07	1.41e+03	7.6e+03	6.64e+06	1.12e+03	5.9e+03
29	13C-1,2,3,4,7,8-HxCDD	9.59e+06	1.84e+03	5.2e+03	7.34e+06	5.72e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	9.49e+06	1.84e+03	5.2e+03	7.55e+06	5.72e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.80e+06	4.44e+02	1.5e+04	6.32e+06	6.20e+02	1.0e+04
32	13C-OCDD	6.94e+06	4.08e+02	1.7e+04	7.67e+06	2.36e+02	3.2e+04
33	13C-1,2,3,4-TCDD	7.91e+06	8.50e+03	9.3e+02	9.81e+06	3.41e+03	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	8.95e+06	1.84e+03	4.9e+03	7.11e+06	5.72e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.64e+06	1.46e+03	1.1e+03			

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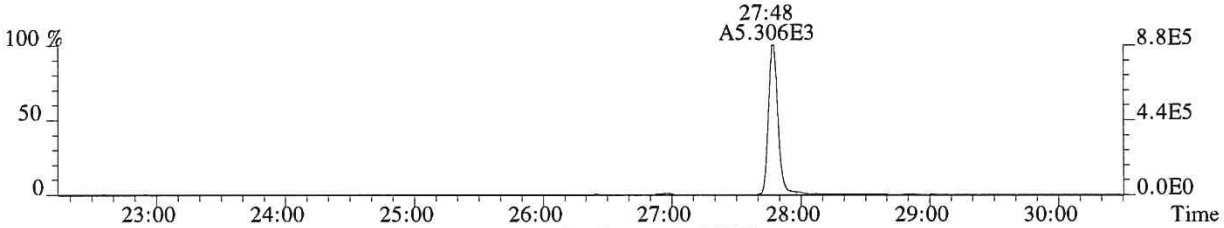
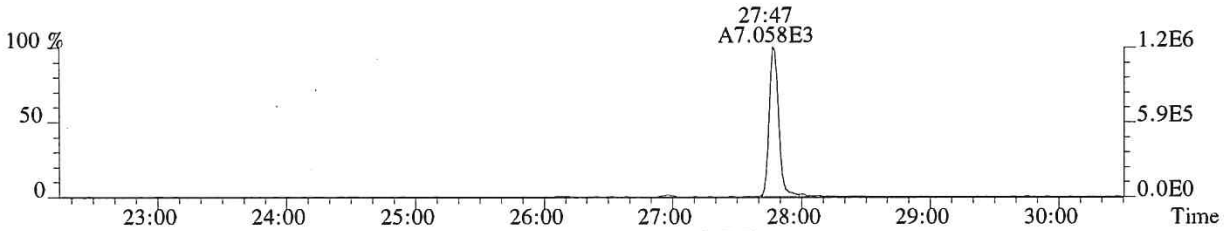
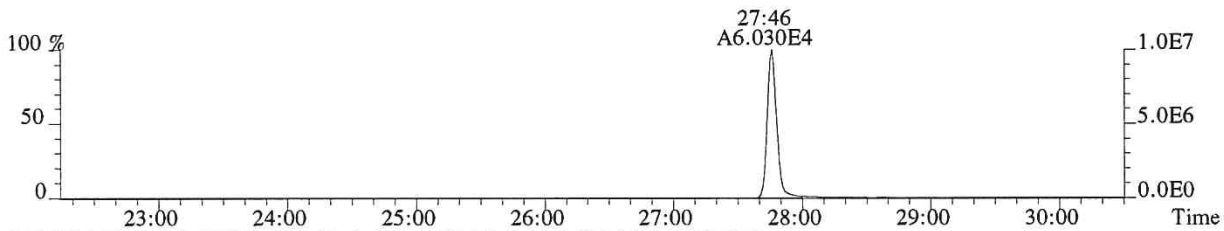
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



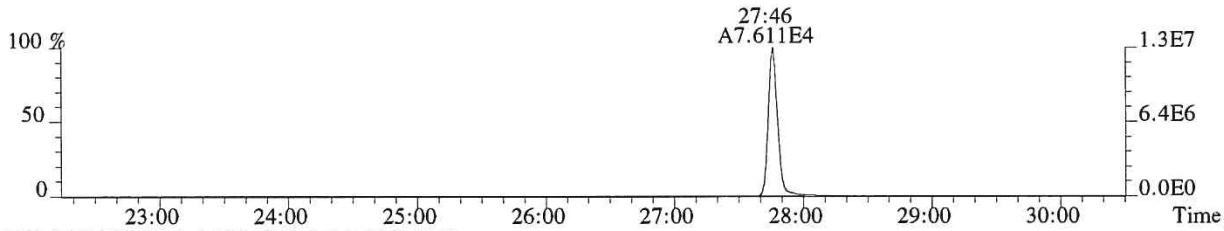
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



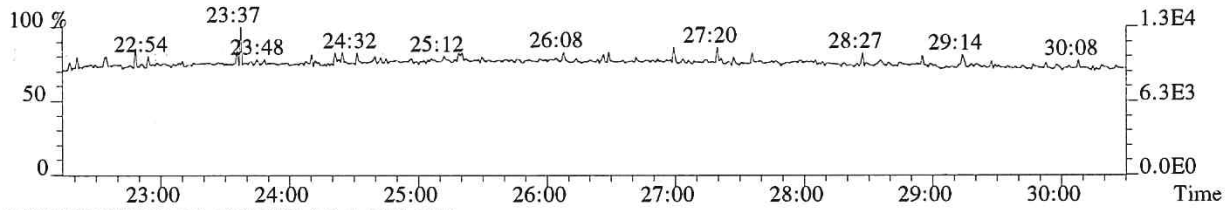
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8304.0,1.00%,F,T)



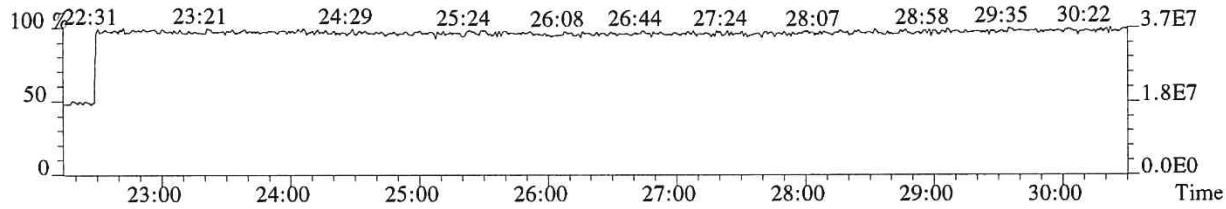
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5916.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

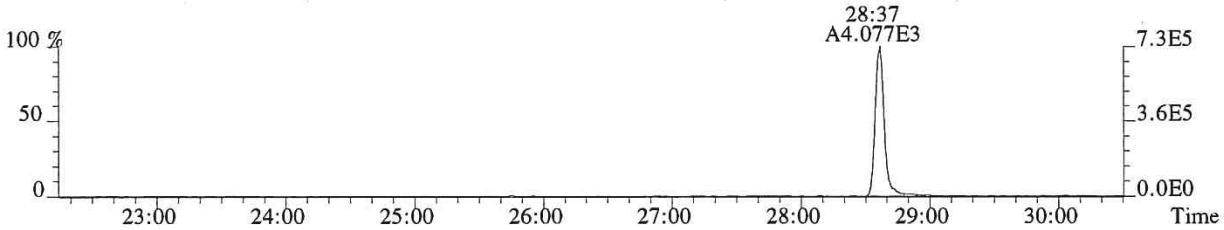


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

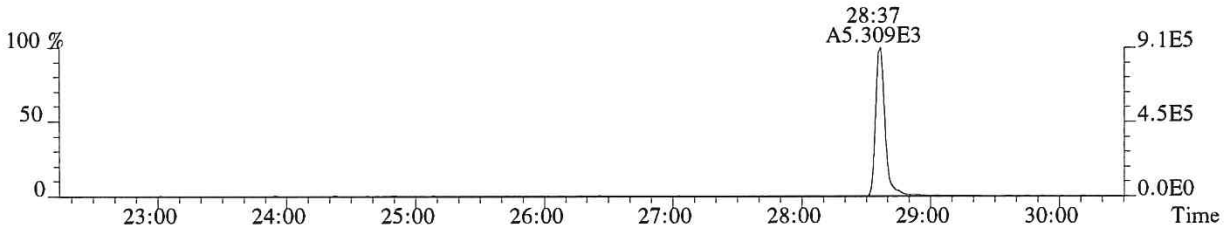


012723

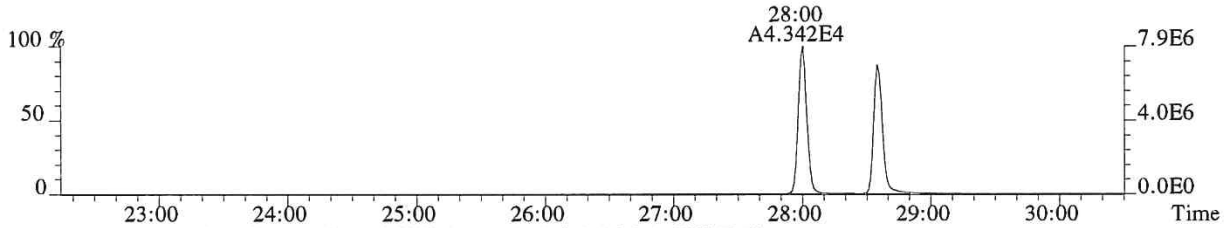
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



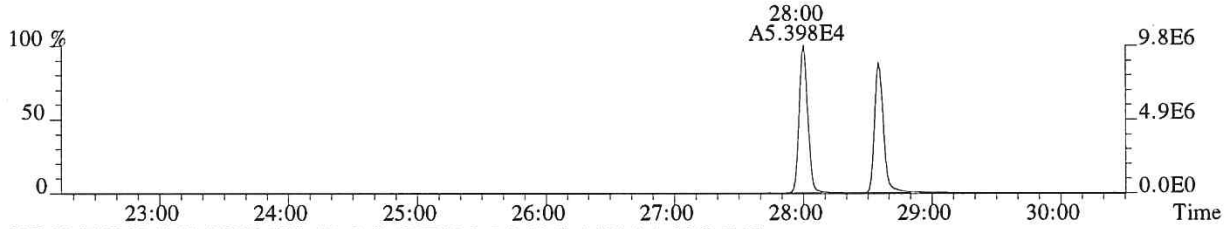
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



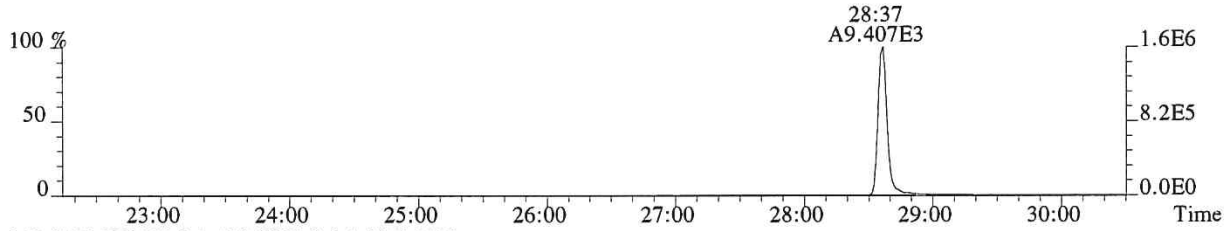
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8504.0,1.00%,F,T)



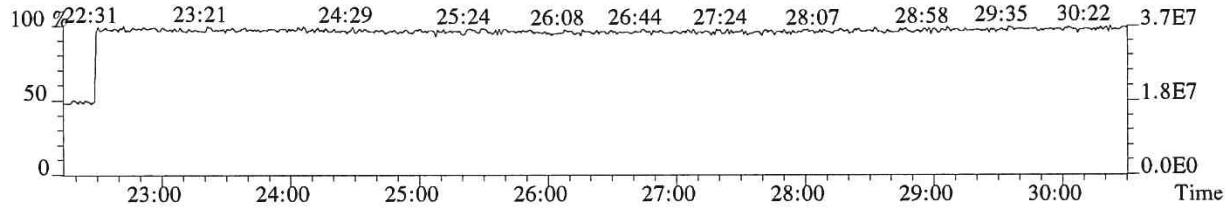
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)

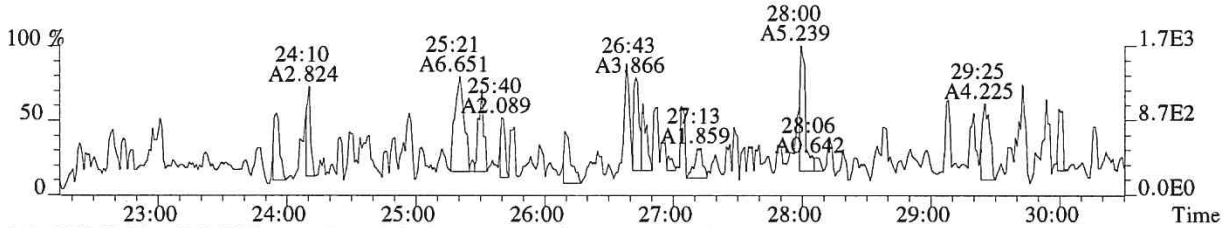


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

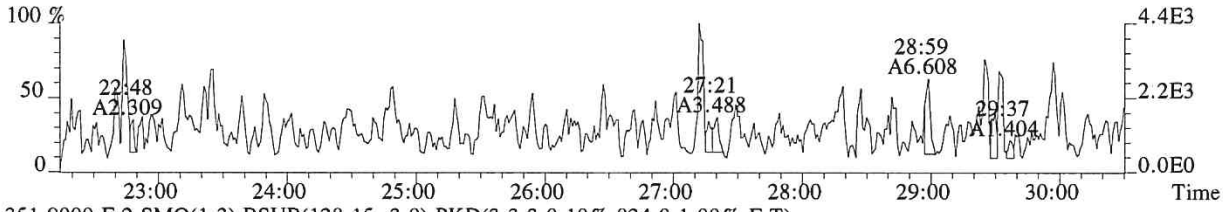


012724

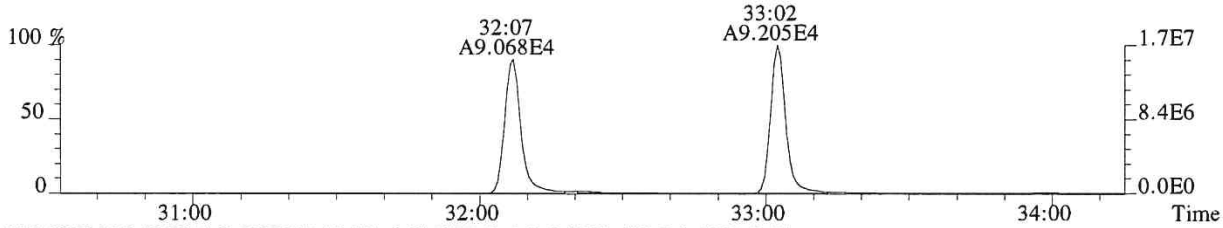
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



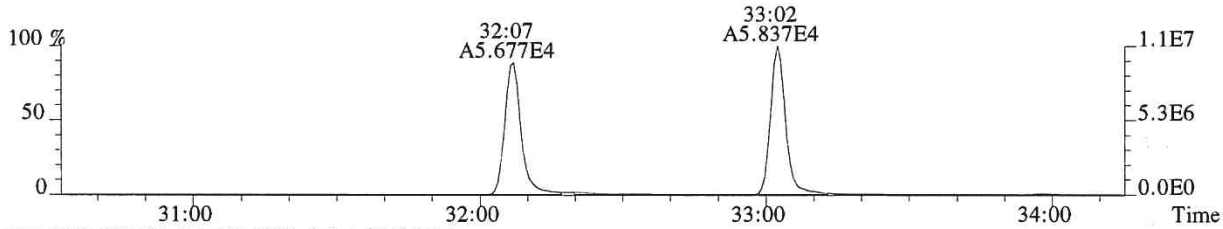
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



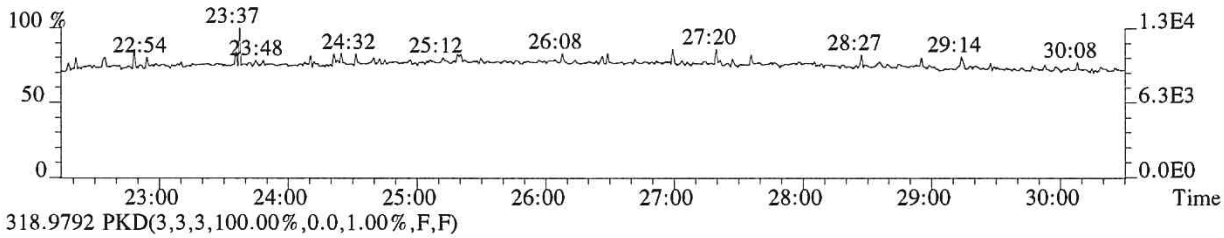
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



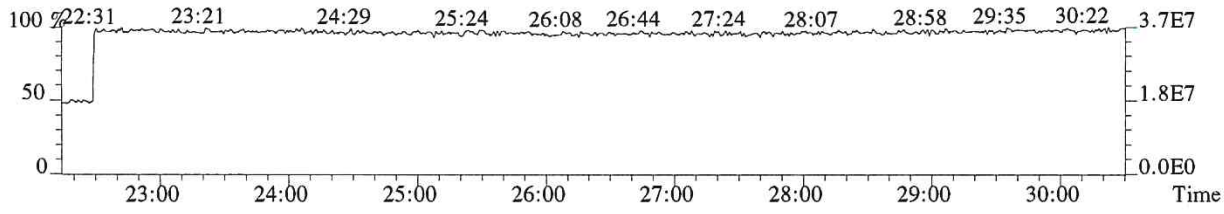
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

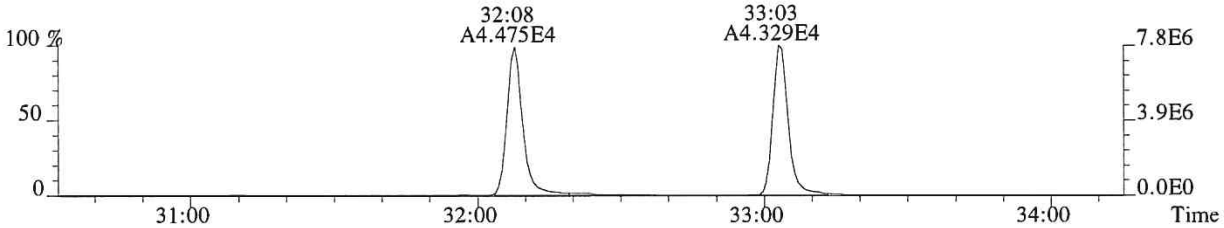


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

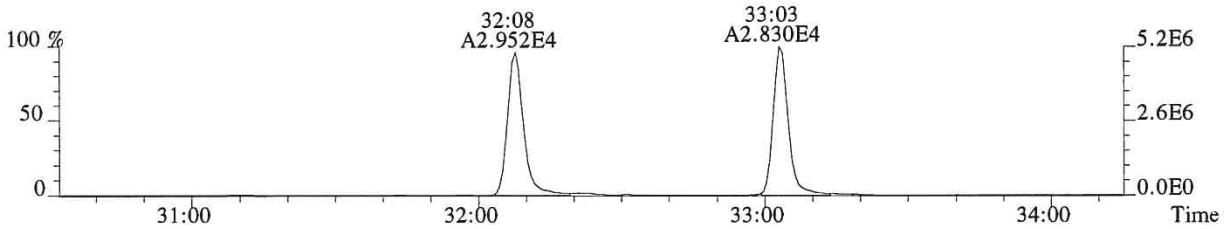


012725

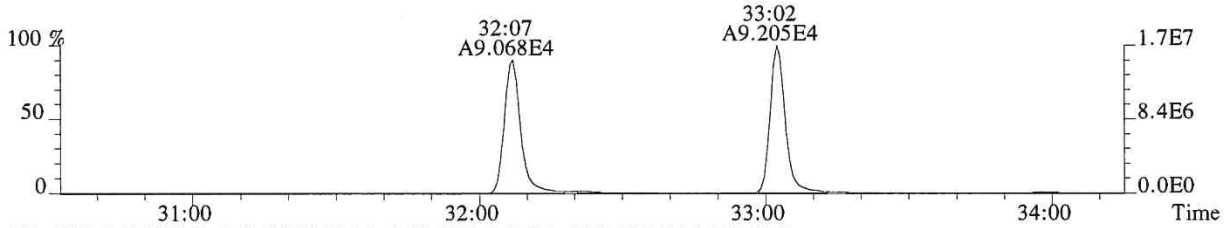
File:P519319 #1-335 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



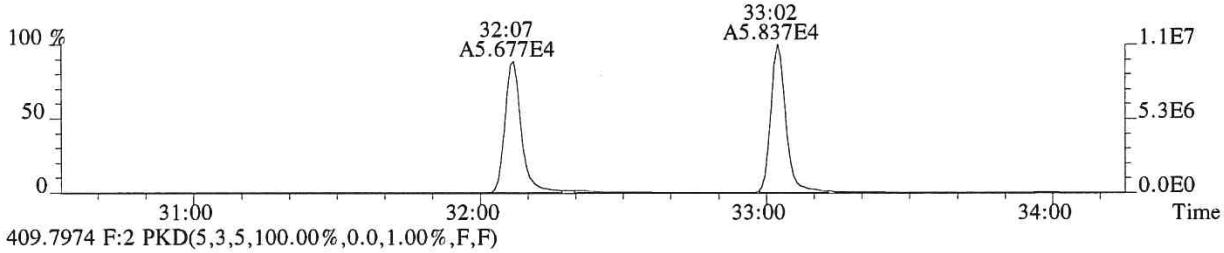
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3740.0,1.00%,F,T)



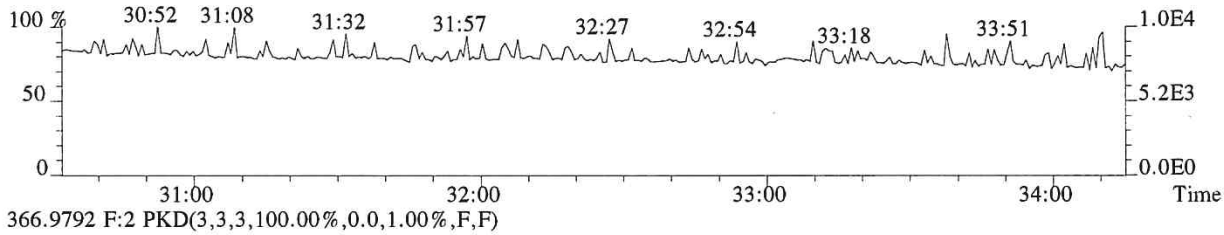
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



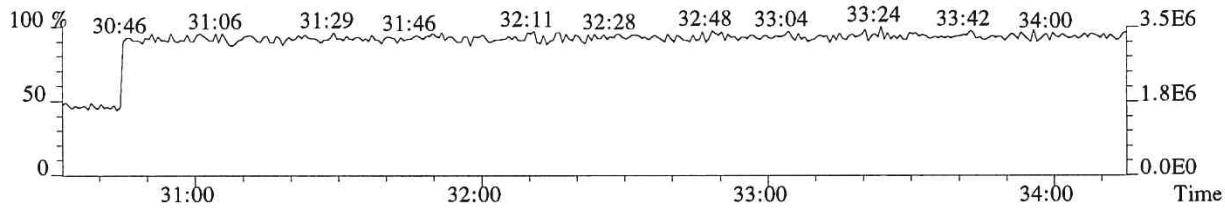
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

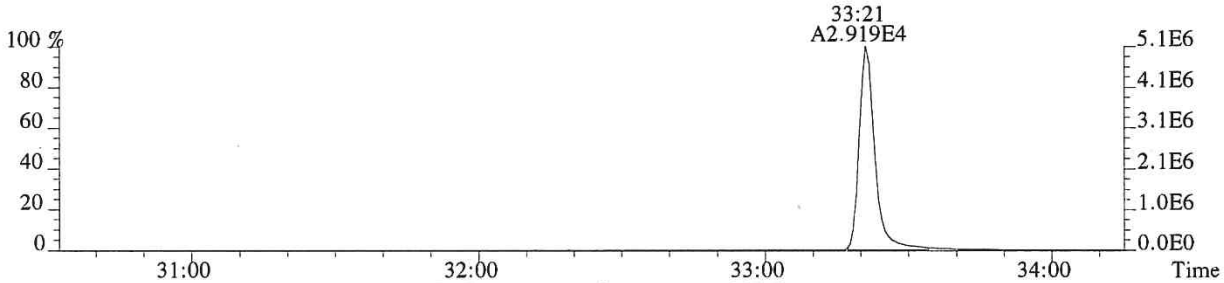


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

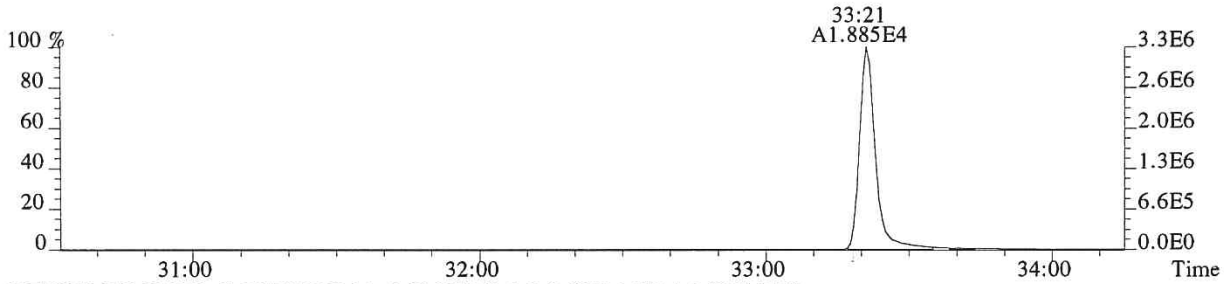


012726

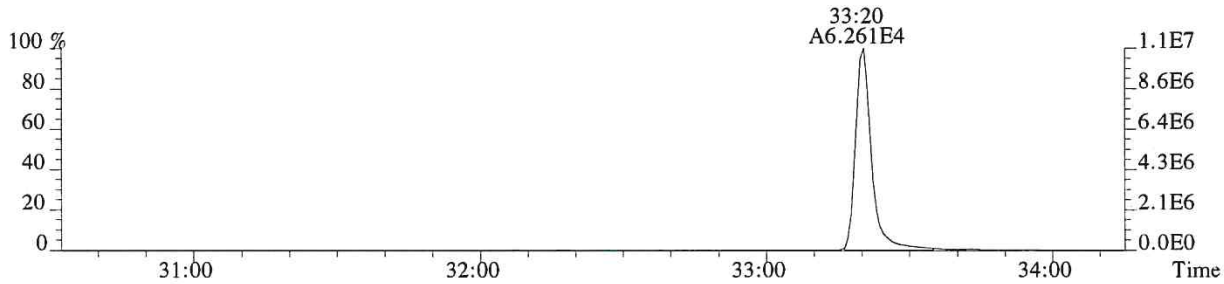
File:P519319 #1-335 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



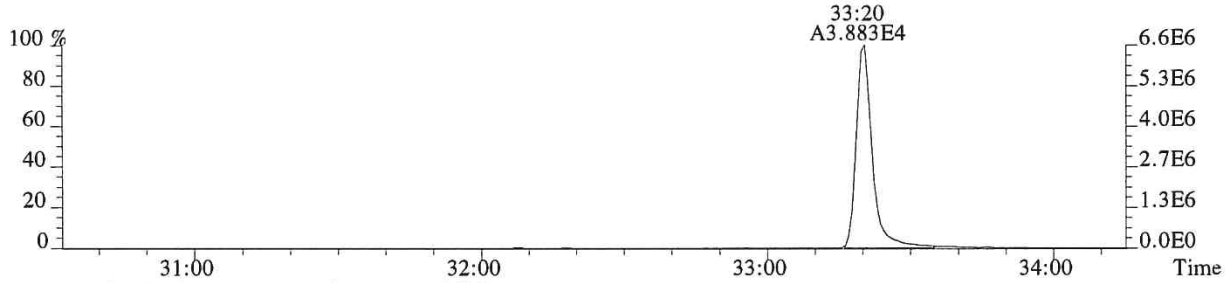
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



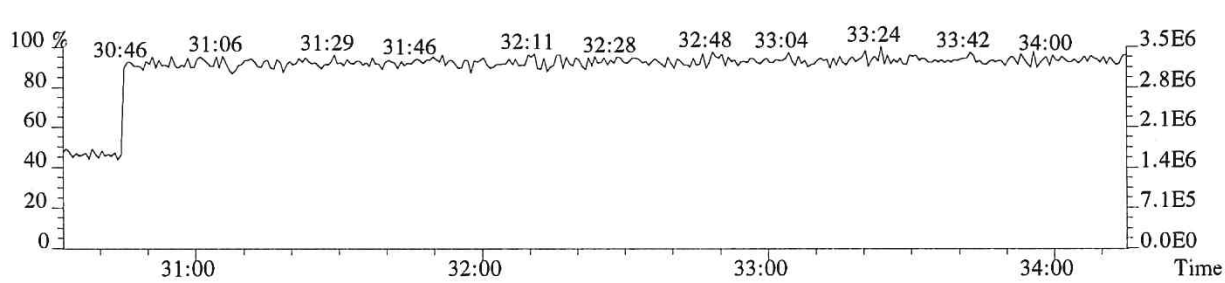
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



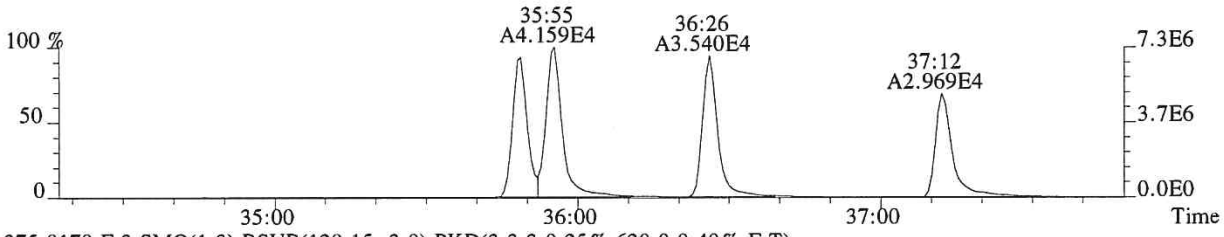
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



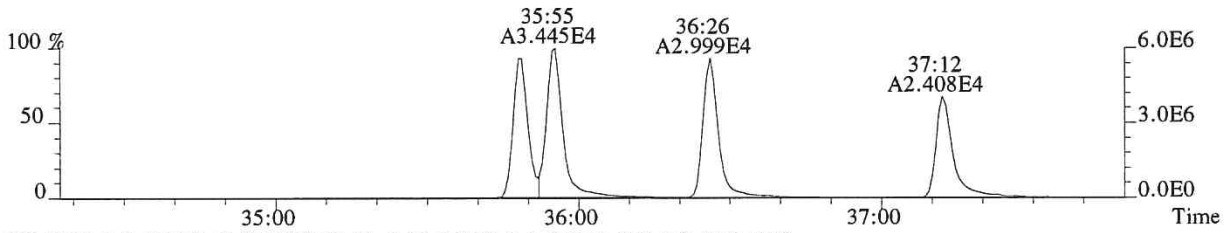
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



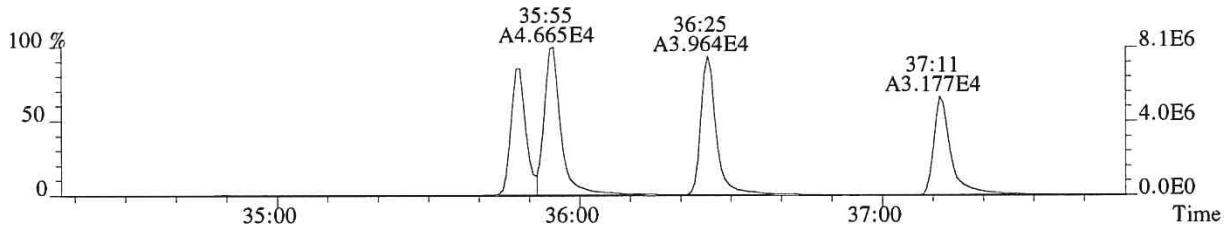
File:P519319 #1-317 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



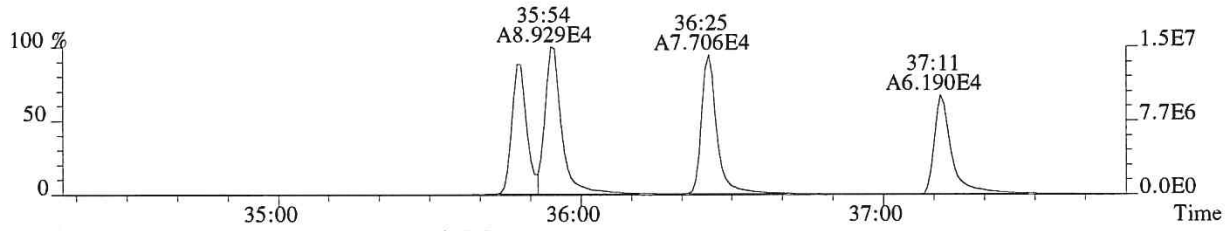
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



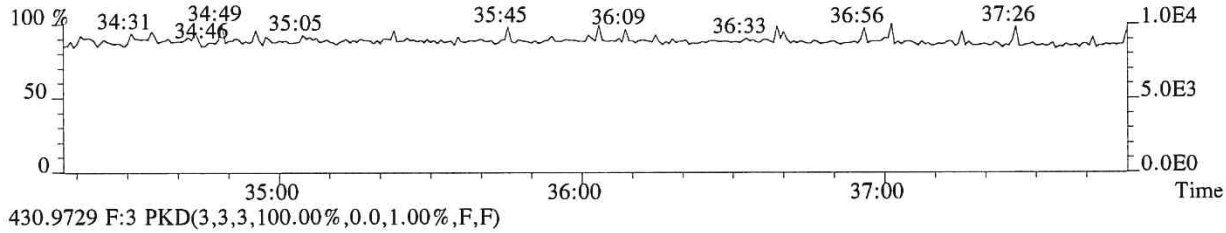
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



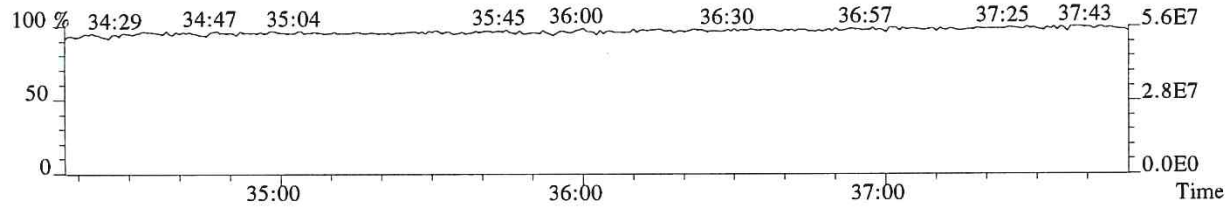
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

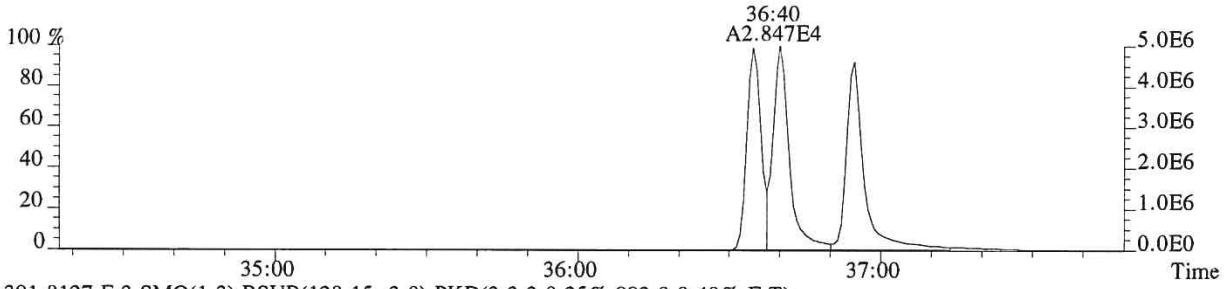


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

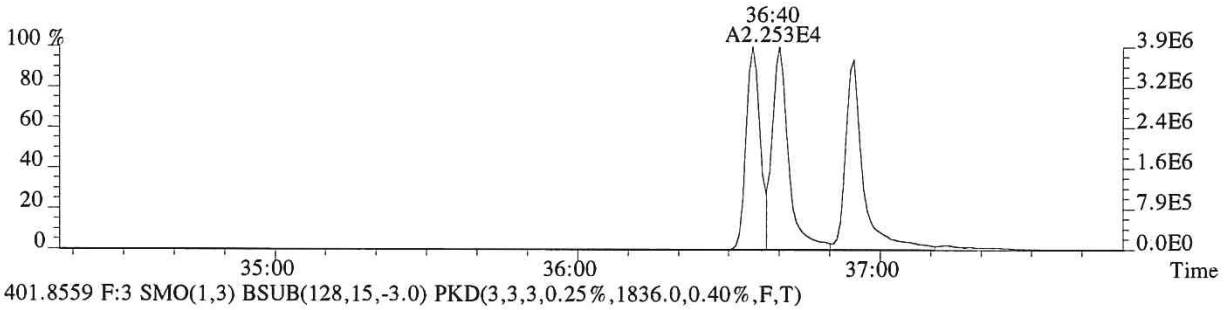


012728

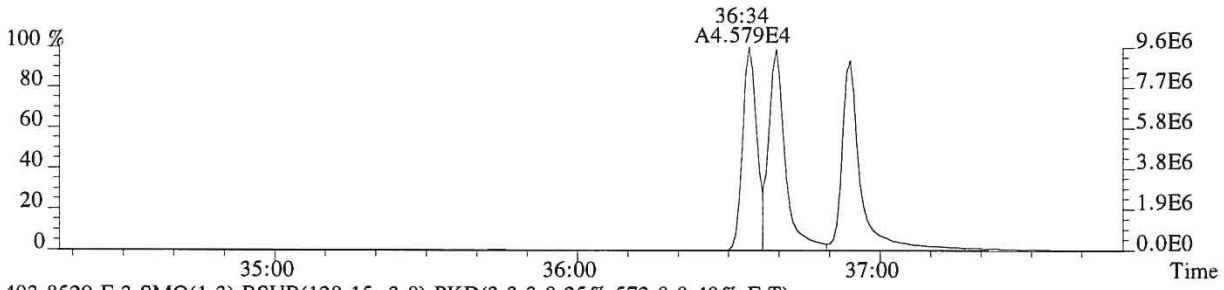
File:P519319 #1-317 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



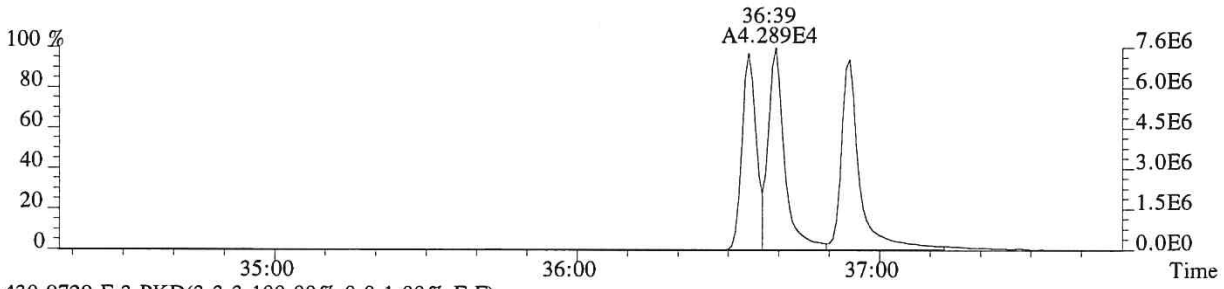
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



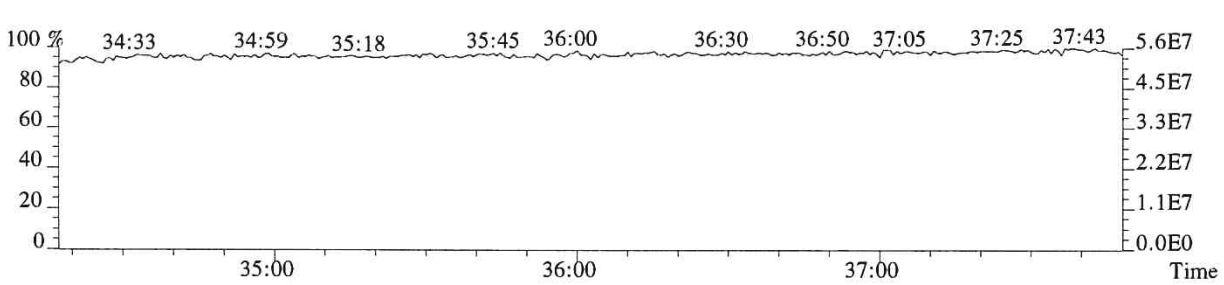
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)

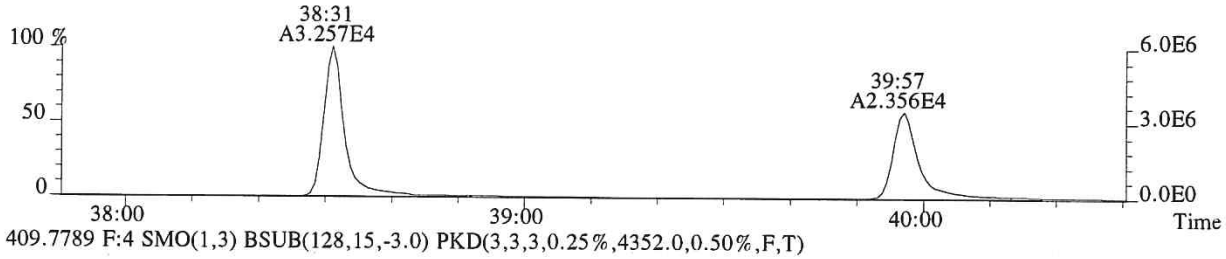


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

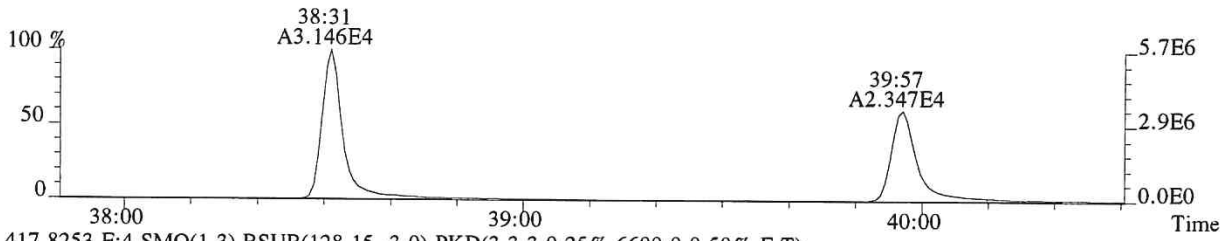


012729

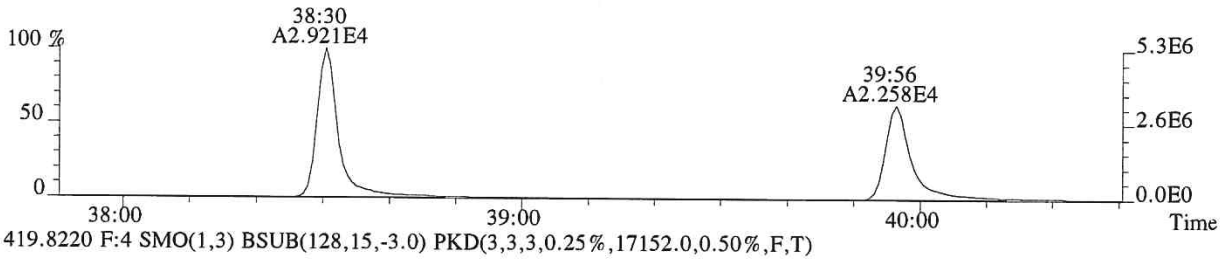
File:P519319 #1-241 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4448.0,0.50%,F,T)



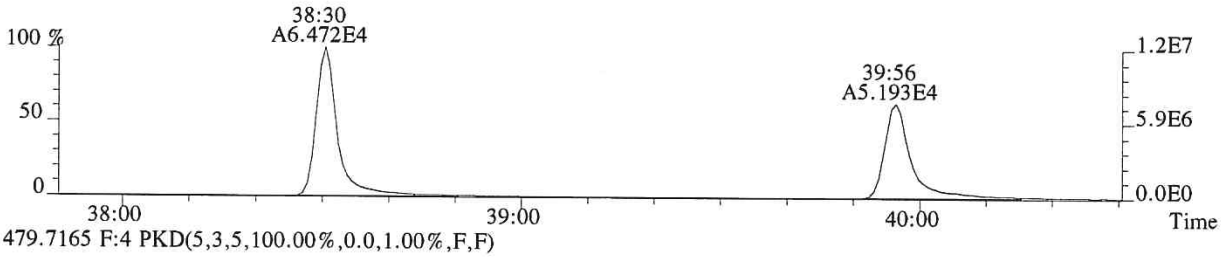
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4352.0,0.50%,F,T)



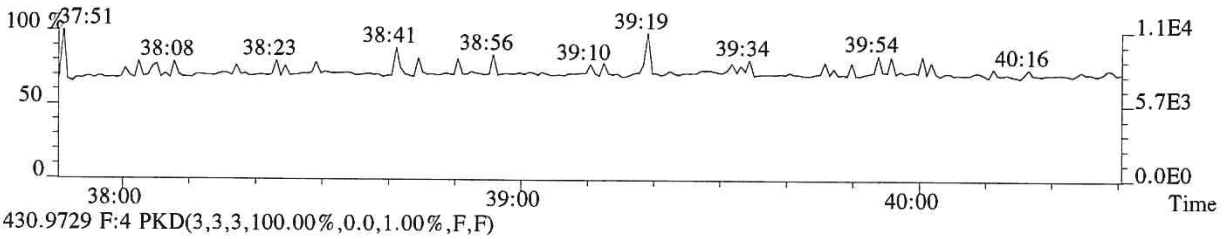
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6600.0,0.50%,F,T)



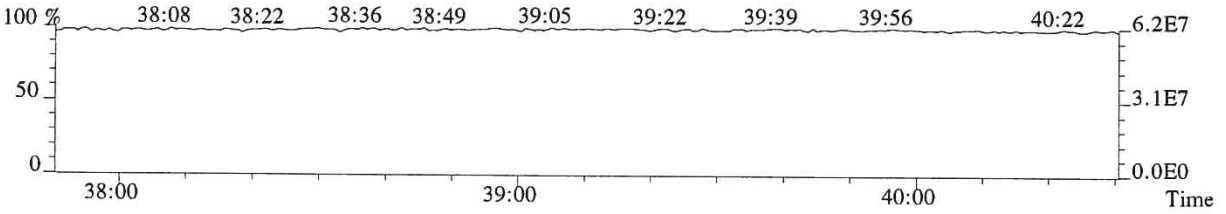
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17152.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

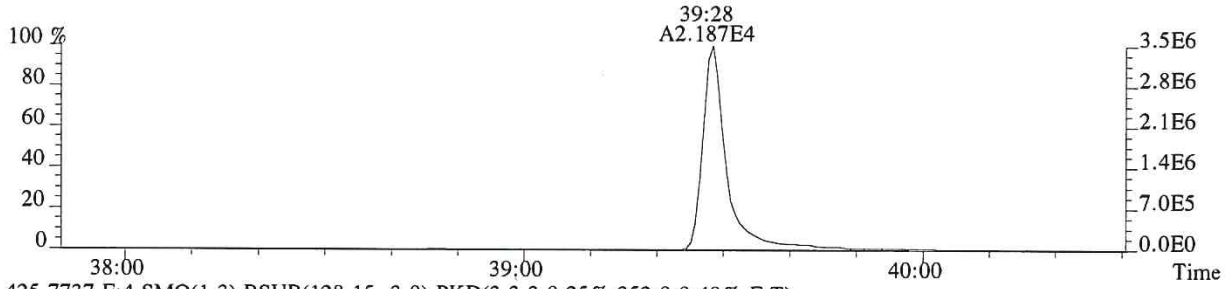


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

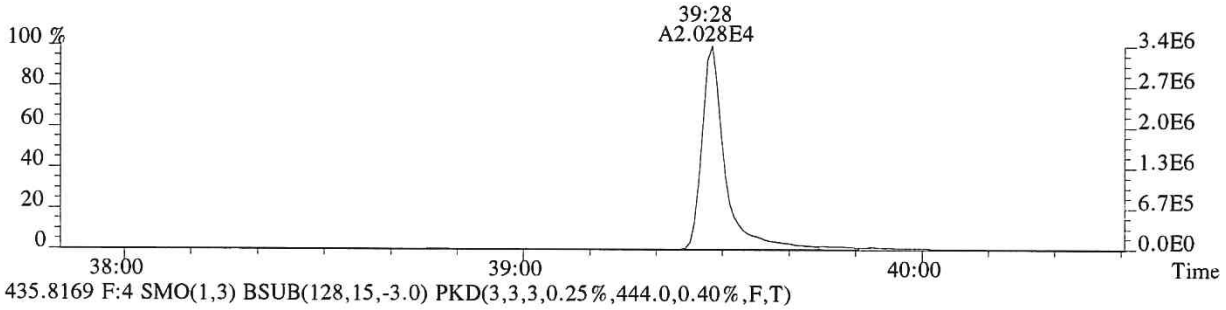


012730

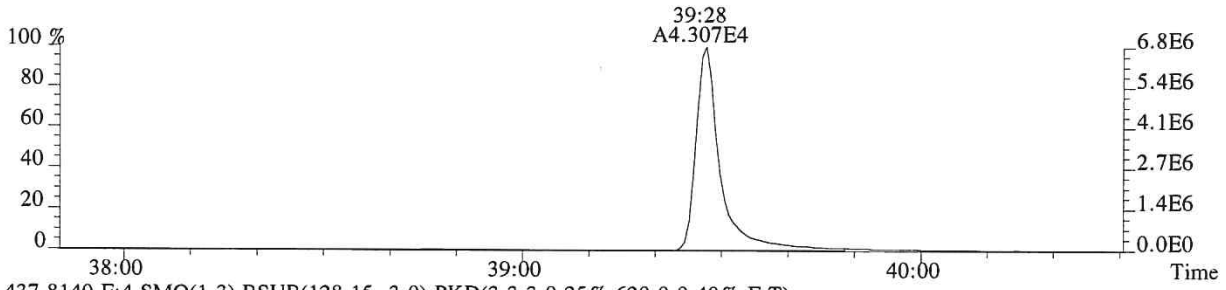
File:P519319 #1-241 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



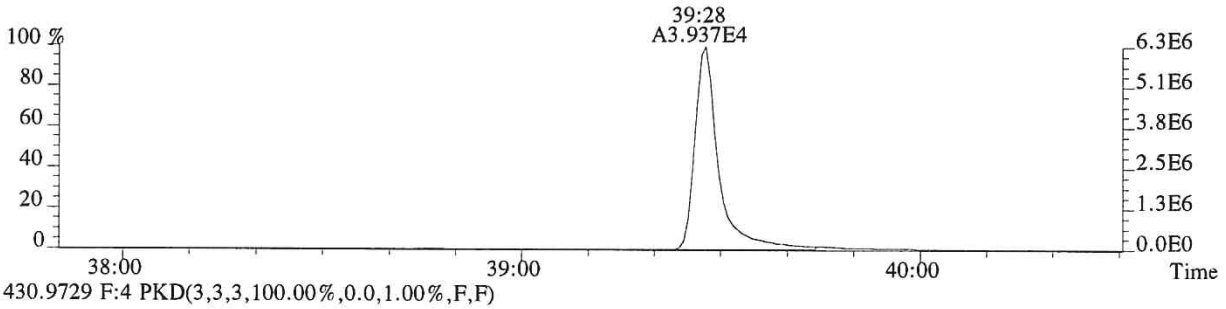
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



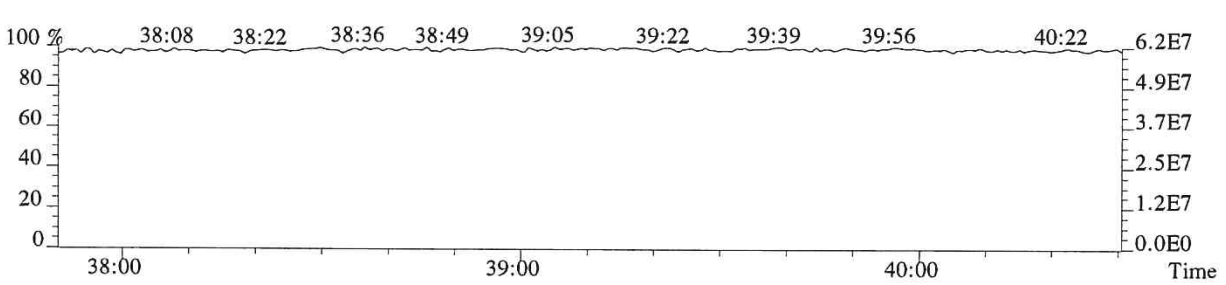
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



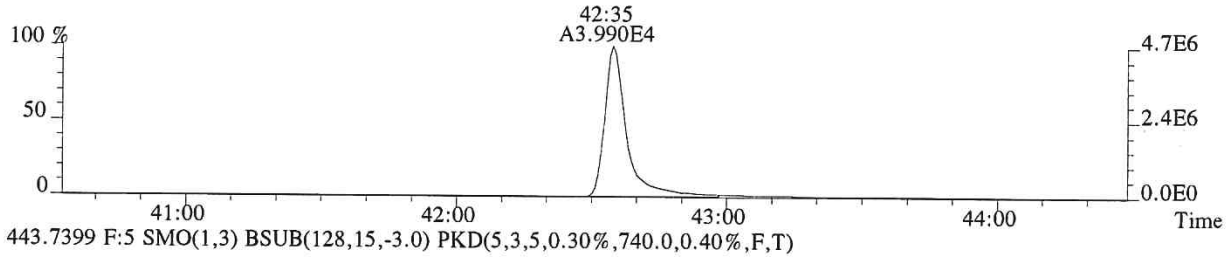
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



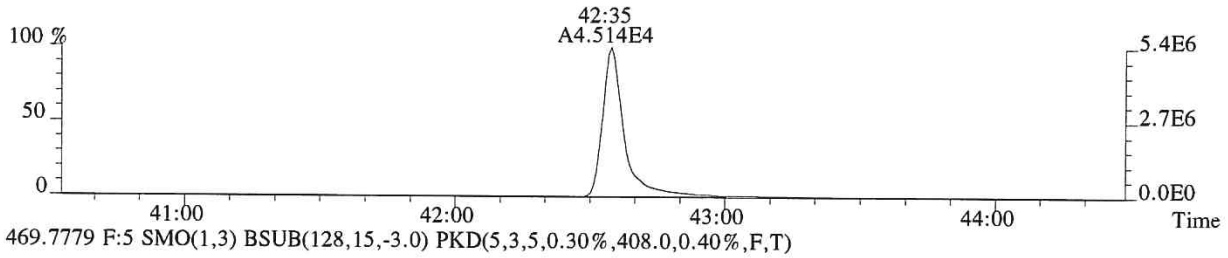
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



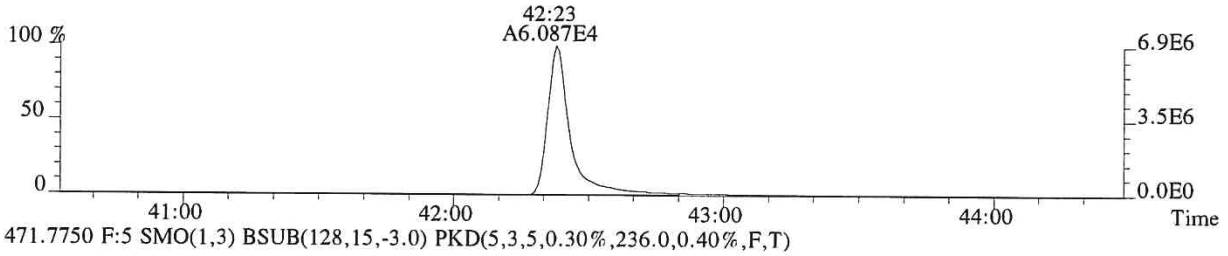
File:P519319 #1-355 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



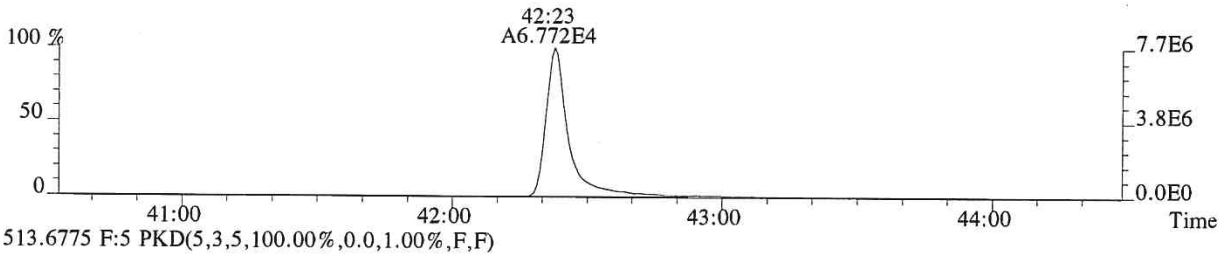
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



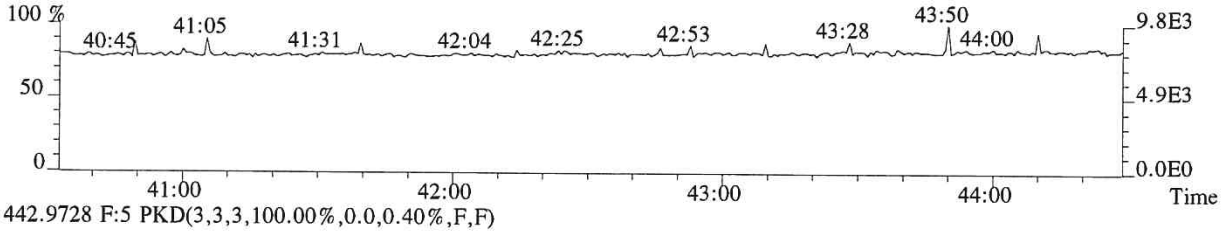
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



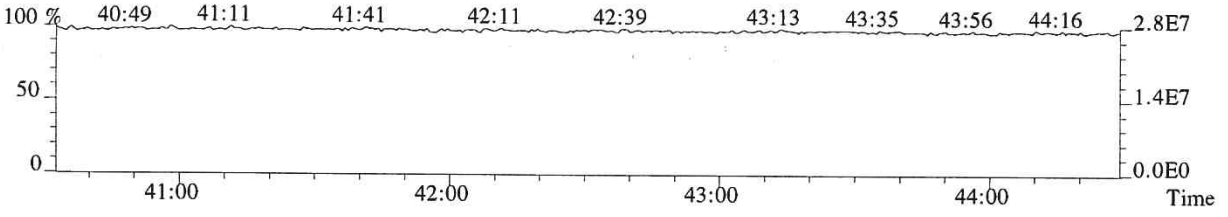
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



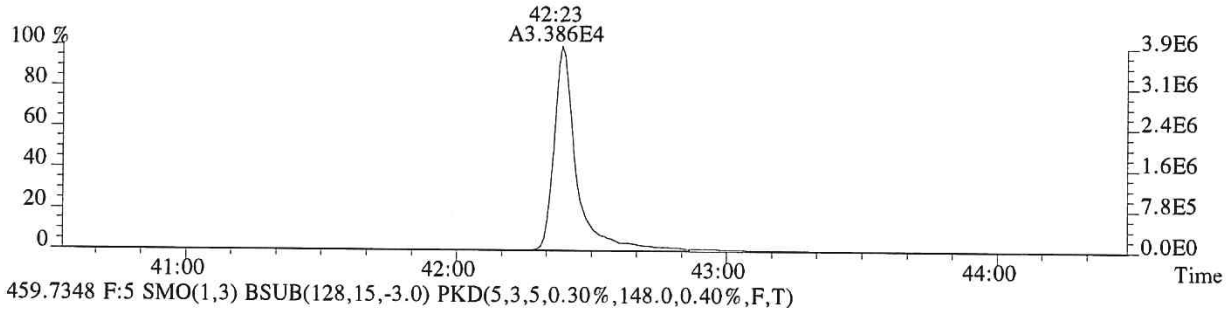
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



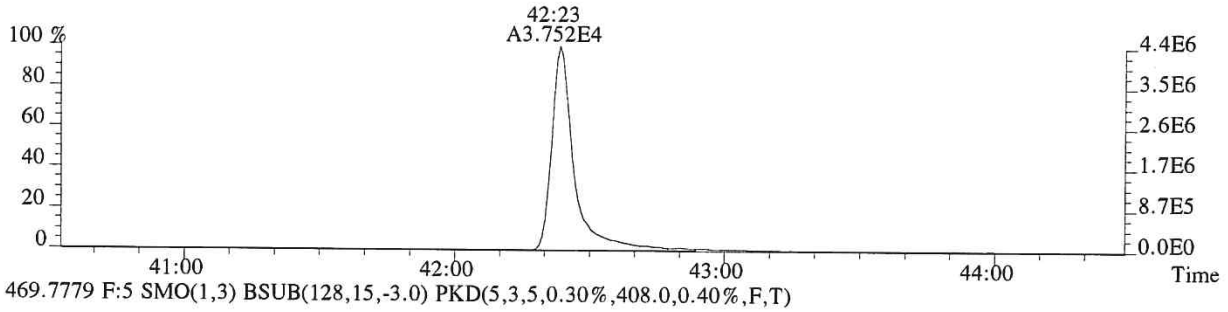
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



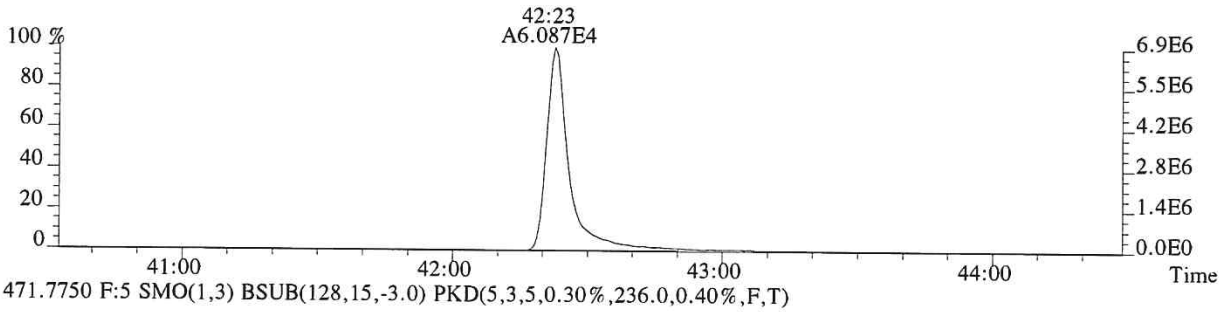
File:P519319 #1-355 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



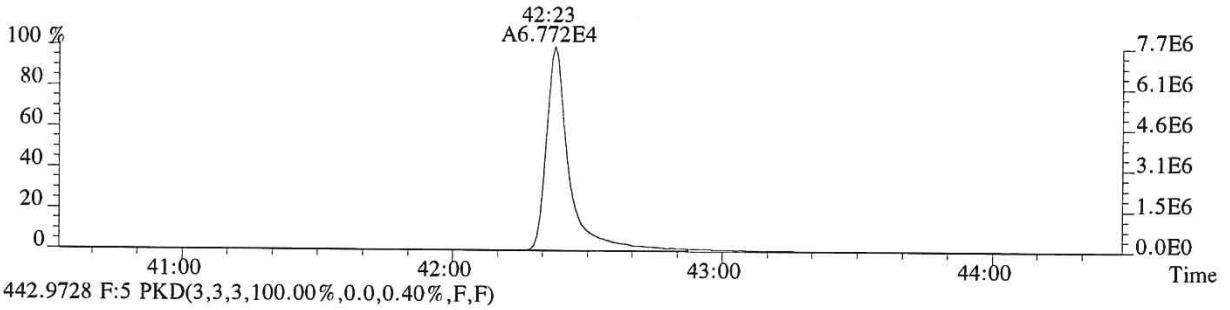
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



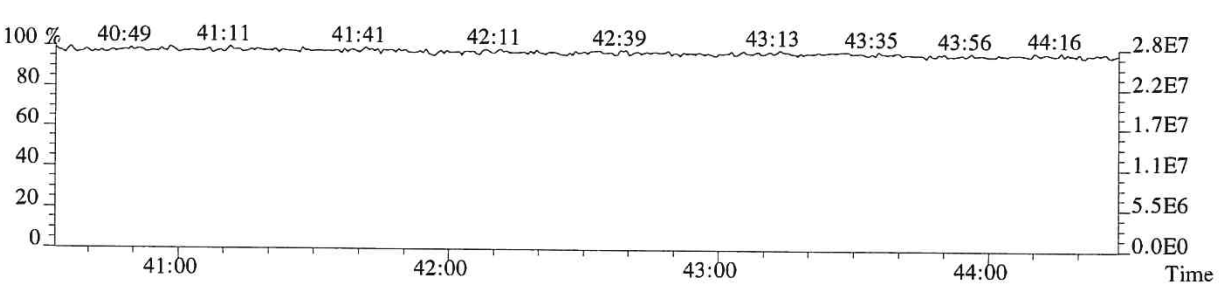
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P5I9335

Date: 12/10/18 - 12/11/18

Circle one: Beginning / Ending

Method: (1613) 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519335	10-DEC-18	22:00:44
192977	WINDOW DEFINE	P519336	10-DEC-18	22:48:30
METHOD BLANK	EQ1800485-01	P519337	10-DEC-18	23:37:07
SL0550	E1801057-005	P519338	11-DEC-18	00:25:45
SL0191	E1801056-006DL	P519339	11-DEC-18	01:14:23
SL0203	E1801056-039DL	P519340	11-DEC-18	02:03:00
SL0204	E1801056-040DL	P519341	11-DEC-18	02:51:38
SL0563	E1801065-014	P519342	11-DEC-18	03:40:15
SL0564	E1801065-015	P519343	11-DEC-18	04:28:53
SL0565	E1801065-016	P519344	11-DEC-18	05:17:31
SL0566	E1801065-017	P519345	11-DEC-18	06:06:16
SL0567	E1801065-018	P519346	11-DEC-18	06:56:26
SL0568	E1801065-019	P519347	11-DEC-18	07:44:14
SL0569	E1801065-020	P519348	11-DEC-18	08:32:58
SL0571	E1801065-021	P519349	11-DEC-18	09:21:38

E1801056

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181210B.SPL
Last Modified: Tuesday, December 11, 2018 10:08:36 Central Standard Time
Printed: Tuesday, December 11, 2018 10:08:38 Central Standard Time

Page Position (1, 1)

Opus 4: P519335 res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/10/18	22:00	P519335	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 22:00
2	↓	23:48	P519336	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	↓	
3	↓	23:37	P519337	MB	EQ1800485-01	EPA1613_ALS	Dioxin_ALS	Tray1:3	↓	
4	12/11/18	00:25	P519338	E1801057-005	E1801057-005	EPA1613_ALS	Dioxin_ALS	Tray1:4	↓	
5	↓	01:14	P519339	E1801056-006DL	E1801056-006DL	EPA1613_ALS	Dioxin_ALS	Tray1:5	↓	
6	↓	02:03	P519340	E1801056-039DL	E1801056-039DL	EPA1613_ALS	Dioxin_ALS	Tray1:6	↓	
7	↓	02:51	P519341	E1801056-040DL	E1801056-040DL	EPA1613_ALS	Dioxin_ALS	Tray1:7	↓	
8	↓	03:40	P519342	E1801065-014	E1801065-014	EPA1613_ALS	Dioxin_ALS	Tray1:8	↓	
9	↓	04:28	P519343	E1801065-015	E1801065-015	EPA1613_ALS	Dioxin_ALS	Tray1:9	↓	
10	↓	05:17	P519344	E1801065-016	E1801065-016	EPA1613_ALS	Dioxin_ALS	Tray1:10	↓	
11	↓	06:06	P519345	E1801065-017	E1801065-017	EPA1613_ALS	Dioxin_ALS	Tray1:11	↓	
12	↓	06:56	P519346	E1801065-018	E1801065-018	EPA1613_ALS	Dioxin_ALS	Tray1:12	↓	
13	↓	07:44	P519347	E1801065-019	E1801065-019	EPA1613_ALS	Dioxin_ALS	Tray1:13	↓	
14	↓	08:32	P519348	E1801065-020	E1801065-020	EPA1613_ALS	Dioxin_ALS	Tray1:14	↓	
15	↓	09:21	P519349	E1801065-021	E1801065-021	EPA1613_ALS	Dioxin_ALS	Tray1:15	↓	HRMScheck 10:15
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

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LG 12/12/18

Printed: Monday, December 10, 2018 22:00:42 Central Standard Time

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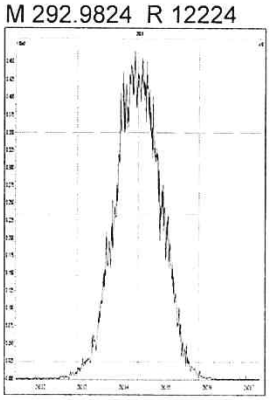

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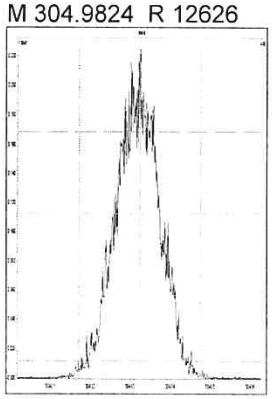

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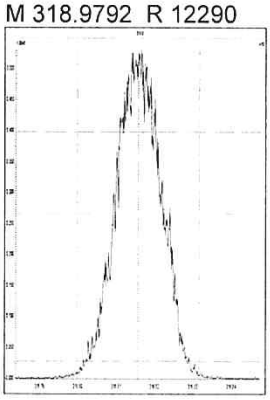

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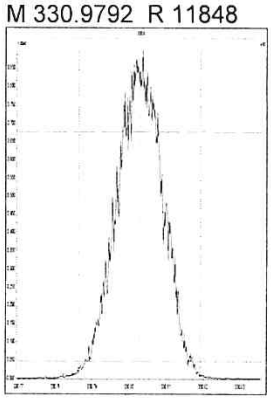

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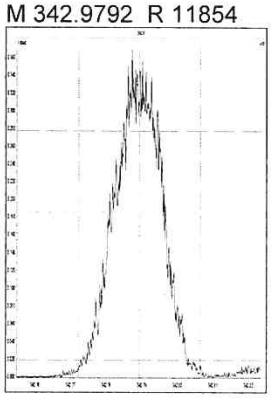

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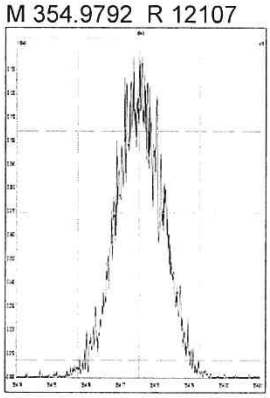

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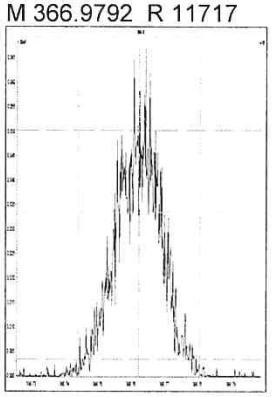

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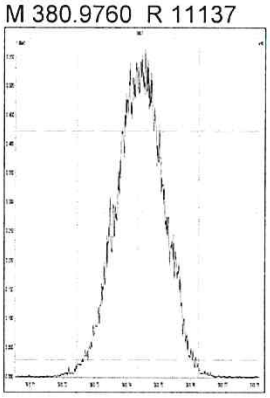

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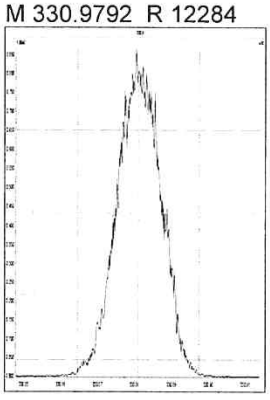

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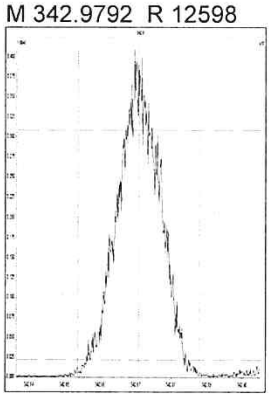

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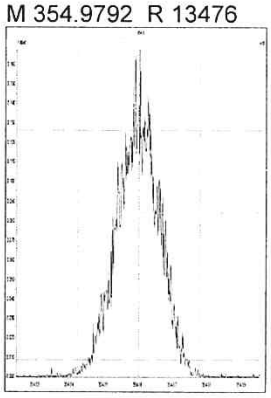

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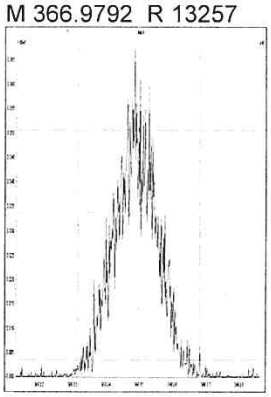

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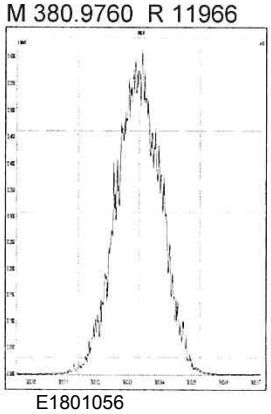

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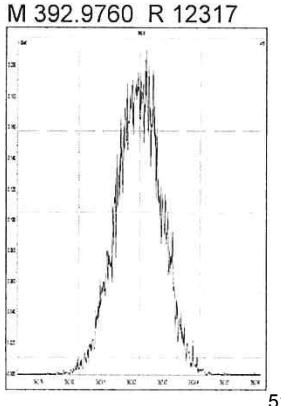

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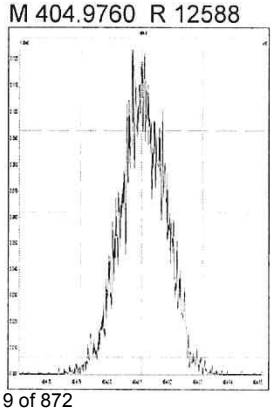

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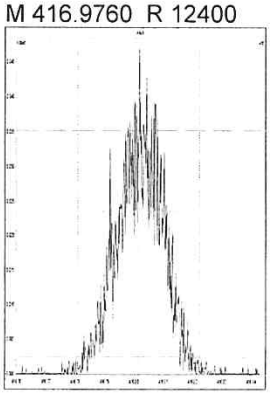

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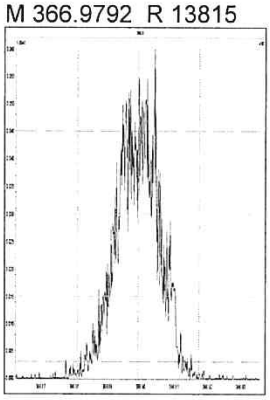

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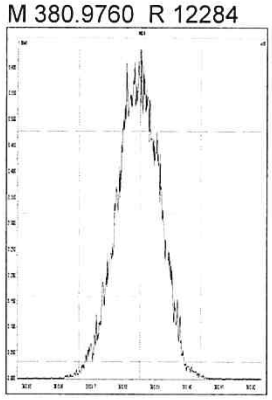

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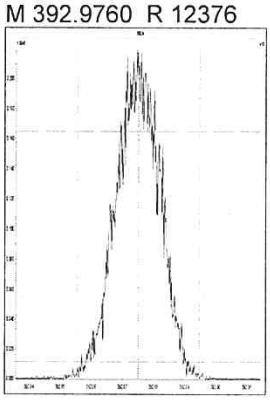

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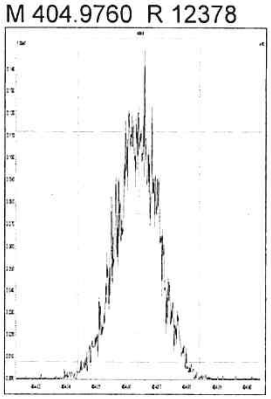

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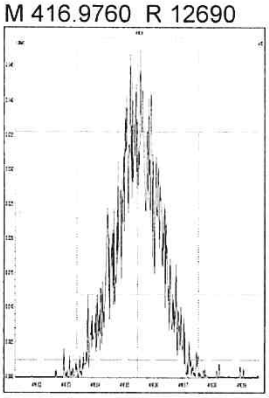

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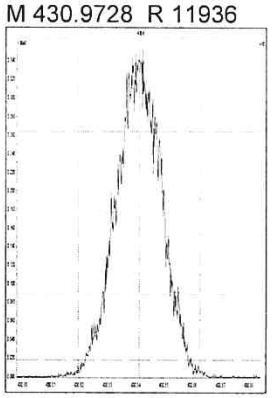

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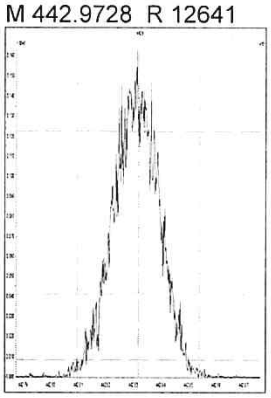

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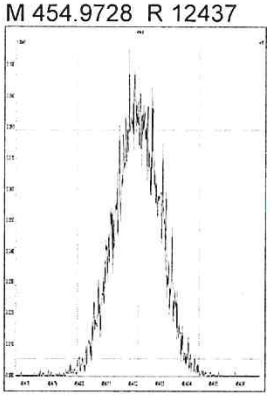

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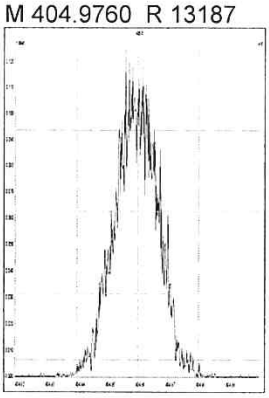

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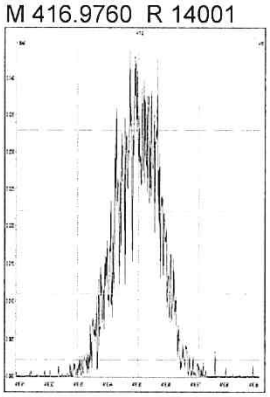

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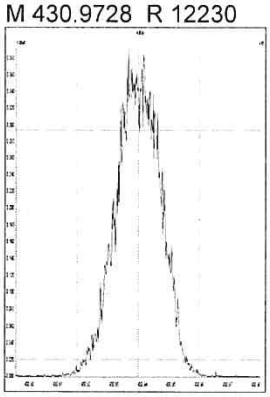

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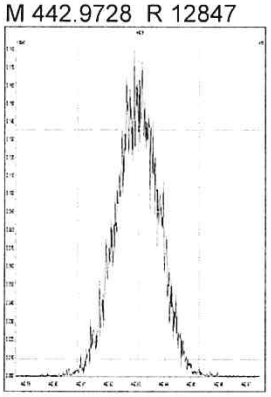

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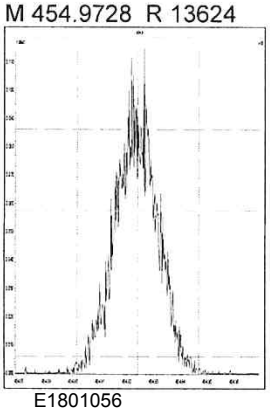

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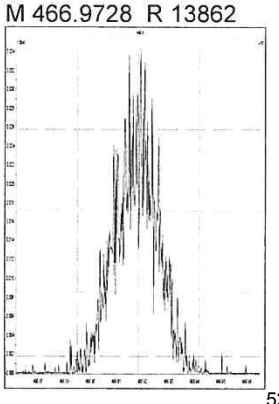

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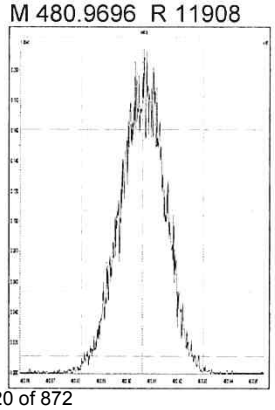

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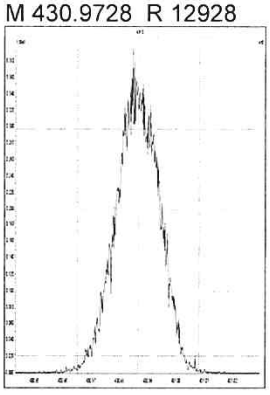

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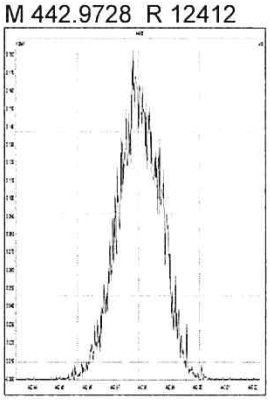

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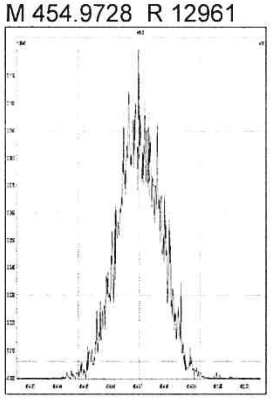

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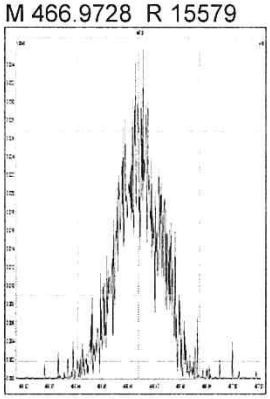

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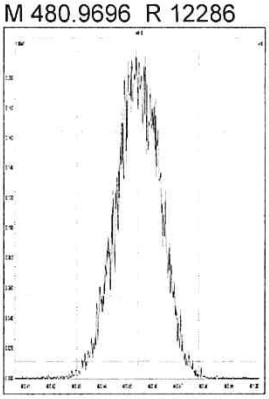

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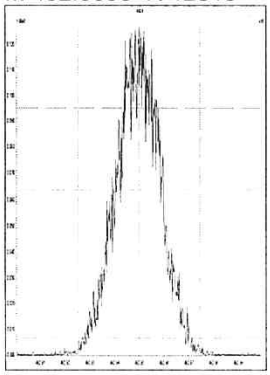
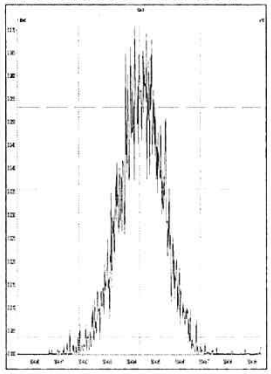
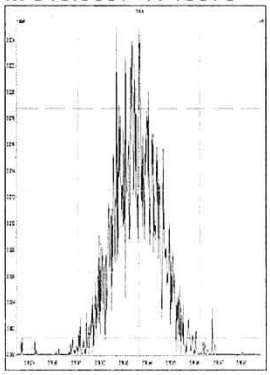


M 504.9696_R 12664



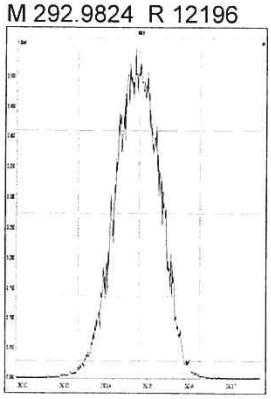
M 516.9697_R 16076



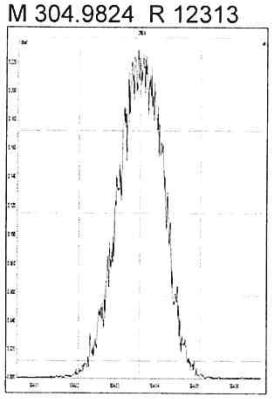
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:15:43 Central Standard Time

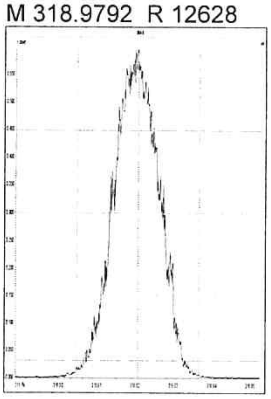
M 292.9824 R 12196



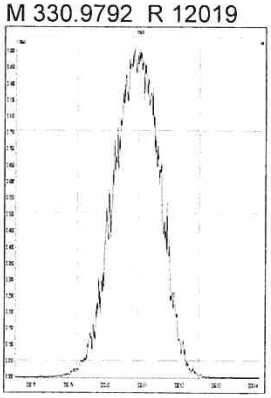
M 304.9824 R 12313



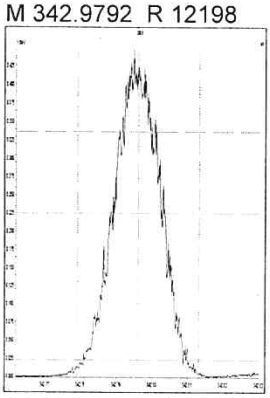
M 318.9792 R 12628



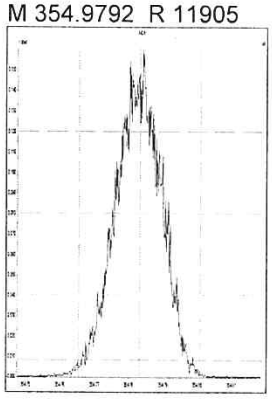
M 330.9792 R 12019



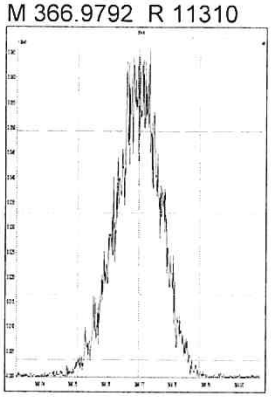
M 342.9792 R 12198



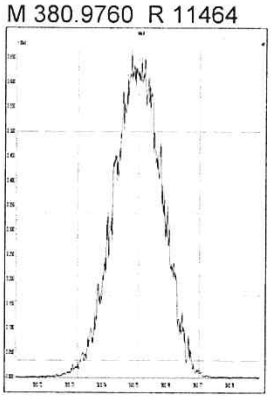
M 354.9792 R 11905



M 366.9792 R 11310



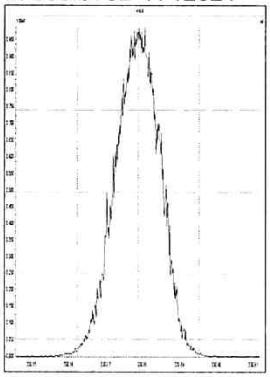
M 380.9760 R 11464



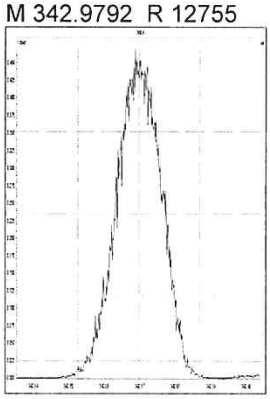
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:16:27 Central Standard Time

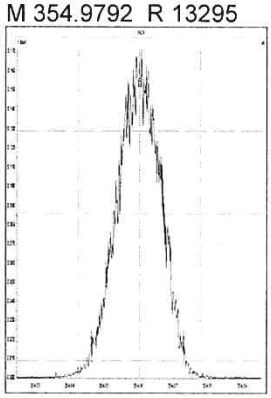
M 330.9792 R 12021



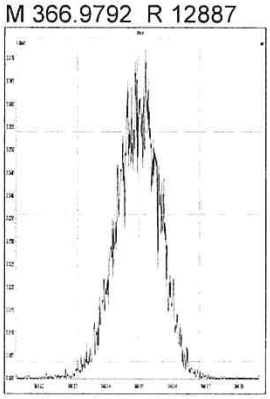
M 342.9792 R 12755



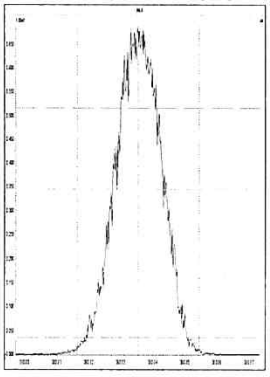
M 354.9792 R 13295



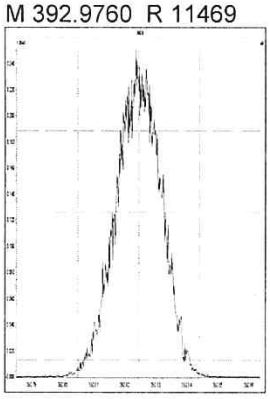
M 366.9792 R 12887



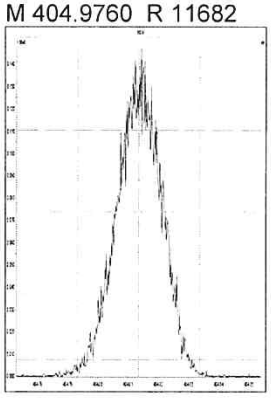
M 380.9760 R 12023



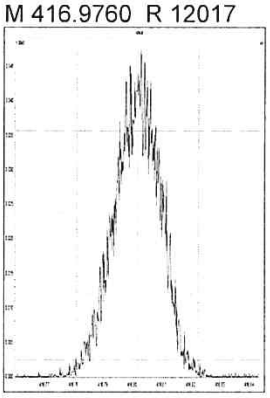
M 392.9760 R 11469



M 404.9760 R 11682



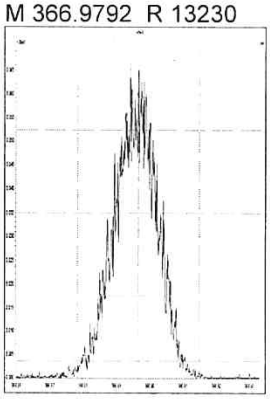
M 416.9760 R 12017



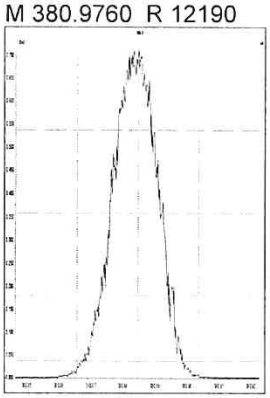
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:17:11 Central Standard Time

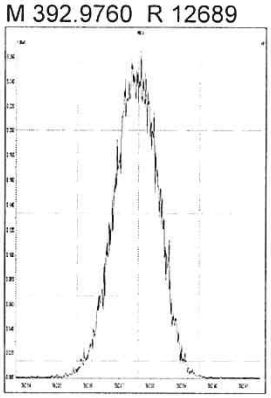
M 366.9792 R 13230



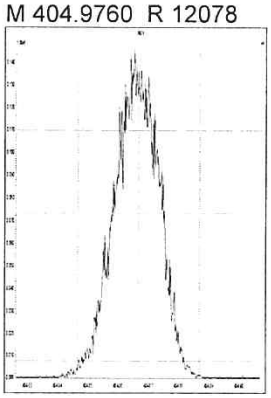
M 380.9760 R 12190



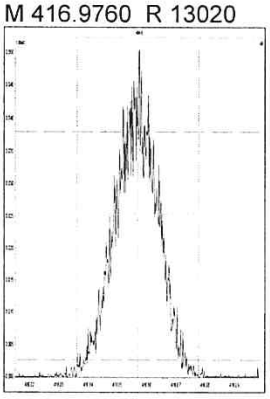
M 392.9760 R 12689



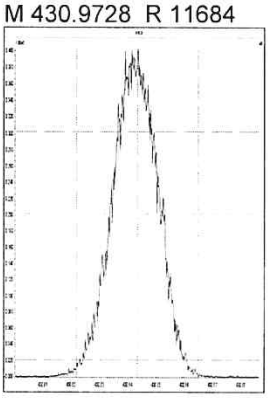
M 404.9760 R 12078



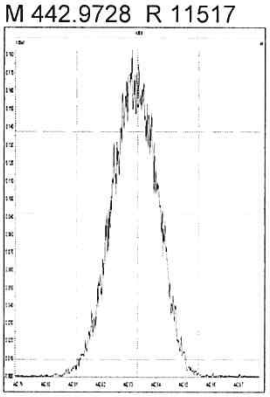
M 416.9760 R 13020



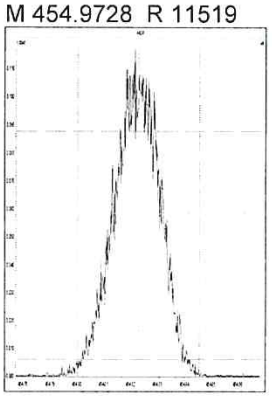
M 430.9728 R 11684



M 442.9728 R 11517



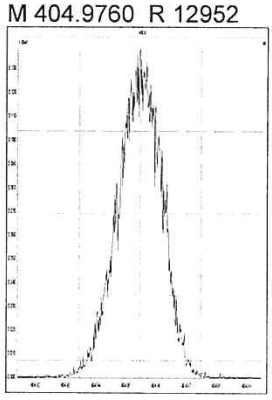
M 454.9728 R 11519



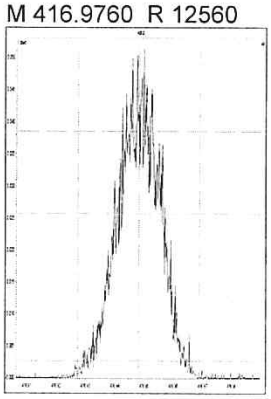
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:17:51 Central Standard Time

M 404.9760 R 12952



M 416.9760 R 12560



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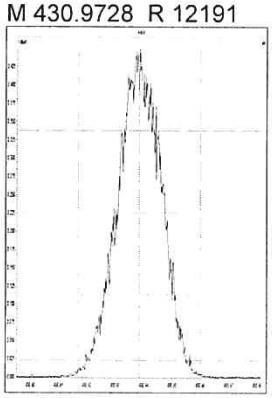
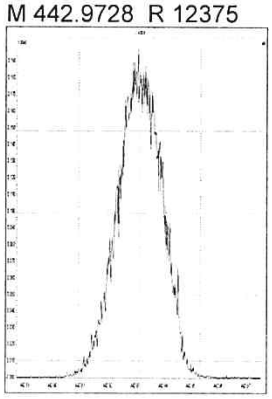
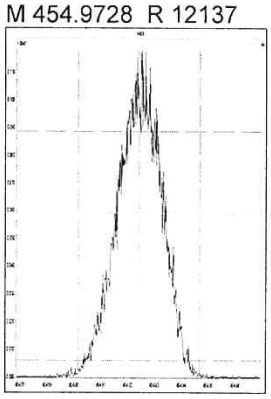


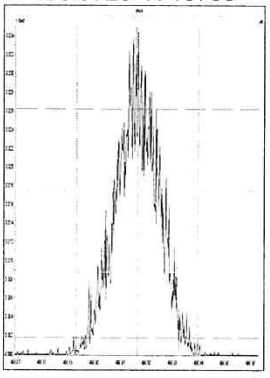
M 442.9728 R 12375



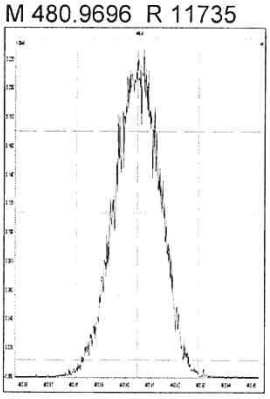
M 454.9728 R 12137



M 466.9728 R 13736



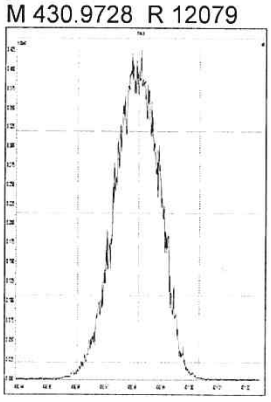
M 480.9696 R 11735



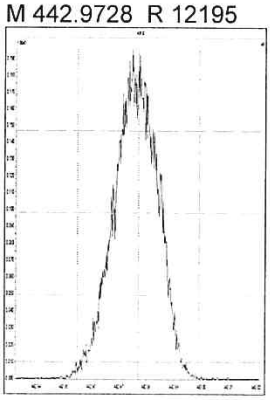
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:18:37 Central Standard Time

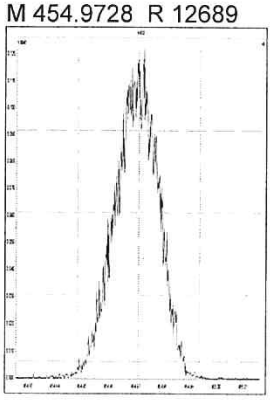
M 430.9728 R 12079



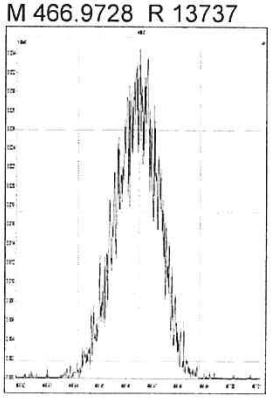
M 442.9728 R 12195



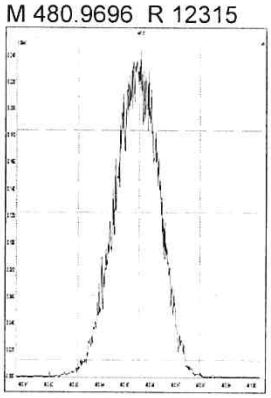
M 454.9728 R 12689



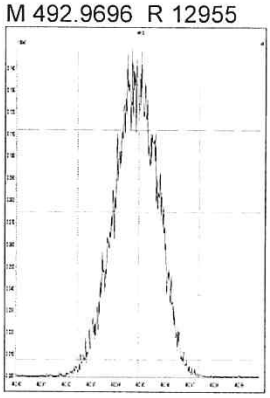
M 466.9728 R 13737



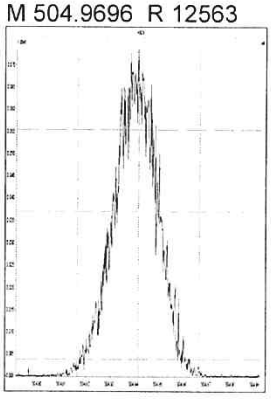
M 480.9696 R 12315



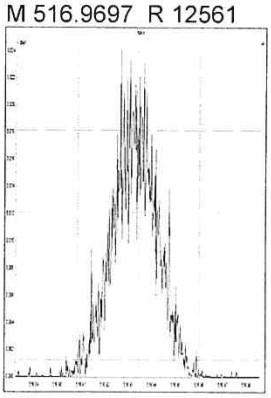
M 492.9696 R 12955



M 504.9696 R 12563



M 516.9697 R 12561



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

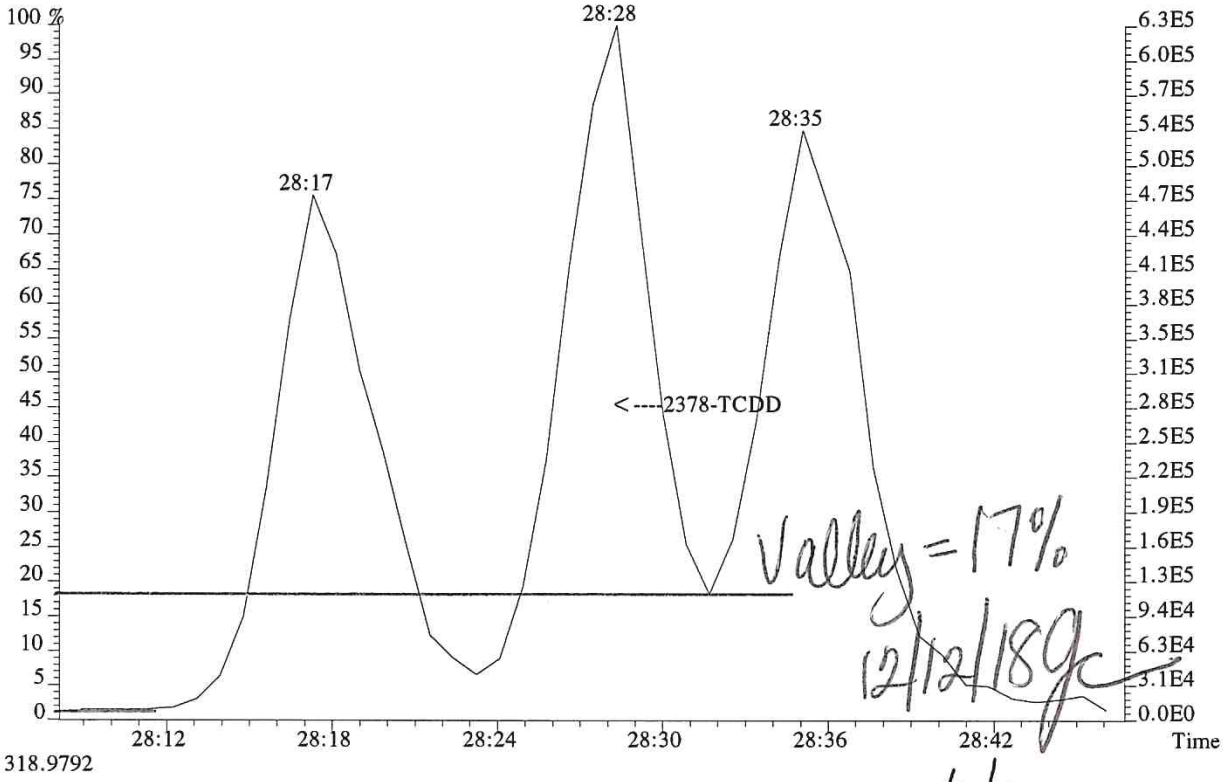
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P519336
Date Analyzed: 10-DEC-2018
Time Analyzed: 22:48:30

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:12	29:39
TCDD	24:59	29:30
PeCDF	29:37	33:58
PeCDD	31:12	33:43
HxCDF	34:39	37:15
HxCDD	35:12	36:51
HpCDF	38:32	40:00
HpCDD	38:48	39:31

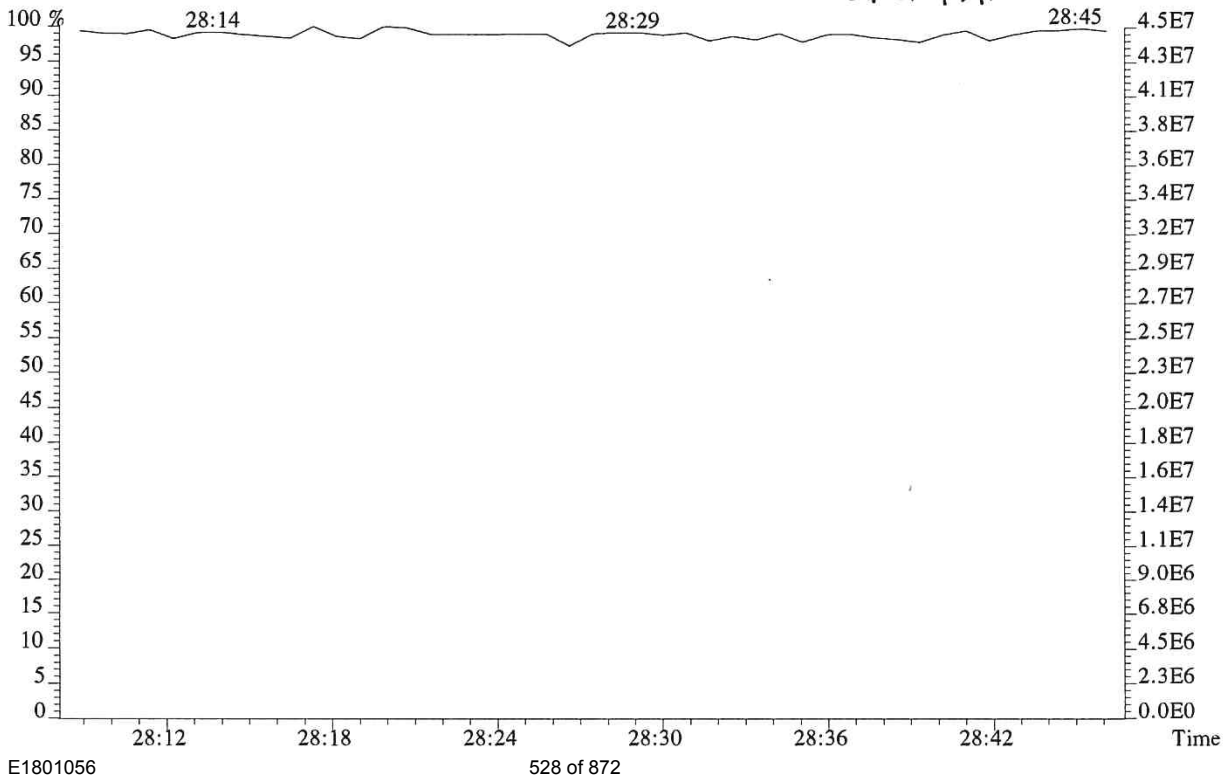
% Valley 2378-TCDD: 17 %

File:P519336 #1-587 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LM 12/13/18



012746

File:P519336 #1-587 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
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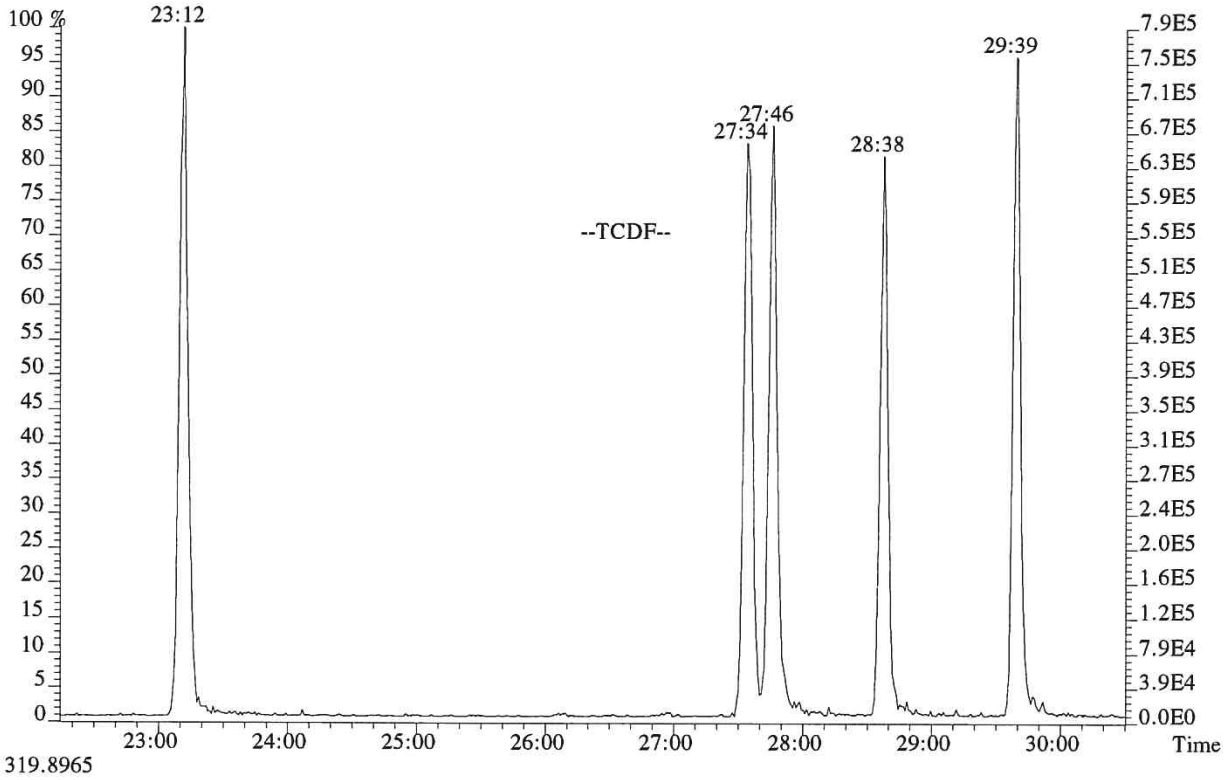
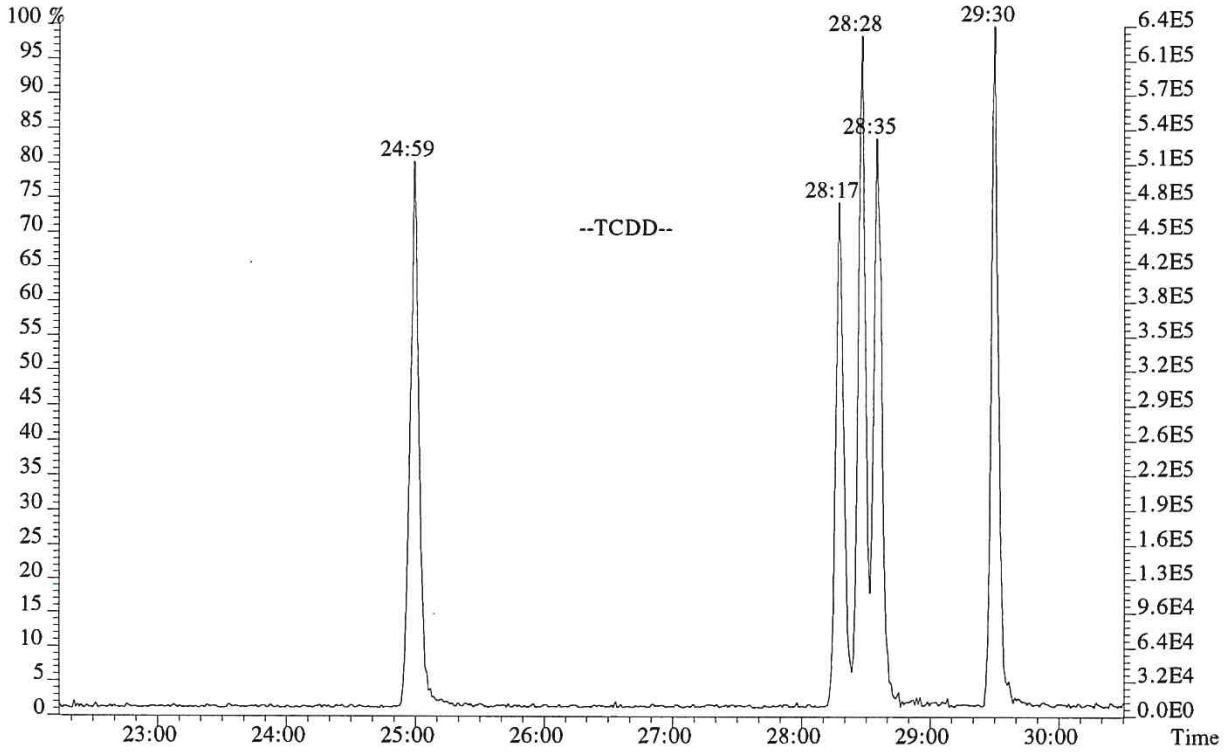
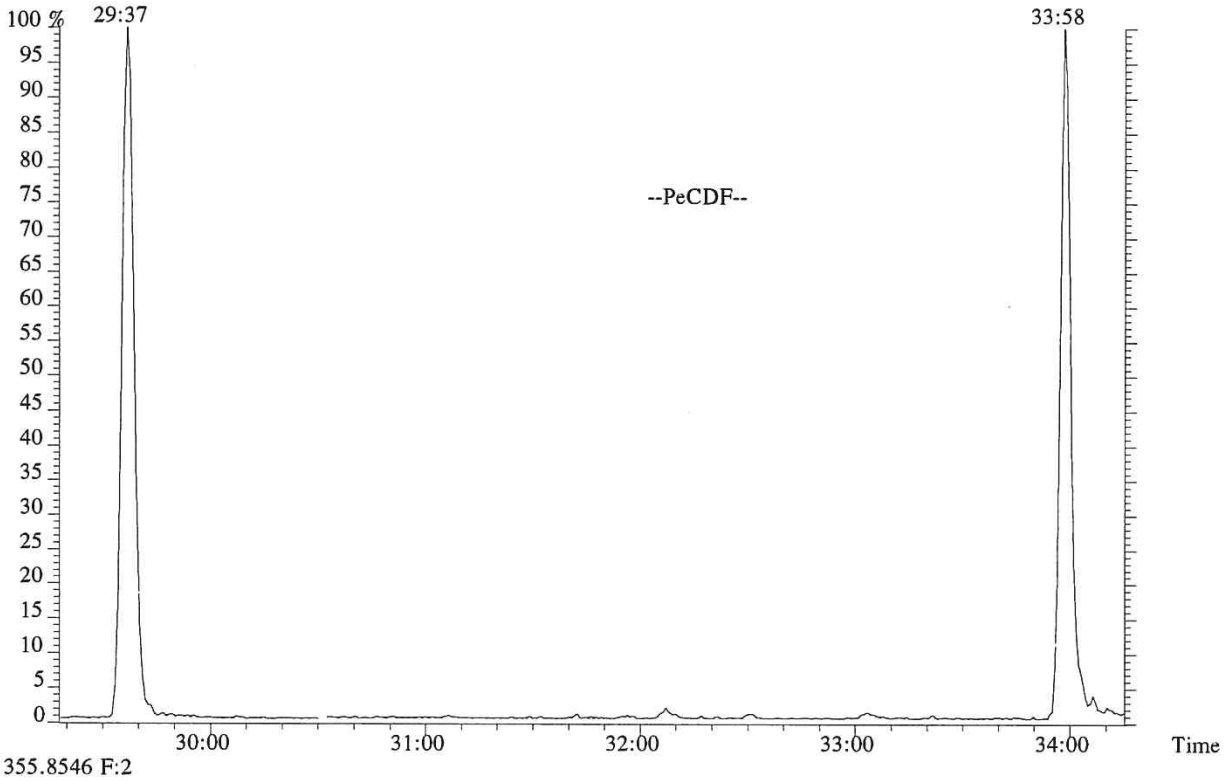


319.8965

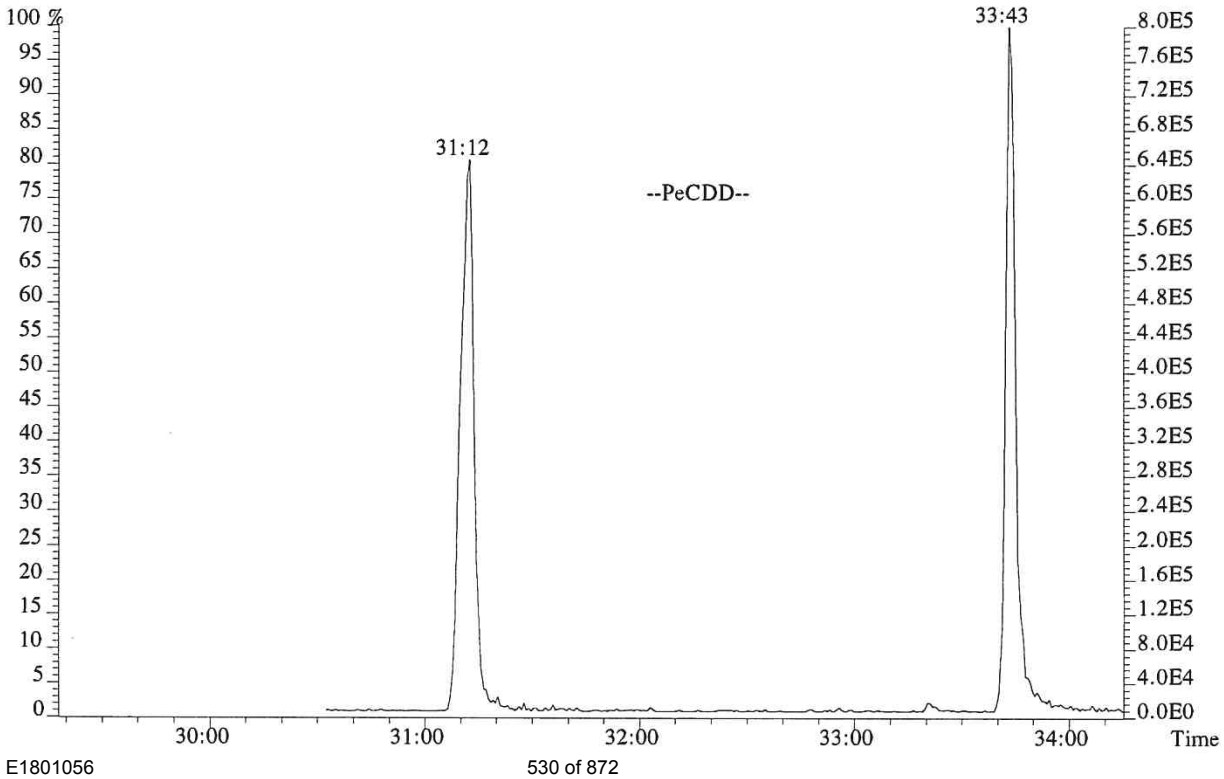


012747

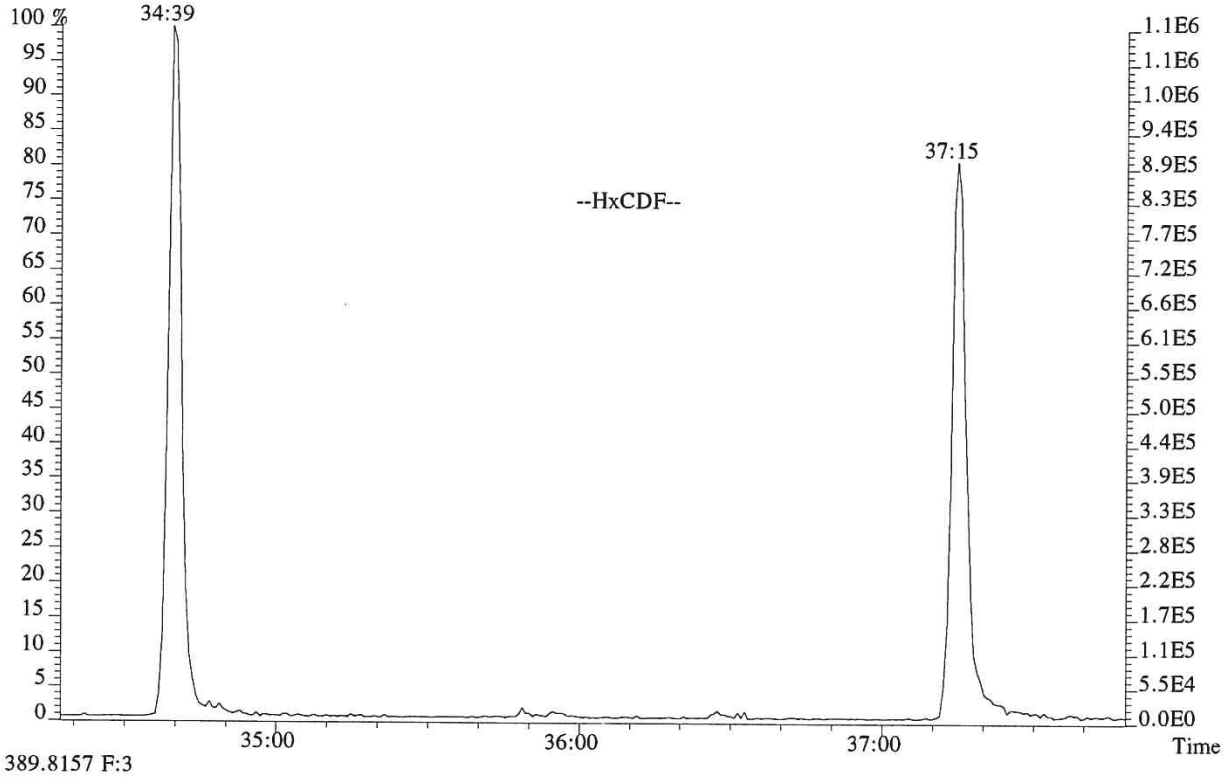
File:P519336 #1-587 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



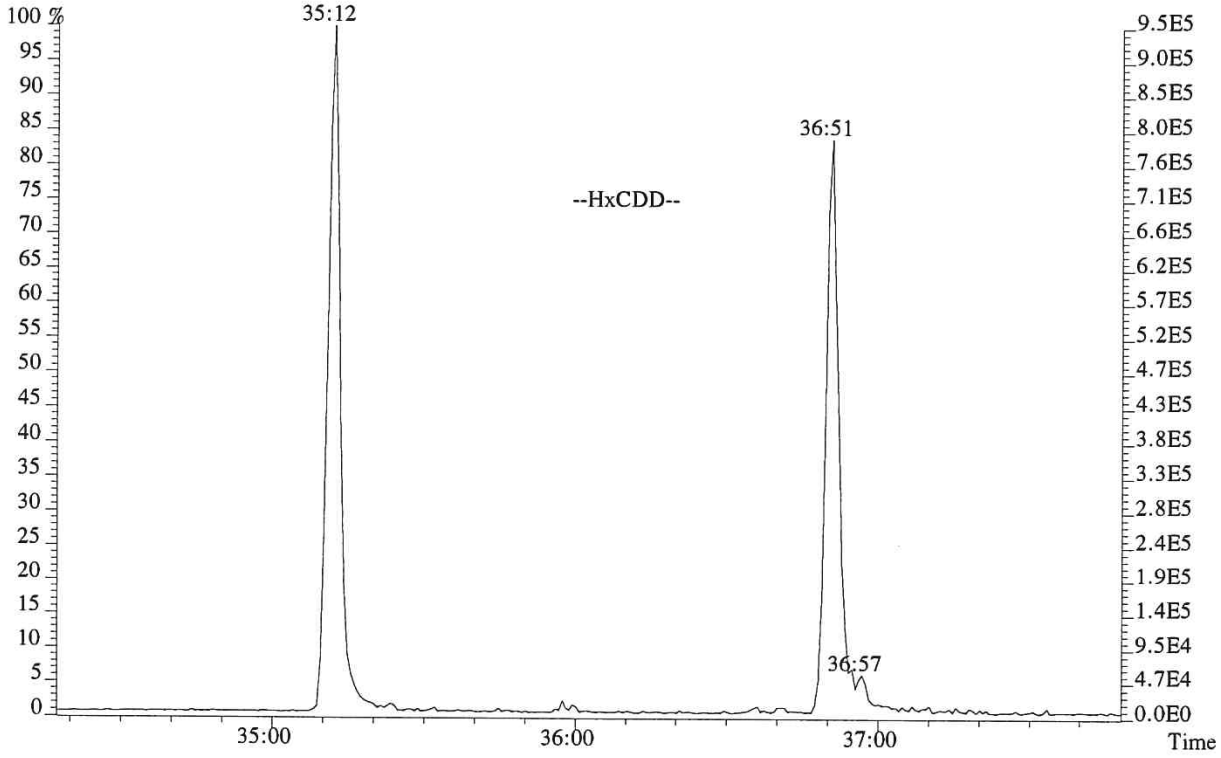
355.8546 F:2



File:P519336 #1-317 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3

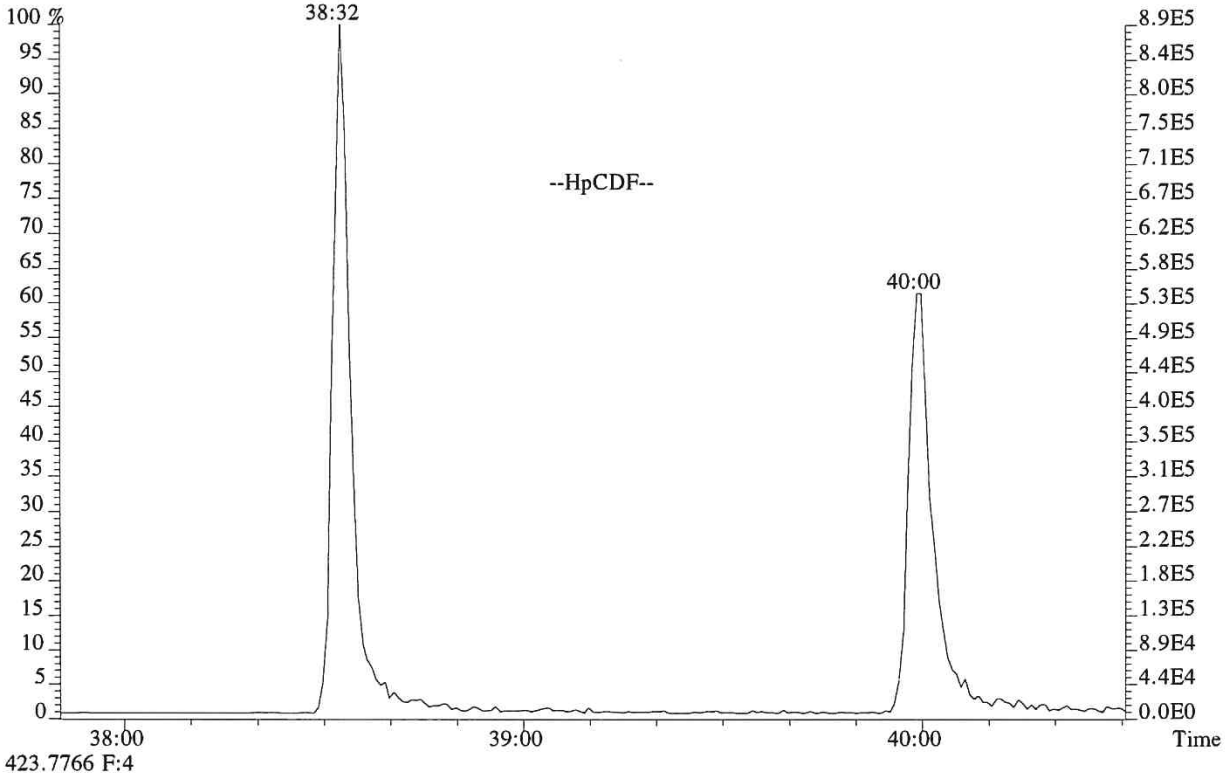


389.8157 F:3

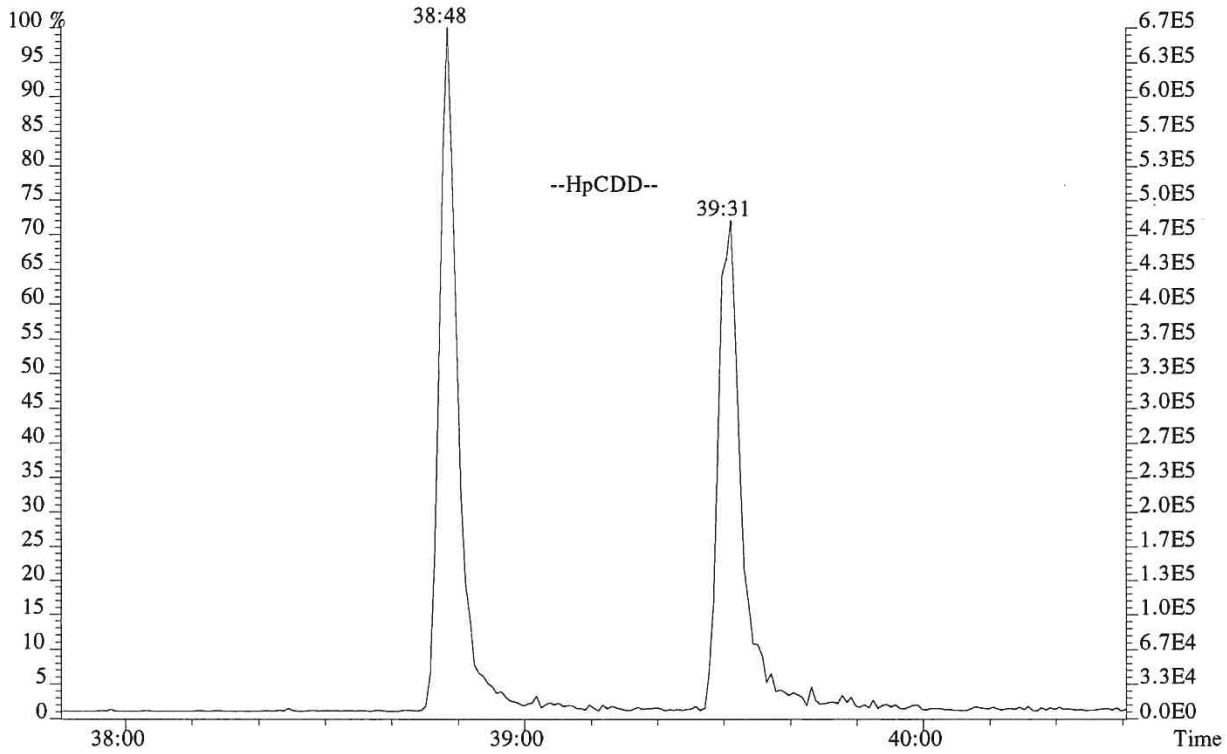


012749

File:P519336 #1-241 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



012750

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519335 Analysis Date: 10-DEC-18 Time: 22:00:44

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.4	7.8 - 12.9	-6.4
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	50	39 - 65	-0.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	-0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	52	41 - 61	4.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	0.3
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.1
2,3,7,8-TCDF	M/M+2	0.72	0.65-0.89	9.9	8.4 - 12.0	-1.5
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	50	41 - 60	0.4
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	50	41 - 61	0.1
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	3.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	1.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	1.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	49	45 - 55	-1.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	49	43 - 58	-1.6
OCDF	M+2/M+4	0.89	0.76-1.02	99	63 - 159	-0.7

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519335 Analysis Date: 10-DEC-18 Time: 22:00:44

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	102	82 - 121	1.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	109	62 - 160	9.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	91	85 - 117	-9.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	101	85 - 118	1.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	103	72 - 138	3.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	248	96 - 415	24.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	95	71 - 140	-5.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	110	76 - 130	10.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	109	77 - 130	8.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	86	76 - 131	-13.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	70 - 143	-2.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	97	74 - 135	-3.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	73 - 137	-5.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	104	77 - 129	4.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.7	7.8 - 12.7	-3.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519335 Samp: 1 Inj: 1 Acquired: 10-DEC-18 22:00:44
Processed: 12-DEC-18 13:50:37 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	4.207e+03	5.817e+03	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	3.760e+04	2.437e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	3.454e+04	2.258e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	2.910e+04	2.379e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.445e+04	2.814e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	2.957e+04	2.453e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	2.705e+04	2.191e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	2.703e+04	2.632e+04	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	2.153e+04	2.107e+04	1.02	yes	no	1.258
10	Unk	OCDF	42:37	3.685e+04	4.158e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	3.096e+03	4.097e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	2.340e+04	1.473e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	1.950e+04	1.535e+04	1.27	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	2.233e+04	1.749e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.234e+04	1.803e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	1.861e+04	1.798e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:27	3.088e+04	3.485e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	4.764e+04	6.039e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	7.498e+04	4.695e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	7.313e+04	4.596e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	2.914e+04	5.644e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	3.728e+04	7.208e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	3.282e+04	6.292e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	2.908e+04	5.536e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	2.467e+04	5.516e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	2.080e+04	4.803e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	3.147e+04	3.931e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	4.940e+04	3.074e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	3.832e+04	2.928e+04	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	4.347e+04	3.391e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	3.702e+04	3.420e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:26	5.525e+04	6.107e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	3.360e+04	4.161e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	4.512e+04	3.531e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	7.384e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519335 Samp: 1 Inj: 1 Acquired: 10-DEC-18 22:00:44
Processed: 12-DEC-18 13:50:37 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.36e+05	3.56e+02	2.1e+03	9.93e+05	8.76e+02	1.1e+03
2	1,2,3,7,8-PeCDF	6.81e+06	3.48e+02	2.0e+04	4.45e+06	2.02e+03	2.2e+03
3	2,3,4,7,8-PeCDF	6.54e+06	3.48e+02	1.9e+04	4.26e+06	2.02e+03	2.1e+03
4	1,2,3,4,7,8-HxCDF	6.05e+06	6.16e+02	9.8e+03	4.98e+06	3.44e+02	1.4e+04
5	1,2,3,6,7,8-HxCDF	6.36e+06	6.16e+02	1.0e+04	5.21e+06	3.44e+02	1.5e+04
6	2,3,4,6,7,8-HxCDF	5.96e+06	6.16e+02	9.7e+03	5.00e+06	3.44e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	4.99e+06	6.16e+02	8.1e+03	3.98e+06	3.44e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	5.02e+06	1.74e+03	2.9e+03	4.89e+06	2.62e+03	1.9e+03
9	1,2,3,4,7,8,9-HpCDF	3.45e+06	1.74e+03	2.0e+03	3.41e+06	2.62e+03	1.3e+03
10	OCDF	4.49e+06	2.60e+02	1.7e+04	5.08e+06	5.96e+02	8.5e+03
11	2,3,7,8-TCDD	5.57e+05	1.48e+03	3.8e+02	7.54e+05	6.96e+02	1.1e+03
12	1,2,3,7,8-PeCDD	4.39e+06	2.00e+02	2.2e+04	2.75e+06	2.16e+02	1.3e+04
13	1,2,3,4,7,8-HxCDD	4.14e+06	4.08e+02	1.0e+04	3.24e+06	3.24e+02	1.0e+04
14	1,2,3,6,7,8-HxCDD	4.19e+06	4.08e+02	1.0e+04	3.29e+06	3.24e+02	1.0e+04
15	1,2,3,7,8,9-HxCDD	4.08e+06	4.08e+02	1.0e+04	3.28e+06	3.24e+02	1.0e+04
16	1,2,3,4,6,7,8-HpCDD	3.08e+06	4.44e+02	6.9e+03	2.97e+06	5.60e+02	5.3e+03
17	OCDD	3.74e+06	2.20e+02	1.7e+04	4.12e+06	2.52e+02	1.6e+04
18	13C-2,3,7,8-TCDF	8.20e+06	6.94e+03	1.2e+03	1.04e+07	3.87e+03	2.7e+03
19	13C-1,2,3,7,8-PeCDF	1.34e+07	4.04e+02	3.3e+04	8.40e+06	1.06e+03	7.9e+03
20	13C-2,3,4,7,8-PeCDF	1.41e+07	4.04e+02	3.5e+04	9.00e+06	1.06e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	6.12e+06	7.04e+02	8.7e+03	1.18e+07	8.00e+02	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	7.01e+06	7.04e+02	1.0e+04	1.36e+07	8.00e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	6.63e+06	7.04e+02	9.4e+03	1.26e+07	8.00e+02	1.6e+04
24	13C-1,2,3,7,8,9-HxCDF	5.29e+06	7.04e+02	7.5e+03	1.02e+07	8.00e+02	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.60e+06	1.06e+03	4.3e+03	1.02e+07	8.57e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.36e+06	1.06e+03	3.2e+03	7.56e+06	8.57e+03	8.8e+02
27	13C-2,3,7,8-TCDD	5.84e+06	3.74e+03	1.6e+03	7.29e+06	1.39e+03	5.2e+03
28	13C-1,2,3,7,8-PeCDD	9.22e+06	3.84e+02	2.4e+04	5.81e+06	6.36e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	8.12e+06	6.36e+02	1.3e+04	6.29e+06	4.28e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	8.17e+06	6.36e+02	1.3e+04	6.42e+06	4.28e+02	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.01e+06	6.08e+02	9.9e+03	5.55e+06	3.28e+02	1.7e+04
32	13C-OCDD	6.58e+06	5.00e+02	1.3e+04	7.22e+06	2.44e+02	3.0e+04
33	13C-1,2,3,4-TCDD	6.17e+06	3.74e+03	1.6e+03	7.58e+06	1.39e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.94e+06	6.36e+02	1.2e+04	6.36e+06	4.28e+02	1.5e+04
35	37Cl-2,3,7,8-TCDD	1.34e+06	6.32e+02	2.1e+03			

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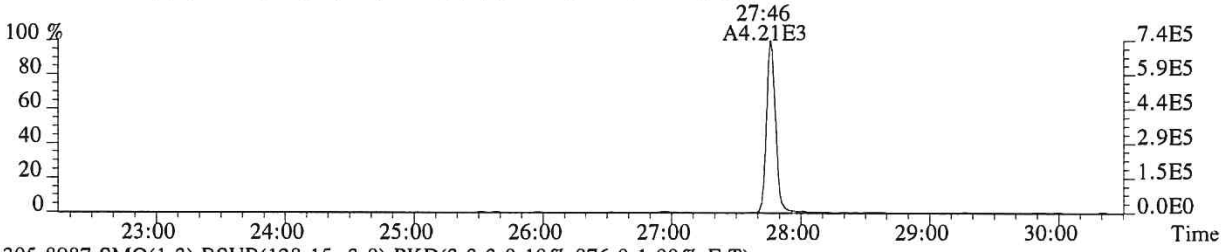
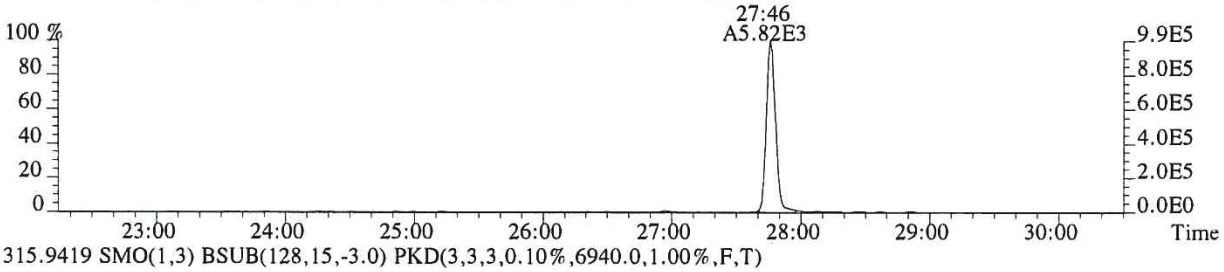
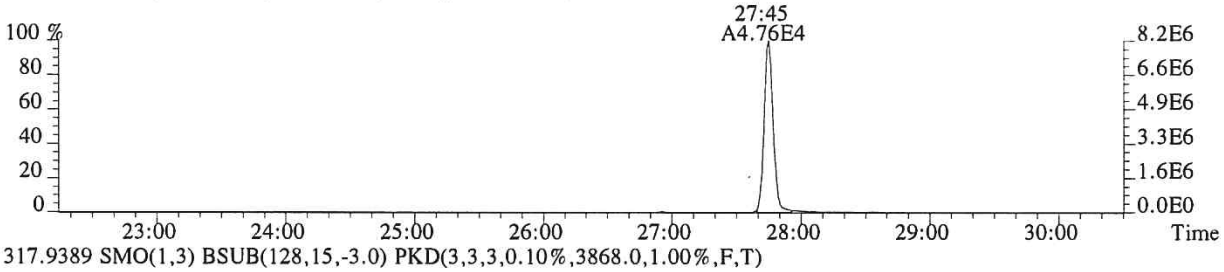
File:P519335 #1-587 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



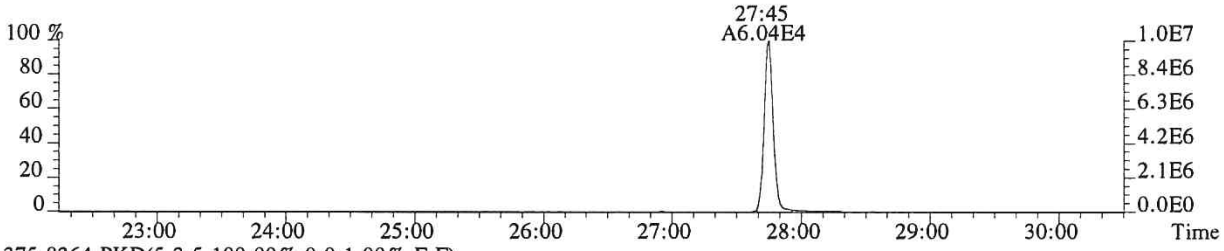
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



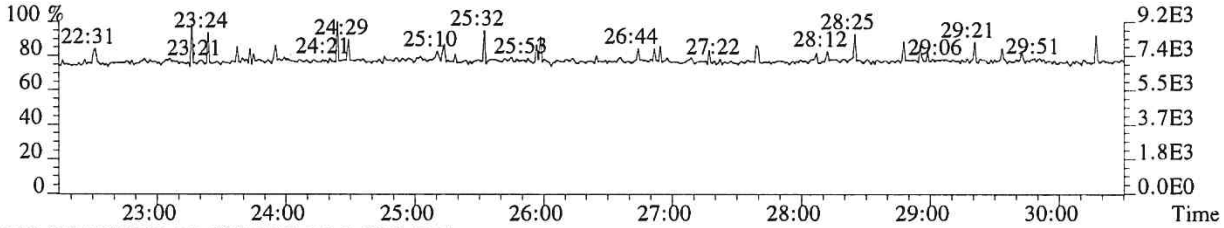
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6940.0,1.00%,F,T)



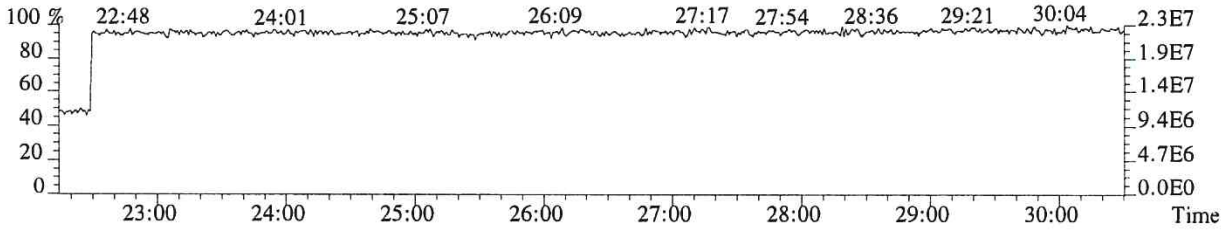
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

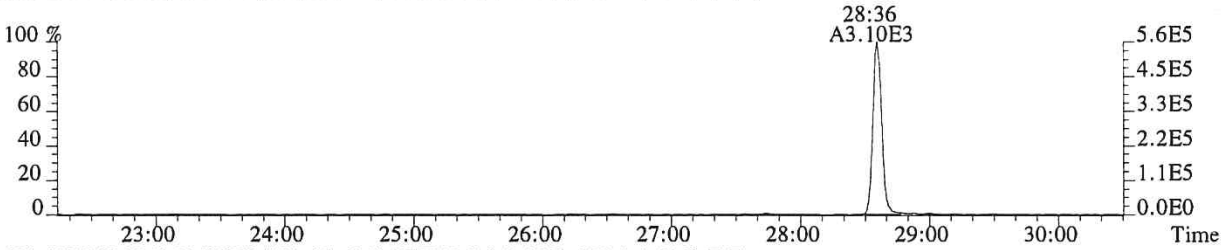


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

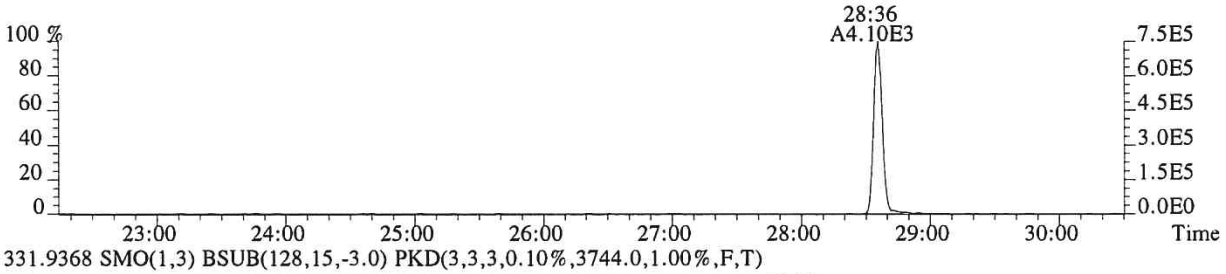


012755

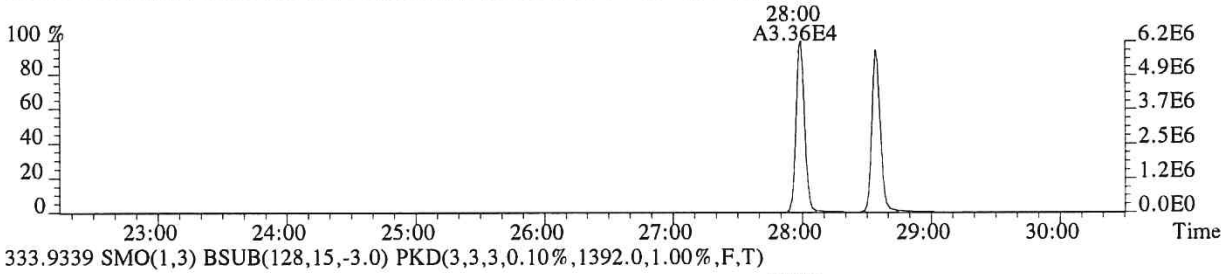
File:P519335 #1-587 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



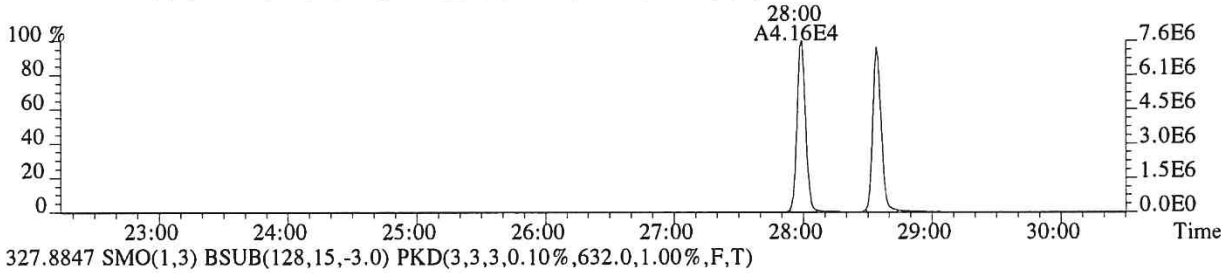
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



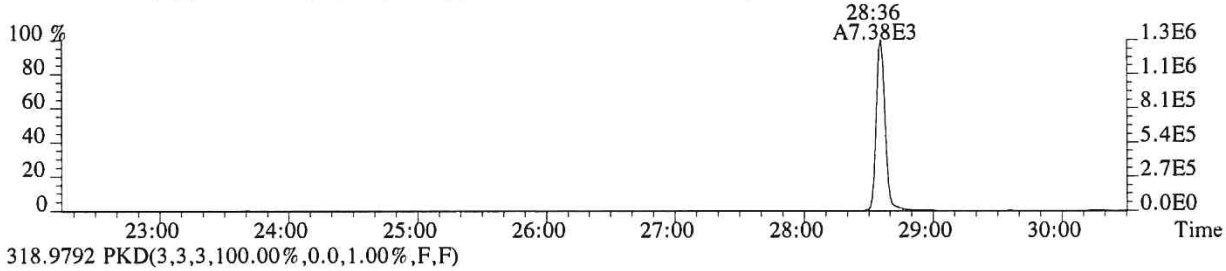
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3744.0,1.00%,F,T)



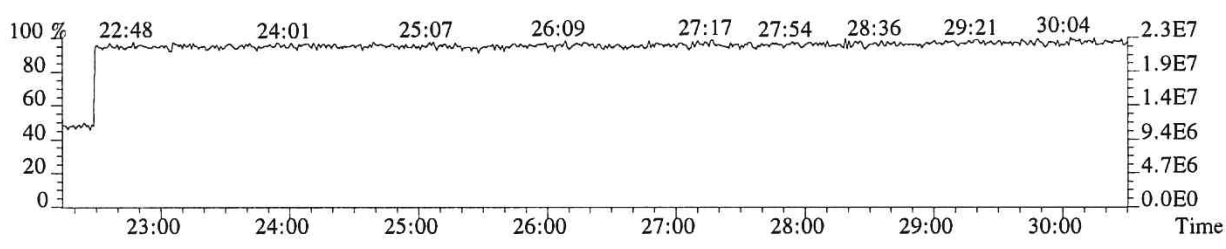
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)

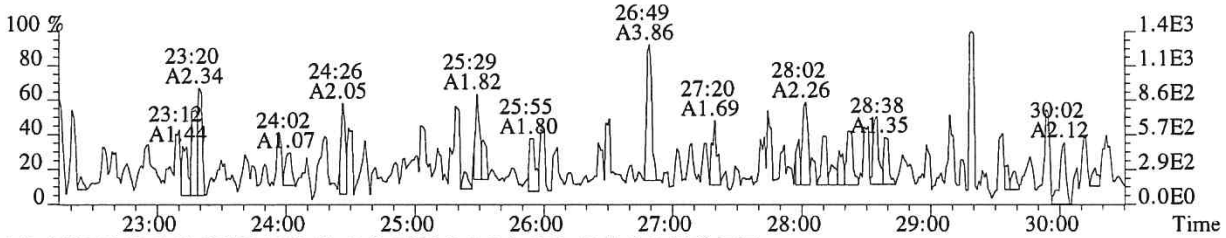


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

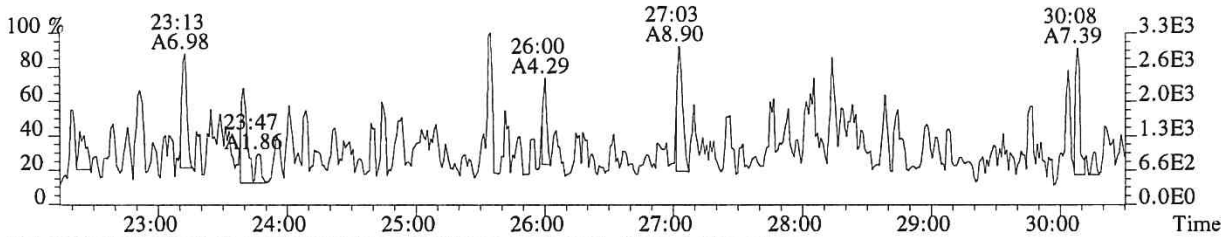


012756

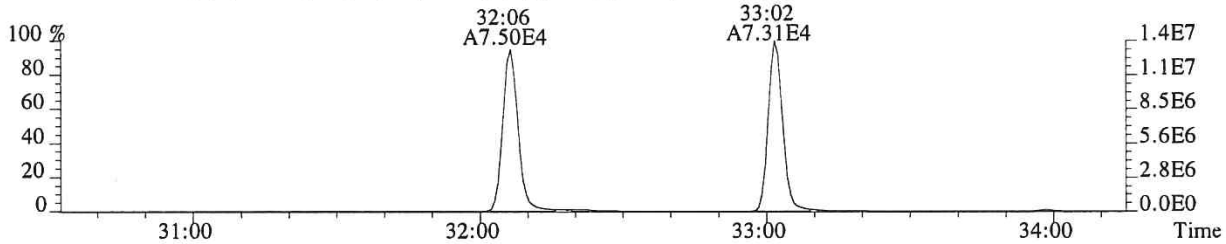
File:P519335 #1-587 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



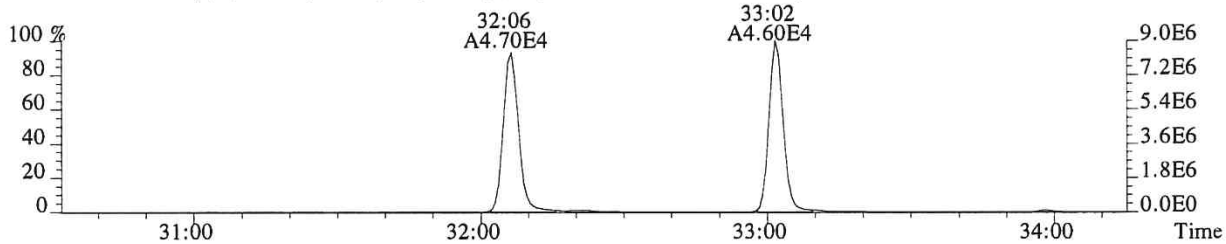
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



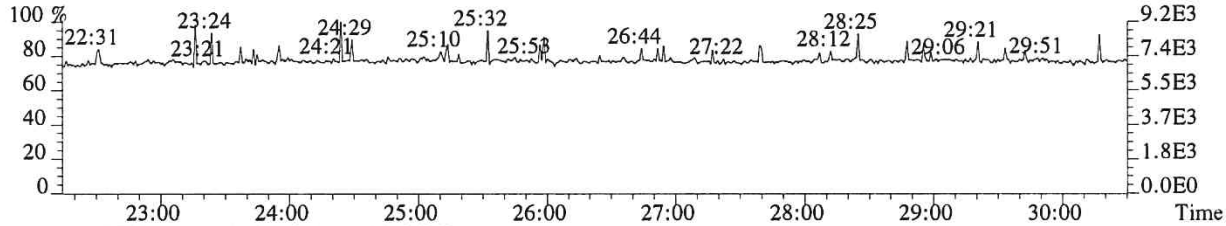
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



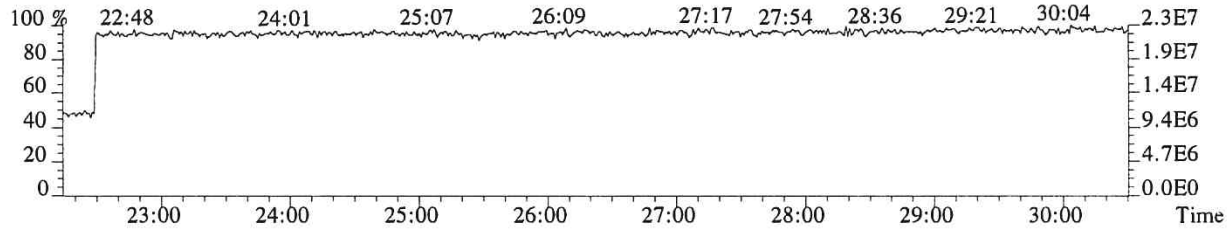
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

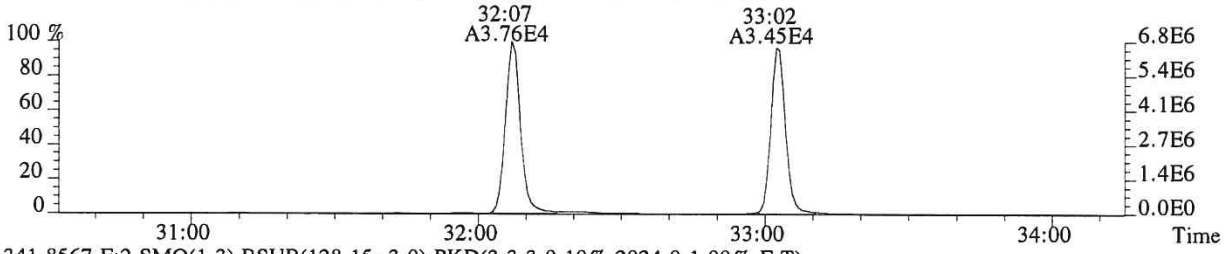


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

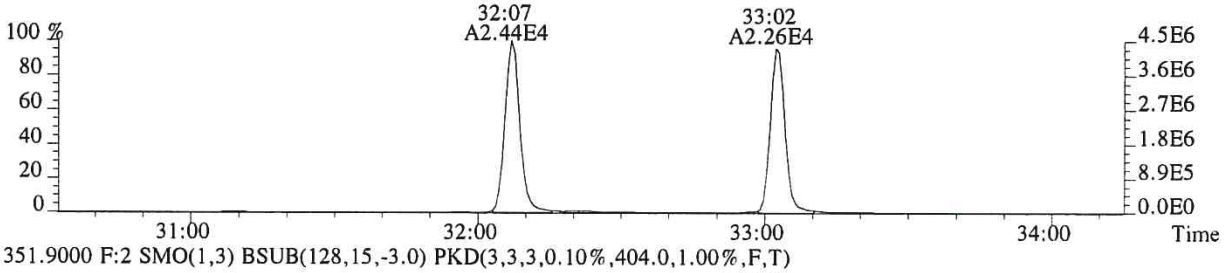


012757

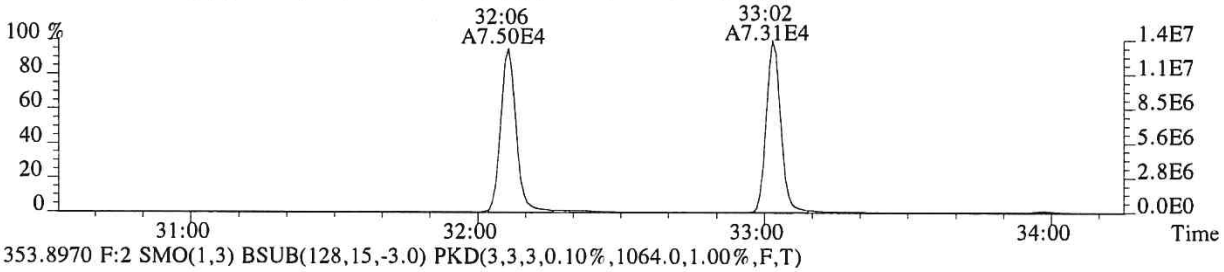
File:P519335 #1-335 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



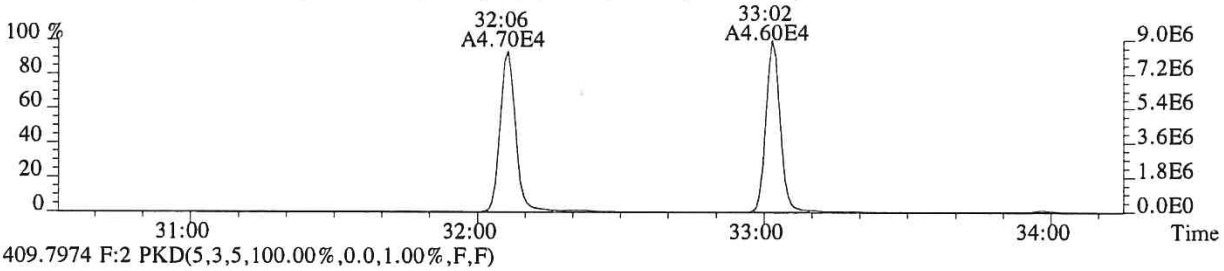
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2024.0,1.00%,F,T)



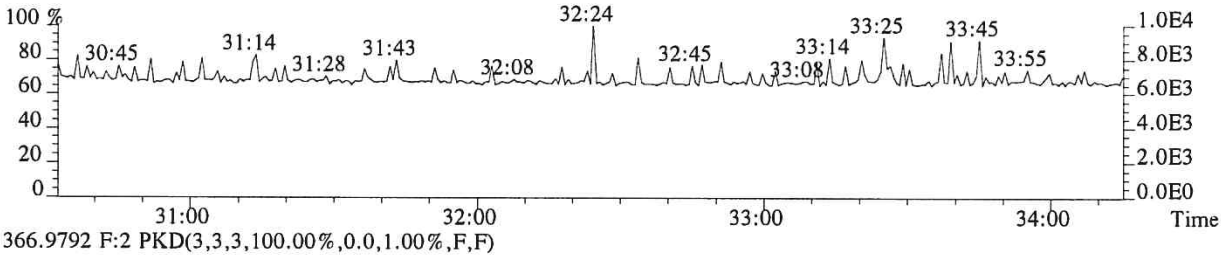
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



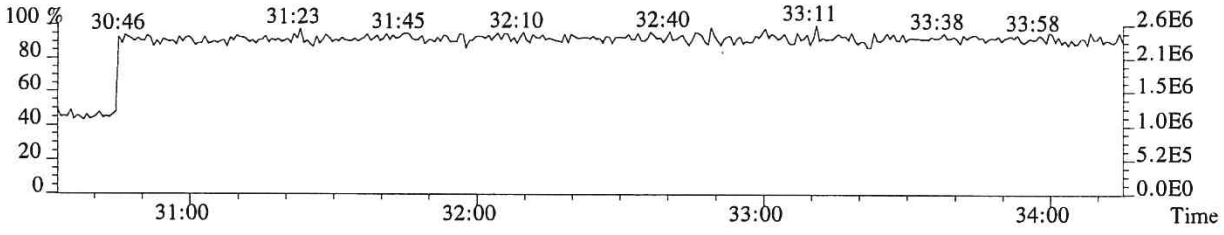
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

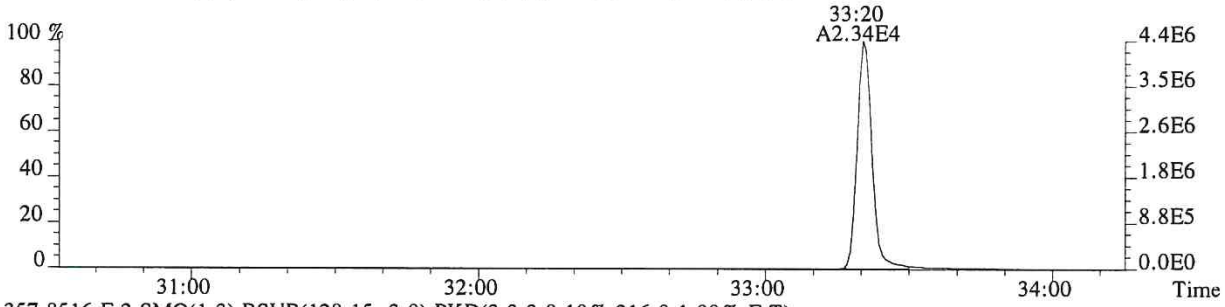


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

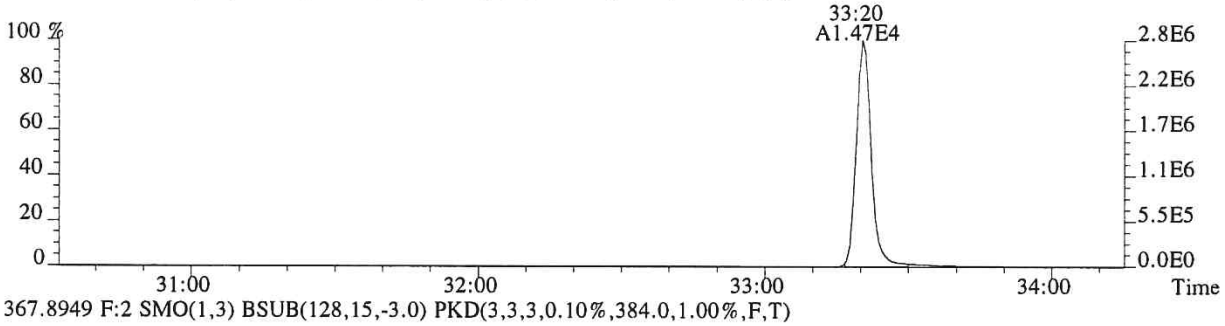


012758

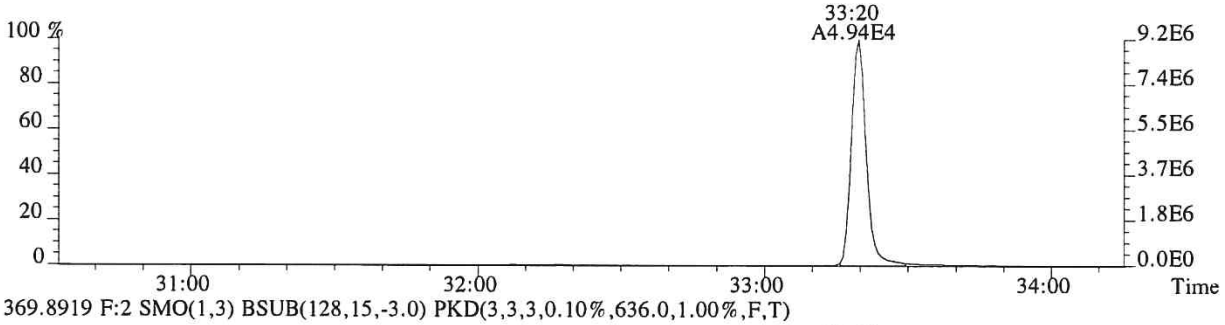
File:P519335 #1-335 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



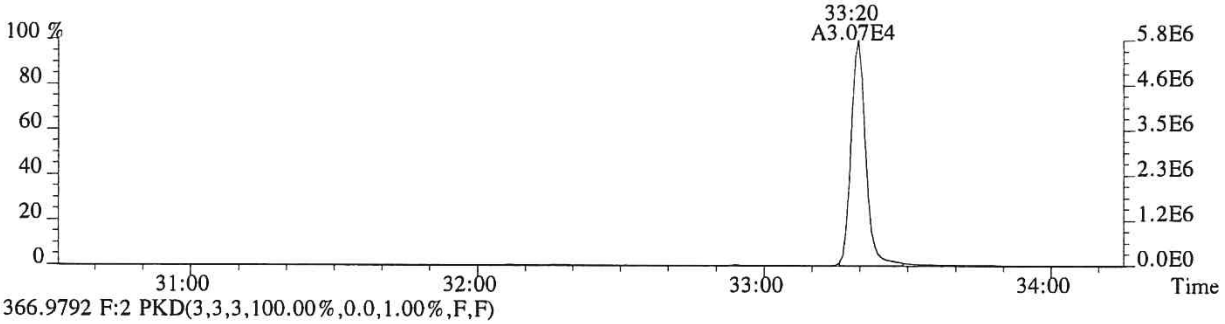
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



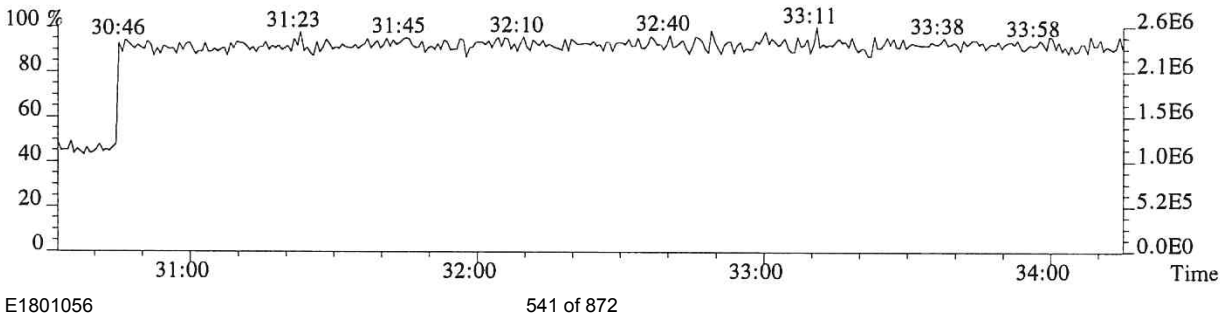
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



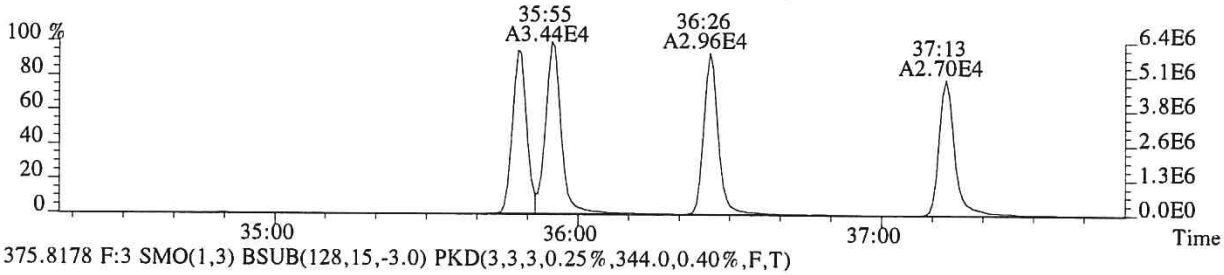
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



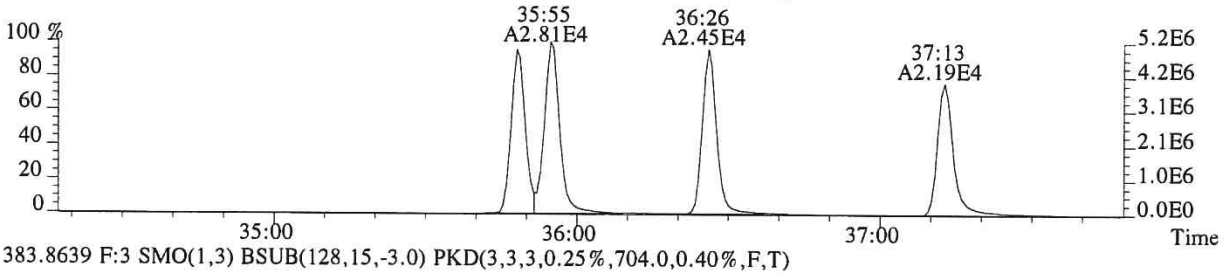
012759

File:P519335 #1-317 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

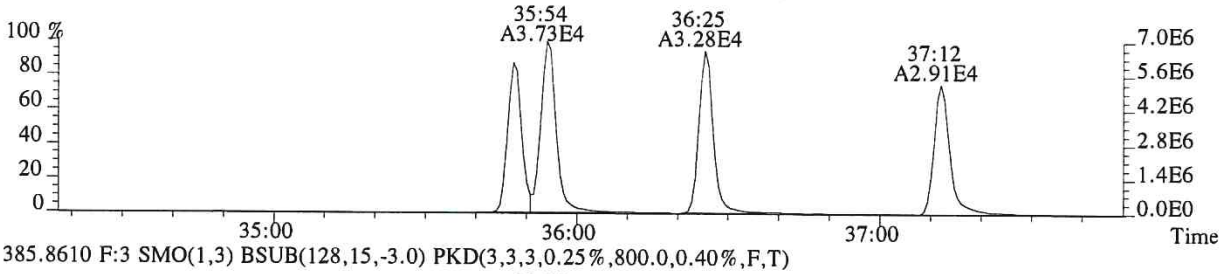
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



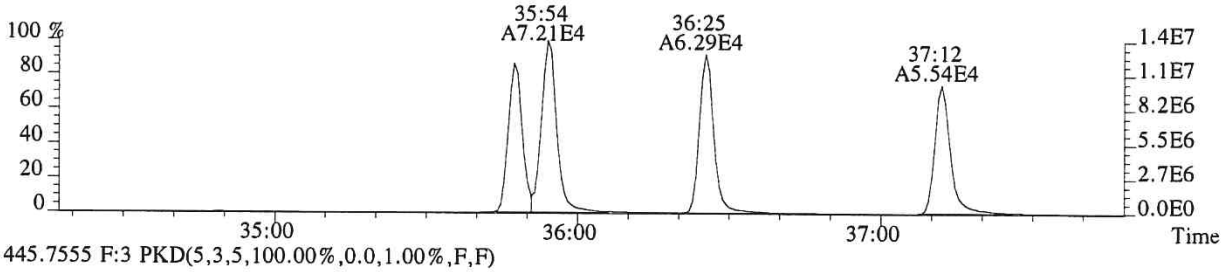
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



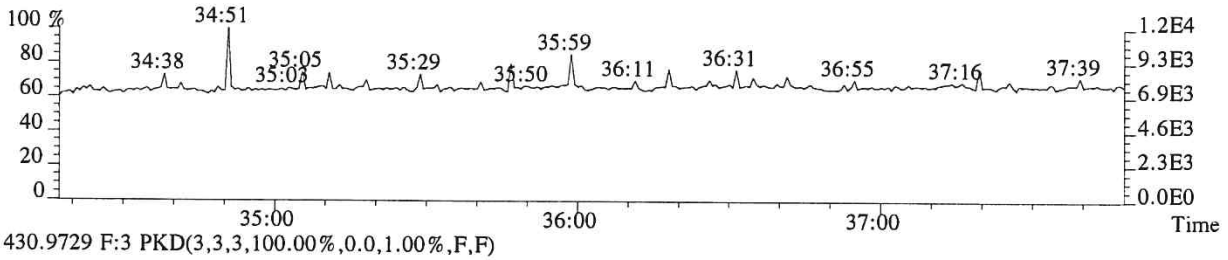
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



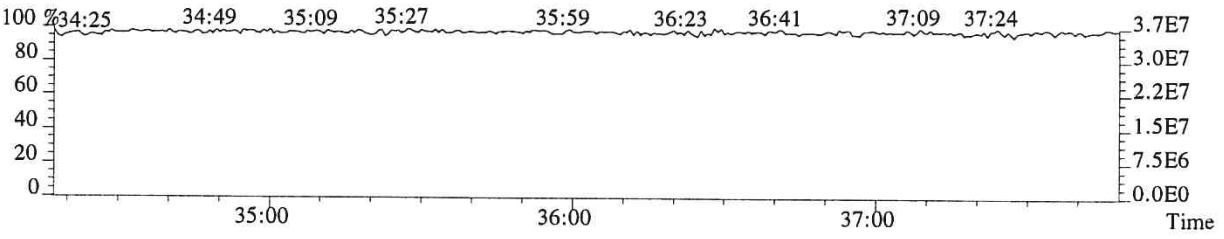
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

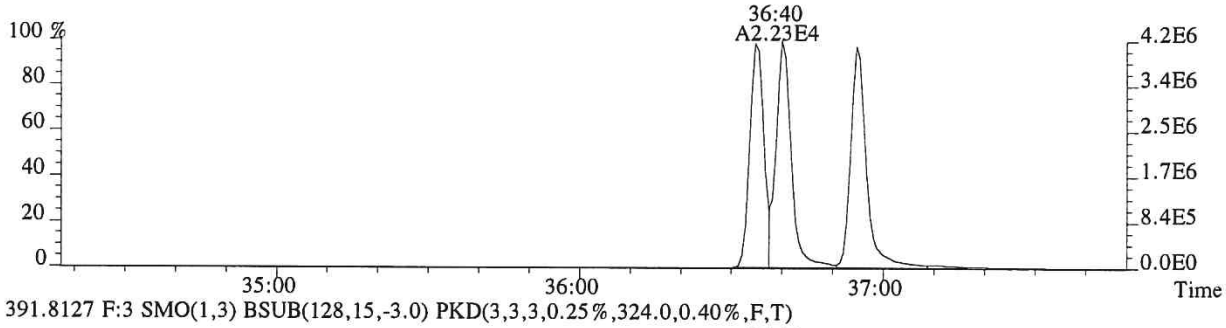


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

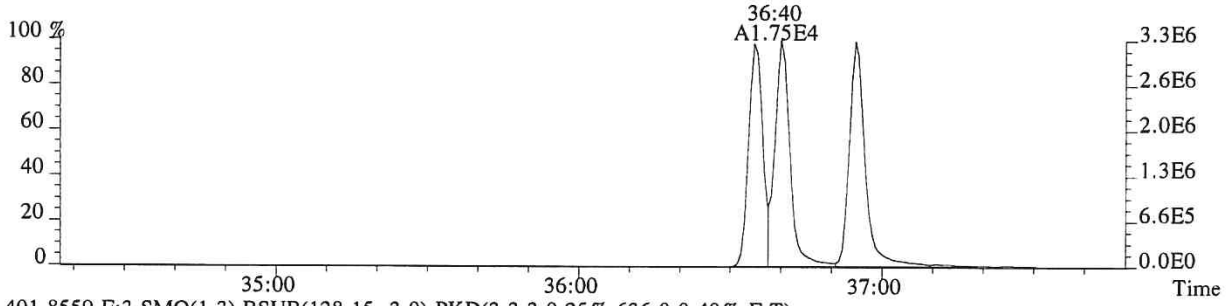


012760

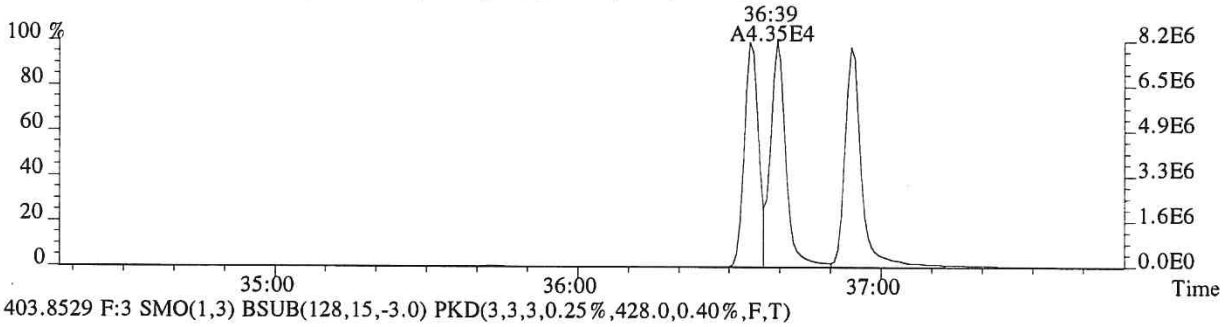
File:P519335 #1-317 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



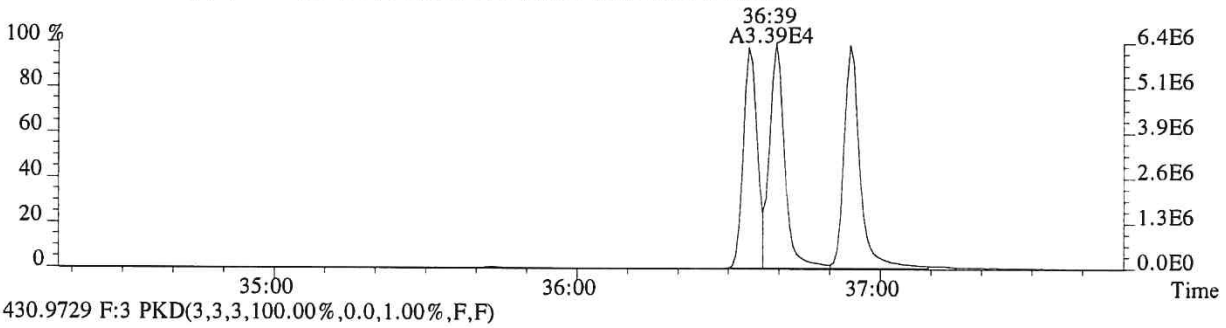
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



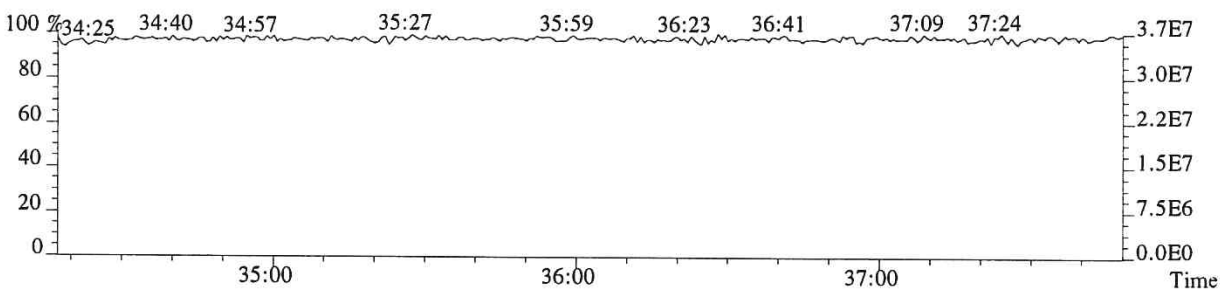
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)

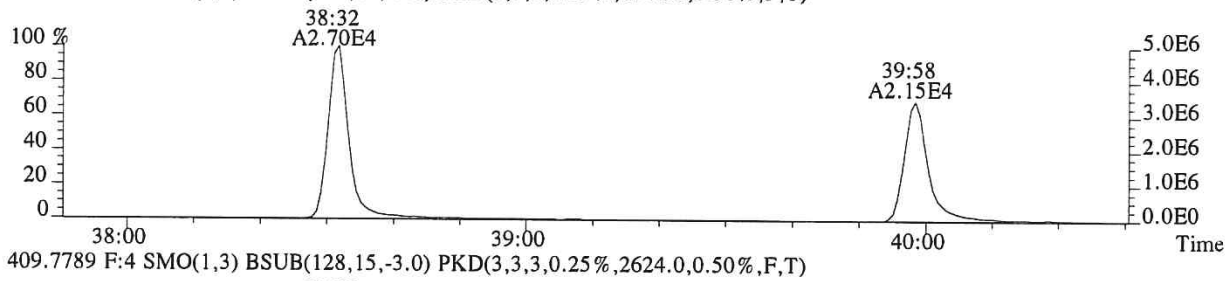


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

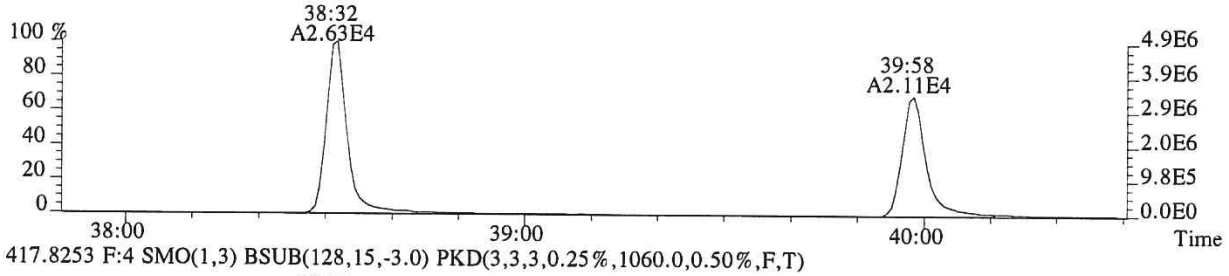


012761

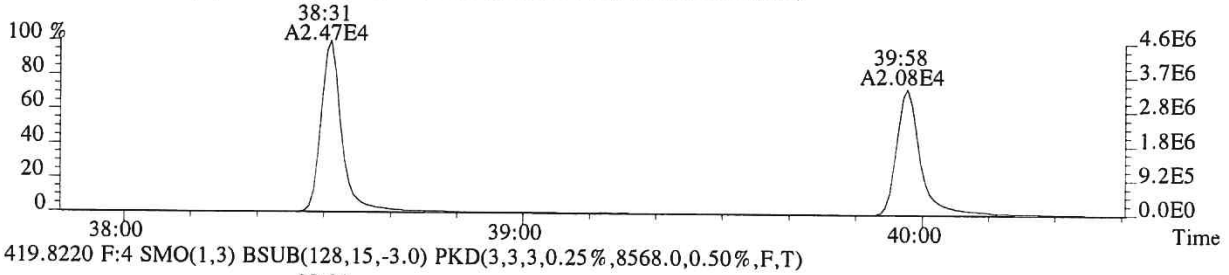
File:P519335 #1-241 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.50%,F,T)



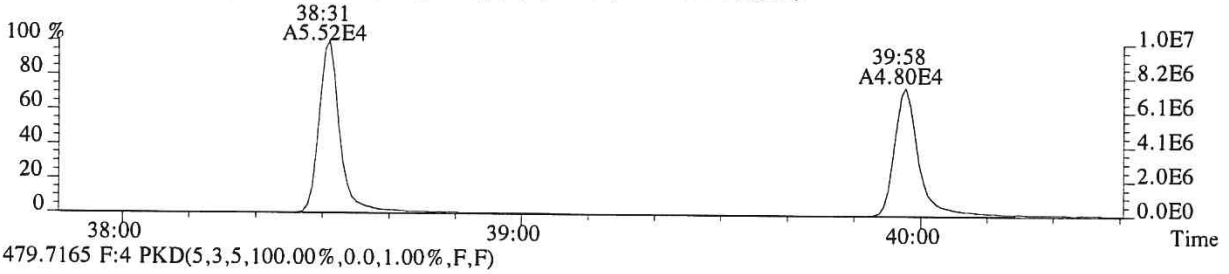
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.50%,F,T)



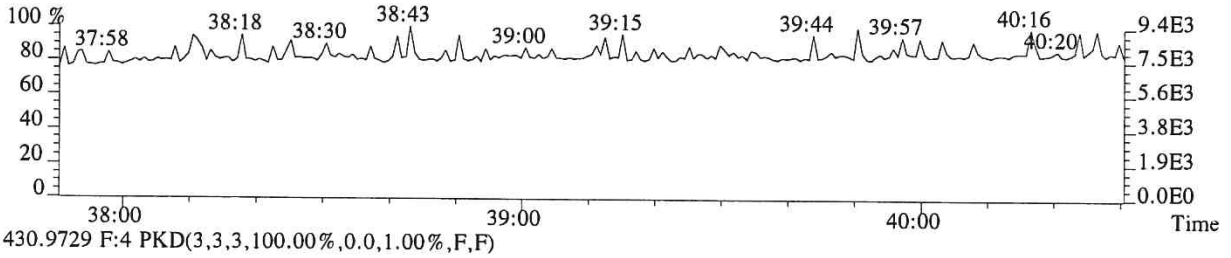
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.50%,F,T)



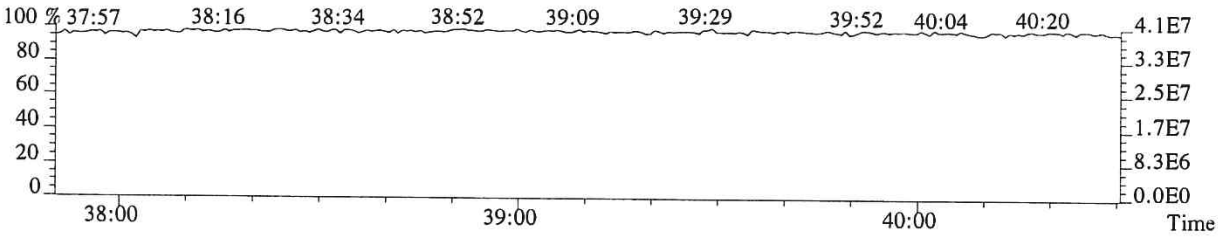
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8568.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

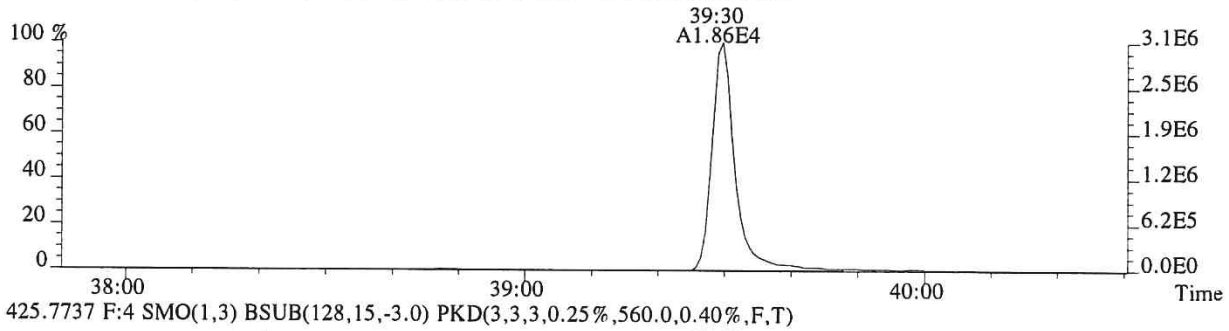


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

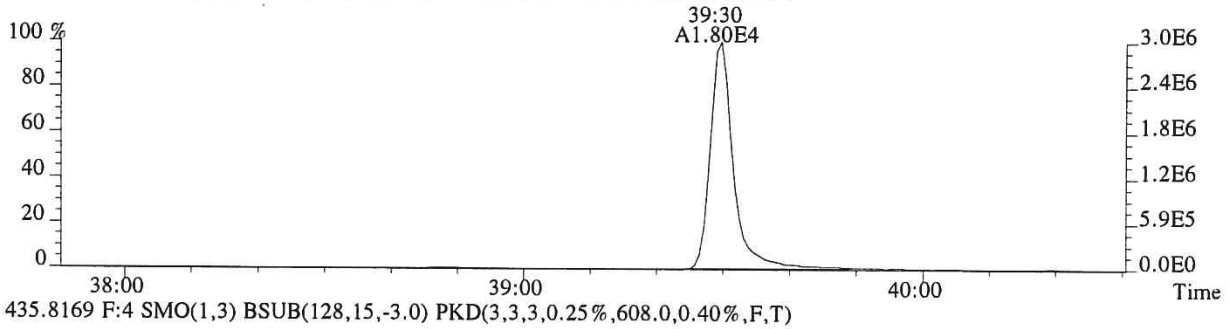


012762

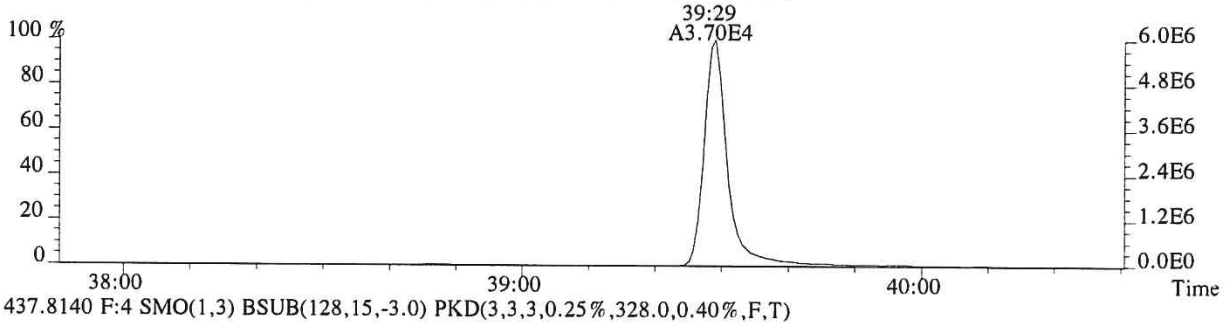
File:P519335 #1-241 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



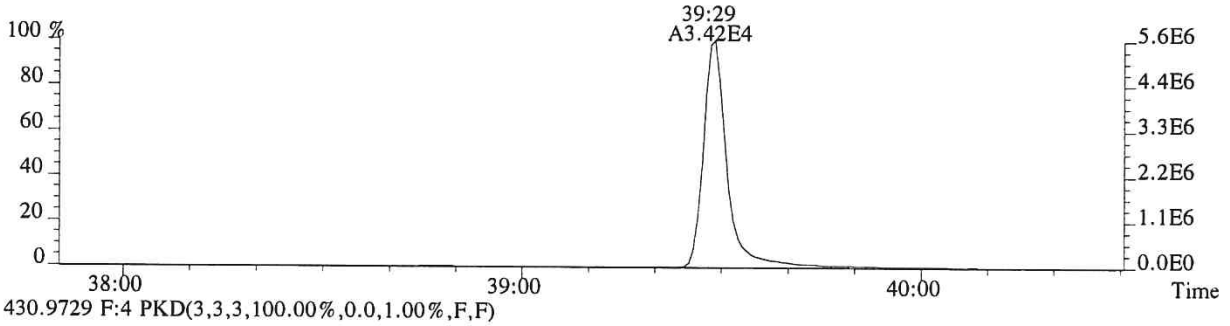
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



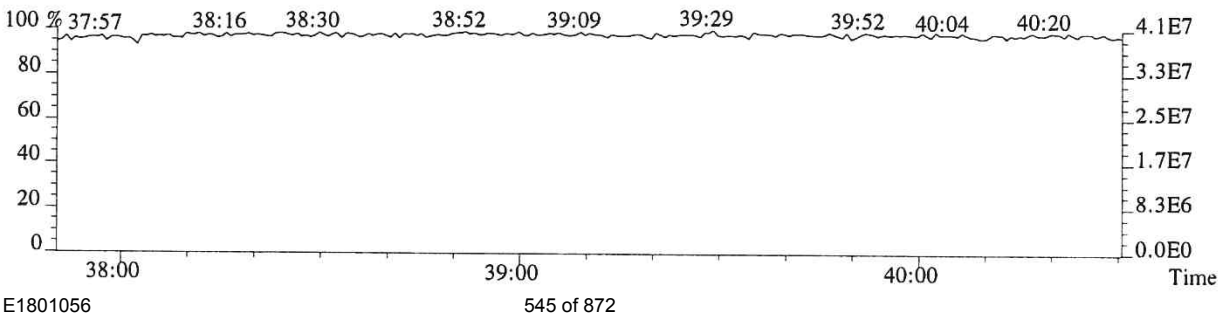
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



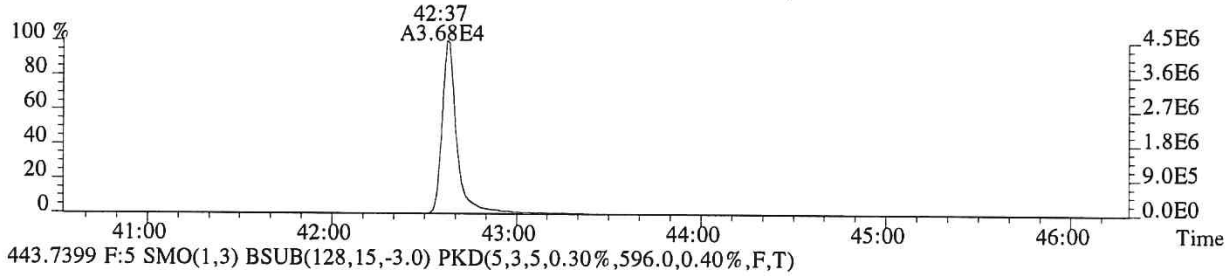
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



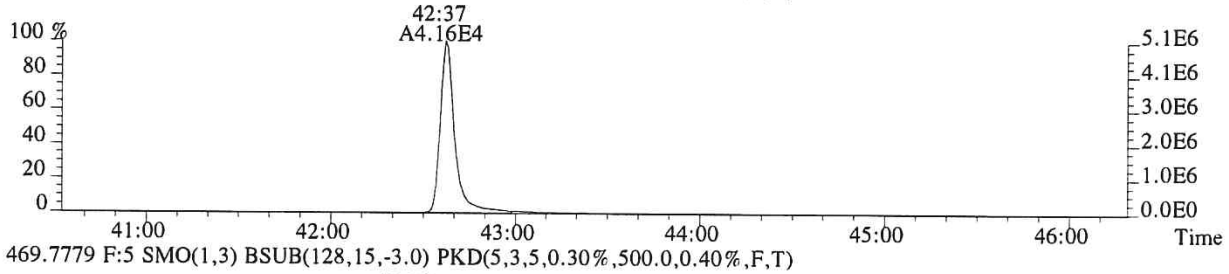
012763

File:P519335 #1-520 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

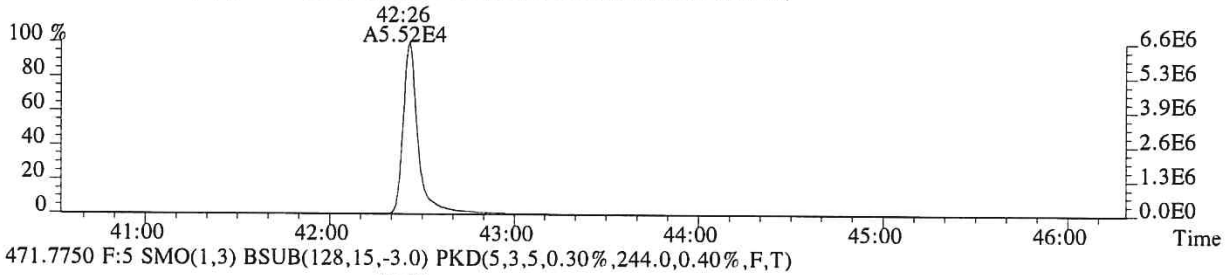
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



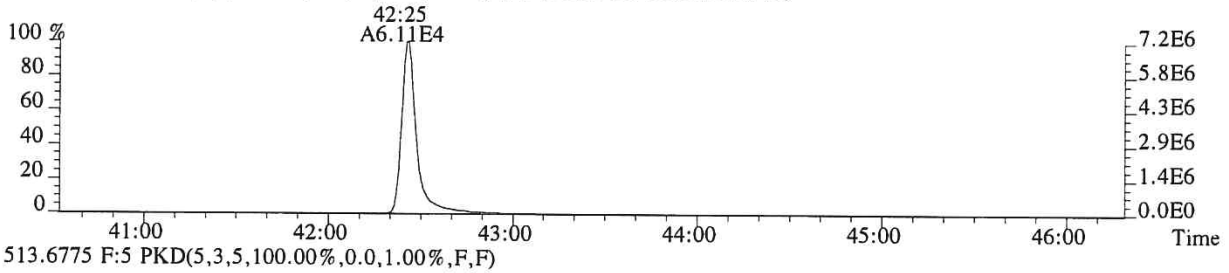
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



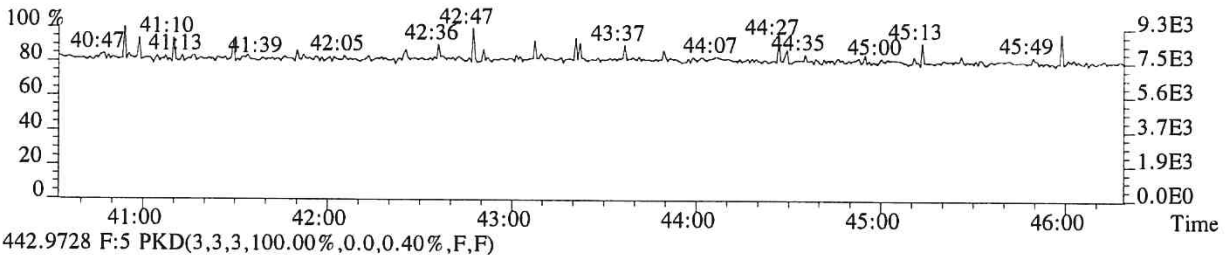
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,500.0,0.40%,F,T)



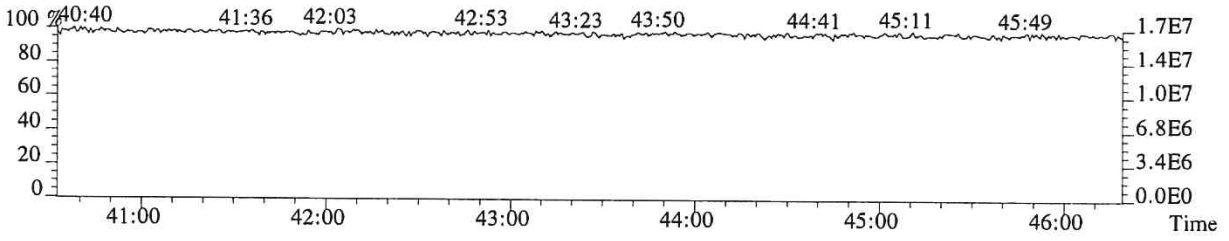
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

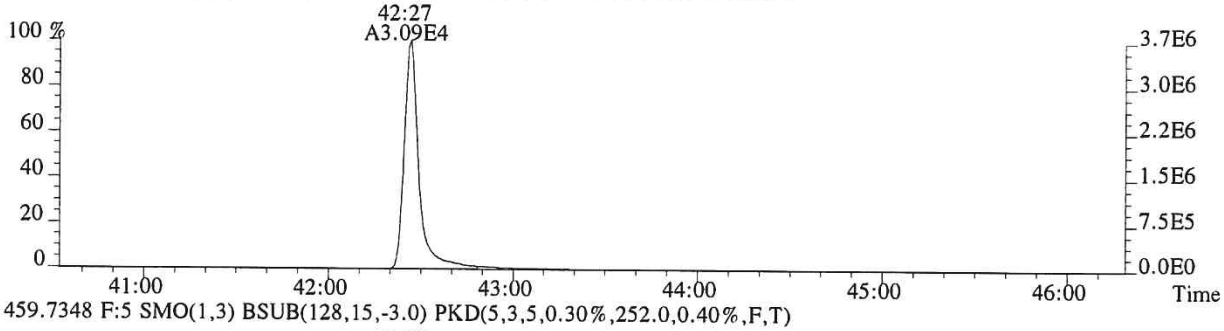


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

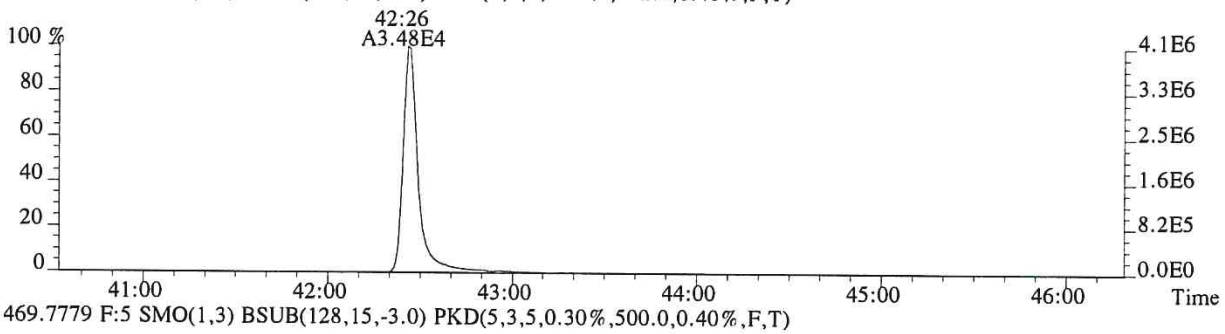


012764

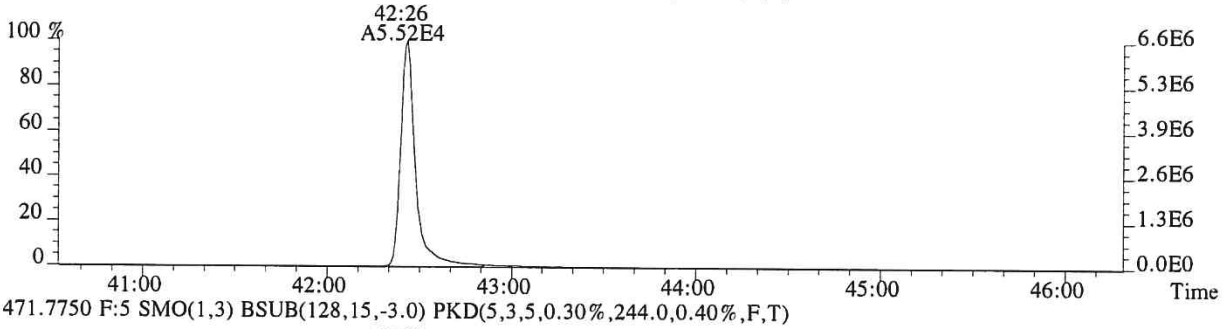
File:P519335 #1-520 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



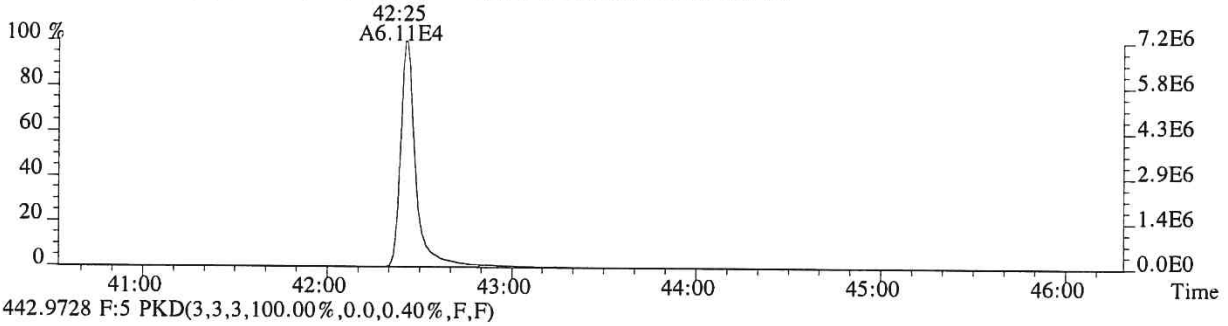
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



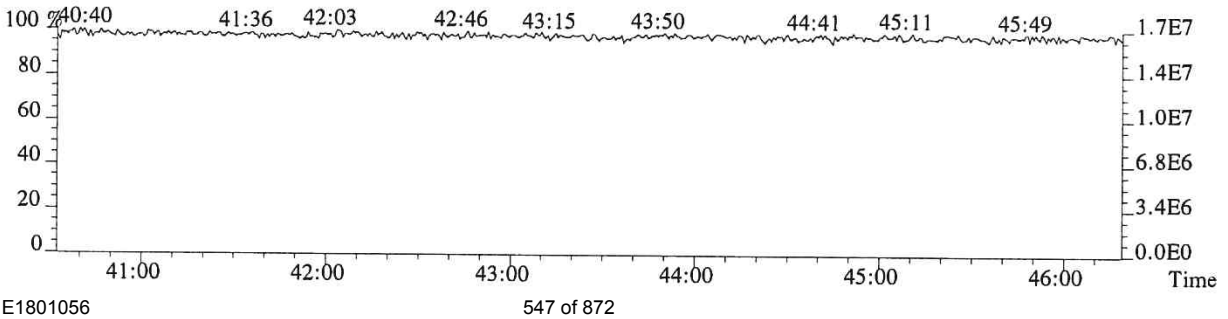
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,500.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012765

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519350

Date: 12/11/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:

	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration

	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519350	11-DEC-18	10:22:01
192977	WINDOW DEFINE	P519351	11-DEC-18	11:14:28
METHOD BLANK	EQ1800485-01	P519352	11-DEC-18	12:02:18
METHOD BLANK	EQ1800494-01	P519353	11-DEC-18	12:50:51
UU03601	K1811038-003	P519354	11-DEC-18	13:48:39
SL0572	E1801065-022	P519355	11-DEC-18	14:36:26
ASH 1 SPLP	E1801064-015	P519356	11-DEC-18	15:25:04
INFLUENT DIOXIN	E1801086-004	P519357	11-DEC-18	16:15:17
EFFLUENT DIOXIN	E1801086-005	P519358	11-DEC-18	17:05:24
3003147001	E1801087-001	P519359	11-DEC-18	17:53:12
SL0549	E1801055-004DL	P519360	11-DEC-18	18:41:50
FW0051	E1801046-007	P519361	11-DEC-18	19:30:28
FW008	E1801058-030	P519362	11-DEC-18	20:19:13
LCS	EQ1800488-02	P519363	11-DEC-18	21:07:51
DLCS	EQ1800488-03	P519364	11-DEC-18	21:56:19

E1801056

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181211A.SPL
Last Modified: Wednesday, December 12, 2018 07:00:37 Central Standard Time
Printed: Wednesday, December 12, 2018 07:00:39 Central Standard Time

Page Position (1, 1)

OPUS4: P519350res

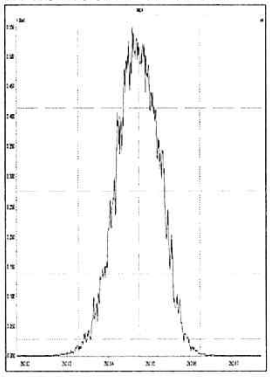
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/11/18	10:22	P519350	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	1+2HRS check 10:15
2	"	11:14	P519351	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	"	
3	"	12:02	P519352	MB	EQ1800485-01	EPA1613_ALS	Dioxin_ALS	Tray1:3	"	
4	"	12:50	P519353	MB	EQ1800494-01	EPA1613_ALS	Dioxin_ALS	Tray1:4	"	
5	"	13:48	P519354	K1811038-003	K1811038-003	EPA1613_ALS	Dioxin_ALS	Tray1:5	"	
6	"	14:36	P519355	E1801065-022	E1801065-022	EPA1613_ALS	Dioxin_ALS	Tray1:6	"	
7	"	15:25	P519356	E1801064-015	E1801064-015	EPA1613_ALS	Dioxin_ALS	Tray1:7	"	
8	"	16:15	P519357	E1801086-004	E1801086-004	EPA1613_ALS	Dioxin_ALS	Tray1:8	"	
9	"	17:05	P519358	E1801086-005	E1801086-005	EPA1613_ALS	Dioxin_ALS	Tray1:9	"	
10	"	17:53	P519359	E1801087-001	E1801087-001	EPA1613_ALS	Dioxin_ALS	Tray1:10	"	
11	"	18:41	P519360	E1801055-004DL	E1801055-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:11	"	
12	"	19:30	P519361	E1801046-007	E1801046-007	EPA1613_ALS	Dioxin_ALS	Tray1:12	"	
13	"	20:19	P519362	E1801058-030	E1801058-030	EPA1613_ALS	Dioxin_ALS	Tray1:13	"	
14	"	21:07	P519363	LCS	EQ1800488-02	EPA1613_ALS	Dioxin_ALS	Tray1:14	"	
15	"	21:56	P519364	DLCS	EQ1800488-03	EPA1613_ALS	Dioxin_ALS	Tray1:15	"	
16	↓	22:53	P519365	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	↓	1+2HRS check 22:53
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JC 12/12/18

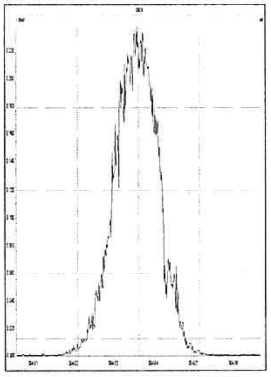
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:15:52 Central Standard Time

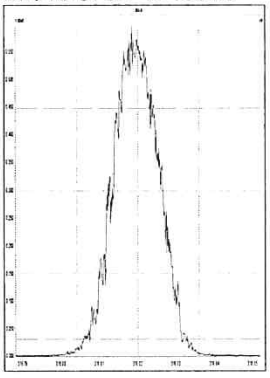
M 292.9824 R 12627



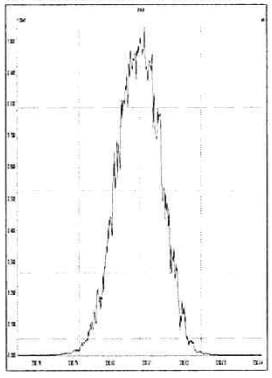
M 304.9824 R 12381



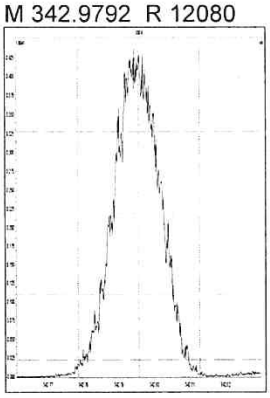
M 318.9792 R 13300



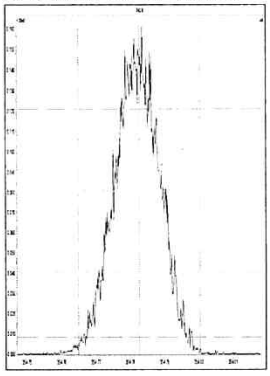
M 330.9792 R 12135



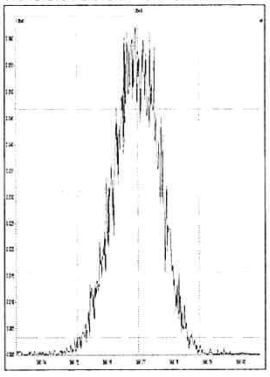
M 342.9792 R 12080



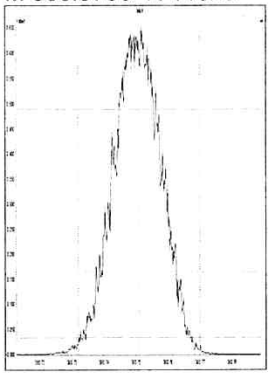
M 354.9792 R 11905



M 366.9792 R 12080



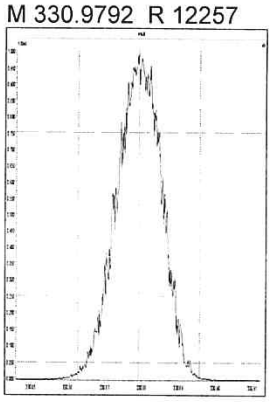
M 380.9760 R 11629



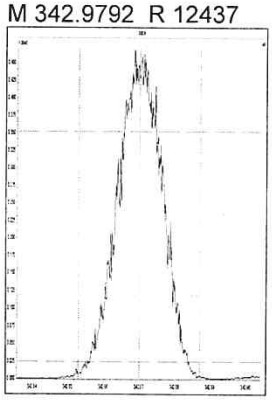
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:16:35 Central Standard Time

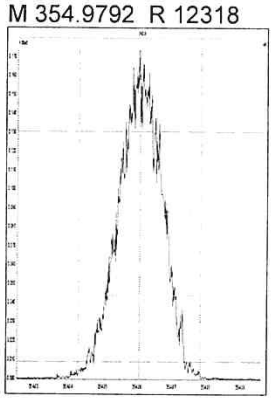
M 330.9792 R 12257



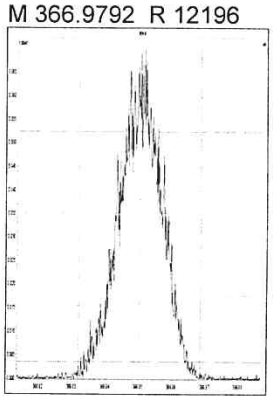
M 342.9792 R 12437



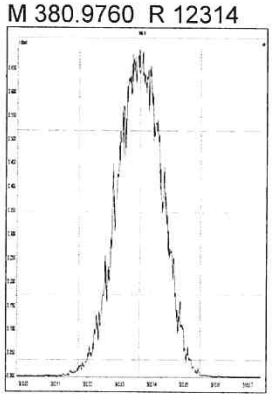
M 354.9792 R 12318



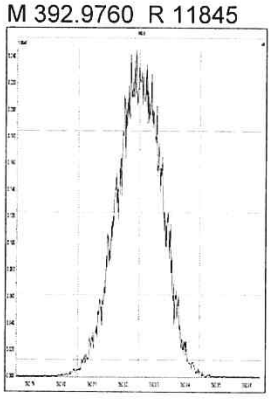
M 366.9792 R 12196



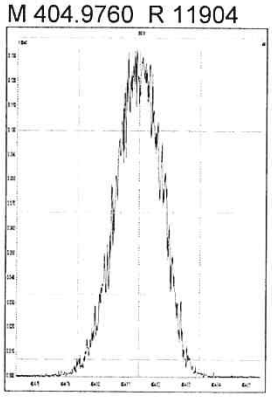
M 380.9760 R 12314



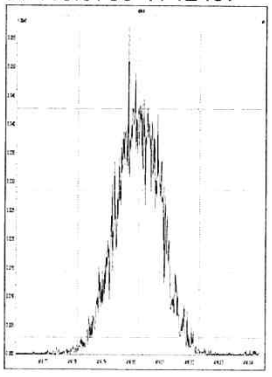
M 392.9760 R 11845



M 404.9760 R 11904



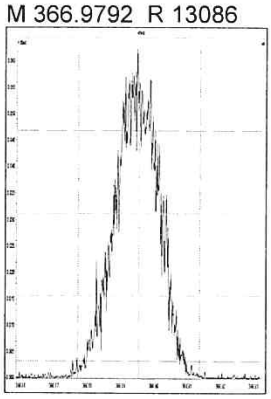
M 416.9760 R 12497



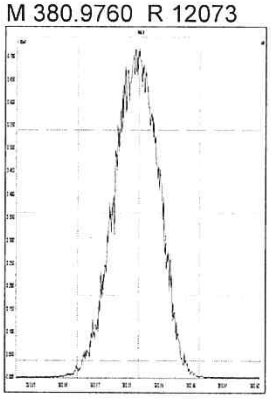
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:17:19 Central Standard Time

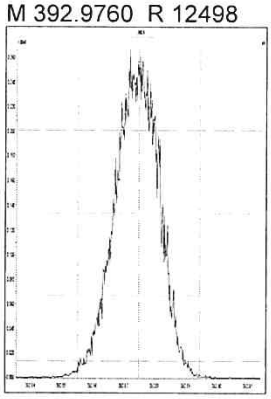
M 366.9792 R 13086



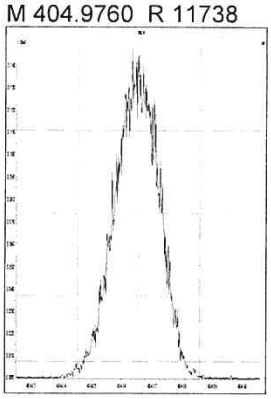
M 380.9760 R 12073



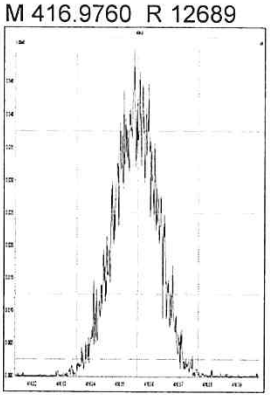
M 392.9760 R 12498



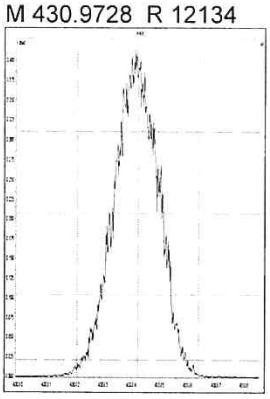
M 404.9760 R 11738



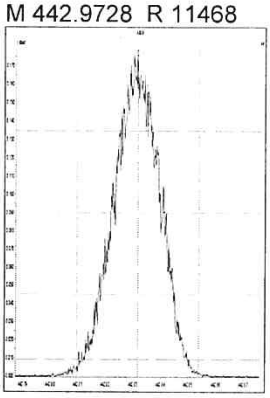
M 416.9760 R 12689



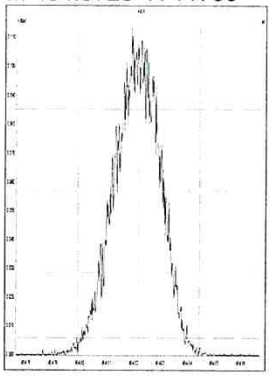
M 430.9728 R 12134



M 442.9728 R 11468



M 454.9728 R 11735



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

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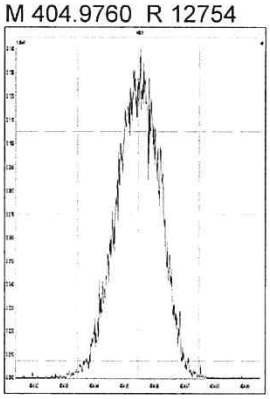
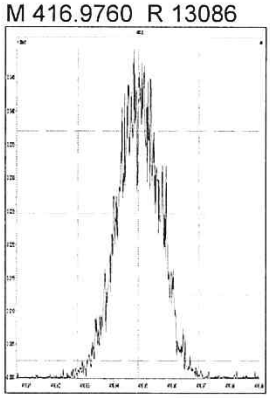
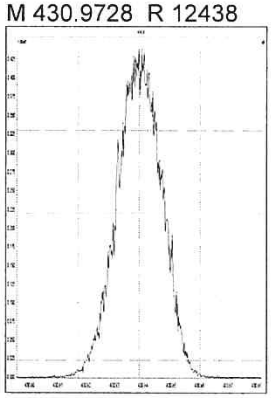
M 404.9760 R 12754



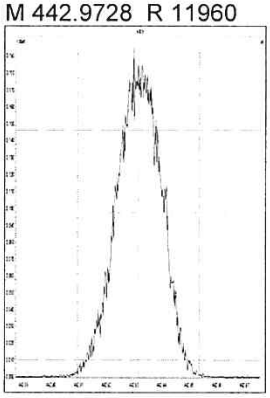
M 416.9760 R 13086



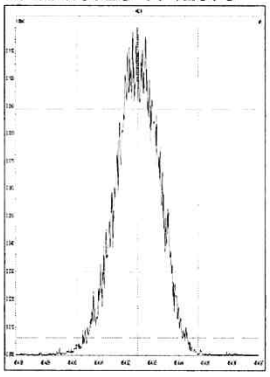
M 430.9728 R 12438



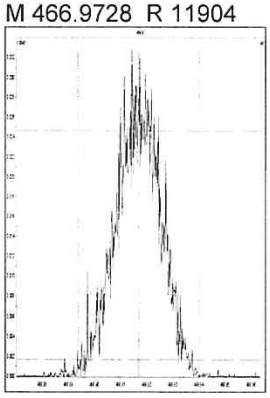
M 442.9728 R 11960



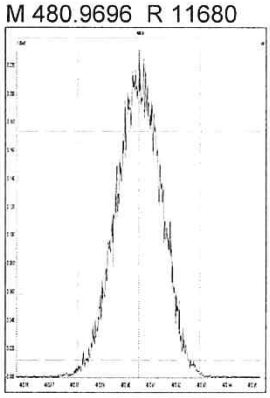
M 454.9728 R 12373



M 466.9728 R 11904



M 480.9696 R 11680



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

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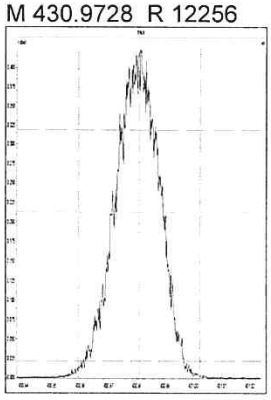
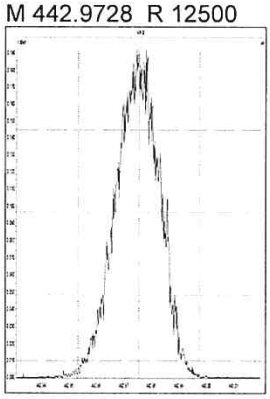
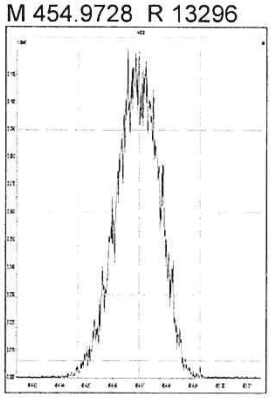
M 430.9728 R 12256



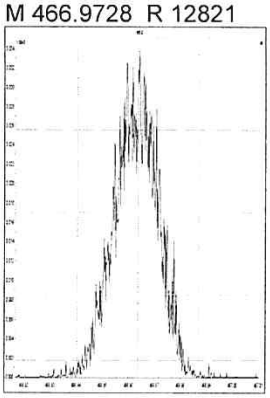
M 442.9728 R 12500



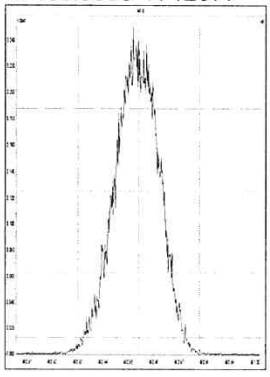
M 454.9728 R 13296



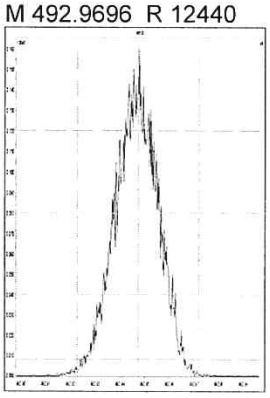
M 466.9728 R 12821



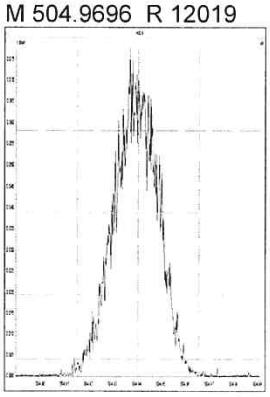
M 480.9696 R 12077



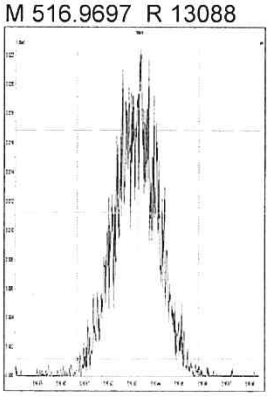
M 492.9696 R 12440



M 504.9696 R 12019



M 516.9697 R 13088



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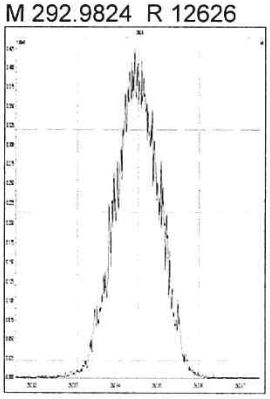
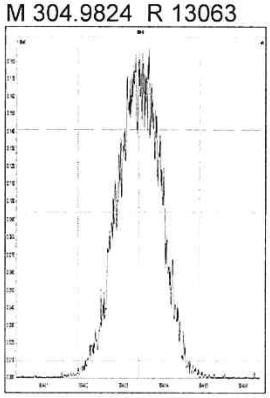
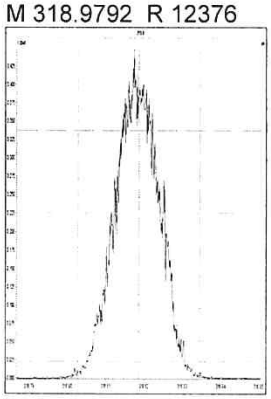
M 292.9824 R 12626



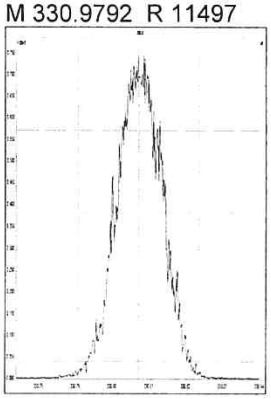
M 304.9824 R 13063



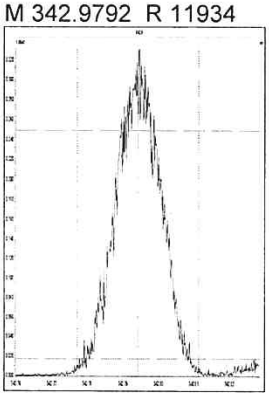
M 318.9792 R 12376



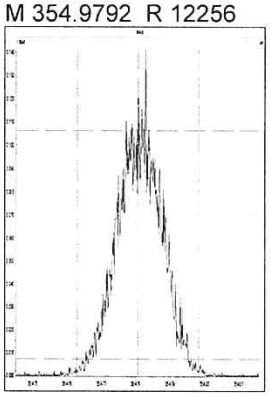
M 330.9792 R 11497



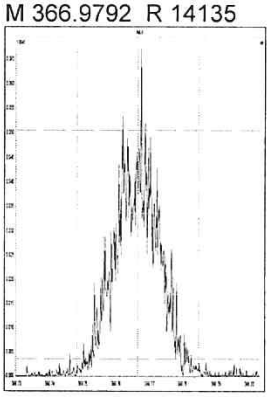
M 342.9792 R 11934



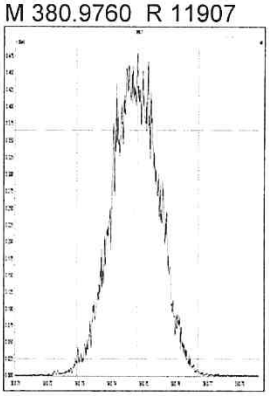
M 354.9792 R 12256



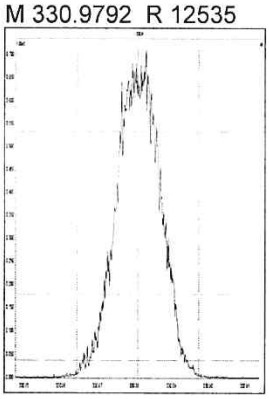
M 366.9792 R 14135



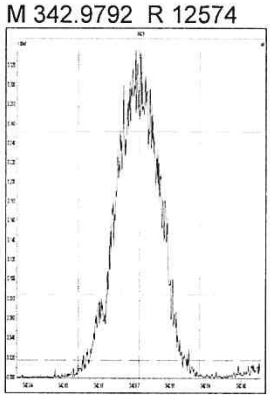
M 380.9760 R 11907



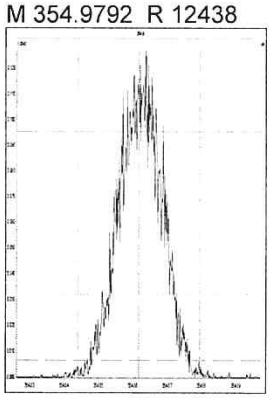
M 330.9792 R 12535



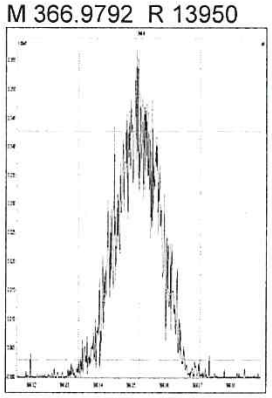
M 342.9792 R 12574



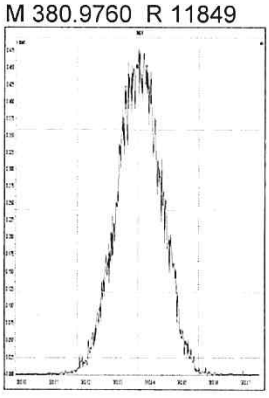
M 354.9792 R 12438



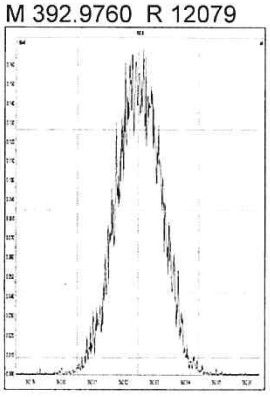
M 366.9792 R 13950



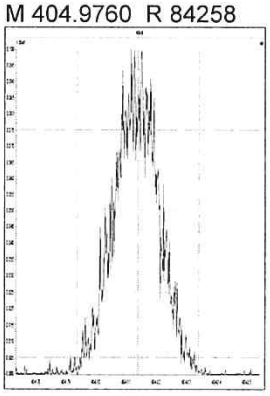
M 380.9760 R 11849



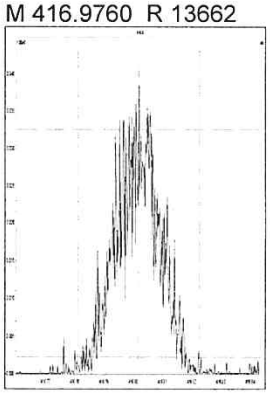
M 392.9760 R 12079



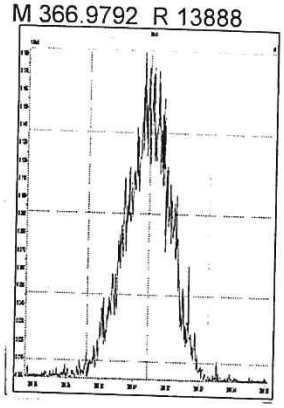
M 404.9760 R 84258



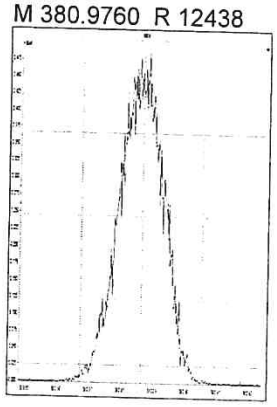
M 416.9760 R 13662



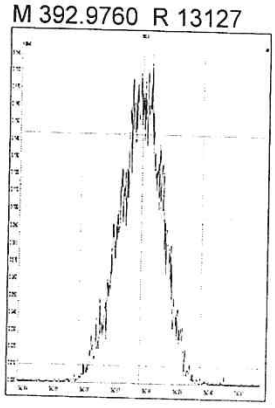
M 366.9792 R 13888



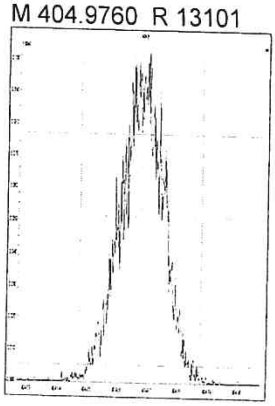
M 380.9760 R 12438



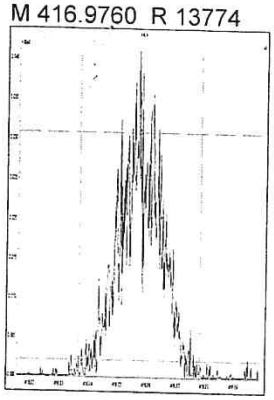
M 392.9760 R 13127



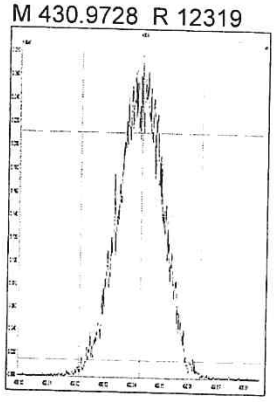
M 404.9760 R 13101



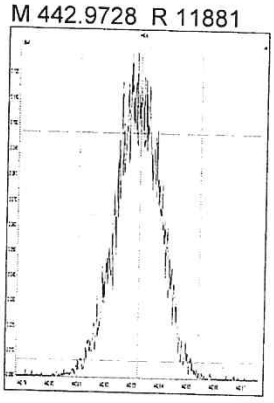
M 416.9760 R 13774



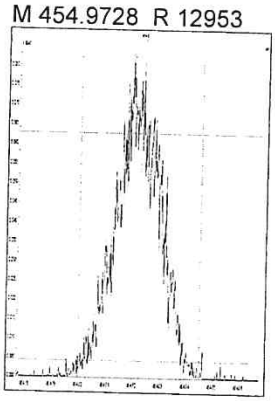
M 430.9728 R 12319



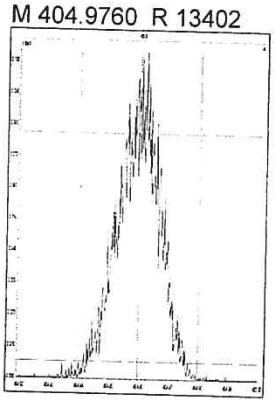
M 442.9728 R 11881



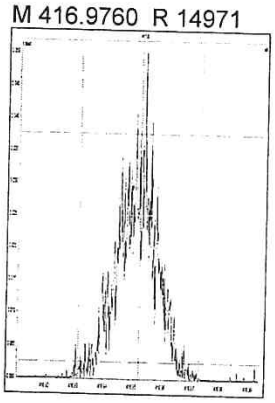
M 454.9728 R 12953



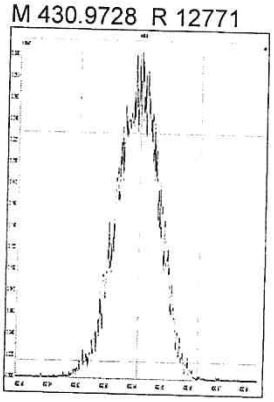
M 404.9760 R 13402



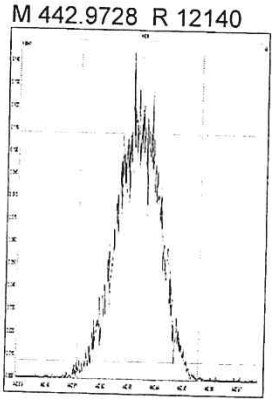
M 416.9760 R 14971



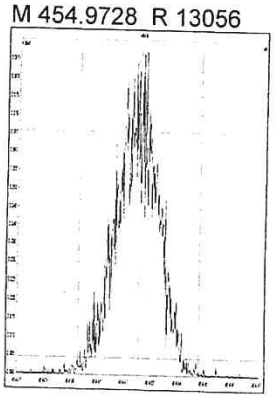
M 430.9728 R 12771



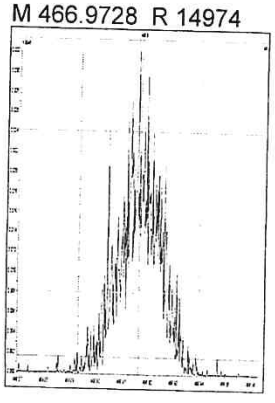
M 442.9728 R 12140



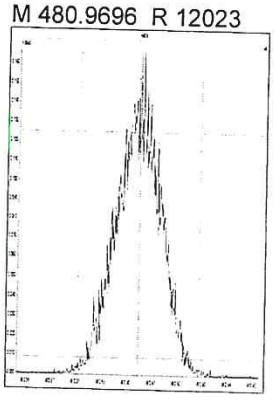
M 454.9728 R 13056



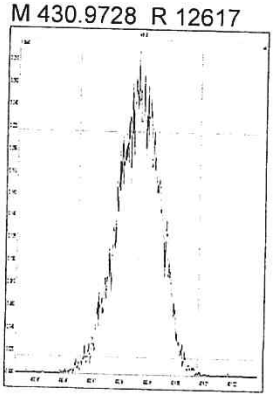
M 466.9728 R 14974



M 480.9696 R 12023



M 430.9728 R 12617



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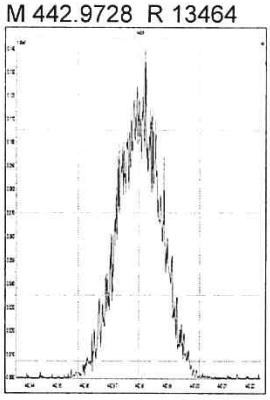
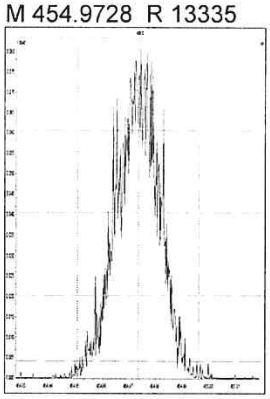
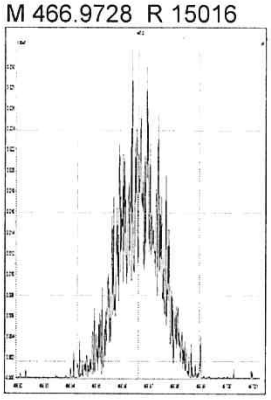
M 442.9728 R 13464



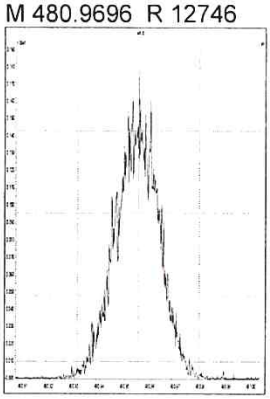
M 454.9728 R 13335



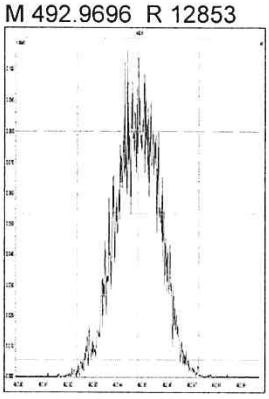
M 466.9728 R 15016



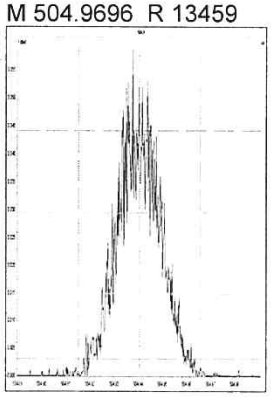
M 480.9696 R 12746



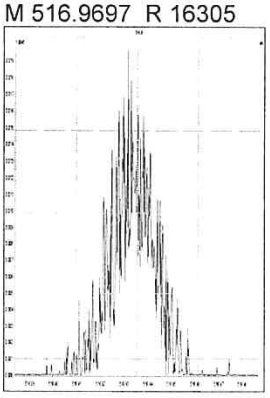
M 492.9696 R 12853



M 504.9696 R 13459



M 516.9697 R 16305



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

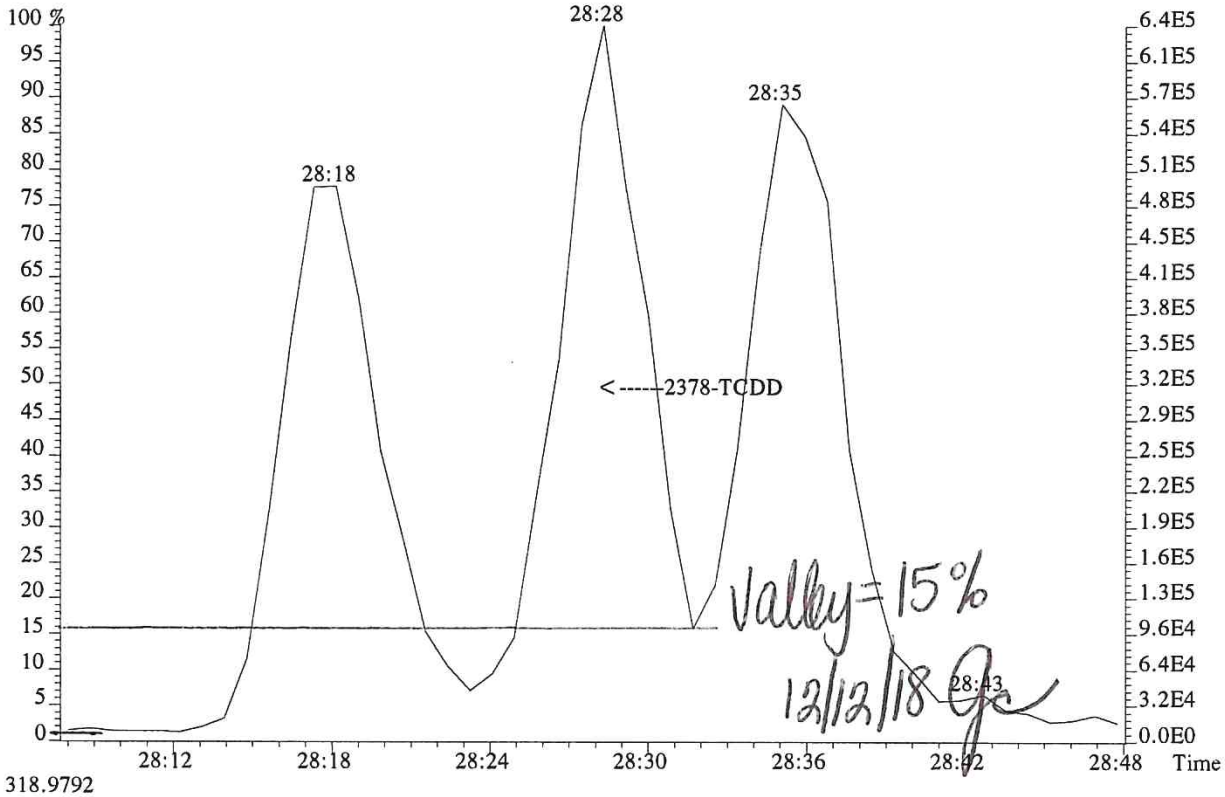
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519351
Date Analyzed: 11-DEC-2018
Time Analyzed: 11:14:28

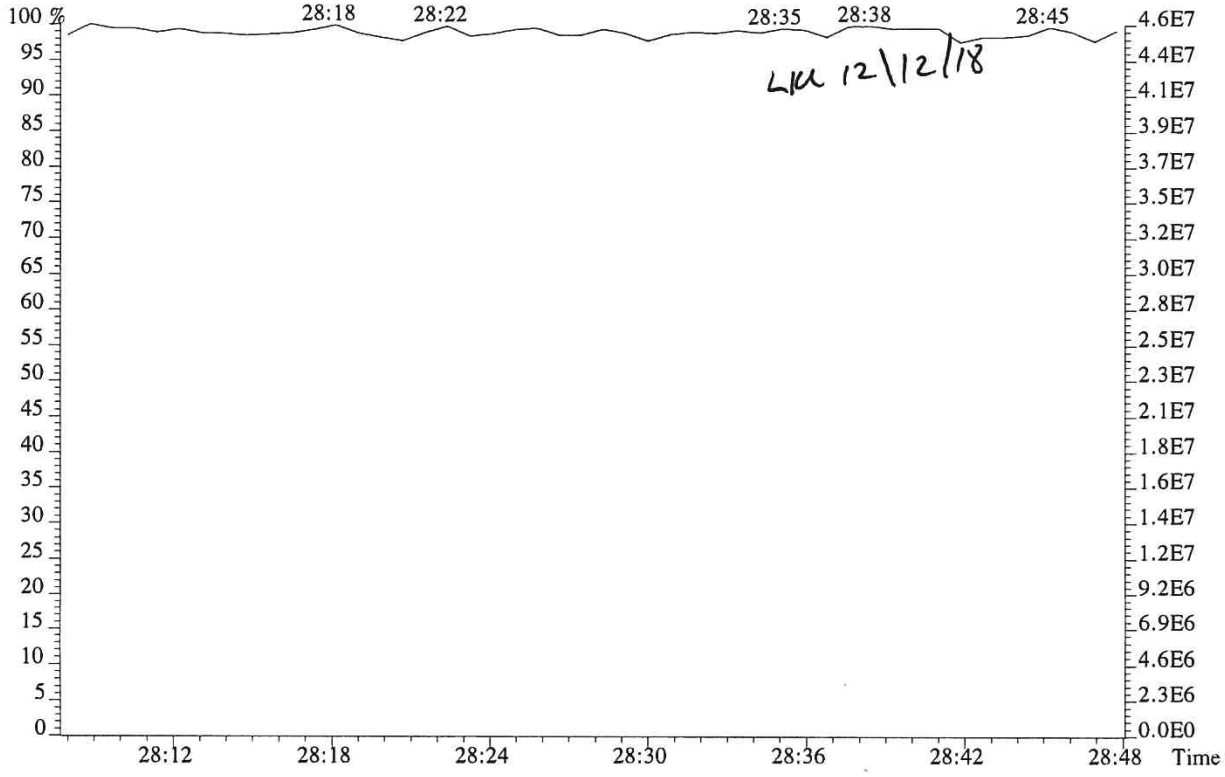
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:11	29:39
TCDD	24:59	29:30
PeCDF	29:37	33:59
PeCDD	31:12	33:44
HxCDF	34:41	37:15
HxCDD	35:13	36:50
HpCDF	38:32	40:00
HpCDD	38:48	39:31

% Valley 2378-TCDD: 15 %

File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965

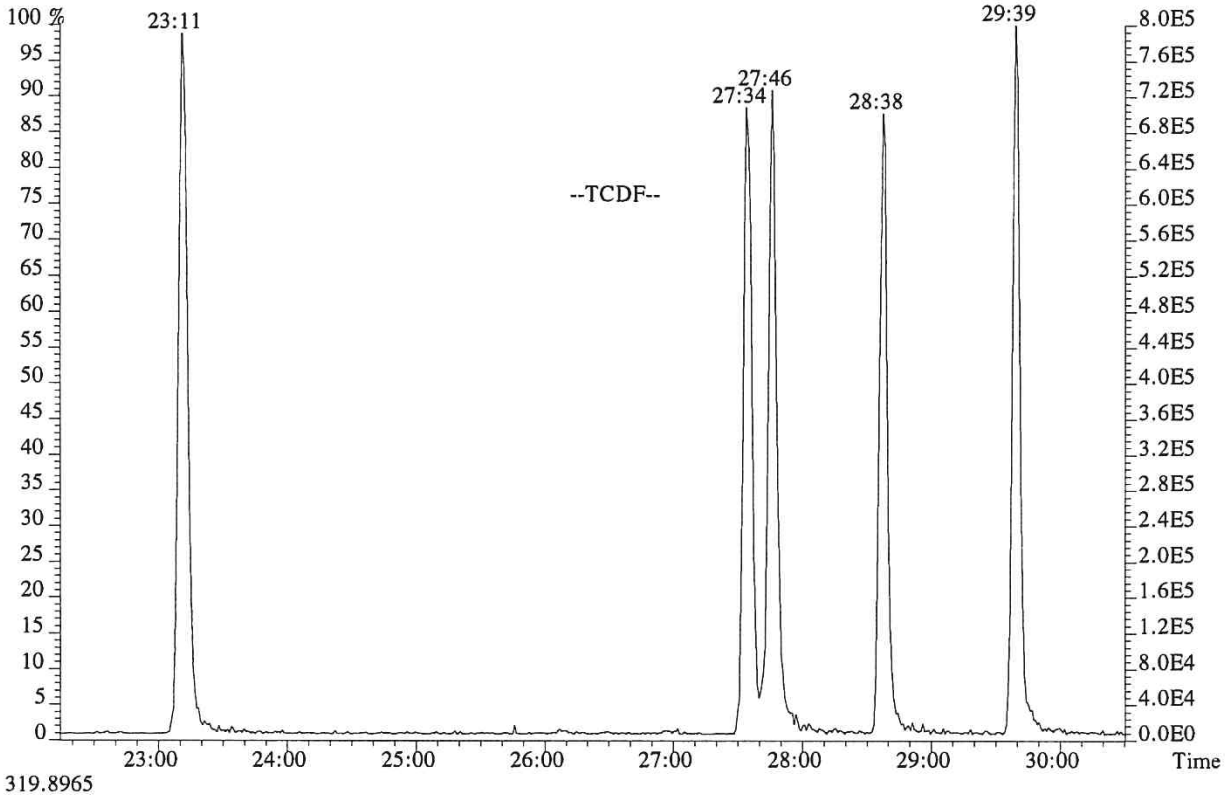


318.9792

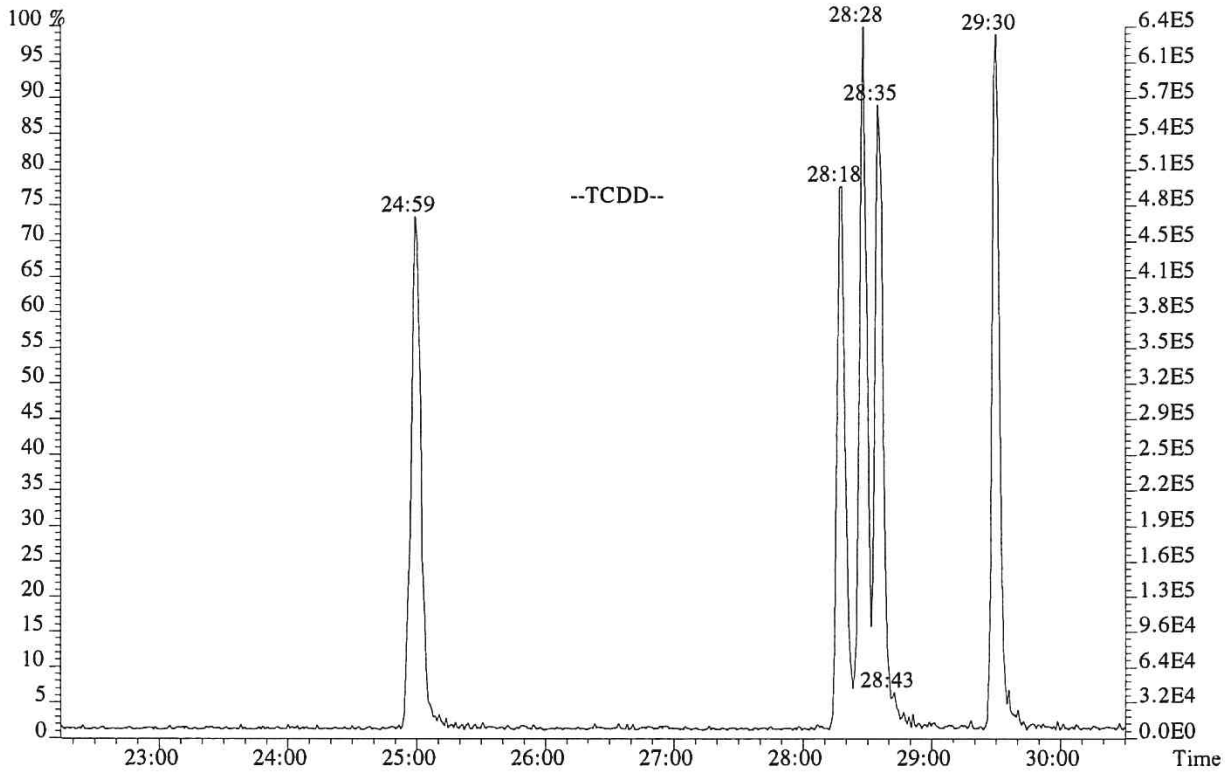


012778

File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
303.9016

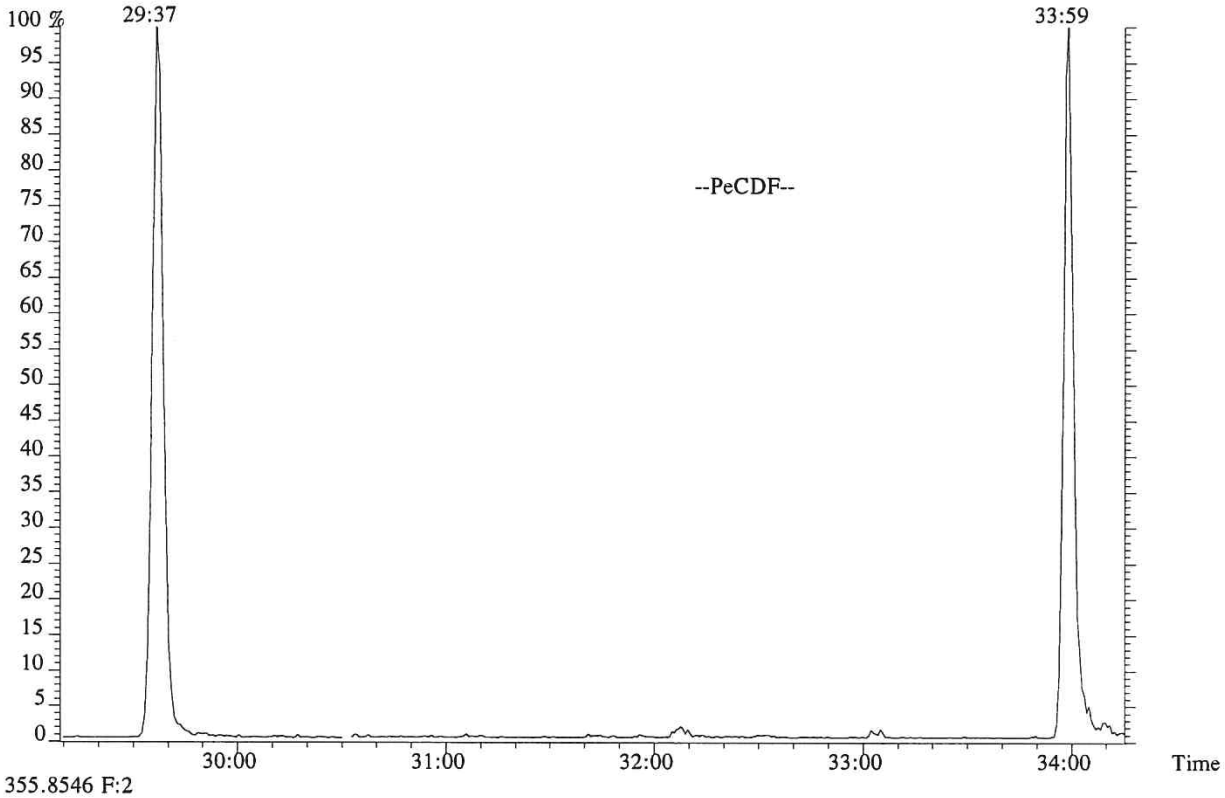


319.8965

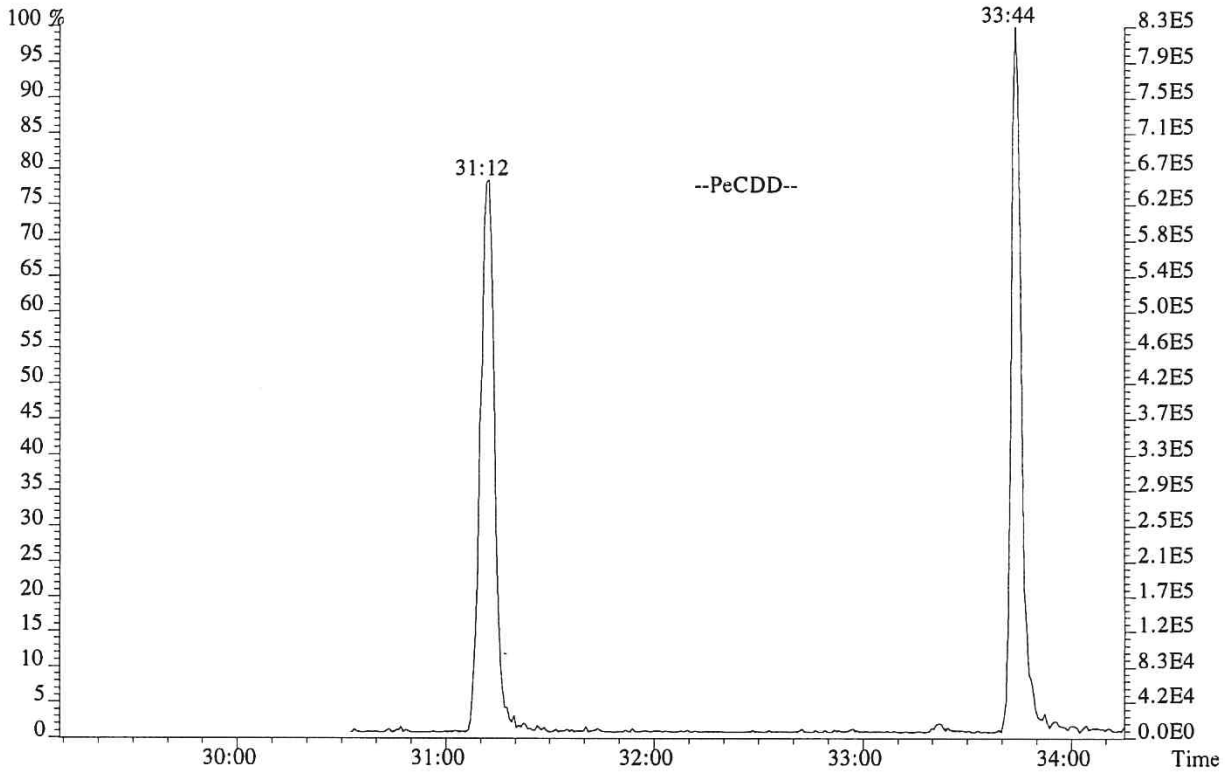


012779

File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2

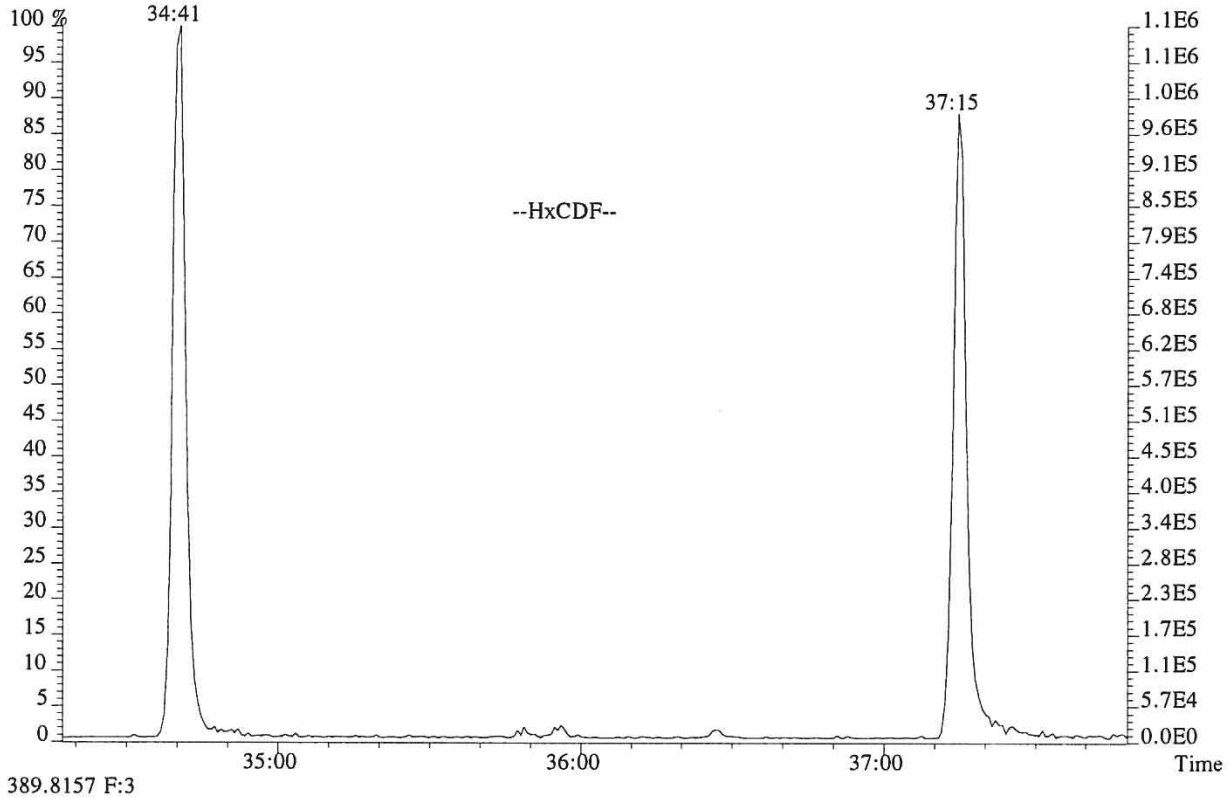


355.8546 F:2

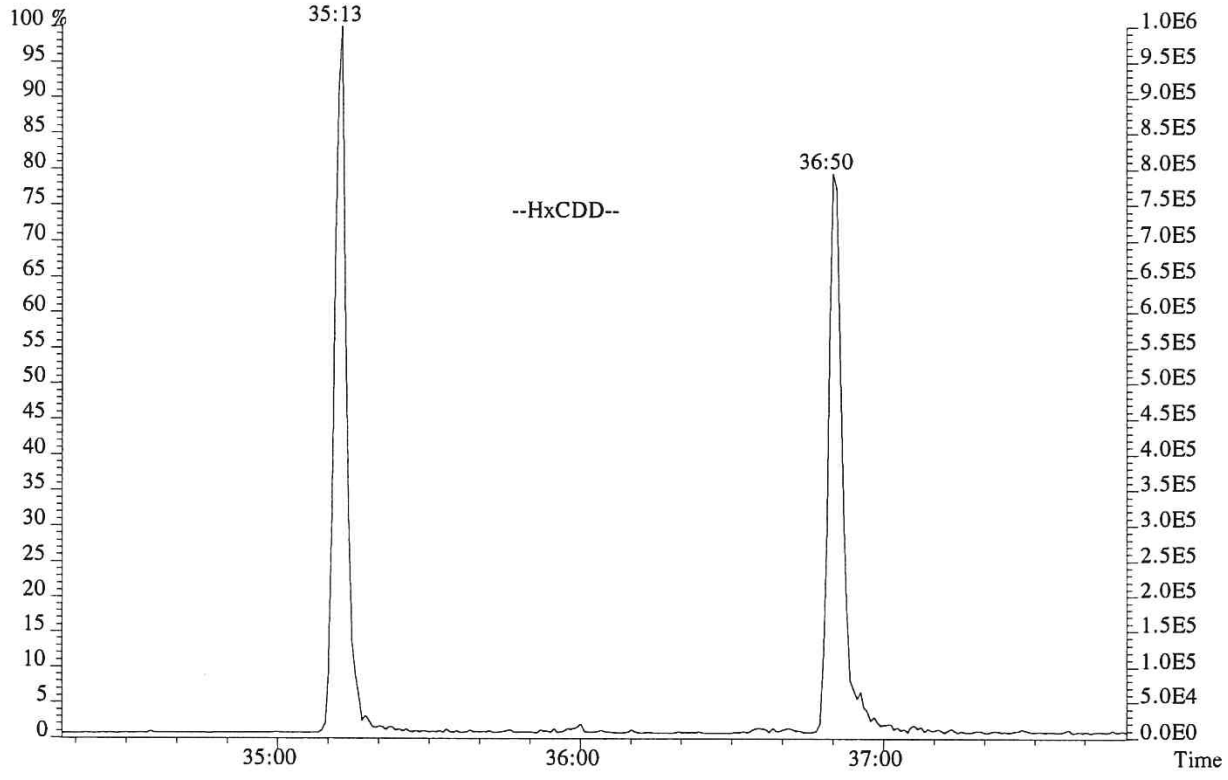


012780

File:P519351 #1-317 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3

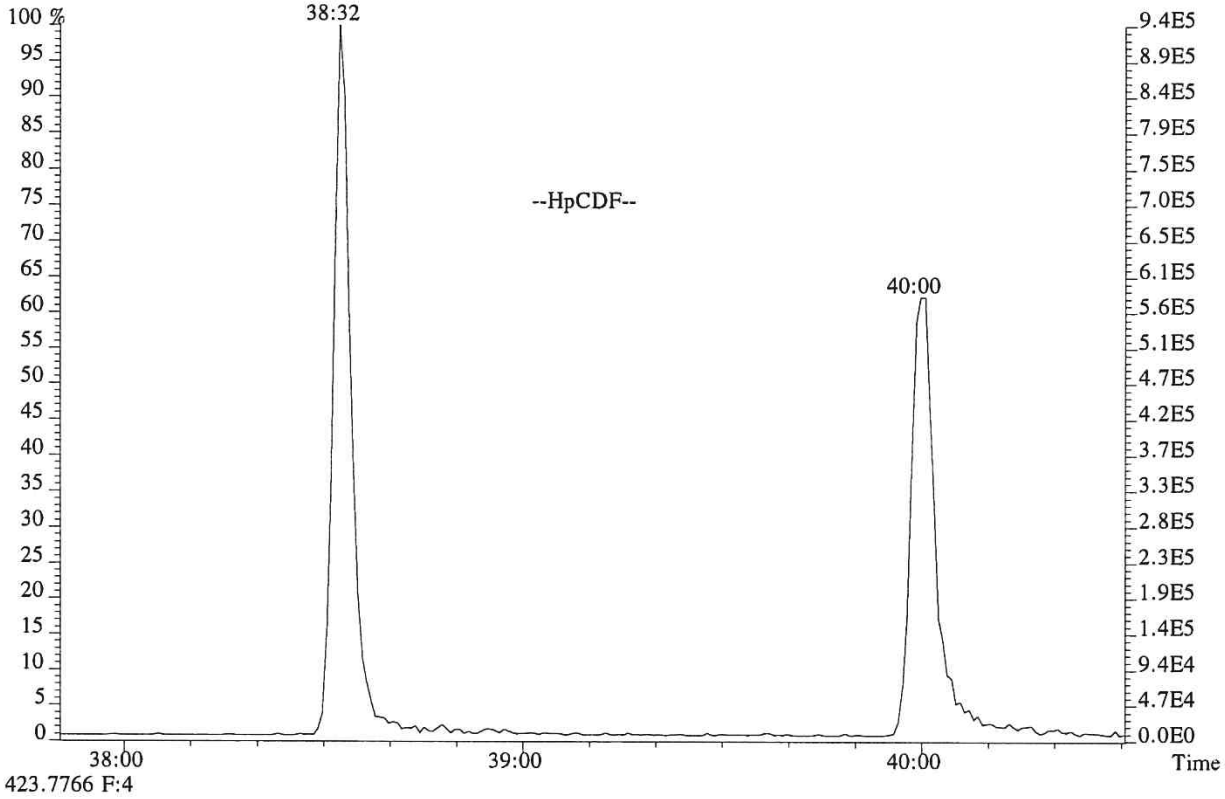


389.8157 F:3

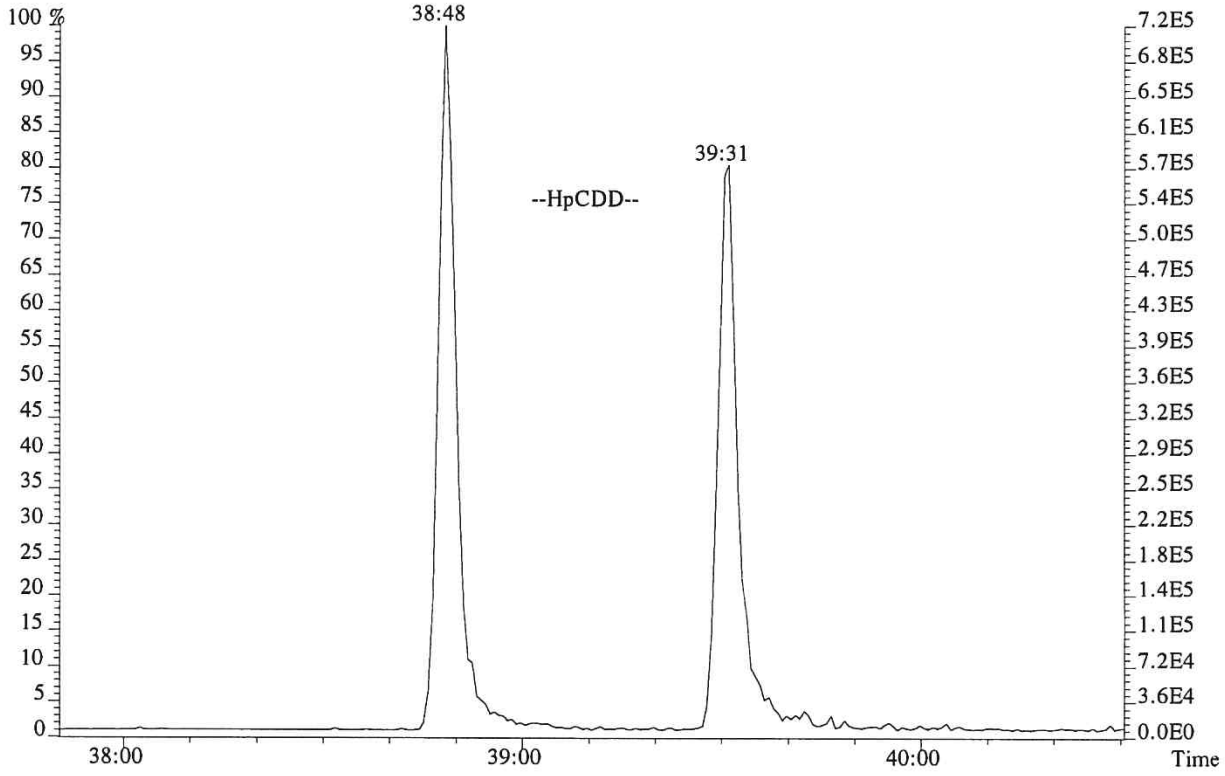


012781

File:P519351 #1-241 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519350 Analysis Date: 11-DEC-18 Time: 10:22:01

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.4	7.8 - 12.9	-5.5
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	50	39 - 65	0.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	50	39 - 64	0.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	3.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	54	41 - 61	8.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	0.9
OCDD	M+2/M+4	0.88	0.76-1.02	100	79 - 126	0.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.8	8.4 - 12.0	-1.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 60	-1.3
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	49	41 - 61	-1.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	0.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	50	43 - 58	0.3
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-2.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519350 Analysis Date: 11-DEC-18 Time: 10:22:01

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	106	82 - 121	5.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	113	62 - 160	12.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	93	85 - 117	-6.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	95	85 - 118	-5.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	107	72 - 138	6.8
13C-OCDD	M+2/M+4	0.89	0.76-1.02	233	96 - 415	16.7
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-1.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	112	76 - 130	12.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	113	77 - 130	12.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	87	76 - 131	-12.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	70 - 143	-6.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-1.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	73 - 137	-4.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	107	77 - 129	6.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.2	7.8 - 12.7	2.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519350 Samp: 1 Inj: 1 Acquired: 11-DEC-18 10:22:01
Processed: 12-DEC-18 09:58:22 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	5.308e+03	7.001e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	4.406e+04	2.904e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.136e+04	2.740e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.543e+04	2.949e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.963e+04	3.312e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.593e+04	2.996e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	3.331e+04	2.736e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	3.483e+04	3.414e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	2.697e+04	2.740e+04	0.98	yes	no	1.258
10	Unk	OCDF	42:42	4.159e+04	4.700e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	3.844e+03	5.065e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	2.852e+04	1.810e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	2.467e+04	1.982e+04	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	2.629e+04	2.095e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.782e+04	2.213e+04	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	2.401e+04	2.264e+04	1.06	yes	no	1.025
17	Unk	OCDD	42:31	3.511e+04	3.992e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	5.910e+04	7.387e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	9.023e+04	5.608e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	8.955e+04	5.616e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	3.605e+04	7.021e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	4.469e+04	8.464e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	4.040e+04	7.823e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	3.652e+04	6.908e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	3.151e+04	7.056e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	2.613e+04	6.006e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	3.848e+04	4.842e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	5.991e+04	3.752e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	4.768e+04	3.726e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	4.968e+04	3.871e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	4.639e+04	4.383e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:30	6.314e+04	7.068e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	3.953e+04	4.928e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	5.488e+04	4.359e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	9.184e+03				no	1.014

ALS ENVIRONMENTAL
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Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519350 Samp: 1 Inj: 1 Acquired: 11-DEC-18 10:22:01
Processed: 12-DEC-18 09:58:22 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.33e+05	5.80e+02	1.6e+03	1.26e+06	1.14e+03	1.1e+03
2	1,2,3,7,8-PeCDF	8.13e+06	4.40e+02	1.8e+04	5.42e+06	9.84e+02	5.5e+03
3	2,3,4,7,8-PeCDF	8.16e+06	4.40e+02	1.9e+04	5.36e+06	9.84e+02	5.4e+03
4	1,2,3,4,7,8-HxCDF	7.30e+06	3.56e+02	2.1e+04	5.92e+06	3.92e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	7.85e+06	3.56e+02	2.2e+04	6.68e+06	3.92e+02	1.7e+04
6	2,3,4,6,7,8-HxCDF	7.22e+06	3.56e+02	2.0e+04	6.04e+06	3.92e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	5.99e+06	3.56e+02	1.7e+04	4.98e+06	3.92e+02	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	6.57e+06	5.59e+03	1.2e+03	6.39e+06	2.82e+03	2.3e+03
9	1,2,3,4,7,8,9-HpCDF	4.32e+06	5.59e+03	7.7e+02	4.36e+06	2.82e+03	1.5e+03
10	OCDF	4.91e+06	3.52e+02	1.4e+04	5.52e+06	5.44e+02	1.0e+04
11	2,3,7,8-TCDD	7.22e+05	1.69e+03	4.3e+02	9.34e+05	1.03e+03	9.1e+02
12	1,2,3,7,8-PeCDD	5.29e+06	4.88e+02	1.1e+04	3.37e+06	2.48e+02	1.4e+04
13	1,2,3,4,7,8-HxCDD	5.00e+06	3.28e+02	1.5e+04	3.94e+06	4.28e+02	9.2e+03
14	1,2,3,6,7,8-HxCDD	5.26e+06	3.28e+02	1.6e+04	4.13e+06	4.28e+02	9.7e+03
15	1,2,3,7,8,9-HxCDD	5.12e+06	3.28e+02	1.6e+04	4.05e+06	4.28e+02	9.5e+03
16	1,2,3,4,6,7,8-HpCDD	4.10e+06	6.36e+02	6.4e+03	3.84e+06	1.96e+02	2.0e+04
17	OCDD	4.01e+06	1.76e+02	2.3e+04	4.56e+06	3.08e+02	1.5e+04
18	13C-2,3,7,8-TCDF	1.04e+07	4.63e+03	2.2e+03	1.31e+07	4.45e+03	2.9e+03
19	13C-1,2,3,7,8-PeCDF	1.64e+07	1.20e+03	1.4e+04	1.02e+07	1.35e+03	7.6e+03
20	13C-2,3,4,7,8-PeCDF	1.70e+07	1.20e+03	1.4e+04	1.07e+07	1.35e+03	7.9e+03
21	13C-1,2,3,4,7,8-HxCDF	7.25e+06	6.72e+02	1.1e+04	1.40e+07	5.60e+02	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	8.79e+06	6.72e+02	1.3e+04	1.67e+07	5.60e+02	3.0e+04
23	13C-2,3,4,6,7,8-HxCDF	8.01e+06	6.72e+02	1.2e+04	1.55e+07	5.60e+02	2.8e+04
24	13C-1,2,3,7,8,9-HxCDF	6.47e+06	6.72e+02	9.6e+03	1.24e+07	5.60e+02	2.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.84e+06	1.65e+03	3.5e+03	1.32e+07	2.66e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.25e+06	1.65e+03	2.6e+03	9.43e+06	2.66e+03	3.5e+03
27	13C-2,3,7,8-TCDD	7.12e+06	4.84e+03	1.5e+03	8.94e+06	1.87e+03	4.8e+03
28	13C-1,2,3,7,8-PeCDD	1.14e+07	8.56e+02	1.3e+04	7.20e+06	9.88e+02	7.3e+03
29	13C-1,2,3,4,7,8-HxCDD	9.50e+06	1.08e+03	8.8e+03	7.34e+06	4.88e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	9.67e+06	1.08e+03	9.0e+03	7.57e+06	4.88e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.85e+06	6.60e+02	1.2e+04	7.47e+06	6.88e+02	1.1e+04
32	13C-OCDD	7.14e+06	9.36e+02	7.6e+03	7.97e+06	3.52e+02	2.3e+04
33	13C-1,2,3,4-TCDD	7.30e+06	4.84e+03	1.5e+03	9.12e+06	1.87e+03	4.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	1.08e+03	9.3e+03	7.85e+06	4.88e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	1.71e+06	6.16e+02	2.8e+03			

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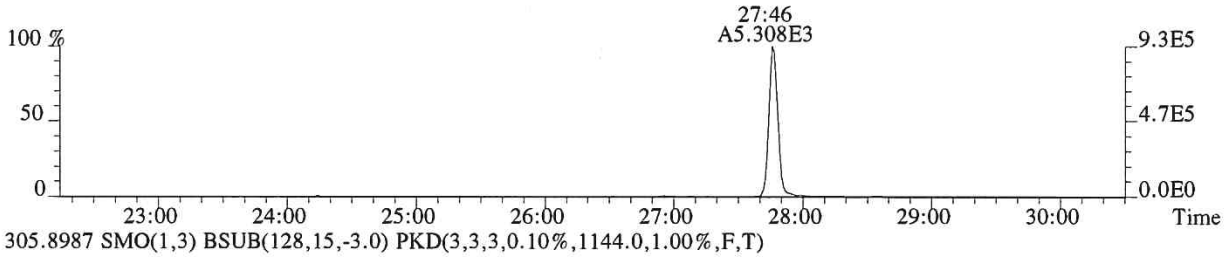
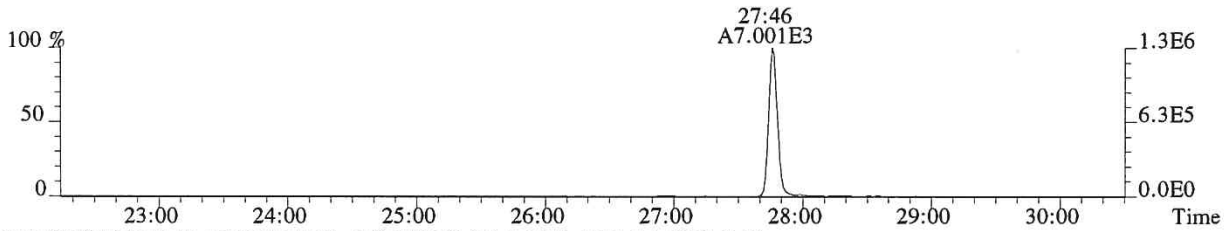
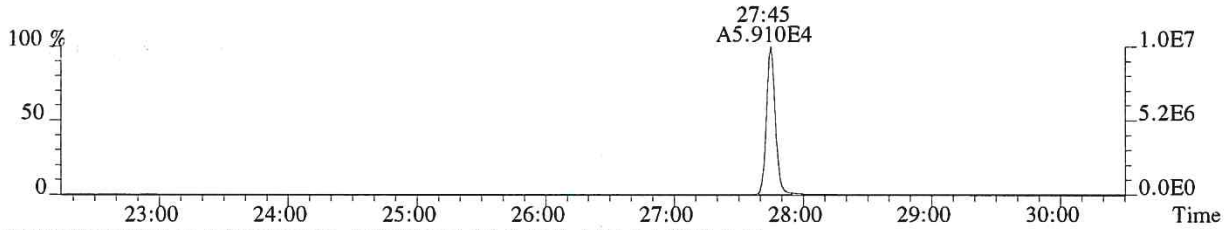
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



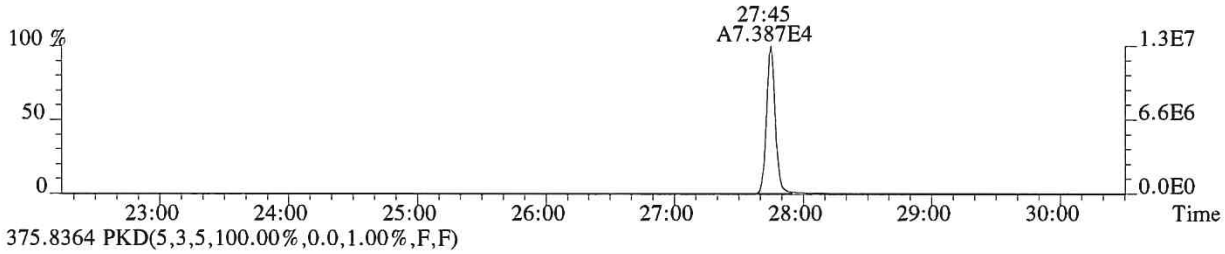
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



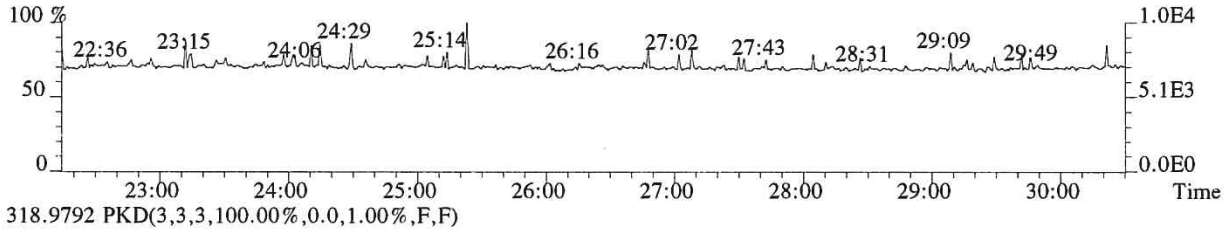
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4628.0,1.00%,F,T)



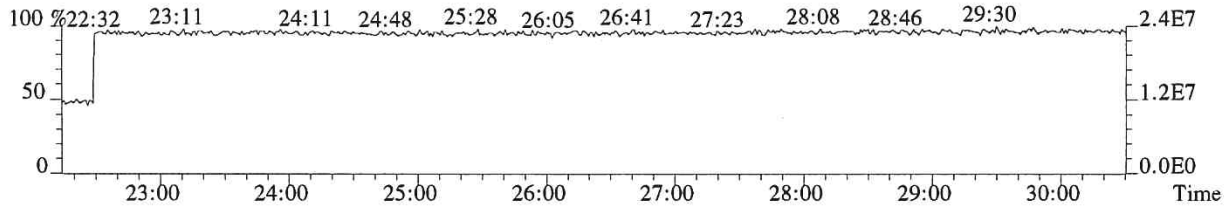
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4448.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

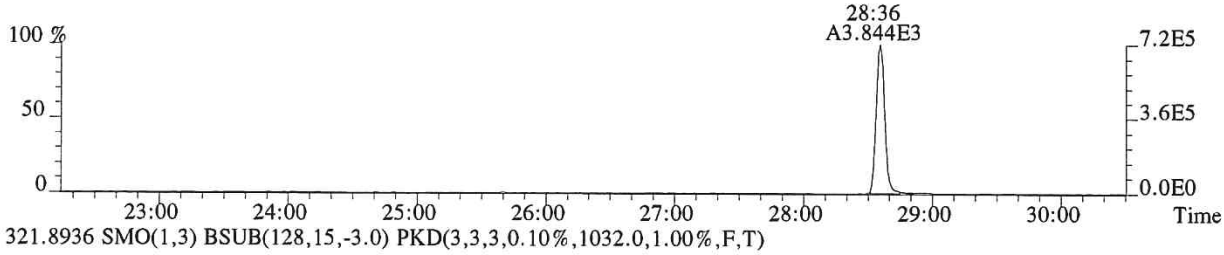


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

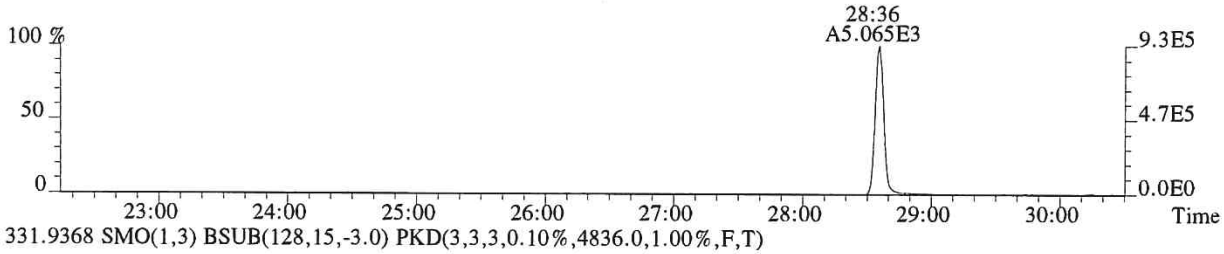


012787

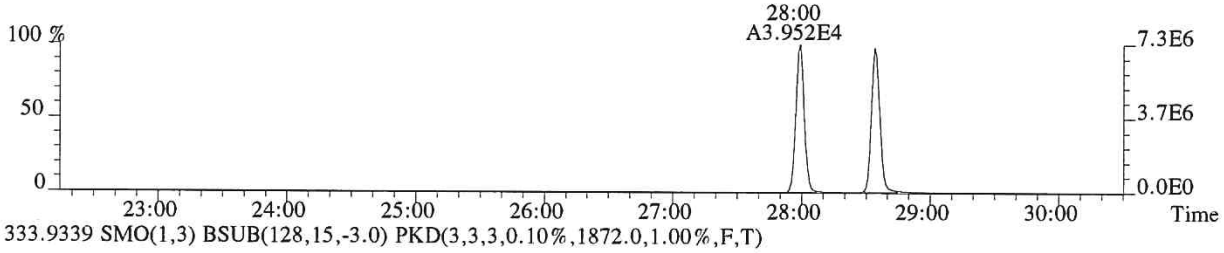
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



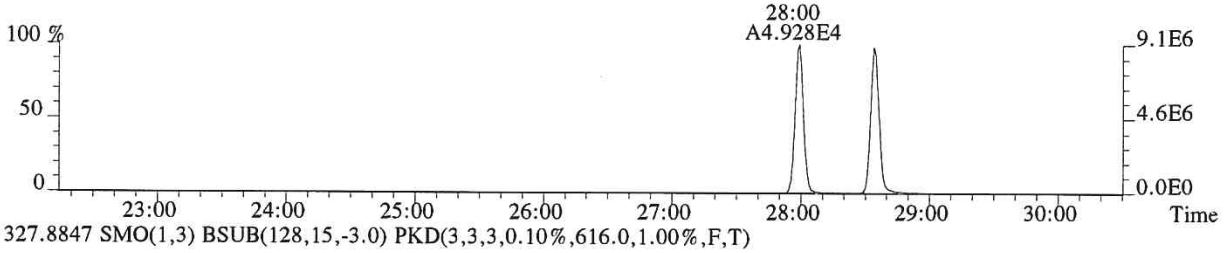
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



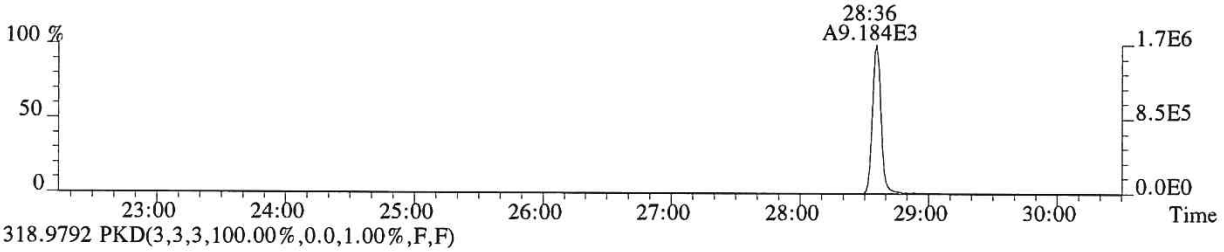
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4836.0,1.00%,F,T)



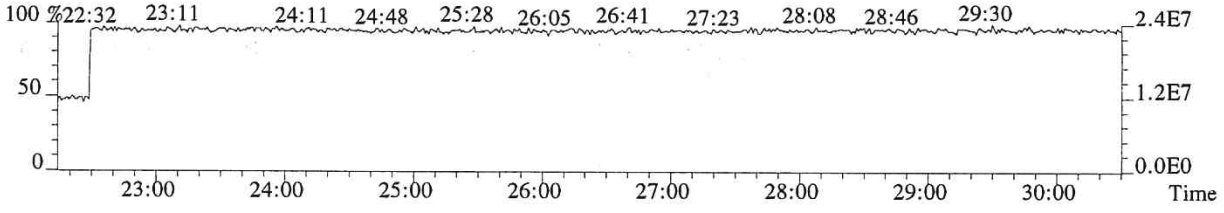
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)

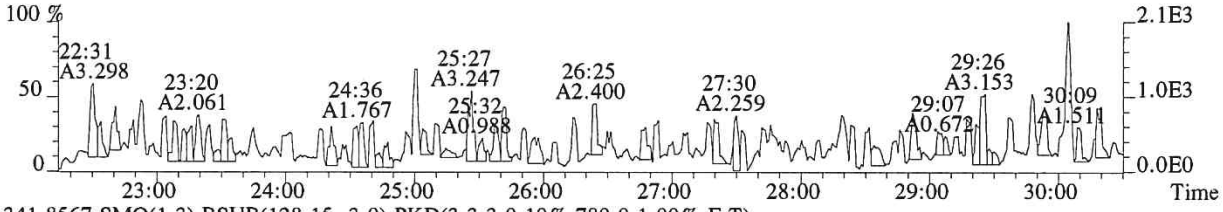


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

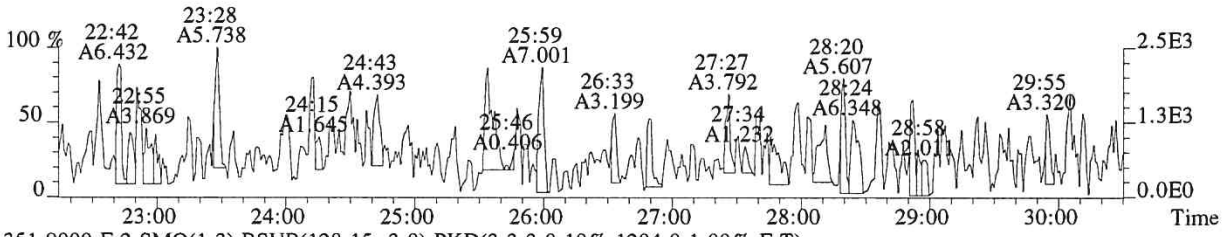


012788

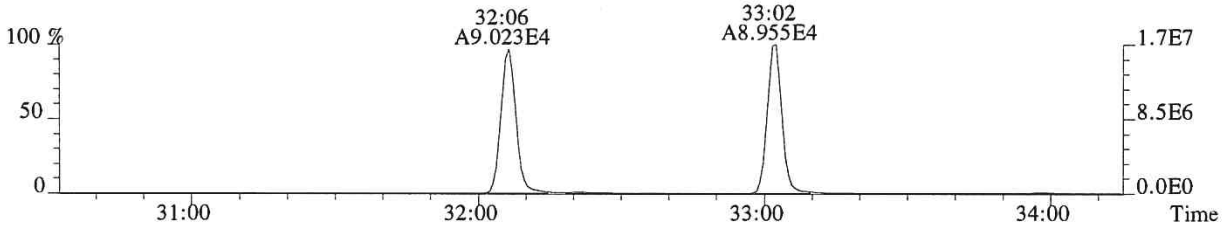
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



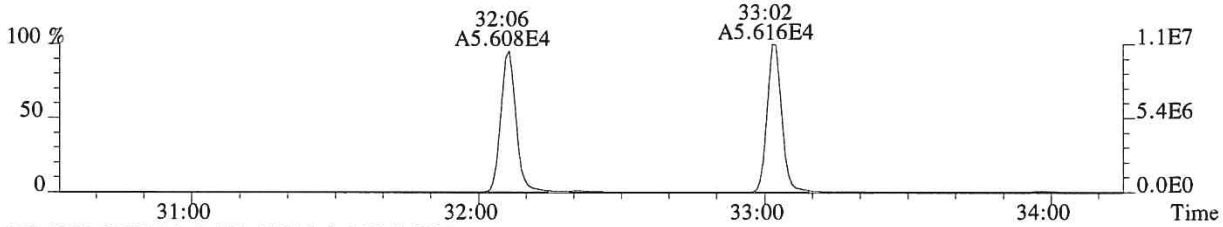
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



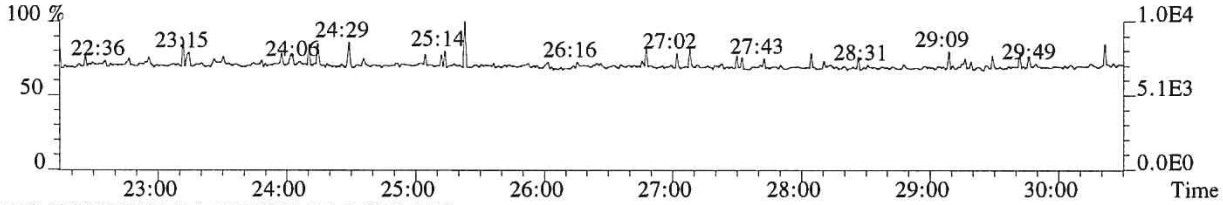
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



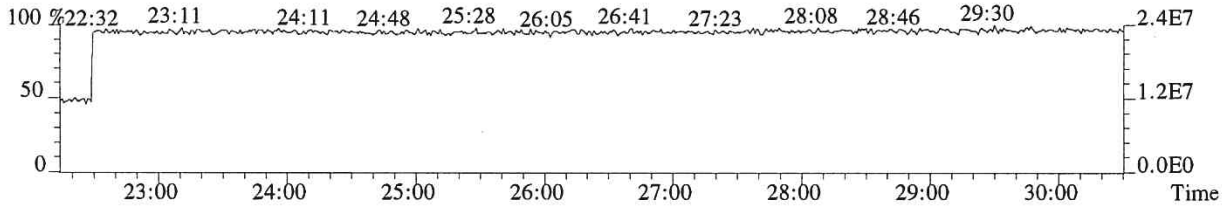
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

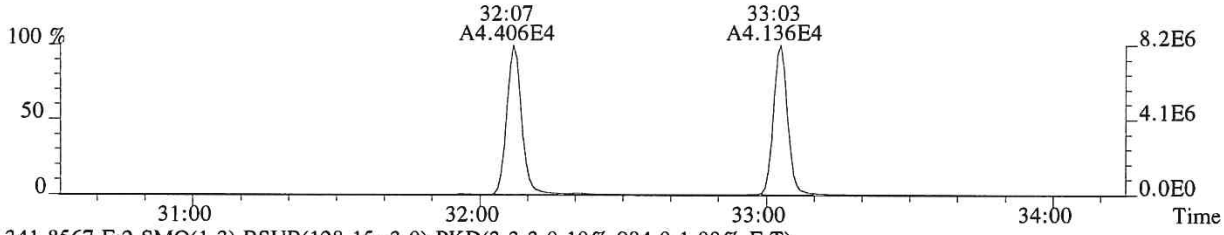


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

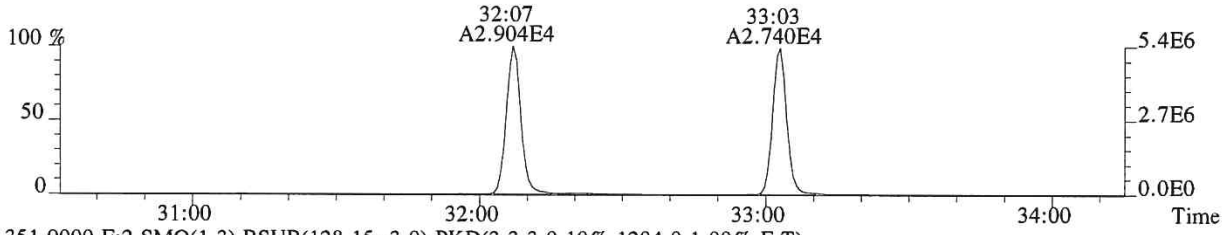


012789

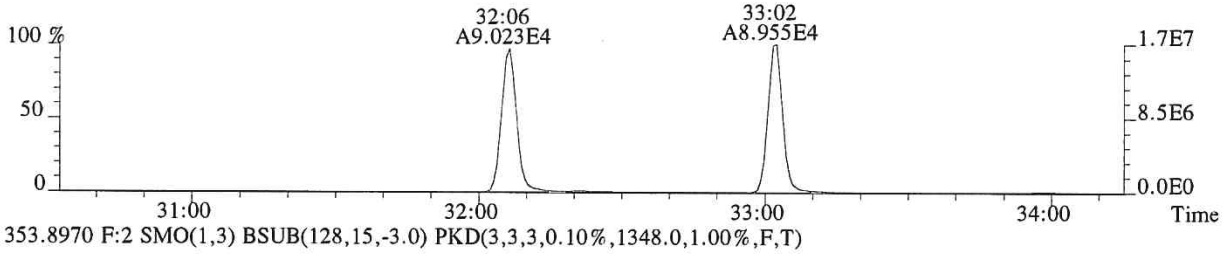
File:P519350 #1-335 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



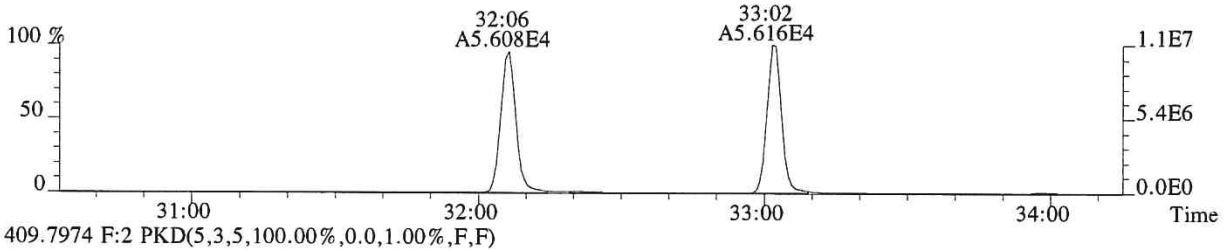
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



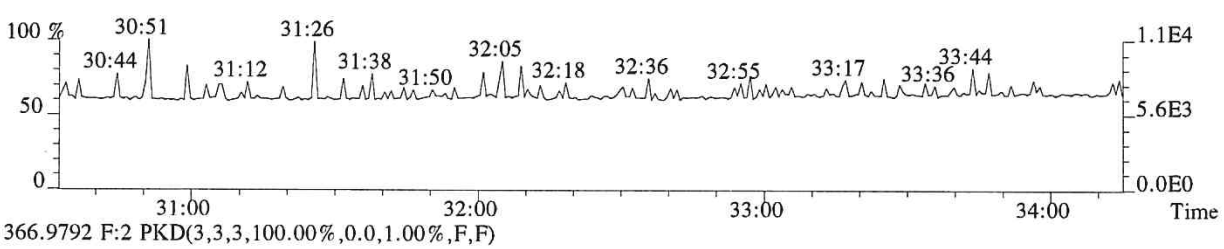
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



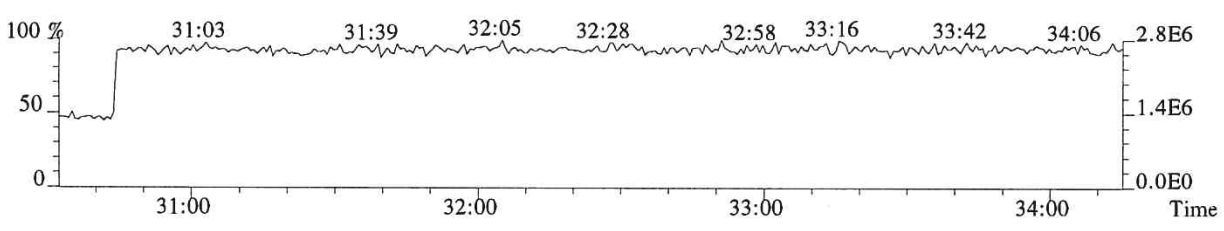
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

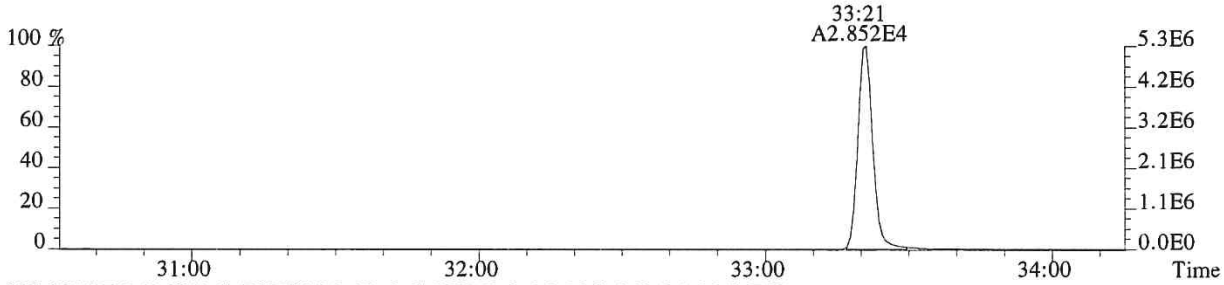


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

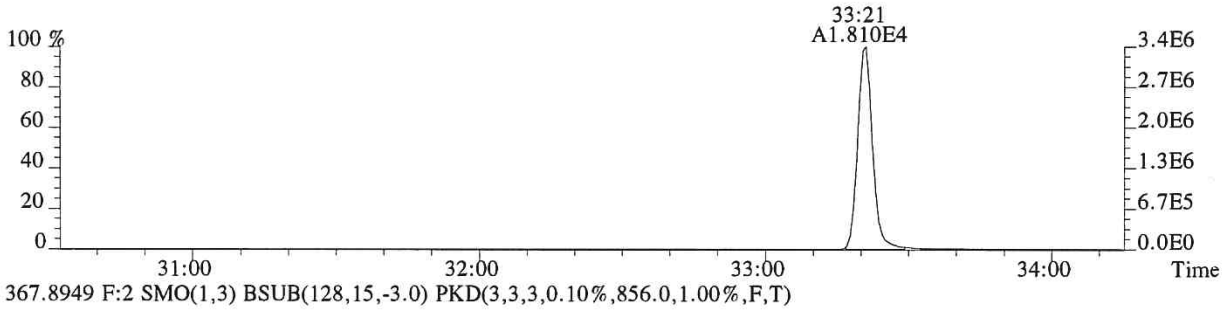


012790

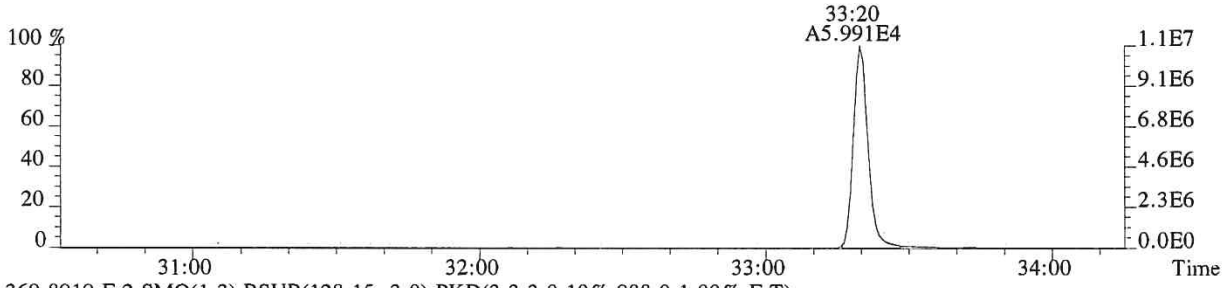
File:P519350 #1-335 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



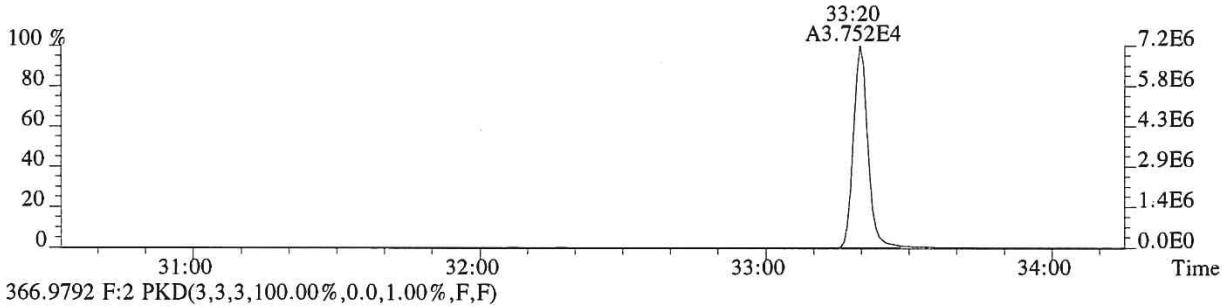
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



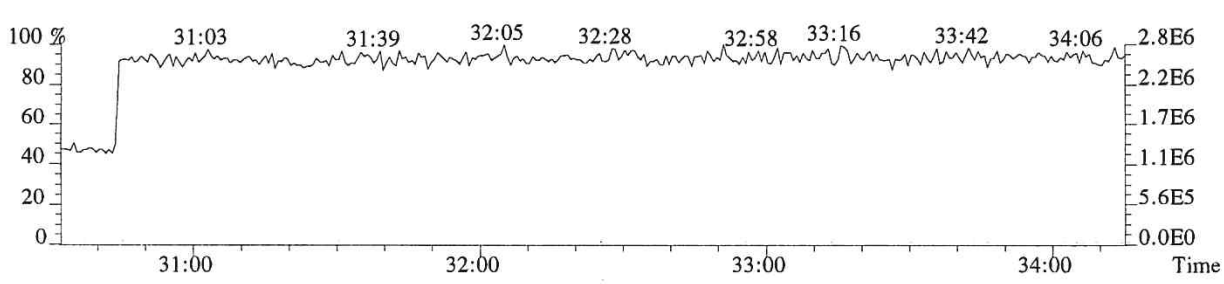
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



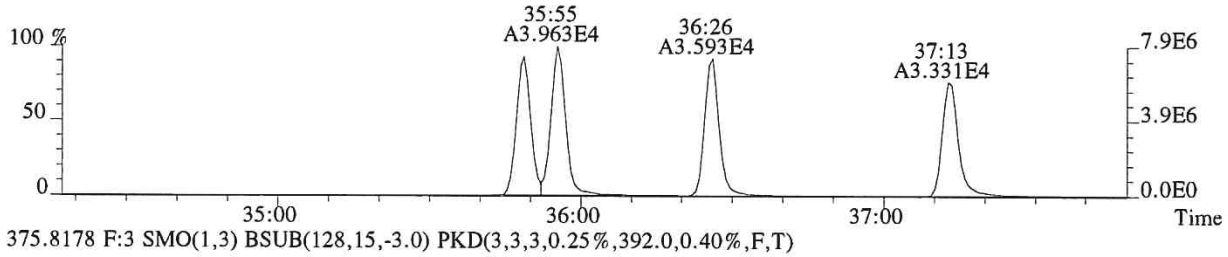
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



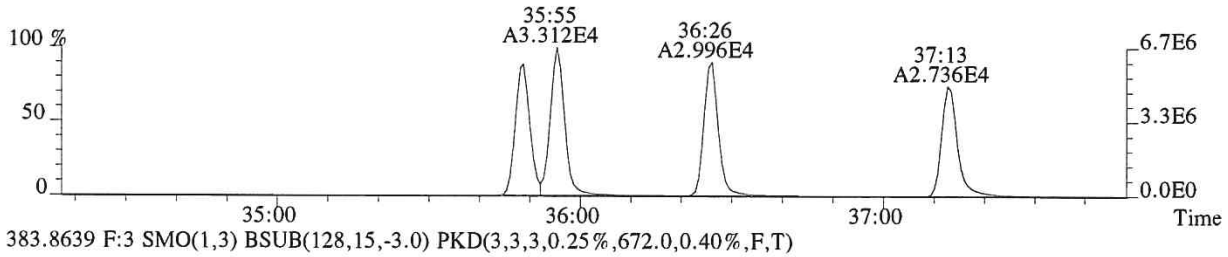
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



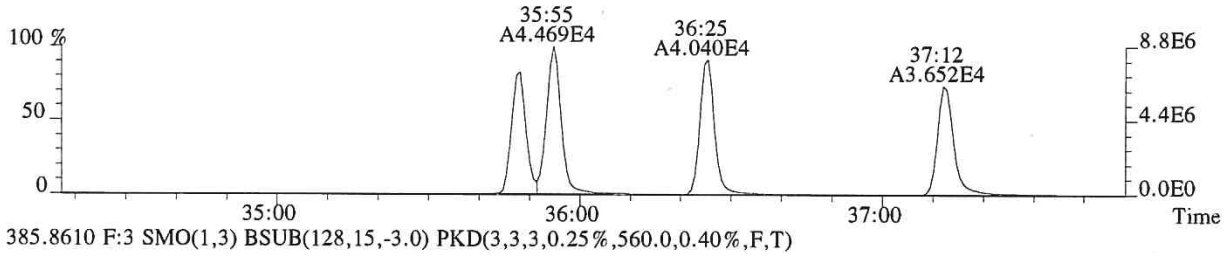
File:P519350 #1-317 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



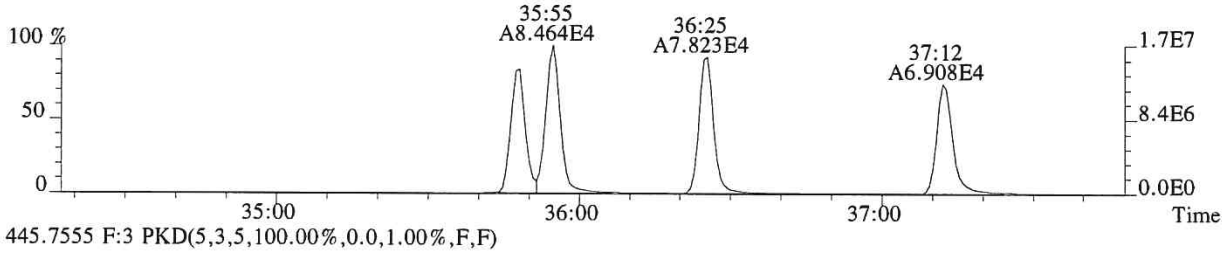
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



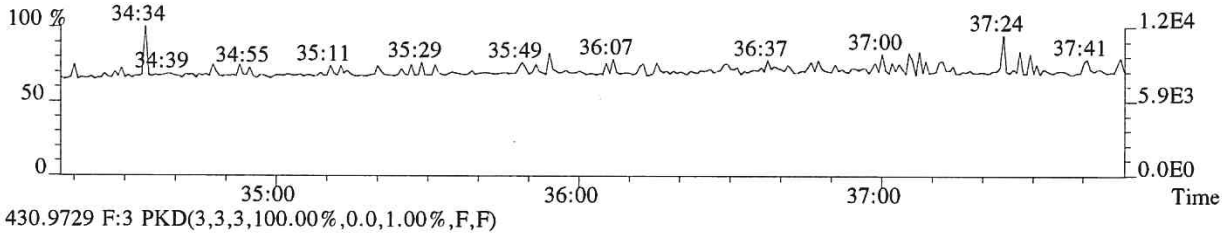
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



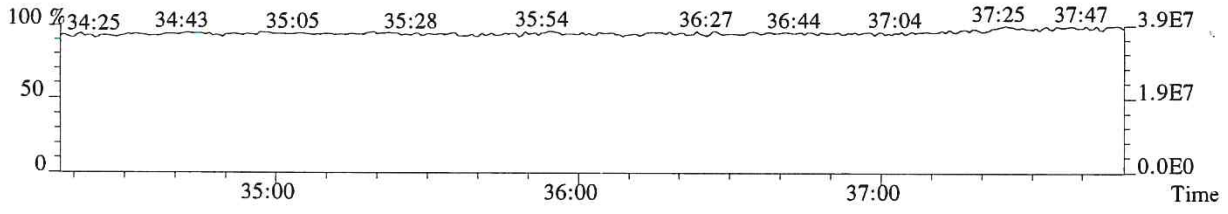
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

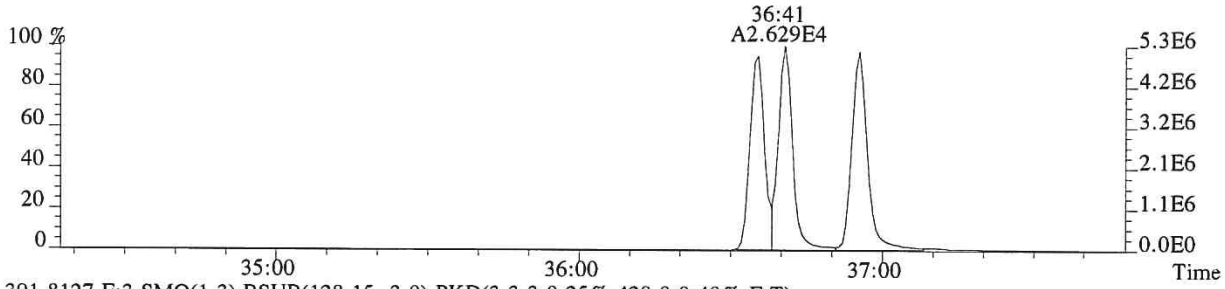


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

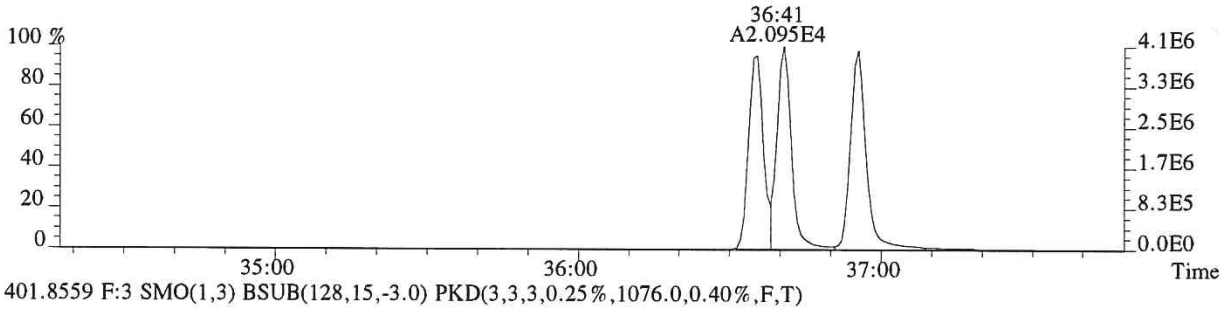


012792

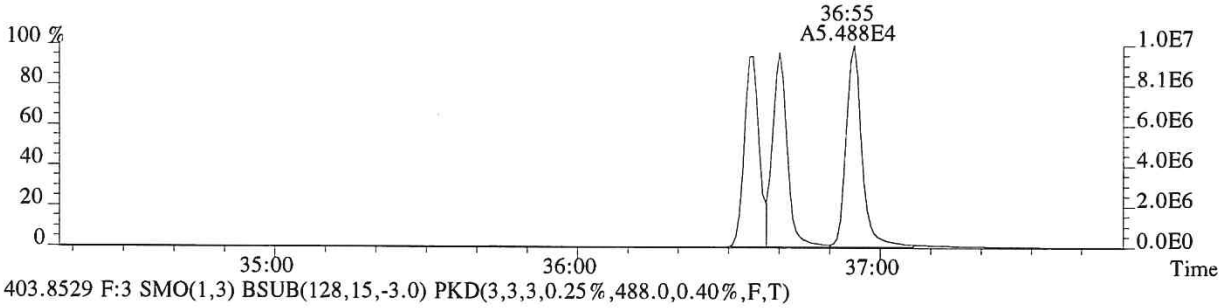
File:P519350 #1-317 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



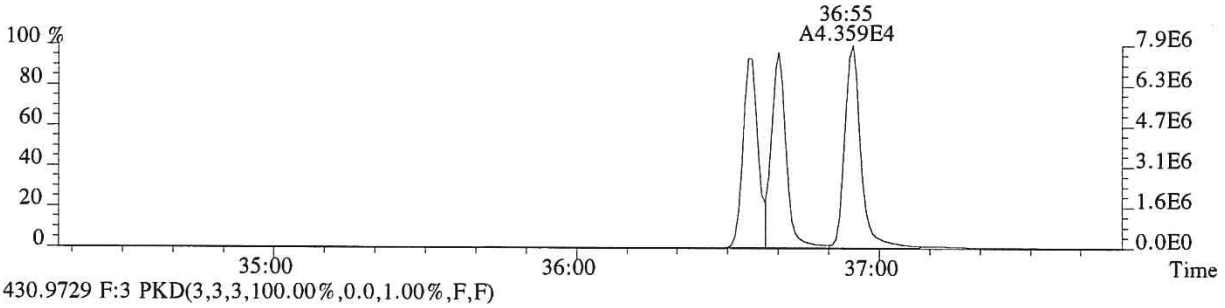
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



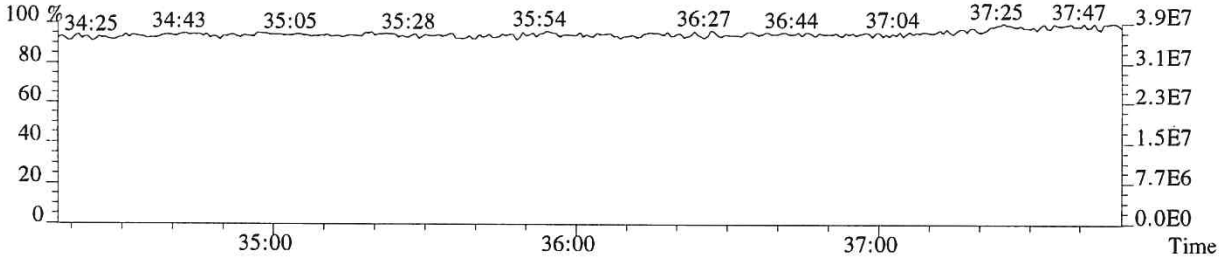
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)

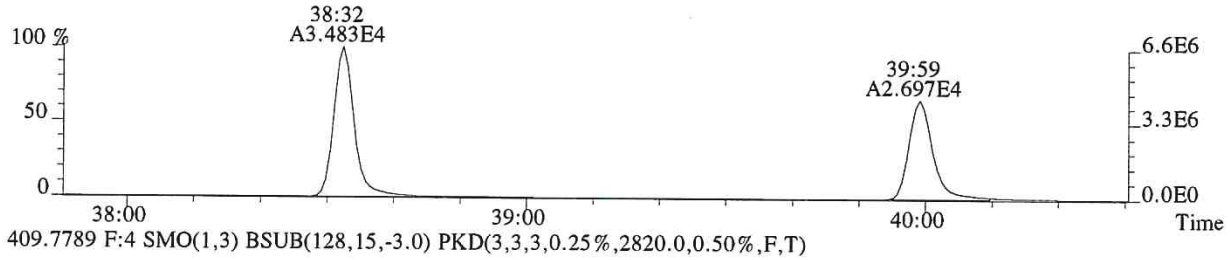


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

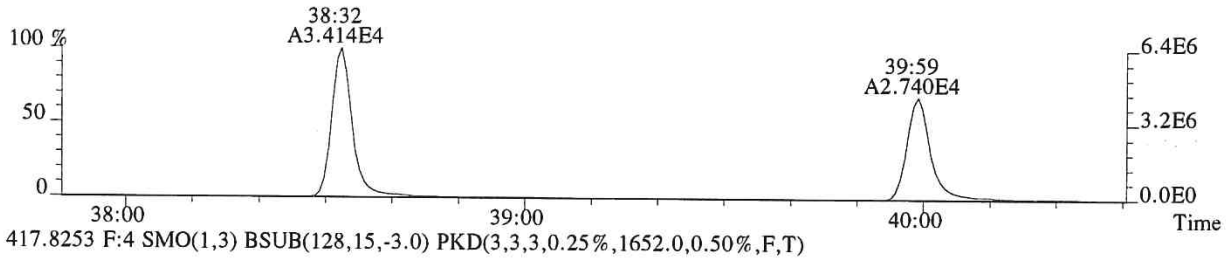


012793

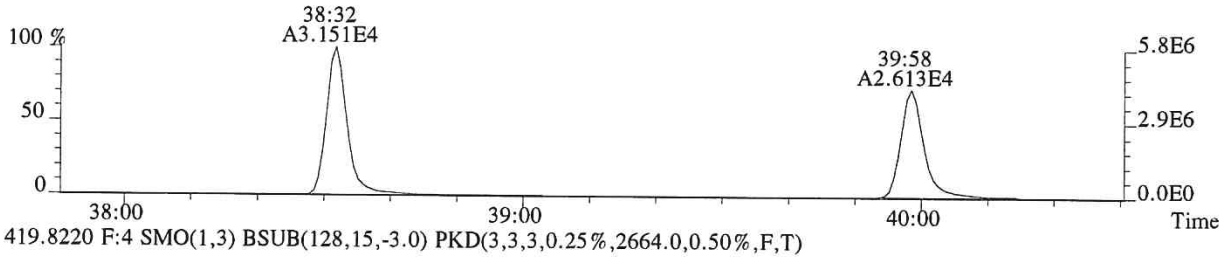
File:P519350 #1-241 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5592.0,0.50%,F,T)



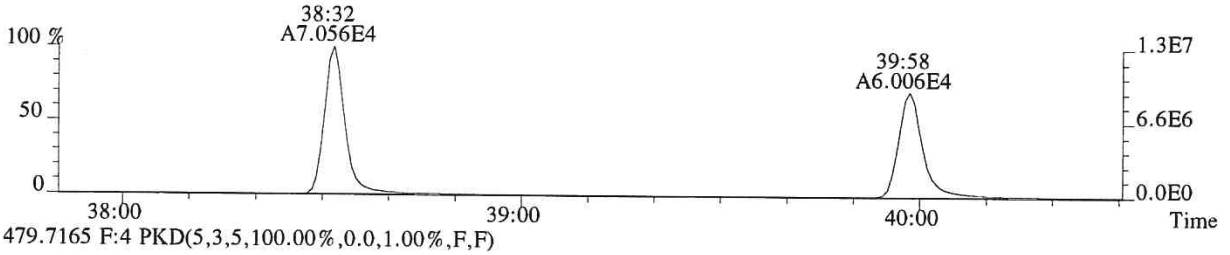
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2820.0,0.50%,F,T)



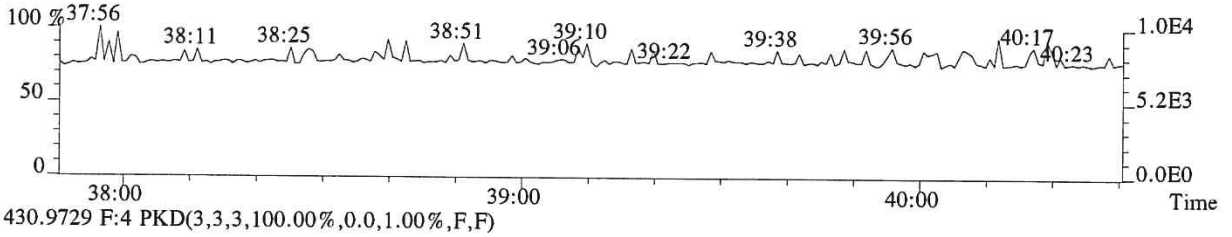
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.50%,F,T)



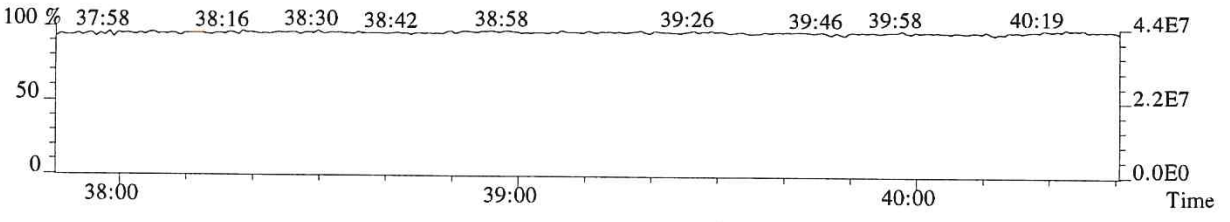
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2664.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

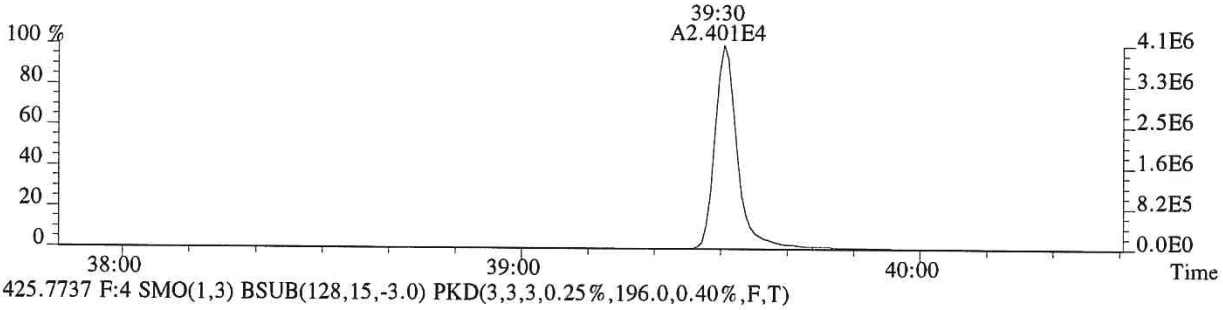


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

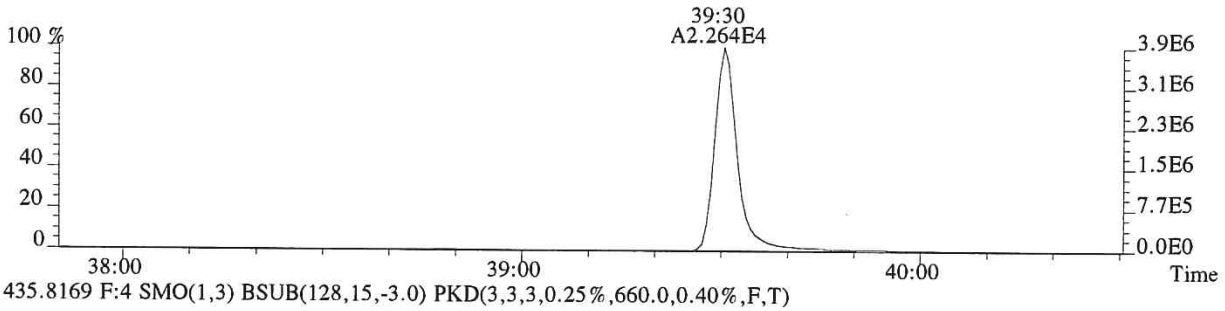


012794

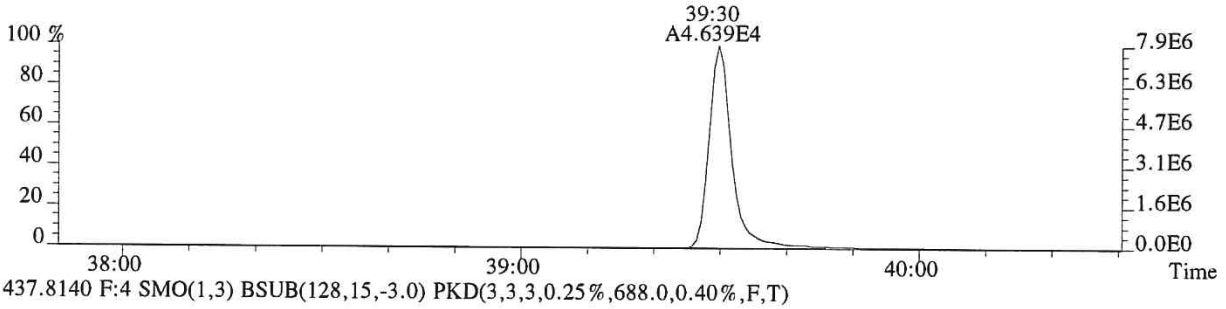
File:P519350 #1-241 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



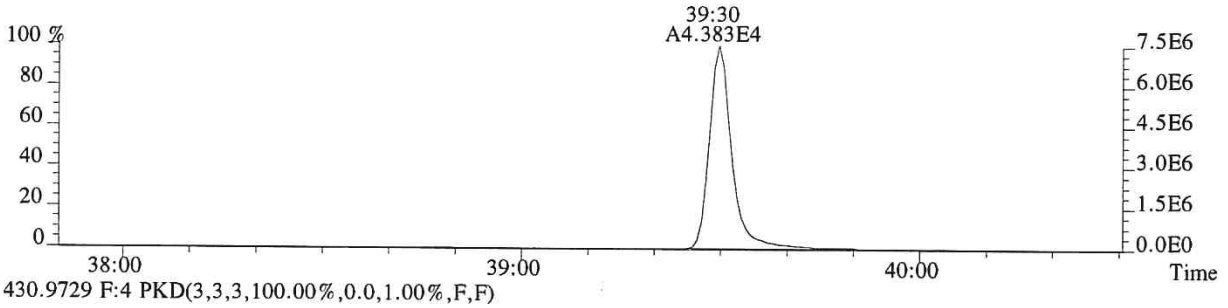
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



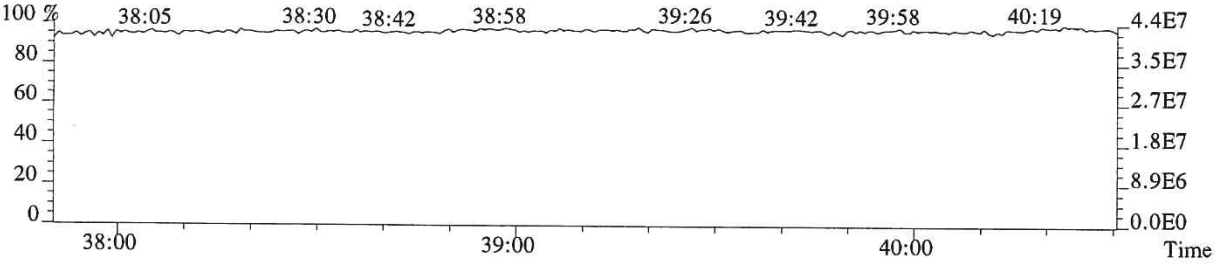
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)

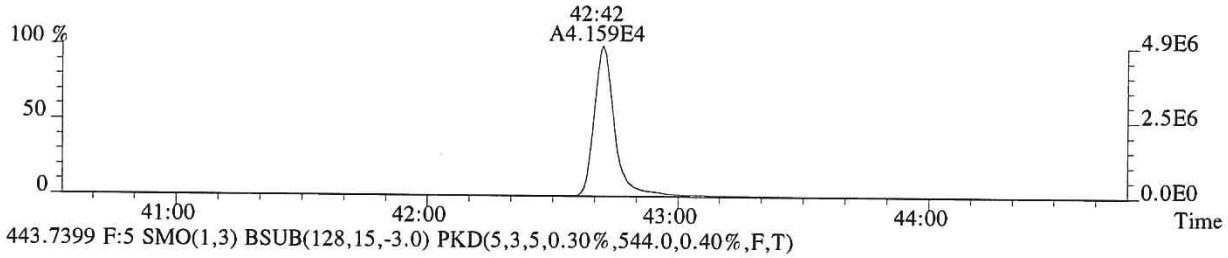


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

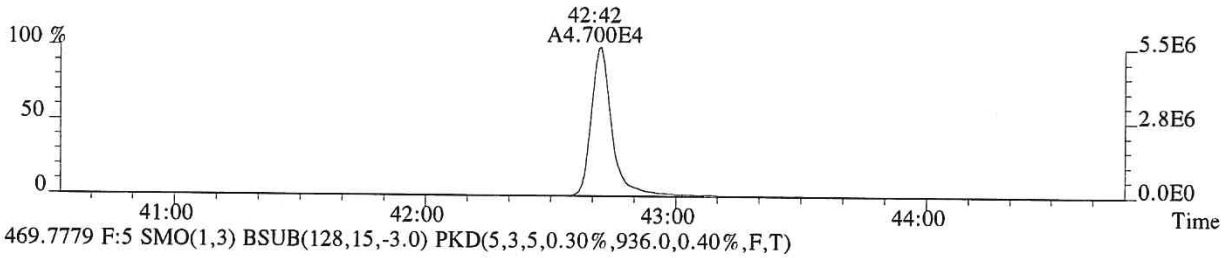


012795

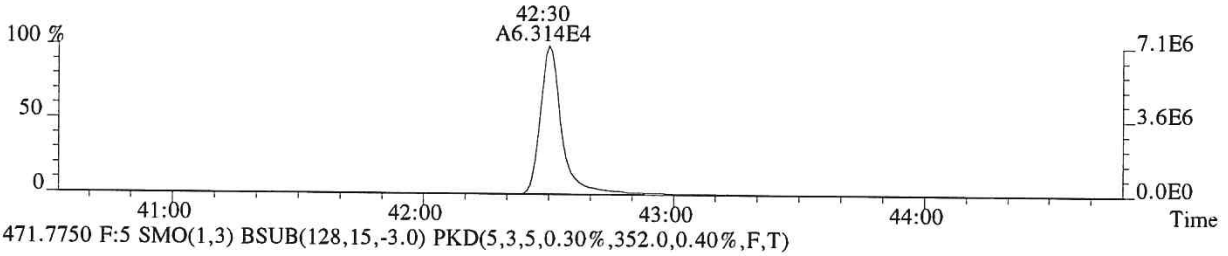
File:P519350 #1-383 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



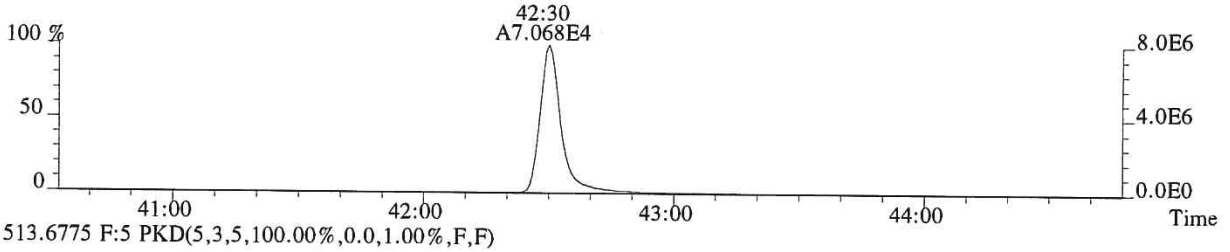
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



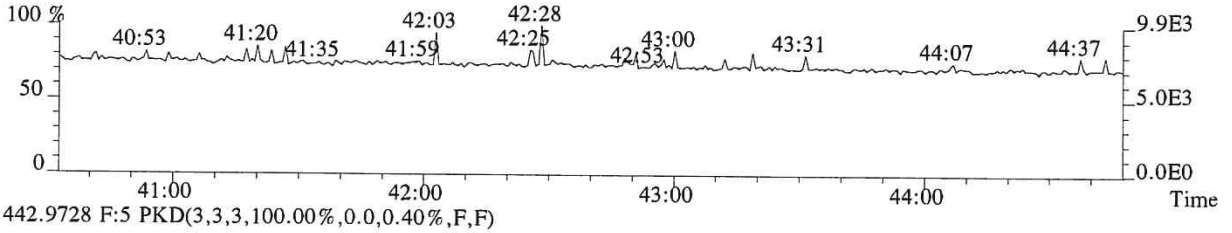
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



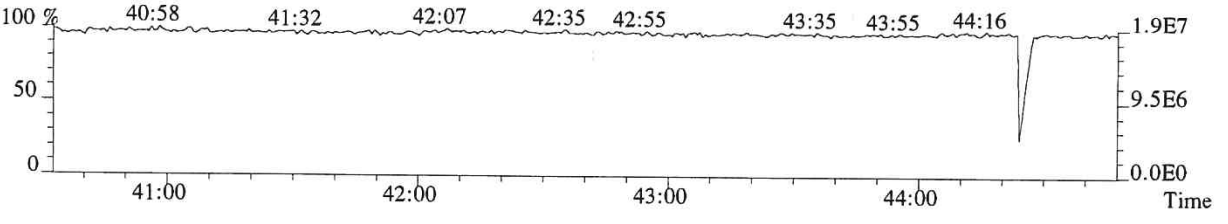
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

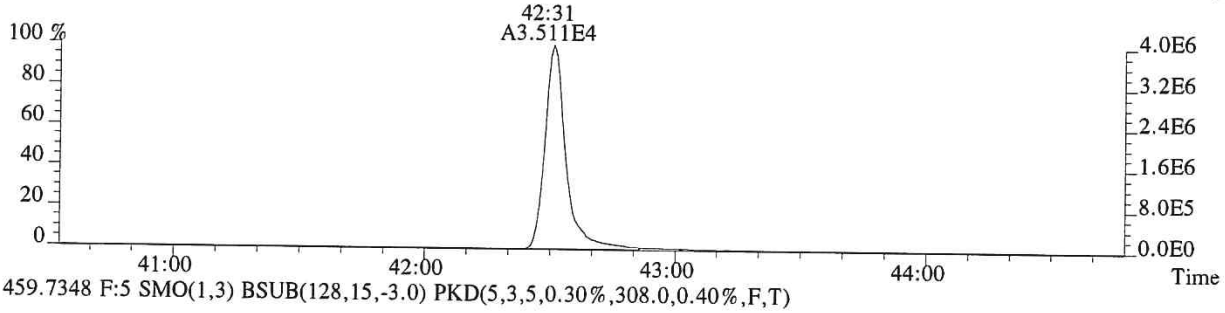


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

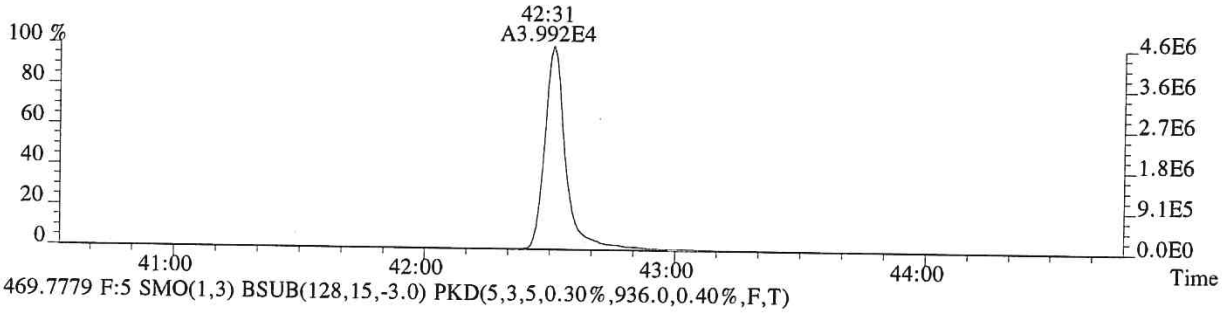


012796

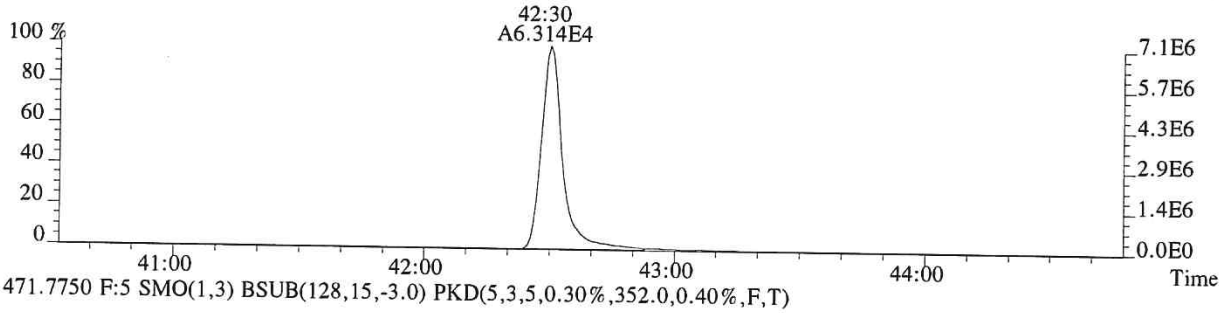
File:P519350 #1-383 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



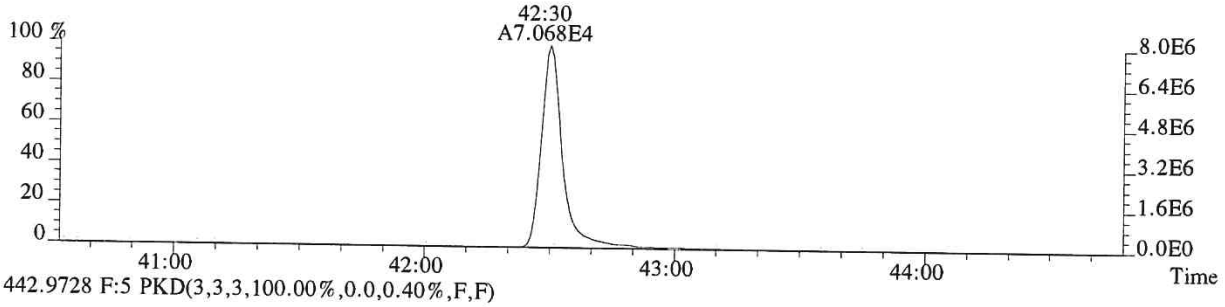
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



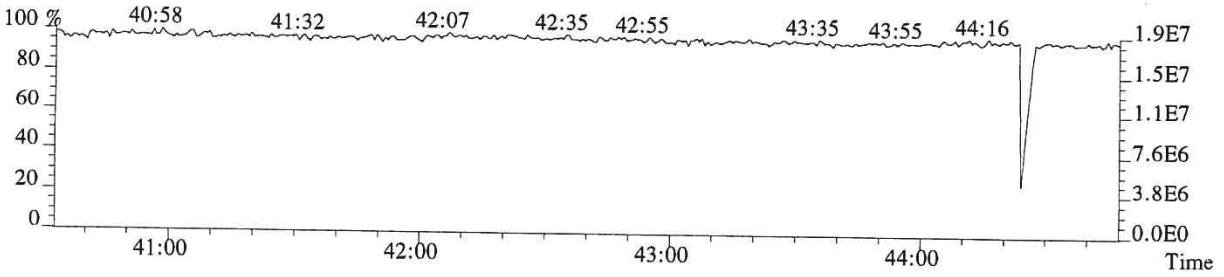
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P0159 40

Date: 12/06/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: QC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P615939	6-DEC-18	09:46:58
194503	CS3	P615940	6-DEC-18	10:36:14
METHOD BLANK	EQ1800489-01	P615941	6-DEC-18	11:29:21
SL0129	E1801039-036DL	P615942	6-DEC-18	12:17:41
SL0130	E1801039-037DL	P615943	6-DEC-18	13:06:43
141506W-141510W	E1801004-006	P615944	6-DEC-18	14:03:40
152901F-152905F	E1801004-009	P615945	6-DEC-18	14:51:59
18315B01BA	E1801053-001	P615946	6-DEC-18	15:42:25
SL0544	E1801046-006	P615947	6-DEC-18	16:30:45
SL0191	E1801056-006	P615948	6-DEC-18	17:22:09
SL0197	E1801056-012	P615949	6-DEC-18	18:10:28
SL0203	E1801056-039	P615950	6-DEC-18	18:59:31
SL0204	E1801056-040	P615951	6-DEC-18	19:48:42
LCS	EQ1800488-02	P615952	6-DEC-18	20:37:53
DLCS	EQ1800488-03	P615953	6-DEC-18	21:27:03

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181206A.SPL
Last Modified: Friday, December 07, 2018 06:56:08 Central Standard Time
Printed: Friday, December 07, 2018 06:56:10 Central Standard Time

Page Position (1, 1)

OPUS4: P615940res

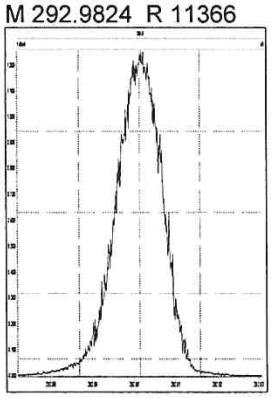
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/6/18	08:52	P615938	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	not used
2		09:46	P615939	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		HRMScheck 08:51
3		10:36	P615940	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
4		11:29	P615941	EQ1800489-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:17	P615942	E181039-036DL	E181039-036DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:06	P615943	E181039-037DL	E181039-037DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:03	P615944	E1801004-006	E1801004-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		14:51	P615945	E1801004-009	E1801004-009	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		15:42	P615946	E1801053-001	E1801053-001	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:30	P615947	E1801046-006	E1801046-006	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		17:22	P615948	E1801056-006	E1801056-006	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:10	P615949	E1801056-012	E1801056-012	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		18:59	P615950	E1801056-039	E1801056-039	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		19:48	P615951	E1801056-040	E1801056-040	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		20:37	P615952	EQ1800488-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		21:27	P615953	EQ1800488-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:16		
17		22:24	P615954	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMScheck 22:24
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LG 12/10/18

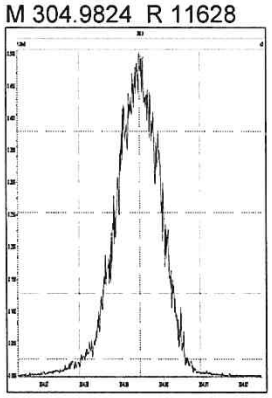
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:51:02 Central Standard Time

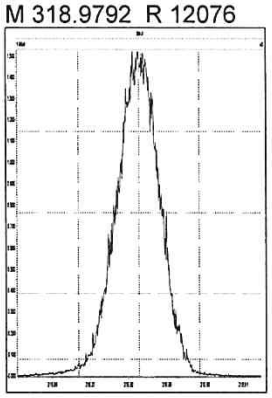
M 292.9824 R 11366



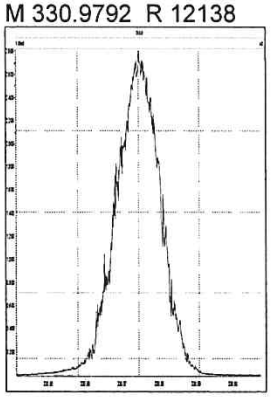
M 304.9824 R 11628



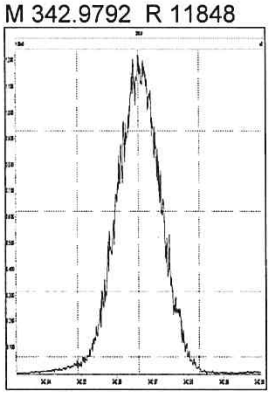
M 318.9792 R 12076



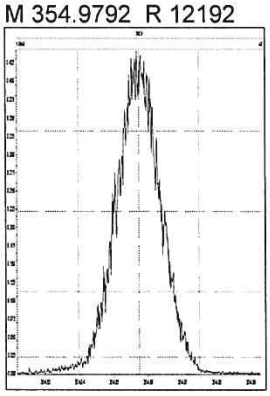
M 330.9792 R 12138



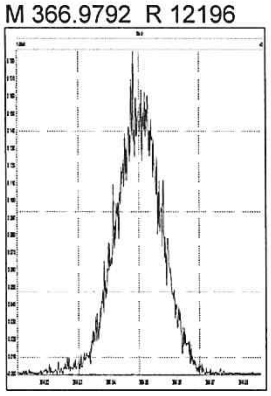
M 342.9792 R 11848



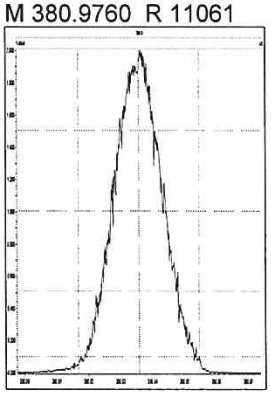
M 354.9792 R 12192



M 366.9792 R 12196



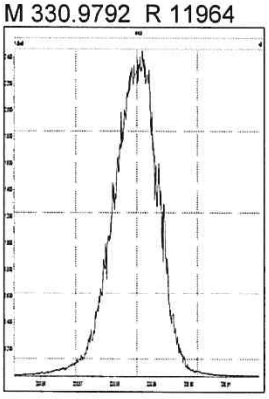
M 380.9760 R 11061



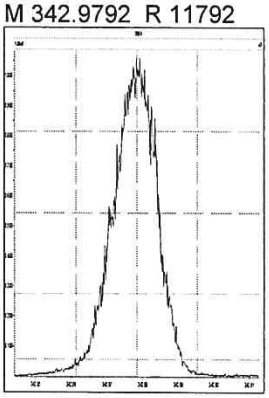
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:51:50 Central Standard Time

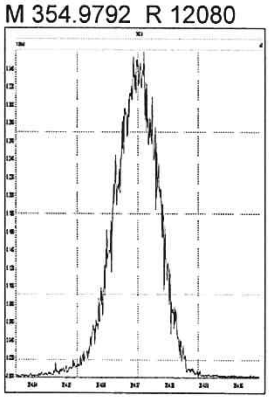
M 330.9792 R 11964



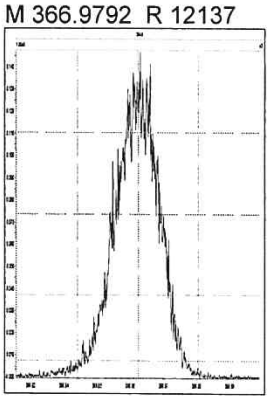
M 342.9792 R 11792



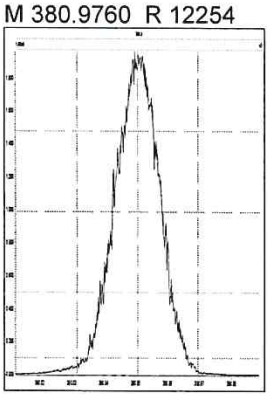
M 354.9792 R 12080



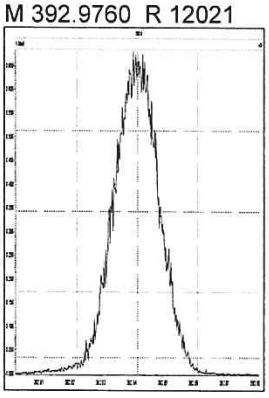
M 366.9792 R 12137



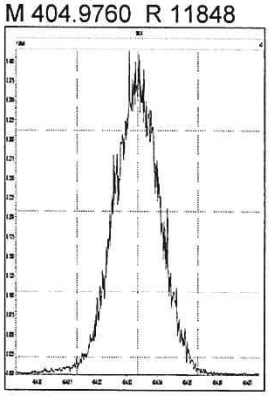
M 380.9760 R 12254



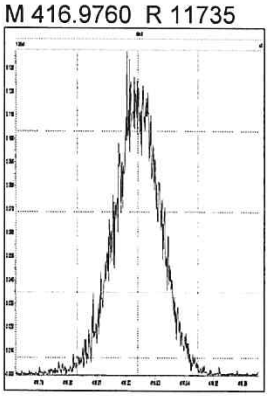
M 392.9760 R 12021



M 404.9760 R 11848



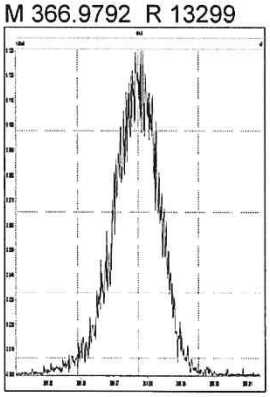
M 416.9760 R 11735



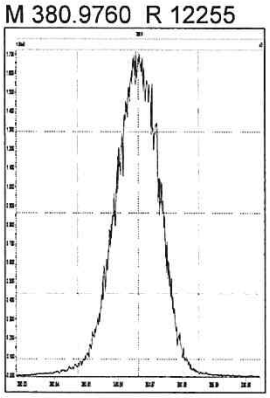
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:52:34 Central Standard Time

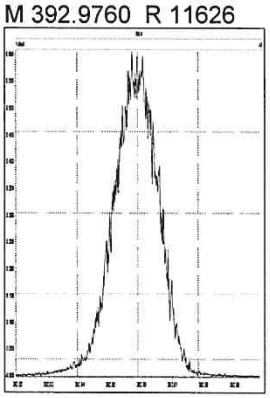
M 366.9792 R 13299



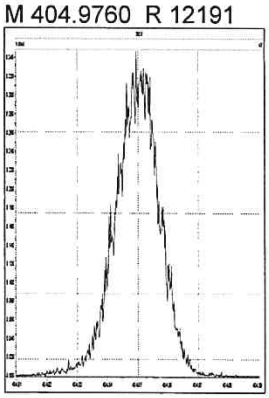
M 380.9760 R 12255



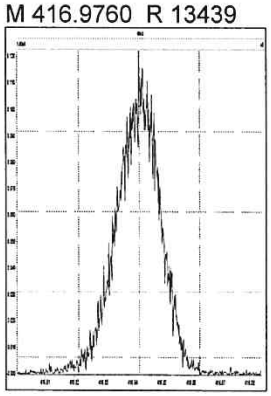
M 392.9760 R 11626



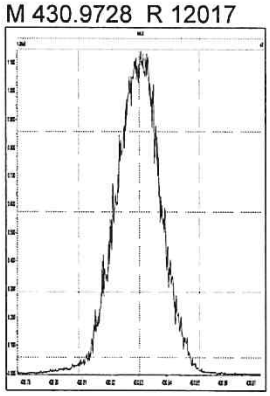
M 404.9760 R 12191



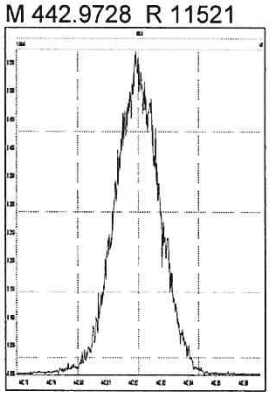
M 416.9760 R 13439



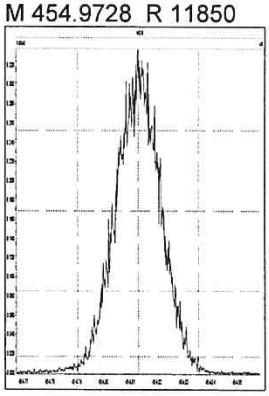
M 430.9728 R 12017



M 442.9728 R 11521



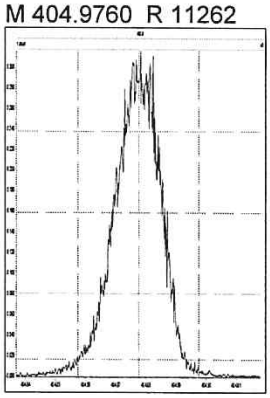
M 454.9728 R 11850



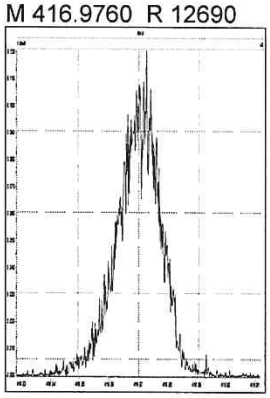
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:53:21 Central Standard Time

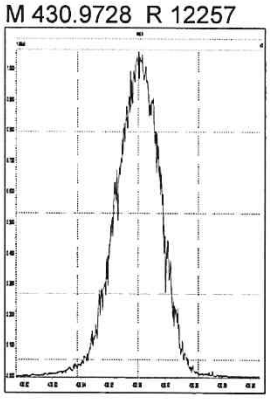
M 404.9760 R 11262



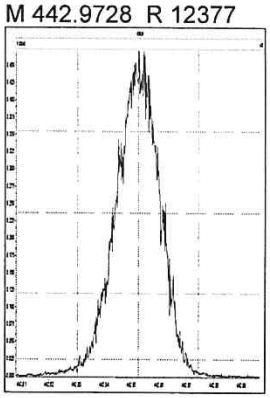
M 416.9760 R 12690



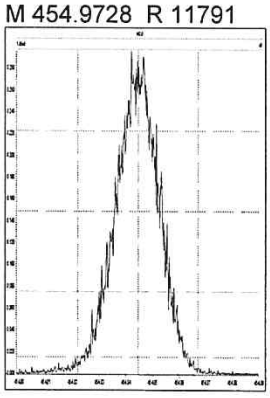
M 430.9728 R 12257



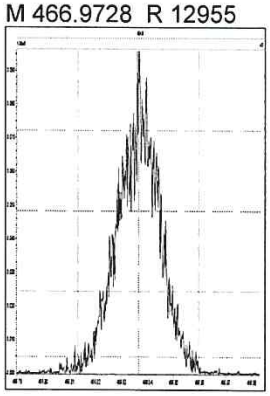
M 442.9728 R 12377



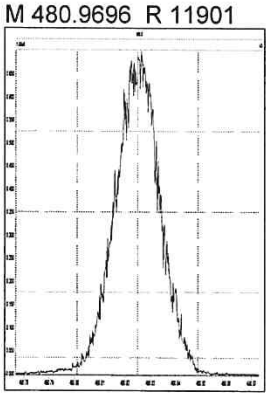
M 454.9728 R 11791



M 466.9728 R 12955



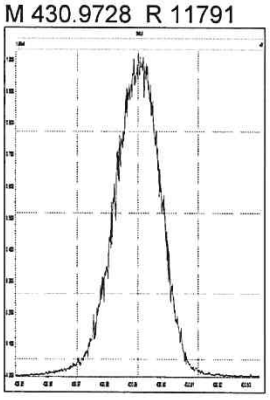
M 480.9696 R 11901



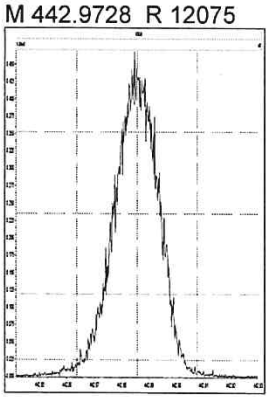
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, December 06, 2018 08:54:10 Central Standard Time

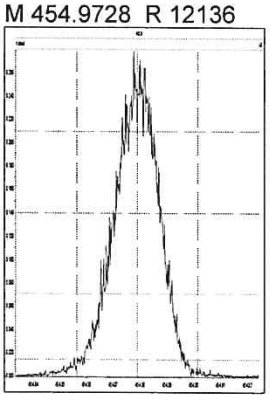
M 430.9728 R 11791



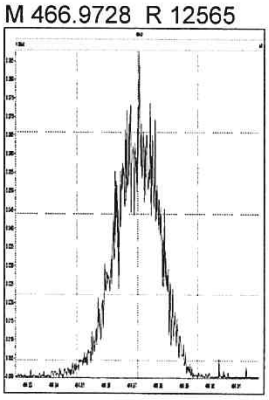
M 442.9728 R 12075



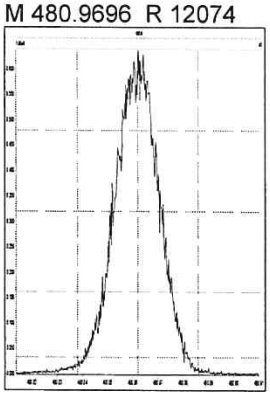
M 454.9728 R 12136



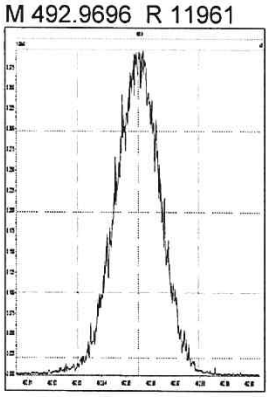
M 466.9728 R 12565



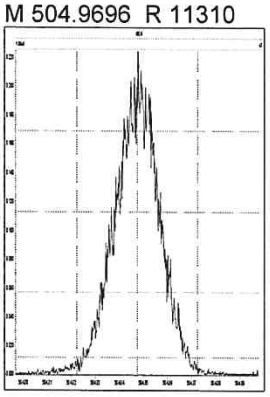
M 480.9696 R 12074



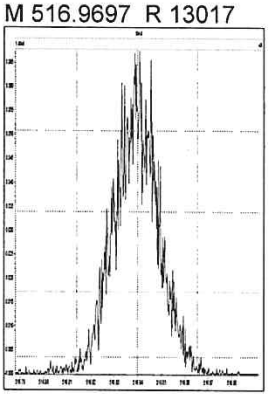
M 492.9696 R 11961



M 504.9696 R 11310



M 516.9697 R 13017



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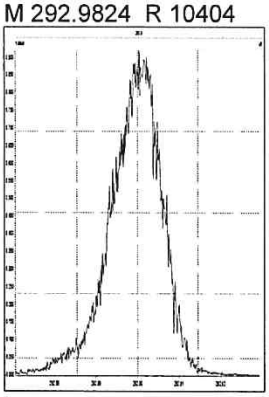
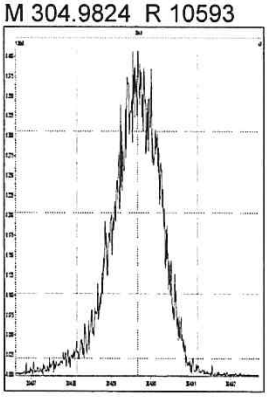
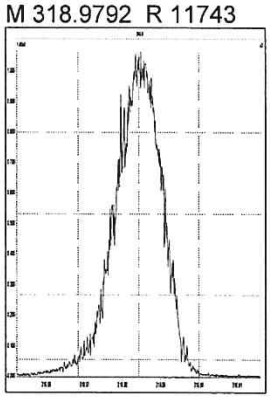
M 292.9824 R 10404



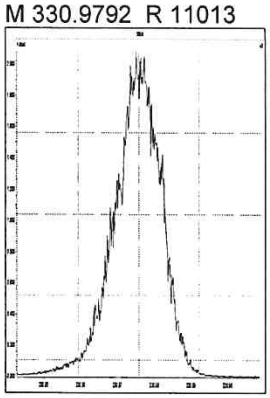
M 304.9824 R 10593



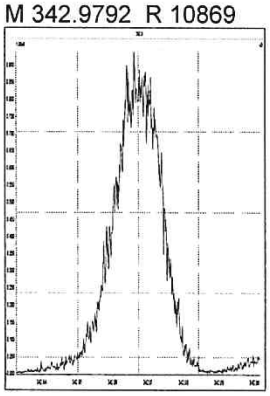
M 318.9792 R 11743



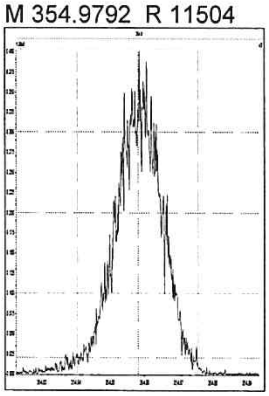
M 330.9792 R 11013



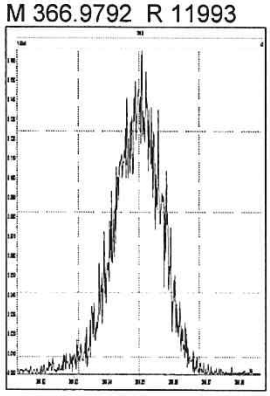
M 342.9792 R 10869



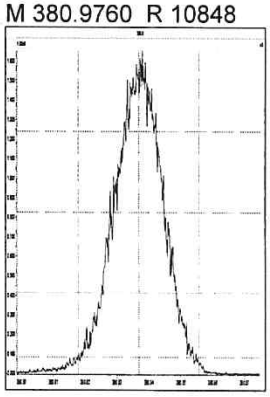
M 354.9792 R 11504



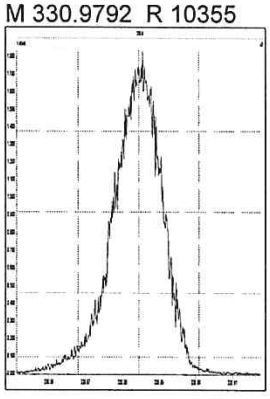
M 366.9792 R 11993



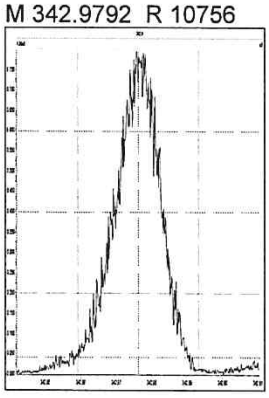
M 380.9760 R 10848



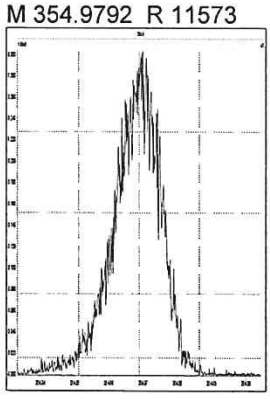
M 330.9792 R 10355



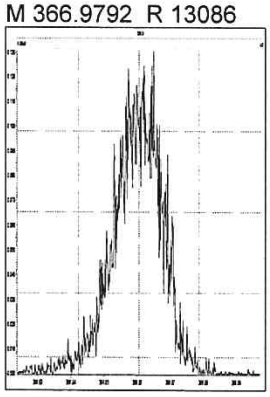
M 342.9792 R 10756



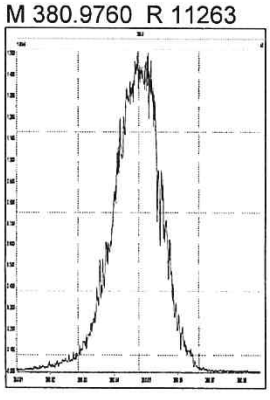
M 354.9792 R 11573



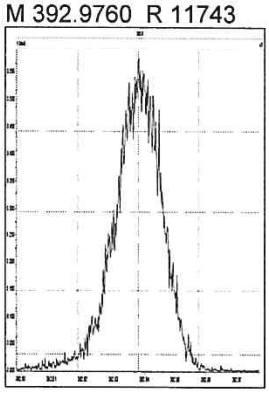
M 366.9792 R 13086



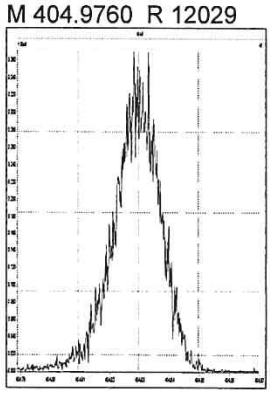
M 380.9760 R 11263



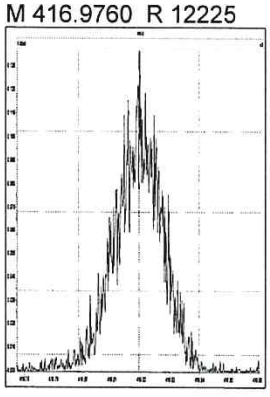
M 392.9760 R 11743



M 404.9760 R 12029

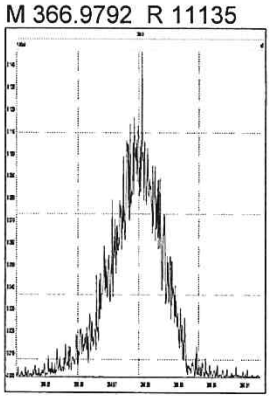


M 416.9760 R 12225

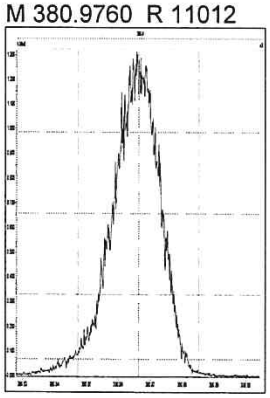


012806

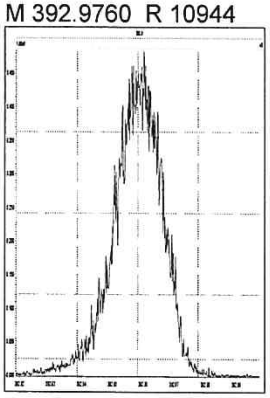
M 366.9792 R 11135



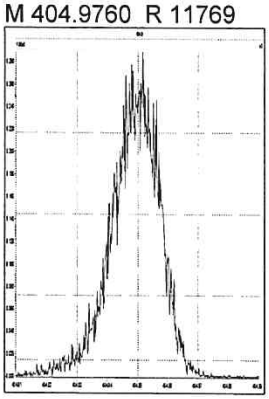
M 380.9760 R 11012



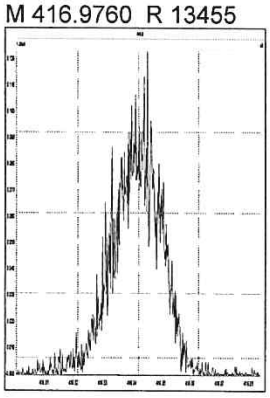
M 392.9760 R 10944



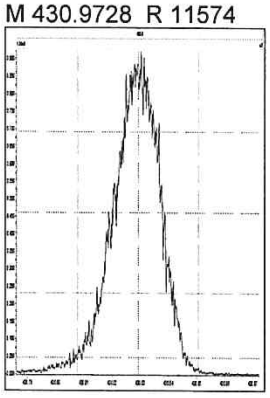
M 404.9760 R 11769



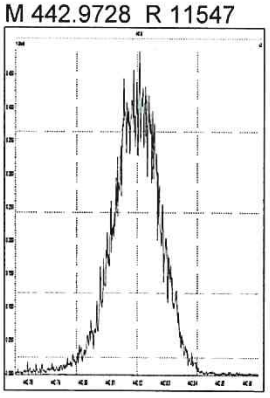
M 416.9760 R 13455



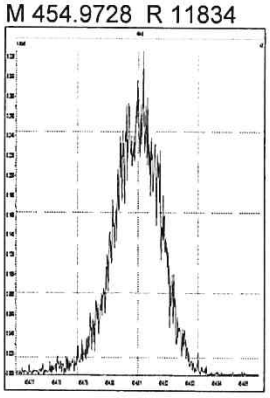
M 430.9728 R 11574



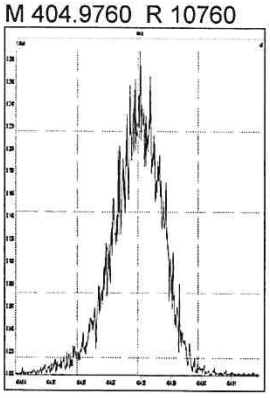
M 442.9728 R 11547



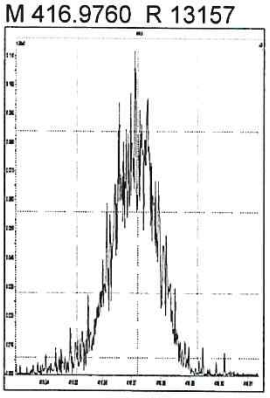
M 454.9728 R 11834



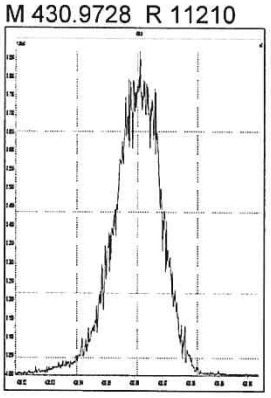
M 404.9760 R 10760



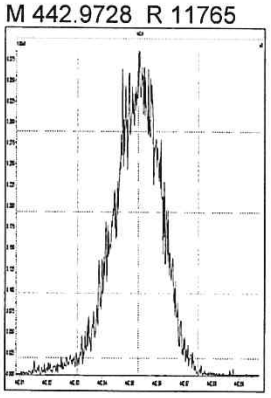
M 416.9760 R 13157



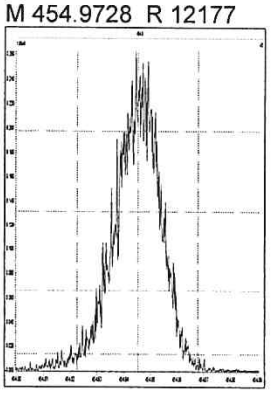
M 430.9728 R 11210



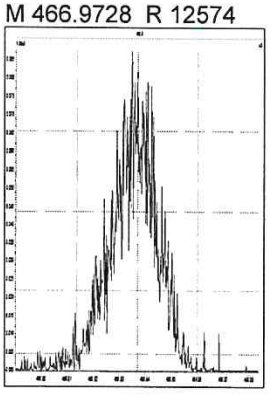
M 442.9728 R 11765



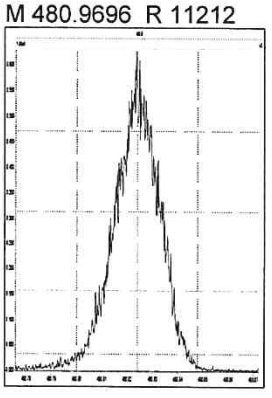
M 454.9728 R 12177



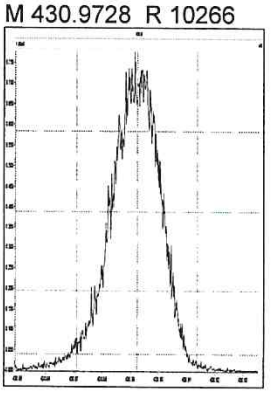
M 466.9728 R 12574



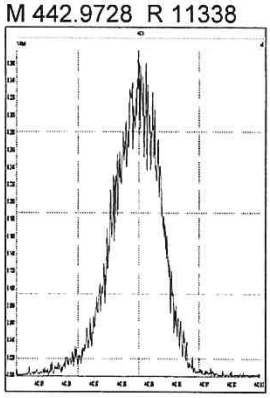
M 480.9696 R 11212



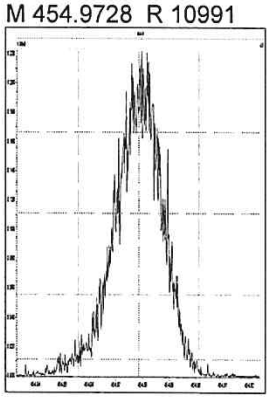
M 430.9728 R 10266



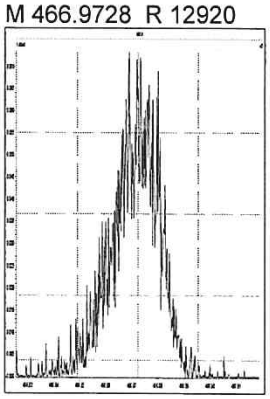
M 442.9728 R 11338



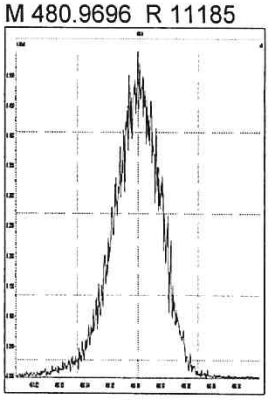
M 454.9728 R 10991



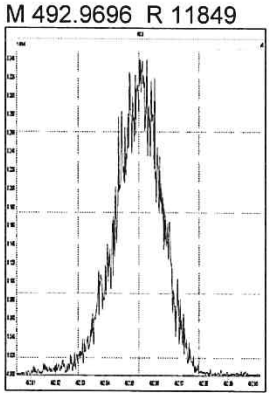
M 466.9728 R 12920



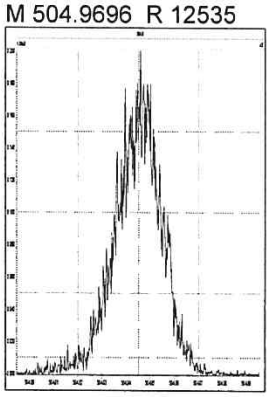
M 480.9696 R 11185



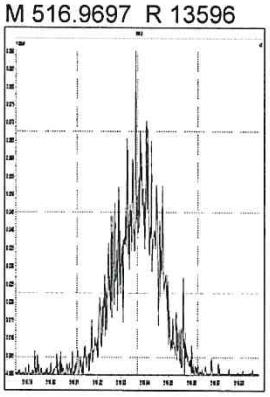
M 492.9696 R 11849



M 504.9696 R 12535



M 516.9697 R 13596



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

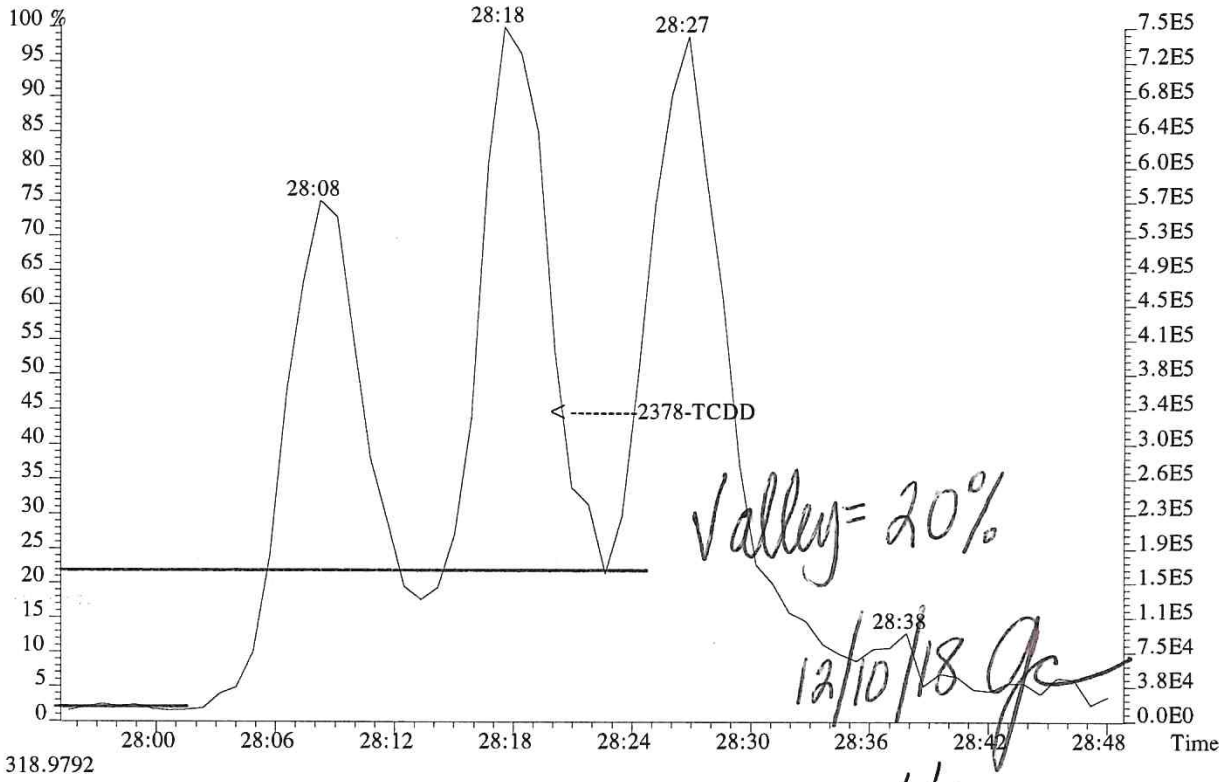
Lab File ID: P615939
Date Analyzed: 6-DEC-18
Time Analyzed: 09:46:58

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:59	29:32
TCDD	24:46	29:20
PeCDF	29:25	33:48
PeCDD	31:02	33:32
HxCDF	34:26	36:58
HxCDD	34:57	36:33
HpCDF	38:10	39:32
HpCDD	38:24	39:04

% Valley 2378-TCDD: 20 %

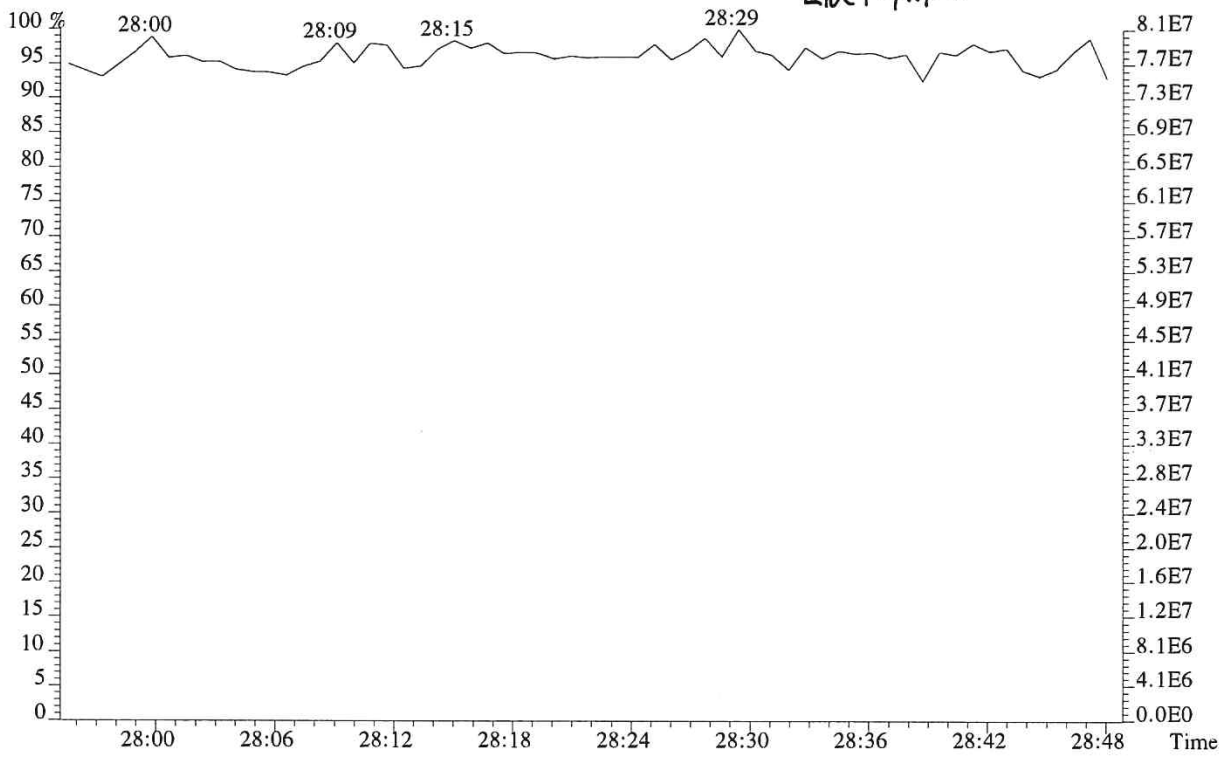
012809

File:P615939 #1-552 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



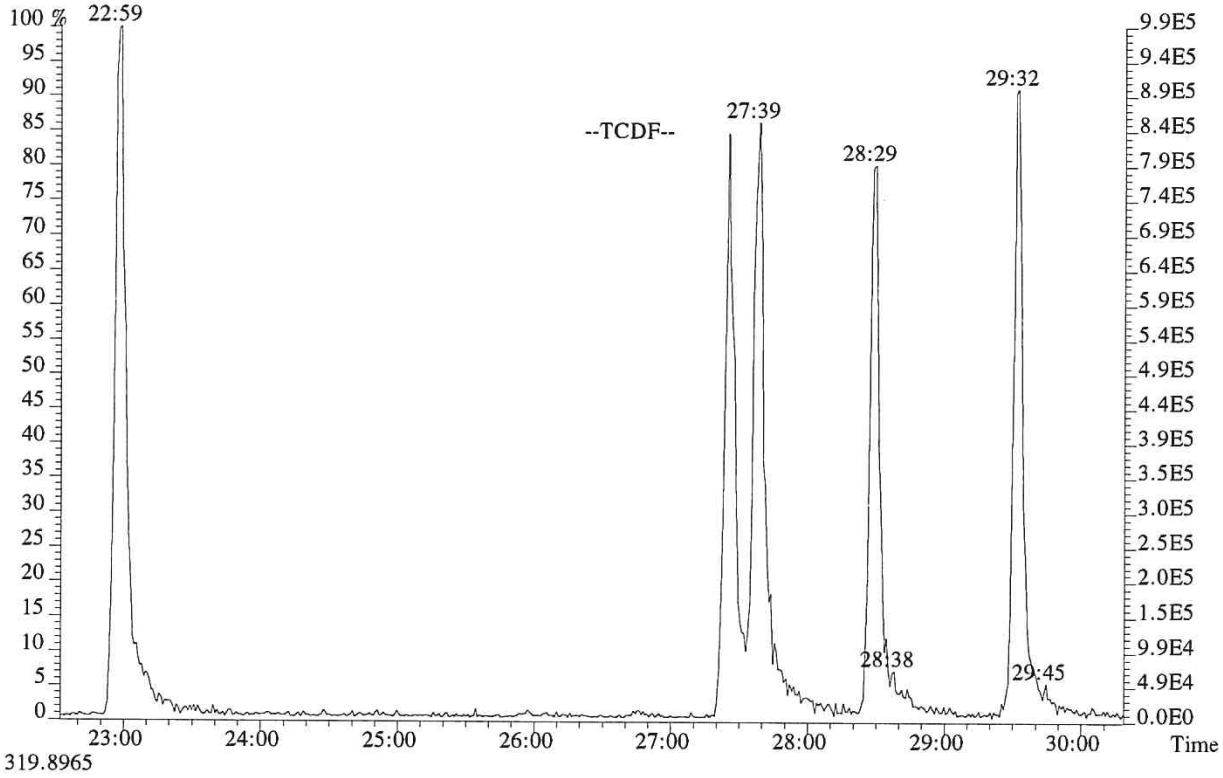
318.9792

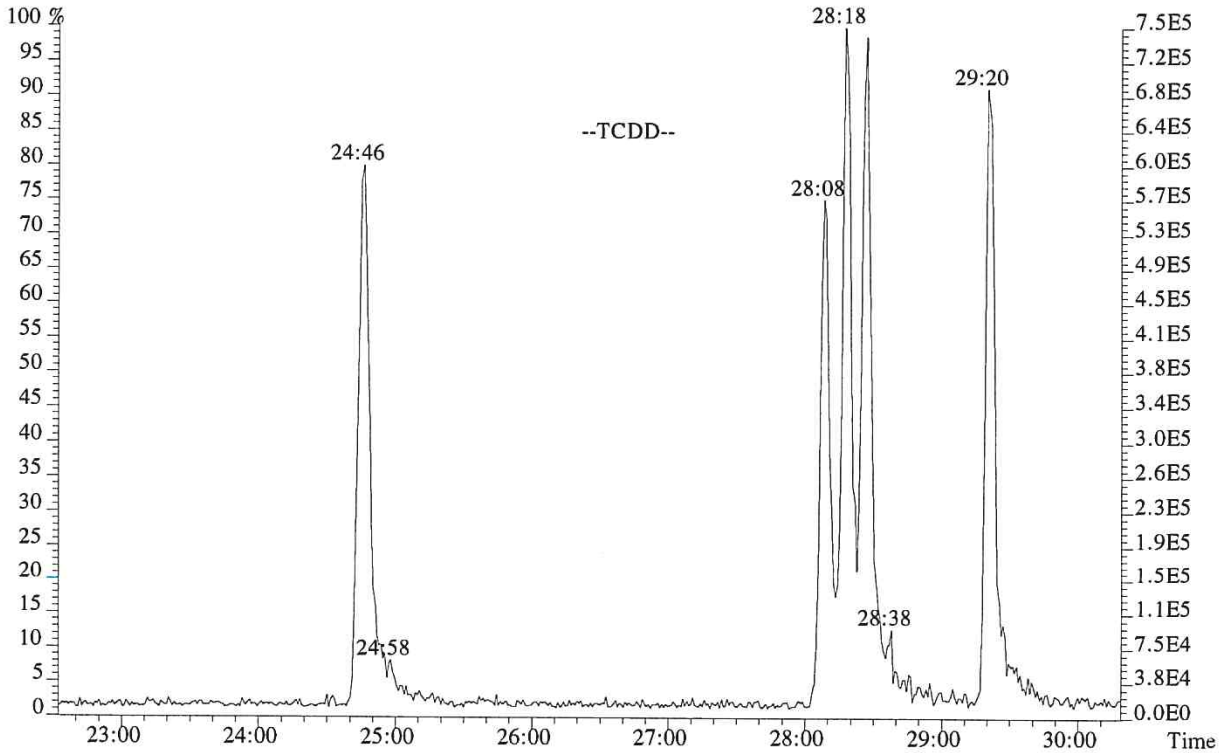
LM 12/11/18



012810

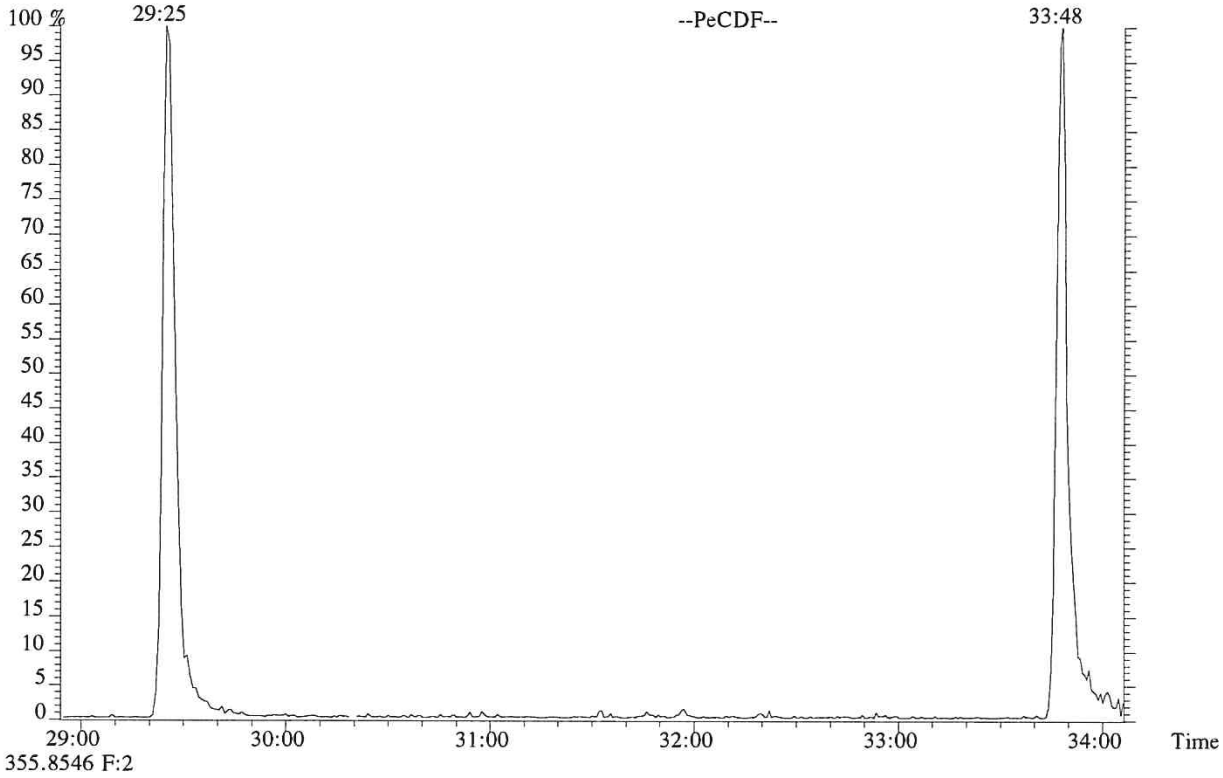
File:P615939 #1-552 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



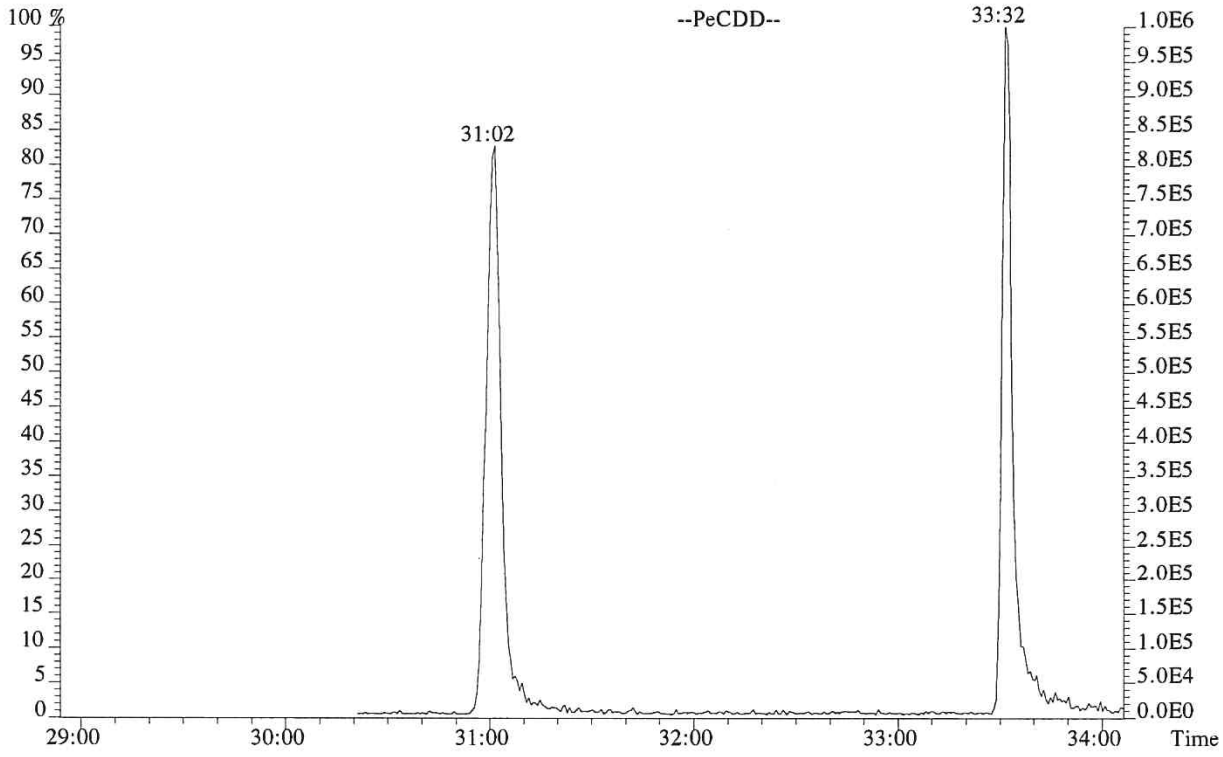


012811

File:P615939 #1-552 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

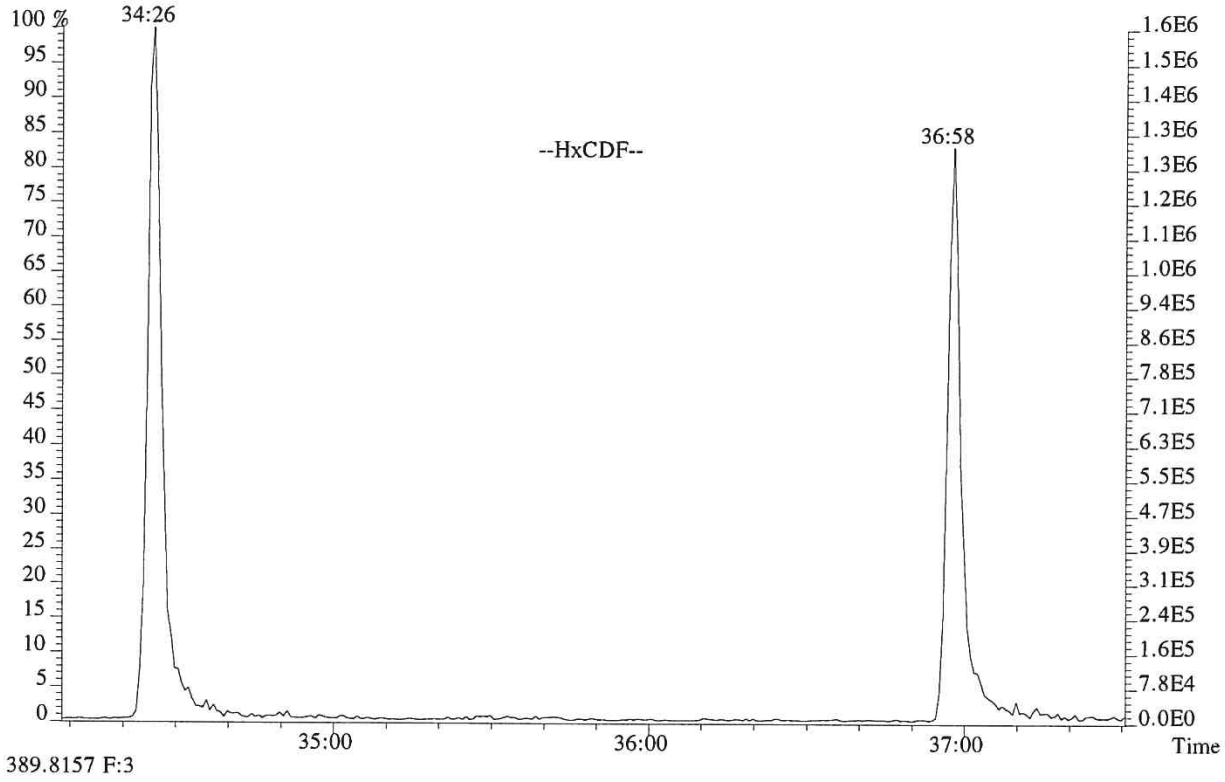


355.8546 F:2

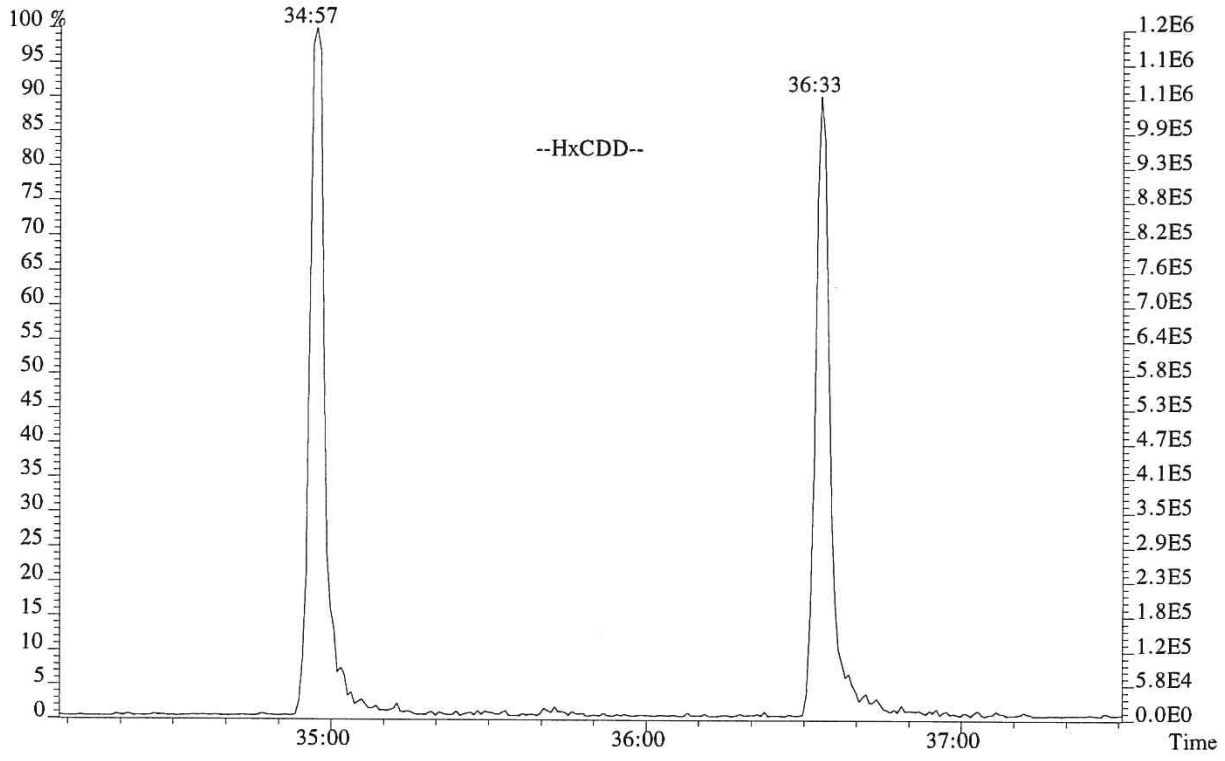


012812

File:P615939 #1-304 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

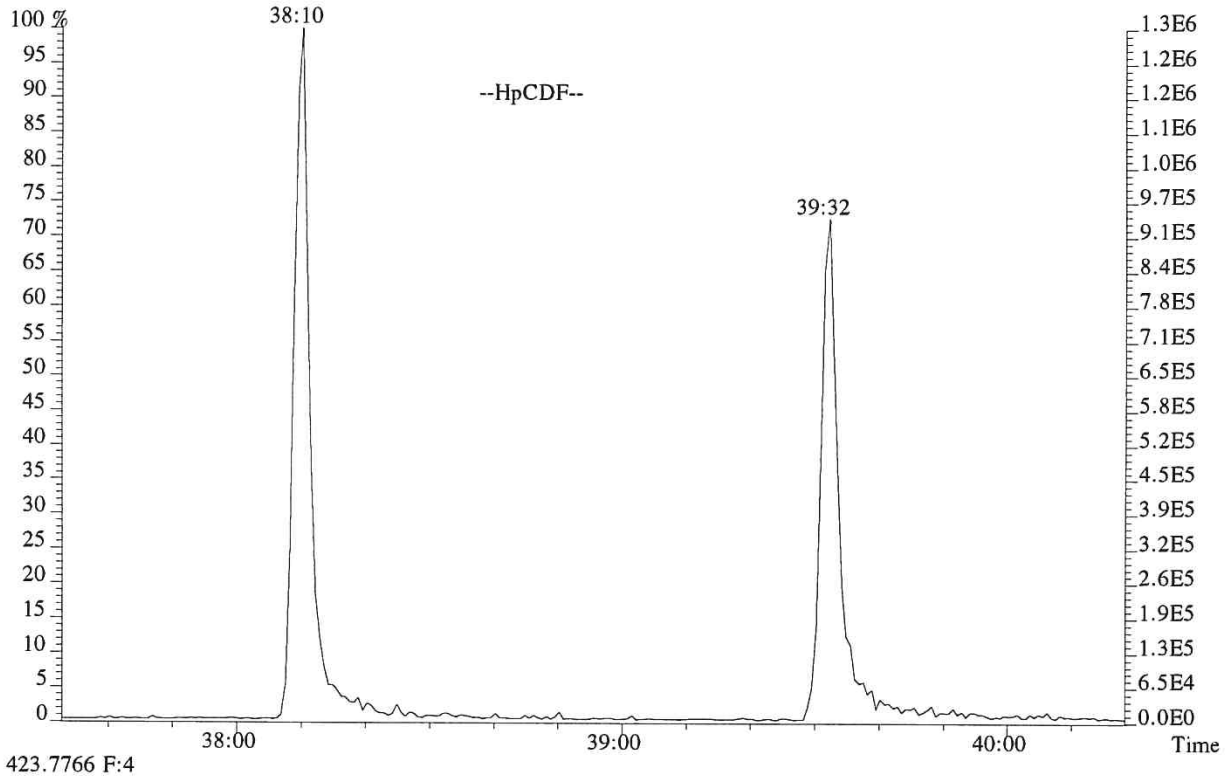


389.8157 F:3

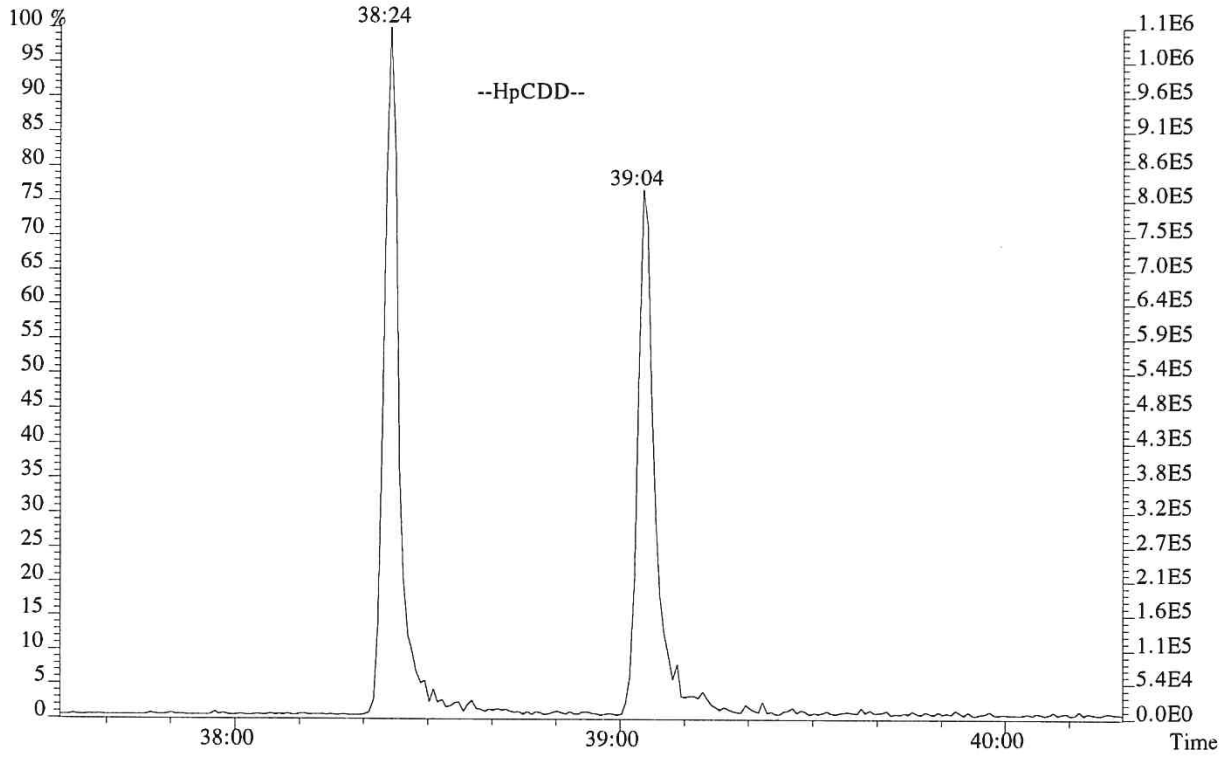


012813

File:P615939 #1-249 Acq: 6-DEC-2018 09:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



012814

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615940 Analysis Date: 6-DEC-18 Time: 10:36:14

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.6	7.8 - 12.9	-4.1
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	49	39 - 65	-2.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	48	39 - 64	-3.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	-0.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	47	43 - 58	-6.2
OCDD	M+2/M+4	0.89	0.76-1.02	95	79 - 126	-4.7
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	9.0	8.4 - 12.0	-10.4
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	45	41 - 60	-9.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	45	41 - 61	-10.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	45	45 - 56	-10.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	46	44 - 57	-7.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	46	45 - 56	-7.5
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-8.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	46	45 - 55	-8.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.06	0.88-1.20	45	43 - 58	-10.0
OCDF	M+2/M+4	0.90	0.76-1.02	86	63 - 159	-14.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615940 Analysis Date: 6-DEC-18 Time: 10:36:14

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	97	82 - 121	-3.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	91	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	100	85 - 117	-0.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	102	85 - 118	2.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	96	72 - 138	-4.4
13C-OCDD	M+2/M+4	0.90	0.76-1.02	188	96 - 415	-5.9
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	92	71 - 140	-8.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	89	76 - 130	-11.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	87	77 - 130	-12.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	76 - 131	-5.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	97	70 - 143	-3.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	86	74 - 135	-13.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-5.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	90	78 - 129	-10.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	85	77 - 129	-14.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.3	7.8 - 12.7	-7.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #8 Filename P615940 Samp: 1 Inj: 1 Acquired: 6-DEC-18 10:36:14
Processed: 10-DEC-18 11:31:53 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	7.114e+03	9.021e+03	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	5.771e+04	3.707e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:52	5.304e+04	3.400e+04	1.56	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	4.722e+04	3.842e+04	1.23	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:39	5.261e+04	4.196e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:10	4.702e+04	3.800e+04	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:55	4.036e+04	3.274e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:09	4.022e+04	3.902e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	3.230e+04	3.050e+04	1.06	yes	no	1.463
10	Unk	OCDF	41:56	4.869e+04	5.409e+04	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:25	5.330e+03	6.936e+03	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:09	3.653e+04	2.343e+04	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:18	3.190e+04	2.575e+04	1.24	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:23	3.360e+04	2.616e+04	1.28	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	3.533e+04	2.810e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	2.683e+04	2.590e+04	1.04	yes	no	1.112
17	Unk	OCDD	41:43	3.965e+04	4.461e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:35	7.353e+04	9.298e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:55	1.119e+05	6.994e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	1.084e+05	6.792e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	4.667e+04	8.828e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	5.488e+04	1.040e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	4.976e+04	9.512e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	4.144e+04	7.897e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:08	3.526e+04	7.848e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	2.968e+04	6.570e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	5.307e+04	6.886e+04	0.77	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	8.023e+04	5.192e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	6.176e+04	4.924e+04	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	6.352e+04	5.029e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	5.160e+04	4.941e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	41:43	7.238e+04	8.033e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	5.690e+04	7.153e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	6.857e+04	5.467e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:25	1.292e+04				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #8 Filename P615940 Samp: 1 Inj: 1 Acquired: 6-DEC-18 10:36:14
Processed: 10-DEC-18 11:31:53 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	2.18e+03	4.8e+02	1.31e+06	7.64e+03	1.7e+02
2	1,2,3,7,8-PeCDF	9.45e+06	1.68e+03	5.6e+03	6.05e+06	3.39e+03	1.8e+03
3	2,3,4,7,8-PeCDF	9.31e+06	1.68e+03	5.6e+03	5.99e+06	3.39e+03	1.8e+03
4	1,2,3,4,7,8-HxCDF	9.97e+06	1.42e+03	7.0e+03	8.09e+06	1.10e+03	7.4e+03
5	1,2,3,6,7,8-HxCDF	1.02e+07	1.42e+03	7.2e+03	8.14e+06	1.10e+03	7.4e+03
6	2,3,4,6,7,8-HxCDF	9.44e+06	1.42e+03	6.7e+03	7.59e+06	1.10e+03	6.9e+03
7	1,2,3,7,8,9-HxCDF	7.77e+06	1.42e+03	5.5e+03	6.34e+06	1.10e+03	5.8e+03
8	1,2,3,4,6,7,8-HpCDF	8.43e+06	4.38e+03	1.9e+03	8.15e+06	1.96e+03	4.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.85e+06	4.38e+03	1.3e+03	5.49e+06	1.96e+03	2.8e+03
10	OCDF	8.12e+06	7.48e+02	1.1e+04	9.20e+06	2.77e+03	3.3e+03
11	2,3,7,8-TCDD	8.59e+05	4.31e+03	2.0e+02	1.12e+06	2.51e+03	4.5e+02
12	1,2,3,7,8-PeCDD	6.46e+06	1.86e+03	3.5e+03	4.02e+06	9.20e+02	4.4e+03
13	1,2,3,4,7,8-HxCDD	6.80e+06	1.24e+03	5.5e+03	5.49e+06	2.11e+03	2.6e+03
14	1,2,3,6,7,8-HxCDD	6.66e+06	1.24e+03	5.4e+03	5.15e+06	2.11e+03	2.4e+03
15	1,2,3,7,8,9-HxCDD	6.78e+06	1.24e+03	5.5e+03	5.37e+06	2.11e+03	2.5e+03
16	1,2,3,4,6,7,8-HpCDD	5.29e+06	1.20e+03	4.4e+03	5.05e+06	6.44e+02	7.8e+03
17	OCDD	6.97e+06	3.76e+02	1.9e+04	7.70e+06	1.09e+03	7.1e+03
18	13C-2,3,7,8-TCDF	1.05e+07	8.47e+03	1.2e+03	1.33e+07	1.22e+04	1.1e+03
19	13C-1,2,3,7,8-PeCDF	1.82e+07	1.97e+03	9.3e+03	1.14e+07	1.05e+03	1.1e+04
20	13C-2,3,4,7,8-PeCDF	1.86e+07	1.97e+03	9.4e+03	1.15e+07	1.05e+03	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	9.76e+06	2.59e+03	3.8e+03	1.85e+07	2.73e+03	6.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.08e+07	2.59e+03	4.2e+03	2.04e+07	2.73e+03	7.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.01e+07	2.59e+03	3.9e+03	1.94e+07	2.73e+03	7.1e+03
24	13C-1,2,3,7,8,9-HxCDF	7.97e+06	2.59e+03	3.1e+03	1.52e+07	2.73e+03	5.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.30e+06	5.48e+03	1.3e+03	1.63e+07	1.16e+04	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.41e+06	5.48e+03	9.9e+02	1.18e+07	1.16e+04	1.0e+03
27	13C-2,3,7,8-TCDD	8.61e+06	1.77e+04	4.9e+02	1.09e+07	8.28e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	1.38e+07	2.56e+03	5.4e+03	8.93e+06	2.42e+03	3.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.32e+07	4.48e+03	2.9e+03	1.03e+07	2.30e+03	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.24e+07	4.48e+03	2.8e+03	9.79e+06	2.30e+03	4.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.04e+07	1.85e+03	5.6e+03	9.71e+06	8.64e+02	1.1e+04
32	13C-OCDD	1.27e+07	1.44e+03	8.8e+03	1.39e+07	4.60e+02	3.0e+04
33	13C-1,2,3,4-TCDD	8.83e+06	1.77e+04	5.0e+02	1.12e+07	8.28e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.33e+07	4.48e+03	3.0e+03	1.05e+07	2.30e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.99e+06	3.54e+03	5.6e+02			

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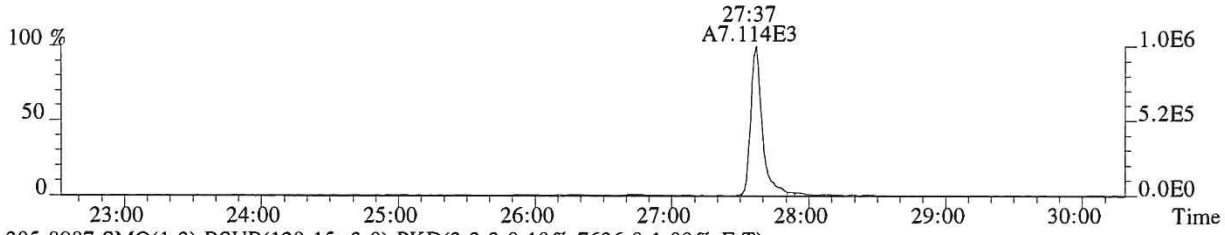
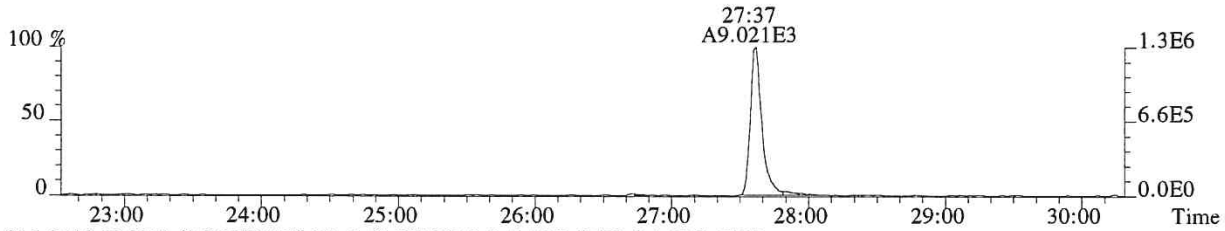
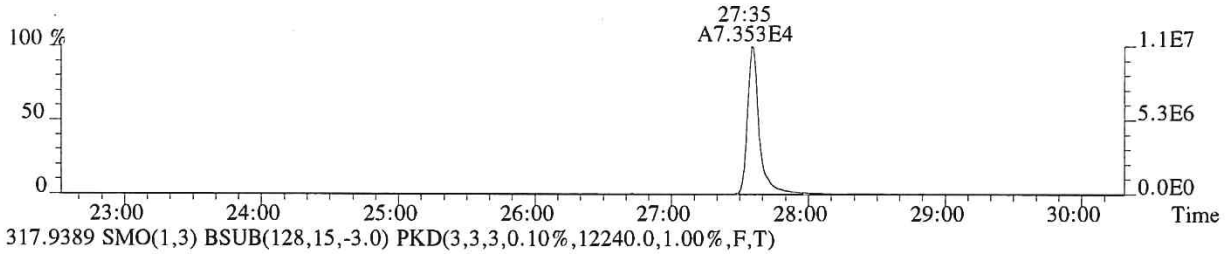
File:P615940 #1-552 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



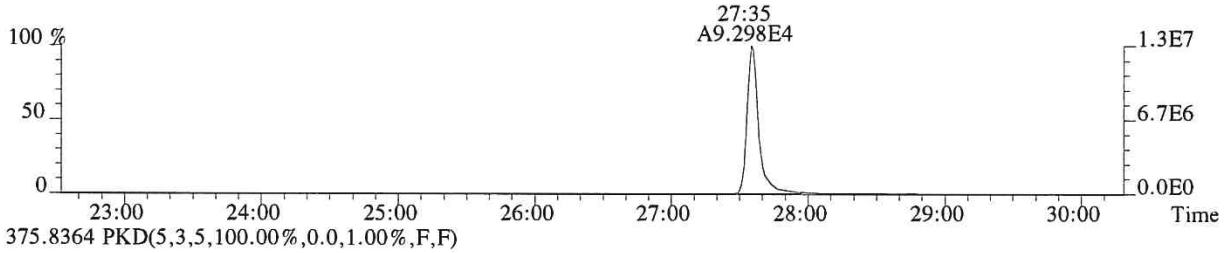
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7636.0,1.00%,F,T)



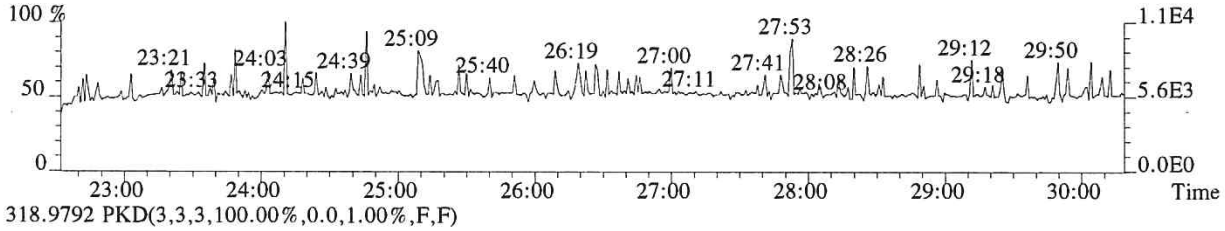
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8472.0,1.00%,F,T)



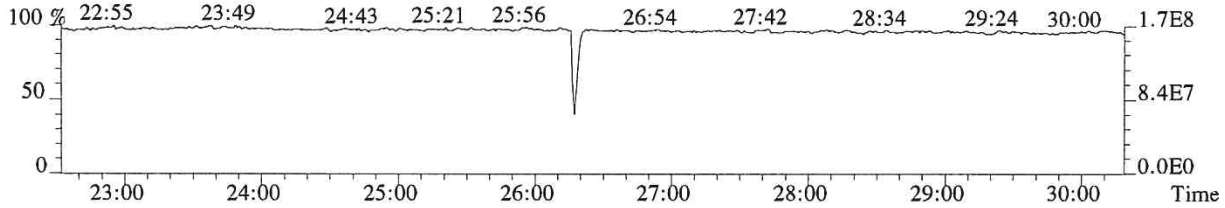
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12240.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

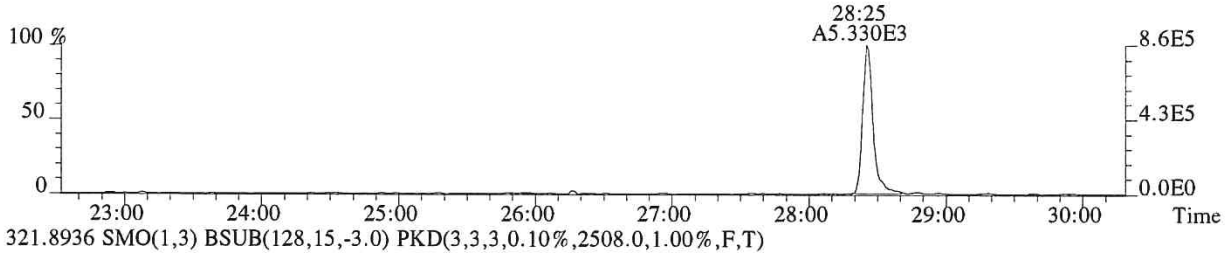


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

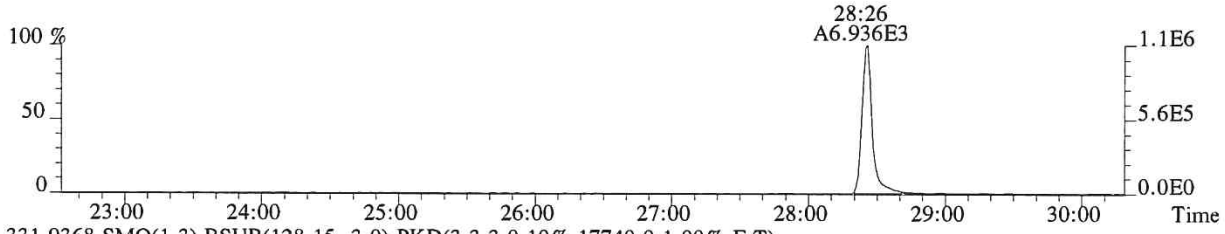


012819

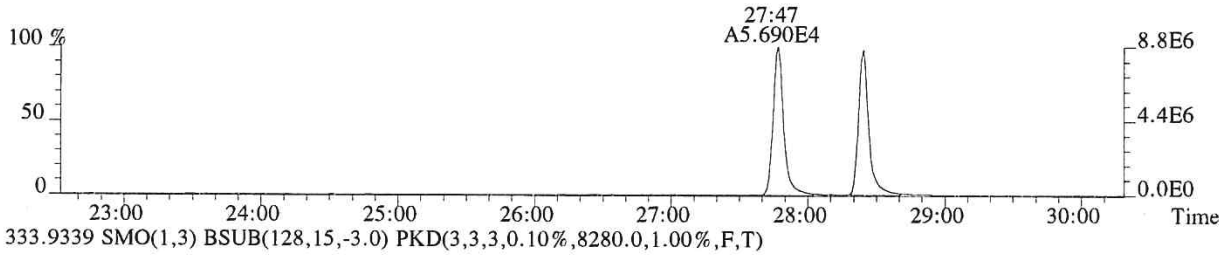
File:P615940 #1-552 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4308.0,1.00%,F,T)



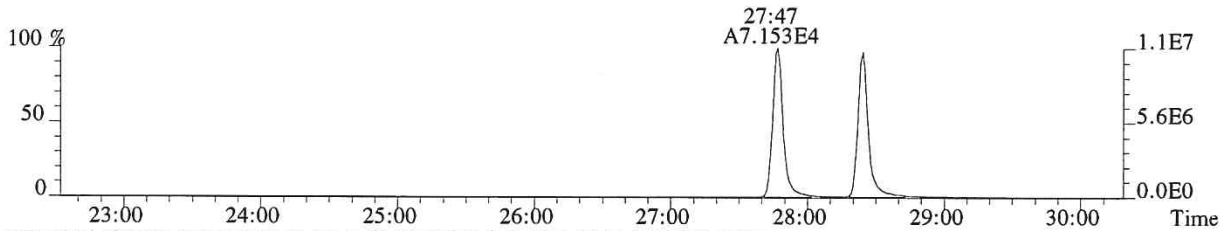
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2508.0,1.00%,F,T)



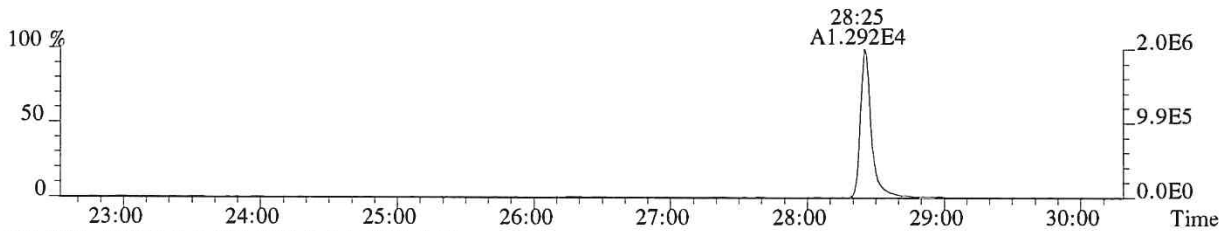
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17740.0,1.00%,F,T)



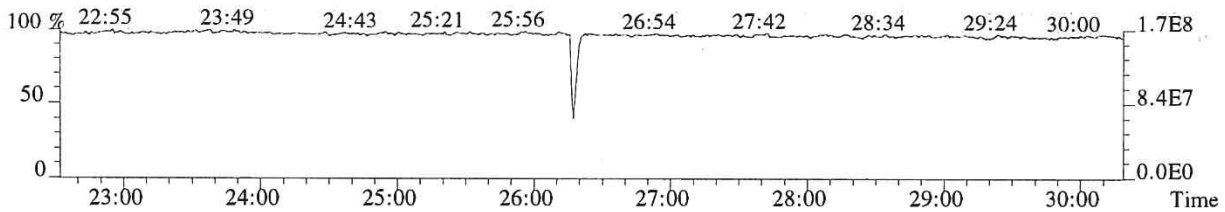
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8280.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3544.0,1.00%,F,T)

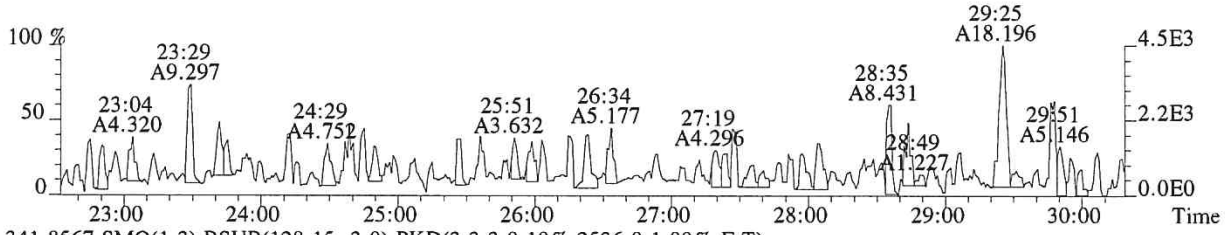


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

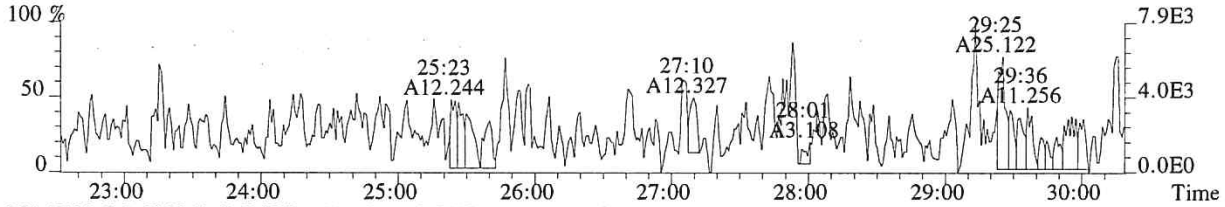


012820

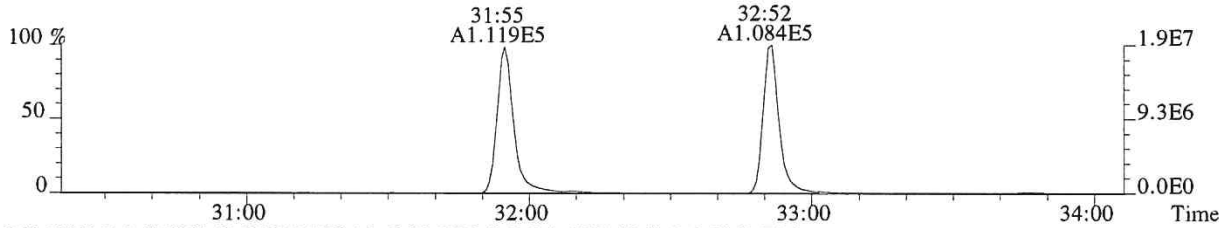
File:P615940 #1-552 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



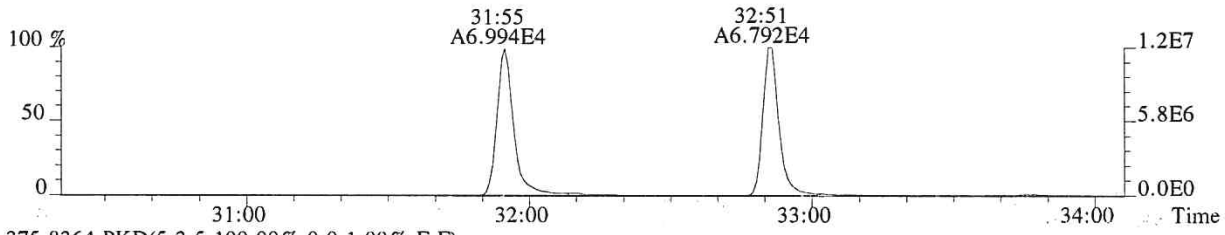
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2536.0,1.00%,F,T)



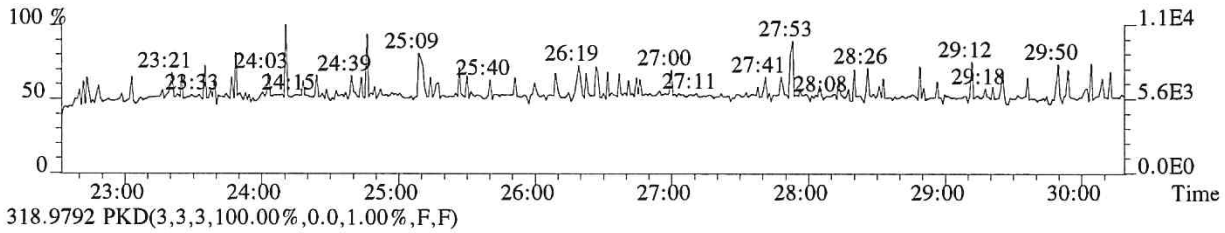
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



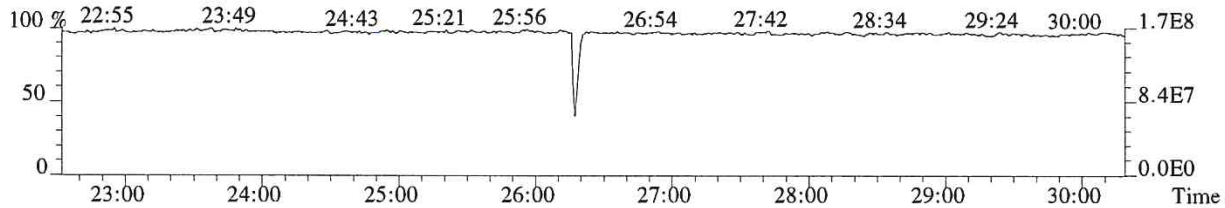
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

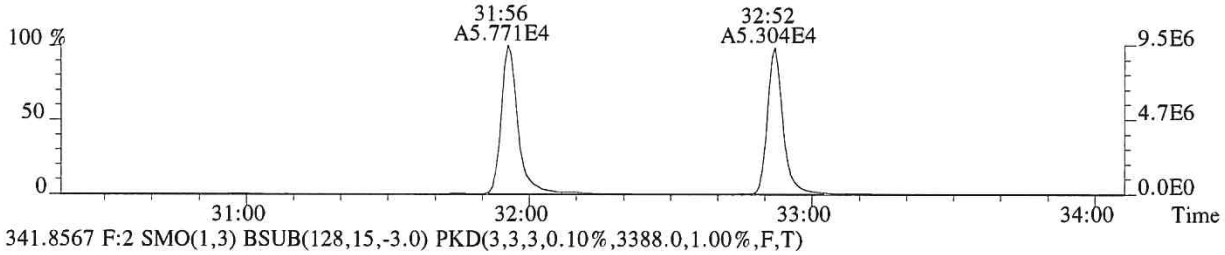


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

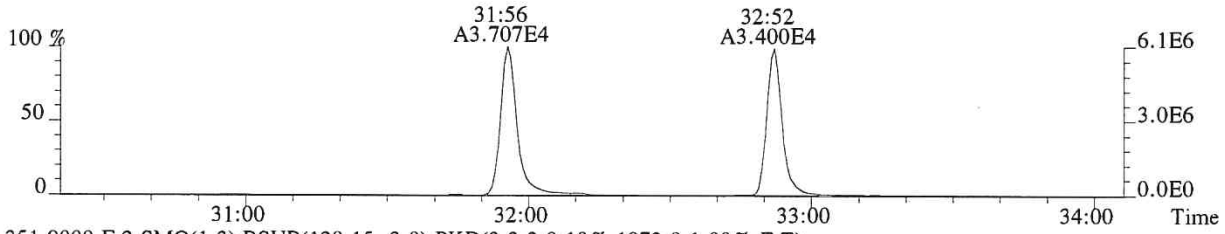


012821

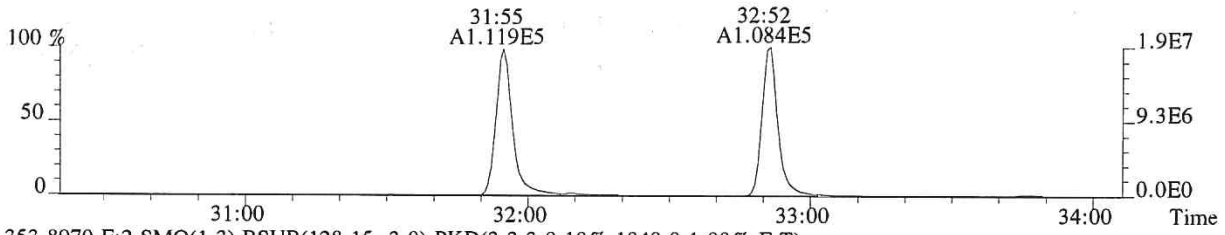
File:P615940 #1-339 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



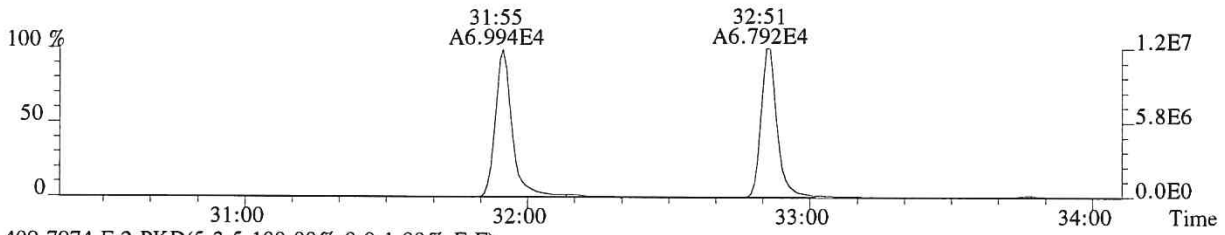
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3388.0,1.00%,F,T)



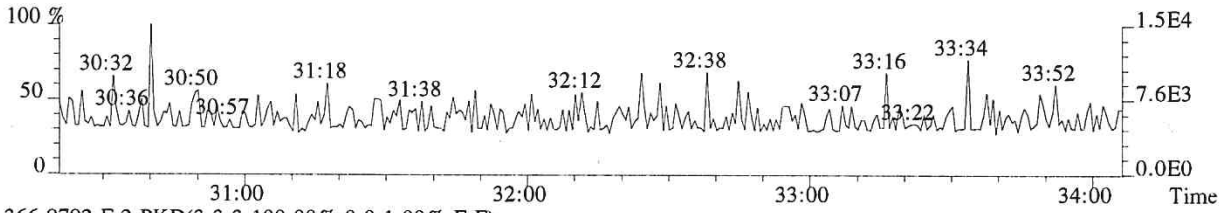
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



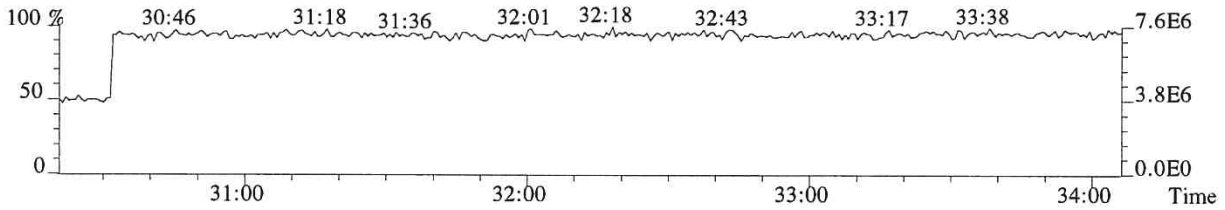
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

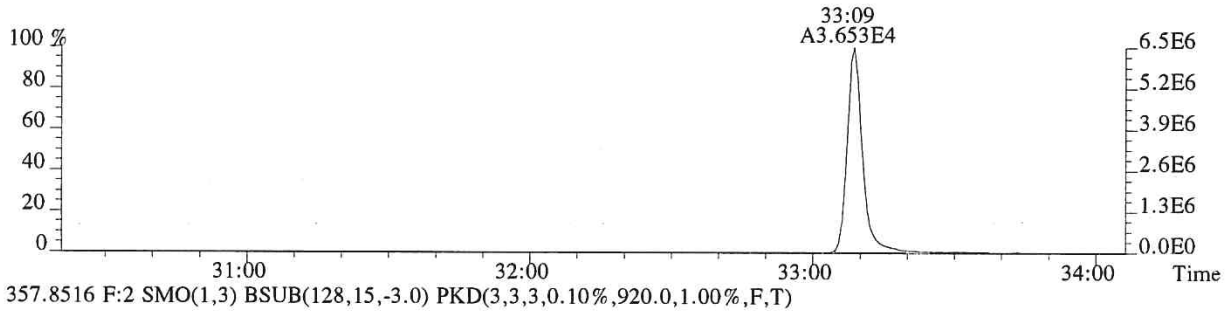


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

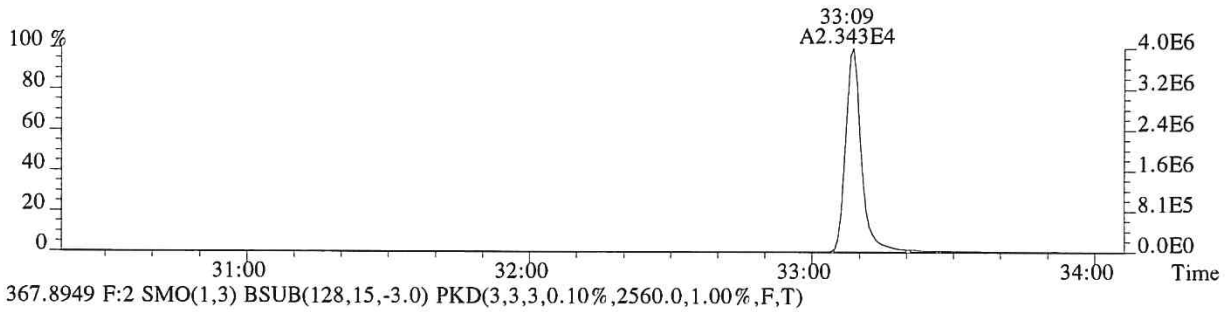


012822

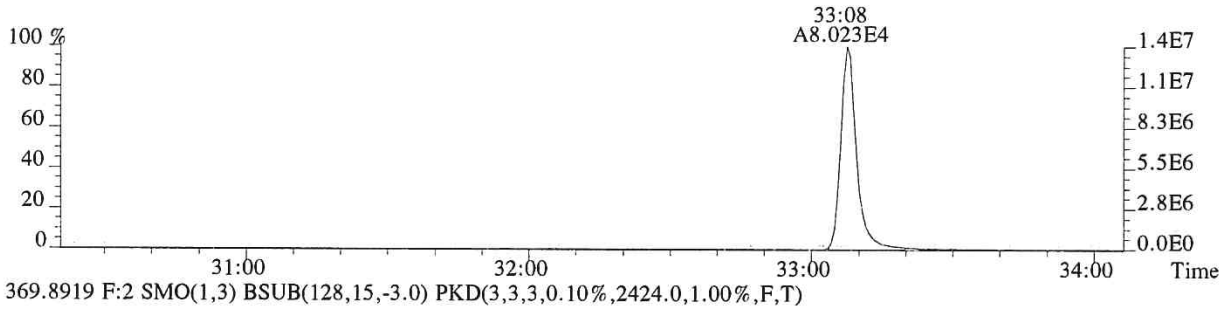
File:P615940 #1-339 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1856.0,1.00%,F,T)



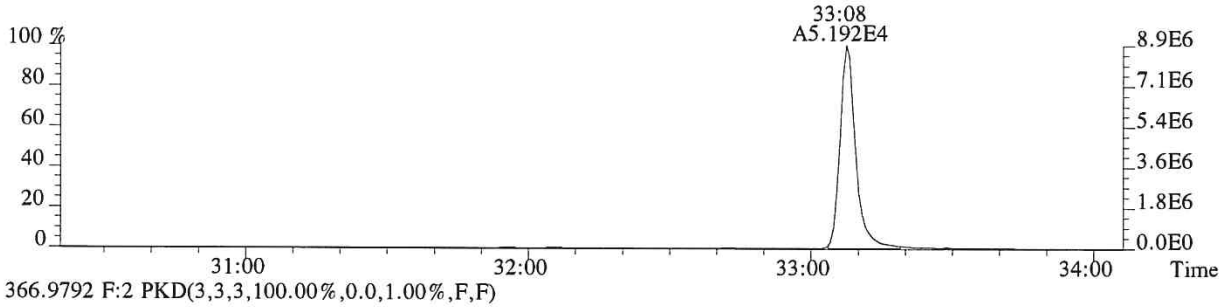
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



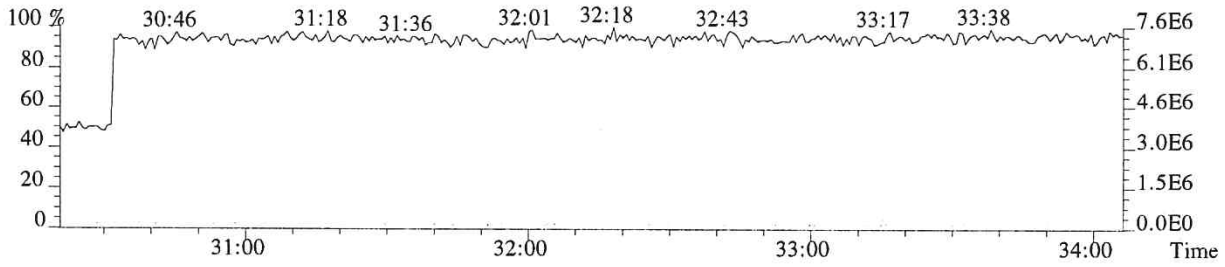
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



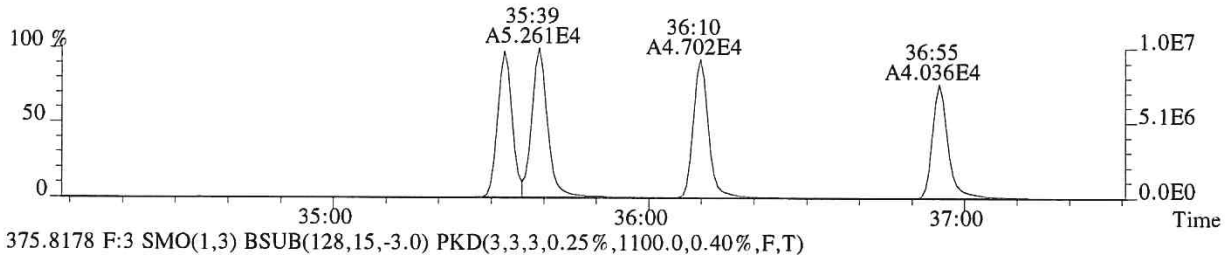
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



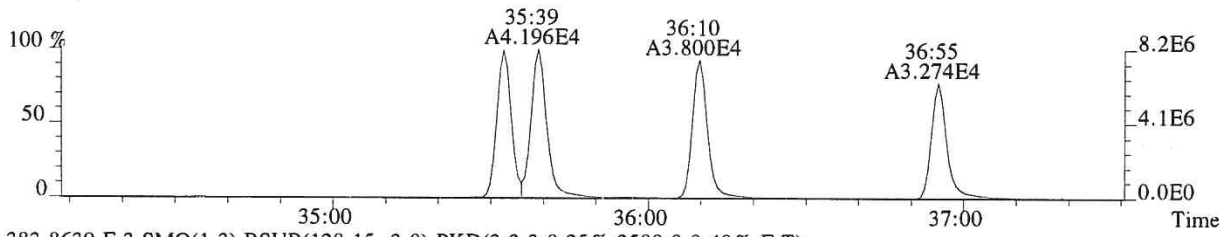
012823

File:P615940 #1-304 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

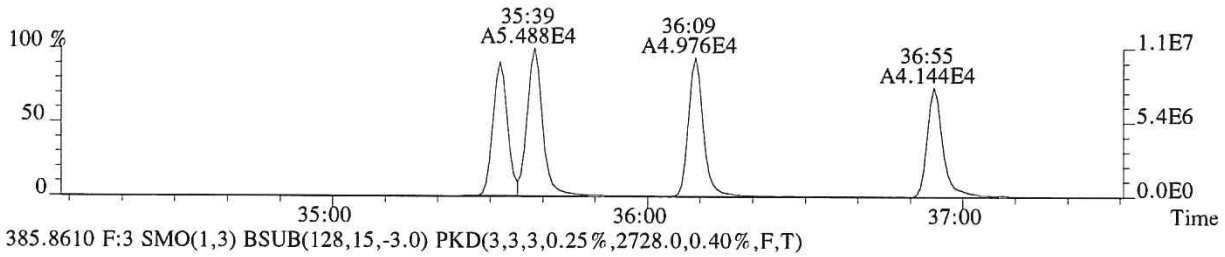
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1416.0,0.40%,F,T)



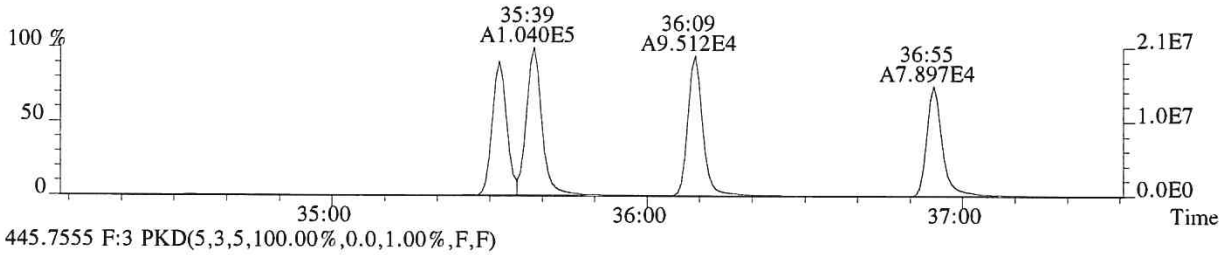
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



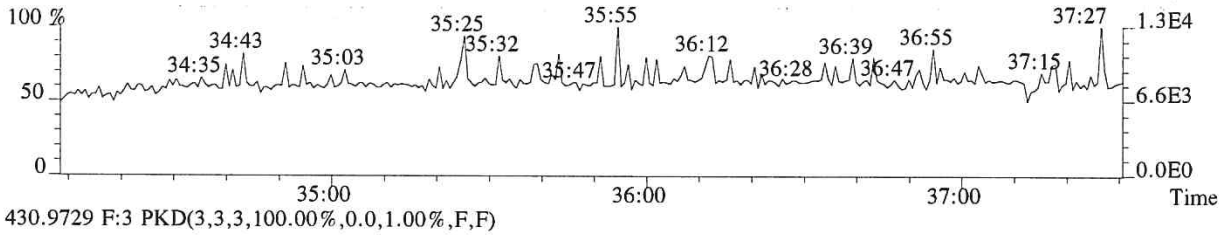
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2588.0,0.40%,F,T)



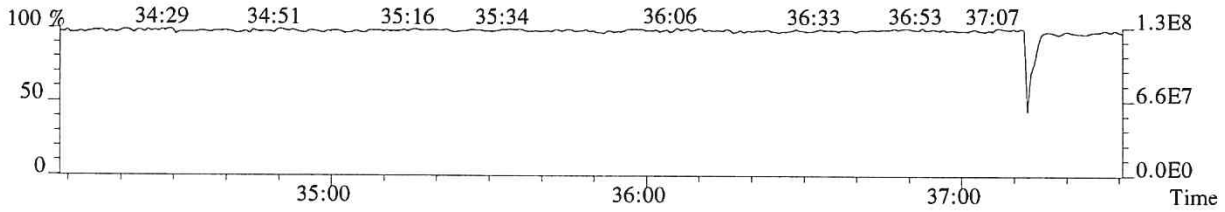
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2728.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

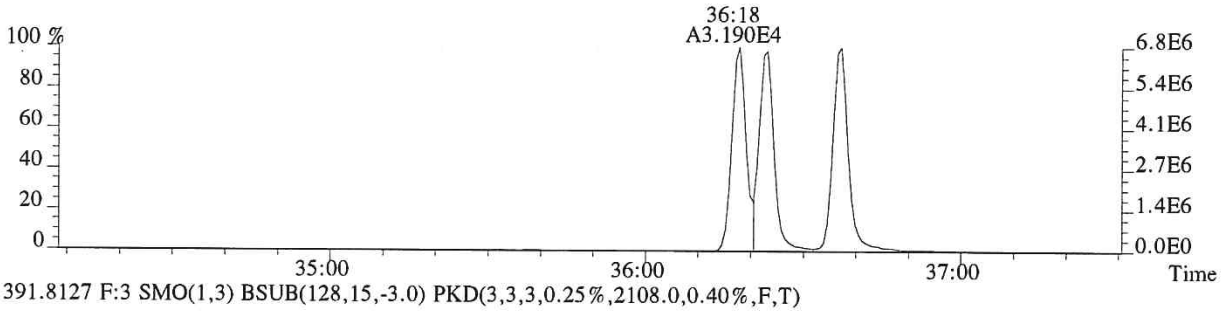


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

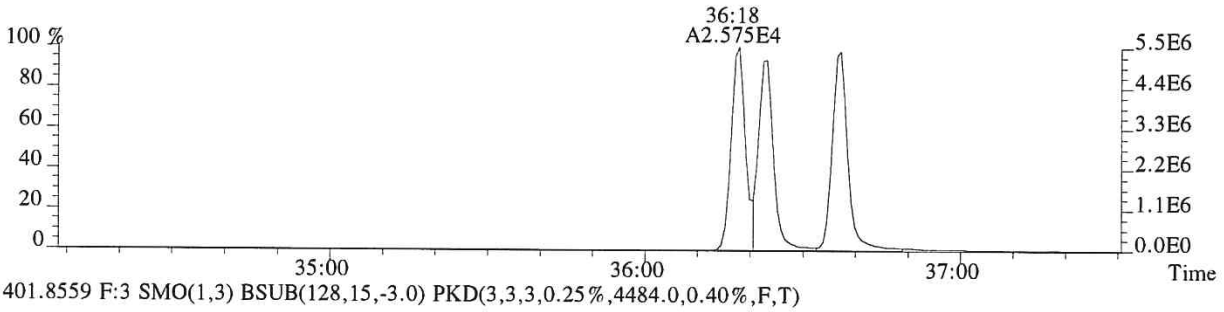


012824

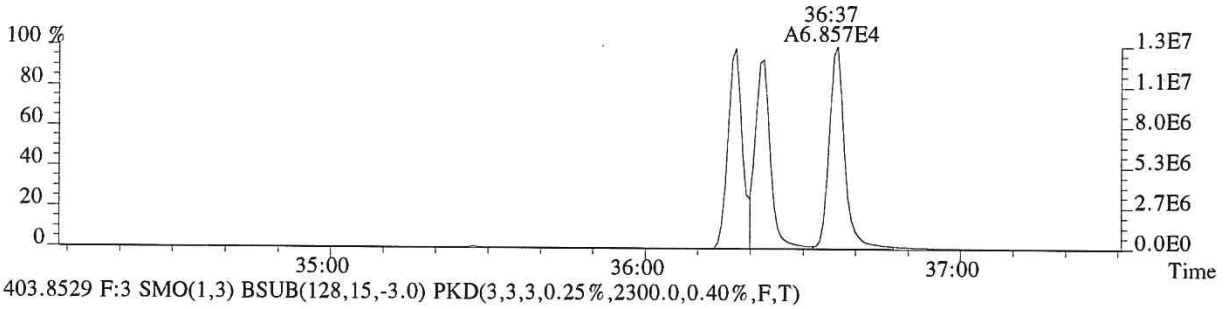
File:P615940 #1-304 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.40%,F,T)



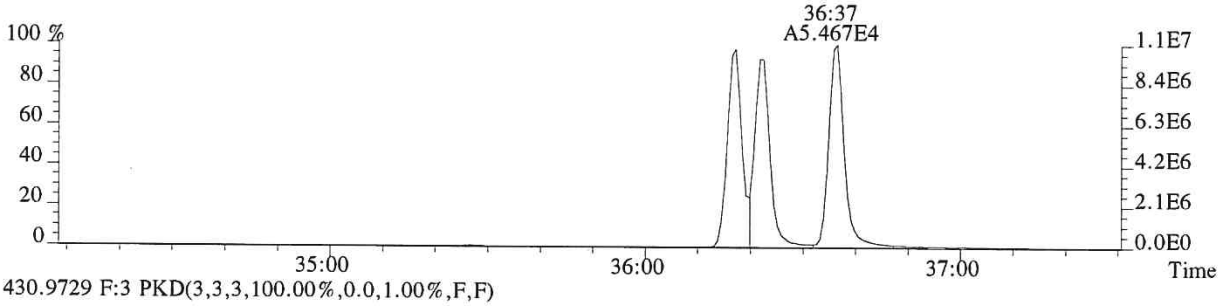
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2108.0,0.40%,F,T)



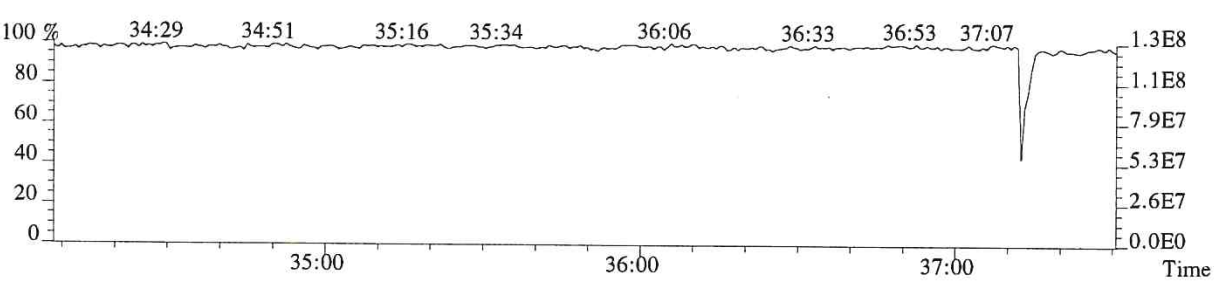
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4484.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.40%,F,T)

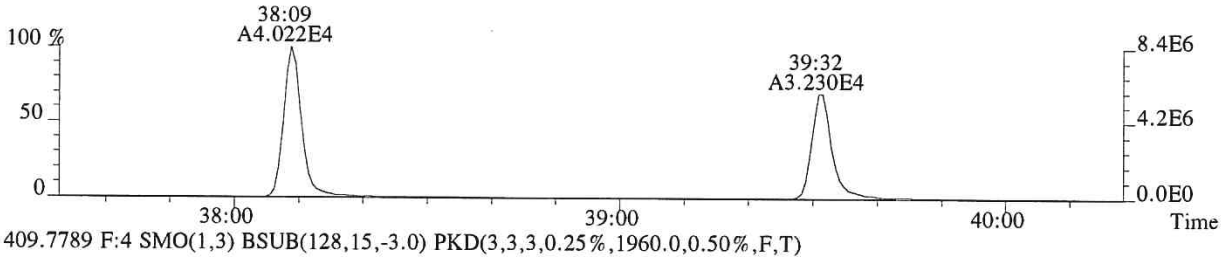


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

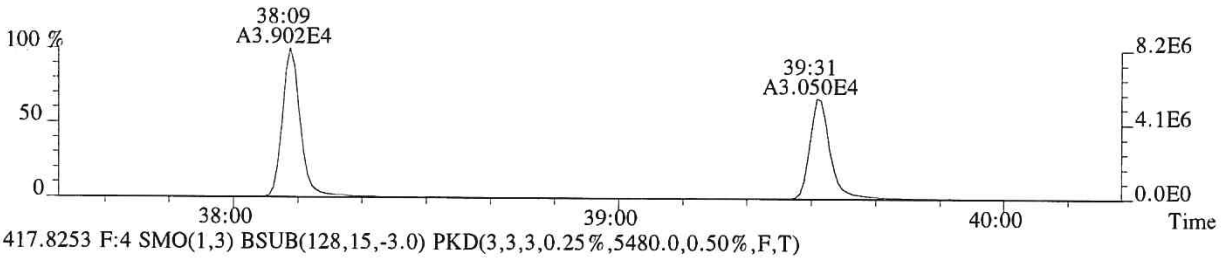


012825

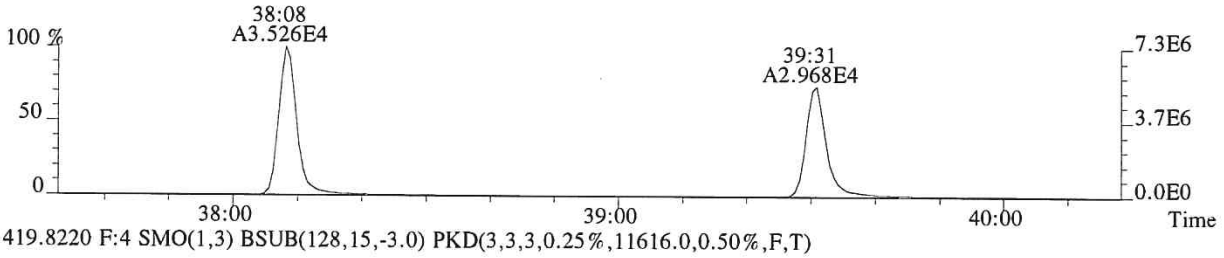
File:P615940 #1-249 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4380.0,0.50%,F,T)



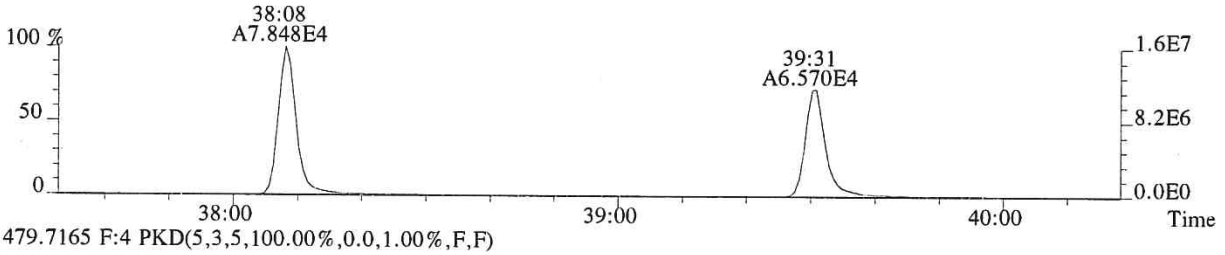
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1960.0,0.50%,F,T)



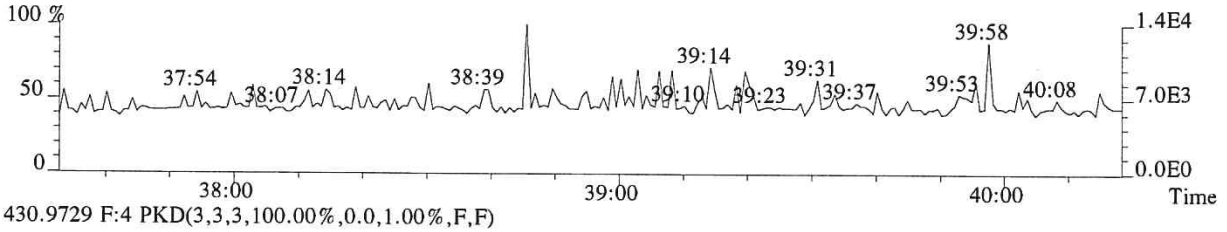
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5480.0,0.50%,F,T)



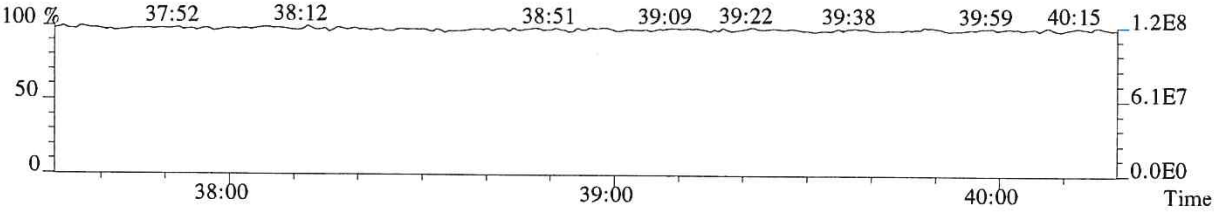
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11616.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

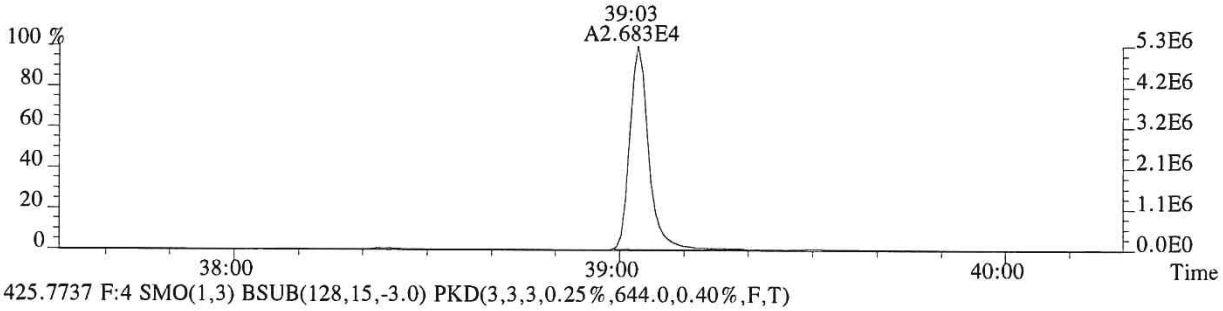


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

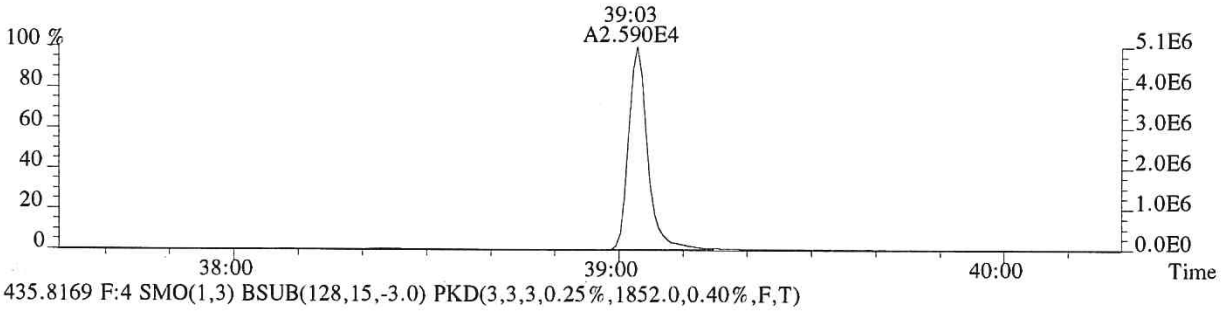


012826

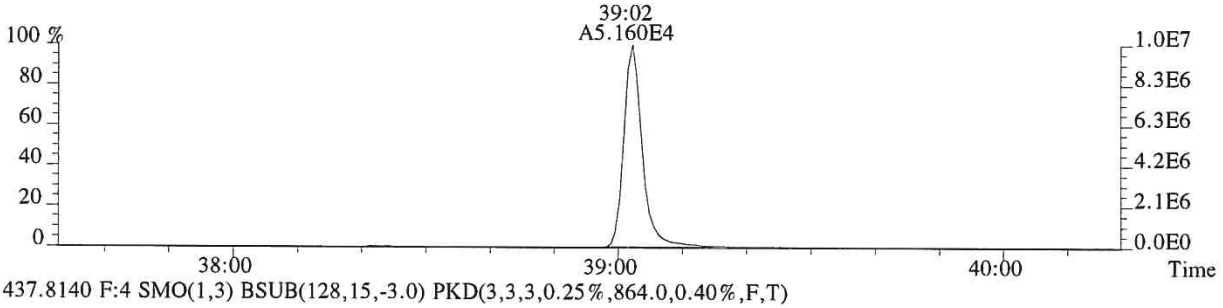
File:P615940 #1-249 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



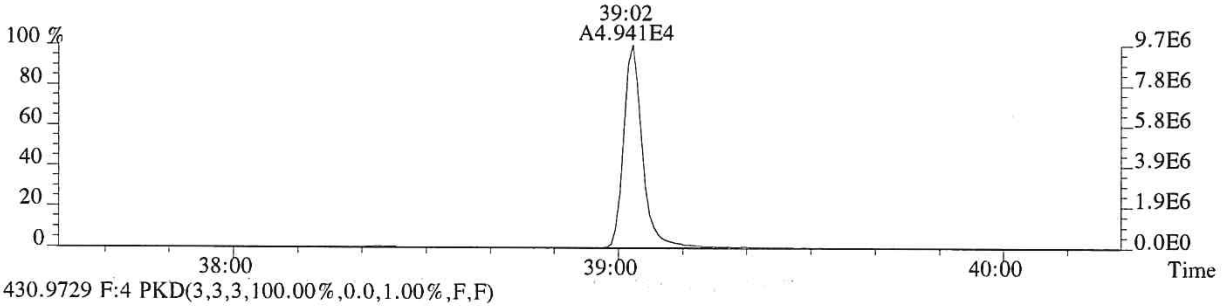
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



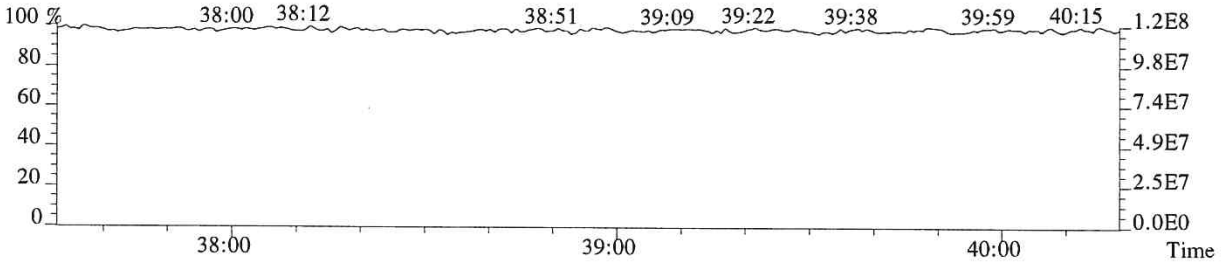
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1852.0,0.40%,F,T)



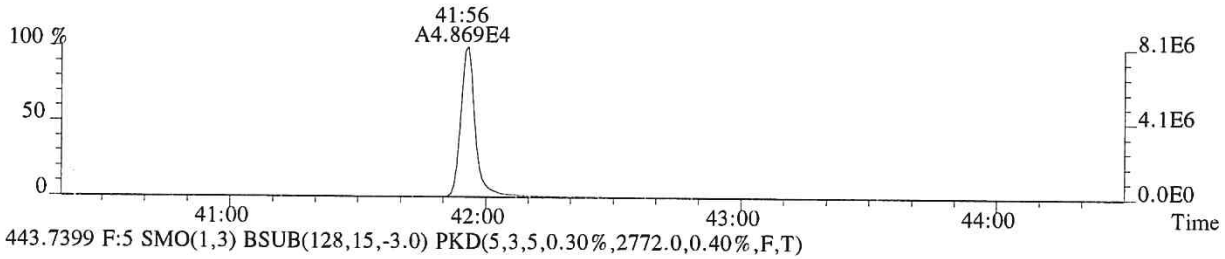
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



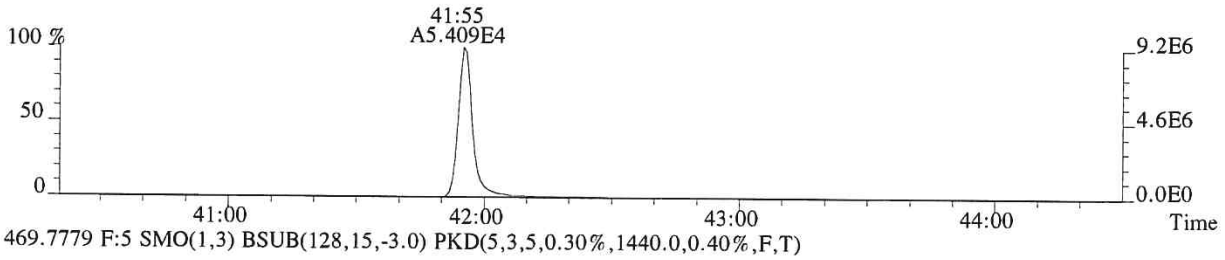
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



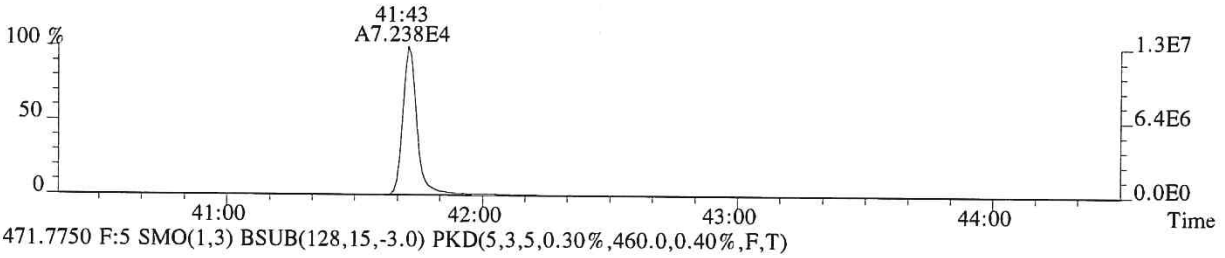
File:P615940 #1-375 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,748.0,0.40%,F,T)



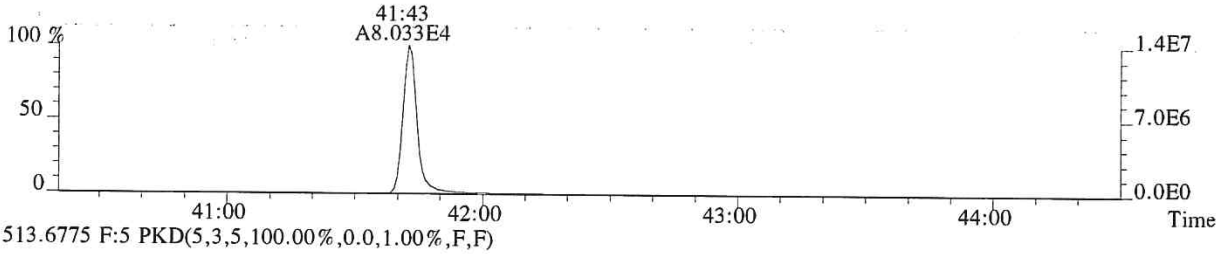
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2772.0,0.40%,F,T)



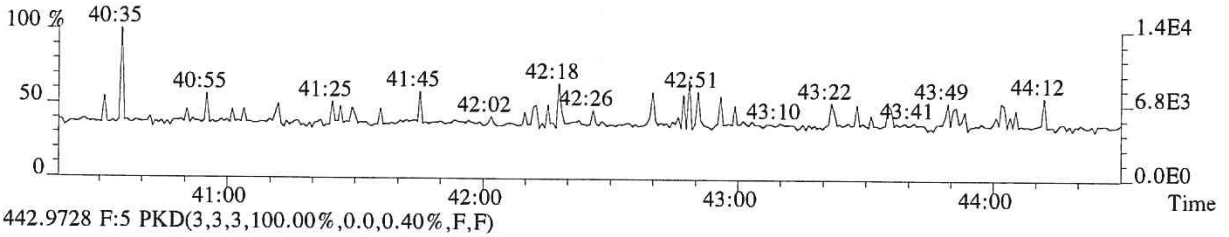
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1440.0,0.40%,F,T)



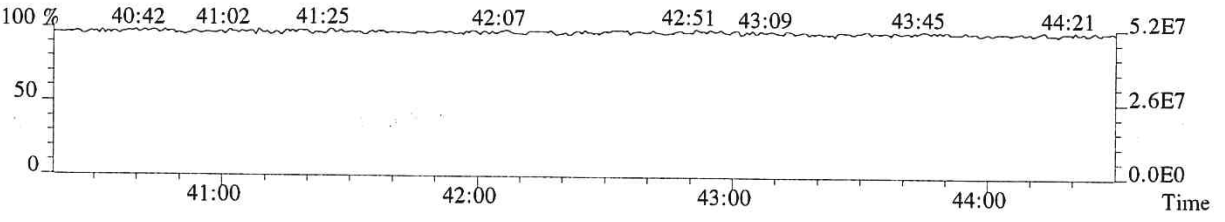
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



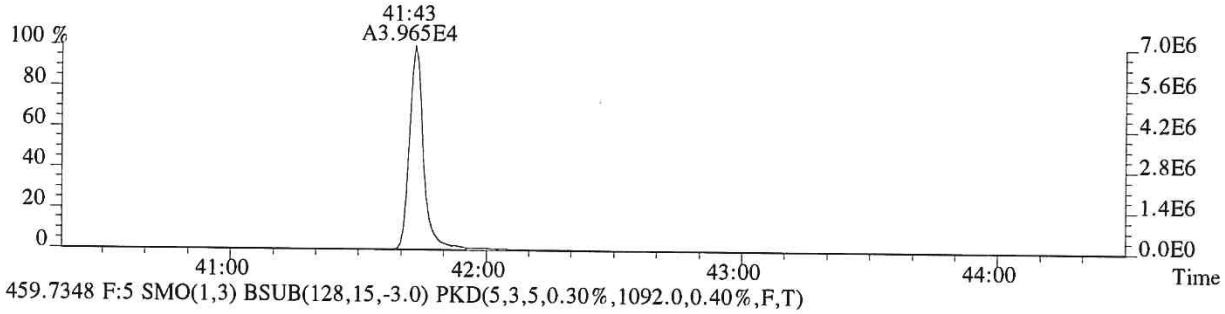
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



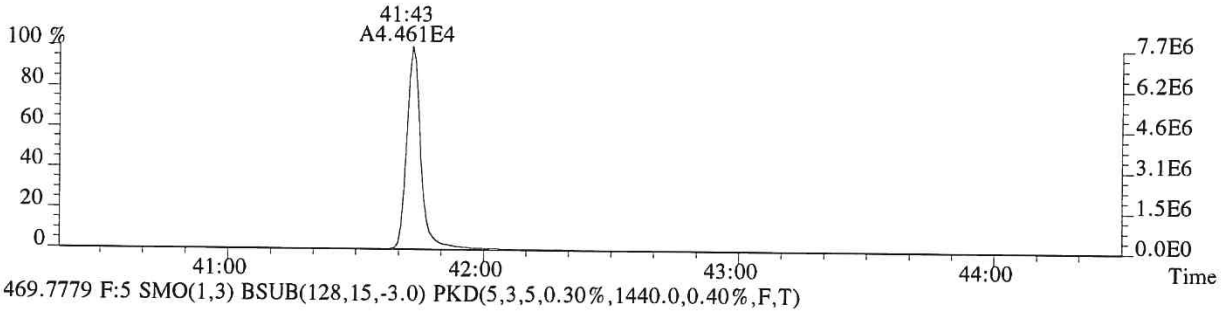
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



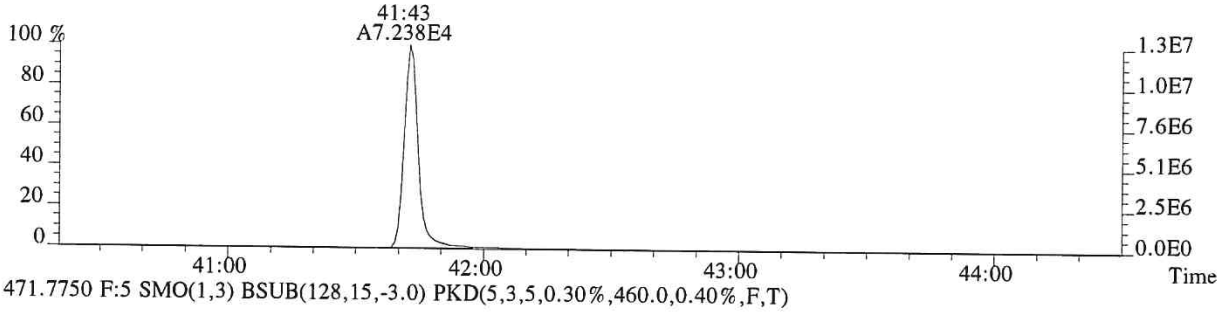
File:P615940 #1-375 Acq: 6-DEC-2018 10:36:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



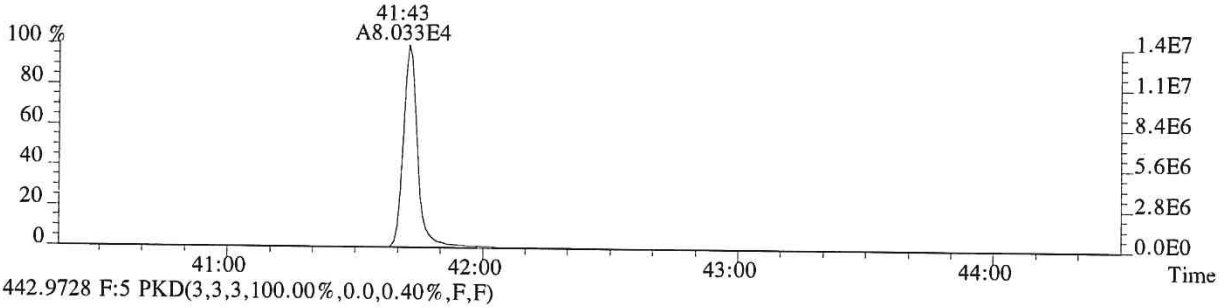
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1092.0,0.40%,F,T)



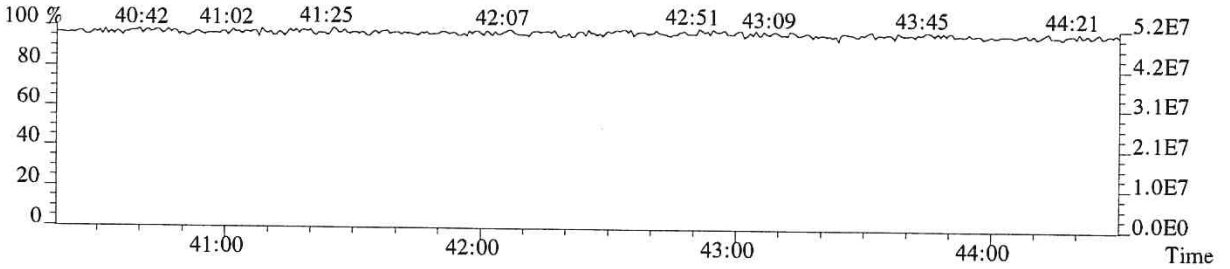
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1440.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P0116040

Date: 12/11/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P616040	11-DEC-18	09:58:58
192977	WINDOW DEFINE	P616041	11-DEC-18	10:49:15
METHOD BLANK	EQ1800471-01	P616042	11-DEC-18	11:39:22
METHOD BLANK	EQ1800499-01	P616043	11-DEC-18	12:27:41
FW0051	E1801046-007	P616044	11-DEC-18	13:16:51
FW0007	E1801056-069	P616045	11-DEC-18	14:39:28
FW0052	E1801058-030	P616046	11-DEC-18	15:32:13
FW0053	E1801058-031	P616047	11-DEC-18	16:28:02
FW010	E1801058-032	P616048	11-DEC-18	17:18:28
FW0052	E1801065-030	P616049	11-DEC-18	18:06:47
FW0053	E1801065-031	P616050	11-DEC-18	18:55:56
LCS	EQ1800499-02	P616051	11-DEC-18	19:45:05
DLCS	EQ1800499-03	P616052	11-DEC-18	20:34:15

E1801056

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181211A.SPL
Last Modified: Wednesday, December 12, 2018 07:08:08 Central Standard Time
Printed: Wednesday, December 12, 2018 07:08:11 Central Standard Time

Page Position (1, 1)

opus4: P616040res

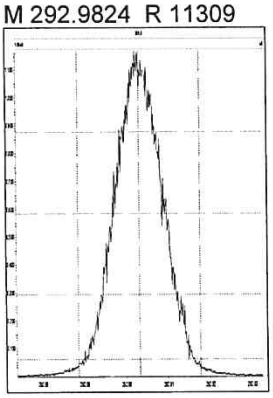
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/11/18	09:03	P616039	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	not used
2		09:58	P616040	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 09:00
3		10:49	P616041	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
4		11:39	P616042	EQ1800471-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:27	P616043	EQ1800499-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:16	P616044	E1801046-007	E1801046-007	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:39	P616045	E1801056-069	E1801056-069	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:32	P616046	E1801058-030	E1801058-030	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		16:23	P616047	E1801058-031	E1801058-031	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		17:18	P616048	E1801058-032	E1801058-032	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		18:06	P616049	E1801065-030	E1801065-030	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:55	P616050	E1801065-031	E1801065-031	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		19:45	P616051	EQ1800499-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:34	P616052	EQ1800499-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		21:31	P616053	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 21:31
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JC 12/13/18

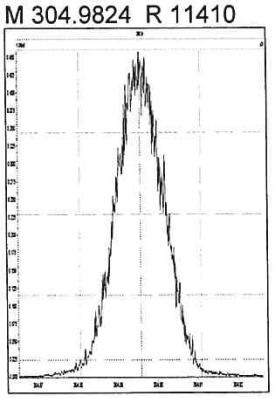
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:00:28 Central Standard Time

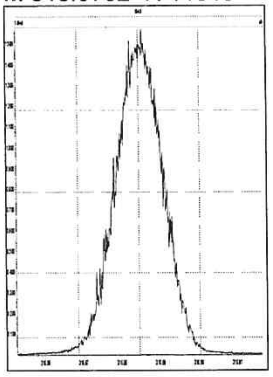
M 292.9824 R 11309



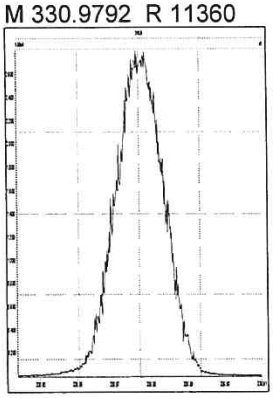
M 304.9824 R 11410



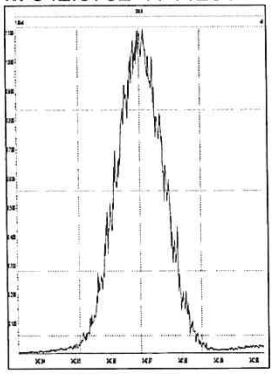
M 318.9792 R 11519



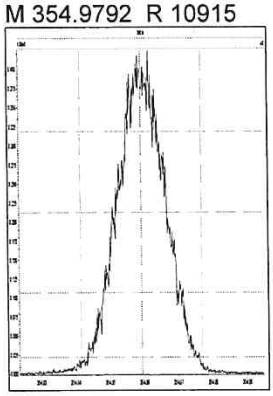
M 330.9792 R 11360



M 342.9792 R 11261



M 354.9792 R 10915



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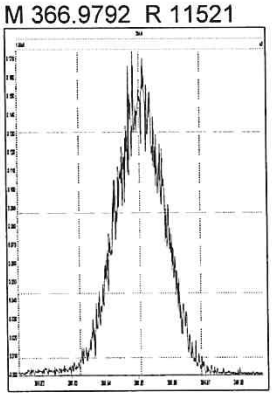
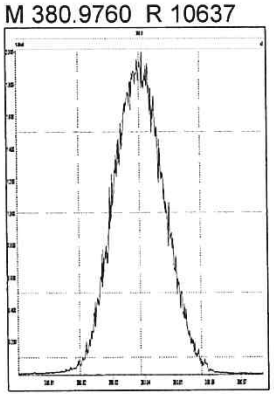


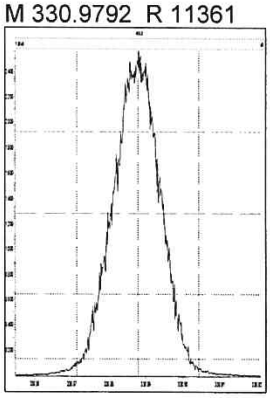
M 380.9760 R 10637



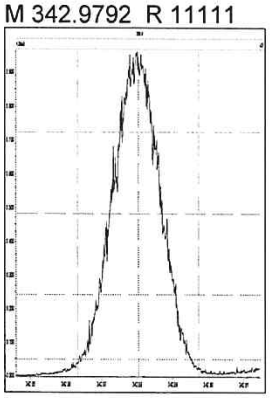
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:01:04 Central Standard Time

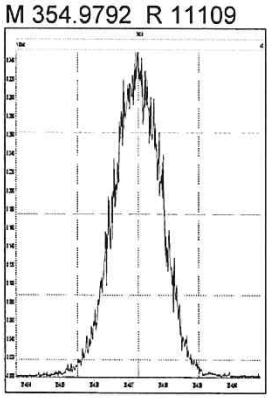
M 330.9792 R 11361



M 342.9792 R 11111



M 354.9792 R 11109



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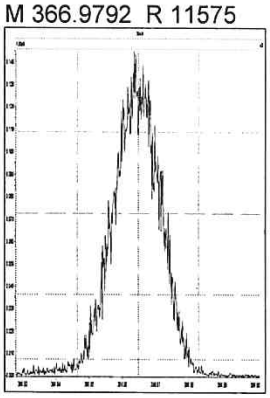

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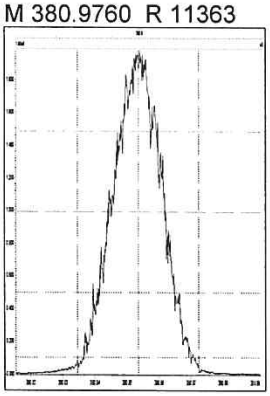

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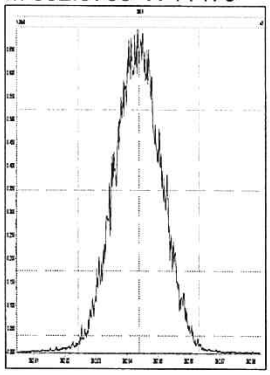

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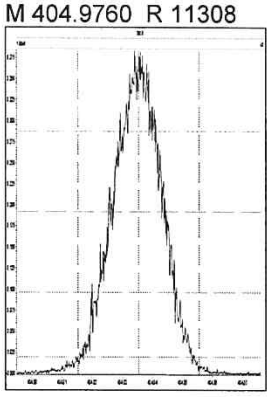
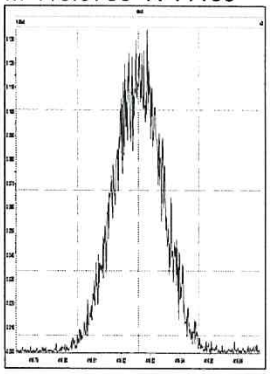


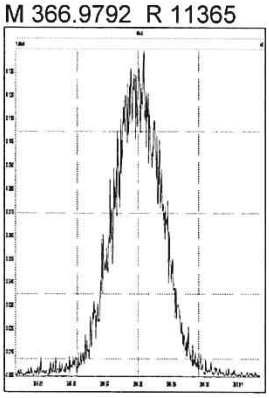
M 416.9760 R 11159



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:01:35 Central Standard Time

M 366.9792 R 11365



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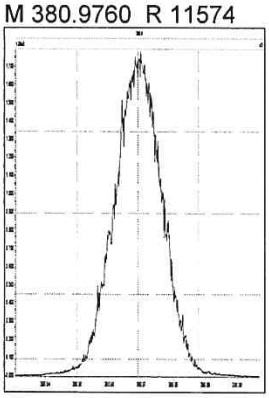
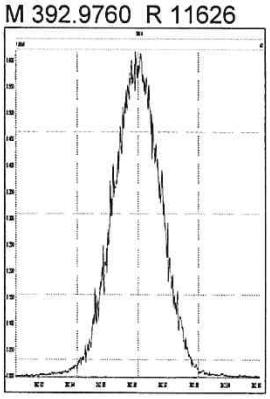
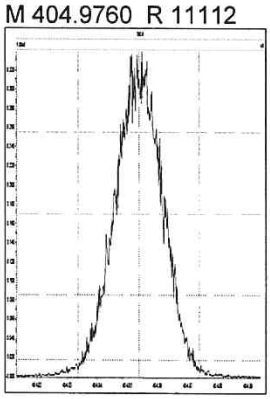


M 392.9760 R 11626



M 404.9760 R 11112



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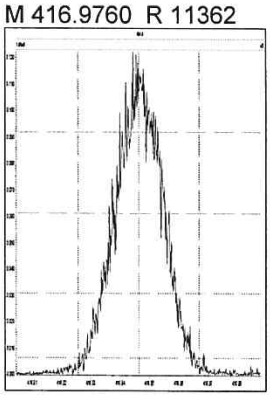
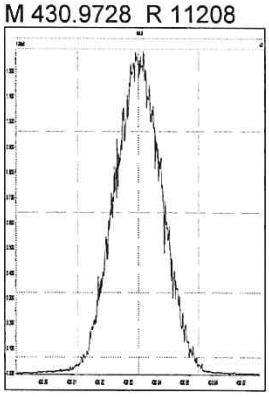


M 430.9728 R 11208



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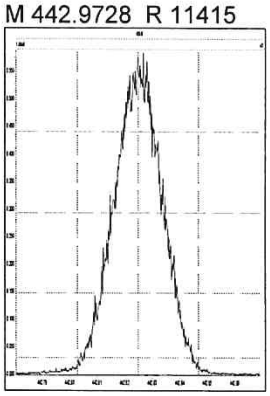
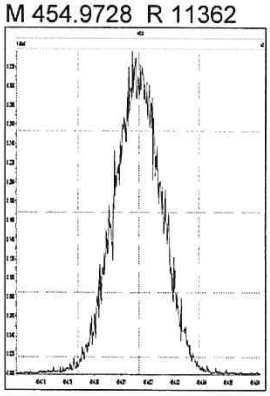


M 454.9728 R 11362



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Printed: Tuesday, December 11, 2018 09:02:10 Central Standard Time

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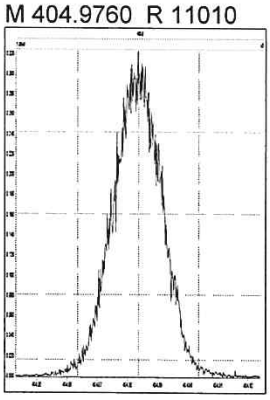
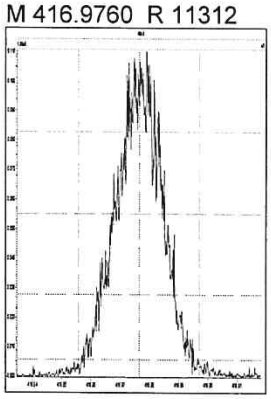


M 416.9760 R 11312



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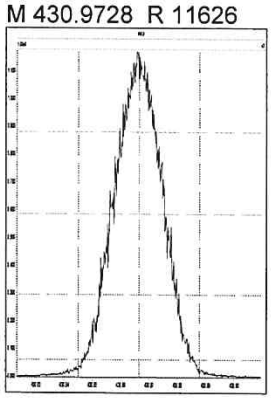

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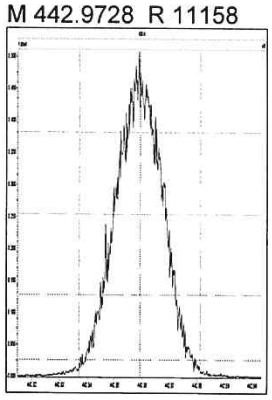

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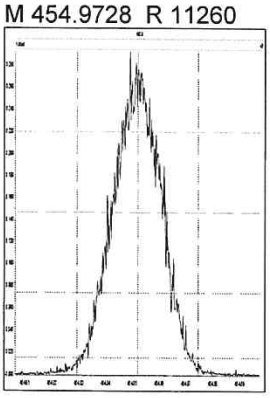

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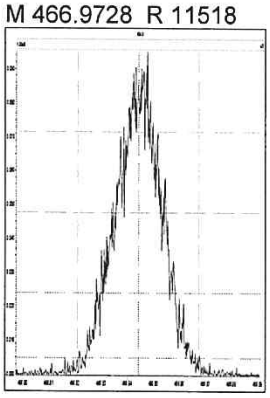

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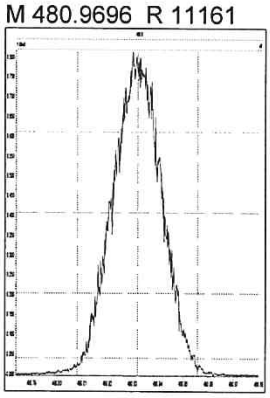
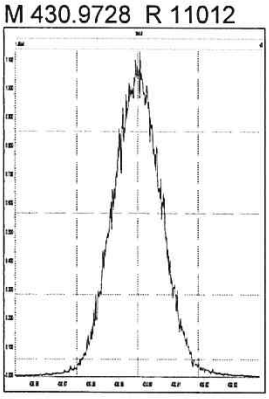


File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:02:49 Central Standard Time

M 430.9728 R 11012



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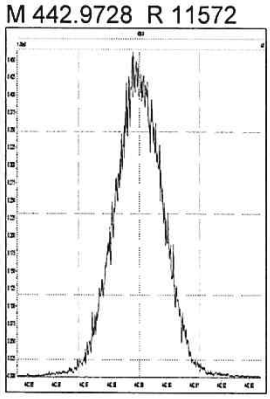

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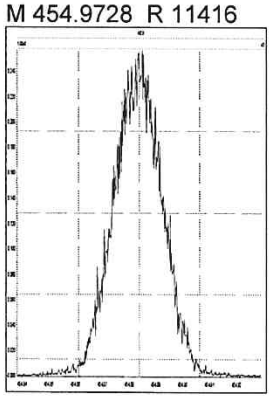

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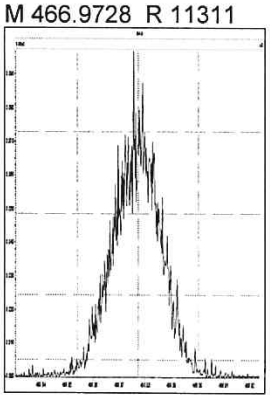

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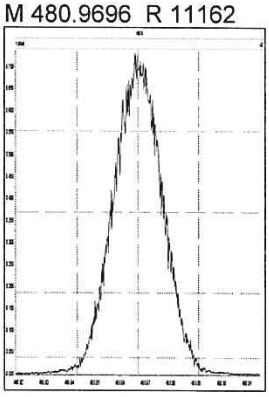

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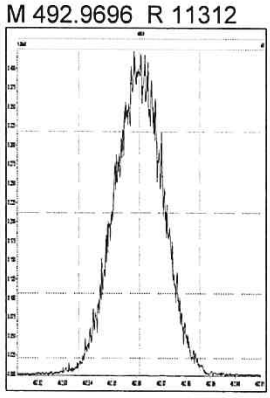

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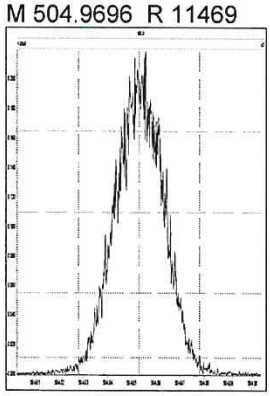

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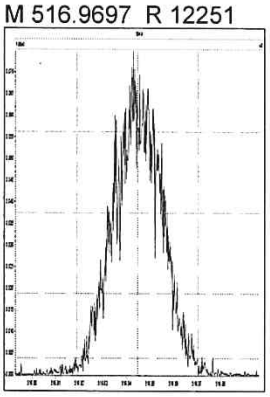

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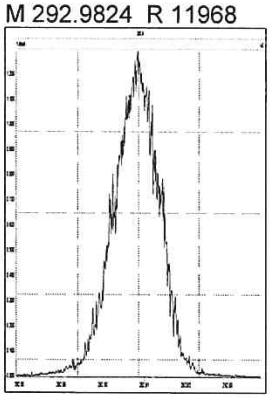

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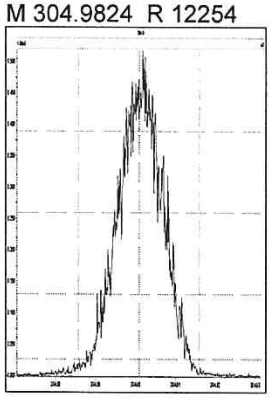

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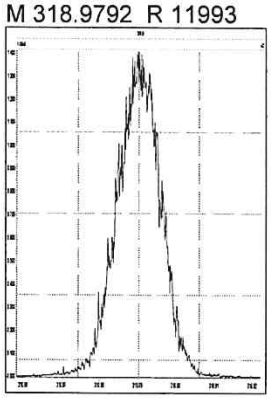

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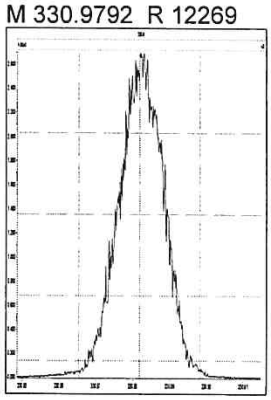

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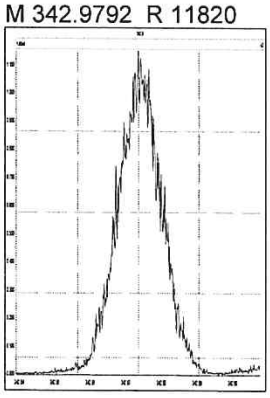

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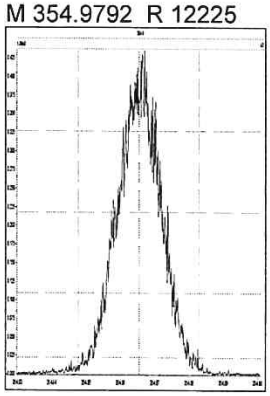
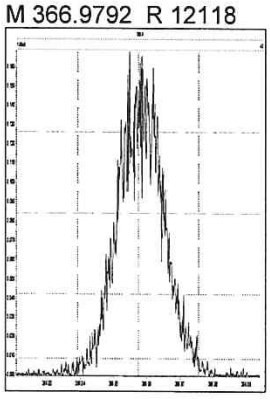


M 366.9792 R 12118



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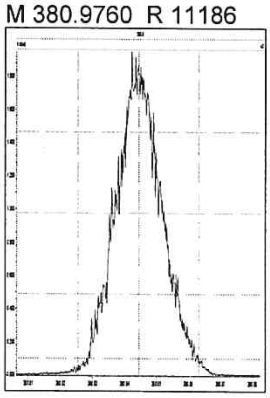

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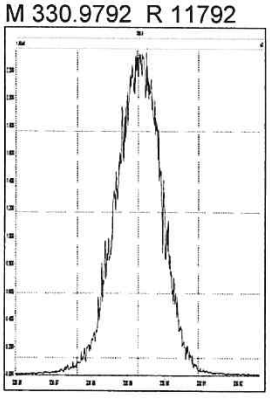

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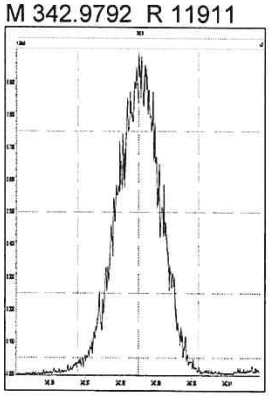

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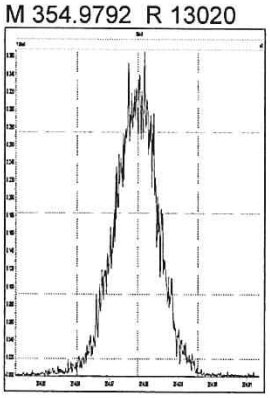

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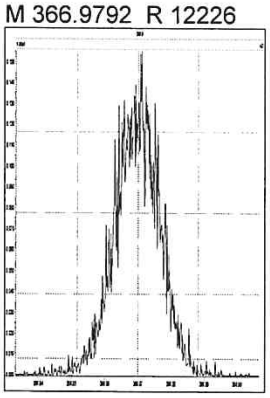

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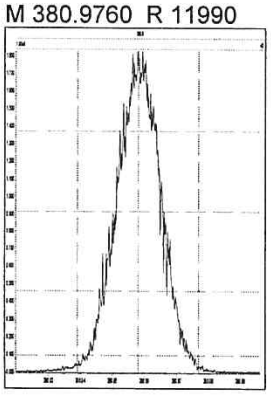

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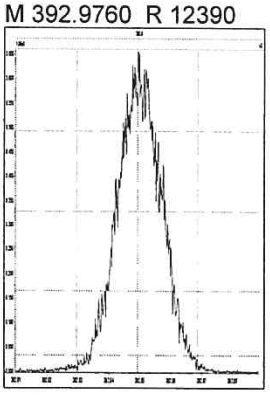

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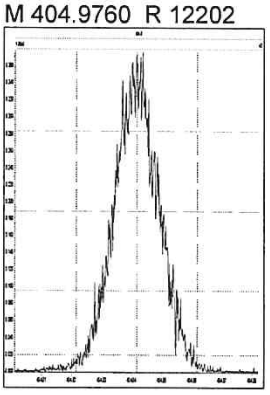

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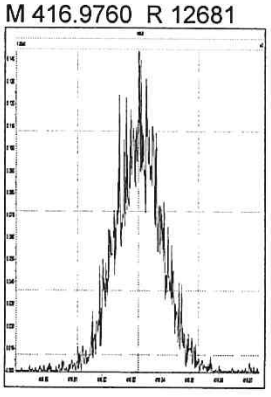

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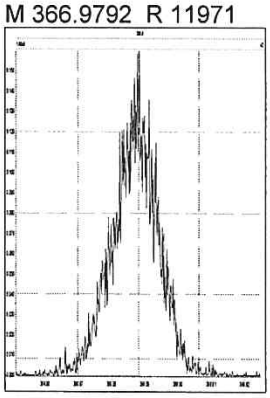

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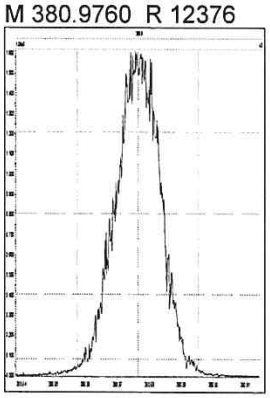

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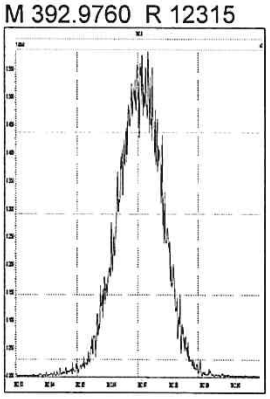

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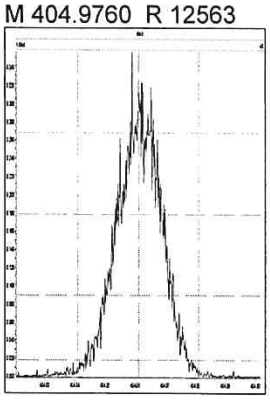

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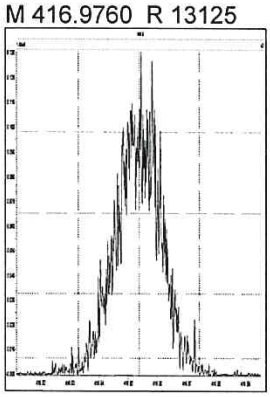
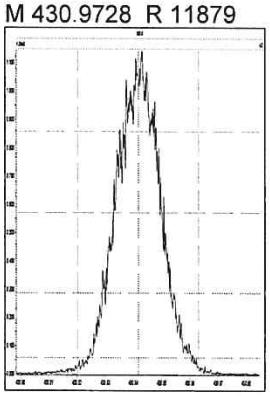
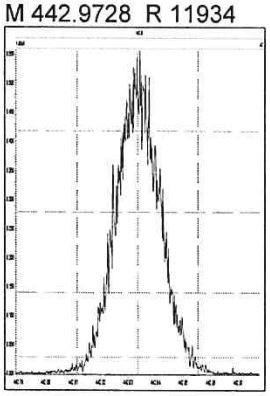


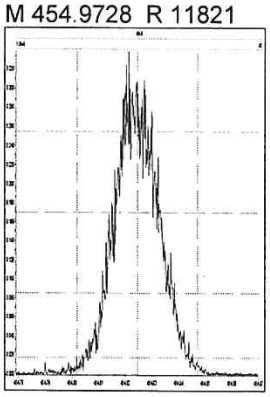
M 430.9728 R 11879



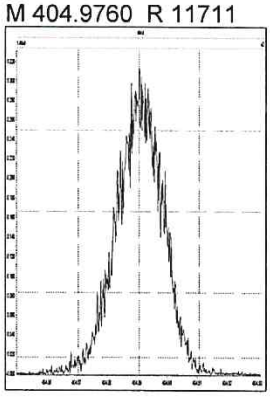
M 442.9728 R 11934



M 454.9728 R 11821



M 404.9760 R 11711



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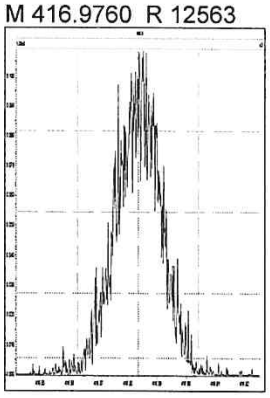

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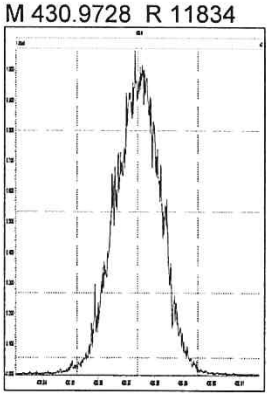

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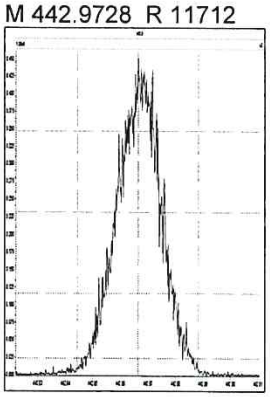

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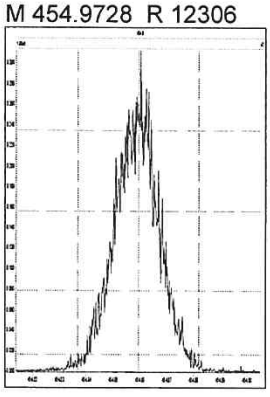

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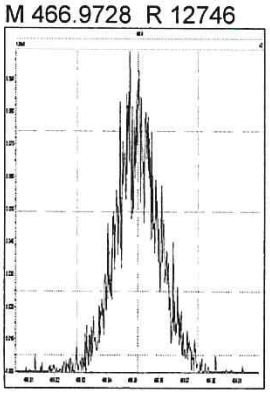

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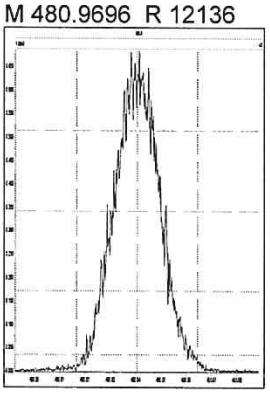

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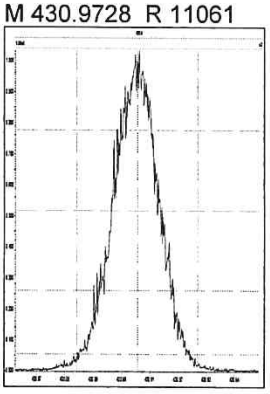

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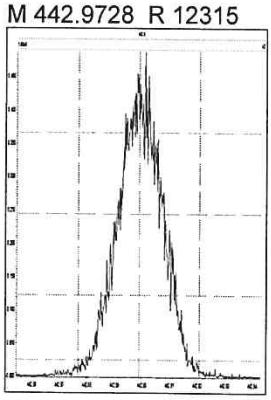

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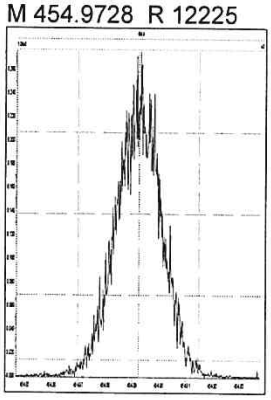
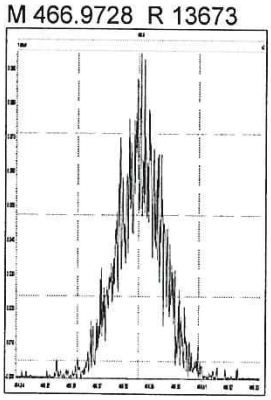


M 466.9728 R 13673



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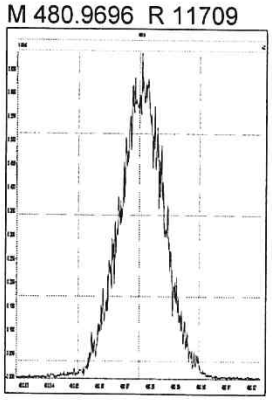

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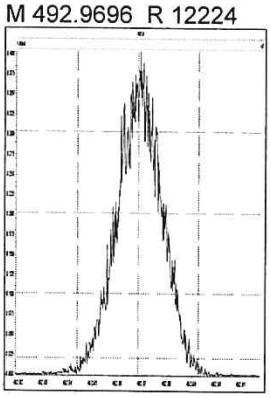

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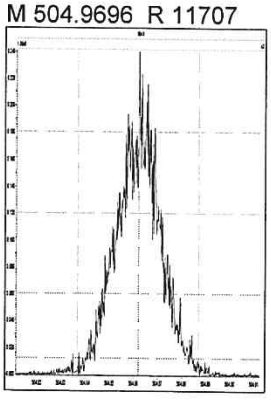

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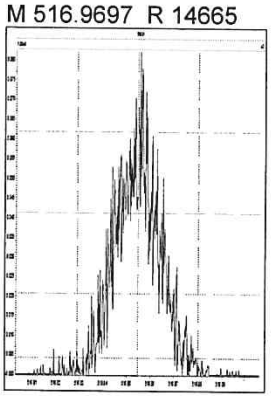


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

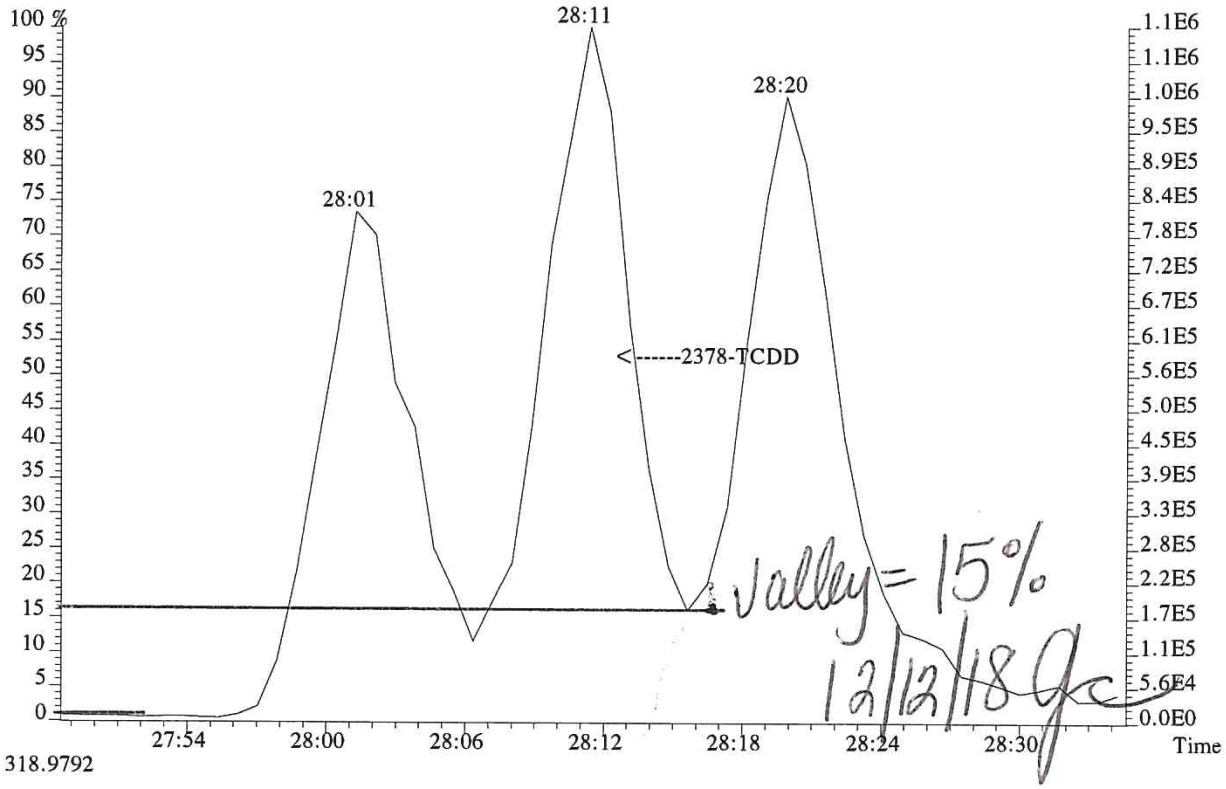
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P616041
Date Analyzed: 11-DEC-18
Time Analyzed: 10:49:15

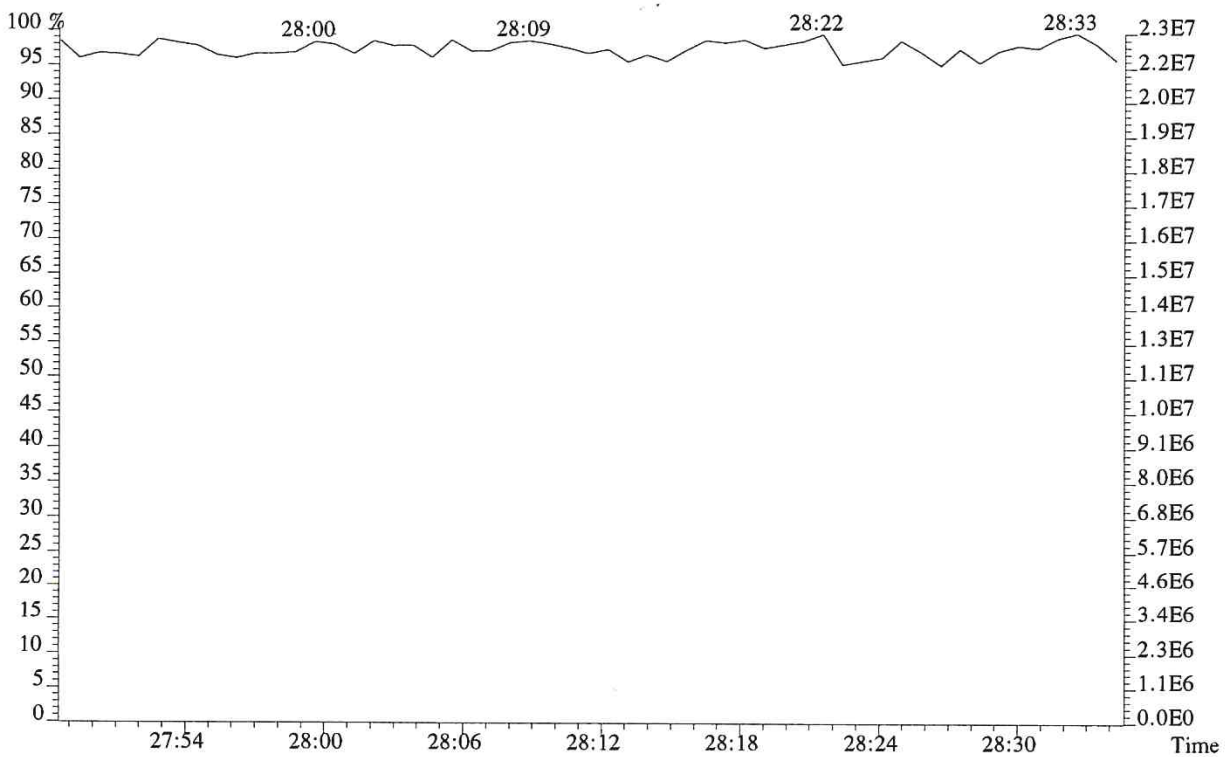
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:50	29:26
TCDD	24:37	29:15
PeCDF	29:20	33:44
PeCDD	30:56	33:28
HxCDF	34:22	36:55
HxCDD	34:54	36:30
HpCDF	38:07	39:29
HpCDD	38:21	39:01

% Valley 2378-TCDD: 15 %

File:P616041 #1-573 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965

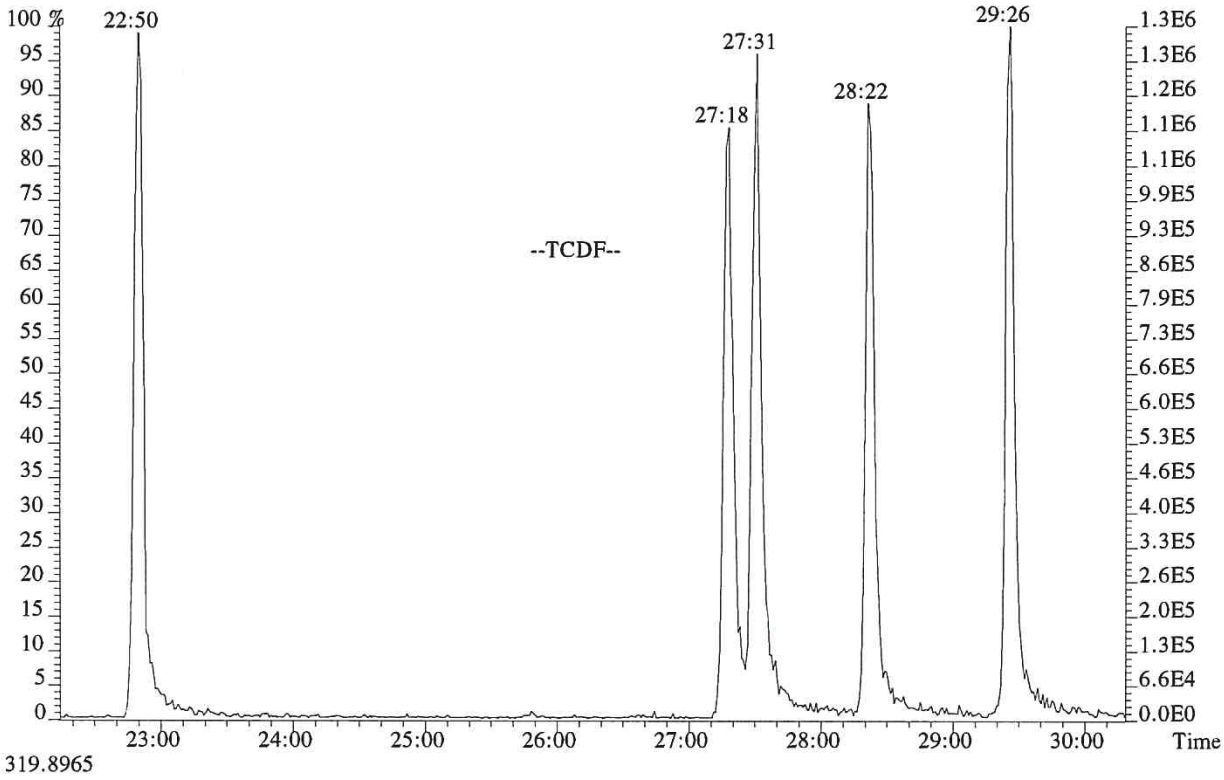


318.9792

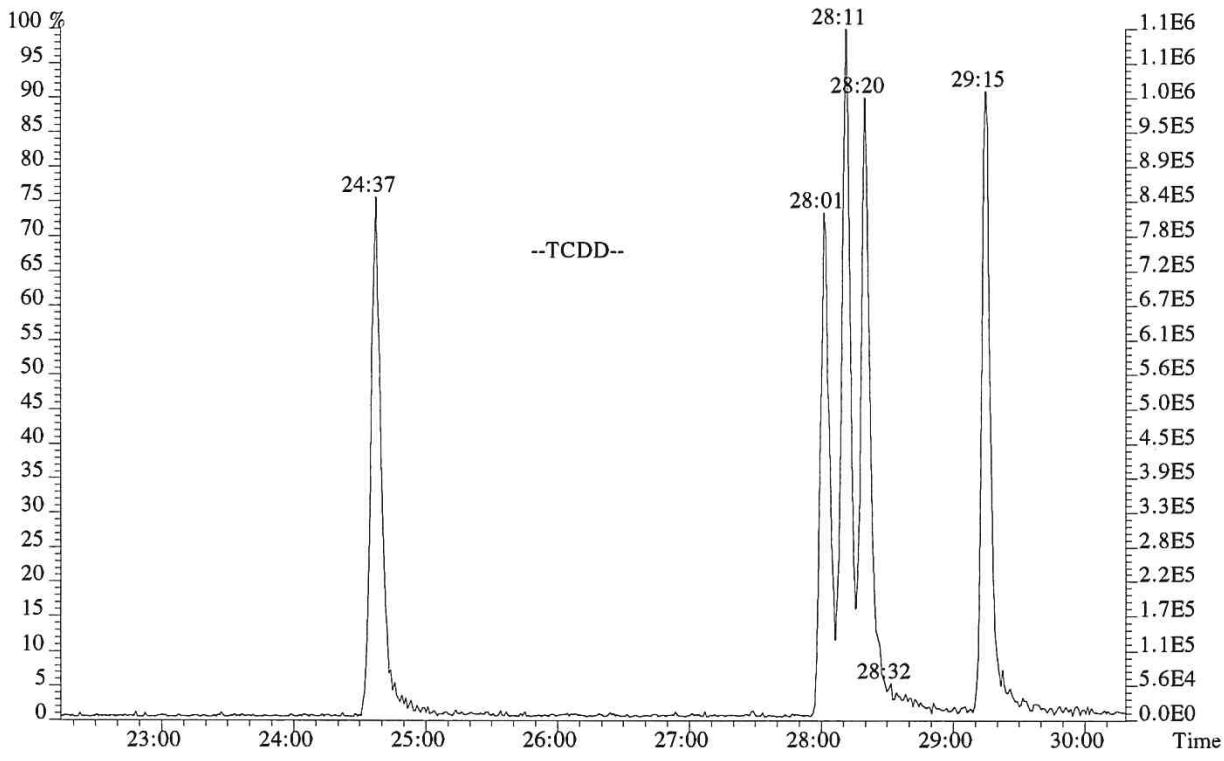


012842

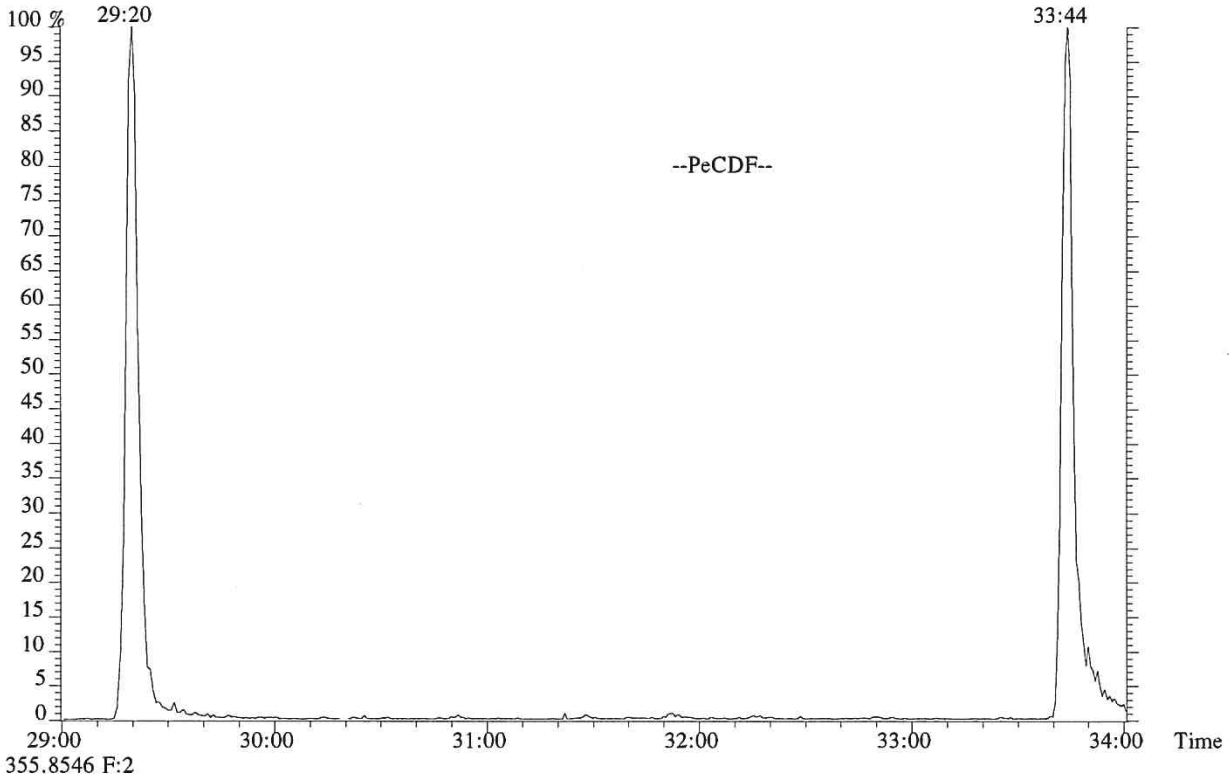
File:P616041 #1-573 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



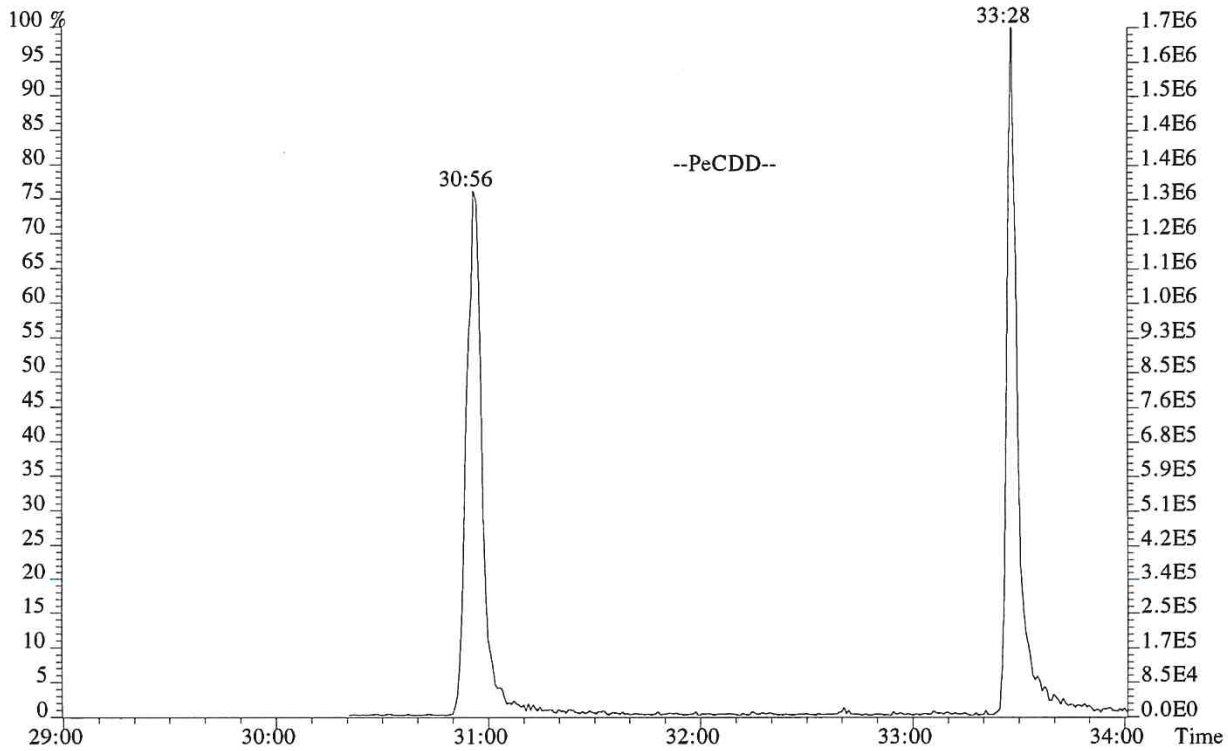
319.8965



File:P616041 #1-573 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

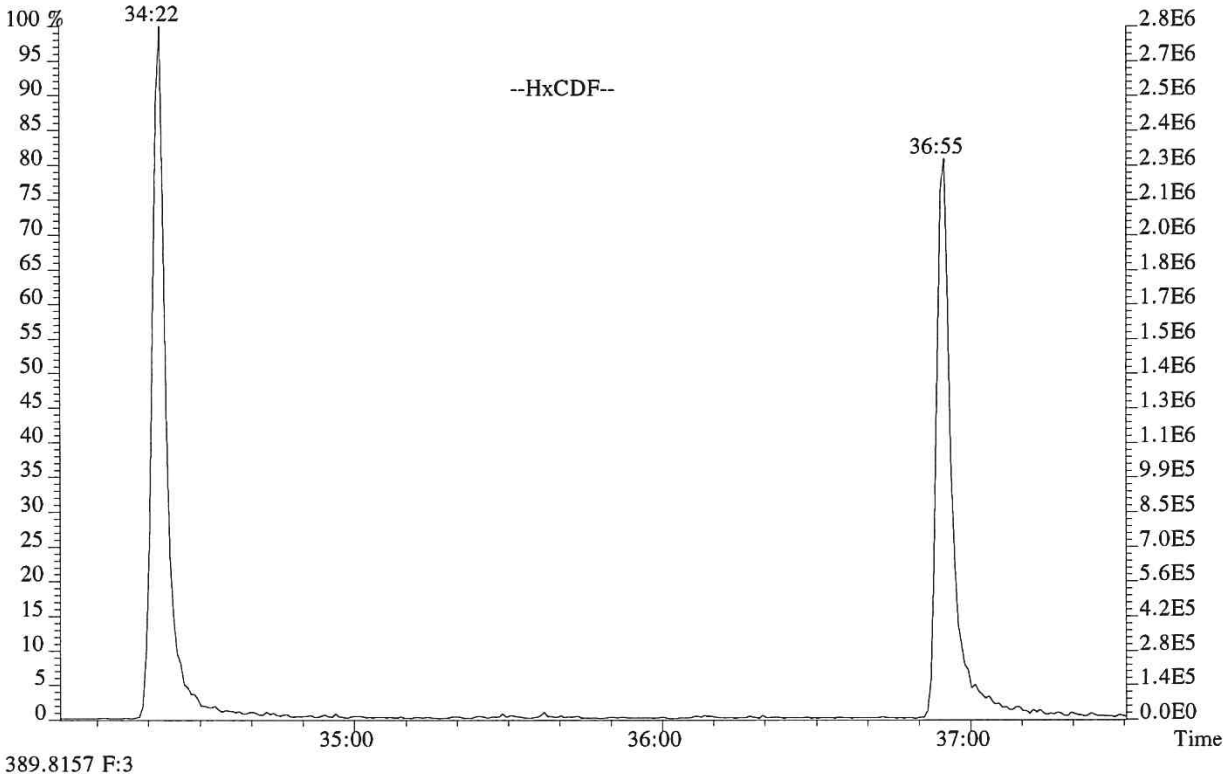


355.8546 F:2

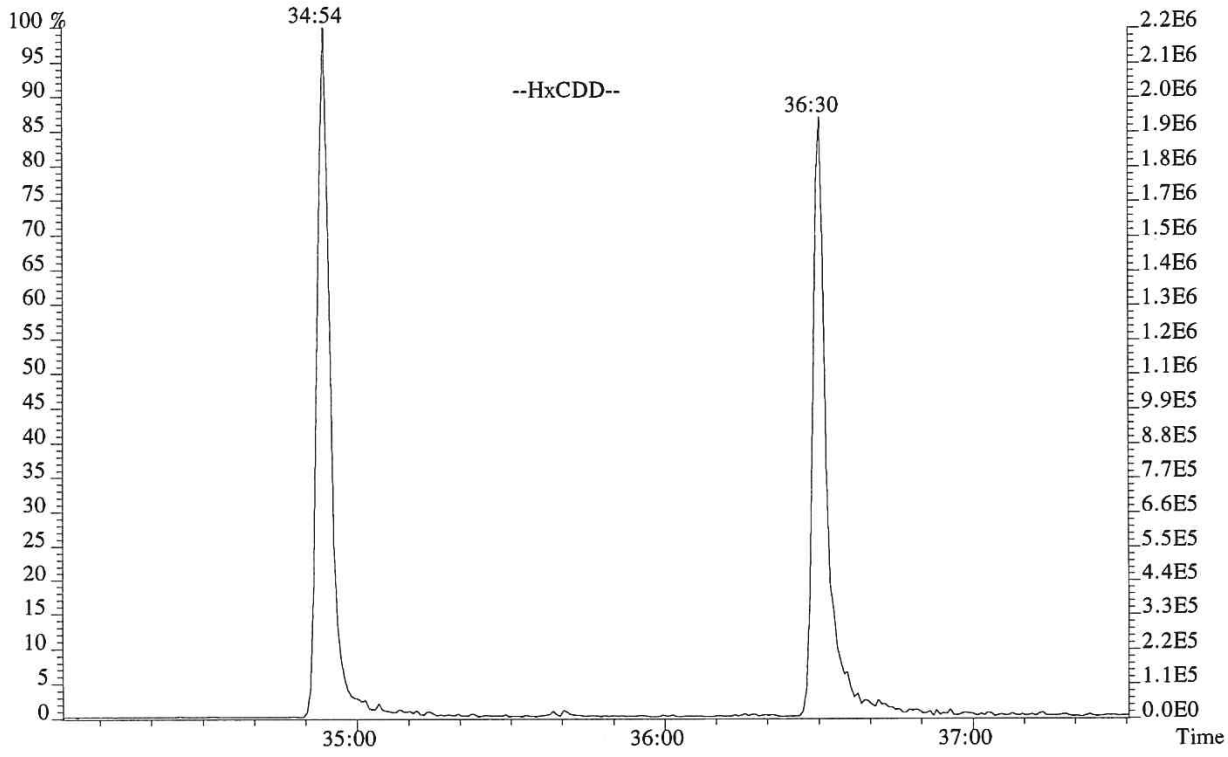


012844

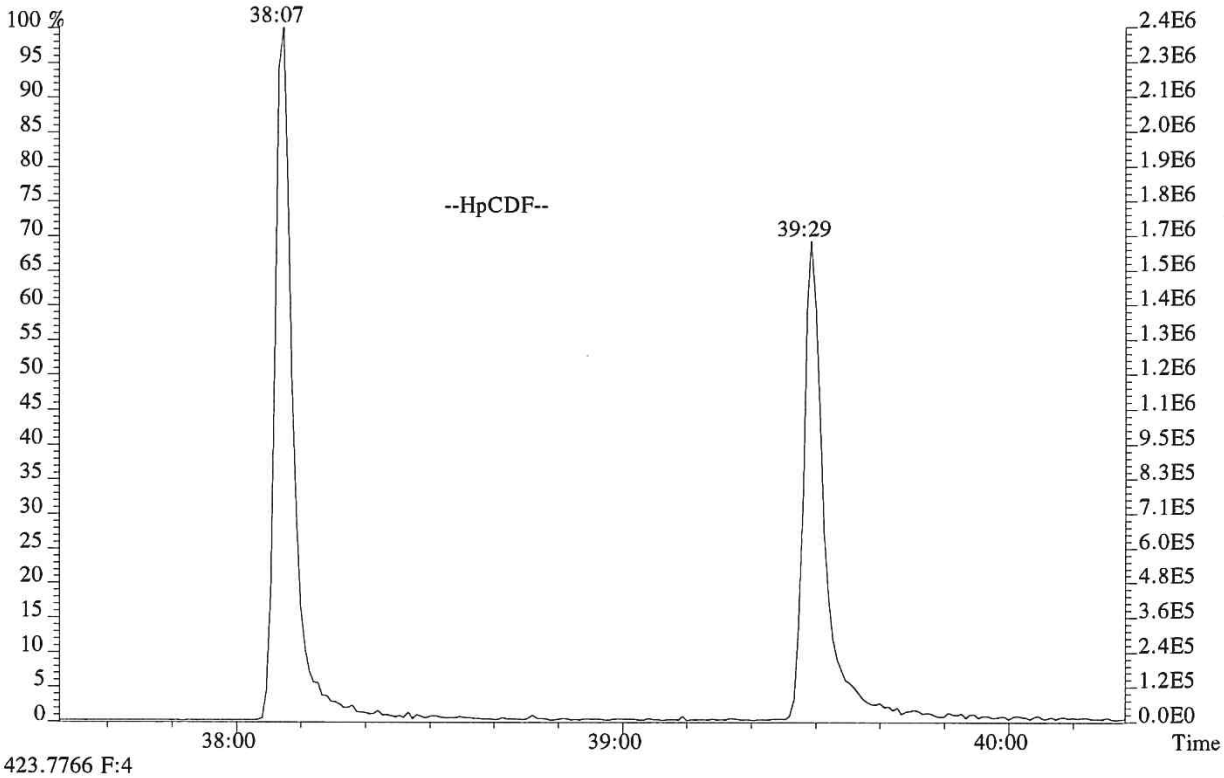
File:P616041 #1-312 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



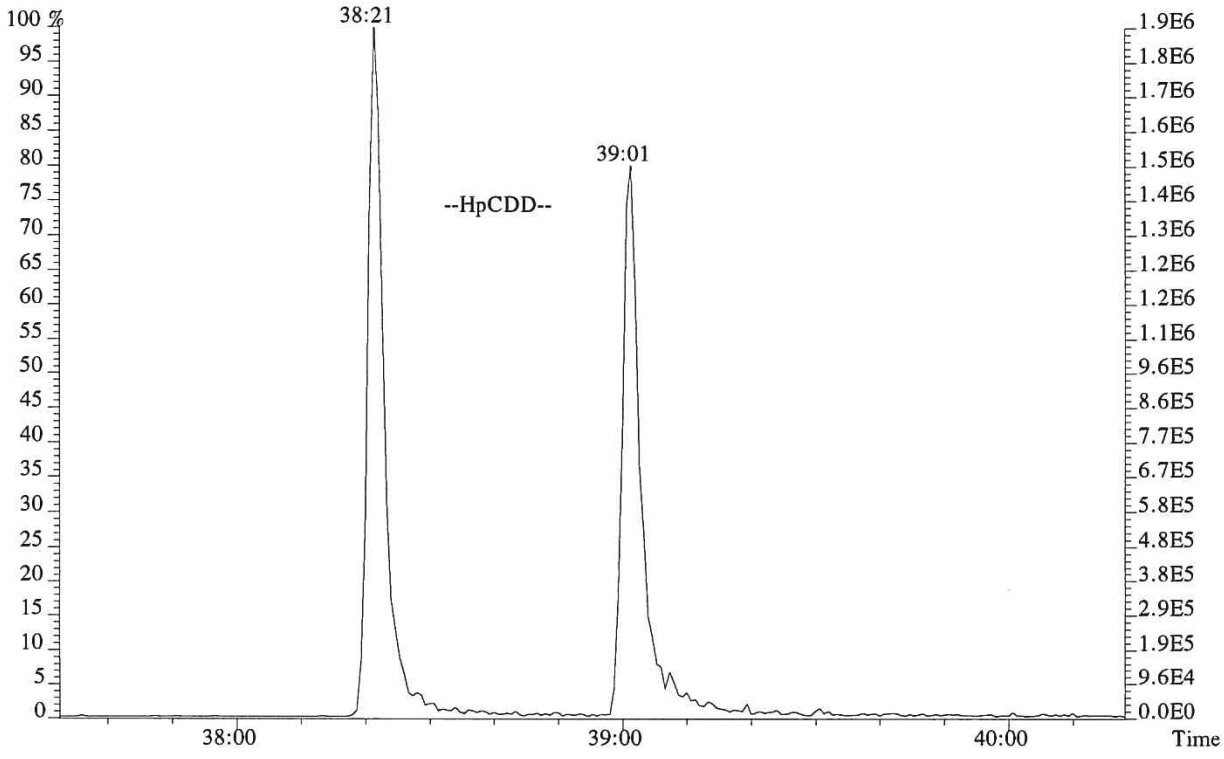
389.8157 F:3



File:P616041 #1-249 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



012846

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P616040 Analysis Date: 11-DEC-18 Time: 09:58:58

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.75	0.65-0.89	9.6	7.8 - 12.9	-3.9
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	-0.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-2.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	50	39 - 64	0.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.30	1.05-1.43	50	41 - 61	0.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	48	43 - 58	-3.4
OCDD	M+2/M+4	0.89	0.76-1.02	96	79 - 126	-3.8
2,3,7,8-TCDF	M/M+2	0.82	0.65-0.89	9.2	8.4 - 12.0	-8.1
1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	46	41 - 60	-8.1
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	46	41 - 61	-7.9
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	46	45 - 56	-8.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	47	44 - 57	-6.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	47	45 - 56	-6.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	48	44 - 57	-4.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	47	45 - 55	-6.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	46	43 - 58	-8.4
OCDF	M+2/M+4	0.91	0.76-1.02	87	63 - 159	-13.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P616040 Analysis Date: 11-DEC-18 Time: 09:58:58

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	96	82 - 121	-4.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	105	62 - 160	4.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	91	85 - 117	-9.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	96	72 - 138	-3.6
13C-OCDD	M+2/M+4	0.91	0.76-1.02	177	96 - 415	-11.4
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	90	71 - 140	-10.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	100	76 - 130	-0.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	104	77 - 130	3.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	86	76 - 131	-14.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	70 - 143	-5.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	87	74 - 135	-13.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	91	73 - 137	-9.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	92	78 - 129	-8.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	89	77 - 129	-11.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.1	7.8 - 12.7	-9.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P616040 Samp: 1 Inj: 1 Acquired: 11-DEC-18 09:58:58
Processed: 12-DEC-18 16:11:21 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:31	4.115e+03	5.005e+03	0.82	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:51	3.749e+04	2.350e+04	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:49	3.658e+04	2.321e+04	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:30	3.265e+04	2.651e+04	1.23	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	3.866e+04	3.113e+04	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:07	3.531e+04	2.812e+04	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:52	3.095e+04	2.468e+04	1.25	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	3.150e+04	3.009e+04	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	2.498e+04	2.435e+04	1.03	yes	no	1.463
10	Unk	OCDF	41:53	3.474e+04	3.803e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:20	2.941e+03	3.906e+03	0.75	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:05	2.380e+04	1.532e+04	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:15	2.166e+04	1.746e+04	1.24	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:20	2.413e+04	1.972e+04	1.22	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:34	2.567e+04	1.981e+04	1.30	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	2.122e+04	1.953e+04	1.09	yes	no	1.112
17	Unk	OCDD	41:41	2.807e+04	3.152e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:29	4.056e+04	5.130e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	7.080e+04	4.398e+04	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:47	7.255e+04	4.507e+04	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:29	3.137e+04	5.968e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	3.956e+04	7.576e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:06	3.601e+04	6.782e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	3.132e+04	5.889e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	2.741e+04	5.939e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	2.297e+04	5.064e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:18	2.996e+04	3.797e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:04	5.160e+04	3.324e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:14	4.193e+04	3.331e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	4.630e+04	3.647e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:00	3.886e+04	3.696e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:40	5.093e+04	5.612e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:41	3.196e+04	4.013e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	5.162e+04	4.008e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:20	7.128e+03				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P616040 Samp: 1 Inj: 1 Acquired: 11-DEC-18 09:58:58
Processed: 12-DEC-18 16:11:21 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.18e+05	6.32e+02	9.8e+02	7.05e+05	1.68e+03	4.2e+02
2	1,2,3,7,8-PeCDF	5.91e+06	1.21e+03	4.9e+03	3.66e+06	1.93e+03	1.9e+03
3	2,3,4,7,8-PeCDF	6.35e+06	1.21e+03	5.3e+03	4.00e+06	1.93e+03	2.1e+03
4	1,2,3,4,7,8-HxCDF	6.72e+06	1.03e+03	6.5e+03	5.43e+06	4.64e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	7.07e+06	1.03e+03	6.9e+03	5.66e+06	4.64e+02	1.2e+04
6	2,3,4,6,7,8-HxCDF	6.91e+06	1.03e+03	6.7e+03	5.46e+06	4.64e+02	1.2e+04
7	1,2,3,7,8,9-HxCDF	5.43e+06	1.03e+03	5.3e+03	4.40e+06	4.64e+02	9.5e+03
8	1,2,3,4,6,7,8-HpCDF	6.32e+06	7.51e+03	8.4e+02	6.08e+06	1.24e+03	4.9e+03
9	1,2,3,4,7,8,9-HpCDF	4.39e+06	7.51e+03	5.8e+02	4.32e+06	1.24e+03	3.5e+03
10	OCDF	5.58e+06	7.24e+02	7.7e+03	5.96e+06	2.00e+03	3.0e+03
11	2,3,7,8-TCDD	4.78e+05	2.20e+03	2.2e+02	6.20e+05	3.96e+02	1.6e+03
12	1,2,3,7,8-PeCDD	4.08e+06	1.00e+03	4.1e+03	2.55e+06	4.12e+02	6.2e+03
13	1,2,3,4,7,8-HxCDD	4.74e+06	8.20e+02	5.8e+03	3.85e+06	7.72e+02	5.0e+03
14	1,2,3,6,7,8-HxCDD	4.66e+06	8.20e+02	5.7e+03	3.82e+06	7.72e+02	5.0e+03
15	1,2,3,7,8,9-HxCDD	4.68e+06	8.20e+02	5.7e+03	3.78e+06	7.72e+02	4.9e+03
16	1,2,3,4,6,7,8-HpCDD	3.92e+06	8.20e+02	4.8e+03	3.70e+06	5.60e+02	6.6e+03
17	OCDD	4.77e+06	4.68e+02	1.0e+04	5.21e+06	4.56e+02	1.1e+04
18	13C-2,3,7,8-TCDF	5.98e+06	5.42e+03	1.1e+03	7.59e+06	3.93e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	1.14e+07	1.29e+03	8.8e+03	7.13e+06	8.96e+02	8.0e+03
20	13C-2,3,4,7,8-PeCDF	1.24e+07	1.29e+03	9.6e+03	7.90e+06	8.96e+02	8.8e+03
21	13C-1,2,3,4,7,8-HxCDF	6.55e+06	1.32e+03	5.0e+03	1.24e+07	1.20e+03	1.0e+04
22	13C-1,2,3,6,7,8-HxCDF	7.40e+06	1.32e+03	5.6e+03	1.40e+07	1.20e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	7.15e+06	1.32e+03	5.4e+03	1.34e+07	1.20e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	5.68e+06	1.32e+03	4.3e+03	1.07e+07	1.20e+03	8.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.46e+06	1.52e+03	3.6e+03	1.19e+07	4.90e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.01e+06	1.52e+03	2.6e+03	9.03e+06	4.90e+03	1.8e+03
27	13C-2,3,7,8-TCDD	4.84e+06	9.34e+03	5.2e+02	6.04e+06	4.12e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	8.80e+06	7.32e+02	1.2e+04	5.67e+06	1.30e+03	4.4e+03
29	13C-1,2,3,4,7,8-HxCDD	9.08e+06	3.01e+03	3.0e+03	7.12e+06	1.16e+03	6.1e+03
30	13C-1,2,3,6,7,8-HxCDD	9.10e+06	3.01e+03	3.0e+03	7.04e+06	1.16e+03	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.38e+06	6.16e+02	1.2e+04	6.96e+06	4.48e+02	1.6e+04
32	13C-OCDD	8.50e+06	1.57e+03	5.4e+03	9.34e+06	7.72e+02	1.2e+04
33	13C-1,2,3,4-TCDD	5.14e+06	9.34e+03	5.5e+02	6.48e+06	4.12e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	9.53e+06	3.01e+03	3.2e+03	7.51e+06	1.16e+03	6.5e+03
35	37Cl-2,3,7,8-TCDD	1.14e+06	2.11e+03	5.4e+02			

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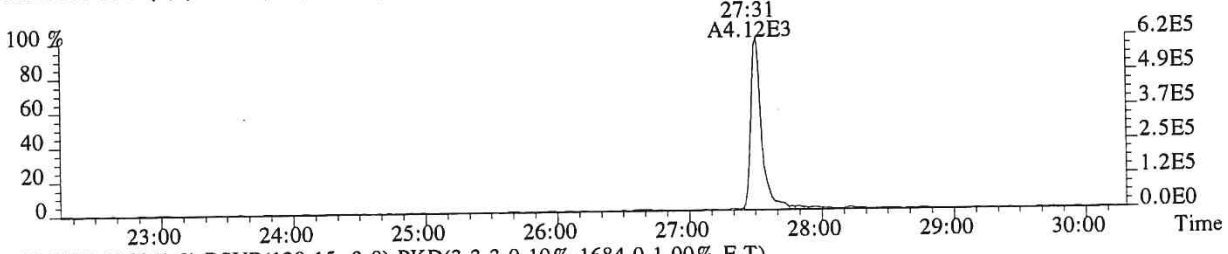
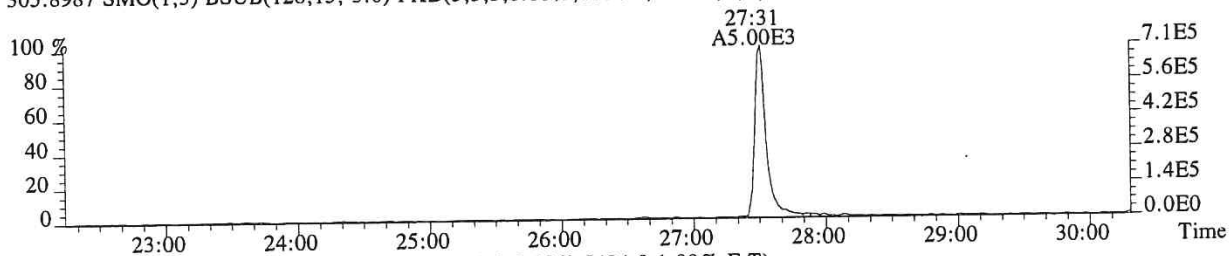
File:P616040 #1-573 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

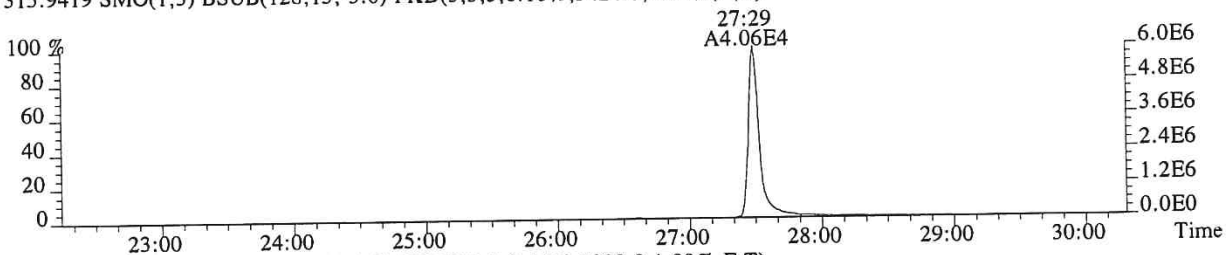
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



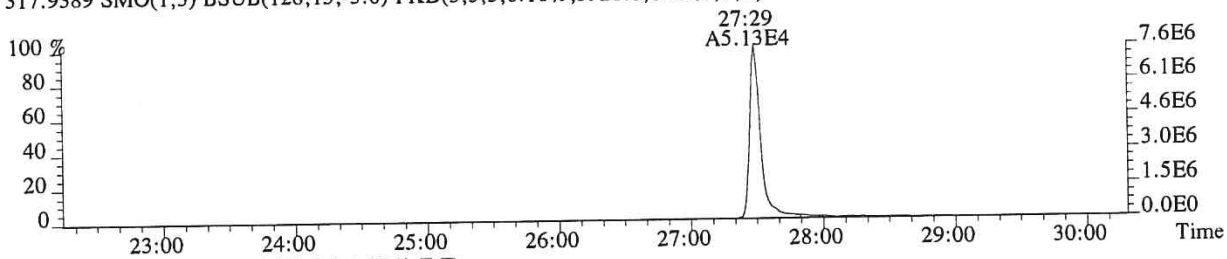
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



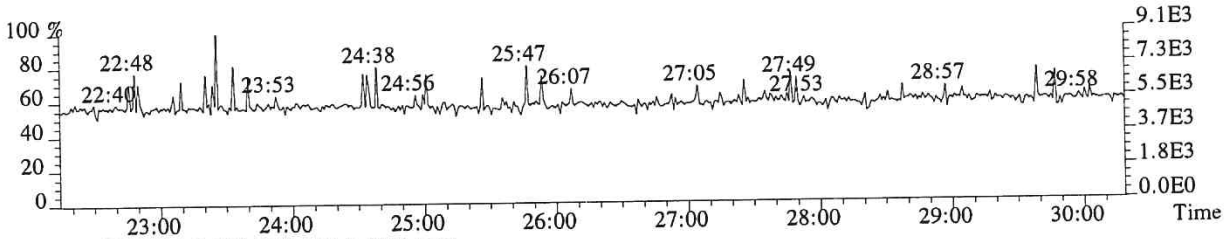
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5424.0,1.00%,F,T)



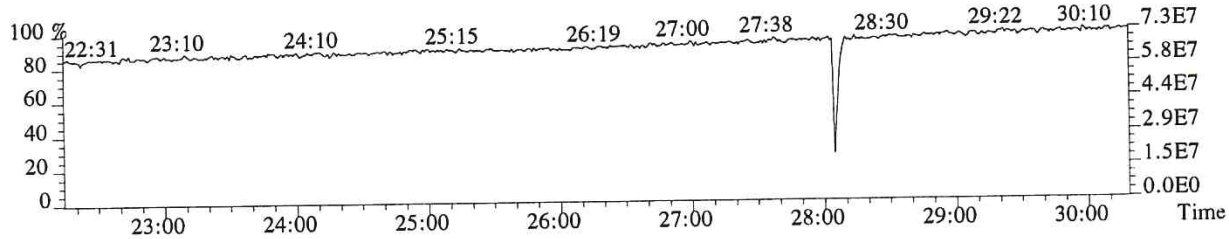
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3928.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

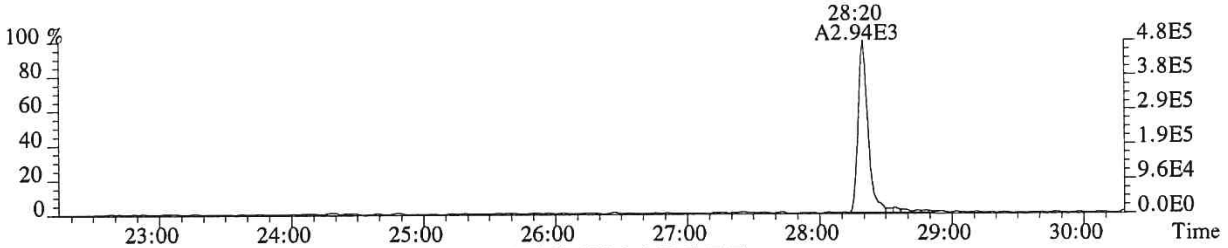


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

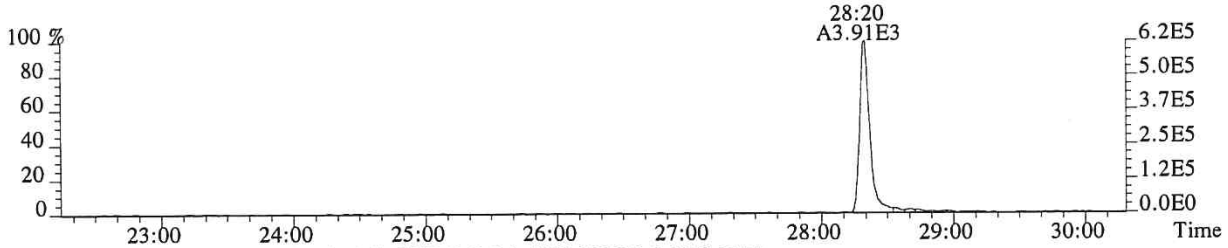


012851

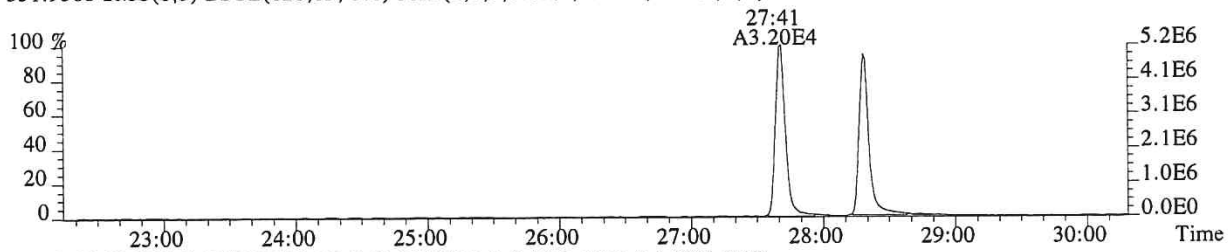
File:P616040 #1-573 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



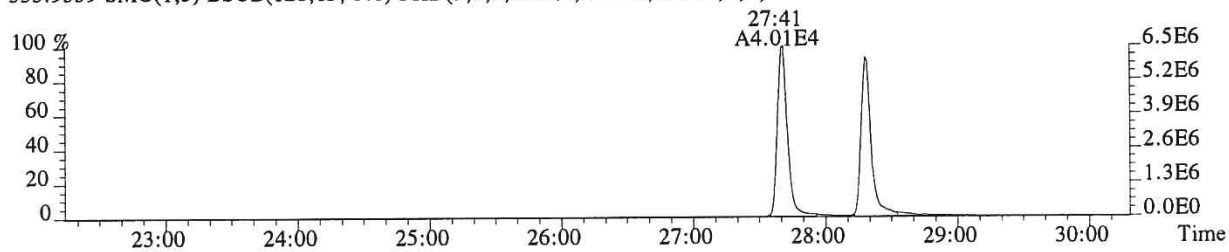
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



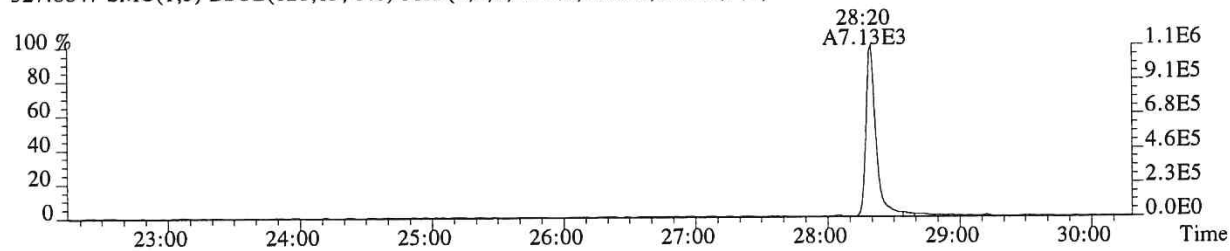
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9336.0,1.00%,F,T)



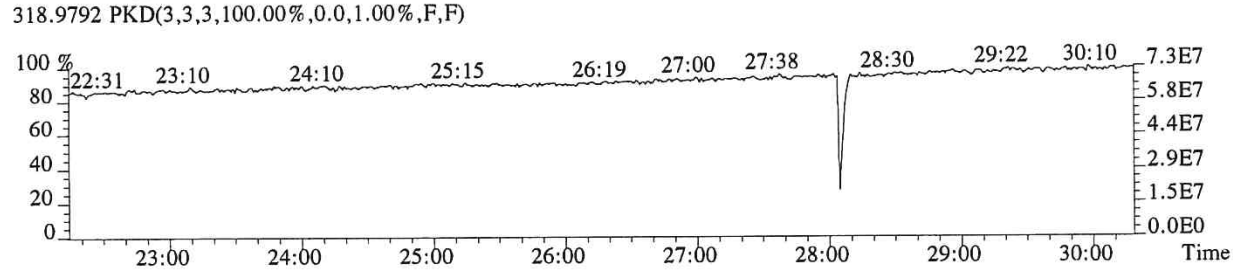
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4124.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)

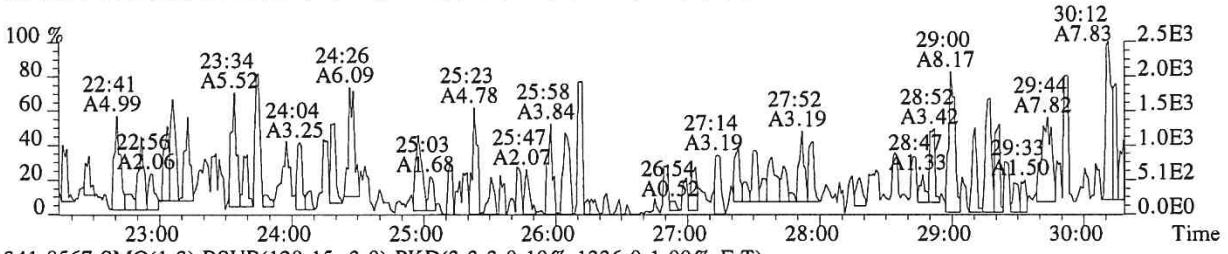


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

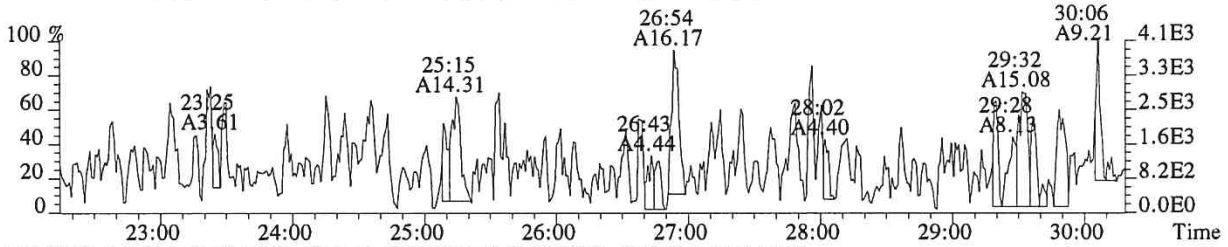


012852

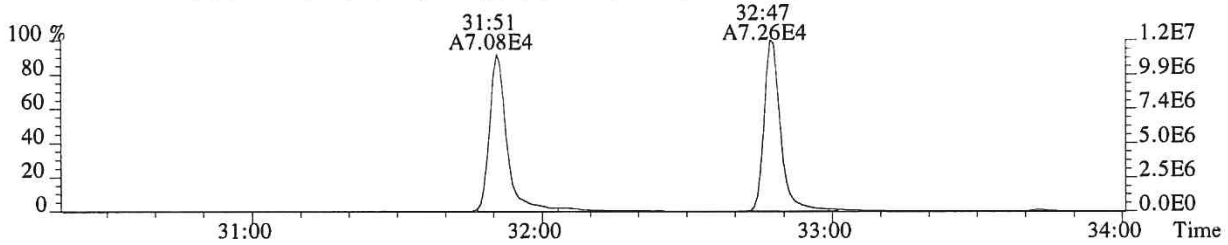
File:P616040 #1-573 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



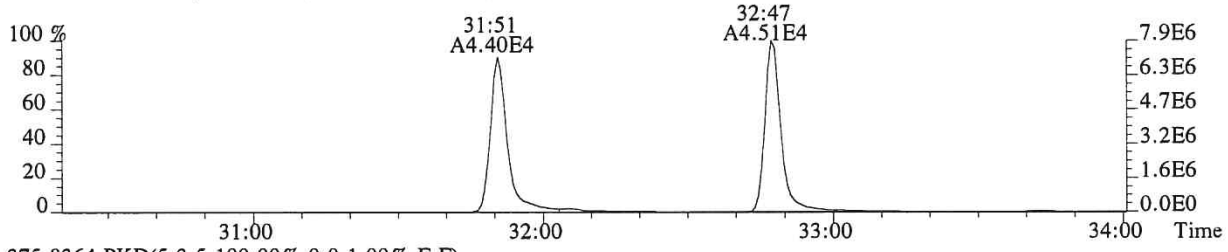
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



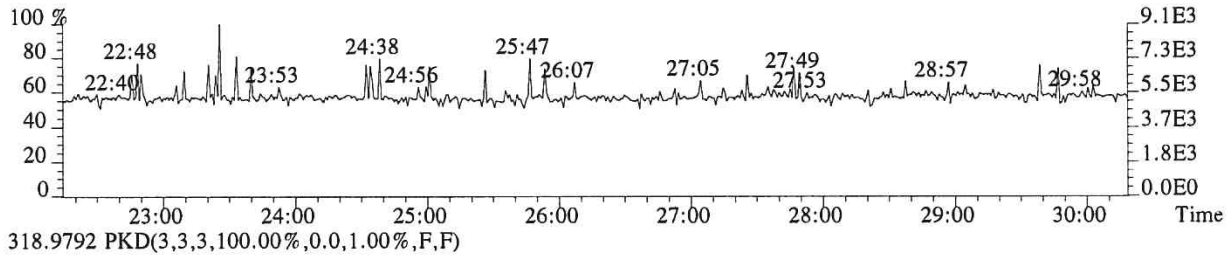
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



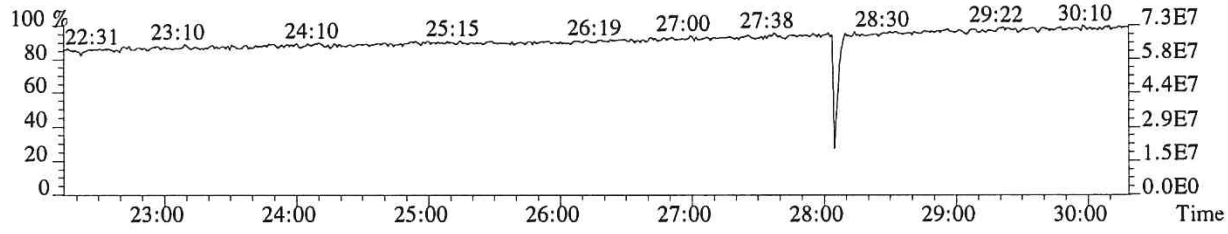
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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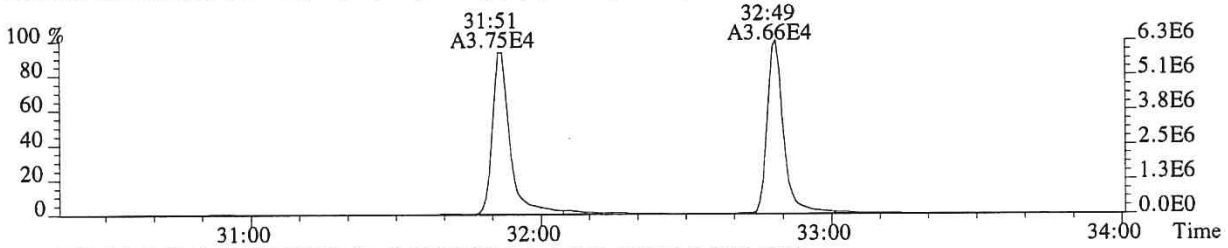
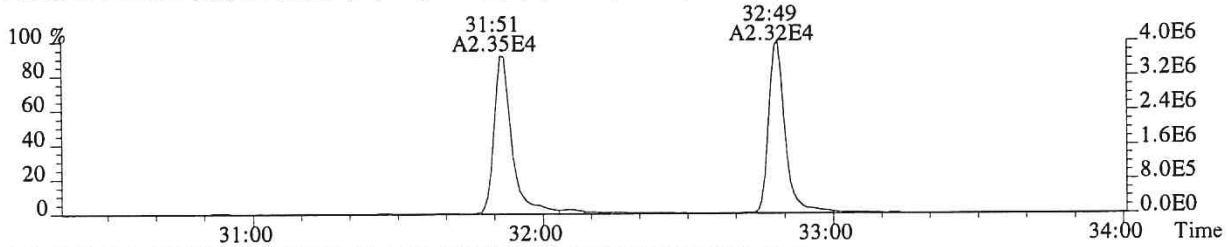
File:P616040 #1-331 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3

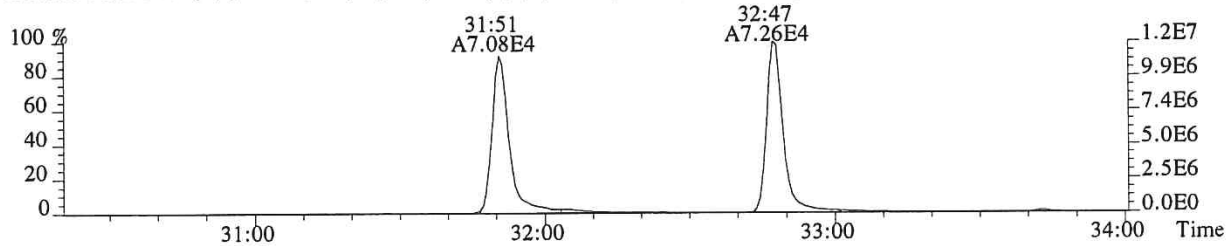
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



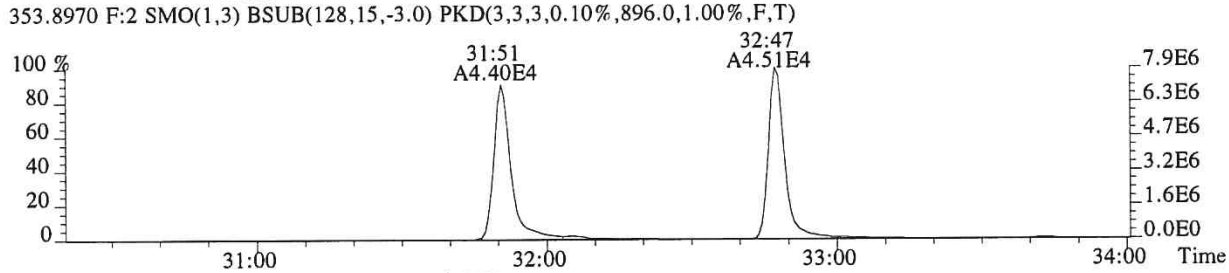
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1932.0,1.00%,F,T)



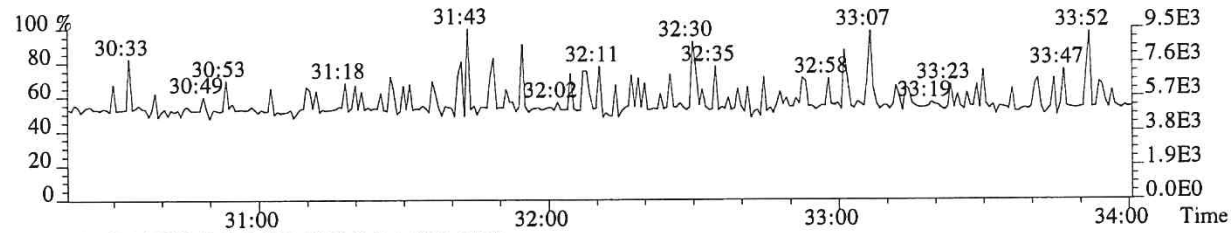
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



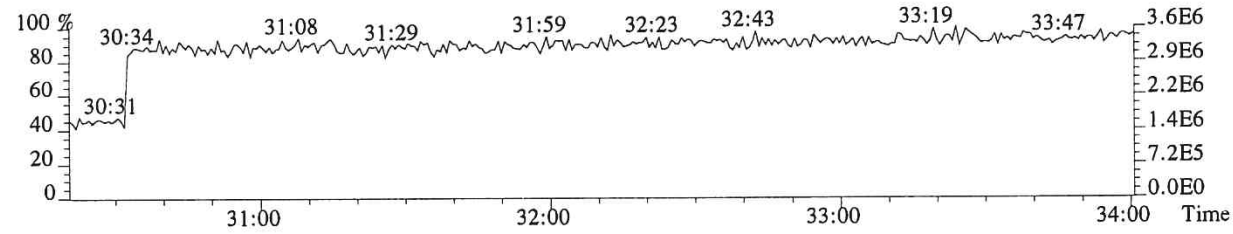
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



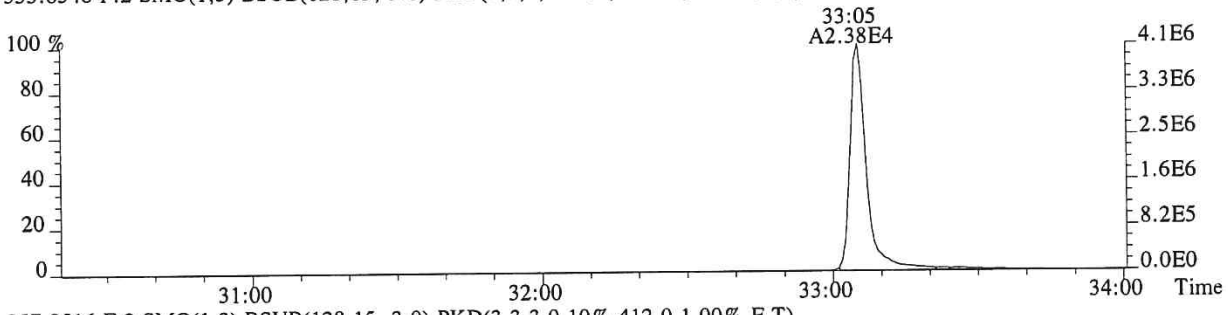
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



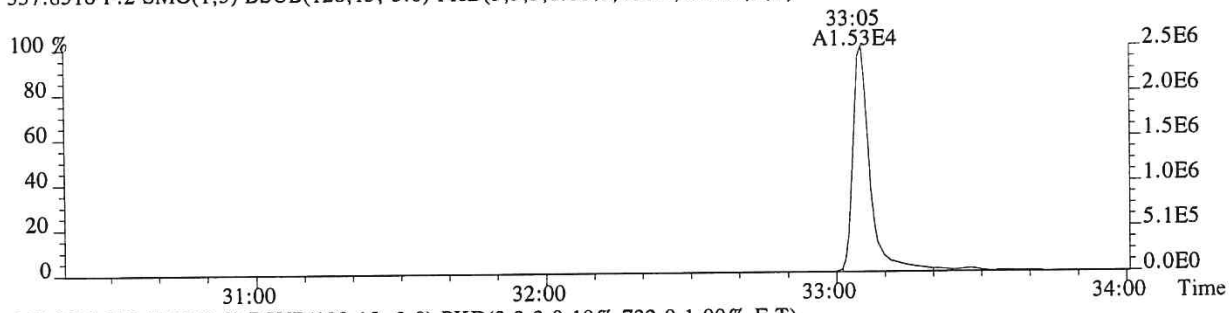
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



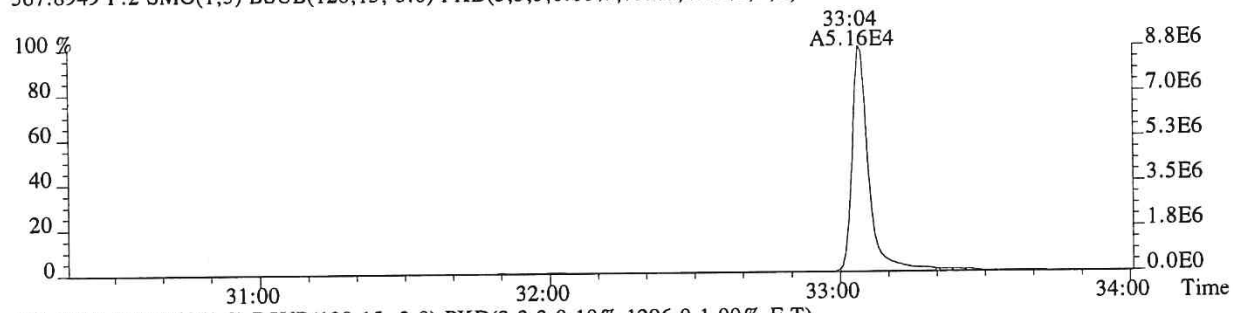
File:P616040 #1-331 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



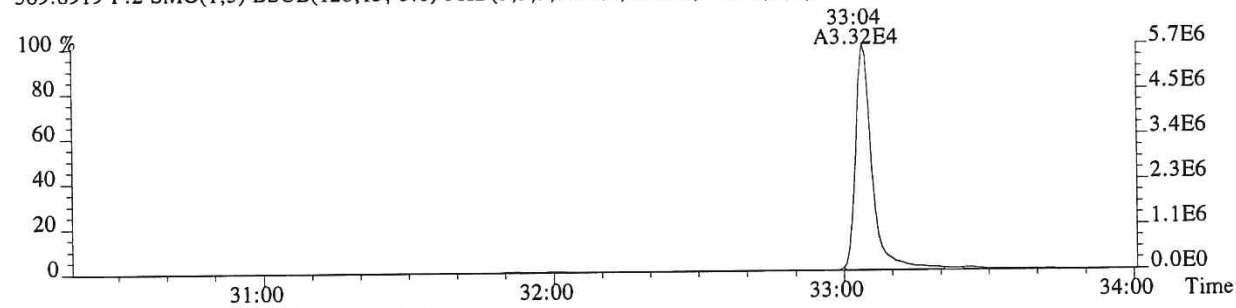
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



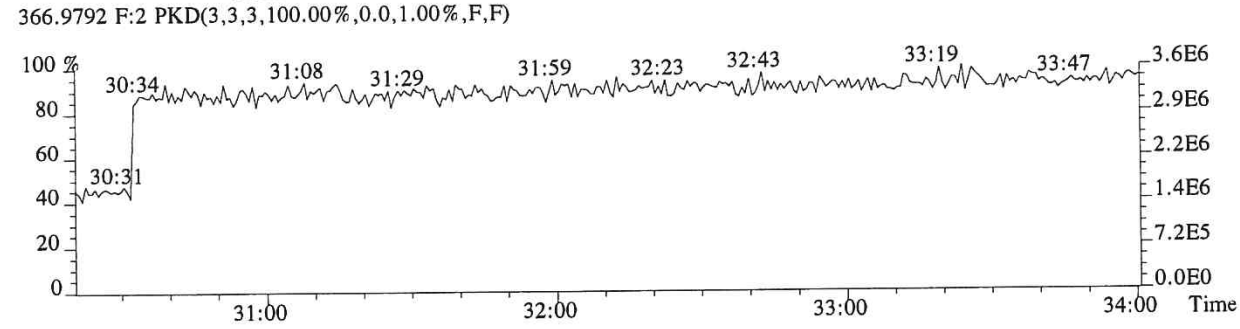
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)

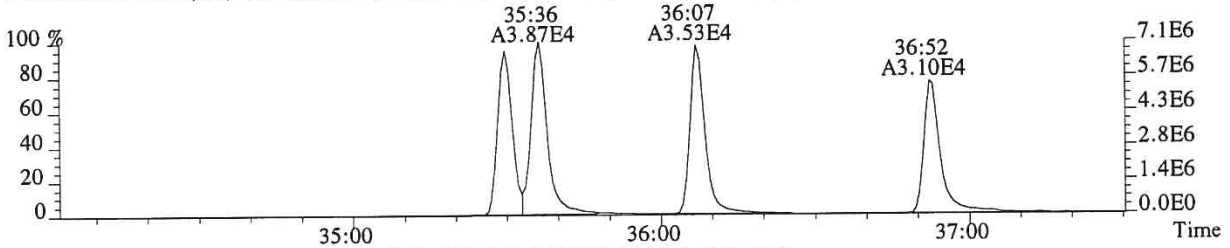


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

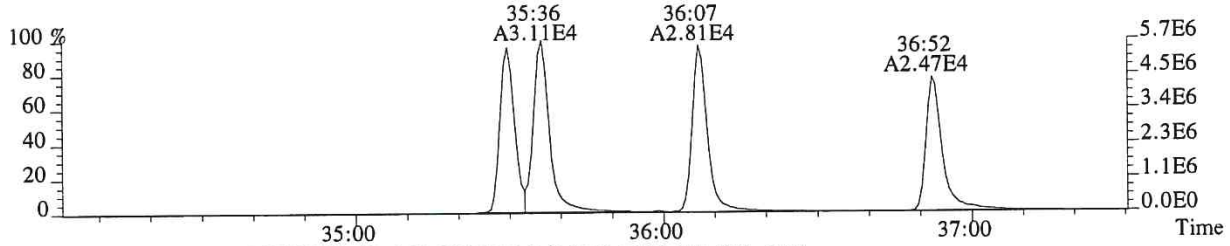


File:P616040 #1-312 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

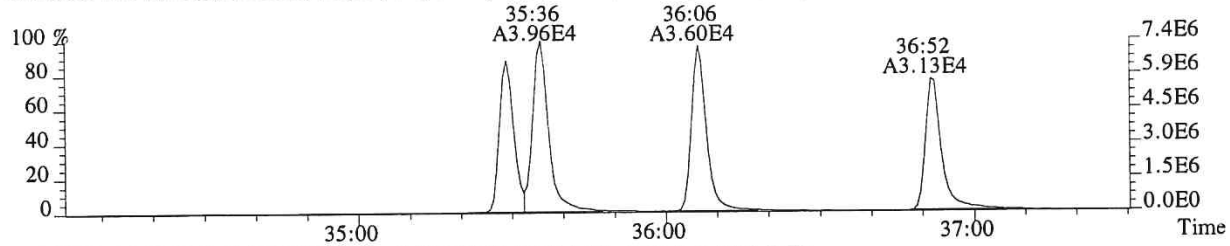
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



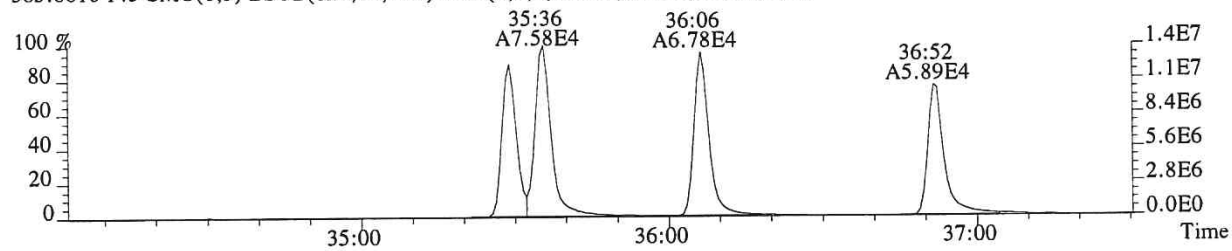
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



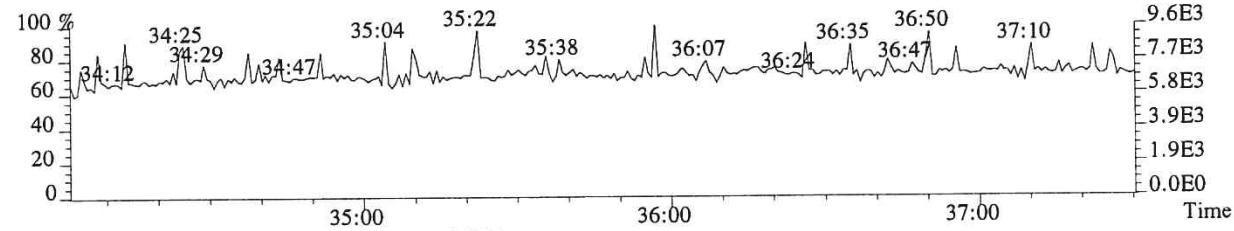
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



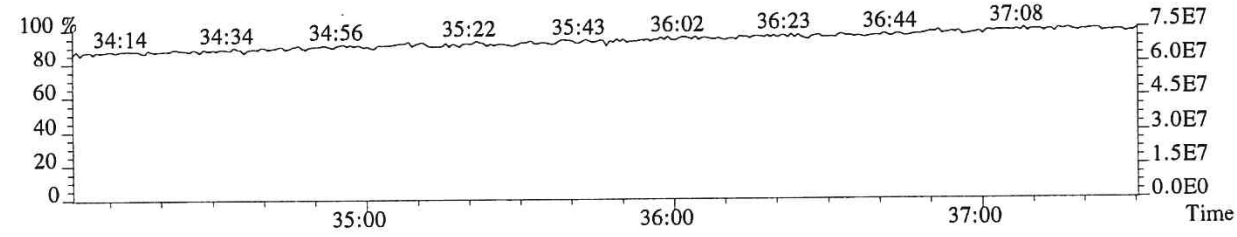
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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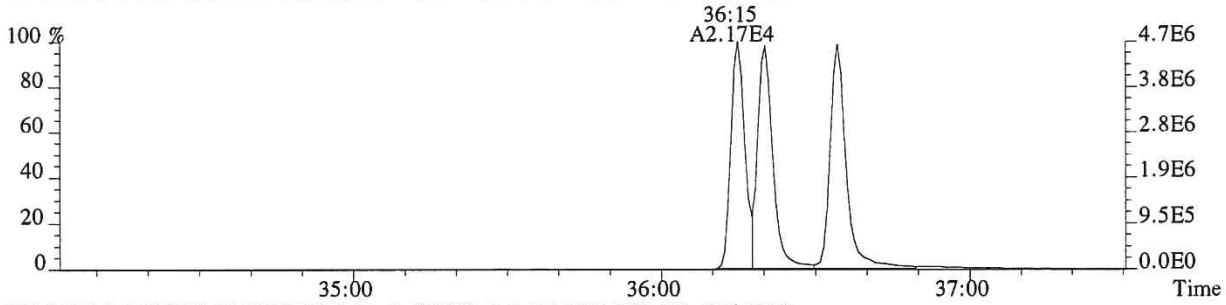
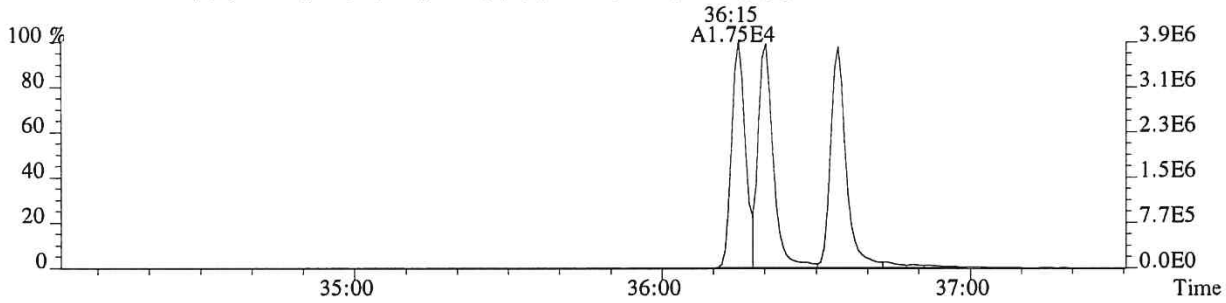
File:P616040 #1-312 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

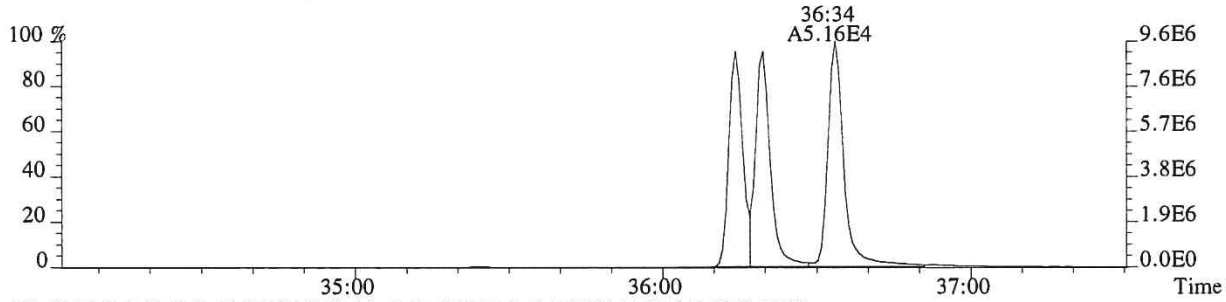
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



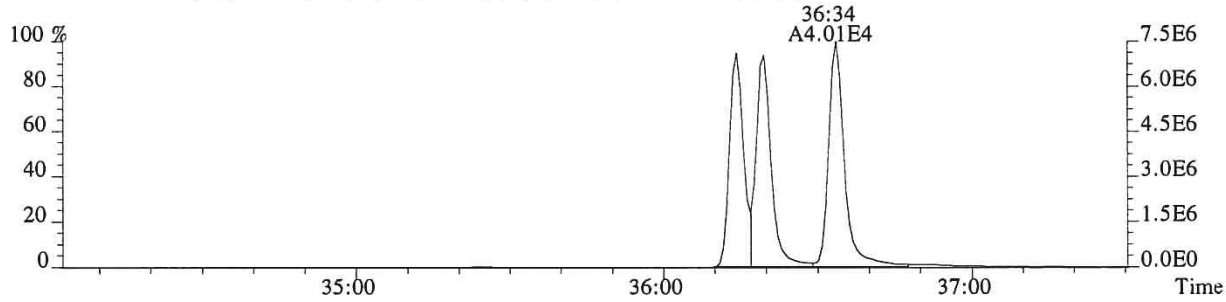
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



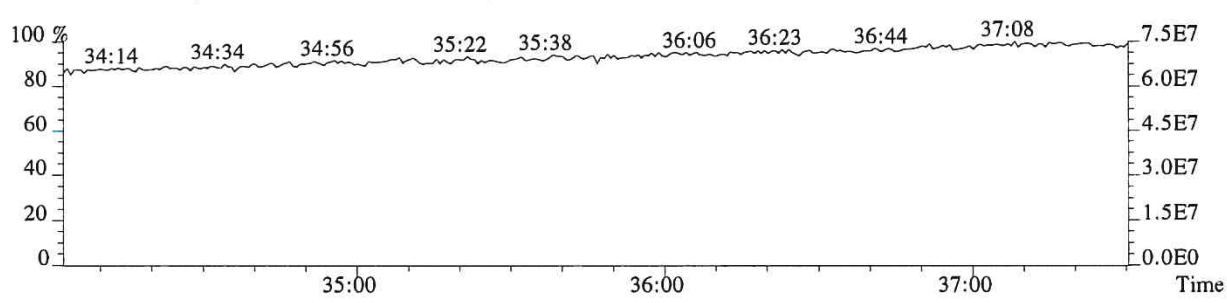
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)

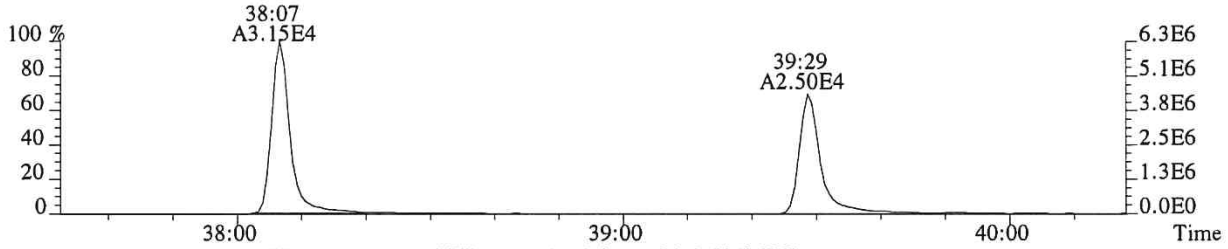


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

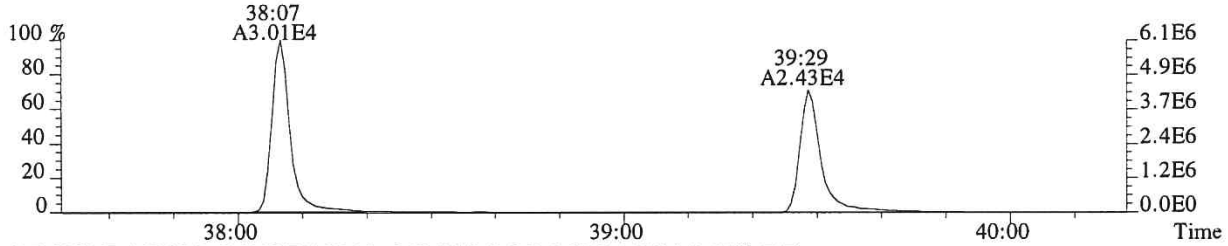


File:P616040 #1-249 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

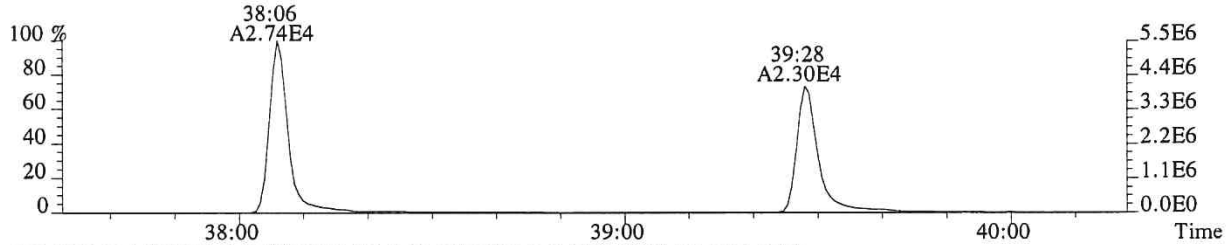
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7512.0,0.50%,F,T)



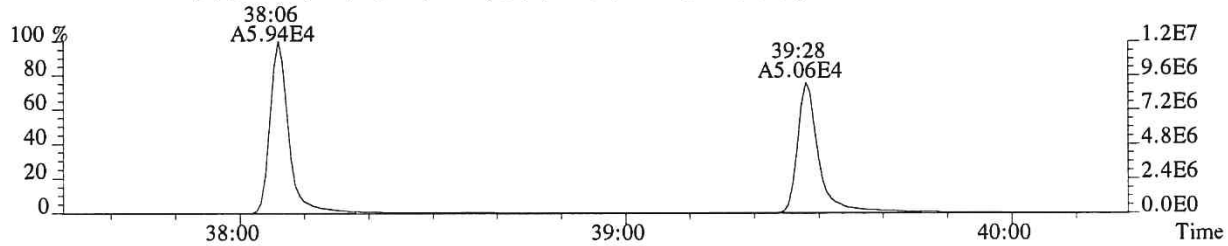
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.50%,F,T)



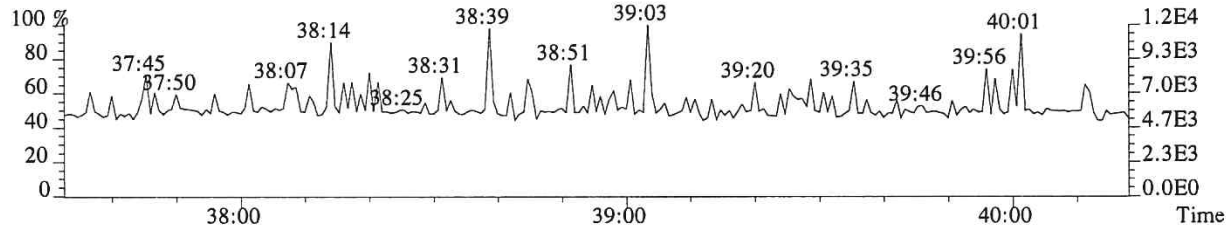
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1520.0,0.50%,F,T)



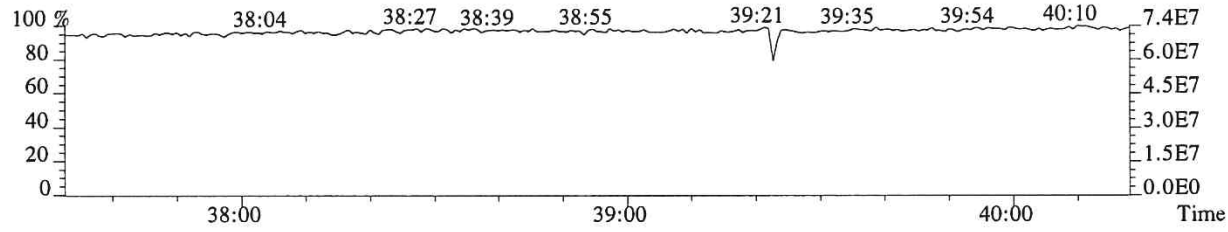
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4904.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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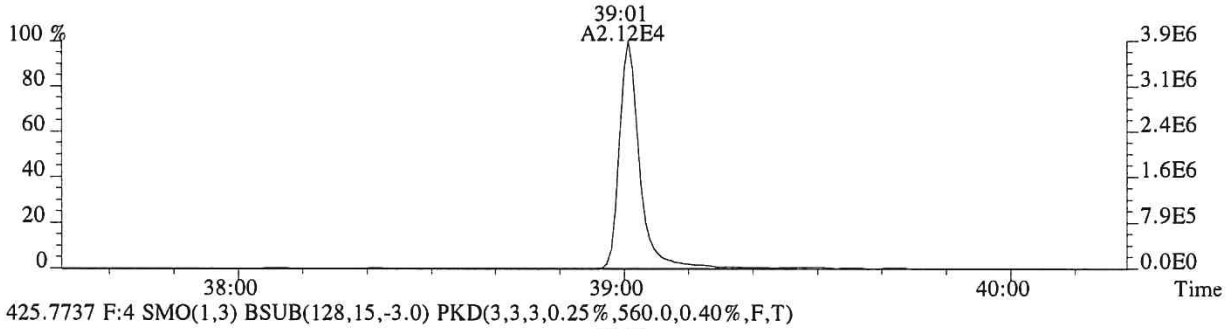
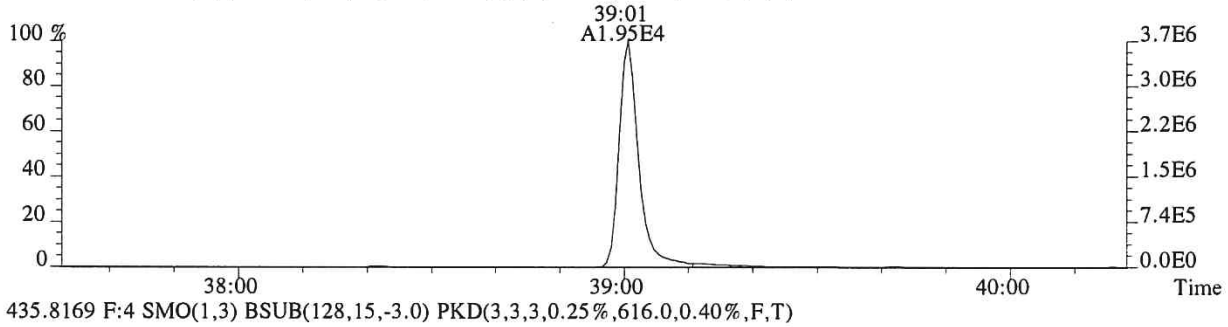
File:P616040 #1-249 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

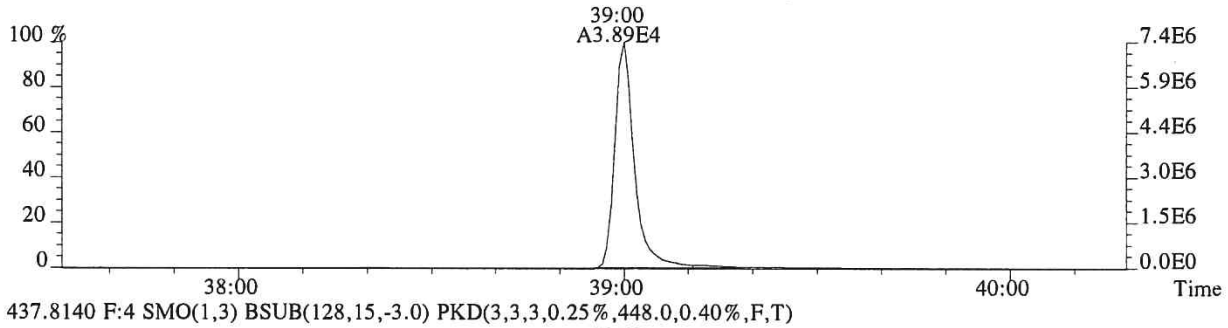
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



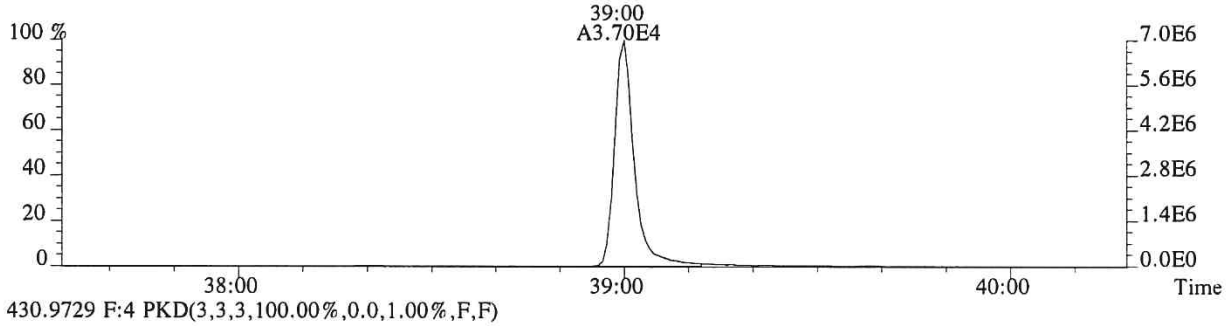
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



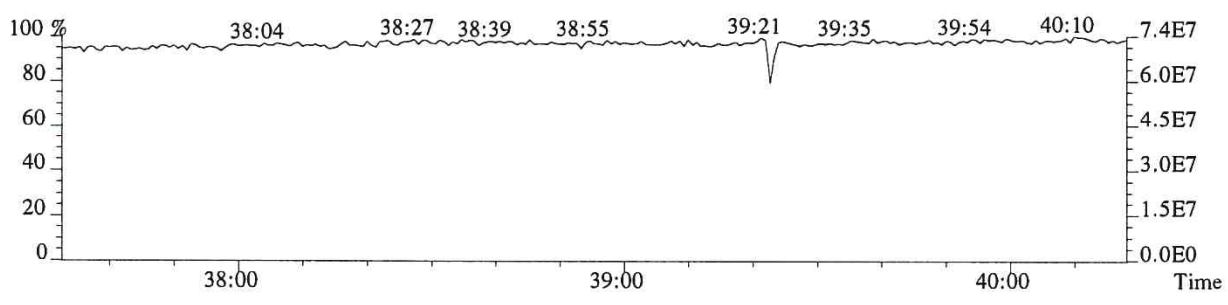
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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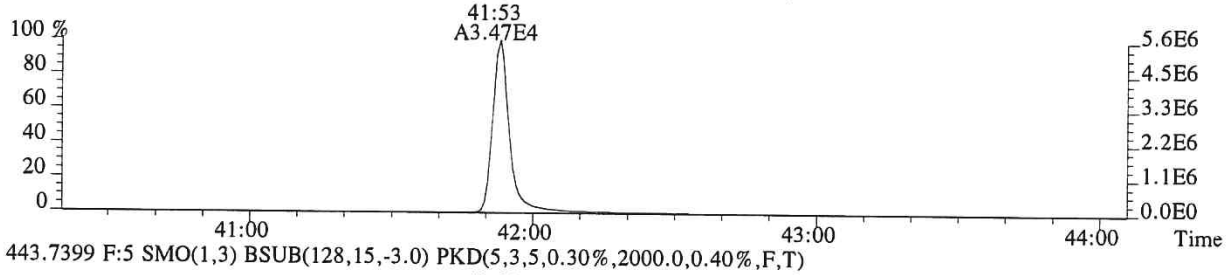
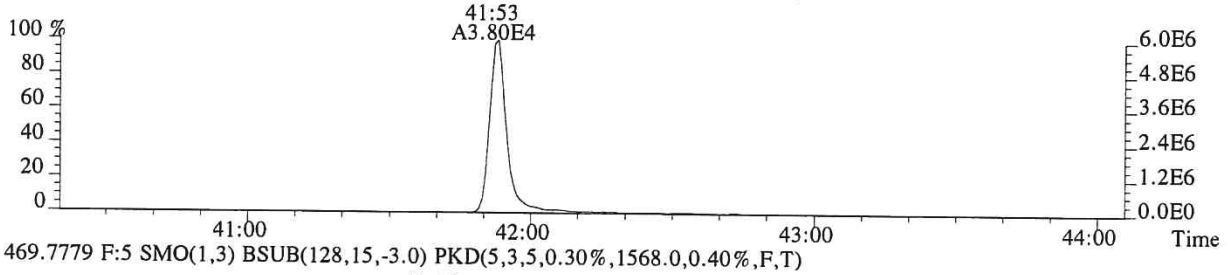
File:P616040 #1-339 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

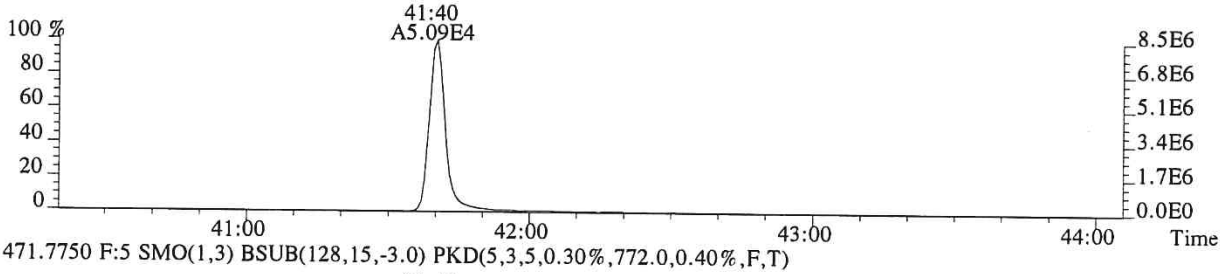
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



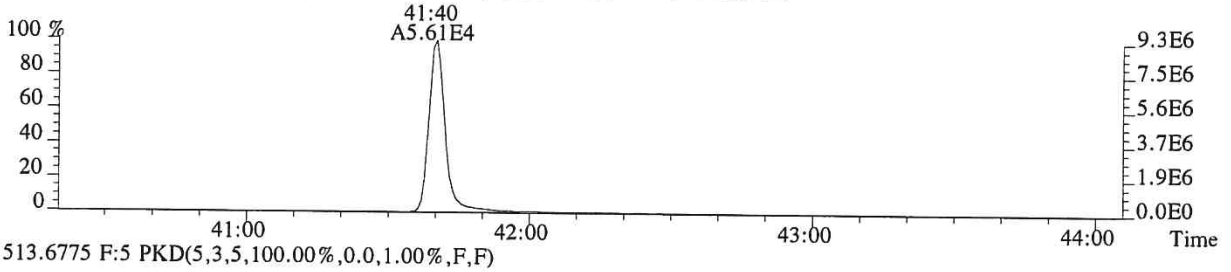
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2000.0,0.40%,F,T)



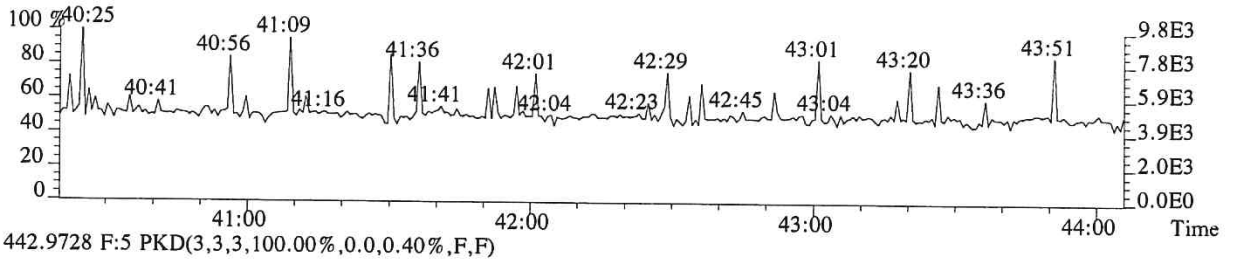
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1568.0,0.40%,F,T)



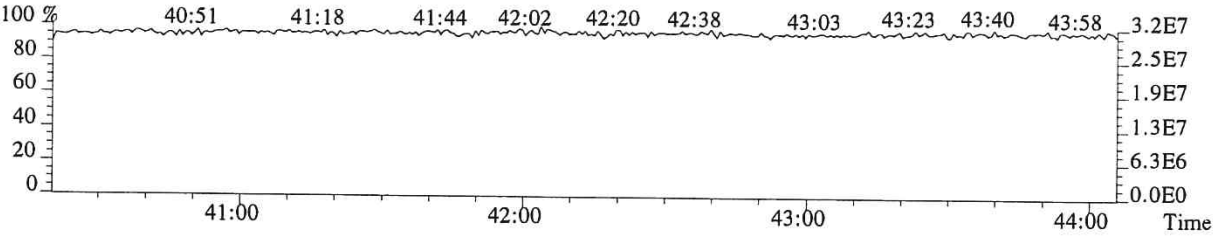
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



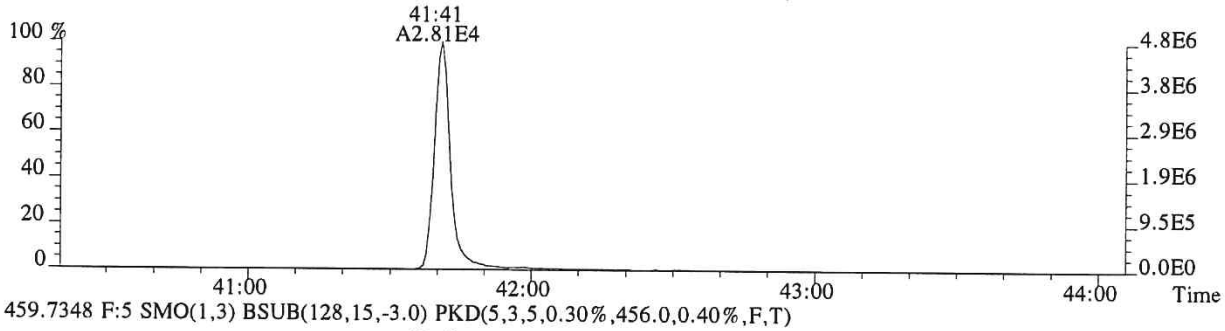
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



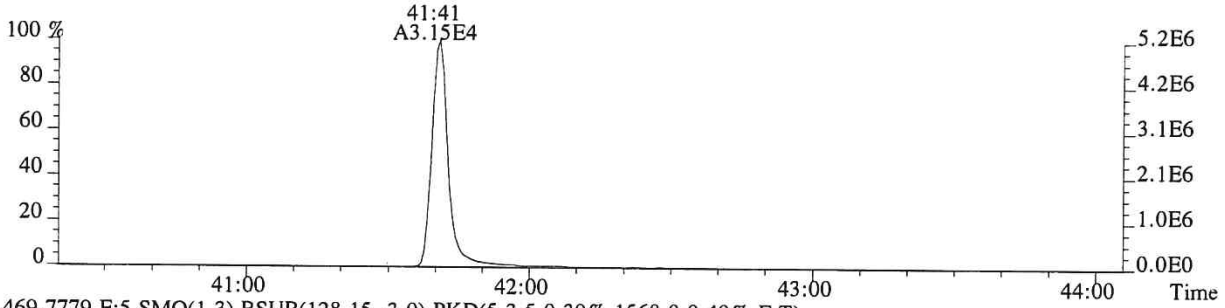
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



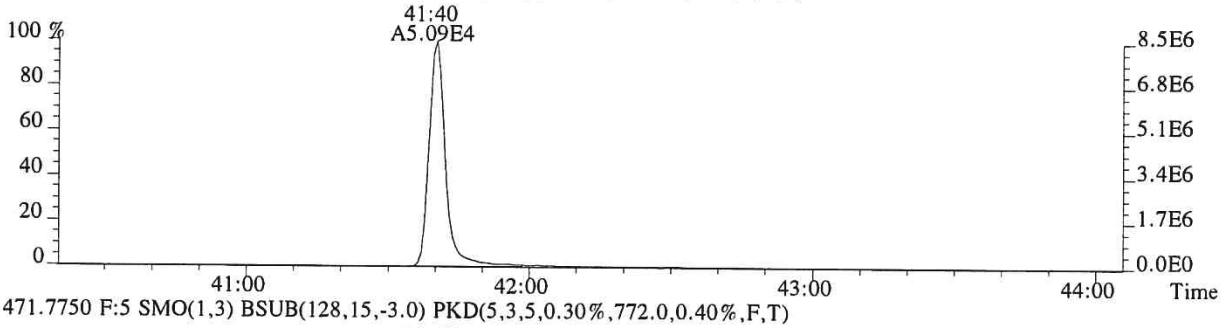
File:P616040 #1-339 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



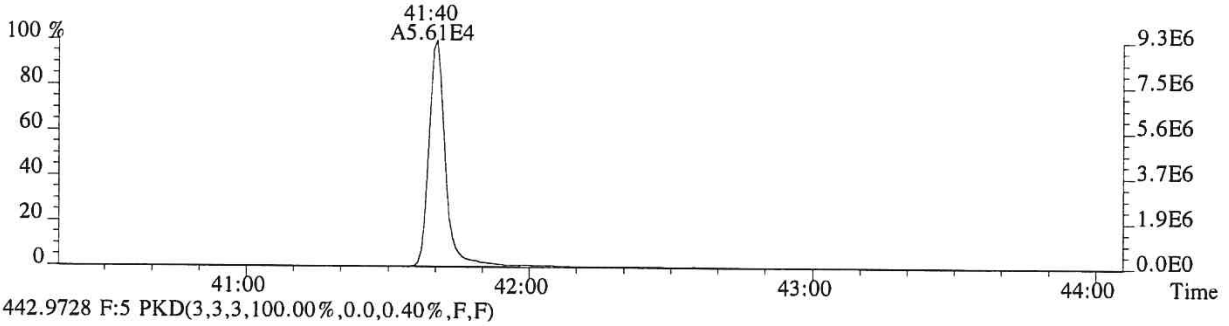
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



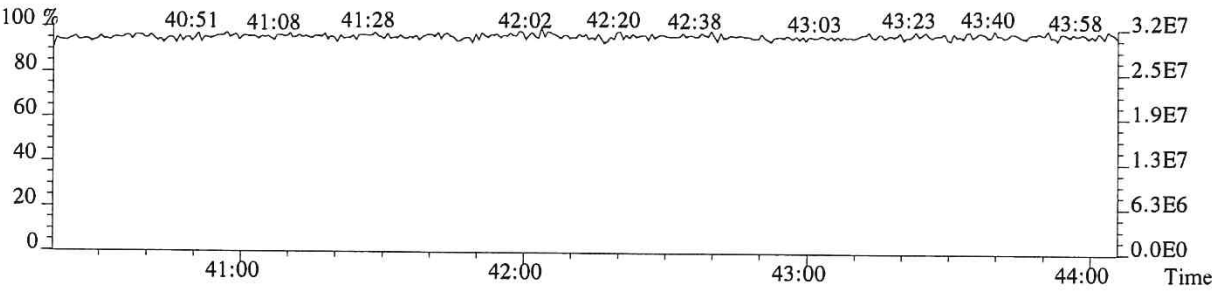
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1568.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012861

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Leung
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:39	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	YY	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		H2Ocheck 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ YB 1/25/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		H2Ocheck 1/25/18 06:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

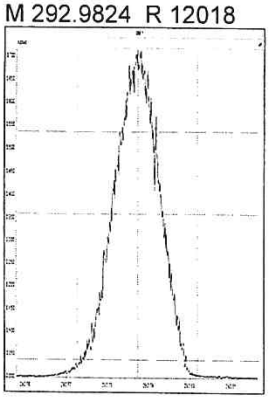
gc 01/25/18

* gc 01/25/18

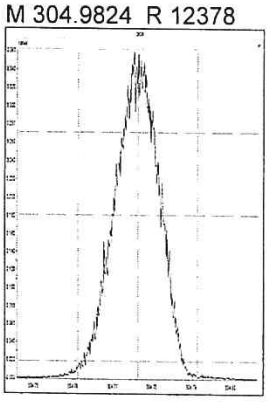
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

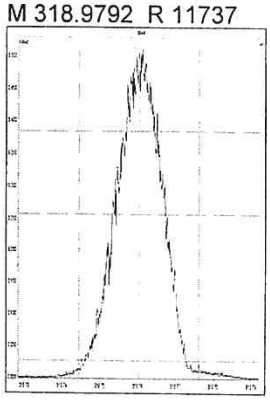
M 292.9824 R 12018



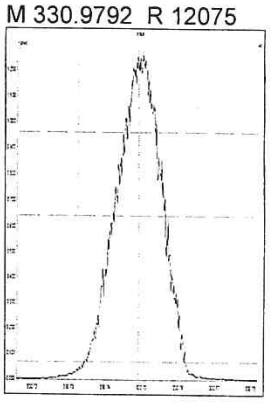
M 304.9824 R 12378



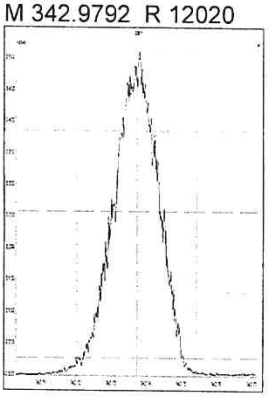
M 318.9792 R 11737



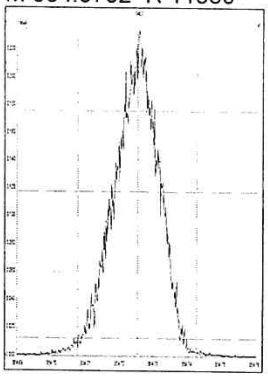
M 330.9792 R 12075



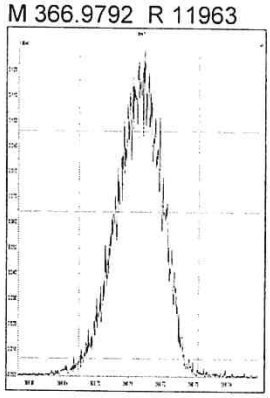
M 342.9792 R 12020



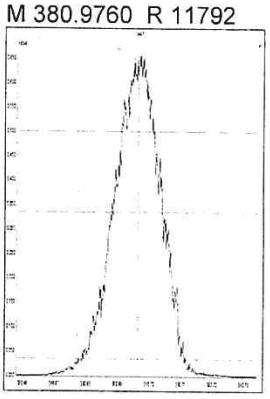
M 354.9792 R 11680



M 366.9792 R 11963



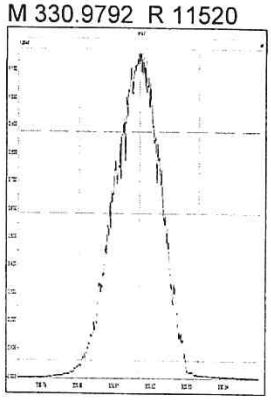
M 380.9760 R 11792



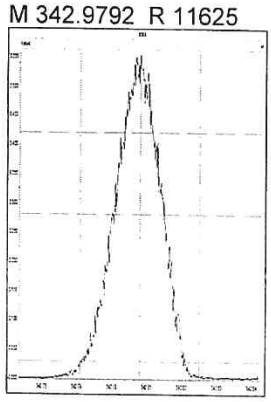
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

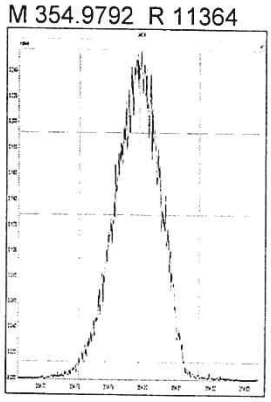
M 330.9792 R 11520



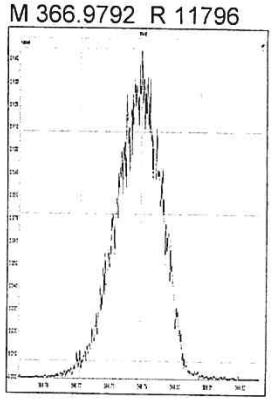
M 342.9792 R 11625



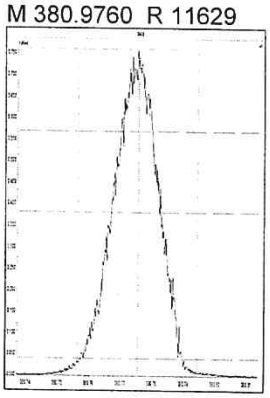
M 354.9792 R 11364



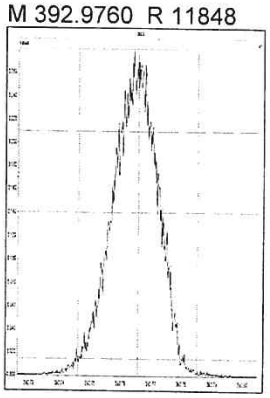
M 366.9792 R 11796



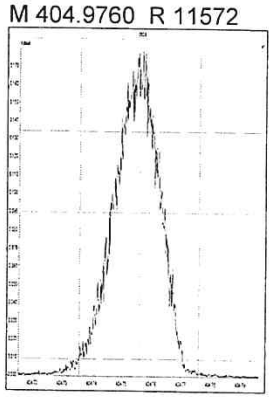
M 380.9760 R 11629



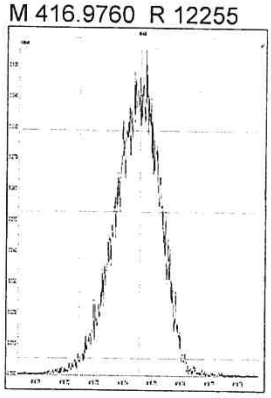
M 392.9760 R 11848



M 404.9760 R 11572



M 416.9760 R 12255

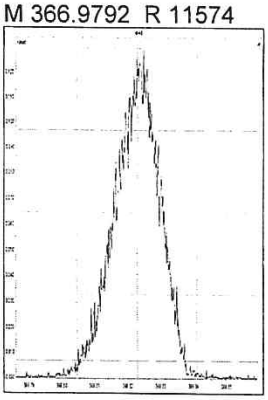


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

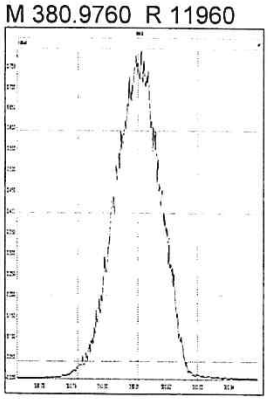
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

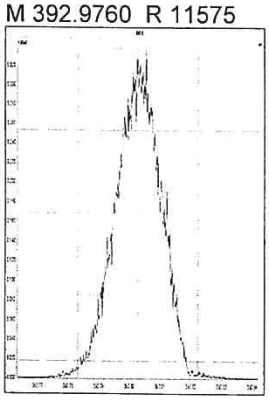
M 366.9792 R 11574



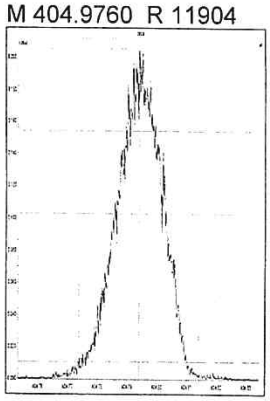
M 380.9760 R 11960



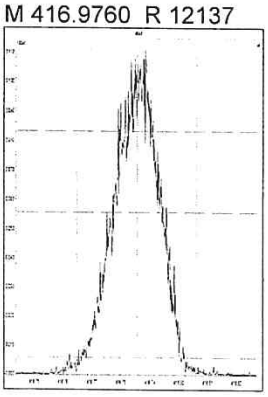
M 392.9760 R 11575



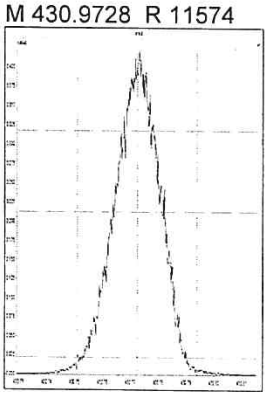
M 404.9760 R 11904



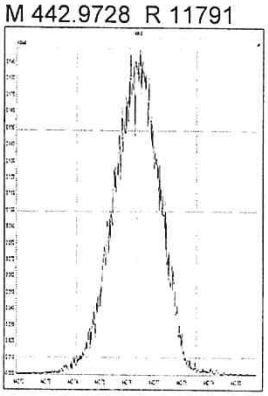
M 416.9760 R 12137



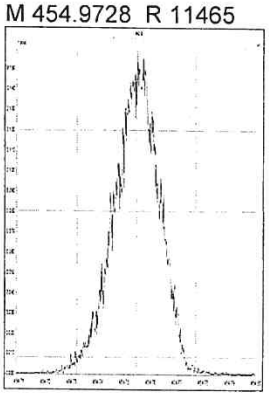
M 430.9728 R 11574



M 442.9728 R 11791



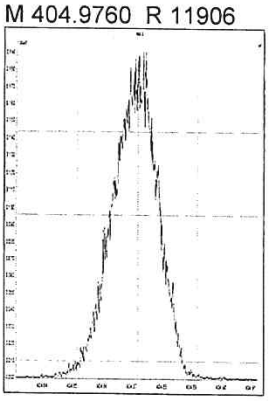
M 454.9728 R 11465



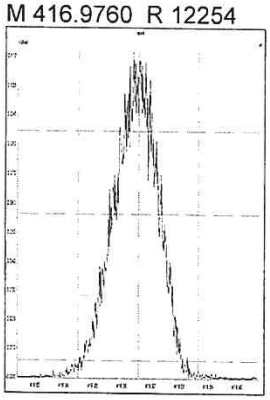
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

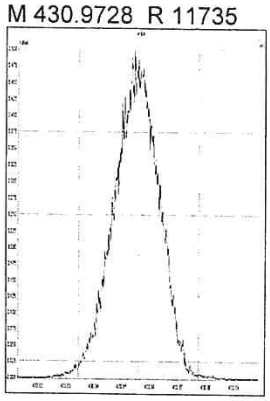
M 404.9760 R 11906



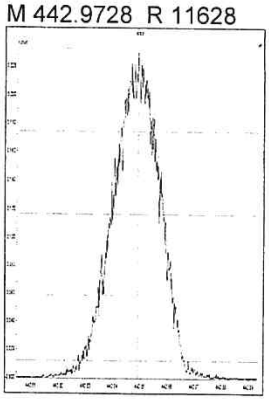
M 416.9760 R 12254



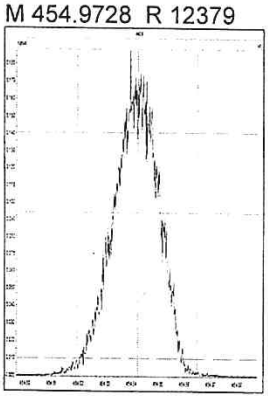
M 430.9728 R 11735



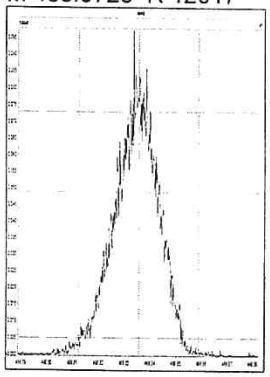
M 442.9728 R 11628



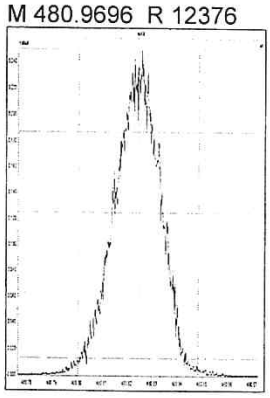
M 454.9728 R 12379



M 466.9728 R 12017



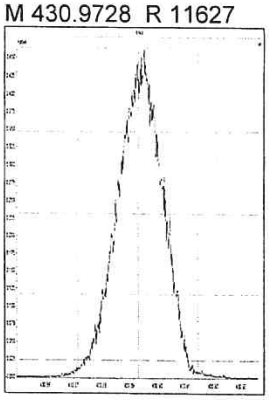
M 480.9696 R 12376



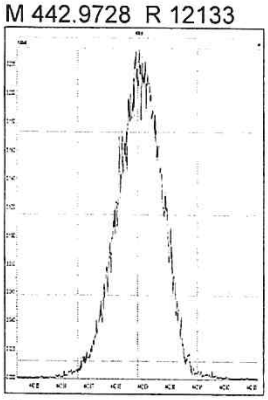
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

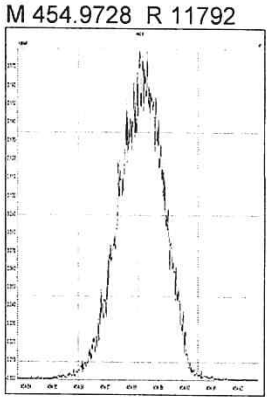
M 430.9728 R 11627



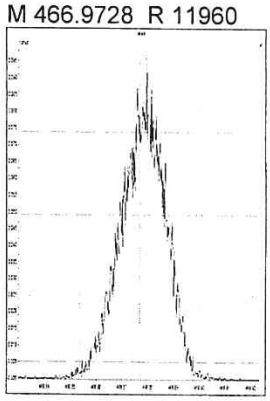
M 442.9728 R 12133



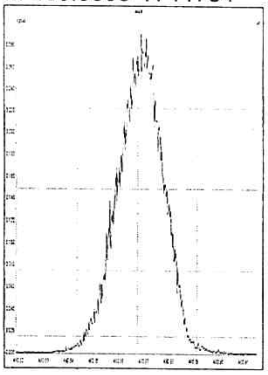
M 454.9728 R 11792



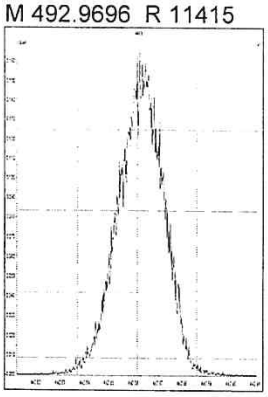
M 466.9728 R 11960



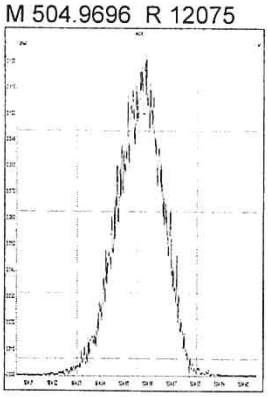
M 480.9696 R 11734



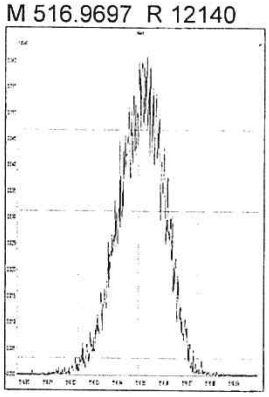
M 492.9696 R 11415



M 504.9696 R 12075



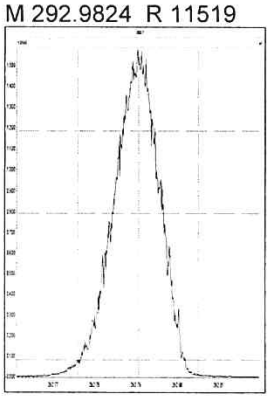
M 516.9697 R 12140



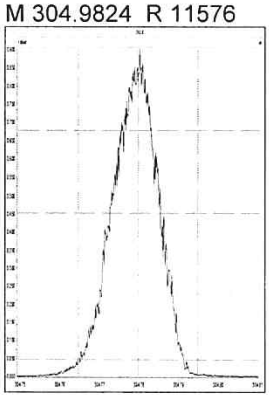
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

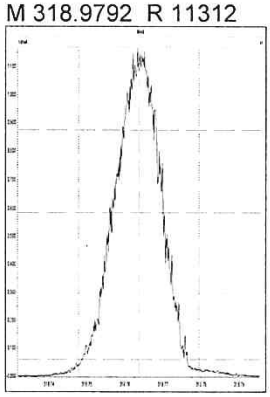
M 292.9824 R 11519



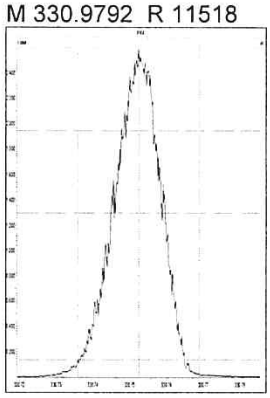
M 304.9824 R 11576



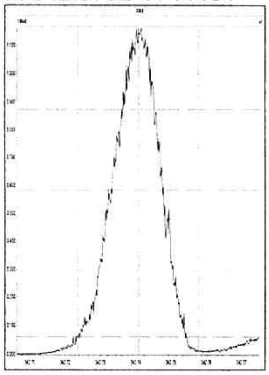
M 318.9792 R 11312



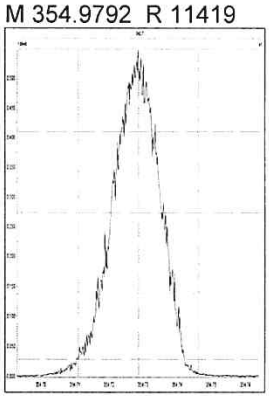
M 330.9792 R 11518



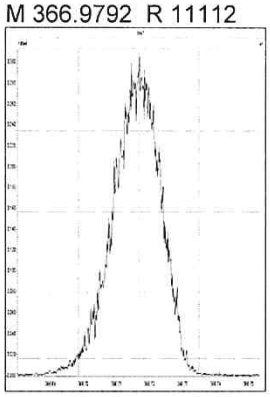
M 342.9792 R 11161



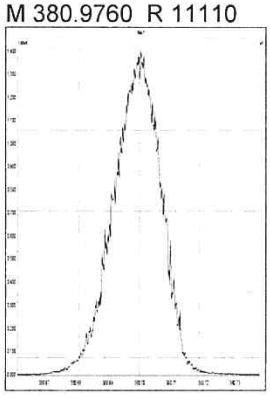
M 354.9792 R 11419



M 366.9792 R 11112



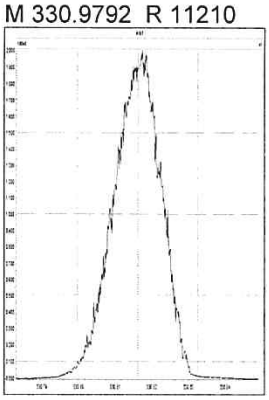
M 380.9760 R 11110



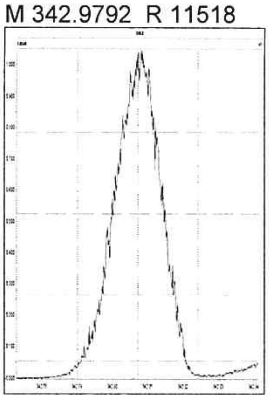
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

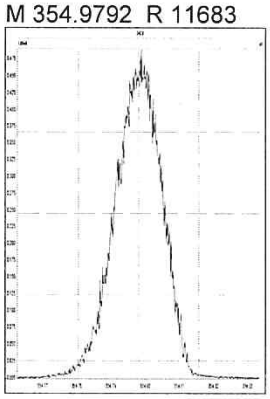
M 330.9792 R 11210



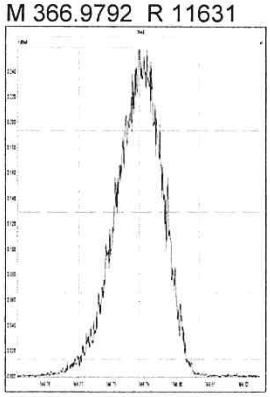
M 342.9792 R 11518



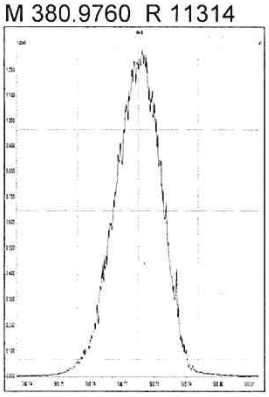
M 354.9792 R 11683



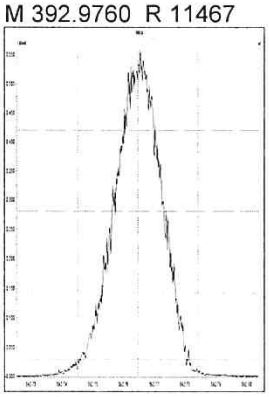
M 366.9792 R 11631



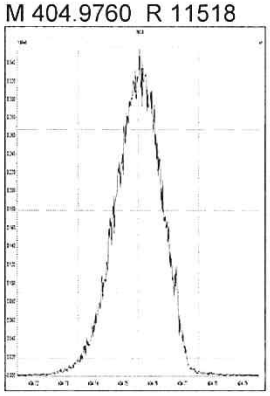
M 380.9760 R 11314



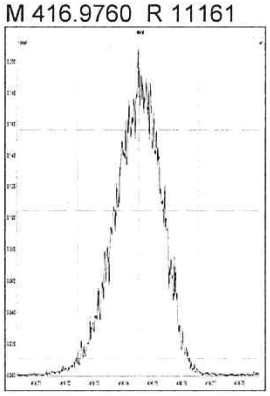
M 392.9760 R 11467



M 404.9760 R 11518



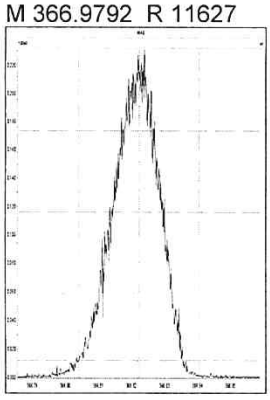
M 416.9760 R 11161



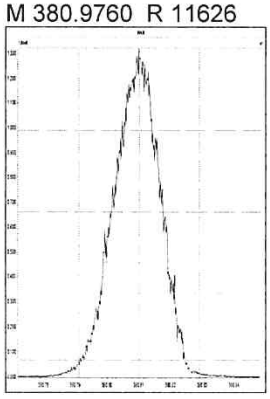
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

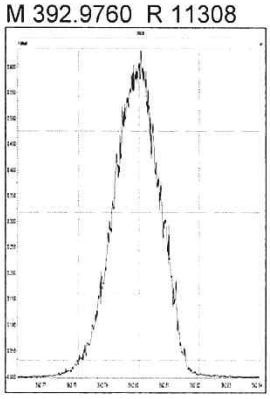
M 366.9792 R 11627



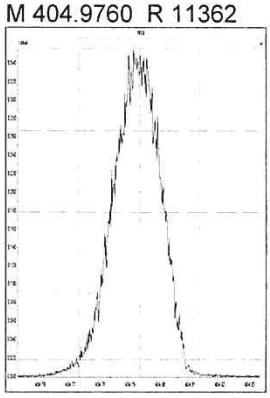
M 380.9760 R 11626



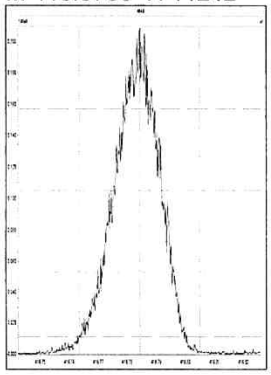
M 392.9760 R 11308



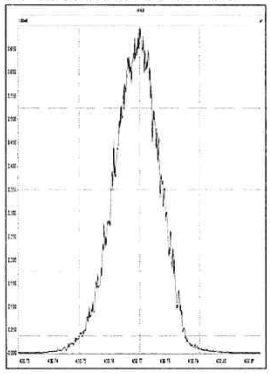
M 404.9760 R 11362



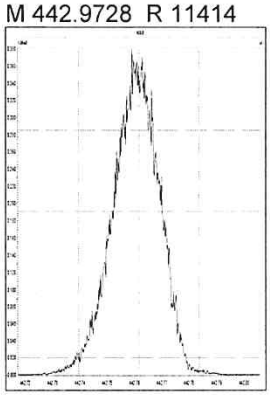
M 416.9760 R 11212



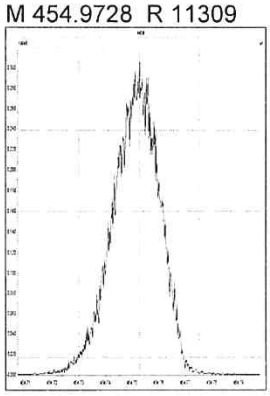
M 430.9728 R 11363



M 442.9728 R 11414



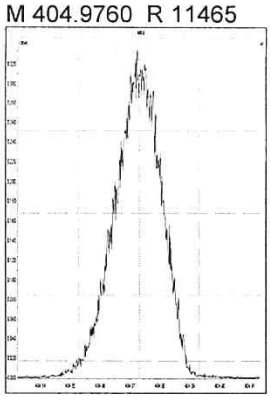
M 454.9728 R 11309



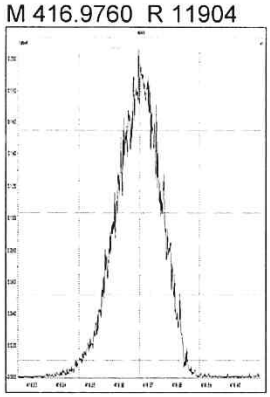
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

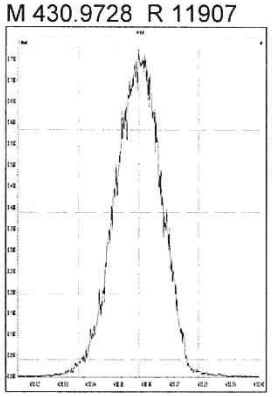
M 404.9760 R 11465



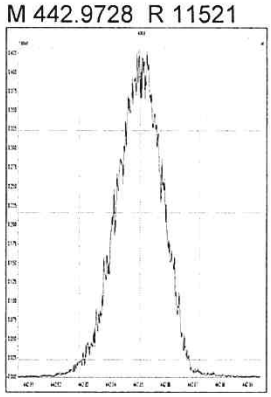
M 416.9760 R 11904



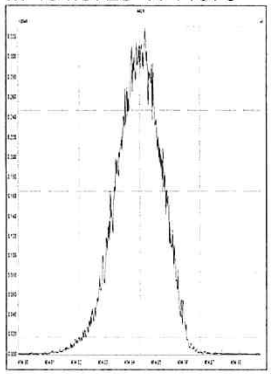
M 430.9728 R 11907



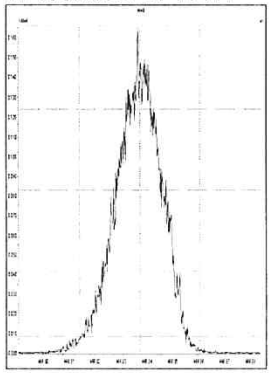
M 442.9728 R 11521



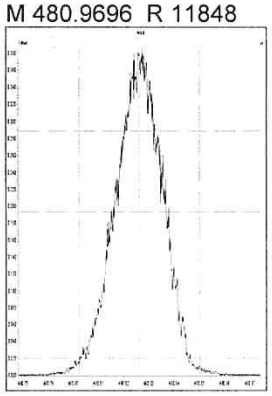
M 454.9728 R 11573



M 466.9728 R 11417



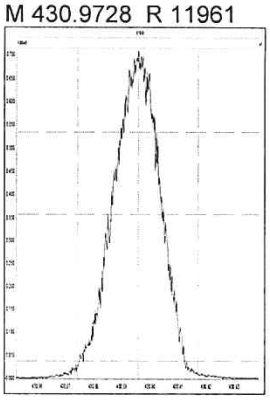
M 480.9696 R 11848



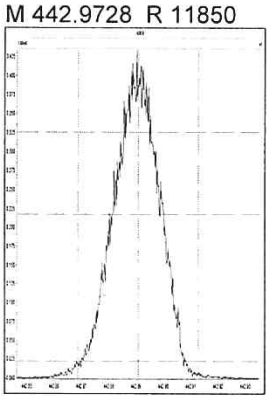
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

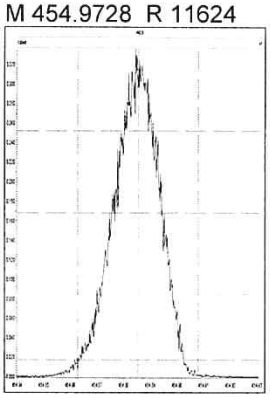
M 430.9728 R 11961



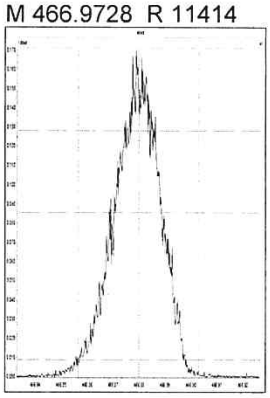
M 442.9728 R 11850



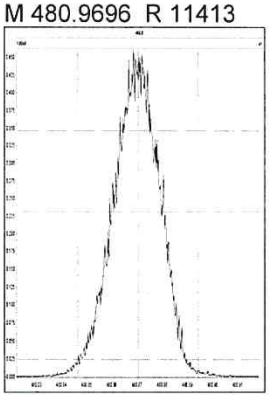
M 454.9728 R 11624



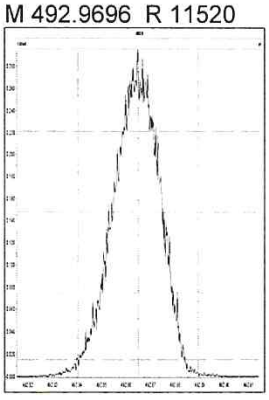
M 466.9728 R 11414



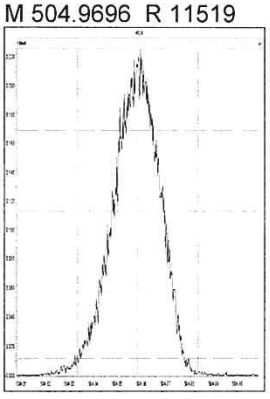
M 480.9696 R 11413



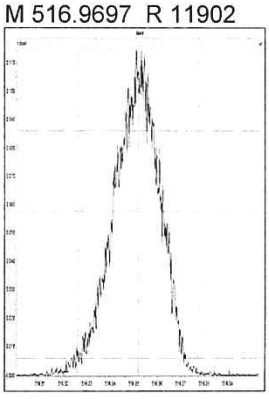
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

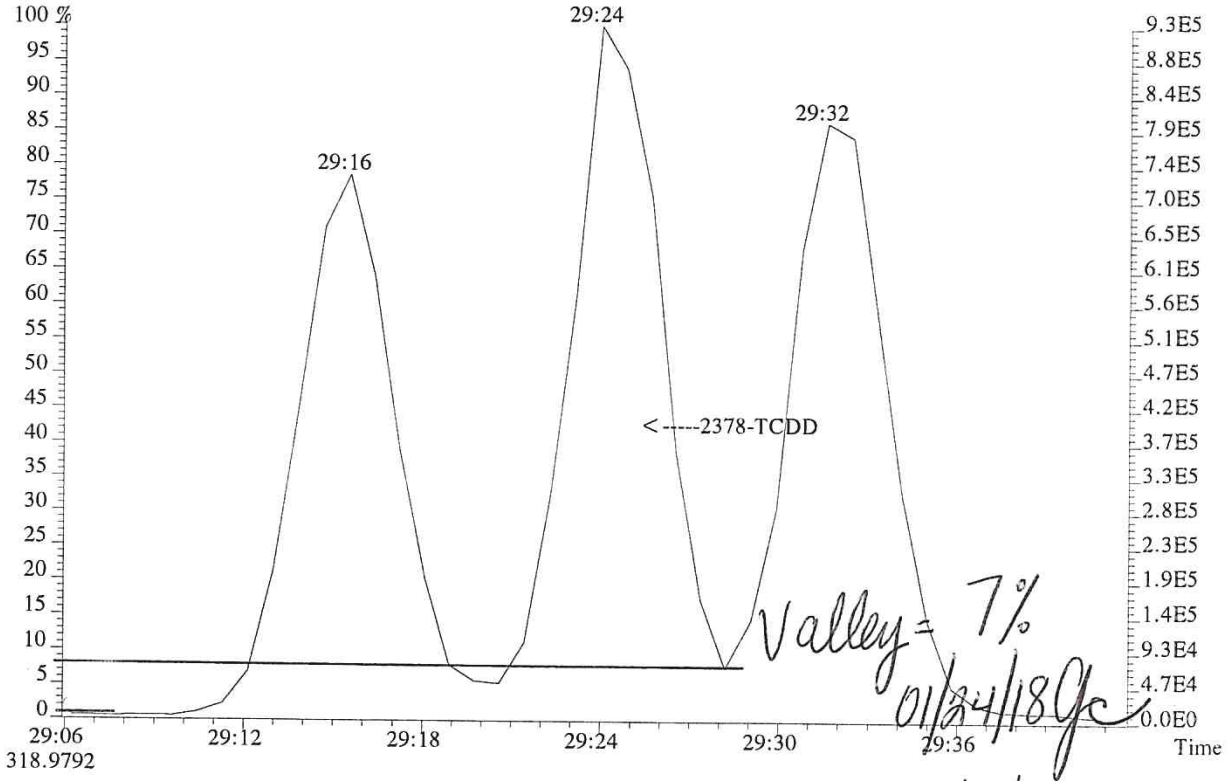
Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

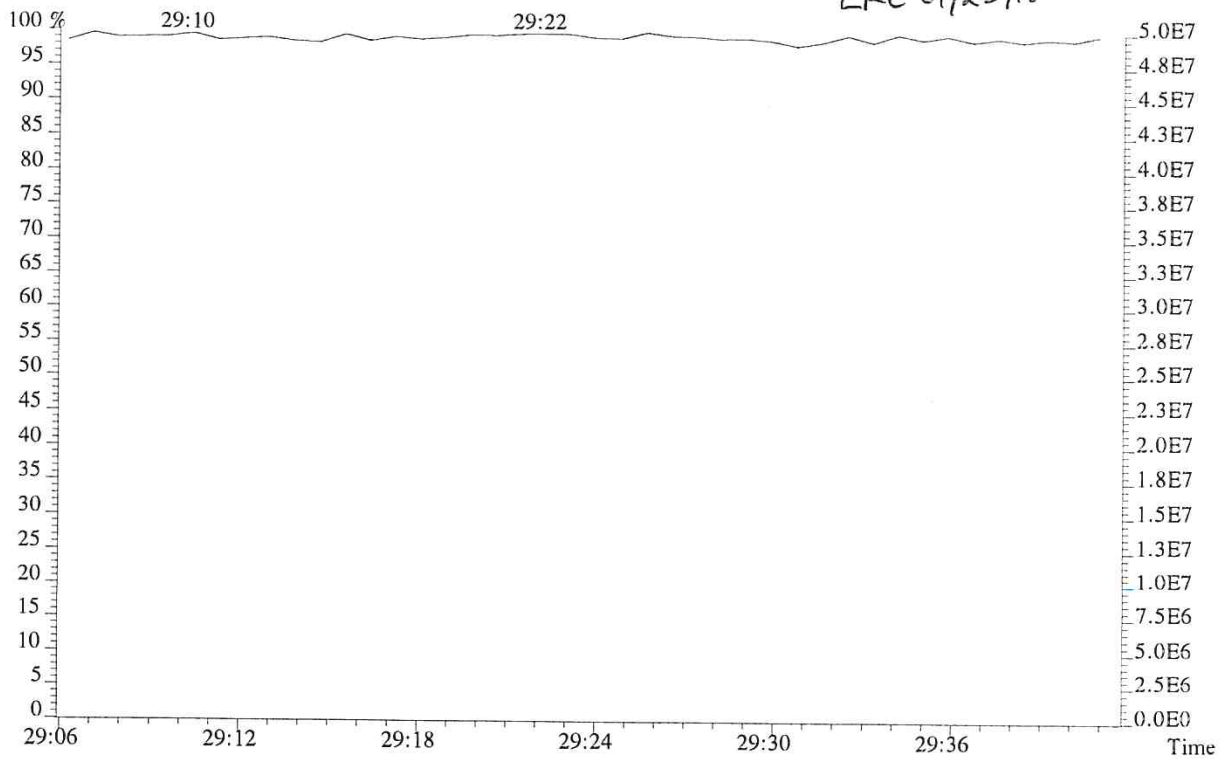
% Valley 2378-TCDD: 7 %

012877

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965

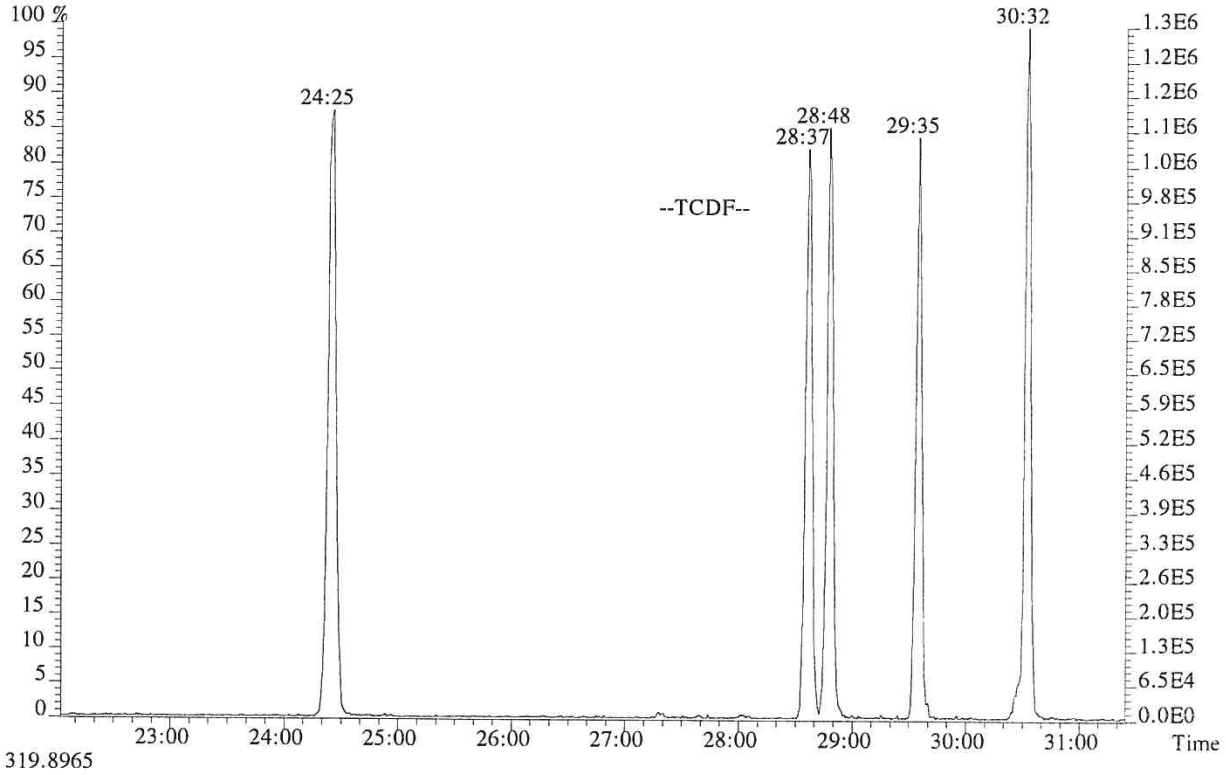


LKL 01/25/18



012878

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
303.9016



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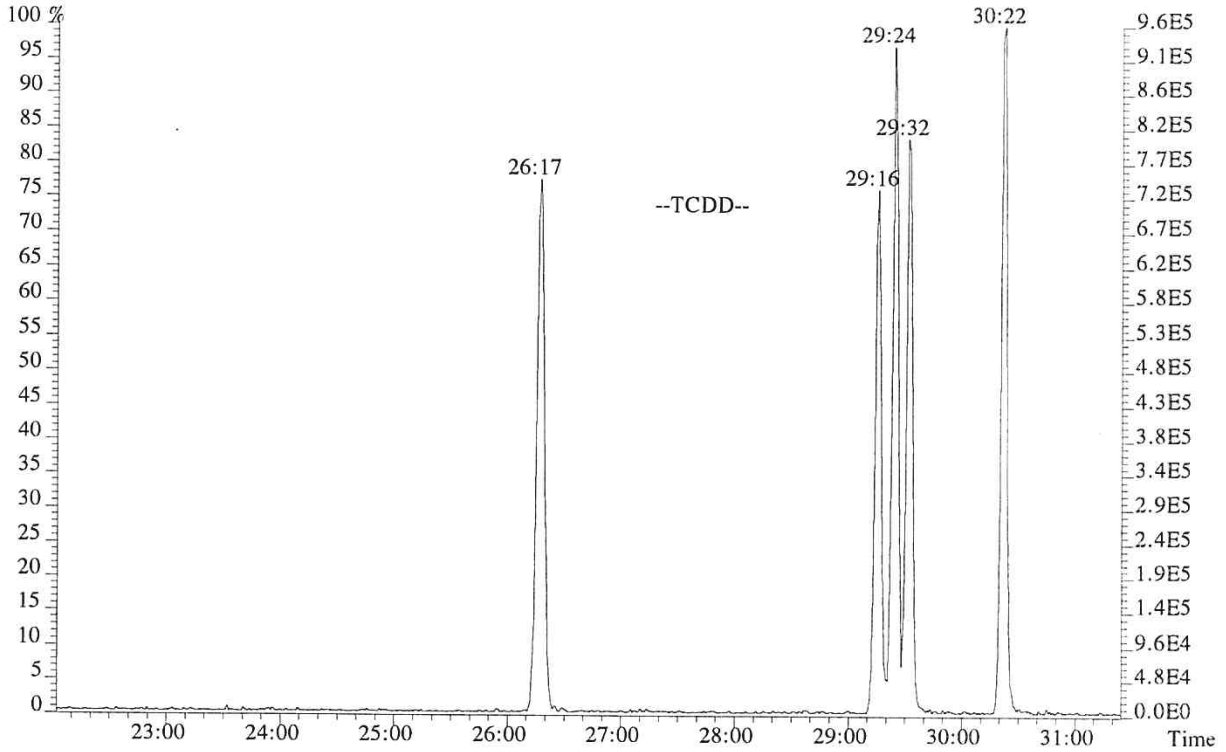
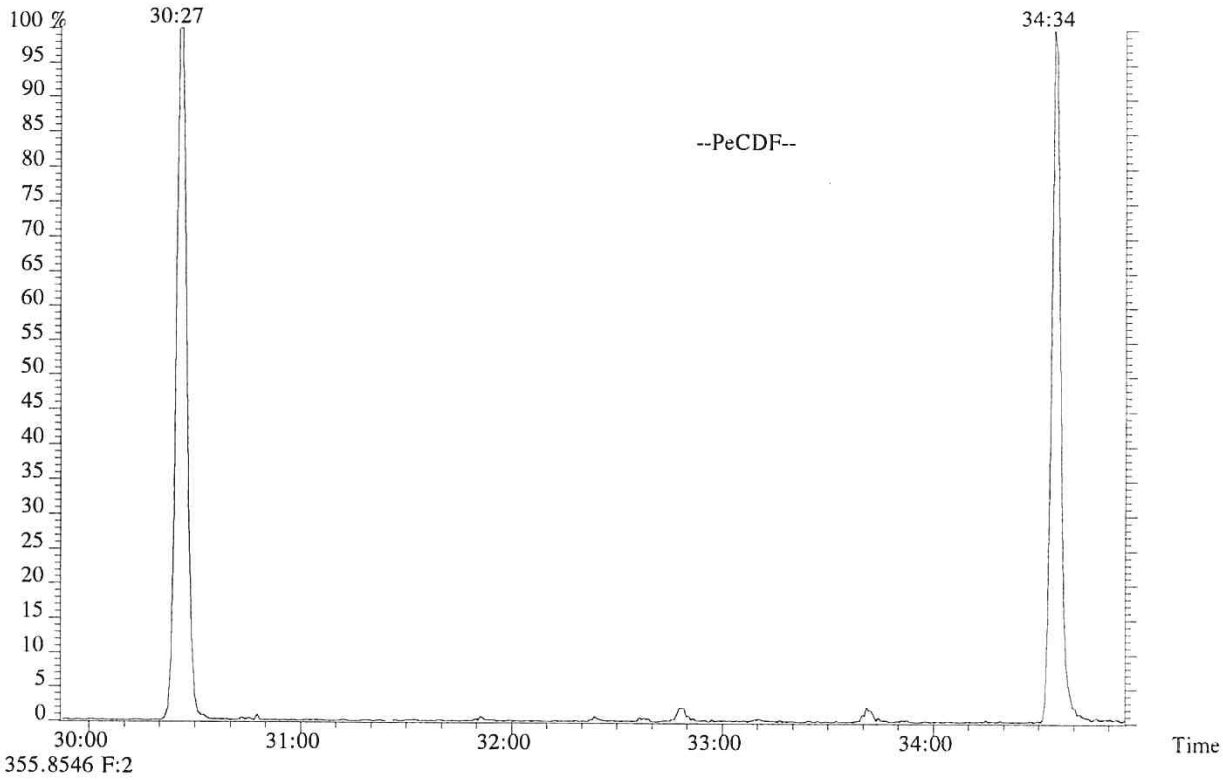
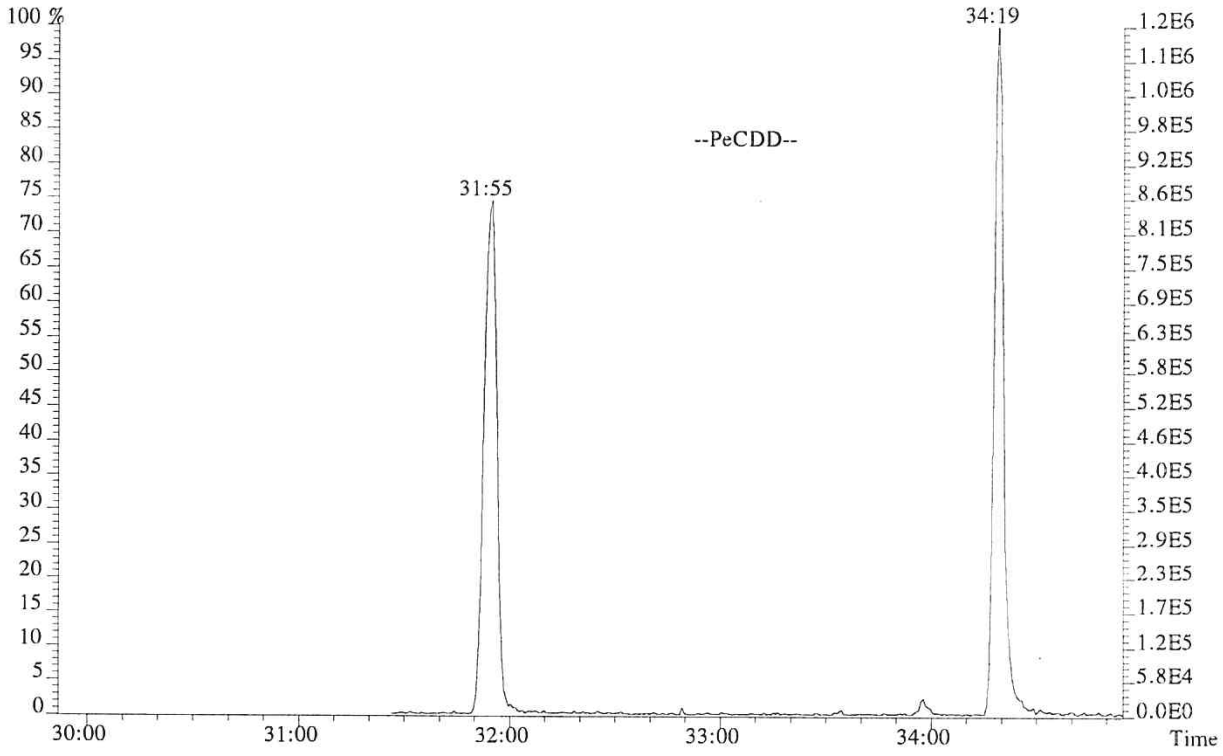


012879

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2

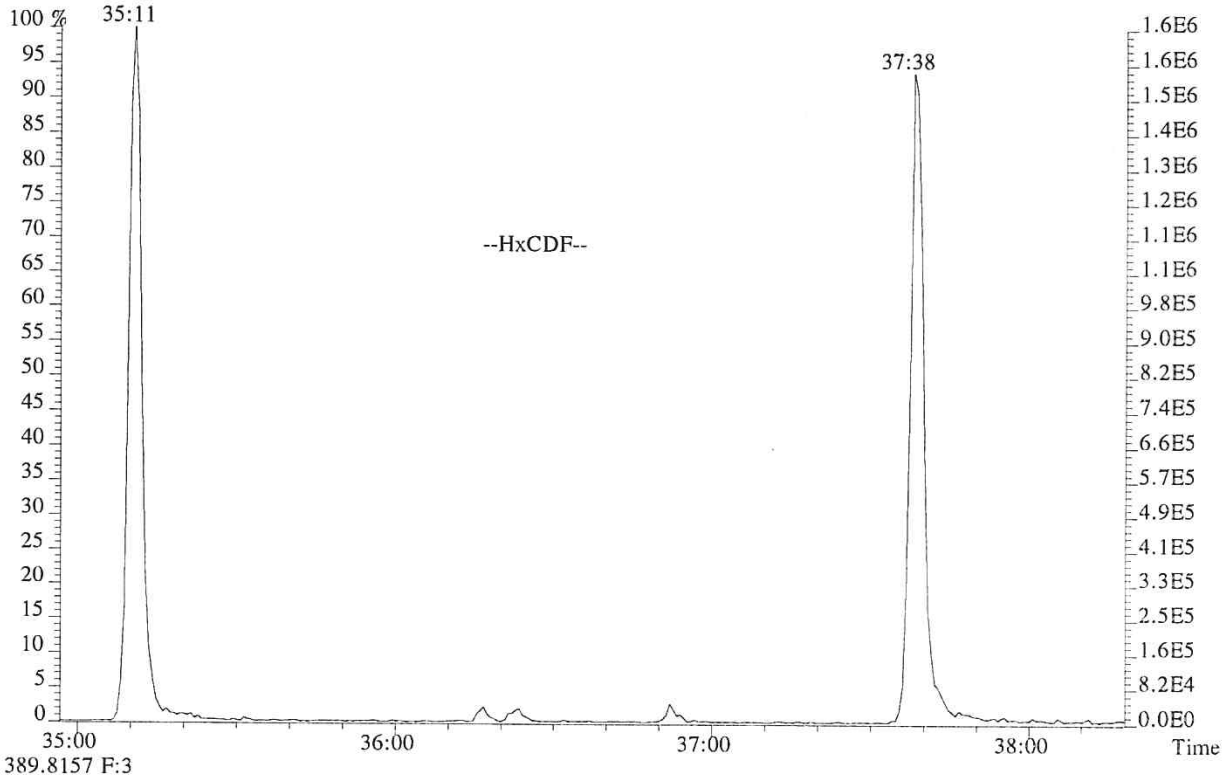


355.8546 F:2

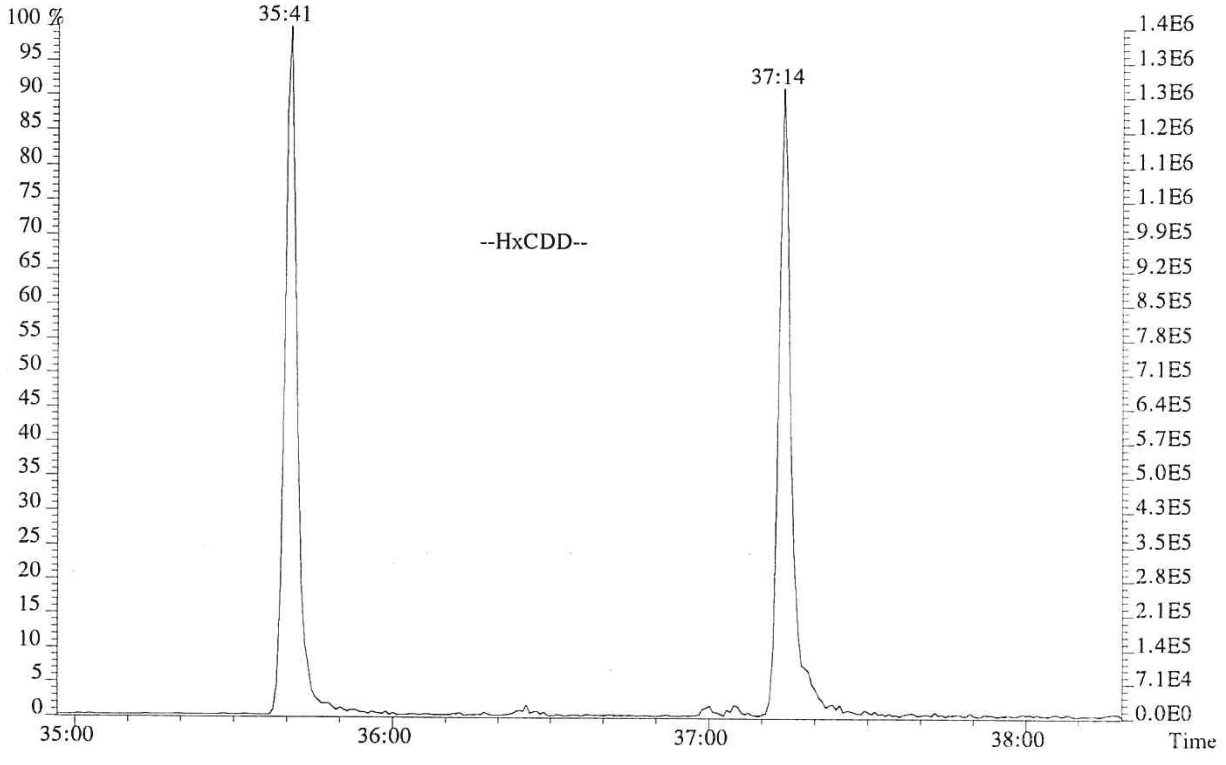


012880

File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3

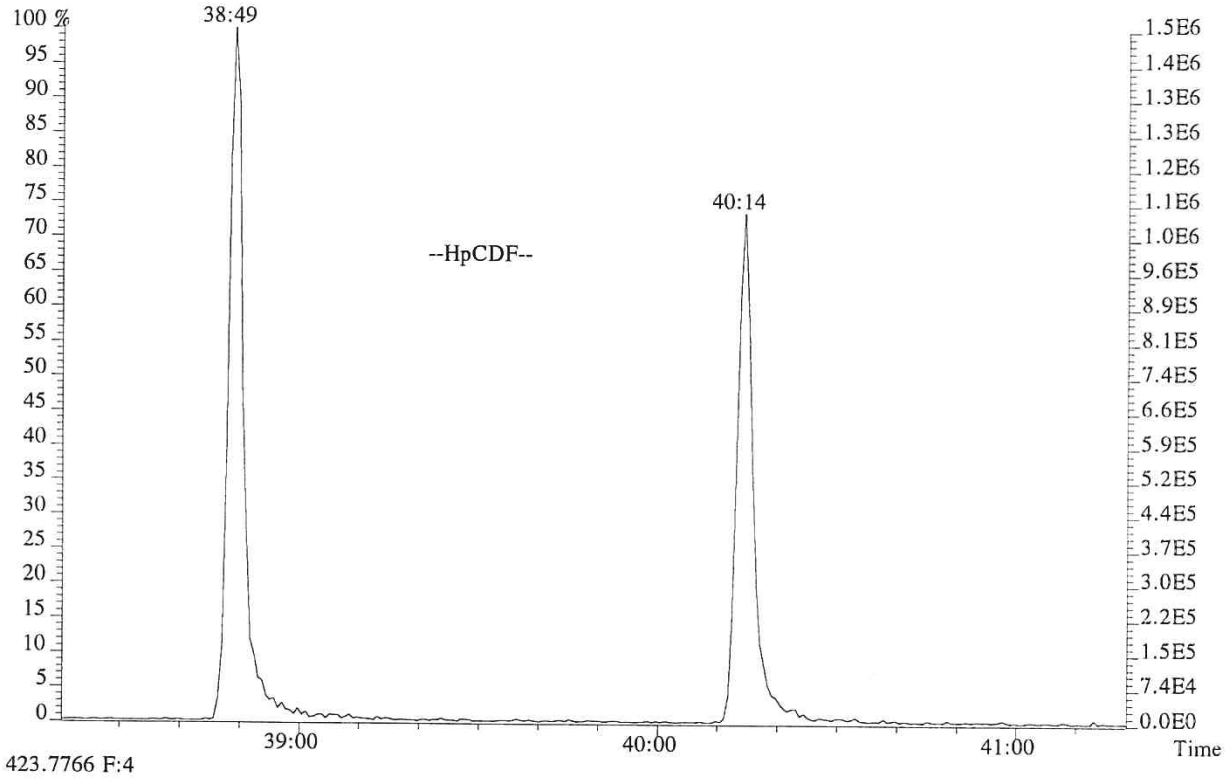


389.8157 F:3

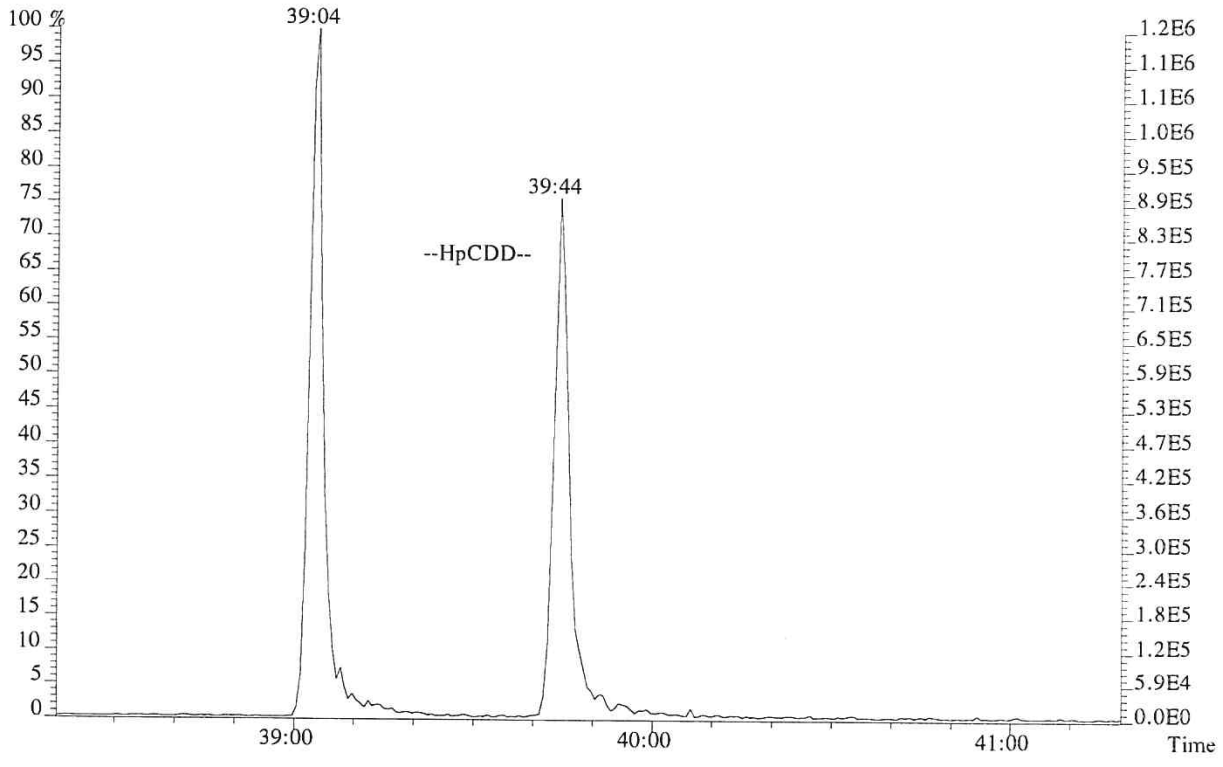


012881

File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



012882

USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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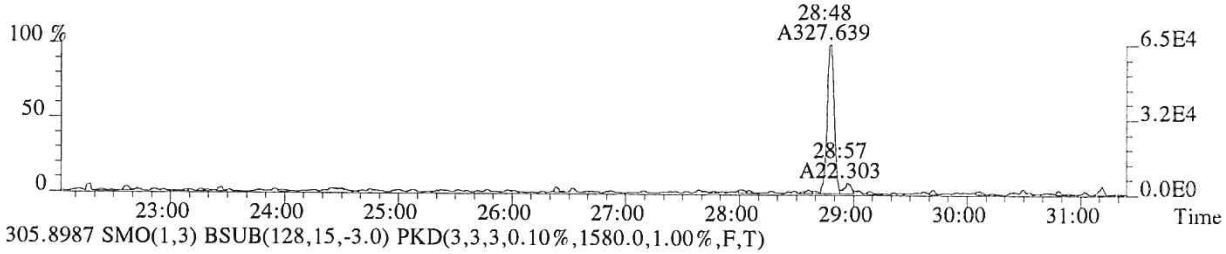
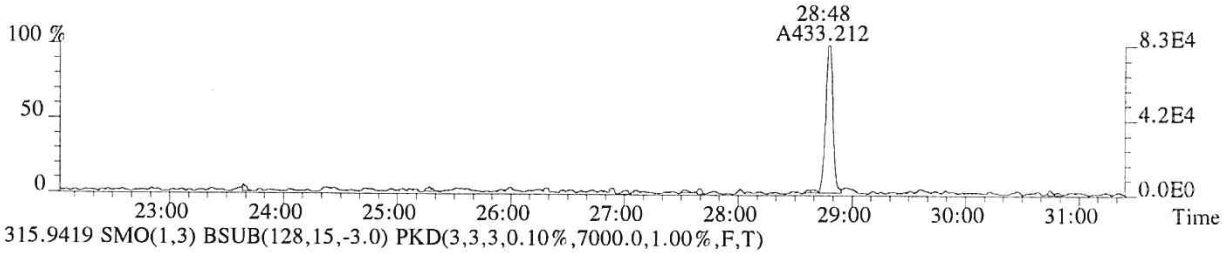
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

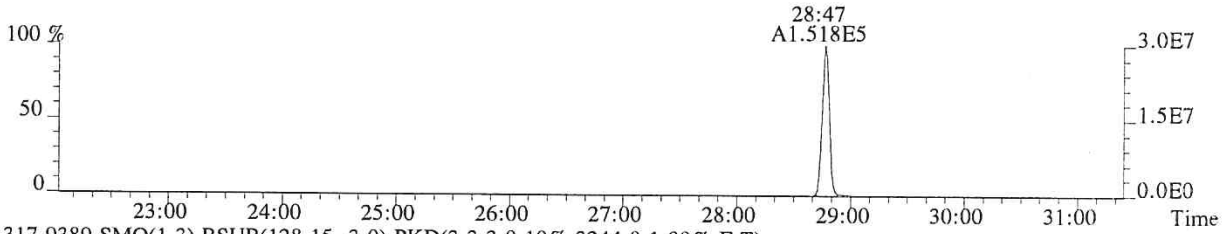
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



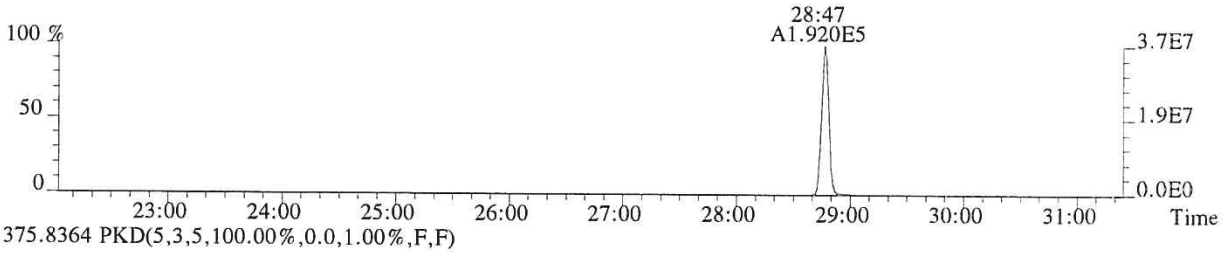
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



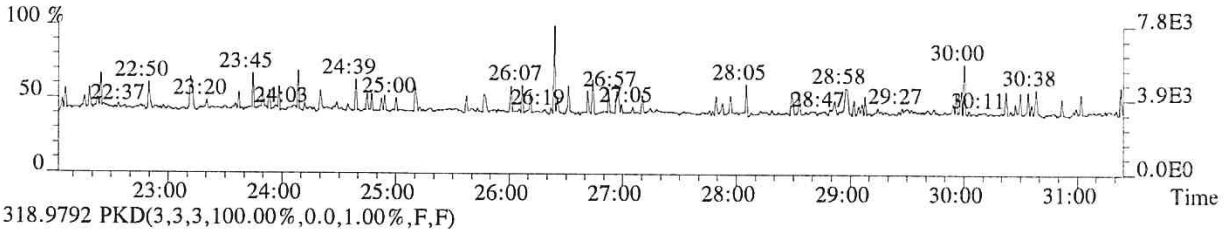
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



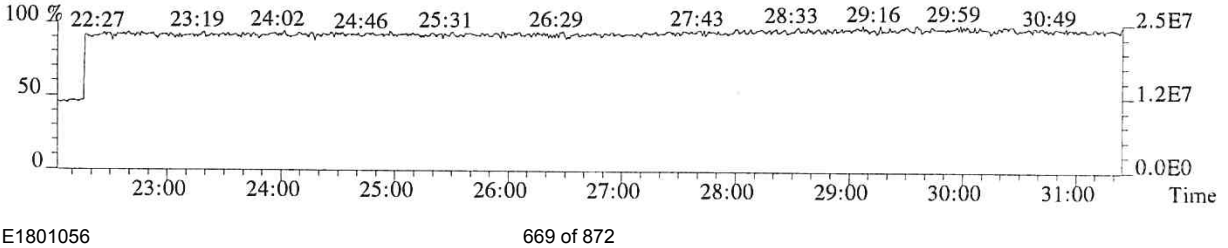
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

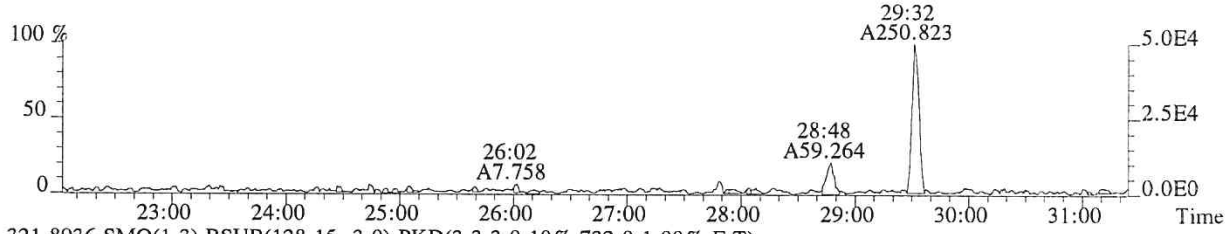


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

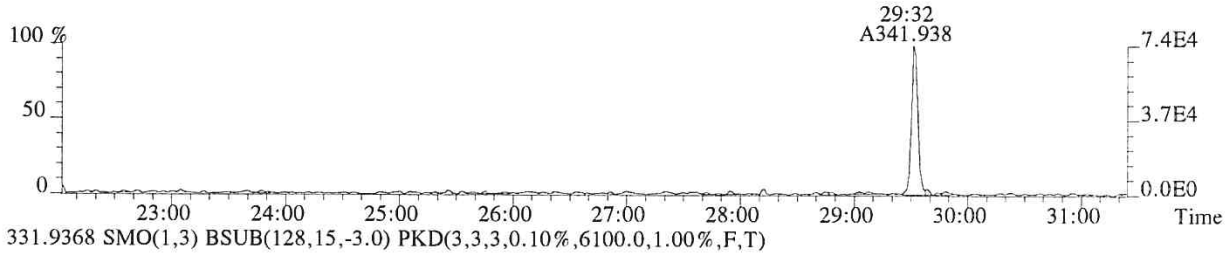


012887

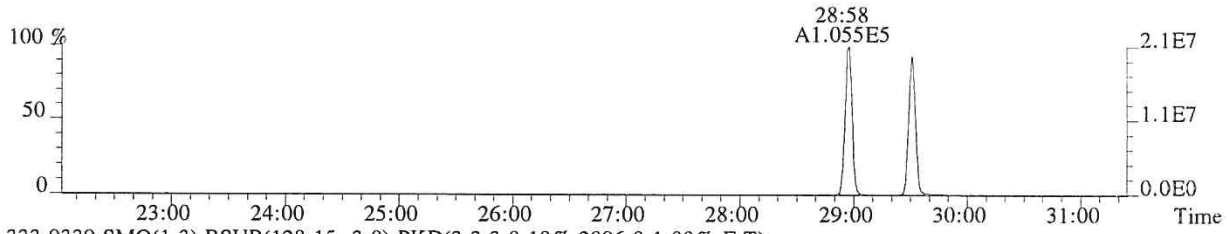
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



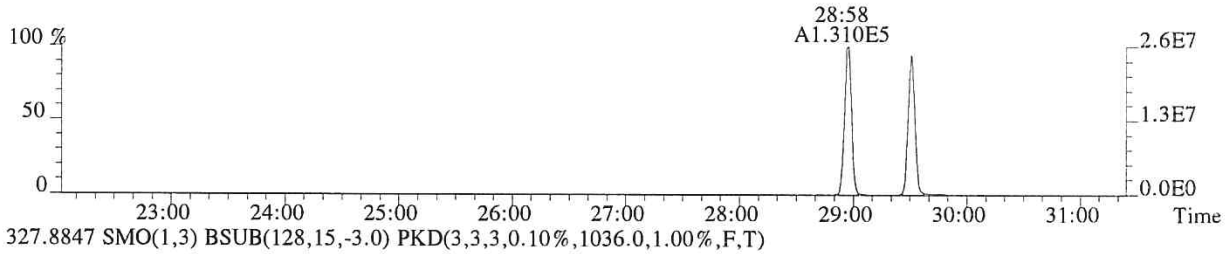
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



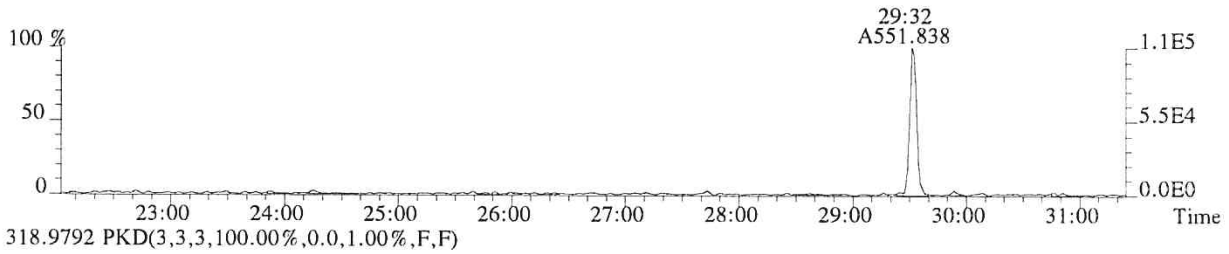
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



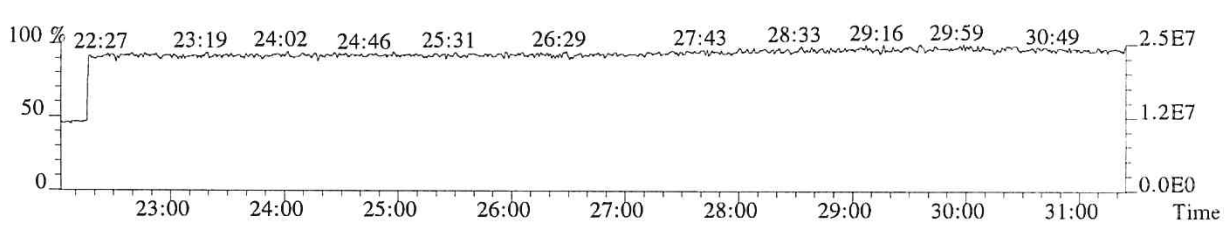
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

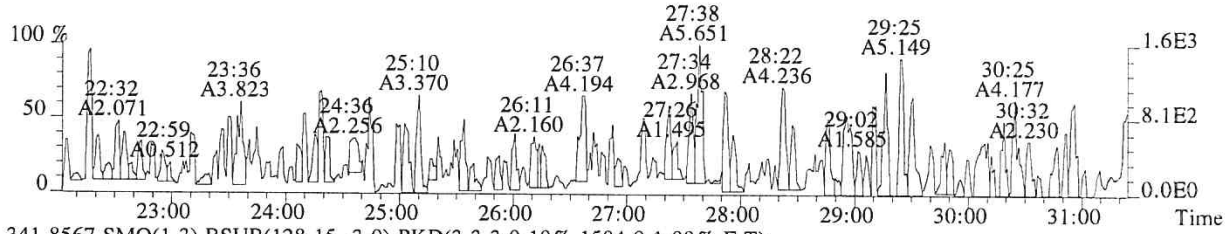


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

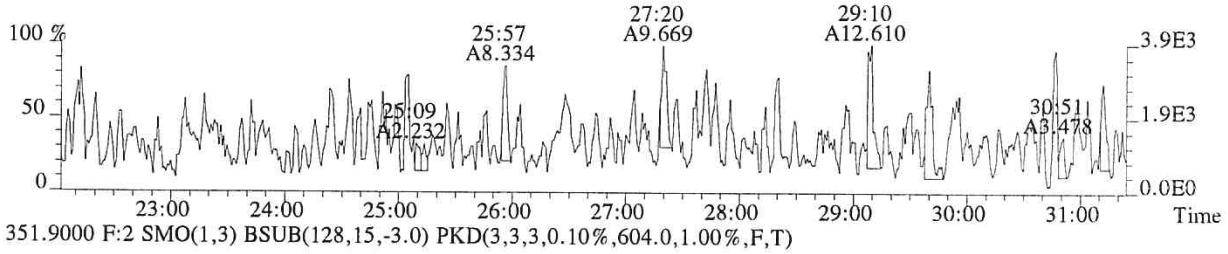


012888

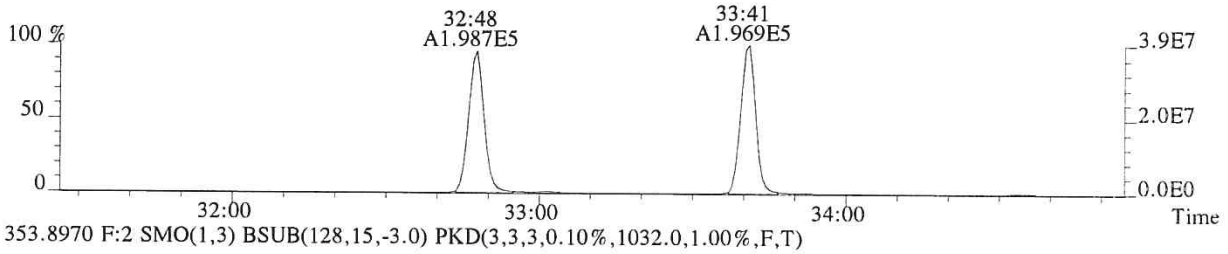
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



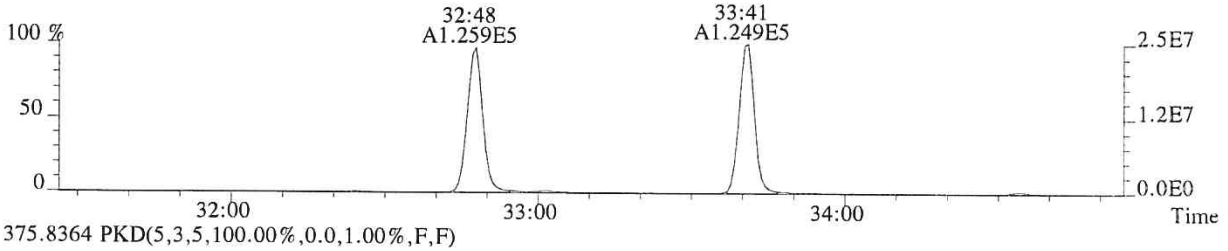
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



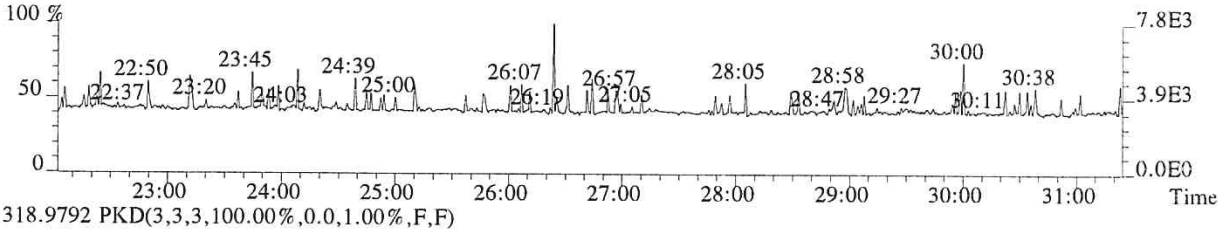
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



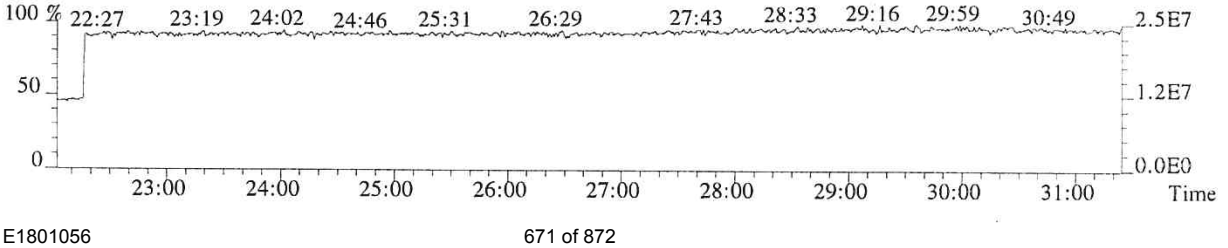
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

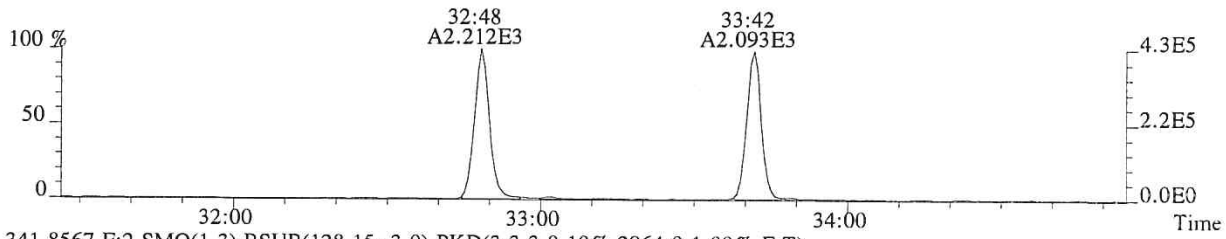


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

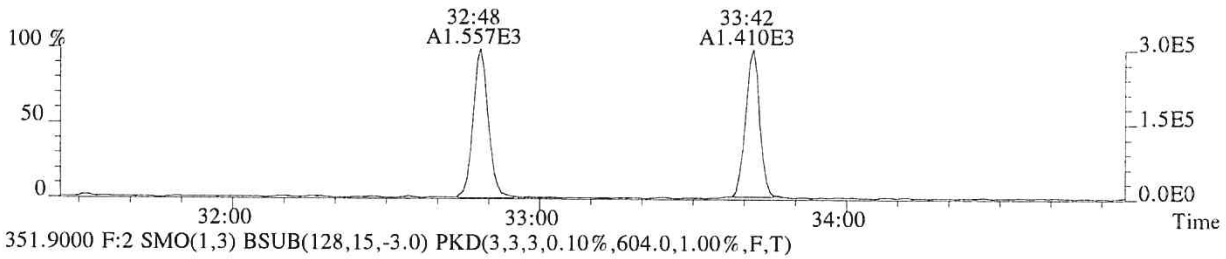


012889

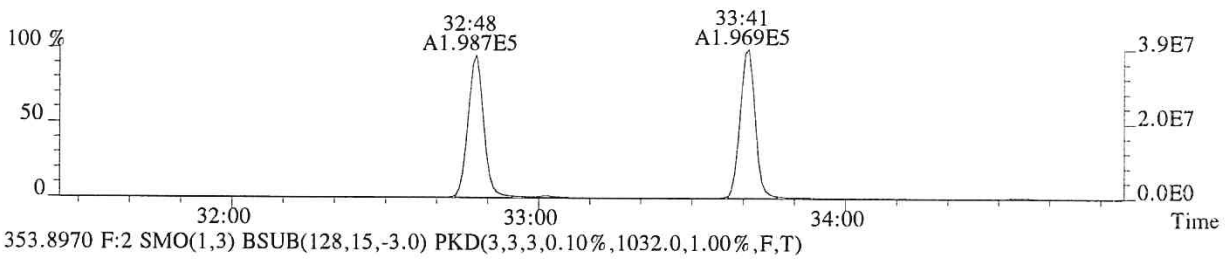
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



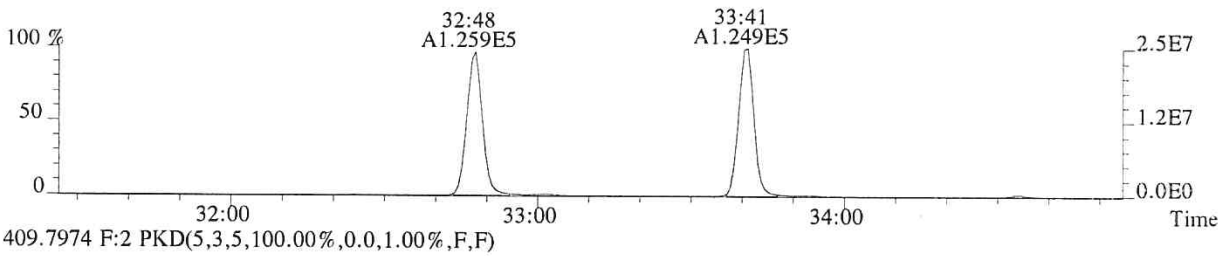
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



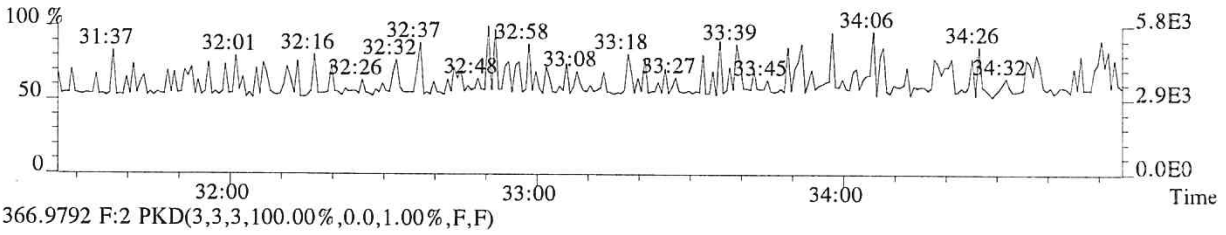
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



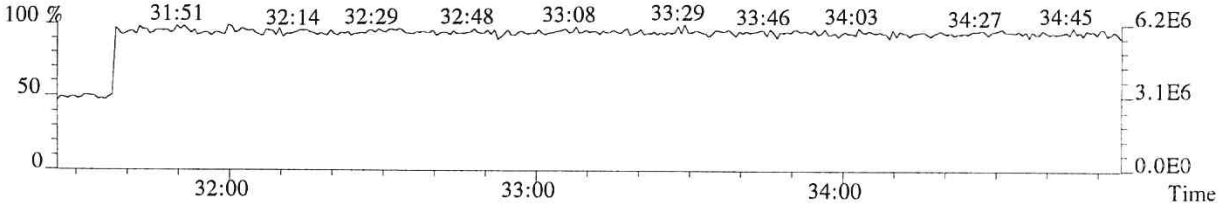
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

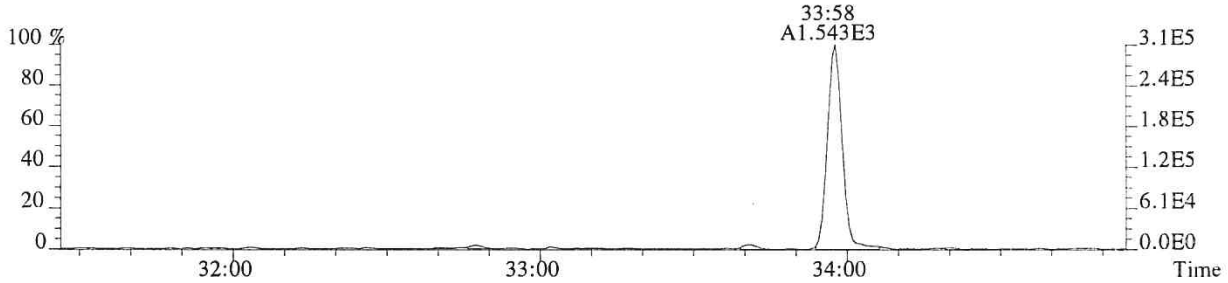


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

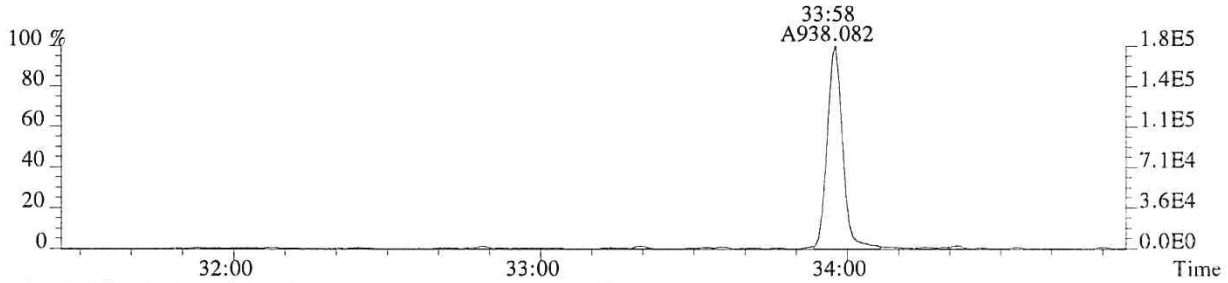


012890

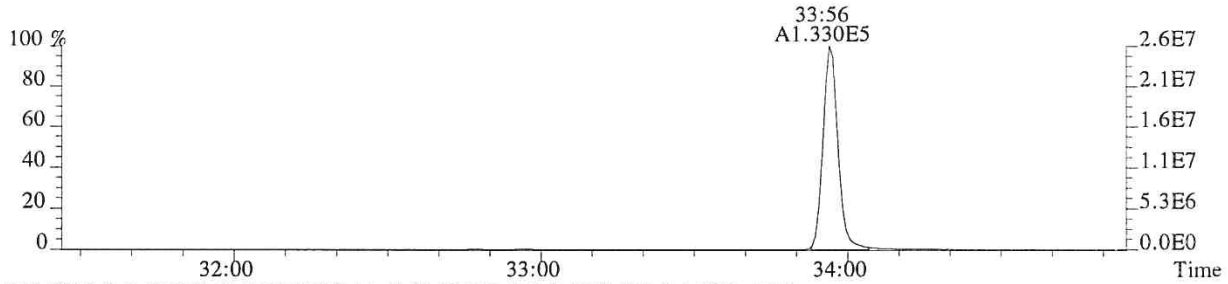
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



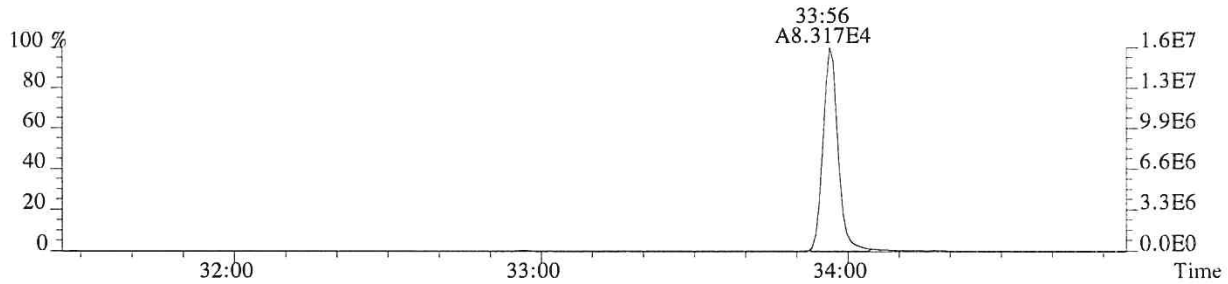
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



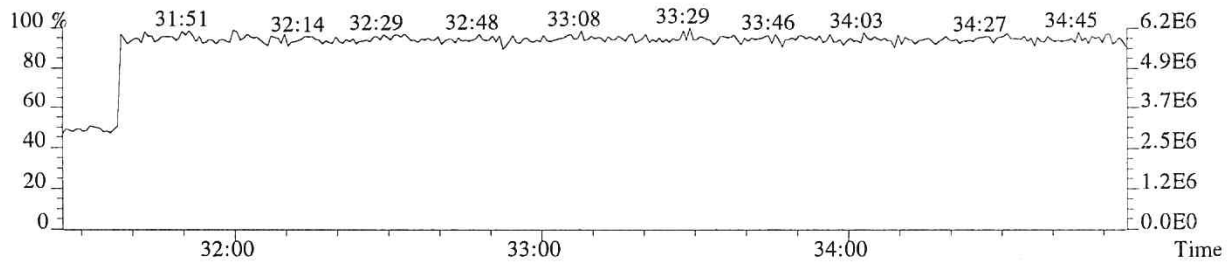
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)

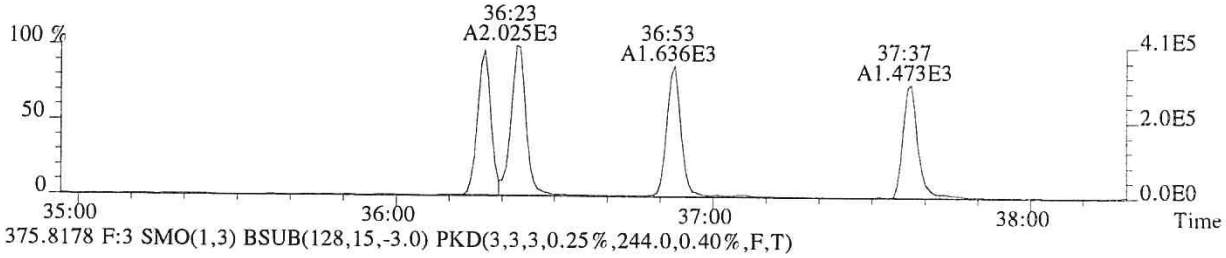


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

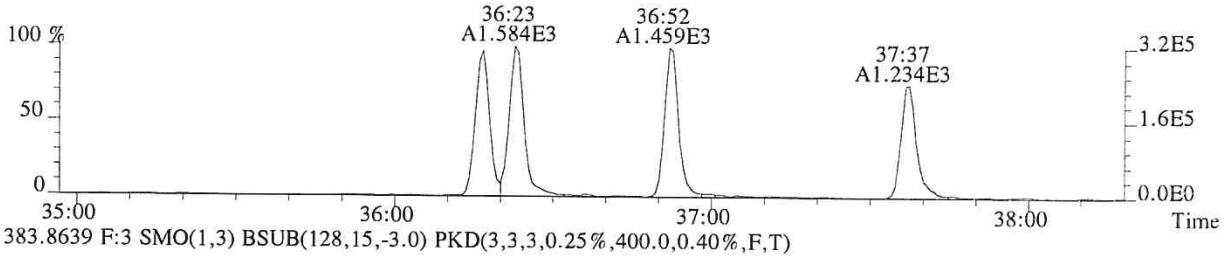


012891

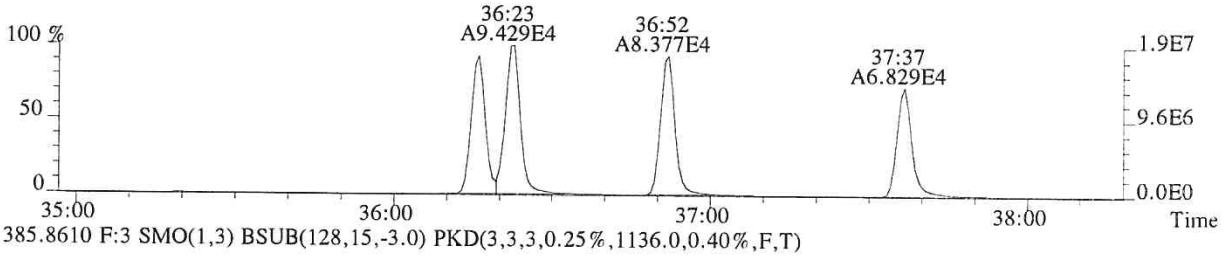
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



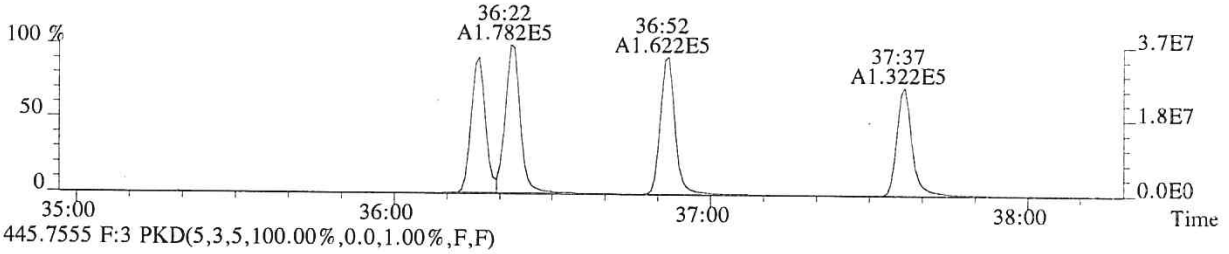
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



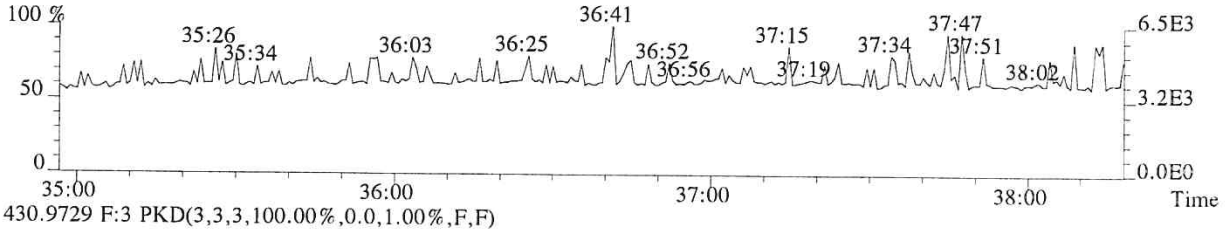
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



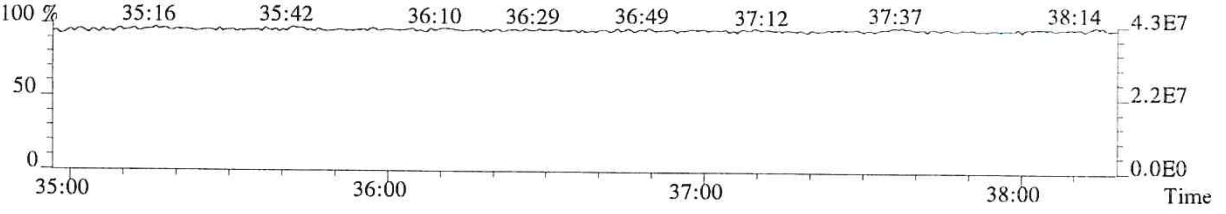
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

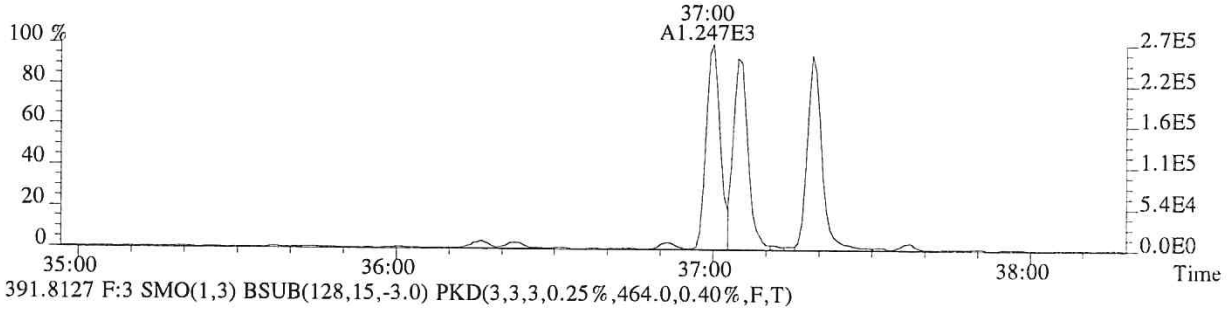


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

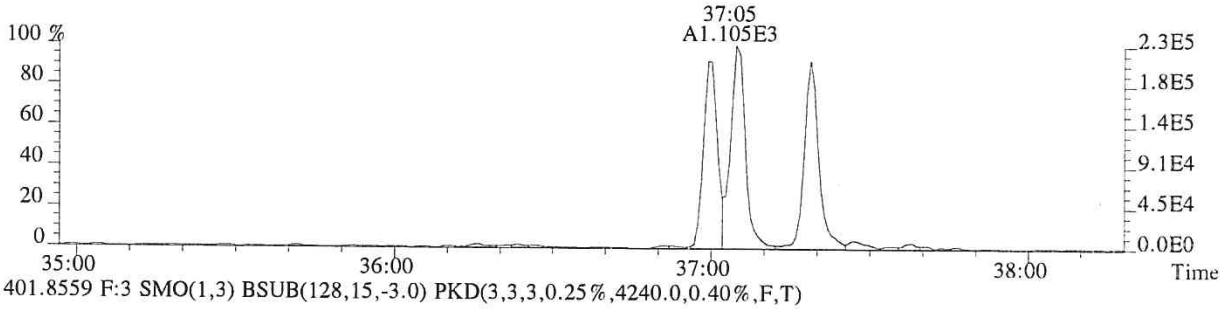


012892

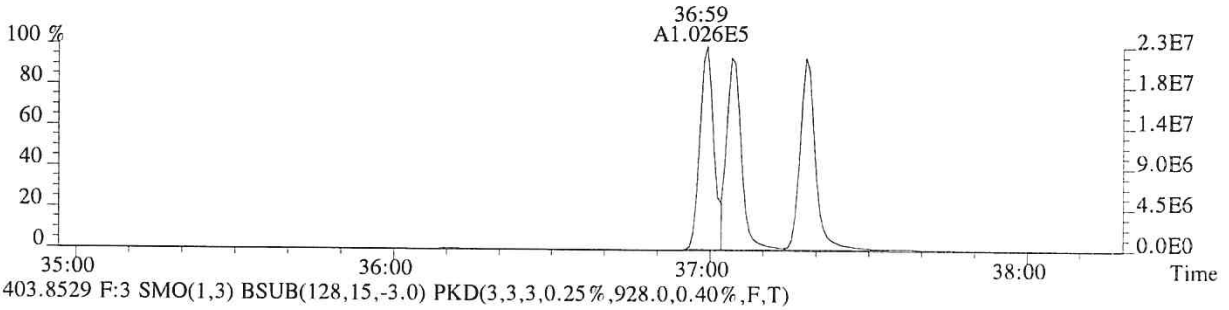
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



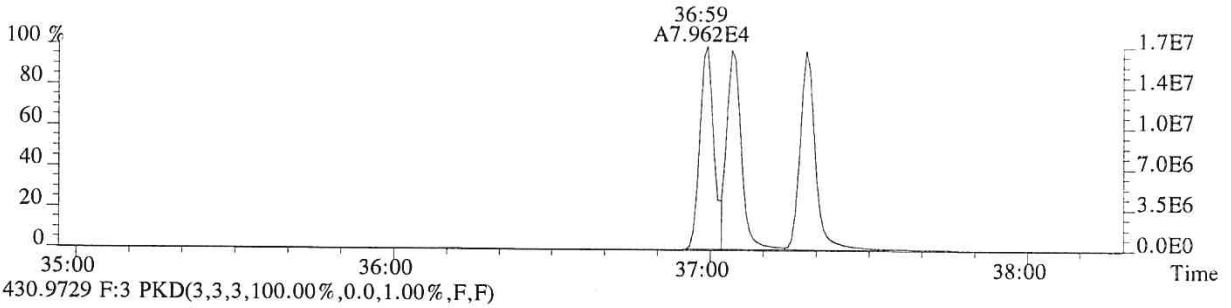
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



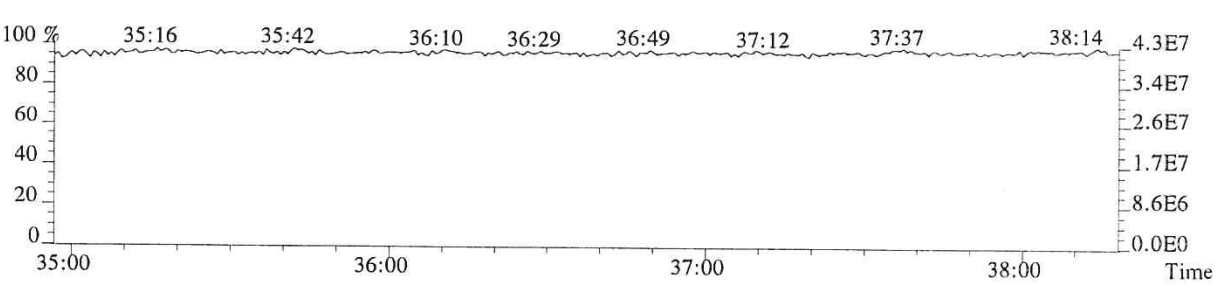
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)

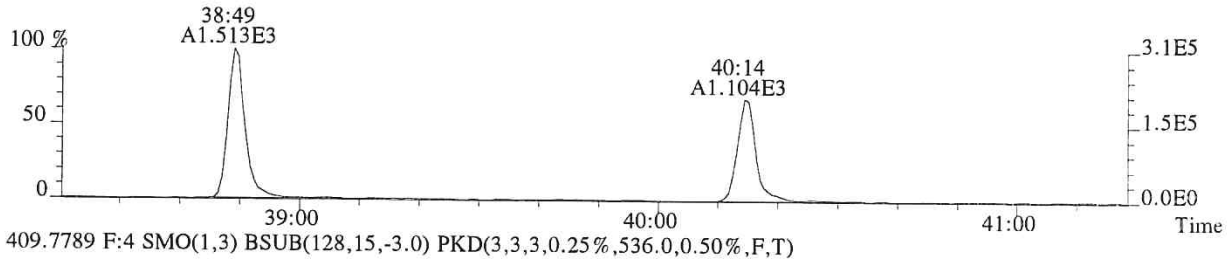


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

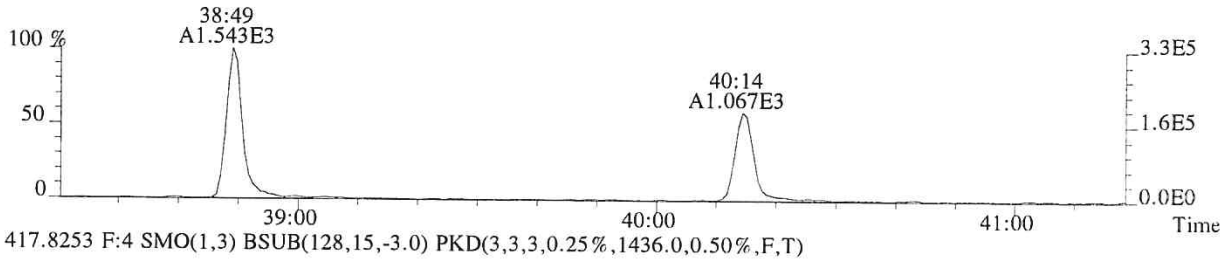


012893

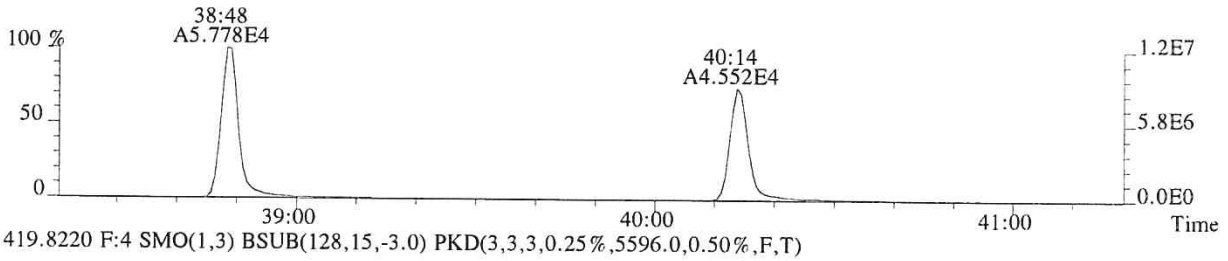
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



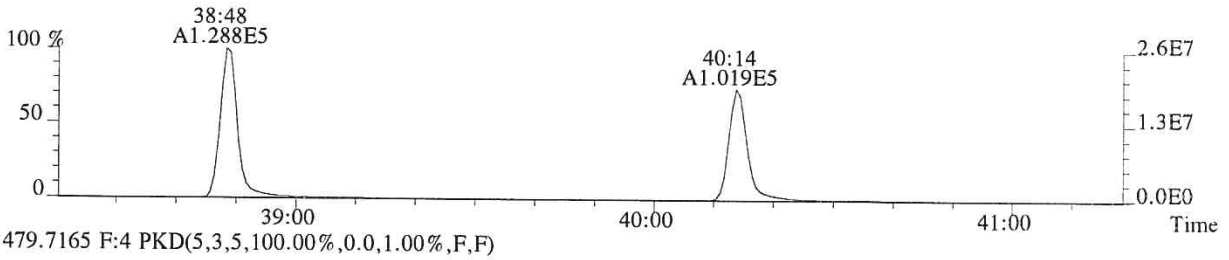
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



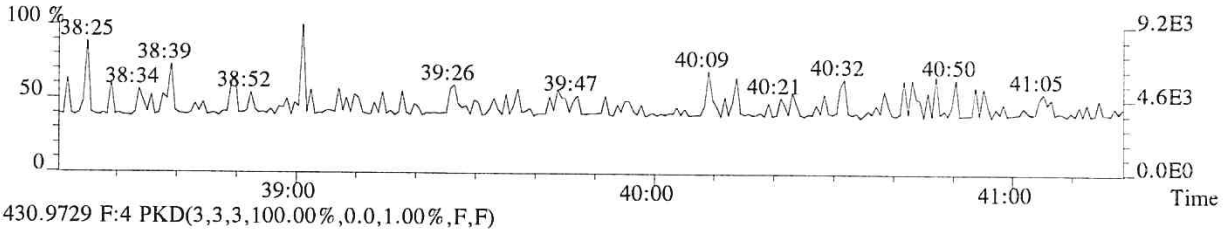
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



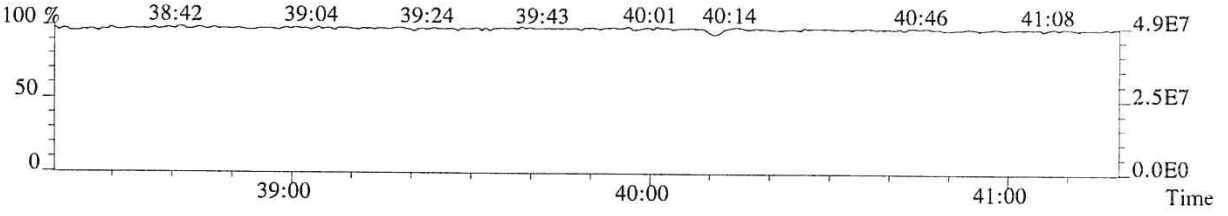
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

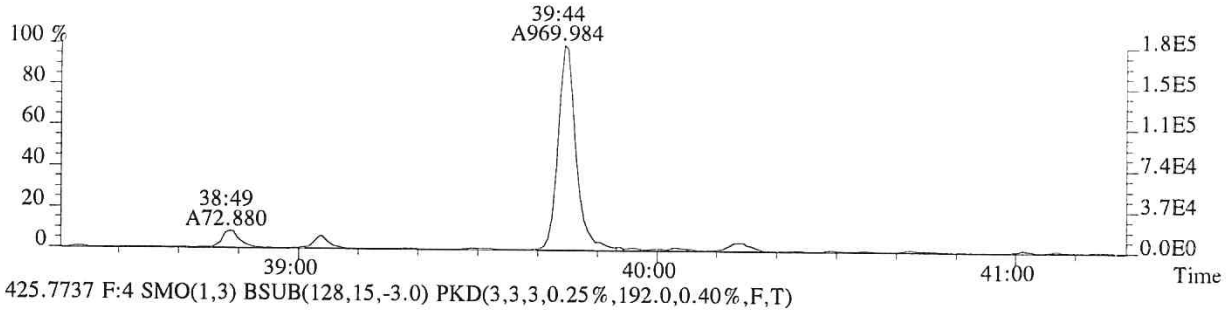


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

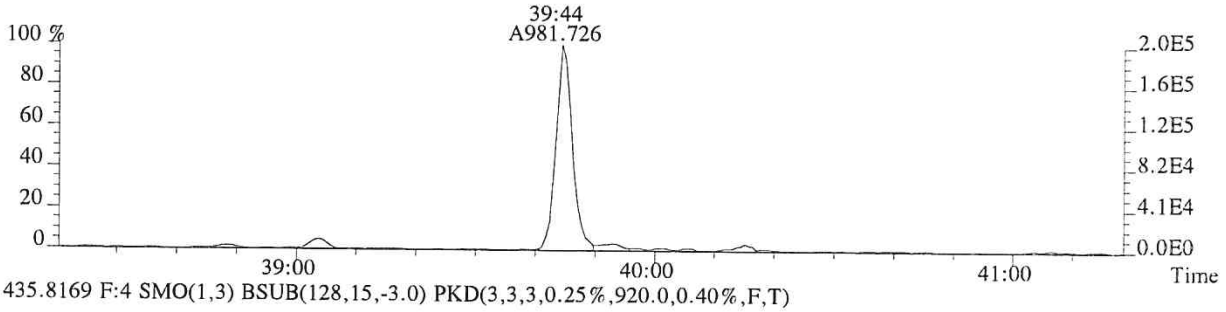


012894

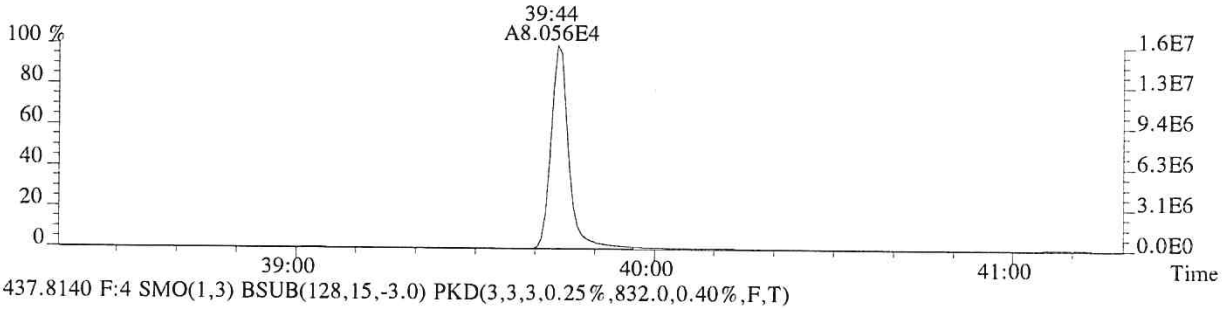
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



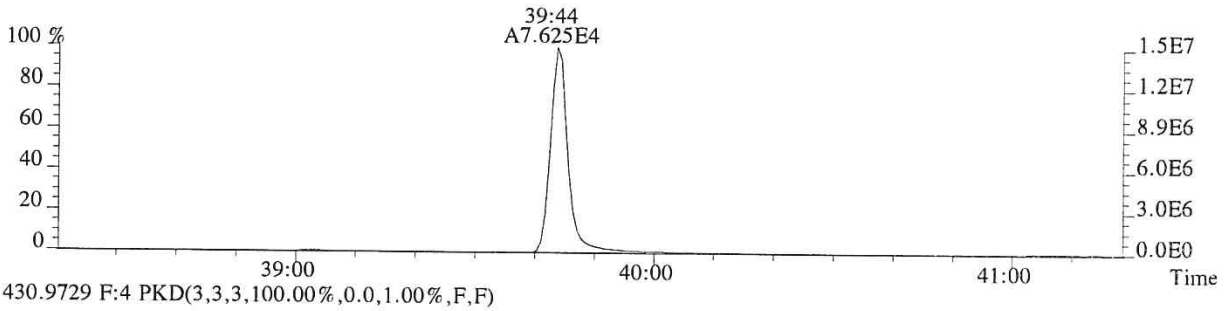
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



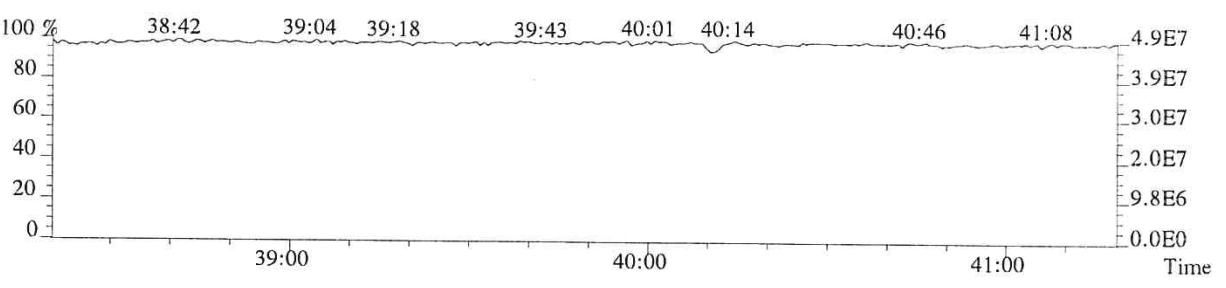
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)

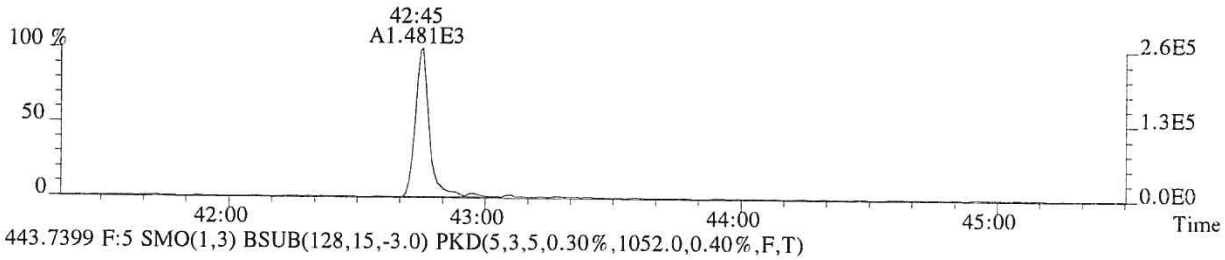


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

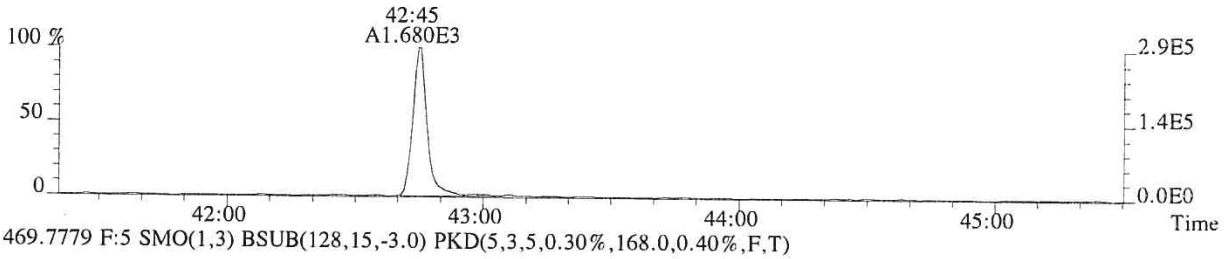


012895

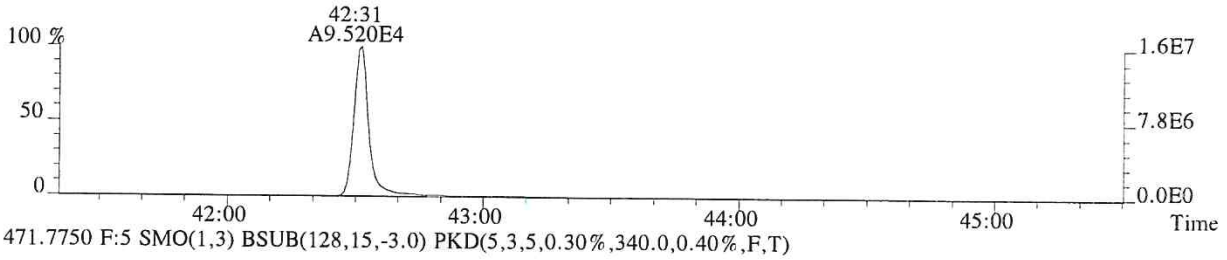
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



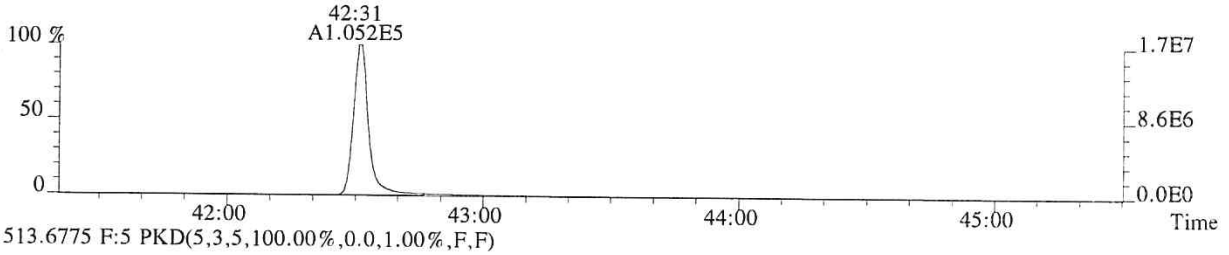
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



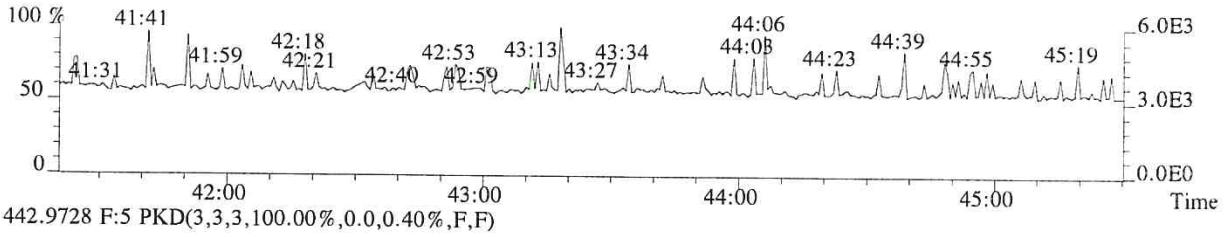
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



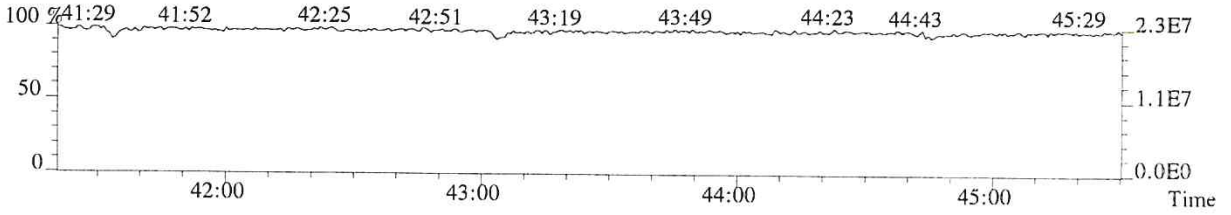
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

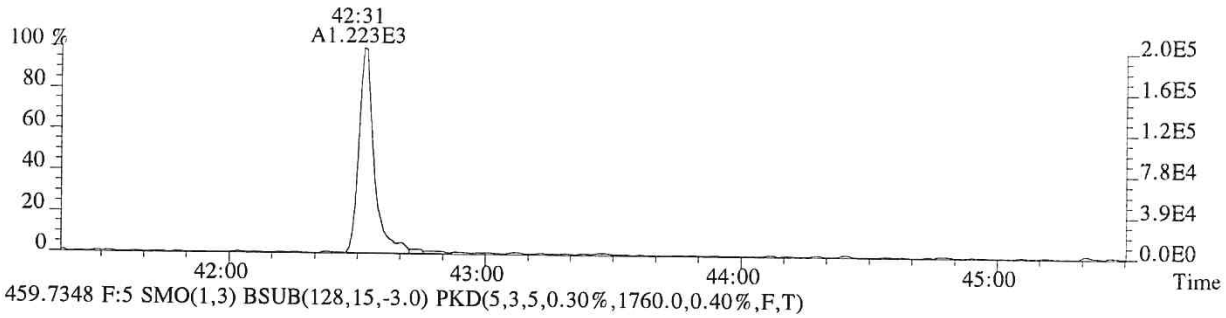


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

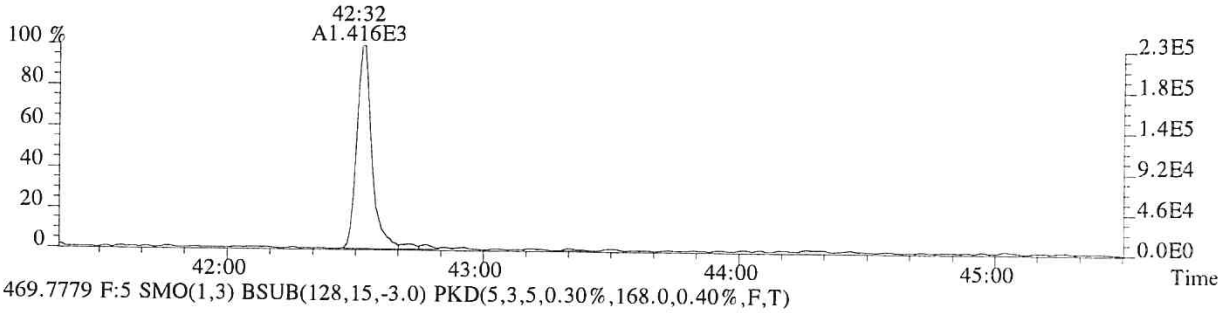


012896

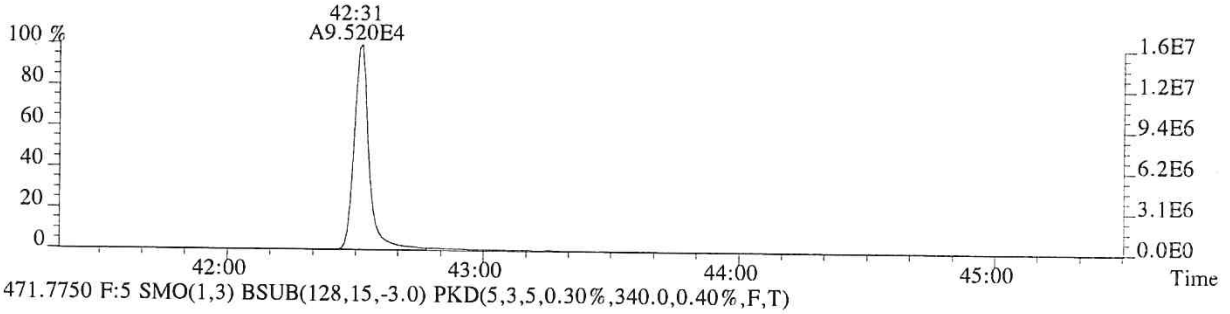
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



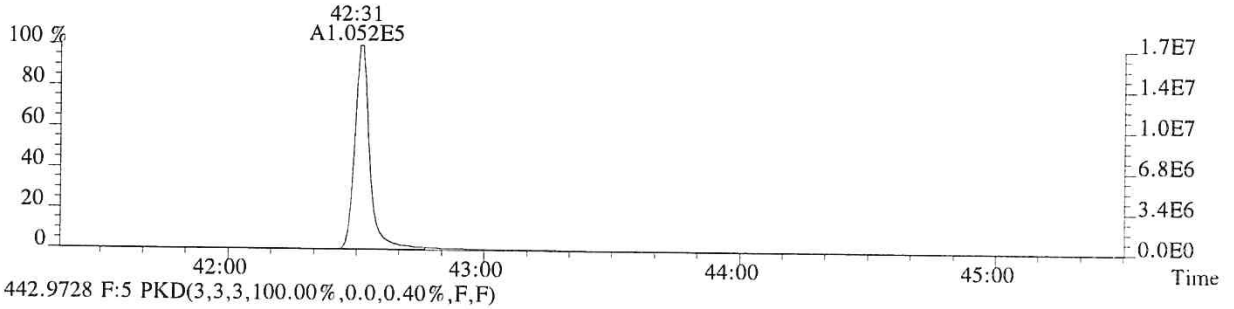
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



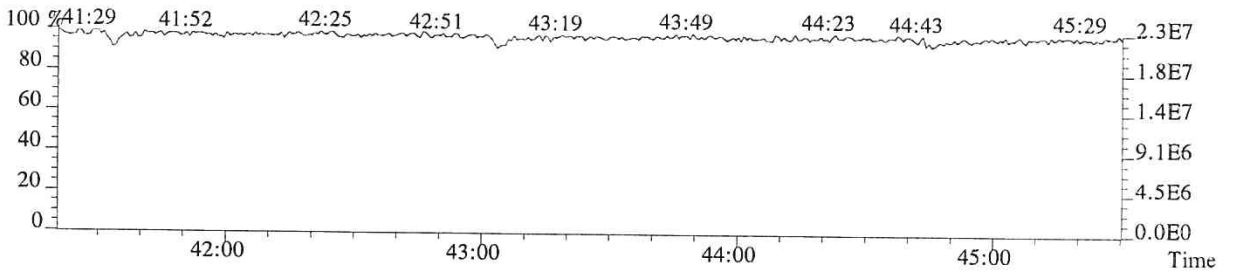
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012897

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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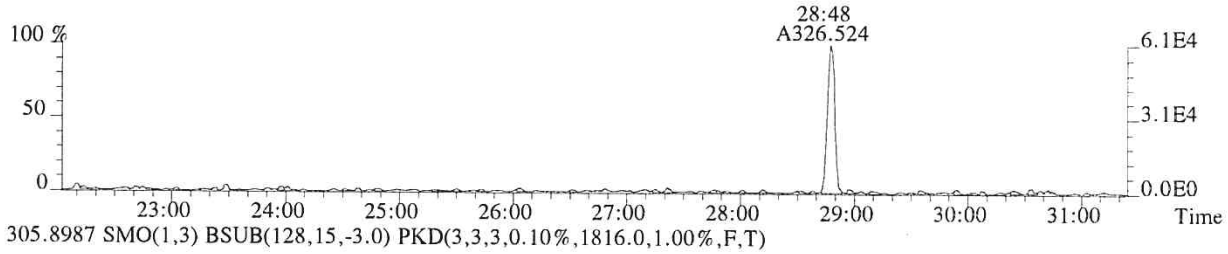
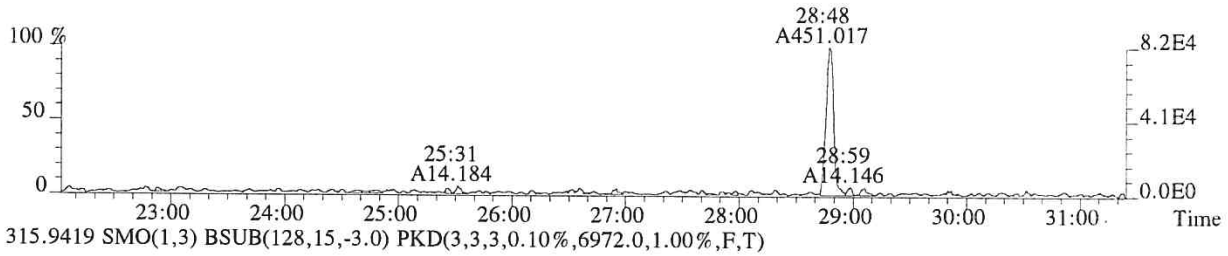
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

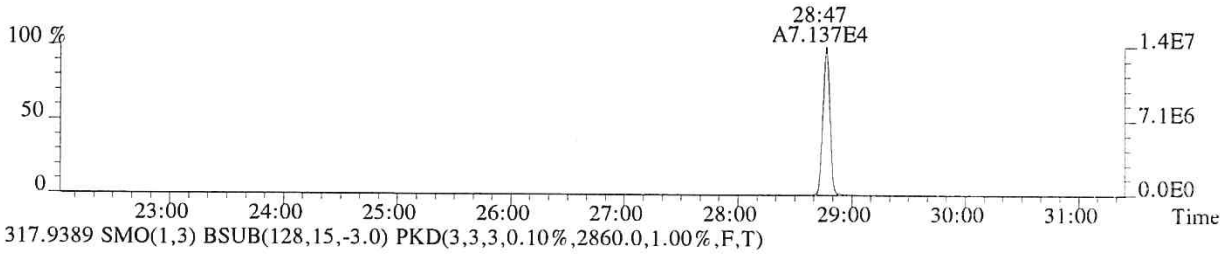
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



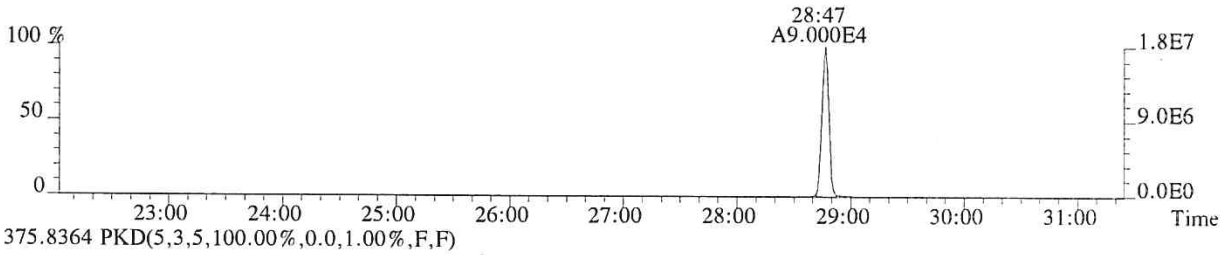
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



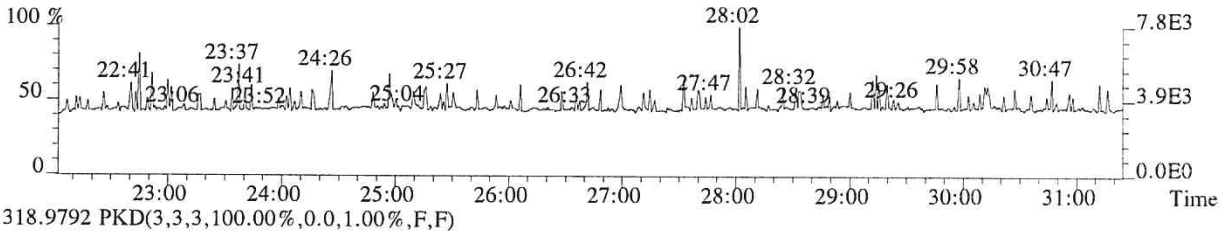
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



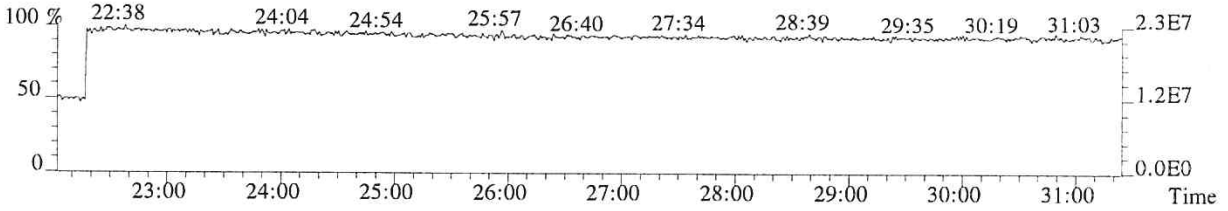
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

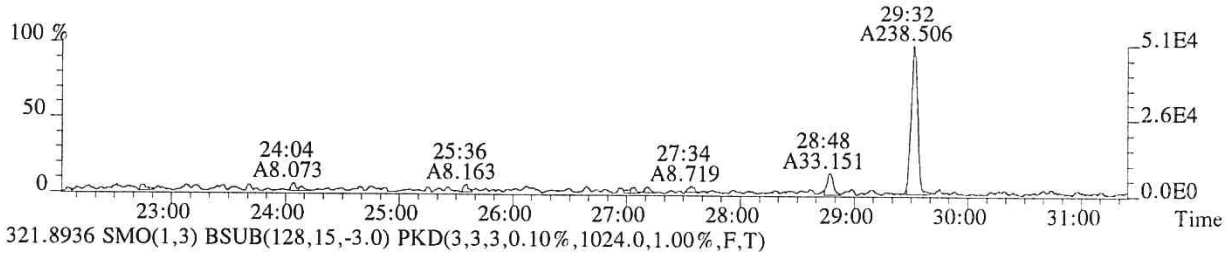


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

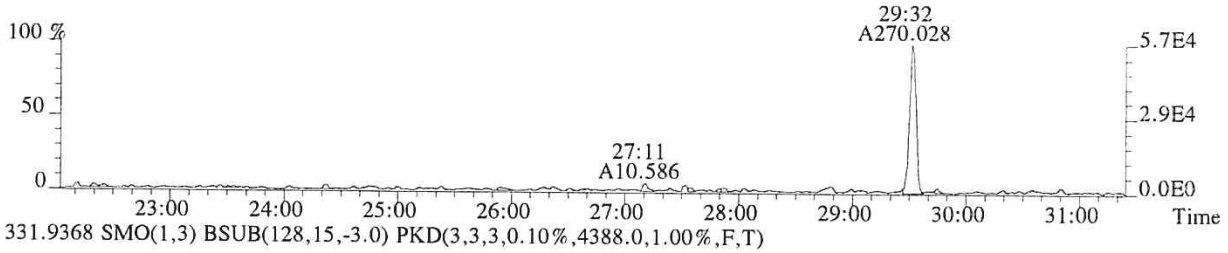


012900

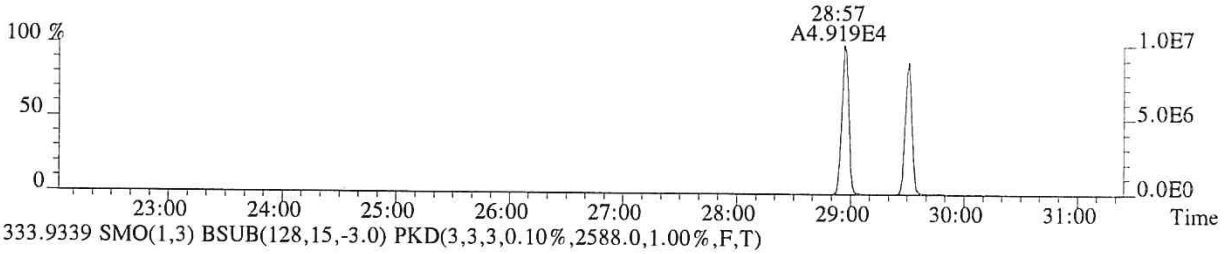
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



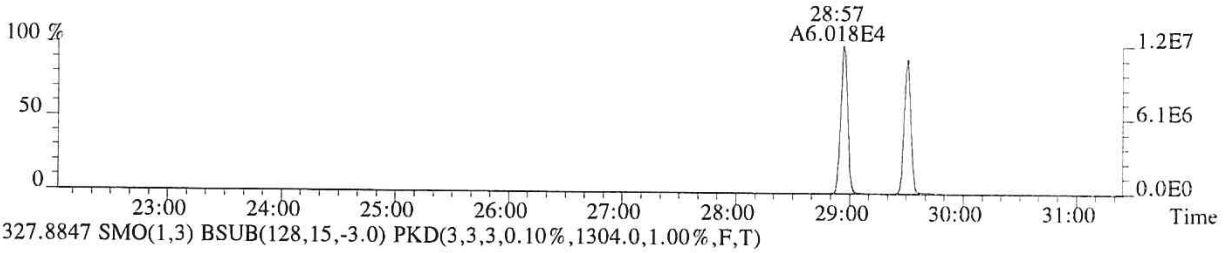
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



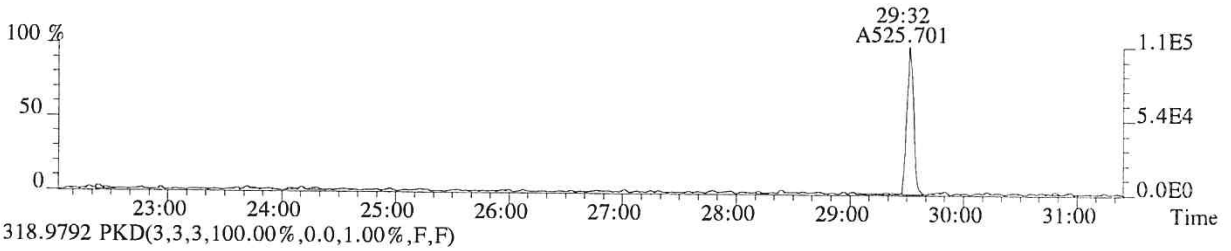
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



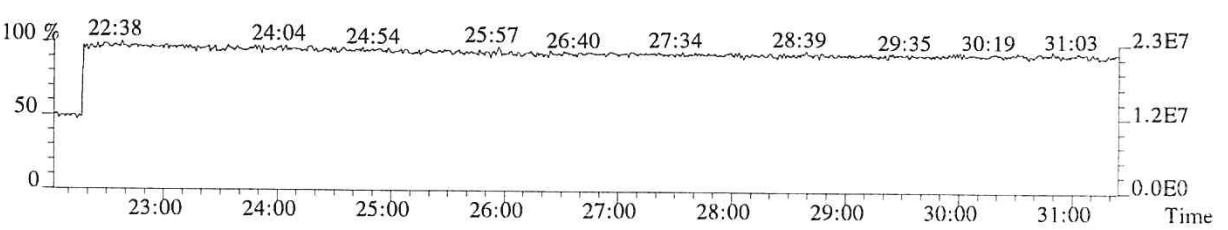
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)

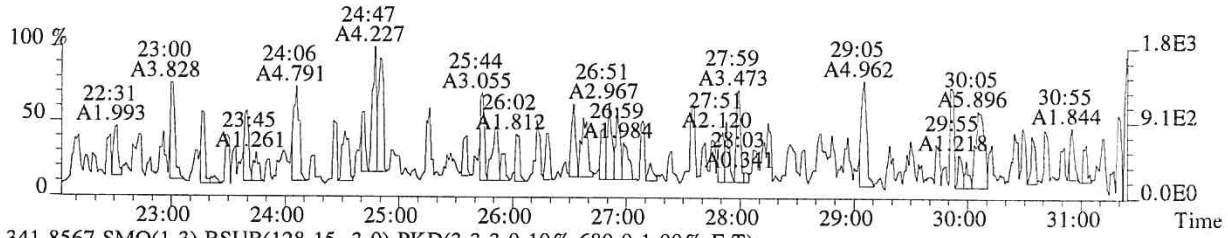


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

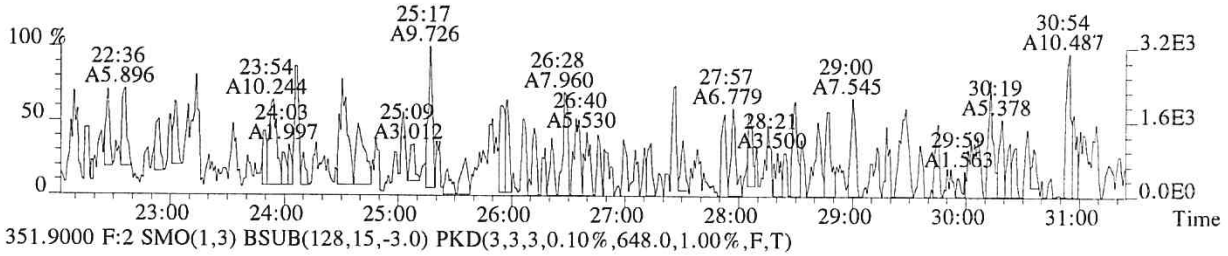


012901

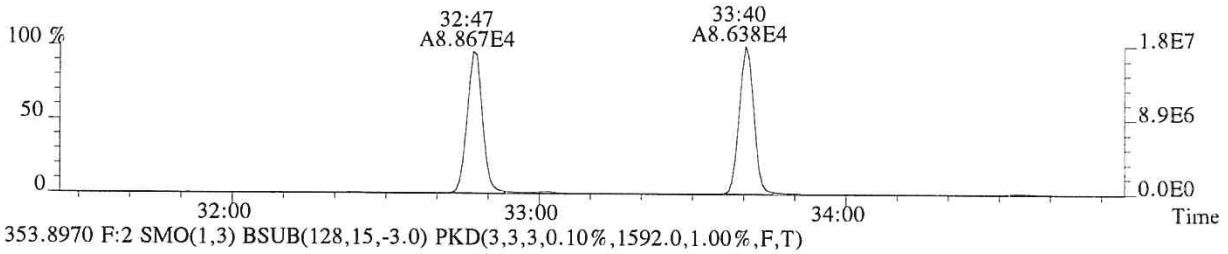
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



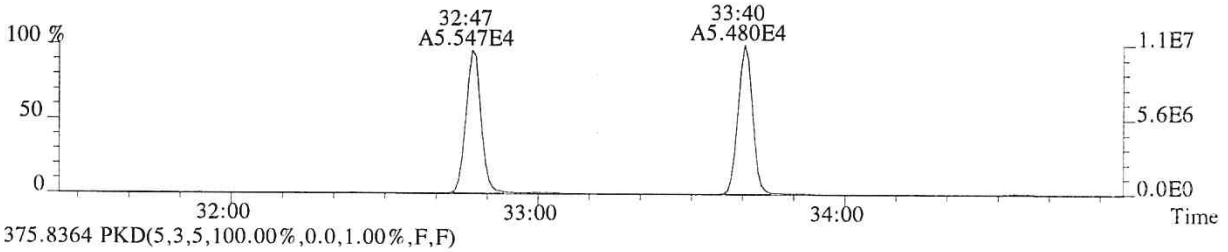
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



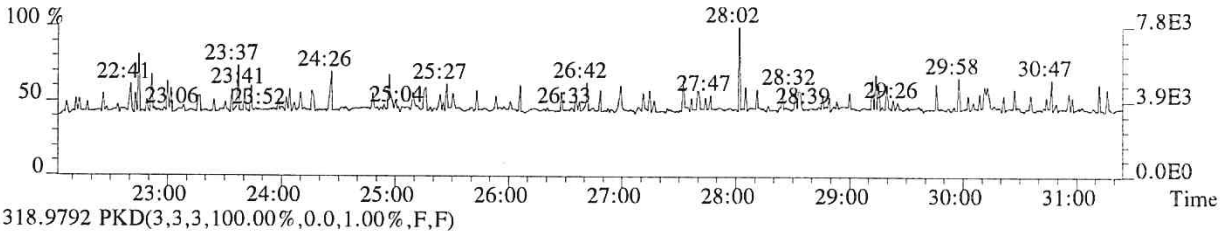
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



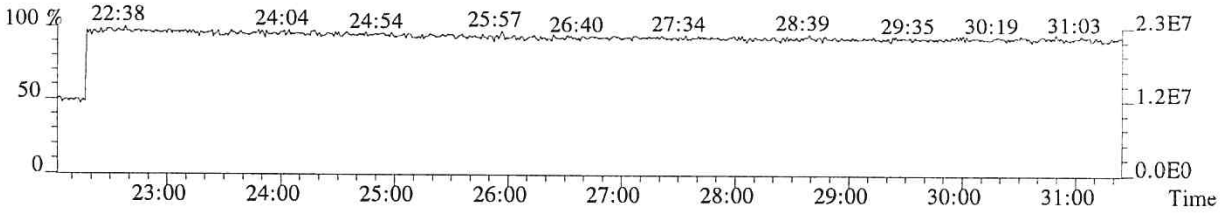
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

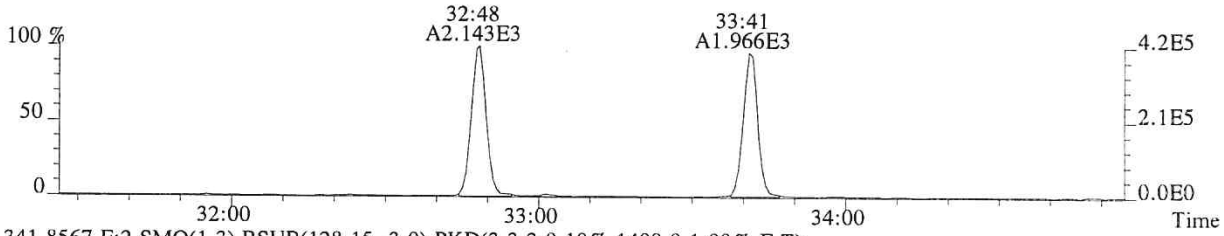


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

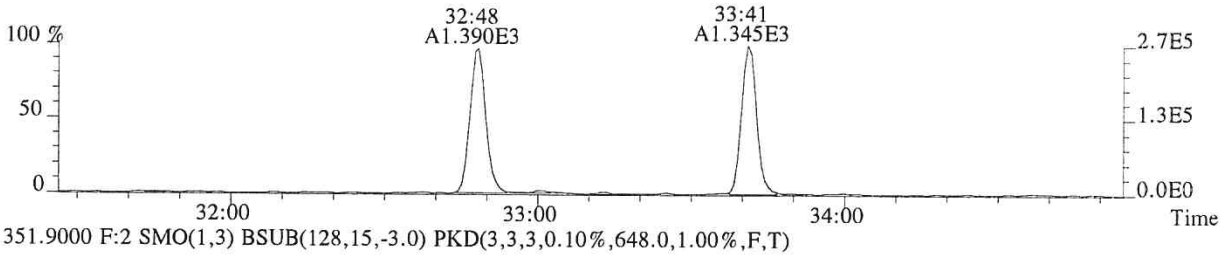


012902

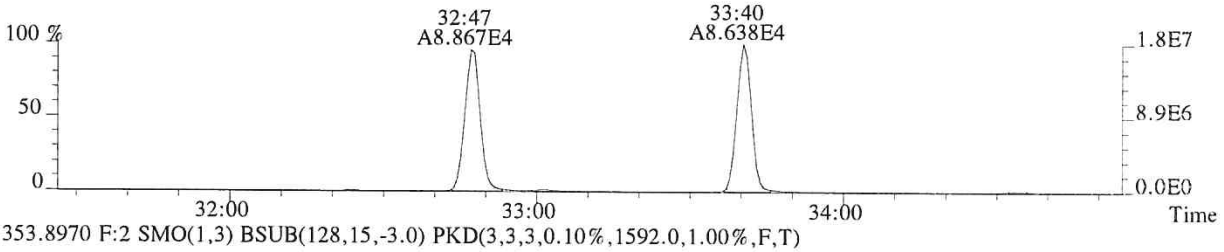
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



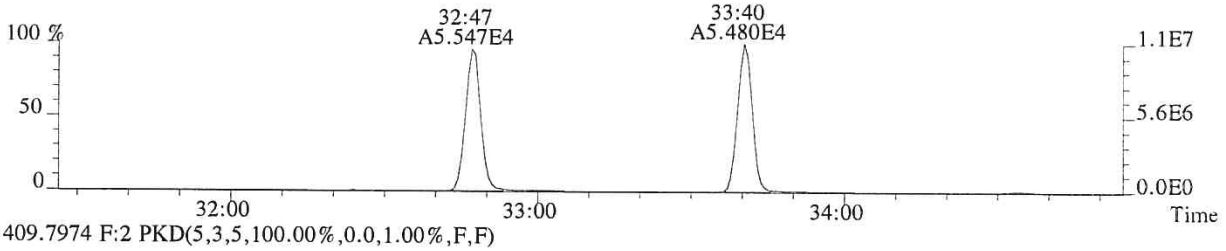
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



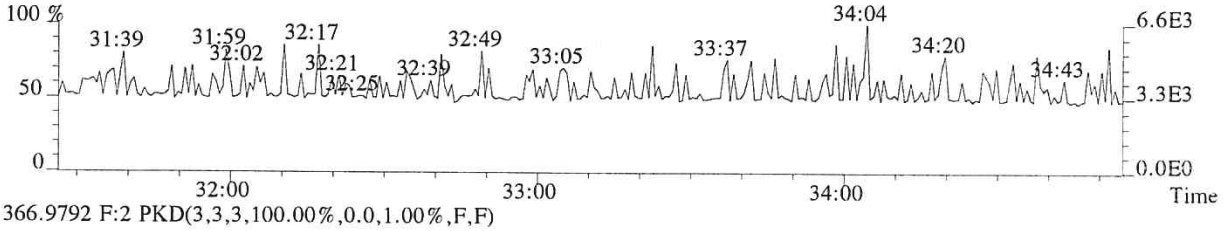
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



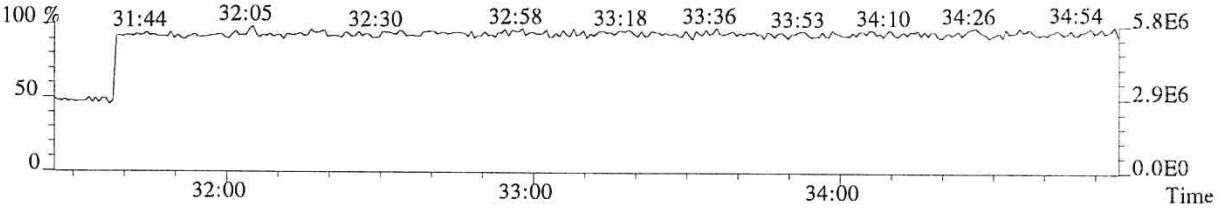
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

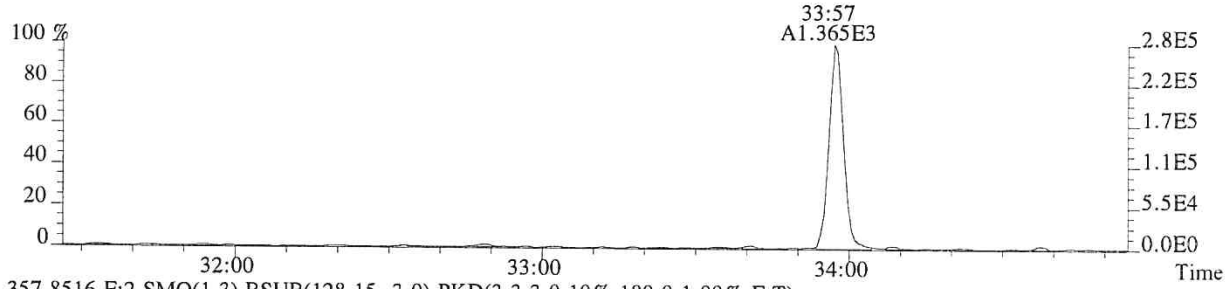


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

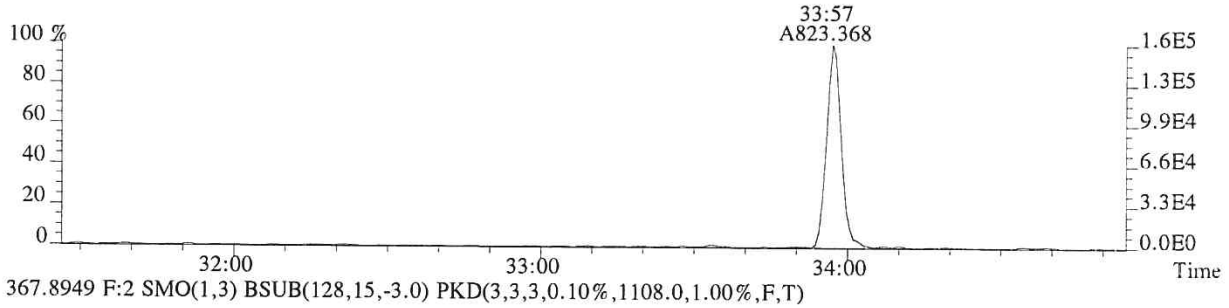


012903

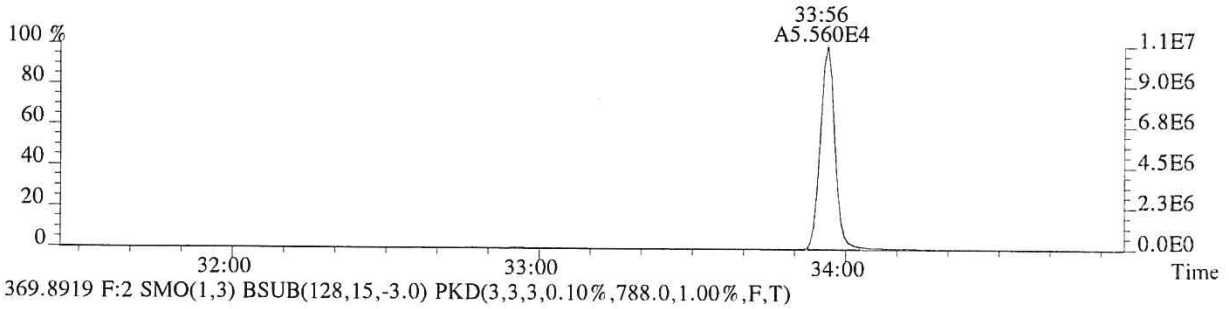
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



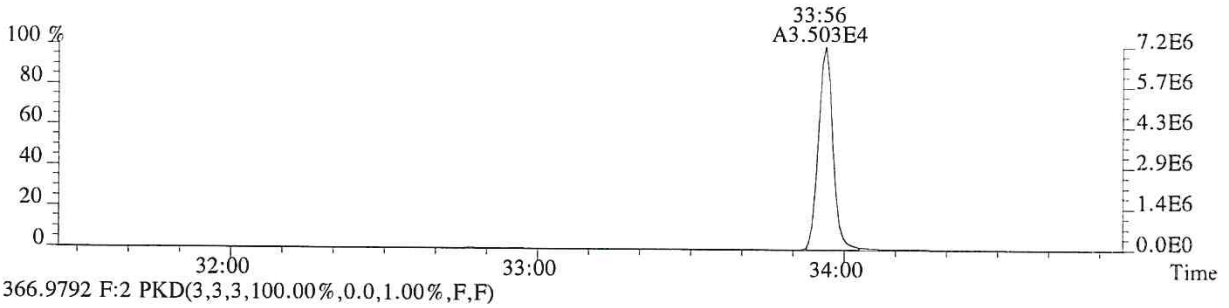
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



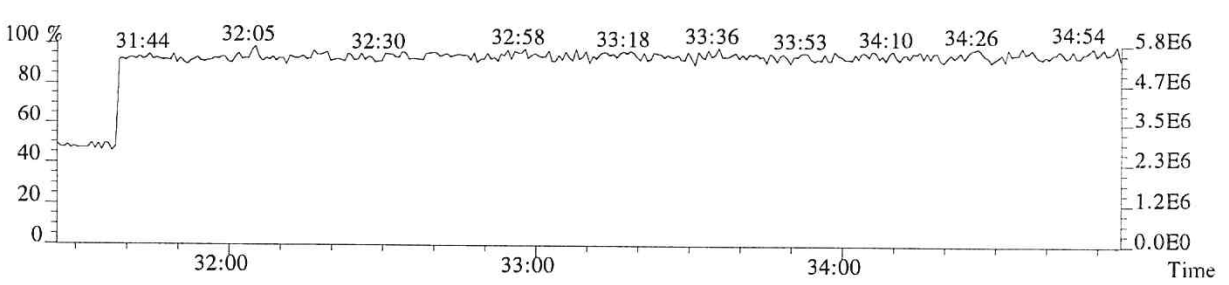
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



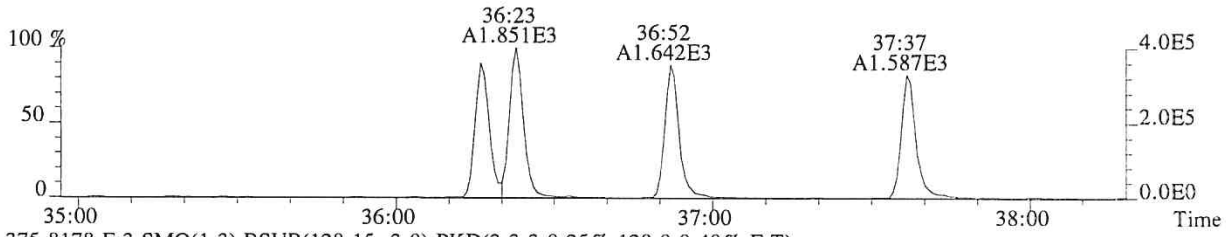
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



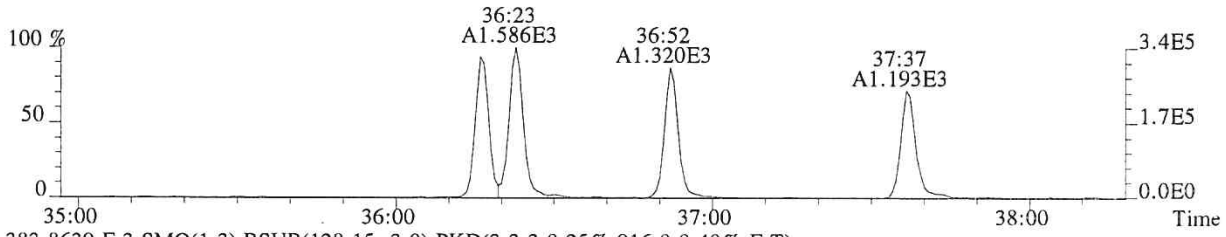
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



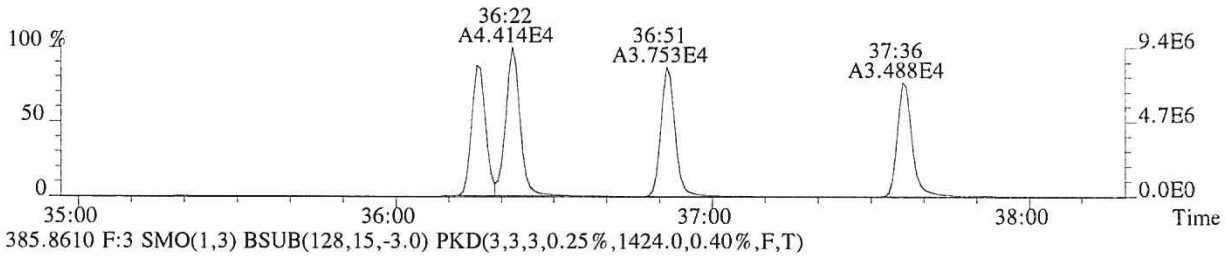
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



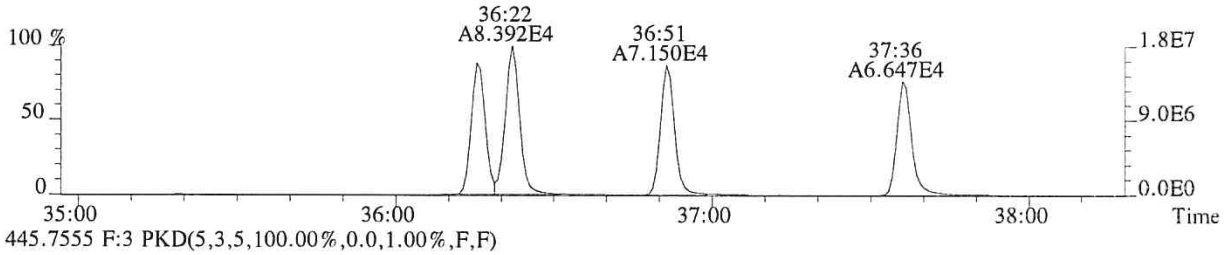
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



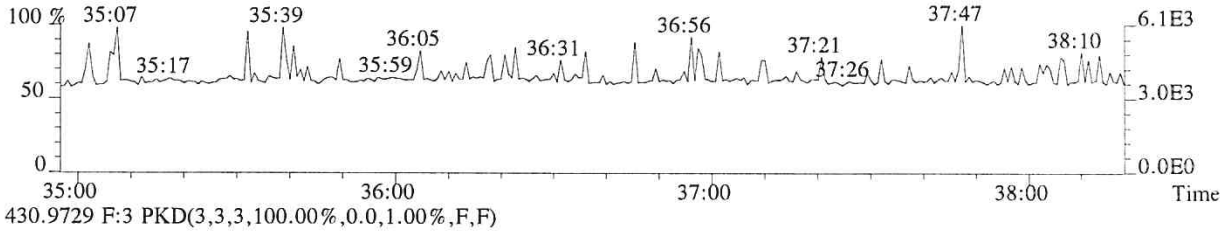
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



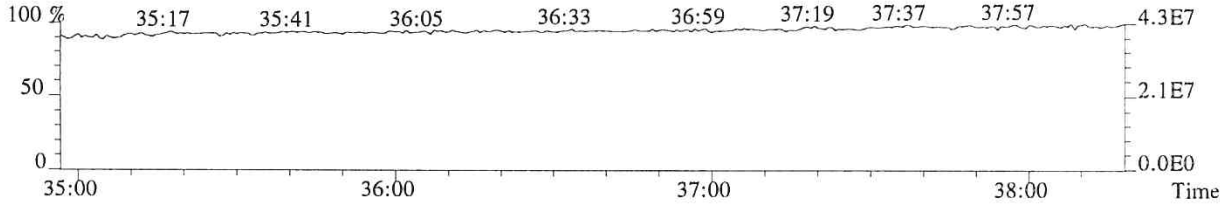
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

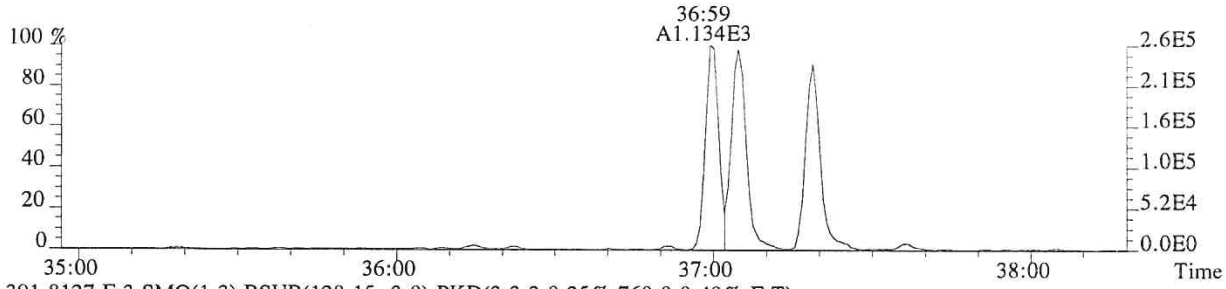


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

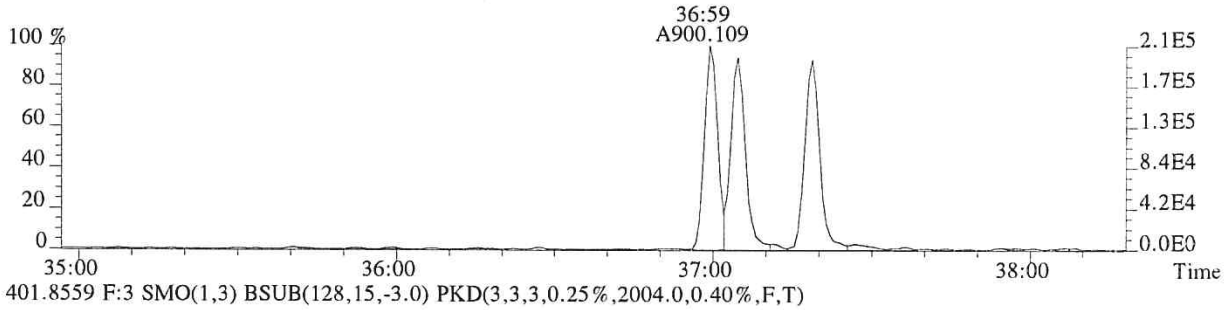


012905

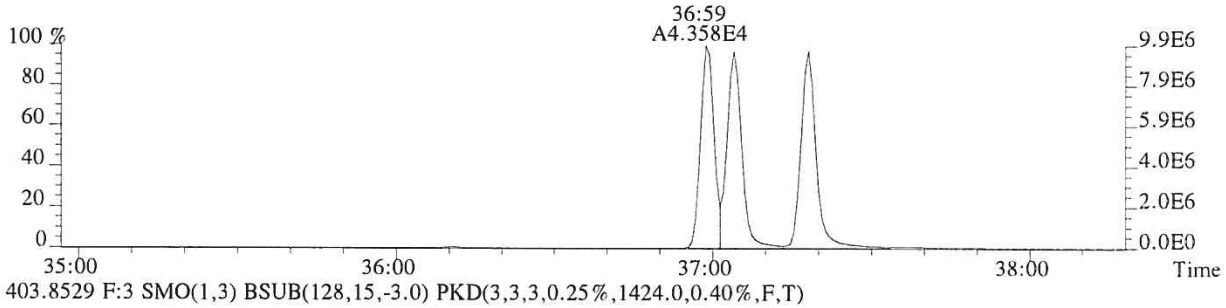
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



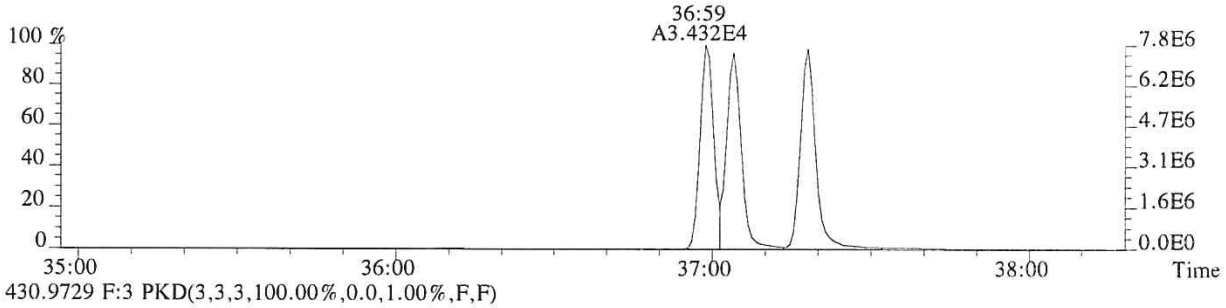
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



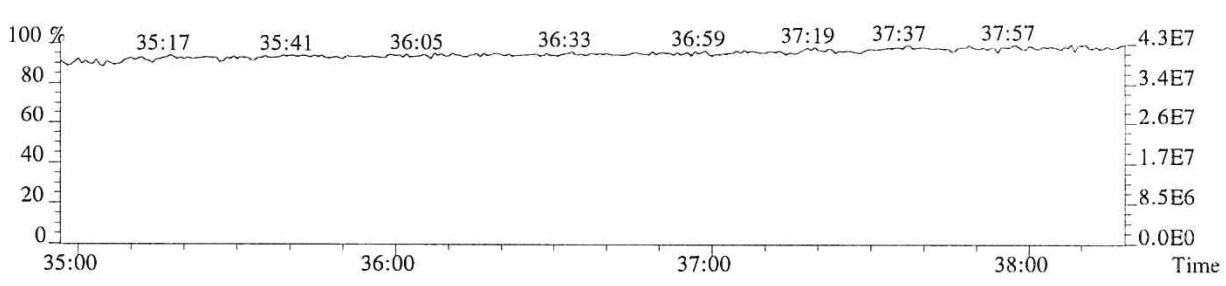
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)

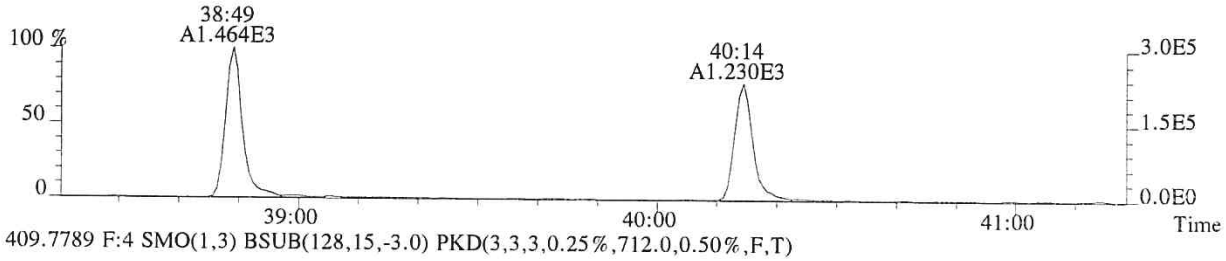


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

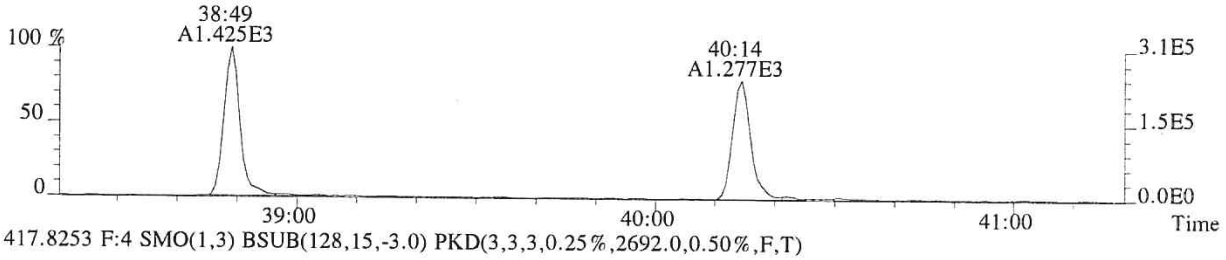


012906

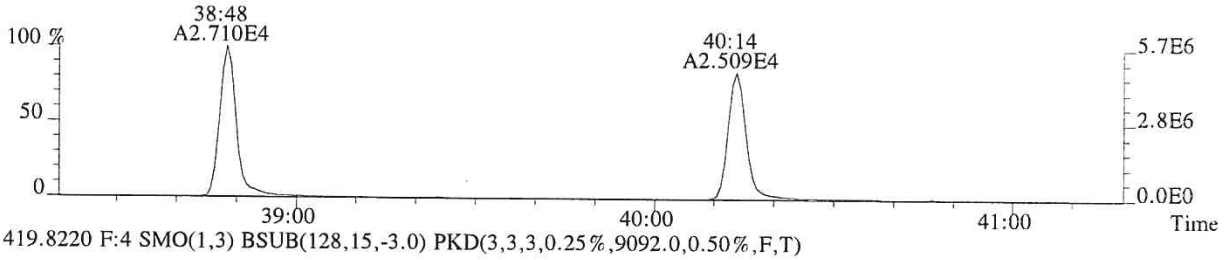
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



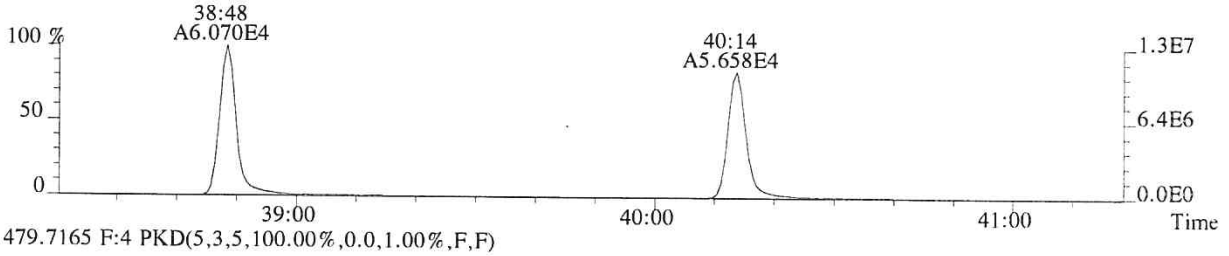
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



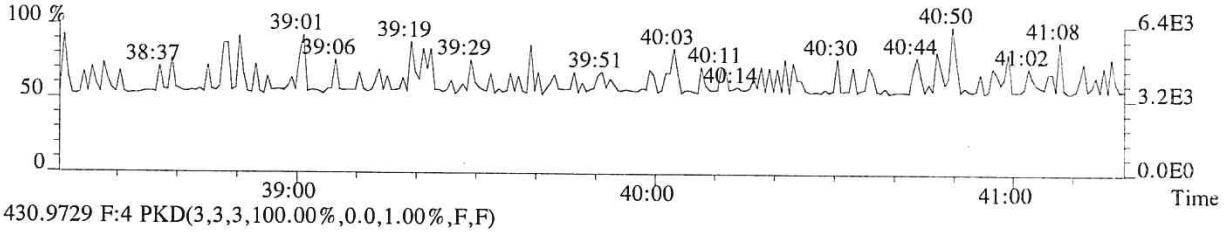
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



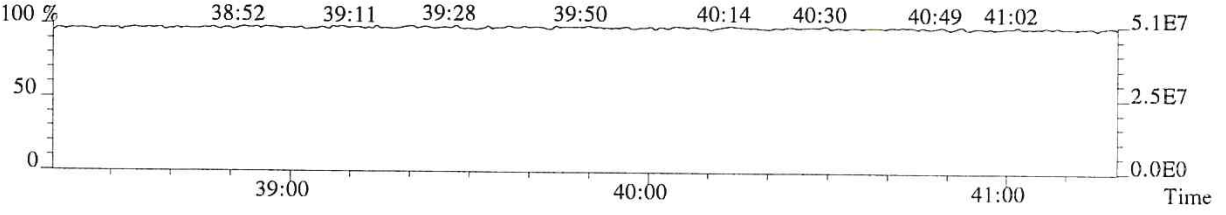
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

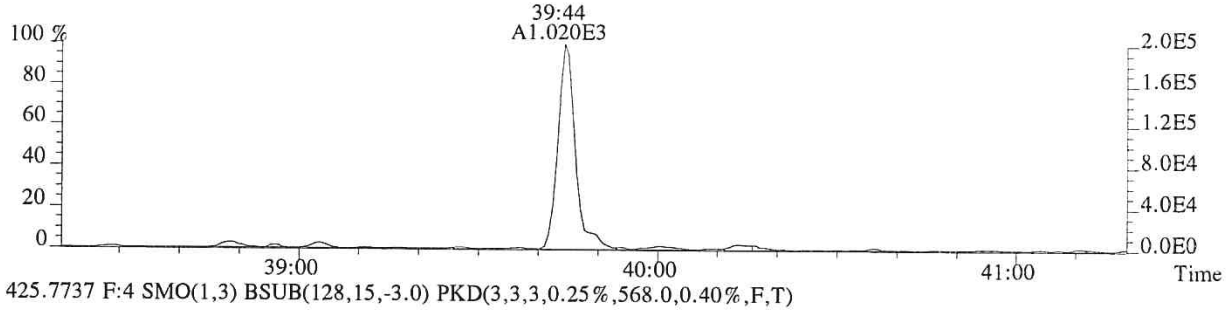


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

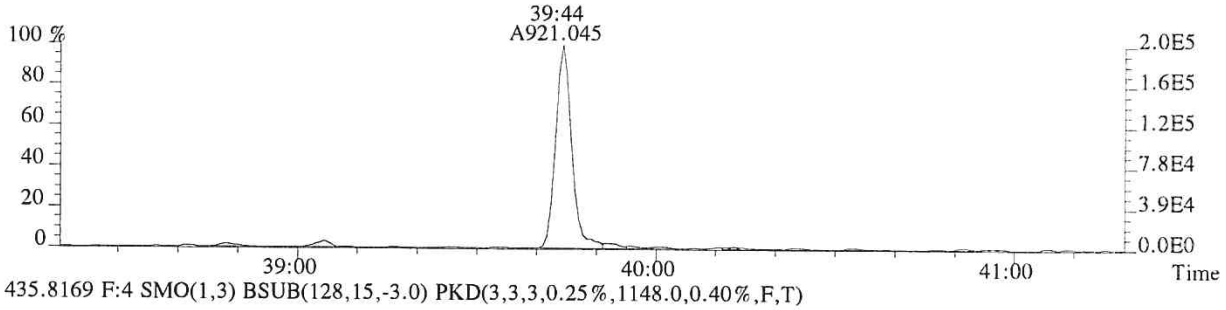


012907

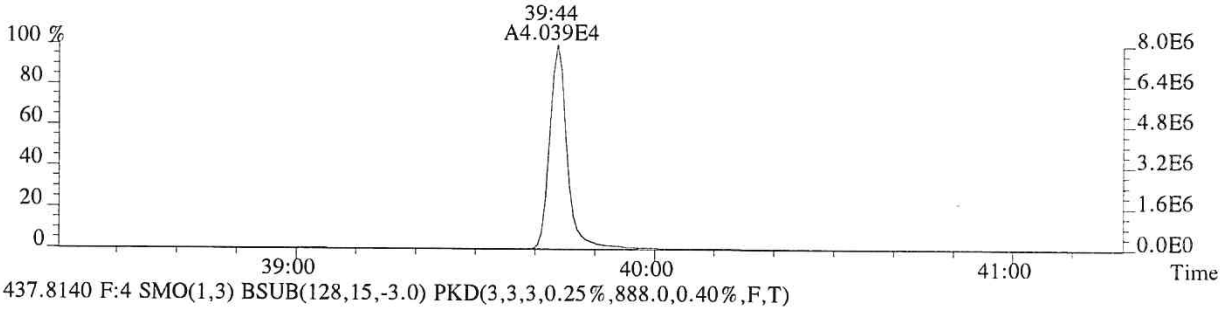
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



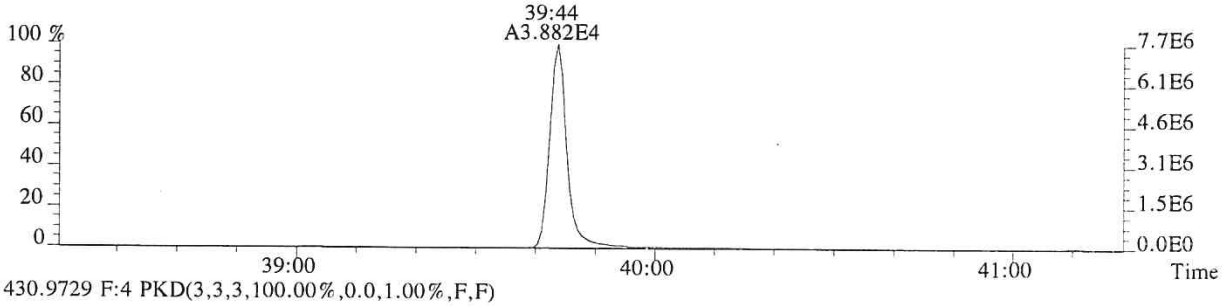
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



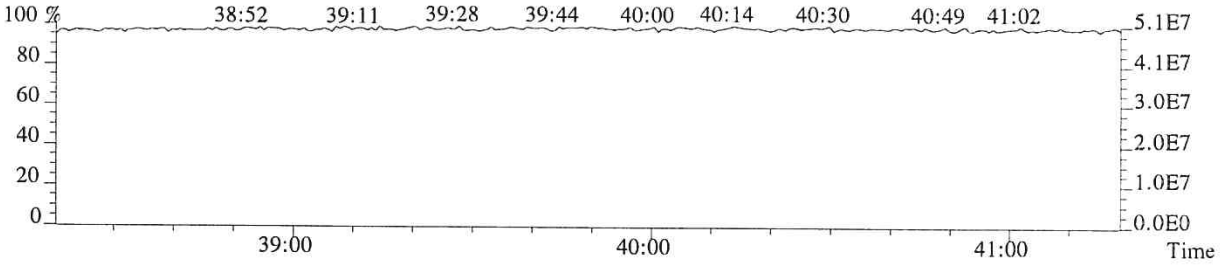
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)

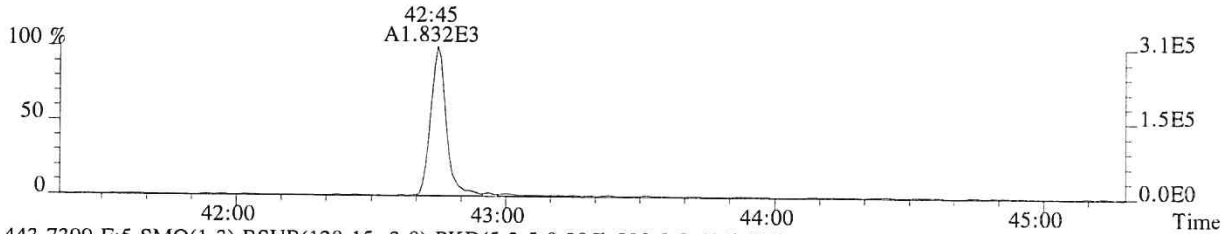


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

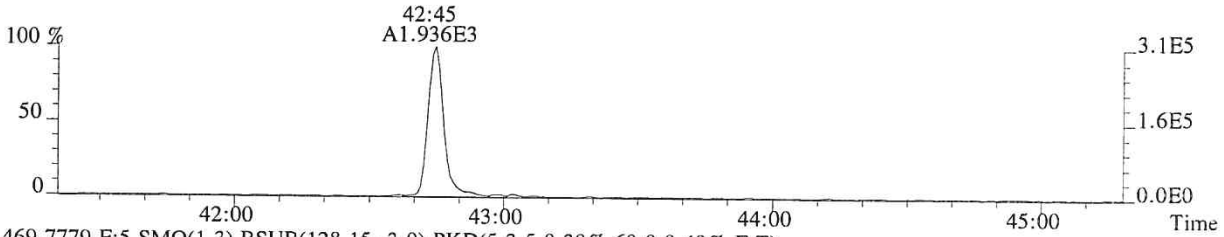


012908

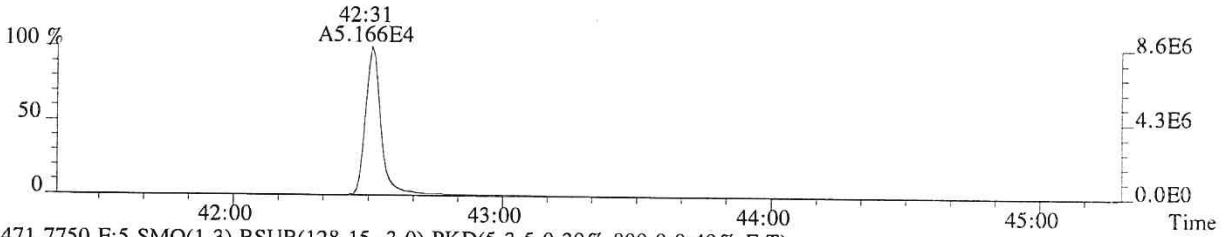
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



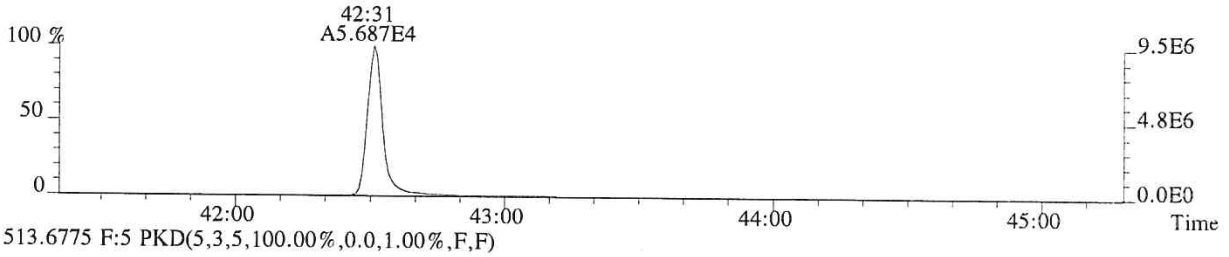
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



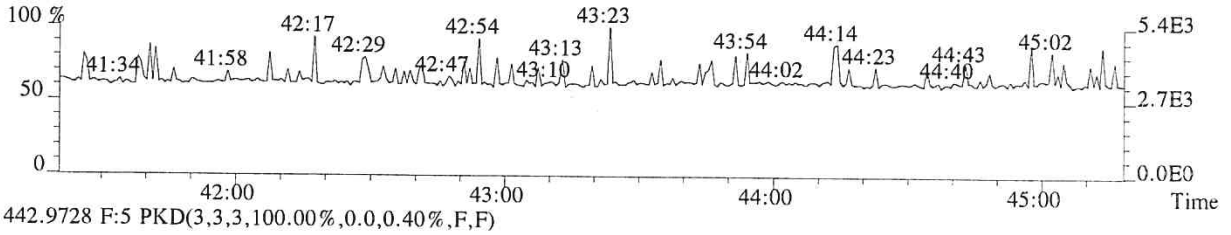
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



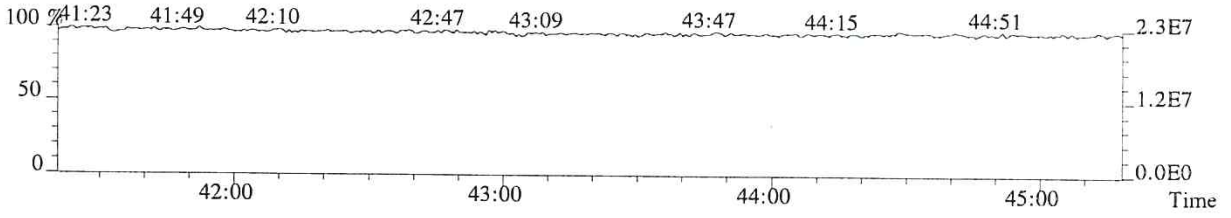
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

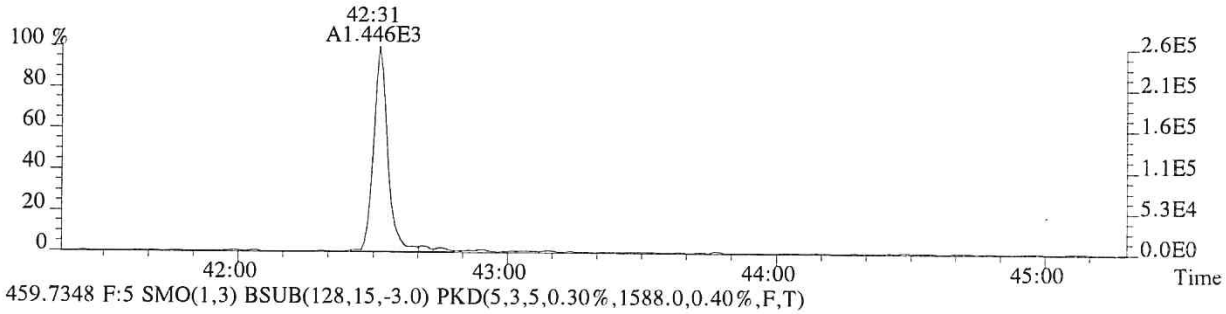


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

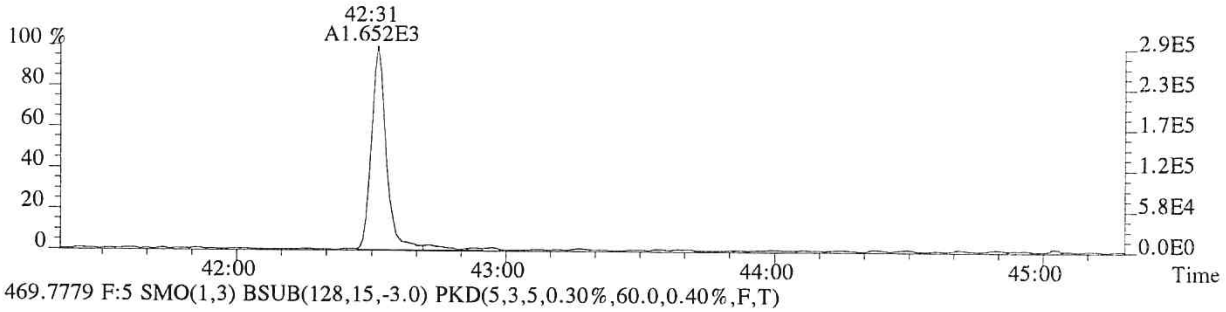


012909

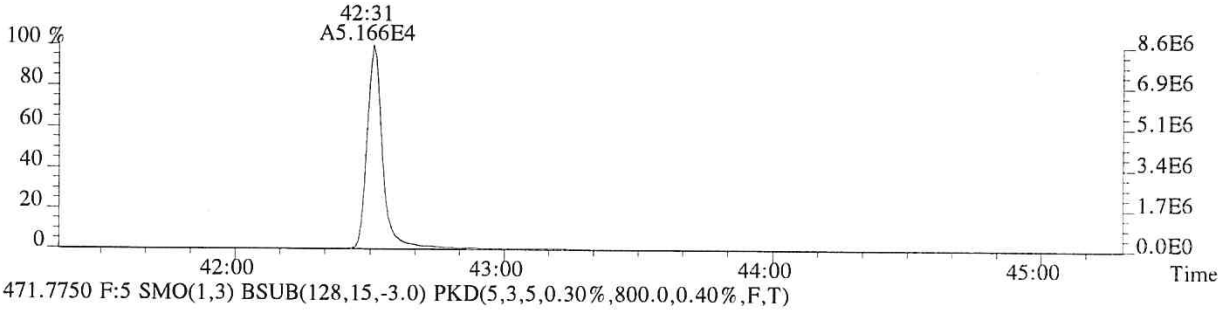
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



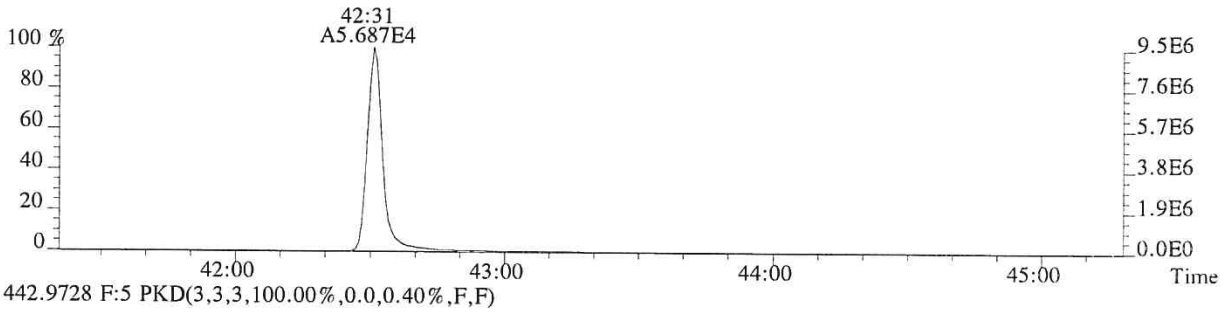
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



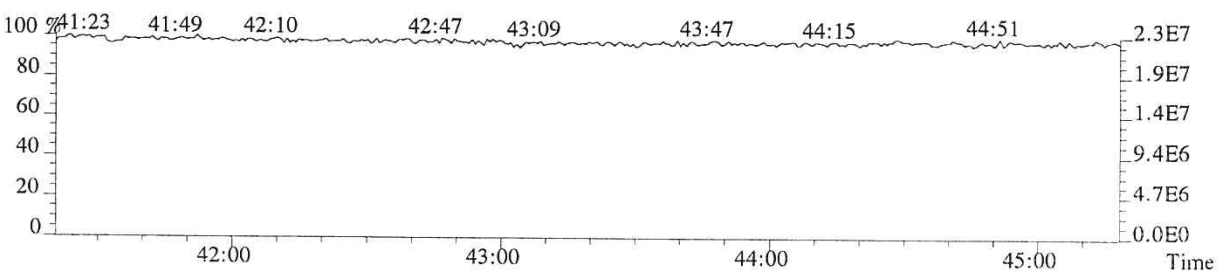
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012910

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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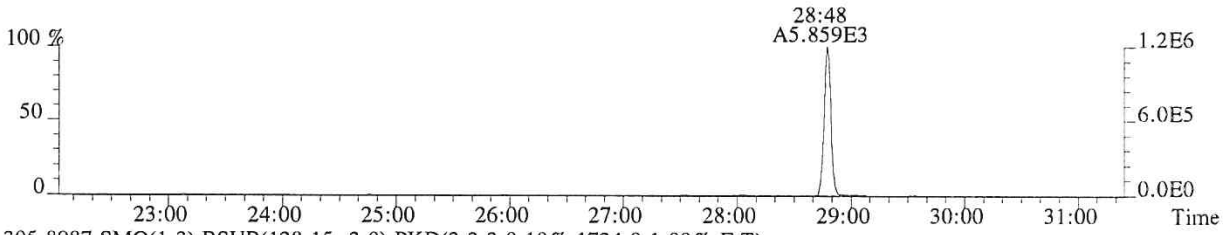
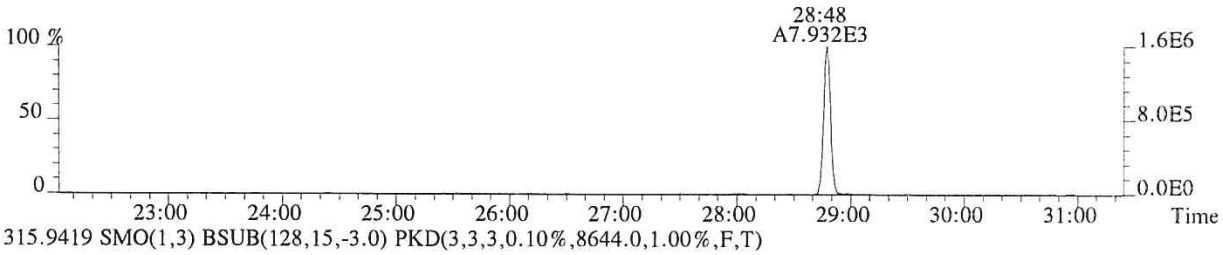
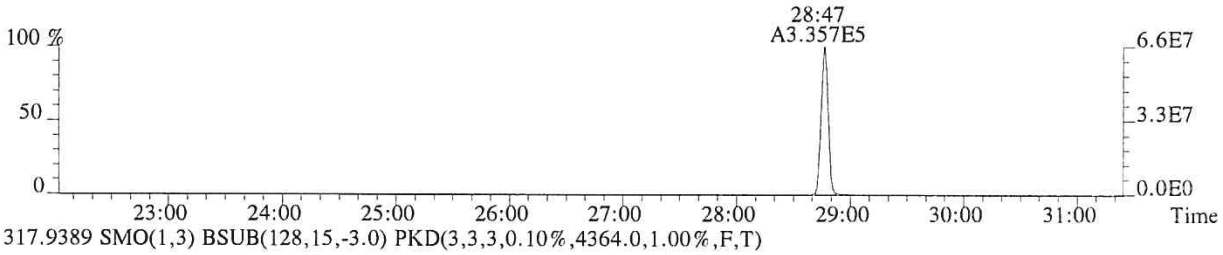
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



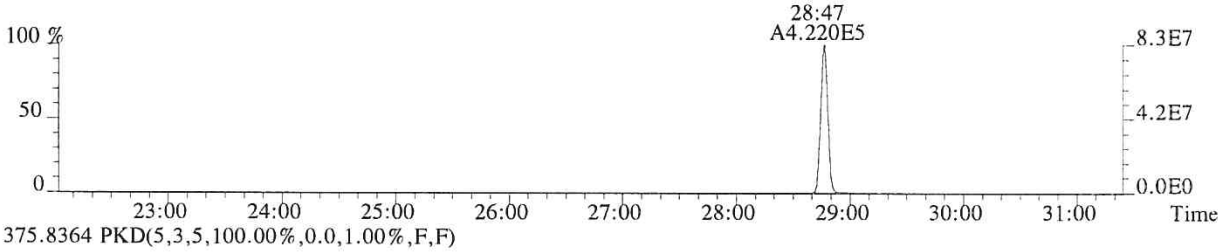
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



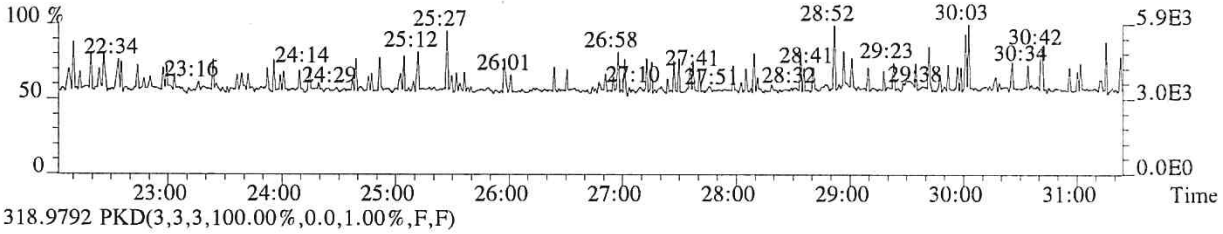
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



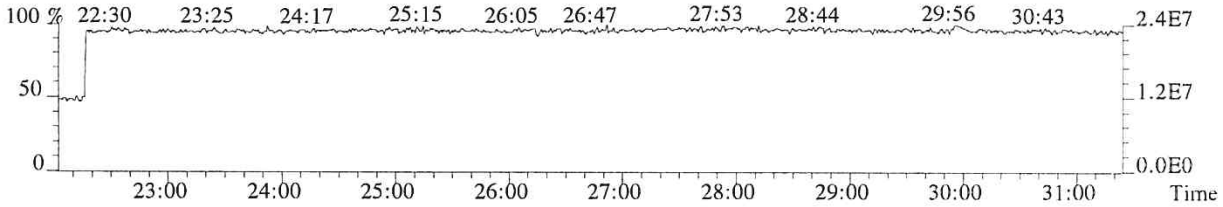
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

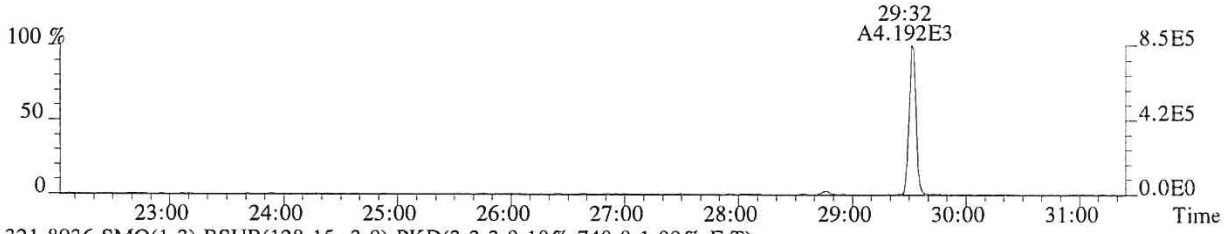


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

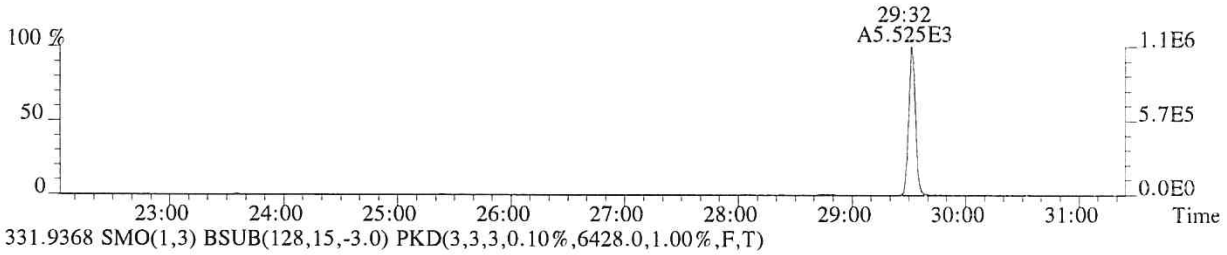


012913

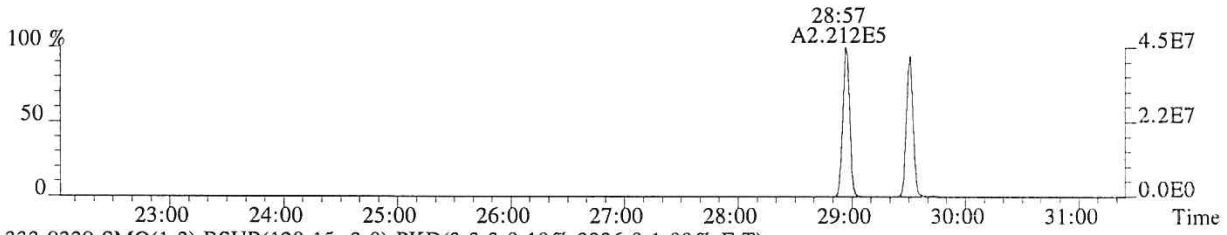
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



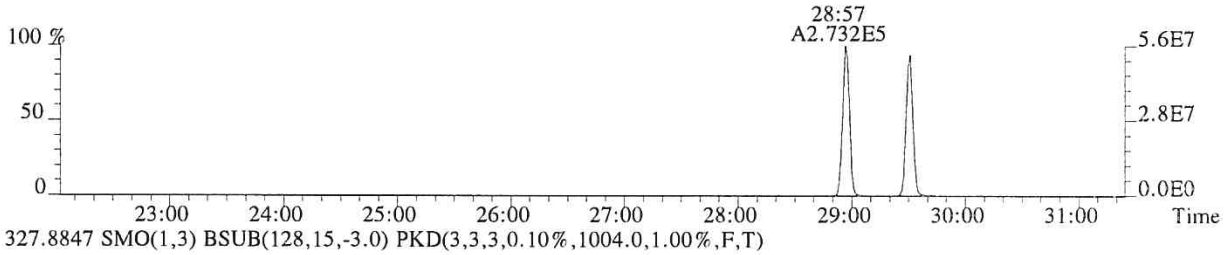
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



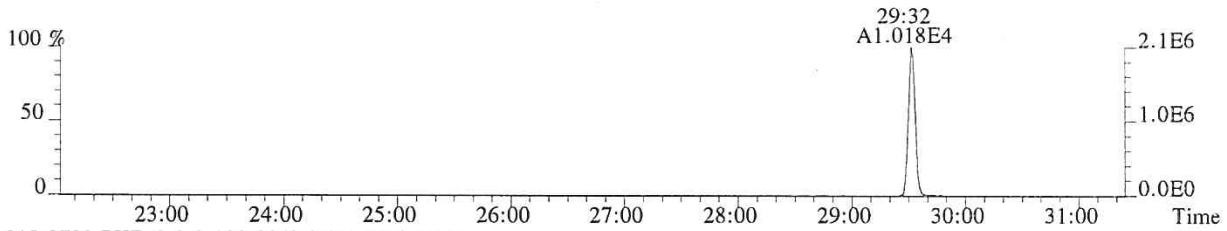
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



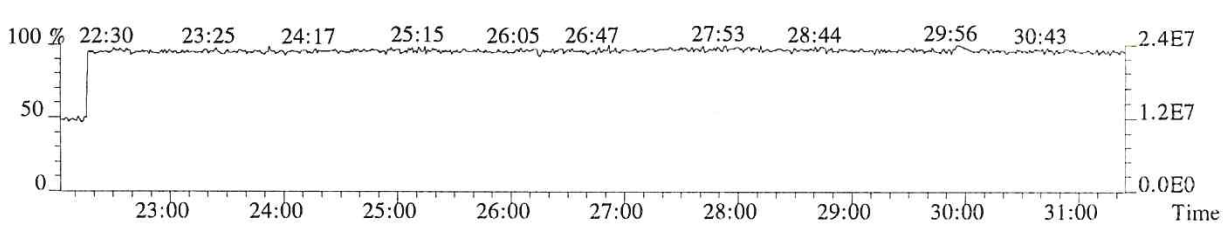
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

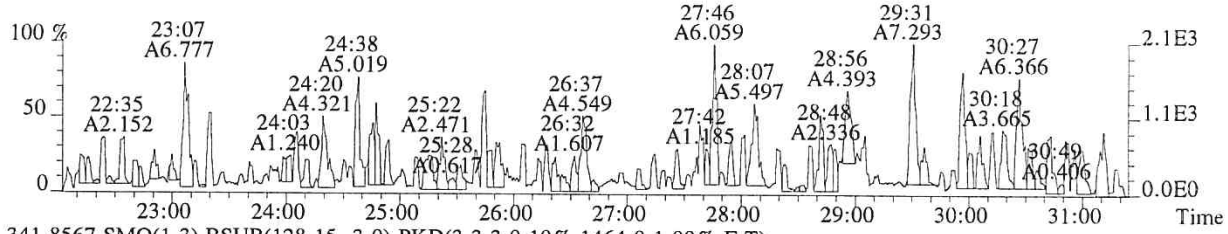


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

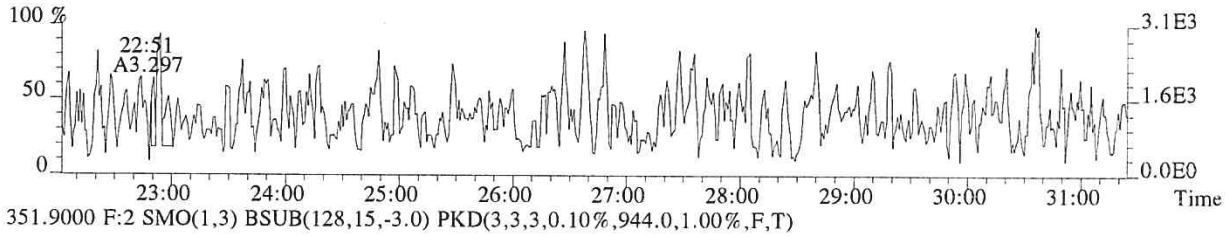


012914

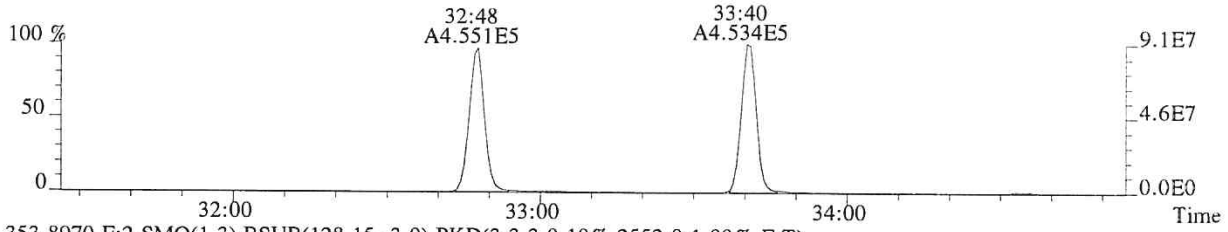
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



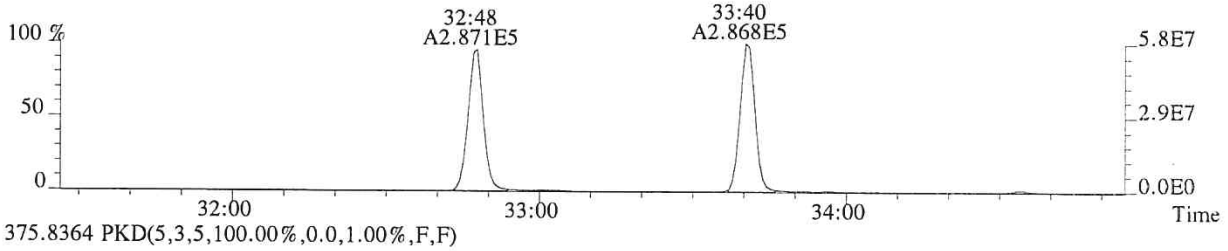
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



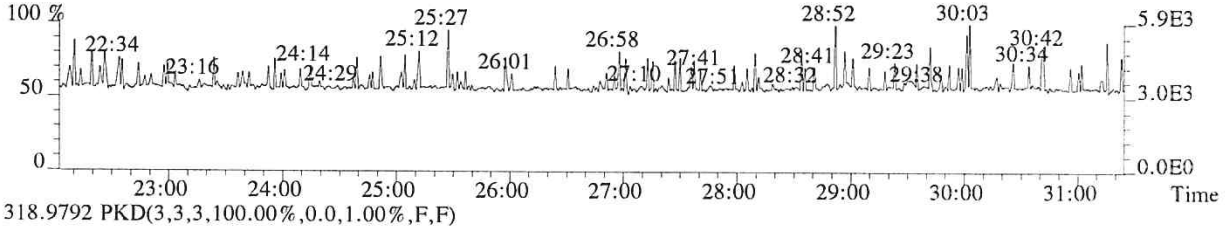
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



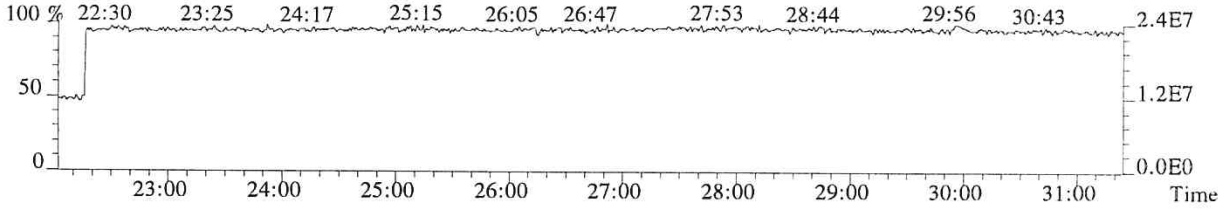
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

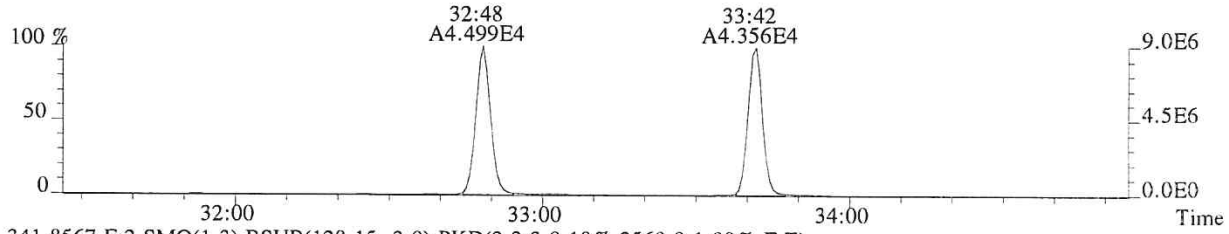


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

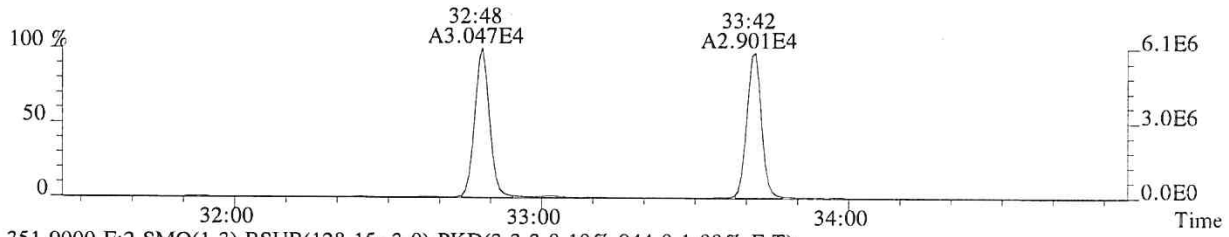


012915

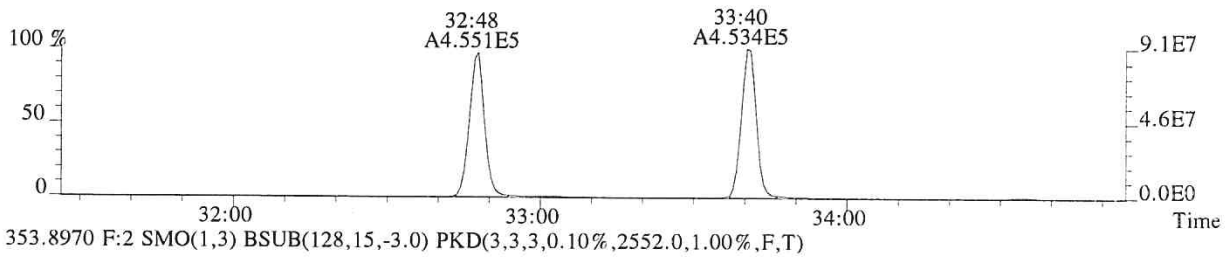
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



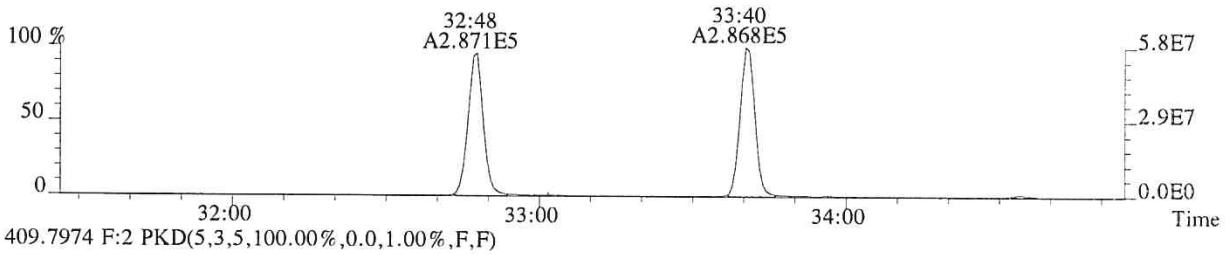
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



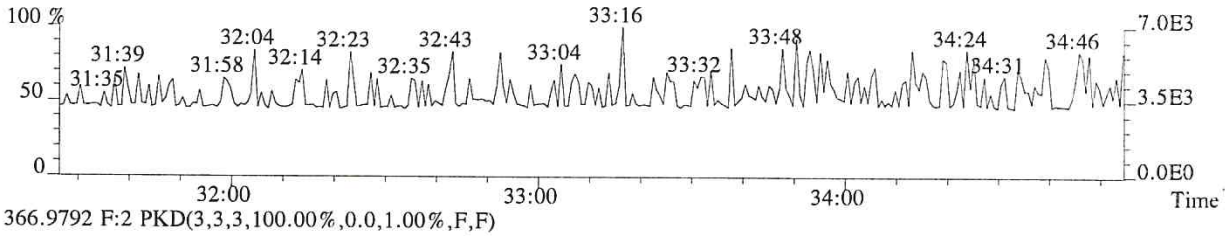
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



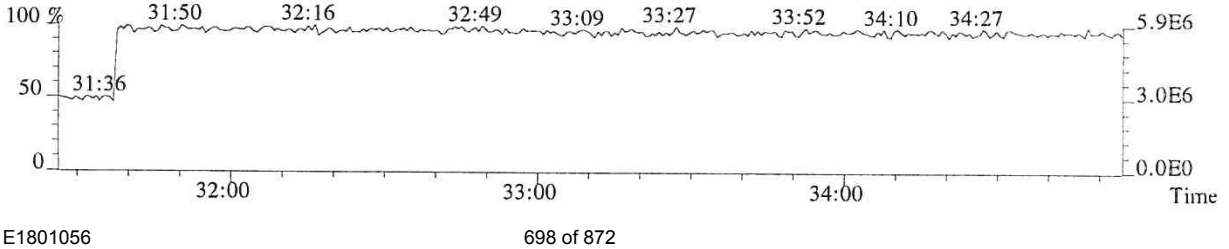
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

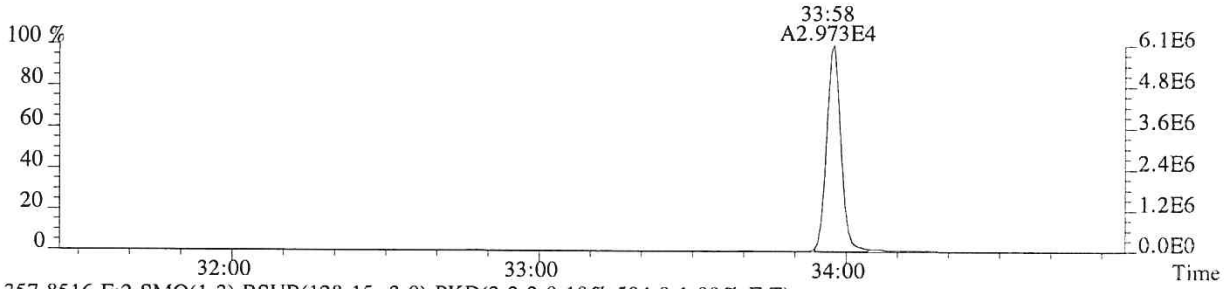


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

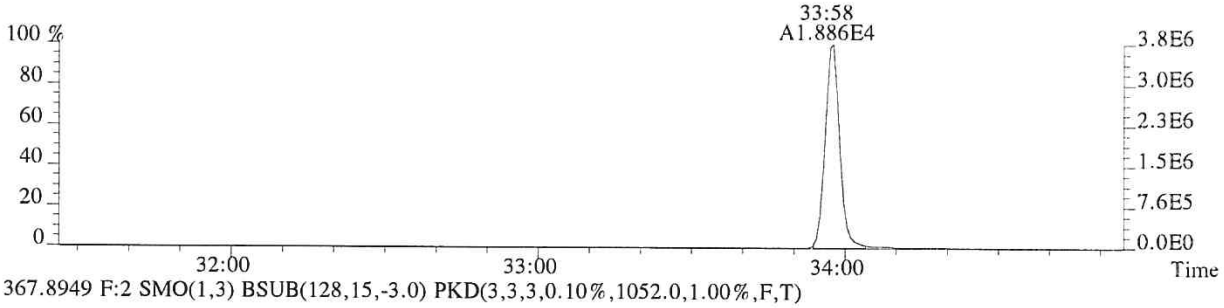


012916

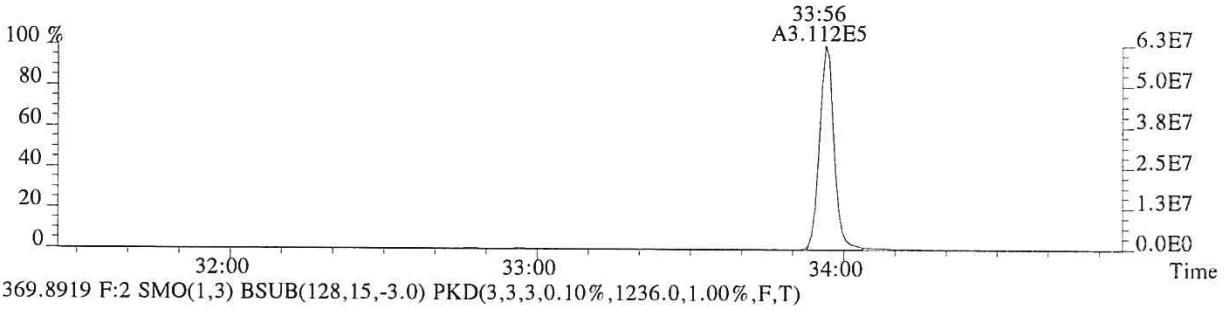
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



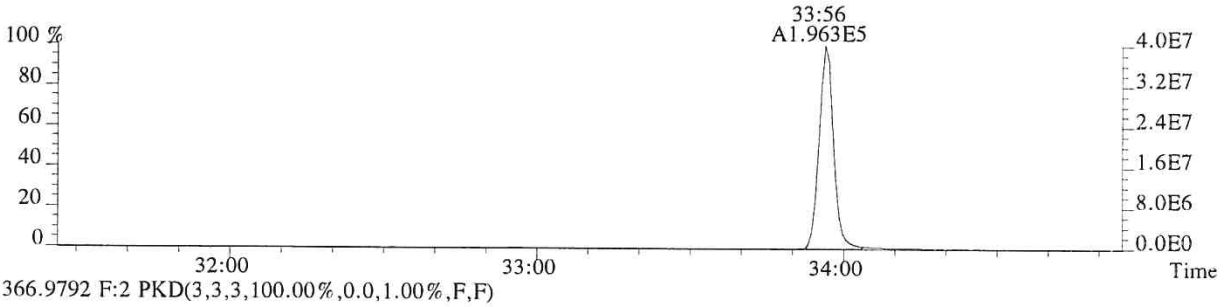
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



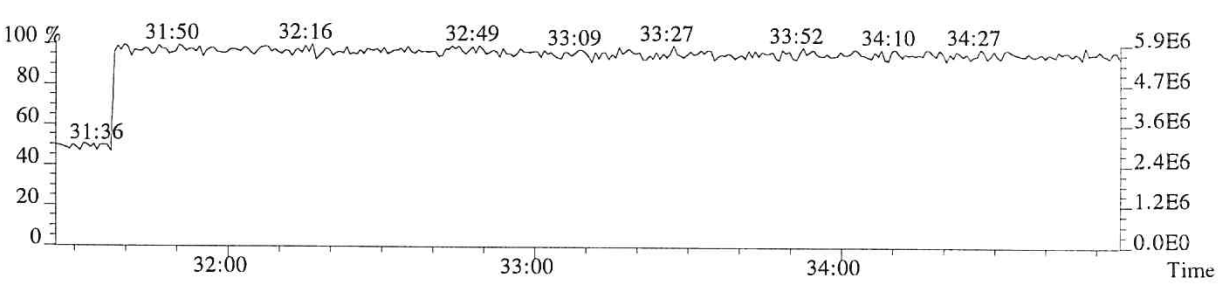
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)

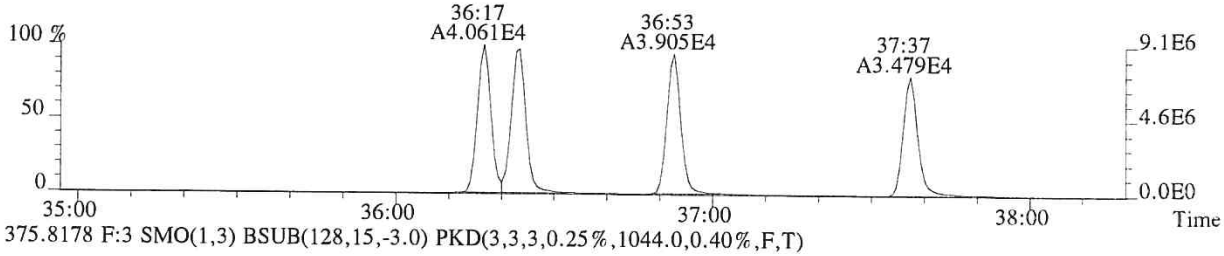


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

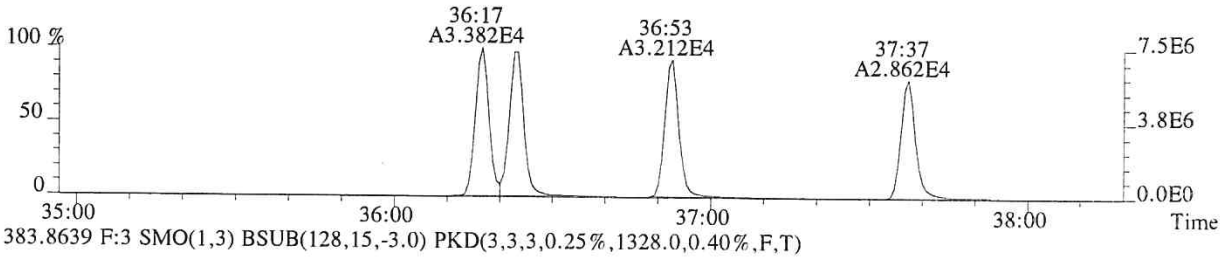


012917

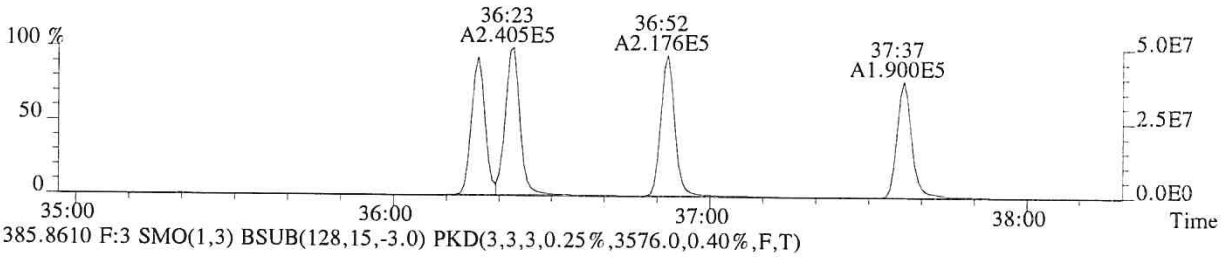
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



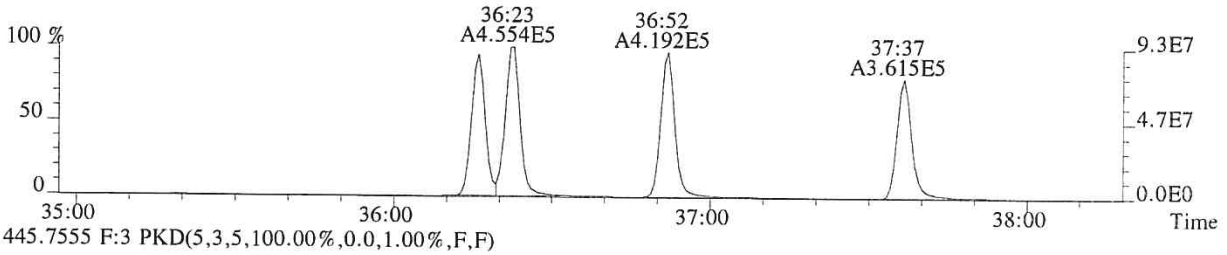
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



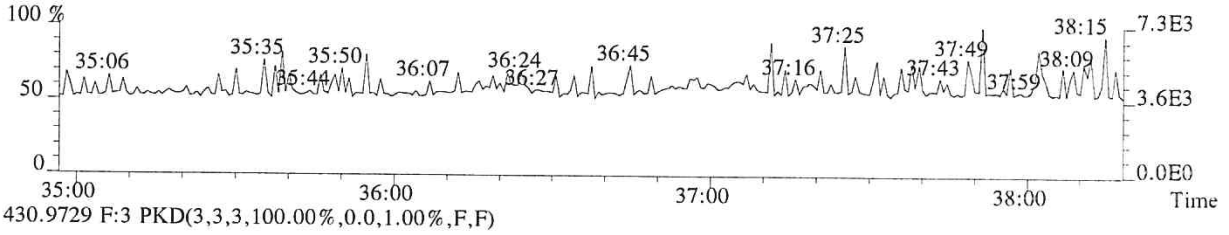
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



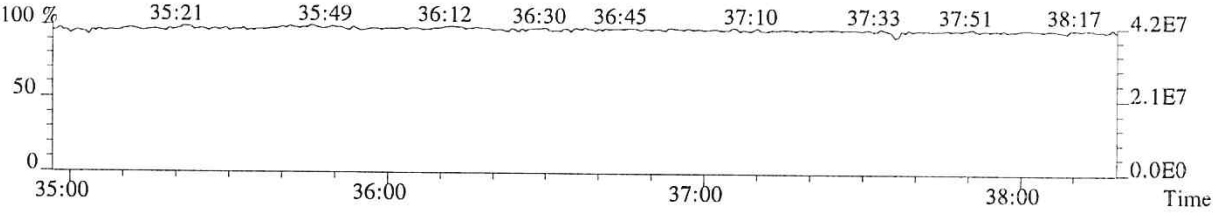
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

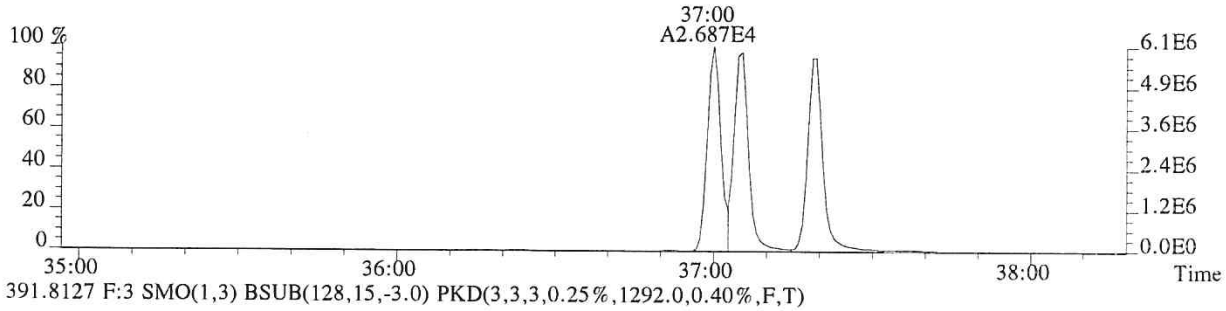


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

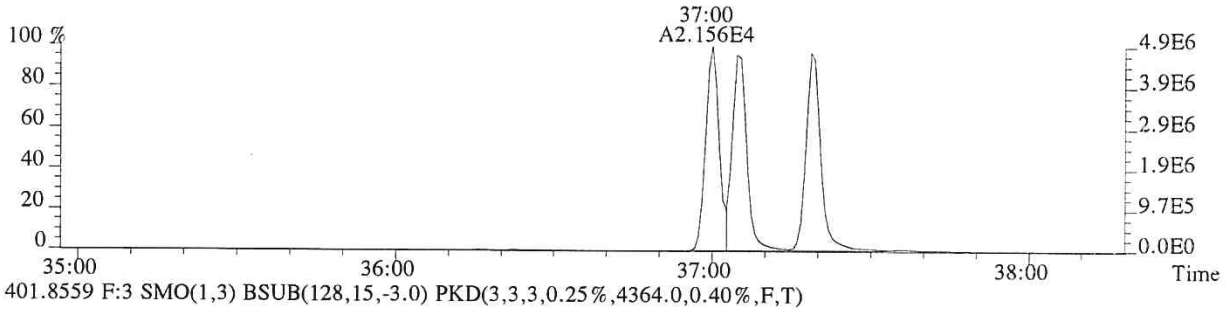


012918

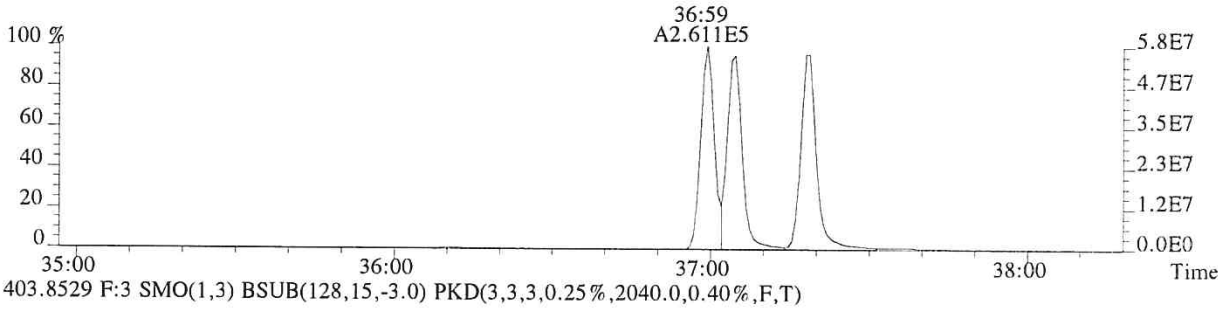
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



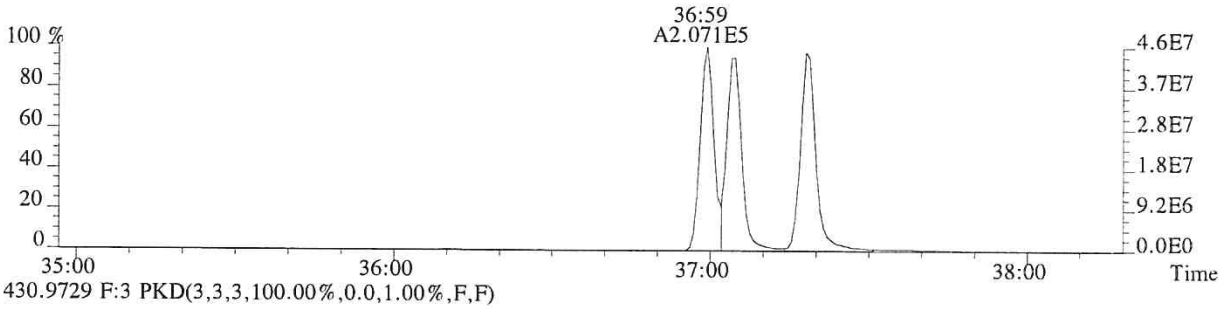
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



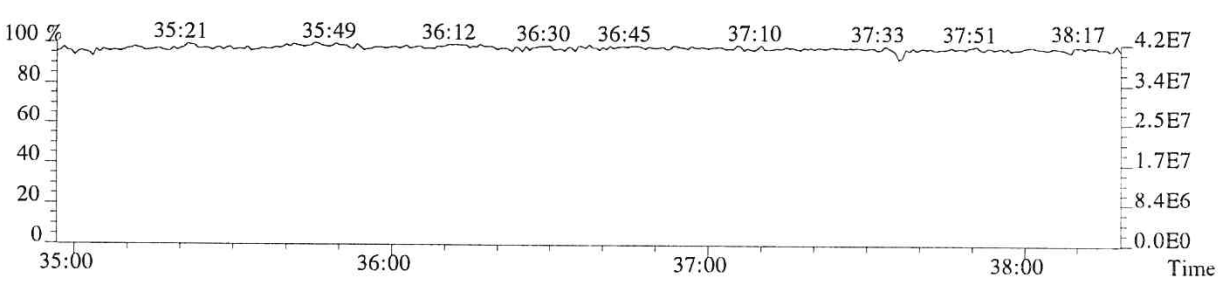
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)

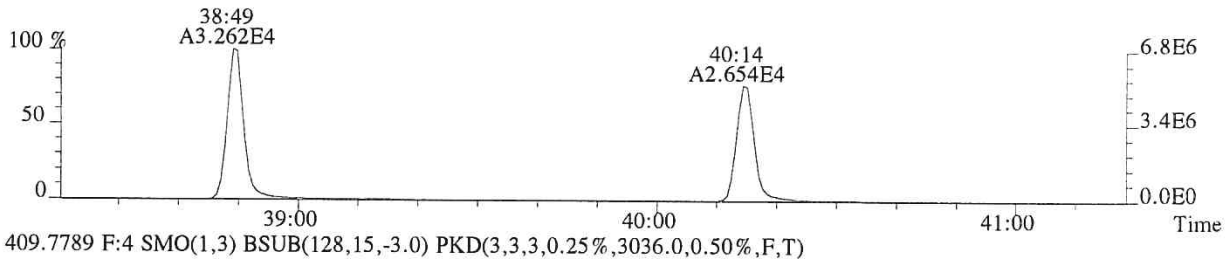


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

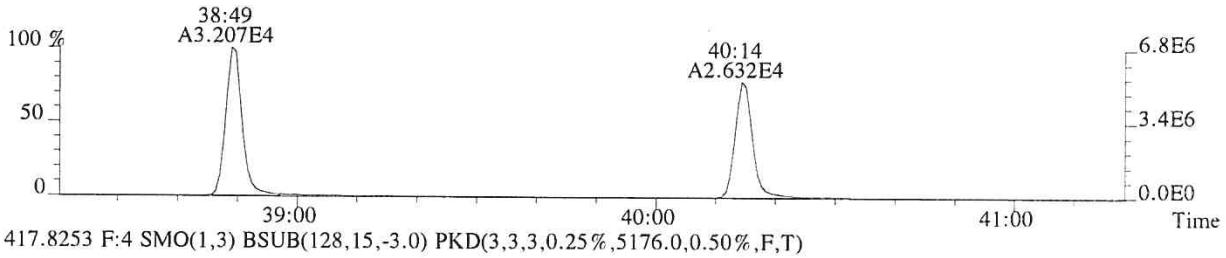


012919

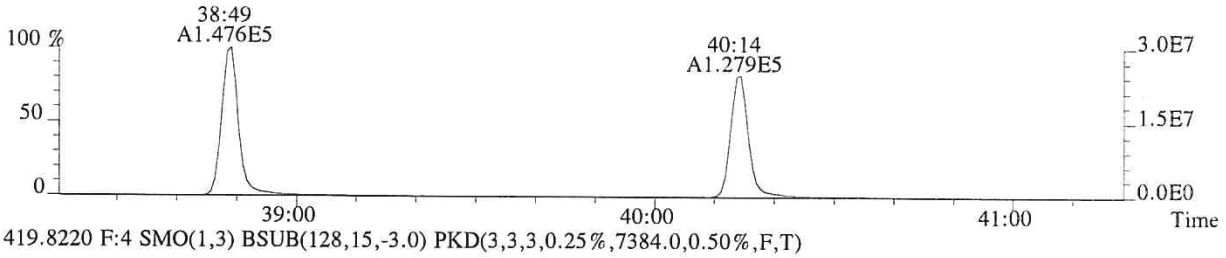
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



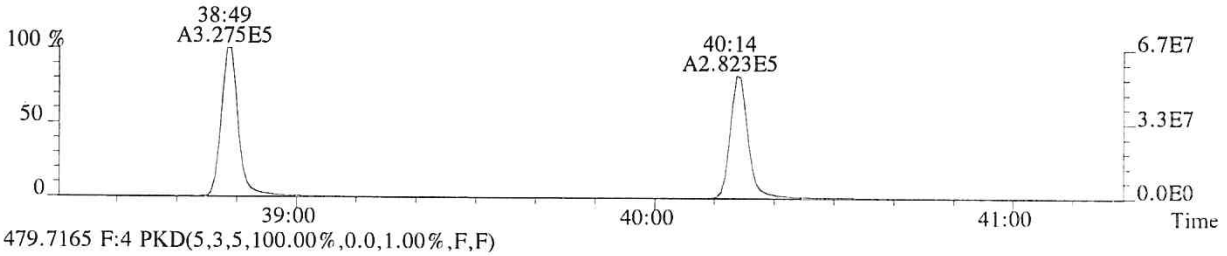
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



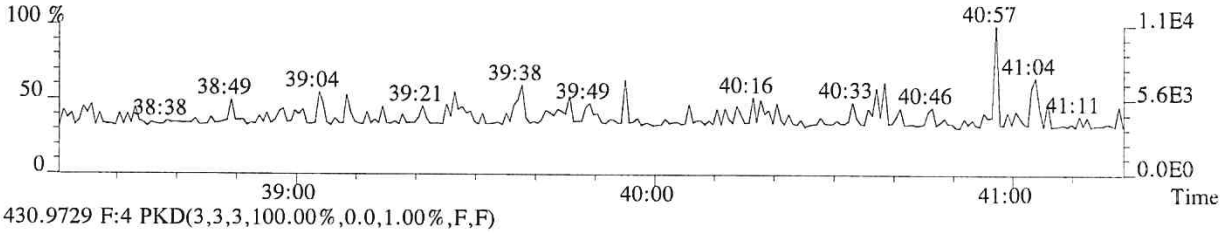
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



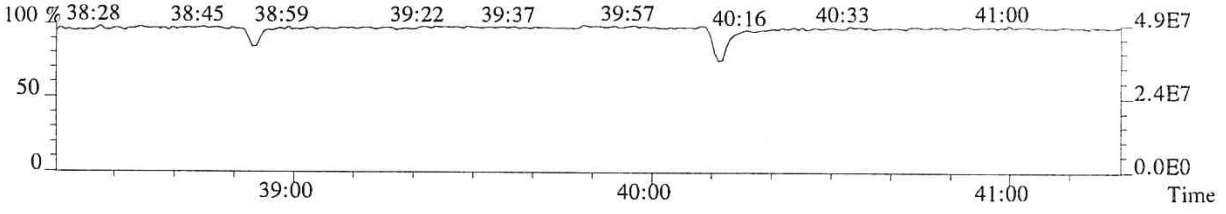
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

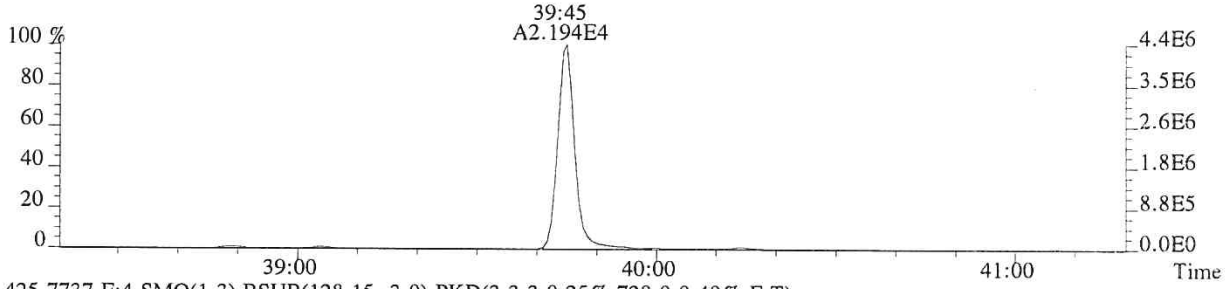


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

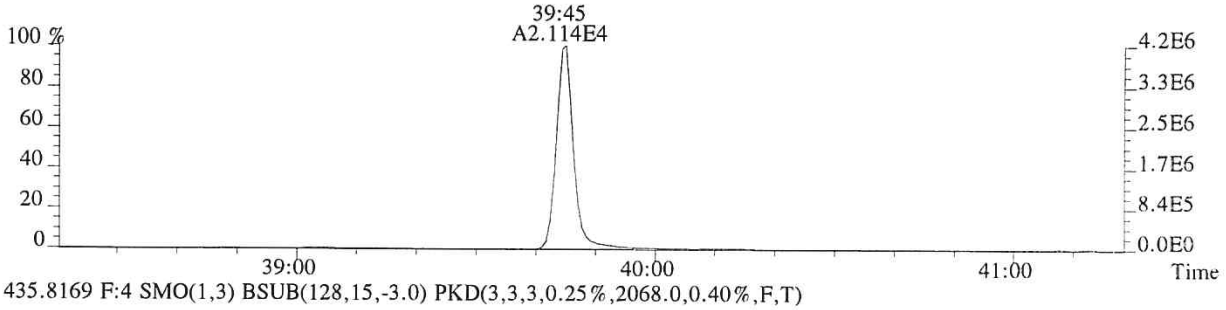


012920

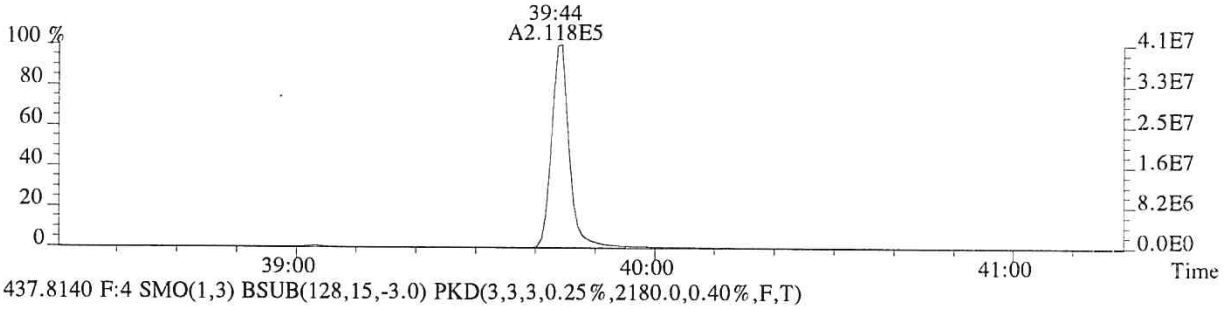
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



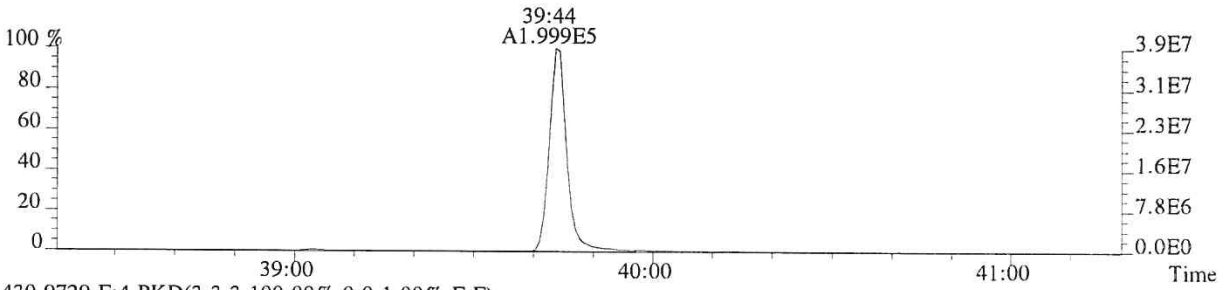
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



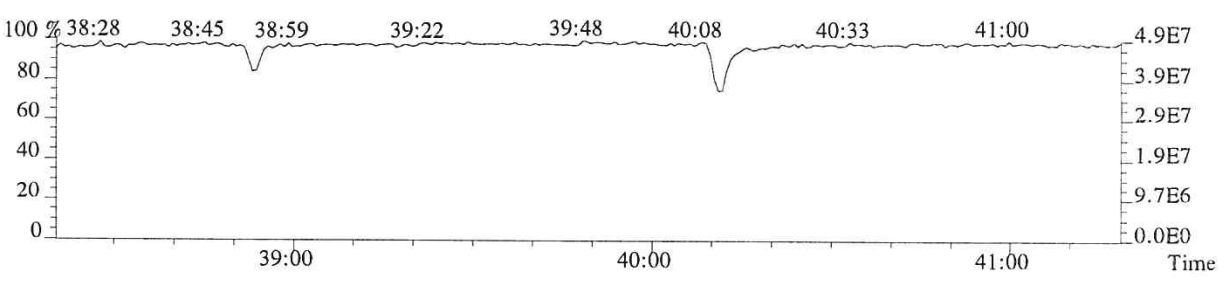
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)

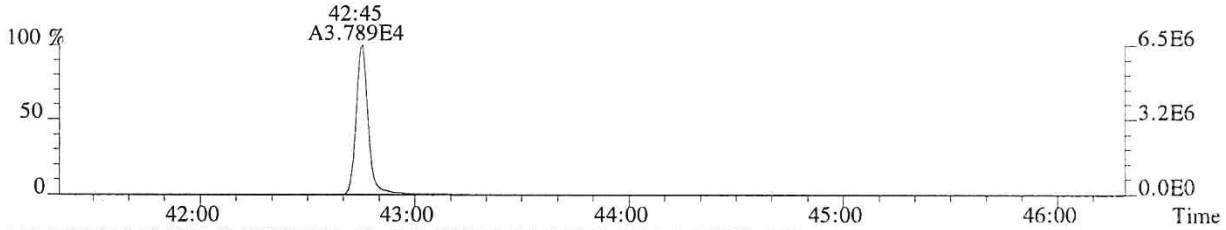


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

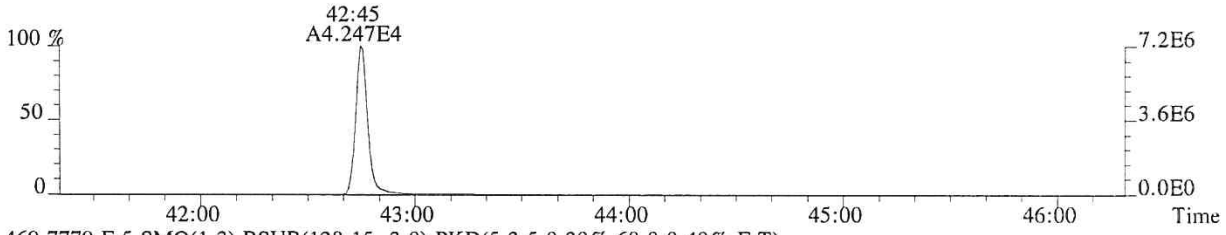


012921

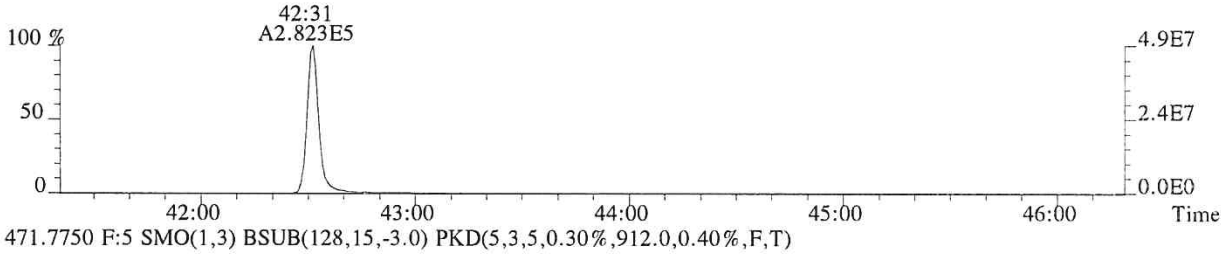
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



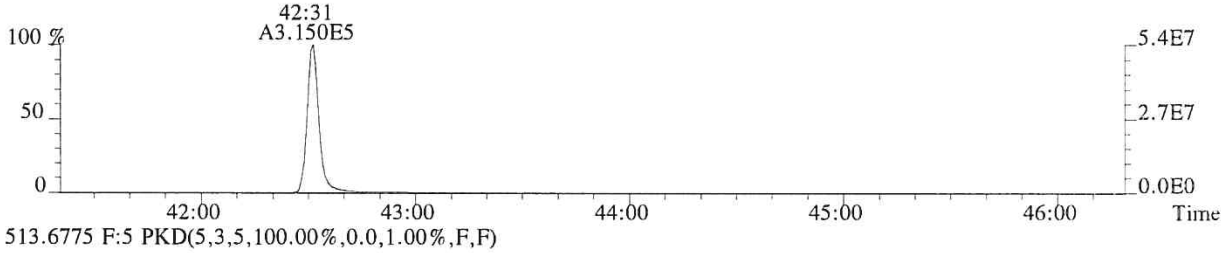
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



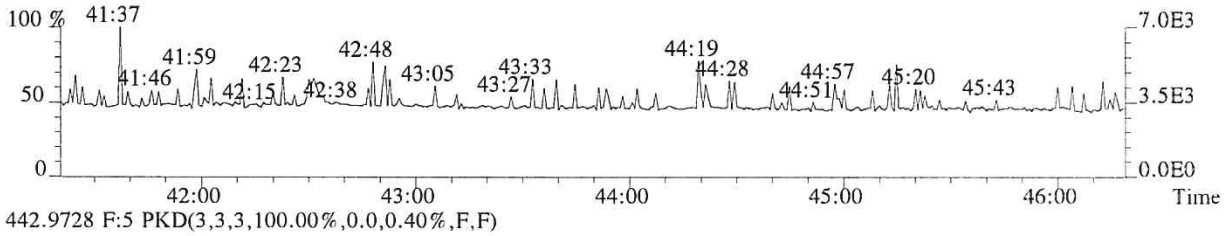
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



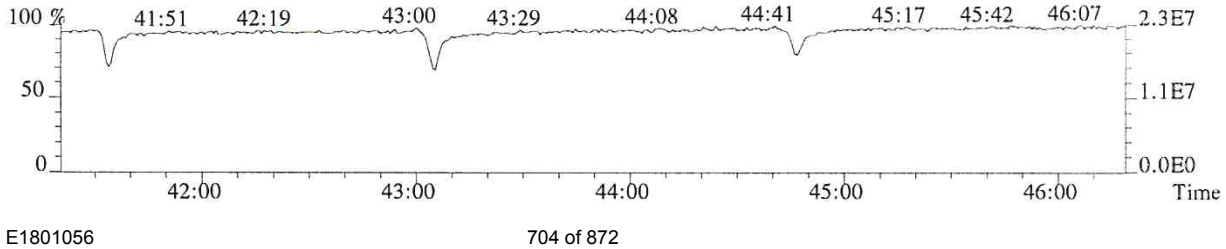
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

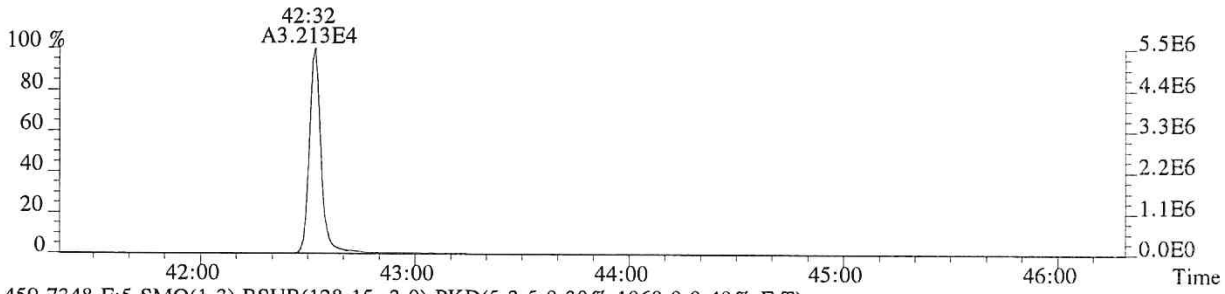


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

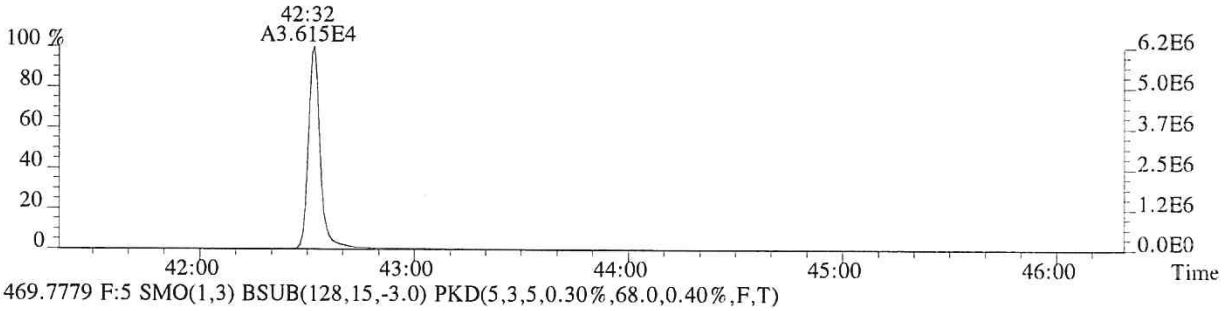


012922

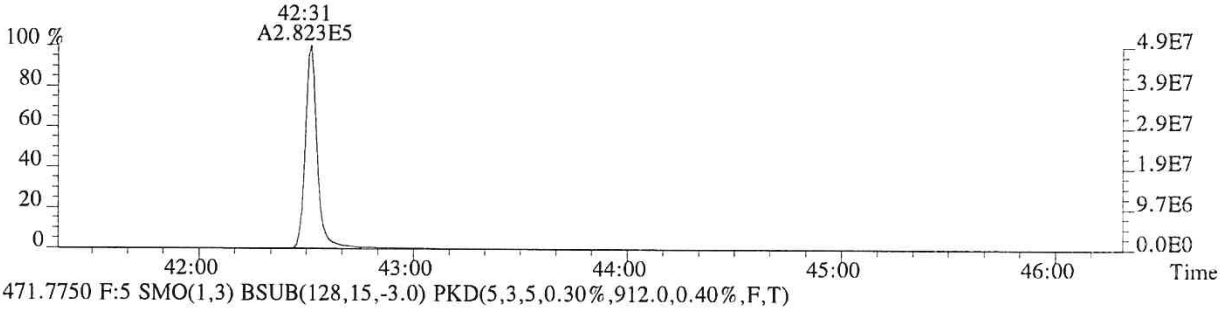
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



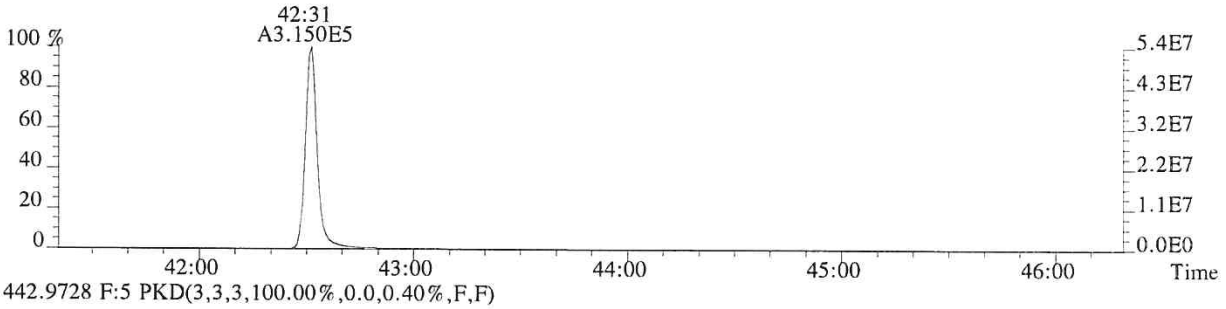
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



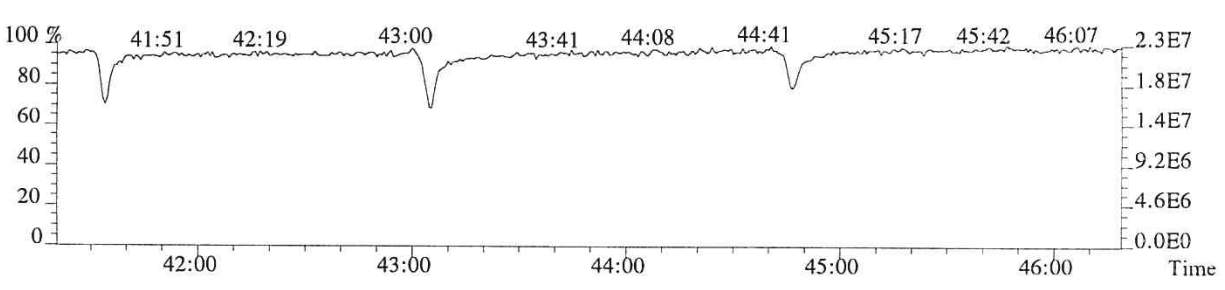
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012923

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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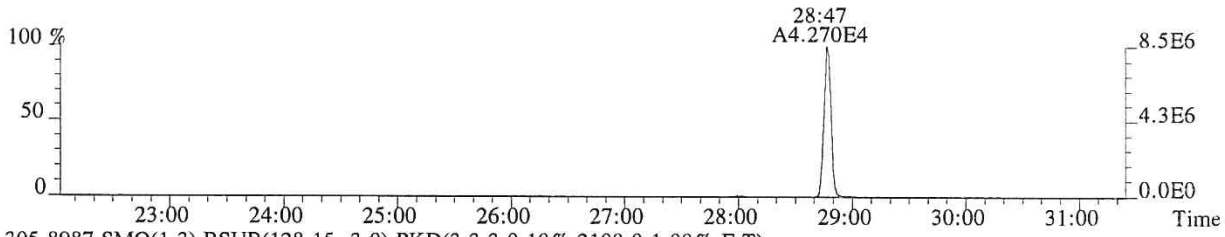
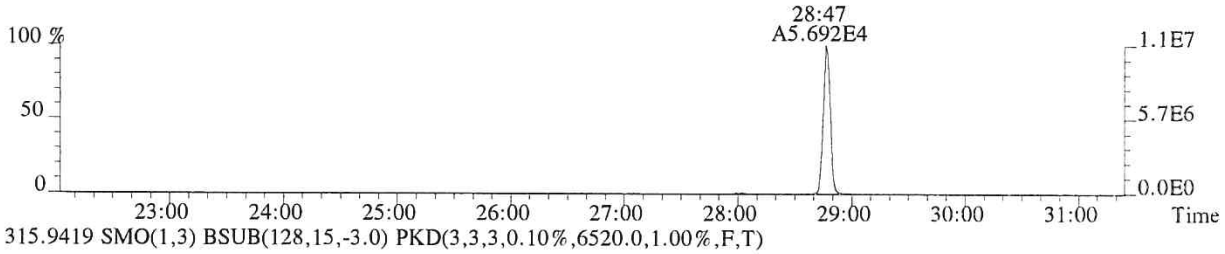
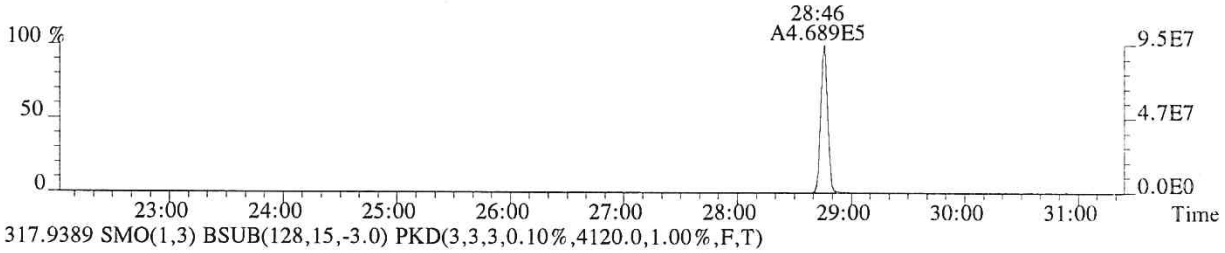
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



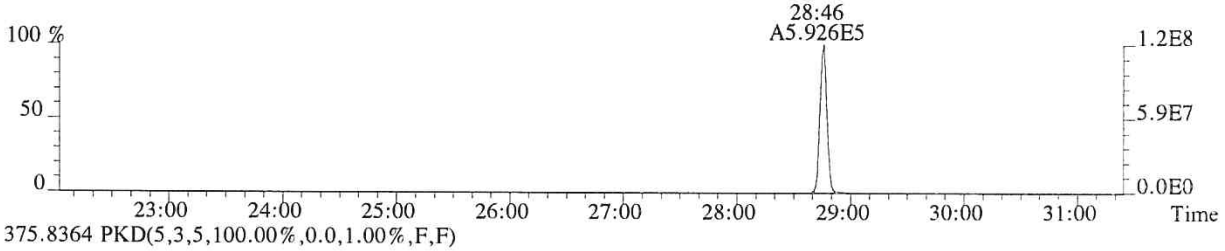
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



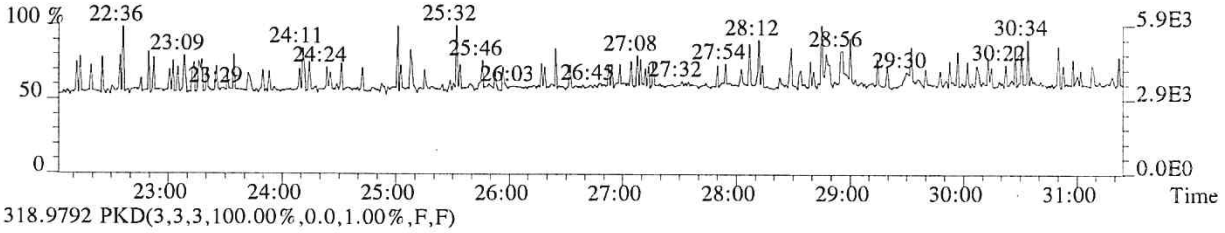
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



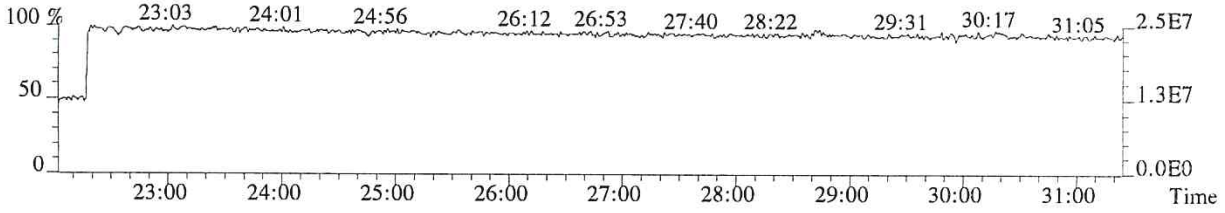
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

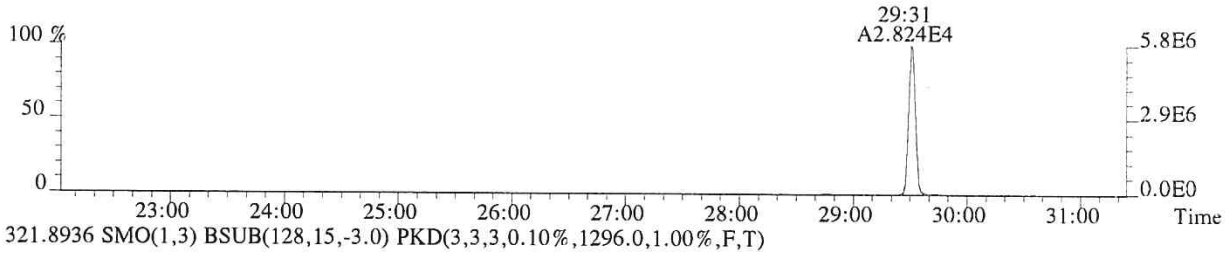


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

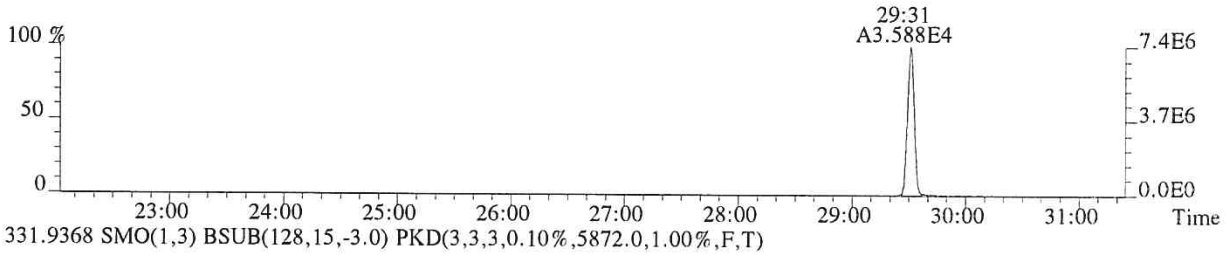


012926

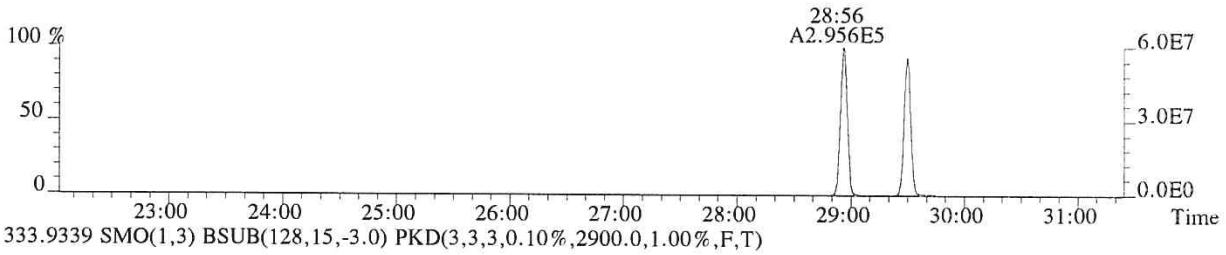
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



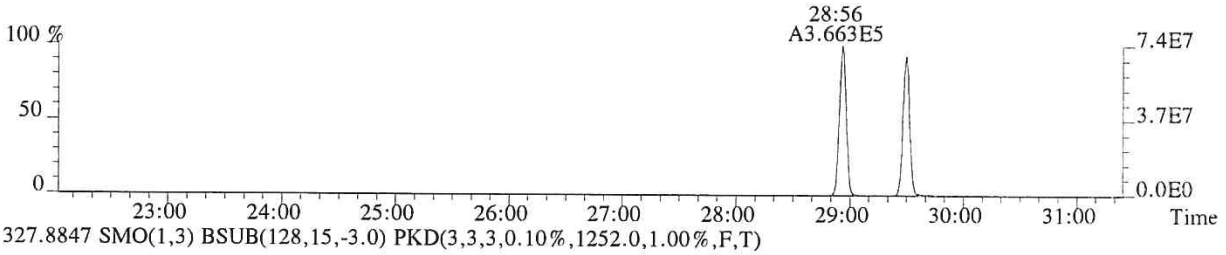
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



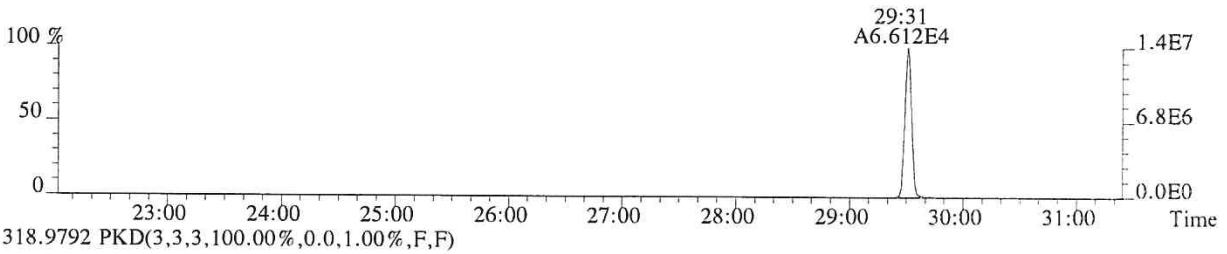
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



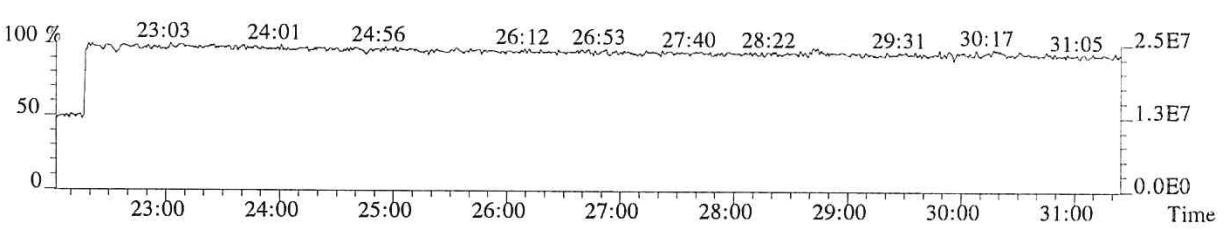
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)

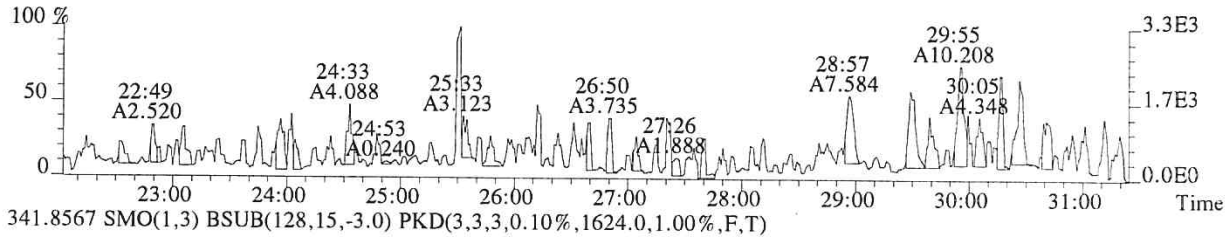


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

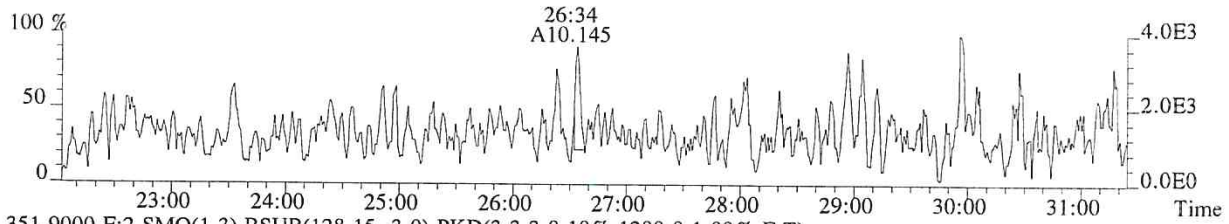


012927

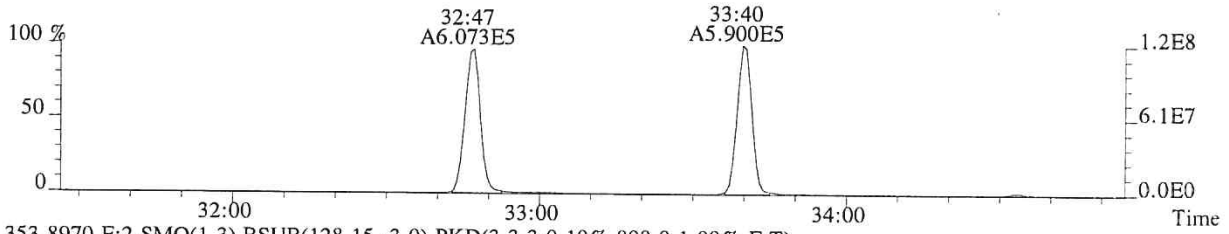
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



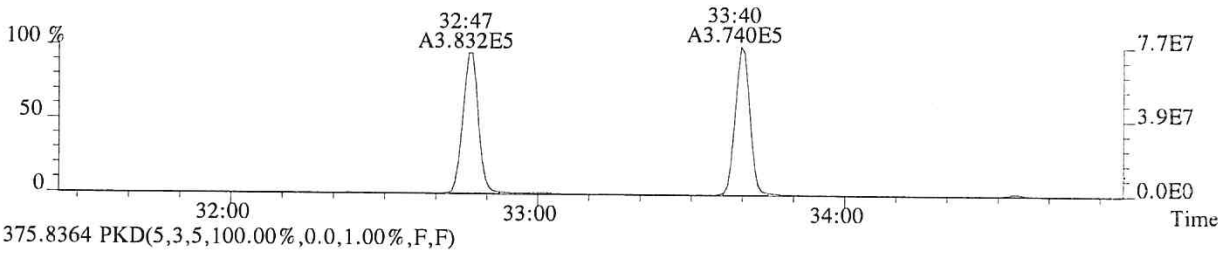
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



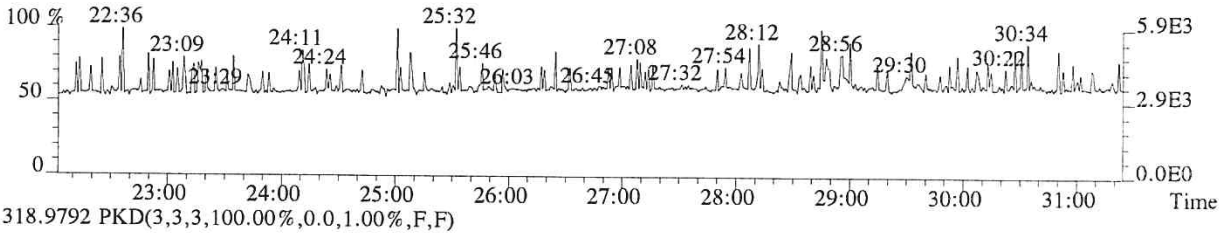
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



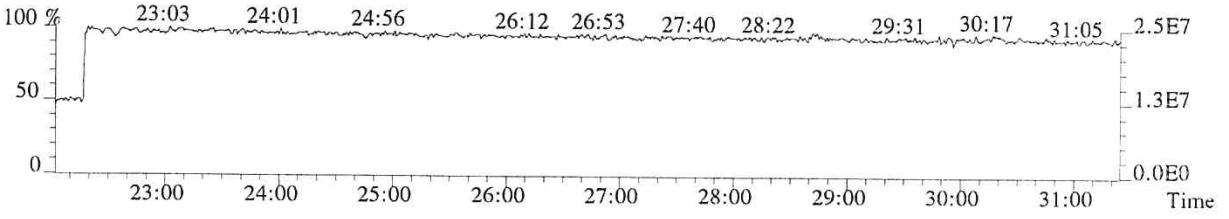
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

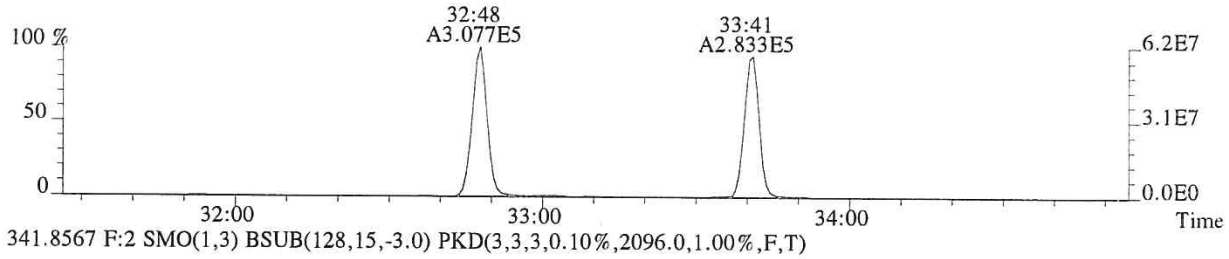


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

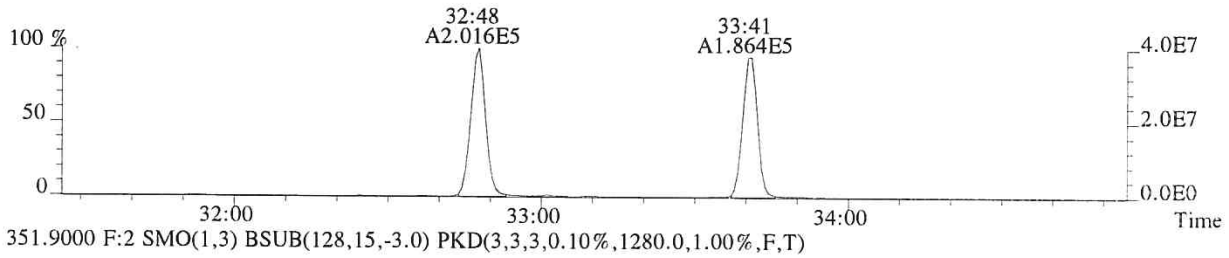


012928

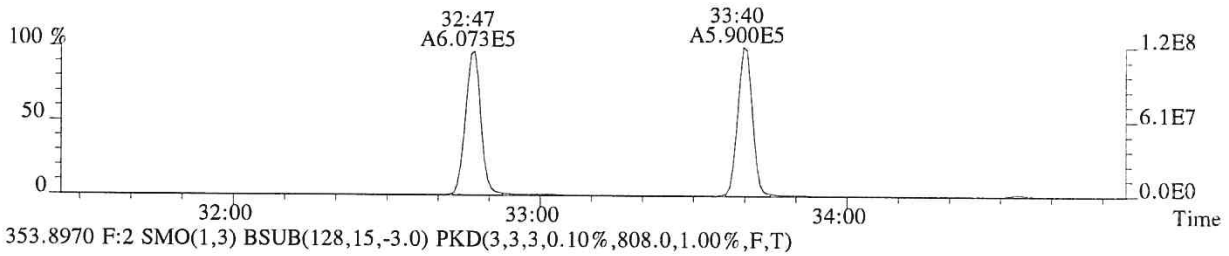
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



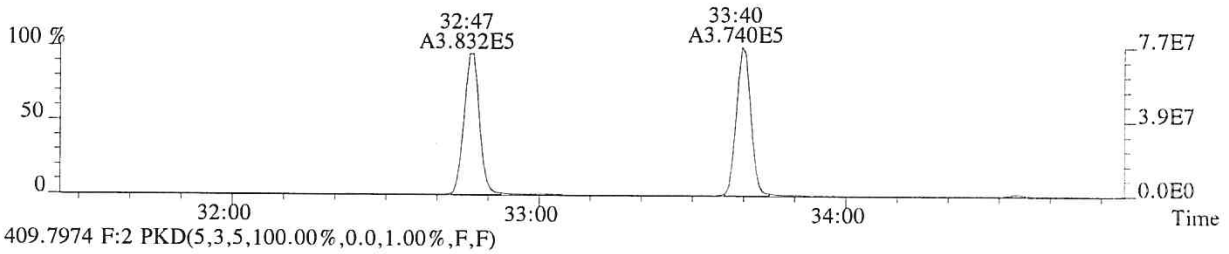
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



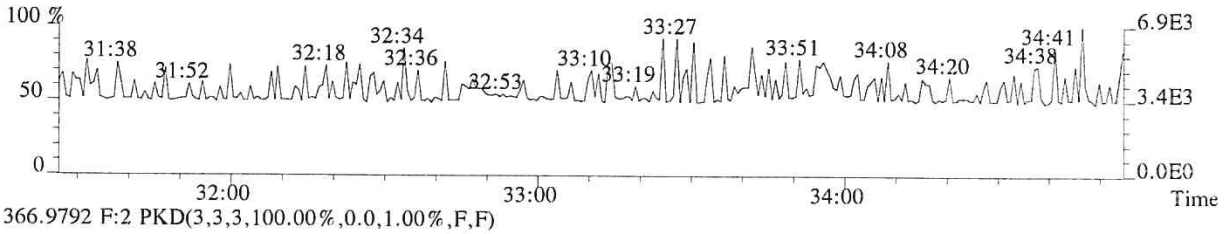
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



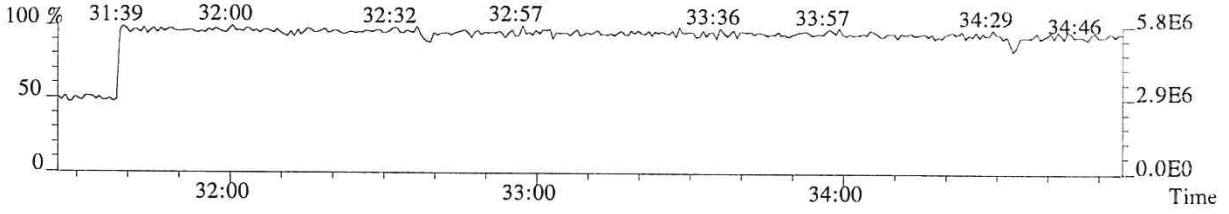
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

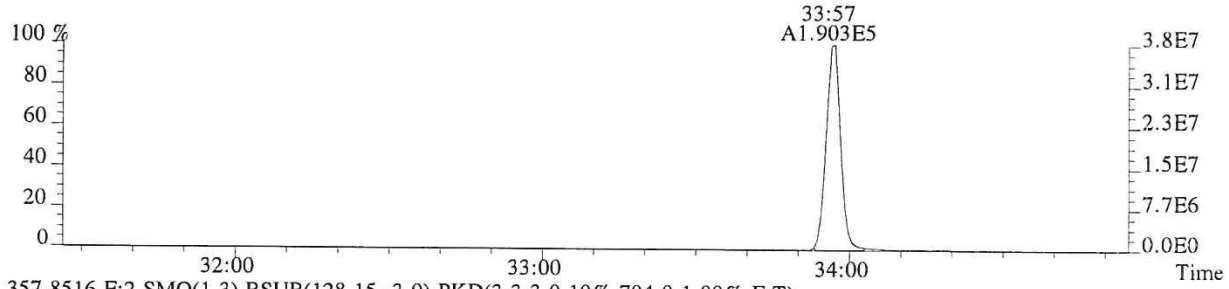


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

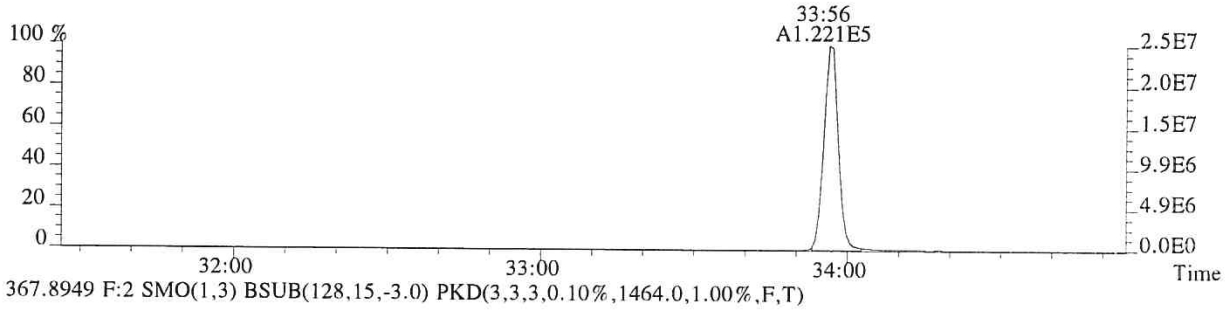


012929

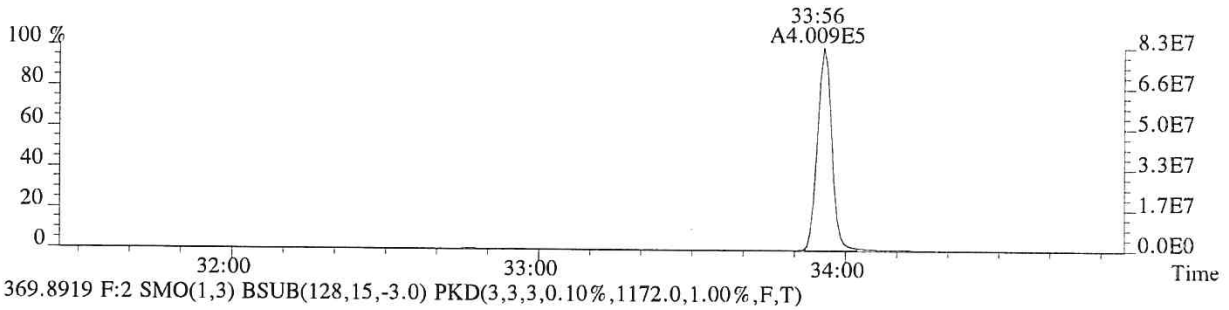
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



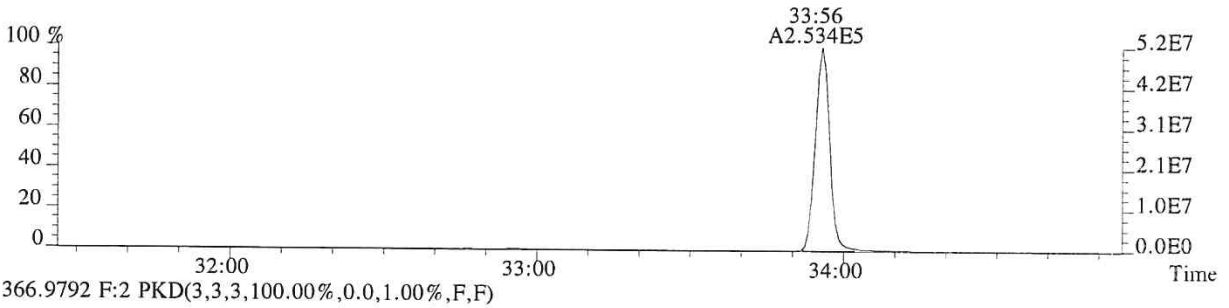
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



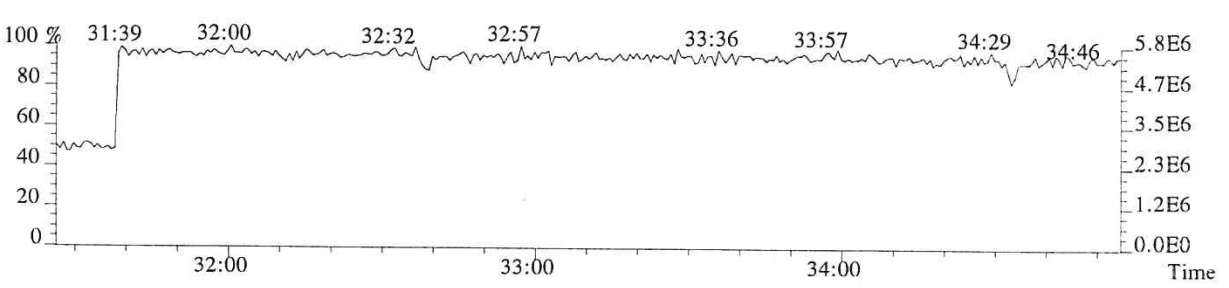
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



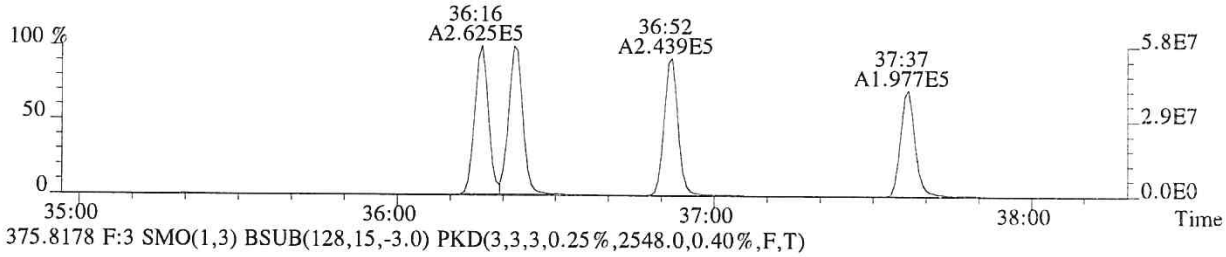
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



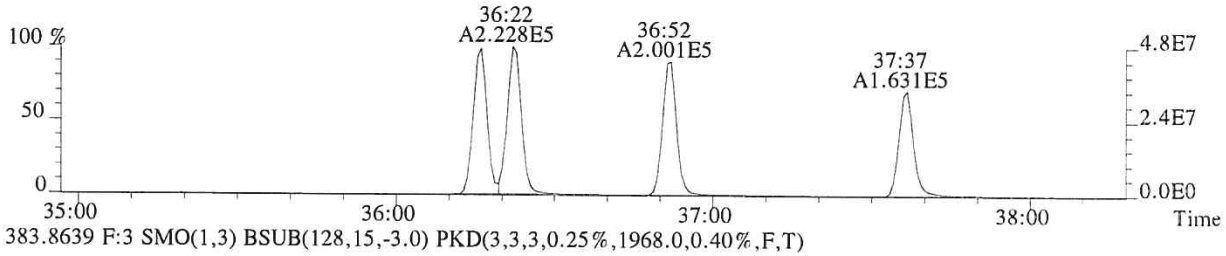
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



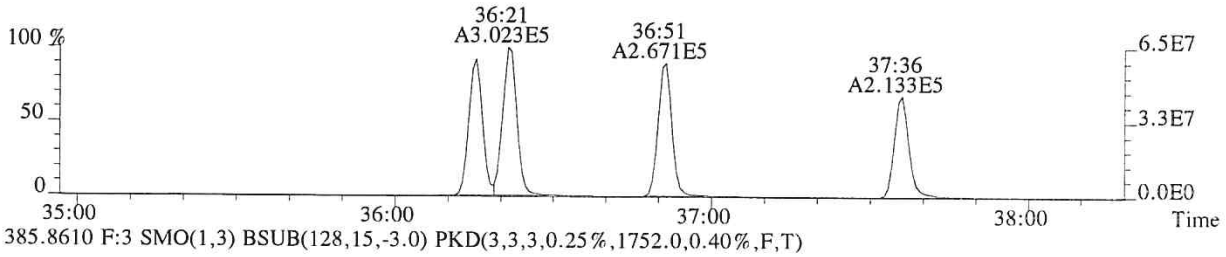
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



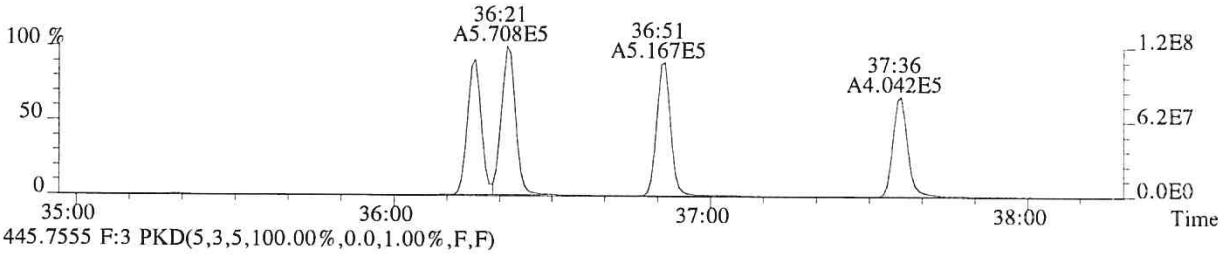
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



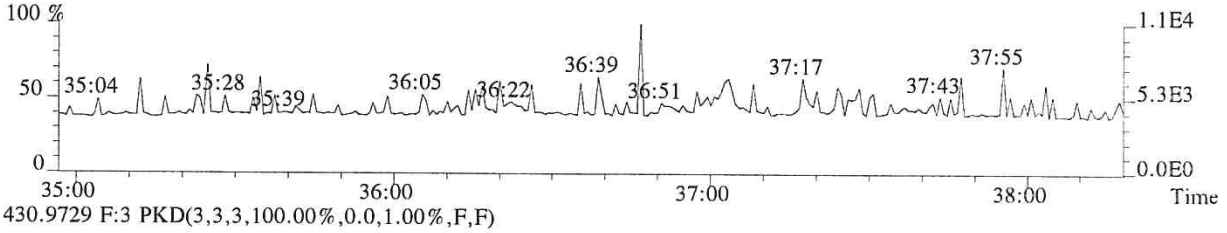
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



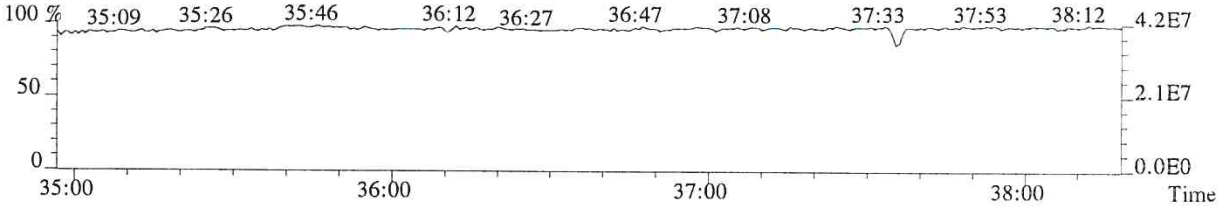
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



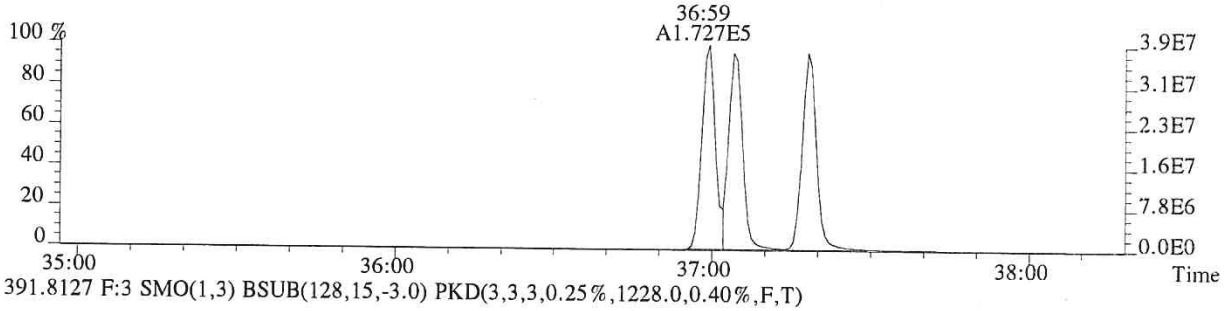
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



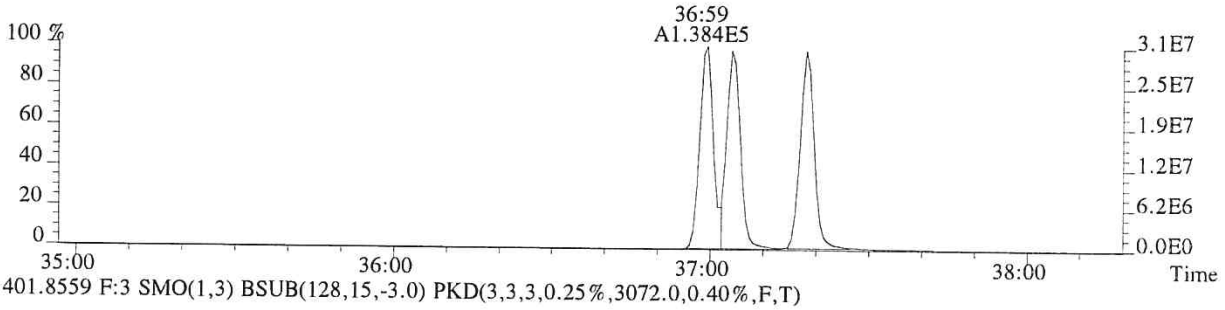
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



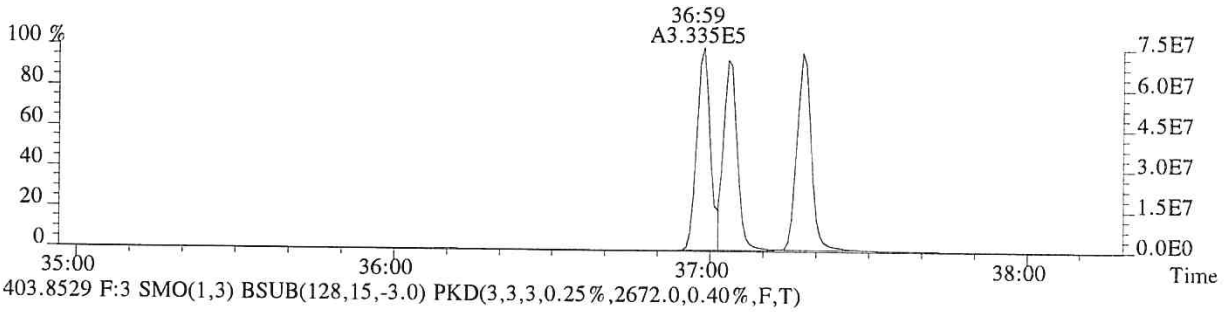
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



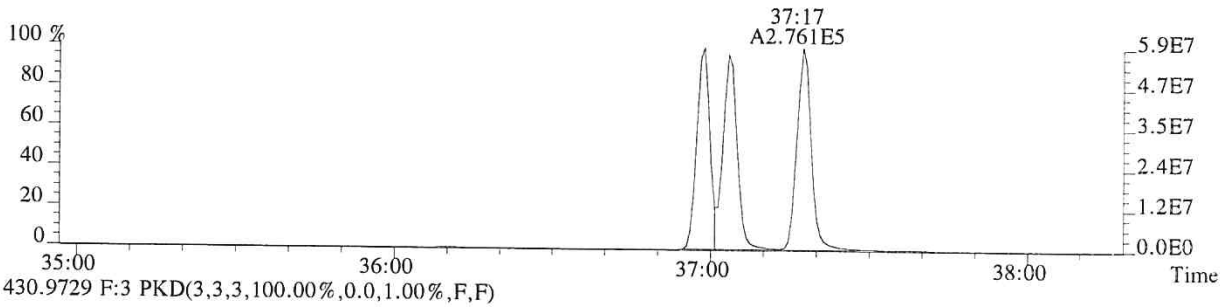
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



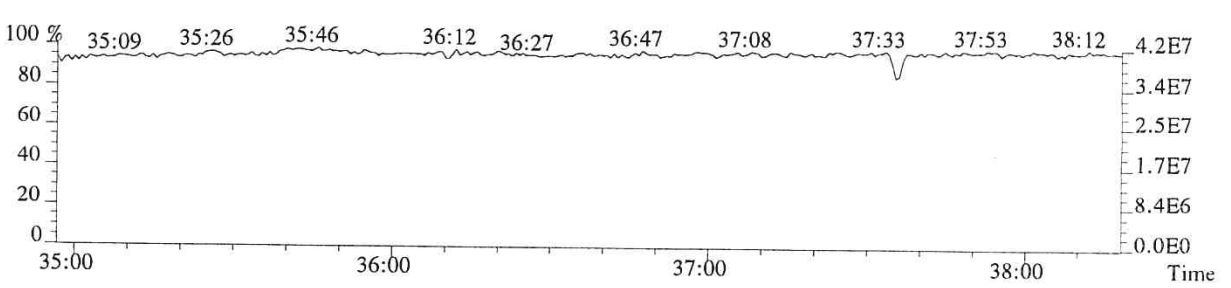
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)

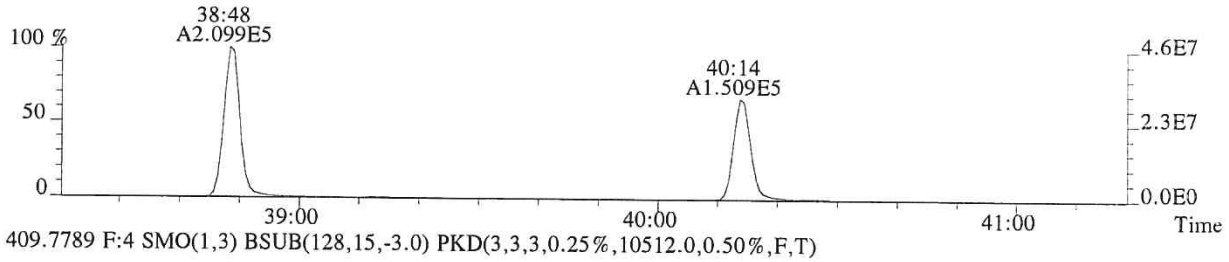


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

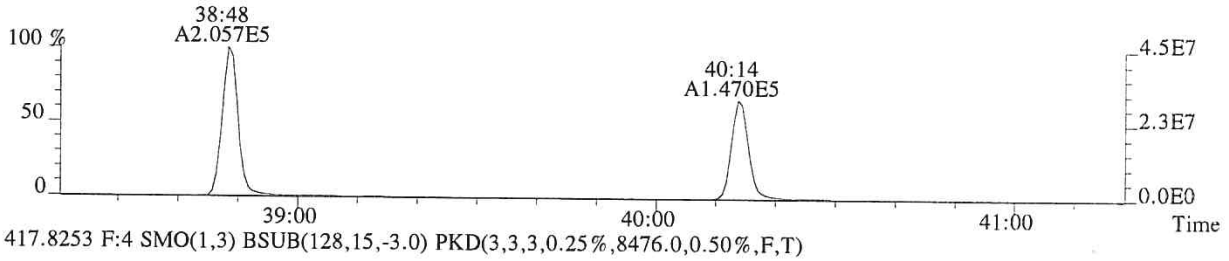


012932

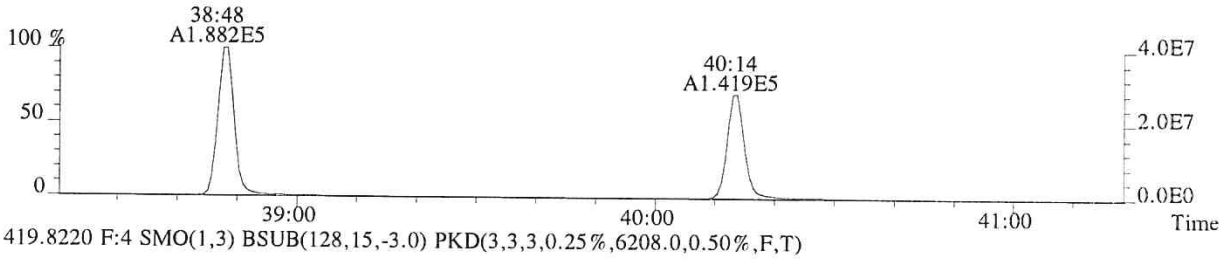
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



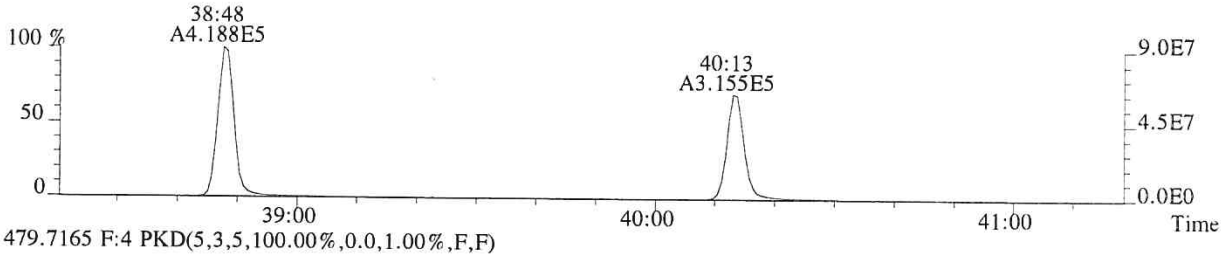
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



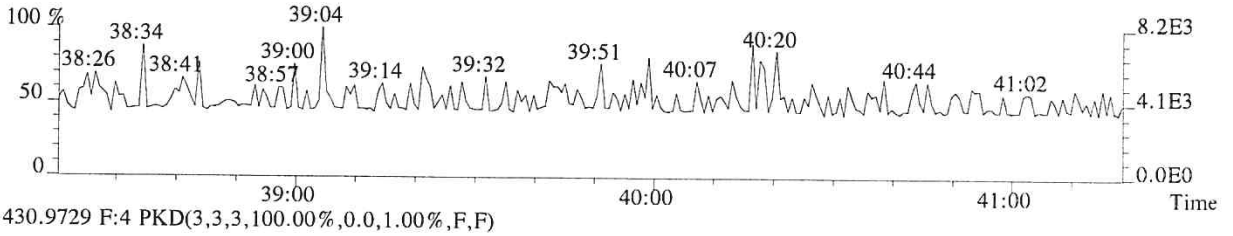
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



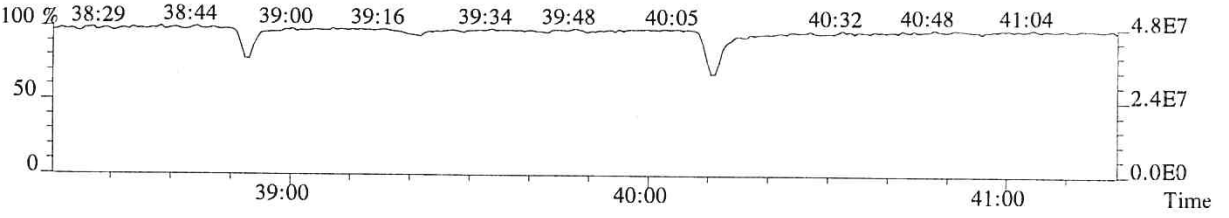
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

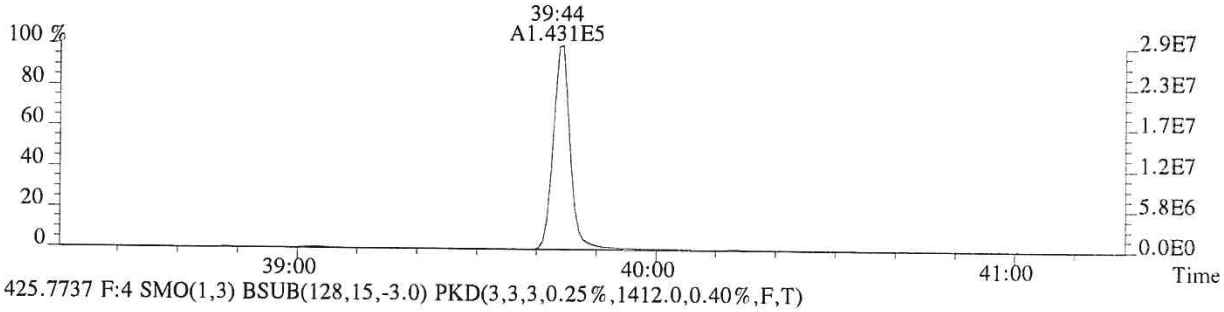


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

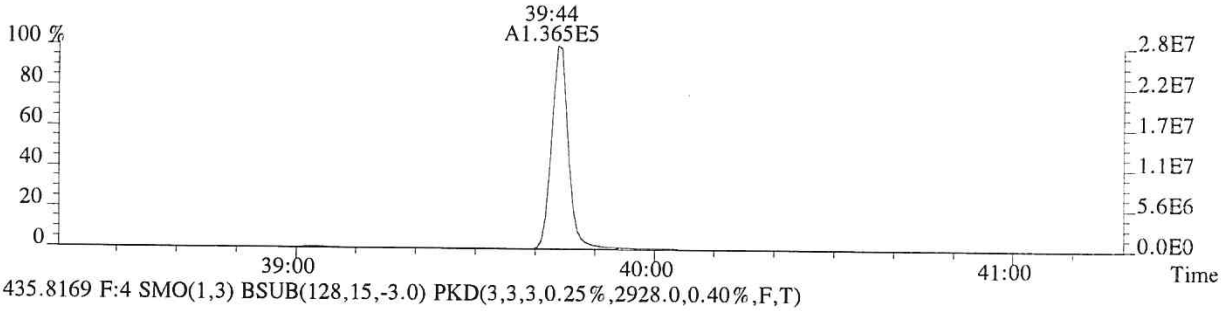


012933

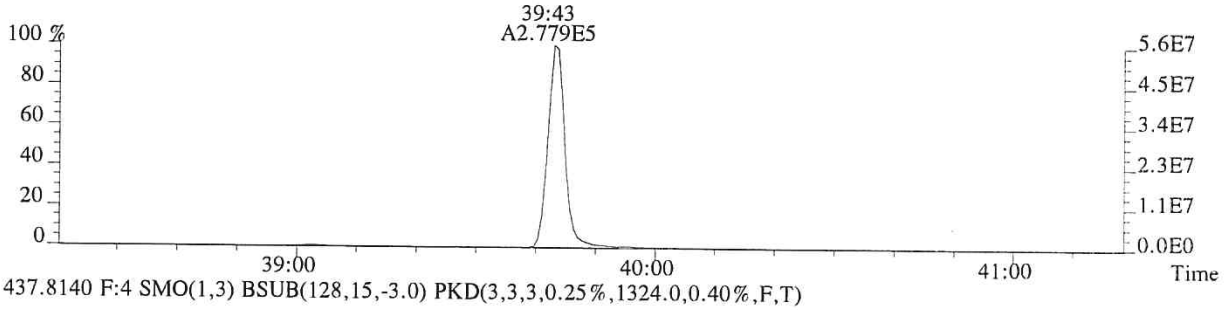
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



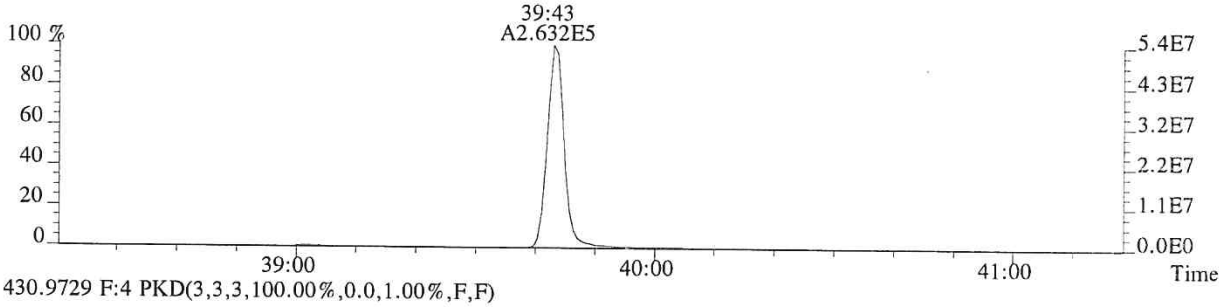
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



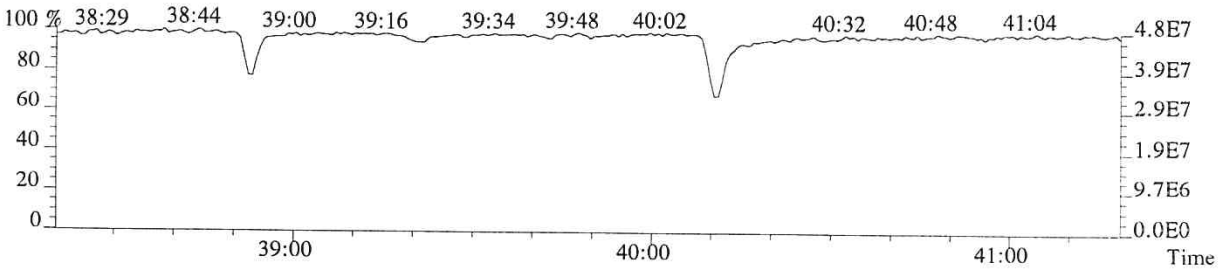
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)

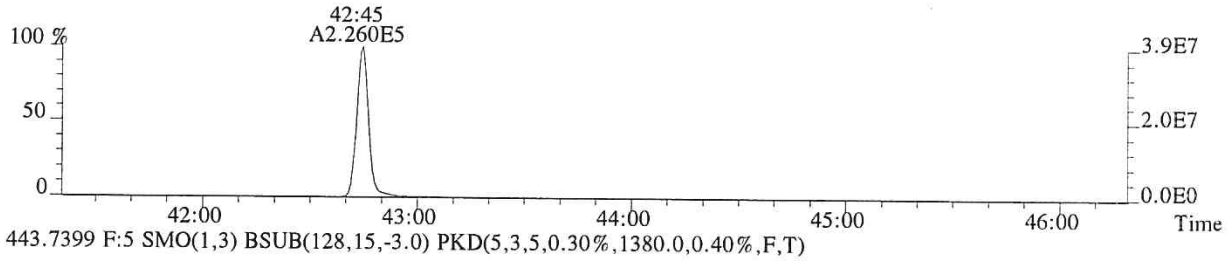


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

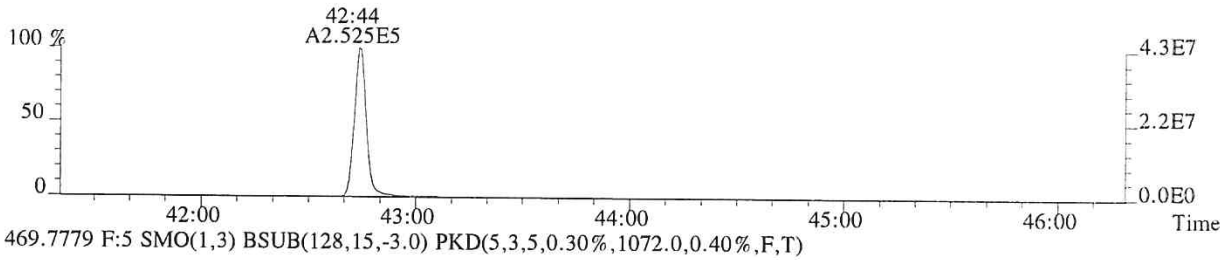


012934

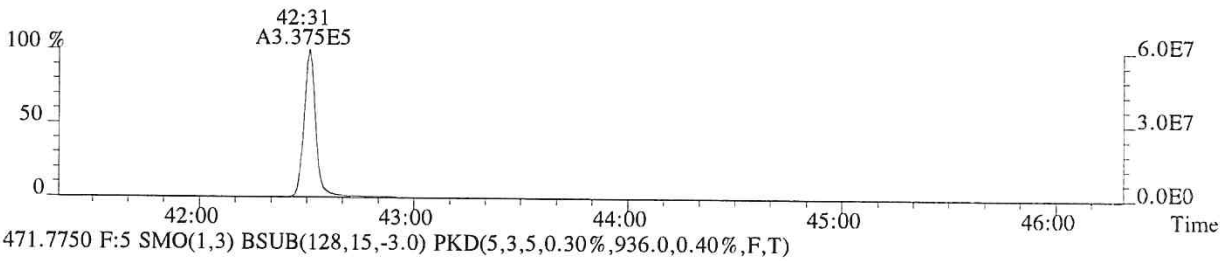
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



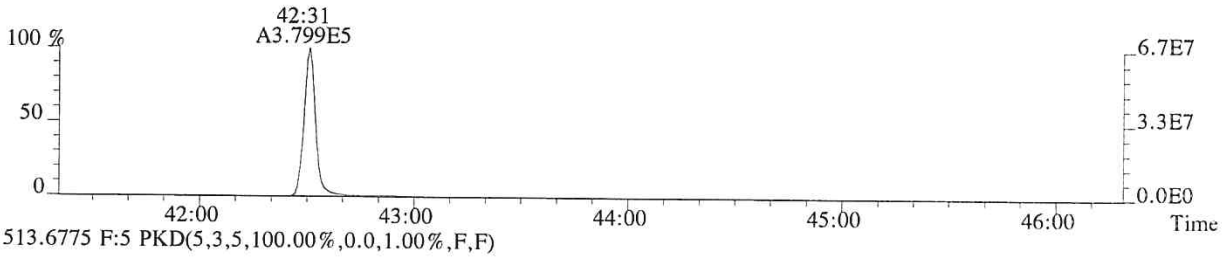
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



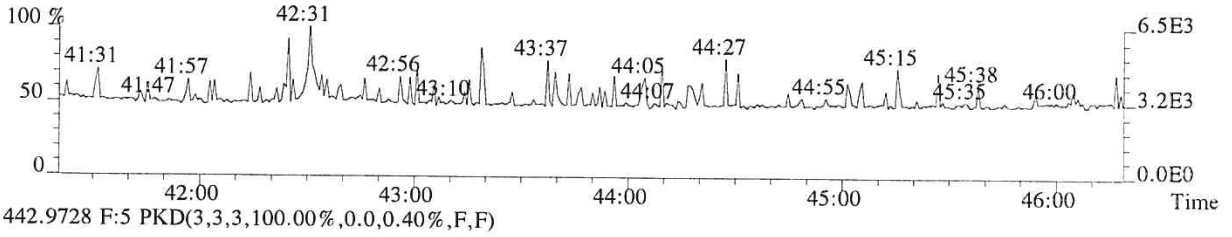
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



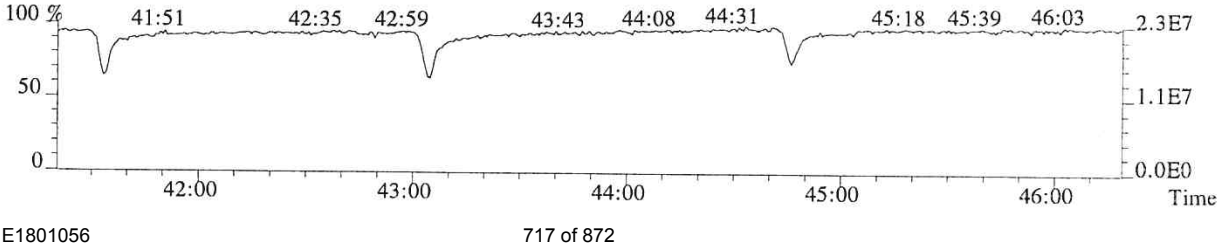
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

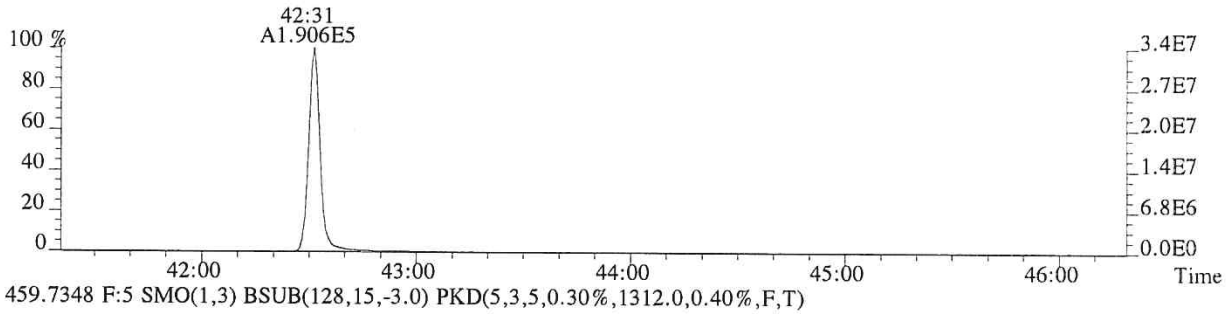


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

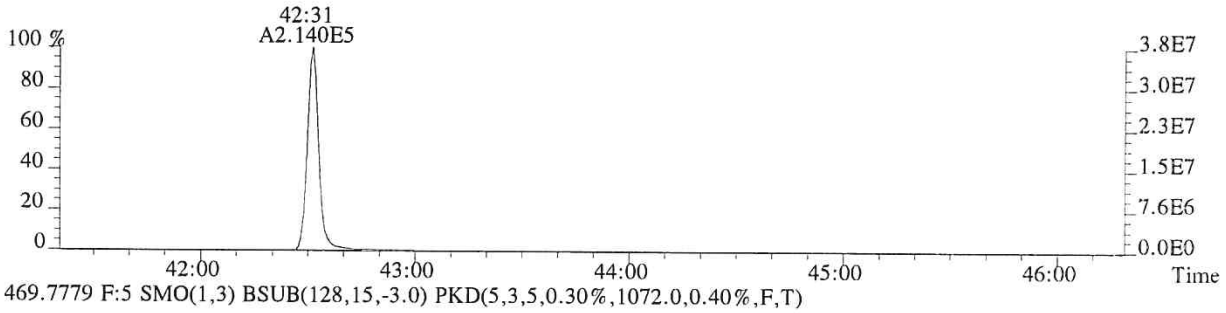


012935

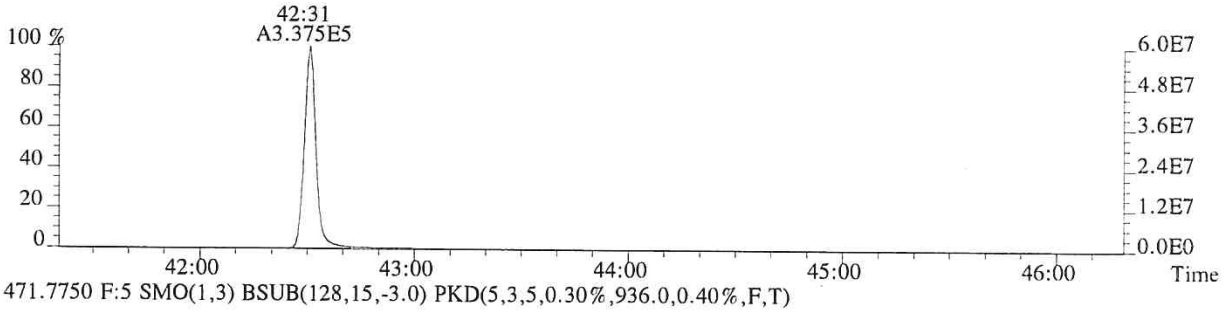
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



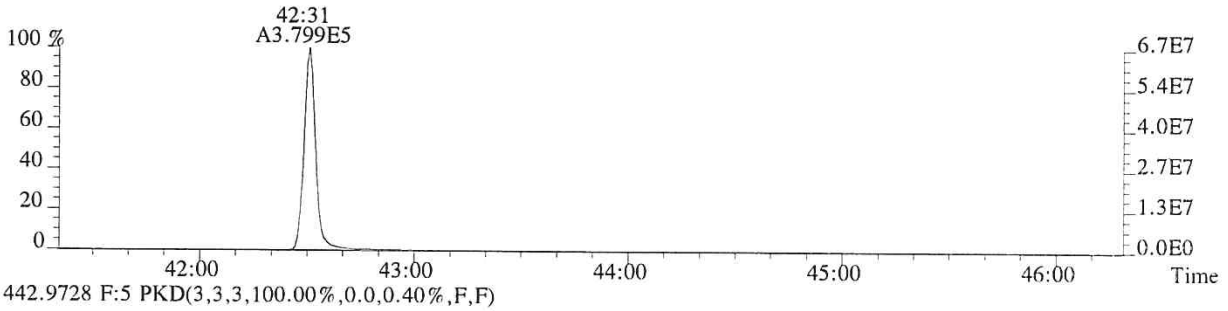
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



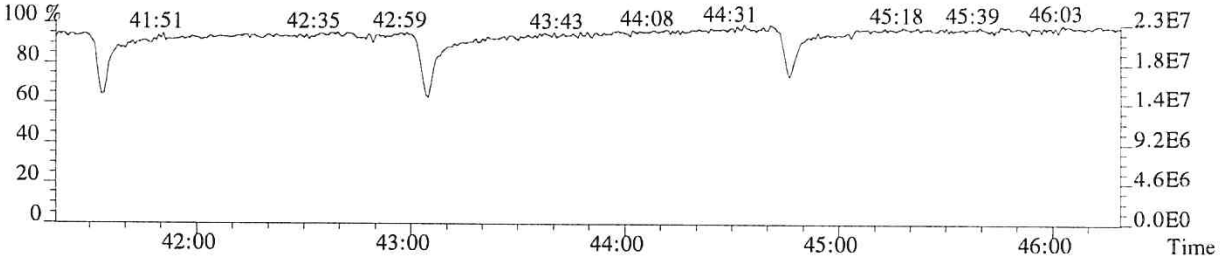
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012936

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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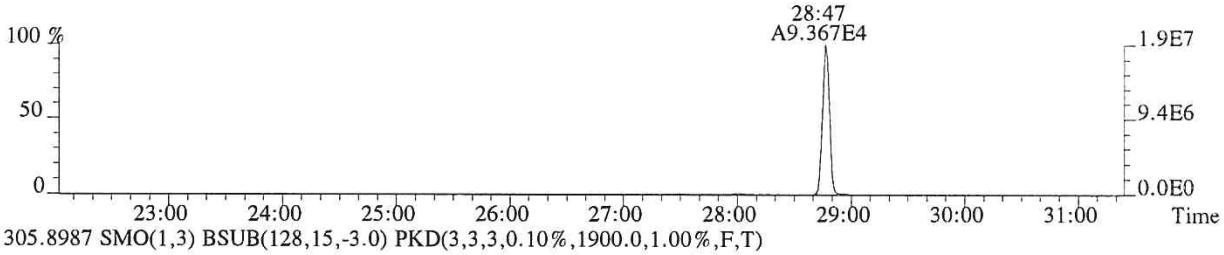
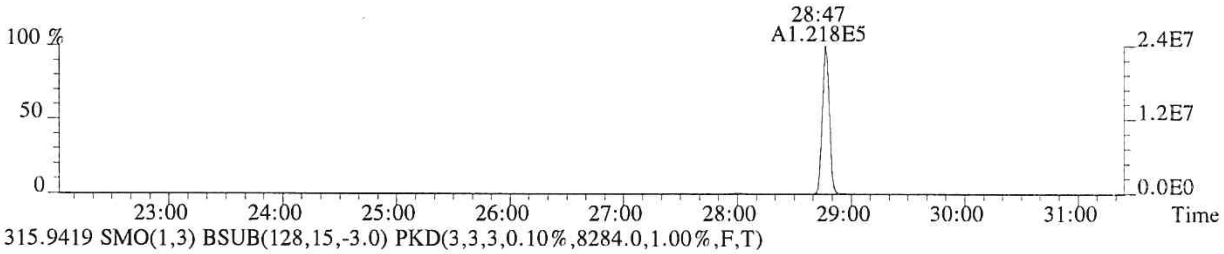
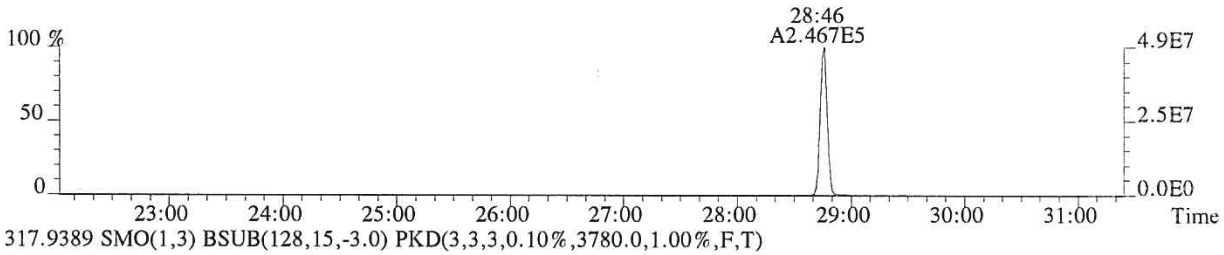
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



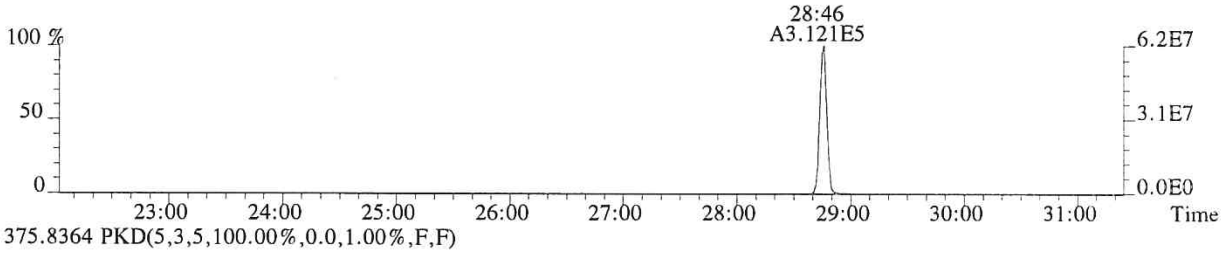
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



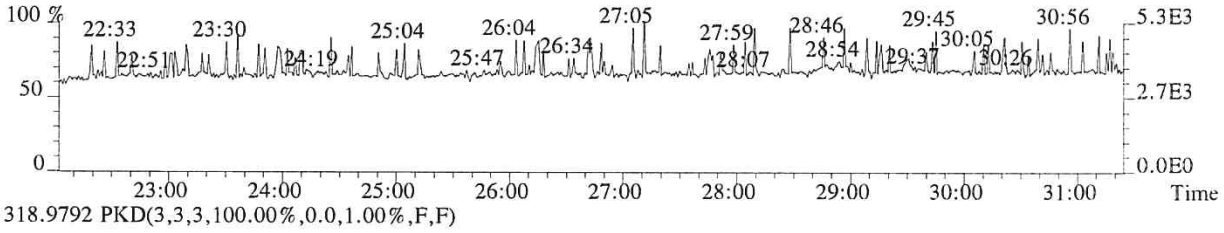
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



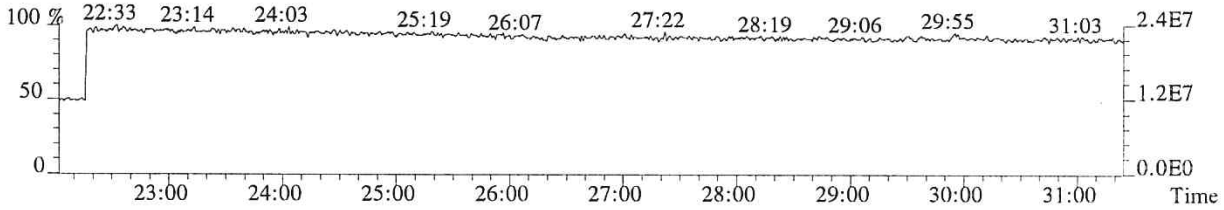
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

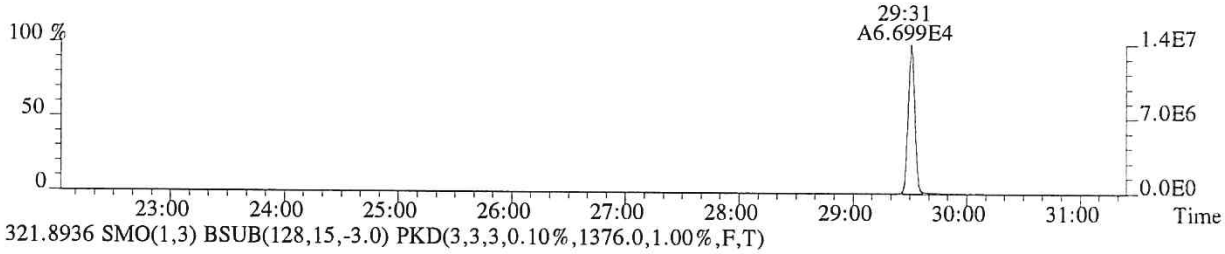


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

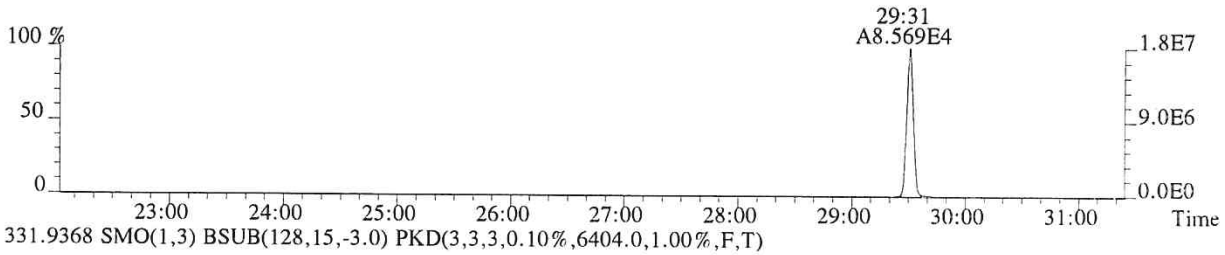


012939

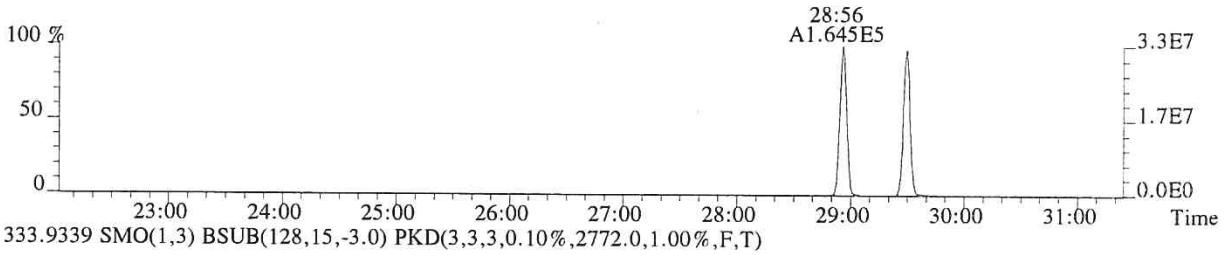
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



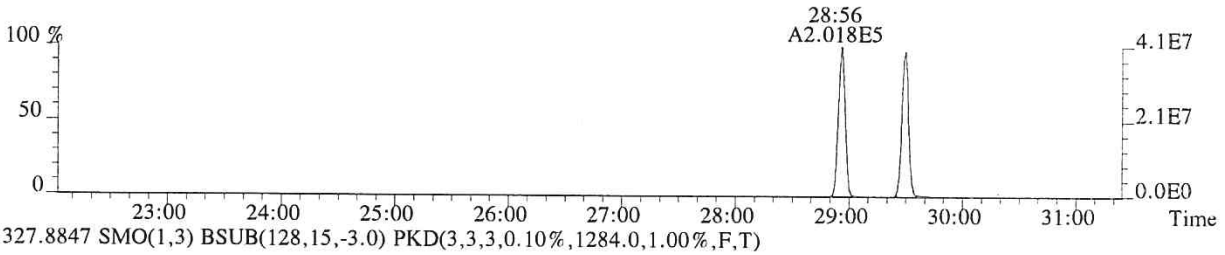
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



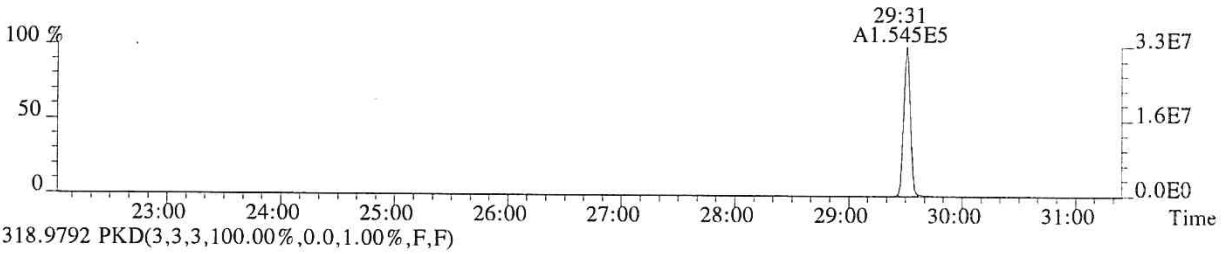
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



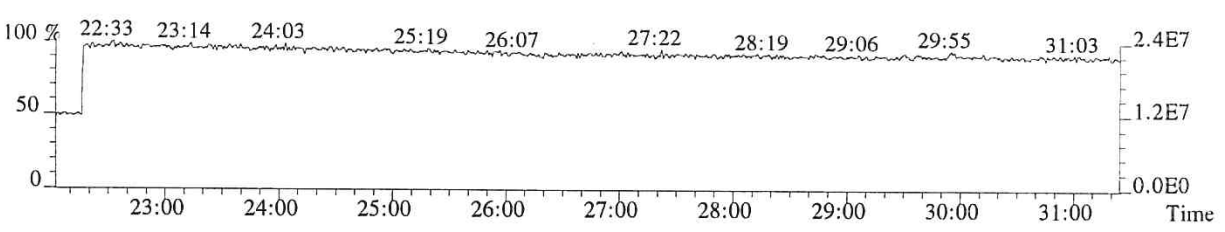
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)

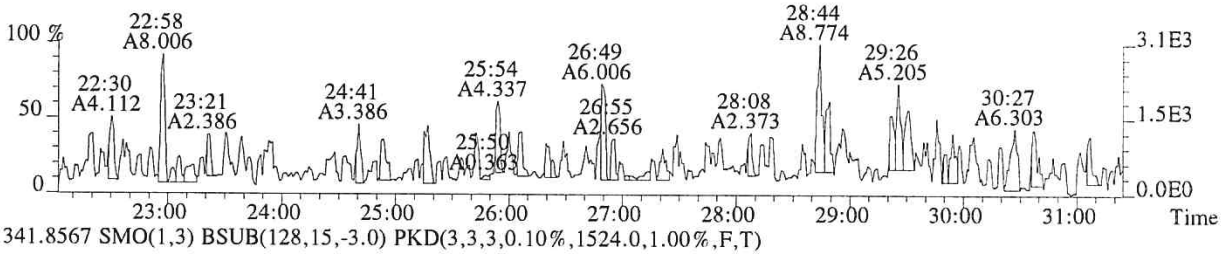


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

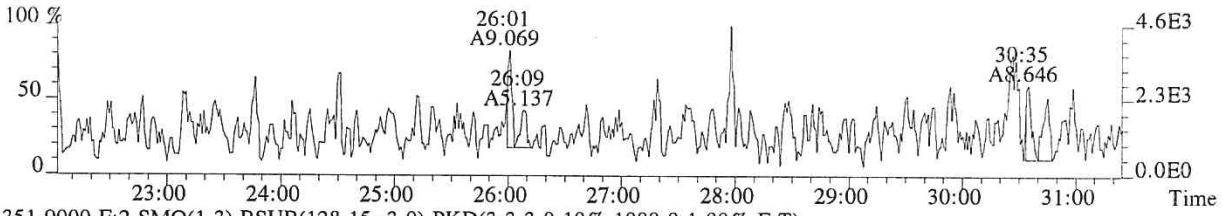


012940

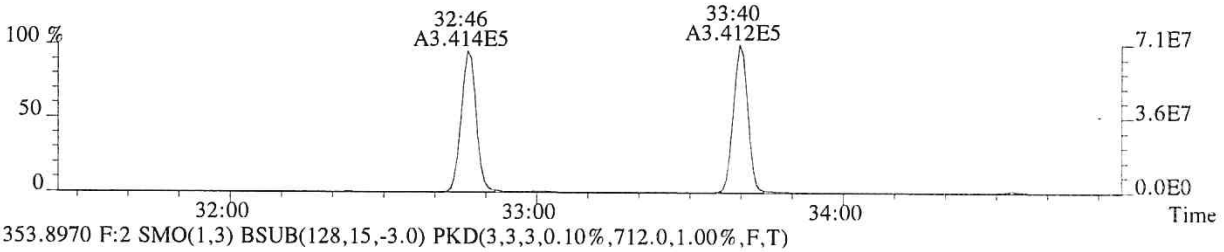
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



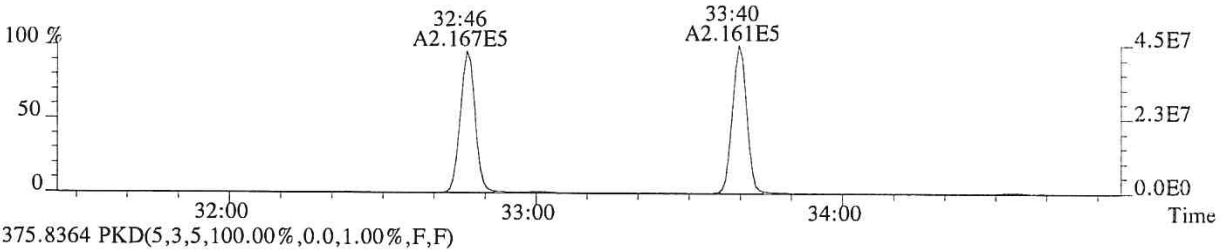
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



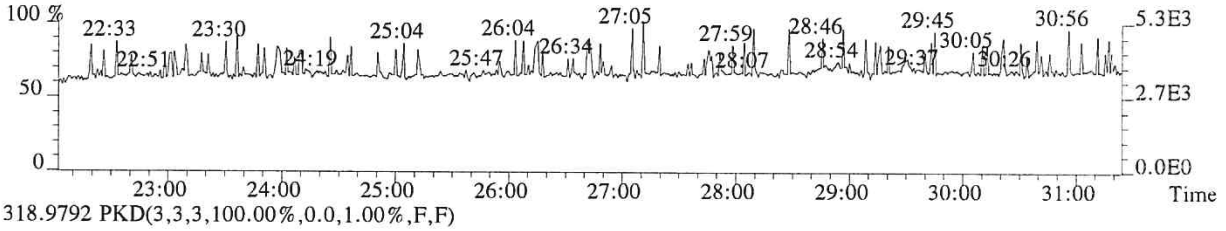
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



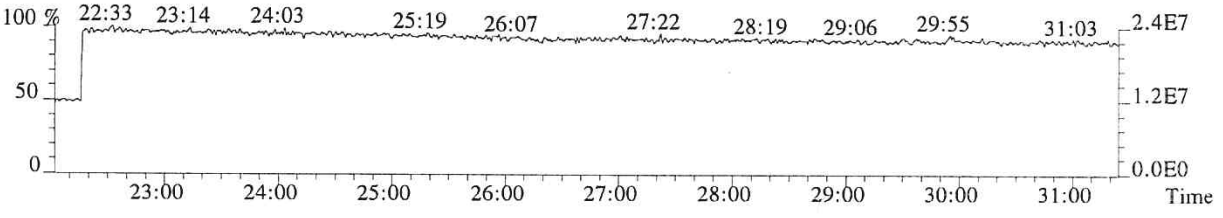
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

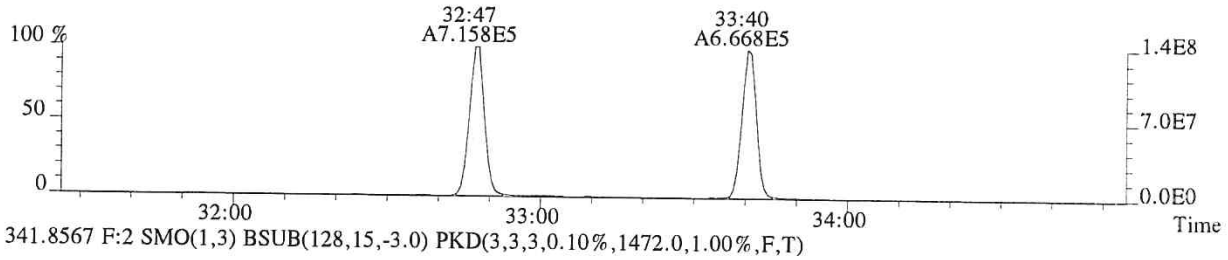


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

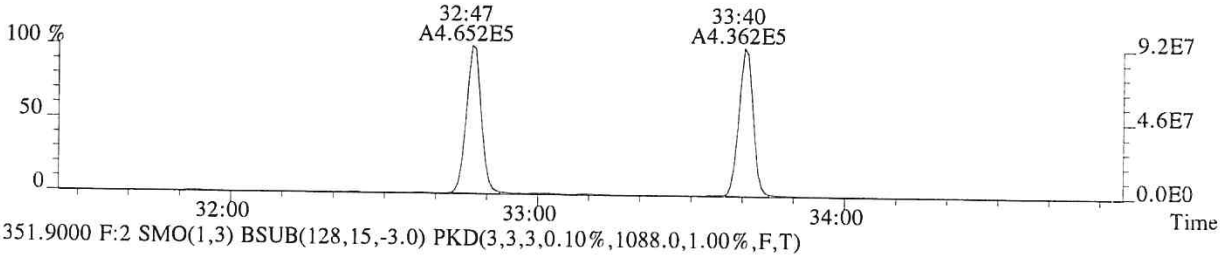


012941

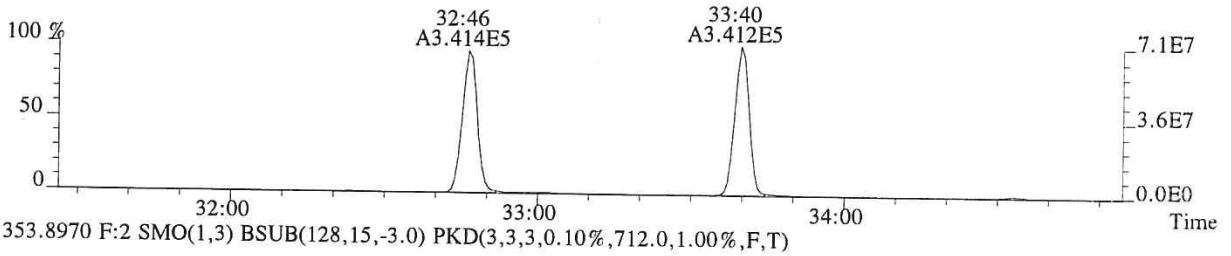
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



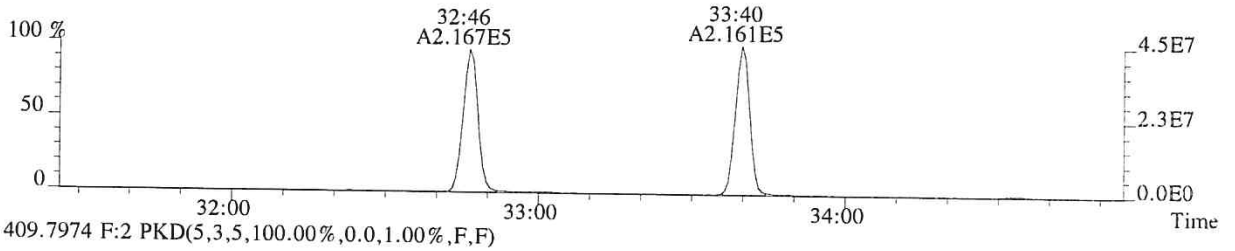
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



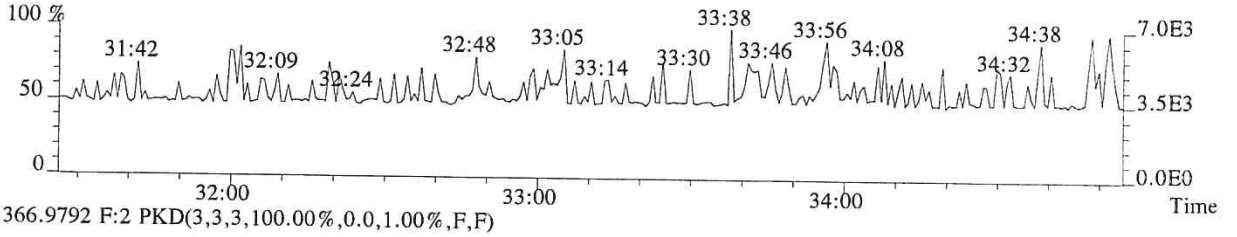
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



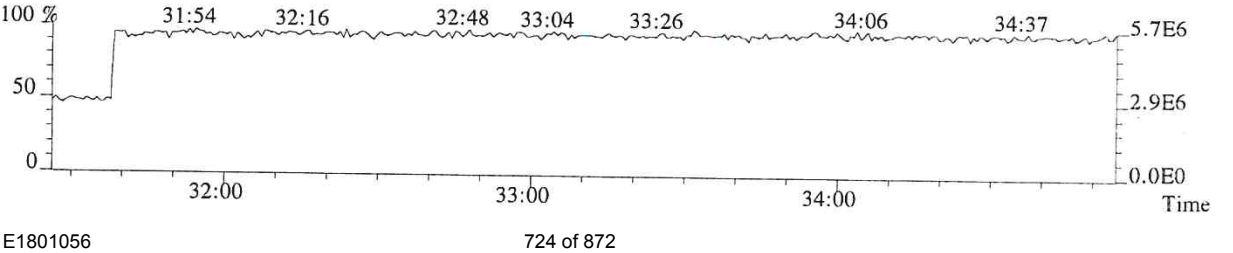
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

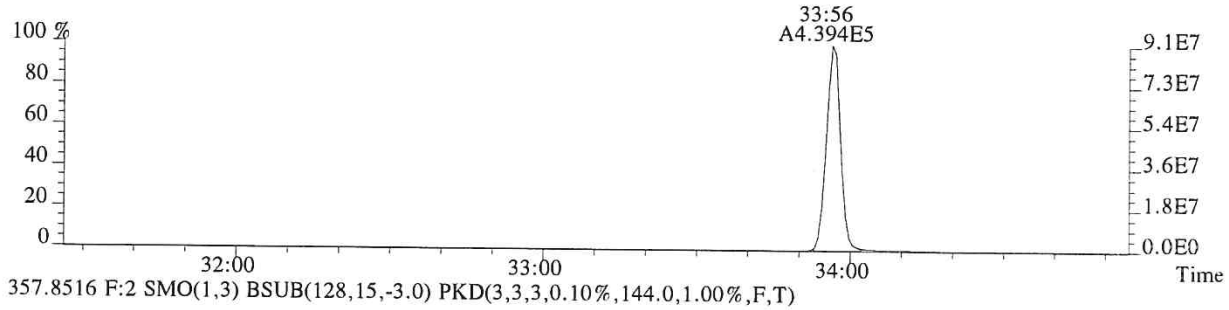


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

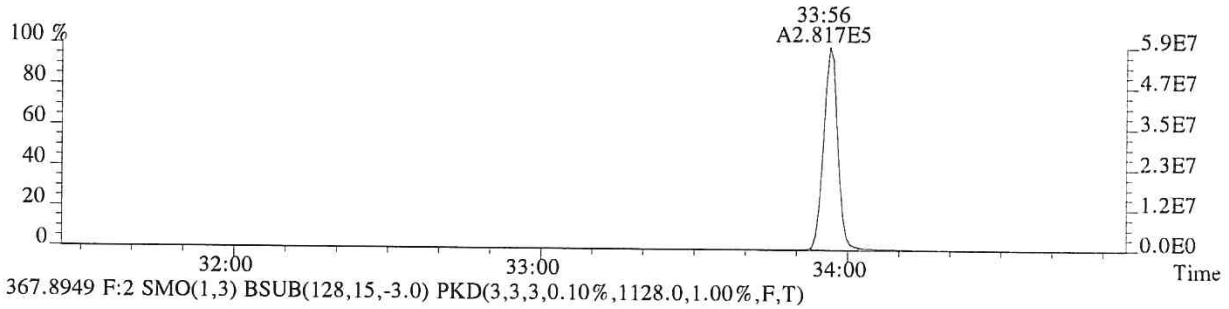


012942

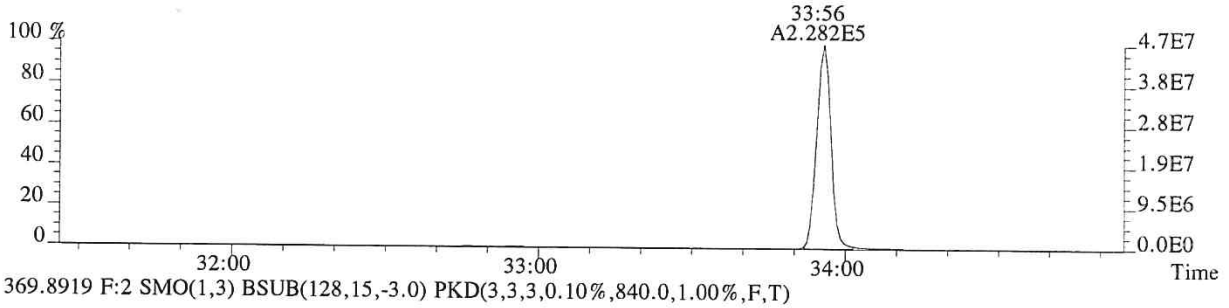
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



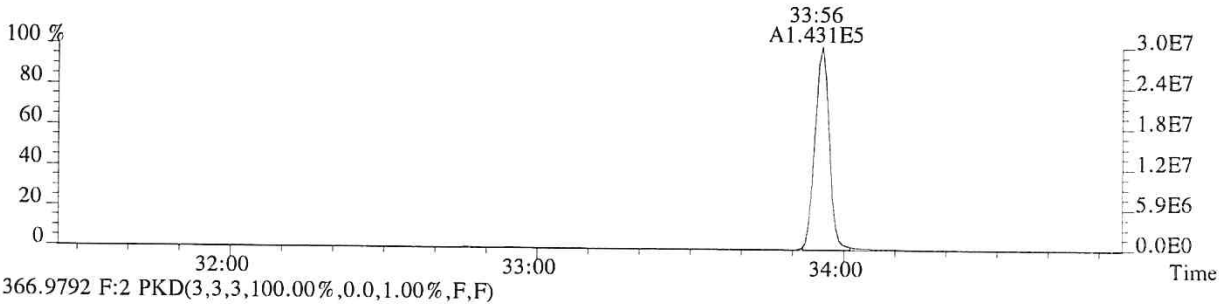
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



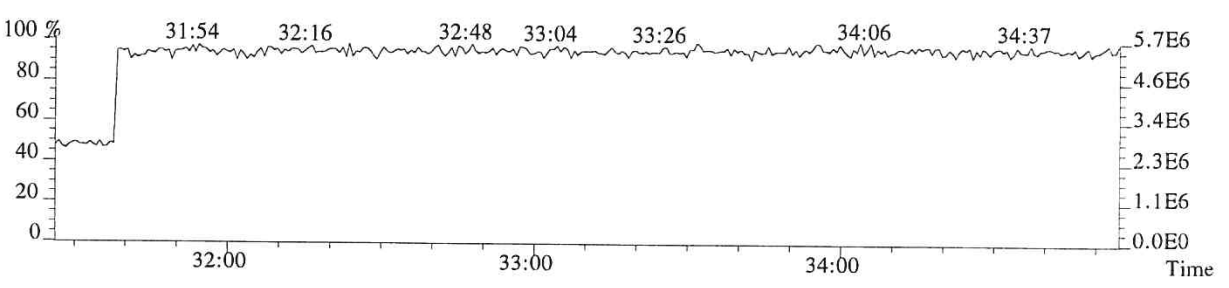
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



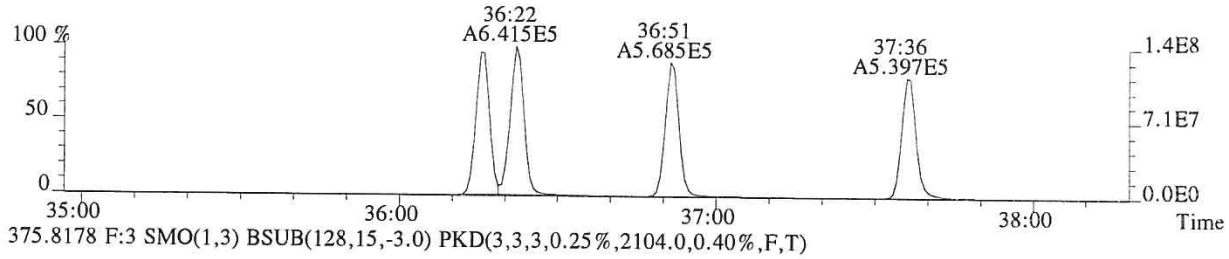
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



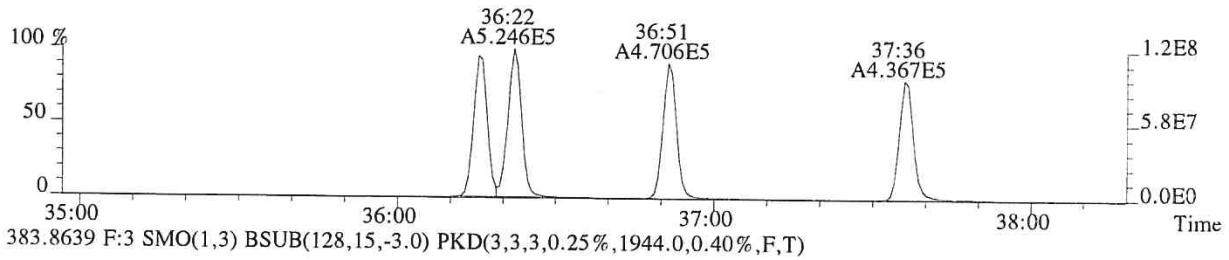
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



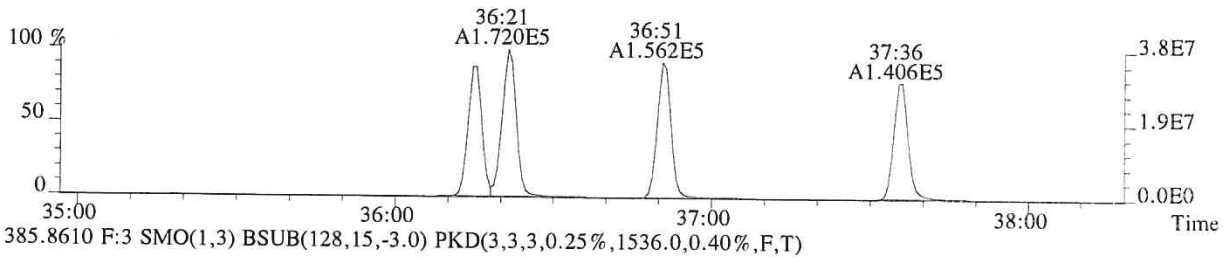
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



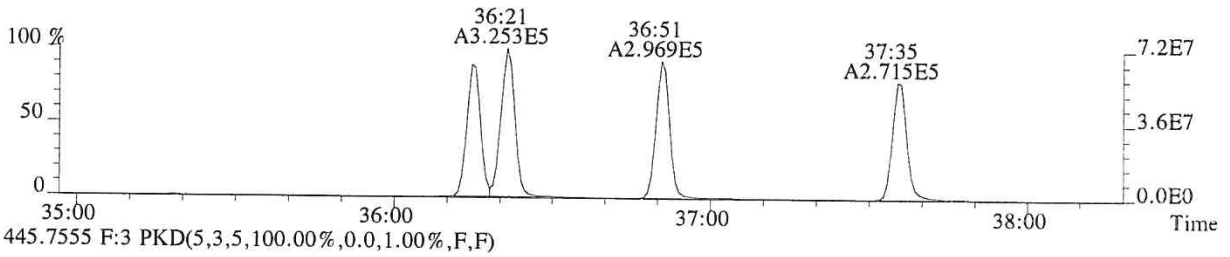
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



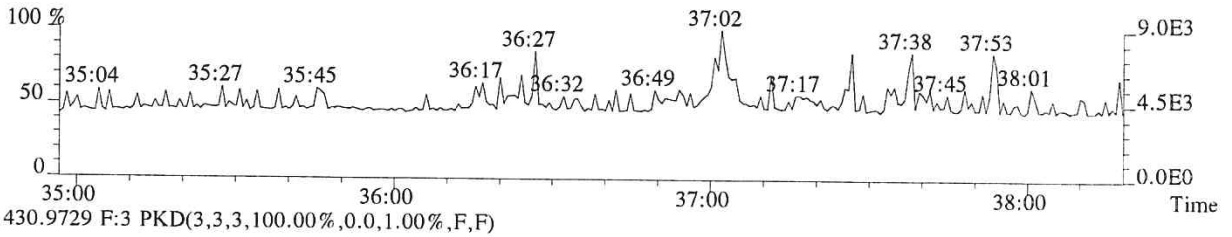
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



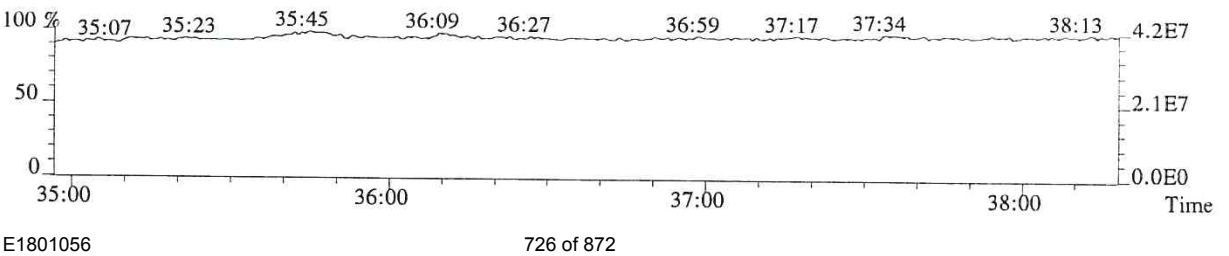
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

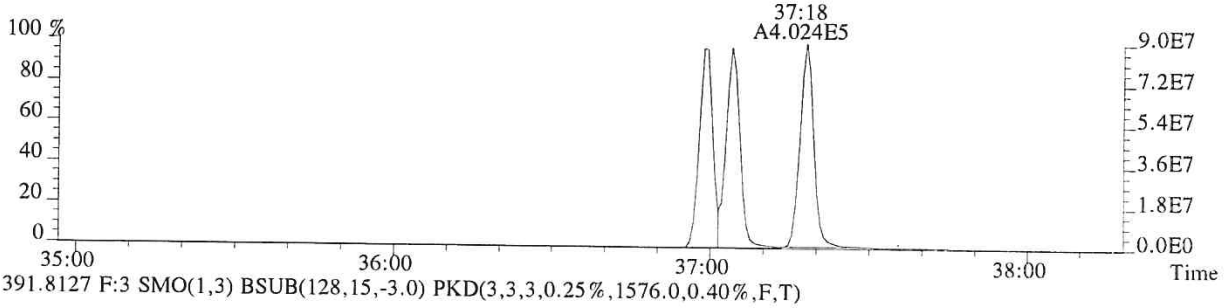


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

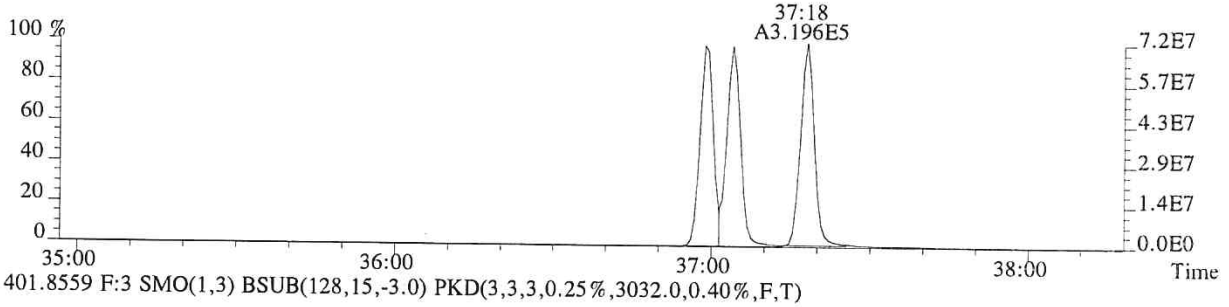


012944

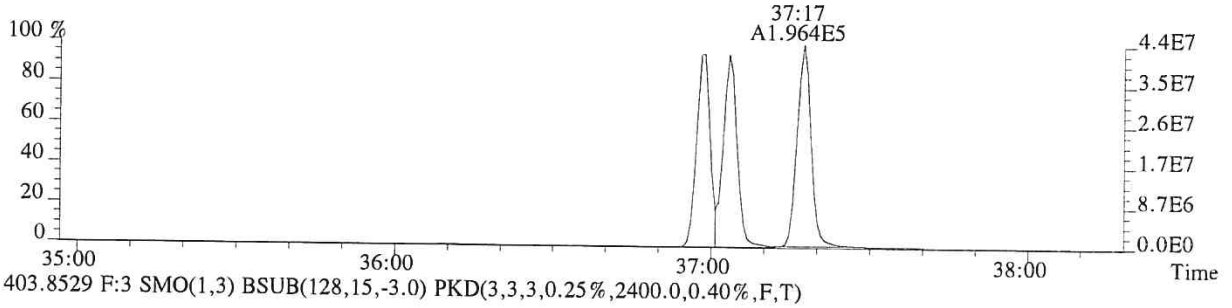
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



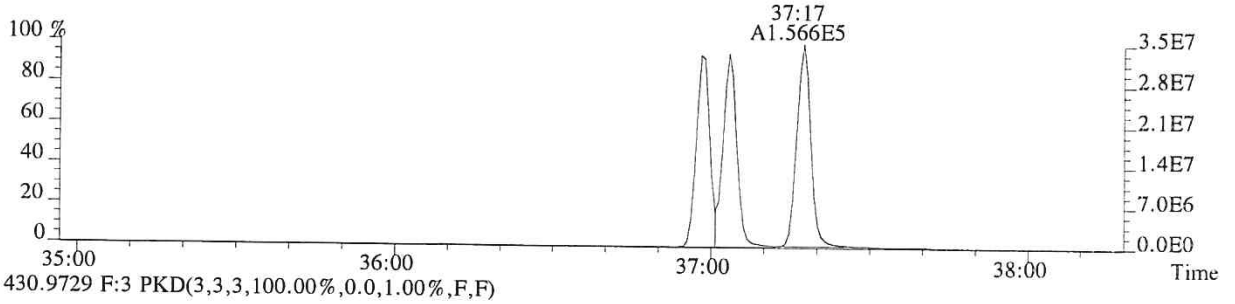
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



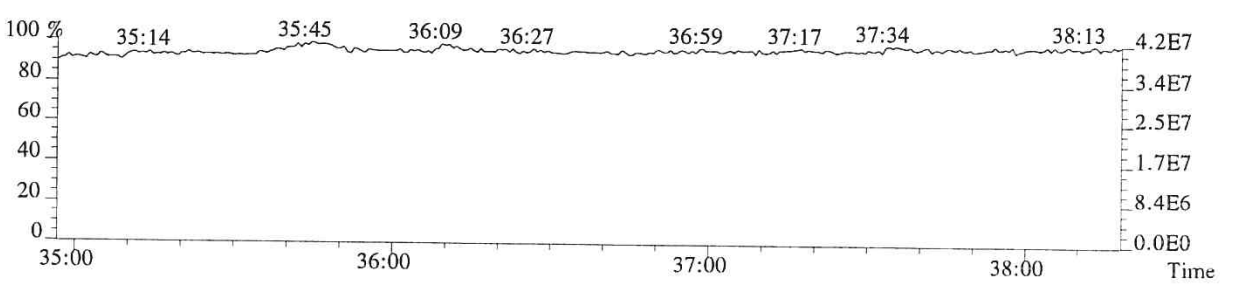
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)

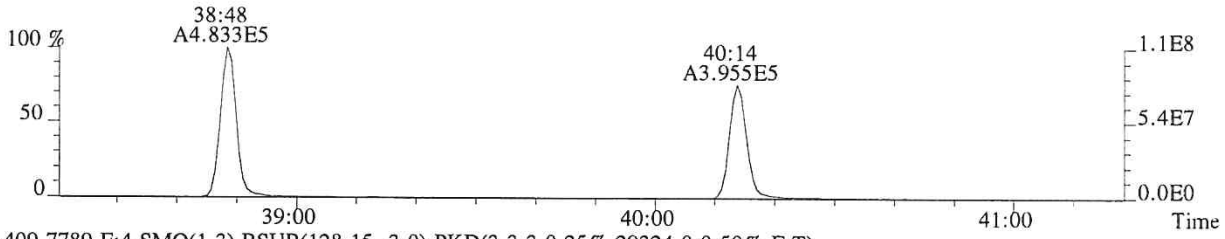


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

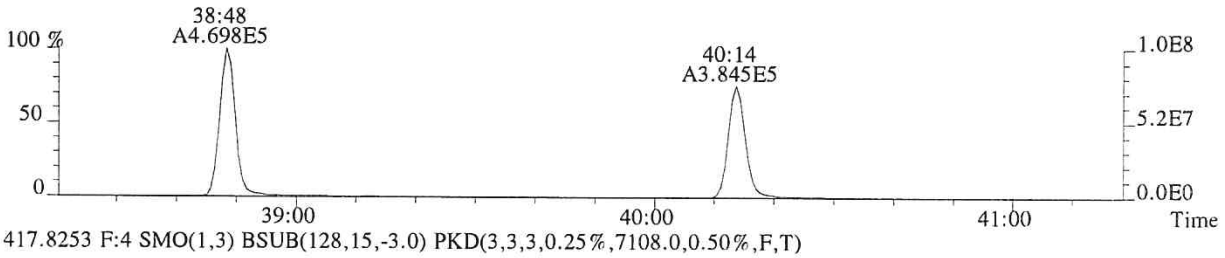


012945

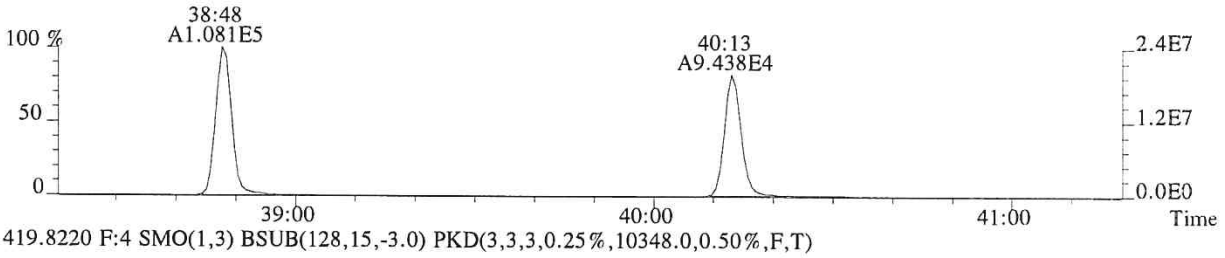
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



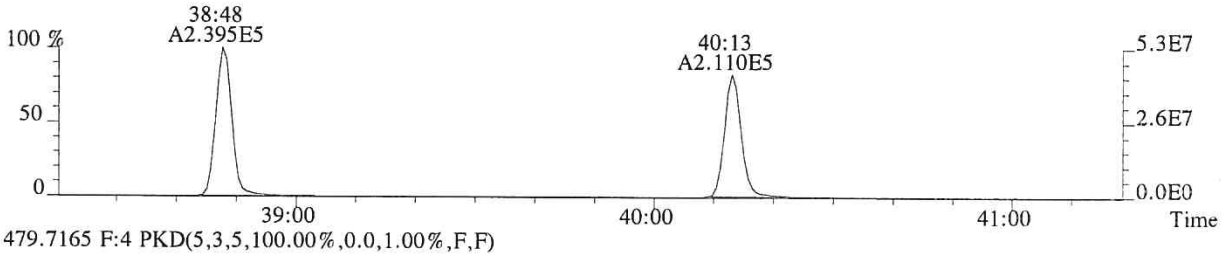
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



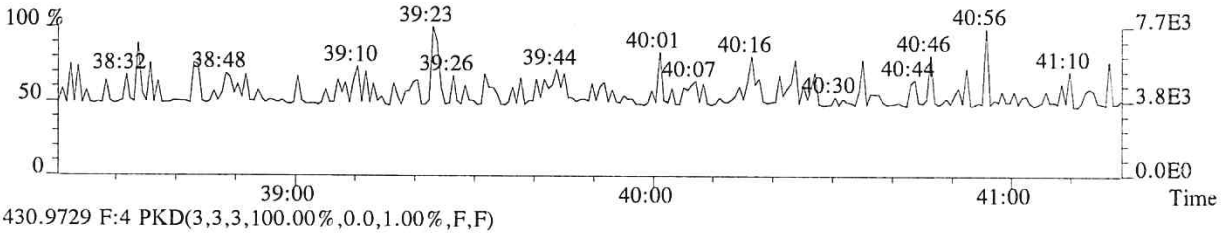
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



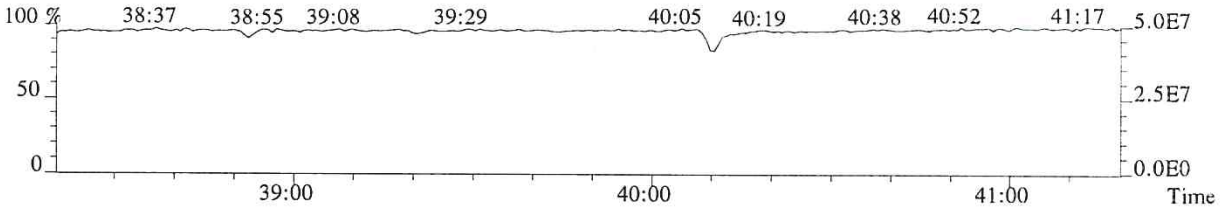
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

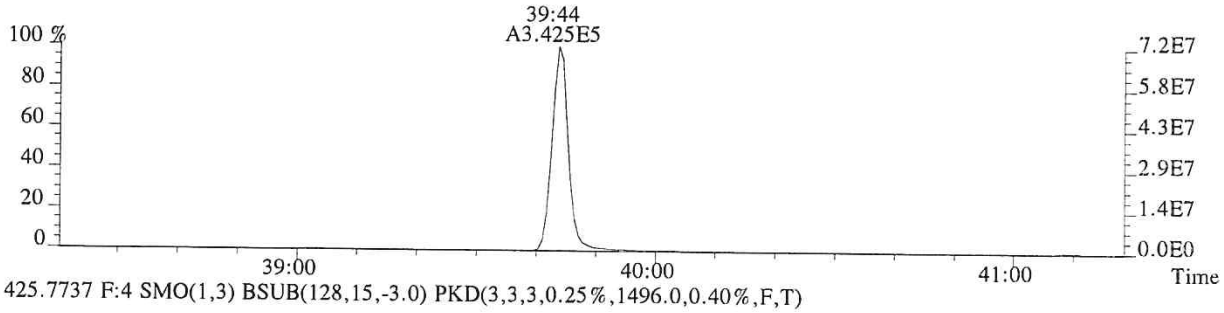


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

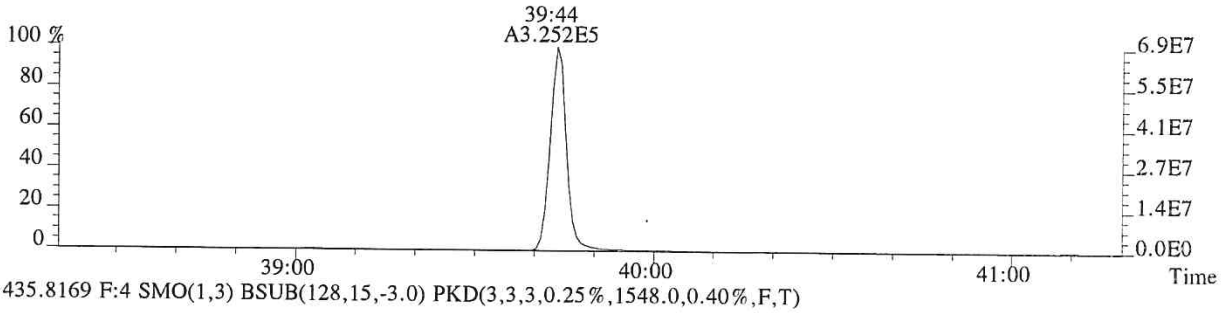


012946

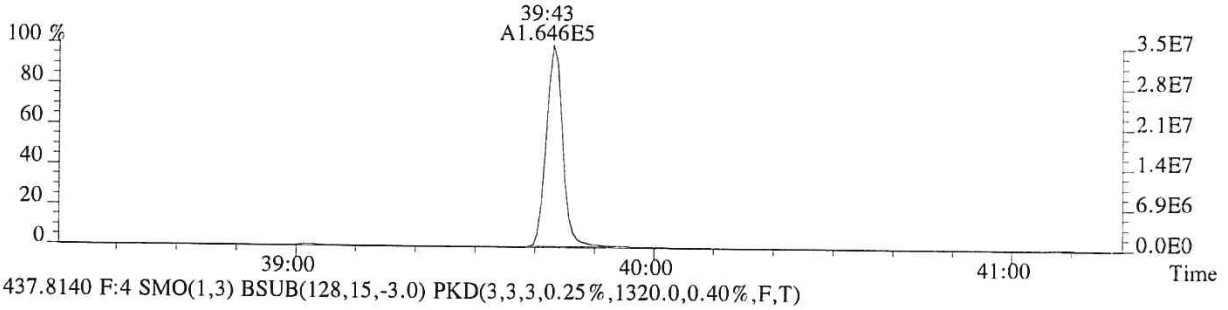
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



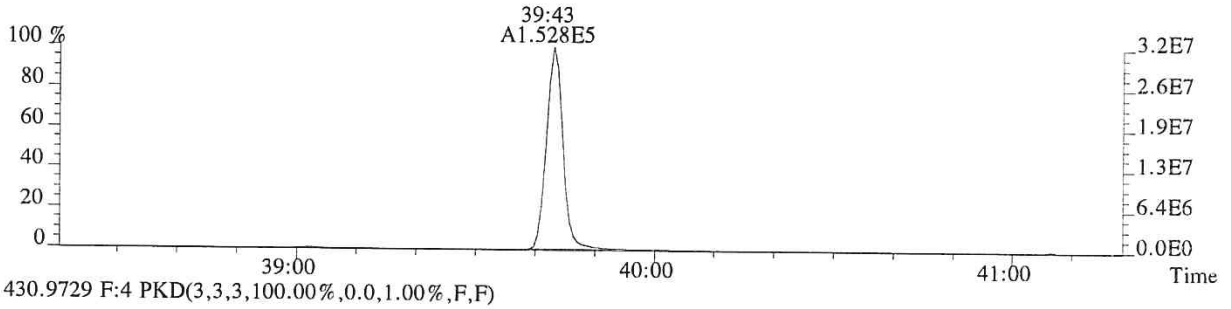
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



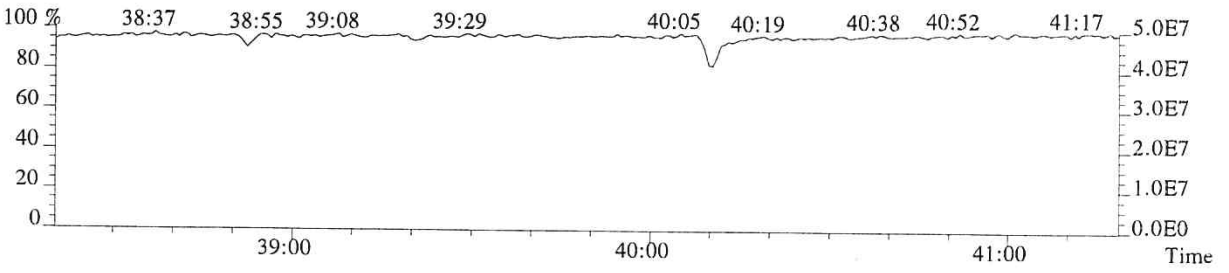
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)

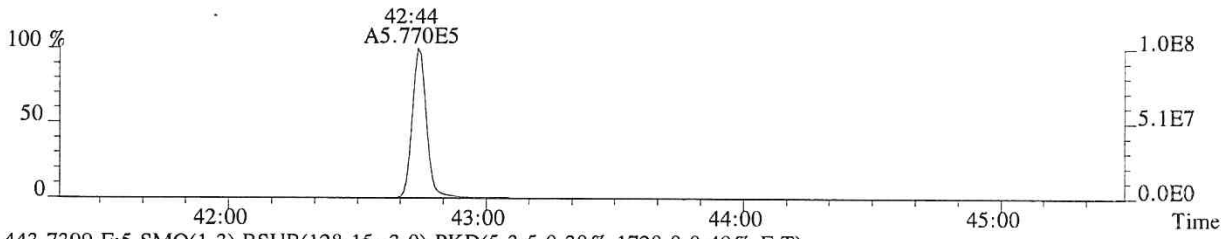


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

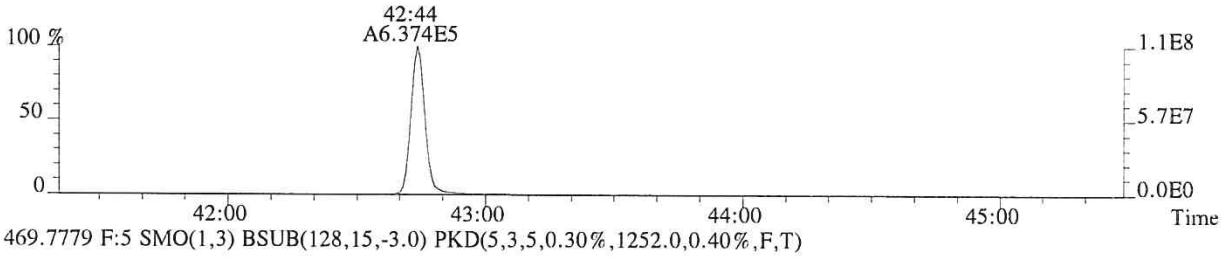


012947

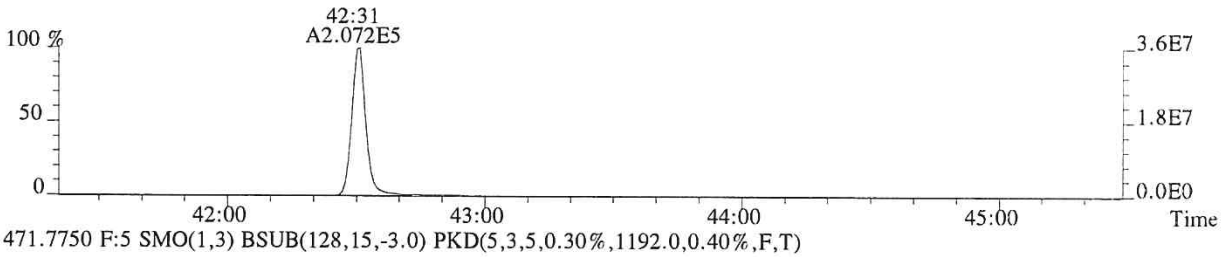
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



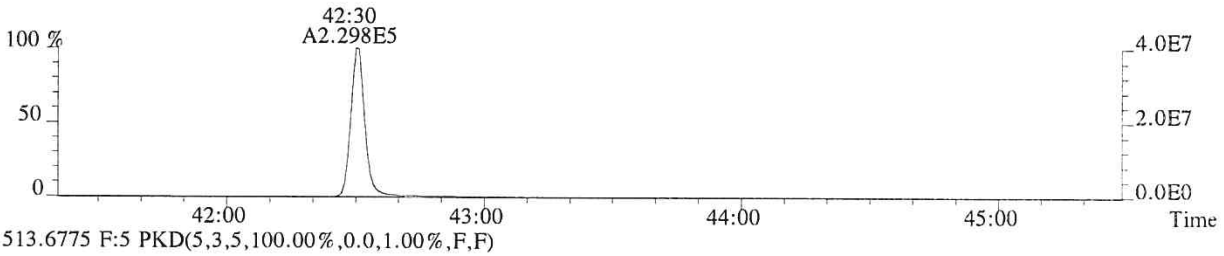
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



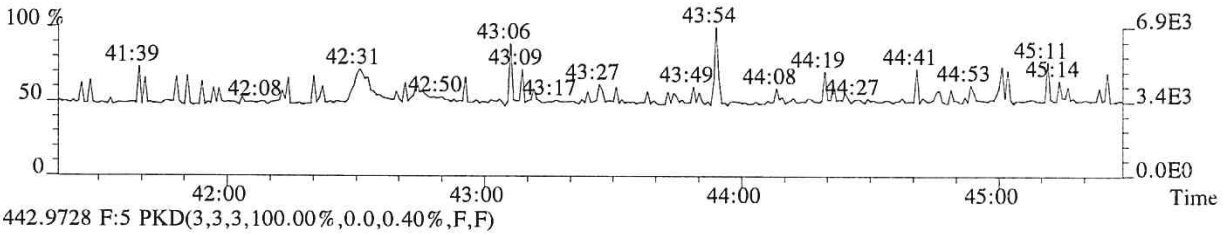
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



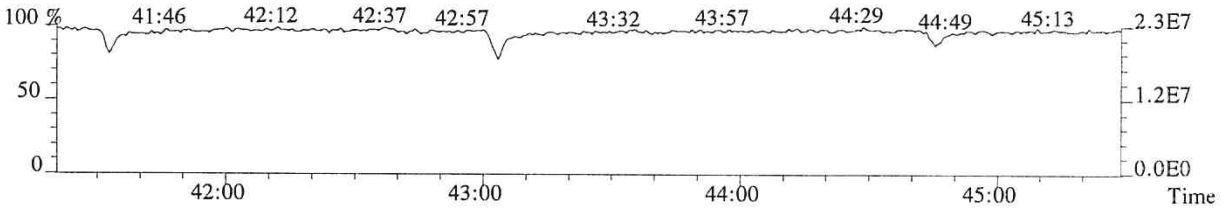
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

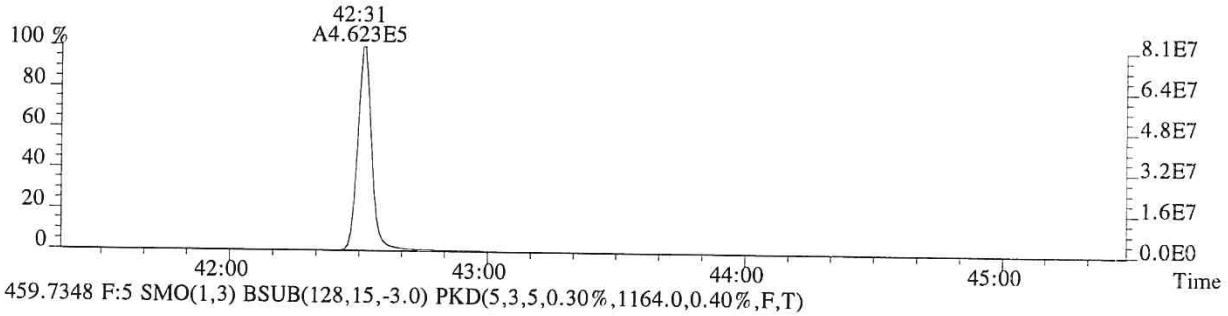


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

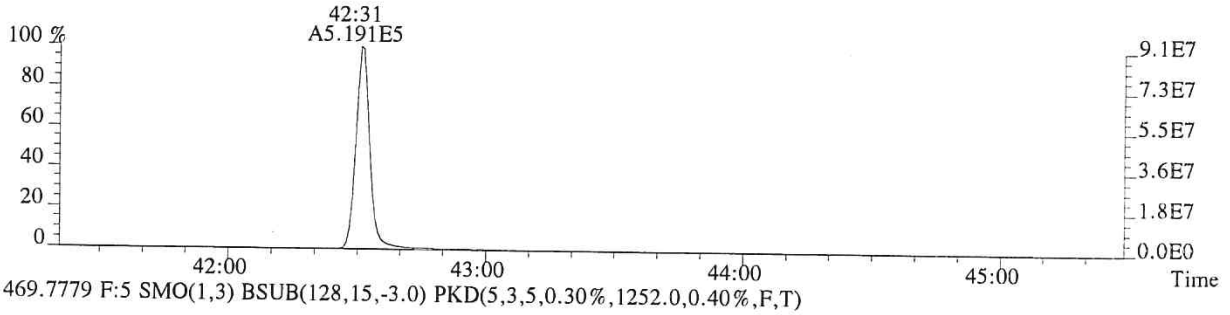


012948

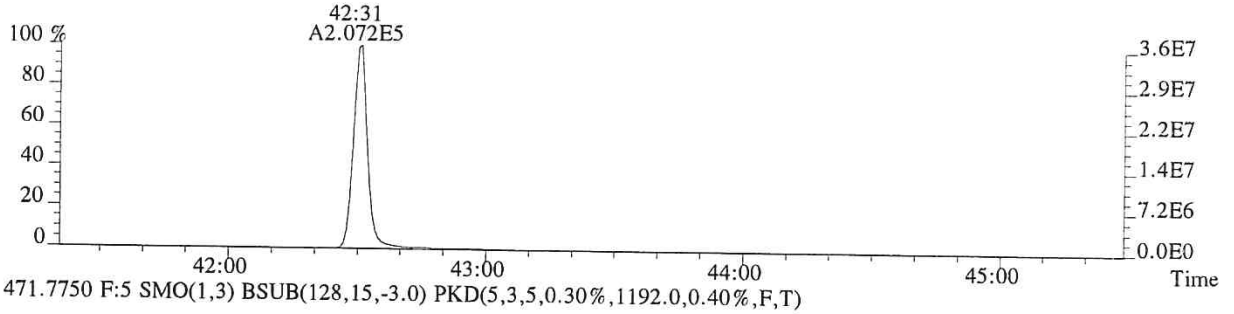
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



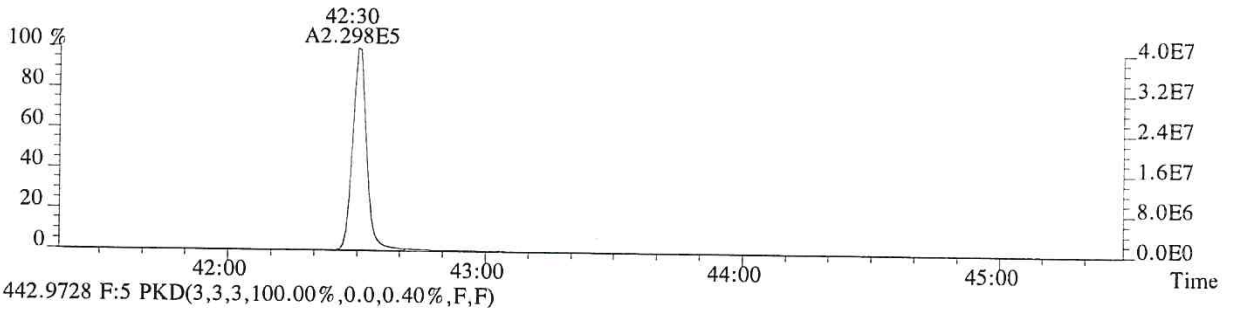
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



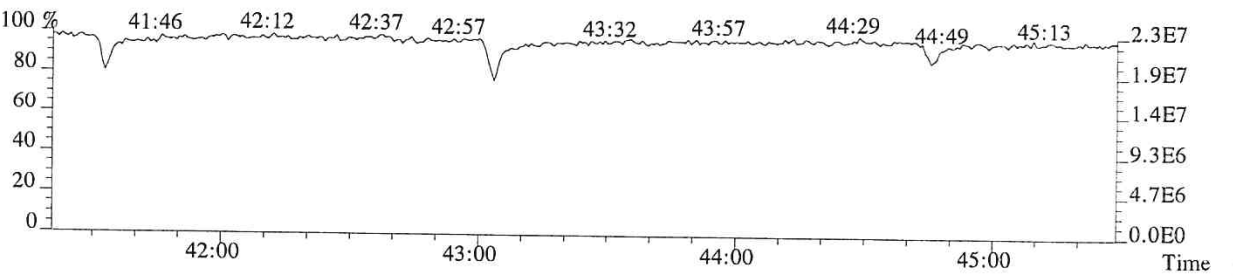
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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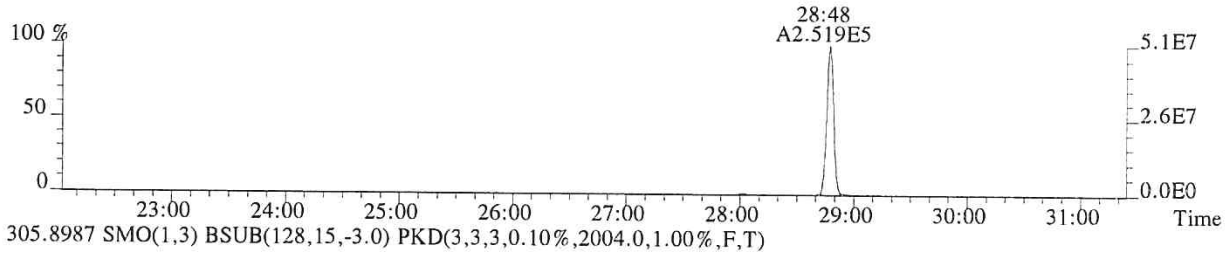
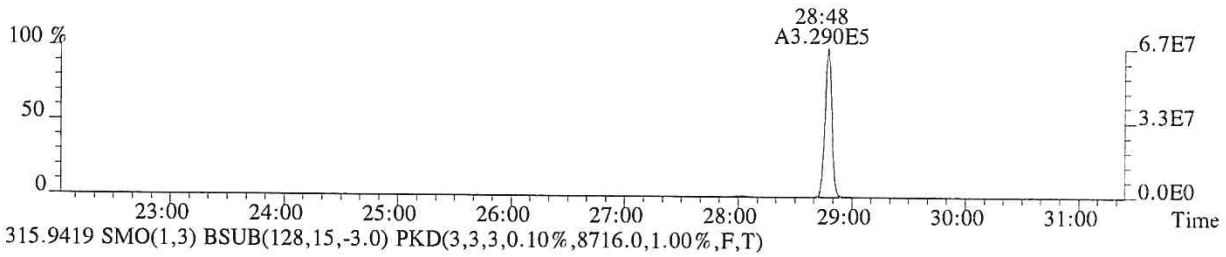
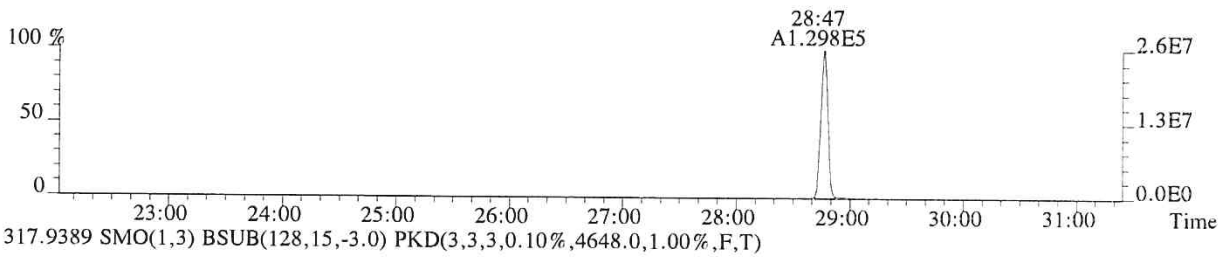
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



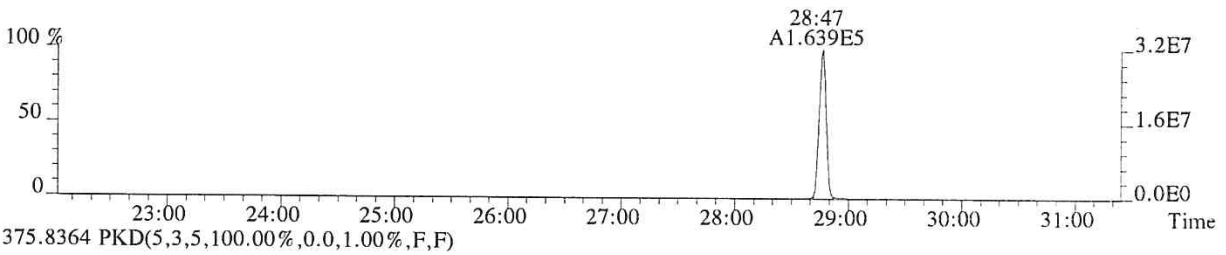
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



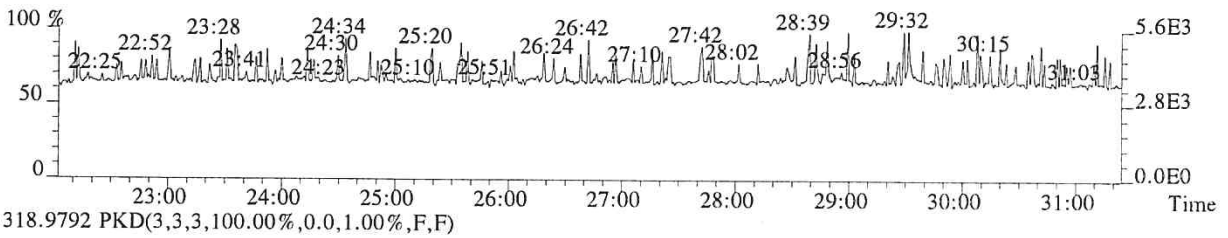
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



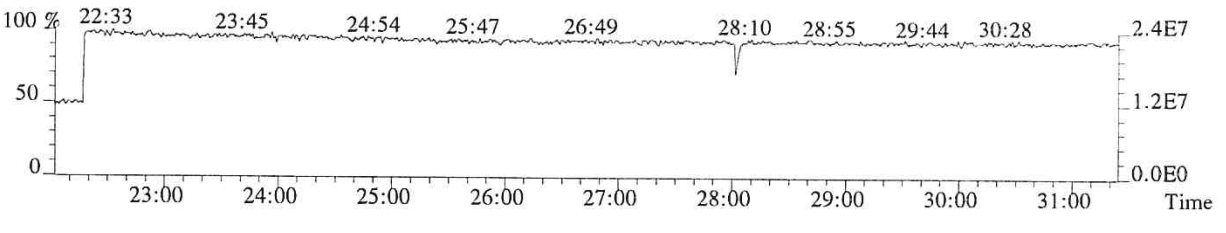
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

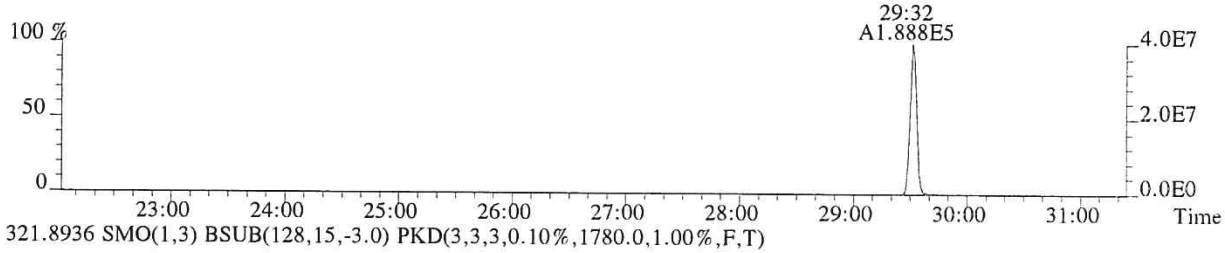


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

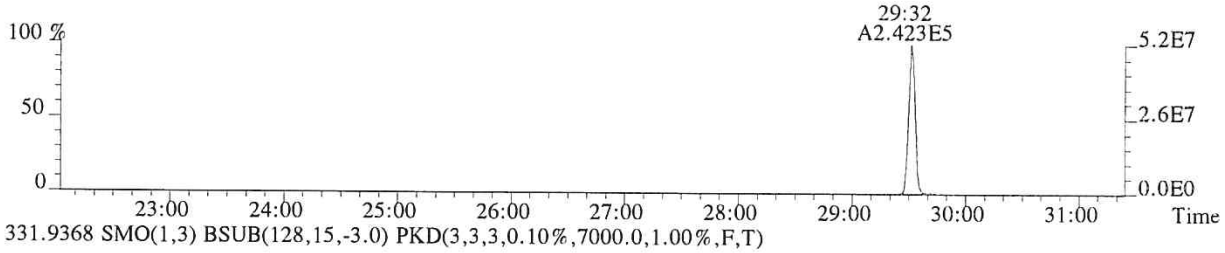


012952

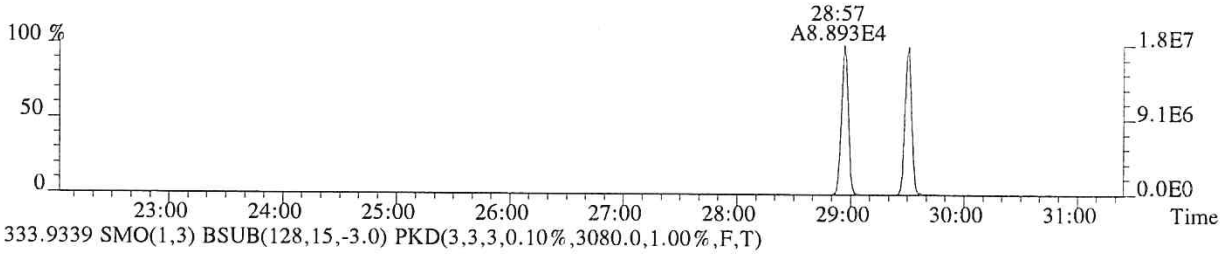
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



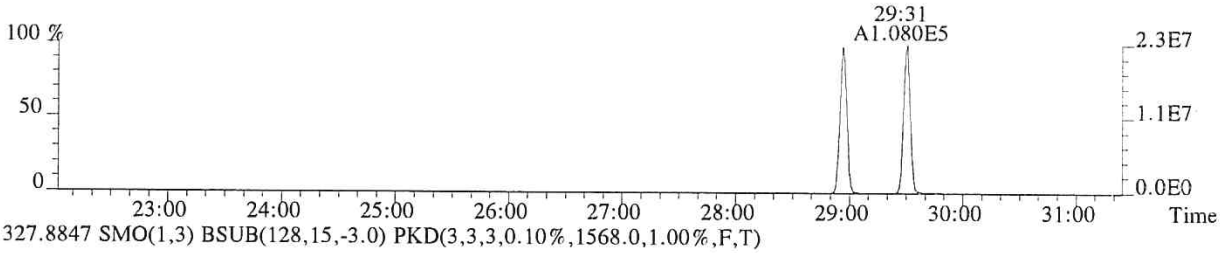
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



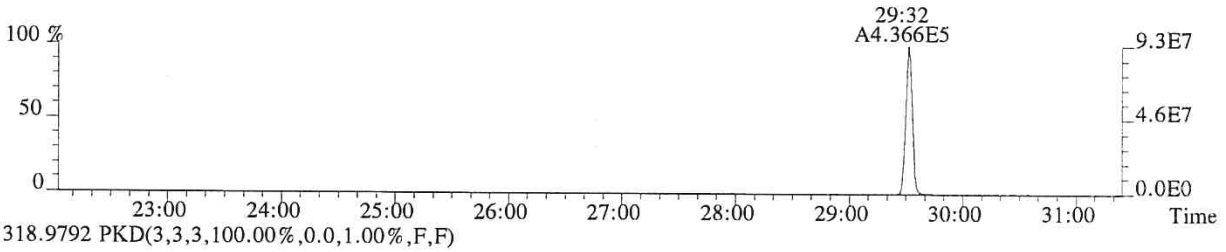
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



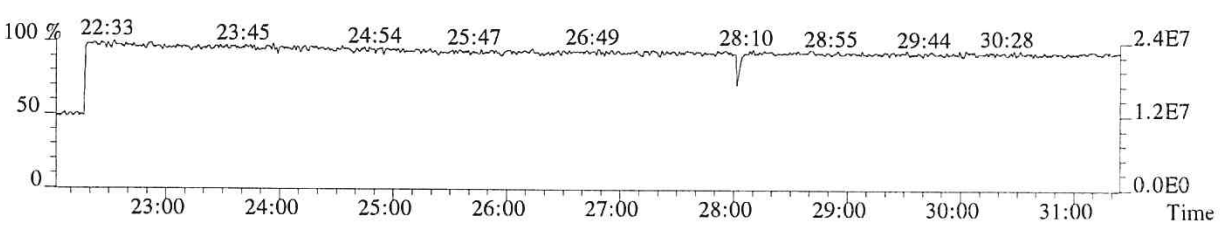
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)

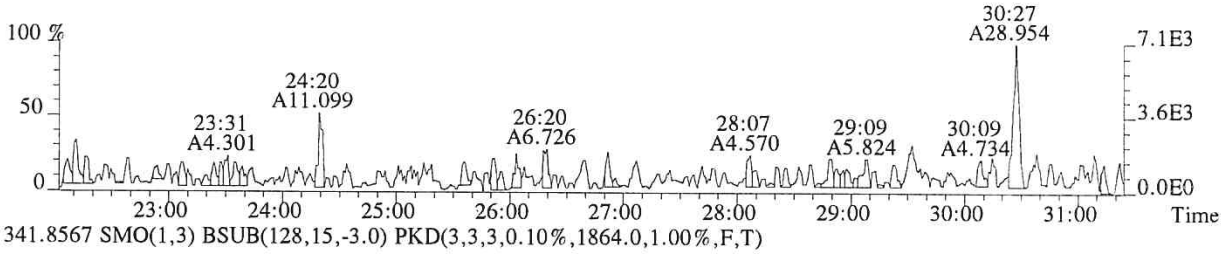


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

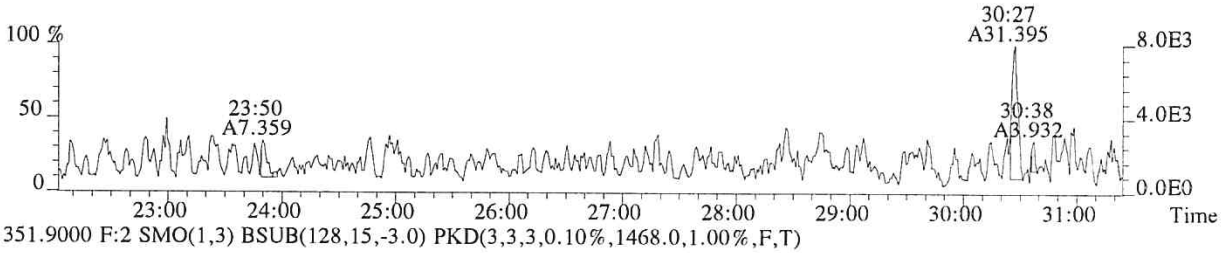


012953

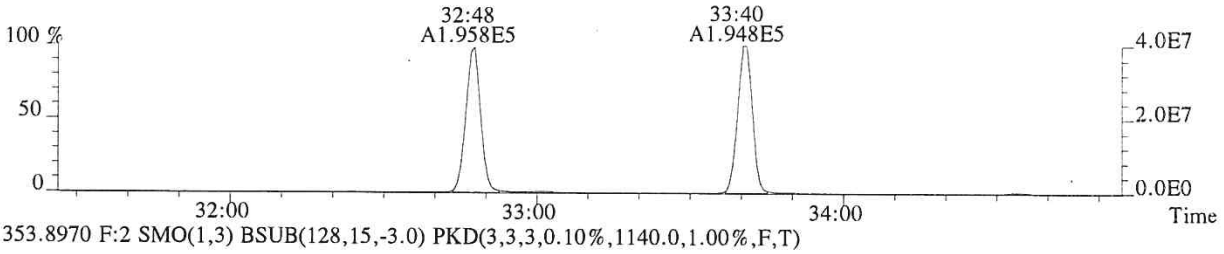
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



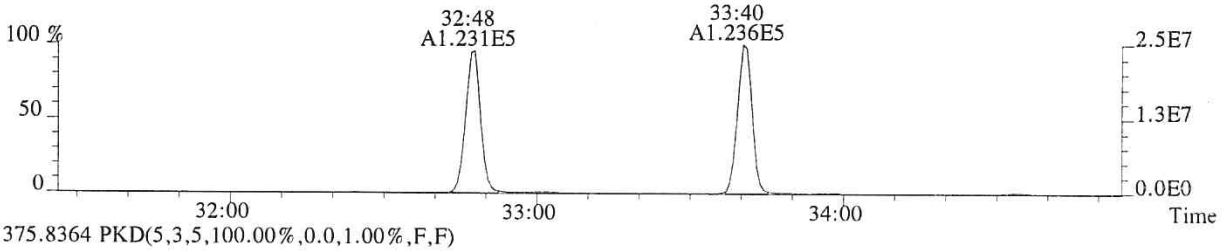
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



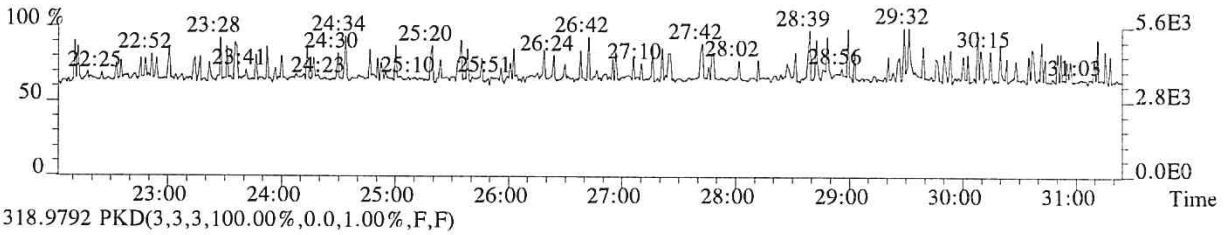
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



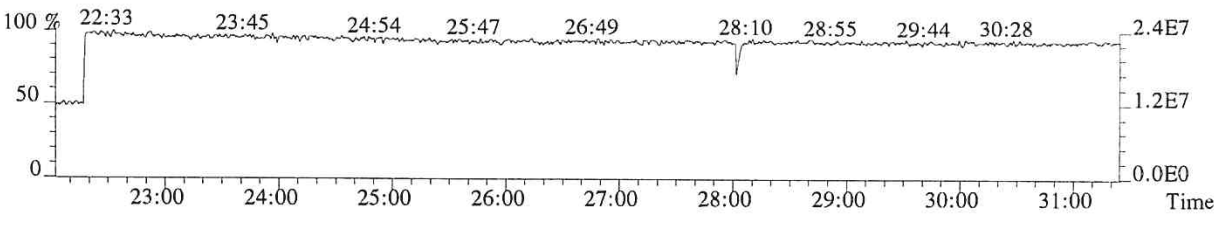
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

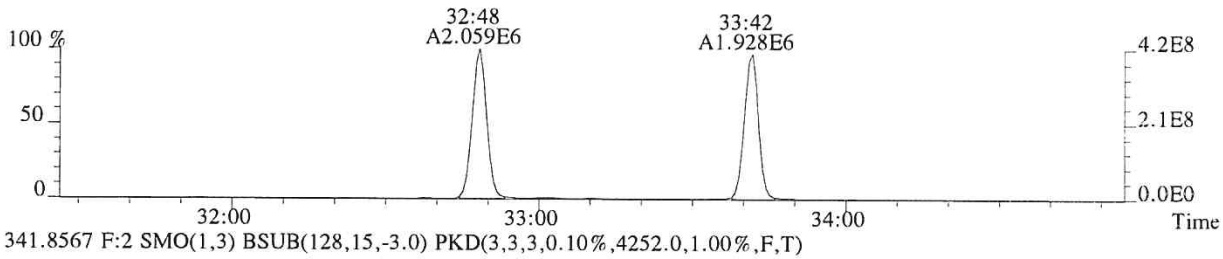


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

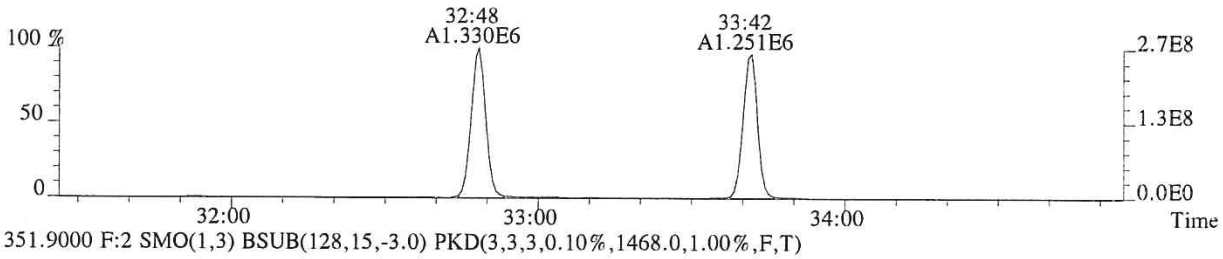


012954

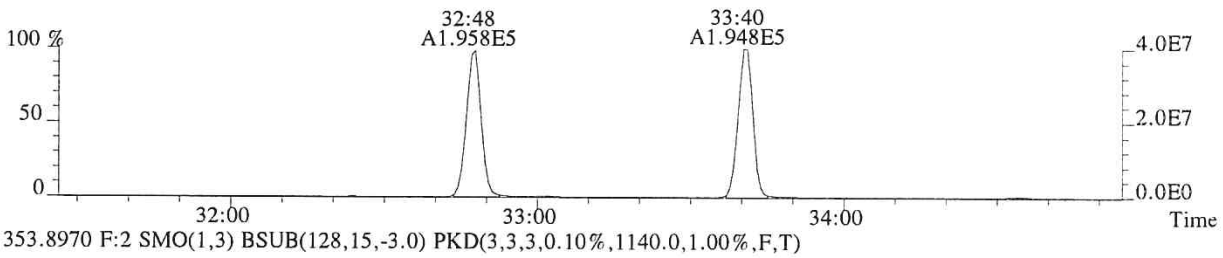
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



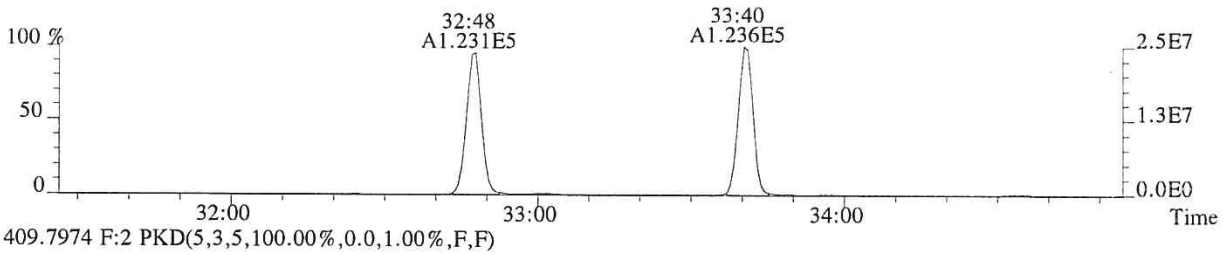
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



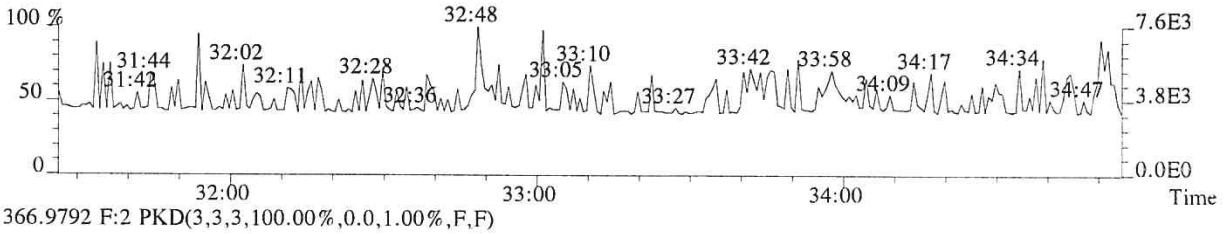
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



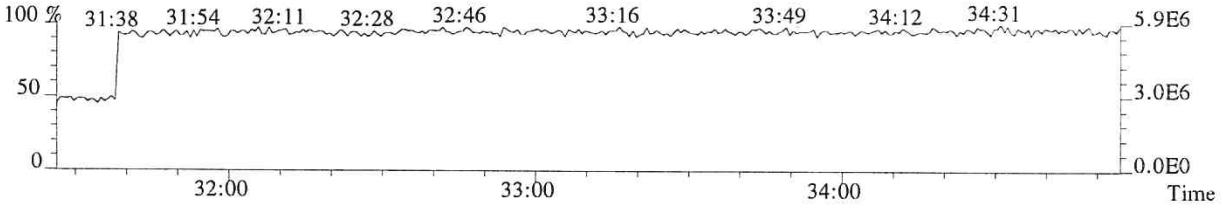
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

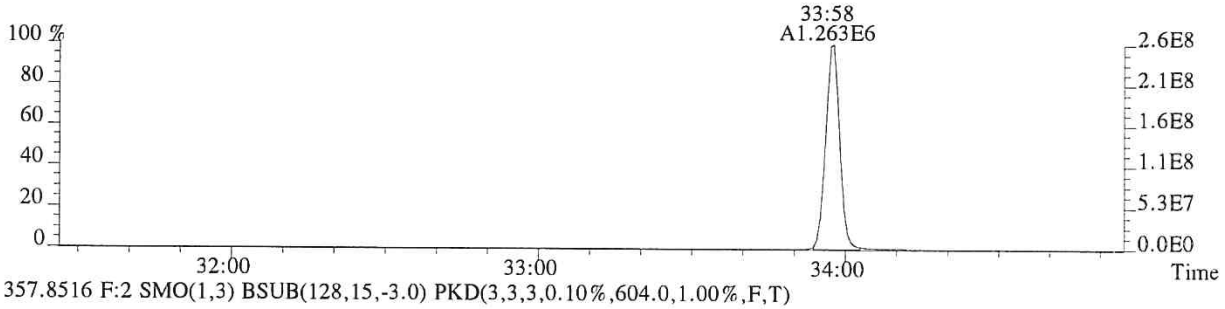


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

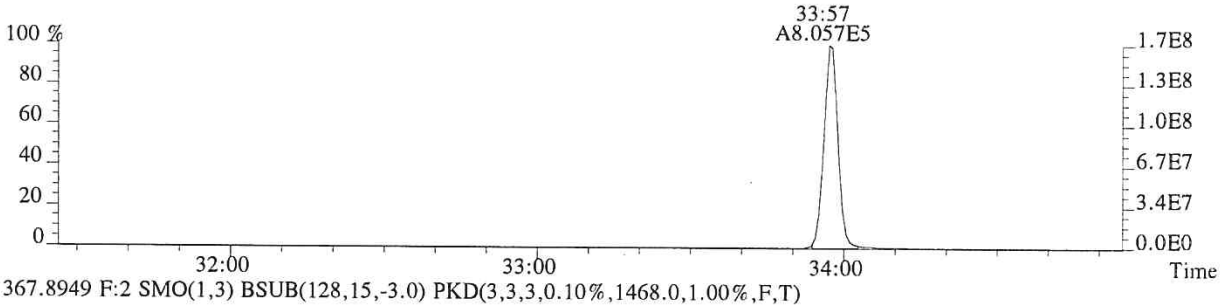


012955

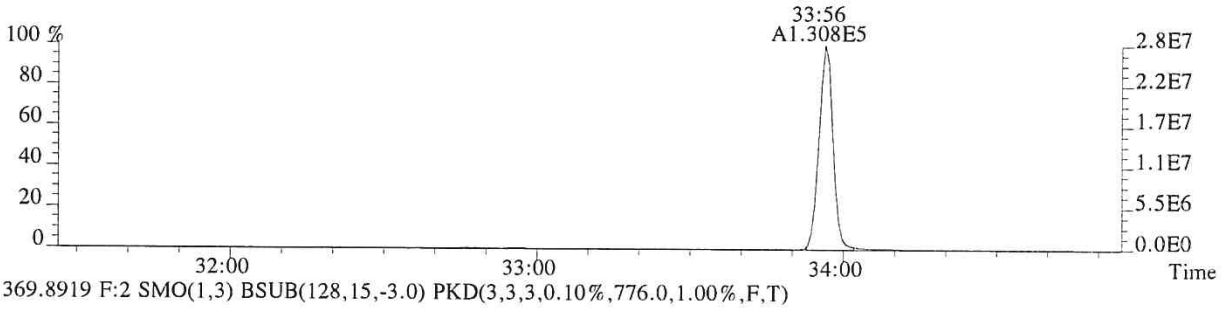
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



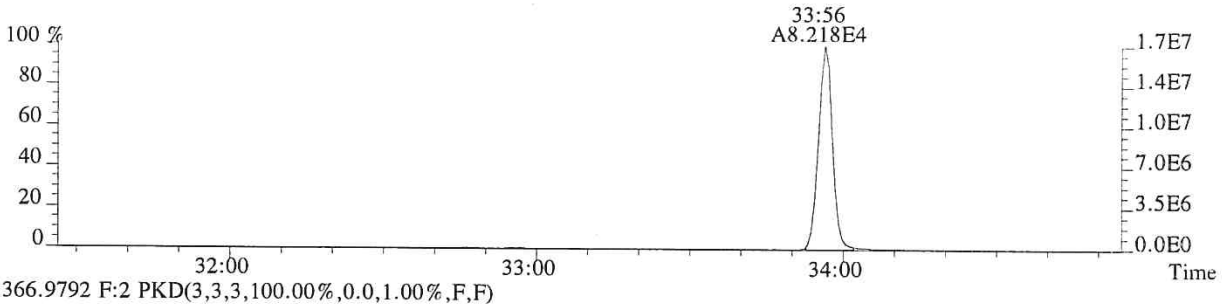
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



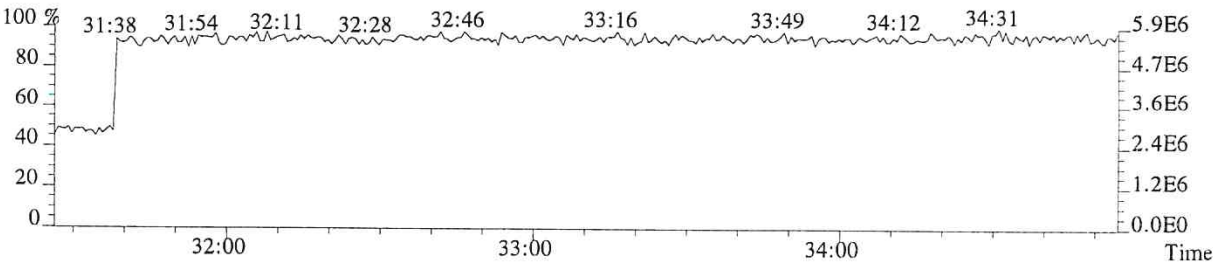
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



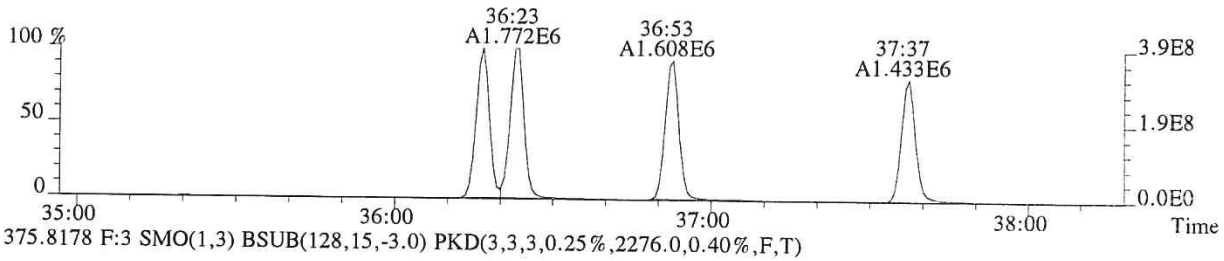
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



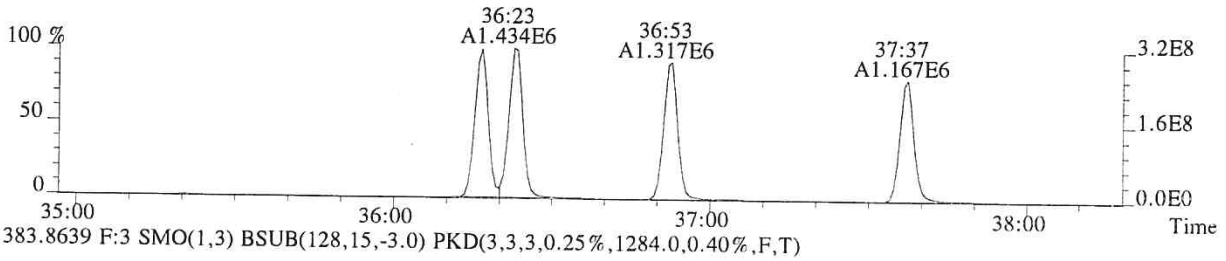
012956

File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657

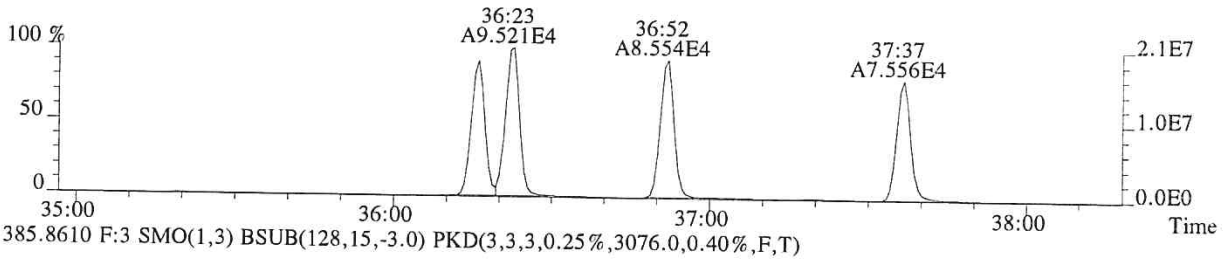
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



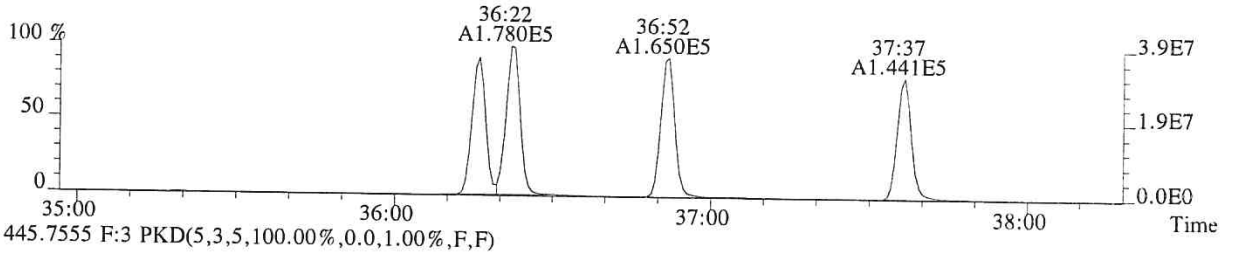
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



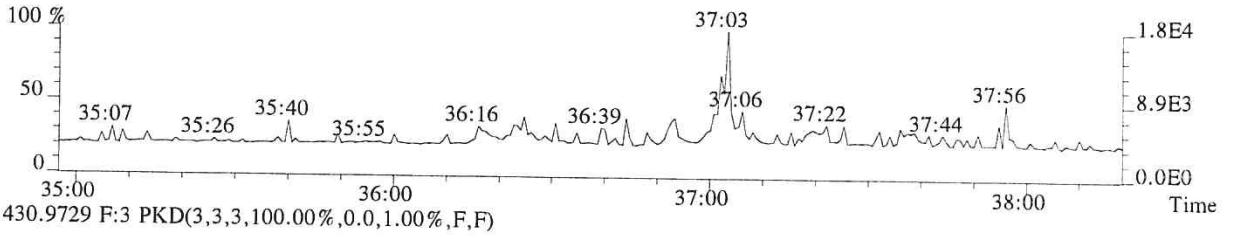
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



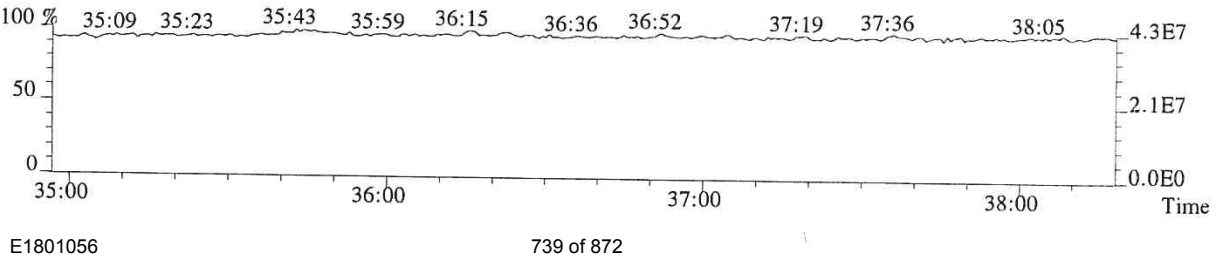
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

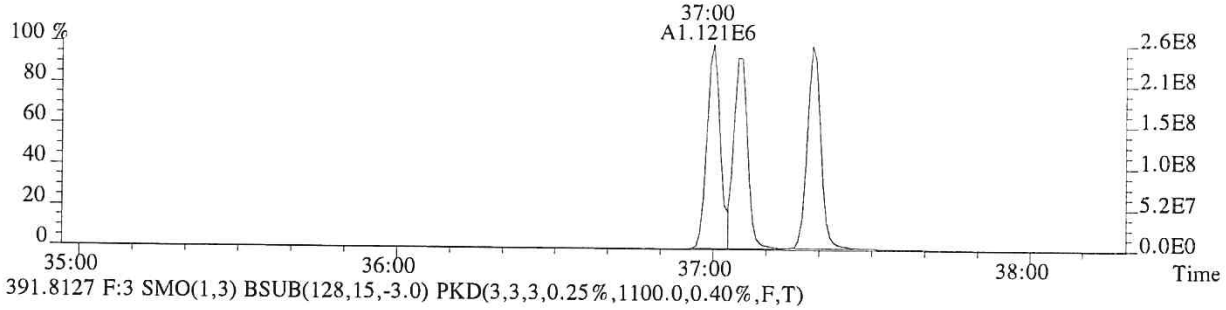


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

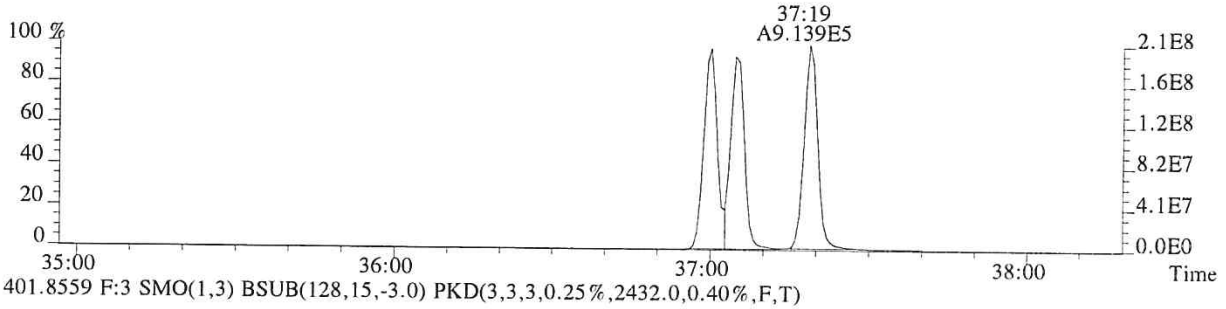


012957

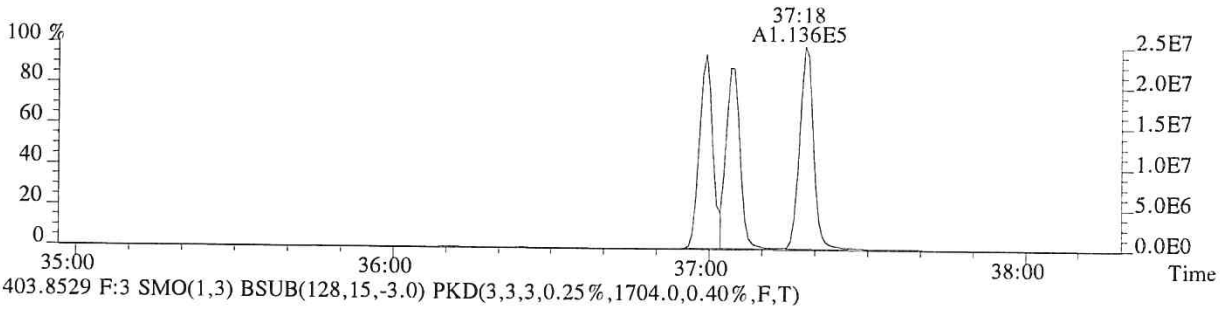
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



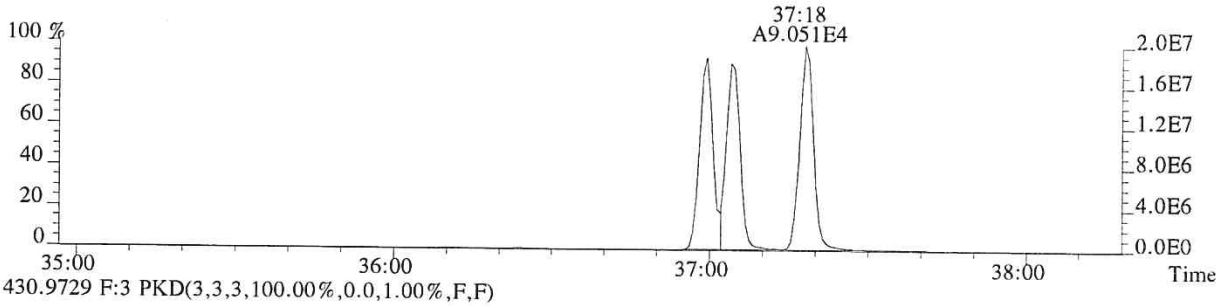
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



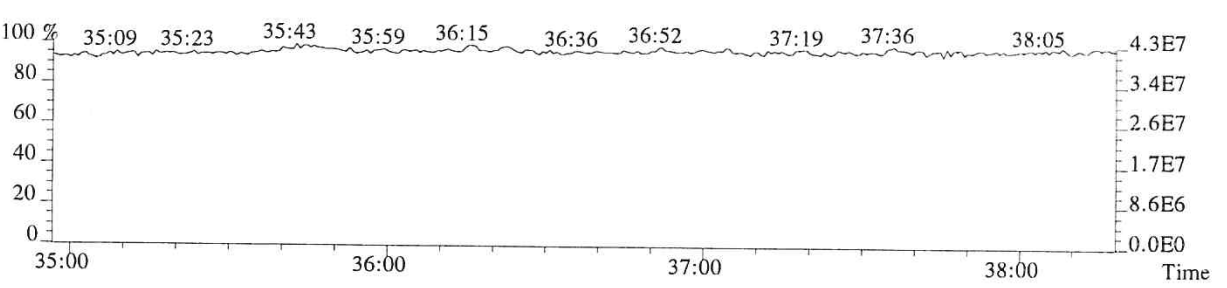
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)

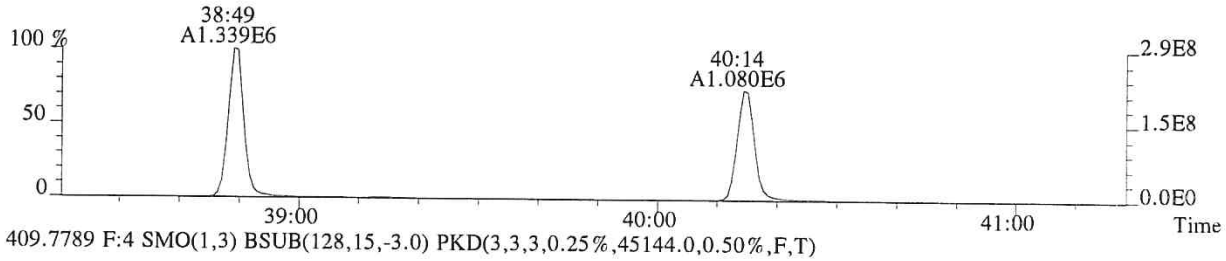


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

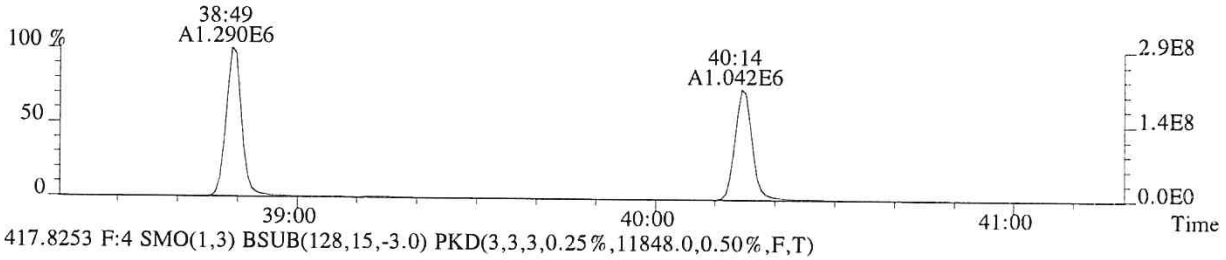


012958

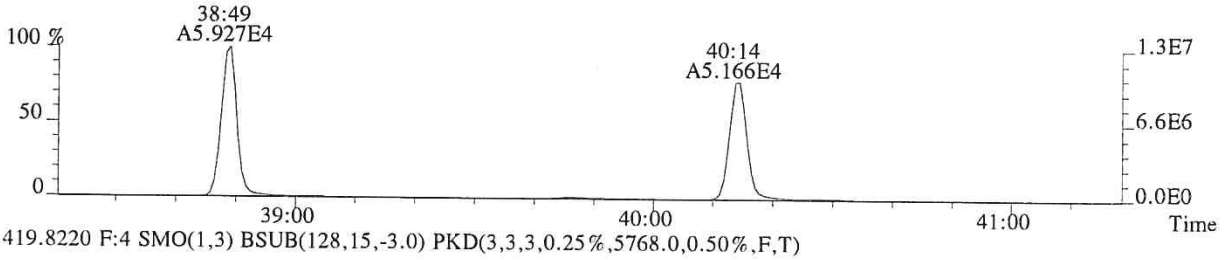
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



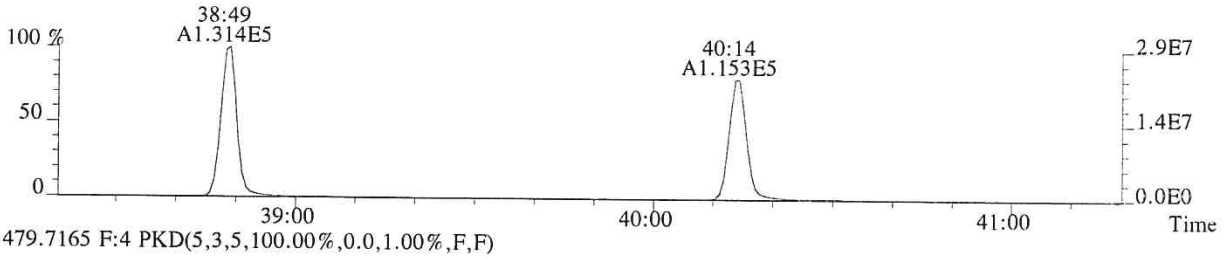
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



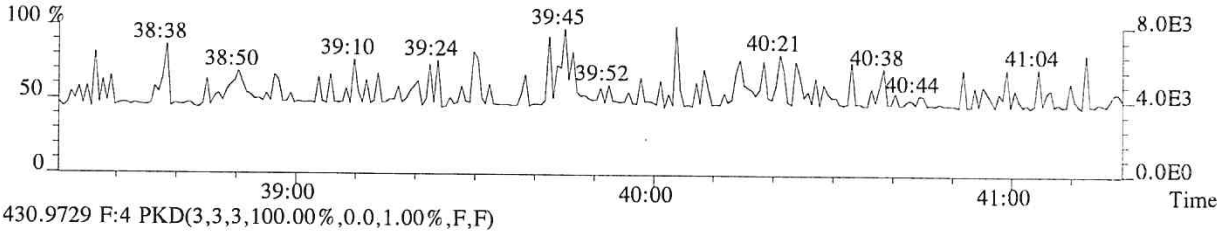
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



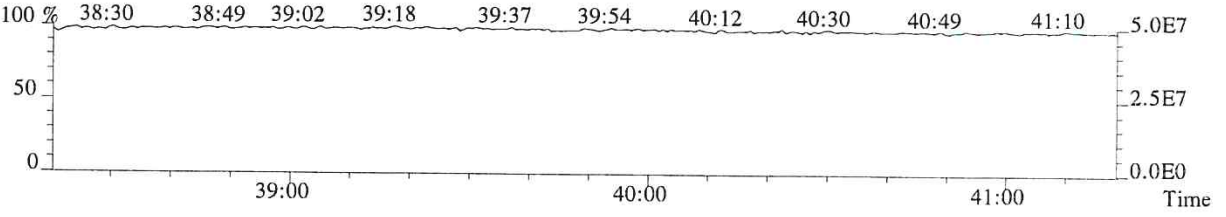
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

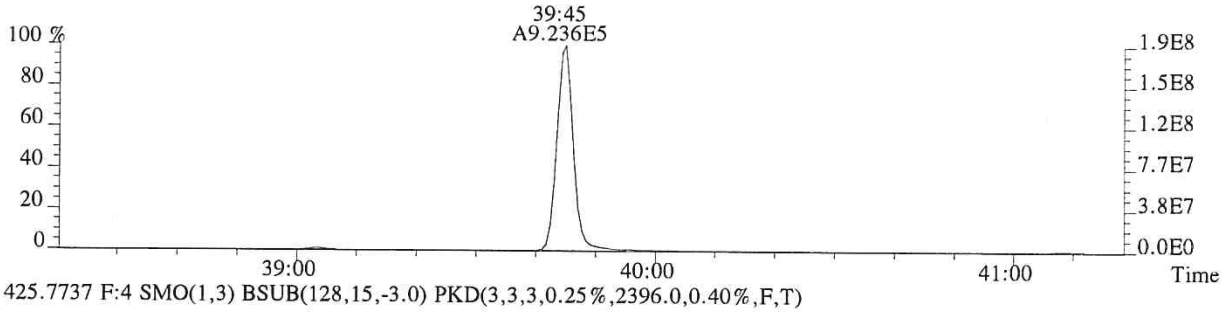


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

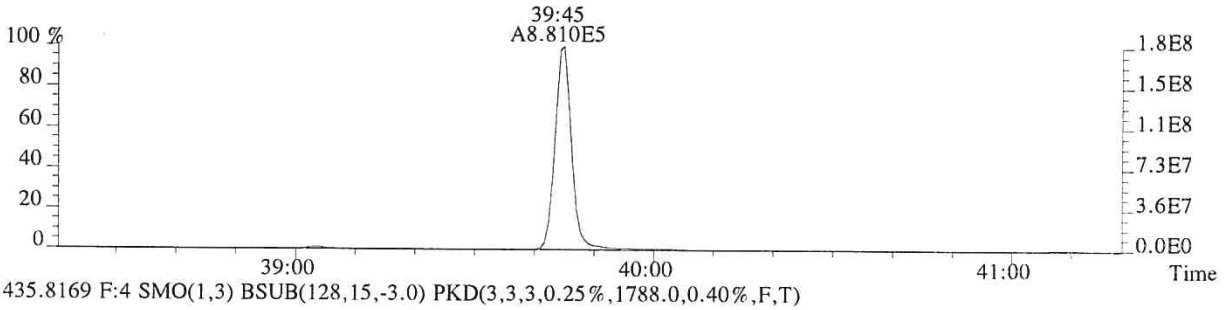


012959

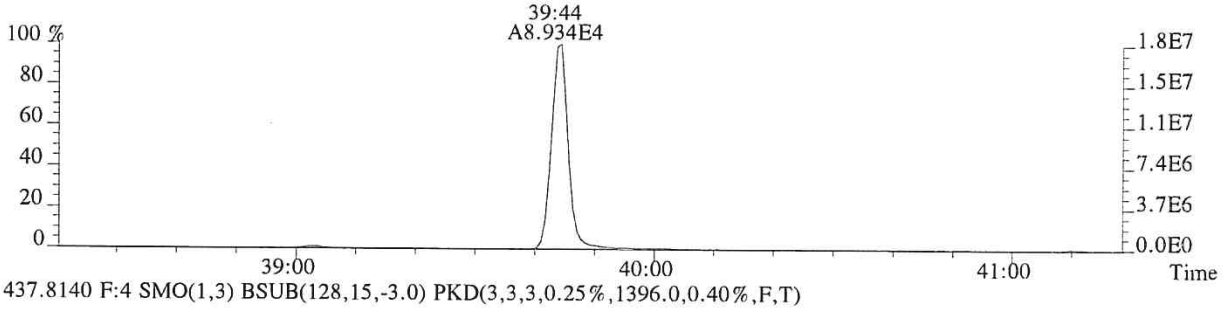
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



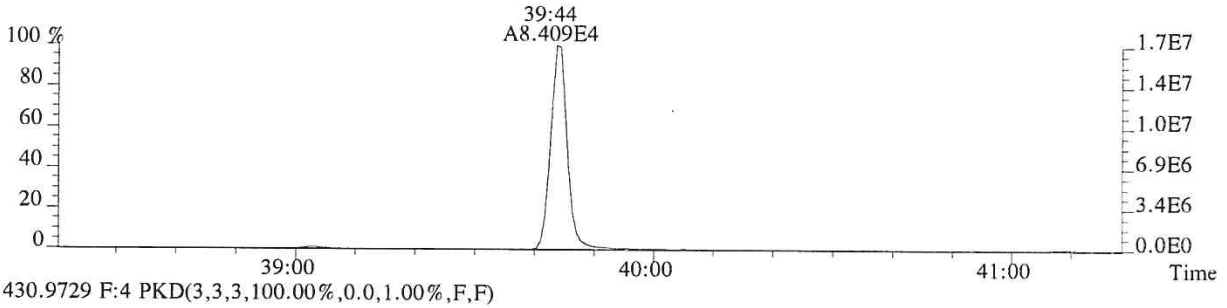
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



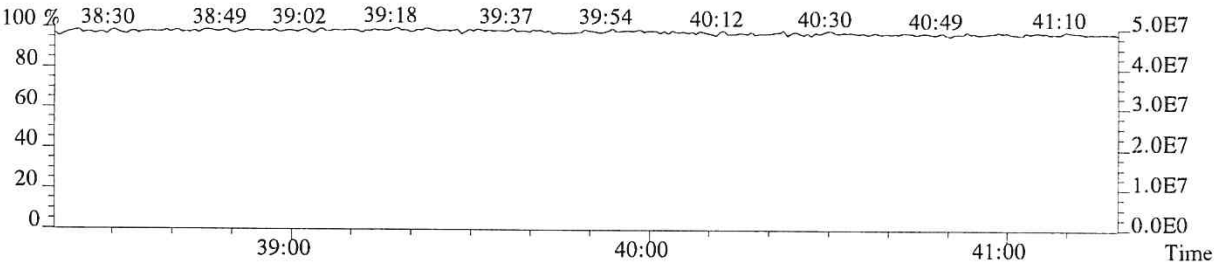
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)

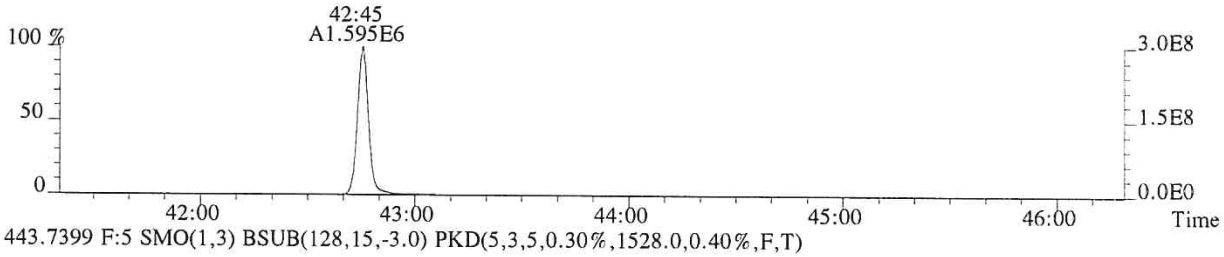


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

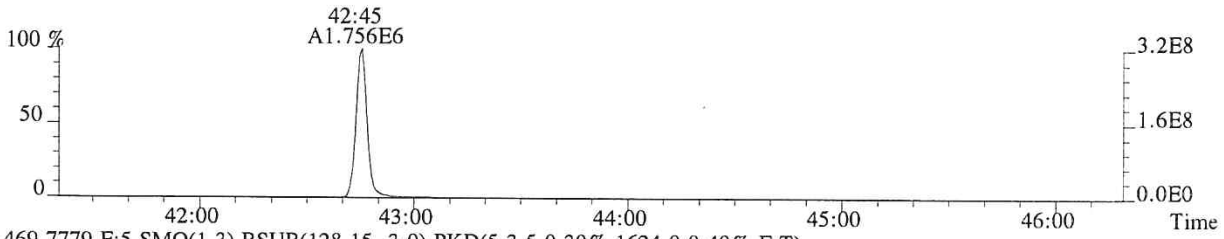


012960

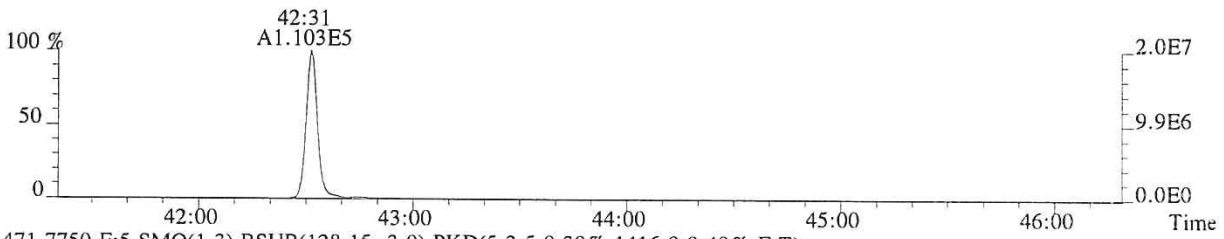
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



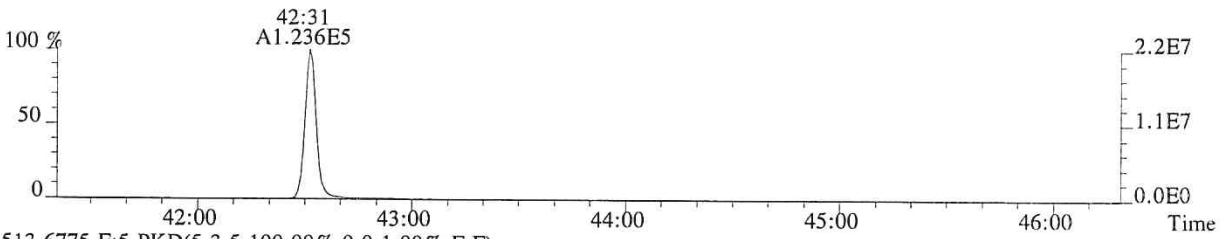
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



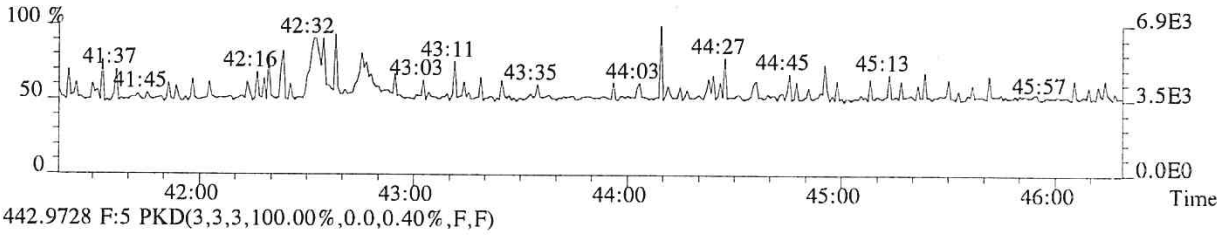
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



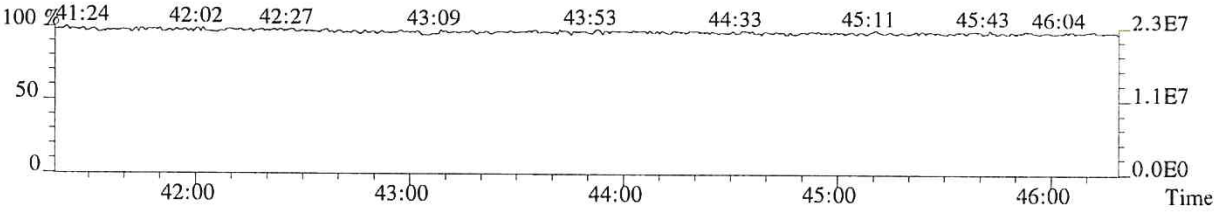
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

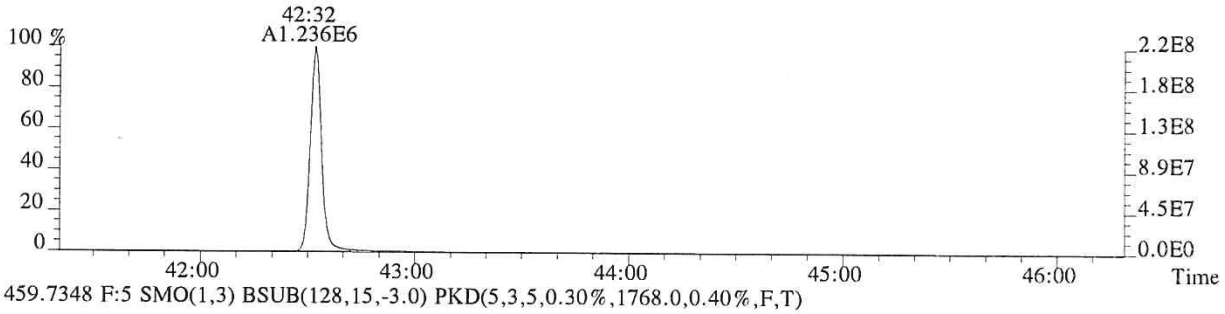


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

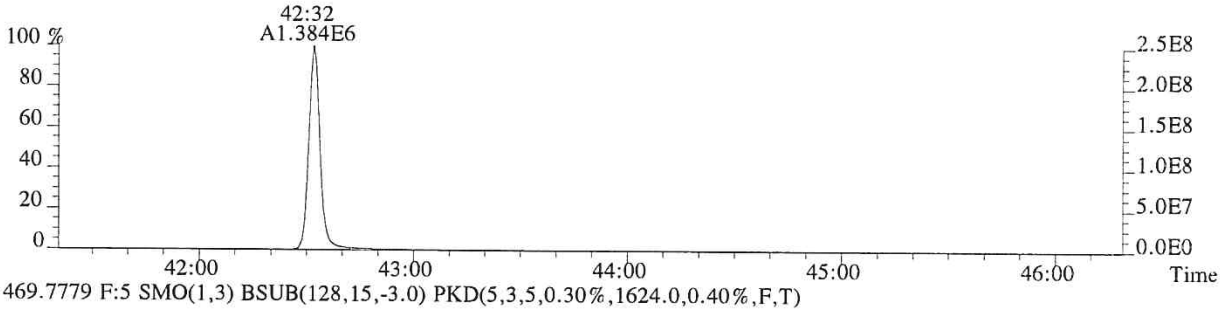


012961

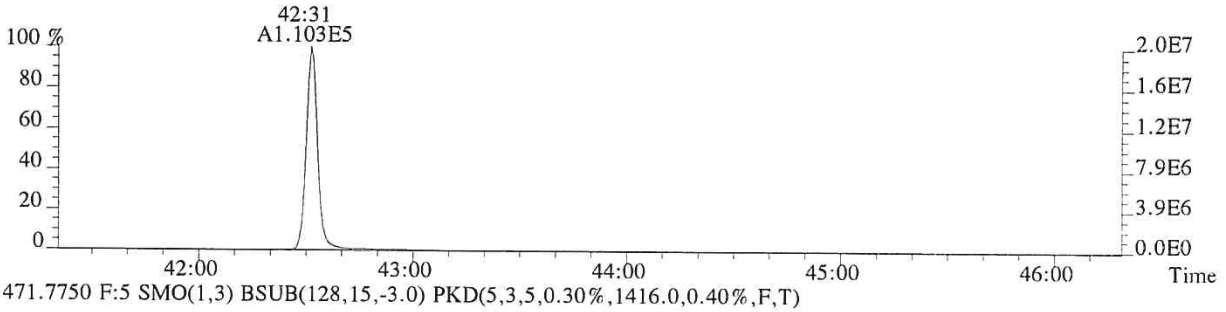
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



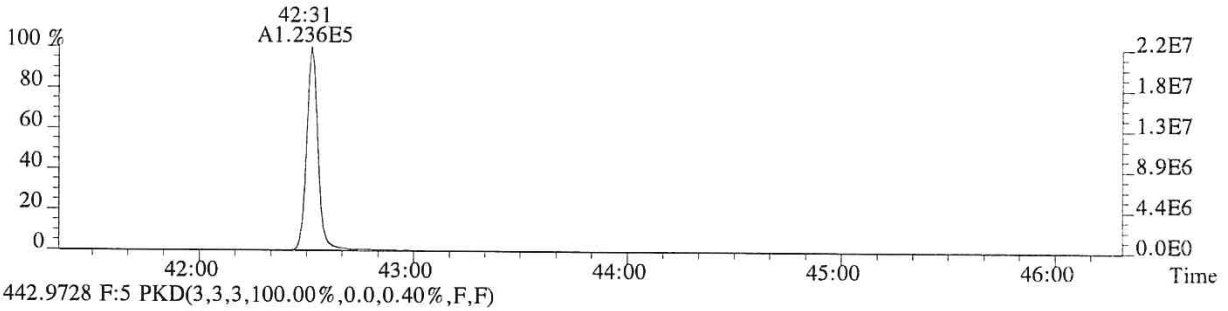
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



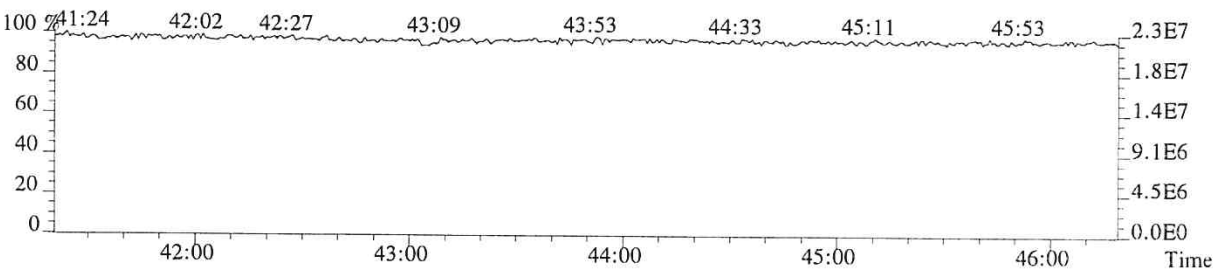
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012962

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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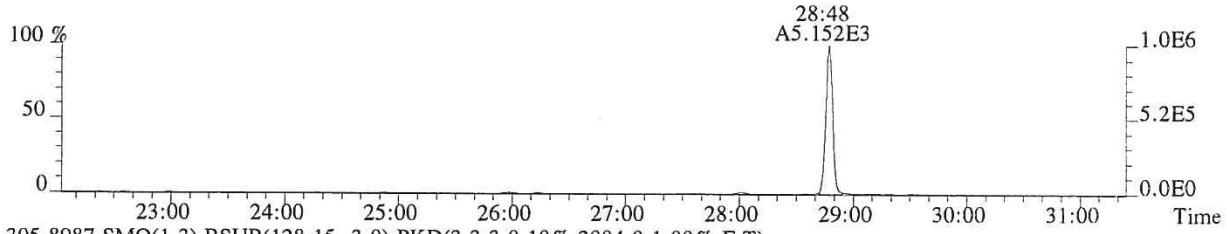
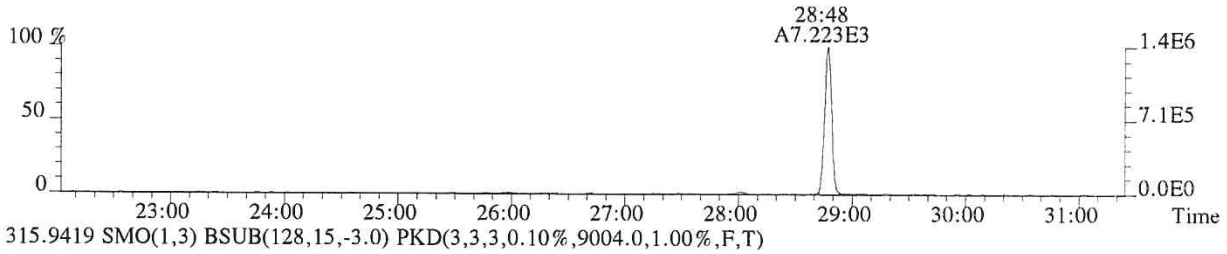
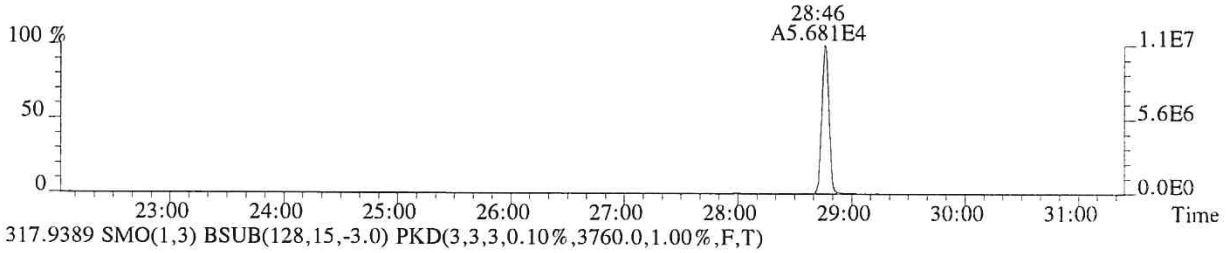
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



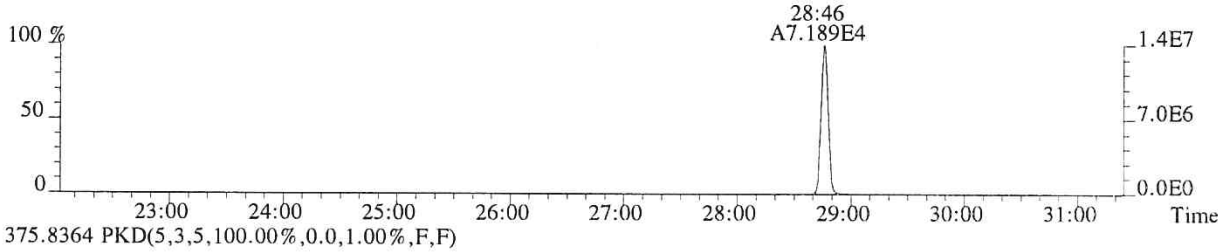
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



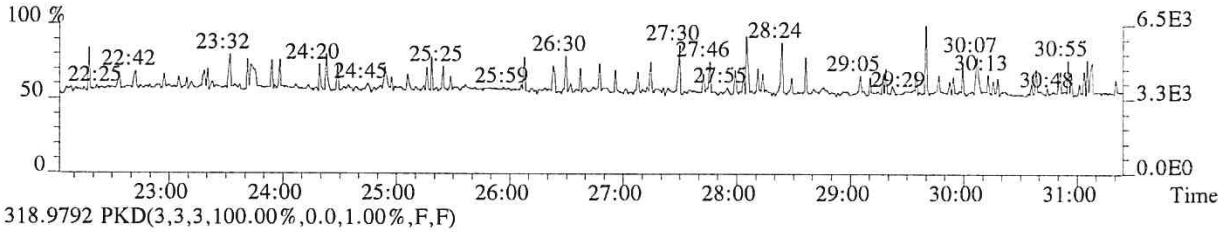
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



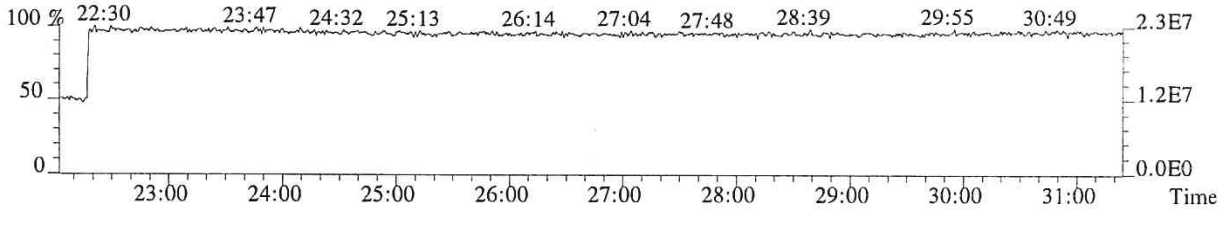
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

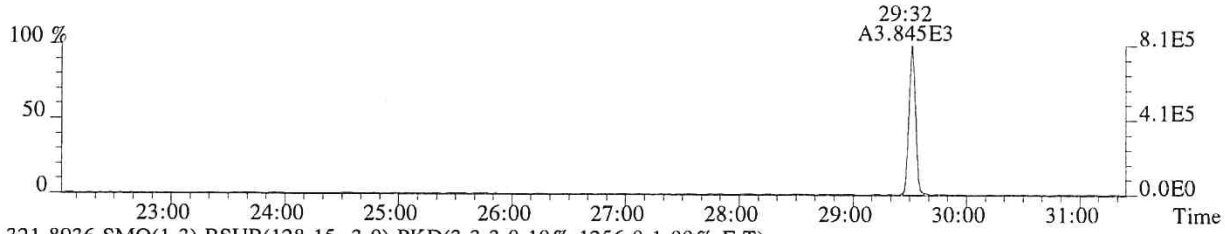


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

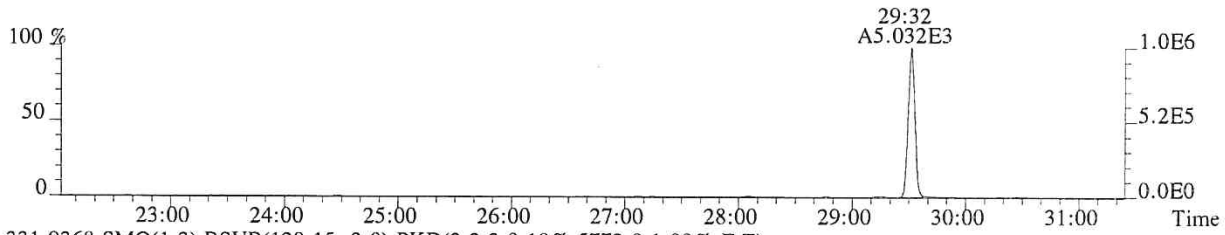


012967

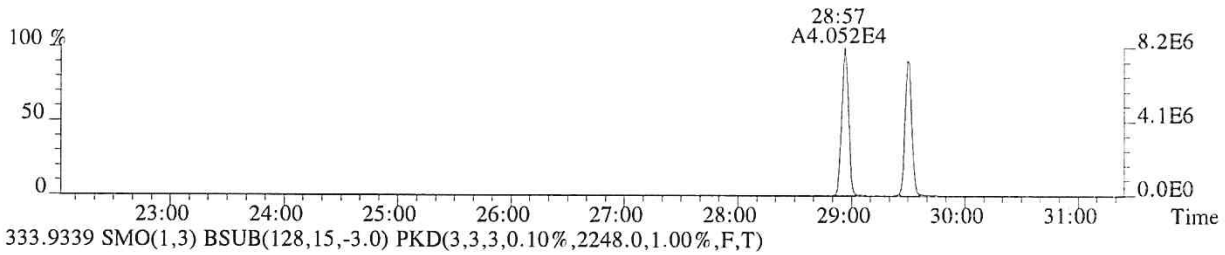
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



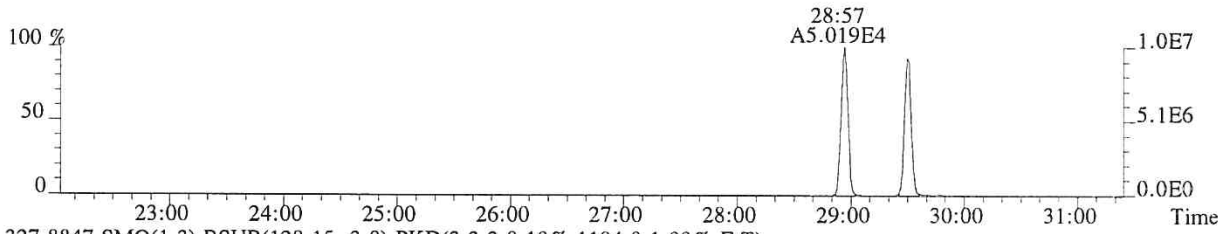
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



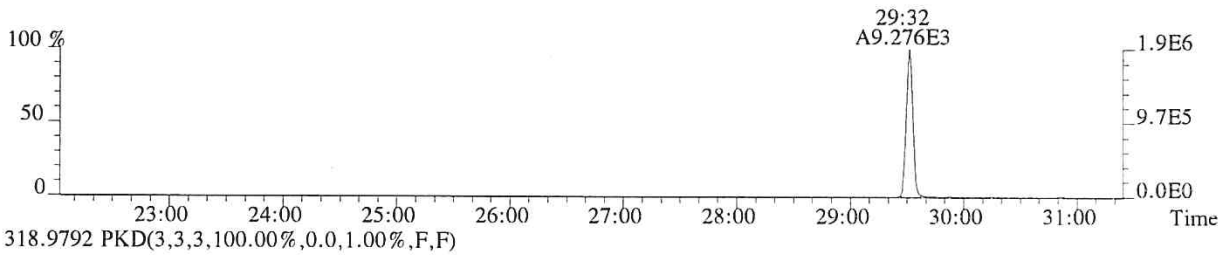
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



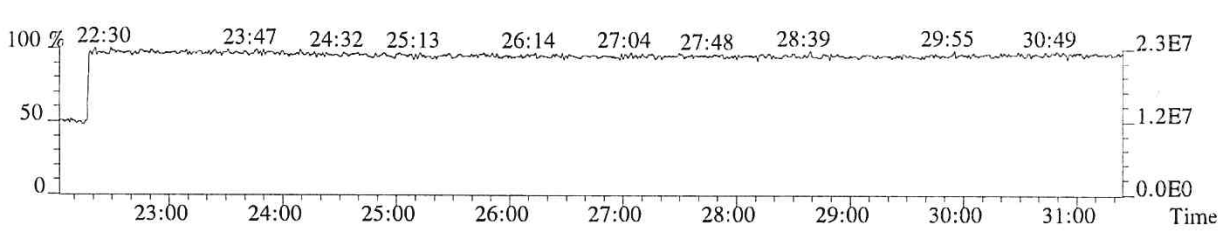
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)

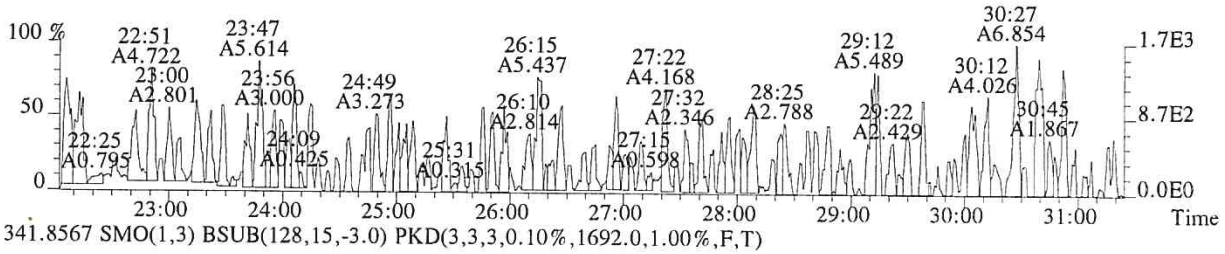


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

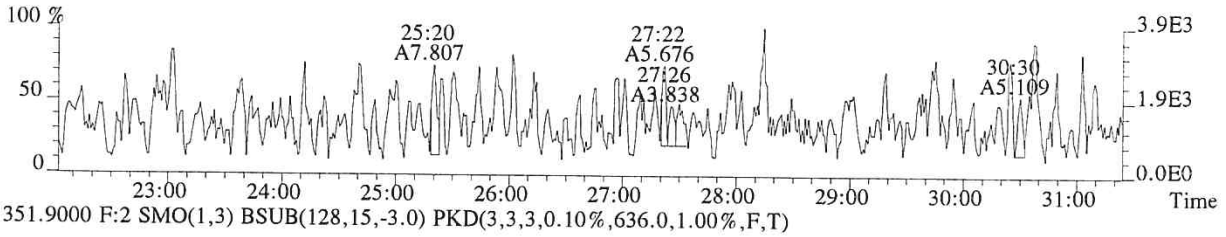


012968

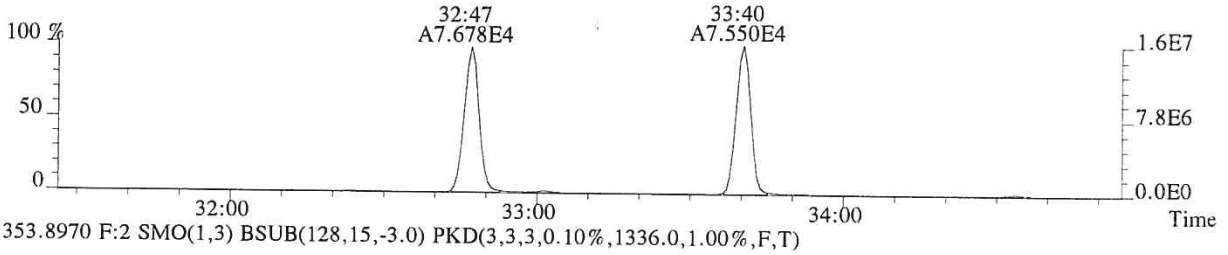
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



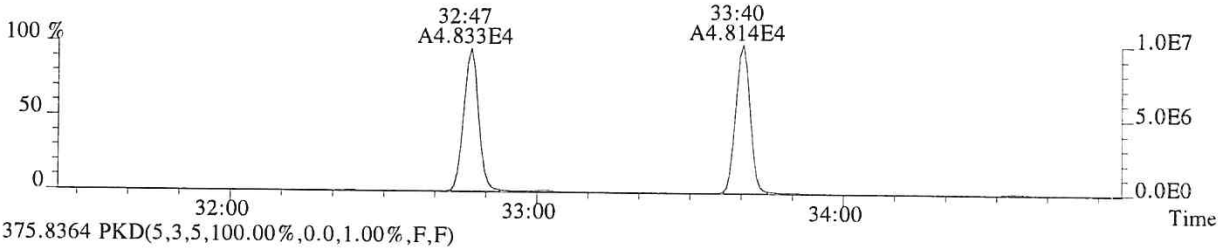
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



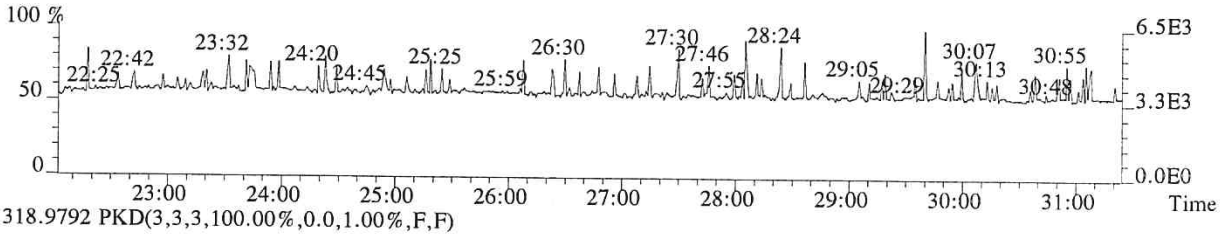
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



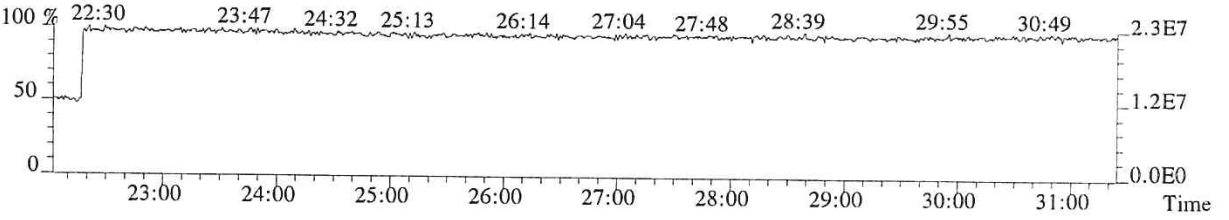
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

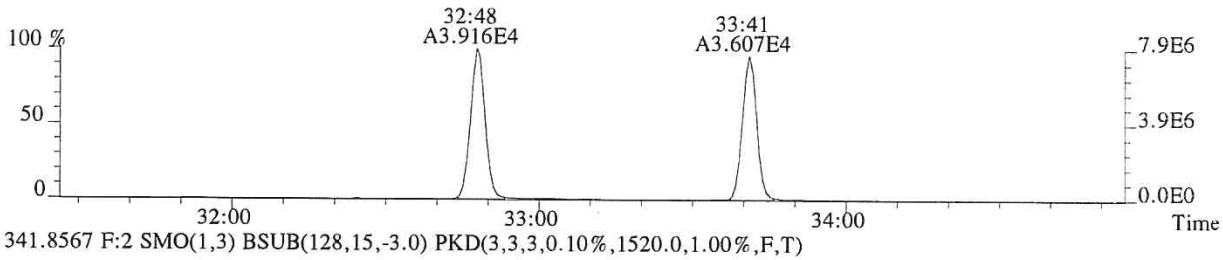


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

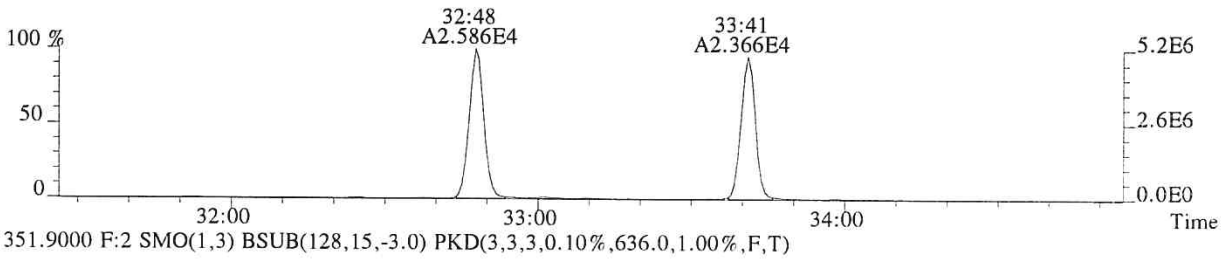


012969

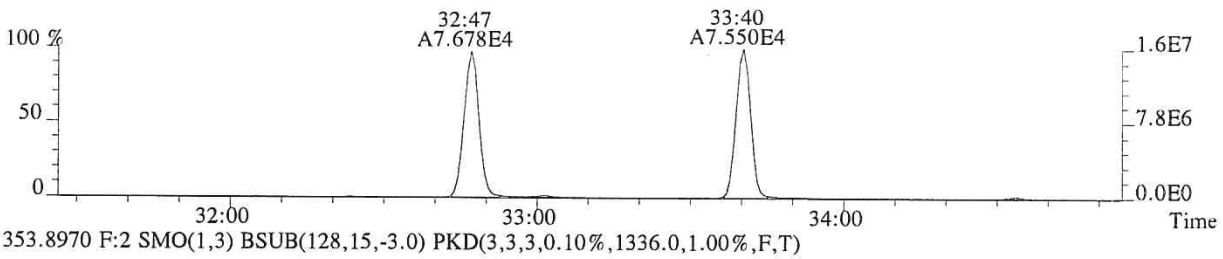
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



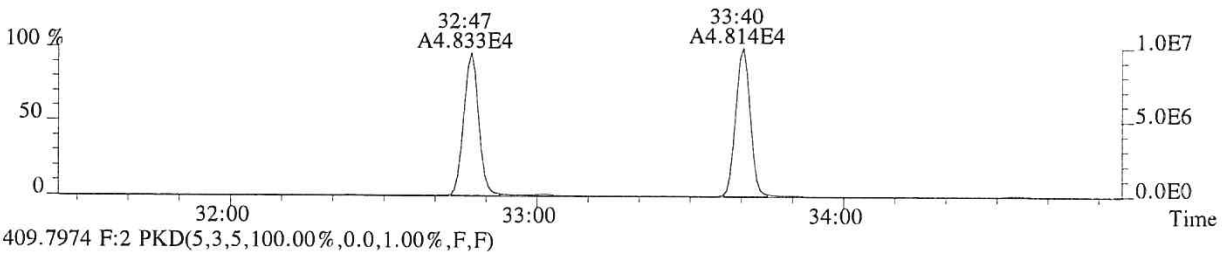
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



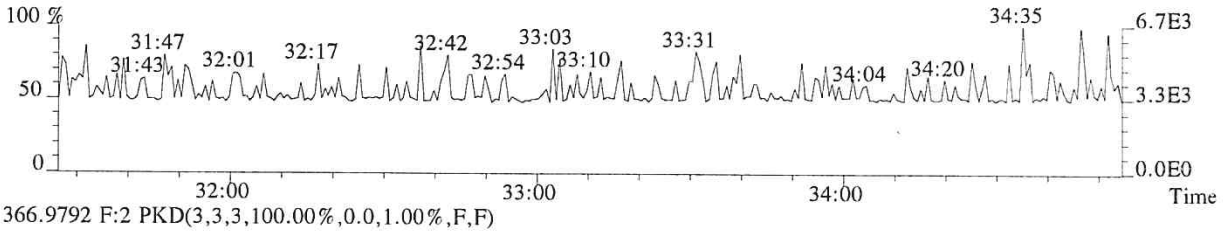
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



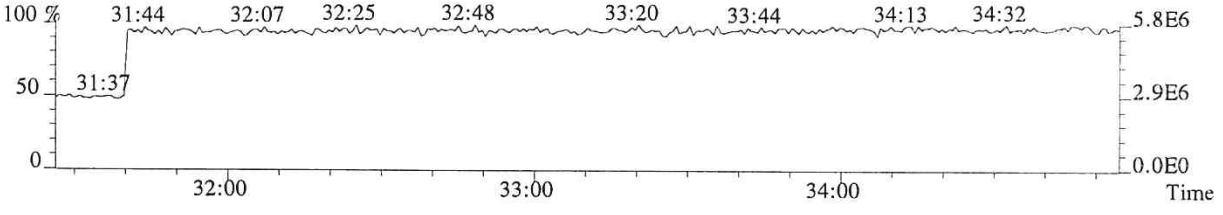
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

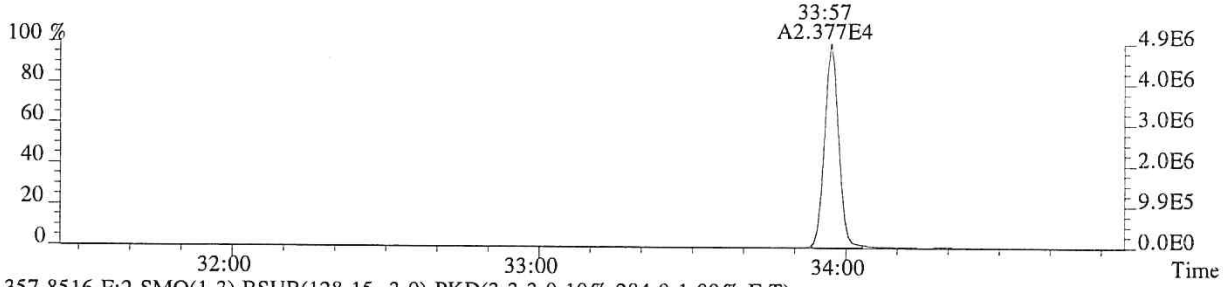


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

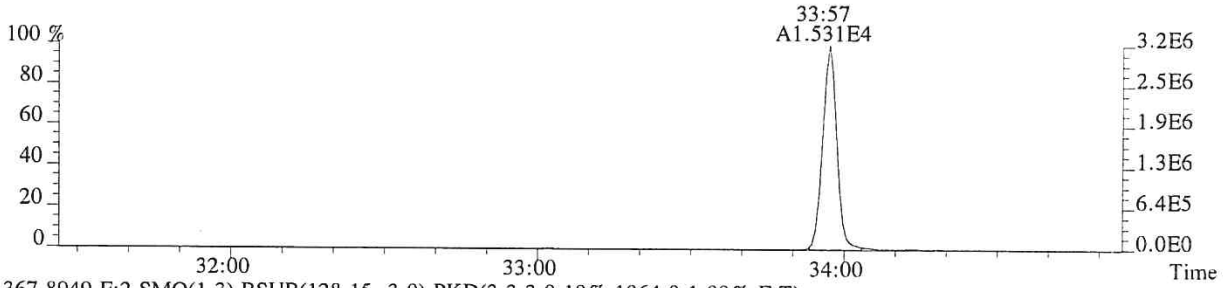


012970

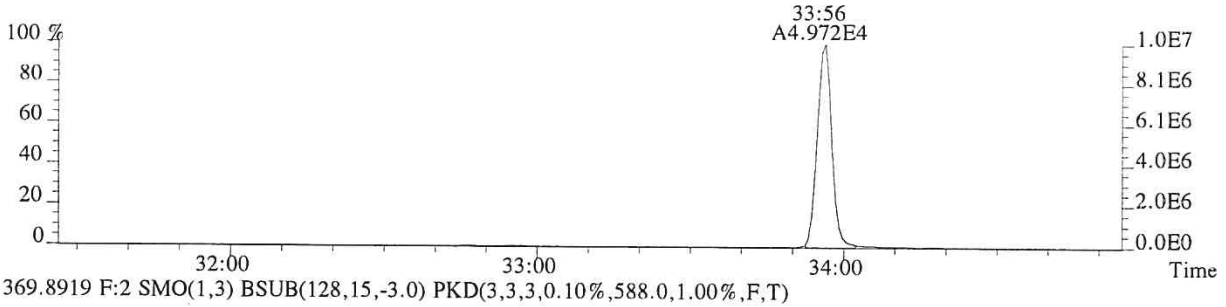
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



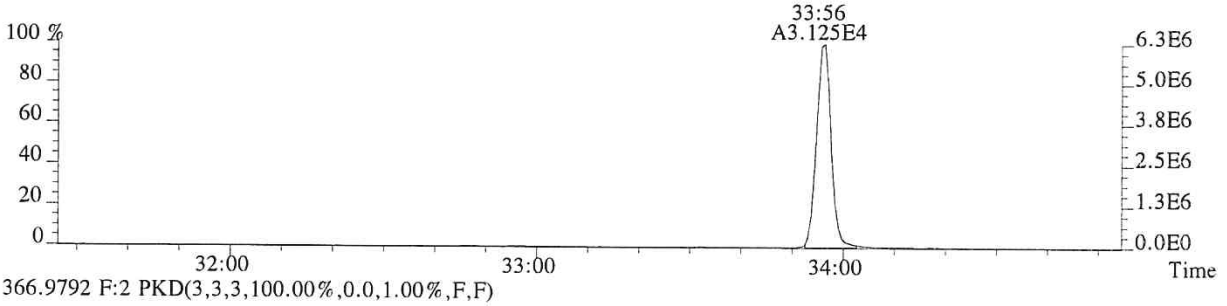
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



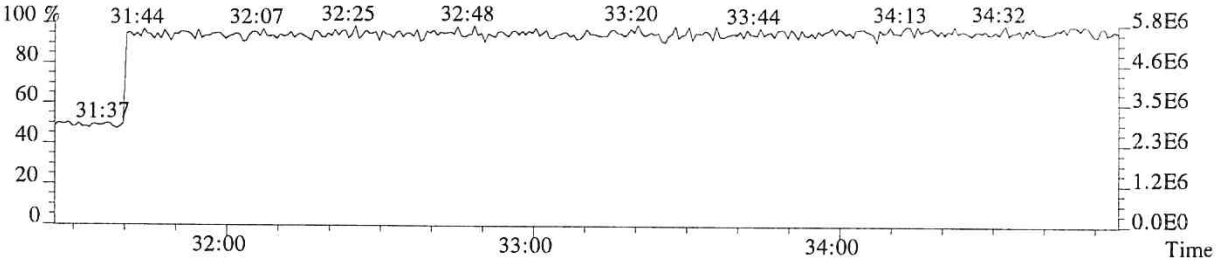
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)

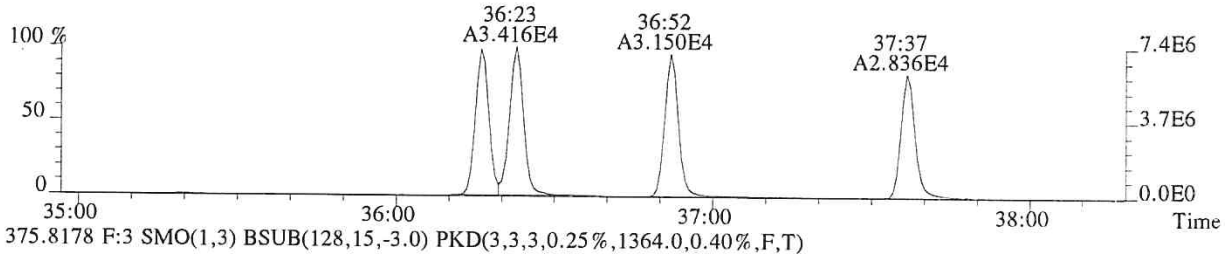


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

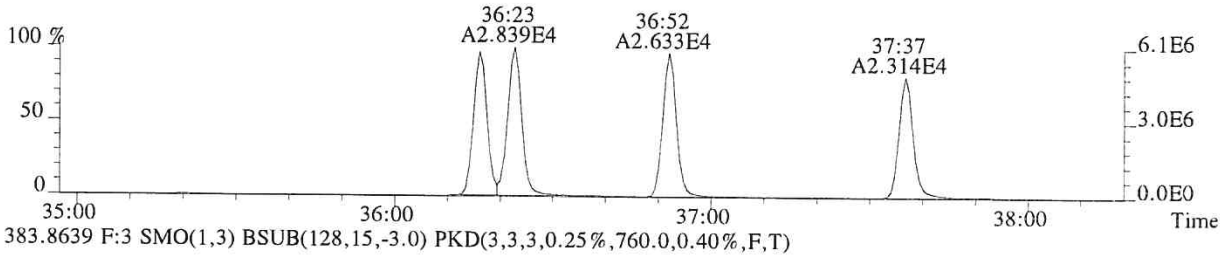


012971

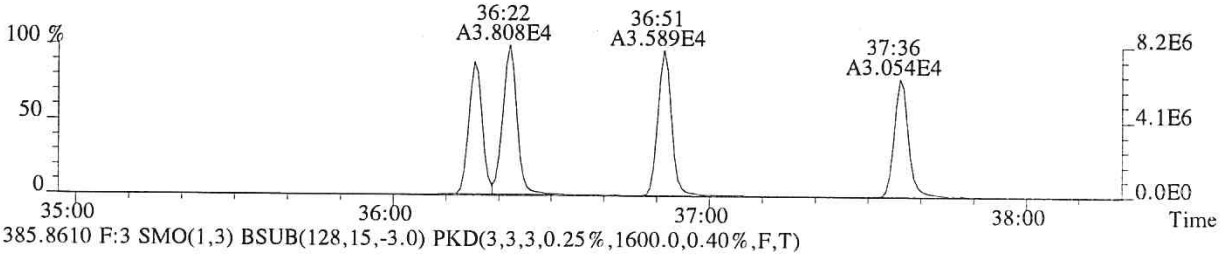
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



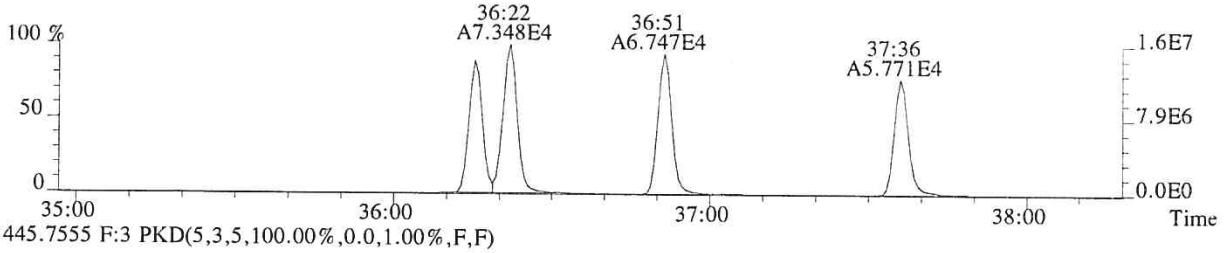
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



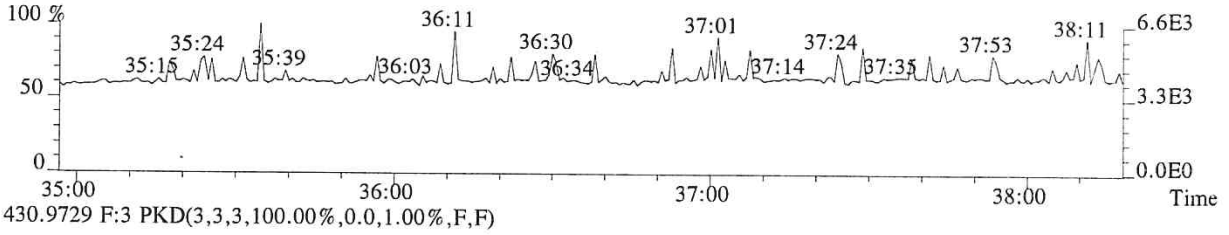
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



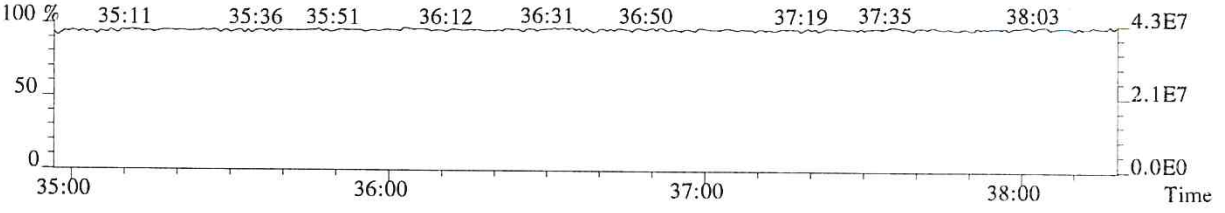
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

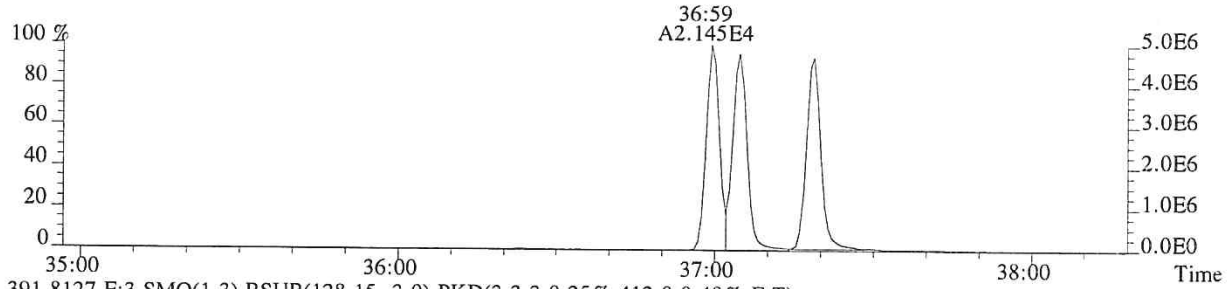


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

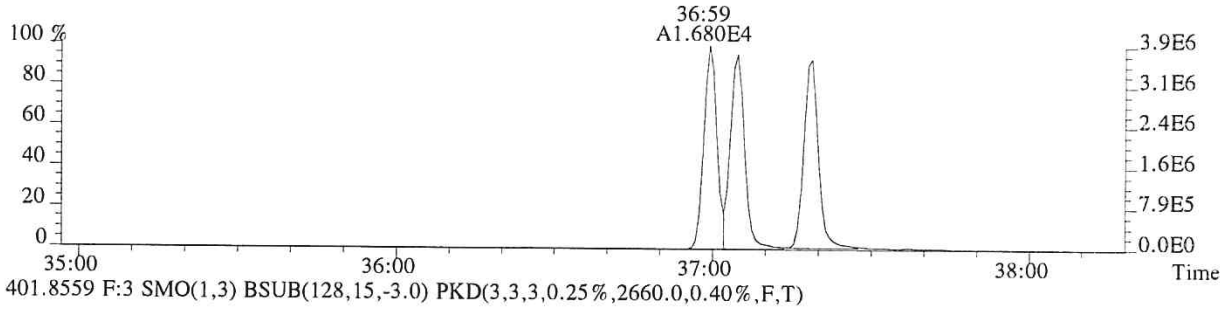


012972

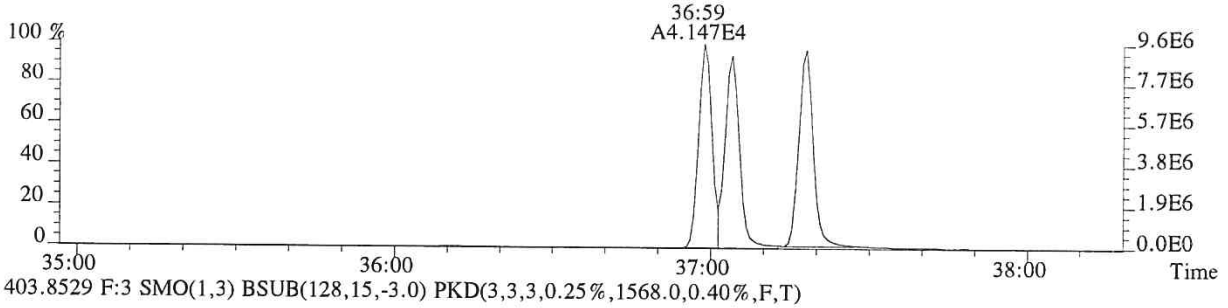
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



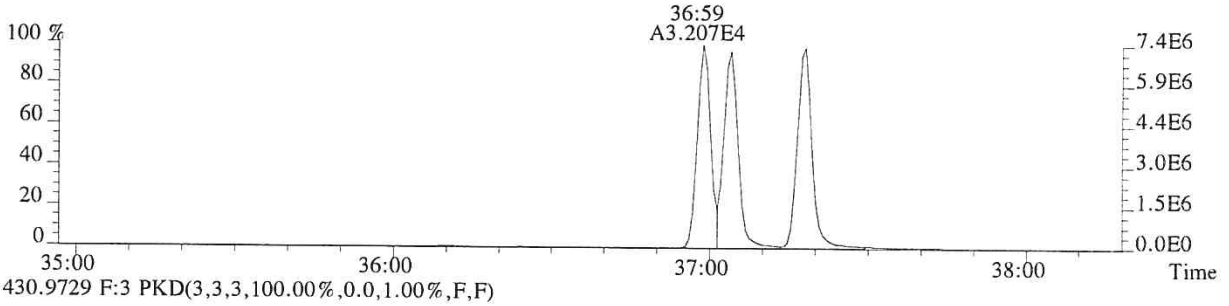
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



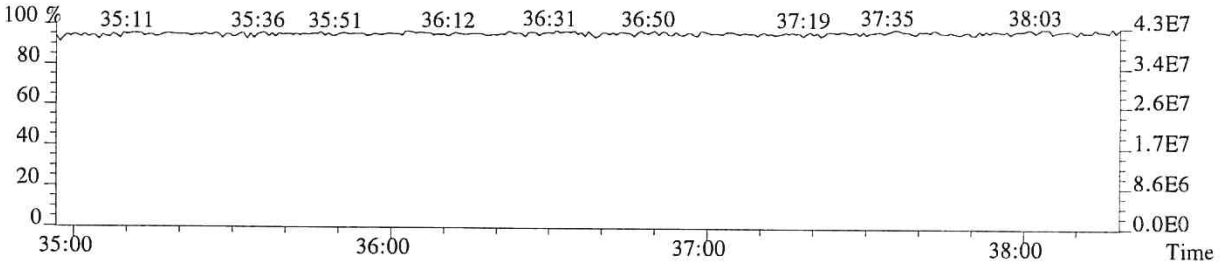
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)

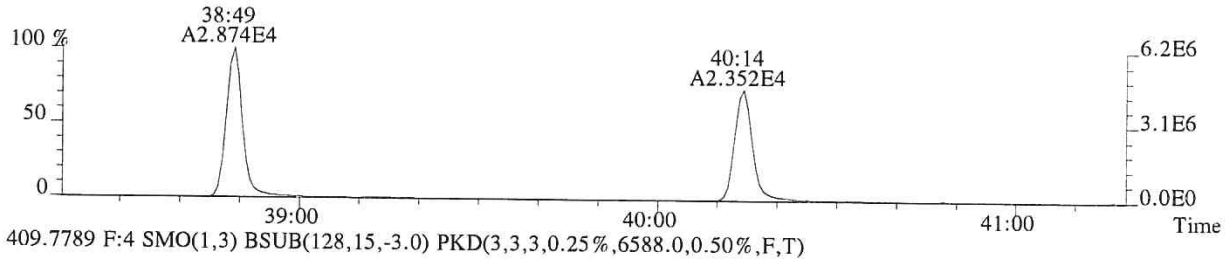


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

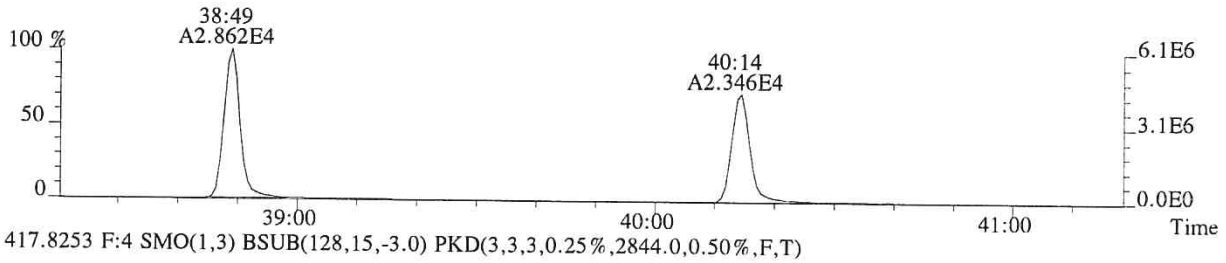


012973

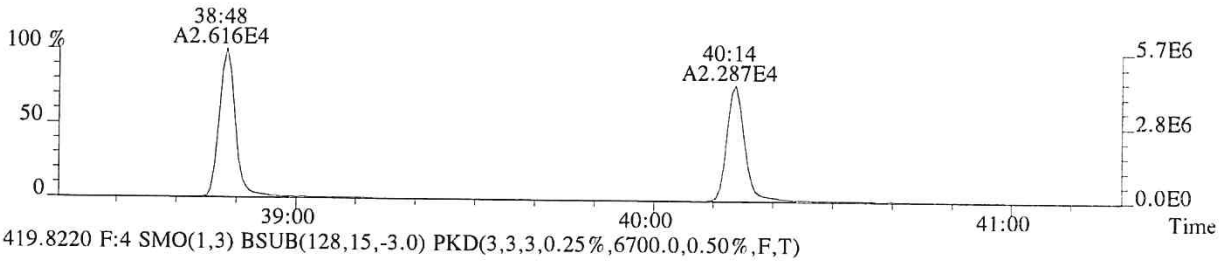
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



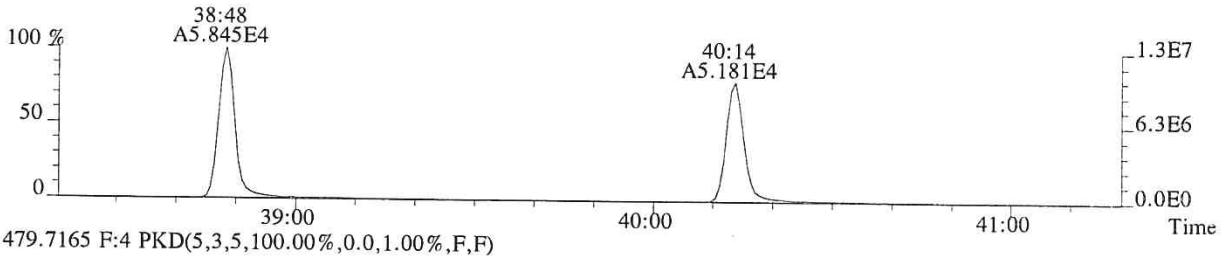
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



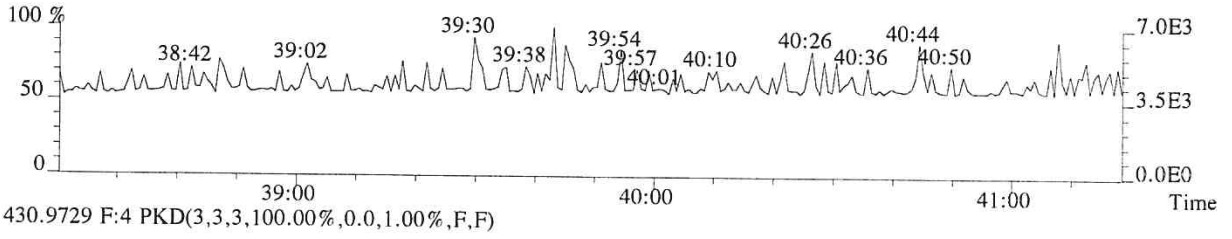
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



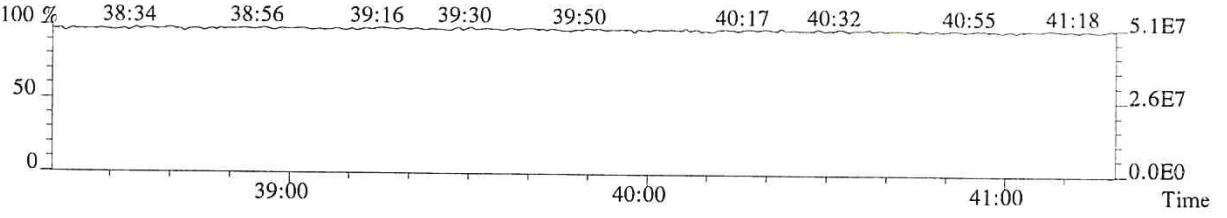
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

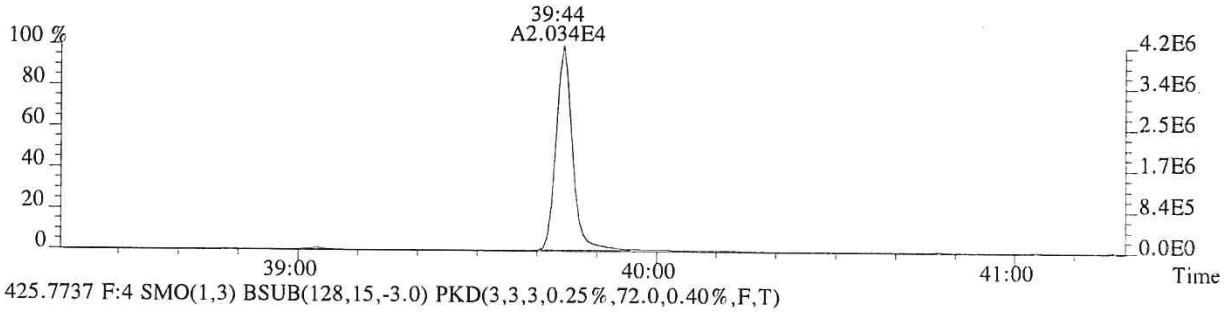


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

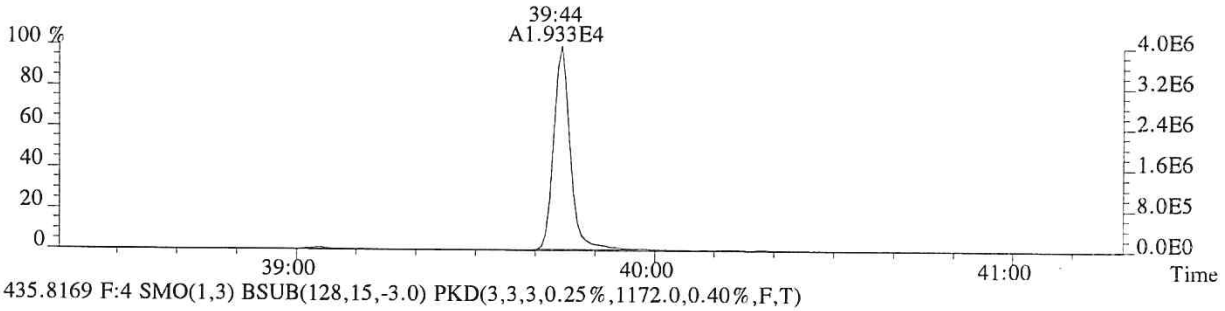


012974

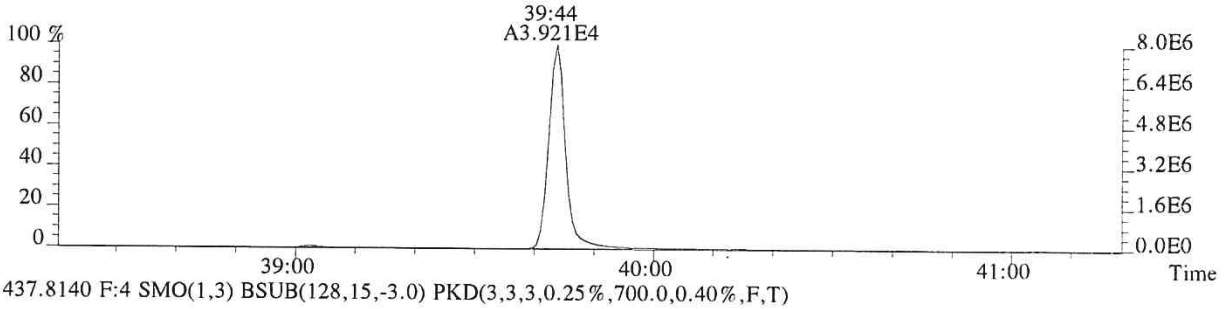
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



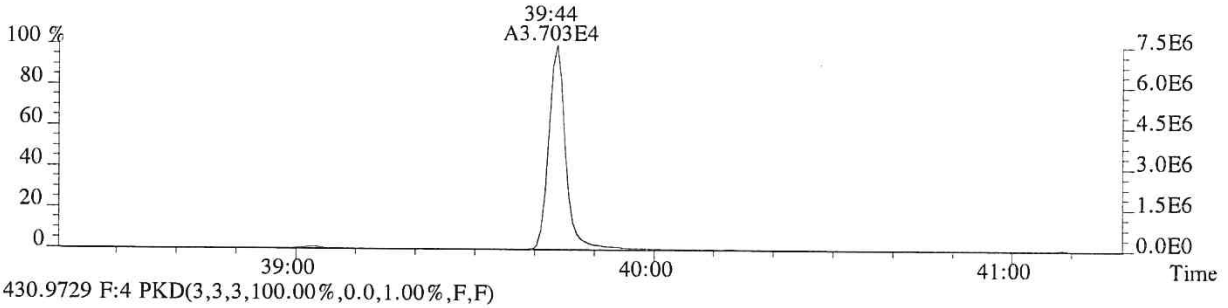
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



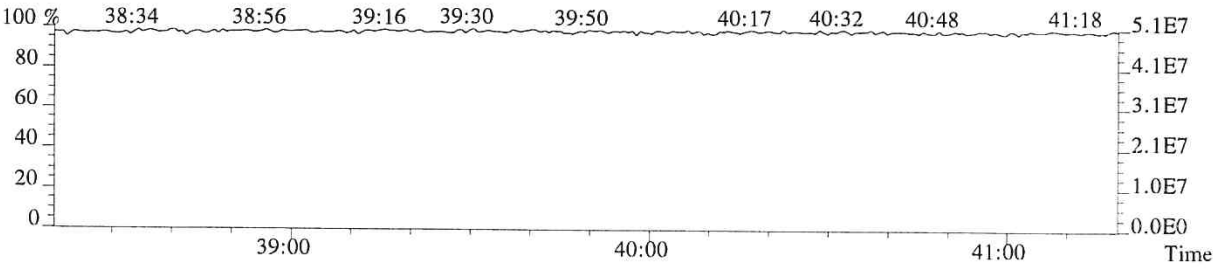
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

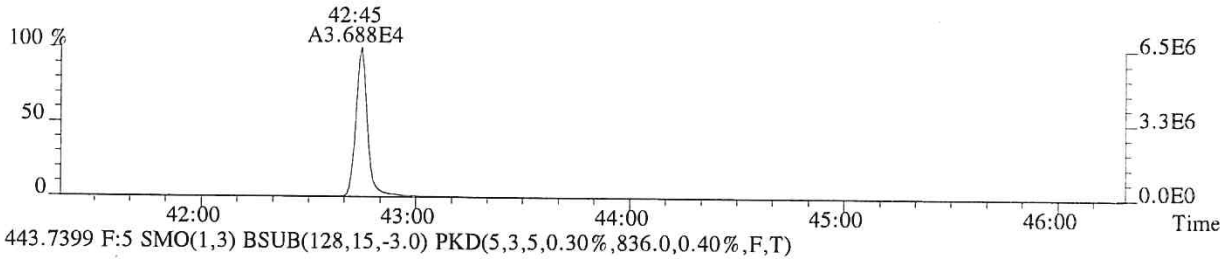


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

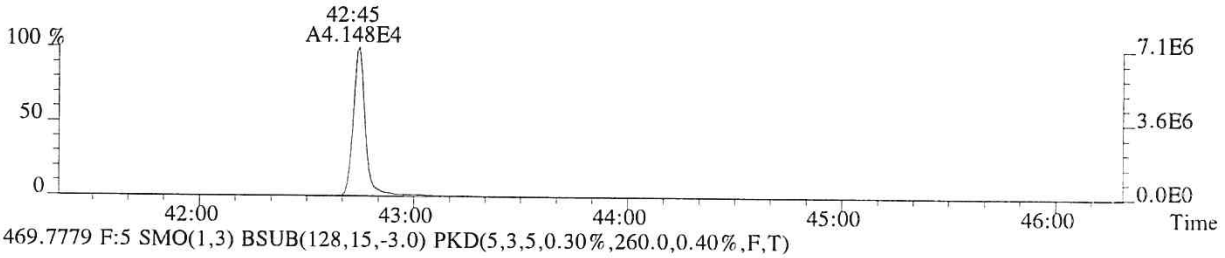


012975

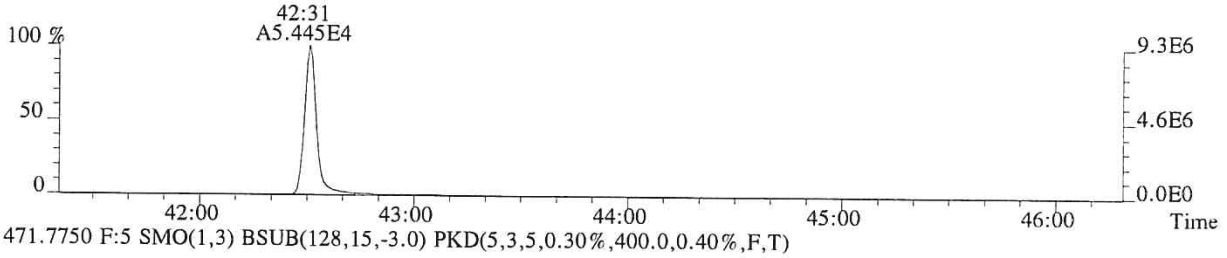
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



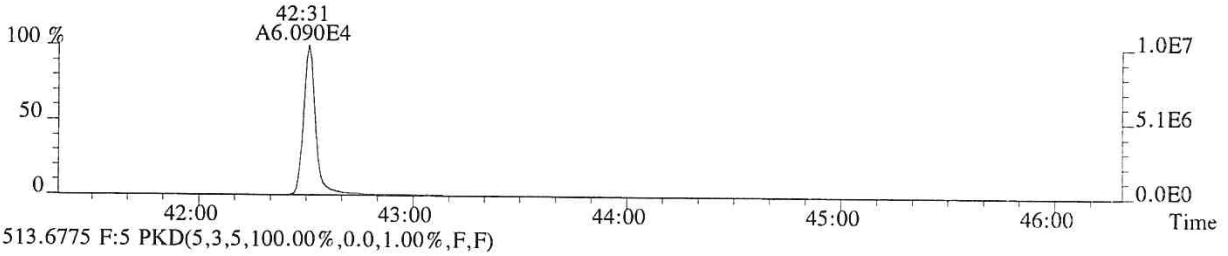
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



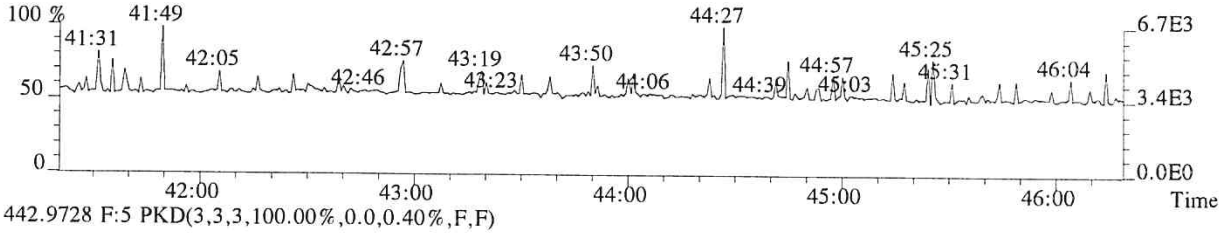
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



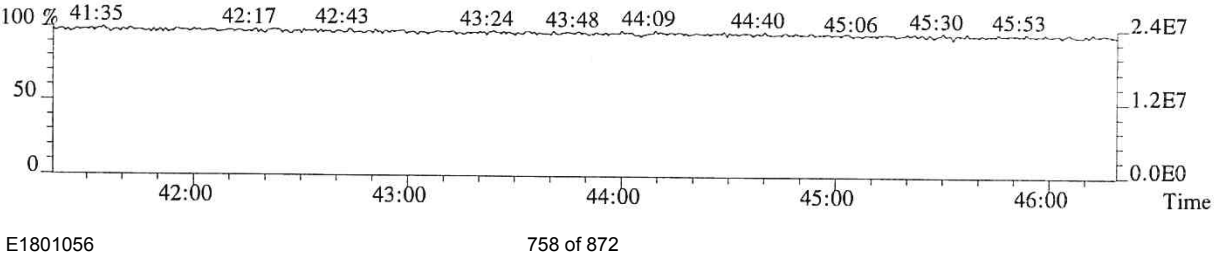
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

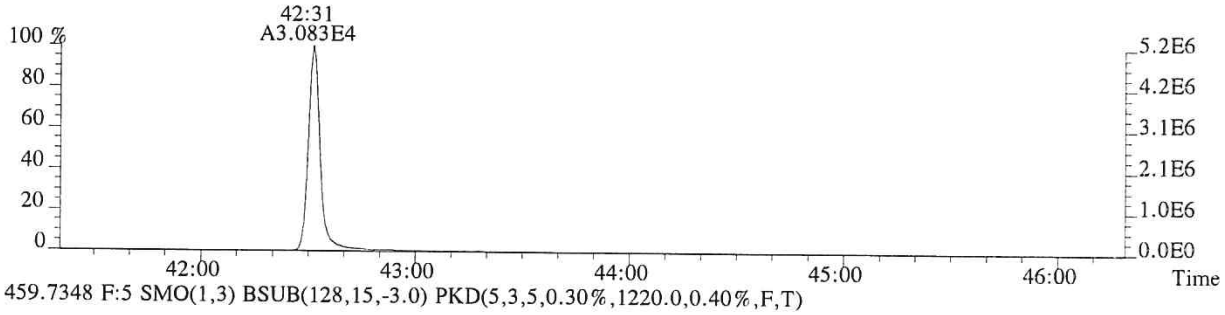


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

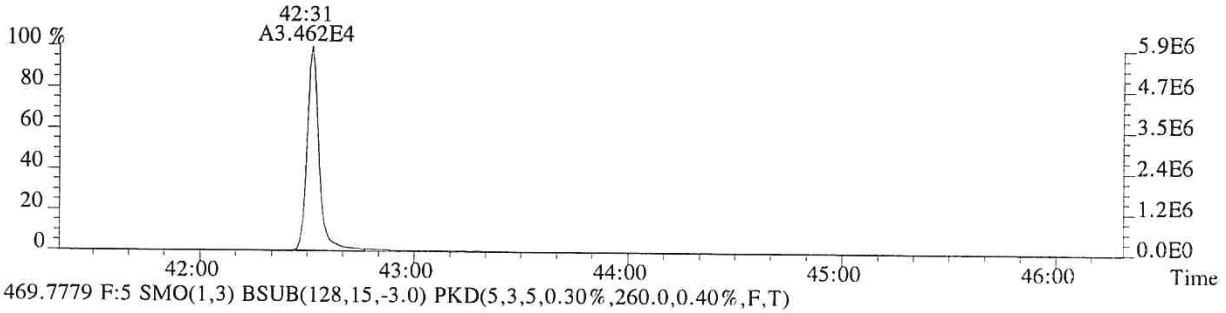


012976

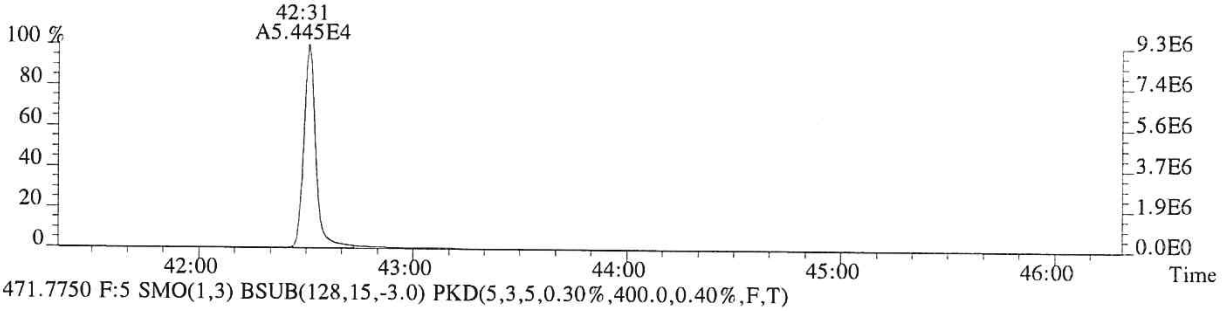
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



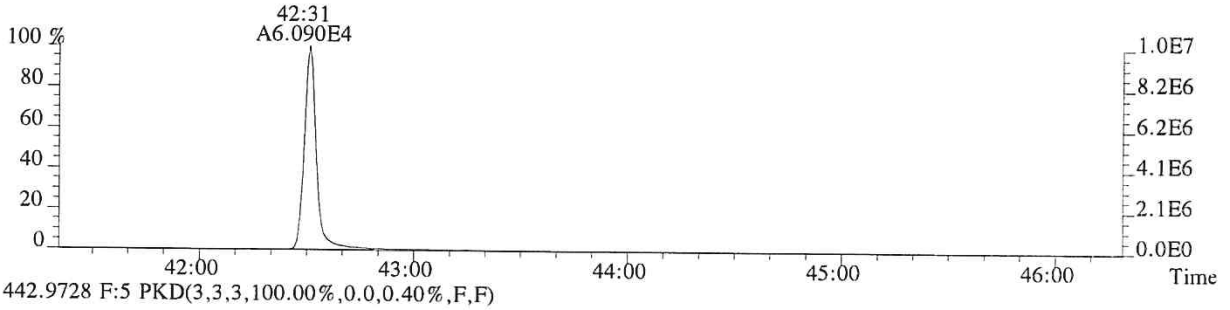
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



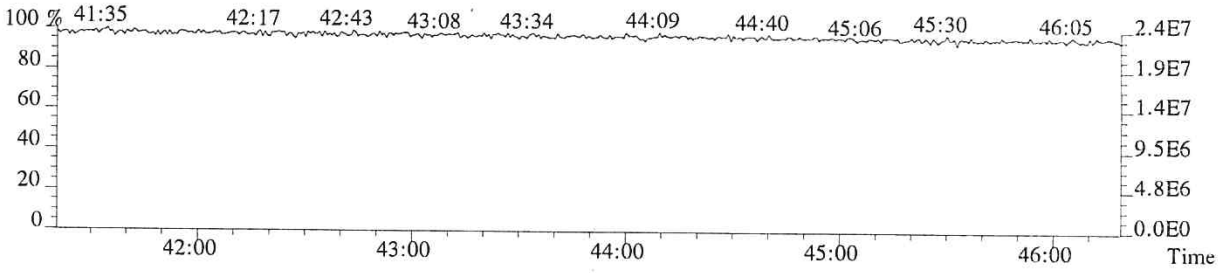
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



012977

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-18092516131				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir						
Description		**Yes**	**No**	**NA**	**NR**	**ER#**
Analytical Sequence						
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?		√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?		√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?		√				
Were all calibration standards analyzed only once?		√				
Was the ICV analyzed after the ICAL, before analyzing samples?		√				
Mass Resolution Check						
Are beginning and ending resolution checks provided and legible?		√				
Were all target masses >10,000 resolving power at the beginning of the sequence?		√				
Were all target masses >10,000 resolving power at the end of the sequence?		√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?				√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?				√		
Window Define/209						
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?		√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?		√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?		√				
Were all first and last eluters adequately resolved in each function?		√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?				√		
Was the retention time of PCB 209 >55 min?				√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182				√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?				√		
Calibration Standards						
Were there at least 5 calibration standards analyzed?		√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?				√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?		√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir		Yes	No	NA	NR	ER#
Description						
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?		√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?		√				
Were area counts for the highest calibration standard below levels of saturation?		√				
Were manual integrations technically justified to correct for poor software integration?				√		
Response Factors						
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?		√				
Were all calibration standards used in determining response factors?		√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?		√				
Did the RSD for RRFs for each native analyte meet method criteria?		√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?		√				
Were RFs for each labeled compound calculated for each calibration point?		√				
Did the RSD for RF for each labeled compound meet method criteria?		√				
Initial Calibration Verification						
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)		√				
Did all analytes meet method criteria for the ICV.		√				

Laboratory Review Checklist: Initial Calibration			
Method: 1613/8290		Process Date: 09/26/2018	
Instrument Name: E-HRMS-08		Calibration File Name: P6-180925161 3I	
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong	
ER#[5]	**Description**		

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P614680	25-SEP-18	12:13:01
76554	CS0.5	P614682	25-SEP-18	14:18:27
82614	CS1	P614683	25-SEP-18	15:08:49
193434	CS2	P614684	25-SEP-18	15:59:37
76557	CS3	P614685	25-SEP-18	16:52:47
82167	CS4	P614686	25-SEP-18	17:41:03
185657	CS5	P614687	25-SEP-18	18:30:08
188969	2ND SOURCE	P614690	25-SEP-18	20:57:19

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20180925A.SPL
Last Modified: Wednesday, September 26, 2018 06:14:12 Central Daylight Time
Printed: Wednesday, September 26, 2018 06:14:14 Central Daylight Time

Page Position (1, 1)

OPUS4: P6-180925161 3I
P614690res

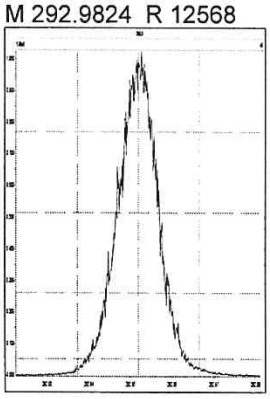
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	9/25/18	12:13	P614680	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 12:08
2		13:01	P614681	192807	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		14:18	P614682	76554	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:08	P614683	82614	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P614684	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:52	P614685	76557	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:41	P614686	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:30	P614687	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:19	P614688	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P614689	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:10		Do not use
11		20:57	P614690	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:52	P614691	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:12		HRMScheck 22:51
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LG 09/26/18

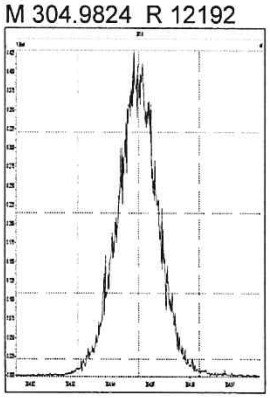
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:08:26 Central Daylight Time

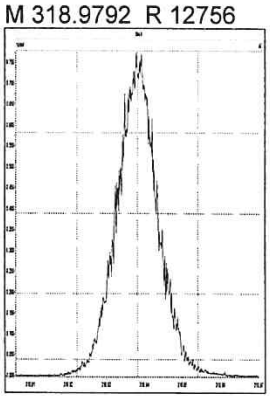
M 292.9824 R 12568



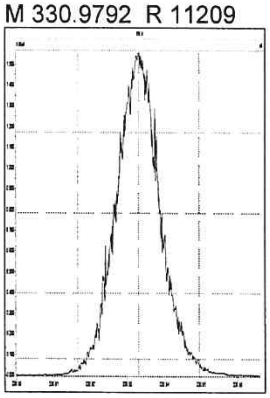
M 304.9824 R 12192



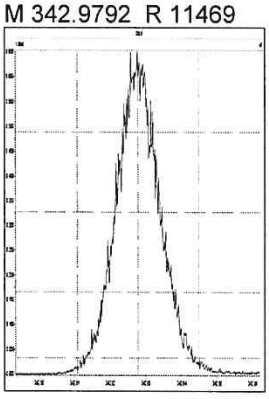
M 318.9792 R 12756



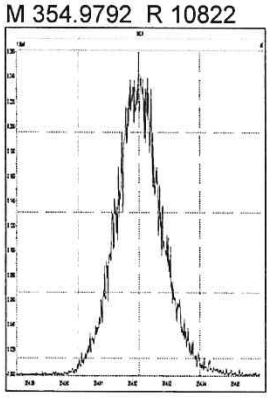
M 330.9792 R 11209



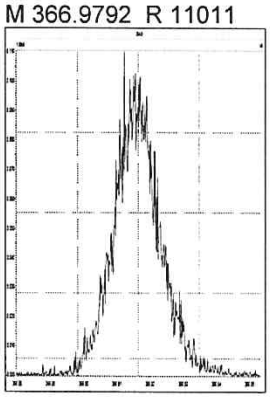
M 342.9792 R 11469



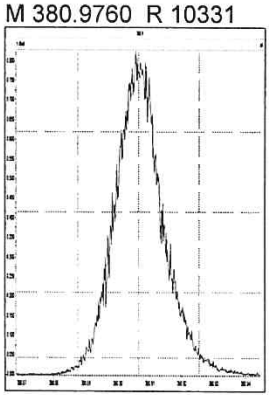
M 354.9792 R 10822



M 366.9792 R 11011



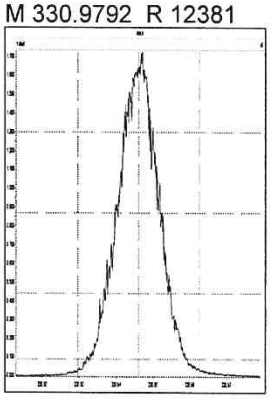
M 380.9760 R 10331



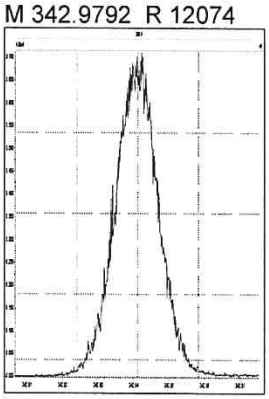
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:09:22 Central Daylight Time

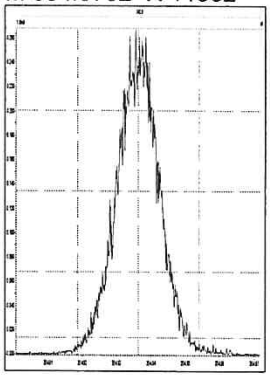
M 330.9792 R 12381



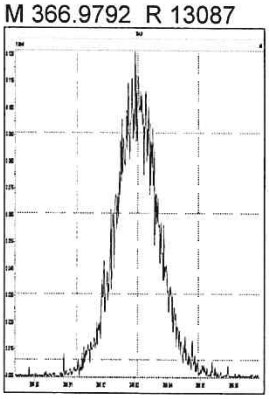
M 342.9792 R 12074



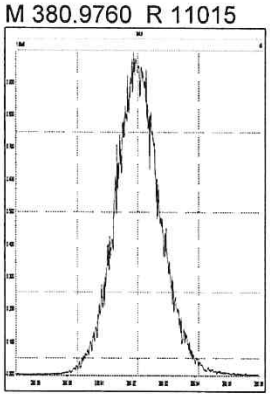
M 354.9792 R 11962



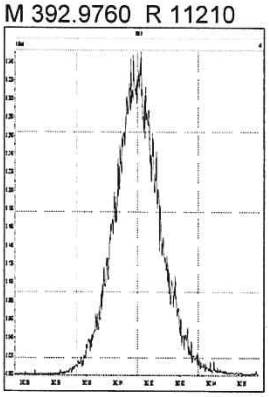
M 366.9792 R 13087



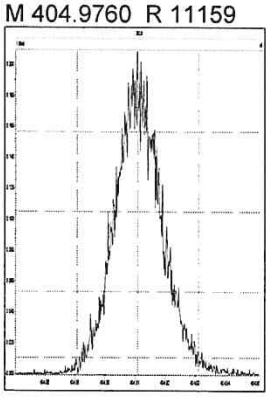
M 380.9760 R 11015



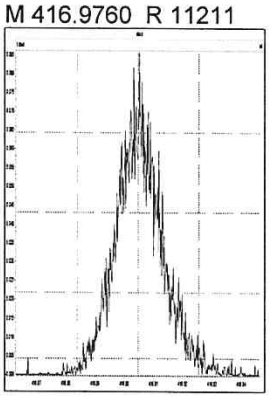
M 392.9760 R 11210



M 404.9760 R 11159



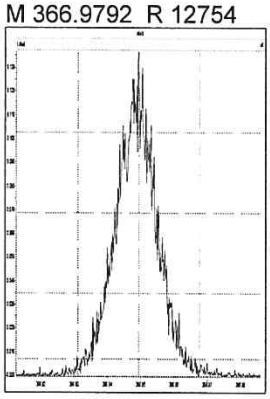
M 416.9760 R 11211



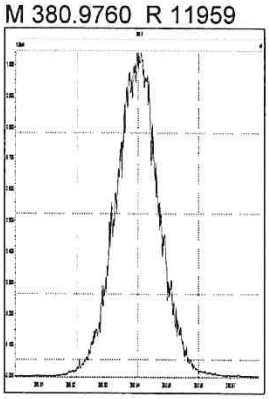
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:10 Central Daylight Time

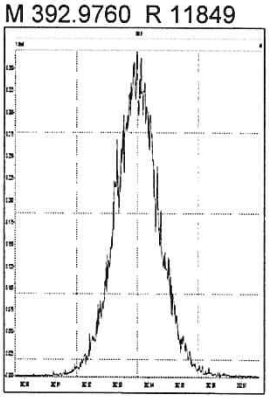
M 366.9792 R 12754



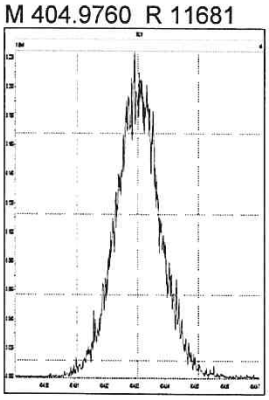
M 380.9760 R 11959



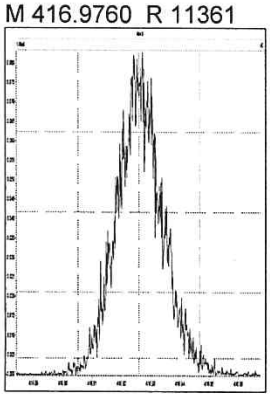
M 392.9760 R 11849



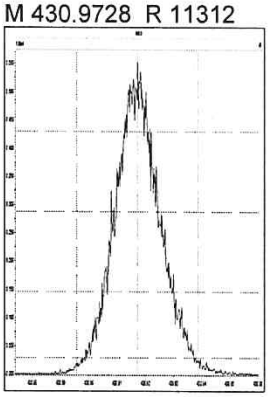
M 404.9760 R 11681



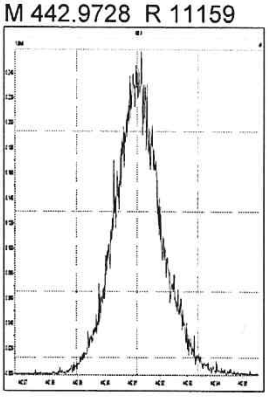
M 416.9760 R 11361



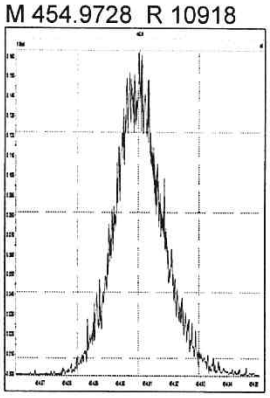
M 430.9728 R 11312



M 442.9728 R 11159



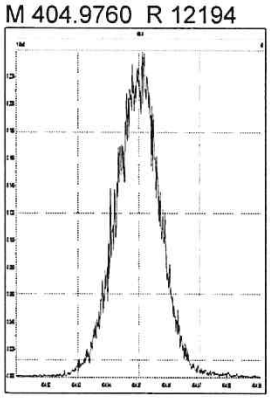
M 454.9728 R 10918



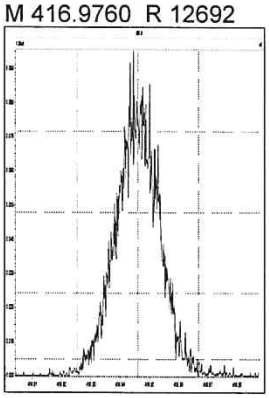
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:51 Central Daylight Time

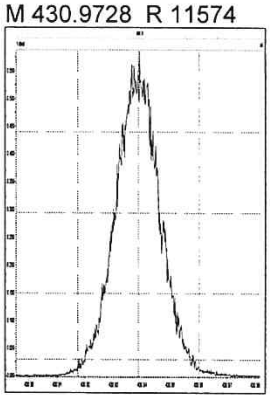
M 404.9760 R 12194



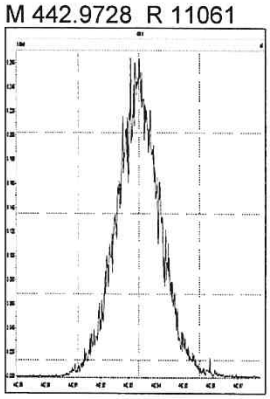
M 416.9760 R 12692



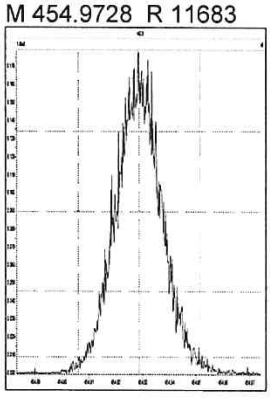
M 430.9728 R 11574



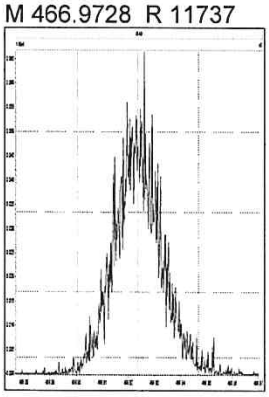
M 442.9728 R 11061



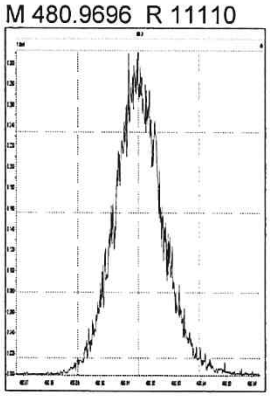
M 454.9728 R 11683



M 466.9728 R 11737



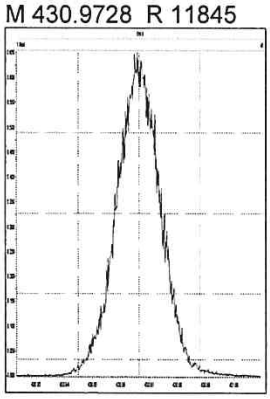
M 480.9696 R 11110



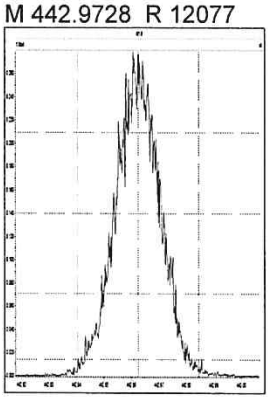
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:11:41 Central Daylight Time

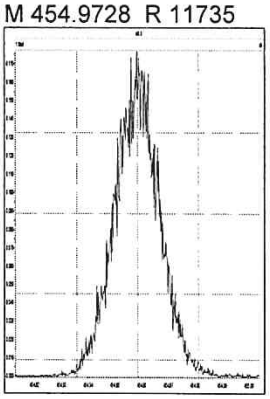
M 430.9728 R 11845



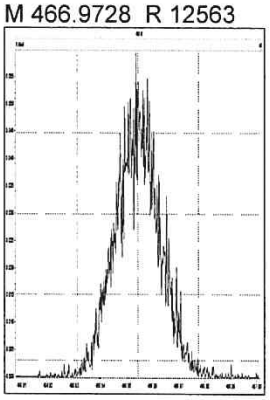
M 442.9728 R 12077



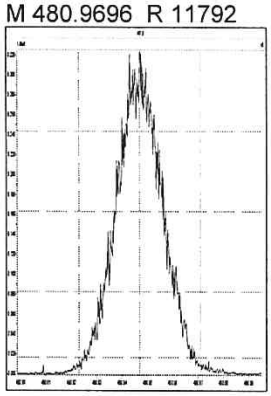
M 454.9728 R 11735



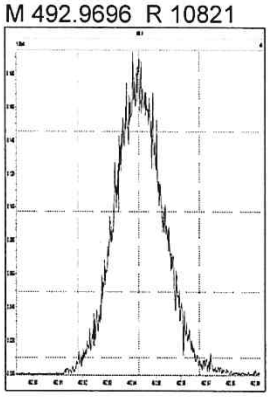
M 466.9728 R 12563



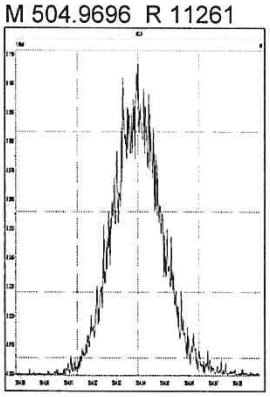
M 480.9696 R 11792



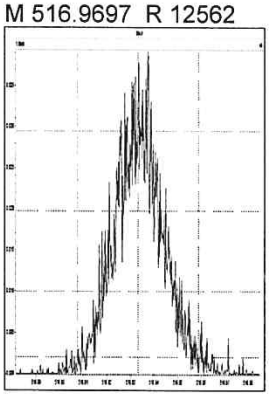
M 492.9696 R 10821



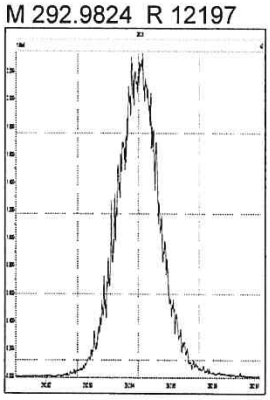
M 504.9696 R 11261



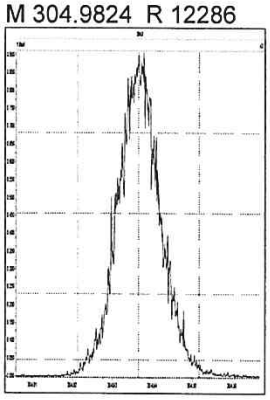
M 516.9697 R 12562



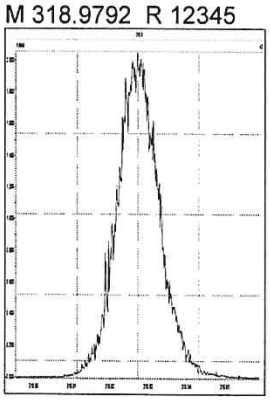
M 292.9824 R 12197



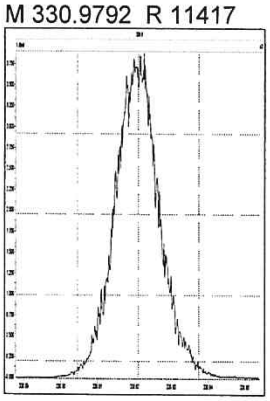
M 304.9824 R 12286



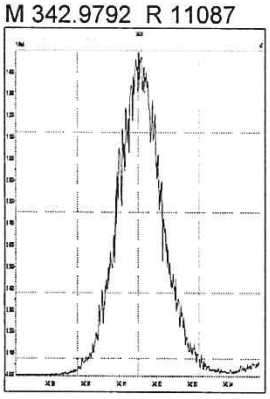
M 318.9792 R 12345



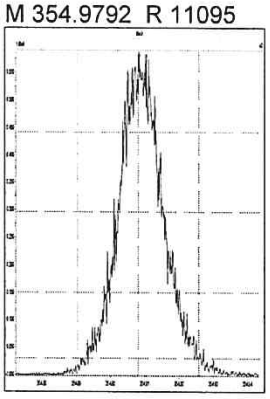
M 330.9792 R 11417



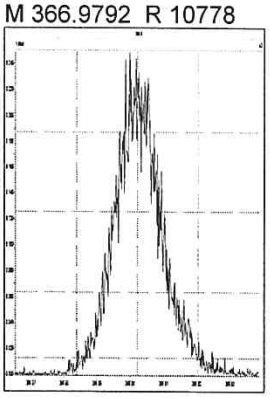
M 342.9792 R 11087



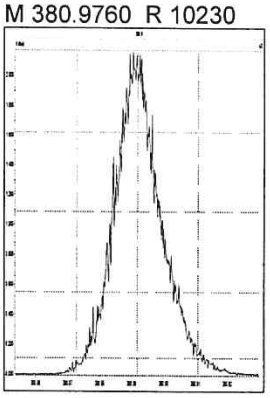
M 354.9792 R 11095



M 366.9792 R 10778



M 380.9760 R 10230



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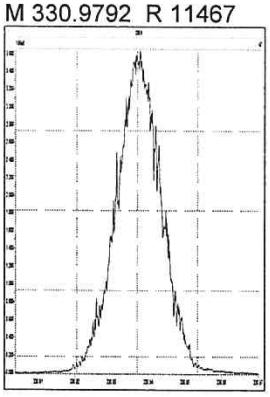

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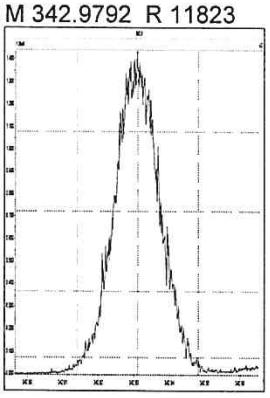
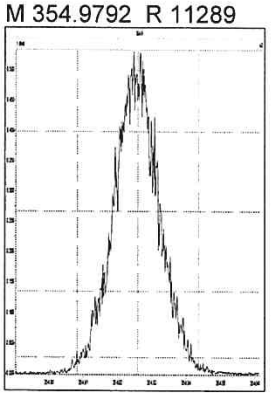


M 354.9792 R 11289



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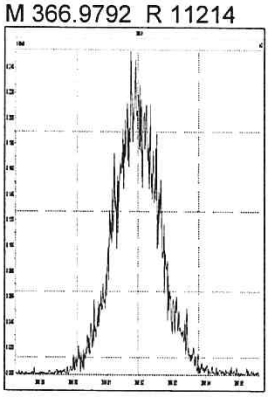
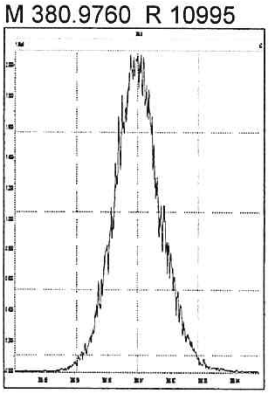
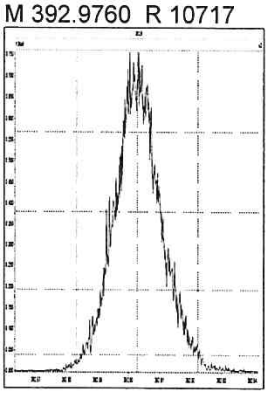


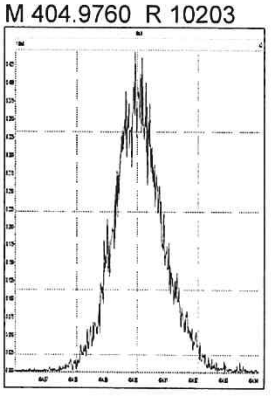
M 380.9760 R 10995



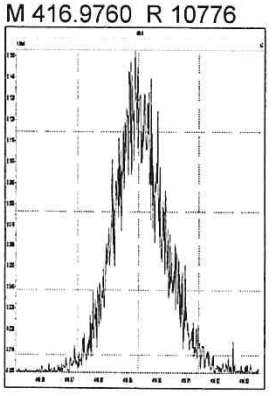
M 392.9760 R 10717



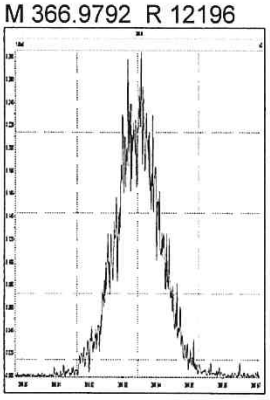
M 404.9760 R 10203



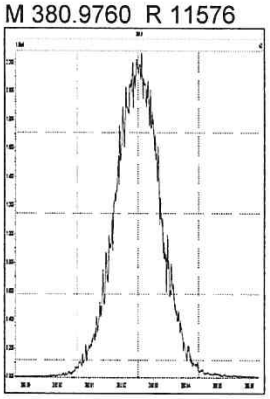
M 416.9760 R 10776



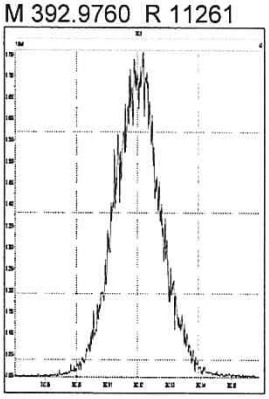
M 366.9792 R 12196



M 380.9760 R 11576



M 392.9760 R 11261



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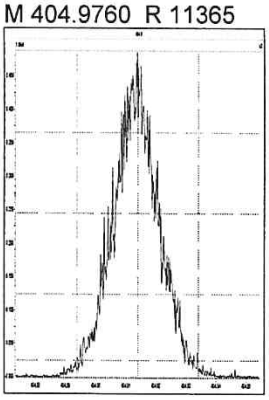
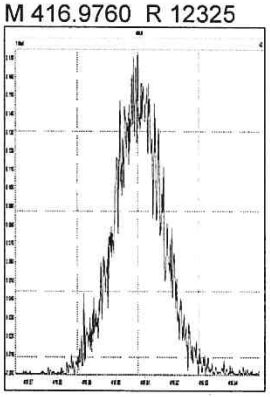
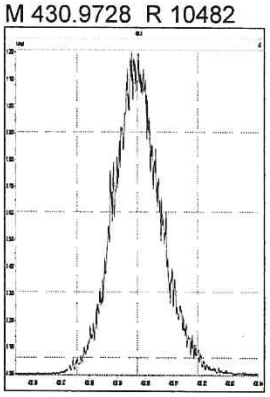


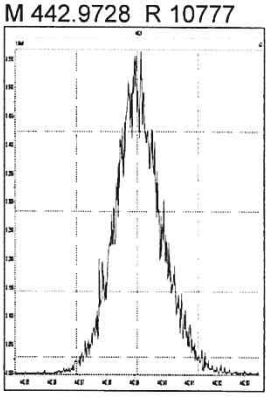
M 416.9760 R 12325



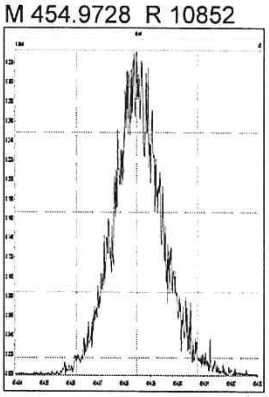
M 430.9728 R 10482



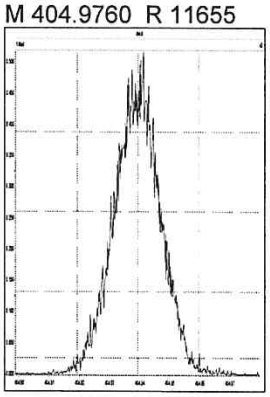
M 442.9728 R 10777



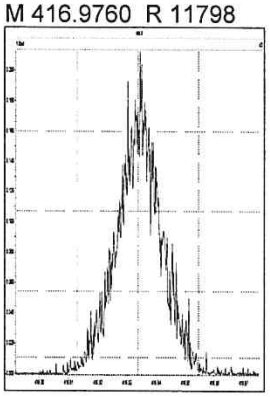
M 454.9728 R 10852



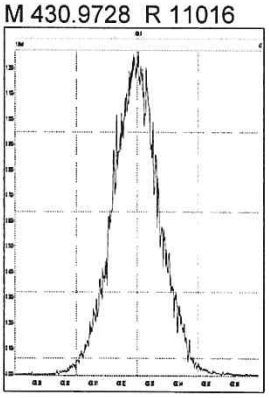
M 404.9760 R 11655



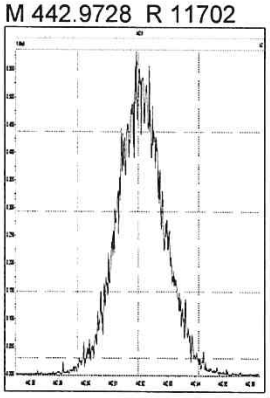
M 416.9760 R 11798



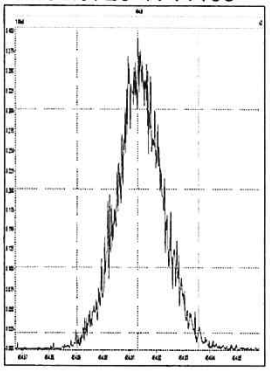
M 430.9728 R 11016



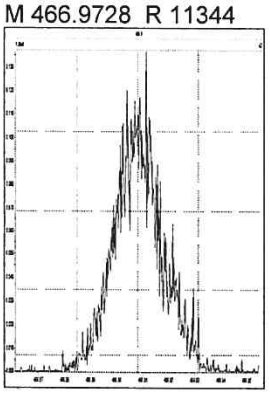
M 442.9728 R 11702



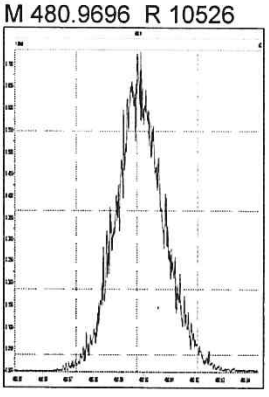
M 454.9728 R 11188



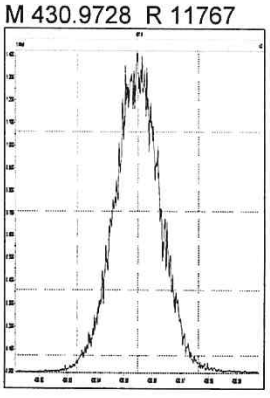
M 466.9728 R 11344



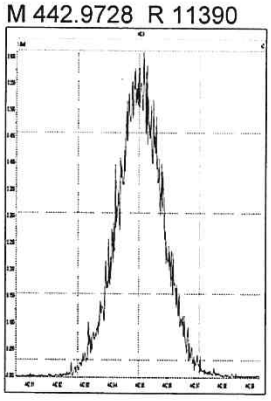
M 480.9696 R 10526



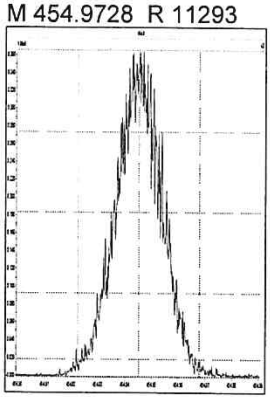
M 430.9728 R 11767



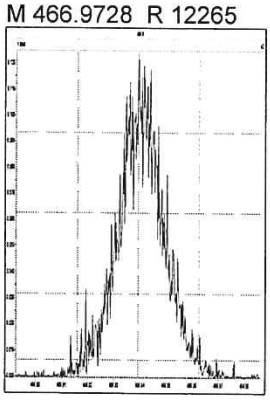
M 442.9728 R 11390



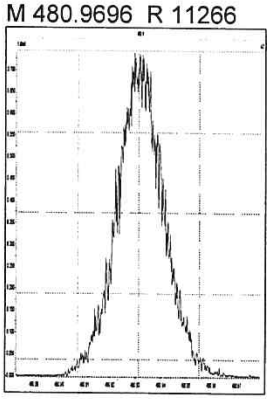
M 454.9728 R 11293



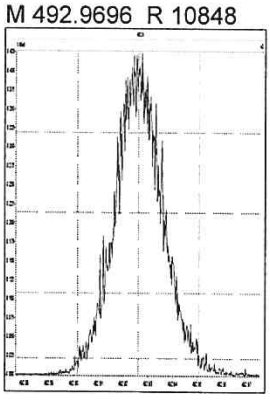
M 466.9728 R 12265



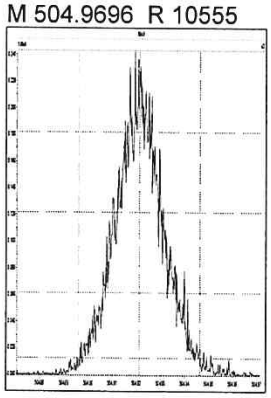
M 480.9696 R 11266



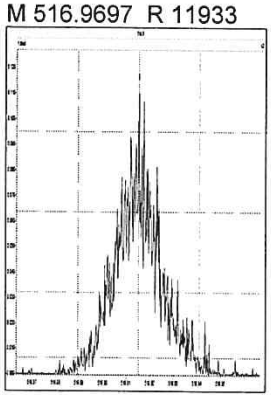
M 492.9696 R 10848



M 504.9696 R 10555



M 516.9697 R 11933



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

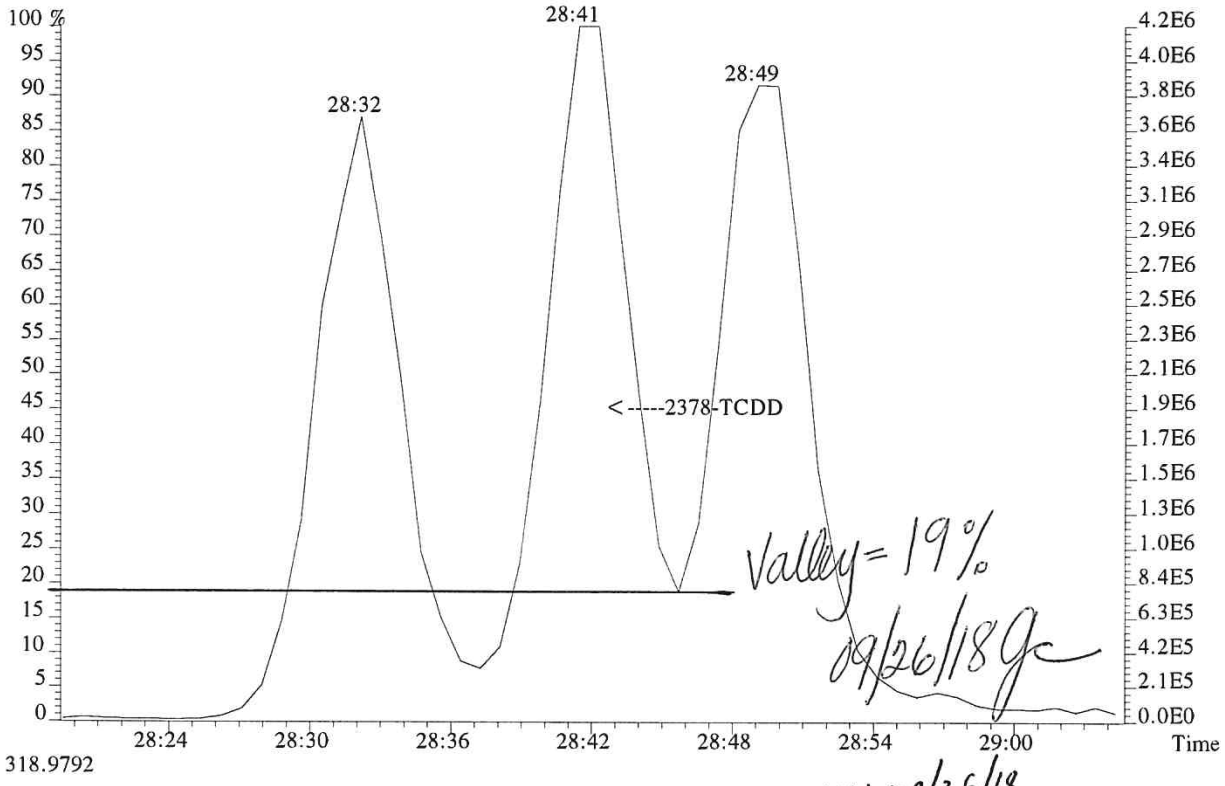
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P614680
Date Analyzed: 25-SEP-18
Time Analyzed: 12:13:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:52
TCDD	25:18	29:42
PeCDF	29:48	34:04
PeCDD	31:21	33:49
HxCDF	34:43	37:12
HxCDD	35:14	36:49
HpCDF	38:24	39:46
HpCDD	38:39	39:18

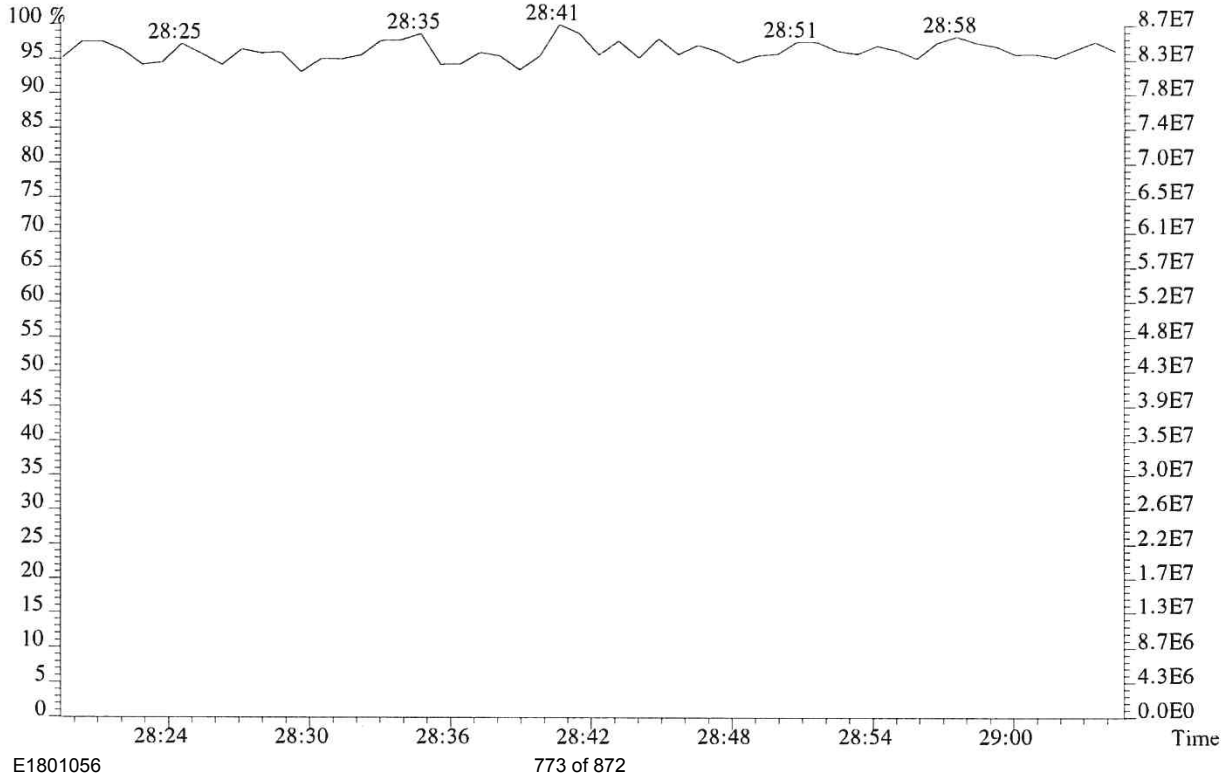
% Valley 2378-TCDD: 19 %

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



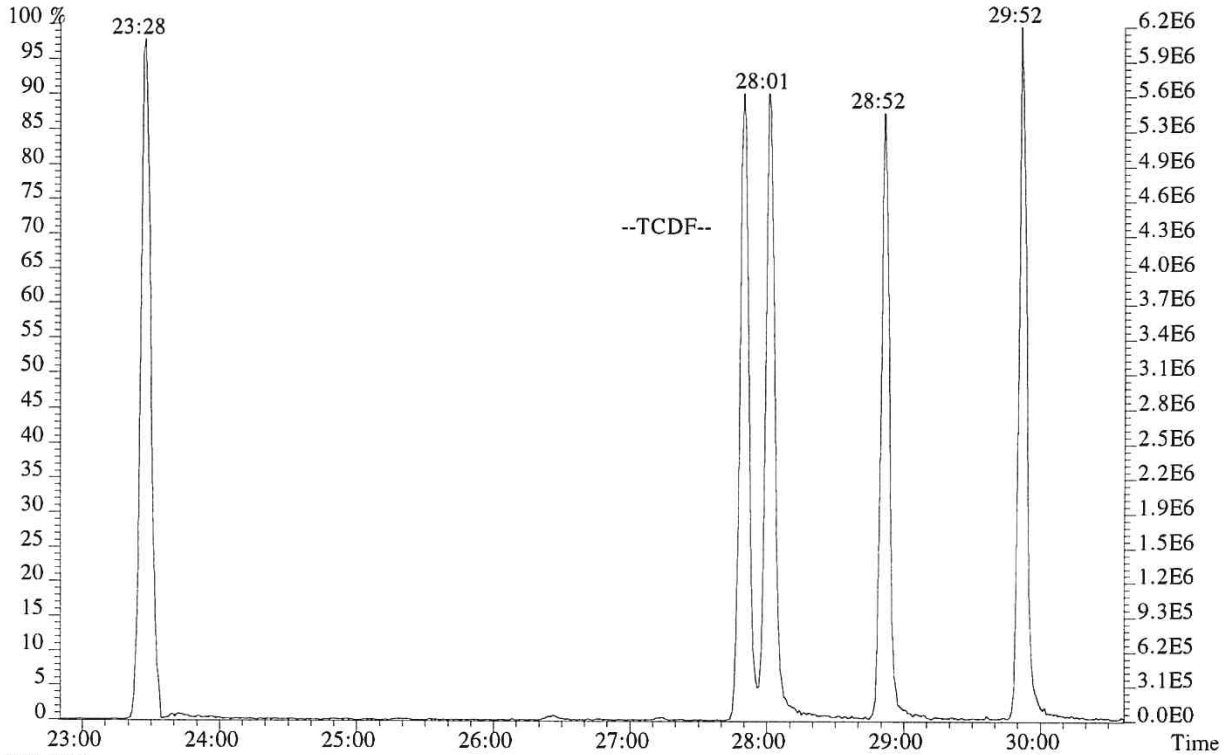
318.9792

LKL 09/26/18

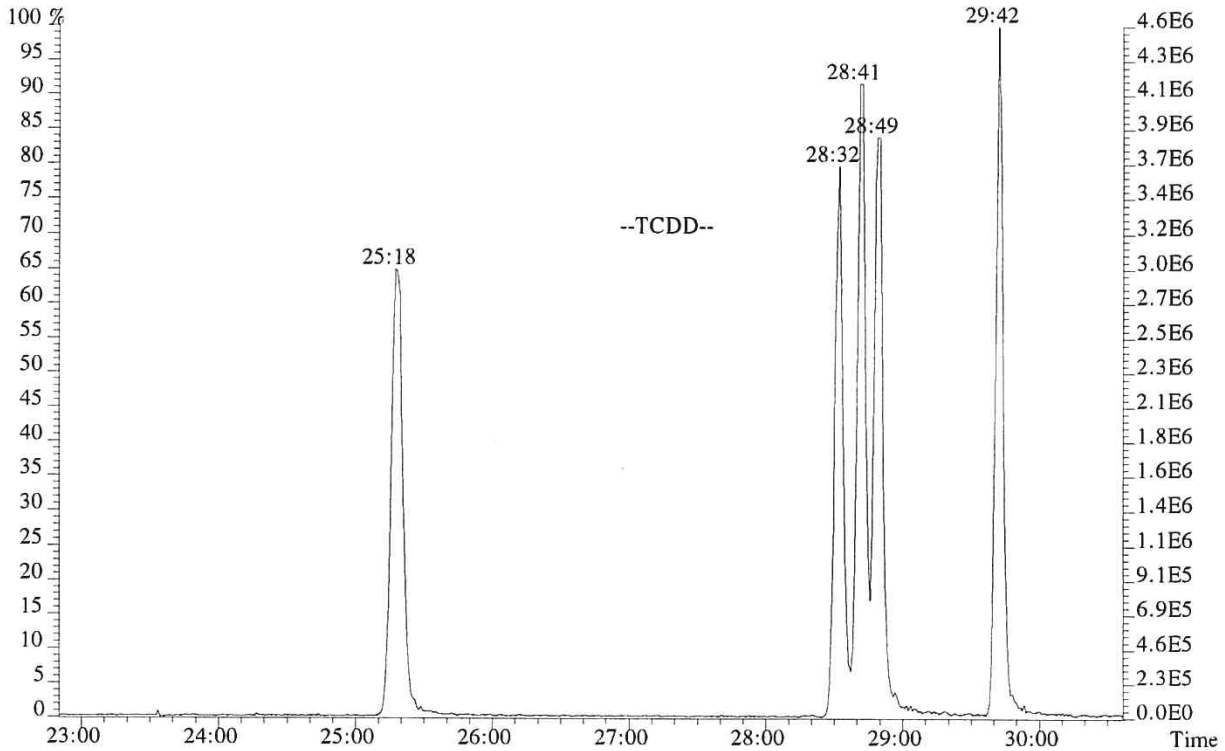


012991

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016

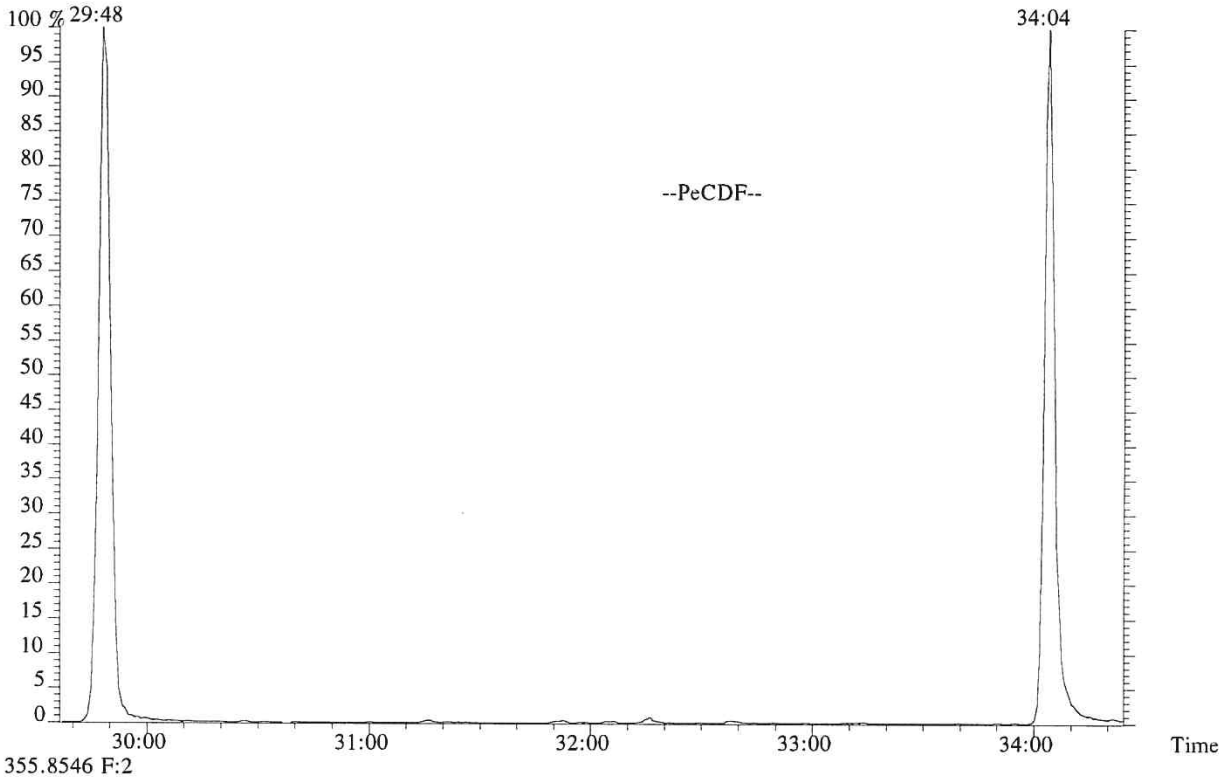


319.8965

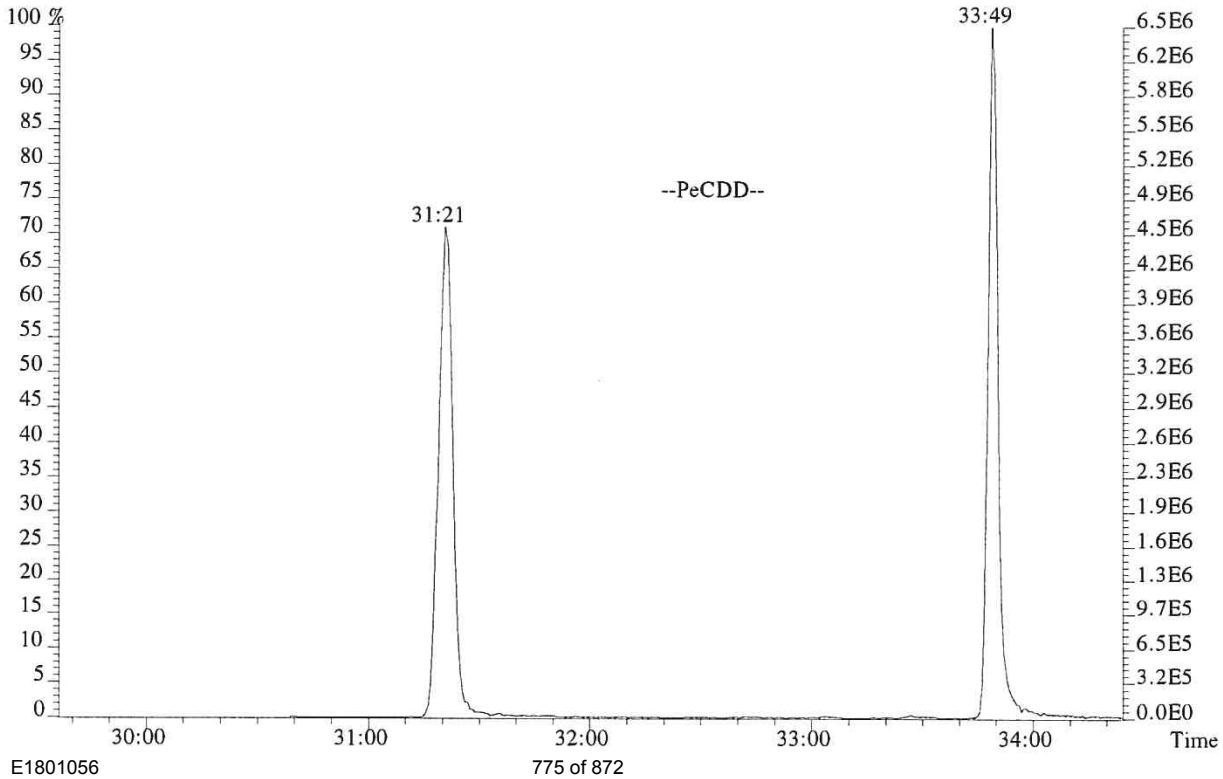


012992

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

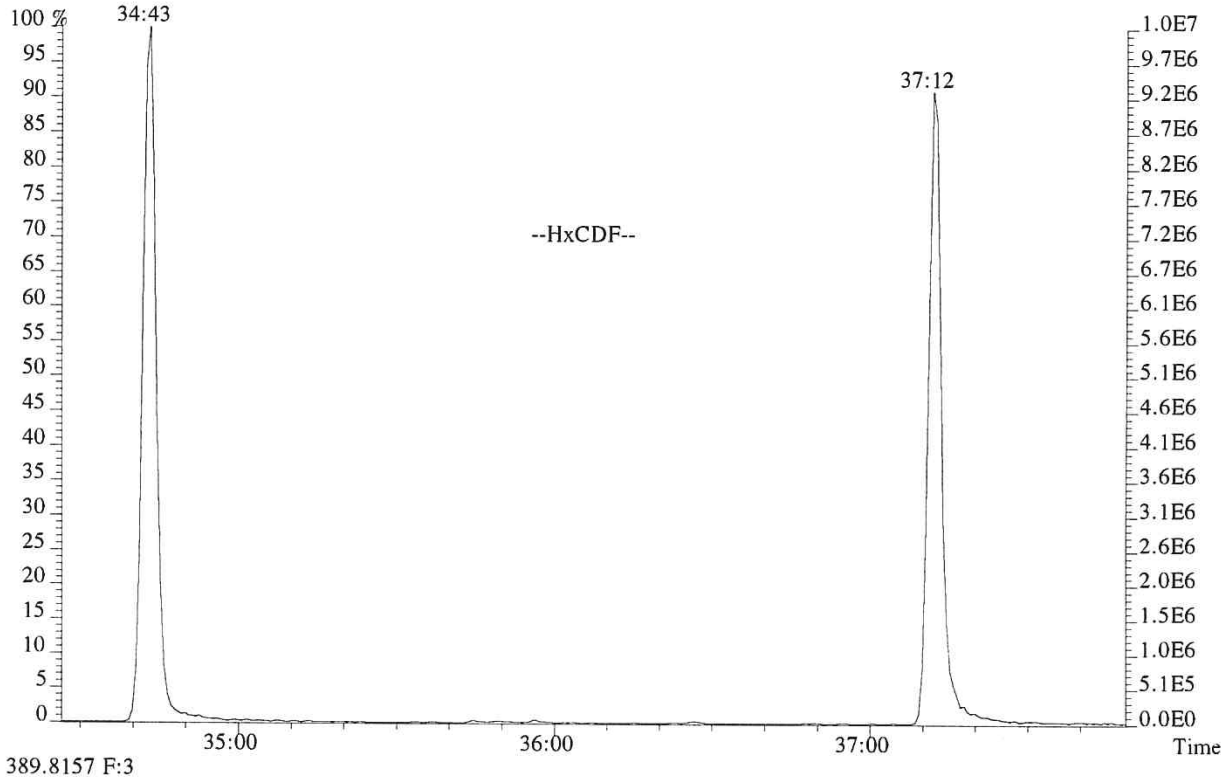


355.8546 F:2

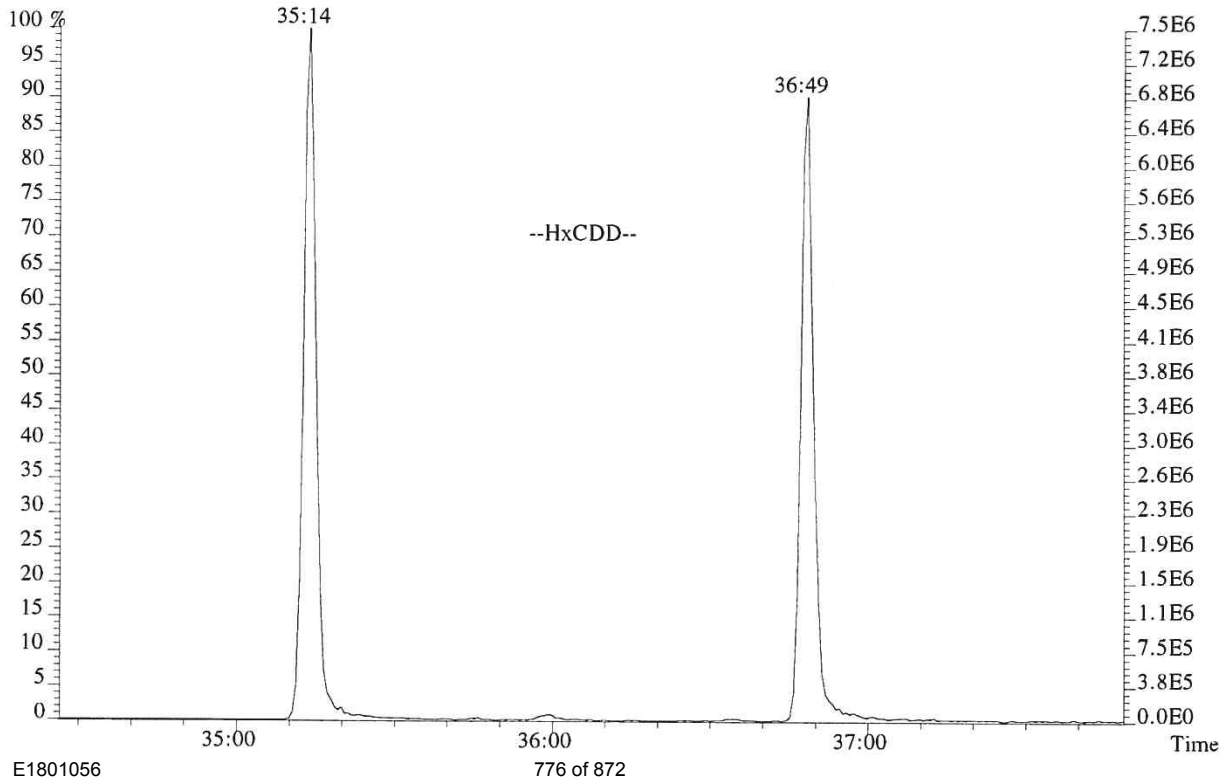


012993

File:P614680 #1-304 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

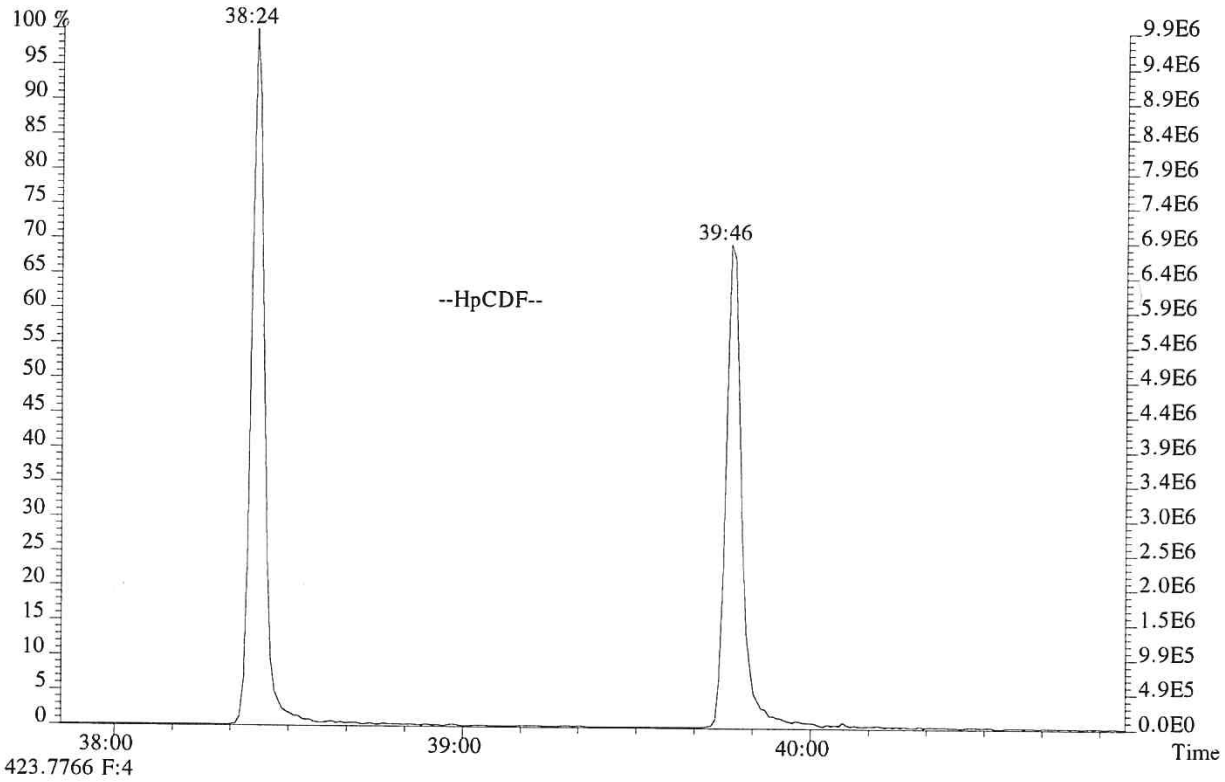


389.8157 F:3

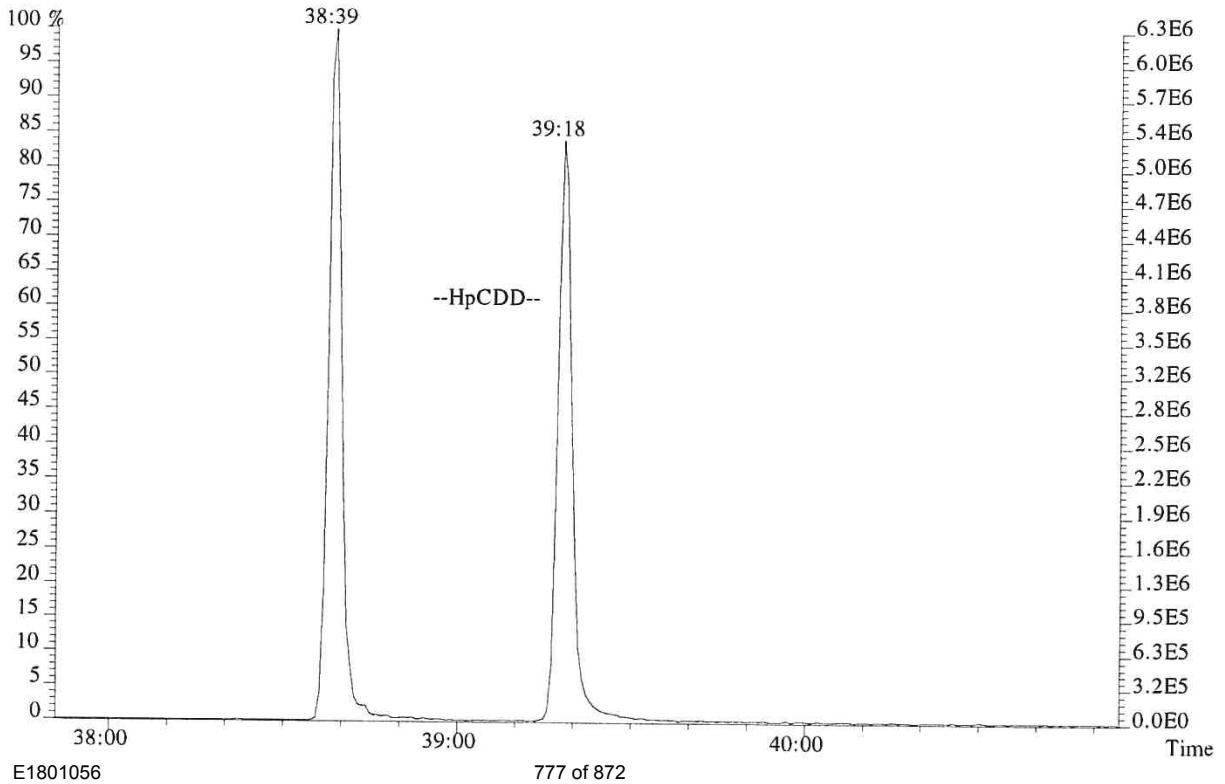


012994

File:P614680 #1-276 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



012995

USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

	RR/RRF						MEAN		
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.15	1.00	1.00	1.03	1.05	1.06	1.05	5.38	+/-20%
2,3,7,8-TCDF	1.13	1.08	1.12	1.05	1.06	1.05	1.08	3.07	+/-20%
1,2,3,7,8-PeCDF	1.16	1.17	1.12	1.15	1.16	1.18	1.16	1.72	+/-20%
1,2,3,7,8-PeCDD	0.89	0.95	0.95	0.91	0.93	0.93	0.93	2.61	+/-20%
2,3,4,7,8-PeCDF	1.10	1.13	1.10	1.08	1.10	1.11	1.10	1.49	+/-20%
1,2,3,4,7,8-HxCDF	1.47	1.46	1.39	1.36	1.38	1.42	1.42	3.10	+/-20%
1,2,3,6,7,8-HxCDF	1.27	1.36	1.30	1.28	1.28	1.28	1.29	2.52	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.11	1.04	1.06	1.05	1.06	1.07	3.00	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.07	1.06	1.06	1.06	1.05	1.06	0.70	+/-20%
1,2,3,7,8,9-HxCDD	1.17	1.18	1.12	1.13	1.14	1.12	1.15	2.24	+/-20%
2,3,4,6,7,8-HxCDF	1.27	1.32	1.29	1.28	1.27	1.27	1.28	1.52	+/-20%
1,2,3,7,8,9-HxCDF	1.34	1.34	1.29	1.30	1.30	1.30	1.31	1.68	+/-20%
1,2,3,4,6,7,8-HpCDF	1.56	1.60	1.46	1.50	1.51	1.51	1.52	3.15	+/-20%
1,2,3,4,6,7,8-HpCDD	1.14	1.13	1.09	1.10	1.10	1.11	1.11	1.85	+/-20%
1,2,3,4,7,8,9-HpCDF	1.47	1.54	1.46	1.45	1.43	1.43	1.46	2.80	+/-20%
OCDD	1.22	1.21	1.10	1.14	1.14	1.14	1.16	4.23	+/-20%
OCDF	1.60	1.61	1.49	1.57	1.57	1.59	1.57	2.60	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.98	0.97	0.97	1.00	1.01	0.98	2.13	+/-35%
13C-1,2,3,7,8-PeCDD	1.09	1.05	1.16	1.13	1.16	1.15	1.12	3.77	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.90	0.91	0.90	0.90	0.89	0.90	0.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.92	0.92	0.89	0.89	0.91	0.90	0.90	1.52	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.86	0.88	0.85	0.86	0.84	0.84	0.86	1.91	+/-35%
13C-OCDD	0.65	0.69	0.65	0.67	0.65	0.65	0.66	2.45	+/-35%
13C-2,3,7,8-TCDF	1.40	1.41	1.42	1.44	1.40	1.43	1.42	1.24	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.54	1.61	1.61	1.65	1.63	1.60	3.24	+/-35%
13C-2,3,4,7,8-PeCDF	1.52	1.49	1.60	1.57	1.63	1.61	1.57	3.42	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.18	1.19	1.14	1.21	1.18	1.06	1.16	4.58	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.39	1.34	1.33	1.35	1.31	1.29	1.34	2.46	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.24	1.24	1.25	1.24	1.25	1.06	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.13	1.13	1.12	1.15	1.15	1.10	1.13	1.66	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.06	1.02	1.04	1.01	1.01	1.03	1.93	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.94	0.95	0.90	0.86	0.90	0.88	0.91	3.64	+/-35%
37Cl-2,3,7,8-TCDD	1.06	1.11	1.07	1.05	1.11	1.13	1.09	3.15	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP

6DFB6

CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY

HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC lIMITS
2,3,7,8-TCDF	304/306	0.75	0.75	0.83	0.80	0.79	0.80		0.65-0.89
2,3,7,8-TCDD	320/322	0.78	0.83	0.80	0.78	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.58	1.57	1.58	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.57	1.61	1.57	1.58	1.59	1.59		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.56	1.52	1.53	1.55	1.55	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.26	1.28	1.29		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.24	1.25	1.27	1.27	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.29	1.25	1.28	1.28	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.22	1.29	1.23	1.28	1.28	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.21	1.20	1.26	1.33	1.26	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.41	1.27	1.25	1.23	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.22	1.25	1.24	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.04	1.02	1.06	1.05	1.04	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.89	1.07	1.05	1.04	1.05	1.05		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.10	1.07	1.07	1.06	1.06	1.06		0.88-1.20
OCDF	442/444	0.90	0.87	0.91	0.92	0.93	0.92		0.76-1.02
OCDD	458/460	0.93	0.89	0.88	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.80	0.80	0.80	0.80	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.58	1.57	1.58	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.26	1.26	1.32	1.25	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.26	1.26	1.20	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.04	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.91	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.80	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.60	1.60	1.60	1.60		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.62	1.61	1.59	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.54	0.54	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.54	0.54	0.53	0.54	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.53	0.54	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.46	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.46	0.45	0.46	0.45	0.46		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.81	0.81	0.80	0.79	0.81		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.26	1.26	1.24	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.991e+02	5.332e+02	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.245e+03	1.970e+03	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:10	3.017e+03	1.917e+03	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.964e+03	2.360e+03	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.032e+03	2.349e+03	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.788e+03	2.154e+03	1.29	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.544e+03	2.080e+03	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.520e+03	2.421e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.988e+03	2.226e+03	0.89	yes	no	1.463
10	Unk	OCDF	42:13	3.006e+03	3.322e+03	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:49	2.873e+02	3.690e+02	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.757e+03	1.126e+03	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.695e+03	1.402e+03	1.21	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.736e+03	1.234e+03	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.790e+03	1.494e+03	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.575e+03	1.438e+03	1.10	yes	no	1.112
17	Unk	OCDD	42:01	2.333e+03	2.510e+03	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	28:00	1.453e+05	1.860e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.225e+05	1.378e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.208e+05	1.389e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	1.017e+05	1.873e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.172e+05	2.227e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.097e+05	2.020e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.463e+04	1.814e+05	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	7.990e+04	1.736e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	7.243e+04	1.569e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.005e+05	1.270e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.588e+05	1.004e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.251e+05	9.838e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.252e+05	9.893e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.083e+05	1.026e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:01	1.503e+05	1.668e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.058e+05	1.311e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.355e+05	1.094e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.272e+02				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+04	1.79e+03	3.7e+01	1.00e+05	4.41e+03	2.3e+01
2	1,2,3,7,8-PeCDF	5.99e+05	1.18e+03	5.1e+02	3.57e+05	4.28e+03	8.3e+01
3	2,3,4,7,8-PeCDF	5.69e+05	1.18e+03	4.8e+02	3.70e+05	4.28e+03	8.7e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.85e+05	1.42e+03	3.4e+02
5	1,2,3,6,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.95e+05	1.42e+03	3.5e+02
6	2,3,4,6,7,8-HxCDF	6.03e+05	3.25e+03	1.9e+02	4.83e+05	1.42e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	4.97e+05	3.25e+03	1.5e+02	4.13e+05	1.42e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.62e+05	1.66e+03	3.4e+02	5.47e+05	1.04e+03	5.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.66e+03	2.4e+02	4.51e+05	1.04e+03	4.3e+02
10	OCDF	5.23e+05	1.34e+03	3.9e+02	5.81e+05	4.02e+03	1.4e+02
11	2,3,7,8-TCDD	6.18e+04	5.07e+03	1.2e+01	6.68e+04	2.40e+03	2.8e+01
12	1,2,3,7,8-PeCDD	3.47e+05	2.36e+03	1.5e+02	2.20e+05	2.64e+02	8.3e+02
13	1,2,3,4,7,8-HxCDD	3.95e+05	1.84e+03	2.1e+02	3.18e+05	1.66e+03	1.9e+02
14	1,2,3,6,7,8-HxCDD	3.64e+05	1.84e+03	2.0e+02	2.60e+05	1.66e+03	1.6e+02
15	1,2,3,7,8,9-HxCDD	4.06e+05	1.84e+03	2.2e+02	3.23e+05	1.66e+03	1.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.19e+05	2.32e+03	1.4e+02	3.31e+05	1.19e+03	2.8e+02
17	OCDD	4.28e+05	8.48e+02	5.0e+02	4.37e+05	1.30e+03	3.4e+02
18	13C-2,3,7,8-TCDF	2.54e+07	1.52e+04	1.7e+03	3.22e+07	1.06e+04	3.1e+03
19	13C-1,2,3,7,8-PeCDF	4.04e+07	2.12e+03	1.9e+04	2.49e+07	3.13e+03	8.0e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+07	2.12e+03	2.0e+04	2.67e+07	3.13e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.18e+07	3.28e+03	6.7e+03	4.05e+07	3.71e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.40e+07	3.28e+03	7.3e+03	4.55e+07	3.71e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.42e+07	3.28e+03	7.4e+03	4.44e+07	3.71e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.91e+07	3.28e+03	5.8e+03	3.68e+07	3.71e+03	9.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+07	5.66e+03	3.2e+03	3.90e+07	2.05e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+07	5.66e+03	2.6e+03	3.15e+07	2.05e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.84e+07	1.55e+04	1.2e+03	2.34e+07	5.32e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+07	3.24e+03	9.6e+03	1.95e+07	2.82e+03	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	5.20e+03	5.5e+03	2.24e+07	3.08e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+07	5.20e+03	5.1e+03	2.10e+07	3.08e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	2.60e+03	8.7e+03	2.13e+07	2.03e+03	1.1e+04
32	13C-OCDD	2.73e+07	1.56e+03	1.8e+04	2.99e+07	4.32e+02	6.9e+04
33	13C-1,2,3,4-TCDD	1.96e+07	1.55e+04	1.3e+03	2.41e+07	5.32e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+07	5.20e+03	5.8e+03	2.40e+07	3.08e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.12e+05	4.66e+03	2.4e+01			

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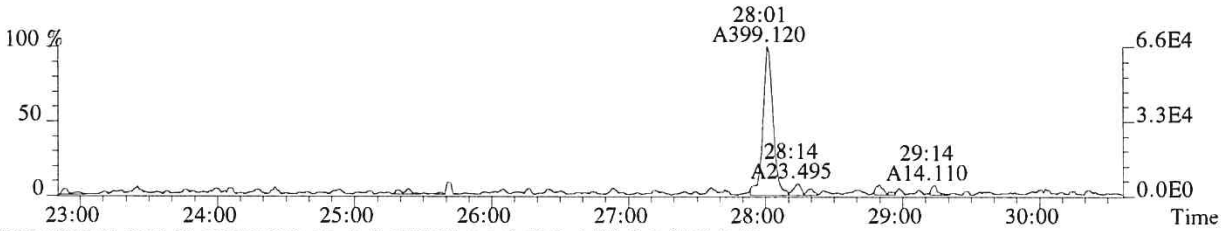
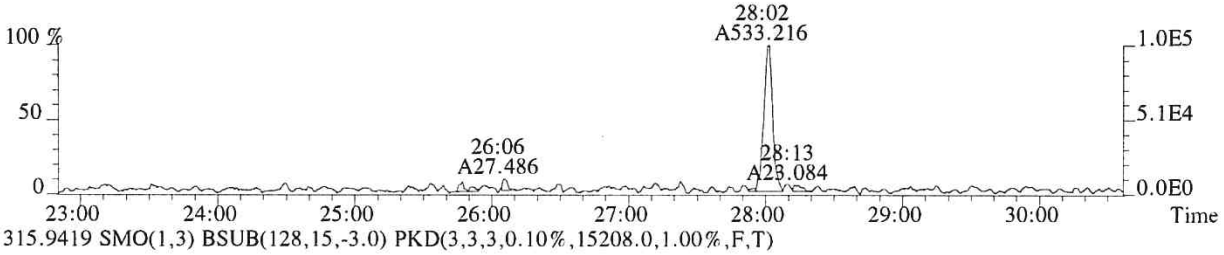
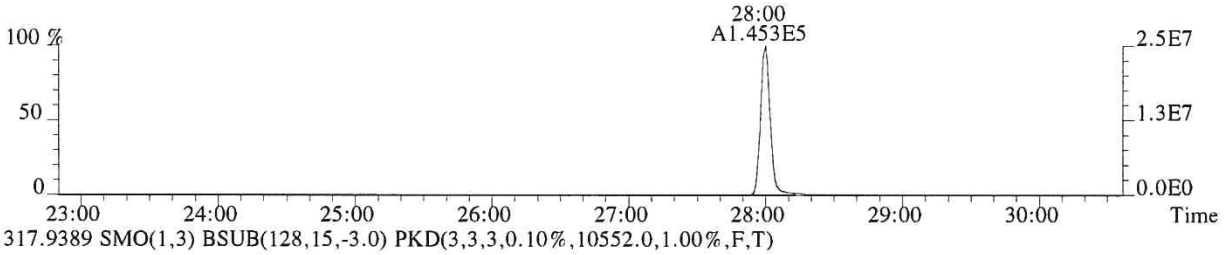
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



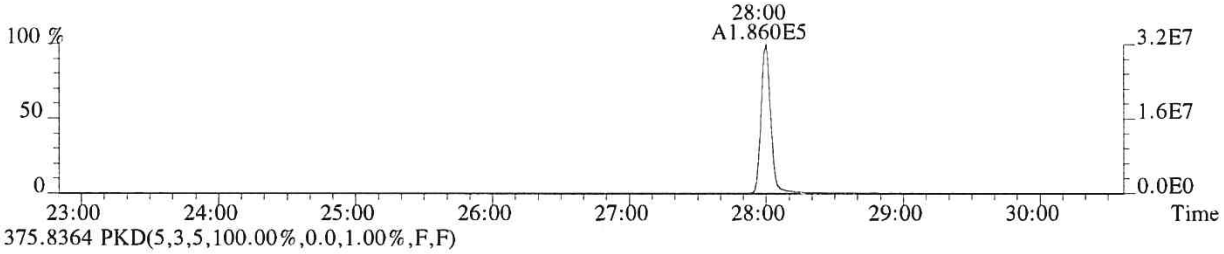
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



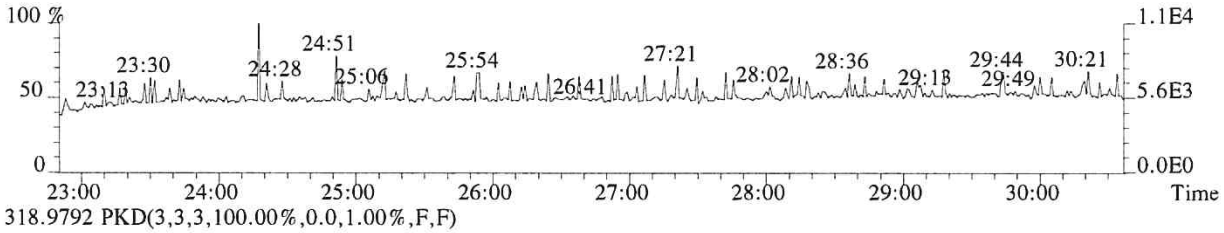
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15208.0,1.00%,F,T)



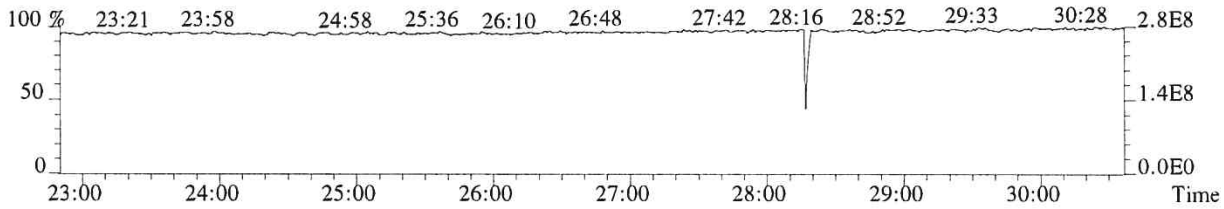
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



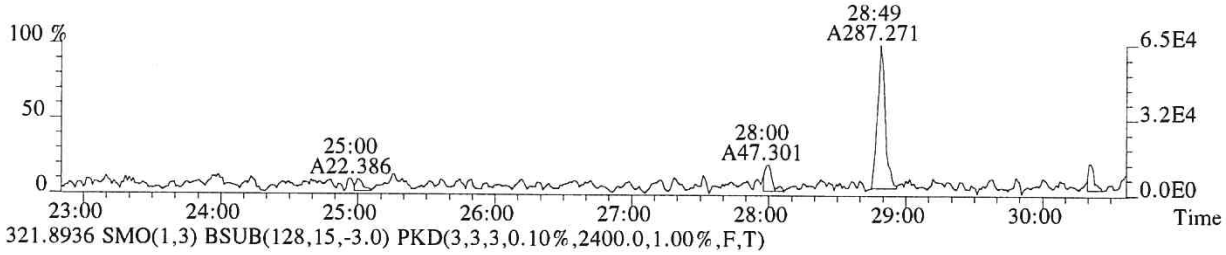
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



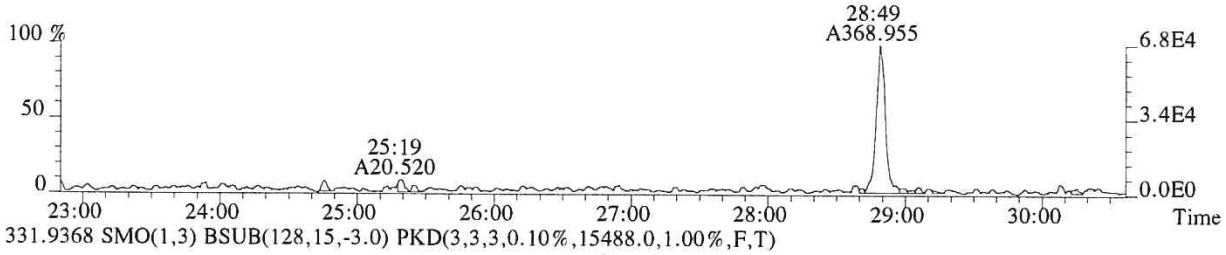
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



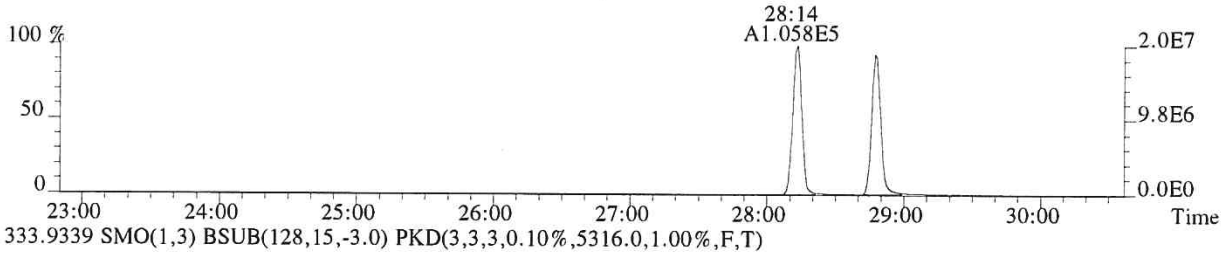
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5072.0,1.00%,F,T)



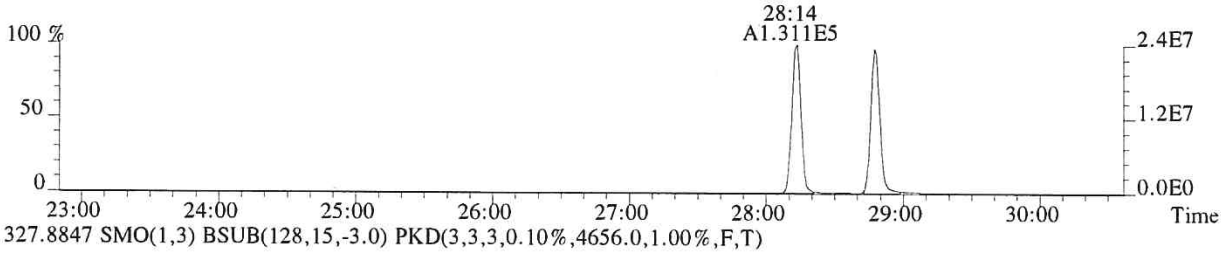
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



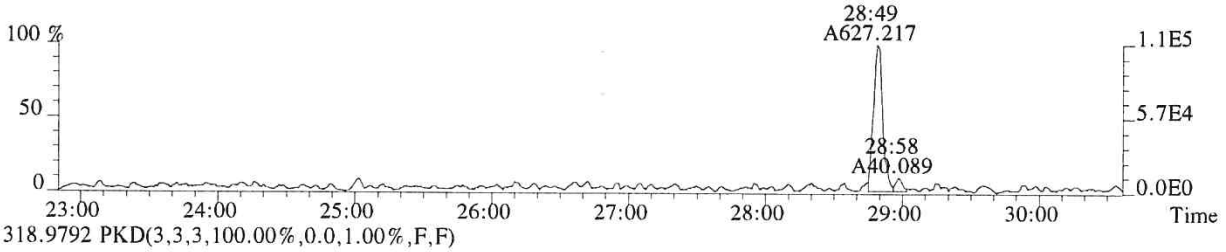
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15488.0,1.00%,F,T)



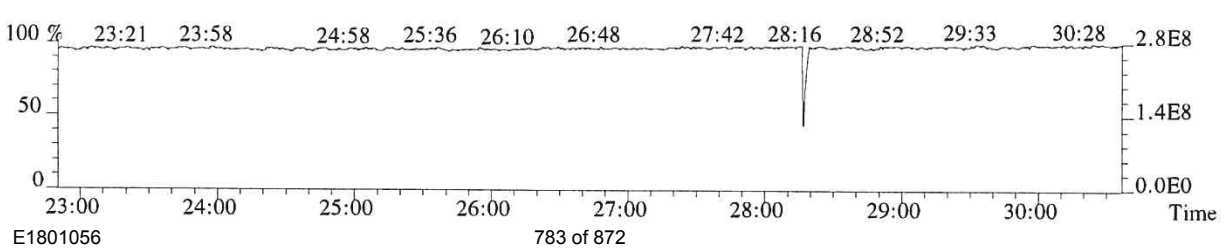
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5316.0,1.00%,F,T)



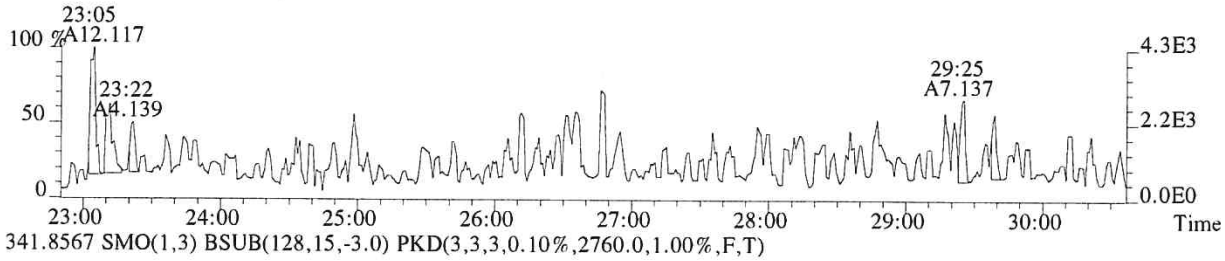
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)



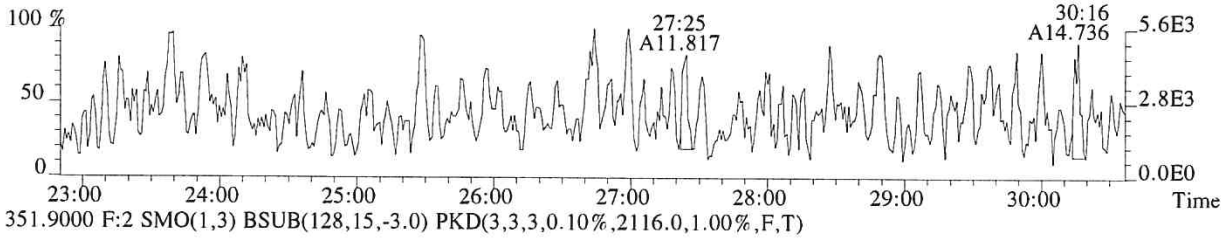
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



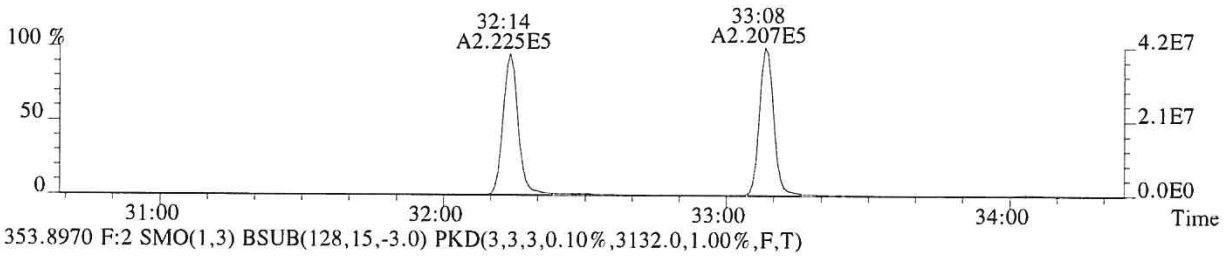
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



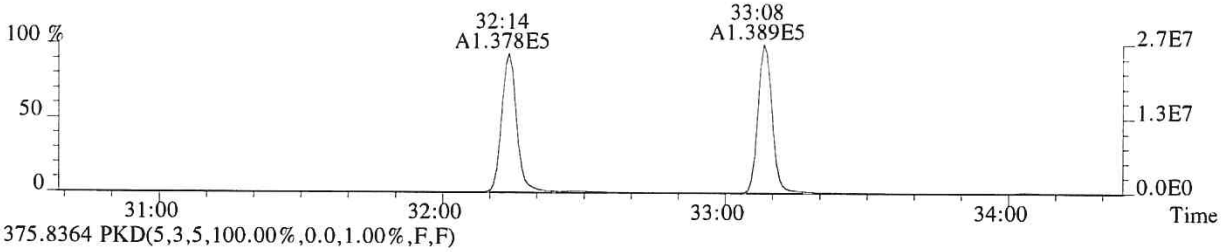
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



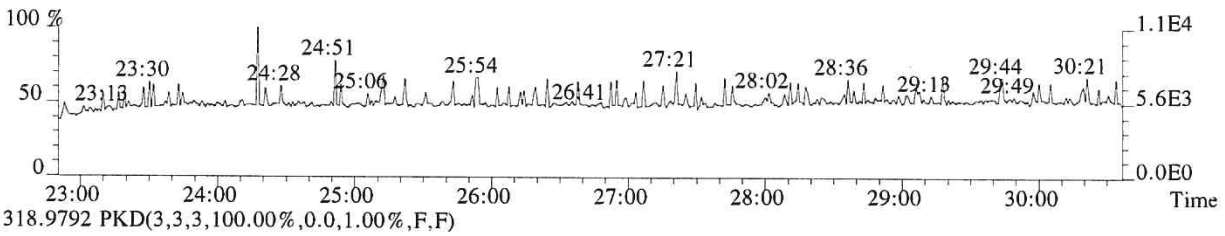
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



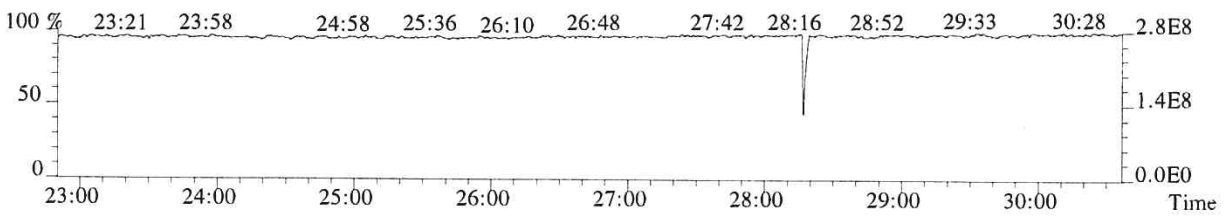
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

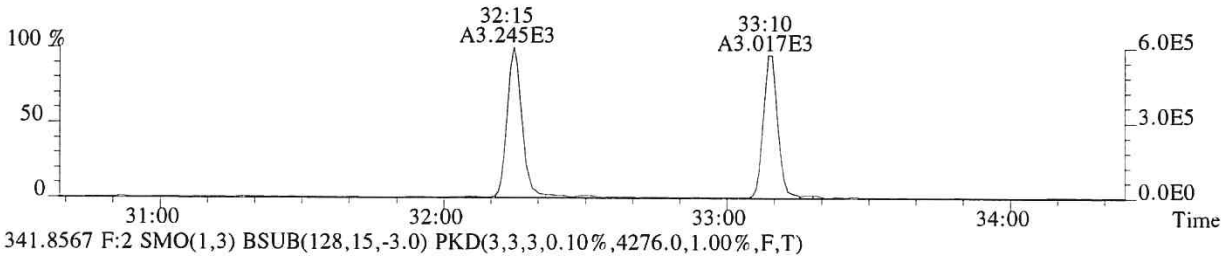


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

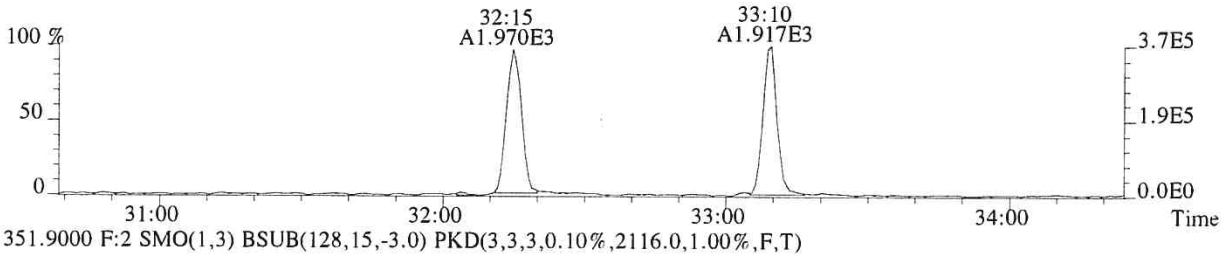


013002

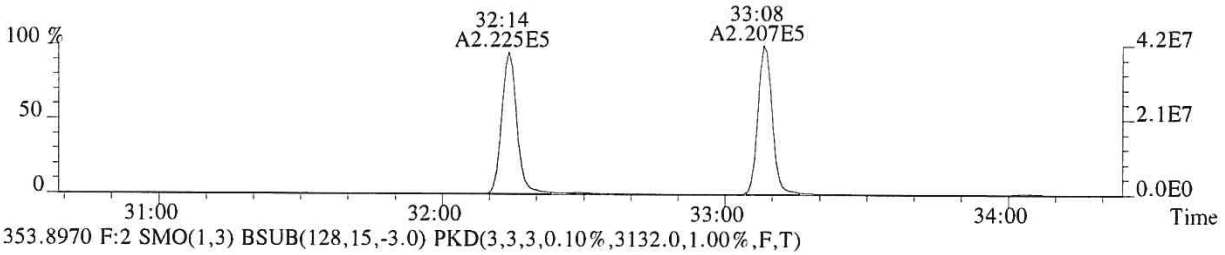
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



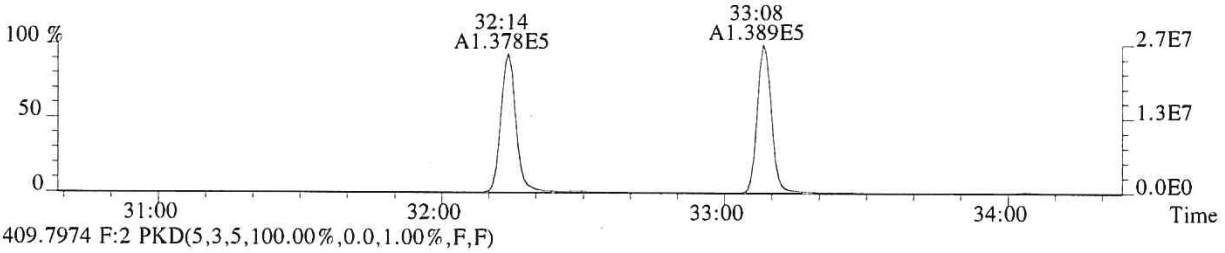
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4276.0,1.00%,F,T)



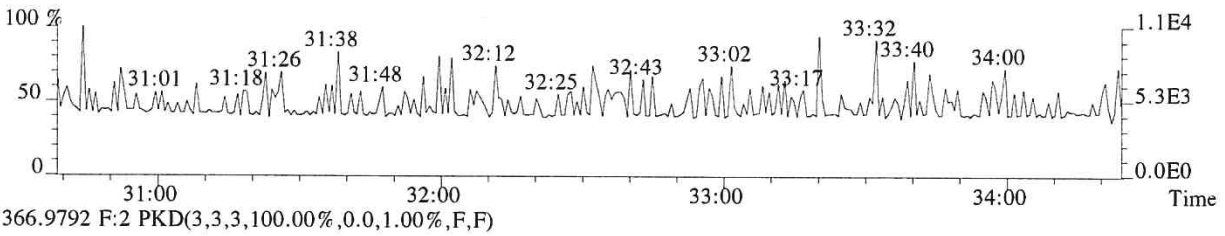
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



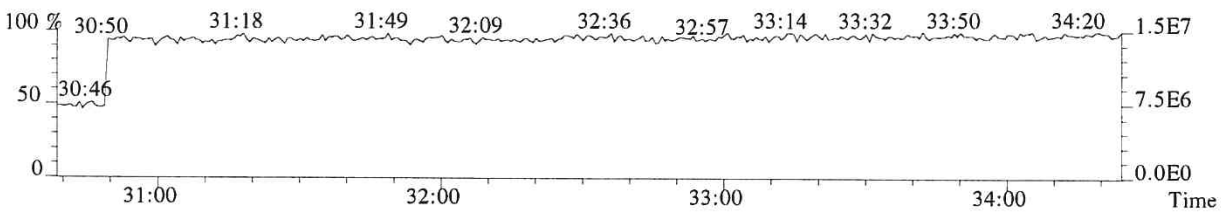
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



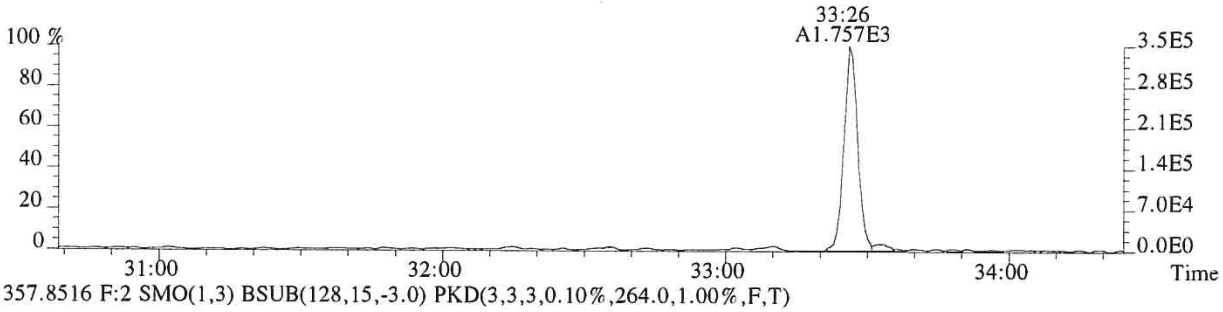
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



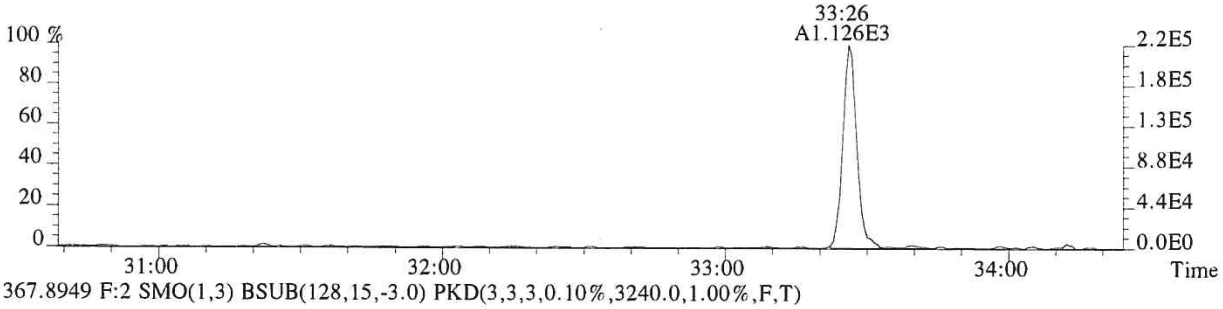
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



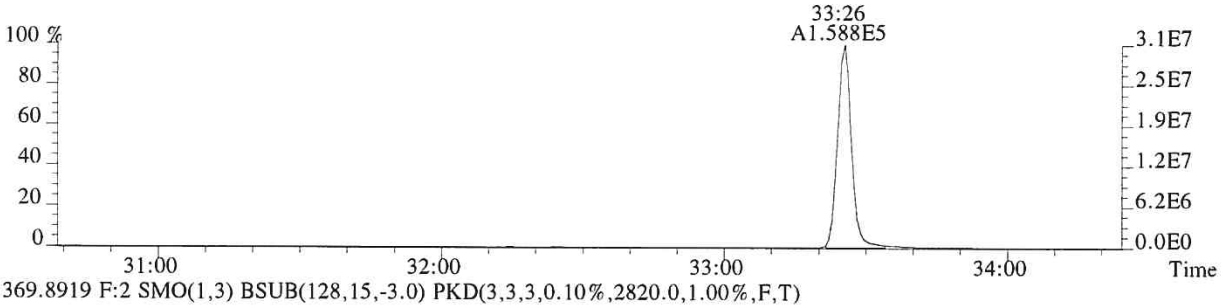
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



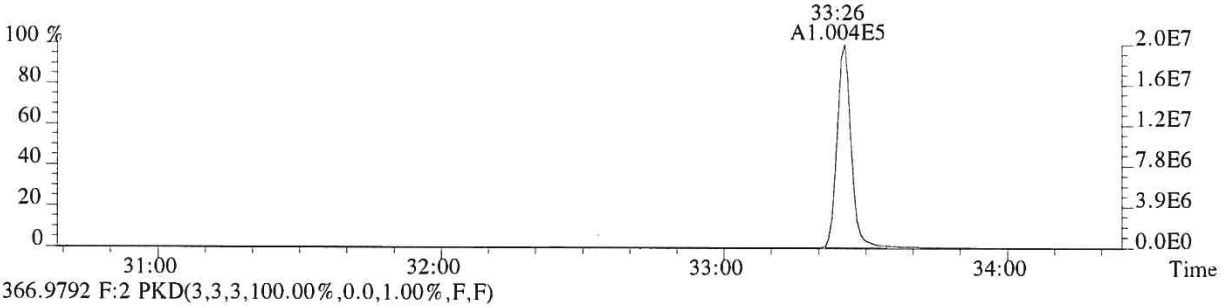
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



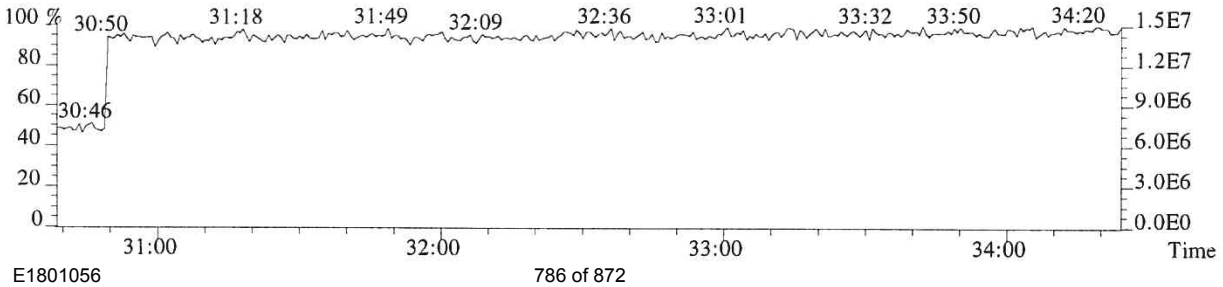
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



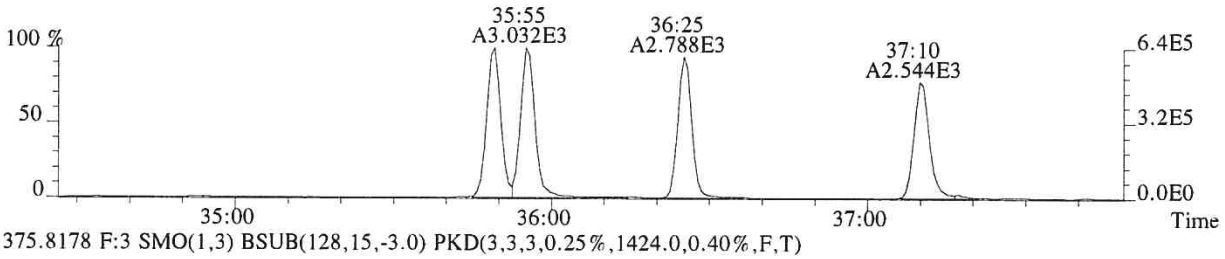
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



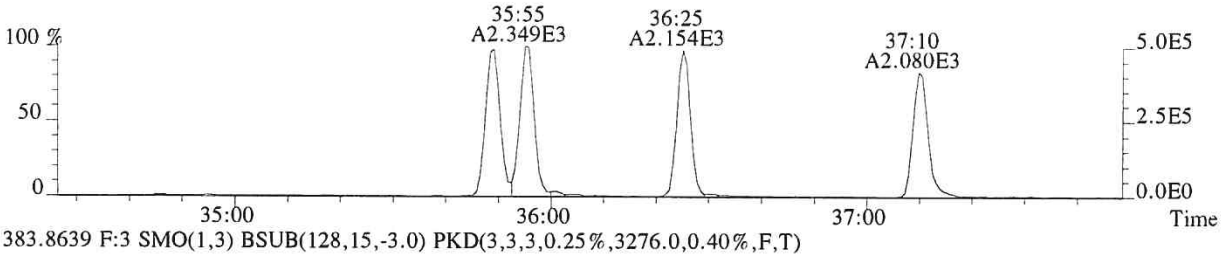
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



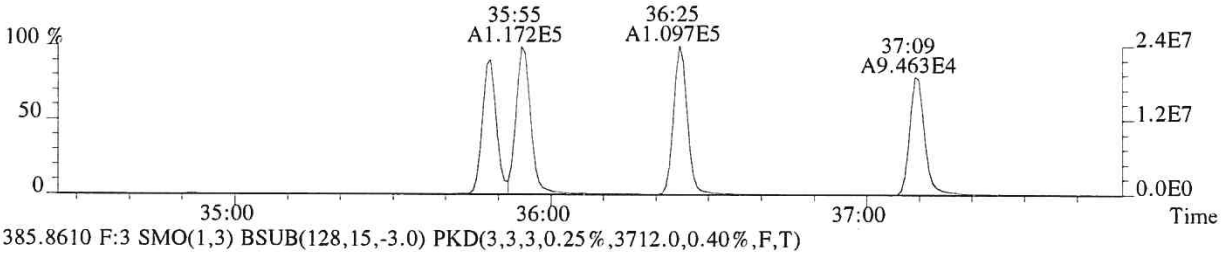
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.40%,F,T)



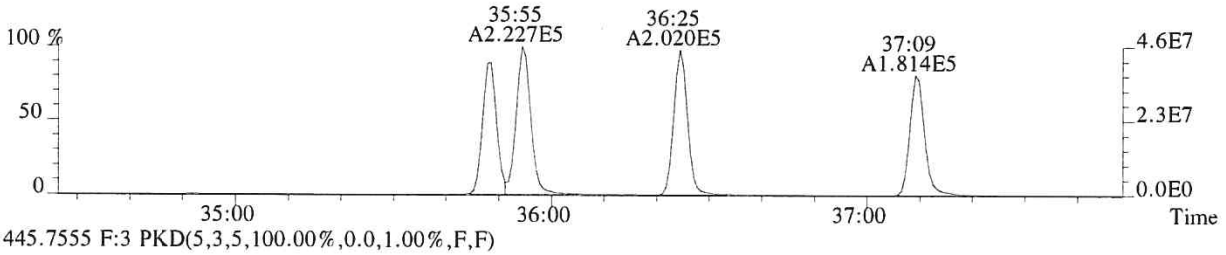
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



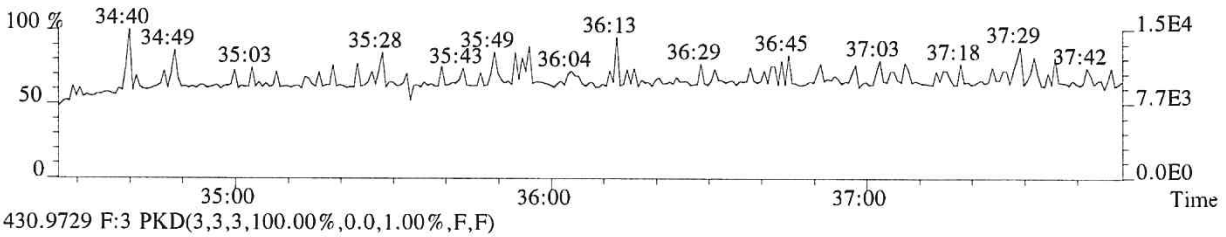
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



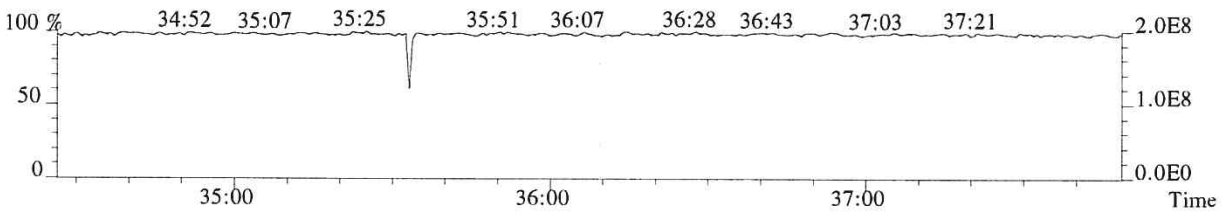
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.40%,F,T)



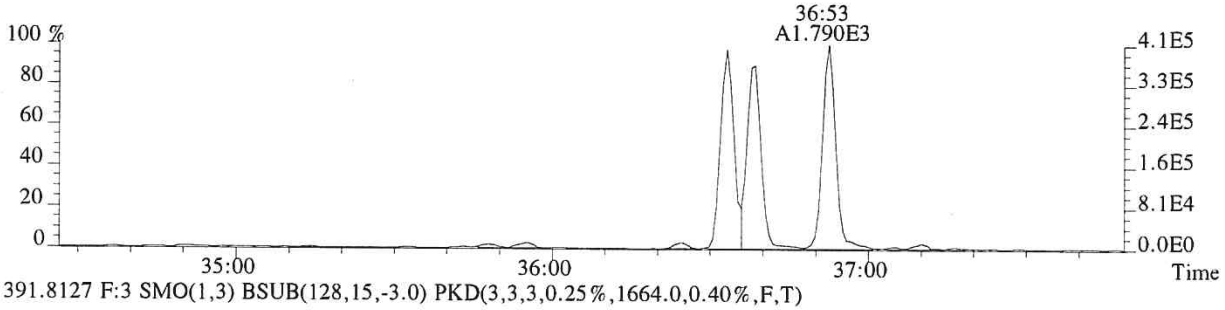
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



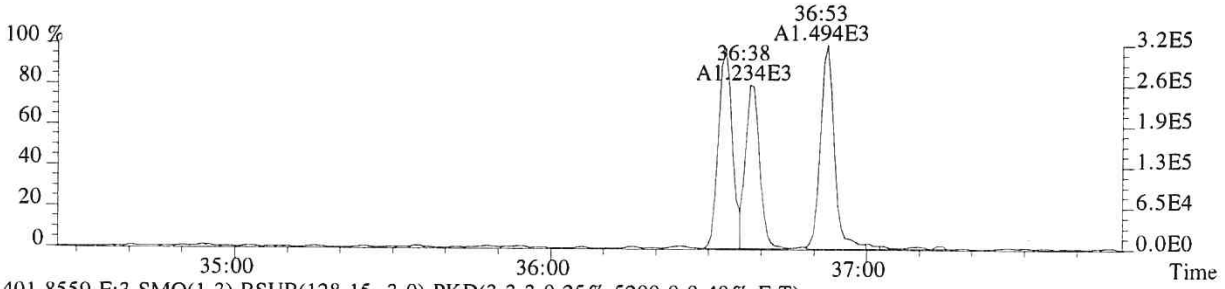
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



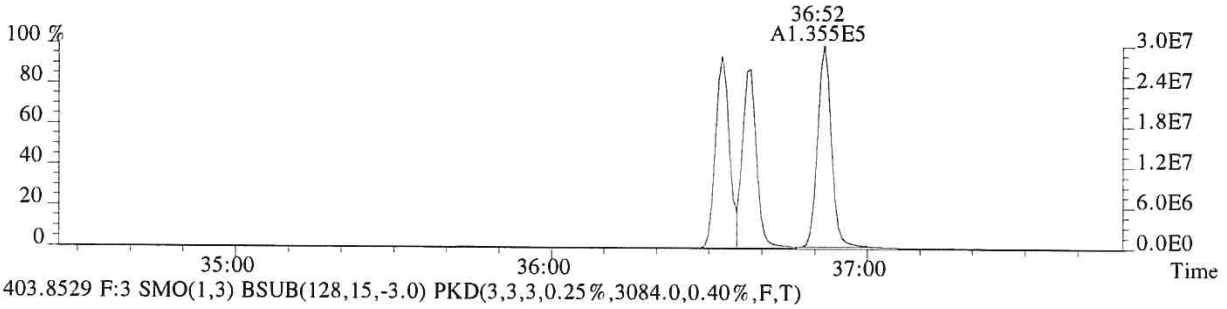
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



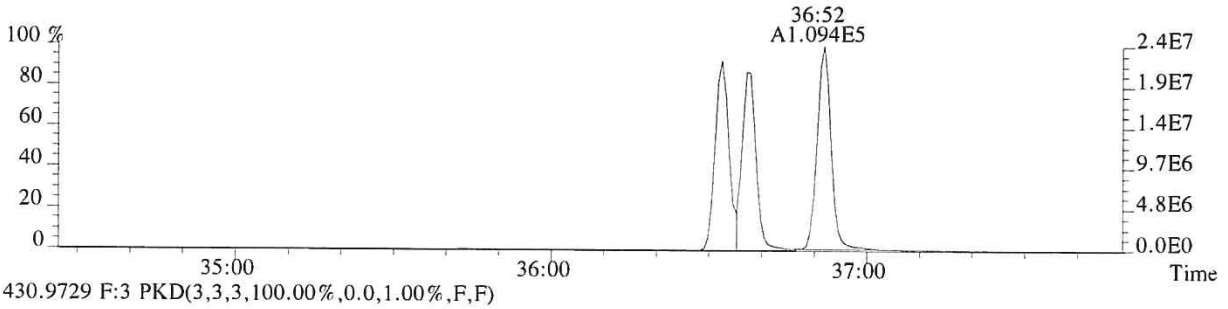
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



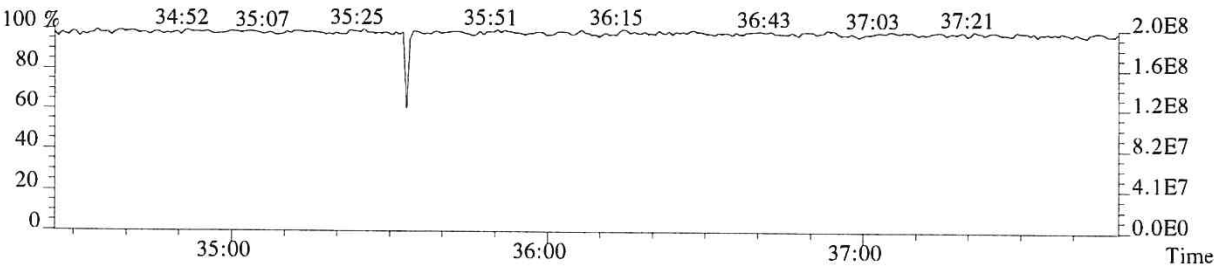
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5200.0,0.40%,F,T)



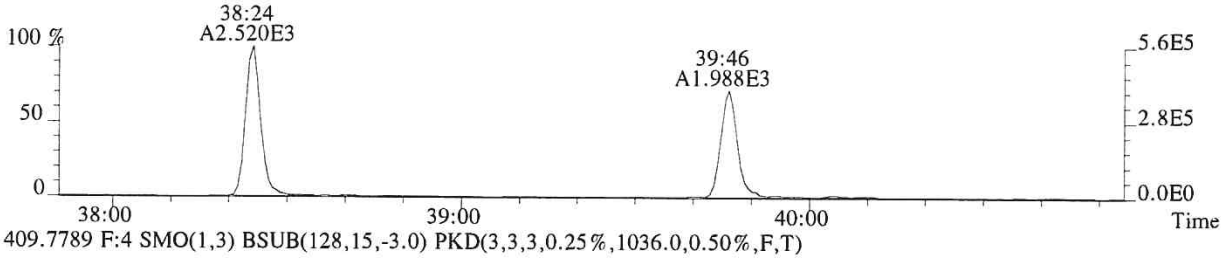
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



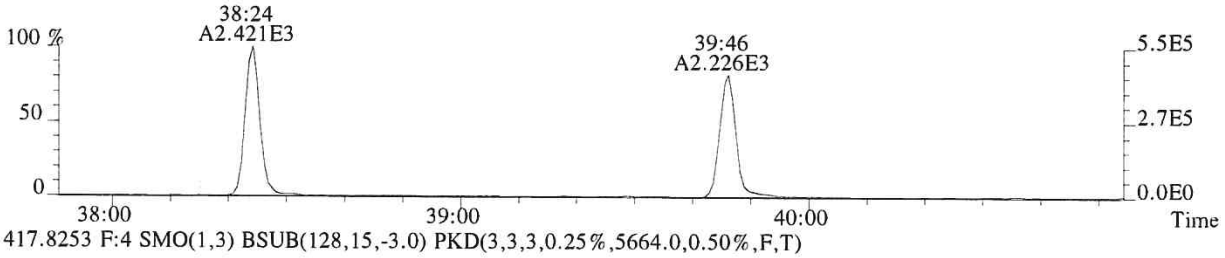
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



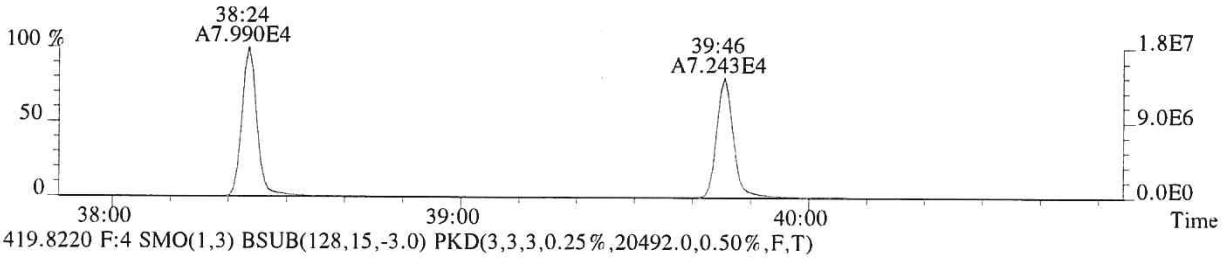
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.50%,F,T)



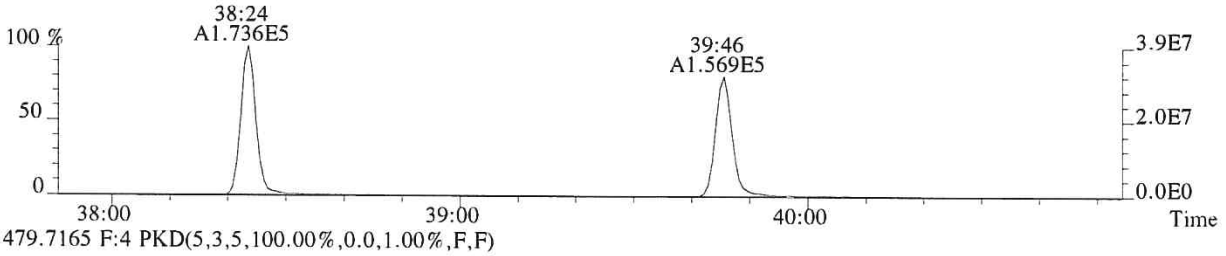
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



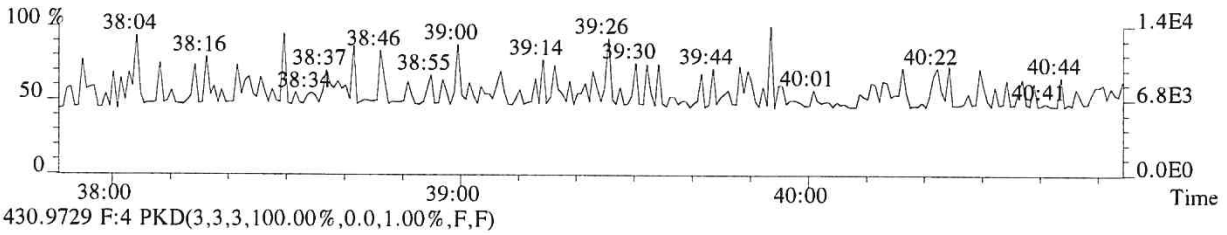
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5664.0,0.50%,F,T)



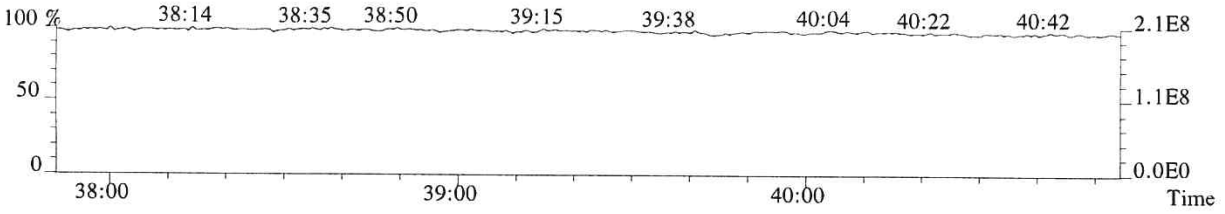
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20492.0,0.50%,F,T)



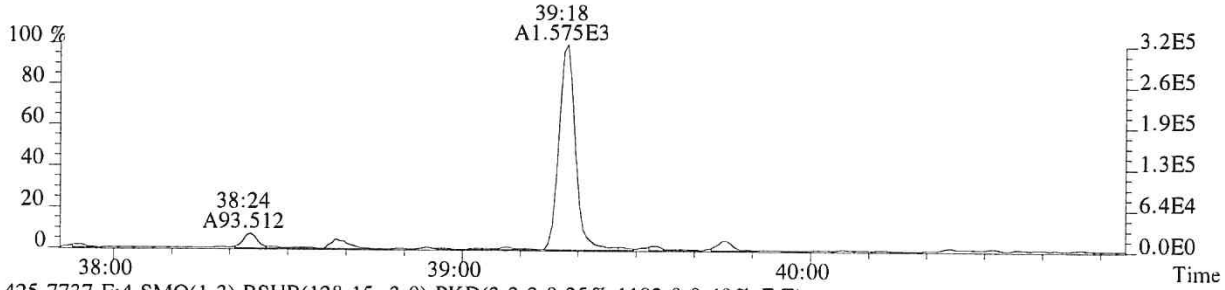
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



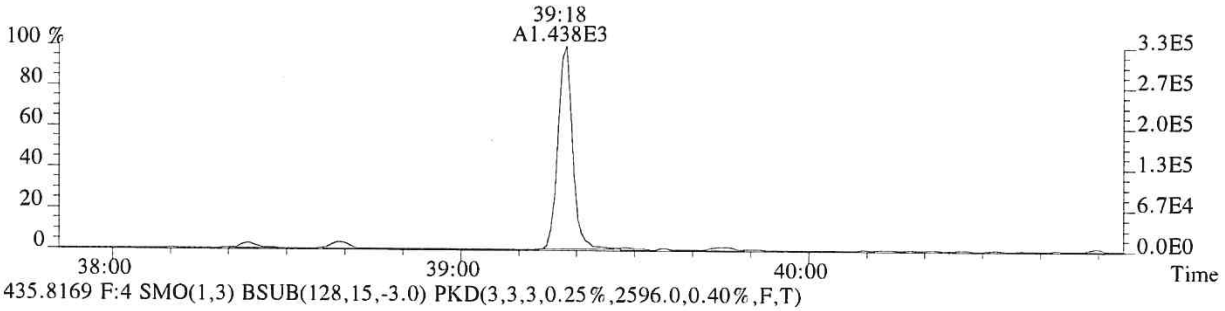
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



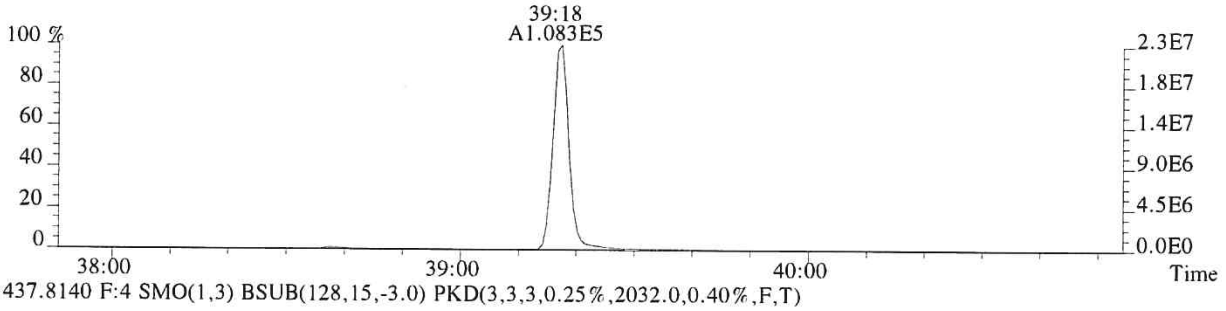
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



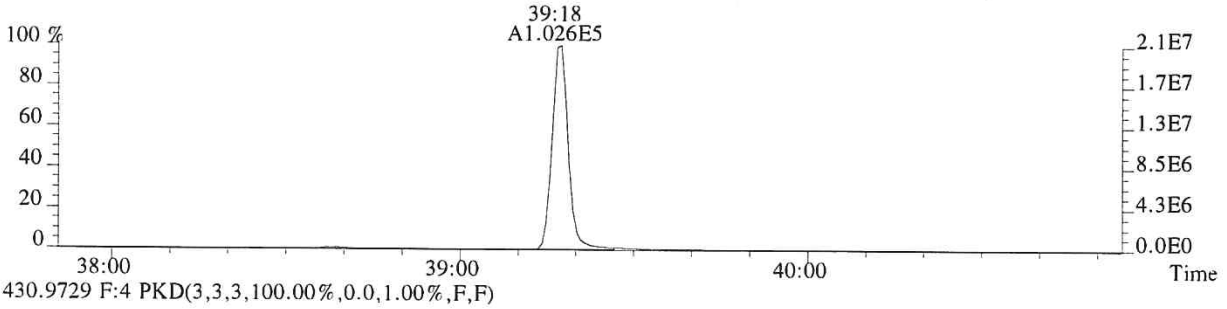
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



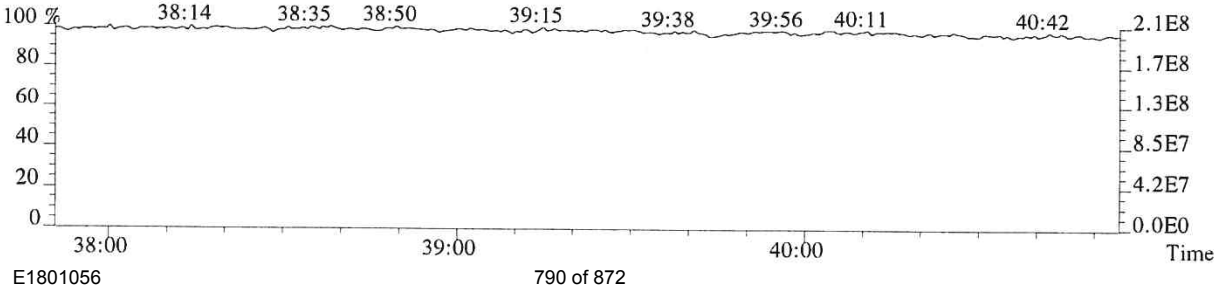
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.40%,F,T)



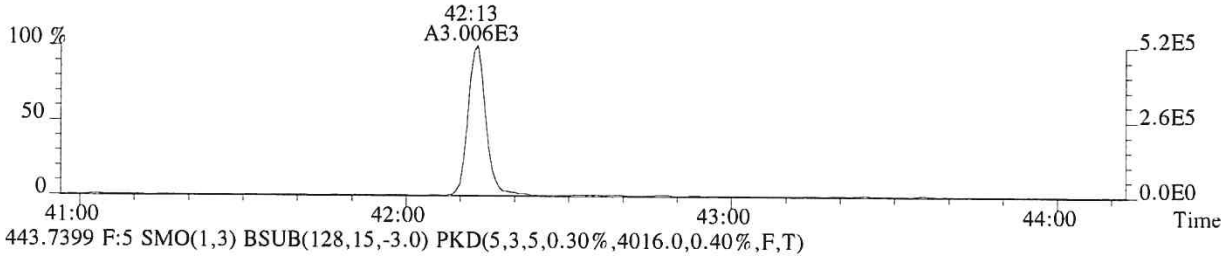
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



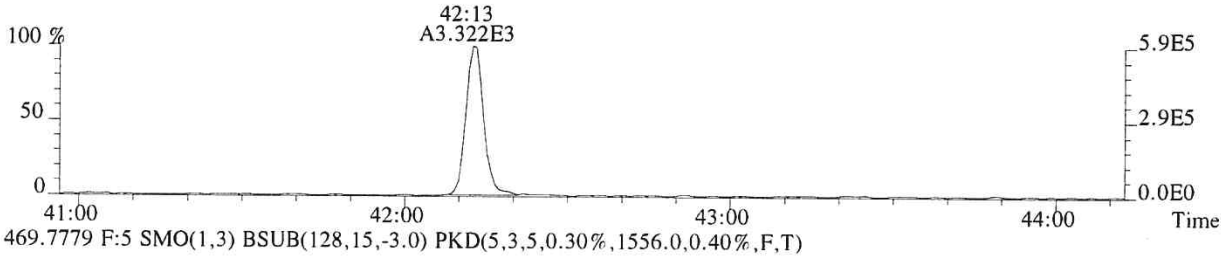
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



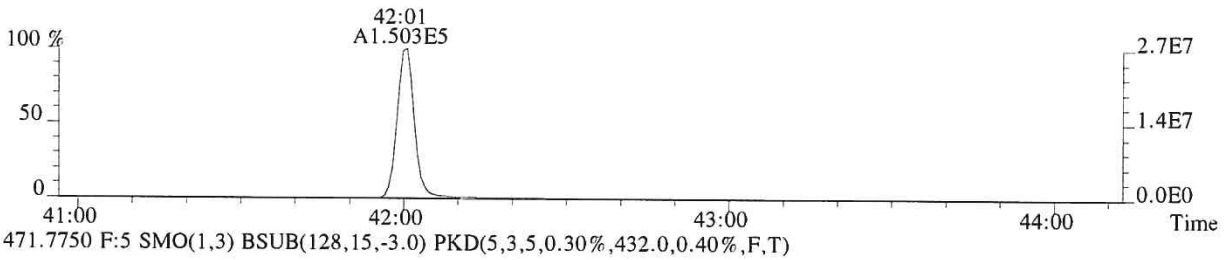
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



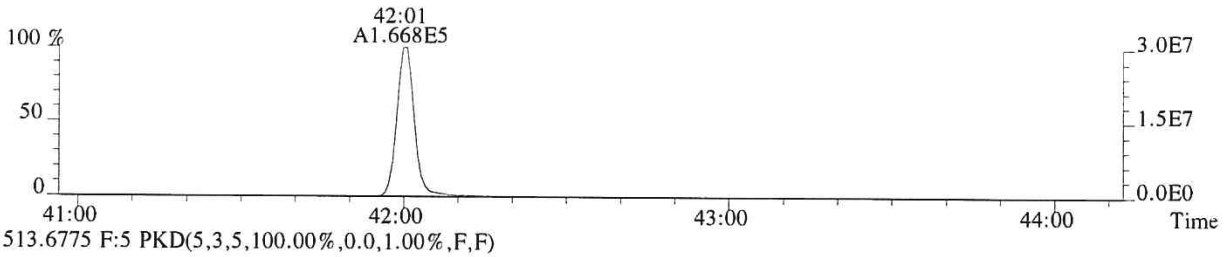
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4016.0,0.40%,F,T)



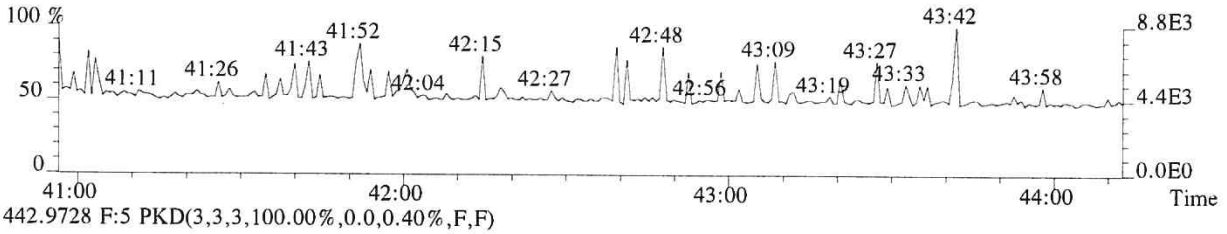
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



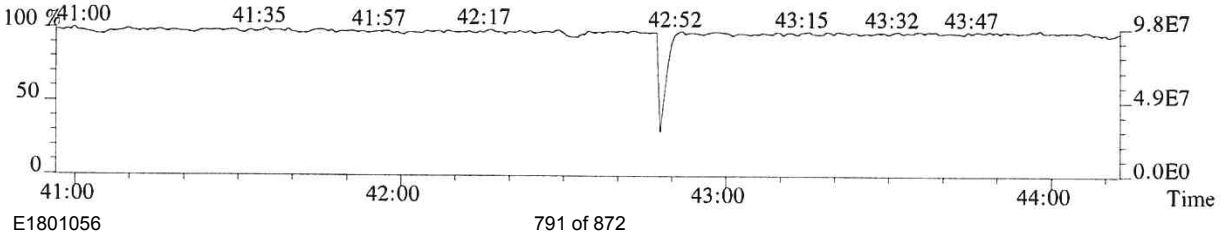
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



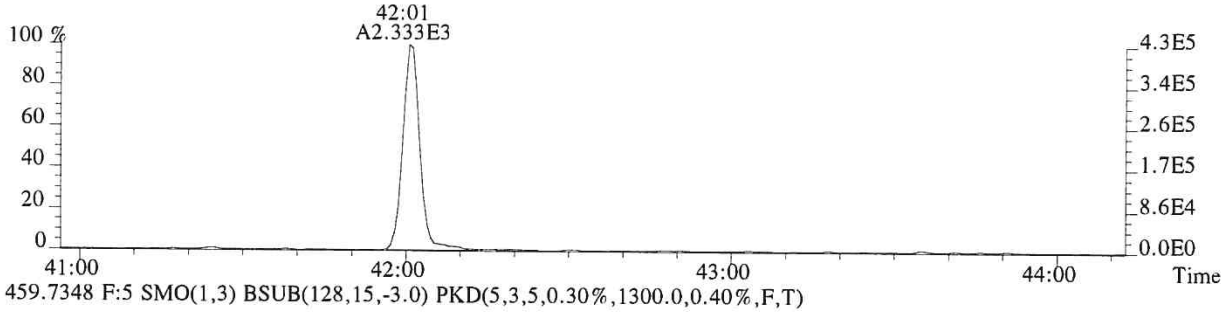
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



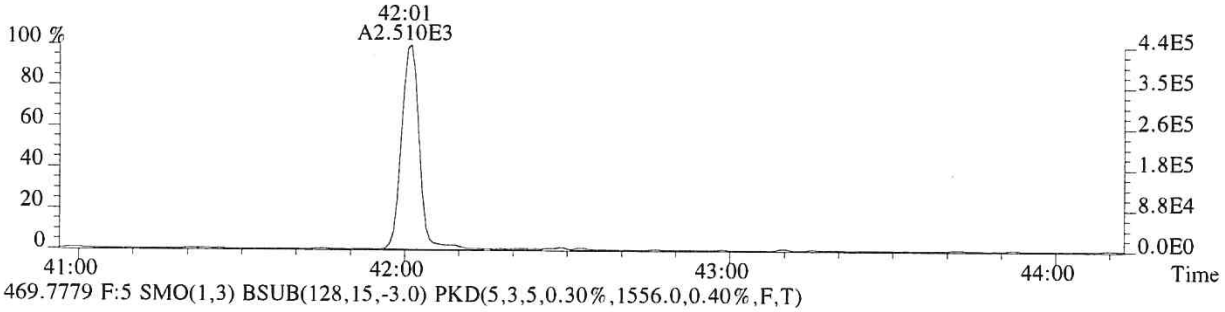
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



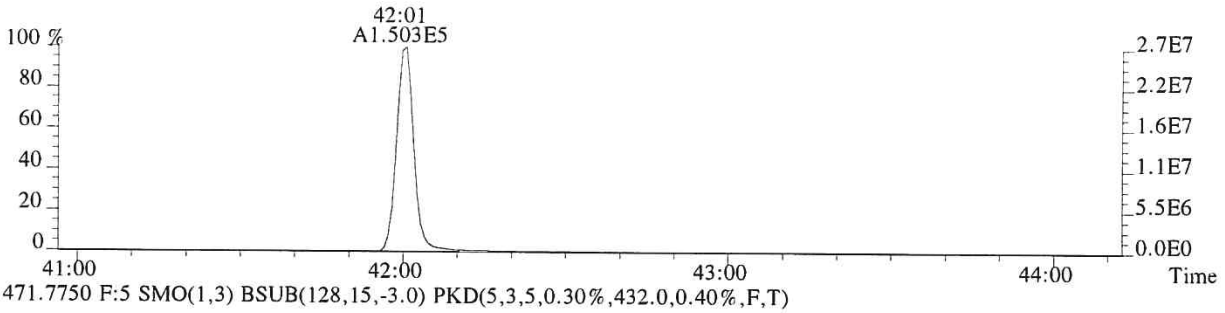
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



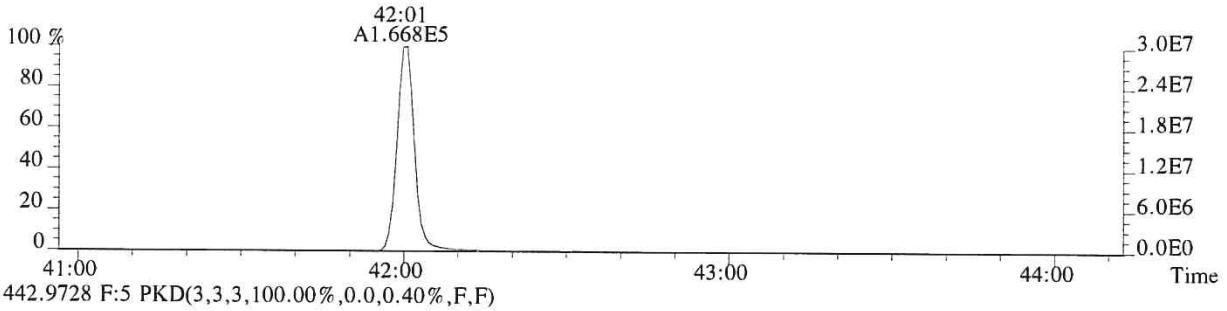
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



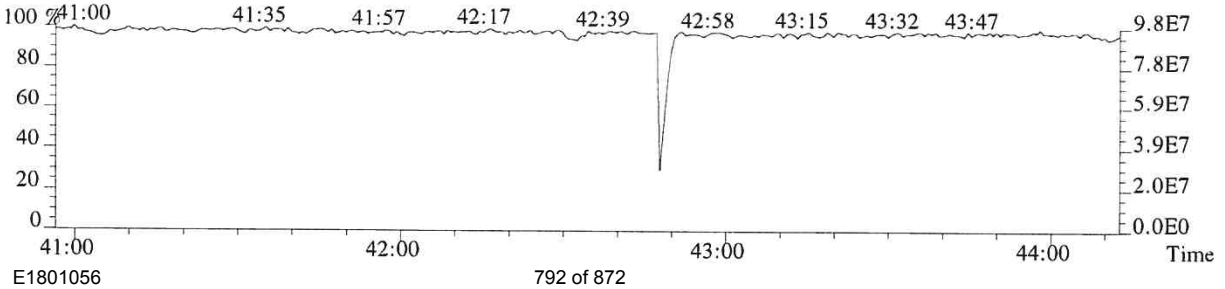
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



013010

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	9.696e+02	1.301e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	8.209e+03	5.211e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	7.782e+03	4.847e+03	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.580e+03	5.860e+03	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.826e+03	6.295e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	7.149e+03	5.707e+03	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	6.633e+03	5.137e+03	1.29	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	6.668e+03	6.509e+03	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	5.874e+03	5.515e+03	1.07	yes	no	1.463
10	Unk	OCDF	42:13	7.957e+03	9.190e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	6.591e+02	7.969e+02	0.83	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	4.521e+03	2.979e+03	1.52	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	4.250e+03	3.535e+03	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	4.303e+03	3.394e+03	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	4.586e+03	3.767e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.011e+03	3.764e+03	1.07	yes	no	1.112
17	Unk	OCDD	42:01	6.097e+03	6.815e+03	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.863e+05	2.330e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.845e+05	1.757e+05	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.739e+05	1.718e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.281e+05	2.407e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.461e+05	2.703e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.362e+05	2.538e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.215e+05	2.294e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.041e+05	2.259e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	9.345e+04	2.024e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.293e+05	1.616e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.924e+05	1.218e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.556e+05	1.239e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.601e+05	1.267e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.414e+05	1.336e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.022e+05	2.237e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.337e+05	1.646e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.731e+05	1.377e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.653e+03				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.73e+05	2.52e+03	6.9e+01	2.26e+05	4.68e+03	4.8e+01
2	1,2,3,7,8-PeCDF	1.49e+06	1.07e+03	1.4e+03	9.88e+05	5.47e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.55e+06	1.07e+03	1.5e+03	9.81e+05	5.47e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	1.64e+06	3.19e+03	5.1e+02	1.29e+06	1.24e+03	1.0e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	3.19e+03	5.2e+02	1.30e+06	1.24e+03	1.0e+03
6	2,3,4,6,7,8-HxCDF	1.53e+06	3.19e+03	4.8e+02	1.19e+06	1.24e+03	9.6e+02
7	1,2,3,7,8,9-HxCDF	1.37e+06	3.19e+03	4.3e+02	1.06e+06	1.24e+03	8.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.48e+06	1.97e+03	7.5e+02	1.45e+06	1.25e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.19e+06	1.97e+03	6.0e+02	1.11e+06	1.25e+03	8.9e+02
10	OCDF	1.45e+06	1.15e+03	1.3e+03	1.64e+06	2.28e+03	7.2e+02
11	2,3,7,8-TCDD	1.20e+05	6.88e+03	1.7e+01	1.48e+05	2.99e+03	5.0e+01
12	1,2,3,7,8-PeCDD	8.64e+05	2.37e+03	3.6e+02	5.83e+05	1.39e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	9.60e+05	1.02e+03	9.4e+02	8.07e+05	1.68e+03	4.8e+02
14	1,2,3,6,7,8-HxCDD	9.46e+05	1.02e+03	9.3e+02	7.52e+05	1.68e+03	4.5e+02
15	1,2,3,7,8,9-HxCDD	1.01e+06	1.02e+03	9.9e+02	8.34e+05	1.68e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	8.38e+05	1.17e+03	7.2e+02	8.29e+05	4.84e+02	1.7e+03
17	OCDD	1.16e+06	3.14e+03	3.7e+02	1.30e+06	1.96e+03	6.6e+02
18	13C-2,3,7,8-TCDF	3.28e+07	1.64e+04	2.0e+03	4.11e+07	1.27e+04	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.29e+07	3.44e+03	1.5e+04	3.26e+07	2.57e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	3.44e+03	1.6e+04	3.38e+07	2.57e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+07	3.47e+03	8.3e+03	5.39e+07	4.48e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.07e+07	3.47e+03	8.8e+03	5.68e+07	4.48e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.95e+07	3.47e+03	8.5e+03	5.46e+07	4.48e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.51e+07	3.47e+03	7.2e+03	4.72e+07	4.48e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.29e+04	1.8e+03	4.99e+07	2.56e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+07	1.29e+04	1.5e+03	4.06e+07	2.56e+04	1.6e+03
27	13C-2,3,7,8-TCDD	2.37e+07	1.79e+04	1.3e+03	2.98e+07	7.48e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	3.81e+07	3.05e+03	1.3e+04	2.43e+07	1.79e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	3.53e+07	4.99e+03	7.1e+03	2.84e+07	2.28e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.46e+07	4.99e+03	6.9e+03	2.73e+07	2.28e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+07	3.94e+03	7.8e+03	2.93e+07	1.60e+03	1.8e+04
32	13C-OCDD	3.85e+07	1.12e+03	3.4e+04	4.22e+07	1.86e+03	2.3e+04
33	13C-1,2,3,4-TCDD	2.49e+07	1.79e+04	1.4e+03	3.07e+07	7.48e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	4.99e+03	7.5e+03	3.01e+07	2.28e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.03e+05	3.87e+03	7.8e+01			

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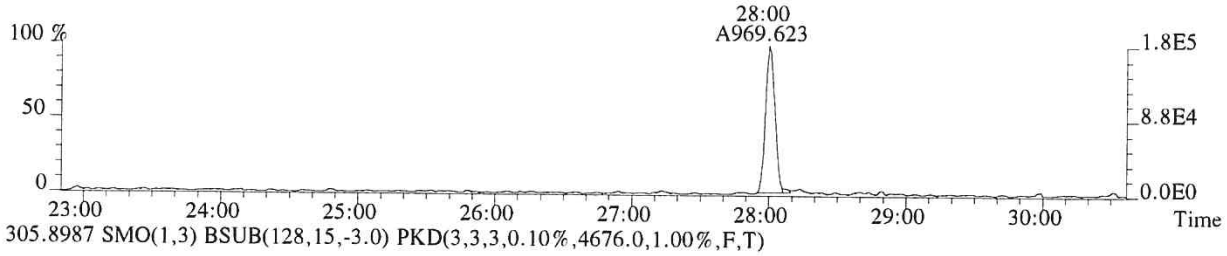
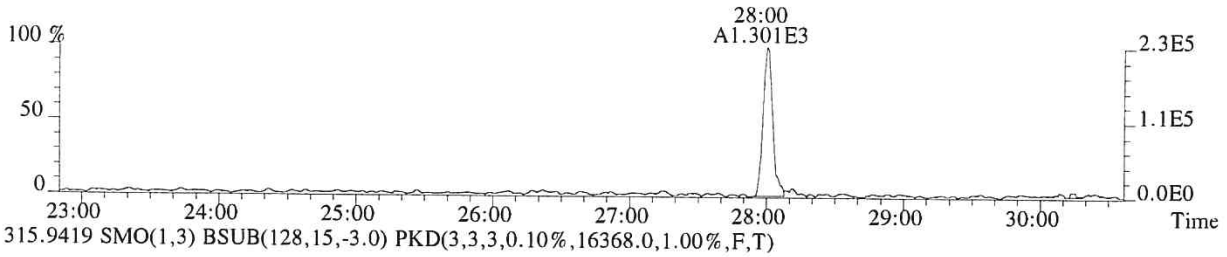
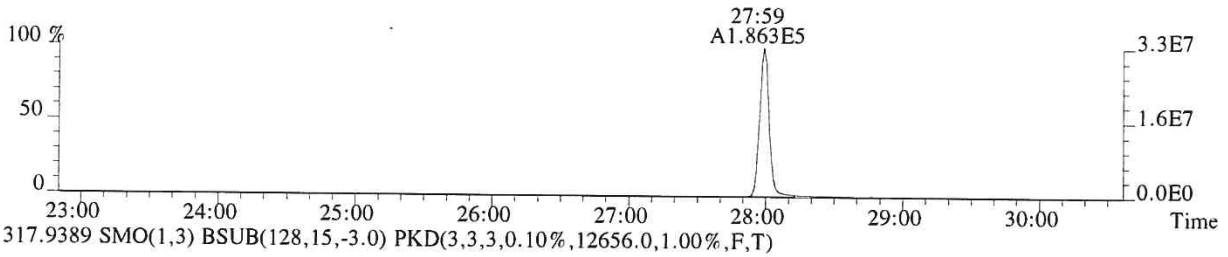
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



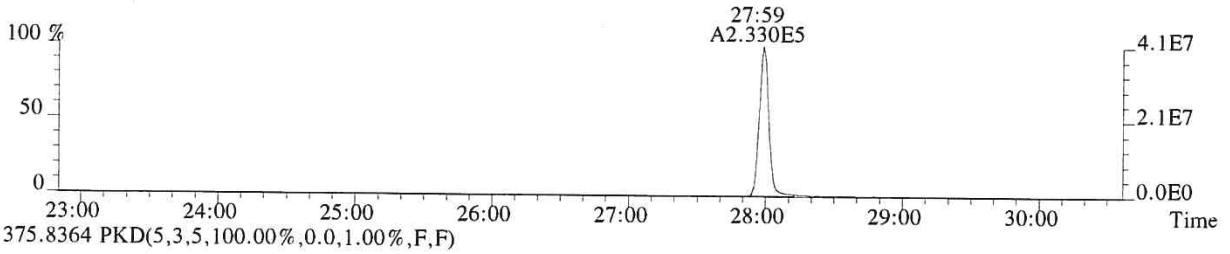
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4676.0,1.00%,F,T)



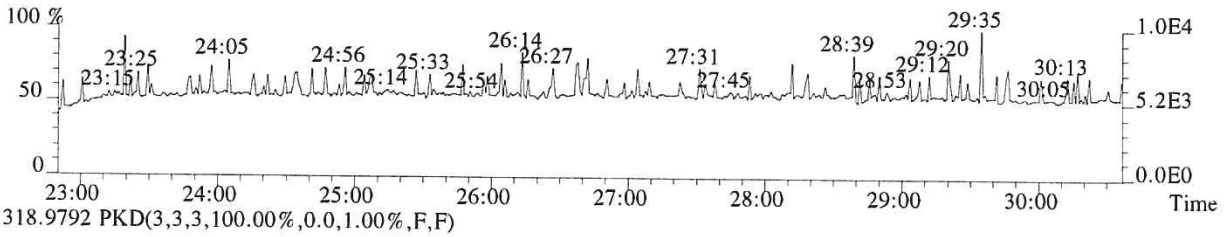
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16368.0,1.00%,F,T)



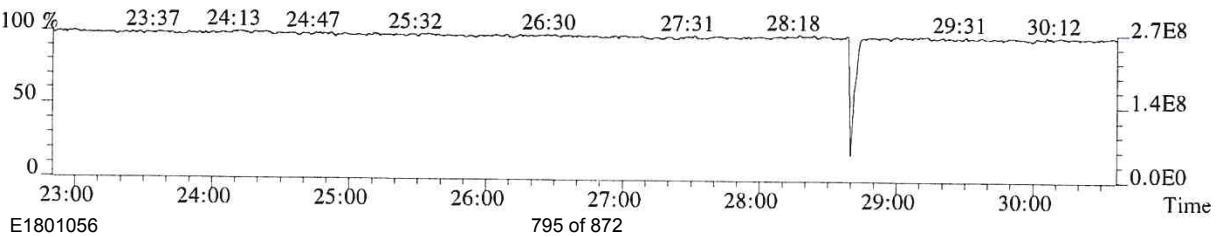
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

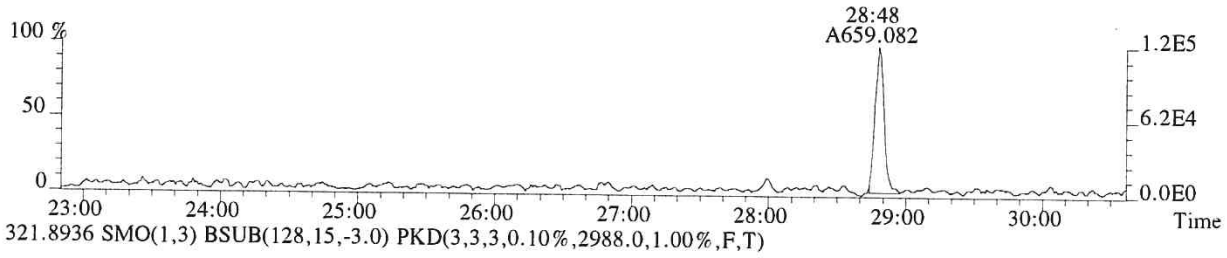


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

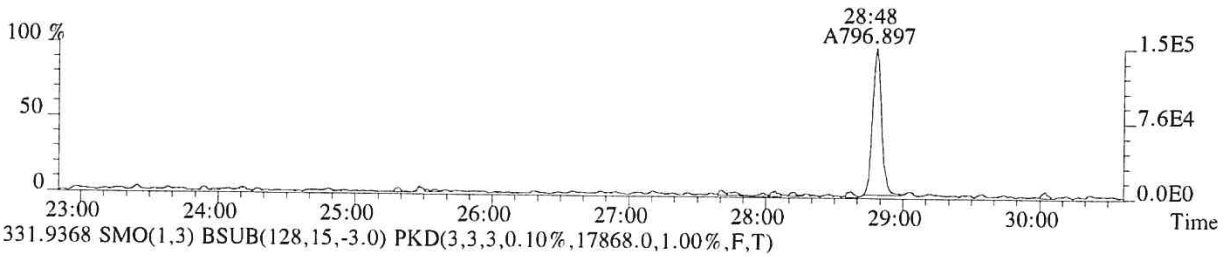


013013

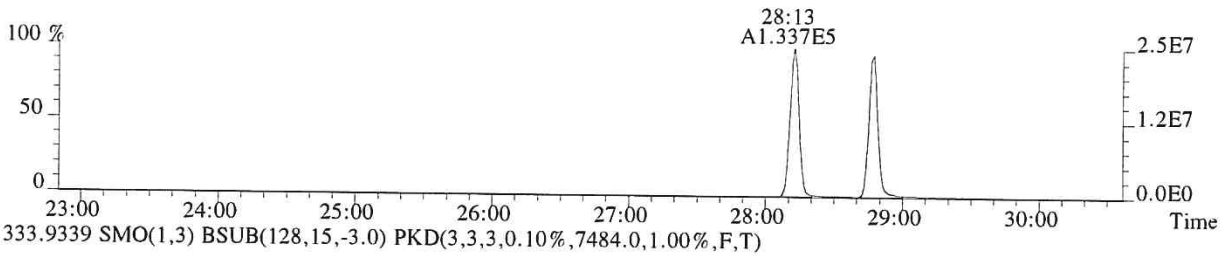
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6880.0,1.00%,F,T)



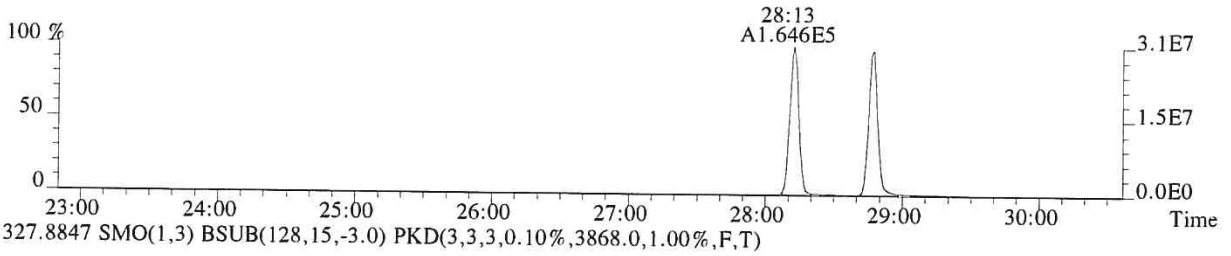
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



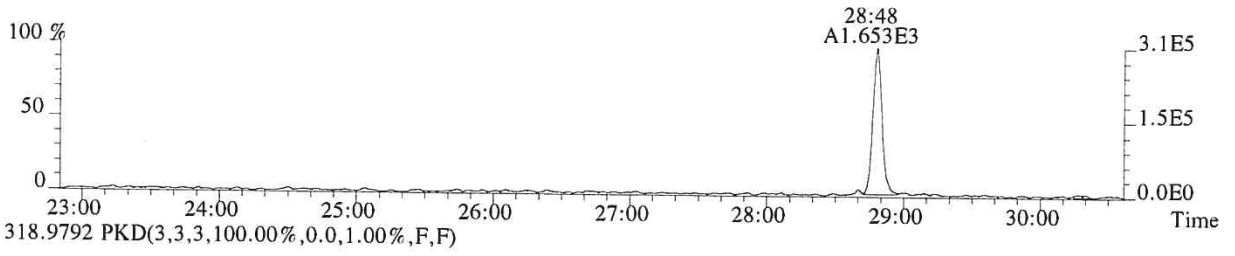
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17868.0,1.00%,F,T)



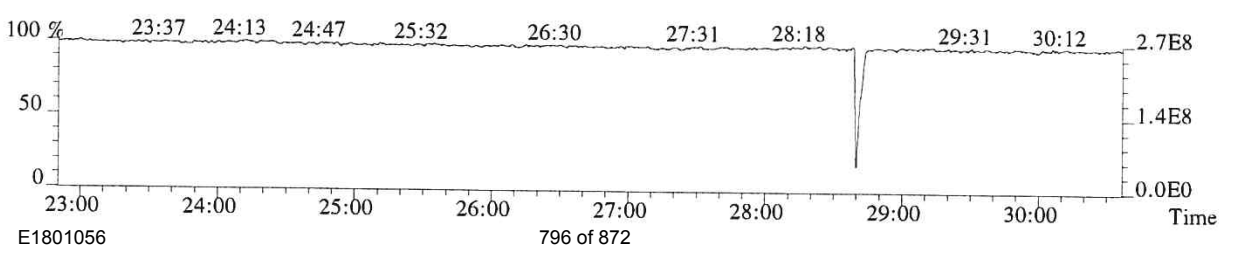
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7484.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)

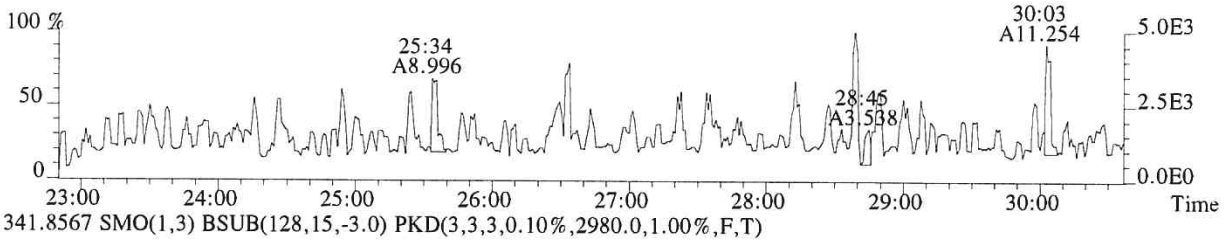


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

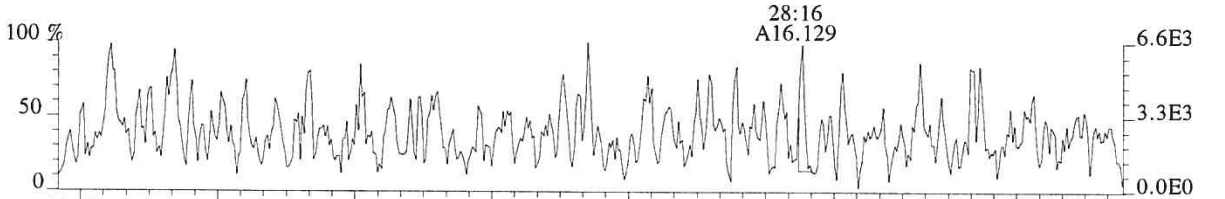


013014

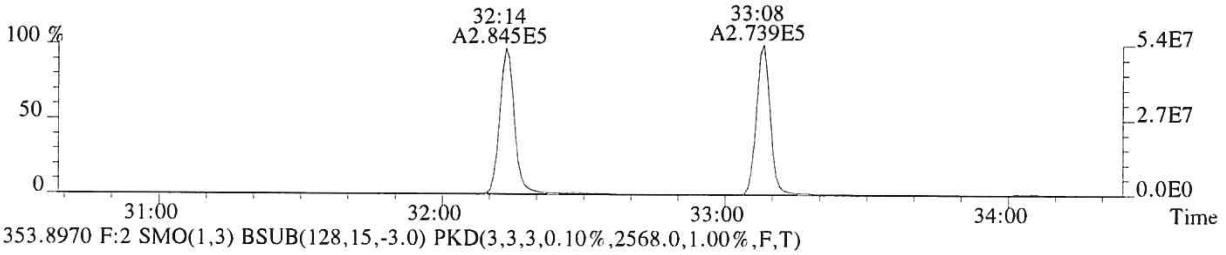
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



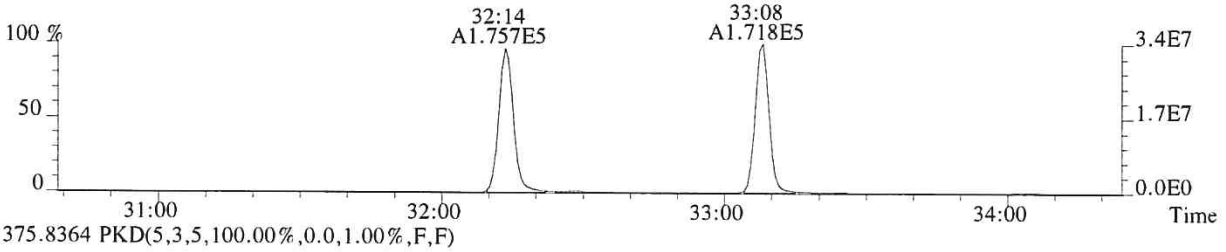
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



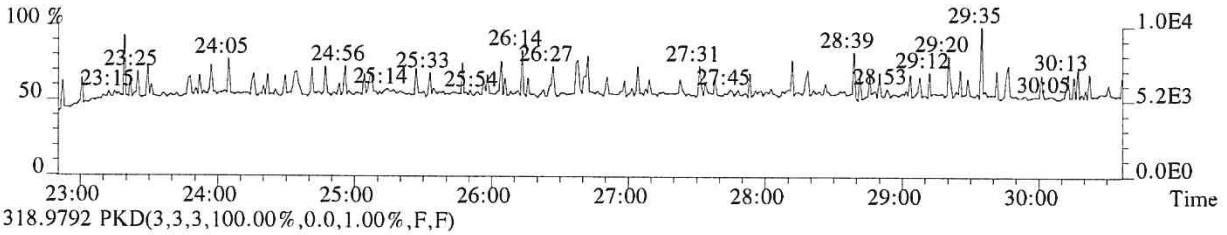
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



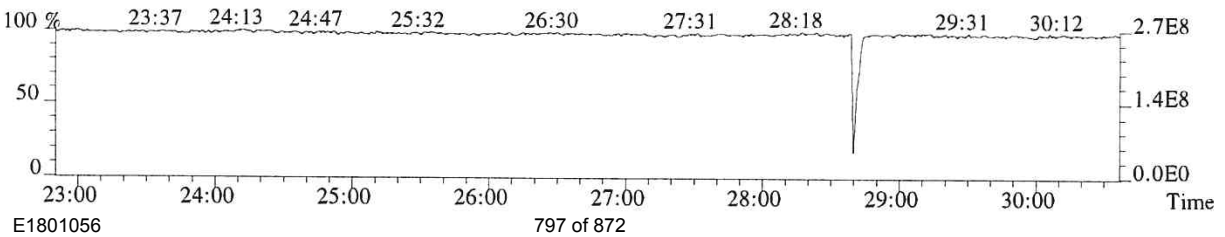
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



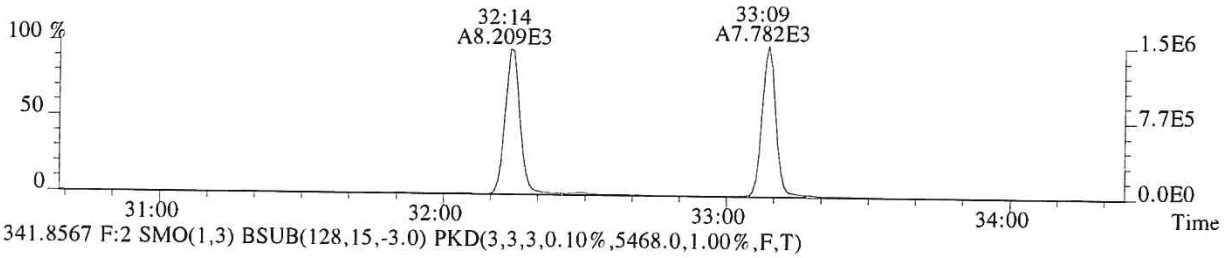
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



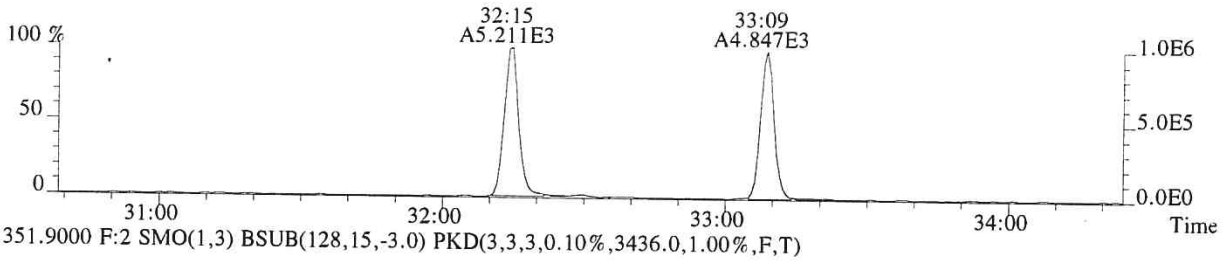
013015

File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

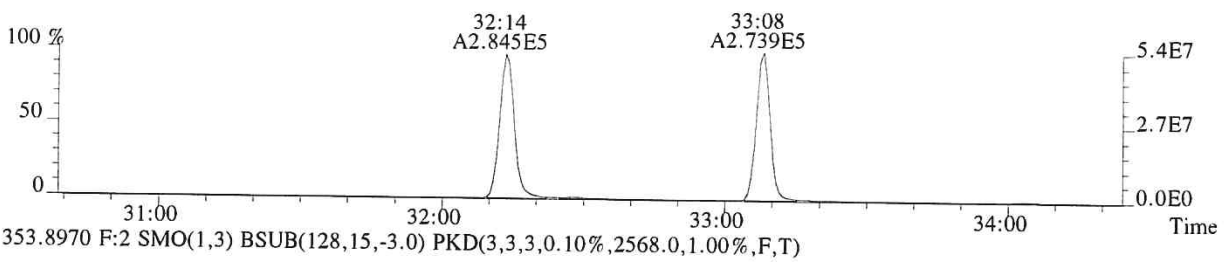
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



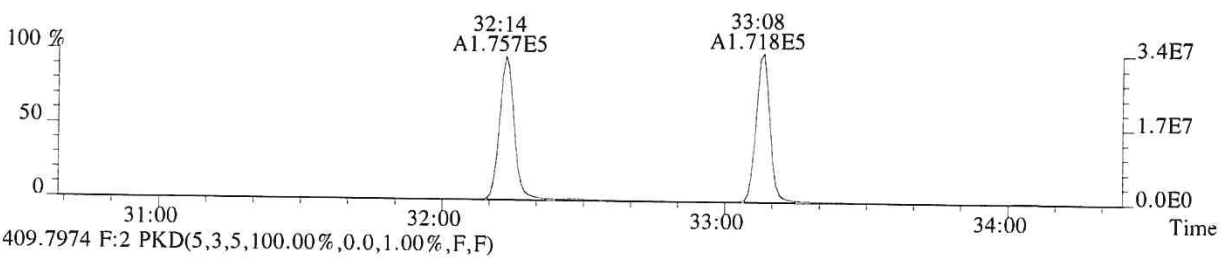
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5468.0,1.00%,F,T)



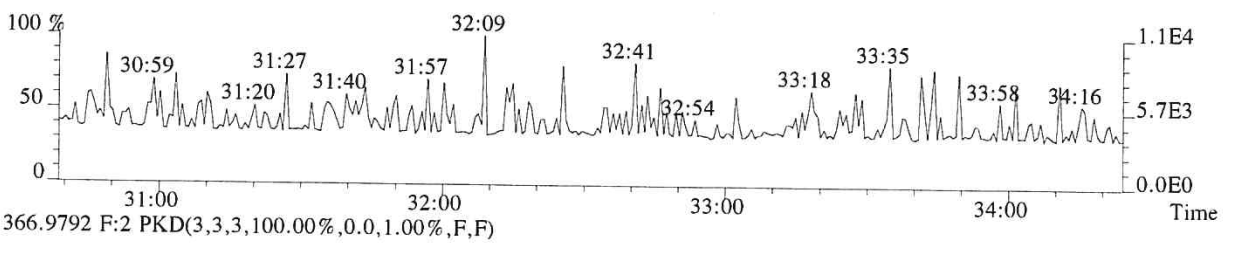
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



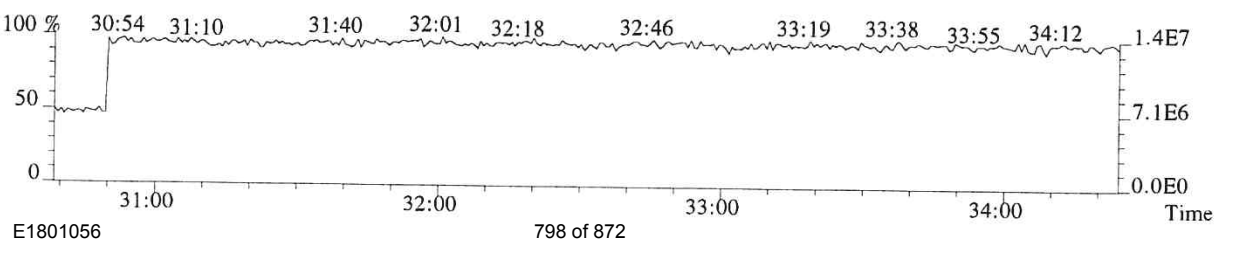
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



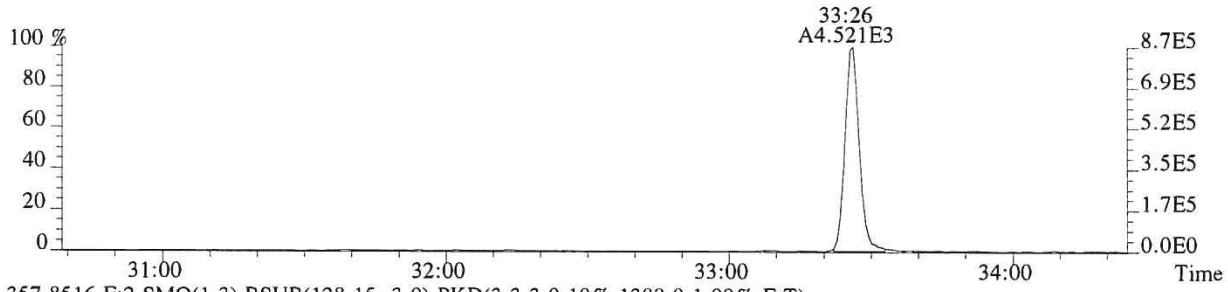
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



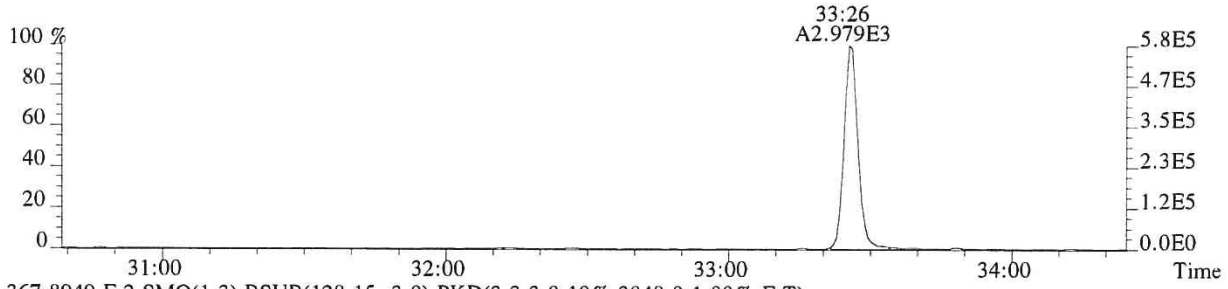
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



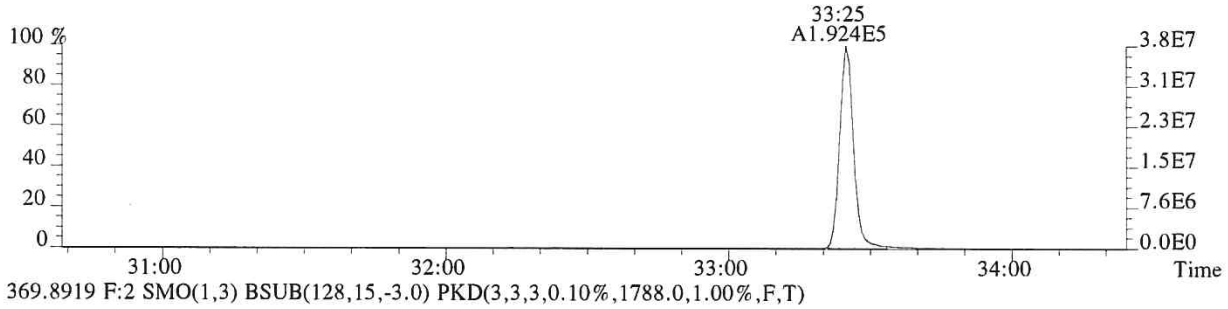
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



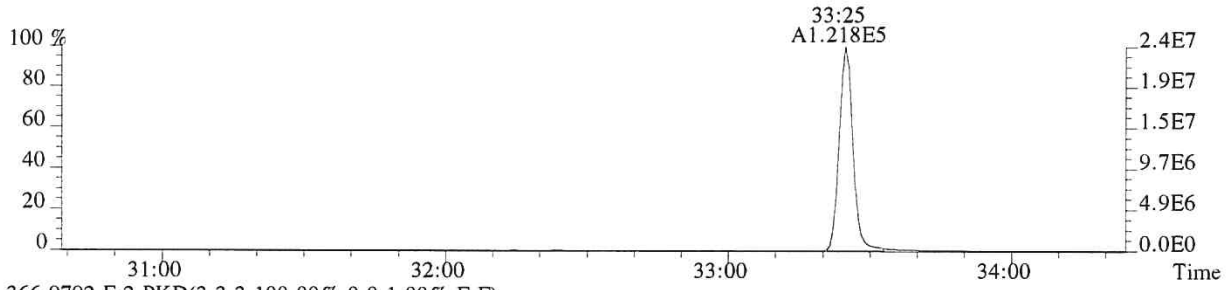
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



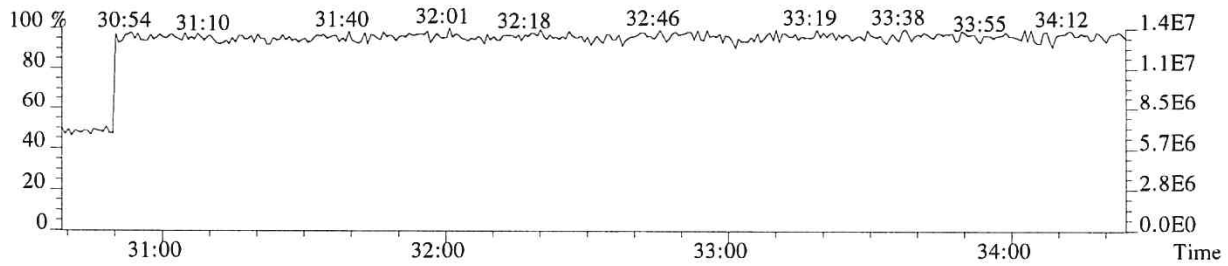
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



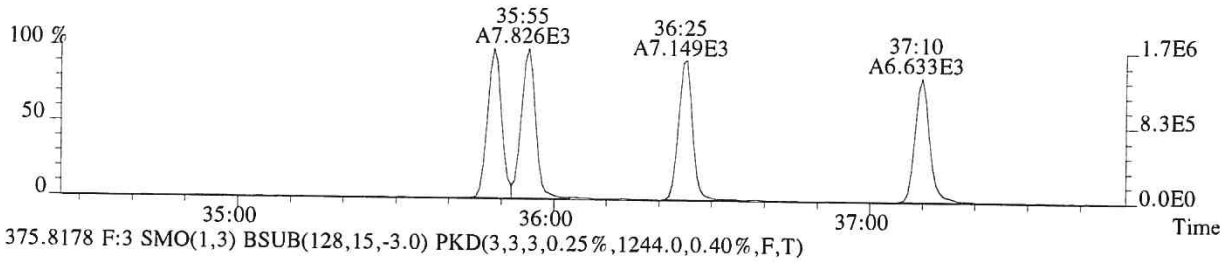
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



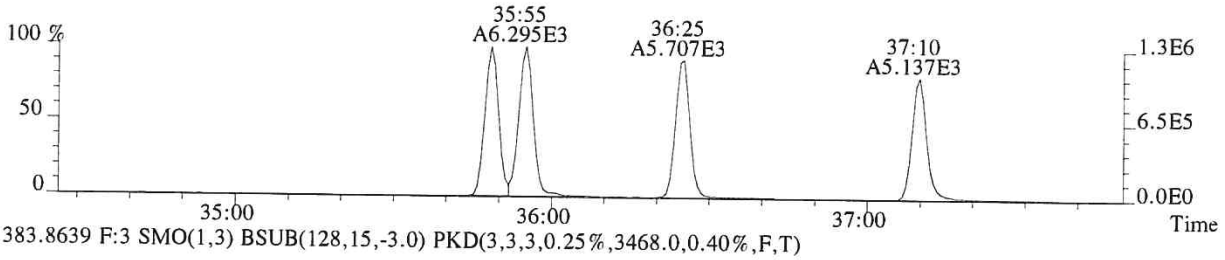
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



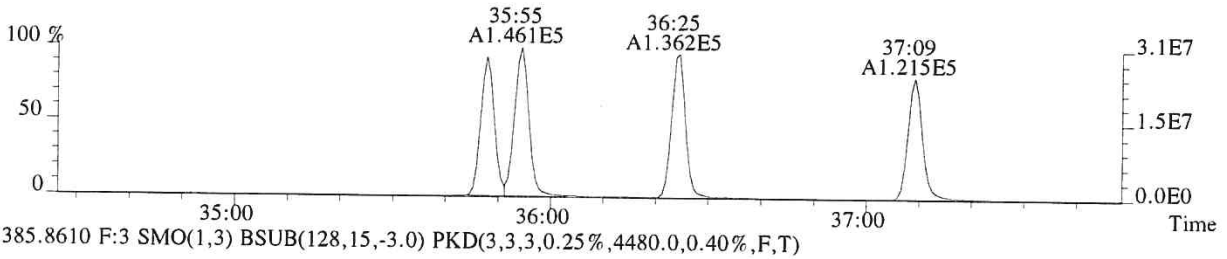
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



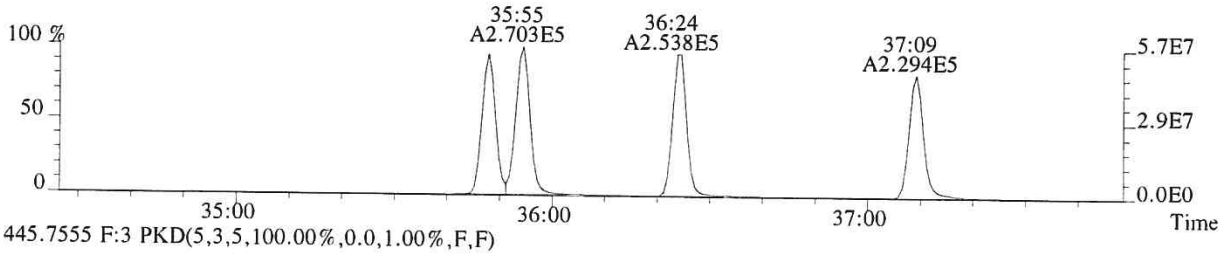
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



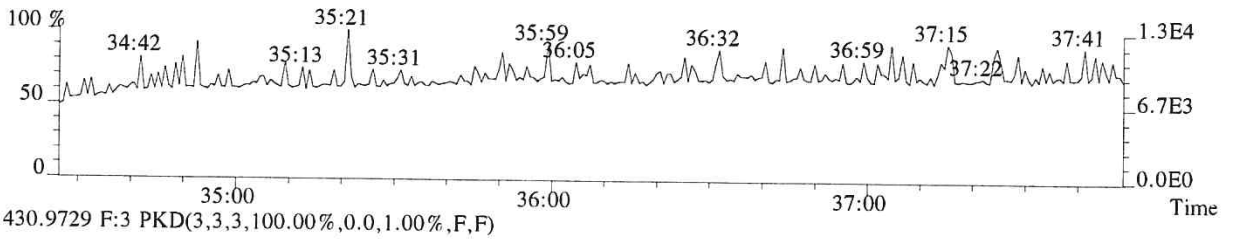
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



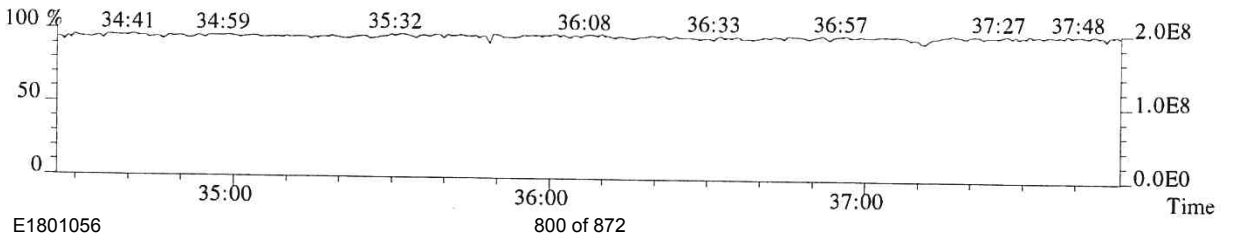
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4480.0,0.40%,F,T)



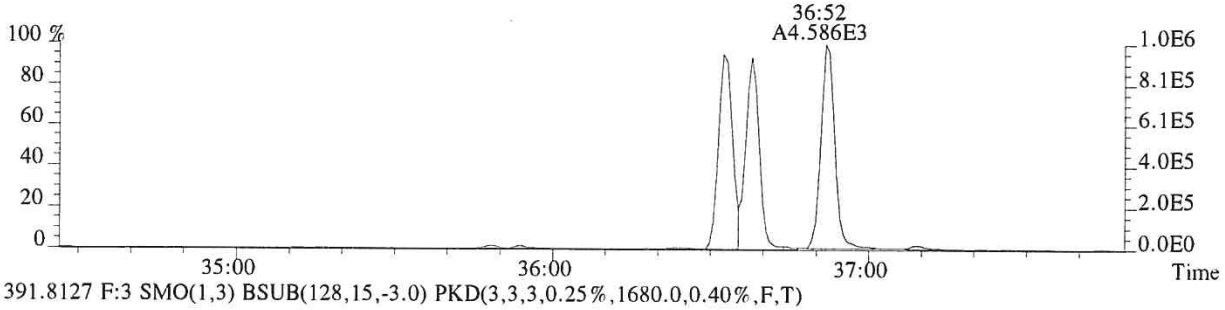
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



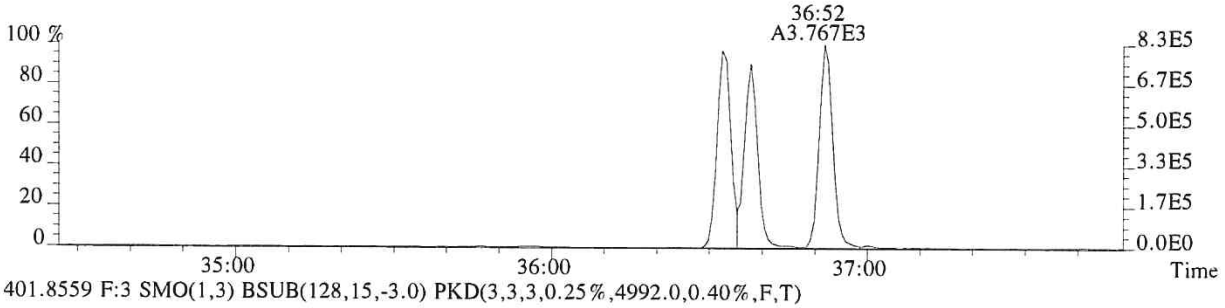
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



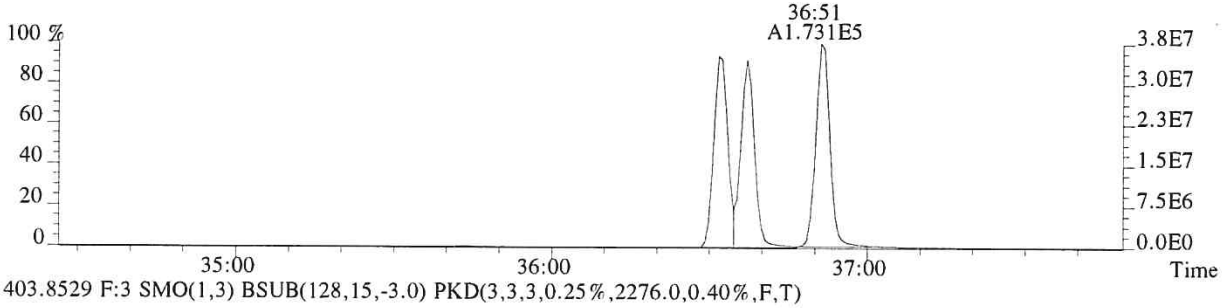
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



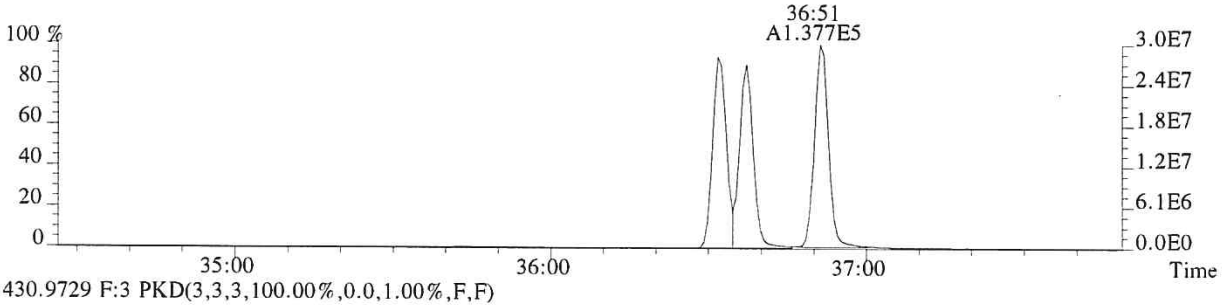
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



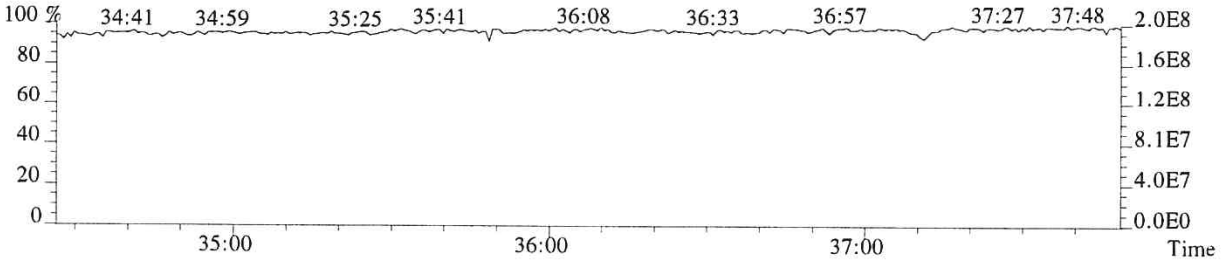
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



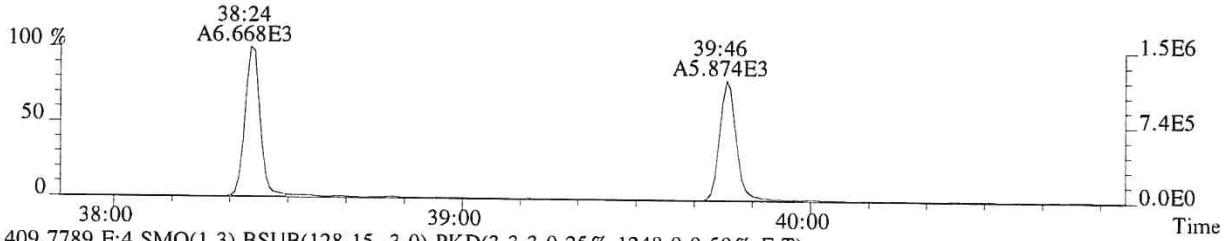
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



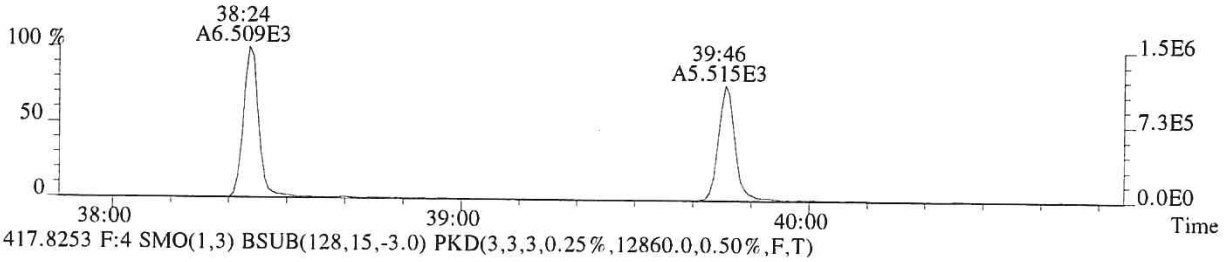
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



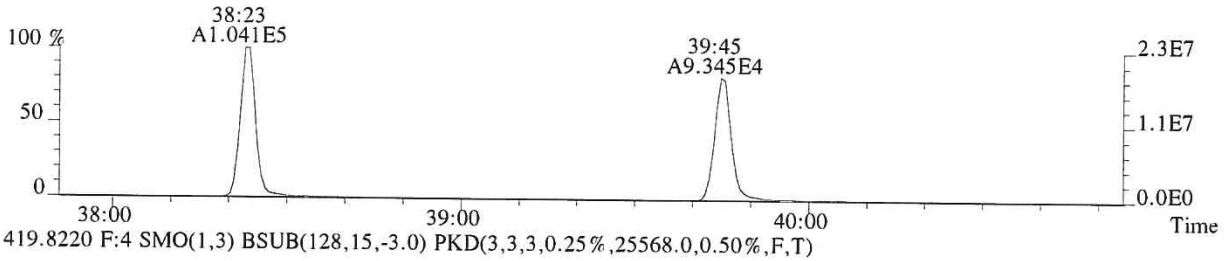
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



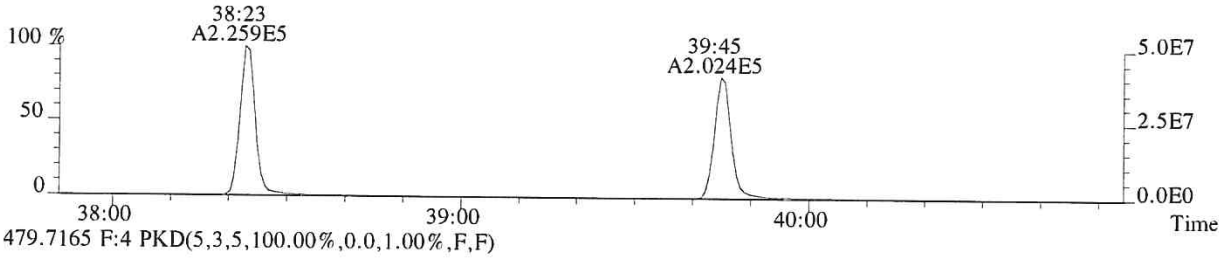
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



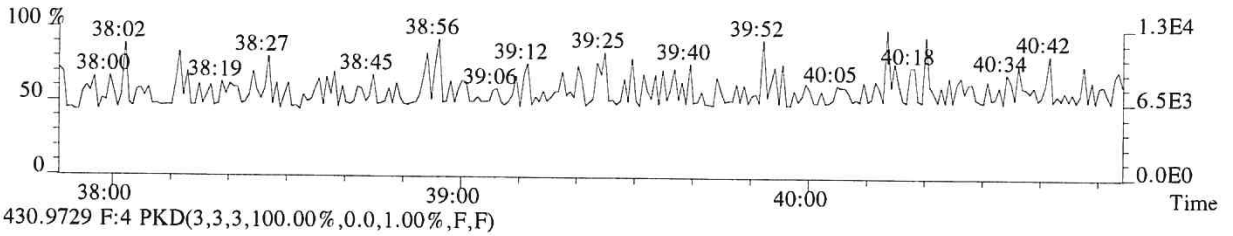
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12860.0,0.50%,F,T)



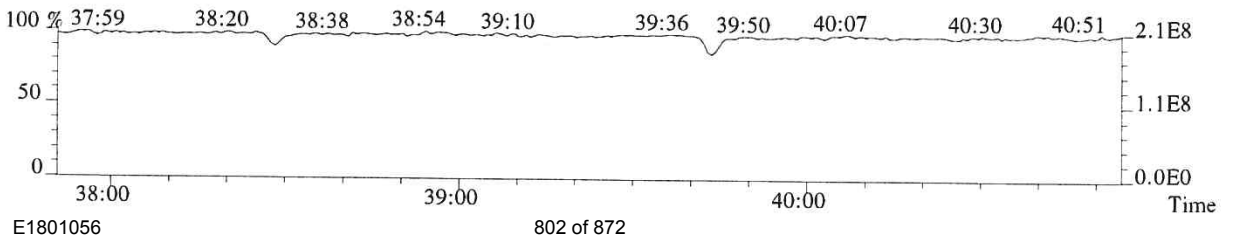
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25568.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

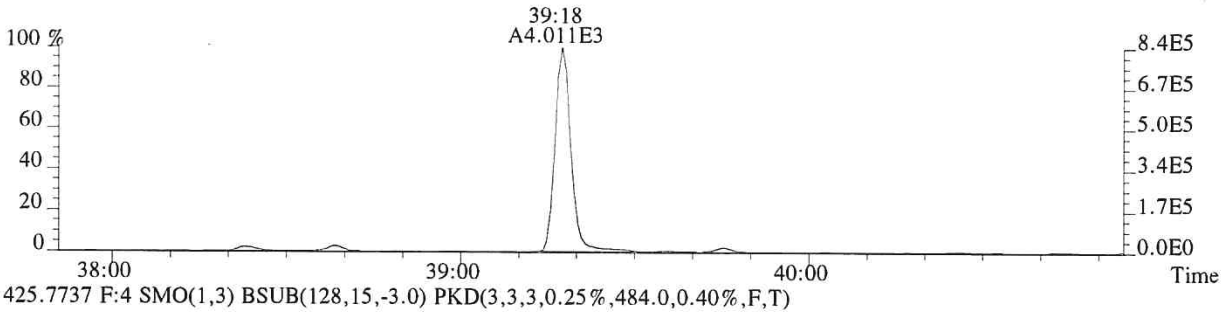


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

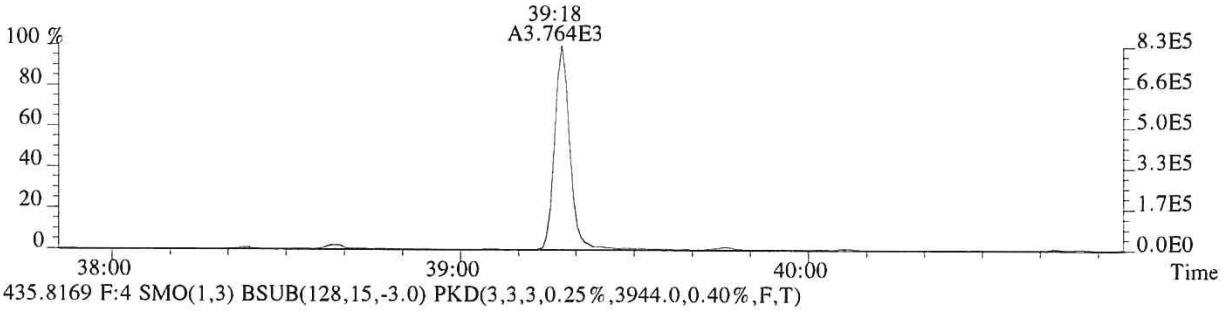


013020

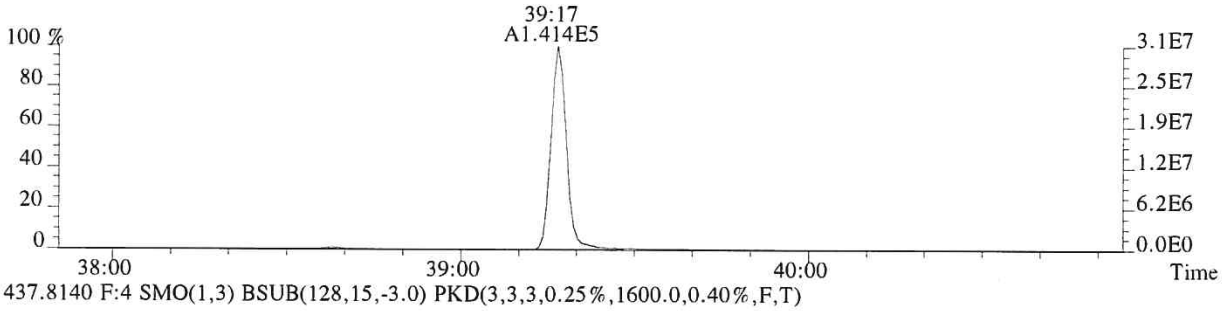
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



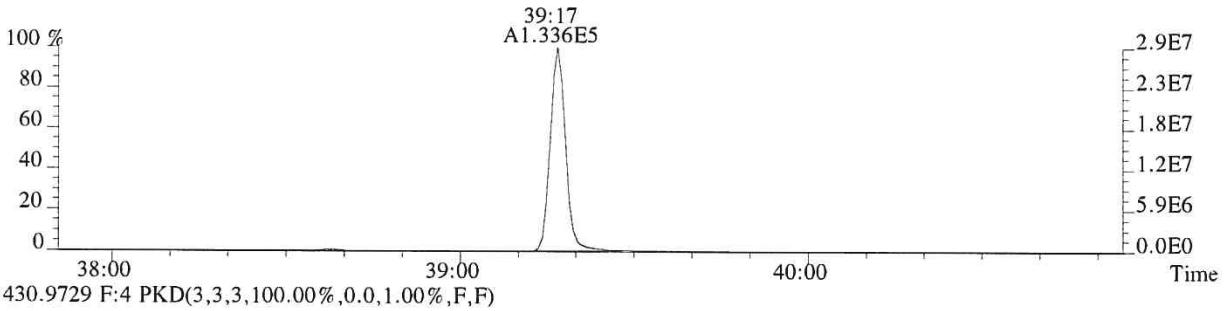
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



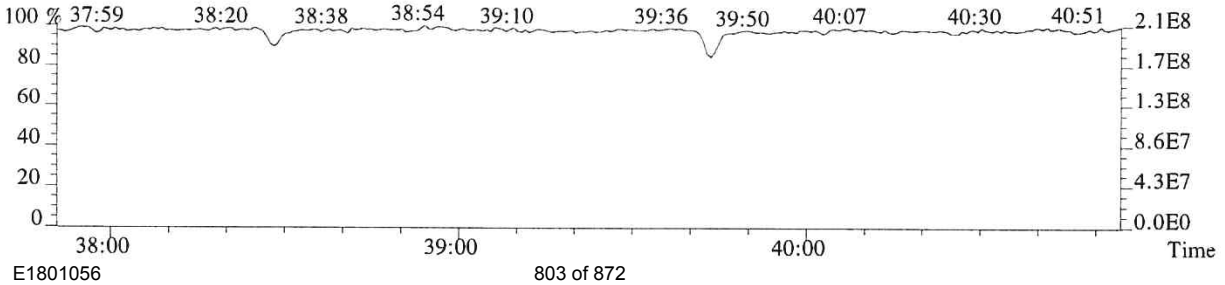
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



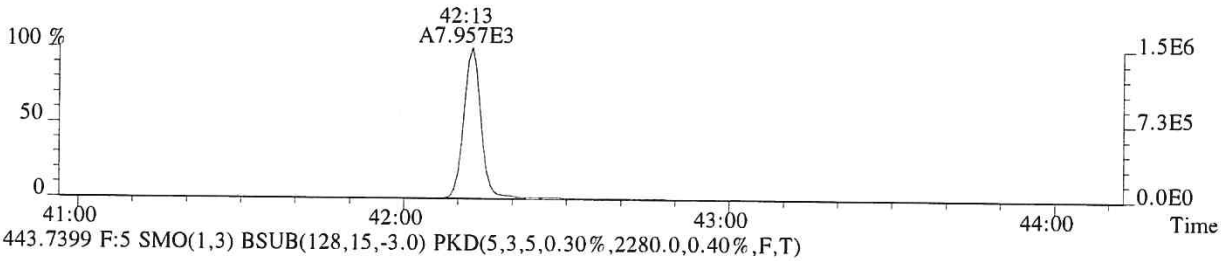
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



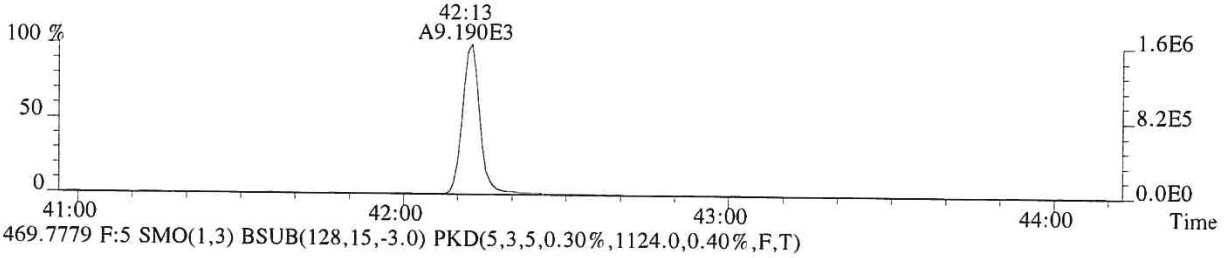
013021

File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

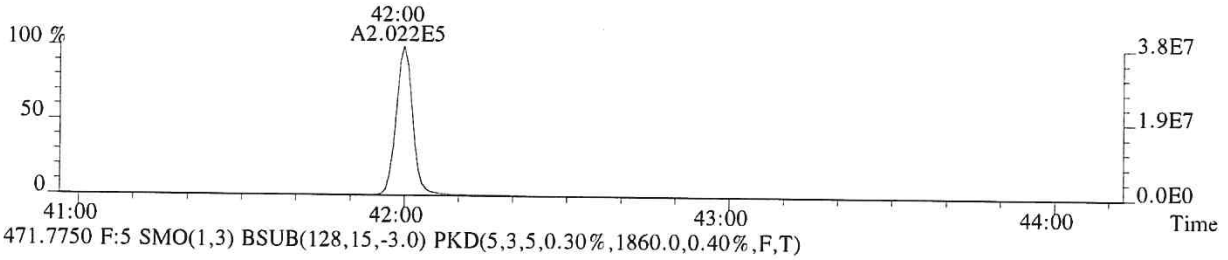
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



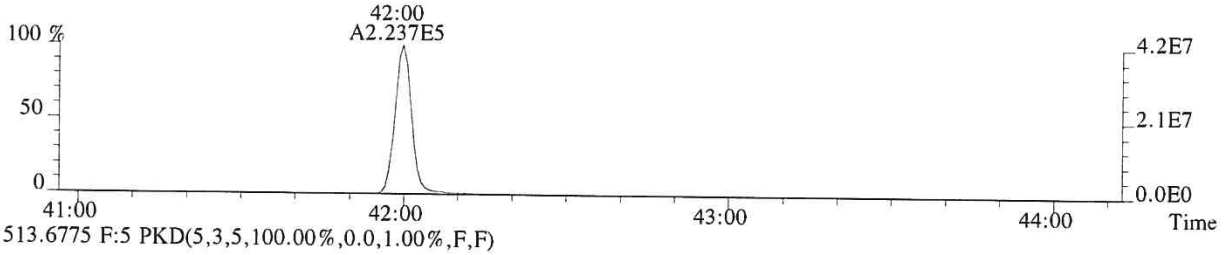
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2280.0,0.40%,F,T)



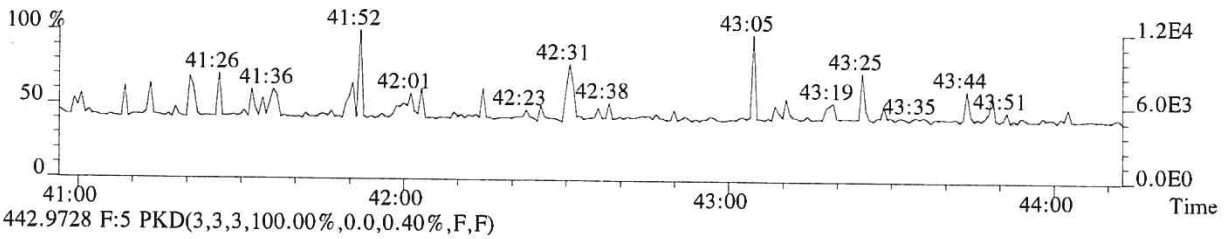
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



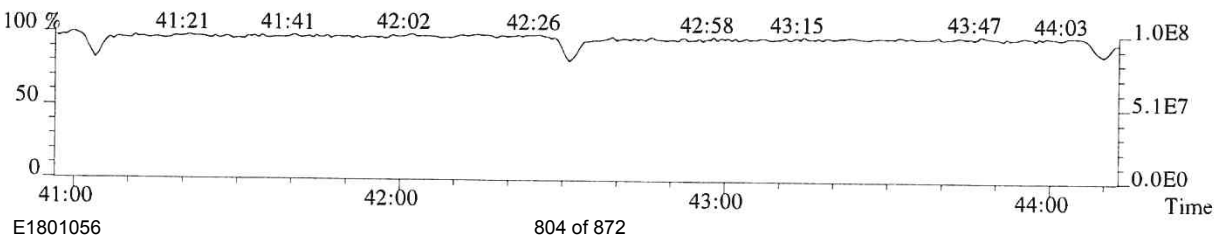
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

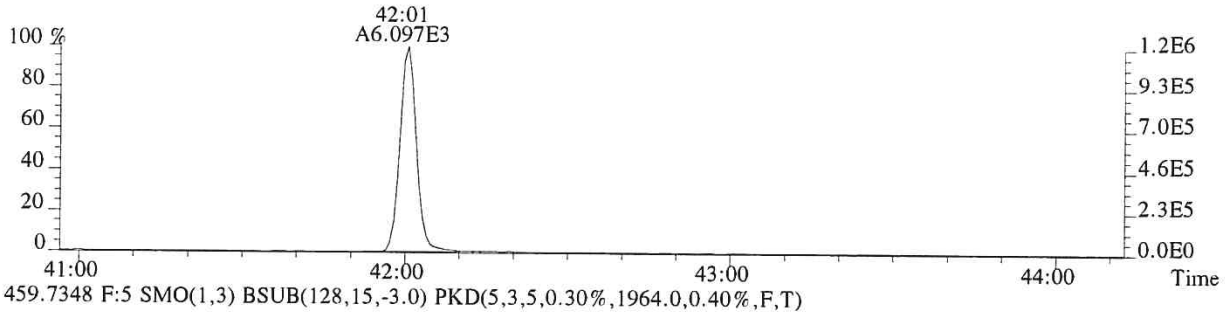


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

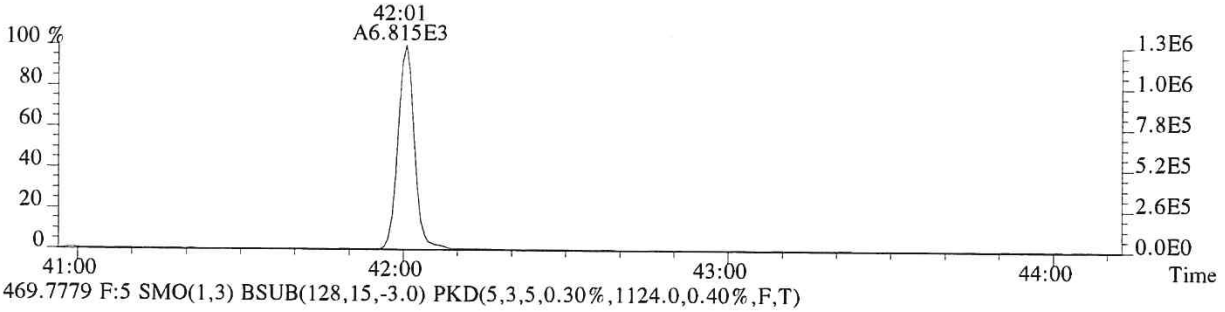


013022

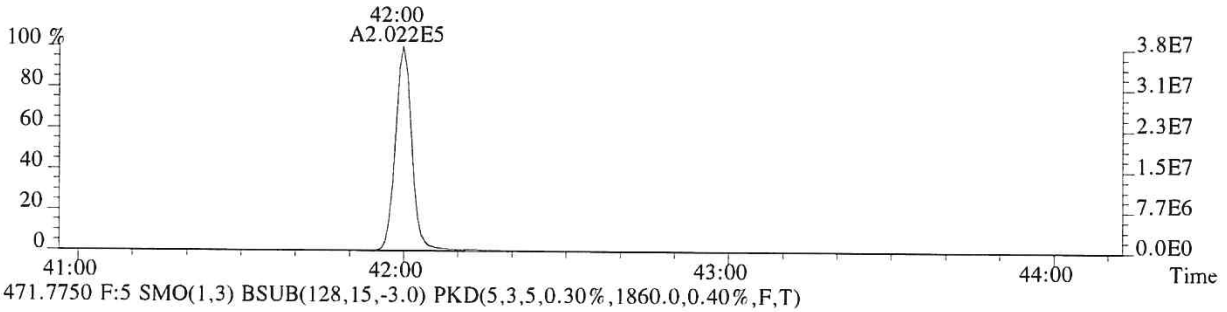
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3136.0,0.40%,F,T)



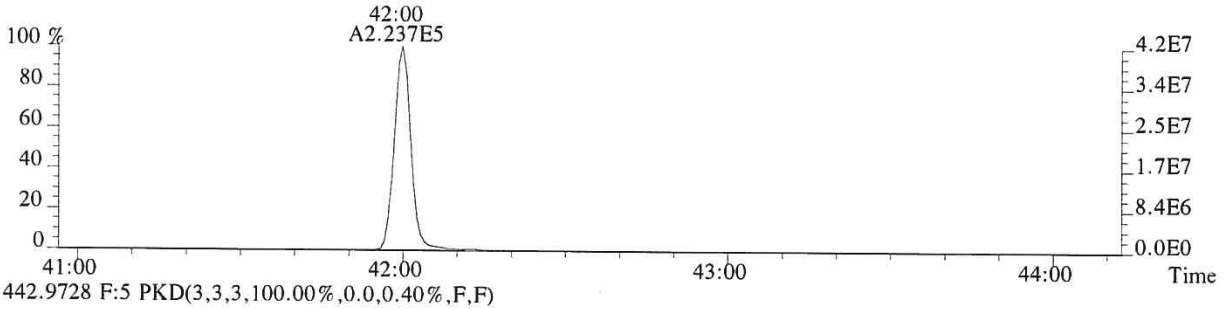
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



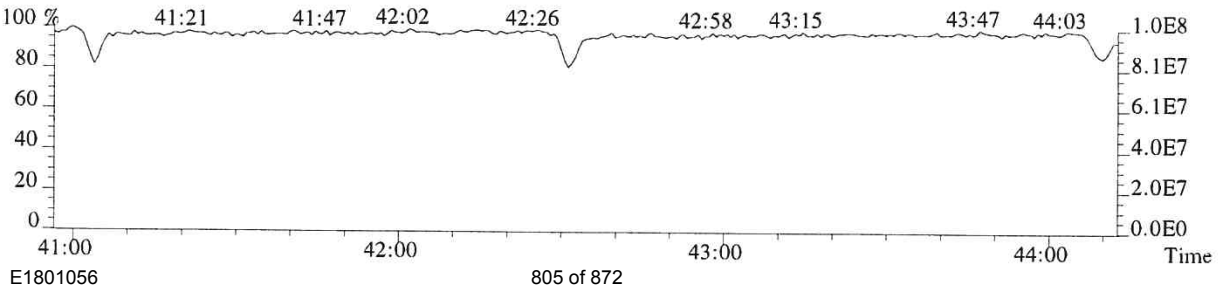
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



013023

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.102e+03	3.732e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	2.387e+04	1.519e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:08	2.329e+04	1.484e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.143e+04	1.713e+04	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.340e+04	1.874e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.188e+04	1.713e+04	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.950e+04	1.588e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.863e+04	1.764e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.650e+04	1.567e+04	1.05	yes	no	1.463
10	Unk	OCDF	42:12	2.250e+04	2.478e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.874e+03	2.328e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.440e+04	9.416e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.279e+04	1.013e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.275e+04	1.020e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	1.359e+04	1.091e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.169e+04	1.088e+04	1.07	yes	no	1.112
17	Unk	OCDD	42:01	1.626e+04	1.848e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.350e+05	1.713e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.144e+05	1.340e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.142e+05	1.318e+05	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.603e+04	1.811e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.132e+05	2.120e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.055e+05	1.978e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.513e+04	1.787e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	7.767e+04	1.706e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	6.849e+04	1.521e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	9.327e+04	1.167e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.531e+05	9.729e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.232e+05	9.748e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.208e+05	9.608e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.060e+05	1.018e+05	1.04	yes	no	0.857
32	IS	13C-OCDD	42:00	1.501e+05	1.663e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:12	9.647e+04	1.194e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.360e+05	1.078e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.600e+03				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.46e+05	1.35e+03	4.0e+02	6.81e+05	4.17e+03	1.6e+02
2	1,2,3,7,8-PeCDF	4.40e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	4.45e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	4.64e+06	2.66e+03	1.7e+03	3.65e+06	1.33e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.85e+06	2.66e+03	1.8e+03	3.88e+06	1.33e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.77e+06	2.66e+03	1.8e+03	3.75e+06	1.33e+03	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.92e+06	2.66e+03	1.5e+03	3.16e+06	1.33e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	4.06e+03	1.0e+03	3.98e+06	5.19e+03	7.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.43e+06	4.06e+03	8.5e+02	3.23e+06	5.19e+03	6.2e+02
10	OCDF	4.02e+06	1.02e+03	3.9e+03	4.45e+06	3.18e+03	1.4e+03
11	2,3,7,8-TCDD	3.59e+05	5.08e+03	7.1e+01	4.49e+05	2.84e+03	1.6e+02
12	1,2,3,7,8-PeCDD	2.79e+06	2.23e+03	1.3e+03	1.83e+06	1.03e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	1.16e+03	2.5e+03	2.30e+06	2.22e+03	1.0e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	1.16e+03	2.4e+03	2.20e+06	2.22e+03	9.9e+02
15	1,2,3,7,8,9-HxCDD	2.97e+06	1.16e+03	2.6e+03	2.38e+06	2.22e+03	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.22e+03	2.0e+03	2.30e+06	1.43e+03	1.6e+03
17	OCDD	3.03e+06	8.24e+02	3.7e+03	3.48e+06	2.34e+03	1.5e+03
18	13C-2,3,7,8-TCDF	2.30e+07	1.44e+04	1.6e+03	2.91e+07	8.40e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.88e+07	2.39e+03	1.6e+04	2.43e+07	1.71e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	4.22e+07	2.39e+03	1.8e+04	2.60e+07	1.71e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.07e+07	2.16e+03	9.6e+03	3.93e+07	5.29e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.36e+07	2.16e+03	1.1e+04	4.45e+07	5.29e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.32e+07	2.16e+03	1.1e+04	4.39e+07	5.29e+03	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.16e+03	8.9e+03	3.69e+07	5.29e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+07	7.69e+03	2.3e+03	3.85e+07	2.07e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+07	7.69e+03	1.8e+03	3.12e+07	2.07e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.74e+07	1.66e+04	1.0e+03	2.17e+07	7.77e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.92e+07	3.94e+03	7.4e+03	1.87e+07	3.45e+03	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+07	5.37e+03	5.3e+03	2.21e+07	2.98e+03	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+07	5.37e+03	4.9e+03	2.11e+07	2.98e+03	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+07	3.06e+03	7.3e+03	2.12e+07	2.68e+03	7.9e+03
32	13C-OCDD	2.74e+07	2.09e+03	1.3e+04	3.02e+07	1.61e+03	1.9e+04
33	13C-1,2,3,4-TCDD	1.78e+07	1.66e+04	1.1e+03	2.20e+07	7.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.99e+07	5.37e+03	5.6e+03	2.35e+07	2.98e+03	7.9e+03
35	37Cl-2,3,7,8-TCDD	8.73e+05	3.54e+03	2.5e+02			

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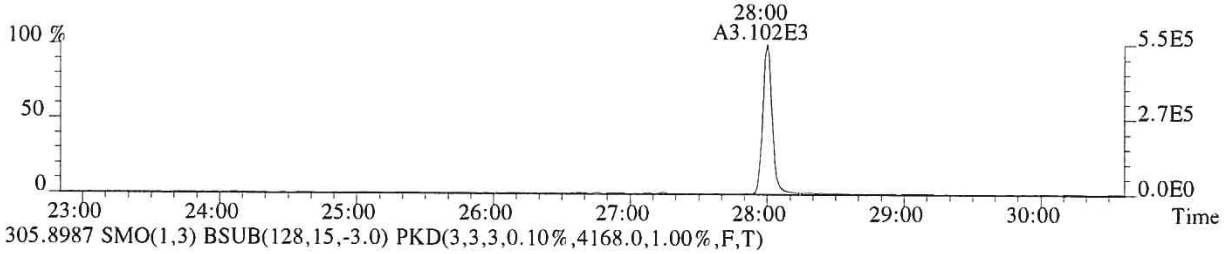
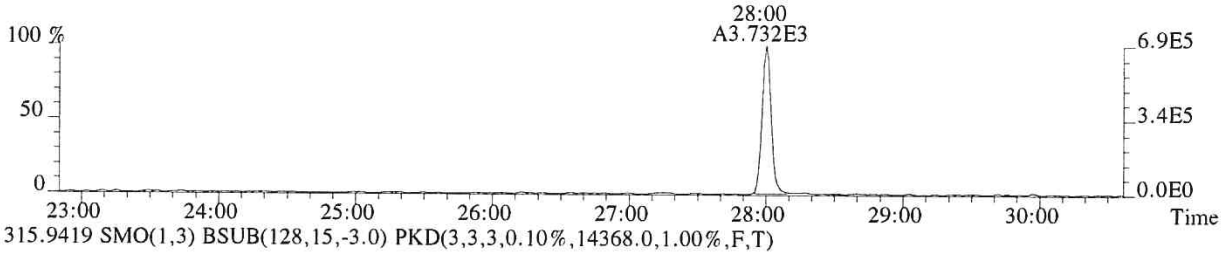
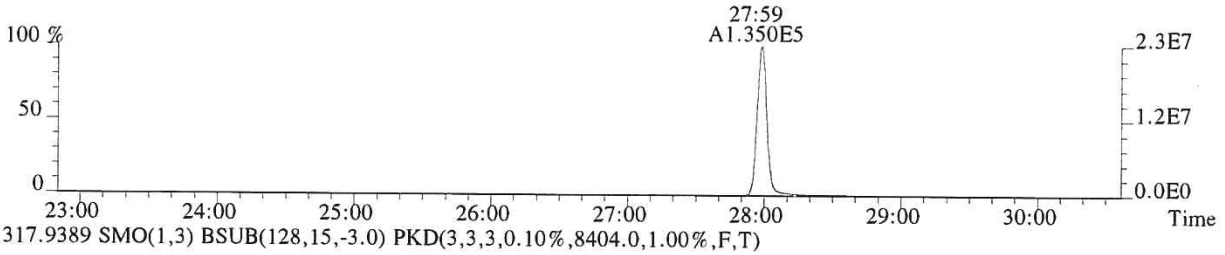
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



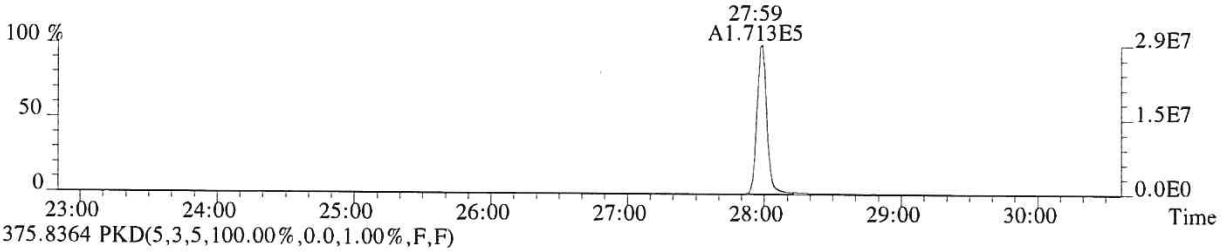
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



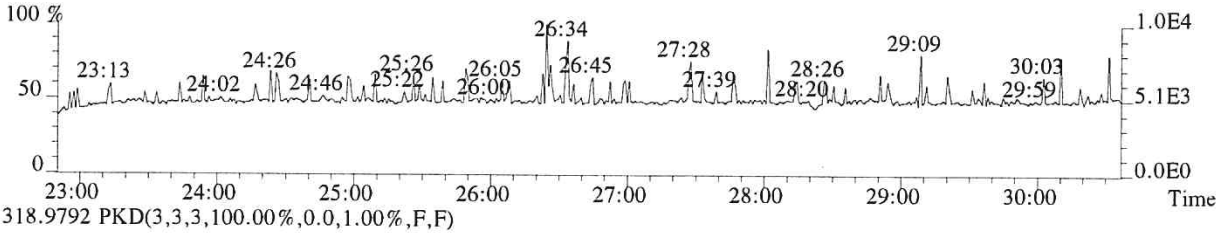
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14368.0,1.00%,F,T)



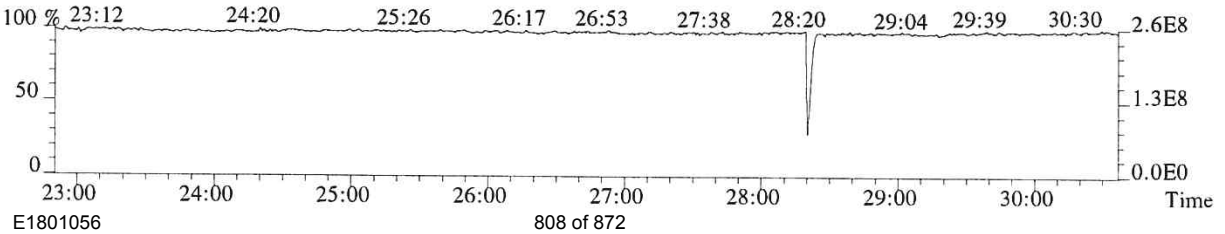
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8404.0,1.00%,F,T)



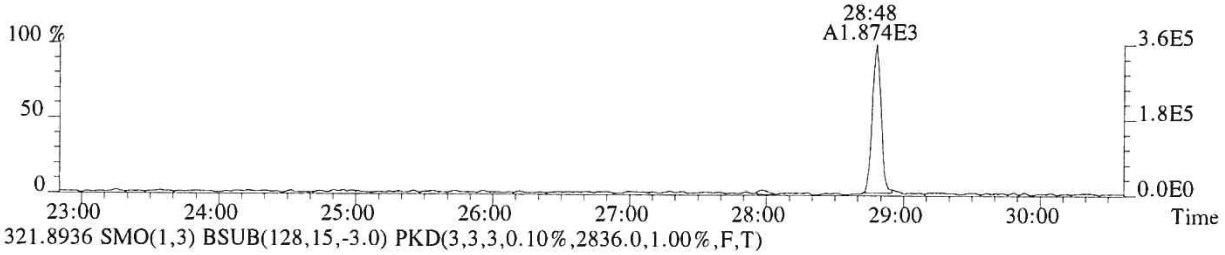
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



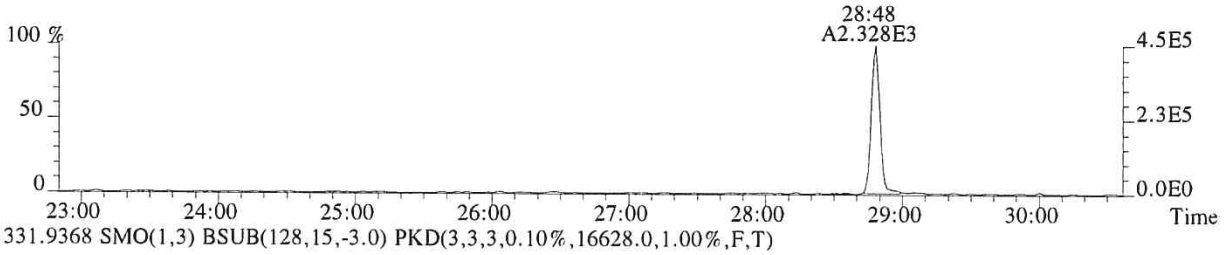
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



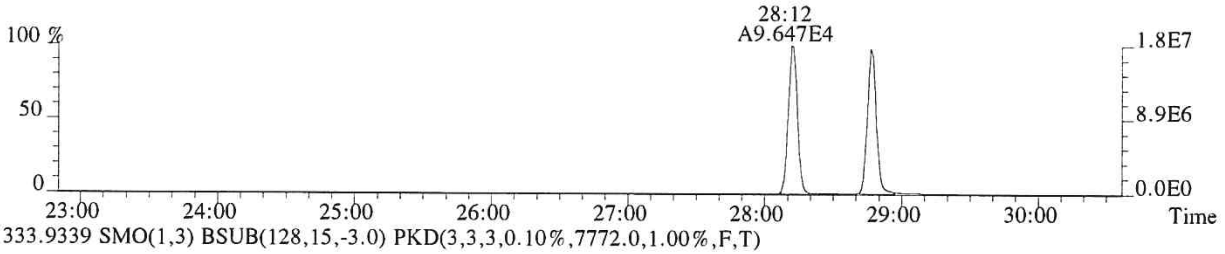
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



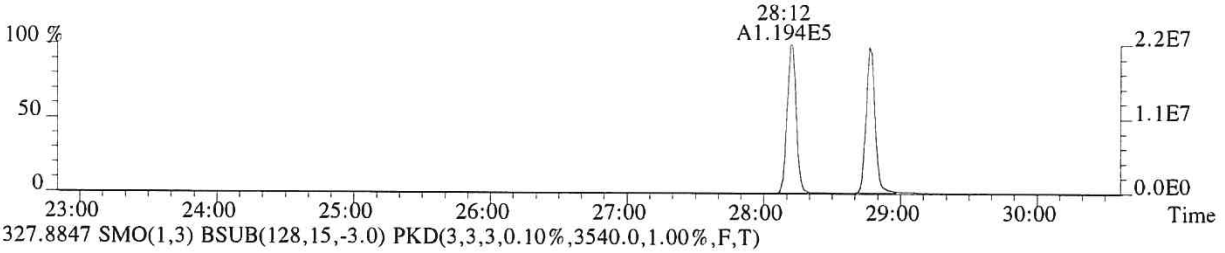
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



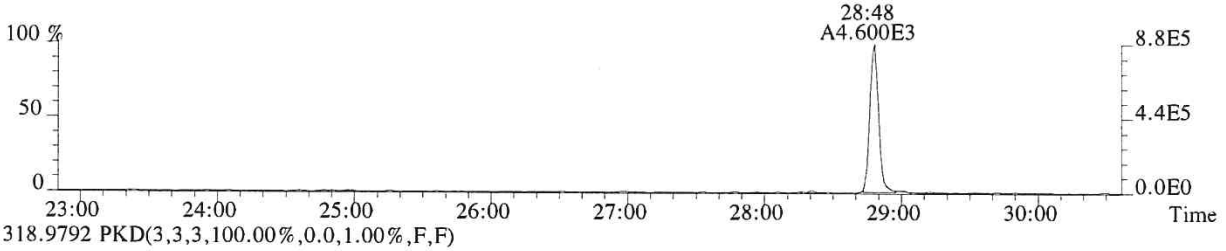
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16628.0,1.00%,F,T)



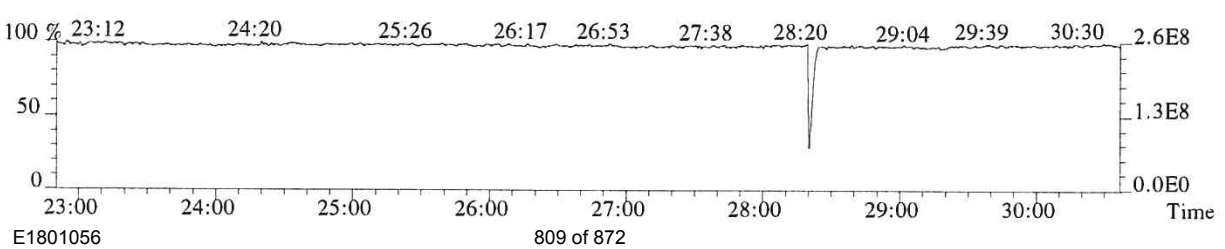
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7772.0,1.00%,F,T)



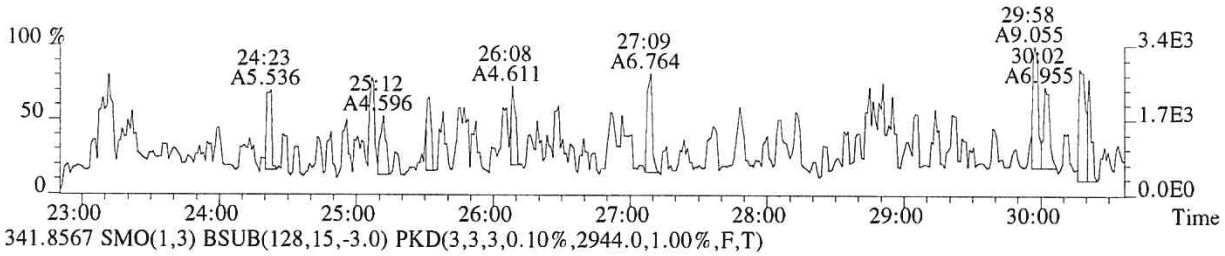
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)



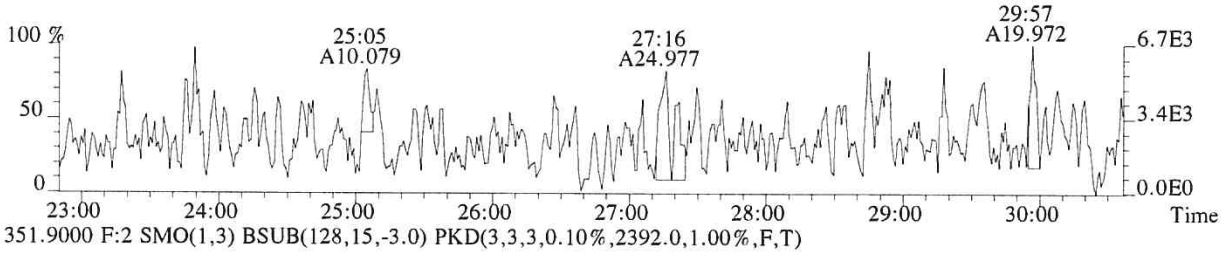
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



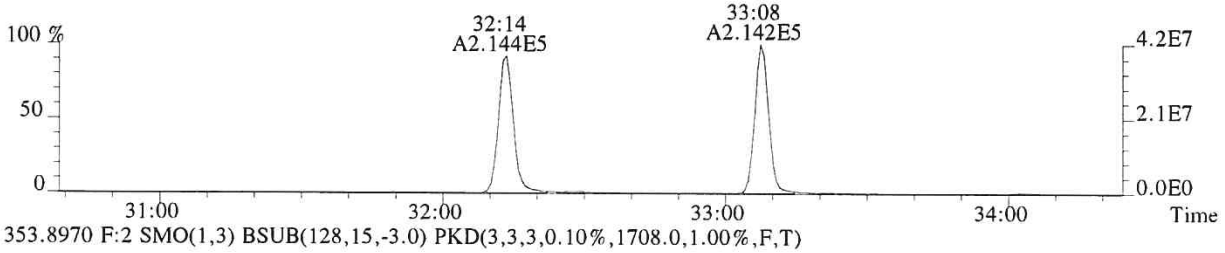
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



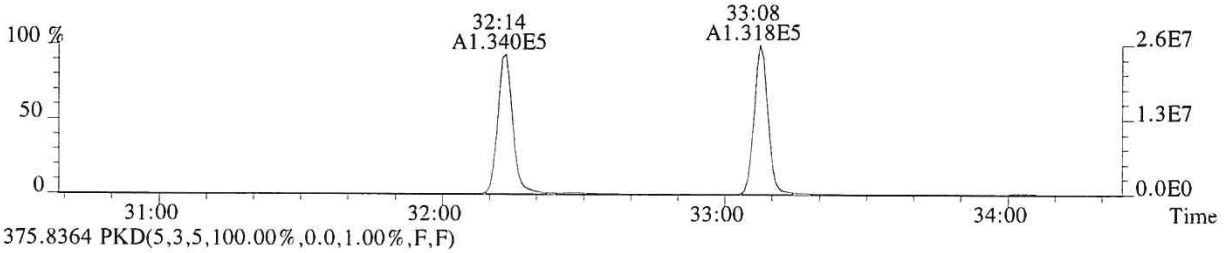
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



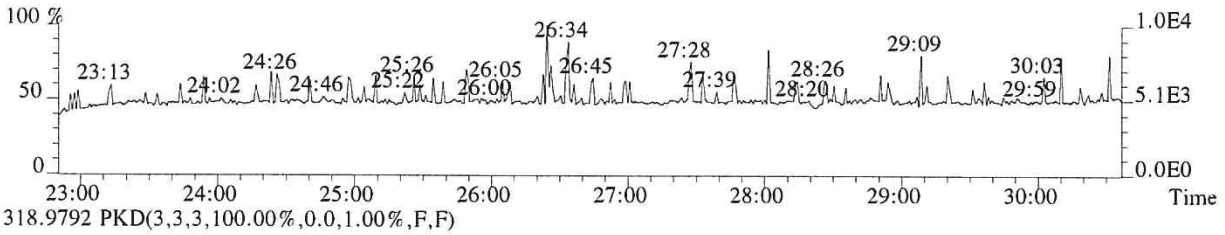
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



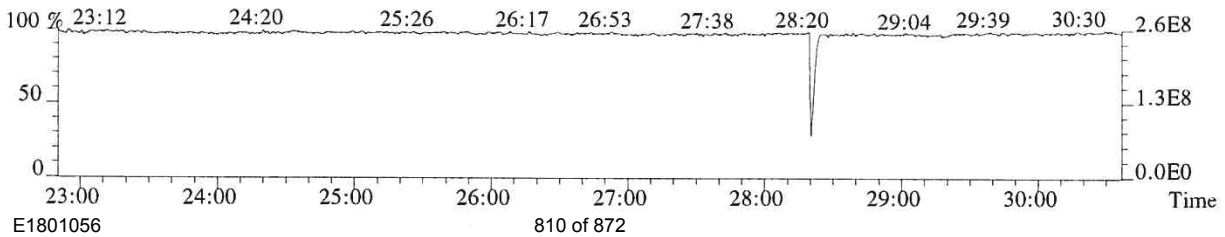
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

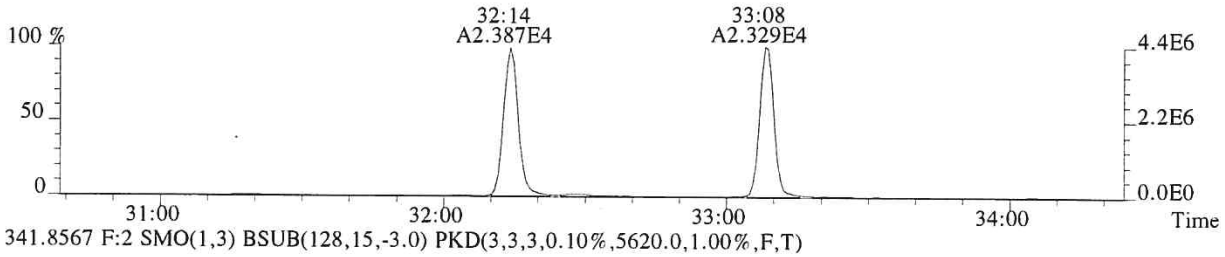


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

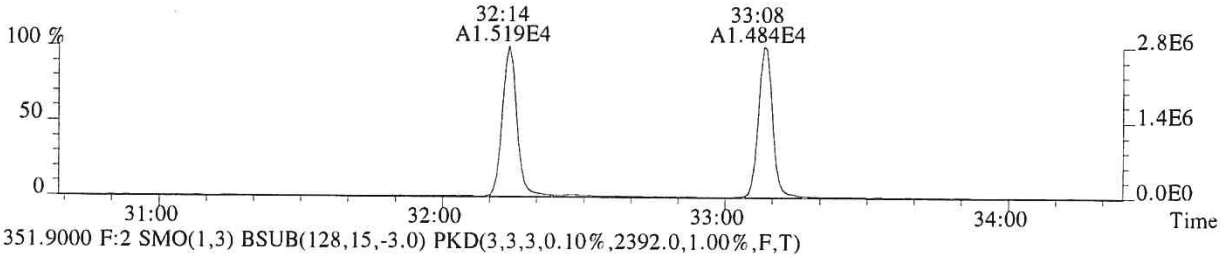


013028

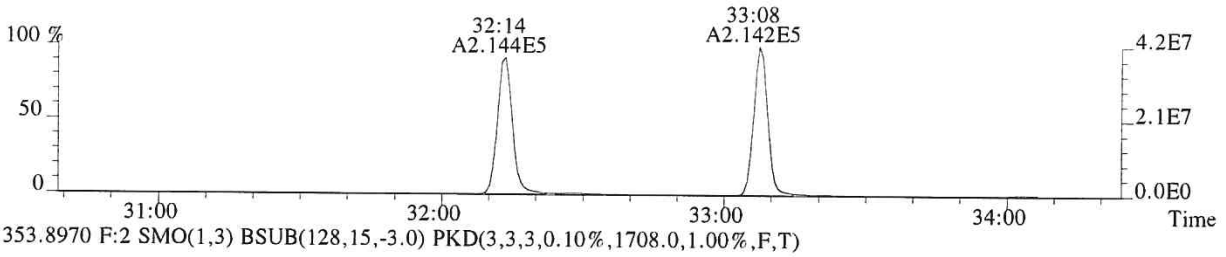
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



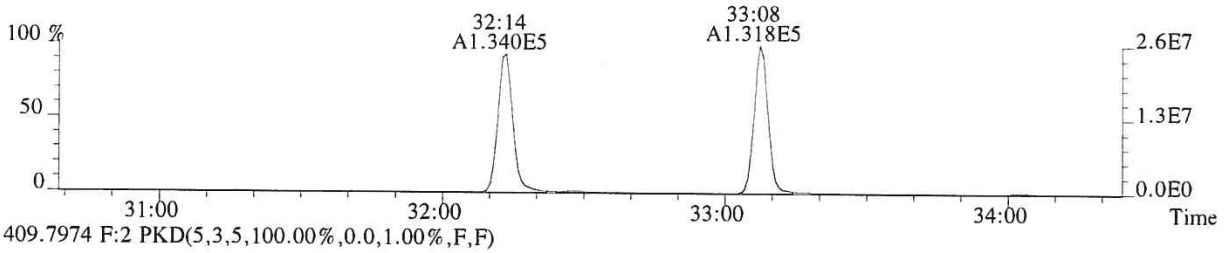
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5620.0,1.00%,F,T)



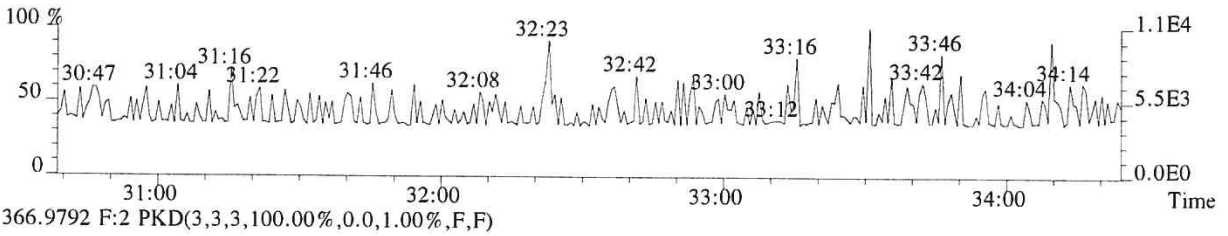
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



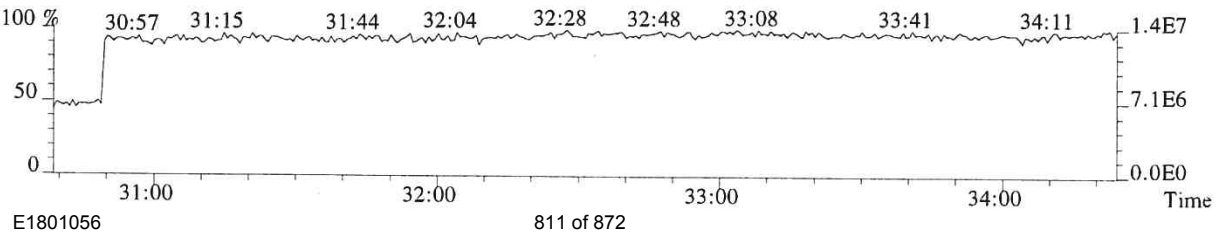
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



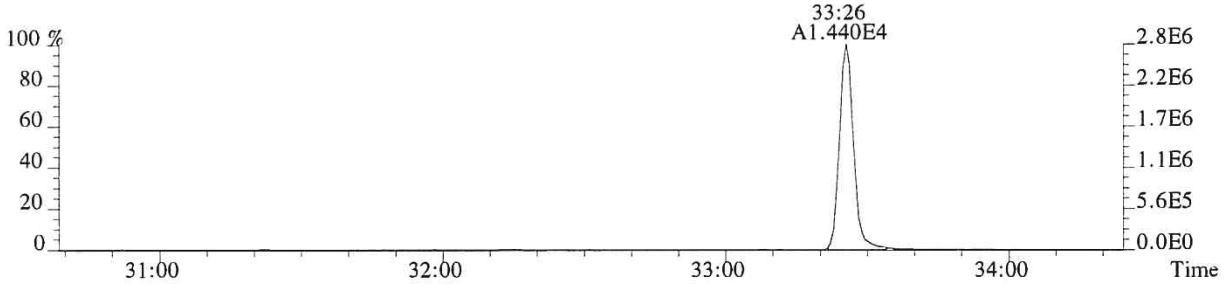
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



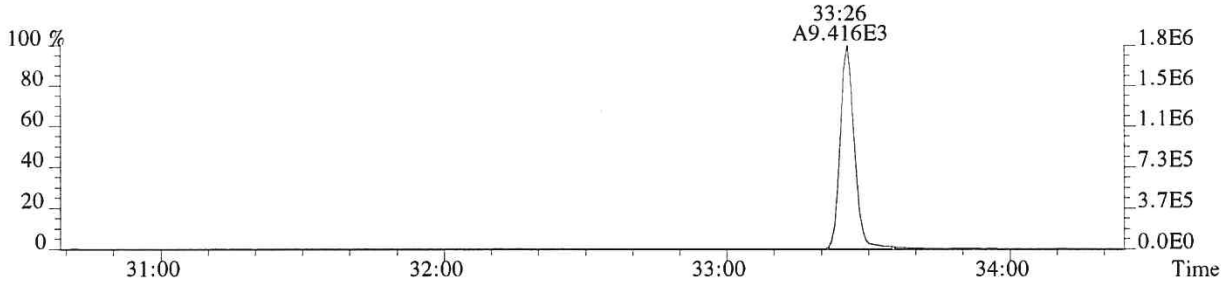
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



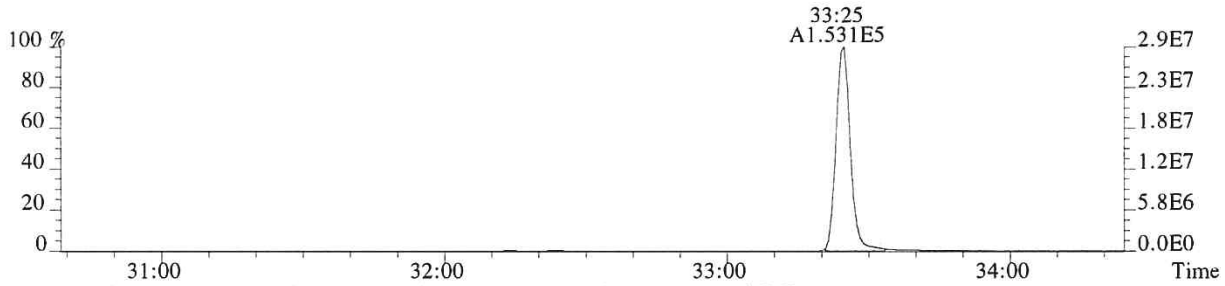
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



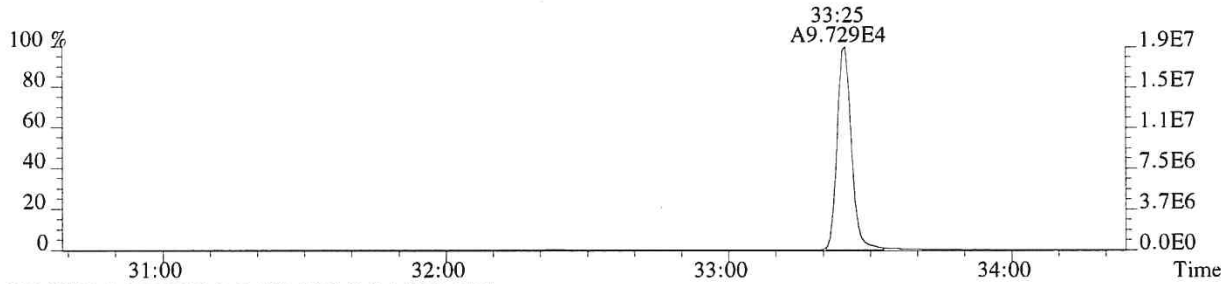
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



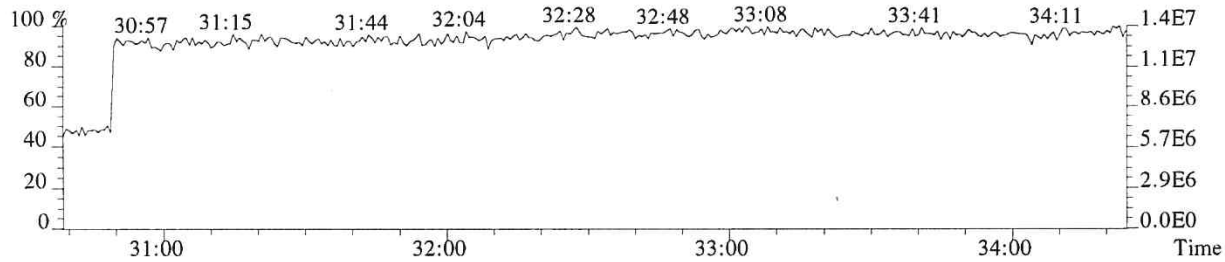
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



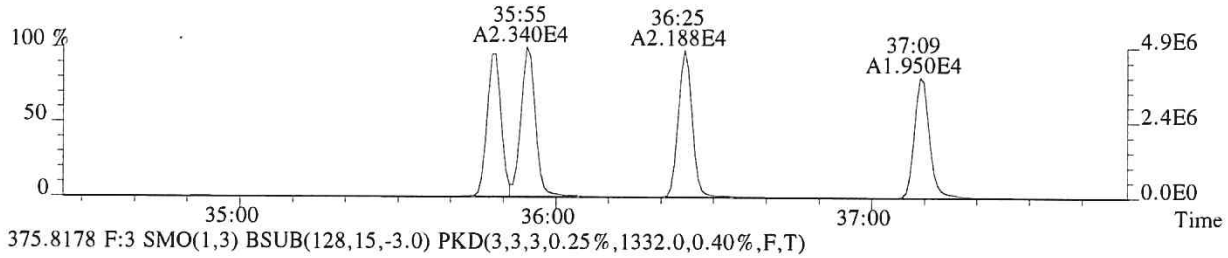
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



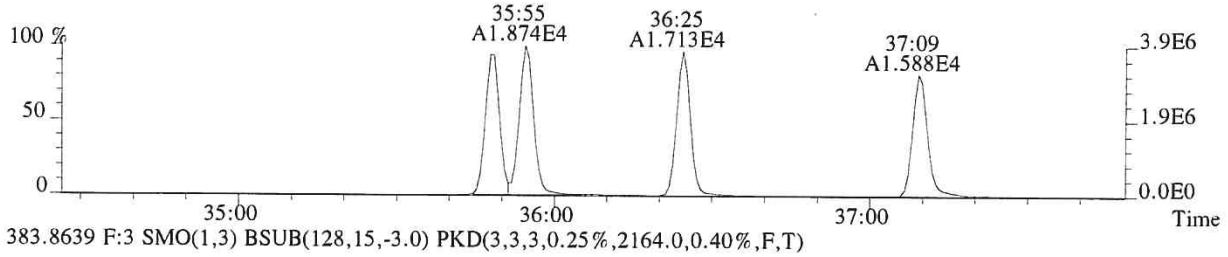
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



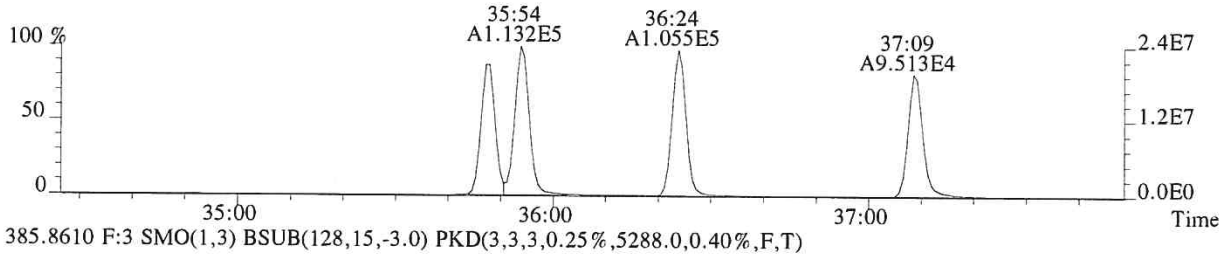
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.40%,F,T)



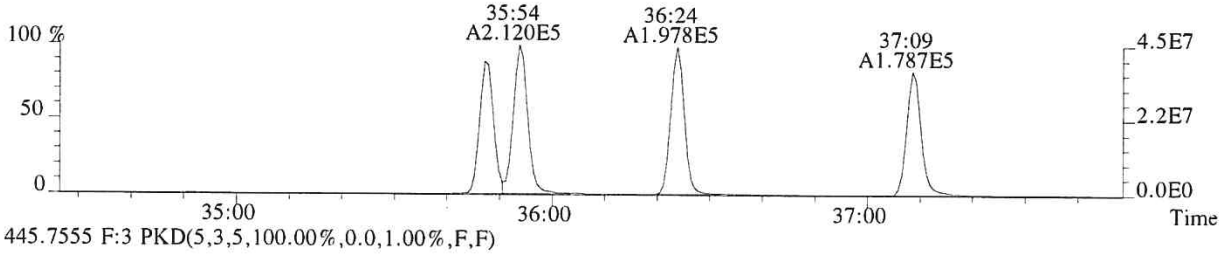
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



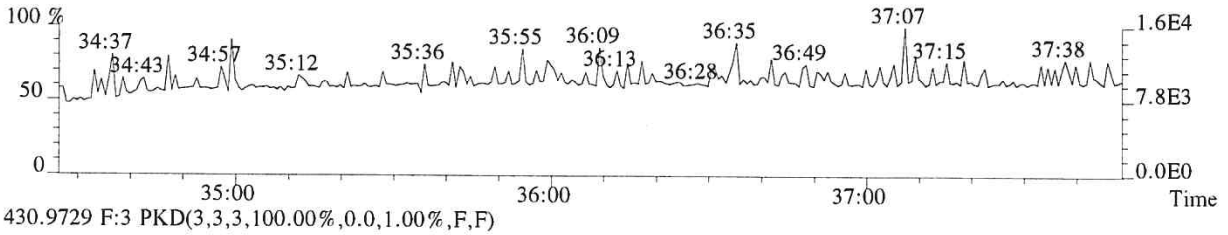
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



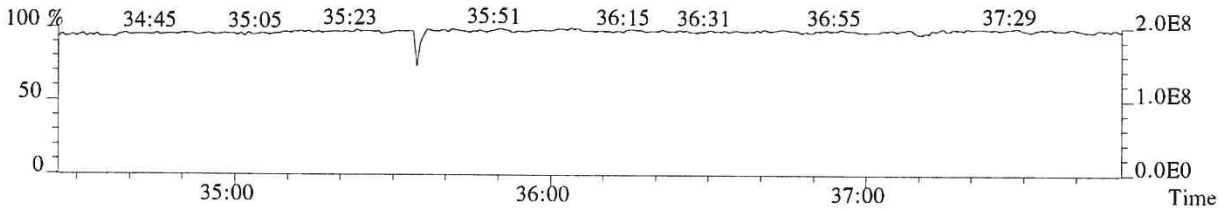
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5288.0,0.40%,F,T)



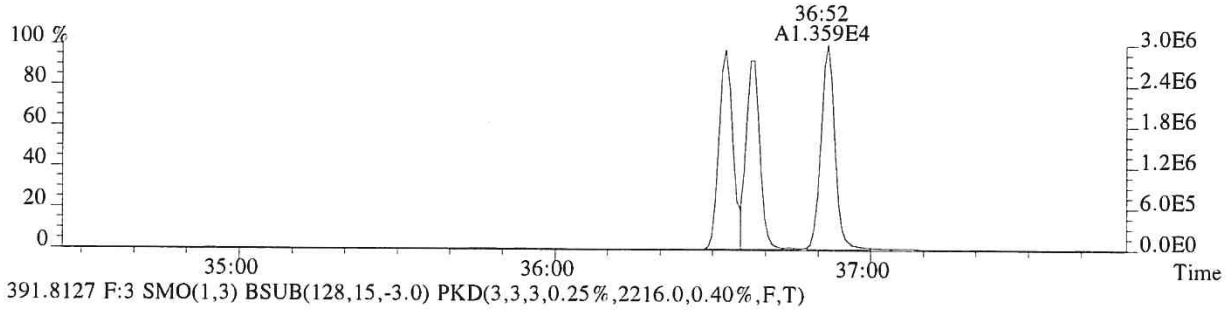
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



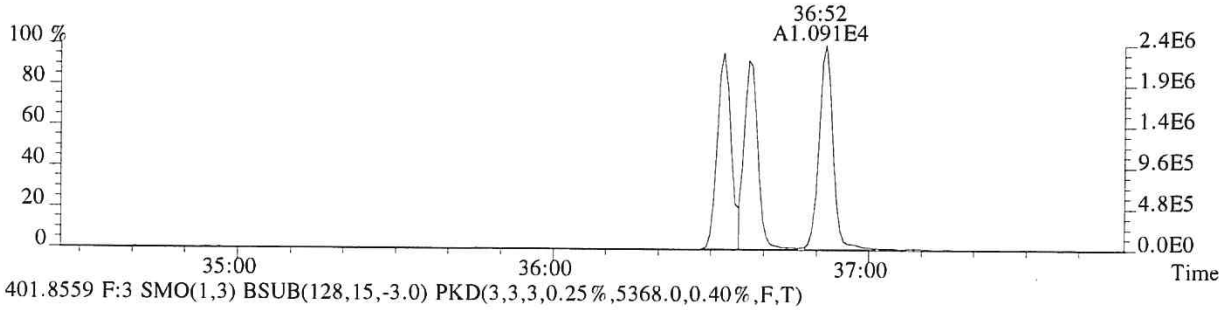
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



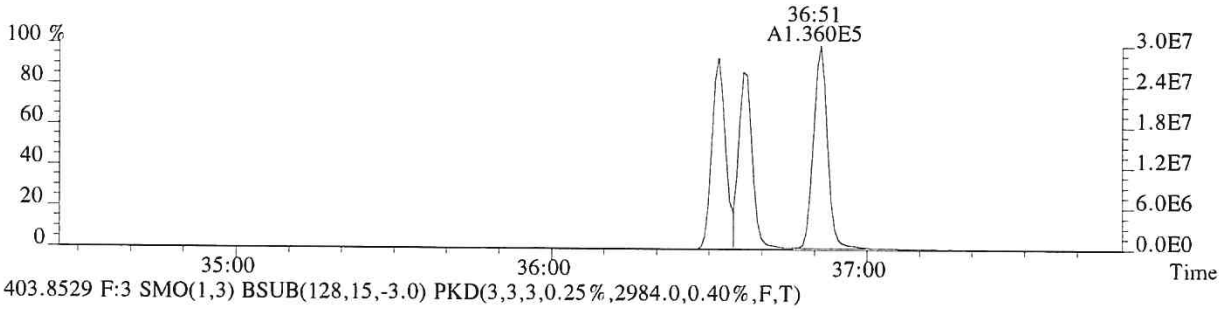
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



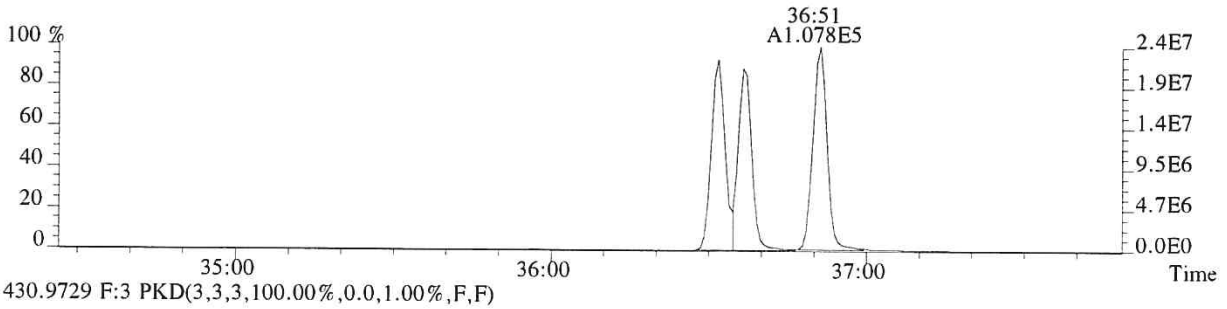
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



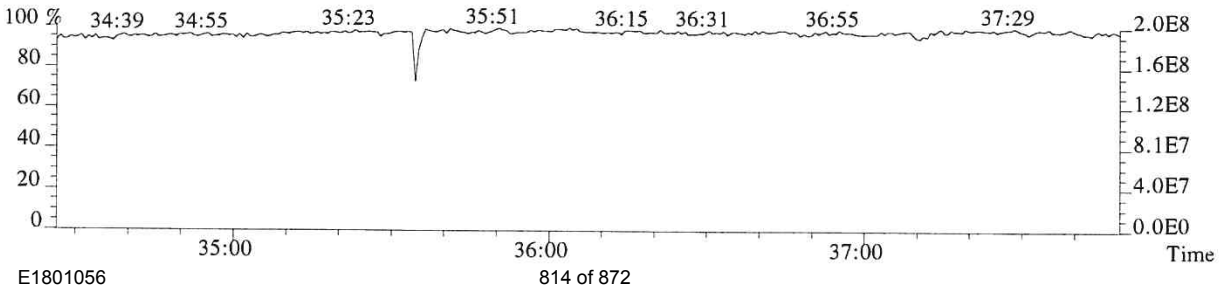
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5368.0,0.40%,F,T)



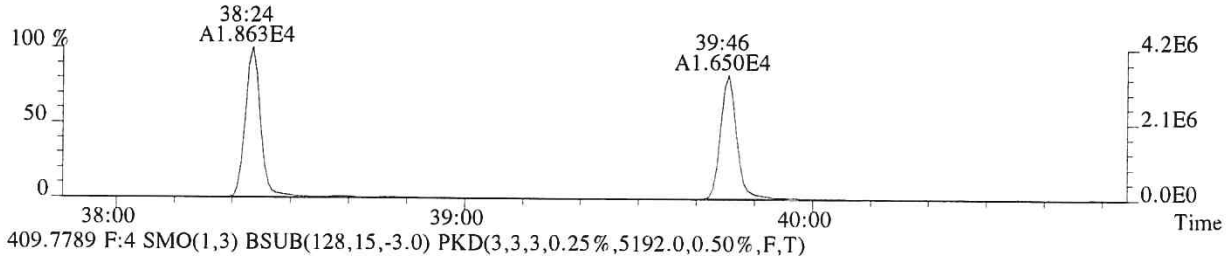
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



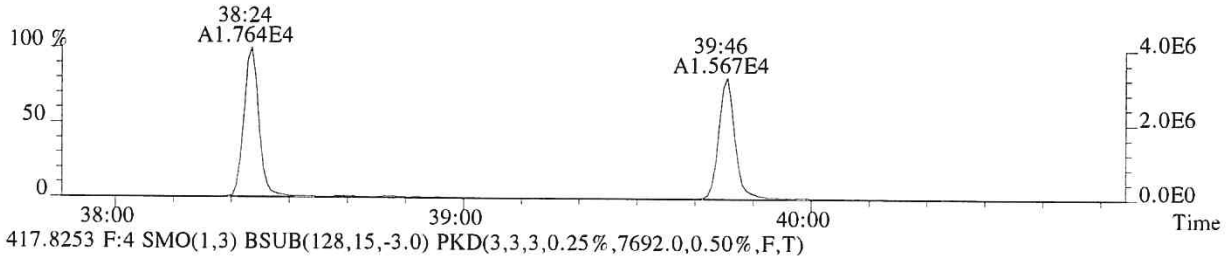
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



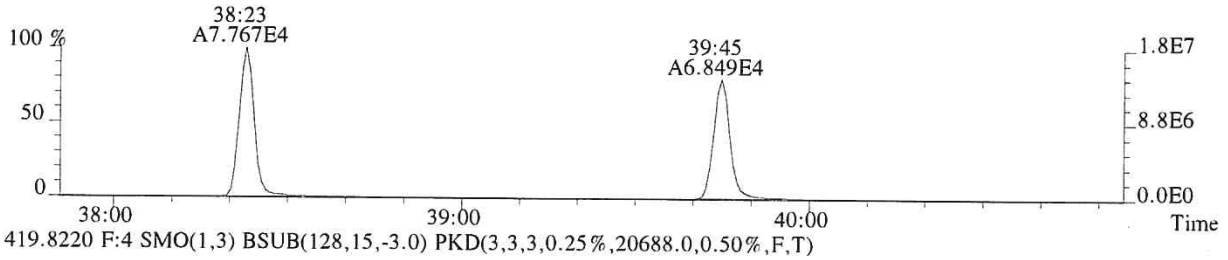
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4060.0,0.50%,F,T)



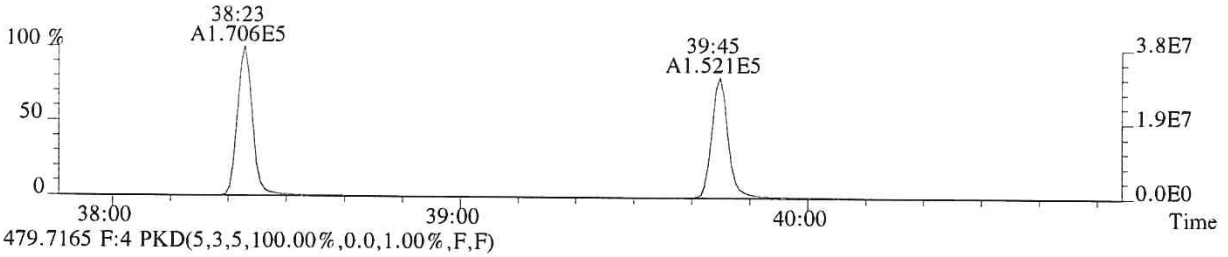
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5192.0,0.50%,F,T)



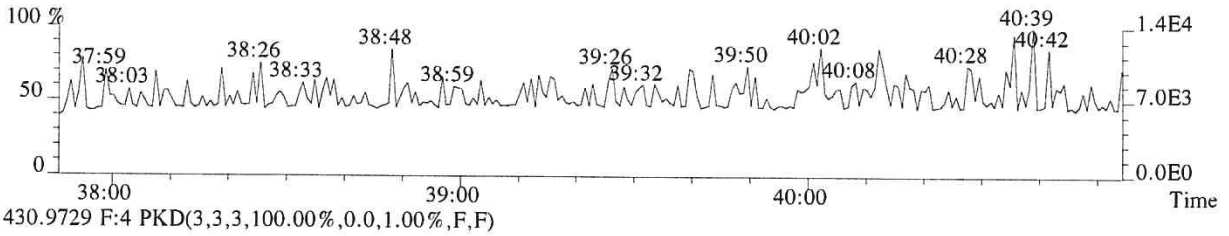
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7692.0,0.50%,F,T)



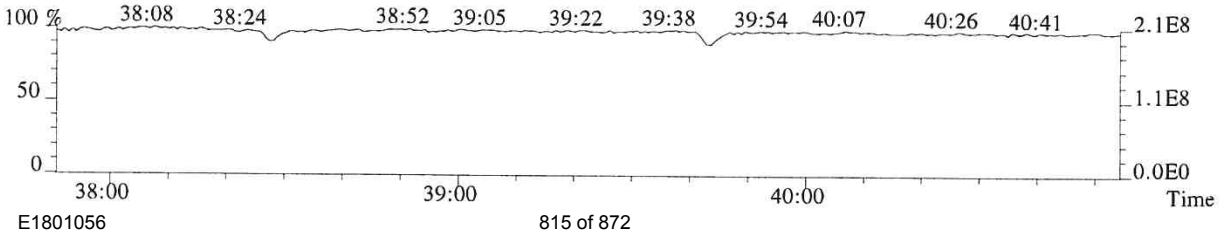
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20688.0,0.50%,F,T)



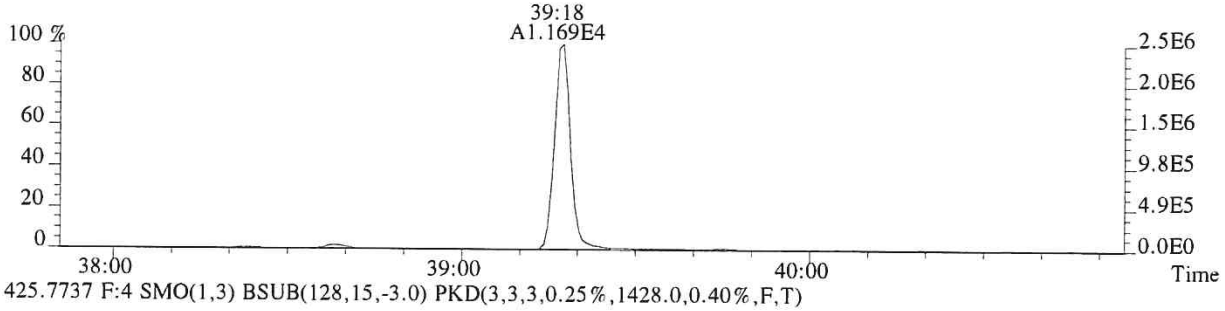
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



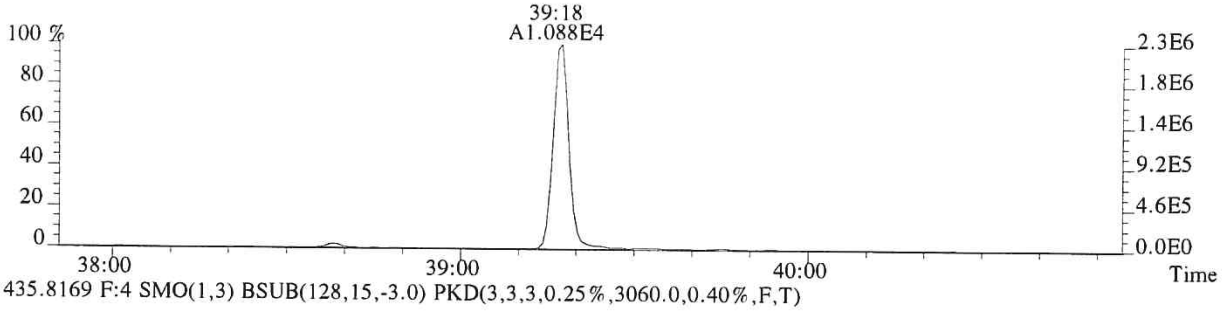
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



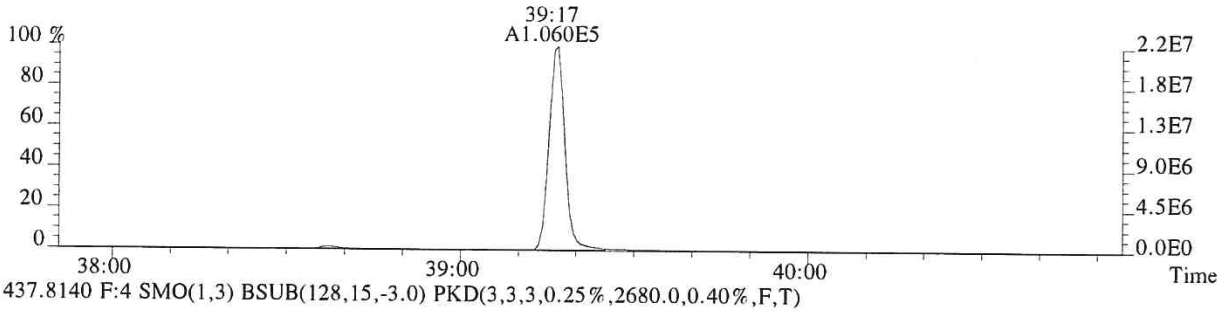
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



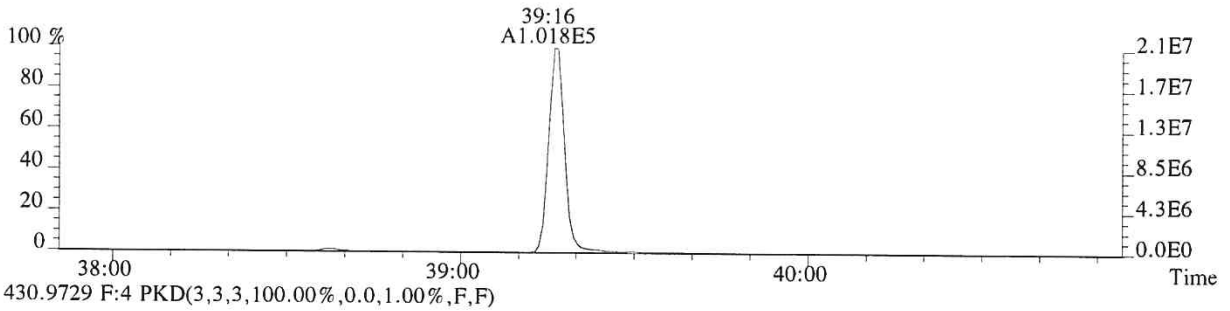
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



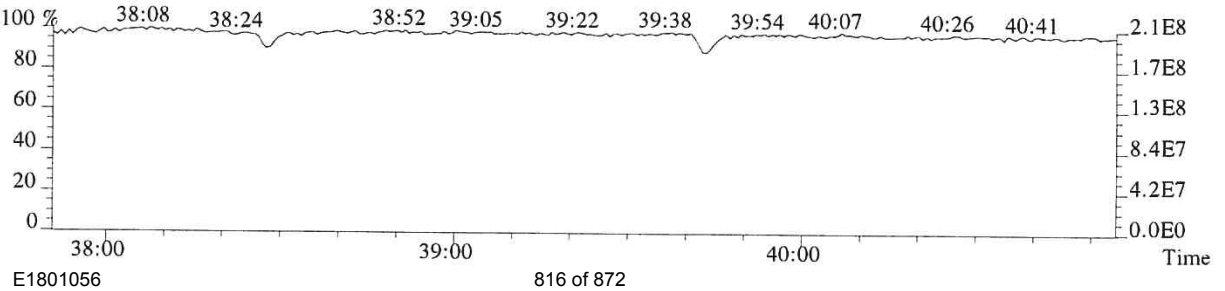
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



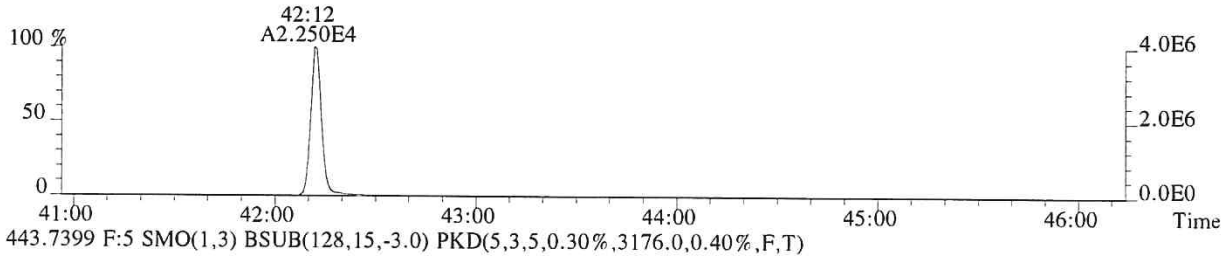
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)



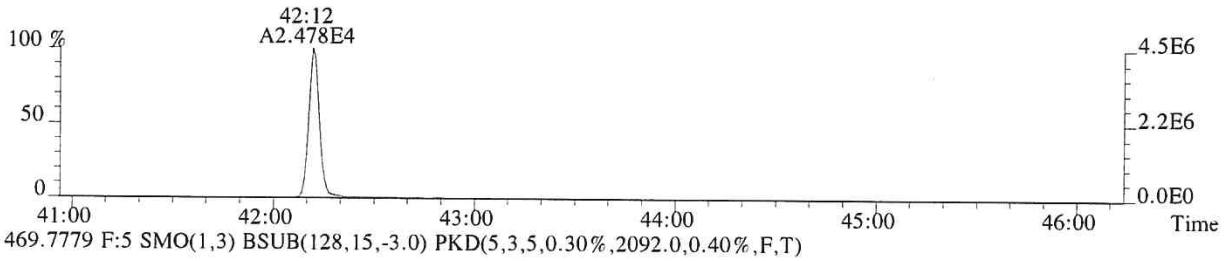
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



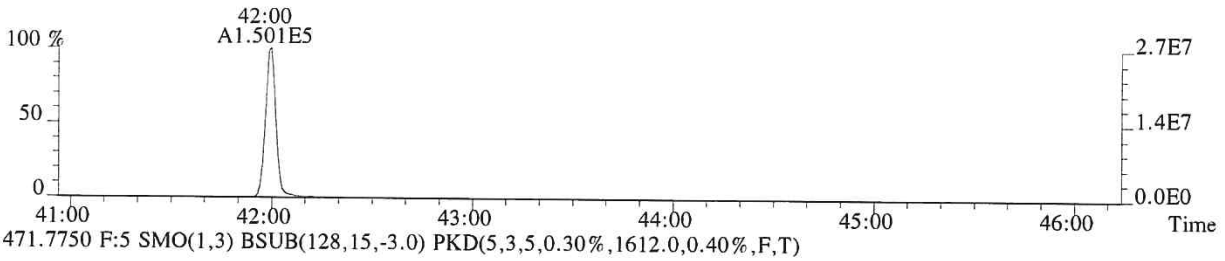
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



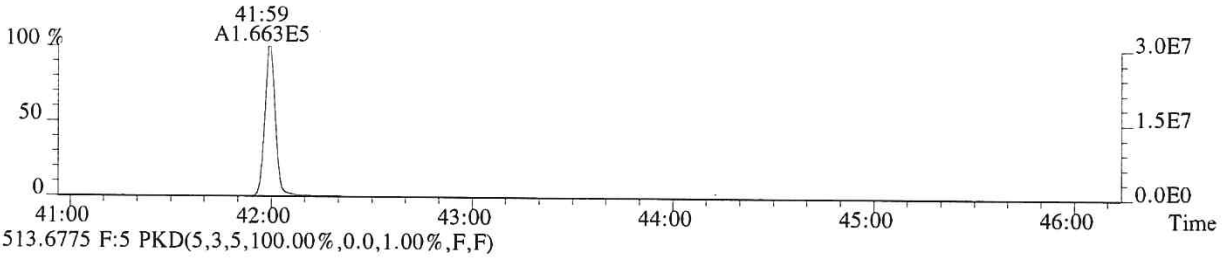
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3176.0,0.40%,F,T)



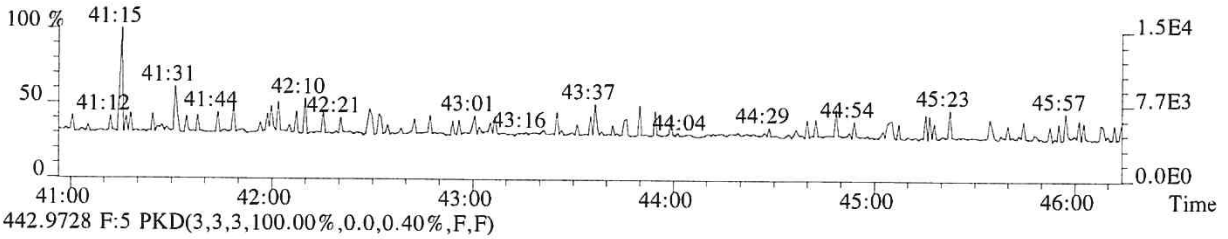
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



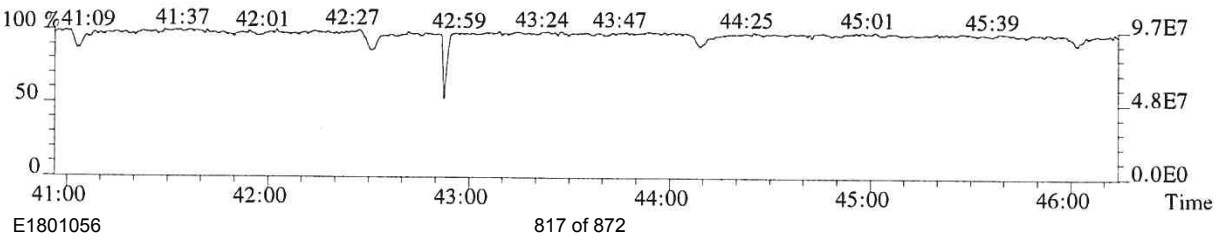
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



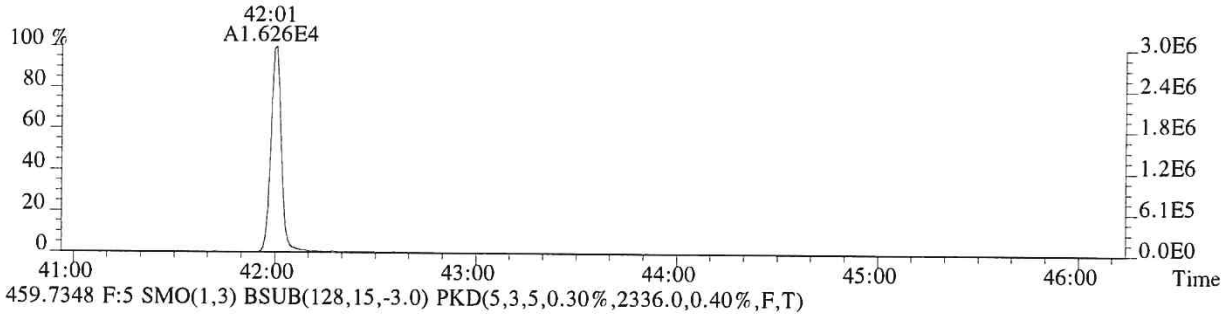
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



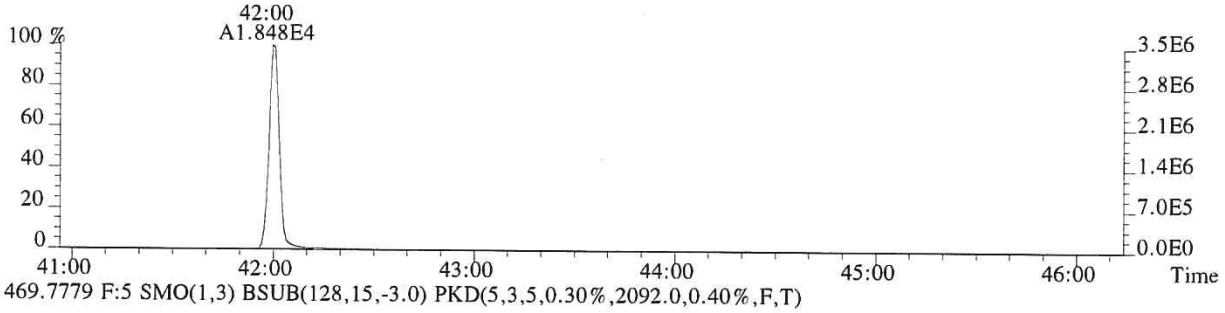
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



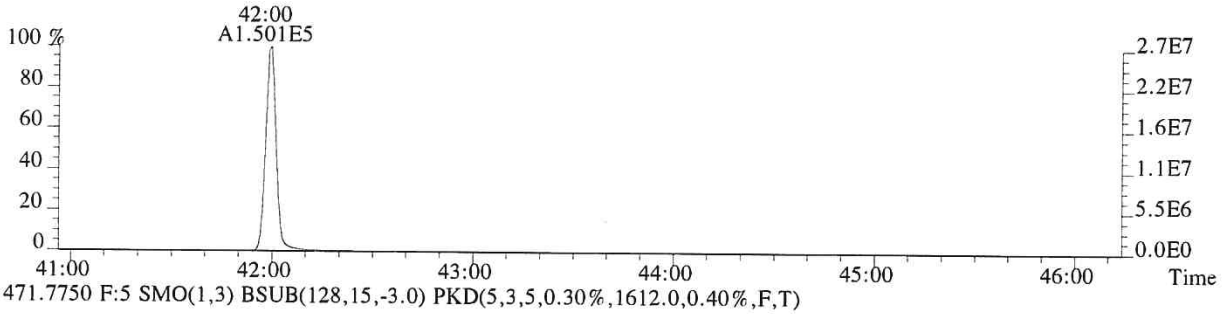
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



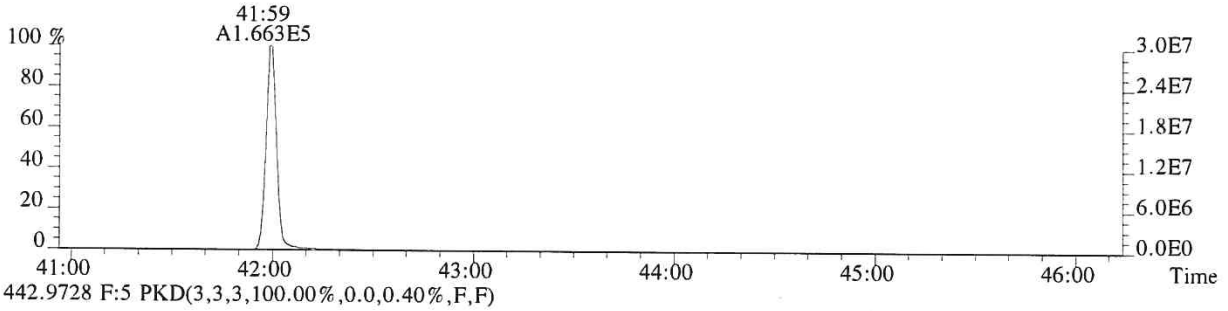
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2336.0,0.40%,F,T)



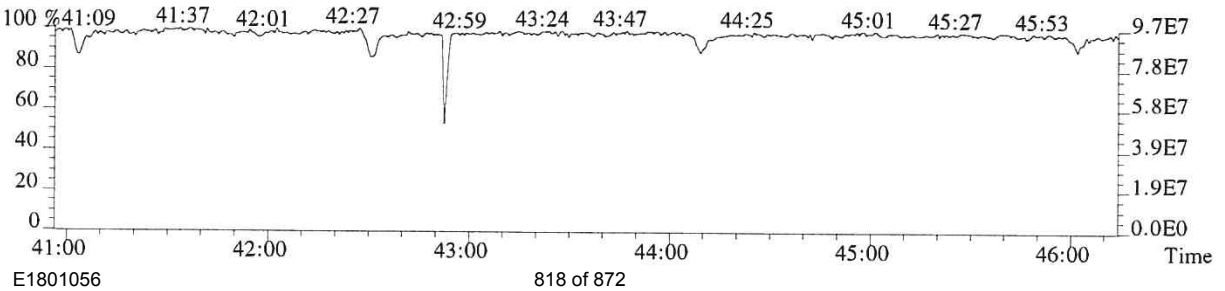
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.637e+04	4.546e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.073e+05	1.939e+05	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	2.818e+05	1.782e+05	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.774e+05	2.200e+05	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.905e+05	2.295e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.685e+05	2.105e+05	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.537e+05	1.982e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.407e+05	2.292e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.925e+05	1.847e+05	1.04	yes	no	1.463
10	Unk	OCDF	42:13	3.041e+05	3.309e+05	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	2.365e+04	3.051e+04	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.706e+05	1.098e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.645e+05	1.238e+05	1.33	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.567e+05	1.272e+05	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.702e+05	1.368e+05	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.477e+05	1.392e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.180e+05	2.422e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	3.444e+05	4.352e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	5.358e+05	3.352e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	5.234e+05	3.254e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.524e+05	4.773e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.834e+05	5.294e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.621e+05	4.867e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.431e+05	4.520e+05	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.967e+05	4.289e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.638e+05	3.571e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.330e+05	2.909e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.758e+05	2.372e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	3.106e+05	2.345e+05	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.932e+05	2.439e+05	1.20	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.673e+05	2.524e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	3.863e+05	4.247e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.395e+05	3.006e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	3.335e+05	2.694e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.645e+04				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+06	2.18e+03	3.0e+03	8.17e+06	4.39e+03	1.9e+03
2	1,2,3,7,8-PeCDF	5.78e+07	2.87e+03	2.0e+04	3.64e+07	4.35e+03	8.4e+03
3	2,3,4,7,8-PeCDF	5.79e+07	2.87e+03	2.0e+04	3.65e+07	4.35e+03	8.4e+03
4	1,2,3,4,7,8-HxCDF	6.15e+07	2.89e+03	2.1e+04	4.93e+07	2.08e+03	2.4e+04
5	1,2,3,6,7,8-HxCDF	6.26e+07	2.89e+03	2.2e+04	4.97e+07	2.08e+03	2.4e+04
6	2,3,4,6,7,8-HxCDF	6.14e+07	2.89e+03	2.1e+04	4.79e+07	2.08e+03	2.3e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.89e+03	1.9e+04	4.26e+07	2.08e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.56e+07	1.47e+04	3.8e+03	5.23e+07	1.66e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.99e+07	1.47e+04	2.7e+03	3.80e+07	1.66e+04	2.3e+03
10	OCDF	5.72e+07	1.23e+03	4.7e+04	6.22e+07	3.01e+03	2.1e+04
11	2,3,7,8-TCDD	4.49e+06	5.36e+03	8.4e+02	5.78e+06	2.64e+03	2.2e+03
12	1,2,3,7,8-PeCDD	3.45e+07	2.46e+03	1.4e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	3.72e+07	9.04e+02	4.1e+04	2.90e+07	1.56e+03	1.9e+04
14	1,2,3,6,7,8-HxCDD	3.60e+07	9.04e+02	4.0e+04	2.81e+07	1.56e+03	1.8e+04
15	1,2,3,7,8,9-HxCDD	3.80e+07	9.04e+02	4.2e+04	3.00e+07	1.56e+03	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	3.19e+07	1.58e+03	2.0e+04	3.06e+07	1.63e+03	1.9e+04
17	OCDD	4.21e+07	1.71e+03	2.5e+04	4.66e+07	1.53e+03	3.0e+04
18	13C-2,3,7,8-TCDF	6.23e+07	1.55e+04	4.0e+03	7.90e+07	1.02e+04	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+08	2.14e+03	4.7e+04	6.28e+07	2.18e+03	2.9e+04
20	13C-2,3,4,7,8-PeCDF	1.07e+08	2.14e+03	5.0e+04	6.66e+07	2.18e+03	3.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.63e+07	2.92e+03	1.9e+04	1.07e+08	4.60e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.12e+07	2.92e+03	2.1e+04	1.15e+08	4.60e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	2.92e+03	2.0e+04	1.10e+08	4.60e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.22e+07	2.92e+03	1.8e+04	9.74e+07	4.60e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.59e+07	1.18e+04	3.9e+03	9.95e+07	3.82e+04	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	1.18e+04	2.9e+03	7.29e+07	3.82e+04	1.9e+03
27	13C-2,3,7,8-TCDD	4.45e+07	1.91e+04	2.3e+03	5.53e+07	7.70e+03	7.2e+03
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.59e+03	2.1e+04	4.74e+07	2.50e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.95e+07	5.55e+03	1.3e+04	5.43e+07	3.18e+03	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	6.70e+07	5.55e+03	1.2e+04	5.36e+07	3.18e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.80e+07	4.72e+03	1.2e+04	5.53e+07	2.63e+03	2.1e+04
32	13C-OCDD	7.33e+07	1.86e+03	4.0e+04	8.10e+07	5.92e+02	1.4e+05
33	13C-1,2,3,4-TCDD	4.48e+07	1.91e+04	2.3e+03	5.67e+07	7.70e+03	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.38e+07	5.55e+03	1.3e+04	5.89e+07	3.18e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	1.08e+07	3.52e+03	3.1e+03			

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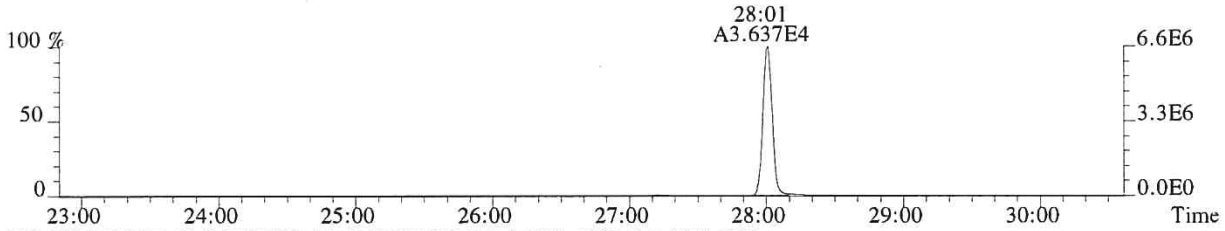
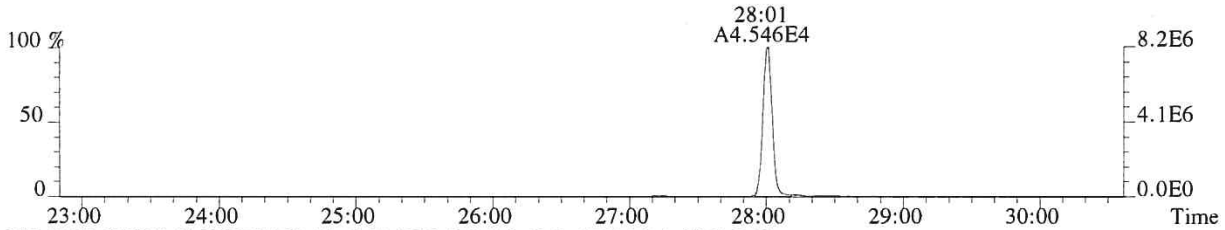
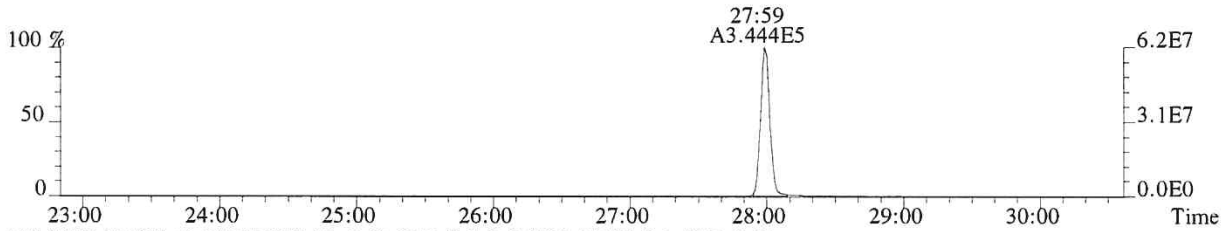
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



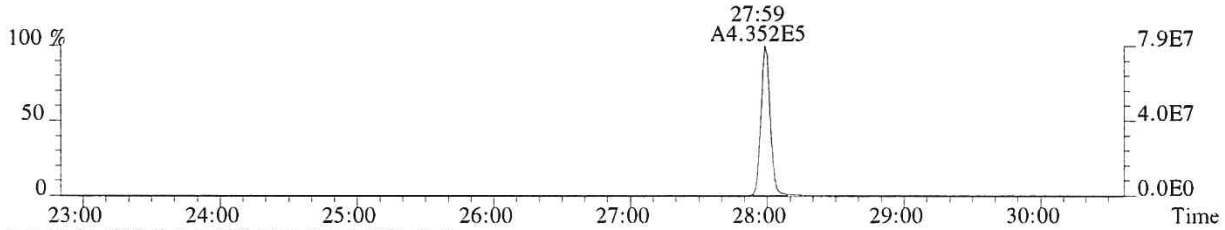
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



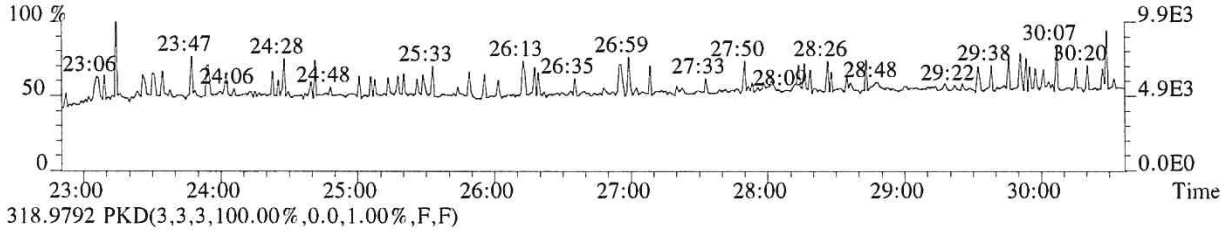
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15516.0,1.00%,F,T)



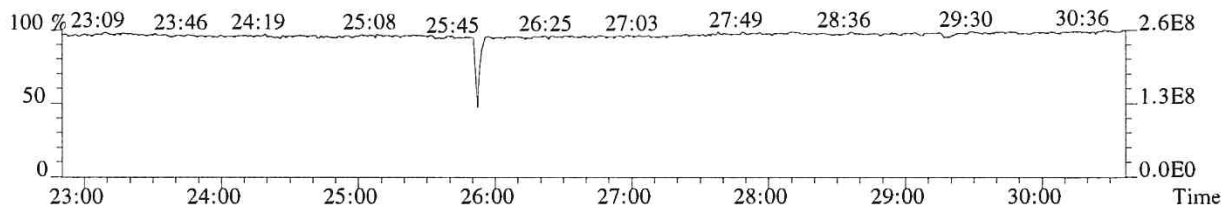
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



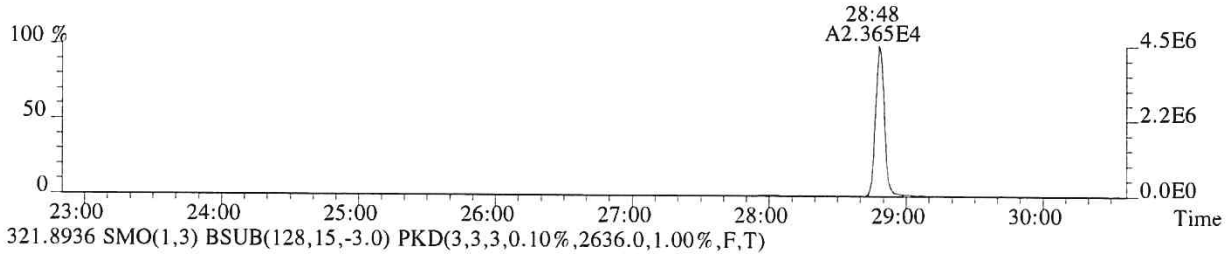
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



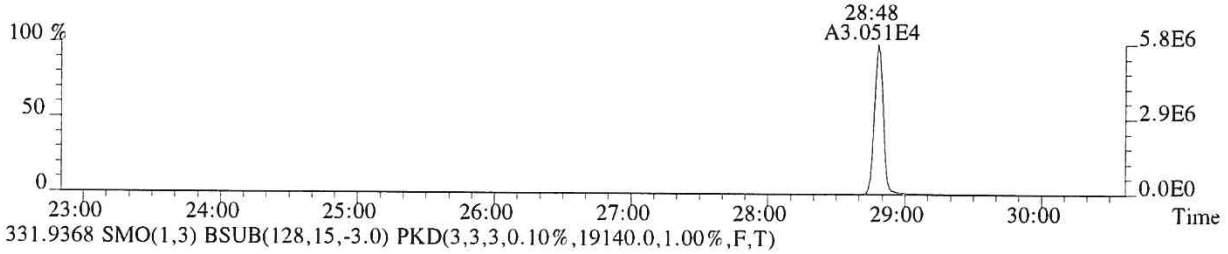
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



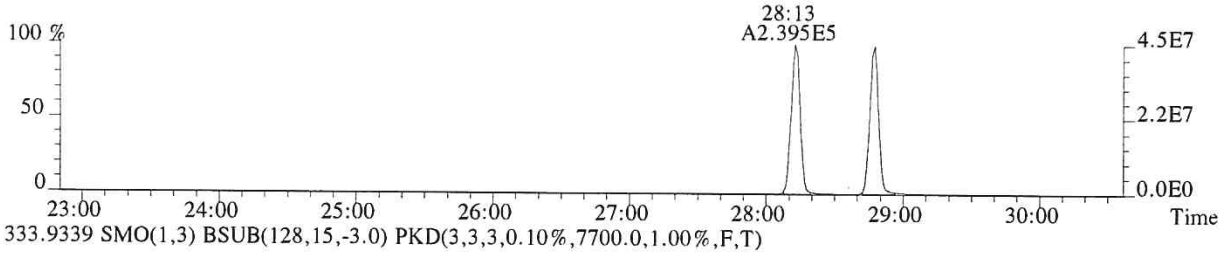
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



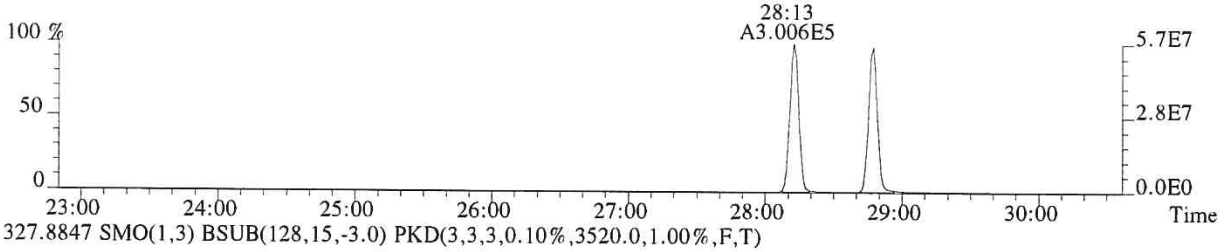
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



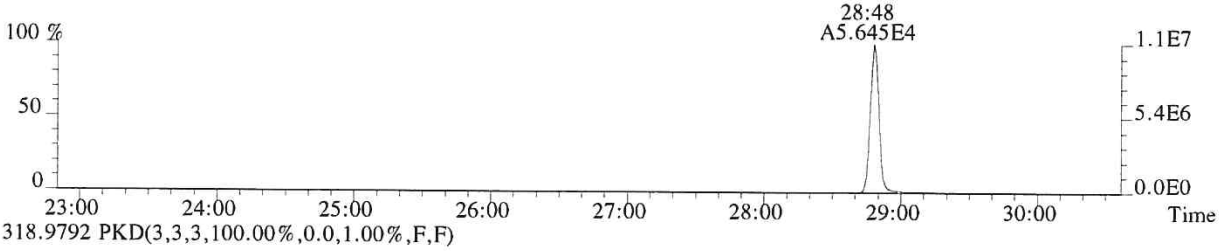
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



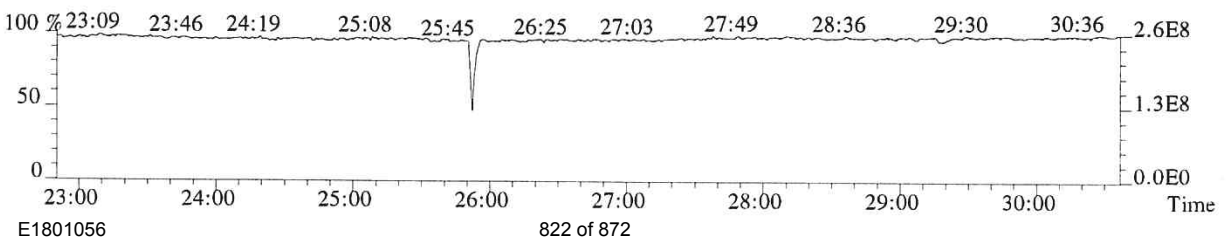
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



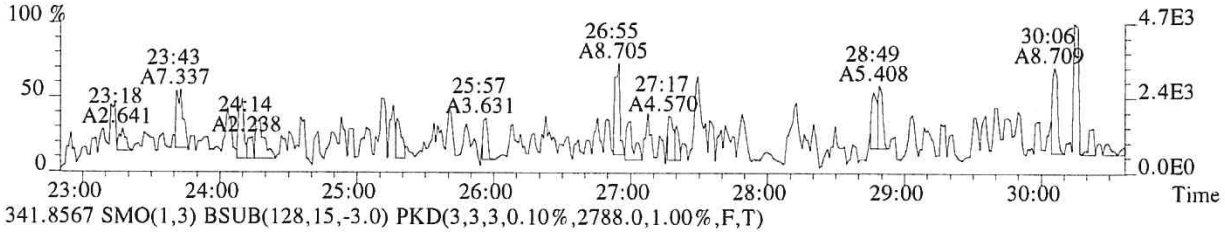
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)



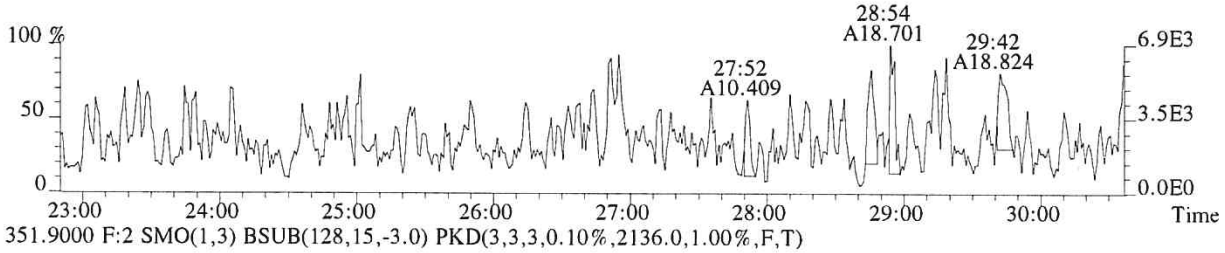
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



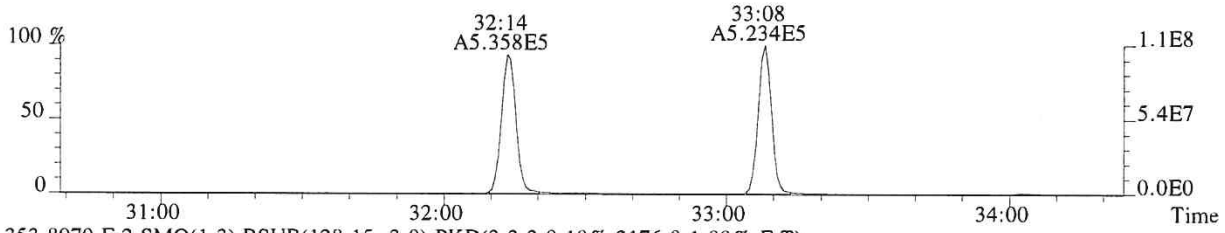
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



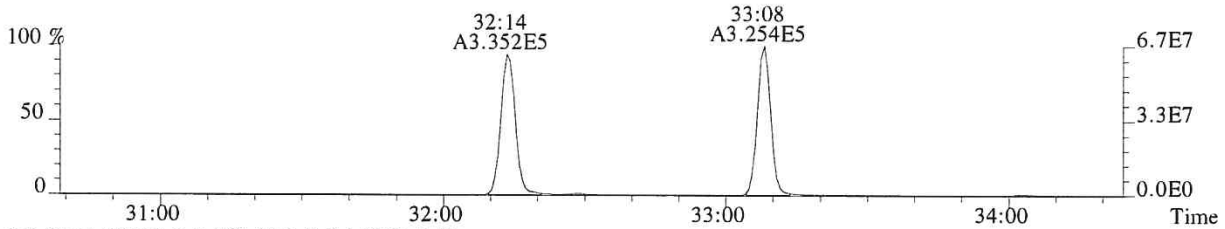
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



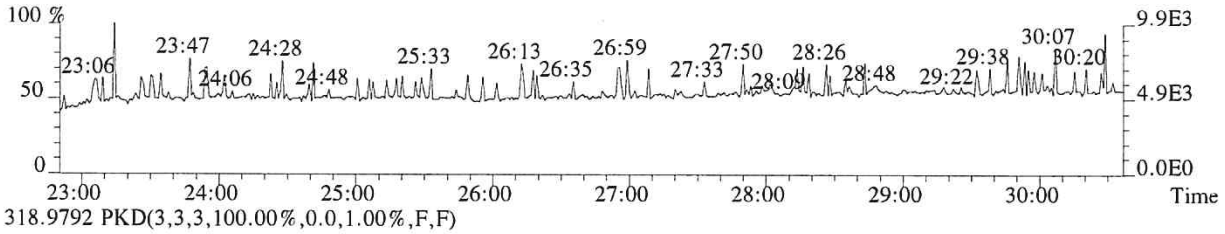
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



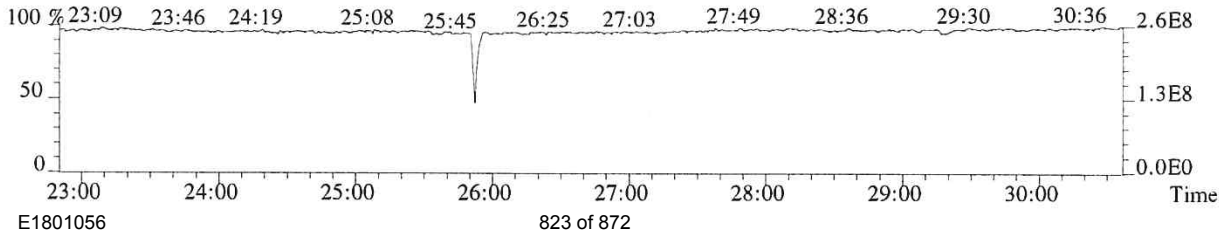
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

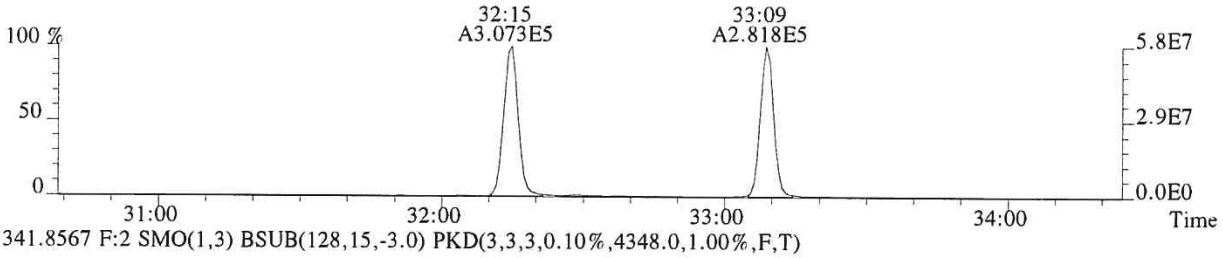


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

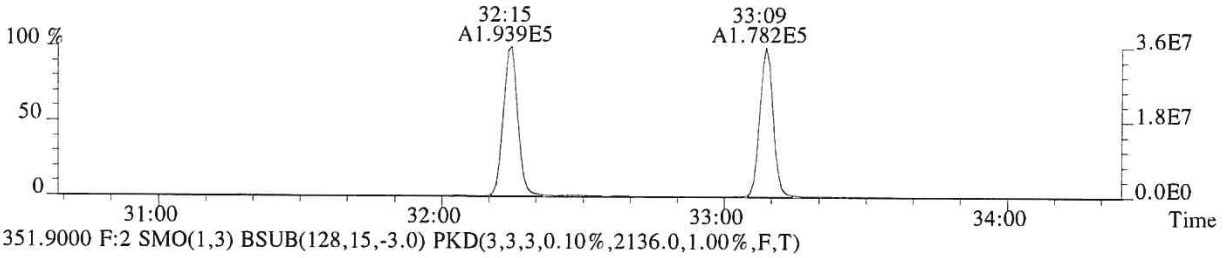


File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

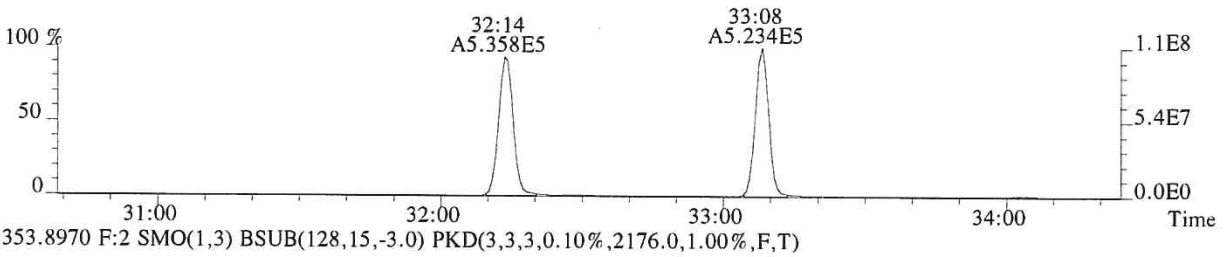
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



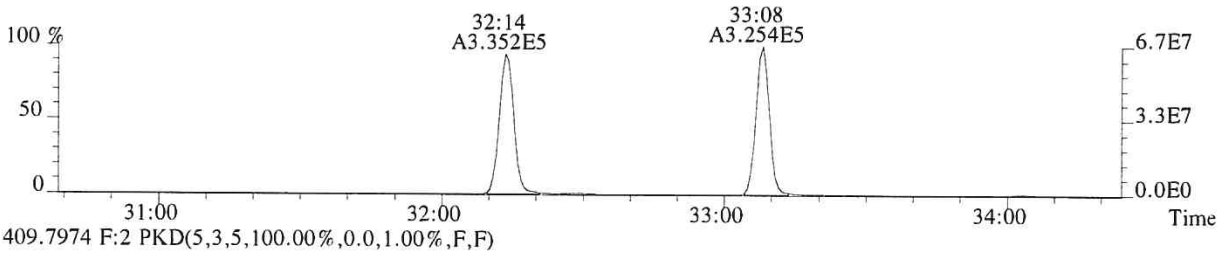
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



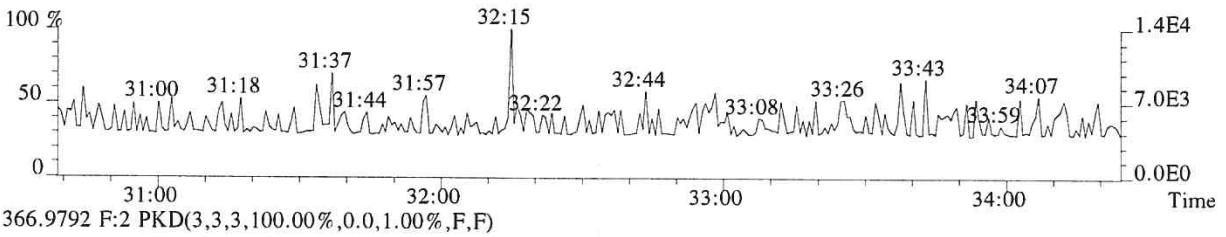
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



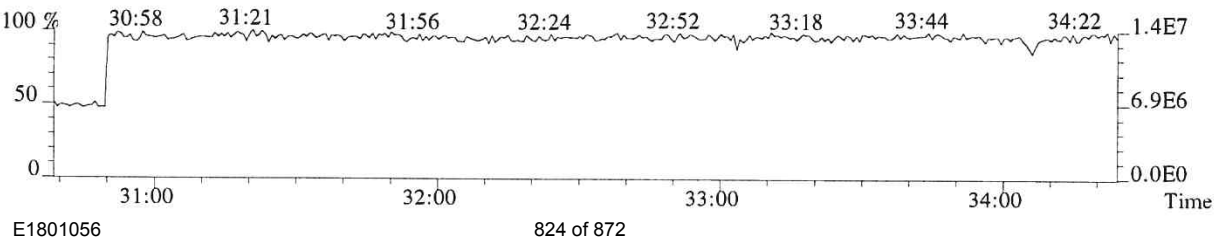
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

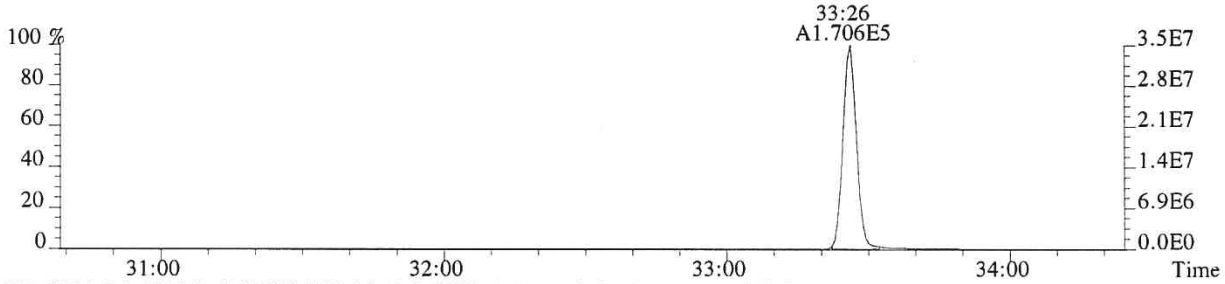


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

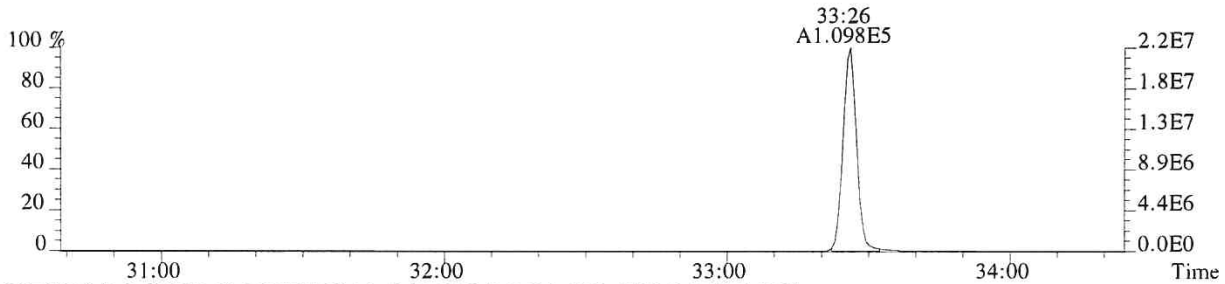


013042

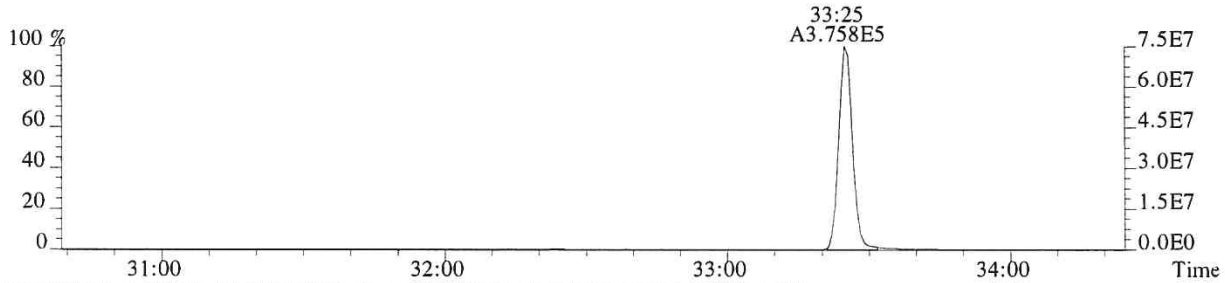
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



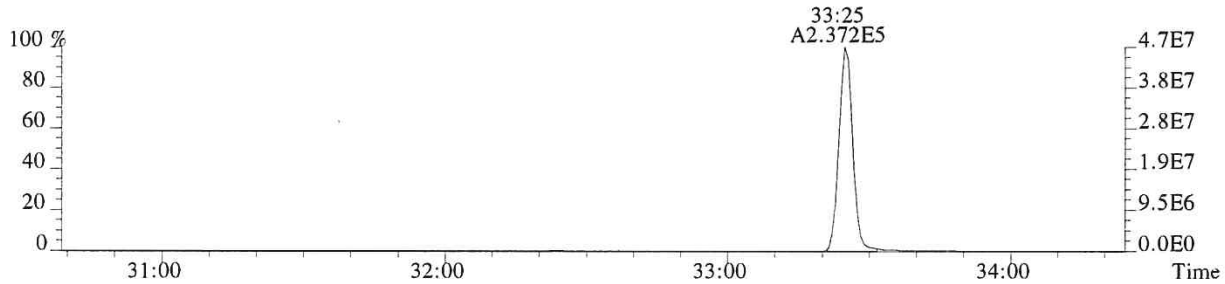
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



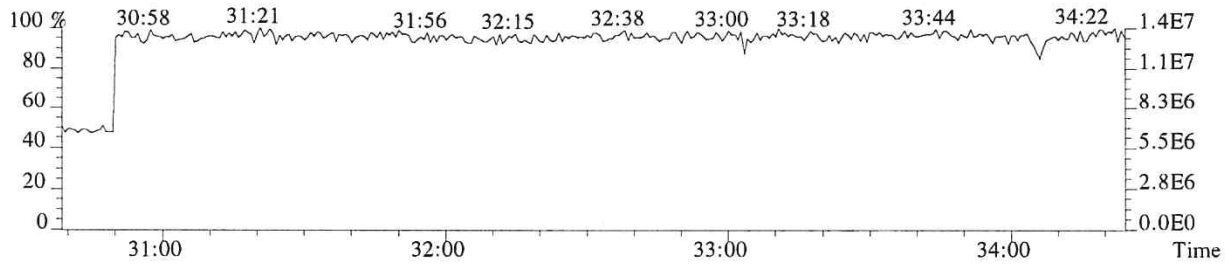
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



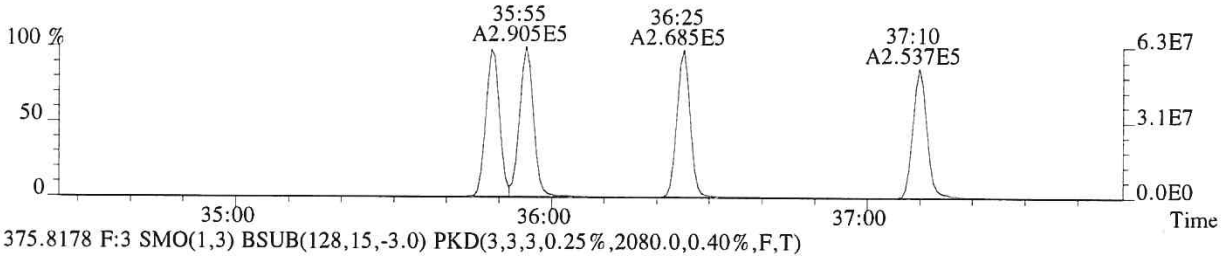
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)



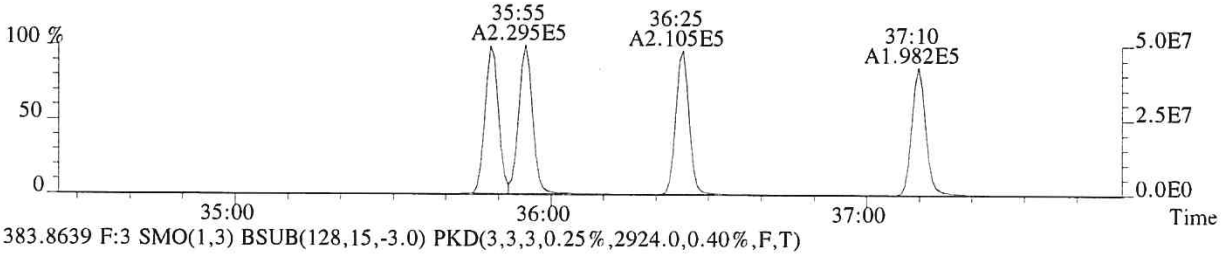
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



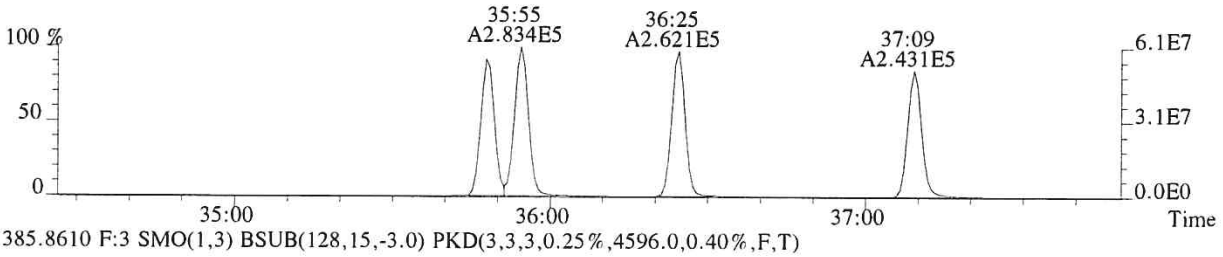
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



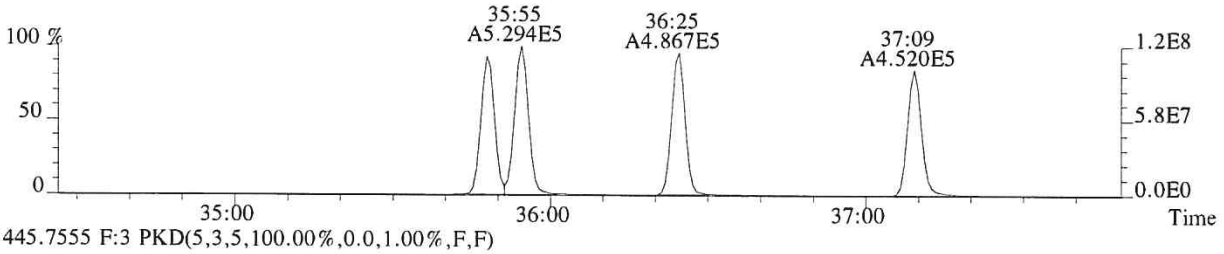
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



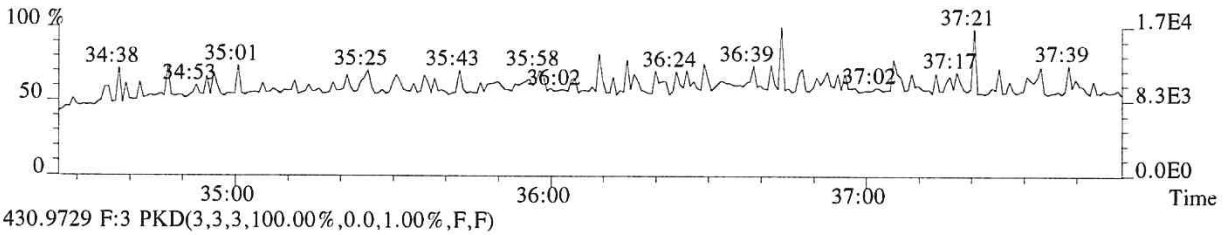
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



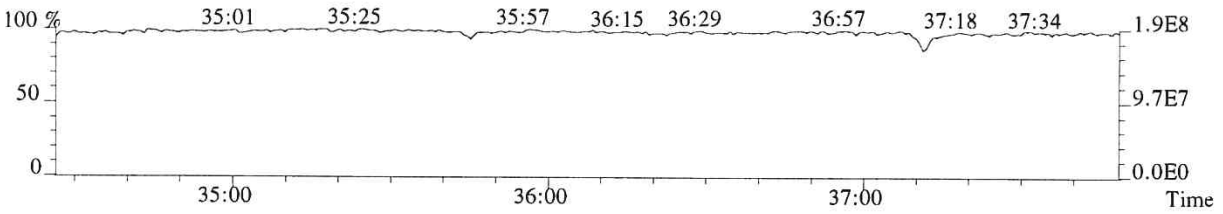
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4596.0,0.40%,F,T)



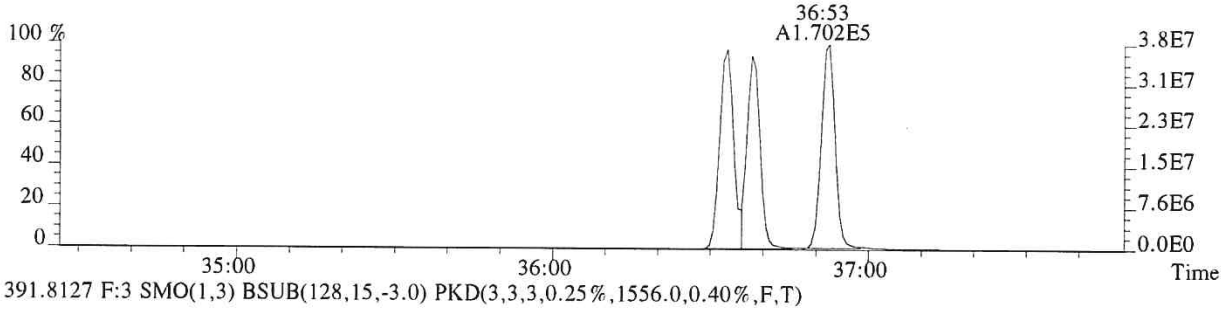
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



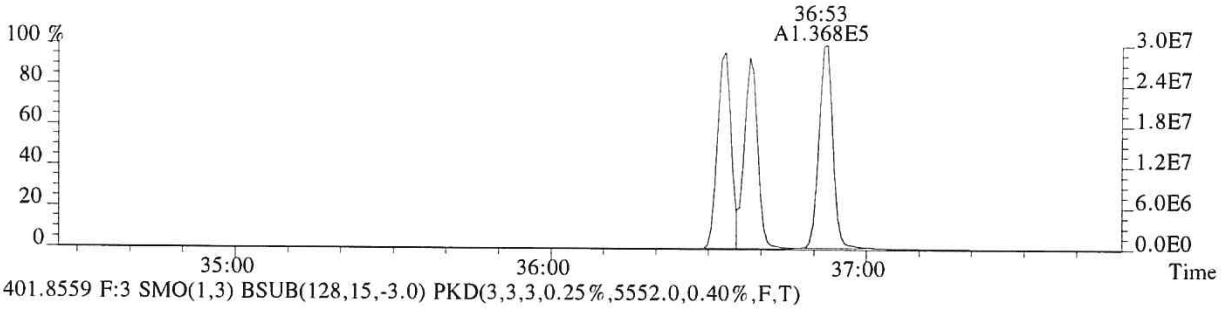
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



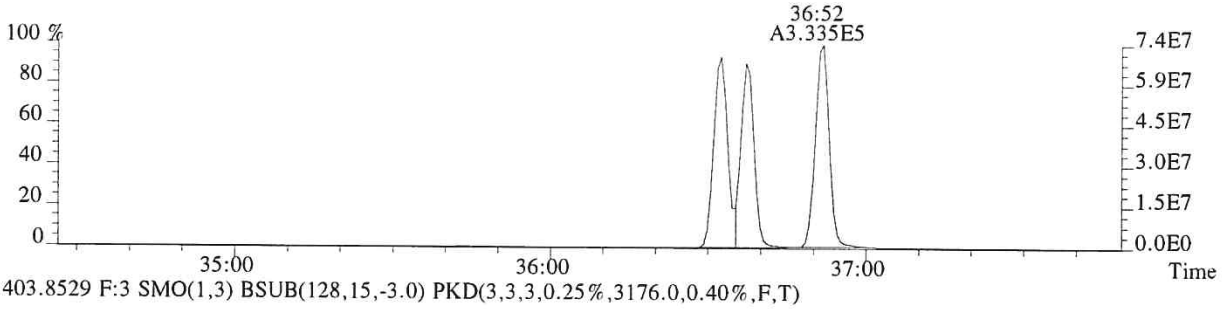
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



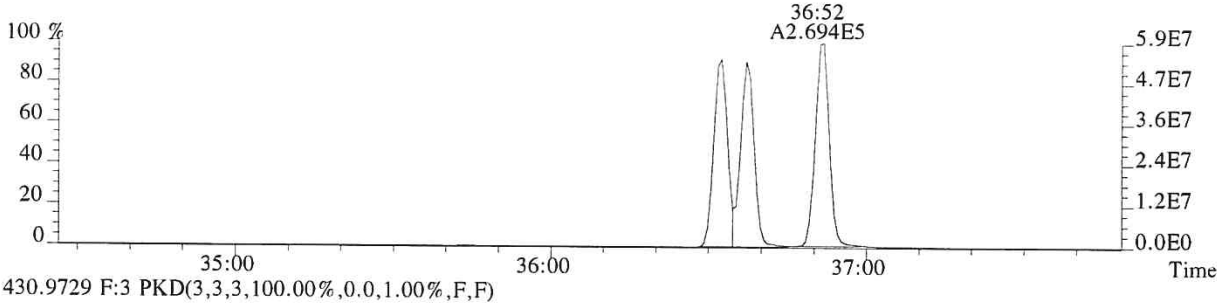
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



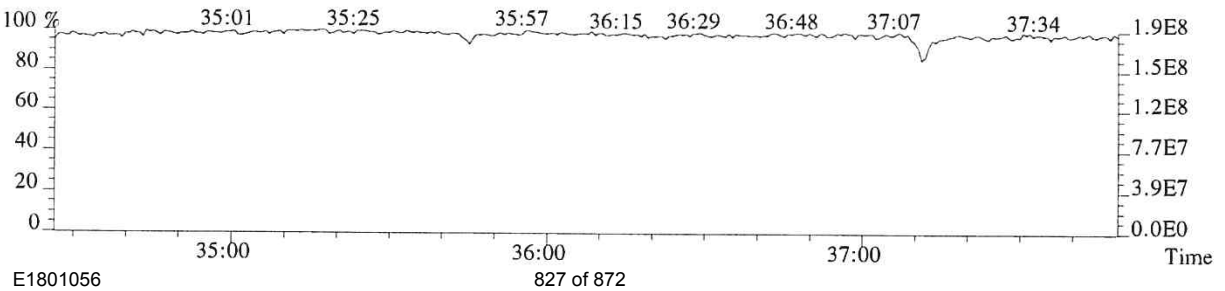
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5552.0,0.40%,F,T)



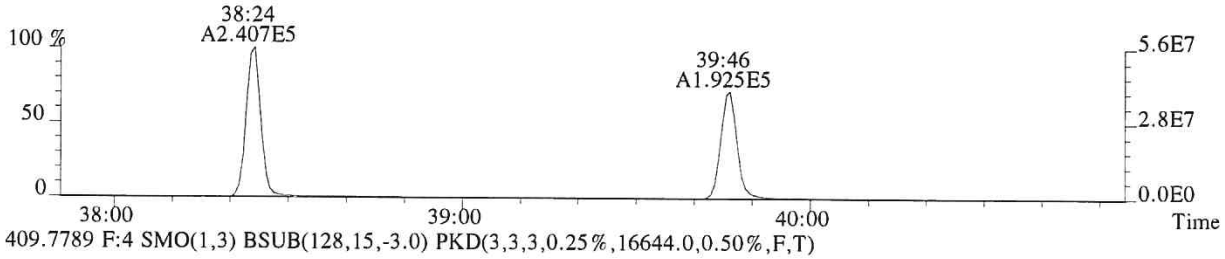
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)



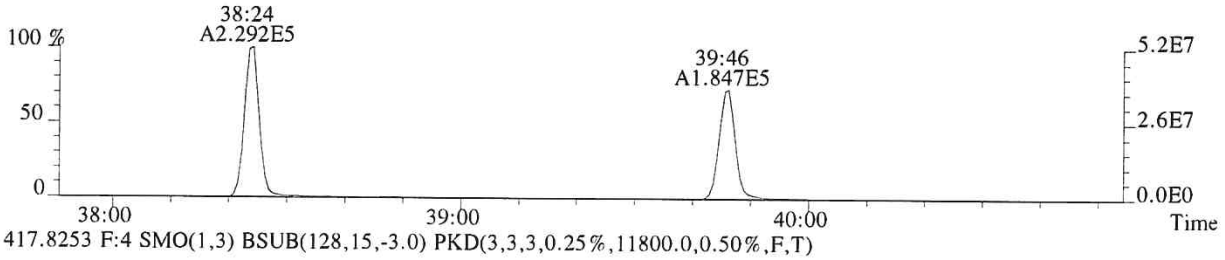
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



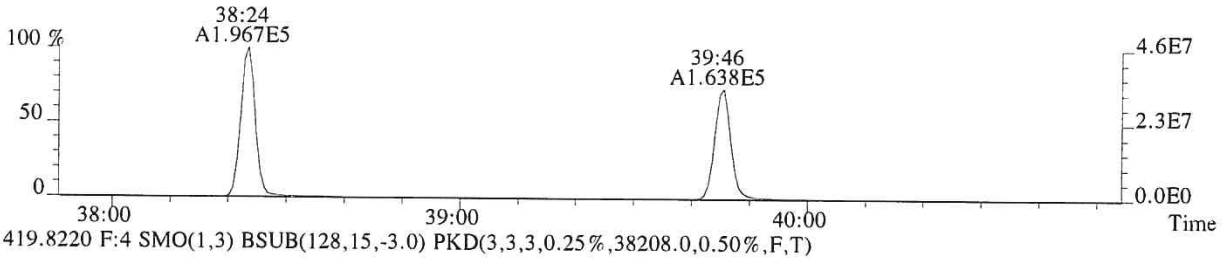
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14728.0,0.50%,F,T)



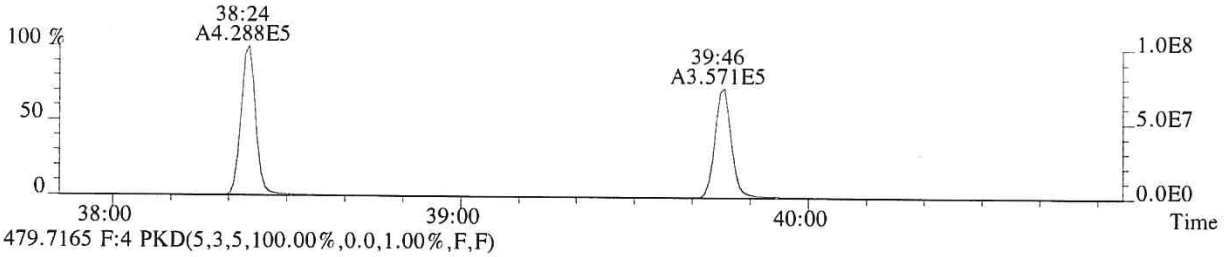
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16644.0,0.50%,F,T)



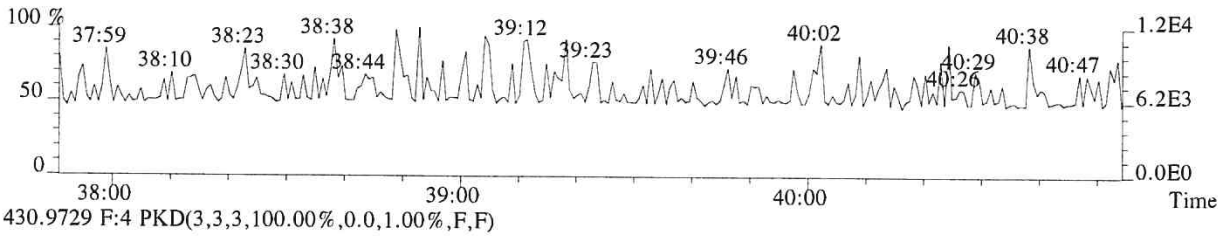
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11800.0,0.50%,F,T)



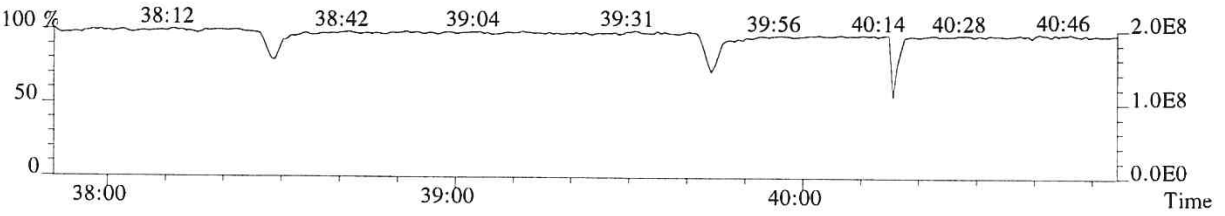
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,38208.0,0.50%,F,T)



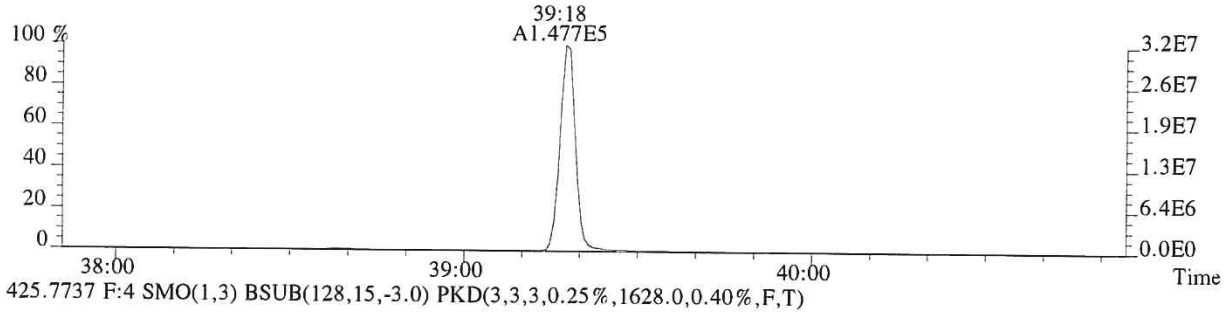
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



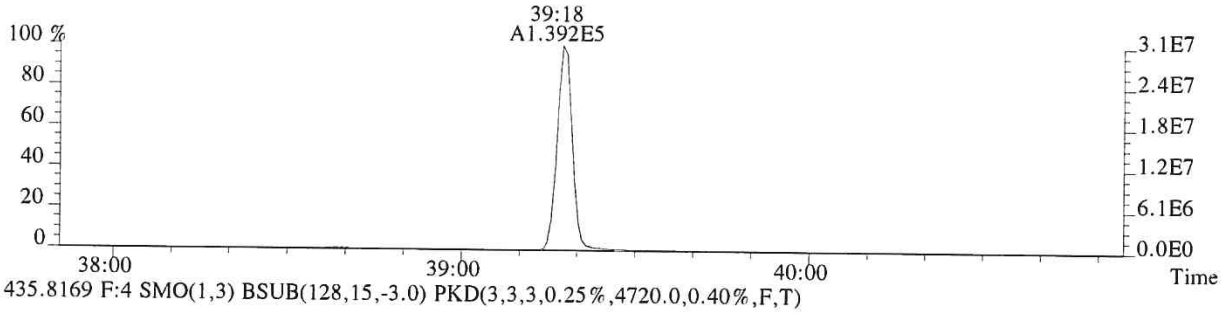
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



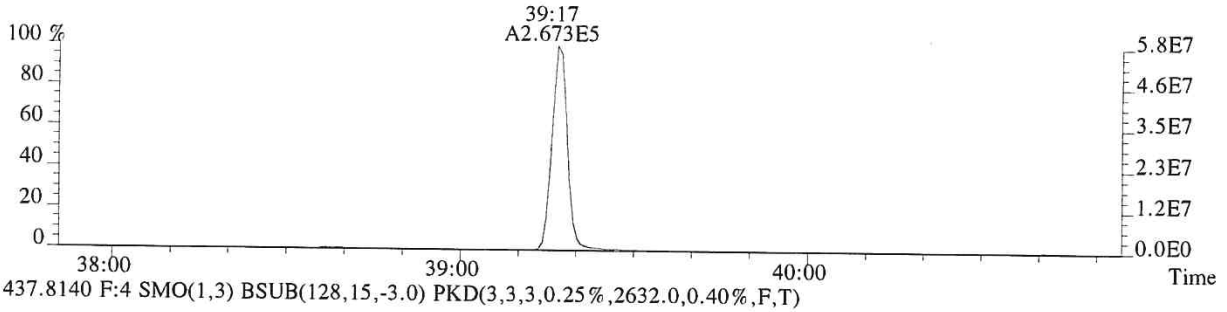
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



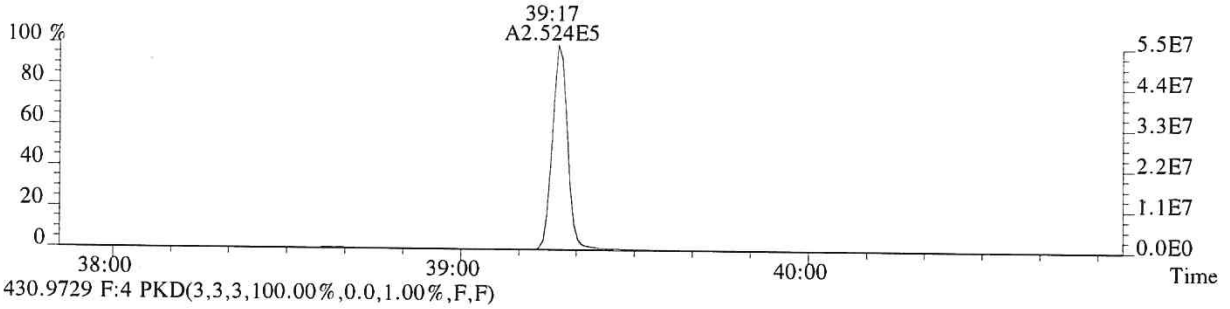
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



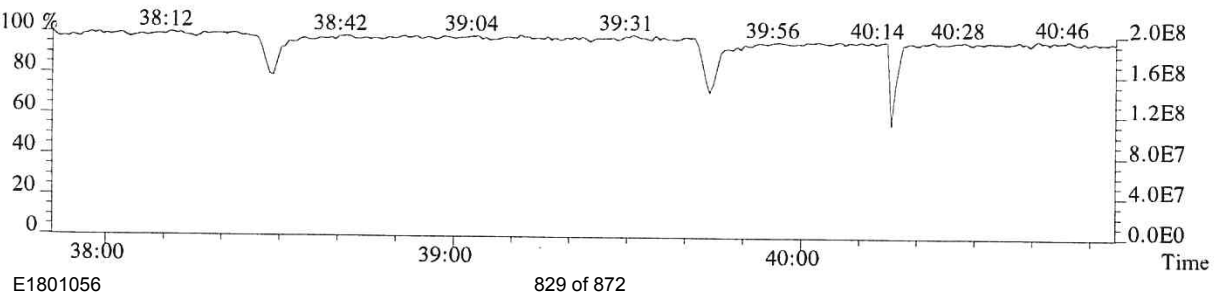
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.40%,F,T)



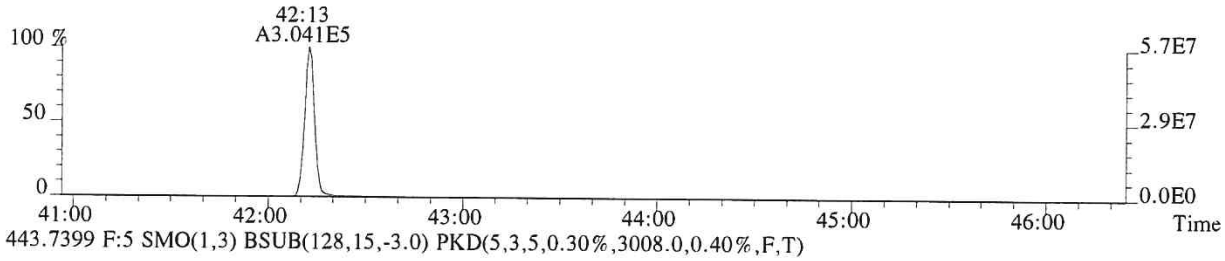
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)



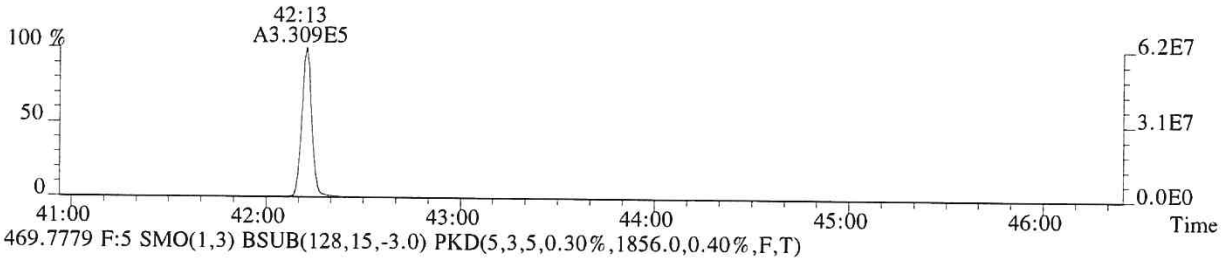
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



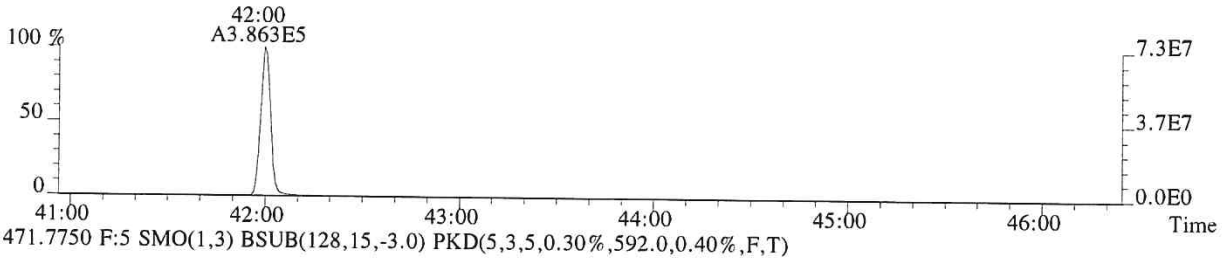
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



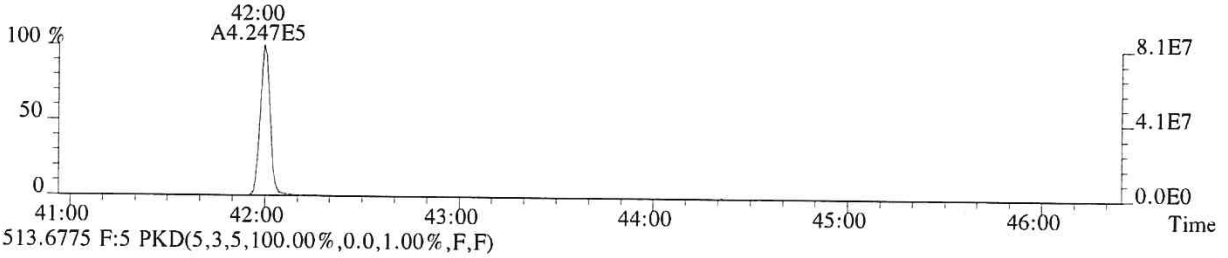
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3008.0,0.40%,F,T)



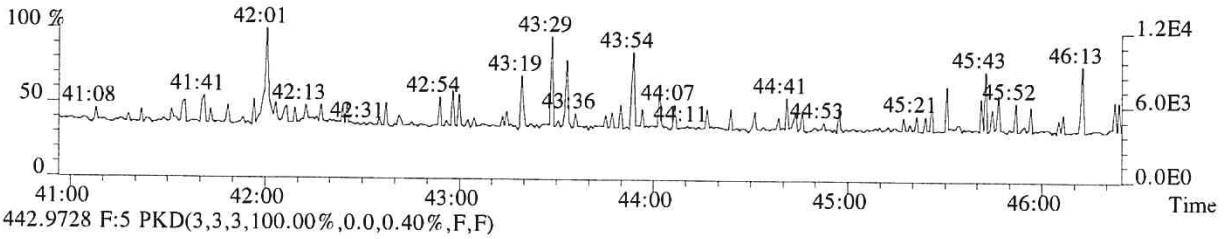
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



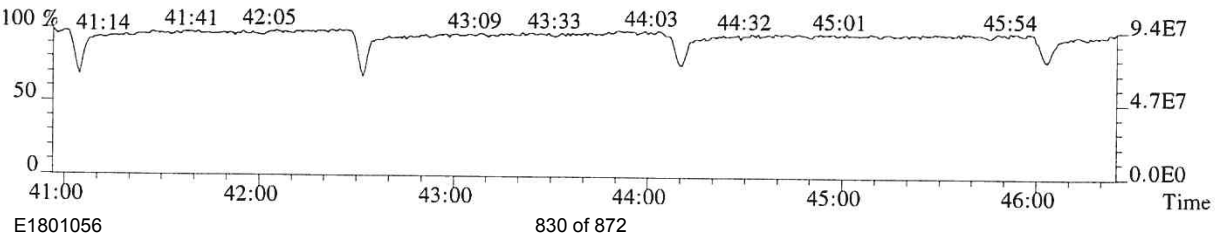
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



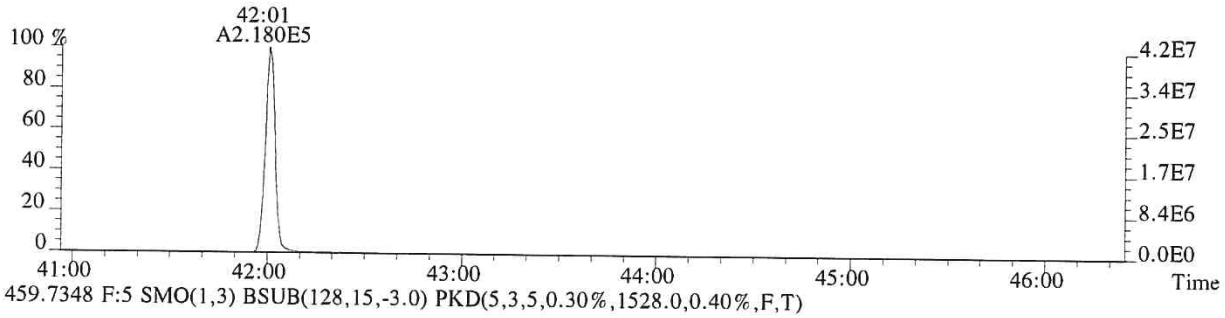
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



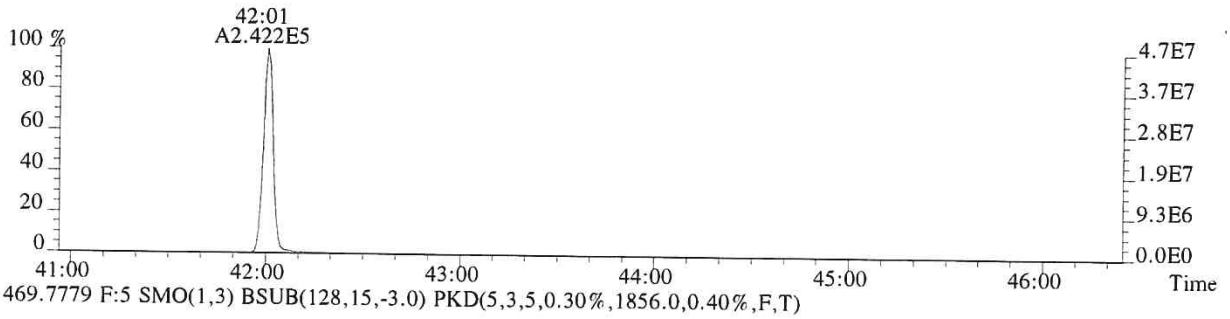
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



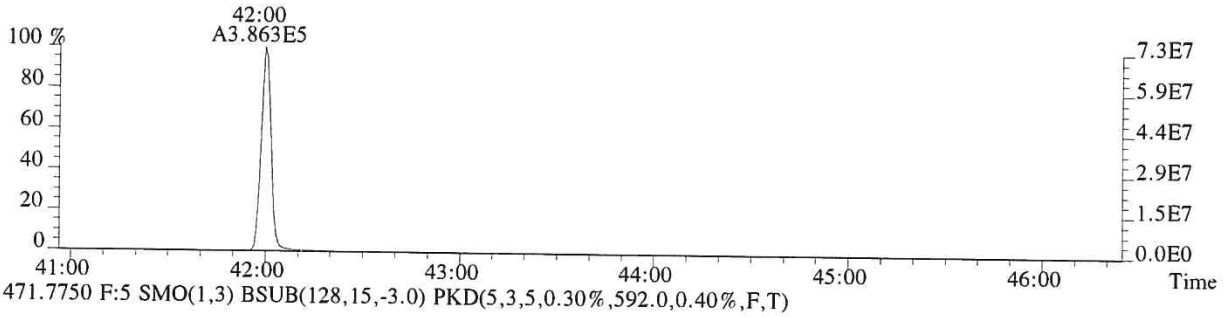
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



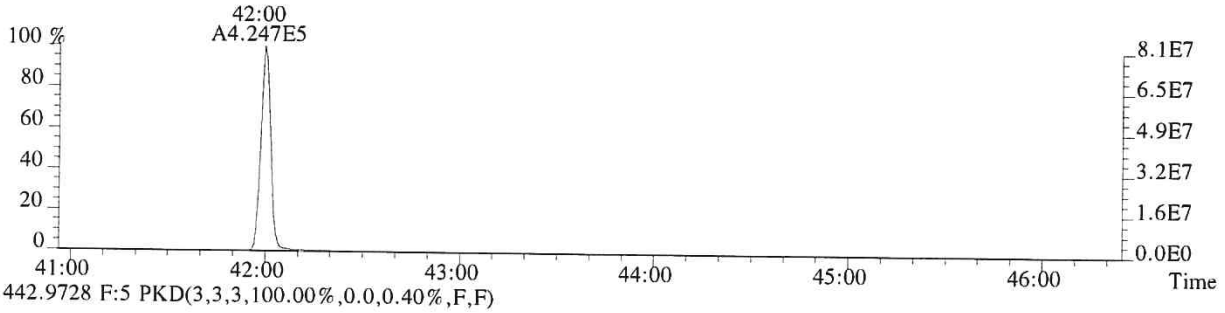
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



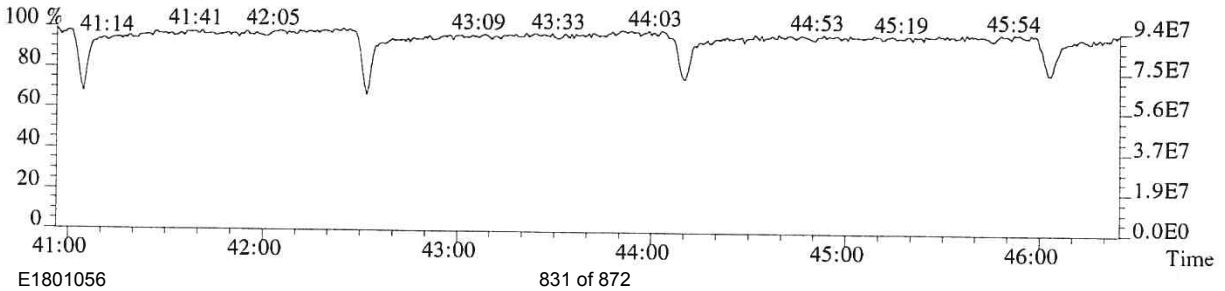
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.186e+05	1.498e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.070e+06	6.680e+05	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	9.931e+05	6.255e+05	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	9.336e+05	7.318e+05	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.546e+05	7.530e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	9.004e+05	7.134e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	8.574e+05	6.711e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	7.924e+05	7.640e+05	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	6.712e+05	6.389e+05	1.05	yes	no	1.463
10	Unk	OCDF	42:13	9.999e+05	1.075e+06	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	8.371e+04	1.065e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	5.908e+05	3.807e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.387e+05	4.268e+05	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	5.444e+05	4.299e+05	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	5.850e+05	4.610e+05	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.859e+05	4.568e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	7.127e+05	7.901e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.799e+05	3.543e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	4.595e+05	2.875e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	4.523e+05	2.842e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.092e+05	3.928e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.332e+05	4.327e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.224e+05	4.139e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.041e+05	3.825e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.626e+05	3.528e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.431e+05	3.159e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.012e+05	2.528e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.193e+05	2.044e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.552e+05	2.035e+05	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.565e+05	2.045e+05	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.187e+05	2.081e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	3.133e+05	3.464e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.000e+05	2.518e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.828e+05	2.264e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.003e+05				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.13e+07	2.15e+03	9.9e+03	2.70e+07	4.22e+03	6.4e+03
2	1,2,3,7,8-PeCDF	2.03e+08	3.06e+03	6.6e+04	1.29e+08	4.95e+03	2.6e+04
3	2,3,4,7,8-PeCDF	2.04e+08	3.06e+03	6.7e+04	1.28e+08	4.95e+03	2.6e+04
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.85e+03	1.2e+05	1.68e+08	4.92e+03	3.4e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	1.85e+03	1.1e+05	1.67e+08	4.92e+03	3.4e+04
6	2,3,4,6,7,8-HxCDF	2.02e+08	1.85e+03	1.1e+05	1.59e+08	4.92e+03	3.2e+04
7	1,2,3,7,8,9-HxCDF	1.88e+08	1.85e+03	1.0e+05	1.47e+08	4.92e+03	3.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.78e+08	2.61e+04	6.8e+03	1.72e+08	1.83e+04	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+08	2.61e+04	5.4e+03	1.35e+08	1.83e+04	7.4e+03
10	OCDF	1.94e+08	1.46e+03	1.3e+05	2.08e+08	3.00e+03	6.9e+04
11	2,3,7,8-TCDD	1.62e+07	6.38e+03	2.5e+03	2.06e+07	2.42e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.19e+08	3.22e+03	3.7e+04	7.64e+07	1.02e+03	7.5e+04
13	1,2,3,4,7,8-HxCDD	1.25e+08	9.48e+02	1.3e+05	9.78e+07	1.64e+03	5.9e+04
14	1,2,3,6,7,8-HxCDD	1.22e+08	9.48e+02	1.3e+05	9.73e+07	1.64e+03	5.9e+04
15	1,2,3,7,8,9-HxCDD	1.31e+08	9.48e+02	1.4e+05	1.04e+08	1.64e+03	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.10e+08	2.46e+03	4.5e+04	1.04e+08	2.38e+03	4.4e+04
17	OCDD	1.42e+08	1.24e+03	1.1e+05	1.57e+08	1.46e+03	1.1e+05
18	13C-2,3,7,8-TCDF	5.06e+07	1.14e+04	4.4e+03	6.41e+07	7.28e+03	8.8e+03
19	13C-1,2,3,7,8-PeCDF	8.88e+07	3.08e+03	2.9e+04	5.58e+07	3.54e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	9.15e+07	3.08e+03	3.0e+04	5.70e+07	3.54e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	4.76e+07	3.01e+03	1.6e+04	8.96e+07	4.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	5.17e+07	3.01e+03	1.7e+04	9.54e+07	4.64e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.99e+07	3.01e+03	1.7e+04	9.21e+07	4.64e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.48e+07	3.01e+03	1.5e+04	8.44e+07	4.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+07	8.80e+03	4.2e+03	8.02e+07	1.92e+04	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.97e+07	8.80e+03	3.4e+03	6.54e+07	1.92e+04	3.4e+03
27	13C-2,3,7,8-TCDD	3.77e+07	1.85e+04	2.0e+03	4.78e+07	7.81e+03	6.1e+03
28	13C-1,2,3,7,8-PeCDD	6.47e+07	3.56e+03	1.8e+04	4.18e+07	3.26e+03	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	5.86e+07	4.66e+03	1.3e+04	4.67e+07	3.04e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	5.76e+07	4.66e+03	1.2e+04	4.61e+07	3.04e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.94e+07	3.14e+03	1.6e+04	4.74e+07	1.71e+03	2.8e+04
32	13C-OCDD	6.18e+07	1.83e+03	3.4e+04	6.87e+07	9.56e+02	7.2e+04
33	13C-1,2,3,4-TCDD	3.76e+07	1.85e+04	2.0e+03	4.73e+07	7.81e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.25e+07	4.66e+03	1.3e+04	5.04e+07	3.04e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	3.86e+07	4.32e+03	9.0e+03			

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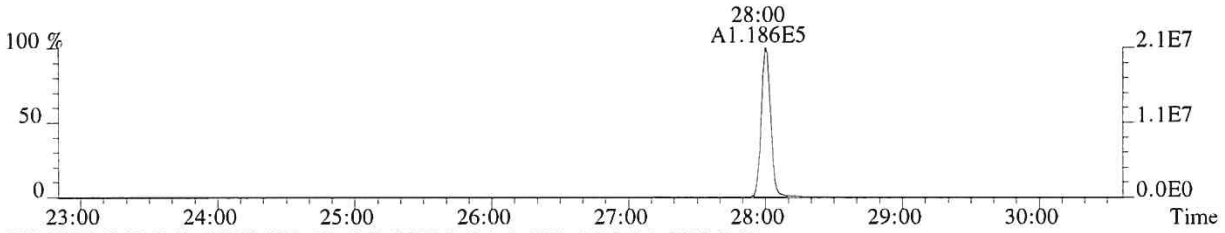
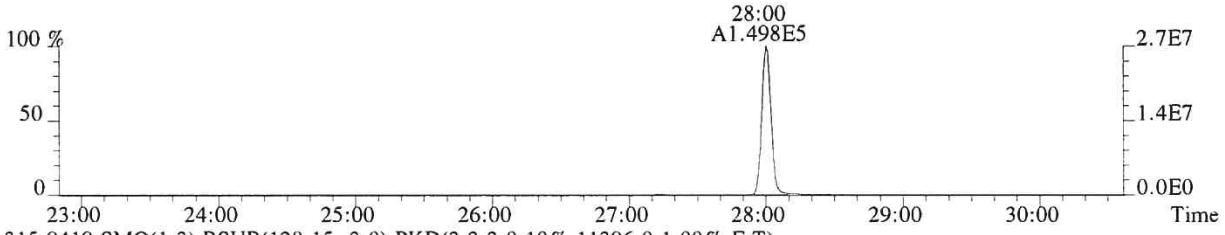
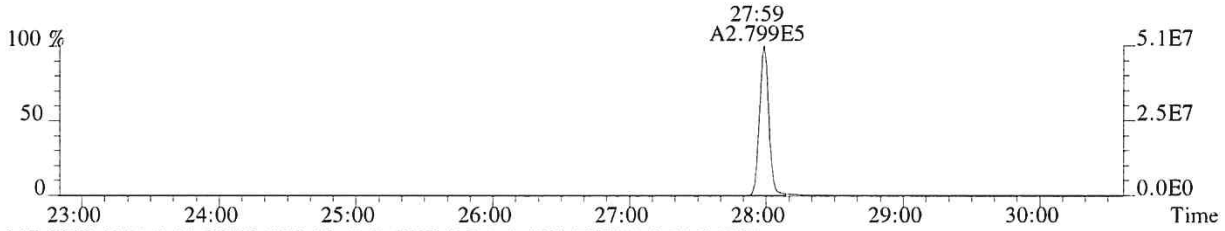
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



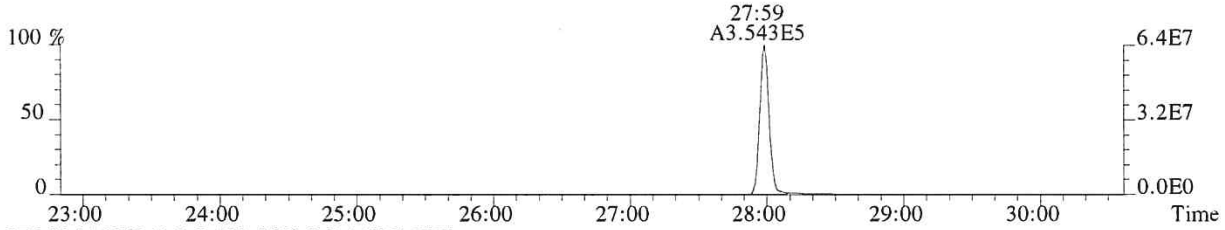
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



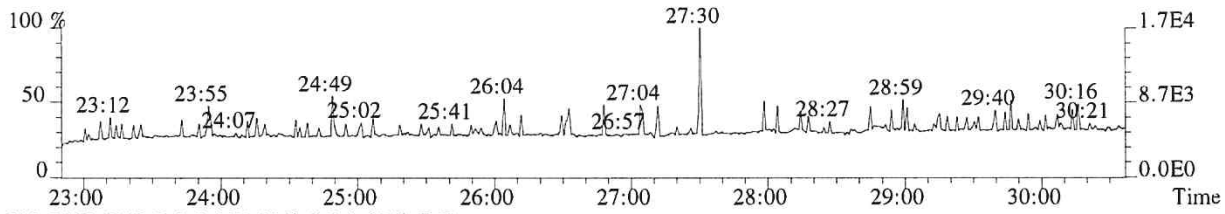
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



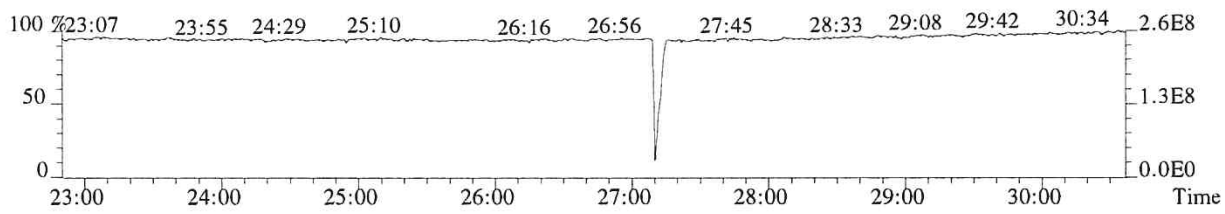
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7276.0,1.00%,F,T)



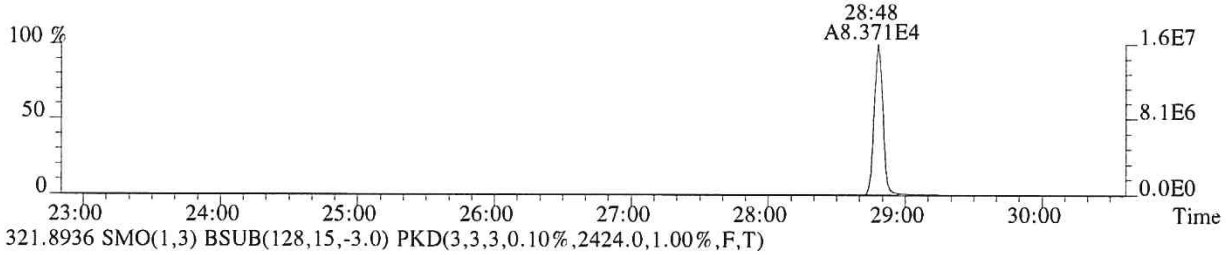
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



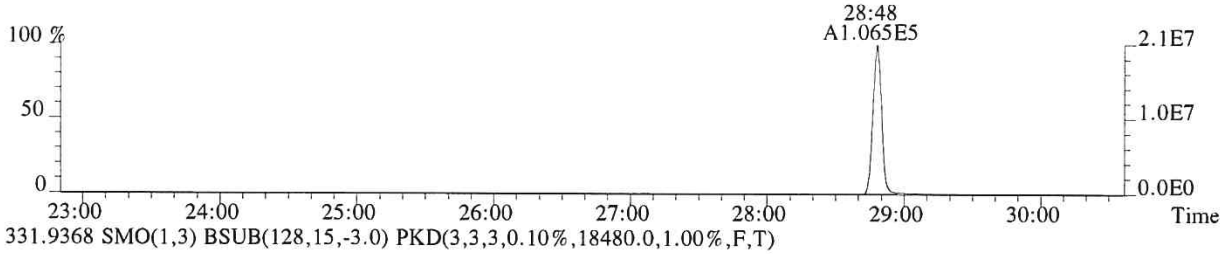
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



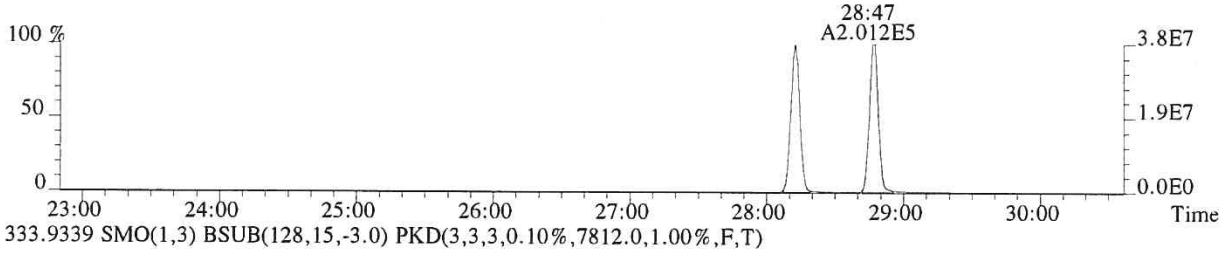
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6384.0,1.00%,F,T)



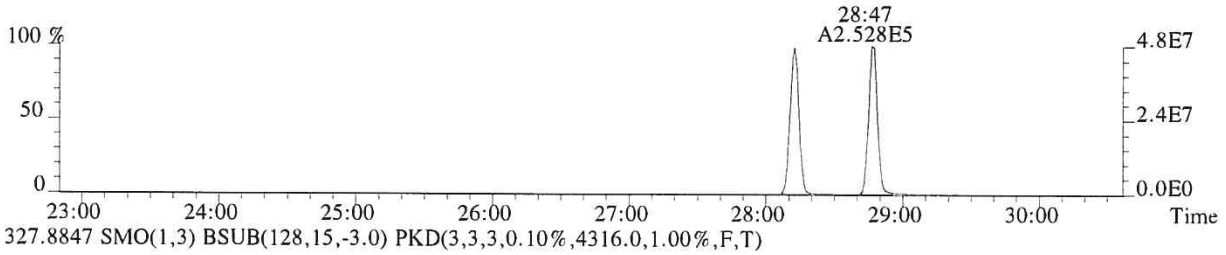
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



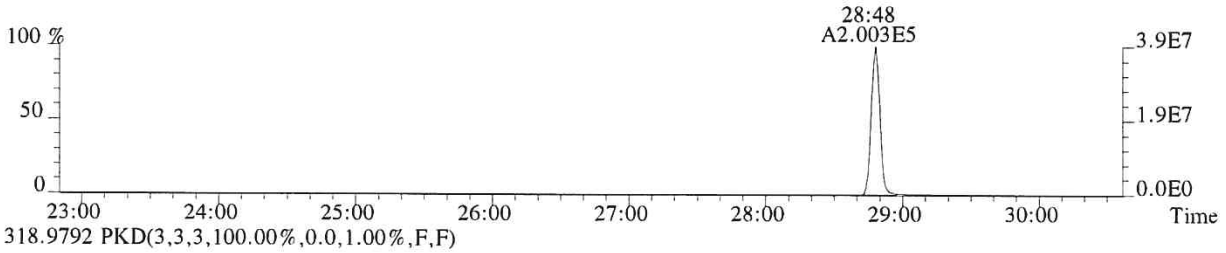
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18480.0,1.00%,F,T)



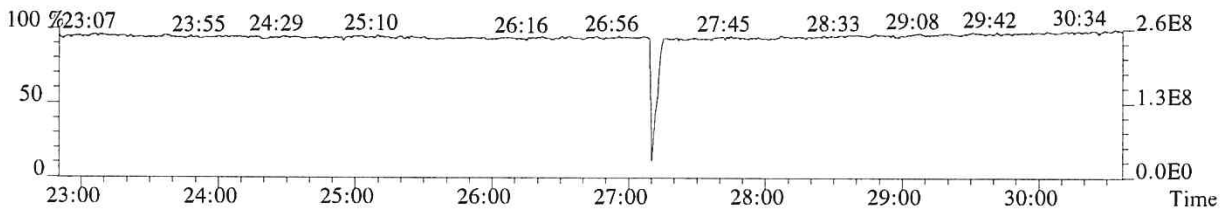
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



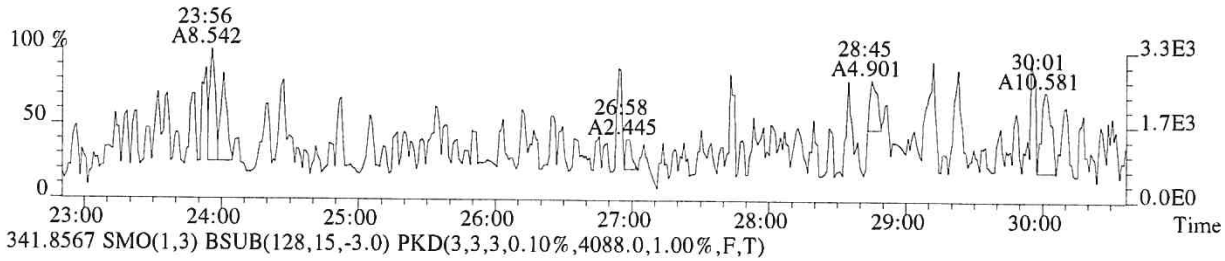
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



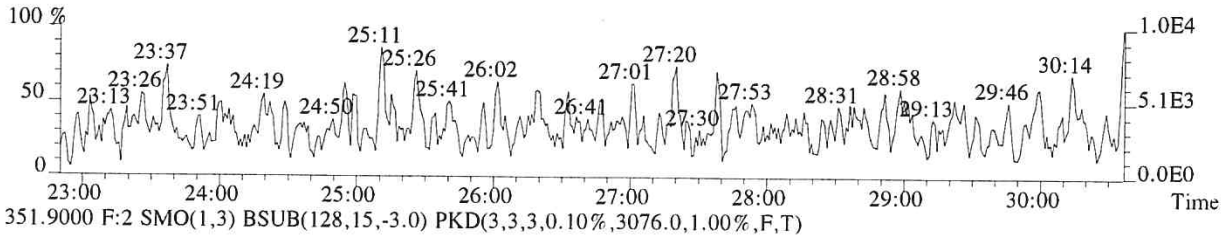
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



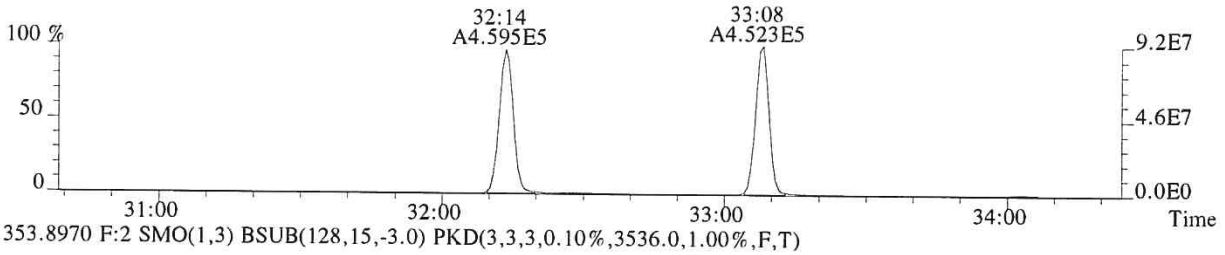
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



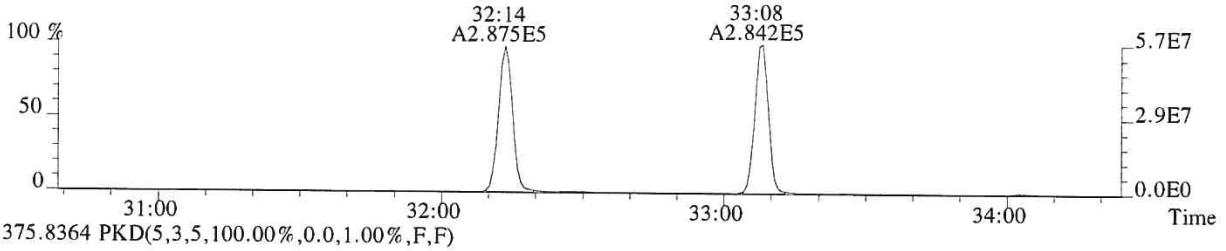
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



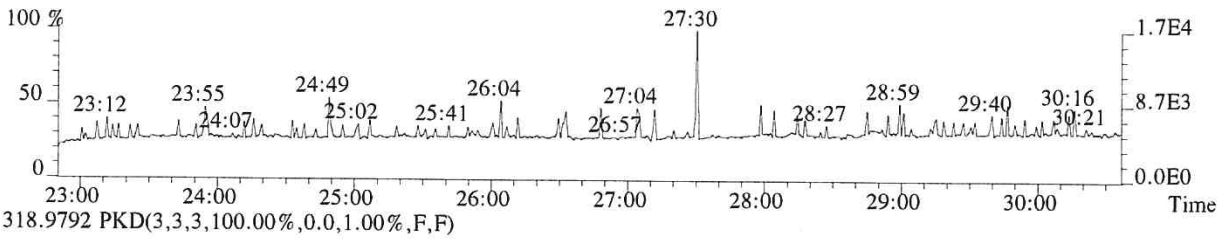
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



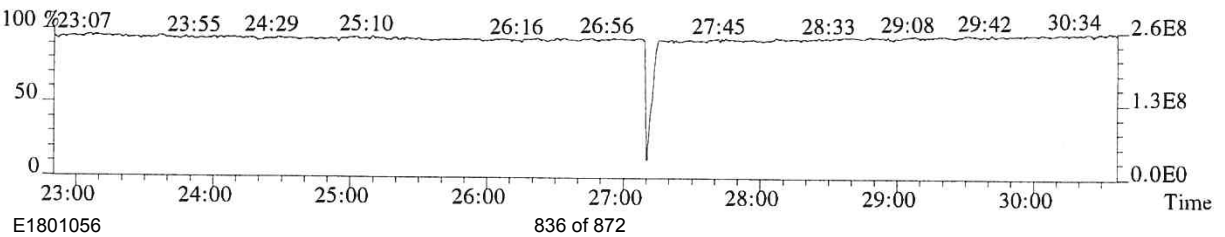
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



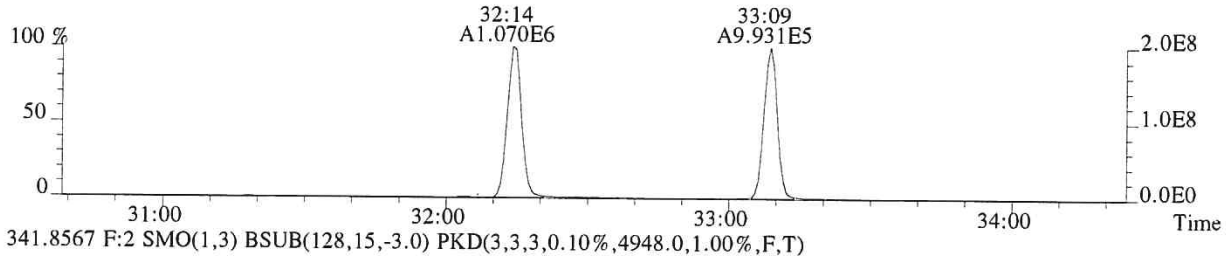
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



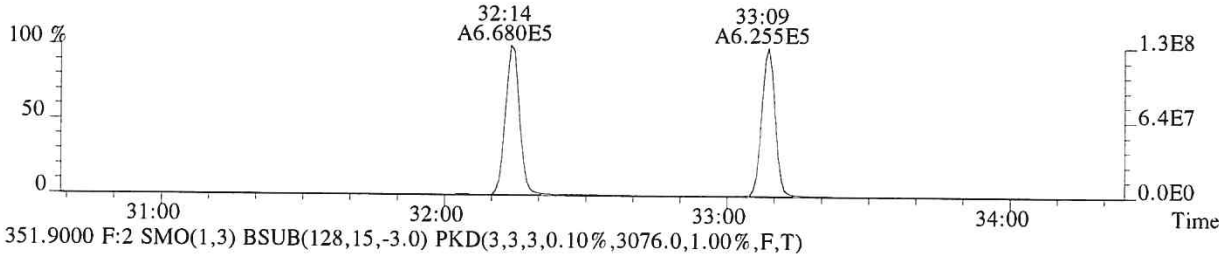
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



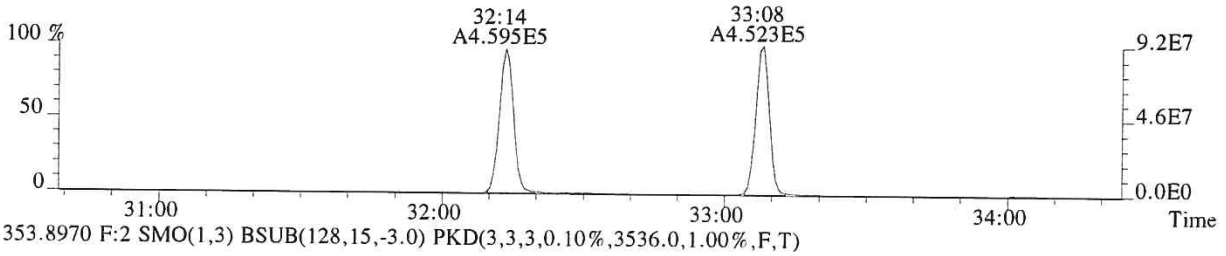
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



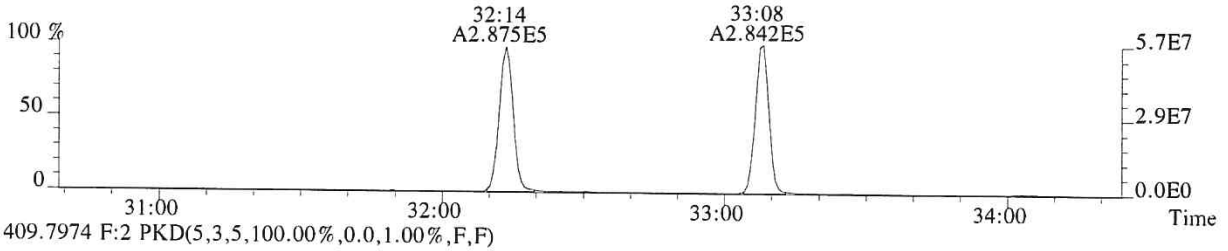
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



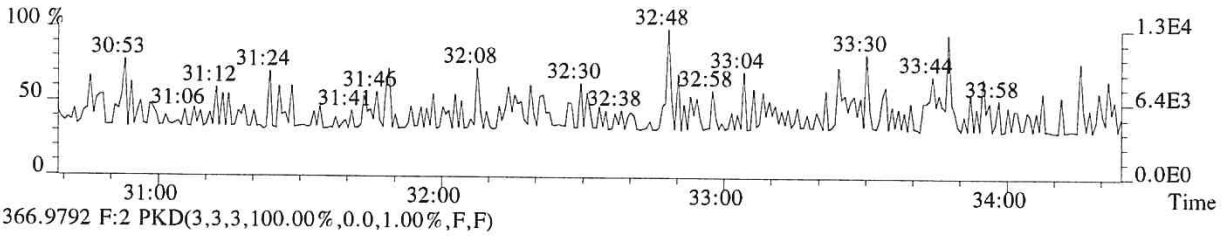
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



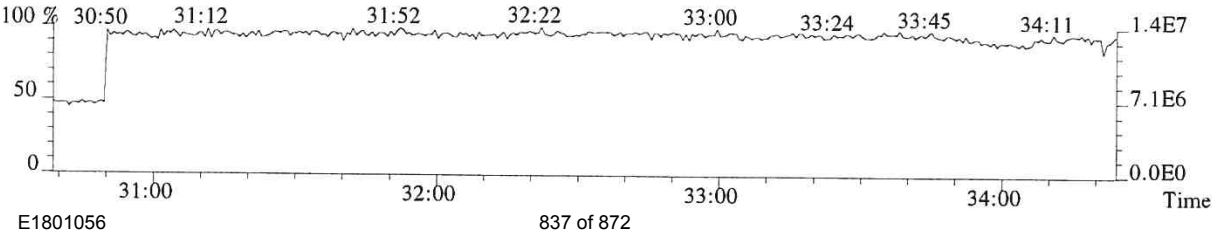
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



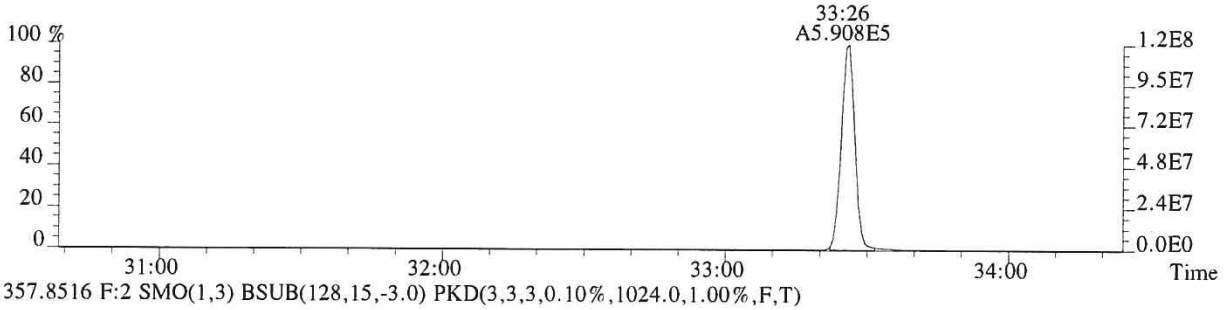
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



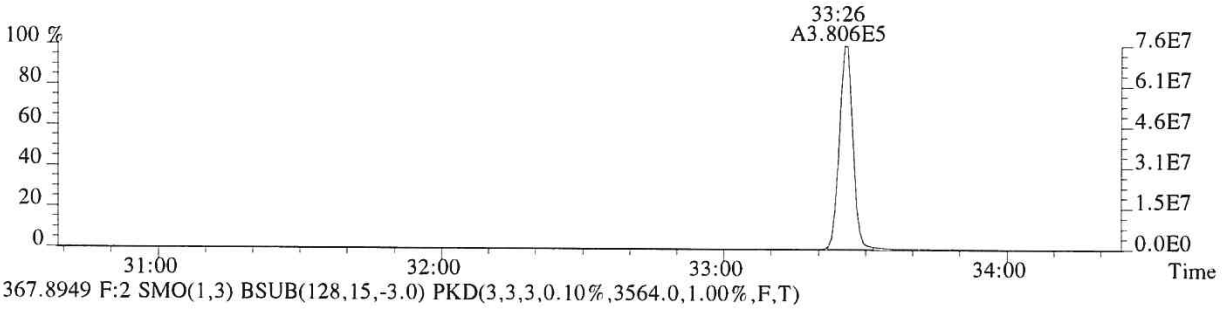
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



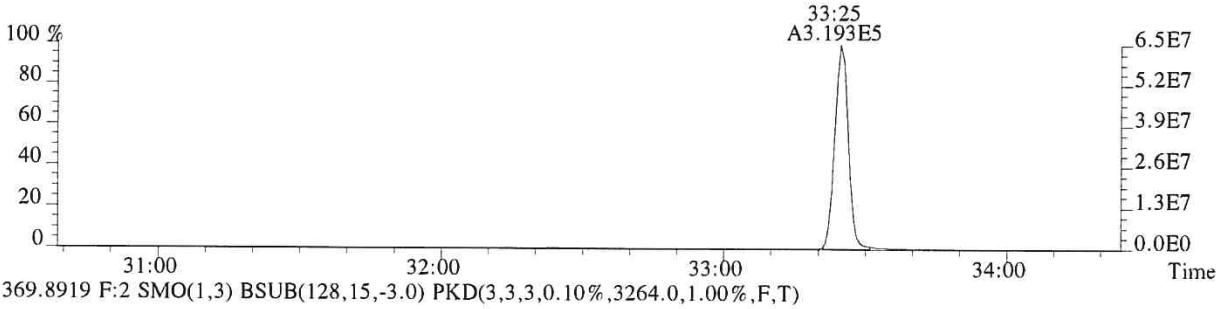
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



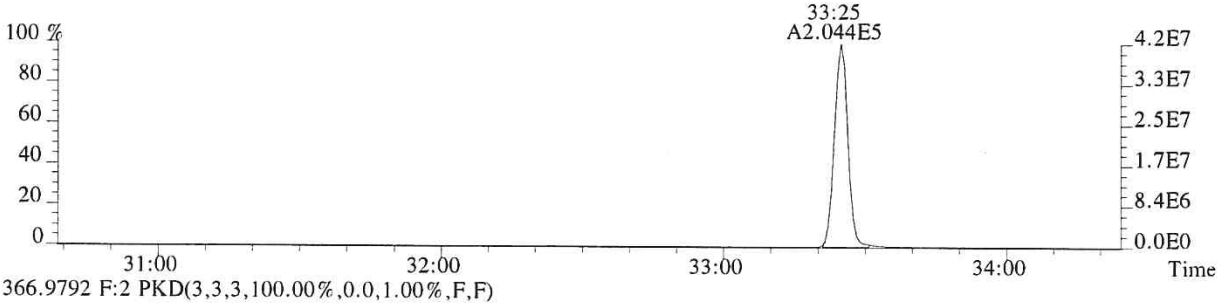
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



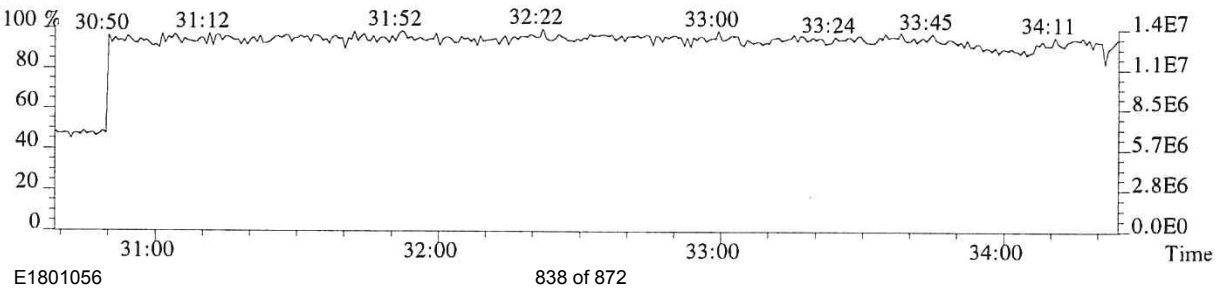
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



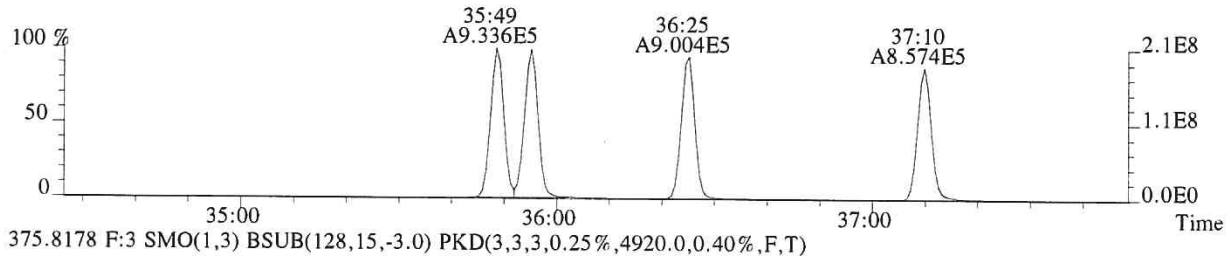
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



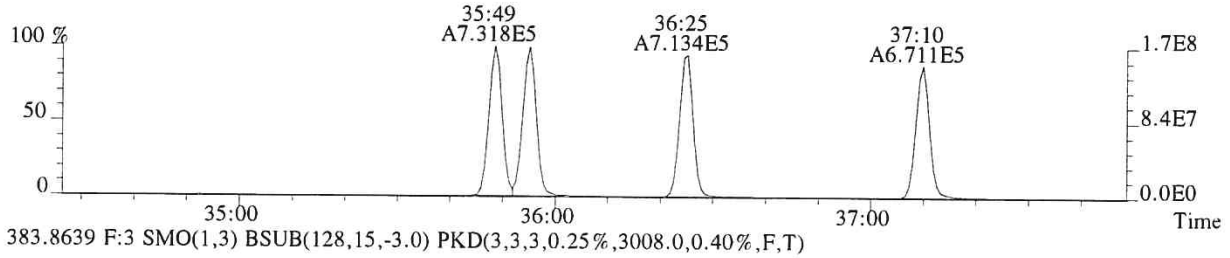
013056

File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

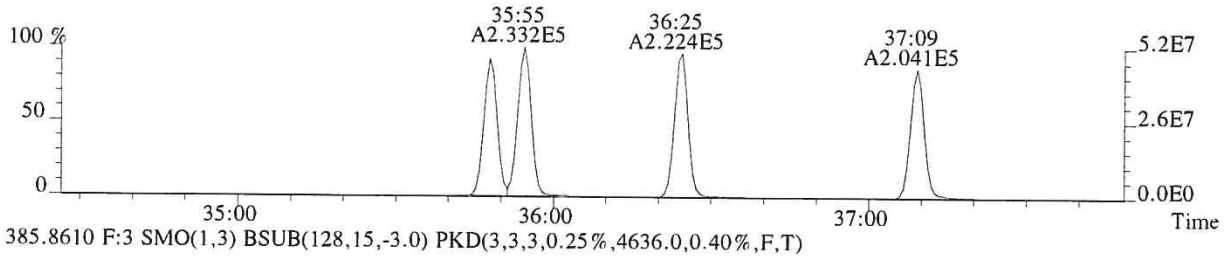
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



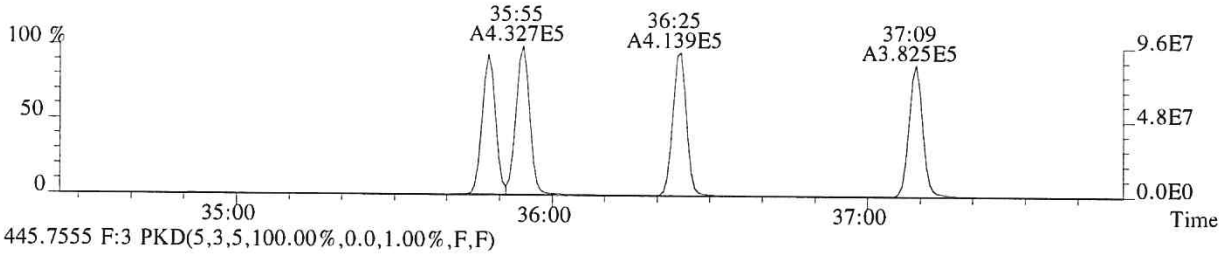
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4920.0,0.40%,F,T)



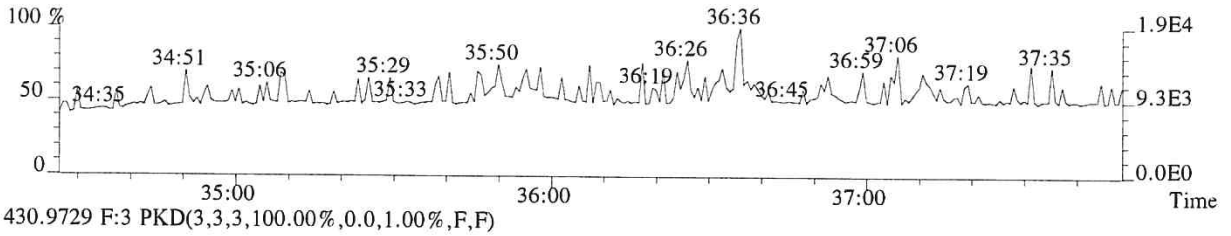
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



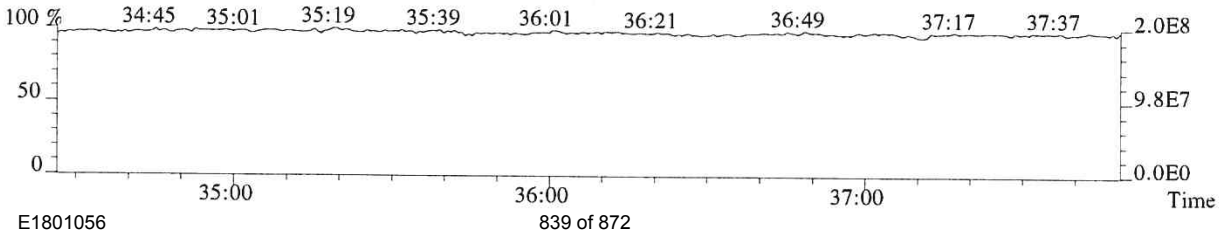
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



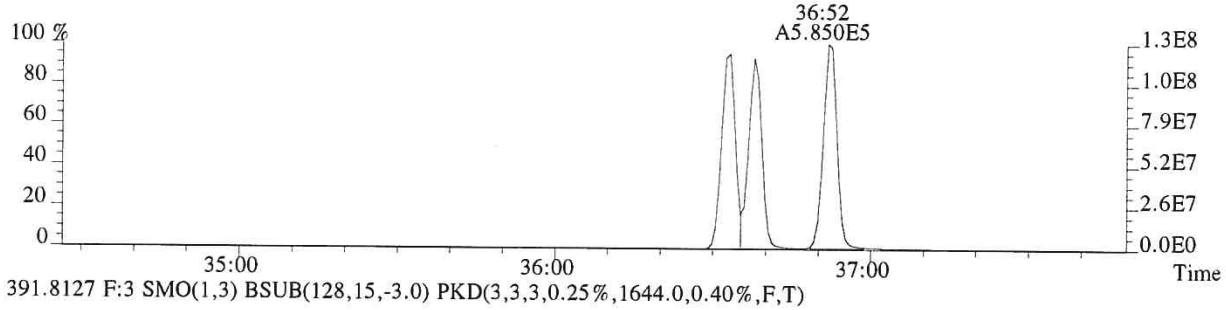
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



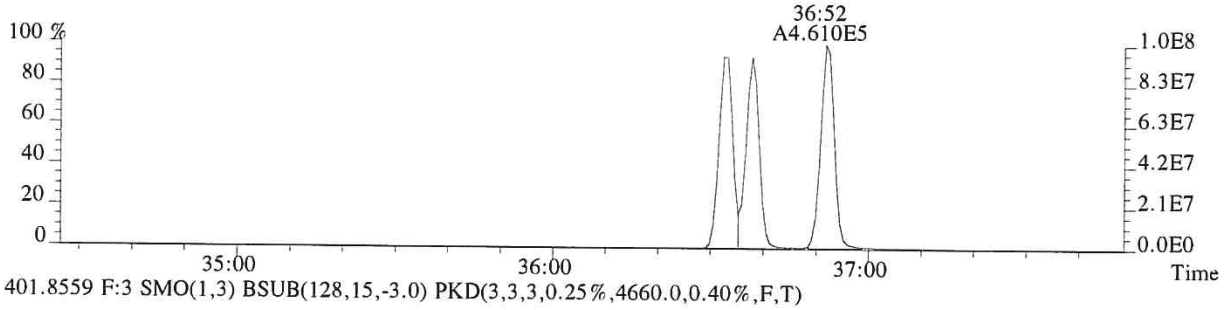
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



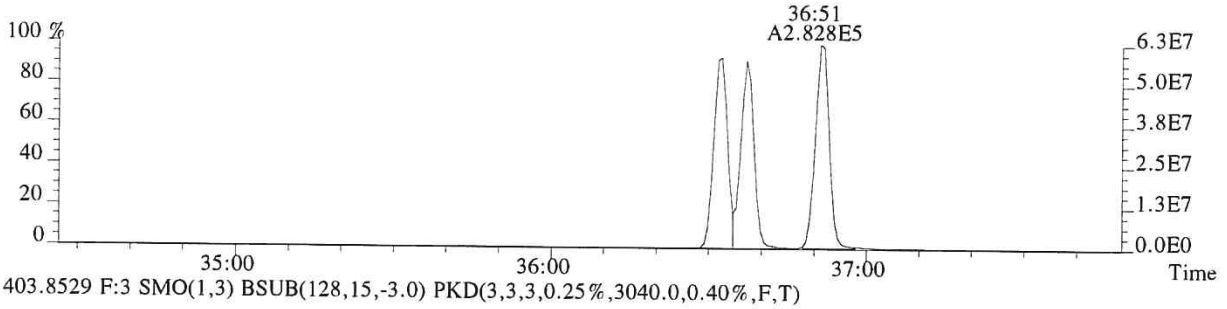
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



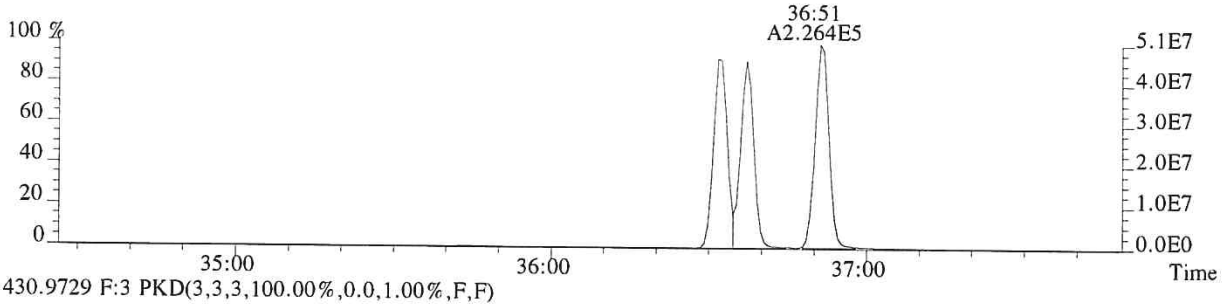
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



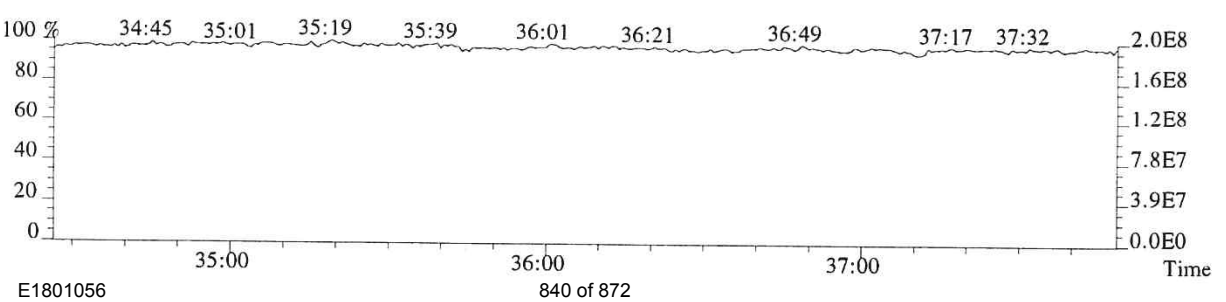
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4660.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)

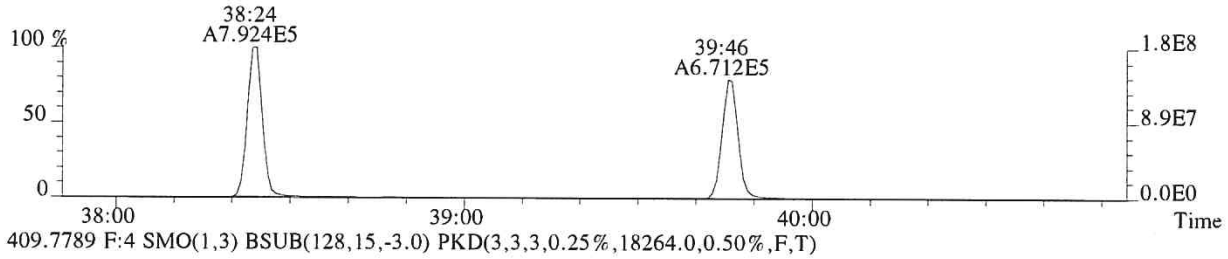


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

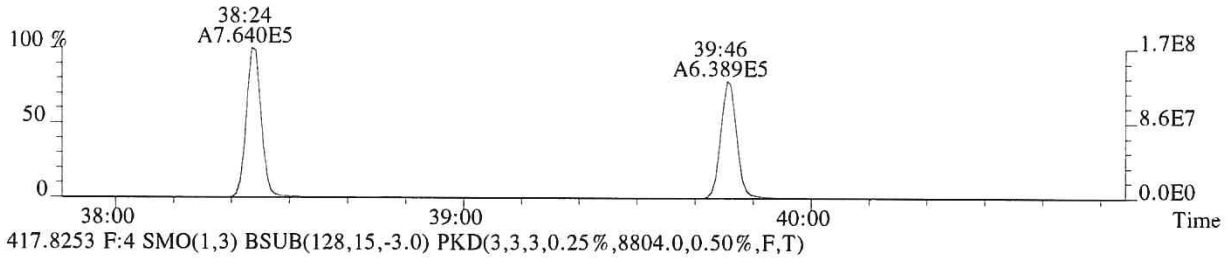


013058

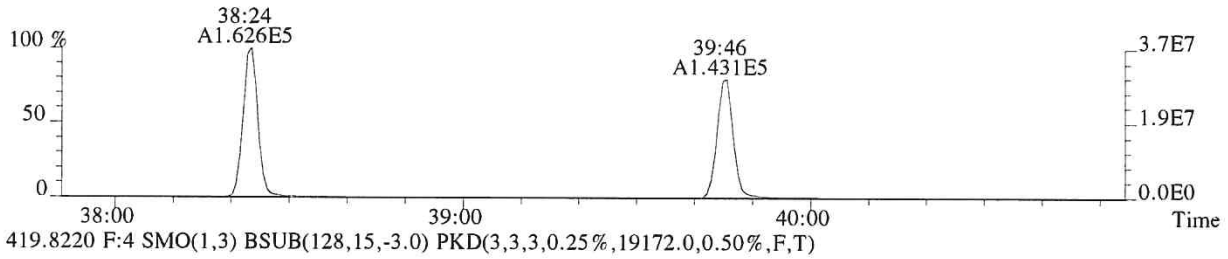
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26056.0,0.50%,F,T)



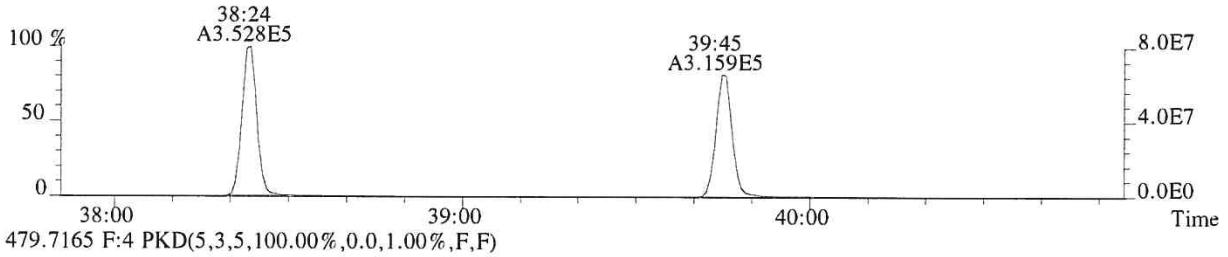
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18264.0,0.50%,F,T)



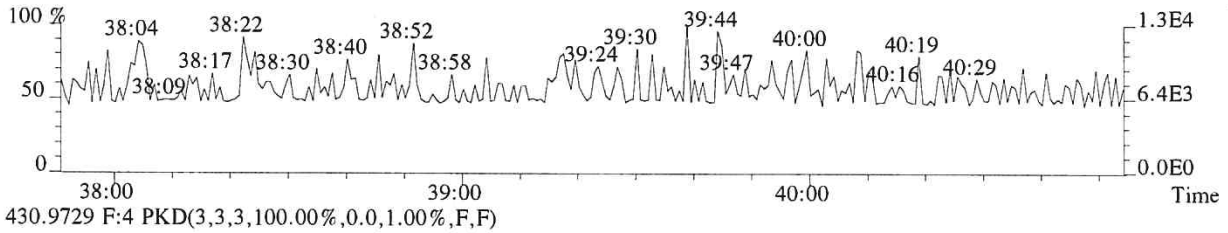
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8804.0,0.50%,F,T)



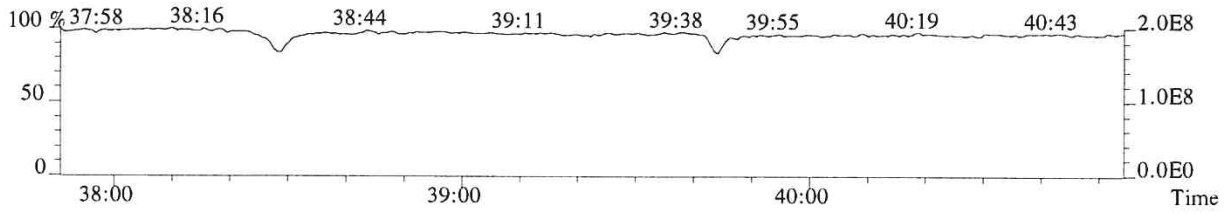
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19172.0,0.50%,F,T)



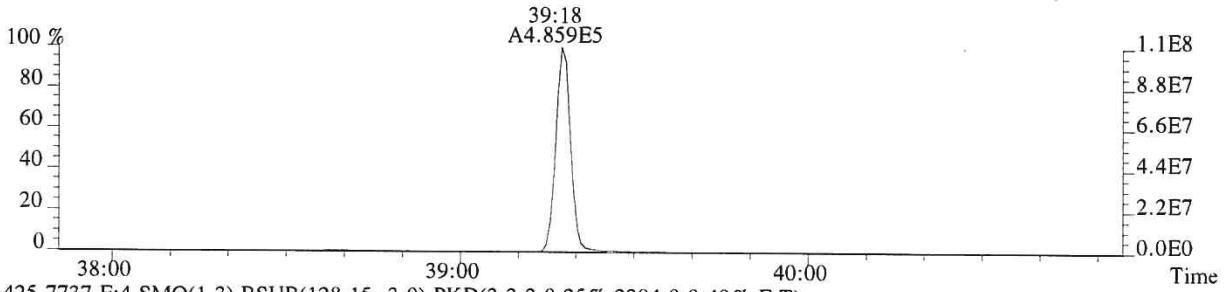
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



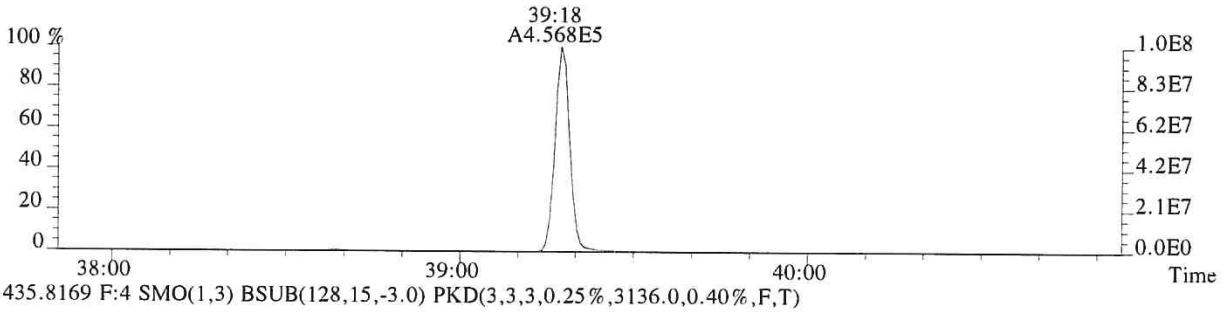
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



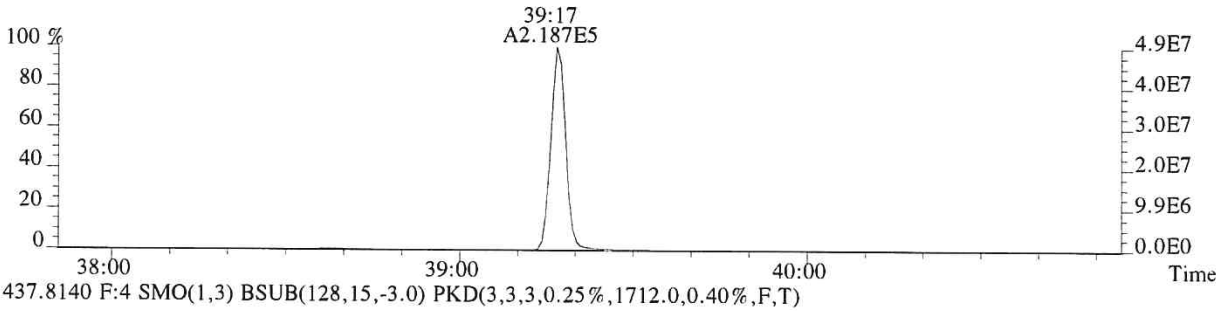
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



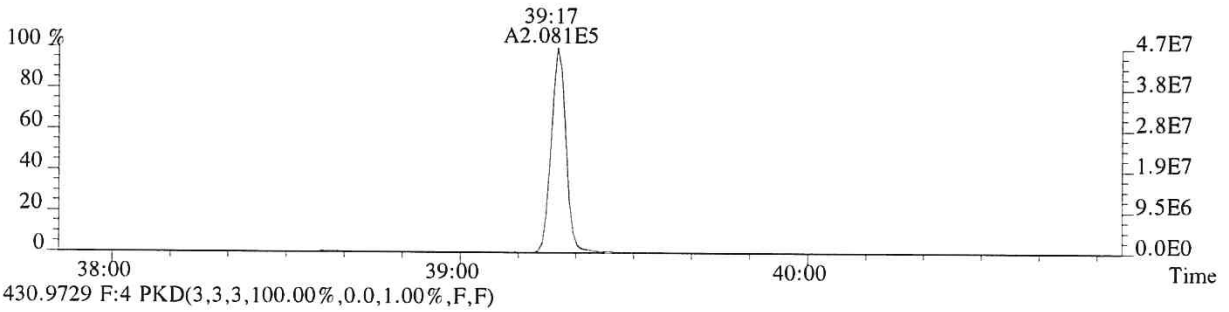
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



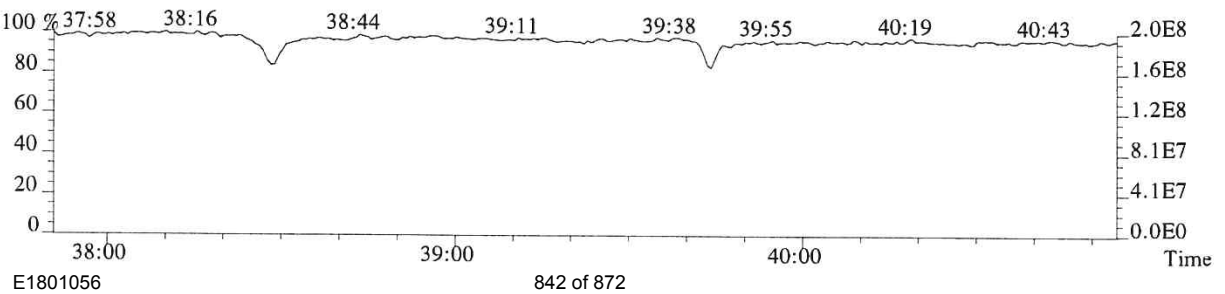
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)

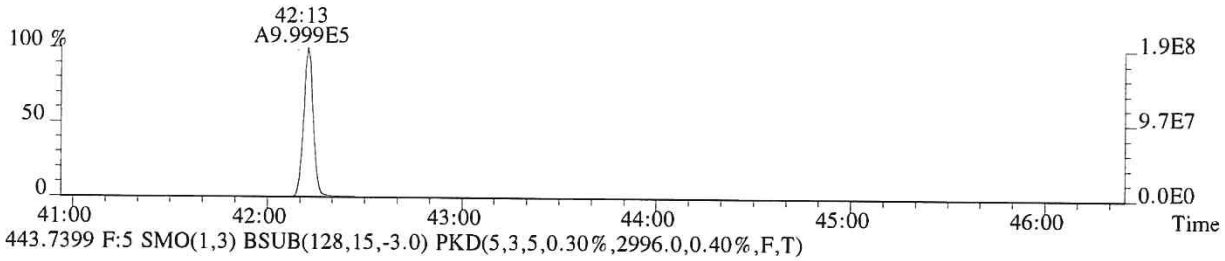


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

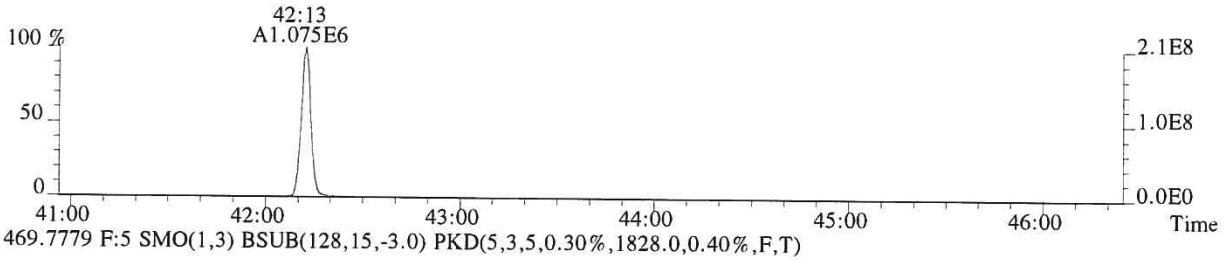


013060

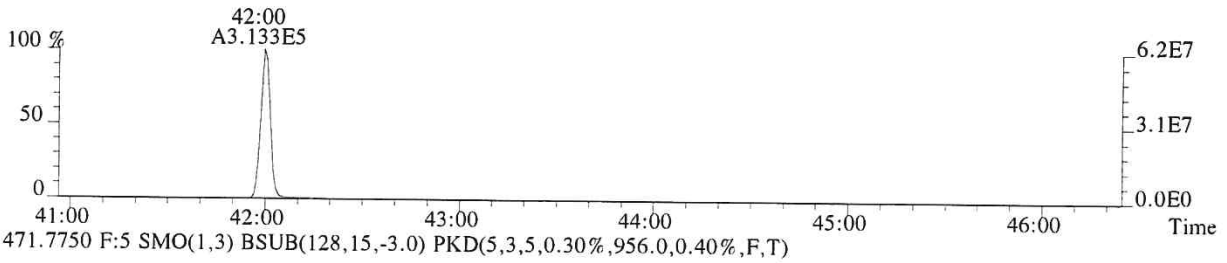
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



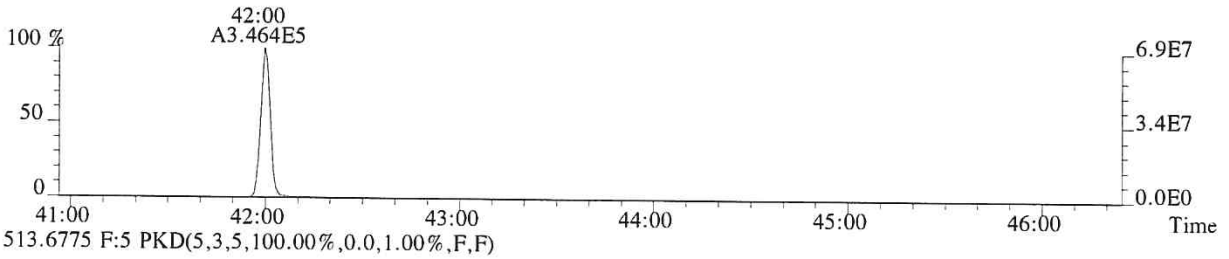
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



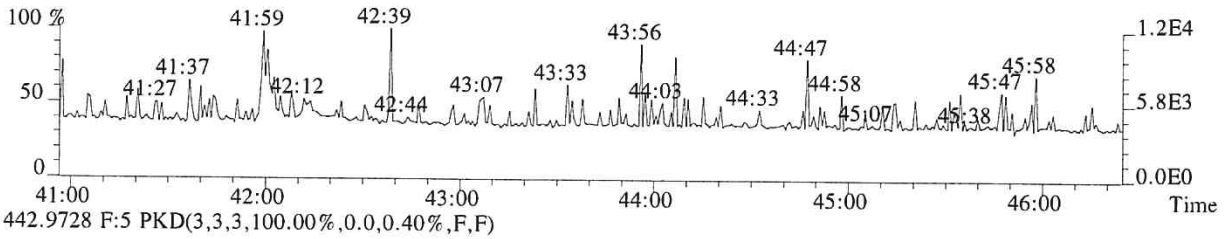
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



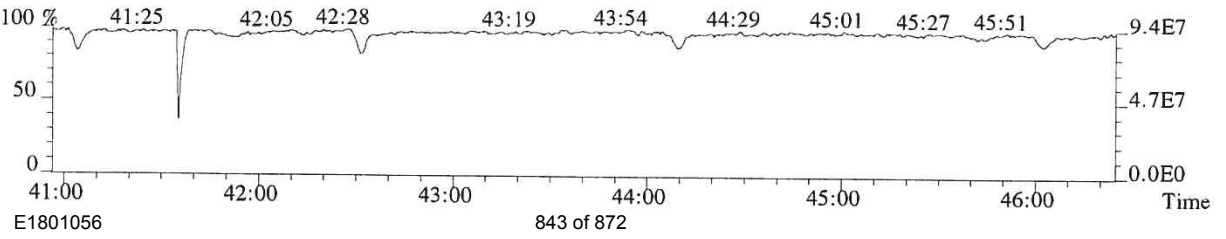
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

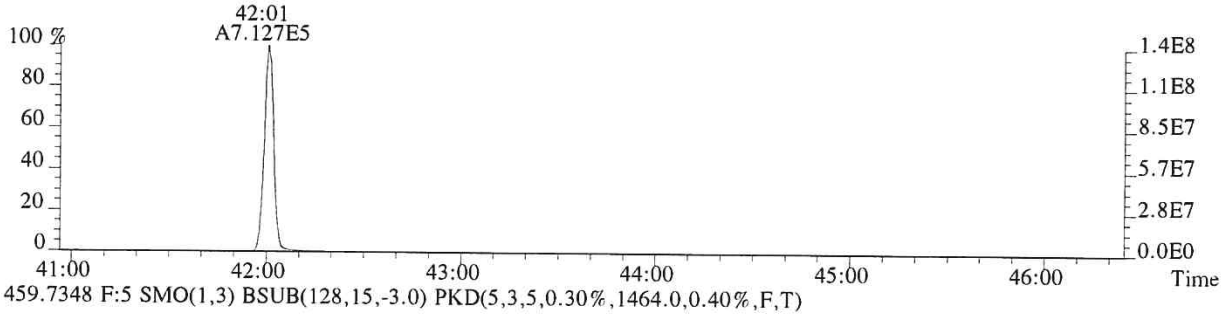


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

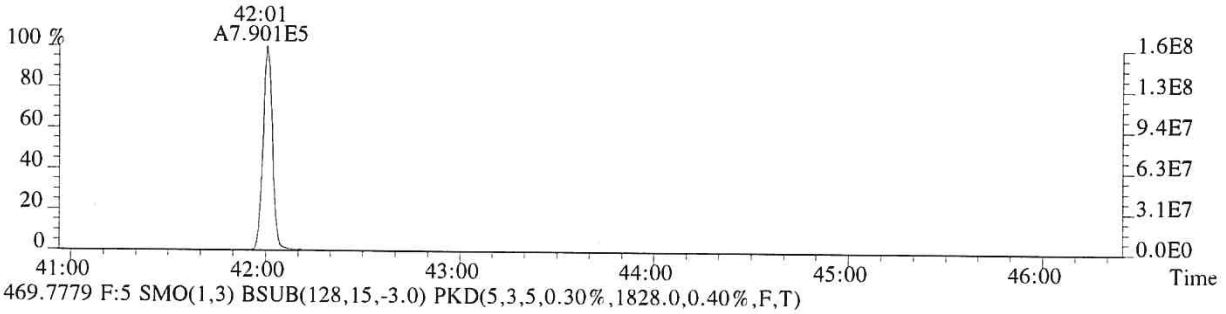


013061

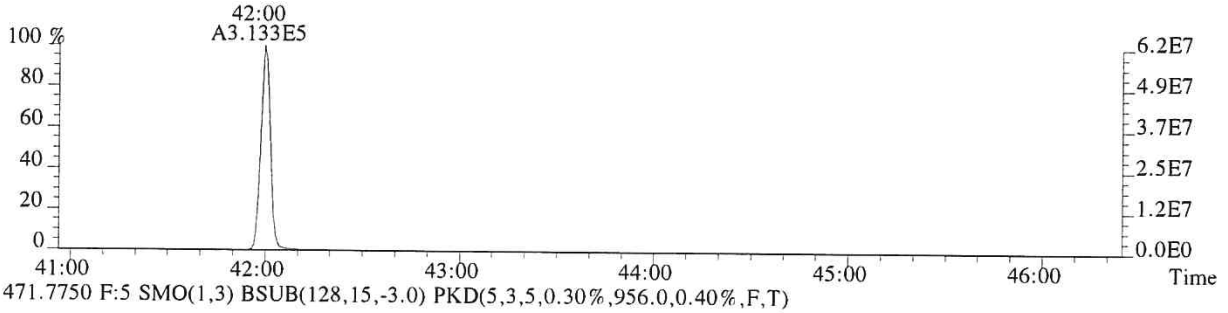
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



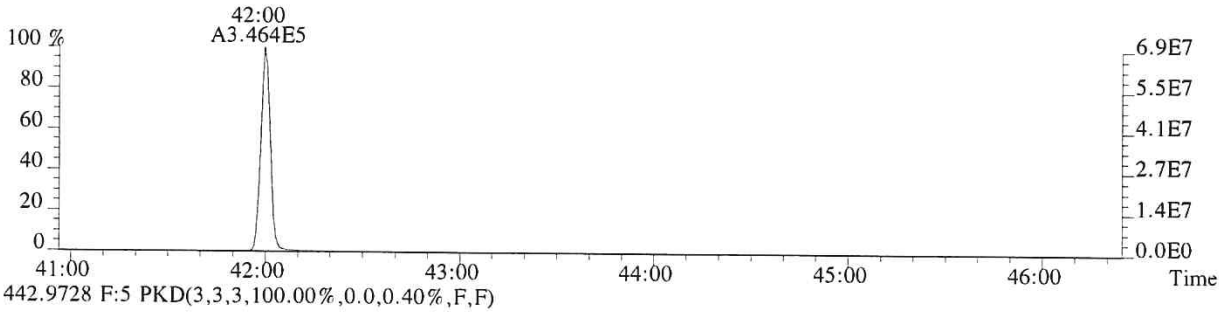
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



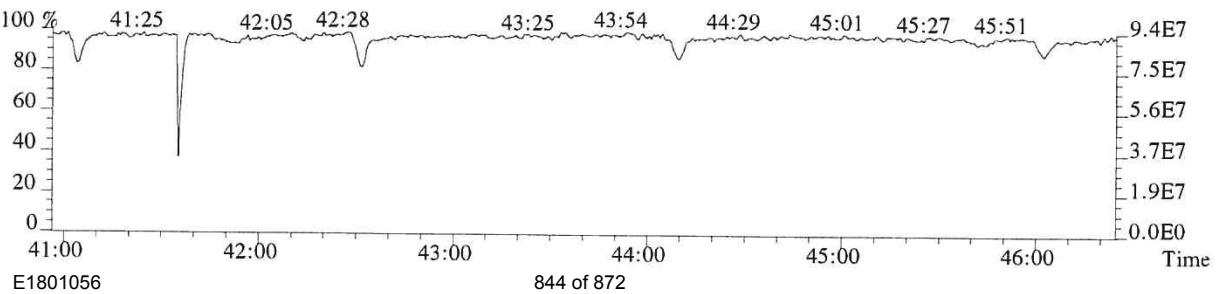
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.651e+05	5.844e+05	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	4.117e+06	2.575e+06	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	3.795e+06	2.391e+06	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.313e+06	2.571e+06	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.588e+06	2.836e+06	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	3.399e+06	2.690e+06	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	3.119e+06	2.463e+06	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.035e+06	2.883e+06	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	2.518e+06	2.388e+06	1.05	yes	no	1.463
10	Unk	OCDF	42:13	3.855e+06	4.175e+06	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	3.257e+05	4.207e+05	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	2.277e+06	1.455e+06	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.053e+06	1.616e+06	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	2.042e+06	1.617e+06	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	2.180e+06	1.732e+06	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.868e+06	1.765e+06	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.725e+06	3.028e+06	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.197e+05	2.785e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	3.496e+05	2.178e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	3.453e+05	2.138e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.447e+05	2.684e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.758e+05	3.274e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.668e+05	3.132e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.489e+05	2.799e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.241e+05	2.682e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	1.078e+05	2.346e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.558e+05	1.966e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	2.439e+05	1.553e+05	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.940e+05	1.538e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.938e+05	1.542e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.682e+05	1.601e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	2.375e+05	2.681e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.555e+05	1.925e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.160e+05	1.725e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	7.877e+05				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.41e+07	1.94e+03	4.3e+04	1.06e+08	4.26e+03	2.5e+04
2	1,2,3,7,8-PeCDF	8.11e+08	8.46e+03	9.6e+04	5.11e+08	9.13e+03	5.6e+04
3	2,3,4,7,8-PeCDF	7.87e+08	8.46e+03	9.3e+04	4.93e+08	9.13e+03	5.4e+04
4	1,2,3,4,7,8-HxCDF	7.76e+08	1.23e+04	6.3e+04	6.07e+08	9.42e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	8.10e+08	1.23e+04	6.6e+04	6.40e+08	9.42e+03	6.8e+04
6	2,3,4,6,7,8-HxCDF	7.65e+08	1.23e+04	6.2e+04	6.05e+08	9.42e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	6.96e+08	1.23e+04	5.6e+04	5.46e+08	9.42e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.09e+08	9.68e+04	7.3e+03	6.78e+08	6.15e+04	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	5.55e+08	9.68e+04	5.7e+03	5.29e+08	6.15e+04	8.6e+03
10	OCDF	7.55e+08	1.43e+03	5.3e+05	8.22e+08	2.80e+03	2.9e+05
11	2,3,7,8-TCDD	6.32e+07	4.52e+03	1.4e+04	8.21e+07	2.67e+03	3.1e+04
12	1,2,3,7,8-PeCDD	4.67e+08	3.26e+03	1.4e+05	2.98e+08	1.54e+03	1.9e+05
13	1,2,3,4,7,8-HxCDD	4.65e+08	2.34e+03	2.0e+05	3.68e+08	1.99e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	4.59e+08	2.34e+03	2.0e+05	3.67e+08	1.99e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	4.96e+08	2.34e+03	2.1e+05	3.98e+08	1.99e+03	2.0e+05
16	1,2,3,4,6,7,8-HpCDD	4.28e+08	1.10e+04	3.9e+04	4.06e+08	8.82e+03	4.6e+04
17	OCDD	5.24e+08	9.60e+02	5.5e+05	5.87e+08	1.87e+03	3.1e+05
18	13C-2,3,7,8-TCDF	3.91e+07	1.53e+04	2.6e+03	4.94e+07	1.22e+04	4.0e+03
19	13C-1,2,3,7,8-PeCDF	6.89e+07	2.06e+03	3.3e+04	4.27e+07	4.55e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	6.95e+07	2.06e+03	3.4e+04	4.34e+07	4.55e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.33e+07	2.62e+03	1.3e+04	6.22e+07	4.07e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	3.91e+07	2.62e+03	1.5e+04	7.31e+07	4.07e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.74e+07	2.62e+03	1.4e+04	6.98e+07	4.07e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.36e+07	2.62e+03	1.3e+04	6.29e+07	4.07e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.82e+07	6.76e+03	4.2e+03	6.20e+07	1.14e+04	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.34e+07	6.76e+03	3.5e+03	5.11e+07	1.14e+04	4.5e+03
27	13C-2,3,7,8-TCDD	3.04e+07	1.91e+04	1.6e+03	3.86e+07	8.85e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	5.04e+07	1.98e+03	2.5e+04	3.21e+07	2.85e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	4.39e+07	4.70e+03	9.3e+03	3.50e+07	2.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	4.37e+07	4.70e+03	9.3e+03	3.49e+07	2.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.82e+07	2.97e+03	1.3e+04	3.65e+07	2.54e+03	1.4e+04
32	13C-OCDD	4.50e+07	3.46e+03	1.3e+04	5.10e+07	1.82e+03	2.8e+04
33	13C-1,2,3,4-TCDD	2.93e+07	1.91e+04	1.5e+03	3.60e+07	8.85e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.90e+07	4.70e+03	1.0e+04	3.94e+07	2.24e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.54e+08	4.95e+03	3.1e+04			

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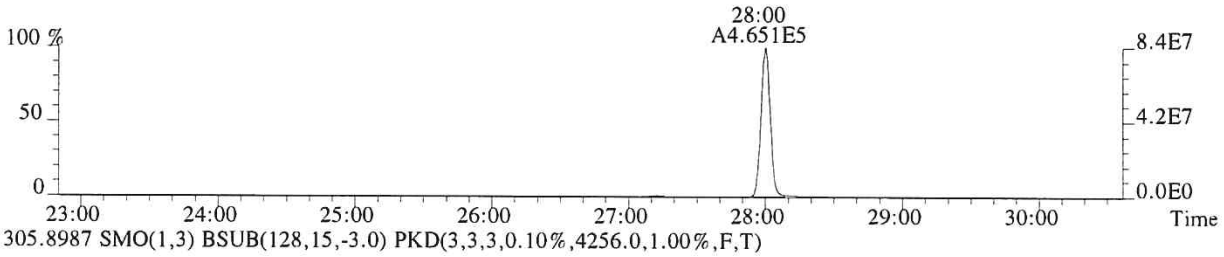
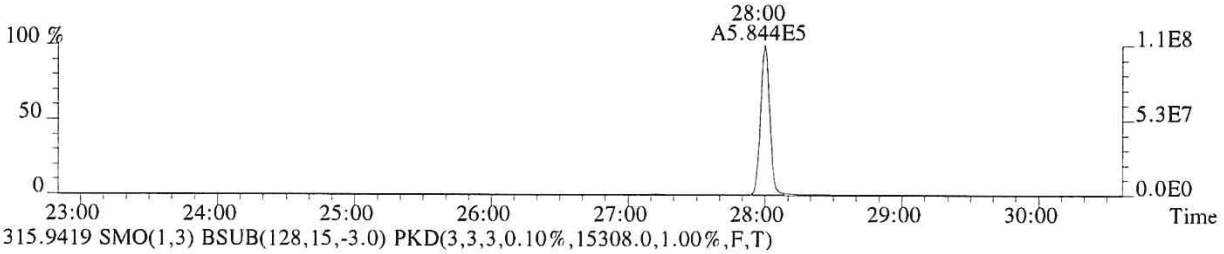
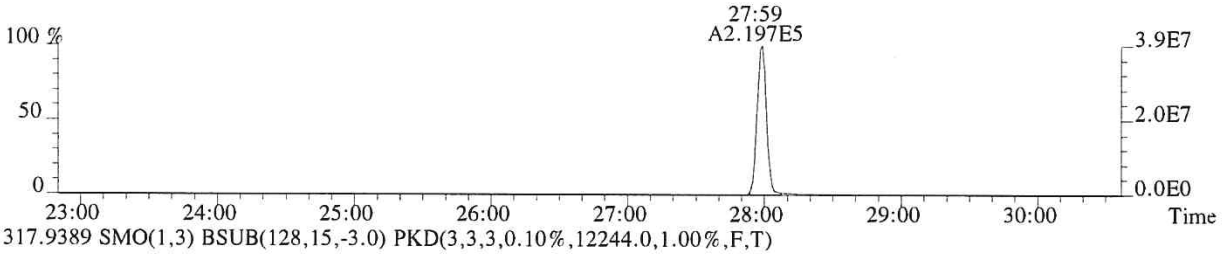
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



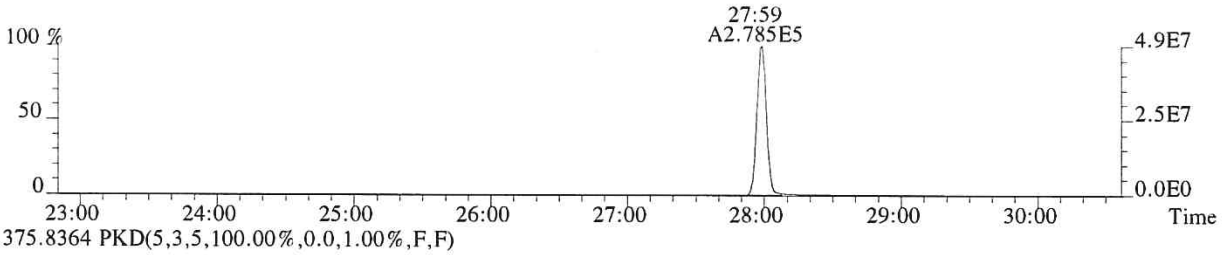
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



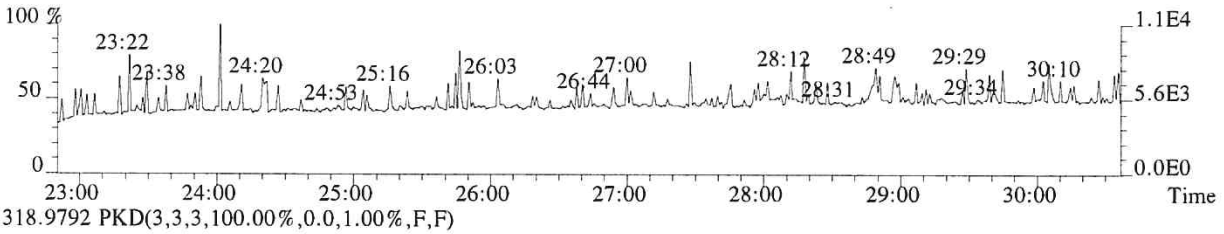
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15308.0,1.00%,F,T)



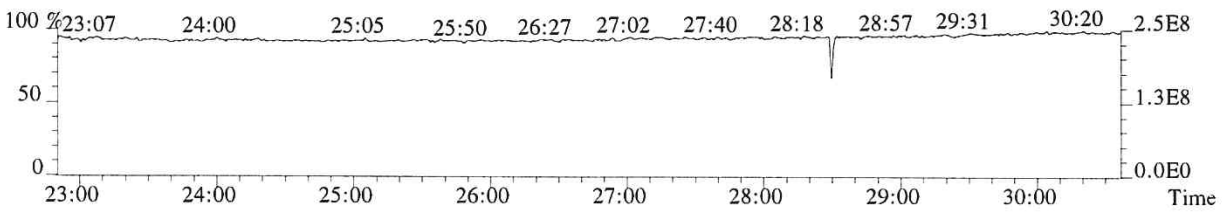
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

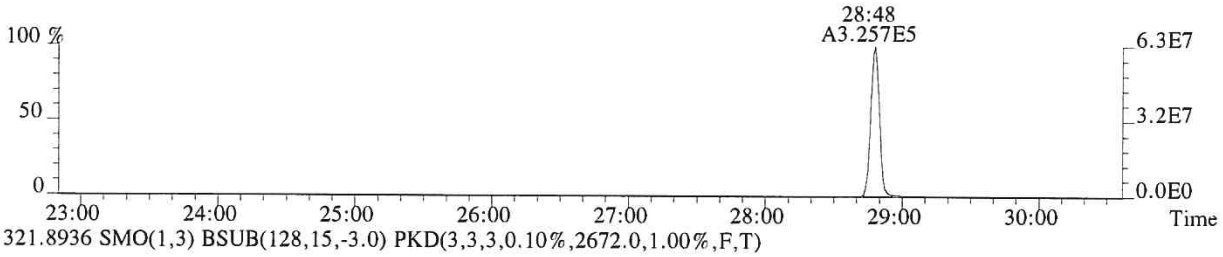


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

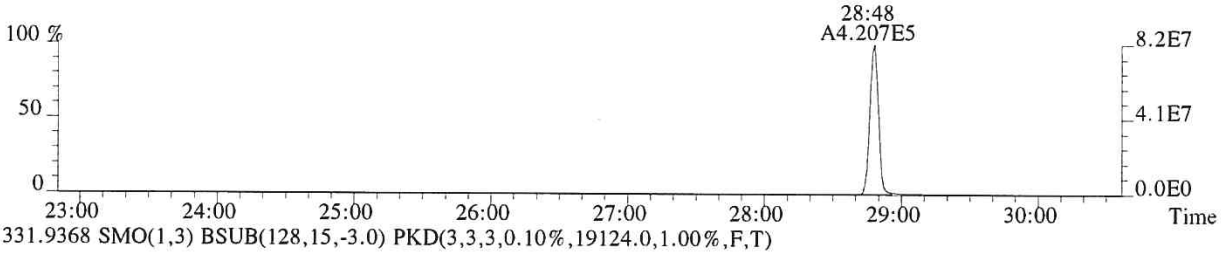


013065

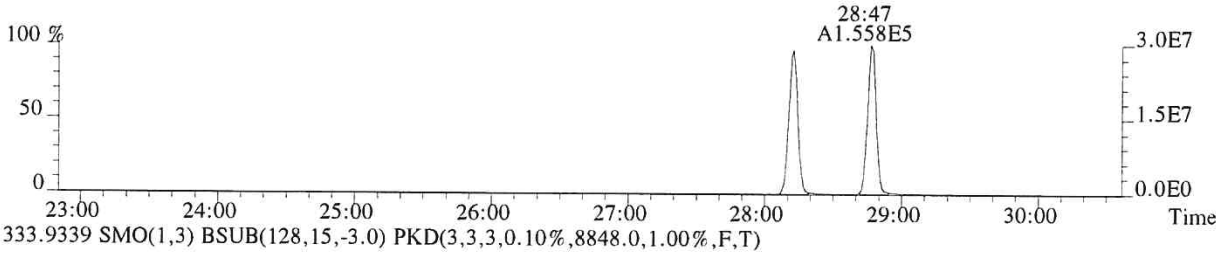
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



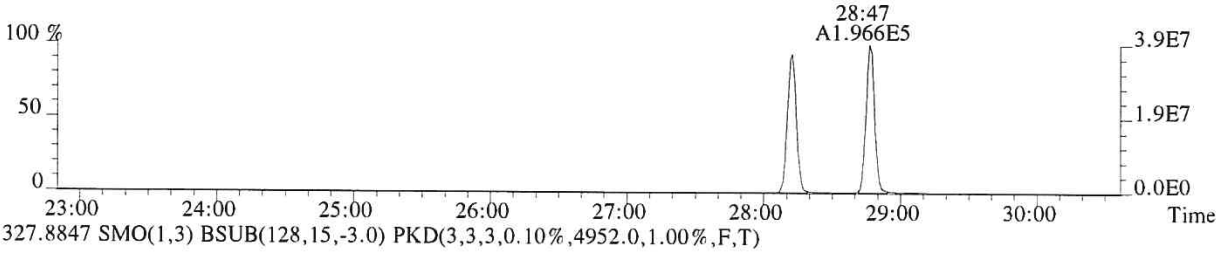
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



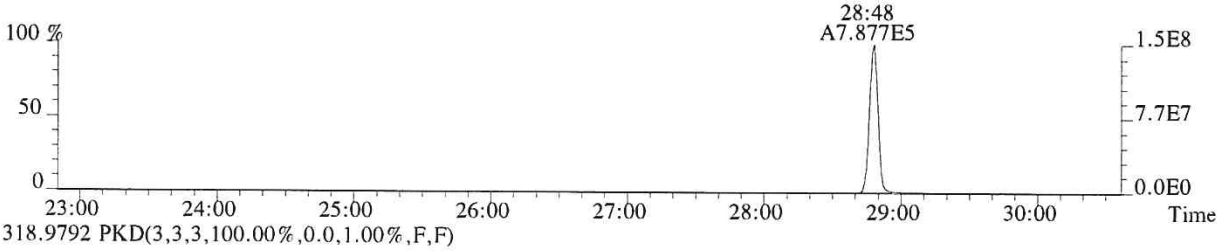
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19124.0,1.00%,F,T)



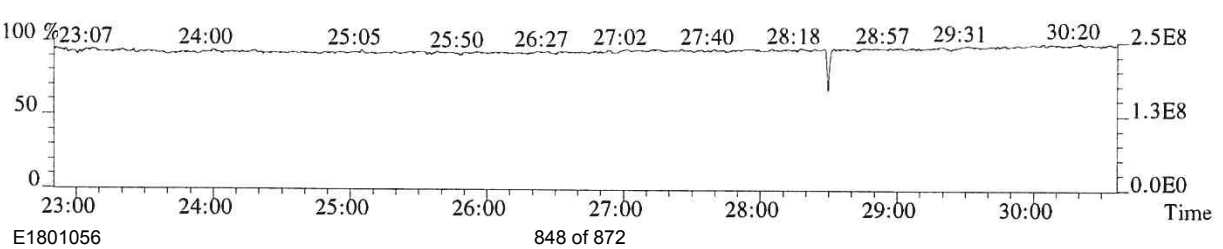
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8848.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)

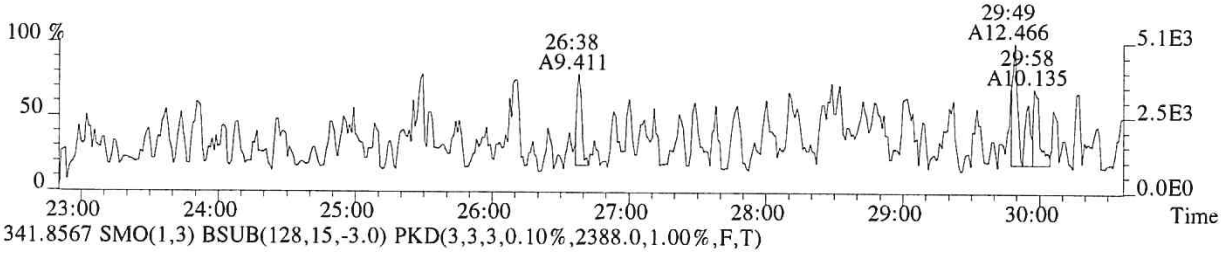


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

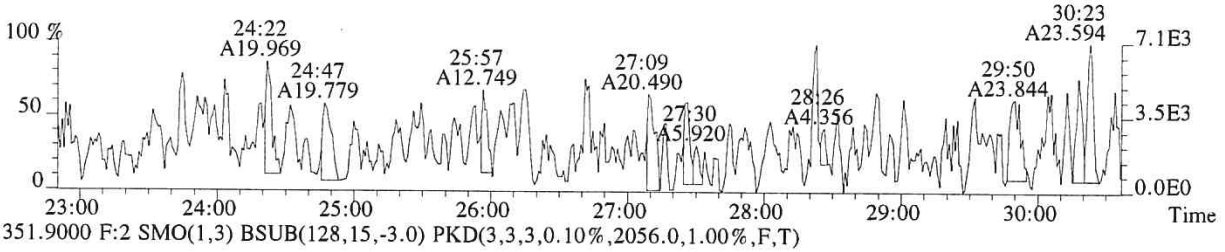


013066

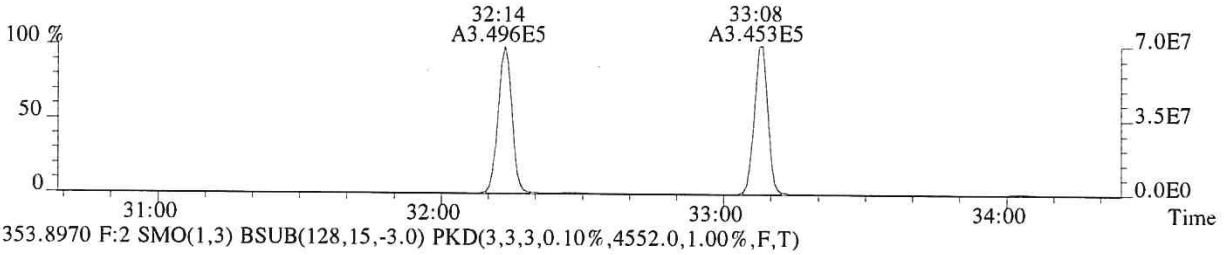
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



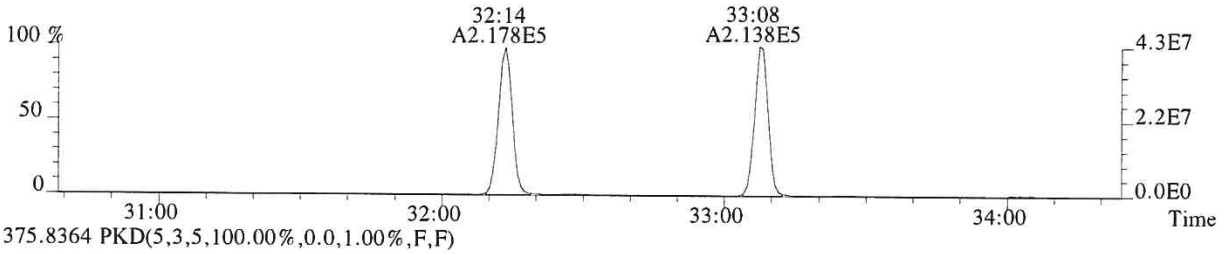
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



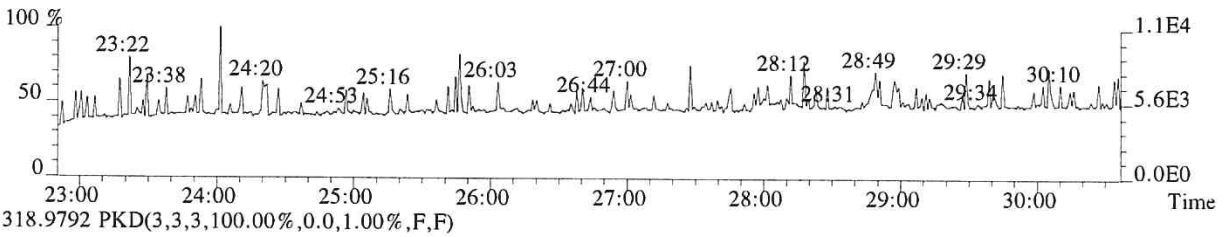
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



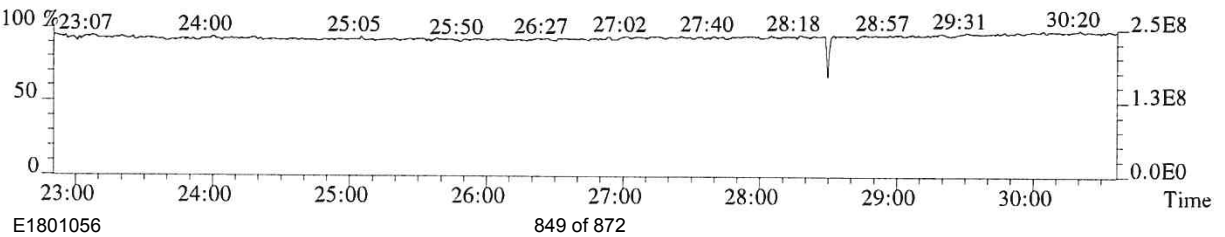
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



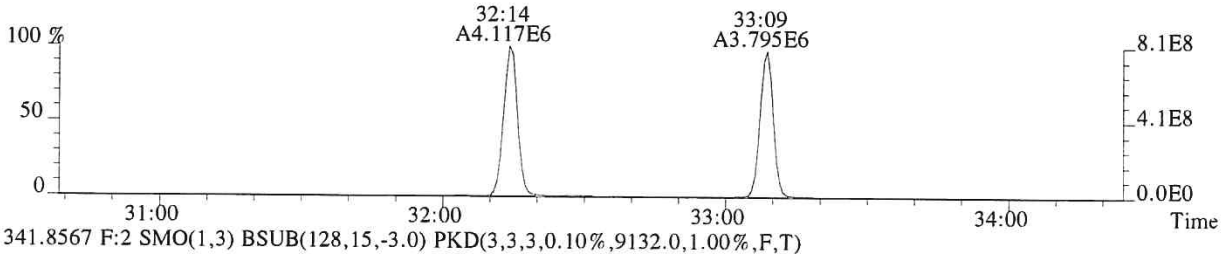
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



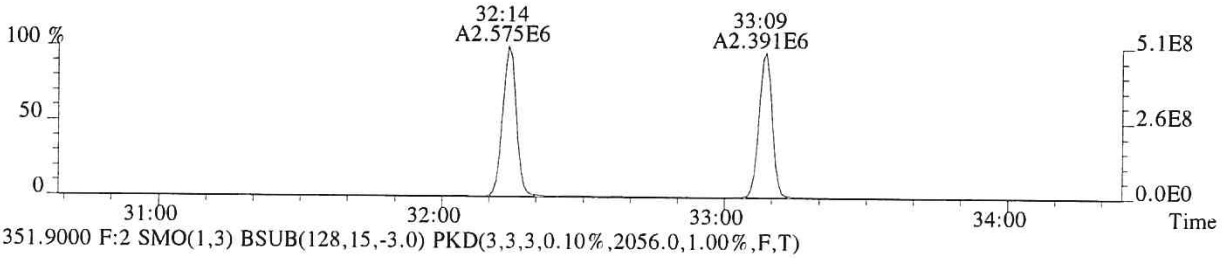
013067

File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

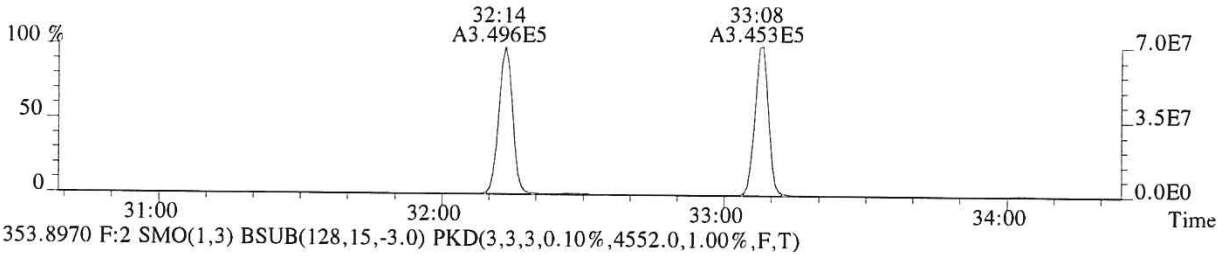
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8456.0,1.00%,F,T)



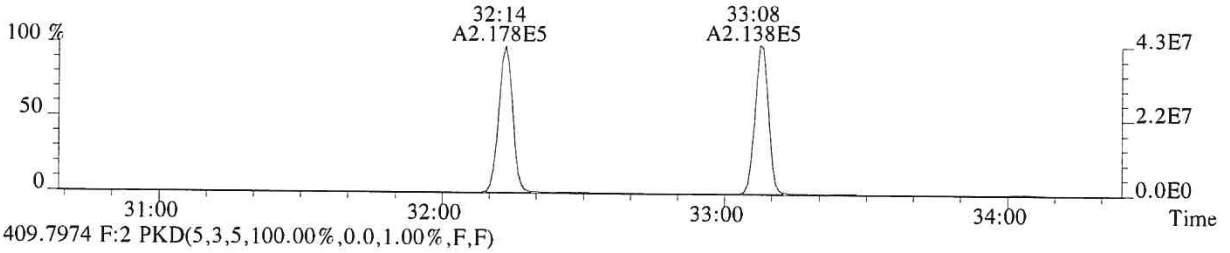
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9132.0,1.00%,F,T)



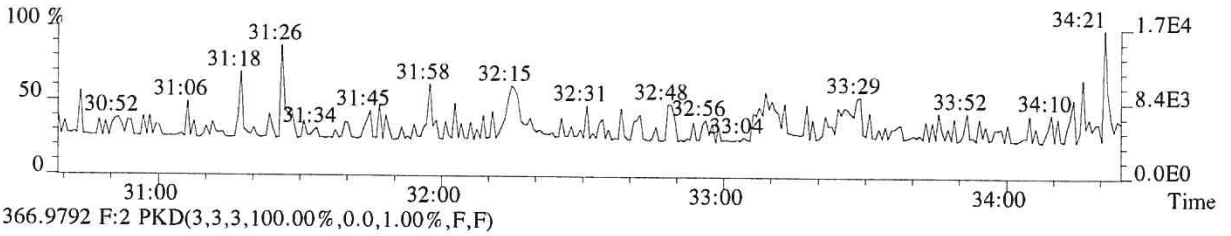
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



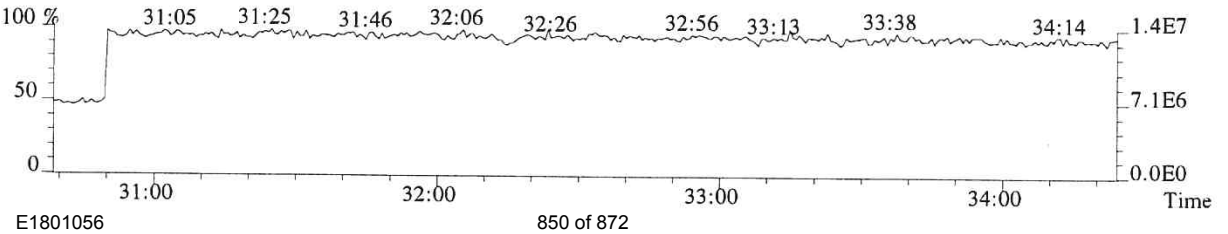
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



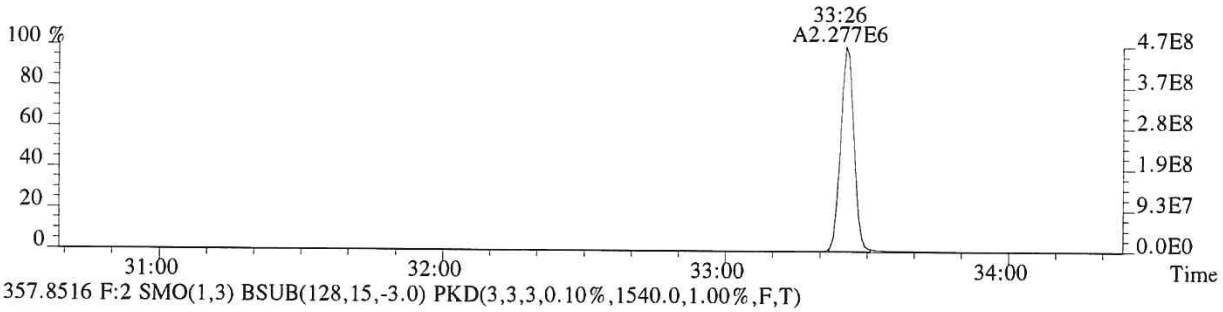
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



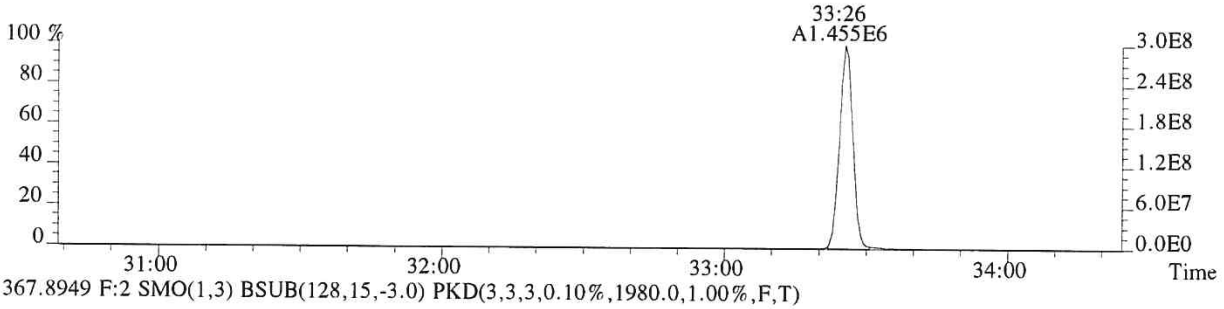
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



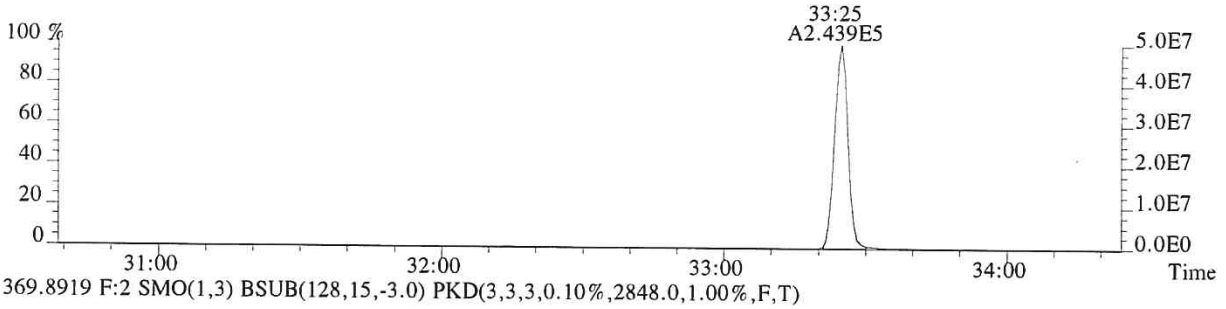
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



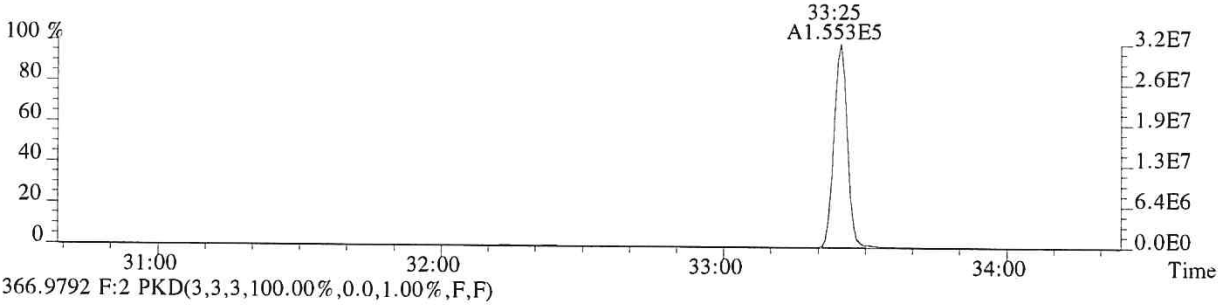
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



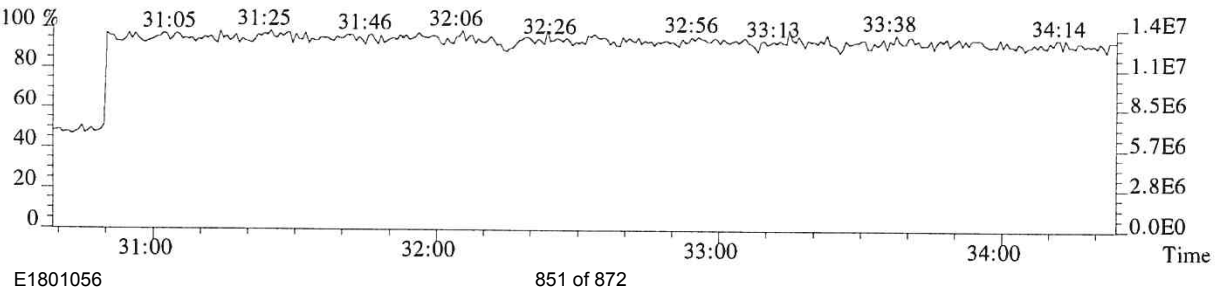
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



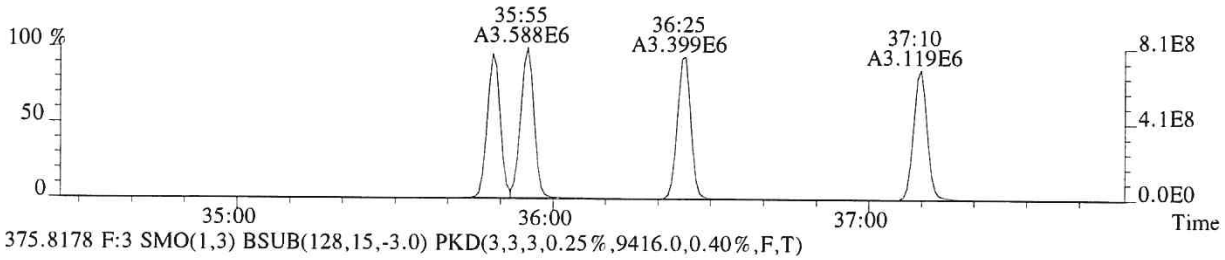
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)



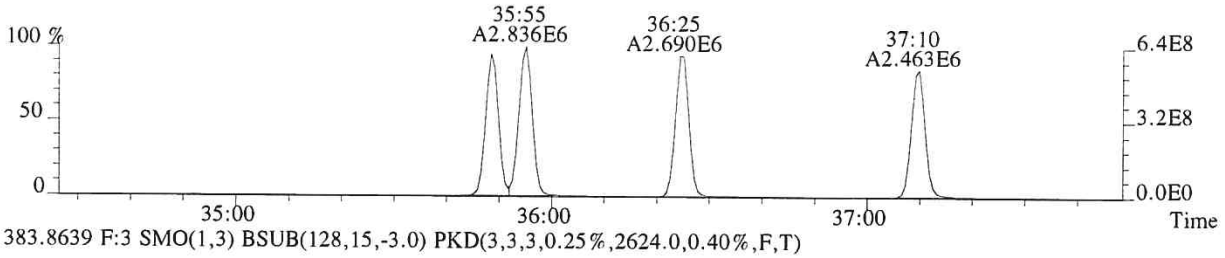
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



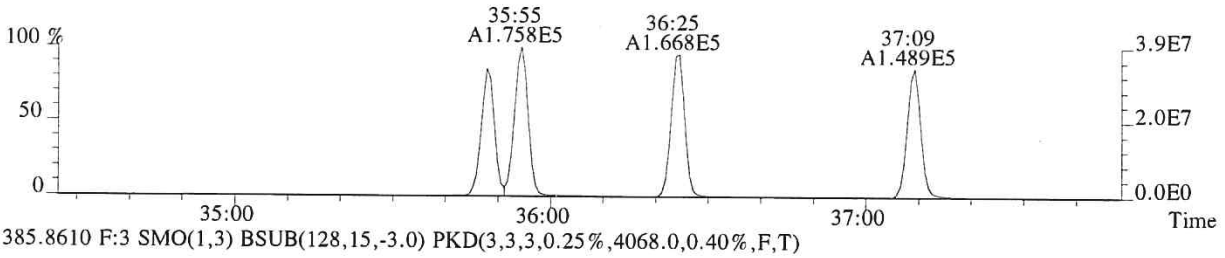
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12332.0,0.40%,F,T)



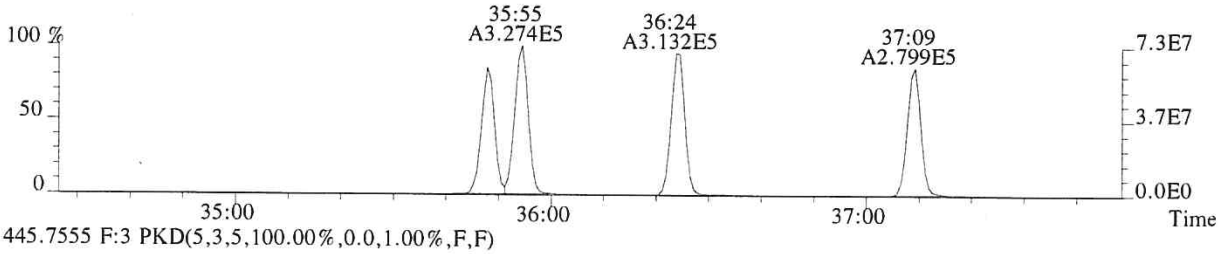
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9416.0,0.40%,F,T)



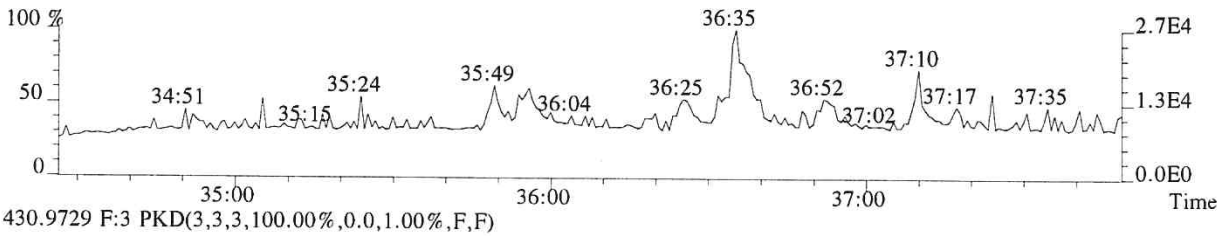
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.40%,F,T)



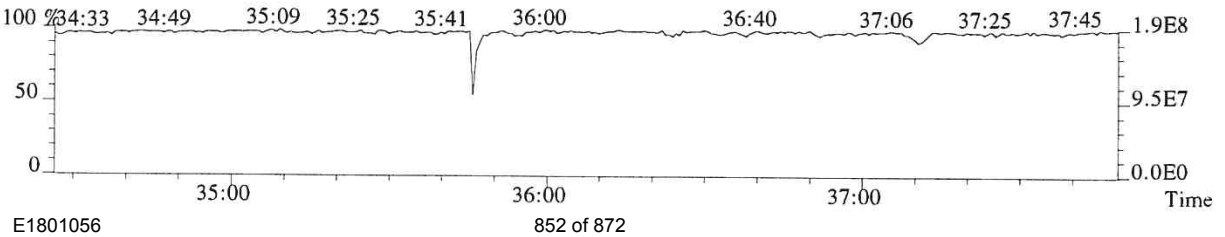
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4068.0,0.40%,F,T)



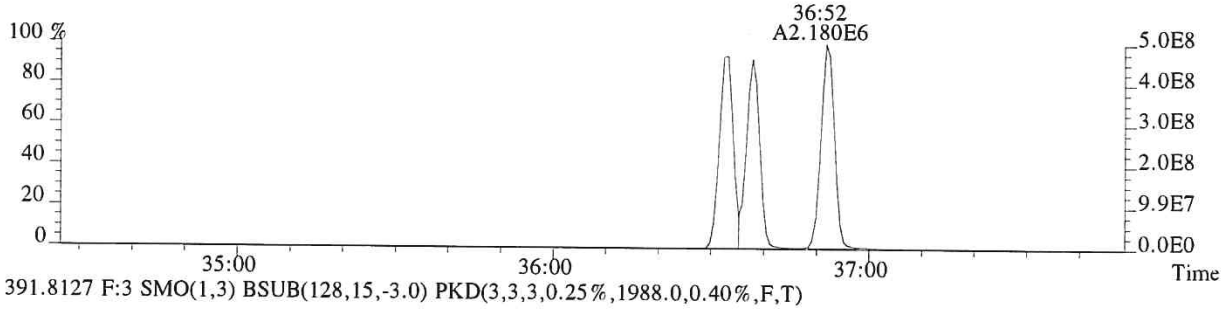
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



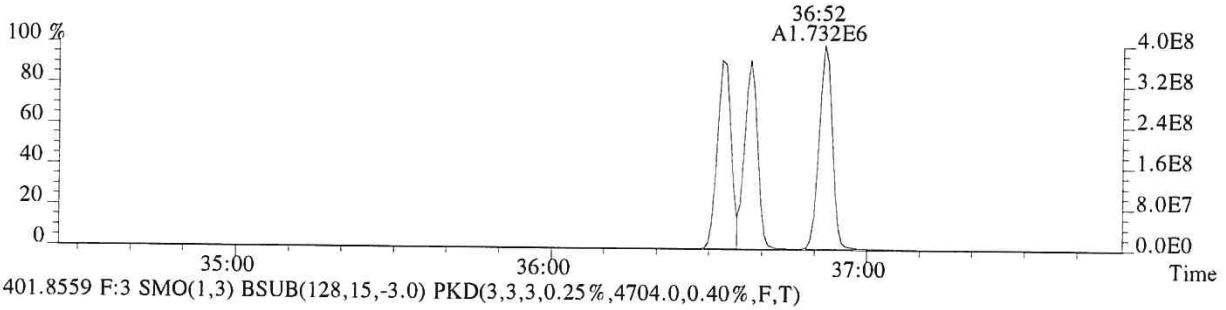
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



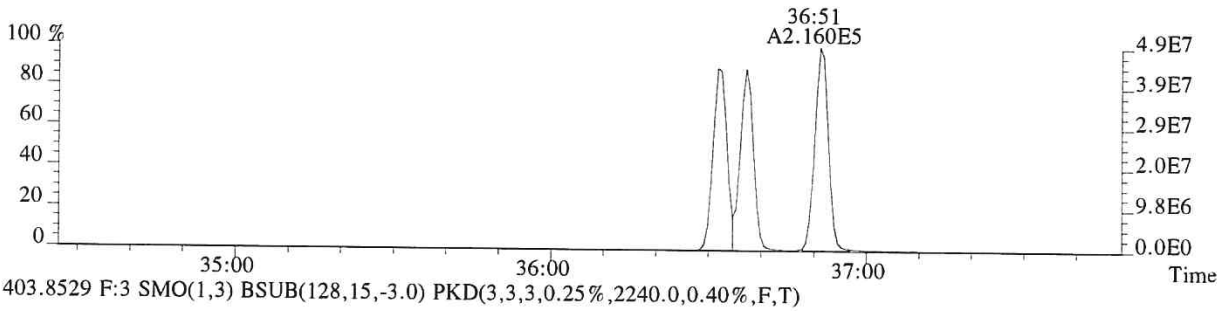
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



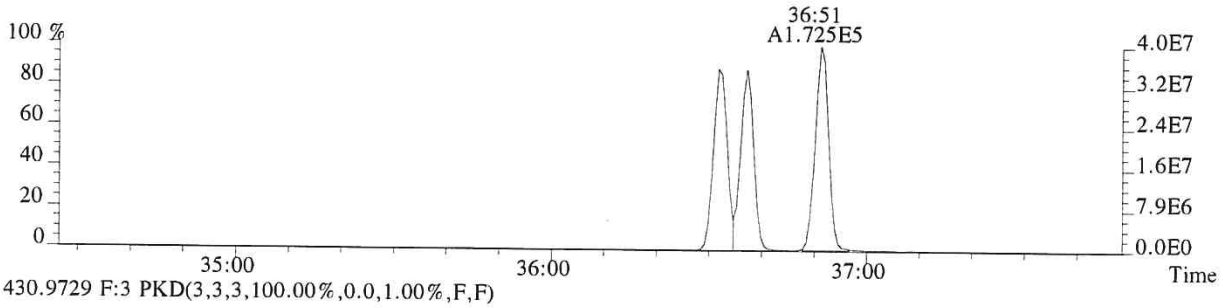
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



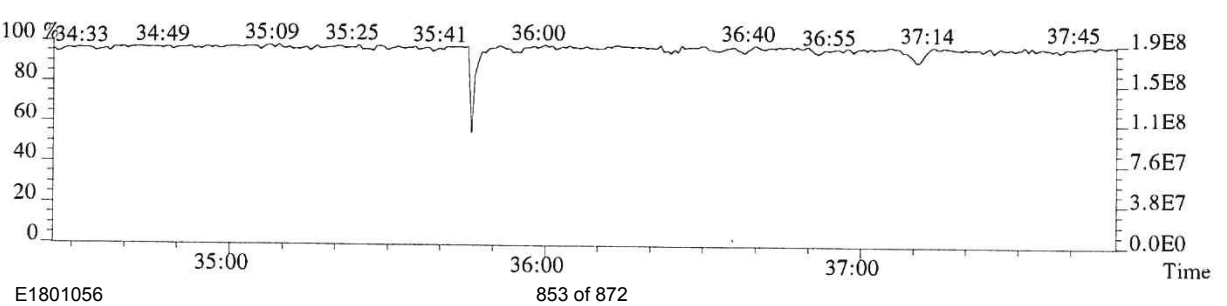
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



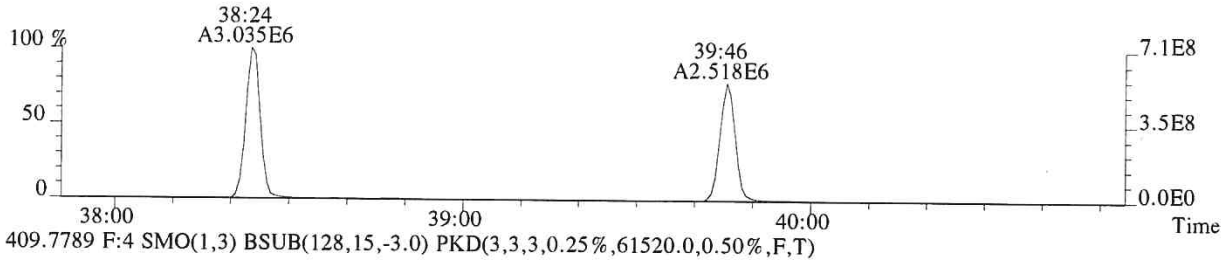
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)



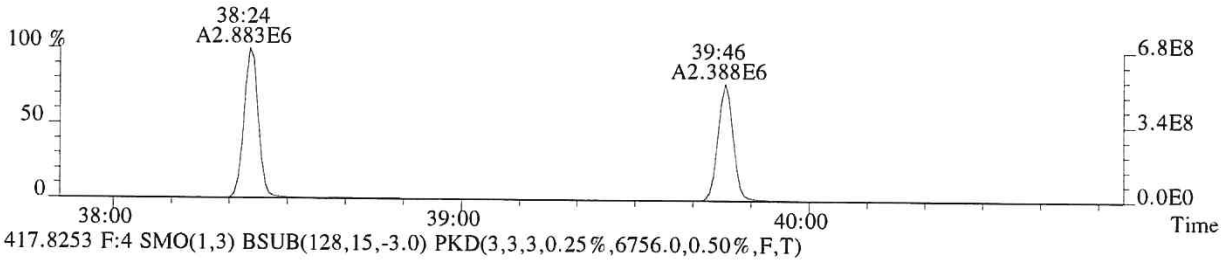
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



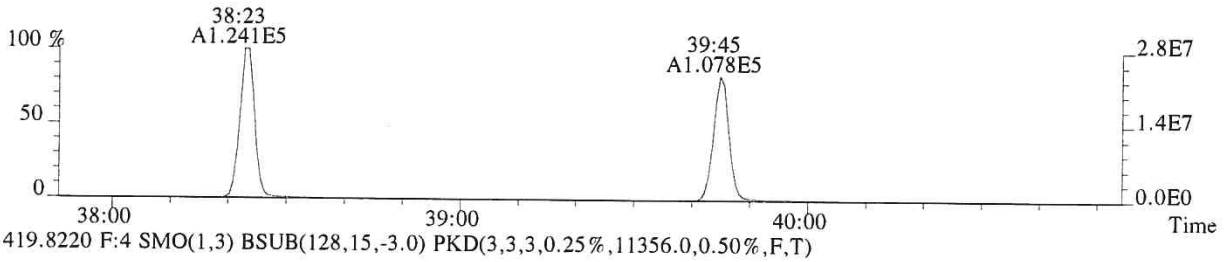
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96804.0,0.50%,F,T)



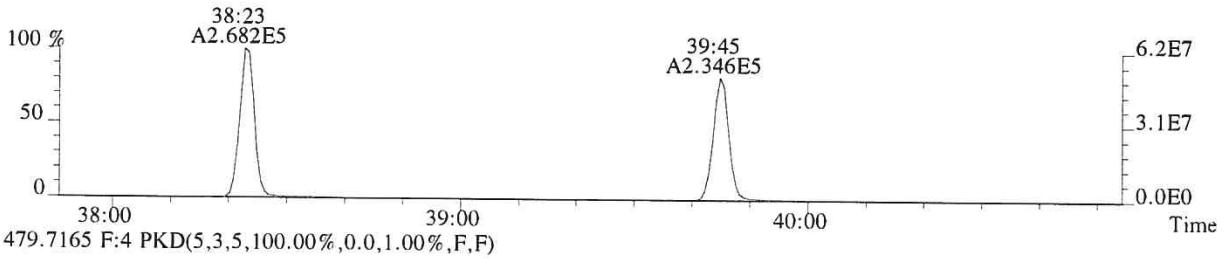
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61520.0,0.50%,F,T)



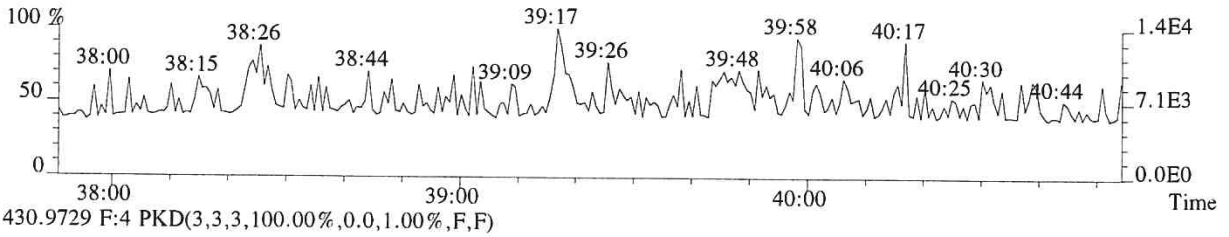
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)



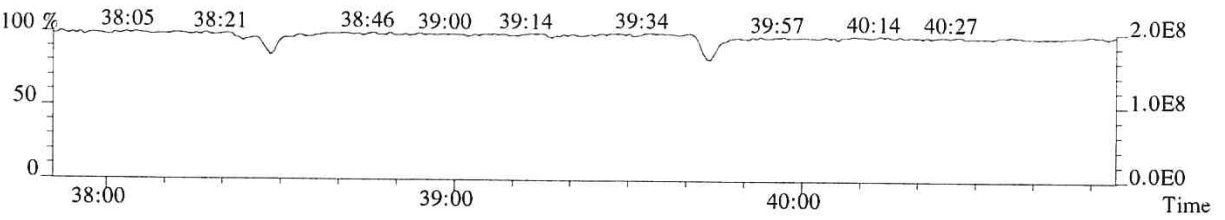
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11356.0,0.50%,F,T)



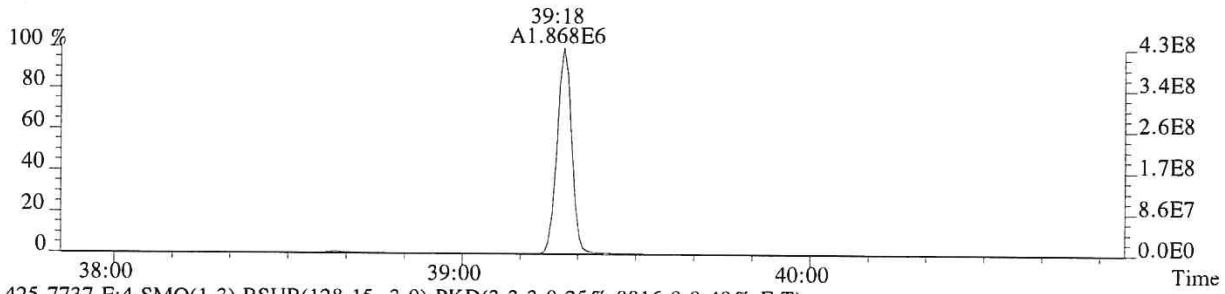
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



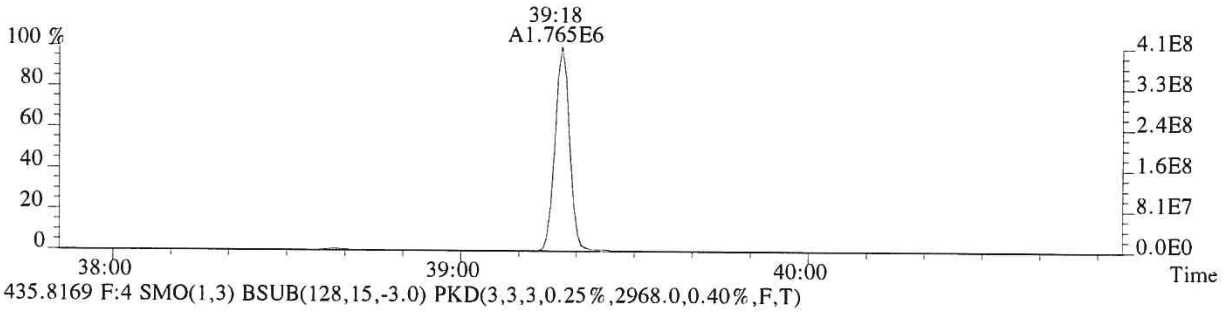
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



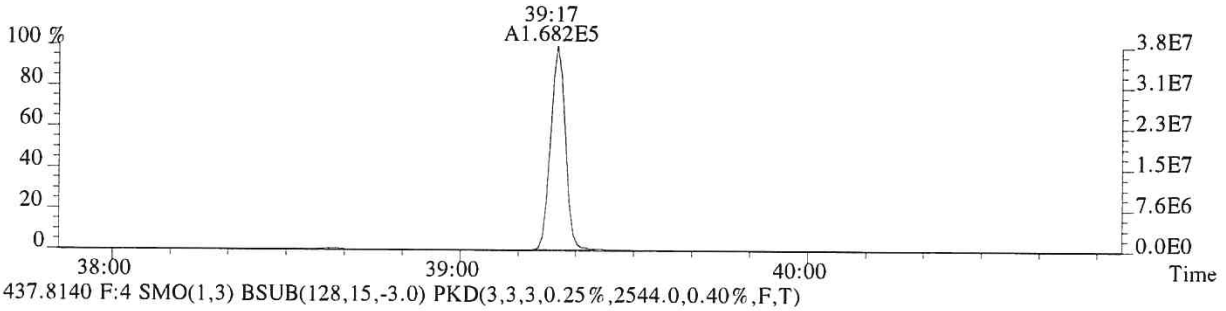
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11044.0,0.40%,F,T)



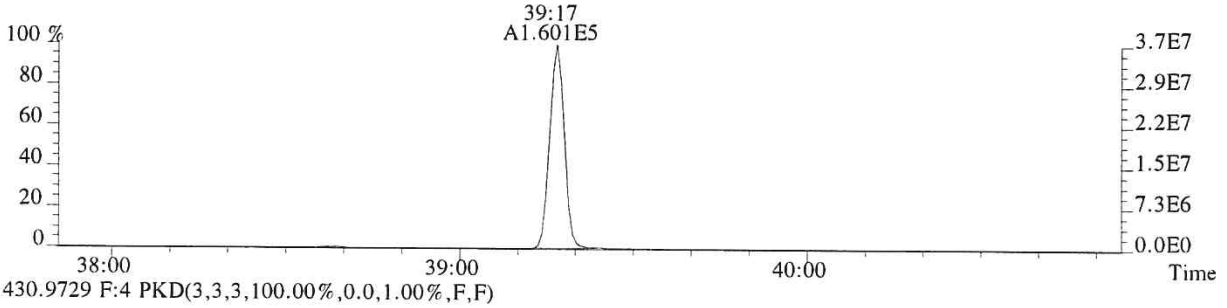
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8816.0,0.40%,F,T)



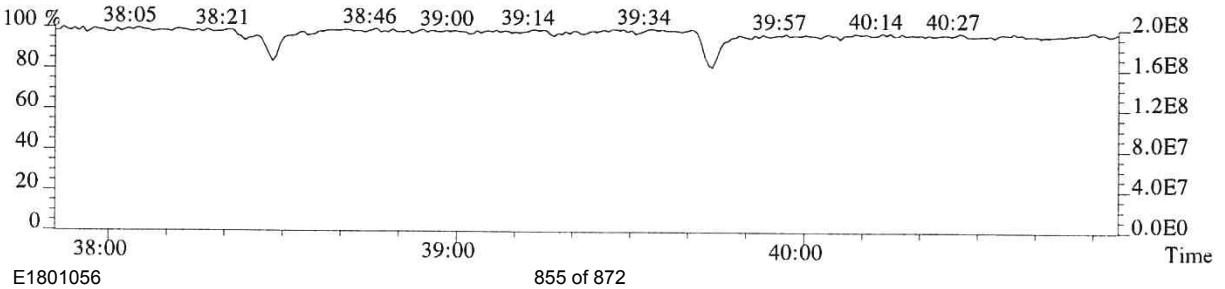
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2968.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2544.0,0.40%,F,T)

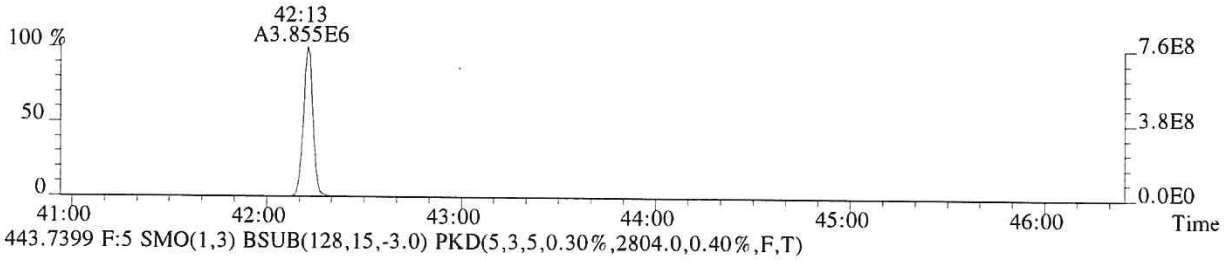


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

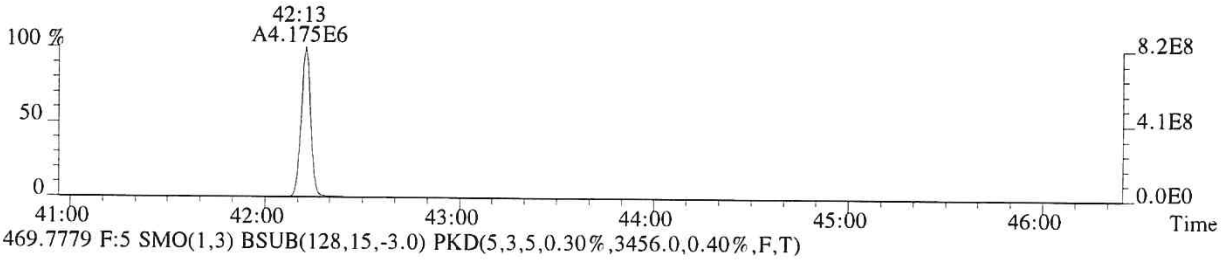


013073

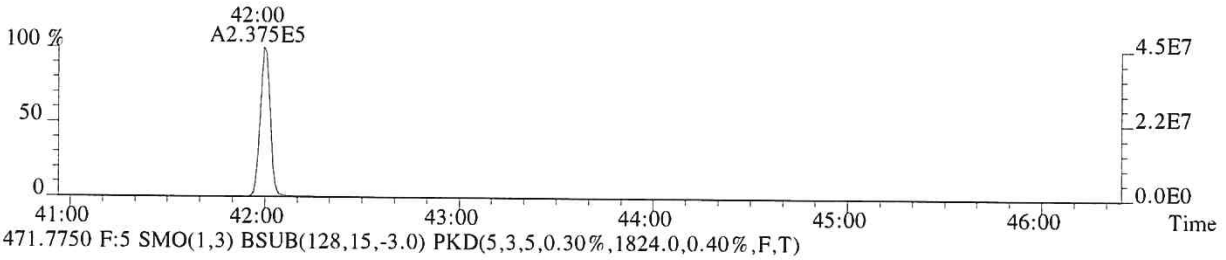
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



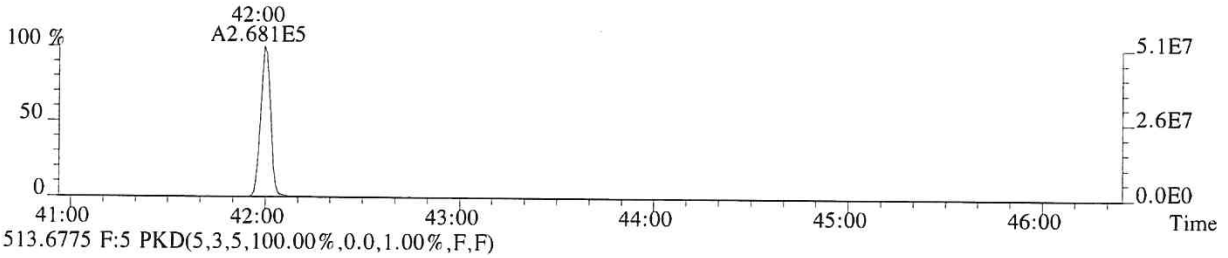
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2804.0,0.40%,F,T)



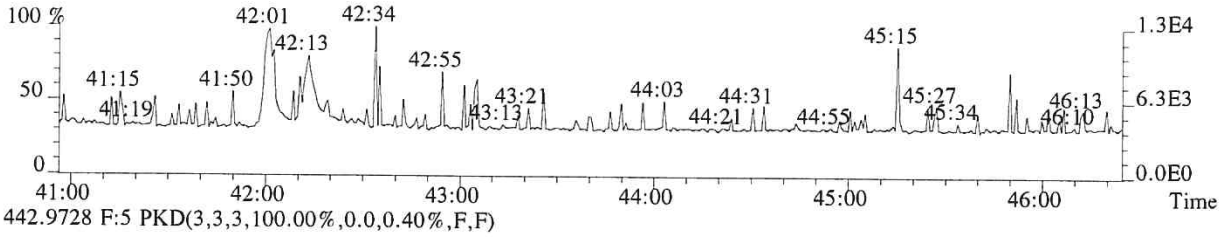
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



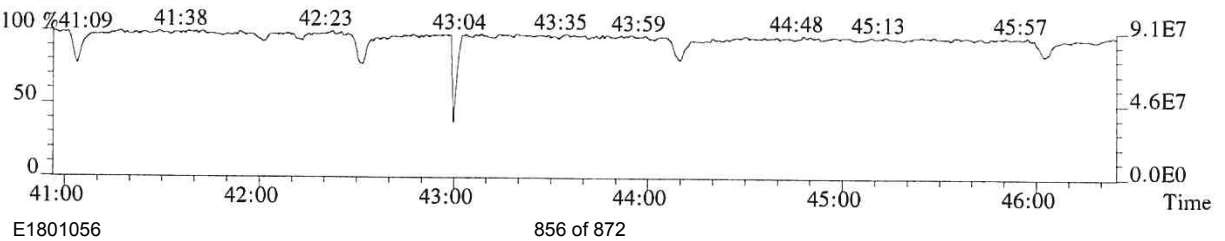
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



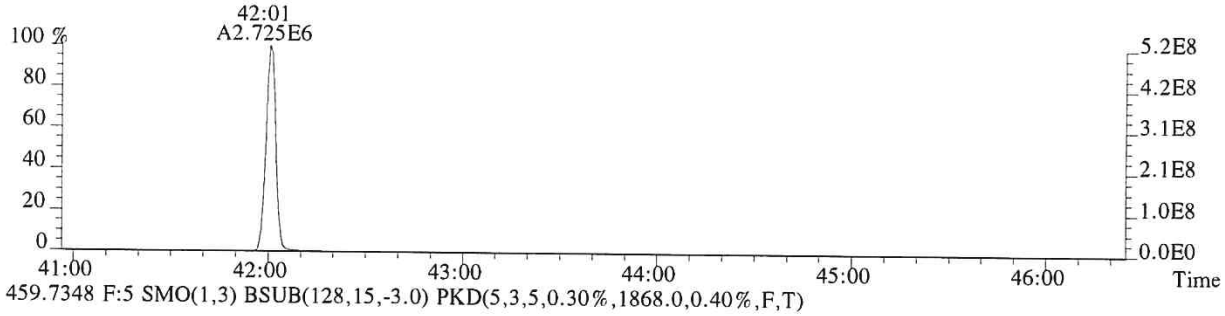
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



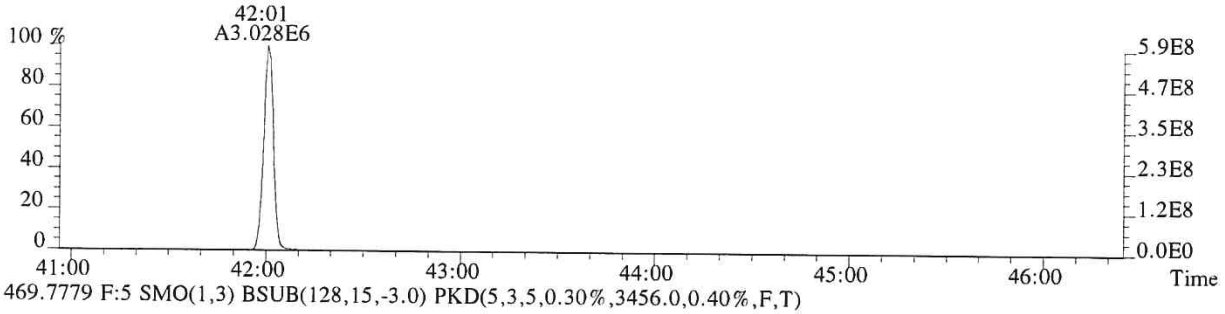
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



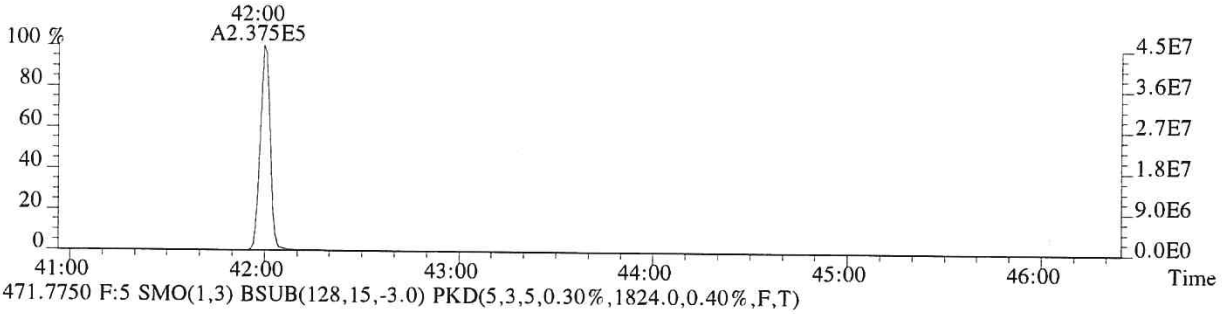
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



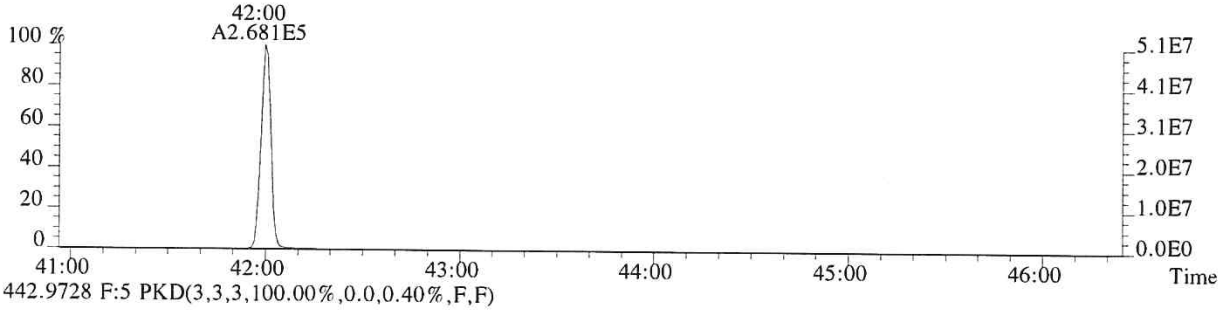
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1868.0,0.40%,F,T)



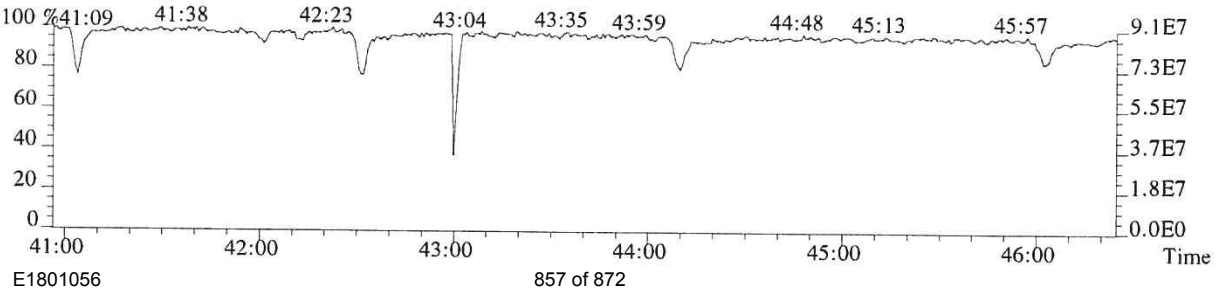
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-2.1
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.7	8.4 - 12.0	-2.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.5
OCDF	M+2/M+4	0.93	0.76-1.02	100	63 - 159	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	99	82 - 121	-0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	97	62 - 160	-2.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	224	96 - 415	11.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	98	76 - 130	-2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	96	77 - 130	-3.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	102	76 - 131	2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	109	77 - 129	9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.742e+04	2.239e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.470e+05	9.342e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	1.362e+05	8.490e+04	1.60	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.308e+05	1.044e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.371e+05	1.074e+05	1.28	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.285e+05	1.018e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.211e+05	9.459e+04	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.180e+05	1.126e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.018e+05	9.931e+04	1.02	yes	no	1.463
10	Unk	OCDF	42:12	1.605e+05	1.721e+05	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.193e+04	1.490e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	8.164e+04	5.215e+04	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	7.752e+04	6.082e+04	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	7.678e+04	6.066e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	8.213e+04	6.494e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	7.382e+04	6.944e+04	1.06	yes	no	1.112
17	Unk	OCDD	42:01	1.146e+05	1.261e+05	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.682e+05	2.104e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.590e+05	1.613e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.497e+05	1.565e+05	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.202e+05	2.212e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.342e+05	2.529e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.258e+05	2.350e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.132e+05	2.142e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	9.579e+04	2.089e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	8.964e+04	1.952e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.166e+05	1.457e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.797e+05	1.149e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.476e+05	1.165e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.453e+05	1.145e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.336e+05	1.263e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.007e+05	2.242e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.202e+05	1.487e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.598e+05	1.284e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.893e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.16e+03	1.4e+03	3.95e+06	5.67e+03	7.0e+02
2	1,2,3,7,8-PeCDF	2.75e+07	1.50e+03	1.8e+04	1.74e+07	8.24e+03	2.1e+03
3	2,3,4,7,8-PeCDF	2.67e+07	1.50e+03	1.8e+04	1.67e+07	8.24e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.29e+07	2.48e+03	9.3e+03
5	1,2,3,6,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.30e+07	2.48e+03	9.3e+03
6	2,3,4,6,7,8-HxCDF	2.86e+07	2.35e+03	1.2e+04	2.28e+07	2.48e+03	9.2e+03
7	1,2,3,7,8,9-HxCDF	2.47e+07	2.35e+03	1.1e+04	1.95e+07	2.48e+03	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.70e+07	4.46e+03	6.0e+03	2.58e+07	1.29e+04	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	4.46e+03	4.8e+03	2.03e+07	1.29e+04	1.6e+03
10	OCDF	3.01e+07	1.50e+03	2.0e+04	3.28e+07	3.09e+03	1.1e+04
11	2,3,7,8-TCDD	2.20e+06	4.04e+03	5.4e+02	2.73e+06	2.27e+03	1.2e+03
12	1,2,3,7,8-PeCDD	1.64e+07	3.14e+03	5.2e+03	1.06e+07	2.92e+02	3.6e+04
13	1,2,3,4,7,8-HxCDD	1.79e+07	1.59e+03	1.1e+04	1.41e+07	2.43e+03	5.8e+03
14	1,2,3,6,7,8-HxCDD	1.70e+07	1.59e+03	1.1e+04	1.34e+07	2.43e+03	5.5e+03
15	1,2,3,7,8,9-HxCDD	1.85e+07	1.59e+03	1.2e+04	1.48e+07	2.43e+03	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+07	2.28e+03	7.0e+03	1.49e+07	8.84e+02	1.7e+04
17	OCDD	2.16e+07	1.17e+03	1.8e+04	2.38e+07	1.31e+03	1.8e+04
18	13C-2,3,7,8-TCDF	2.88e+07	1.57e+04	1.8e+03	3.60e+07	9.18e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	4.01e+03	1.2e+04	3.00e+07	3.41e+03	8.8e+03
20	13C-2,3,4,7,8-PeCDF	4.95e+07	4.01e+03	1.2e+04	3.12e+07	3.41e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+07	2.99e+03	8.9e+03	4.93e+07	3.83e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.83e+07	2.99e+03	9.5e+03	5.32e+07	3.83e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.80e+07	2.99e+03	9.4e+03	5.25e+07	3.83e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.35e+07	2.99e+03	7.9e+03	4.43e+07	3.83e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+07	7.32e+03	3.0e+03	4.77e+07	1.38e+04	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.88e+07	7.32e+03	2.6e+03	4.06e+07	1.38e+04	2.9e+03
27	13C-2,3,7,8-TCDD	2.17e+07	2.56e+04	8.4e+02	2.71e+07	6.97e+03	3.9e+03
28	13C-1,2,3,7,8-PeCDD	3.57e+07	3.26e+03	1.1e+04	2.28e+07	2.28e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.37e+07	5.66e+03	6.0e+03	2.64e+07	3.42e+03	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.18e+07	5.66e+03	5.6e+03	2.51e+07	3.42e+03	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+07	3.13e+03	9.1e+03	2.68e+07	1.88e+03	1.4e+04
32	13C-OCDD	3.77e+07	2.72e+03	1.4e+04	4.17e+07	9.60e+02	4.3e+04
33	13C-1,2,3,4-TCDD	2.21e+07	2.56e+04	8.6e+02	2.72e+07	6.97e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+07	5.66e+03	6.4e+03	2.92e+07	3.42e+03	8.5e+03
35	37Cl-2,3,7,8-TCDD	5.28e+06	4.24e+03	1.2e+03			

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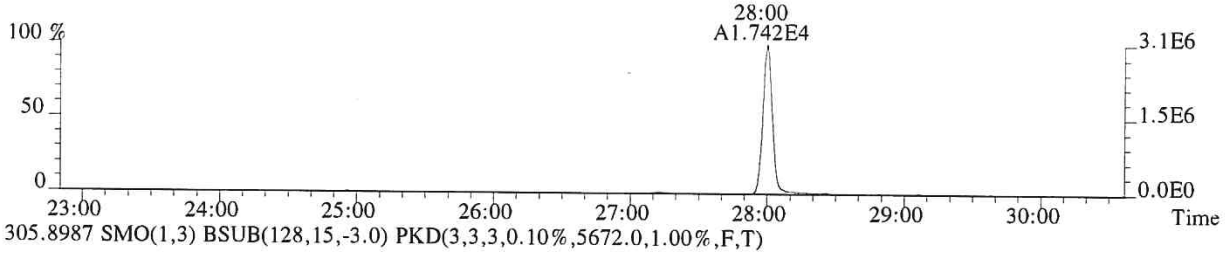
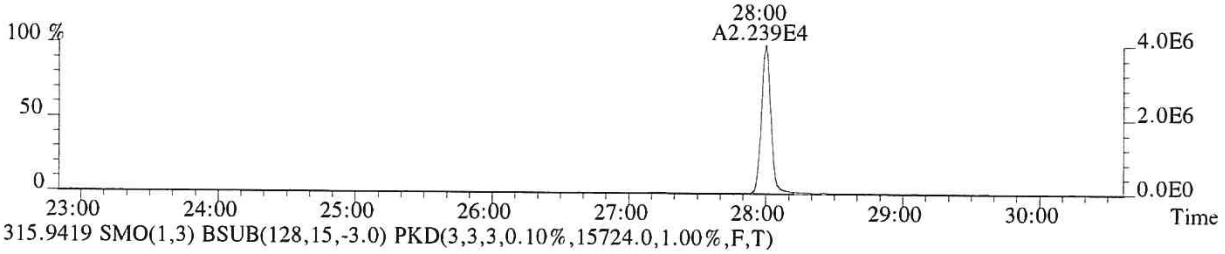
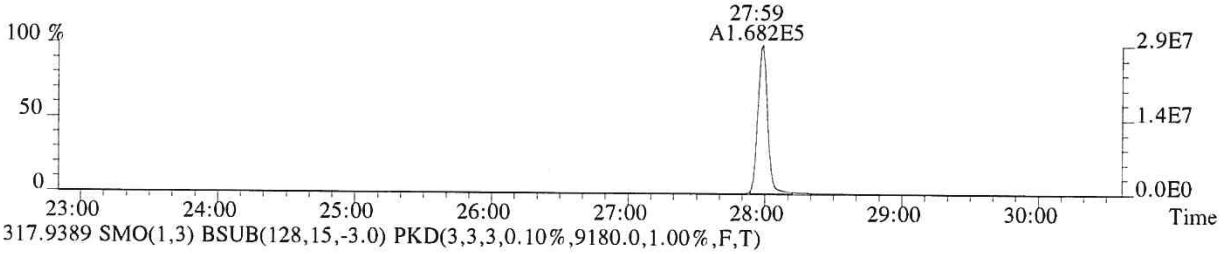
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



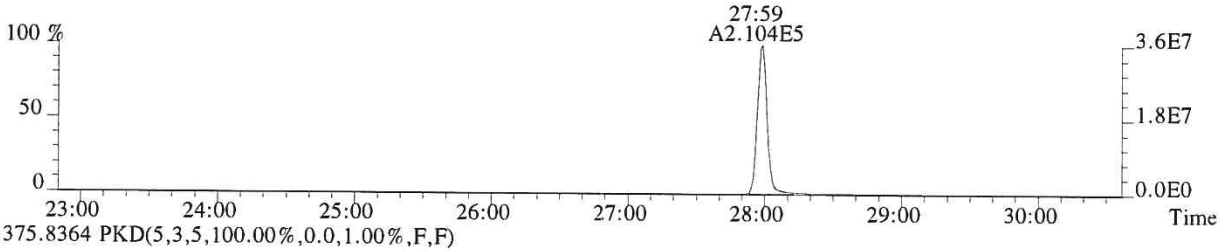
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5672.0,1.00%,F,T)



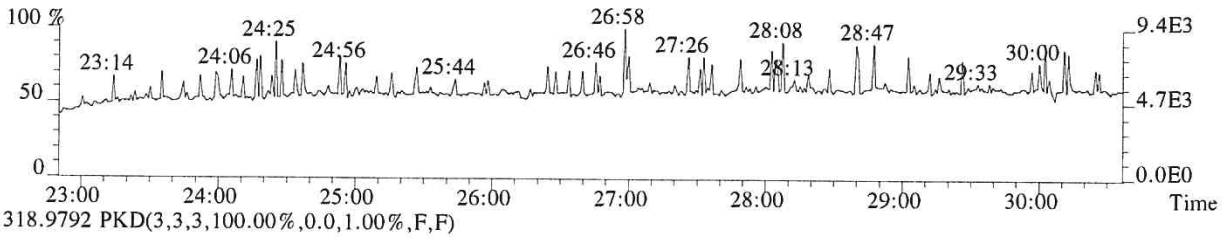
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15724.0,1.00%,F,T)



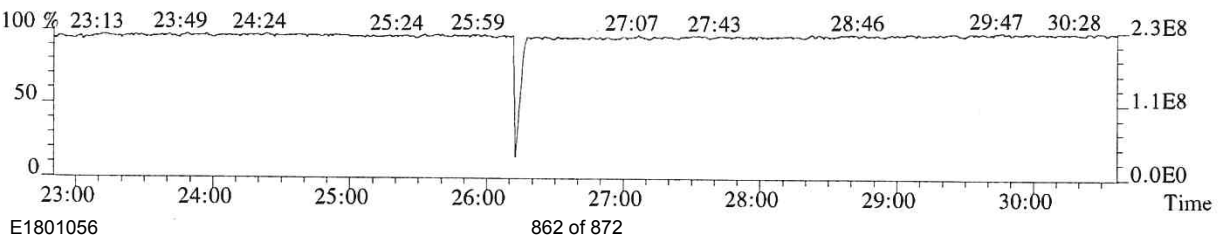
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9180.0,1.00%,F,T)



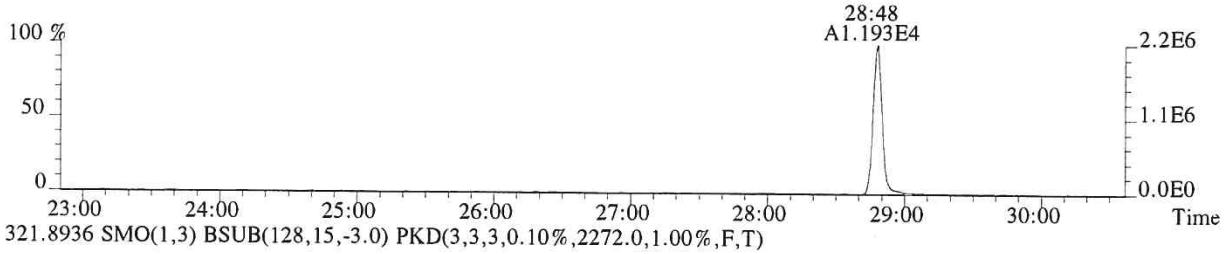
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



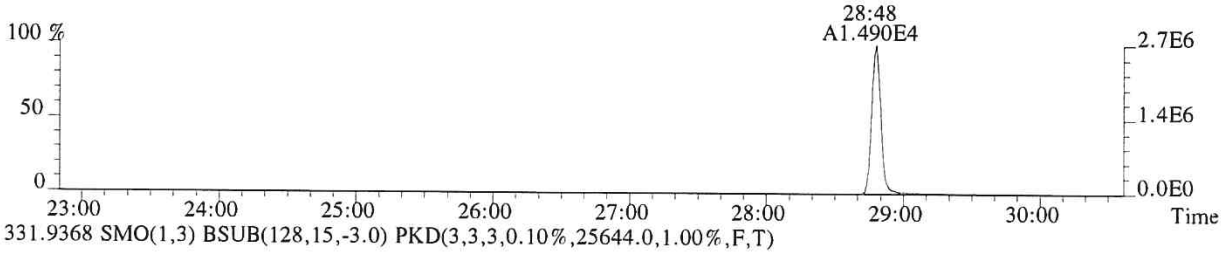
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



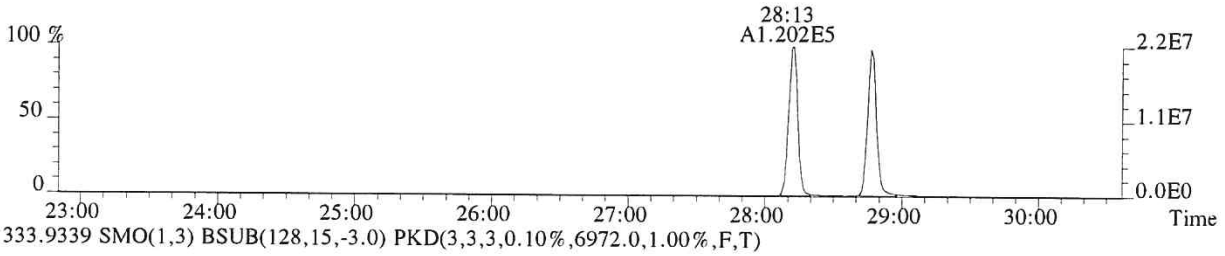
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



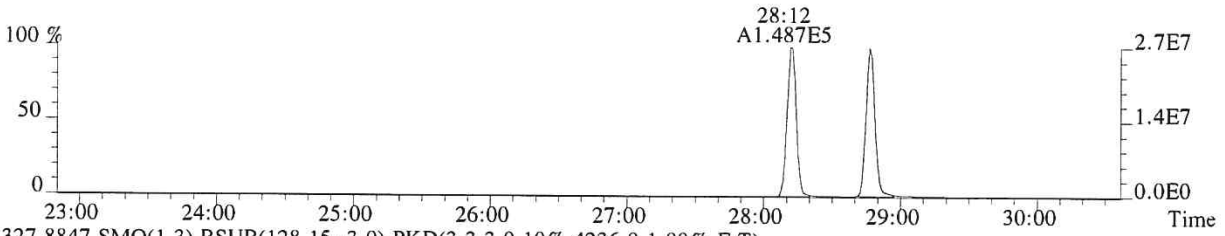
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



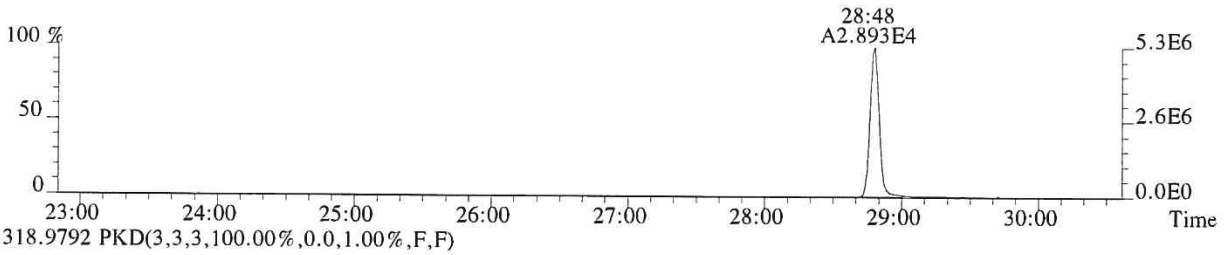
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25644.0,1.00%,F,T)



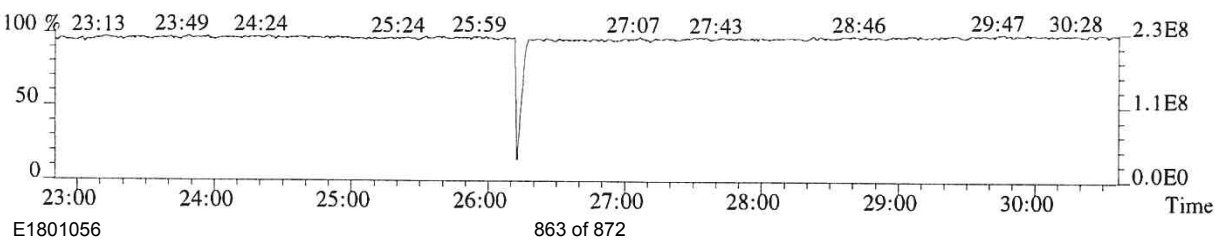
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



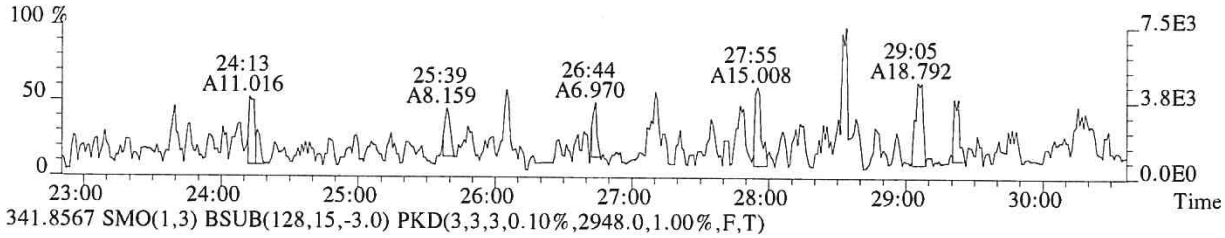
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4236.0,1.00%,F,T)



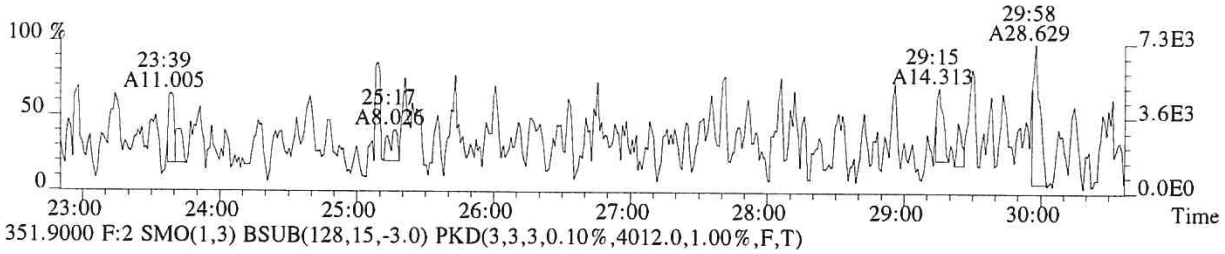
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



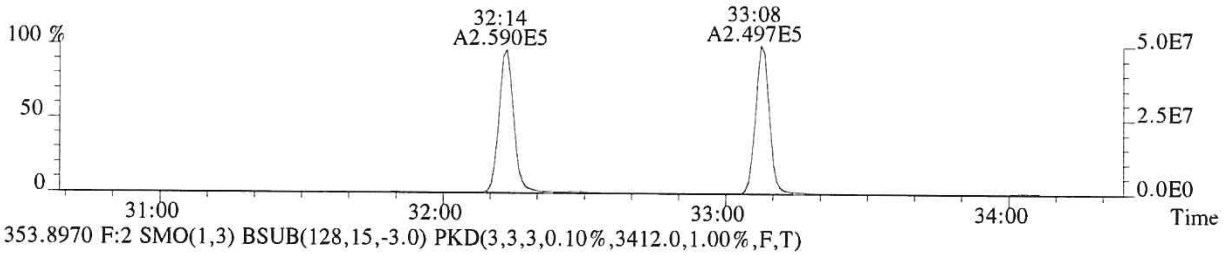
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



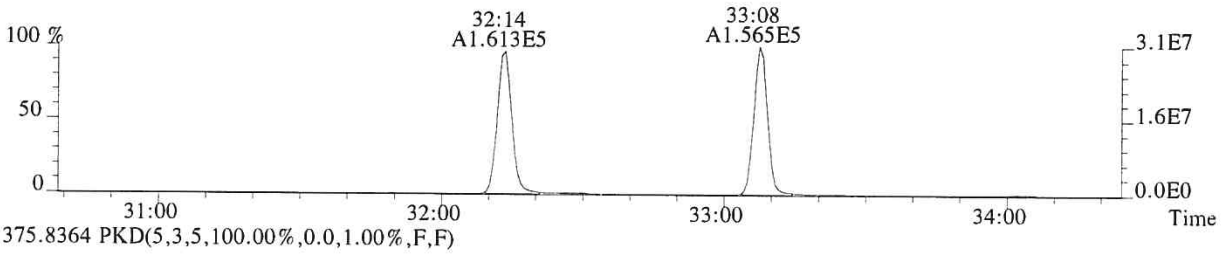
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



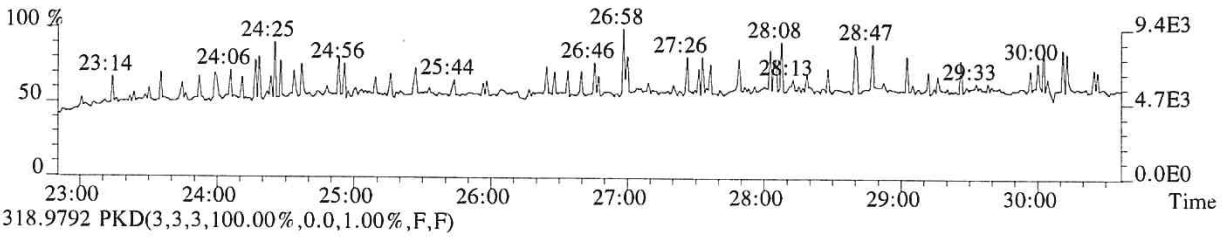
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



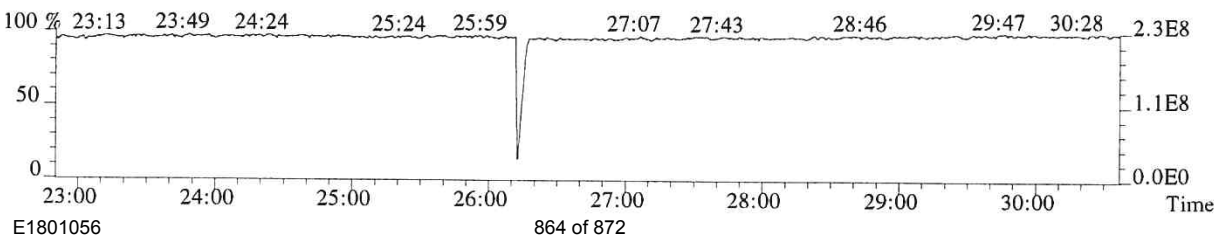
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

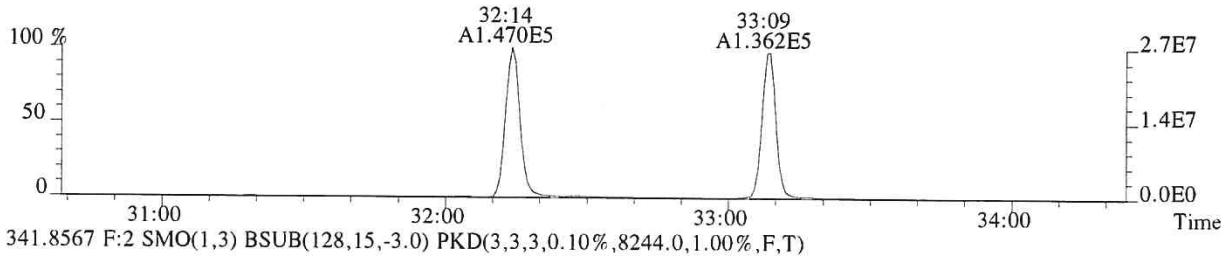


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

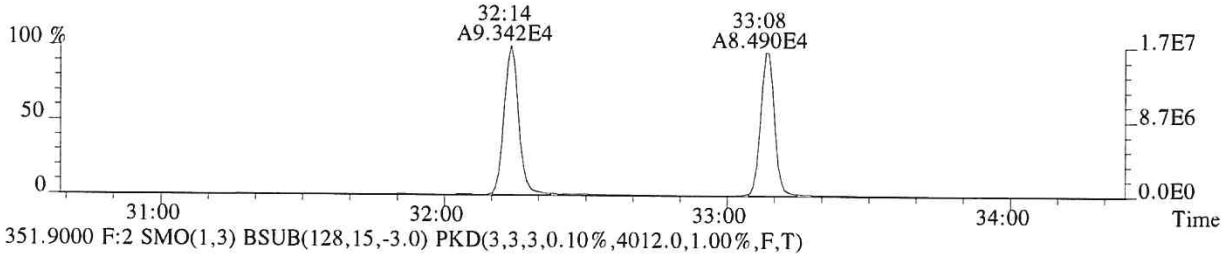


013082

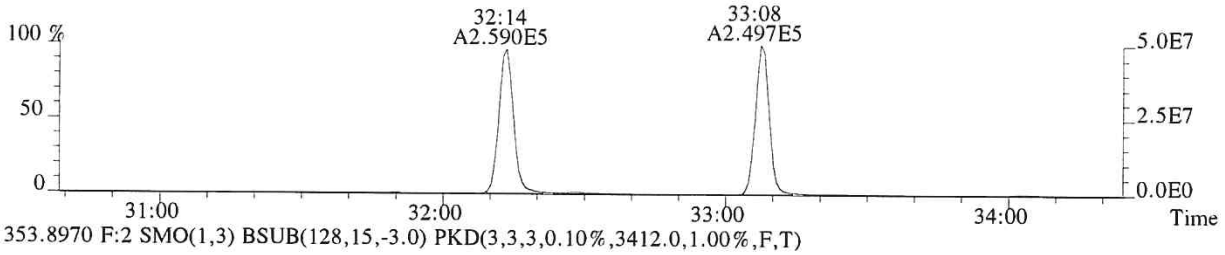
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



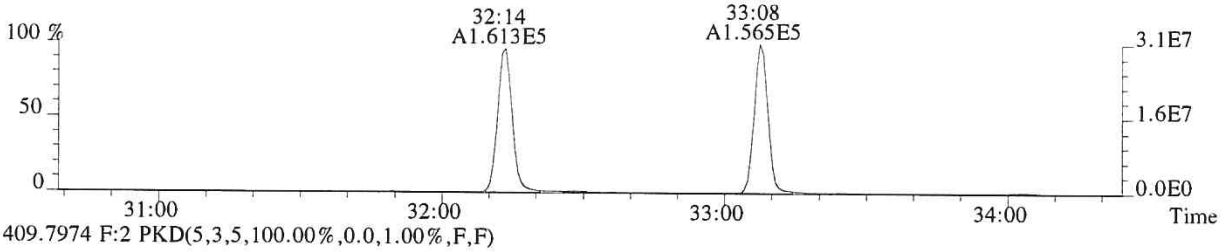
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8244.0,1.00%,F,T)



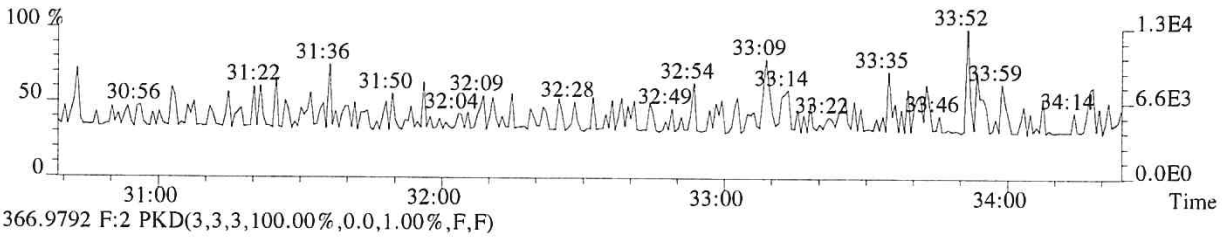
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



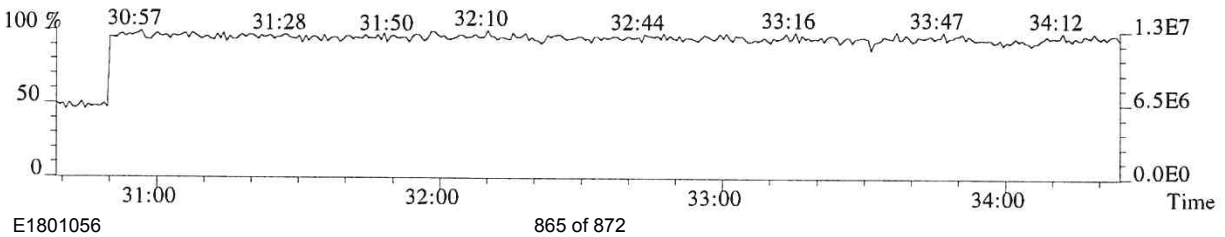
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

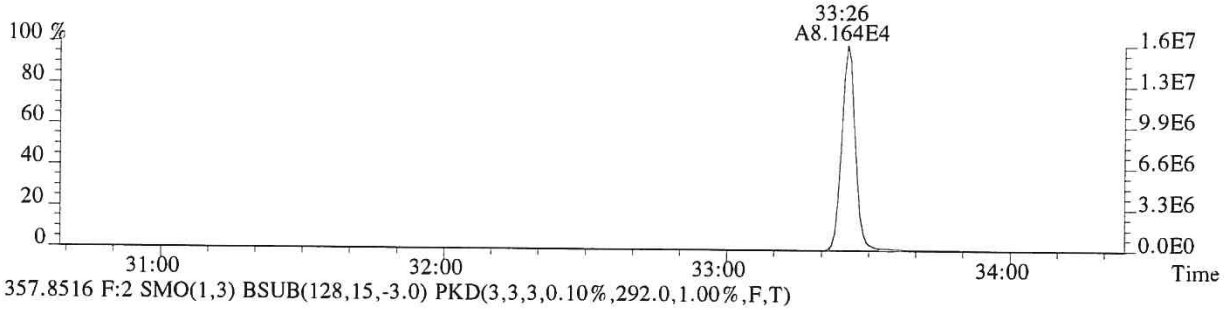


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

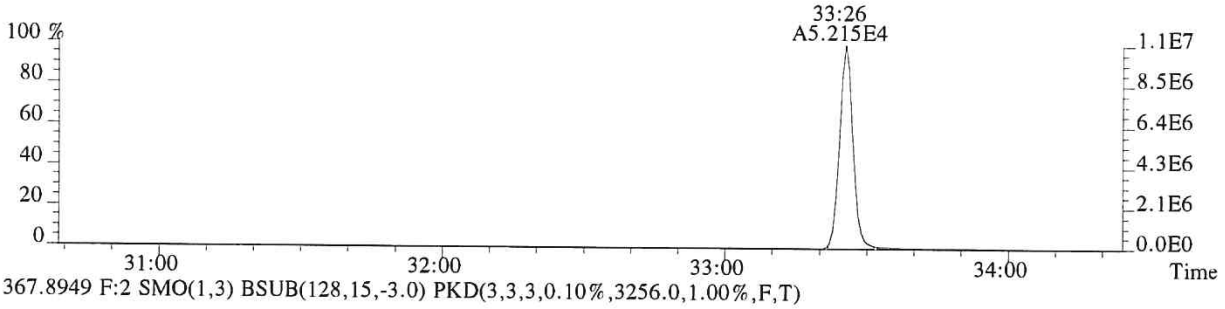


013083

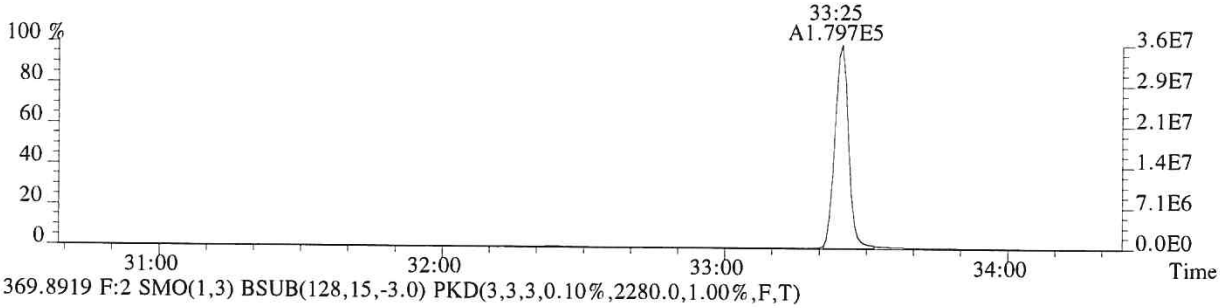
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



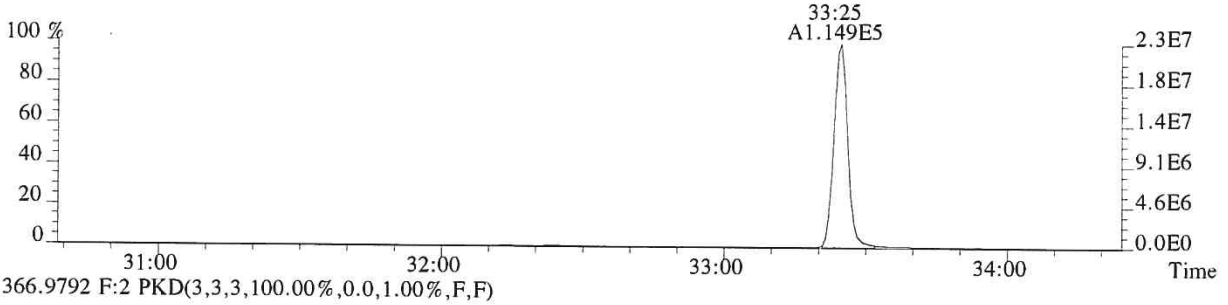
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



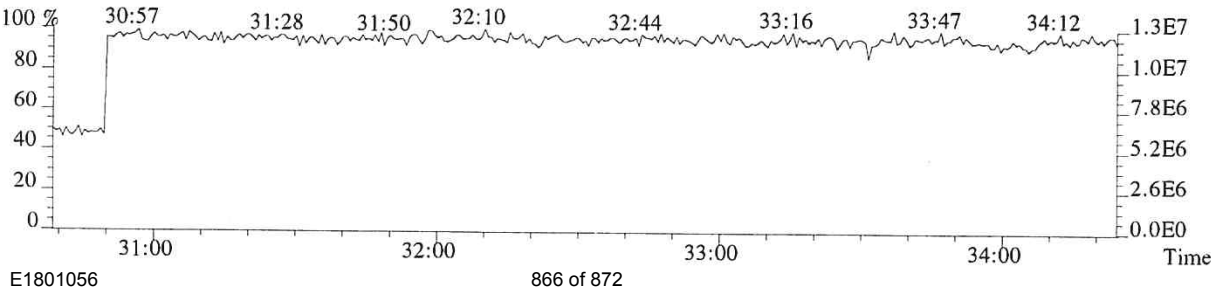
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)

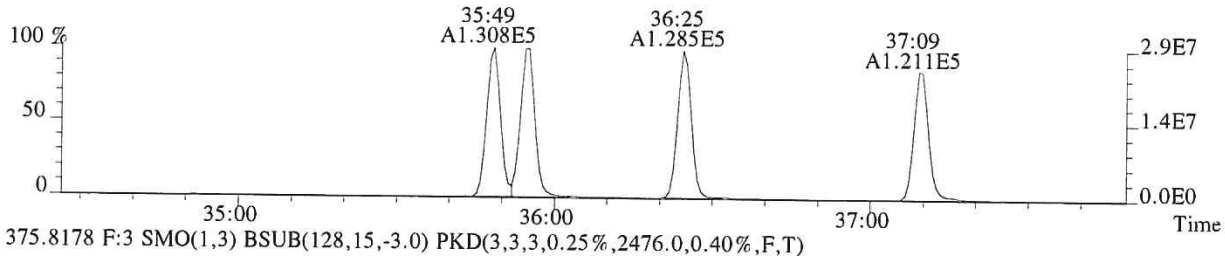


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

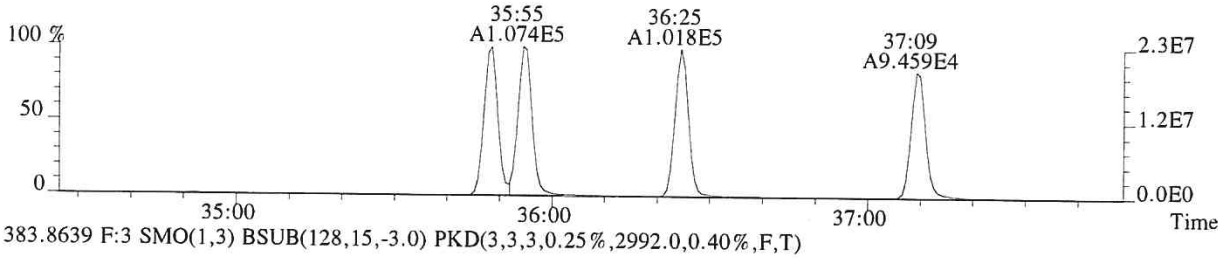


013084

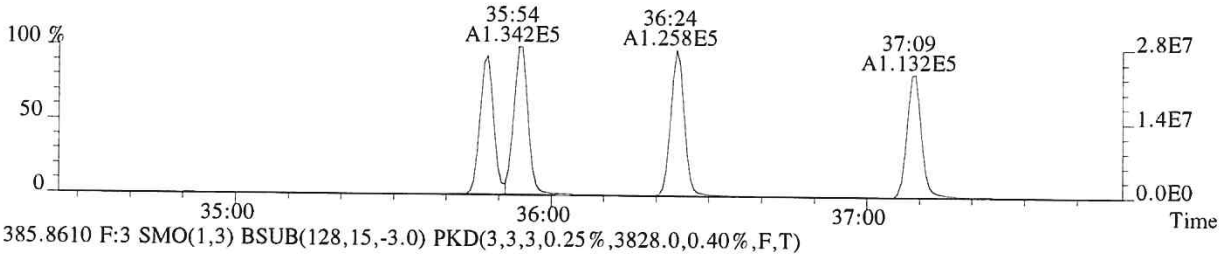
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



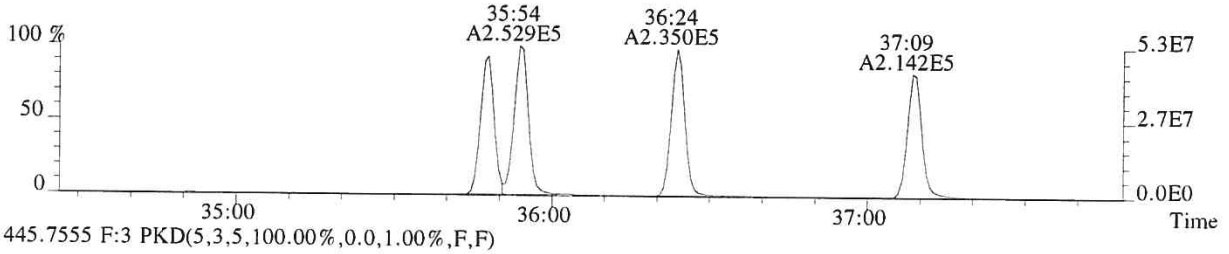
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



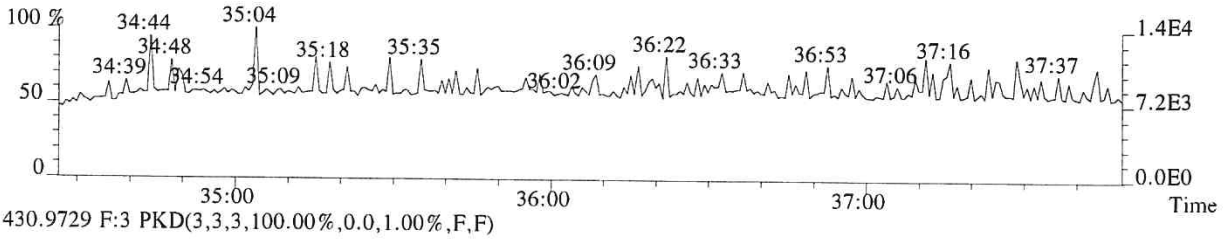
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



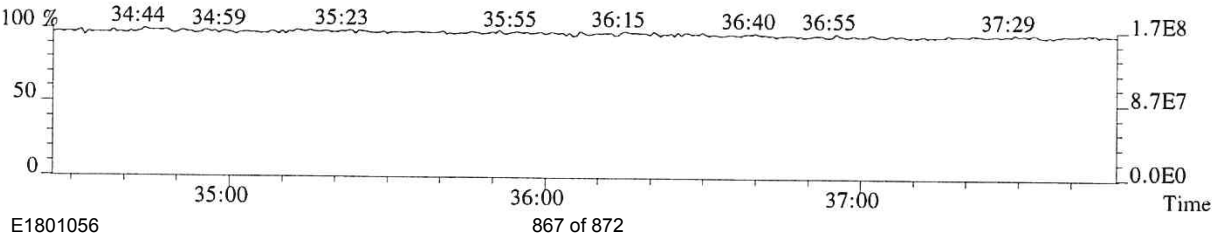
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3828.0,0.40%,F,T)



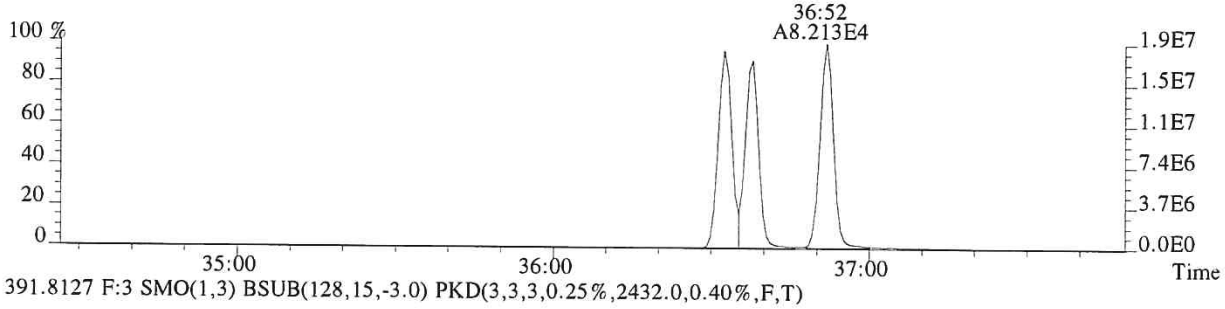
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



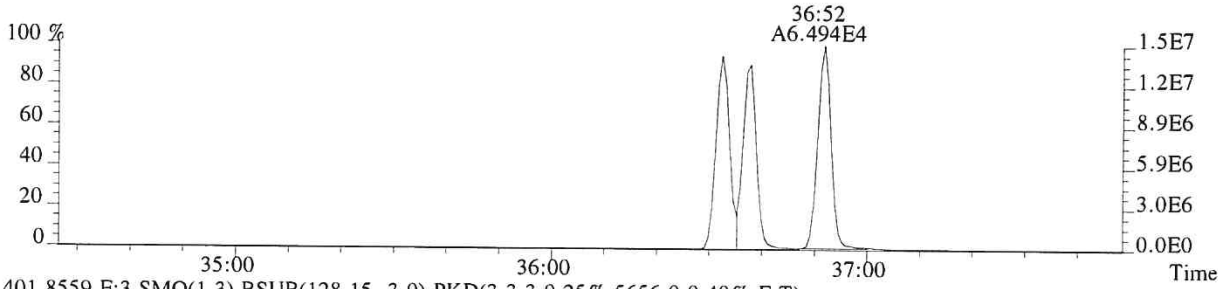
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



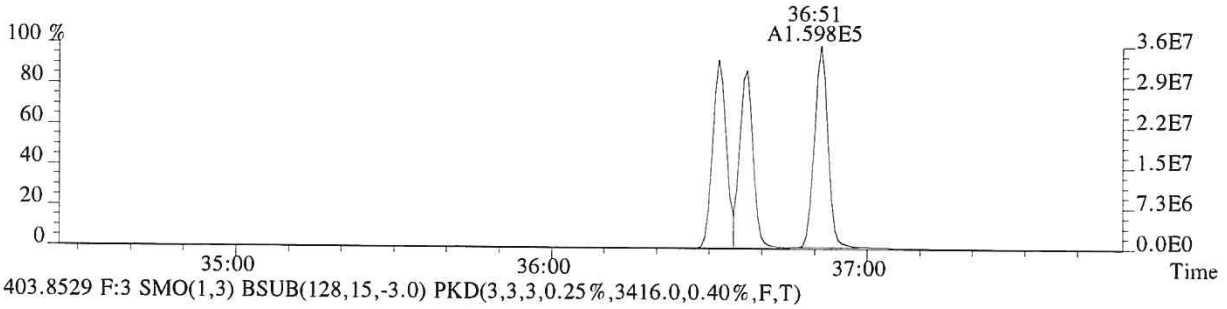
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



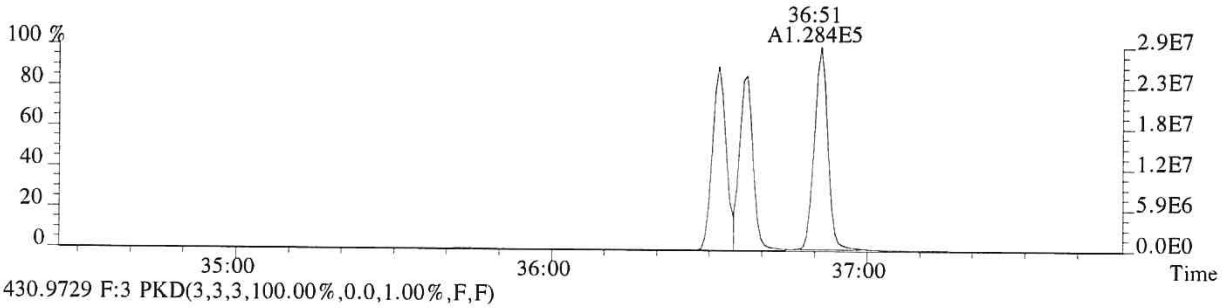
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



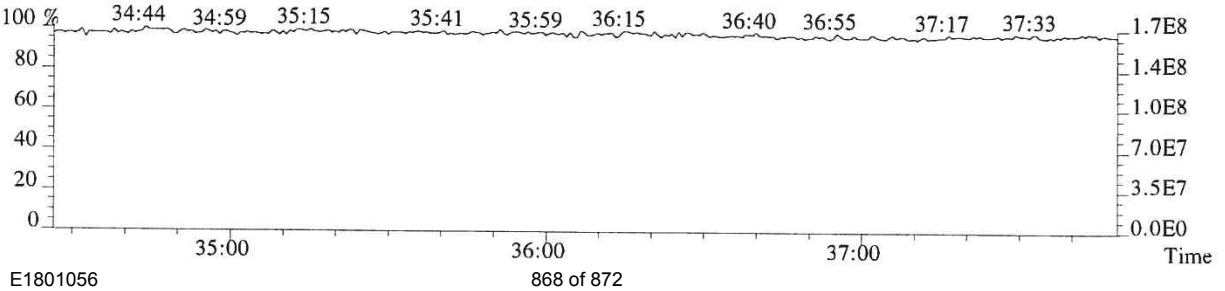
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.40%,F,T)



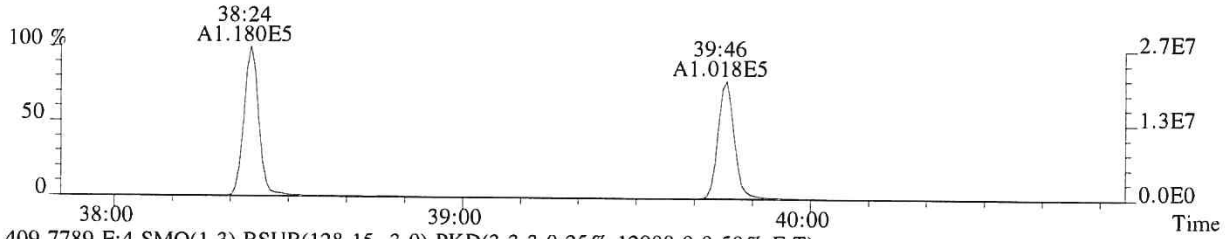
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3416.0,0.40%,F,T)



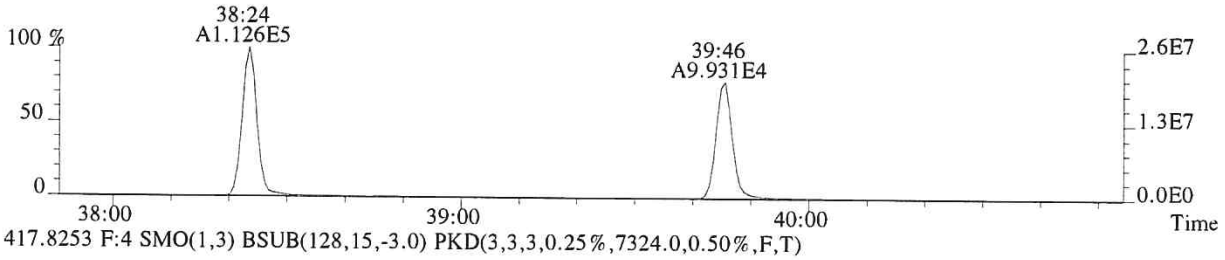
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



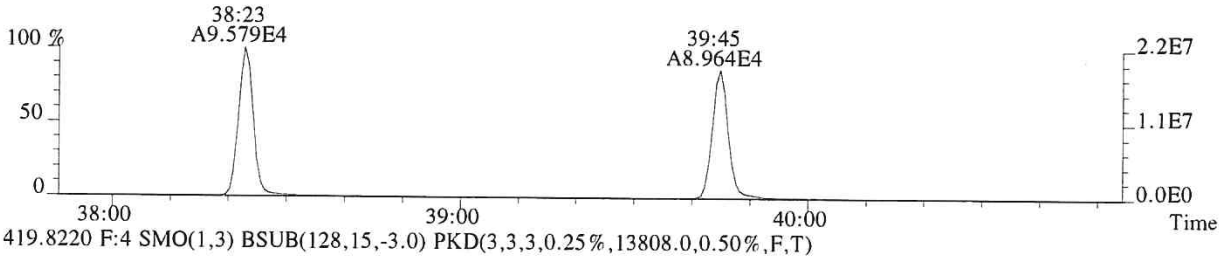
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



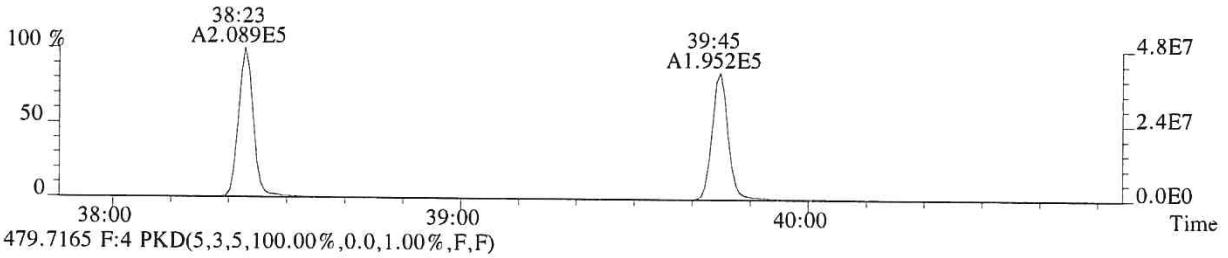
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12908.0,0.50%,F,T)



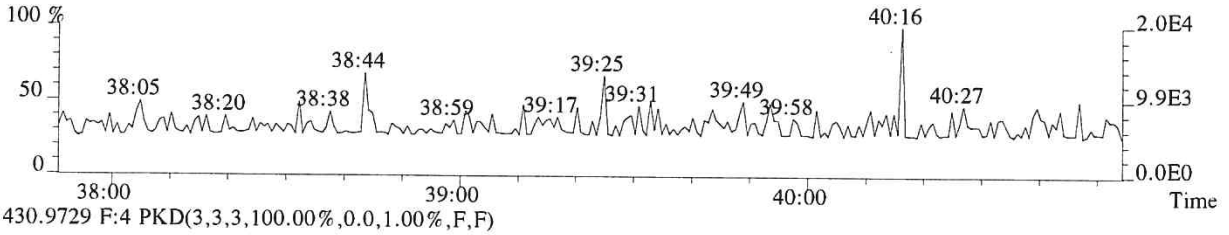
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7324.0,0.50%,F,T)



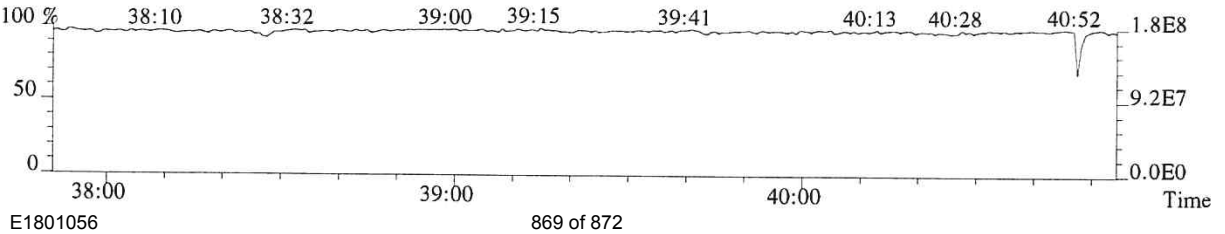
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13808.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

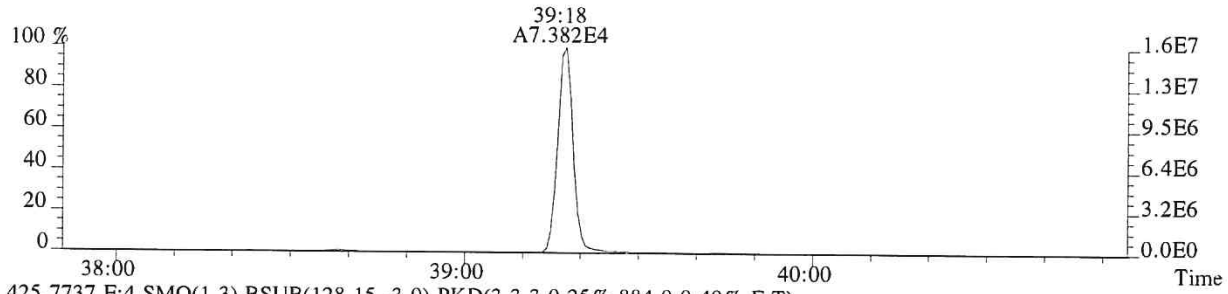


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

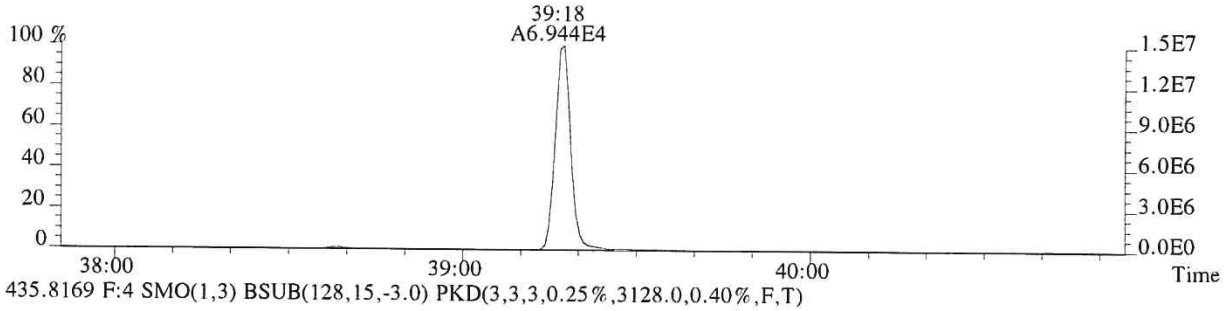


013087

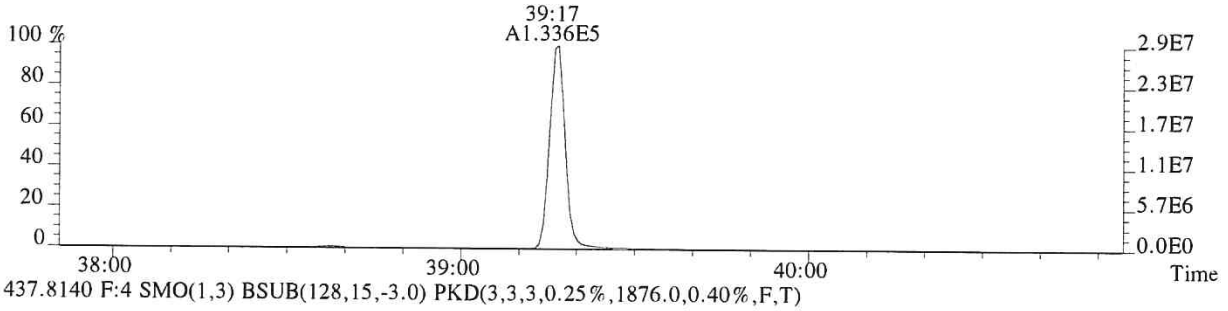
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



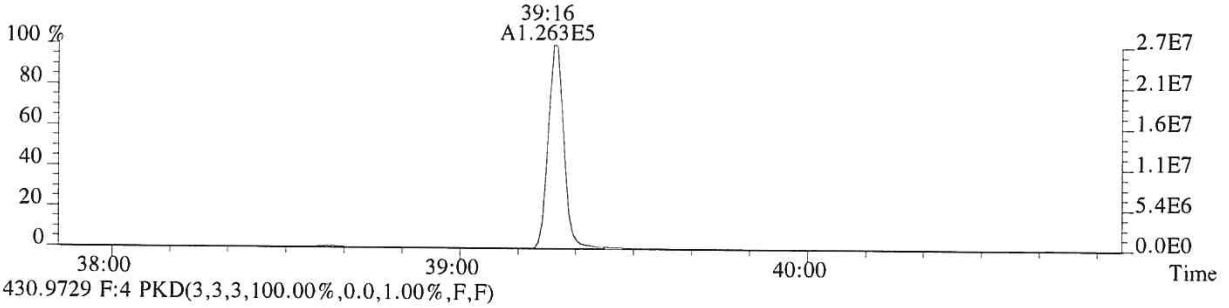
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



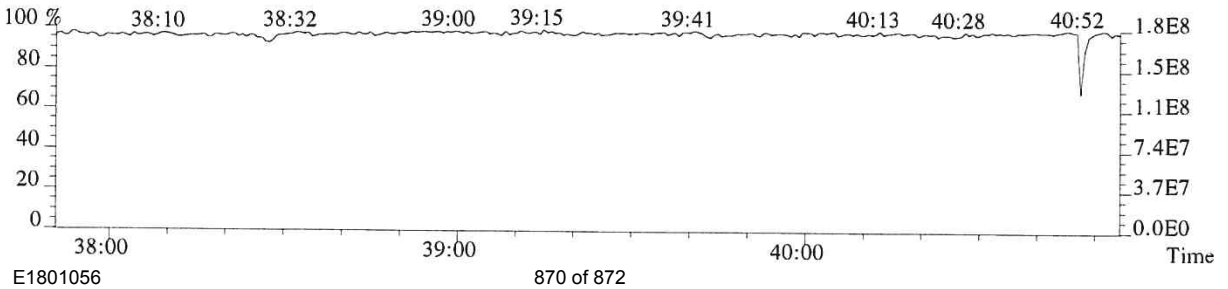
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



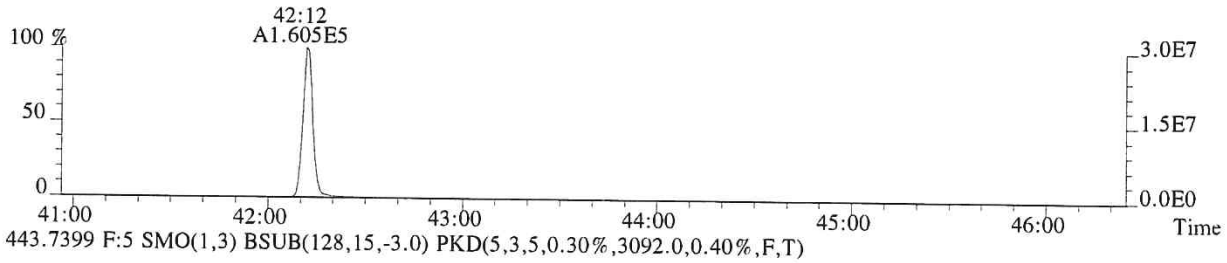
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



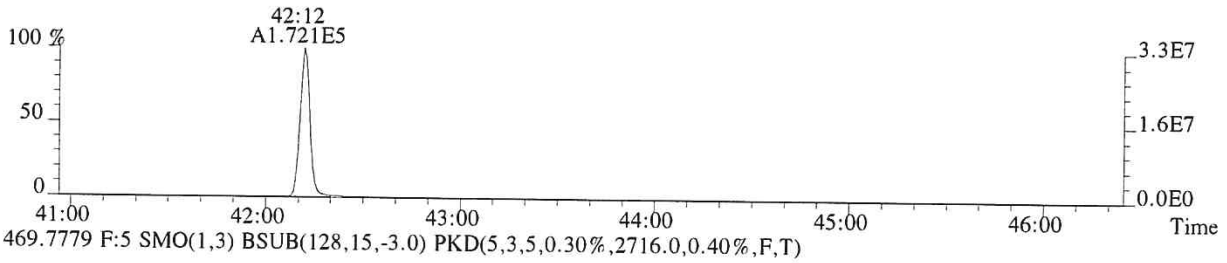
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



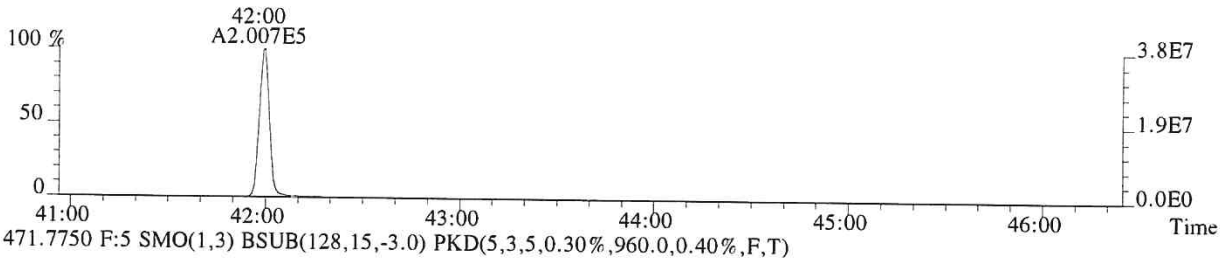
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



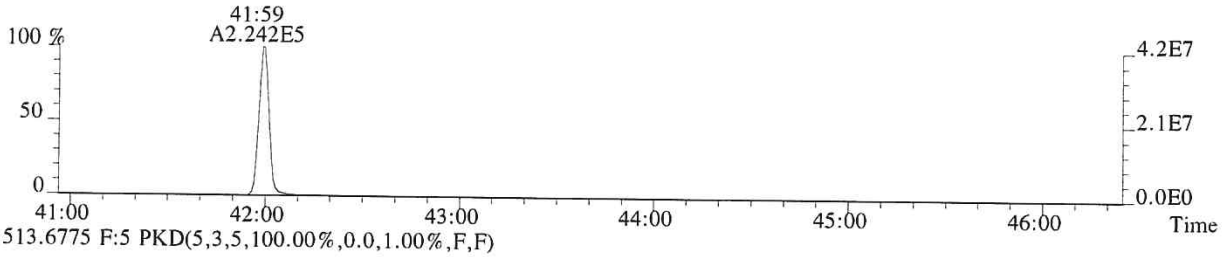
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



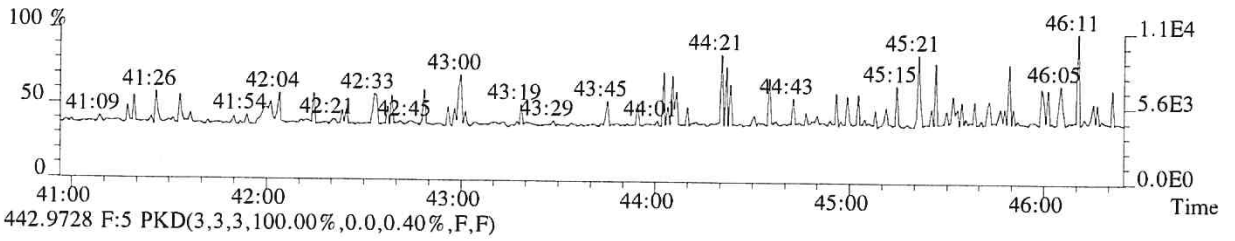
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



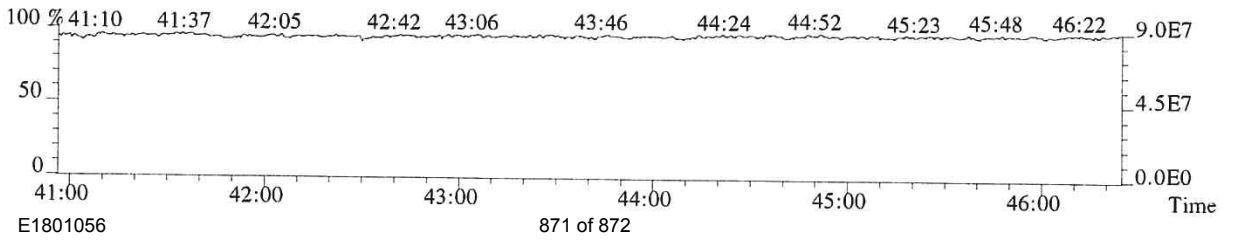
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

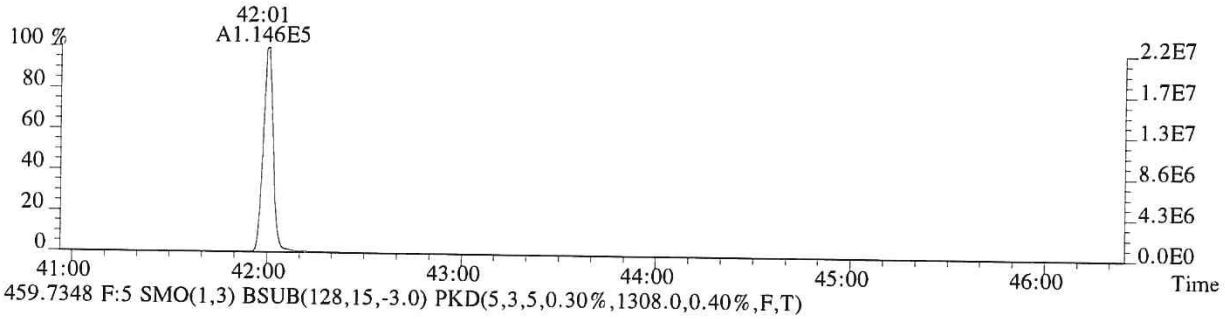


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

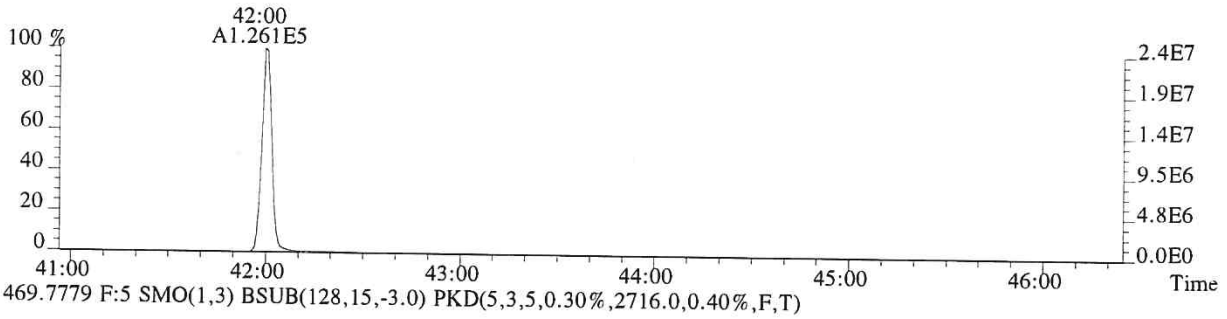


013089

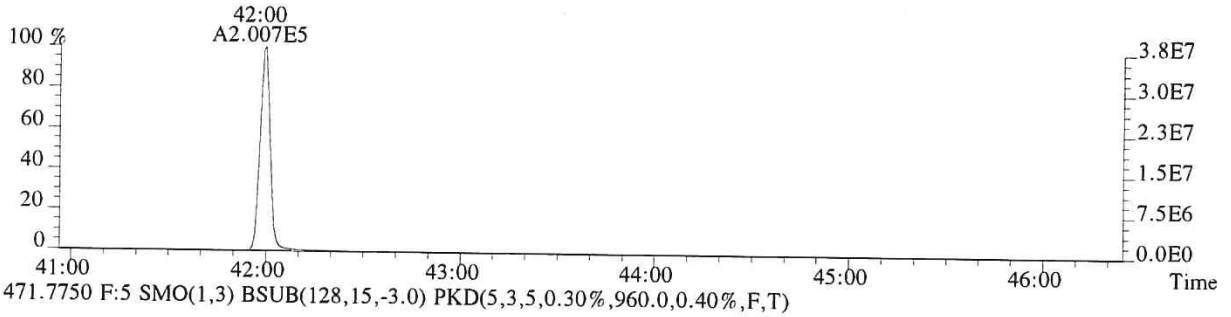
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



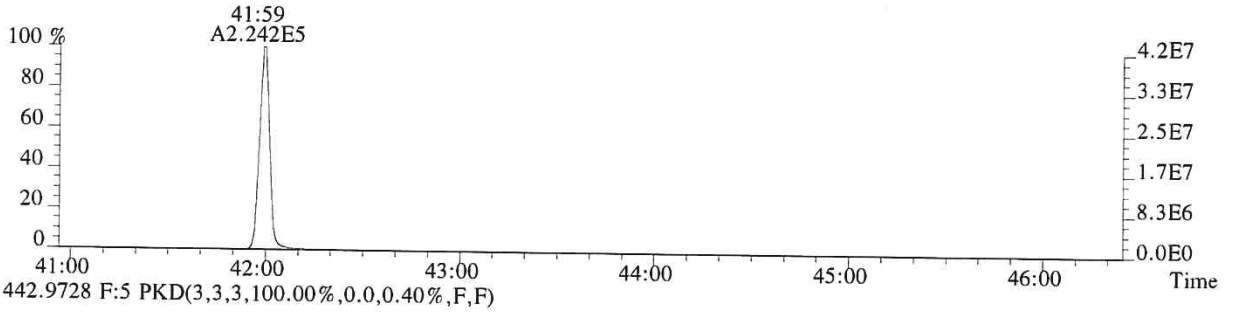
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



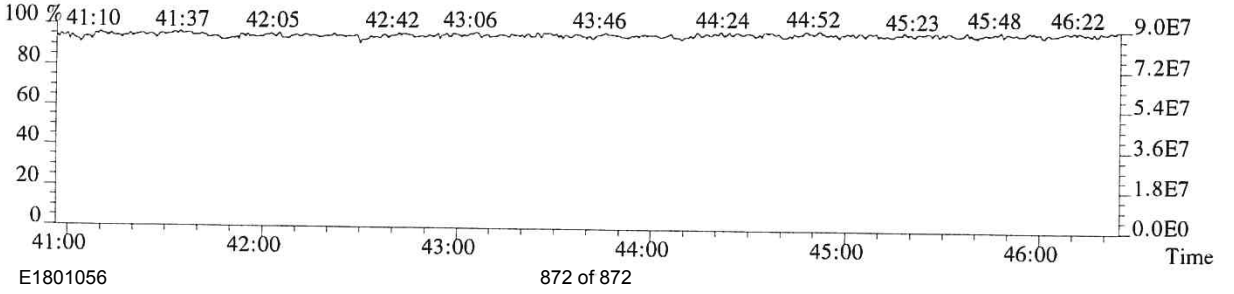
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



013090

December 14, 2018 Service Request No:E1801058

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for:C1887-0501

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 17, 2018
For your reference, these analyses have been assigned our service request number **E1801058.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Integral Consulting, Inc.	**Service Request No.:**	E1801058
Project:	C1887-0501	**Date Received:**	11/17/18
Sample Matrix:	Soil/Wipe		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Thirty-two samples were received for analysis at ALS Environmental in Houston on 11/17/18.

The samples were received at 0.6°C, 1.9°C, and 1.4 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blank EQ1800488-01 and EQ1800499-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

LCS/DLCS

EQ1800499: marginally low recovery for 1,2,3,4,6,7,8-HpCDD in the laboratory control sample. The duplicate laboratory control sample and RPD are within control limits.

MS/MSD

EQ1800488 and EQ1800499: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

Y flags – Labeled Standards

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801058-001	SL0233	11/16/2018	0825
E1801058-002	SL0234	11/16/2018	0830
E1801058-003	SL0235	11/16/2018	0835
E1801058-004	SL0236	11/16/2018	0840
E1801058-005	SL0237	11/16/2018	0845
E1801058-006	SL0238	11/16/2018	0915
E1801058-007	SL0239	11/16/2018	0920
E1801058-008	SL0240	11/16/2018	0925
E1801058-009	SL0241	11/16/2018	0930
E1801058-010	SL0242	11/16/2018	0935
E1801058-011	SL0243	11/16/2018	0940
E1801058-012	SL0244	11/16/2018	1130
E1801058-013	SL0245	11/16/2018	1135
E1801058-014	SL0246	11/16/2018	1140
E1801058-015	SL0247	11/16/2018	1145
E1801058-016	SL0248	11/16/2018	1150
E1801058-017	SL0249	11/16/2018	1155
E1801058-018	SL0250	11/16/2018	1200
E1801058-019	SL0251	11/16/2018	1355
E1801058-020	SL0252	11/16/2018	1400
E1801058-021	SL0253	11/16/2018	1405
E1801058-022	SL0254	11/16/2018	1410
E1801058-023	SL0255	11/16/2018	1415
E1801058-024	SL0256	11/16/2018	1420
E1801058-025	SL0257	11/16/2018	1515
E1801058-026	SL0258	11/16/2018	1520
E1801058-027	SL0259	11/16/2018	1525
E1801058-028	SL0260	11/16/2018	1530
E1801058-029	SL0261	11/16/2018	1535
E1801058-030	FW008	11/16/2018	1540
E1801058-031	FW009	11/16/2018	1545
E1801058-032	FW010	11/16/2018	1550

Service Request Summary

Folder #: **E1801058**
Client Name: Integral Consulting, Incorporated
Project Name: C1887-0501
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/17/18
Internal Due Date: 12/10/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

25 -N/A N/A
4 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
3 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 3B, E-Disposed
Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801058-011	SL0243	Sediment	11/16/18 0940	**IV**	**IV**
E1801058-017	SL0249	Sediment	11/16/18 1155	**IV**	**IV**
E1801058-018	SL0250	Sediment	11/16/18 1200	**IV**	**IV**
E1801058-024	SL0256	Sediment	11/16/18 1420	**IV**	**IV**
E1801058-030	FW008	Wipe	11/16/18 1540	**IV**	
E1801058-031	FW009	Wipe	11/16/18 1545	**IV**	
E1801058-032	FW010	Wipe	11/16/18 1550	**IV**	

Service Request Summary

Folder #:	**E1801058**
Client Name:	Integral Consulting, Incorporated
Project Name:	C1887-0501
Project Number:	

Report To:	Craig Hutchings Integral Consulting, Inc. 1205 West Bay Drive NW Olympia, WA 98502-4670 USA
Phone Number:	360-705-3534
Cell Number:	
Fax Number:	
E-mail:	chutchings@integral-corp.com

Project Chemist:	Kristin Brown
Originating Lab:	HOUSTON
Logged By:	ALOPEZ
Date Received:	11/17/18
Internal Due Date:	12/10/2018
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	N, Y
Report to MDL?:	N, Y
P.O. Number:	
EDD:	Integral-UCR

25	-N/A	N/A
4	8 oz-Glass Jar	WM CLEAR Teflon Liner Unpreserved
3	4 oz-Glass Jar	WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 3B, E-Disposed

Pressure Gas:

Superset Summary

Service Request: E1801058 **SuperSet Reference:** 18-0000490009 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P519262	P519255	P519290	E1801058-011
P519326	P519319	P519290	E1801058-017
P519263	P519255	P519290	E1801058-017.R01
P519327	P519319	P519290	E1801058-018
P519264	P519255	P519290	E1801058-018.R01
P519265	P519255	P519290	E1801058-024
P519362	P519350	P616043	E1801058-030
P519290	P519287	P519290	EQ1800488-01
P519363	P519350	P519290	EQ1800488-02
P519364	P519350	P519290	EQ1800488-03

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P616047	P616040	P616043	E1801058-031
P616048	P616040	P616043	E1801058-032
P616043	P616040	P616043	EQ1800499-01
P616051	P616040	P616043	EQ1800499-02
P616052	P616040	P616043	EQ1800499-03

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801058 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
8/07/18	JC	011, 017, 018, 024

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/10/18	LKL	011, 017, 018, 024

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801058 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/11/18	YC	017DL, 018DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/11/18	LKL	017DL, 018DL

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801058 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/12/18	JC	030

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/12/18	LKL	030

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801058 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/13/18	YC	031, 032

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/13/18	LG	031, 032

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

E1801058 5

Integral Consulting, Inc.
C1887-0501

CHAIN OF CUSTODY FORM

integral consulting inc.

Project: C1887 - 0501

Samplers: BEN PETRI, SARAH KISSELL, Charles SHAW,

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to:
Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0233	0343	11/16/18	0825	SL										X	
SL0234	0346	11/16/18	0830											X	
SL0235	0352		0835											X	
SL0236	0344		0840											X	
SL0237	0347		0845											X	
SL0238	0350		~~0850~~ 0915											X	
SL0239	0353		0920											X	
SL0240	0359		0925											X	
SL0241	0342		0930											X	
SL0242	0345		0935											X	
SL0243	0064		0940		X										
SL0244	0065		1130											X	
SL0245	0066		1135											X	
SL0246	0067		1140											X	
SL0247	0068		1145											X	
SL0248	0069		1150											X	
SL0249	0070		1155		X										
SL0250	0071		1200		X										
SL0251	0145		1355											X	
SL0252	0146	11/16/18	1400	SL										X	

Analysis Turn Time: Normal Rush **Rush Results Needed By:**

Shipped by: Courier **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Relinquished by: _____ (signature) **Date/Time:** 11/17/18 09:52 **Received by:** _____ (signature) **Date/Time:** 11/17/18 0952

Relinquished by: _____ (signature) **Date/Time:** _____ **Received by:** _____ (signature) **Date/Time:** _____

Matrix Code:
GW - Groundwater
SL - Soil
SW - Surface water
SD -Sediment
Other:

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

013106

CHAIN OF CUSTODY FORM

Project: C1887 - 0501

Samplers: BEN PETRI, SARAH KISSELL, CHARLES SHAW

integral consulting inc.

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TPH-GRO by 8015C	TPH-DRO by 8015C	PCB Aroclors by 8082	Asbestos by 600/R-93-116	Extra Container	Archive	Comments
SL0253	0147	11/16/18	1405	SL										X	
SL0254	0148		1410											X	
SL0255	0149		1415											X	
SL0256	0150		1420		X										
SL0257	0133		~~1355~~ 1525											X	
SL0258	0134		1520											X	
SL0259	0135		1525											X	
SL0260	0136		1530											X	
SL0261	0137		1535											X	
FW0008	0474		1540		X										
FW0009	0498		1545	SL	X										
FW0010	0522	11/16/18	1550	Filter Wipe	X										

Sarah Kissell 11/17/2018

Analysis Turn Time: Normal Rush **Rush Results Needed By:**

Shipped by: COURIER **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Relinquished by: Sarah Kissell (signature) **Date/Time:** 11/17/18 09:57 **Received by:** (signature) **Date/Time:** 11/17/18 0957

Relinquished by: (signature) **Date/Time:** **Received by:** (signature) **Date/Time:**

Matrix Code:
GW - Groundwater
SL - Soil
SW - Surface water
SD -Sediment
Other:

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

Cooler Receipt Form

ALS Environmental

Project Chemist HB

Client/Project INTEGRAL

Thermometer ID 4604

Date/Time Received: 11/13/18 Initials: CH Date/Time Logged in: 11/14/18 Initials CH

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ✓ Courier (ALS) ○ Client

2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ✓ Yes ○ No
   Were they intact? ✓ Yes ○ No ○ N/A
   Were they signed and dated? ✓ Yes ○ No ○ N/A
   If yes, how many and where? 2 PER COOLER

4. Packing Material: ○ Inserts ✓ Baggies ✓ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ✓ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		11/13/18		PG	0.6 / 1.0	✓
-		↓		↓	1.9 / 2.3	✓
-		↓		↓	1.4 / 1.8	✓
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label: E1801058 Integral Consulting, Inc. C1887-0501 5

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 327285 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/29/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801045-006	SL0153	.01	1613B/Dioxins Furans			Sludge, Solid	10.317g	Brown Mud
2	E1801045-017	SL0164	.01	1613B/Dioxins Furans			Sludge, Solid	10.713g	Brown Mud
3	E1801045-023	SL0146	.01	1613B/Dioxins Furans			Sludge, Solid	10.539g	Black Mud + Rocks
4	E1801046-001	SL0539	.01	1613B/Dioxins Furans			Sludge, Solid	10.411g	Brown Mud
5	E1801046-002	SL0540	.01	1613B/Dioxins Furans			Sludge, Solid	10.919g	Brown Mud
6	E1801046-003	SL0541	.01	1613B/Dioxins Furans			Sludge, Solid	10.976g	Brown Mud
7	E1801046-004	SL0542	.01	1613B/Dioxins Furans			Sludge, Solid	10.909g	Brown Mud
8	E1801046-005	SL0543	.01	1613B/Dioxins Furans			Sludge, Solid	10.895g	Brown Mud
9	E1801046-006	SL0544	.01	1613B/Dioxins Furans			Sludge, Solid	10.732g	Brown Mud
10	E1801056-006	SL0191	.04	1613B/Dioxins Furans			Sediment	10.626g	Brown Mud + Rocks
11	E1801056-012	SL0197	.04	1613B/Dioxins Furans			Sediment	10.151g	Brown Mud + Rocks
12	E1801056-023	SL0175	.04	1613B/Dioxins Furans			Sediment	10.629g	Black + Brown Mud
13	E1801056-039	SL0203	.04	1613B/Dioxins Furans			Sediment	10.924g	Brown Mud
14	E1801056-040	SL0204	.04	1613B/Dioxins Furans			Sediment	10.602g	Brown Mud
15	E1801056-057	SL0221	.04	1613B/Dioxins Furans			Sediment	10.729g	Brown Mud
16	E1801056-063	SL0227	.04	1613B/Dioxins Furans			Sediment	10.718g	Brown Mud
17	E1801058-011	SL0243	.02	1613B/Dioxins Furans			Sediment	10.111g	Brown Mud
18	E1801058-017	SL0249	.02	1613B/Dioxins Furans			Sediment	10.667g	Brown Mud
19	E1801058-018	SL0250	.02	1613B/Dioxins Furans			Sediment	10.538g	Brown Mud
20	E1801058-024	SL0256	.02	1613B/Dioxins Furans			Sediment	10.853g	Brown Mud
21	EQ1800488-01	MB		1613B/Dioxins Furans			Solid	10.246g	
22	EQ1800488-02	LCS		1613B/Dioxins Furans			Solid	10.279g	
23	EQ1800488-03	DLCS		1613B/Dioxins Furans			Solid	10.116g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 194946 Logbook Ref: 194946 AL 11/14/18 2-20 ng/mL Expires On: 05/13/2019

EQ1800488-02 100.00µL EQ1800488-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 195222 Logbook Ref: 195221 JG 11/29/18 2-4ngml Expires On: 01/31/2019

E1801045-006	1,000.00µL	E1801045-017	1,000.00µL	E1801045-023	1,000.00µL	E1801046-001	1,000.00µL	E1801046-001.R	1,000.00µL	E1801046-002	1,000.00µL
E1801046-002.R	1,000.00µL	E1801046-003	1,000.00µL	E1801046-003.R	1,000.00µL	E1801046-004	1,000.00µL	E1801046-004.R	1,000.00µL	E1801046-005	1,000.00µL
E1801046-006	1,000.00µL	E1801056-006	1,000.00µL	E1801056-006.R	1,000.00µL	E1801056-012	1,000.00µL	E1801056-023	1,000.00µL	E1801056-023.R	1,000.00µL
E1801056-039	1,000.00µL	E1801056-039.R	1,000.00µL	E1801056-040	1,000.00µL	E1801056-040.R	1,000.00µL	E1801056-057	1,000.00µL	E1801056-057.R	1,000.00µL
E1801056-063	1,000.00µL	E1801056-063.R	1,000.00µL	E1801058-011	1,000.00µL	E1801058-017	1,000.00µL	E1801058-017.R	1,000.00µL	E1801058-018	1,000.00µL

Preparation Information Benchsheet

Prep Run#: 327285 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/29/18 11:00 AM

E1801058-018.R	1,000.00µL	E1801058-024	1,000.00µL	EQ1800488-01	1,000.00µL	EQ1800488-02	1,000.00µL	EQ1800488-03	1,000.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801045-006	100.00µL	E1801045-017	100.00µL	E1801045-023	100.00µL	E1801046-001	100.00µL	E1801046-001.R	100.00µL	E1801046-002	100.00µL
E1801046-002.R	100.00µL	E1801046-003	100.00µL	E1801046-003.R	100.00µL	E1801046-004	100.00µL	E1801046-004.R	100.00µL	E1801046-005	100.00µL
E1801046-006	100.00µL	E1801056-006	100.00µL	E1801056-006.R	100.00µL	E1801056-012	100.00µL	E1801056-023	100.00µL	E1801056-023.R	100.00µL
E1801056-039	100.00µL	E1801056-039.R	100.00µL	E1801056-040	100.00µL	E1801056-040.R	100.00µL	E1801056-057	100.00µL	E1801056-057.R	100.00µL
E1801056-063	100.00µL	E1801056-063.R	100.00µL	E1801058-011	100.00µL	E1801058-017	100.00µL	E1801058-017.R	100.00µL	E1801058-018	100.00µL
E1801058-018.R	100.00µL	E1801058-024	100.00µL	EQ1800488-01	100.00µL	EQ1800488-02	100.00µL	EQ1800488-03	100.00µL		

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195001)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/29/18 11:00	Started:	12/4/18 09:00	Started:	12/4/18 12:00	Started:	12/5/18 10:00
Finished:	11/30/18 07:30	Finished:	12/4/18 10:00	Finished:	12/4/18 15:00	Finished:	12/5/18 13:00
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

Prep Run#: 327660 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 12/5/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801046-007	FW0051	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
2	E1801056-069	FW0007	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
3	E1801058-030	FW008	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
4	E1801058-031	FW009	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
5	E1801058-032	FW010	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
6	E1801065-030	FW0052	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
7	E1801065-031	FW0053	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
8	EQ1800499-01	MB		1613B/Dioxins Furans			Wipes	0.5000Sample	
9	EQ1800499-02	LCS		1613B/Dioxins Furans			Wipes	0.5000Sample	
10	EQ1800499-03	DLCS		1613B/Dioxins Furans			Wipes	0.5000Sample	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 195317 Logbook Ref: 195317 12/3/18 2-20ngml JG Expires On: 06/01/2019

EQ1800499-02 200.00µL EQ1800499-03 200.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801046-007 100.00µL E1801056-069 100.00µL E1801058-030 100.00µL E1801058-031 100.00µL E1801058-032 100.00µL E1801065-030 100.00µL
E1801065-031 100.00µL EQ1800499-01 100.00µL EQ1800499-02 100.00µL EQ1800499-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 195390 Logbook Ref: 195388 JG 12/5/18 2-4ngml Expires On: 01/31/2019

E1801046-007 2,000.00µL E1801056-069 2,000.00µL E1801058-030 2,000.00µL E1801058-031 2,000.00µL E1801058-032 2,000.00µL E1801065-030 2,000.00µL
E1801065-031 2,000.00µL EQ1800499-01 2,000.00µL EQ1800499-02 2,000.00µL EQ1800499-03 2,000.00µL

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	sodium hydroxide (180303)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195002)		

Preparation Information Benchsheet

Prep Run#: 327660 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 12/5/18 11:00 AM

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/5/18 11:00	Started:	12/6/18 13:00	Started:	12/6/18 14:00	Started:	12/7/18 09:00
Finished:	12/6/18 07:30	Finished:	12/6/18 14:00	Finished:	12/6/18 17:00	Finished:	12/7/18 12:00
By:	ALOPEZ	By:	JGUIN	By:	JGUIN	By:	JGUIN
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

E1801058 24 of 710

013114

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 09:40
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0243	**Units:**	ng/Kg
Lab Code:	E1801058-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 22:06
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.111g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519262	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519255

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.8		0.846	0.846	0.74	1.001	1
1,2,3,7,8-PeCDD	0.374	**J**	0.155	3.11	1.53	1.000	1
1,2,3,4,7,8-HxCDD	0.264	**J**	0.172	3.11	1.13	1.000	1
1,2,3,6,7,8-HxCDD	0.974	**J**	0.200	3.11	1.37	1.001	1
1,2,3,7,8,9-HxCDD	0.669	**JK**	0.181	3.11	1.55	1.008	1
1,2,3,4,6,7,8-HpCDD	18.1		0.130	3.11	1.07	1.000	1
OCDD	473		0.119	6.23	0.90	1.000	1
2,3,7,8-TCDF	37.1		0.304	0.623	0.73	1.001	1
1,2,3,7,8-PeCDF	1.46	**J**	0.231	3.11	1.41	1.001	1
2,3,4,7,8-PeCDF	0.897	**JK**	0.247	3.11	2.02	1.001	1
1,2,3,4,7,8-HxCDF	2.83	**J**	0.146	3.11	1.15	1.000	1
1,2,3,6,7,8-HxCDF	0.804	**JK**	0.143	3.11	0.75	1.000	1
1,2,3,7,8,9-HxCDF	0.219	**BJK**	0.160	3.11	0.53	1.001	1
2,3,4,6,7,8-HxCDF	0.776	**J**	0.154	3.11	1.06	1.000	1
1,2,3,4,6,7,8-HpCDF	3.67		0.184	3.11	0.98	1.000	1
1,2,3,4,7,8,9-HpCDF	0.434	**JK**	0.244	3.11	1.78	1.000	1
OCDF	12.6		0.240	6.23	0.99	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 09:40
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0243	**Units:**	ng/Kg
Lab Code:	E1801058-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 22:06
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.111g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519262	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519255

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	23.3		0.846	0.846	0.76		1
Total Penta-Dioxins	0.573	**J**	0.155	3.11	1.53		1
Total Hexa-Dioxins	14.5		0.184	3.11	1.23		1
Total Hepta-Dioxins	49.6		0.130	3.11	1.03		1
Total Tetra-Furans	77.0		0.304	0.623	0.83		1
Total Penta-Furans	16.3		0.238	3.11	1.74		1
Total Hexa-Furans	6.84		0.151	3.11	1.27		1
Total Hepta-Furans	9.37		0.211	3.11	0.98		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 09:40
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0243	**Units:**	Percent
Lab Code:	E1801058-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 22:06
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.111g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519262	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519255

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	699.594	35		25-164	0.84	1.021
13C-1,2,3,7,8-PeCDD	2000	1343.347	67		25-181	1.59	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1124.465	56		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	981.713	49		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1490.887	75		23-140	1.07	1.070
13C-OCDD	4000	2492.889	62		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	929.279	46		24-169	0.81	0.992
13C-1,2,3,7,8-PeCDF	2000	1266.392	63		24-185	1.54	1.146
13C-2,3,4,7,8-PeCDF	2000	1209.617	60		21-178	1.60	1.179
13C-1,2,3,4,7,8-HxCDF	2000	894.765	45		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	924.453	46		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1051.842	53		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	926.164	46		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1082.396	54		28-143	0.43	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1171.447	59		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	412.028	52		35-197	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 09:40
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0243	**Units:**	ng/Kg
Lab Code:	E1801058-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**18.8**	0.846	0.846	1	1	18.8
1,2,3,7,8-PeCDD	**0.374**	0.155	3.11	1	1	0.374
1,2,3,4,7,8-HxCDD	**0.264**	0.172	3.11	1	0.1	0.0264
1,2,3,6,7,8-HxCDD	**0.974**	0.200	3.11	1	0.1	0.0974
1,2,3,7,8,9-HxCDD	**0.669**	0.181	3.11	1	0.1	0.0669
1,2,3,4,6,7,8-HpCDD	**18.1**	0.130	3.11	1	0.01	0.181
OCDD	**473**	0.119	6.23	1	0.0003	0.142
2,3,7,8-TCDF	**37.1**	0.304	0.623	1	0.1	3.71
1,2,3,7,8-PeCDF	**1.46**	0.231	3.11	1	0.03	0.0438
2,3,4,7,8-PeCDF	**0.897**	0.247	3.11	1	0.3	0.269
1,2,3,4,7,8-HxCDF	**2.83**	0.146	3.11	1	0.1	0.283
1,2,3,6,7,8-HxCDF	**0.804**	0.143	3.11	1	0.1	0.0804
1,2,3,7,8,9-HxCDF	**0.219**	0.160	3.11	1	0.1	0.0219
2,3,4,6,7,8-HxCDF	**0.776**	0.154	3.11	1	0.1	0.0776
1,2,3,4,6,7,8-HpCDF	**3.67**	0.184	3.11	1	0.01	0.0367
1,2,3,4,7,8,9-HpCDF	**0.434**	0.244	3.11	1	0.01	0.00434
OCDF	**12.6**	0.240	6.23	1	0.0003	0.00378
		Total TEQ				24.2

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 09:40
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0243	**Units:**	Percent
Lab Code:	E1801058-011	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	6.763g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.4		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 11:55
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0249	**Units:**	ng/Kg
Lab Code:	E1801058-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 14:27
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.667g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519326	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1240		10.9	10.9	0.74	1.001	10
1,2,3,7,8-PeCDD	5.39		0.0942	3.02	1.48	1.000	1
1,2,3,4,7,8-HxCDD	0.539	**J**	0.109	3.02	1.16	1.000	1
1,2,3,6,7,8-HxCDD	1.25	**J**	0.113	3.02	1.43	1.000	1
1,2,3,7,8,9-HxCDD	1.04	**JK**	0.109	3.02	0.83	1.007	1
1,2,3,4,6,7,8-HpCDD	43.2		0.0627	3.02	1.01	1.000	1
OCDD	4420		0.0880	6.04	0.89	1.000	1
2,3,7,8-TCDF	1910		3.87	6.04	0.76	1.001	10
1,2,3,7,8-PeCDF	47.1		0.0797	3.02	1.53	1.001	1
2,3,4,7,8-PeCDF	41.1		0.0849	3.02	1.51	1.001	1
1,2,3,4,7,8-HxCDF	92.6		0.0526	3.02	1.16	1.000	1
1,2,3,6,7,8-HxCDF	21.1		0.0533	3.02	1.08	1.000	1
1,2,3,7,8,9-HxCDF	7.41		0.0643	3.02	1.21	1.001	1
2,3,4,6,7,8-HxCDF	4.70		0.0608	3.02	1.16	1.000	1
1,2,3,4,6,7,8-HpCDF	27.5		0.152	3.02	0.90	1.000	1
1,2,3,4,7,8,9-HpCDF	10.0		0.192	3.02	1.01	1.000	1
OCDF	19.4		0.148	6.04	0.86	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 11:55
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0249	**Units:**	ng/Kg
Lab Code:	E1801058-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 14:27
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.667g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519326	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	813		0.408	0.604	0.85		1
Total Penta-Dioxins	8.98		0.0942	3.02	1.38		1
Total Hexa-Dioxins	37.3		0.110	3.02	1.27		1
Total Hepta-Dioxins	105		0.0627	3.02	1.06		1
Total Tetra-Furans	2580		0.0807	0.604	0.69		1
Total Penta-Furans	137		0.0822	3.02	1.47		1
Total Hexa-Furans	138		0.0576	3.02	1.16		1
Total Hepta-Furans	49.7		0.171	3.02	0.90		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 11:55
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0249	**Units:**	Percent
Lab Code:	E1801058-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 22:55
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.667g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519263	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519255

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	751.320	38		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1221.011	61		25-181	1.58	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1086.258	54		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1018.445	51		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1354.557	68		23-140	1.05	1.069
13C-OCDD	4000	2151.323	54		17-157	0.91	1.151
13C-2,3,7,8-TCDF	2000	1062.018	53		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1198.652	60		24-185	1.60	1.145
13C-2,3,4,7,8-PeCDF	2000	1141.481	57		21-178	1.58	1.179
13C-1,2,3,4,7,8-HxCDF	2000	947.329	47		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	947.040	47		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1029.396	51		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	958.901	48		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	961.304	48		28-143	0.45	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1060.403	53		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	478.829	60		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 11:55
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0249	**Units:**	ng/Kg
Lab Code:	E1801058-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1240**	10.9	10.9	10	1	1240
1,2,3,7,8-PeCDD	**5.39**	0.0942	3.02	1	1	5.39
1,2,3,4,7,8-HxCDD	**0.539**	0.109	3.02	1	0.1	0.0539
1,2,3,6,7,8-HxCDD	**1.25**	0.113	3.02	1	0.1	0.125
1,2,3,7,8,9-HxCDD	**1.04**	0.109	3.02	1	0.1	0.104
1,2,3,4,6,7,8-HpCDD	**43.2**	0.0627	3.02	1	0.01	0.432
OCDD	**4420**	0.0880	6.04	1	0.0003	1.33
2,3,7,8-TCDF	**1910**	3.87	6.04	10	0.1	191
1,2,3,7,8-PeCDF	**47.1**	0.0797	3.02	1	0.03	1.41
2,3,4,7,8-PeCDF	**41.1**	0.0849	3.02	1	0.3	12.3
1,2,3,4,7,8-HxCDF	**92.6**	0.0526	3.02	1	0.1	9.26
1,2,3,6,7,8-HxCDF	**21.1**	0.0533	3.02	1	0.1	2.11
1,2,3,7,8,9-HxCDF	**7.41**	0.0643	3.02	1	0.1	0.741
2,3,4,6,7,8-HxCDF	**4.70**	0.0608	3.02	1	0.1	0.470
1,2,3,4,6,7,8-HpCDF	**27.5**	0.152	3.02	1	0.01	0.275
1,2,3,4,7,8,9-HpCDF	**10.0**	0.192	3.02	1	0.01	0.100
OCDF	**19.4**	0.148	6.04	1	0.0003	0.00582
		Total TEQ				1470

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 11:55
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0249	**Units:**	Percent
Lab Code:	E1801058-017	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	6.502g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	77.6		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 12:00
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0250	**Units:**	ng/Kg
Lab Code:	E1801058-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 15:16
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.538g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519327	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1650		22.7	22.7	0.76	1.001	10
1,2,3,7,8-PeCDD	6.48		0.117	3.06	1.64	1.000	1
1,2,3,4,7,8-HxCDD	0.764	**JK**	0.145	3.06	0.97	1.000	1
1,2,3,6,7,8-HxCDD	1.93	**JK**	0.174	3.06	1.53	1.000	1
1,2,3,7,8,9-HxCDD	1.41	**J**	0.155	3.06	1.09	1.007	1
1,2,3,4,6,7,8-HpCDD	61.4		0.293	3.06	1.00	1.000	1
OCDD	7340		2.87	61.1	0.86	1.000	10
2,3,7,8-TCDF	2550		7.62	7.62	0.74	1.001	10
1,2,3,7,8-PeCDF	56.3		0.226	3.06	1.49	1.001	1
2,3,4,7,8-PeCDF	47.9		0.249	3.06	1.52	1.000	1
1,2,3,4,7,8-HxCDF	111		0.130	3.06	1.22	1.000	1
1,2,3,6,7,8-HxCDF	23.9		0.115	3.06	1.16	1.000	1
1,2,3,7,8,9-HxCDF	8.10		0.140	3.06	1.30	1.001	1
2,3,4,6,7,8-HxCDF	5.00		0.121	3.06	1.33	1.000	1
1,2,3,4,6,7,8-HpCDF	32.9		0.146	3.06	0.98	1.000	1
1,2,3,4,7,8,9-HpCDF	11.3		0.195	3.06	1.04	1.000	1
OCDF	26.8		0.239	6.11	0.84	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 12:00
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0250	**Units:**	ng/Kg
Lab Code:	E1801058-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 15:16
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.538g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519327	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1040		0.405	0.611	0.78		1
Total Penta-Dioxins	13.8		0.117	3.06	1.35		1
Total Hexa-Dioxins	28.0		0.157	3.06	1.26		1
Total Hepta-Dioxins	144		0.293	3.06	1.04		1
Total Tetra-Furans	3290		0.114	0.611	0.68		1
Total Penta-Furans	160		0.237	3.06	1.50		1
Total Hexa-Furans	160		0.126	3.06	1.26		1
Total Hepta-Furans	63.1		0.169	3.06	0.98		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 12:00
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0250	**Units:**	Percent
Lab Code:	E1801058-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/06/18 23:43
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.538g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519264	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519255

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	677.318	34		25-164	0.81	1.021
13C-1,2,3,7,8-PeCDD	2000	1171.974	59		25-181	1.63	1.190
13C-1,2,3,4,7,8-HxCDD	2000	983.643	49		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	867.776	43		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1143.307	57		23-140	1.06	1.070
13C-OCDD	4000	1795.878	45		17-157	0.91	1.151
13C-2,3,7,8-TCDF	2000	941.778	47		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1100.673	55		24-185	1.58	1.146
13C-2,3,4,7,8-PeCDF	2000	1063.647	53		21-178	1.59	1.179
13C-1,2,3,4,7,8-HxCDF	2000	836.778	42		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	839.589	42		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	961.480	48		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	867.468	43		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	810.589	41		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	930.390	47		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	380.551	48		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 12:00
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0250	**Units:**	ng/Kg
Lab Code:	E1801058-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1650**	22.7	22.7	10	1	1650
1,2,3,7,8-PeCDD	**6.48**	0.117	3.06	1	1	6.48
1,2,3,4,7,8-HxCDD	**0.764**	0.145	3.06	1	0.1	0.0764
1,2,3,6,7,8-HxCDD	**1.93**	0.174	3.06	1	0.1	0.193
1,2,3,7,8,9-HxCDD	**1.41**	0.155	3.06	1	0.1	0.141
1,2,3,4,6,7,8-HpCDD	**61.4**	0.293	3.06	1	0.01	0.614
OCDD	**7340**	2.87	61.1	10	0.0003	2.20
2,3,7,8-TCDF	**2550**	7.62	7.62	10	0.1	255
1,2,3,7,8-PeCDF	**56.3**	0.226	3.06	1	0.03	1.69
2,3,4,7,8-PeCDF	**47.9**	0.249	3.06	1	0.3	14.4
1,2,3,4,7,8-HxCDF	**111**	0.130	3.06	1	0.1	11.1
1,2,3,6,7,8-HxCDF	**23.9**	0.115	3.06	1	0.1	2.39
1,2,3,7,8,9-HxCDF	**8.10**	0.140	3.06	1	0.1	0.810
2,3,4,6,7,8-HxCDF	**5.00**	0.121	3.06	1	0.1	0.500
1,2,3,4,6,7,8-HpCDF	**32.9**	0.146	3.06	1	0.01	0.329
1,2,3,4,7,8,9-HpCDF	**11.3**	0.195	3.06	1	0.01	0.113
OCDF	**26.8**	0.239	6.11	1	0.0003	0.00804
		Total TEQ				1950

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 12:00
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0250	**Units:**	Percent
Lab Code:	E1801058-018	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	5.618g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	77.6		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 14:20
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0256	**Units:**	ng/Kg
Lab Code:	E1801058-024	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 00:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.853g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519265	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519255

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	148		0.396	0.571	0.80	1.001	1
1,2,3,7,8-PeCDD	1.01**JK**		0.0950	2.85	1.12	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.0739	2.85			1
1,2,3,6,7,8-HxCDD	0.287**JK**		0.0876	2.85	1.60	1.001	1
1,2,3,7,8,9-HxCDD	0.277**JK**		0.0787	2.85	1.46	1.007	1
1,2,3,4,6,7,8-HpCDD	10.3		0.0425	2.85	1.06	1.000	1
OCDD	502		0.182	5.71	0.87	1.000	1
2,3,7,8-TCDF	298		0.102	0.571	0.76	1.001	1
1,2,3,7,8-PeCDF	10.7		0.0947	2.85	1.53	1.001	1
2,3,4,7,8-PeCDF	8.75		0.0968	2.85	1.58	1.001	1
1,2,3,4,7,8-HxCDF	27.6		0.0478	2.85	1.11	1.000	1
1,2,3,6,7,8-HxCDF	8.08		0.0498	2.85	1.30	1.000	1
1,2,3,7,8,9-HxCDF	3.11		0.0523	2.85	1.11	1.001	1
2,3,4,6,7,8-HxCDF	1.92**J**		0.0515	2.85	1.40	1.001	1
1,2,3,4,6,7,8-HpCDF	11.3		0.0523	2.85	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	3.63		0.0708	2.85	0.95	1.000	1
OCDF	8.77		0.180	5.71	0.93	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 14:20
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0256	**Units:**	ng/Kg
Lab Code:	E1801058-024	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 00:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.853g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519265	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519255

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	161		0.396	0.571	0.80		1
Total Penta-Dioxins	1.39	**J**	0.0950	2.85	1.73		1
Total Hexa-Dioxins	7.11		0.0800	2.85	1.11		1
Total Hepta-Dioxins	28.0		0.0425	2.85	1.06		1
Total Tetra-Furans	516		0.102	0.571	0.72		1
Total Penta-Furans	24.5		0.0957	2.85	1.32		1
Total Hexa-Furans	41.8		0.0504	2.85	1.17		1
Total Hepta-Furans	20.0		0.0610	2.85	1.03		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 14:20
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0256	**Units:**	Percent
Lab Code:	E1801058-024	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 00:32
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.853g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519265	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519255

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	643.070	32		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1152.335	58		25-181	1.56	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1107.672	55		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1015.550	51		28-130	1.24	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1314.363	66		23-140	1.05	1.070
13C-OCDD	4000	1751.769	44		17-157	0.91	1.151
13C-2,3,7,8-TCDF	2000	884.658	44		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	1153.192	58		24-185	1.58	1.145
13C-2,3,4,7,8-PeCDF	2000	1125.707	56		21-178	1.58	1.179
13C-1,2,3,4,7,8-HxCDF	2000	960.486	48		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	929.371	46		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1119.403	56		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	960.679	48		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	927.553	46		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1078.240	54		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	363.636	45		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 14:20
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0256	**Units:**	ng/Kg
Lab Code:	E1801058-024	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**148**	0.396	0.571	1	1	148
1,2,3,7,8-PeCDD	**1.01**	0.0950	2.85	1	1	1.01
1,2,3,4,7,8-HxCDD	ND	0.0739	2.85	1	0.1	
1,2,3,6,7,8-HxCDD	**0.287**	0.0876	2.85	1	0.1	0.0287
1,2,3,7,8,9-HxCDD	**0.277**	0.0787	2.85	1	0.1	0.0277
1,2,3,4,6,7,8-HpCDD	**10.3**	0.0425	2.85	1	0.01	0.103
OCDD	**502**	0.182	5.71	1	0.0003	0.151
2,3,7,8-TCDF	**298**	0.102	0.571	1	0.1	29.8
1,2,3,7,8-PeCDF	**10.7**	0.0947	2.85	1	0.03	0.321
2,3,4,7,8-PeCDF	**8.75**	0.0968	2.85	1	0.3	2.63
1,2,3,4,7,8-HxCDF	**27.6**	0.0478	2.85	1	0.1	2.76
1,2,3,6,7,8-HxCDF	**8.08**	0.0498	2.85	1	0.1	0.808
1,2,3,7,8,9-HxCDF	**3.11**	0.0523	2.85	1	0.1	0.311
2,3,4,6,7,8-HxCDF	**1.92**	0.0515	2.85	1	0.1	0.192
1,2,3,4,6,7,8-HpCDF	**11.3**	0.0523	2.85	1	0.01	0.113
1,2,3,4,7,8,9-HpCDF	**3.63**	0.0708	2.85	1	0.01	0.0363
OCDF	**8.77**	0.180	5.71	1	0.0003	0.00263
		Total TEQ				186

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 14:20
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0256	**Units:**	Percent
Lab Code:	E1801058-024	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/03/18 08:31
	5.712g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 15:40
Sample Matrix:	Wipe	**Date Received:**	11/17/18 09:52
Sample Name:	FW008	**Units:**	pg
Lab Code:	E1801058-030	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:19
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519362	**Blank File Name:**	P616043
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	18.9	18.9			1
1,2,3,7,8-PeCDD	ND	U	3.26	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.70	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.86	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	1.74	50.0			1
1,2,3,4,6,7,8-HpCDD	1.55**BJK**		1.15	50.0	1.57	1.000	1
OCDD	36.3**BJK**		4.60	100	0.69	1.000	1
2,3,7,8-TCDF	27.5		6.63	10.0	0.72	1.001	1
1,2,3,7,8-PeCDF	ND	U	2.80	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.96	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	1.55	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	1.45	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.92	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	1.63	50.0			1
1,2,3,4,6,7,8-HpCDF	1.39**JK**		1.33	50.0	1.44	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	1.90	50.0			1
OCDF	ND	U	6.41	100			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 15:40
Sample Matrix:	Wipe	**Date Received:**	11/17/18 09:52
Sample Name:	FW008	**Units:**	pg
Lab Code:	E1801058-030	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:19
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519362	**Blank File Name:**	P616043
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	18.9	18.9			1
Total Penta-Dioxins	ND	U	3.26	50.0			1
Total Hexa-Dioxins	ND	U	1.77	50.0			1
Total Hepta-Dioxins	ND	U	1.15	50.0			1
Total Tetra-Furans	37.8		6.63	10.0	0.75		1
Total Penta-Furans	ND	U	2.88	50.0			1
Total Hexa-Furans	ND	U	1.63	50.0			1
Total Hepta-Furans	ND	U	1.59	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 15:40
Sample Matrix:	Wipe	**Date Received:**	11/17/18 09:52
Sample Name:	FW008	**Units:**	Percent
Lab Code:	E1801058-030	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:19
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519362	**Blank File Name:**	P616043
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	369.215	18	**Y**	25-164	0.84	1.021
13C-1,2,3,7,8-PeCDD	2000	802.591	40		25-181	1.59	1.191
13C-1,2,3,4,7,8-HxCDD	2000	753.933	38		32-141	1.23	0.991
13C-1,2,3,6,7,8-HxCDD	2000	733.785	37		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1033.633	52		23-140	1.08	1.070
13C-OCDD	4000	1507.255	38		17-157	0.88	1.151
13C-2,3,7,8-TCDF	2000	475.485	24		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	754.301	38		24-185	1.61	1.147
13C-2,3,4,7,8-PeCDF	2000	729.426	36		21-178	1.58	1.181
13C-1,2,3,4,7,8-HxCDF	2000	642.834	32		26-152	0.50	0.970
13C-1,2,3,6,7,8-HxCDF	2000	686.628	34		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	706.878	35		29-147	0.49	1.008
13C-2,3,4,6,7,8-HxCDF	2000	691.580	35		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	751.179	38		28-143	0.46	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	800.633	40		26-138	0.42	1.084
37Cl-2,3,7,8-TCDD	800	229.184	29	**Y**	35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 15:40
Sample Matrix:	Wipe	**Date Received:**	11/17/18 09:52
Sample Name:	FW008	**Units:**	pg
Lab Code:	E1801058-030	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	18.9	18.9	1	1	9.45
1,2,3,7,8-PeCDD	ND	3.26	50.0	1	1	1.63
1,2,3,4,7,8-HxCDD	ND	1.70	50.0	1	0.1	0.0850
1,2,3,6,7,8-HxCDD	ND	1.86	50.0	1	0.1	0.0930
1,2,3,7,8,9-HxCDD	ND	1.74	50.0	1	0.1	0.0870
1,2,3,4,6,7,8-HpCDD	**1.55**	1.15	50.0	1	0.01	0.0155
OCDD	**36.3**	4.60	100	1	0.0003	0.0109
2,3,7,8-TCDF	**27.5**	6.63	10.0	1	0.1	2.75
1,2,3,7,8-PeCDF	ND	2.80	50.0	1	0.03	0.0420
2,3,4,7,8-PeCDF	ND	2.96	50.0	1	0.3	0.444
1,2,3,4,7,8-HxCDF	ND	1.55	50.0	1	0.1	0.0775
1,2,3,6,7,8-HxCDF	ND	1.45	50.0	1	0.1	0.0725
1,2,3,7,8,9-HxCDF	ND	1.92	50.0	1	0.1	0.0960
2,3,4,6,7,8-HxCDF	ND	1.63	50.0	1	0.1	0.0815
1,2,3,4,6,7,8-HpCDF	**1.39**	1.33	50.0	1	0.01	0.0139
1,2,3,4,7,8,9-HpCDF	ND	1.90	50.0	1	0.01	0.00950
OCDF	ND	6.41	100	1	0.0003	0.000962
		Total TEQ				15.0

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 15:45
Sample Matrix:	Wipe	**Date Received:**	11/17/18 09:52
Sample Name:	FW009	**Units:**	pg
Lab Code:	E1801058-031	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 16:28
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616047	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	9.66	10.0			1
1,2,3,7,8-PeCDD	ND	U	2.03	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	2.37	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	2.60	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	2.31	50.0			1
1,2,3,4,6,7,8-HpCDD	1.61**BJ**		0.796	50.0	1.05	1.000	1
OCDD	21.7**BJ**		2.79	100	0.93	1.000	1
2,3,7,8-TCDF	7.92**JK**		4.87	10.0	0.64	1.000	1
1,2,3,7,8-PeCDF	ND	U	1.60	50.0			1
2,3,4,7,8-PeCDF	ND	U	1.68	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	1.39	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	1.38	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.76	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	1.49	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.722	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	1.00	50.0			1
OCDF	ND	U	5.06	100			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 15:45
Sample Matrix:	Wipe	**Date Received:**	11/17/18 09:52
Sample Name:	FW009	**Units:**	pg
Lab Code:	E1801058-031	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 16:28
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616047	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	9.66	10.0			1
Total Penta-Dioxins	ND	U	2.03	50.0			1
Total Hexa-Dioxins	ND	U	2.42	50.0			1
Total Hepta-Dioxins	3.19**J**		0.796	50.0	1.00		1
Total Tetra-Furans	ND	U	4.87	10.0			1
Total Penta-Furans	ND	U	1.64	50.0			1
Total Hexa-Furans	ND	U	1.49	50.0			1
Total Hepta-Furans	ND	U	0.846	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 15:45
Sample Matrix:	Wipe	**Date Received:**	11/17/18 09:52
Sample Name:	FW009	**Units:**	Percent
Lab Code:	E1801058-031	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 16:28
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616047	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	802.489	40		25-164	0.78	1.023
13C-1,2,3,7,8-PeCDD	2000	1367.722	68		25-181	1.56	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1507.652	75		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1533.068	77		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1650.841	83		23-140	1.04	1.066
13C-OCDD	4000	1765.958	44		17-157	0.89	1.139
13C-2,3,7,8-TCDF	2000	1093.984	55		24-169	0.77	0.993
13C-1,2,3,7,8-PeCDF	2000	1249.447	62		24-185	1.60	1.151
13C-2,3,4,7,8-PeCDF	2000	1233.897	62		21-178	1.59	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1367.179	68		26-152	0.54	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1372.716	69		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1278.710	64		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1321.263	66		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1173.031	59		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1112.769	56		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	427.544	53		35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 15:45
Sample Matrix:	Wipe	**Date Received:**	11/17/18 09:52
Sample Name:	FW009	**Units:**	pg
Lab Code:	E1801058-031	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	9.66	10.0	1	1	4.83
1,2,3,7,8-PeCDD	ND	2.03	50.0	1	1	1.02
1,2,3,4,7,8-HxCDD	ND	2.37	50.0	1	0.1	0.119
1,2,3,6,7,8-HxCDD	ND	2.60	50.0	1	0.1	0.130
1,2,3,7,8,9-HxCDD	ND	2.31	50.0	1	0.1	0.116
1,2,3,4,6,7,8-HpCDD	**1.61**	0.796	50.0	1	0.01	0.0161
OCDD	**21.7**	2.79	100	1	0.0003	0.00651
2,3,7,8-TCDF	**7.92**	4.87	10.0	1	0.1	0.792
1,2,3,7,8-PeCDF	ND	1.60	50.0	1	0.03	0.0240
2,3,4,7,8-PeCDF	ND	1.68	50.0	1	0.3	0.252
1,2,3,4,7,8-HxCDF	ND	1.39	50.0	1	0.1	0.0695
1,2,3,6,7,8-HxCDF	ND	1.38	50.0	1	0.1	0.0690
1,2,3,7,8,9-HxCDF	ND	1.76	50.0	1	0.1	0.0880
2,3,4,6,7,8-HxCDF	ND	1.49	50.0	1	0.1	0.0745
1,2,3,4,6,7,8-HpCDF	ND	0.722	50.0	1	0.01	0.00361
1,2,3,4,7,8,9-HpCDF	ND	1.00	50.0	1	0.01	0.00500
OCDF	ND	5.06	100	1	0.0003	0.000759
		Total TEQ				7.62

2005 WHO TEFs, ND = 0.5*DL

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 15:50
Sample Matrix:	Wipe	**Date Received:**	11/17/18 09:52
Sample Name:	FW010	**Units:**	pg
Lab Code:	E1801058-032	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 17:18
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616048	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	12.3	12.3			1
1,2,3,7,8-PeCDD	ND	U	2.92	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.68	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.86	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	1.65	50.0			1
1,2,3,4,6,7,8-HpCDD	2.16**BJK**		1.79	50.0	0.65	1.000	1
OCDD	60.7**BJK**		2.46	100	1.15	1.000	1
2,3,7,8-TCDF	11.4**K**		4.59	10.0	1.08	1.001	1
1,2,3,7,8-PeCDF	ND	U	2.55	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.69	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	1.90	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	1.85	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	2.26	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	2.02	50.0			1
1,2,3,4,6,7,8-HpCDF	1.58**JK**		0.816	50.0	1.41	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	1.18	50.0			1
OCDF	6.41**JK**		3.68	100	0.47	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 15:50
Sample Matrix:	Wipe	**Date Received:**	11/17/18 09:52
Sample Name:	FW010	**Units:**	pg
Lab Code:	E1801058-032	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 17:18
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616048	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	12.3	12.3			1
Total Penta-Dioxins	ND	U	2.92	50.0			1
Total Hexa-Dioxins	ND	U	1.73	50.0			1
Total Hepta-Dioxins	ND	U	1.79	50.0			1
Total Tetra-Furans	ND	U	4.59	10.0			1
Total Penta-Furans	ND	U	2.62	50.0			1
Total Hexa-Furans	ND	U	2.00	50.0			1
Total Hepta-Furans	ND	U	0.972	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 15:50
Sample Matrix:	Wipe	**Date Received:**	11/17/18 09:52
Sample Name:	FW010	**Units:**	Percent
Lab Code:	E1801058-032	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 17:18
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616048	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	726.600	36		25-164	0.78	1.022
13C-1,2,3,7,8-PeCDD	2000	1125.254	56		25-181	1.56	1.194
13C-1,2,3,4,7,8-HxCDD	2000	1178.184	59		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1206.781	60		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1239.645	62		23-140	1.05	1.067
13C-OCDD	4000	1462.729	37		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	981.835	49		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1030.800	52		24-185	1.60	1.151
13C-2,3,4,7,8-PeCDF	2000	999.463	50		21-178	1.61	1.184
13C-1,2,3,4,7,8-HxCDF	2000	1006.983	50		26-152	0.54	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1035.669	52		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	993.201	50		29-147	0.52	1.009
13C-2,3,4,6,7,8-HxCDF	2000	986.808	49		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	968.036	48		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	896.811	45		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	454.647	57		35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	11/16/18 15:50
Sample Matrix:	Wipe	**Date Received:**	11/17/18 09:52
Sample Name:	FW010	**Units:**	pg
Lab Code:	E1801058-032	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	12.3	12.3	1	1	6.15
1,2,3,7,8-PeCDD	ND	2.92	50.0	1	1	1.46
1,2,3,4,7,8-HxCDD	ND	1.68	50.0	1	0.1	0.0840
1,2,3,6,7,8-HxCDD	ND	1.86	50.0	1	0.1	0.0930
1,2,3,7,8,9-HxCDD	ND	1.65	50.0	1	0.1	0.0825
1,2,3,4,6,7,8-HpCDD	**2.16**	1.79	50.0	1	0.01	0.0216
OCDD	**60.7**	2.46	100	1	0.0003	0.0182
2,3,7,8-TCDF	**11.4**	4.59	10.0	1	0.1	1.14
1,2,3,7,8-PeCDF	ND	2.55	50.0	1	0.03	0.0383
2,3,4,7,8-PeCDF	ND	2.69	50.0	1	0.3	0.404
1,2,3,4,7,8-HxCDF	ND	1.90	50.0	1	0.1	0.0950
1,2,3,6,7,8-HxCDF	ND	1.85	50.0	1	0.1	0.0925
1,2,3,7,8,9-HxCDF	ND	2.26	50.0	1	0.1	0.113
2,3,4,6,7,8-HxCDF	ND	2.02	50.0	1	0.1	0.101
1,2,3,4,6,7,8-HpCDF	**1.58**	0.816	50.0	1	0.01	0.0158
1,2,3,4,7,8,9-HpCDF	ND	1.18	50.0	1	0.01	0.00590
OCDF	**6.41**	3.68	100	1	0.0003	0.00192
		Total TEQ				9.92

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800488-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519290	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.419	0.488			1
1,2,3,7,8-PeCDD	ND	U	0.0694	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0548	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0572	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0547	2.44			1
1,2,3,4,6,7,8-HpCDD	0.0967**JK**		0.0337	2.44	0.82	1.000	1
OCDD	0.200**JK**		0.0666	4.88	0.55	1.000	1
2,3,7,8-TCDF	0.343**JK**		0.115	0.488	0.63	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0515	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.0562	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0415	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0363	2.44			1
1,2,3,7,8,9-HxCDF	0.0508**J**		0.0466	2.44	1.22	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0427	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0294	2.44			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0394	2.44			1
OCDF	ND	U	0.143	4.88			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800488-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519290	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.419	0.488			1
Total Penta-Dioxins	ND	U	0.0694	2.44			1
Total Hexa-Dioxins	ND	U	0.0556	2.44			1
Total Hepta-Dioxins	ND	U	0.0337	2.44			1
Total Tetra-Furans	ND	U	0.115	0.488			1
Total Penta-Furans	ND	U	0.0537	2.44			1
Total Hexa-Furans	0.0508**J**		0.0415	2.44	1.22		1
Total Hepta-Furans	0.0434**J**		0.0341	2.44	1.10		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800488-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:33
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.246g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519290	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	601.967	30		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1232.457	62		25-181	1.60	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1021.258	51		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	990.134	50		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1445.852	72		23-140	1.07	1.070
13C-OCDD	4000	2263.024	57		17-157	0.91	1.151
13C-2,3,7,8-TCDF	2000	808.433	40		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1150.728	58		24-185	1.62	1.145
13C-2,3,4,7,8-PeCDF	2000	1085.788	54		21-178	1.59	1.179
13C-1,2,3,4,7,8-HxCDF	2000	890.132	45		26-152	0.54	0.970
13C-1,2,3,6,7,8-HxCDF	2000	953.383	48		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1026.900	51		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	925.376	46		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1012.807	51		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1149.672	57		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	348.230	44		35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800499-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 12:27
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616043	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	18.3	18.3			1
1,2,3,7,8-PeCDD	ND	U	4.42	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	2.85	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	3.23	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	2.83	50.0			1
1,2,3,4,6,7,8-HpCDD	1.84**JK**		1.70	50.0	1.21	1.000	1
OCDD	20.3**JK**		4.20	100	0.62	1.000	1
2,3,7,8-TCDF	ND	U	9.75	10.0			1
1,2,3,7,8-PeCDF	ND	U	2.98	50.0			1
2,3,4,7,8-PeCDF	ND	U	3.24	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	2.35	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	2.41	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	3.25	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	2.98	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	1.57	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	2.16	50.0			1
OCDF	ND	U	11.9	100			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800499-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 12:27
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616043	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	18.3	18.3			1
Total Penta-Dioxins	ND	U	4.42	50.0			1
Total Hexa-Dioxins	5.86**J**		2.97	50.0	1.24		1
Total Hepta-Dioxins	ND	U	1.70	50.0			1
Total Tetra-Furans	ND	U	9.75	10.0			1
Total Penta-Furans	ND	U	3.11	50.0			1
Total Hexa-Furans	ND	U	2.71	50.0			1
Total Hepta-Furans	ND	U	1.84	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800499-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 12:27
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616043	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	621.382	31		25-164	0.75	1.023
13C-1,2,3,7,8-PeCDD	2000	1043.953	52		25-181	1.51	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1043.326	52		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1011.483	51		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1098.367	55		23-140	1.02	1.067
13C-OCDD	4000	1090.398	27		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	770.763	39		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	940.344	47		24-185	1.58	1.151
13C-2,3,4,7,8-PeCDF	2000	893.556	45		21-178	1.58	1.185
13C-1,2,3,4,7,8-HxCDF	2000	899.042	45		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	906.808	45		26-123	0.55	0.974
13C-1,2,3,7,8,9-HxCDF	2000	823.883	41		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	755.788	38		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	812.929	41		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	783.678	39		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	342.030	43		35-197	NA	1.024

Accuracy & Precision

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Analyzed:**	12/11/18
Sample Matrix:	Sediment	**Date Extracted:**	11/29/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618494

	Lab Control Sample EQ1800488-02			Duplicate Lab Control Sample EQ1800488-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	76.5	97.3	79	76.7	98.9	78	70-140	<1	50
1,2,3,4,7,8-HxCDD	88.3	97.3	91	91.8	98.9	93	70-164	4	50
1,2,3,6,7,8-HxCDD	97.4	97.3	100	102	98.9	104	76-134	5	50
1,2,3,7,8,9-HxCDD	96.6	97.3	99	91.5	98.9	93	64-162	5	50
1,2,3,7,8-PeCDD	98.8	97.3	102	99.7	98.9	101	70-142	<1	50
2,3,7,8-TCDD	18.0	19.5	93	19.6	19.8	99	67-158	8	50
OCDD	194	195	100	191	198	96	78-144	2	50
1,2,3,4,6,7,8-HpCDF	91.6	97.3	94	93.2	98.9	94	82-122	2	50
1,2,3,4,7,8,9-HpCDF	95.8	97.3	99	100	98.9	101	78-138	4	50
1,2,3,4,7,8-HxCDF	98.1	97.3	101	99.8	98.9	101	72-134	2	50
1,2,3,6,7,8-HxCDF	94.7	97.3	97	99.2	98.9	100	84-130	5	50
1,2,3,7,8,9-HxCDF	92.5	97.3	95	95.3	98.9	96	78-130	3	50
1,2,3,7,8-PeCDF	90.1	97.3	93	90.8	98.9	92	80-134	<1	50
2,3,4,6,7,8-HxCDF	96.3	97.3	99	97.3	98.9	98	70-156	<1	50
2,3,4,7,8-PeCDF	98.8	97.3	102	100	98.9	101	68-160	2	50
2,3,7,8-TCDF	19.4	19.5	100	19.2	19.8	97	75-158	1	50
OCDF	209	195	108	219	198	111	63-170	4	50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:07
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.279g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519363	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.0		0.371	0.486	0.83	1.001	1
1,2,3,7,8-PeCDD	98.8		0.0819	2.43	1.59	1.000	1
1,2,3,4,7,8-HxCDD	88.3		0.0522	2.43	1.28	1.000	1
1,2,3,6,7,8-HxCDD	97.4		0.0570	2.43	1.25	1.000	1
1,2,3,7,8,9-HxCDD	96.6		0.0533	2.43	1.22	1.007	1
1,2,3,4,6,7,8-HpCDD	76.5		0.0421	2.43	1.04	1.000	1
OCDD	194		0.125	4.86	0.91	1.000	1
2,3,7,8-TCDF	19.4		0.198	0.486	0.68	1.001	1
1,2,3,7,8-PeCDF	90.1		0.149	2.43	1.50	1.000	1
2,3,4,7,8-PeCDF	98.8		0.155	2.43	1.48	1.000	1
1,2,3,4,7,8-HxCDF	98.1		0.0323	2.43	1.20	1.001	1
1,2,3,6,7,8-HxCDF	94.7		0.0299	2.43	1.21	1.000	1
1,2,3,7,8,9-HxCDF	92.5		0.0359	2.43	1.21	1.000	1
2,3,4,6,7,8-HxCDF	96.3		0.0304	2.43	1.19	1.000	1
1,2,3,4,6,7,8-HpCDF	91.6		0.129	2.43	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	95.8		0.165	2.43	0.97	1.000	1
OCDF	209		0.110	4.86	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:07
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.279g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519363	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.0		0.371	0.486	0.83		1
Total Penta-Dioxins	98.8		0.0819	2.43	1.59		1
Total Hexa-Dioxins	282		0.0541	2.43	1.28		1
Total Hepta-Dioxins	76.5		0.0421	2.43	1.04		1
Total Tetra-Furans	19.7		0.198	0.486	0.86		1
Total Penta-Furans	189		0.152	2.43	1.54		1
Total Hexa-Furans	382		0.0320	2.43	1.20		1
Total Hepta-Furans	187		0.146	2.43	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800488-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:07
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.279g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519363	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	466.307	23	**Y**	25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	825.671	41		25-181	1.62	1.191
13C-1,2,3,4,7,8-HxCDD	2000	864.506	43		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	870.765	44		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1092.489	55		23-140	1.06	1.070
13C-OCDD	4000	1640.699	41		17-157	0.89	1.151
13C-2,3,7,8-TCDF	2000	401.579	20	**Y**	24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	771.807	39		24-185	1.56	1.147
13C-2,3,4,7,8-PeCDF	2000	757.986	38		21-178	1.60	1.180
13C-1,2,3,4,7,8-HxCDF	2000	731.942	37		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	787.880	39		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	844.158	42		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	817.519	41		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	839.764	42		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	957.460	48		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	208.630	26	**Y**	35-197	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:56
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.116g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519364	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	19.6		0.242	0.494	0.73	1.001	1
1,2,3,7,8-PeCDD	99.7		0.101	2.47	1.63	1.000	1
1,2,3,4,7,8-HxCDD	91.8		0.0303	2.47	1.28	1.000	1
1,2,3,6,7,8-HxCDD	102		0.0341	2.47	1.25	1.000	1
1,2,3,7,8,9-HxCDD	91.5		0.0314	2.47	1.20	1.007	1
1,2,3,4,6,7,8-HpCDD	76.7		0.0333	2.47	1.07	1.000	1
OCDD	191		0.126	4.94	0.90	1.000	1
2,3,7,8-TCDF	19.2		0.121	0.494	0.74	1.001	1
1,2,3,7,8-PeCDF	90.8		0.106	2.47	1.52	1.001	1
2,3,4,7,8-PeCDF	100		0.108	2.47	1.49	1.001	1
1,2,3,4,7,8-HxCDF	99.8		0.0342	2.47	1.21	1.000	1
1,2,3,6,7,8-HxCDF	99.2		0.0319	2.47	1.20	1.000	1
1,2,3,7,8,9-HxCDF	95.3		0.0465	2.47	1.26	1.000	1
2,3,4,6,7,8-HxCDF	97.3		0.0367	2.47	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	93.2		0.197	2.47	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	100		0.269	2.47	0.99	1.000	1
OCDF	219		0.195	4.94	0.85	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800488-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:56
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.116g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519364	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	19.6		0.242	0.494	0.73		1
Total Penta-Dioxins	99.7		0.101	2.47	1.63		1
Total Hexa-Dioxins	286		0.0319	2.47	1.28		1
Total Hepta-Dioxins	76.7		0.0333	2.47	1.07		1
Total Tetra-Furans	19.2		0.121	0.494	0.74		1
Total Penta-Furans	193		0.107	2.47	1.52		1
Total Hexa-Furans	392		0.0367	2.47	1.21		1
Total Hepta-Furans	193		0.230	2.47	0.99		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800488-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 21:56
Prep Method:	Method Soxhlet	**Date Extracted:**	11/29/18
Sample Amount:	10.116g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519364	**Blank File Name:**	P519290
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	728.406	36		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	999.237	50		25-181	1.59	1.191
13C-1,2,3,4,7,8-HxCDD	2000	935.215	47		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	886.125	44		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	974.232	49		23-140	1.06	1.070
13C-OCDD	4000	1238.088	31		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	695.555	35		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	937.057	47		24-185	1.60	1.147
13C-2,3,4,7,8-PeCDF	2000	924.290	46		21-178	1.59	1.180
13C-1,2,3,4,7,8-HxCDF	2000	799.844	40		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	843.883	42		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	795.949	40		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	808.396	40		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	804.546	40		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	878.334	44		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	336.023	42		35-197	NA	1.021

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Analyzed:**	12/11/18
Sample Matrix:	Wipe	**Date Extracted:**	12/05/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	pg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	618605

	Lab Control Sample EQ1800499-02			Duplicate Lab Control Sample EQ1800499-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	1370	2000	69 *	1420	2000	71	70-140	3	50
1,2,3,4,7,8-HxCDD	1760	2000	88	1800	2000	90	70-164	2	50
1,2,3,6,7,8-HxCDD	1950	2000	97	1960	2000	98	76-134	<1	50
1,2,3,7,8,9-HxCDD	1820	2000	91	1850	2000	92	64-162	2	50
1,2,3,7,8-PeCDD	1950	2000	98	2020	2000	101	70-142	3	50
2,3,7,8-TCDD	541	400	135	555	400	139	67-158	3	50
OCDD	3930	4000	98	3920	4000	98	78-144	<1	50
1,2,3,4,6,7,8-HpCDF	1820	2000	91	1810	2000	90	82-122	<1	50
1,2,3,4,7,8,9-HpCDF	1800	2000	90	1800	2000	90	78-138	<1	50
1,2,3,4,7,8-HxCDF	1760	2000	88	1740	2000	87	72-134	1	50
1,2,3,6,7,8-HxCDF	1820	2000	91	1830	2000	91	84-130	<1	50
1,2,3,7,8,9-HxCDF	1740	2000	87	1790	2000	89	78-130	3	50
1,2,3,7,8-PeCDF	1620	2000	81	1620	2000	81	80-134	<1	50
2,3,4,6,7,8-HxCDF	1850	2000	92	1820	2000	91	70-156	2	50
2,3,4,7,8-PeCDF	1740	2000	87	1780	2000	89	68-160	2	50
2,3,7,8-TCDF	354	400	89	331	400	83	75-158	7	50
OCDF	3760	4000	94	3700	4000	93	63-170	2	50

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:45
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616051	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	541		5.92	10.0	0.79	1.001	1
1,2,3,7,8-PeCDD	1950		1.02	50.0	1.53	1.001	1
1,2,3,4,7,8-HxCDD	1760		1.34	50.0	1.23	1.000	1
1,2,3,6,7,8-HxCDD	1950		1.50	50.0	1.24	1.000	1
1,2,3,7,8,9-HxCDD	1820		1.32	50.0	1.27	1.006	1
1,2,3,4,6,7,8-HpCDD	1370		0.634	50.0	1.07	1.001	1
OCDD	3930		2.06	100	0.90	1.000	1
2,3,7,8-TCDF	354		3.26	10.0	0.74	1.001	1
1,2,3,7,8-PeCDF	1620		1.88	50.0	1.53	1.000	1
2,3,4,7,8-PeCDF	1740		1.97	50.0	1.52	1.001	1
1,2,3,4,7,8-HxCDF	1760		0.670	50.0	1.28	1.000	1
1,2,3,6,7,8-HxCDF	1820		0.676	50.0	1.23	1.000	1
1,2,3,7,8,9-HxCDF	1740		0.826	50.0	1.25	1.000	1
2,3,4,6,7,8-HxCDF	1850		0.716	50.0	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	1820		2.45	50.0	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	1800		3.30	50.0	0.99	1.000	1
OCDF	3760		3.02	100	0.90	1.005	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:45
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616051	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	541		5.92	10.0	0.79		1
Total Penta-Dioxins	1950		1.02	50.0	1.53		1
Total Hexa-Dioxins	5530		1.38	50.0	1.23		1
Total Hepta-Dioxins	1370		0.634	50.0	1.07		1
Total Tetra-Furans	361		3.26	10.0	0.67		1
Total Penta-Furans	3360		1.92	50.0	1.53		1
Total Hexa-Furans	7170		0.718	50.0	1.28		1
Total Hepta-Furans	3620		2.84	50.0	1.02		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800499-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:45
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616051	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1379.145	69		25-164	0.79	1.024
13C-1,2,3,7,8-PeCDD	2000	2077.843	104		25-181	1.56	1.197
13C-1,2,3,4,7,8-HxCDD	2000	1687.372	84		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1598.825	80		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1794.902	90		23-140	1.06	1.066
13C-OCDD	4000	1922.794	48		17-157	0.91	1.139
13C-2,3,7,8-TCDF	2000	1777.501	89		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1906.634	95		24-185	1.56	1.153
13C-2,3,4,7,8-PeCDF	2000	1828.814	91		21-178	1.59	1.186
13C-1,2,3,4,7,8-HxCDF	2000	1448.419	72		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1405.252	70		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1383.466	69		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1365.154	68		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1272.217	64		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1265.684	63		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	733.439	92		35-197	NA	1.025

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:34
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616052	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	555		8.33	10.0	0.74	1.001	1
1,2,3,7,8-PeCDD	2020		2.29	50.0	1.59	1.001	1
1,2,3,4,7,8-HxCDD	1800		0.988	50.0	1.24	1.000	1
1,2,3,6,7,8-HxCDD	1960		1.10	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDD	1850		0.970	50.0	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	1420		0.708	50.0	1.04	1.000	1
OCDD	3920		1.48	100	0.90	1.000	1
2,3,7,8-TCDF	331		3.77	10.0	0.83	1.001	1
1,2,3,7,8-PeCDF	1620		2.51	50.0	1.56	1.001	1
2,3,4,7,8-PeCDF	1780		2.87	50.0	1.53	1.001	1
1,2,3,4,7,8-HxCDF	1740		0.800	50.0	1.26	1.000	1
1,2,3,6,7,8-HxCDF	1830		0.812	50.0	1.23	1.000	1
1,2,3,7,8,9-HxCDF	1790		1.05	50.0	1.27	1.000	1
2,3,4,6,7,8-HxCDF	1820		0.934	50.0	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	1810		1.77	50.0	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	1800		2.44	50.0	1.02	1.000	1
OCDF	3700		3.04	100	0.93	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:34
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616052	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	555		8.33	10.0	0.74		1
Total Penta-Dioxins	2020		2.29	50.0	1.59		1
Total Hexa-Dioxins	5620		1.02	50.0	1.24		1
Total Hepta-Dioxins	1420		0.708	50.0	1.04		1
Total Tetra-Furans	335		3.77	10.0	0.78		1
Total Penta-Furans	3400		2.68	50.0	1.56		1
Total Hexa-Furans	7170		0.890	50.0	1.26		1
Total Hepta-Furans	3610		2.07	50.0	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801058
Project:	C1887-0501	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800499-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:34
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616052	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	842.482	42		25-164	0.76	1.022
13C-1,2,3,7,8-PeCDD	2000	1347.262	67		25-181	1.54	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1494.024	75		32-141	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1502.512	75		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1706.315	85		23-140	1.06	1.067
13C-OCDD	4000	1960.430	49		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	1088.712	54		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	1264.486	63		24-185	1.57	1.151
13C-2,3,4,7,8-PeCDF	2000	1175.771	59		21-178	1.64	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1311.605	66		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1331.396	67		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1250.468	63		29-147	0.51	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1250.711	63		28-136	0.54	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1219.583	61		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1191.130	60		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	471.492	59		35-197	NA	1.023

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

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Sample Response Summary

CLIENT ID.
SL0243

Run #14 Filename P519262 Samp: 1 Inj: 1 Acquired: 6-DEC-18 22:06:25
Processed: 7-DEC-18 13:10:13 Sample ID: E1801058-011

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:53	1.218e+03	1.671e+03	0.73	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	9.474e+01	6.708e+01	1.41	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:08	7.049e+01	3.492e+01	2.02	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	1.668e+02	1.445e+02	1.15	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	5.401e+01	7.202e+01	0.75	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	4.301e+01	4.076e+01	1.06	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	1.325e+01	2.497e+01	0.53	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:37	2.145e+02	2.188e+02	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	3.839e+01	2.152e+01	1.78	no	no	1.258
10	Unk	OCDF	42:44	5.182e+02	5.238e+02	0.99	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:42	3.291e+02	4.466e+02	0.74	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:25	1.665e+01	1.088e+01	1.53	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:39	1.265e+01	1.118e+01	1.13	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	4.557e+01	3.321e+01	1.37	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:00	4.063e+01	2.617e+01	1.55	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	1.022e+03	9.567e+02	1.07	yes	no	1.025
17	Unk	OCDD	42:33	1.521e+04	1.693e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:51	9.196e+03	1.139e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:11	1.653e+04	1.074e+04	1.54	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:07	1.587e+04	9.922e+03	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	7.817e+03	1.519e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	9.229e+03	1.771e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	8.423e+03	1.582e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	8.027e+03	1.576e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	6.568e+03	1.522e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	6.170e+03	1.384e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:40	4.308e+03	5.152e+03	0.84	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.177e+04	7.409e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.215e+04	9.505e+03	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	1.083e+04	8.577e+03	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.376e+04	1.288e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:33	1.436e+04	1.588e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	1.304e+04	1.624e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.340e+04	1.826e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:42	6.115e+03				no	1.014

$$\text{OCDD} = \frac{(1.521e+04 + 1.693e+04) \times 4000\ \text{pg} \times 1}{(1.436e+04 + 1.588e+04) \times 10.11\ \text{g} \times 79.4/100 \times 1.118} = 473.6\ \text{ng/kg}$$

HK 12/10/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0243

Run #14 Filename P519262 Samp: 1 Inj: 1 Acquired: 6-DEC-18 22:06:25
Processed: 7-DEC-18 13:10:13 LAB. ID: E1801058-011

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.12e+05	5.32e+02	4.0e+02	2.95e+05	1.19e+03	2.5e+02
2	1,2,3,7,8-PeCDF	1.76e+04	1.00e+03	1.7e+01	1.47e+04	9.88e+02	1.5e+01
3	2,3,4,7,8-PeCDF	1.30e+04	1.00e+03	1.3e+01	8.87e+03	9.88e+02	9.0e+00
4	1,2,3,4,7,8-HxCDF	3.86e+04	1.00e+03	3.8e+01	3.06e+04	3.92e+02	7.8e+01
5	1,2,3,6,7,8-HxCDF	1.30e+04	1.00e+03	1.3e+01	1.34e+04	3.92e+02	3.4e+01
6	2,3,4,6,7,8-HxCDF	8.63e+03	1.00e+03	8.6e+00	7.62e+03	3.92e+02	1.9e+01
7	1,2,3,7,8,9-HxCDF	2.96e+03	1.00e+03	3.0e+00	4.53e+03	3.92e+02	1.2e+01
8	1,2,3,4,6,7,8-HpCDF	4.02e+04	1.10e+03	3.7e+01	4.07e+04	5.44e+02	7.5e+01
9	1,2,3,4,7,8,9-HpCDF	7.18e+03	1.10e+03	6.6e+00	3.32e+03	5.44e+02	6.1e+00
10	OCDF	6.68e+04	1.92e+02	3.5e+02	6.92e+04	9.56e+02	7.2e+01
11	2,3,7,8-TCDD	6.97e+04	1.69e+03	4.1e+01	7.90e+04	9.16e+02	8.6e+01
12	1,2,3,7,8-PeCDD	4.08e+03	7.04e+02	5.8e+00	3.28e+03	1.84e+02	1.8e+01
13	1,2,3,4,7,8-HxCDD	3.88e+03	4.32e+02	9.0e+00	2.85e+03	9.16e+02	3.1e+00
14	1,2,3,6,7,8-HxCDD	9.11e+03	4.32e+02	2.1e+01	7.19e+03	9.16e+02	7.9e+00
15	1,2,3,7,8,9-HxCDD	8.40e+03	4.32e+02	1.9e+01	7.12e+03	9.16e+02	7.8e+00
16	1,2,3,4,6,7,8-HpCDD	1.76e+05	7.00e+02	2.5e+02	1.81e+05	2.84e+02	6.4e+02
17	OCDD	2.18e+06	2.24e+02	9.7e+03	2.44e+06	2.44e+02	1.0e+04
18	13C-2,3,7,8-TCDF	1.66e+06	5.92e+03	2.8e+02	2.07e+06	4.37e+03	4.7e+02
19	13C-1,2,3,7,8-PeCDF	3.19e+06	8.88e+02	3.6e+03	2.10e+06	1.17e+03	1.8e+03
20	13C-2,3,4,7,8-PeCDF	3.23e+06	8.88e+02	3.6e+03	2.01e+06	1.17e+03	1.7e+03
21	13C-1,2,3,4,7,8-HxCDF	1.70e+06	5.72e+02	3.0e+03	3.28e+06	6.56e+02	5.0e+03
22	13C-1,2,3,6,7,8-HxCDF	1.84e+06	5.72e+02	3.2e+03	3.59e+06	6.56e+02	5.5e+03
23	13C-2,3,4,6,7,8-HxCDF	1.76e+06	5.72e+02	3.1e+03	3.34e+06	6.56e+02	5.1e+03
24	13C-1,2,3,7,8,9-HxCDF	1.61e+06	5.72e+02	2.8e+03	3.11e+06	6.56e+02	4.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.25e+06	1.01e+03	1.2e+03	2.85e+06	1.84e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+06	1.01e+03	1.0e+03	2.29e+06	1.84e+03	1.2e+03
27	13C-2,3,7,8-TCDD	7.98e+05	4.67e+03	1.7e+02	9.67e+05	2.43e+03	4.0e+02
28	13C-1,2,3,7,8-PeCDD	2.27e+06	1.07e+03	2.1e+03	1.44e+06	1.18e+03	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	2.63e+06	1.06e+03	2.5e+03	2.05e+06	6.92e+02	3.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.22e+06	1.06e+03	2.1e+03	1.80e+06	6.92e+02	2.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.39e+06	7.48e+02	3.2e+03	2.21e+06	5.88e+02	3.8e+03
32	13C-OCDD	2.08e+06	2.04e+02	1.0e+04	2.30e+06	1.96e+02	1.2e+04
33	13C-1,2,3,4-TCDD	2.44e+06	4.67e+03	5.2e+02	3.01e+06	2.43e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.32e+06	1.06e+03	5.0e+03	4.13e+06	6.92e+02	6.0e+03
35	37Cl-2,3,7,8-TCDD	1.15e+06	8.28e+02	1.4e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0243

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P519262 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 22:06:25 Processed: 7-DEC-18 13:10:13

Mass: 303.9020 305.8990 Tot Response: 5.99e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:47	7.43e+01	8.91e+01	0.83	yes	1.63e+02		n	n
2	24:17	1.71e+02	2.03e+02	0.84	yes	3.74e+02		n	n
3	25:09	8.15e+01	1.07e+02	0.76	yes	1.88e+02		n	n
4	25:51	5.19e+01	7.03e+01	0.74	yes	1.22e+02		n	n
5	26:36	6.11e+01	7.56e+01	0.81	yes	1.37e+02		n	n
6	27:03	6.15e+02	7.61e+02	0.81	yes	1.38e+03		n	n
7	27:46	9.17e+01	1.24e+02	0.74	yes	2.16e+02		n	y
8	27:53	1.22e+03	1.67e+03	0.73	yes	2.89e+03	2,3,7,8-TCDF	n	y
9	28:13	9.99e+01	1.33e+02	0.75	yes	2.33e+02		n	n
10	29:44	1.21e+02	1.73e+02	0.70	yes	2.94e+02		n	n

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Peak List Summary

CLIENT ID.
SL0243

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P519262 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 22:06:25 Processed: 7-DEC-18 13:10:13

Mass: 319.8970 321.8940 Tot Response: 9.61e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:43	4.45e+01	5.90e+01 0.76	yes	1.03e+02		n	n
2	28:42	3.29e+02	4.47e+02 0.74	yes	7.76e+02	2,3,7,8-TCDD	n	n
3	29:00	3.69e+01	4.44e+01 0.83	yes	8.13e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0243

Entry: 38 Totals Name: Total Penta-Furans1

Run: 14 File: P519262 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 22:06:25 Processed: 7-DEC-18 13:10:13

Mass: 339.8600 341.8570 Tot Response: 1.08e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:44	6.50e+02	4.33e+02 1.50	yes	1.08e+03		n	n

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Peak List Summary

CLIENT ID.
SL0243

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P519262 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 22:06:25 Processed: 7-DEC-18 13:10:13

Mass: 339.8600 341.8570 Tot Response: 6.41e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:08	3.67e+01	2.11e+01 1.74	yes	5.78e+01		n	n
2	31:15	2.43e+02	1.79e+02 1.36	yes	4.21e+02		n	n
3	32:12	9.47e+01	6.71e+01 1.41	yes	1.62e+02	1,2,3,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0243

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P519262 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 22:06:25 Processed: 7-DEC-18 13:10:13

Mass: 355.8550 357.8520 Tot Response: 4.22e+01 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:25	1.67e+01	1.09e+01	1.53	yes	2.75e+01	1,2,3,7,8-PeCDD	n	n
2	33:35	8.40e+00	6.24e+00	1.35	yes	1.46e+01		n	n

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Peak List Summary

CLIENT ID.
SL0243

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P519262 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 22:06:25 Processed: 7-DEC-18 13:10:13

Mass: 373.8210 375.8180 Tot Response: 7.57e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:44	3.91e+01	3.09e+01	1.27	yes	7.00e+01		n	n
2	35:26	1.56e+02	1.36e+02	1.14	yes	2.92e+02		n	n
3	35:53	1.67e+02	1.45e+02	1.15	yes	3.11e+02	1,2,3,4,7,8-HxCDF	n	n
4	36:31	4.30e+01	4.08e+01	1.06	yes	8.38e+01	2,3,4,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0243

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P519262 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 22:06:25 Processed: 7-DEC-18 13:10:13

Mass: 389.8160 391.8130 Tot Response: 1.25e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	4.81e+02	3.91e+02	1.23	yes	8.72e+02		n	n
2	36:03	1.56e+02	1.16e+02	1.34	yes	2.72e+02		n	n
3	36:39	1.27e+01	1.12e+01	1.13	yes	2.38e+01	1,2,3,4,7,8-HxCDD	n	n
4	36:45	4.56e+01	3.32e+01	1.37	yes	7.88e+01	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0243

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P519262 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 22:06:25 Processed: 7-DEC-18 13:10:13

Mass: 407.7820 409.7790 Tot Response: 1.06e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:37	2.15e+02	2.19e+02 0.98	yes	4.33e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	38:52	1.06e+01	1.13e+01 0.94	yes	2.20e+01		n	n
3	39:01	3.06e+02	2.98e+02 1.03	yes	6.04e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0243

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519262 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 22:06:25 Processed: 7-DEC-18 13:10:13

Mass: 423.7770 425.7740 Tot Response: 5.43e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:52	1.76e+03	1.03	yes	3.45e+03		n	n
2	39:35	1.02e+03	9.57e+02	1.07	yes	1.98e+03	1,2,3,4,6,7,8-HpCDD	n	n

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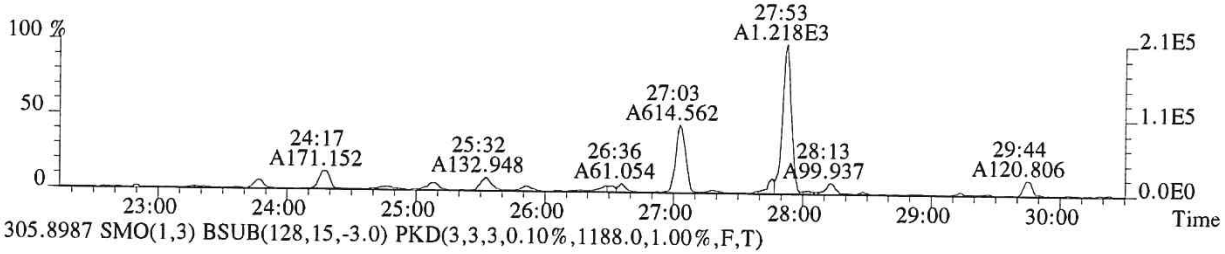
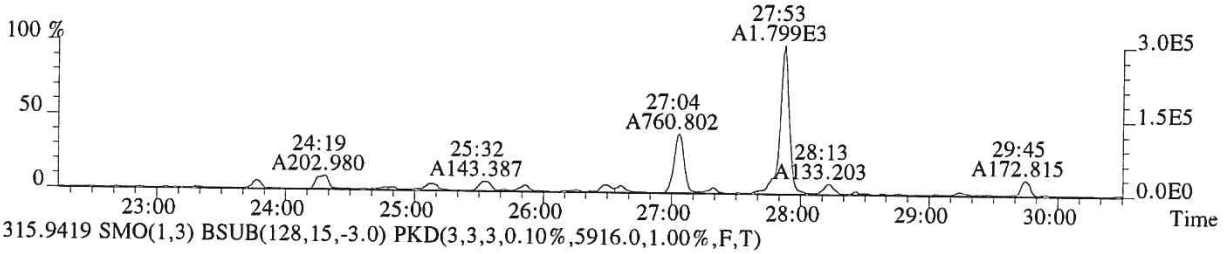
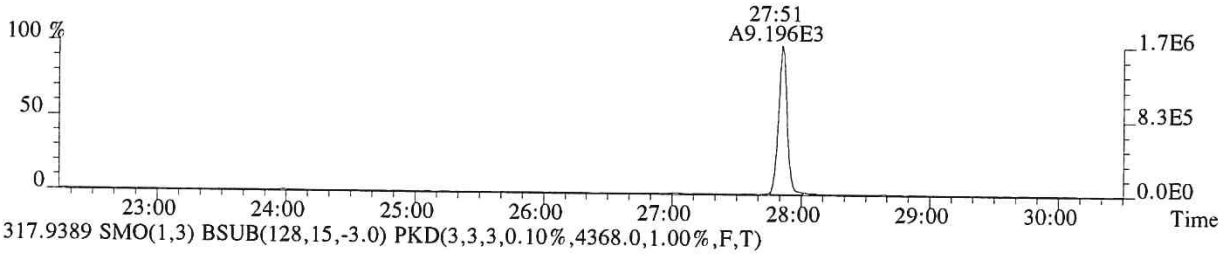
File:P519262 #1-587 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



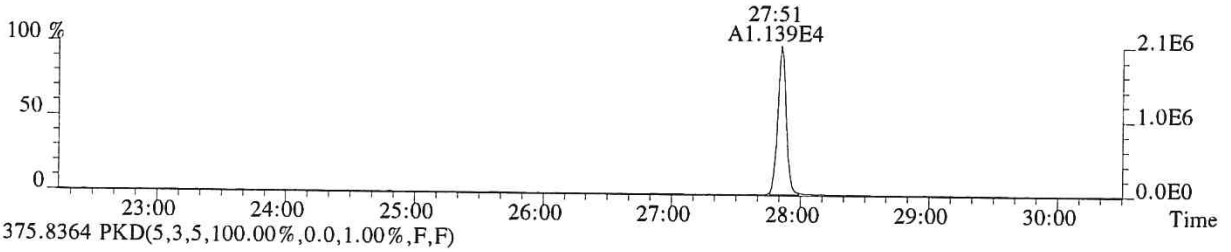
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



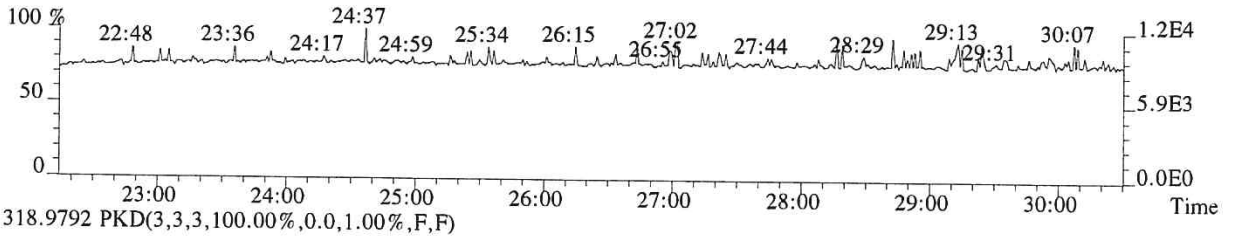
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5916.0,1.00%,F,T)



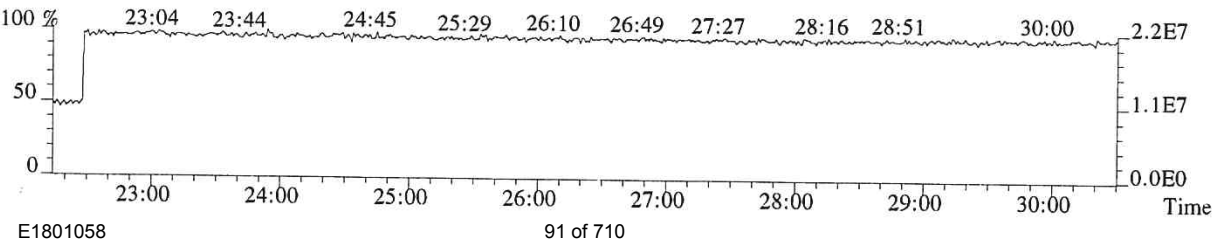
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4368.0,1.00%,F,T)



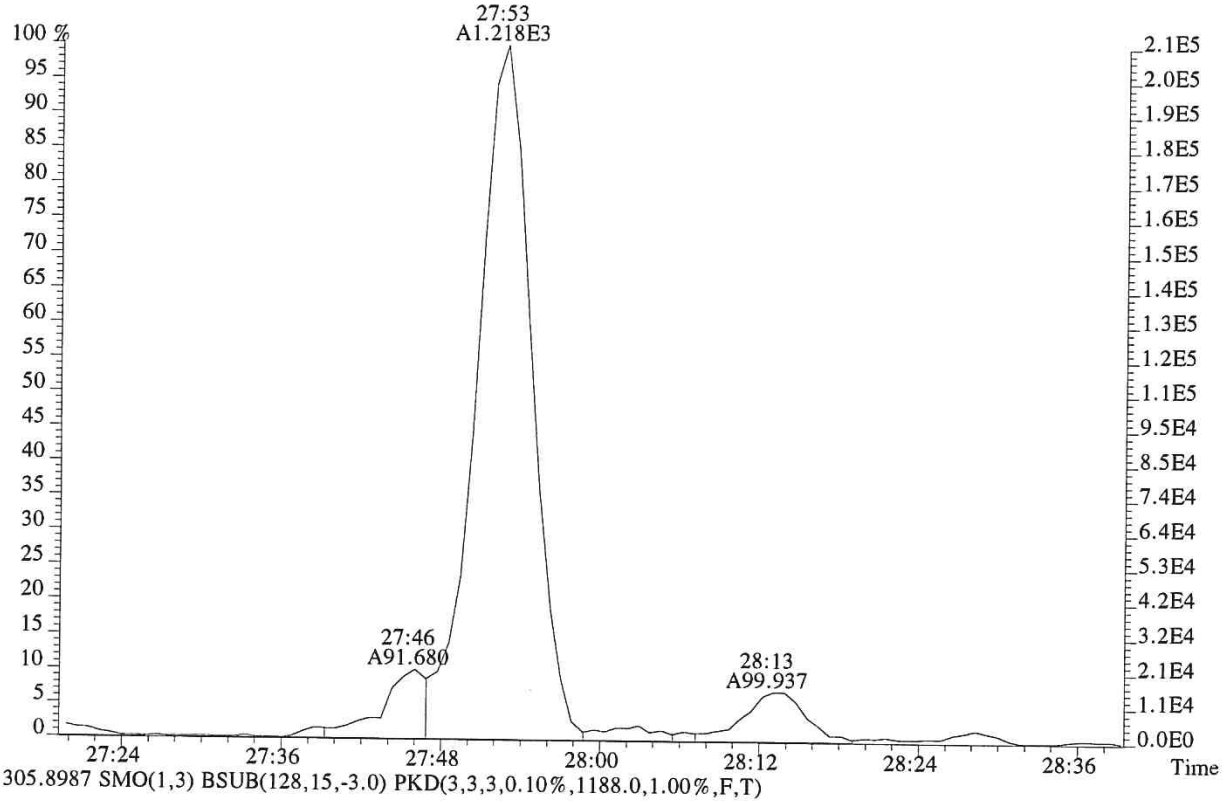
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



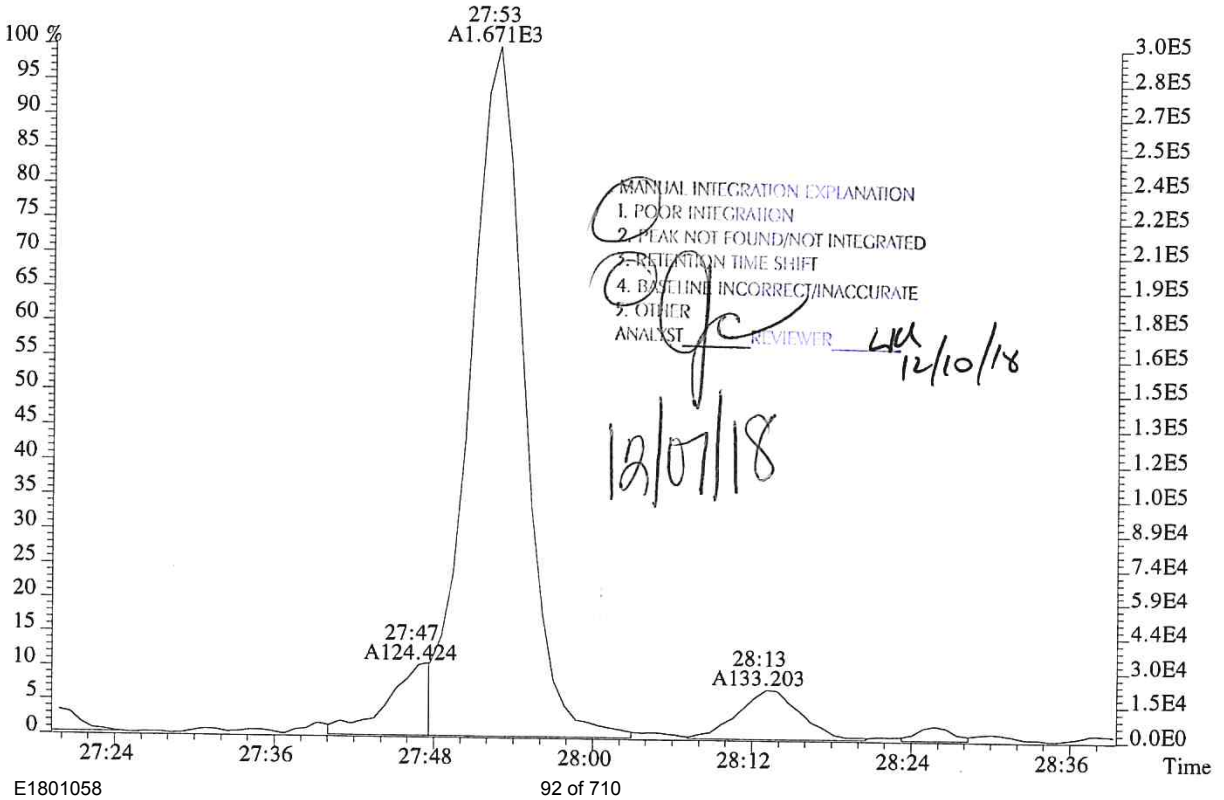
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519262 #1-587 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)

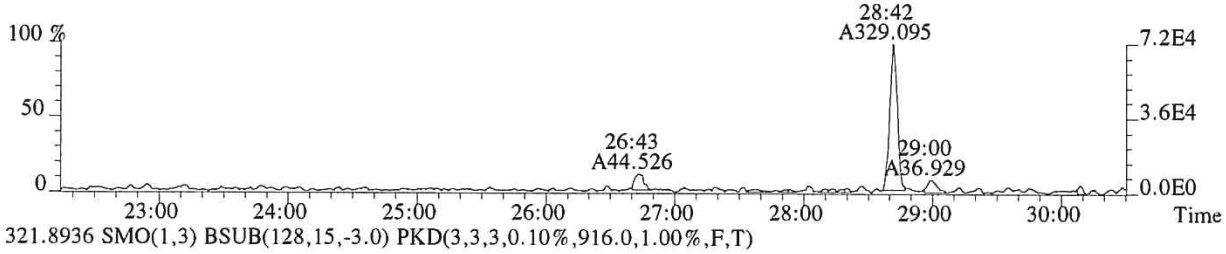


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)

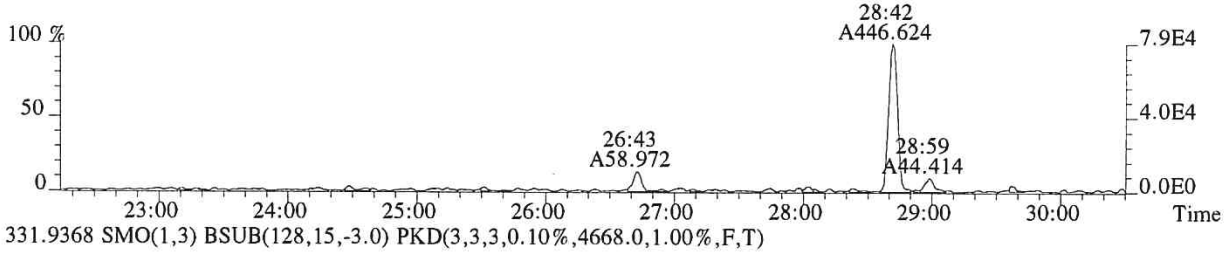


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LH 12/10/18
12/07/18

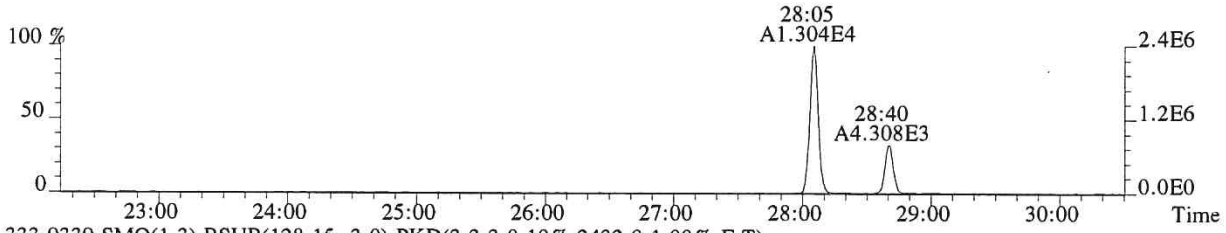
File:P519262 #1-587 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



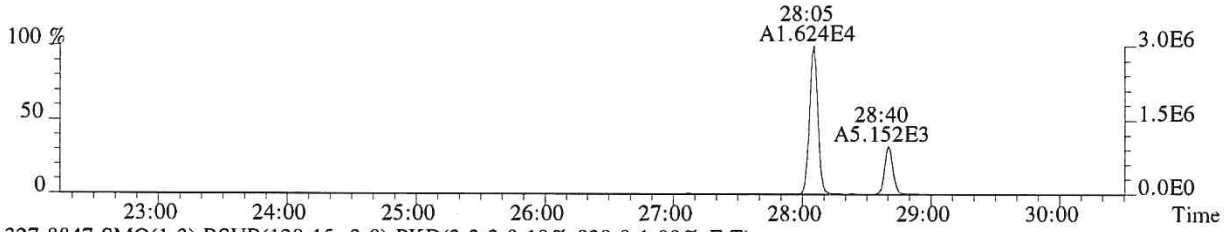
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



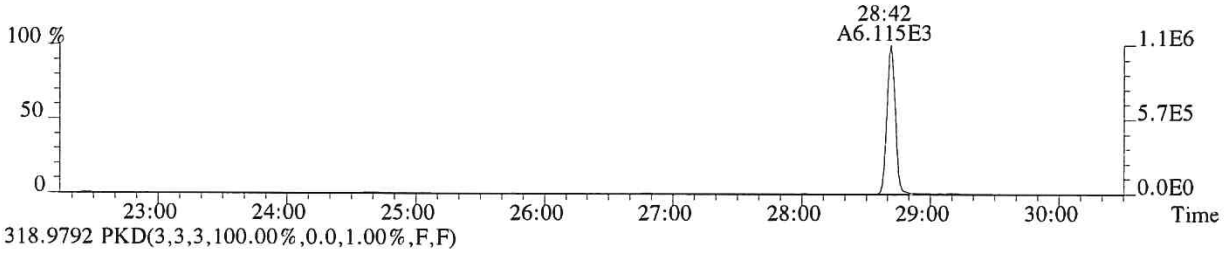
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4668.0,1.00%,F,T)



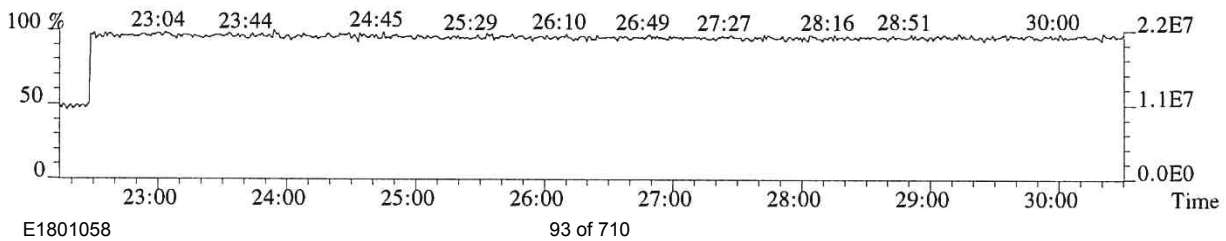
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2432.0,1.00%,F,T)



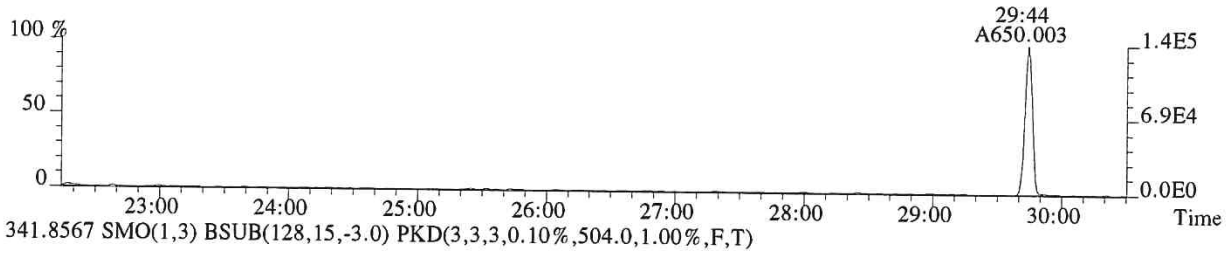
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



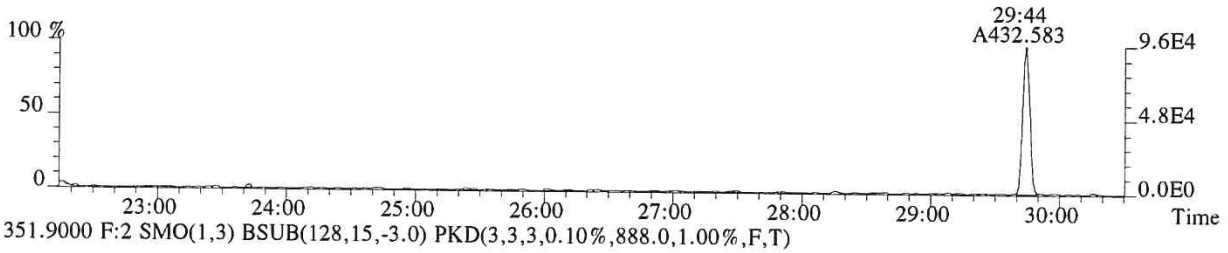
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



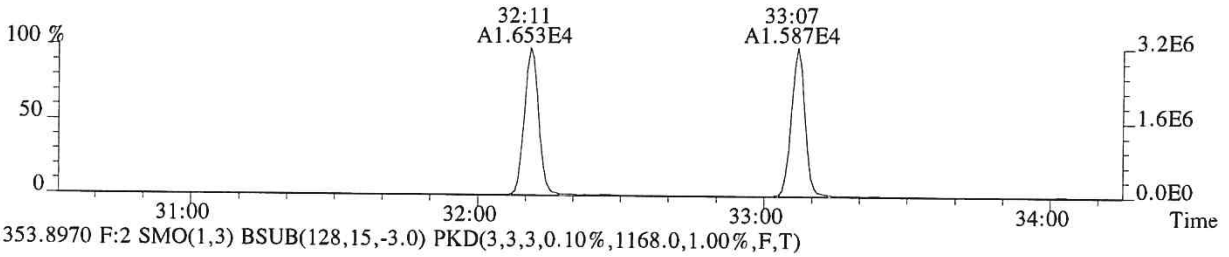
File:P519262 #1-587 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



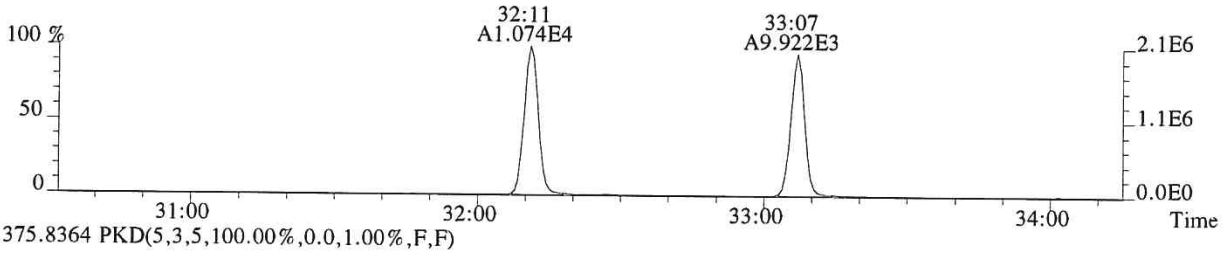
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



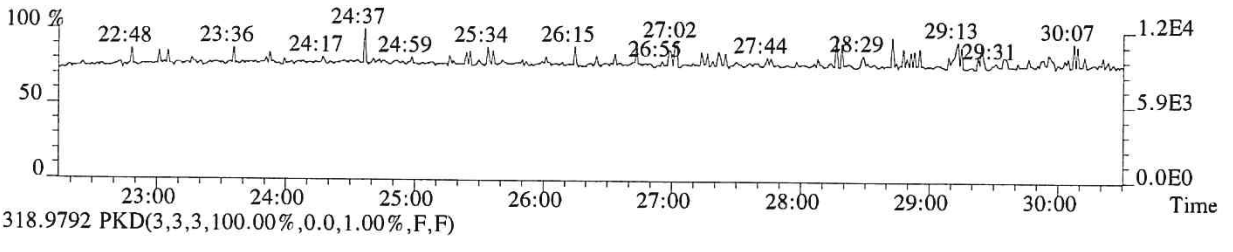
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



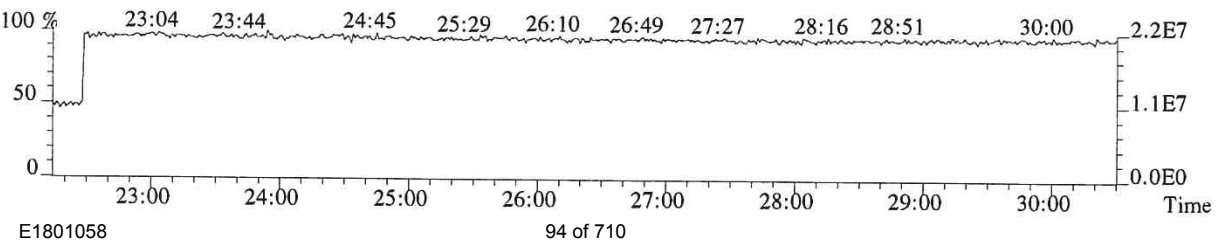
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



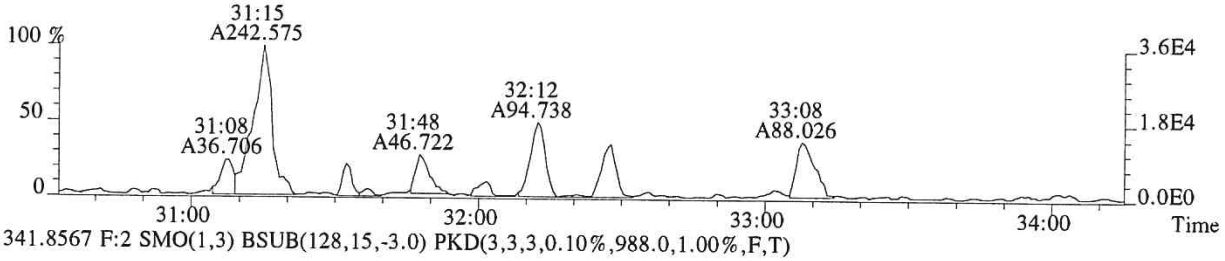
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



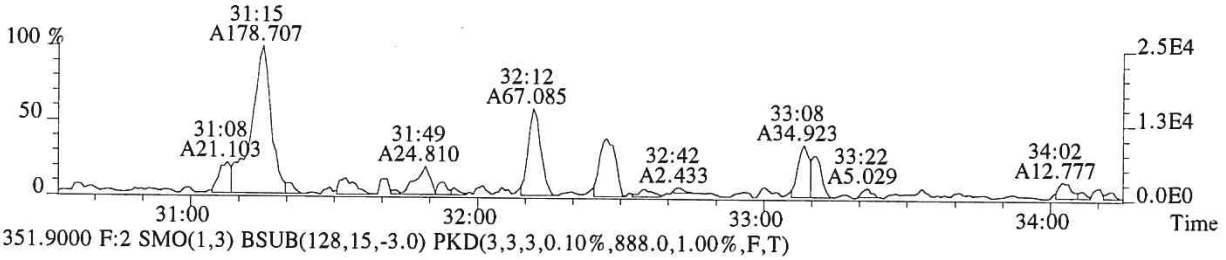
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



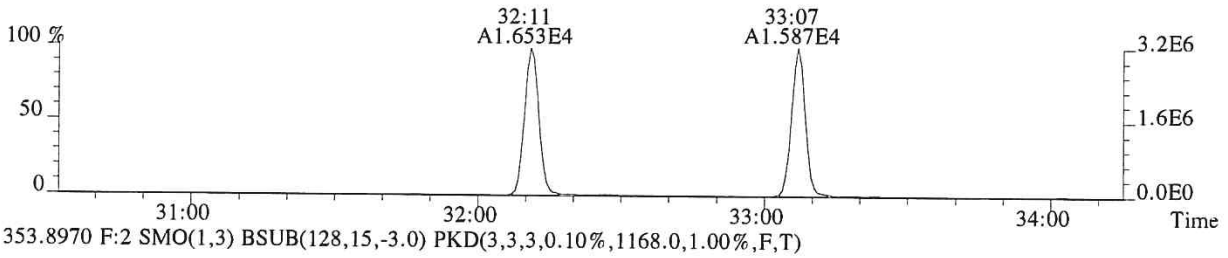
File:P519262 #1-335 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



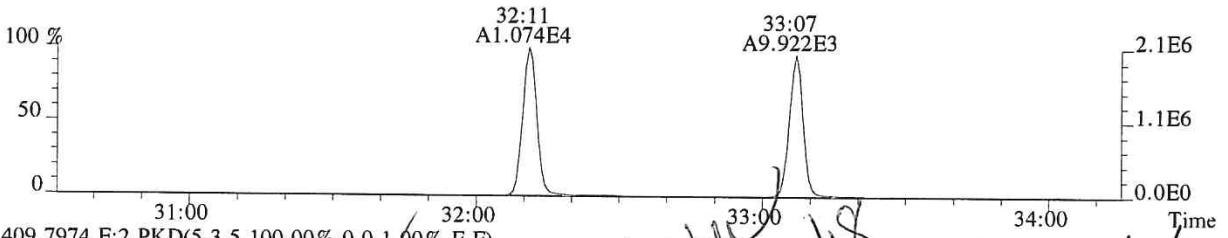
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



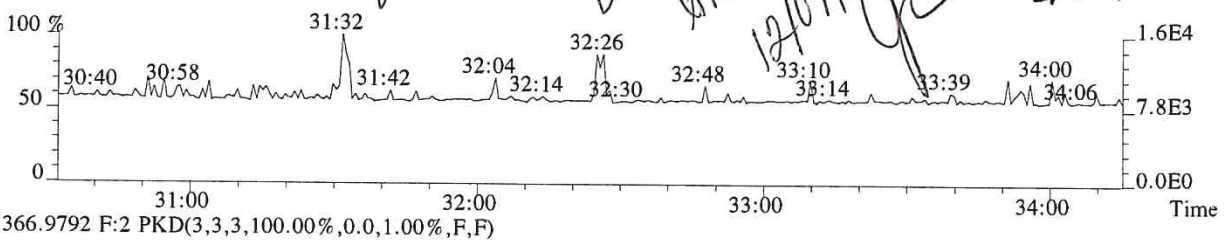
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



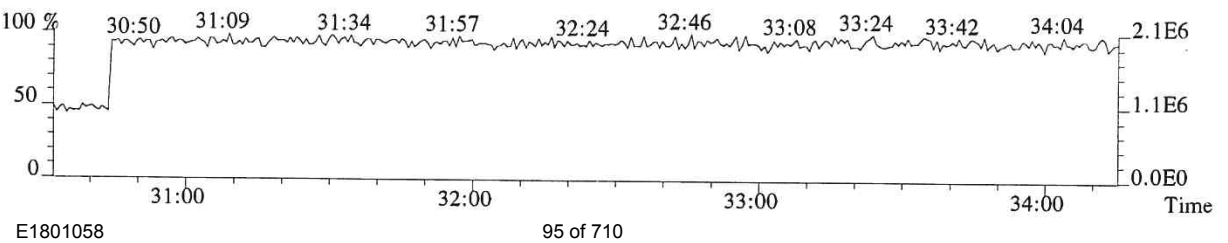
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



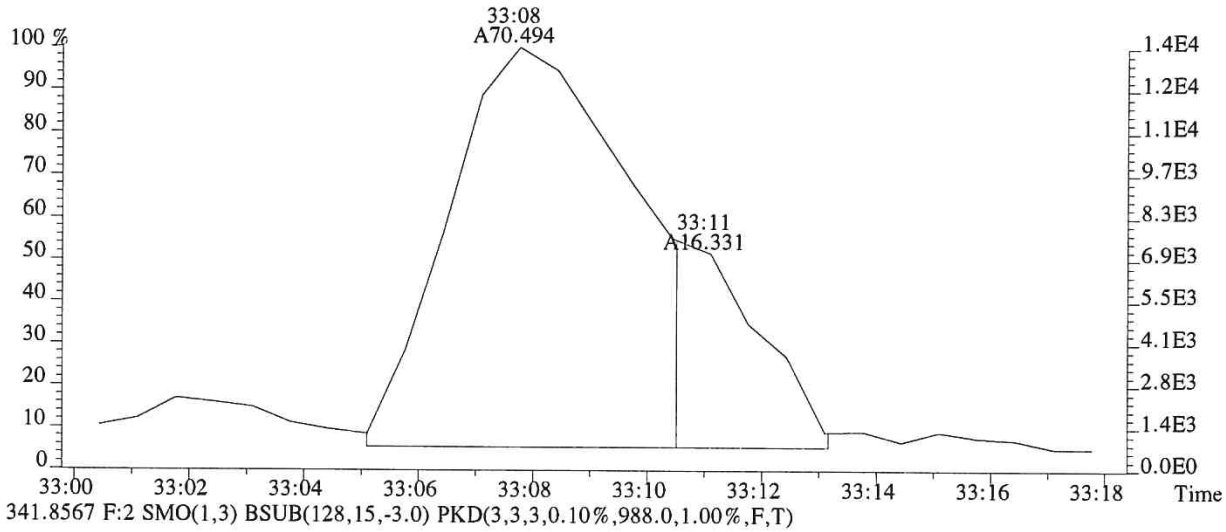
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



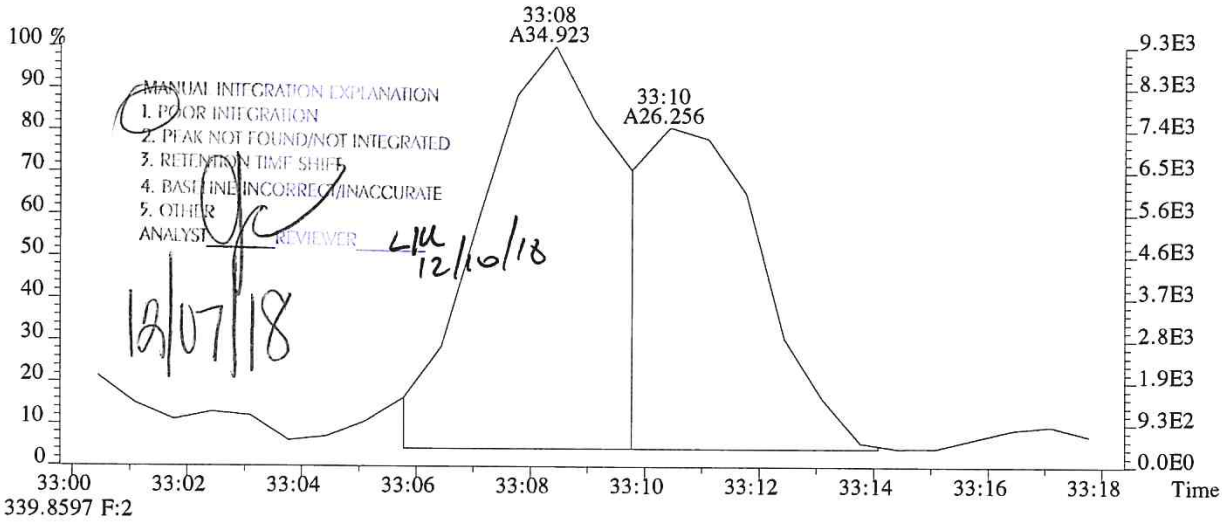
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



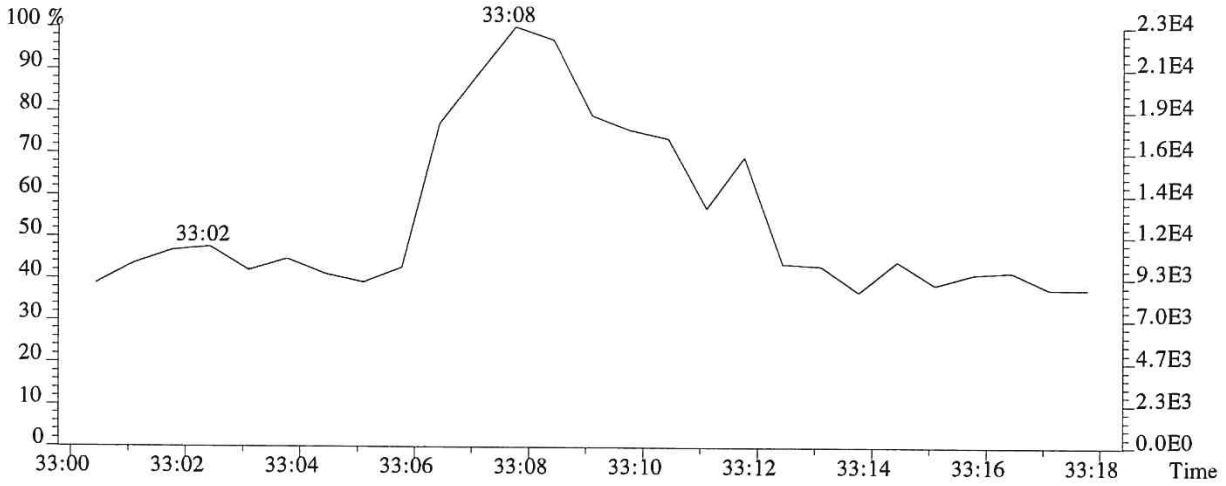
File:P519262 #1-335 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



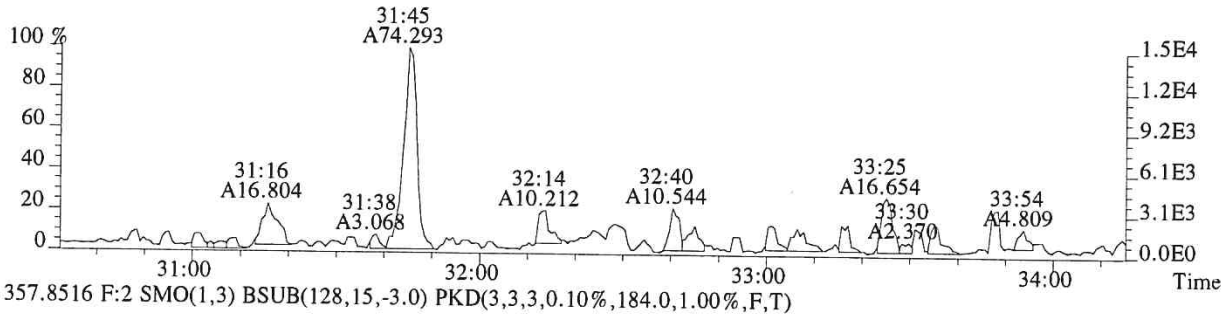
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



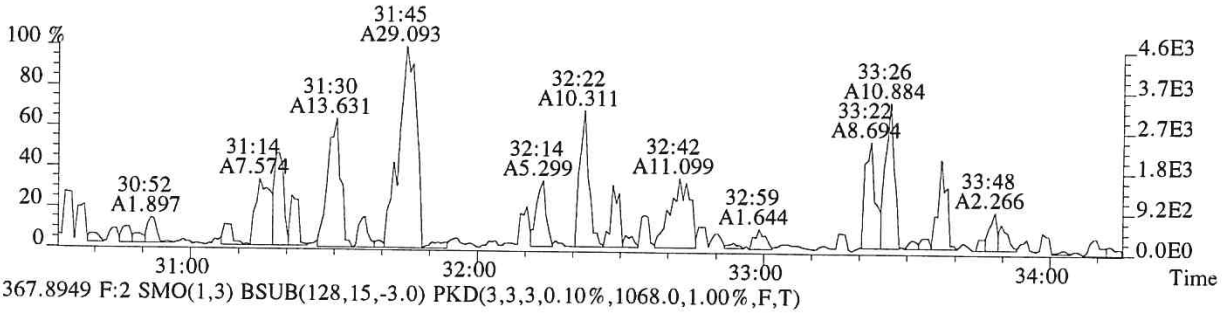
339.8597 F:2



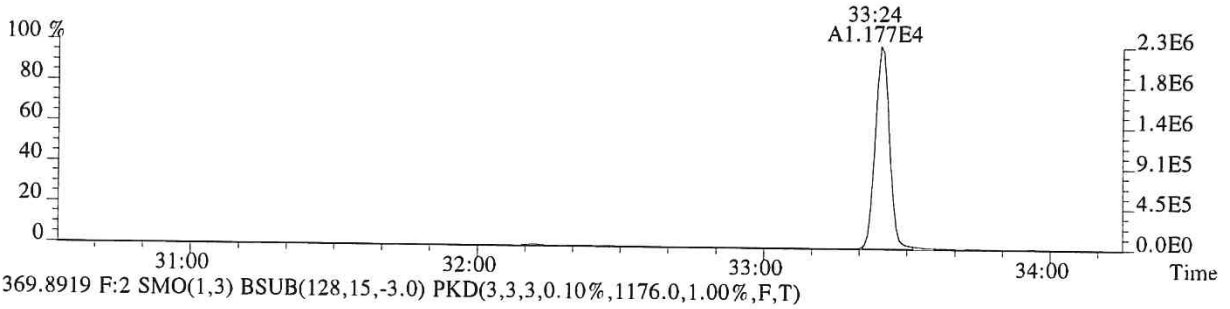
File:P519262 #1-335 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



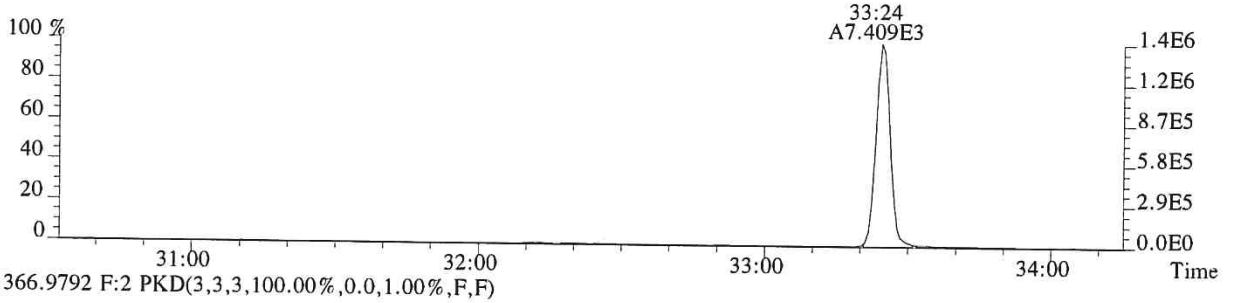
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



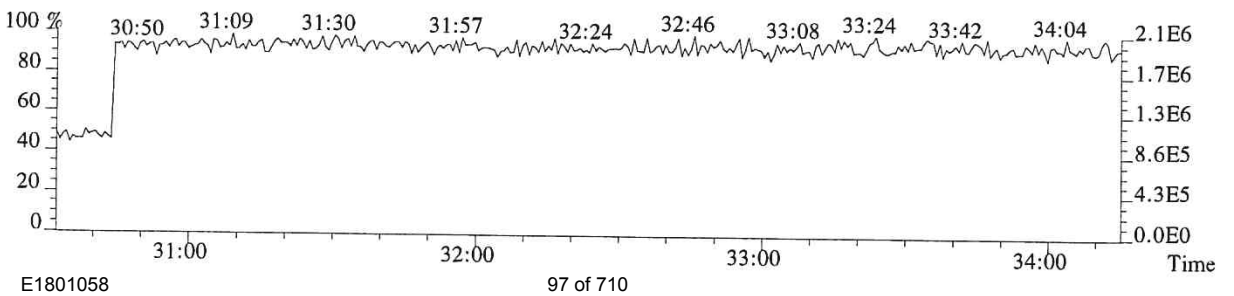
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



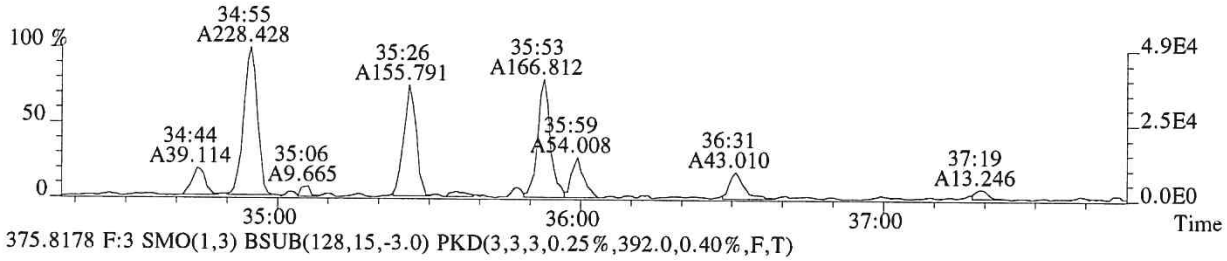
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



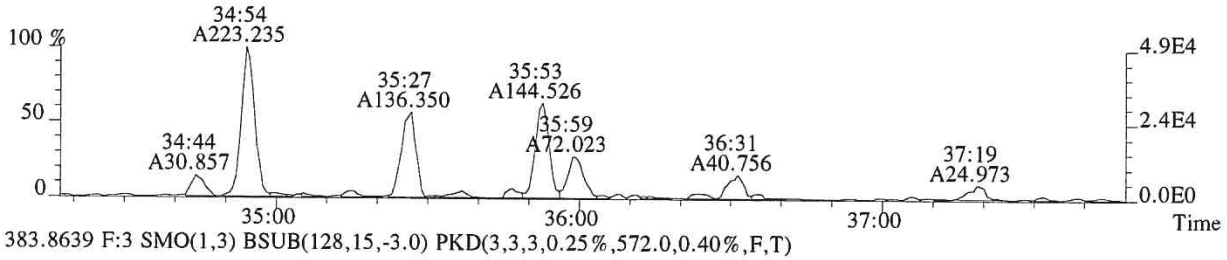
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



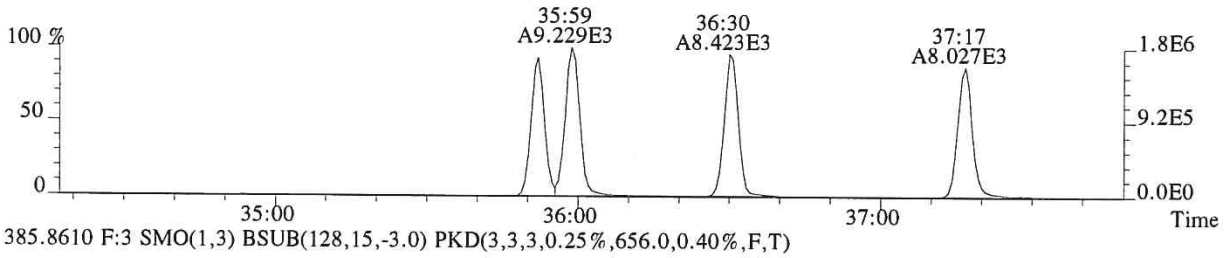
File:P519262 #1-317 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



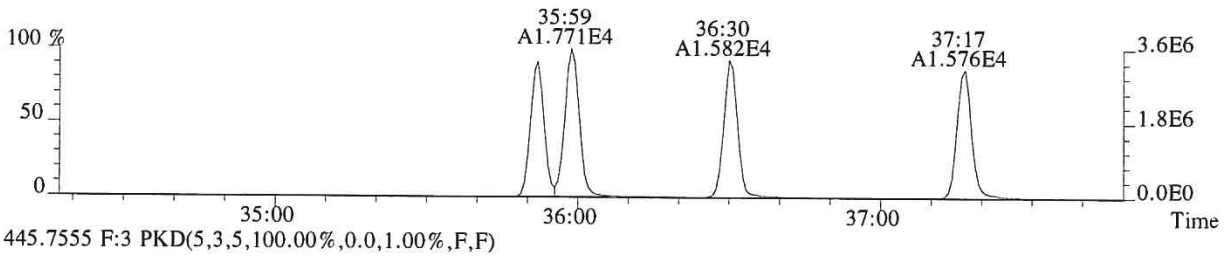
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



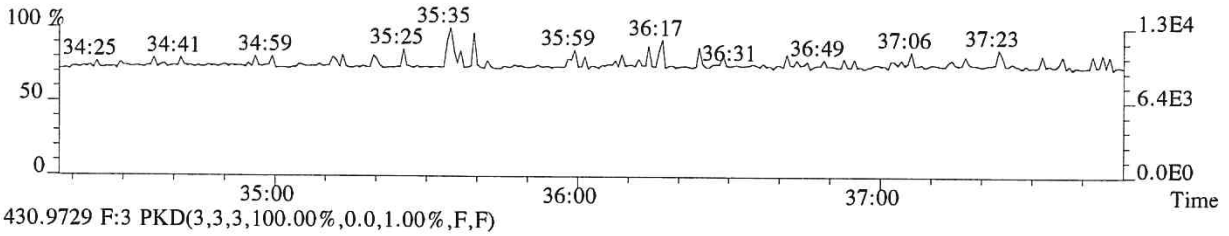
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



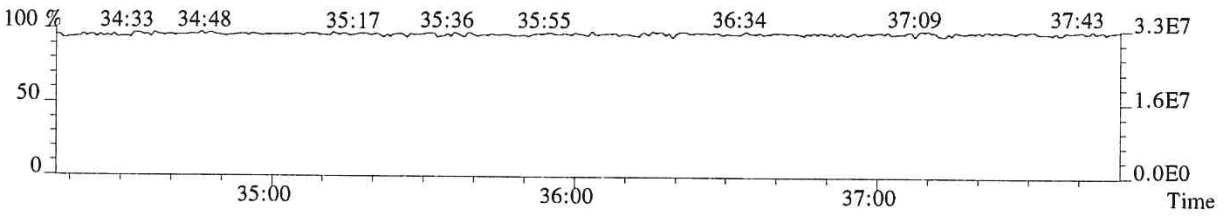
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



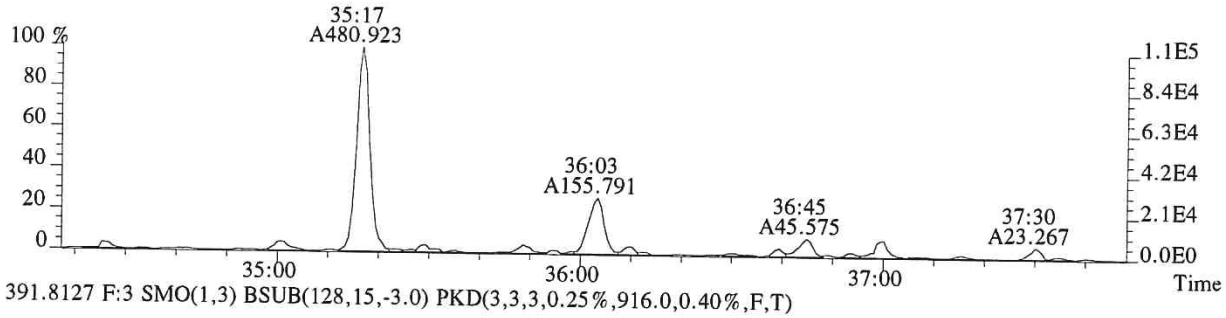
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



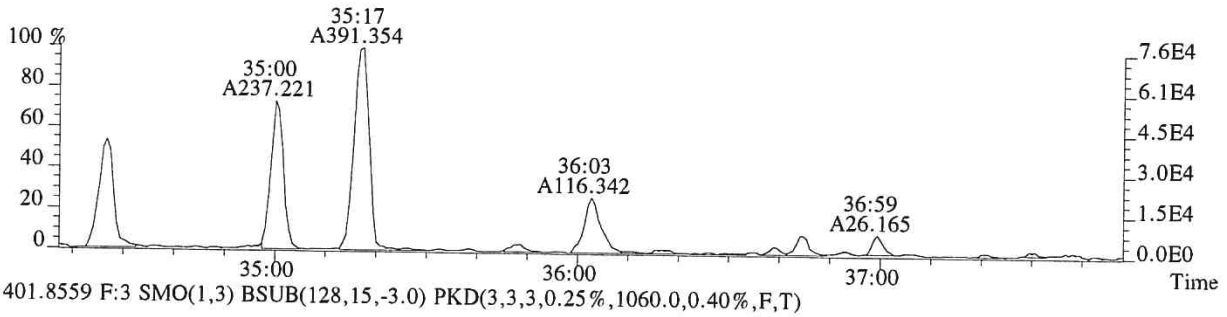
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



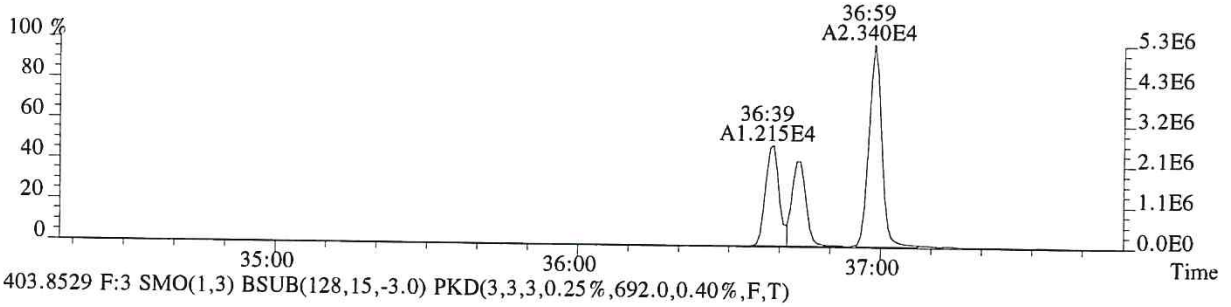
File:P519262 #1-317 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



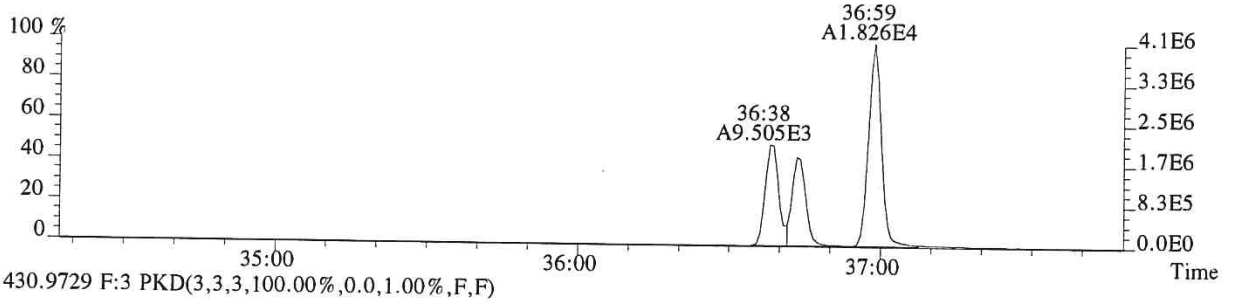
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



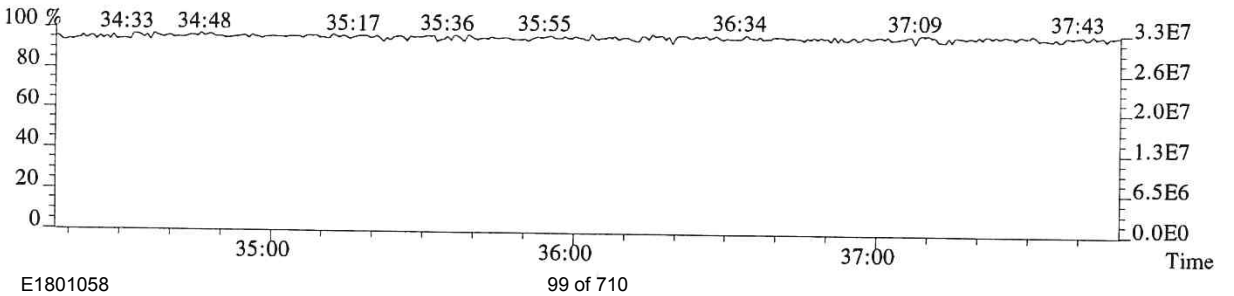
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



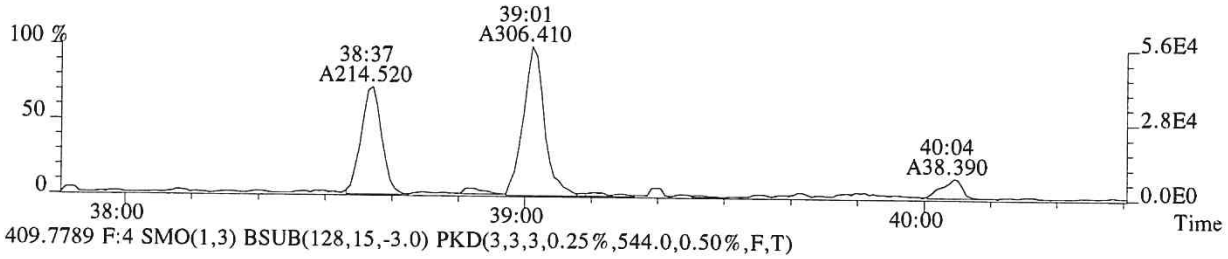
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



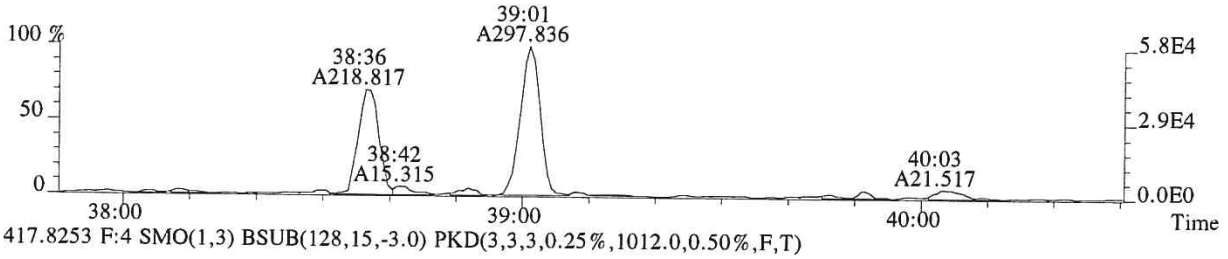
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



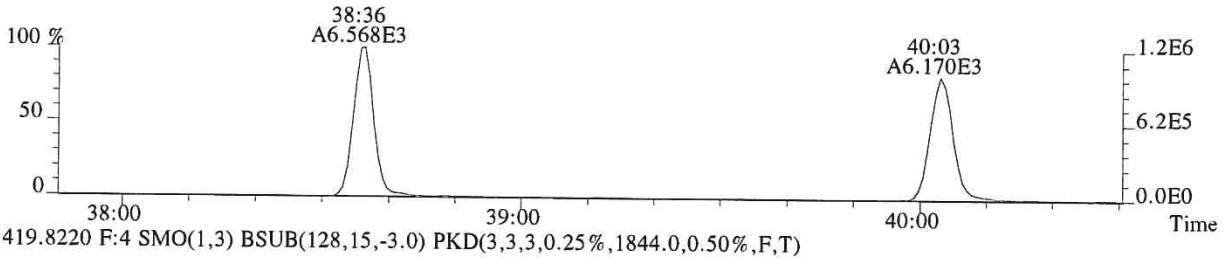
File:P519262 #1-241 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.50%,F,T)



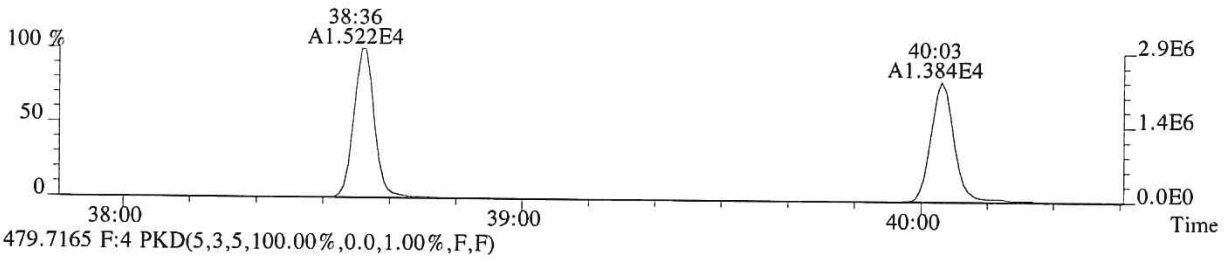
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.50%,F,T)



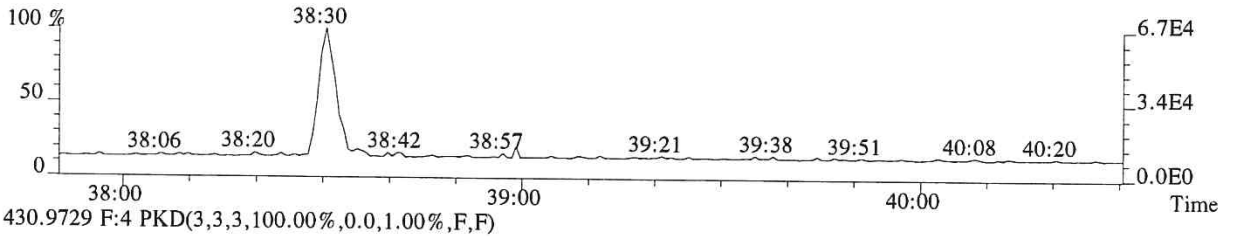
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.50%,F,T)



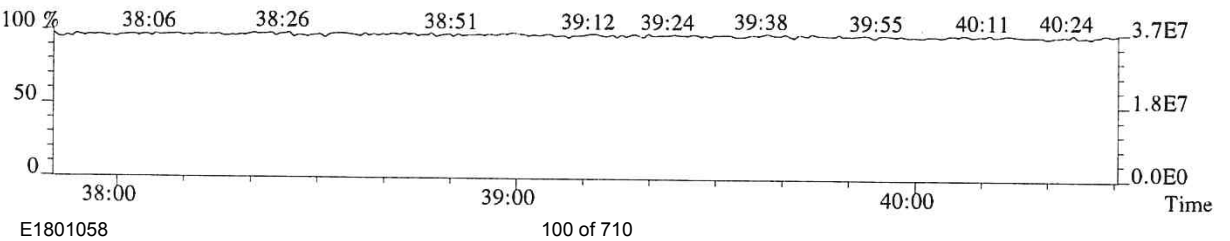
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.50%,F,T)



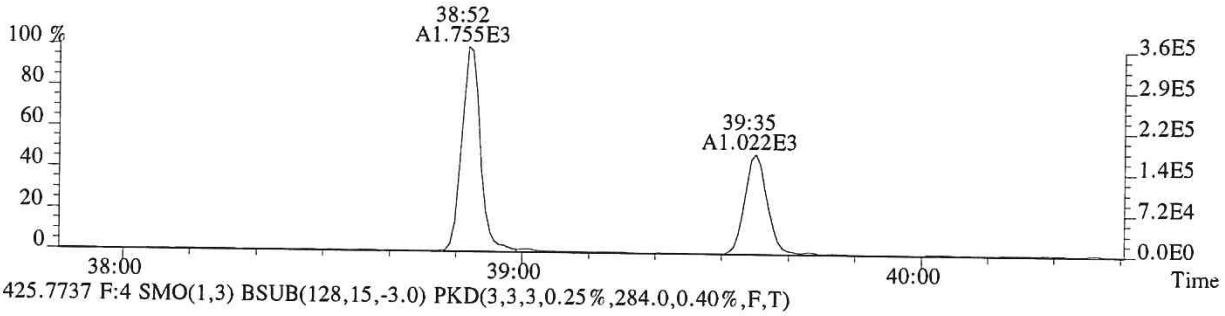
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



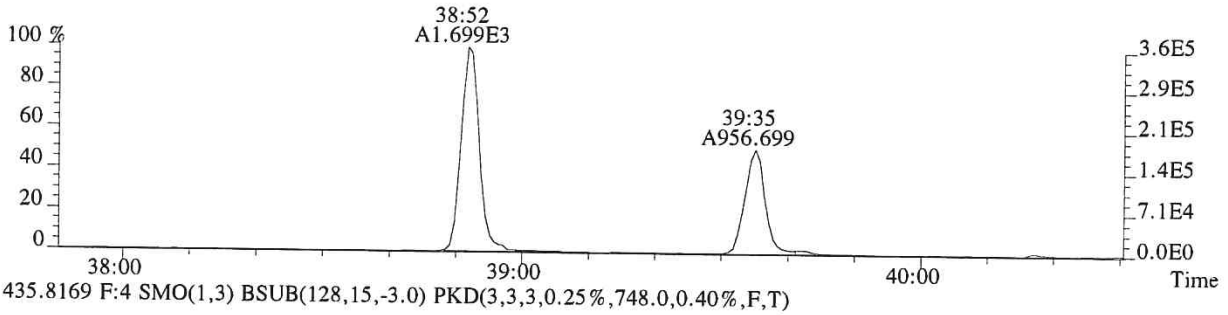
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



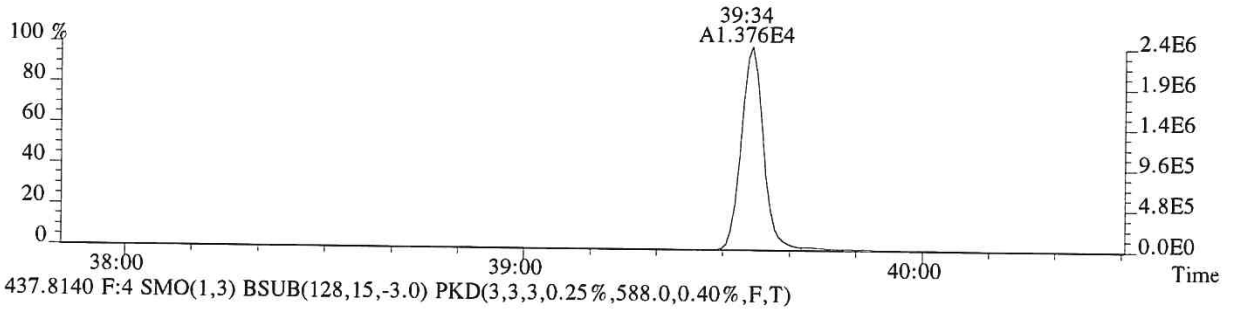
File:P519262 #1-241 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



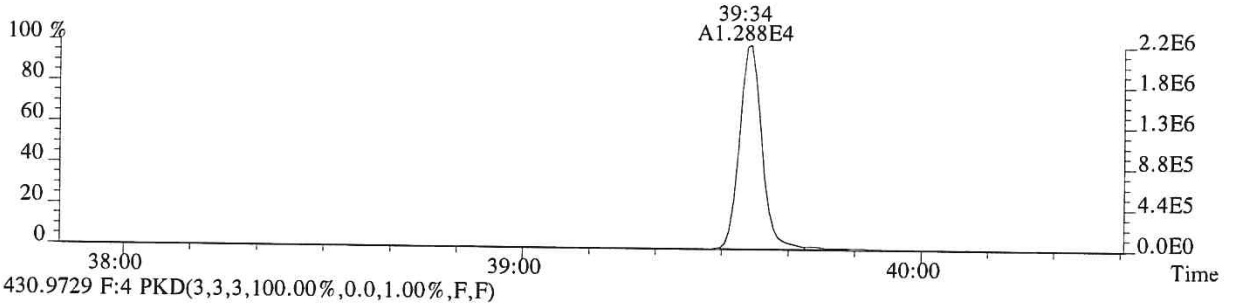
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



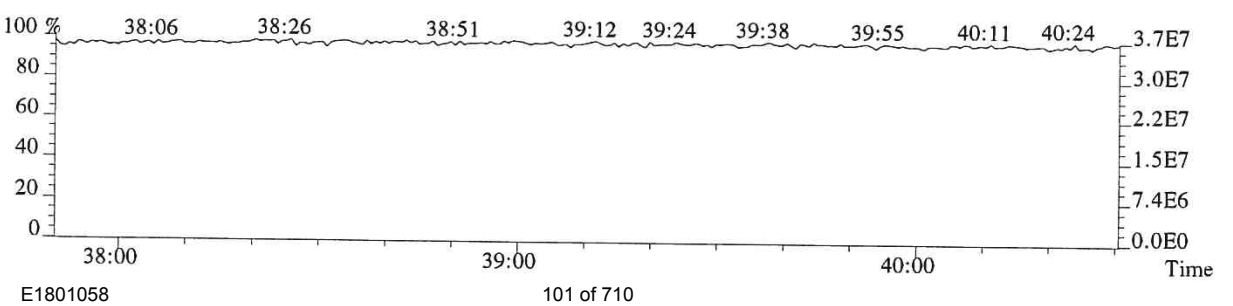
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



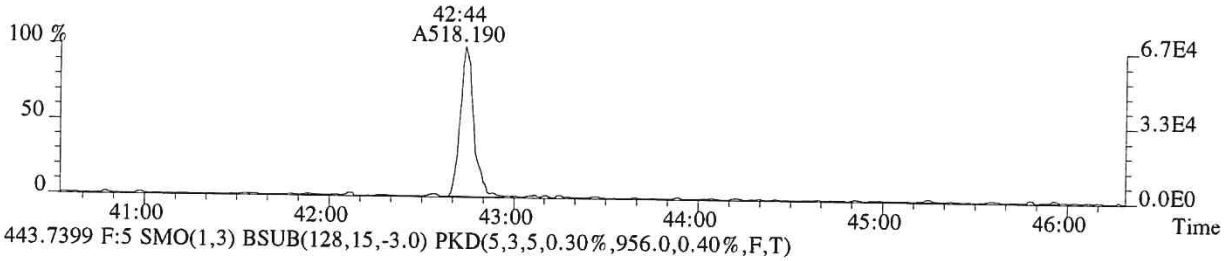
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



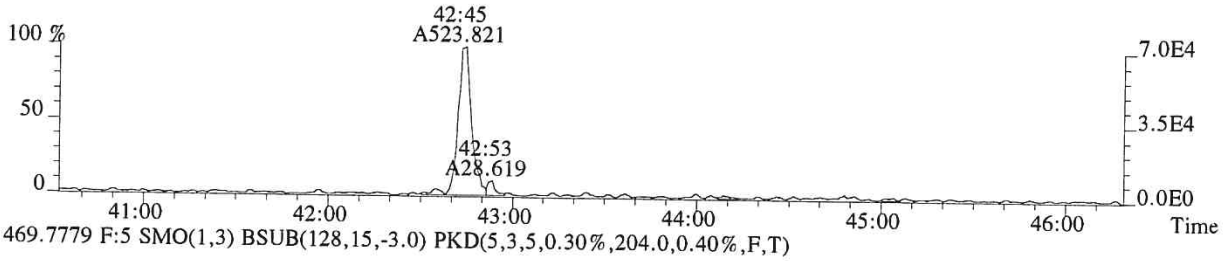
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



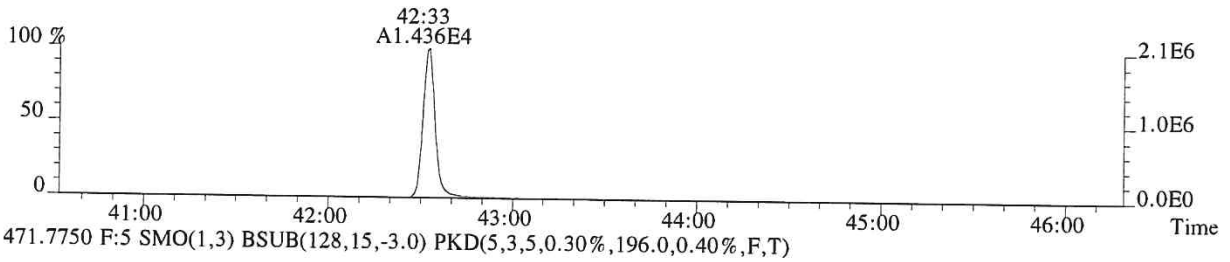
File:P519262 #1-520 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



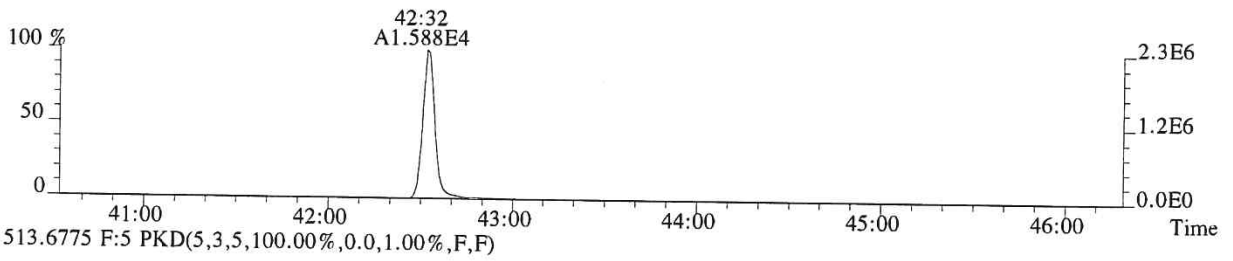
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



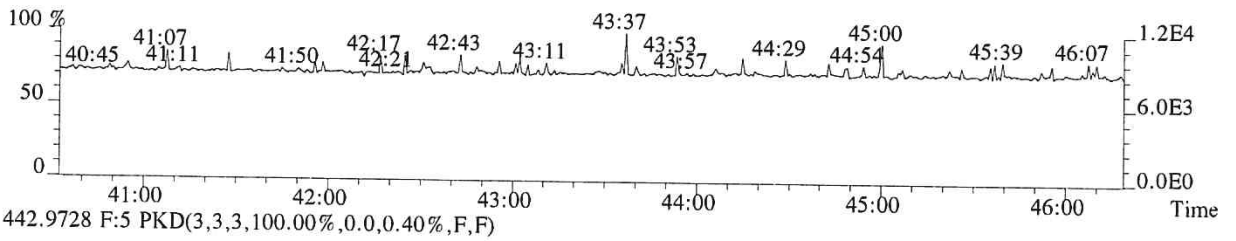
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



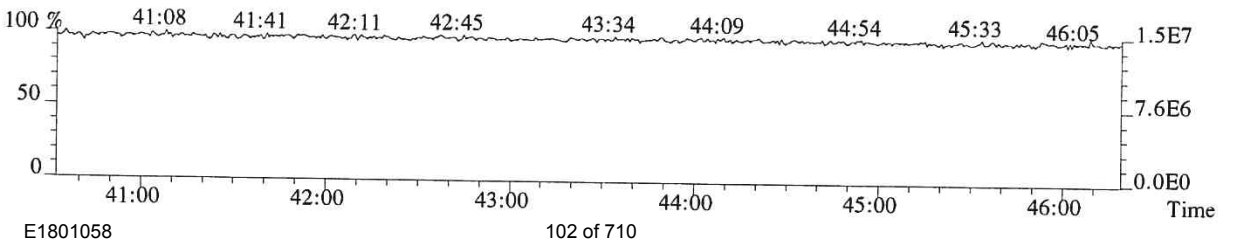
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



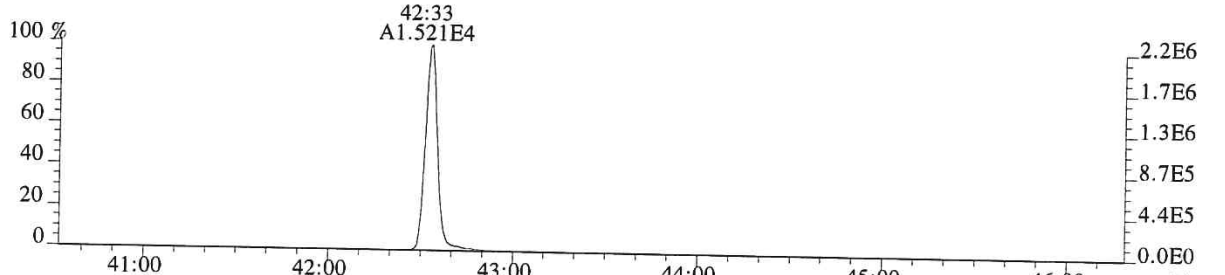
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



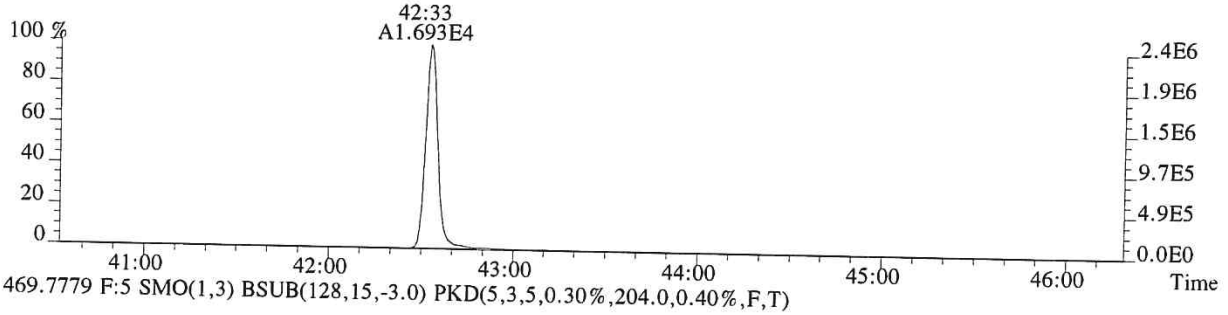
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



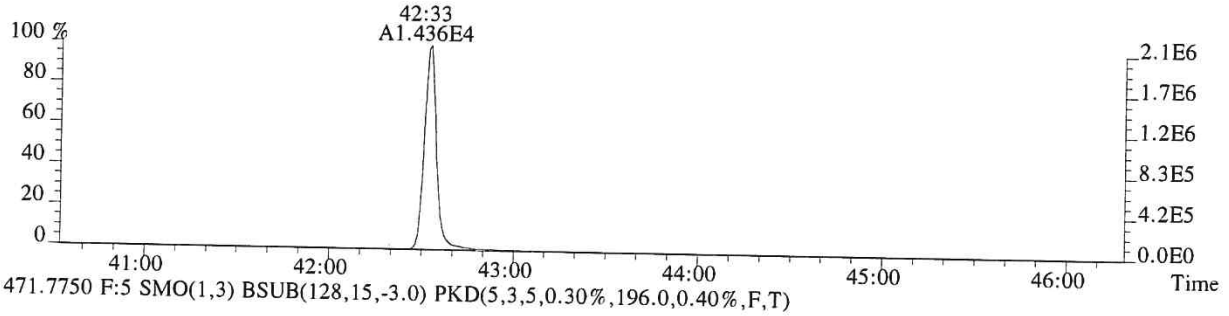
File:P519262 #1-520 Acq: 6-DEC-2018 22:06:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-011
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



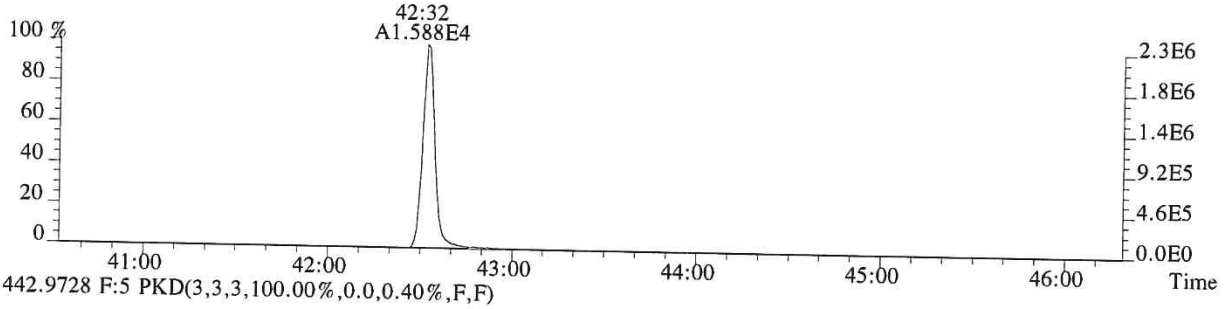
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



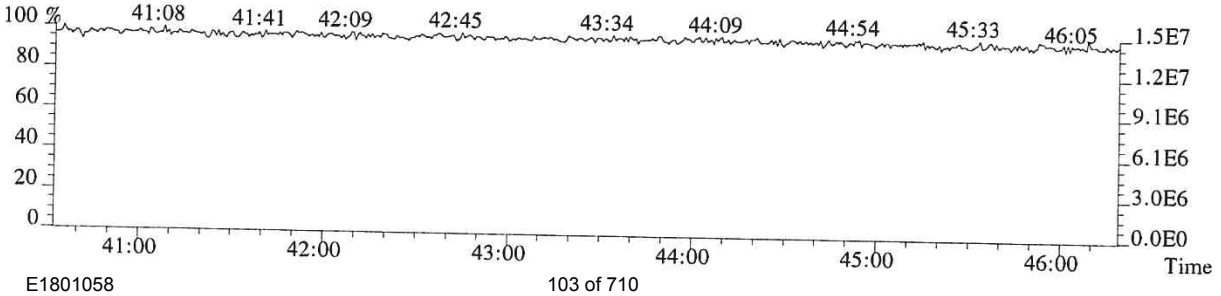
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0249

Run #15 Filename P519263 Samp: 1 Inj: 1 Acquired: 6-DEC-18 22:55:02
Processed: 7-DEC-18 13:10:14 Sample ID: E1801058-017

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:52	9.805e+04	1.271e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	5.230e+03	3.423e+03	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	4.051e+03	2.687e+03	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	7.688e+03	6.608e+03	1.16	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	1.803e+03	1.672e+03	1.08	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	3.745e+02	3.229e+02	1.16	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:18	5.766e+02	4.749e+02	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:35	1.813e+03	2.023e+03	0.90	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:02	6.135e+02	6.053e+02	1.01	yes	no	1.258
10	Unk	OCDF	42:43	8.471e+02	9.836e+02	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:41	2.502e+04	3.178e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	3.772e+02	2.548e+02	1.48	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:39	3.346e+01	2.894e+01	1.16	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:44	8.854e+01	6.202e+01	1.43	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	6.706e+01	8.040e+01	0.83	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	2.875e+03	2.835e+03	1.01	yes	no	1.025
17	Unk	OCDD	42:33	1.622e+05	1.813e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.775e+04	2.223e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.702e+04	1.684e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.533e+04	1.602e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:51	1.066e+04	2.067e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:58	1.213e+04	2.337e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.104e+04	2.126e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	1.022e+04	1.973e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:34	7.679e+03	1.722e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	7.221e+03	1.609e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	7.698e+03	9.566e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.815e+04	1.146e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.502e+04	1.190e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	1.444e+04	1.147e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:32	1.593e+04	1.520e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:32	1.599e+04	1.760e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	2.210e+04	2.766e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	2.994e+04	2.366e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:41	1.208e+04				no	1.014

$$\text{OCDD} = \frac{(1.622e+05 + 1.813e+05) \times 4000\ \text{pg} \times 1}{(1.599e+04 + 1.760e+04) \times 10.667\ \text{g} \times 77.6/100 \times 1.118} = 4420\ \text{ng/kg}$$

LM 12/10/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0249

Run #15 Filename P519263 Samp: 1 Inj: 1 Acquired: 6-DEC-18 22:55:02
Processed: 7-DEC-18 13:10:14 LAB. ID: E1801058-017

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.63e+07	2.76e+02	5.9e+04	2.11e+07	6.68e+02	3.2e+04
2	1,2,3,7,8-PeCDF	1.01e+06	7.20e+02	1.4e+03	6.50e+05	4.36e+02	1.5e+03
3	2,3,4,7,8-PeCDF	7.02e+05	7.20e+02	9.8e+02	4.72e+05	4.36e+02	1.1e+03
4	1,2,3,4,7,8-HxCDF	1.75e+06	1.44e+02	1.2e+04	1.52e+06	6.04e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.90e+05	1.44e+02	2.7e+03	3.25e+05	6.04e+02	5.4e+02
6	2,3,4,6,7,8-HxCDF	7.47e+04	1.44e+02	5.2e+02	6.08e+04	6.04e+02	1.0e+02
7	1,2,3,7,8,9-HxCDF	1.10e+05	1.44e+02	7.6e+02	9.01e+04	6.04e+02	1.5e+02
8	1,2,3,4,6,7,8-HpCDF	3.74e+05	5.80e+02	6.4e+02	4.12e+05	1.24e+03	3.3e+02
9	1,2,3,4,7,8,9-HpCDF	1.16e+05	5.80e+02	2.0e+02	1.10e+05	1.24e+03	8.9e+01
10	OCDF	1.11e+05	2.20e+02	5.0e+02	1.34e+05	5.96e+02	2.3e+02
11	2,3,7,8-TCDD	4.78e+06	1.82e+03	2.6e+03	6.15e+06	6.84e+02	9.0e+03
12	1,2,3,7,8-PeCDD	7.26e+04	6.80e+02	1.1e+02	4.65e+04	2.24e+02	2.1e+02
13	1,2,3,4,7,8-HxCDD	9.63e+03	5.36e+02	1.8e+01	8.14e+03	5.96e+02	1.4e+01
14	1,2,3,6,7,8-HxCDD	1.78e+04	5.36e+02	3.3e+01	1.40e+04	5.96e+02	2.3e+01
15	1,2,3,7,8,9-HxCDD	1.24e+04	5.36e+02	2.3e+01	1.72e+04	5.96e+02	2.9e+01
16	1,2,3,4,6,7,8-HpCDD	5.76e+05	4.00e+02	1.4e+03	5.64e+05	2.60e+02	2.2e+03
17	OCDD	2.42e+07	2.04e+02	1.2e+05	2.70e+07	1.96e+02	1.4e+05
18	13C-2,3,7,8-TCDF	3.32e+06	5.78e+03	5.7e+02	4.16e+06	4.66e+03	8.9e+02
19	13C-1,2,3,7,8-PeCDF	5.30e+06	5.36e+02	9.9e+03	3.32e+06	4.36e+02	7.6e+03
20	13C-2,3,4,7,8-PeCDF	5.24e+06	5.36e+02	9.8e+03	3.32e+06	4.36e+02	7.6e+03
21	13C-1,2,3,4,7,8-HxCDF	2.42e+06	3.32e+02	7.3e+03	4.80e+06	5.12e+02	9.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.59e+06	3.32e+02	7.8e+03	4.92e+06	5.12e+02	9.6e+03
23	13C-2,3,4,6,7,8-HxCDF	2.29e+06	3.32e+02	6.9e+03	4.38e+06	5.12e+02	8.6e+03
24	13C-1,2,3,7,8,9-HxCDF	2.10e+06	3.32e+02	6.3e+03	4.02e+06	5.12e+02	7.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.63e+06	9.68e+02	1.7e+03	3.73e+06	9.60e+02	3.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.40e+06	9.68e+02	1.4e+03	3.14e+06	9.60e+02	3.3e+03
27	13C-2,3,7,8-TCDD	1.51e+06	5.40e+03	2.8e+02	1.90e+06	1.93e+03	9.9e+02
28	13C-1,2,3,7,8-PeCDD	3.68e+06	4.84e+02	7.6e+03	2.35e+06	5.20e+02	4.5e+03
29	13C-1,2,3,4,7,8-HxCDD	3.37e+06	9.32e+02	3.6e+03	2.66e+06	6.68e+02	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	3.23e+06	9.32e+02	3.5e+03	2.59e+06	6.68e+02	3.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.19e+06	2.76e+02	1.2e+04	2.99e+06	2.12e+02	1.4e+04
32	13C-OCDD	2.34e+06	2.08e+02	1.1e+04	2.55e+06	2.56e+02	1.0e+04
33	13C-1,2,3,4-TCDD	4.27e+06	5.40e+03	7.9e+02	5.32e+06	1.93e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	6.18e+06	9.32e+02	6.6e+03	4.86e+06	6.68e+02	7.3e+03
35	37Cl-2,3,7,8-TCDD	2.32e+06	6.12e+02	3.8e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0249

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P519263 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 22:55:02 Processed: 7-DEC-18 13:10:14

Mass: 303.9020 305.8990 Tot Response: 4.02e+05 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:48	8.03e+02	1.17e+03	0.69	yes	1.97e+03		n	n
2	25:07	4.34e+03	5.72e+03	0.76	yes	1.01e+04		n	n
3	25:32	1.26e+03	1.83e+03	0.69	yes	3.08e+03		n	n
4	25:41	1.52e+02	2.20e+02	0.69	yes	3.72e+02		n	n
5	25:50	3.61e+03	4.76e+03	0.76	yes	8.37e+03		n	n
6	26:15	6.76e+02	9.83e+02	0.69	yes	1.66e+03		n	n
7	26:28	2.37e+03	3.23e+03	0.73	yes	5.60e+03		n	n
8	26:35	4.29e+03	5.93e+03	0.72	yes	1.02e+04		n	n
9	27:02	4.20e+04	5.49e+04	0.76	yes	9.69e+04		n	n
10	27:18	1.95e+03	2.54e+03	0.77	yes	4.49e+03		n	n
11	27:52	9.81e+04	1.27e+05	0.77	yes	2.25e+05	2,3,7,8-TCDF	n	n
12	28:12	6.59e+03	9.00e+03	0.73	yes	1.56e+04		n	n
13	28:27	1.14e+03	1.67e+03	0.68	yes	2.81e+03		n	n
14	29:44	6.81e+03	8.79e+03	0.77	yes	1.56e+04		n	n

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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0249

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P519263 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 22:55:02 Processed: 7-DEC-18 13:10:14

Mass: 319.8970 321.8940 Tot Response: 6.30e+04 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:43	2.76e+02	3.25e+02	0.85	yes	6.02e+02		n	n
2	28:24	3.37e+02	4.11e+02	0.82	yes	7.49e+02		n	n
3	28:41	2.50e+04	3.18e+04	0.79	yes	5.68e+04	2,3,7,8-TCDD	n	n
4	28:59	2.11e+03	2.76e+03	0.76	yes	4.87e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0249

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P519263 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 22:55:02 Processed: 7-DEC-18 13:10:14

Mass: 339.8600 341.8570 Tot Response: 2.38e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:14	2.47e+03	1.68e+03	1.47	yes	4.15e+03		n	n
2	31:34	1.37e+01	9.01e+00	1.52	yes	2.27e+01		n	n
3	31:47	1.13e+02	6.55e+01	1.73	yes	1.79e+02		n	n
4	32:00	5.15e+02	3.57e+02	1.44	yes	8.72e+02		n	n
5	32:11	5.23e+03	3.42e+03	1.53	yes	8.65e+03	1,2,3,7,8-PeCDF	n	n
6	32:26	1.70e+03	1.12e+03	1.52	yes	2.81e+03		n	n
7	33:02	6.29e+01	3.72e+01	1.69	yes	1.00e+02		n	n
8	33:07	4.05e+03	2.69e+03	1.51	yes	6.74e+03	2,3,4,7,8-PeCDF	n	n
9	34:02	1.91e+02	1.26e+02	1.51	yes	3.17e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0249

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P519263 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 22:55:02 Processed: 7-DEC-18 13:10:14

Mass: 355.8550 357.8520 Tot Response: 1.05e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:45	2.41e+02	1.74e+02	1.38	yes	4.16e+02		n	n
2	32:04	2.91e+00	1.90e+00	1.53	yes	4.81e+00		n	n
3	33:24	3.77e+02	2.55e+02	1.48	yes	6.32e+02	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0249

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P519263 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 22:55:02 Processed: 7-DEC-18 13:10:14

Mass: 373.8210 375.8180 Tot Response: 2.14e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:44	6.79e+01	5.86e+01	1.16	yes	1.26e+02		n	n
2	34:53	6.24e+02	5.03e+02	1.24	yes	1.13e+03		n	n
3	35:25	3.44e+02	2.80e+02	1.23	yes	6.24e+02		n	n
4	35:52	7.69e+03	6.61e+03	1.16	yes	1.43e+04	1,2,3,4,7,8-HxCDF	n	n
5	35:59	1.80e+03	1.67e+03	1.08	yes	3.47e+03	1,2,3,6,7,8-HxCDF	n	n
6	36:30	3.75e+02	3.23e+02	1.16	yes	6.97e+02	2,3,4,6,7,8-HxCDF	n	n
7	37:18	5.77e+02	4.75e+02	1.21	yes	1.05e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0249

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P519263 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 22:55:02 Processed: 7-DEC-18 13:10:14

Mass: 389.8160 391.8130 Tot Response: 4.27e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:16	1.95e+03	1.54e+03	1.27	yes	3.49e+03		n	n
2	35:48	3.41e+01	2.56e+01	1.33	yes	5.97e+01		n	n
3	36:02	3.47e+02	2.78e+02	1.25	yes	6.25e+02		n	n
4	36:39	3.35e+01	2.89e+01	1.16	yes	6.24e+01	1,2,3,4,7,8-HxCDD	n	n
5	36:54	1.87e+01	1.36e+01	1.38	yes	3.23e+01		n	n

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Peak List Summary

CLIENT ID.
SL0249

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P519263 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 22:55:02 Processed: 7-DEC-18 13:10:14

Mass: 407.7820 409.7790 Tot Response: 6.63e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:35	1.81e+03	2.02e+03	0.90	yes	3.84e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	39:00	7.88e+02	7.89e+02	1.00	yes	1.58e+03		n	n
3	40:02	6.14e+02	6.05e+02	1.01	yes	1.22e+03	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0249

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P519263 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 22:55:02 Processed: 7-DEC-18 13:10:14

Mass: 423.7770 425.7740 Tot Response: 1.39e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:52	4.20e+03	3.96e+03 1.06	yes	8.16e+03		n	n
2	39:33	2.87e+03	2.84e+03 1.01	yes	5.71e+03	1,2,3,4,6,7,8-HpCDD	n	n

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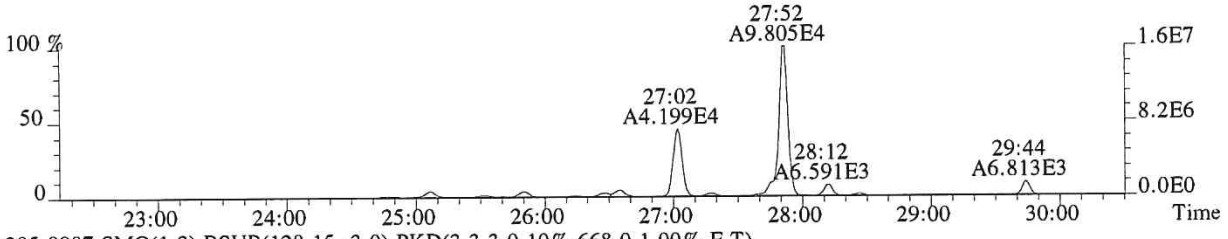
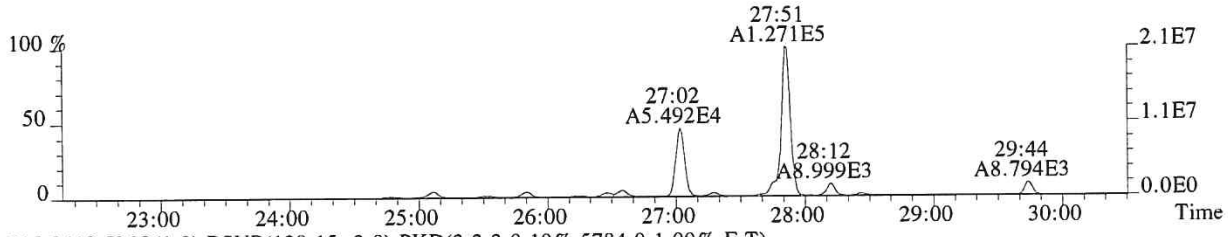
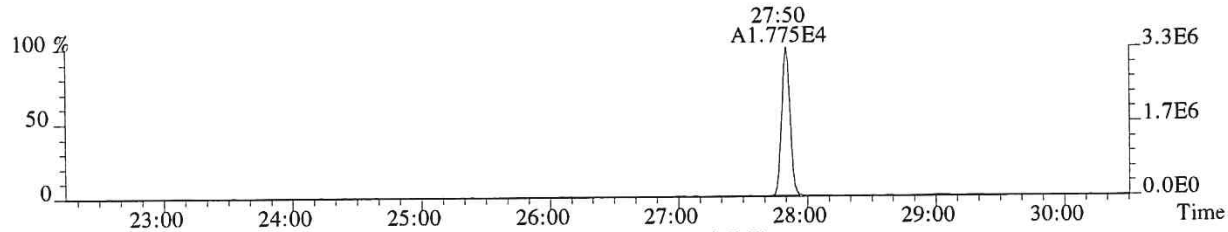
File:P519263 #1-587 Acq: 6-DEC-2018 22:55:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



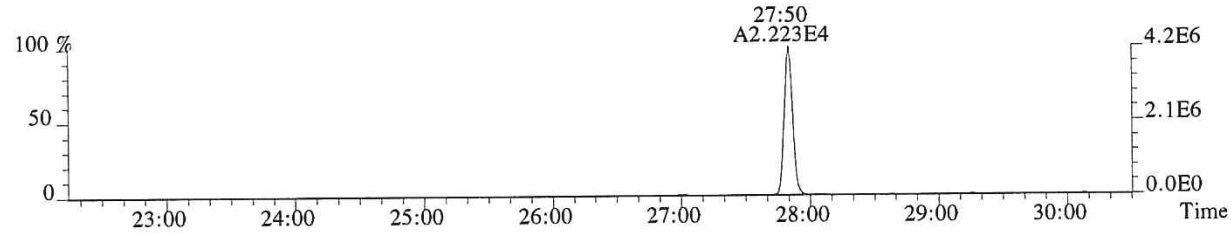
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



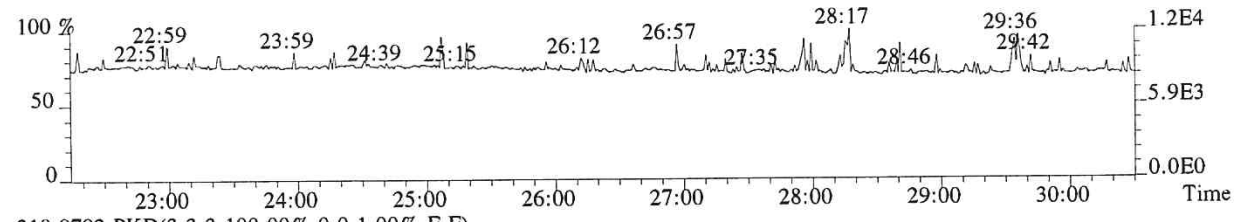
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5784.0,1.00%,F,T)



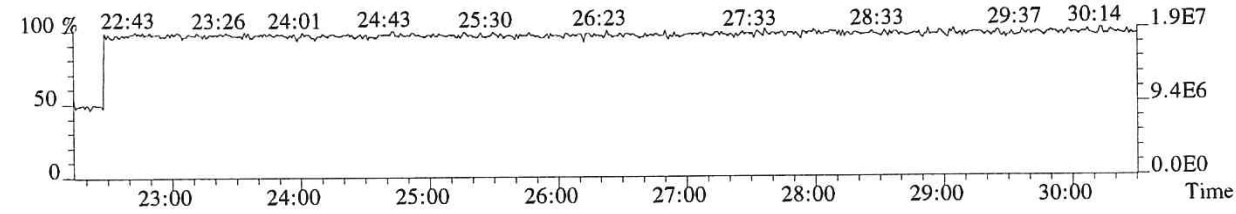
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4660.0,1.00%,F,T)



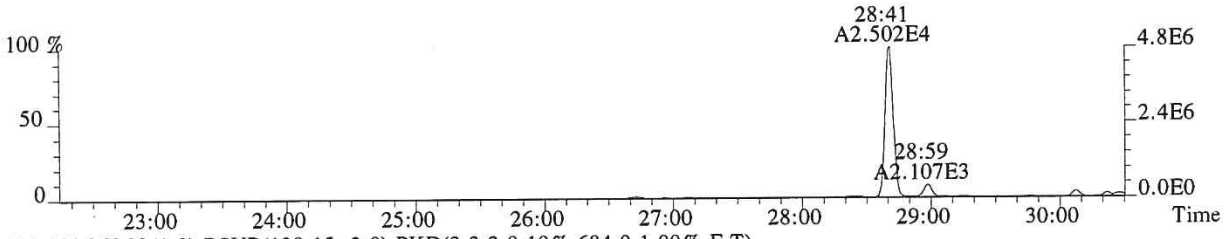
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



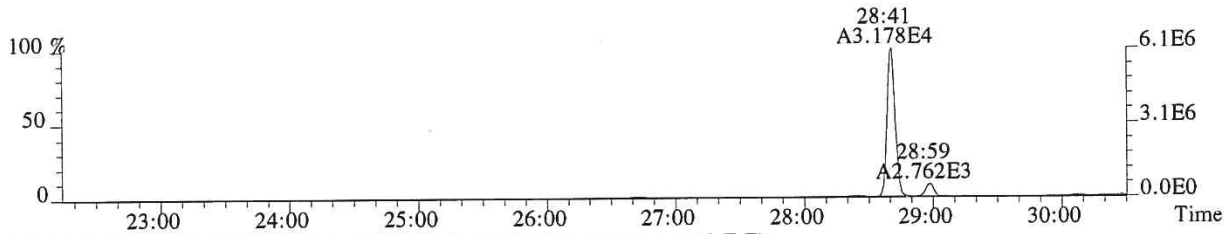
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



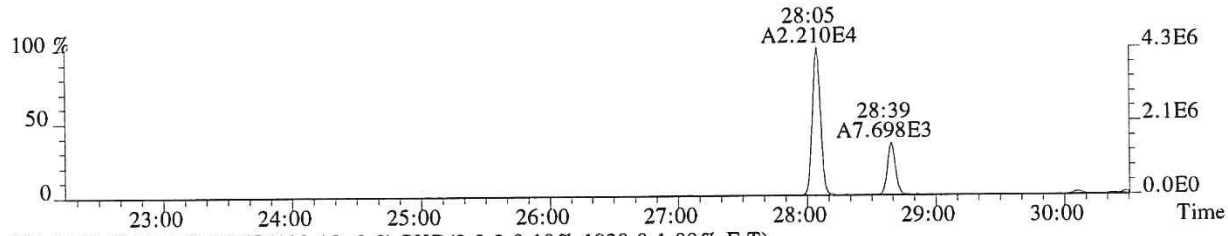
File:P519263 #1-587 Acq: 6-DEC-2018 22:55:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



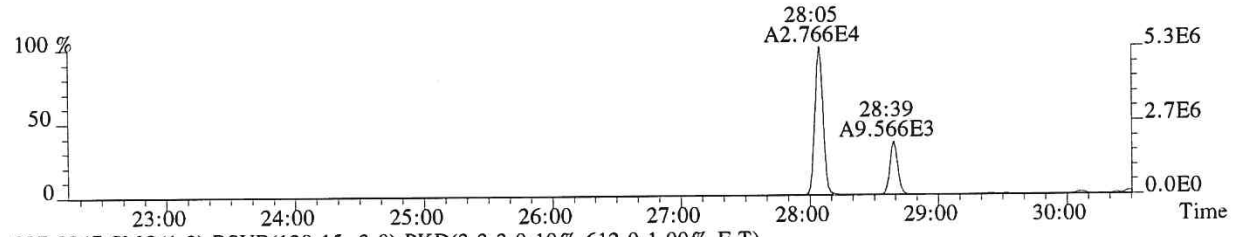
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



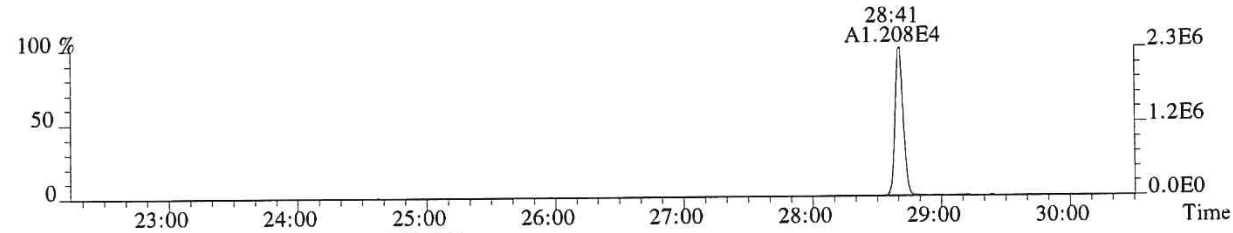
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5404.0,1.00%,F,T)



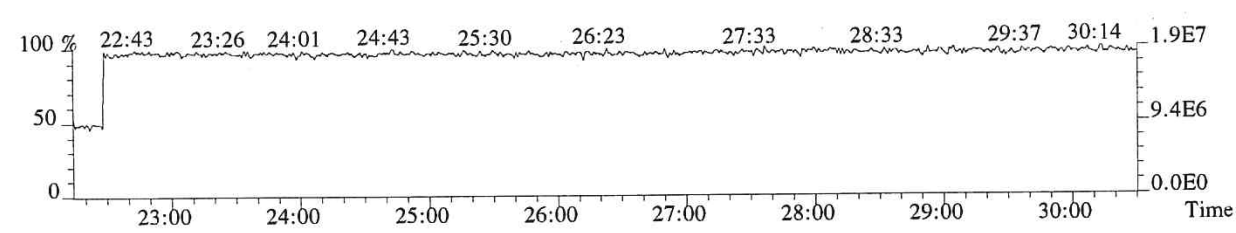
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1928.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)

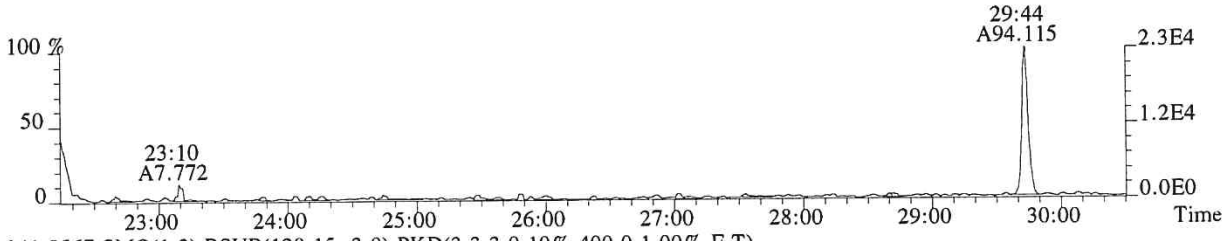


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

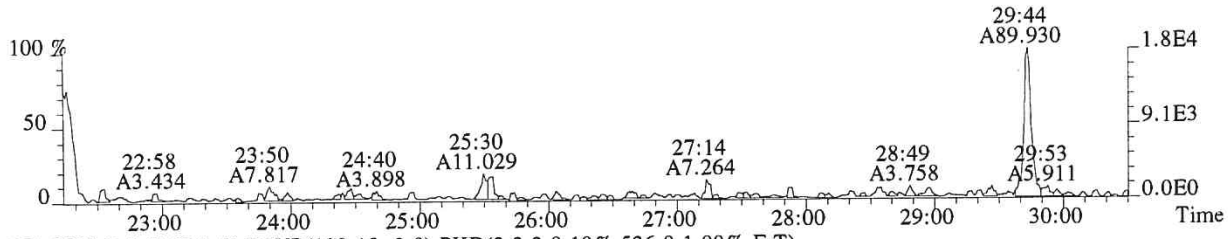


013205

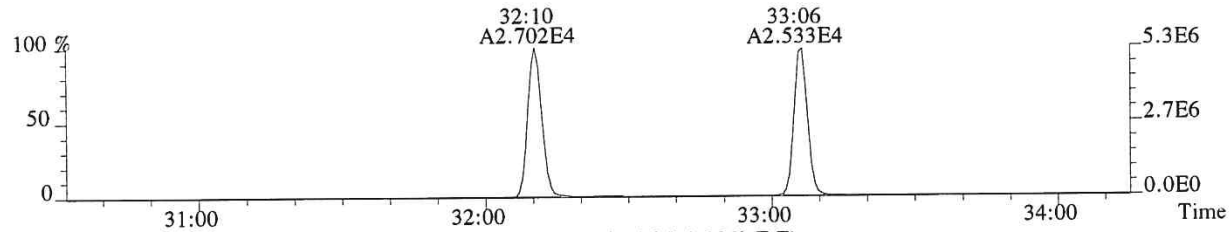
File:P519263 #1-587 Acq: 6-DEC-2018 22:55:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



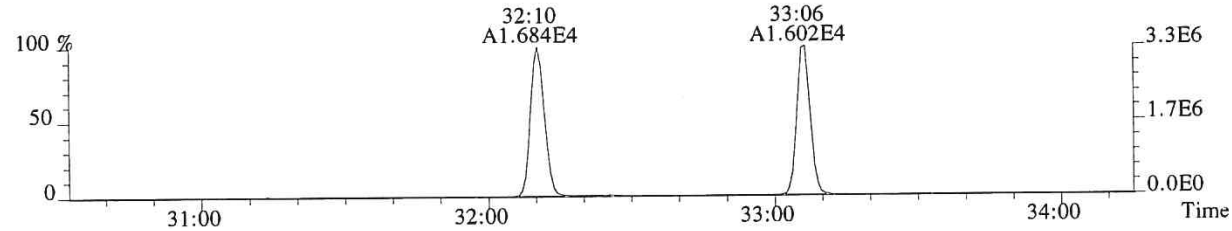
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



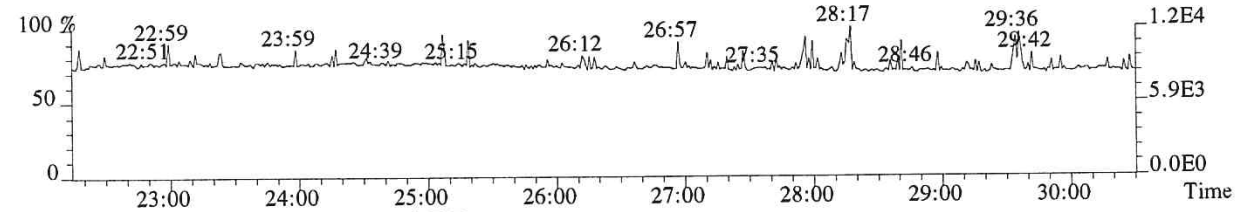
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



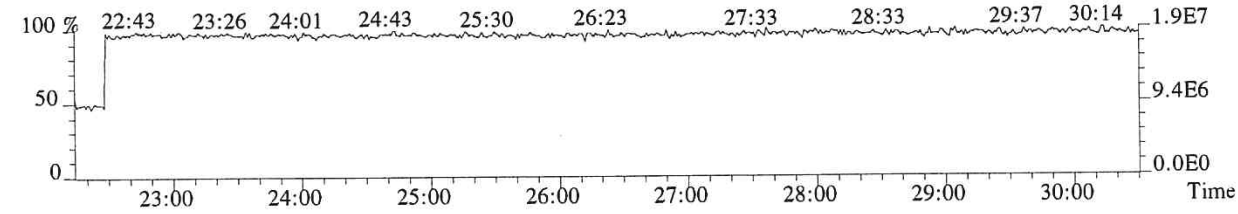
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



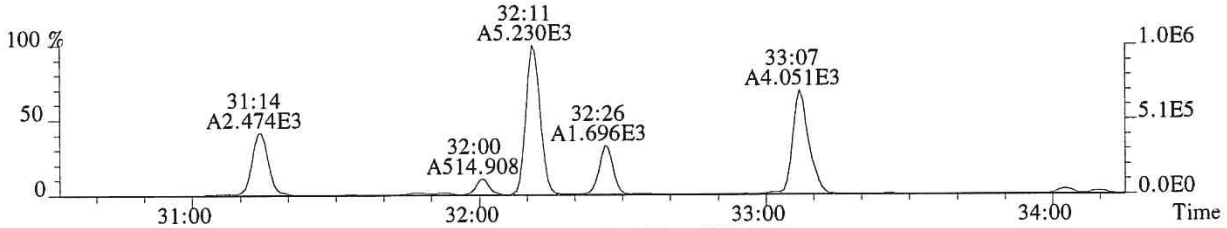
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



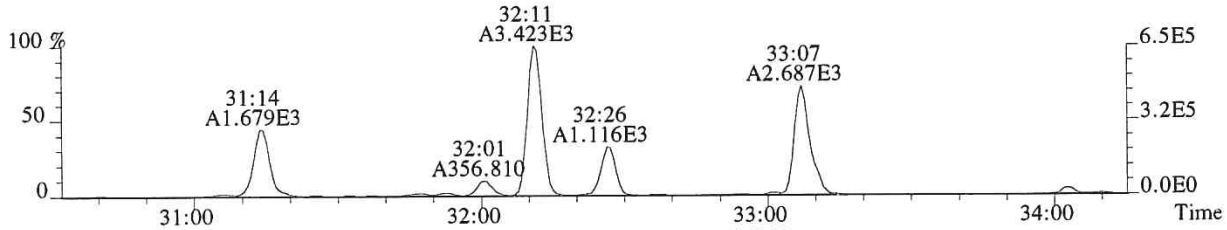
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



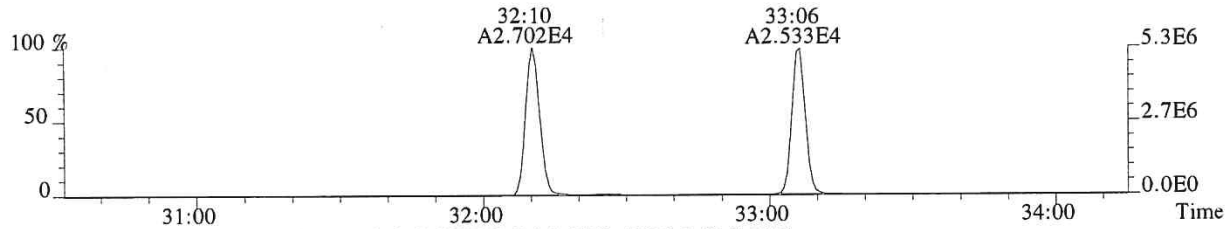
File:P519263 #1-335 Acq: 6-DEC-2018 22:55:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



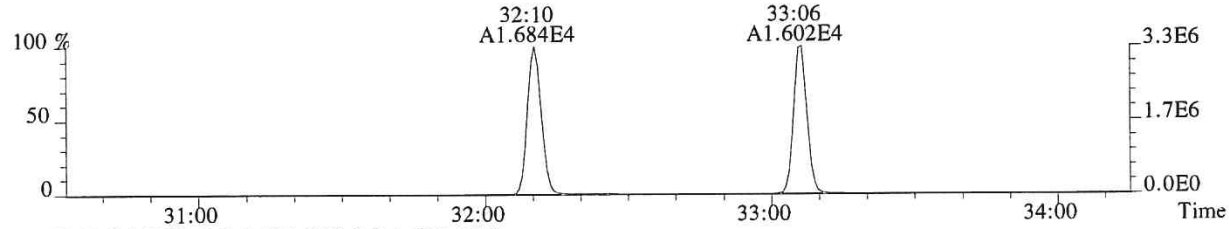
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



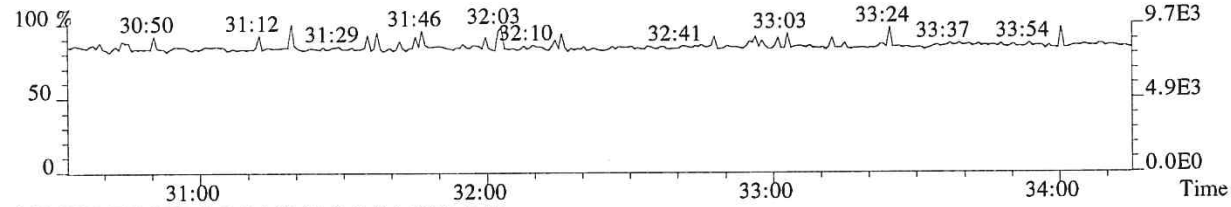
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



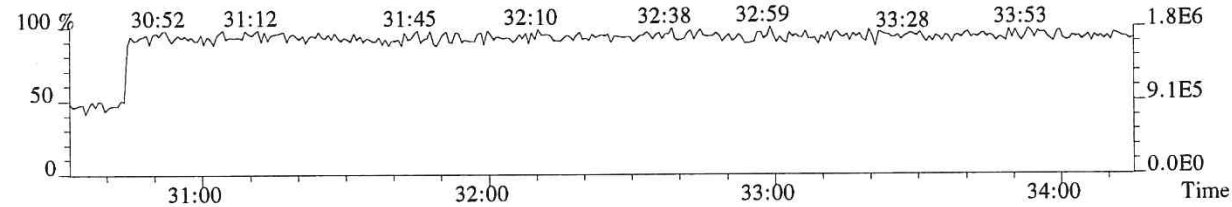
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



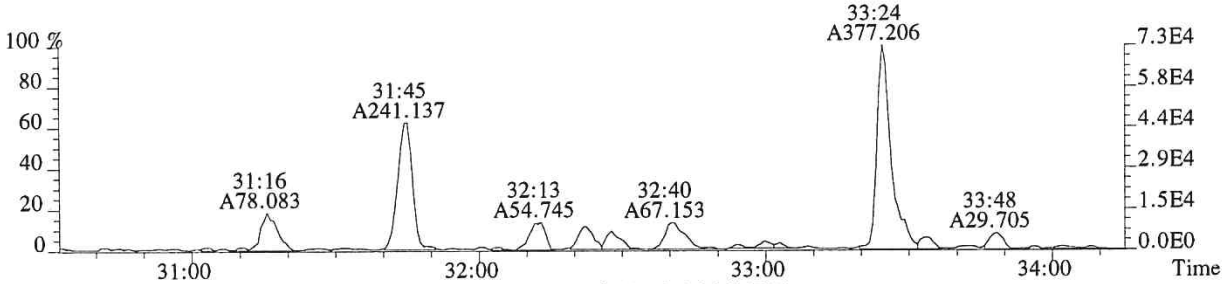
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



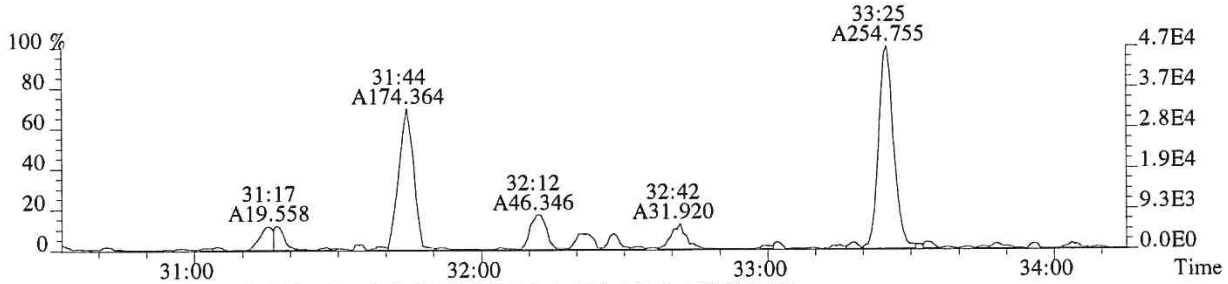
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



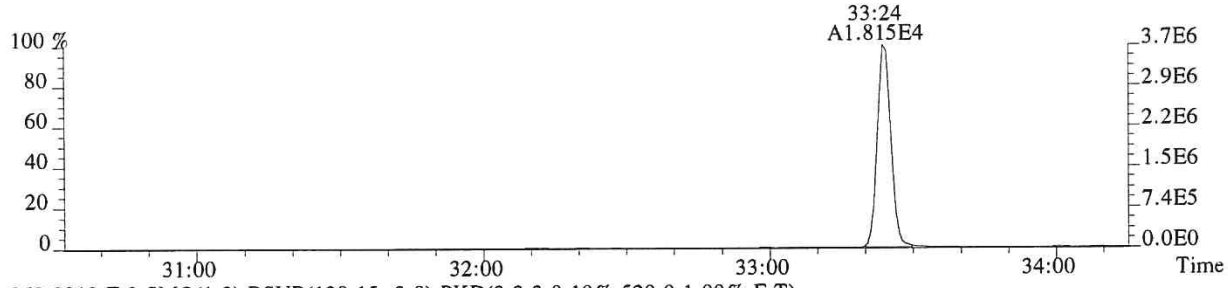
File:P519263 #1-335 Acq: 6-DEC-2018 22:55:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



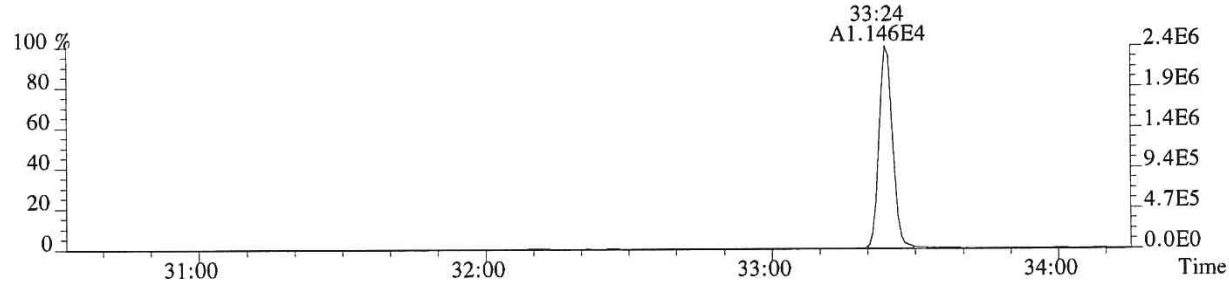
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



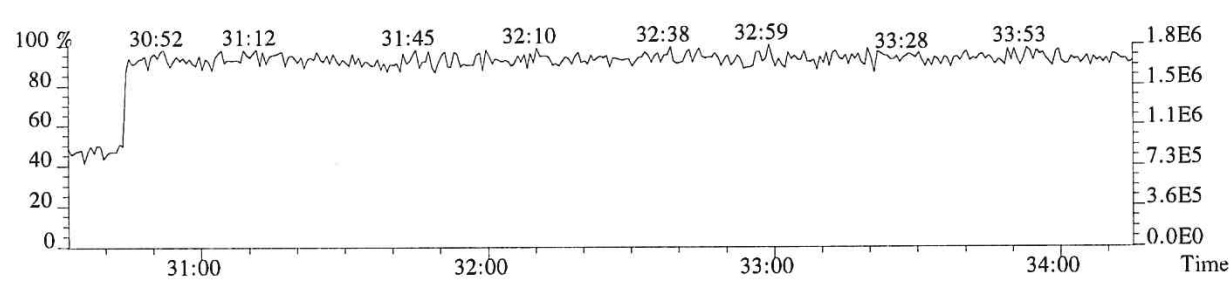
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



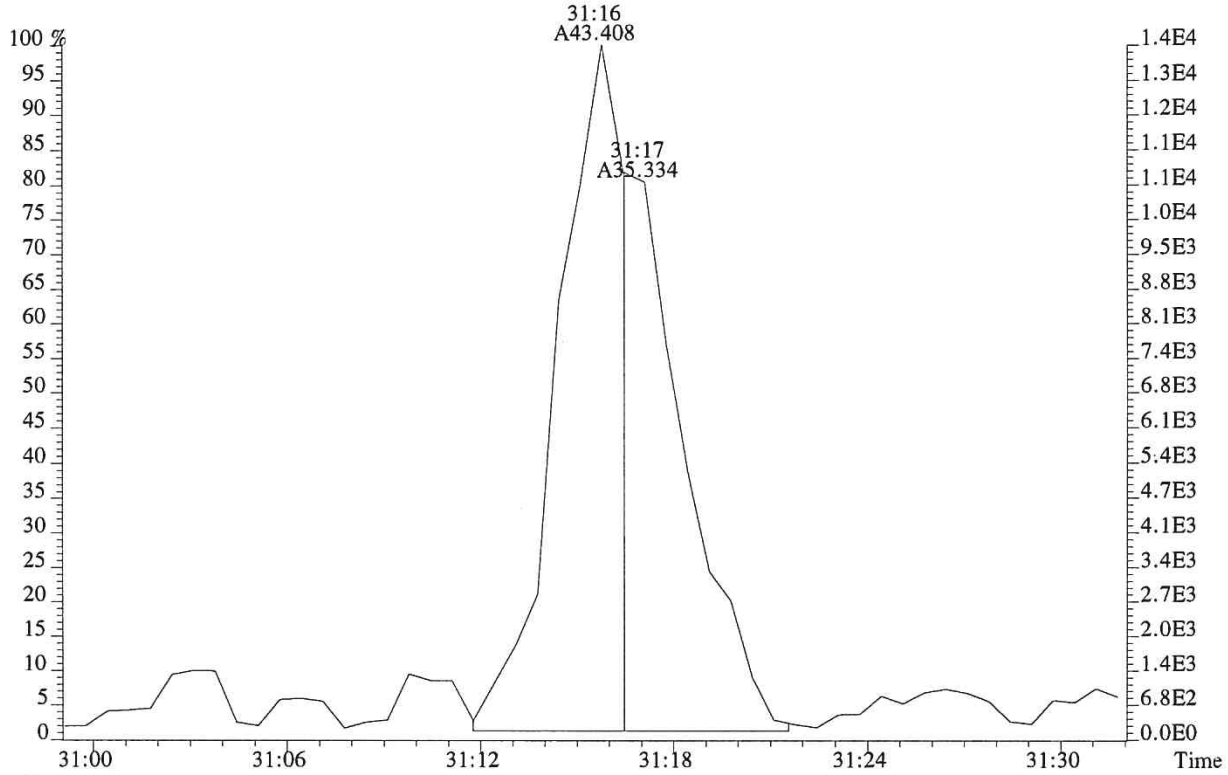
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



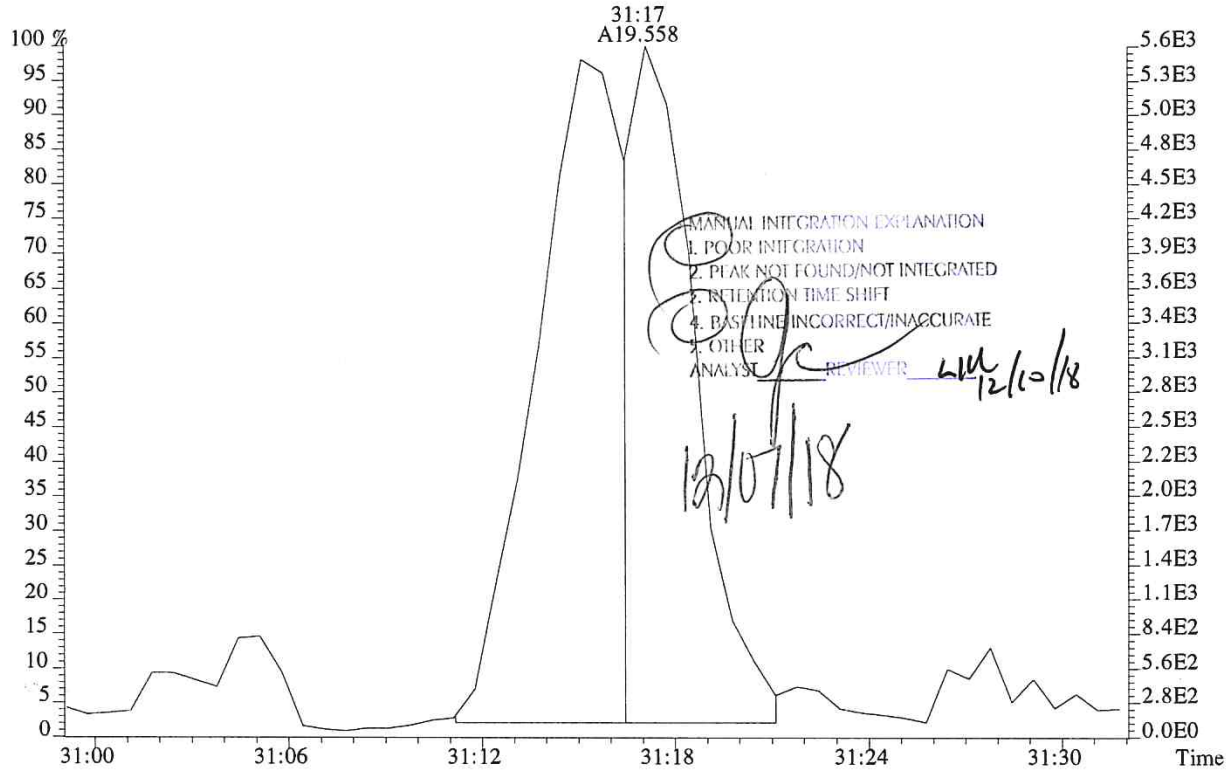
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519263 #1-335 Acq: 6-DEC-2018 22:55:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)

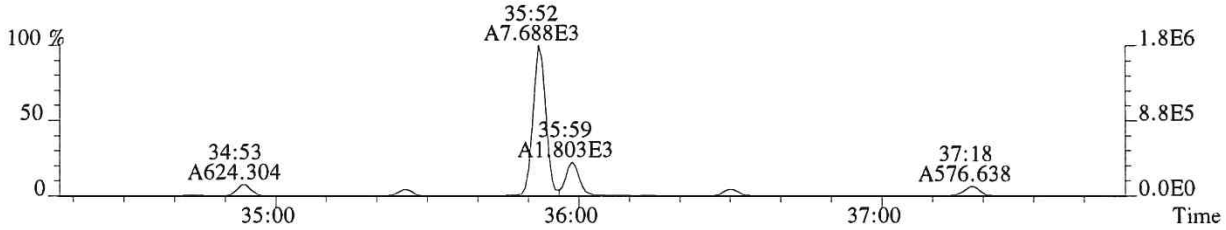


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)

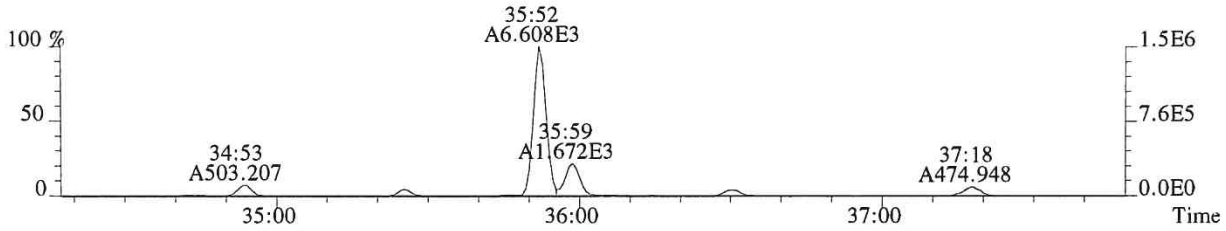


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER 12/10/18
12/07/18

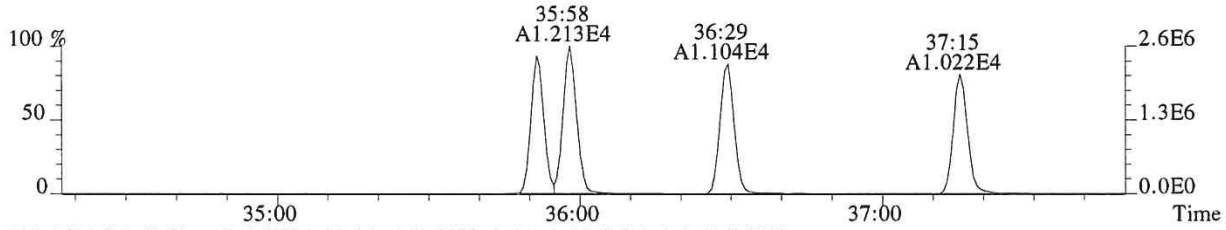
File:P519263 #1-317 Acq: 6-DEC-2018 22:55:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,144.0,0.40%,F,T)



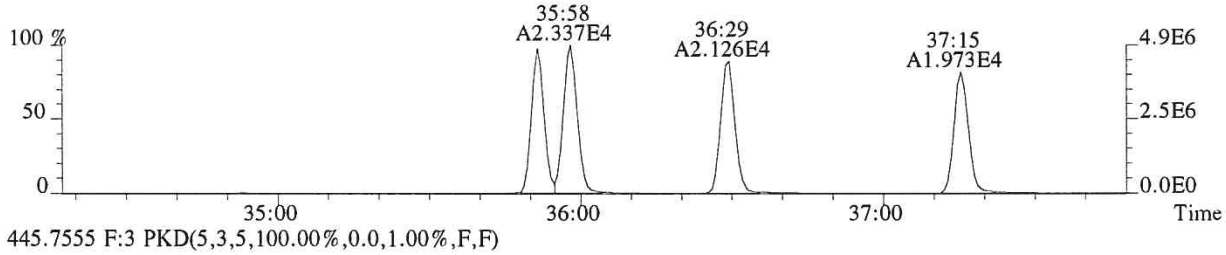
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



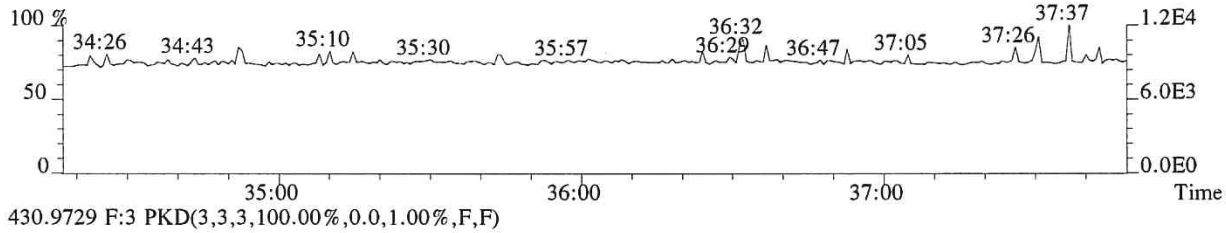
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



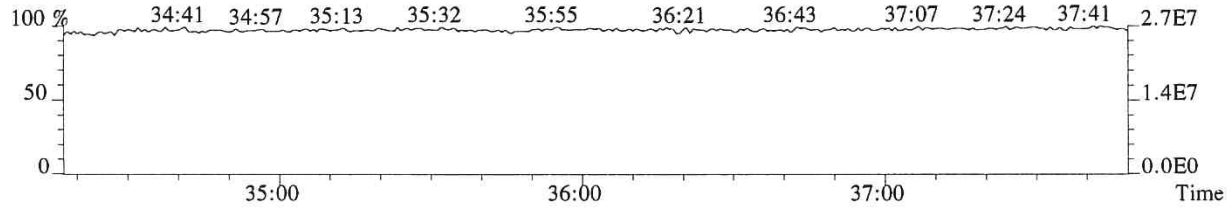
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



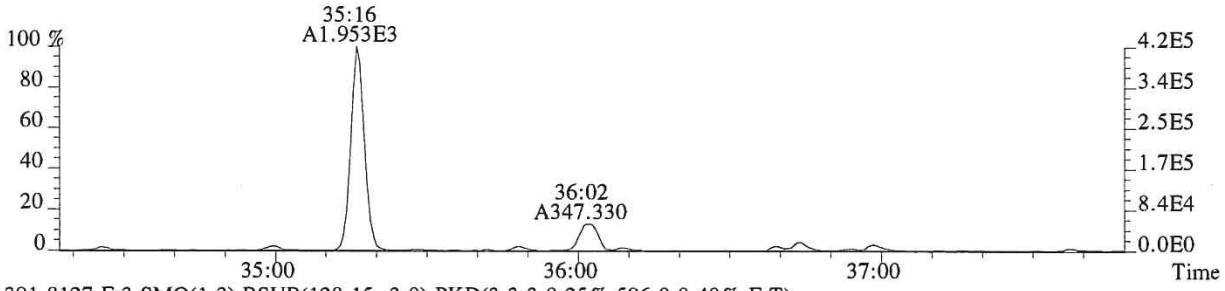
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



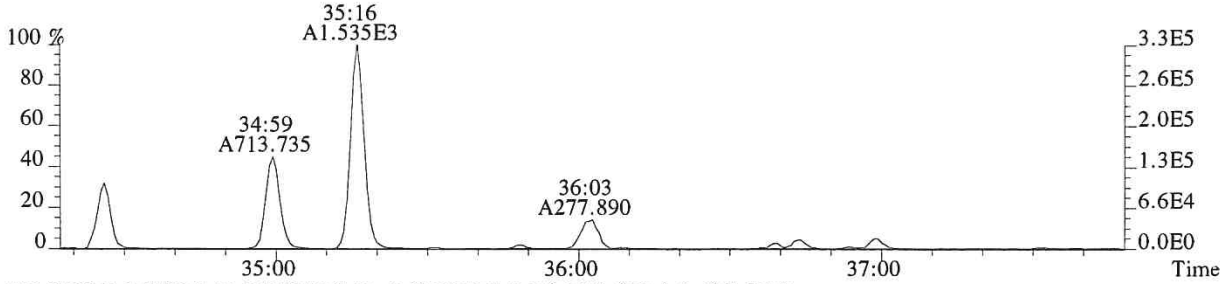
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



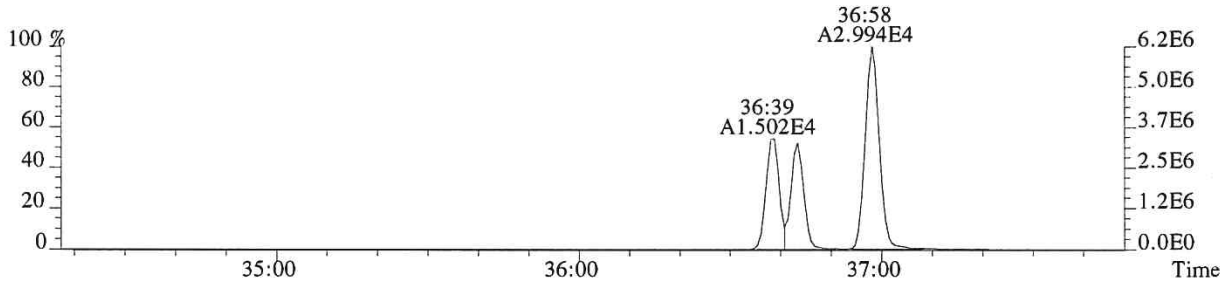
File:P519263 #1-317 Acq: 6-DEC-2018 22:55:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



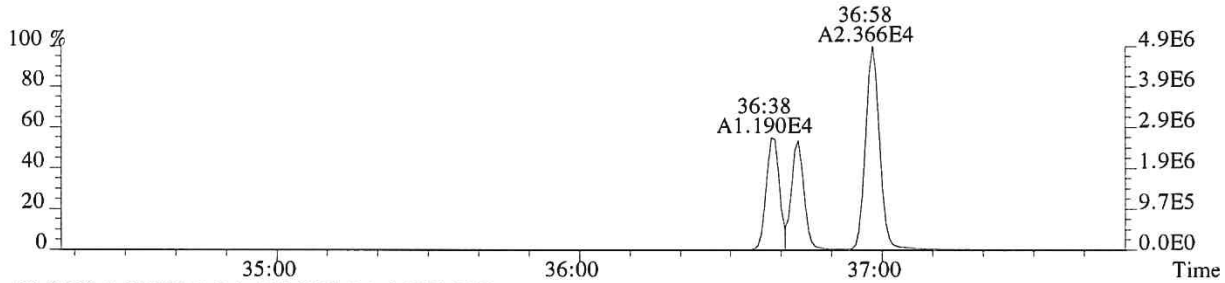
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



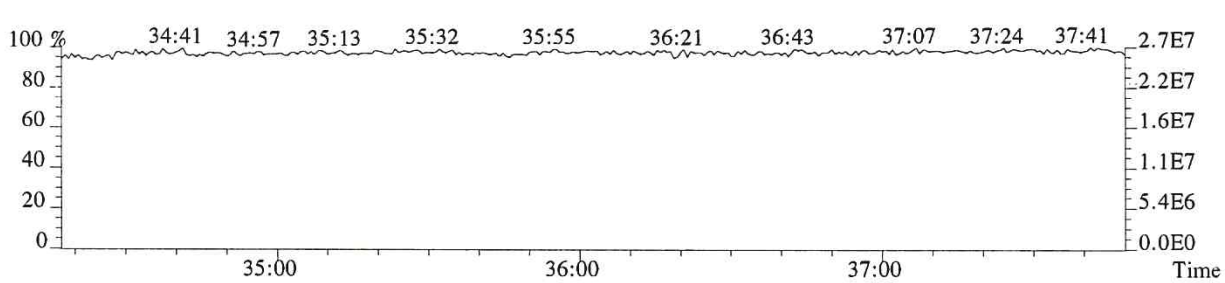
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



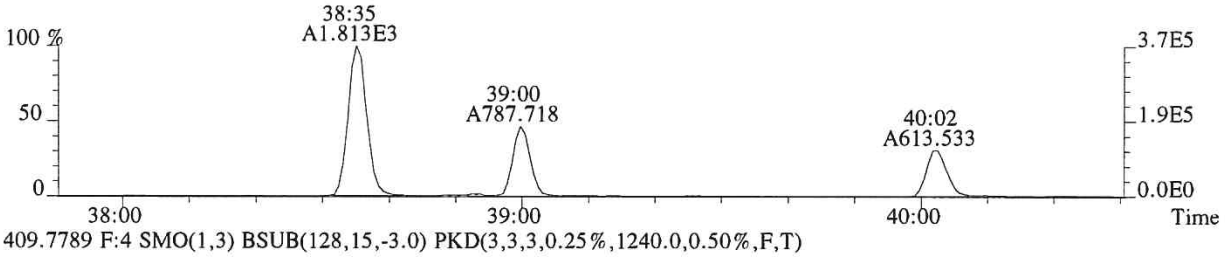
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



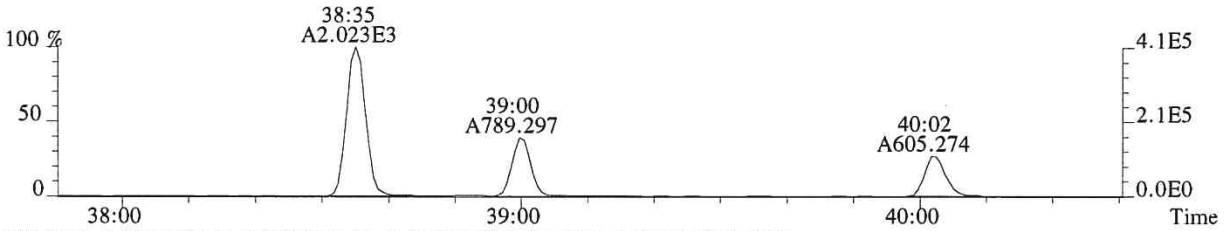
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



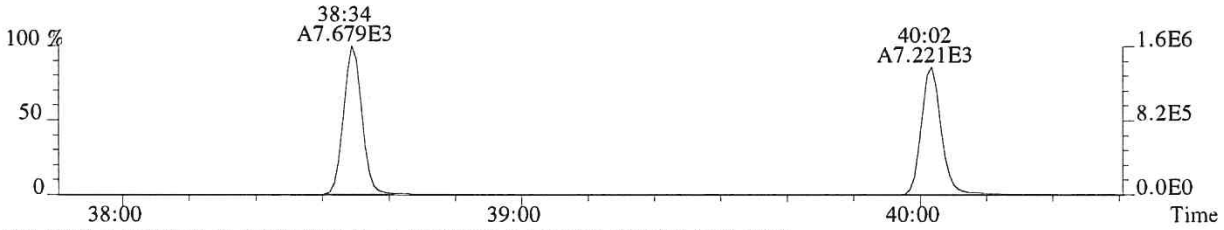
File:P519263 #1-241 Acq: 6-DEC-2018 22:55:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.50%,F,T)



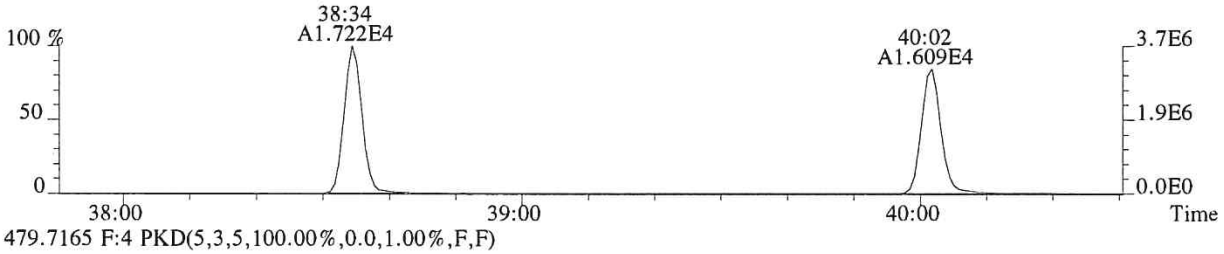
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.50%,F,T)



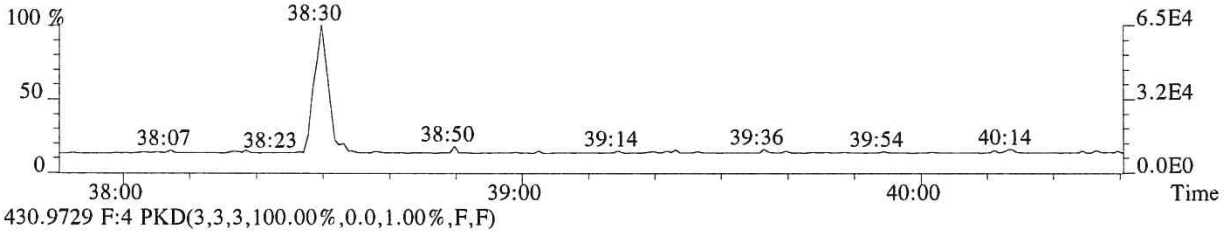
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.50%,F,T)



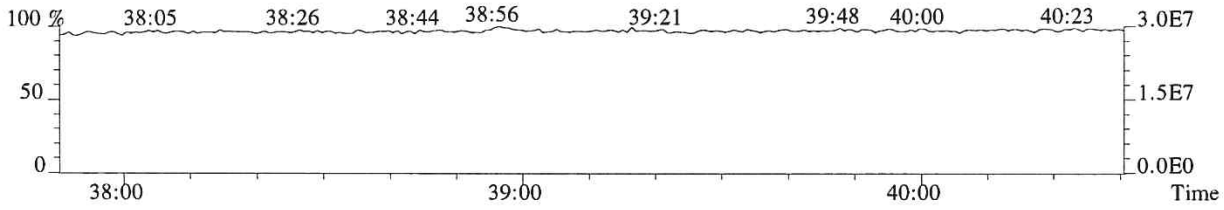
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.50%,F,T)



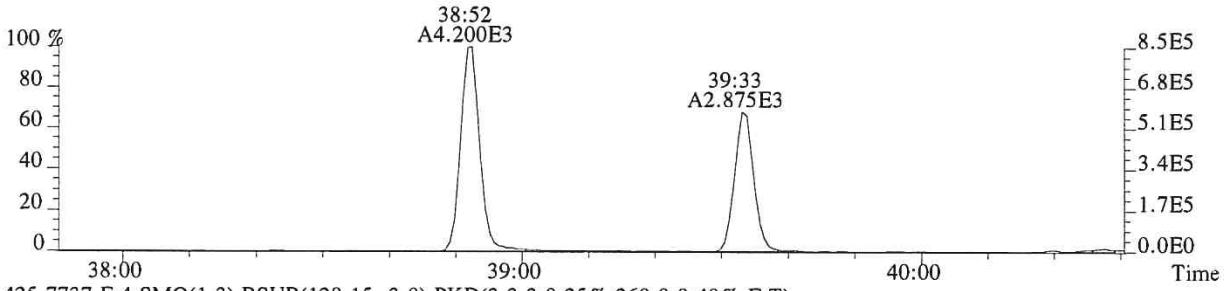
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



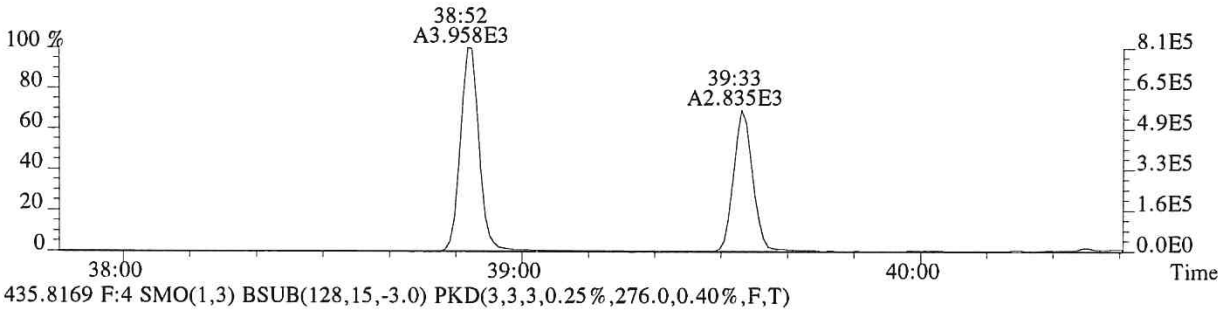
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



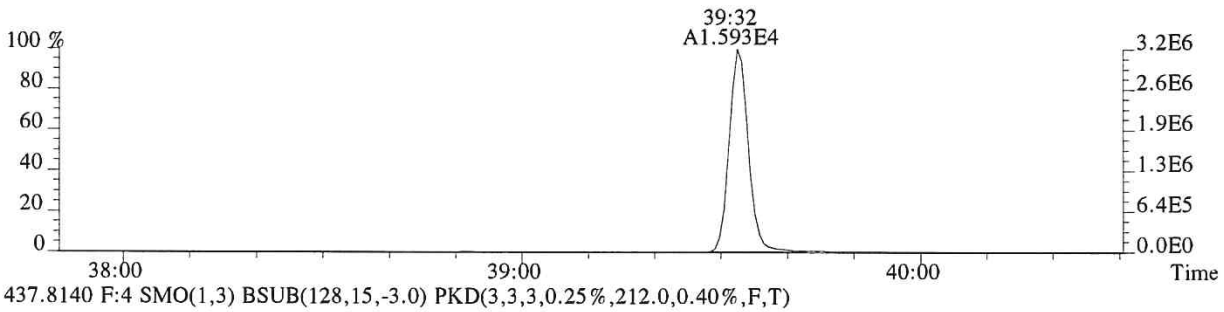
File:P519263 #1-241 Acq: 6-DEC-2018 22:55:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



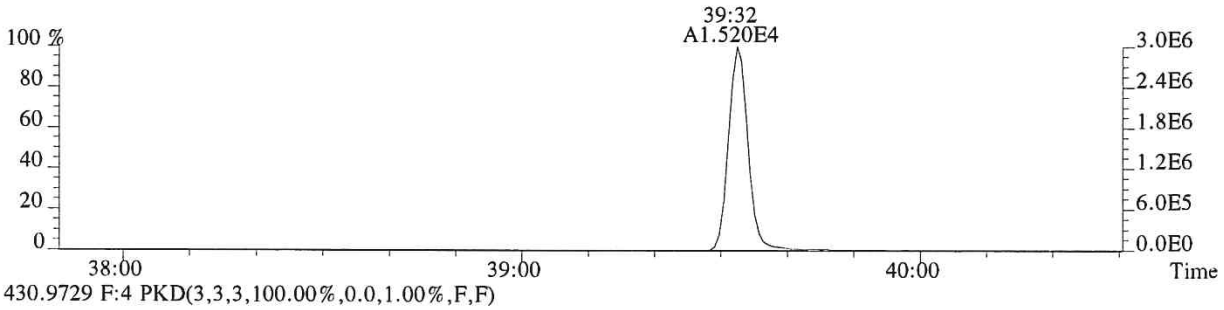
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



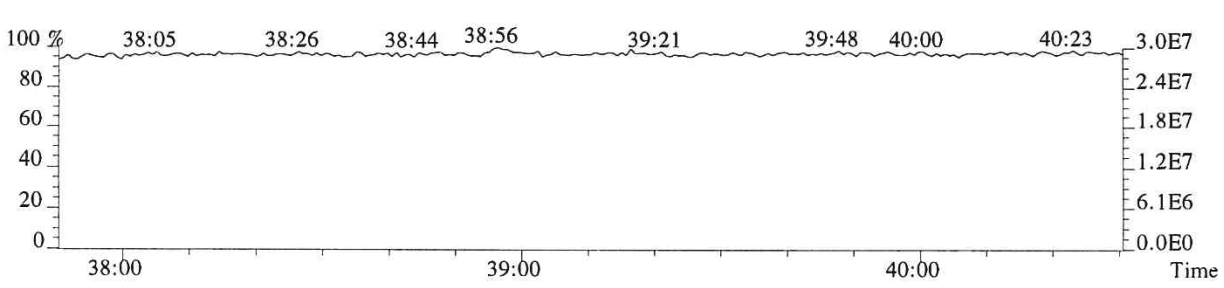
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



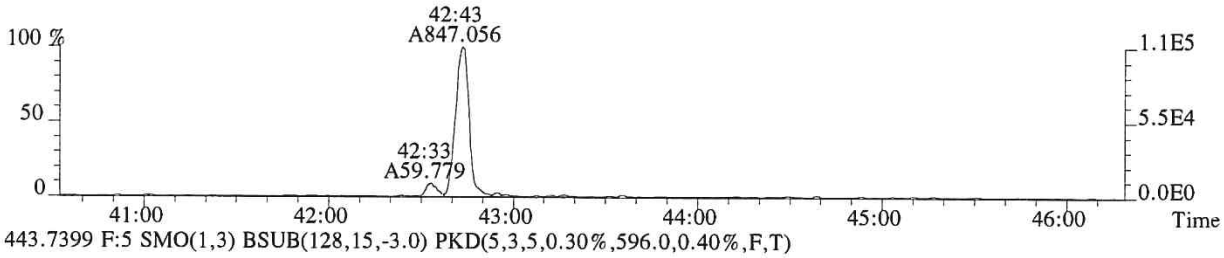
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



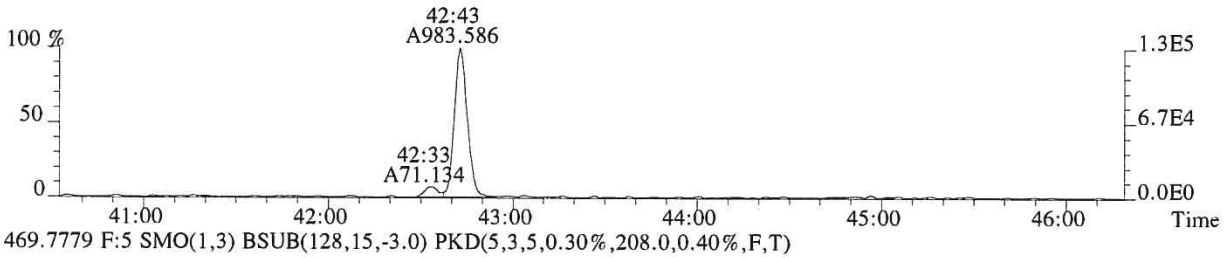
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



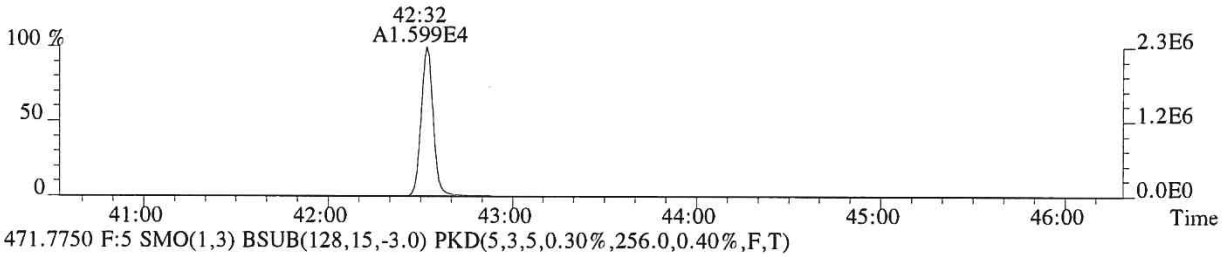
File:P519263 #1-520 Acq: 6-DEC-2018 22:55:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



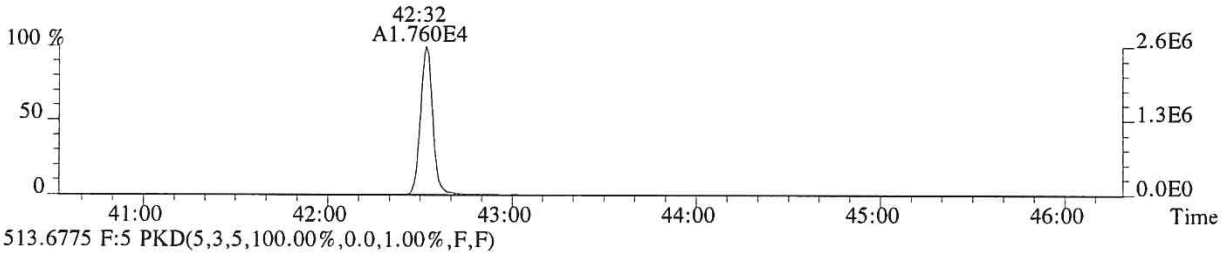
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



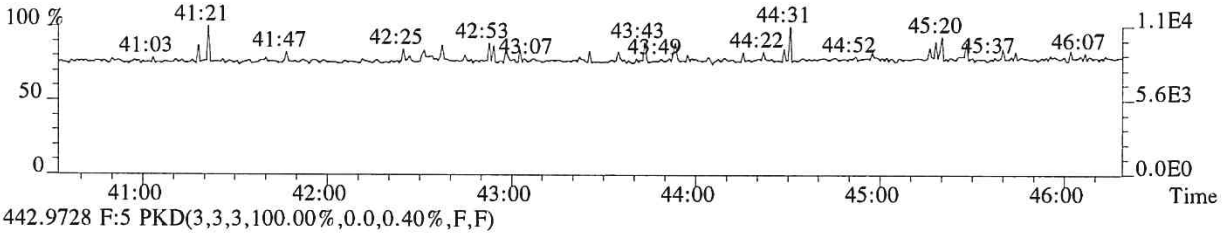
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



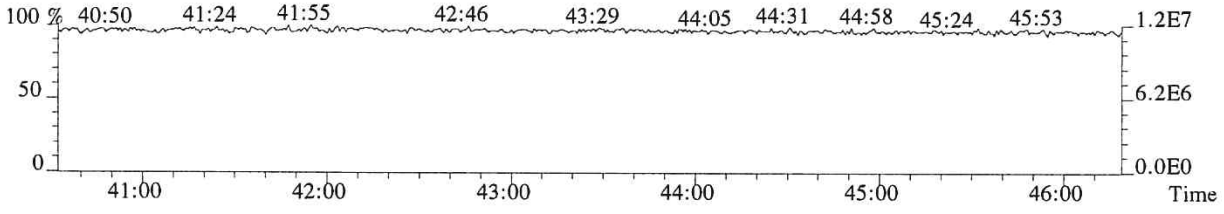
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

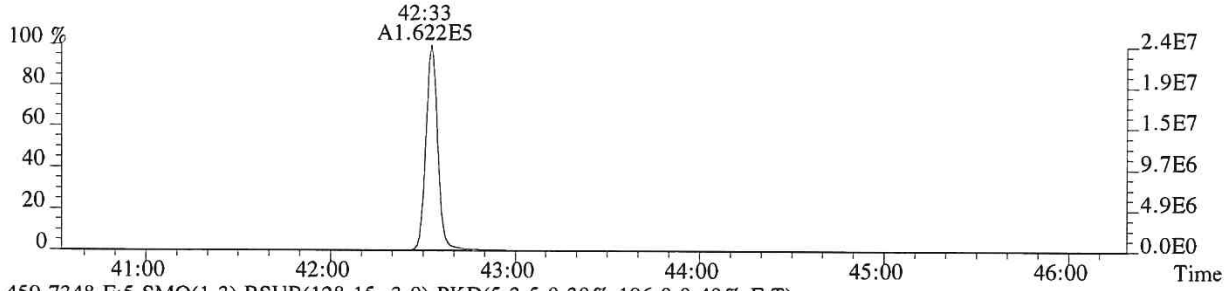


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

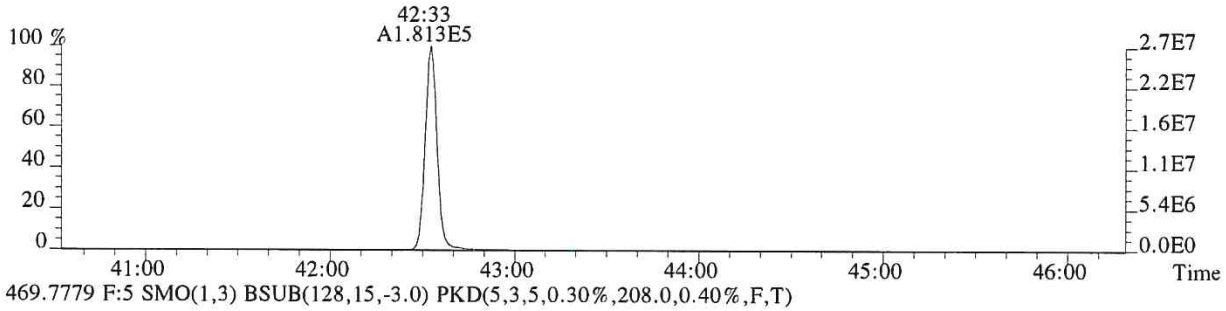


013214

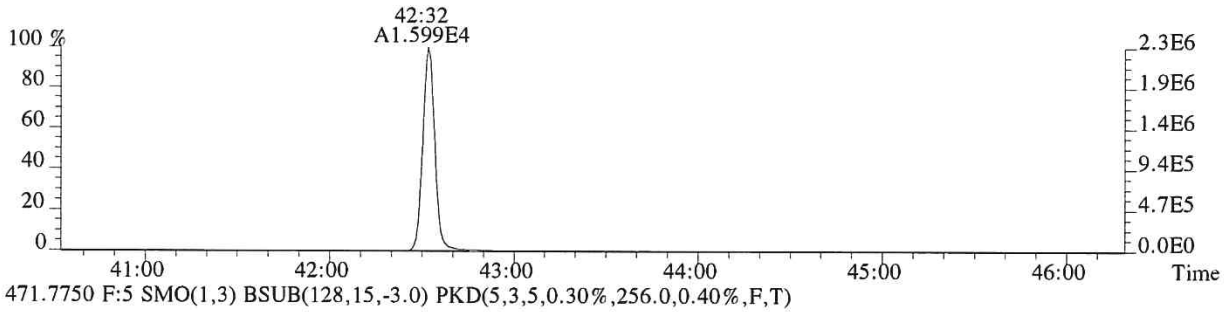
File:P519263 #1-520 Acq: 6-DEC-2018 22:55:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



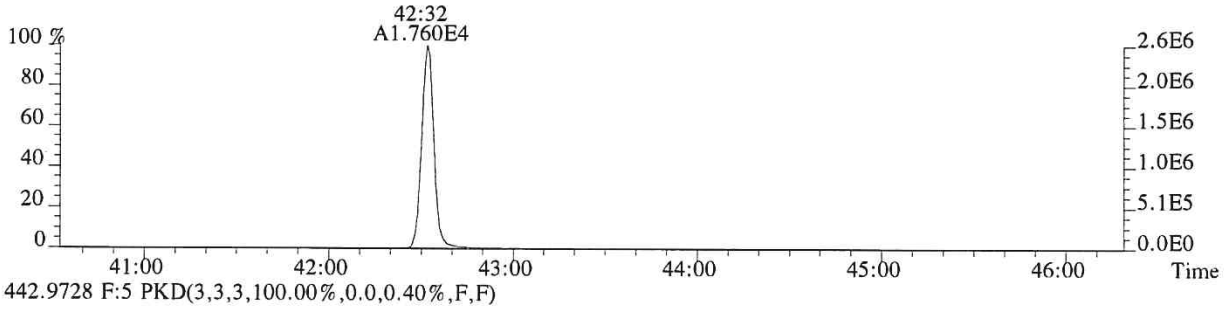
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



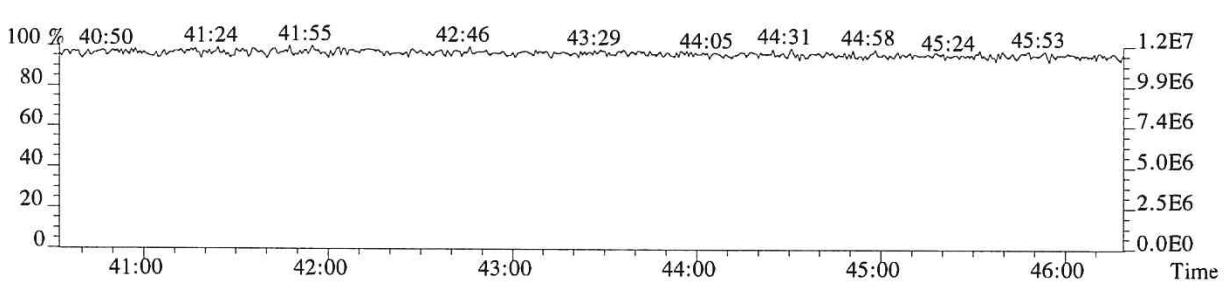
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0249

Run #14 Filename P519326 Samp: 1 Inj: 1 Acquired: 10-DEC-18 14:27:45
Processed: 11-DEC-18 15:18:37 Sample ID: E1801058-017DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	5.174e+03	6.809e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	3.196e+02	1.903e+02	1.68	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	2.181e+02	1.792e+02	1.22	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	4.488e+02	3.608e+02	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.364e+02	1.125e+02	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	1.917e+01	1.364e+01	1.41	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	4.853e+01	2.651e+01	1.83	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:30	1.214e+02	1.078e+02	1.13	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	2.712e+01	2.545e+01	1.07	yes	no	1.258
10	Unk	OCDF	42:35	3.868e+01	5.979e+01	0.65	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	1.293e+03	1.743e+03	0.74	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	4.044e+01	1.352e+01	2.99	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:33	3.328e+00	6.940e+00	0.48	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.621e+01	3.445e+00	4.70	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	4.483e+00	6.333e+00	0.71	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:28	1.458e+02	1.431e+02	1.02	yes	no	1.025
17	Unk	OCDD	42:24	7.812e+03	9.021e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.347e+04	1.688e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.086e+04	1.303e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	1.986e+04	1.222e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	7.939e+03	1.565e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	9.584e+03	1.858e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	8.850e+03	1.717e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	7.155e+03	1.430e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	6.479e+03	1.486e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:56	5.518e+03	1.239e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	6.362e+03	7.944e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	1.406e+04	8.694e+03	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.135e+04	8.555e+03	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.099e+04	8.660e+03	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	1.170e+04	1.100e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:23	1.307e+04	1.461e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	1.142e+04	1.400e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	1.445e+04	1.113e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	6.855e+02				no	1.014

$$\text{OCDD} = \frac{(7.812e+03 + 9.021e+03) \times 4000\ \text{pg} \times 10}{(1.307e+04 + 1.461e+04) \times 10.667\ \text{g} \times 77.6 / 100 \times 1.118 \times 0.54} = 4867\ \text{ng/Kg}$$

LM 12/11/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0249

Run #14 Filename P519326 Samp: 1 Inj: 1 Acquired: 10-DEC-18 14:27:45
Processed: 11-DEC-18 15:18:37 LAB. ID: E1801058-017DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.40e+05	2.76e+02	3.0e+03	1.09e+06	1.46e+03	7.5e+02
2	1,2,3,7,8-PeCDF	5.74e+04	2.00e+02	2.9e+02	3.77e+04	1.05e+03	3.6e+01
3	2,3,4,7,8-PeCDF	3.00e+04	2.00e+02	1.5e+02	2.91e+04	1.05e+03	2.8e+01
4	1,2,3,4,7,8-HxCDF	9.28e+04	5.32e+02	1.7e+02	7.17e+04	2.08e+02	3.4e+02
5	1,2,3,6,7,8-HxCDF	2.90e+04	5.32e+02	5.5e+01	2.30e+04	2.08e+02	1.1e+02
6	2,3,4,6,7,8-HxCDF	4.44e+03	5.32e+02	8.3e+00	2.48e+03	2.08e+02	1.2e+01
7	1,2,3,7,8,9-HxCDF	8.65e+03	5.32e+02	1.6e+01	4.46e+03	2.08e+02	2.1e+01
8	1,2,3,4,6,7,8-HpCDF	2.40e+04	1.80e+02	1.3e+02	2.10e+04	2.40e+02	8.7e+01
9	1,2,3,4,7,8,9-HpCDF	5.26e+03	1.80e+02	2.9e+01	5.61e+03	2.40e+02	2.3e+01
10	OCDF	6.52e+03	1.56e+02	4.2e+01	9.10e+03	4.76e+02	1.9e+01
11	2,3,7,8-TCDD	2.31e+05	1.41e+03	1.6e+02	3.12e+05	5.00e+02	6.2e+02
12	1,2,3,7,8-PeCDD	5.14e+03	5.20e+02	9.9e+00	2.23e+03	1.64e+02	1.4e+01
13	1,2,3,4,7,8-HxCDD	8.20e+02	1.80e+02	4.6e+00	1.18e+03	2.36e+02	5.0e+00
14	1,2,3,6,7,8-HxCDD	4.11e+03	1.80e+02	2.3e+01	1.12e+03	2.36e+02	4.8e+00
15	1,2,3,7,8,9-HxCDD	1.35e+03	1.80e+02	7.5e+00	1.63e+03	2.36e+02	6.9e+00
16	1,2,3,4,6,7,8-HpCDD	2.40e+04	2.04e+02	1.2e+02	2.62e+04	2.40e+02	1.1e+02
17	OCDD	1.01e+06	1.84e+02	5.5e+03	1.13e+06	2.08e+02	5.5e+03
18	13C-2,3,7,8-TCDF	2.40e+06	5.23e+03	4.6e+02	3.02e+06	4.48e+03	6.7e+02
19	13C-1,2,3,7,8-PeCDF	3.77e+06	2.92e+02	1.3e+04	2.32e+06	3.52e+02	6.6e+03
20	13C-2,3,4,7,8-PeCDF	3.77e+06	2.92e+02	1.3e+04	2.29e+06	3.52e+02	6.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.65e+06	4.00e+02	4.1e+03	3.20e+06	7.60e+02	4.2e+03
22	13C-1,2,3,6,7,8-HxCDF	1.82e+06	4.00e+02	4.6e+03	3.55e+06	7.60e+02	4.7e+03
23	13C-2,3,4,6,7,8-HxCDF	1.76e+06	4.00e+02	4.4e+03	3.37e+06	7.60e+02	4.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.34e+06	4.00e+02	3.3e+03	2.64e+06	7.60e+02	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.22e+06	6.36e+02	1.9e+03	2.87e+06	1.35e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.86e+05	6.36e+02	1.4e+03	2.02e+06	1.35e+03	1.5e+03
27	13C-2,3,7,8-TCDD	1.15e+06	5.18e+03	2.2e+02	1.42e+06	1.68e+03	8.5e+02
28	13C-1,2,3,7,8-PeCDD	2.59e+06	7.36e+02	3.5e+03	1.63e+06	5.48e+02	3.0e+03
29	13C-1,2,3,4,7,8-HxCDD	2.35e+06	6.28e+02	3.7e+03	1.74e+06	1.24e+02	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	2.06e+06	6.28e+02	3.3e+03	1.64e+06	1.24e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.99e+06	3.64e+02	5.5e+03	1.85e+06	3.04e+02	6.1e+03
32	13C-OCDD	1.67e+06	1.96e+02	8.5e+03	1.80e+06	1.80e+02	1.0e+04
33	13C-1,2,3,4-TCDD	2.09e+06	5.18e+03	4.0e+02	2.60e+06	1.68e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	2.56e+06	6.28e+02	4.1e+03	2.00e+06	1.24e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	1.26e+05	6.68e+02	1.9e+02			

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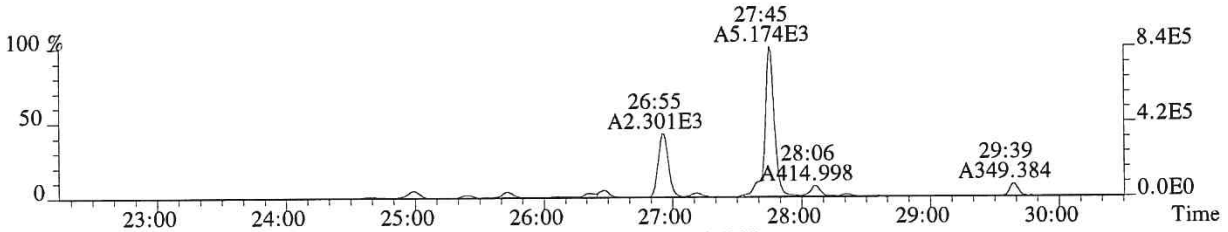
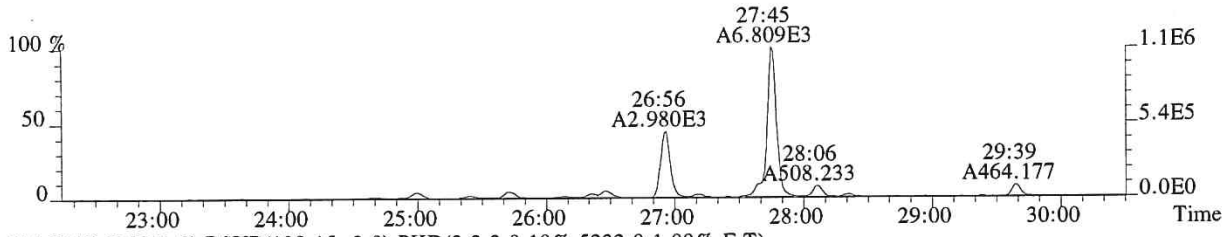
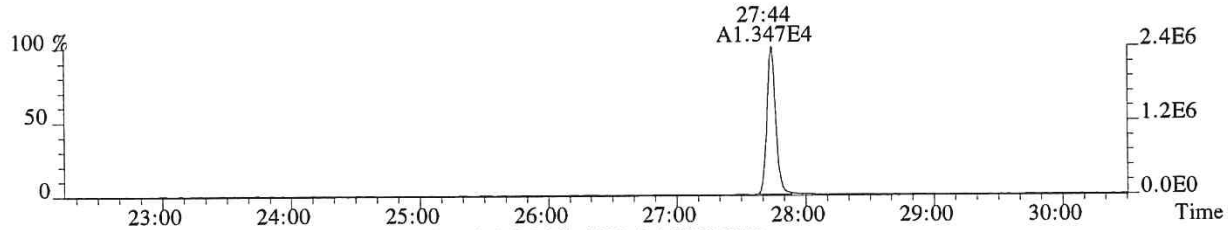
File:P519326 #1-587 Acq:10-DEC-2018 14:27:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



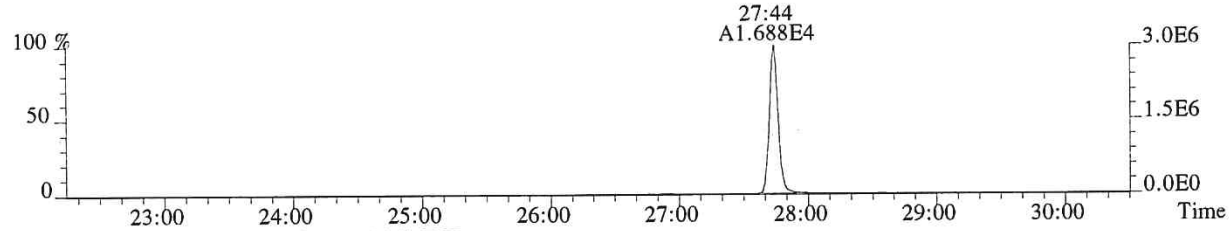
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



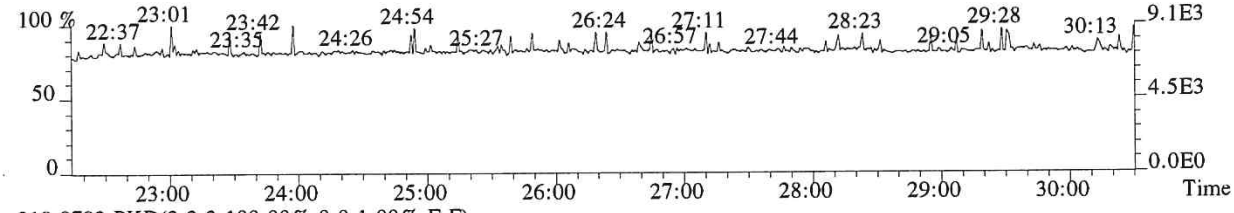
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5232.0,1.00%,F,T)



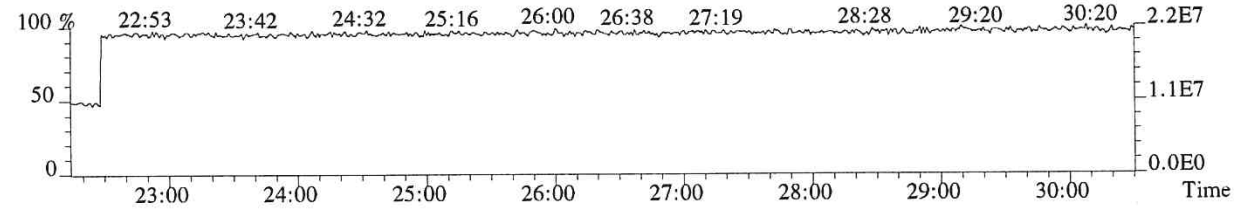
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4480.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

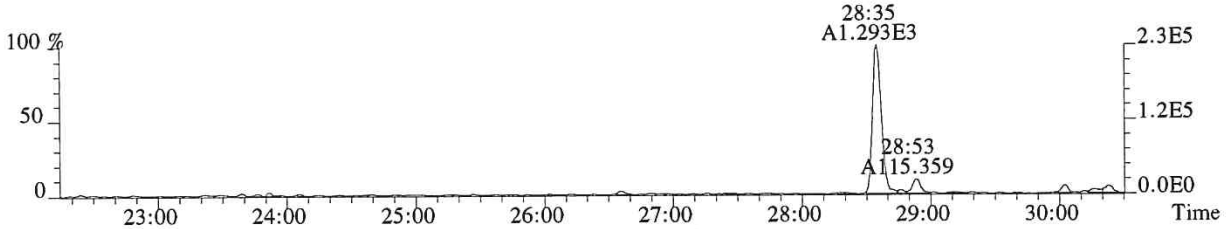


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

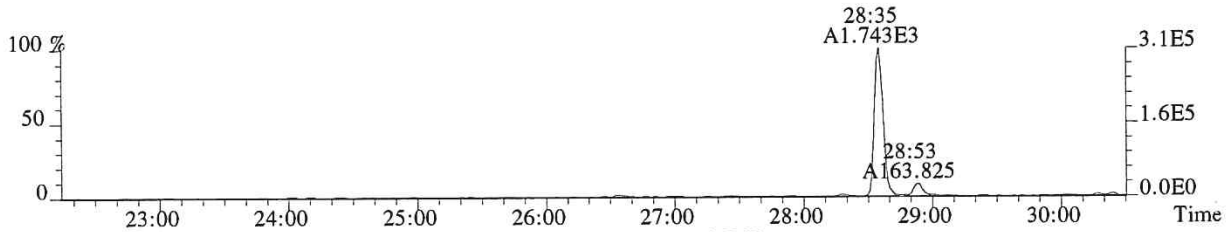


013218

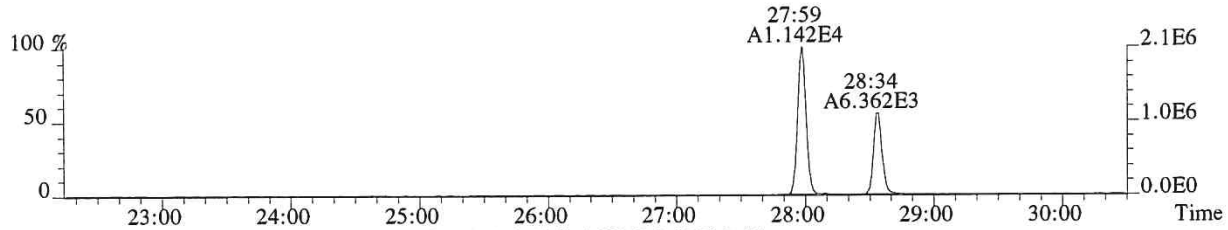
File:P519326 #1-587 Acq:10-DEC-2018 14:27:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



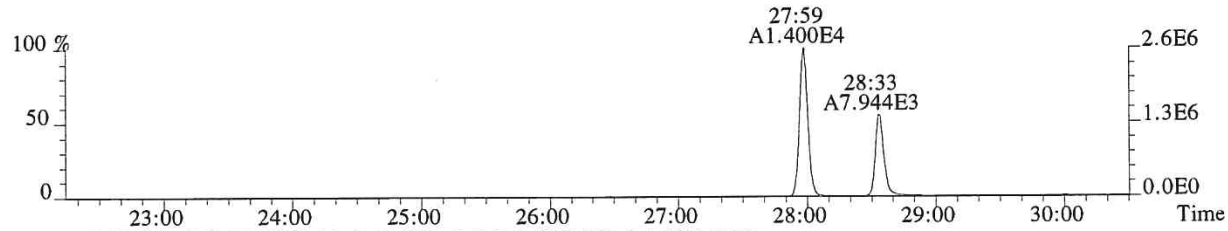
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



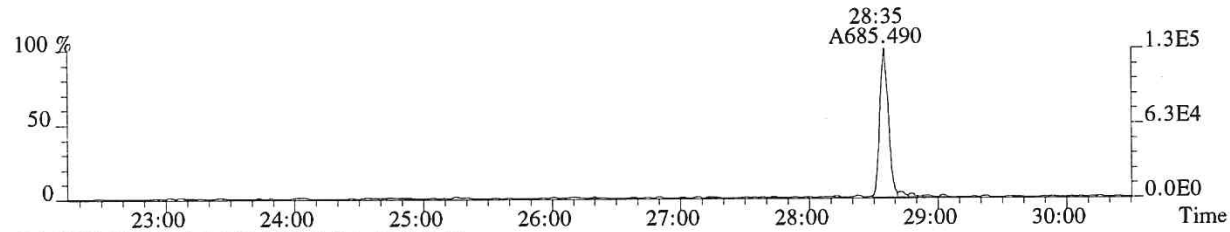
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5176.0,1.00%,F,T)



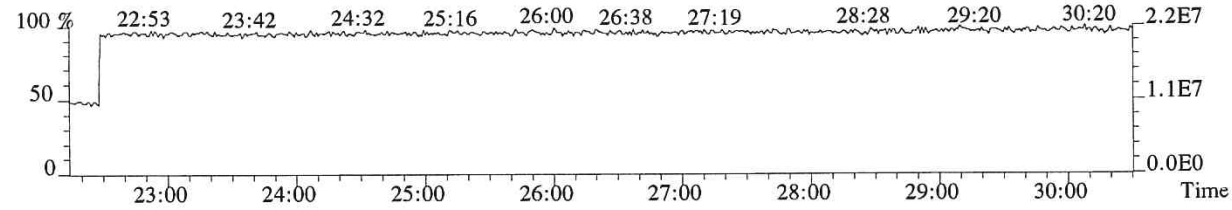
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)

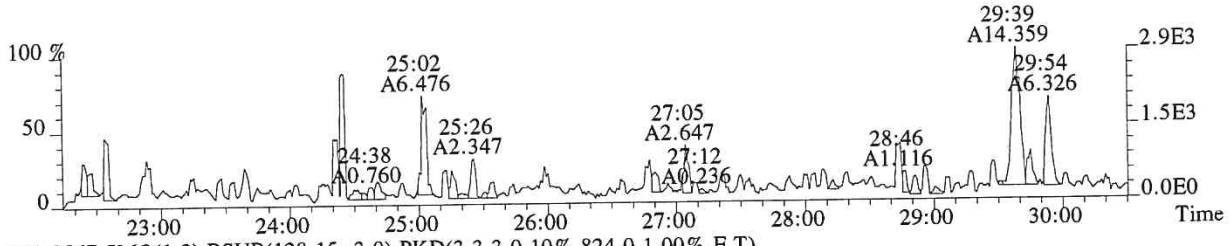


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

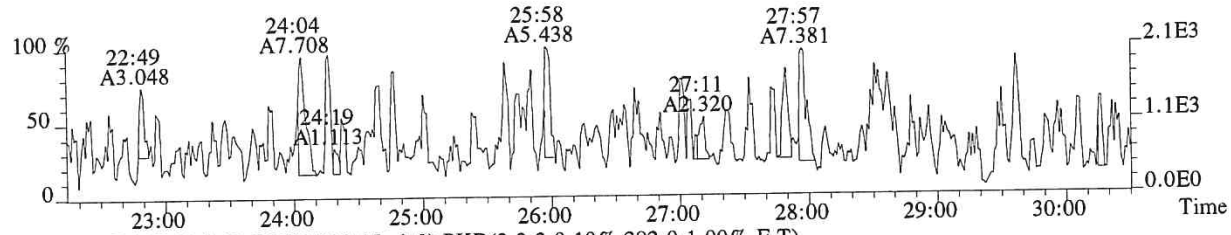


013219

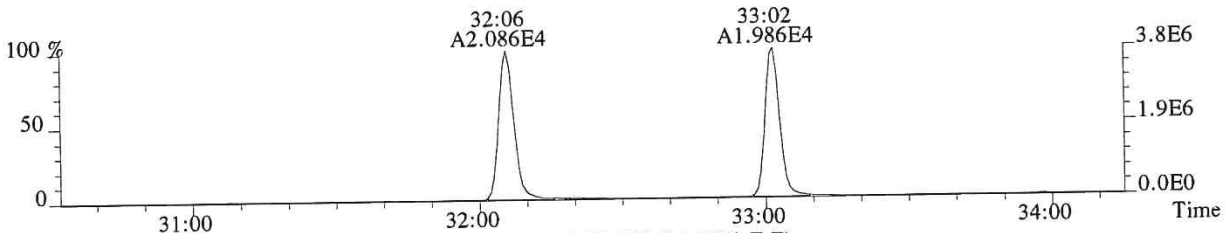
File:P519326 #1-587 Acq:10-DEC-2018 14:27:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



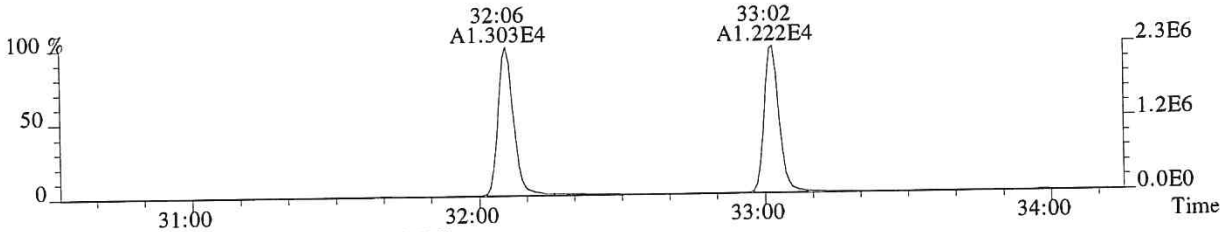
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



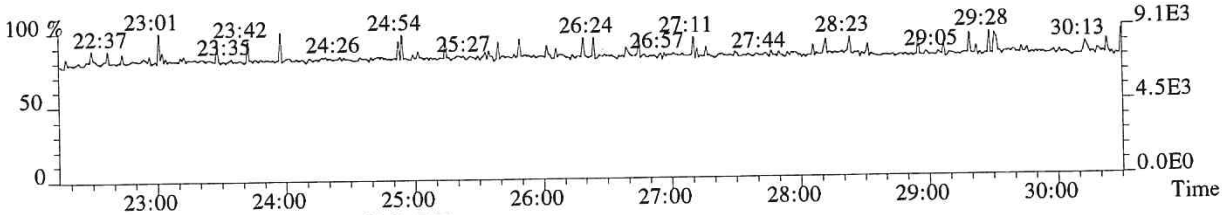
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



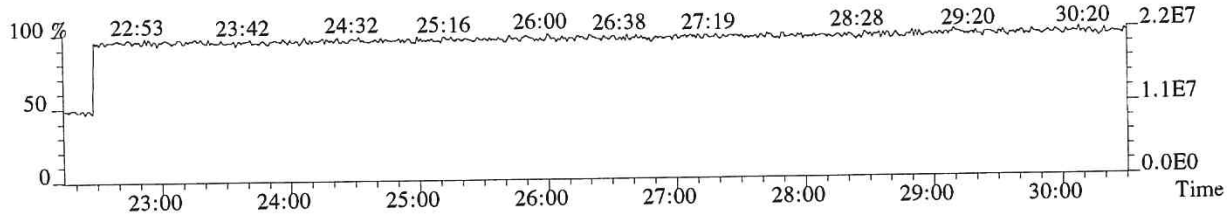
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



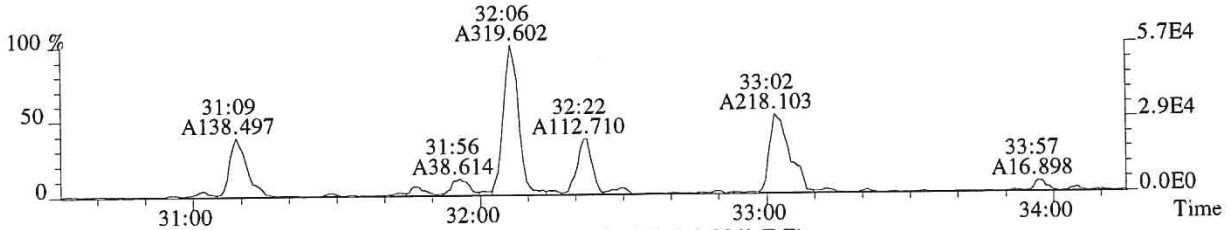
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



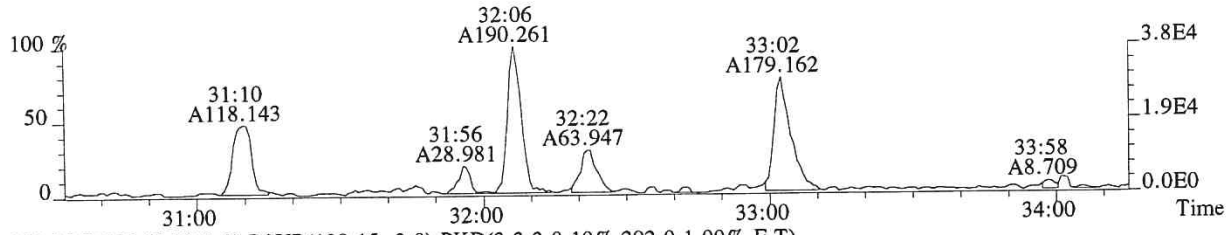
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



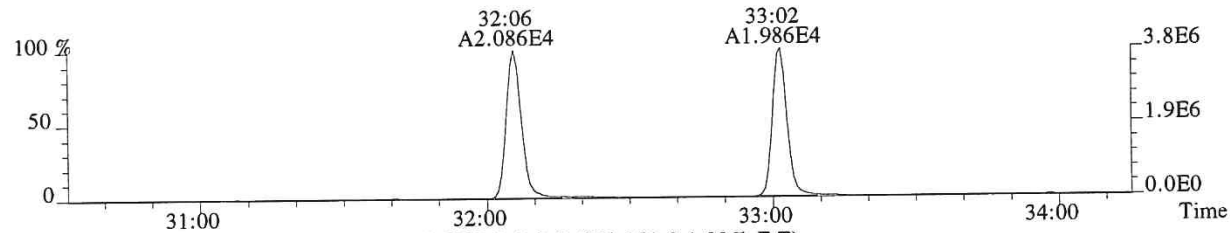
File:P519326 #1-335 Acq:10-DEC-2018 14:27:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



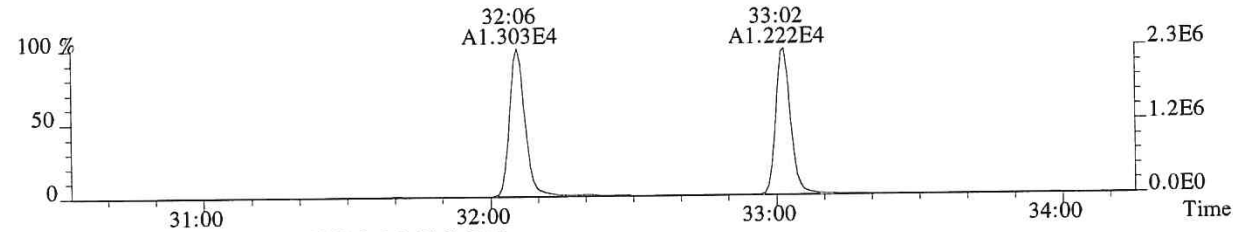
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



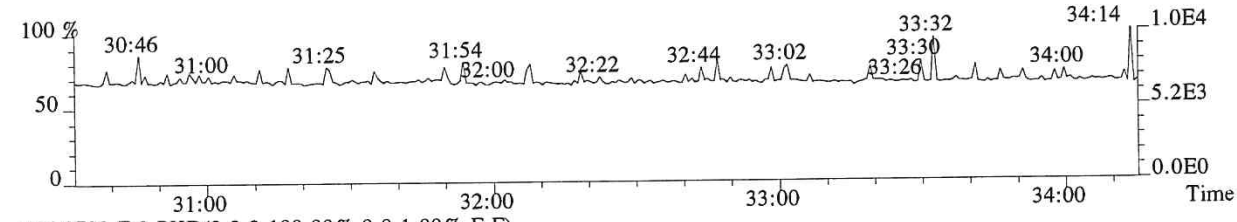
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



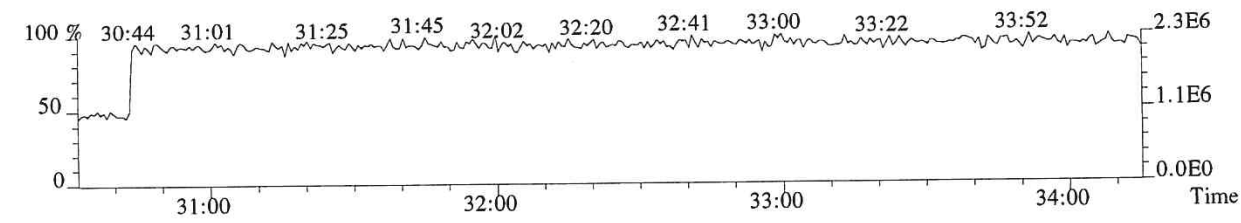
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

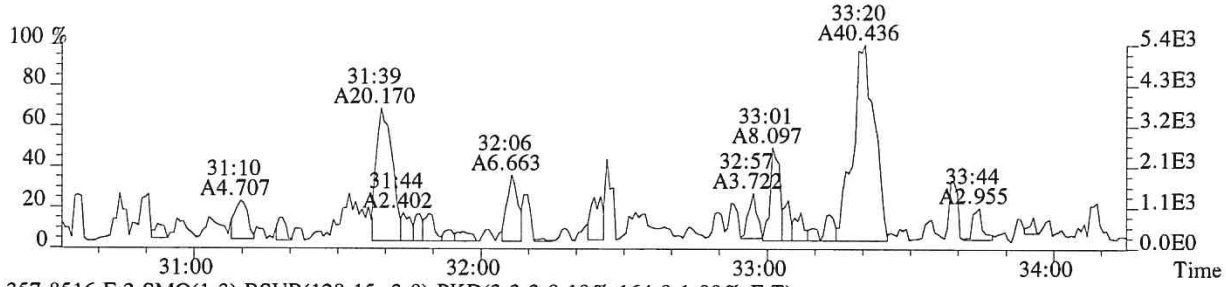


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

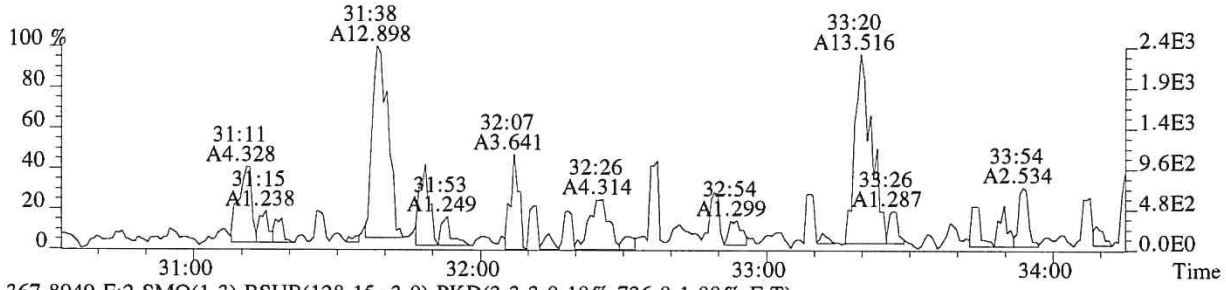


013221

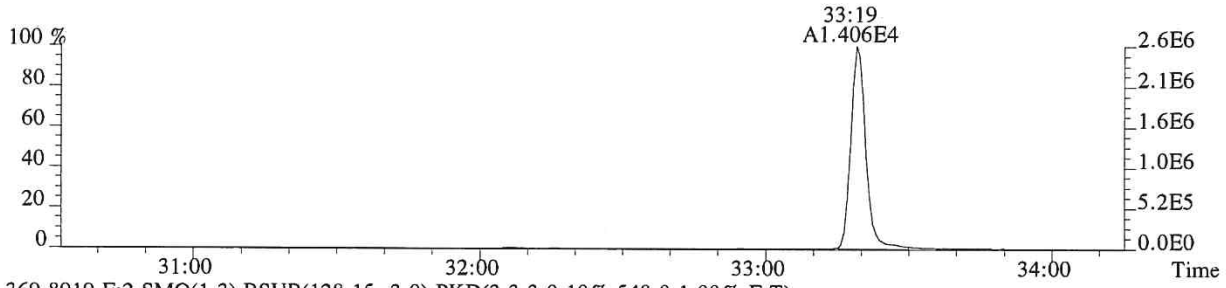
File:P519326 #1-335 Acq:10-DEC-2018 14:27:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



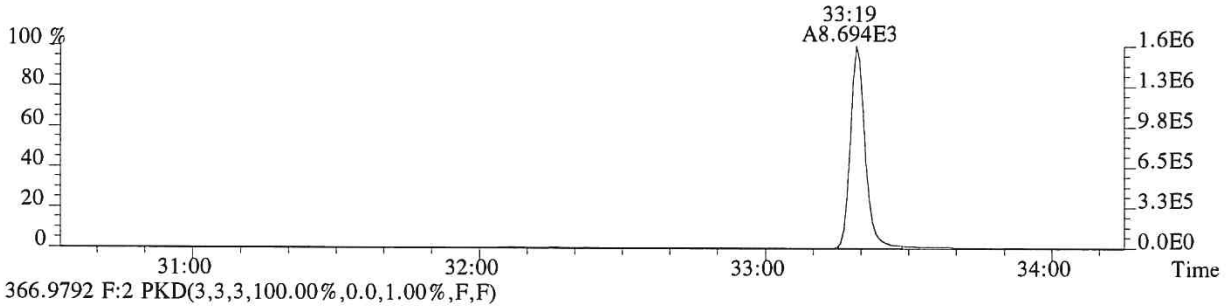
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



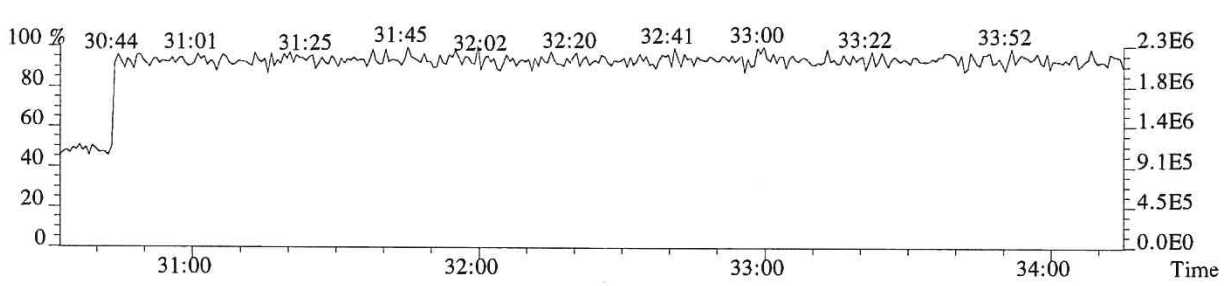
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



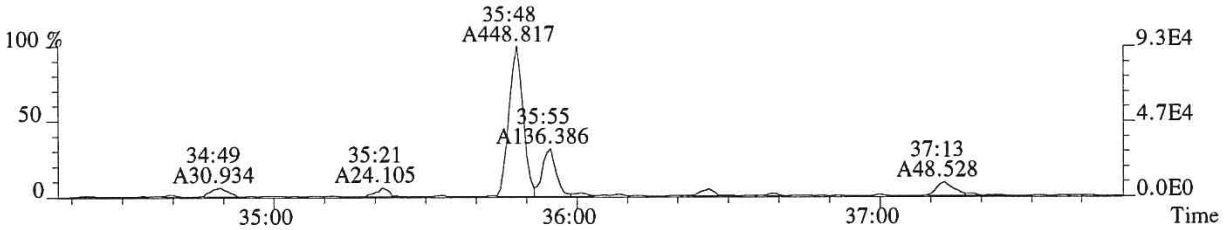
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



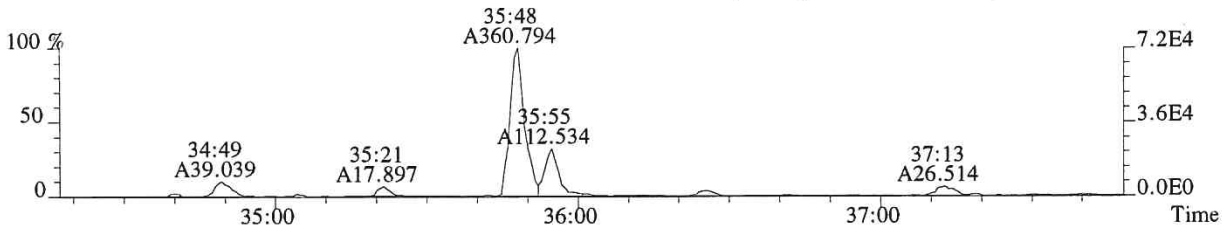
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



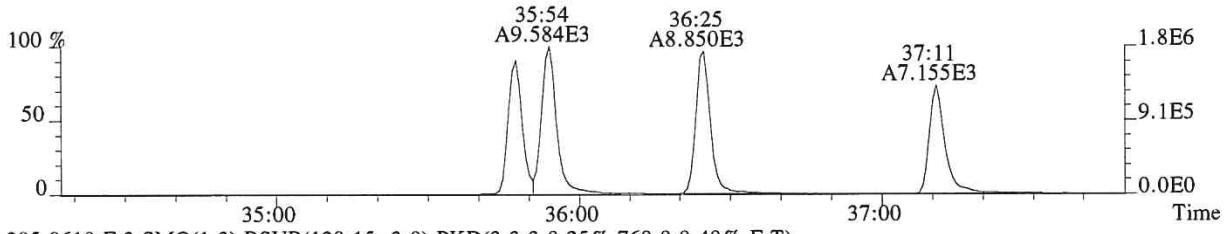
File:P519326 #1-317 Acq:10-DEC-2018 14:27:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



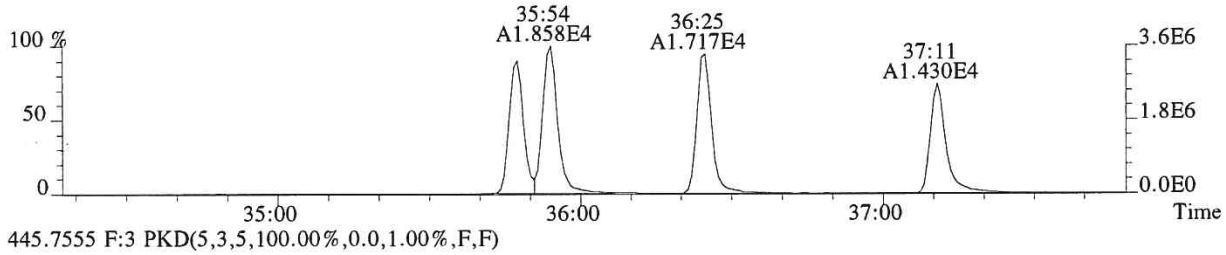
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)



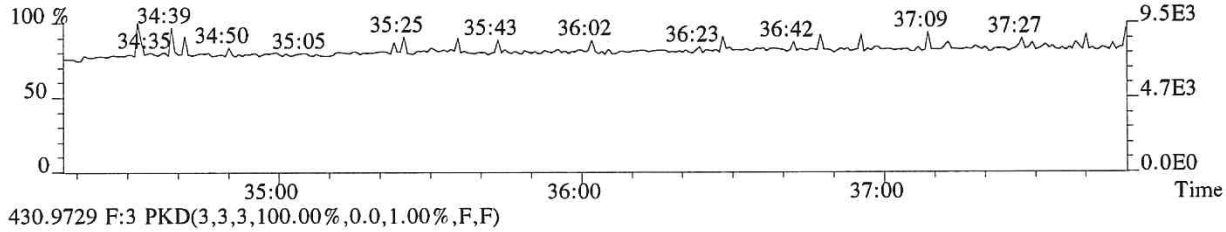
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



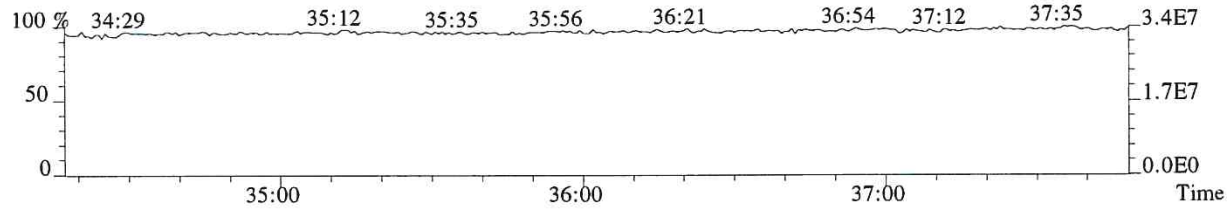
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

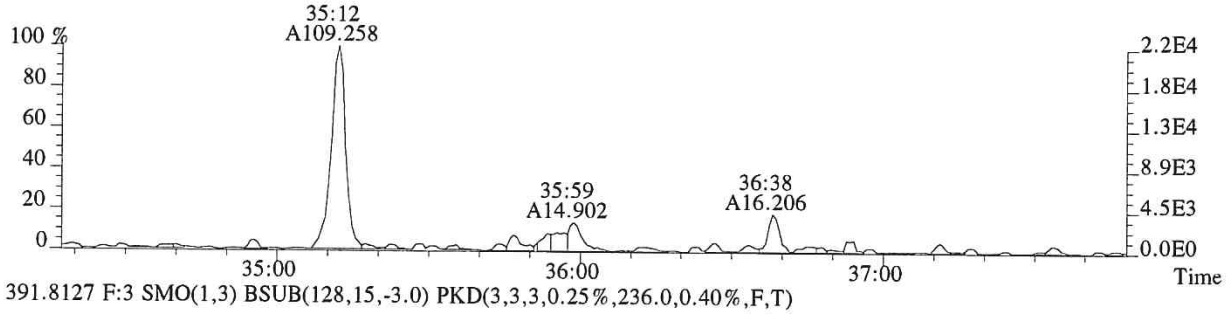


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

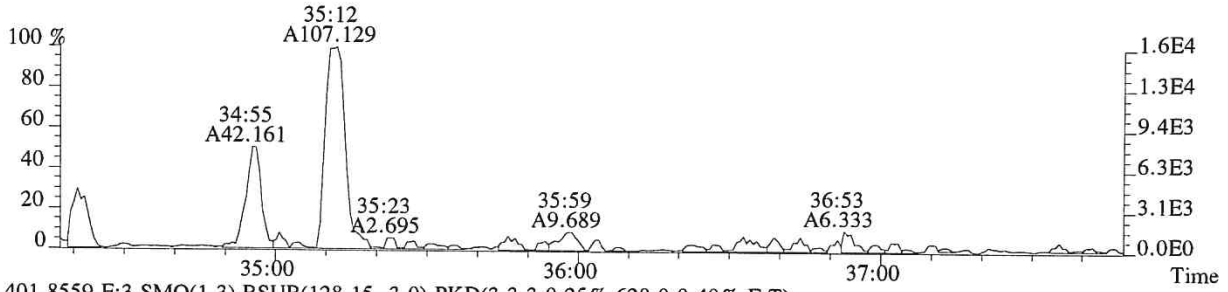


013223

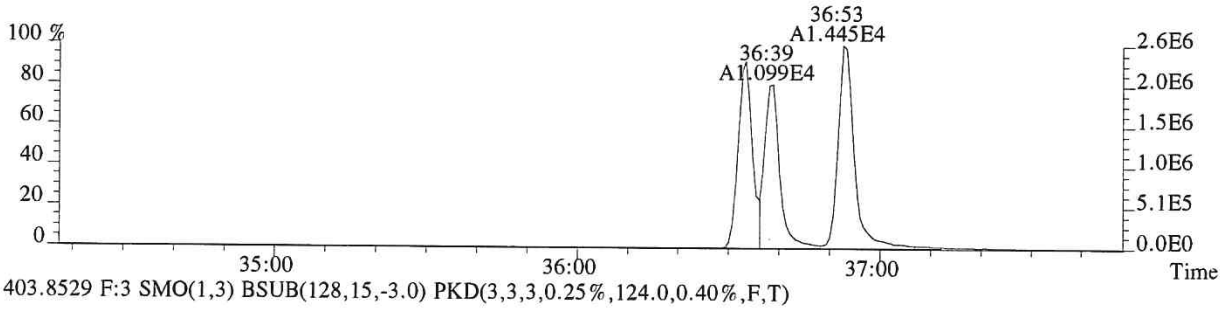
File:P519326 #1-317 Acq:10-DEC-2018 14:27:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



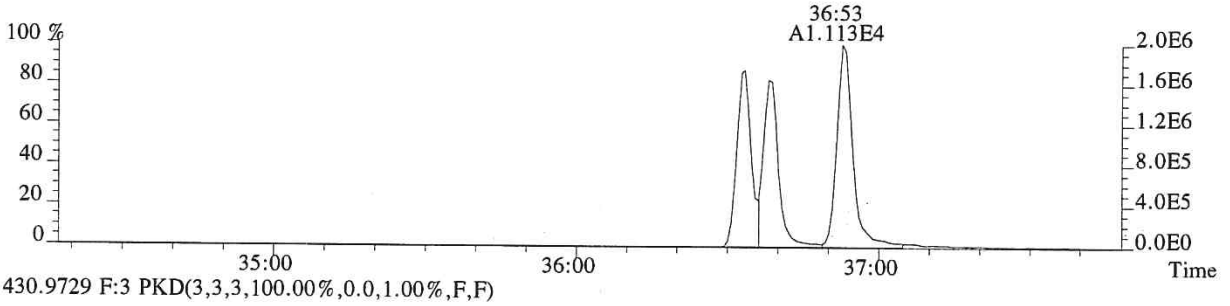
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



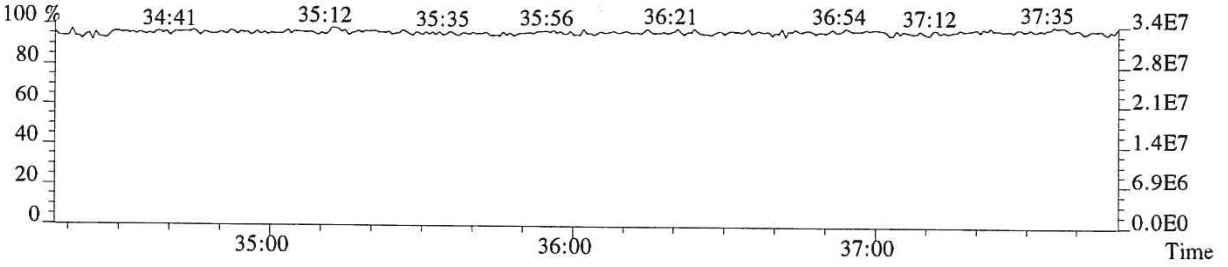
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



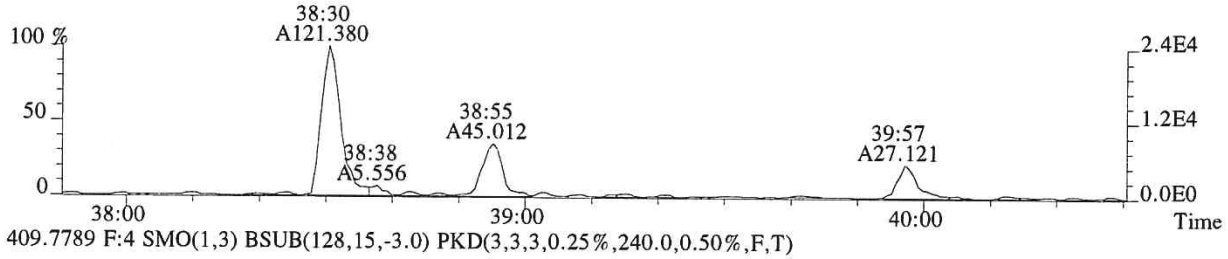
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,124.0,0.40%,F,T)



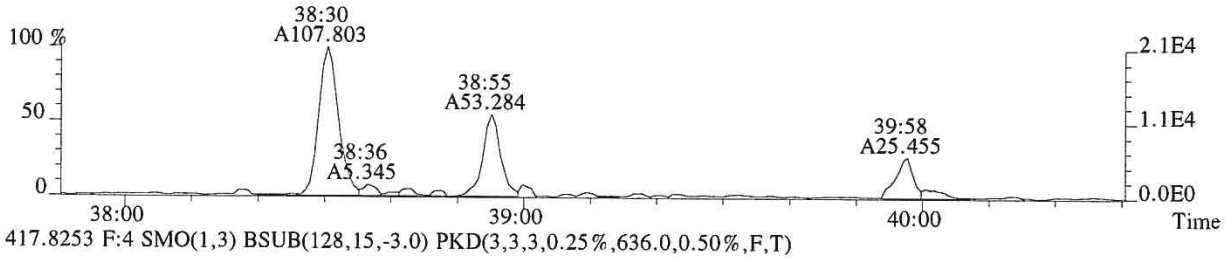
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



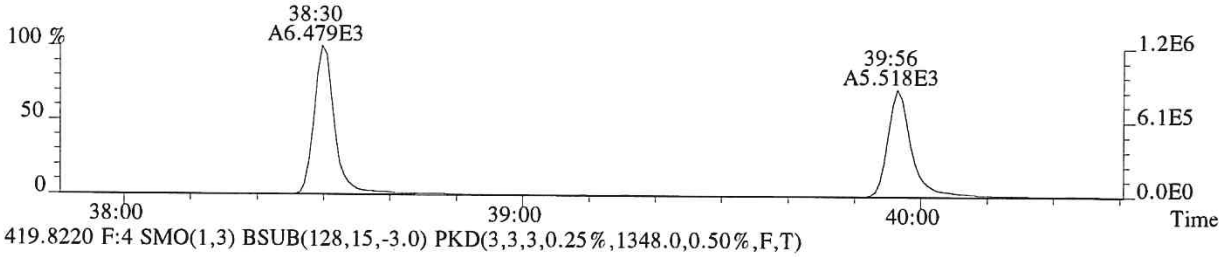
File:P519326 #1-241 Acq:10-DEC-2018 14:27:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.50%,F,T)



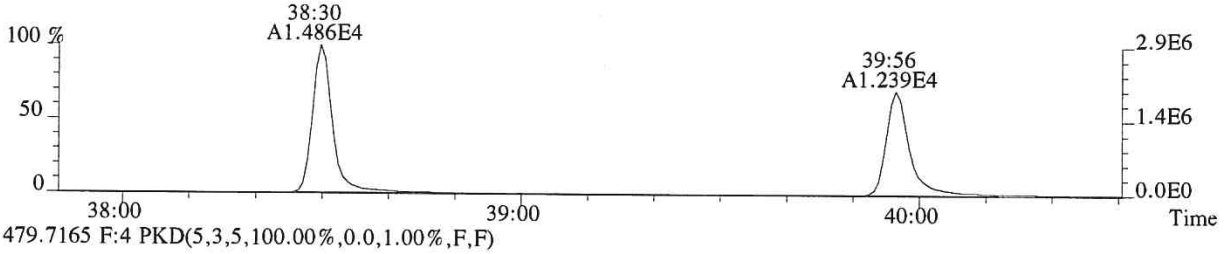
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.50%,F,T)



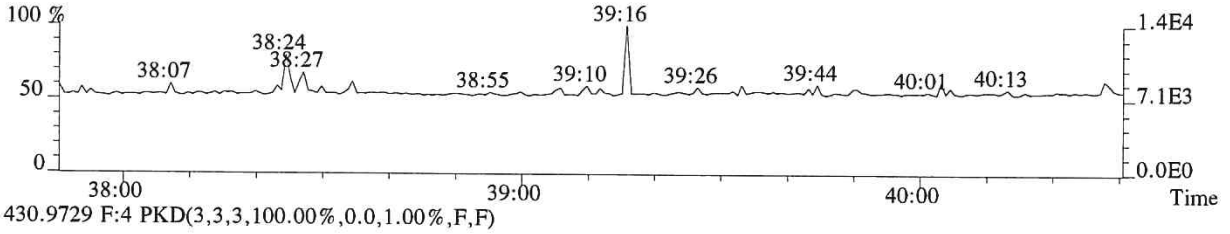
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.50%,F,T)



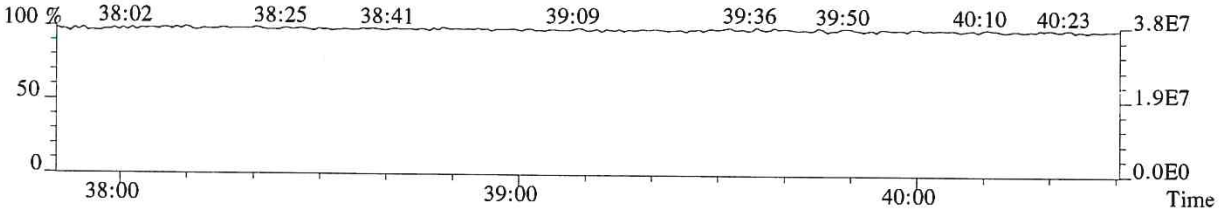
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

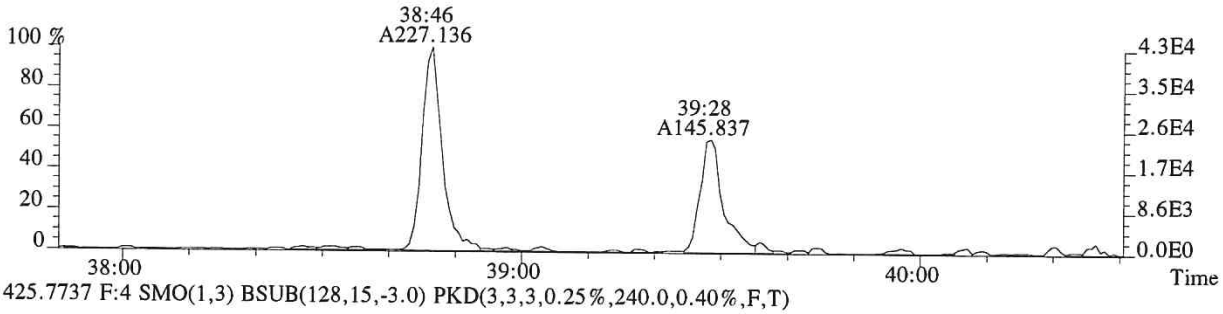


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

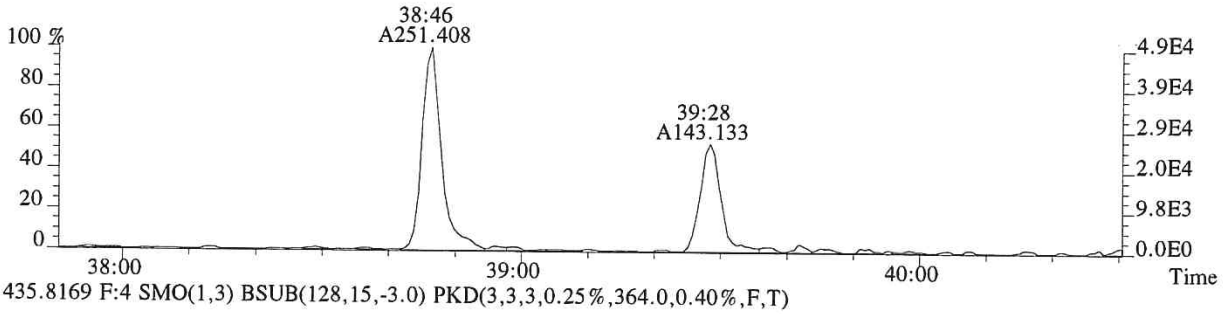


013225

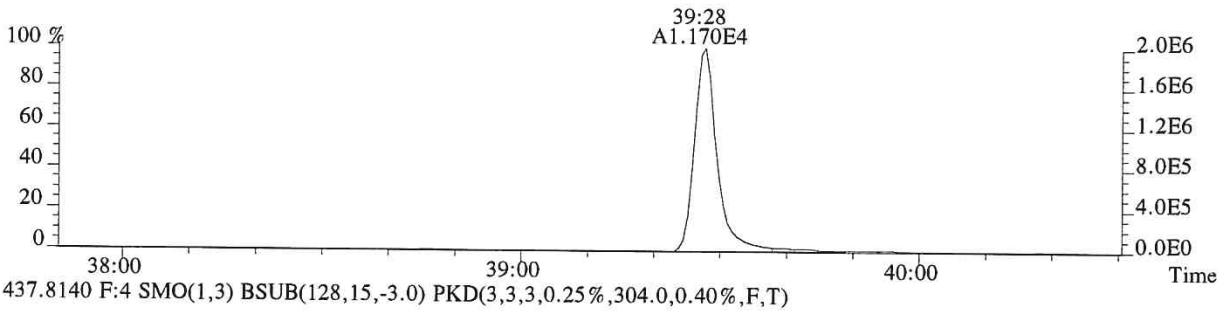
File:P519326 #1-241 Acq:10-DEC-2018 14:27:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



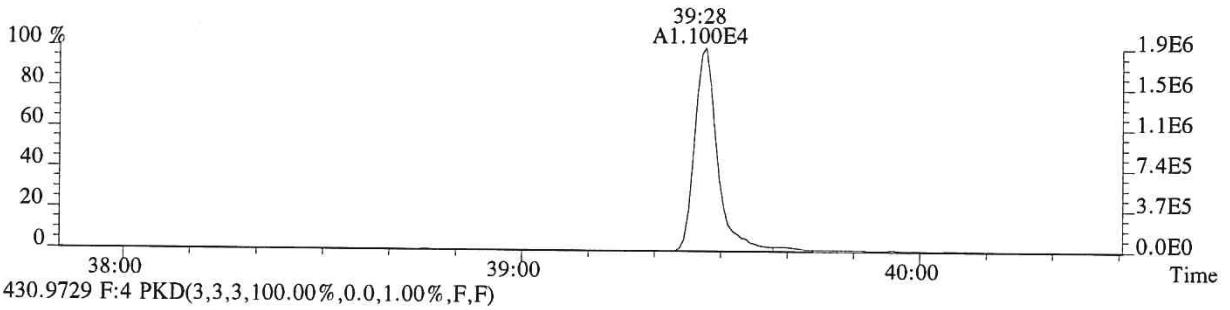
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



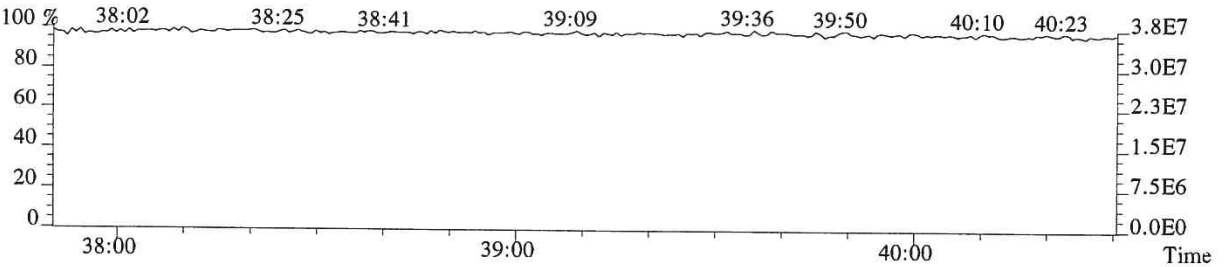
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)

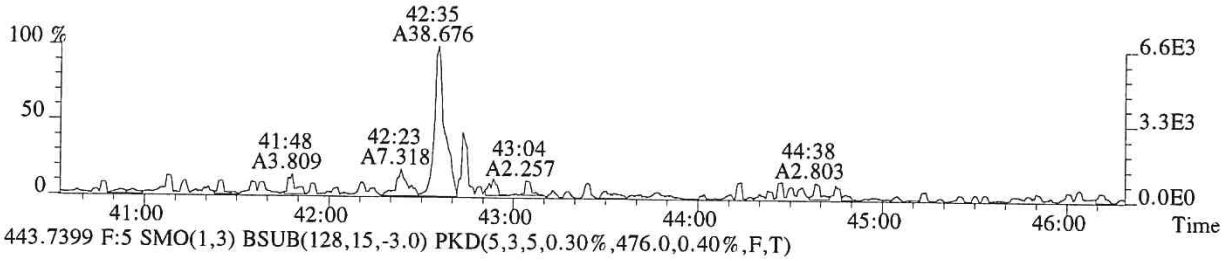


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

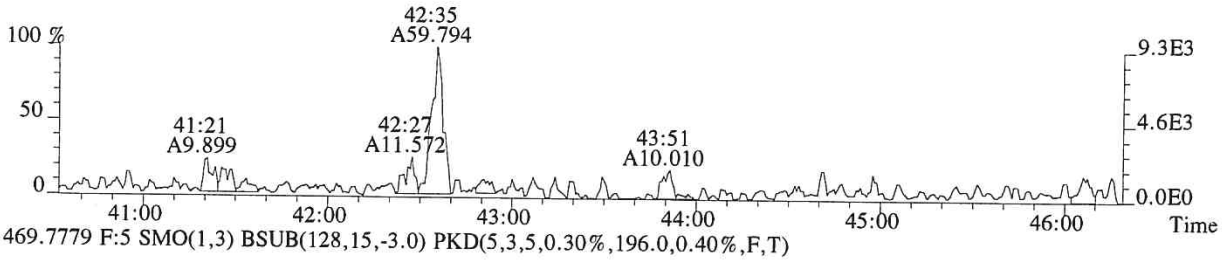


013226

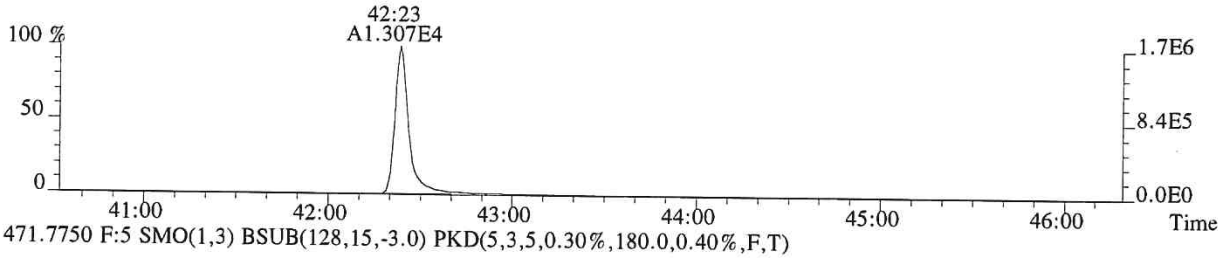
File:P519326 #1-520 Acq:10-DEC-2018 14:27:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



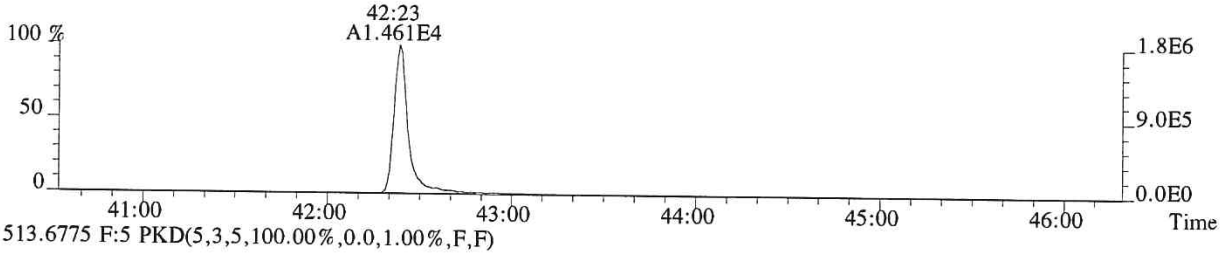
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,476.0,0.40%,F,T)



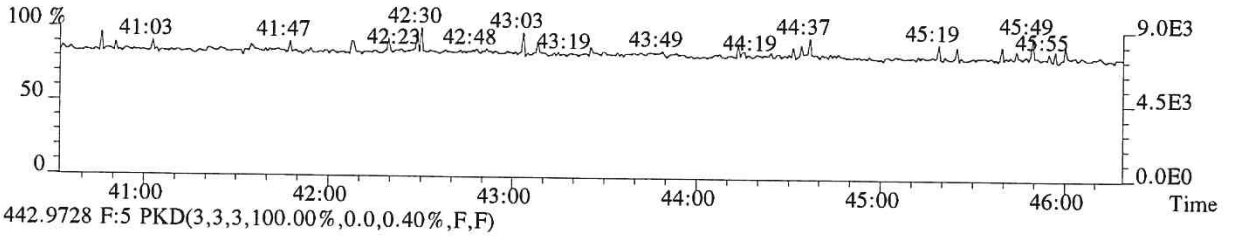
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



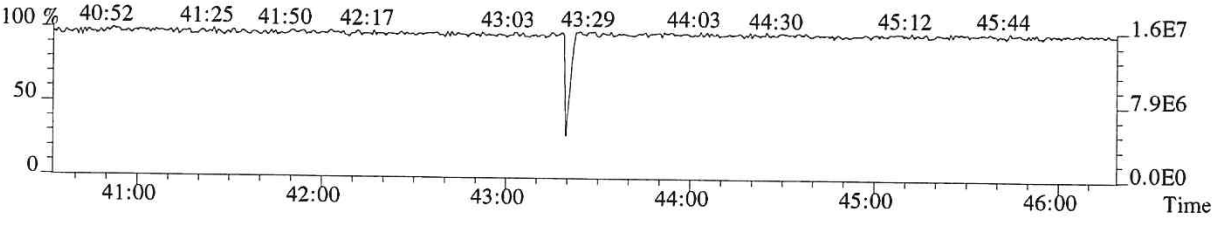
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

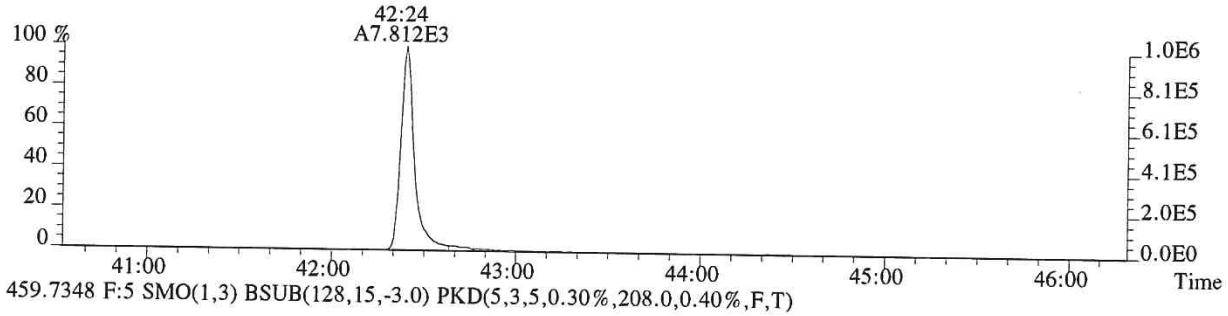


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

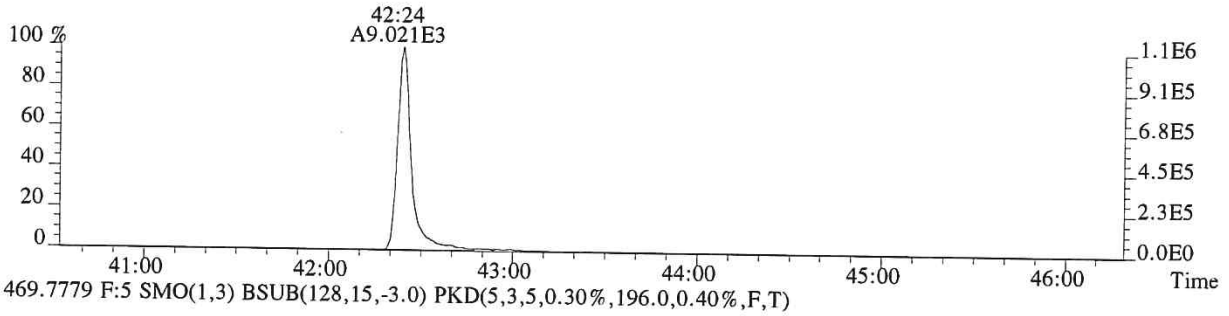


013227

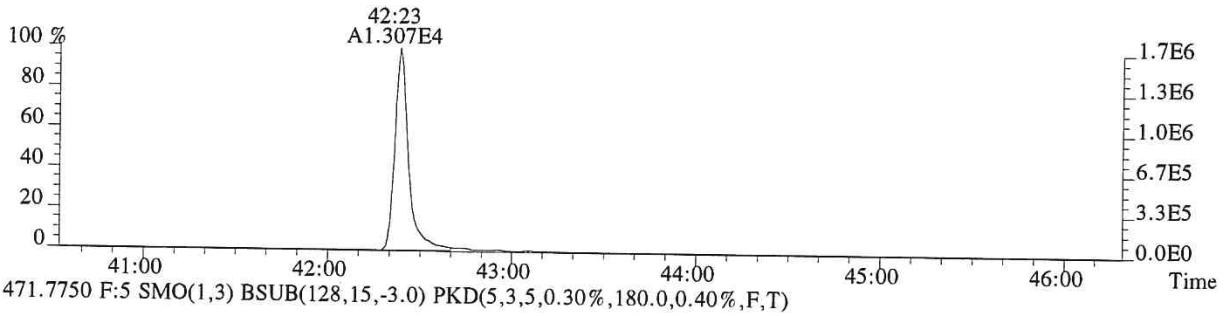
File:P519326 #1-520 Acq:10-DEC-2018 14:27:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-017DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



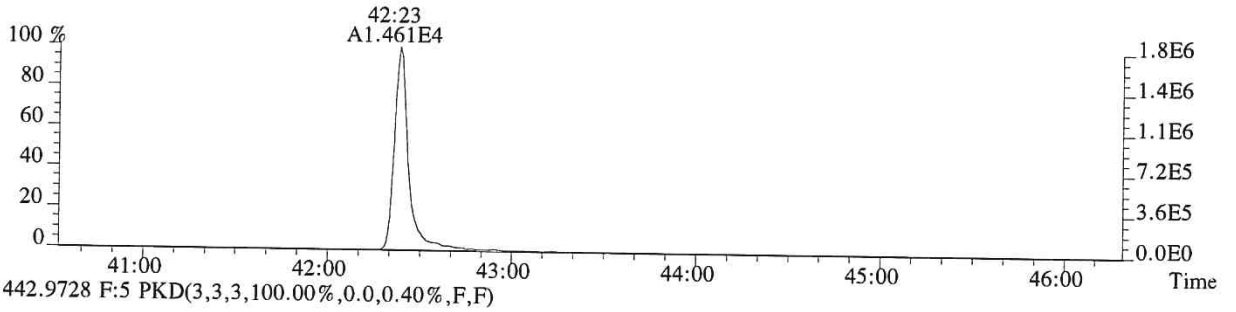
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



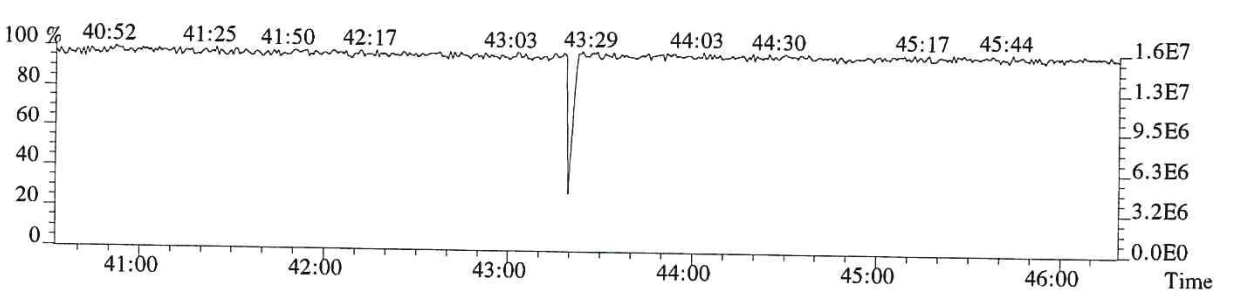
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0250

Run #16 Filename P519264 Samp: 1 Inj: 1 Acquired: 6-DEC-18 23:43:40
Processed: 7-DEC-18 13:10:15 Sample ID: E1801058-018

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	9.935e+04	1.308e+05	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	5.113e+03	3.421e+03	1.49	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:06	3.972e+03	2.605e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	7.828e+03	6.406e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	1.766e+03	1.523e+03	1.16	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:29	3.607e+02	2.703e+02	1.33	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:18	5.710e+02	4.393e+02	1.30	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:35	1.804e+03	1.832e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:02	5.760e+02	5.559e+02	1.04	yes	no	1.258
10	Unk	OCDF	42:43	9.056e+02	1.082e+03	0.84	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	2.614e+04	3.302e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	4.064e+02	2.477e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	4.170e+01	4.298e+01	0.97	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	1.174e+02	7.675e+01	1.53	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:58	7.065e+01	6.505e+01	1.09	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	3.221e+03	3.215e+03	1.00	yes	no	1.025
17	Unk	OCDD	42:32	1.899e+05	2.119e+05	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.433e+04	1.787e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.243e+04	1.416e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.148e+04	1.353e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:51	8.947e+03	1.742e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:58	1.012e+04	1.986e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	9.658e+03	1.817e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	9.156e+03	1.750e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:34	6.131e+03	1.387e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:01	6.019e+03	1.346e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	6.327e+03	7.813e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.601e+04	9.815e+03	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	1.297e+04	1.025e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	1.176e+04	9.268e+03	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:32	1.290e+04	1.213e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.270e+04	1.400e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	1.992e+04	2.528e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	2.859e+04	2.247e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	8.719e+03				no	1.014

$$\text{OCDD} = \frac{(1.899e+05 + 2.119e+05) \times 4000\ \text{pg} \times 1}{(1.270e+04 + 1.400e+04) \times 10.538\ \text{g} \times 77.6/100 \times 1.118} = 6584\ \text{ng/kg}$$

LM 12/10/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0250

Run #16 Filename P519264 Samp: 1 Inj: 1 Acquired: 6-DEC-18 23:43:40
Processed: 7-DEC-18 13:10:15 LAB. ID: E1801058-018

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.75e+07	2.68e+02	6.5e+04	2.28e+07	7.88e+02	2.9e+04
2	1,2,3,7,8-PeCDF	1.07e+06	1.78e+03	6.0e+02	6.93e+05	8.96e+02	7.7e+02
3	2,3,4,7,8-PeCDF	6.51e+05	1.78e+03	3.6e+02	4.35e+05	8.96e+02	4.9e+02
4	1,2,3,4,7,8-HxCDF	1.68e+06	6.76e+02	2.5e+03	1.40e+06	7.40e+02	1.9e+03
5	1,2,3,6,7,8-HxCDF	3.87e+05	6.76e+02	5.7e+02	3.21e+05	7.40e+02	4.3e+02
6	2,3,4,6,7,8-HxCDF	7.76e+04	6.76e+02	1.1e+02	6.01e+04	7.40e+02	8.1e+01
7	1,2,3,7,8,9-HxCDF	1.06e+05	6.76e+02	1.6e+02	7.93e+04	7.40e+02	1.1e+02
8	1,2,3,4,6,7,8-HpCDF	3.85e+05	1.15e+03	3.4e+02	3.89e+05	3.04e+02	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	1.11e+05	1.15e+03	9.7e+01	1.03e+05	3.04e+02	3.4e+02
10	OCDF	1.32e+05	2.60e+02	5.1e+02	1.58e+05	7.76e+02	2.0e+02
11	2,3,7,8-TCDD	5.19e+06	1.42e+03	3.7e+03	6.52e+06	5.64e+02	1.2e+04
12	1,2,3,7,8-PeCDD	6.84e+04	5.00e+02	1.4e+02	4.71e+04	4.28e+02	1.1e+02
13	1,2,3,4,7,8-HxCDD	8.04e+03	3.32e+02	2.4e+01	1.03e+04	9.28e+02	1.1e+01
14	1,2,3,6,7,8-HxCDD	2.52e+04	3.32e+02	7.6e+01	1.70e+04	9.28e+02	1.8e+01
15	1,2,3,7,8,9-HxCDD	1.68e+04	3.32e+02	5.1e+01	1.39e+04	9.28e+02	1.5e+01
16	1,2,3,4,6,7,8-HpCDD	6.03e+05	1.27e+03	4.8e+02	6.24e+05	1.15e+03	5.4e+02
17	OCDD	2.79e+07	2.44e+02	1.1e+05	3.11e+07	2.88e+02	1.1e+05
18	13C-2,3,7,8-TCDF	2.67e+06	4.80e+03	5.6e+02	3.32e+06	3.36e+03	9.9e+02
19	13C-1,2,3,7,8-PeCDF	4.43e+06	5.20e+02	8.5e+03	2.75e+06	5.04e+02	5.5e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+06	5.20e+02	8.1e+03	2.64e+06	5.04e+02	5.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.91e+06	7.80e+02	2.4e+03	3.69e+06	8.00e+02	4.6e+03
22	13C-1,2,3,6,7,8-HxCDF	2.28e+06	7.80e+02	2.9e+03	4.45e+06	8.00e+02	5.6e+03
23	13C-2,3,4,6,7,8-HxCDF	2.21e+06	7.80e+02	2.8e+03	4.23e+06	8.00e+02	5.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.86e+06	7.80e+02	2.4e+03	3.53e+06	8.00e+02	4.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.39e+06	7.64e+02	1.8e+03	3.09e+06	8.80e+02	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.09e+06	7.64e+02	1.4e+03	2.54e+06	8.80e+02	2.9e+03
27	13C-2,3,7,8-TCDD	1.24e+06	4.22e+03	2.9e+02	1.51e+06	1.86e+03	8.1e+02
28	13C-1,2,3,7,8-PeCDD	3.18e+06	5.84e+02	5.4e+03	1.92e+06	6.40e+02	3.0e+03
29	13C-1,2,3,4,7,8-HxCDD	2.86e+06	9.68e+02	3.0e+03	2.26e+06	4.32e+02	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.40e+06	9.68e+02	2.5e+03	1.87e+06	4.32e+02	4.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.51e+06	6.44e+02	3.9e+03	2.39e+06	2.16e+02	1.1e+04
32	13C-OCDD	1.85e+06	2.56e+02	7.2e+03	2.04e+06	2.28e+02	9.0e+03
33	13C-1,2,3,4-TCDD	3.65e+06	4.22e+03	8.6e+02	4.64e+06	1.86e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	6.55e+06	9.68e+02	6.8e+03	5.21e+06	4.32e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.69e+06	5.32e+02	3.2e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0250

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P519264 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 23:43:40 Processed: 7-DEC-18 13:10:15

Mass: 303.9020 305.8990 Tot Response: 4.08e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:48	7.72e+02	1.14e+03	0.68	yes	1.91e+03		n	n
2	25:06	4.44e+03	5.63e+03	0.79	yes	1.01e+04		n	n
3	25:31	1.23e+03	1.72e+03	0.71	yes	2.95e+03		n	n
4	25:49	3.53e+03	4.74e+03	0.74	yes	8.27e+03		n	n
5	26:14	7.60e+02	9.69e+02	0.78	yes	1.73e+03		n	n
6	26:27	2.42e+03	3.19e+03	0.76	yes	5.60e+03		n	n
7	26:34	4.55e+03	6.08e+03	0.75	yes	1.06e+04		n	n
8	27:01	4.17e+04	5.58e+04	0.75	yes	9.75e+04		n	n
9	27:17	1.87e+03	2.59e+03	0.72	yes	4.46e+03		n	n
10	27:51	9.94e+04	1.31e+05	0.76	yes	2.30e+05	2,3,7,8-TCDF	n	n
11	28:12	6.91e+03	8.94e+03	0.77	yes	1.59e+04		n	n
12	28:26	1.15e+03	1.53e+03	0.76	yes	2.68e+03		n	n
13	29:44	7.15e+03	9.54e+03	0.75	yes	1.67e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0250

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P519264 Sample:1 Injection:1 Function:1

Acquired: 6-DEC-18 23:43:40 Processed: 7-DEC-18 13:10:15

Mass: 319.8970 321.8940 Tot Response: 6.55e+04 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:43	1.96e+02	0.78	yes	4.47e+02		n	n
2	27:05	5.46e+01	0.73	yes	1.29e+02		n	n
3	28:23	3.30e+02	0.70	yes	8.02e+02		n	n
4	28:40	2.61e+04	0.79	yes	5.92e+04	2,3,7,8-TCDD	n	n
5	28:58	2.23e+03	0.83	yes	4.93e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0250

Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P519264 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 23:43:40 Processed: 7-DEC-18 13:10:15

Mass: 339.8600 341.8570 Tot Response: 2.31e+04 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:06	6.65e+01	4.44e+01	1.50	yes	1.11e+02		n n
2	31:14	2.26e+03	1.57e+03	1.44	yes	3.83e+03		n n
3	31:52	1.20e+02	7.68e+01	1.56	yes	1.97e+02		n n
4	32:00	5.32e+02	3.00e+02	1.77	yes	8.32e+02		n n
5	32:11	5.11e+03	3.42e+03	1.49	yes	8.53e+03	1,2,3,7,8-PeCDF	n n
6	32:26	1.58e+03	1.10e+03	1.44	yes	2.67e+03		n n
7	32:54	1.20e+01	8.46e+00	1.41	yes	2.04e+01		n n
8	33:06	3.97e+03	2.61e+03	1.52	yes	6.58e+03	2,3,4,7,8-PeCDF	n n
9	34:02	1.95e+02	1.38e+02	1.41	yes	3.33e+02		n n

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Peak List Summary

CLIENT ID.
SL0250

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P519264 Sample:1 Injection:1 Function:2

Acquired: 6-DEC-18 23:43:40 Processed: 7-DEC-18 13:10:15

Mass: 355.8550 357.8520 Tot Response: 1.39e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:15	6.86e+01	5.09e+01	1.35	yes	1.19e+02		n	n
2	31:44	1.82e+02	1.27e+02	1.43	yes	3.09e+02		n	n
3	32:11	7.39e+01	4.42e+01	1.67	yes	1.18e+02		n	n
4	32:21	4.30e+01	2.62e+01	1.64	yes	6.92e+01		n	n
5	32:40	2.91e+01	2.12e+01	1.37	yes	5.02e+01		y	n
6	32:59	1.73e+01	1.04e+01	1.66	yes	2.77e+01		n	n
7	33:24	4.06e+02	2.48e+02	1.64	yes	6.54e+02	1,2,3,7,8-PeCDD	n	n
8	33:32	1.18e+01	8.42e+00	1.40	yes	2.02e+01		n	n
9	33:46	1.42e+01	8.78e+00	1.61	yes	2.29e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0250

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P519264 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 23:43:40 Processed: 7-DEC-18 13:10:15

Mass: 373.8210 375.8180 Tot Response: 2.08e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:53	5.35e+02	4.23e+02	1.26	yes	9.58e+02		n	n
2	35:25	3.65e+02	2.83e+02	1.29	yes	6.48e+02		n	n
3	35:52	7.83e+03	6.41e+03	1.22	yes	1.42e+04	1,2,3,4,7,8-HxCDF	n	n
4	35:59	1.77e+03	1.52e+03	1.16	yes	3.29e+03	1,2,3,6,7,8-HxCDF	n	n
5	36:29	3.61e+02	2.70e+02	1.33	yes	6.31e+02	2,3,4,6,7,8-HxCDF	n	n
6	37:18	5.71e+02	4.39e+02	1.30	yes	1.01e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0250

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P519264 Sample:1 Injection:1 Function:3

Acquired: 6-DEC-18 23:43:40 Processed: 7-DEC-18 13:10:15

Mass: 389.8160 391.8130 Tot Response: 2.65e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:15	1.32e+03	1.05e+03	1.26	yes	2.37e+03		n	n
2	35:48	4.62e+01	3.31e+01	1.40	yes	7.93e+01		n	n
3	36:07	2.77e+01	2.51e+01	1.10	yes	5.28e+01		n	n
4	36:49	4.17e+00	3.84e+00	1.09	yes	8.01e+00		n	n
5	36:58	7.06e+01	6.51e+01	1.09	yes	1.36e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0250

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P519264 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 23:43:40 Processed: 7-DEC-18 13:10:15

Mass: 407.7820 409.7790 Tot Response: 6.76e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:35	1.80e+03	1.83e+03	0.98	yes	3.64e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	39:00	9.89e+02	1.00e+03	0.99	yes	1.99e+03		n	n
3	40:02	5.76e+02	5.56e+02	1.04	yes	1.13e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0250

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519264 Sample:1 Injection:1 Function:4

Acquired: 6-DEC-18 23:43:40 Processed: 7-DEC-18 13:10:15

Mass: 423.7770 425.7740 Tot Response: 1.51e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:52	4.41e+03	4.24e+03 1.04	yes	8.65e+03		n	n
2	39:33	3.22e+03	3.21e+03 1.00	yes	6.44e+03	1,2,3,4,6,7,8-HpCDD	n	n

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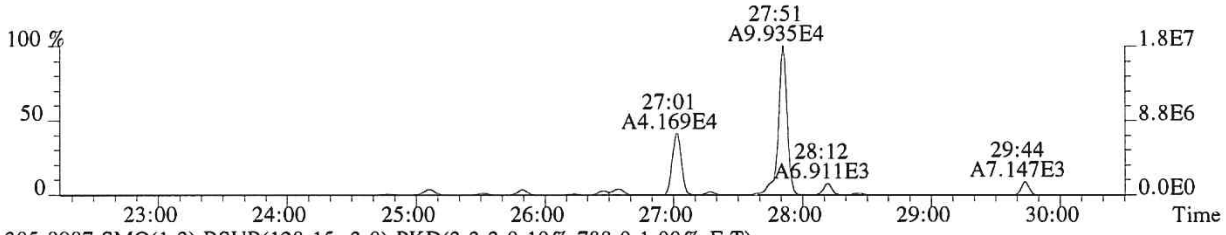
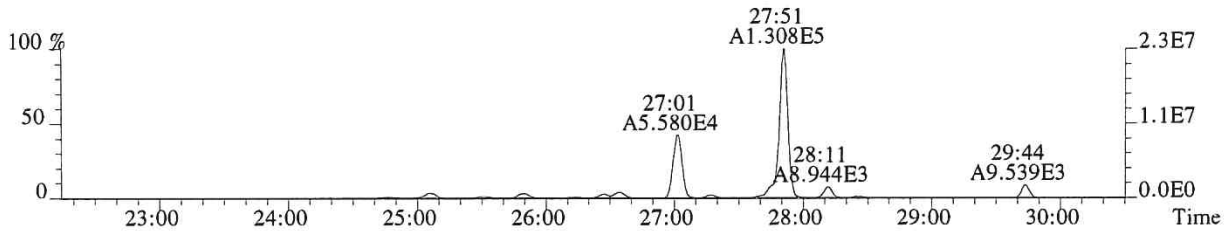
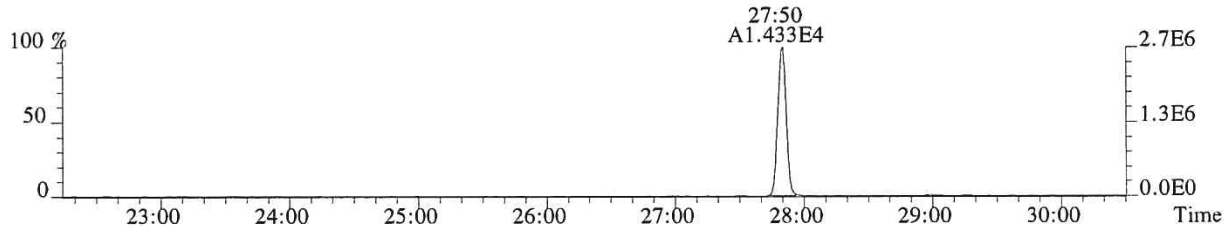
File:P519264 #1-587 Acq: 6-DEC-2018 23:43:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



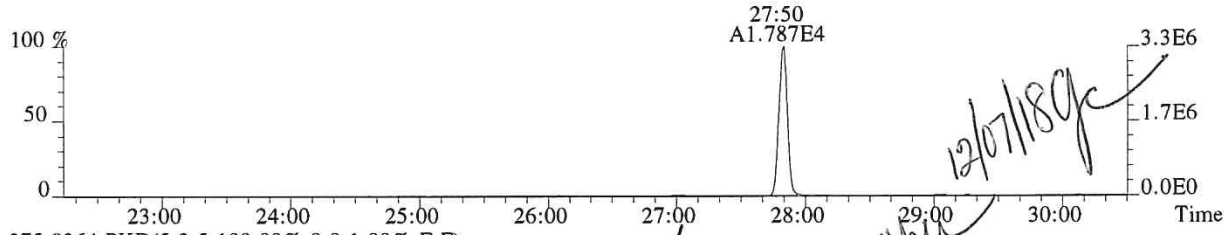
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4800.0,1.00%,F,T)



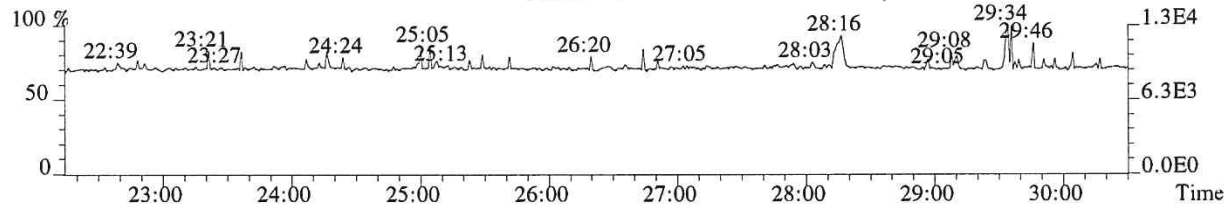
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3364.0,1.00%,F,T)



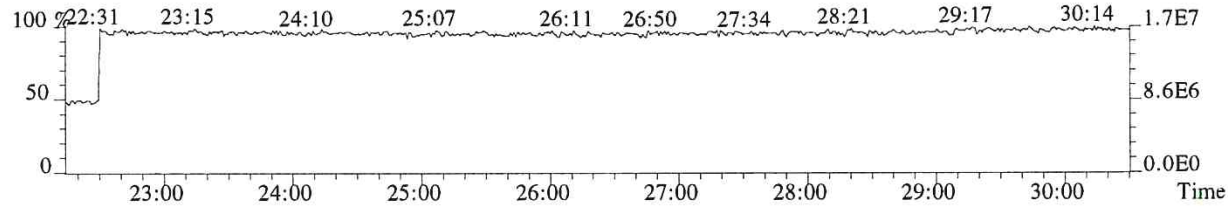
12/07/18

375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

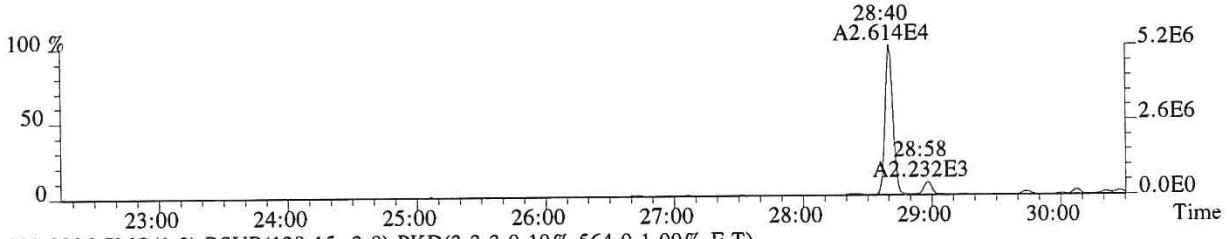
LMC 12/10/18



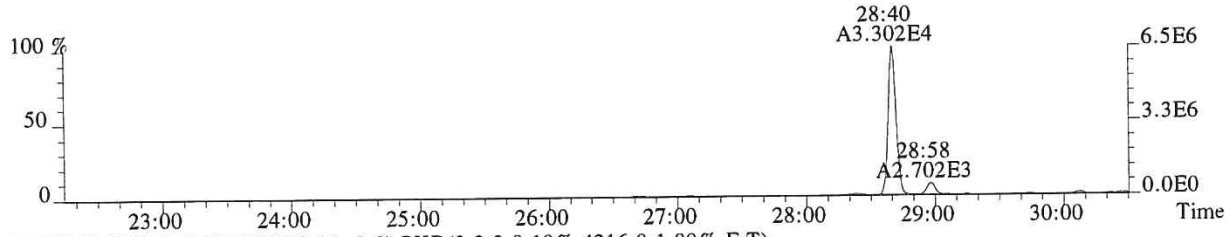
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



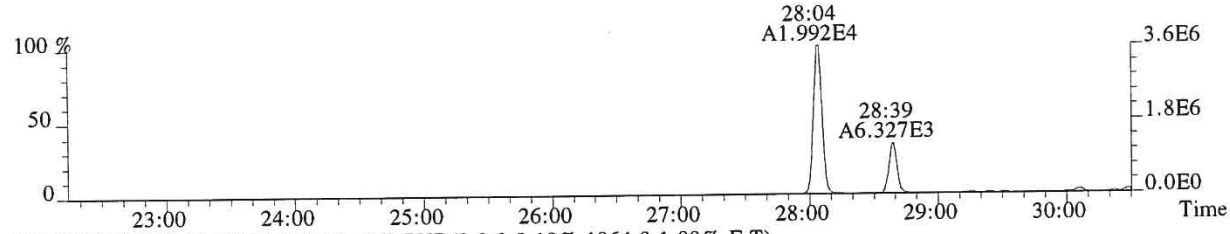
File:P519264 #1-587 Acq: 6-DEC-2018 23:43:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



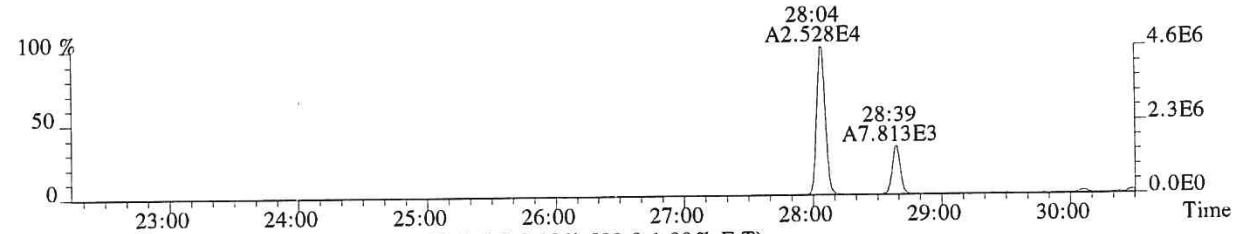
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



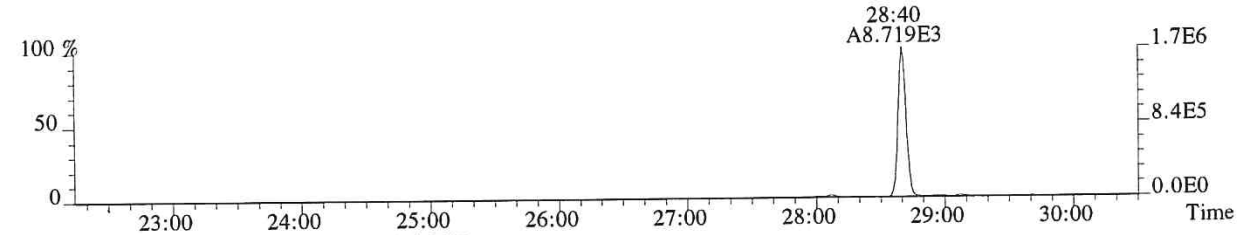
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4216.0,1.00%,F,T)



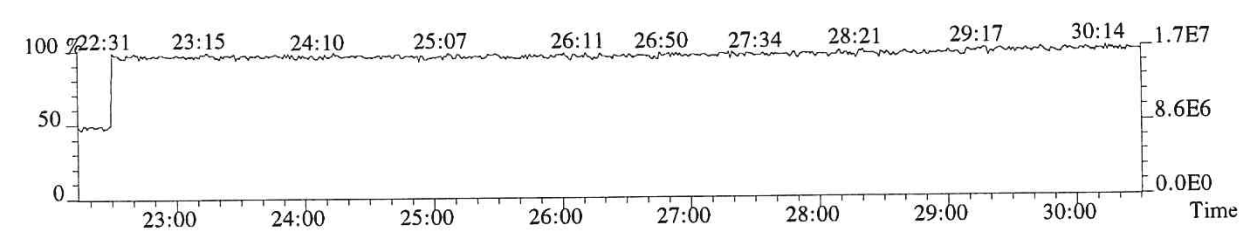
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)

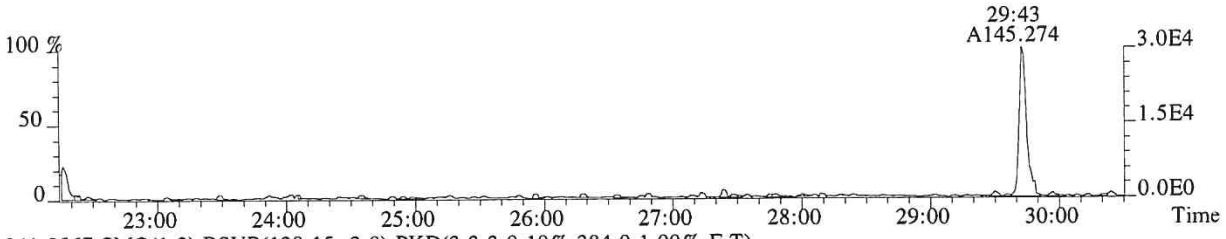


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

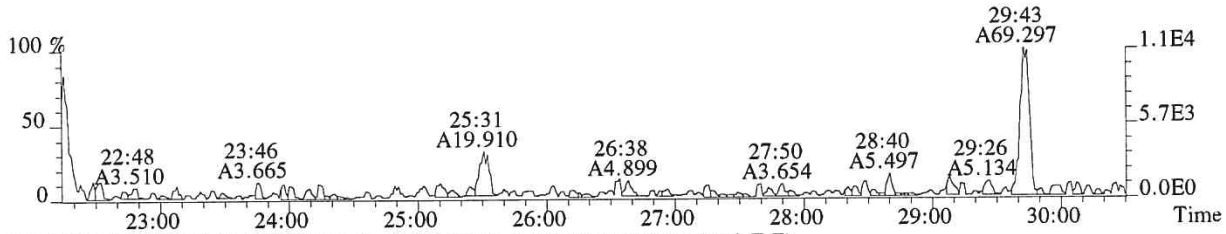


013240

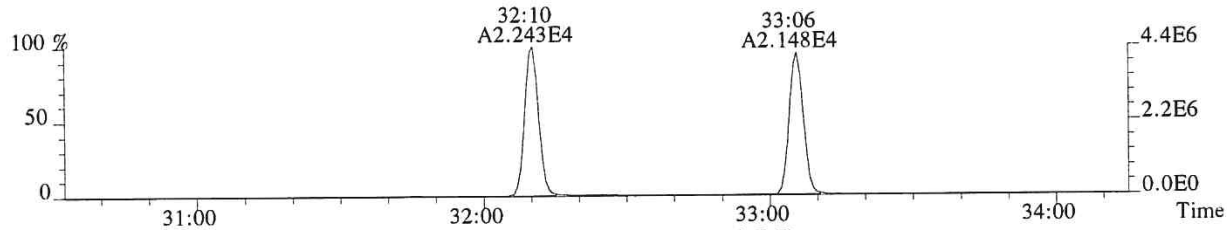
File:P519264 #1-587 Acq: 6-DEC-2018 23:43:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



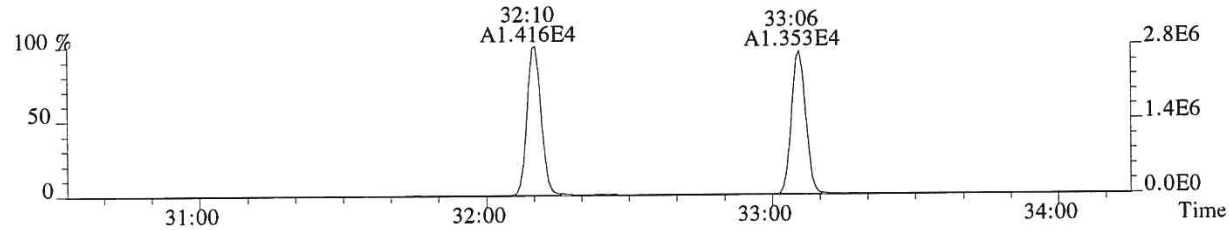
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



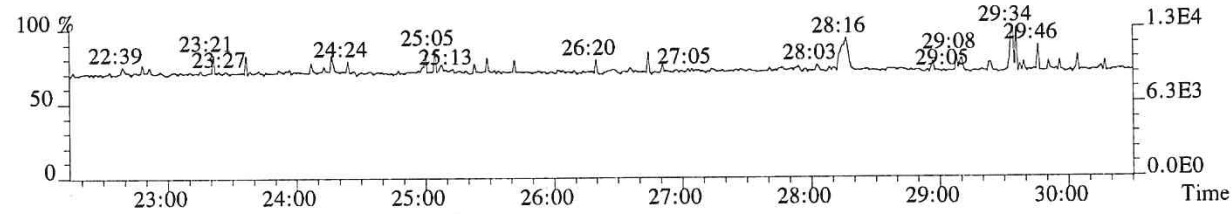
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



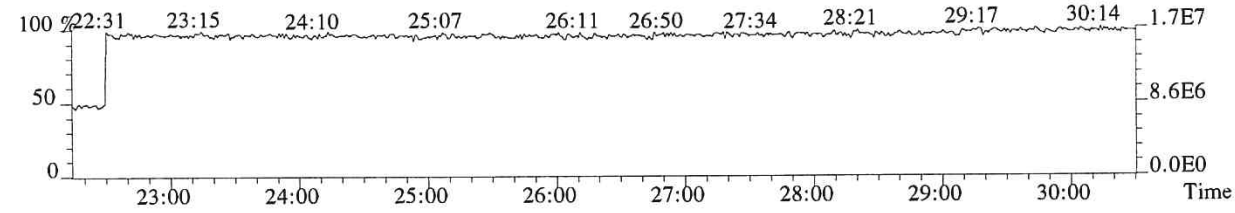
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



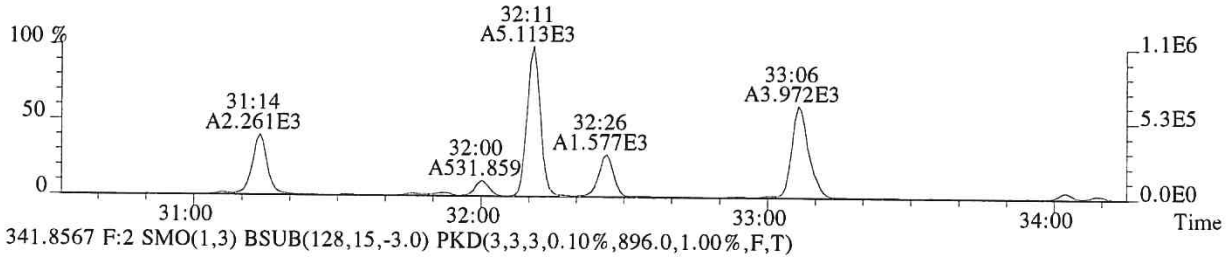
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



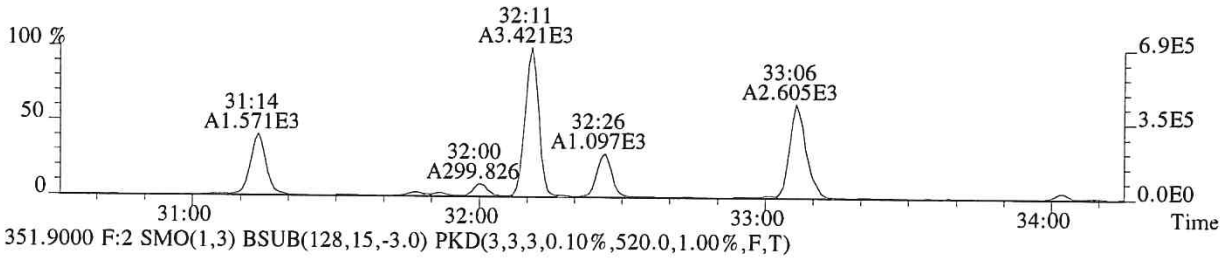
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



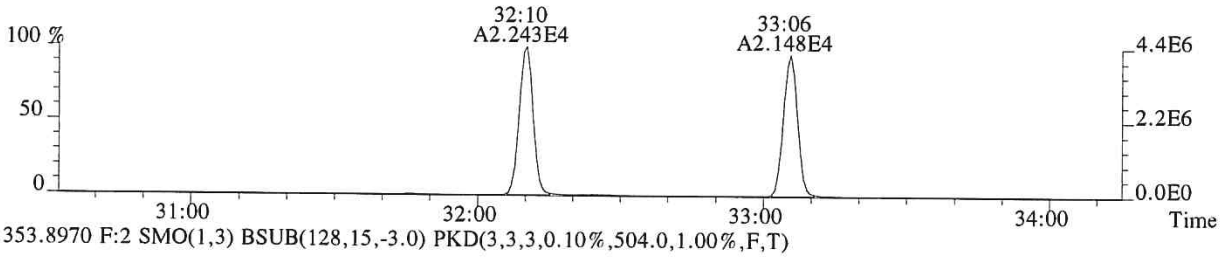
File:P519264 #1-335 Acq: 6-DEC-2018 23:43:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



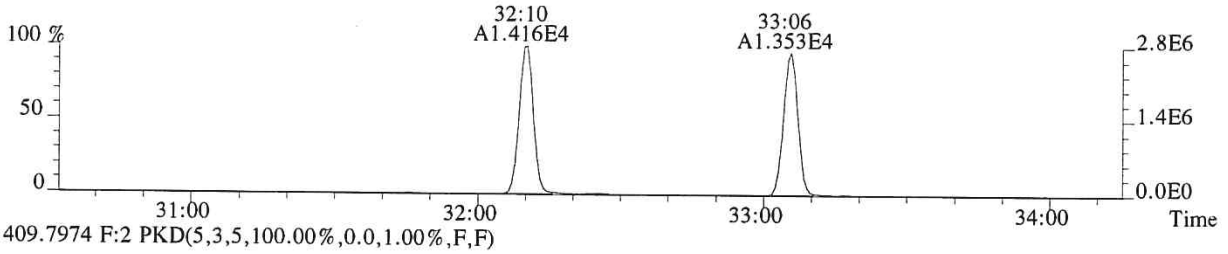
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



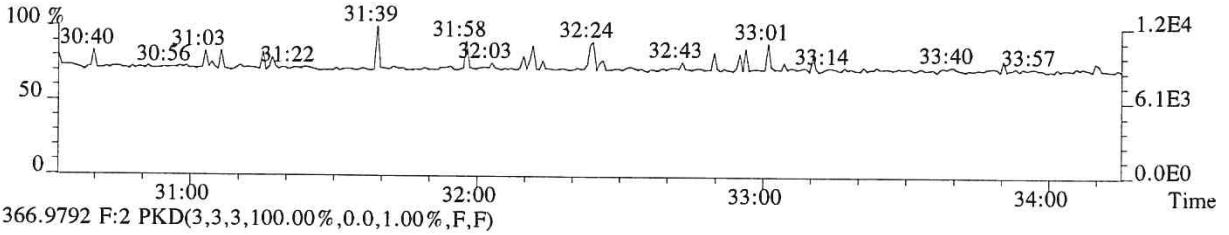
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



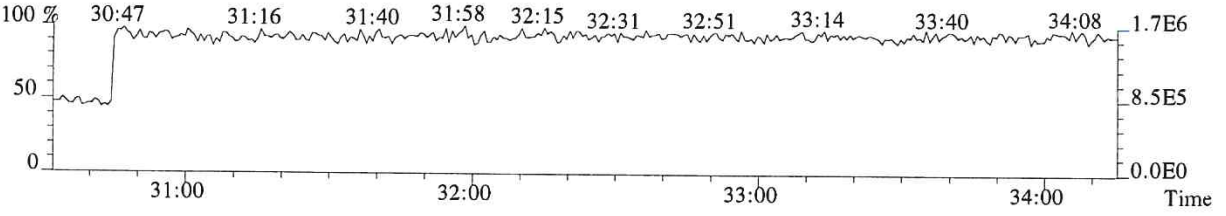
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

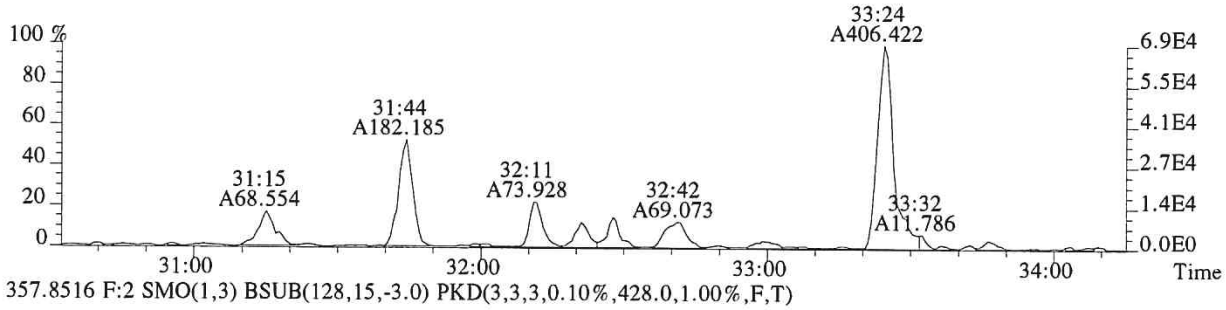


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

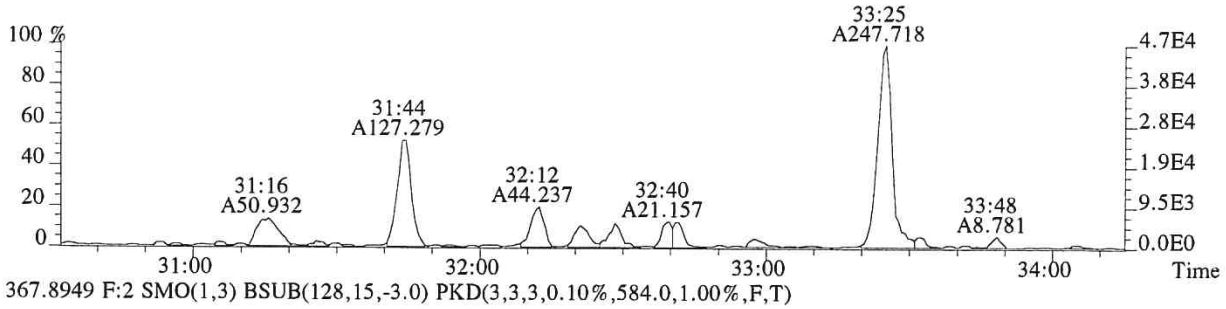


013242

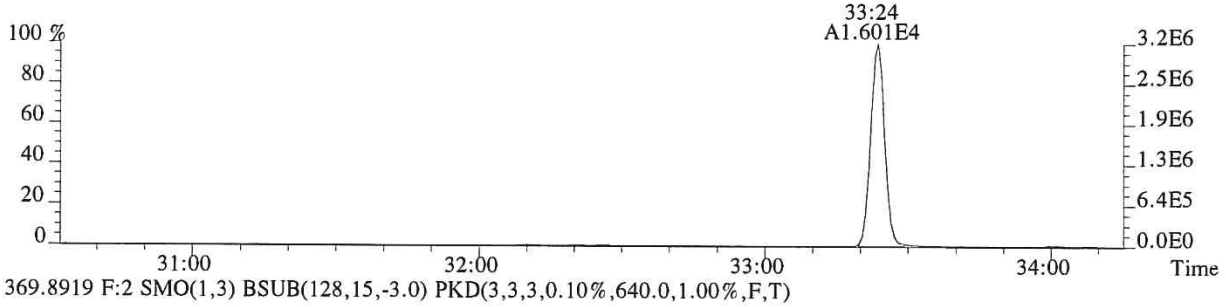
File:P519264 #1-335 Acq: 6-DEC-2018 23:43:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



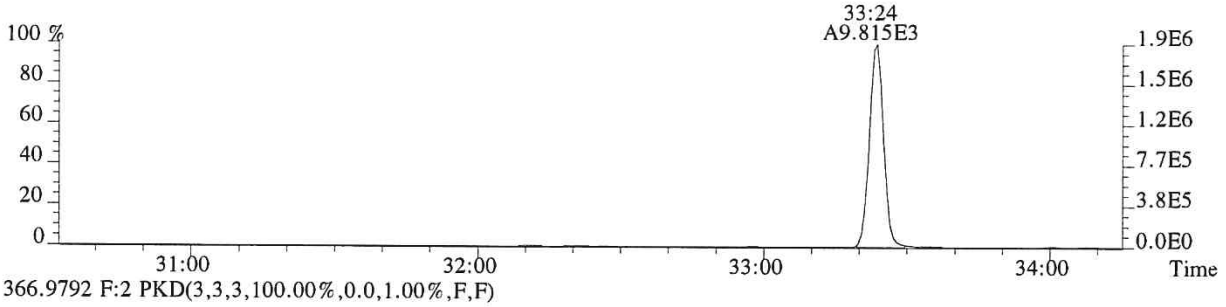
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



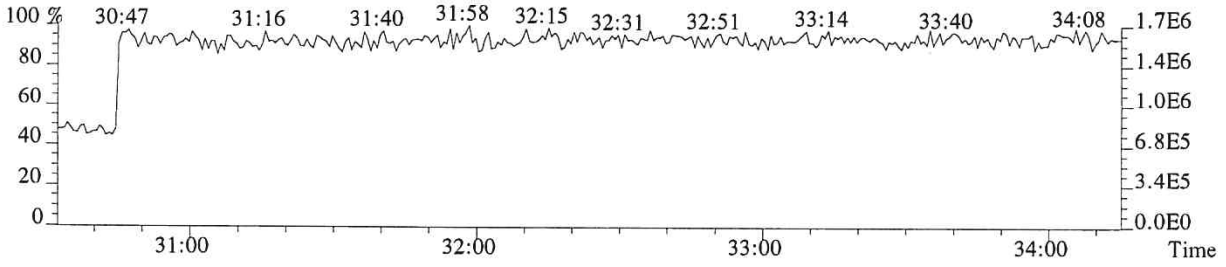
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



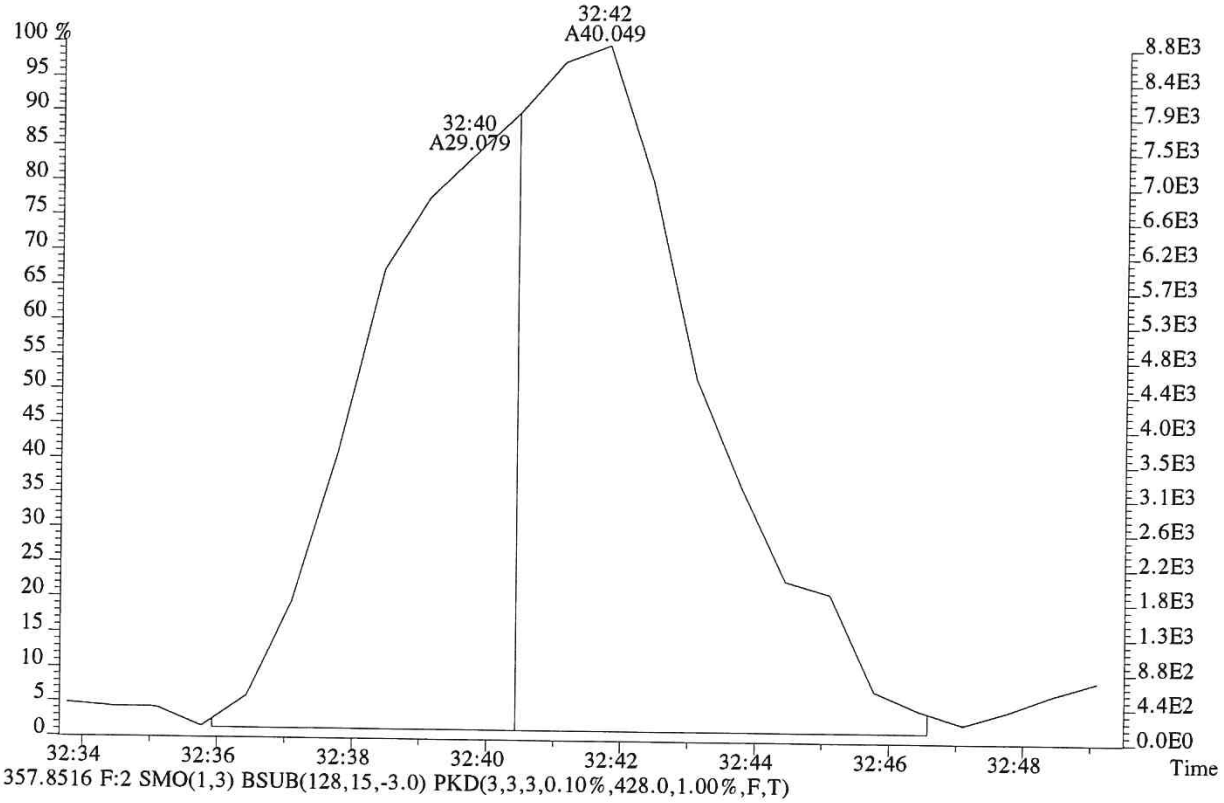
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



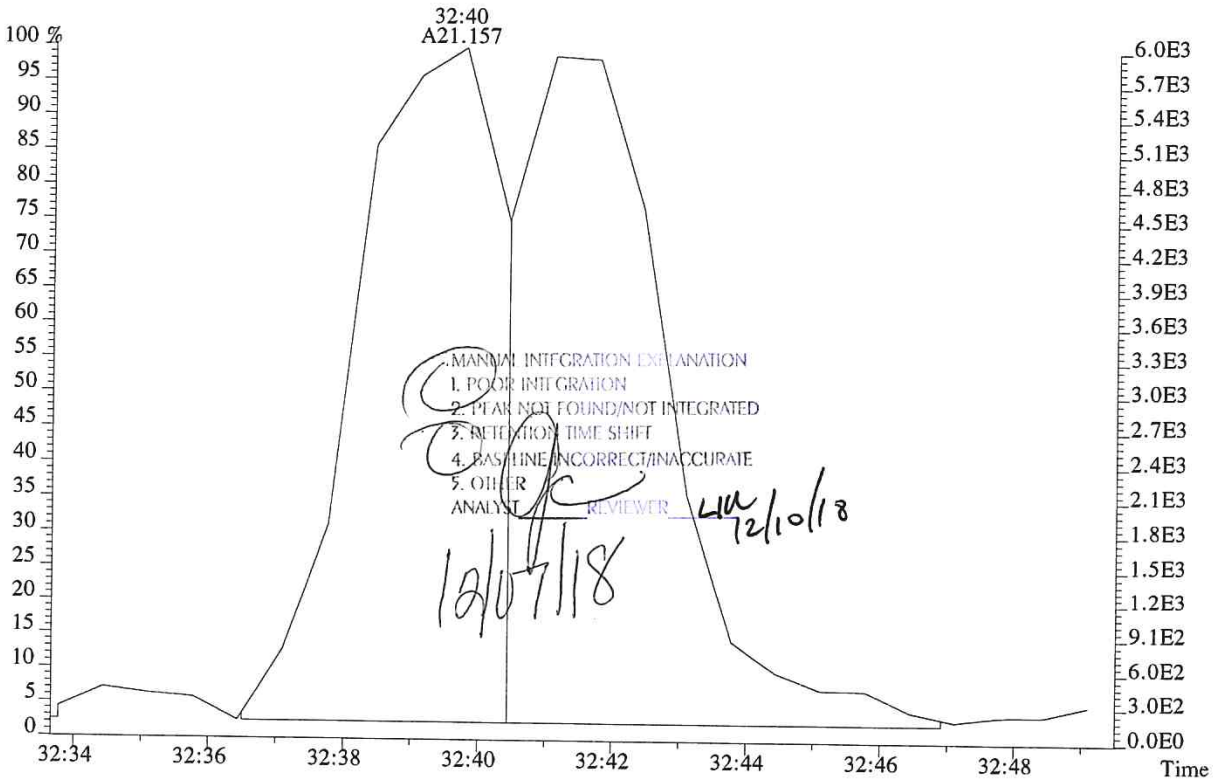
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519264 #1-335 Acq: 6-DEC-2018 23:43:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)

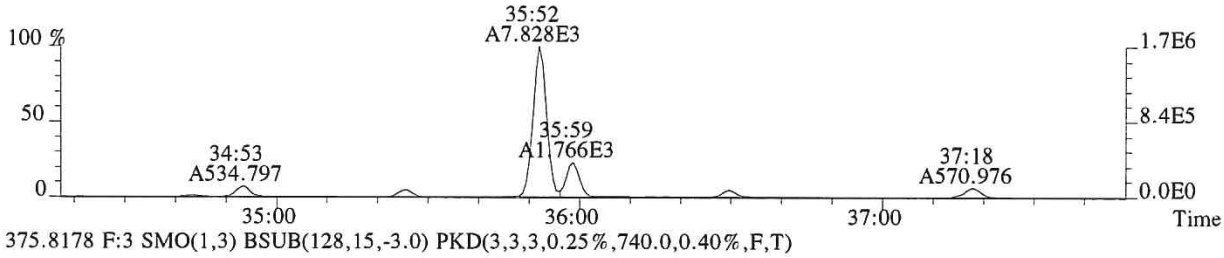


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)

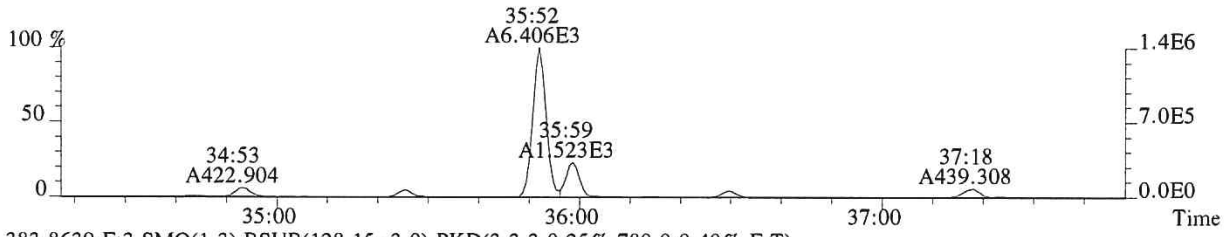


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER 12/10/18
12/7/18

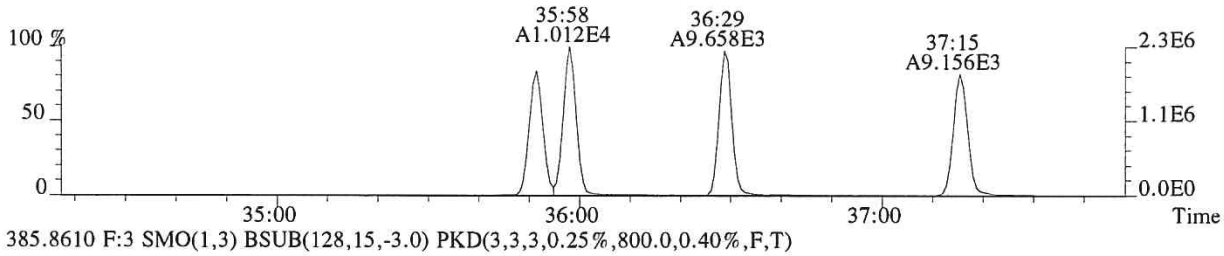
File:P519264 #1-317 Acq: 6-DEC-2018 23:43:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



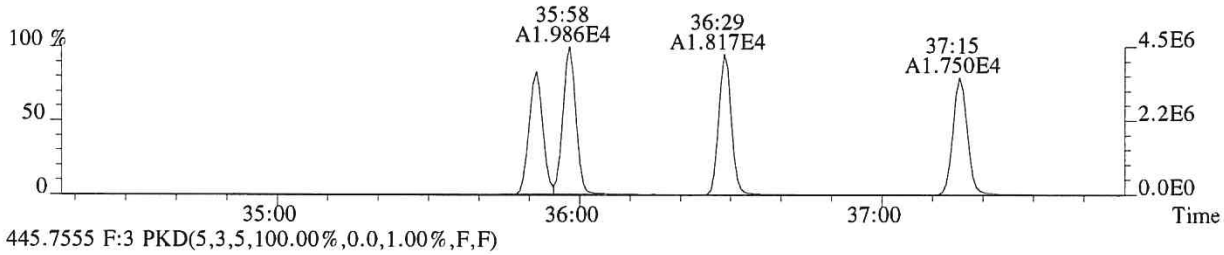
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



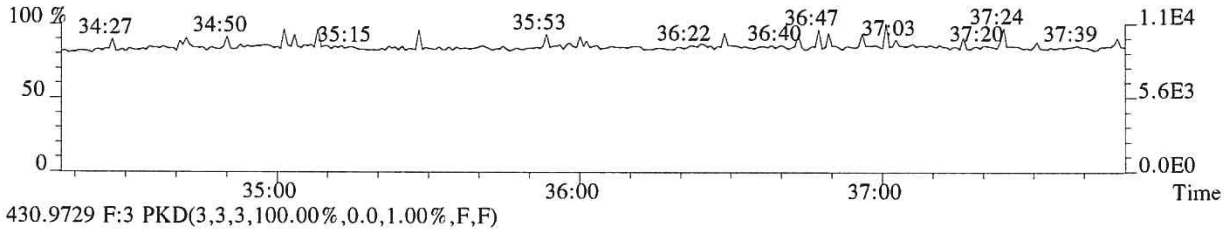
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



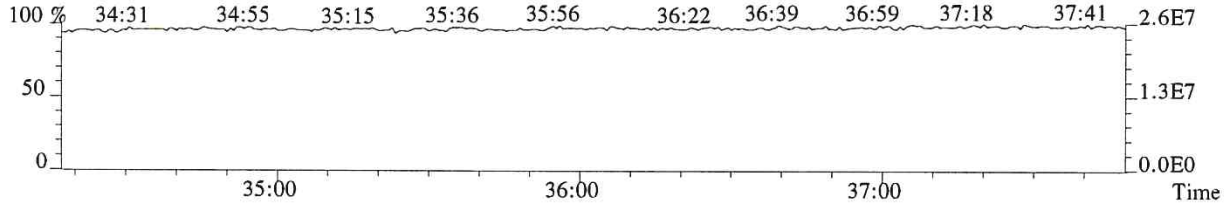
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

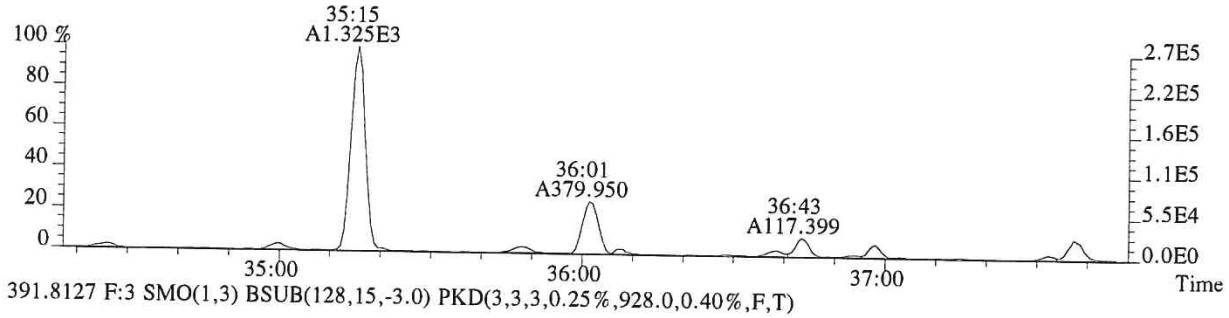


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

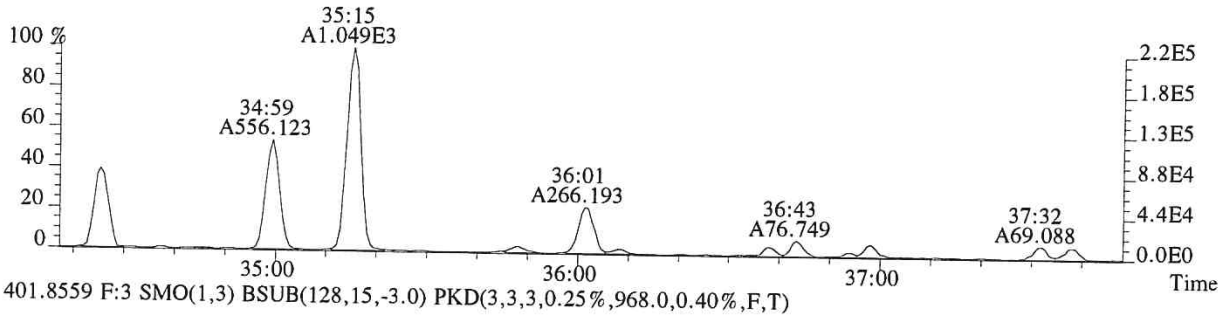


013245

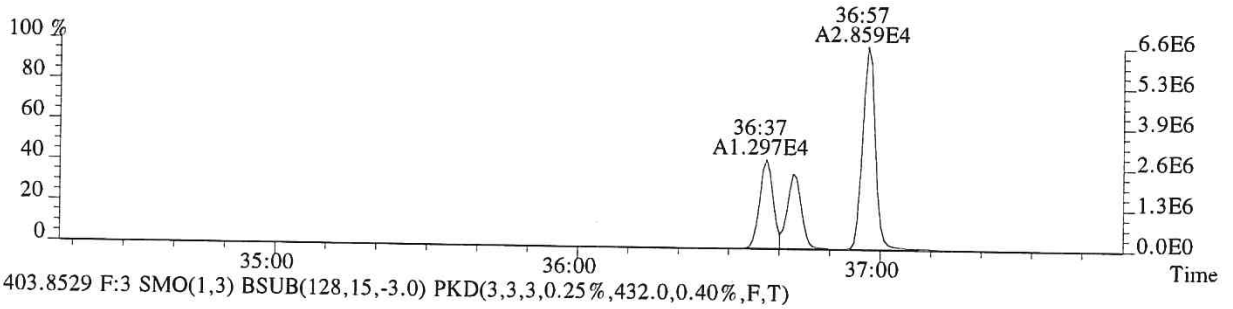
File:P519264 #1-317 Acq: 6-DEC-2018 23:43:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



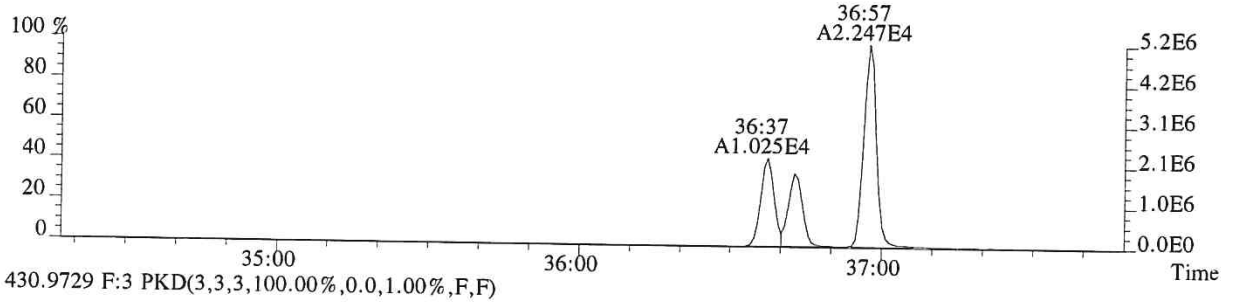
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



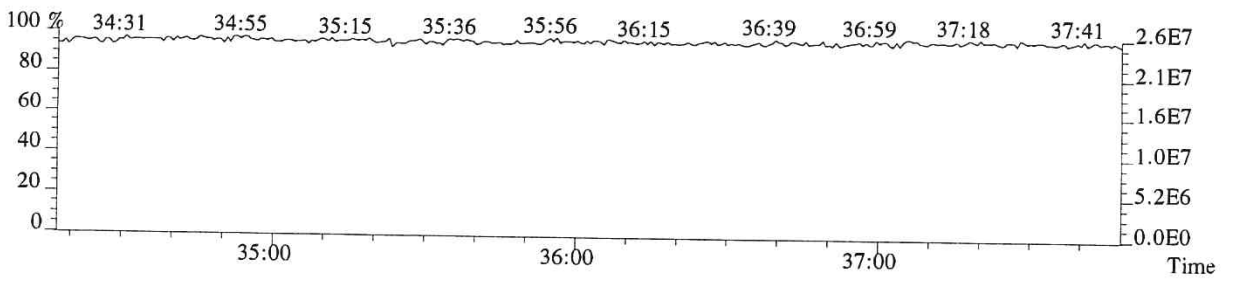
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.40%,F,T)



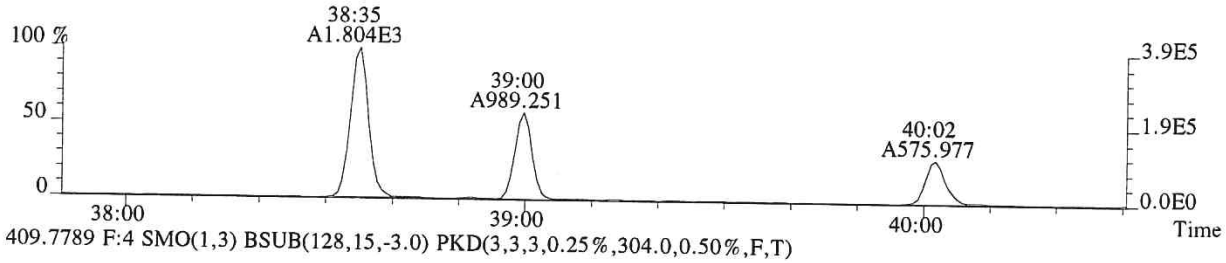
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



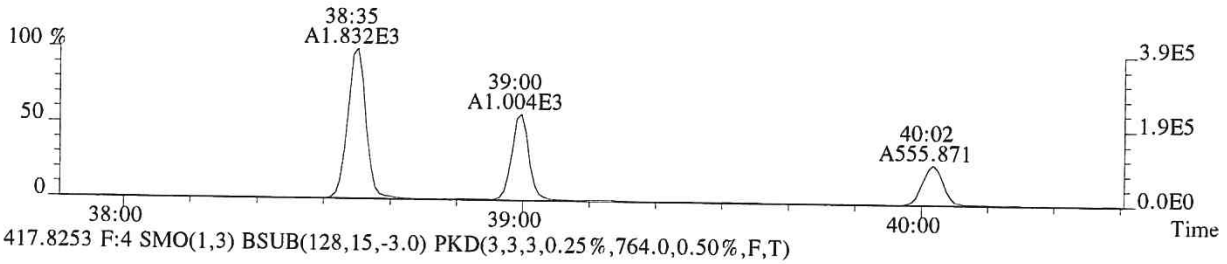
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



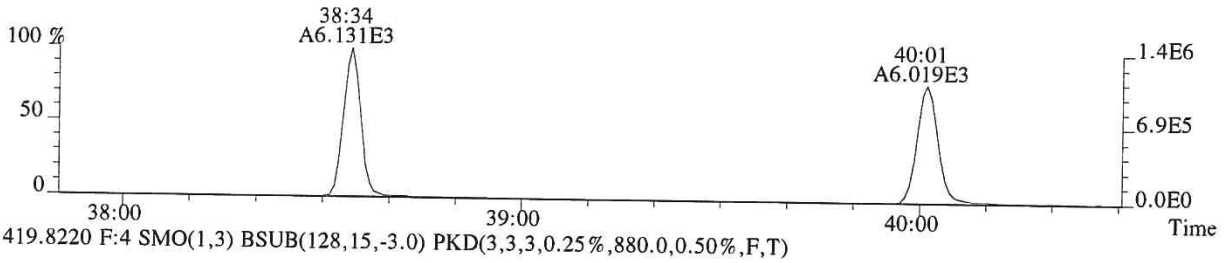
File:P519264 #1-241 Acq: 6-DEC-2018 23:43:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.50%,F,T)



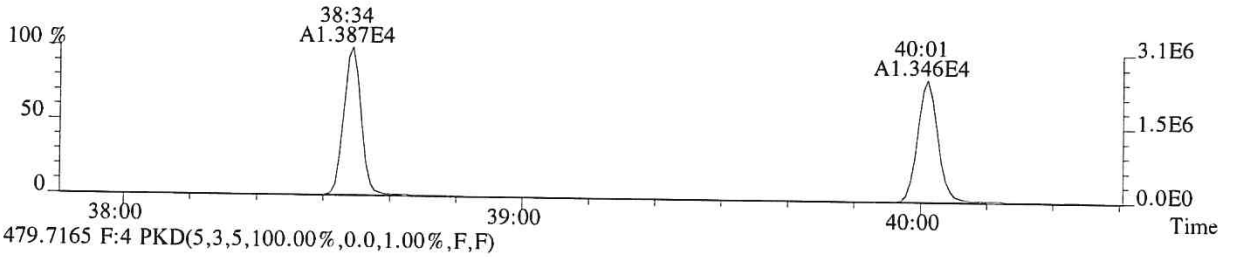
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



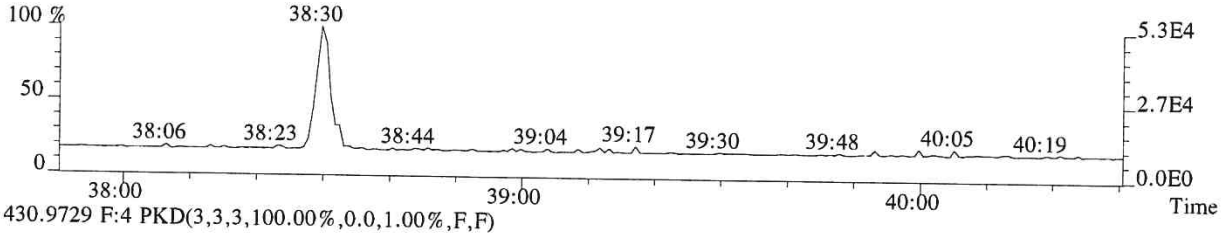
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.50%,F,T)



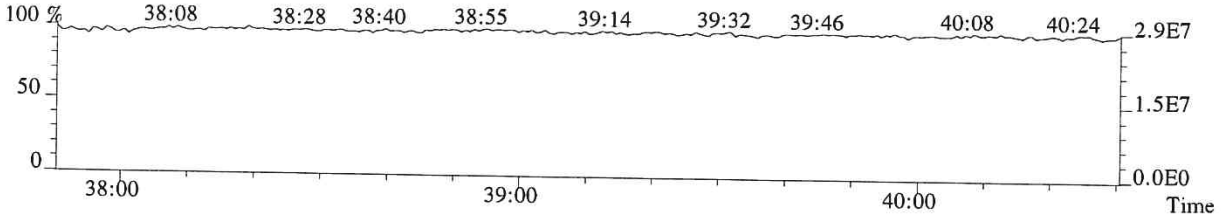
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

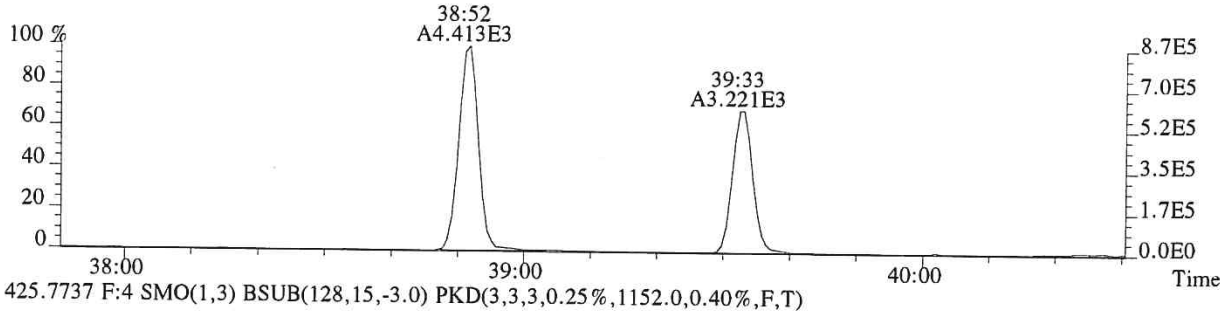


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

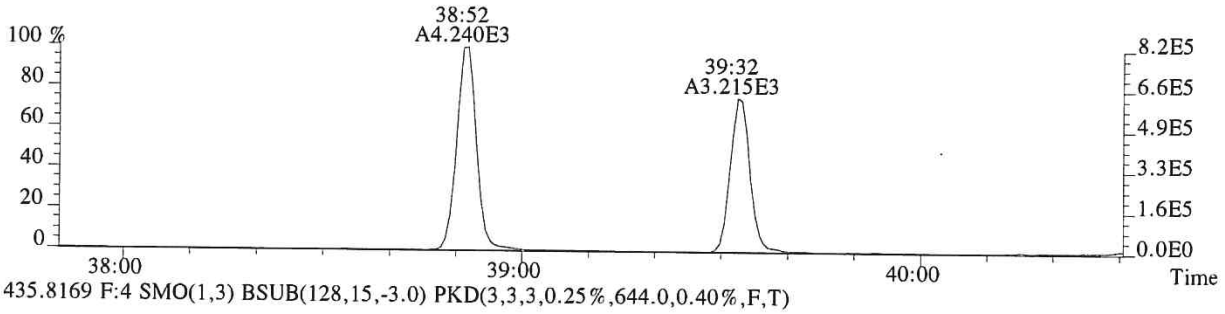


013247

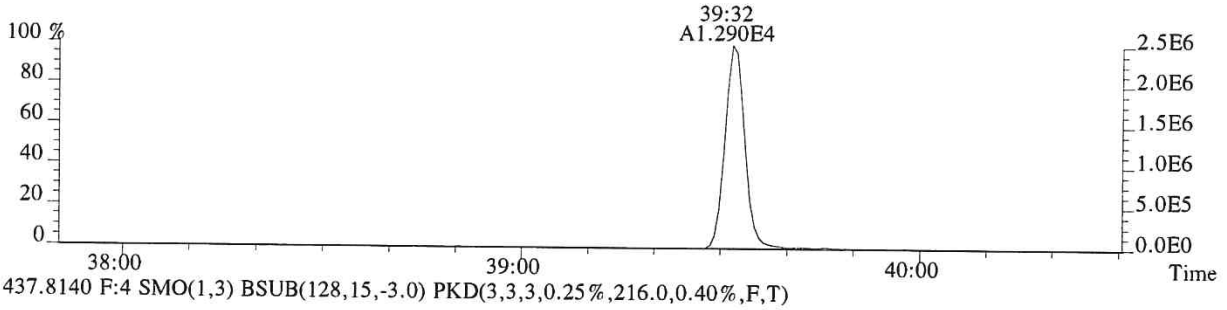
File:P519264 #1-241 Acq: 6-DEC-2018 23:43:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



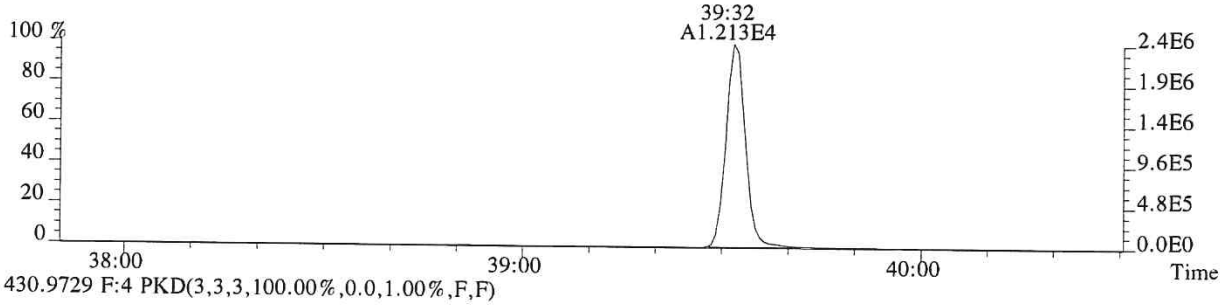
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



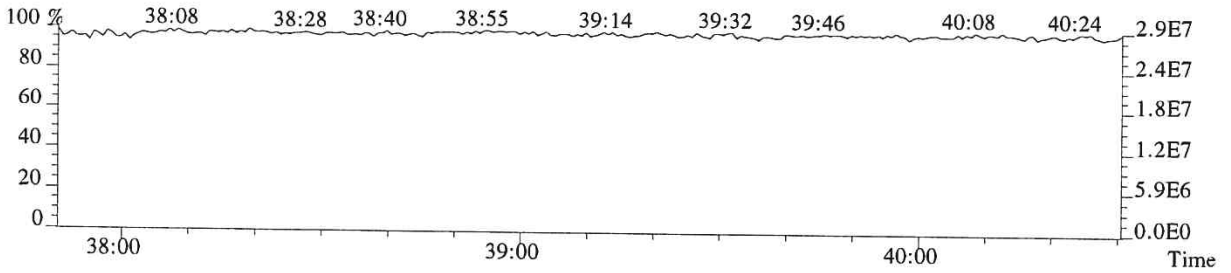
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



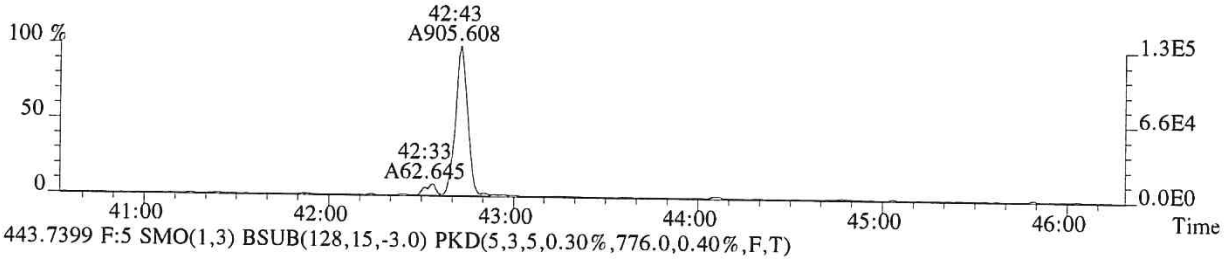
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



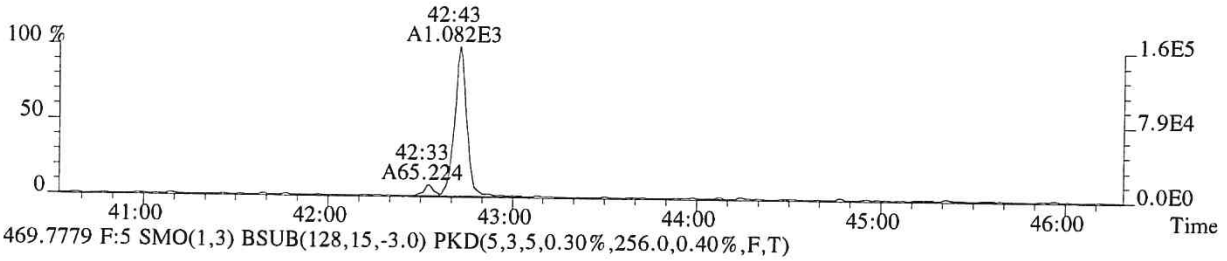
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



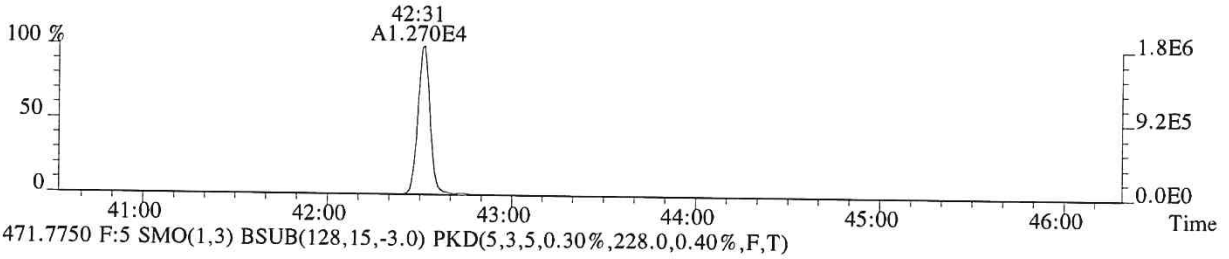
File:P519264 #1-520 Acq: 6-DEC-2018 23:43:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



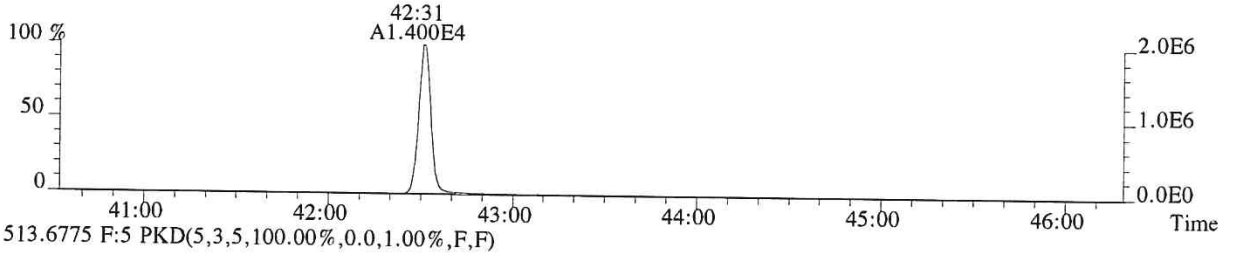
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



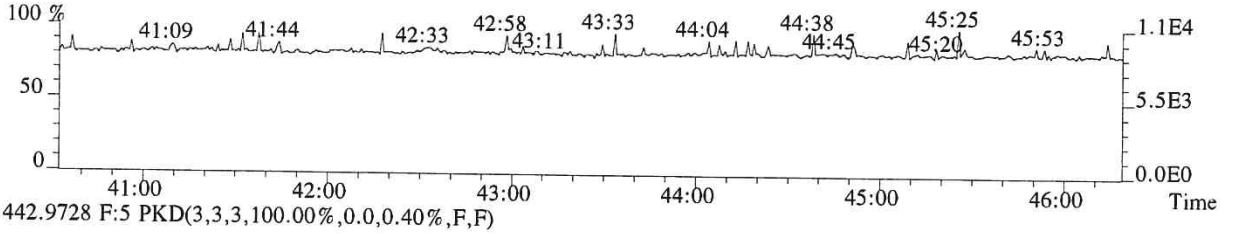
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



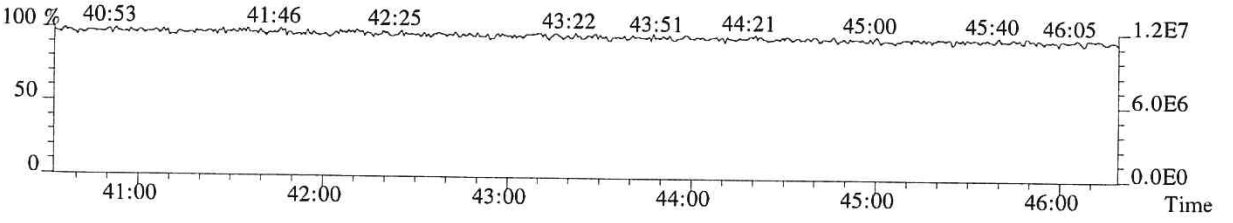
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

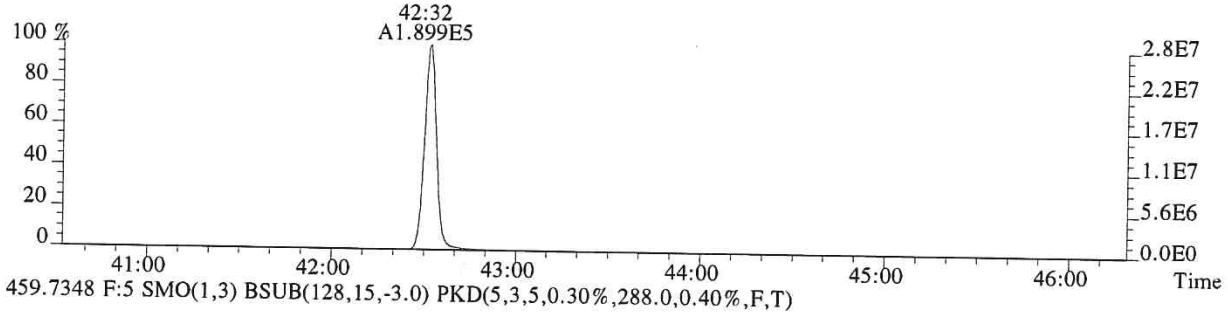


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

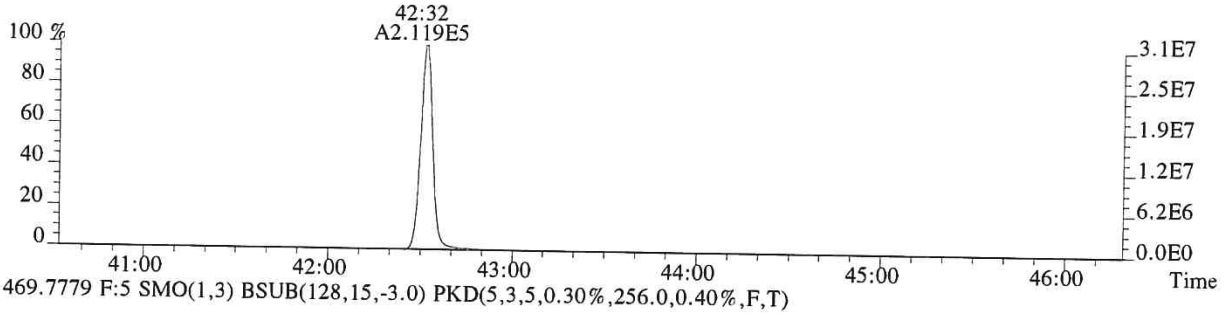


013249

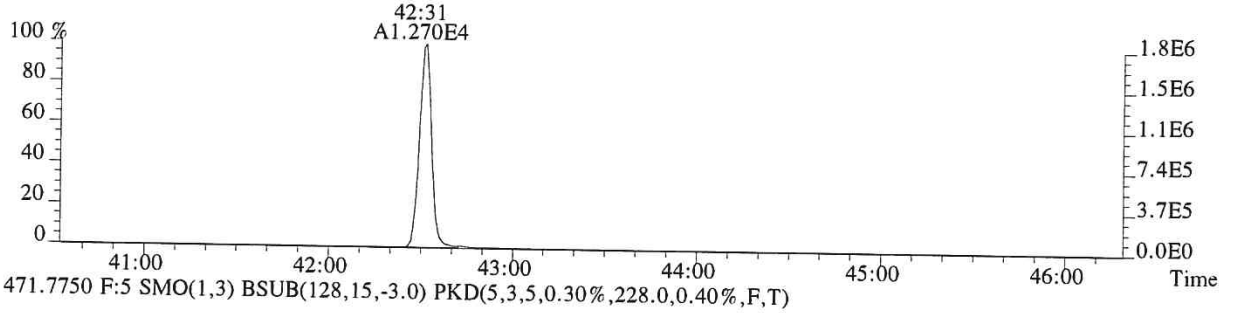
File:P519264 #1-520 Acq: 6-DEC-2018 23:43:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



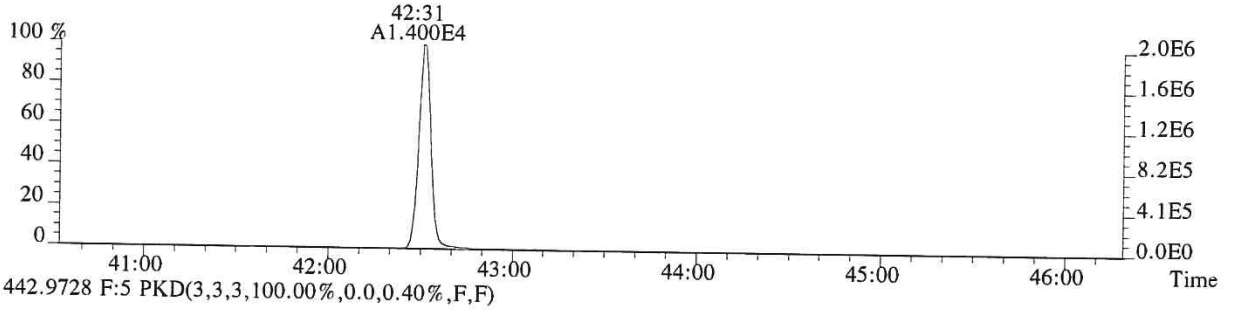
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



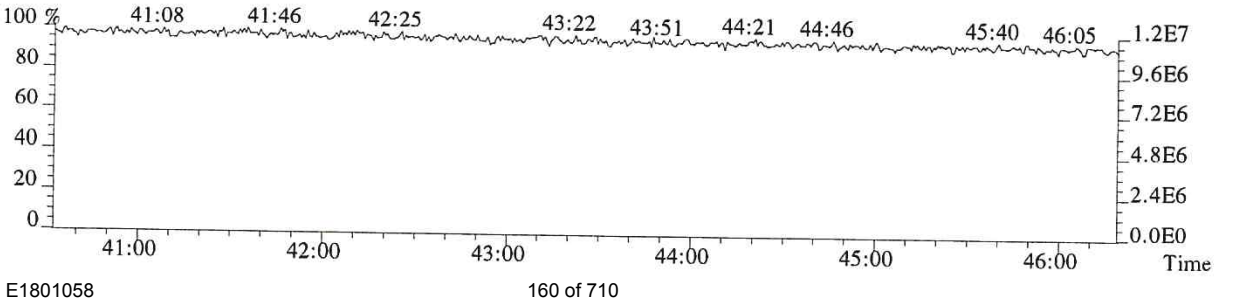
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



013250

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0250

Run #15 Filename P519327 Samp: 1 Inj: 1 Acquired: 10-DEC-18 15:16:55
Processed: 11-DEC-18 15:18:37 Sample ID: E1801058-018DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	6.271e+03	8.440e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	3.521e+02	2.365e+02	1.49	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	2.904e+02	1.891e+02	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	5.150e+02	4.027e+02	1.28	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.653e+02	1.403e+02	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	2.202e+01	1.918e+01	1.15	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	3.850e+01	3.212e+01	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	1.113e+02	1.209e+02	0.92	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	3.518e+01	3.241e+01	1.09	yes	no	1.258
10	Unk	OCDF	42:38	6.146e+01	6.426e+01	0.96	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	1.580e+03	2.076e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	2.666e+01	1.667e+01	1.60	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	9.045e+00	8.259e+00	1.10	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	5.349e+00	6.628e+00	0.81	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	2.331e+02	2.206e+02	1.06	yes	no	1.025
17	Unk	OCDD	42:27	1.117e+04	1.297e+04	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	1.404e+04	1.789e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.244e+04	1.381e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.071e+04	1.322e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	8.461e+03	1.646e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.040e+04	1.990e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	9.837e+03	1.867e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	8.300e+03	1.569e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	7.315e+03	1.687e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	6.356e+03	1.386e+04	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	6.555e+03	8.136e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	1.500e+04	9.442e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	1.187e+04	8.870e+03	1.34	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	1.242e+04	1.023e+04	1.21	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	1.311e+04	1.229e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:27	1.521e+04	1.677e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	1.166e+04	1.409e+04	0.83	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	1.537e+04	1.203e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	5.867e+02				no	1.014

$$\text{OCDD} = \frac{(1.117e+04 + 1.297e+04) \times 4000 \text{ pg} \times 10}{(1.521e+04 + 1.677e+04) \times 10.538 \text{ g} \times 77.6 / 100 \times 1.118 \times 0.45} = 7339 \text{ ng/Kg}$$

LW 12/11/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0250

Run #15 Filename P519327 Samp: 1 Inj: 1 Acquired: 10-DEC-18 15:16:55
Processed: 11-DEC-18 15:18:37 LAB. ID: E1801058-018DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.63e+05	1.20e+03	8.1e+02	1.38e+06	1.88e+03	7.3e+02
2	1,2,3,7,8-PeCDF	5.84e+04	9.16e+02	6.4e+01	4.41e+04	2.06e+03	2.1e+01
3	2,3,4,7,8-PeCDF	4.98e+04	9.16e+02	5.4e+01	3.08e+04	2.06e+03	1.5e+01
4	1,2,3,4,7,8-HxCDF	1.04e+05	6.64e+02	1.6e+02	8.16e+04	4.68e+02	1.7e+02
5	1,2,3,6,7,8-HxCDF	2.82e+04	6.64e+02	4.3e+01	2.40e+04	4.68e+02	5.1e+01
6	2,3,4,6,7,8-HxCDF	3.97e+03	6.64e+02	6.0e+00	4.03e+03	4.68e+02	8.6e+00
7	1,2,3,7,8,9-HxCDF	8.32e+03	6.64e+02	1.3e+01	5.89e+03	4.68e+02	1.3e+01
8	1,2,3,4,6,7,8-HpCDF	2.14e+04	7.20e+02	3.0e+01	2.35e+04	3.80e+02	6.2e+01
9	1,2,3,4,7,8,9-HpCDF	9.91e+03	7.20e+02	1.4e+01	6.39e+03	3.80e+02	1.7e+01
10	OCDF	7.15e+03	2.20e+02	3.2e+01	9.18e+03	1.14e+03	8.1e+00
11	2,3,7,8-TCDD	2.98e+05	2.46e+03	1.2e+02	3.73e+05	1.23e+03	3.0e+02
12	1,2,3,7,8-PeCDD	5.58e+03	7.64e+02	7.3e+00	3.12e+03	2.40e+02	1.3e+01
13	1,2,3,4,7,8-HxCDD	*	1.84e+02	*	*	5.88e+02	*
14	1,2,3,6,7,8-HxCDD	1.95e+03	1.84e+02	1.1e+01	1.47e+03	5.88e+02	2.5e+00
15	1,2,3,7,8,9-HxCDD	1.55e+03	1.84e+02	8.4e+00	1.24e+03	5.88e+02	2.1e+00
16	1,2,3,4,6,7,8-HpCDD	3.85e+04	3.80e+02	1.0e+02	3.18e+04	3.28e+02	9.7e+01
17	OCDD	1.37e+06	1.76e+02	7.8e+03	1.55e+06	2.68e+02	5.8e+03
18	13C-2,3,7,8-TCDF	2.43e+06	7.50e+03	3.2e+02	3.13e+06	8.04e+03	3.9e+02
19	13C-1,2,3,7,8-PeCDF	3.92e+06	4.40e+02	8.9e+03	2.41e+06	1.09e+03	2.2e+03
20	13C-2,3,4,7,8-PeCDF	3.88e+06	4.40e+02	8.8e+03	2.44e+06	1.09e+03	2.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.70e+06	8.04e+02	2.1e+03	3.32e+06	9.84e+02	3.4e+03
22	13C-1,2,3,6,7,8-HxCDF	1.94e+06	8.04e+02	2.4e+03	3.61e+06	9.84e+02	3.7e+03
23	13C-2,3,4,6,7,8-HxCDF	1.90e+06	8.04e+02	2.4e+03	3.64e+06	9.84e+02	3.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.49e+06	8.04e+02	1.9e+03	2.83e+06	9.84e+02	2.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.34e+06	1.00e+03	1.3e+03	3.14e+06	3.77e+03	8.3e+02
26	13C-1,2,3,4,7,8,9-HpCDF	9.49e+05	1.00e+03	9.4e+02	2.19e+06	3.77e+03	5.8e+02
27	13C-2,3,7,8-TCDD	1.22e+06	7.34e+03	1.7e+02	1.47e+06	1.84e+03	8.0e+02
28	13C-1,2,3,7,8-PeCDD	2.71e+06	1.06e+03	2.5e+03	1.73e+06	1.06e+03	1.6e+03
29	13C-1,2,3,4,7,8-HxCDD	2.36e+06	1.10e+03	2.1e+03	1.89e+06	4.68e+02	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.27e+06	1.10e+03	2.1e+03	1.79e+06	4.68e+02	3.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.08e+06	7.80e+02	2.7e+03	1.96e+06	3.32e+02	5.9e+03
32	13C-OCDD	1.80e+06	6.88e+02	2.6e+03	1.95e+06	2.40e+02	8.1e+03
33	13C-1,2,3,4-TCDD	2.11e+06	7.34e+03	2.9e+02	2.56e+06	1.84e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	2.66e+06	1.10e+03	2.4e+03	2.08e+06	4.68e+02	4.4e+03
35	37Cl-2,3,7,8-TCDD	1.06e+05	8.44e+02	1.3e+02			

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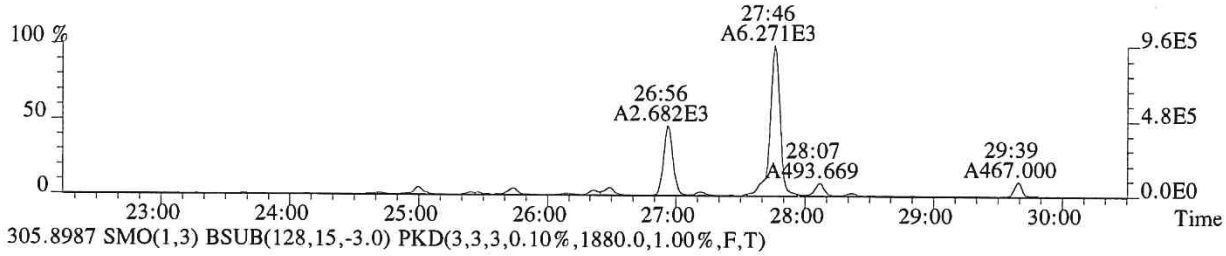
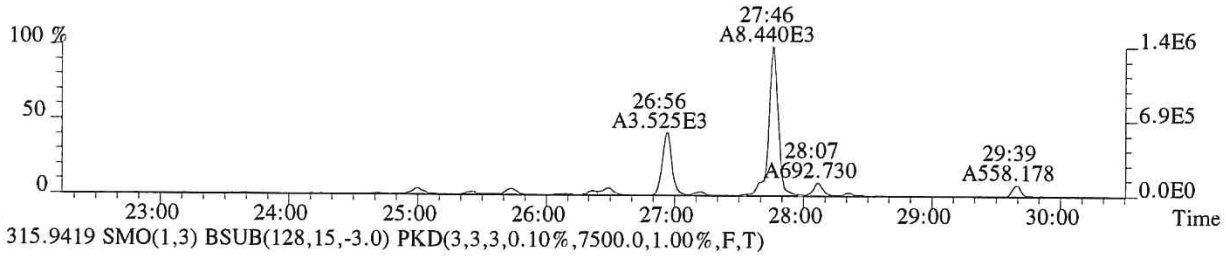
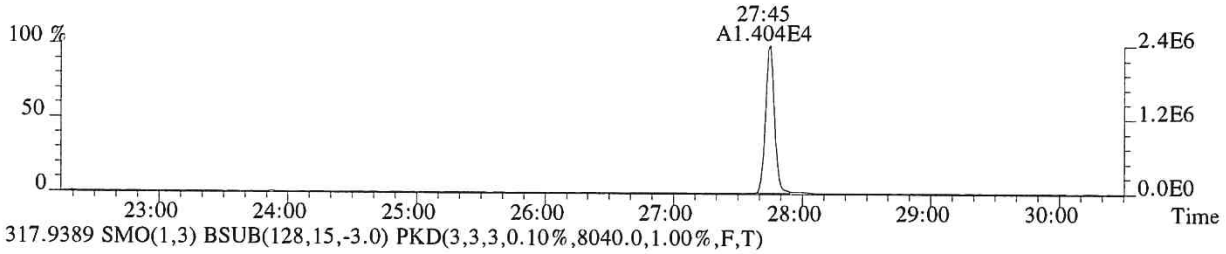
File:P519327 #1-587 Acq:10-DEC-2018 15:16:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



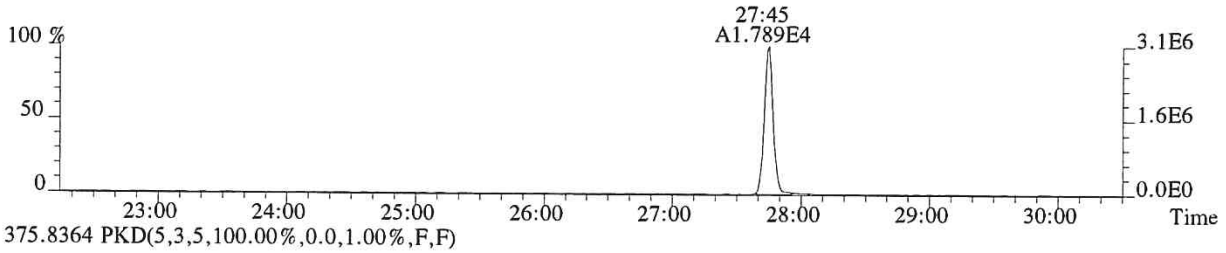
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)



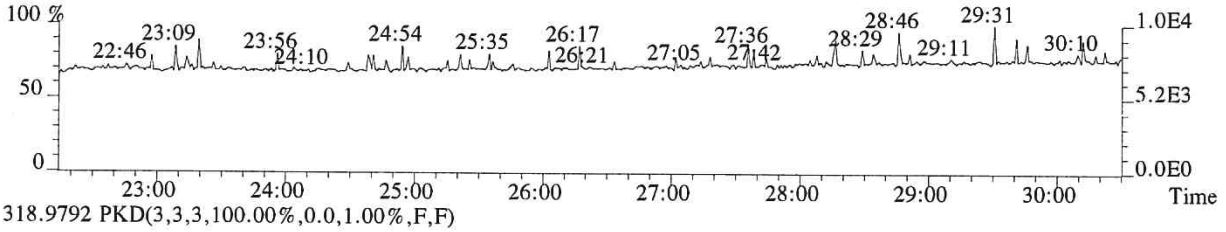
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7500.0,1.00%,F,T)



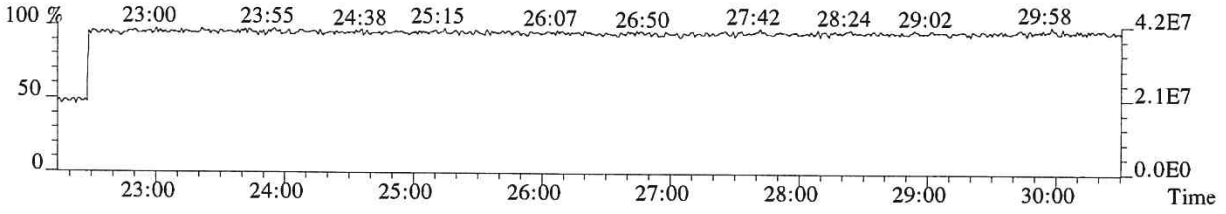
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8040.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

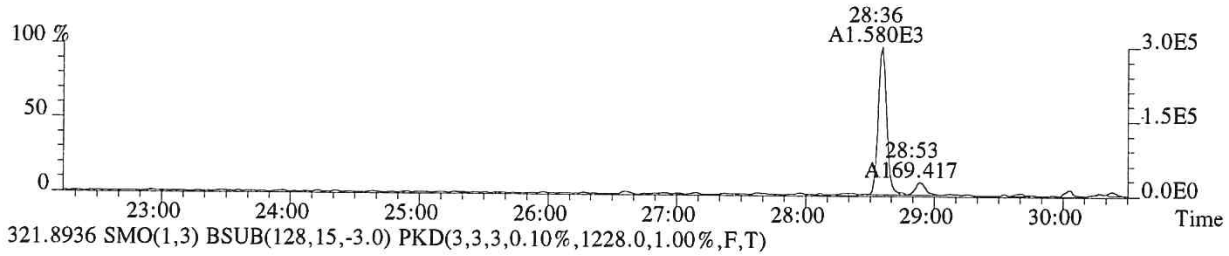


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

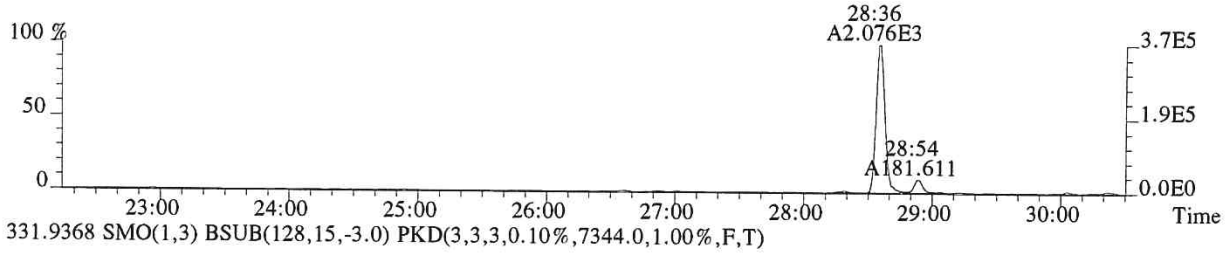


013253

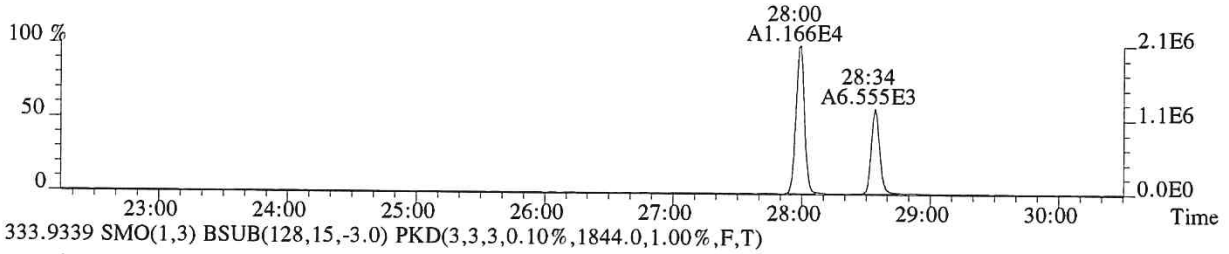
File:P519327 #1-587 Acq:10-DEC-2018 15:16:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2464.0,1.00%,F,T)



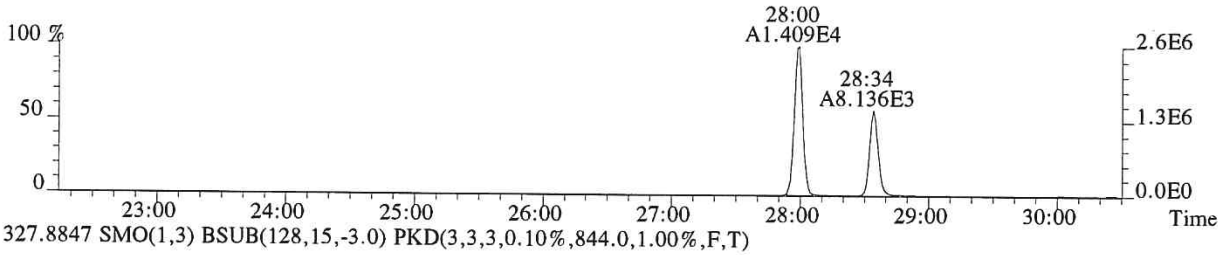
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



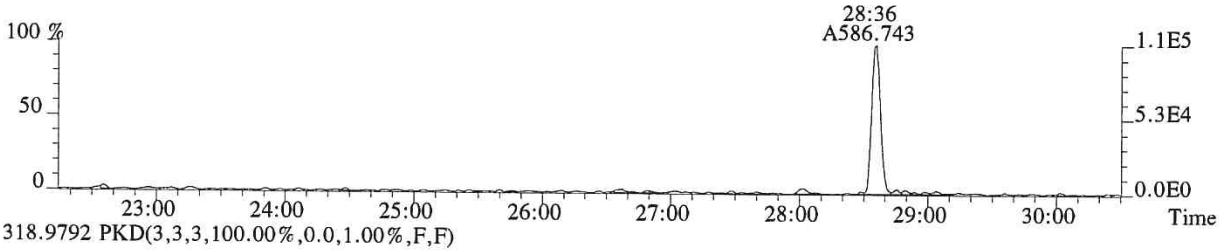
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7344.0,1.00%,F,T)



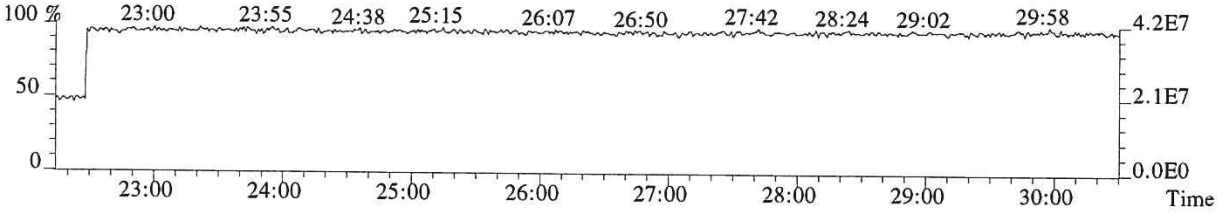
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1844.0,1.00%,F,T)



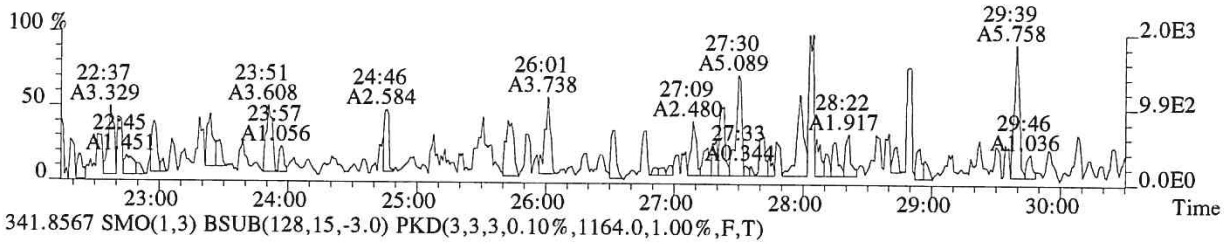
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



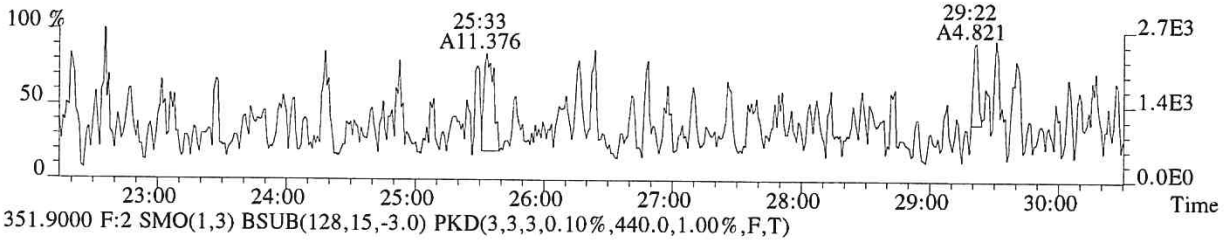
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



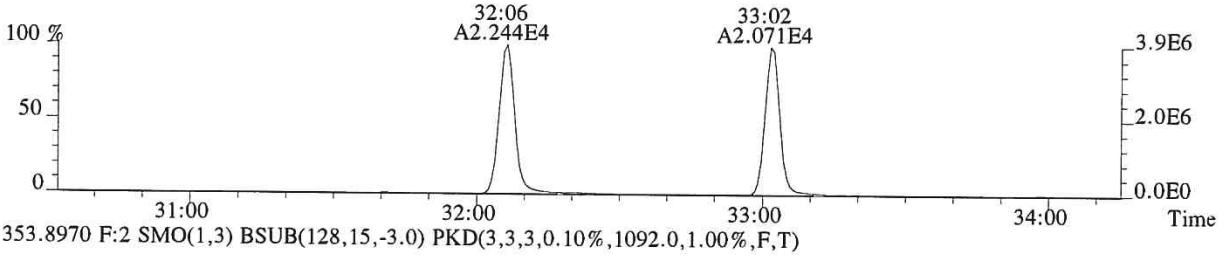
File:P519327 #1-587 Acq:10-DEC-2018 15:16:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



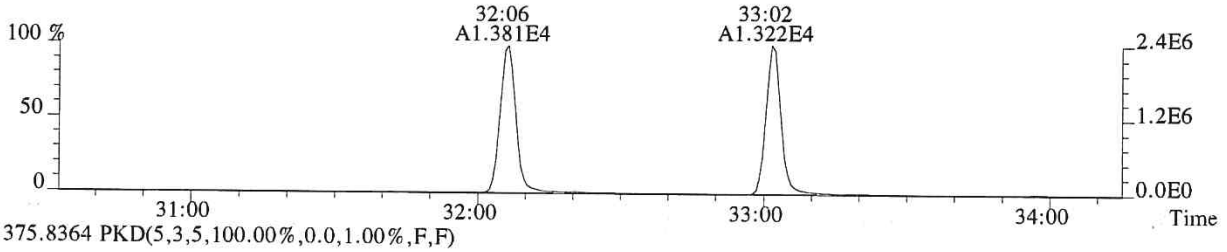
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



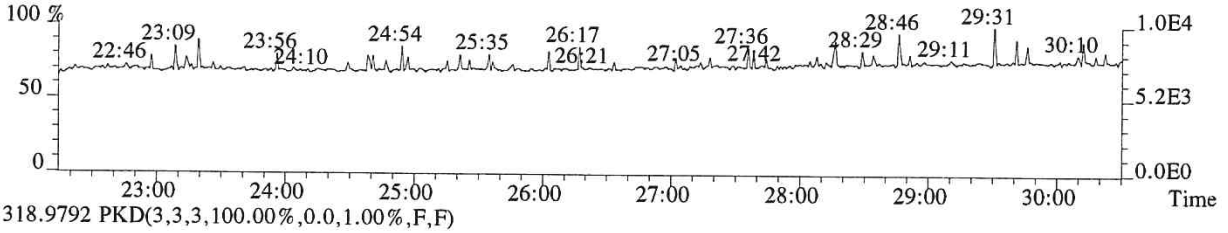
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



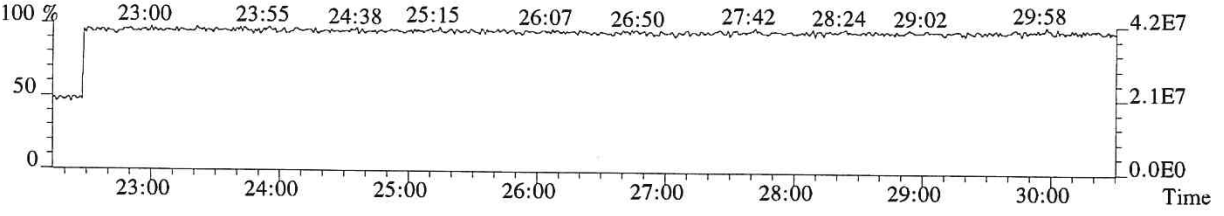
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



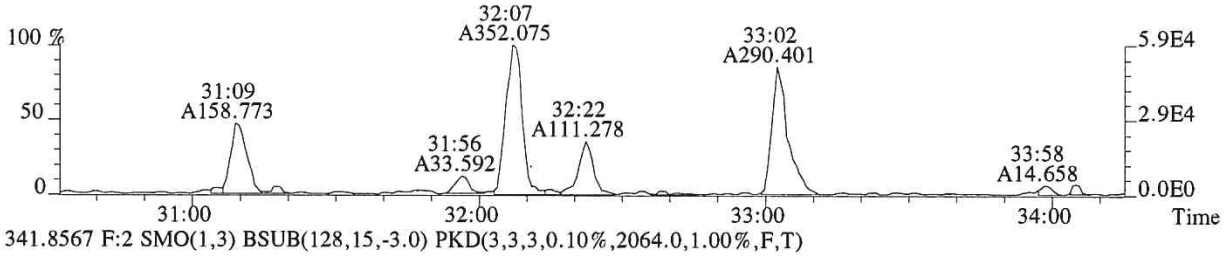
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



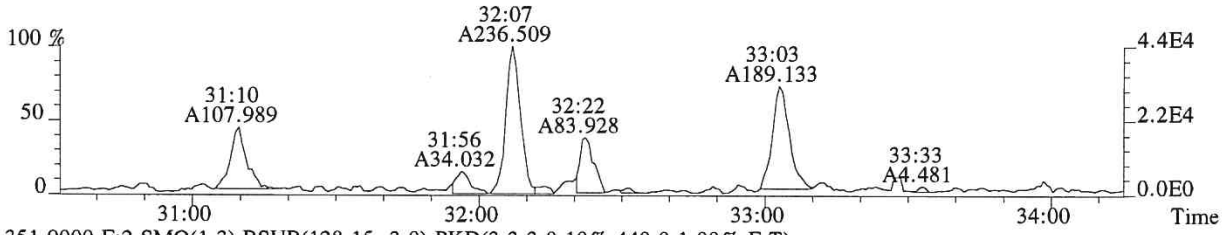
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



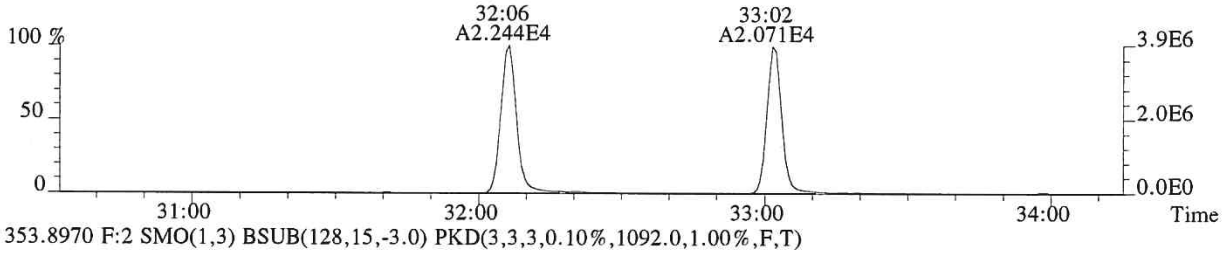
File:P519327 #1-335 Acq:10-DEC-2018 15:16:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



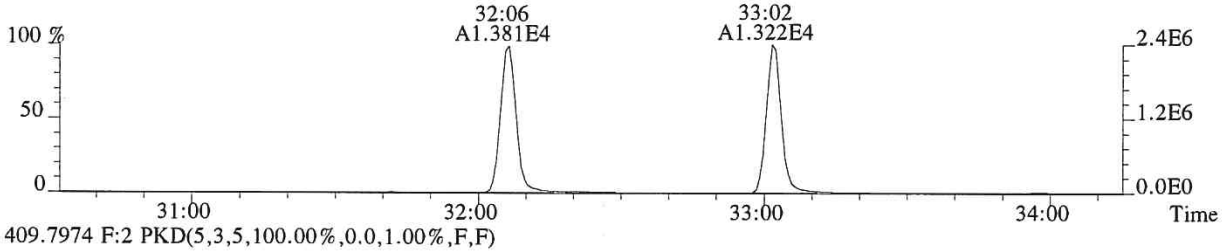
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2064.0,1.00%,F,T)



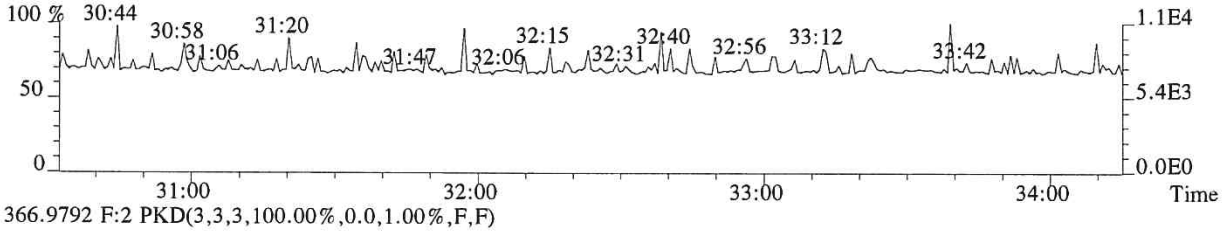
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



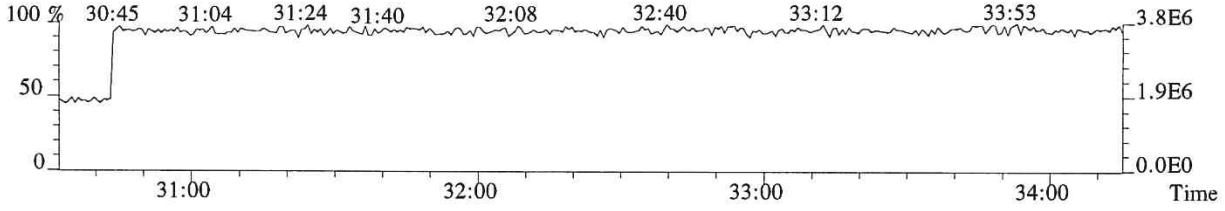
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

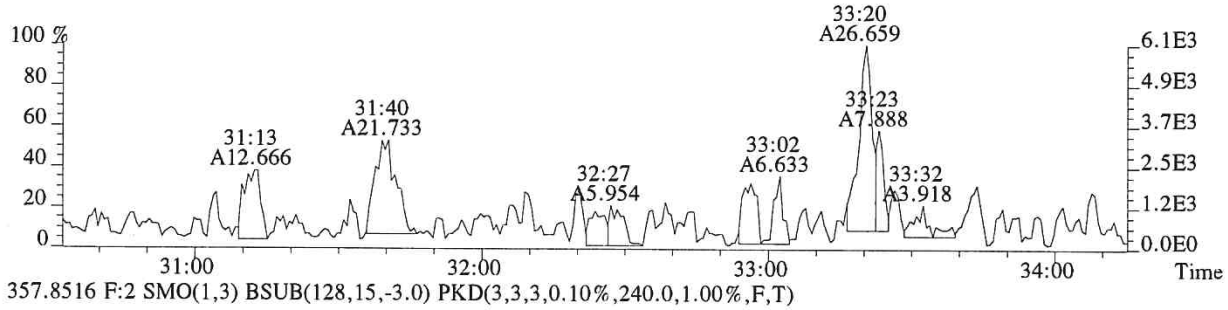


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

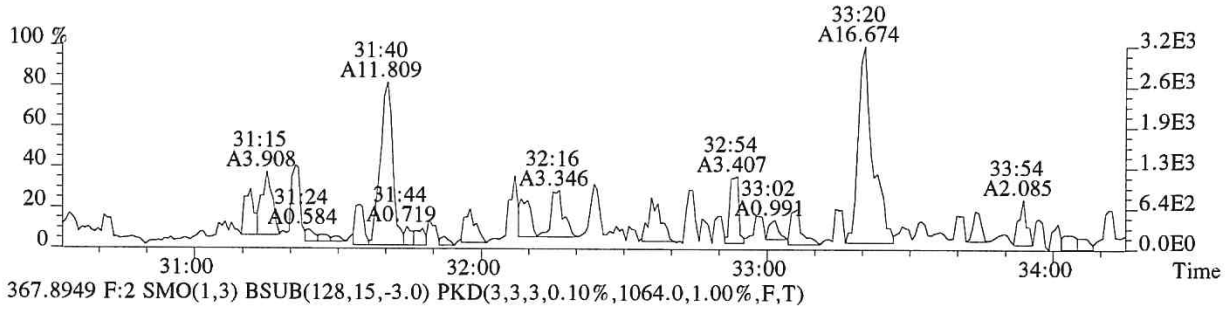


013256

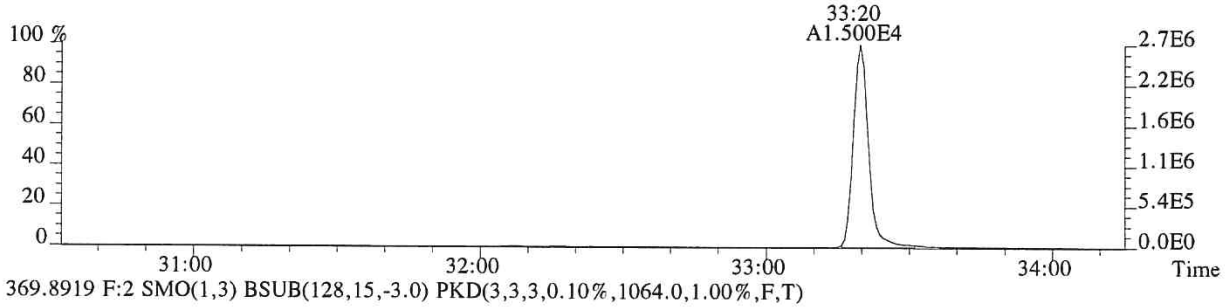
File:P519327 #1-335 Acq:10-DEC-2018 15:16:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



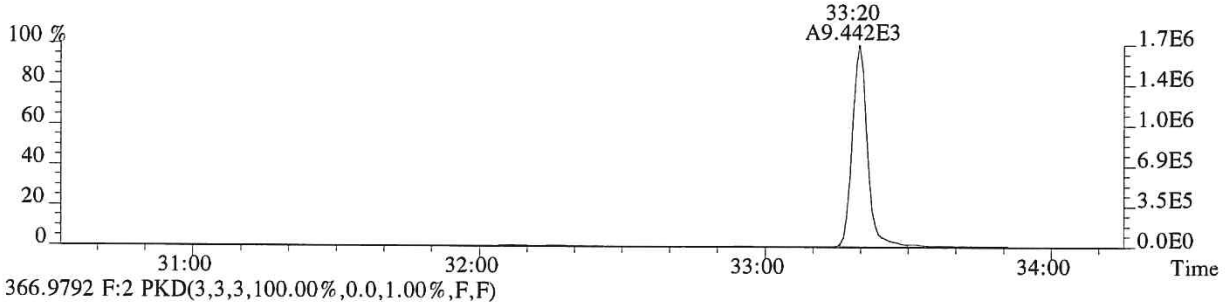
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



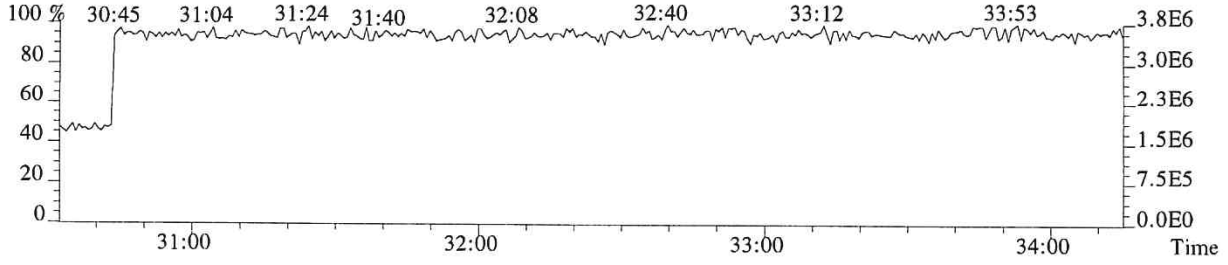
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



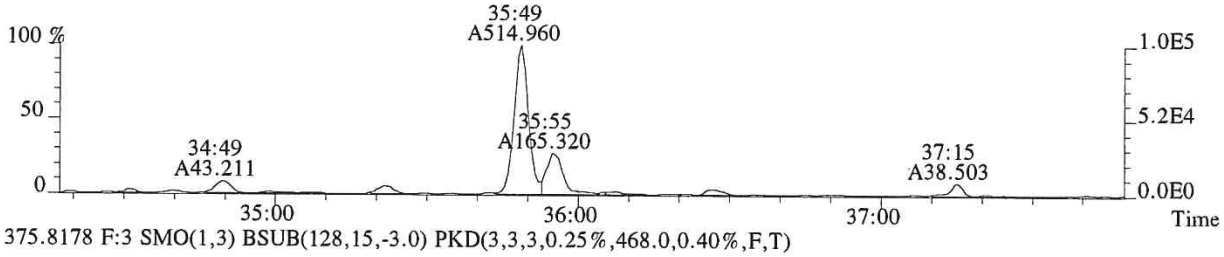
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



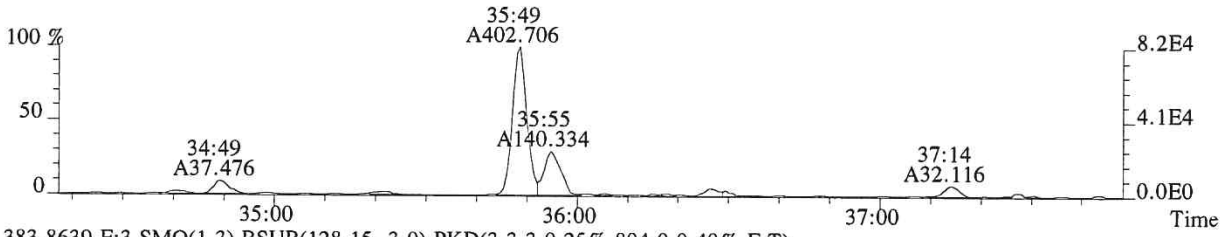
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



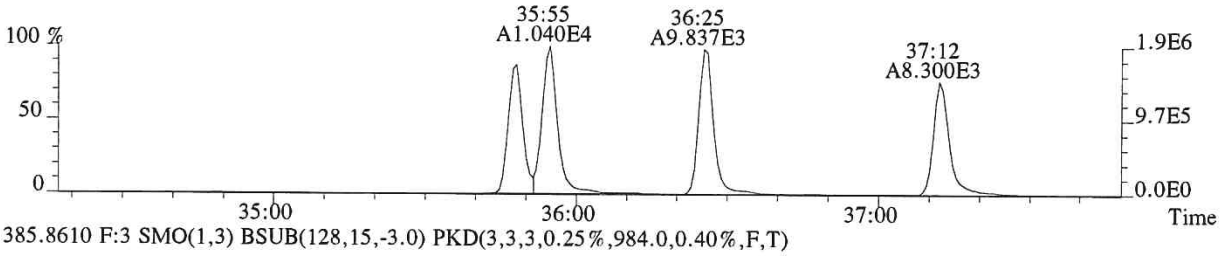
File:P519327 #1-317 Acq:10-DEC-2018 15:16:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



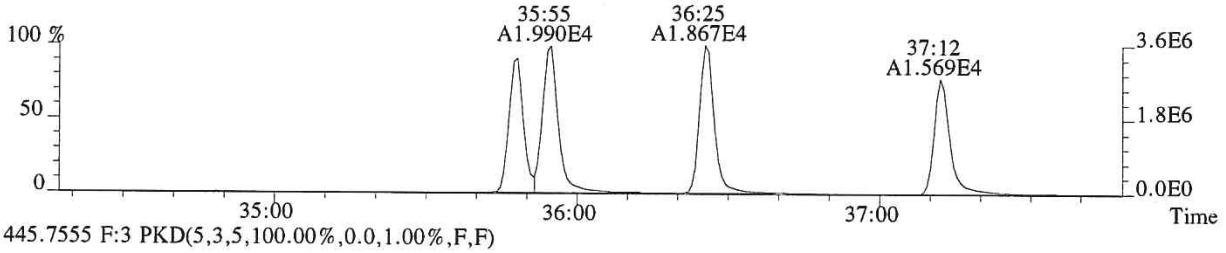
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



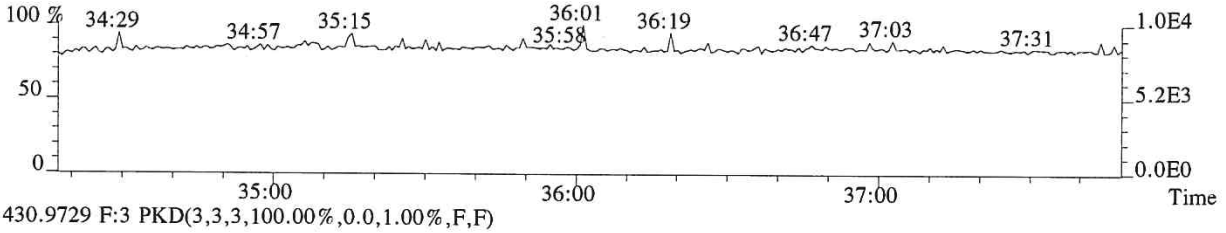
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



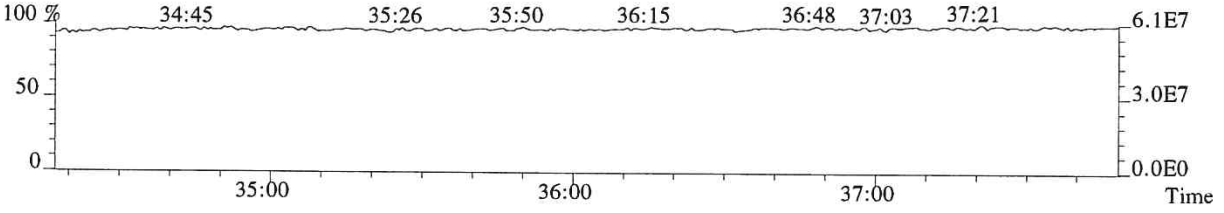
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)



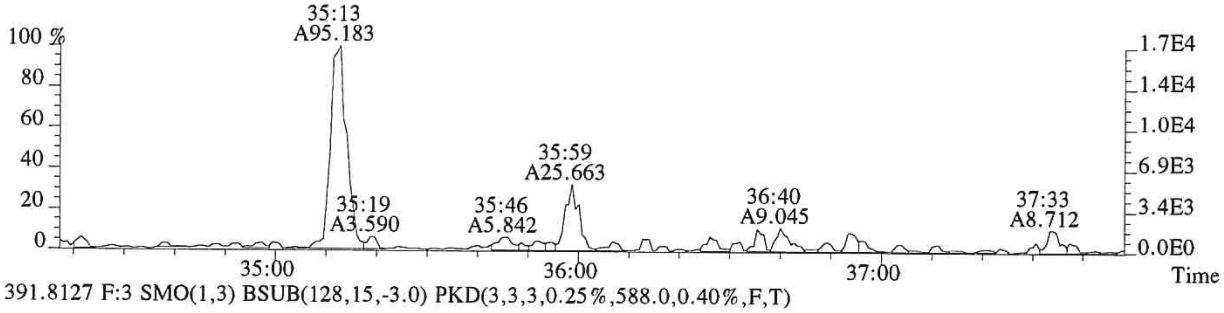
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



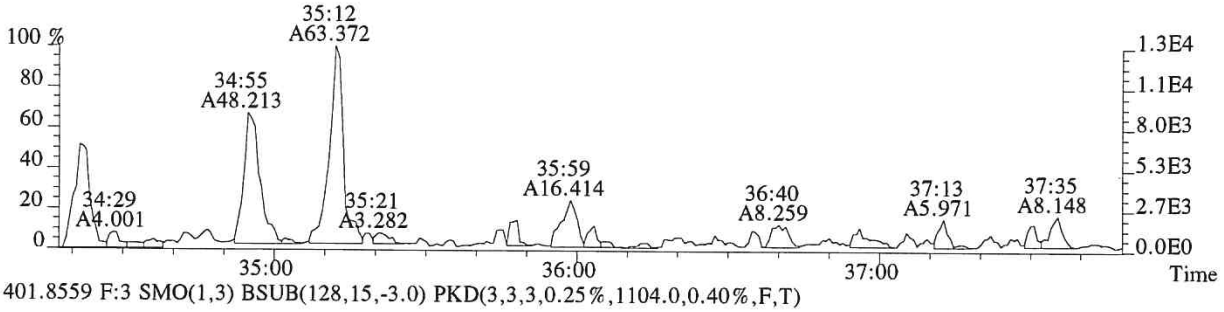
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



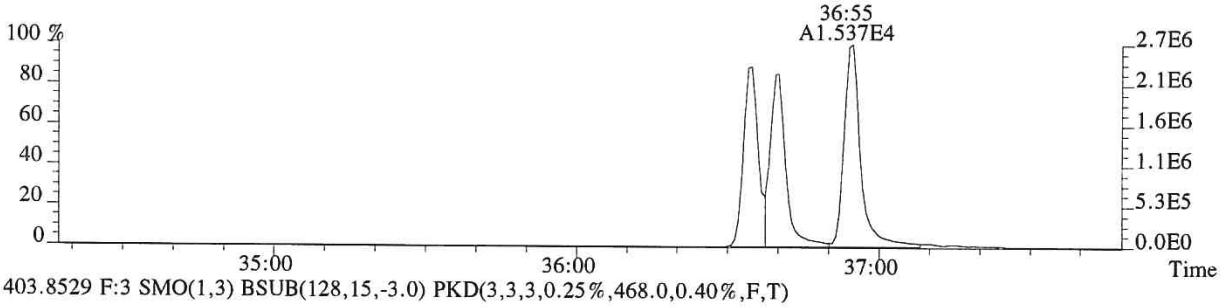
File:P519327 #1-317 Acq:10-DEC-2018 15:16:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



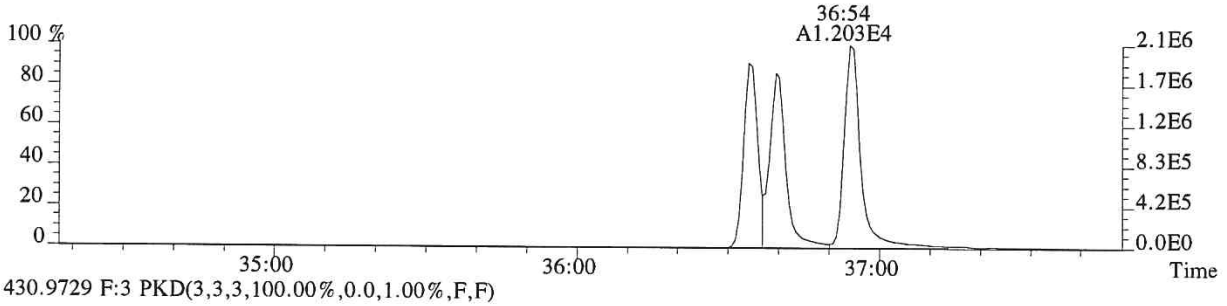
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



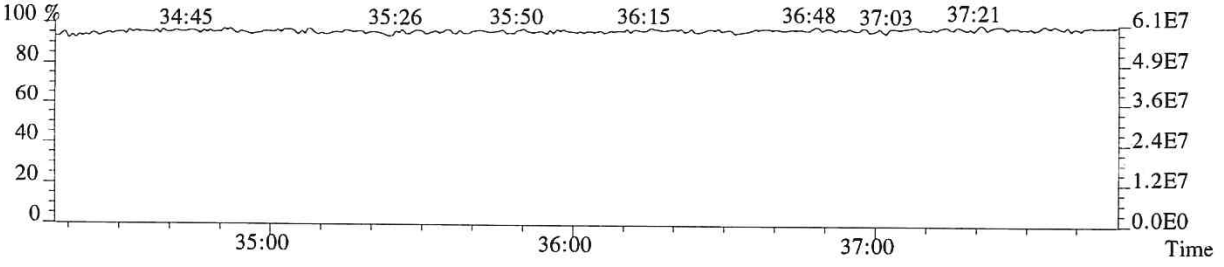
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



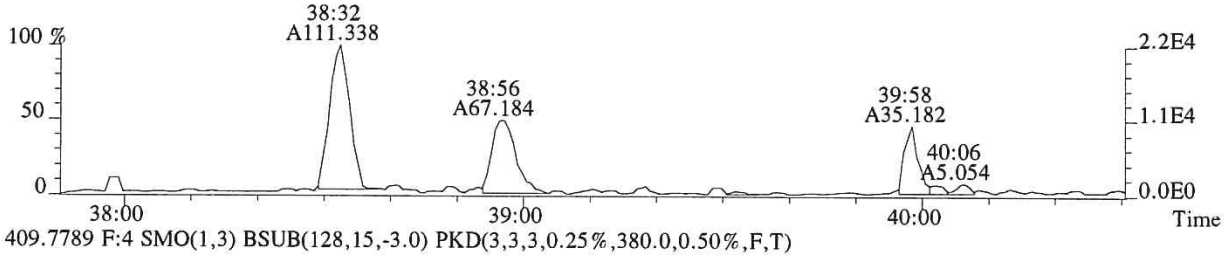
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



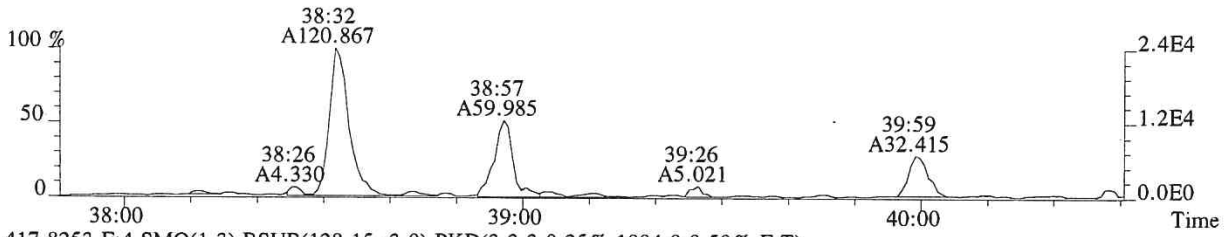
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



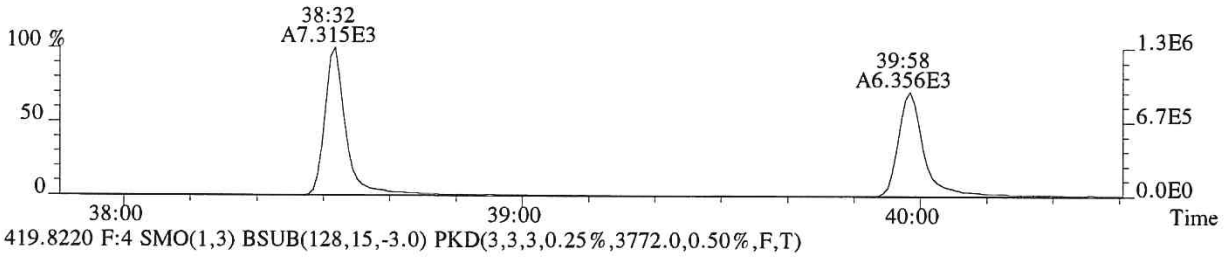
File:P519327 #1-241 Acq:10-DEC-2018 15:16:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.50%,F,T)



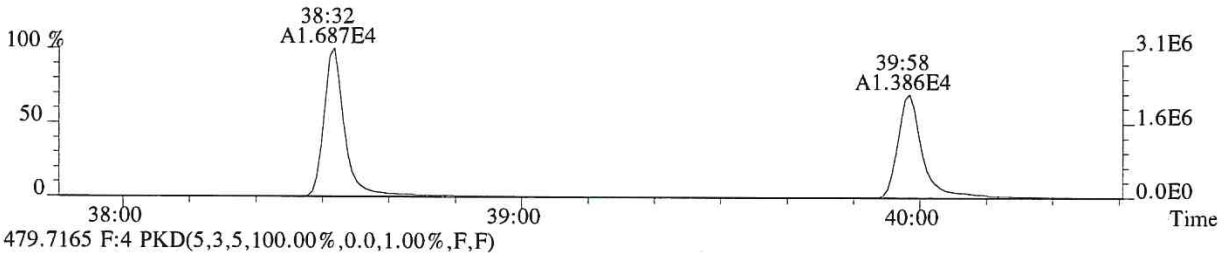
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.50%,F,T)



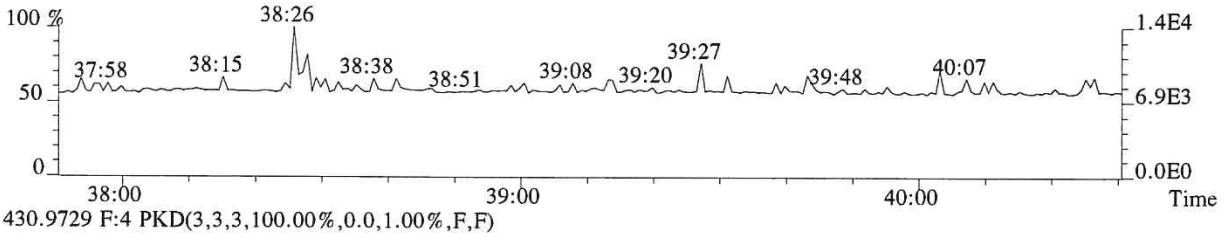
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.50%,F,T)



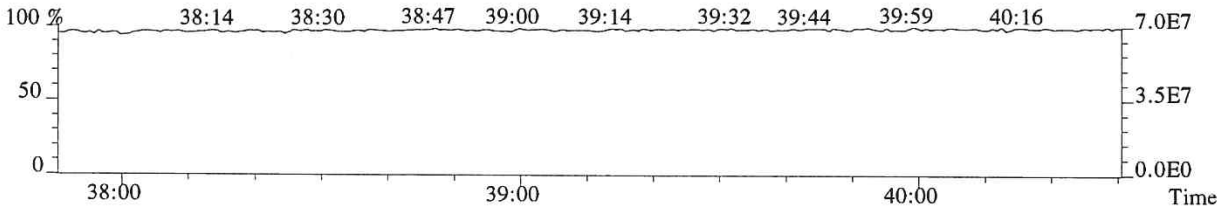
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3772.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

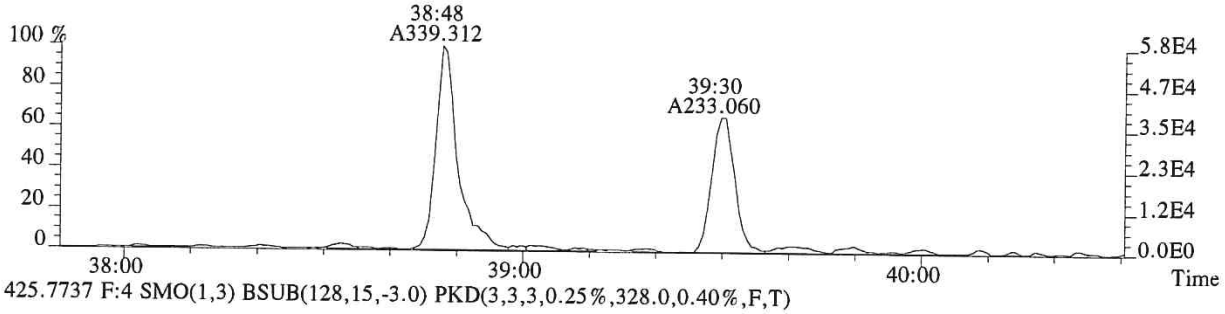


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

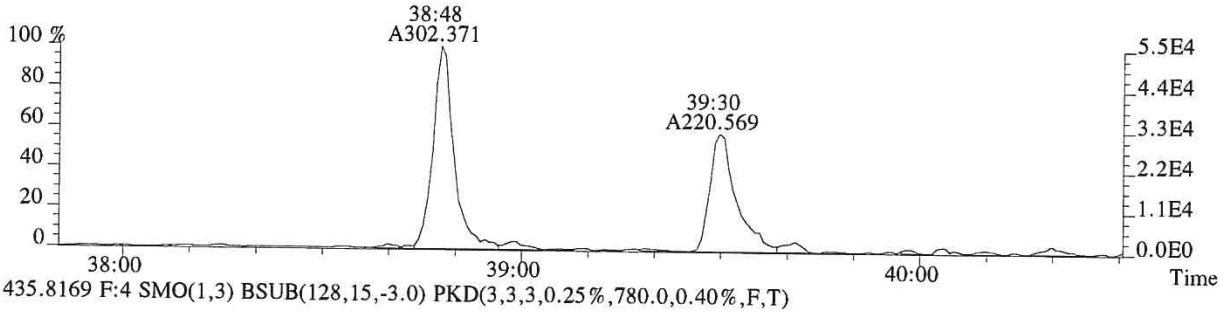


013260

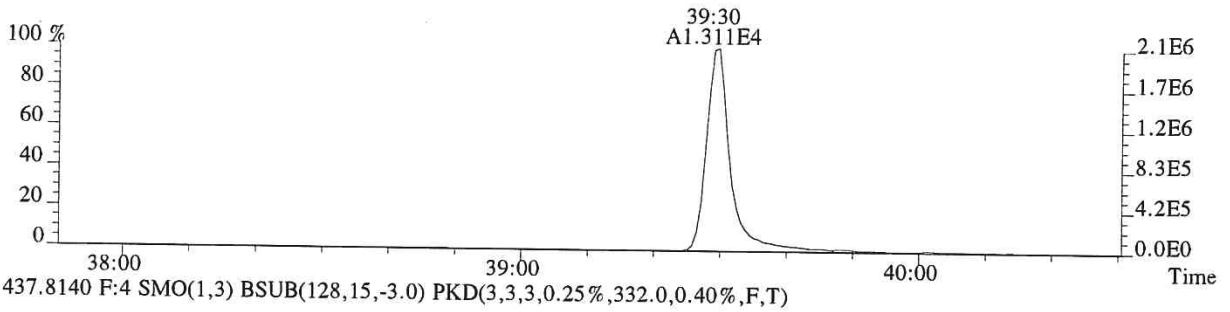
File:P519327 #1-241 Acq:10-DEC-2018 15:16:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



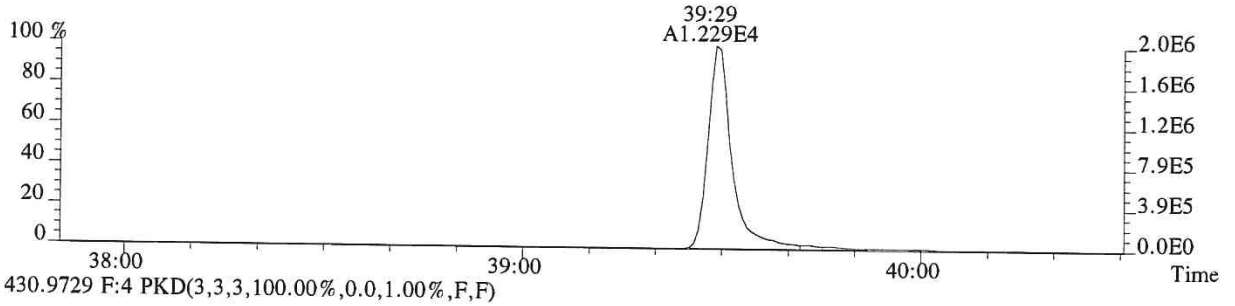
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



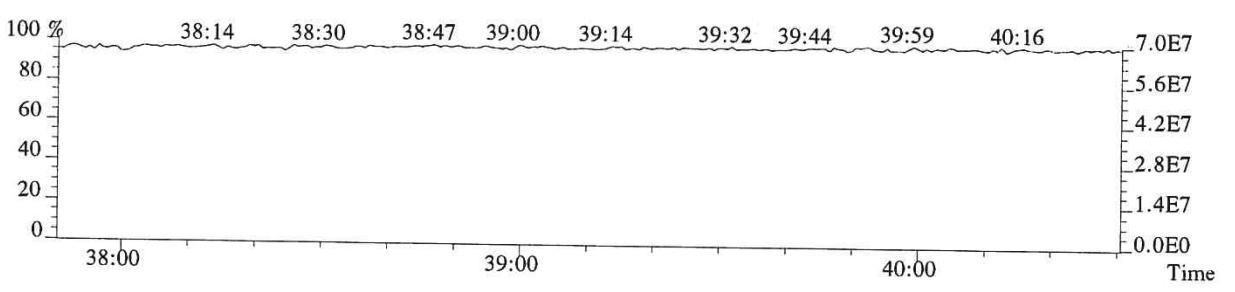
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



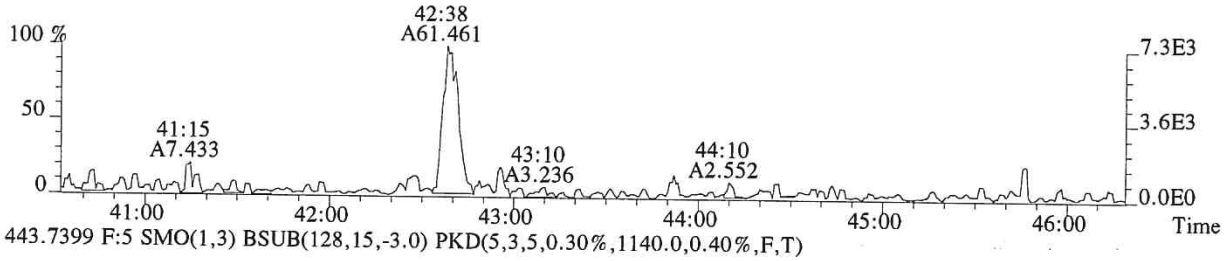
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



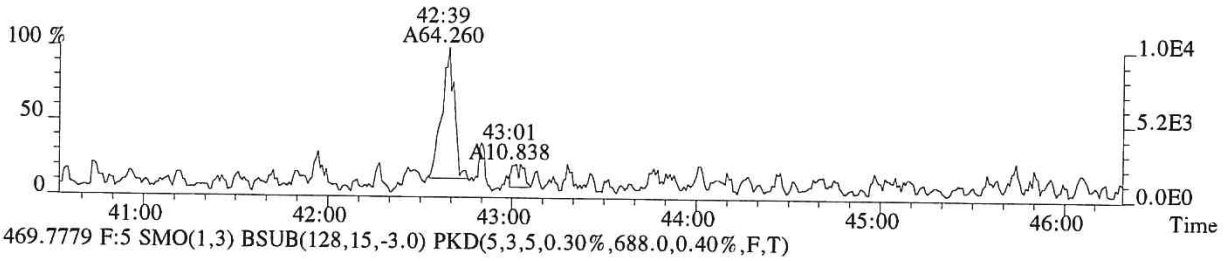
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



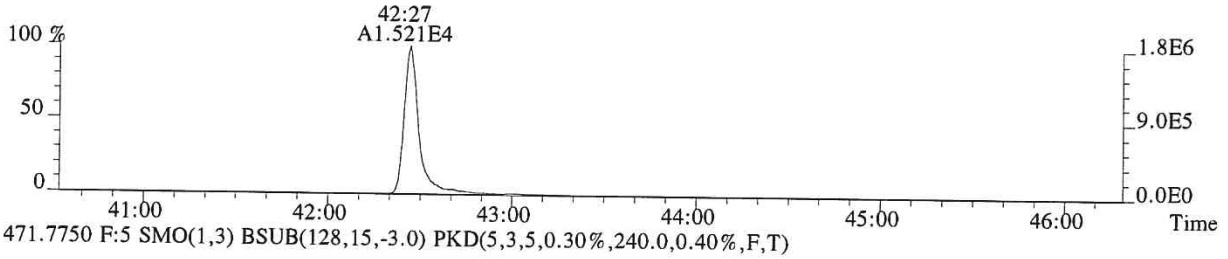
File:P519327 #1-520 Acq:10-DEC-2018 15:16:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



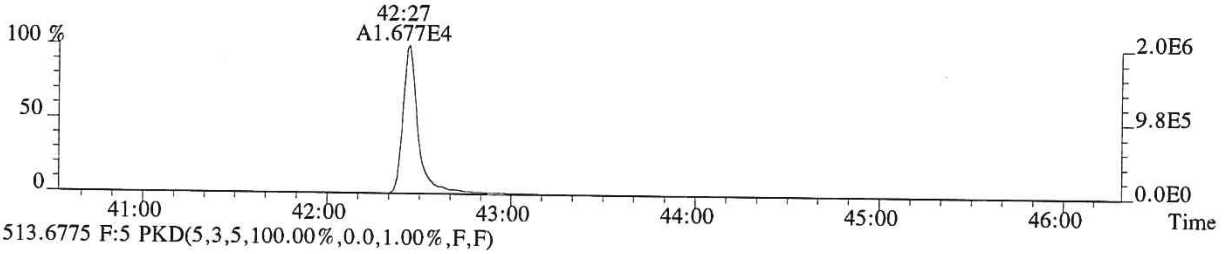
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1140.0,0.40%,F,T)



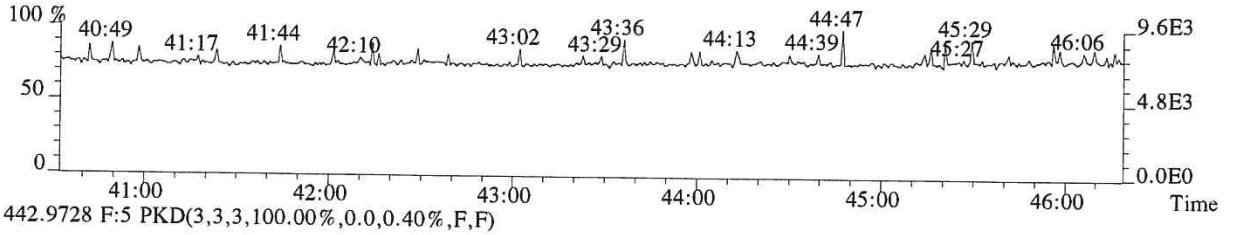
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



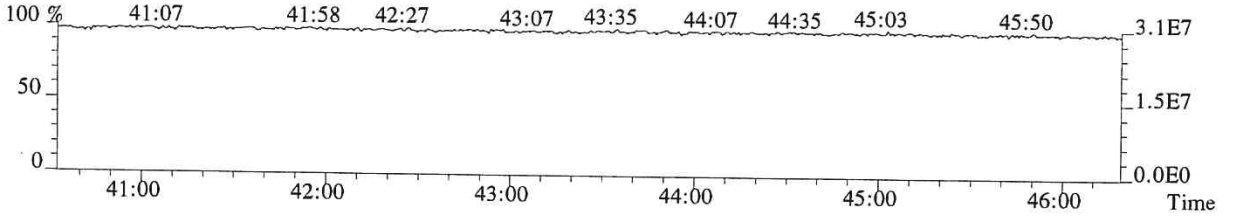
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

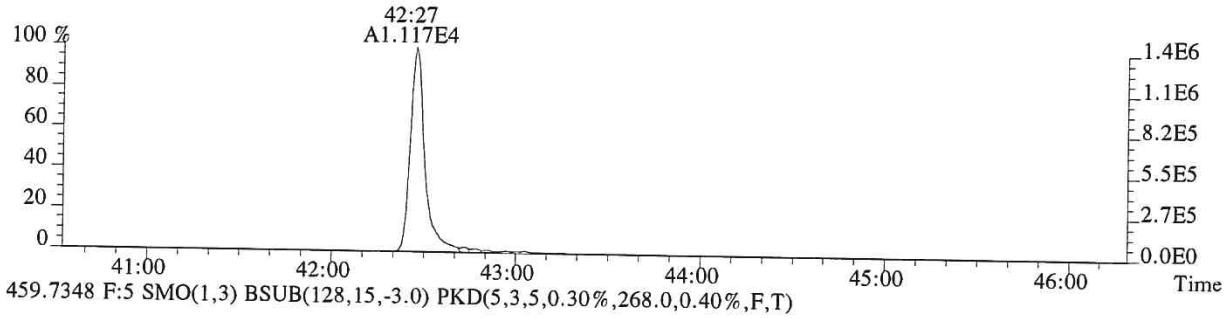


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

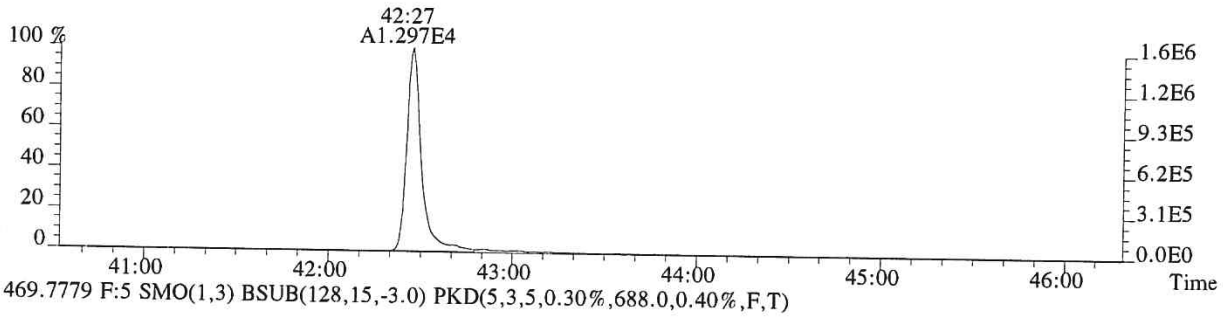


013262

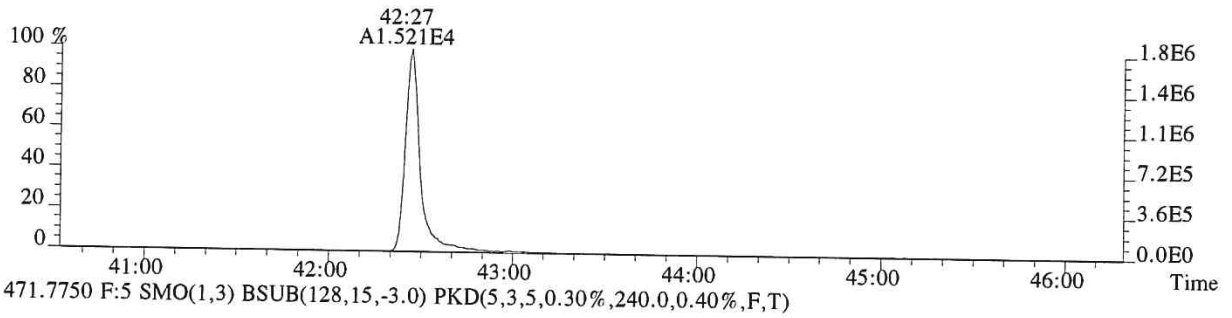
File:P519327 #1-520 Acq:10-DEC-2018 15:16:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-018DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



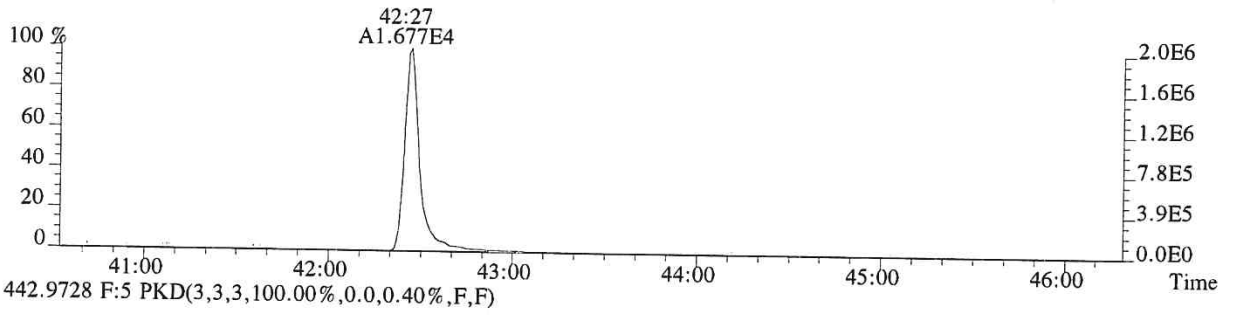
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



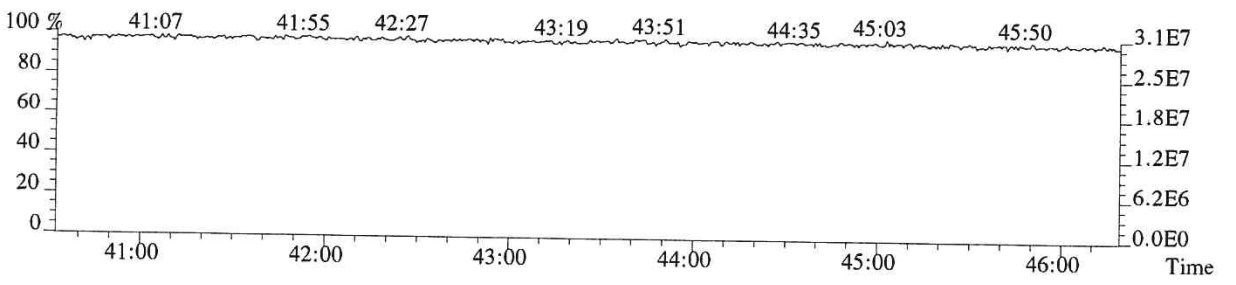
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0256

Run #17 Filename P519265 Samp: 1 Inj: 1 Acquired: 7-DEC-18 00:32:18
Processed: 7-DEC-18 13:10:15 Sample ID: E1801058-024

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	1.708e+04	2.257e+04	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	1.174e+03	7.672e+02	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	8.910e+02	5.623e+02	1.58	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	2.506e+03	2.249e+03	1.11	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	8.135e+02	6.237e+02	1.30	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	1.832e+02	1.308e+02	1.40	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	2.765e+02	2.499e+02	1.11	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	8.472e+02	8.200e+02	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	2.392e+02	2.530e+02	0.95	yes	no	1.258
10	Unk	OCDF	42:43	3.571e+02	3.835e+02	0.93	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:41	4.493e+03	5.614e+03	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	6.998e+01	6.228e+01	1.12	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	2.501e+01	1.563e+01	1.60	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	2.323e+01	1.594e+01	1.46	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	7.485e+02	7.046e+02	1.06	yes	no	1.025
17	Unk	OCDD	42:33	1.627e+04	1.861e+04	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.415e+04	1.815e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.507e+04	1.587e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.426e+04	1.531e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:51	1.124e+04	2.176e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:58	1.235e+04	2.384e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.146e+04	2.214e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:16	1.159e+04	2.224e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:35	7.796e+03	1.715e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	7.545e+03	1.707e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	6.283e+03	8.051e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.653e+04	1.058e+04	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:38	1.599e+04	1.252e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	1.485e+04	1.197e+04	1.24	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.610e+04	1.528e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:32	1.355e+04	1.485e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	2.182e+04	2.644e+04	0.83	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	3.142e+04	2.426e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	8.896e+03				no	1.014

$$\text{OCDD} = \frac{(1.627e+04 + 1.861e+04) \times 4000\ \text{pg} \times 1}{(1.355e+04 + 1.485e+04) \times 10.853\ \text{g} \times 80.7/100 \times 1.118} = 501.7\ \text{ng/kg}$$

LM 12/10/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0256

Run #17 Filename P519265 Samp: 1 Inj: 1 Acquired: 7-DEC-18 00:32:18
Processed: 7-DEC-18 13:10:15 LAB. ID: E1801058-024

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.86e+06	3.80e+02	7.5e+03	3.77e+06	6.12e+02	6.2e+03
2	1,2,3,7,8-PeCDF	2.20e+05	7.16e+02	3.1e+02	1.38e+05	6.12e+02	2.3e+02
3	2,3,4,7,8-PeCDF	1.58e+05	7.16e+02	2.2e+02	9.55e+04	6.12e+02	1.6e+02
4	1,2,3,4,7,8-HxCDF	5.46e+05	4.52e+02	1.2e+03	4.87e+05	2.72e+02	1.8e+03
5	1,2,3,6,7,8-HxCDF	1.59e+05	4.52e+02	3.5e+02	1.19e+05	2.72e+02	4.4e+02
6	2,3,4,6,7,8-HxCDF	3.83e+04	4.52e+02	8.5e+01	2.59e+04	2.72e+02	9.5e+01
7	1,2,3,7,8,9-HxCDF	5.10e+04	4.52e+02	1.1e+02	4.37e+04	2.72e+02	1.6e+02
8	1,2,3,4,6,7,8-HpCDF	1.91e+05	2.88e+02	6.6e+02	1.90e+05	3.88e+02	4.9e+02
9	1,2,3,4,7,8,9-HpCDF	4.20e+04	2.88e+02	1.5e+02	4.46e+04	3.88e+02	1.1e+02
10	OCDF	4.73e+04	2.28e+02	2.1e+02	5.86e+04	6.16e+02	9.5e+01
11	2,3,7,8-TCDD	8.66e+05	1.44e+03	6.0e+02	1.06e+06	7.00e+02	1.5e+03
12	1,2,3,7,8-PeCDD	1.50e+04	7.60e+02	2.0e+01	1.11e+04	2.04e+02	5.4e+01
13	1,2,3,4,7,8-HxCDD	*	2.96e+02	*	*	5.92e+02	*
14	1,2,3,6,7,8-HxCDD	5.04e+03	2.96e+02	1.7e+01	3.40e+03	5.92e+02	5.7e+00
15	1,2,3,7,8,9-HxCDD	6.19e+03	2.96e+02	2.1e+01	4.40e+03	5.92e+02	7.4e+00
16	1,2,3,4,6,7,8-HpCDD	1.51e+05	3.16e+02	4.8e+02	1.41e+05	1.52e+02	9.3e+02
17	OCDD	2.24e+06	2.68e+02	8.4e+03	2.58e+06	4.36e+02	5.9e+03
18	13C-2,3,7,8-TCDF	2.59e+06	4.65e+03	5.6e+02	3.33e+06	3.04e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	4.80e+06	5.52e+02	8.7e+03	3.07e+06	2.04e+02	1.5e+04
20	13C-2,3,4,7,8-PeCDF	5.02e+06	5.52e+02	9.1e+03	3.13e+06	2.04e+02	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.47e+06	3.88e+02	6.4e+03	4.79e+06	3.92e+02	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.50e+06	3.88e+02	6.5e+03	4.86e+06	3.92e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.48e+06	3.88e+02	6.4e+03	4.71e+06	3.92e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.37e+06	3.88e+02	6.1e+03	4.49e+06	3.92e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.70e+06	1.88e+03	9.1e+02	3.74e+06	7.44e+02	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.31e+06	1.88e+03	7.0e+02	3.02e+06	7.44e+02	4.1e+03
27	13C-2,3,7,8-TCDD	1.24e+06	3.94e+03	3.2e+02	1.59e+06	1.82e+03	8.7e+02
28	13C-1,2,3,7,8-PeCDD	3.69e+06	3.84e+02	9.6e+03	2.35e+06	2.72e+02	8.6e+03
29	13C-1,2,3,4,7,8-HxCDD	3.69e+06	5.88e+02	6.3e+03	2.89e+06	3.68e+02	7.9e+03
30	13C-1,2,3,6,7,8-HxCDD	3.05e+06	5.88e+02	5.2e+03	2.50e+06	3.68e+02	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.12e+06	4.16e+02	7.5e+03	3.00e+06	2.40e+02	1.3e+04
32	13C-OCDD	1.89e+06	3.12e+02	6.1e+03	2.05e+06	2.16e+02	9.5e+03
33	13C-1,2,3,4-TCDD	4.12e+06	3.94e+03	1.0e+03	5.06e+06	1.82e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	6.65e+06	5.88e+02	1.1e+04	5.12e+06	3.68e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	1.67e+06	6.44e+02	2.6e+03			

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Peak List Summary

CLIENT ID.
SL0256

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P519265 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 00:32:18 Processed: 7-DEC-18 13:10:15

Mass: 303.9020 305.8990 Tot Response: 6.87e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:06	7.23e+02	9.98e+02	0.72	yes	1.72e+03		n	n
2	25:50	5.66e+02	7.55e+02	0.75	yes	1.32e+03		n	n
3	26:27	4.19e+02	5.71e+02	0.73	yes	9.90e+02		n	n
4	26:34	7.62e+02	9.82e+02	0.78	yes	1.74e+03		n	n
5	27:02	6.94e+03	9.22e+03	0.75	yes	1.62e+04		n	n
6	27:18	3.53e+02	4.72e+02	0.75	yes	8.24e+02		n	n
7	27:51	1.71e+04	2.26e+04	0.76	yes	3.96e+04	2,3,7,8-TCDF	n	n
8	28:12	1.24e+03	1.57e+03	0.79	yes	2.81e+03		n	n
9	28:27	2.67e+02	3.12e+02	0.86	yes	5.80e+02		n	n
10	29:44	1.26e+03	1.65e+03	0.76	yes	2.91e+03		n	n

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CLIENT ID.
SL0256

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P519265 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 00:32:18 Processed: 7-DEC-18 13:10:15

Mass: 319.8970 321.8940 Tot Response: 1.10e+04 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:41	4.49e+03	5.61e+03 0.80	yes	1.01e+04	2,3,7,8-TCDD	n	n
2	28:59	3.81e+02	4.78e+02 0.80	yes	8.59e+02		n	n

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Peak List Summary

CLIENT ID.
SL0256

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P519265 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 00:32:18 Processed: 7-DEC-18 13:10:15

Mass: 339.8600 341.8570 Tot Response: 4.27e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:06	1.20e+01	9.04e+00	1.32	yes	2.10e+01		n	n
2	31:14	4.83e+02	3.05e+02	1.58	yes	7.88e+02		n	n
3	32:12	1.17e+03	7.67e+02	1.53	yes	1.94e+03	1,2,3,7,8-PeCDF	n	n
4	33:07	8.91e+02	5.62e+02	1.58	yes	1.45e+03	2,3,4,7,8-PeCDF	n	n
5	34:02	3.89e+01	2.72e+01	1.43	yes	6.61e+01		n	n

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Peak List Summary

CLIENT ID.
SL0256

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P519265 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 00:32:18 Processed: 7-DEC-18 13:10:15

Mass: 355.8550 357.8520 Tot Response: 1.58e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:15	1.33e+01	7.65e+00	1.73	yes	2.09e+01		n	n
2	31:44	7.29e+01	4.91e+01	1.49	yes	1.22e+02		n	n
3	32:29	8.60e+00	6.46e+00	1.33	yes	1.51e+01		n	n

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SL0256

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P519265 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 00:32:18 Processed: 7-DEC-18 13:10:15

Mass: 373.8210 375.8180 Tot Response: 7.22e+03 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:25	1.00e+02	8.57e+01	1.17	yes	1.86e+02		n	n
2	35:52	2.51e+03	2.25e+03	1.11	yes	4.75e+03	1,2,3,4,7,8-HxCDF	n	n
3	35:59	8.14e+02	6.24e+02	1.30	yes	1.44e+03	1,2,3,6,7,8-HxCDF	n	n
4	36:31	1.83e+02	1.31e+02	1.40	yes	3.14e+02	2,3,4,6,7,8-HxCDF	n	n
5	37:19	2.76e+02	2.50e+02	1.11	yes	5.26e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0256

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P519265 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 00:32:18 Processed: 7-DEC-18 13:10:15

Mass: 389.8160 391.8130 Tot Response: 9.02e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:16	3.87e+02	3.49e+02 1.11	yes	7.36e+02		n	n
2	36:02	8.53e+01	8.08e+01 1.06	yes	1.66e+02		n	n

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CLIENT ID.
SL0256

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P519265 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 00:32:18 Processed: 7-DEC-18 13:10:15

Mass: 407.7820 409.7790 Tot Response: 2.88e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:36	8.47e+02	8.20e+02	1.03	yes	1.67e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	39:00	3.41e+02	3.84e+02	0.89	yes	7.25e+02		n	n
3	40:03	2.39e+02	2.53e+02	0.95	yes	4.92e+02	1,2,3,4,7,8,9-HpCDF	n	n

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CLIENT ID.
SL0256

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P519265 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 00:32:18 Processed: 7-DEC-18 13:10:15

Mass: 423.7770 425.7740 Tot Response: 3.95e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:52	1.29e+03	1.21e+03 1.06	yes	2.50e+03		n	n
2	39:35	7.49e+02	7.05e+02 1.06	yes	1.45e+03	1,2,3,4,6,7,8-HpCDD	n	n

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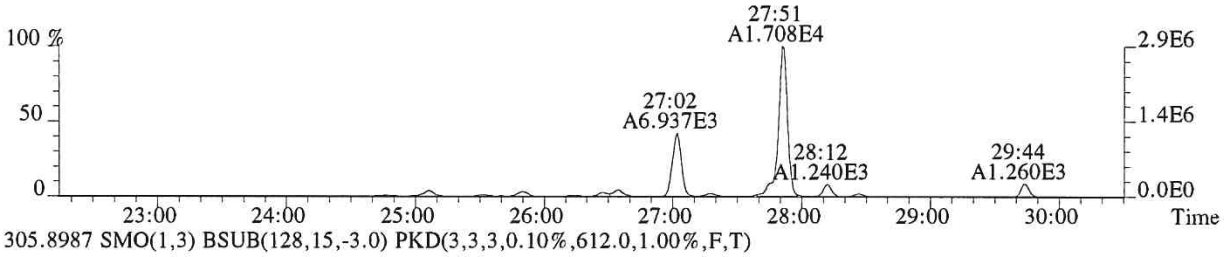
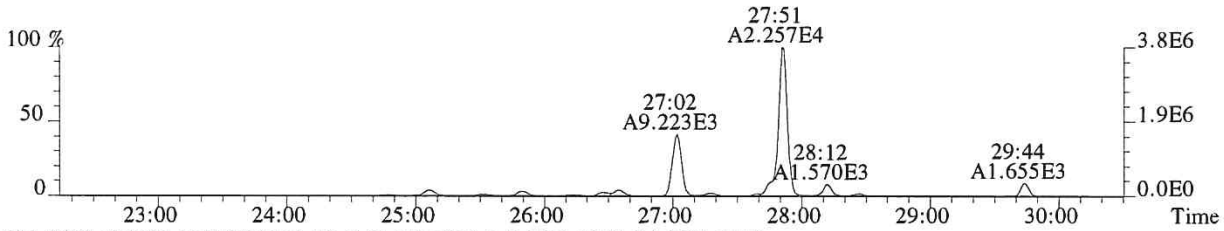
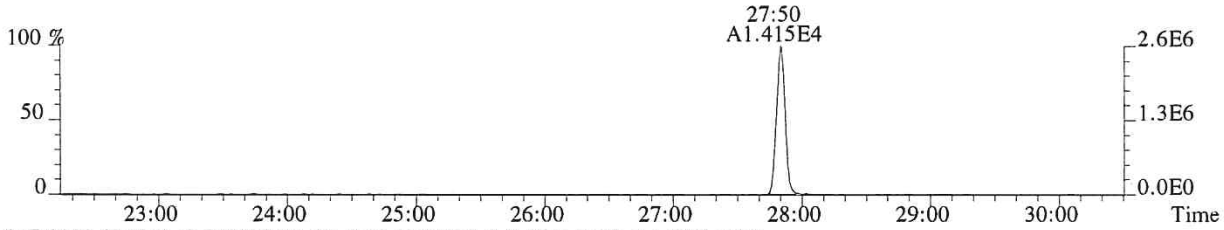
File:P519265 #1-587 Acq: 7-DEC-2018 00:32:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-024
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



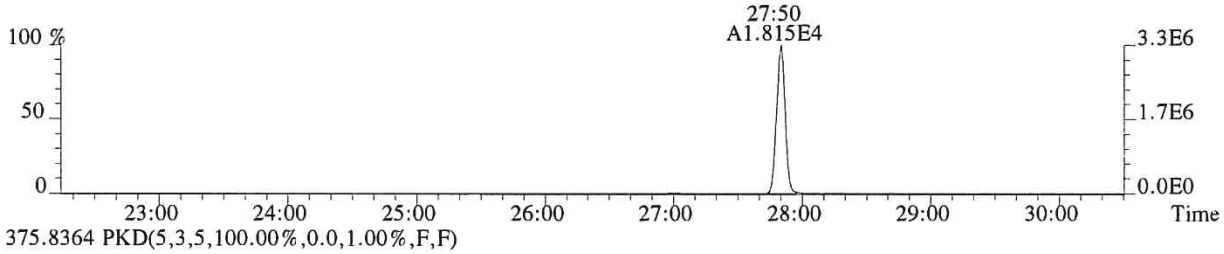
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



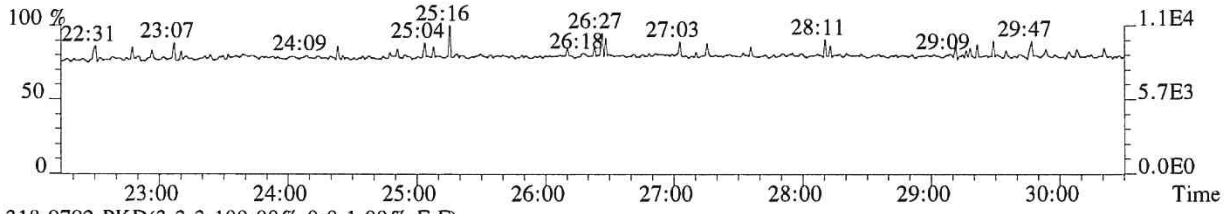
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4652.0,1.00%,F,T)



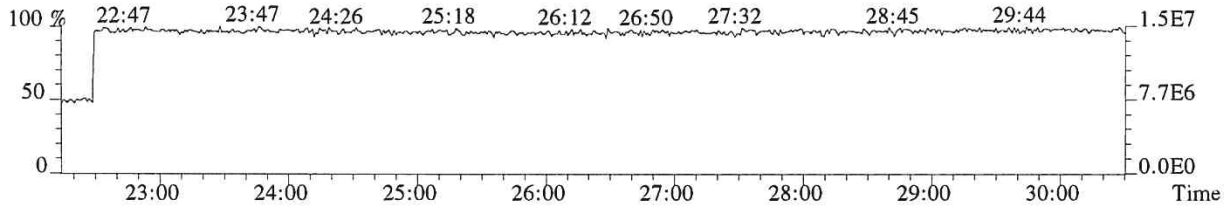
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3040.0,1.00%,F,T)



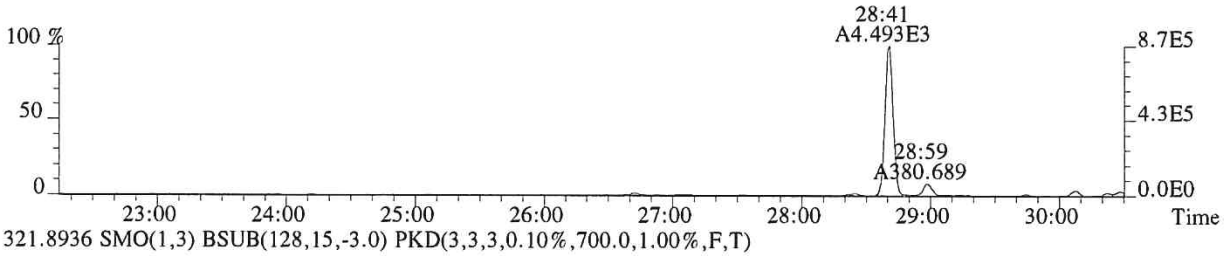
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



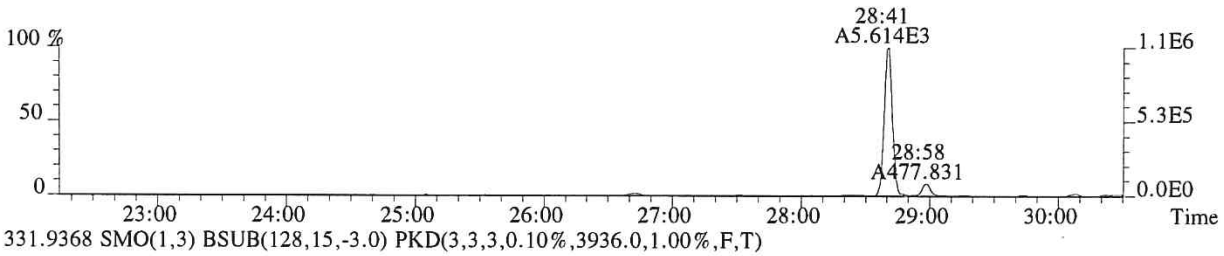
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



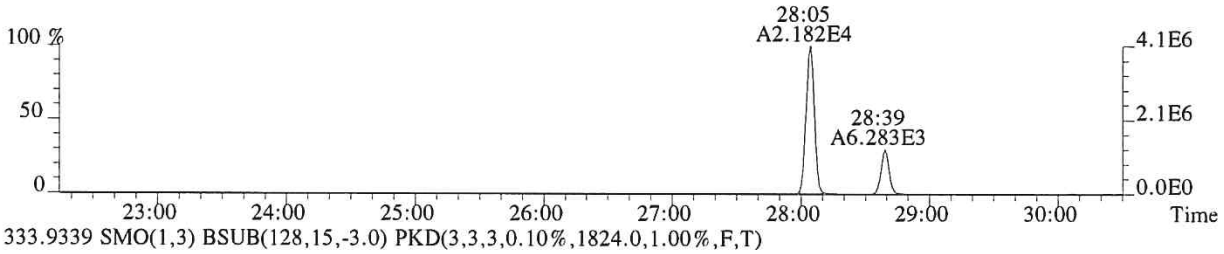
File:P519265 #1-587 Acq: 7-DEC-2018 00:32:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-024
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



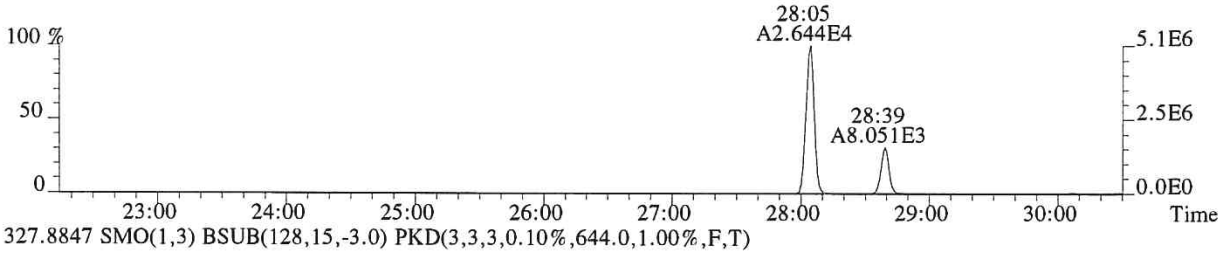
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



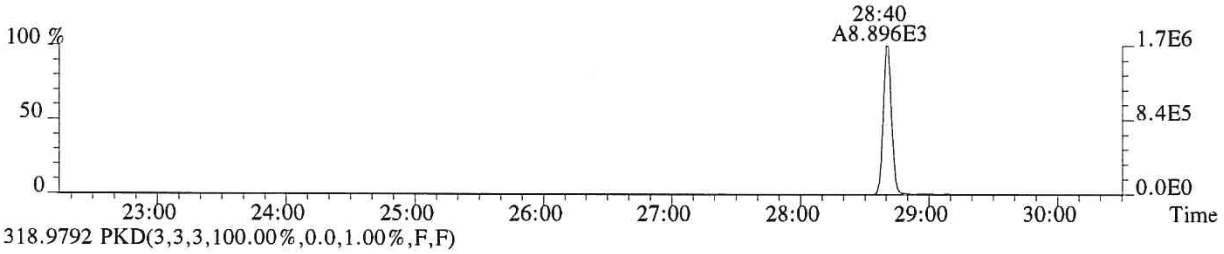
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



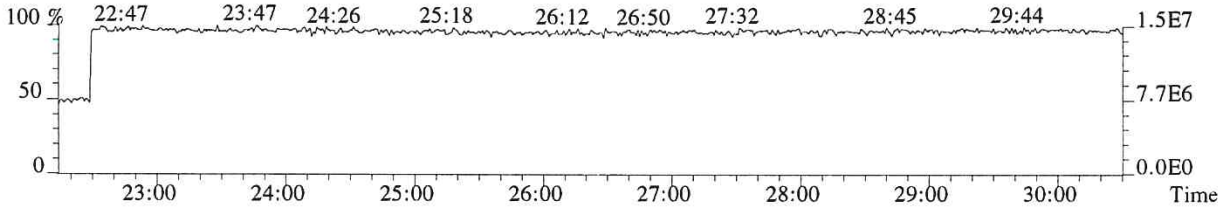
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1824.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)

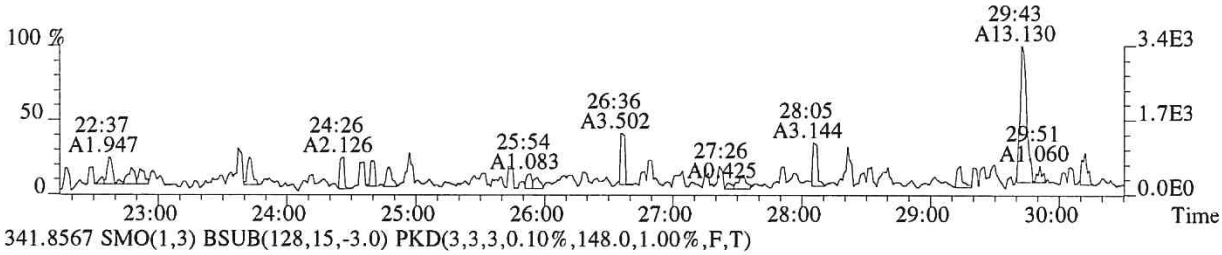


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

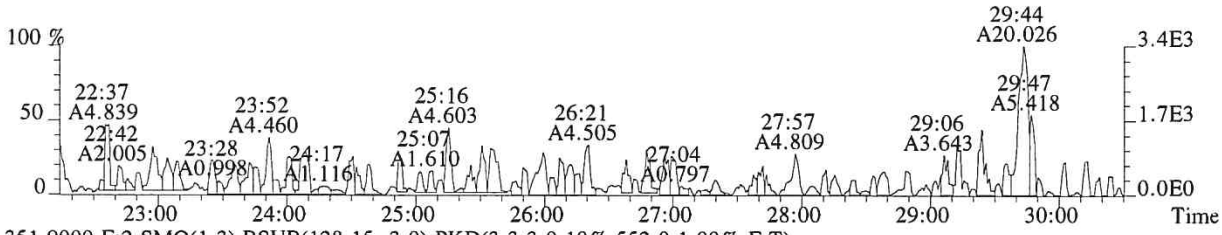


013275

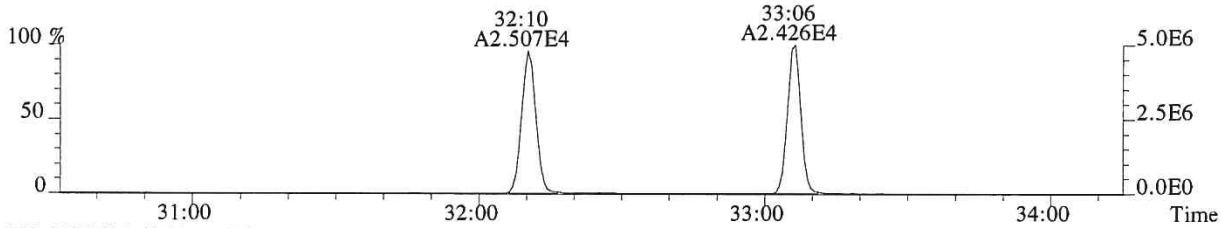
File:P519265 #1-587 Acq: 7-DEC-2018 00:32:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-024
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



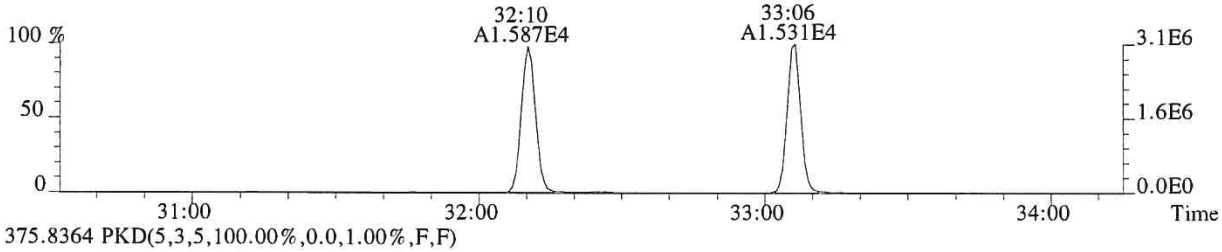
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)



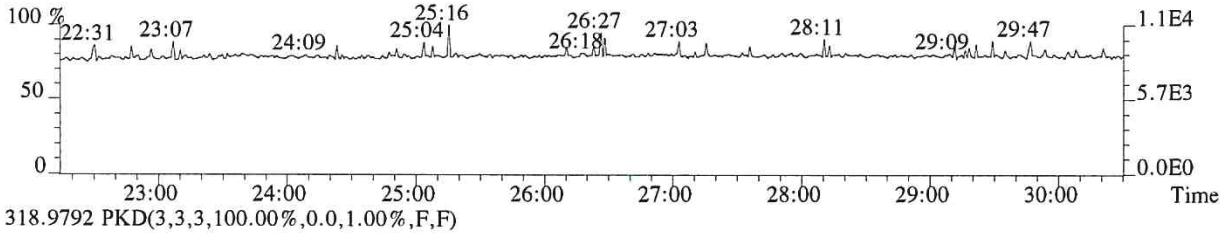
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



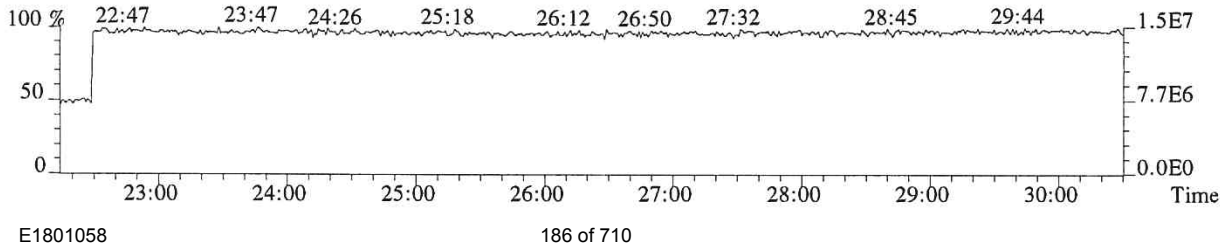
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

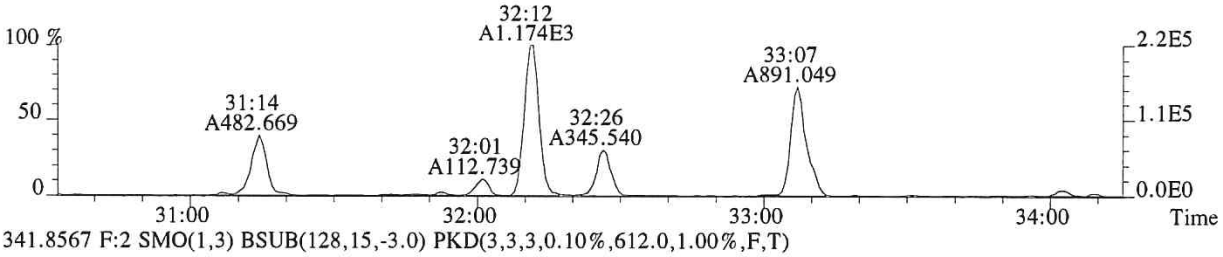


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

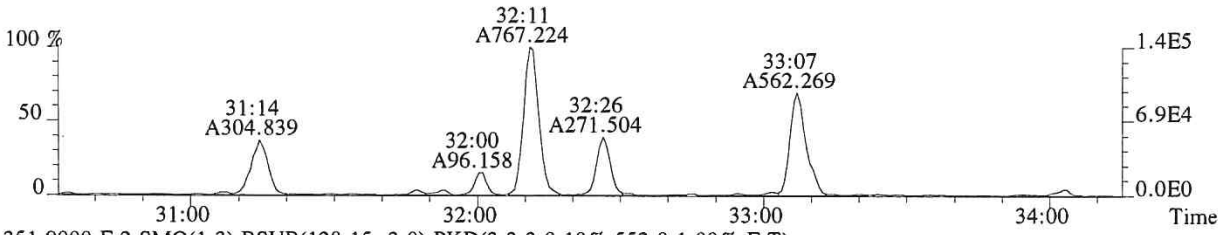


013276

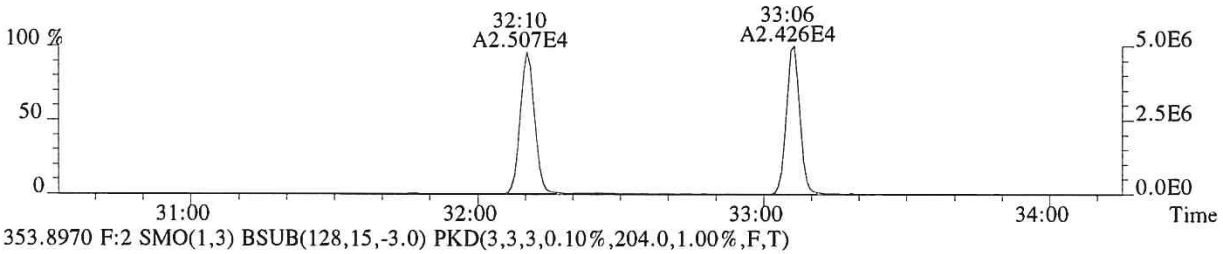
File:P519265 #1-335 Acq: 7-DEC-2018 00:32:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-024
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



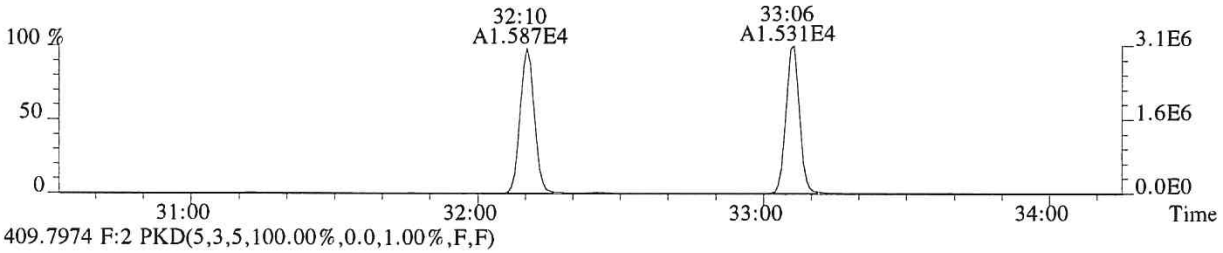
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



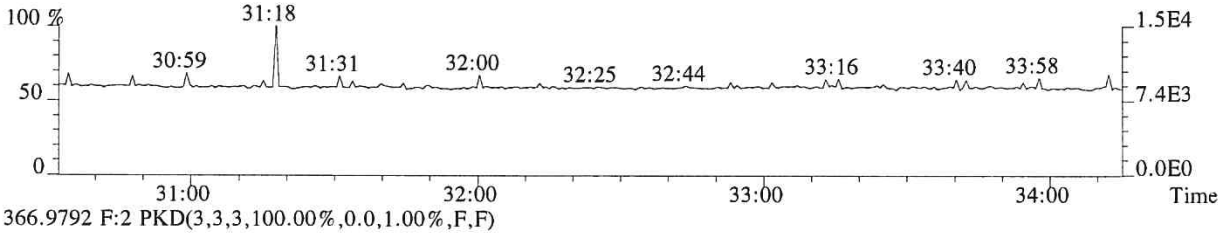
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



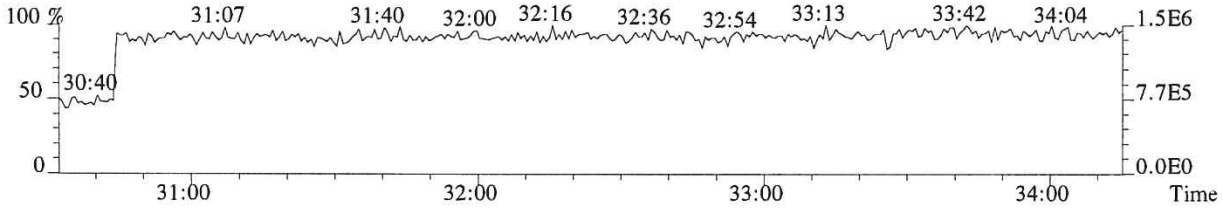
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



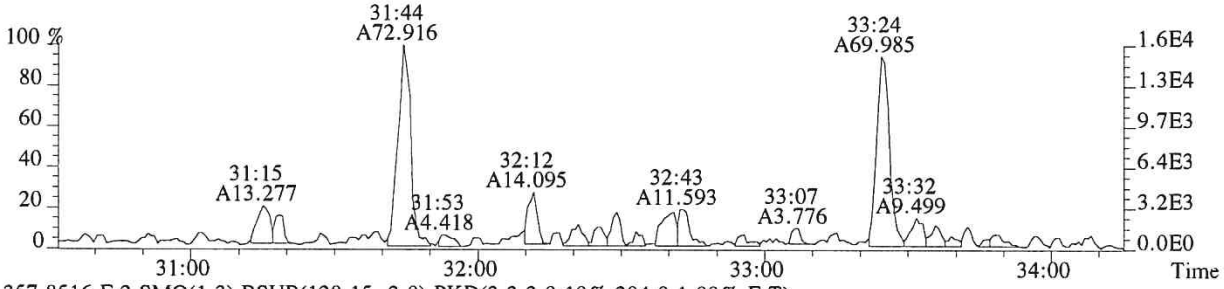
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



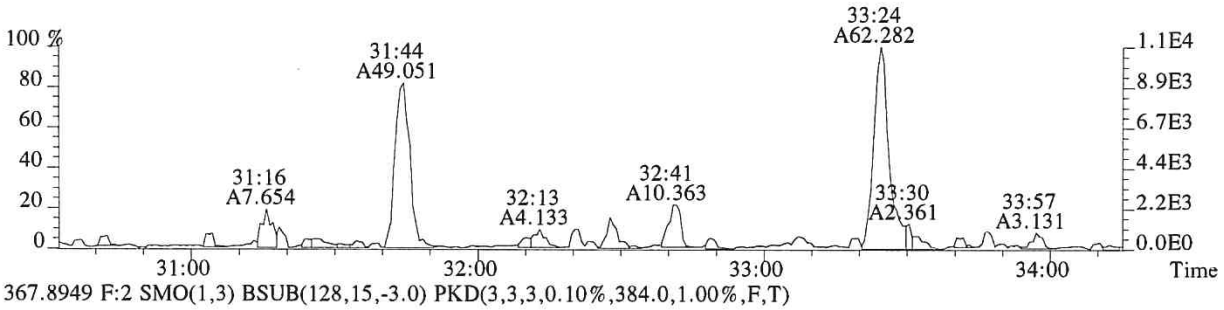
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



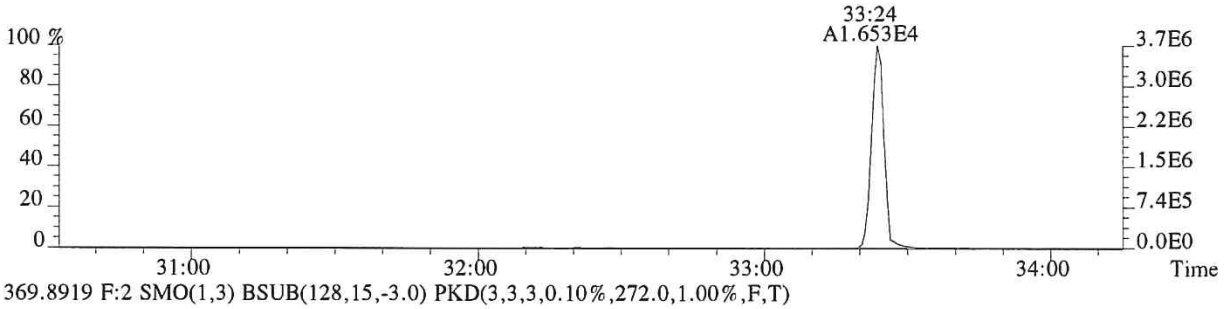
File:P519265 #1-335 Acq: 7-DEC-2018 00:32:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-024
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



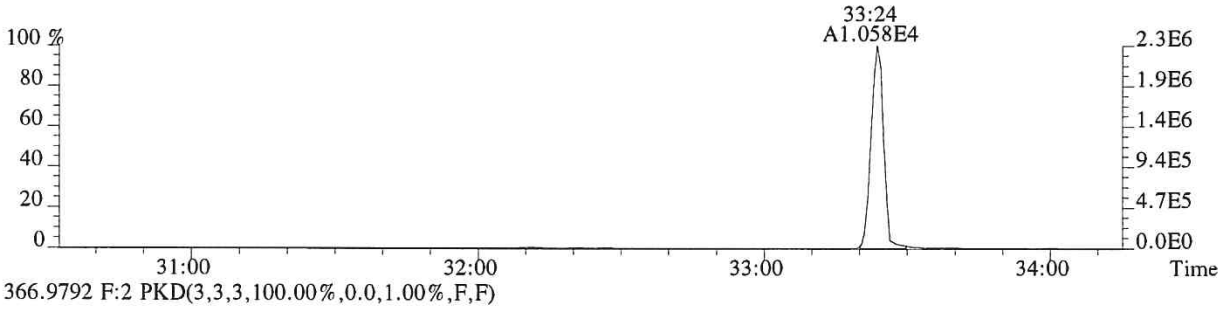
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



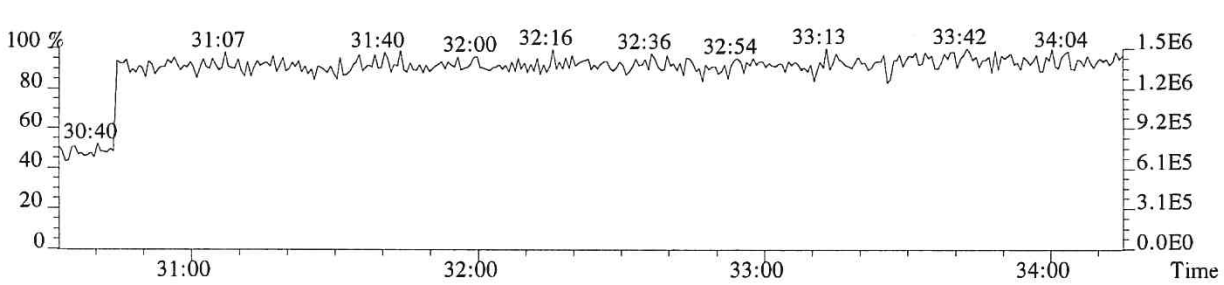
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



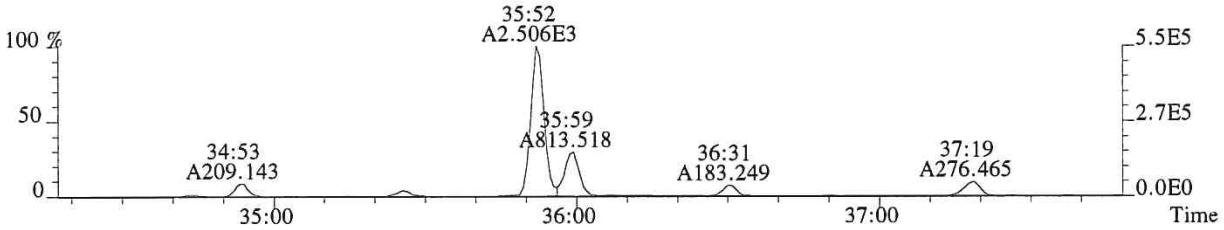
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



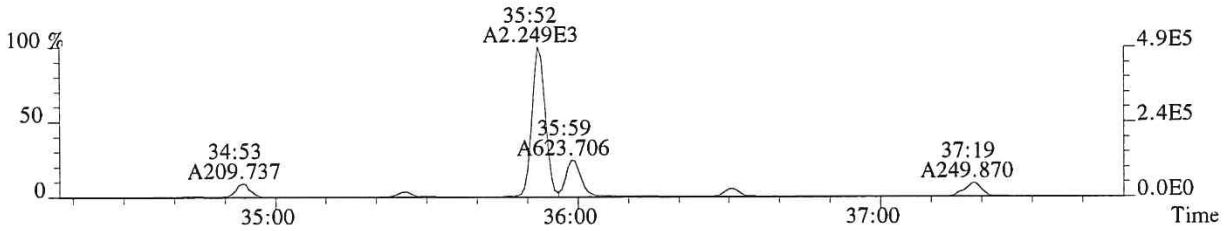
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



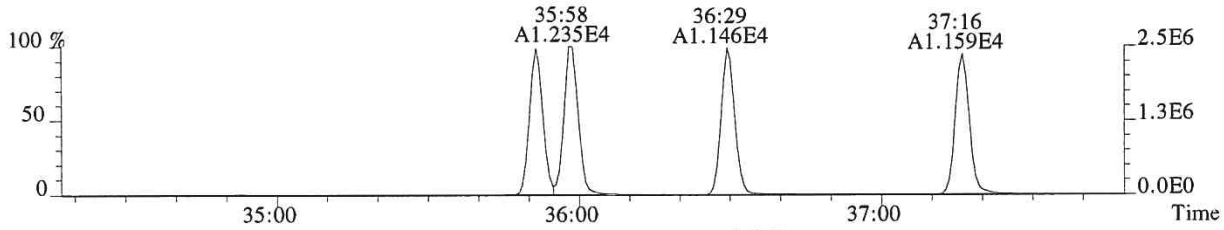
File:P519265 #1-317 Acq: 7-DEC-2018 00:32:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-024
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



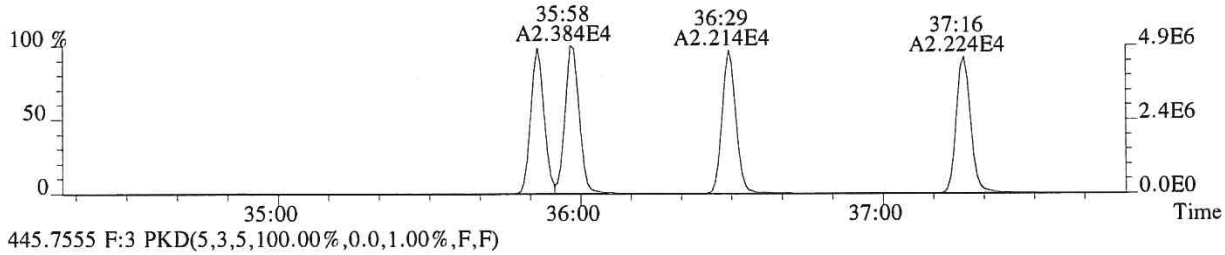
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



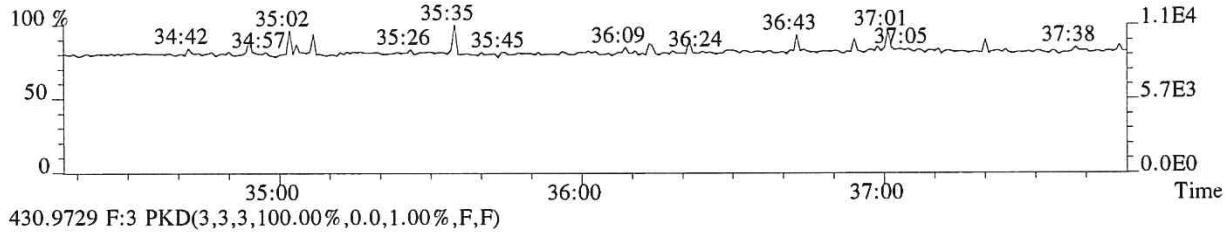
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



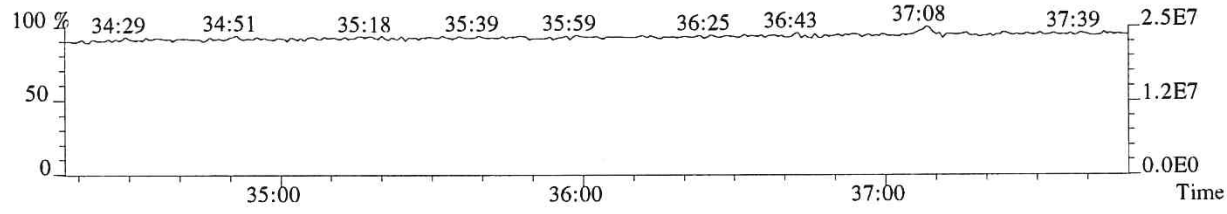
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



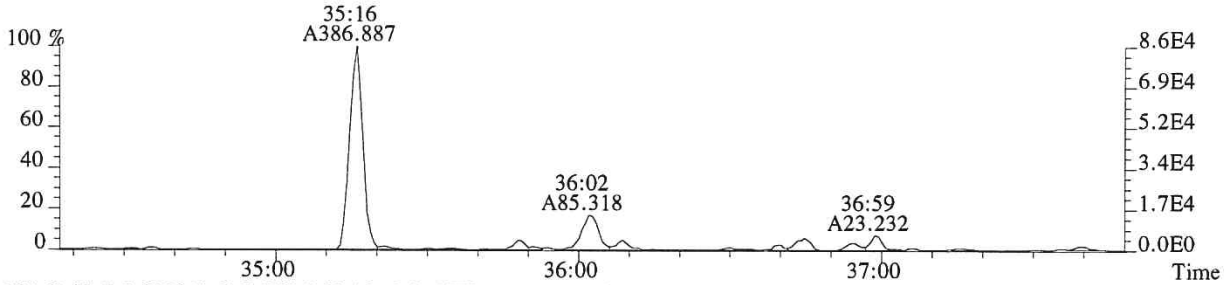
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



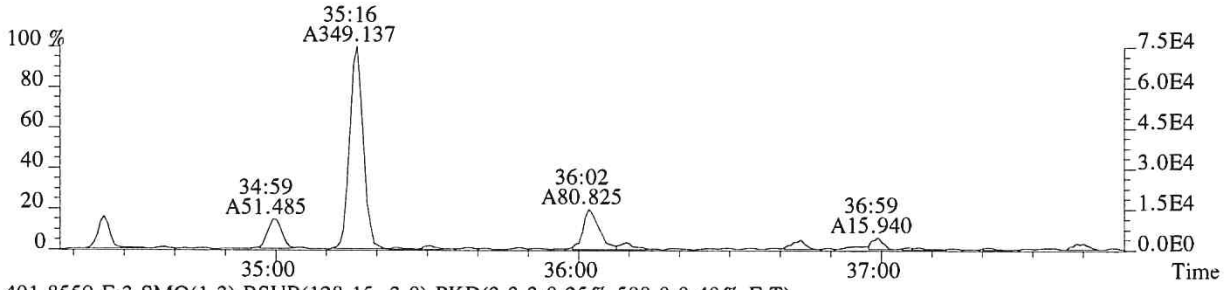
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



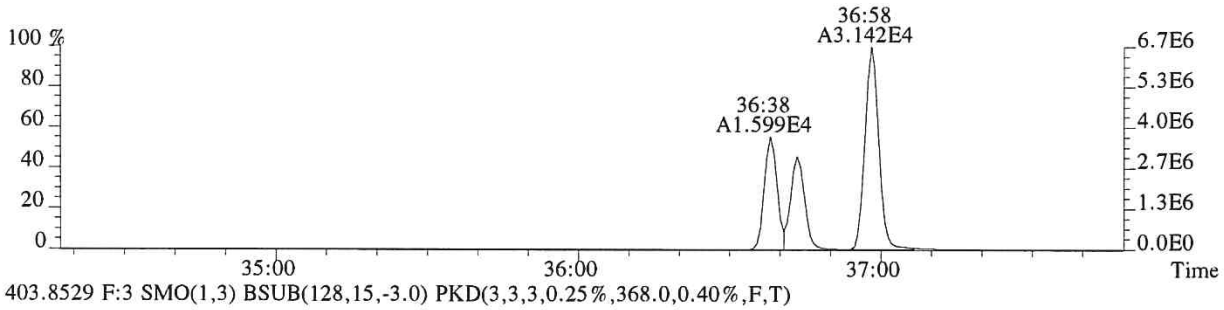
File:P519265 #1-317 Acq: 7-DEC-2018 00:32:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-024
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



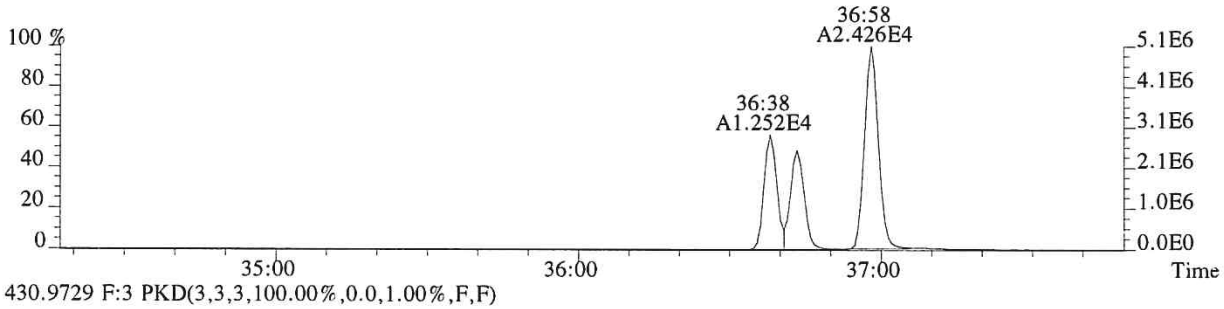
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



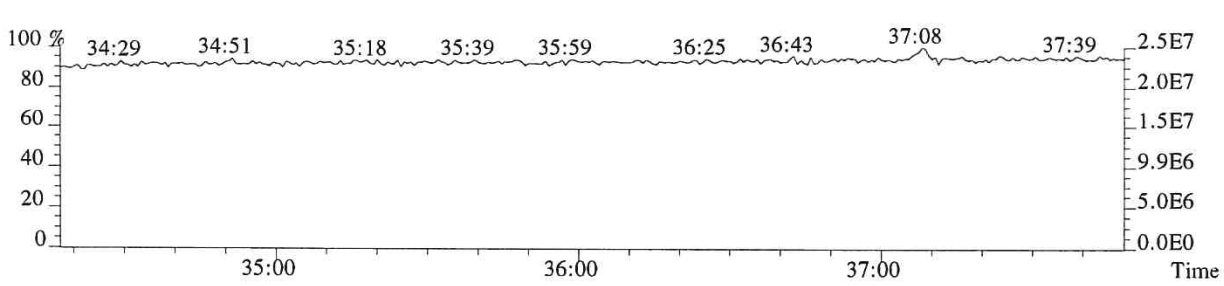
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



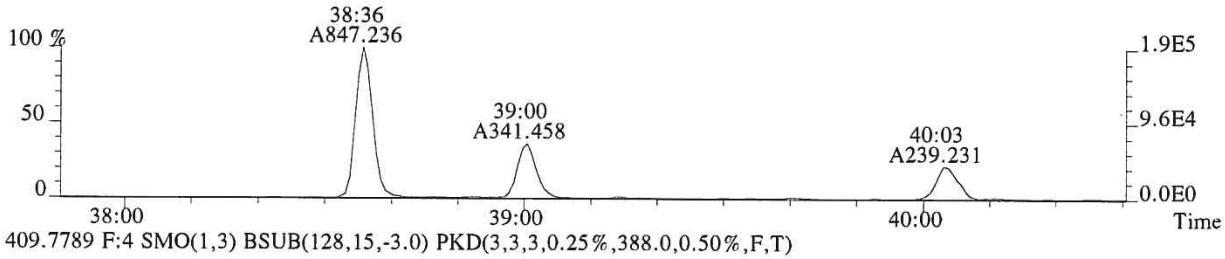
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



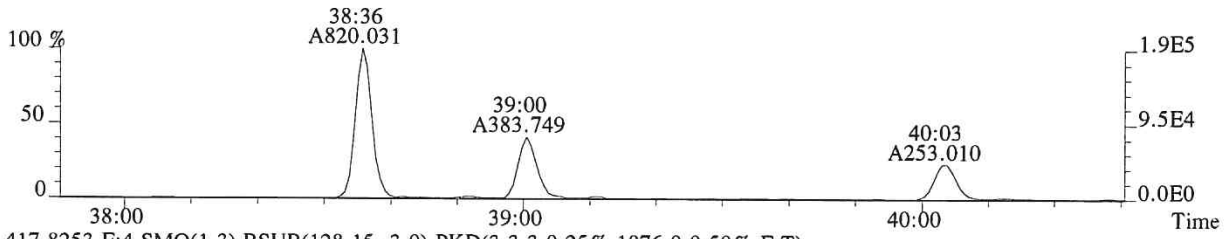
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



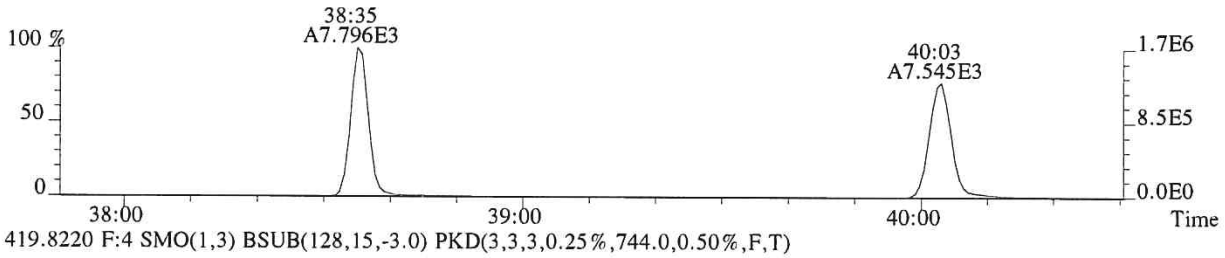
File:P519265 #1-241 Acq: 7-DEC-2018 00:32:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-024
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.50%,F,T)



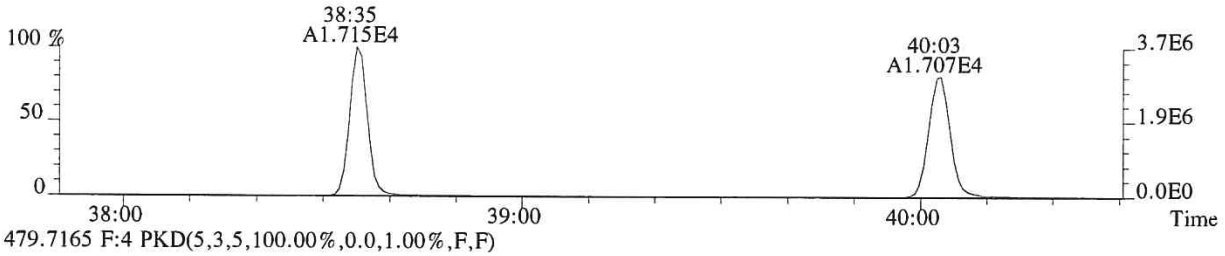
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.50%,F,T)



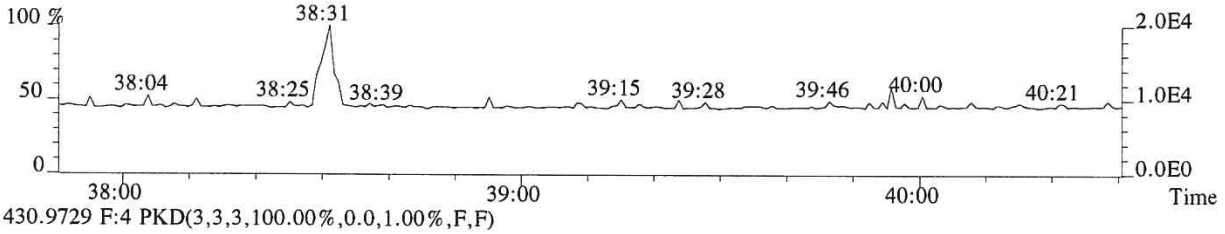
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.50%,F,T)



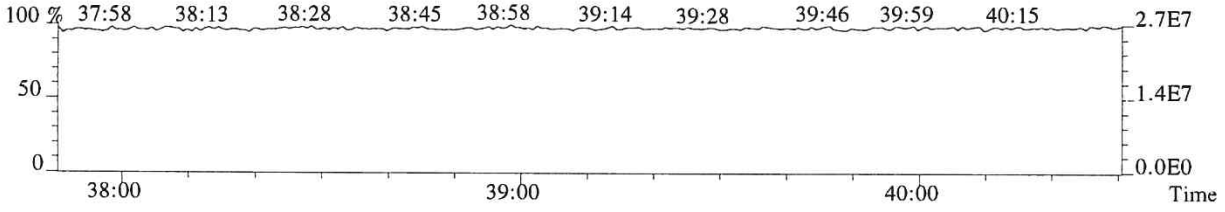
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

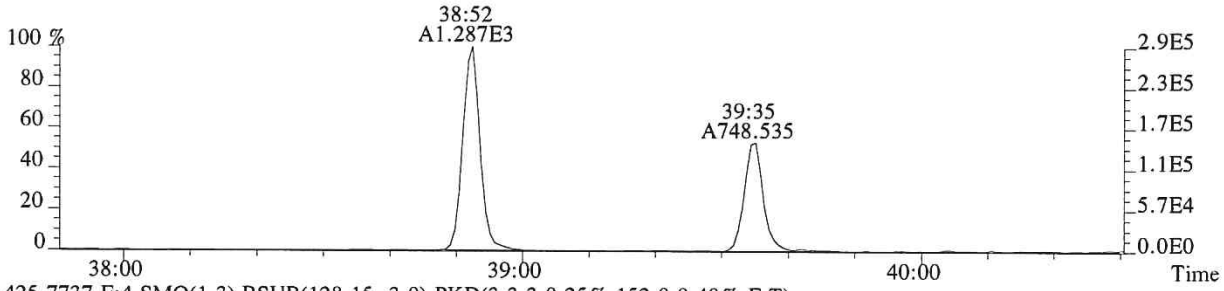


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

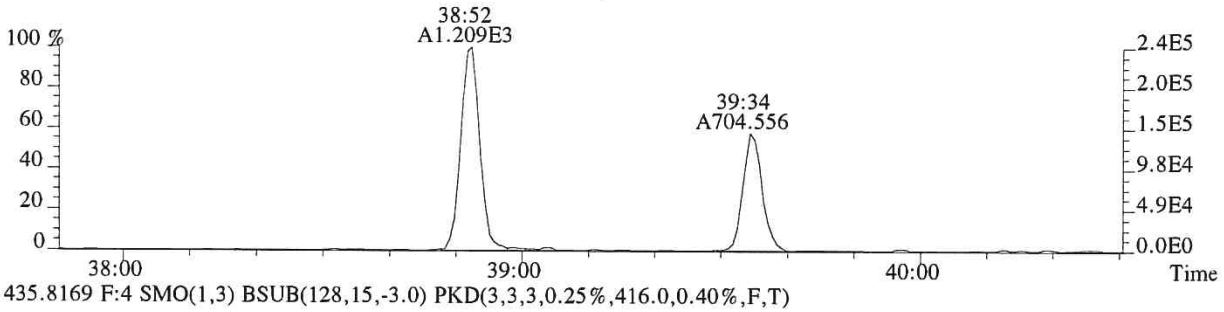


013281

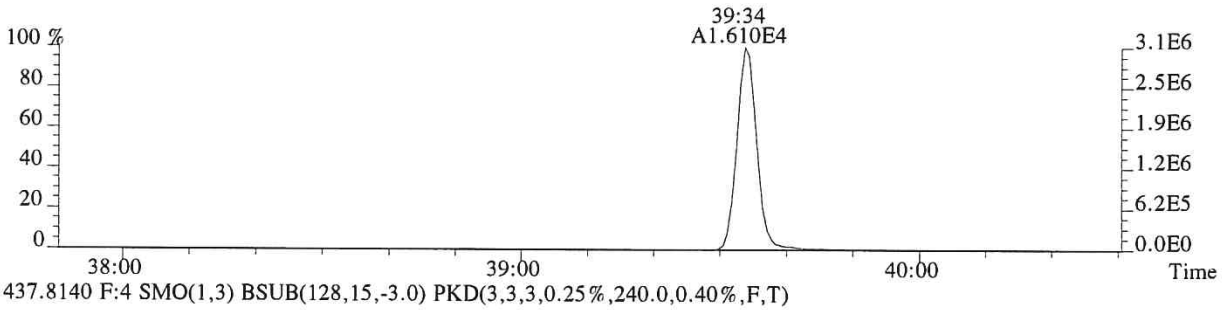
File:P519265 #1-241 Acq: 7-DEC-2018 00:32:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-024
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



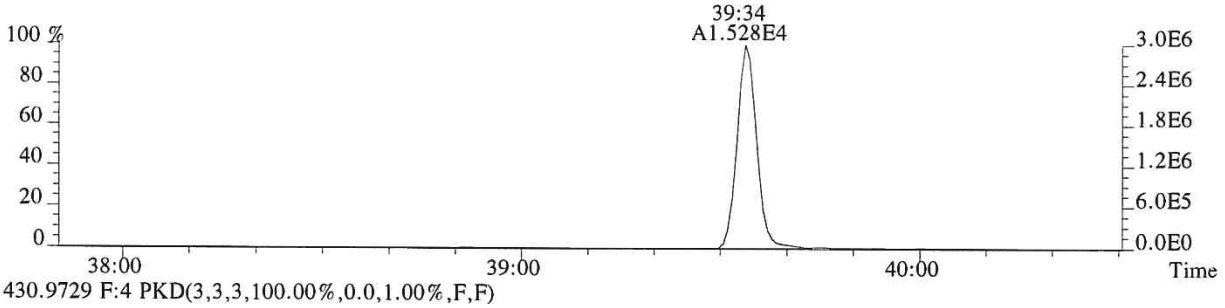
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,152.0,0.40%,F,T)



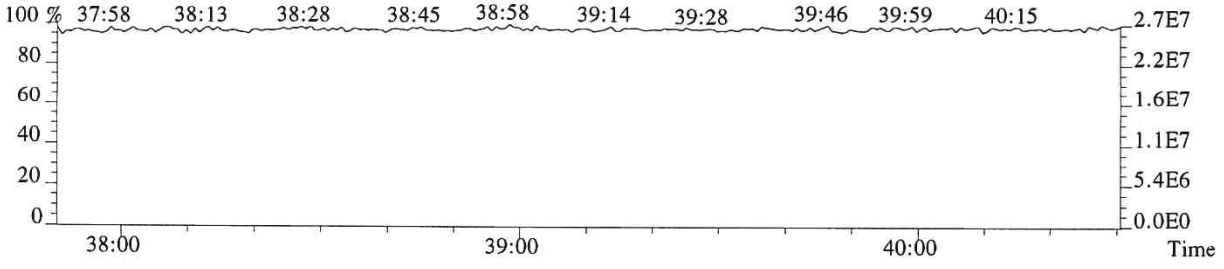
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)

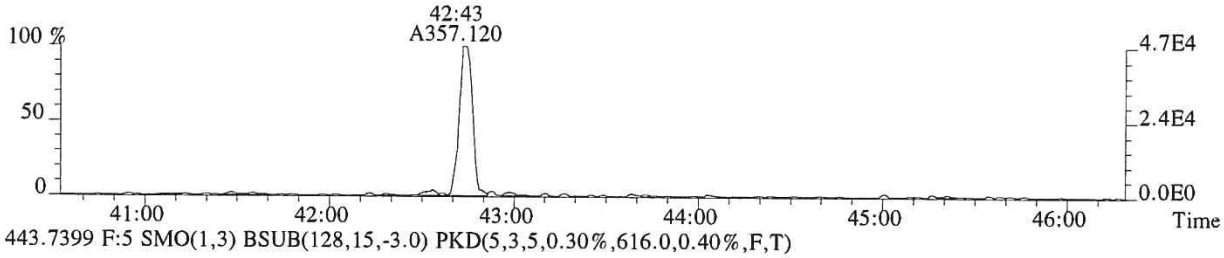


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

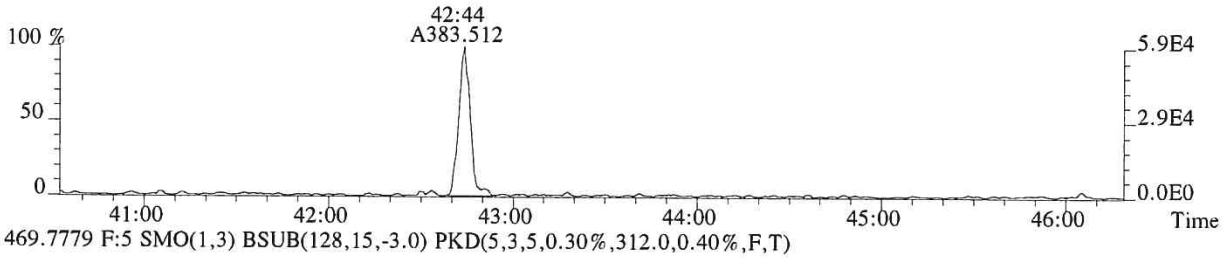


013282

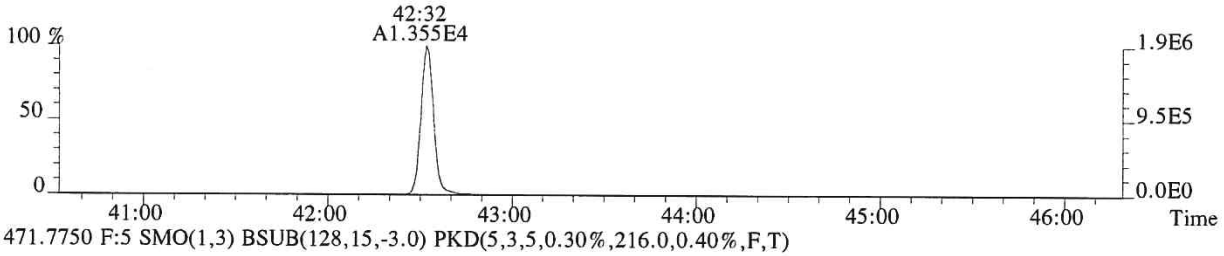
File:P519265 #1-520 Acq: 7-DEC-2018 00:32:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-024
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



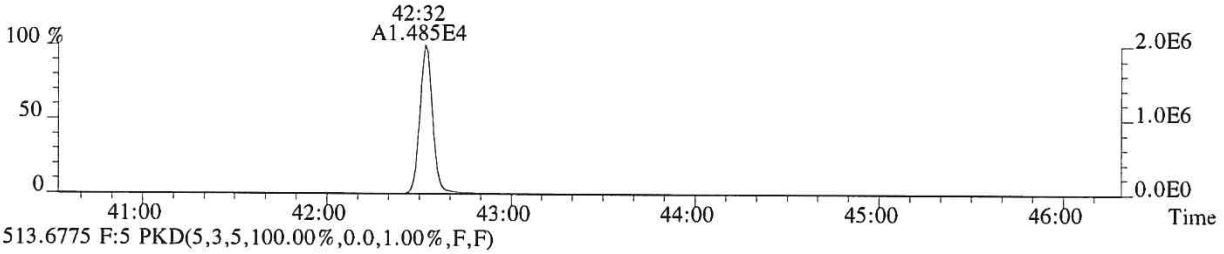
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



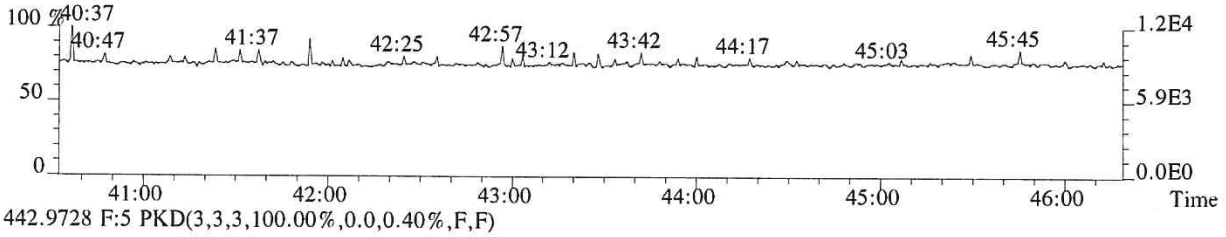
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



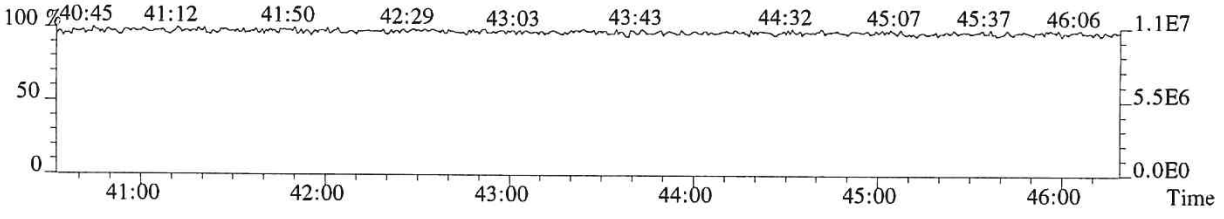
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

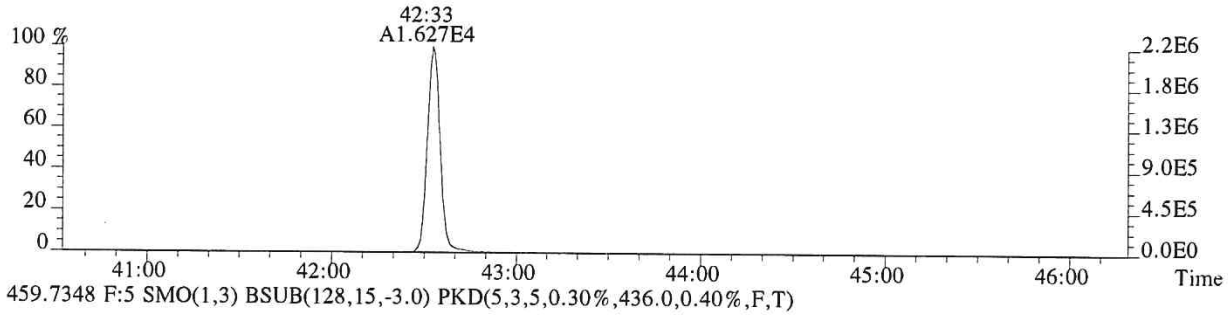


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

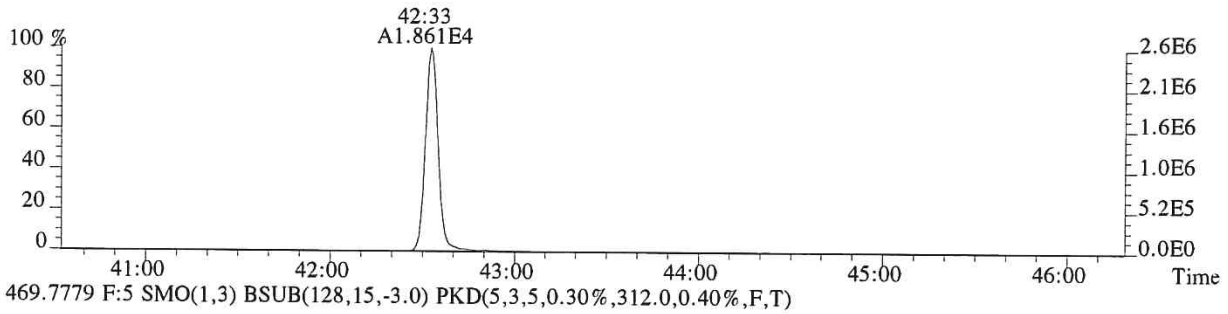


013283

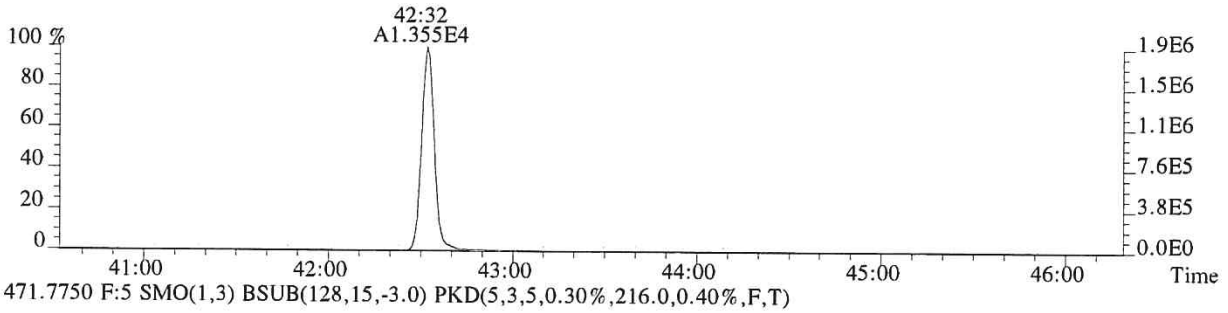
File:P519265 #1-520 Acq: 7-DEC-2018 00:32:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-024
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



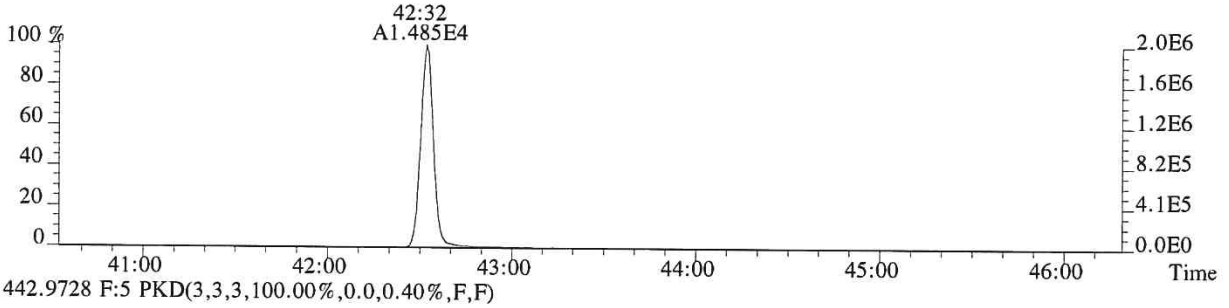
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



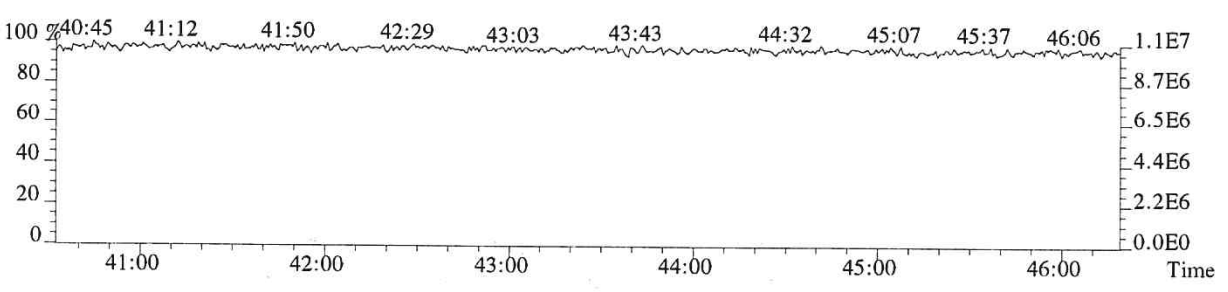
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
FW008

Run #19 Filename P519362 Samp: 1 Inj: 1 Acquired: 11-DEC-18 20:19:13
Processed: 12-DEC-18 09:58:32 Sample ID: E1801058-030

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	4.249e+01	5.937e+01	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:33	5.794e+00	4.022e+00	1.44	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	6.544e+00	4.162e+00	1.57	no	yes	1.025
17	Unk	OCDD	42:29	5.048e+01	7.321e+01	0.69	no	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	6.861e+03	8.852e+03	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	1.494e+04	9.291e+03	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	1.422e+04	8.978e+03	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	6.388e+03	1.269e+04	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	7.820e+03	1.527e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	7.061e+03	1.384e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	6.110e+03	1.235e+04	0.49	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	5.474e+03	1.198e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	4.680e+03	1.111e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	3.402e+03	4.046e+03	0.84	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	1.048e+04	6.607e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	9.240e+03	7.523e+03	1.23	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	9.308e+03	7.436e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	1.106e+04	1.026e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:29	9.889e+03	1.122e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	1.970e+04	2.397e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	2.719e+04	2.090e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	5.074e+03				no	1.014

$$\text{OCDD} = \frac{(5.048e+01 + \cancel{7.321e+01}\ 5.672e+01) \times 4000\ \text{pg} \times 1}{(9.889e+03 + 1.122e+04) \times 0.5 \times 100 / 100 \times 1.118} = 36.3\ \text{pg}$$

LMM 12/12/18

OCDD = 0.69 < 0.89

$A_2 = \frac{A_1}{0.89} = 5.672e+01$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW008

Run #19 Filename P519362 Samp: 1 Inj: 1 Acquired: 11-DEC-18 20:19:13
Processed: 12-DEC-18 09:58:32 LAB. ID: E1801058-030

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.98e+03	3.32e+02	1.8e+01	9.66e+03	1.36e+03	7.1e+00
2	1,2,3,7,8-PeCDF	*	3.36e+02	*	*	9.08e+02	*
3	2,3,4,7,8-PeCDF	*	3.36e+02	*	*	9.08e+02	*
4	1,2,3,4,7,8-HxCDF	*	3.40e+02	*	*	3.80e+02	*
5	1,2,3,6,7,8-HxCDF	*	3.40e+02	*	*	3.80e+02	*
6	2,3,4,6,7,8-HxCDF	*	3.40e+02	*	*	3.80e+02	*
7	1,2,3,7,8,9-HxCDF	*	3.40e+02	*	*	3.80e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.75e+03	2.84e+02	6.2e+00	1.19e+03	3.04e+02	3.9e+00
9	1,2,3,4,7,8,9-HpCDF	*	2.84e+02	*	*	3.04e+02	*
10	OCDF	*	3.00e+02	*	*	7.72e+02	*
11	2,3,7,8-TCDD	*	1.86e+03	*	*	8.72e+02	*
12	1,2,3,7,8-PeCDD	*	5.76e+02	*	*	4.24e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.32e+02	*	*	3.92e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.32e+02	*	*	3.92e+02	*
15	1,2,3,7,8,9-HxCDD	*	2.32e+02	*	*	3.92e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.27e+03	2.04e+02	6.2e+00	1.08e+03	2.08e+02	5.2e+00
17	OCDD	5.54e+03	2.48e+02	2.2e+01	8.26e+03	3.84e+02	2.2e+01
18	13C-2,3,7,8-TCDF	1.18e+06	8.32e+03	1.4e+02	1.53e+06	4.57e+03	3.3e+02
19	13C-1,2,3,7,8-PeCDF	2.70e+06	9.00e+02	3.0e+03	1.67e+06	6.96e+02	2.4e+03
20	13C-2,3,4,7,8-PeCDF	2.66e+06	9.00e+02	3.0e+03	1.71e+06	6.96e+02	2.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.30e+06	8.92e+02	1.5e+03	2.61e+06	6.92e+02	3.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.47e+06	8.92e+02	1.6e+03	2.95e+06	6.92e+02	4.3e+03
23	13C-2,3,4,6,7,8-HxCDF	1.33e+06	8.92e+02	1.5e+03	2.66e+06	6.92e+02	3.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.09e+06	8.92e+02	1.2e+03	2.16e+06	6.92e+02	3.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.01e+06	6.68e+02	1.5e+03	2.29e+06	9.96e+02	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.35e+05	6.68e+02	1.1e+03	1.70e+06	9.96e+02	1.7e+03
27	13C-2,3,7,8-TCDD	6.02e+05	3.99e+03	1.5e+02	7.28e+05	2.50e+03	2.9e+02
28	13C-1,2,3,7,8-PeCDD	1.98e+06	6.52e+02	3.0e+03	1.23e+06	5.96e+02	2.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.94e+06	1.33e+03	1.5e+03	1.58e+06	5.96e+02	2.6e+03
30	13C-1,2,3,6,7,8-HxCDD	1.77e+06	1.33e+03	1.3e+03	1.44e+06	5.96e+02	2.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.80e+06	4.48e+02	4.0e+03	1.68e+06	2.08e+02	8.1e+03
32	13C-OCDD	1.16e+06	3.24e+02	3.6e+03	1.29e+06	2.24e+02	5.8e+03
33	13C-1,2,3,4-TCDD	3.65e+06	3.99e+03	9.2e+02	4.46e+06	2.50e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	5.07e+06	1.33e+03	3.8e+03	3.99e+06	5.96e+02	6.7e+03
35	37Cl-2,3,7,8-TCDD	9.06e+05	1.20e+03	7.6e+02			

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Peak List Summary

CLIENT ID.
FW008

Entry: 36 Totals Name: Total Tetra-Furans

Run: 19 File: P519362 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 20:19:13 Processed: 12-DEC-18 09:58:32

Mass: 303.9020 305.8990 Tot Response: 1.40e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:55	1.62e+01	2.16e+01	0.75	yes	3.78e+01		n	n
2	27:45	4.25e+01	5.94e+01	0.72	yes	1.02e+02	2,3,7,8-TCDF	n	n

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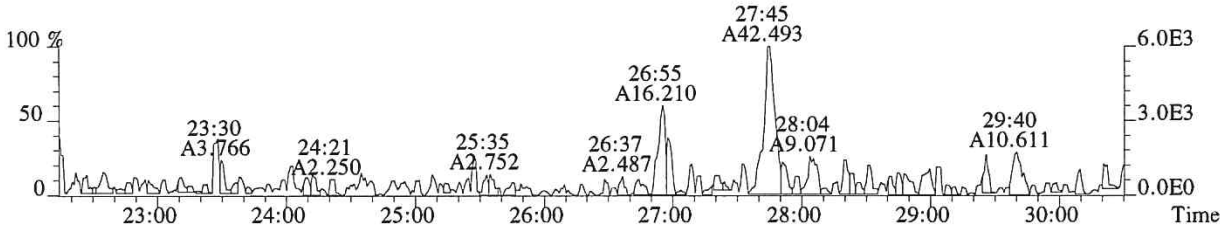
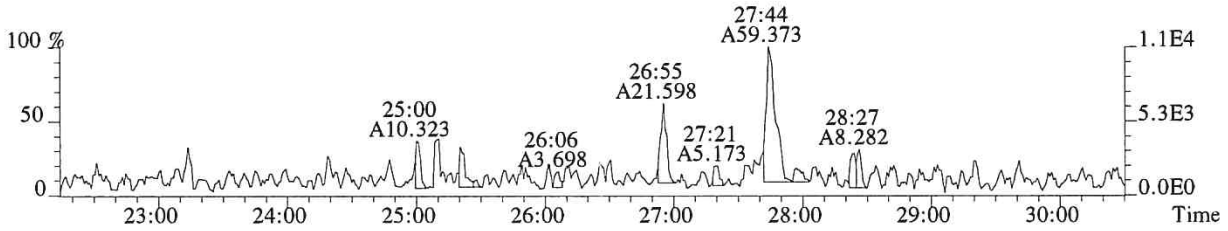
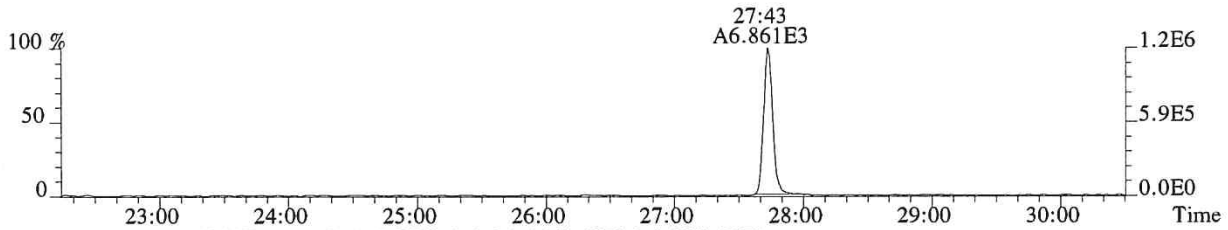
File:P519362 #1-587 Acq:11-DEC-2018 20:19:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-030
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



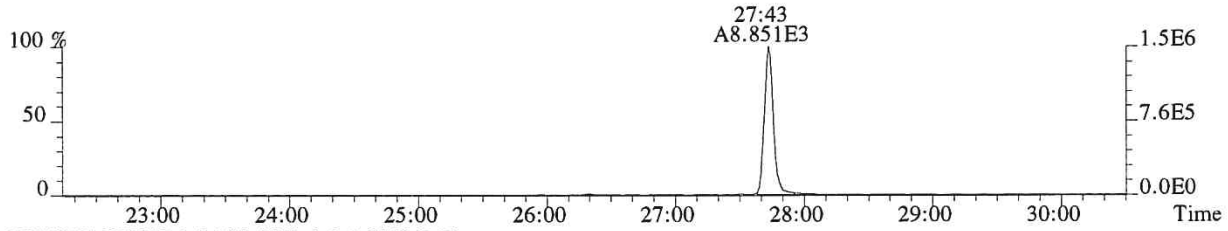
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)



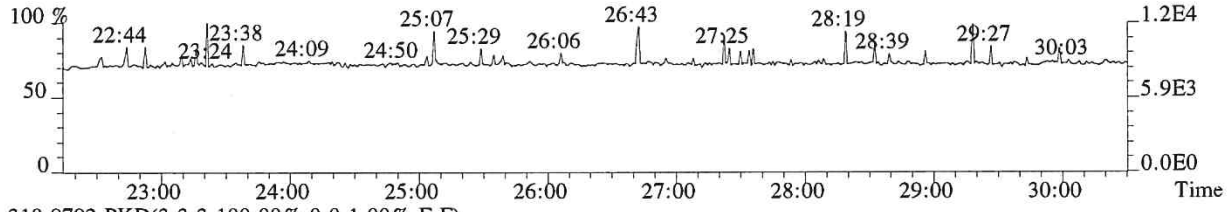
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8324.0,1.00%,F,T)



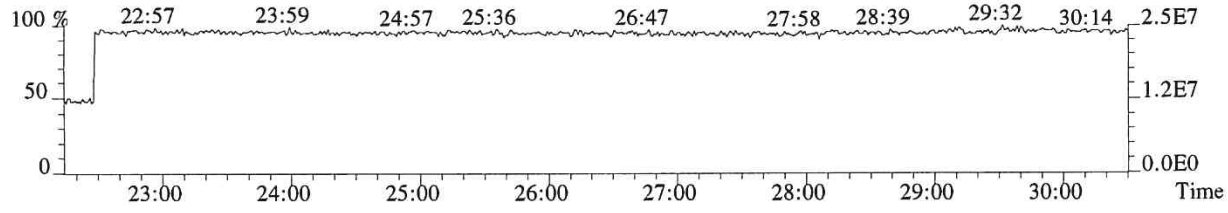
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4572.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

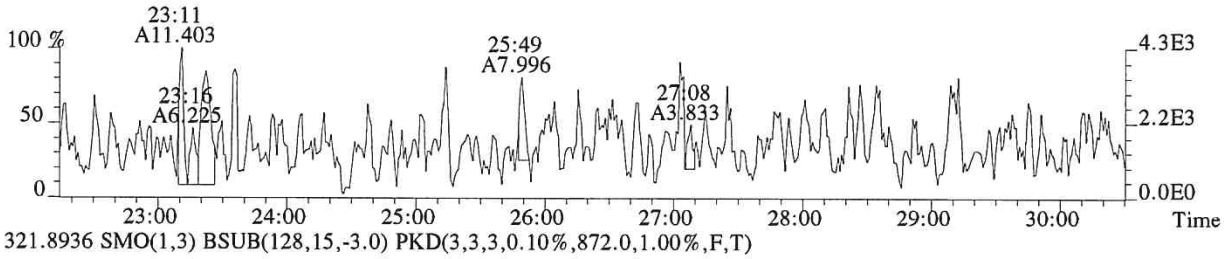


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

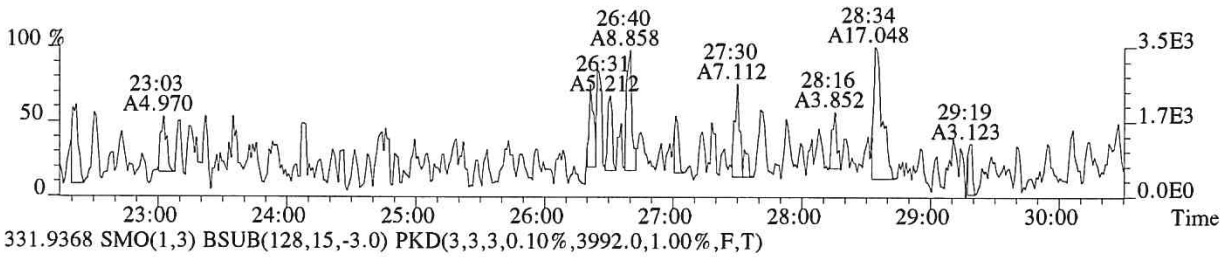


013288

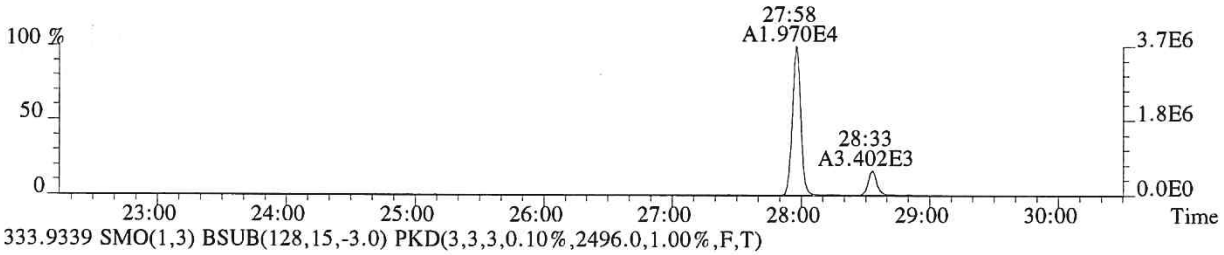
File:P519362 #1-587 Acq:11-DEC-2018 20:19:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-030
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1860.0,1.00%,F,T)



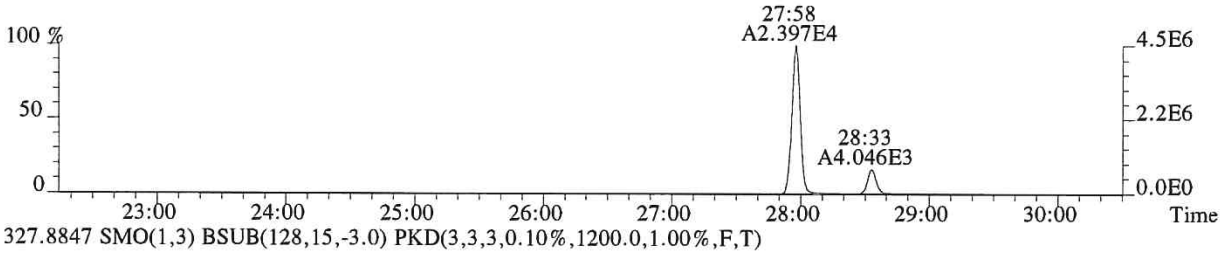
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



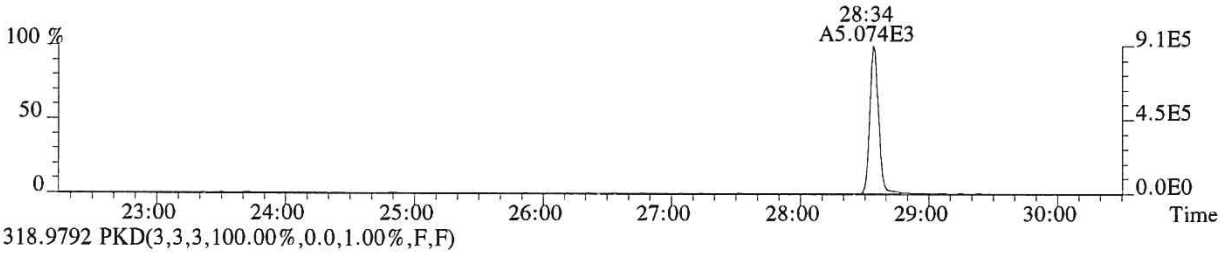
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3992.0,1.00%,F,T)



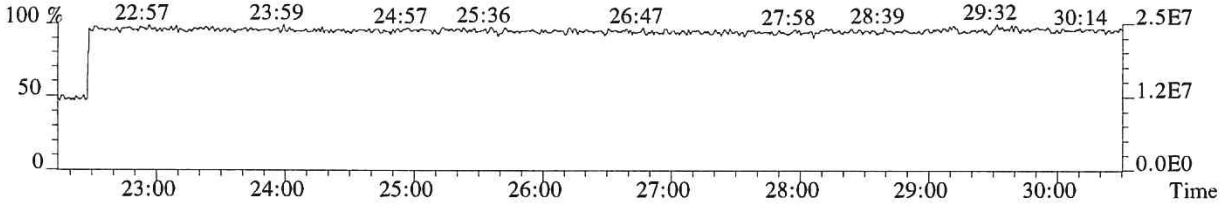
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)

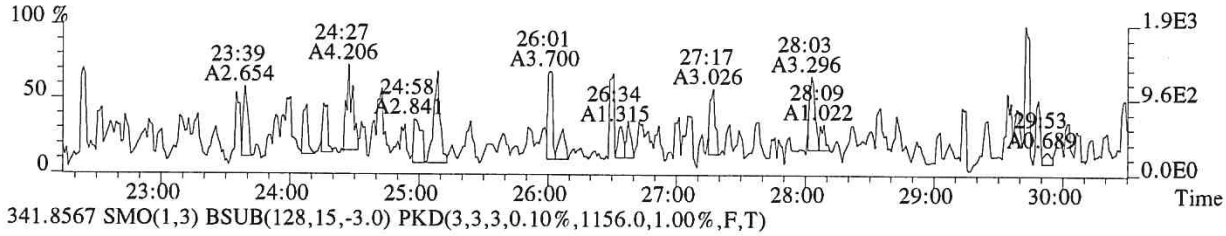


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

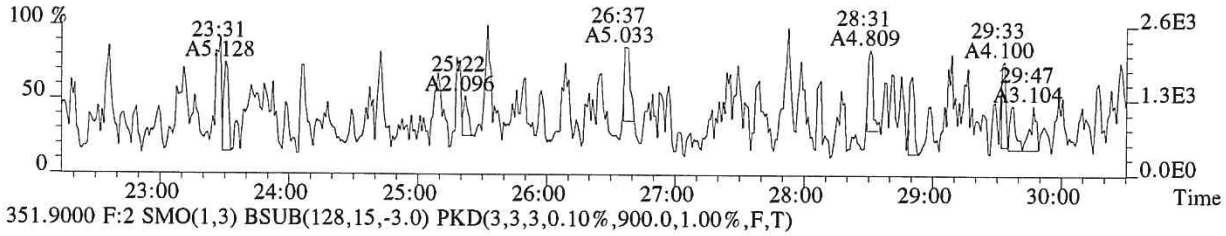


013289

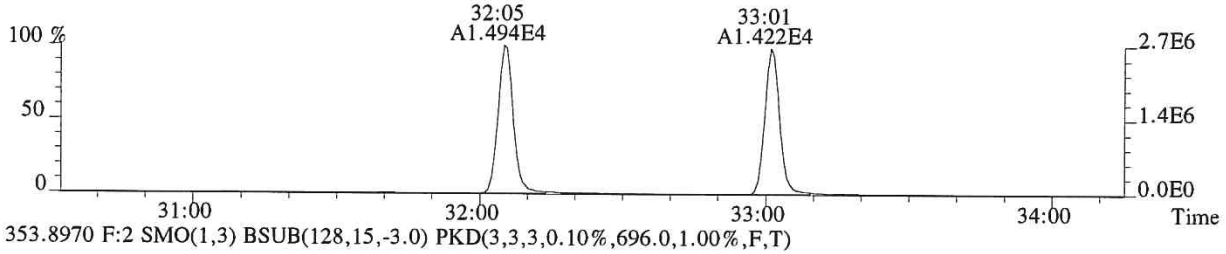
File:P519362 #1-587 Acq:11-DEC-2018 20:19:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-030
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



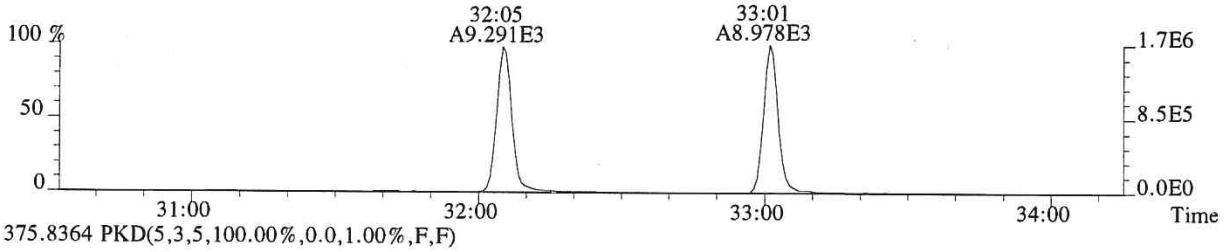
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



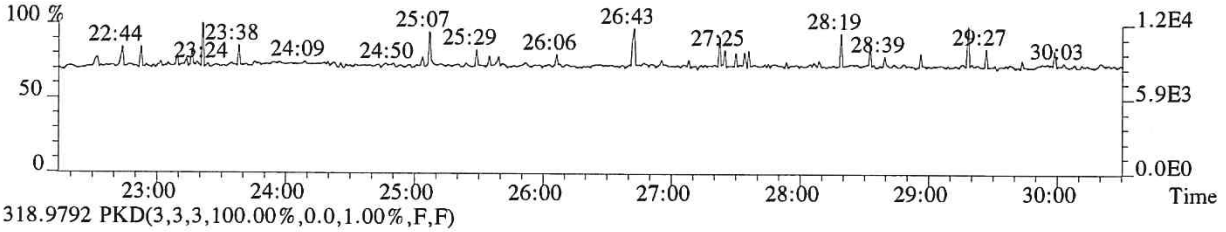
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



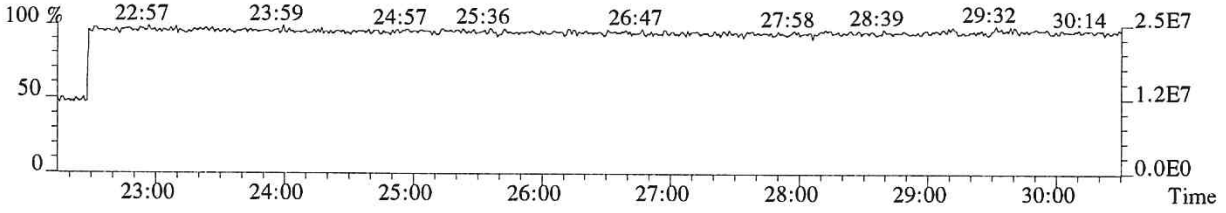
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

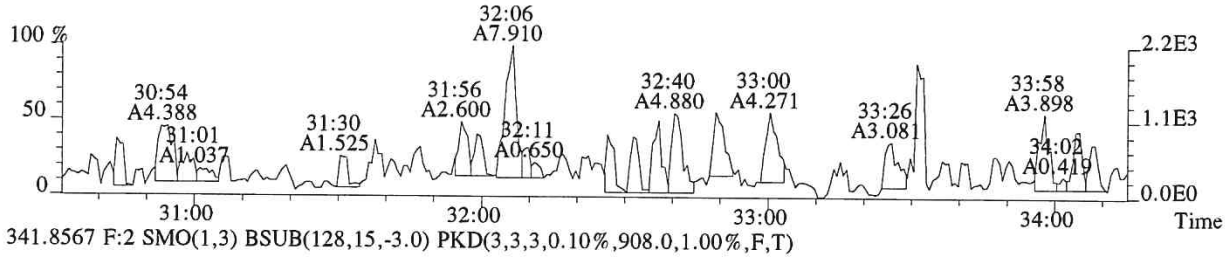


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

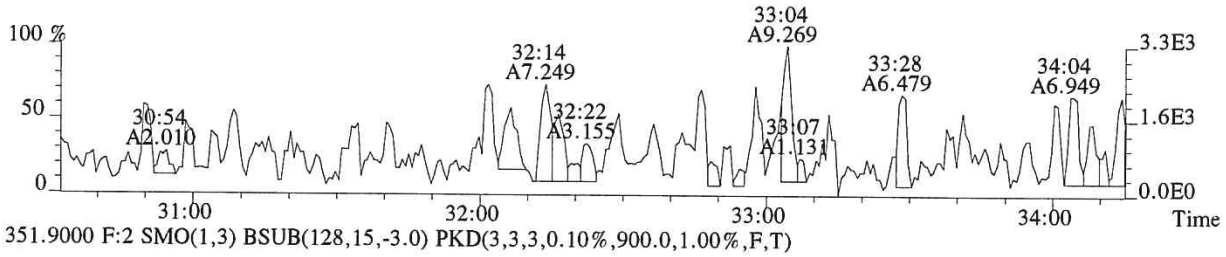


013290

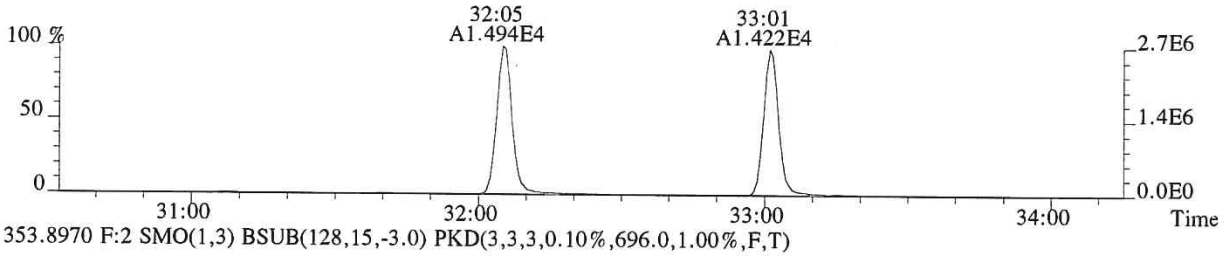
File:P519362 #1-335 Acq:11-DEC-2018 20:19:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-030
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



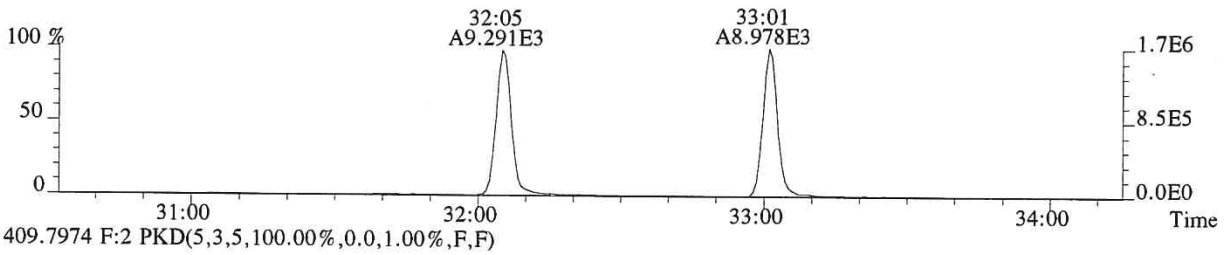
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



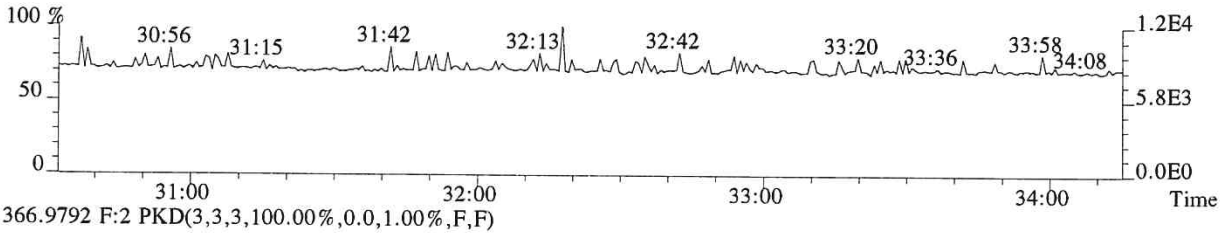
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



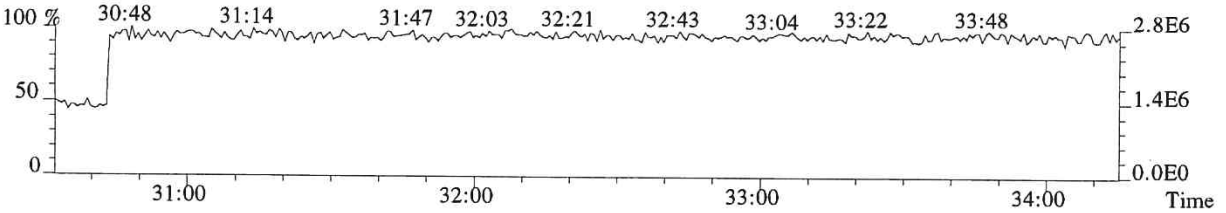
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



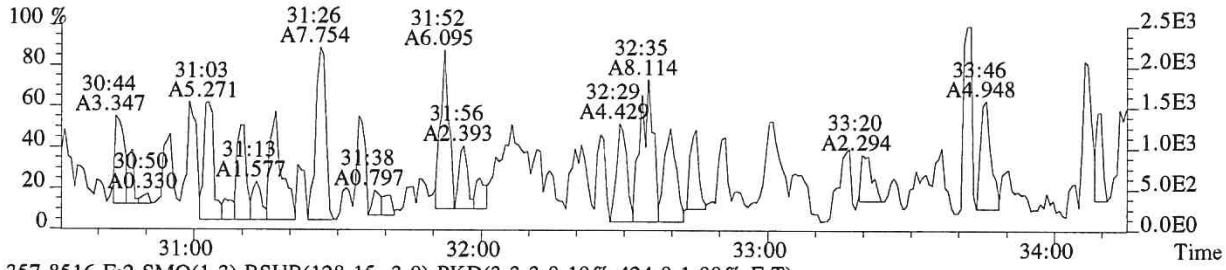
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



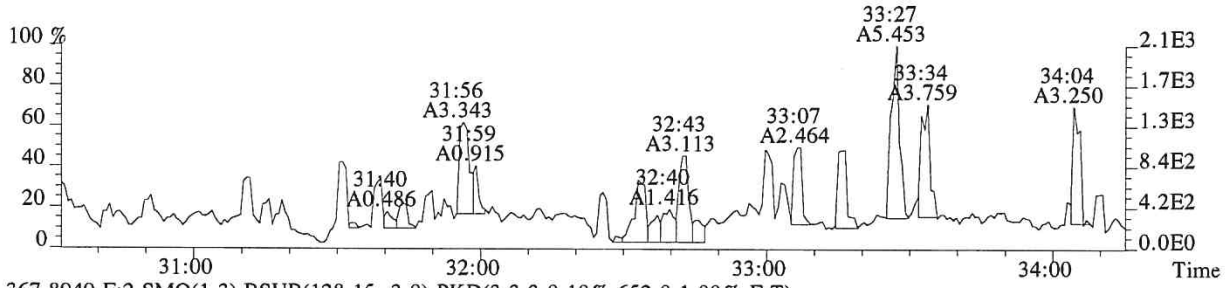
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



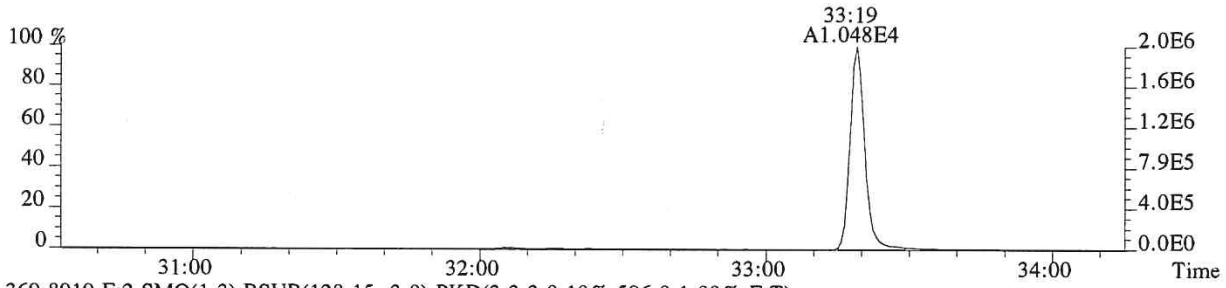
File:P519362 #1-335 Acq:11-DEC-2018 20:19:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-030
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



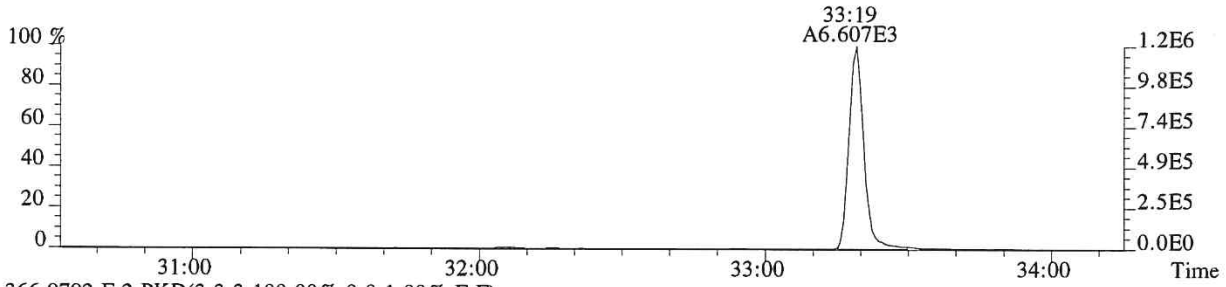
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



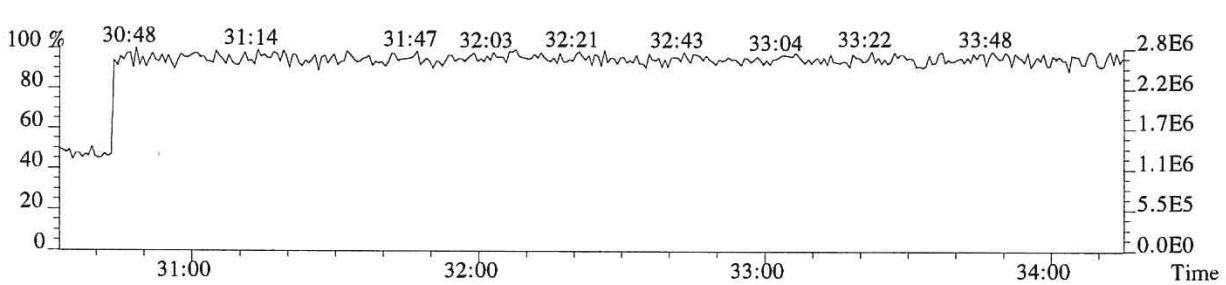
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)

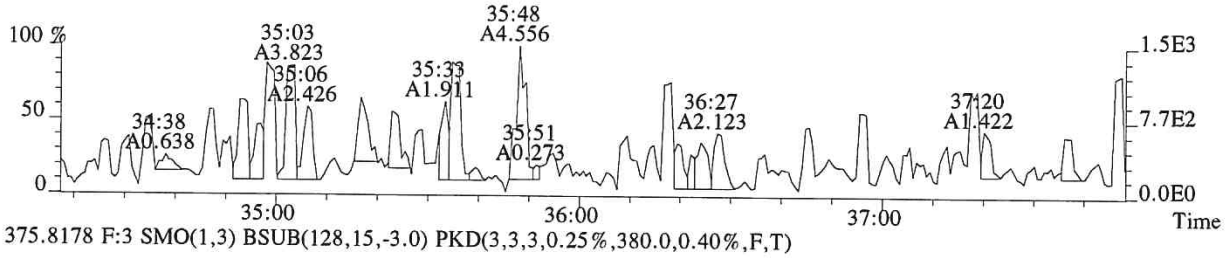


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

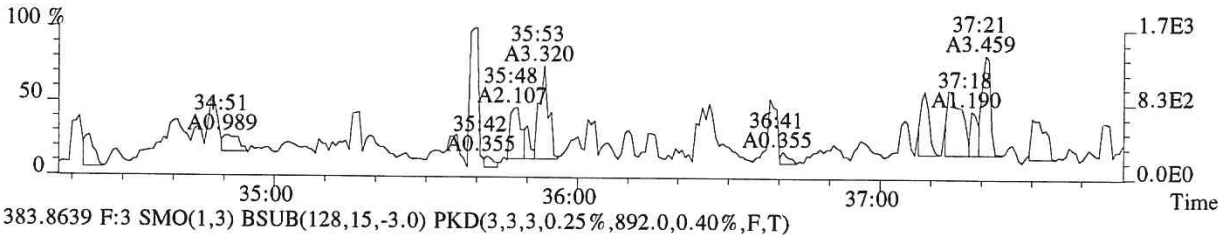


013292

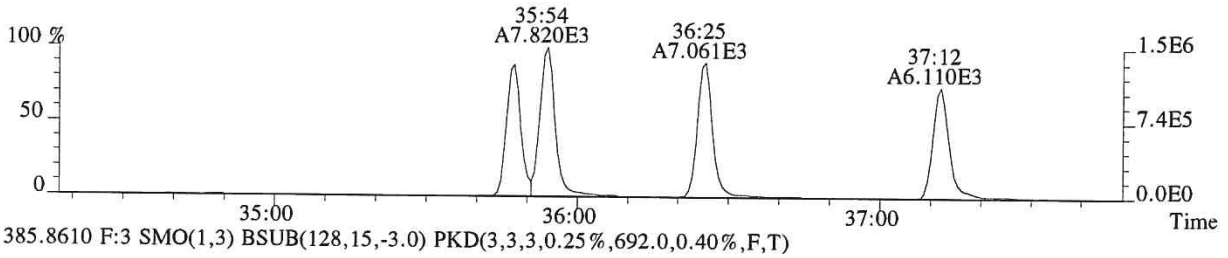
File:P519362 #1-317 Acq:11-DEC-2018 20:19:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-030
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



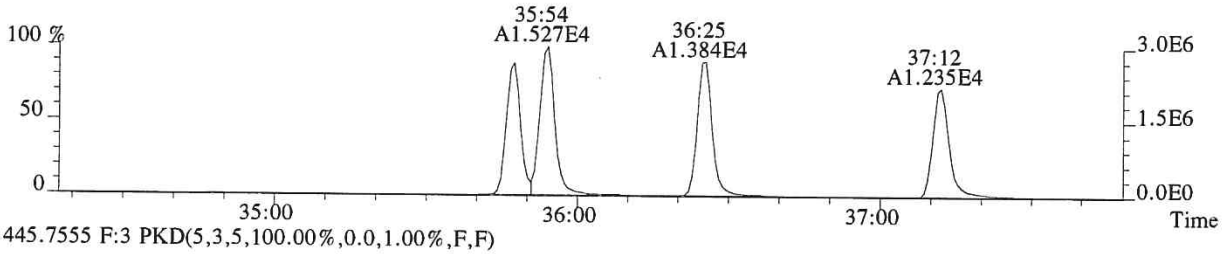
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



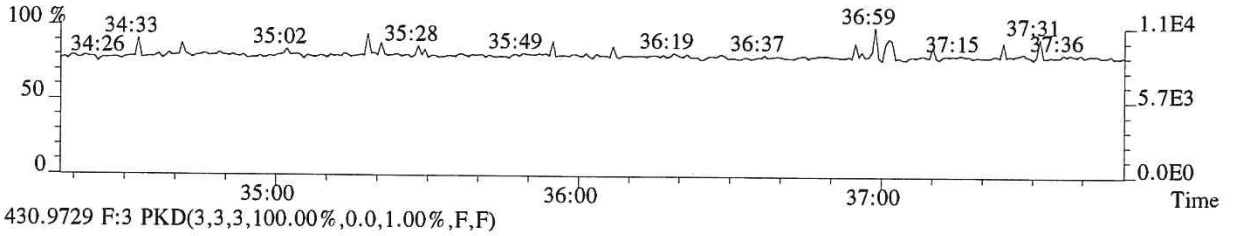
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)



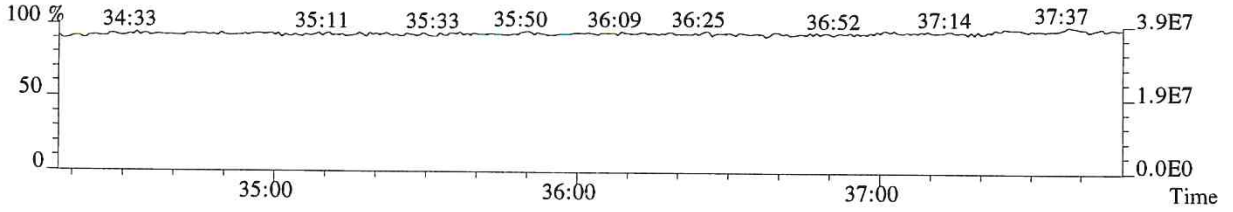
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

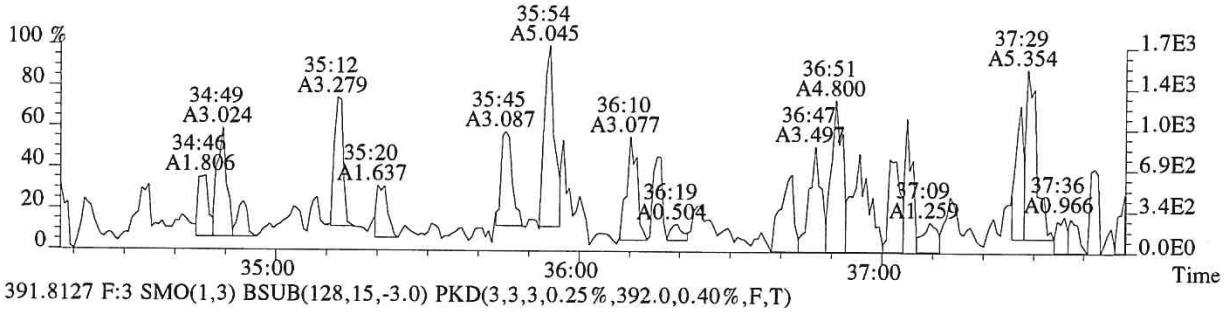


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

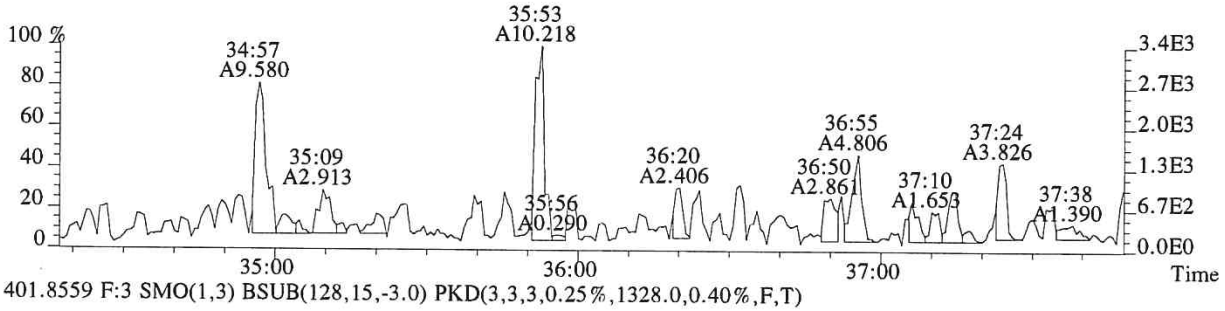


013293

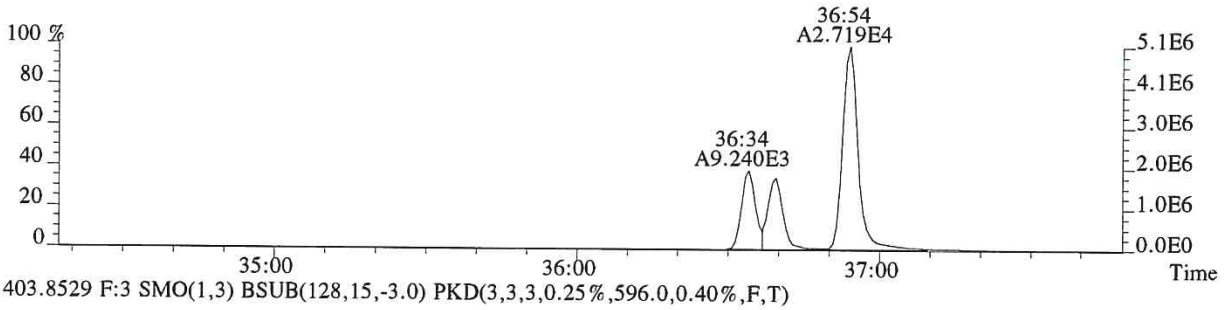
File:P519362 #1-317 Acq:11-DEC-2018 20:19:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-030
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



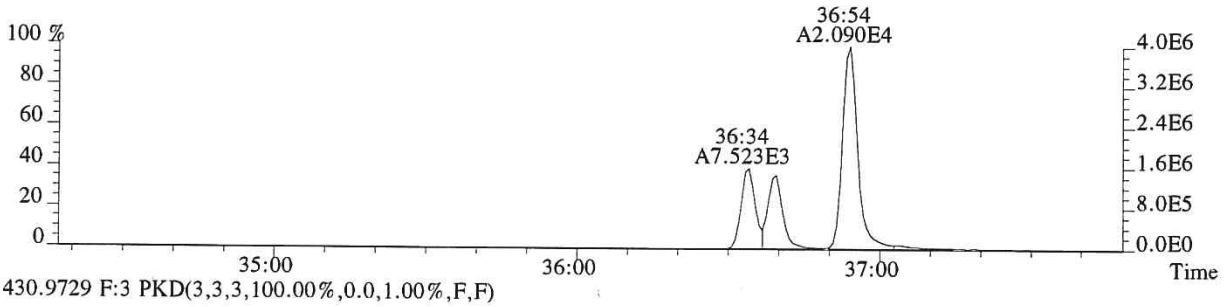
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



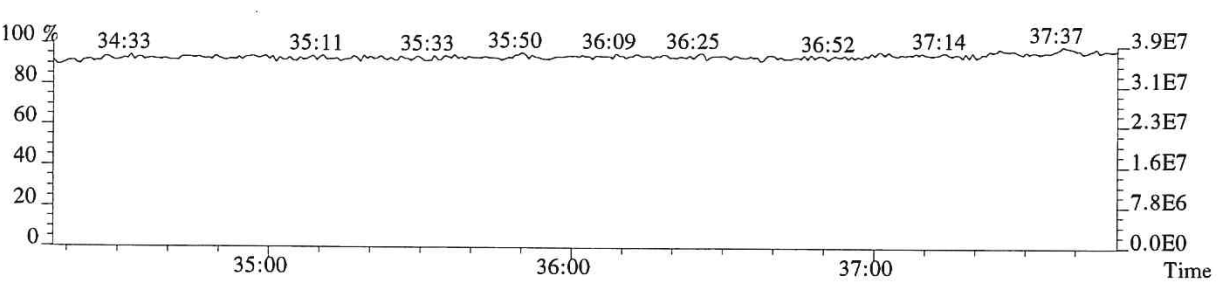
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)

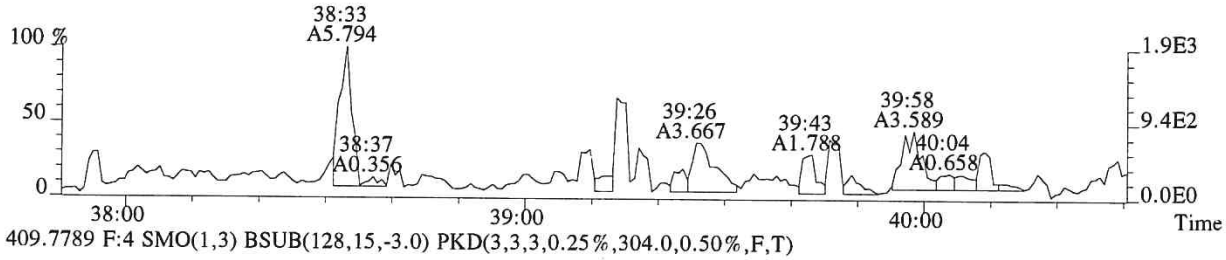


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

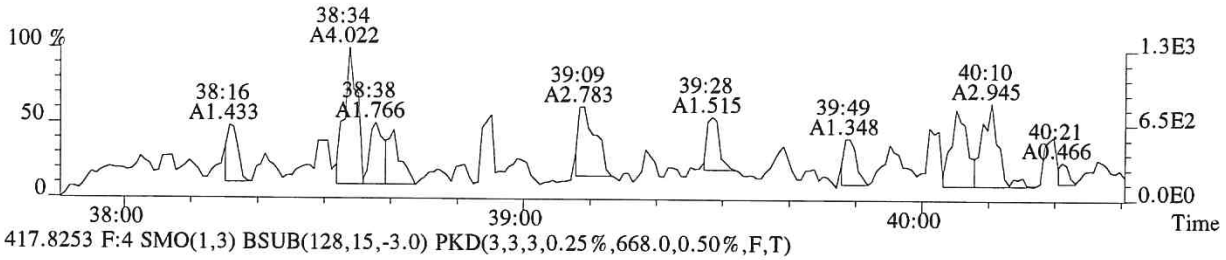


013294

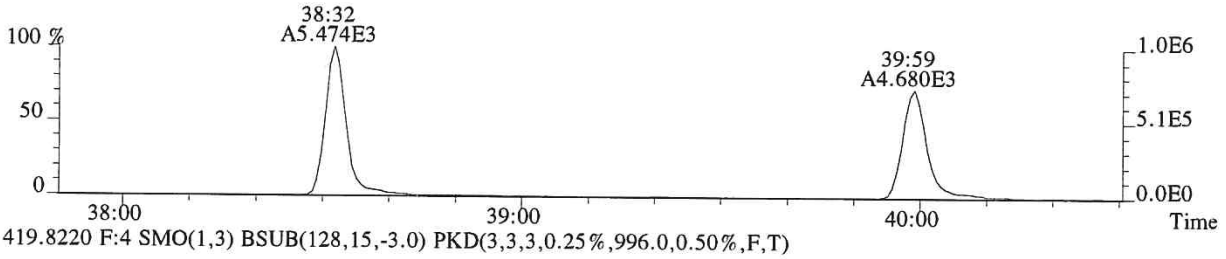
File:P519362 #1-241 Acq:11-DEC-2018 20:19:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-030
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.50%,F,T)



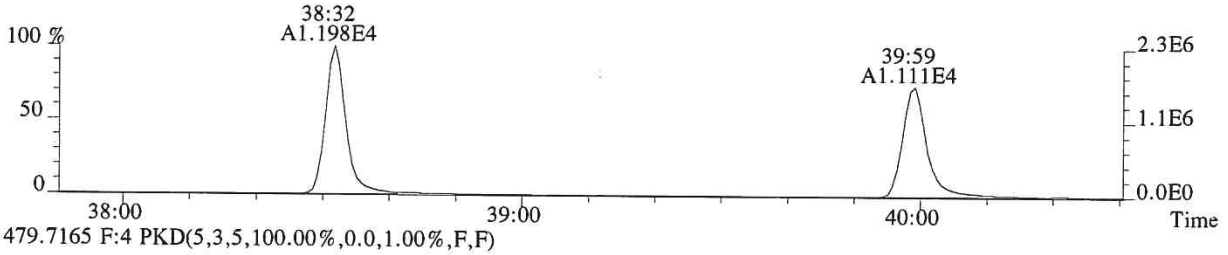
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



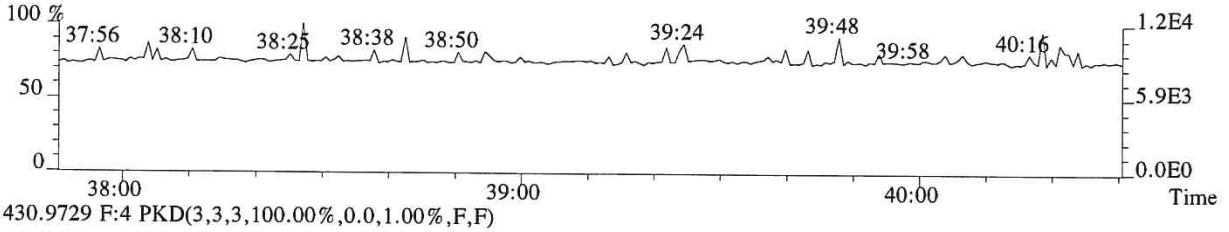
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.50%,F,T)



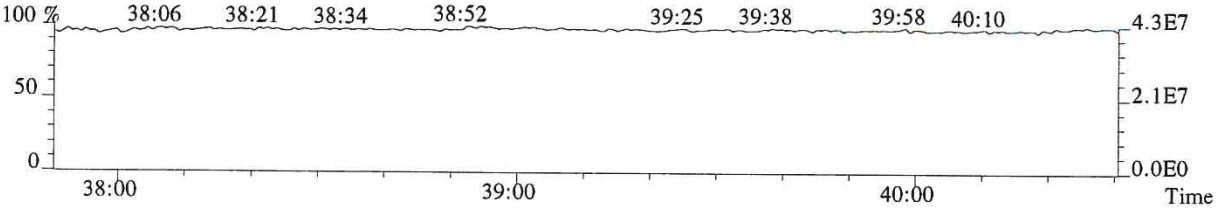
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.50%,F,T)



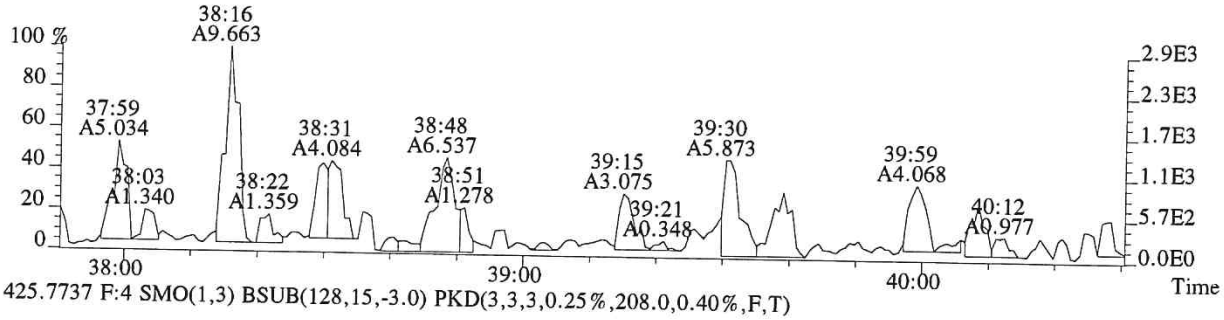
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



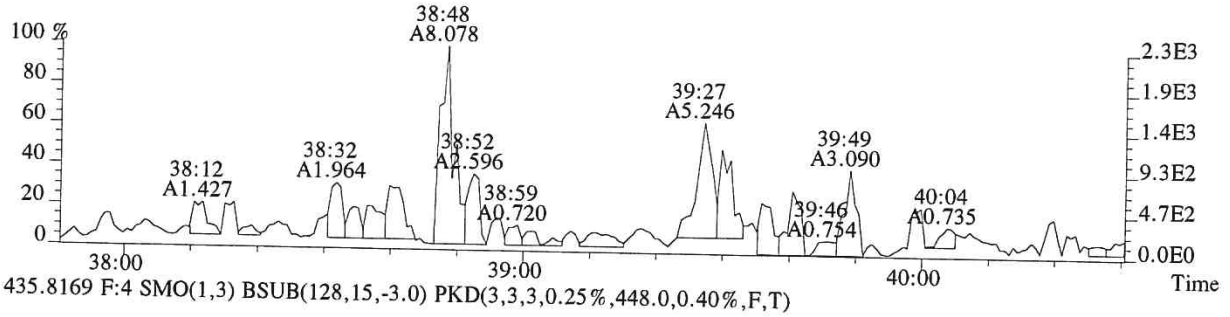
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



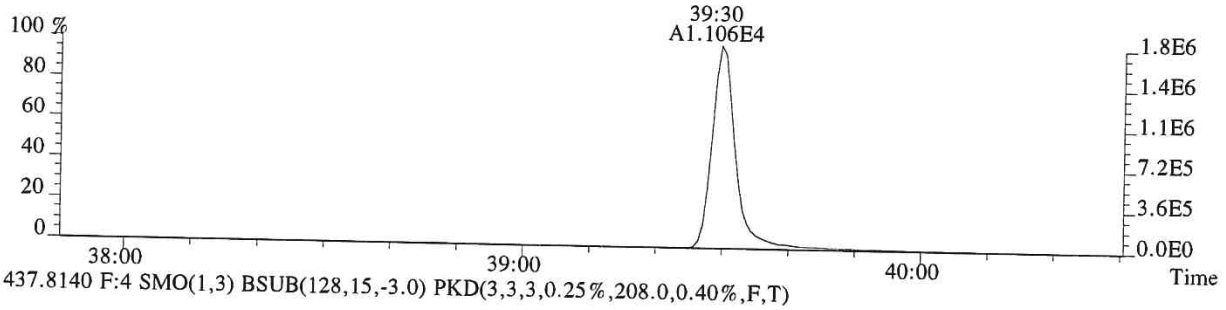
File:P519362 #1-241 Acq:11-DEC-2018 20:19:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-030
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



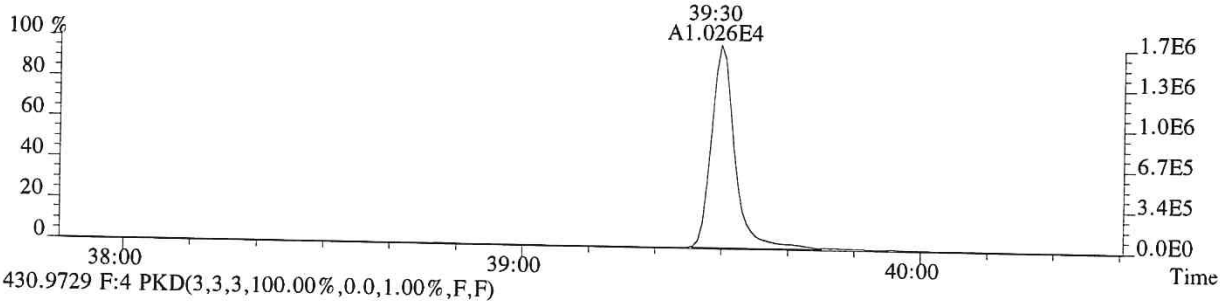
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)



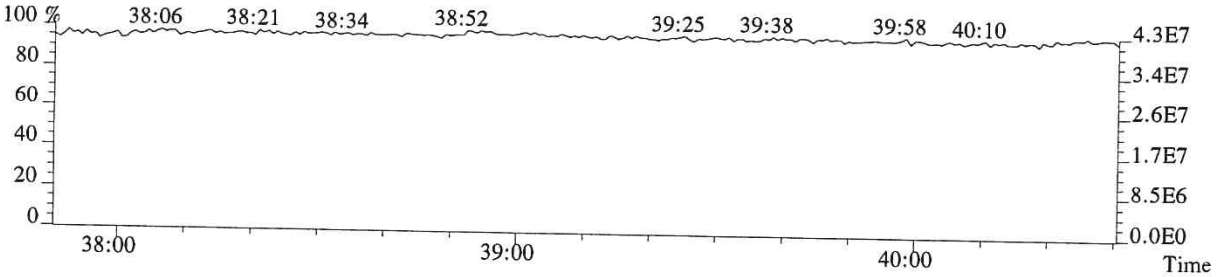
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)

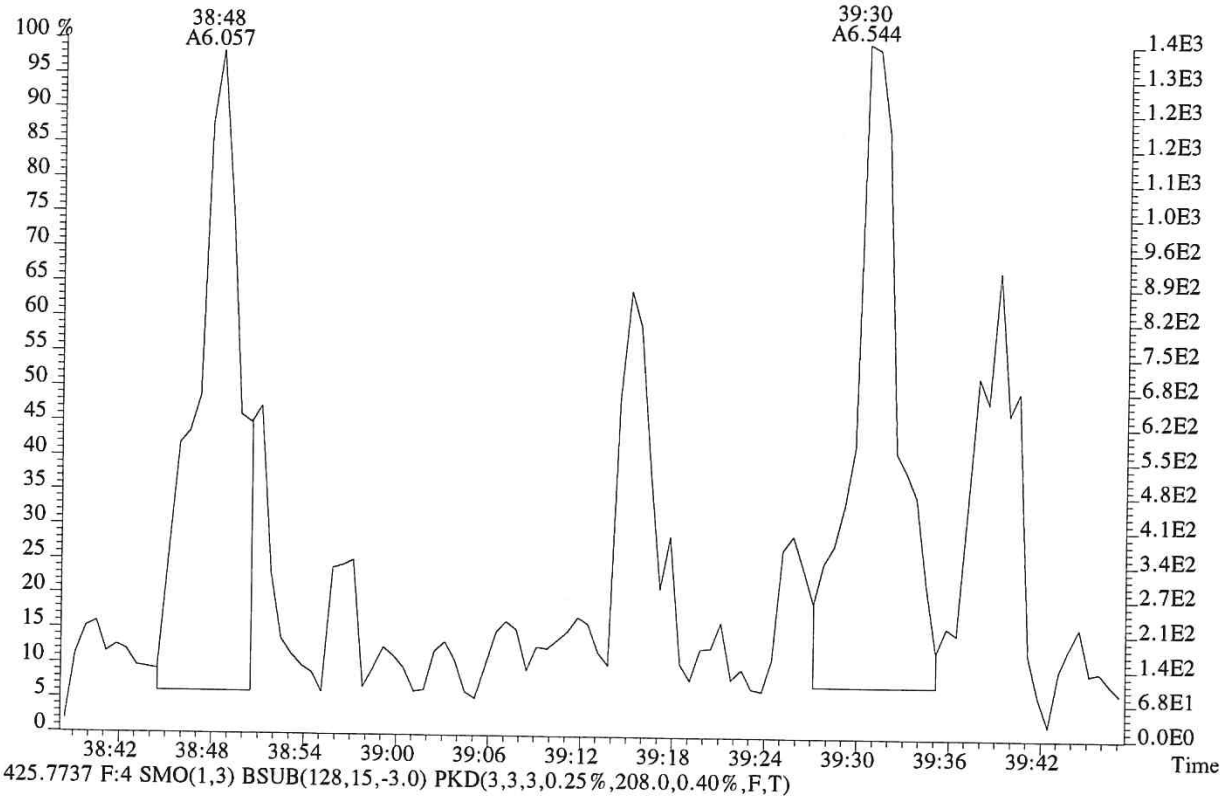


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

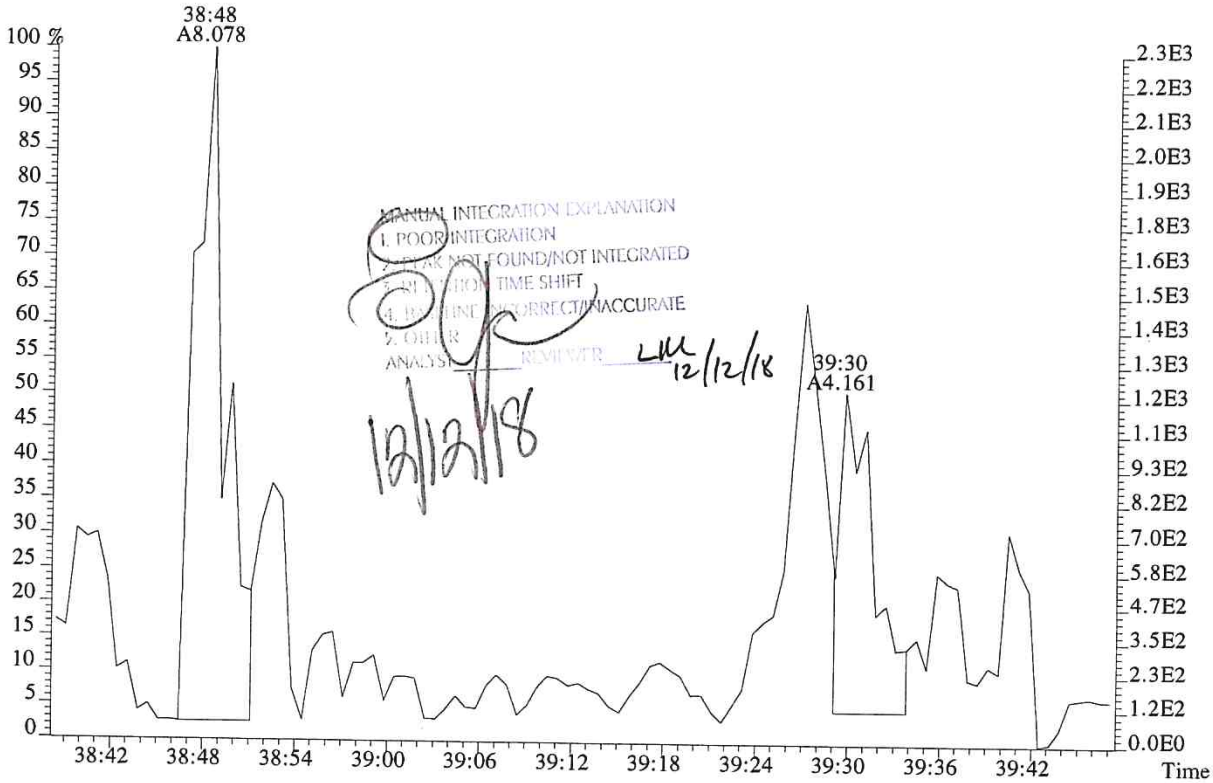


013296

File:P519362 #1-241 Acq:11-DEC-2018 20:19:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-030
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)

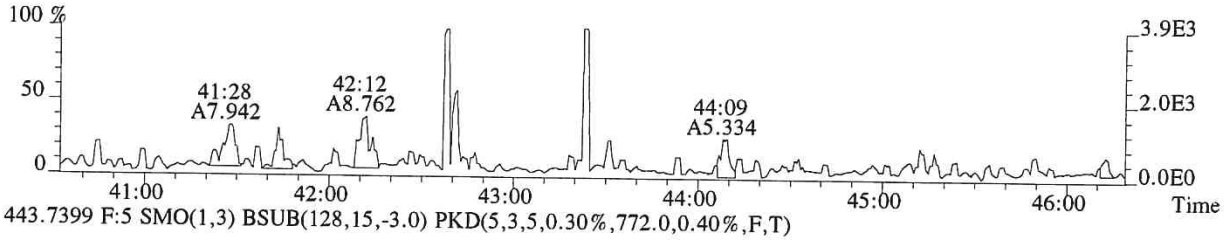


425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)

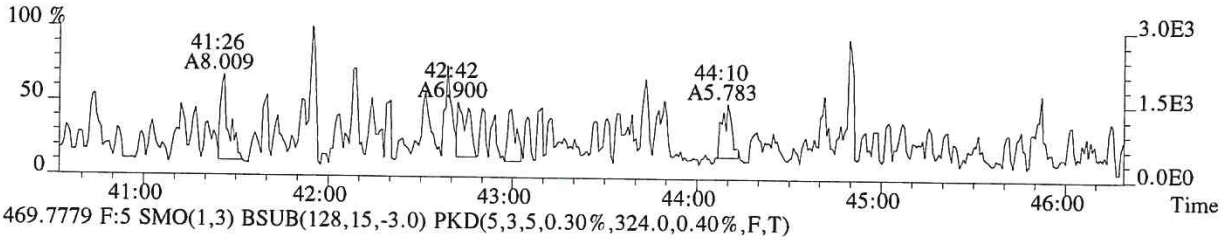


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RT [illegible] TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER LMC 12/12/18
12/12/18

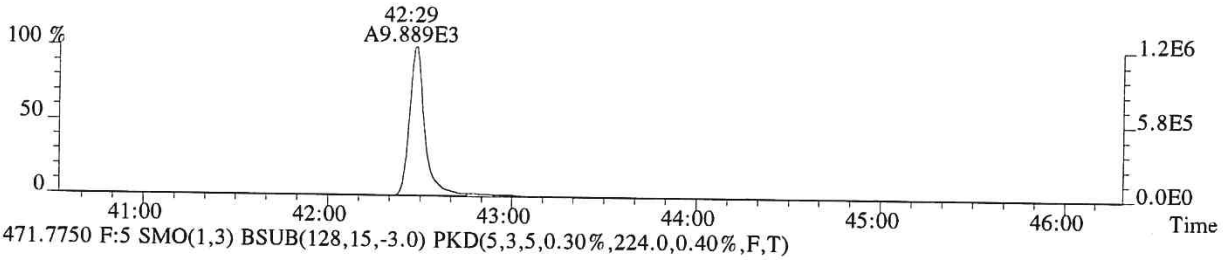
File:P519362 #1-520 Acq:11-DEC-2018 20:19:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-030
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



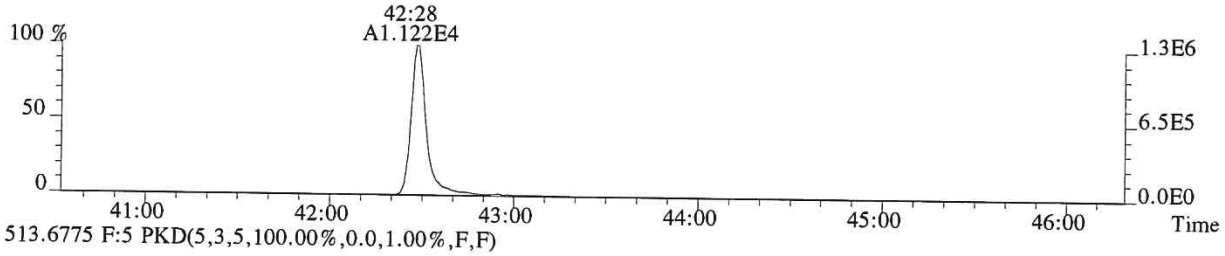
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



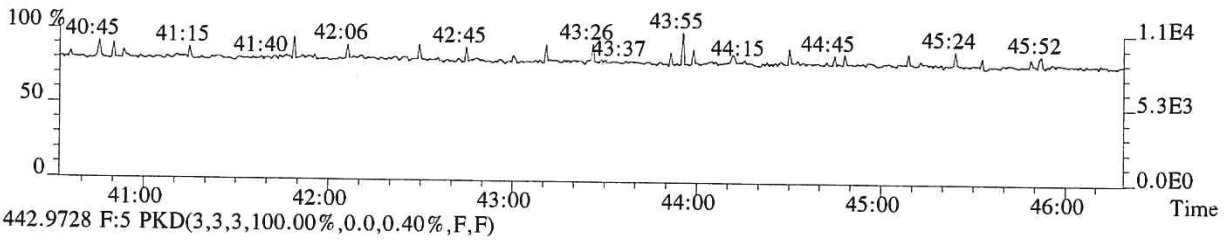
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



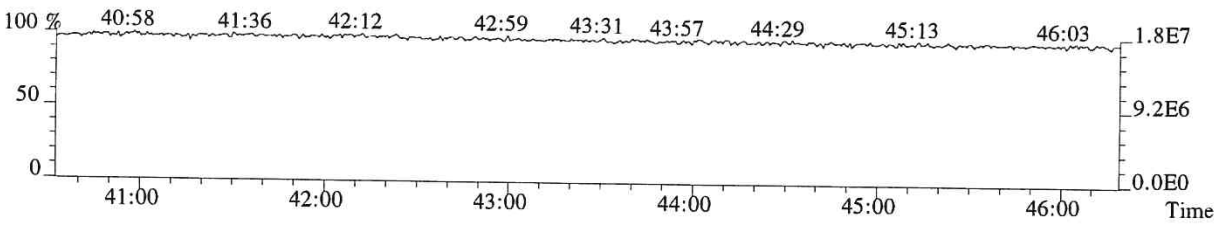
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

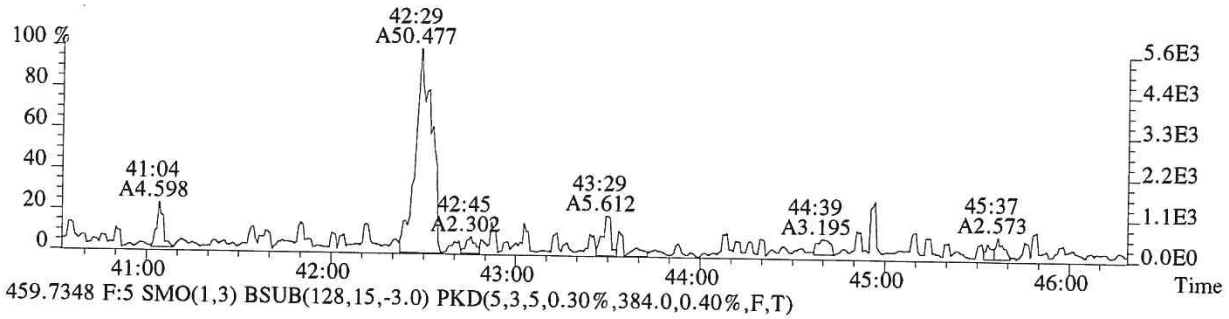


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

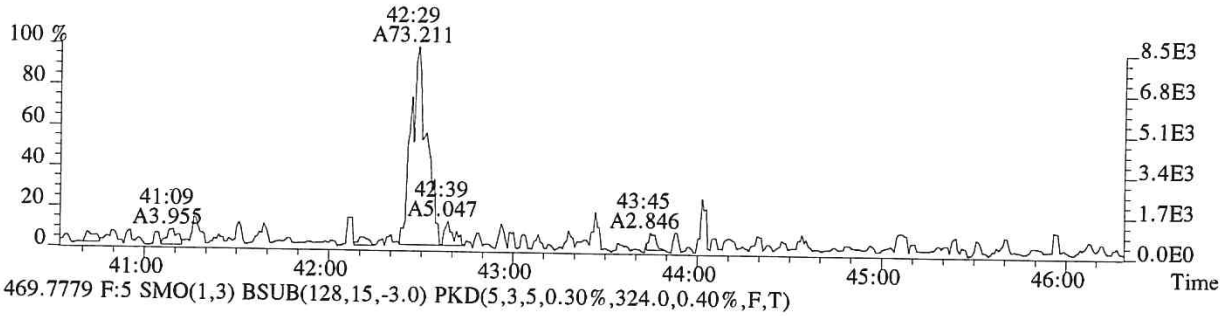


013298

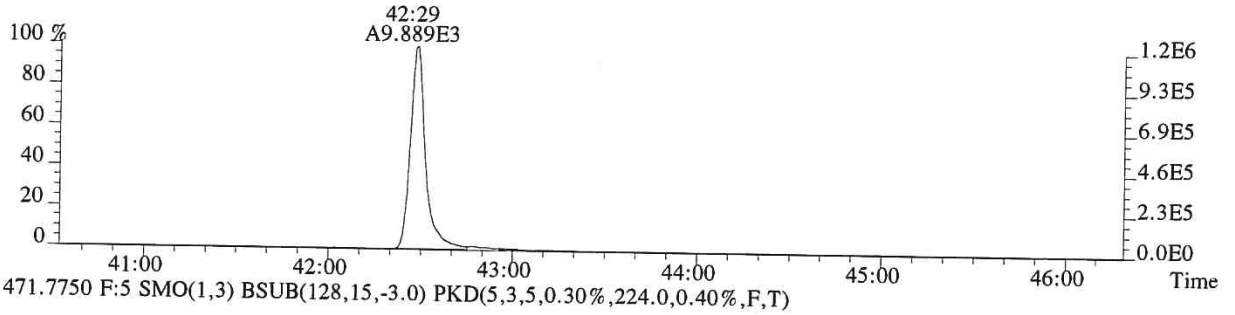
File:P519362 #1-520 Acq:11-DEC-2018 20:19:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-030
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



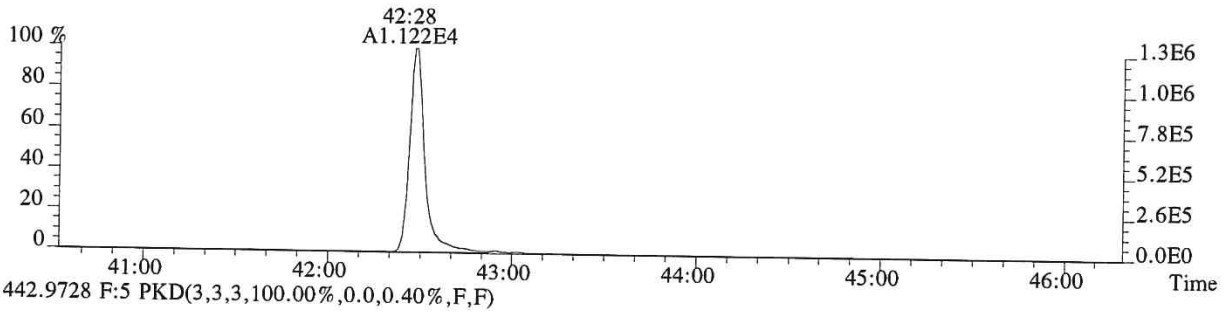
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



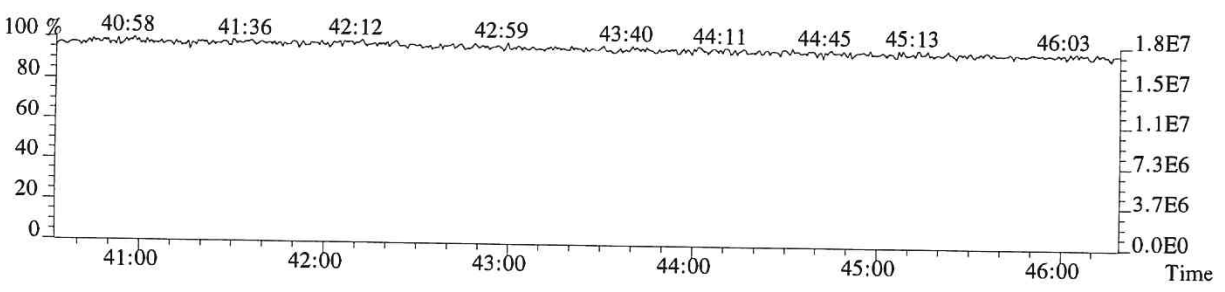
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
FW0053

Run #14 Filename P616047 Samp: 1 Inj: 1 Acquired: 11-DEC-18 16:28:02
Processed: 12-DEC-18 16:11:35 Sample ID: E1801058-031

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:29	6.820e+01	1.071e+02	0.64	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:00	1.537e+01	1.470e+01	1.05	yes	no	1.112
17	Unk	OCDD	41:41	8.333e+01	8.922e+01	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:29	3.193e+04	4.133e+04	0.77	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	5.799e+04	3.623e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:47	5.617e+04	3.542e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:29	2.621e+04	4.882e+04	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:35	2.976e+04	5.700e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:06	2.661e+04	5.153e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.361e+04	4.485e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	1.745e+04	3.967e+04	0.44	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.446e+04	3.328e+04	0.43	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:18	1.636e+04	2.090e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:04	4.426e+04	2.845e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:14	3.576e+04	2.866e+04	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:19	3.674e+04	2.878e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	3.418e+04	3.279e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	41:40	2.595e+04	2.910e+04	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:40	4.150e+04	5.302e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	5.282e+04	4.182e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:19	2.195e+04				no	1.086

$$\text{OCDD} = \frac{(8.333e+01 + 8.922e+01) \times 4000\ \text{pg} \times 1}{(2.595e+04 + 2.910e+04) \times \quad \text{g} \times 5 \ / \ 100 \times 1.157} = 21.6728\ \text{pg}$$

LG 12/27/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW0053

Run #14 Filename P616047 Samp: 1 Inj: 1 Acquired: 11-DEC-18 16:28:02
Processed: 12-DEC-18 16:11:35 LAB. ID: E1801058-031

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.46e+04	2.06e+03	7.1e+00	1.70e+04	3.95e+03	4.3e+00
2	1,2,3,7,8-PeCDF	*	7.68e+02	*	*	2.36e+03	*
3	2,3,4,7,8-PeCDF	*	7.68e+02	*	*	2.36e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.96e+03	*	*	1.10e+03	*
5	1,2,3,6,7,8-HxCDF	*	1.96e+03	*	*	1.10e+03	*
6	2,3,4,6,7,8-HxCDF	*	1.96e+03	*	*	1.10e+03	*
7	1,2,3,7,8,9-HxCDF	*	1.96e+03	*	*	1.10e+03	*
8	1,2,3,4,6,7,8-HpCDF	*	8.20e+02	*	*	5.04e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	8.20e+02	*	*	5.04e+02	*
10	OCDF	*	8.56e+02	*	*	2.96e+03	*
11	2,3,7,8-TCDD	*	4.22e+03	*	*	2.10e+03	*
12	1,2,3,7,8-PeCDD	*	2.17e+03	*	*	3.48e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.63e+03	*	*	2.00e+03	*
14	1,2,3,6,7,8-HxCDD	*	1.63e+03	*	*	2.00e+03	*
15	1,2,3,7,8,9-HxCDD	*	1.63e+03	*	*	2.00e+03	*
16	1,2,3,4,6,7,8-HpCDD	3.95e+03	6.96e+02	5.7e+00	2.31e+03	4.96e+02	4.7e+00
17	OCDD	1.62e+04	4.44e+02	3.7e+01	1.54e+04	1.11e+03	1.4e+01
18	13C-2,3,7,8-TCDF	4.94e+06	1.35e+04	3.7e+02	6.45e+06	8.91e+03	7.2e+02
19	13C-1,2,3,7,8-PeCDF	1.03e+07	1.77e+03	5.8e+03	6.54e+06	1.38e+03	4.8e+03
20	13C-2,3,4,7,8-PeCDF	1.03e+07	1.77e+03	5.8e+03	6.52e+06	1.38e+03	4.7e+03
21	13C-1,2,3,4,7,8-HxCDF	5.39e+06	1.47e+03	3.7e+03	1.02e+07	2.13e+03	4.8e+03
22	13C-1,2,3,6,7,8-HxCDF	5.91e+06	1.47e+03	4.0e+03	1.12e+07	2.13e+03	5.2e+03
23	13C-2,3,4,6,7,8-HxCDF	5.51e+06	1.47e+03	3.7e+03	1.05e+07	2.13e+03	4.9e+03
24	13C-1,2,3,7,8,9-HxCDF	4.52e+06	1.47e+03	3.1e+03	8.71e+06	2.13e+03	4.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.72e+06	6.34e+03	5.9e+02	8.22e+06	4.52e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.78e+06	6.34e+03	4.4e+02	6.19e+06	4.52e+03	1.4e+03
27	13C-2,3,7,8-TCDD	2.73e+06	1.47e+04	1.9e+02	3.48e+06	5.81e+03	6.0e+02
28	13C-1,2,3,7,8-PeCDD	8.10e+06	2.31e+03	3.5e+03	5.22e+06	2.47e+03	2.1e+03
29	13C-1,2,3,4,7,8-HxCDD	7.87e+06	2.84e+03	2.8e+03	6.37e+06	1.68e+03	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	7.35e+06	2.84e+03	2.6e+03	5.79e+06	1.68e+03	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.78e+06	1.64e+03	4.1e+03	6.64e+06	9.84e+02	6.7e+03
32	13C-OCDD	4.49e+06	1.00e+03	4.5e+03	5.10e+06	5.08e+02	1.0e+04
33	13C-1,2,3,4-TCDD	7.21e+06	1.47e+04	4.9e+02	9.17e+06	5.81e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.03e+07	2.84e+03	3.6e+03	8.10e+06	1.68e+03	4.8e+03
35	37Cl-2,3,7,8-TCDD	3.59e+06	4.60e+03	7.8e+02			

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Peak List Summary

CLIENT ID.
FW0053

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P616047 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 16:28:02 Processed: 12-DEC-18 16:11:35

Mass: 423.7770 425.7740 Tot Response: 5.93e+01 RRF: 1.112

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:21	1.46e+01	1.00	yes	2.93e+01		n	n
2	39:00	1.54e+01	1.05	yes	3.01e+01	1,2,3,4,6,7,8-HpCDD	n	n

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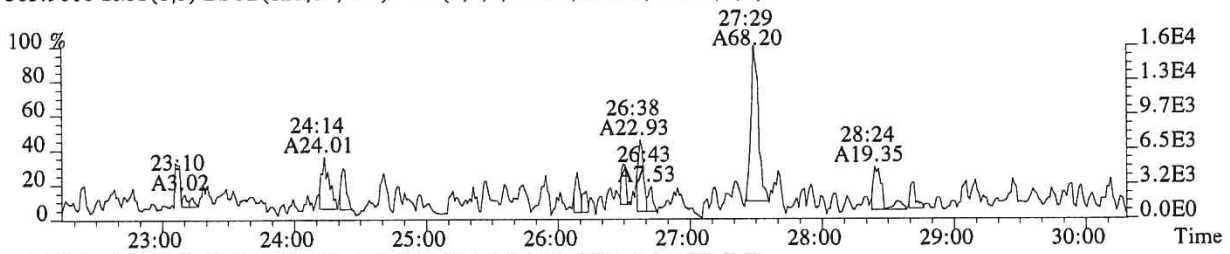
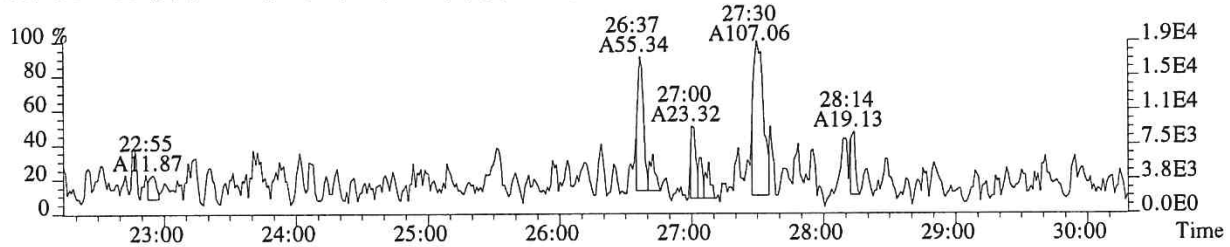
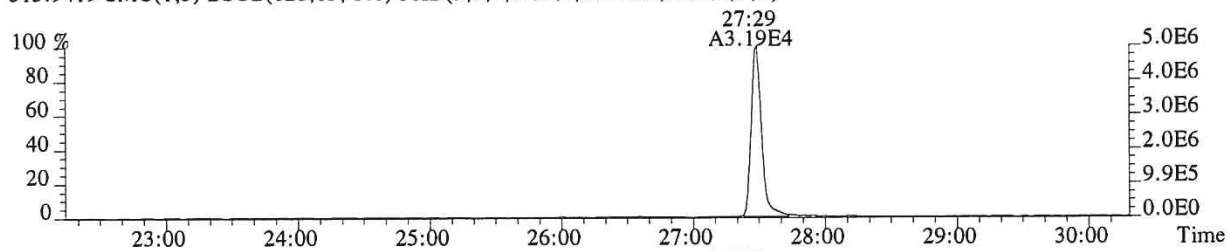
File:P616047 #1-573 Acq:11-DEC-2018 16:28:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-031
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



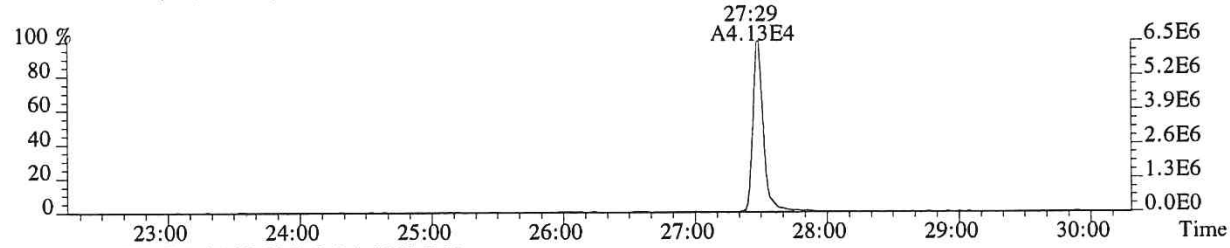
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3952.0,1.00%,F,T)



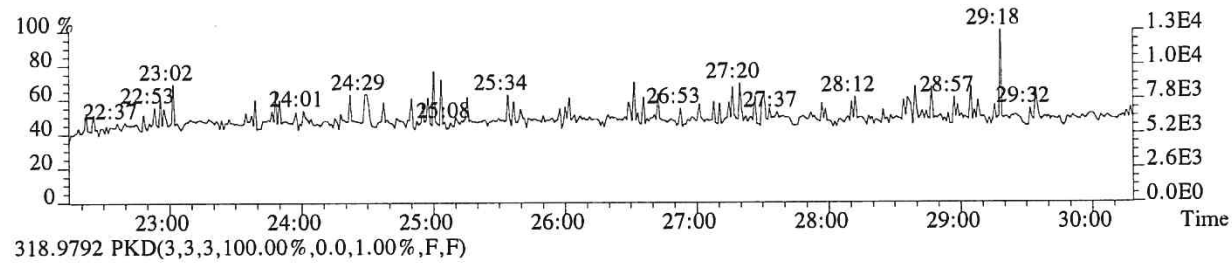
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13476.0,1.00%,F,T)



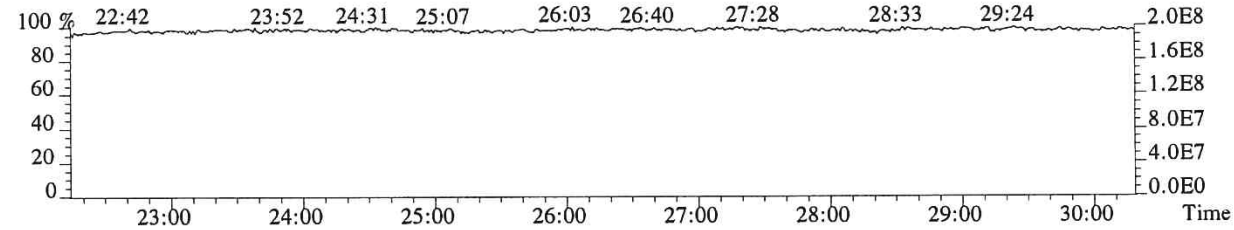
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8908.0,1.00%,F,T)



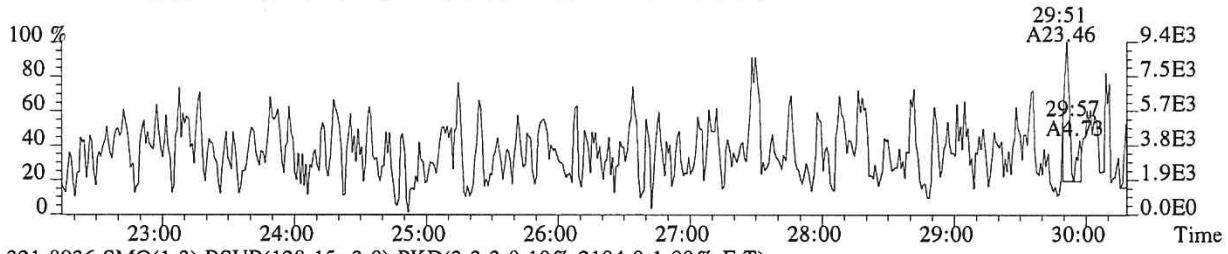
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



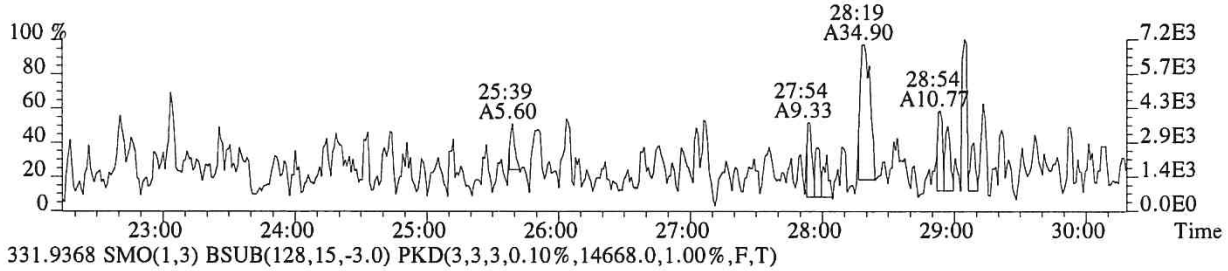
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



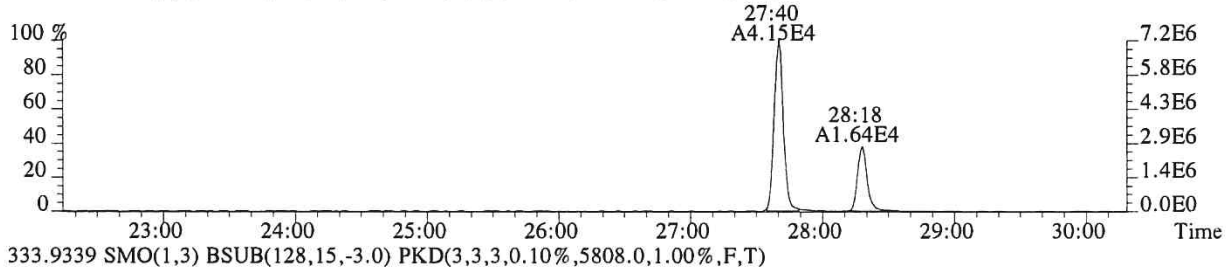
File:P616047 #1-573 Acq:11-DEC-2018 16:28:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-031
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



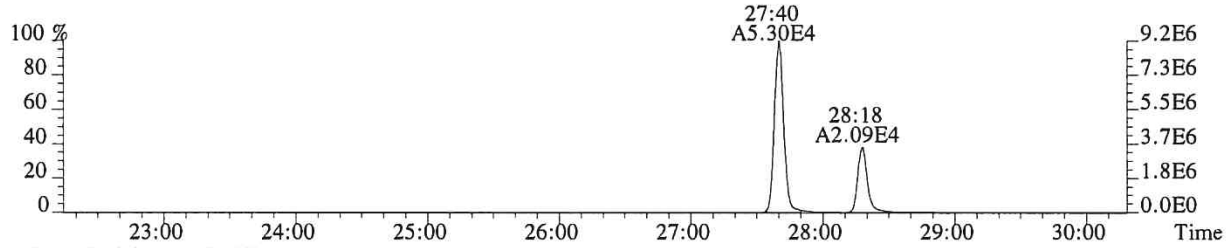
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2104.0,1.00%,F,T)



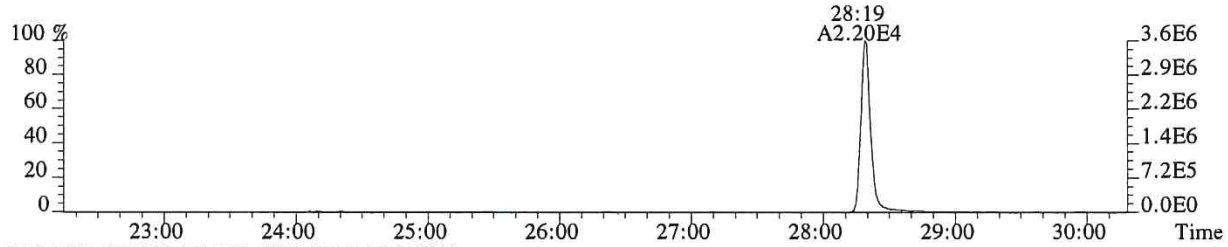
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14668.0,1.00%,F,T)



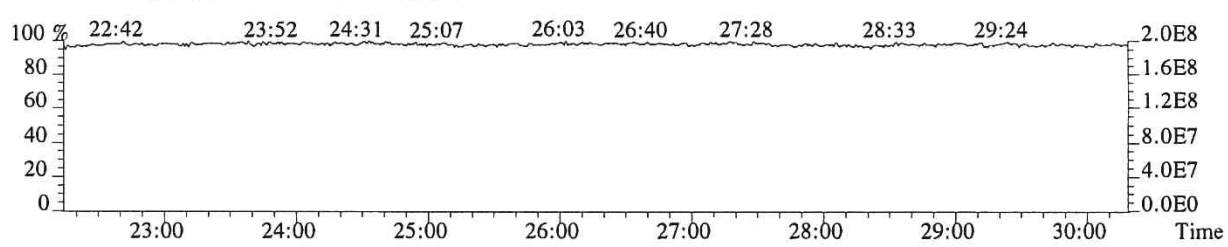
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5808.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4596.0,1.00%,F,T)

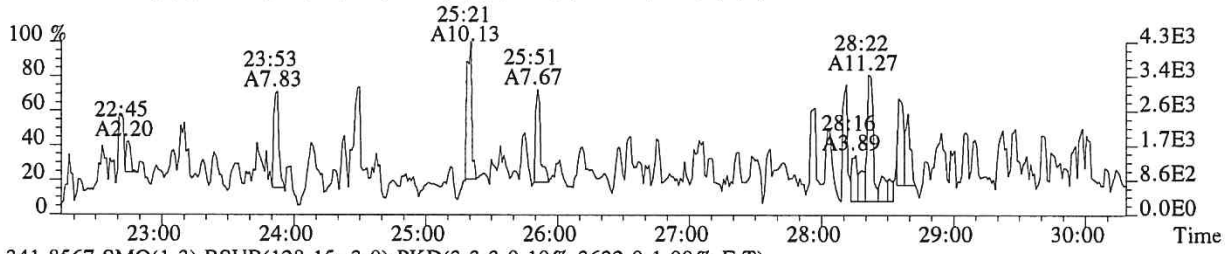


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

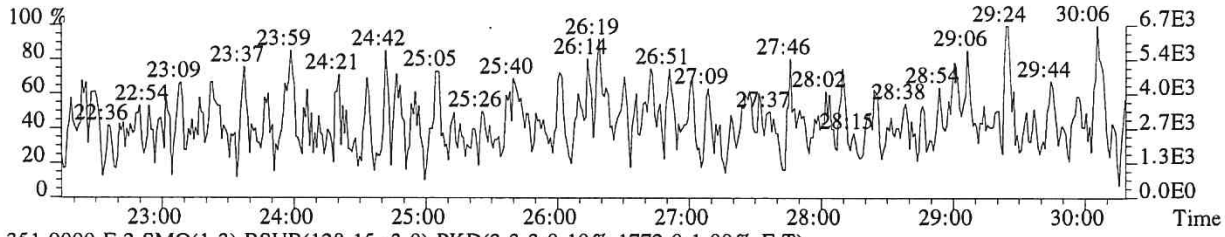


013304

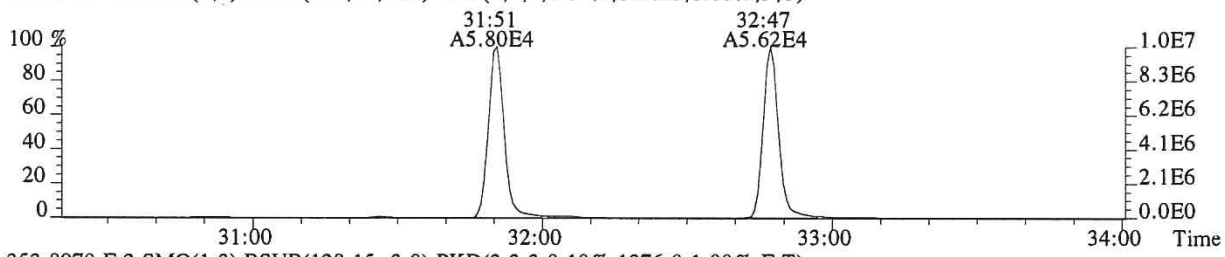
File:P616047 #1-573 Acq:11-DEC-2018 16:28:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-031
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



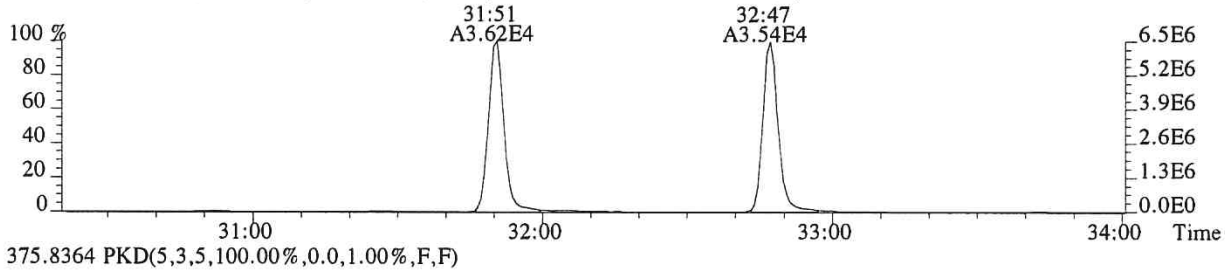
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3632.0,1.00%,F,T)



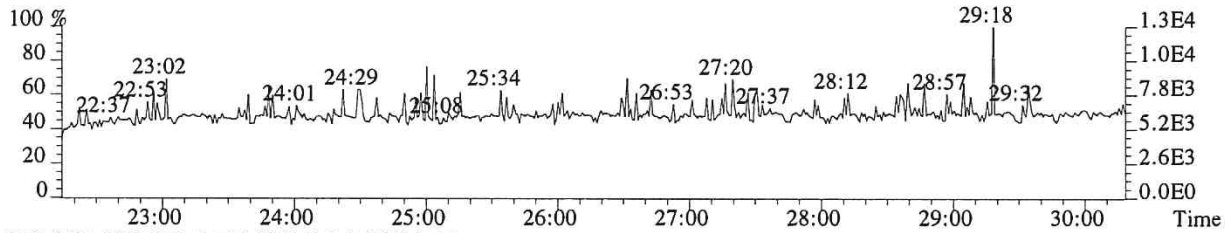
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



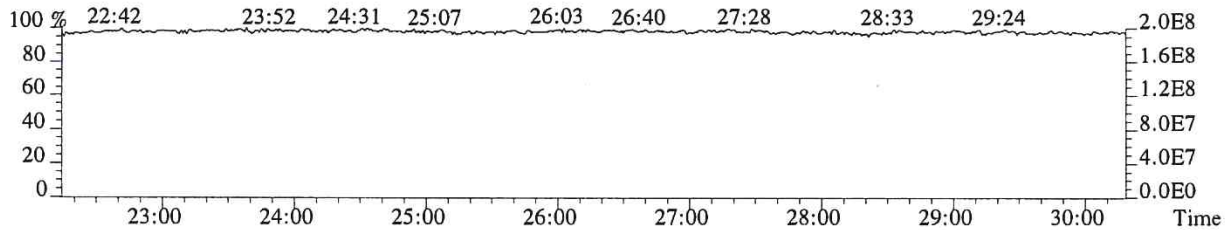
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

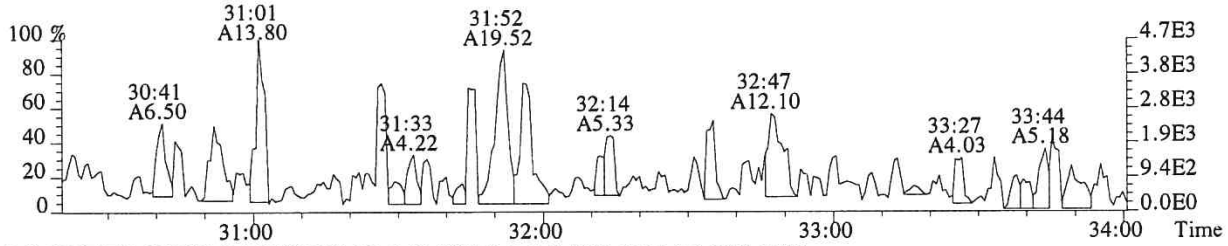


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

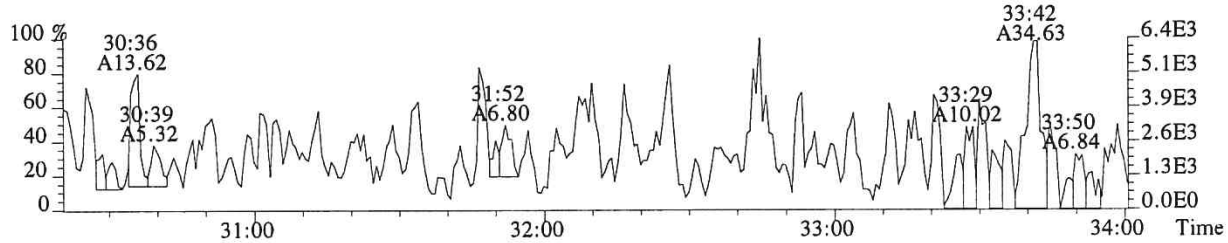


013305

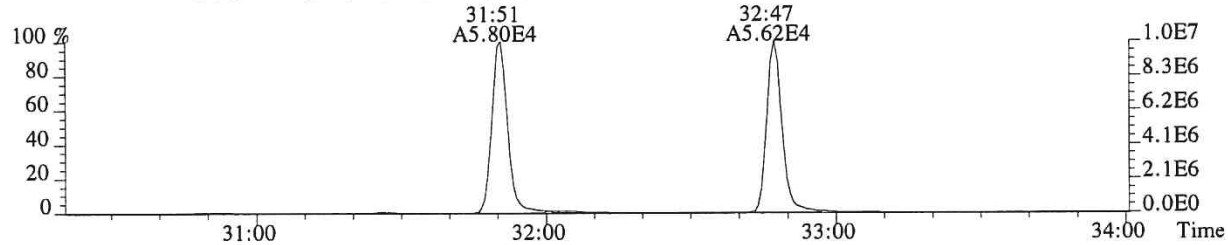
File:P616047 #1-331 Acq:11-DEC-2018 16:28:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-031
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



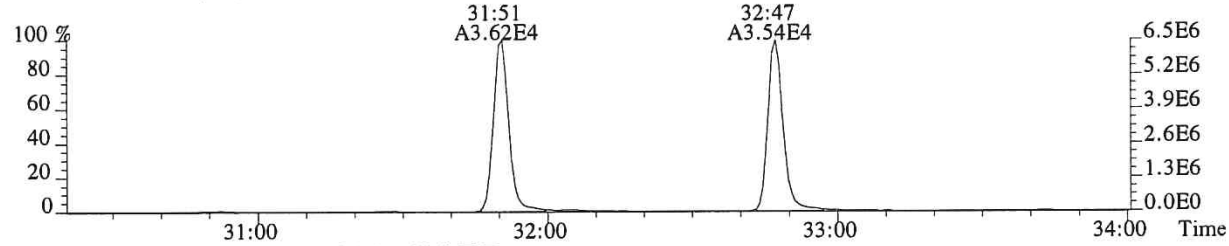
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2364.0,1.00%,F,T)



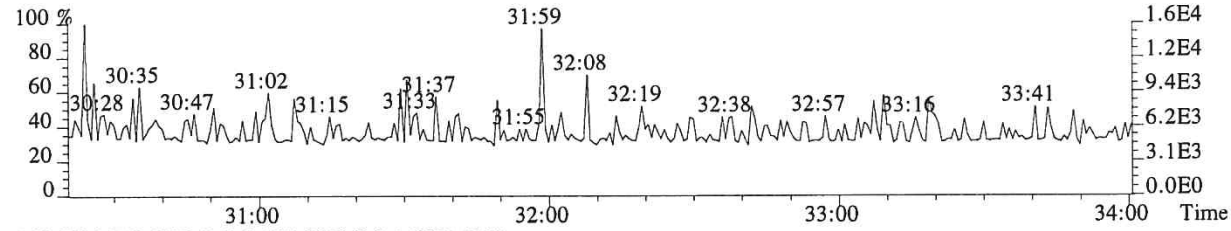
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



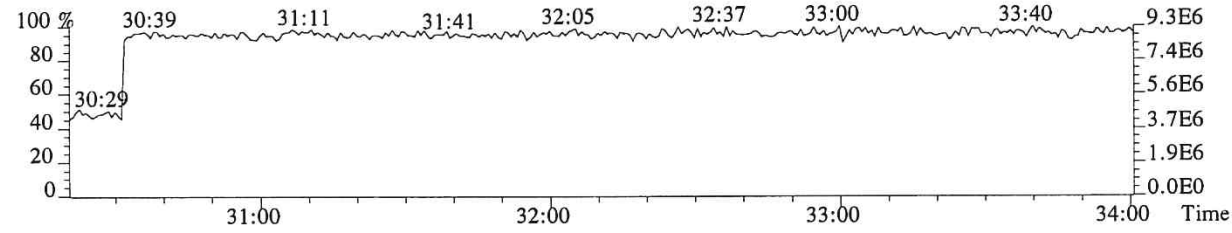
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



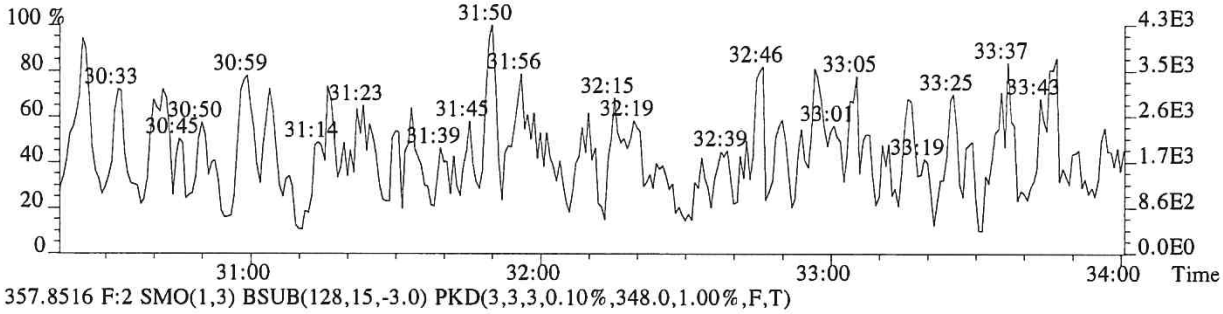
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



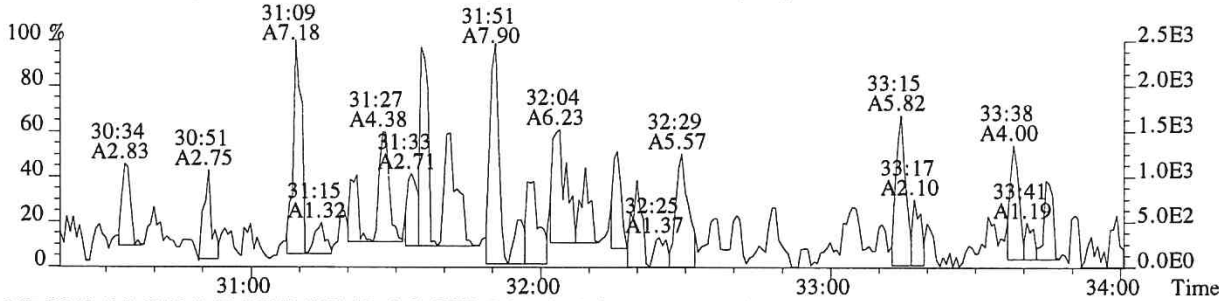
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



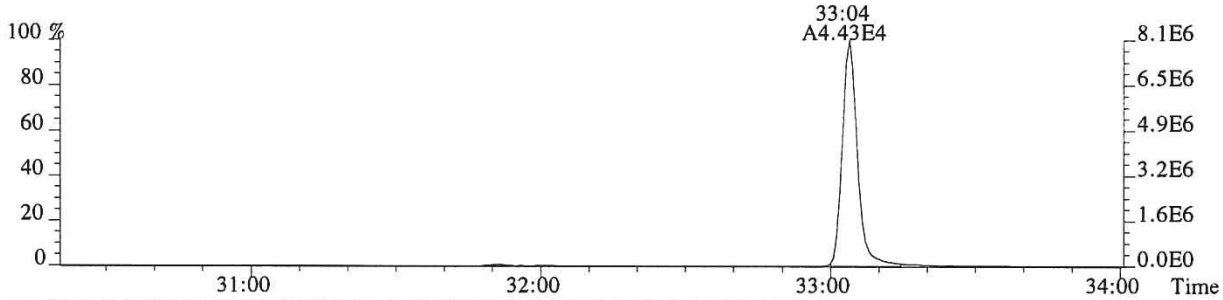
File:P616047 #1-331 Acq:11-DEC-2018 16:28:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-031
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2172.0,1.00%,F,T)



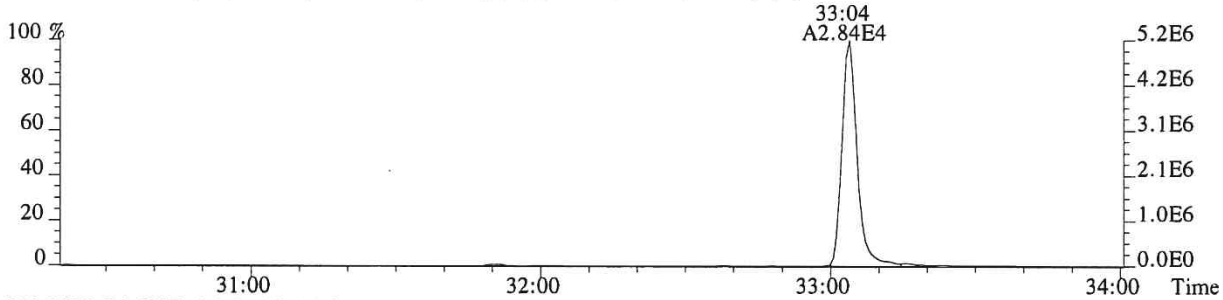
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



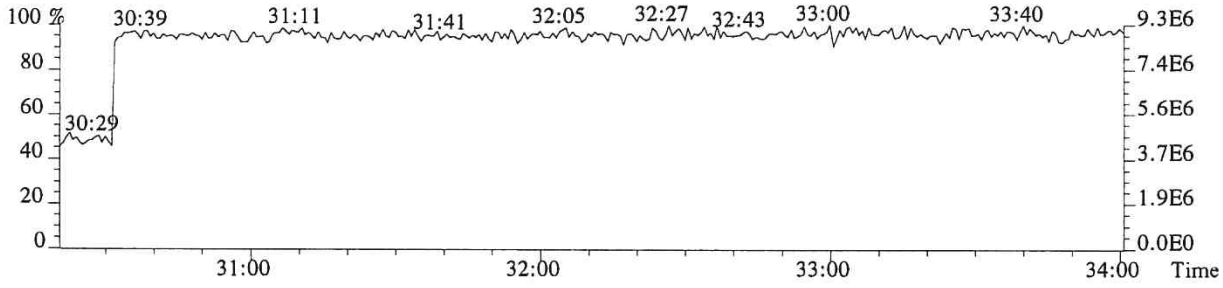
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2308.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2468.0,1.00%,F,T)

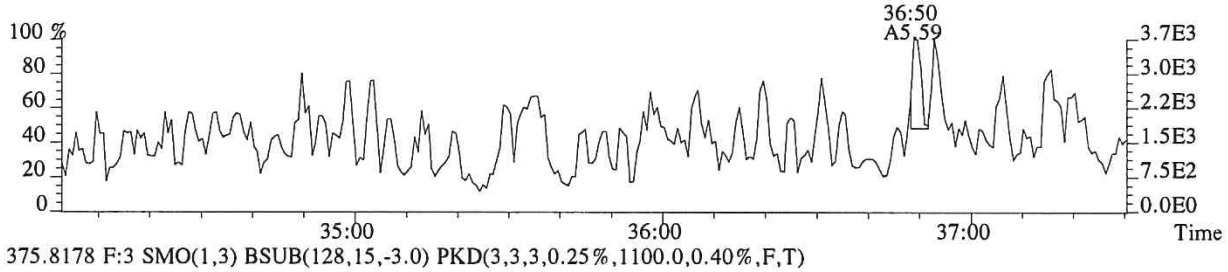


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

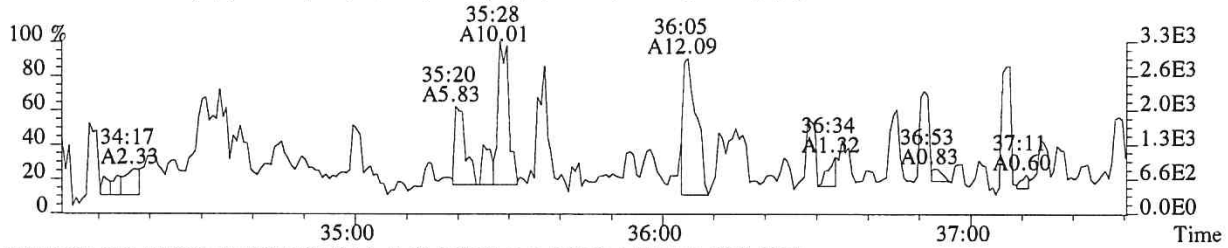


File:P616047 #1-312 Acq:11-DEC-2018 16:28:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-031

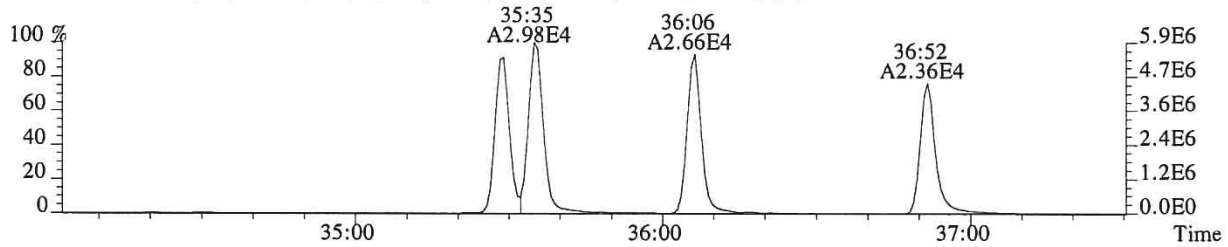
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1964.0,0.40%,F,T)



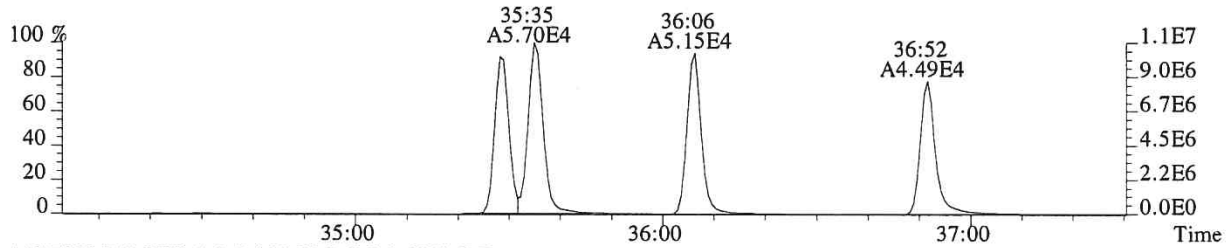
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



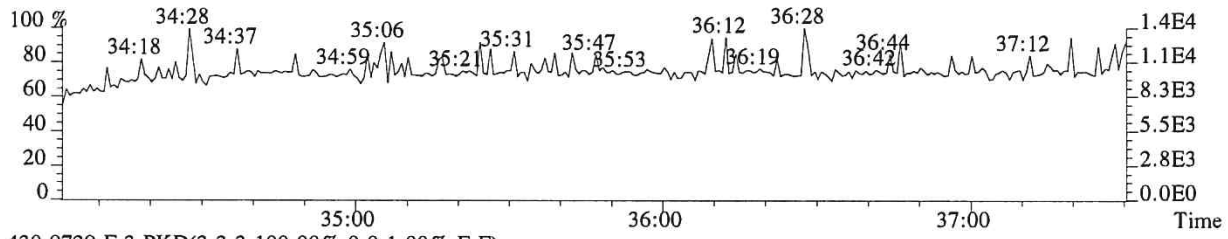
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.40%,F,T)



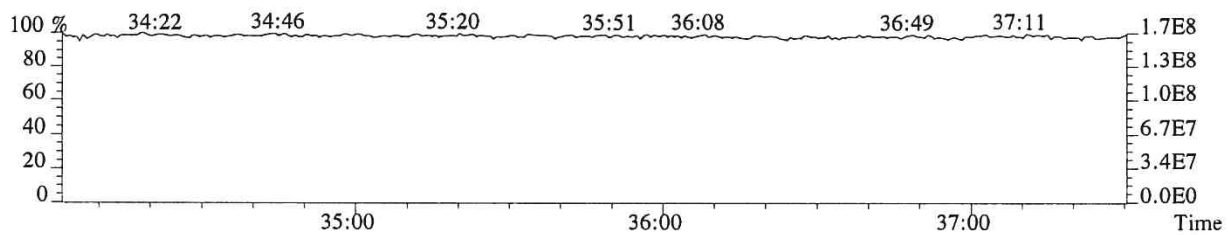
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2132.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

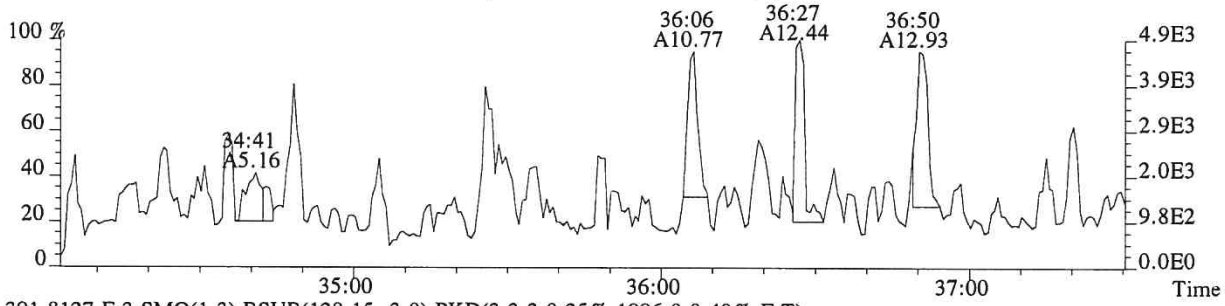


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

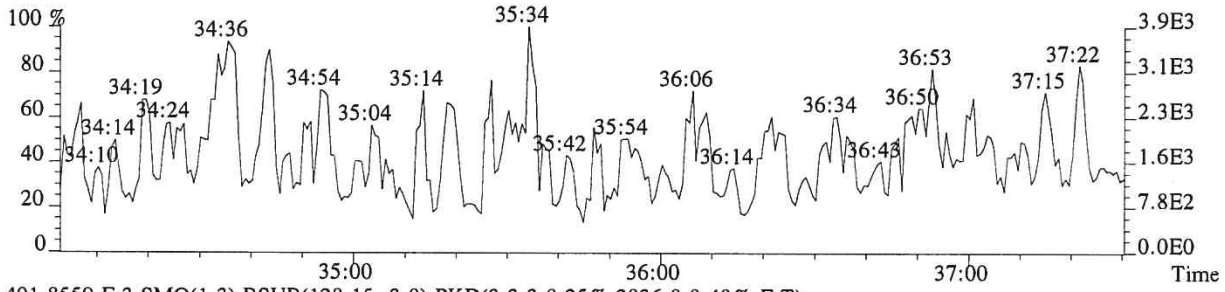


013308

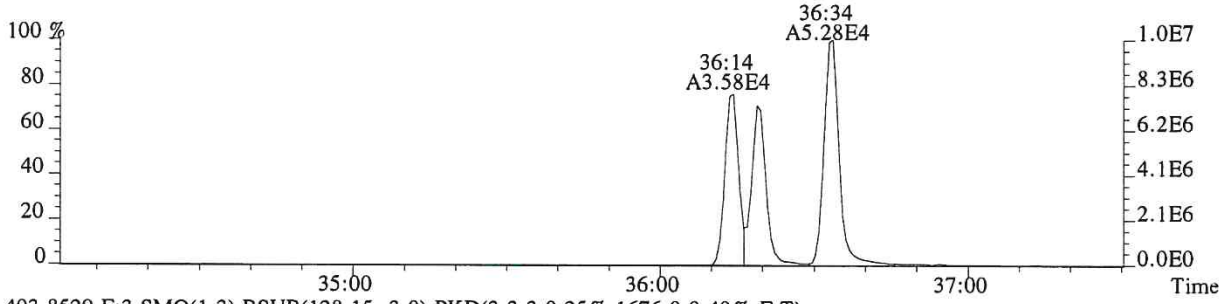
File:P616047 #1-312 Acq:11-DEC-2018 16:28:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-031
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.40%,F,T)



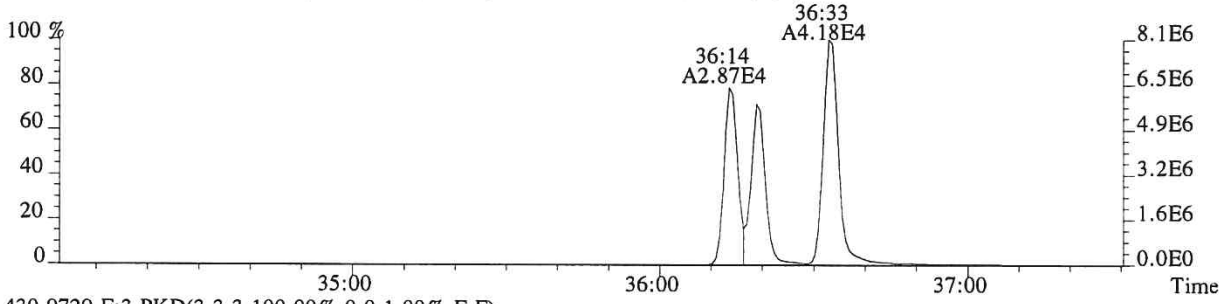
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



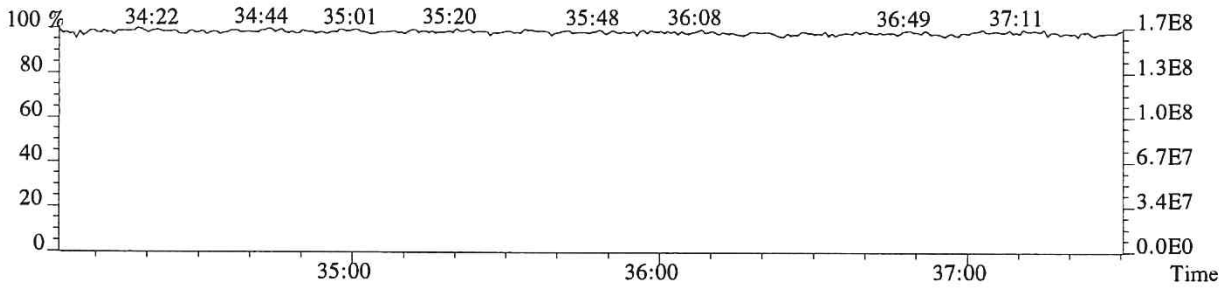
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2836.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)

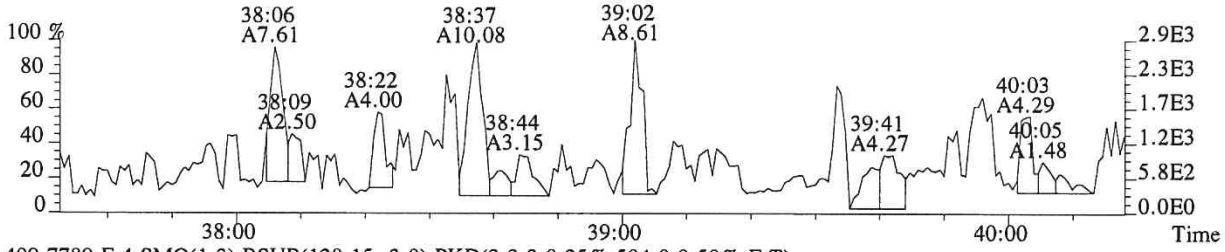


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

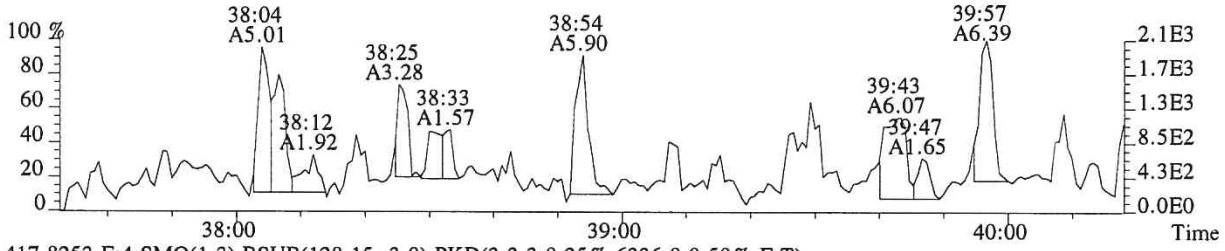


File:P616047 #1-249 Acq:11-DEC-2018 16:28:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-031

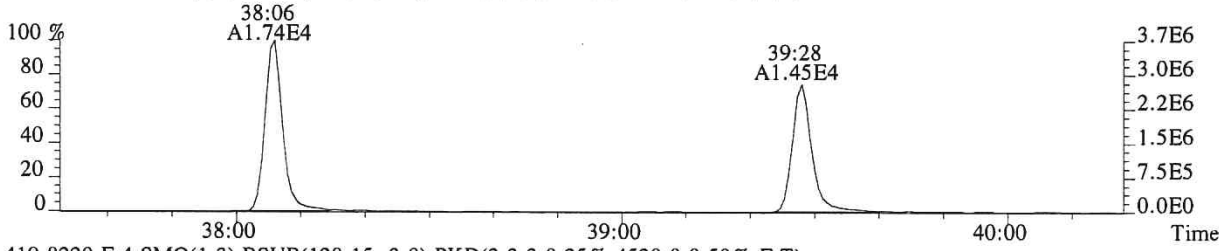
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.50%,F,T)



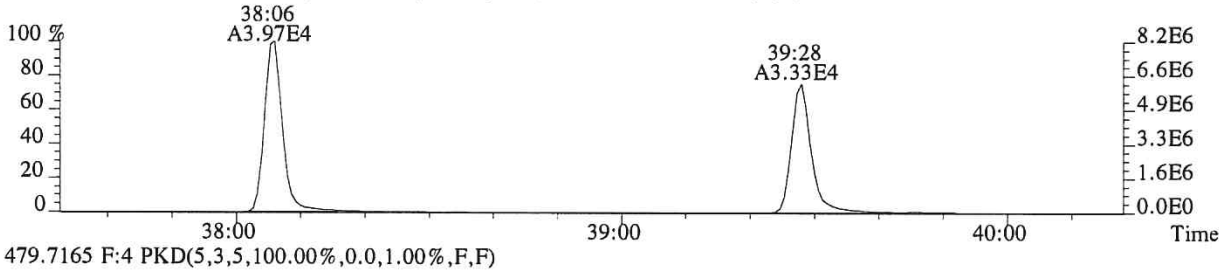
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.50%,F,T)



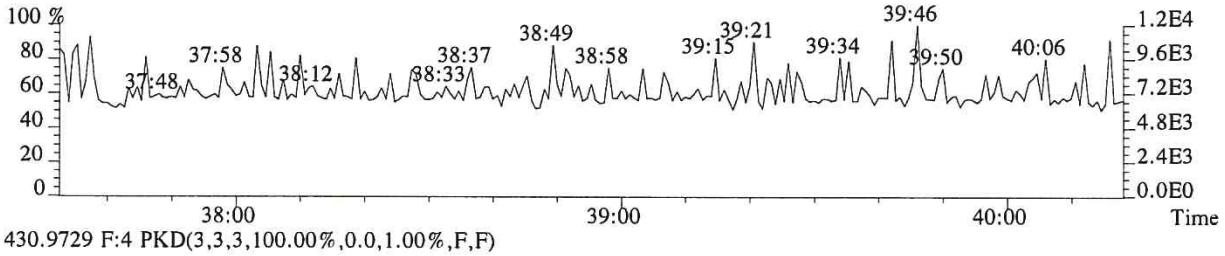
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6336.0,0.50%,F,T)



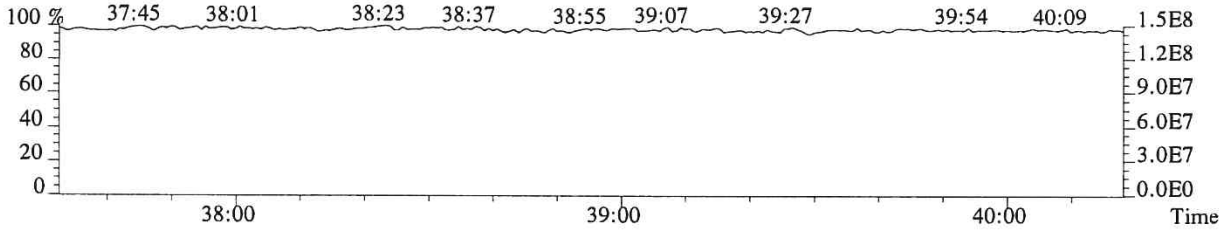
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4520.0,0.50%,F,T)



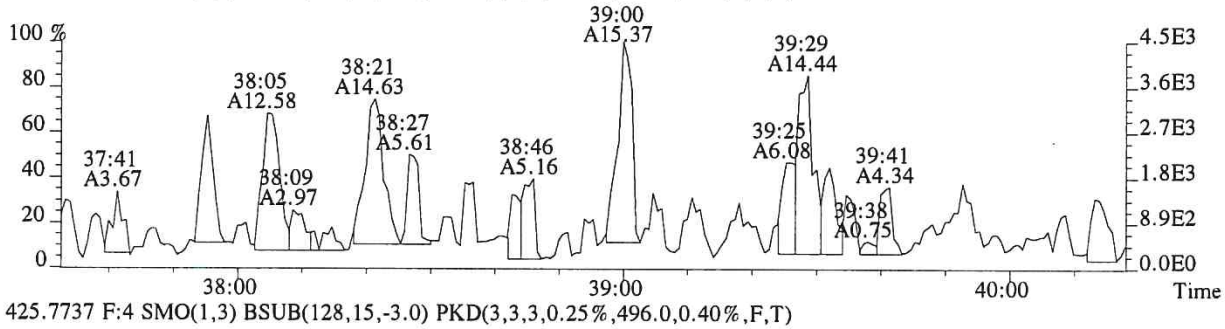
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



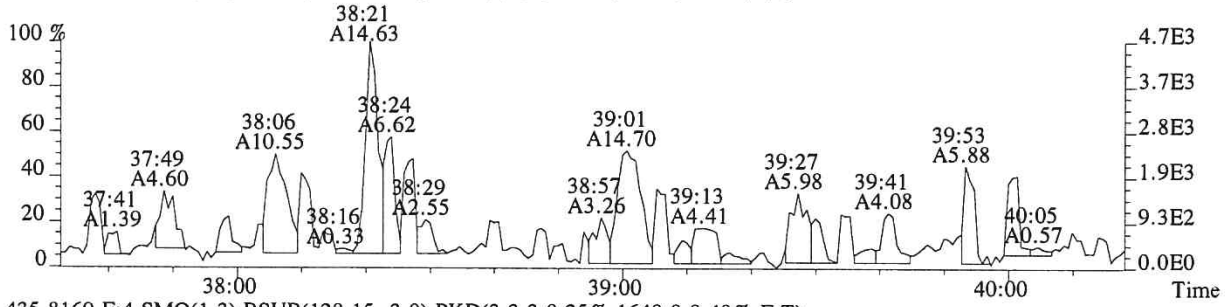
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



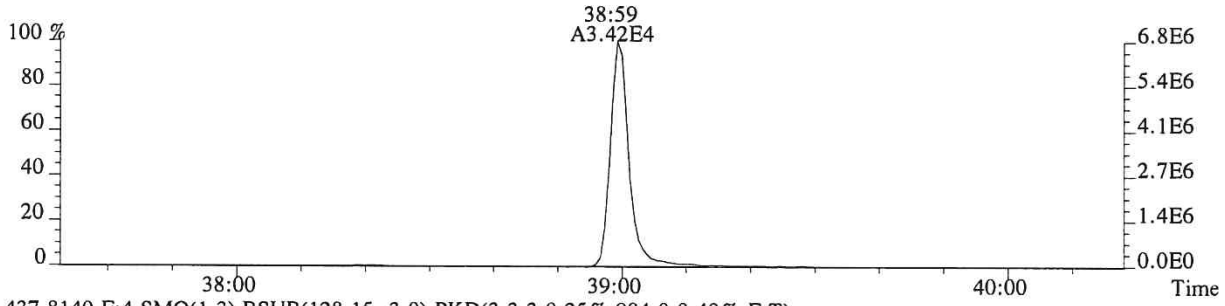
File:P616047 #1-249 Acq:11-DEC-2018 16:28:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-031
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



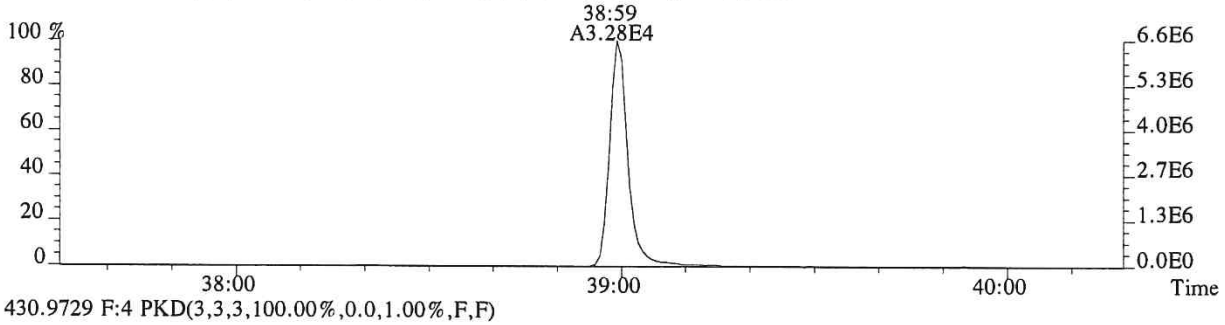
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



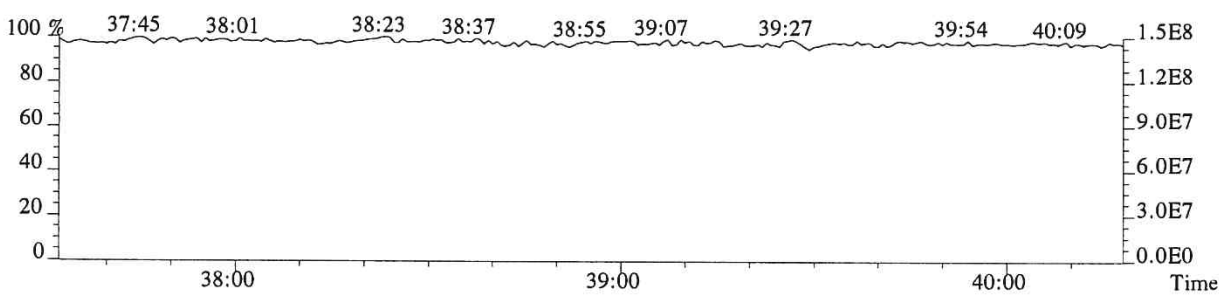
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1640.0,0.40%,F,T)



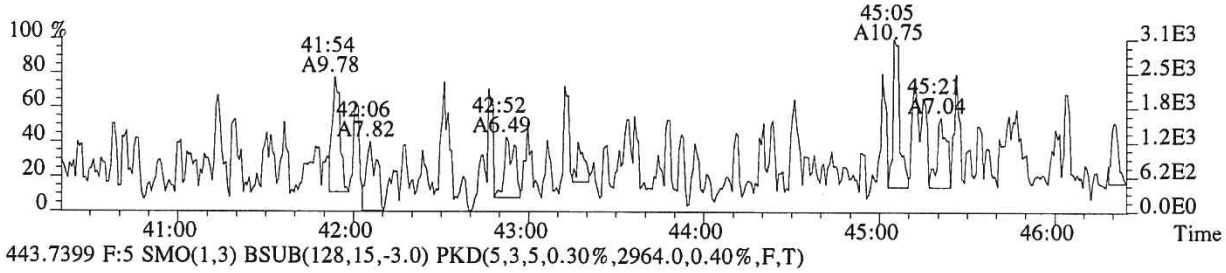
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)



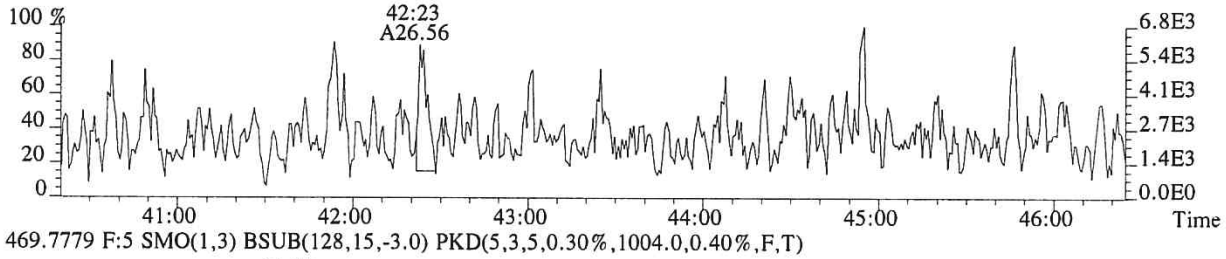
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



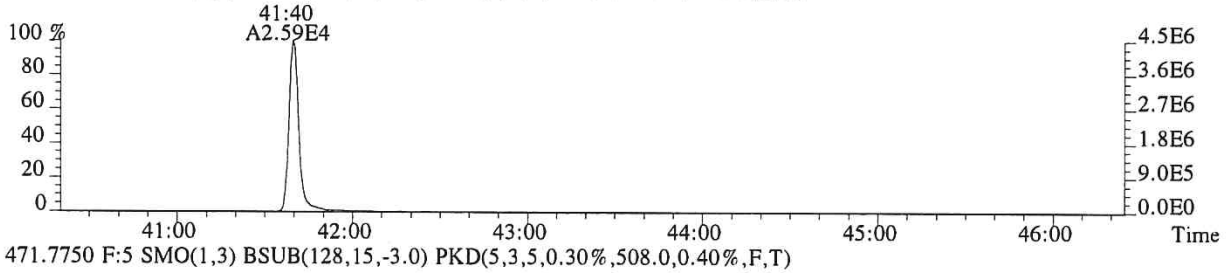
File:P616047 #1-547 Acq:11-DEC-2018 16:28:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-031
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,856.0,0.40%,F,T)



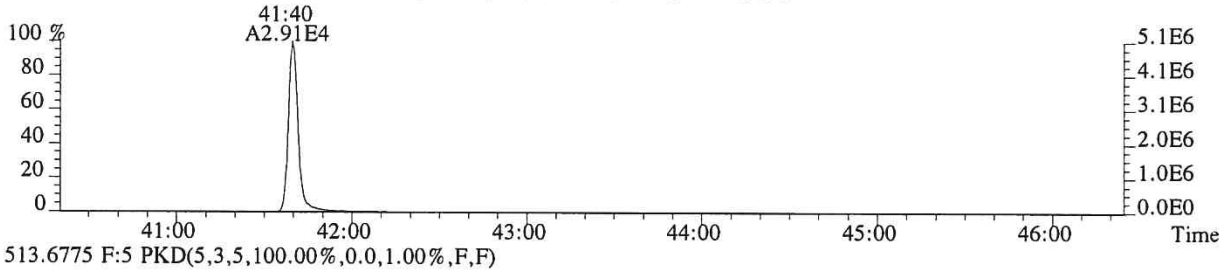
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2964.0,0.40%,F,T)



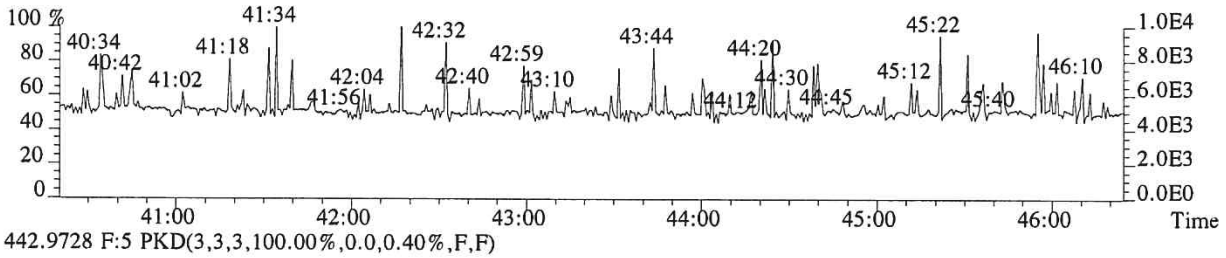
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1004.0,0.40%,F,T)



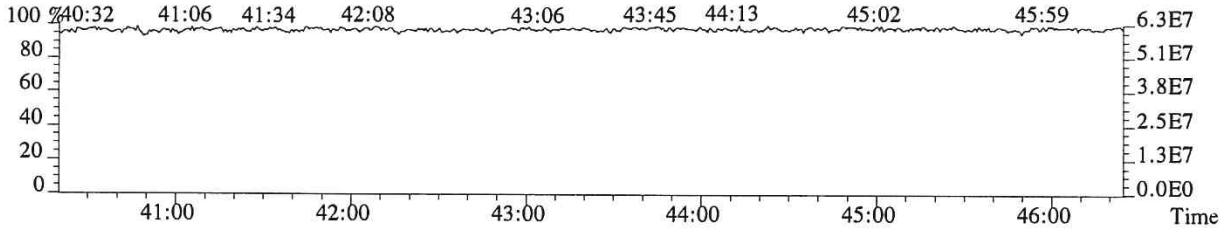
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



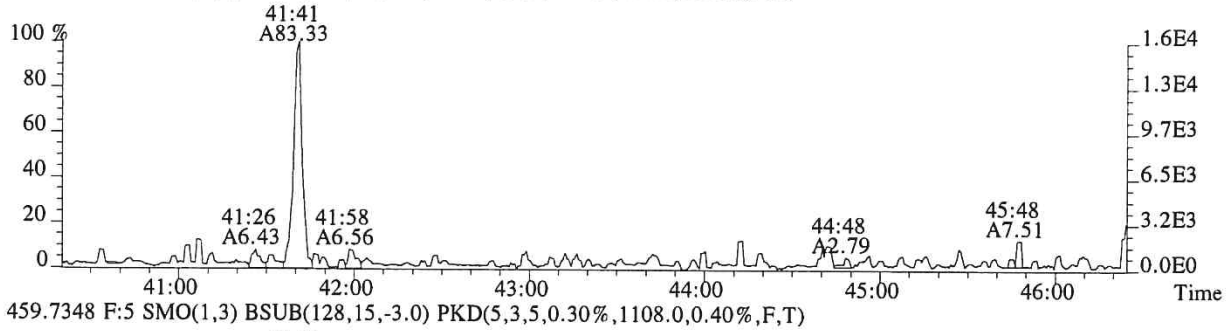
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



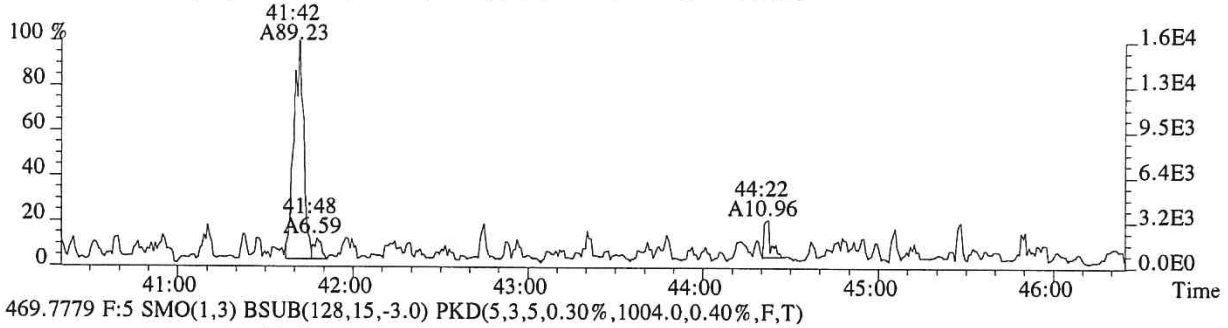
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



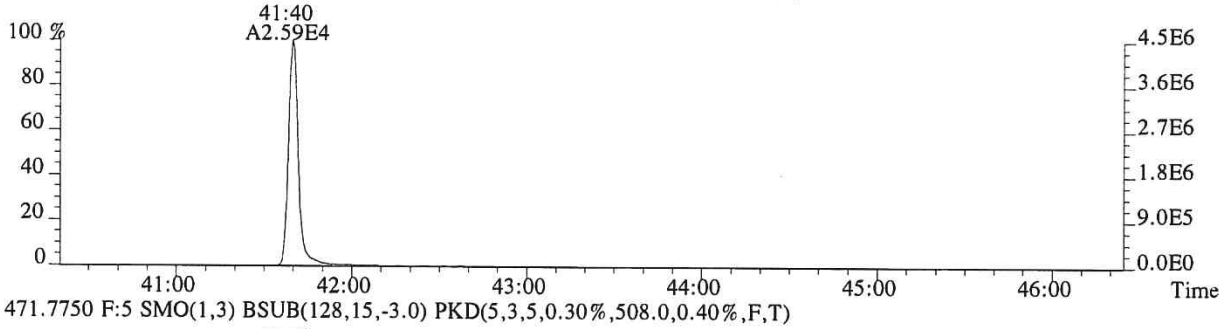
File:P616047 #1-547 Acq:11-DEC-2018 16:28:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-031
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



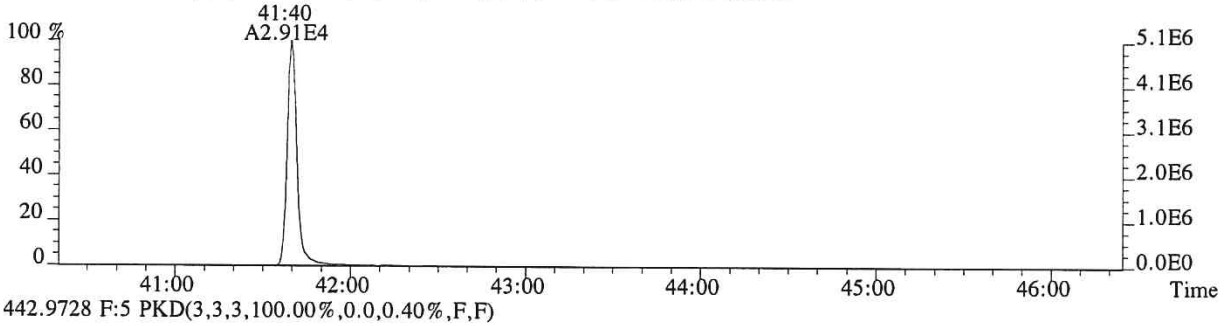
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1108.0,0.40%,F,T)



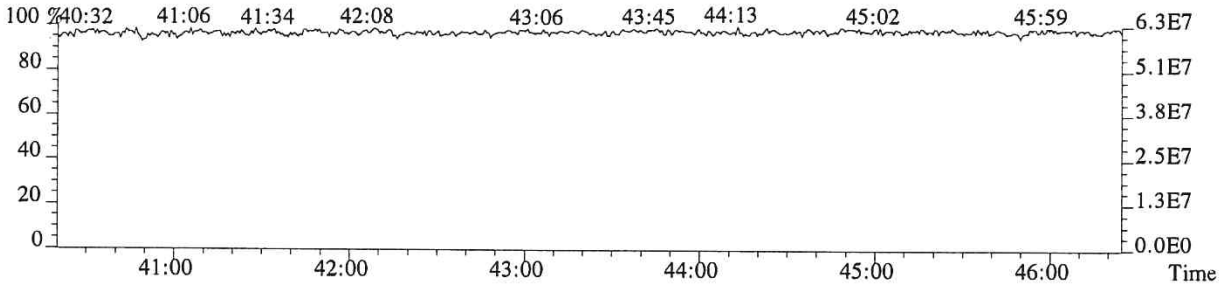
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1004.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
FW010

Run #15 Filename P616048 Samp: 1 Inj: 1 Acquired: 11-DEC-18 17:18:28
Processed: 12-DEC-18 16:11:37 Sample ID: E1801058-032

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:31	1.371e+02	1.264e+02	1.08	no	yes	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:06	2.262e+01	1.605e+01	1.41	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	41:52	3.128e+01	6.663e+01	0.47	no	yes	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:00	1.784e+01	2.724e+01	0.65	no	yes	1.112
17	Unk	OCDD	41:40	2.817e+02	2.452e+02	1.15	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:29	3.192e+04	4.044e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	5.270e+04	3.286e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:47	5.042e+04	3.123e+04	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:29	2.241e+04	4.155e+04	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:35	2.596e+04	4.979e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:06	2.283e+04	4.472e+04	0.51	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.113e+04	4.041e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	1.704e+04	3.752e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.372e+04	3.081e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:18	1.625e+04	2.089e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:04	4.011e+04	2.573e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:14	3.244e+04	2.582e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:19	3.318e+04	2.651e+04	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	2.975e+04	2.846e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:40	2.488e+04	2.789e+04	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:41	4.577e+04	5.827e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:33	6.143e+04	4.810e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:20	2.569e+04				no	1.086

$$OCDD = \frac{(2.817e+02 + 2.452e+02) \times 4000\ pg \times 1}{(2.488e+04 + 2.789e+04) \times \quad g \times 5 \ / \ 100 \times 1.157} = 60.7191\ pg$$

LG 12/13/18

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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW010

Run #15 Filename P616048 Samp: 1 Inj: 1 Acquired: 11-DEC-18 17:18:28
Processed: 12-DEC-18 16:11:37 LAB. ID: E1801058-032

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.44e+04	2.08e+03	1.2e+01	2.36e+04	3.59e+03	6.6e+00
2	1,2,3,7,8-PeCDF	*	1.37e+03	*	*	3.14e+03	*
3	2,3,4,7,8-PeCDF	*	1.37e+03	*	*	3.14e+03	*
4	1,2,3,4,7,8-HxCDF	*	2.21e+03	*	*	1.41e+03	*
5	1,2,3,6,7,8-HxCDF	*	2.21e+03	*	*	1.41e+03	*
6	2,3,4,6,7,8-HxCDF	*	2.21e+03	*	*	1.41e+03	*
7	1,2,3,7,8,9-HxCDF	*	2.21e+03	*	*	1.41e+03	*
8	1,2,3,4,6,7,8-HpCDF	5.65e+03	7.92e+02	7.1e+00	3.66e+03	6.24e+02	5.9e+00
9	1,2,3,4,7,8,9-HpCDF	*	7.92e+02	*	*	6.24e+02	*
10	OCDF	4.60e+03	7.52e+02	6.1e+00	1.20e+04	2.00e+03	6.0e+00
11	2,3,7,8-TCDD	*	5.22e+03	*	*	2.95e+03	*
12	1,2,3,7,8-PeCDD	*	2.36e+03	*	*	9.32e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.06e+03	*	*	1.28e+03	*
14	1,2,3,6,7,8-HxCDD	*	1.06e+03	*	*	1.28e+03	*
15	1,2,3,7,8,9-HxCDD	*	1.06e+03	*	*	1.28e+03	*
16	1,2,3,4,6,7,8-HpCDD	4.99e+03	1.20e+03	4.1e+00	4.89e+03	1.36e+03	3.6e+00
17	OCDD	4.33e+04	5.12e+02	8.4e+01	4.24e+04	8.44e+02	5.0e+01
18	13C-2,3,7,8-TCDF	5.04e+06	1.22e+04	4.1e+02	6.35e+06	7.34e+03	8.6e+02
19	13C-1,2,3,7,8-PeCDF	9.41e+06	2.82e+03	3.3e+03	5.84e+06	2.58e+03	2.3e+03
20	13C-2,3,4,7,8-PeCDF	9.21e+06	2.82e+03	3.3e+03	5.88e+06	2.58e+03	2.3e+03
21	13C-1,2,3,4,7,8-HxCDF	4.65e+06	2.00e+03	2.3e+03	8.80e+06	2.79e+03	3.2e+03
22	13C-1,2,3,6,7,8-HxCDF	5.13e+06	2.00e+03	2.6e+03	1.01e+07	2.79e+03	3.6e+03
23	13C-2,3,4,6,7,8-HxCDF	4.75e+06	2.00e+03	2.4e+03	9.14e+06	2.79e+03	3.3e+03
24	13C-1,2,3,7,8,9-HxCDF	4.14e+06	2.00e+03	2.1e+03	8.08e+06	2.79e+03	2.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.56e+06	2.30e+03	1.5e+03	7.78e+06	3.67e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.53e+06	2.30e+03	1.1e+03	5.70e+06	3.67e+03	1.6e+03
27	13C-2,3,7,8-TCDD	2.80e+06	1.78e+04	1.6e+02	3.50e+06	7.00e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	7.37e+06	1.45e+03	5.1e+03	4.75e+06	2.94e+03	1.6e+03
29	13C-1,2,3,4,7,8-HxCDD	7.13e+06	3.04e+03	2.3e+03	5.81e+06	1.44e+03	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	6.60e+06	3.04e+03	2.2e+03	5.26e+06	1.44e+03	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.56e+06	1.38e+03	4.7e+03	6.27e+06	1.41e+03	4.4e+03
32	13C-OCDD	4.41e+06	5.88e+02	7.5e+03	5.09e+06	9.52e+02	5.3e+03
33	13C-1,2,3,4-TCDD	8.22e+06	1.78e+04	4.6e+02	1.03e+07	7.00e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.24e+07	3.04e+03	4.1e+03	9.67e+06	1.44e+03	6.7e+03
35	37Cl-2,3,7,8-TCDD	4.42e+06	2.29e+03	1.9e+03			

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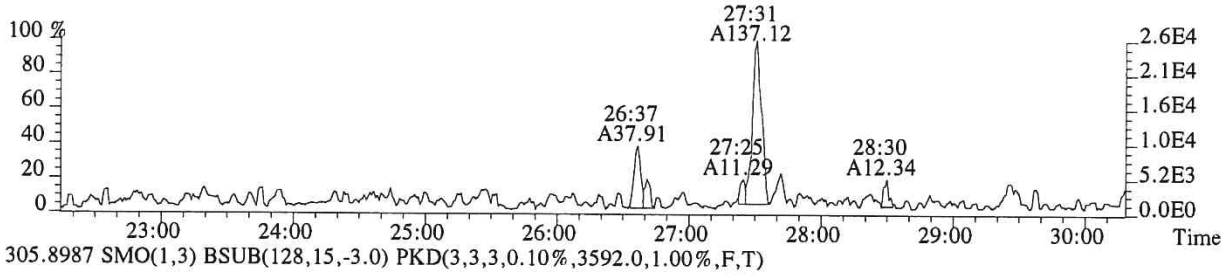
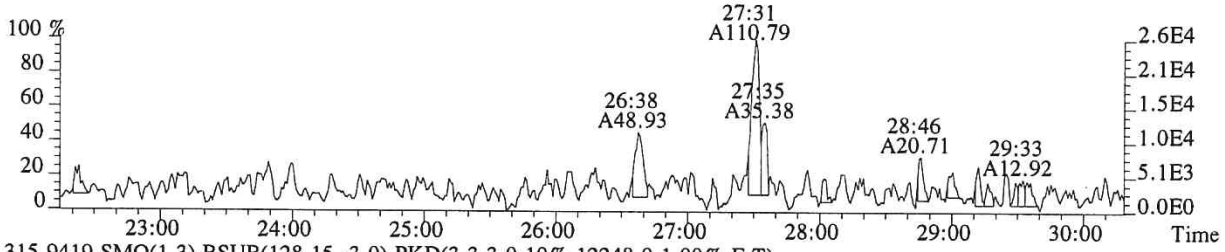
www.alsglobal.com

File:P616048 #1-573 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032

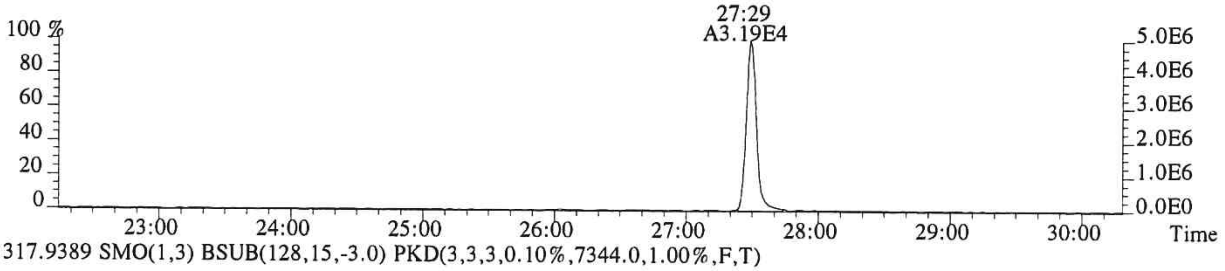
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2076.0,1.00%,F,T)



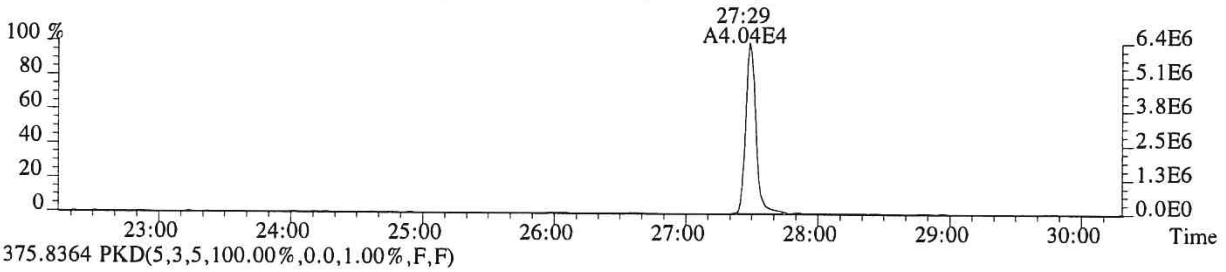
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



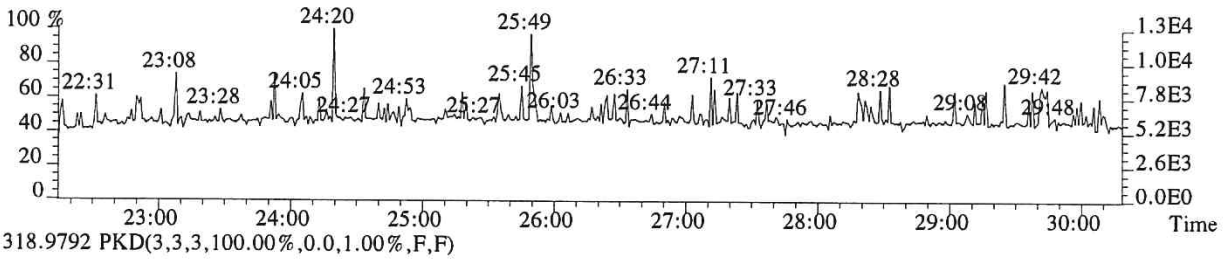
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12248.0,1.00%,F,T)



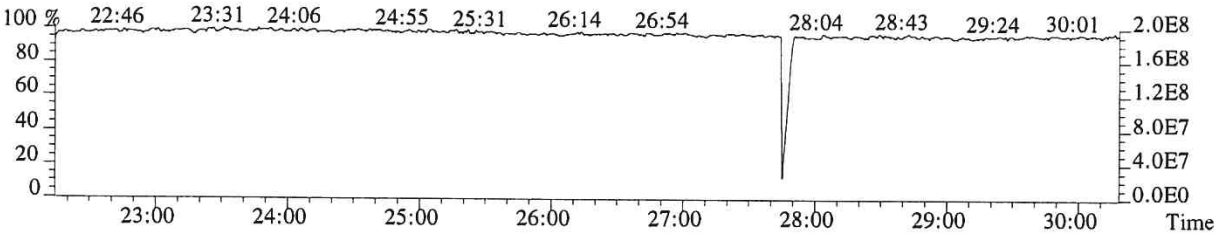
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7344.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

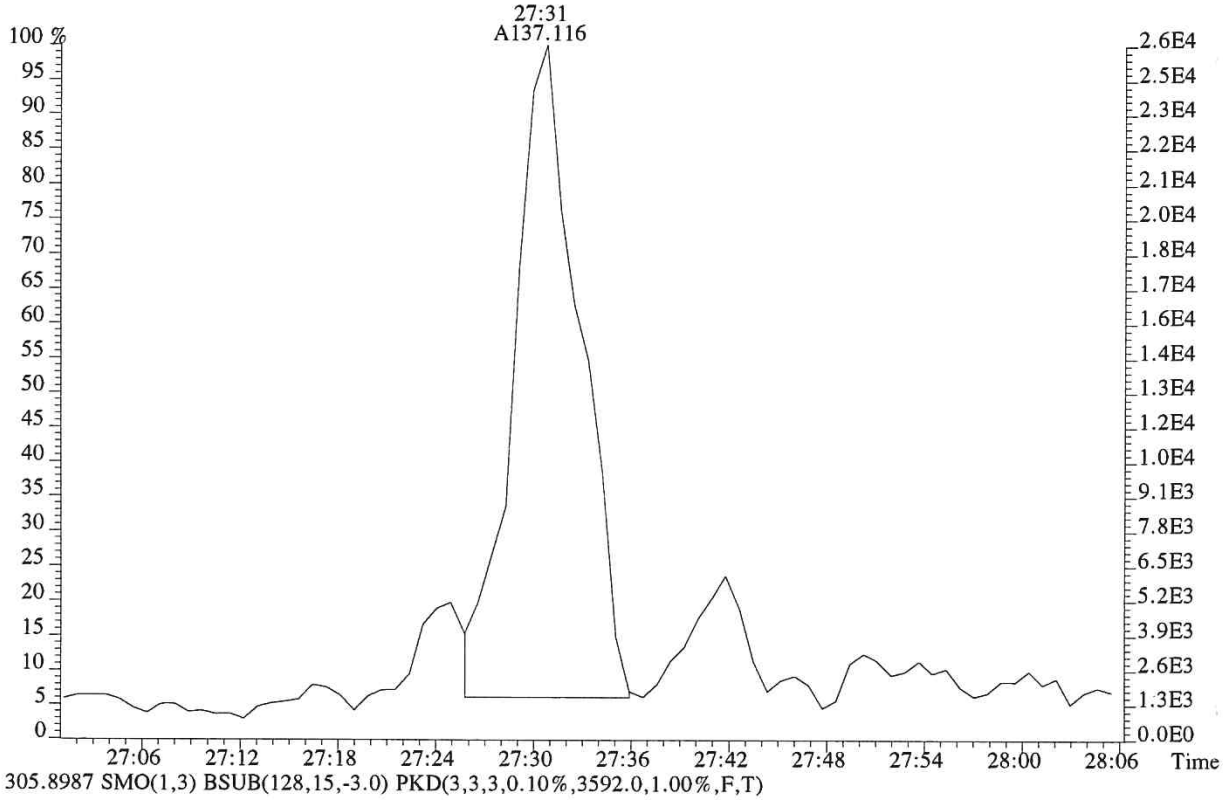


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

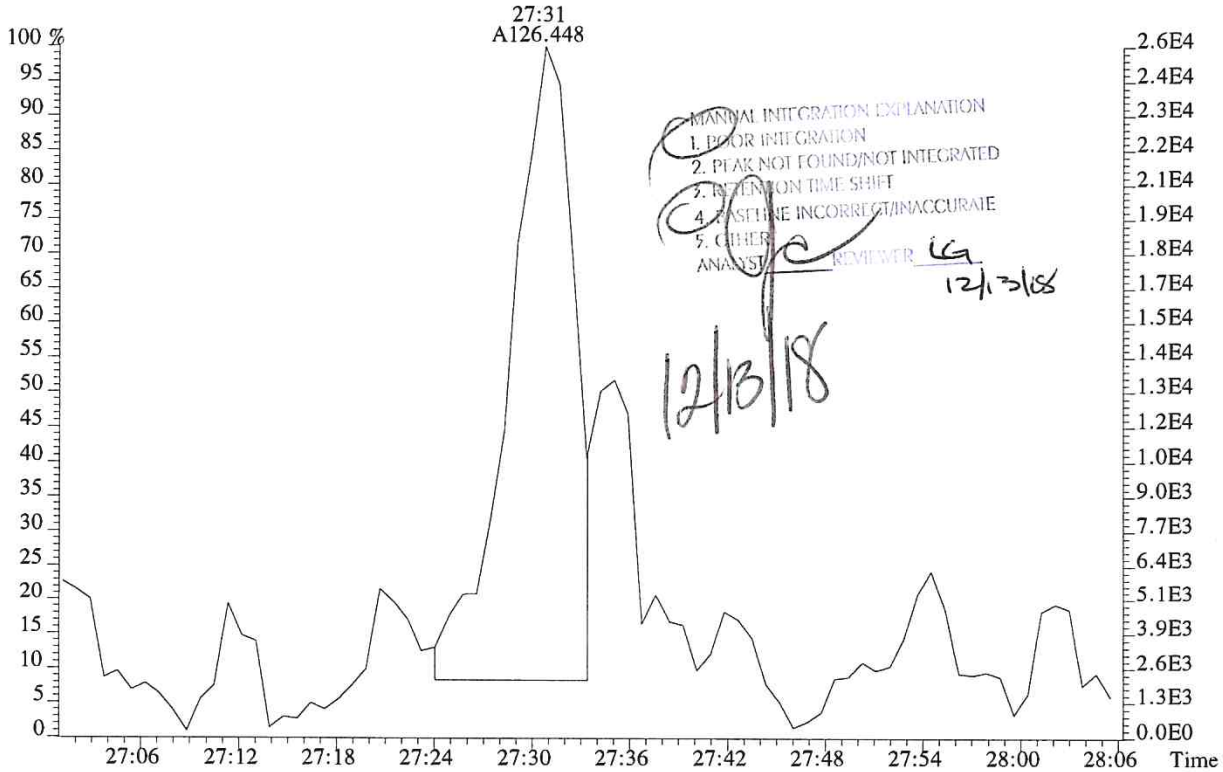


013316

File:P616048 #1-573 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2076.0,1.00%,F,T)

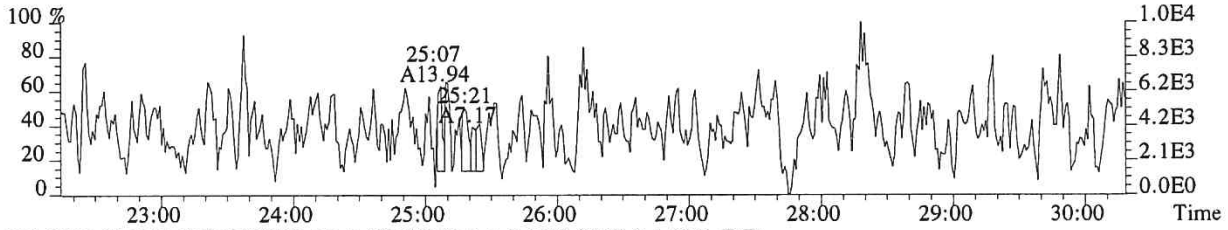


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)

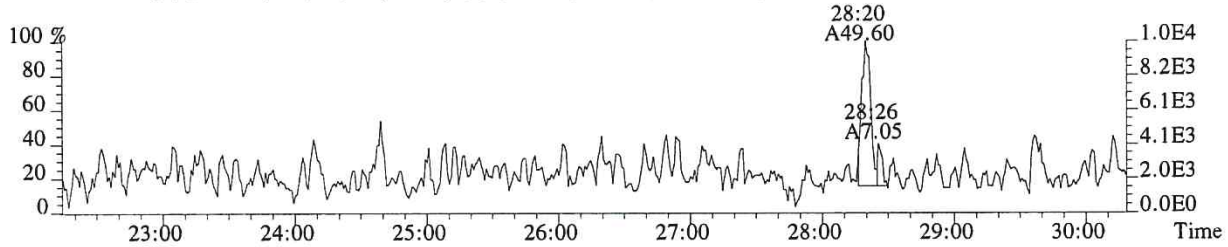


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LG
12/13/18
12/13/18

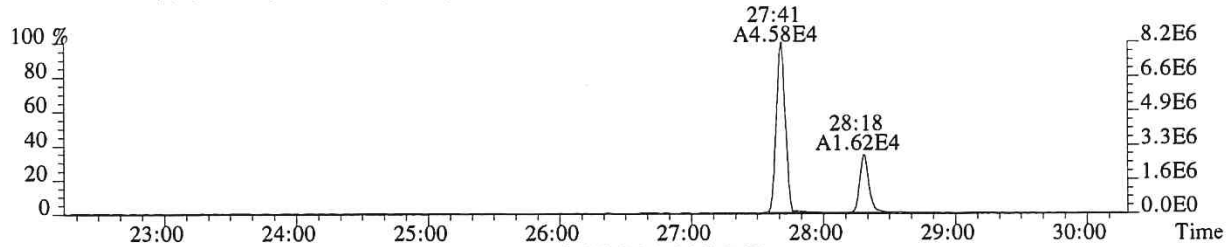
File:P616048 #1-573 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5224.0,1.00%,F,T)



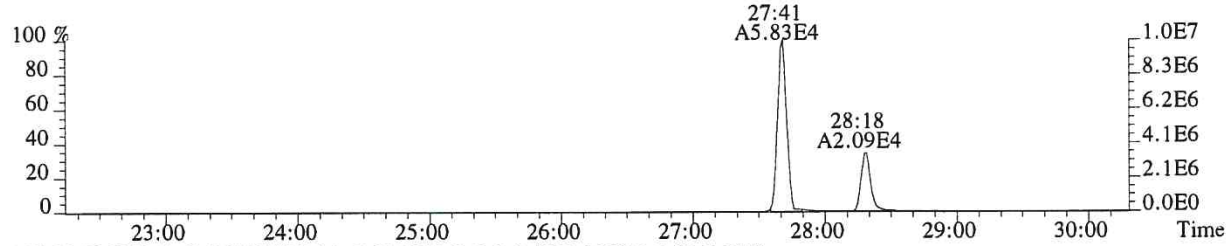
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



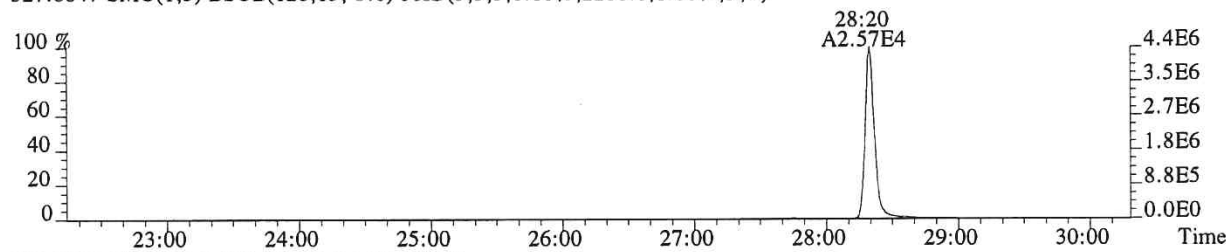
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17764.0,1.00%,F,T)



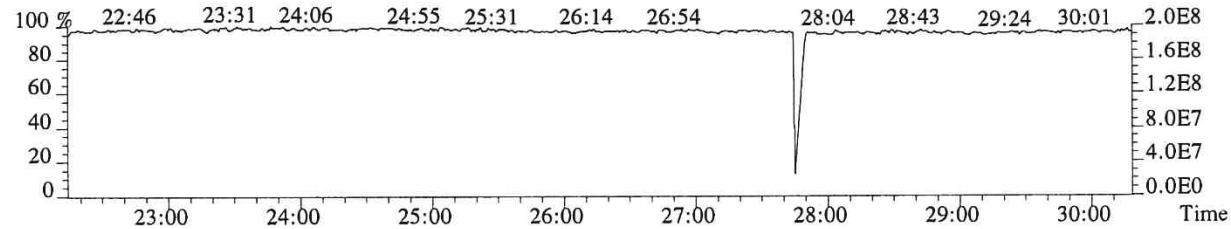
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6996.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)

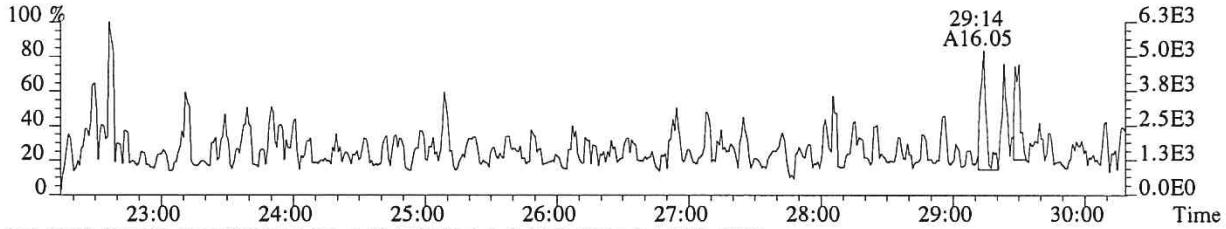


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

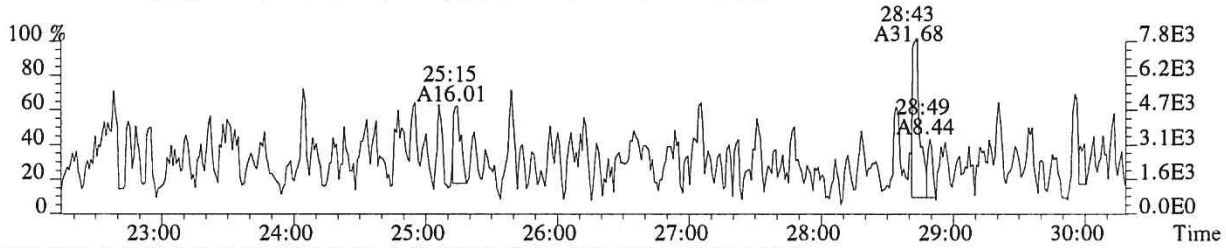


013318

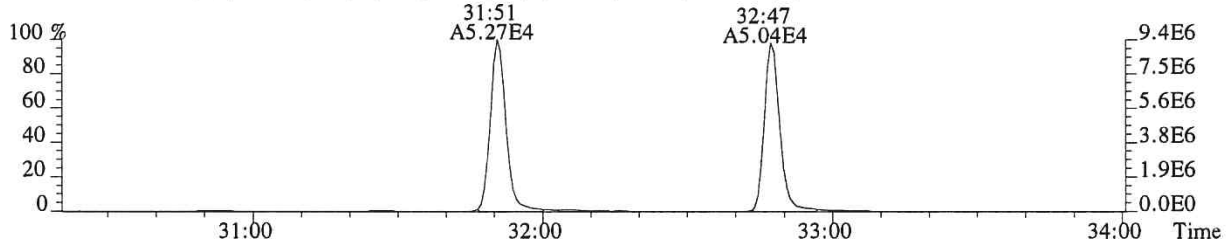
File:P616048 #1-573 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2068.0,1.00%,F,T)



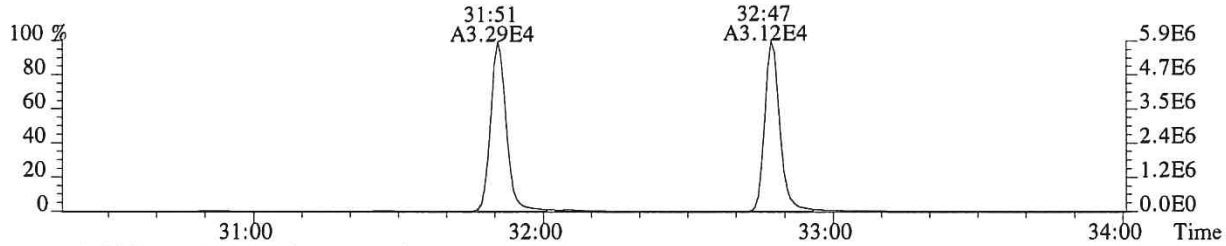
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2864.0,1.00%,F,T)



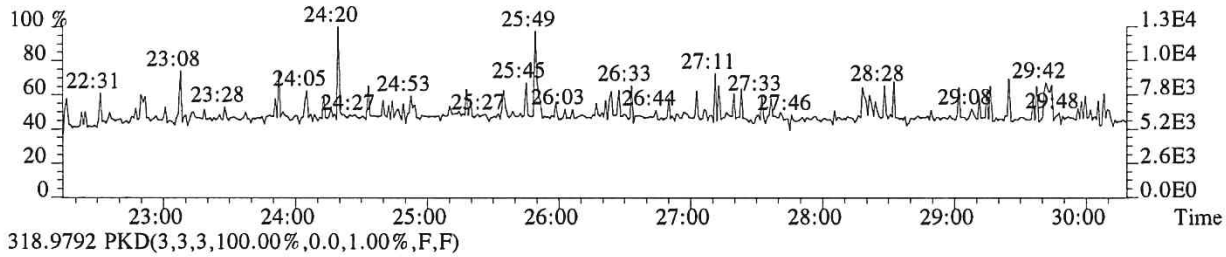
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2824.0,1.00%,F,T)



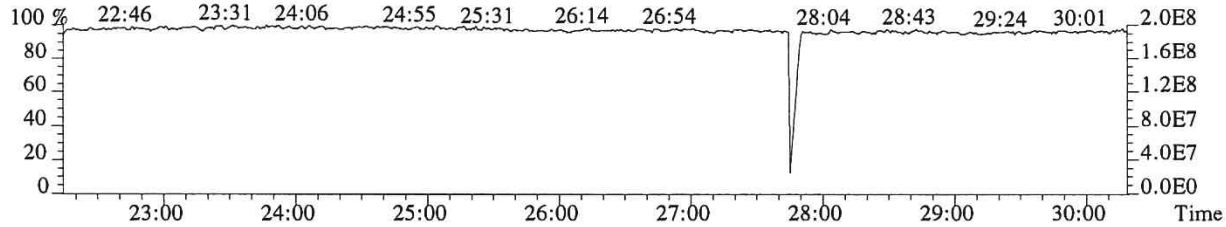
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



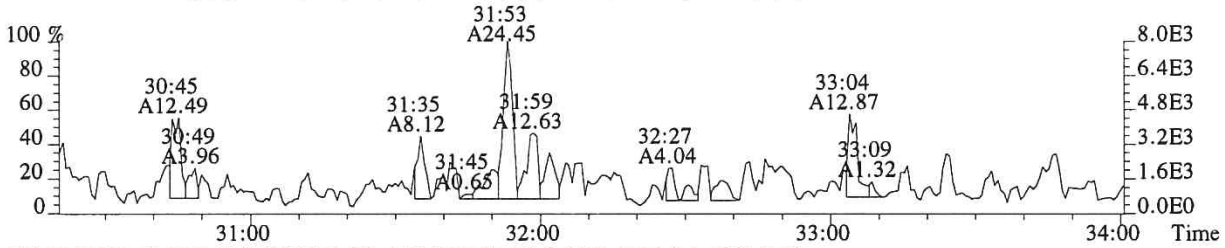
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



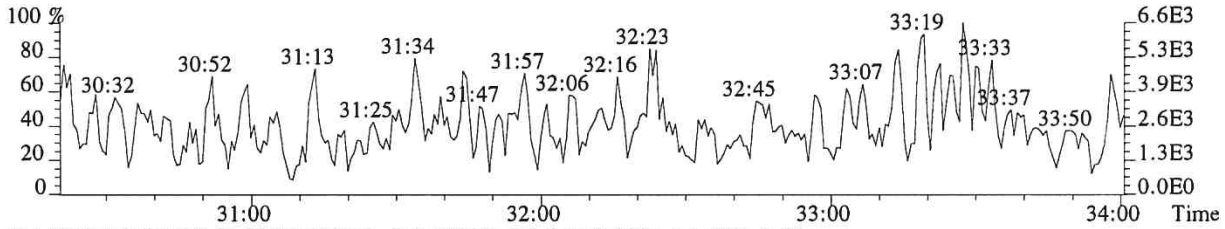
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



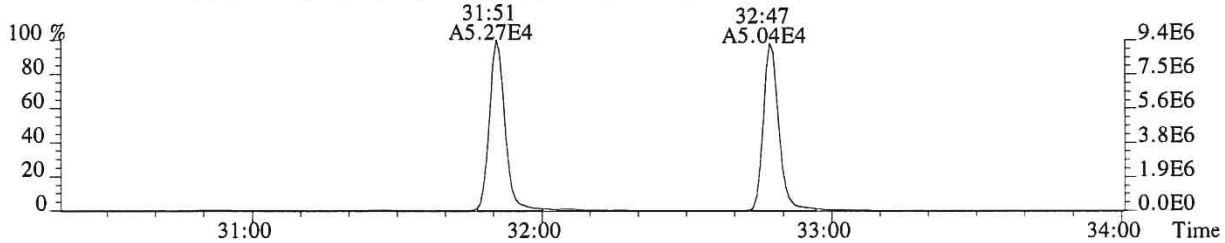
File:P616048 #1-331 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



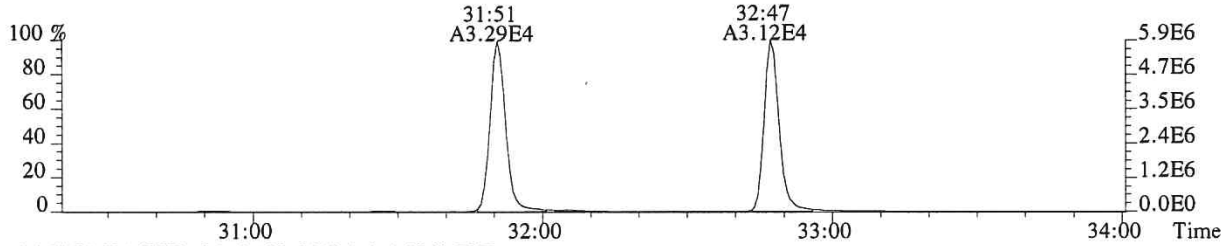
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3136.0,1.00%,F,T)



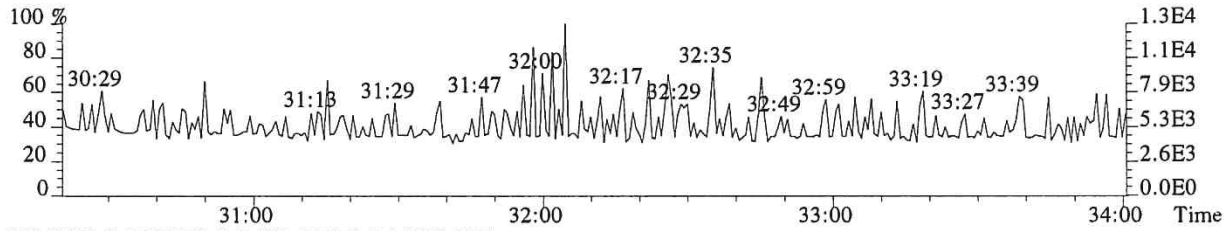
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2824.0,1.00%,F,T)



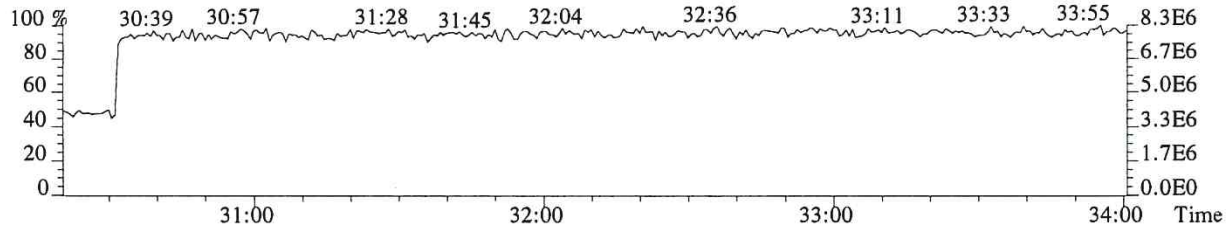
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



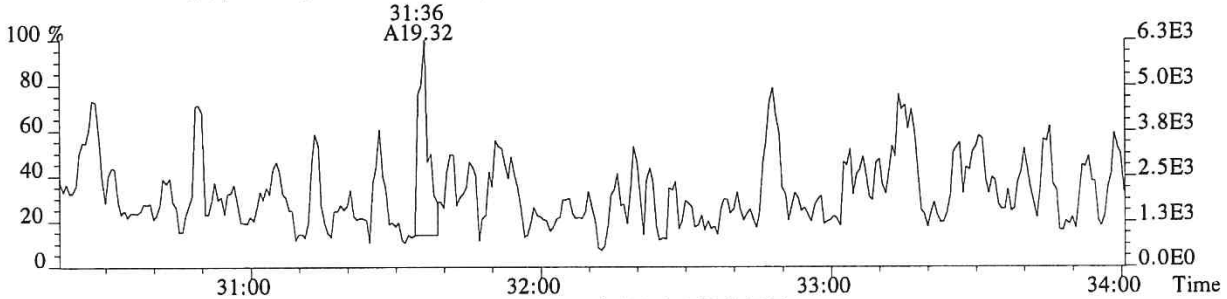
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



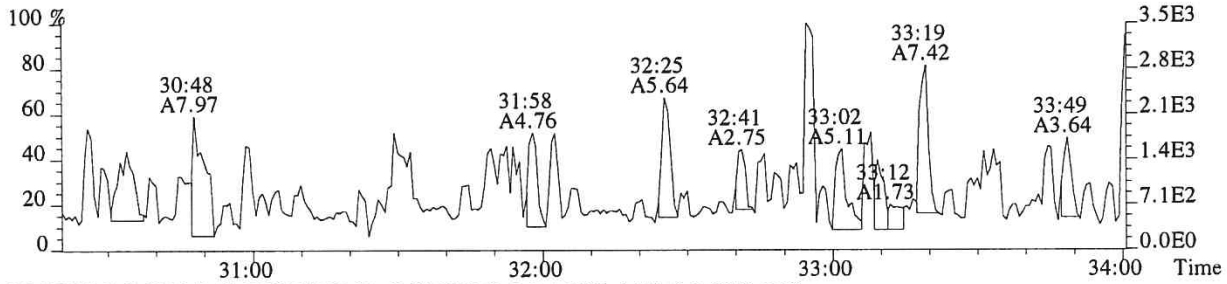
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



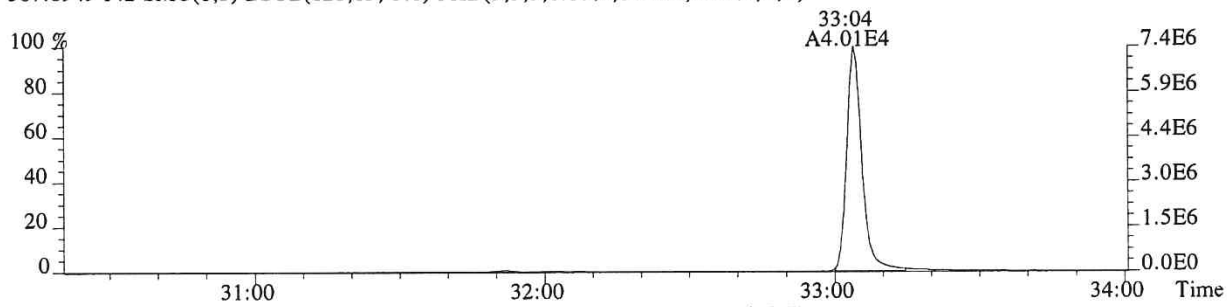
File:P616048 #1-331 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2364.0,1.00%,F,T)



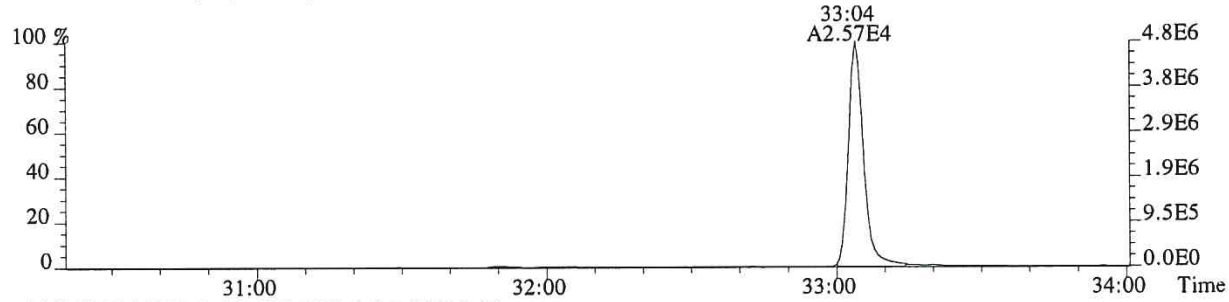
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



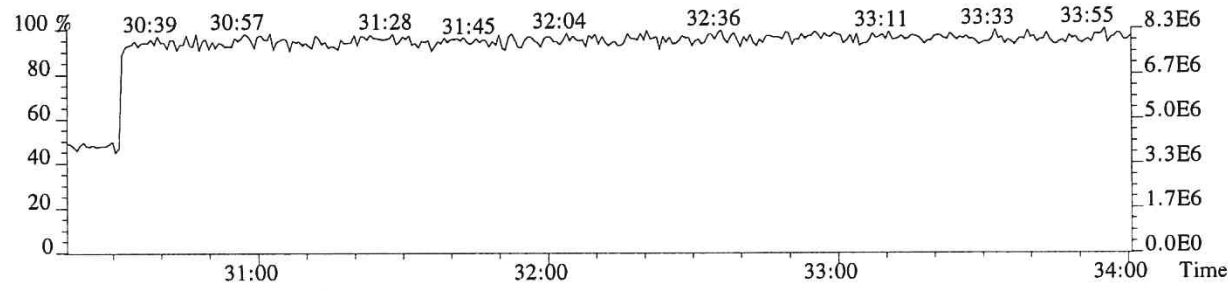
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



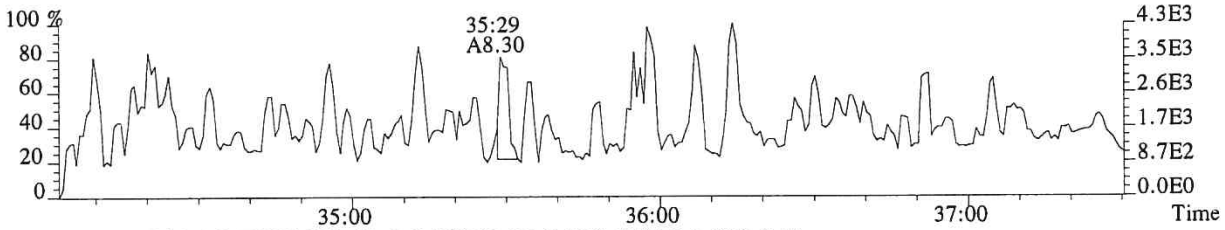
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2940.0,1.00%,F,T)



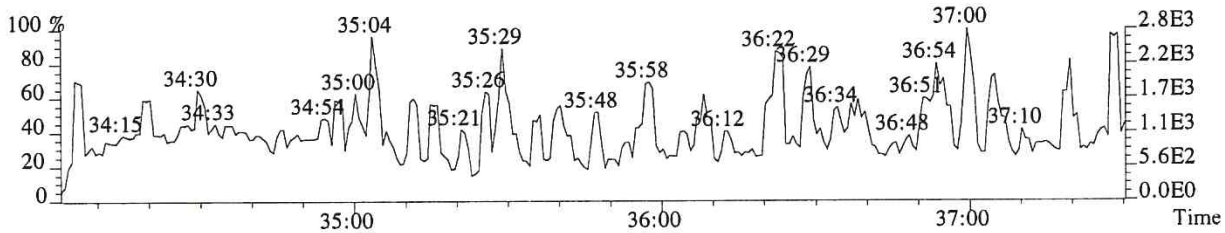
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



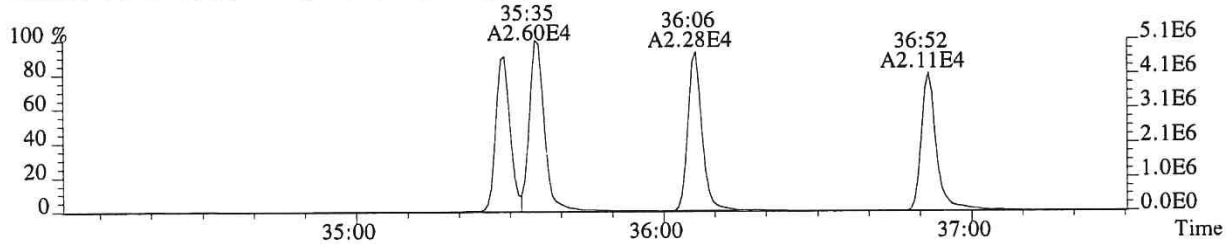
File:P616048 #1-312 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2212.0,0.40%,F,T)



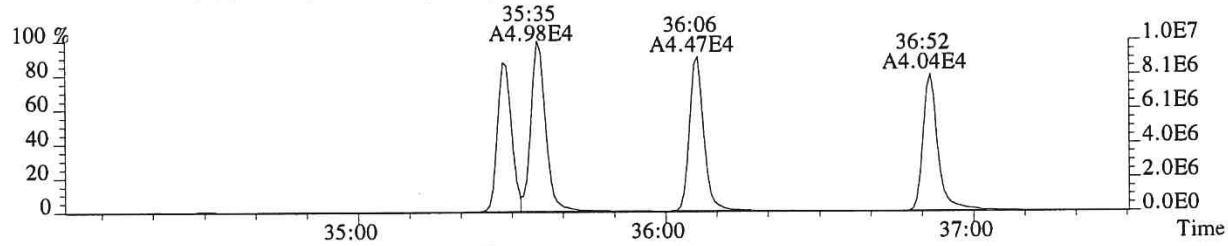
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1408.0,0.40%,F,T)



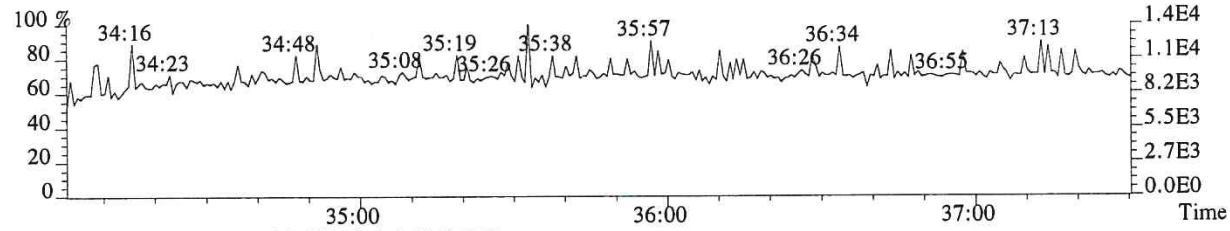
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



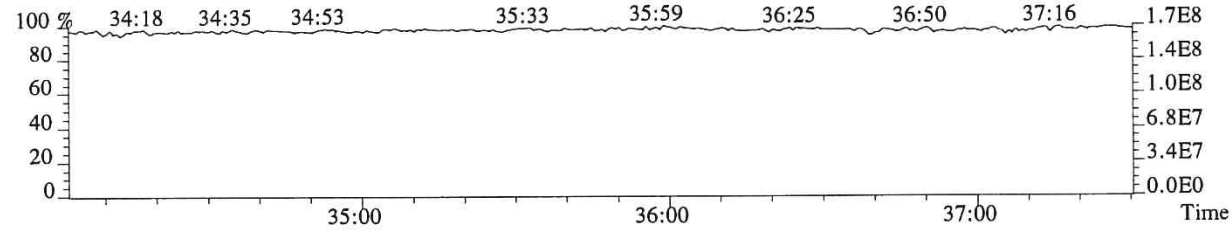
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2788.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

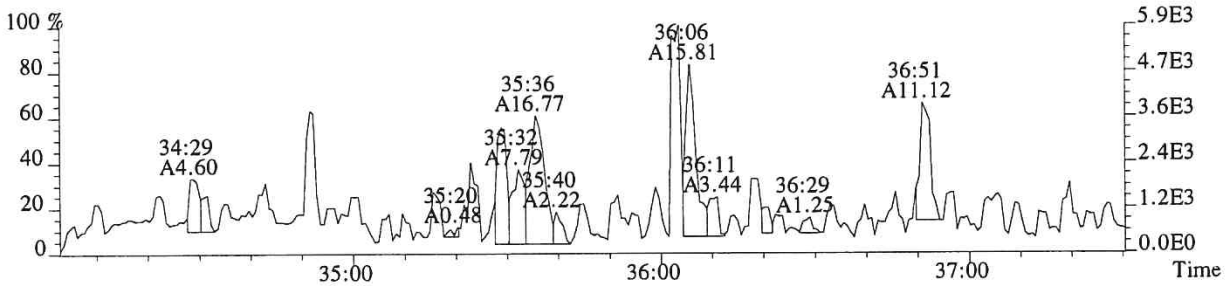


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

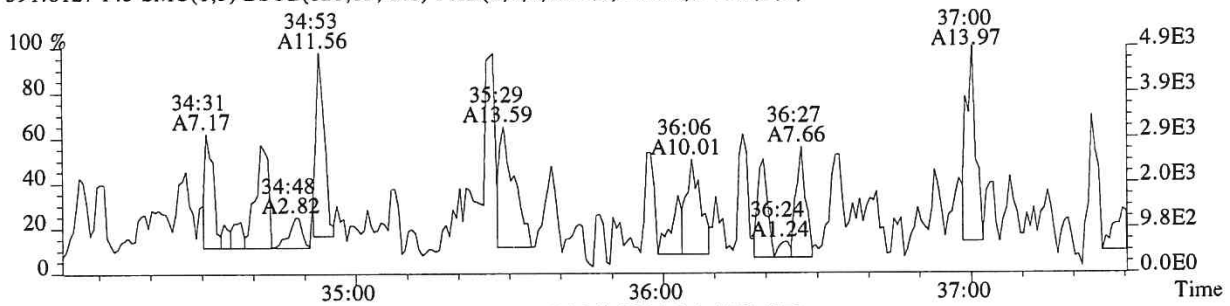


013322

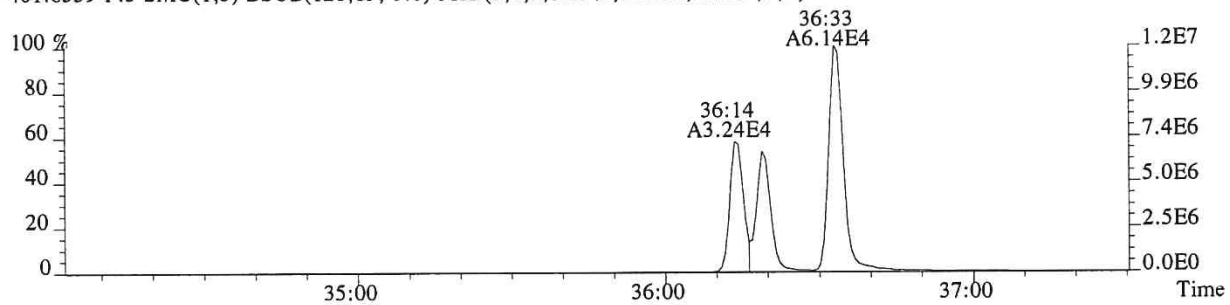
File:P616048 #1-312 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)



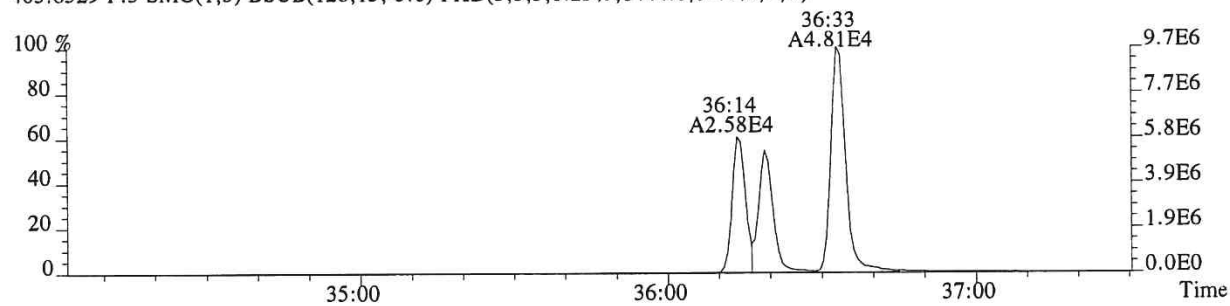
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1276.0,0.40%,F,T)



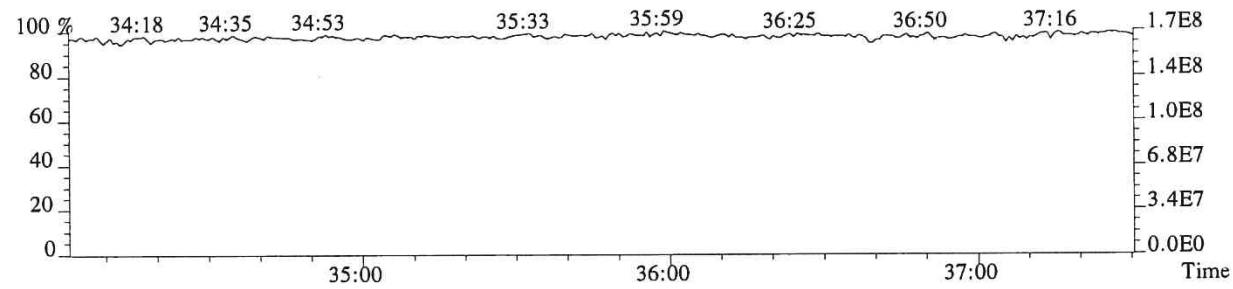
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1444.0,0.40%,F,T)



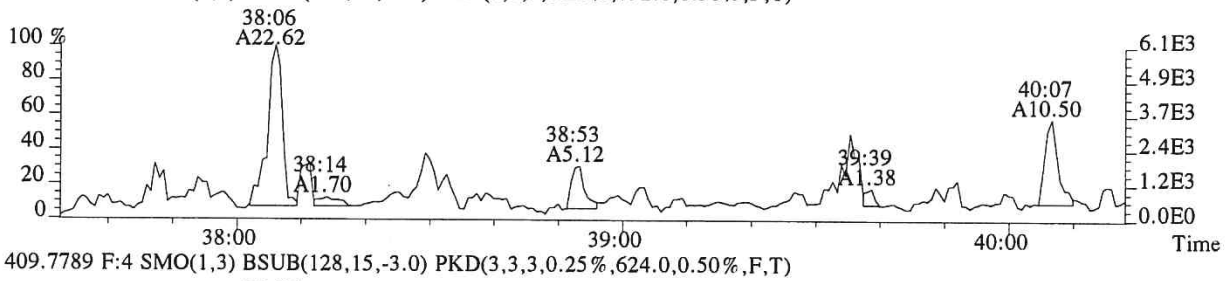
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



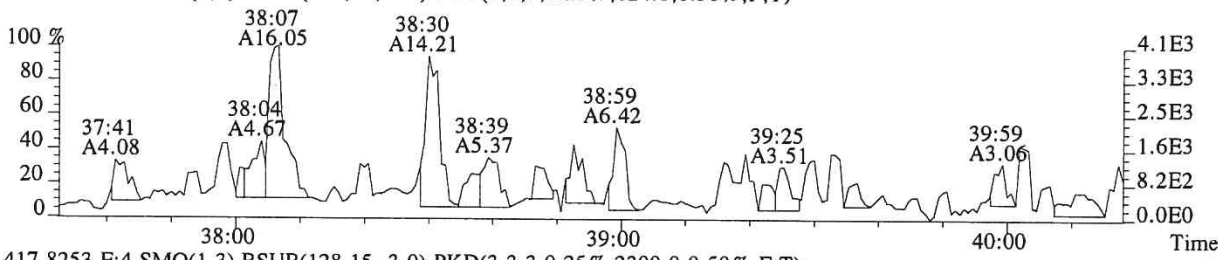
013323

File:P616048 #1-249 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032

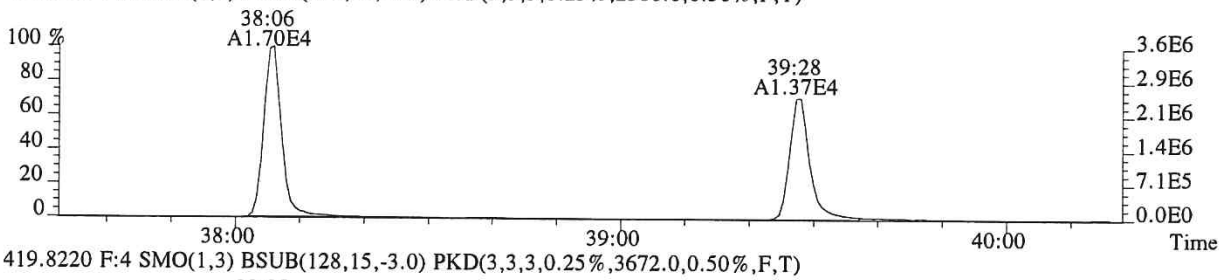
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.50%,F,T)



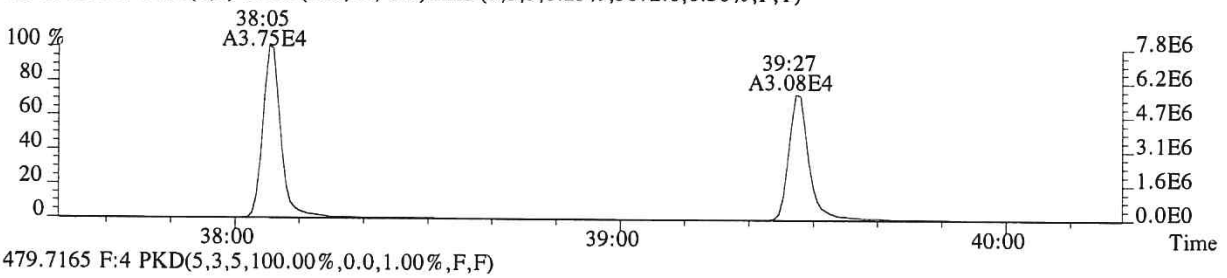
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.50%,F,T)



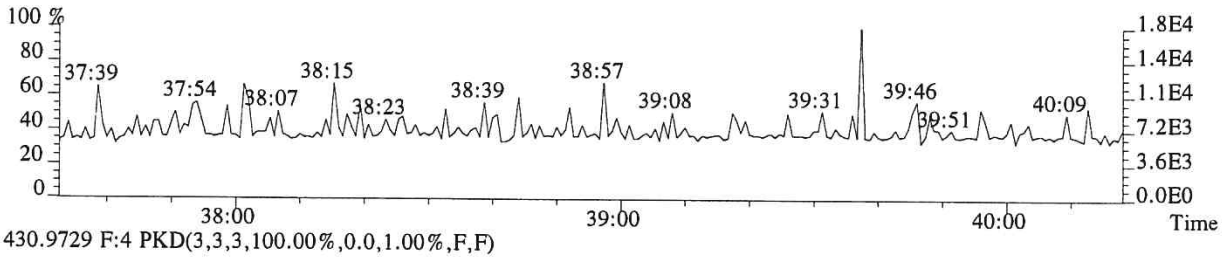
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.50%,F,T)



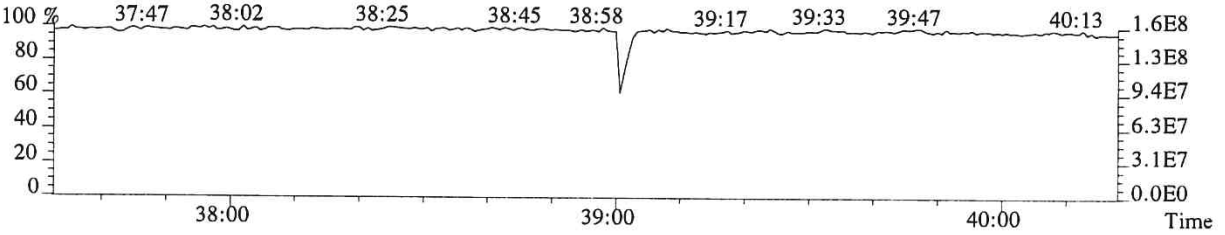
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3672.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

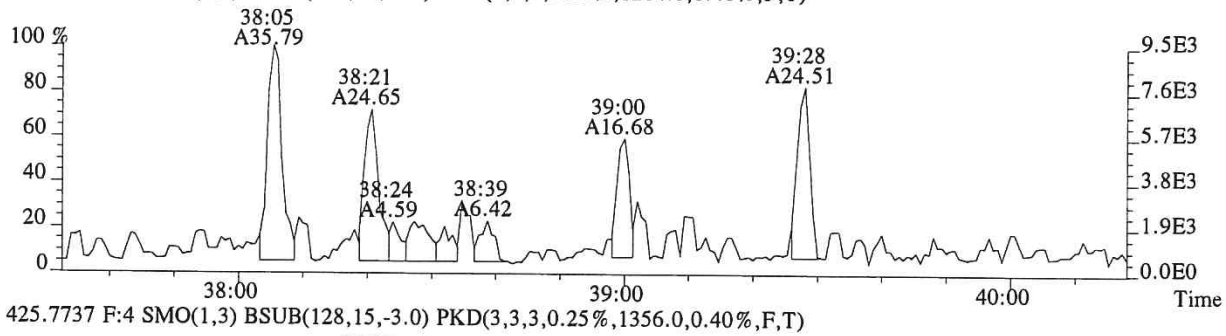


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

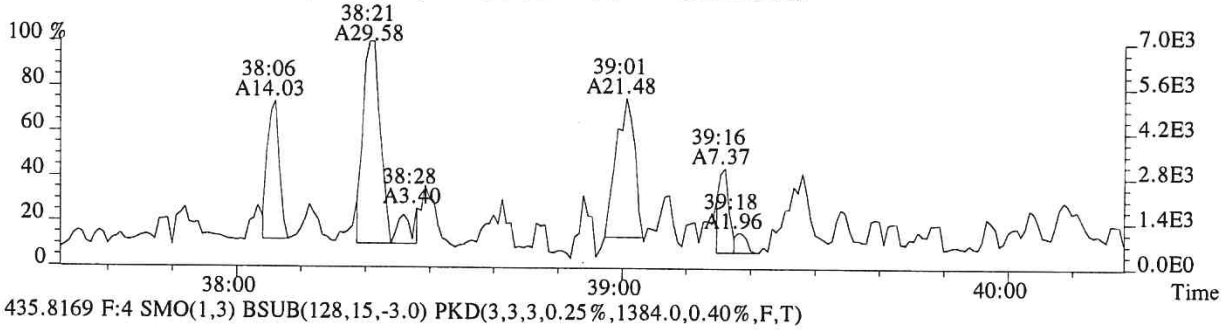


013324

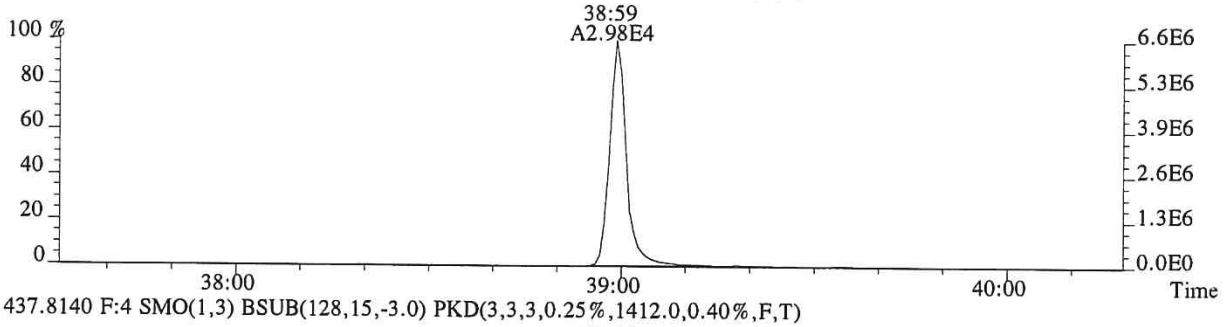
File:P616048 #1-249 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



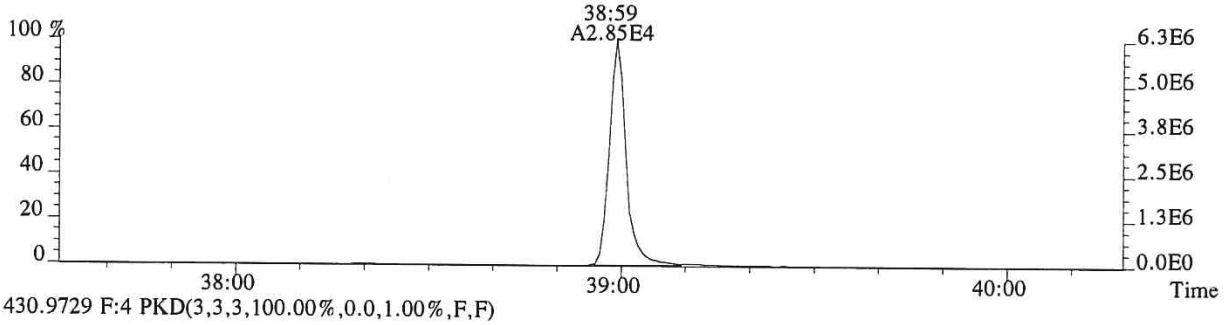
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1356.0,0.40%,F,T)



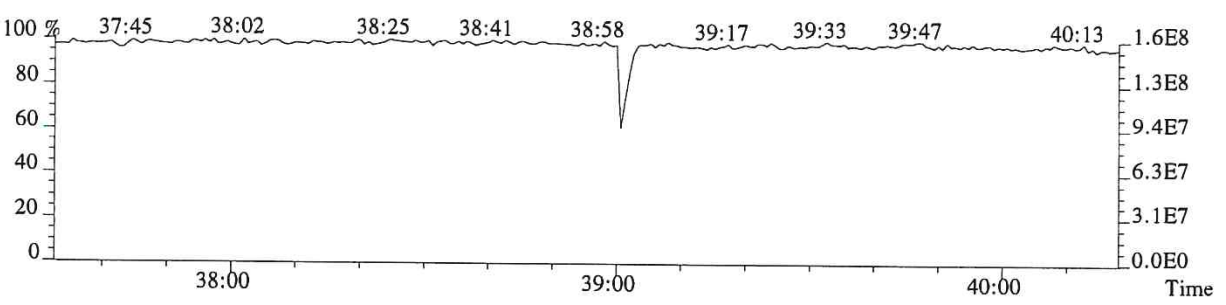
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.40%,F,T)



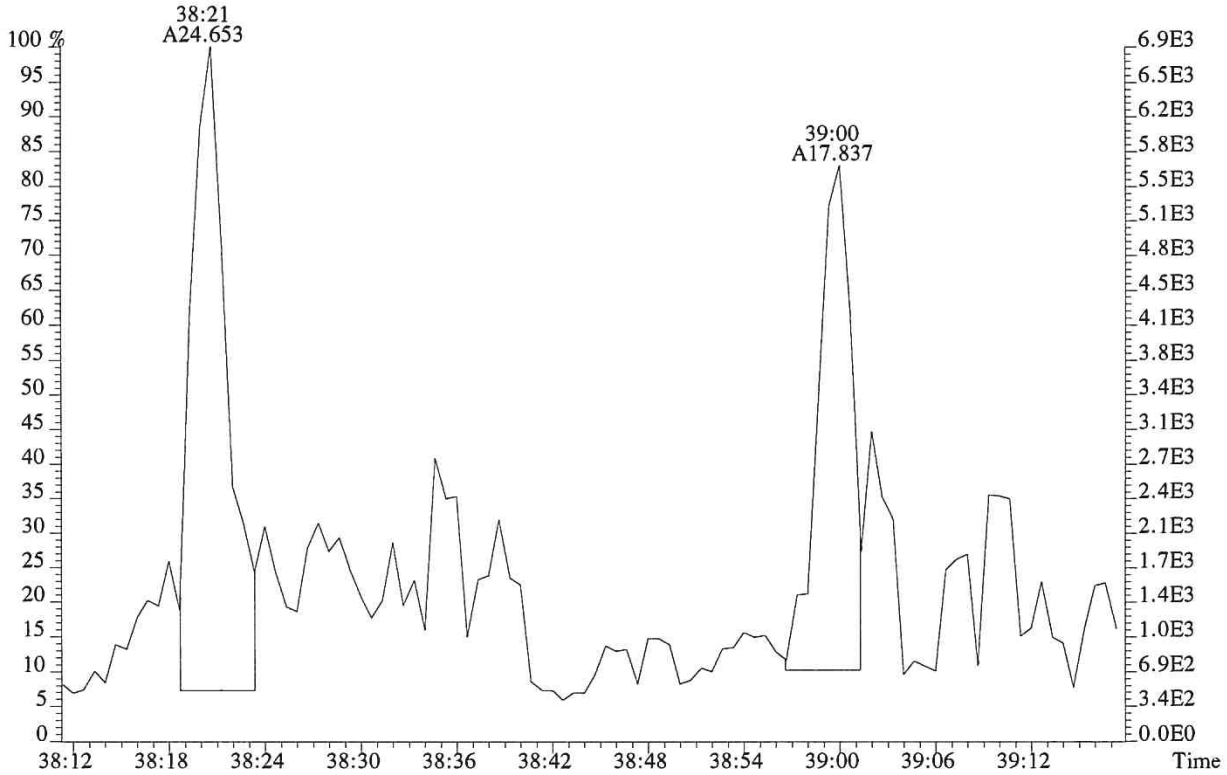
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



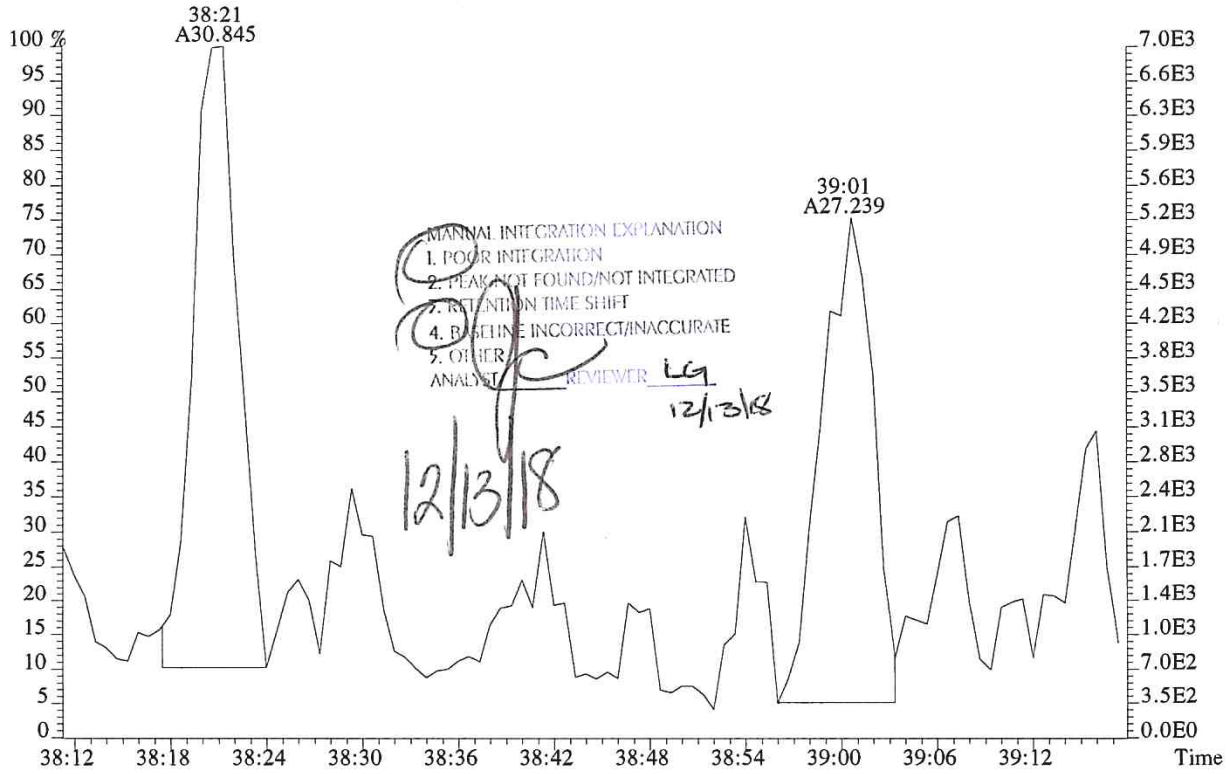
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P616048 #1-249 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)

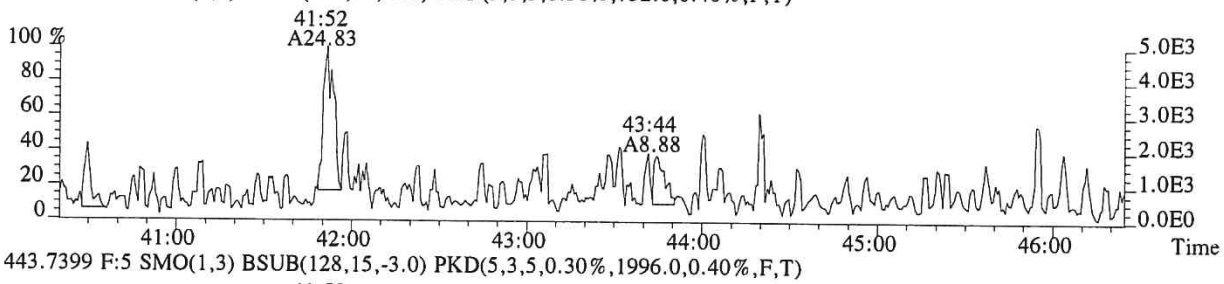


425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1356.0,0.40%,F,T)

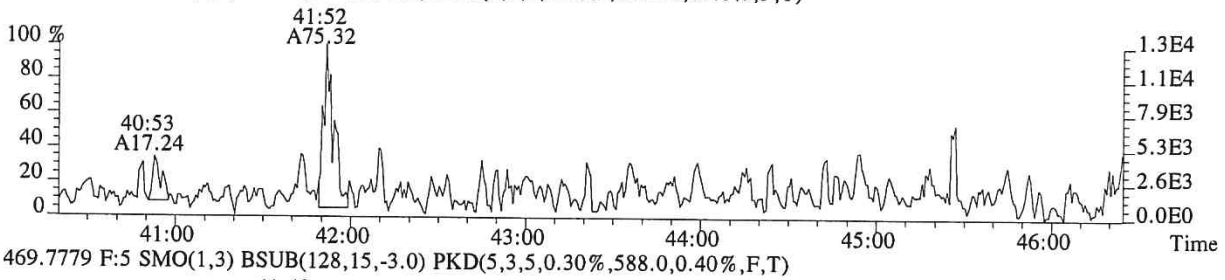


File:P616048 #1-547 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032

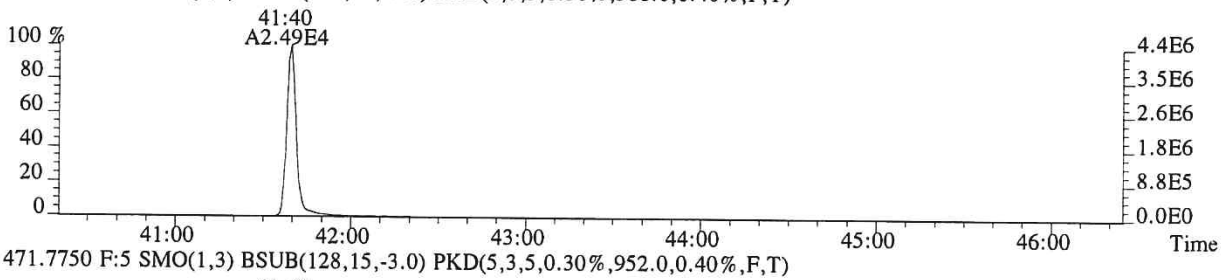
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,752.0,0.40%,F,T)



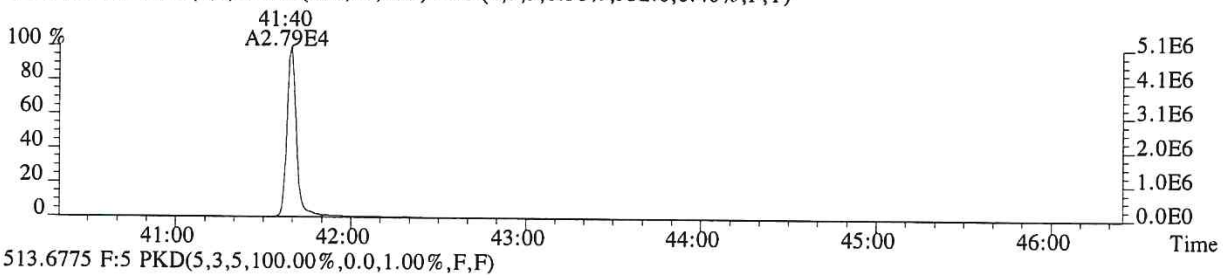
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1996.0,0.40%,F,T)



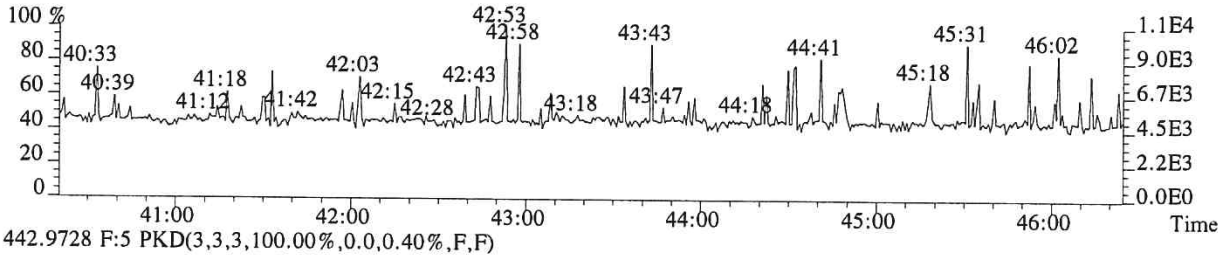
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



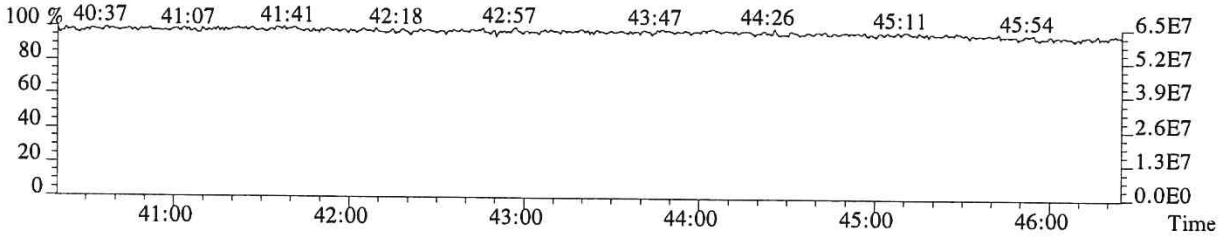
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,952.0,0.40%,F,T)



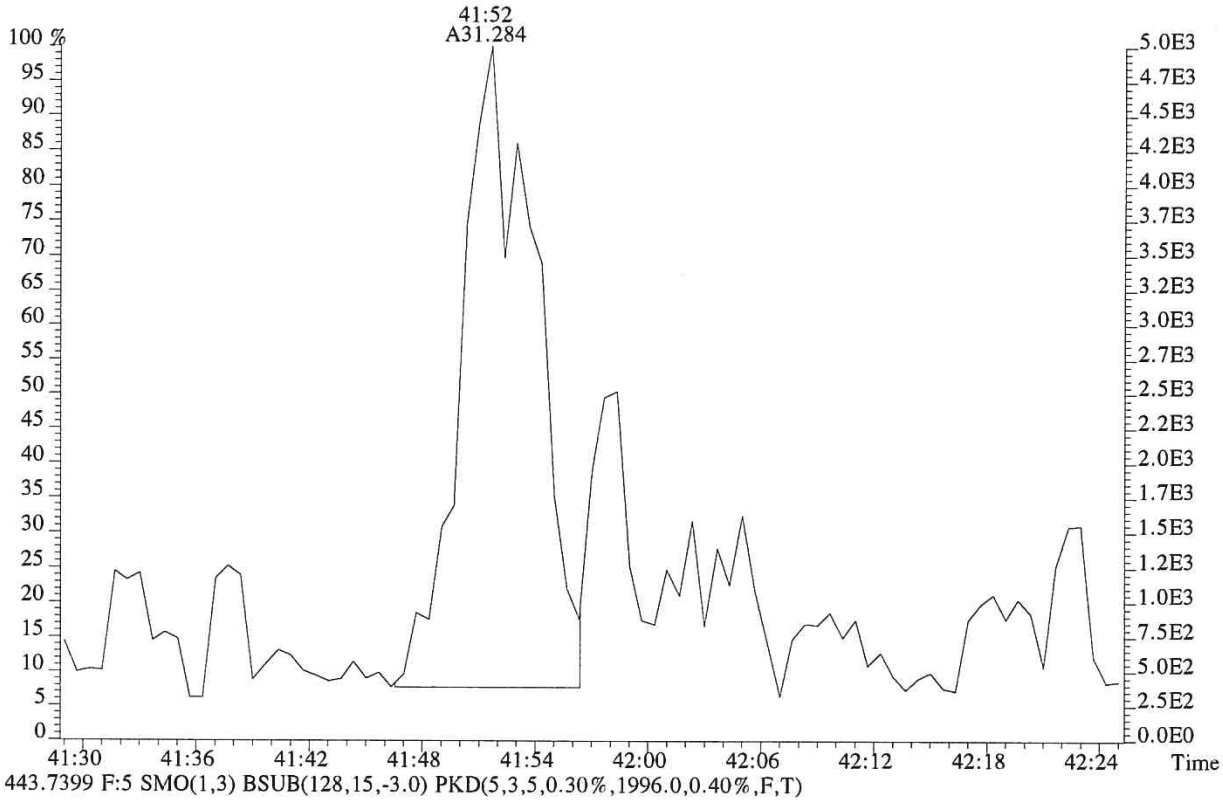
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



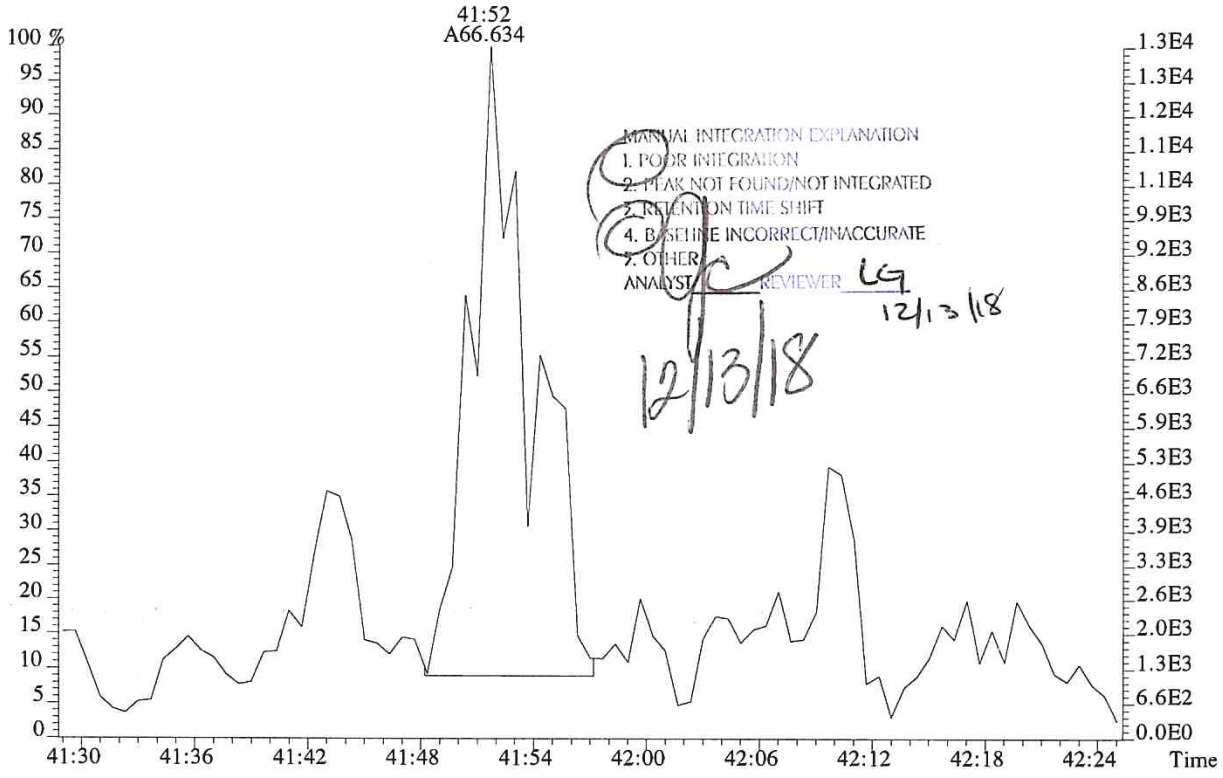
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P616048 #1-547 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,752.0,0.40%,F,T)

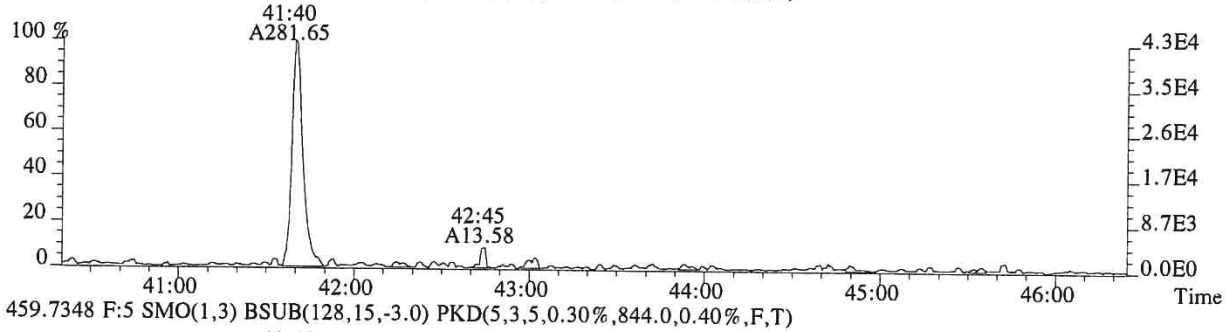


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1996.0,0.40%,F,T)

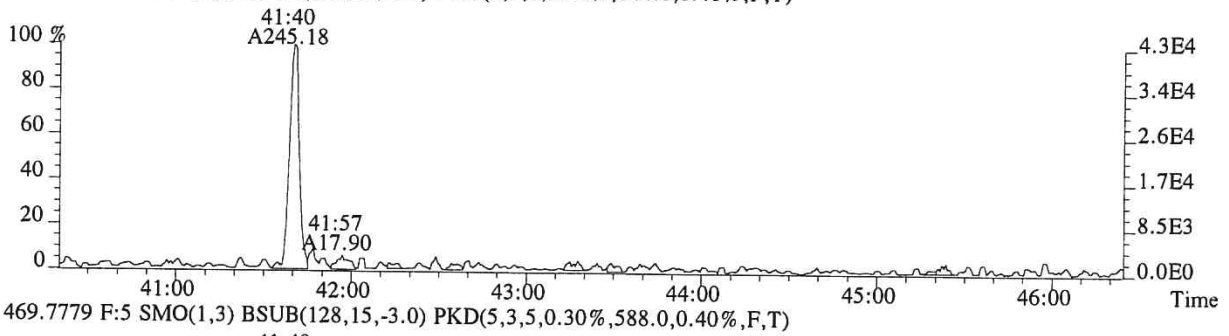


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LG
12/13/18
12/13/18

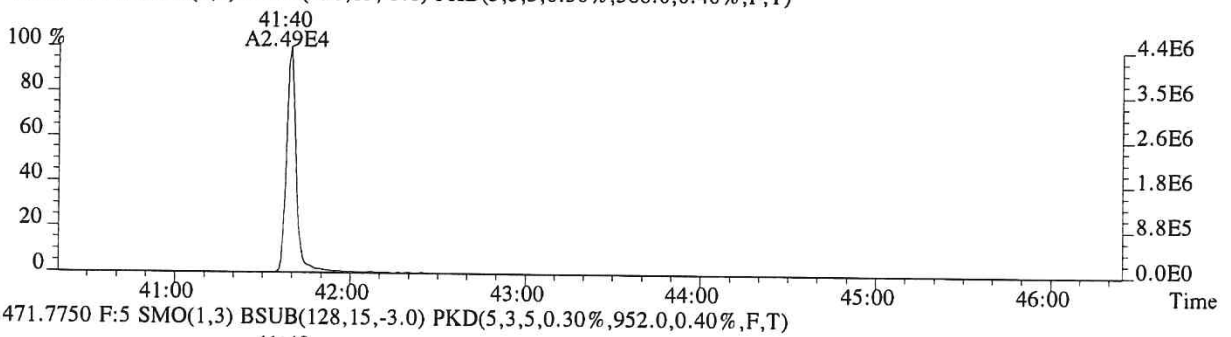
File:P616048 #1-547 Acq:11-DEC-2018 17:18:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801058-032
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,512.0,0.40%,F,T)



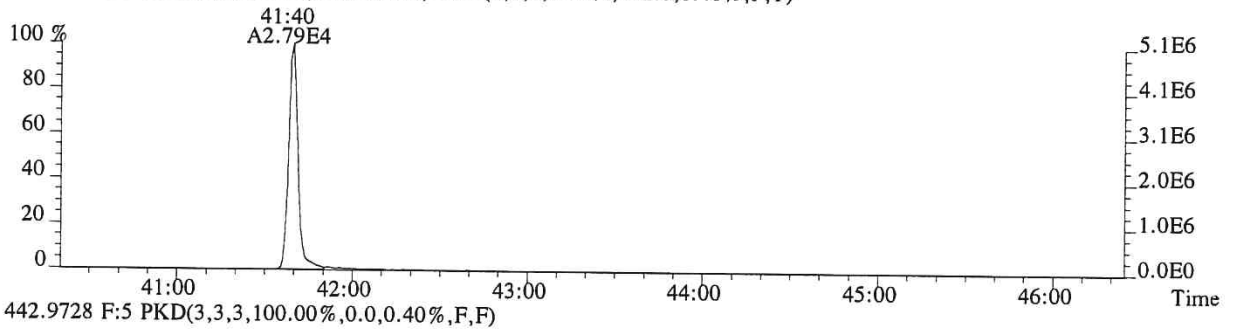
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,844.0,0.40%,F,T)



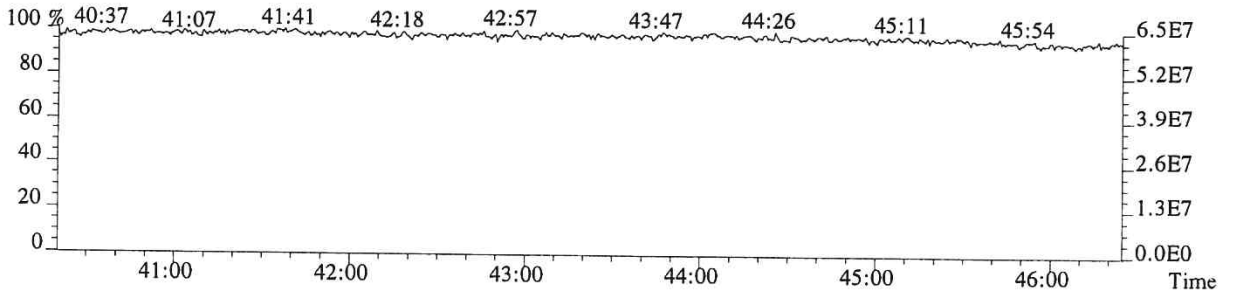
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,952.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



013329

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P519290 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:33:23
Processed: 10-DEC-18 09:24:34 Sample ID: EQ1800488-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	2.636e+01	4.193e+01	0.63	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	6.901e+00	5.641e+00	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	yes	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:35	1.212e+01	1.478e+01	0.82	no	no	1.025
17	Unk	OCDD	42:33	1.344e+01	2.450e+01	0.55	no	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.618e+04	2.044e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	3.135e+04	1.933e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.905e+04	1.828e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.448e+04	2.701e+04	0.54	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.742e+04	3.293e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.493e+04	2.899e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:16	1.430e+04	2.780e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	1.127e+04	2.569e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	1.091e+04	2.470e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	7.381e+03	9.263e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	2.213e+04	1.384e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	2.012e+04	1.553e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:44	1.981e+04	1.568e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	2.417e+04	2.265e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:34	2.376e+04	2.602e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	2.667e+04	3.319e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	4.229e+04	3.323e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	1.057e+04				no	1.014

$$\text{OCDD} = \frac{(1.344e+01 + 2.450e+01) \times 4000\ \text{pg} \times 1}{(2.376e+04 + 2.602e+04) \times \quad \text{g} \times \quad / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P519290 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:33:23
Processed: 10-DEC-18 09:24:34 LAB. ID: EQ1800488-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.19e+03	5.20e+02	8.1e+00	6.19e+03	9.28e+02	6.7e+00
2	1,2,3,7,8-PeCDF	*	3.16e+02	*	*	6.88e+02	*
3	2,3,4,7,8-PeCDF	*	3.16e+02	*	*	6.88e+02	*
4	1,2,3,4,7,8-HxCDF	*	4.92e+02	*	*	3.60e+02	*
5	1,2,3,6,7,8-HxCDF	*	4.92e+02	*	*	3.60e+02	*
6	2,3,4,6,7,8-HxCDF	*	4.92e+02	*	*	3.60e+02	*
7	1,2,3,7,8,9-HxCDF	1.58e+03	4.92e+02	3.2e+00	1.70e+03	3.60e+02	4.7e+00
8	1,2,3,4,6,7,8-HpCDF	*	3.32e+02	*	*	2.36e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.32e+02	*	*	2.36e+02	*
10	OCDF	*	3.08e+02	*	*	8.80e+02	*
11	2,3,7,8-TCDD	*	1.90e+03	*	*	1.07e+03	*
12	1,2,3,7,8-PeCDD	*	6.96e+02	*	*	2.00e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.60e+02	*	*	5.04e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.60e+02	*	*	5.04e+02	*
15	1,2,3,7,8,9-HxCDD	*	3.60e+02	*	*	5.04e+02	*
16	1,2,3,4,6,7,8-HpCDD	2.66e+03	2.88e+02	9.2e+00	2.55e+03	2.56e+02	9.9e+00
17	OCDD	2.89e+03	1.84e+02	1.6e+01	4.32e+03	2.72e+02	1.6e+01
18	13C-2,3,7,8-TCDF	2.88e+06	6.29e+03	4.6e+02	3.66e+06	5.84e+03	6.3e+02
19	13C-1,2,3,7,8-PeCDF	5.78e+06	5.72e+02	1.0e+04	3.59e+06	9.60e+01	3.7e+04
20	13C-2,3,4,7,8-PeCDF	5.59e+06	5.72e+02	9.8e+03	3.48e+06	9.60e+01	3.6e+04
21	13C-1,2,3,4,7,8-HxCDF	2.93e+06	4.64e+02	6.3e+03	5.44e+06	7.12e+02	7.6e+03
22	13C-1,2,3,6,7,8-HxCDF	3.50e+06	4.64e+02	7.5e+03	6.70e+06	7.12e+02	9.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.97e+06	4.64e+02	6.4e+03	5.79e+06	7.12e+02	8.1e+03
24	13C-1,2,3,7,8,9-HxCDF	2.65e+06	4.64e+02	5.7e+03	5.11e+06	7.12e+02	7.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.13e+06	1.26e+03	1.7e+03	4.80e+06	9.96e+02	4.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.73e+06	1.26e+03	1.4e+03	3.84e+06	9.96e+02	3.9e+03
27	13C-2,3,7,8-TCDD	1.41e+06	6.02e+03	2.3e+02	1.77e+06	7.76e+02	2.3e+03
28	13C-1,2,3,7,8-PeCDD	4.07e+06	7.76e+02	5.2e+03	2.51e+06	8.12e+02	3.1e+03
29	13C-1,2,3,4,7,8-HxCDD	4.19e+06	7.08e+02	5.9e+03	3.20e+06	3.48e+02	9.2e+03
30	13C-1,2,3,6,7,8-HxCDD	3.97e+06	7.08e+02	5.6e+03	3.11e+06	3.48e+02	8.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.94e+06	4.64e+02	8.5e+03	3.72e+06	4.64e+02	8.0e+03
32	13C-OCDD	2.87e+06	4.08e+02	7.0e+03	3.08e+06	2.08e+02	1.5e+04
33	13C-1,2,3,4-TCDD	4.97e+06	6.02e+03	8.3e+02	6.19e+06	7.76e+02	8.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.73e+06	7.08e+02	1.1e+04	6.15e+06	3.48e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.92e+06	8.96e+02	2.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P519290 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 21:33:23 Processed: 10-DEC-18 09:24:34

Mass: 373.8210 375.8180 Tot Response: 1.25e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:17	6.90e+00	5.64e+00 1.22	yes	1.25e+01	1,2,3,7,8,9-HxCDF	n	n

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Houston, TX 77099
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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P519290 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 21:33:23 Processed: 10-DEC-18 09:24:34

Mass: 407.7820 409.7790 Tot Response: 1.06e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	5.54e+00	5.02e+00 1.10	yes	1.06e+01		y	y

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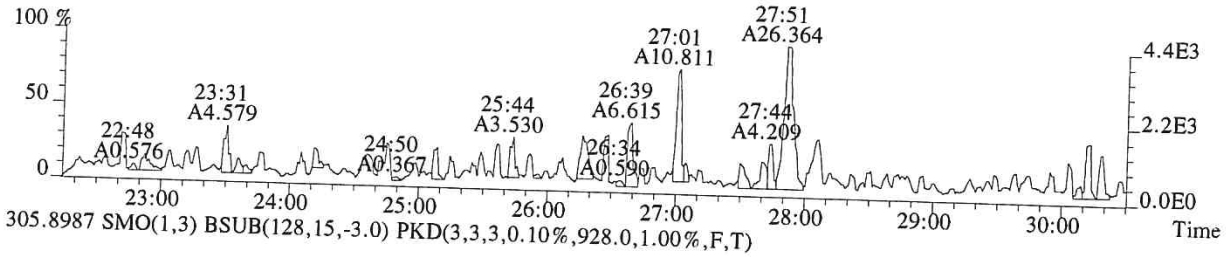
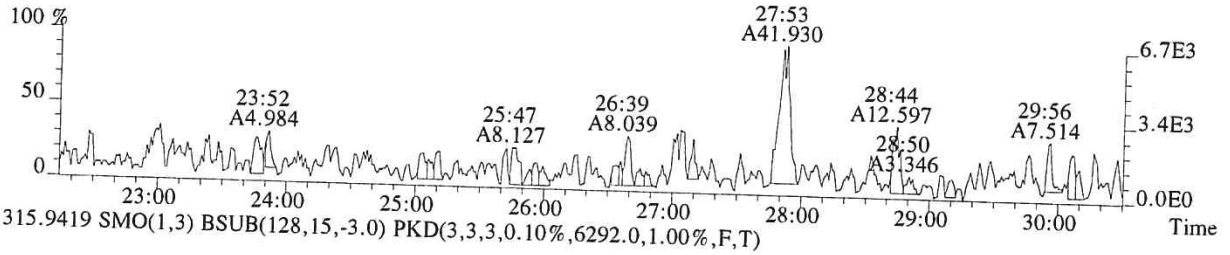
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

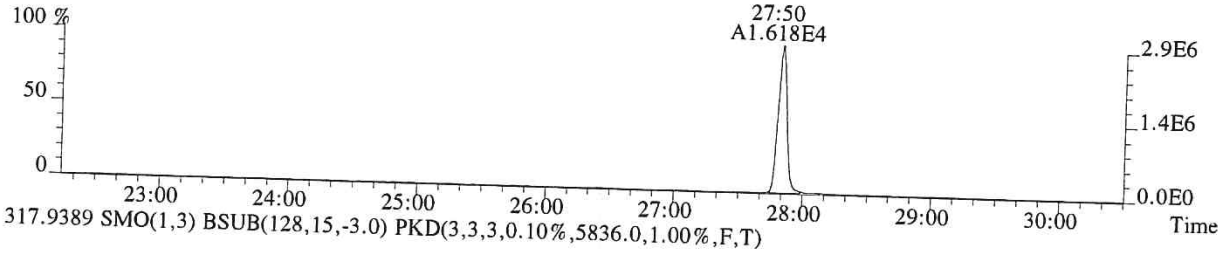
File:P519290 #1-587 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



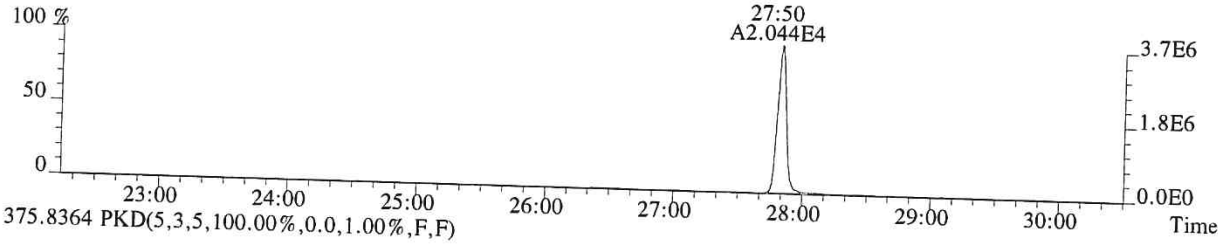
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



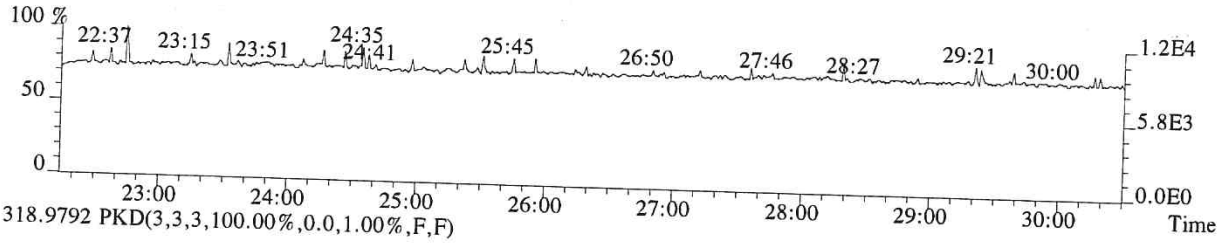
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6292.0,1.00%,F,T)



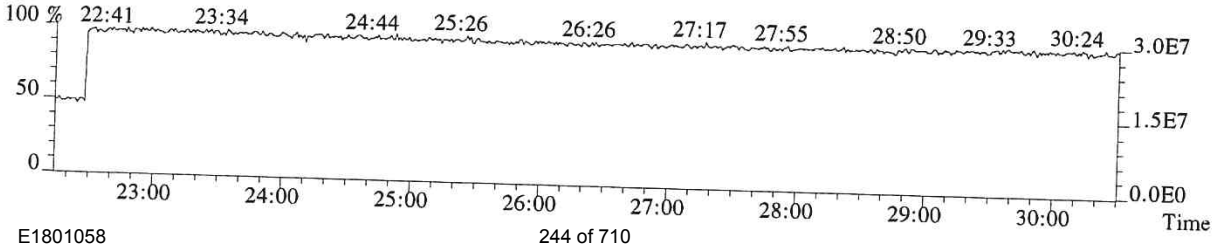
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5836.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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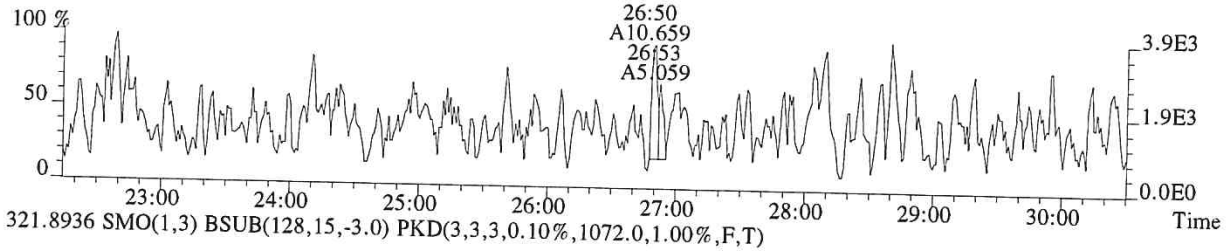
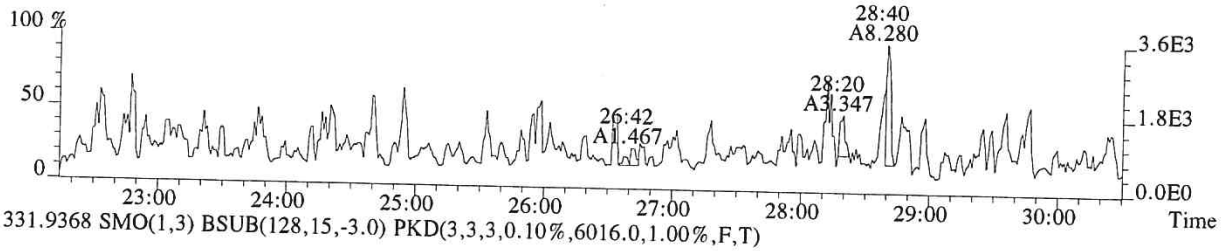
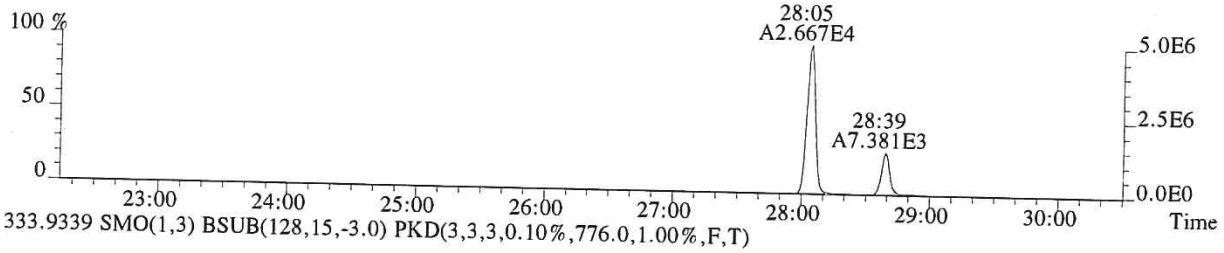
File:P519290 #1-587 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



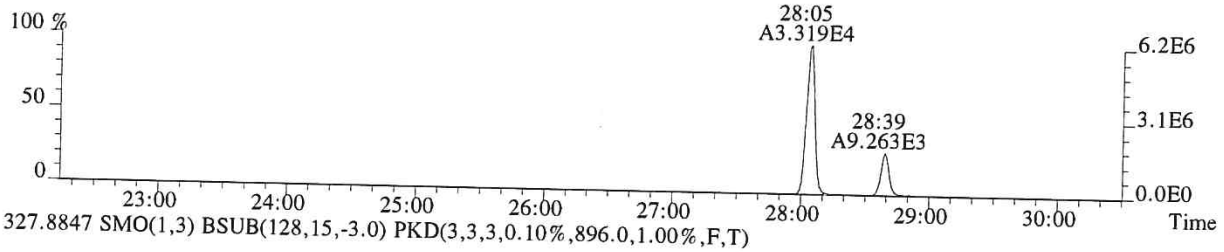
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



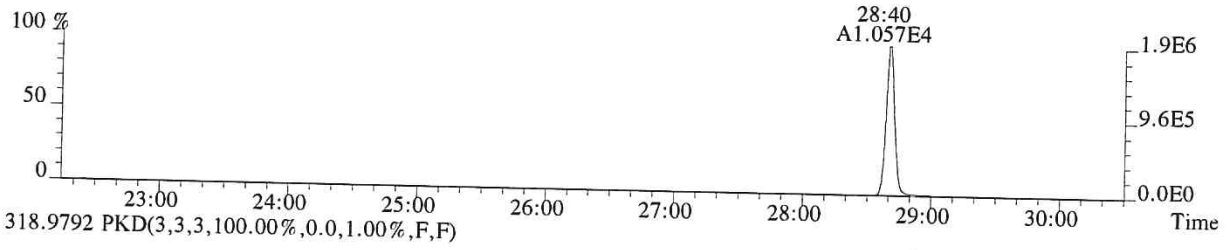
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6016.0,1.00%,F,T)



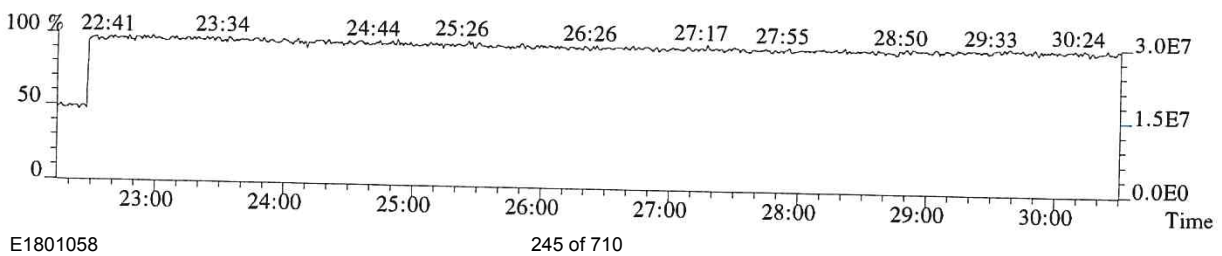
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)

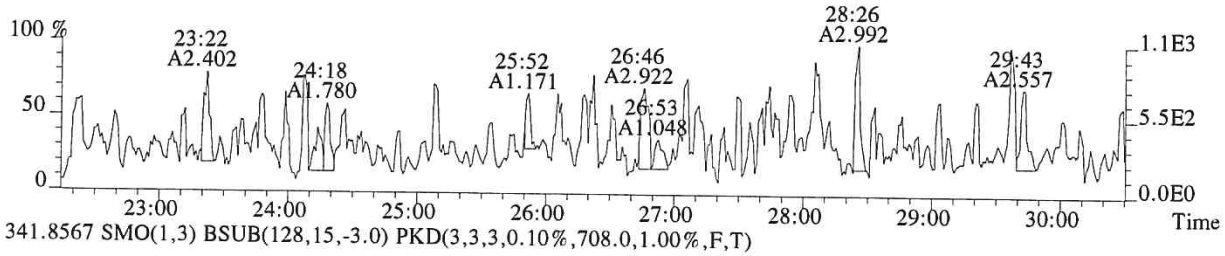


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

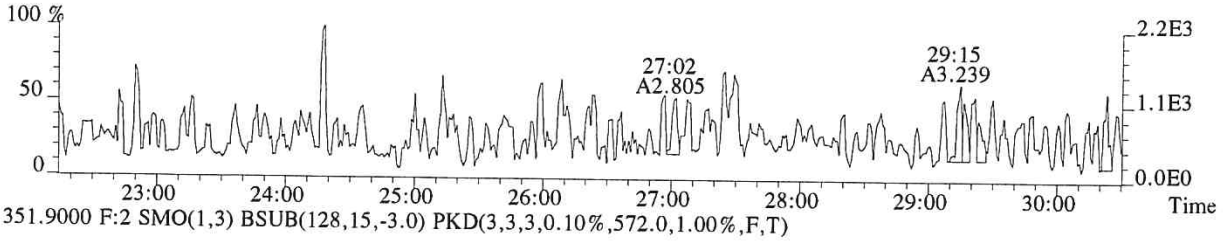


013335

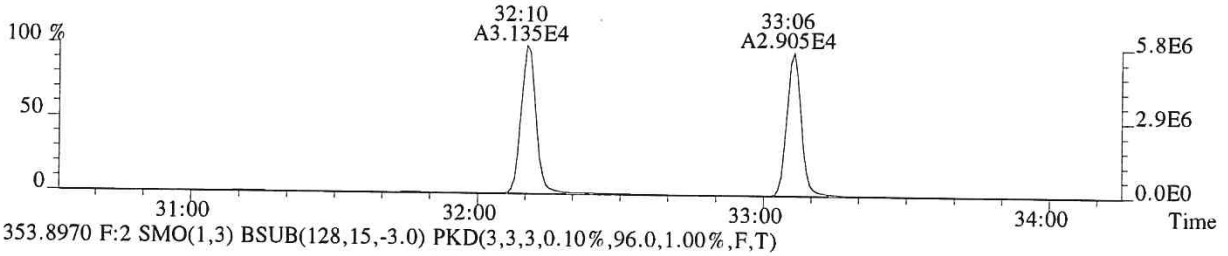
File:P519290 #1-587 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



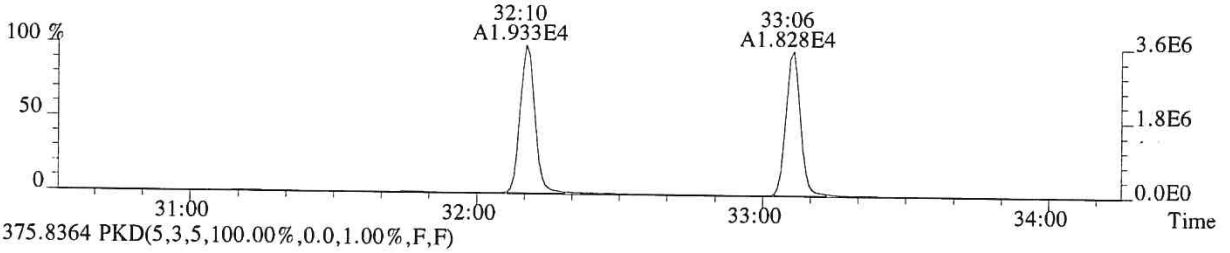
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



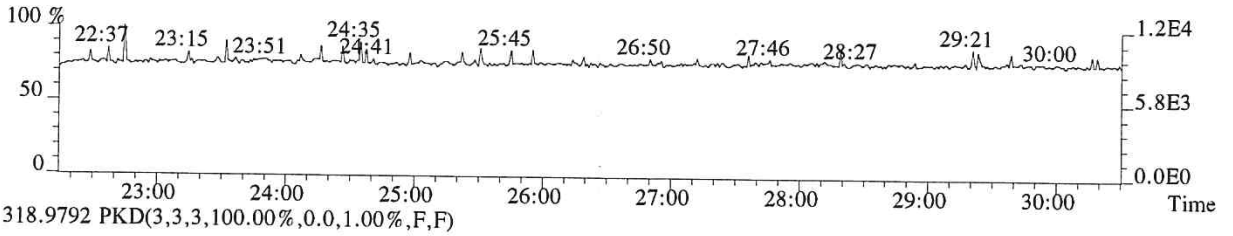
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



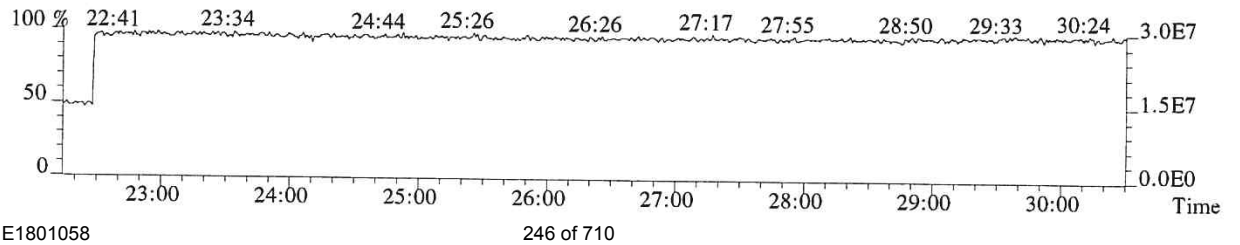
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



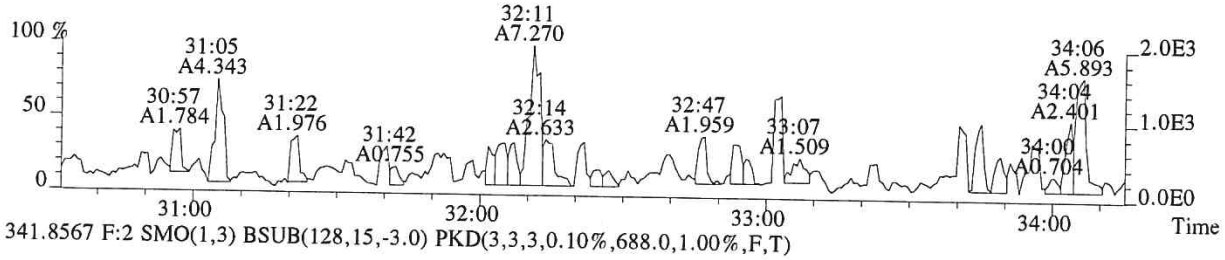
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



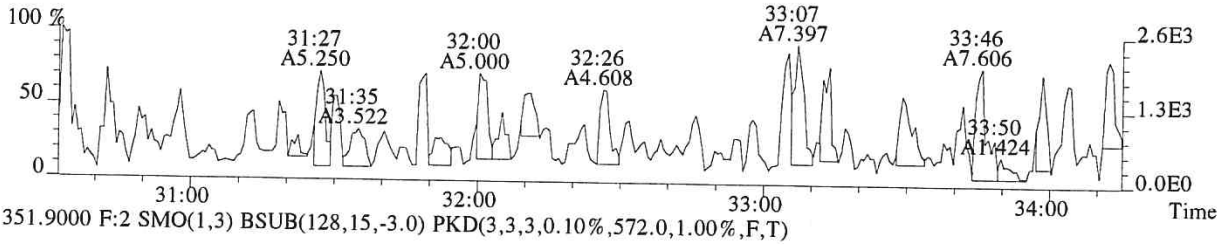
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



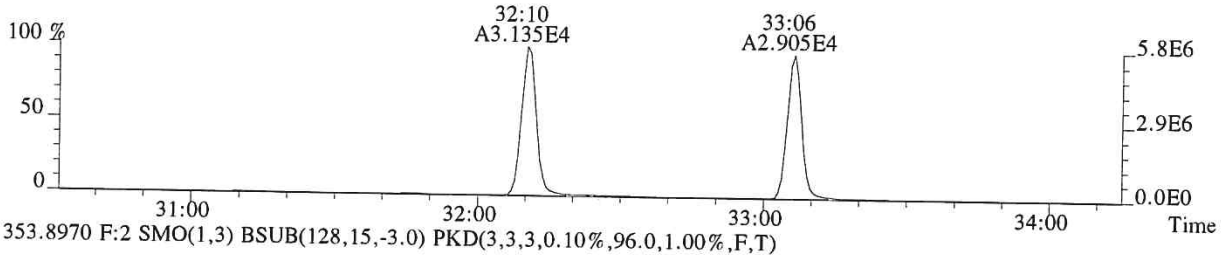
File:P519290 #1-335 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



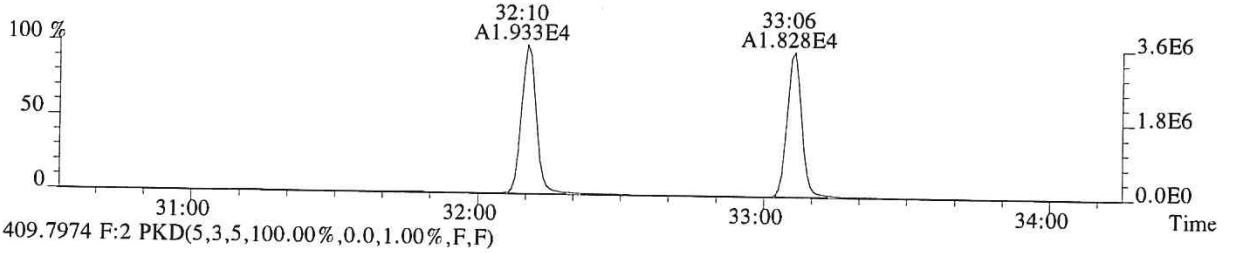
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



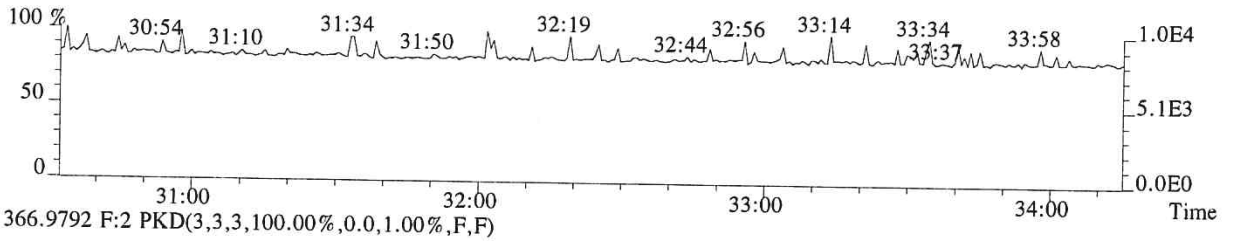
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



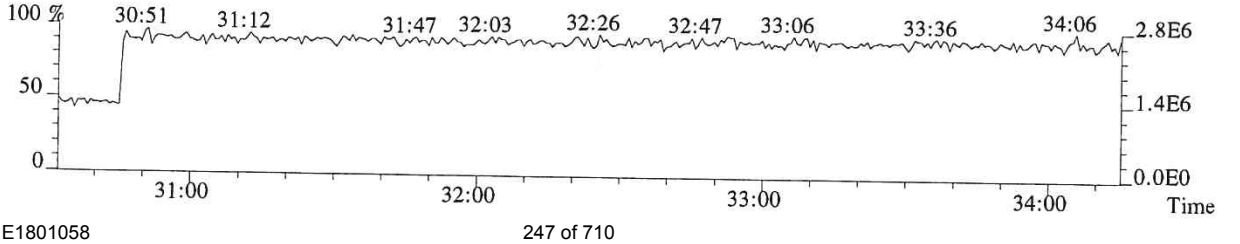
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



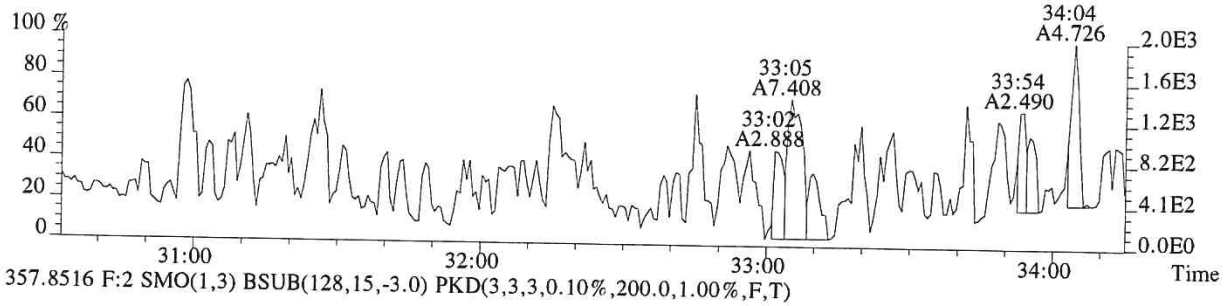
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



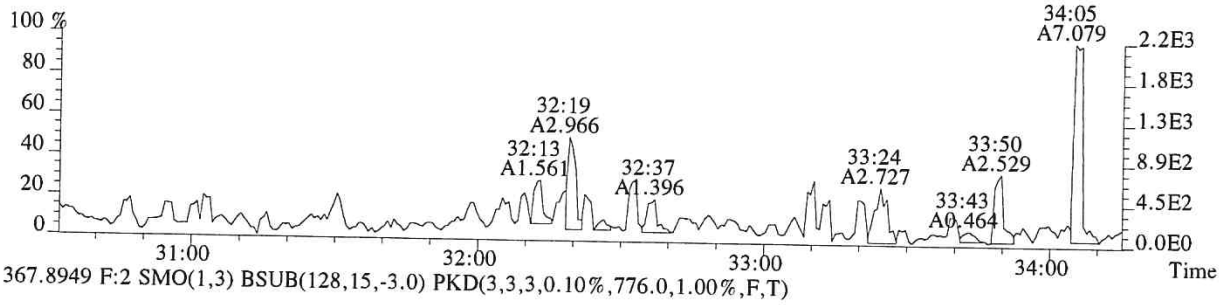
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



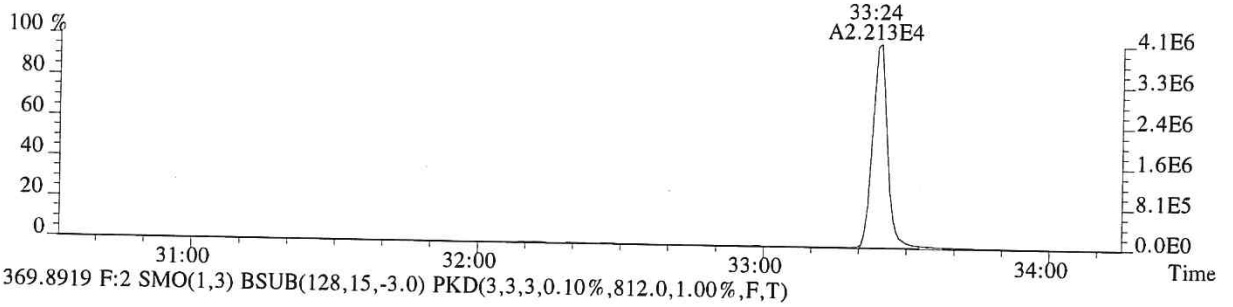
File:P519290 #1-335 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



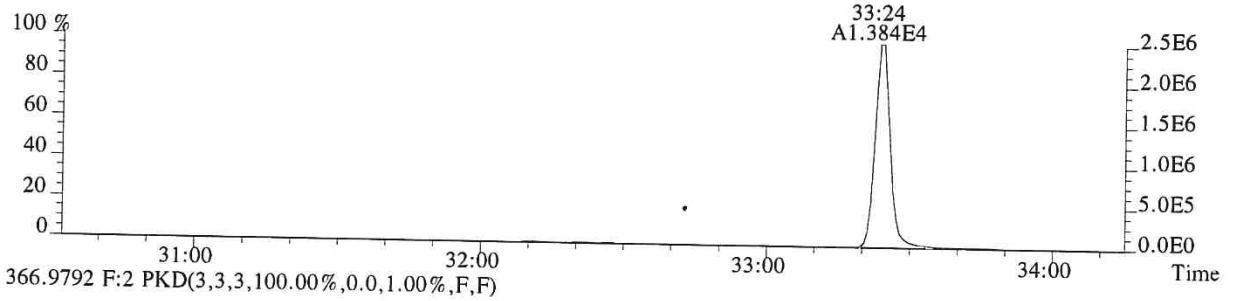
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



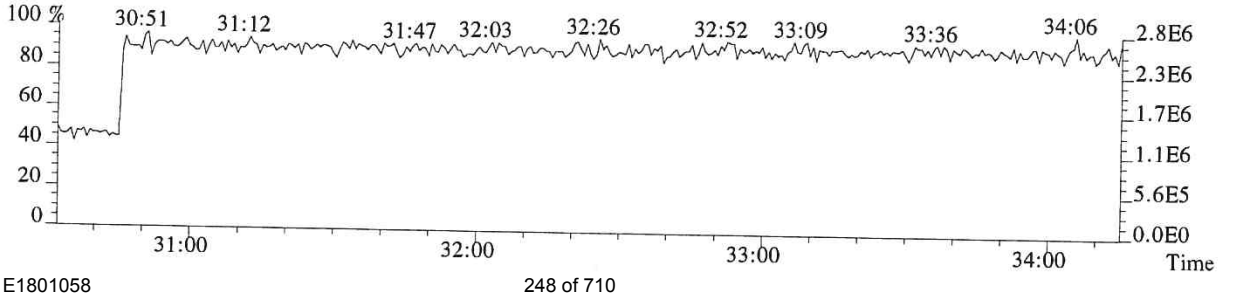
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)

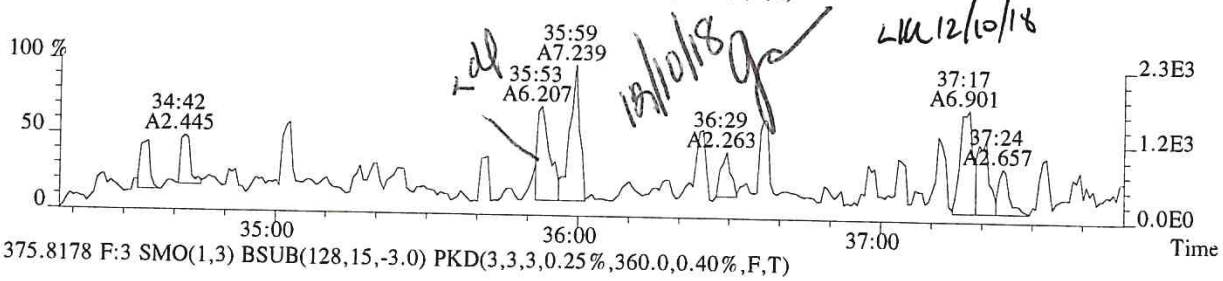


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

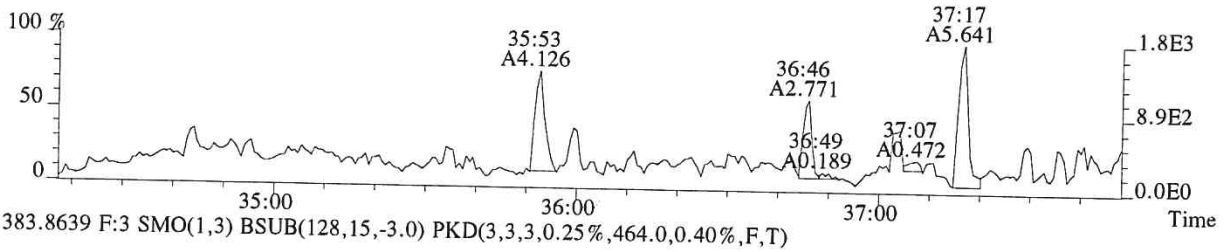


File:P519290 #1-317 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01

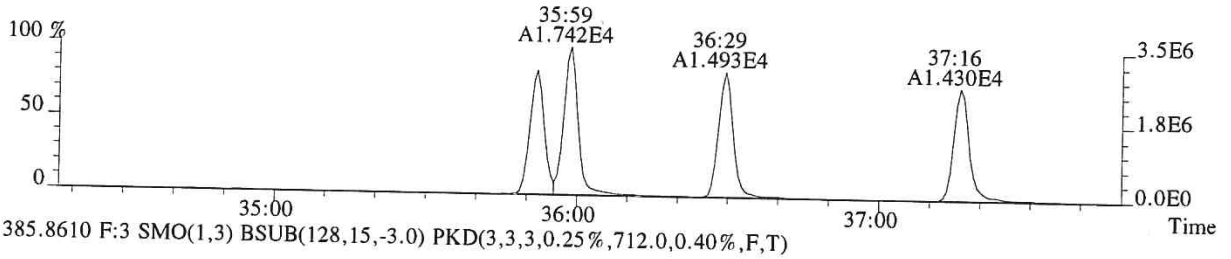
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



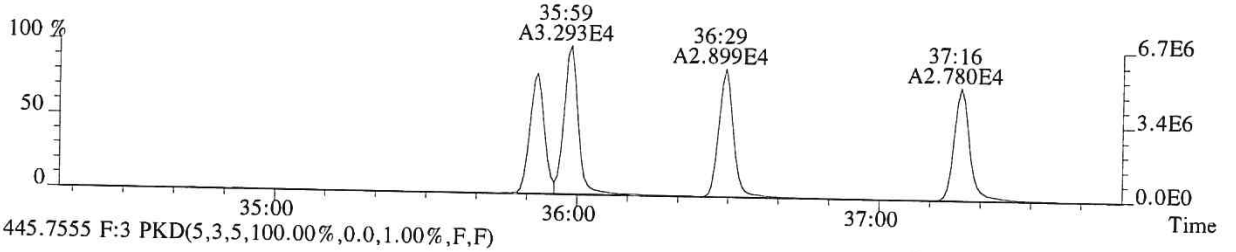
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



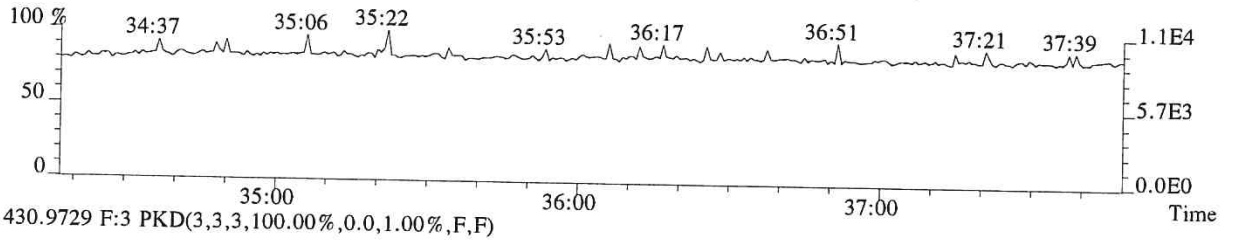
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



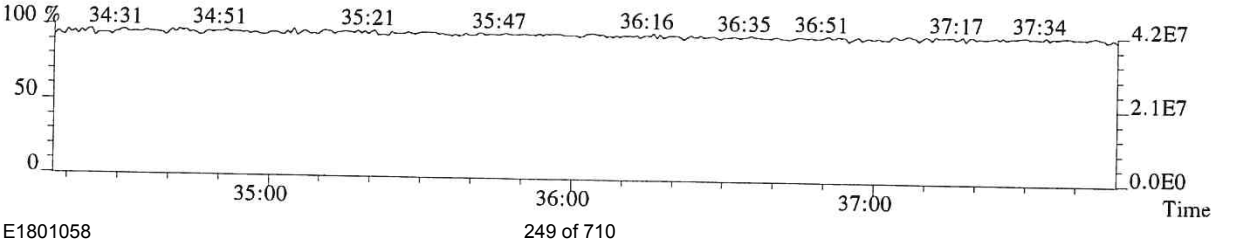
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

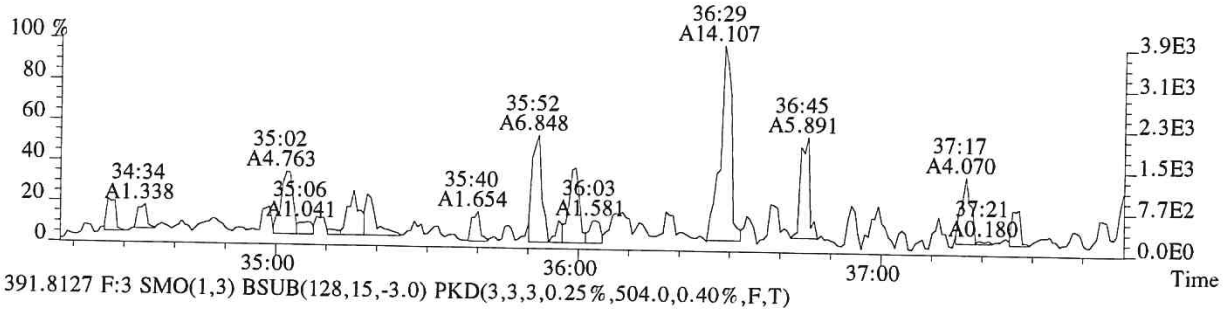


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

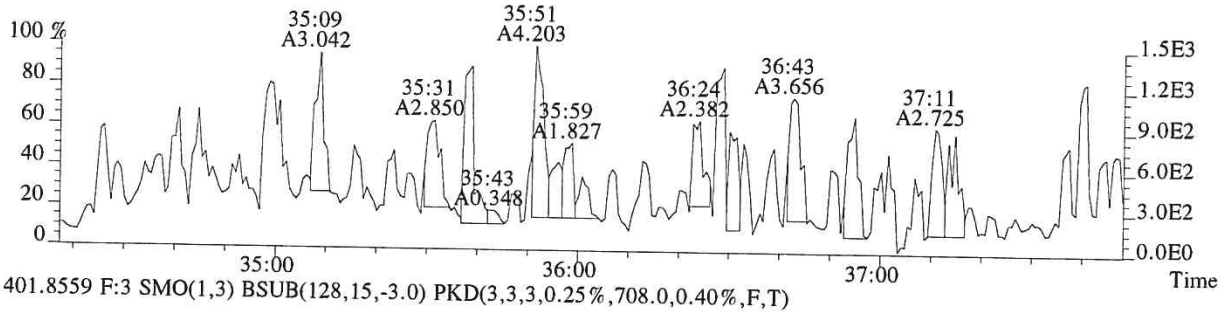


013339

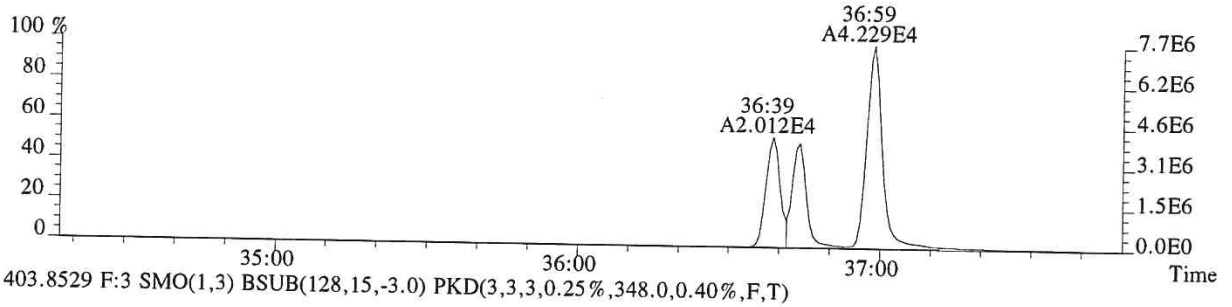
File:P519290 #1-317 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



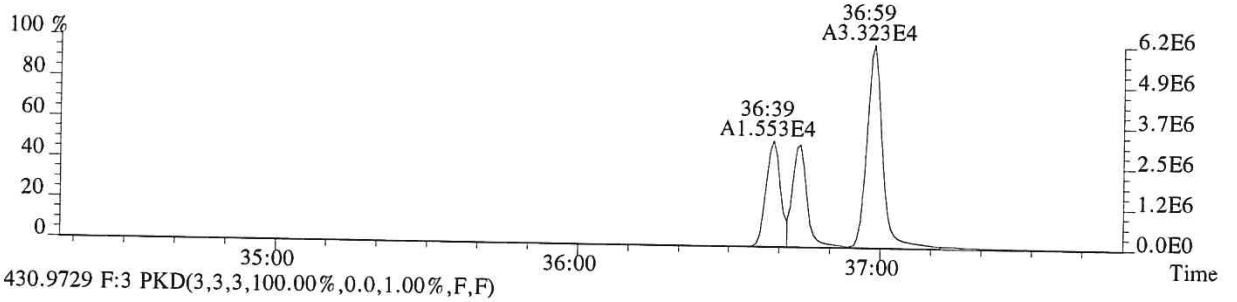
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



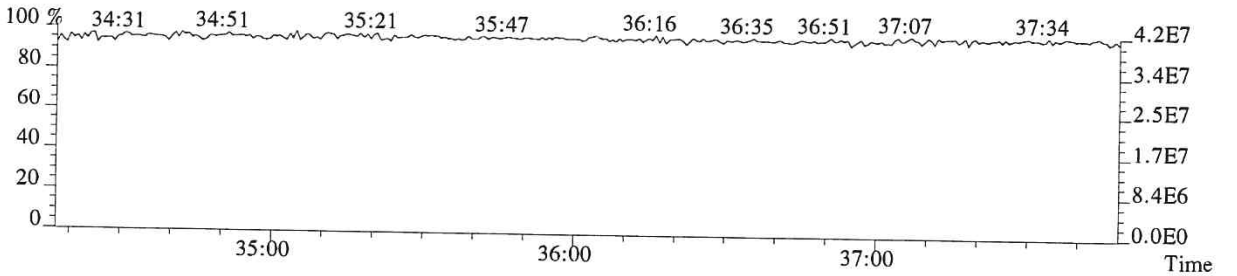
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



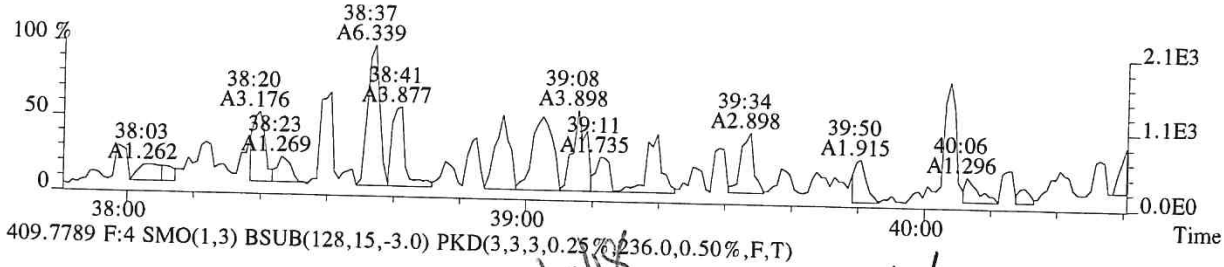
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



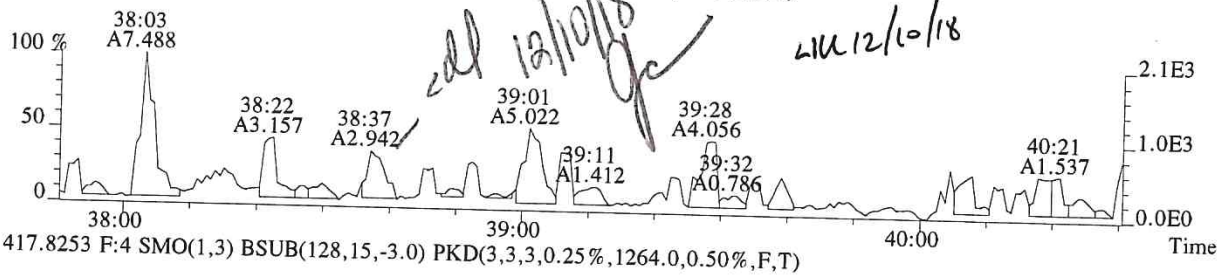
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



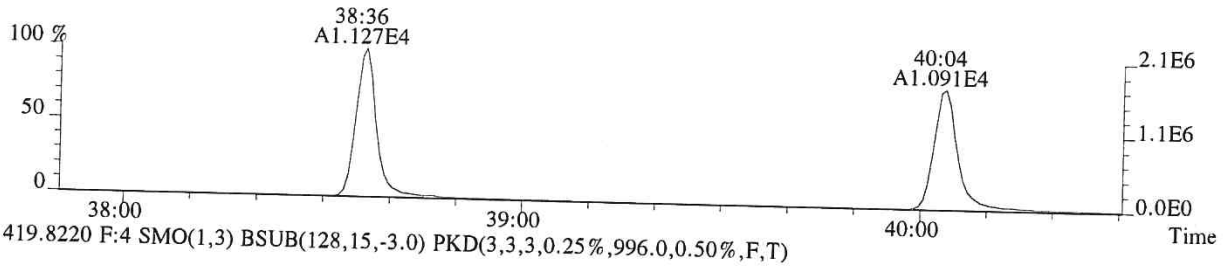
File:P519290 #1-241 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.50%,F,T)



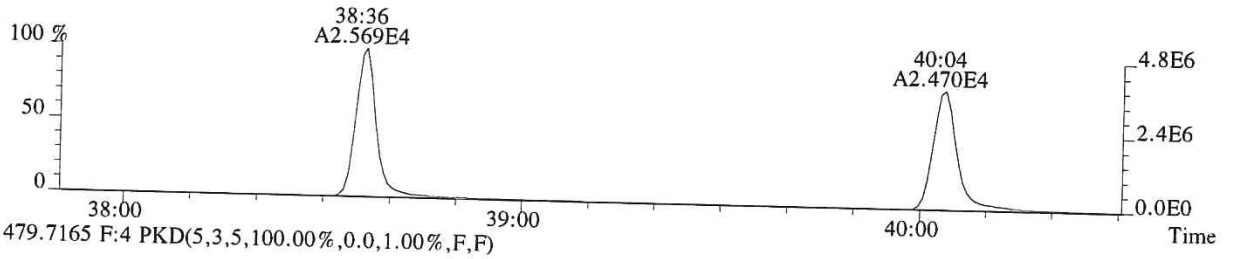
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.50%,F,T)



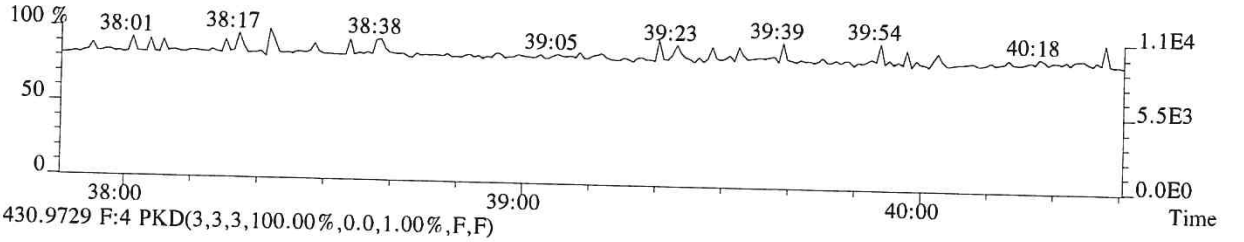
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.50%,F,T)



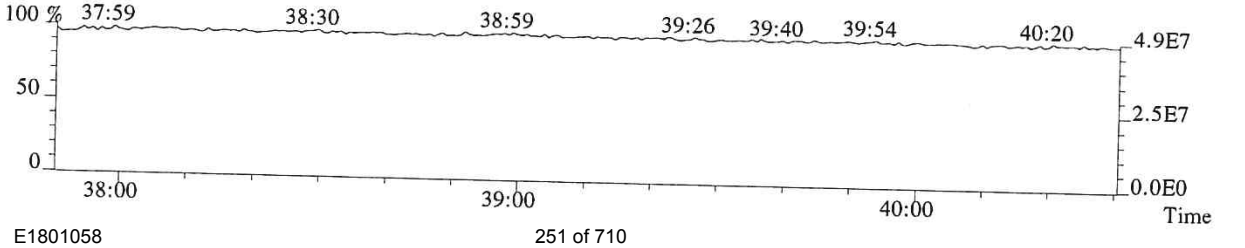
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

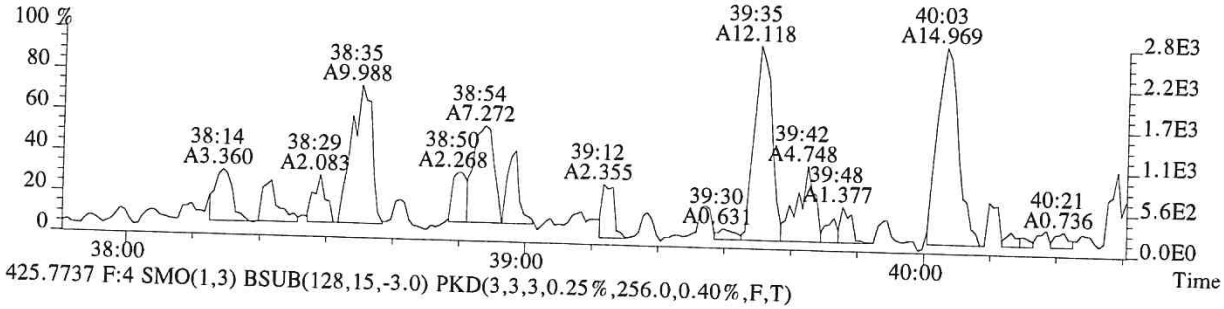


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

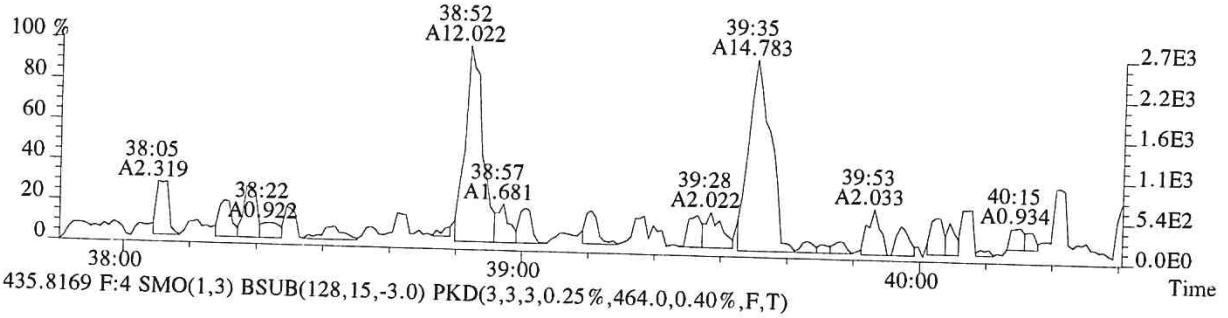


013341

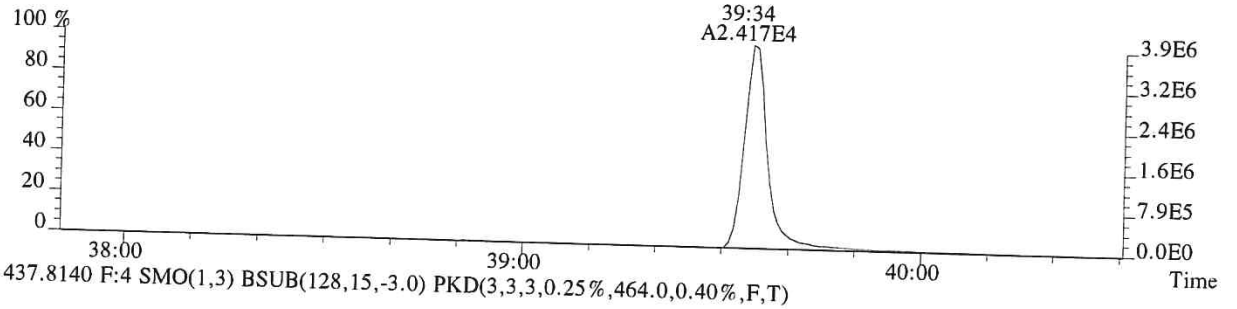
File:P519290 #1-241 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



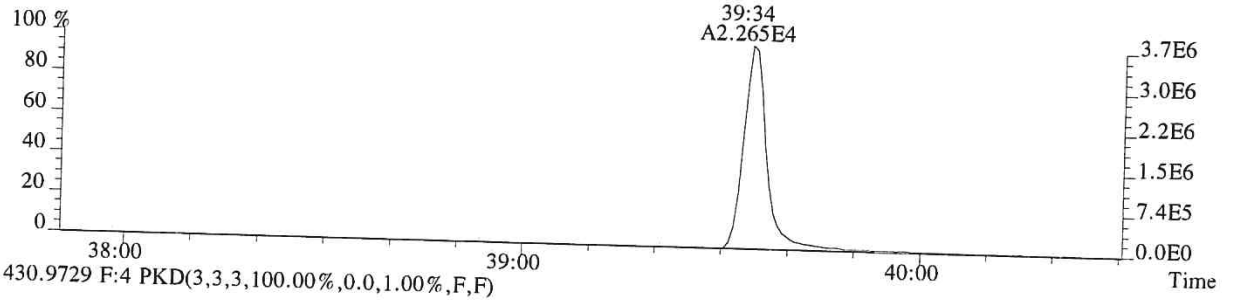
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



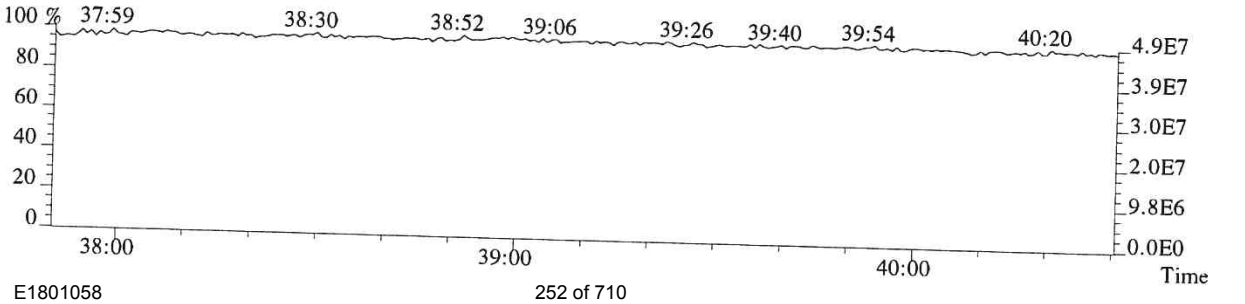
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)

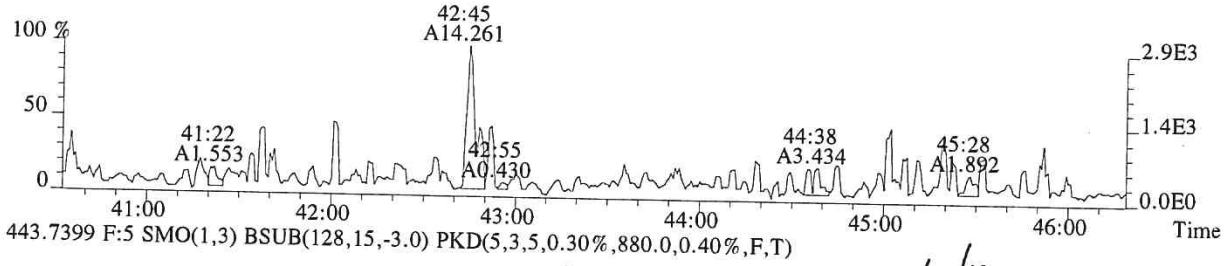


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

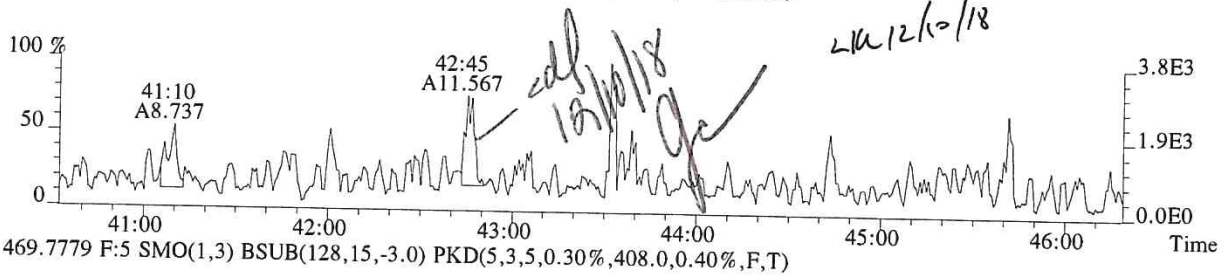


013342

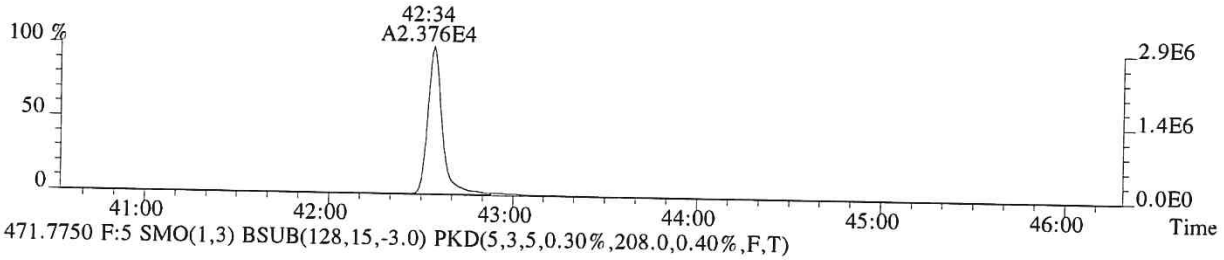
File:P519290 #1-520 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



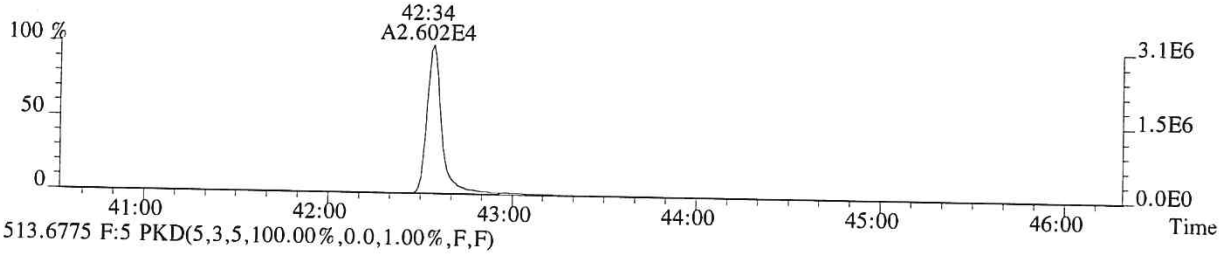
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



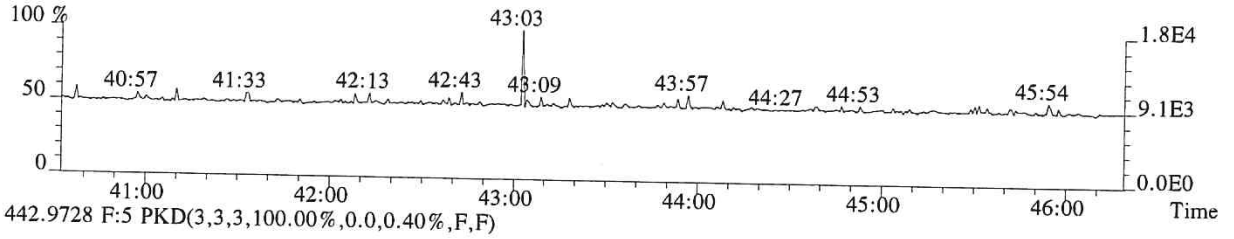
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



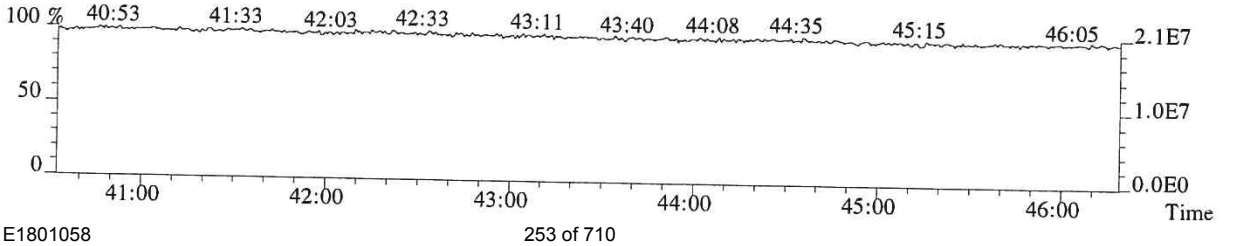
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

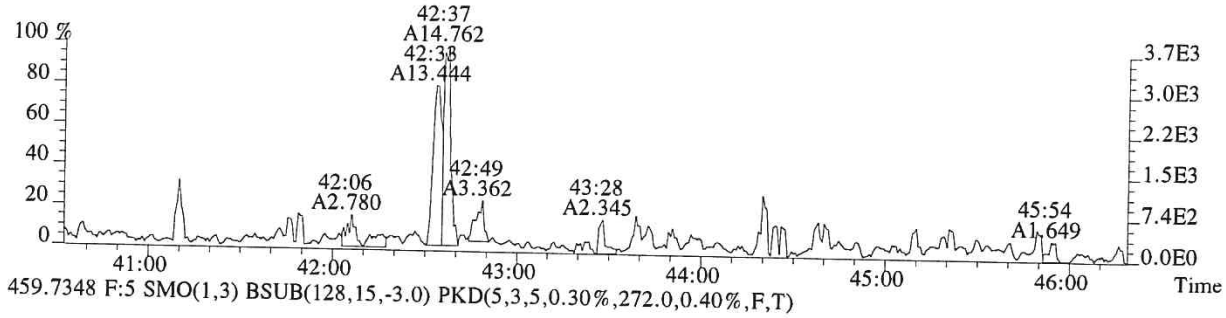


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

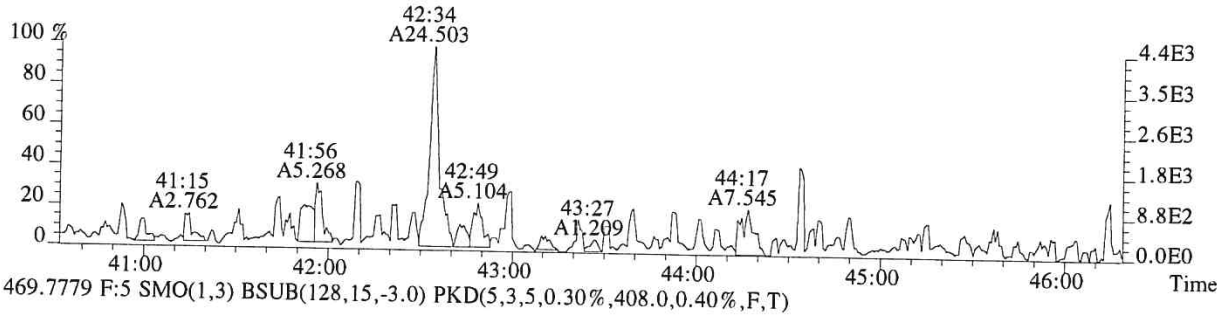


013343

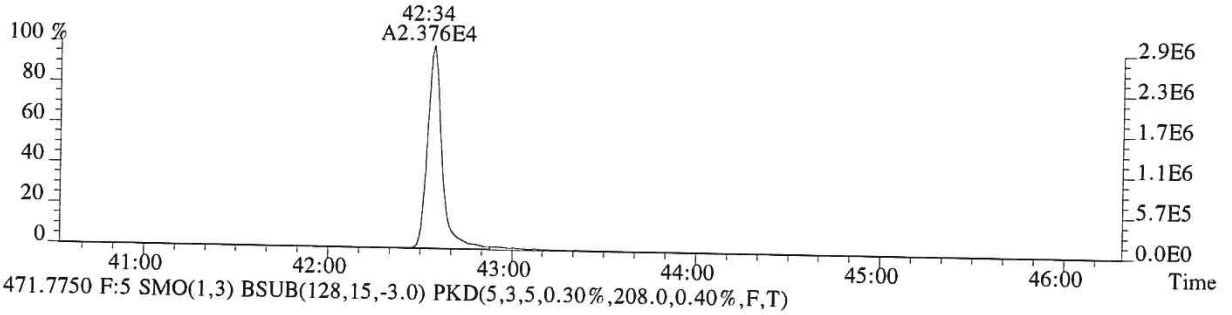
File:P519290 #1-520 Acq: 7-DEC-2018 21:33:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



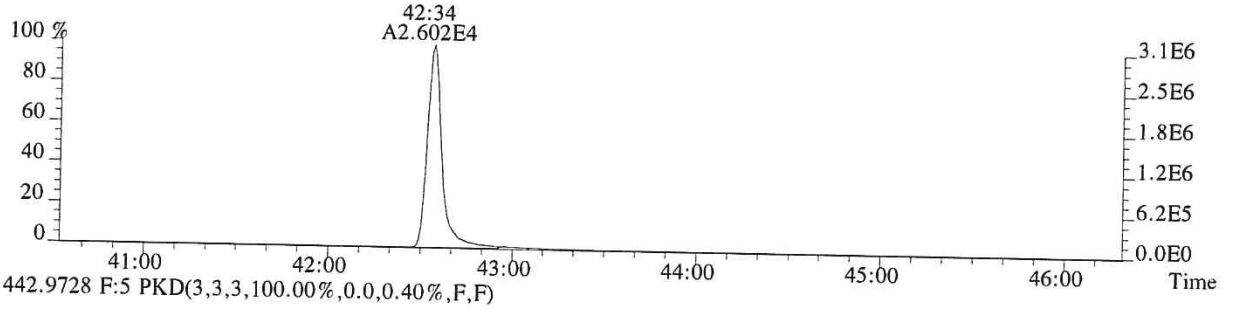
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



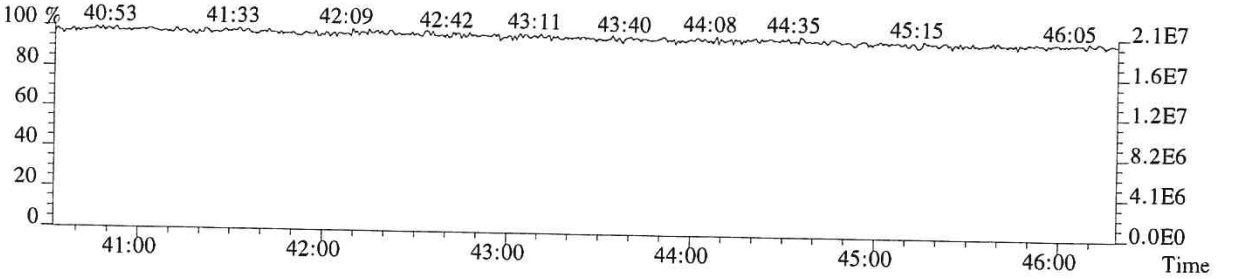
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



013344

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P519363 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:07:51
Processed: 12-DEC-18 09:58:32 Sample ID: EQ1800488-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	9.372e+02	1.376e+03	0.68	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	1.296e+04	8.619e+03	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.301e+04	8.768e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.293e+04	1.078e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.445e+04	1.190e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	1.342e+04	1.127e+04	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	1.192e+04	9.885e+03	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	1.135e+04	1.123e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	1.046e+04	1.082e+04	0.97	yes	no	1.258
10	Unk	OCDF	42:41	1.412e+04	1.646e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	7.951e+02	9.577e+02	0.83	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	9.722e+03	6.120e+03	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	9.252e+03	7.218e+03	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	1.044e+04	8.357e+03	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	1.031e+04	8.457e+03	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	8.433e+03	8.079e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:29	1.108e+04	1.220e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.085e+04	1.378e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.804e+04	1.798e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.755e+04	1.720e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.349e+04	2.603e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.624e+04	3.198e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.542e+04	2.952e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.335e+04	2.676e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.092e+04	2.458e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	1.047e+04	2.389e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	7.586e+03	9.873e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	2.020e+04	1.243e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.950e+04	1.548e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.035e+04	1.580e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	2.109e+04	1.990e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:29	1.968e+04	2.213e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	3.596e+04	4.510e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	4.939e+04	3.811e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	8.573e+03				no	1.014

$$\text{OCDD} = \frac{(1.108e+04 + 1.220e+04) \times 4000\ \text{pg} \times 1}{(1.968e+04 + 2.213e+04) \times \quad \text{g} \times \quad / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P519363 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:07:51
Processed: 12-DEC-18 09:58:32 LAB. ID: EQ1800488-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.61e+05	6.52e+02	2.5e+02	2.30e+05	9.44e+02	2.4e+02
2	1,2,3,7,8-PeCDF	2.38e+06	9.76e+02	2.4e+03	1.58e+06	1.62e+03	9.8e+02
3	2,3,4,7,8-PeCDF	2.50e+06	9.76e+02	2.6e+03	1.69e+06	1.62e+03	1.0e+03
4	1,2,3,4,7,8-HxCDF	2.65e+06	3.08e+02	8.6e+03	2.20e+06	3.28e+02	6.7e+03
5	1,2,3,6,7,8-HxCDF	2.73e+06	3.08e+02	8.9e+03	2.29e+06	3.28e+02	7.0e+03
6	2,3,4,6,7,8-HxCDF	2.68e+06	3.08e+02	8.7e+03	2.28e+06	3.28e+02	6.9e+03
7	1,2,3,7,8,9-HxCDF	2.25e+06	3.08e+02	7.3e+03	1.86e+06	3.28e+02	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	2.12e+06	1.34e+03	1.6e+03	2.09e+06	1.01e+03	2.1e+03
9	1,2,3,4,7,8,9-HpCDF	1.71e+06	1.34e+03	1.3e+03	1.77e+06	1.01e+03	1.8e+03
10	OCDF	1.69e+06	2.60e+02	6.5e+03	1.97e+06	5.08e+02	3.9e+03
11	2,3,7,8-TCDD	1.41e+05	1.59e+03	8.9e+01	1.81e+05	1.09e+03	1.7e+02
12	1,2,3,7,8-PeCDD	1.83e+06	7.24e+02	2.5e+03	1.17e+06	2.56e+02	4.6e+03
13	1,2,3,4,7,8-HxCDD	1.99e+06	3.64e+02	5.5e+03	1.57e+06	4.72e+02	3.3e+03
14	1,2,3,6,7,8-HxCDD	1.97e+06	3.64e+02	5.4e+03	1.61e+06	4.72e+02	3.4e+03
15	1,2,3,7,8,9-HxCDD	1.95e+06	3.64e+02	5.4e+03	1.60e+06	4.72e+02	3.4e+03
16	1,2,3,4,6,7,8-HpCDD	1.44e+06	3.12e+02	4.6e+03	1.40e+06	3.04e+02	4.6e+03
17	OCDD	1.32e+06	3.00e+02	4.4e+03	1.48e+06	4.16e+02	3.6e+03
18	13C-2,3,7,8-TCDF	1.84e+06	5.64e+03	3.3e+02	2.31e+06	3.82e+03	6.0e+02
19	13C-1,2,3,7,8-PeCDF	5.09e+06	8.56e+02	6.0e+03	3.28e+06	3.08e+02	1.1e+04
20	13C-2,3,4,7,8-PeCDF	5.25e+06	8.56e+02	6.1e+03	3.28e+06	3.08e+02	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	2.68e+06	2.56e+02	1.0e+04	5.43e+06	7.24e+02	7.5e+03
22	13C-1,2,3,6,7,8-HxCDF	3.13e+06	2.56e+02	1.2e+04	6.03e+06	7.24e+02	8.3e+03
23	13C-2,3,4,6,7,8-HxCDF	3.14e+06	2.56e+02	1.2e+04	6.03e+06	7.24e+02	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	2.50e+06	2.56e+02	9.8e+03	5.01e+06	7.24e+02	6.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.03e+06	1.00e+03	2.0e+03	4.51e+06	1.64e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.69e+06	1.00e+03	1.7e+03	3.78e+06	1.64e+03	2.3e+03
27	13C-2,3,7,8-TCDD	1.39e+06	6.64e+03	2.1e+02	1.84e+06	2.20e+03	8.4e+02
28	13C-1,2,3,7,8-PeCDD	3.75e+06	4.92e+02	7.6e+03	2.32e+06	4.64e+02	5.0e+03
29	13C-1,2,3,4,7,8-HxCDD	4.15e+06	1.26e+03	3.3e+03	3.33e+06	6.36e+02	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	3.87e+06	1.26e+03	3.1e+03	2.99e+06	6.36e+02	4.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.57e+06	5.36e+02	6.7e+03	3.36e+06	2.44e+02	1.4e+04
32	13C-OCDD	2.33e+06	3.80e+02	6.1e+03	2.66e+06	3.40e+02	7.8e+03
33	13C-1,2,3,4-TCDD	6.47e+06	6.64e+03	9.7e+02	8.20e+06	2.20e+03	3.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.33e+06	1.26e+03	7.4e+03	7.39e+06	6.36e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.58e+06	9.12e+02	1.7e+03			

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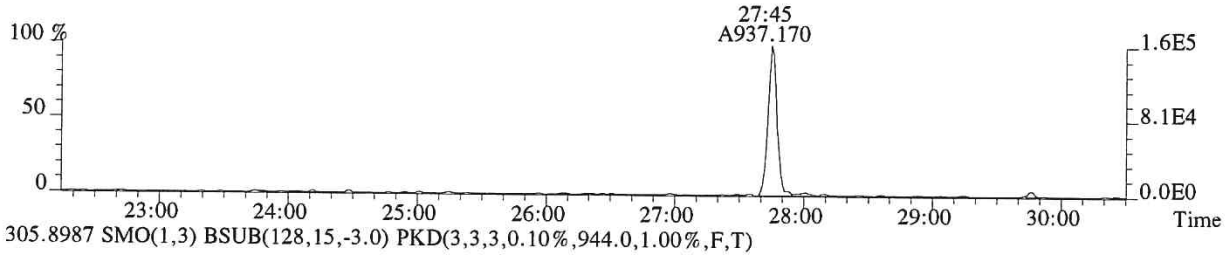
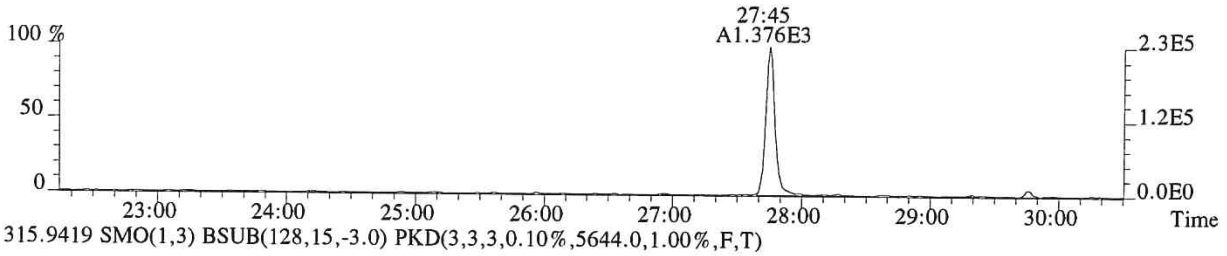
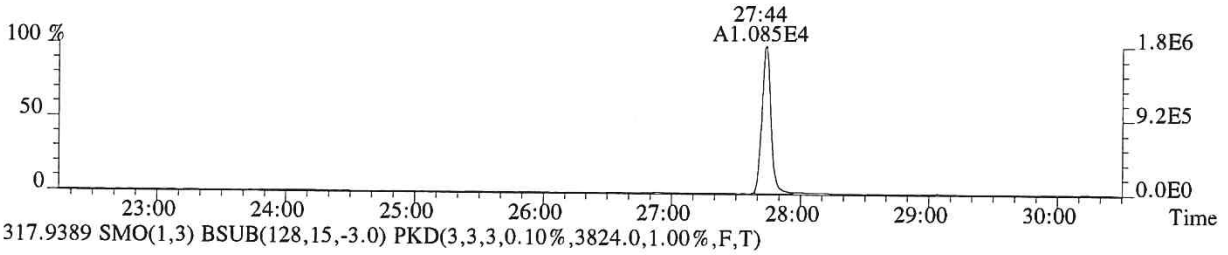
File:P519363 #1-587 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



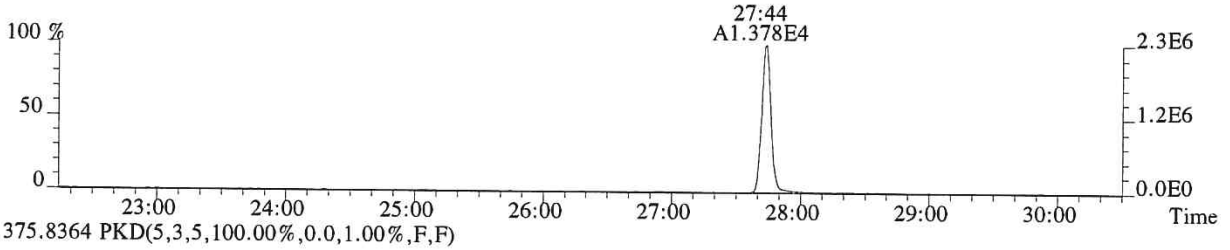
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



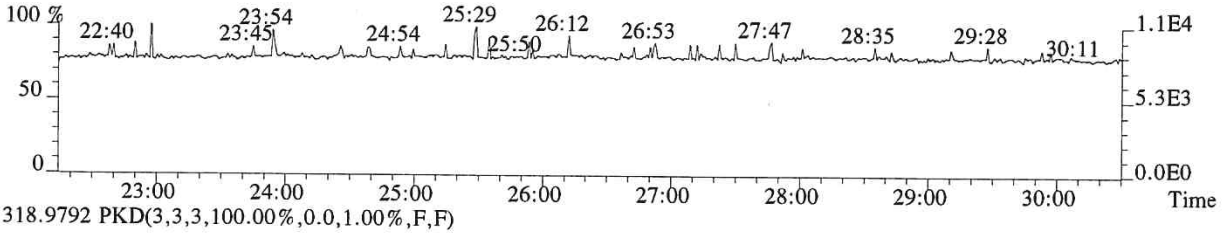
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5644.0,1.00%,F,T)



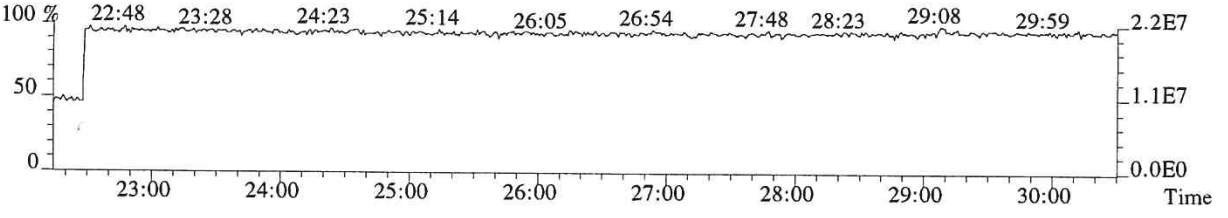
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3824.0,1.00%,F,T)



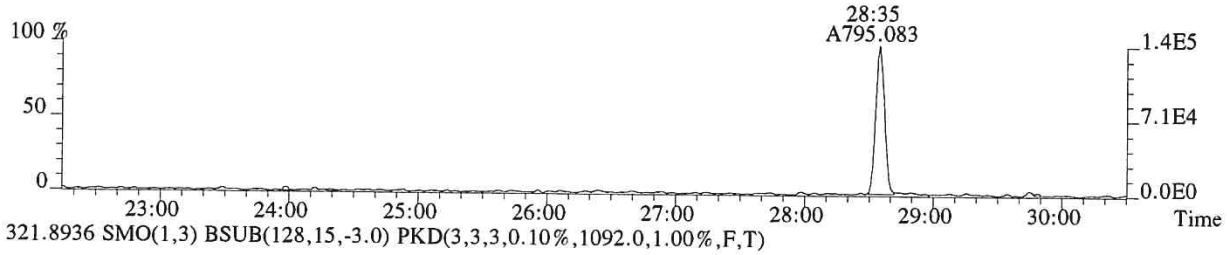
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



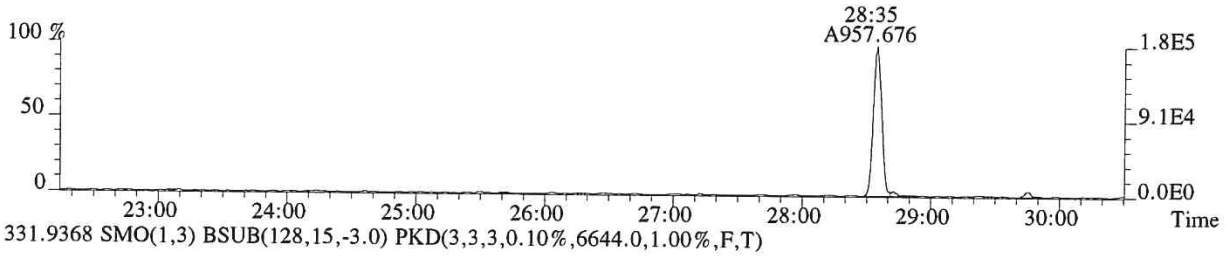
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



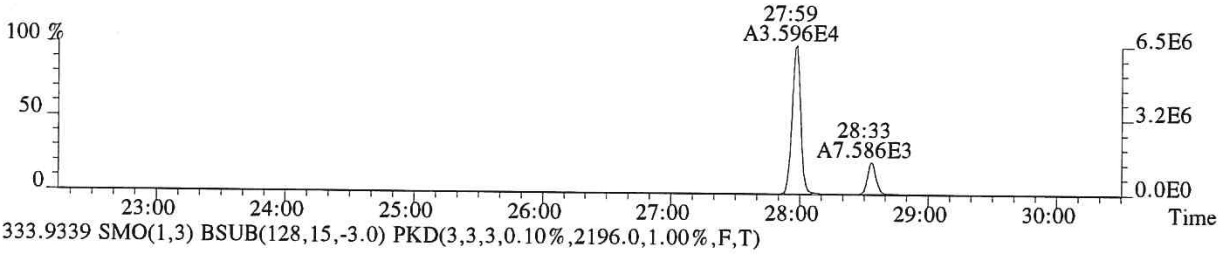
File:P519363 #1-587 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



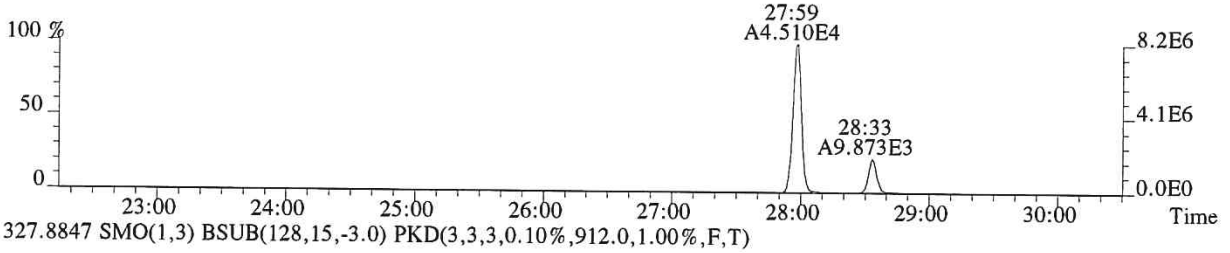
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



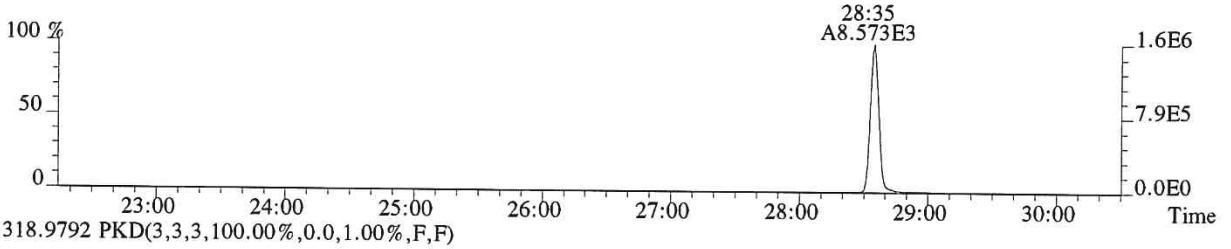
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



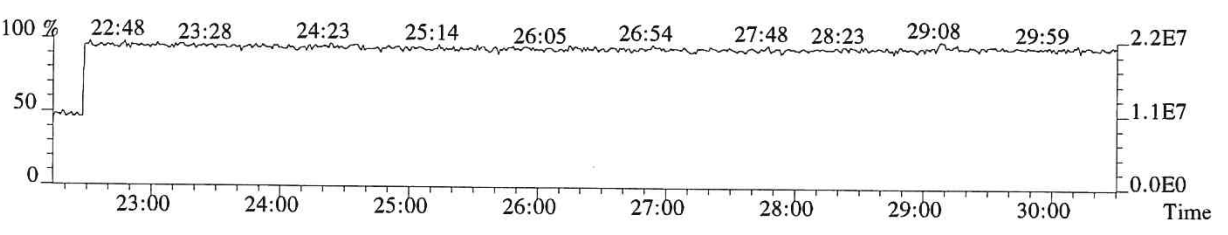
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2196.0,1.00%,F,T)



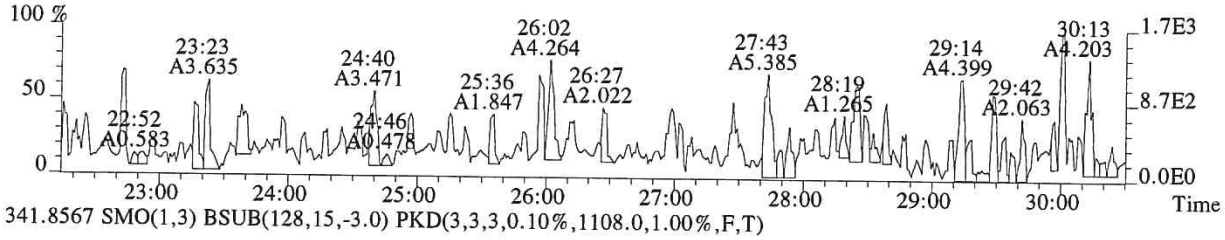
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



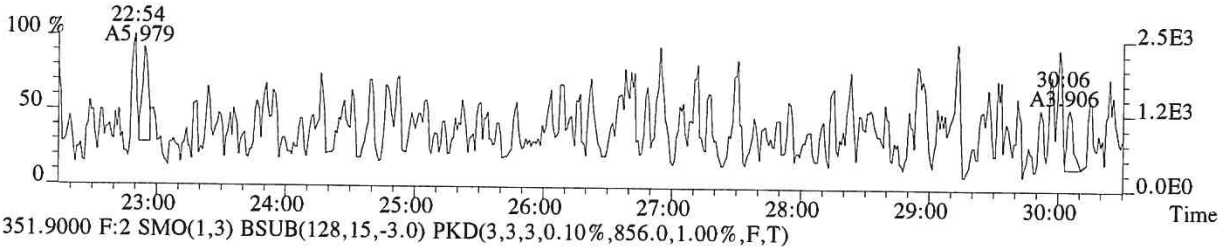
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



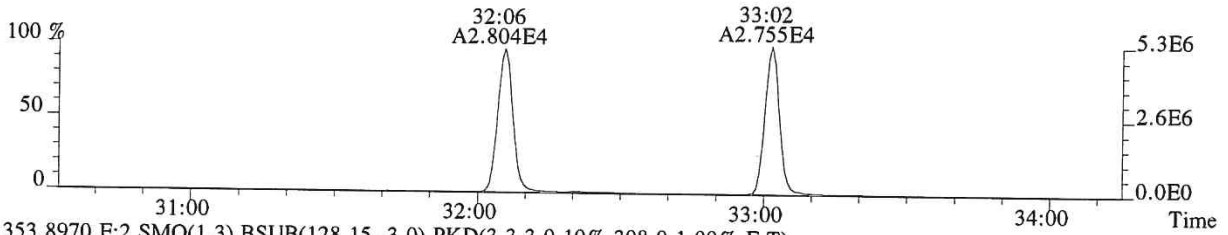
File:P519363 #1-587 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



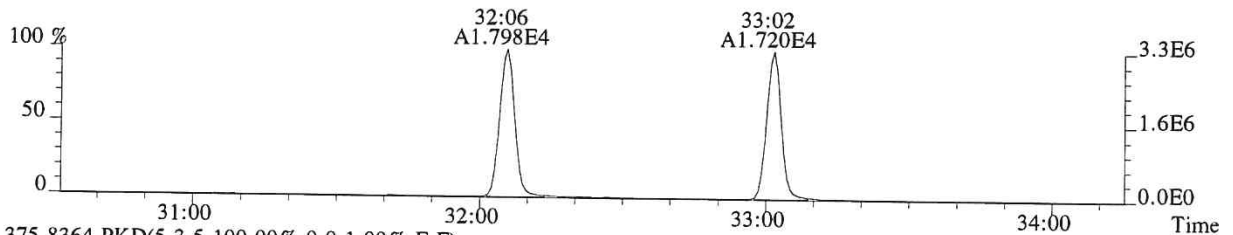
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



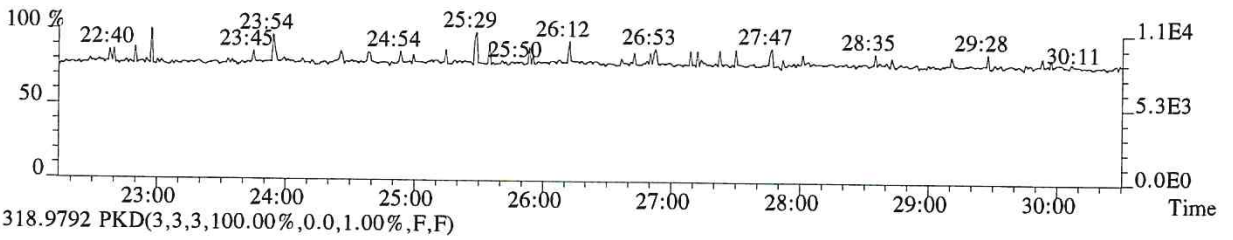
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



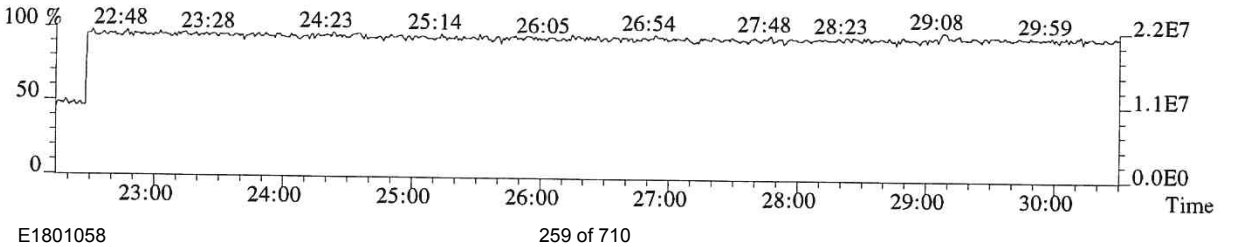
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



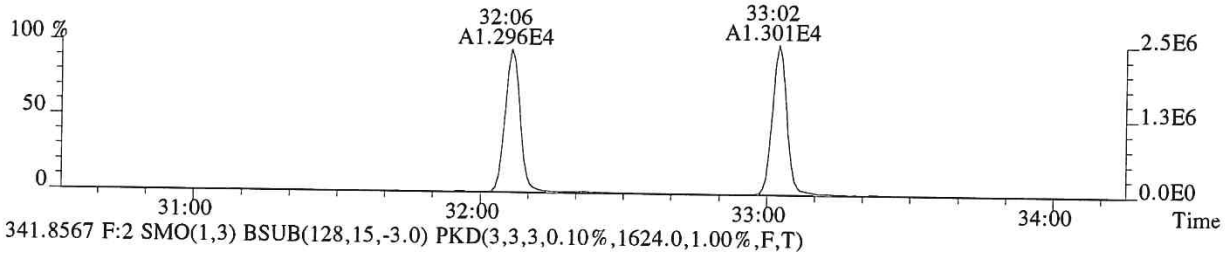
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



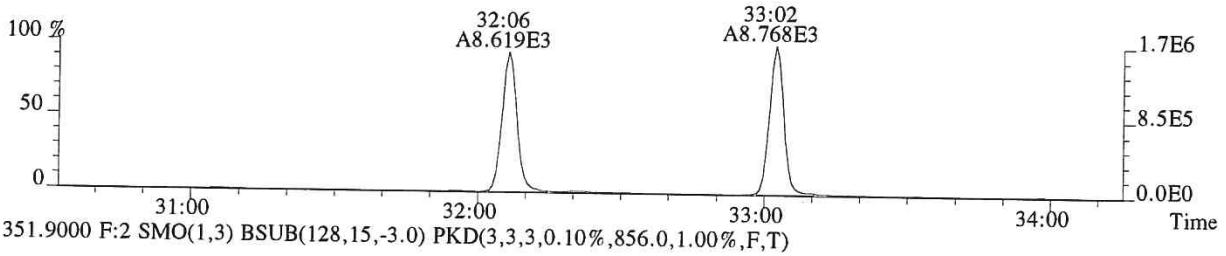
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



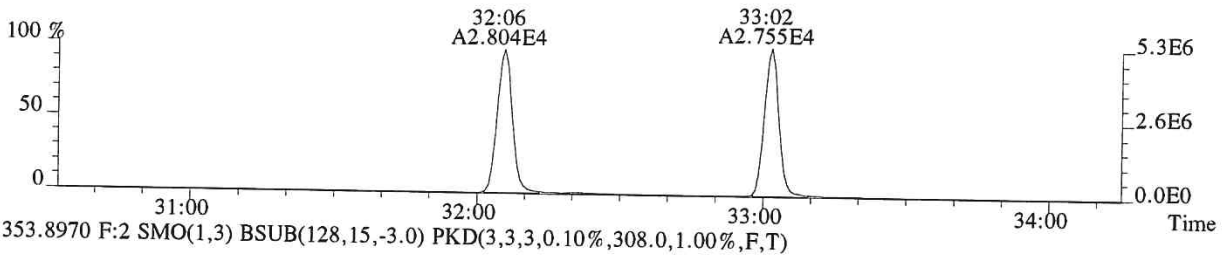
File:P519363 #1-335 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



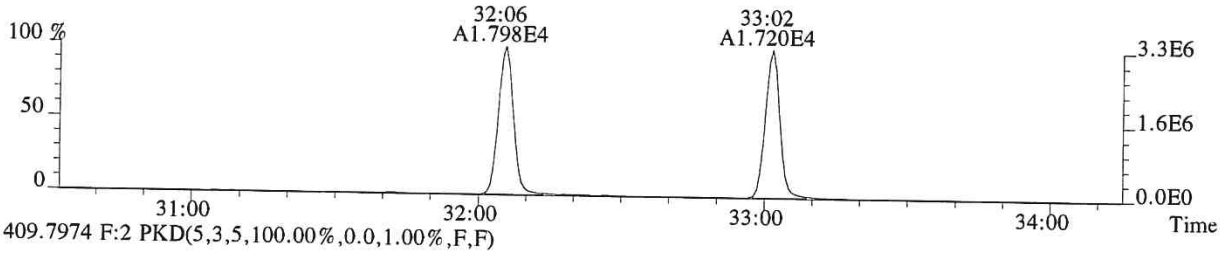
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



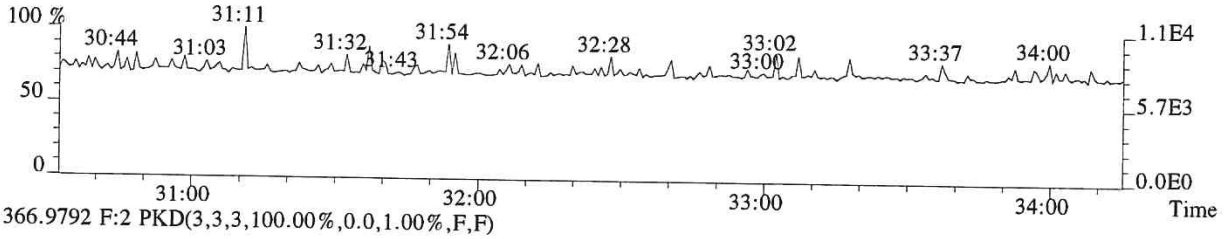
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



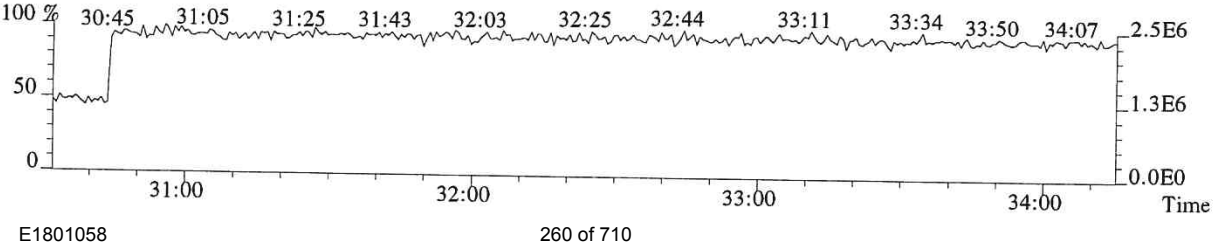
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



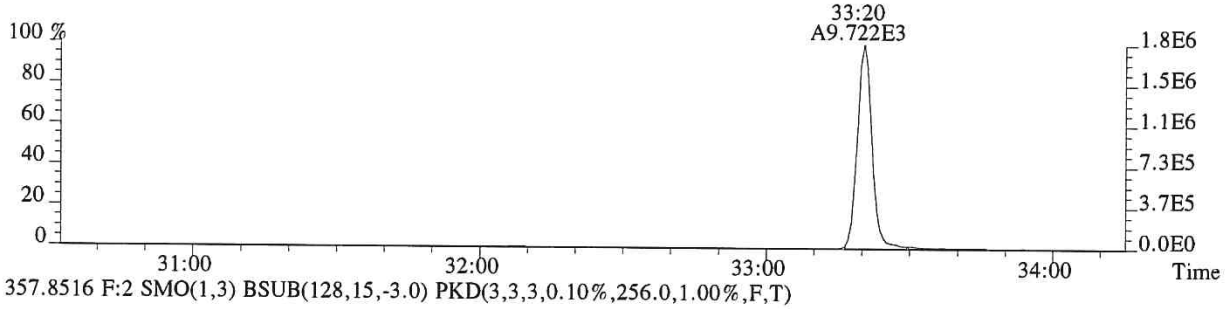
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



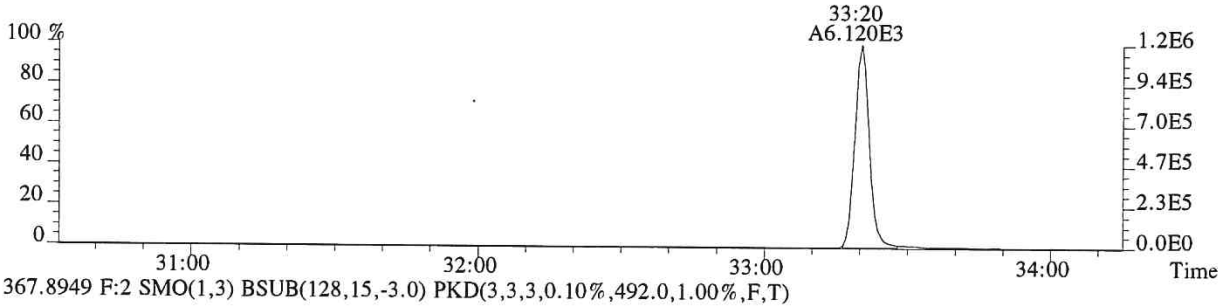
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



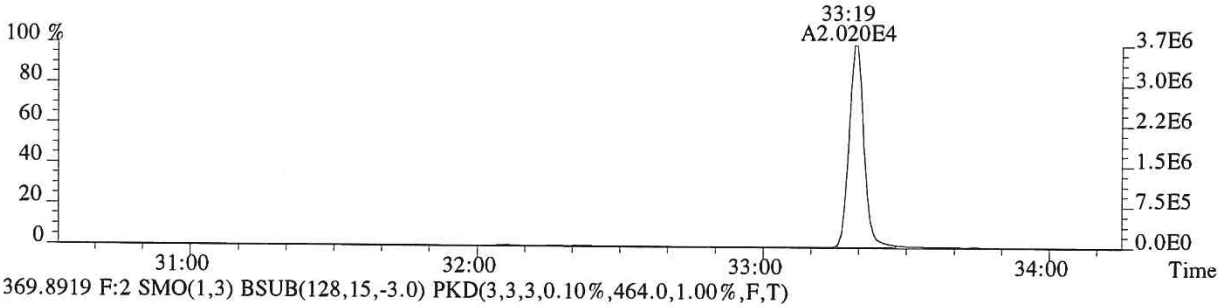
File:P519363 #1-335 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



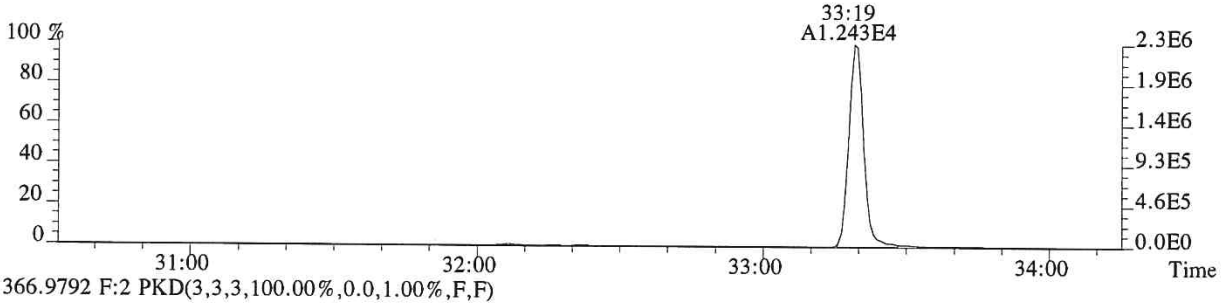
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



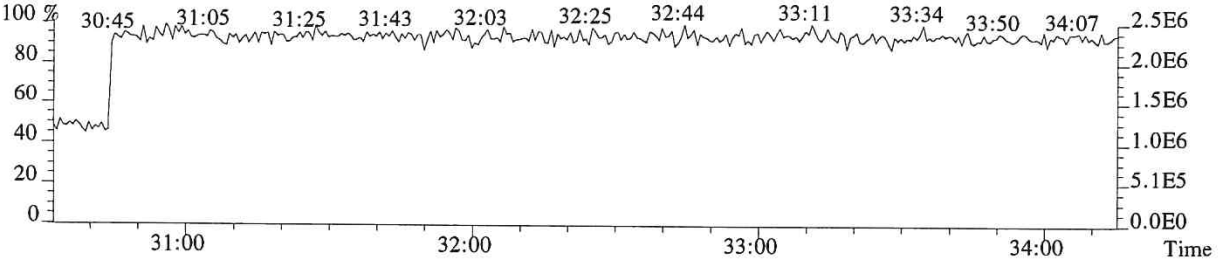
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



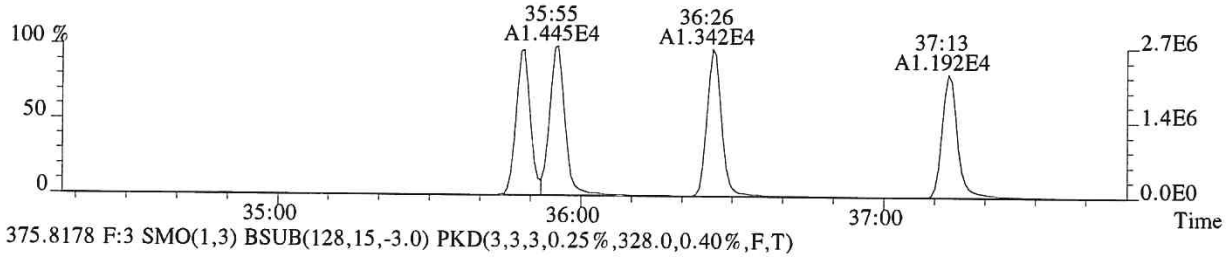
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



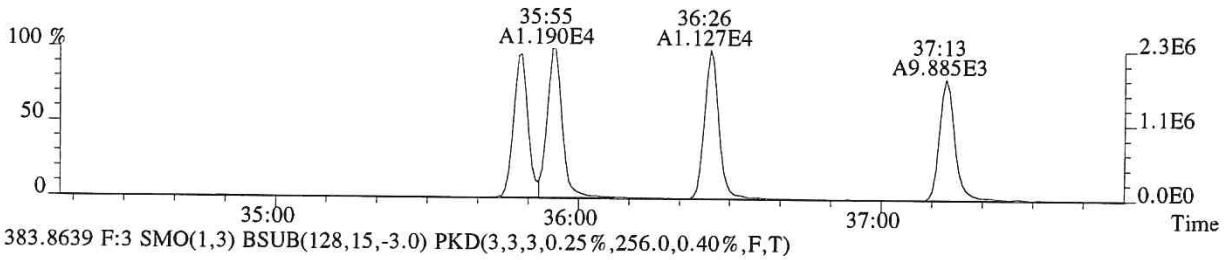
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



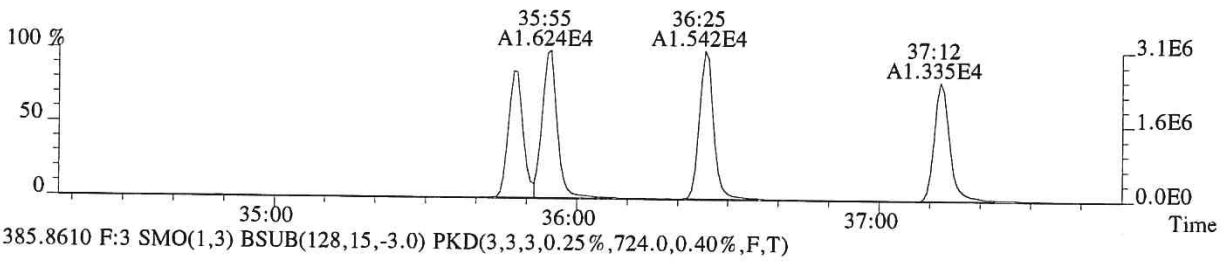
File:P519363 #1-317 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



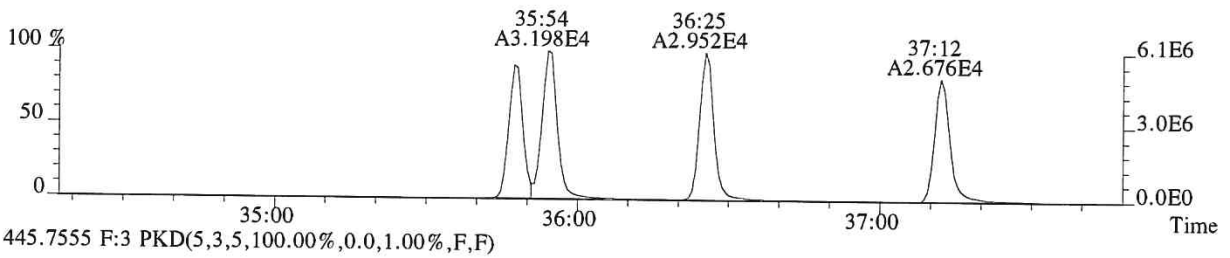
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



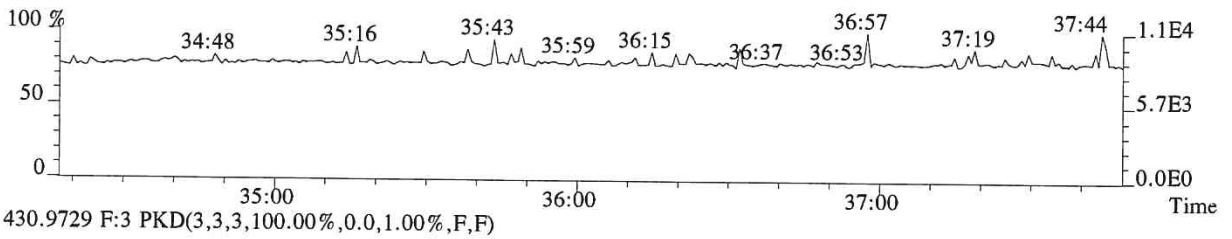
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



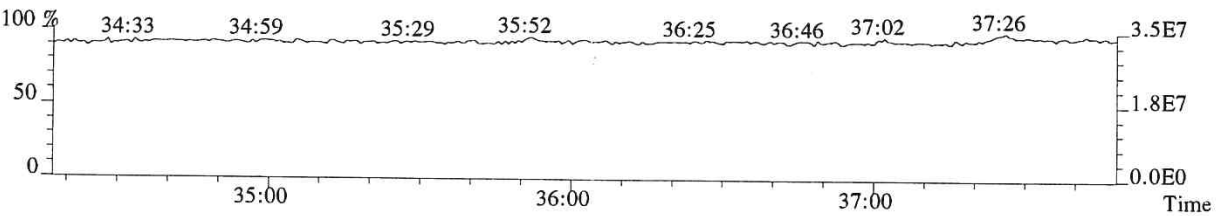
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



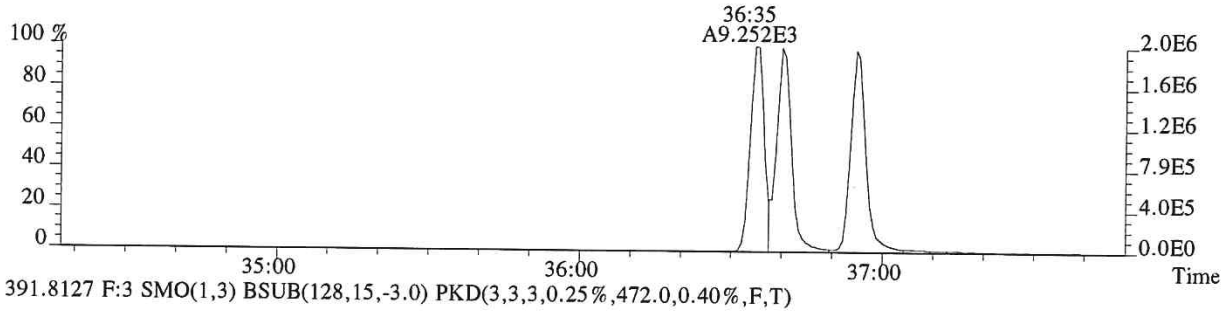
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



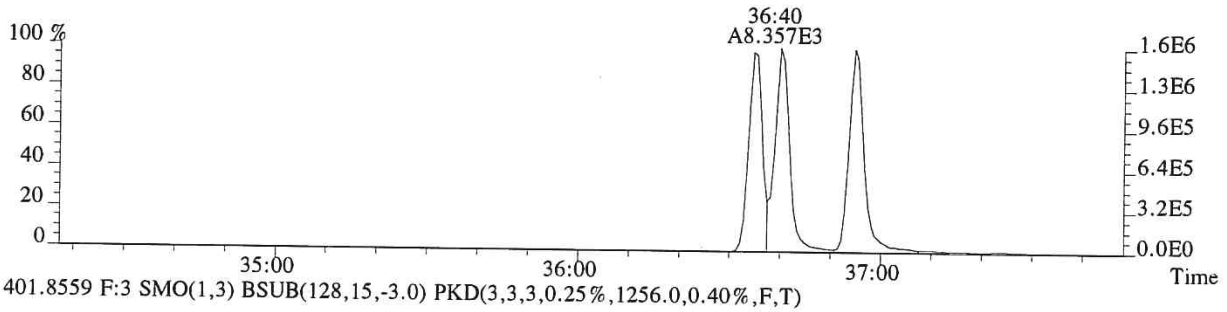
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



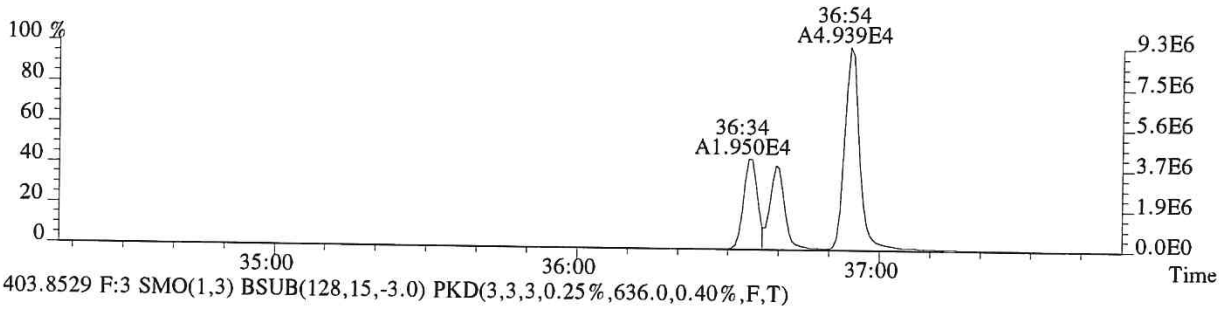
File:P519363 #1-317 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



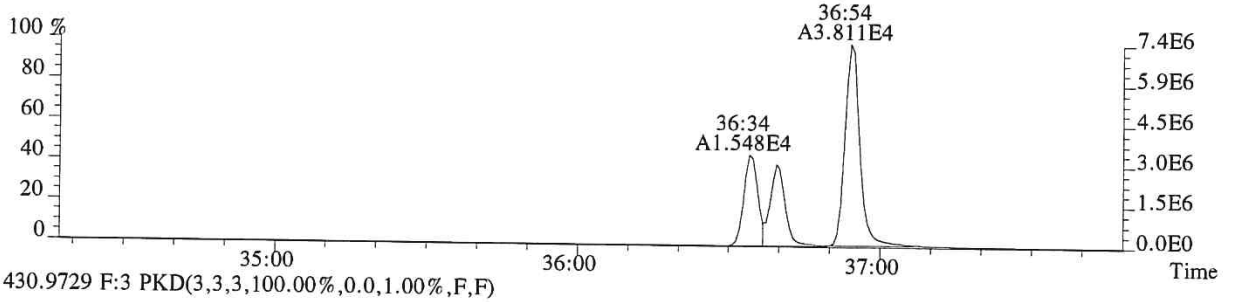
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



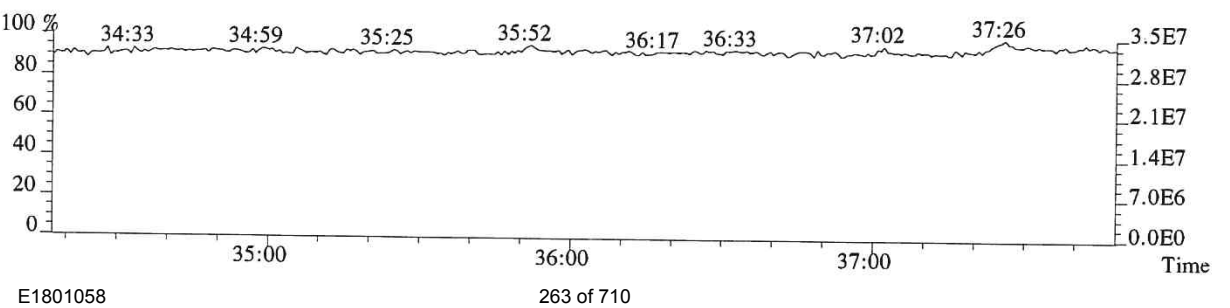
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



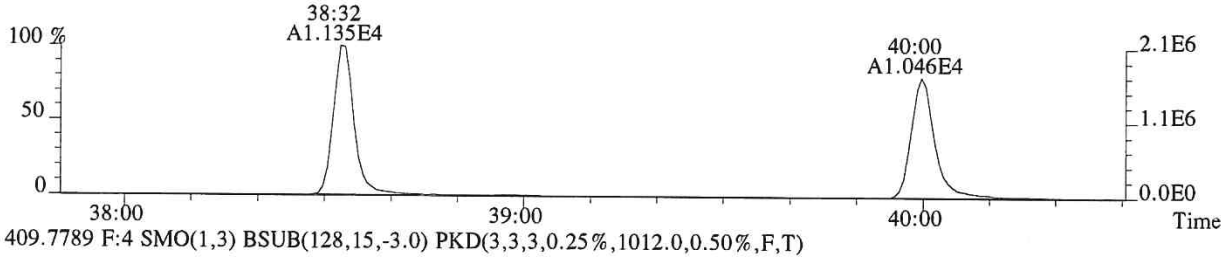
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



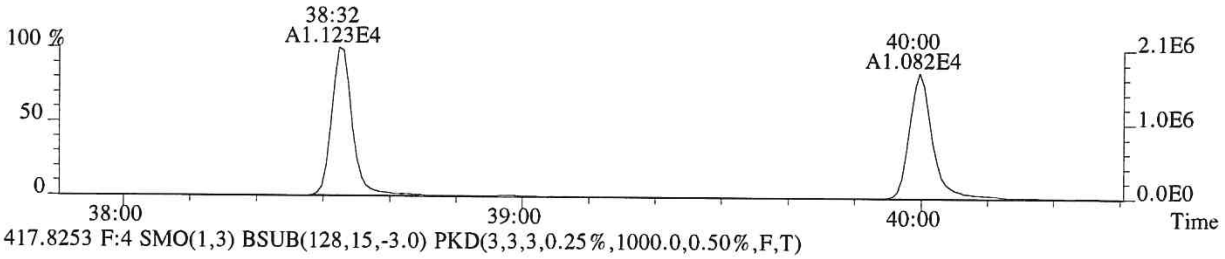
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



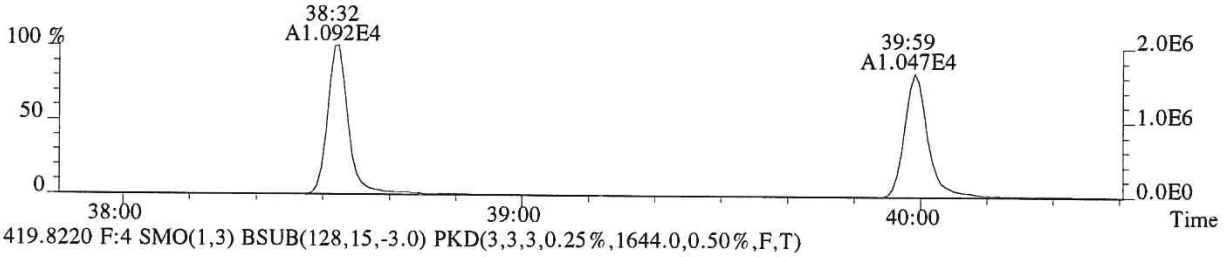
File:P519363 #1-241 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.50%,F,T)



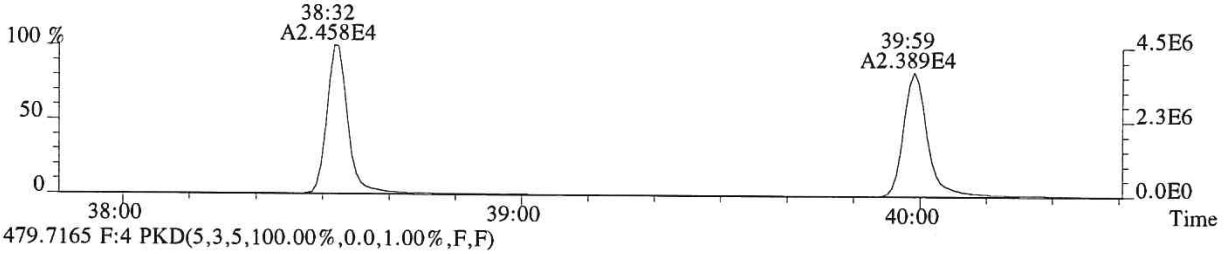
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.50%,F,T)



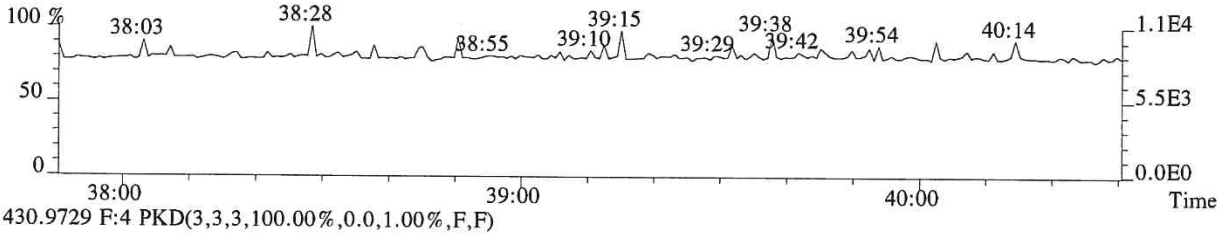
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.50%,F,T)



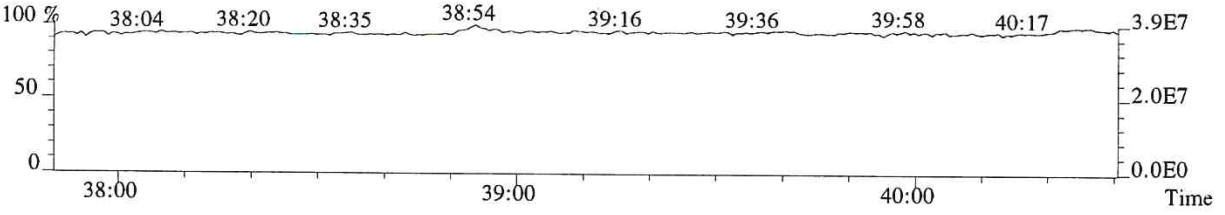
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.50%,F,T)



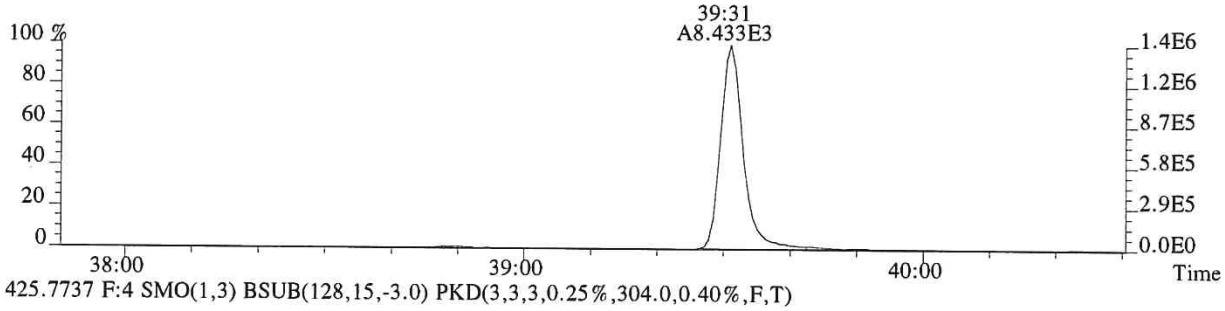
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



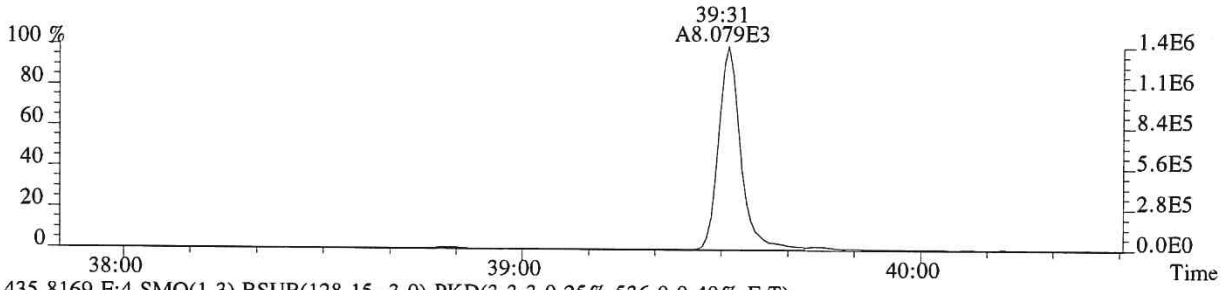
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



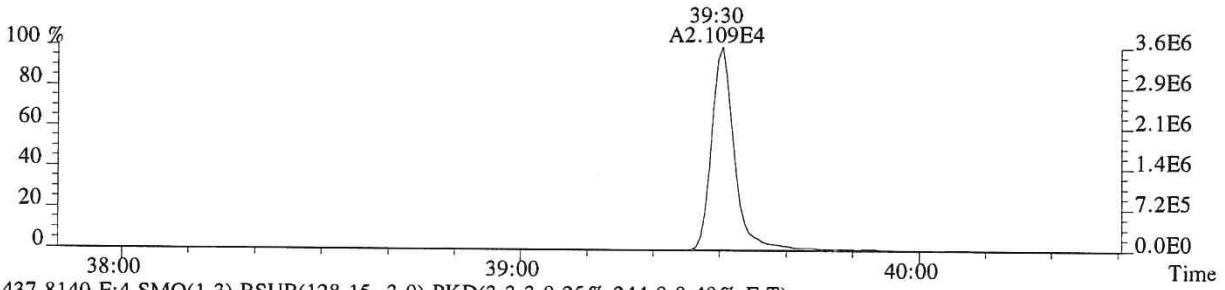
File:P519363 #1-241 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



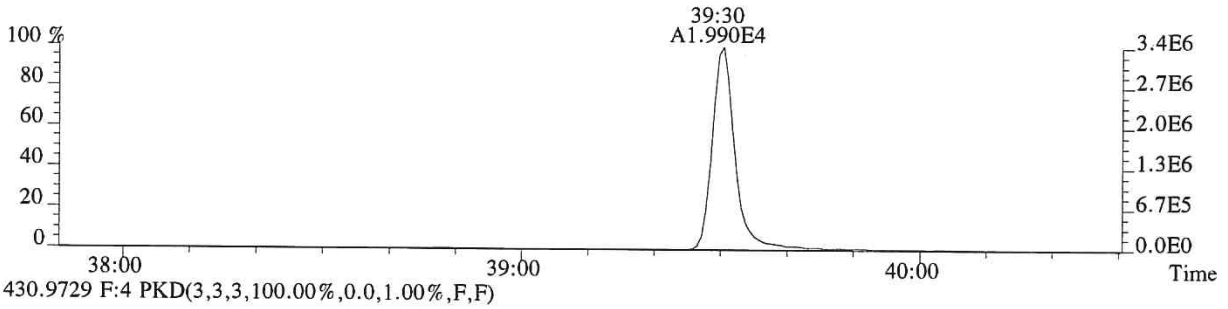
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



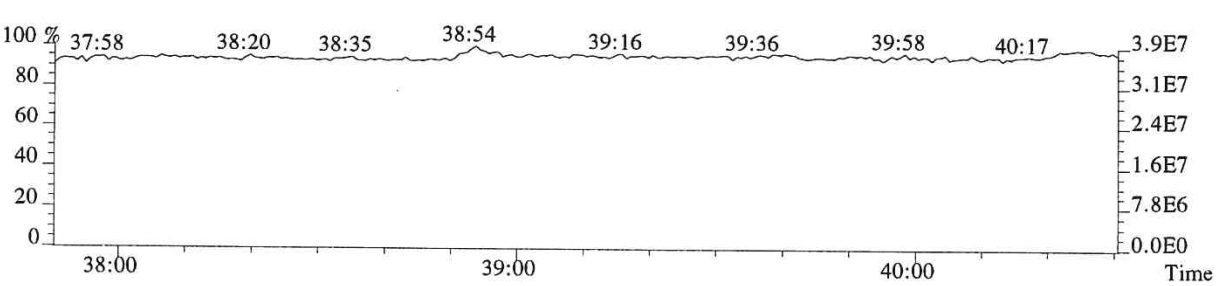
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



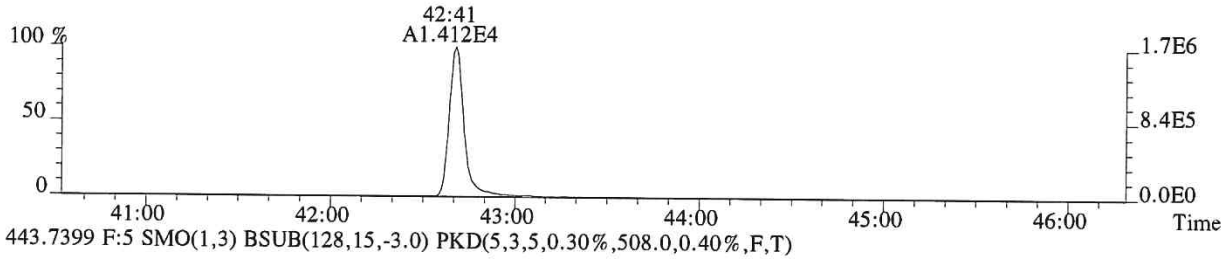
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



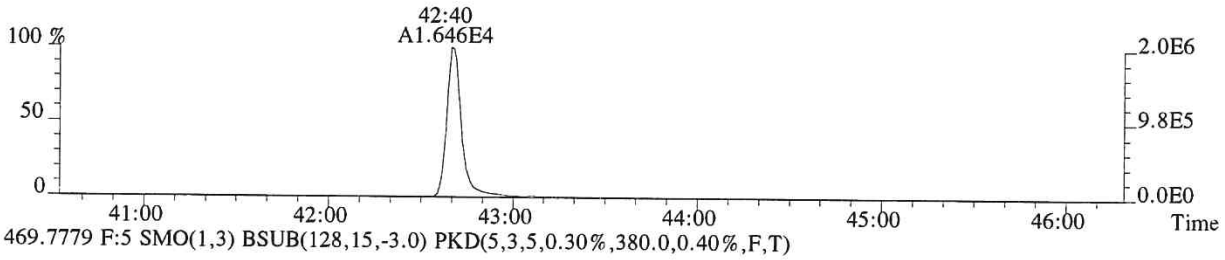
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



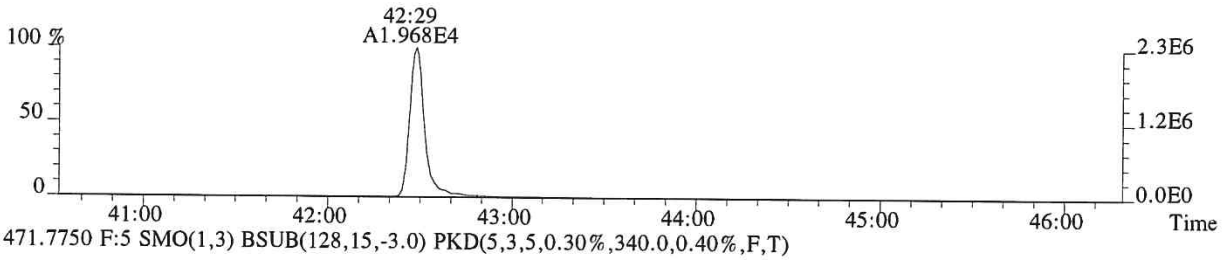
File:P519363 #1-520 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



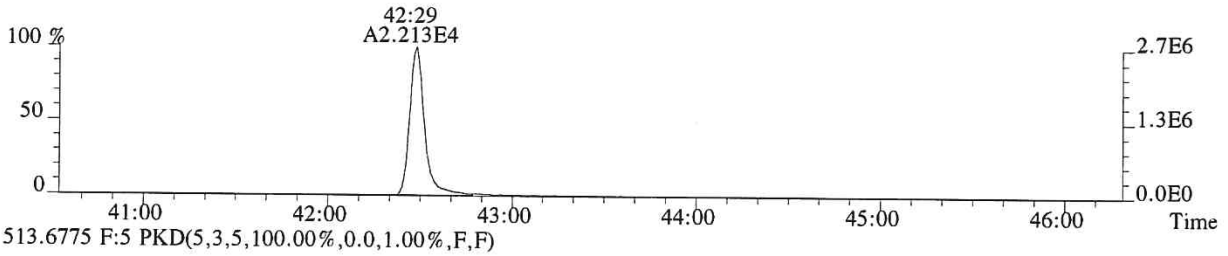
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



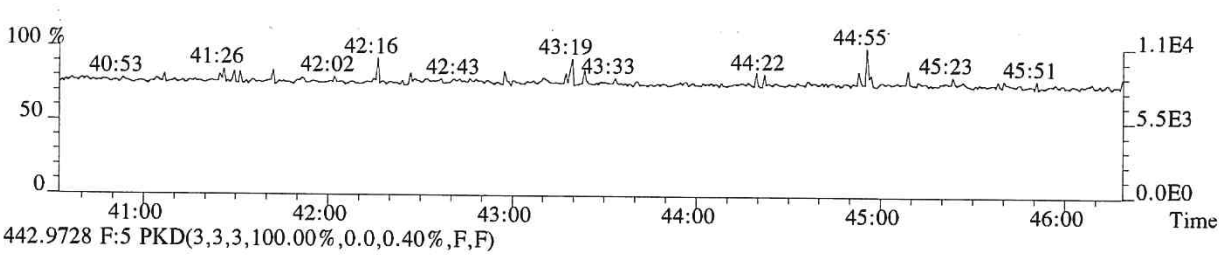
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



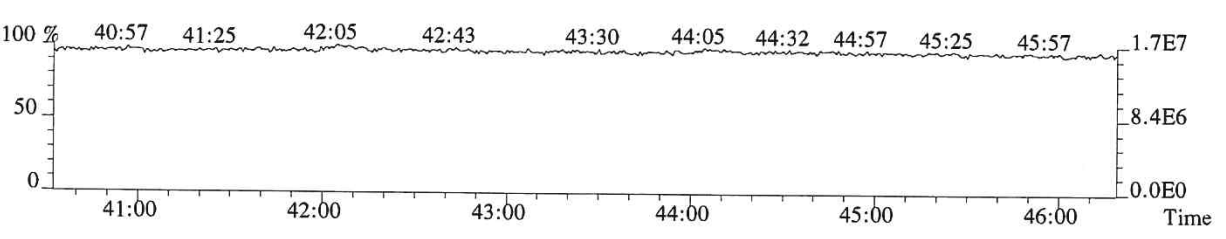
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

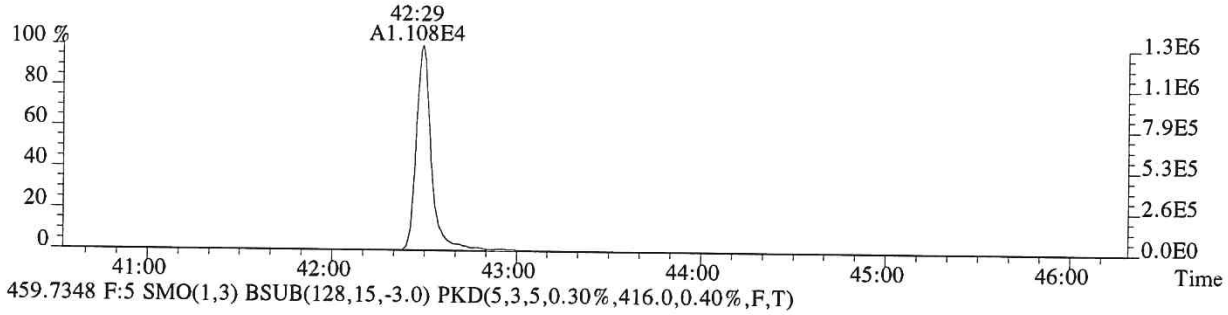


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

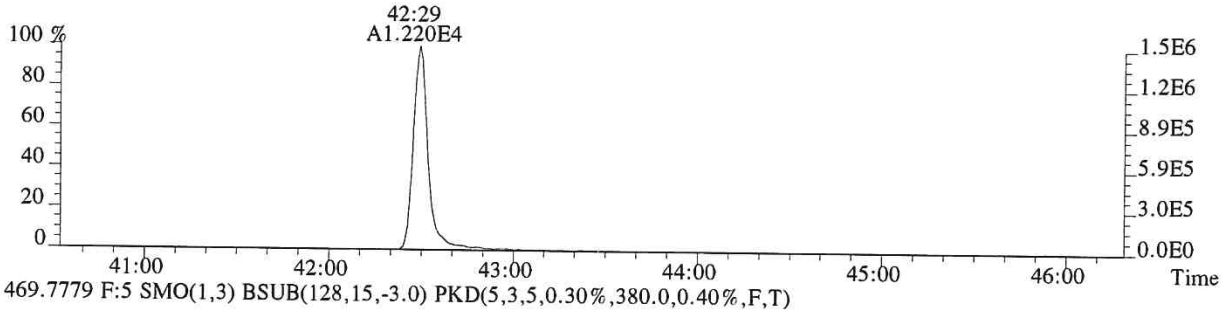


013356

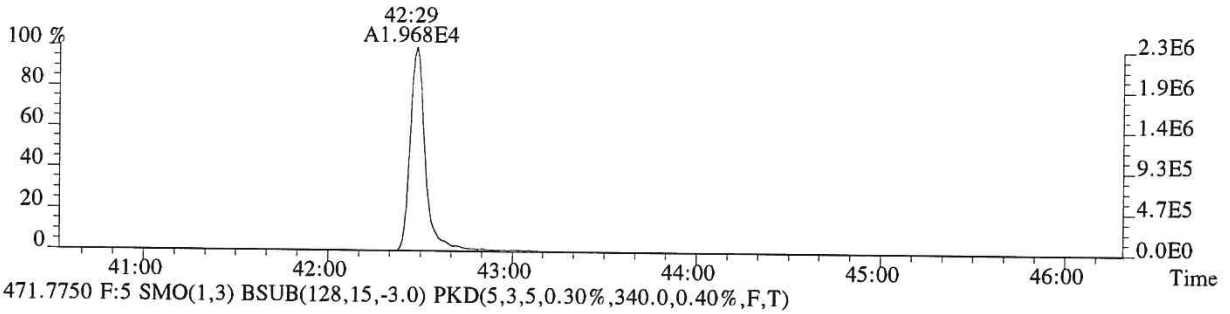
File:P519363 #1-520 Acq:11-DEC-2018 21:07:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



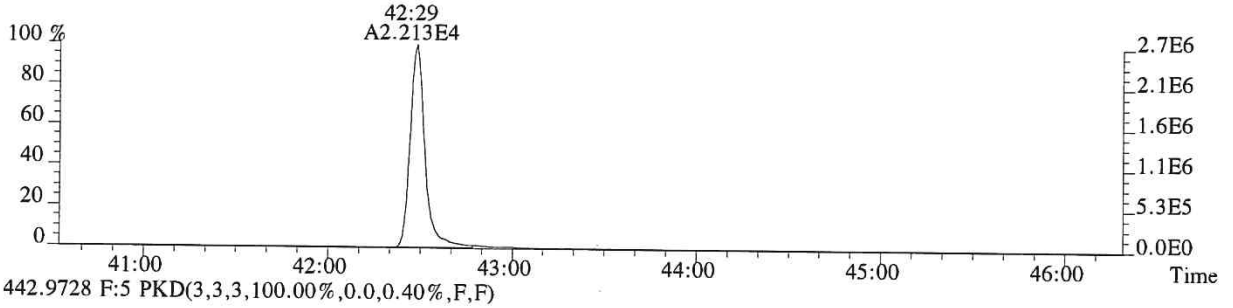
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



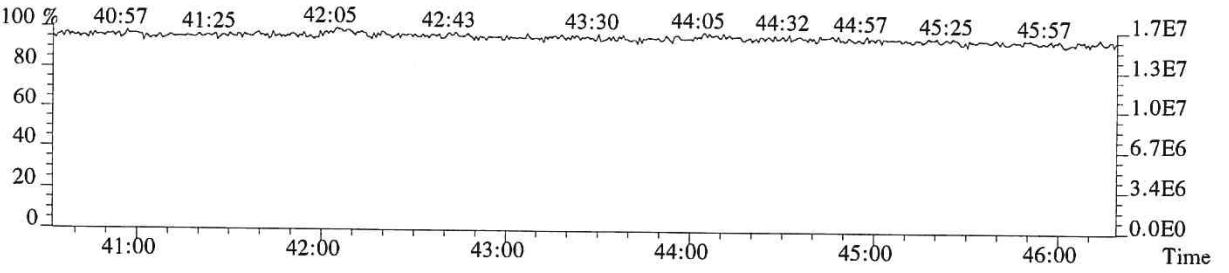
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



013357

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P519364 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:56:19
Processed: 12-DEC-18 09:58:33 Sample ID: EQ1800488-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.546e+03	2.100e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	1.467e+04	9.624e+03	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	1.484e+04	9.963e+03	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.351e+04	1.117e+04	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.509e+04	1.257e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	1.278e+04	1.030e+04	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	1.106e+04	8.766e+03	1.26	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:33	1.026e+04	1.033e+04	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	9.473e+03	9.583e+03	0.99	yes	no	1.258
10	Unk	OCDF	42:41	1.040e+04	1.217e+04	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	1.156e+03	1.582e+03	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.103e+04	6.780e+03	1.63	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	9.741e+03	7.603e+03	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	1.044e+04	8.362e+03	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	9.523e+03	7.931e+03	1.20	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	7.141e+03	6.675e+03	1.07	yes	no	1.025
17	Unk	OCDD	42:30	7.648e+03	8.525e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.767e+04	2.220e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	3.210e+04	2.012e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	3.132e+04	1.969e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.394e+04	2.713e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.669e+04	3.242e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	1.438e+04	2.788e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.214e+04	2.382e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.002e+04	2.233e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	9.077e+03	2.090e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	1.132e+04	1.417e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	2.268e+04	1.424e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	2.019e+04	1.579e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	1.971e+04	1.528e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	1.785e+04	1.691e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:29	1.420e+04	1.580e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	3.365e+04	4.212e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	4.701e+04	3.620e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	1.291e+04				no	1.014

$$\text{OCDD} = \frac{(7.648e+03 + 8.525e+03) \times 4000\ \text{pg} \times 1}{(1.420e+04 + 1.580e+04) \times \quad \text{g} \times \quad / 100 \times 1.118} =$$

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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P519364 Samp: 1 Inj: 1 Acquired: 11-DEC-18 21:56:19
Processed: 12-DEC-18 09:58:33 LAB. ID: EQ1800488-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.74e+05	4.40e+02	6.2e+02	3.64e+05	1.18e+03	3.1e+02
2	1,2,3,7,8-PeCDF	2.72e+06	4.08e+02	6.7e+03	1.78e+06	1.67e+03	1.1e+03
3	2,3,4,7,8-PeCDF	2.88e+06	4.08e+02	7.1e+03	1.92e+06	1.67e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	2.81e+06	4.12e+02	6.8e+03	2.33e+06	2.84e+02	8.2e+03
5	1,2,3,6,7,8-HxCDF	2.89e+06	4.12e+02	7.0e+03	2.44e+06	2.84e+02	8.6e+03
6	2,3,4,6,7,8-HxCDF	2.58e+06	4.12e+02	6.3e+03	2.12e+06	2.84e+02	7.5e+03
7	1,2,3,7,8,9-HxCDF	1.99e+06	4.12e+02	4.8e+03	1.58e+06	2.84e+02	5.5e+03
8	1,2,3,4,6,7,8-HpCDF	1.93e+06	1.23e+03	1.6e+03	1.94e+06	2.01e+03	9.7e+02
9	1,2,3,4,7,8,9-HpCDF	1.49e+06	1.23e+03	1.2e+03	1.48e+06	2.01e+03	7.3e+02
10	OCDF	1.19e+06	2.12e+02	5.6e+03	1.40e+06	7.20e+02	1.9e+03
11	2,3,7,8-TCDD	2.19e+05	1.54e+03	1.4e+02	2.94e+05	9.72e+02	3.0e+02
12	1,2,3,7,8-PeCDD	2.16e+06	1.17e+03	1.8e+03	1.32e+06	2.40e+02	5.5e+03
13	1,2,3,4,7,8-HxCDD	2.08e+06	3.28e+02	6.3e+03	1.62e+06	1.60e+02	1.0e+04
14	1,2,3,6,7,8-HxCDD	2.03e+06	3.28e+02	6.2e+03	1.67e+06	1.60e+02	1.0e+04
15	1,2,3,7,8,9-HxCDD	1.84e+06	3.28e+02	5.6e+03	1.42e+06	1.60e+02	8.9e+03
16	1,2,3,4,6,7,8-HpCDD	1.15e+06	2.00e+02	5.7e+03	1.07e+06	1.88e+02	5.7e+03
17	OCDD	8.68e+05	2.76e+02	3.1e+03	9.85e+05	2.20e+02	4.5e+03
18	13C-2,3,7,8-TCDF	3.14e+06	6.04e+03	5.2e+02	3.92e+06	3.74e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	5.91e+06	8.56e+02	6.9e+03	3.68e+06	1.68e+02	2.2e+04
20	13C-2,3,4,7,8-PeCDF	6.09e+06	8.56e+02	7.1e+03	3.87e+06	1.68e+02	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+06	7.80e+02	3.7e+03	5.60e+06	6.84e+02	8.2e+03
22	13C-1,2,3,6,7,8-HxCDF	3.28e+06	7.80e+02	4.2e+03	6.30e+06	6.84e+02	9.2e+03
23	13C-2,3,4,6,7,8-HxCDF	2.89e+06	7.80e+02	3.7e+03	5.49e+06	6.84e+02	8.0e+03
24	13C-1,2,3,7,8,9-HxCDF	2.18e+06	7.80e+02	2.8e+03	4.28e+06	6.84e+02	6.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.87e+06	1.21e+03	1.5e+03	4.14e+06	1.76e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.42e+06	1.21e+03	1.2e+03	3.33e+06	1.76e+03	1.9e+03
27	13C-2,3,7,8-TCDD	2.09e+06	5.60e+03	3.7e+02	2.62e+06	2.35e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	4.44e+06	7.36e+02	6.0e+03	2.77e+06	1.17e+03	2.4e+03
29	13C-1,2,3,4,7,8-HxCDD	4.32e+06	1.23e+03	3.5e+03	3.34e+06	2.40e+02	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	3.79e+06	1.23e+03	3.1e+03	3.01e+06	2.40e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.87e+06	5.64e+02	5.1e+03	2.74e+06	8.04e+02	3.4e+03
32	13C-OCDD	1.63e+06	3.48e+02	4.7e+03	1.84e+06	2.20e+02	8.4e+03
33	13C-1,2,3,4-TCDD	6.22e+06	5.60e+03	1.1e+03	7.76e+06	2.35e+03	3.3e+03
34	13C-1,2,3,7,8,9-HxCDD	8.78e+06	1.23e+03	7.1e+03	6.81e+06	2.40e+02	2.8e+04
35	37Cl-2,3,7,8-TCDD	2.41e+06	8.00e+02	3.0e+03			

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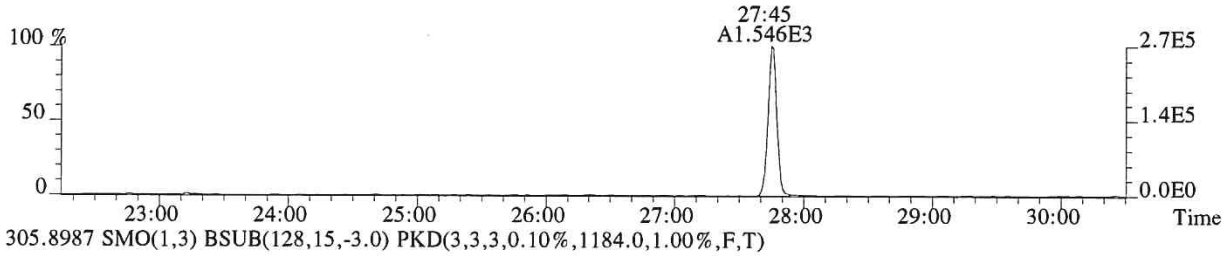
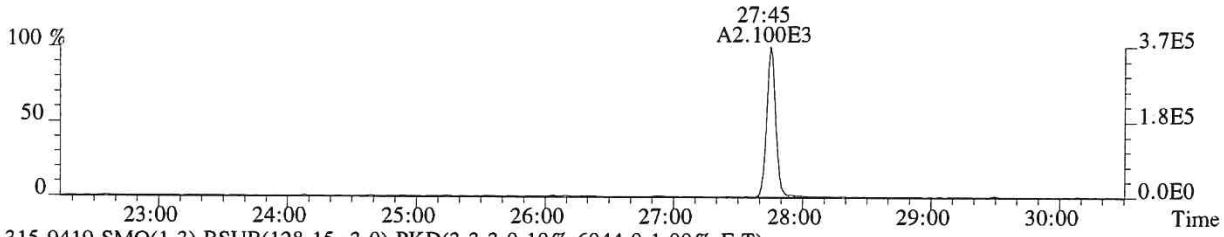
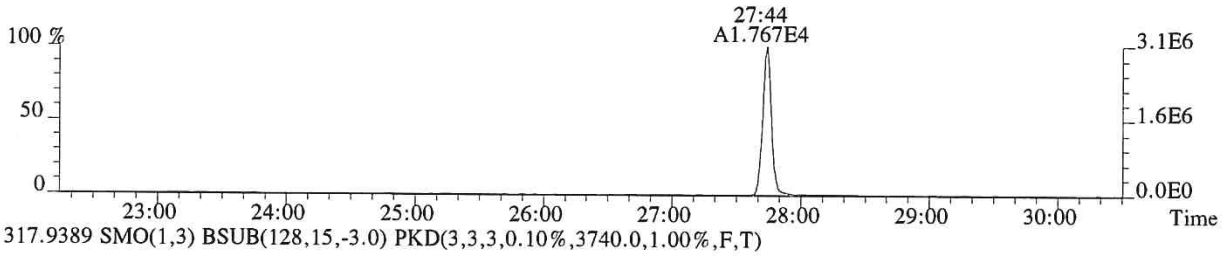
File:P519364 #1-587 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



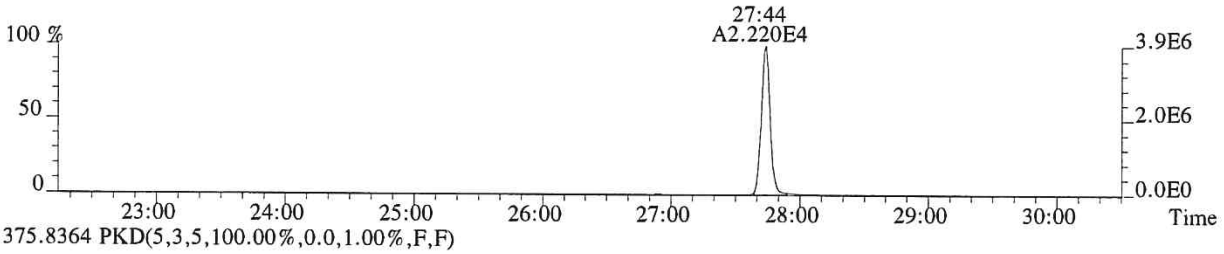
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



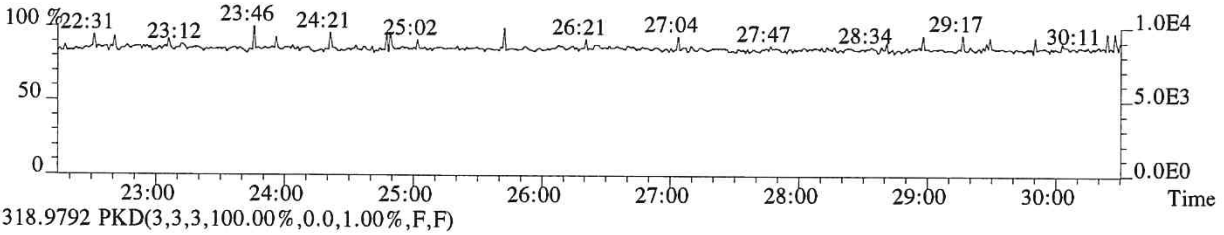
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6044.0,1.00%,F,T)



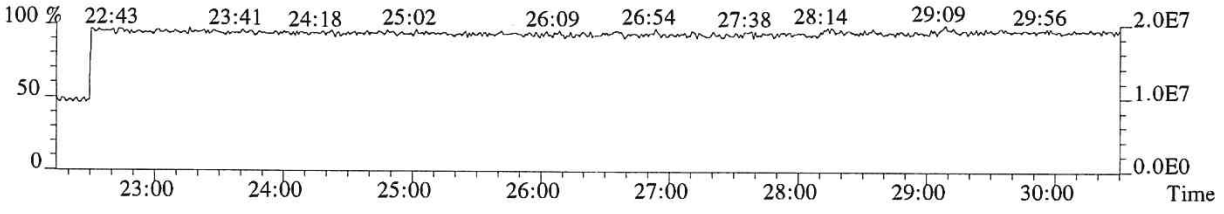
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3740.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

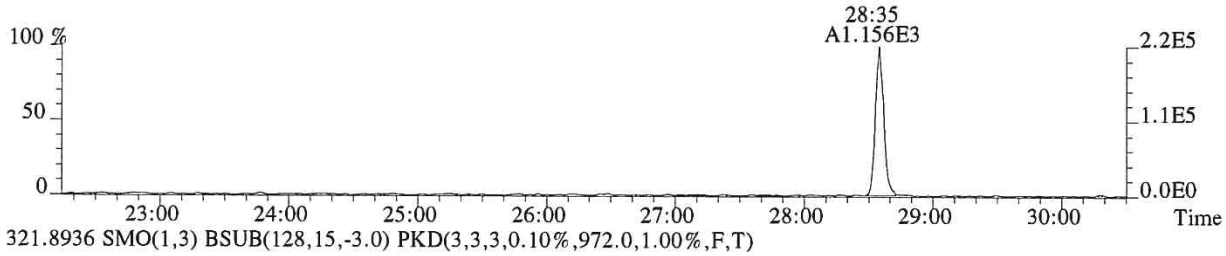


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

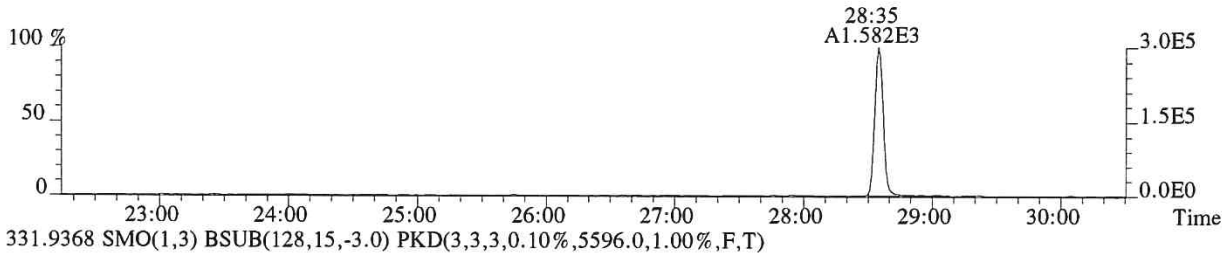


013360

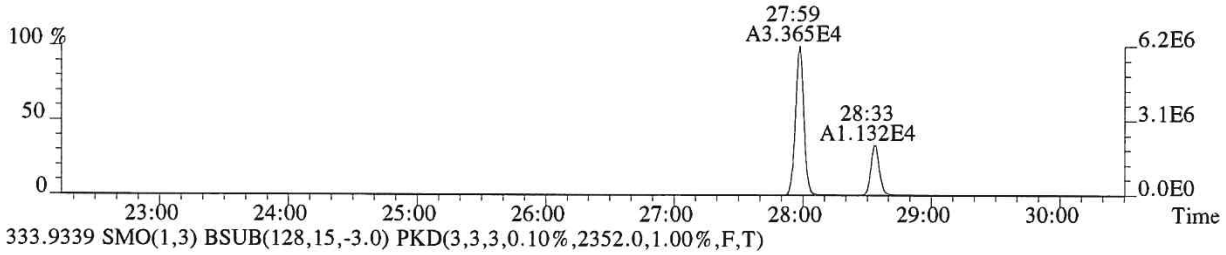
File:P519364 #1-587 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



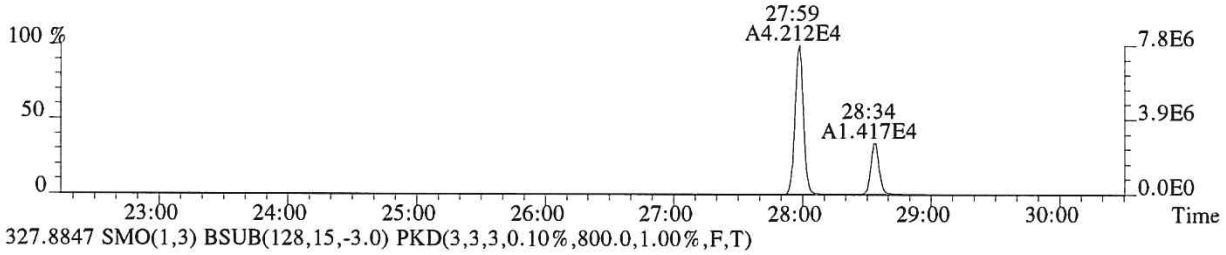
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



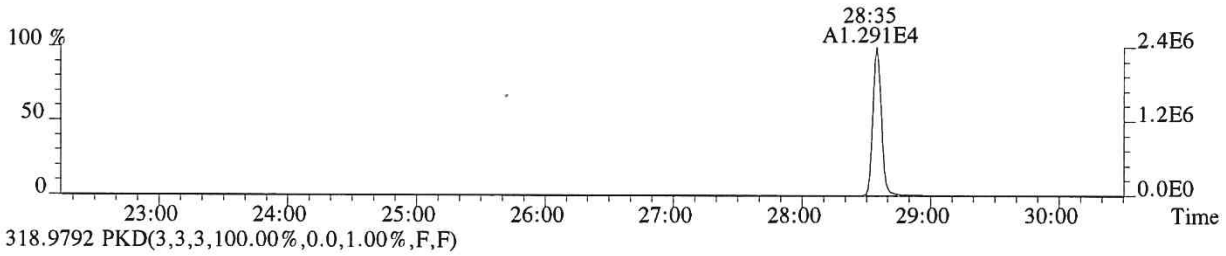
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5596.0,1.00%,F,T)



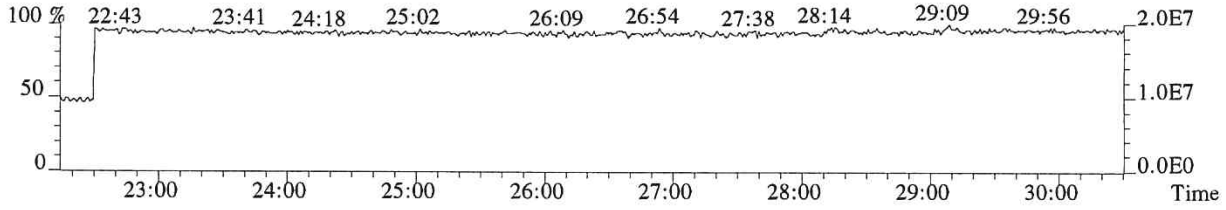
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2352.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)

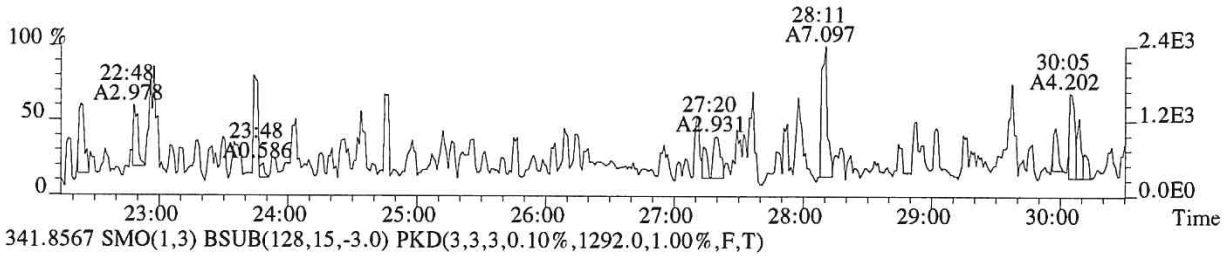


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

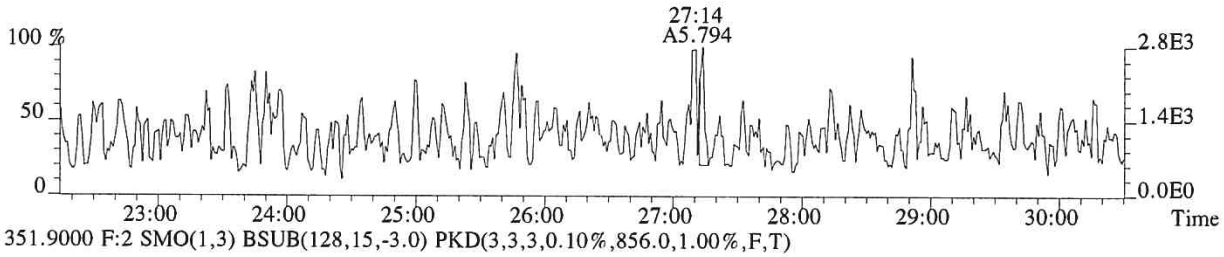


013361

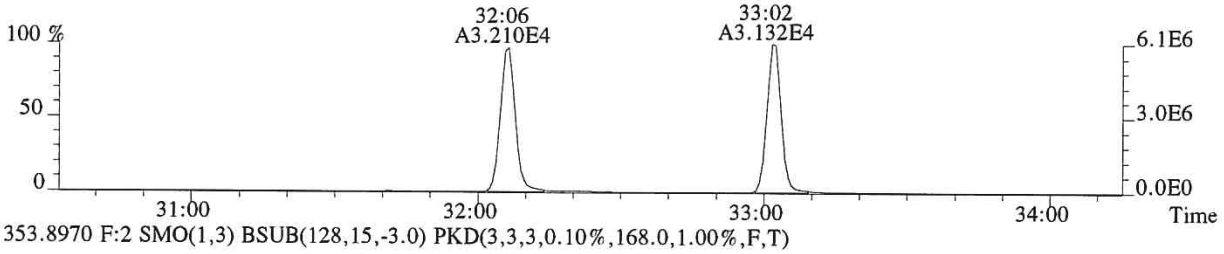
File:P519364 #1-587 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



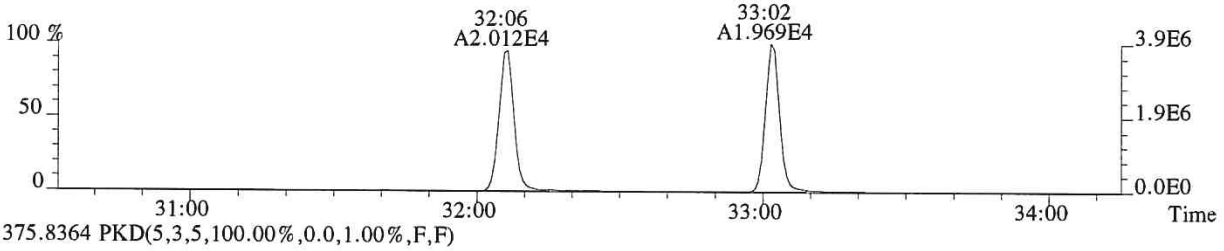
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



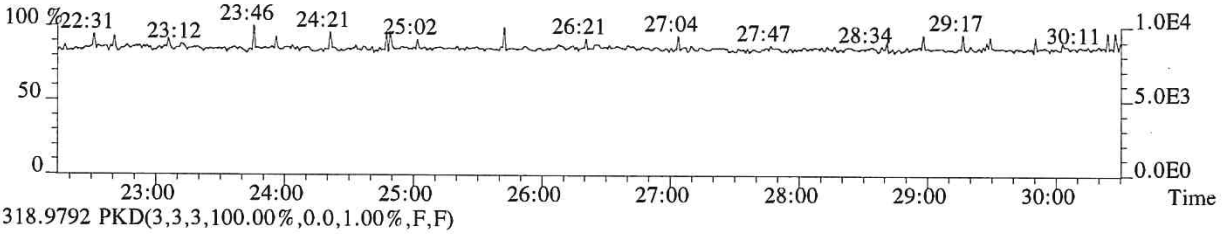
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



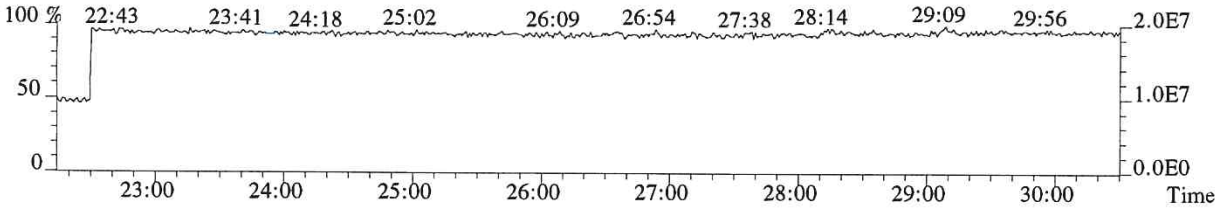
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

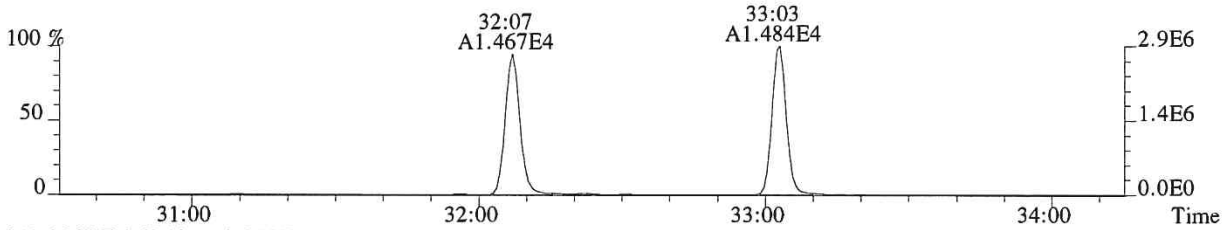


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

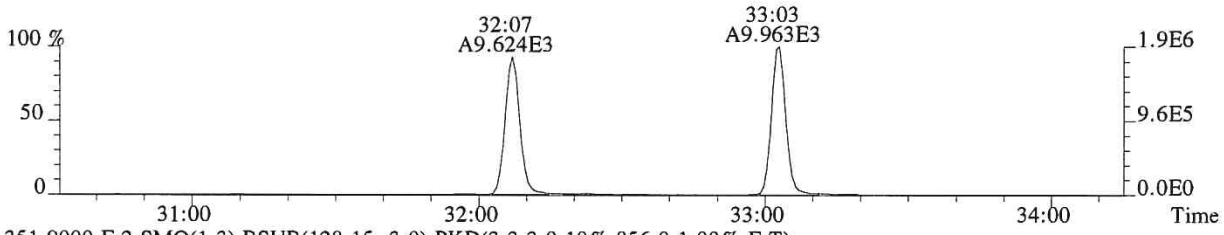


013362

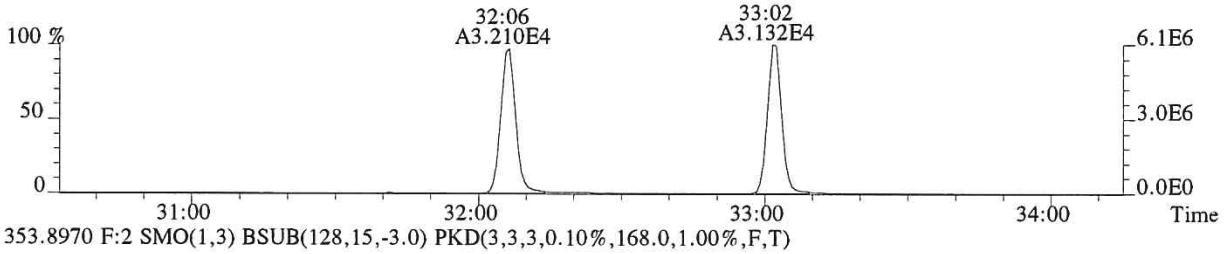
File:P519364 #1-335 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



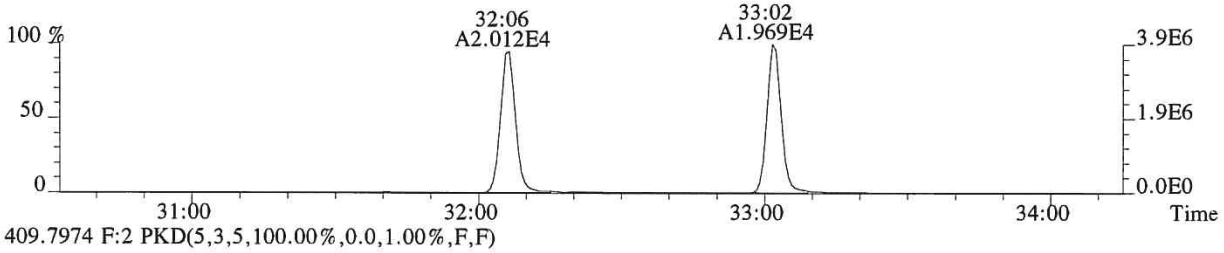
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1672.0,1.00%,F,T)



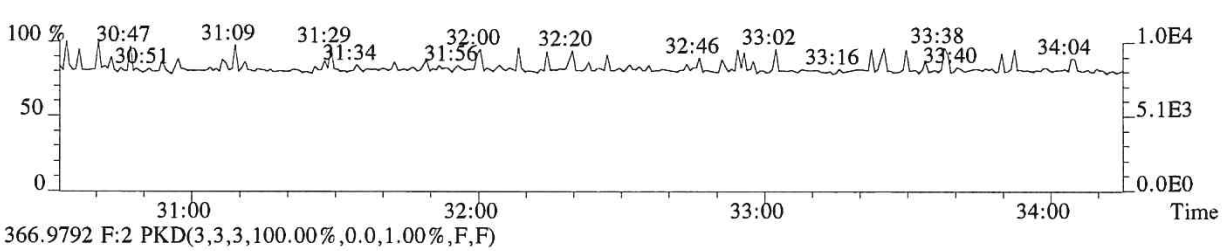
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



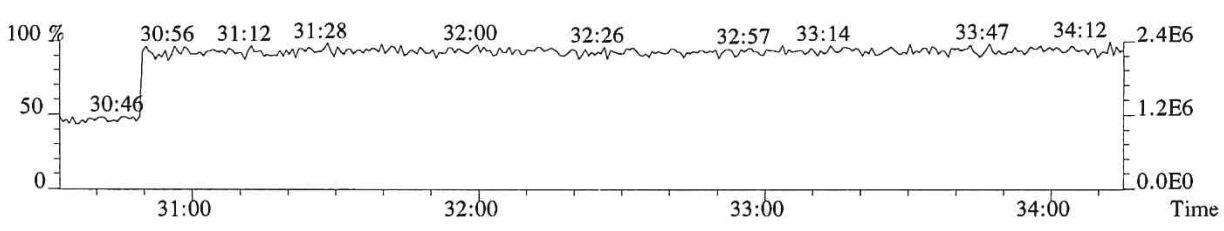
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



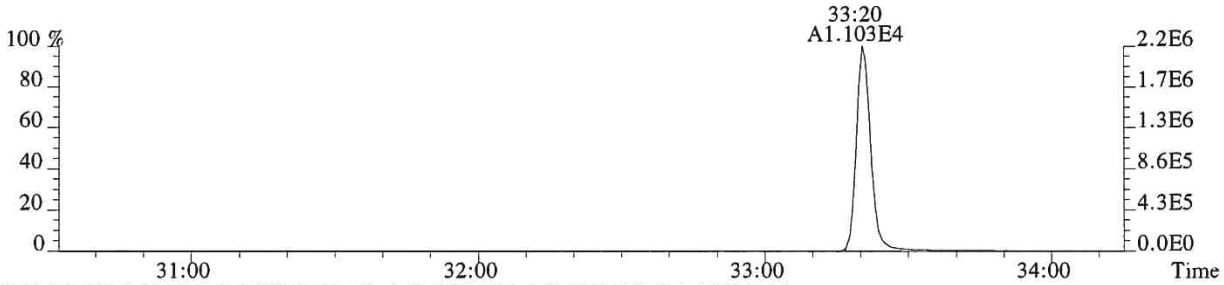
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



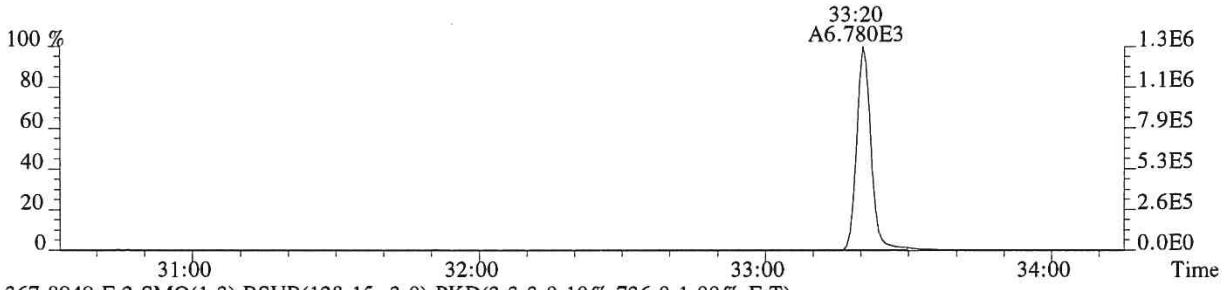
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



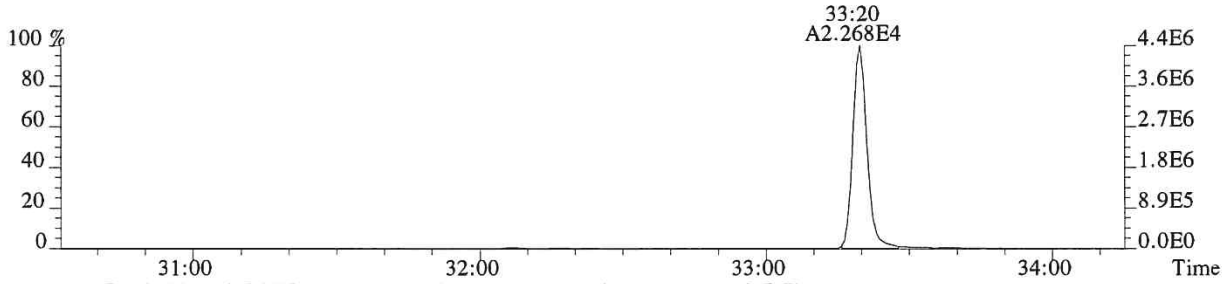
File:P519364 #1-335 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



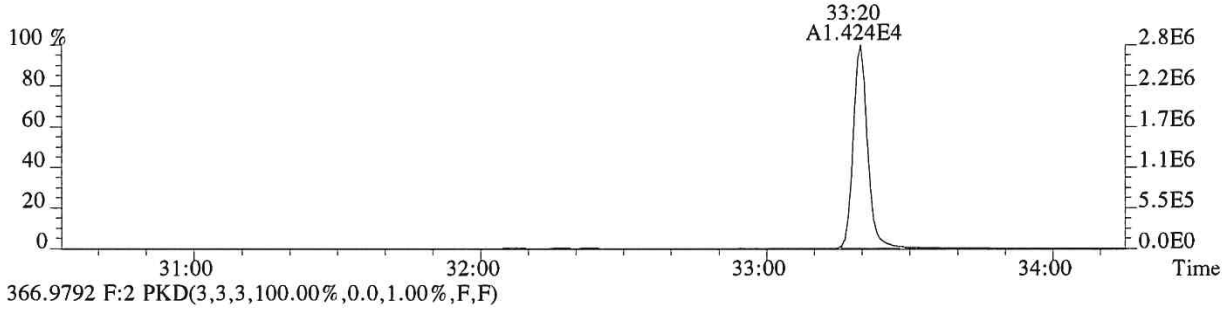
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



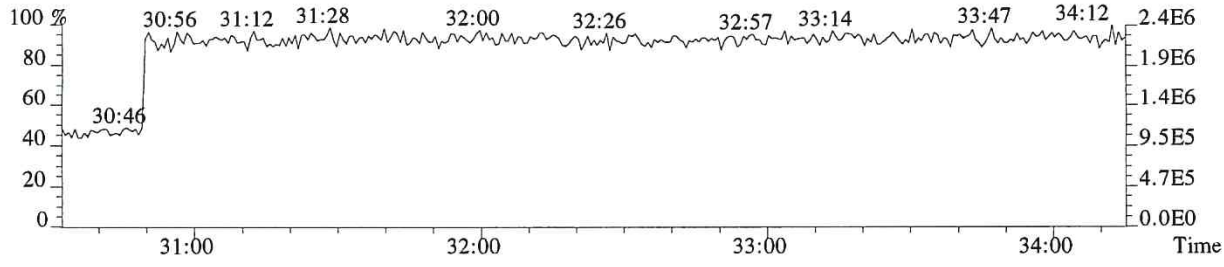
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)

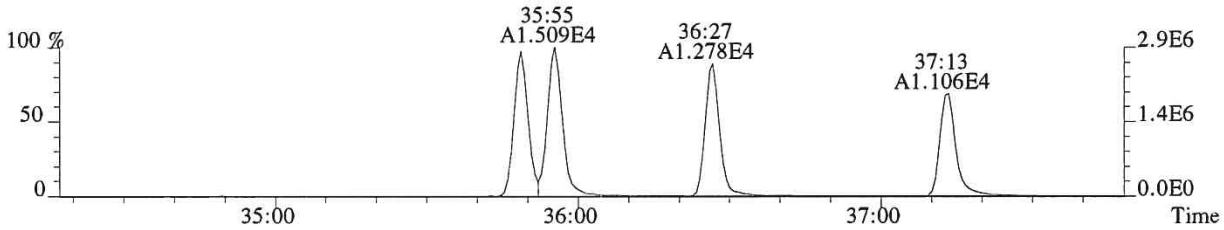


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

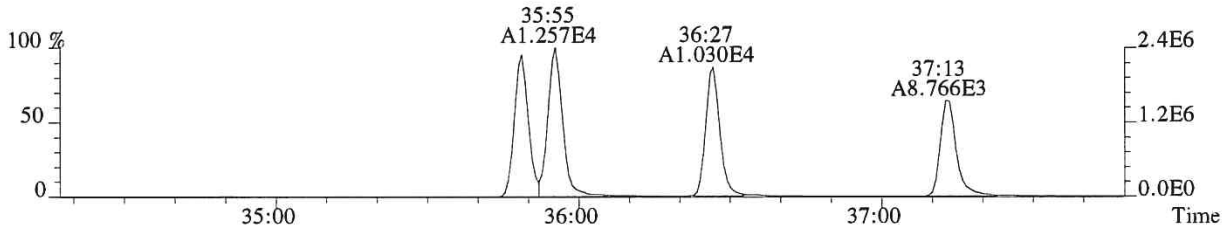


013364

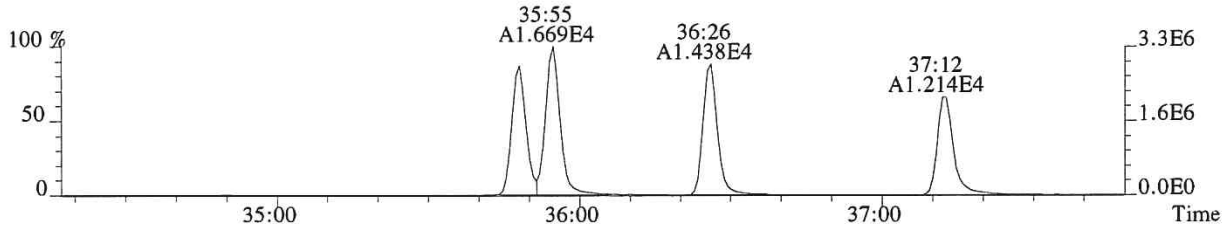
File:P519364 #1-317 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



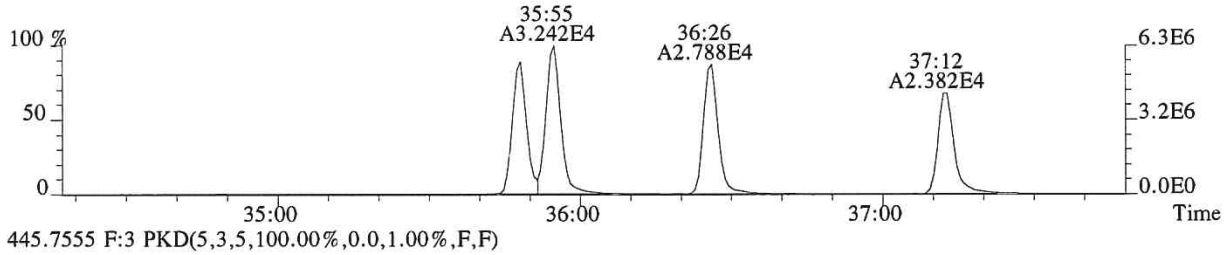
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



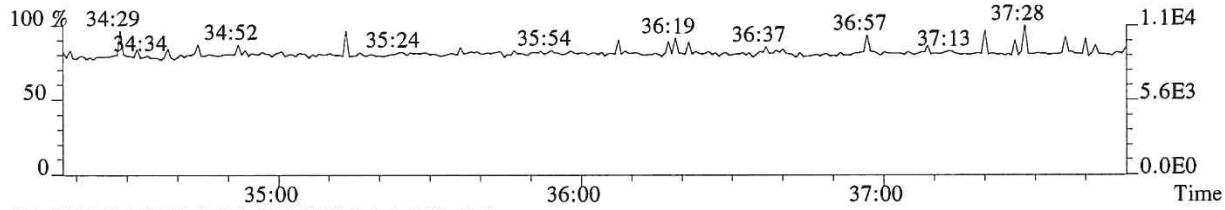
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



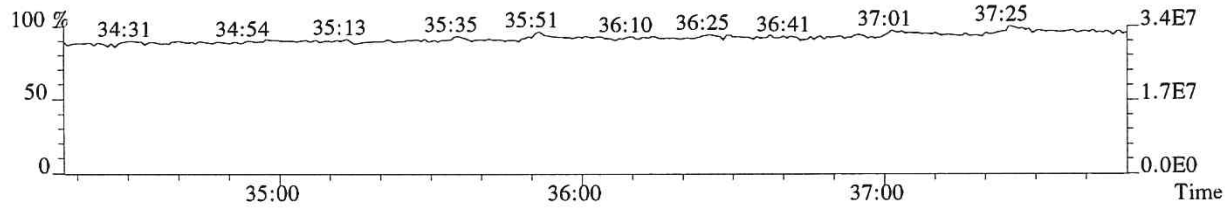
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

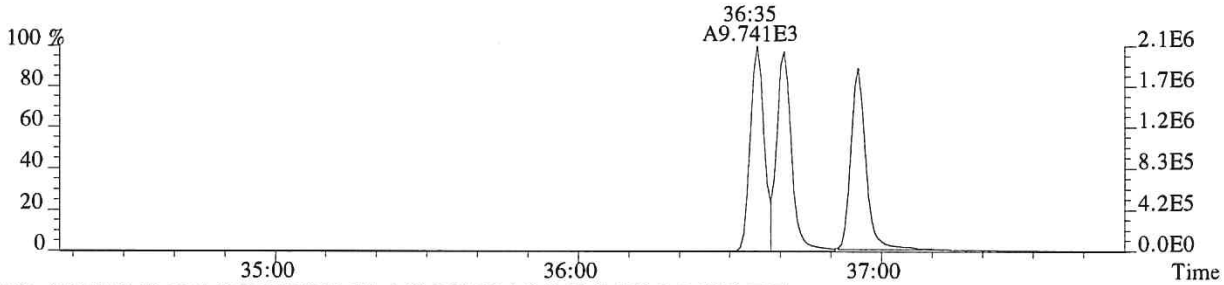


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

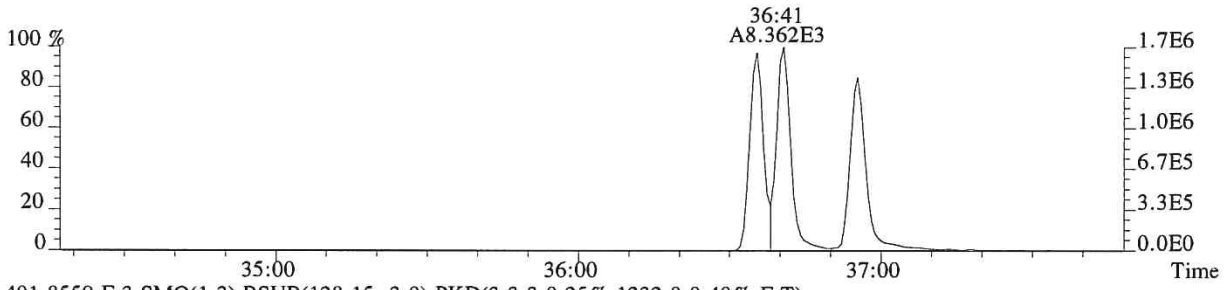


013365

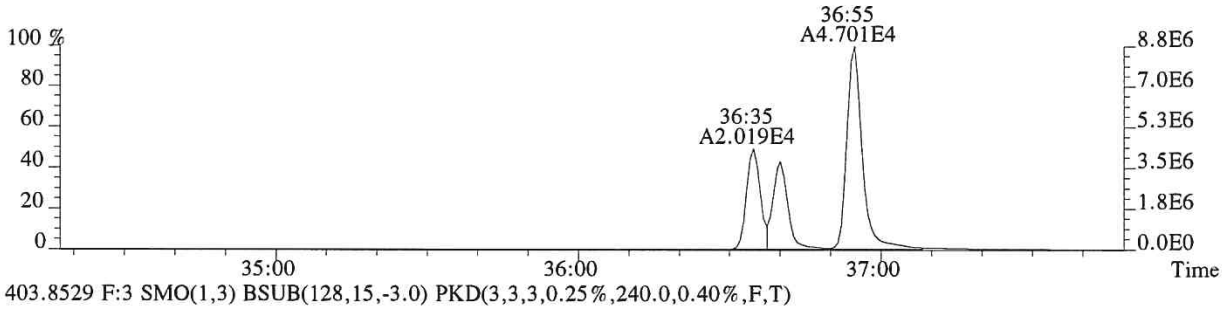
File:P519364 #1-317 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



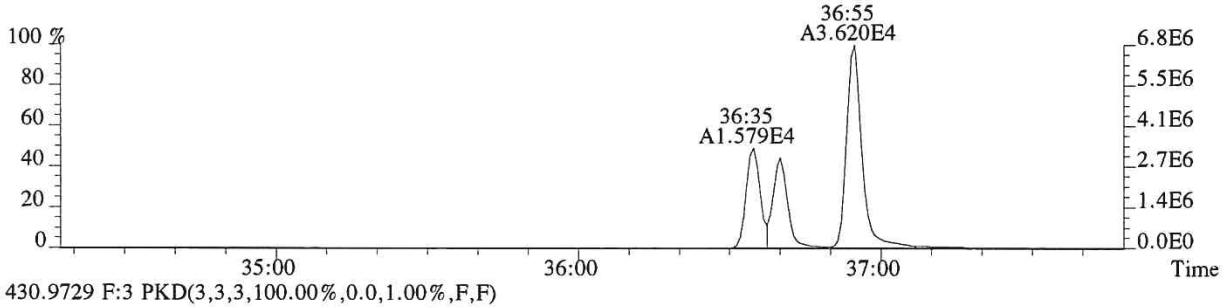
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.40%,F,T)



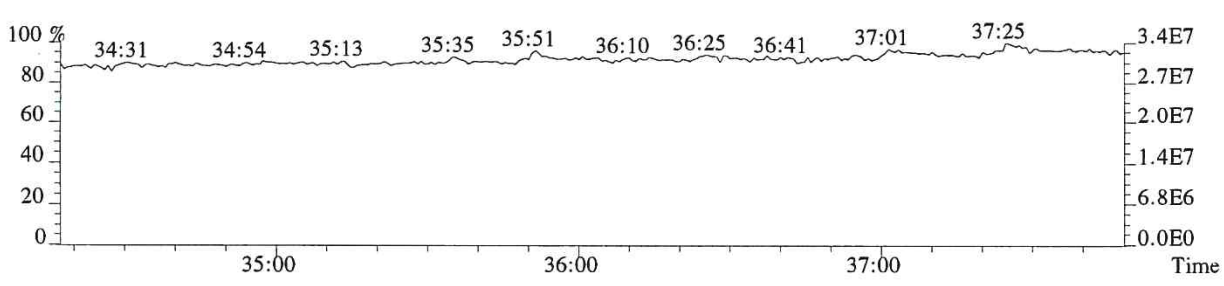
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



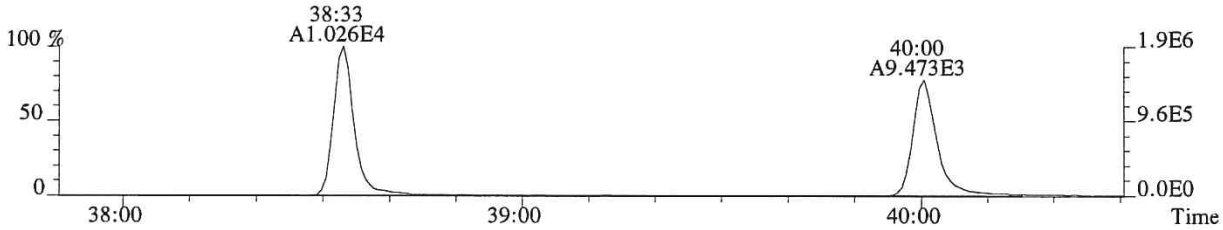
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



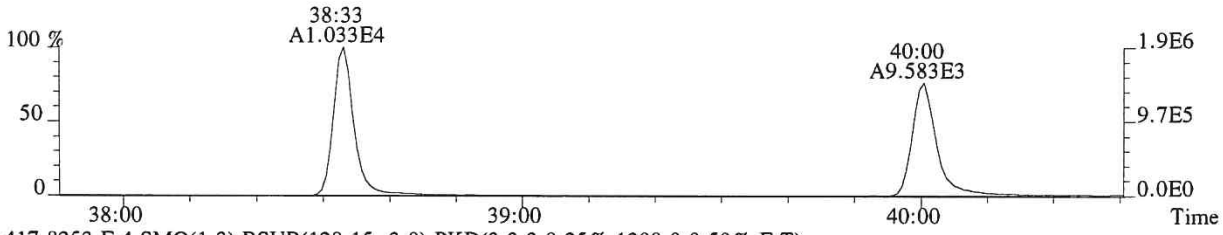
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



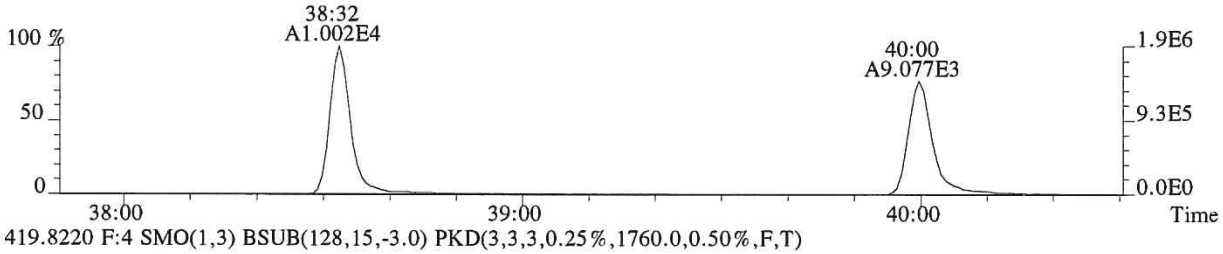
File:P519364 #1-241 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.50%,F,T)



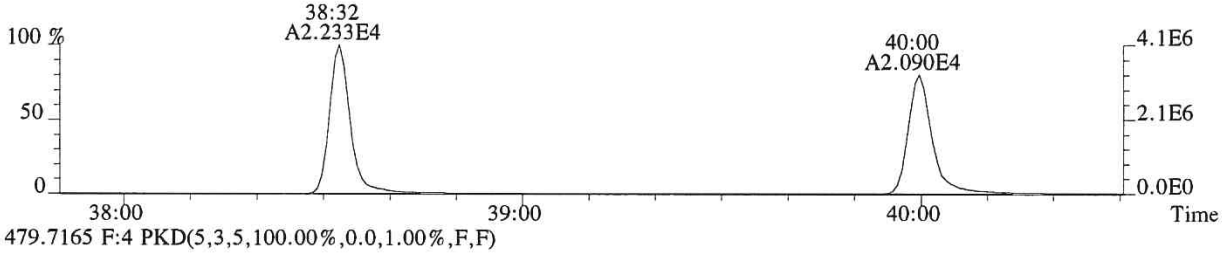
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2012.0,0.50%,F,T)



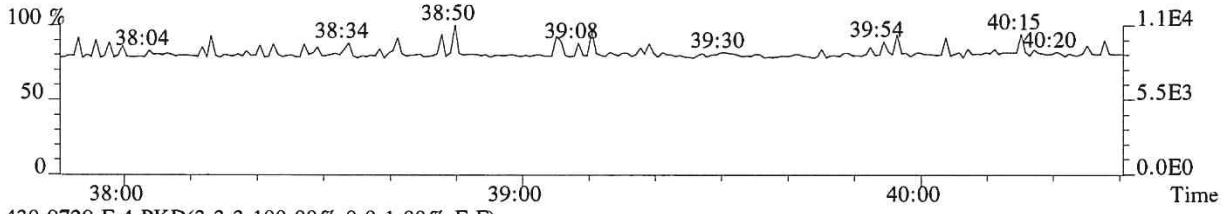
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.50%,F,T)



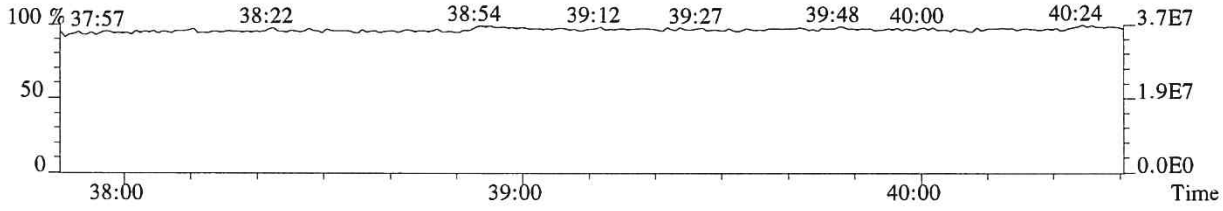
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

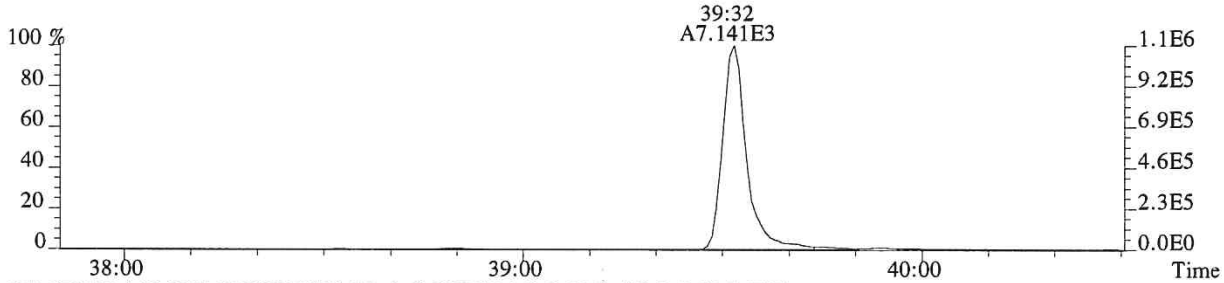


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

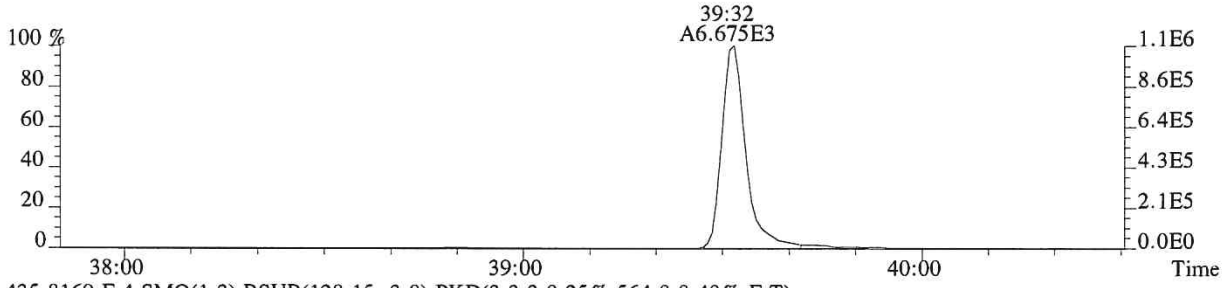


013367

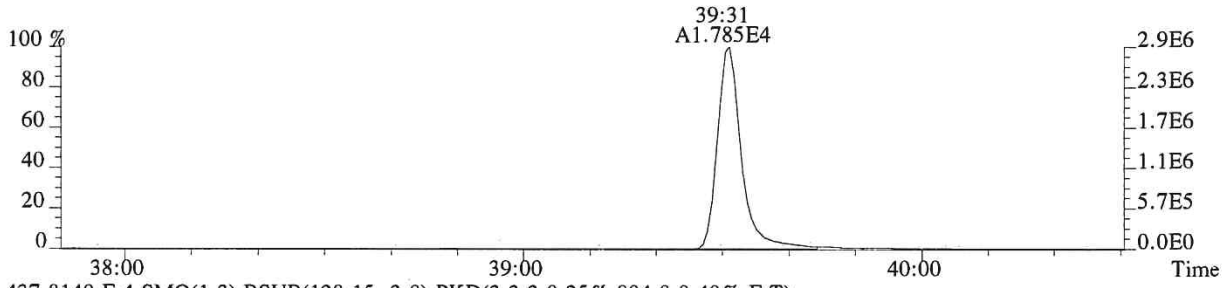
File:P519364 #1-241 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



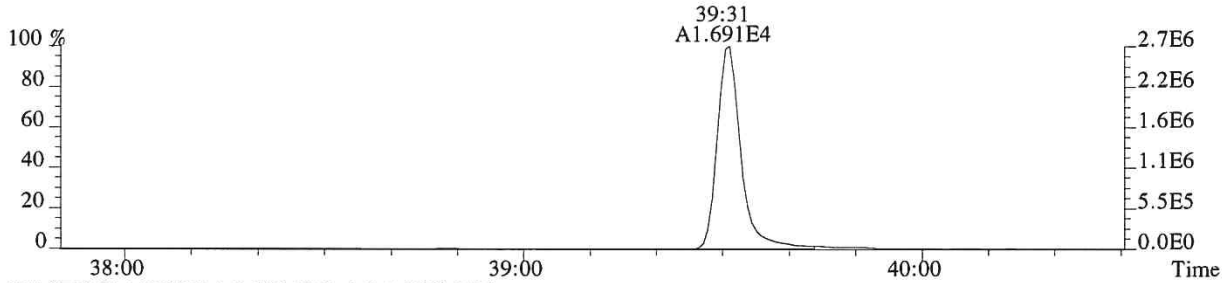
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



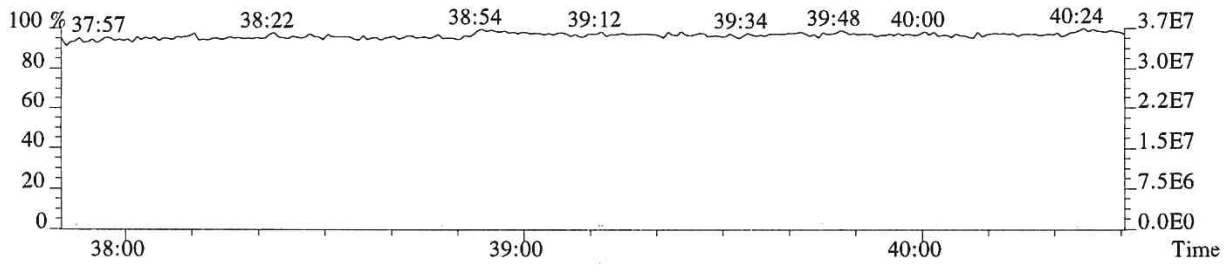
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



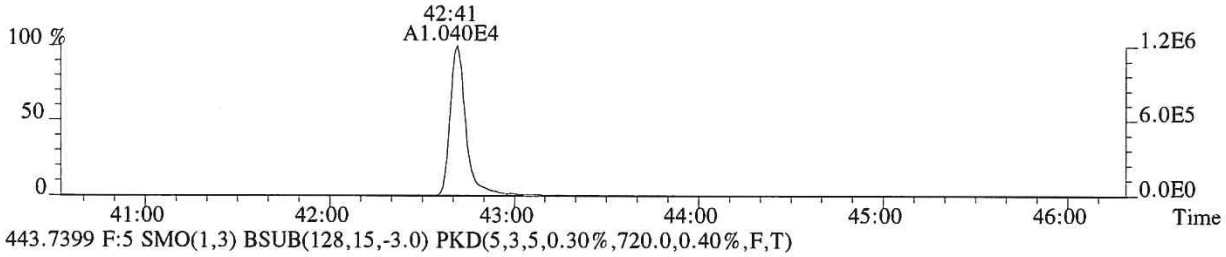
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



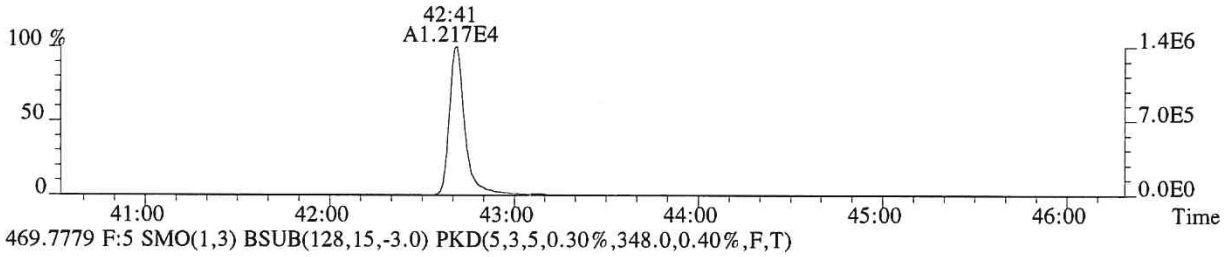
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



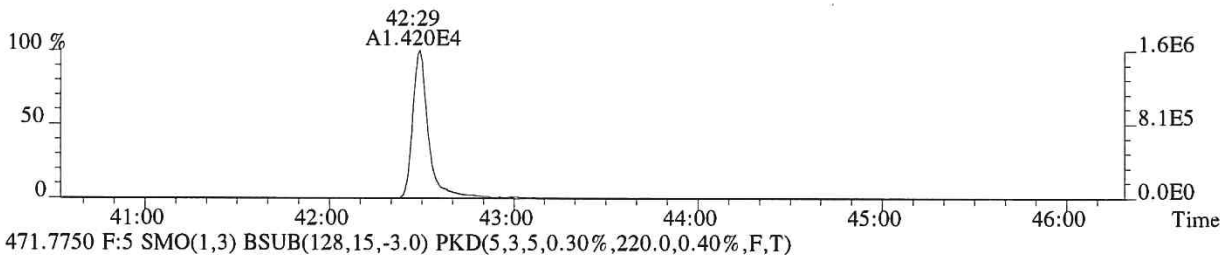
File:P519364 #1-520 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



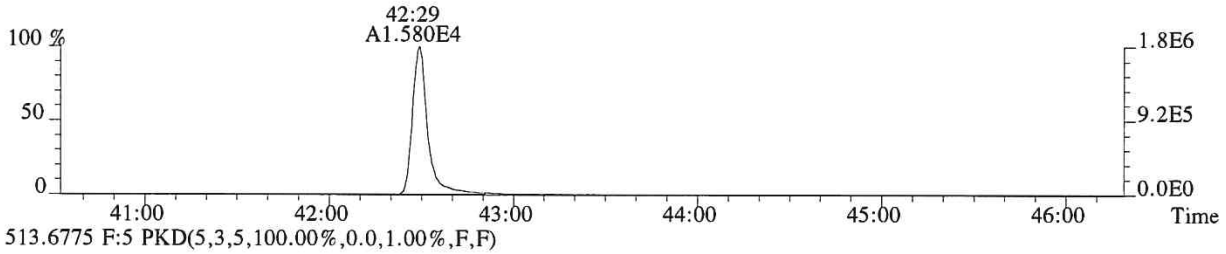
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,720.0,0.40%,F,T)



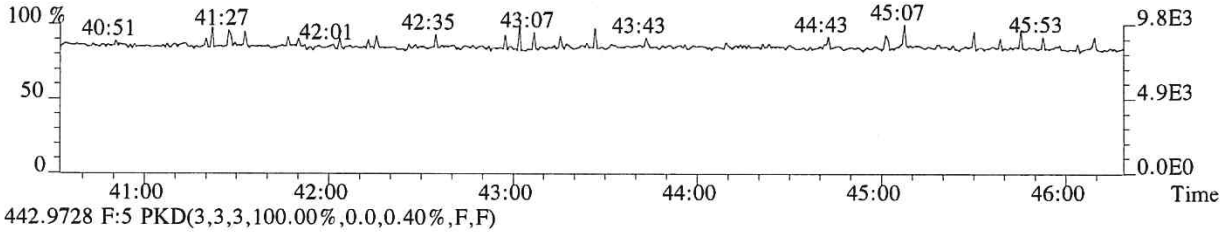
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



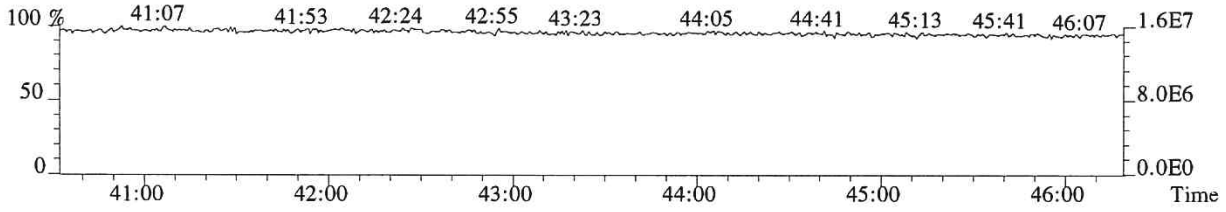
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

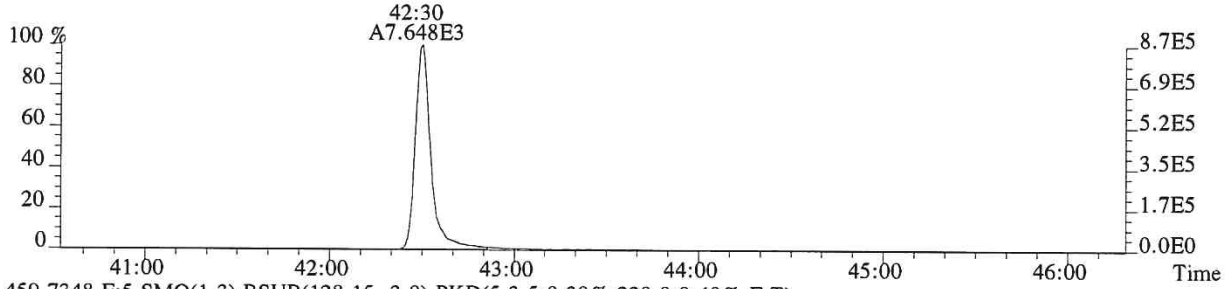


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

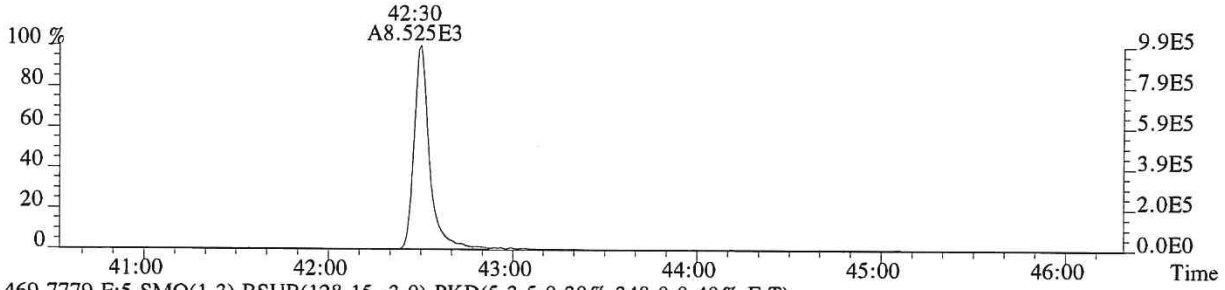


013369

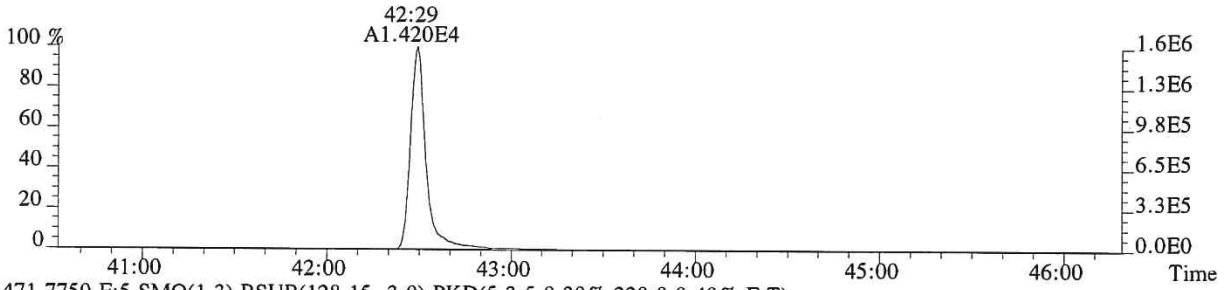
File:P519364 #1-520 Acq:11-DEC-2018 21:56:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800488-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



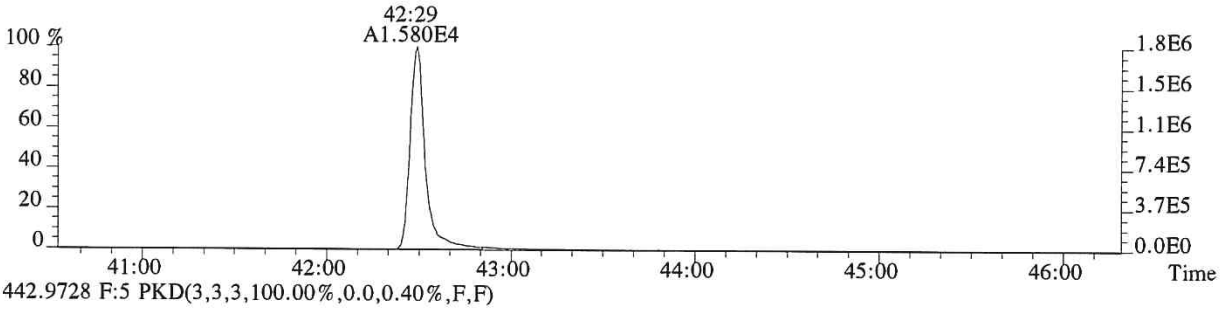
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



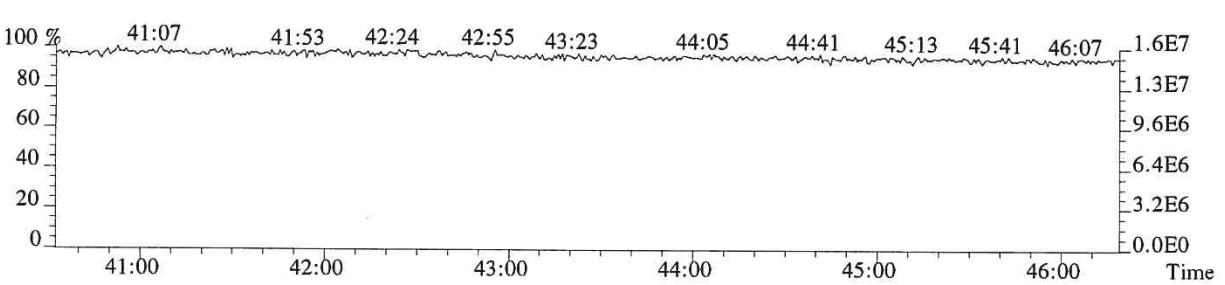
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



013370

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P616043 Samp: 1 Inj: 1 Acquired: 11-DEC-18 12:27:41
Processed: 12-DEC-18 16:11:27 Sample ID: EQ1800499-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	1.001e+01	8.252e+00	1.21	no	yes	1.112
17	Unk	OCDD	41:42	3.477e+01	5.631e+01	0.62	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:30	1.477e+04	1.886e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	2.829e+04	1.792e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:49	2.645e+04	1.677e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:30	1.254e+04	2.391e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	1.500e+04	2.734e+04	0.55	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:07	1.123e+04	2.178e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	1.095e+04	2.163e+04	0.51	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	9.248e+03	1.999e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	7.635e+03	1.720e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:19	8.050e+03	1.075e+04	0.75	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:05	2.175e+04	1.442e+04	1.51	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:15	1.828e+04	1.465e+04	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	1.791e+04	1.402e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	1.664e+04	1.628e+04	1.02	yes	no	0.857
32	IS	13C-OCDD	41:41	1.180e+04	1.330e+04	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:41	2.703e+04	3.456e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	3.937e+04	3.054e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:21	1.144e+04				no	1.086

$$\text{OCDD} = \frac{(3.477e+01 + 5.631e+01) \times 4000\ \text{pg} \times 1}{(1.180e+04 + 1.330e+04) \times \text{g} \times / 100 \times 1.157} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P616043 Samp: 1 Inj: 1 Acquired: 11-DEC-18 12:27:41
Processed: 12-DEC-18 16:11:27 LAB. ID: EQ1800499-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.45e+03	*	*	4.19e+03	*
2	1,2,3,7,8-PeCDF	*	8.92e+02	*	*	1.86e+03	*
3	2,3,4,7,8-PeCDF	*	8.92e+02	*	*	1.86e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.64e+03	*	*	9.20e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.64e+03	*	*	9.20e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.64e+03	*	*	9.20e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.64e+03	*	*	9.20e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	8.68e+02	*	*	5.76e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	8.68e+02	*	*	5.76e+02	*
10	OCDF	*	9.72e+02	*	*	2.94e+03	*
11	2,3,7,8-TCDD	*	4.27e+03	*	*	1.78e+03	*
12	1,2,3,7,8-PeCDD	*	1.80e+03	*	*	8.08e+02	*
13	1,2,3,4,7,8-HxCDD	*	9.24e+02	*	*	1.27e+03	*
14	1,2,3,6,7,8-HxCDD	*	9.24e+02	*	*	1.27e+03	*
15	1,2,3,7,8,9-HxCDD	*	9.24e+02	*	*	1.27e+03	*
16	1,2,3,4,6,7,8-HpCDD	3.12e+03	6.00e+02	5.2e+00	2.49e+03	6.20e+02	4.0e+00
17	OCDD	5.96e+03	6.08e+02	9.8e+00	1.10e+04	4.16e+02	2.6e+01
18	13C-2,3,7,8-TCDF	2.35e+06	1.06e+04	2.2e+02	2.98e+06	1.02e+04	2.9e+02
19	13C-1,2,3,7,8-PeCDF	4.84e+06	1.86e+03	2.6e+03	3.09e+06	5.84e+02	5.3e+03
20	13C-2,3,4,7,8-PeCDF	4.68e+06	1.86e+03	2.5e+03	2.98e+06	5.84e+02	5.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.64e+06	9.36e+02	2.8e+03	5.02e+06	2.52e+03	2.0e+03
22	13C-1,2,3,6,7,8-HxCDF	2.94e+06	9.36e+02	3.1e+03	5.22e+06	2.52e+03	2.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.26e+06	9.36e+02	2.4e+03	4.44e+06	2.52e+03	1.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.04e+06	9.36e+02	2.2e+03	3.91e+06	2.52e+03	1.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.89e+06	4.73e+03	4.0e+02	4.15e+06	3.78e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+06	4.73e+03	3.0e+02	3.13e+06	3.78e+03	8.3e+02
27	13C-2,3,7,8-TCDD	1.35e+06	1.38e+04	9.8e+01	1.78e+06	5.92e+03	3.0e+02
28	13C-1,2,3,7,8-PeCDD	3.84e+06	2.64e+03	1.5e+03	2.50e+06	2.18e+03	1.1e+03
29	13C-1,2,3,4,7,8-HxCDD	3.95e+06	1.54e+03	2.6e+03	3.20e+06	1.14e+03	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.59e+06	1.54e+03	2.3e+03	2.80e+06	1.14e+03	2.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.25e+06	1.64e+03	2.0e+03	3.17e+06	7.56e+02	4.2e+03
32	13C-OCDD	1.99e+06	6.60e+02	3.0e+03	2.21e+06	6.64e+02	3.3e+03
33	13C-1,2,3,4-TCDD	4.62e+06	1.38e+04	3.3e+02	5.96e+06	5.92e+03	1.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.78e+06	1.54e+03	5.0e+03	6.00e+06	1.14e+03	5.3e+03
35	37Cl-2,3,7,8-TCDD	1.93e+06	1.23e+03	1.6e+03			

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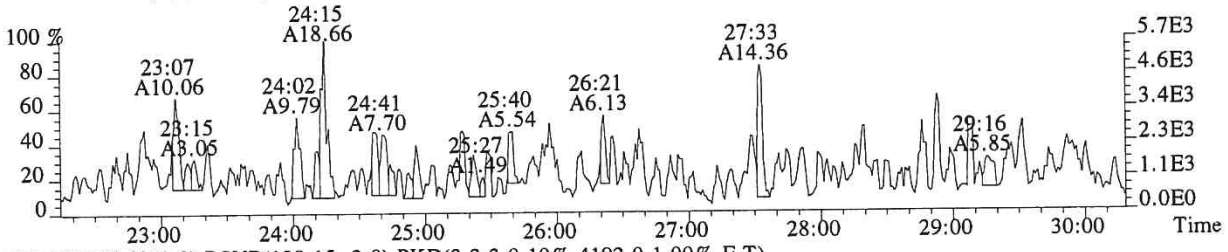
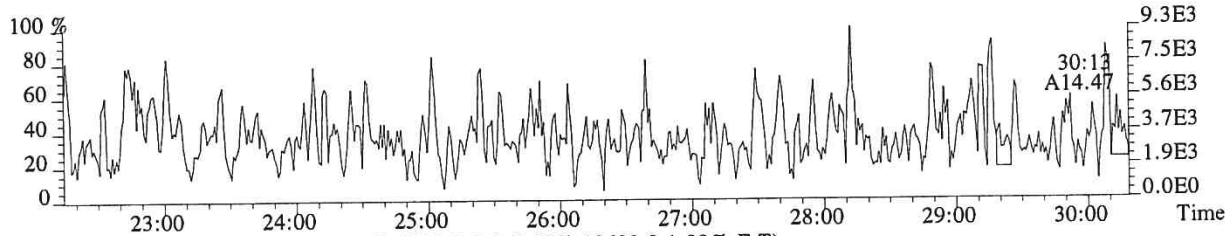
www.alsglobal.com

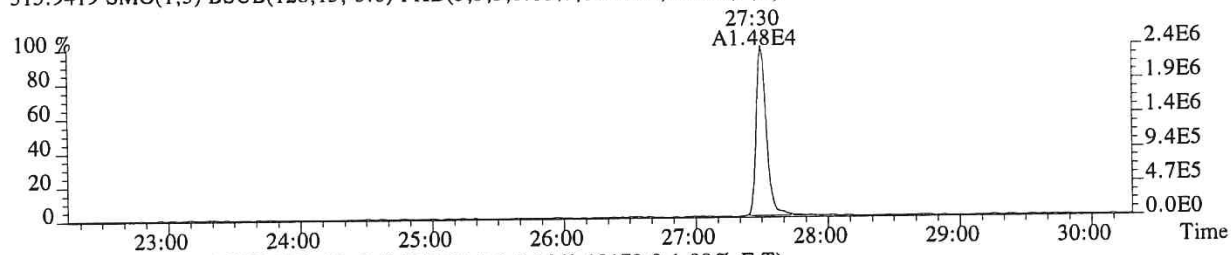
File:P616043 #1-573 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



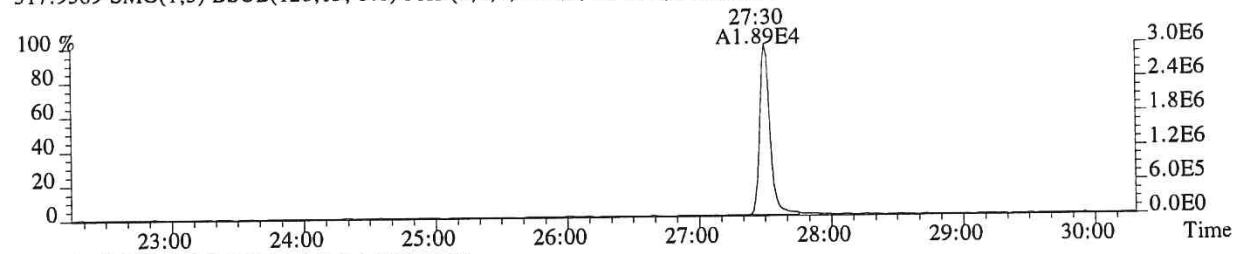
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4192.0,1.00%,F,T)



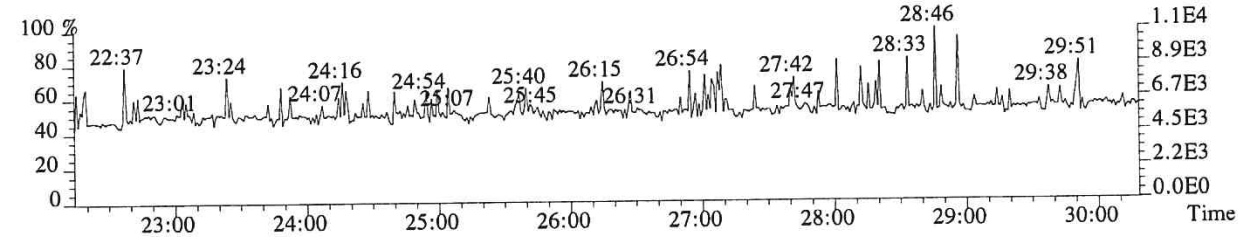
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10600.0,1.00%,F,T)



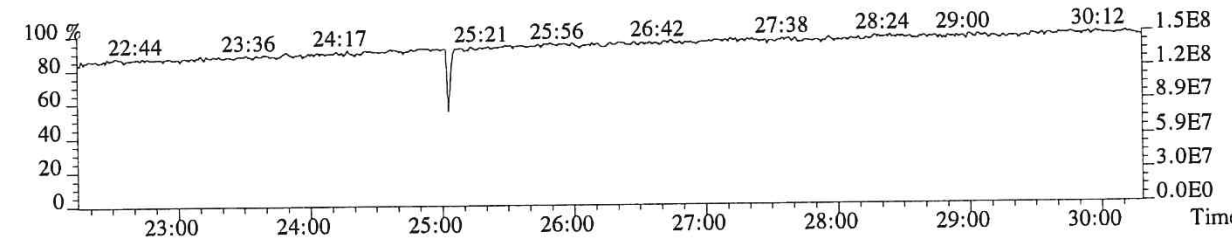
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10172.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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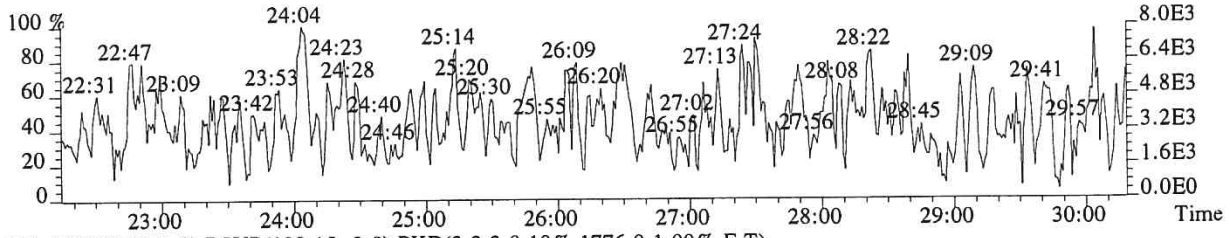
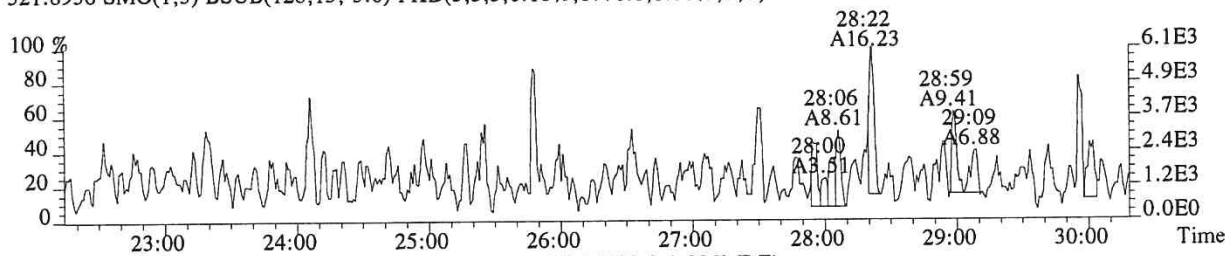
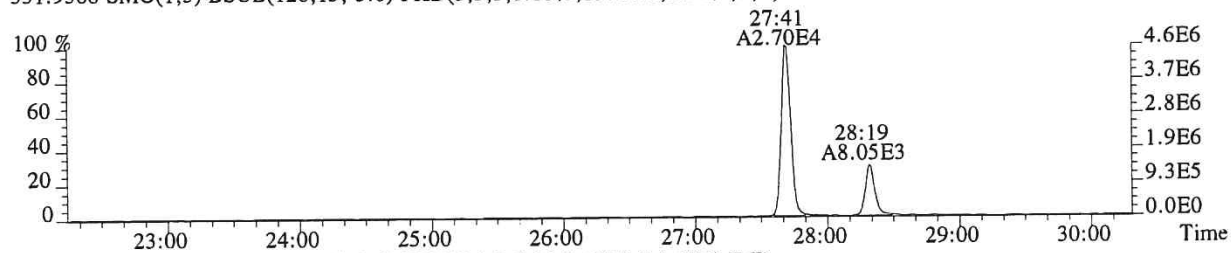
File:P616043 #1-573 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4268.0,1.00%,F,T)



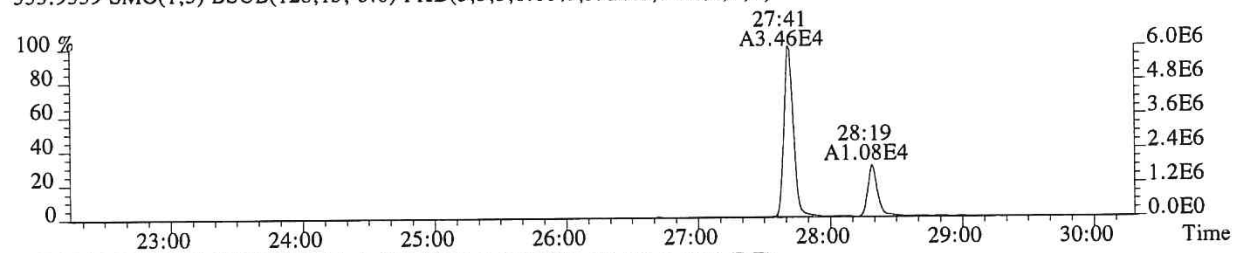
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



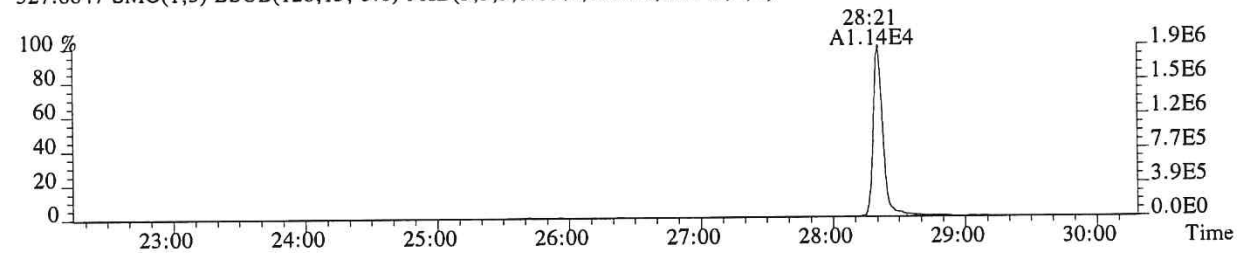
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13780.0,1.00%,F,T)



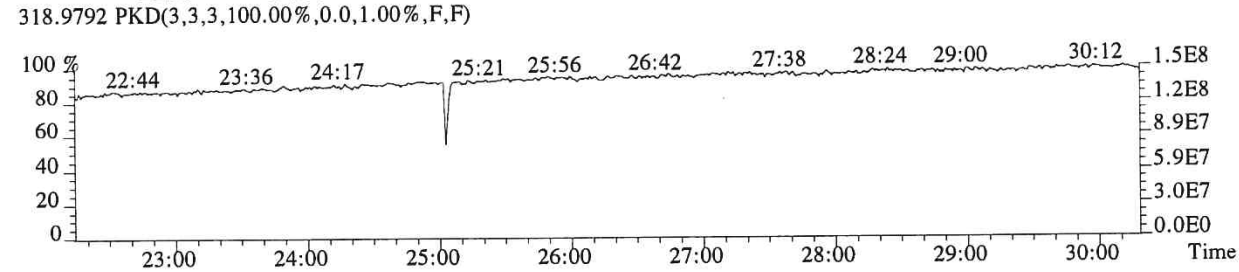
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5920.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)

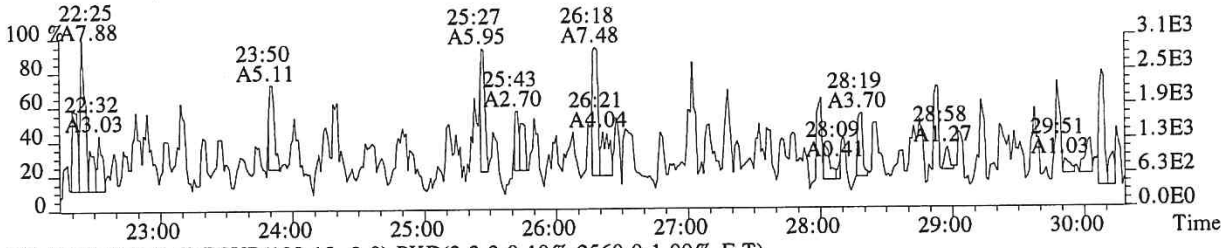


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

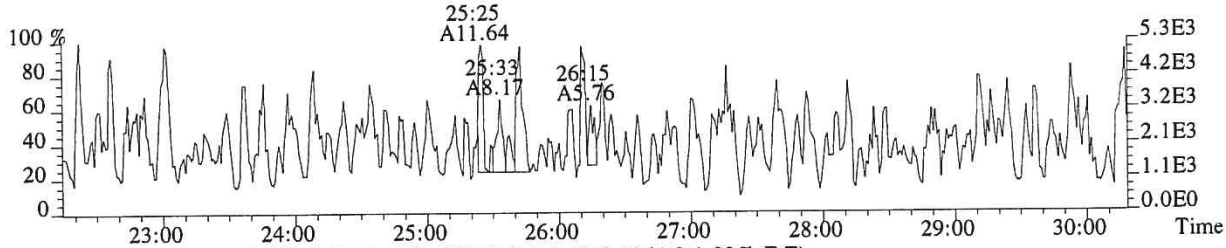


013374

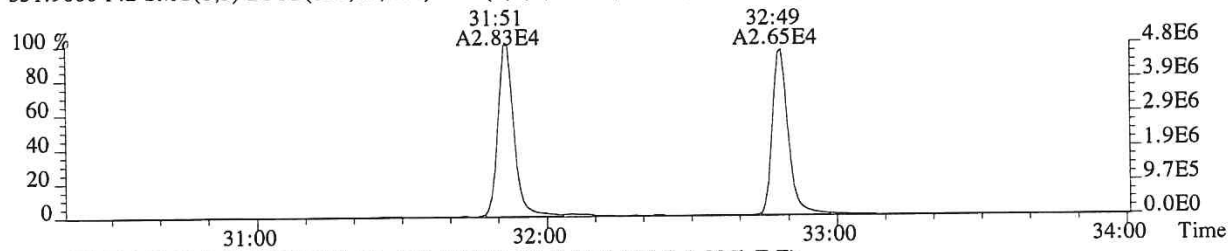
File:P616043 #1-573 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



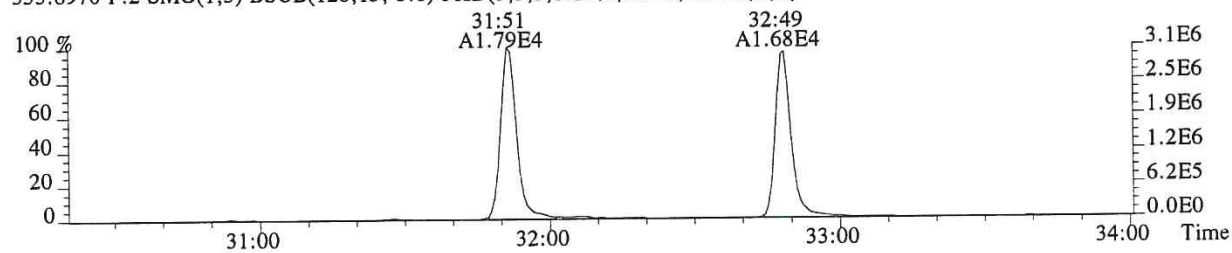
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



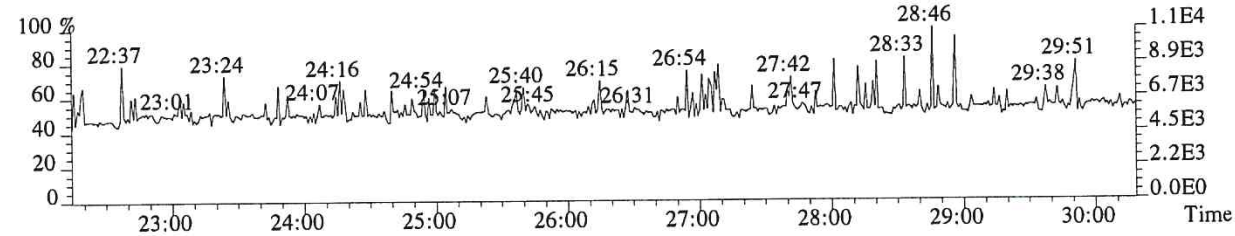
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



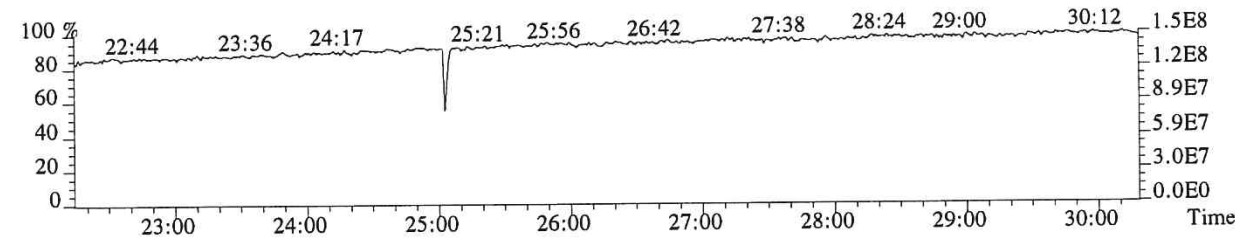
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

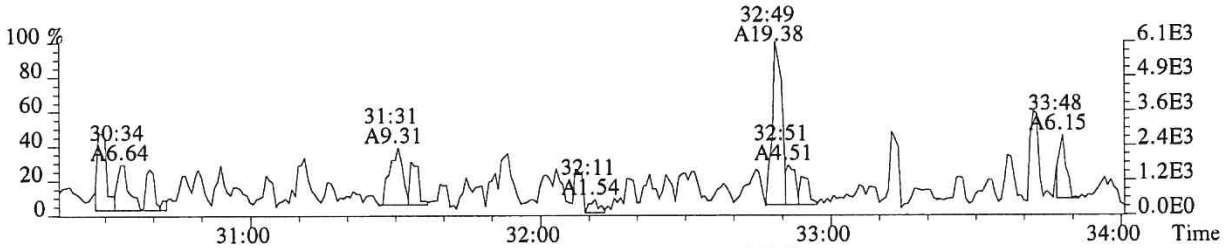


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

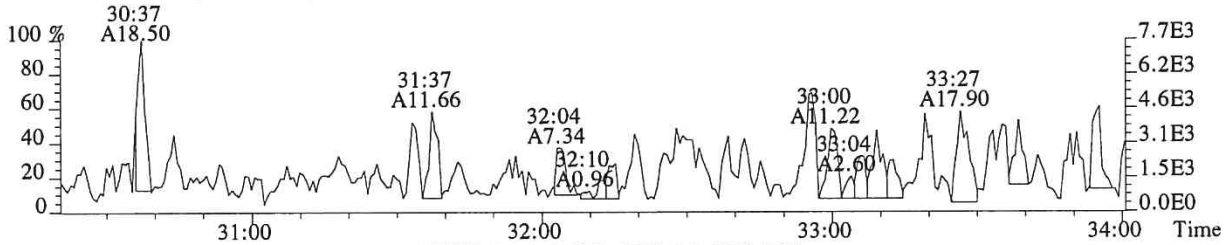


File:P616043 #1-331 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

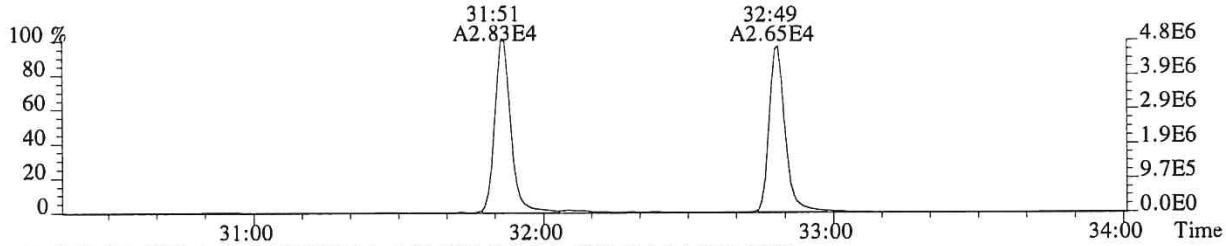
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



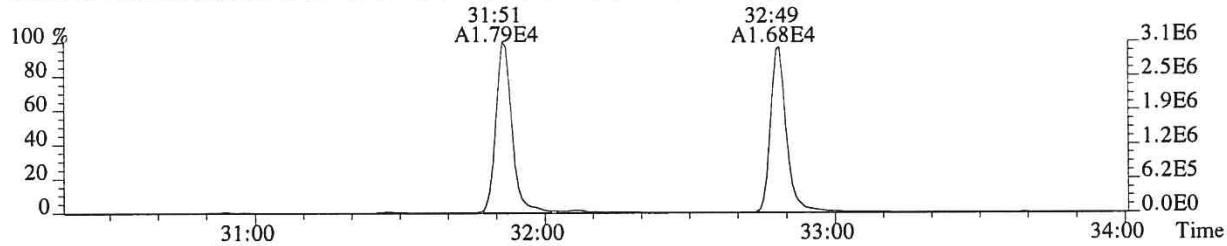
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1856.0,1.00%,F,T)



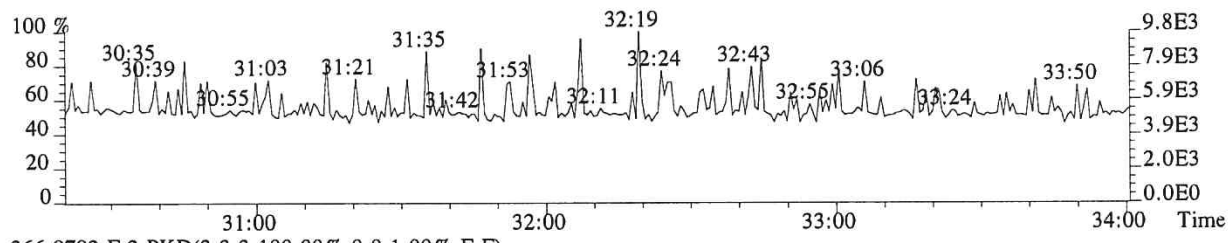
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



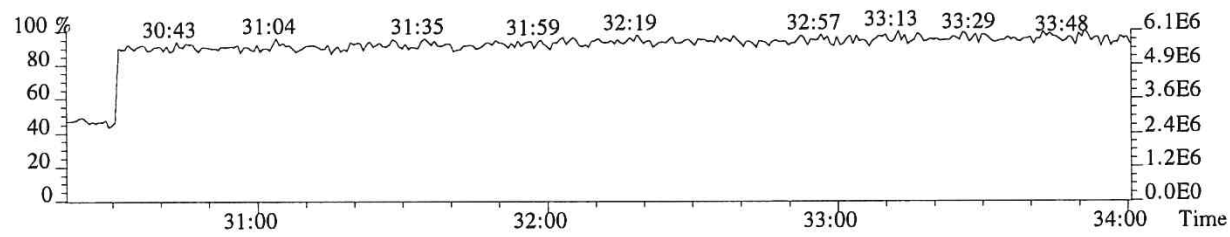
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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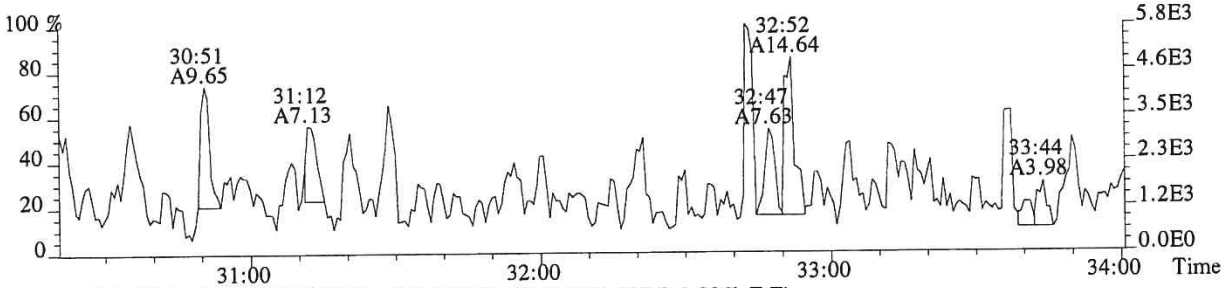
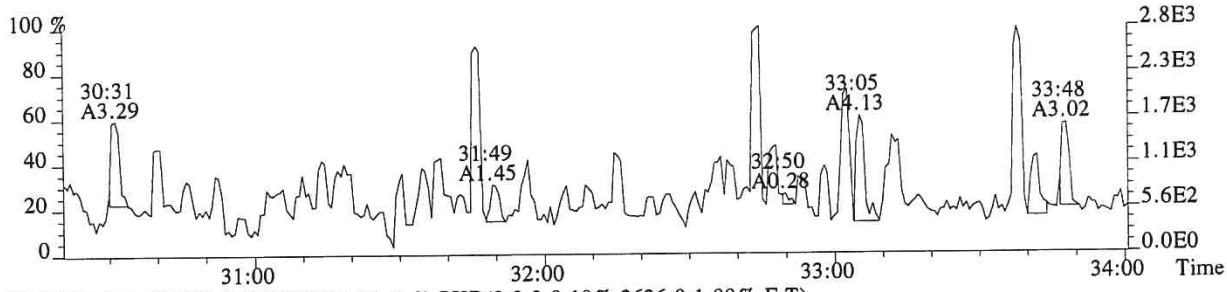
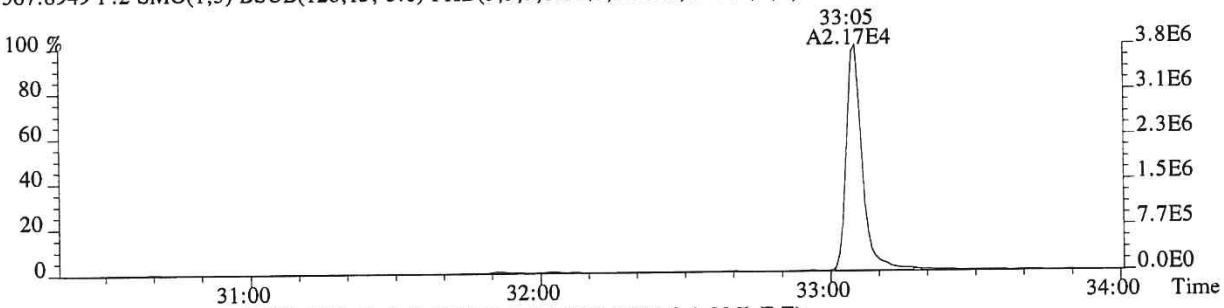
File:P616043 #1-331 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



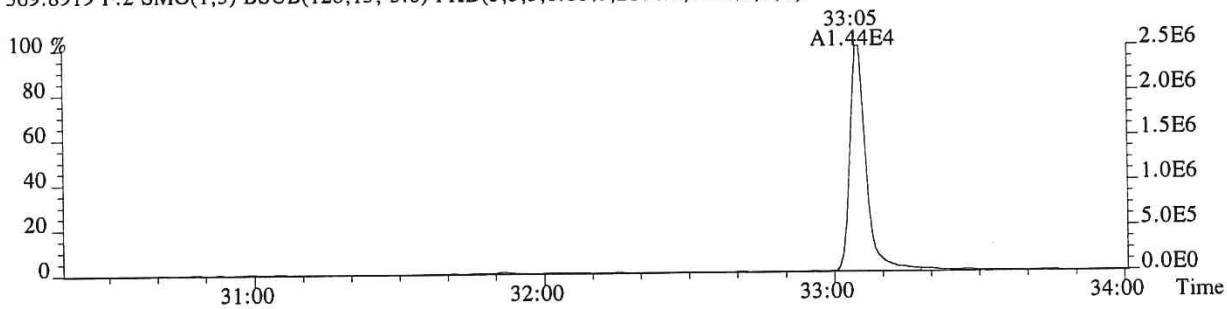
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



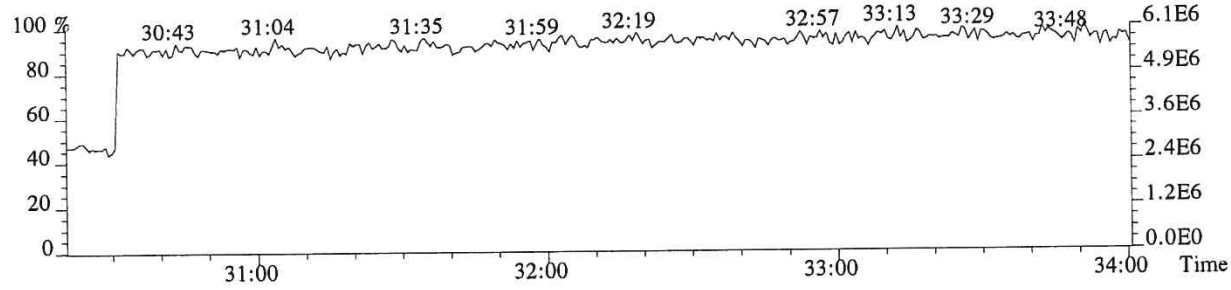
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



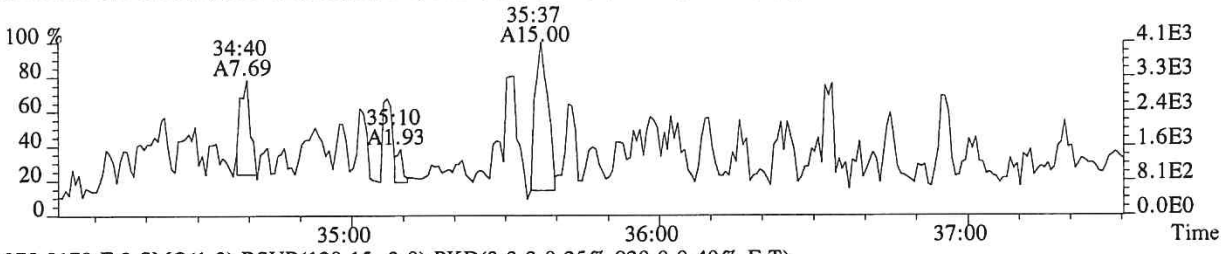
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2184.0,1.00%,F,T)



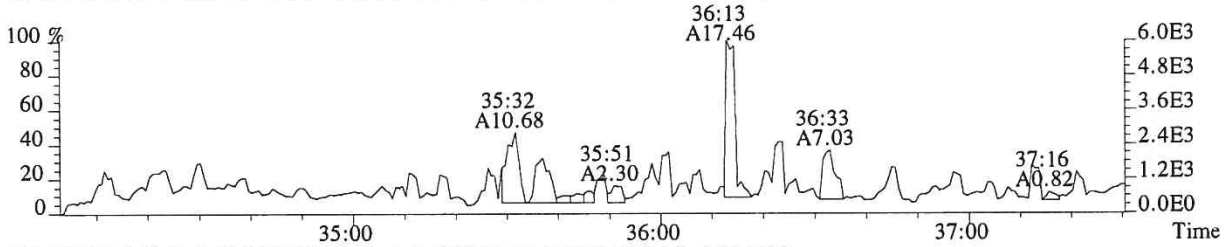
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



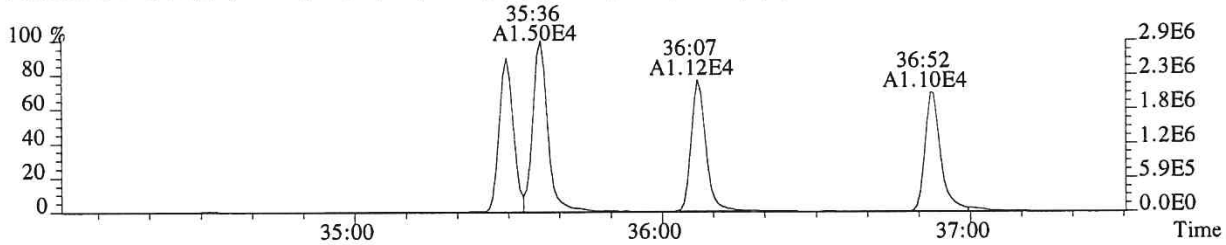
File:P616043 #1-312 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.40%,F,T)



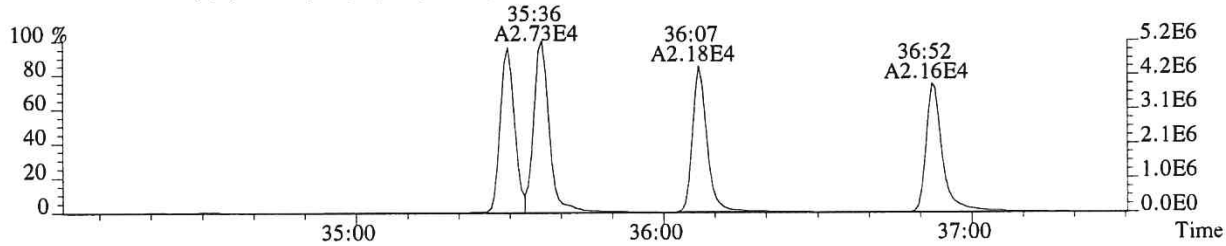
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



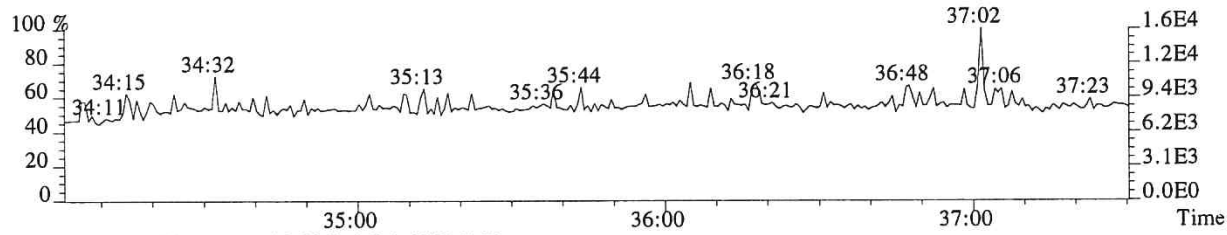
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



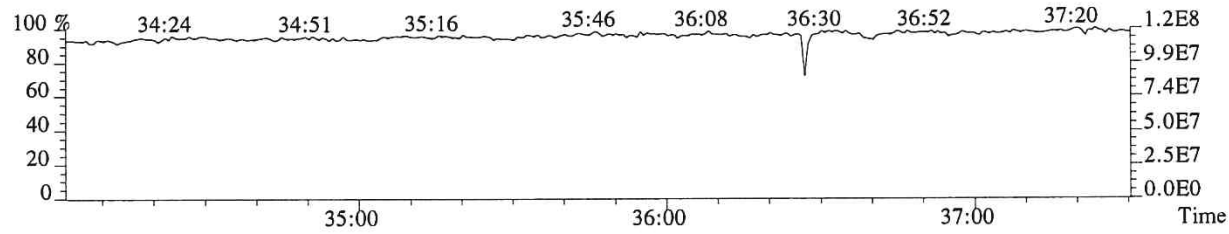
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2524.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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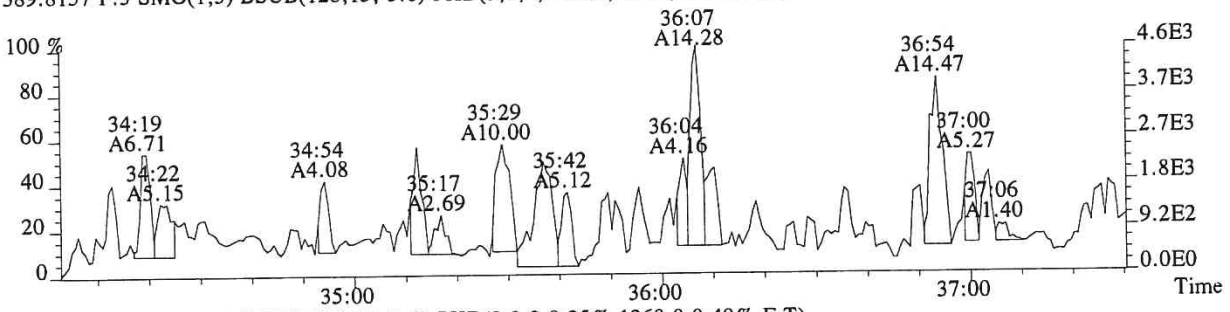
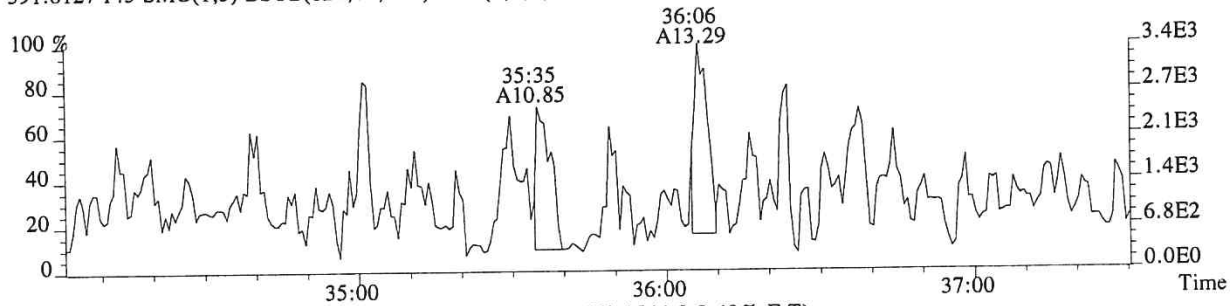
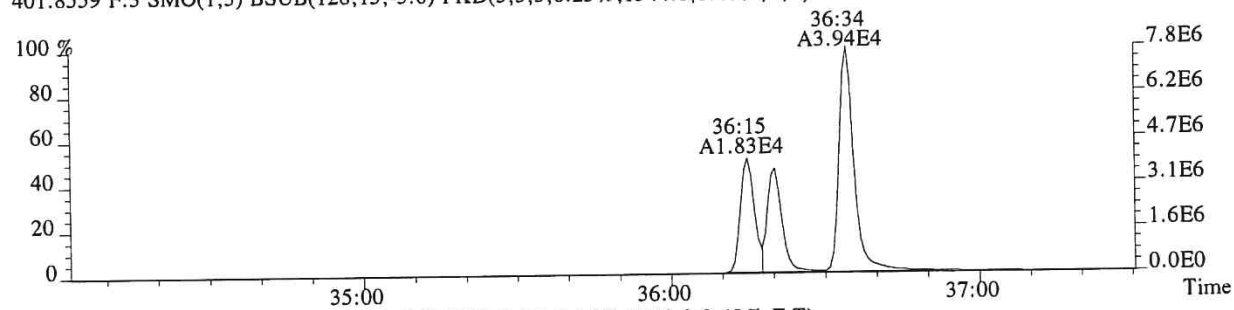
File:P616043 #1-312 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



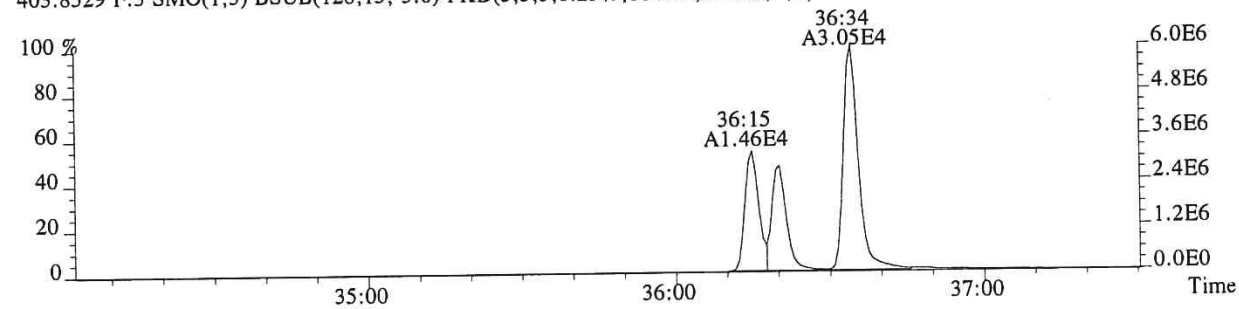
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



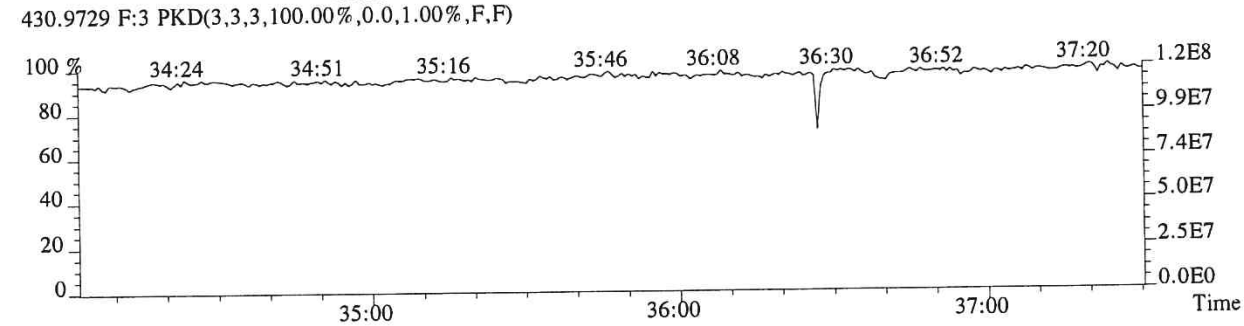
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



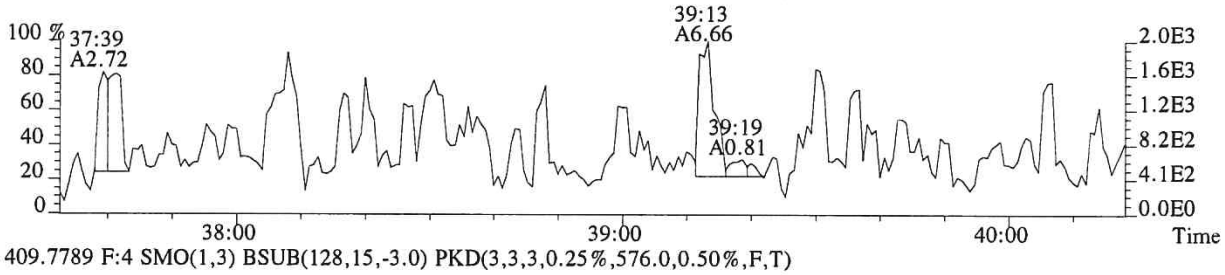
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



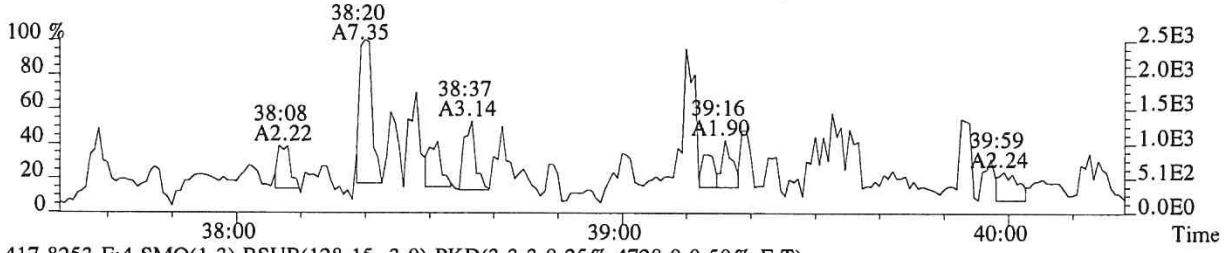
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



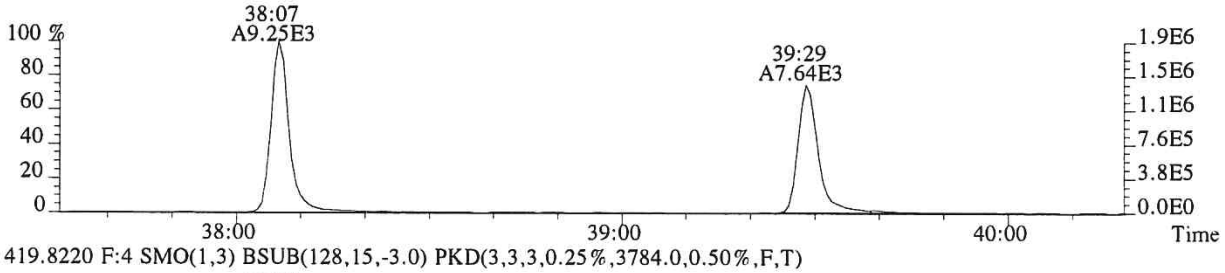
File:P616043 #1-249 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.50%,F,T)



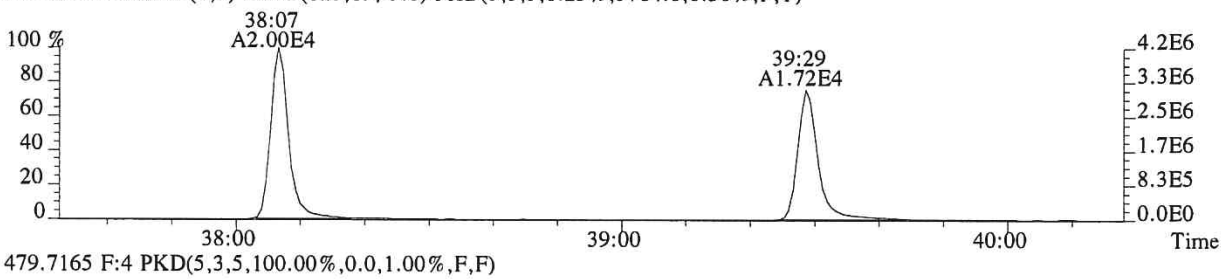
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.50%,F,T)



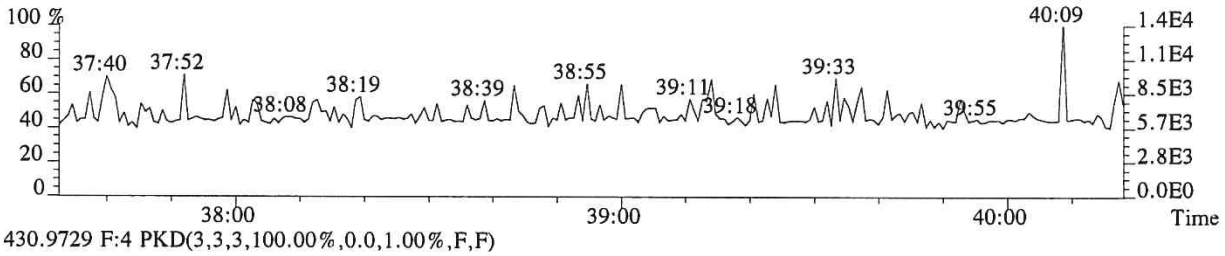
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4728.0,0.50%,F,T)



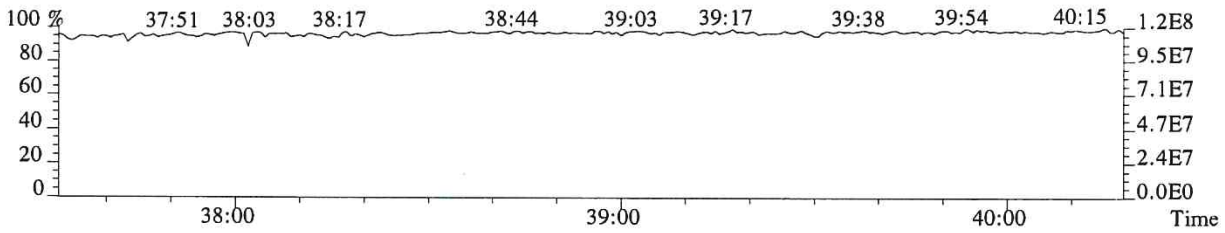
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3784.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

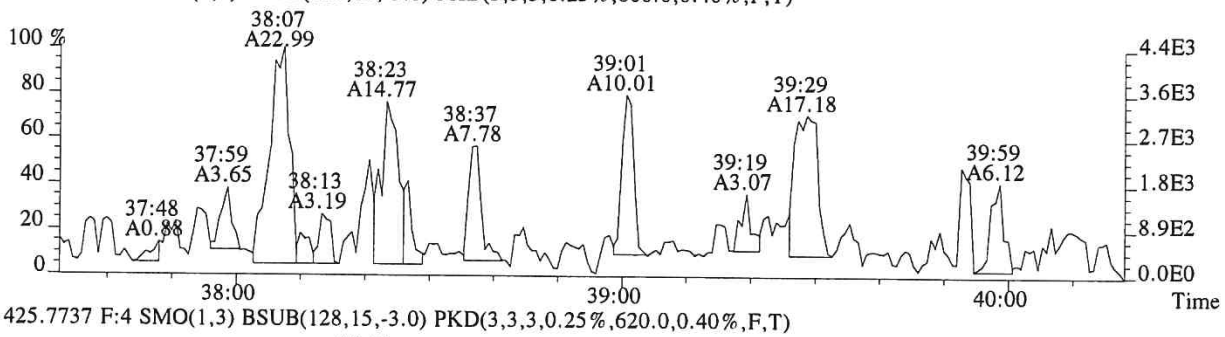


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

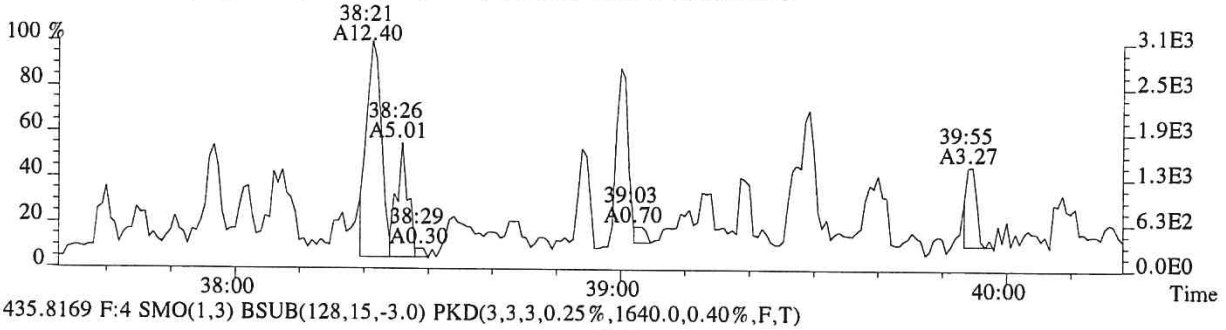


013380

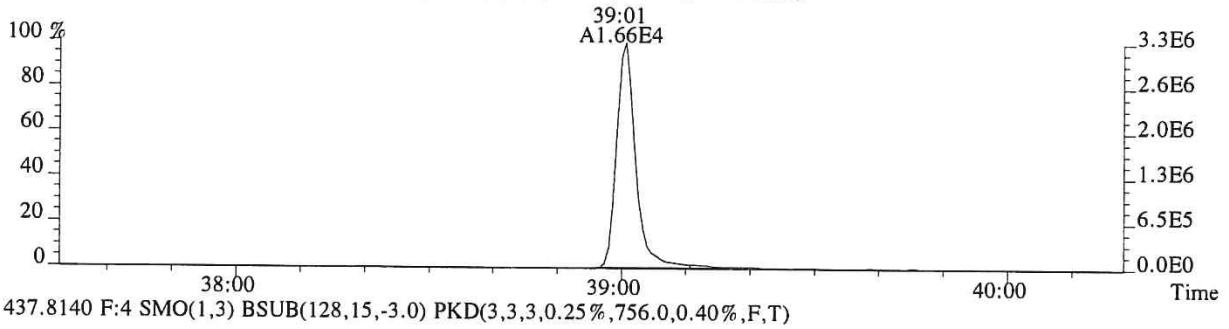
File:P616043 #1-249 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



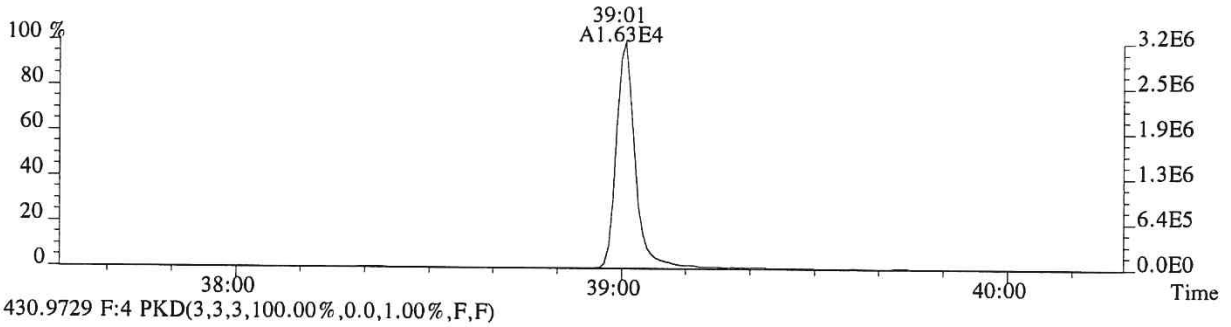
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



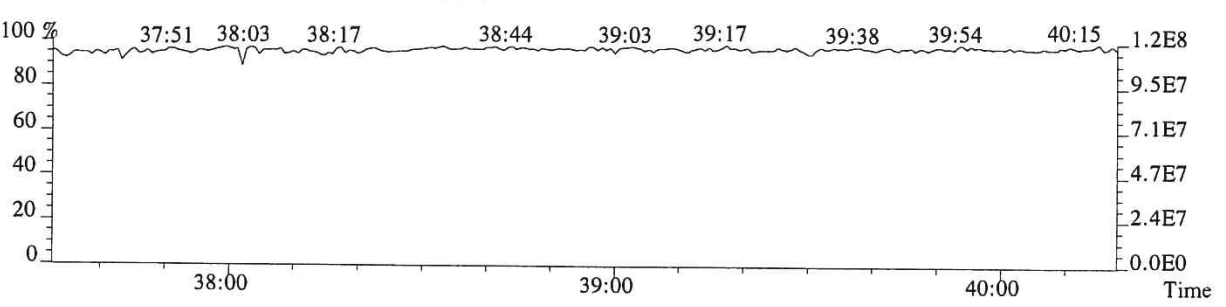
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1640.0,0.40%,F,T)



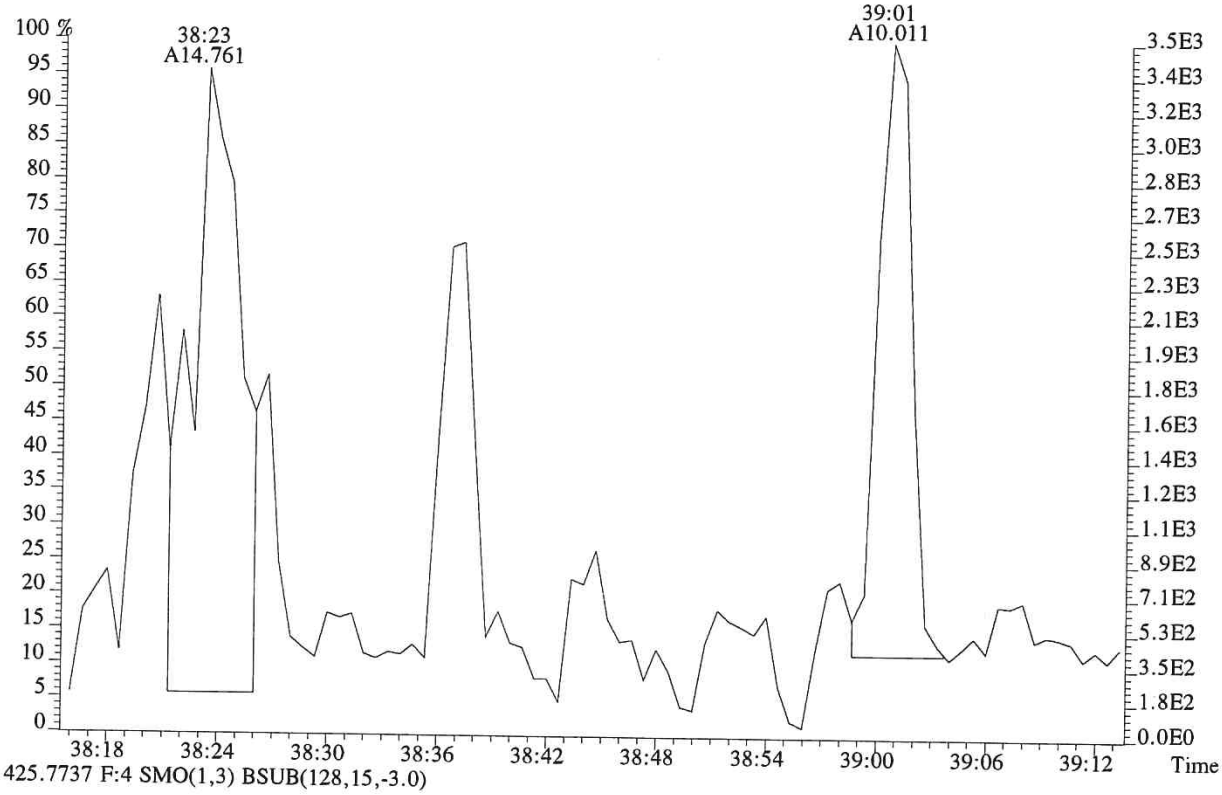
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



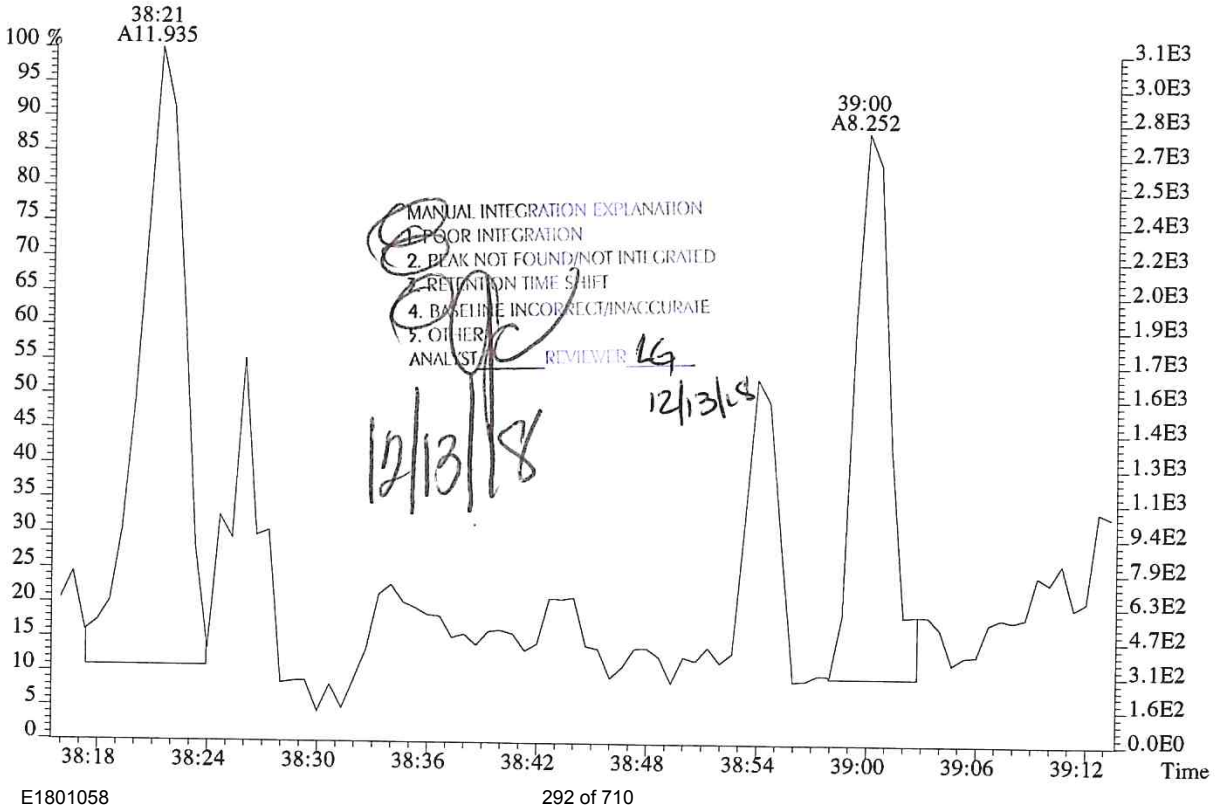
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P616043 #1-249 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0)



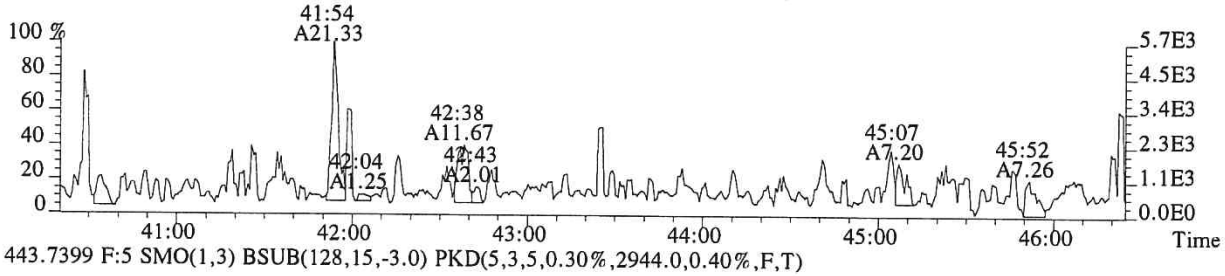
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0)



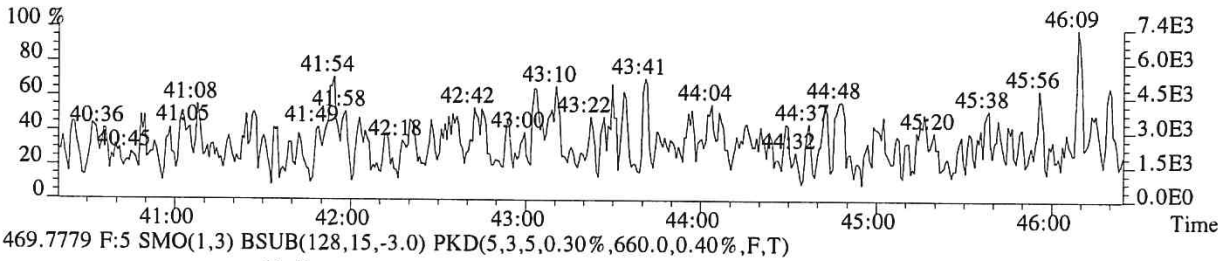
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST RC REVIEWER LG
12/13/18
12/13/18

File:P616043 #1-547 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

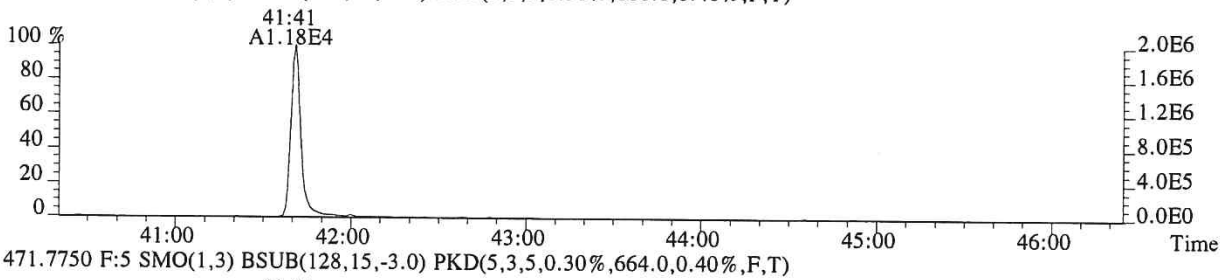
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,972.0,0.40%,F,T)



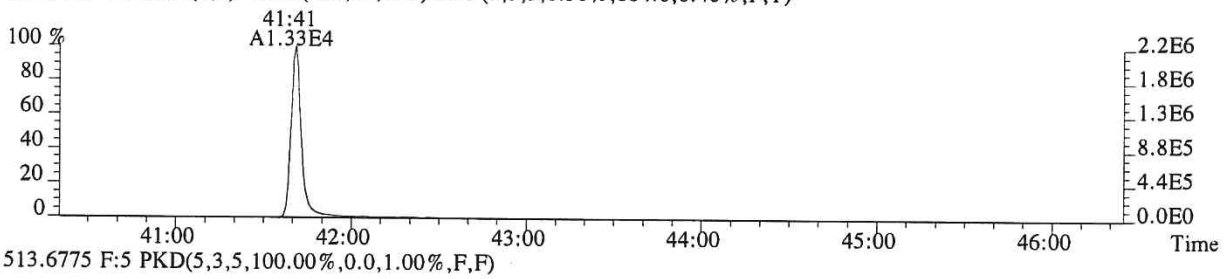
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2944.0,0.40%,F,T)



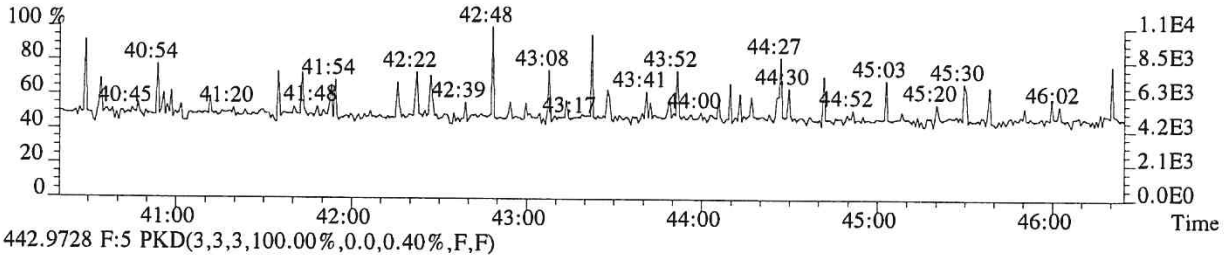
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



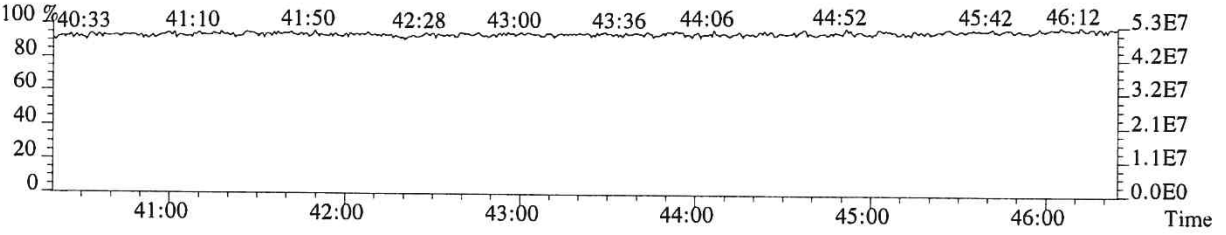
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

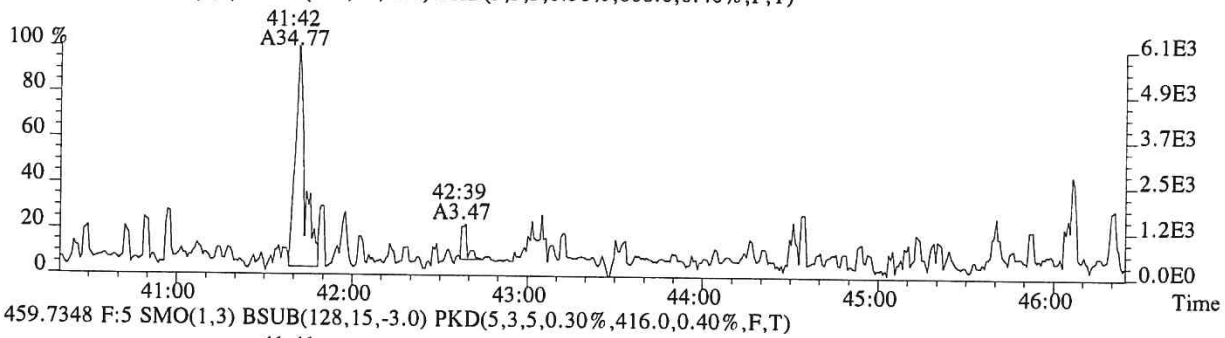


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

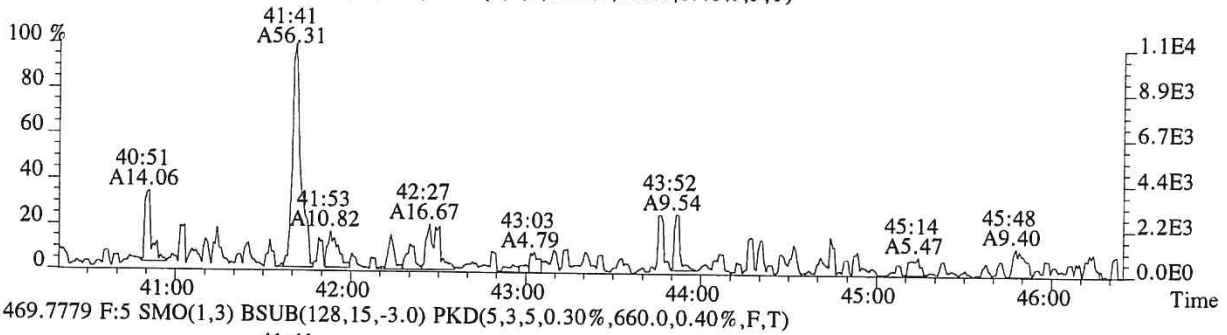


013383

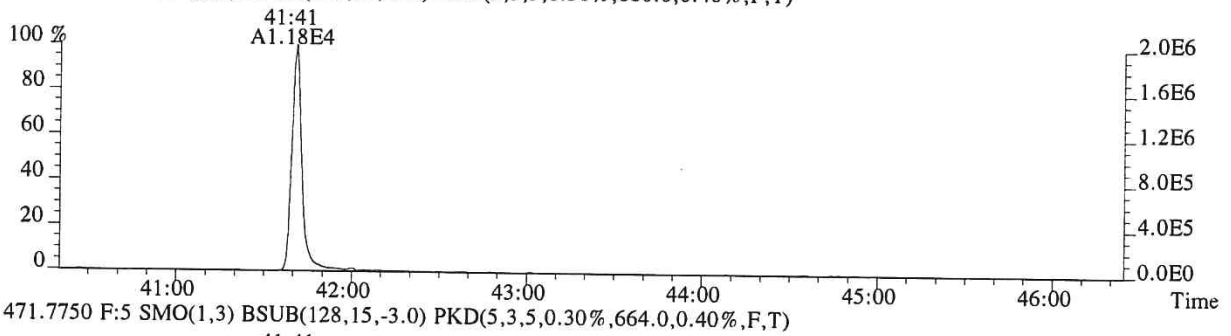
File:P616043 #1-547 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



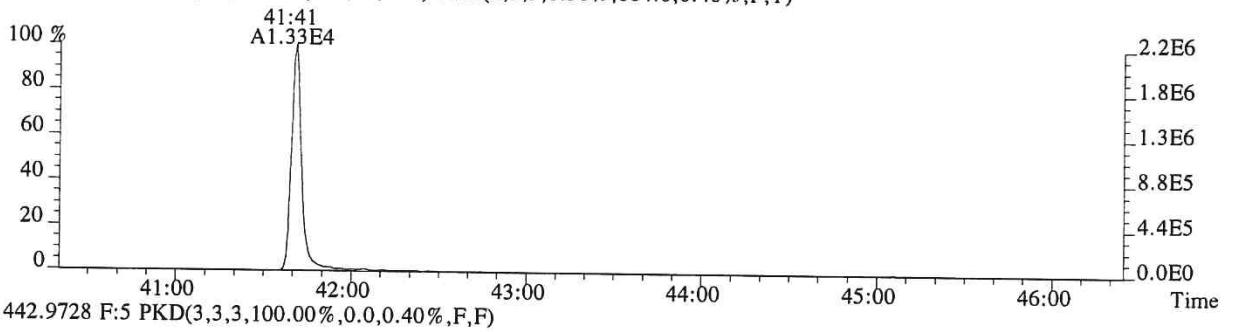
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



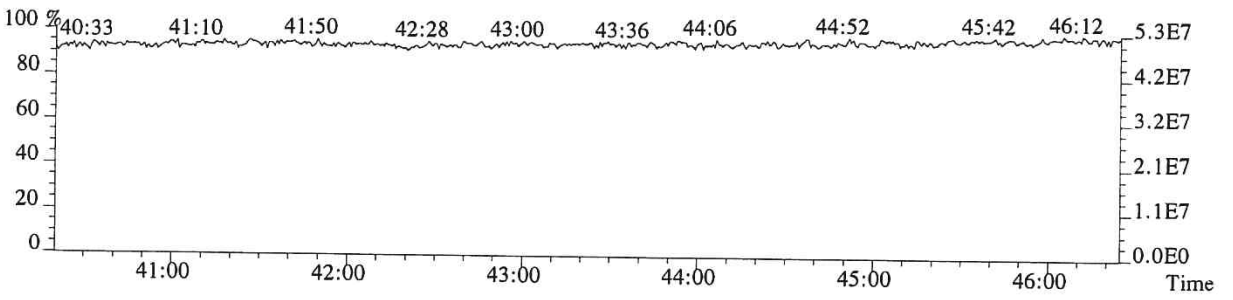
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



013384

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #18 Filename P616051 Samp: 1 Inj: 1 Acquired: 11-DEC-18 19:45:05
Processed: 12-DEC-18 16:11:42 Sample ID: EQ1800499-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:30	3.949e+03	5.314e+03	0.74	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:51	3.305e+04	2.161e+04	1.53	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:48	3.202e+04	2.105e+04	1.52	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:30	3.219e+04	2.506e+04	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	3.317e+04	2.702e+04	1.23	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:07	3.002e+04	2.507e+04	1.20	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:52	2.711e+04	2.164e+04	1.25	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	2.500e+04	2.452e+04	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	2.050e+04	2.068e+04	0.99	yes	no	1.463
10	Unk	OCDF	41:52	2.423e+04	2.681e+04	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:20	3.272e+03	4.124e+03	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:05	2.468e+04	1.608e+04	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:15	2.165e+04	1.757e+04	1.23	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:20	2.252e+04	1.815e+04	1.24	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:34	2.360e+04	1.858e+04	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	1.658e+04	1.545e+04	1.07	yes	no	1.112
17	Unk	OCDD	41:40	1.860e+04	2.074e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:28	4.281e+04	5.403e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	7.131e+04	4.568e+04	1.56	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:47	6.777e+04	4.268e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:29	3.166e+04	6.005e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	3.559e+04	6.687e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:06	3.189e+04	6.126e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.912e+04	5.633e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	2.232e+04	4.915e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.904e+04	4.361e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:18	2.292e+04	2.918e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:04	5.480e+04	3.506e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:14	4.674e+04	3.643e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	4.391e+04	3.493e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	4.332e+04	4.070e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:40	3.289e+04	3.626e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:38	3.371e+04	4.319e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	5.990e+04	4.928e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:19	3.064e+04				no	1.086

$$\text{OCDD} = \frac{(1.860e+04 + 2.074e+04) \times 4000\ \text{pg} \times 1}{(3.289e+04 + 3.626e+04) \times \quad \text{g} \times \quad / 100 \times 1.157} =$$

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #18 Filename P616051 Samp: 1 Inj: 1 Acquired: 11-DEC-18 19:45:05
Processed: 12-DEC-18 16:11:42 LAB. ID: EQ1800499-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.53e+05	1.89e+03	3.5e+02	8.69e+05	3.57e+03	2.4e+02
2	1,2,3,7,8-PeCDF	5.93e+06	8.40e+02	7.1e+03	3.88e+06	3.68e+03	1.1e+03
3	2,3,4,7,8-PeCDF	5.86e+06	8.40e+02	7.0e+03	3.91e+06	3.68e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	6.79e+06	1.01e+03	6.7e+03	5.26e+06	8.16e+02	6.4e+03
5	1,2,3,6,7,8-HxCDF	6.72e+06	1.01e+03	6.7e+03	5.35e+06	8.16e+02	6.6e+03
6	2,3,4,6,7,8-HxCDF	6.37e+06	1.01e+03	6.3e+03	5.25e+06	8.16e+02	6.4e+03
7	1,2,3,7,8,9-HxCDF	5.30e+06	1.01e+03	5.3e+03	4.30e+06	8.16e+02	5.3e+03
8	1,2,3,4,6,7,8-HpCDF	5.40e+06	3.58e+03	1.5e+03	5.15e+06	2.17e+03	2.4e+03
9	1,2,3,4,7,8,9-HpCDF	3.95e+06	3.58e+03	1.1e+03	3.91e+06	2.17e+03	1.8e+03
10	OCDF	4.15e+06	4.08e+02	1.0e+04	4.55e+06	2.44e+03	1.9e+03
11	2,3,7,8-TCDD	5.63e+05	3.44e+03	1.6e+02	6.92e+05	2.10e+03	3.3e+02
12	1,2,3,7,8-PeCDD	4.40e+06	1.08e+03	4.1e+03	2.91e+06	5.16e+02	5.6e+03
13	1,2,3,4,7,8-HxCDD	4.68e+06	9.60e+02	4.9e+03	3.76e+06	1.63e+03	2.3e+03
14	1,2,3,6,7,8-HxCDD	4.56e+06	9.60e+02	4.8e+03	3.71e+06	1.63e+03	2.3e+03
15	1,2,3,7,8,9-HxCDD	4.74e+06	9.60e+02	4.9e+03	3.69e+06	1.63e+03	2.3e+03
16	1,2,3,4,6,7,8-HpCDD	3.37e+06	7.36e+02	4.6e+03	3.17e+06	4.72e+02	6.7e+03
17	OCDD	3.21e+06	3.80e+02	8.5e+03	3.60e+06	1.06e+03	3.4e+03
18	13C-2,3,7,8-TCDF	6.79e+06	8.50e+03	8.0e+02	8.68e+06	7.20e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	1.27e+07	1.59e+03	8.0e+03	8.10e+06	2.44e+03	3.3e+03
20	13C-2,3,4,7,8-PeCDF	1.28e+07	1.59e+03	8.1e+03	7.98e+06	2.44e+03	3.3e+03
21	13C-1,2,3,4,7,8-HxCDF	6.62e+06	9.12e+02	7.3e+03	1.26e+07	2.06e+03	6.1e+03
22	13C-1,2,3,6,7,8-HxCDF	7.24e+06	9.12e+02	7.9e+03	1.35e+07	2.06e+03	6.5e+03
23	13C-2,3,4,6,7,8-HxCDF	6.81e+06	9.12e+02	7.5e+03	1.30e+07	2.06e+03	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	5.73e+06	9.12e+02	6.3e+03	1.10e+07	2.06e+03	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.81e+06	5.04e+03	9.5e+02	1.06e+07	6.10e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.63e+06	5.04e+03	7.2e+02	8.26e+06	6.10e+03	1.4e+03
27	13C-2,3,7,8-TCDD	3.88e+06	1.57e+04	2.5e+02	5.03e+06	7.22e+03	7.0e+02
28	13C-1,2,3,7,8-PeCDD	1.02e+07	2.14e+03	4.8e+03	6.57e+06	2.87e+03	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	1.02e+07	2.95e+03	3.5e+03	7.83e+06	1.30e+03	6.0e+03
30	13C-1,2,3,6,7,8-HxCDD	9.06e+06	2.95e+03	3.1e+03	7.21e+06	1.30e+03	5.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.69e+06	1.42e+03	6.1e+03	8.35e+06	7.68e+02	1.1e+04
32	13C-OCDD	5.68e+06	1.31e+03	4.3e+03	6.32e+06	6.28e+02	1.0e+04
33	13C-1,2,3,4-TCDD	5.53e+06	1.57e+04	3.5e+02	7.14e+06	7.22e+03	9.9e+02
34	13C-1,2,3,7,8,9-HxCDD	1.22e+07	2.95e+03	4.1e+03	9.92e+06	1.30e+03	7.7e+03
35	37Cl-2,3,7,8-TCDD	5.27e+06	3.39e+03	1.6e+03			

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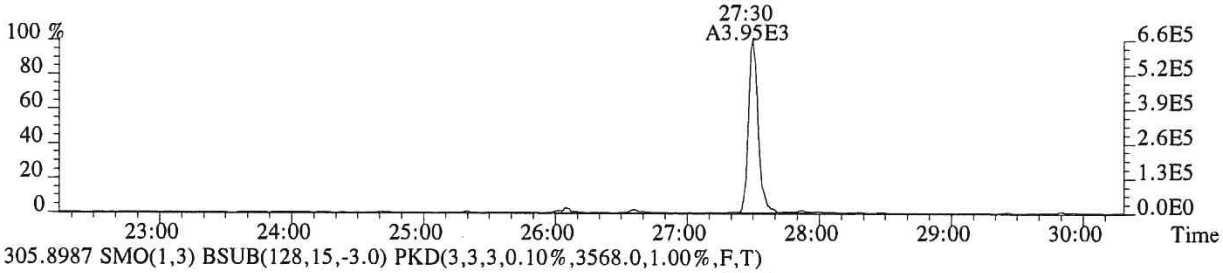
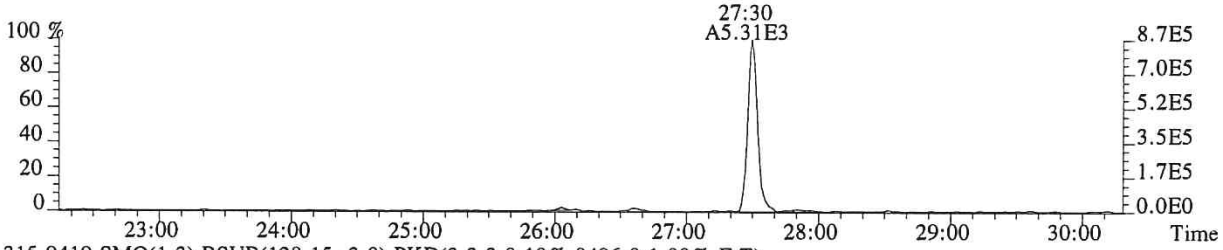
File:P616051 #1-573 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

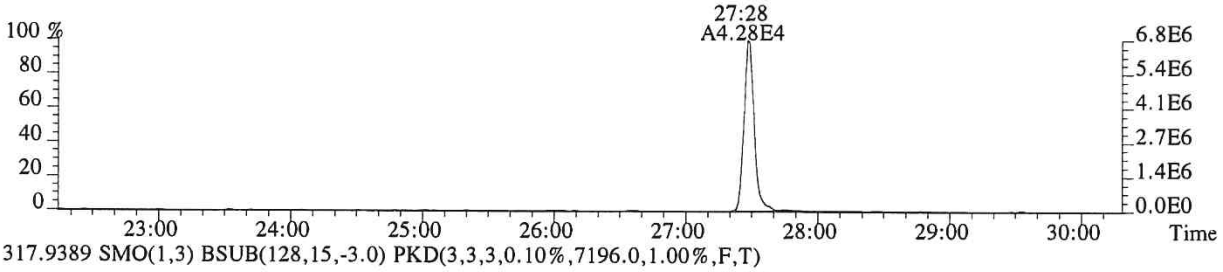
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



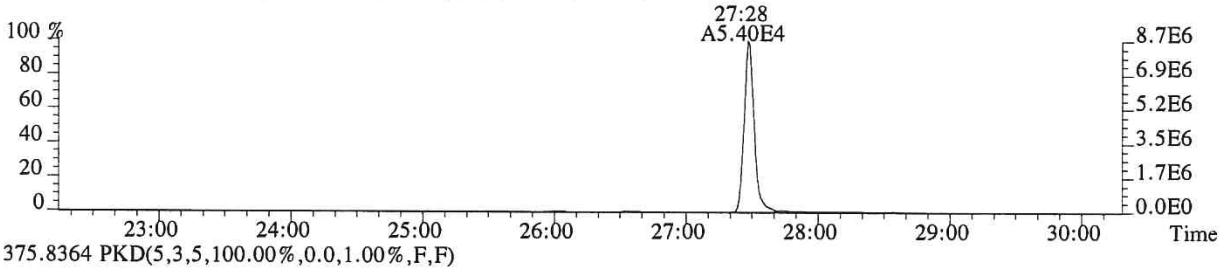
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3568.0,1.00%,F,T)



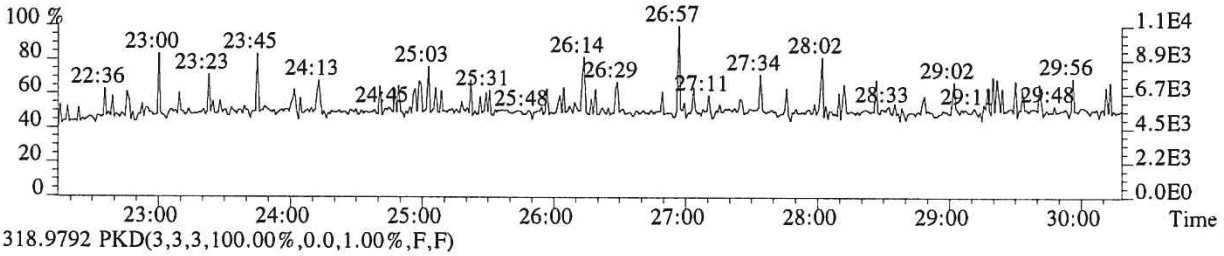
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8496.0,1.00%,F,T)



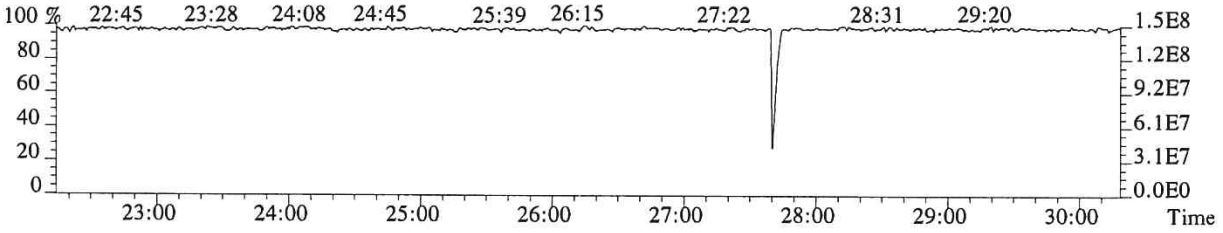
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7196.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



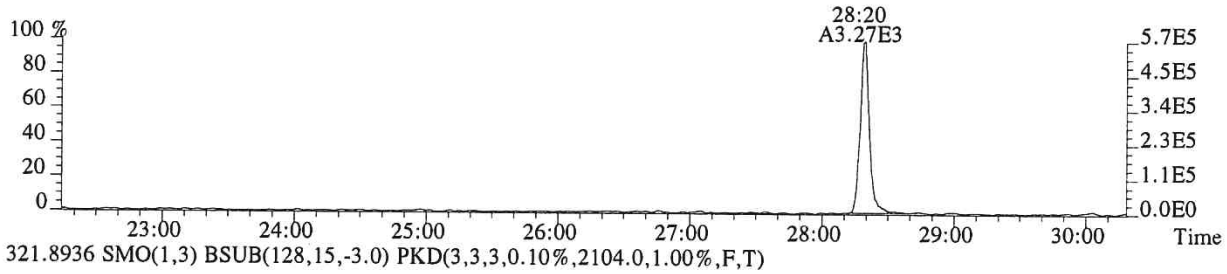
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



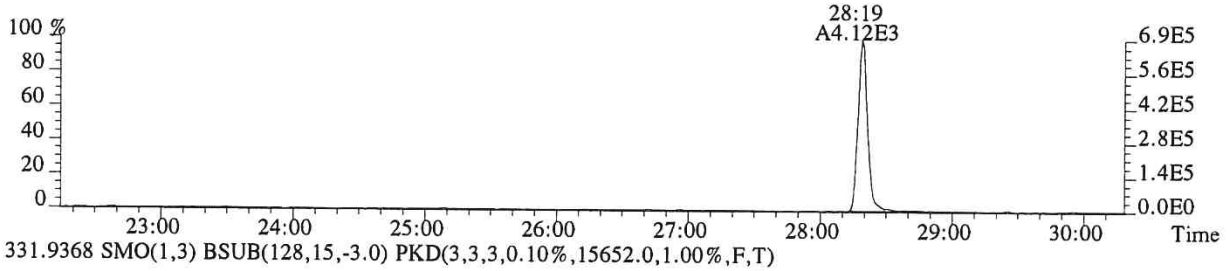
013387

File:P616051 #1-573 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

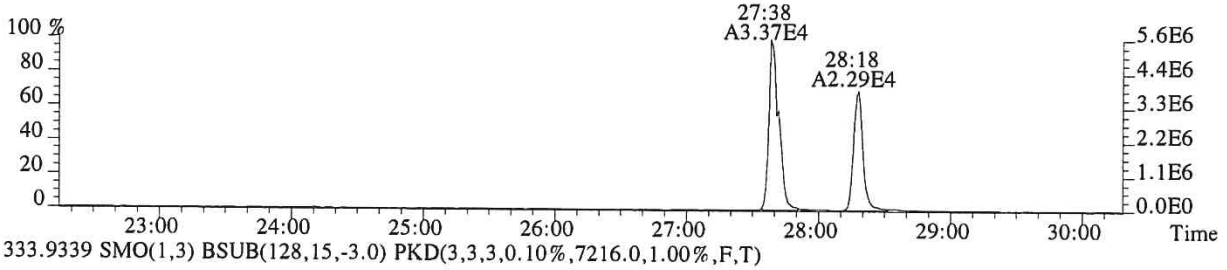
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3444.0,1.00%,F,T)



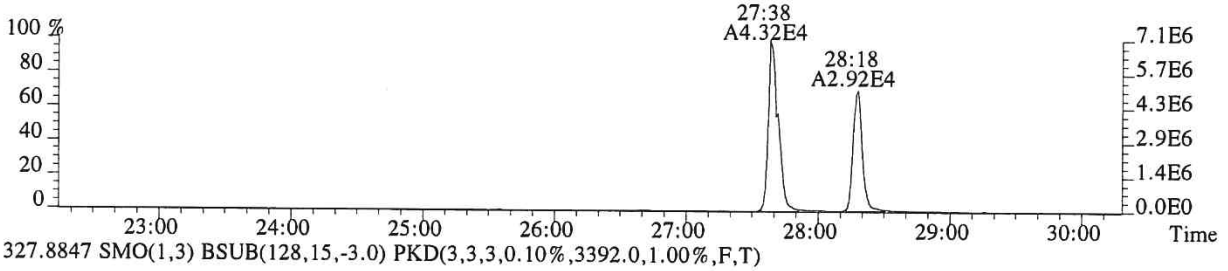
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2104.0,1.00%,F,T)



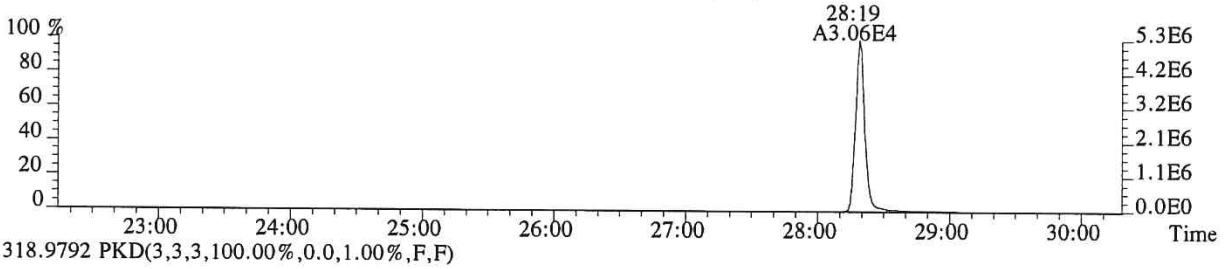
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15652.0,1.00%,F,T)



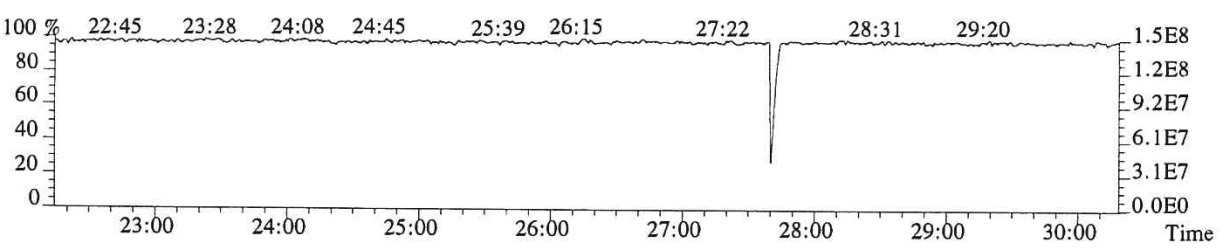
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7216.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3392.0,1.00%,F,T)

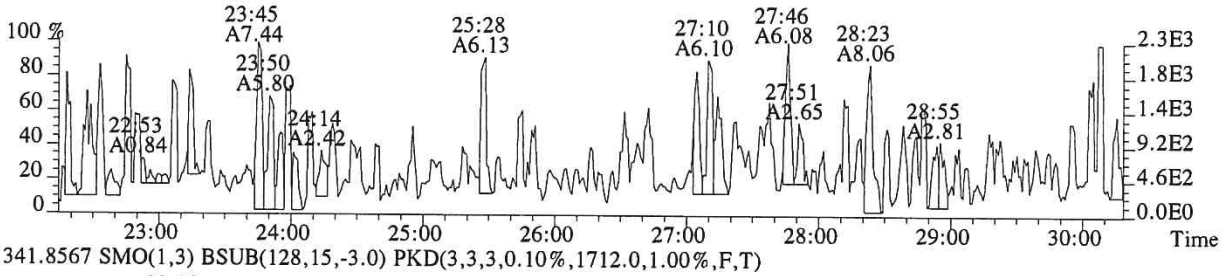


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

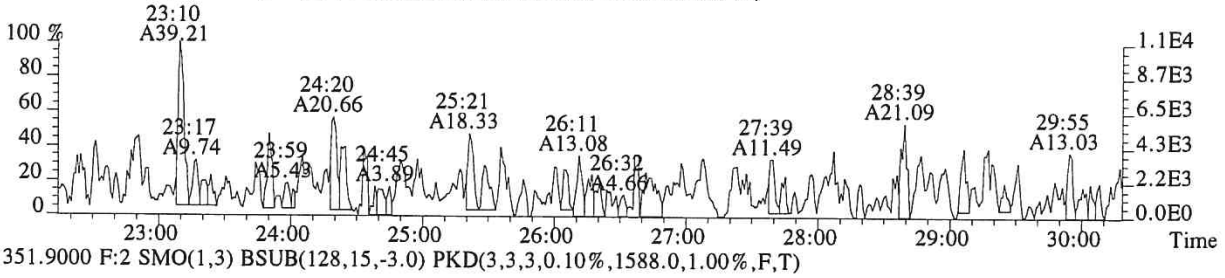


013388

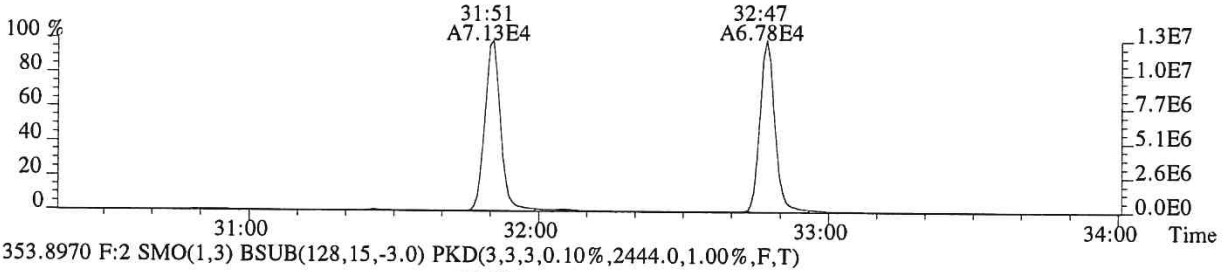
File:P616051 #1-573 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



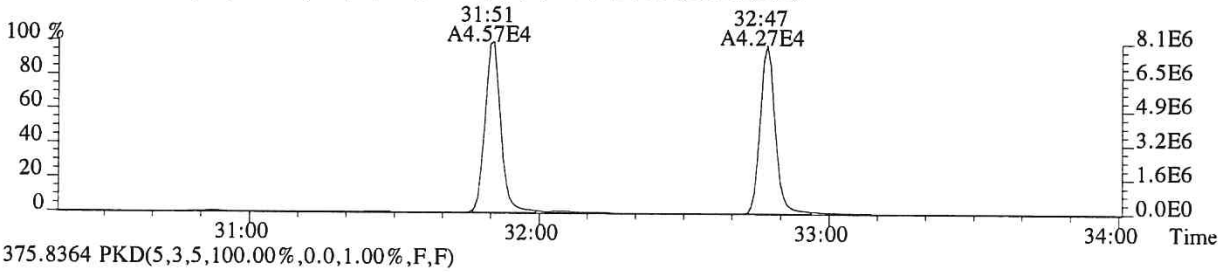
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



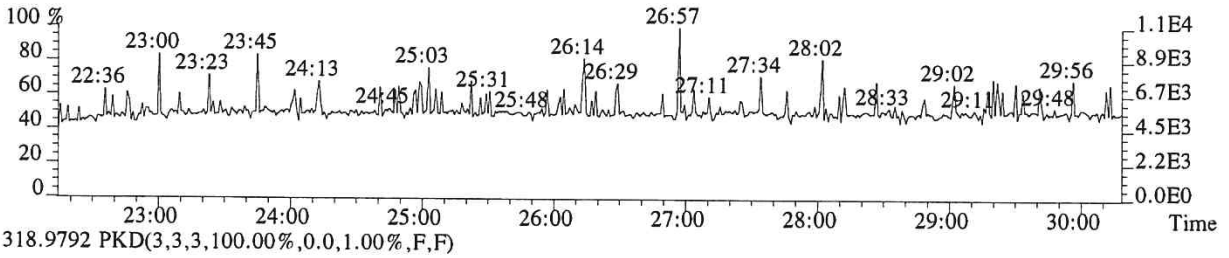
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



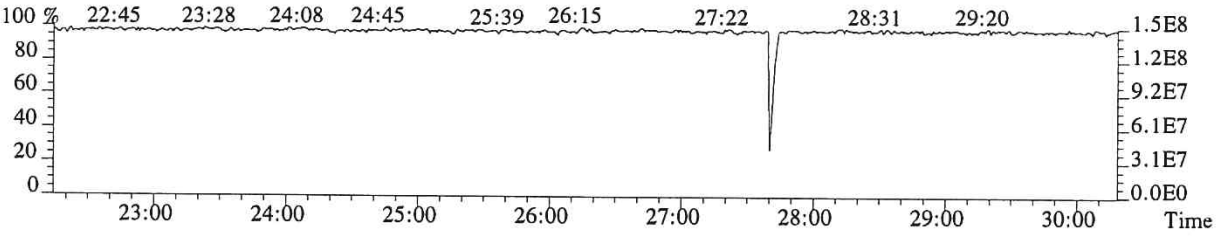
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2444.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



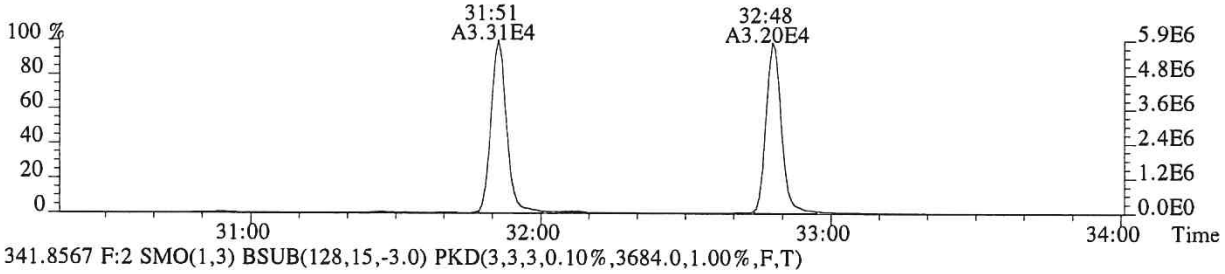
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



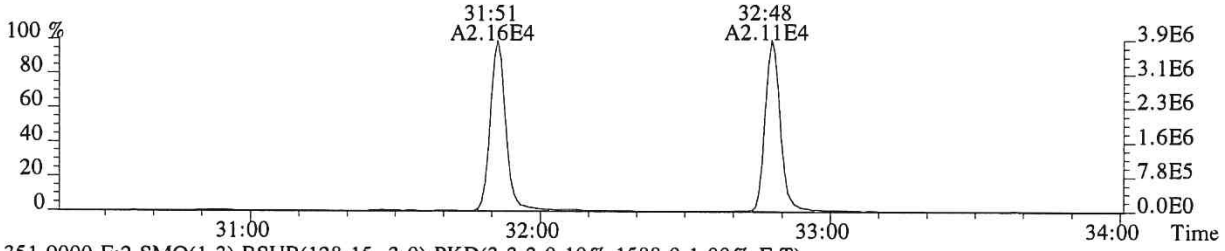
013389

File:P616051 #1-331 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

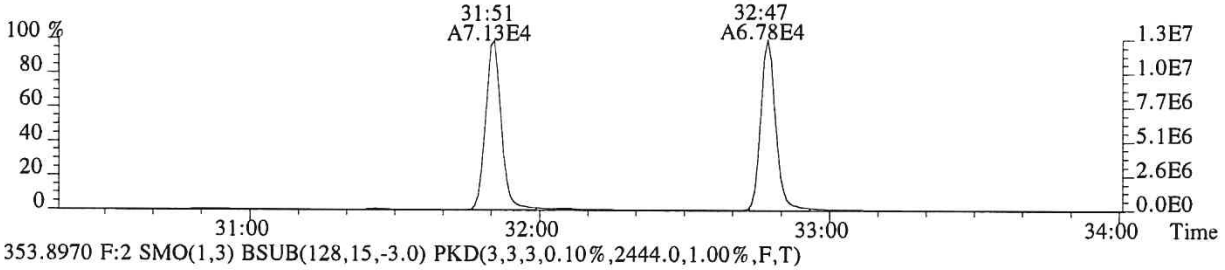
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



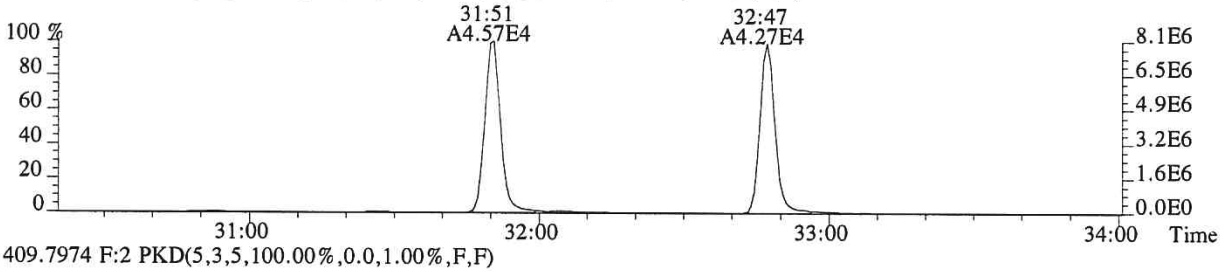
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3684.0,1.00%,F,T)



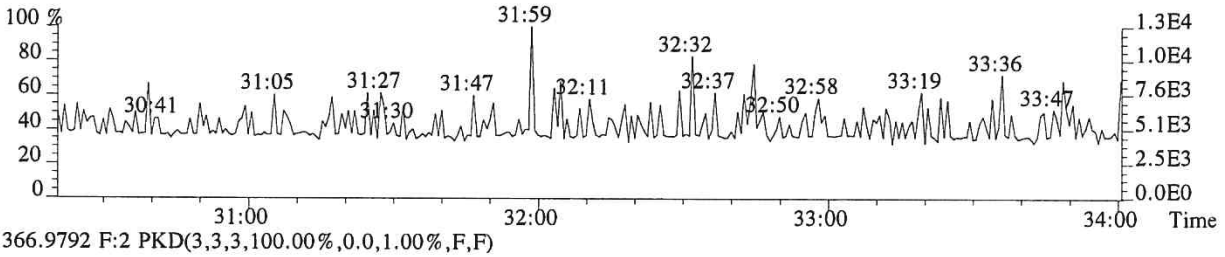
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



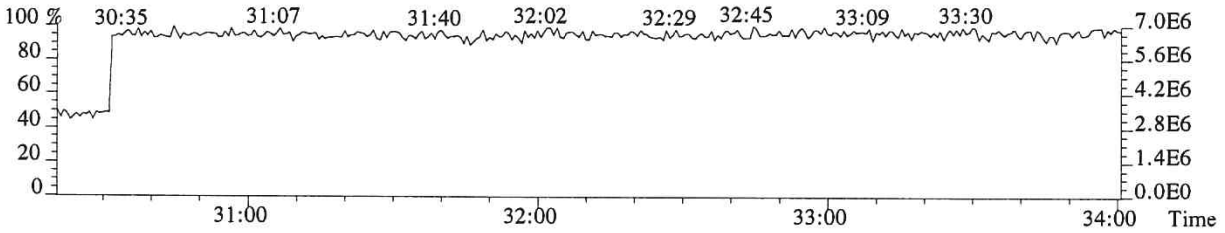
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2444.0,1.00%,F,T)



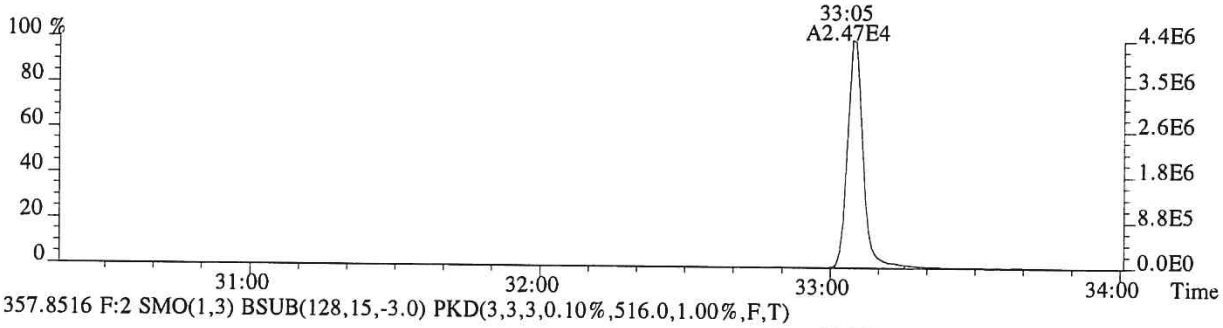
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



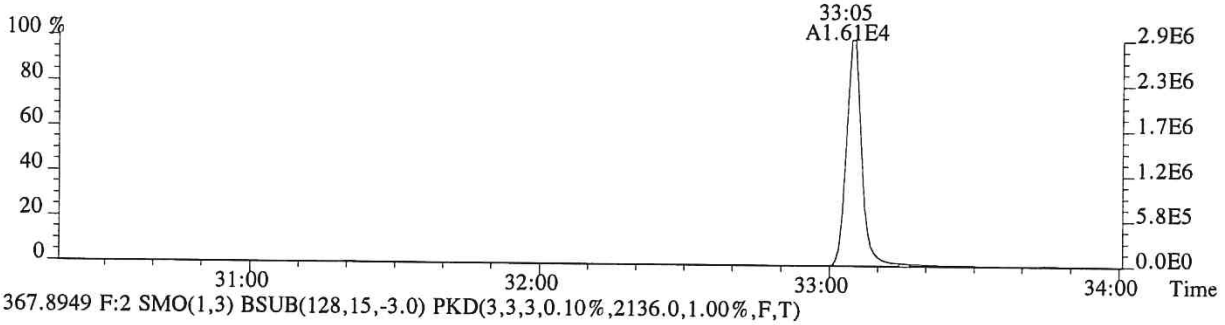
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



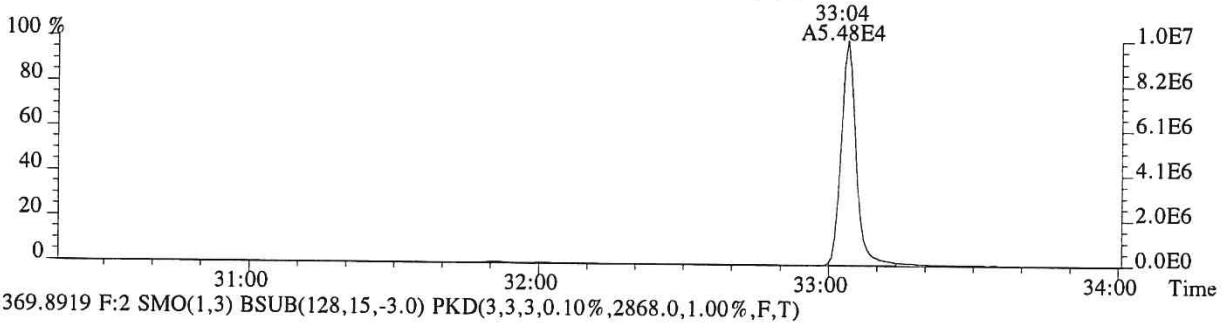
File:P616051 #1-331 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



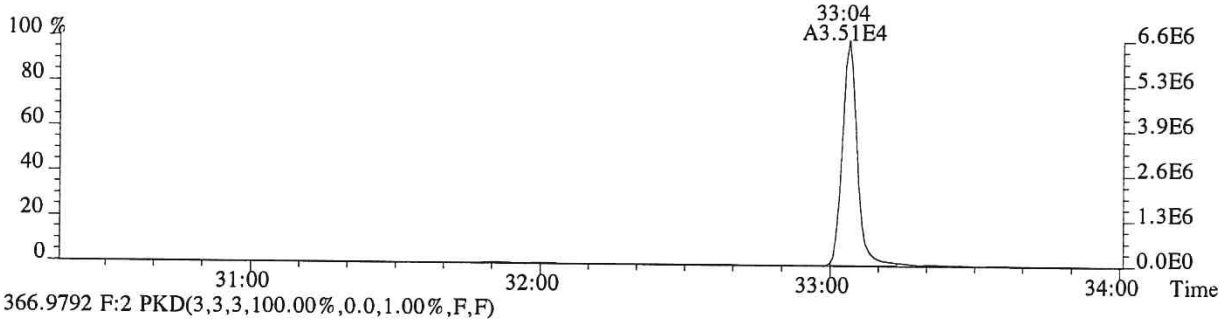
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



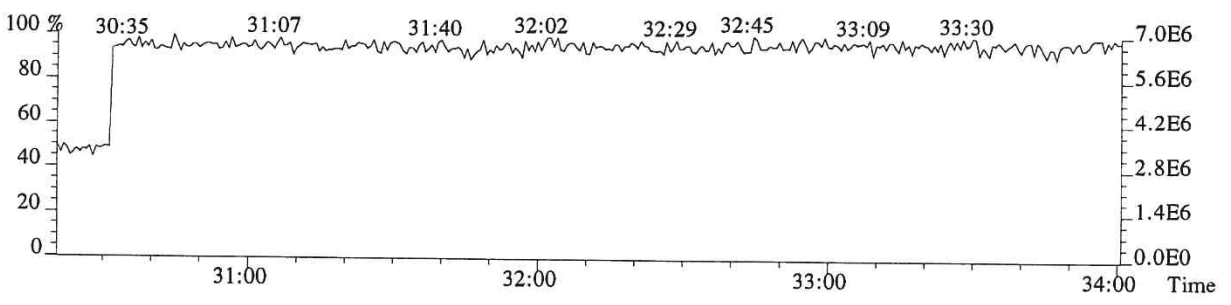
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2868.0,1.00%,F,T)

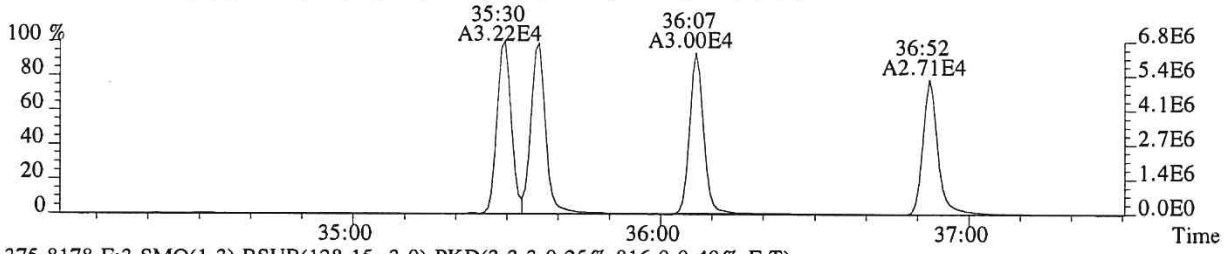


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

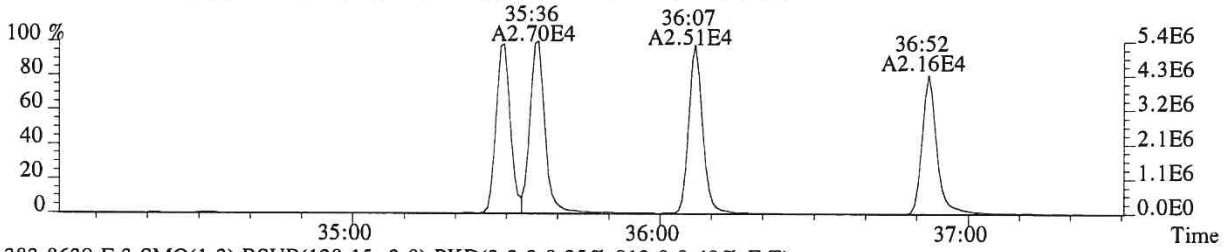


File:P616051 #1-312 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

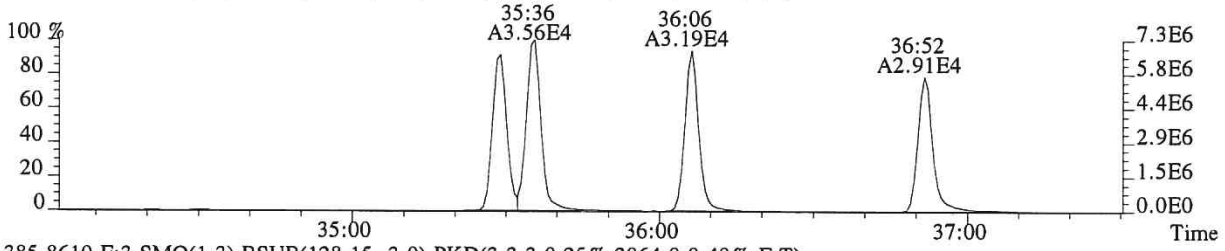
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



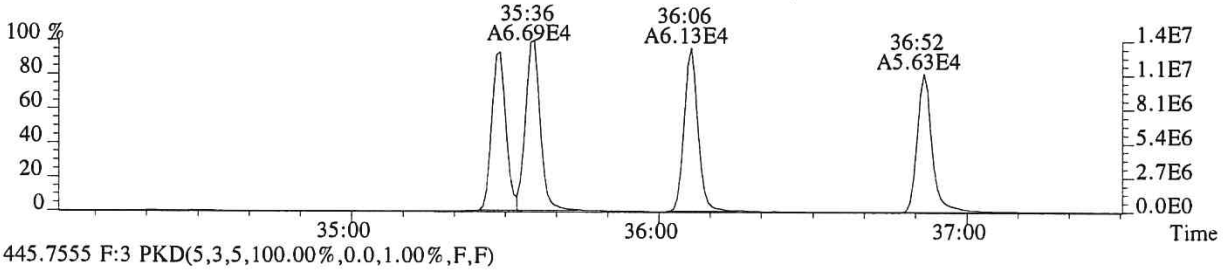
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



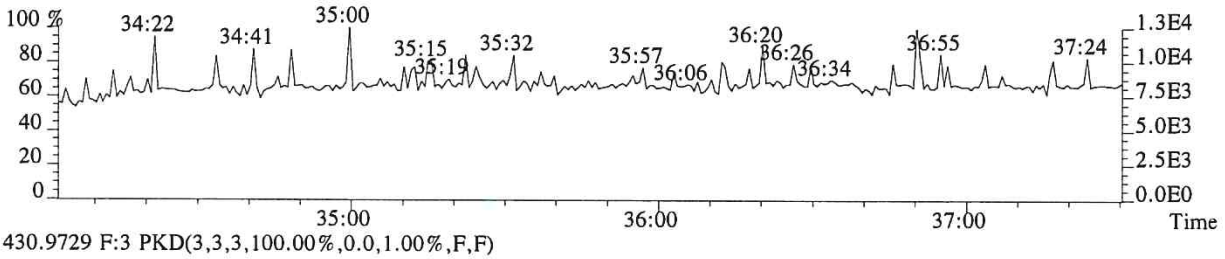
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



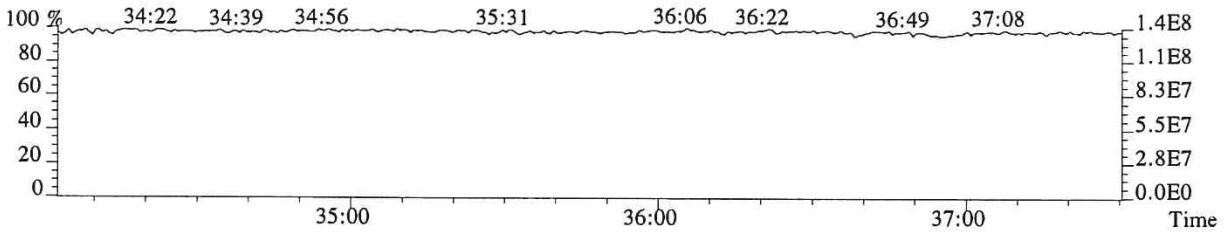
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2064.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

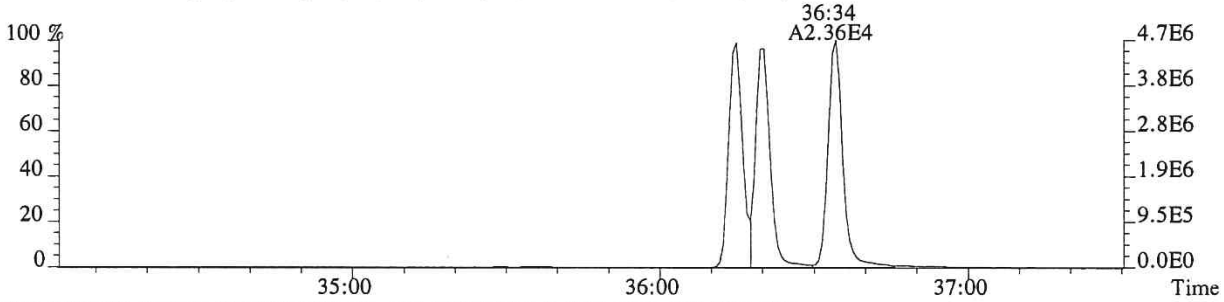


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

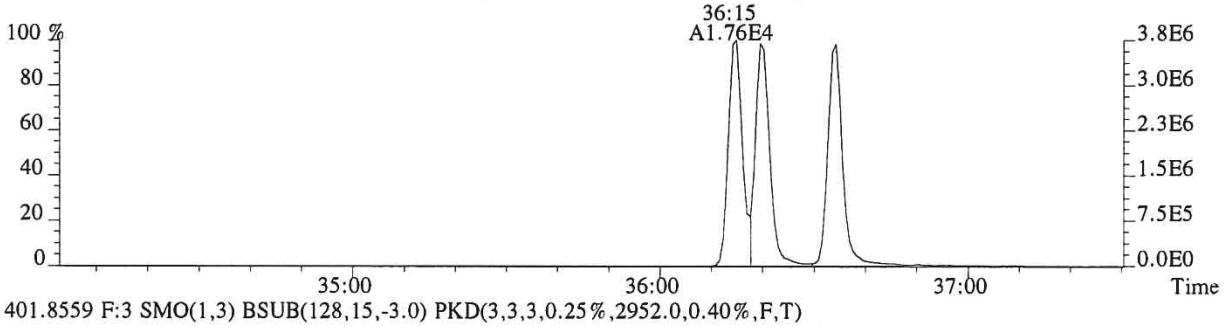


013392

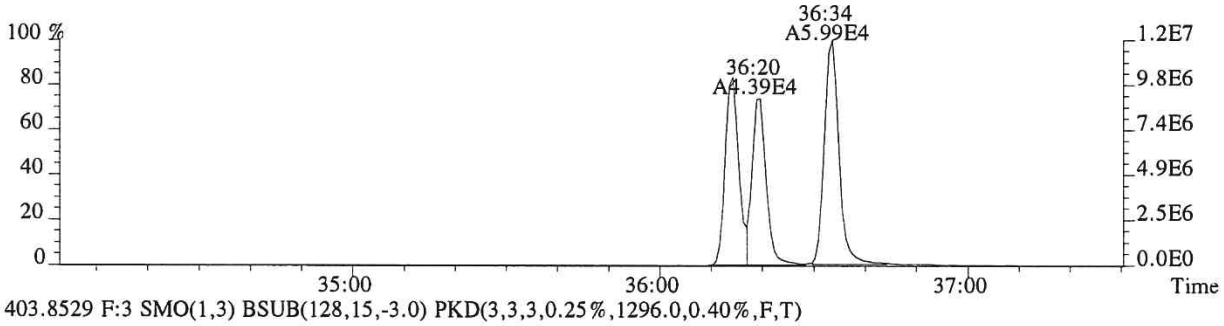
File:P616051 #1-312 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



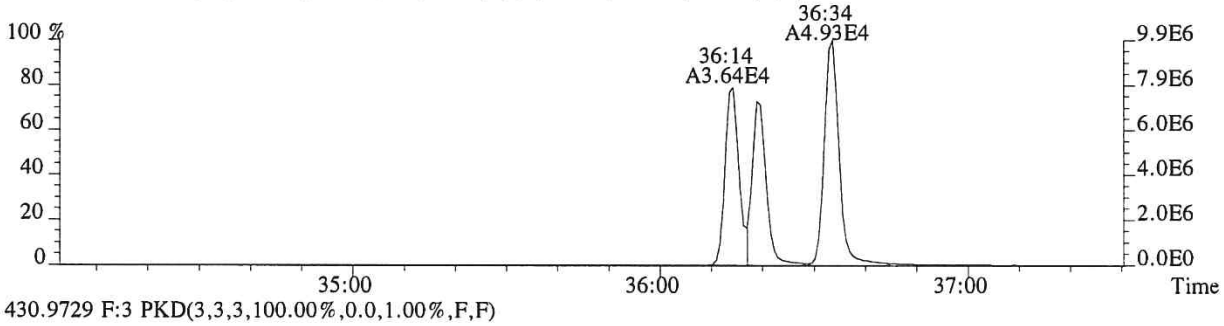
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.40%,F,T)



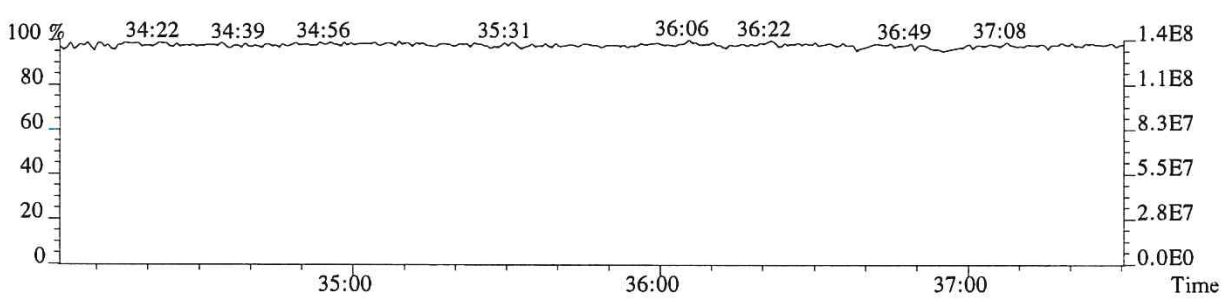
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2952.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



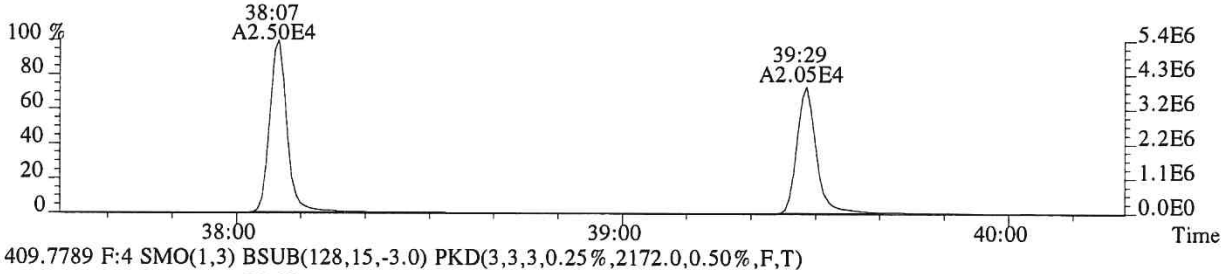
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



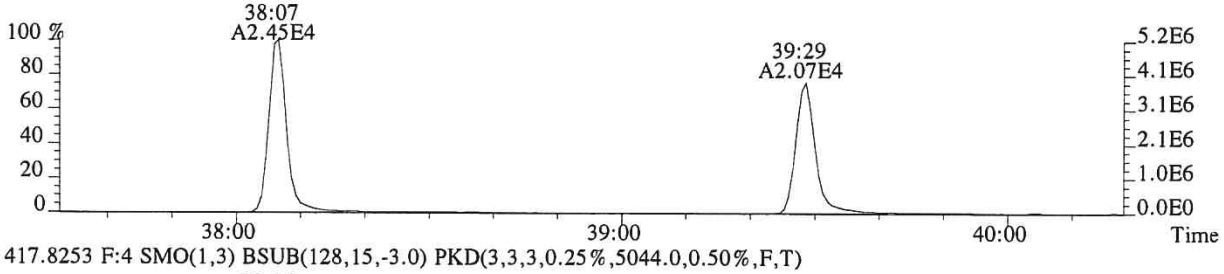
013393

File:P616051 #1-249 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

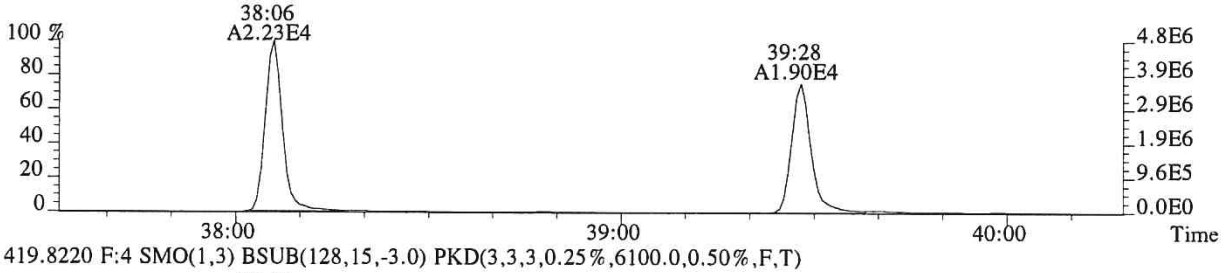
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3584.0,0.50%,F,T)



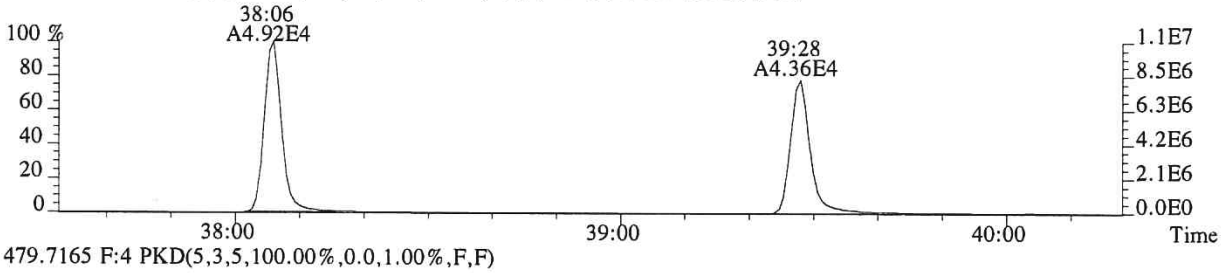
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2172.0,0.50%,F,T)



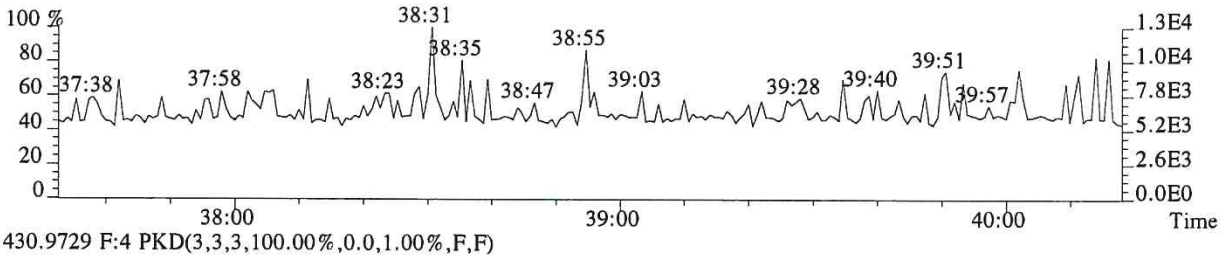
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5044.0,0.50%,F,T)



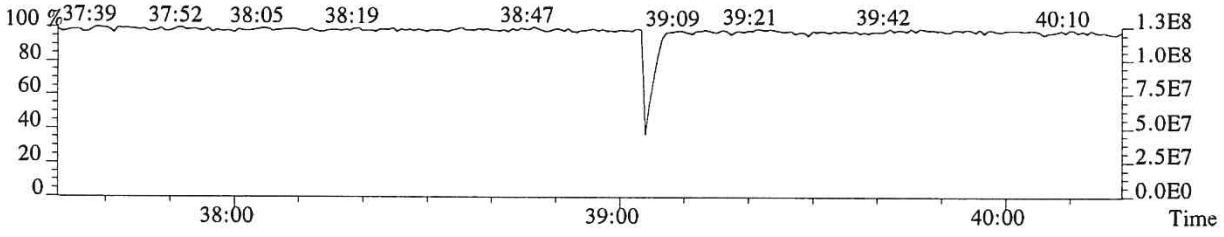
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6100.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

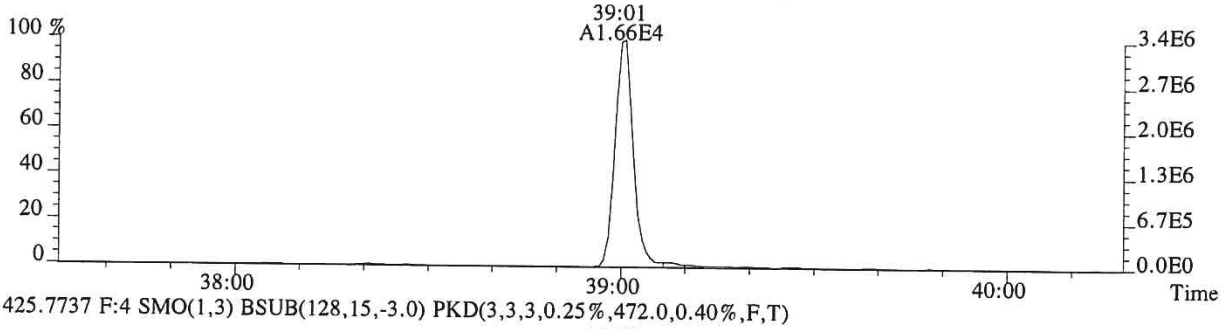


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

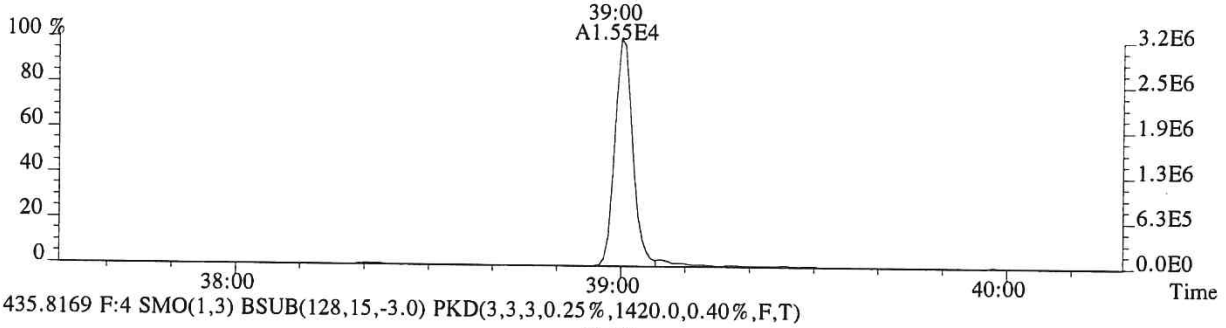


013394

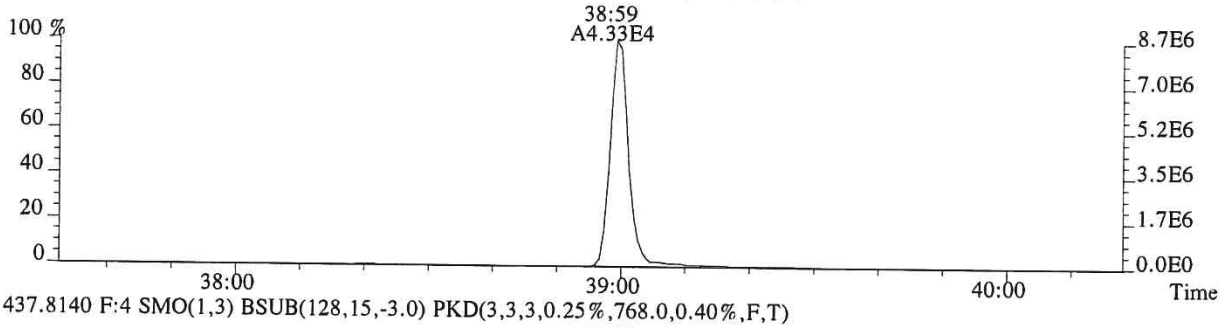
File:P616051 #1-249 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



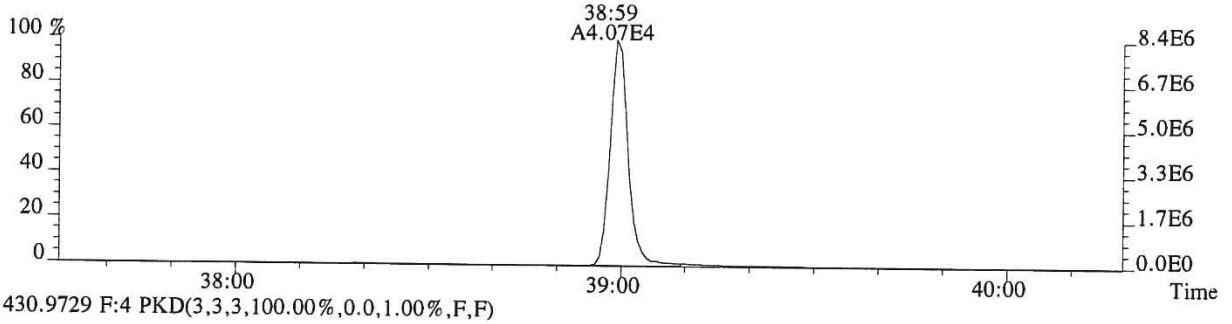
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



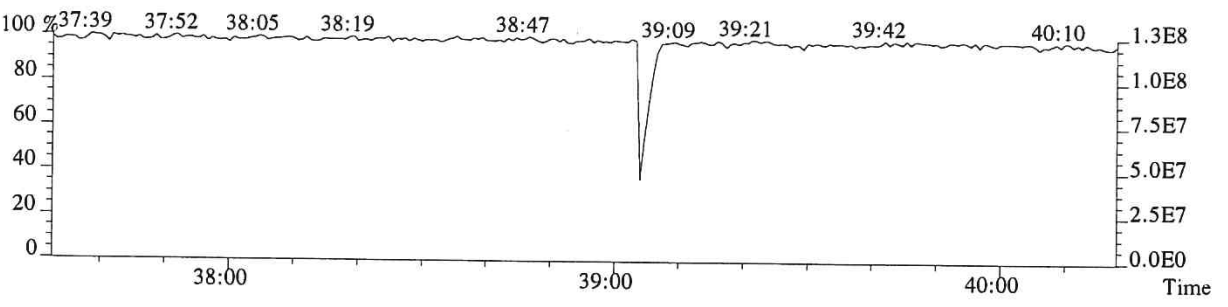
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)



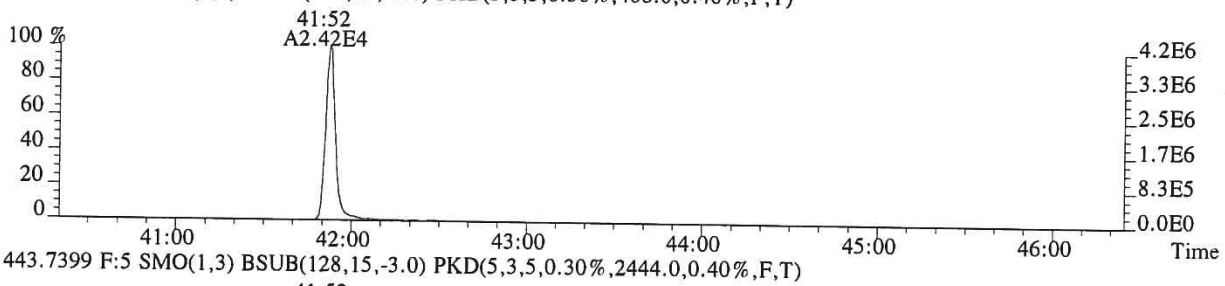
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



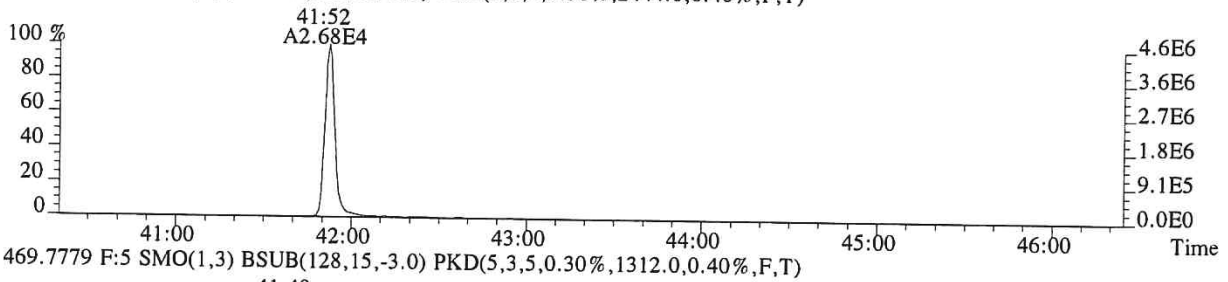
013395

File:P616051 #1-547 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

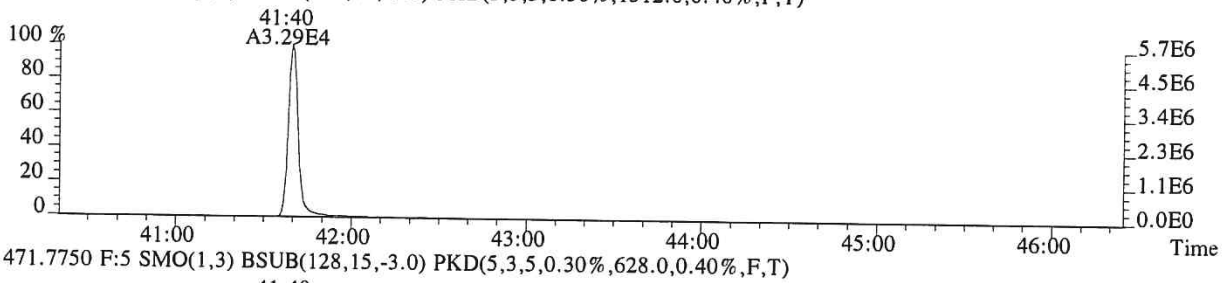
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



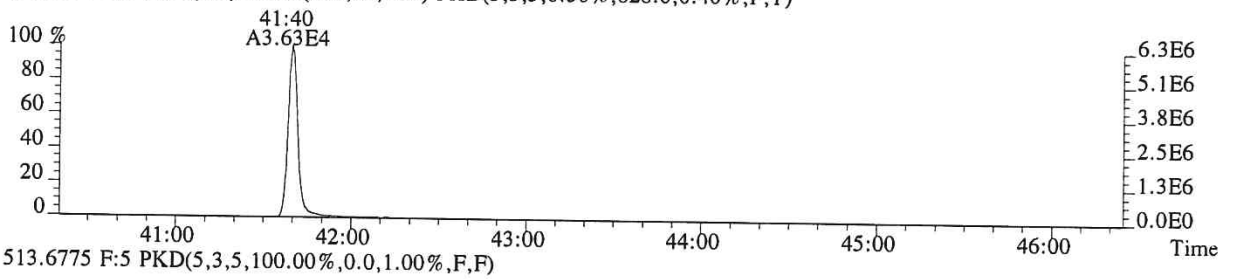
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2444.0,0.40%,F,T)



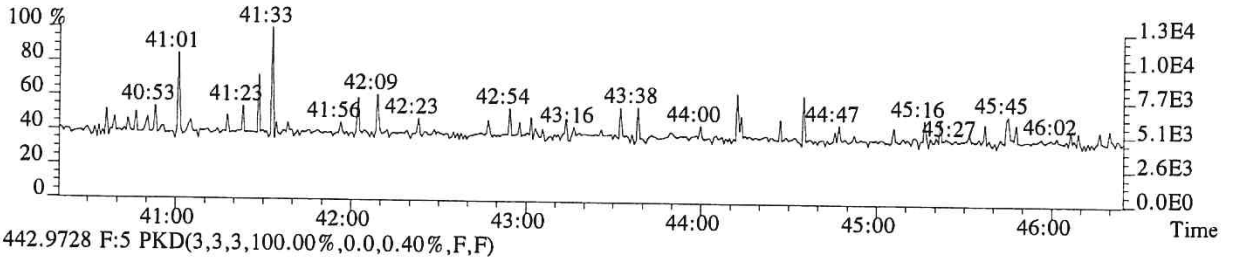
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



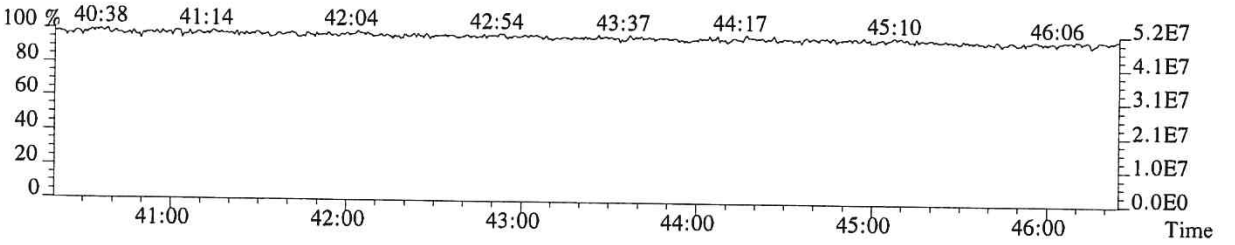
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



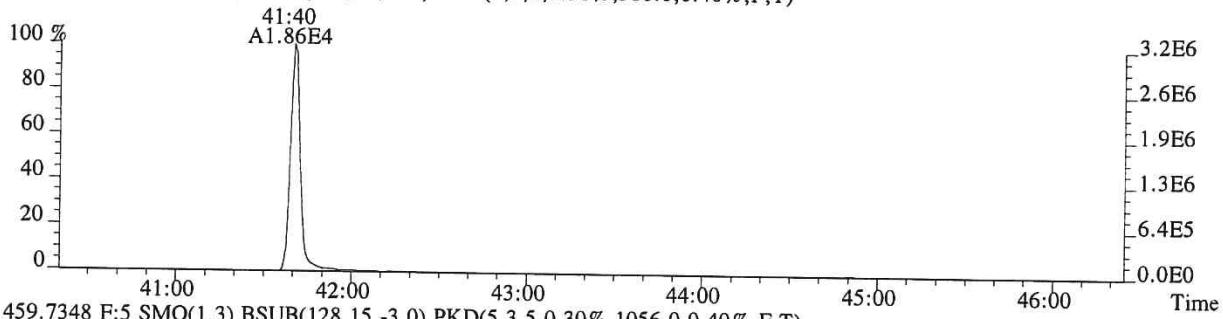
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



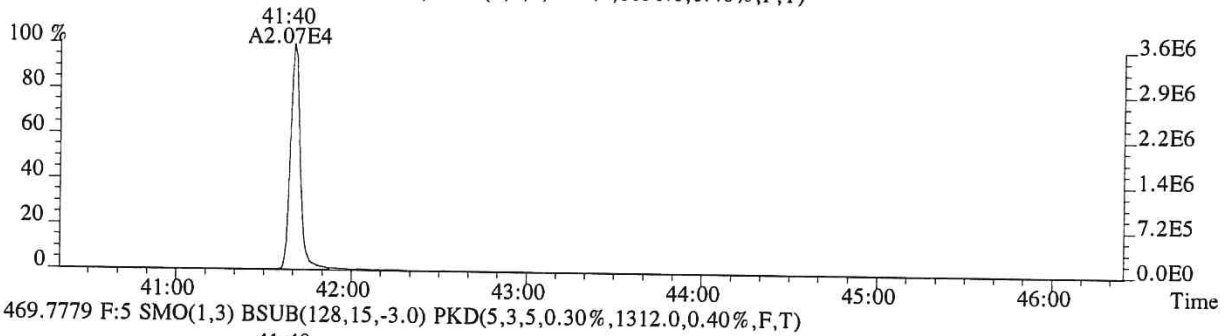
013396

File:P616051 #1-547 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

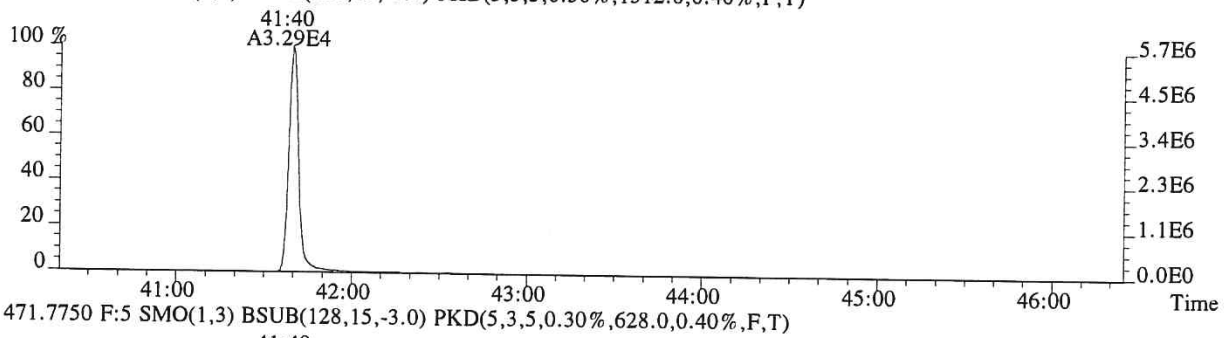
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



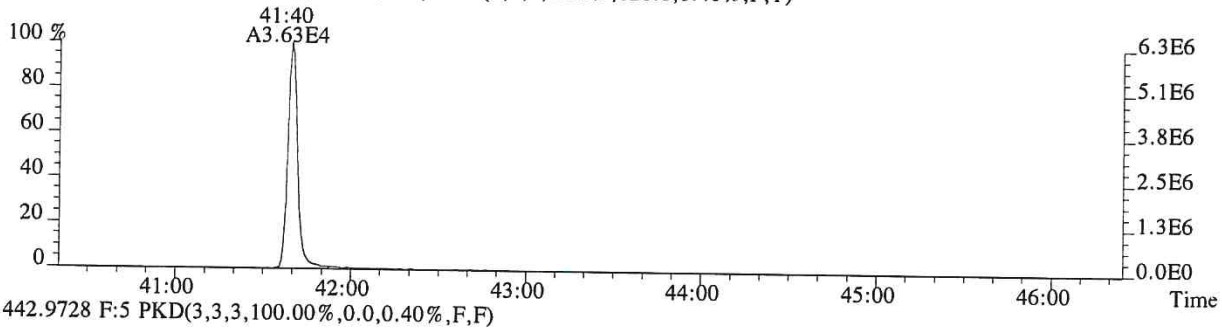
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1056.0,0.40%,F,T)



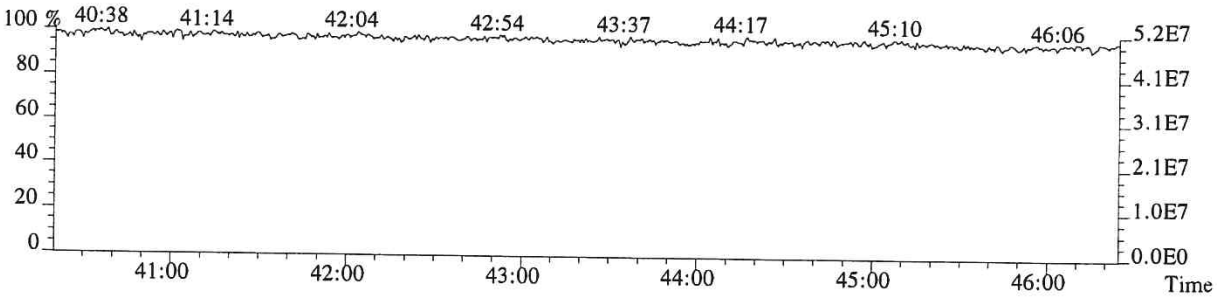
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

un #19 Filename P616052 Samp: 1 Inj: 1 Acquired: 11-DEC-18 20:34:15
rocessed: 12-DEC-18 16:11:44 Sample ID: EQ1800499-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:30	3.213e+03	3.891e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:51	2.960e+04	1.904e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:48	2.810e+04	1.842e+04	1.53	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:29	2.764e+04	2.202e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	3.077e+04	2.498e+04	1.23	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:07	2.646e+04	2.181e+04	1.21	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:52	2.461e+04	1.938e+04	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:06	2.291e+04	2.287e+04	1.00	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	1.904e+04	1.874e+04	1.02	yes	no	1.463
0	Unk	OCDF	41:52	2.393e+04	2.585e+04	0.93	yes	no	1.571
1	Unk	2,3,7,8-TCDD	28:19	2.630e+03	3.565e+03	0.74	yes	no	1.049
2	Unk	1,2,3,7,8-PeCDD	33:05	2.244e+04	1.413e+04	1.59	yes	no	0.929
3	Unk	1,2,3,4,7,8-HxCDD	36:14	1.911e+04	1.545e+04	1.24	yes	no	1.071
4	Unk	1,2,3,6,7,8-HxCDD	36:20	2.081e+04	1.665e+04	1.25	yes	no	1.060
5	Unk	1,2,3,7,8,9-HxCDD	36:34	2.125e+04	1.670e+04	1.27	yes	no	1.145
6	Unk	1,2,3,4,6,7,8-HpCDD	39:00	1.562e+04	1.501e+04	1.04	yes	no	1.112
7	Unk	OCDD	41:40	1.837e+04	2.049e+04	0.90	yes	no	1.157
8	IS	13C-2,3,7,8-TCDF	27:28	3.525e+04	4.407e+04	0.80	yes	no	1.417
9	IS	13C-1,2,3,7,8-PeCDF	31:50	6.336e+04	4.040e+04	1.57	yes	no	1.596
0	IS	13C-2,3,4,7,8-PeCDF	32:47	5.895e+04	3.601e+04	1.64	yes	no	1.571
1	IS	13C-1,2,3,4,7,8-HxCDF	35:28	2.759e+04	5.309e+04	0.52	yes	no	1.160
2	IS	13C-1,2,3,6,7,8-HxCDF	35:35	3.241e+04	6.190e+04	0.52	yes	no	1.336
3	IS	13C-2,3,4,6,7,8-HxCDF	36:06	2.893e+04	5.397e+04	0.54	yes	no	1.250
4	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.519e+04	4.985e+04	0.51	yes	no	1.131
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:05	2.073e+04	4.584e+04	0.45	yes	no	1.029
6	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.764e+04	3.964e+04	0.45	yes	no	0.907
7	IS	13C-2,3,7,8-TCDD	28:17	1.841e+04	2.415e+04	0.76	yes	no	0.983
8	IS	13C-1,2,3,7,8-PeCDD	33:04	4.723e+04	3.069e+04	1.54	yes	no	1.125
9	IS	13C-1,2,3,4,7,8-HxCDD	36:14	3.967e+04	3.187e+04	1.24	yes	no	0.903
0	IS	13C-1,2,3,6,7,8-HxCDD	36:19	4.018e+04	3.179e+04	1.26	yes	no	0.903
1	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	3.986e+04	3.773e+04	1.06	yes	no	0.857
2	IS	13C-OCDD	41:40	3.220e+04	3.629e+04	0.89	yes	no	0.659
3	RS/RT	13C-1,2,3,4-TCDD	27:40	4.523e+04	5.761e+04	0.79	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:33	5.878e+04	4.730e+04	1.24	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:19	2.634e+04				no	1.086

$$\text{OCDD} = \frac{(1.837e+04 + 2.049e+04) \times 4000\ \text{pg} \times 1}{(3.220e+04 + 3.629e+04) \times \text{g} \times / 100 \times 1.157}$$

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10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

un #19 Filename P616052 Samp: 1 Inj: 1 Acquired: 11-DEC-18 20:34:15
rocessed: 12-DEC-18 16:11:44 LAB. ID: EQ1800499-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	4.98e+05	1.91e+03	2.6e+02	6.00e+05	3.12e+03	1.9e+02
	1,2,3,7,8-PeCDF	5.27e+06	9.88e+02	5.3e+03	3.37e+06	4.39e+03	7.7e+02
	2,3,4,7,8-PeCDF	5.19e+06	9.88e+02	5.2e+03	3.37e+06	4.39e+03	7.7e+02
	1,2,3,4,7,8-HxCDF	5.98e+06	6.64e+02	9.0e+03	4.74e+06	1.30e+03	3.7e+03
	1,2,3,6,7,8-HxCDF	5.99e+06	6.64e+02	9.0e+03	4.90e+06	1.30e+03	3.8e+03
	2,3,4,6,7,8-HxCDF	5.39e+06	6.64e+02	8.1e+03	4.36e+06	1.30e+03	3.4e+03
	1,2,3,7,8,9-HxCDF	4.63e+06	6.64e+02	7.0e+03	3.74e+06	1.30e+03	2.9e+03
	1,2,3,4,6,7,8-HpCDF	4.69e+06	1.85e+03	2.5e+03	4.74e+06	1.85e+03	2.6e+03
	1,2,3,4,7,8,9-HpCDF	3.45e+06	1.85e+03	1.9e+03	3.32e+06	1.85e+03	1.8e+03
.0	OCDF	4.07e+06	9.04e+02	4.5e+03	4.38e+06	1.94e+03	2.3e+03
.1	2,3,7,8-TCDD	4.62e+05	3.86e+03	1.2e+02	6.13e+05	2.40e+03	2.6e+02
.2	1,2,3,7,8-PeCDD	4.09e+06	2.00e+03	2.0e+03	2.57e+06	9.12e+02	2.8e+03
.3	1,2,3,4,7,8-HxCDD	4.28e+06	7.12e+02	6.0e+03	3.41e+06	9.88e+02	3.5e+03
.4	1,2,3,6,7,8-HxCDD	4.28e+06	7.12e+02	6.0e+03	3.36e+06	9.88e+02	3.4e+03
.5	1,2,3,7,8,9-HxCDD	4.20e+06	7.12e+02	5.9e+03	3.33e+06	9.88e+02	3.4e+03
.6	1,2,3,4,6,7,8-HpCDD	3.05e+06	5.44e+02	5.6e+03	2.95e+06	6.72e+02	4.4e+03
.7	OCDD	3.26e+06	3.92e+02	8.3e+03	3.55e+06	6.24e+02	5.7e+03
18	13C-2,3,7,8-TCDF	5.50e+06	9.40e+03	5.8e+02	6.79e+06	6.86e+03	9.9e+02
19	13C-1,2,3,7,8-PeCDF	1.13e+07	1.12e+03	1.0e+04	7.17e+06	1.19e+03	6.0e+03
20	13C-2,3,4,7,8-PeCDF	1.05e+07	1.12e+03	9.4e+03	6.46e+06	1.19e+03	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	5.82e+06	1.37e+03	4.2e+03	1.15e+07	2.30e+03	5.0e+03
22	13C-1,2,3,6,7,8-HxCDF	6.36e+06	1.37e+03	4.6e+03	1.23e+07	2.30e+03	5.3e+03
23	13C-2,3,4,6,7,8-HxCDF	5.63e+06	1.37e+03	4.1e+03	1.07e+07	2.30e+03	4.7e+03
24	13C-1,2,3,7,8,9-HxCDF	4.81e+06	1.37e+03	3.5e+03	9.38e+06	2.30e+03	4.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.27e+06	2.47e+03	1.7e+03	9.45e+06	6.68e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.22e+06	2.47e+03	1.3e+03	7.09e+06	6.68e+03	1.1e+03
27	13C-2,3,7,8-TCDD	3.08e+06	1.85e+04	1.7e+02	4.05e+06	5.16e+03	7.8e+02
28	13C-1,2,3,7,8-PeCDD	8.36e+06	2.00e+03	4.2e+03	5.35e+06	1.80e+03	3.0e+03
29	13C-1,2,3,4,7,8-HxCDD	8.86e+06	2.53e+03	3.5e+03	7.13e+06	1.50e+03	4.8e+03
30	13C-1,2,3,6,7,8-HxCDD	8.20e+06	2.53e+03	3.2e+03	6.40e+06	1.50e+03	4.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.89e+06	8.52e+02	9.3e+03	7.48e+06	9.56e+02	7.8e+03
32	13C-OCDD	5.59e+06	1.28e+03	4.4e+03	6.29e+06	6.32e+02	9.9e+03
33	13C-1,2,3,4-TCDD	7.67e+06	1.85e+04	4.1e+02	9.73e+06	5.16e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.19e+07	2.53e+03	4.7e+03	9.40e+06	1.50e+03	6.3e+03
35	37Cl-2,3,7,8-TCDD	4.52e+06	3.52e+03	1.3e+03			

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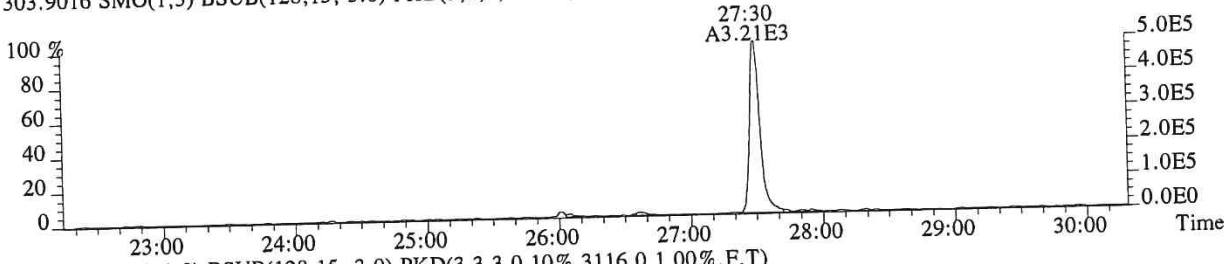
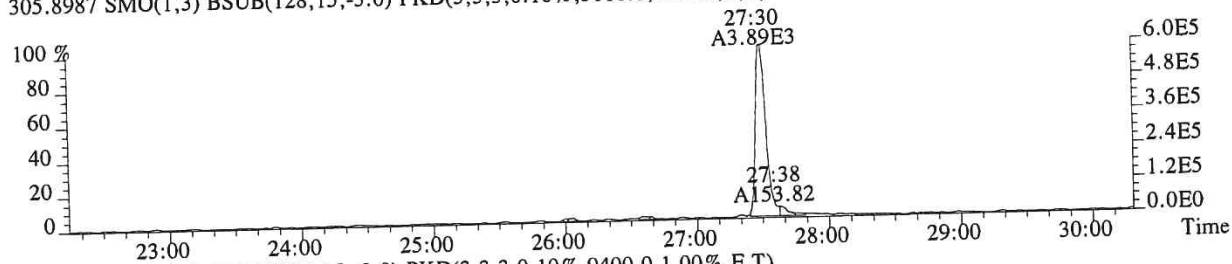
File:P616052 #1-573 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

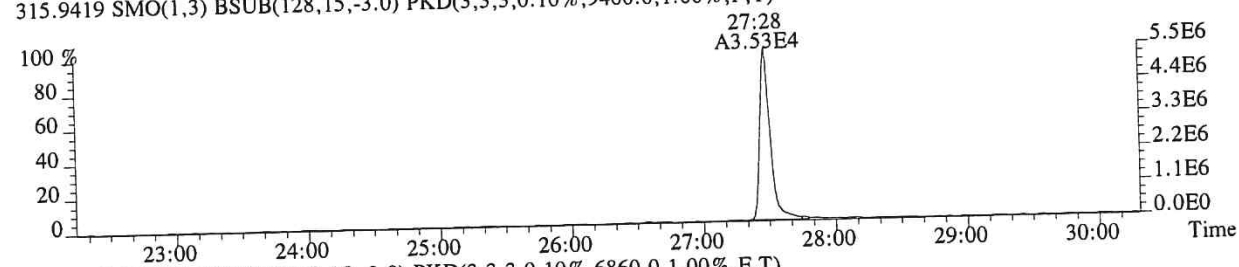
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



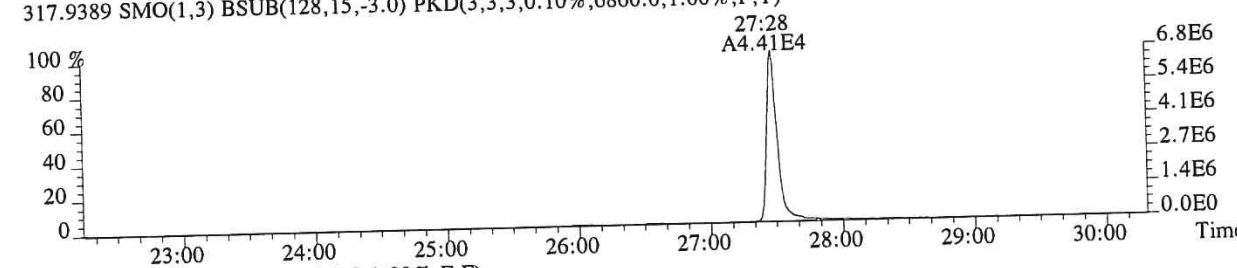
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3116.0,1.00%,F,T)



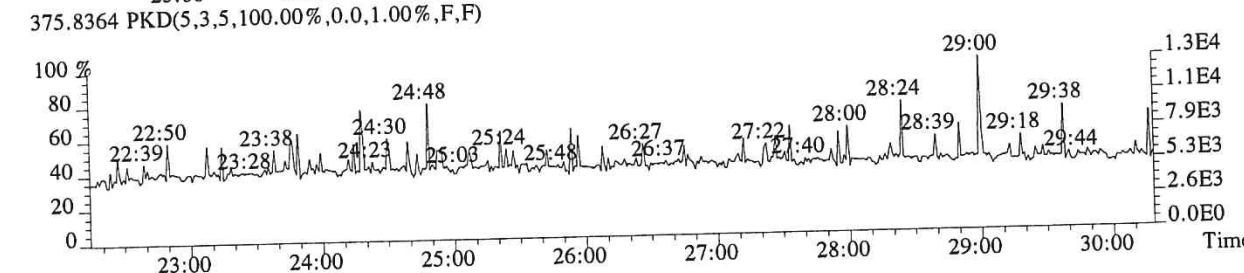
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9400.0,1.00%,F,T)



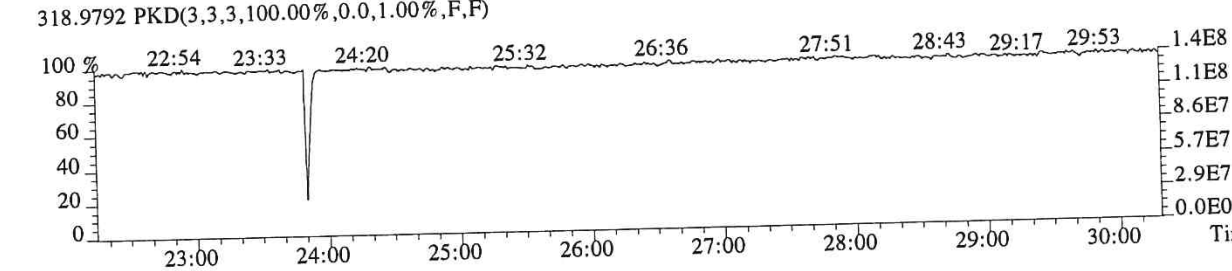
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



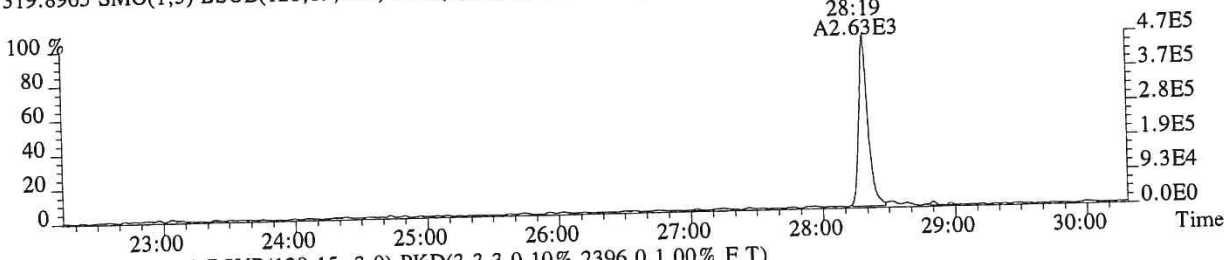
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



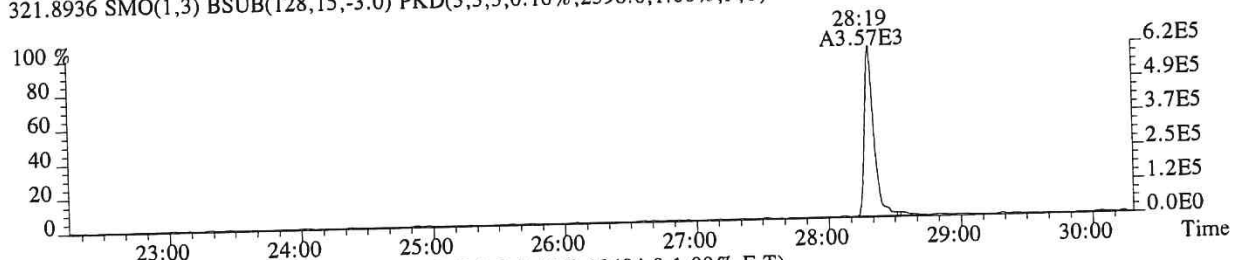
013400

File:P616052 #1-573 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

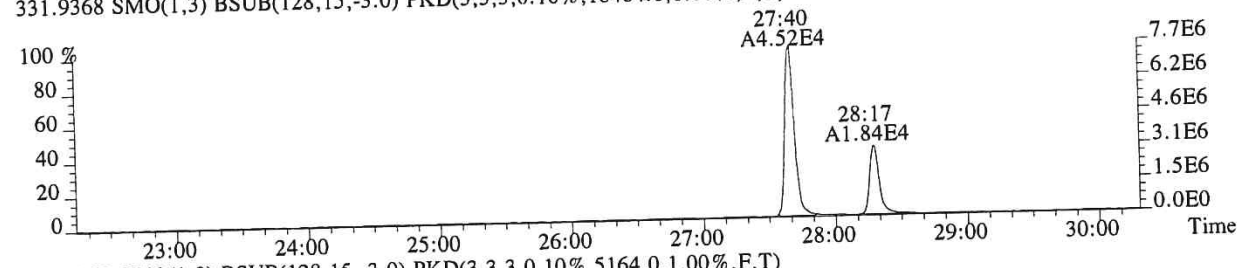
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3864.0,1.00%,F,T)



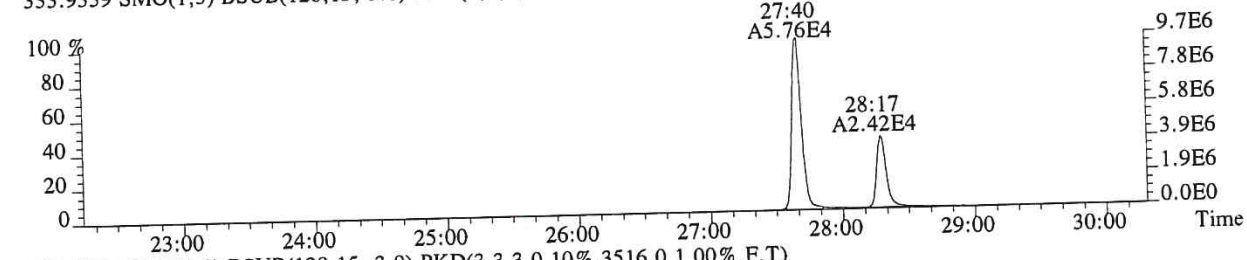
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2396.0,1.00%,F,T)



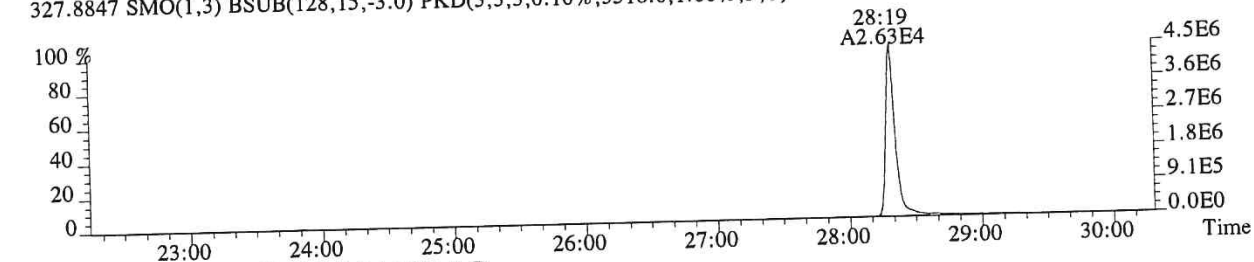
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18484.0,1.00%,F,T)



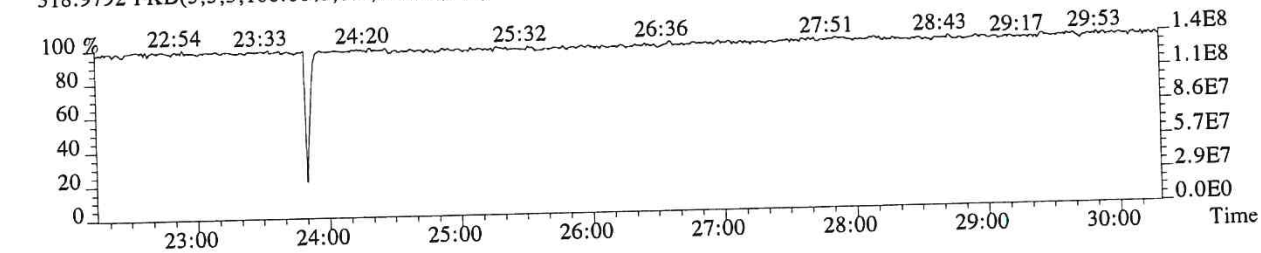
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5164.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3516.0,1.00%,F,T)



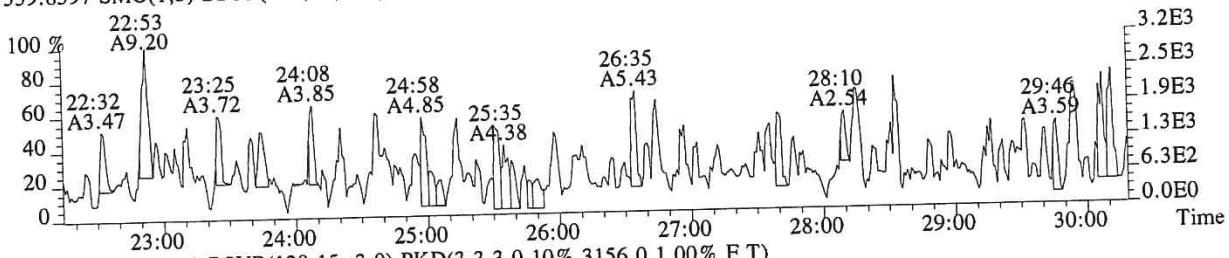
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



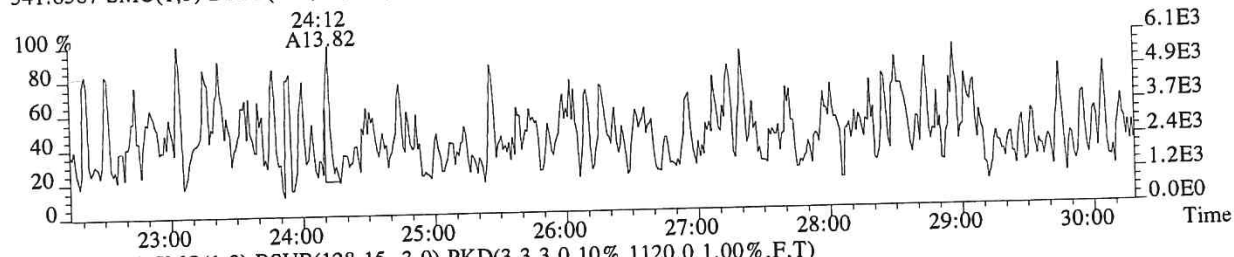
013401

File:P616052 #1-573 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:DLCS

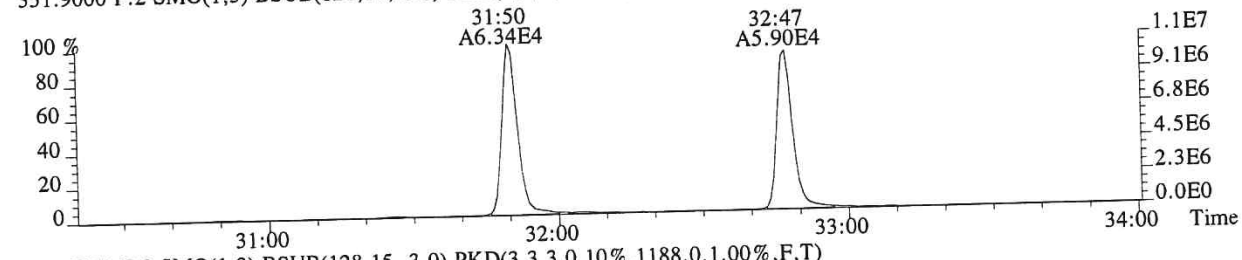
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



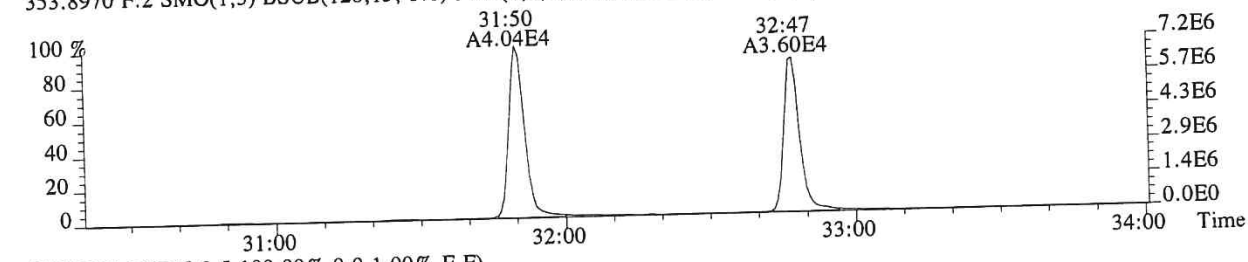
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3156.0,1.00%,F,T)



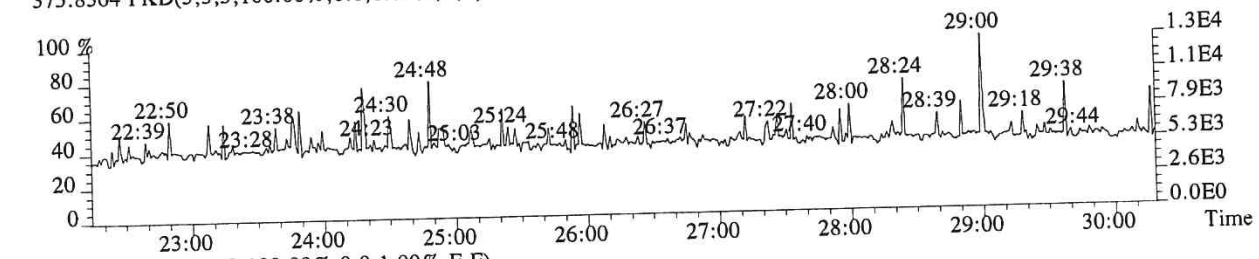
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



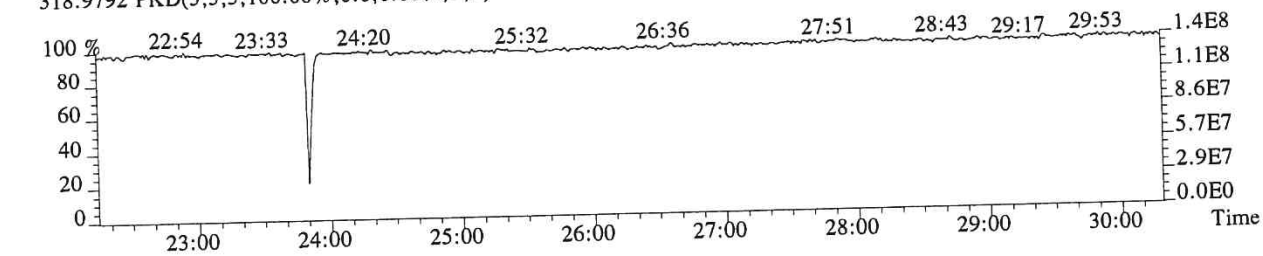
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

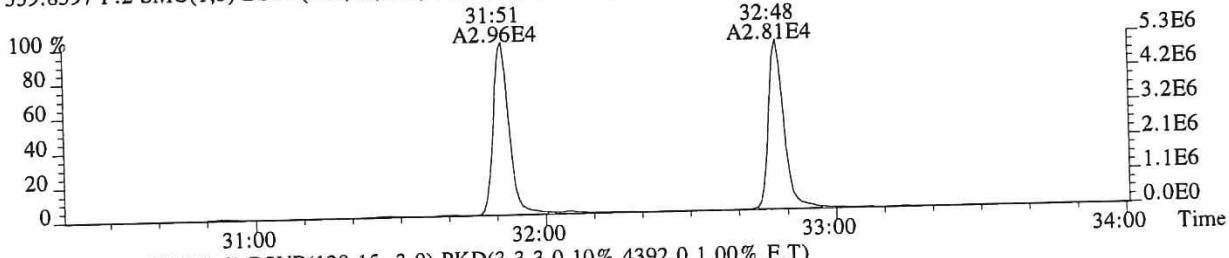


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

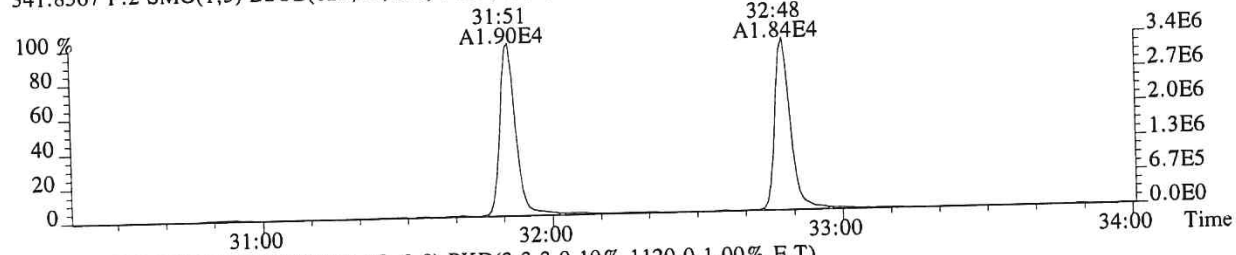


013402

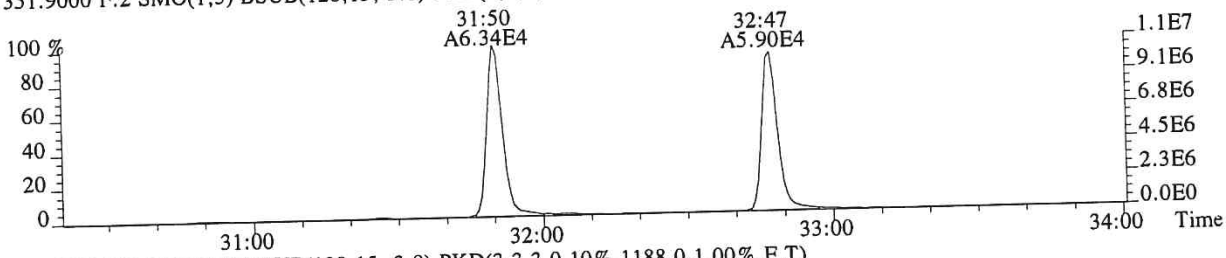
File:P616052 #1-331 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



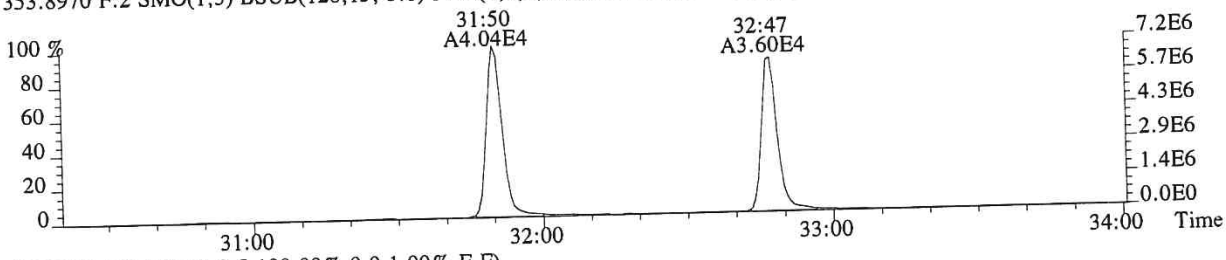
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



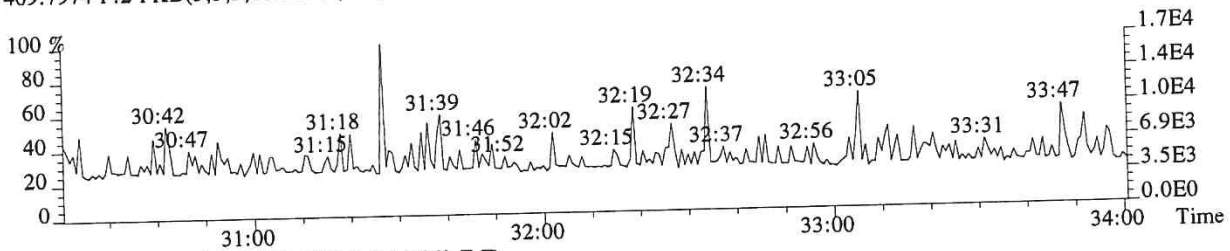
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



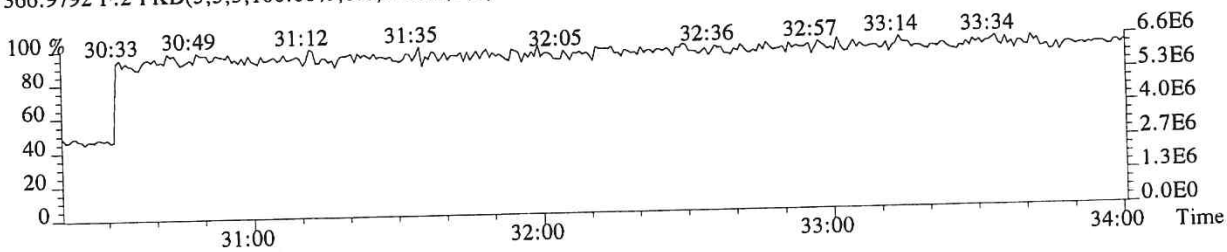
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



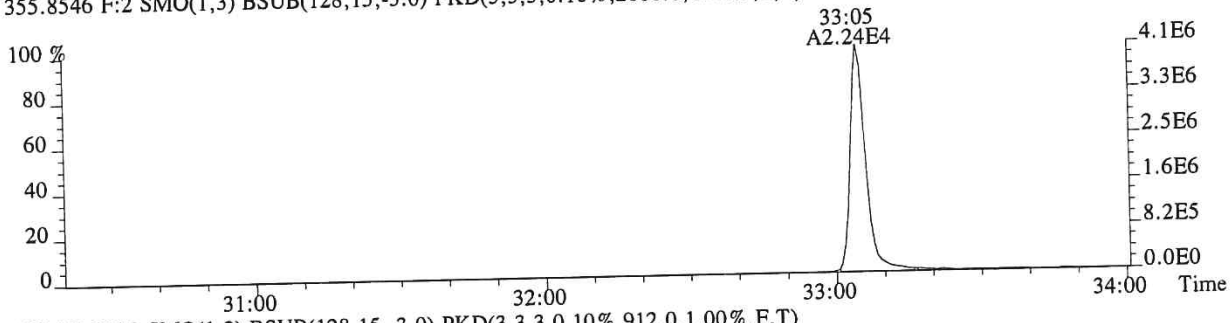
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



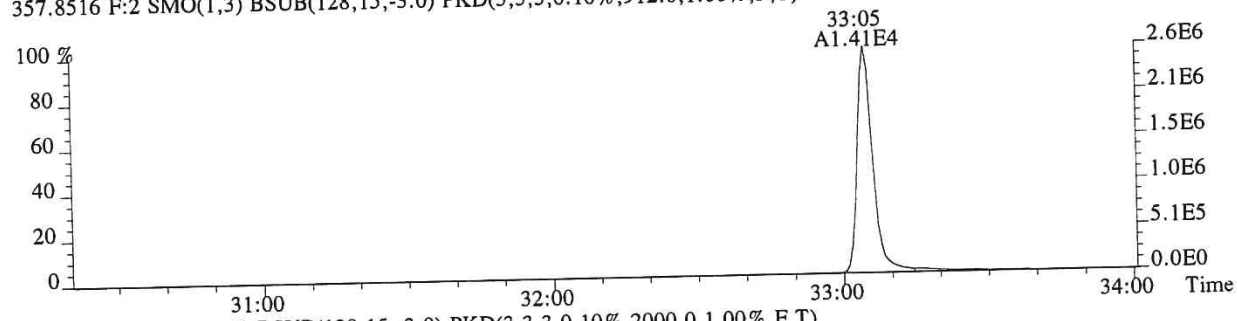
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



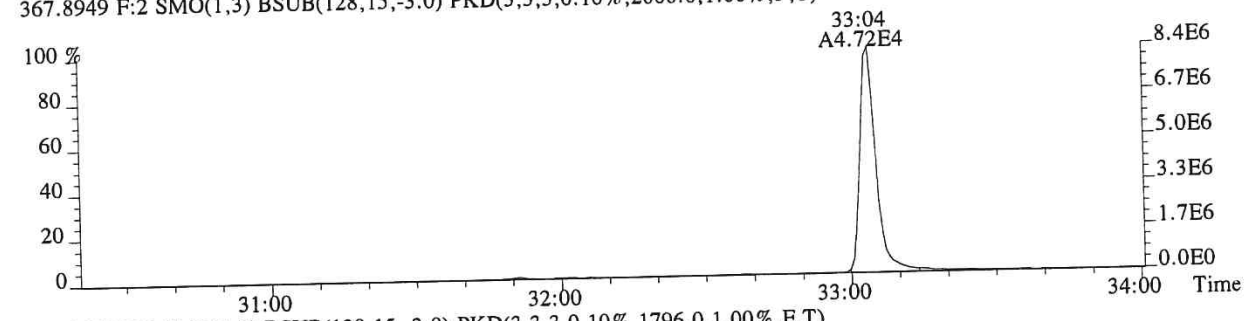
File:P616052 #1-331 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



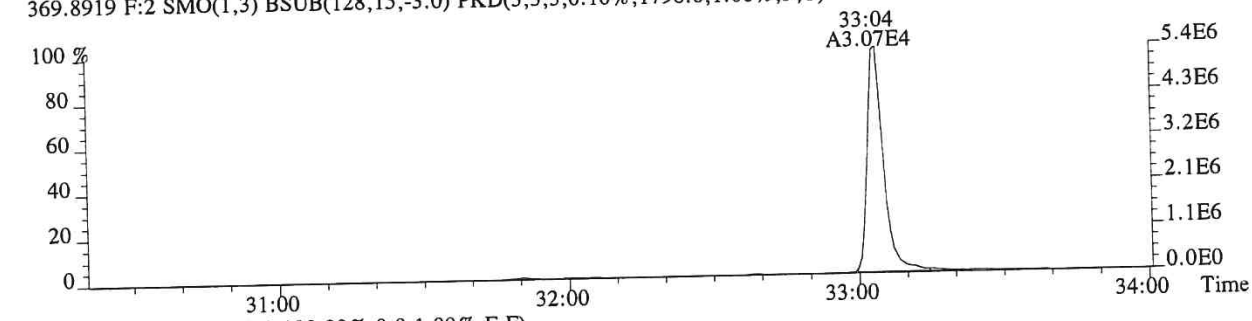
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



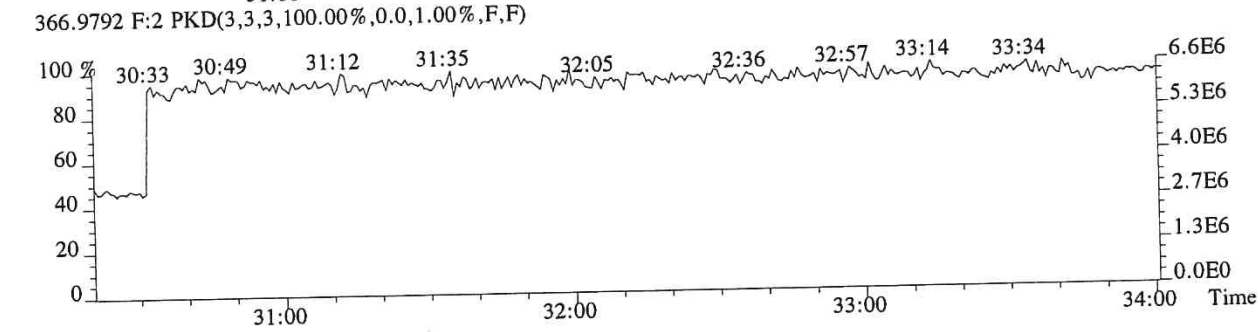
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)

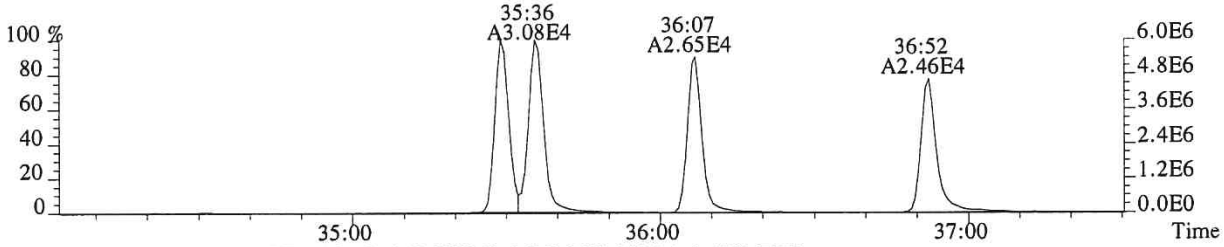


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

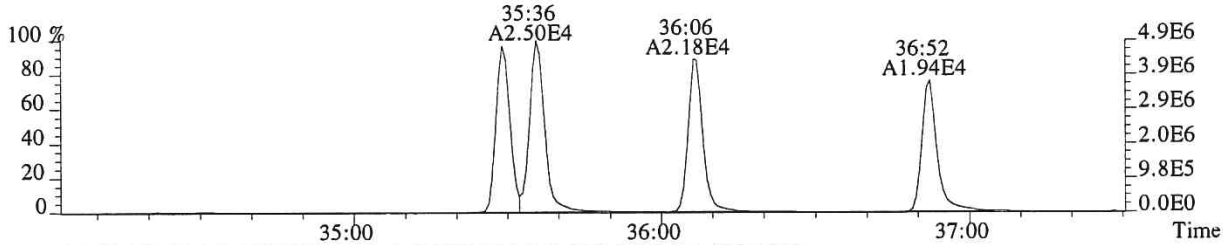


File:P616052 #1-312 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

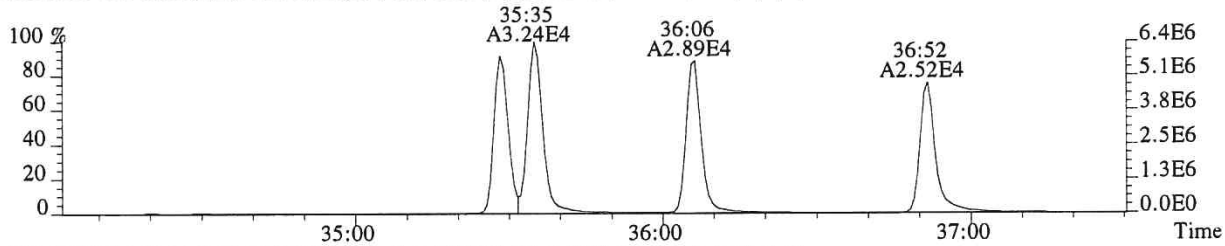
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



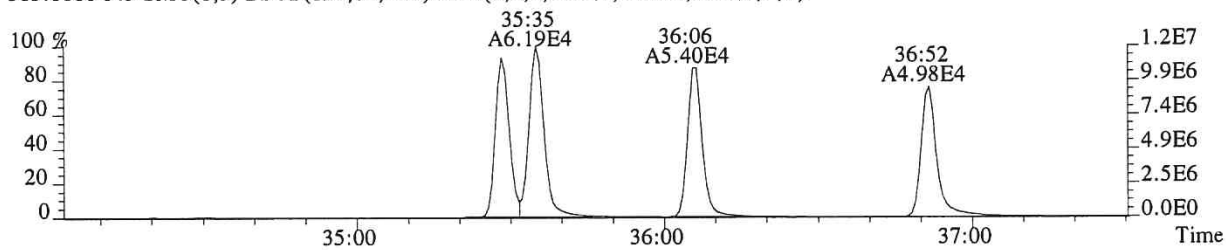
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



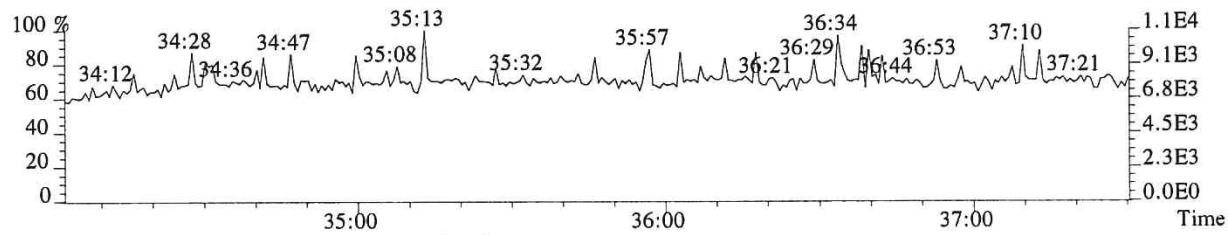
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1372.0,0.40%,F,T)



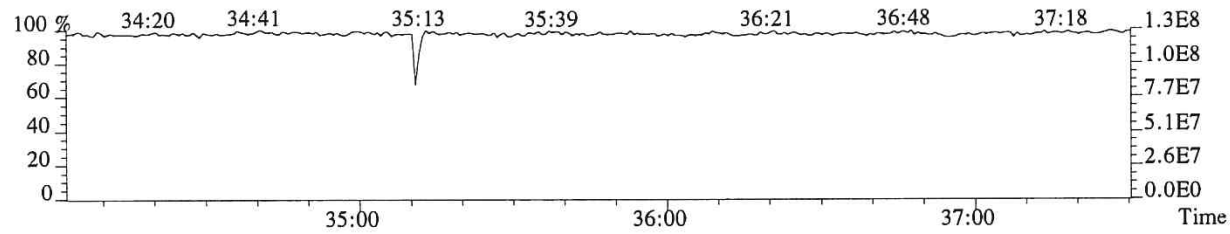
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



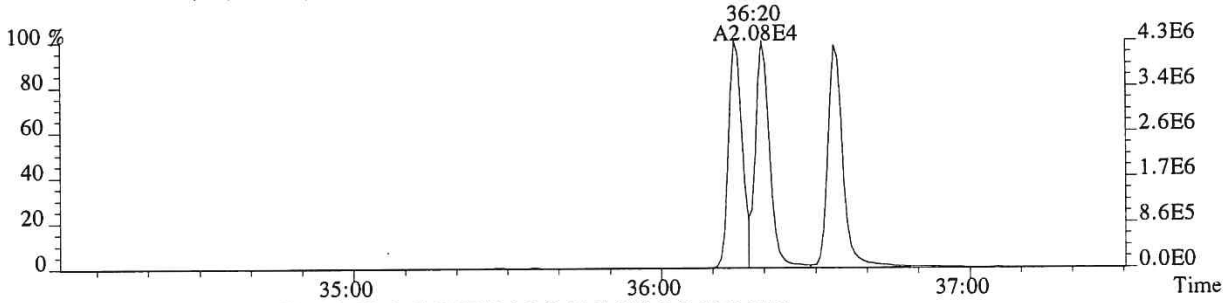
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



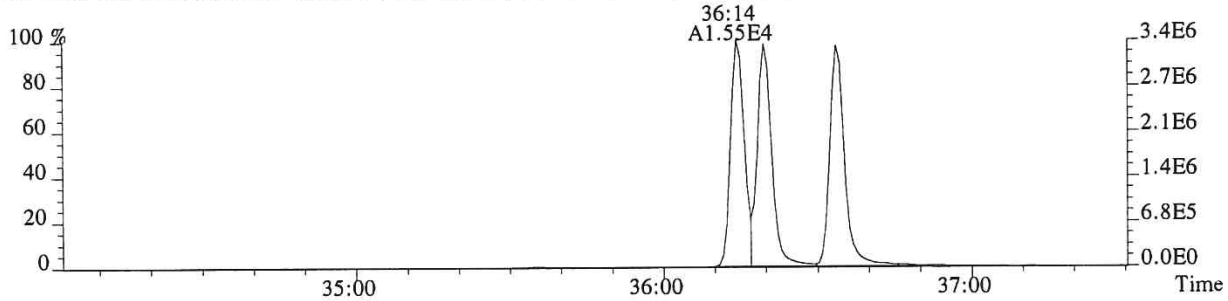
013405

File:P616052 #1-312 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

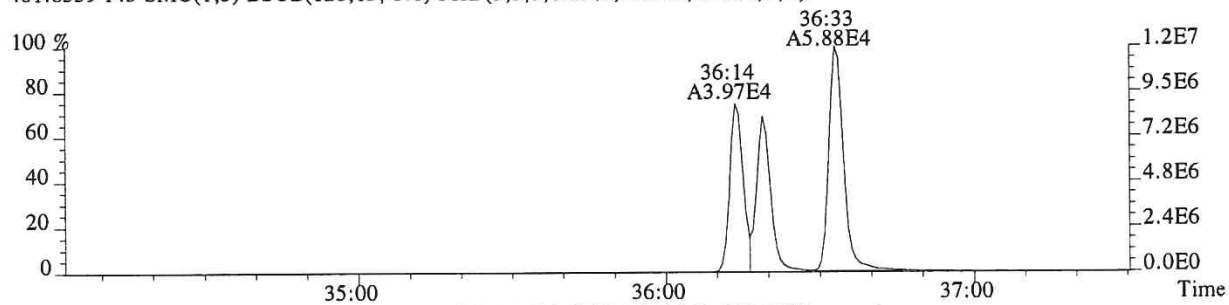
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



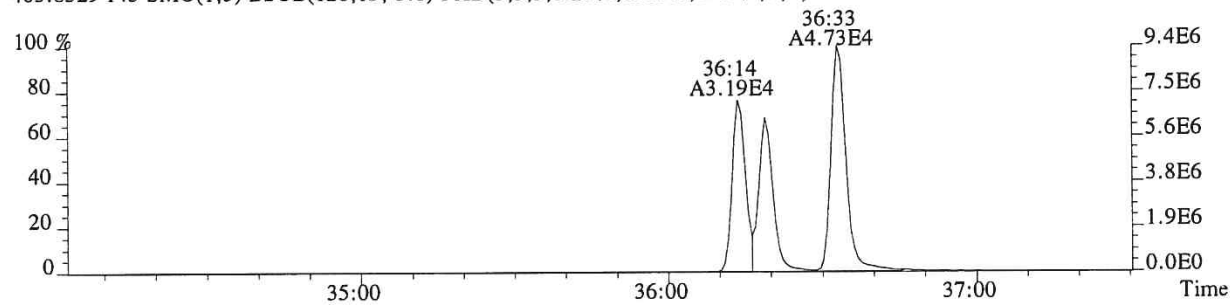
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



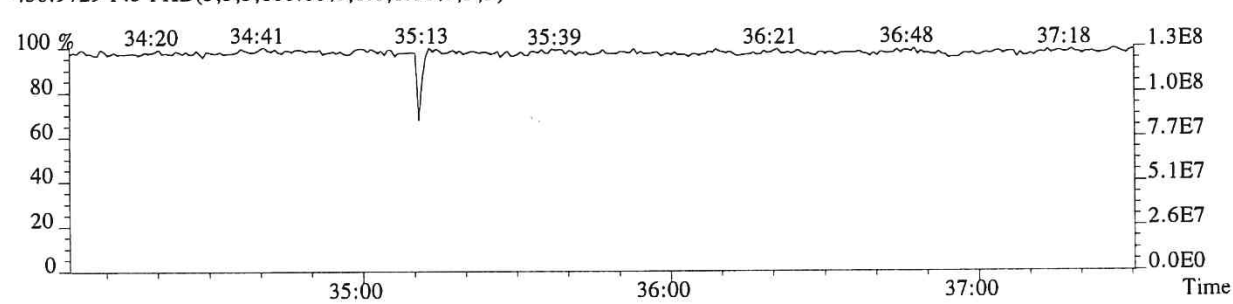
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2532.0,0.40%,F,T)



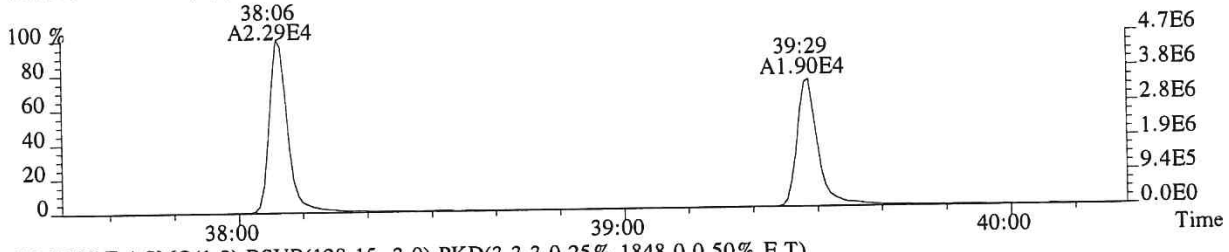
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



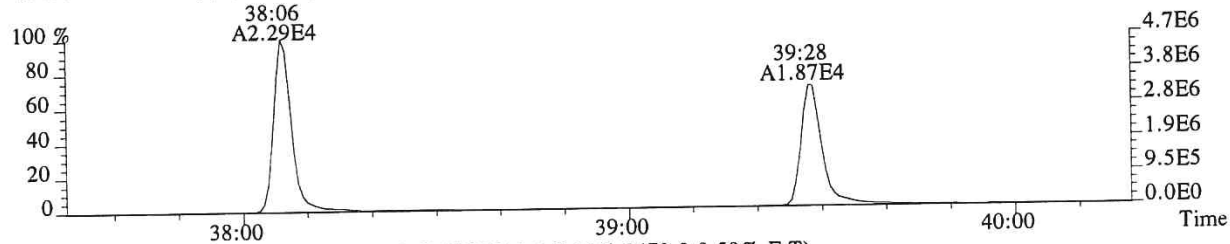
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



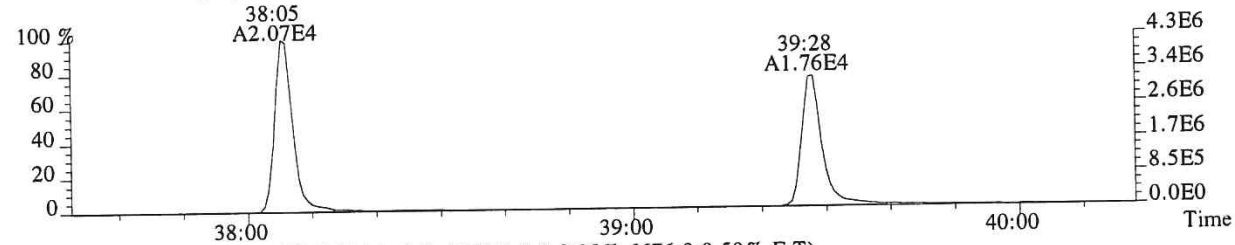
File:P616052 #1-249 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1852.0,0.50%,F,T)



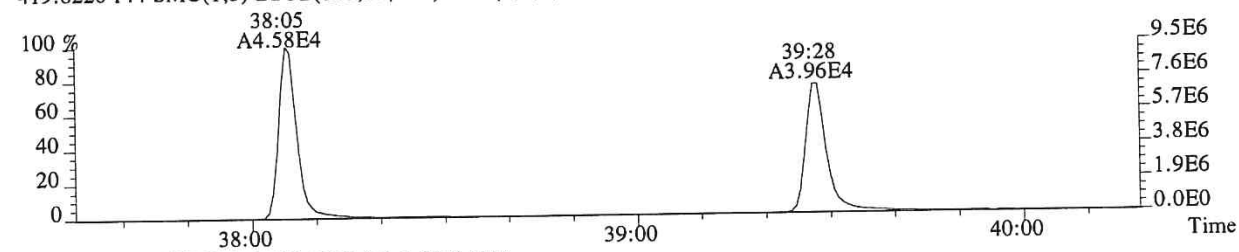
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.50%,F,T)



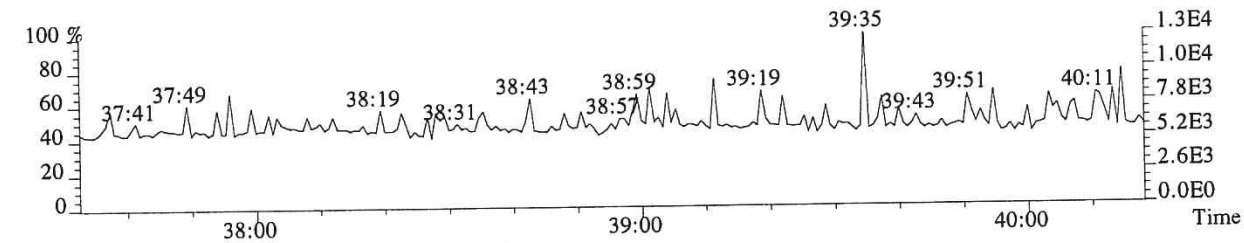
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2472.0,0.50%,F,T)



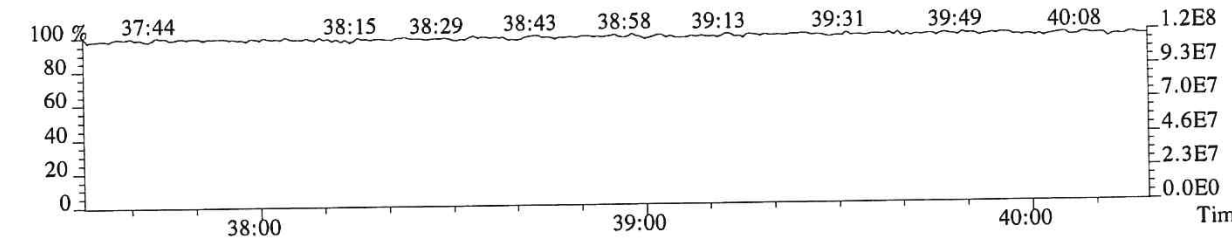
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6676.0,0.50%,F,T)



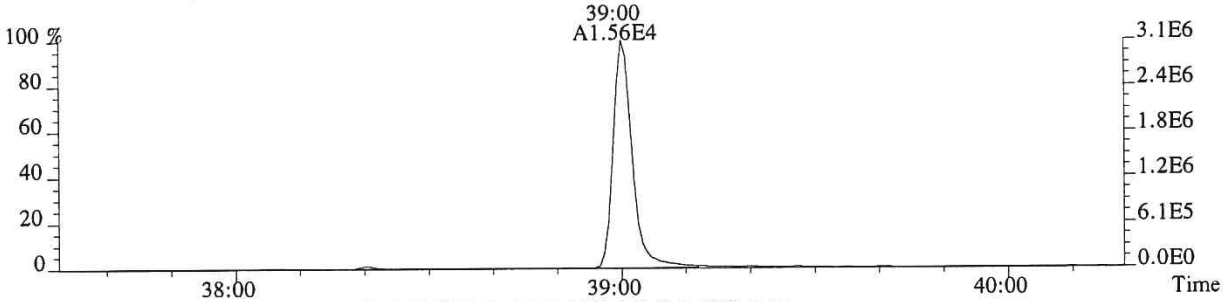
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



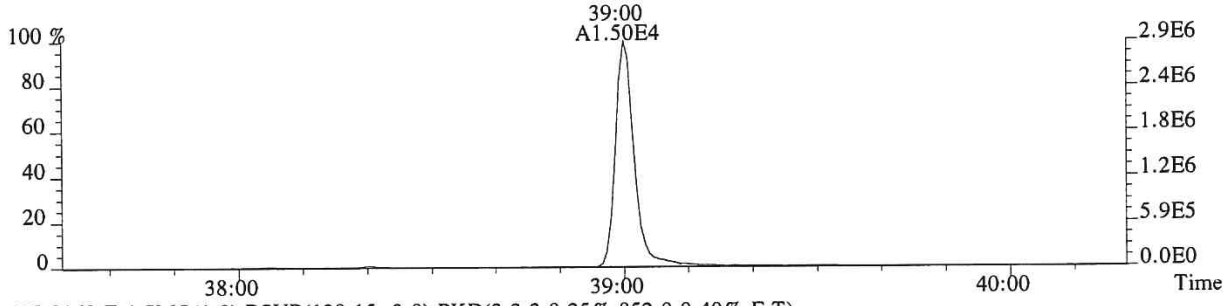
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



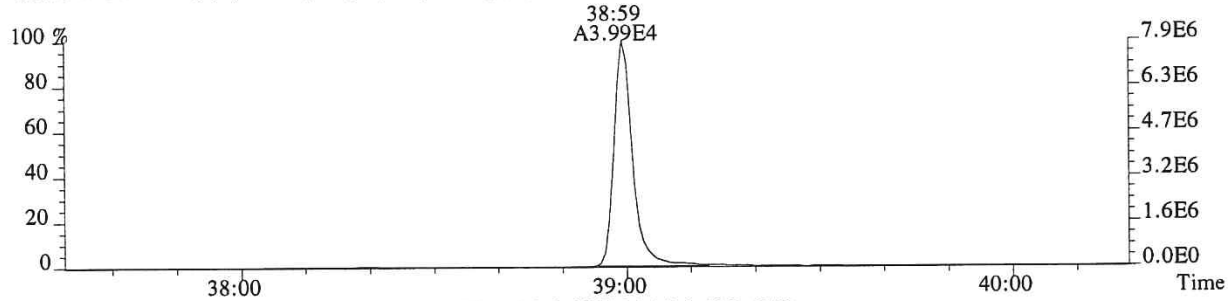
File:P616052 #1-249 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



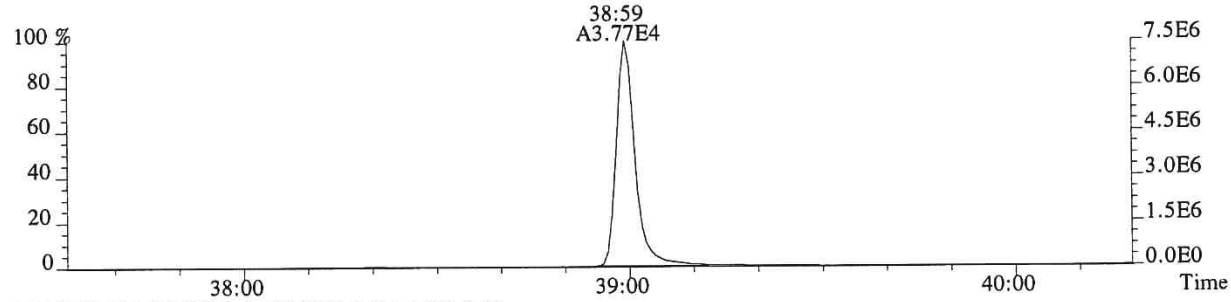
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



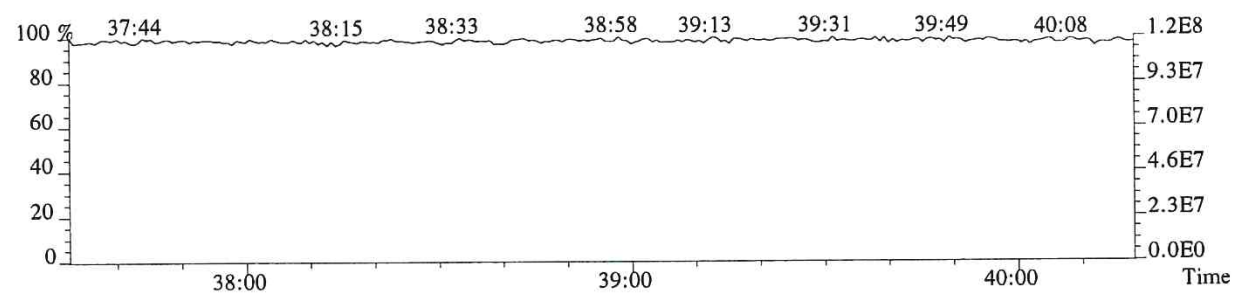
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)

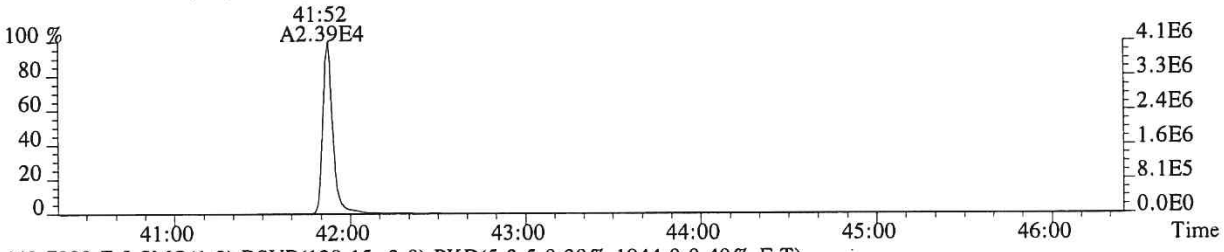


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

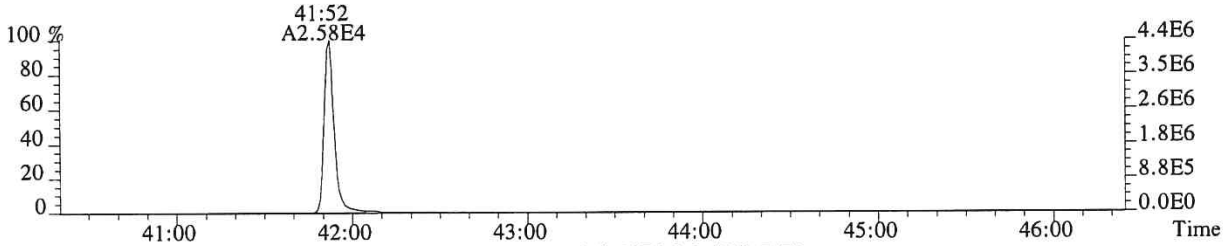


File:P616052 #1-547 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

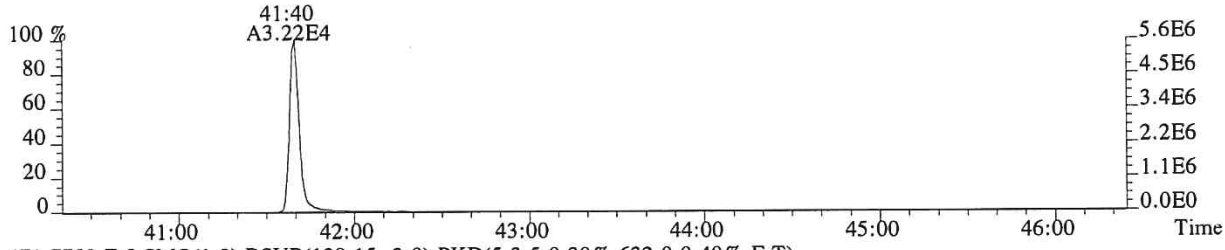
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,904.0,0.40%,F,T)



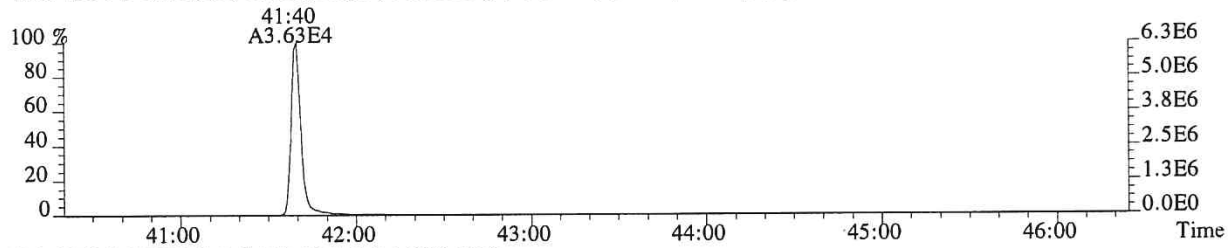
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1944.0,0.40%,F,T)



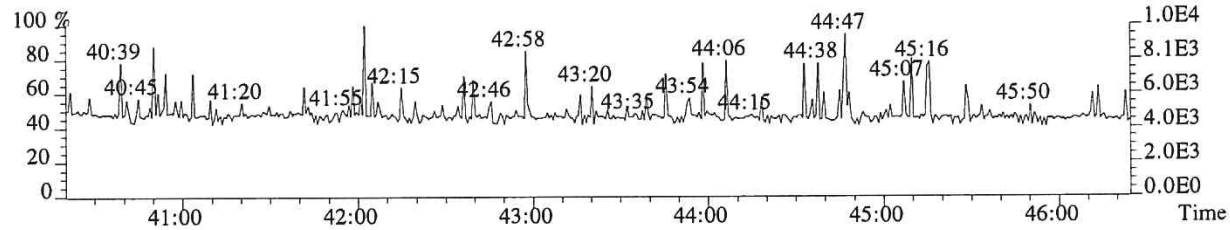
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



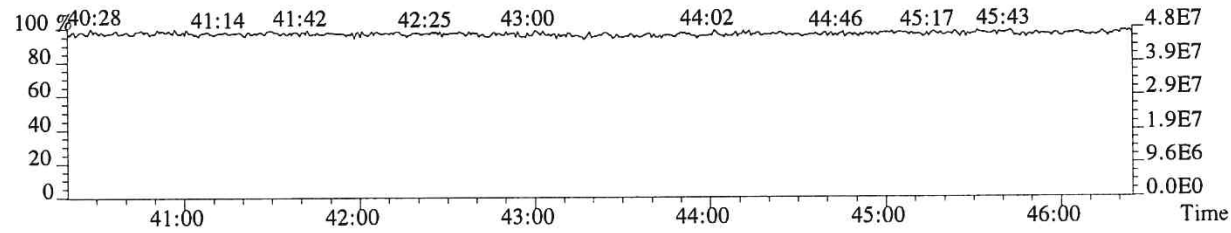
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



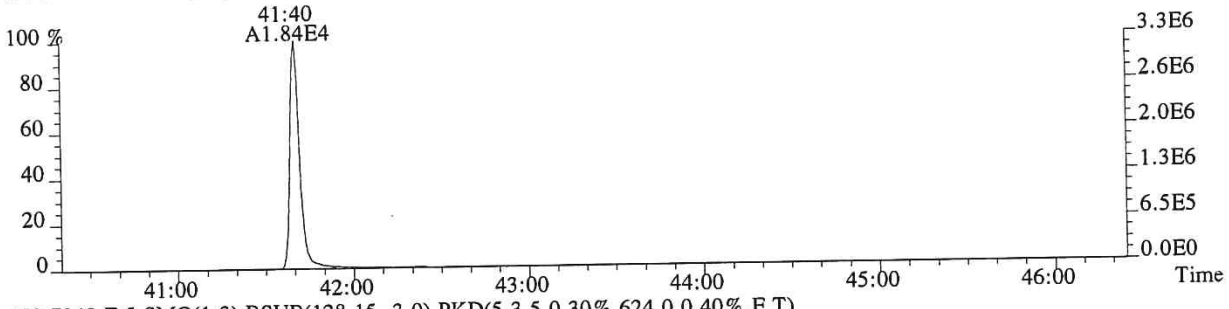
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



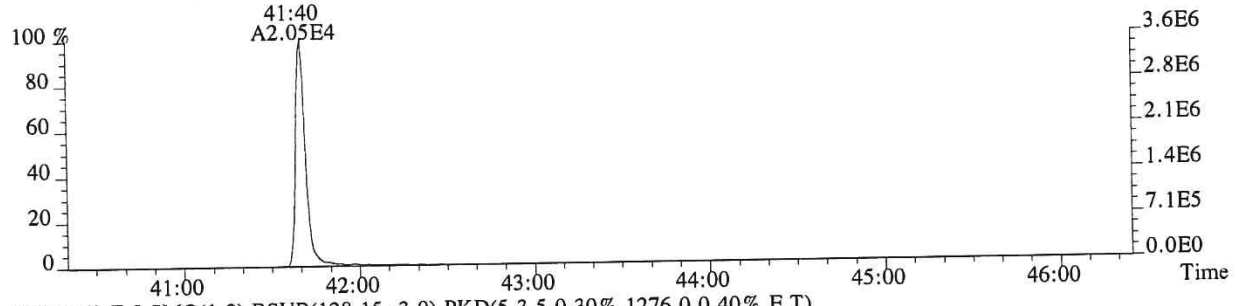
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



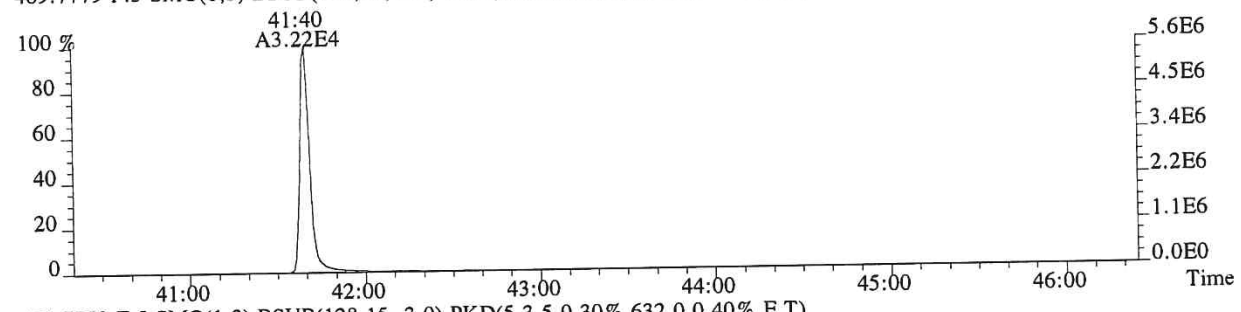
File:P616052 #1-547 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



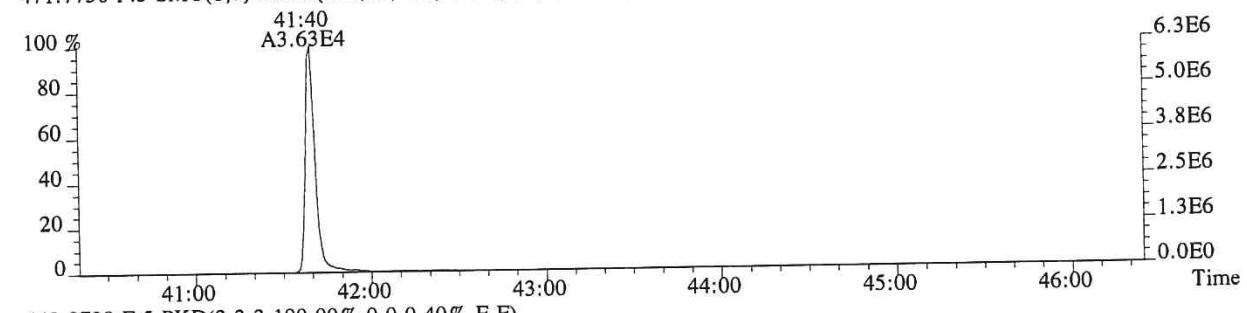
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



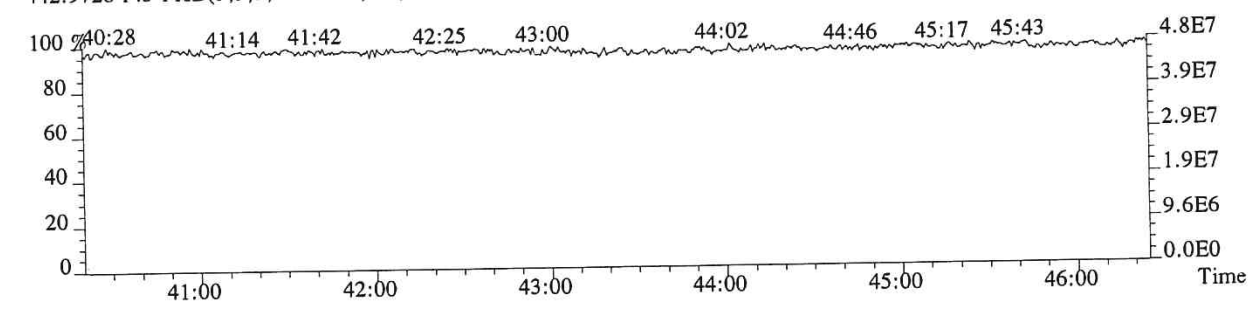
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



013410

Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519255

Date: 12/06/18 - 12/07/18 (Beginning) / Ending — Circle one:

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519255	6-DEC-18	16:20:56
192977	WINDOW DEFINE	P519256	6-DEC-18	17:15:32
METHOD BLANK	EQ1800485-01	P519257	6-DEC-18	18:03:19
METHOD BLANK	EQ1800496-01	P519258	6-DEC-18	18:51:56
SL0175	E1801056-023	P519259	6-DEC-18	19:40:34
SL0221	E1801056-057	P519260	6-DEC-18	20:29:10
SL0227	E1801056-063	P519261	6-DEC-18	21:17:47
SL0243	E1801058-011	P519262	6-DEC-18	22:06:25
SL0249	E1801058-017	P519263	6-DEC-18	22:55:02
SL0250	E1801058-018	P519264	6-DEC-18	23:43:40
SL0256	E1801058-024	P519265	7-DEC-18	00:32:18
COLUMBUS BLEACH PL	K1811351-001	P519266	7-DEC-18	01:20:55
18-C036150	K1811360-001	P519267	7-DEC-18	02:09:32
LCS	EQ1800496-02	P519268	7-DEC-18	02:58:10
DLCS	EQ1800496-03	P519269	7-DEC-18	03:46:47

E1801058

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181206.SPL
Last Modified: Friday, December 07, 2018 06:45:00 Central Standard Time
Printed: Friday, December 07, 2018 06:45:02 Central Standard Time

Page Position (1, 1)

Opus 4: P519255res

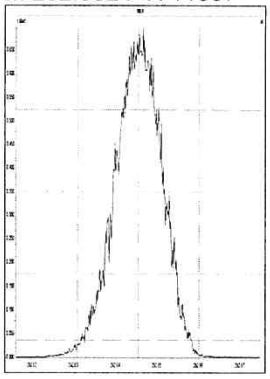
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/6/18	16:20	P519255	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	1+RLS check 16:16
2		17:15	P519256	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		18:03	P519257	MB	EQ1800485-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		18:51	P519258	MB	EQ1800496-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		19:40	P519259	E1801056-023	E1801056-023	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		20:29	P519260	E1801056-057	E1801056-057	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		21:17	P519261	E1801056-063	E1801056-063	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		22:06	P519262	E1801058-011	E1801058-011	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		22:55	P519263	E1801058-017	E1801058-017	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		23:43	P519264	E1801058-018	E1801058-018	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11	12/7/18	00:32	P519265	E1801058-024	E1801058-024	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		01:20	P519266	K1811351-001	K1811351-001	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		02:09	P519267	K1811360-001	K1811360-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		02:58	P519268	LCS	EQ1800496-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		03:46	P519269	DLCS	EQ1800496-03	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		04:43	P519270	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		1+ RLS check 04:37
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 12/07/18

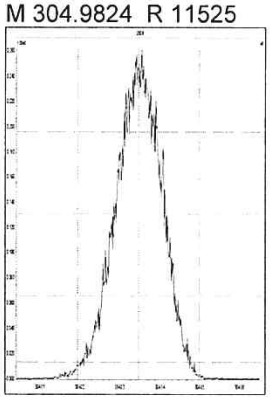
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, December 06, 2018 16:16:52 Central Standard Time

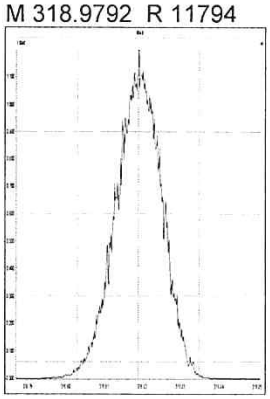
M 292.9824 R 11307



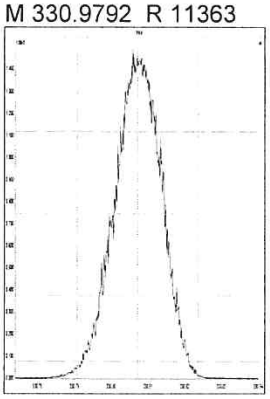
M 304.9824 R 11525



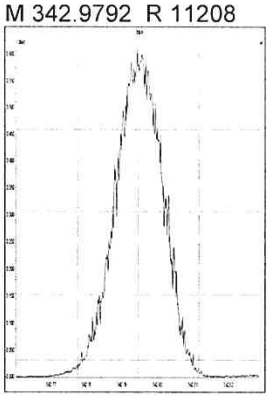
M 318.9792 R 11794



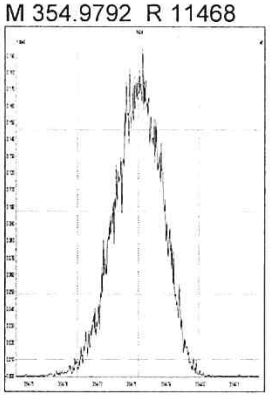
M 330.9792 R 11363



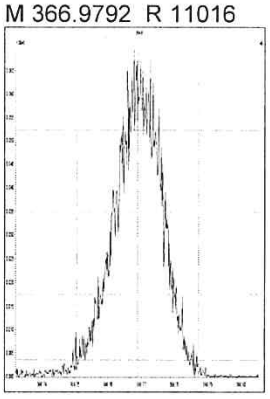
M 342.9792 R 11208



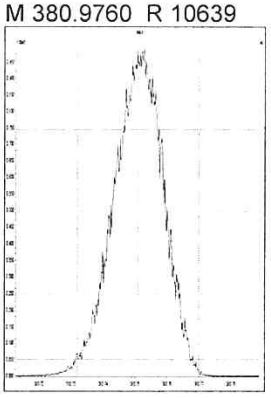
M 354.9792 R 11468



M 366.9792 R 11016



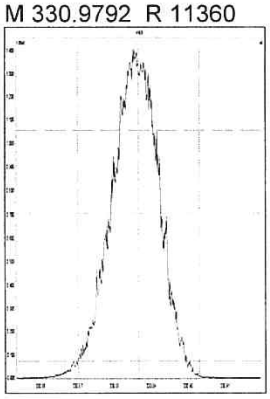
M 380.9760 R 10639



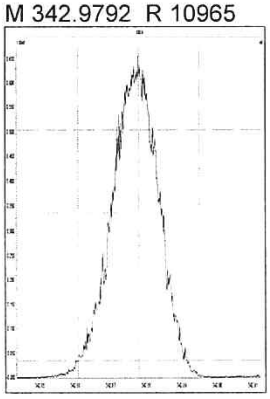
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, December 06, 2018 16:17:32 Central Standard Time

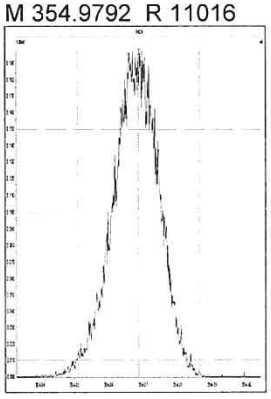
M 330.9792 R 11360



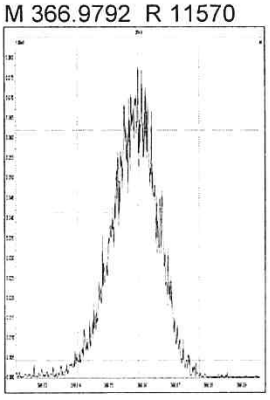
M 342.9792 R 10965



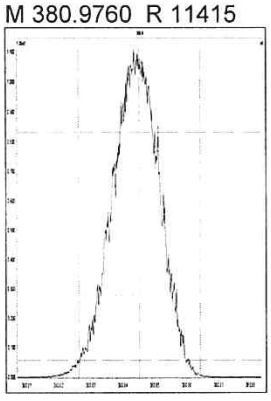
M 354.9792 R 11016



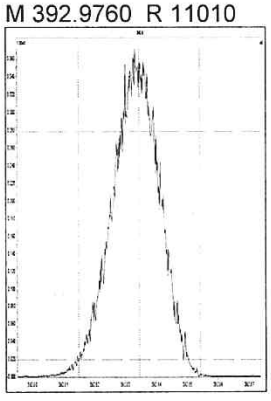
M 366.9792 R 11570



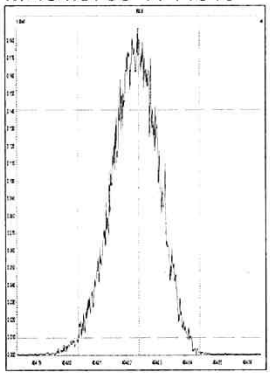
M 380.9760 R 11415



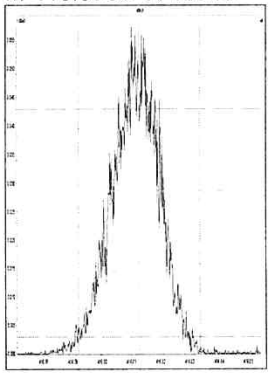
M 392.9760 R 11010



M 404.9760 R 11013



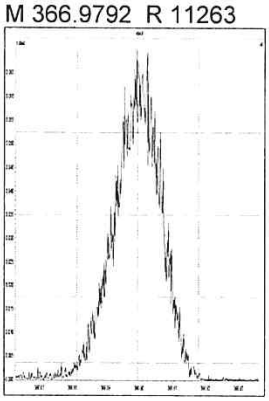
M 416.9760 R 10919



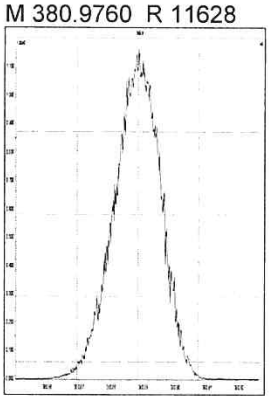
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, December 06, 2018 16:18:20 Central Standard Time

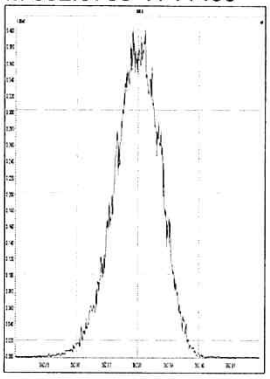
M 366.9792 R 11263



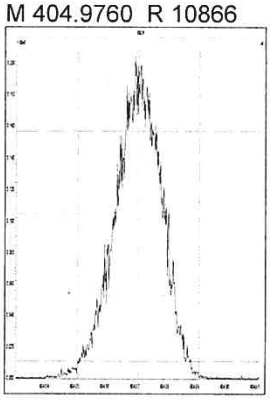
M 380.9760 R 11628



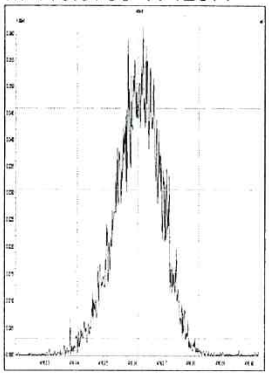
M 392.9760 R 11466



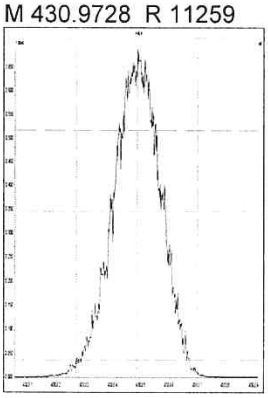
M 404.9760 R 10866



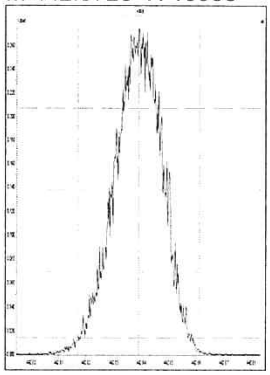
M 416.9760 R 12077



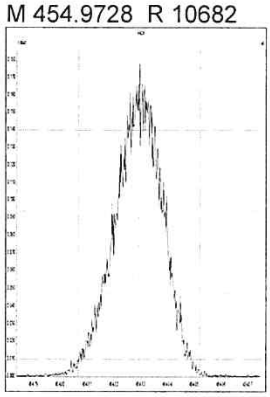
M 430.9728 R 11259



M 442.9728 R 10965



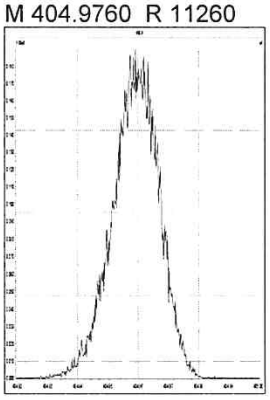
M 454.9728 R 10682



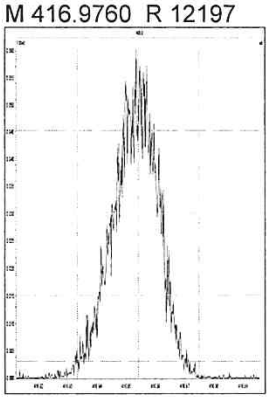
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, December 06, 2018 16:19:02 Central Standard Time

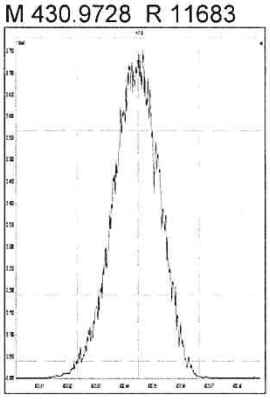
M 404.9760 R 11260



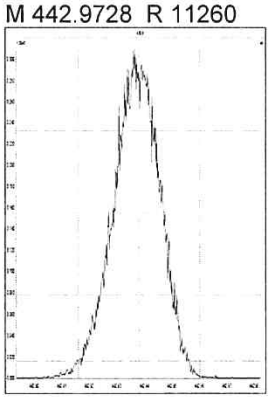
M 416.9760 R 12197



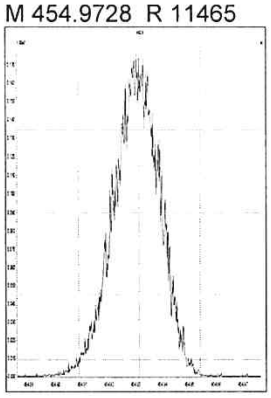
M 430.9728 R 11683



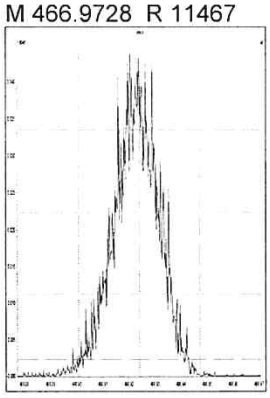
M 442.9728 R 11260



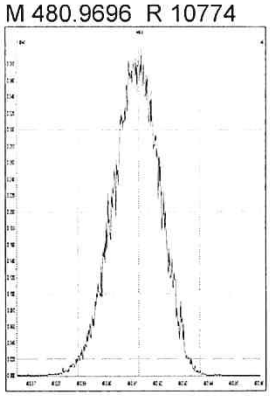
M 454.9728 R 11465



M 466.9728 R 11467



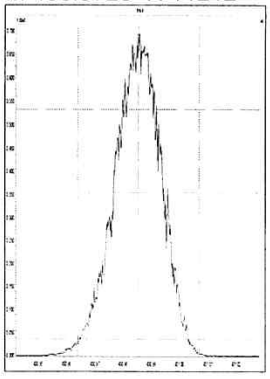
M 480.9696 R 10774



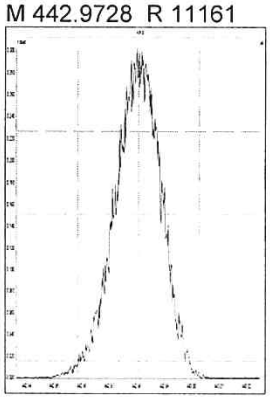
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, December 06, 2018 16:20:00 Central Standard Time

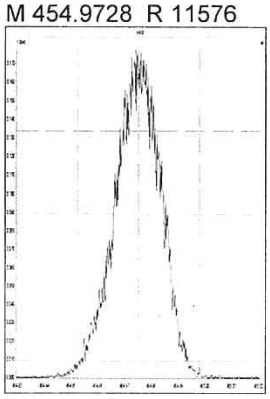
M 430.9728 R 11212



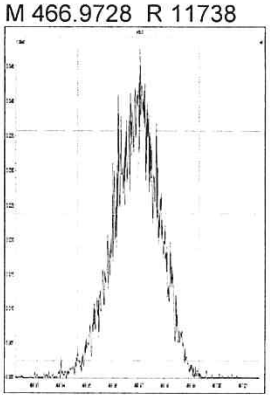
M 442.9728 R 11161



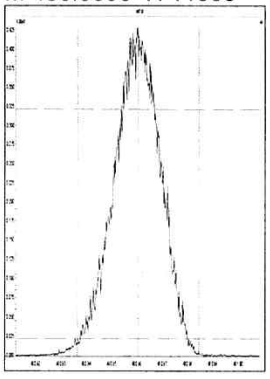
M 454.9728 R 11576



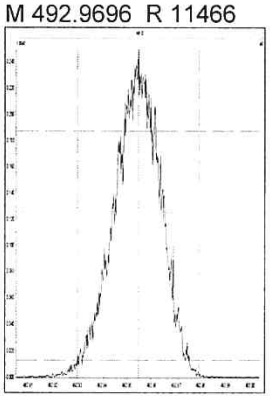
M 466.9728 R 11738



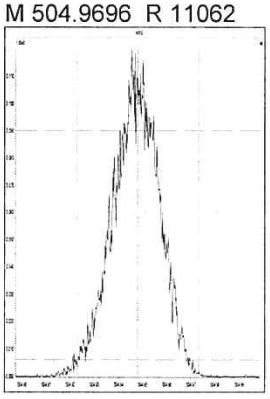
M 480.9696 R 11308



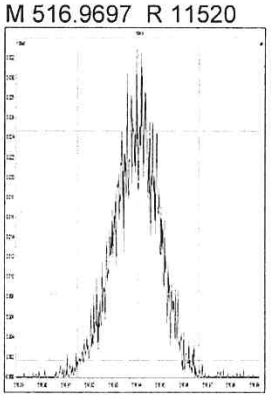
M 492.9696 R 11466



M 504.9696 R 11062



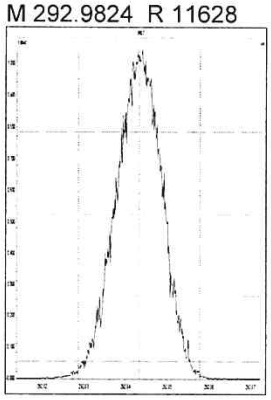
M 516.9697 R 11520



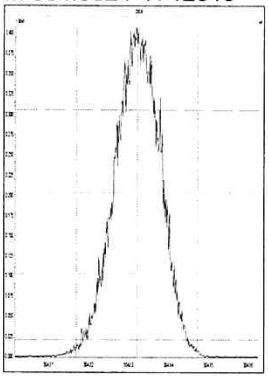
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:37:46 Central Standard Time

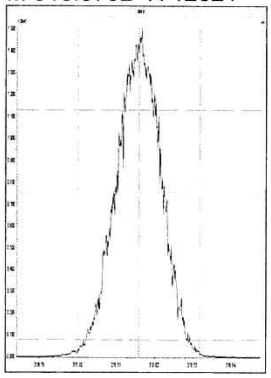
M 292.9824 R 11628



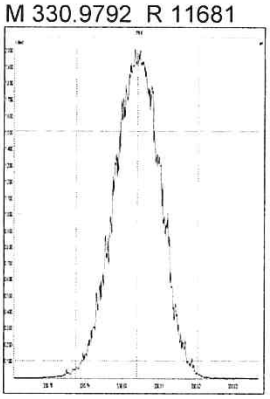
M 304.9824 R 12319



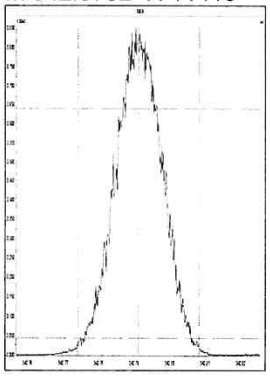
M 318.9792 R 12021



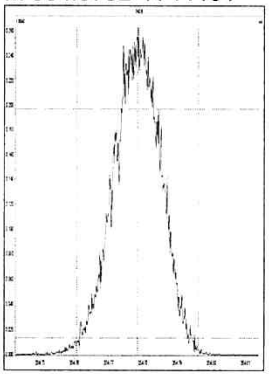
M 330.9792 R 11681



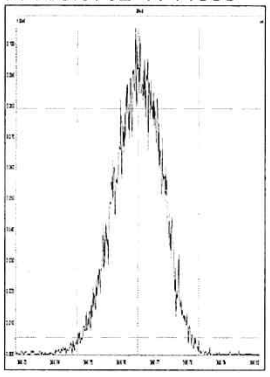
M 342.9792 R 11413



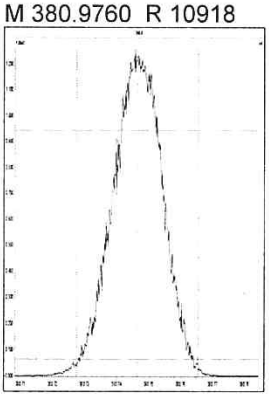
M 354.9792 R 11161



M 366.9792 R 11366



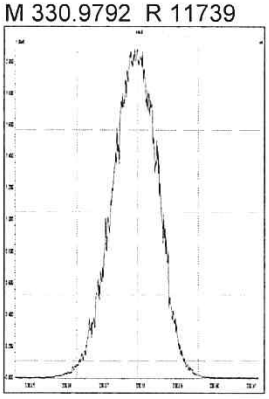
M 380.9760 R 10918



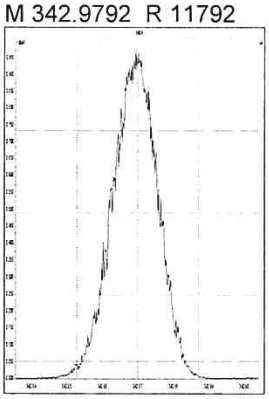
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:38:25 Central Standard Time

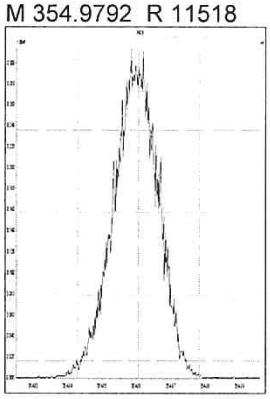
M 330.9792 R 11739



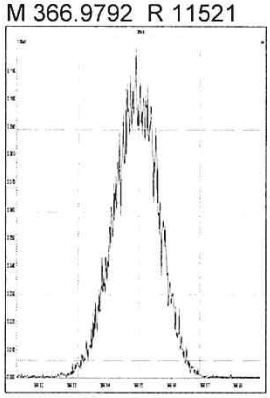
M 342.9792 R 11792



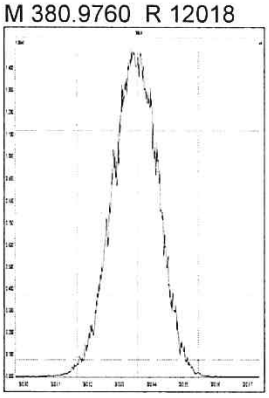
M 354.9792 R 11518



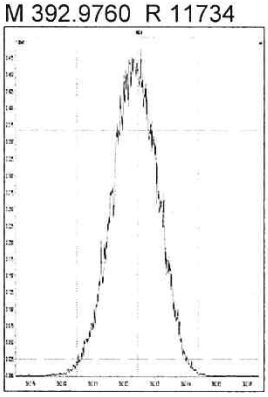
M 366.9792 R 11521



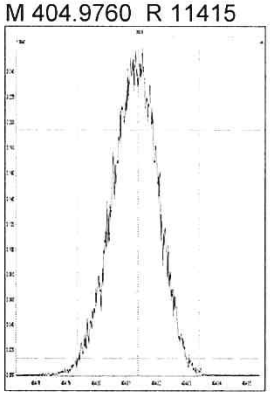
M 380.9760 R 12018



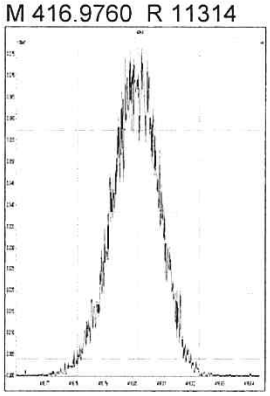
M 392.9760 R 11734



M 404.9760 R 11415



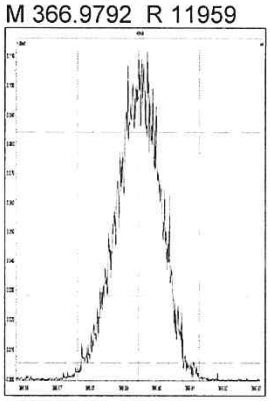
M 416.9760 R 11314



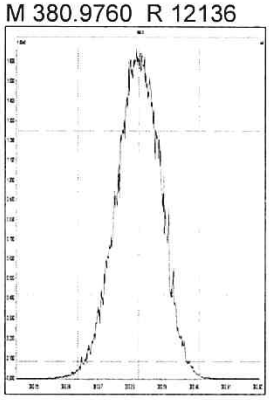
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:39:05 Central Standard Time

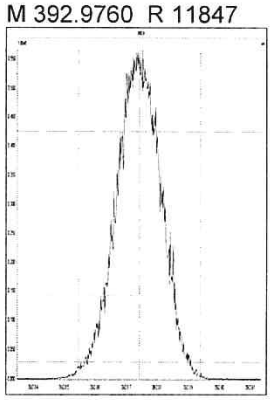
M 366.9792 R 11959



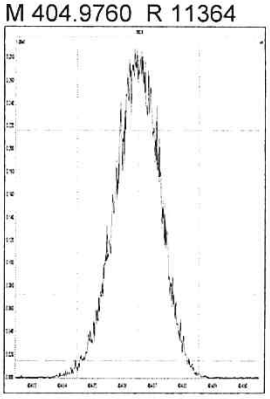
M 380.9760 R 12136



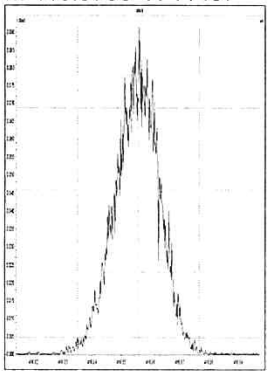
M 392.9760 R 11847



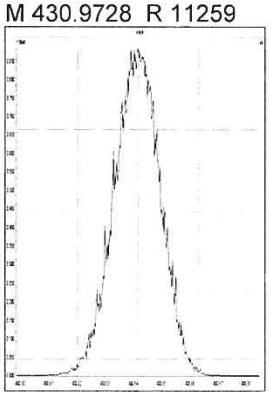
M 404.9760 R 11364



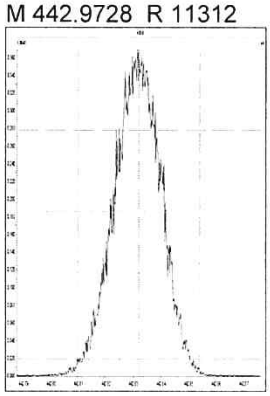
M 416.9760 R 11467



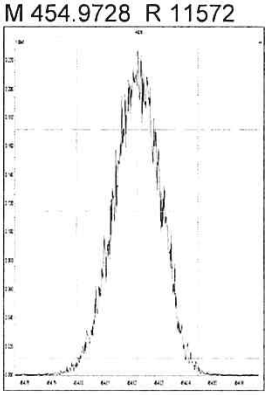
M 430.9728 R 11259



M 442.9728 R 11312



M 454.9728 R 11572



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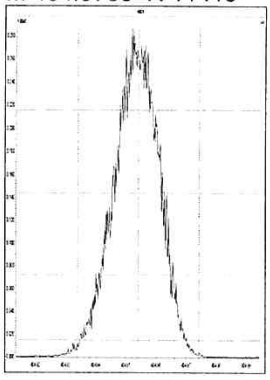
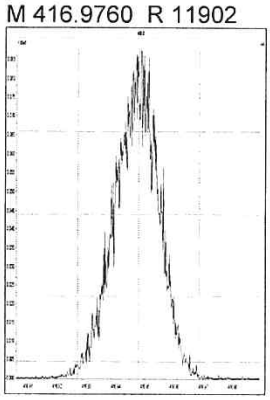
Printed: Friday, December 07, 2018 06:39:45 Central Standard Time

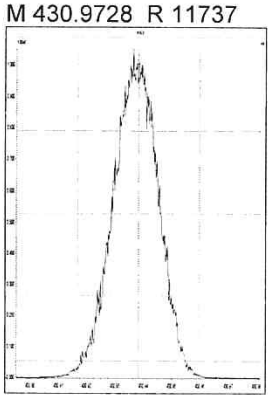
M 404.9760 R 11419



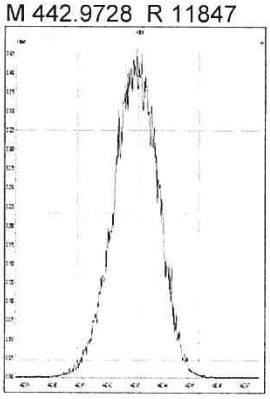
M 416.9760 R 11902



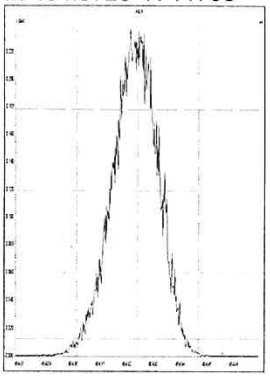
M 430.9728 R 11737



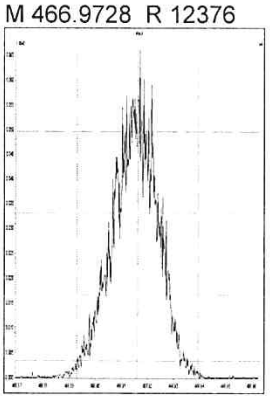
M 442.9728 R 11847



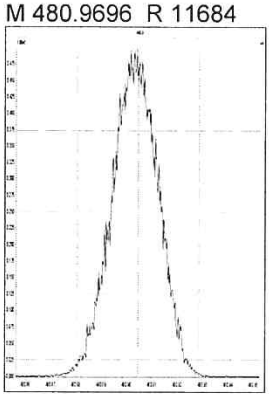
M 454.9728 R 11793



M 466.9728 R 12376



M 480.9696 R 11684



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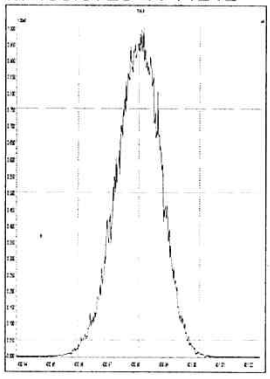
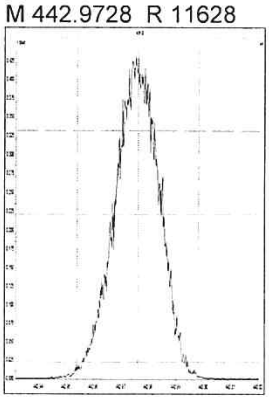
Printed: Friday, December 07, 2018 06:40:27 Central Standard Time

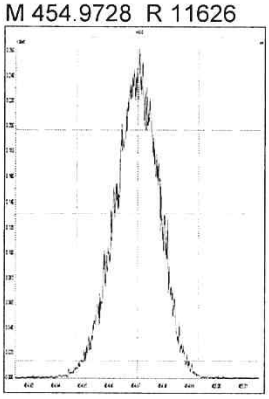
M 430.9728 R 11212



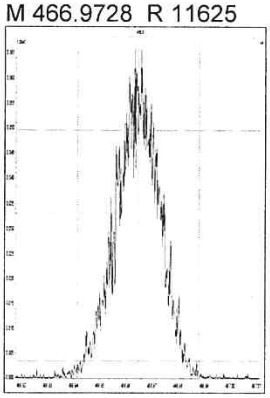
M 442.9728 R 11628



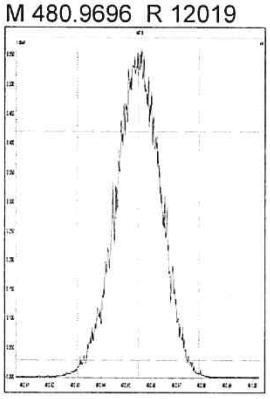
M 454.9728 R 11626



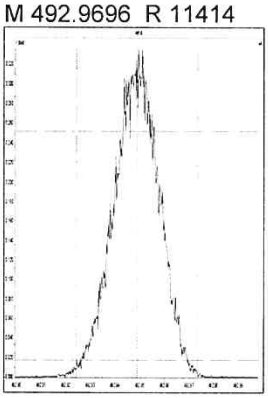
M 466.9728 R 11625



M 480.9696 R 12019



M 492.9696 R 11414



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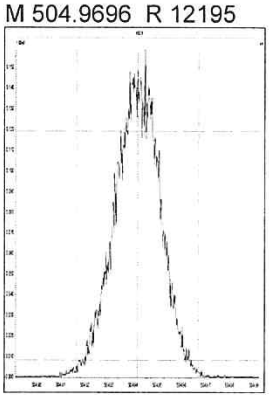

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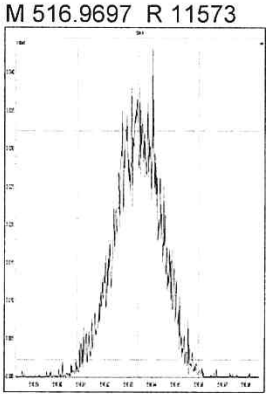


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

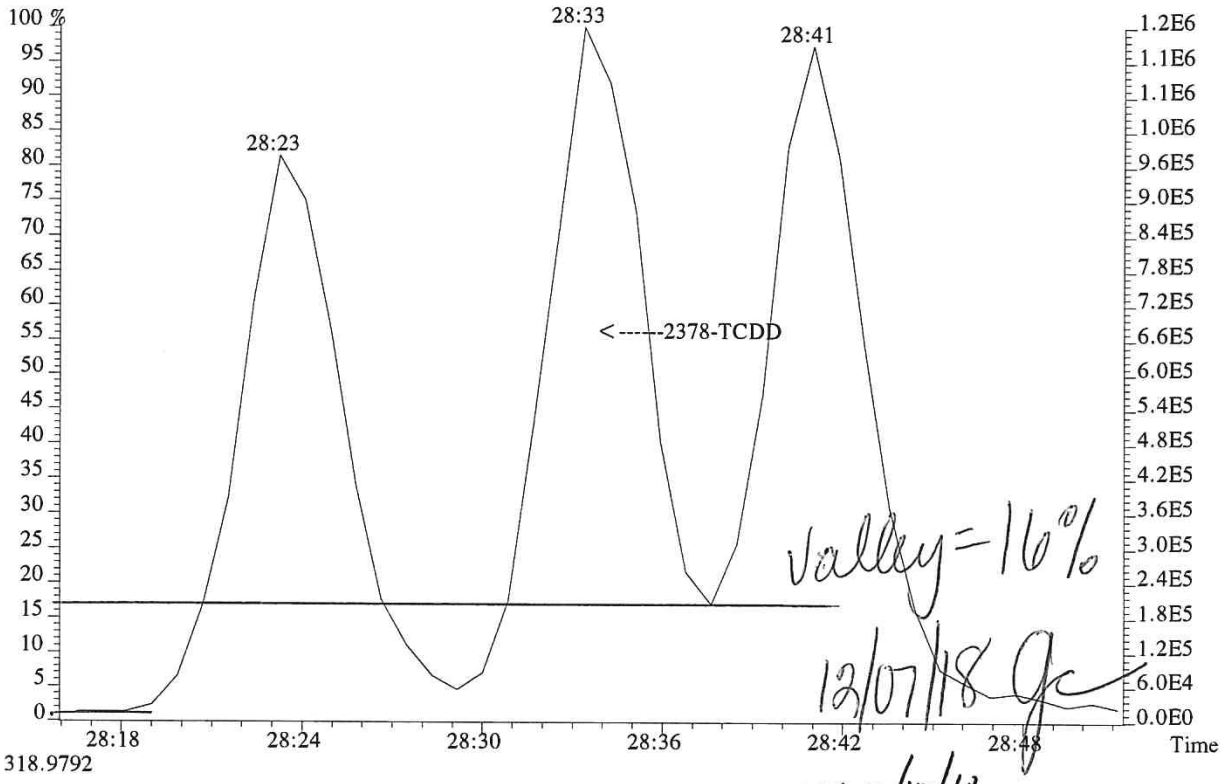
Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P519256
Date Analyzed: 6-DEC-2018
Time Analyzed: 17:15:32

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:18	29:44
TCDD	25:07	29:35
PeCDF	29:42	34:03
PeCDD	31:16	33:48
HxCDF	34:44	37:18
HxCDD	35:16	36:54
HpCDF	38:36	40:03
HpCDD	38:51	39:34

% Valley 2378-TCDD: 16 %

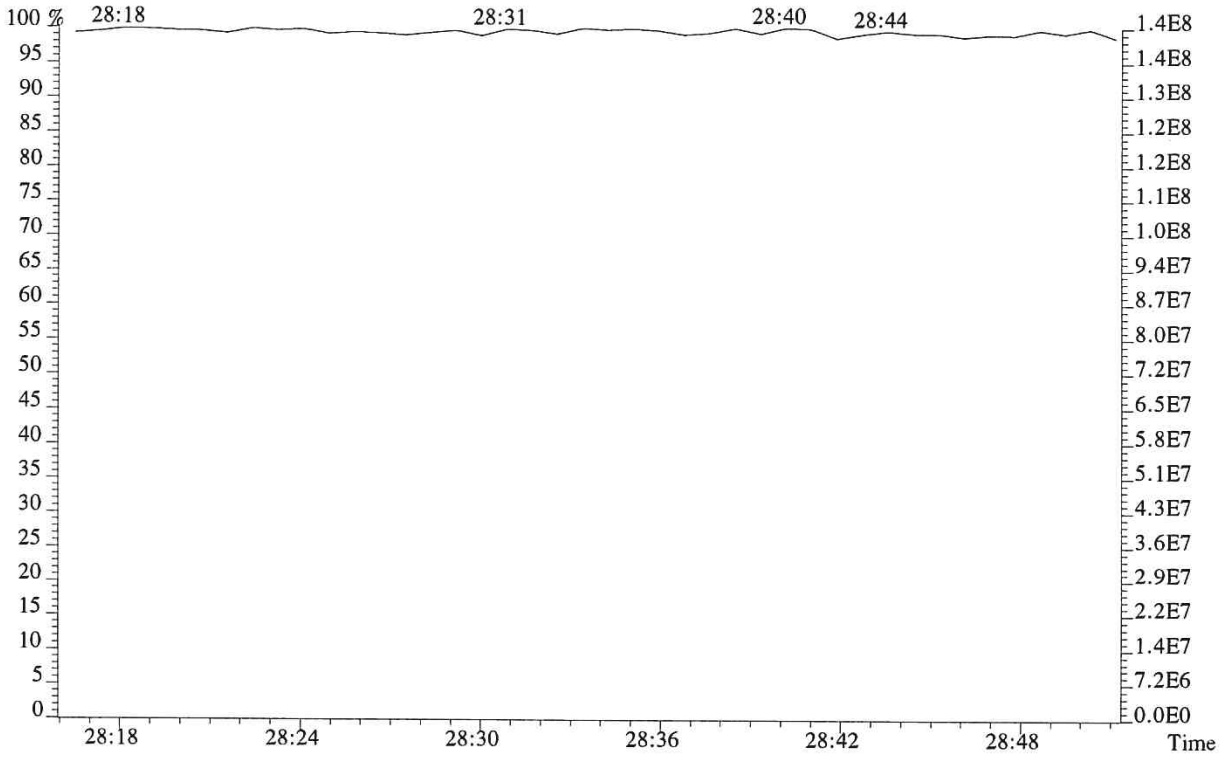
013425

File:P519256 #1-587 Acq: 6-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LM 12/10/18



013426

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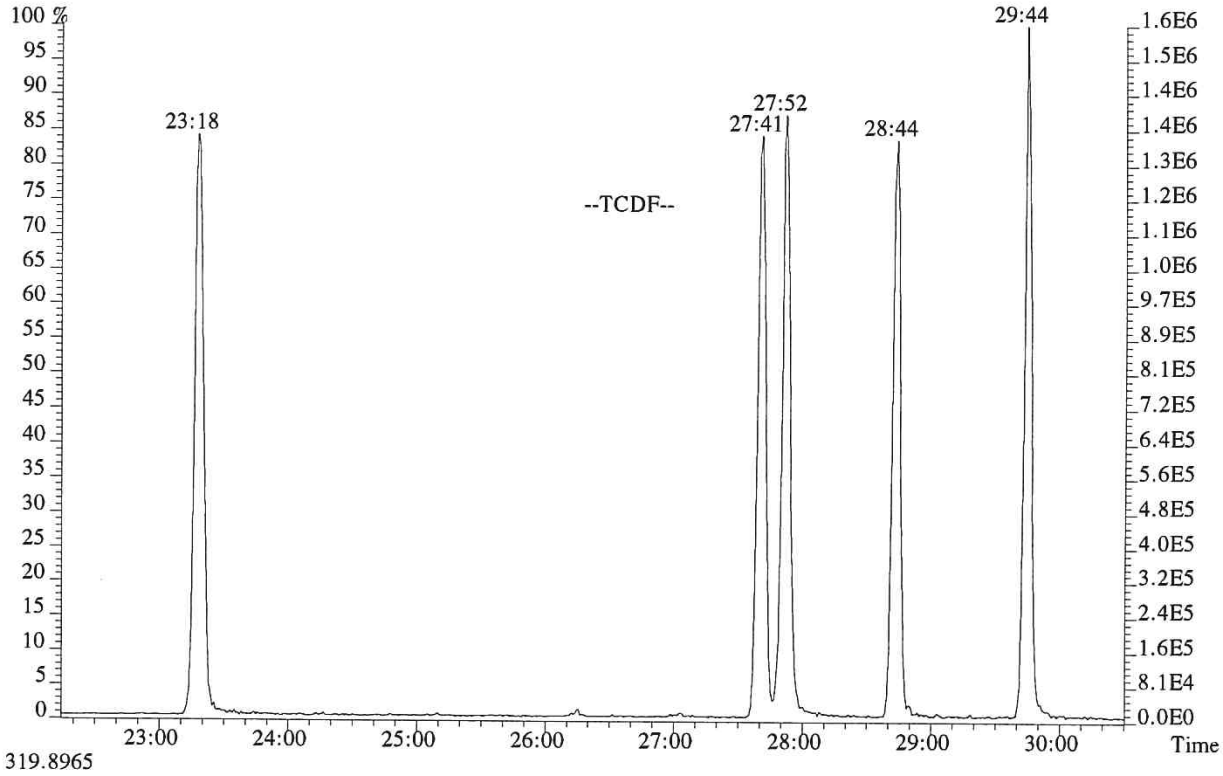
303.9016



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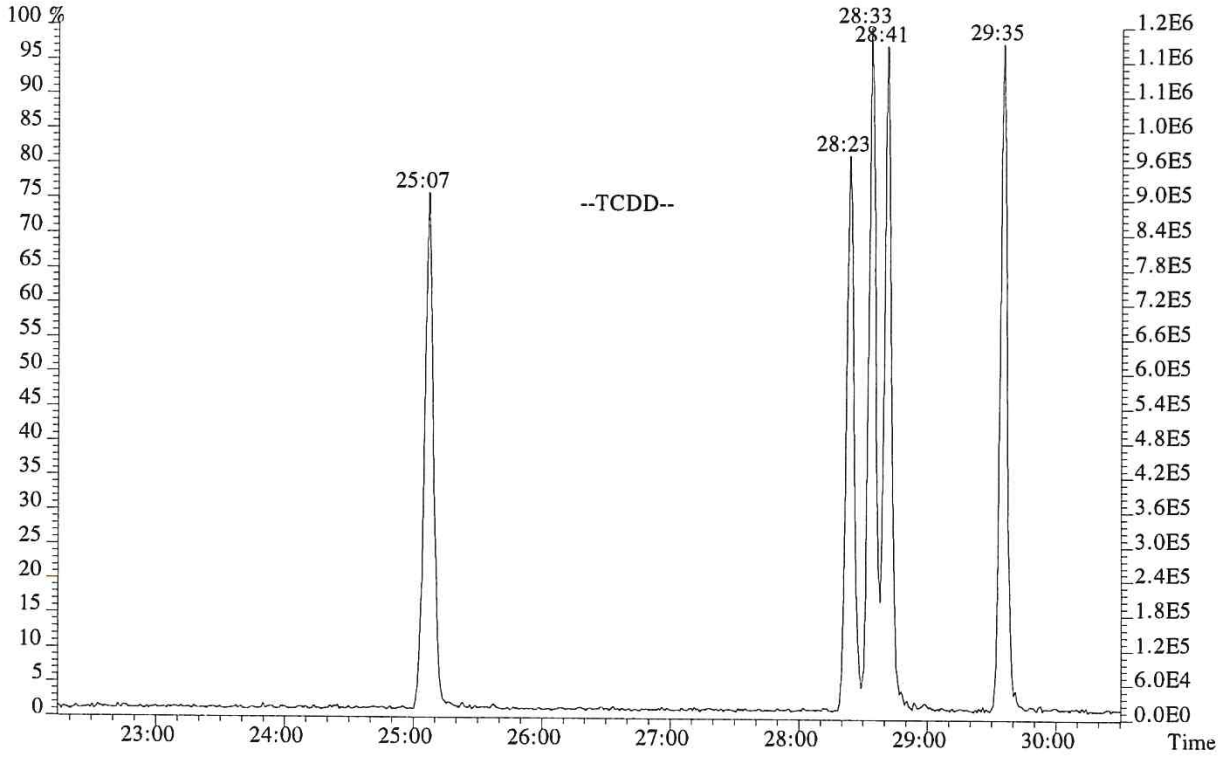

013427

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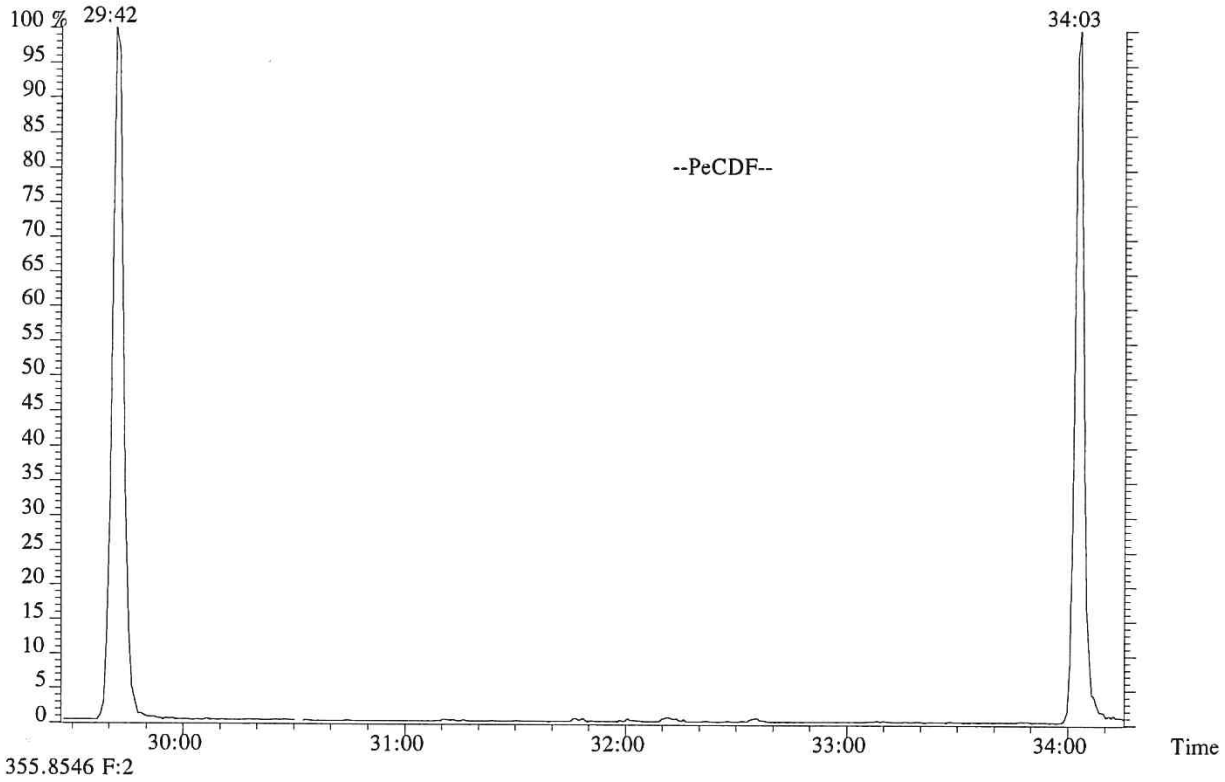
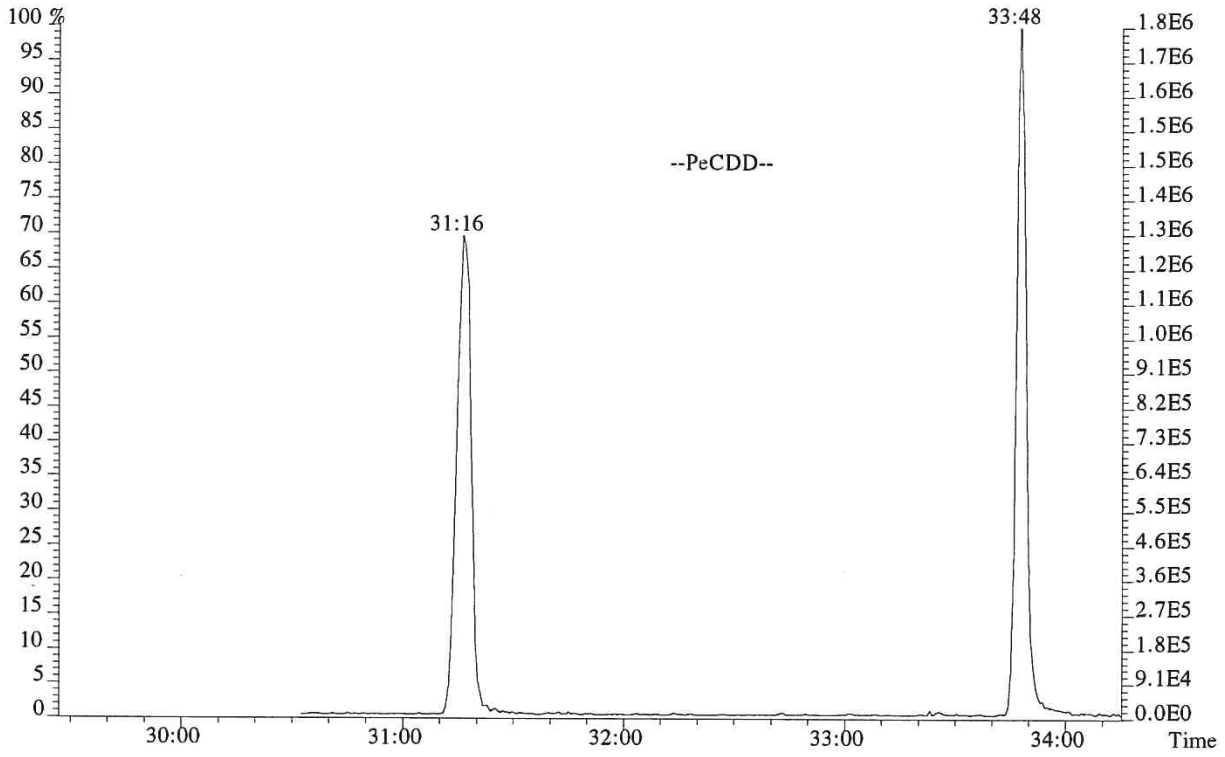
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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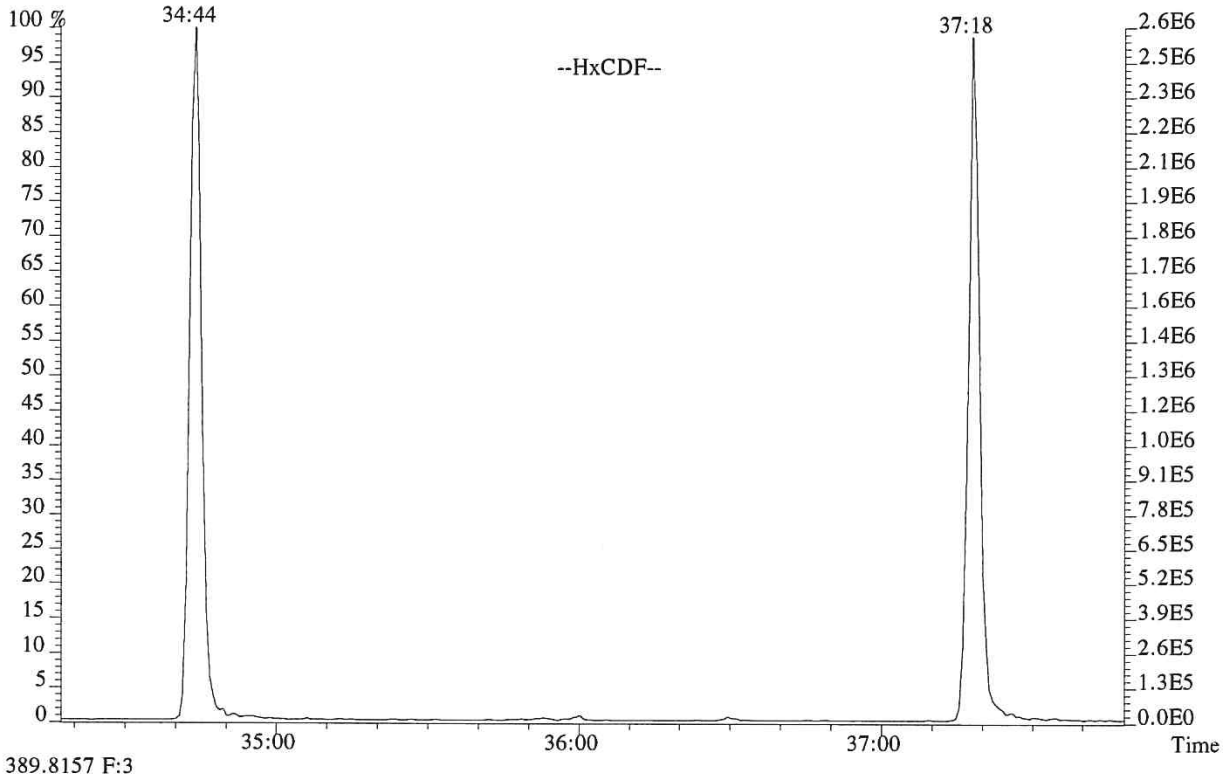
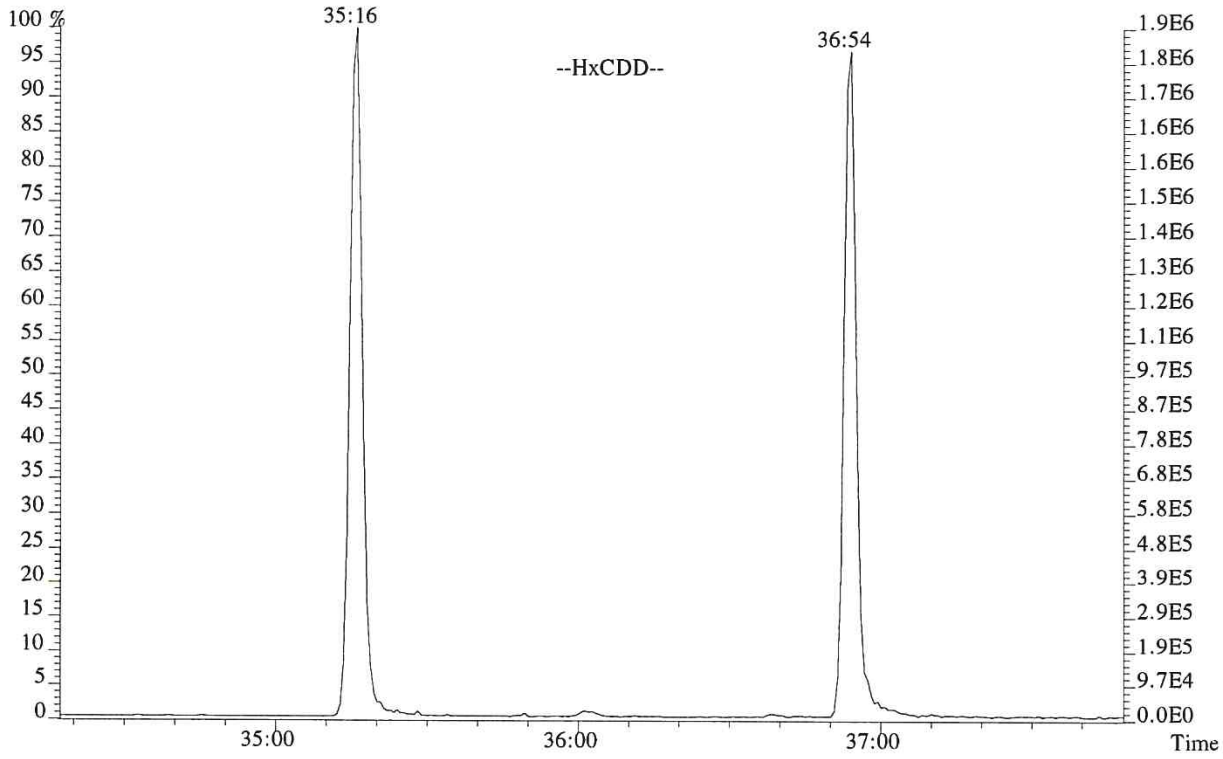
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



013429

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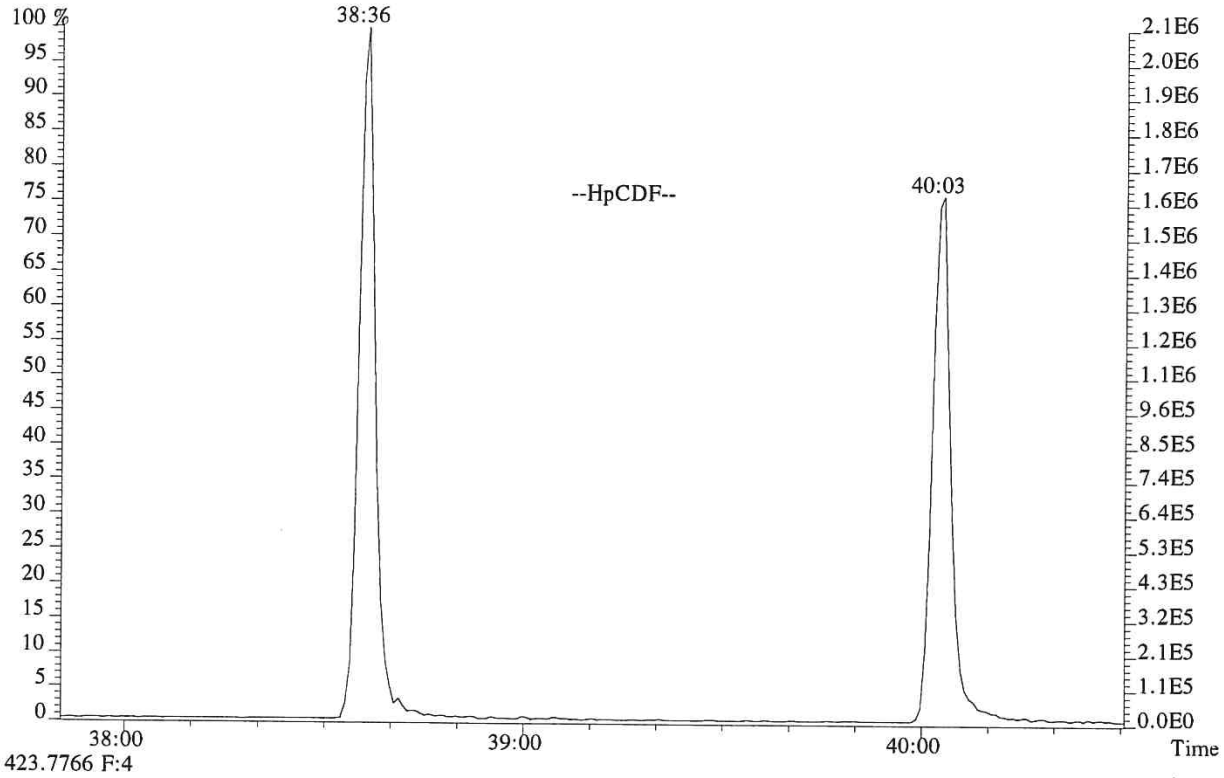
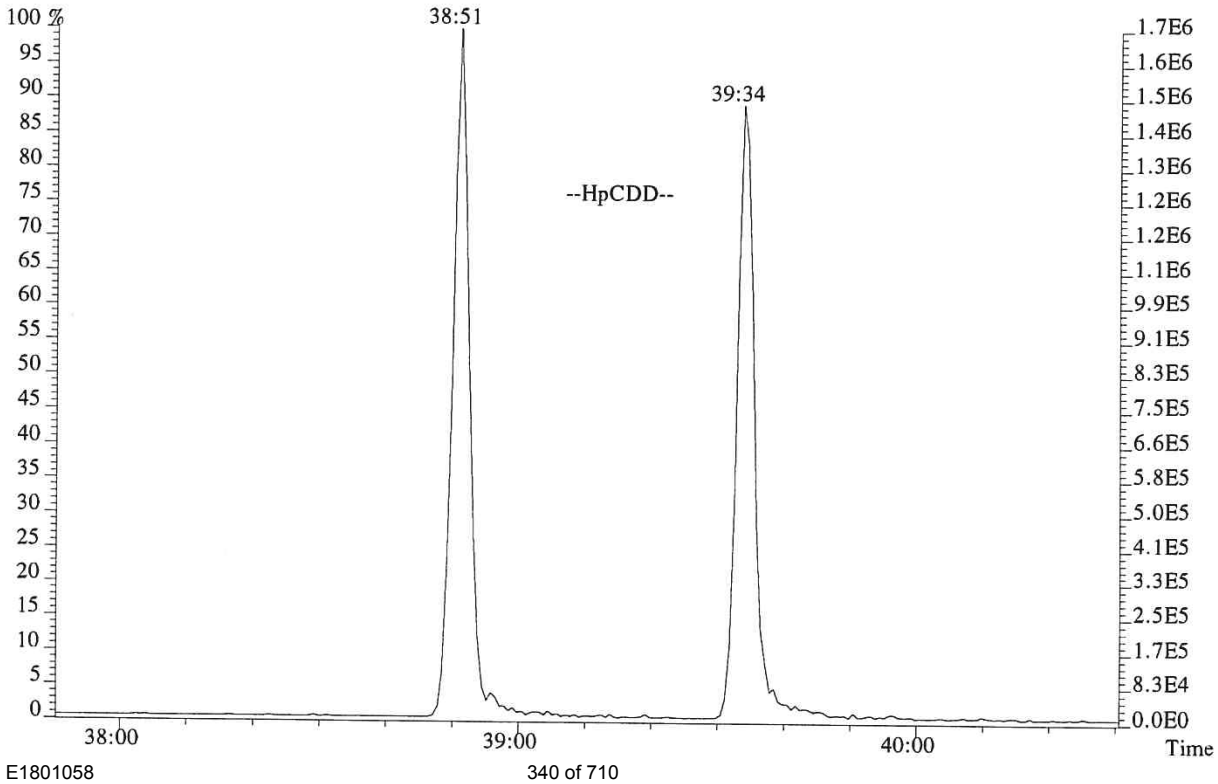
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519255 Analysis Date: 6-DEC-18 Time: 16:20:56

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.6	7.8 - 12.9	-3.6
1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	51	39 - 65	2.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	50	39 - 64	0.5
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	51	39 - 64	1.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	53	41 - 61	6.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	51	43 - 58	2.9
OCDD	M+2/M+4	0.88	0.76-1.02	103	79 - 126	3.1
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.3	8.4 - 12.0	2.8
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	50	41 - 60	-0.5
2,3,4,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	50	41 - 61	-0.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	3.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	52	44 - 57	3.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	50	45 - 56	0.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	52	44 - 57	3.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	50	45 - 55	0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	-0.1
OCDF	M+2/M+4	0.89	0.76-1.02	101	63 - 159	0.9

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519255 Analysis Date: 6-DEC-18 Time: 16:20:56

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	108	82 - 121	7.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.32-1.78	125	62 - 160	24.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	97	85 - 117	-3.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	93	85 - 118	-7.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	101	72 - 138	1.4
13C-OCDD	M+2/M+4	0.91	0.76-1.02	241	96 - 415	20.4
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	100	71 - 140	-0.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	121	76 - 130	21.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	124	77 - 130	23.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	87	76 - 131	-12.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	89	70 - 143	-11.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	97	74 - 135	-3.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	73 - 137	-6.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	98	78 - 129	-1.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	104	77 - 129	4.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.8	7.8 - 12.7	8.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519255 Samp: 1 Inj: 1 Acquired: 6-DEC-18 16:20:56
Processed: 7-DEC-18 13:10:07 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	2.446e+03	3.168e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	2.075e+04	1.373e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:06	1.987e+04	1.321e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:51	1.808e+04	1.485e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:58	1.966e+04	1.598e+04	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:29	1.833e+04	1.508e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	1.674e+04	1.336e+04	1.25	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:35	1.607e+04	1.593e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:02	1.339e+04	1.323e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:41	2.248e+04	2.523e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	1.776e+03	2.215e+03	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	1.418e+04	8.804e+03	1.61	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	1.285e+04	1.029e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:43	1.276e+04	1.026e+04	1.24	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:58	1.393e+04	1.100e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	1.179e+04	1.096e+04	1.08	yes	no	1.025
17	Unk	OCDD	42:31	1.878e+04	2.132e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	2.570e+04	3.227e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	4.208e+04	2.639e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	4.256e+04	2.660e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:51	1.822e+04	3.528e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:57	2.118e+04	4.028e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:28	2.017e+04	3.818e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	1.782e+04	3.440e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:34	1.459e+04	3.249e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:01	1.313e+04	2.923e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	1.699e+04	2.117e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:23	2.888e+04	1.783e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	2.504e+04	1.933e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	2.458e+04	1.913e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:32	2.243e+04	2.073e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:30	3.309e+04	3.649e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	1.701e+04	2.136e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	2.776e+04	2.187e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	4.216e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519255 Samp: 1 Inj: 1 Acquired: 6-DEC-18 16:20:56
Processed: 7-DEC-18 13:10:07 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.30e+05	6.68e+02	6.4e+02	5.73e+05	1.18e+03	4.8e+02
2	1,2,3,7,8-PeCDF	3.91e+06	5.40e+02	7.2e+03	2.59e+06	5.76e+02	4.5e+03
3	2,3,4,7,8-PeCDF	4.04e+06	5.40e+02	7.5e+03	2.69e+06	5.76e+02	4.7e+03
4	1,2,3,4,7,8-HxCDF	3.96e+06	6.96e+02	5.7e+03	3.26e+06	3.36e+02	9.7e+03
5	1,2,3,6,7,8-HxCDF	4.38e+06	6.96e+02	6.3e+03	3.58e+06	3.36e+02	1.1e+04
6	2,3,4,6,7,8-HxCDF	3.78e+06	6.96e+02	5.4e+03	3.09e+06	3.36e+02	9.2e+03
7	1,2,3,7,8,9-HxCDF	3.39e+06	6.96e+02	4.9e+03	2.70e+06	3.36e+02	8.0e+03
8	1,2,3,4,6,7,8-HpCDF	3.39e+06	4.88e+02	7.0e+03	3.33e+06	2.73e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	2.42e+06	4.88e+02	5.0e+03	2.38e+06	2.73e+03	8.7e+02
10	OCDF	3.25e+06	3.64e+02	8.9e+03	3.64e+06	9.52e+02	3.8e+03
11	2,3,7,8-TCDD	3.32e+05	1.98e+03	1.7e+02	4.19e+05	1.08e+03	3.9e+02
12	1,2,3,7,8-PeCDD	2.86e+06	6.04e+02	4.7e+03	1.75e+06	3.40e+02	5.1e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	4.12e+02	7.0e+03	2.33e+06	3.20e+02	7.3e+03
14	1,2,3,6,7,8-HxCDD	2.74e+06	4.12e+02	6.6e+03	2.20e+06	3.20e+02	6.9e+03
15	1,2,3,7,8,9-HxCDD	2.89e+06	4.12e+02	7.0e+03	2.32e+06	3.20e+02	7.3e+03
16	1,2,3,4,6,7,8-HpCDD	2.36e+06	3.04e+02	7.8e+03	2.23e+06	2.52e+02	8.9e+03
17	OCDD	2.70e+06	2.52e+02	1.1e+04	3.05e+06	2.44e+02	1.3e+04
18	13C-2,3,7,8-TCDF	4.66e+06	7.11e+03	6.5e+02	5.93e+06	5.74e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	7.84e+06	2.76e+02	2.8e+04	4.97e+06	3.76e+02	1.3e+04
20	13C-2,3,4,7,8-PeCDF	8.49e+06	2.76e+02	3.1e+04	5.31e+06	3.76e+02	1.4e+04
21	13C-1,2,3,4,7,8-HxCDF	4.01e+06	2.84e+02	1.4e+04	7.71e+06	5.04e+02	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.71e+06	2.84e+02	1.7e+04	8.96e+06	5.04e+02	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	4.16e+06	2.84e+02	1.5e+04	7.93e+06	5.04e+02	1.6e+04
24	13C-1,2,3,7,8,9-HxCDF	3.60e+06	2.84e+02	1.3e+04	7.01e+06	5.04e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+06	2.10e+03	1.5e+03	6.79e+06	1.34e+03	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.30e+06	2.10e+03	1.1e+03	5.23e+06	1.34e+03	3.9e+03
27	13C-2,3,7,8-TCDD	3.32e+06	7.38e+03	4.5e+02	4.08e+06	2.24e+03	1.8e+03
28	13C-1,2,3,7,8-PeCDD	5.87e+06	5.92e+02	9.9e+03	3.64e+06	1.09e+03	3.3e+03
29	13C-1,2,3,4,7,8-HxCDD	5.57e+06	7.60e+02	7.3e+03	4.28e+06	2.20e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	5.25e+06	7.60e+02	6.9e+03	4.07e+06	2.20e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.55e+06	5.24e+02	8.7e+03	4.22e+06	3.72e+02	1.1e+04
32	13C-OCDD	4.71e+06	2.92e+02	1.6e+04	5.15e+06	2.40e+02	2.1e+04
33	13C-1,2,3,4-TCDD	3.21e+06	7.38e+03	4.3e+02	3.95e+06	2.24e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	5.58e+06	7.60e+02	7.3e+03	4.38e+06	2.20e+02	2.0e+04
35	37Cl-2,3,7,8-TCDD	8.06e+05	6.80e+02	1.2e+03			

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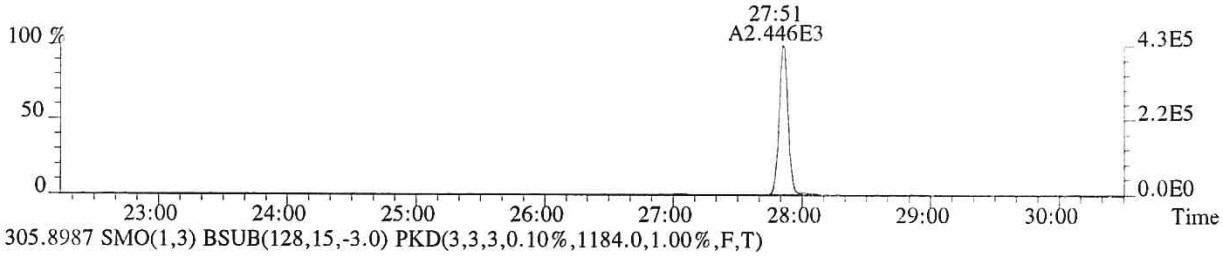
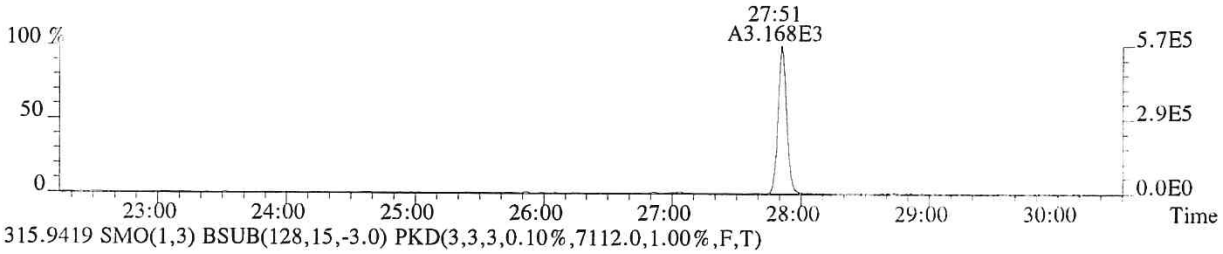
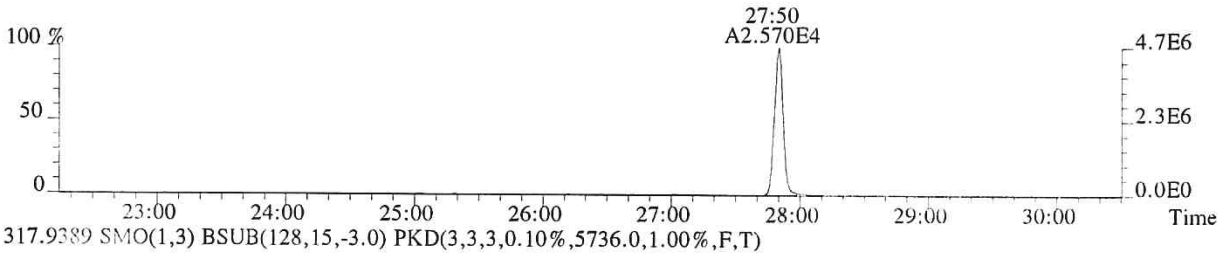
File:P519255 #1-587 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



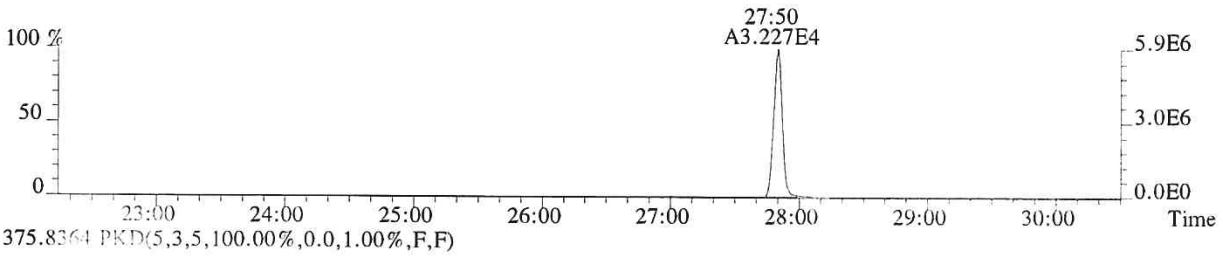
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



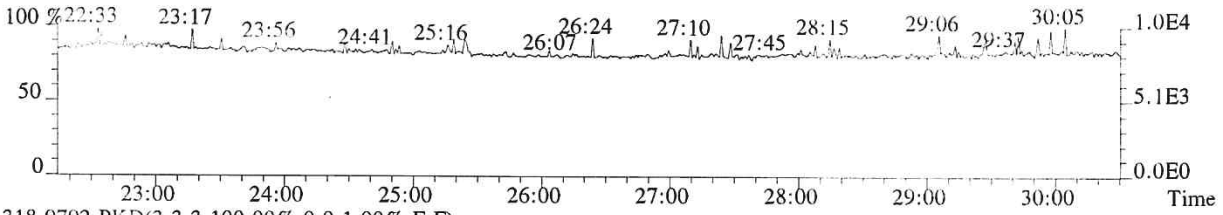
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7112.0,1.00%,F,T)



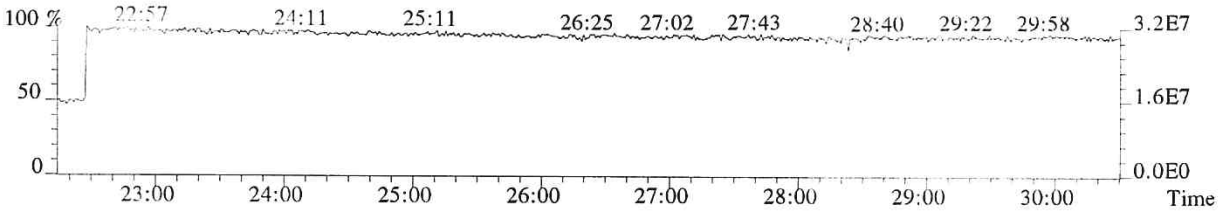
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5736.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

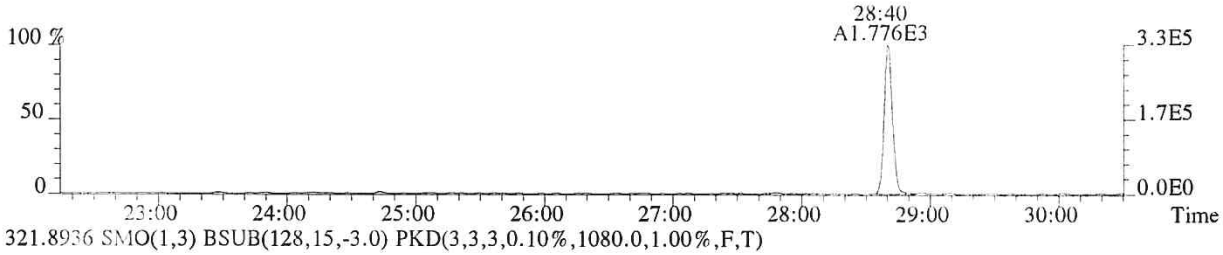


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

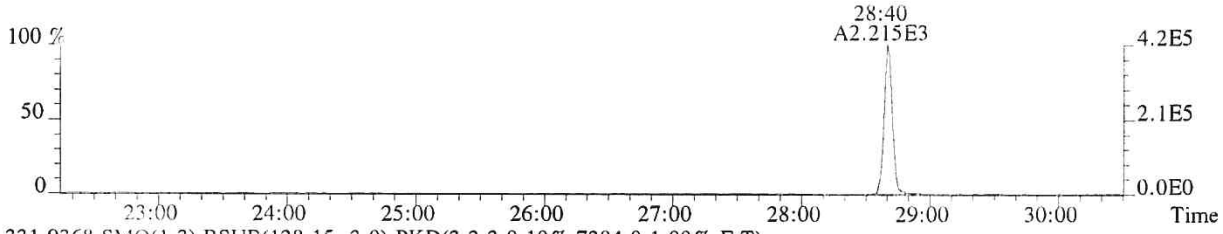


013435

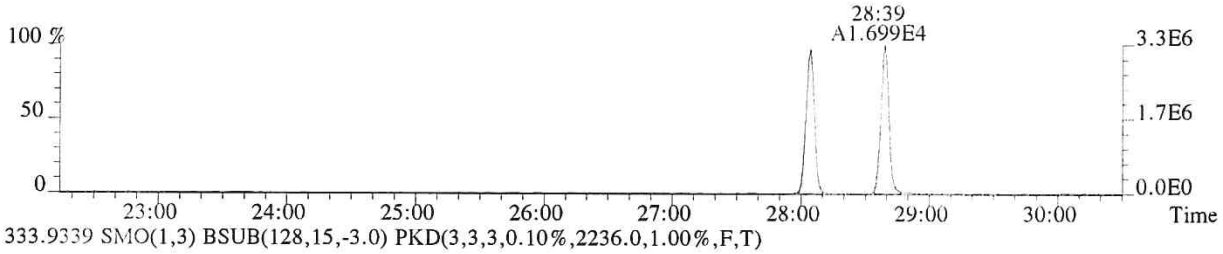
File:P519255 #1-587 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spect
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



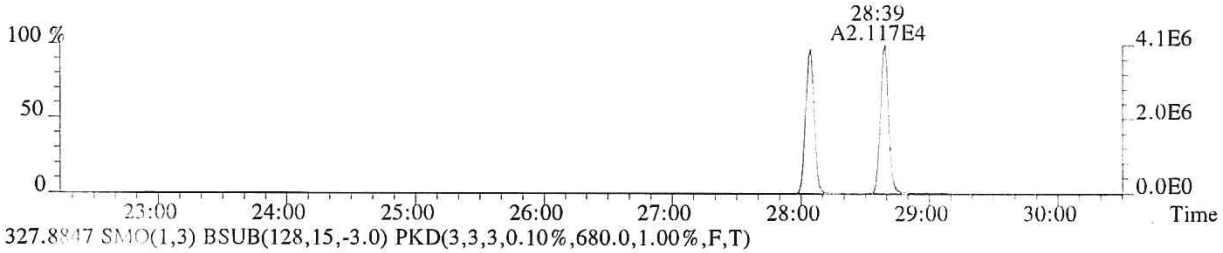
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



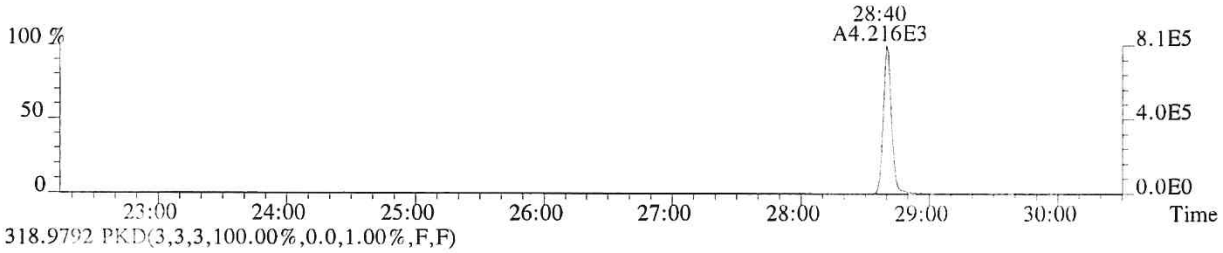
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7384.0,1.00%,F,T)



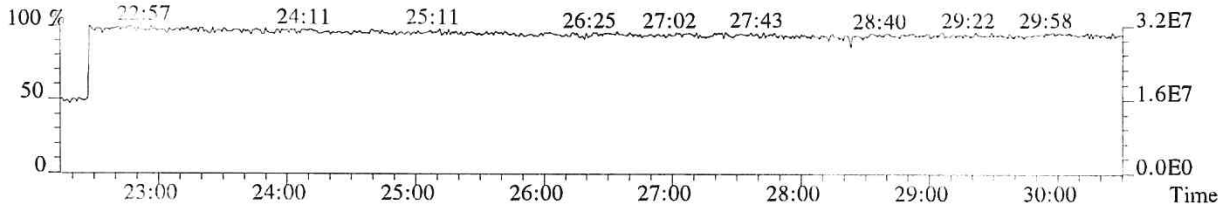
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2236.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)

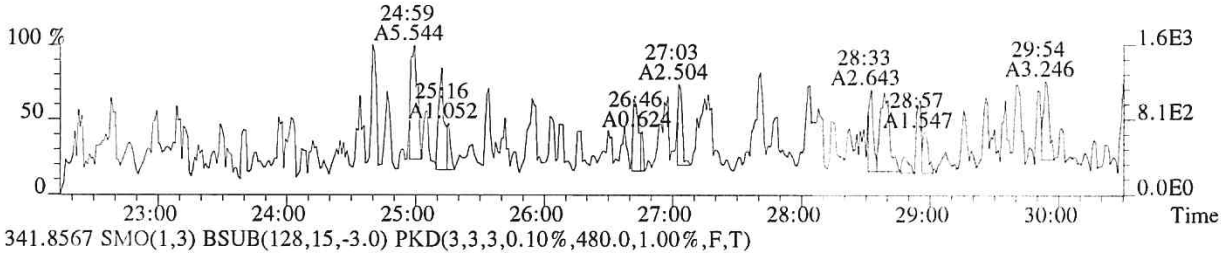


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

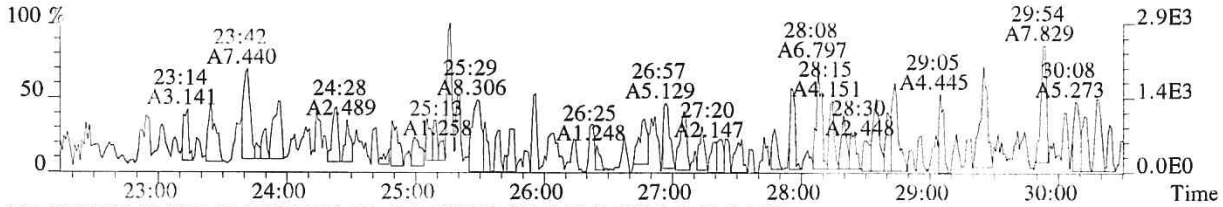


013436

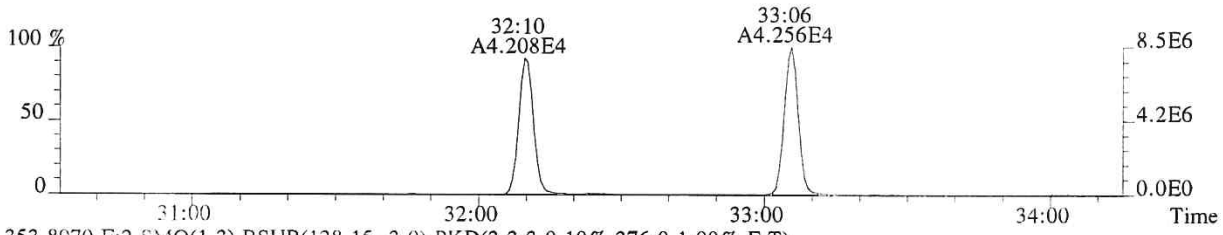
File:P519255 #1-587 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



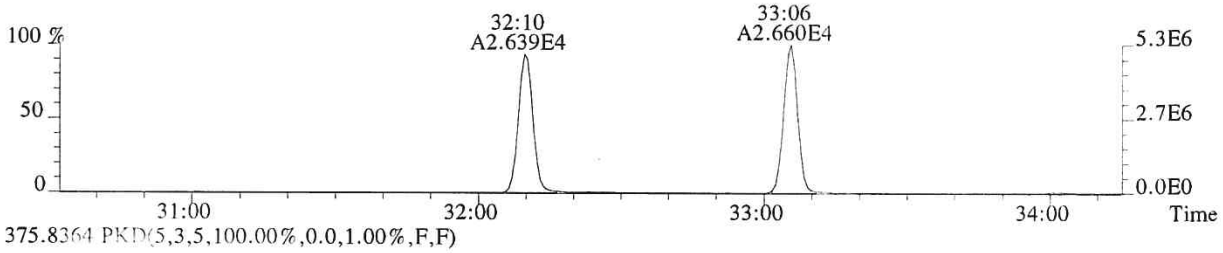
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



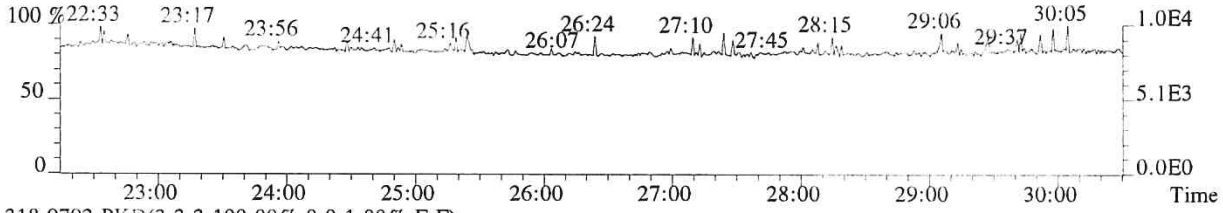
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



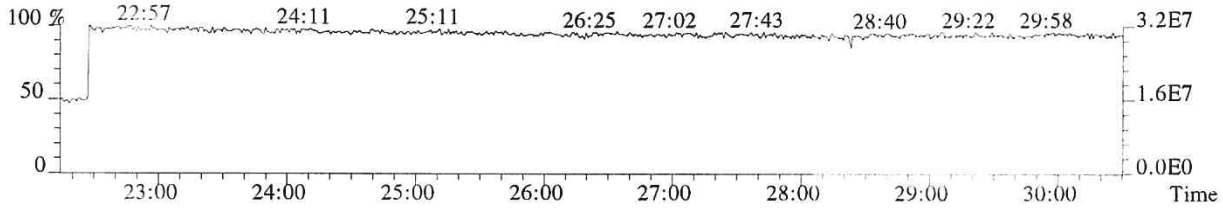
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

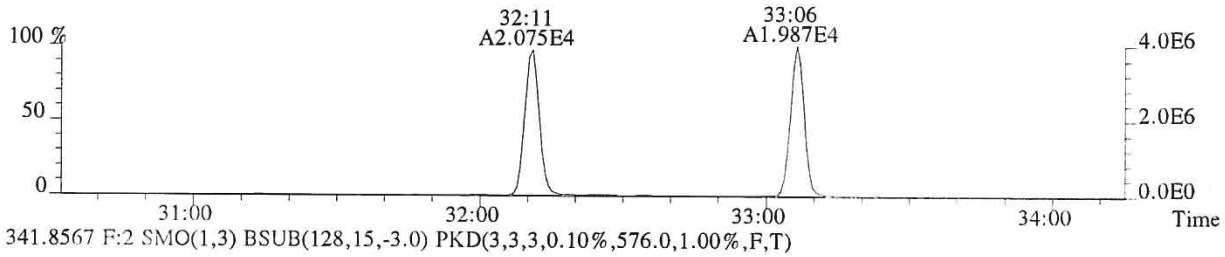


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

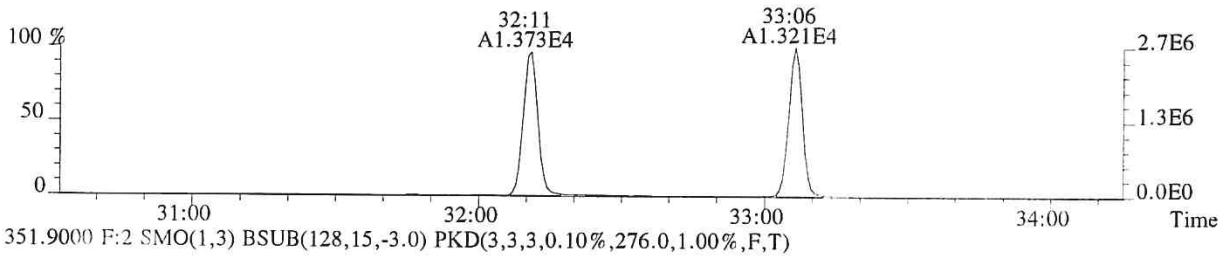


013437

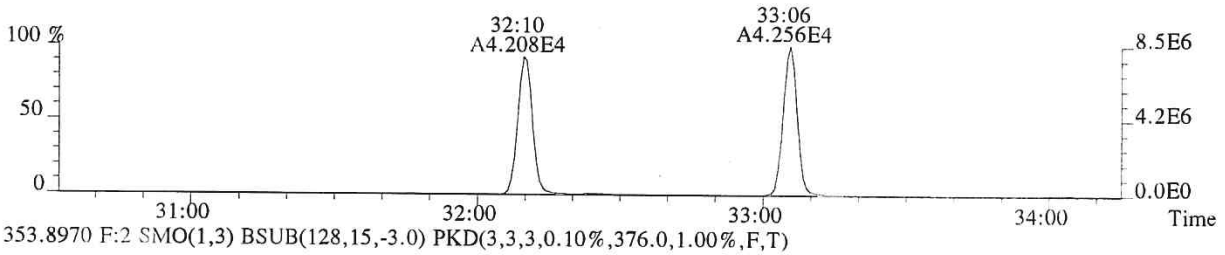
File:P519255 #1-335 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



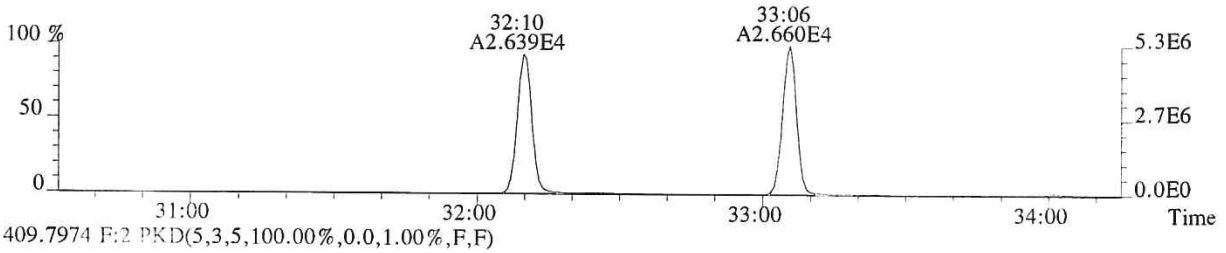
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



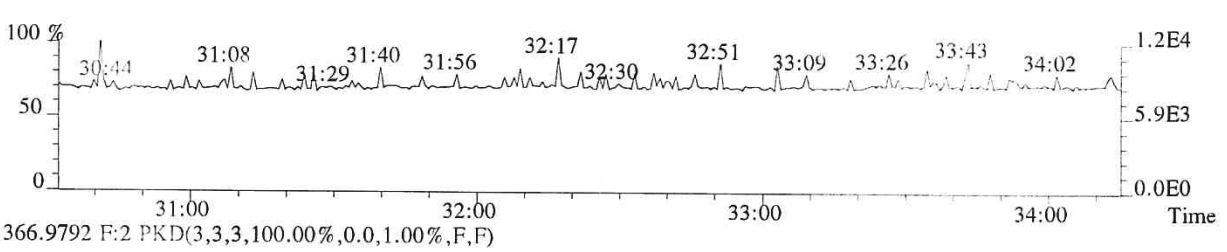
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



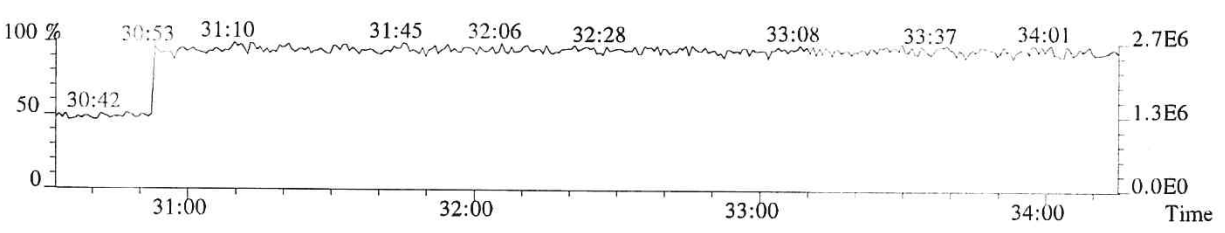
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



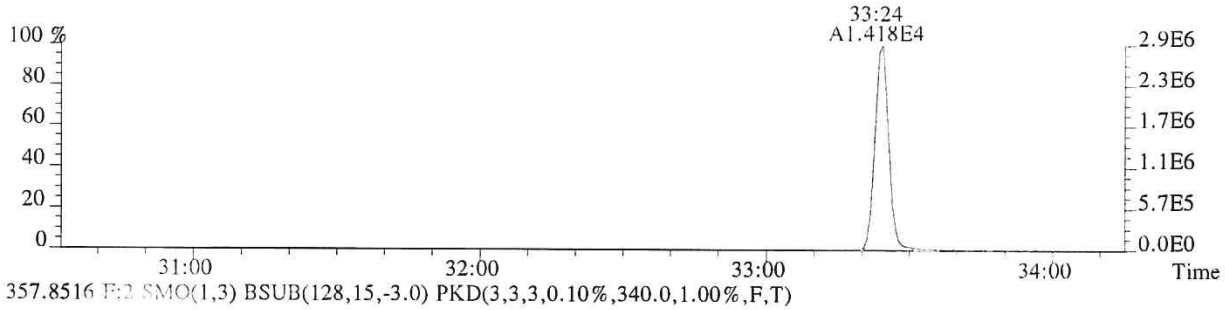
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



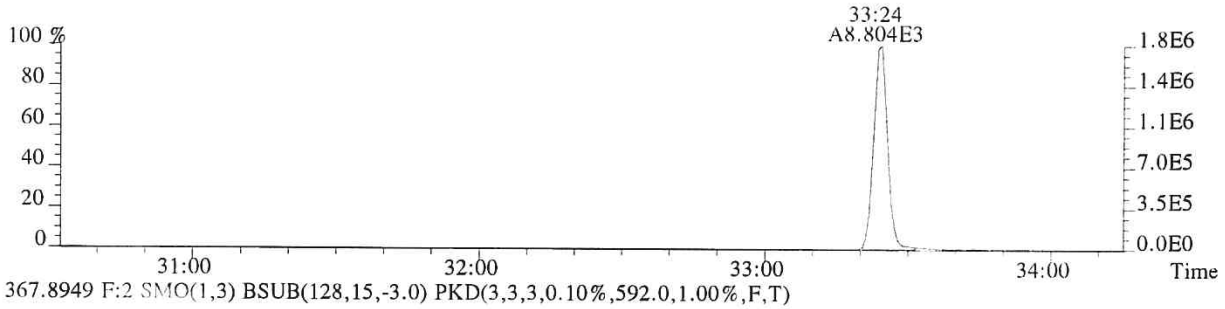
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



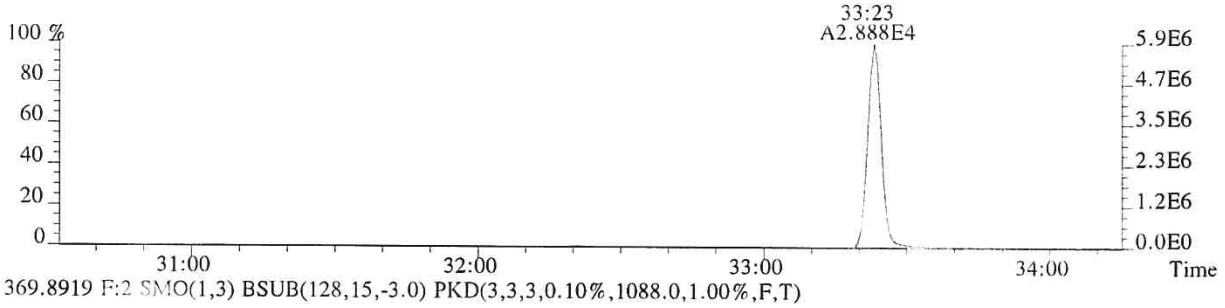
File:P519255 #1-335 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



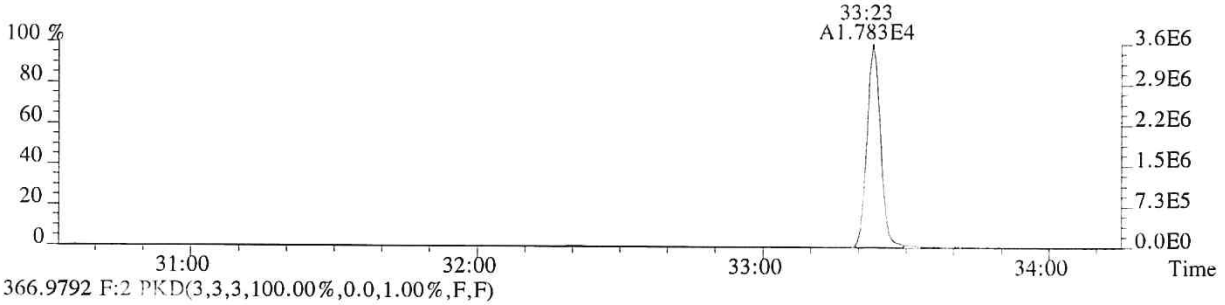
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



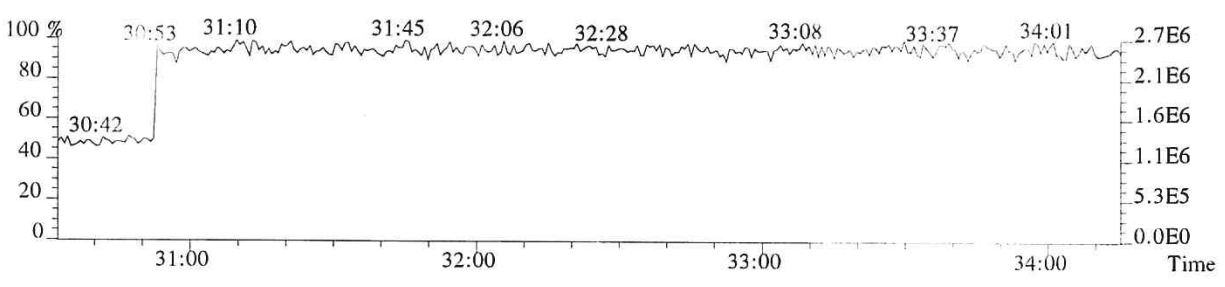
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)

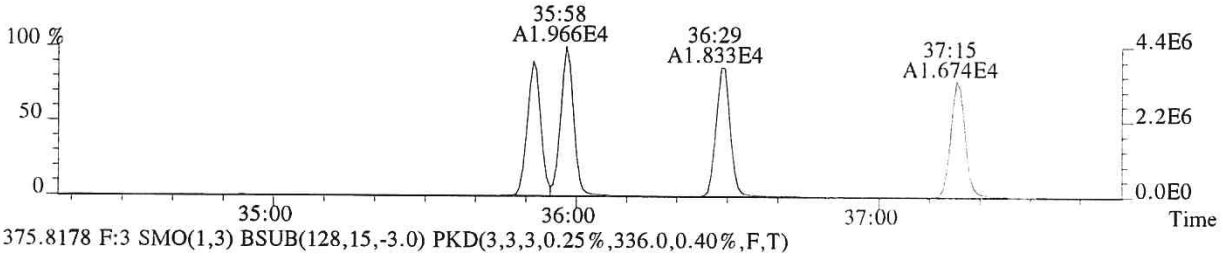


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

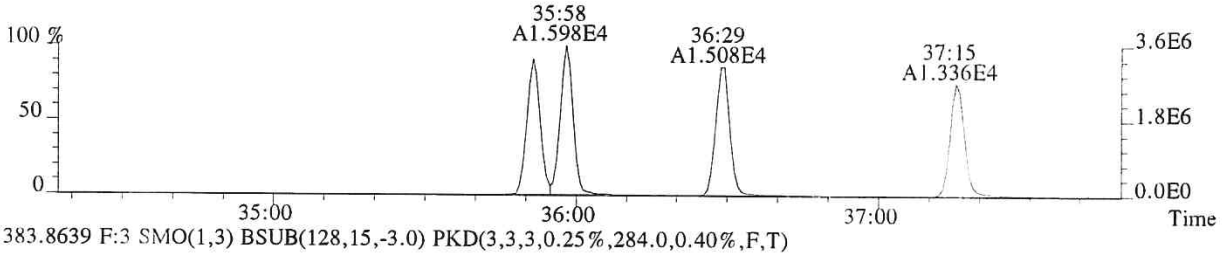


File:P519255 #1-317 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503

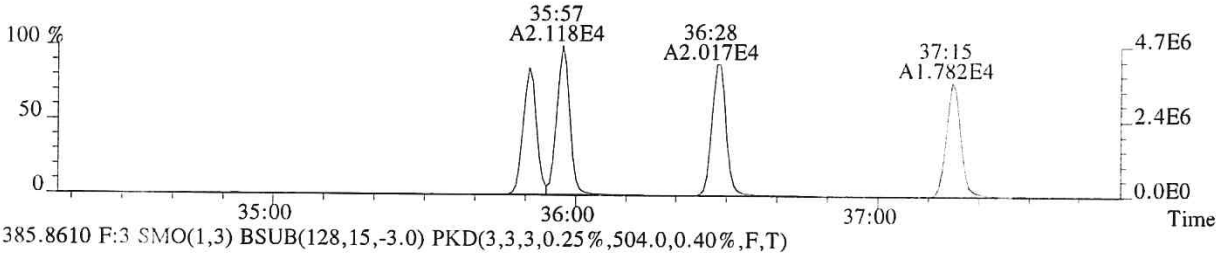
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



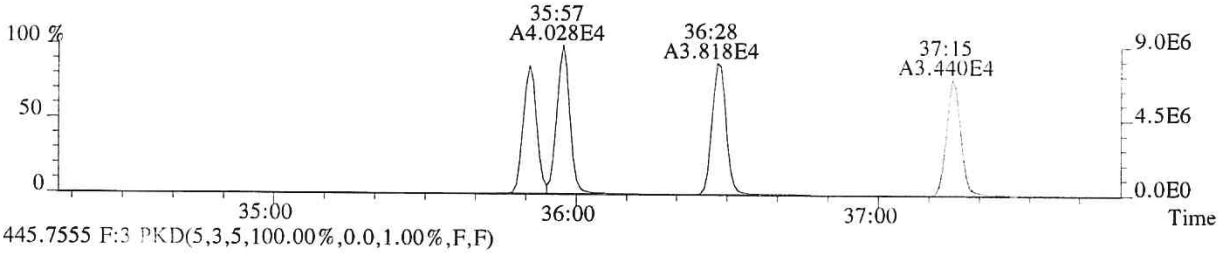
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



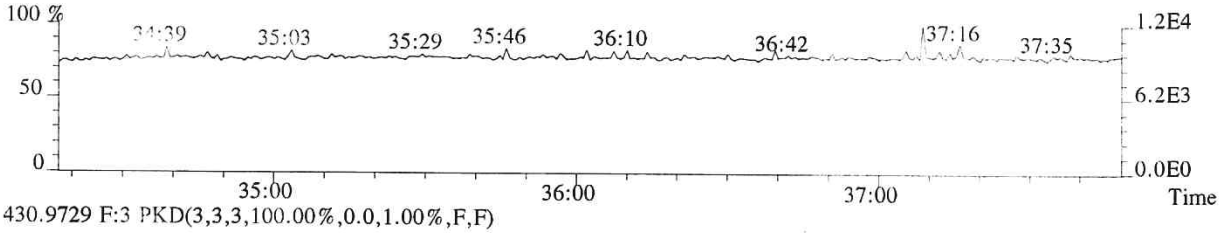
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



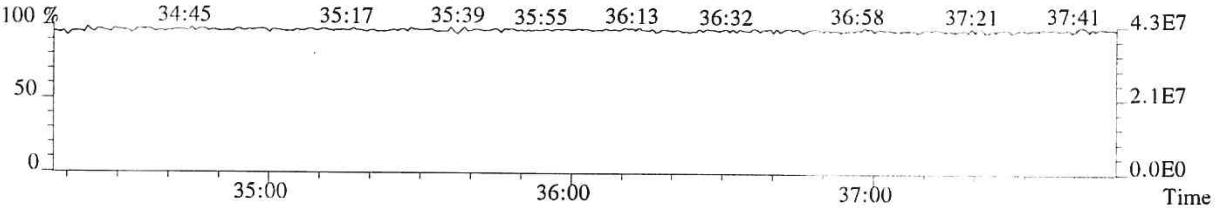
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

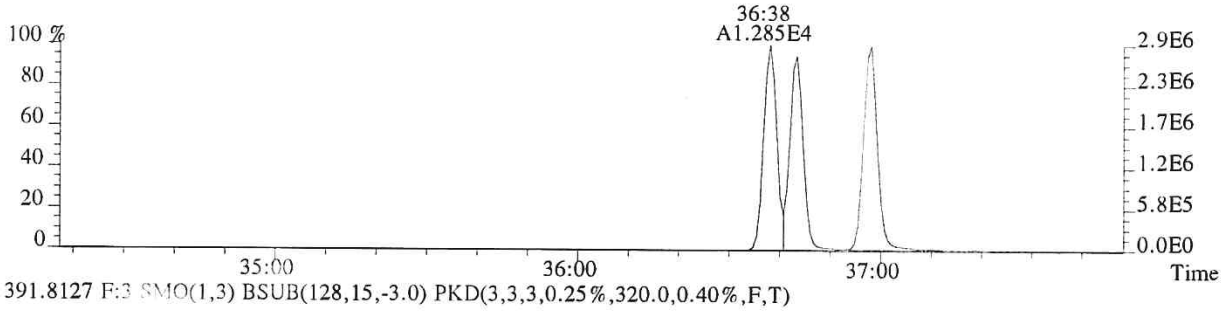


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

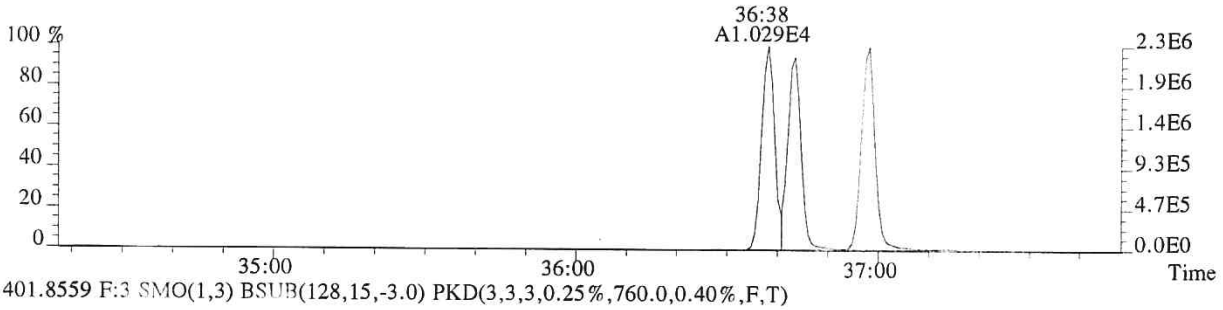


013440

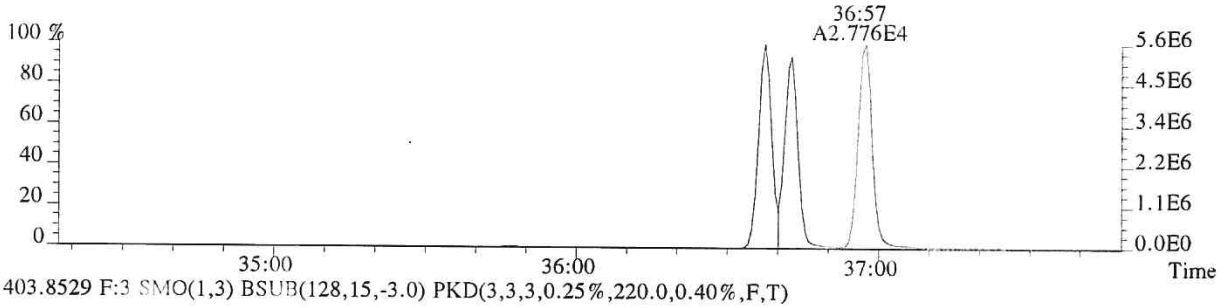
File:P519255 #1-317 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



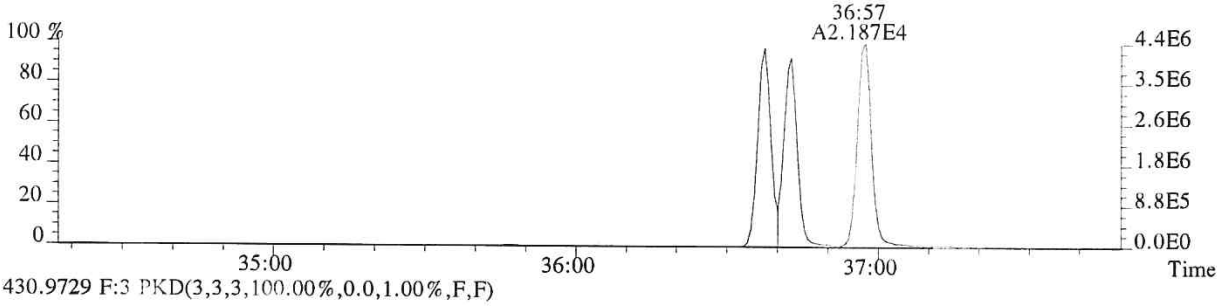
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



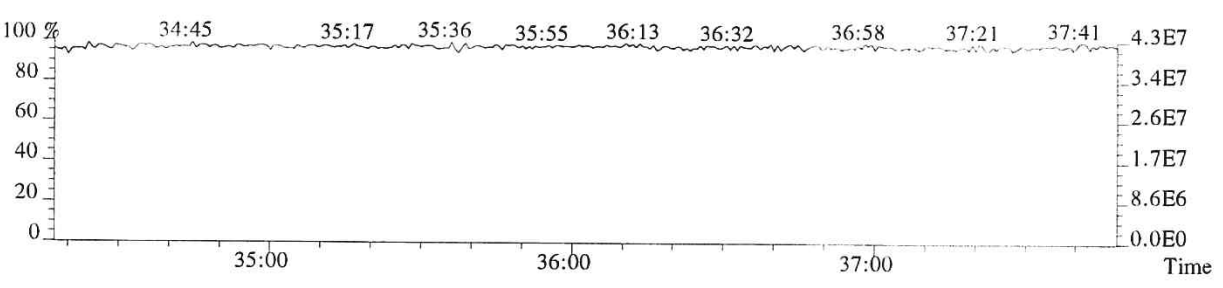
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



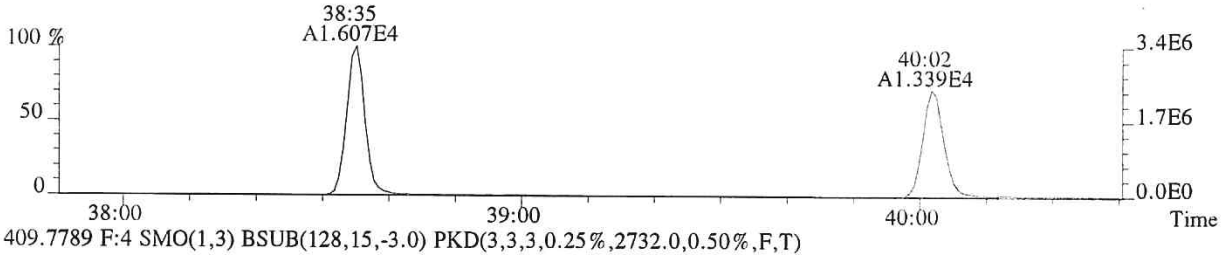
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



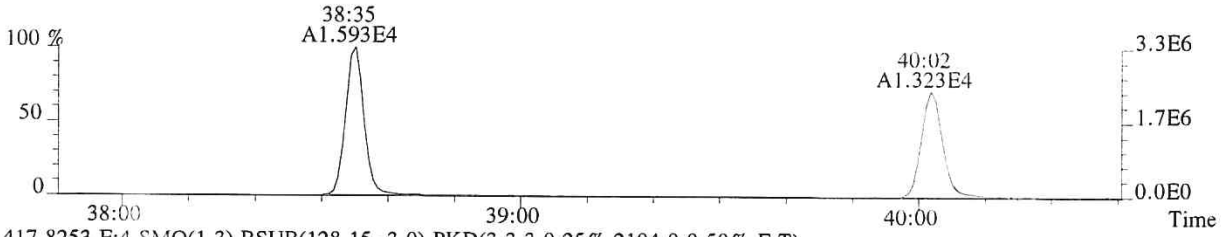
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



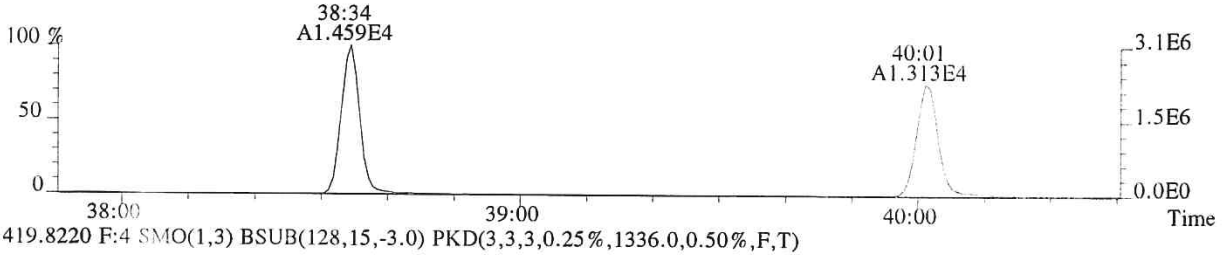
File:P519255 #1-241 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.50%,F,T)



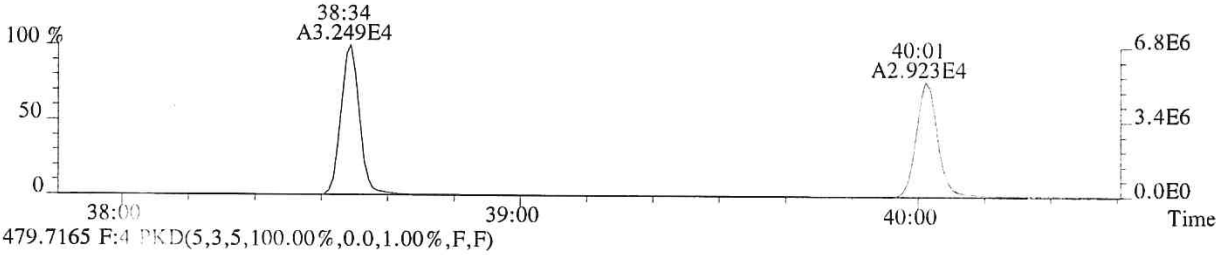
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2732.0,0.50%,F,T)



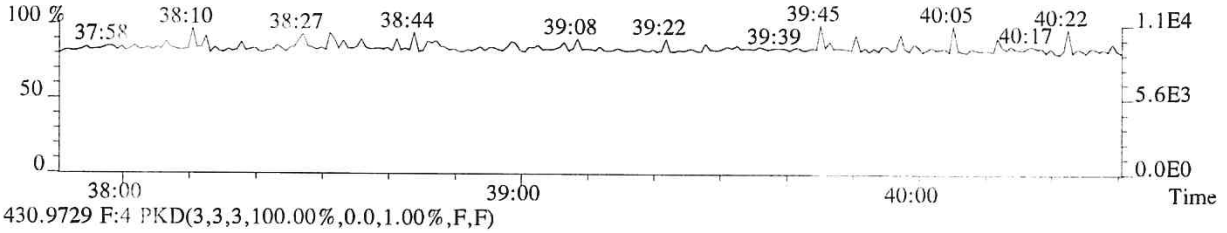
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.50%,F,T)



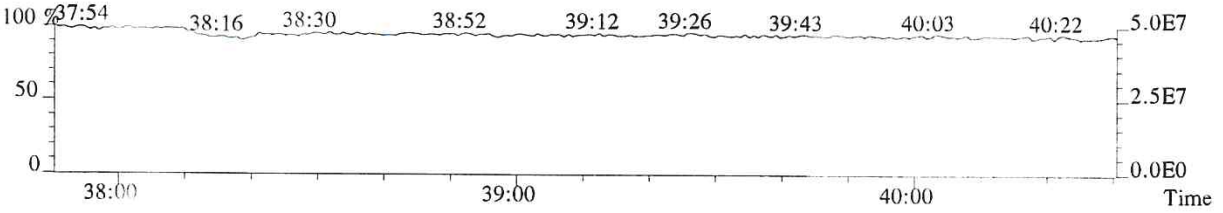
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

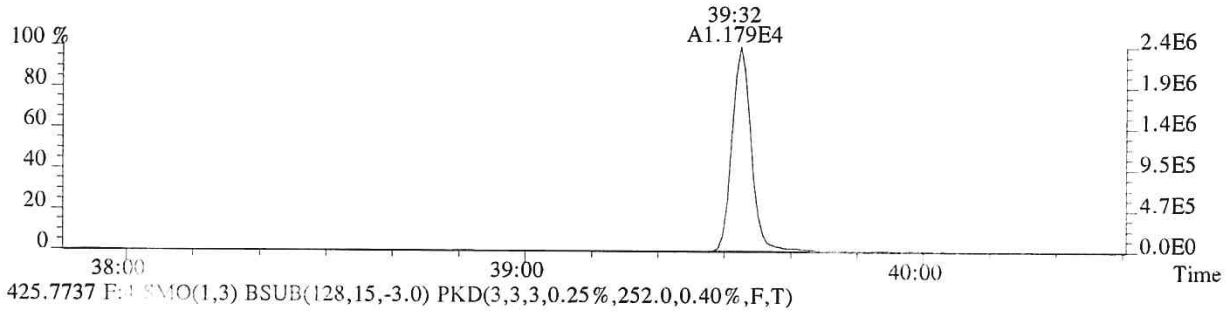


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

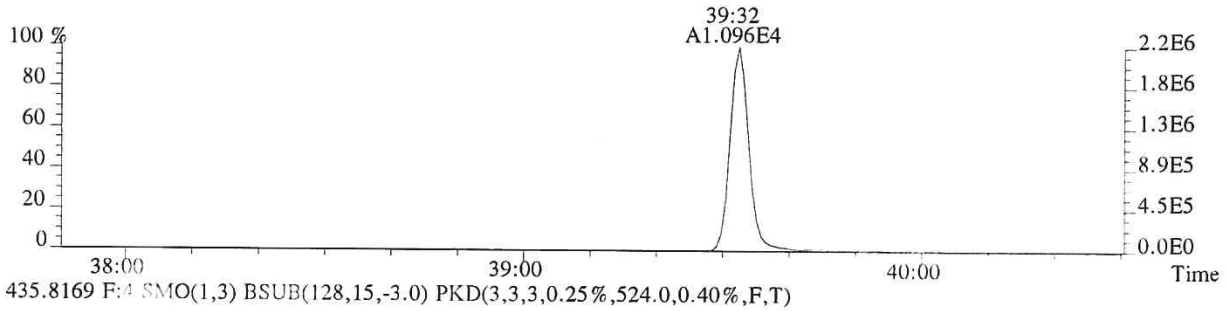


013442

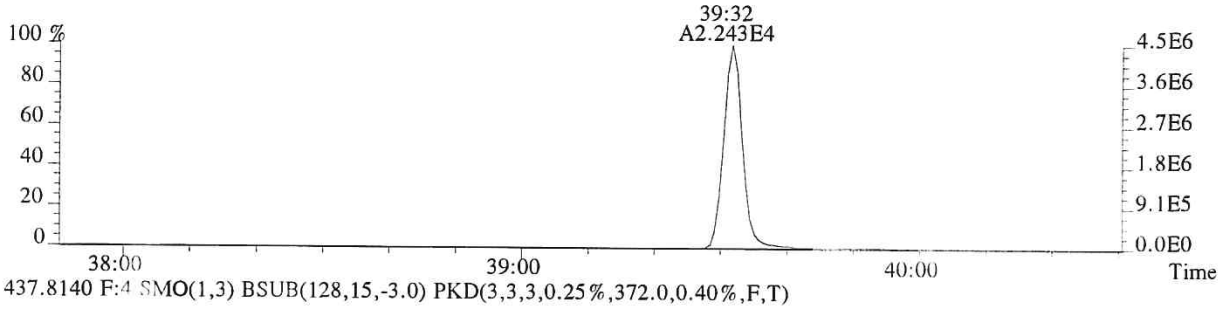
File:P519255 #1-241 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



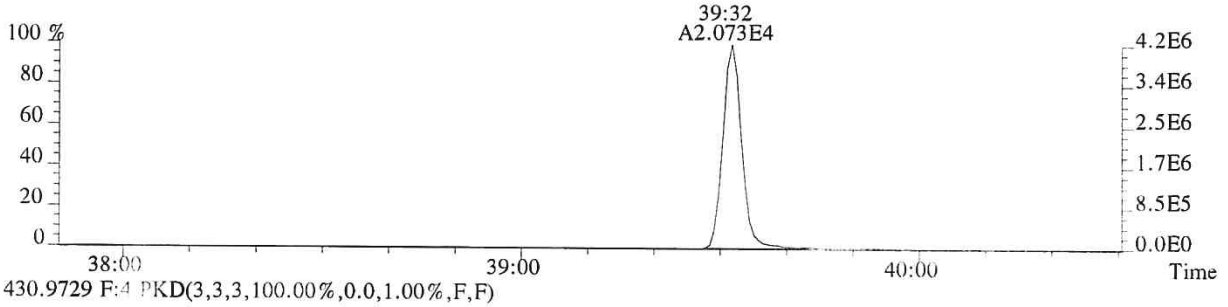
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



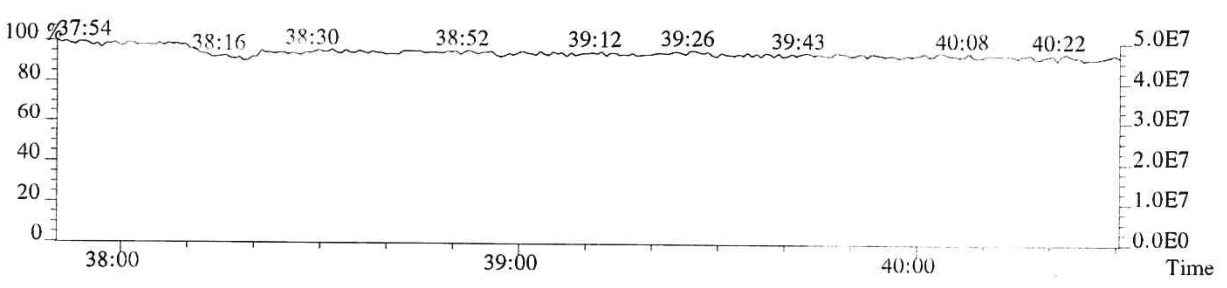
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



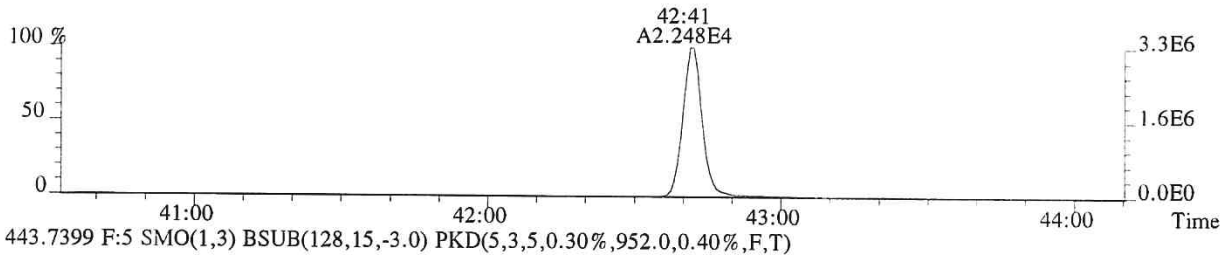
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



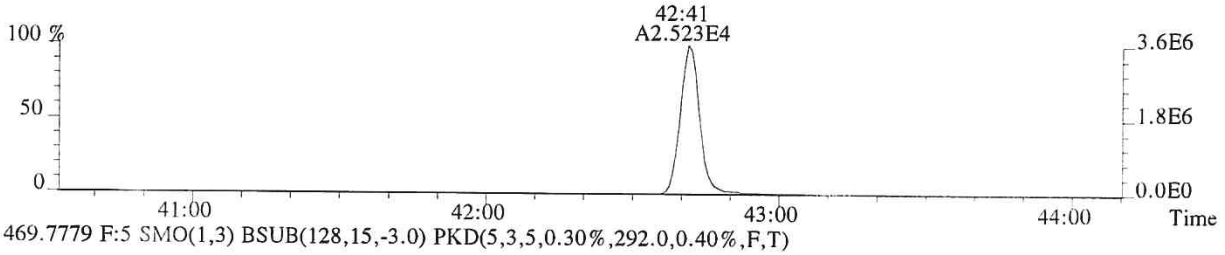
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



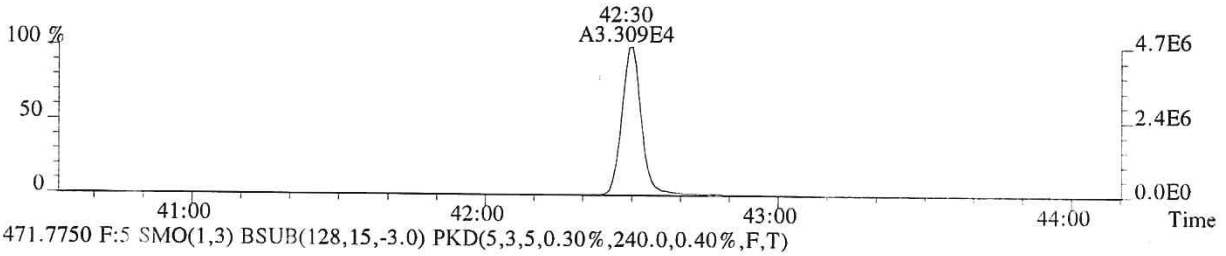
File:P519255 #1-327 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectt
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



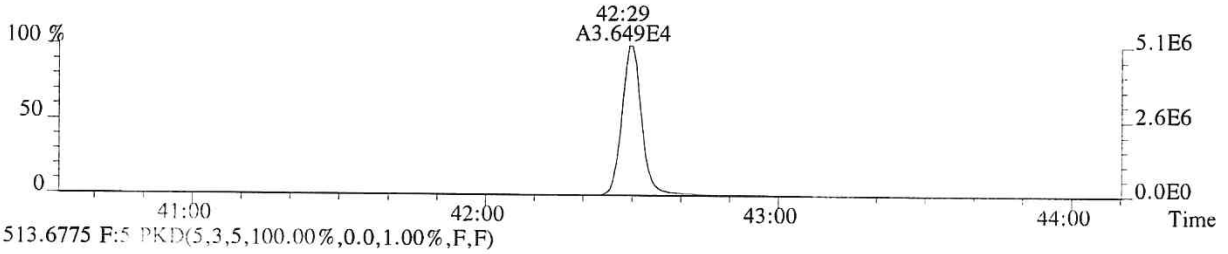
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,952.0,0.40%,F,T)



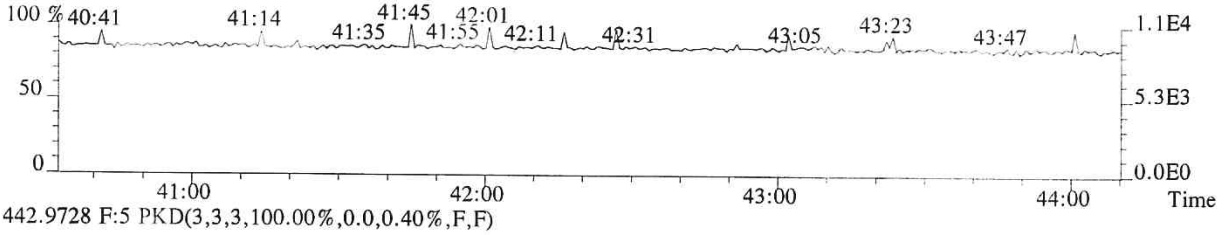
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



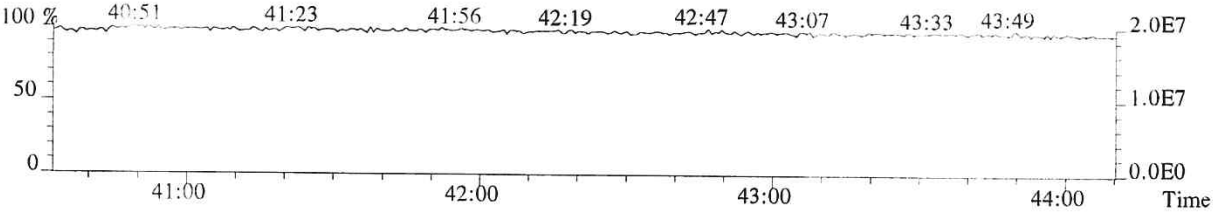
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



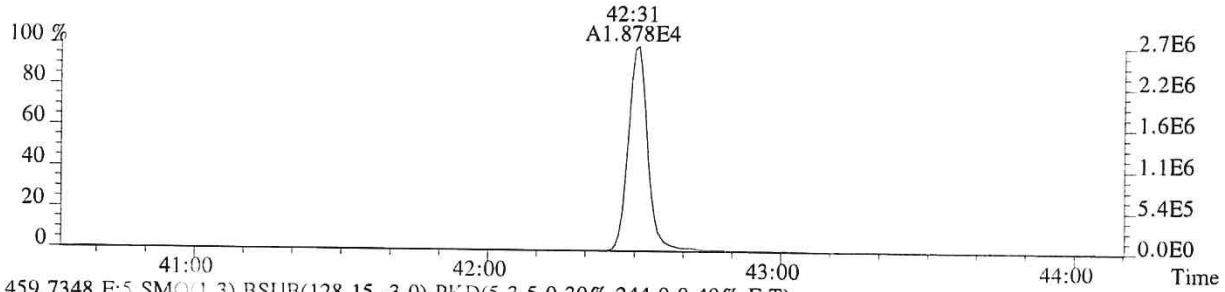
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



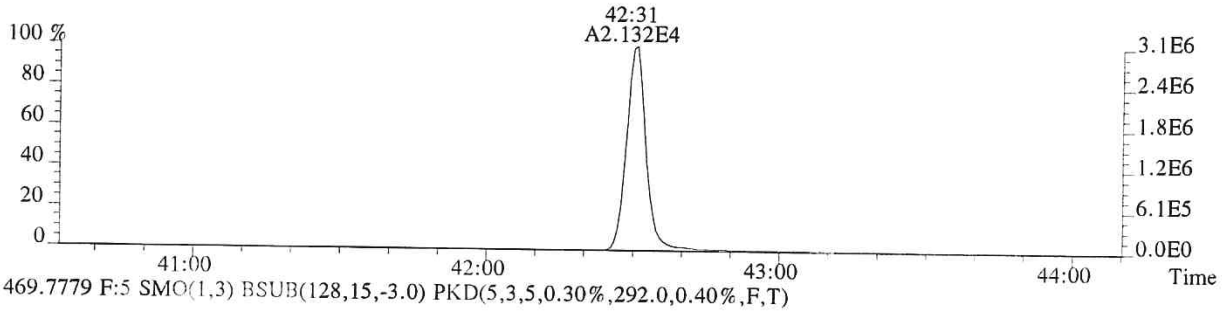
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



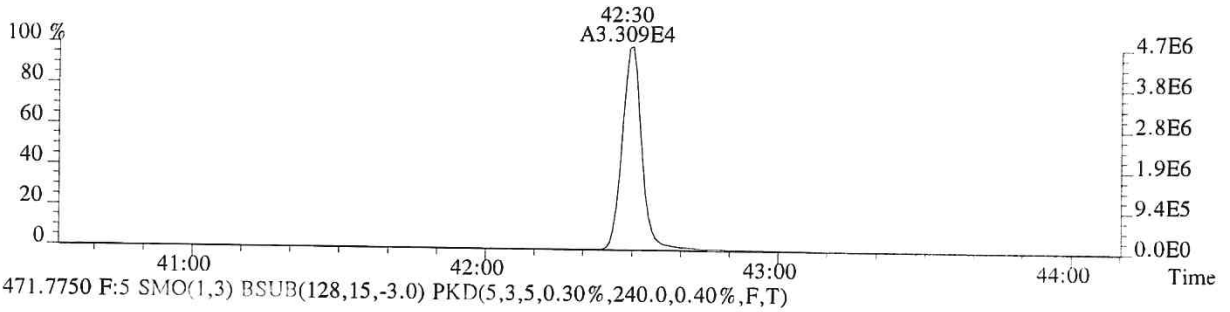
File:P519255 #1-327 Acq: 6-DEC-2018 16:20:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



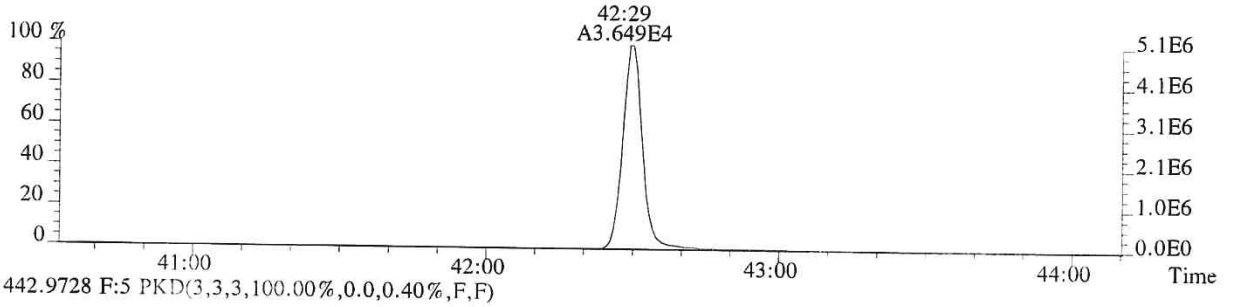
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



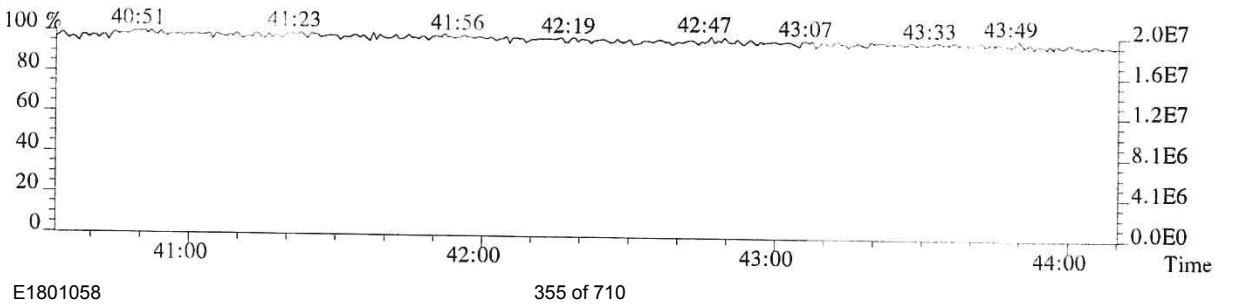
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519287

Date: 12/07/18-12/08/18 (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519287	7-DEC-18	19:08:16
192977	WINDOW DEFINE	P519288	7-DEC-18	19:56:03
METHOD BLANK	EQ1800469-01	P519289	7-DEC-18	20:44:48
METHOD BLANK	EQ1800488-01	P519290	7-DEC-18	21:33:23
SL0539	E1801046-001DL	P519291	7-DEC-18	22:22:00
SL0540	E1801046-002DL	P519292	7-DEC-18	23:10:38
SL0541	E1801046-003DL	P519293	7-DEC-18	23:59:16
SL0542	E1801046-004DL	P519294	8-DEC-18	00:47:53
SL0552	E1801055-008	P519295	8-DEC-18	01:36:30
SL0558	E1801057-006	P519296	8-DEC-18	02:25:08
SL0559	E1801057-007	P519297	8-DEC-18	03:13:44
SL0560	E1801057-008	P519298	8-DEC-18	04:02:22
SL0580	E1801065-001	P519299	8-DEC-18	04:50:59
SL0581	E1801065-002	P519300	8-DEC-18	05:39:44
SL0582	E1801065-003	P519301	8-DEC-18	06:28:20

E1801058

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181207B.SPL
Last Modified: Monday, December 10, 2018 07:32:15 Central Standard Time
Printed: Monday, December 10, 2018 07:32:17 Central Standard Time

Page Position (1, 1)

OPR54: P519287res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/7/18	19:08	P519287	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMScheck 19:08
2		19:56	P519288	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		20:44	P519289	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		21:33	P519290	MB	EQ1800488-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		22:22	P519291	E1801046-001DL	E1801046-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		23:10	P519292	E1801046-002DL	E1801046-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		23:59	P519293	E1801046-003DL	E1801046-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8	12/8/18	00:47	P519294	E1801046-004DL	E1801046-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		01:36	P519295	E1801055-008	E1801055-008	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		02:25	P519296	E1801057-006	E1801057-006	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		03:13	P519297	E1801057-007	E1801057-007	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		04:02	P519298	E1801057-008	E1801057-008	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		04:50	P519299	E1801065-001	E1801065-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		05:39	P519300	E1801065-002	E1801065-002	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		06:28	P519301	E1801065-003	E1801065-003	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		07:25	P519302	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMScheck 07:25
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

358 of 710

gc 12/10/18

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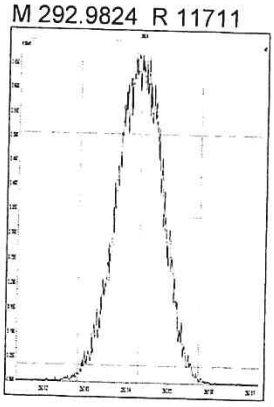

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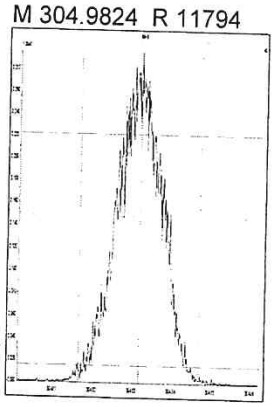

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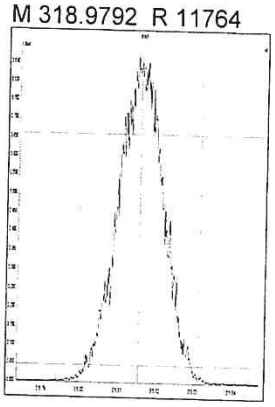

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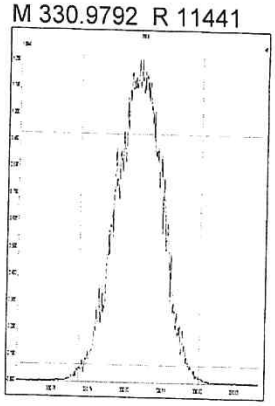

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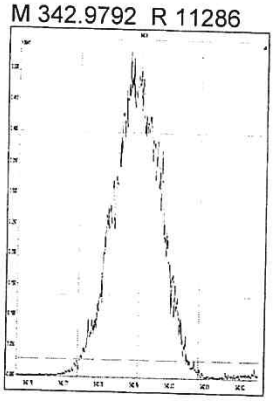

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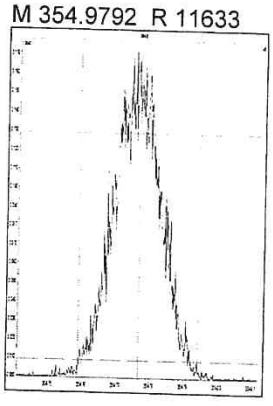

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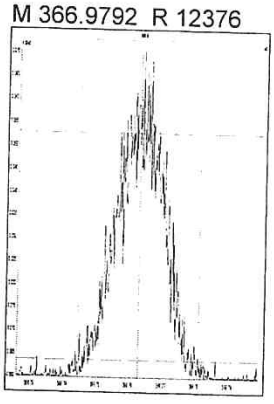

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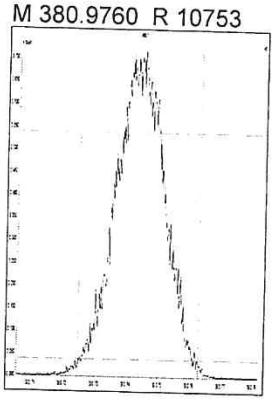

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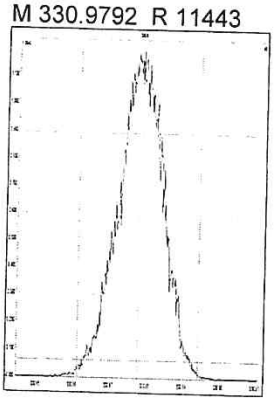

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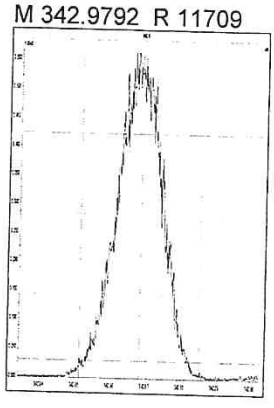

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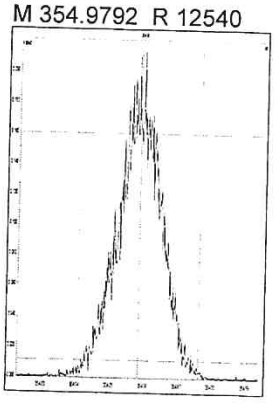

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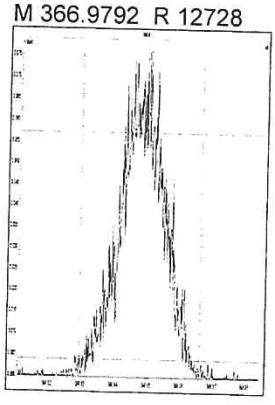

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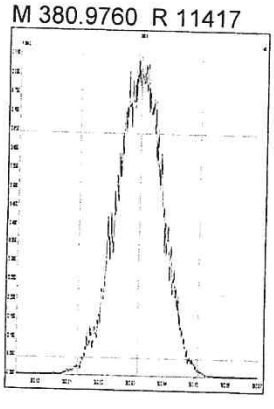

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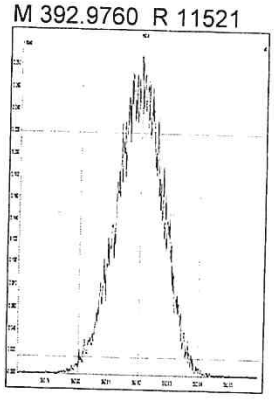

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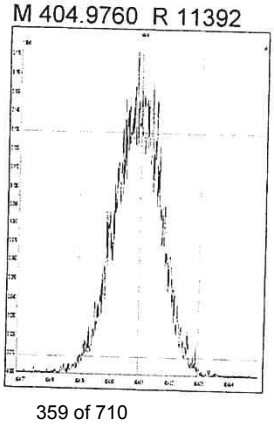

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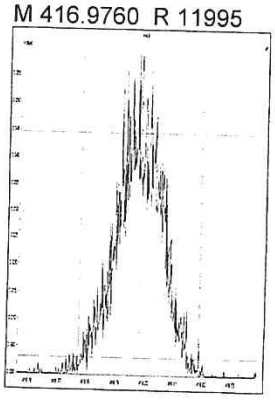

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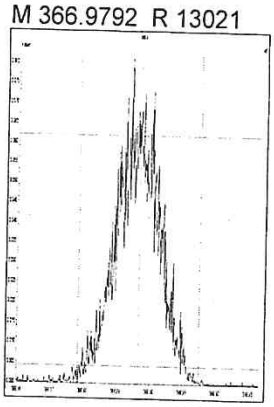

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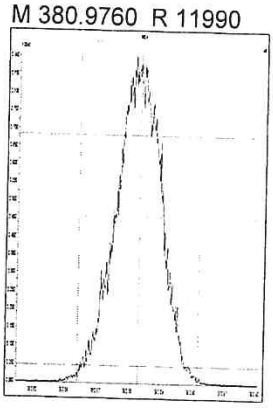

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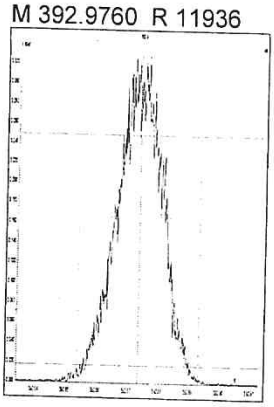

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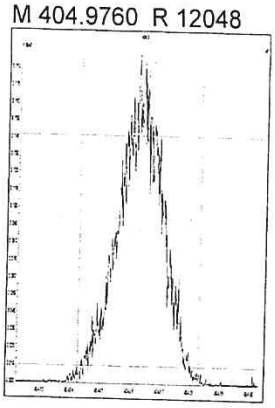

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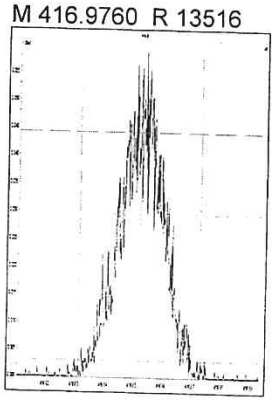

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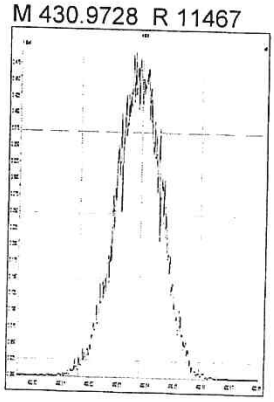

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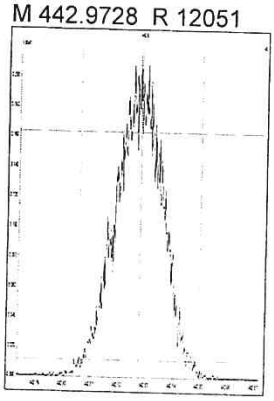

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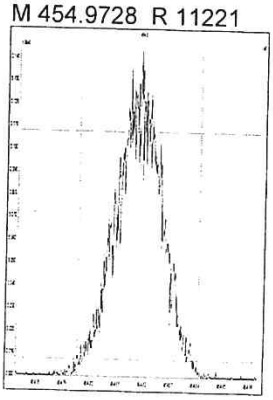

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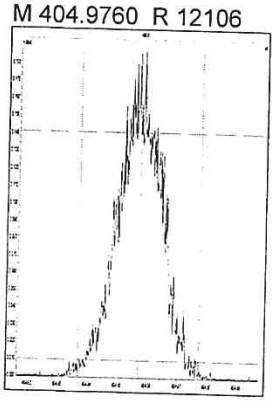

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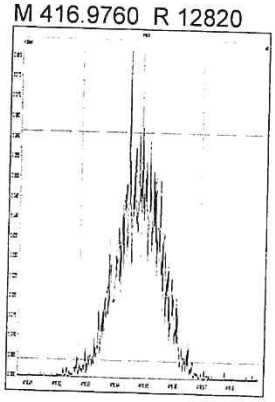

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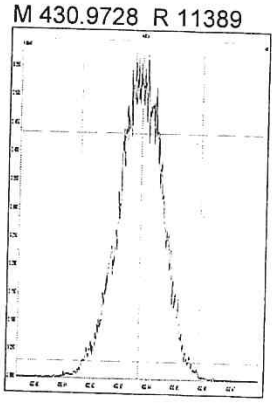

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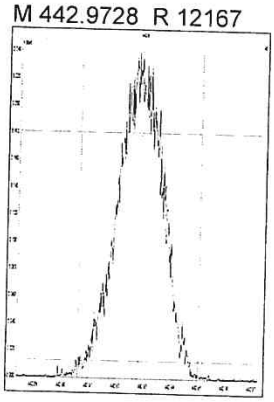

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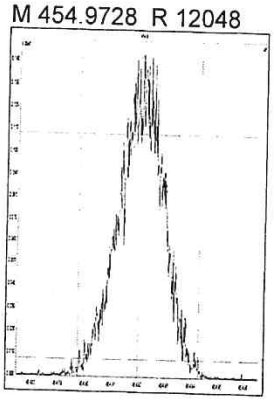

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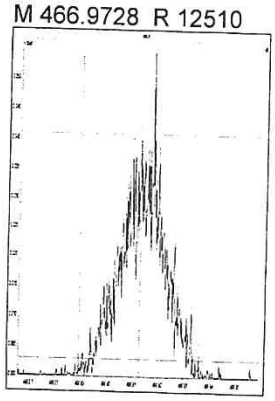

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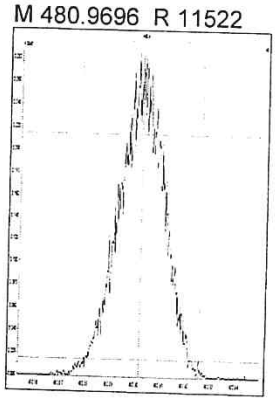

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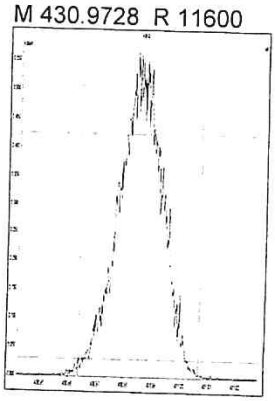

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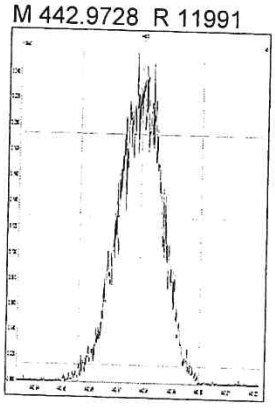

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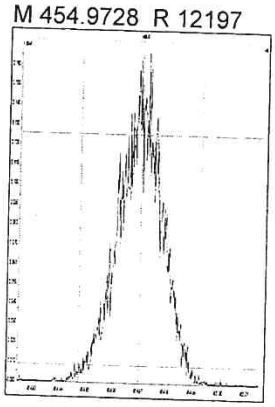

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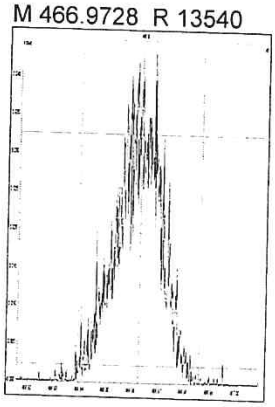

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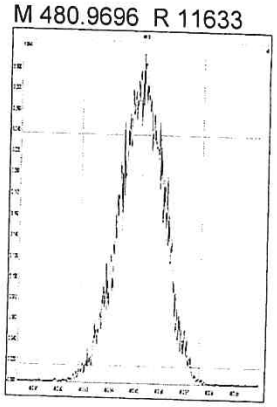

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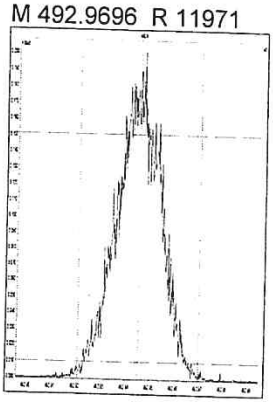

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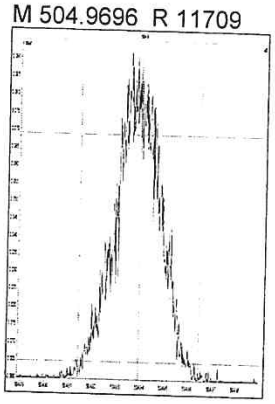

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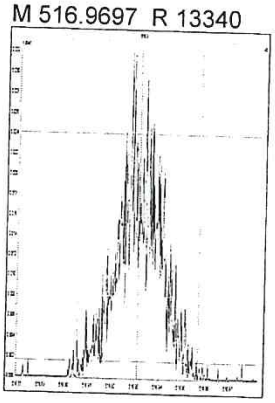

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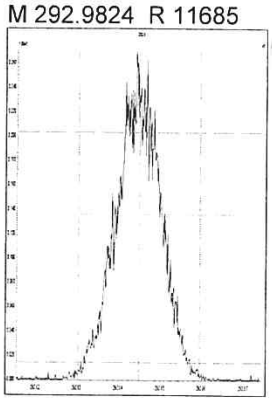

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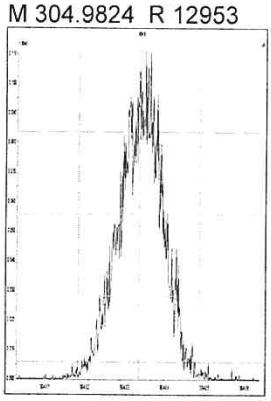

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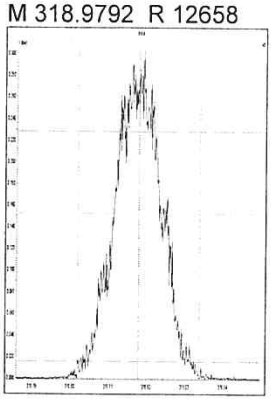

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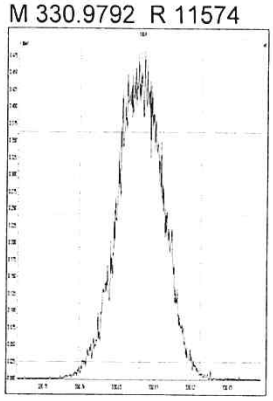

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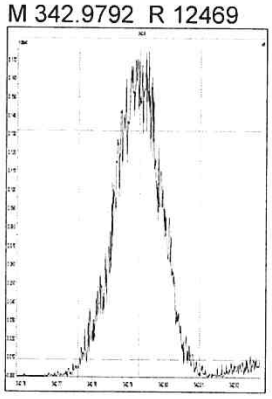

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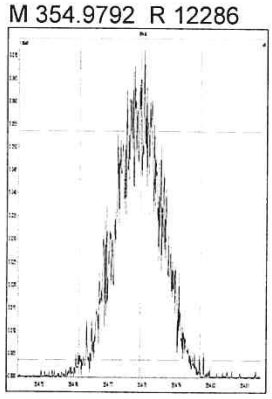

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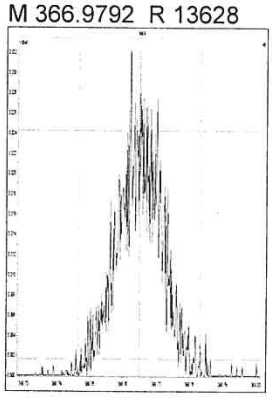

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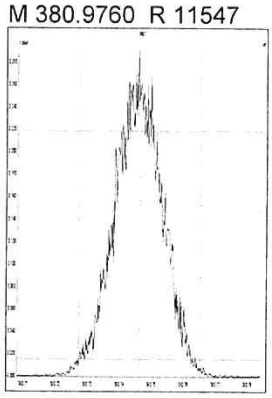

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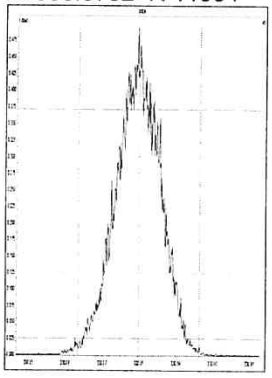

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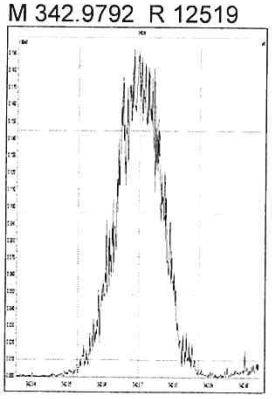

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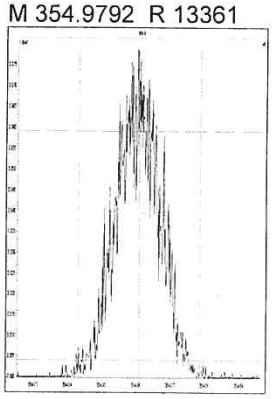

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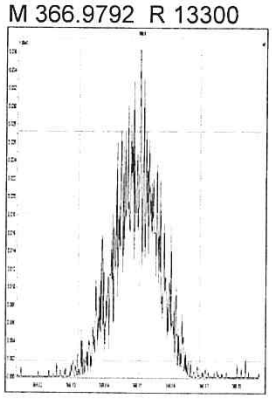

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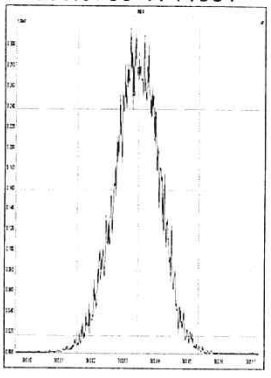

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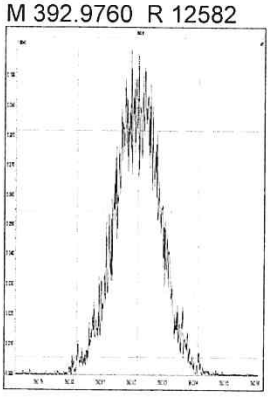

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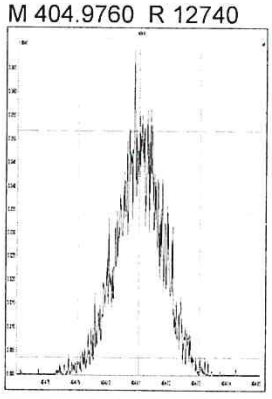

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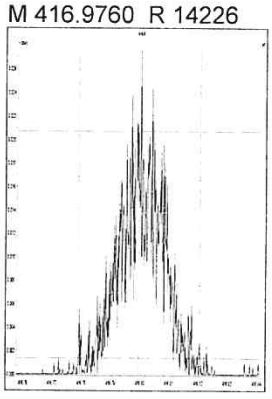

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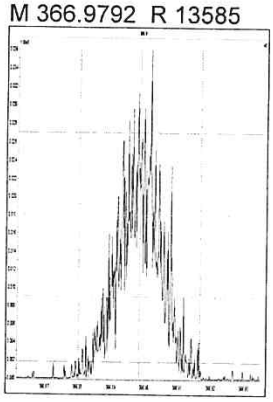

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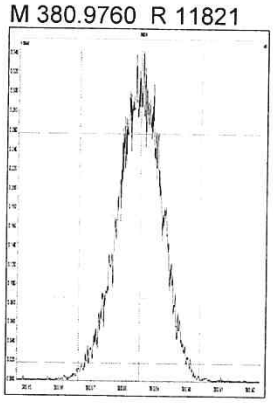

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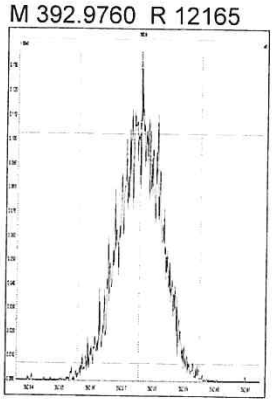

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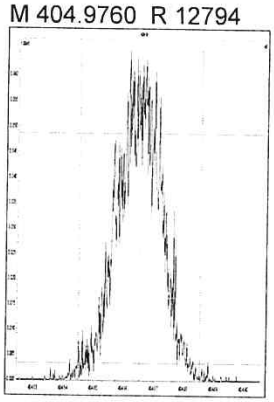

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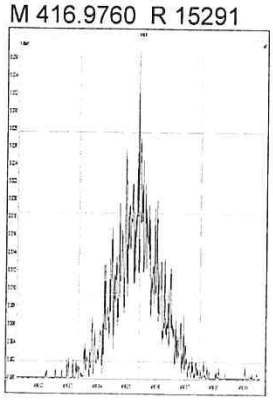

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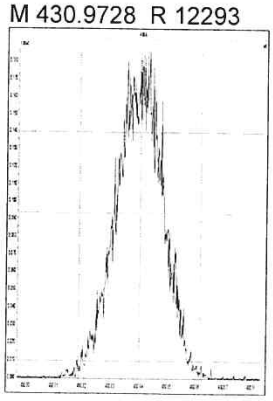

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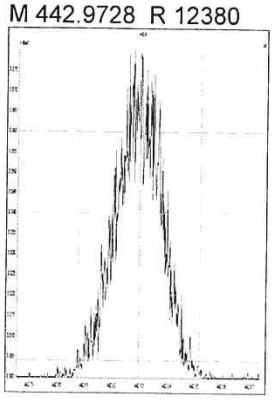

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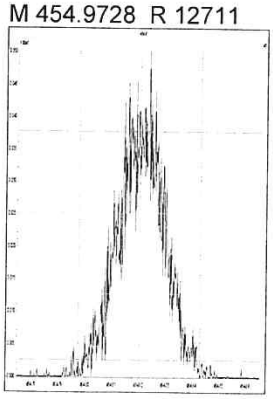

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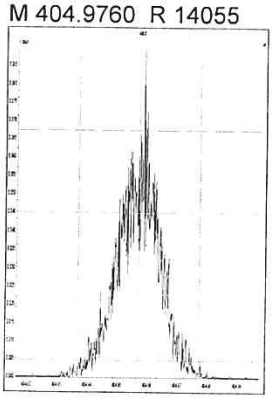

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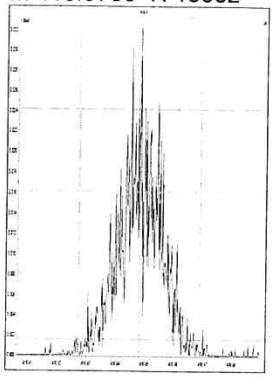

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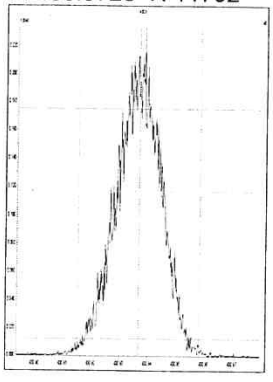

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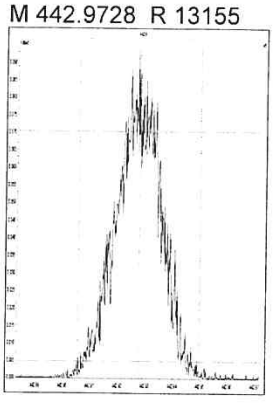

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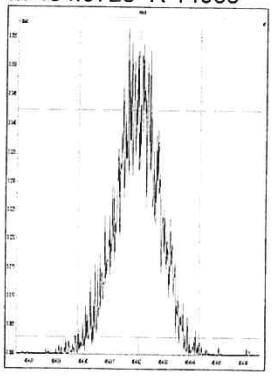

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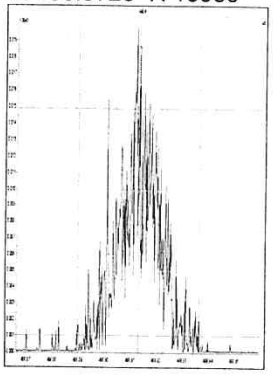

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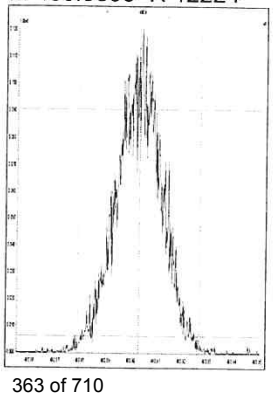

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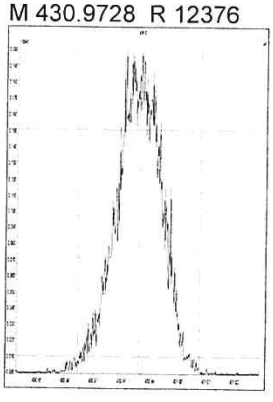

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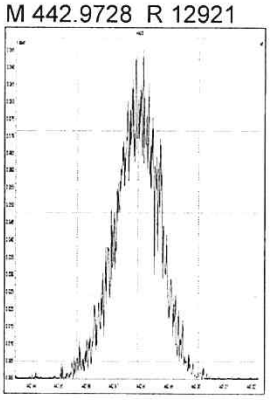

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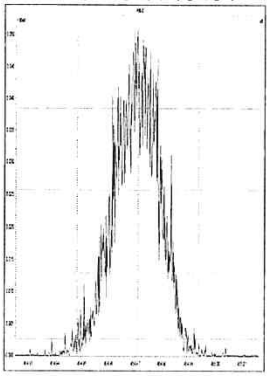

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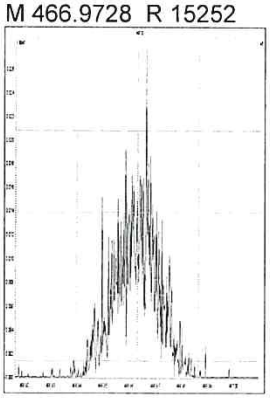

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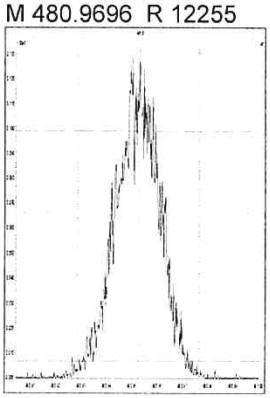

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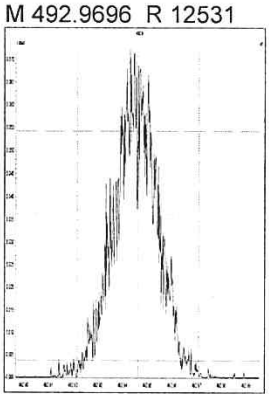

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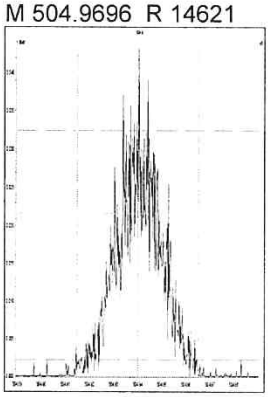

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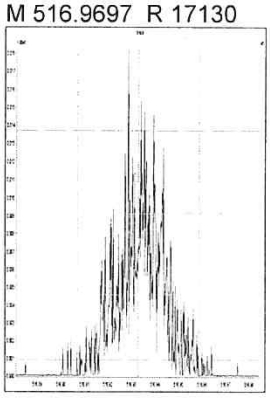


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

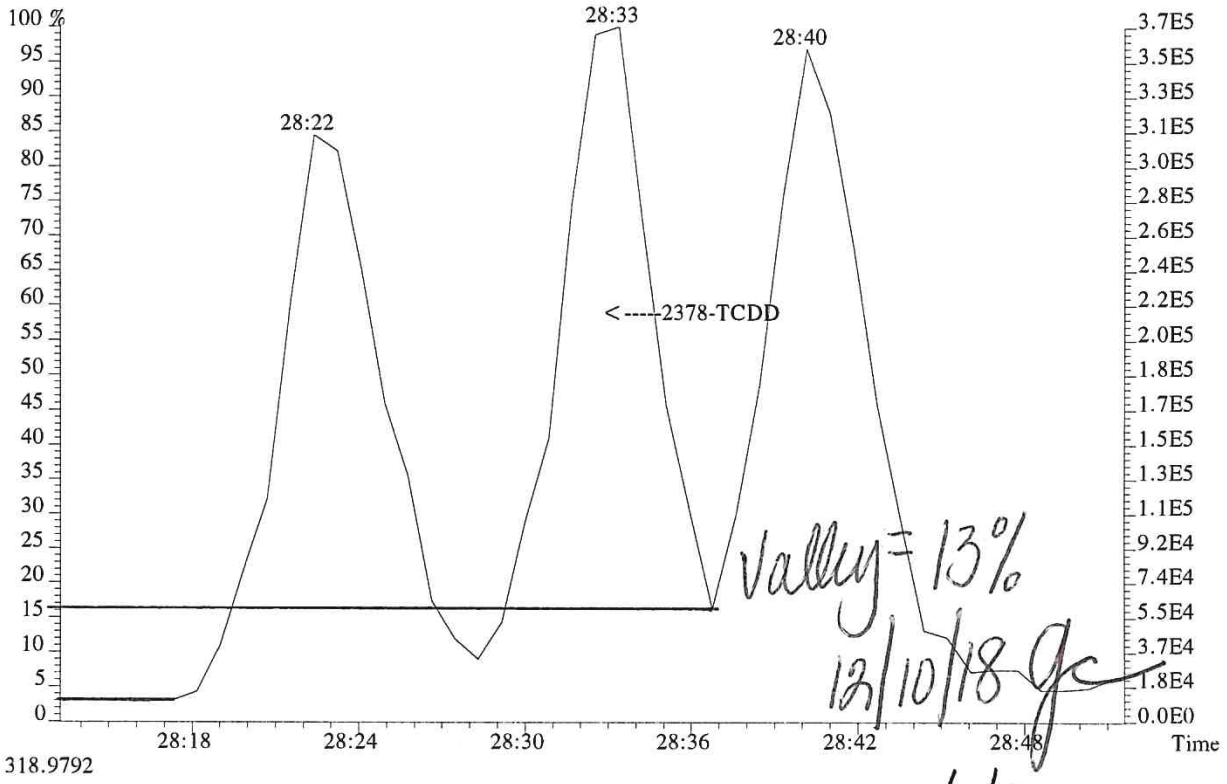
Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519288
Date Analyzed: 7-DEC-2018
Time Analyzed: 19:56:03

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:17	29:44
TCDD	25:06	29:34
PeCDF	29:42	34:03
PeCDD	31:17	33:48
HxCDF	34:44	37:19
HxCDD	35:16	36:54
HpCDF	38:36	40:04
HpCDD	38:52	39:34

% Valley 2378-TCDD: 13 %

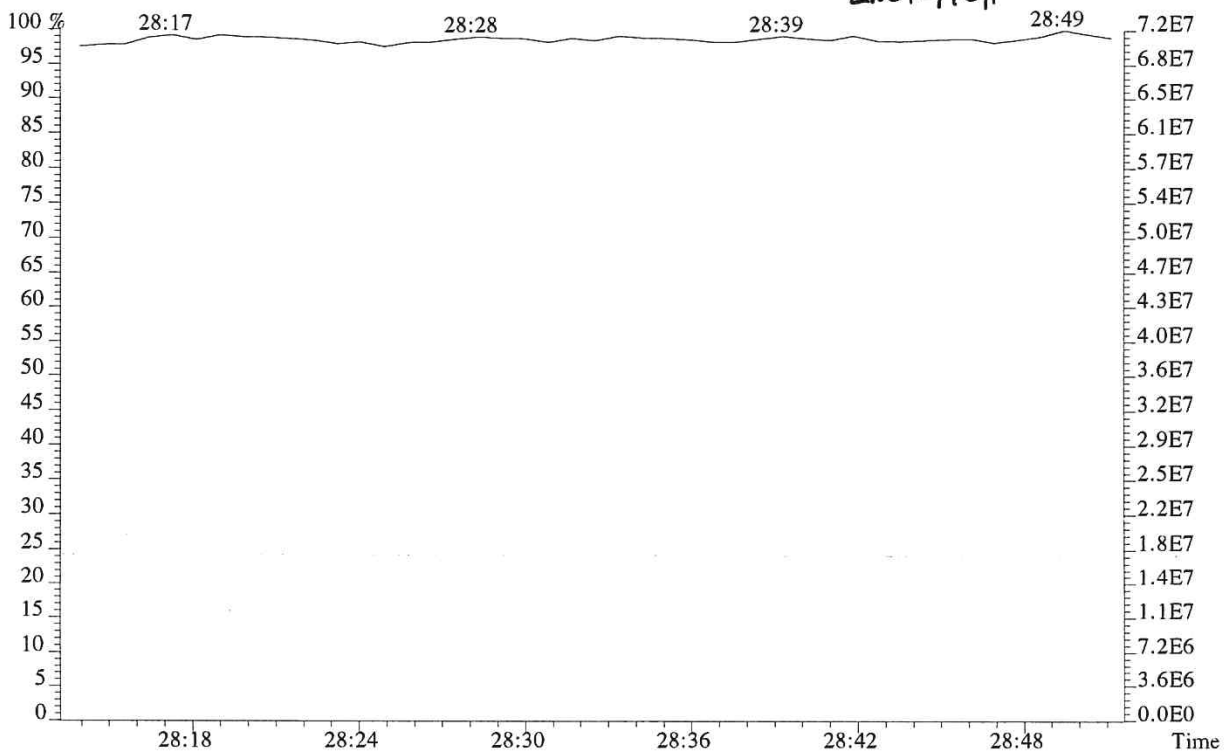
013455

File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LMK 12/10/18



013456

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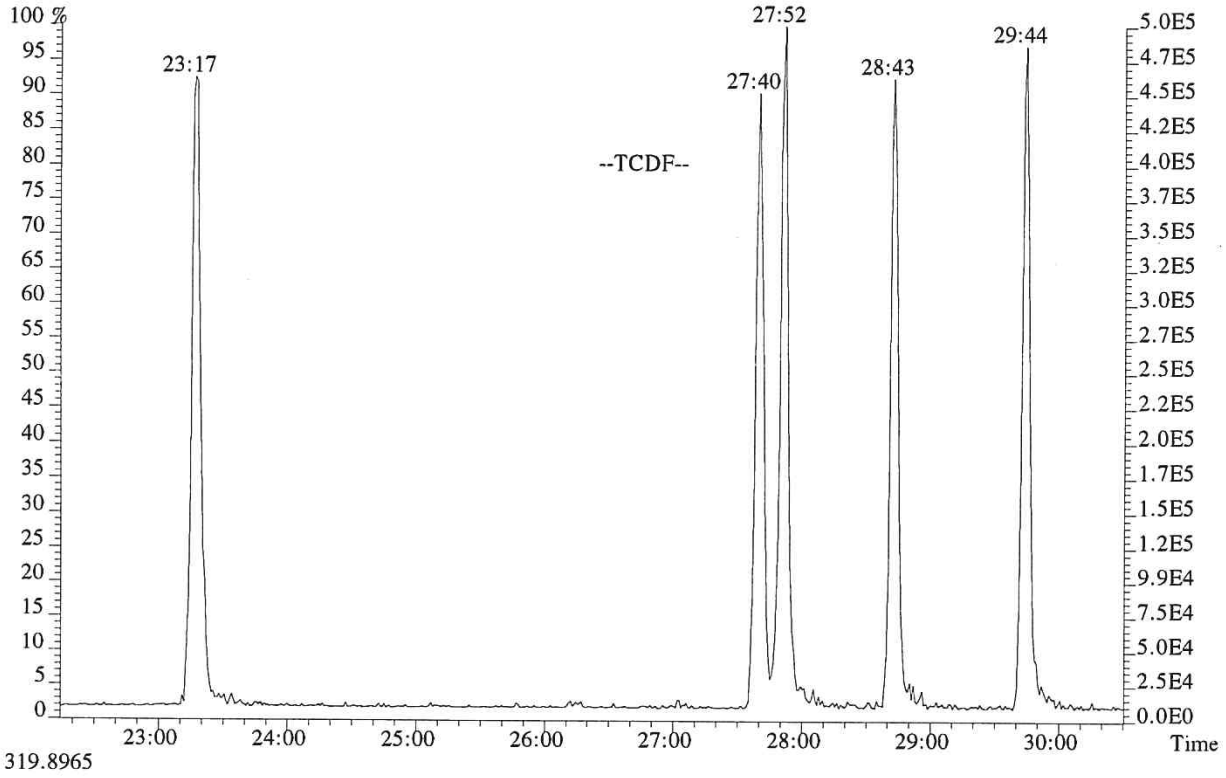
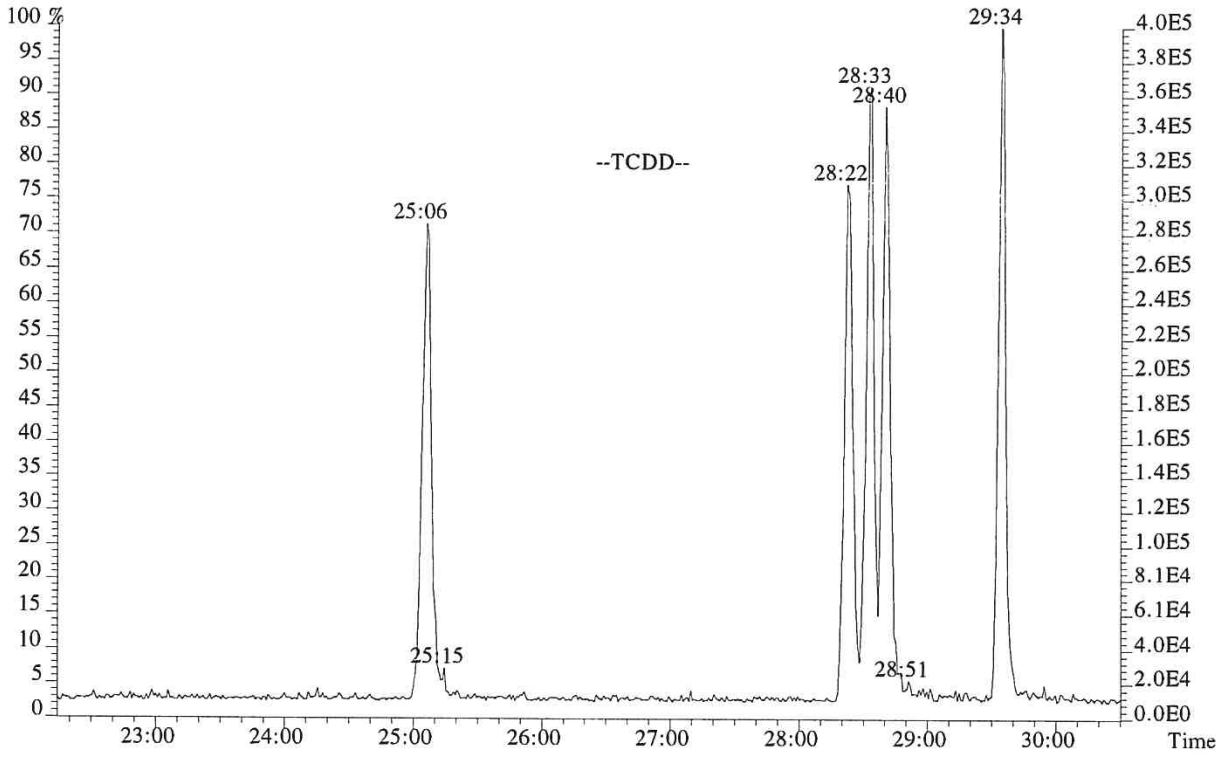
Sample#1 Exp:192977
303.9016



319.8965



013457

File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
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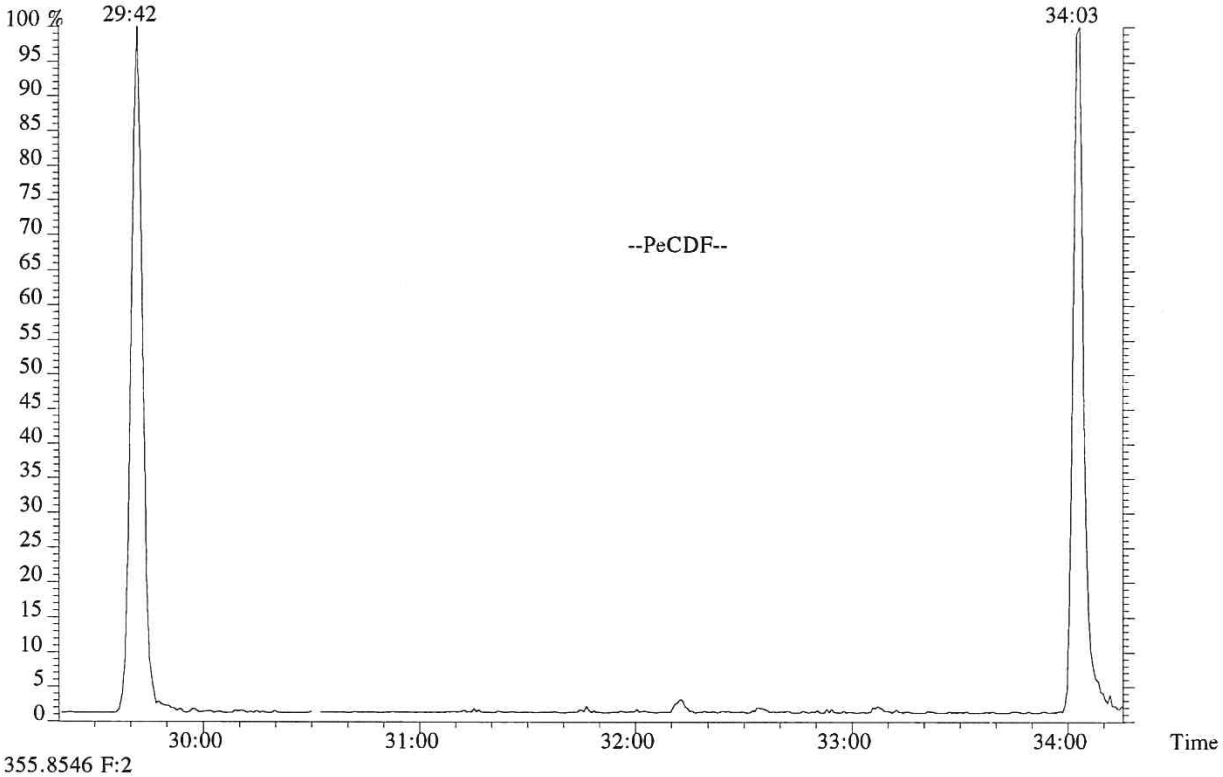
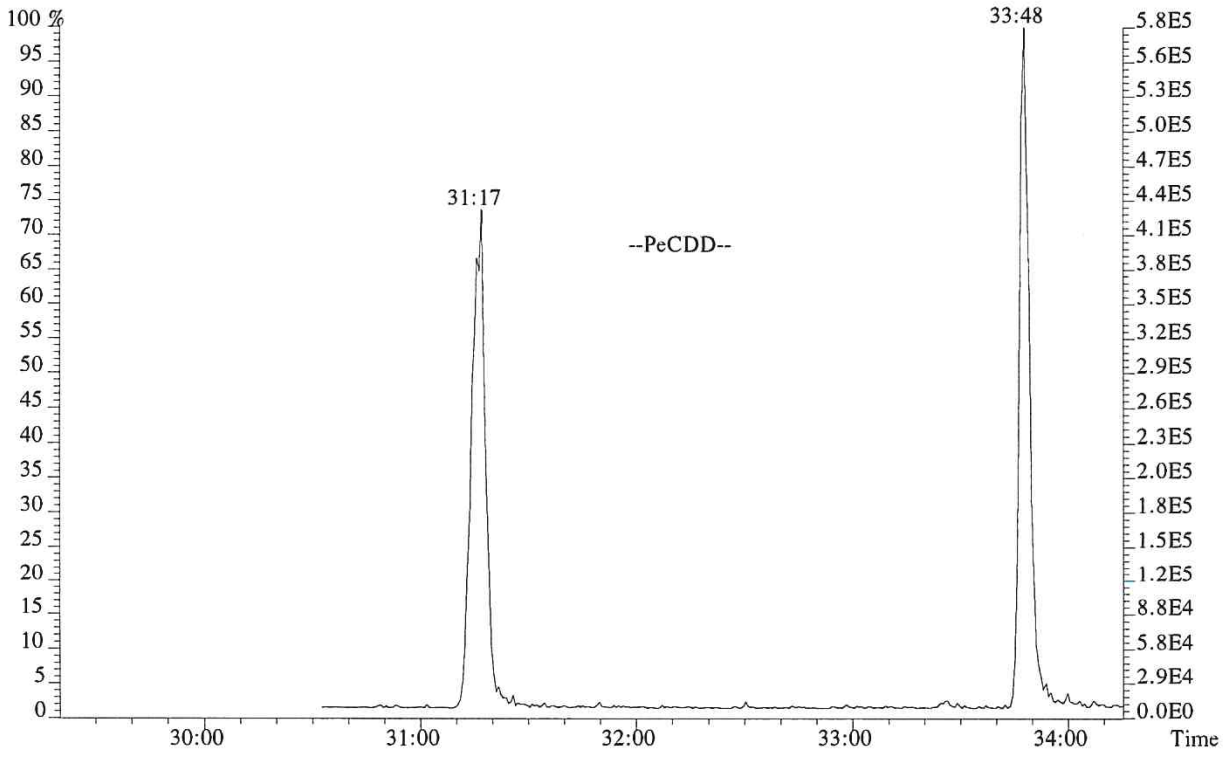
339.8597,339.8597 F:2



355.8546 F:2



013458

File:P519288 #1-317 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
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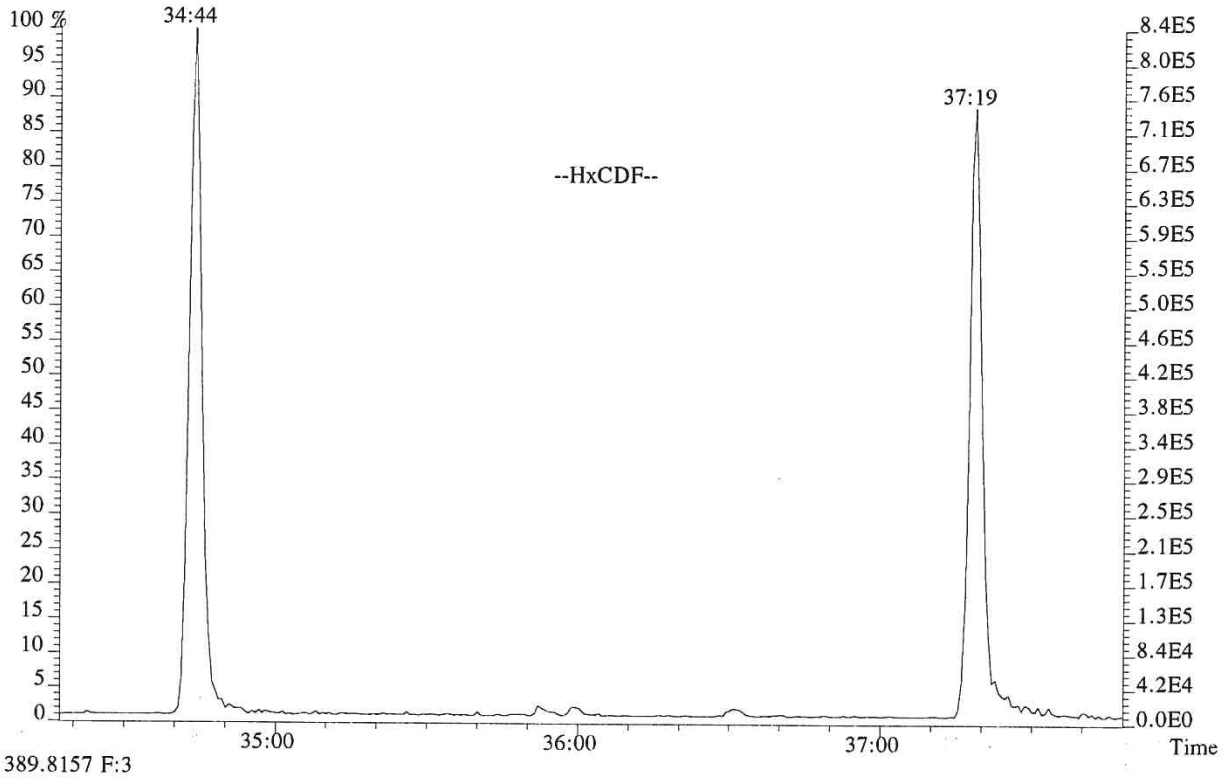
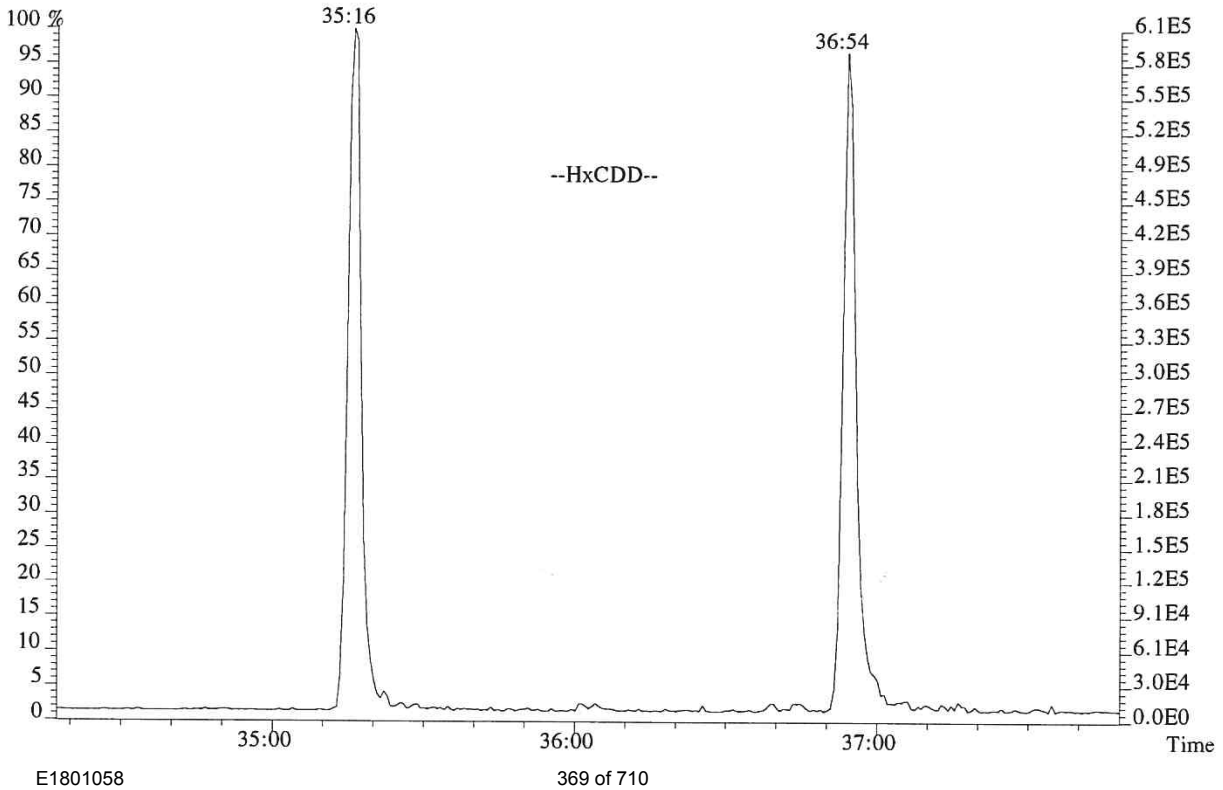


389.8157 F:3



013459

File:P519288 #1-241 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
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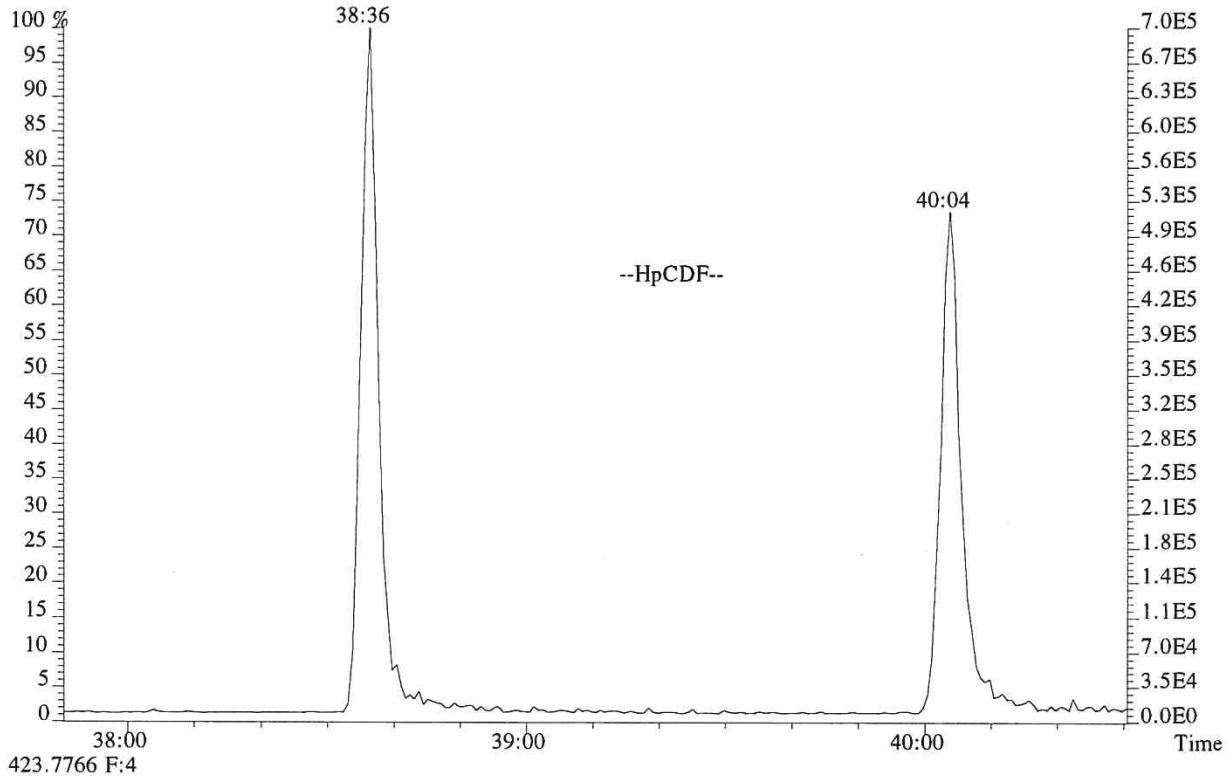
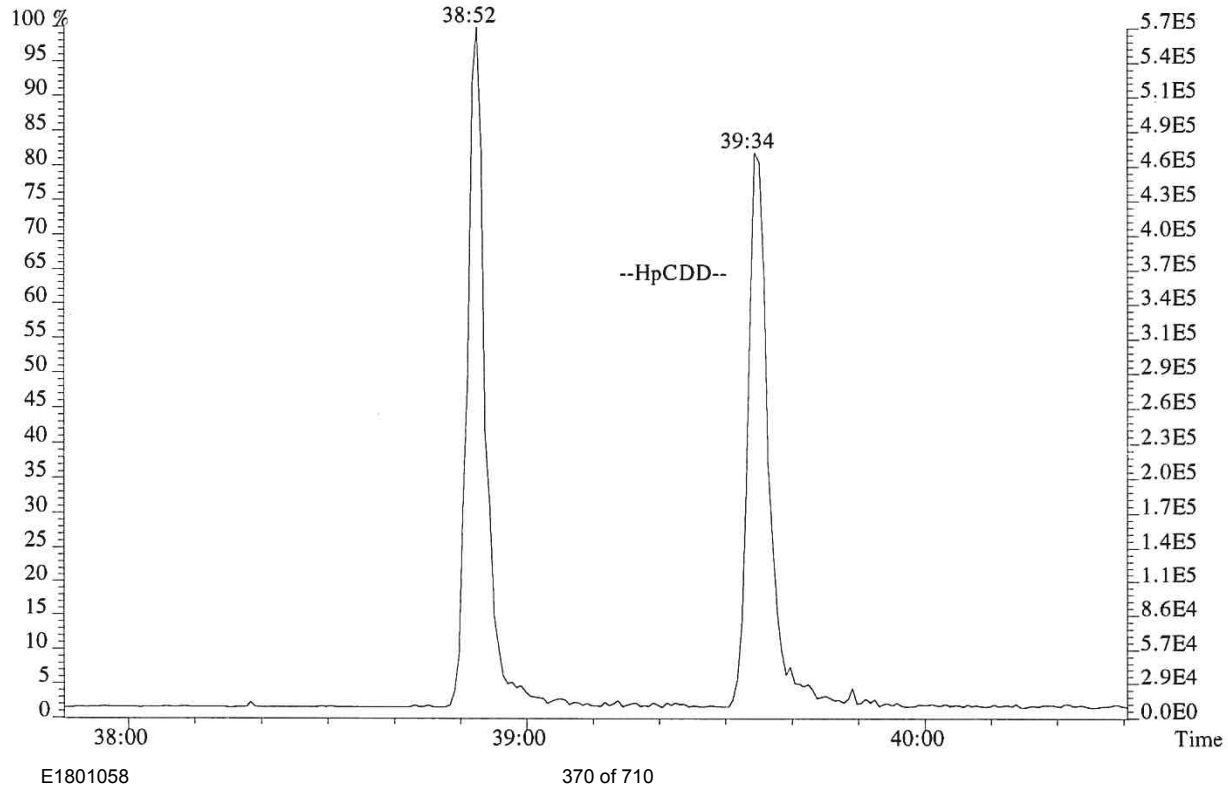
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.8	7.8 - 12.9	-2.2
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	52	39 - 65	3.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	51	39 - 64	2.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	52	39 - 64	4.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	55	41 - 61	10.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	51	43 - 58	2.2
OCDD	M+2/M+4	0.90	0.76-1.02	102	79 - 126	2.0
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	10.0	8.4 - 12.0	0.5
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	0.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 61	2.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	51	43 - 58	1.9
OCDF	M+2/M+4	0.88	0.76-1.02	101	63 - 159	1.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	104	82 - 121	3.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	117	62 - 160	16.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	94	85 - 117	-5.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	93	85 - 118	-6.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	109	72 - 138	8.6
13C-OCDD	M+2/M+4	0.89	0.76-1.02	260	96 - 415	29.8
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-2.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	115	76 - 130	15.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	116	77 - 130	15.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	76 - 131	-12.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	92	70 - 143	-7.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-0.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-6.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	104	78 - 129	4.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	111	77 - 129	11.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	1.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	3.651e+03	4.952e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	3.206e+04	2.107e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	3.080e+04	1.981e+04	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	2.691e+04	2.245e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	3.028e+04	2.509e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.724e+04	2.254e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	2.554e+04	2.123e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	2.572e+04	2.571e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	2.196e+04	2.194e+04	1.00	yes	no	1.258
0	Unk	OCDF	42:45	3.662e+04	4.163e+04	0.88	yes	no	1.359
1	Unk	2,3,7,8-TCDD	28:41	2.761e+03	3.479e+03	0.79	yes	no	1.085
2	Unk	1,2,3,7,8-PeCDD	33:24	2.121e+04	1.333e+04	1.59	yes	no	0.956
3	Unk	1,2,3,4,7,8-HxCDD	36:39	1.971e+04	1.514e+04	1.30	yes	no	1.038
4	Unk	1,2,3,6,7,8-HxCDD	36:44	2.027e+04	1.584e+04	1.28	yes	no	1.038
5	Unk	1,2,3,7,8,9-HxCDD	36:59	2.150e+04	1.714e+04	1.25	yes	no	1.063
6	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.894e+04	1.774e+04	1.07	yes	no	1.025
7	Unk	OCDD	42:33	3.068e+04	3.415e+04	0.90	yes	no	1.118
8	IS	13C-2,3,7,8-TCDF	27:50	4.040e+04	5.052e+04	0.80	yes	no	1.513
9	IS	13C-1,2,3,7,8-PeCDF	32:10	6.382e+04	4.020e+04	1.59	yes	no	1.471
0	IS	13C-2,3,4,7,8-PeCDF	33:06	6.314e+04	3.999e+04	1.58	yes	no	1.457
1	IS	13C-1,2,3,4,7,8-HxCDF	35:51	2.765e+04	5.368e+04	0.52	yes	no	1.234
2	IS	13C-1,2,3,6,7,8-HxCDF	35:58	3.358e+04	6.345e+04	0.53	yes	no	1.399
3	IS	13C-2,3,4,6,7,8-HxCDF	36:29	3.020e+04	5.826e+04	0.52	yes	no	1.257
4	IS	13C-1,2,3,7,8,9-HxCDF	37:16	2.797e+04	5.320e+04	0.53	yes	no	1.086
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	2.344e+04	5.212e+04	0.45	yes	no	0.966
6	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	2.114e+04	4.735e+04	0.45	yes	no	0.820
7	IS	13C-2,3,7,8-TCDD	28:39	2.623e+04	3.259e+04	0.80	yes	no	0.924
8	IS	13C-1,2,3,7,8-PeCDD	33:24	4.289e+04	2.696e+04	1.59	yes	no	0.975
9	IS	13C-1,2,3,4,7,8-HxCDD	36:38	3.687e+04	2.852e+04	1.29	yes	no	0.925
0	IS	13C-1,2,3,6,7,8-HxCDD	36:43	3.742e+04	2.911e+04	1.29	yes	no	0.949
1	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	3.637e+04	3.368e+04	1.08	yes	no	0.858
2	IS	13C-OCDD	42:33	5.342e+04	6.023e+04	0.89	yes	no	0.582
3	RS/RT	13C-1,2,3,4-TCDD	28:05	2.717e+04	3.412e+04	0.80	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	4.200e+04	3.318e+04	1.27	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:40	6.279e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	6.34e+05	5.32e+02	1.2e+03	8.78e+05	1.42e+03	6.2e+02
	1,2,3,7,8-PeCDF	5.87e+06	4.76e+02	1.2e+04	3.87e+06	1.20e+03	3.2e+03
	2,3,4,7,8-PeCDF	6.08e+06	4.76e+02	1.3e+04	3.82e+06	1.20e+03	3.2e+03
	1,2,3,4,7,8-HxCDF	5.87e+06	7.00e+02	8.4e+03	4.99e+06	6.00e+02	8.3e+03
	1,2,3,6,7,8-HxCDF	6.14e+06	7.00e+02	8.8e+03	5.11e+06	6.00e+02	8.5e+03
	2,3,4,6,7,8-HxCDF	5.95e+06	7.00e+02	8.5e+03	4.93e+06	6.00e+02	8.2e+03
	1,2,3,7,8,9-HxCDF	4.77e+06	7.00e+02	6.8e+03	3.97e+06	6.00e+02	6.6e+03
	1,2,3,4,6,7,8-HpCDF	5.16e+06	2.04e+02	2.5e+04	5.11e+06	1.60e+02	3.2e+04
	1,2,3,4,7,8,9-HpCDF	3.49e+06	2.04e+02	1.7e+04	3.55e+06	1.60e+02	2.2e+04
0	OCDF	4.67e+06	2.52e+02	1.9e+04	5.34e+06	1.02e+03	5.2e+03
1	2,3,7,8-TCDD	5.32e+05	2.04e+03	2.6e+02	6.56e+05	1.17e+03	5.6e+02
2	1,2,3,7,8-PeCDD	4.13e+06	7.76e+02	5.3e+03	2.61e+06	2.92e+02	8.9e+03
3	1,2,3,4,7,8-HxCDD	4.25e+06	3.72e+02	1.1e+04	3.20e+06	6.84e+02	4.7e+03
4	1,2,3,6,7,8-HxCDD	3.99e+06	3.72e+02	1.1e+04	3.10e+06	6.84e+02	4.5e+03
5	1,2,3,7,8,9-HxCDD	4.16e+06	3.72e+02	1.1e+04	3.22e+06	6.84e+02	4.7e+03
6	1,2,3,4,6,7,8-HpCDD	3.45e+06	4.48e+02	7.7e+03	3.25e+06	4.96e+02	6.6e+03
7	OCDD	3.99e+06	2.52e+02	1.6e+04	4.42e+06	3.00e+02	1.5e+04
8	13C-2,3,7,8-TCDF	7.22e+06	6.64e+03	1.1e+03	9.07e+06	6.70e+03	1.4e+03
9	13C-1,2,3,7,8-PeCDF	1.17e+07	8.12e+02	1.4e+04	7.35e+06	5.40e+02	1.4e+04
0	13C-2,3,4,7,8-PeCDF	1.23e+07	8.12e+02	1.5e+04	7.92e+06	5.40e+02	1.5e+04
1	13C-1,2,3,4,7,8-HxCDF	6.00e+06	9.16e+02	6.6e+03	1.18e+07	8.96e+02	1.3e+04
2	13C-1,2,3,6,7,8-HxCDF	6.90e+06	9.16e+02	7.5e+03	1.30e+07	8.96e+02	1.5e+04
3	13C-2,3,4,6,7,8-HxCDF	6.46e+06	9.16e+02	7.1e+03	1.24e+07	8.96e+02	1.4e+04
4	13C-1,2,3,7,8,9-HxCDF	5.21e+06	9.16e+02	5.7e+03	9.73e+06	8.96e+02	1.1e+04
5	13C-1,2,3,4,6,7,8-HpCDF	4.61e+06	2.22e+03	2.1e+03	1.02e+07	1.12e+03	9.2e+03
6	13C-1,2,3,4,7,8,9-HpCDF	3.39e+06	2.22e+03	1.5e+03	7.57e+06	1.12e+03	6.8e+03
7	13C-2,3,7,8-TCDD	4.99e+06	4.20e+03	1.2e+03	6.26e+06	1.75e+03	3.6e+03
8	13C-1,2,3,7,8-PeCDD	8.63e+06	1.40e+03	6.2e+03	5.45e+06	1.18e+03	4.6e+03
9	13C-1,2,3,4,7,8-HxCDD	7.82e+06	7.08e+02	1.1e+04	5.99e+06	7.16e+02	8.4e+03
0	13C-1,2,3,6,7,8-HxCDD	7.35e+06	7.08e+02	1.0e+04	5.72e+06	7.16e+02	8.0e+03
1	13C-1,2,3,4,6,7,8-HpCDD	6.49e+06	6.00e+02	1.1e+04	6.06e+06	5.16e+02	1.2e+04
2	13C-OCDD	6.87e+06	4.92e+02	1.4e+04	7.75e+06	2.76e+02	2.8e+04
3	13C-1,2,3,4-TCDD	5.19e+06	4.20e+03	1.2e+03	6.52e+06	1.75e+03	3.7e+03
4	13C-1,2,3,7,8,9-HxCDD	7.95e+06	7.08e+02	1.1e+04	6.19e+06	7.16e+02	8.6e+03
5	37Cl-2,3,7,8-TCDD	1.17e+06	1.10e+03	1.1e+03			

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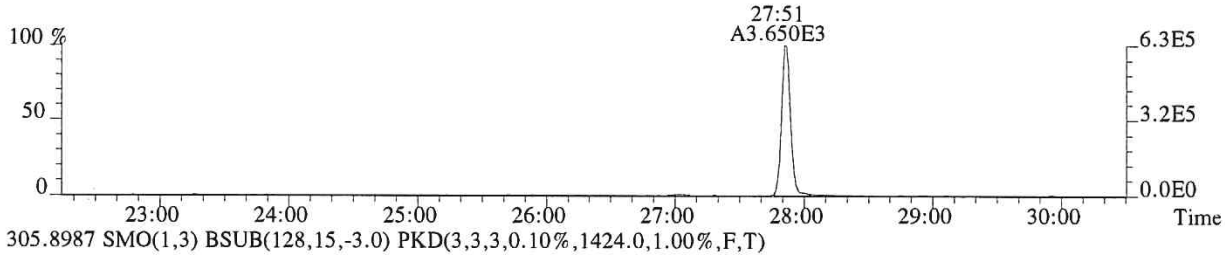
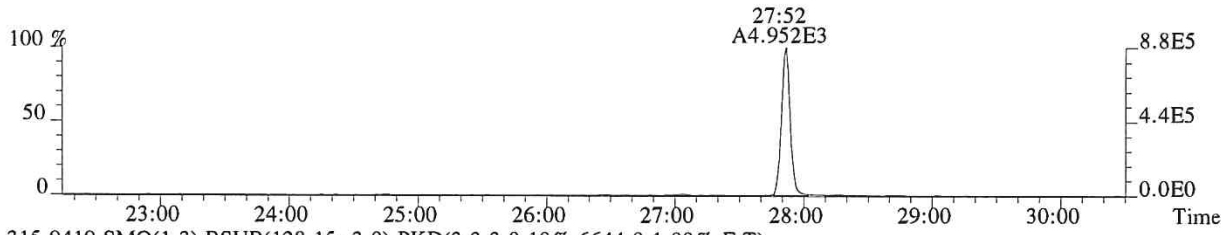
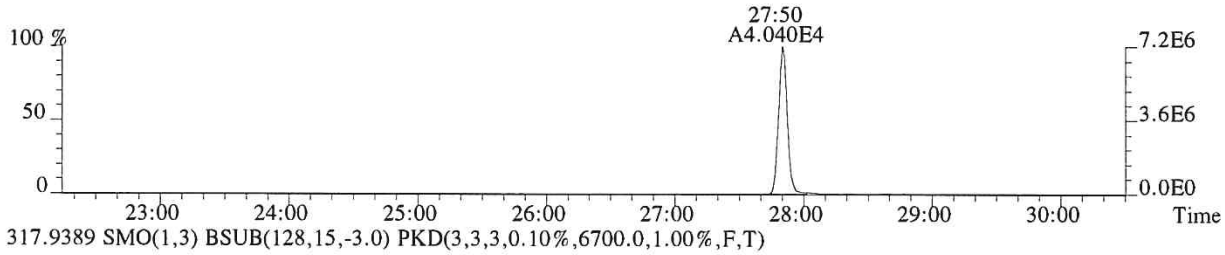
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



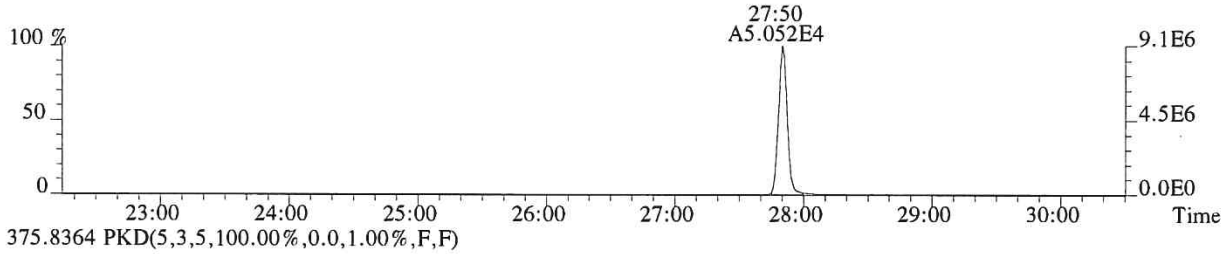
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



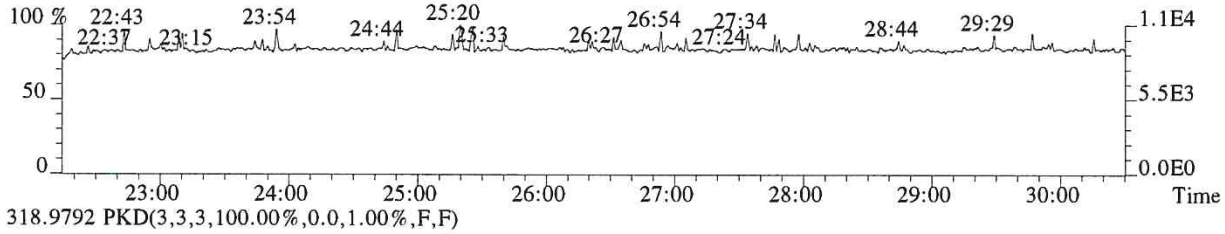
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



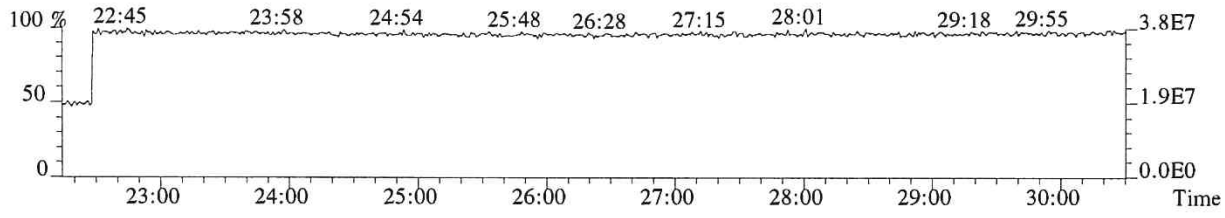
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6700.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

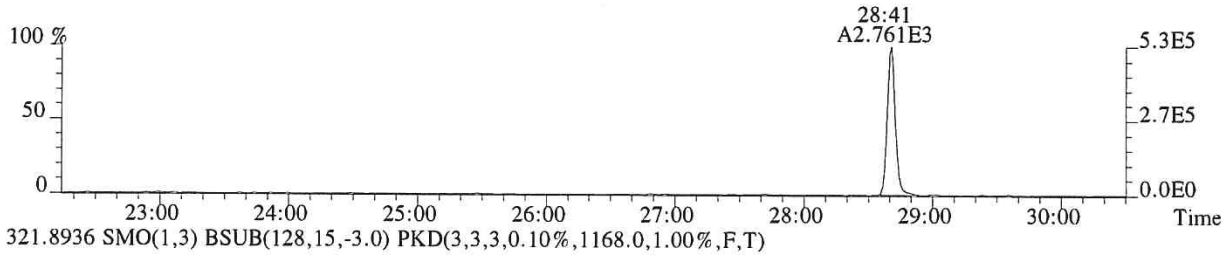


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

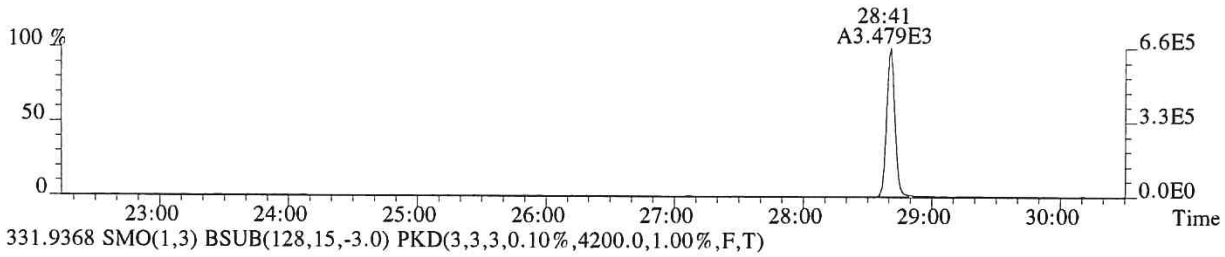


013465

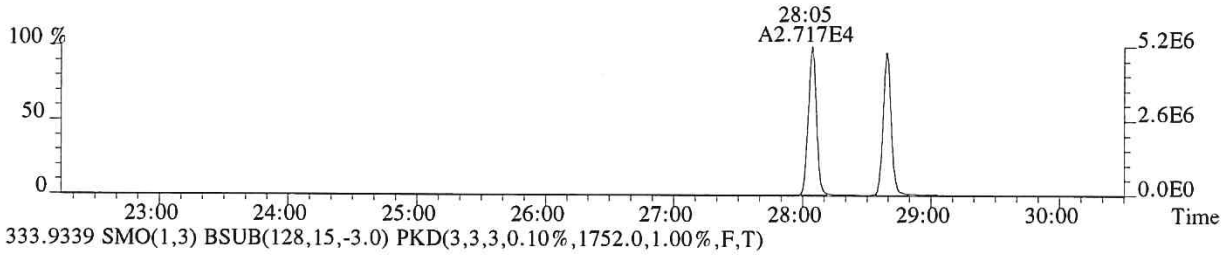
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2044.0,1.00%,F,T)



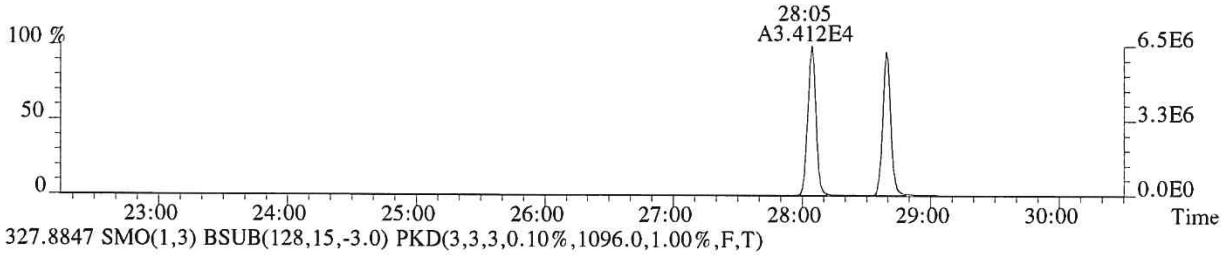
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



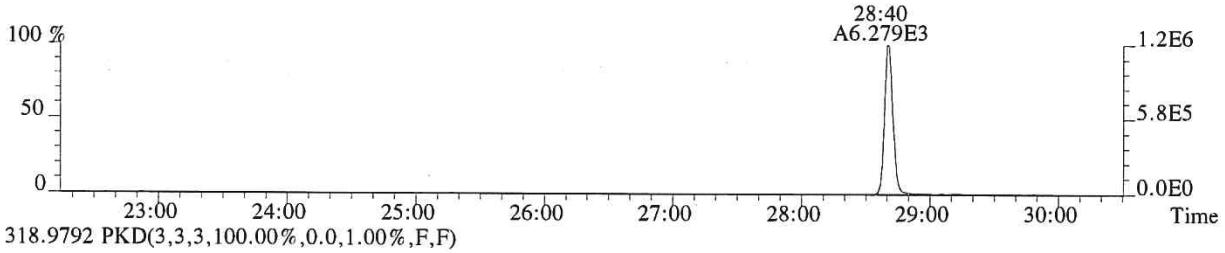
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4200.0,1.00%,F,T)



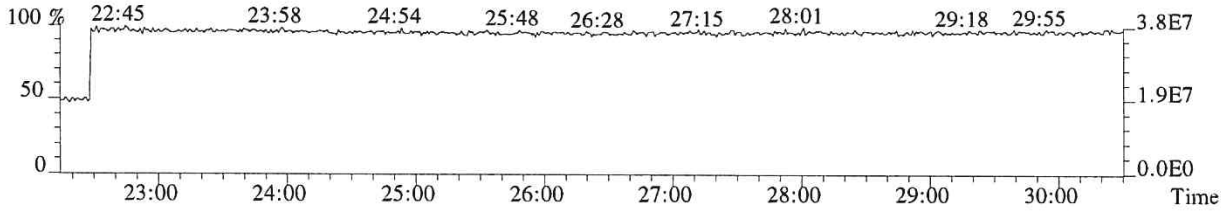
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)

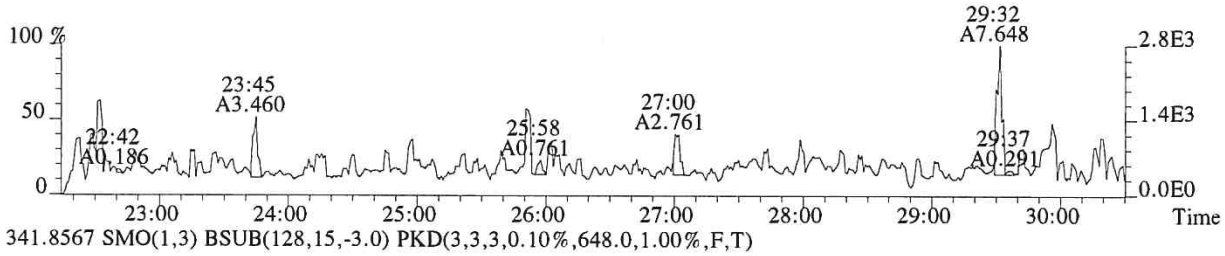


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

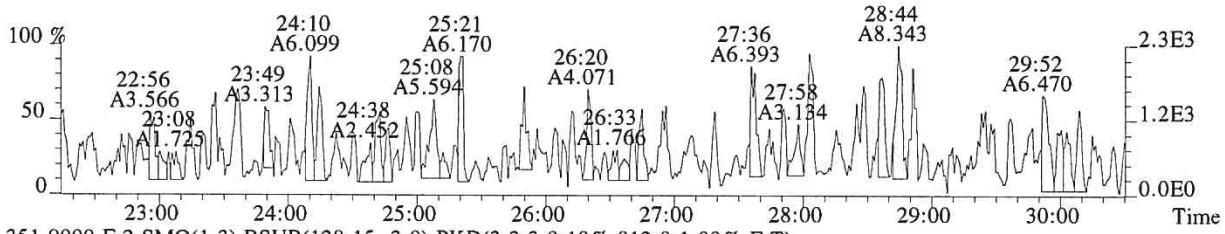


013466

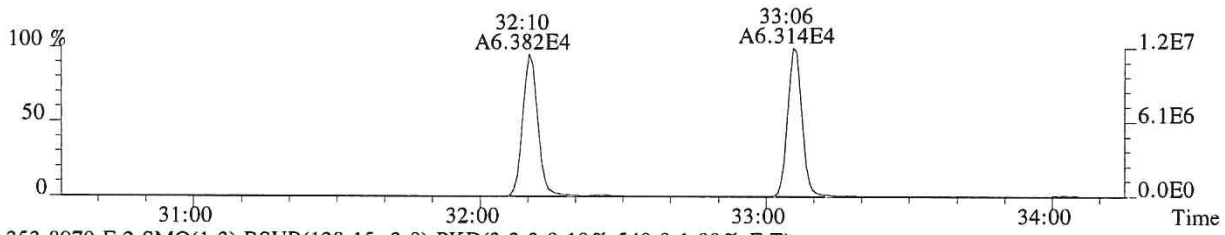
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



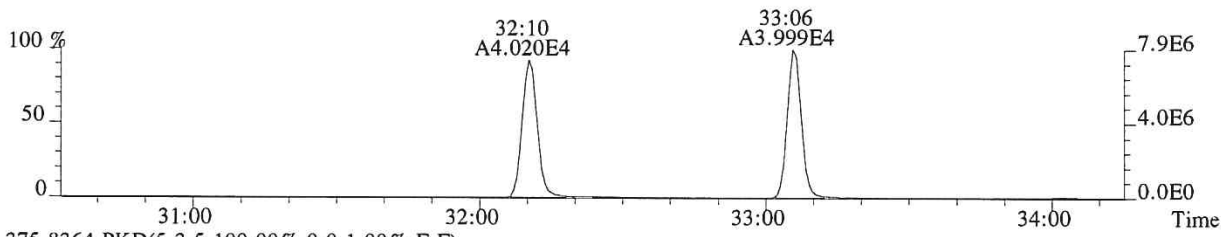
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



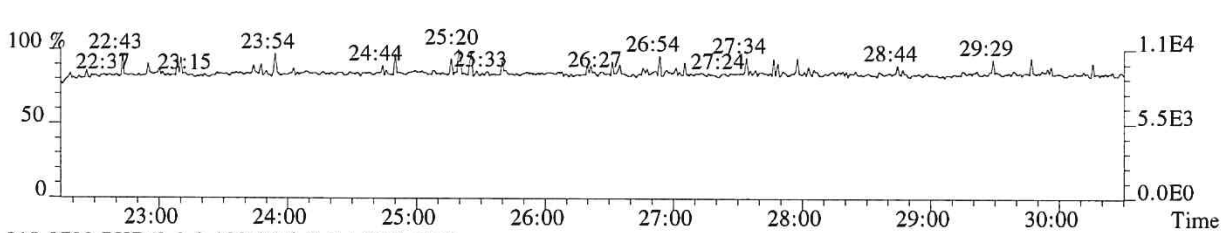
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



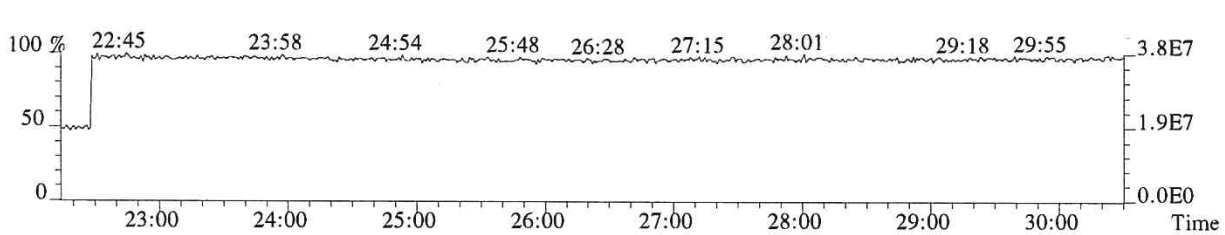
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

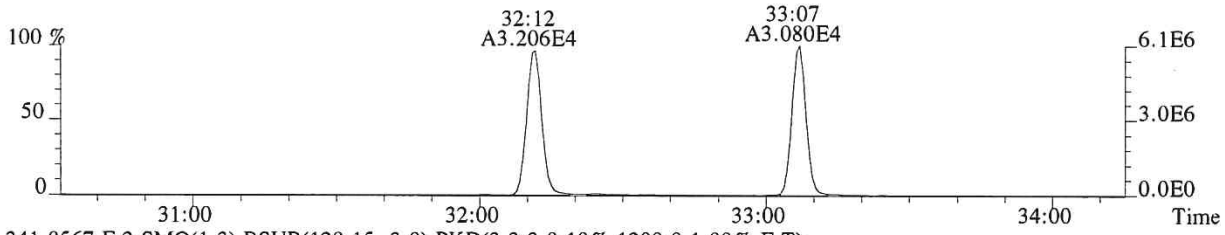


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

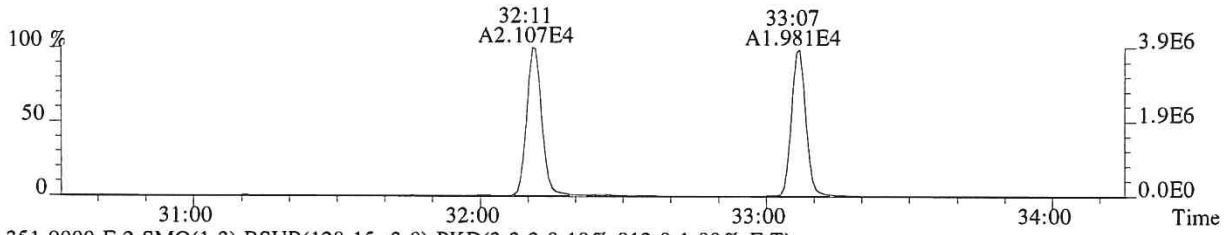


013467

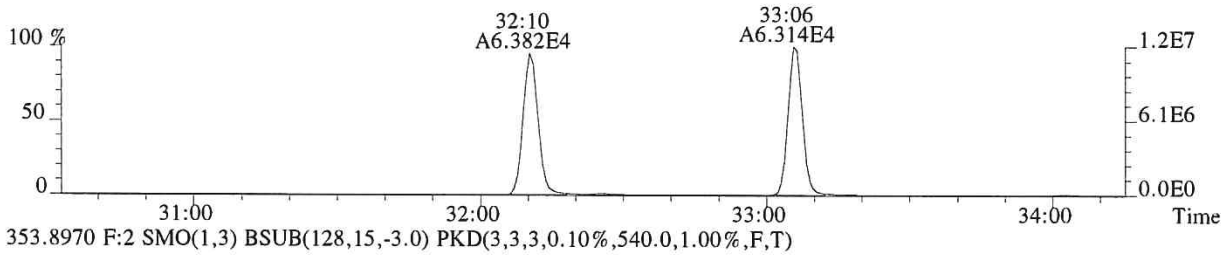
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



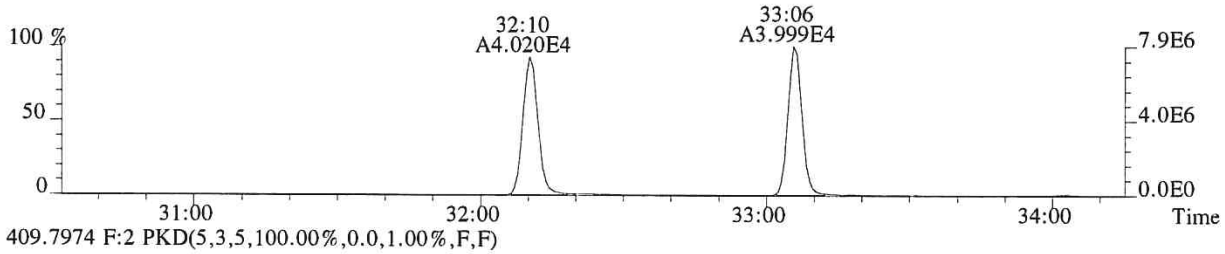
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



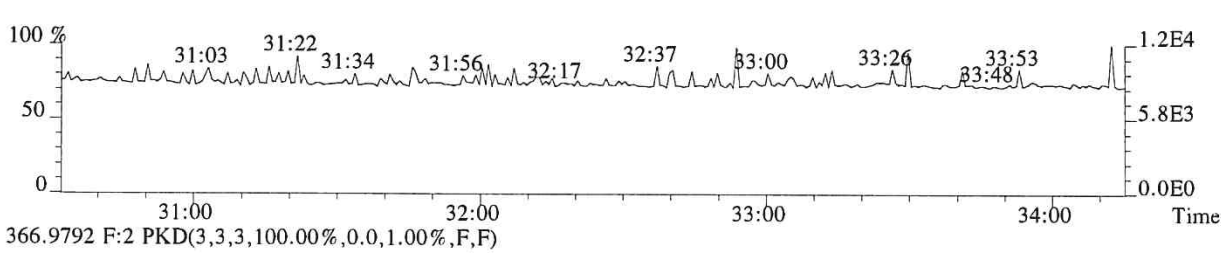
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



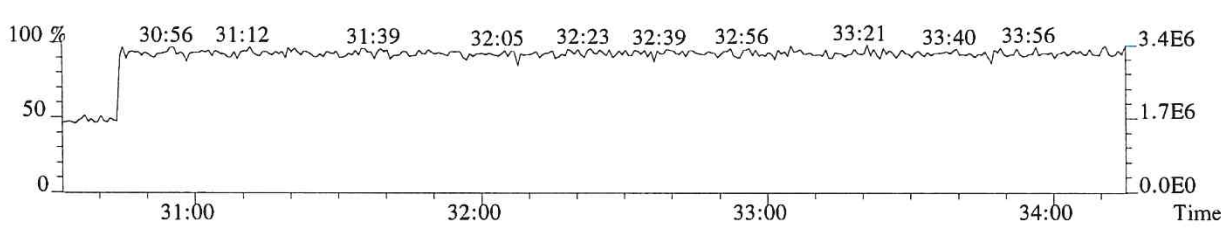
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

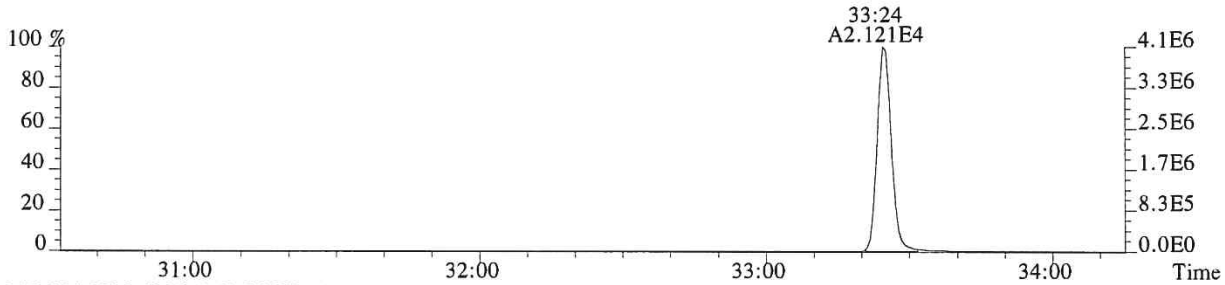


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

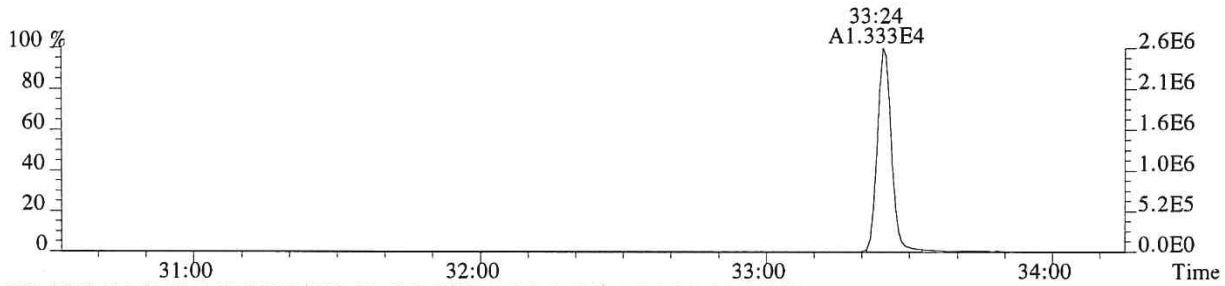


013468

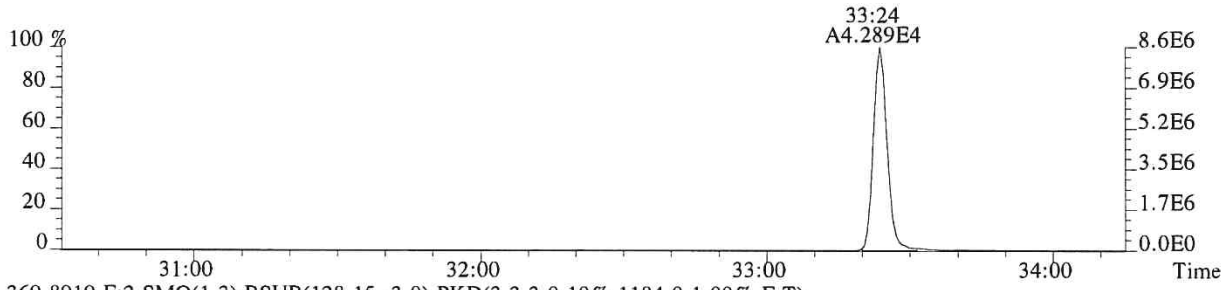
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



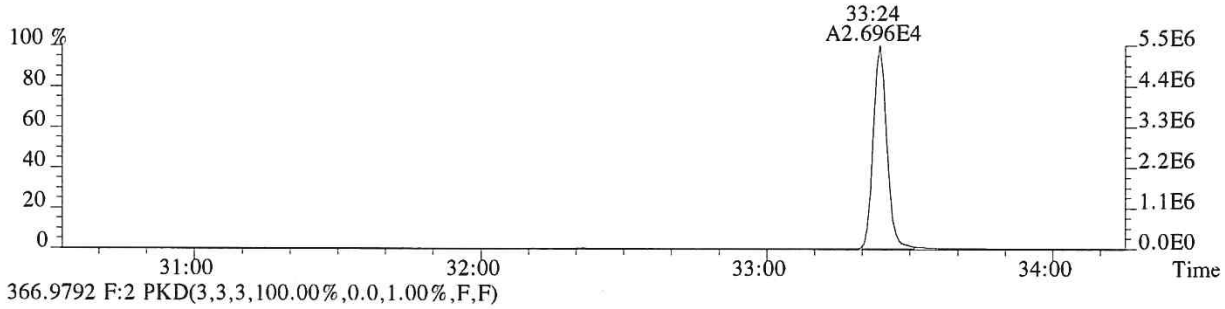
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



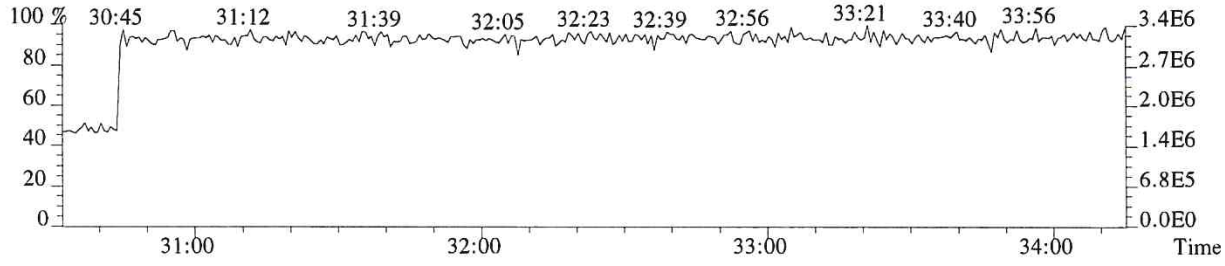
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



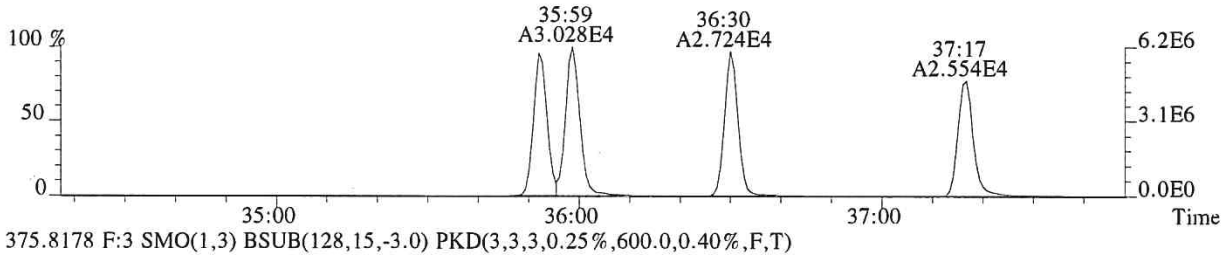
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



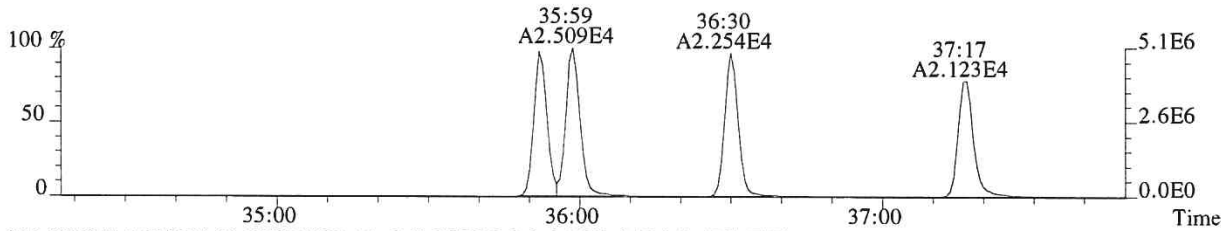
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



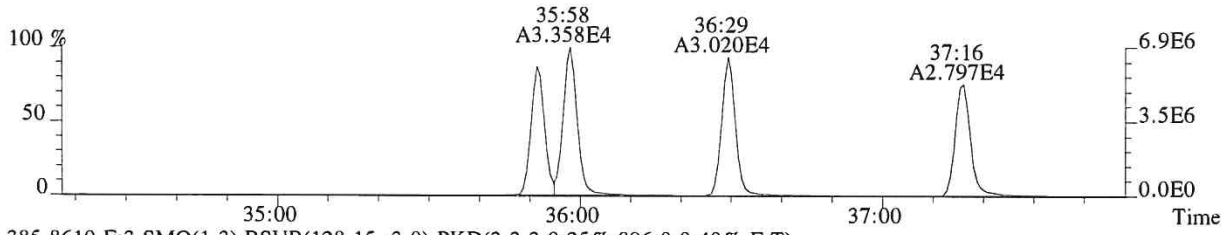
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



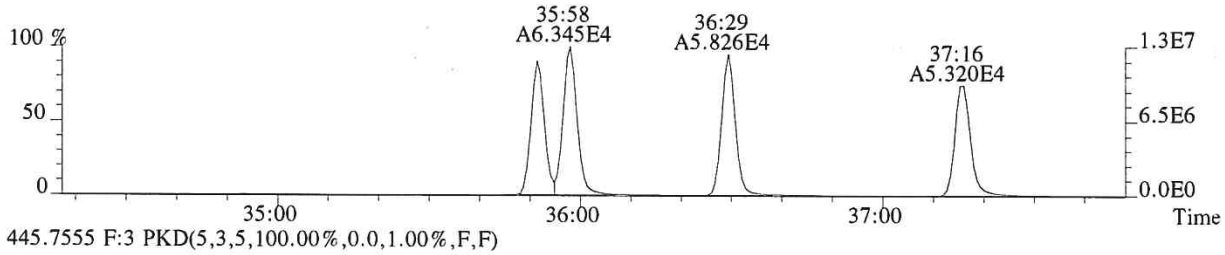
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



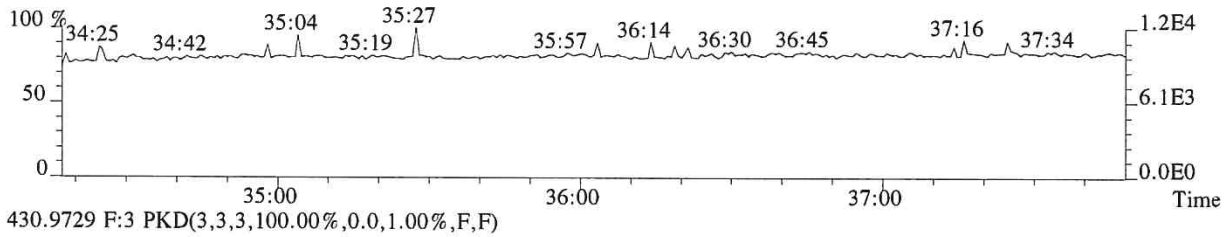
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



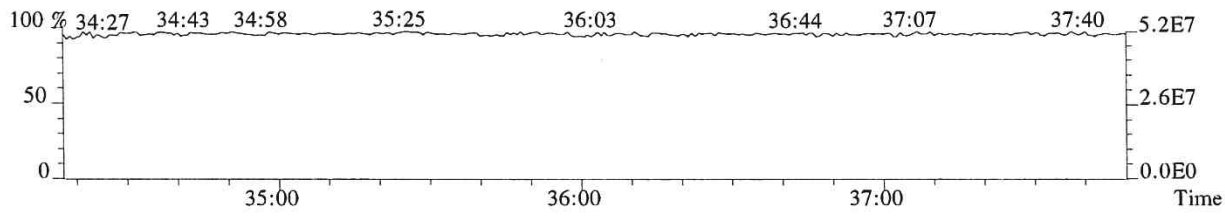
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



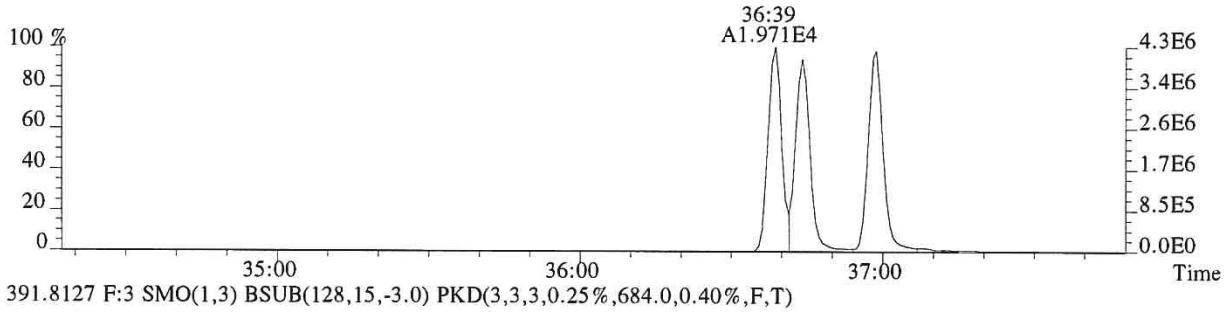
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



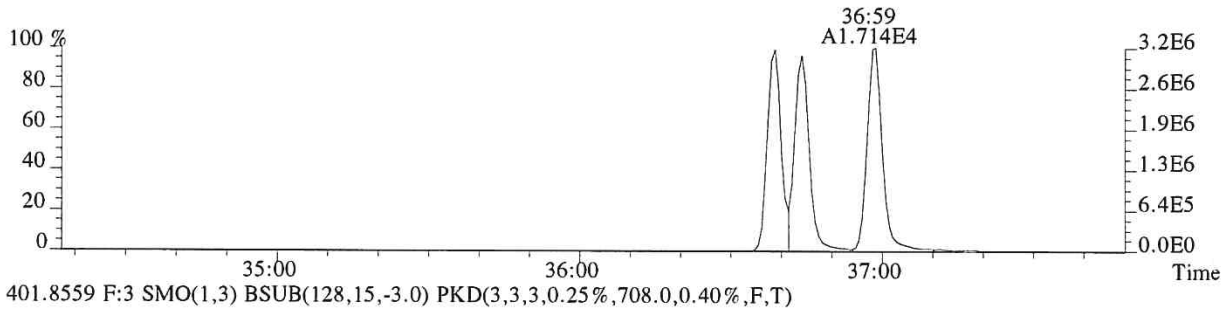
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



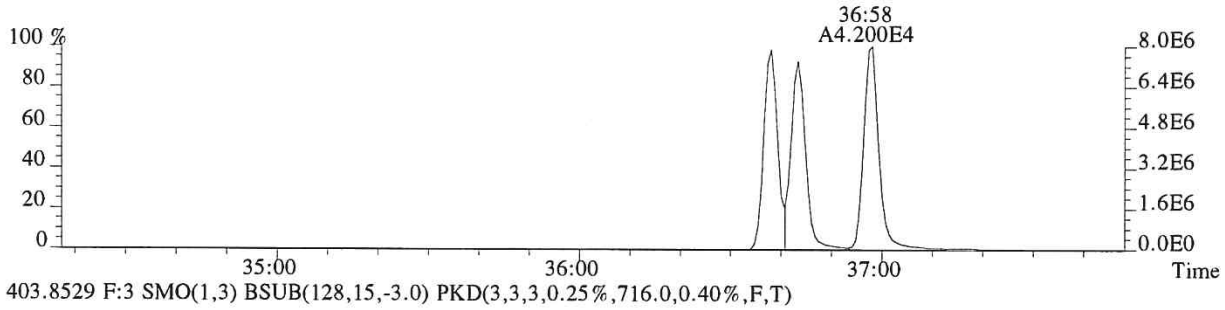
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



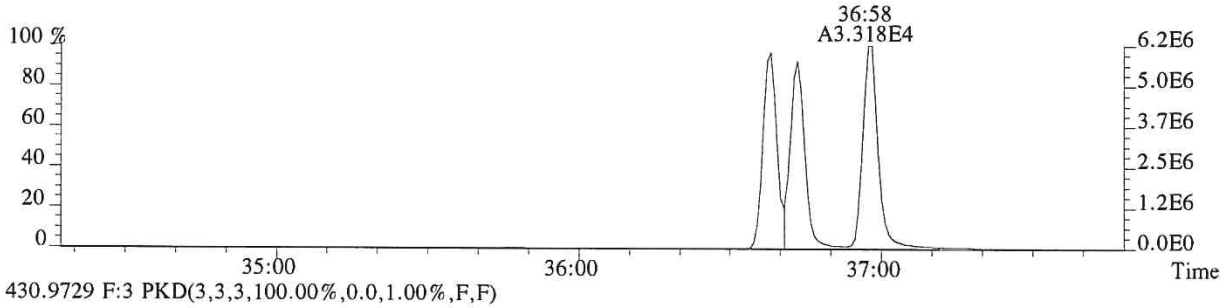
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



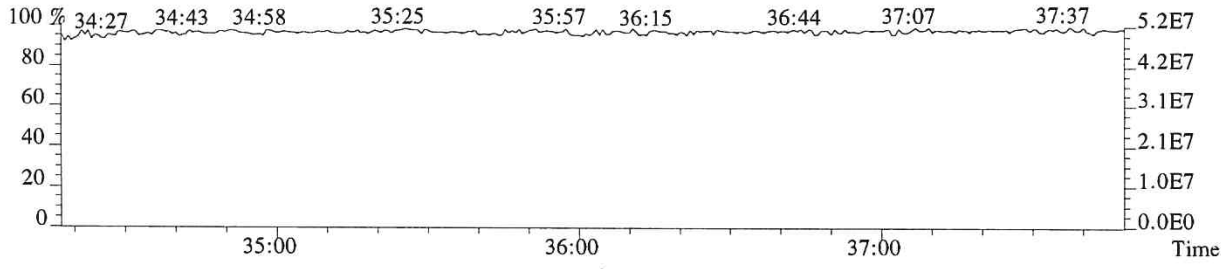
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



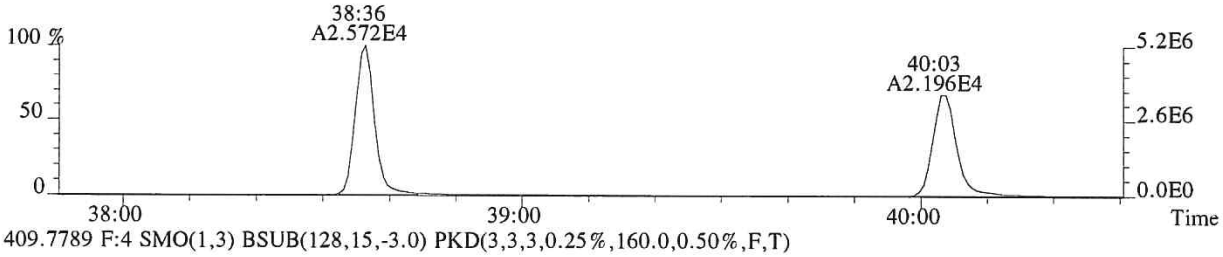
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



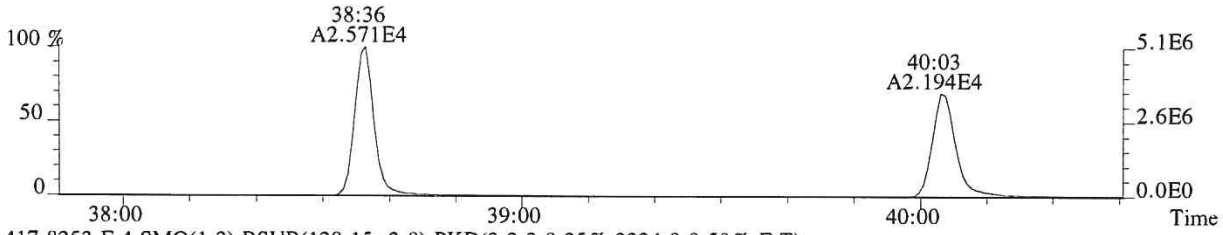
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



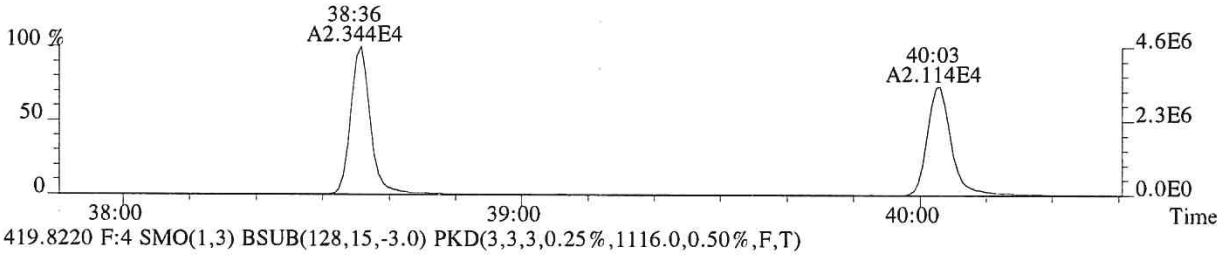
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.50%,F,T)



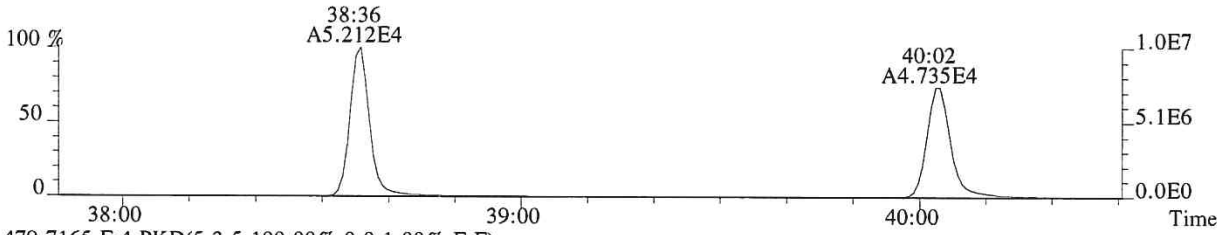
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.50%,F,T)



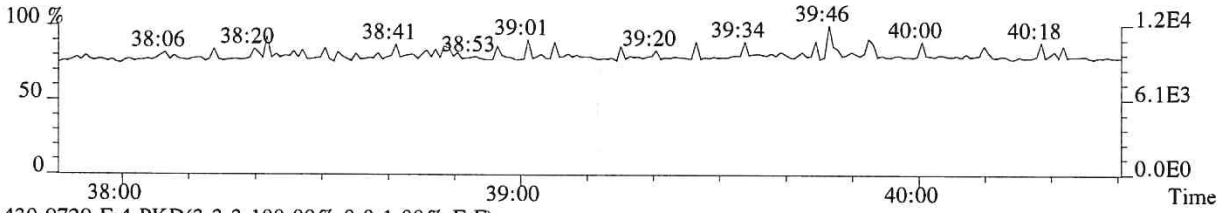
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.50%,F,T)



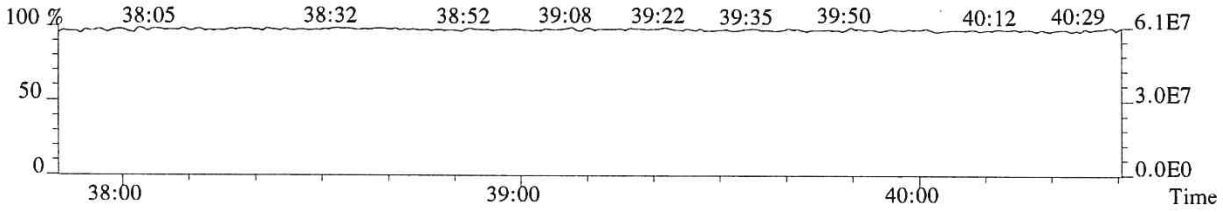
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

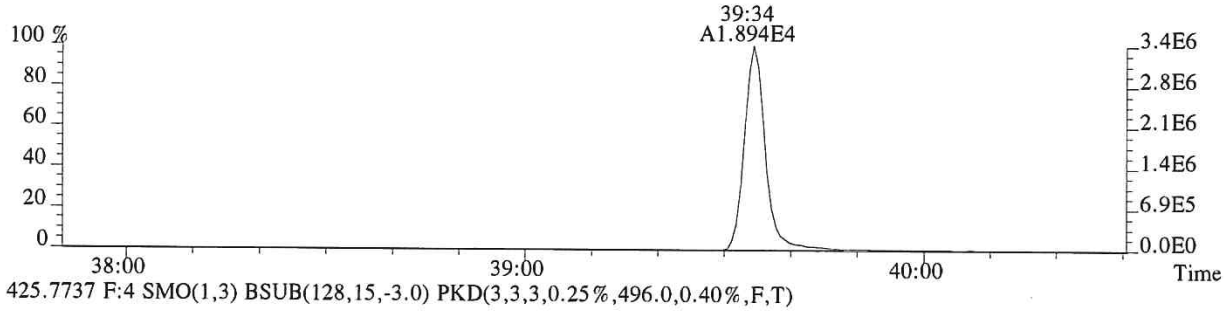


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

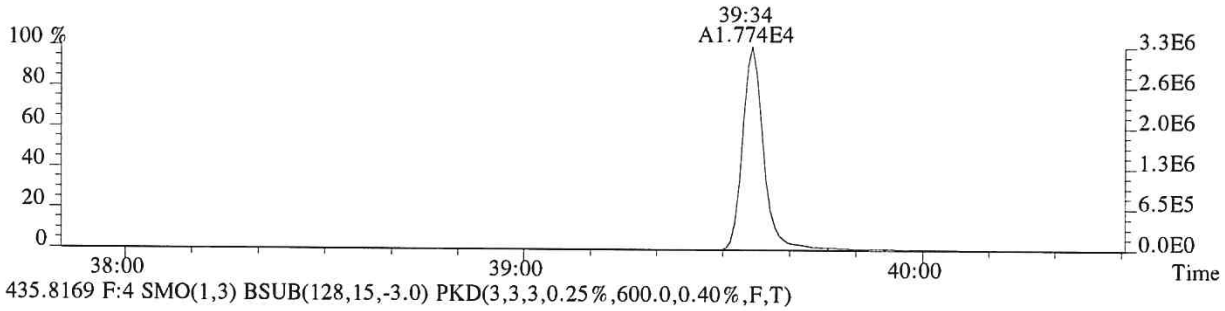


013472

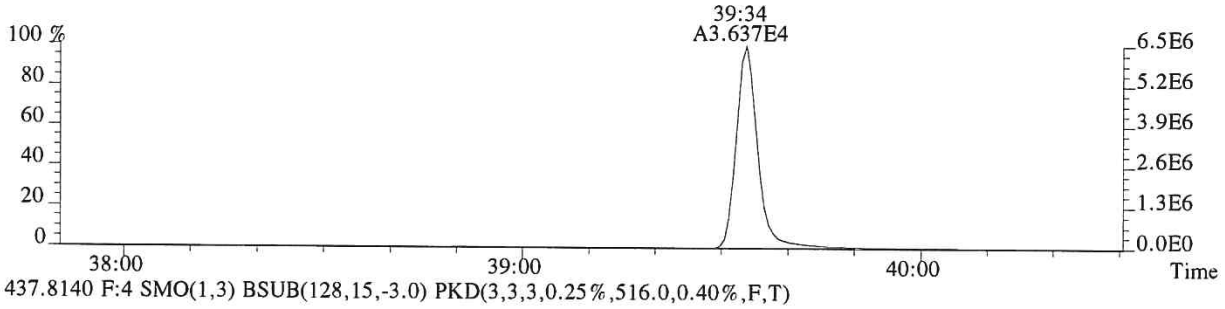
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



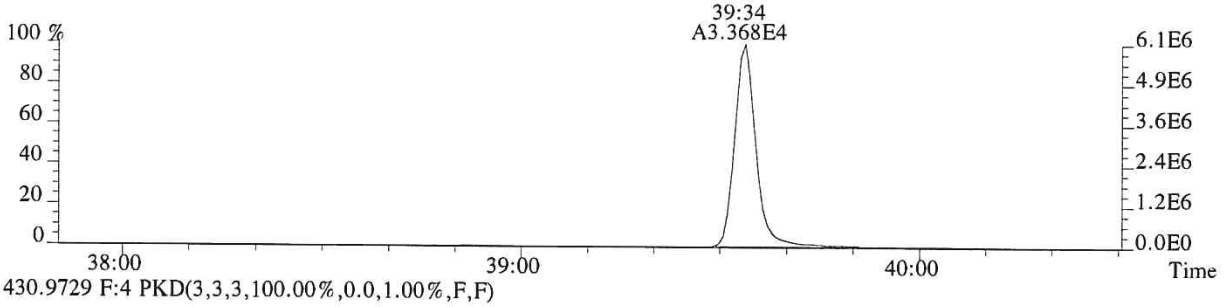
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



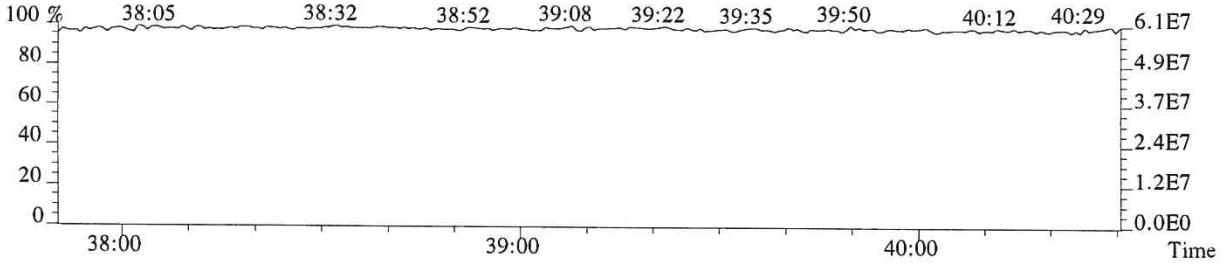
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



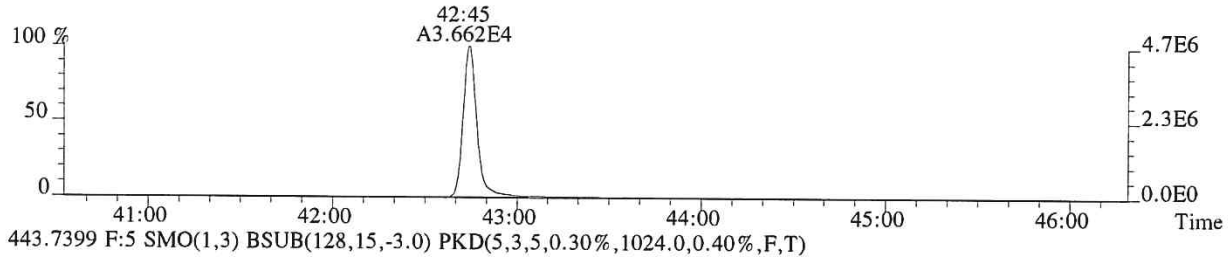
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



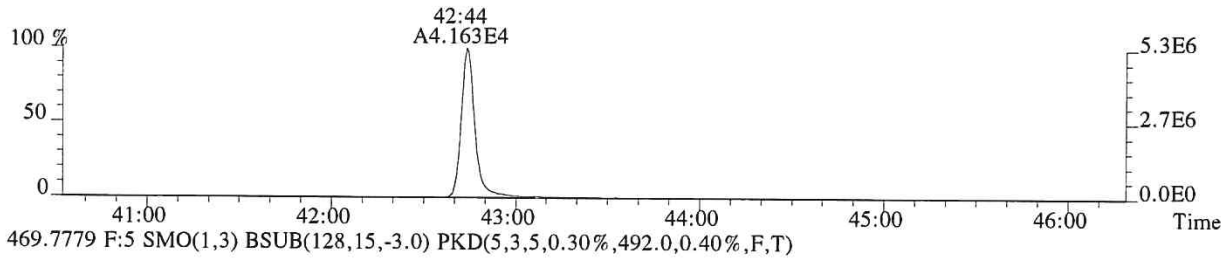
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



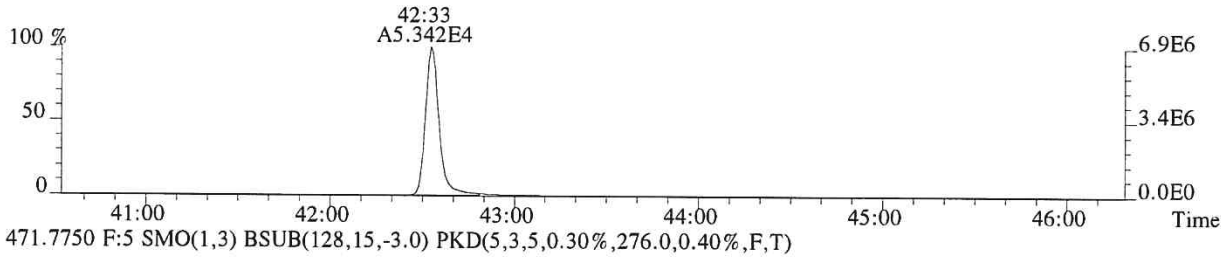
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



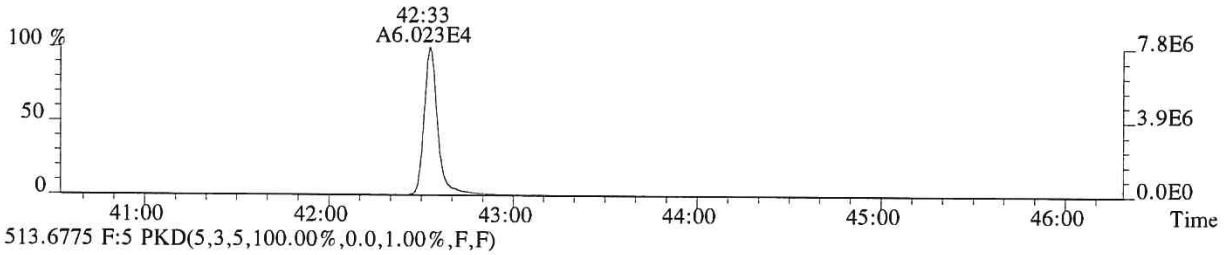
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



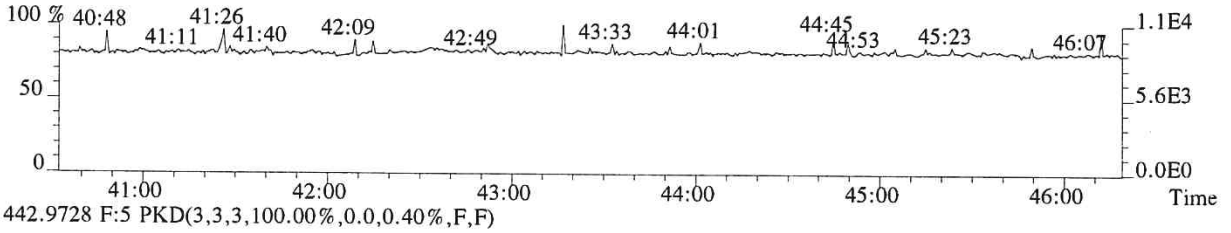
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



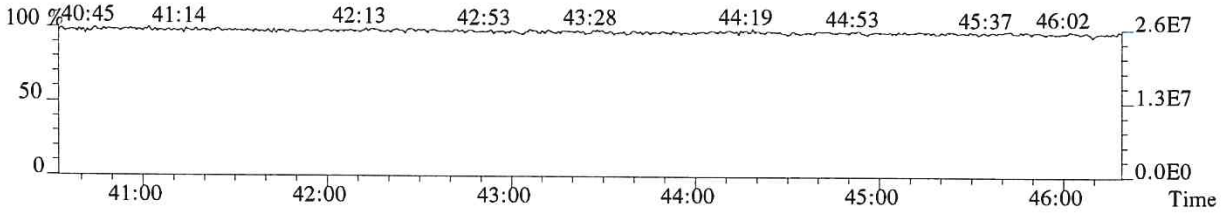
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

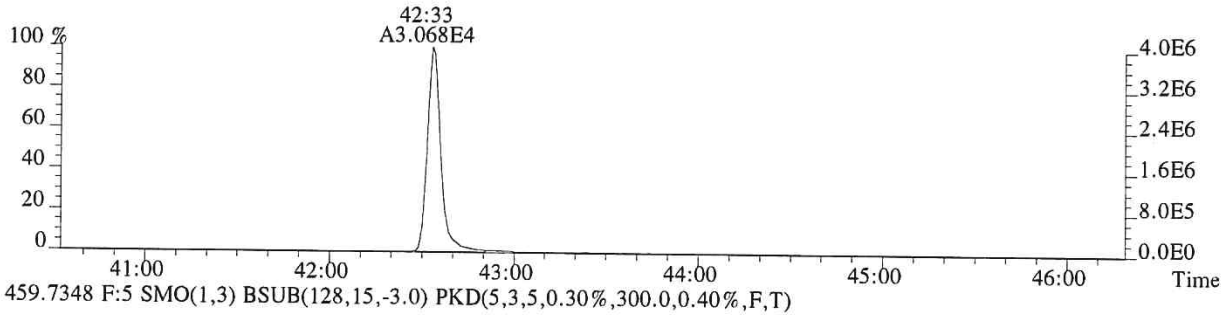


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

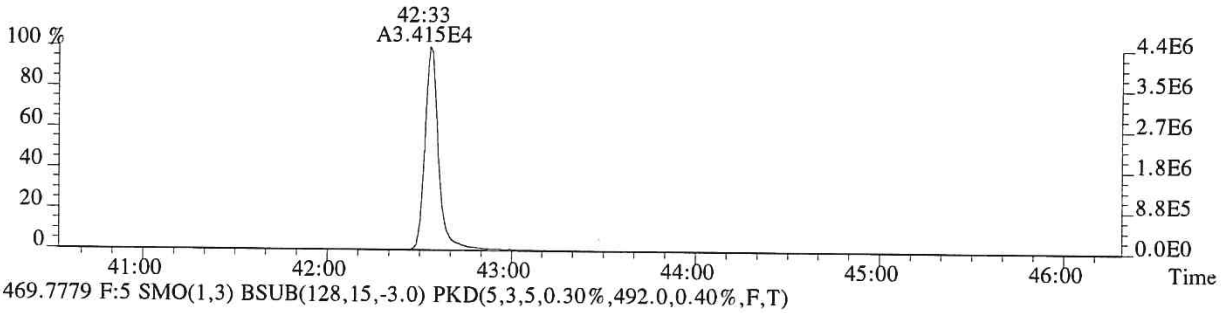


013474

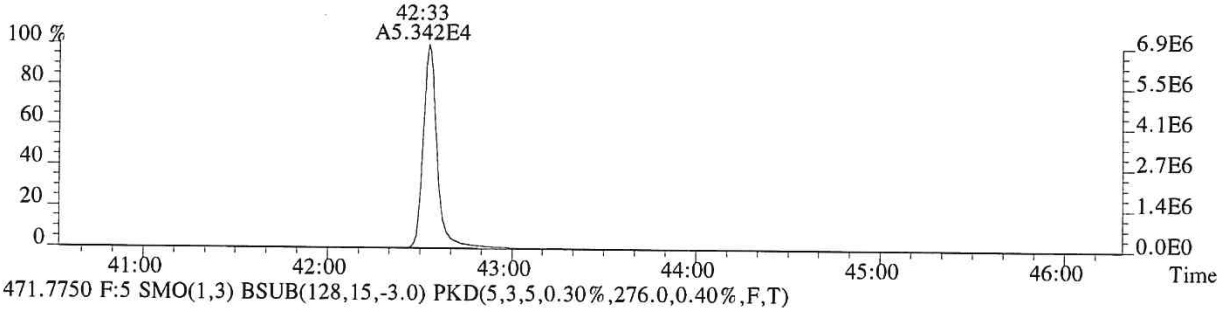
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



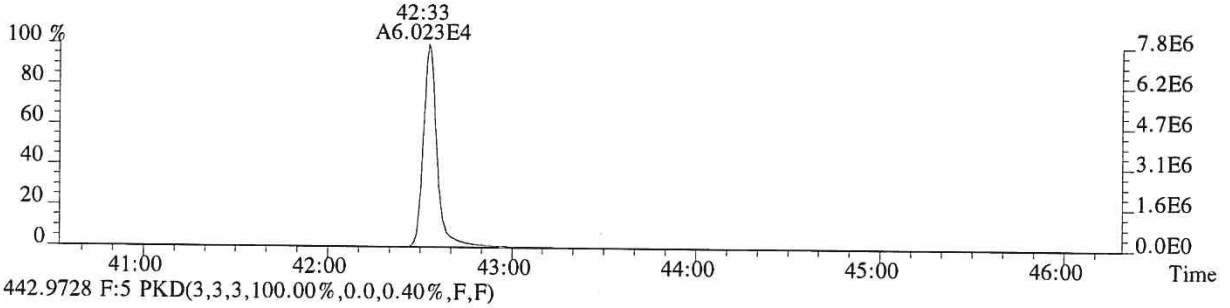
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



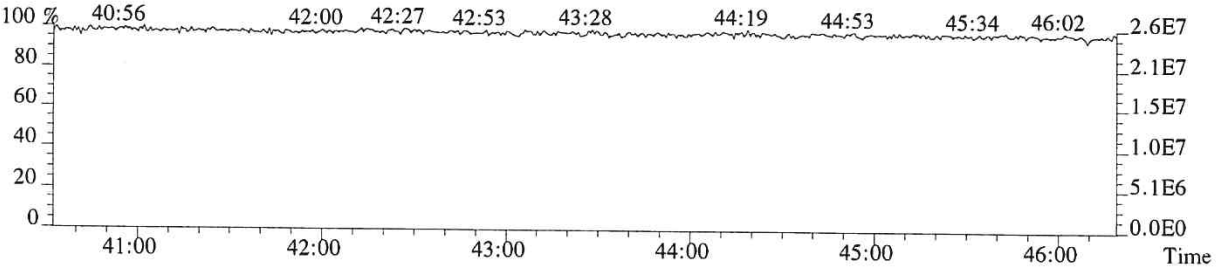
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519319

Date: 12/10/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519319	10-DEC-18	08:43:37
192977	WINDOW DEFINE	P519320	10-DEC-18	09:34:53
METHOD BLANK	EQ1800469-01	P519321	10-DEC-18	10:24:28
METHOD BLANK	EQ1800496-01	P519322	10-DEC-18	11:12:15
SL0175	E1801056-023DL	P519323	10-DEC-18	12:00:55
SL0221	E1801056-057DL	P519324	10-DEC-18	12:49:32
SL0227	E1801056-063DL	P519325	10-DEC-18	13:38:17
SL0249	E1801058-017DL	P519326	10-DEC-18	14:27:45
SL0250	E1801058-018DL	P519327	10-DEC-18	15:16:55
SL0553	E1801057-001DL	P519328	10-DEC-18	16:05:14
SL0556	E1801057-004DL	P519329	10-DEC-18	16:53:18
SL0559	E1801057-007DL	P519330	10-DEC-18	17:41:56
SL0560	E1801057-008DL	P519331	10-DEC-18	18:30:33
LCS	EQ1800498-02	P519332	10-DEC-18	19:19:11
DLCS	EQ1800498-03	P519333	10-DEC-18	20:07:48

E1801058

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181210A.SPL
Last Modified: Tuesday, December 11, 2018 06:34:31 Central Standard Time
Printed: Tuesday, December 11, 2018 06:34:33 Central Standard Time

Page Position (1, 1)

OPUS 4: P519319res

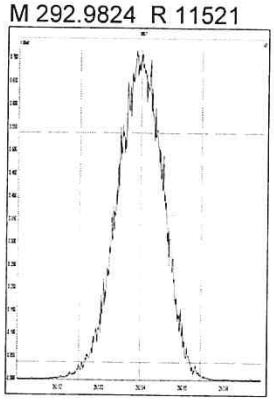
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/10/18	08:43	P519319	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 08:39
2		09:34	P519320	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		10:24	P519321	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		11:12	P519322	MB	EQ1800496-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:00	P519323	E1801056-023DL	E1801056-023DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		12:49	P519324	E1801056-057DL	E1801056-057DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		13:38	P519325	E1801056-063DL	E1801056-063DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		14:27	P519326	E1801058-017DL	E1801058-017DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		15:16	P519327	E1801058-018DL	E1801058-018DL	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:05	P519328	E1801057-001DL	E1801057-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		16:53	P519329	E1801057-004DL	E1801057-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		17:41	P519330	E1801057-007DL	E1801057-007DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		18:30	P519331	E1801057-008DL	E1801057-008DL	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		19:19	P519332	LCS	EQ1800498-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		20:07	P519333	DLCS	EQ1800498-03	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		21:04	P519334	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 21:04
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

jc 12/11/18

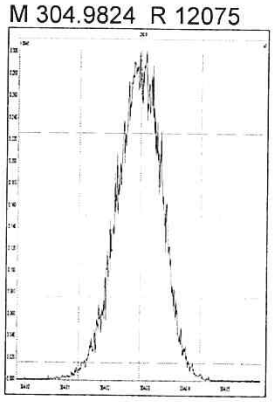
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:39:35 Central Standard Time

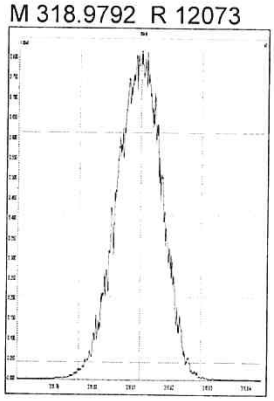
M 292.9824 R 11521



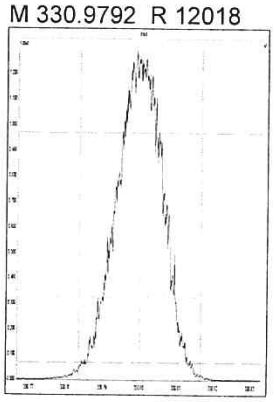
M 304.9824 R 12075



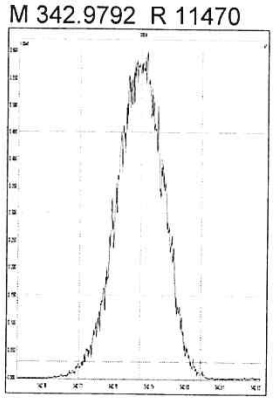
M 318.9792 R 12073



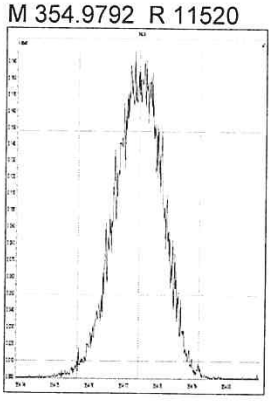
M 330.9792 R 12018



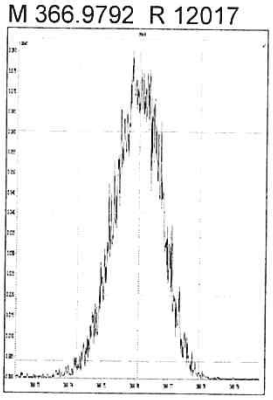
M 342.9792 R 11470



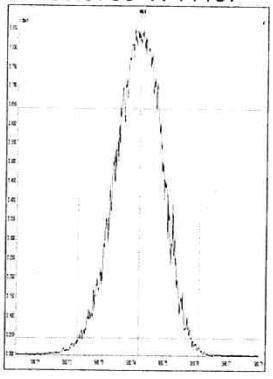
M 354.9792 R 11520



M 366.9792 R 12017



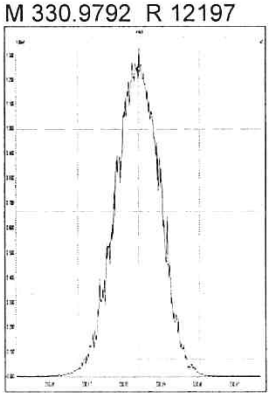
M 380.9760 R 11157



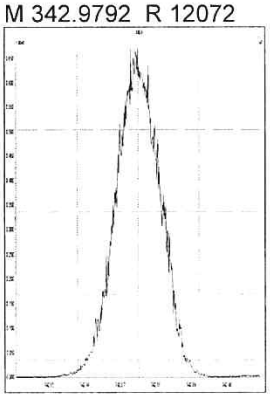
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:40:10 Central Standard Time

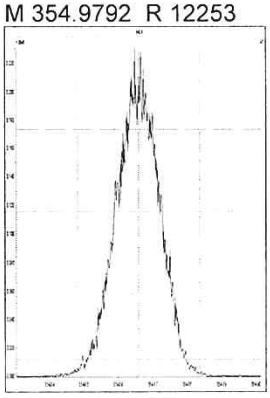
M 330.9792 R 12197



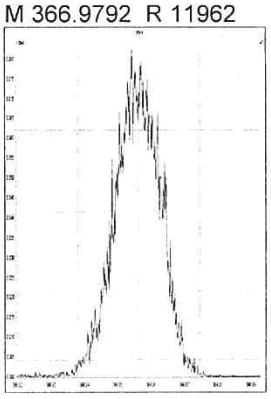
M 342.9792 R 12072



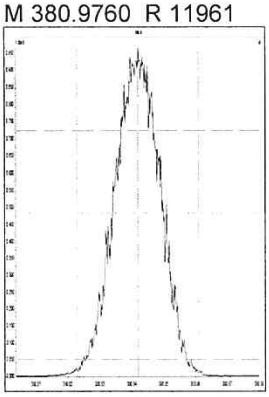
M 354.9792 R 12253



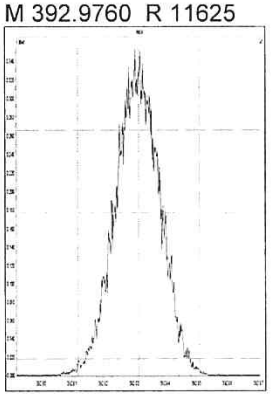
M 366.9792 R 11962



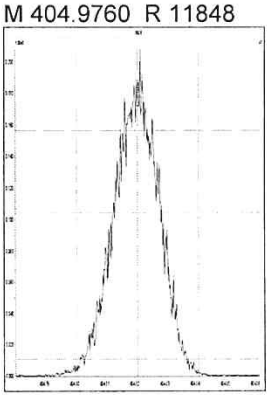
M 380.9760 R 11961



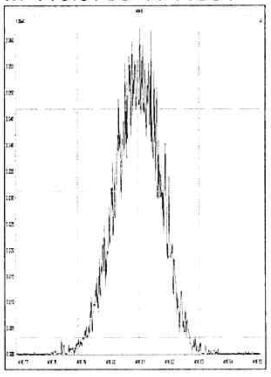
M 392.9760 R 11625



M 404.9760 R 11848



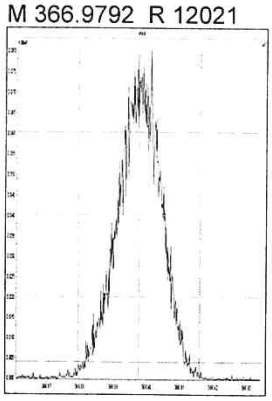
M 416.9760 R 11361



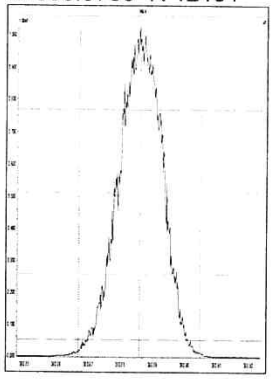
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:41:10 Central Standard Time

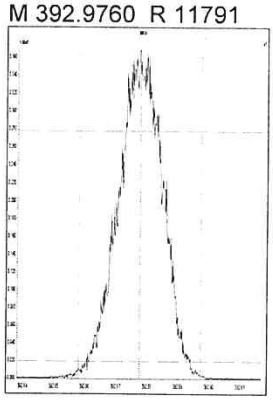
M 366.9792 R 12021



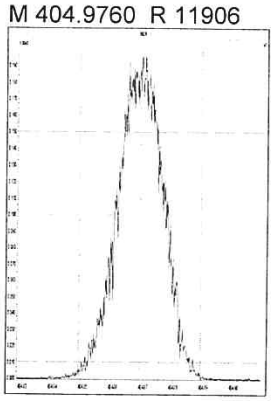
M 380.9760 R 12191



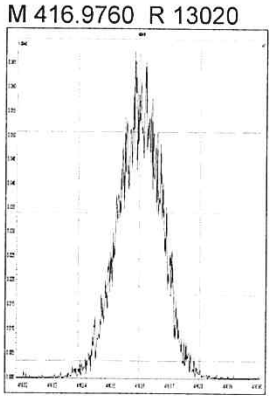
M 392.9760 R 11791



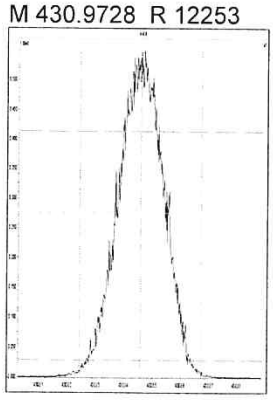
M 404.9760 R 11906



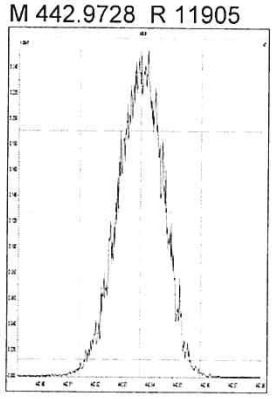
M 416.9760 R 13020



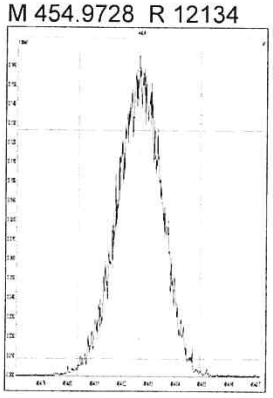
M 430.9728 R 12253



M 442.9728 R 11905



M 454.9728 R 12134

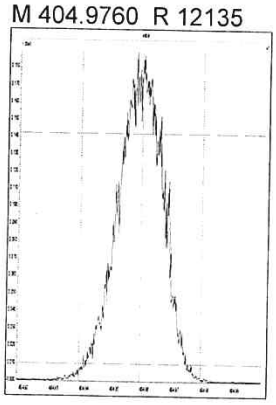


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

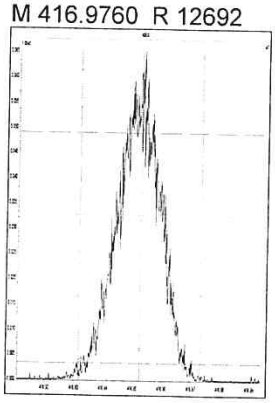
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:41:54 Central Standard Time

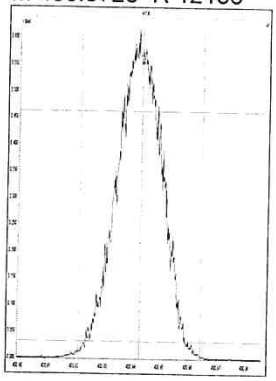
M 404.9760 R 12135



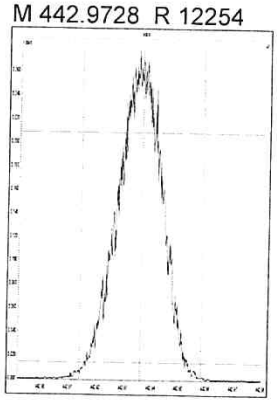
M 416.9760 R 12692



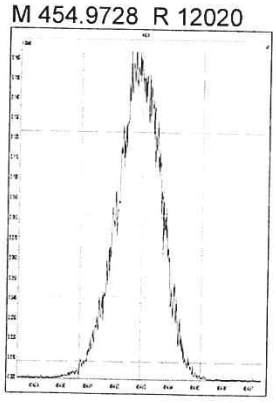
M 430.9728 R 12136



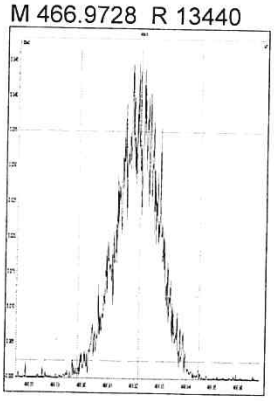
M 442.9728 R 12254



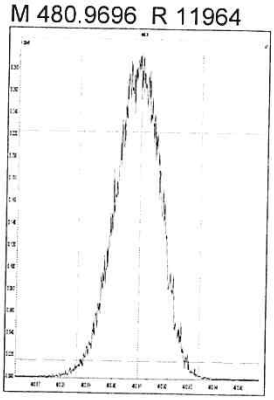
M 454.9728 R 12020



M 466.9728 R 13440



M 480.9696 R 11964



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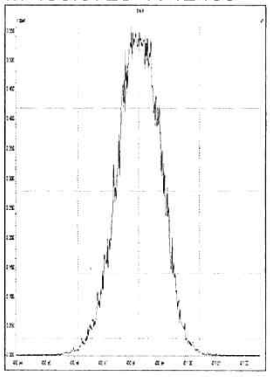
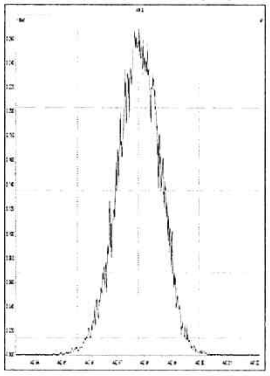
M 430.9728 R 12439



M 442.9728 R 12019



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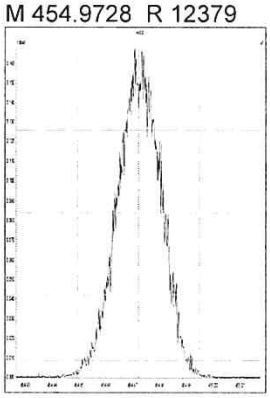
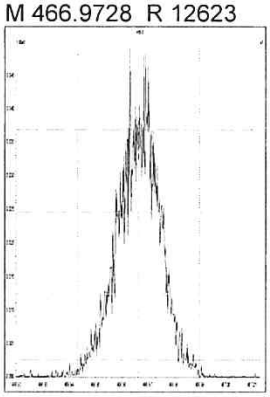


M 466.9728 R 12623



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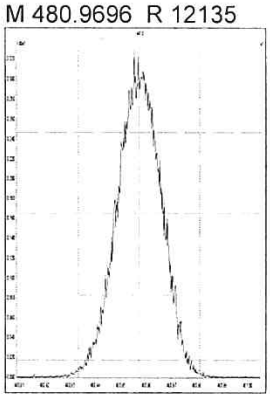
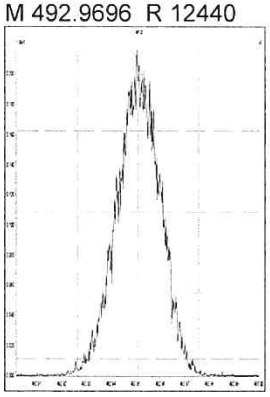
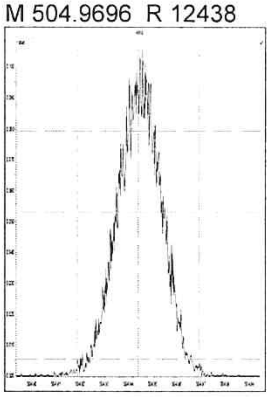


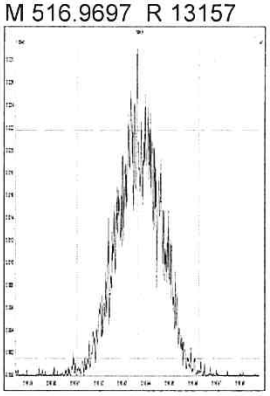
M 492.9696 R 12440



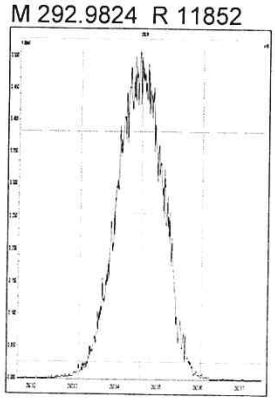
M 504.9696 R 12438



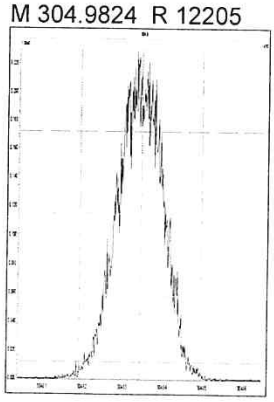
M 516.9697 R 13157



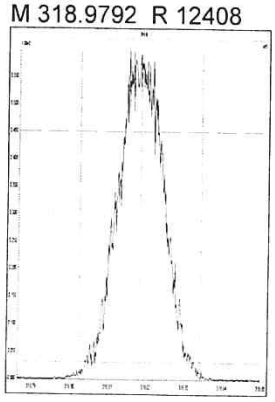
M 292.9824 R 11852



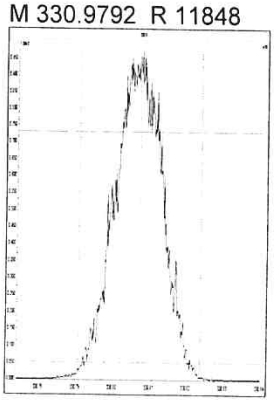
M 304.9824 R 12205



M 318.9792 R 12408



M 330.9792 R 11848



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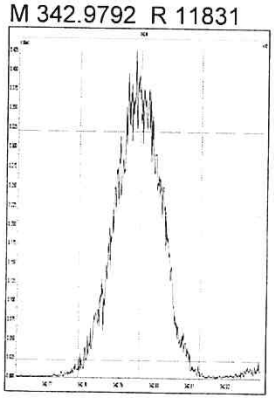

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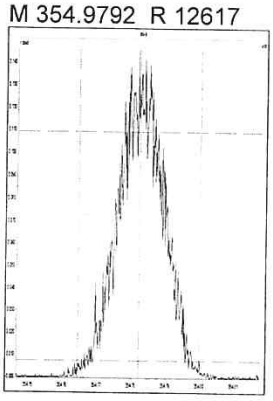

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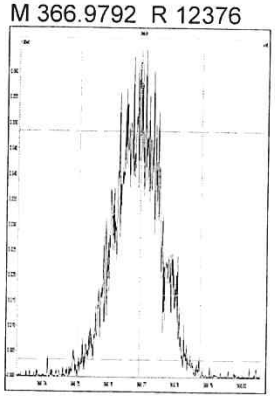
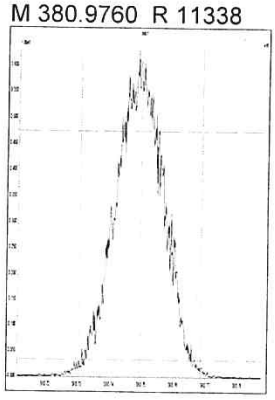


M 380.9760 R 11338



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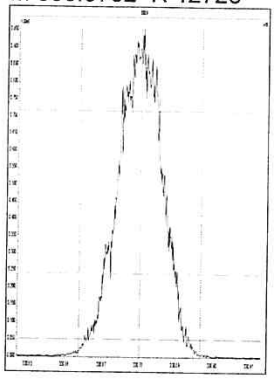

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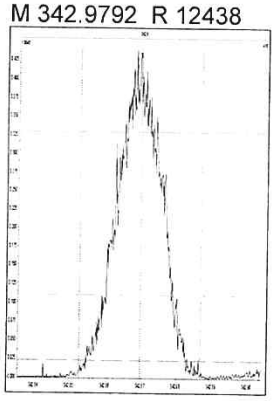

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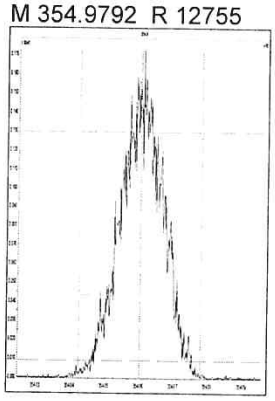

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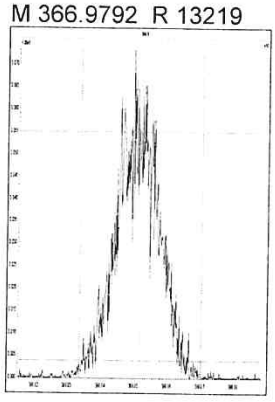
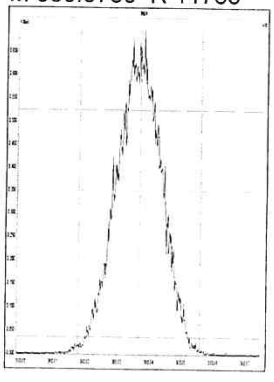


M 380.9760 R 11765



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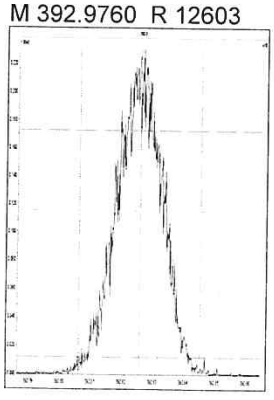

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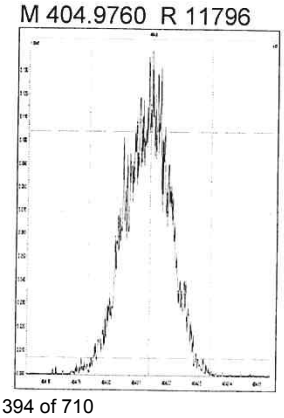

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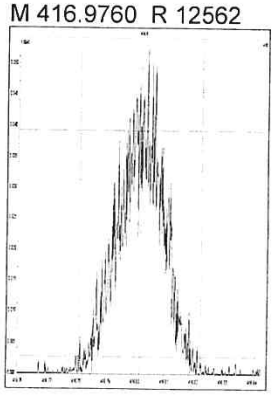

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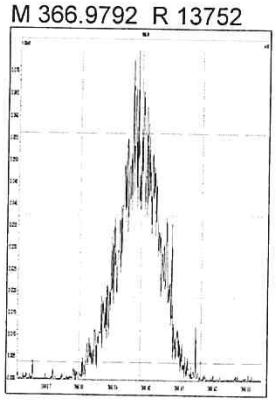

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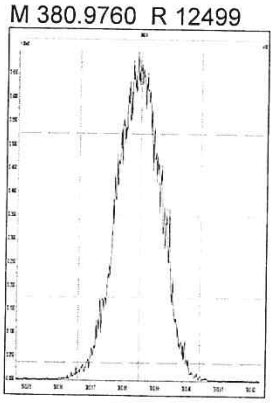

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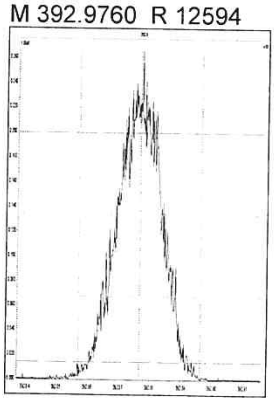

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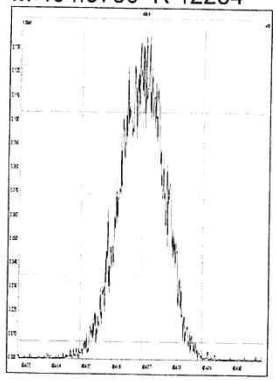
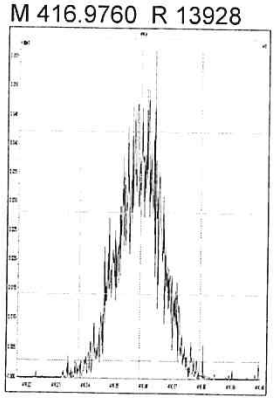


M 416.9760 R 13928



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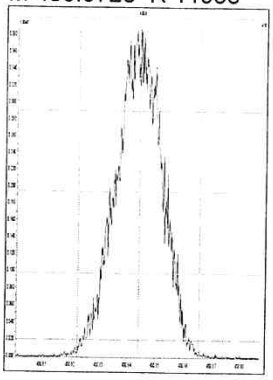

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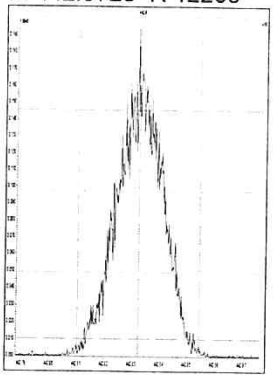

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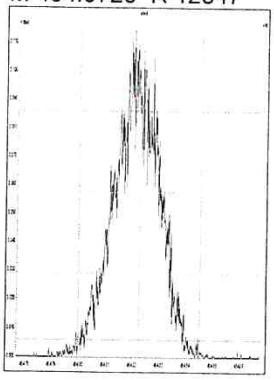

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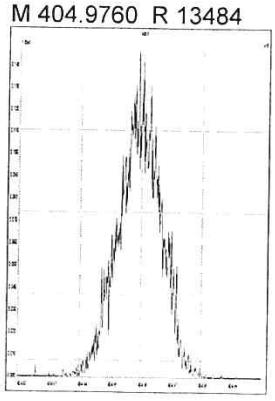

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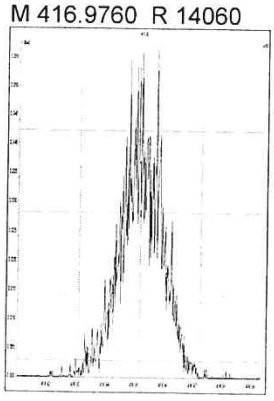
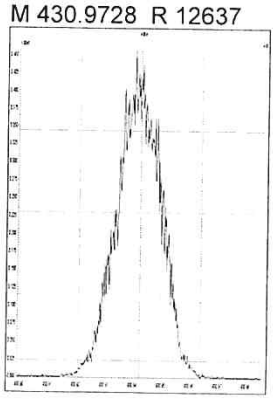
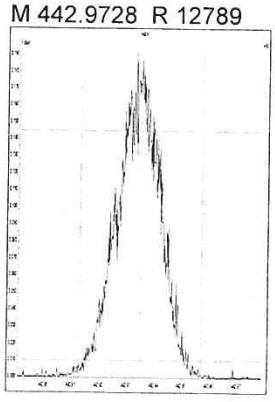


M 430.9728 R 12637



M 442.9728 R 12789



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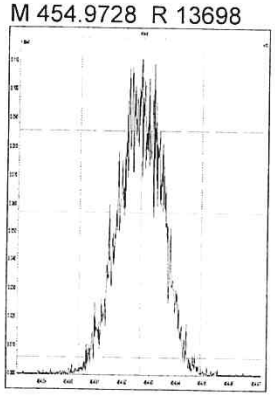

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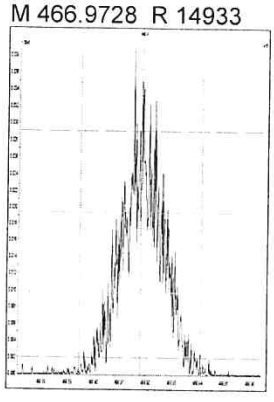
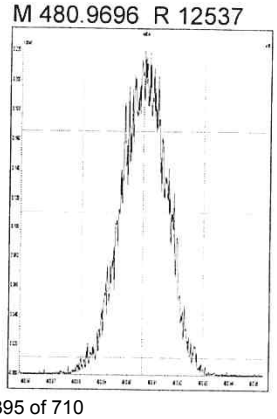


M 480.9696 R 12537



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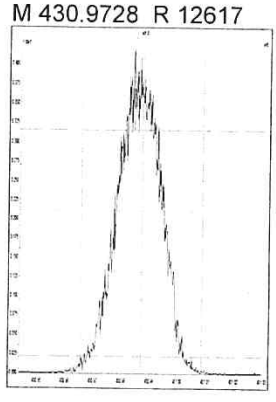

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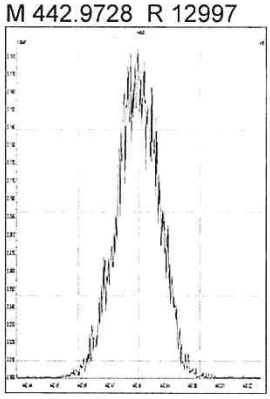
M 442.9728 R 12997



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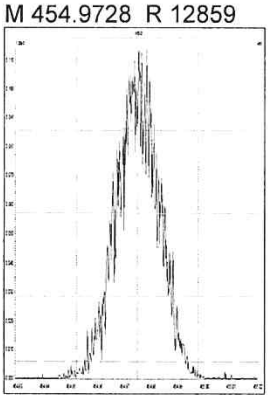

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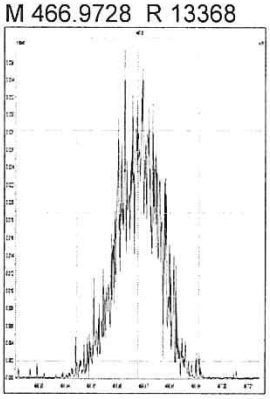

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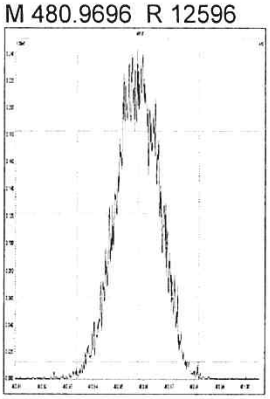
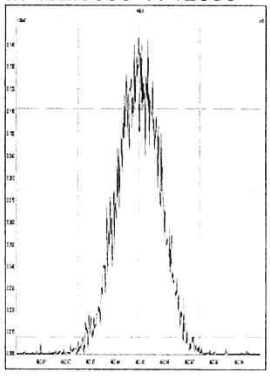
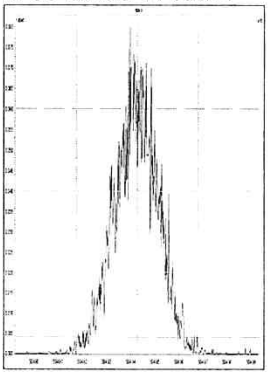


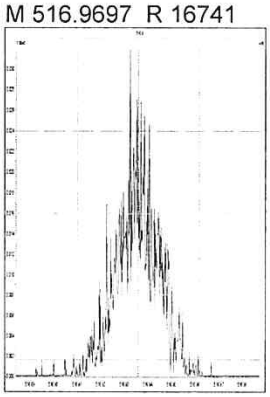
M 492.9696 R 12860



M 504.9696 R 13321



M 516.9697 R 16741



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)

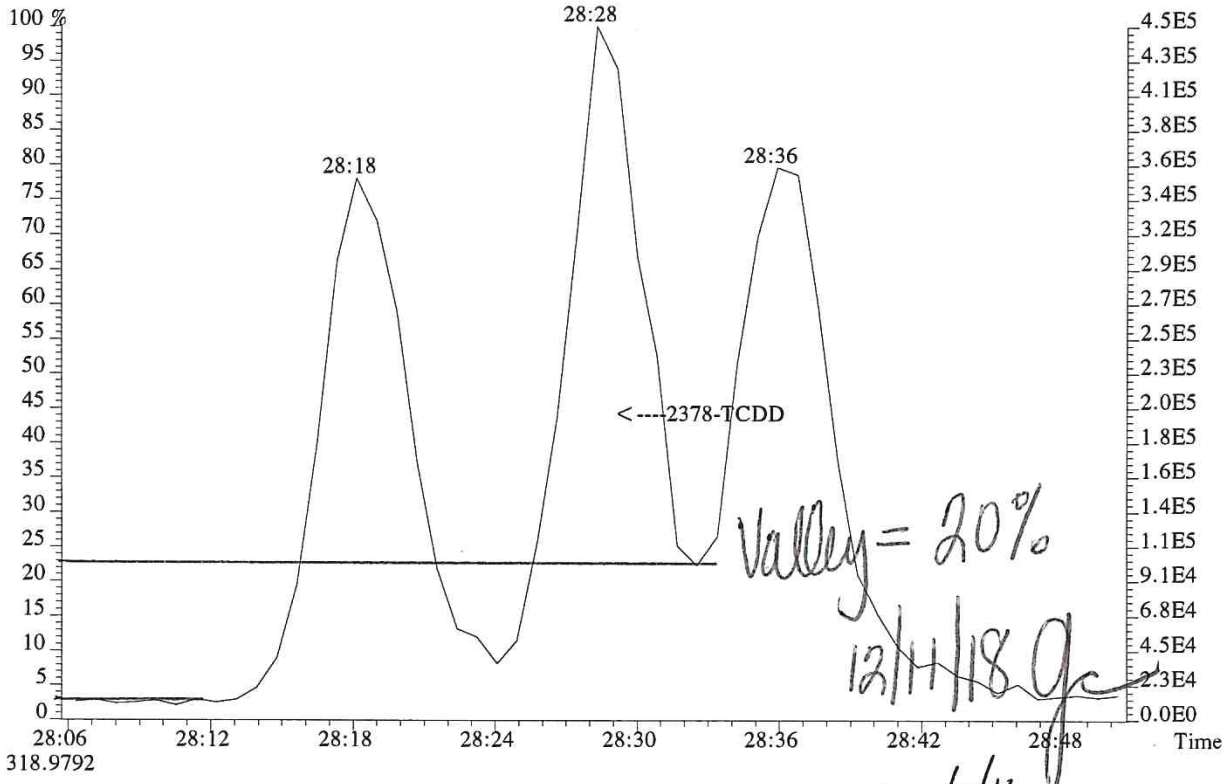
Lab File ID: P519320
Date Analyzed: 10-DEC-2018
Time Analyzed: 09:34:53

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:12	29:40
TCDD	25:01	29:30
PeCDF	29:38	33:59
PeCDD	31:12	33:43
HxCDF	34:40	37:14
HxCDD	35:12	36:50
HpCDF	38:32	39:58
HpCDD	38:48	39:30

% Valley 2378-TCDD: 20 %

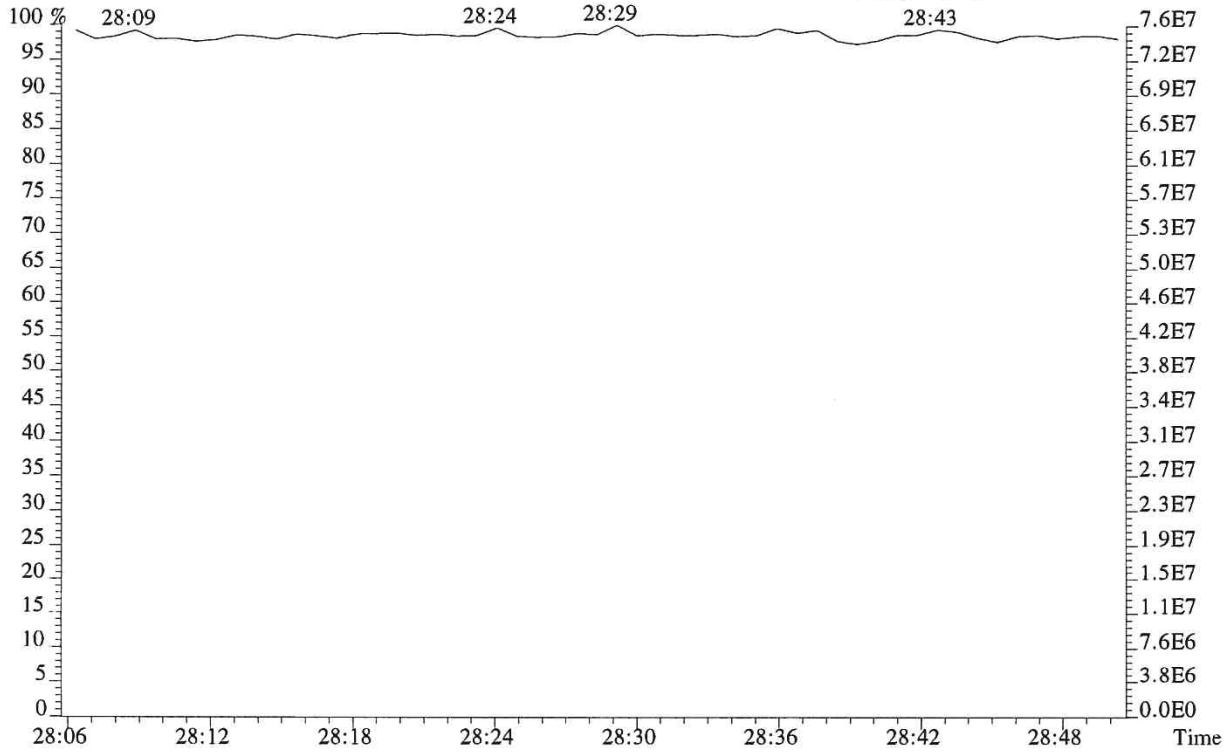
013487

File:P519320 #1-587 Acq:10-DEC-2018 09:34:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LM 12/11/18



013488

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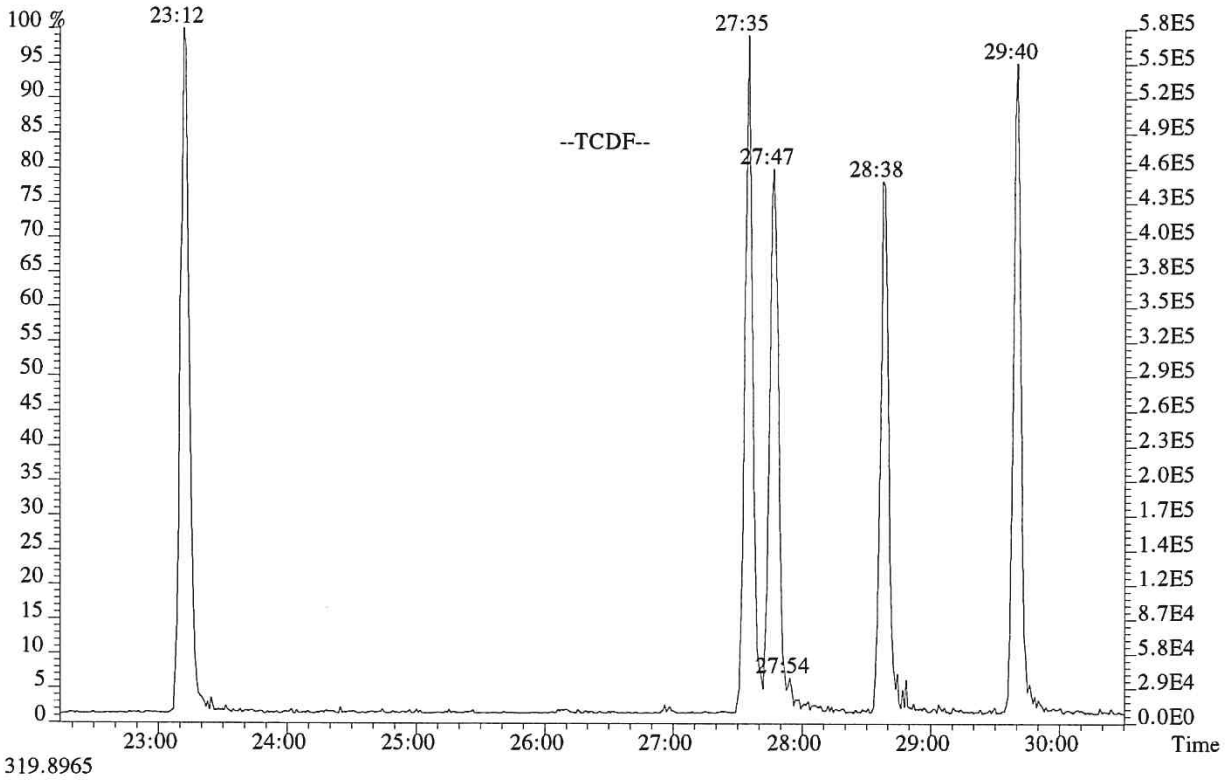
Sample#1 Exp:192977
303.9016



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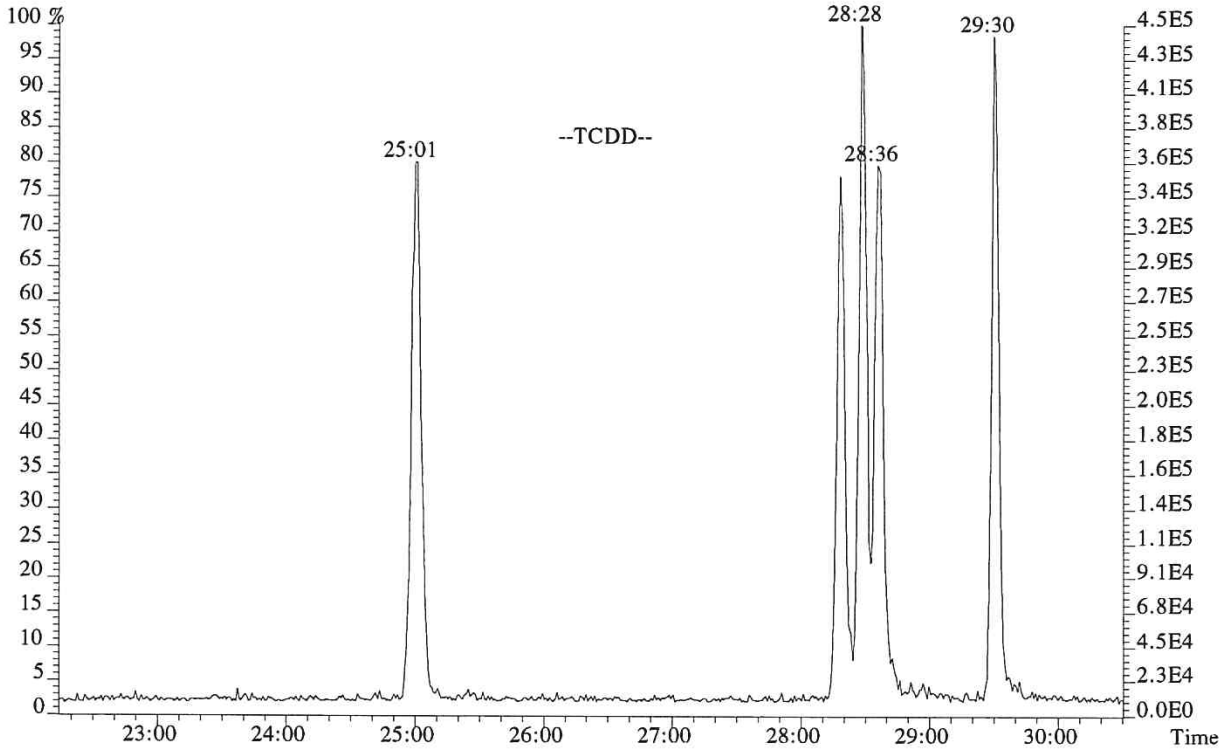

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Sample#1 Exp:192977
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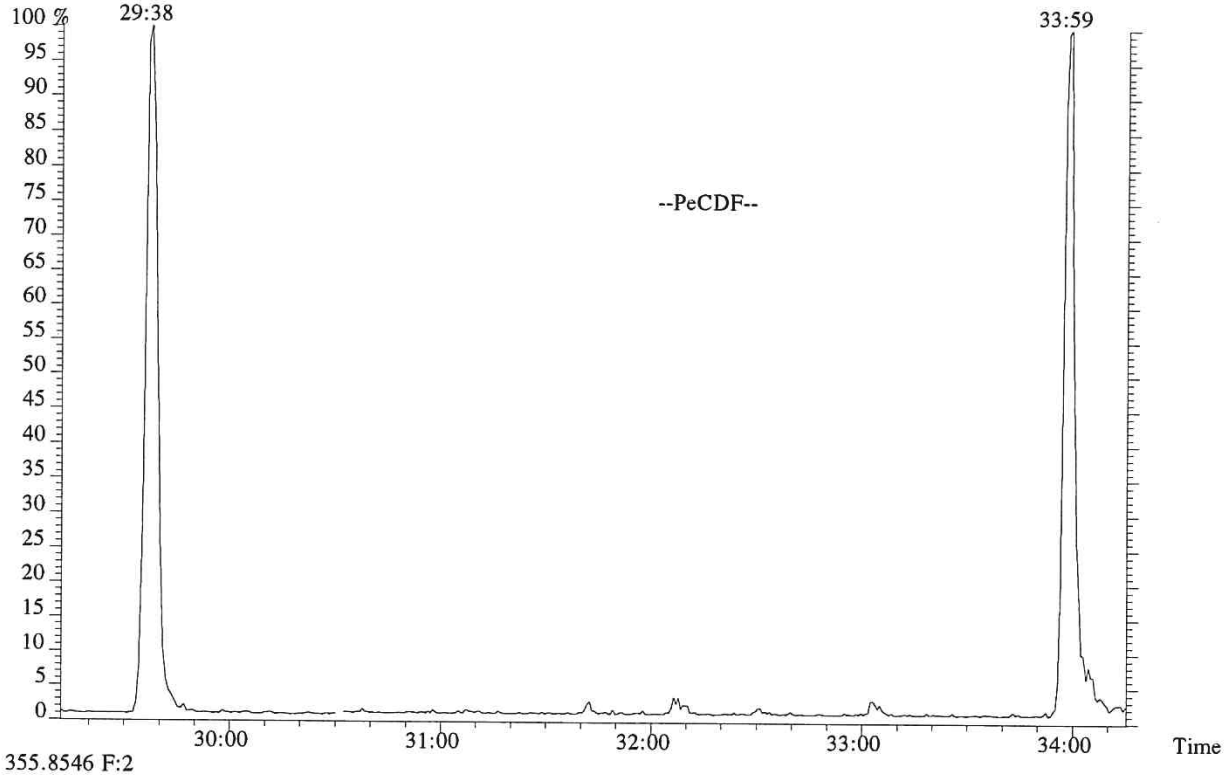
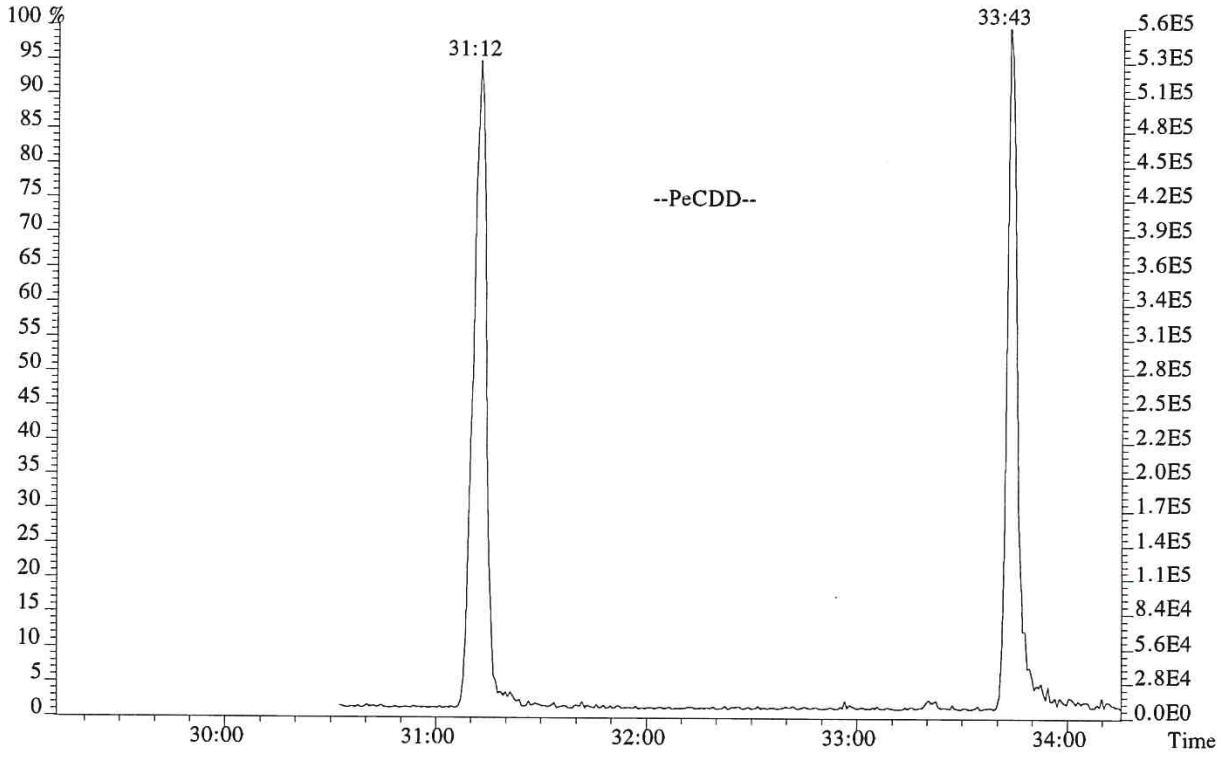


355.8546 F:2



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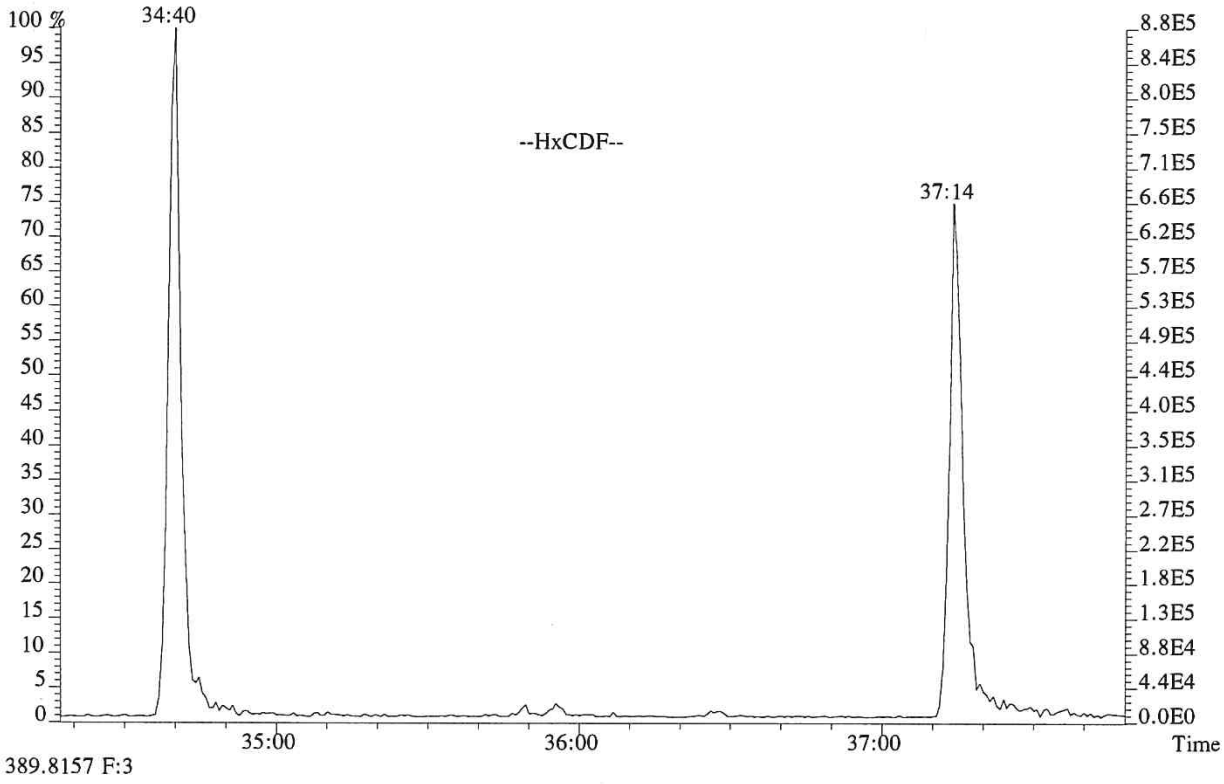
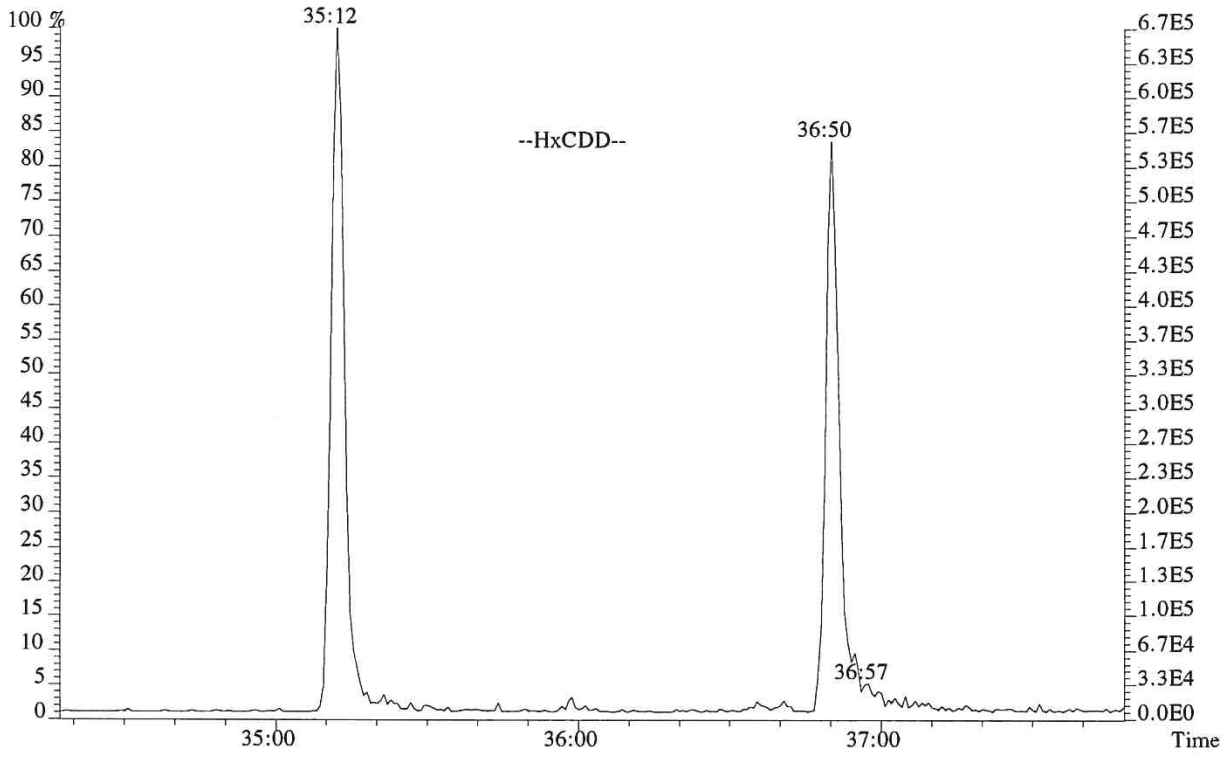
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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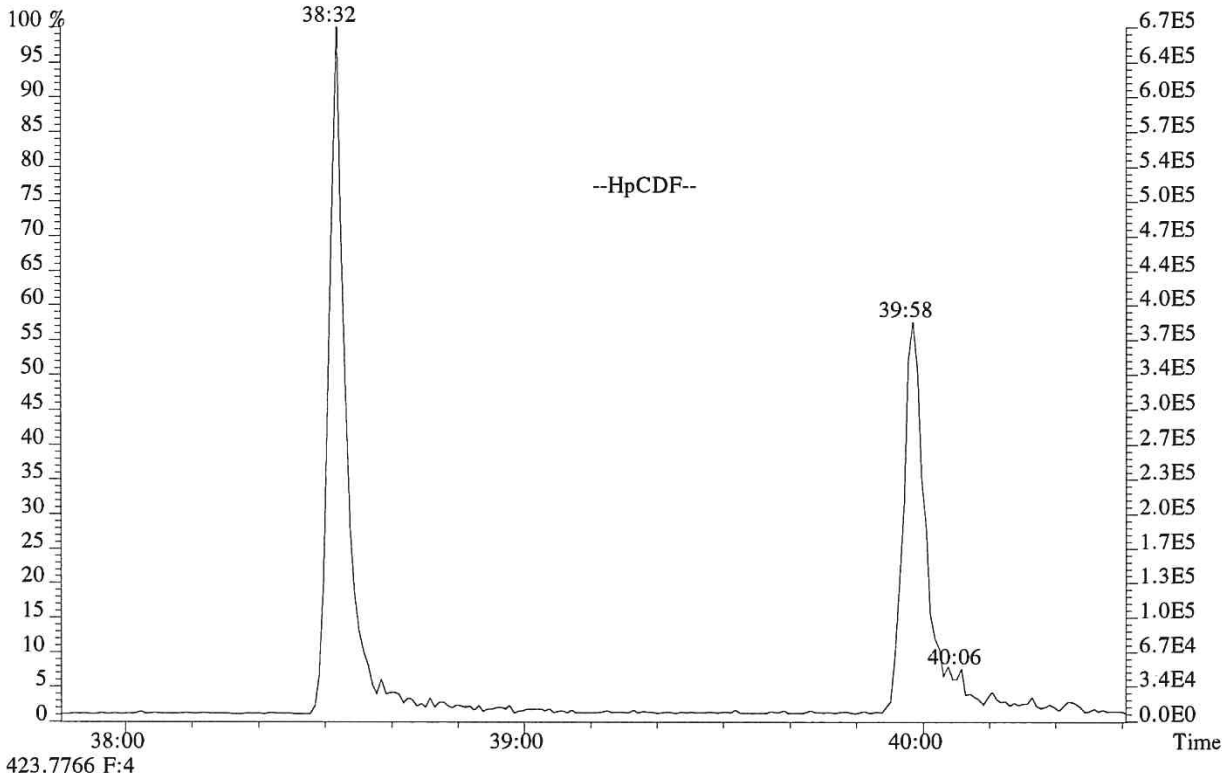
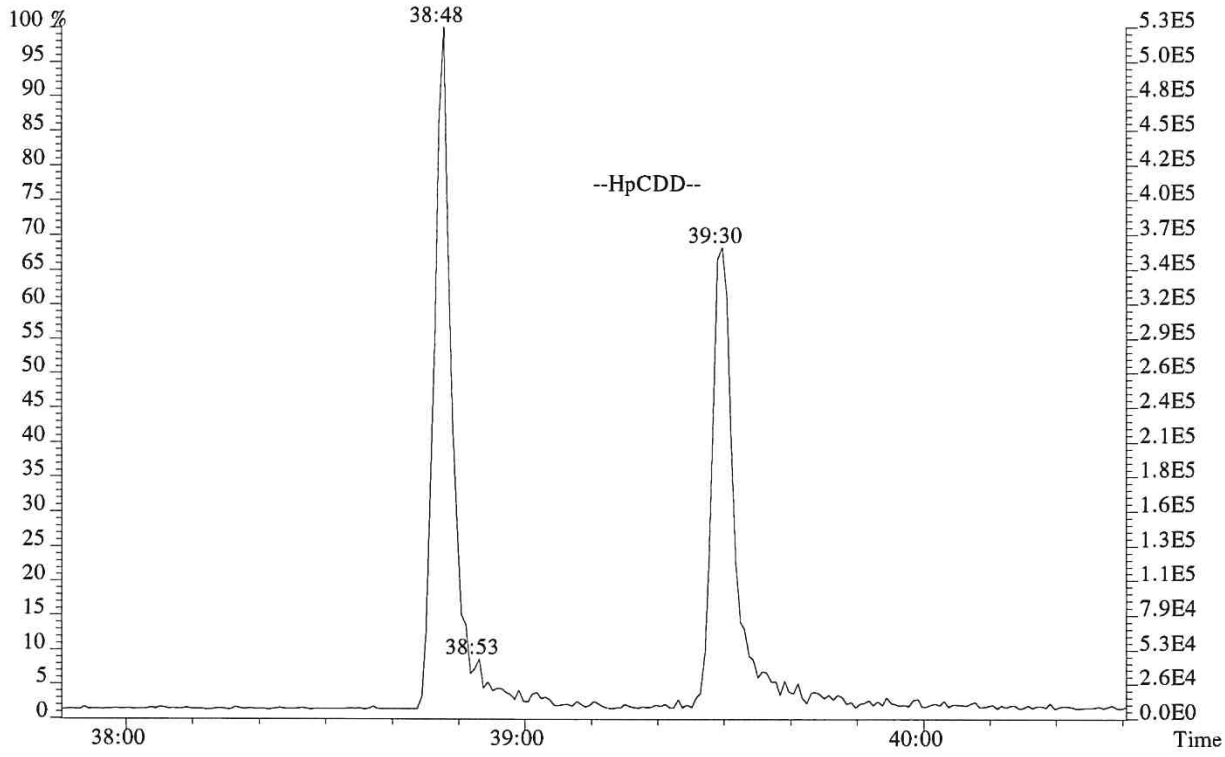
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



013492

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519319 Analysis Date: 10-DEC-18 Time: 08:43:37

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.8	7.8 - 12.9	-1.7
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	-1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	54	41 - 61	7.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	50	43 - 58	-0.2
OCDD	M+2/M+4	0.90	0.76-1.02	99	79 - 126	-0.7
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.6	8.4 - 12.0	-3.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	-0.5
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	50	41 - 61	-0.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	50	45 - 56	0.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	-0.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	50	44 - 57	1.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	50	45 - 55	0.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.4
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-2.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519319 Analysis Date: 10-DEC-18 Time: 08:43:37

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-2.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	107	62 - 160	6.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	86	85 - 117	-14.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	101	85 - 118	0.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	94	72 - 138	-5.8
13C-OCDD	M+2/M+4	0.90	0.76-1.02	216	96 - 415	8.2
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	93	71 - 140	-7.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	103	76 - 130	2.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	106	77 - 130	6.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	83	76 - 131	-17.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	70 - 143	-4.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	85	74 - 135	-15.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	91	73 - 137	-9.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	95	78 - 129	-4.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	89	77 - 129	-11.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.5	7.8 - 12.7	-4.7

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519319 Samp: 1 Inj: 1 Acquired: 10-DEC-18 08:43:37
Processed: 11-DEC-18 15:18:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:48	5.306e+03	7.058e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:08	4.475e+04	2.952e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.329e+04	2.830e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.408e+04	2.857e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	4.159e+04	3.445e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.540e+04	2.999e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:12	2.969e+04	2.408e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	3.257e+04	3.146e+04	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	2.356e+04	2.347e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:35	3.990e+04	4.514e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:37	4.077e+03	5.309e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	2.919e+04	1.885e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	2.353e+04	1.866e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	2.847e+04	2.253e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.836e+04	2.256e+04	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:28	2.187e+04	2.028e+04	1.08	yes	no	1.025
17	Unk	OCDD	42:23	3.386e+04	3.752e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:46	6.030e+04	7.611e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:07	9.068e+04	5.677e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	9.205e+04	5.837e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	3.514e+04	6.920e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	4.665e+04	8.929e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	3.964e+04	7.706e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	3.177e+04	6.190e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	2.921e+04	6.472e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:56	2.258e+04	5.193e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:35	3.909e+04	4.892e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	6.261e+04	3.883e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	4.579e+04	3.531e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	5.463e+04	4.289e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	4.307e+04	3.937e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:23	6.087e+04	6.772e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	4.342e+04	5.398e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	5.713e+04	4.493e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:37	9.407e+03				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519319 Samp: 1 Inj: 1 Acquired: 10-DEC-18 08:43:37
Processed: 11-DEC-18 15:18:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.83e+05	6.04e+02	1.5e+03	1.18e+06	2.18e+03	5.4e+02
2	1,2,3,7,8-PeCDF	7.71e+06	4.68e+02	1.6e+04	5.02e+06	3.74e+03	1.3e+03
3	2,3,4,7,8-PeCDF	7.80e+06	4.68e+02	1.7e+04	5.22e+06	3.74e+03	1.4e+03
4	1,2,3,4,7,8-HxCDF	6.80e+06	5.16e+02	1.3e+04	5.62e+06	6.20e+02	9.1e+03
5	1,2,3,6,7,8-HxCDF	7.29e+06	5.16e+02	1.4e+04	6.03e+06	6.20e+02	9.7e+03
6	2,3,4,6,7,8-HxCDF	6.83e+06	5.16e+02	1.3e+04	5.61e+06	6.20e+02	9.0e+03
7	1,2,3,7,8,9-HxCDF	5.01e+06	5.16e+02	9.7e+03	4.06e+06	6.20e+02	6.6e+03
8	1,2,3,4,6,7,8-HpCDF	5.95e+06	4.45e+03	1.3e+03	5.72e+06	4.35e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.44e+06	4.45e+03	7.7e+02	3.46e+06	4.35e+03	8.0e+02
10	OCDF	4.72e+06	2.92e+02	1.6e+04	5.36e+06	7.40e+02	7.2e+03
11	2,3,7,8-TCDD	7.27e+05	1.90e+03	3.8e+02	9.05e+05	9.20e+02	9.8e+02
12	1,2,3,7,8-PeCDD	5.13e+06	6.08e+02	8.4e+03	3.28e+06	3.20e+02	1.0e+04
13	1,2,3,4,7,8-HxCDD	4.96e+06	4.60e+02	1.1e+04	3.94e+06	9.92e+02	4.0e+03
14	1,2,3,6,7,8-HxCDD	5.01e+06	4.60e+02	1.1e+04	3.94e+06	9.92e+02	4.0e+03
15	1,2,3,7,8,9-HxCDD	4.61e+06	4.60e+02	1.0e+04	3.69e+06	9.92e+02	3.7e+03
16	1,2,3,4,6,7,8-HpCDD	3.48e+06	3.68e+02	9.5e+03	3.36e+06	3.52e+02	9.5e+03
17	OCDD	3.92e+06	2.24e+02	1.7e+04	4.35e+06	1.48e+02	2.9e+04
18	13C-2,3,7,8-TCDF	1.01e+07	8.30e+03	1.2e+03	1.28e+07	5.92e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	1.51e+07	8.24e+02	1.8e+04	9.47e+06	4.32e+02	2.2e+04
20	13C-2,3,4,7,8-PeCDF	1.68e+07	8.24e+02	2.0e+04	1.07e+07	4.32e+02	2.5e+04
21	13C-1,2,3,4,7,8-HxCDF	6.89e+06	3.28e+02	2.1e+04	1.35e+07	7.16e+02	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	8.06e+06	3.28e+02	2.5e+04	1.54e+07	7.16e+02	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	7.55e+06	3.28e+02	2.3e+04	1.45e+07	7.16e+02	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	5.37e+06	3.28e+02	1.6e+04	1.04e+07	7.16e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.27e+06	6.60e+03	8.0e+02	1.18e+07	1.72e+04	6.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.32e+06	6.60e+03	5.0e+02	7.49e+06	1.72e+04	4.4e+02
27	13C-2,3,7,8-TCDD	6.93e+06	8.50e+03	8.1e+02	8.64e+06	3.41e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	1.07e+07	1.41e+03	7.6e+03	6.64e+06	1.12e+03	5.9e+03
29	13C-1,2,3,4,7,8-HxCDD	9.59e+06	1.84e+03	5.2e+03	7.34e+06	5.72e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	9.49e+06	1.84e+03	5.2e+03	7.55e+06	5.72e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.80e+06	4.44e+02	1.5e+04	6.32e+06	6.20e+02	1.0e+04
32	13C-OCDD	6.94e+06	4.08e+02	1.7e+04	7.67e+06	2.36e+02	3.2e+04
33	13C-1,2,3,4-TCDD	7.91e+06	8.50e+03	9.3e+02	9.81e+06	3.41e+03	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	8.95e+06	1.84e+03	4.9e+03	7.11e+06	5.72e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.64e+06	1.46e+03	1.1e+03			

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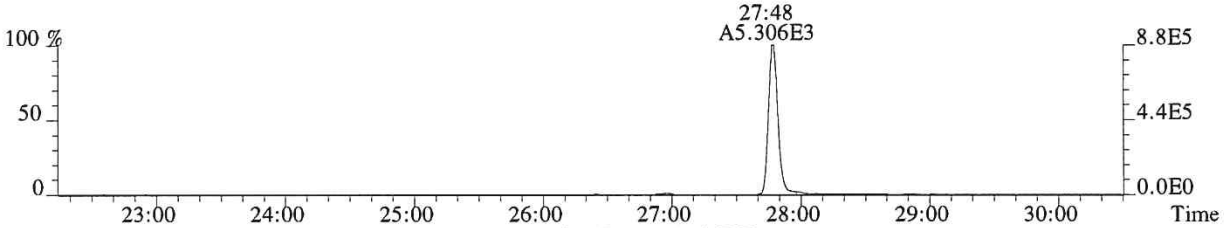
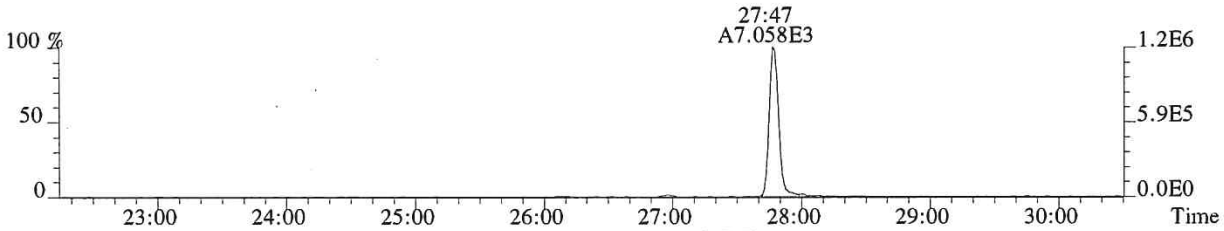
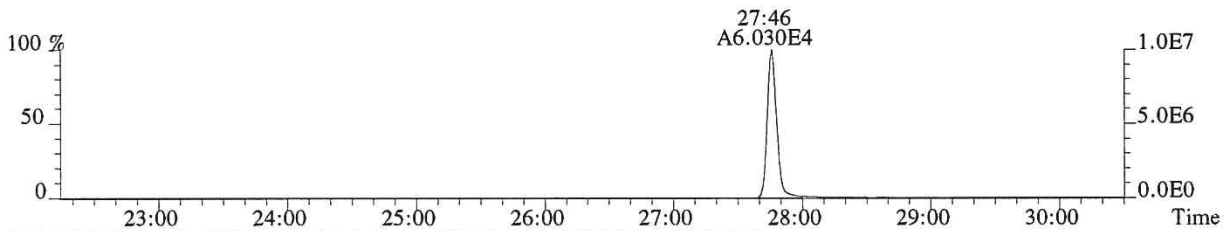
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



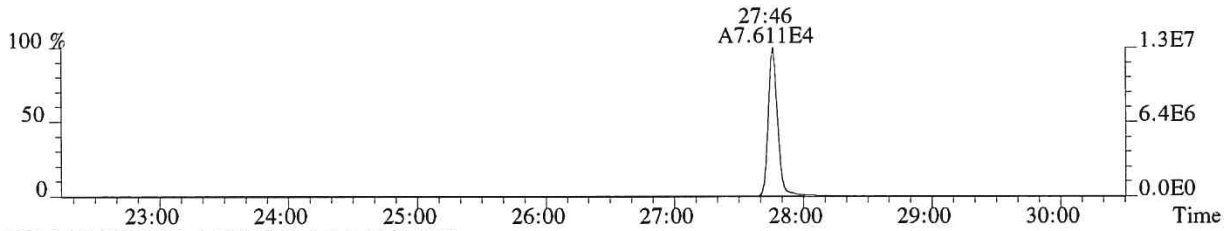
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



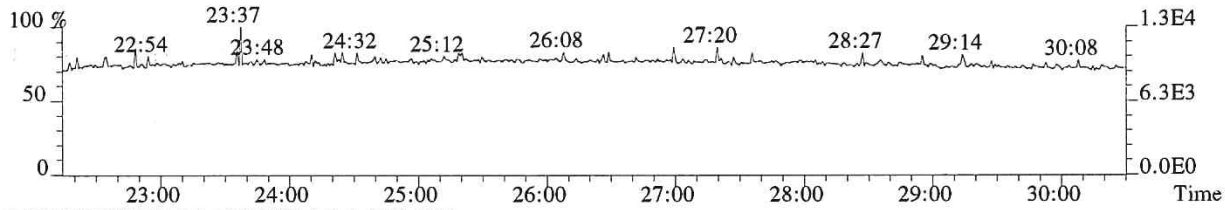
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8304.0,1.00%,F,T)



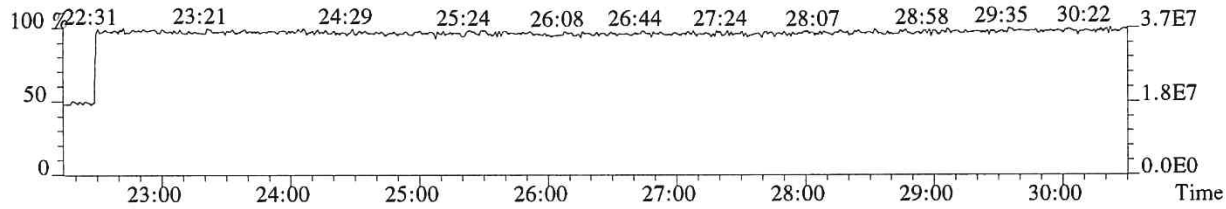
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5916.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

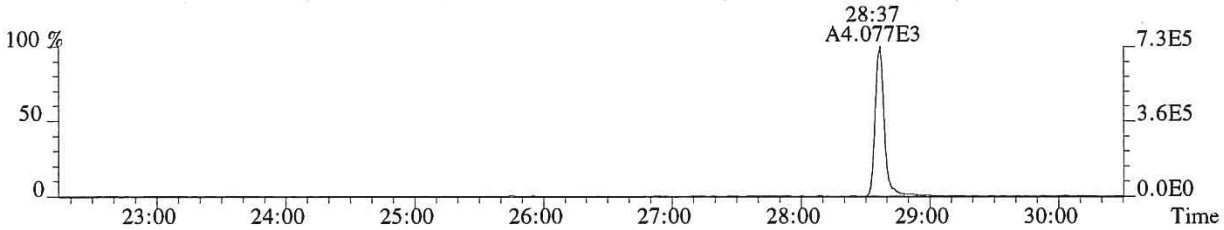


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

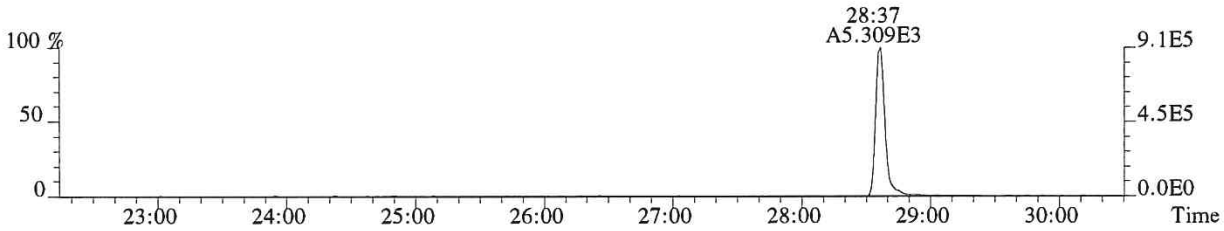


013497

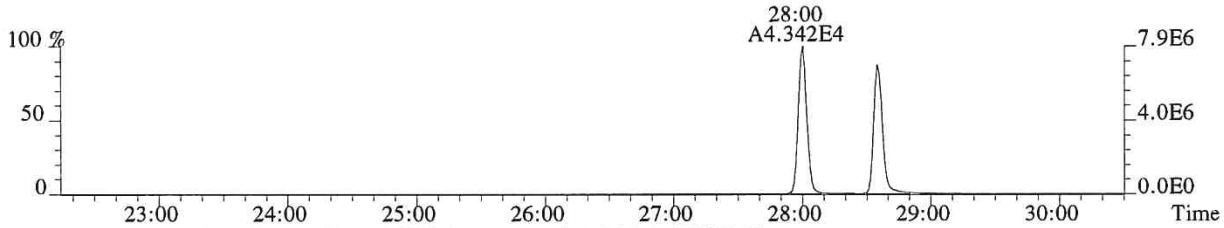
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



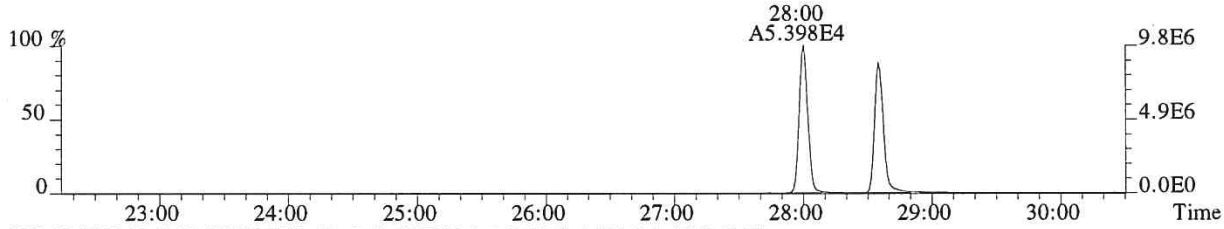
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



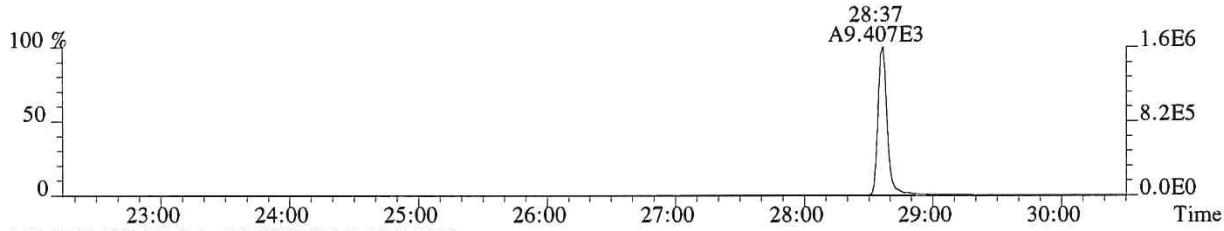
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8504.0,1.00%,F,T)



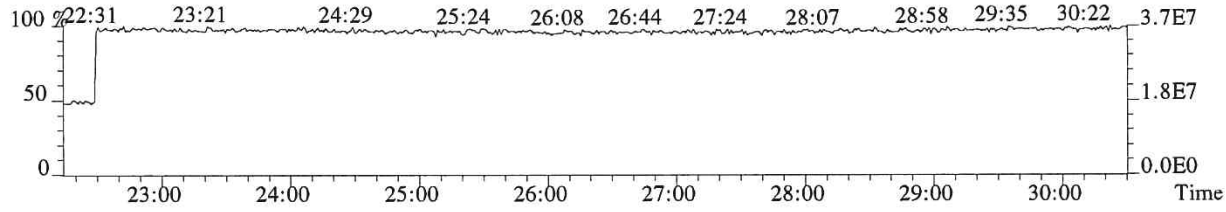
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)

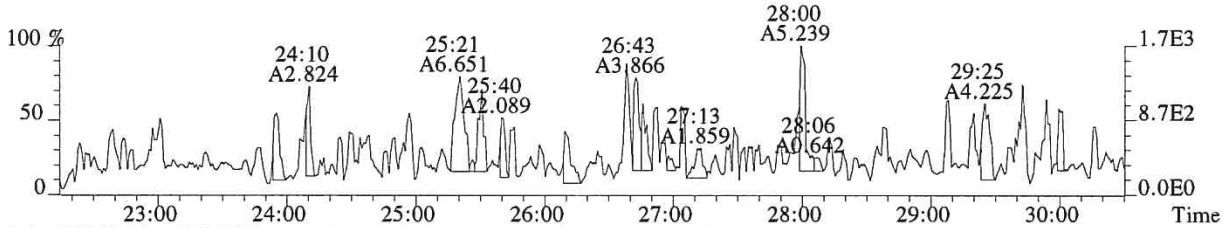


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

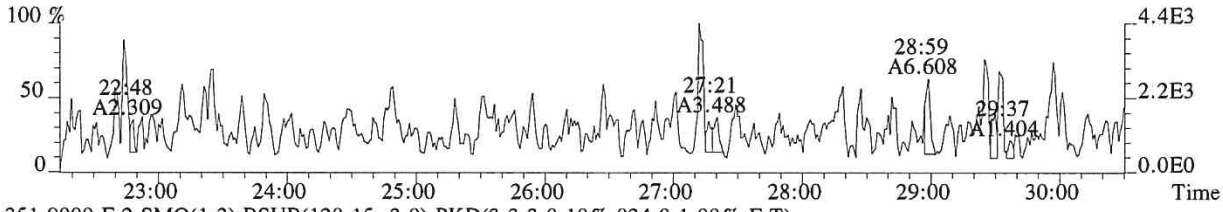


013498

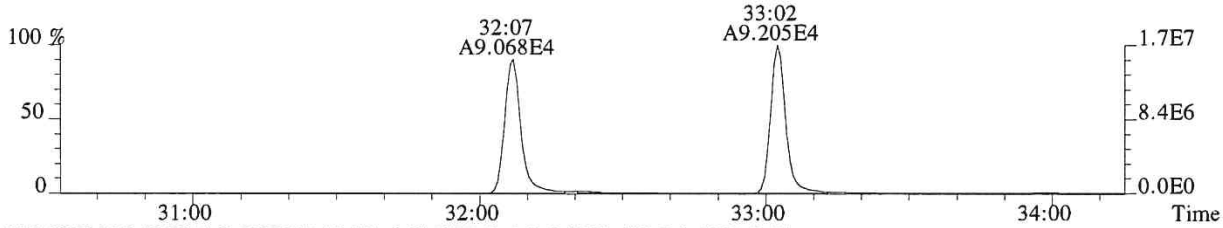
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



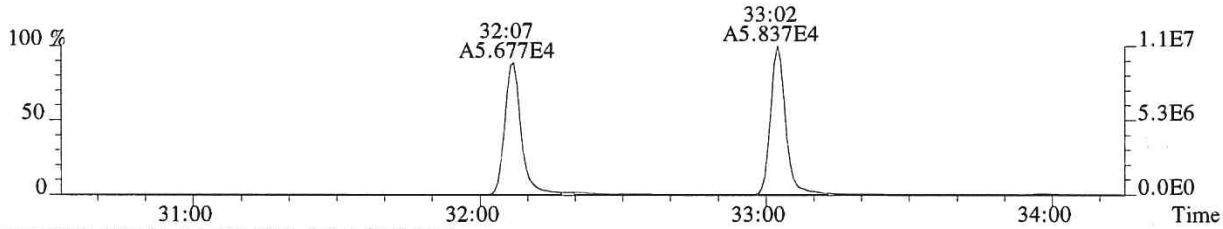
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



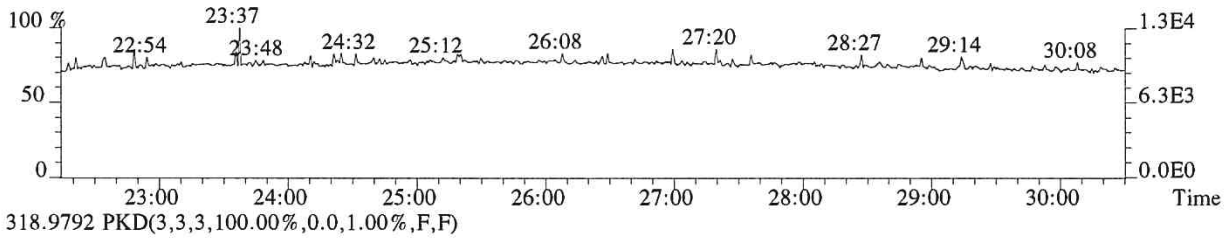
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



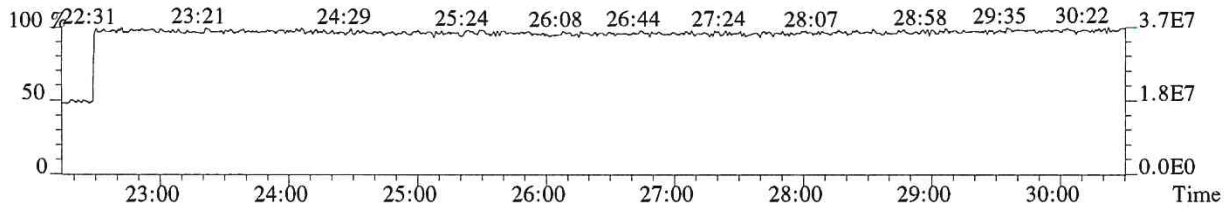
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

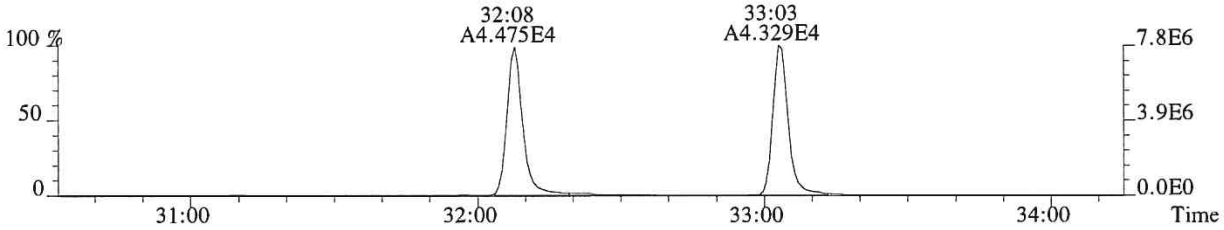


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

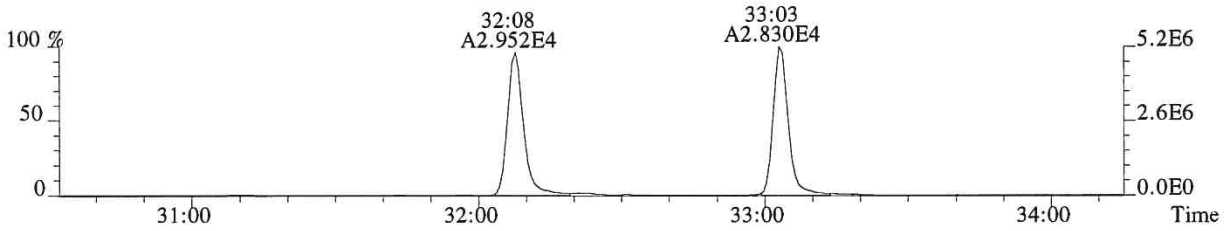


013499

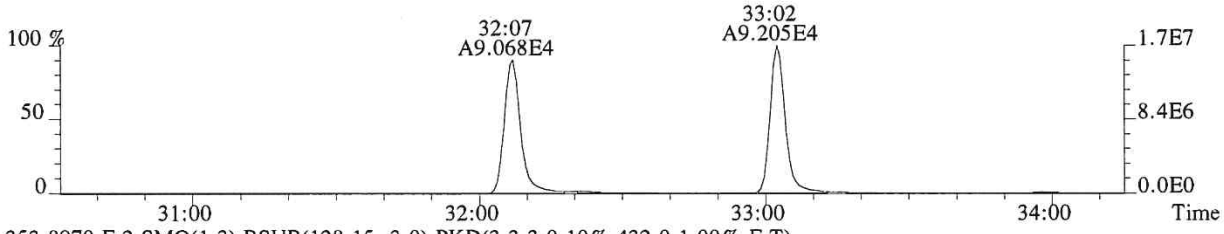
File:P519319 #1-335 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



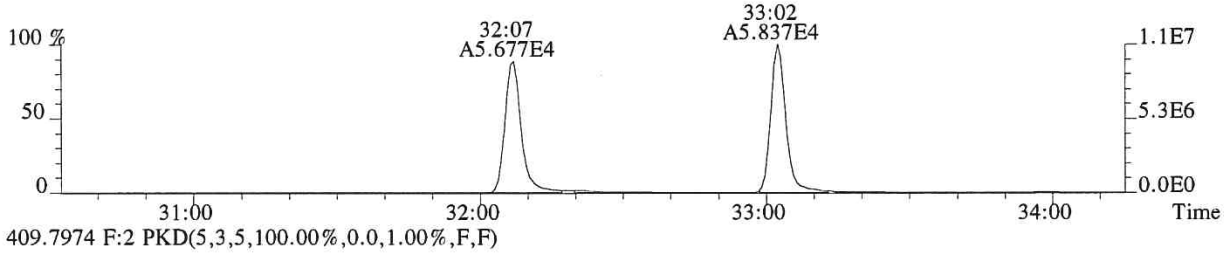
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3740.0,1.00%,F,T)



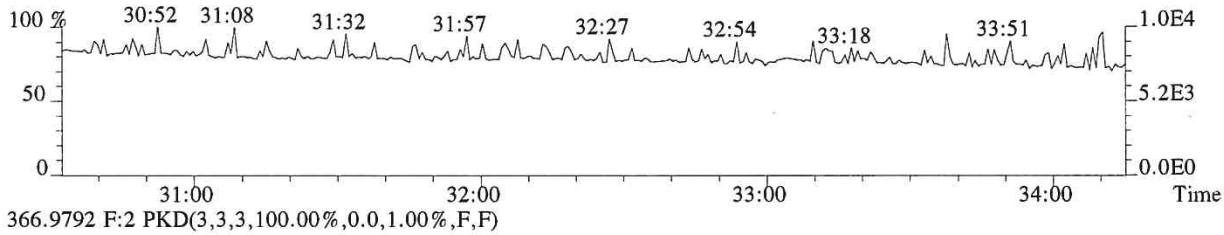
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



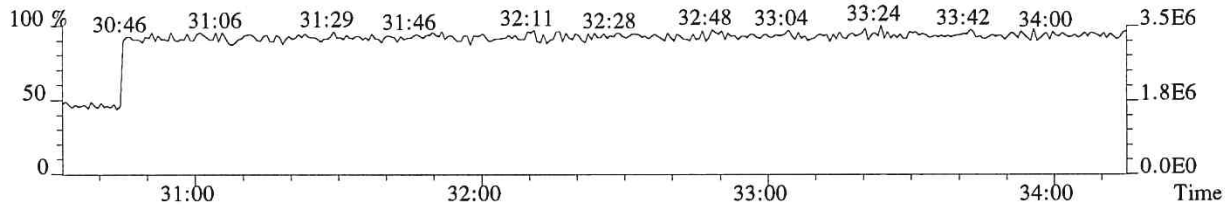
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



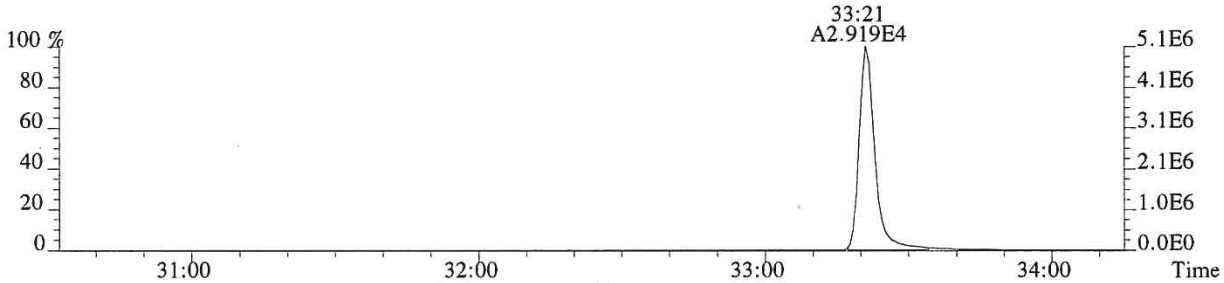
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



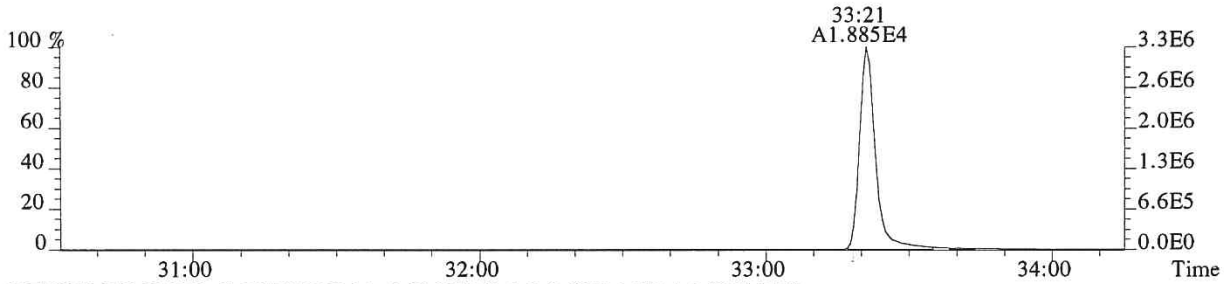
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



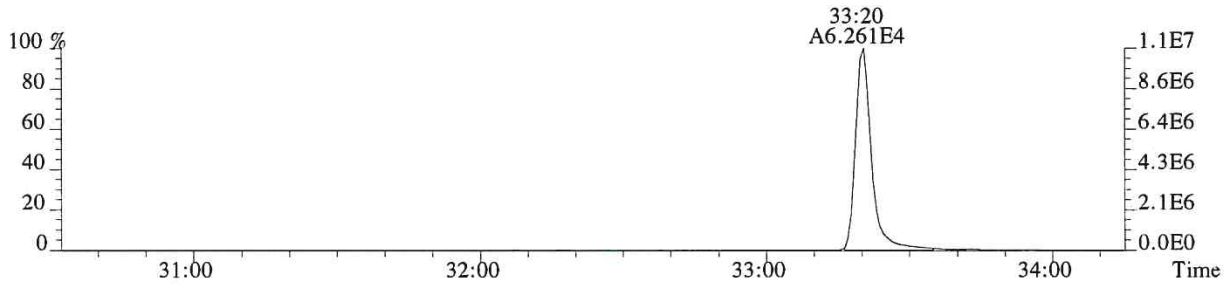
File:P519319 #1-335 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



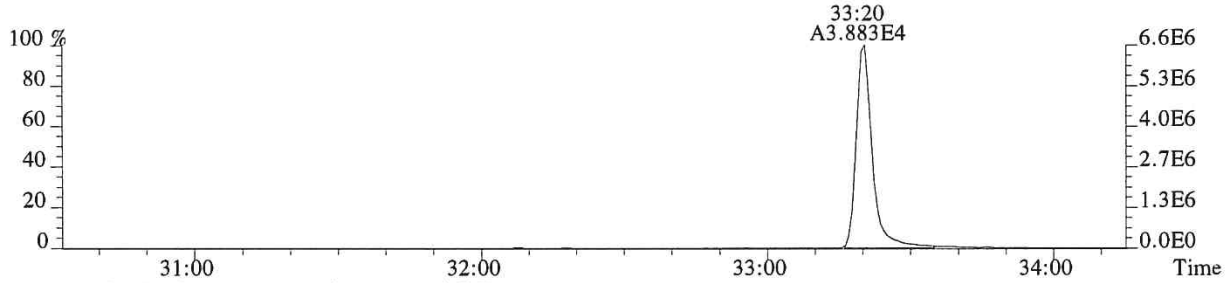
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



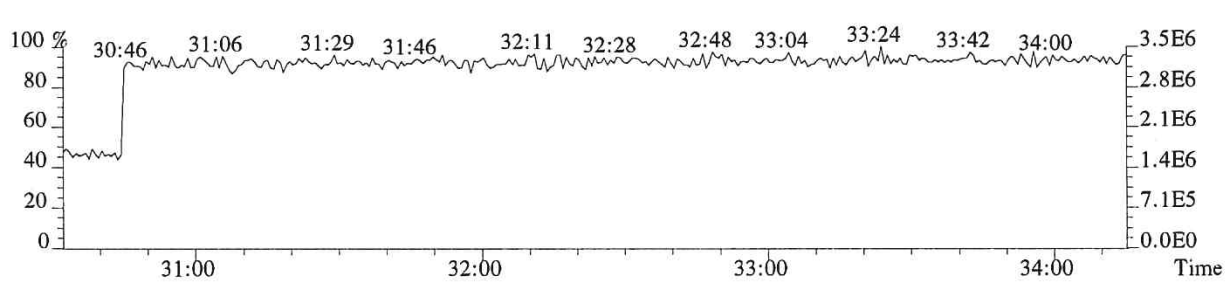
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



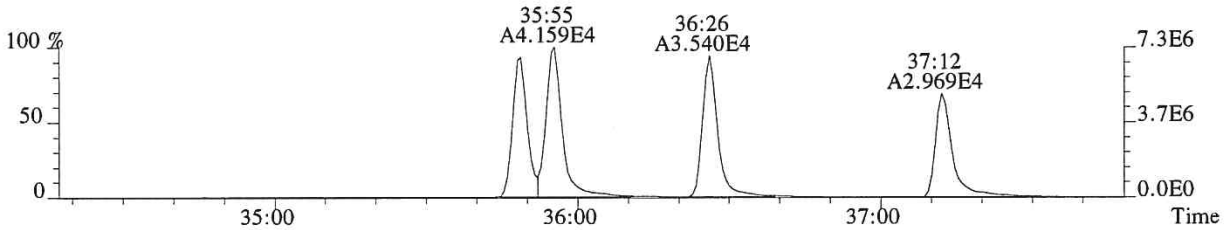
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



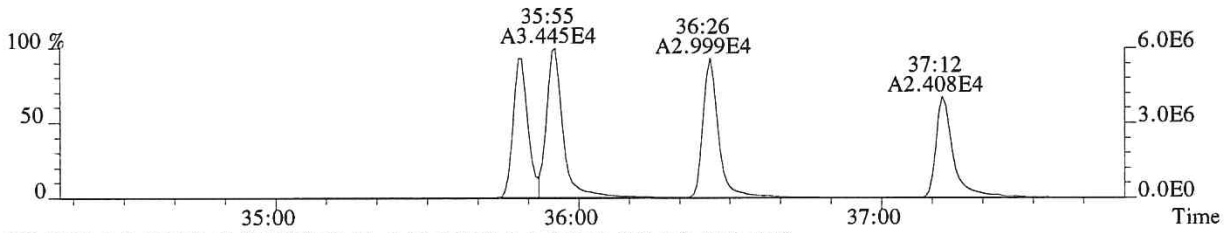
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



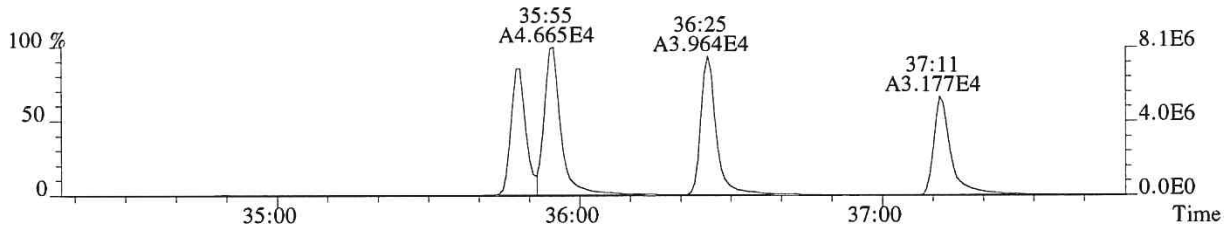
File:P519319 #1-317 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



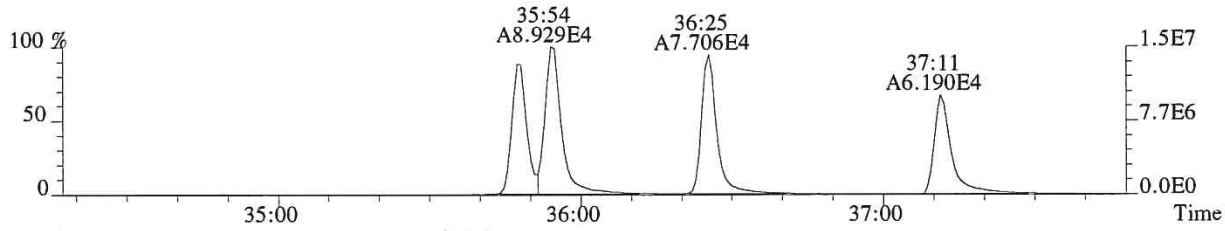
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



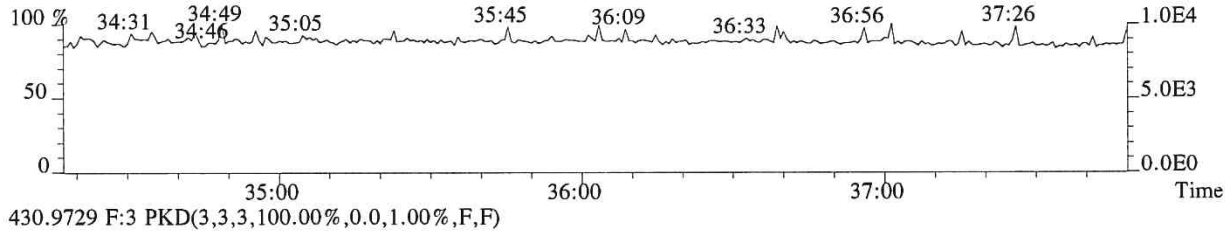
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



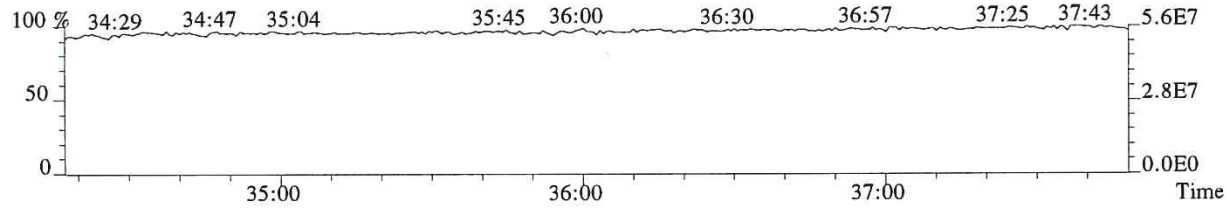
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

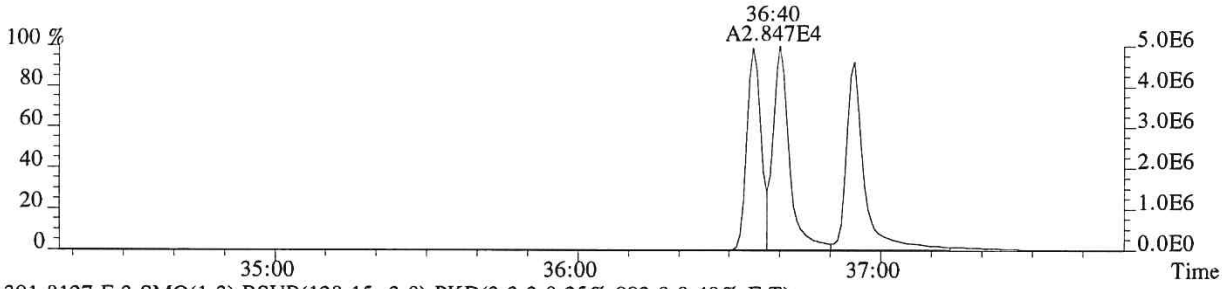


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

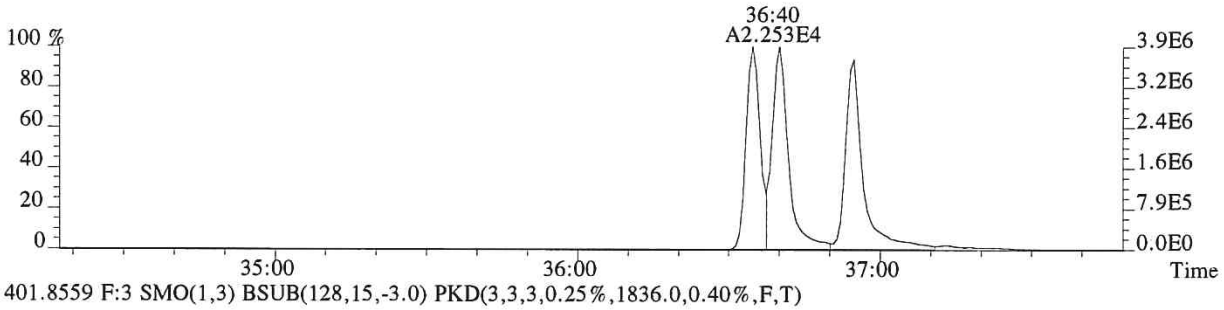


013502

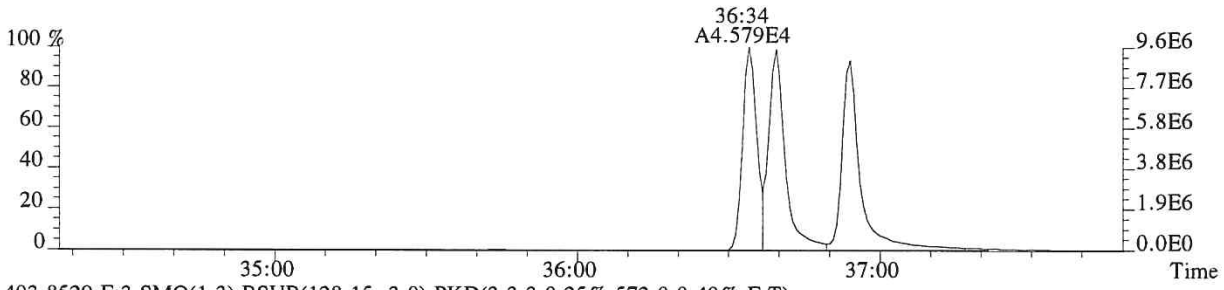
File:P519319 #1-317 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



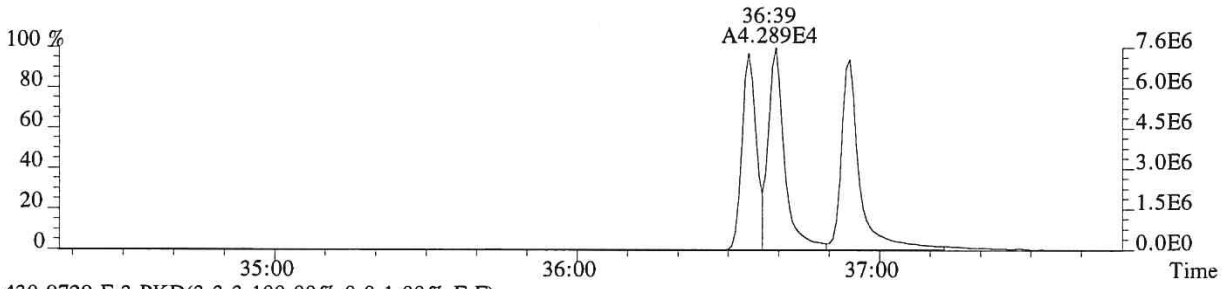
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



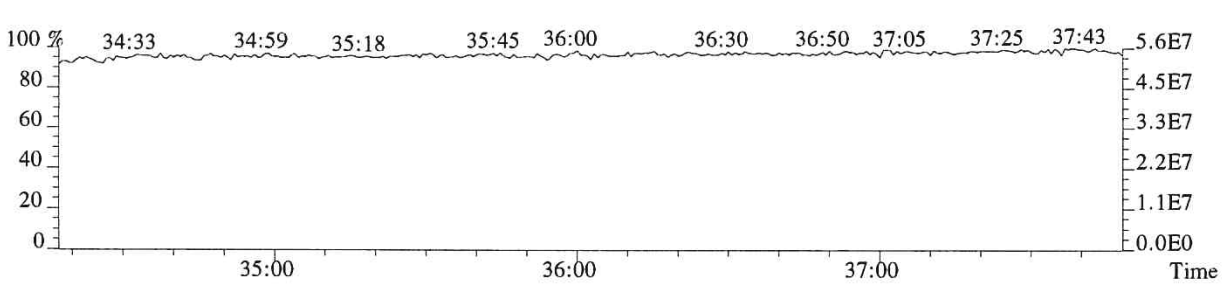
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.40%,F,T)



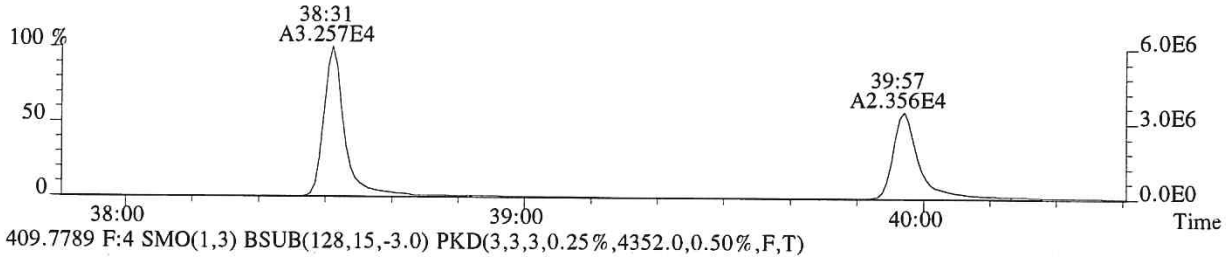
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



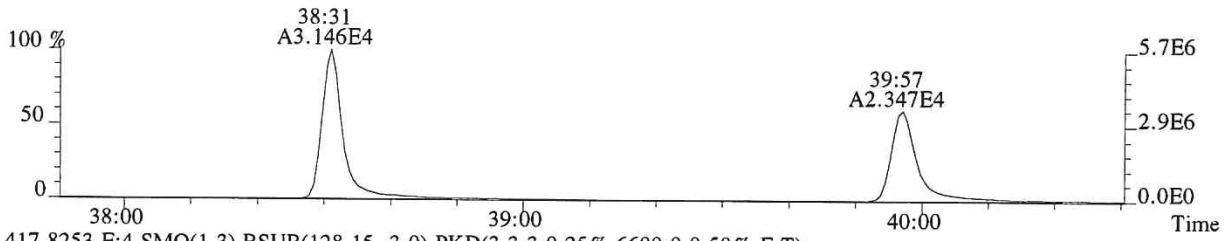
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



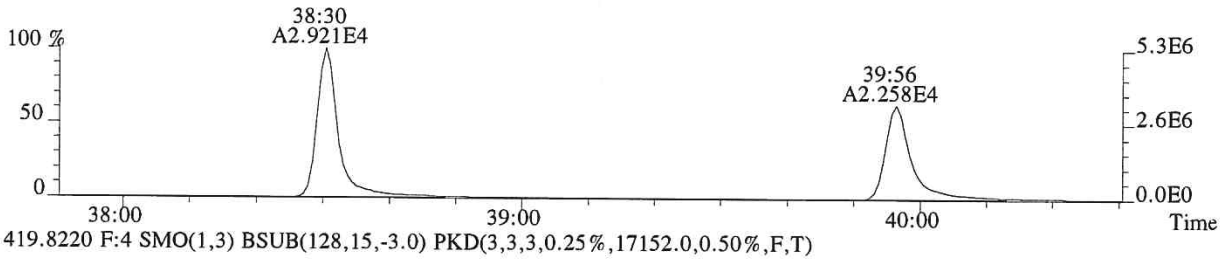
File:P519319 #1-241 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4448.0,0.50%,F,T)



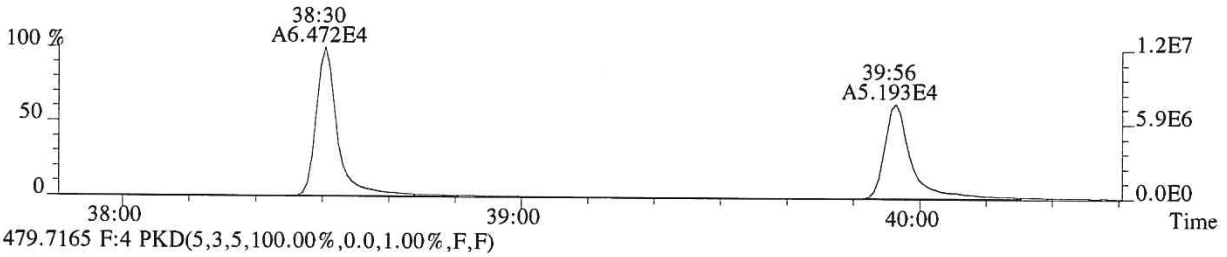
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4352.0,0.50%,F,T)



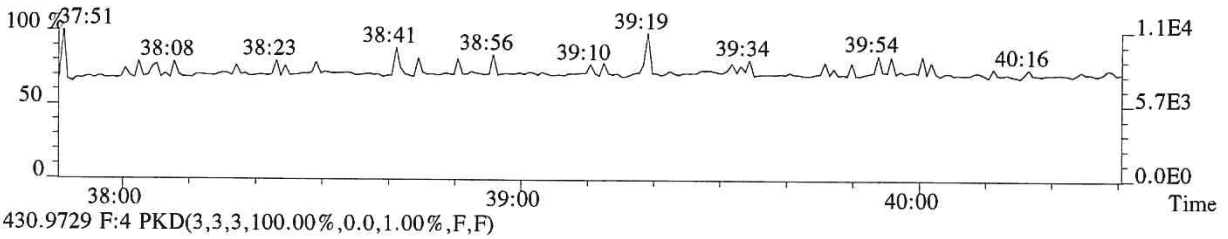
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6600.0,0.50%,F,T)



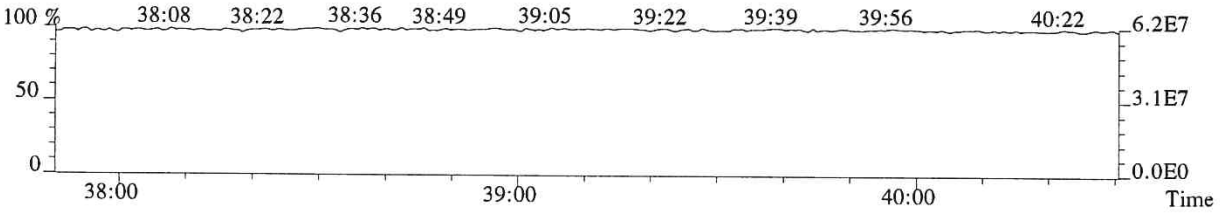
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17152.0,0.50%,F,T)



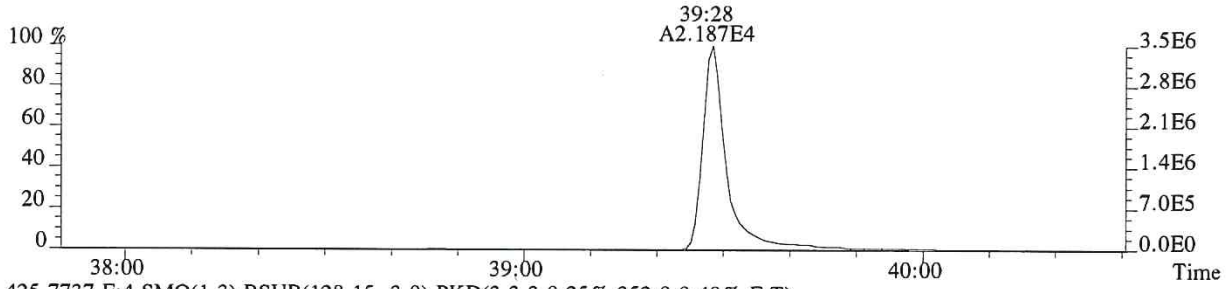
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



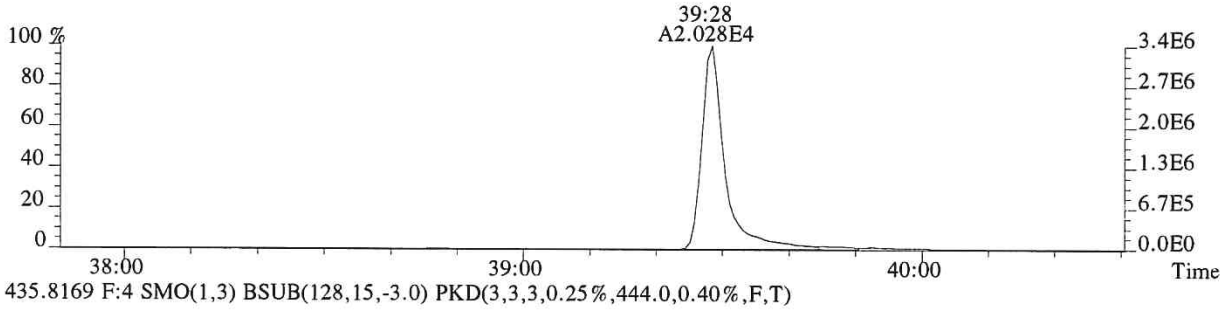
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



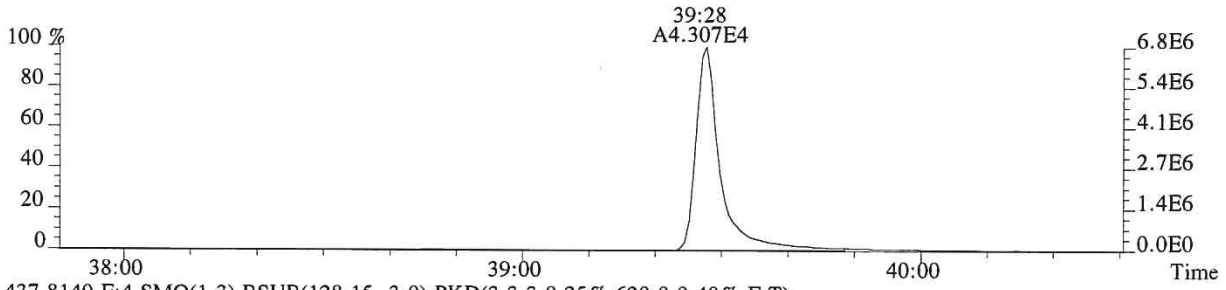
File:P519319 #1-241 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



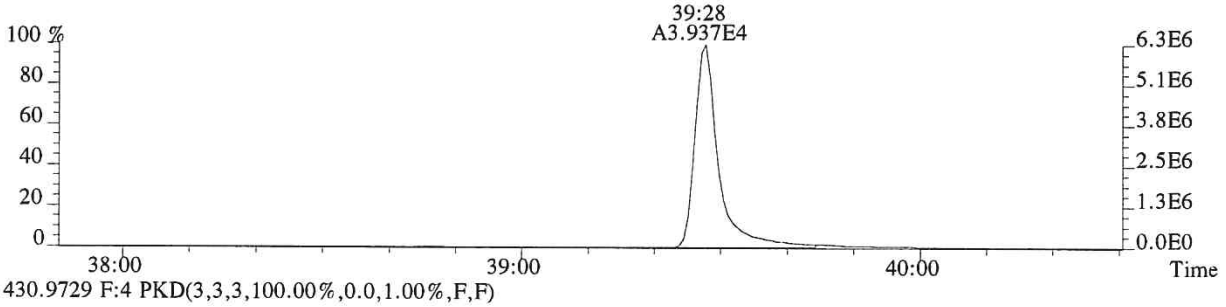
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



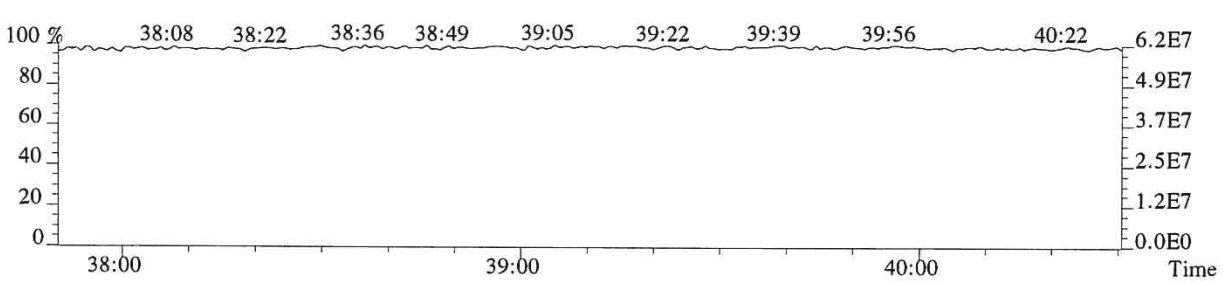
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



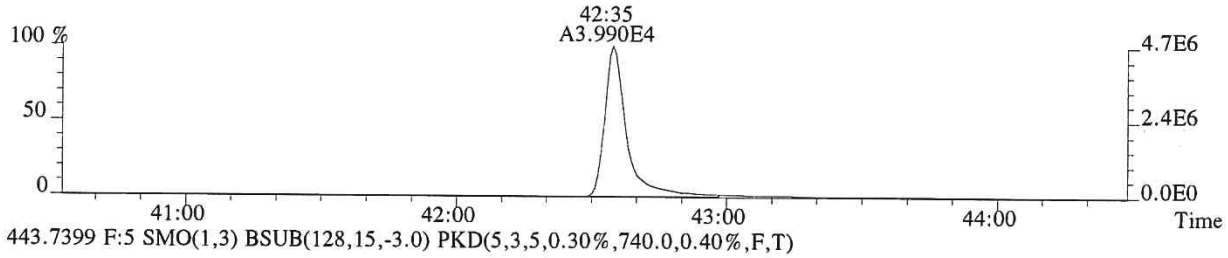
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



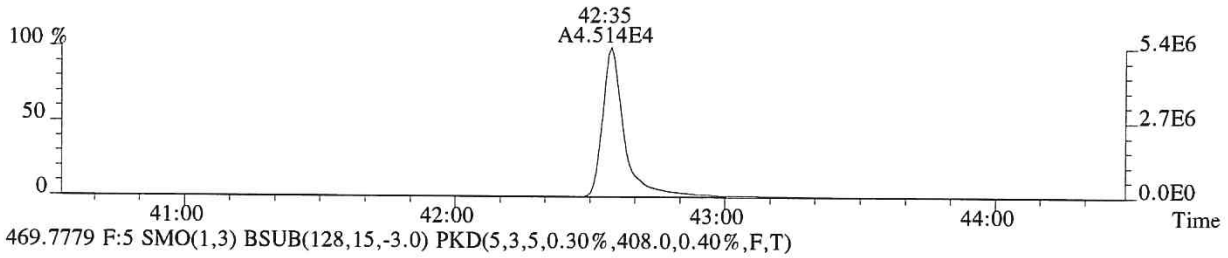
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



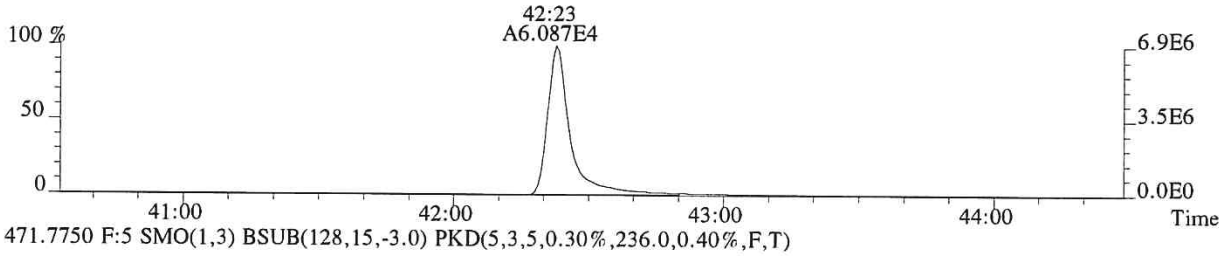
File:P519319 #1-355 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



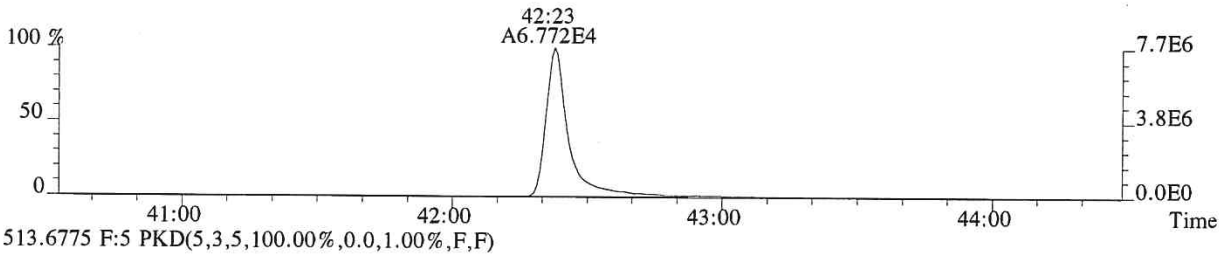
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



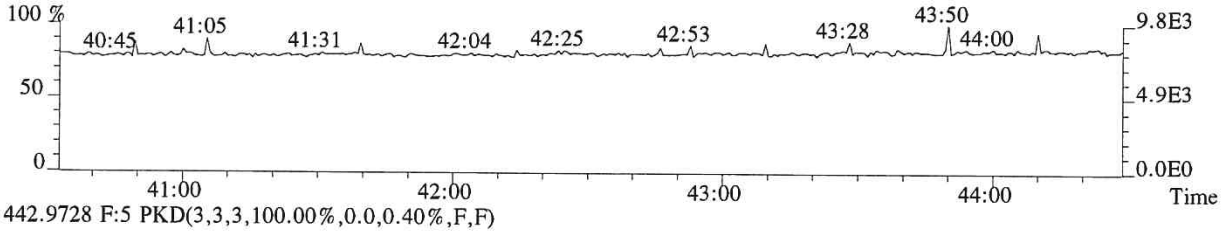
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



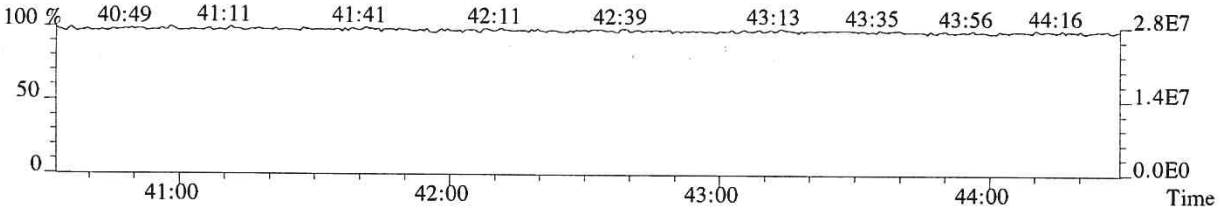
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



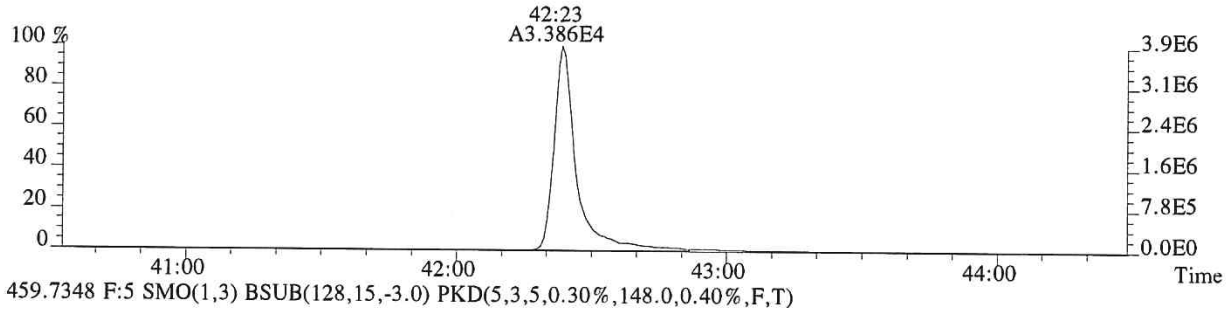
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



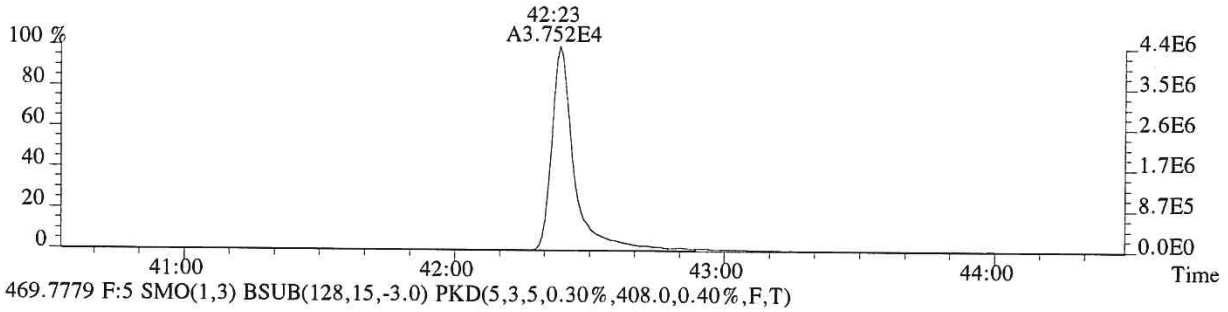
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



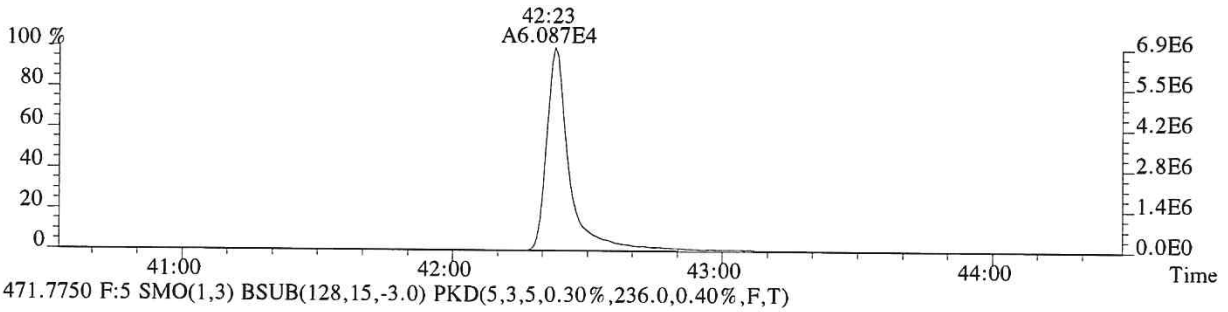
File:P519319 #1-355 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



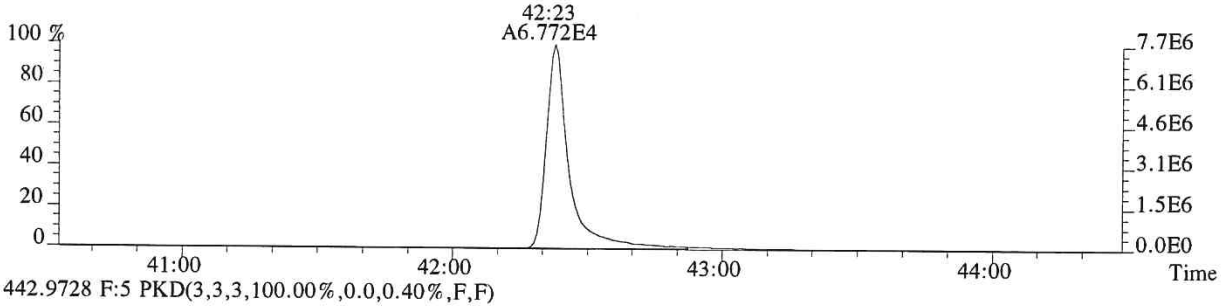
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



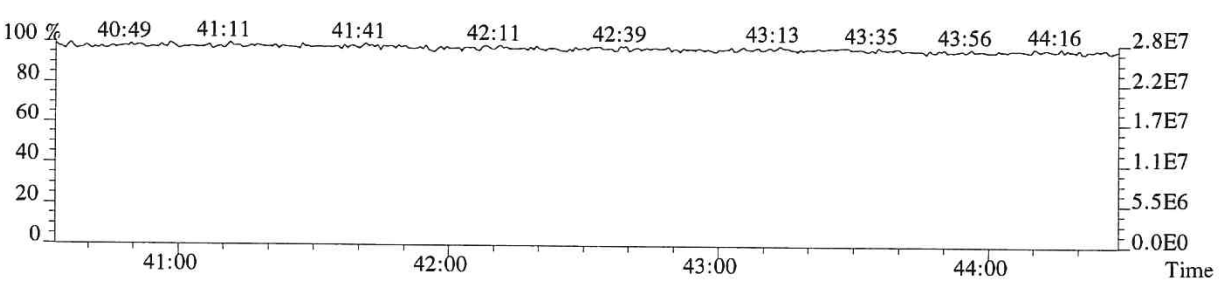
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519350

Date: 12/11/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519350	11-DEC-18	10:22:01
192977	WINDOW DEFINE	P519351	11-DEC-18	11:14:28
METHOD BLANK	EQ1800485-01	P519352	11-DEC-18	12:02:18
METHOD BLANK	EQ1800494-01	P519353	11-DEC-18	12:50:51
UU03601	K1811038-003	P519354	11-DEC-18	13:48:39
SL0572	E1801065-022	P519355	11-DEC-18	14:36:26
ASH 1 SPLP	E1801064-015	P519356	11-DEC-18	15:25:04
INFLUENT DIOXIN	E1801086-004	P519357	11-DEC-18	16:15:17
EFFLUENT DIOXIN	E1801086-005	P519358	11-DEC-18	17:05:24
3003147001	E1801087-001	P519359	11-DEC-18	17:53:12
SL0549	E1801055-004DL	P519360	11-DEC-18	18:41:50
FW0051	E1801046-007	P519361	11-DEC-18	19:30:28
FW008	E1801058-030	P519362	11-DEC-18	20:19:13
LCS	EQ1800488-02	P519363	11-DEC-18	21:07:51
DLCS	EQ1800488-03	P519364	11-DEC-18	21:56:19

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181211A.SPL
Last Modified: Wednesday, December 12, 2018 07:00:37 Central Standard Time
Printed: Wednesday, December 12, 2018 07:00:39 Central Standard Time

OPUS4: P519350res

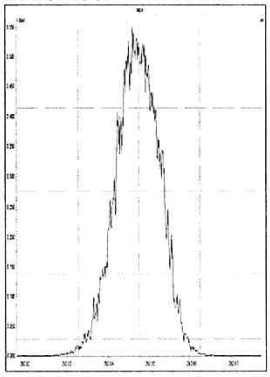
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/11/18	10:22	P519350	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	1+2HRS check 10:15
2	"	11:14	P519351	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	"	
3	"	12:02	P519352	MB	EQ1800485-01	EPA1613_ALS	Dioxin_ALS	Tray1:3	"	
4	"	12:50	P519353	MB	EQ1800494-01	EPA1613_ALS	Dioxin_ALS	Tray1:4	"	
5	"	13:48	P519354	K1811038-003	K1811038-003	EPA1613_ALS	Dioxin_ALS	Tray1:5	"	
6	"	14:36	P519355	E1801065-022	E1801065-022	EPA1613_ALS	Dioxin_ALS	Tray1:6	"	
7	"	15:25	P519356	E1801064-015	E1801064-015	EPA1613_ALS	Dioxin_ALS	Tray1:7	"	
8	"	16:15	P519357	E1801086-004	E1801086-004	EPA1613_ALS	Dioxin_ALS	Tray1:8	"	
9	"	17:05	P519358	E1801086-005	E1801086-005	EPA1613_ALS	Dioxin_ALS	Tray1:9	"	
10	"	17:53	P519359	E1801087-001	E1801087-001	EPA1613_ALS	Dioxin_ALS	Tray1:10	"	
11	"	18:41	P519360	E1801055-004DL	E1801055-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:11	"	
12	"	19:30	P519361	E1801046-007	E1801046-007	EPA1613_ALS	Dioxin_ALS	Tray1:12	"	
13	"	20:19	P519362	E1801058-030	E1801058-030	EPA1613_ALS	Dioxin_ALS	Tray1:13	"	
14	"	21:07	P519363	LCS	EQ1800488-02	EPA1613_ALS	Dioxin_ALS	Tray1:14	"	
15	"	21:56	P519364	DLCS	EQ1800488-03	EPA1613_ALS	Dioxin_ALS	Tray1:15	"	
16	↓	22:53	P519365	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	↓	1+2HRS check 22:53
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JC 12/12/18

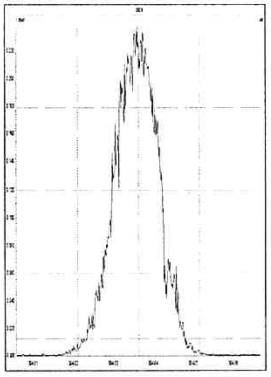
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:15:52 Central Standard Time

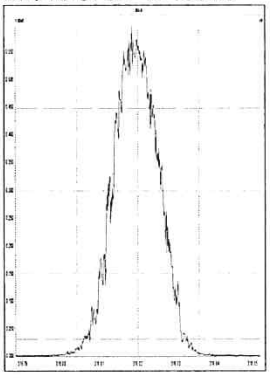
M 292.9824 R 12627



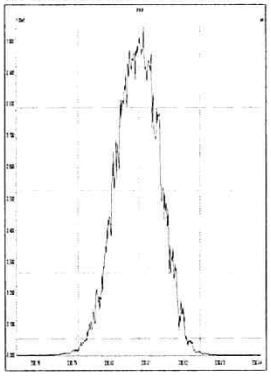
M 304.9824 R 12381



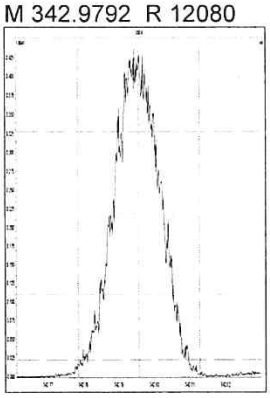
M 318.9792 R 13300



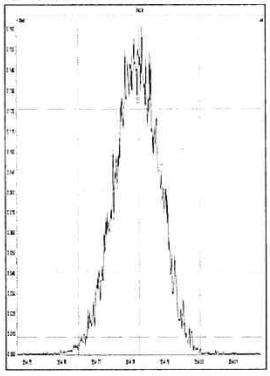
M 330.9792 R 12135



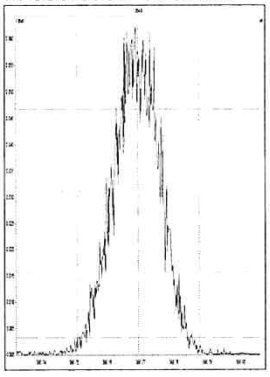
M 342.9792 R 12080



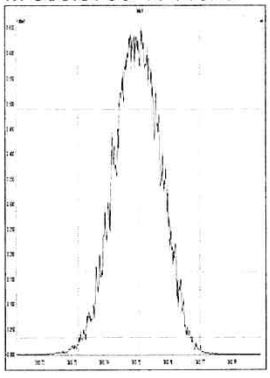
M 354.9792 R 11905



M 366.9792 R 12080



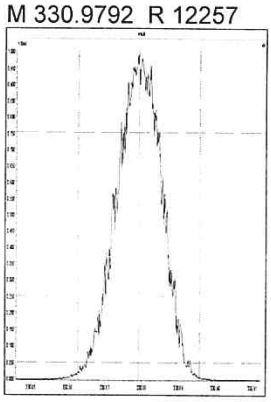
M 380.9760 R 11629



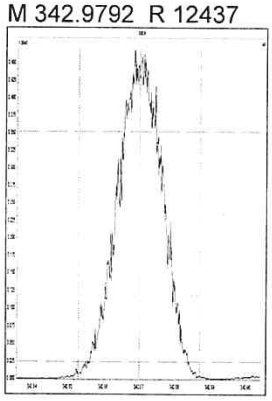
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:16:35 Central Standard Time

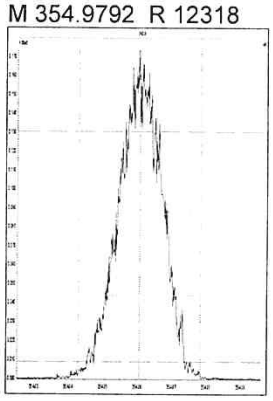
M 330.9792 R 12257



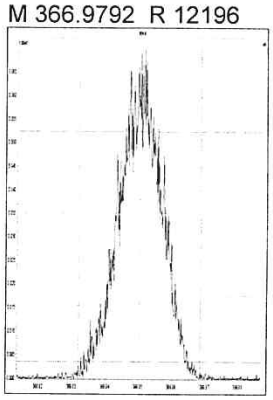
M 342.9792 R 12437



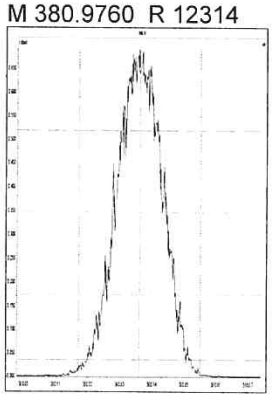
M 354.9792 R 12318



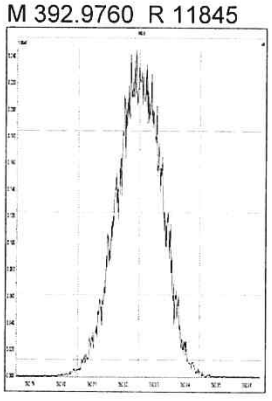
M 366.9792 R 12196



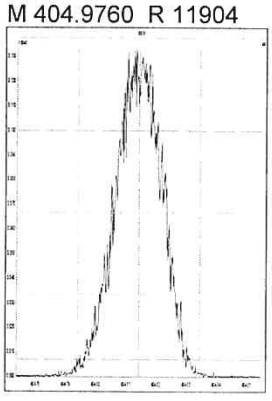
M 380.9760 R 12314



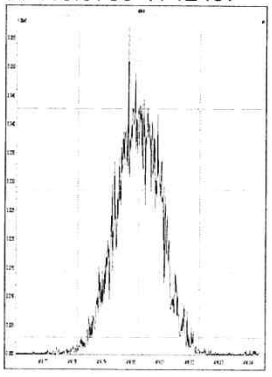
M 392.9760 R 11845



M 404.9760 R 11904



M 416.9760 R 12497



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

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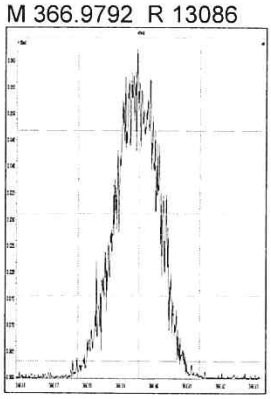
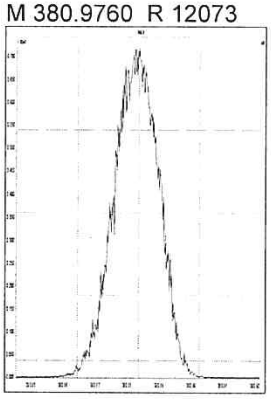
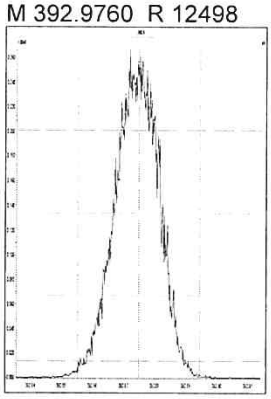
M 366.9792 R 13086



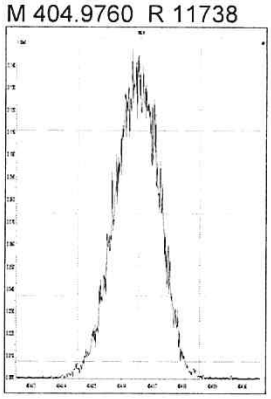
M 380.9760 R 12073



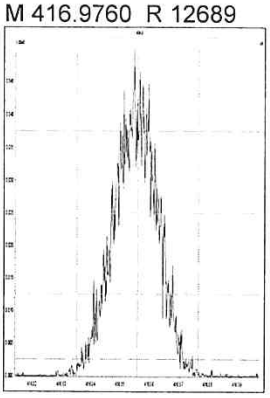
M 392.9760 R 12498



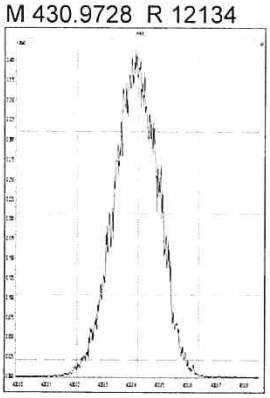
M 404.9760 R 11738



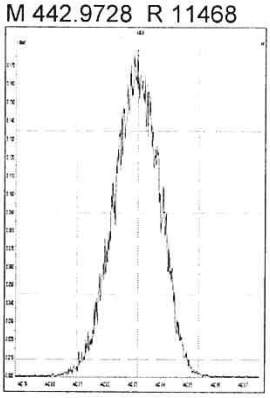
M 416.9760 R 12689



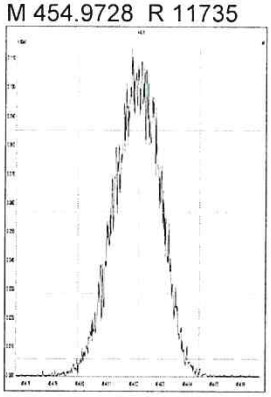
M 430.9728 R 12134



M 442.9728 R 11468



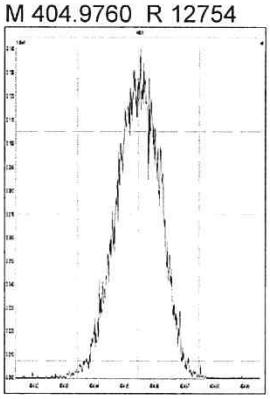
M 454.9728 R 11735



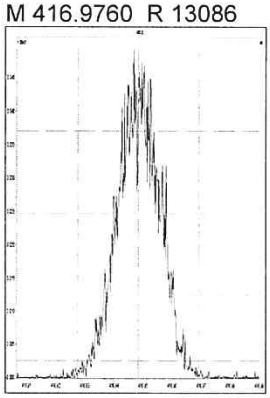
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:17:58 Central Standard Time

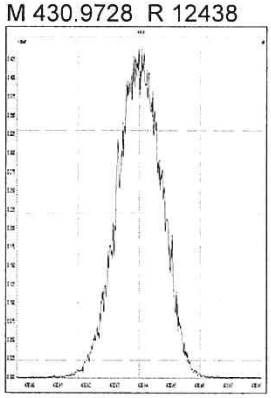
M 404.9760 R 12754



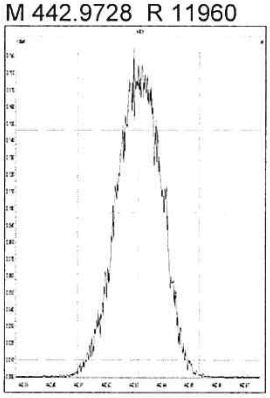
M 416.9760 R 13086



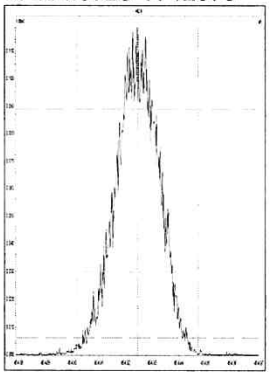
M 430.9728 R 12438



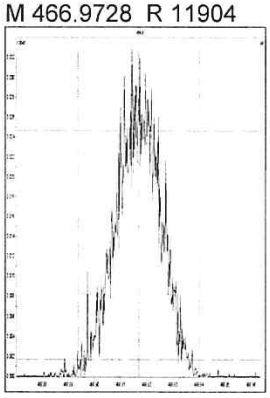
M 442.9728 R 11960



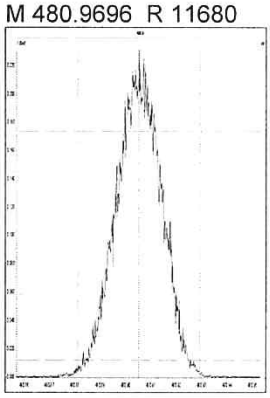
M 454.9728 R 12373



M 466.9728 R 11904



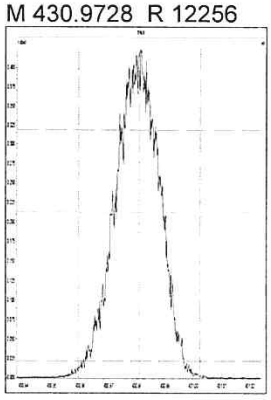
M 480.9696 R 11680



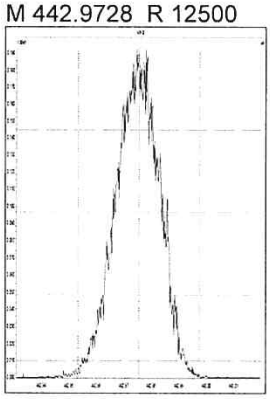
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:18:45 Central Standard Time

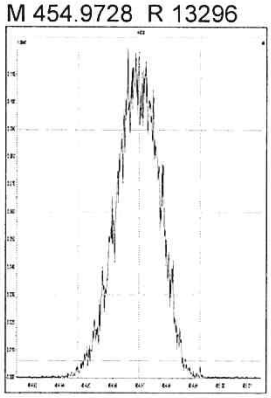
M 430.9728 R 12256



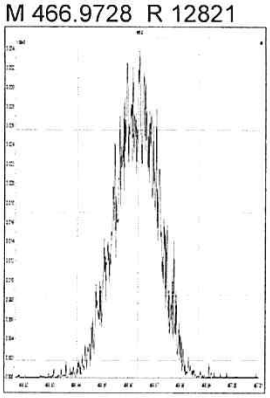
M 442.9728 R 12500



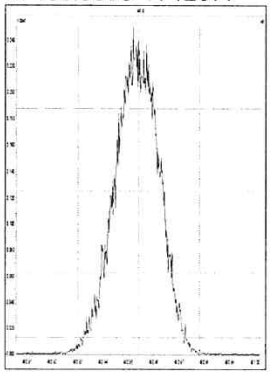
M 454.9728 R 13296



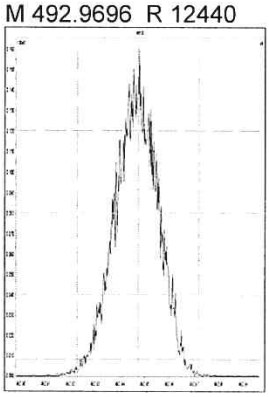
M 466.9728 R 12821



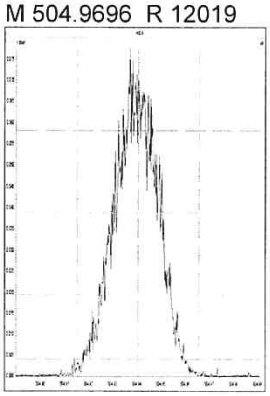
M 480.9696 R 12077



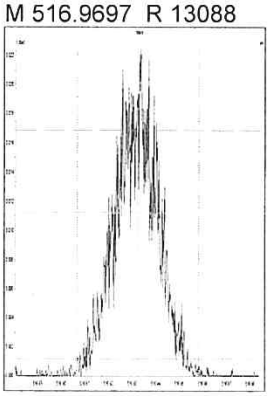
M 492.9696 R 12440



M 504.9696 R 12019



M 516.9697 R 13088



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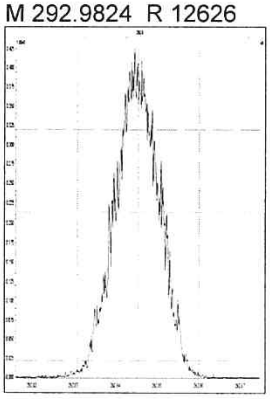
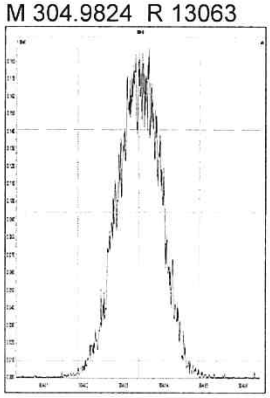
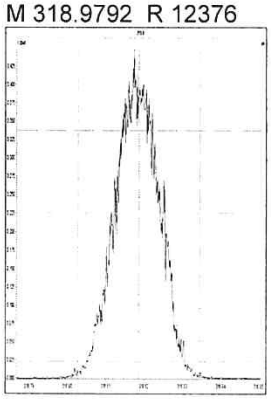
M 292.9824 R 12626



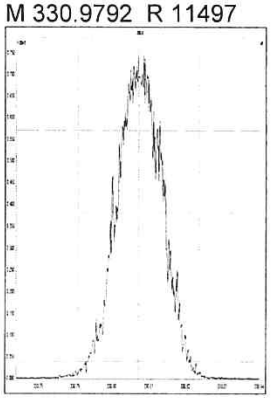
M 304.9824 R 13063



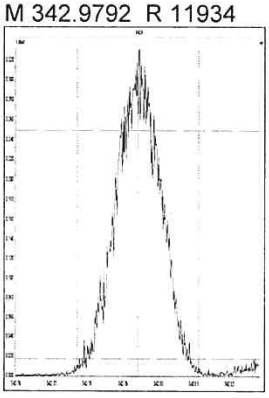
M 318.9792 R 12376



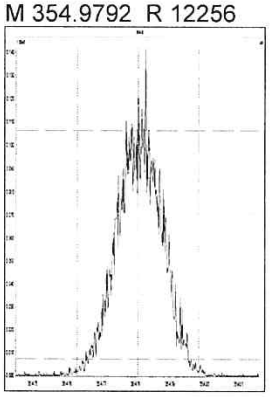
M 330.9792 R 11497



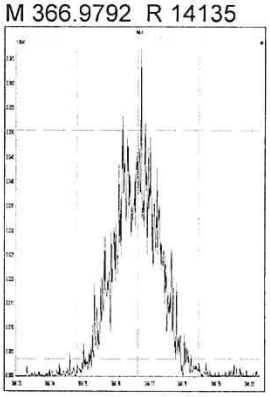
M 342.9792 R 11934



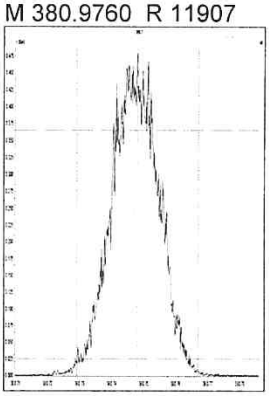
M 354.9792 R 12256



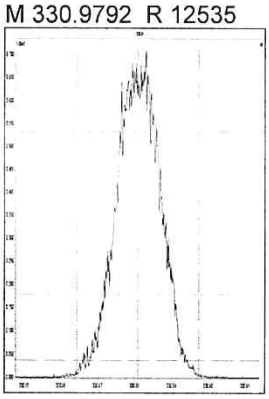
M 366.9792 R 14135



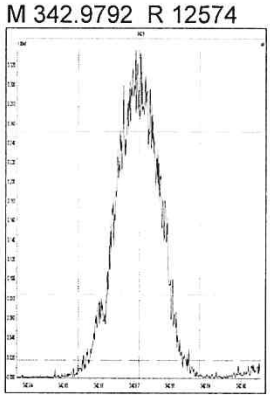
M 380.9760 R 11907



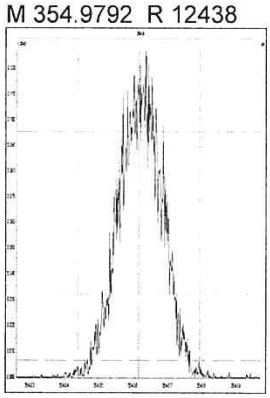
M 330.9792 R 12535



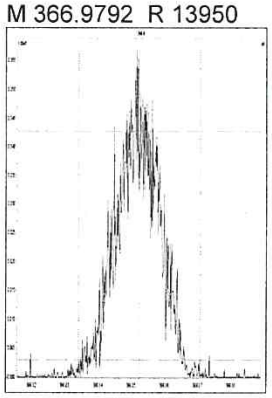
M 342.9792 R 12574



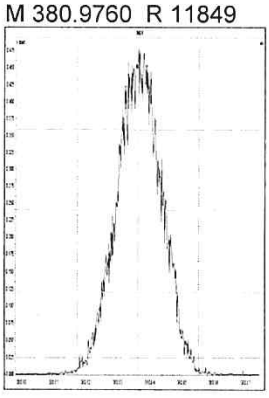
M 354.9792 R 12438



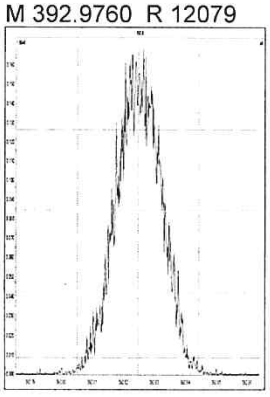
M 366.9792 R 13950



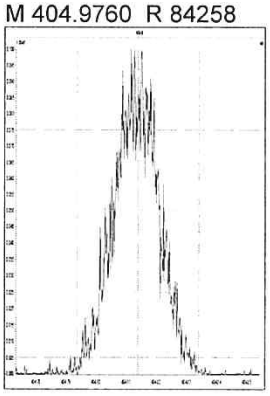
M 380.9760 R 11849



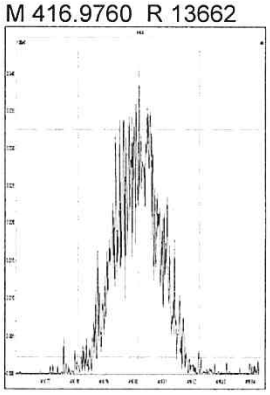
M 392.9760 R 12079



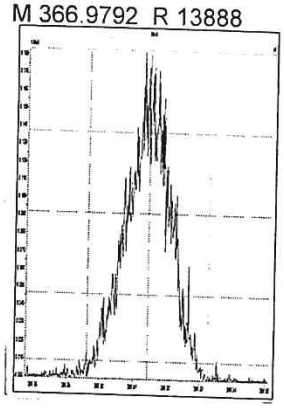
M 404.9760 R 84258



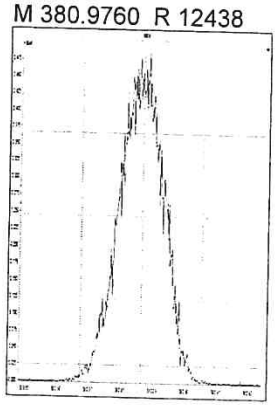
M 416.9760 R 13662



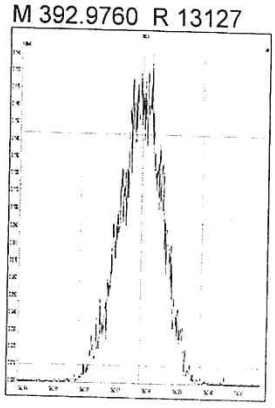
M 366.9792 R 13888



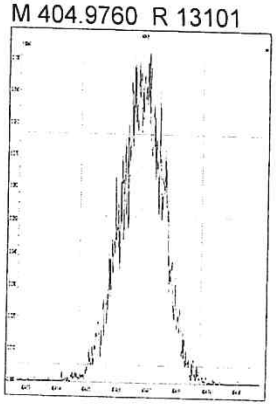
M 380.9760 R 12438



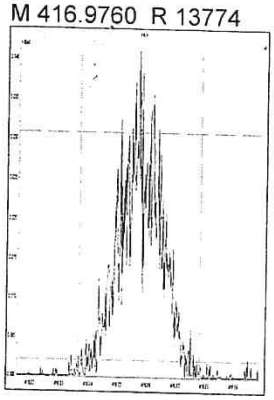
M 392.9760 R 13127



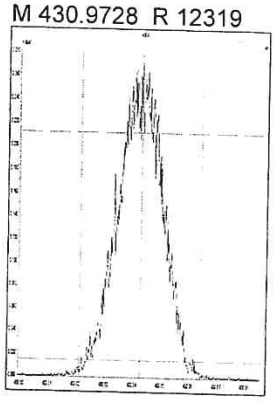
M 404.9760 R 13101



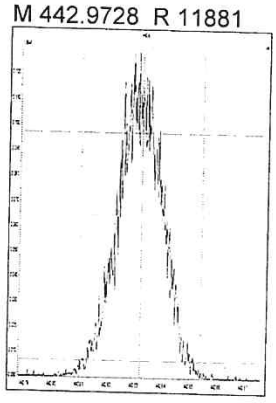
M 416.9760 R 13774



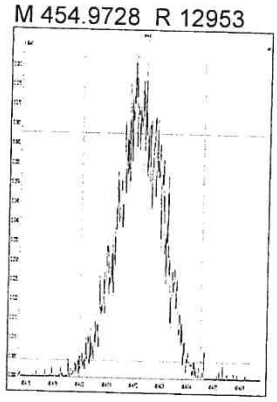
M 430.9728 R 12319



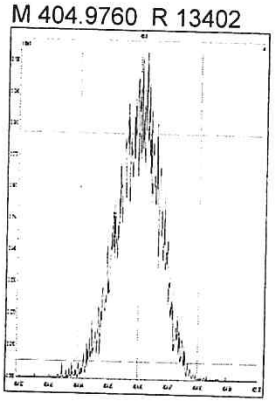
M 442.9728 R 11881



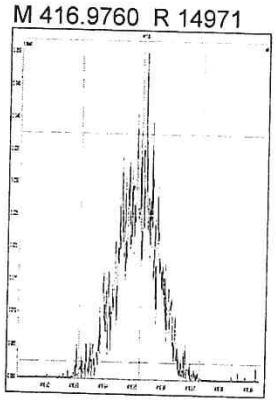
M 454.9728 R 12953



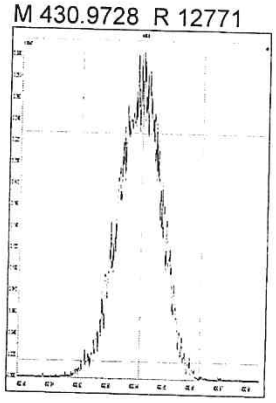
M 404.9760 R 13402



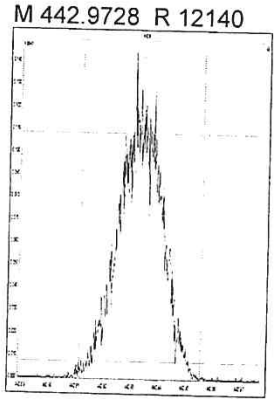
M 416.9760 R 14971



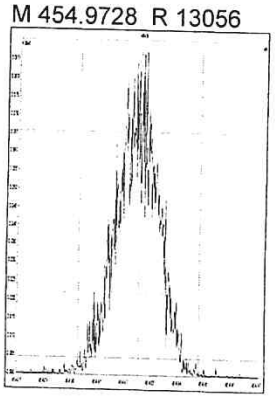
M 430.9728 R 12771



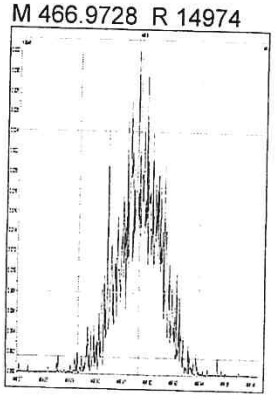
M 442.9728 R 12140



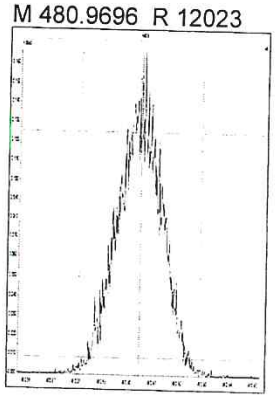
M 454.9728 R 13056



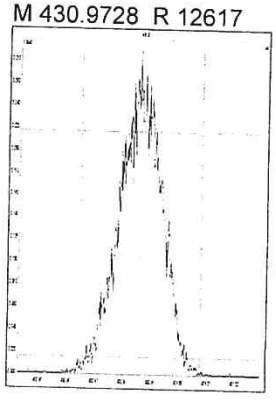
M 466.9728 R 14974



M 480.9696 R 12023

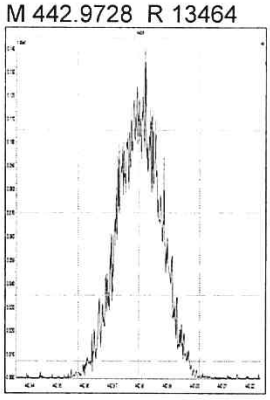


M 430.9728 R 12617

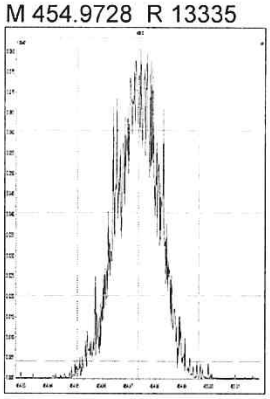


Printed: Tuesday, December 11, 2018 22:53:05 Central Standard Time

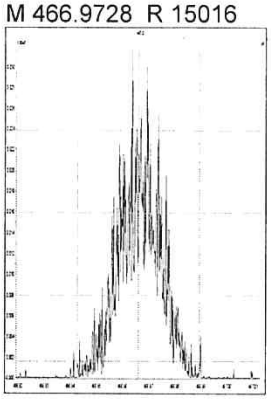
M 442.9728 R 13464



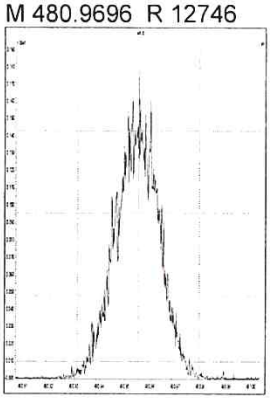
M 454.9728 R 13335



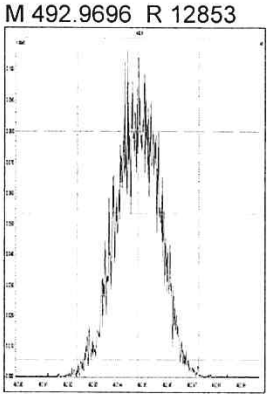
M 466.9728 R 15016



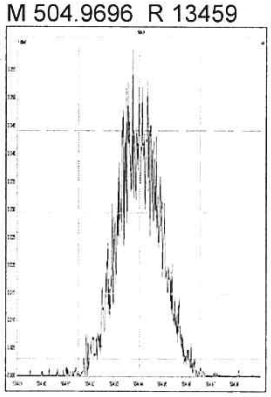
M 480.9696 R 12746



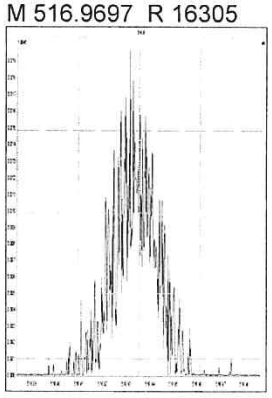
M 492.9696 R 12853



M 504.9696 R 13459



M 516.9697 R 16305



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

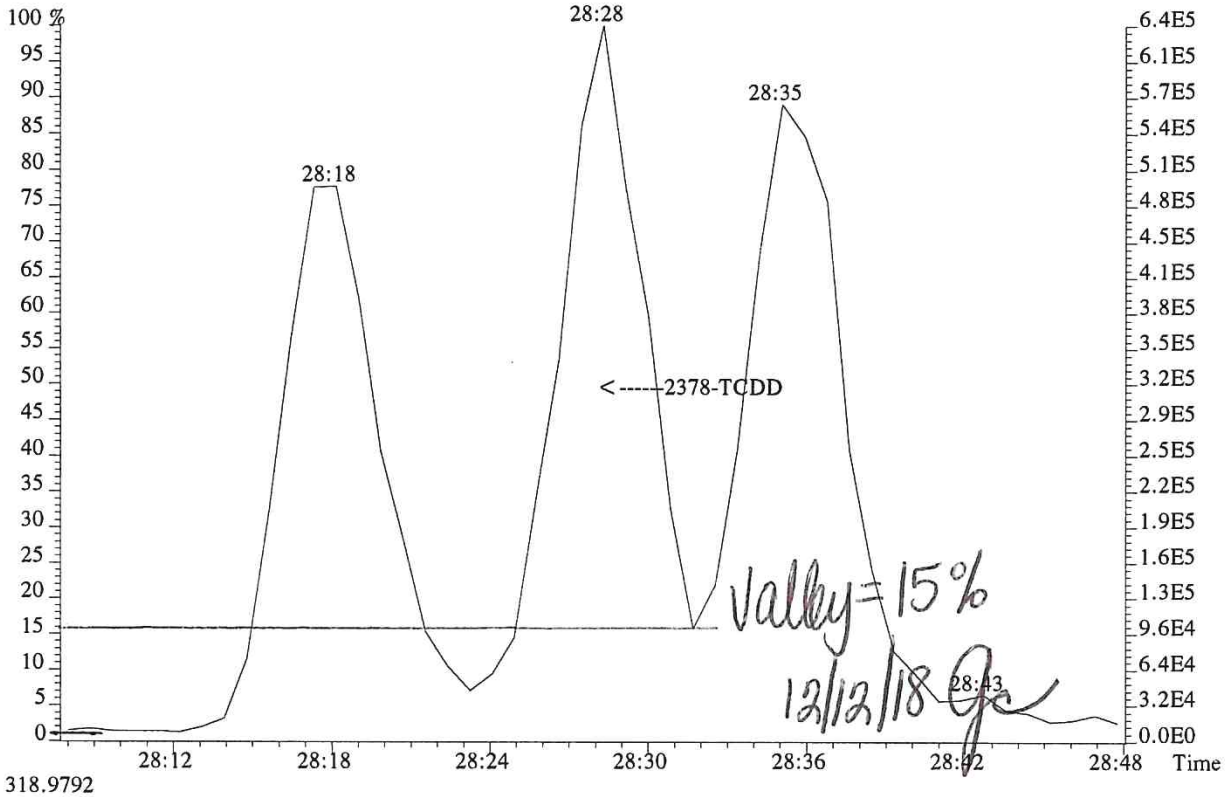
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519351
Date Analyzed: 11-DEC-2018
Time Analyzed: 11:14:28

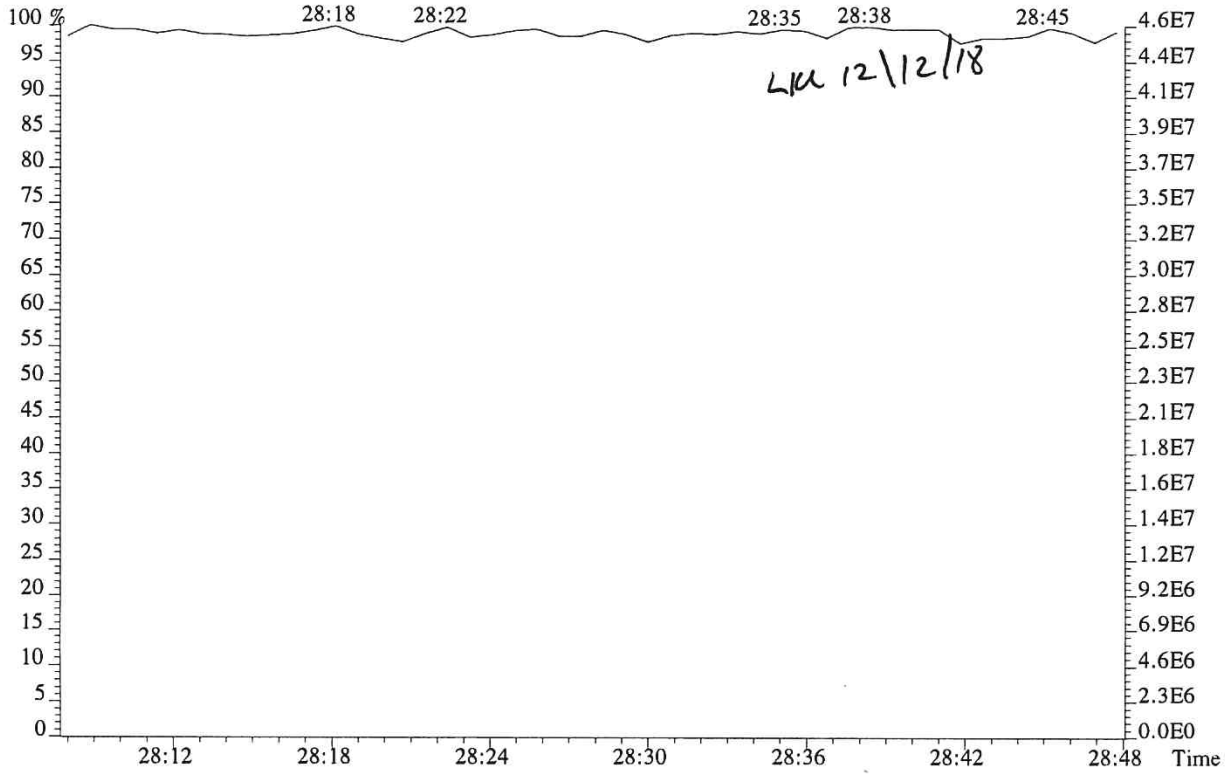
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:11	29:39
TCDD	24:59	29:30
PeCDF	29:37	33:59
PeCDD	31:12	33:44
HxCDF	34:41	37:15
HxCDD	35:13	36:50
HpCDF	38:32	40:00
HpCDD	38:48	39:31

% Valley 2378-TCDD: 15 %

File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792



013520

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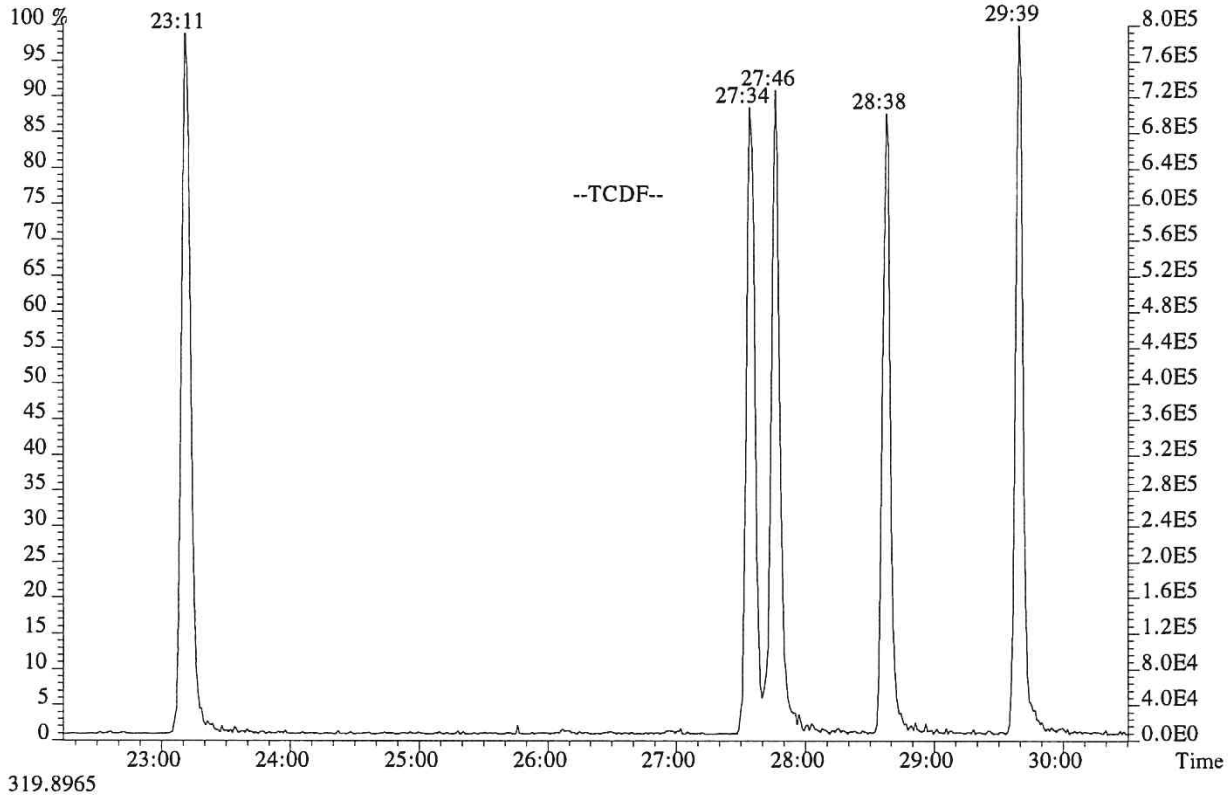
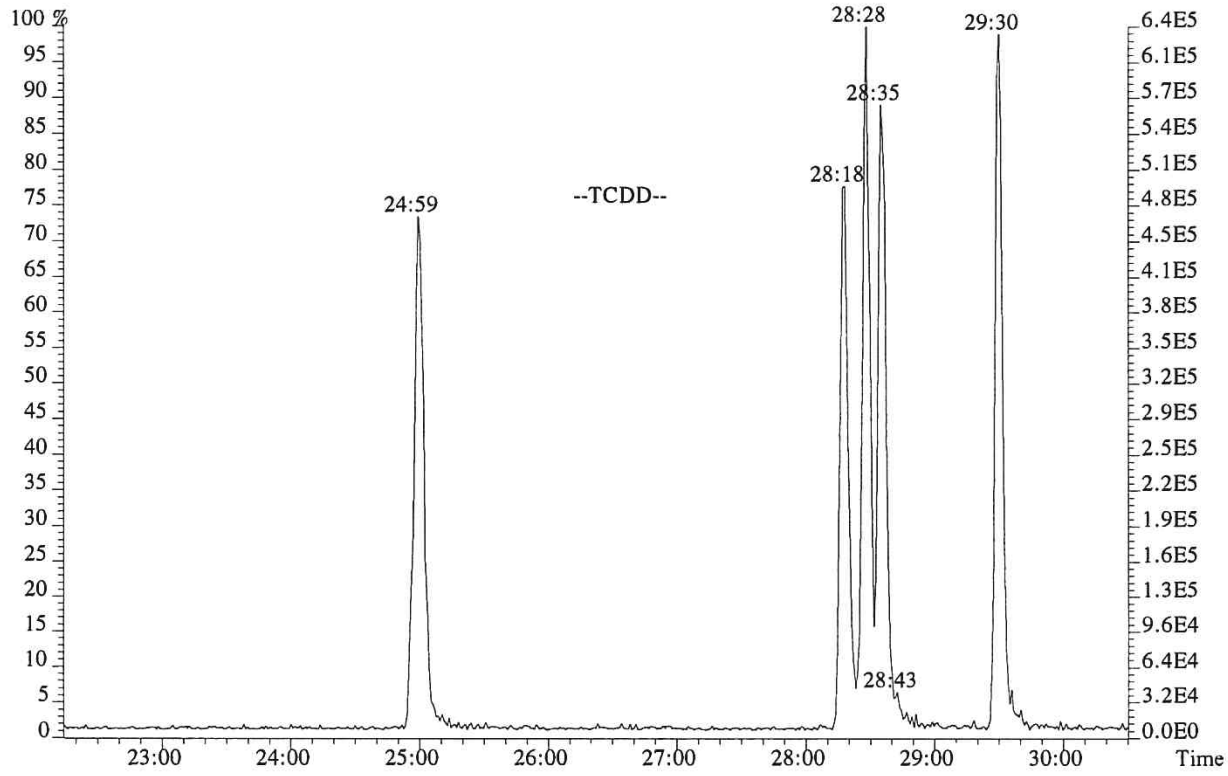
Sample#1 Exp:192977
303.9016

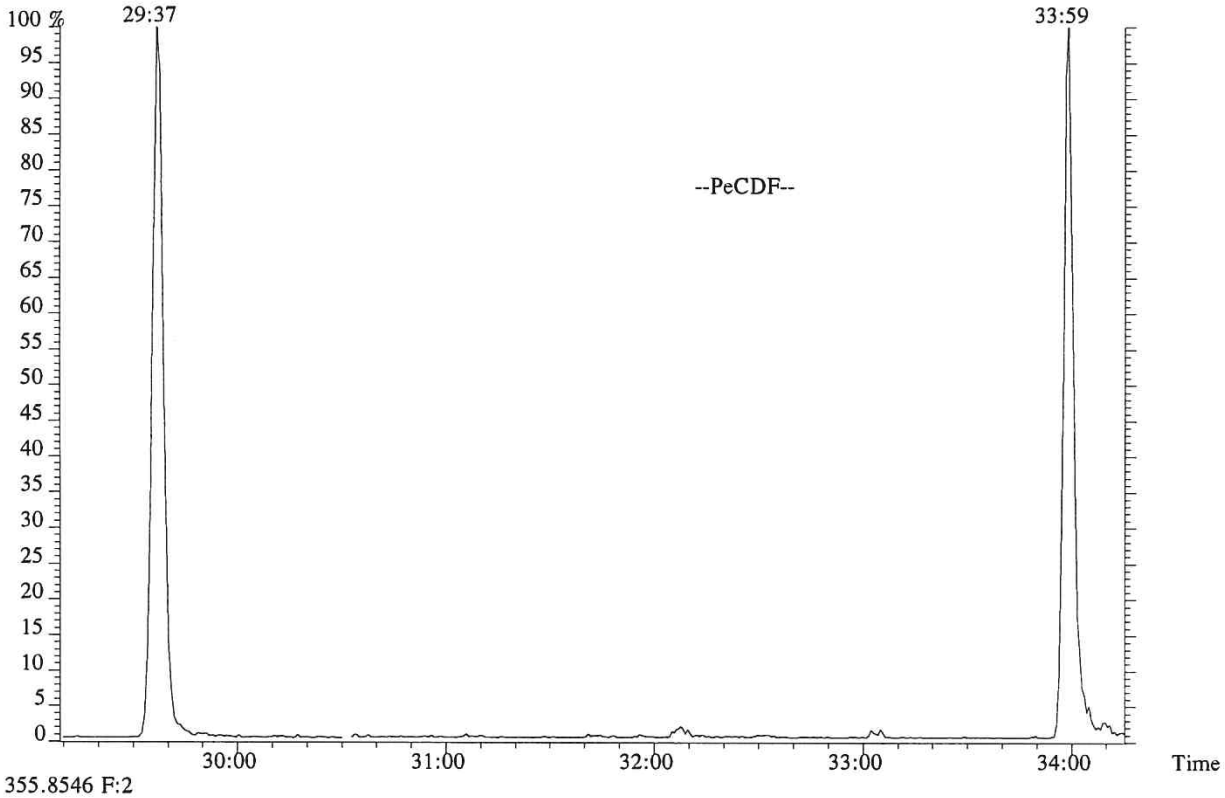


319.8965

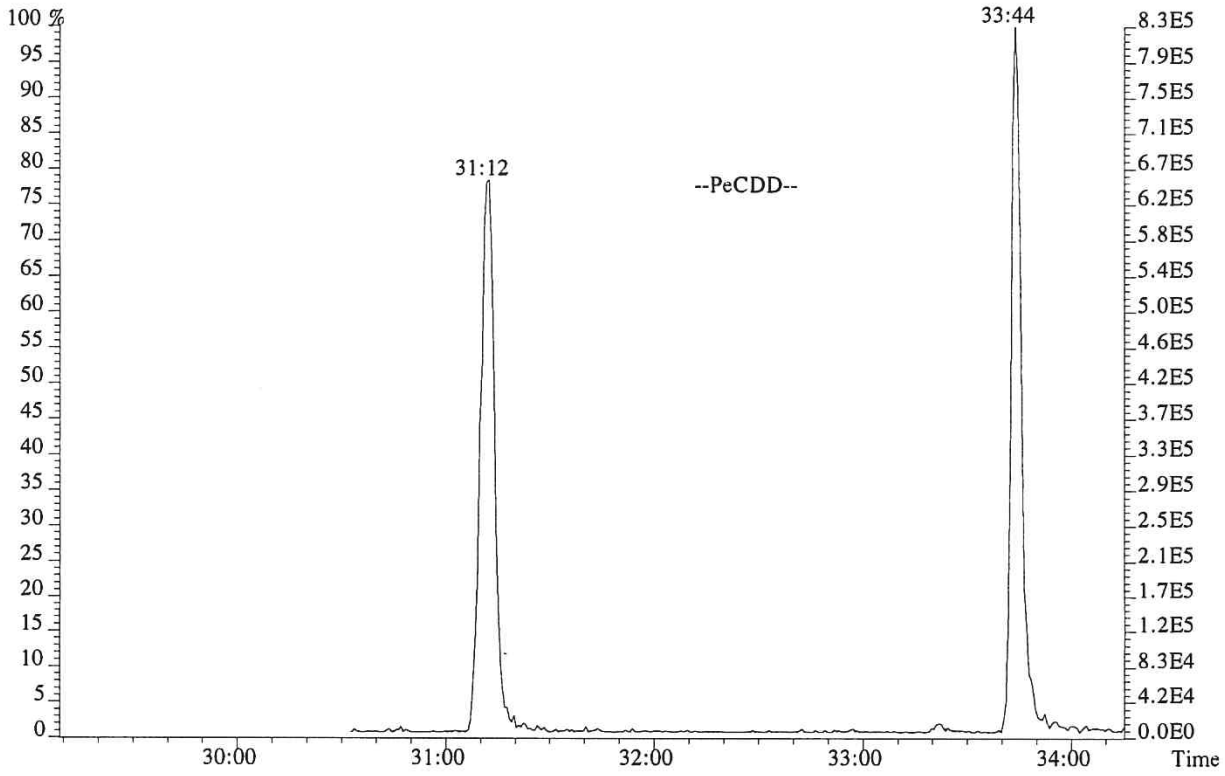


013521

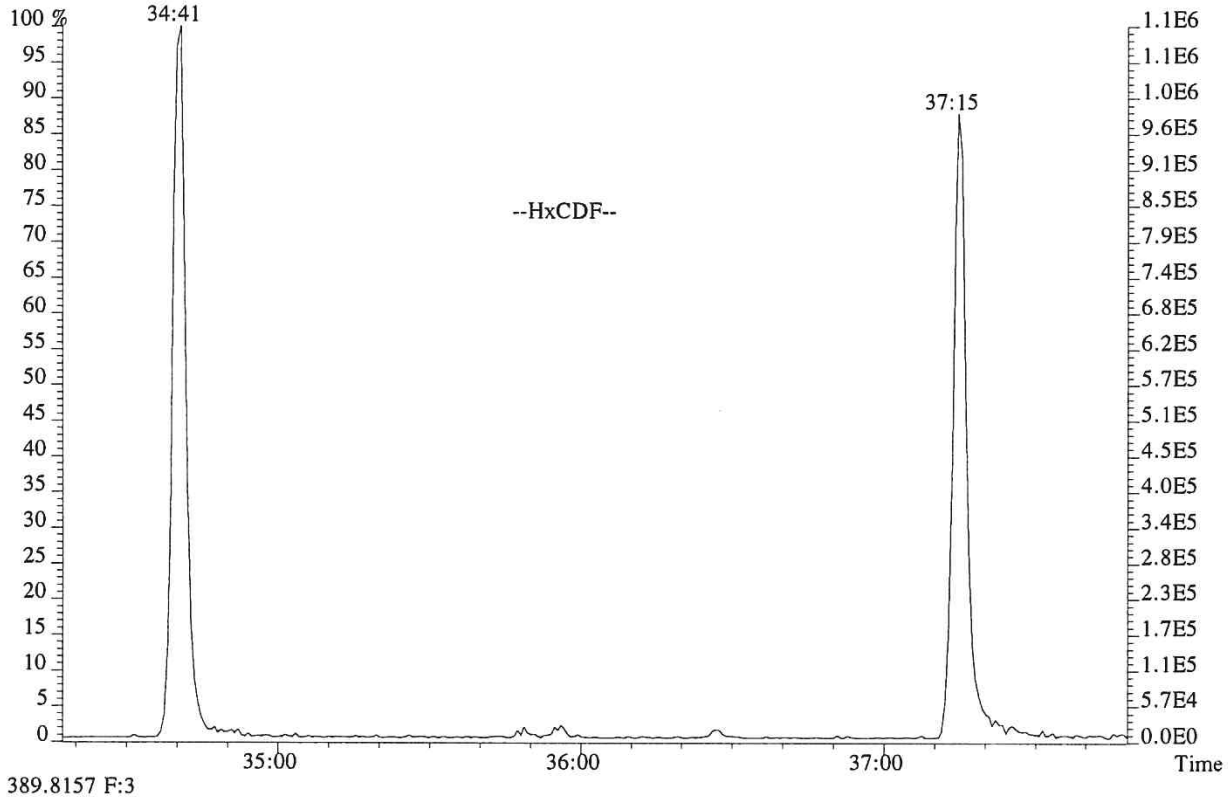
File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



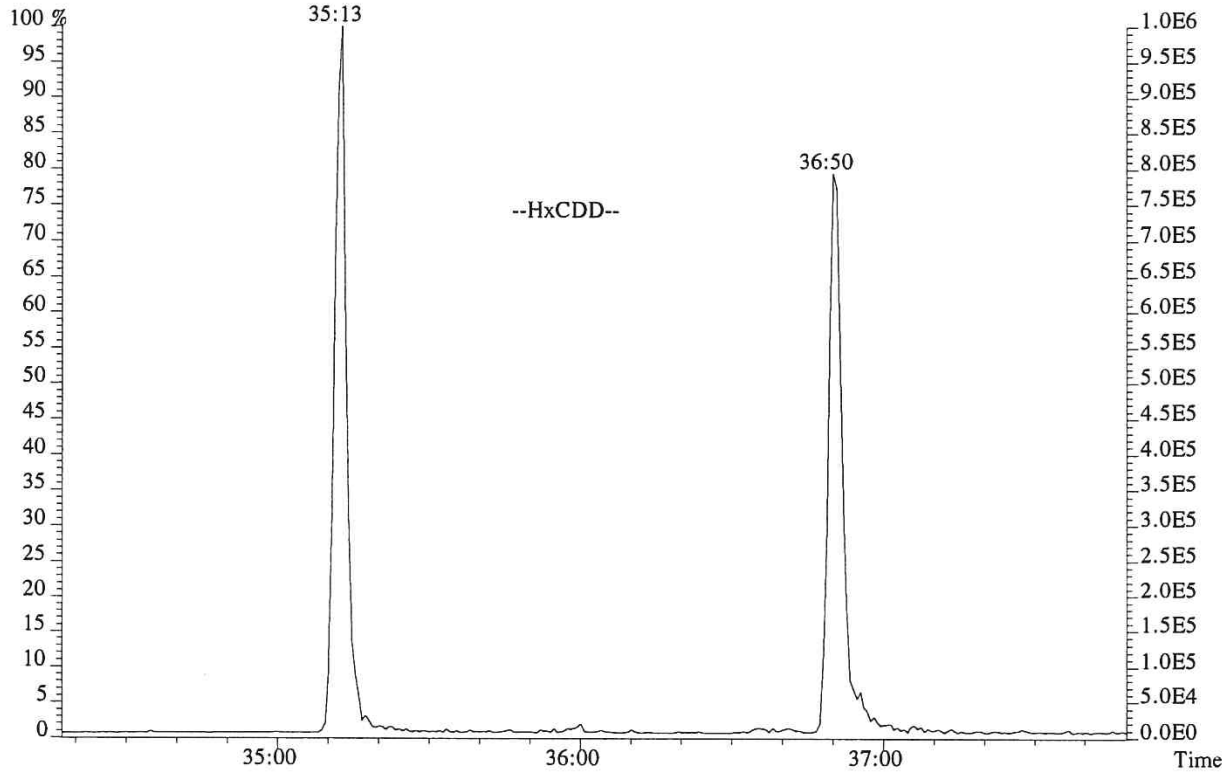
355.8546 F:2



File:P519351 #1-317 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3

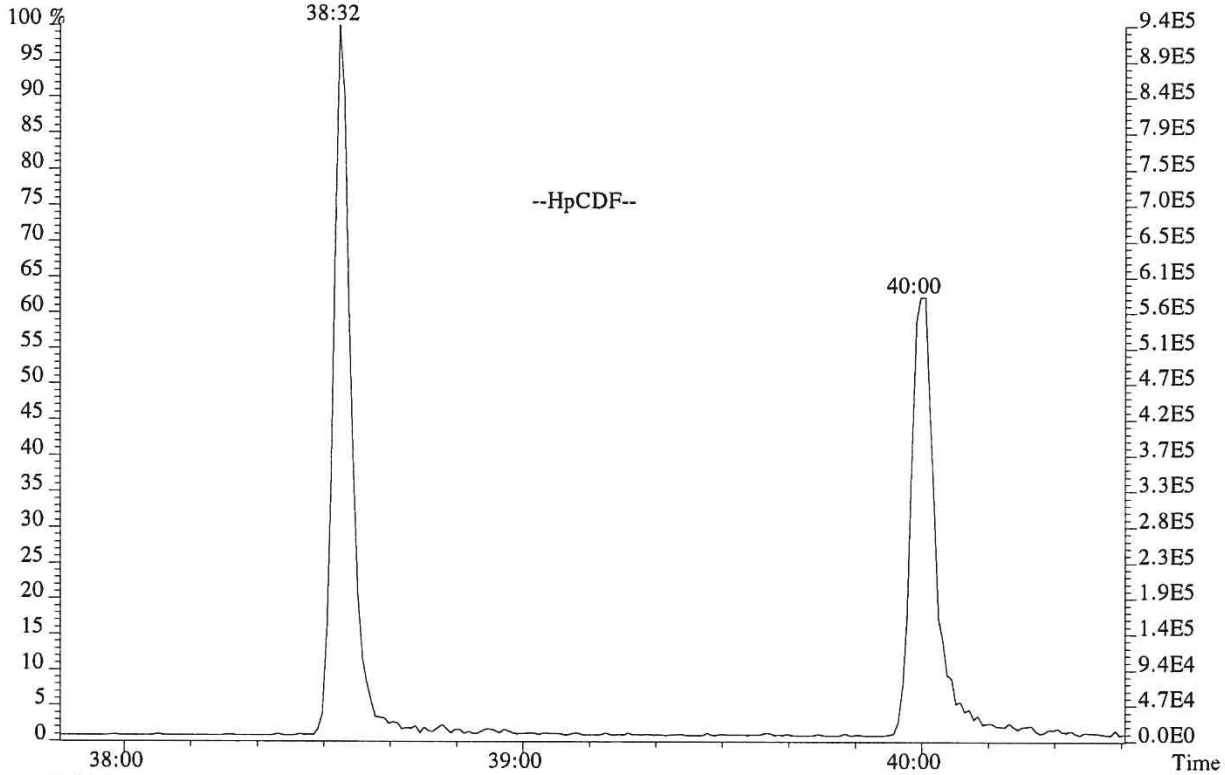


389.8157 F:3

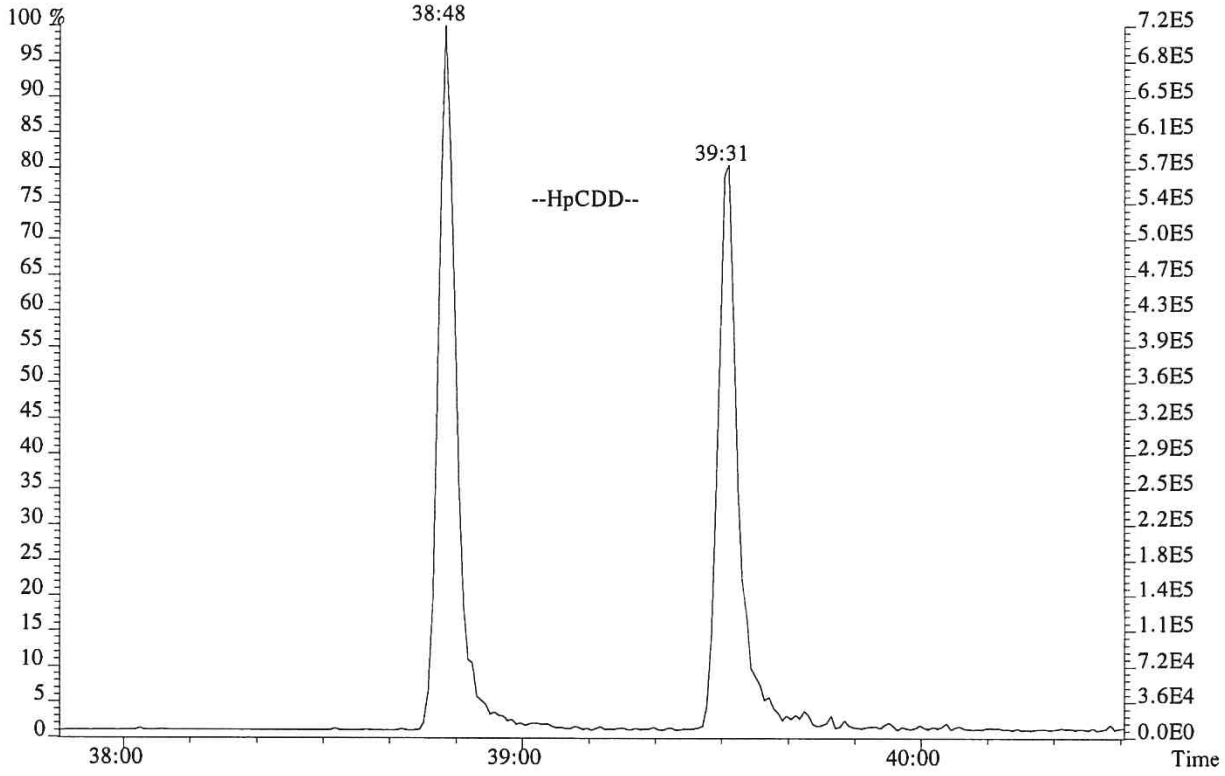


013523

File:P519351 #1-241 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



013524

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519350 Analysis Date: 11-DEC-18 Time: 10:22:01

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.4	7.8 - 12.9	-5.5
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	50	39 - 65	0.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	50	39 - 64	0.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	3.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	54	41 - 61	8.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	0.9
OCDD	M+2/M+4	0.88	0.76-1.02	100	79 - 126	0.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.8	8.4 - 12.0	-1.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 60	-1.3
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	49	41 - 61	-1.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	0.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	50	43 - 58	0.3
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-2.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519350 Analysis Date: 11-DEC-18 Time: 10:22:01

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	106	82 - 121	5.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	113	62 - 160	12.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	93	85 - 117	-6.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	95	85 - 118	-5.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	107	72 - 138	6.8
13C-OCDD	M+2/M+4	0.89	0.76-1.02	233	96 - 415	16.7
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-1.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	112	76 - 130	12.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	113	77 - 130	12.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	87	76 - 131	-12.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	70 - 143	-6.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-1.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	73 - 137	-4.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	107	77 - 129	6.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.2	7.8 - 12.7	2.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519350 Samp: 1 Inj: 1 Acquired: 11-DEC-18 10:22:01
Processed: 12-DEC-18 09:58:22 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	5.308e+03	7.001e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	4.406e+04	2.904e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.136e+04	2.740e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.543e+04	2.949e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.963e+04	3.312e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.593e+04	2.996e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	3.331e+04	2.736e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	3.483e+04	3.414e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	2.697e+04	2.740e+04	0.98	yes	no	1.258
10	Unk	OCDF	42:42	4.159e+04	4.700e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	3.844e+03	5.065e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	2.852e+04	1.810e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	2.467e+04	1.982e+04	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	2.629e+04	2.095e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.782e+04	2.213e+04	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	2.401e+04	2.264e+04	1.06	yes	no	1.025
17	Unk	OCDD	42:31	3.511e+04	3.992e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	5.910e+04	7.387e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	9.023e+04	5.608e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	8.955e+04	5.616e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	3.605e+04	7.021e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	4.469e+04	8.464e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	4.040e+04	7.823e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	3.652e+04	6.908e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	3.151e+04	7.056e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	2.613e+04	6.006e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	3.848e+04	4.842e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	5.991e+04	3.752e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	4.768e+04	3.726e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	4.968e+04	3.871e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	4.639e+04	4.383e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:30	6.314e+04	7.068e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	3.953e+04	4.928e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	5.488e+04	4.359e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	9.184e+03				no	1.014

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Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519350 Samp: 1 Inj: 1 Acquired: 11-DEC-18 10:22:01
Processed: 12-DEC-18 09:58:22 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.33e+05	5.80e+02	1.6e+03	1.26e+06	1.14e+03	1.1e+03
2	1,2,3,7,8-PeCDF	8.13e+06	4.40e+02	1.8e+04	5.42e+06	9.84e+02	5.5e+03
3	2,3,4,7,8-PeCDF	8.16e+06	4.40e+02	1.9e+04	5.36e+06	9.84e+02	5.4e+03
4	1,2,3,4,7,8-HxCDF	7.30e+06	3.56e+02	2.1e+04	5.92e+06	3.92e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	7.85e+06	3.56e+02	2.2e+04	6.68e+06	3.92e+02	1.7e+04
6	2,3,4,6,7,8-HxCDF	7.22e+06	3.56e+02	2.0e+04	6.04e+06	3.92e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	5.99e+06	3.56e+02	1.7e+04	4.98e+06	3.92e+02	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	6.57e+06	5.59e+03	1.2e+03	6.39e+06	2.82e+03	2.3e+03
9	1,2,3,4,7,8,9-HpCDF	4.32e+06	5.59e+03	7.7e+02	4.36e+06	2.82e+03	1.5e+03
10	OCDF	4.91e+06	3.52e+02	1.4e+04	5.52e+06	5.44e+02	1.0e+04
11	2,3,7,8-TCDD	7.22e+05	1.69e+03	4.3e+02	9.34e+05	1.03e+03	9.1e+02
12	1,2,3,7,8-PeCDD	5.29e+06	4.88e+02	1.1e+04	3.37e+06	2.48e+02	1.4e+04
13	1,2,3,4,7,8-HxCDD	5.00e+06	3.28e+02	1.5e+04	3.94e+06	4.28e+02	9.2e+03
14	1,2,3,6,7,8-HxCDD	5.26e+06	3.28e+02	1.6e+04	4.13e+06	4.28e+02	9.7e+03
15	1,2,3,7,8,9-HxCDD	5.12e+06	3.28e+02	1.6e+04	4.05e+06	4.28e+02	9.5e+03
16	1,2,3,4,6,7,8-HpCDD	4.10e+06	6.36e+02	6.4e+03	3.84e+06	1.96e+02	2.0e+04
17	OCDD	4.01e+06	1.76e+02	2.3e+04	4.56e+06	3.08e+02	1.5e+04
18	13C-2,3,7,8-TCDF	1.04e+07	4.63e+03	2.2e+03	1.31e+07	4.45e+03	2.9e+03
19	13C-1,2,3,7,8-PeCDF	1.64e+07	1.20e+03	1.4e+04	1.02e+07	1.35e+03	7.6e+03
20	13C-2,3,4,7,8-PeCDF	1.70e+07	1.20e+03	1.4e+04	1.07e+07	1.35e+03	7.9e+03
21	13C-1,2,3,4,7,8-HxCDF	7.25e+06	6.72e+02	1.1e+04	1.40e+07	5.60e+02	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	8.79e+06	6.72e+02	1.3e+04	1.67e+07	5.60e+02	3.0e+04
23	13C-2,3,4,6,7,8-HxCDF	8.01e+06	6.72e+02	1.2e+04	1.55e+07	5.60e+02	2.8e+04
24	13C-1,2,3,7,8,9-HxCDF	6.47e+06	6.72e+02	9.6e+03	1.24e+07	5.60e+02	2.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.84e+06	1.65e+03	3.5e+03	1.32e+07	2.66e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.25e+06	1.65e+03	2.6e+03	9.43e+06	2.66e+03	3.5e+03
27	13C-2,3,7,8-TCDD	7.12e+06	4.84e+03	1.5e+03	8.94e+06	1.87e+03	4.8e+03
28	13C-1,2,3,7,8-PeCDD	1.14e+07	8.56e+02	1.3e+04	7.20e+06	9.88e+02	7.3e+03
29	13C-1,2,3,4,7,8-HxCDD	9.50e+06	1.08e+03	8.8e+03	7.34e+06	4.88e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	9.67e+06	1.08e+03	9.0e+03	7.57e+06	4.88e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.85e+06	6.60e+02	1.2e+04	7.47e+06	6.88e+02	1.1e+04
32	13C-OCDD	7.14e+06	9.36e+02	7.6e+03	7.97e+06	3.52e+02	2.3e+04
33	13C-1,2,3,4-TCDD	7.30e+06	4.84e+03	1.5e+03	9.12e+06	1.87e+03	4.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	1.08e+03	9.3e+03	7.85e+06	4.88e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	1.71e+06	6.16e+02	2.8e+03			

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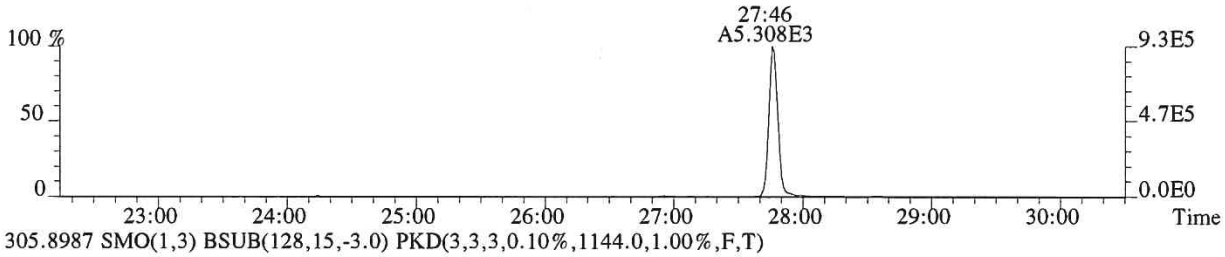
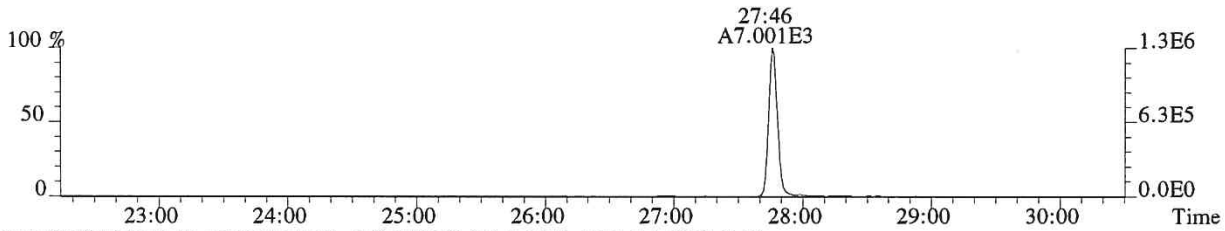
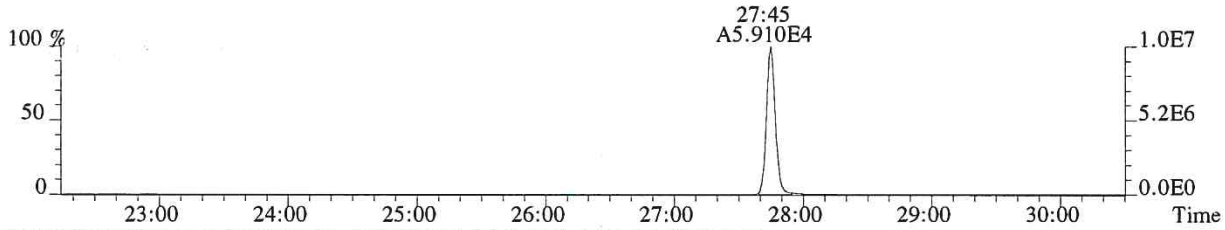
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



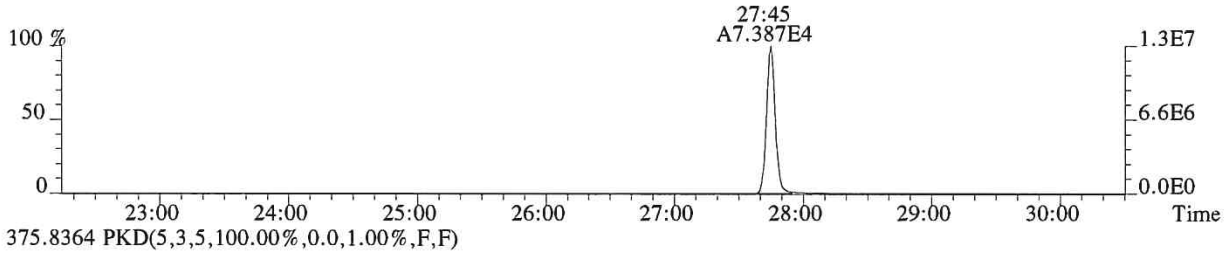
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



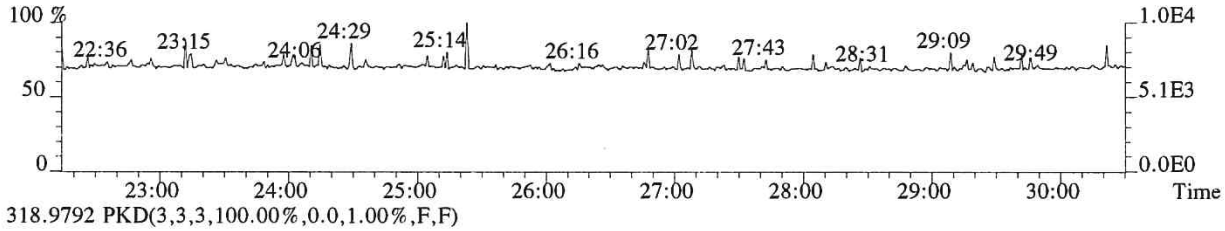
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4628.0,1.00%,F,T)



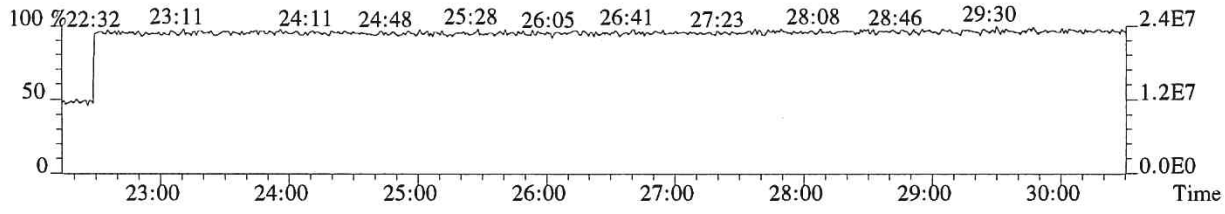
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4448.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

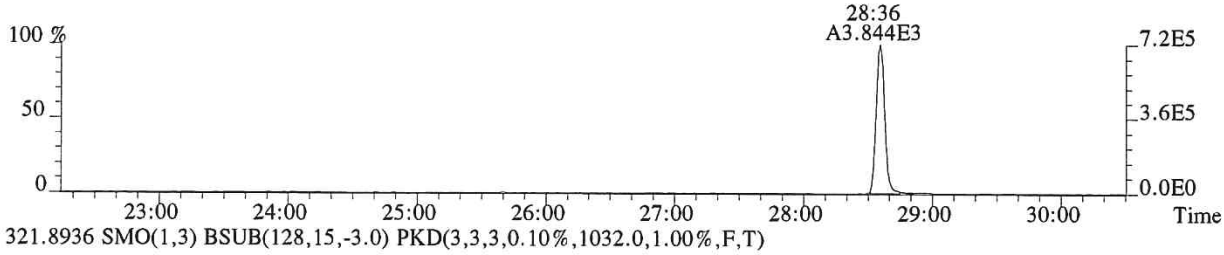


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

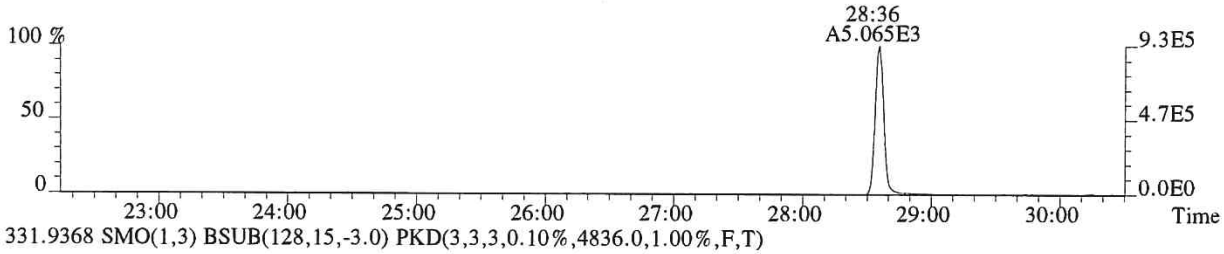


013529

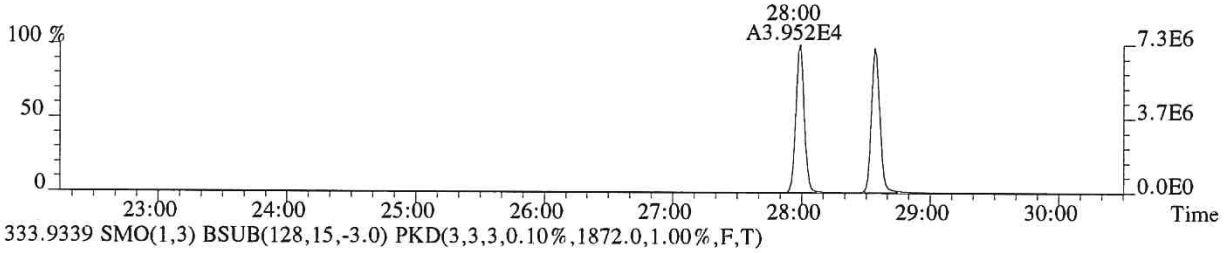
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



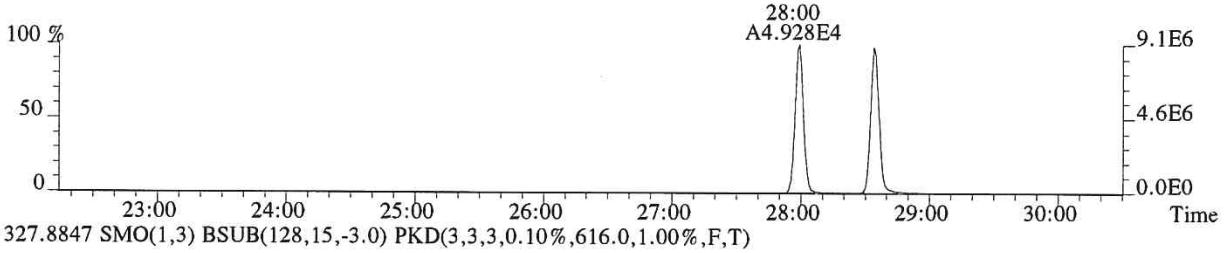
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



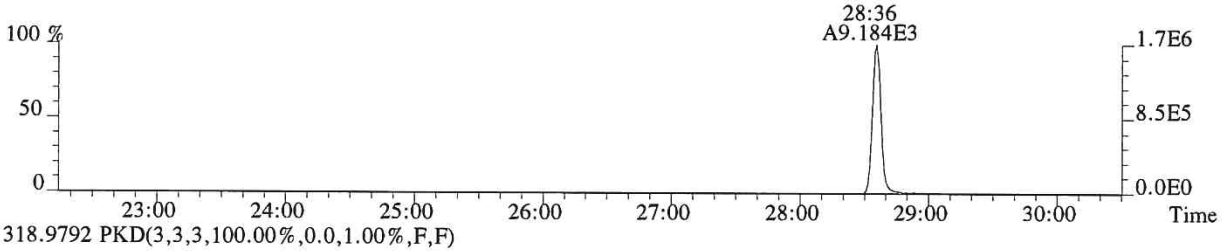
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4836.0,1.00%,F,T)



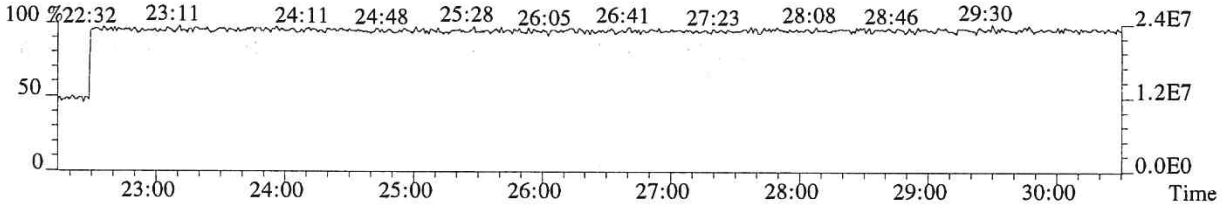
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)

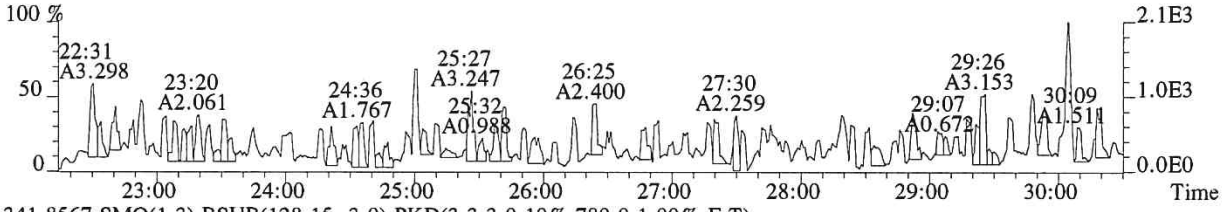


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

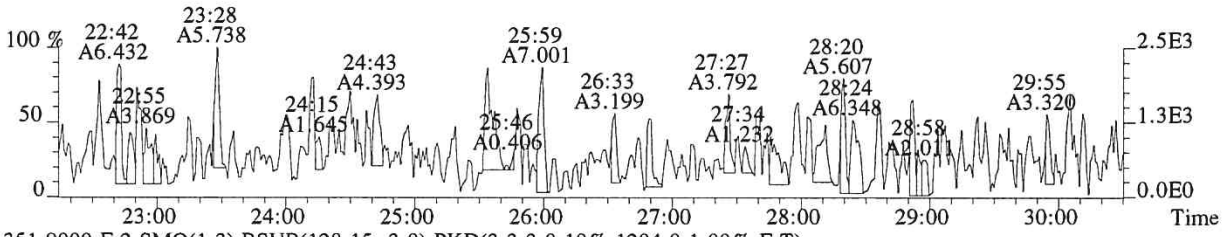


013530

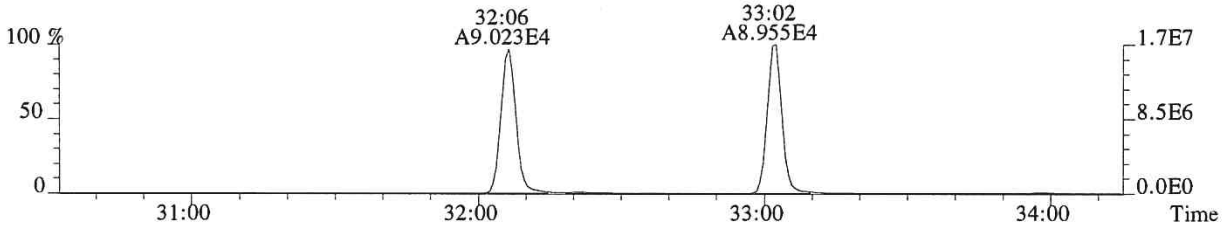
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



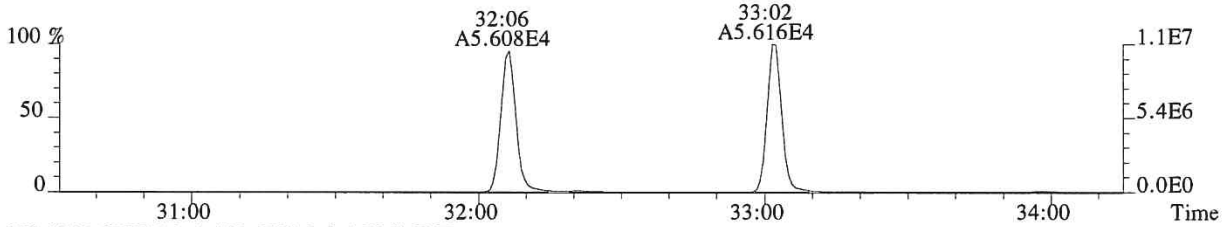
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



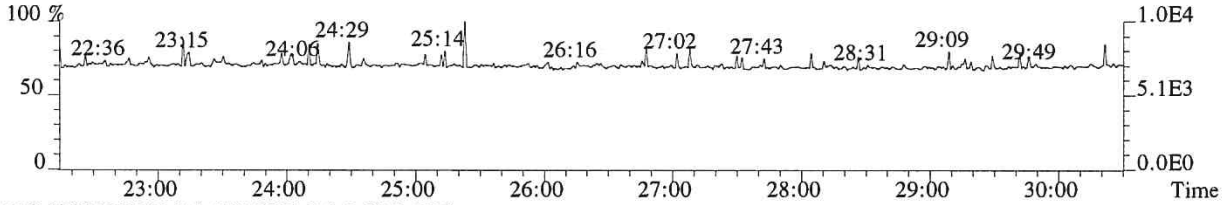
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



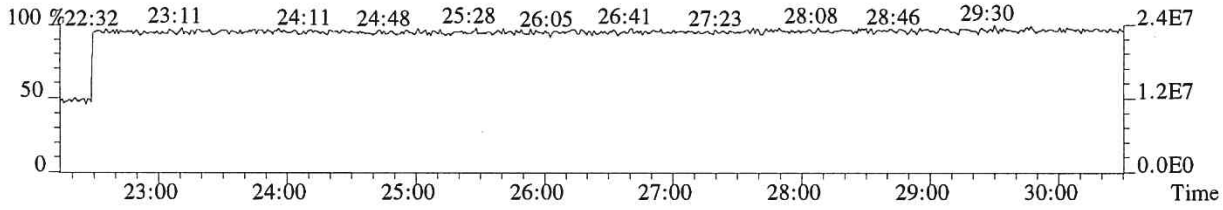
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



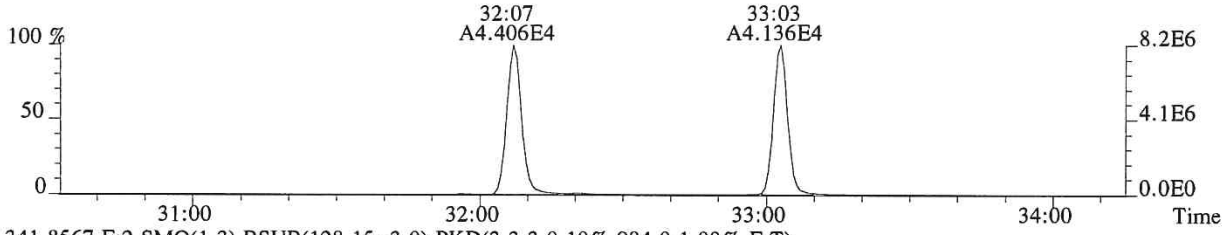
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



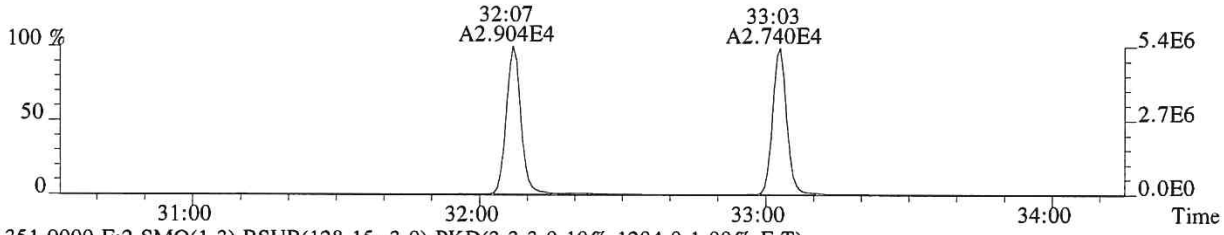
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



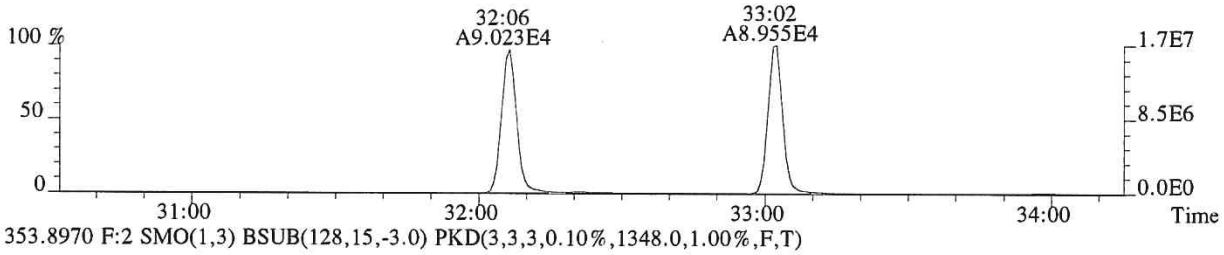
File:P519350 #1-335 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



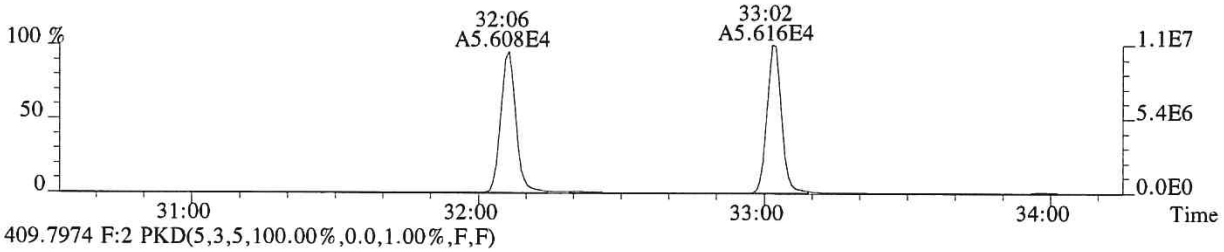
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



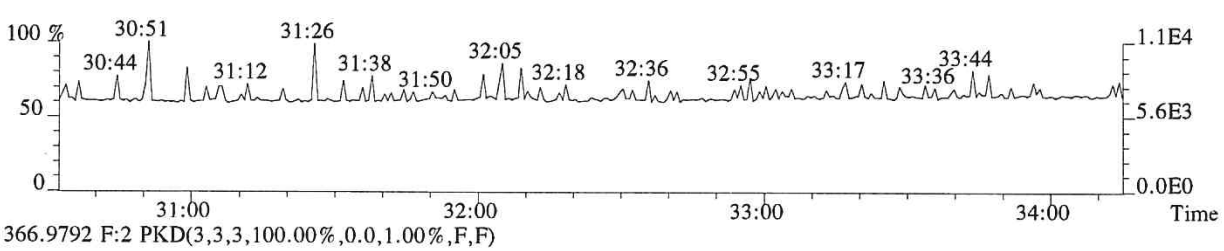
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



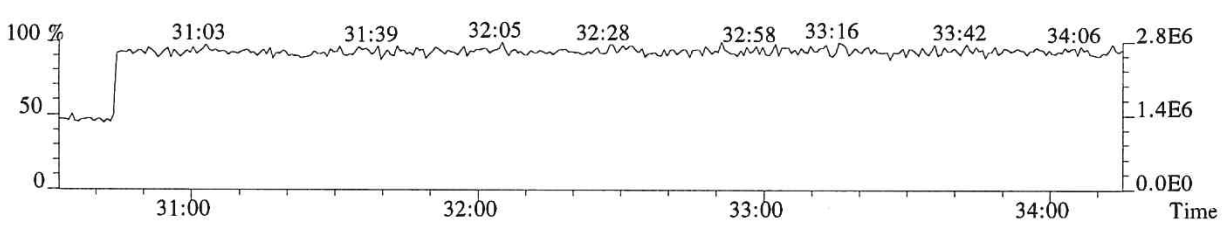
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

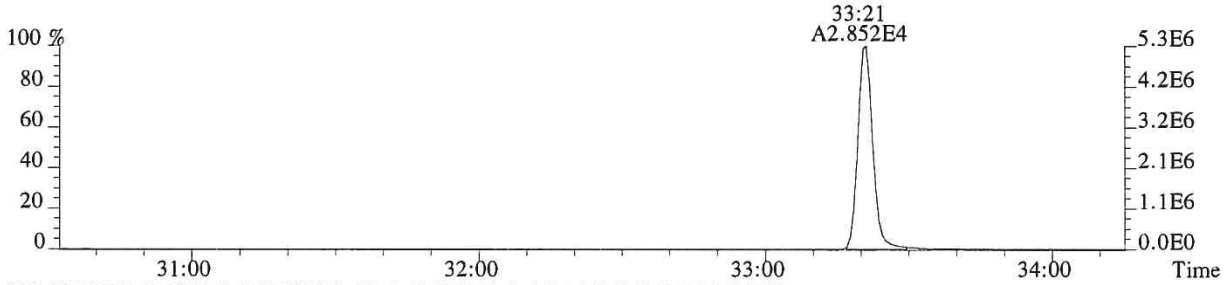


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

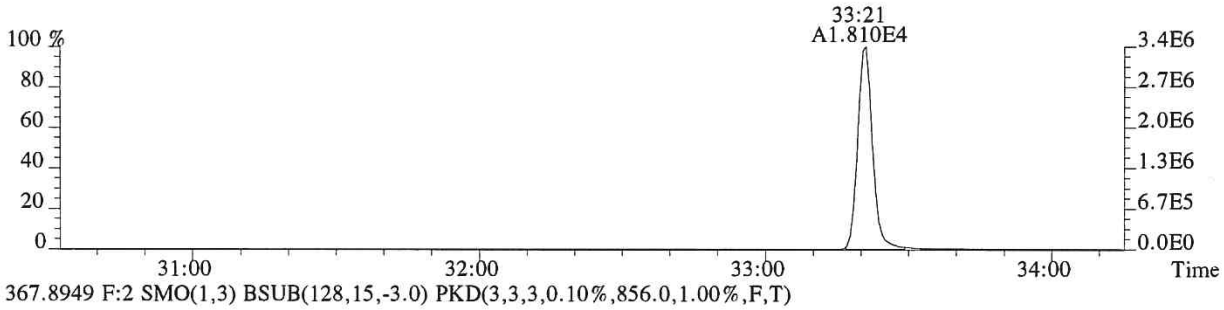


013532

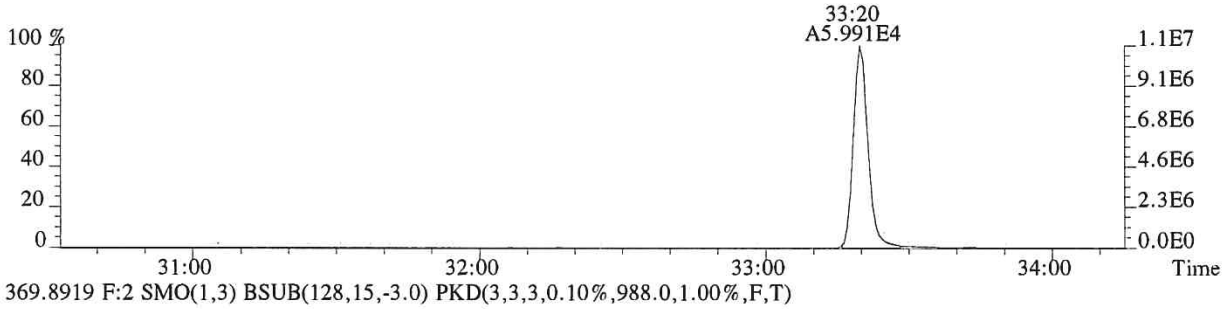
File:P519350 #1-335 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



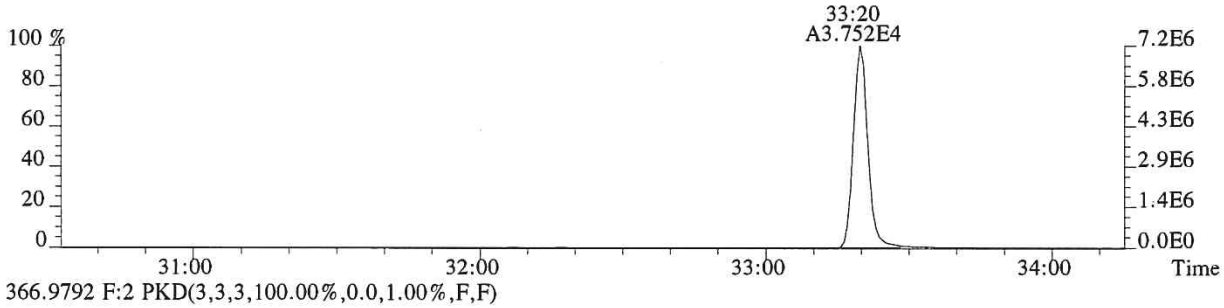
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



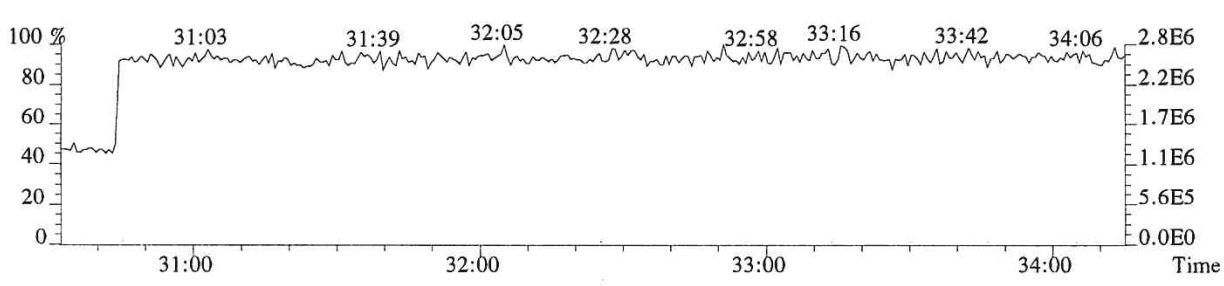
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



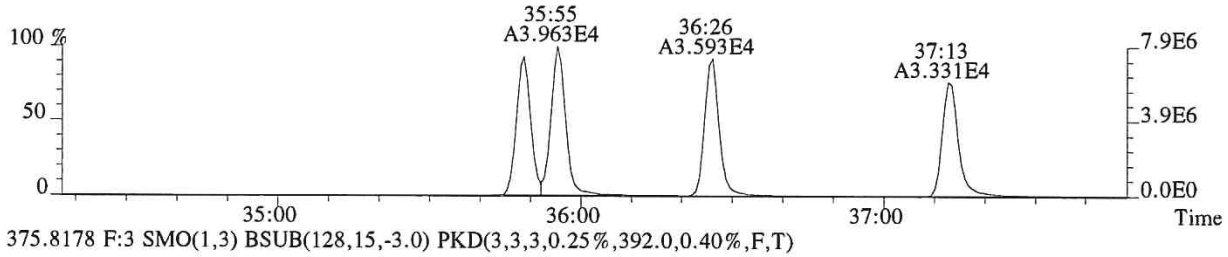
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



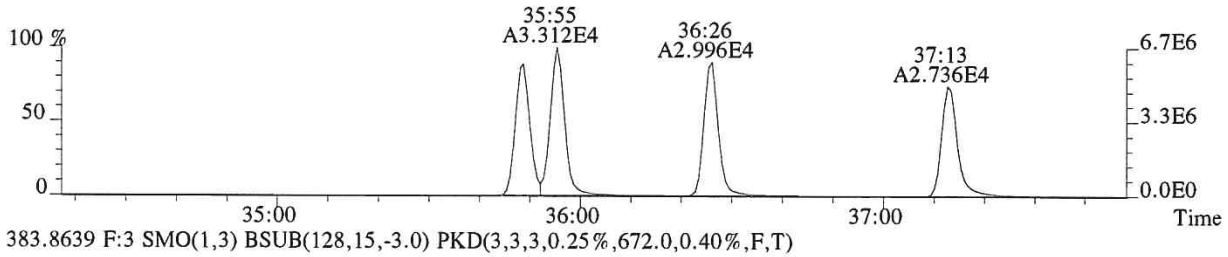
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



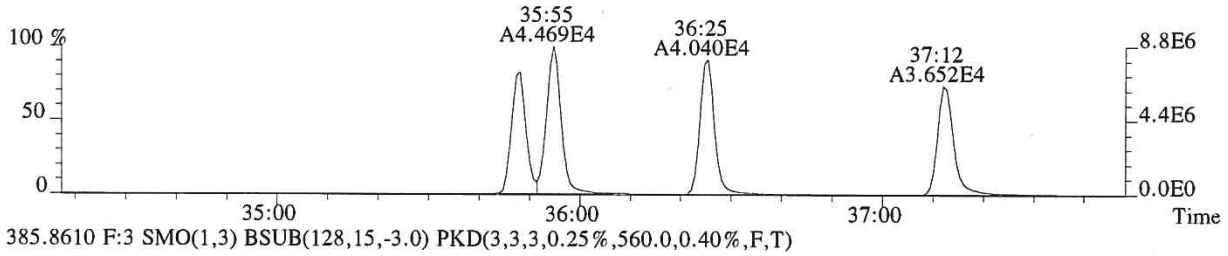
File:P519350 #1-317 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



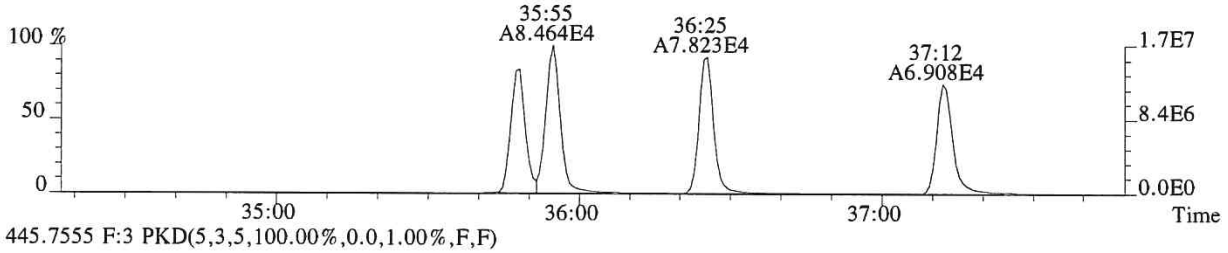
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



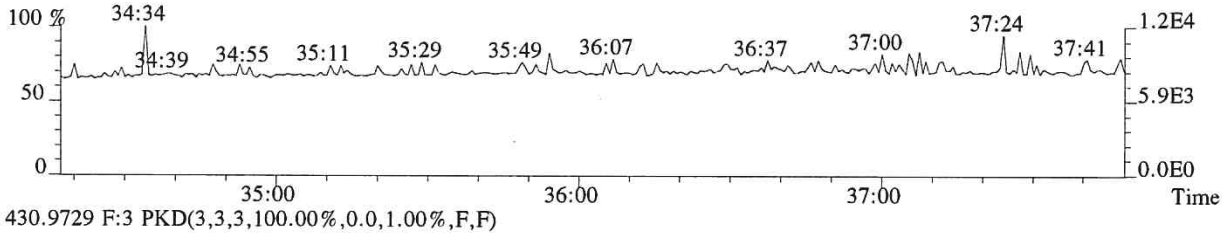
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



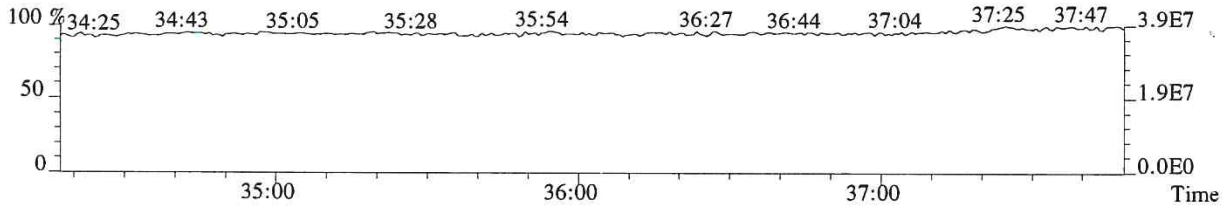
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

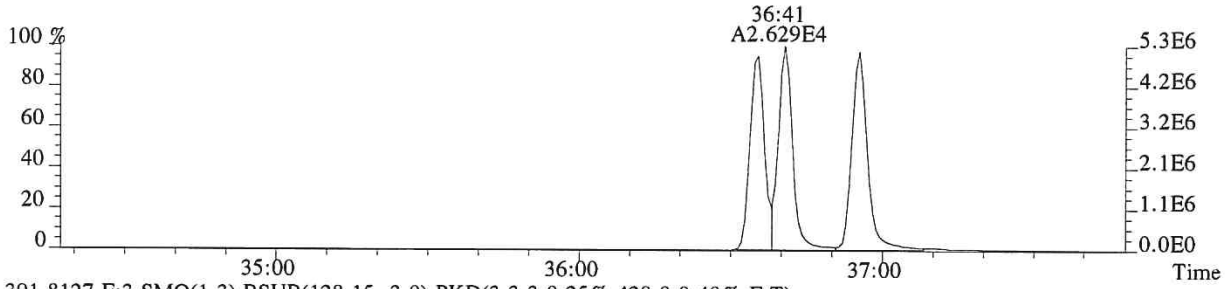


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

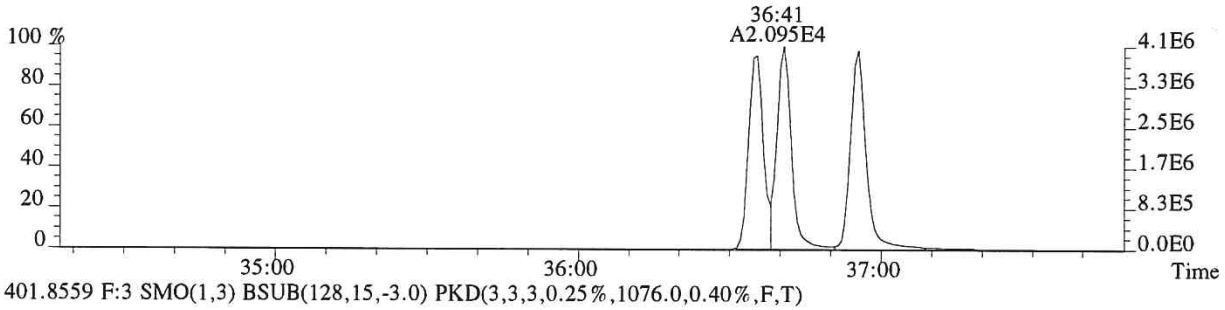


013534

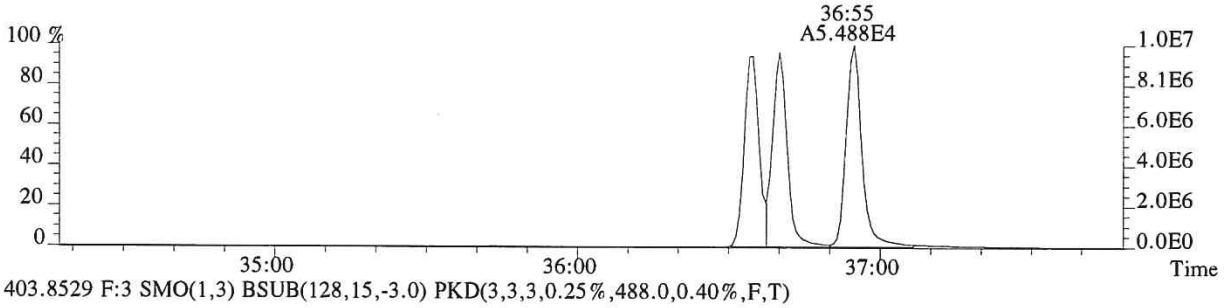
File:P519350 #1-317 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



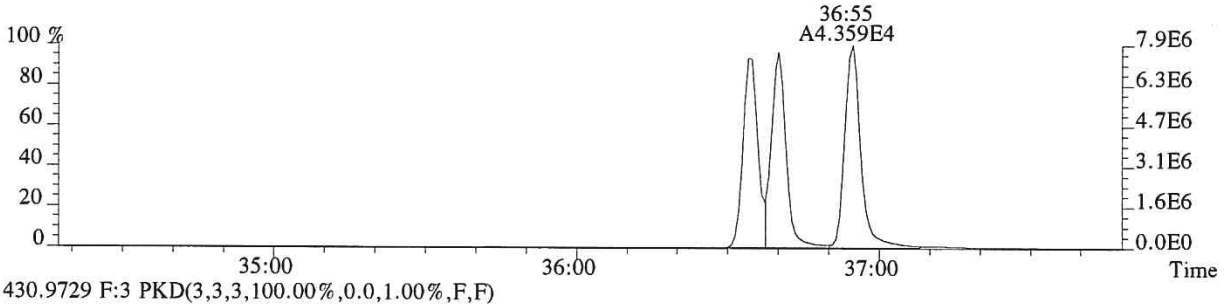
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



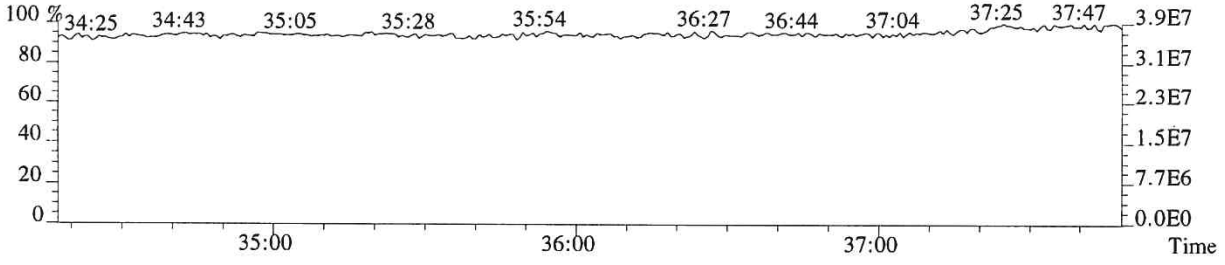
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)

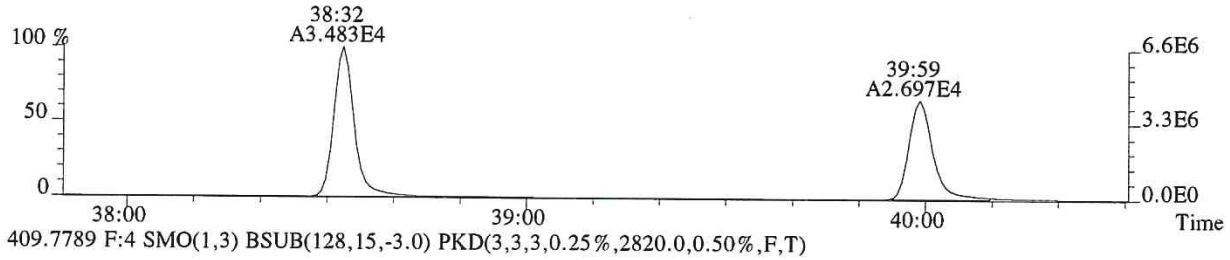


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

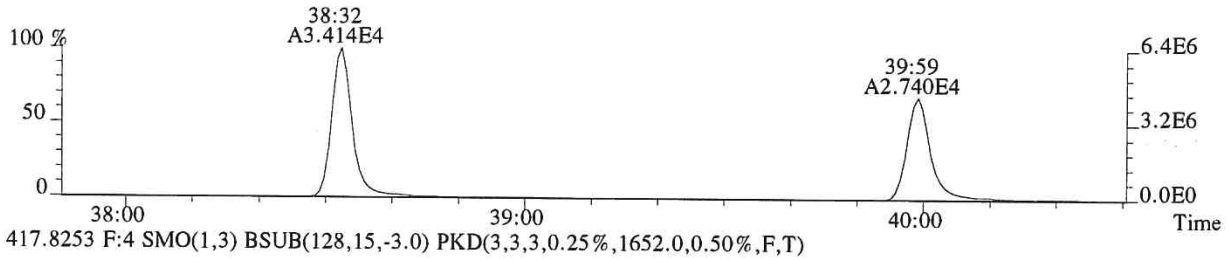


013535

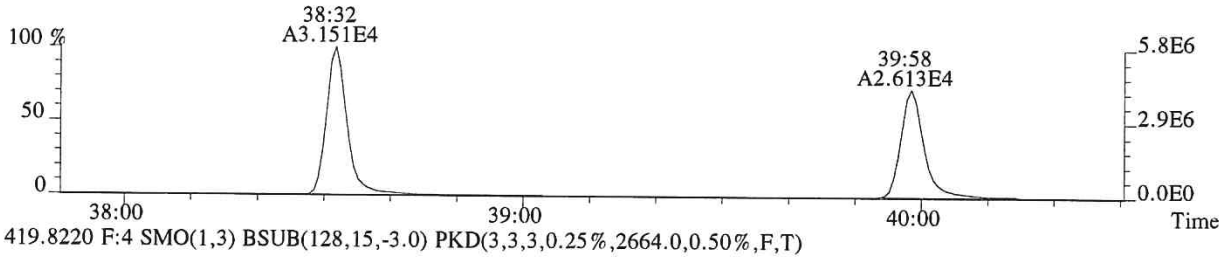
File:P519350 #1-241 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5592.0,0.50%,F,T)



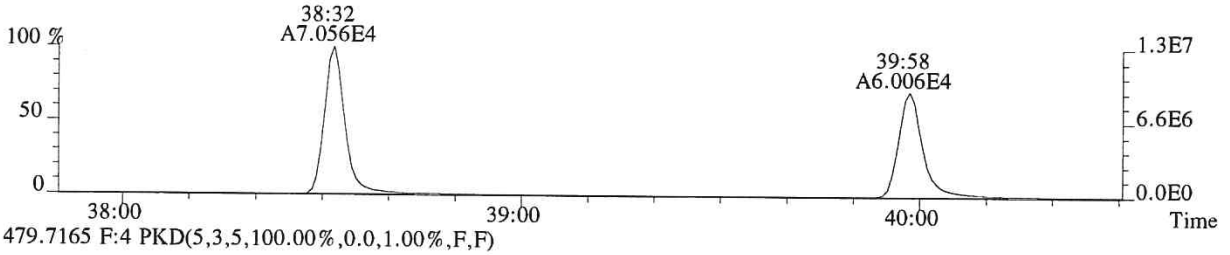
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2820.0,0.50%,F,T)



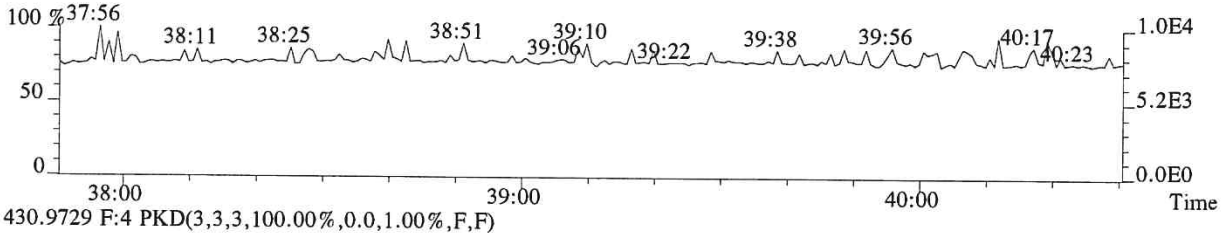
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.50%,F,T)



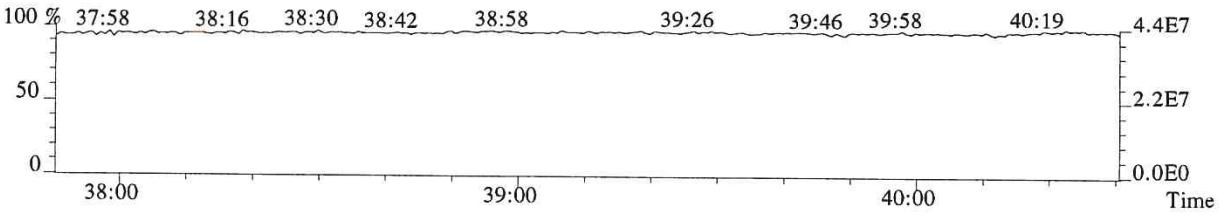
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2664.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

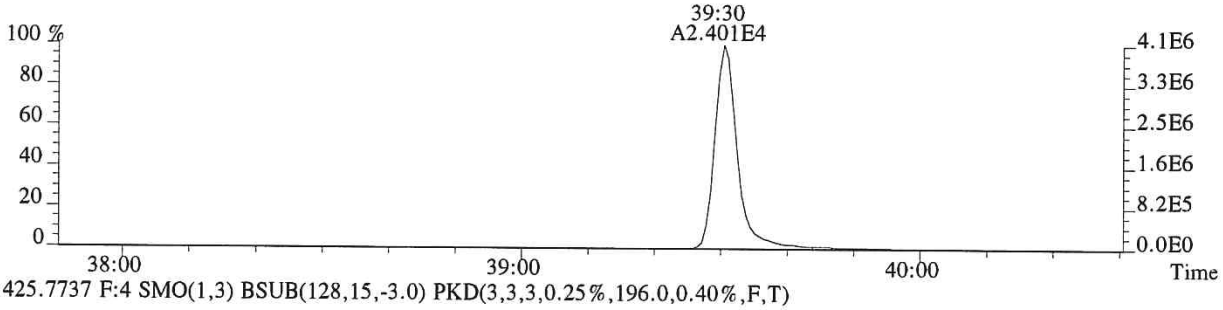


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

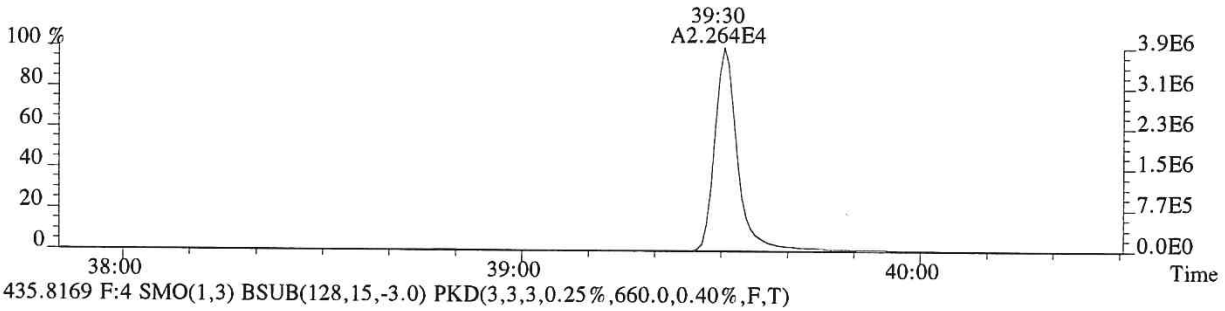


013536

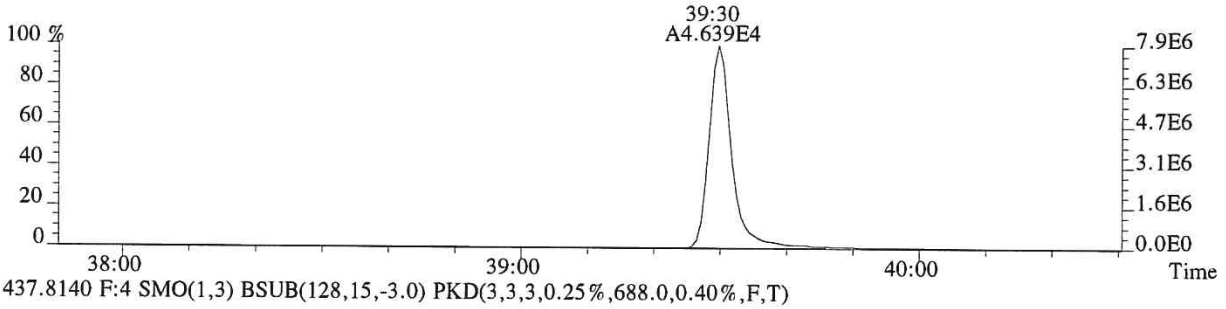
File:P519350 #1-241 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



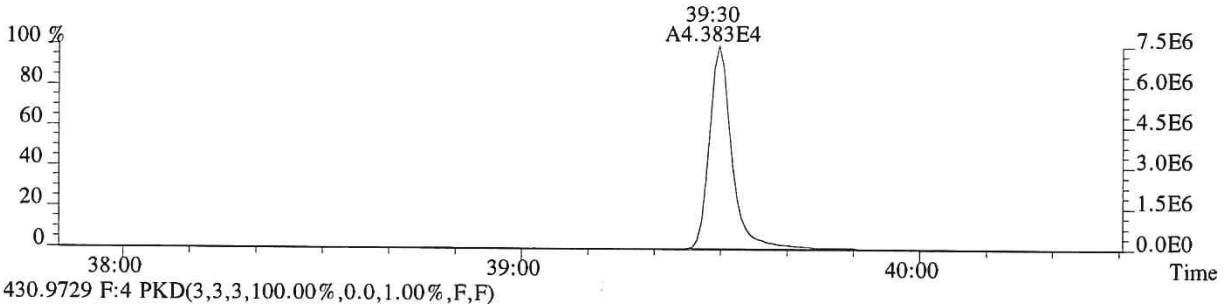
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



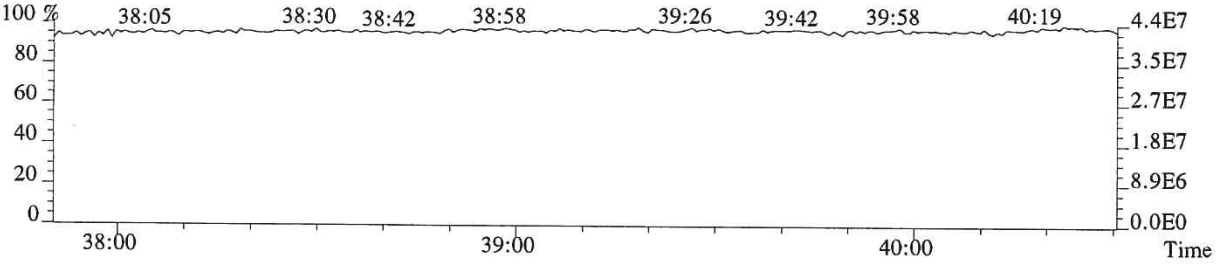
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



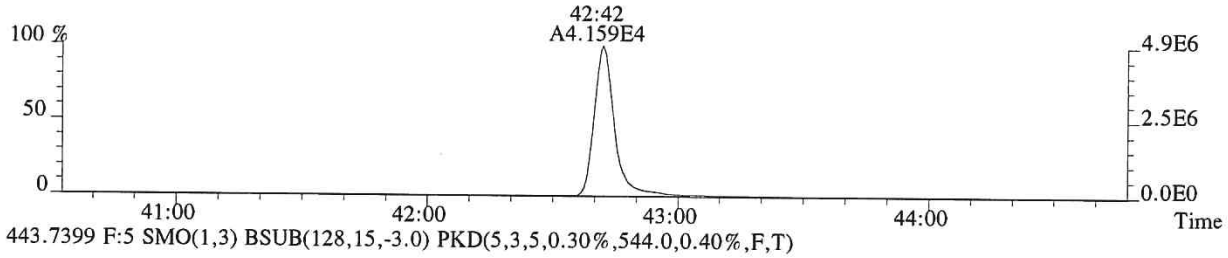
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



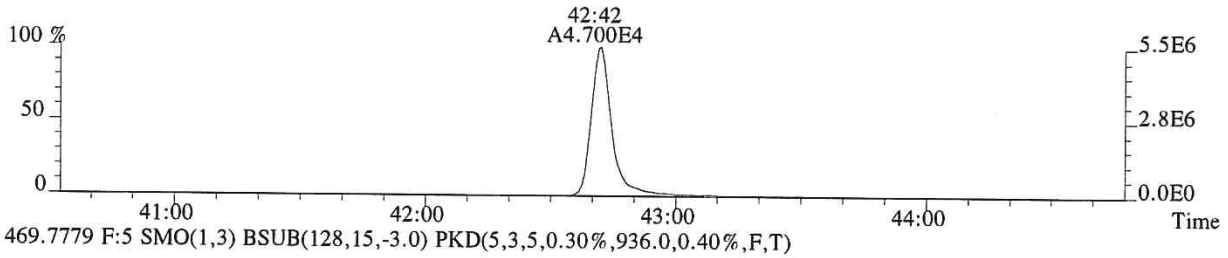
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



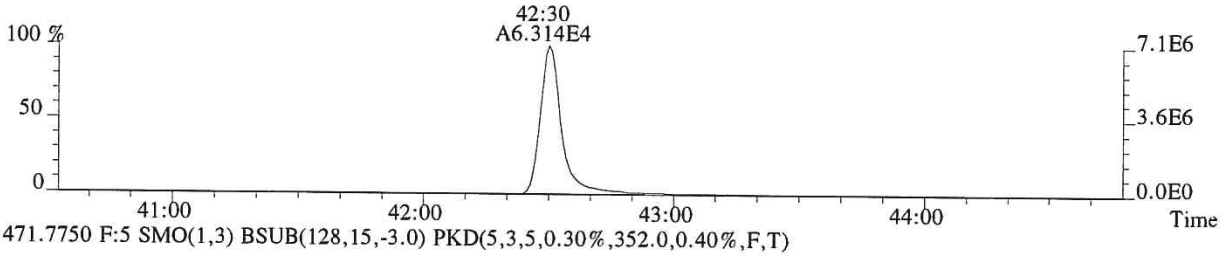
File:P519350 #1-383 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



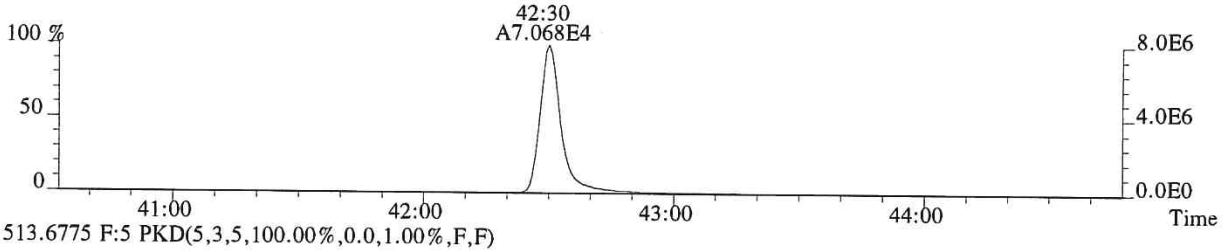
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



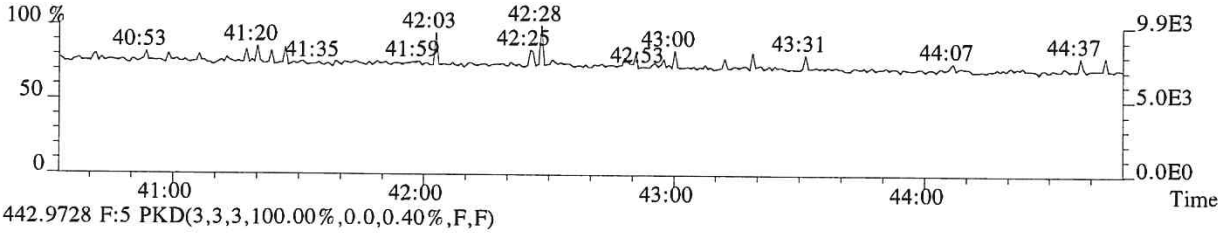
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



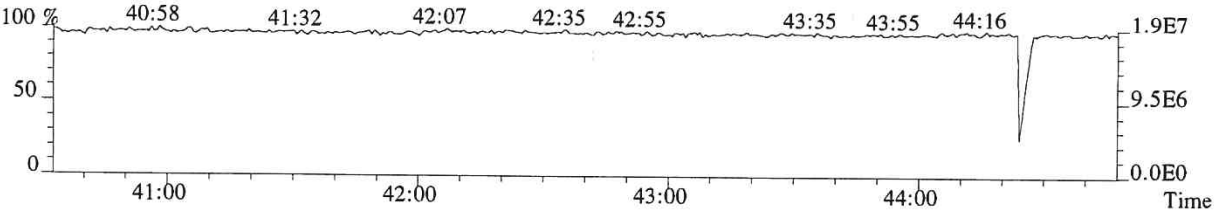
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

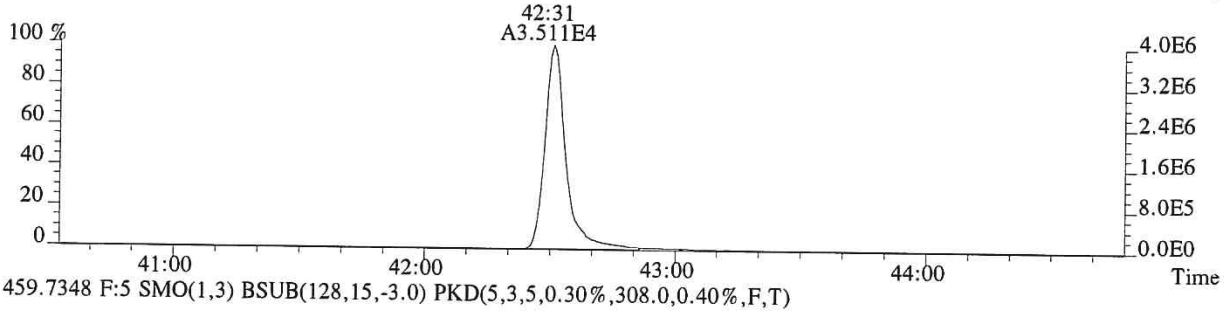


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

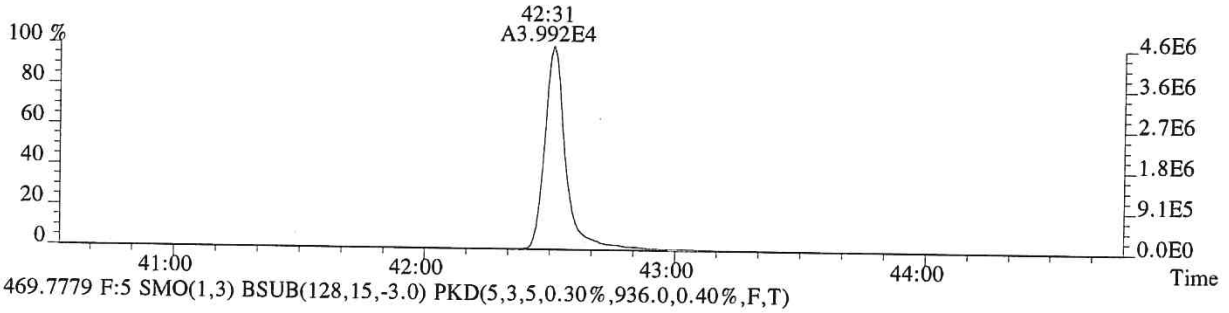


013538

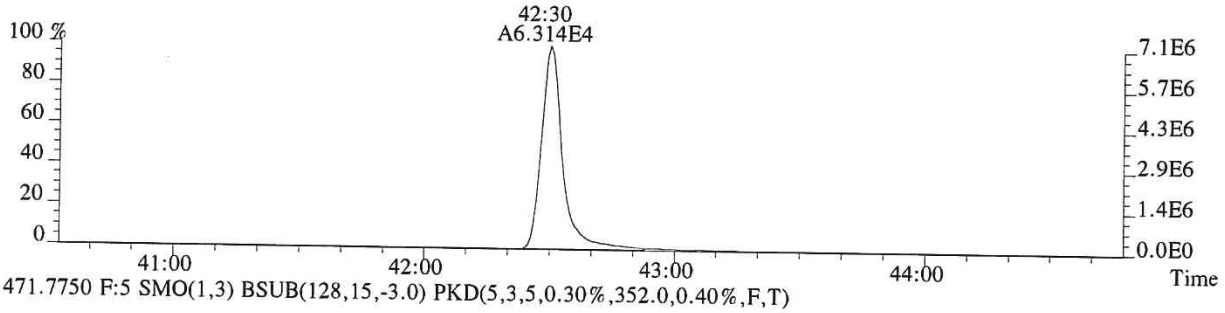
File:P519350 #1-383 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



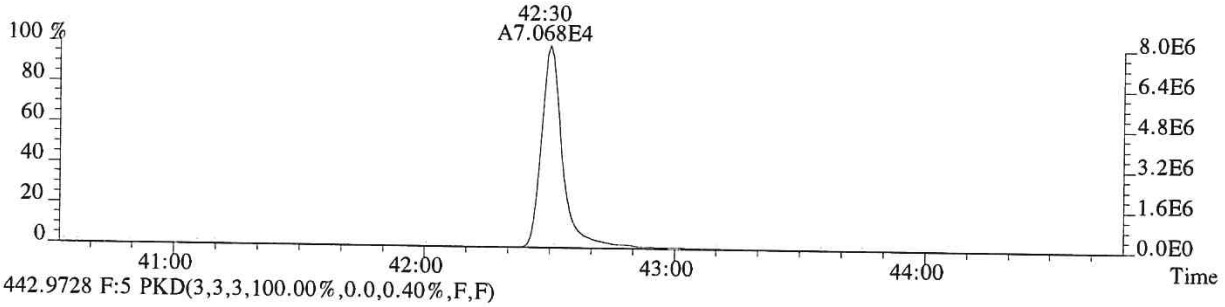
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



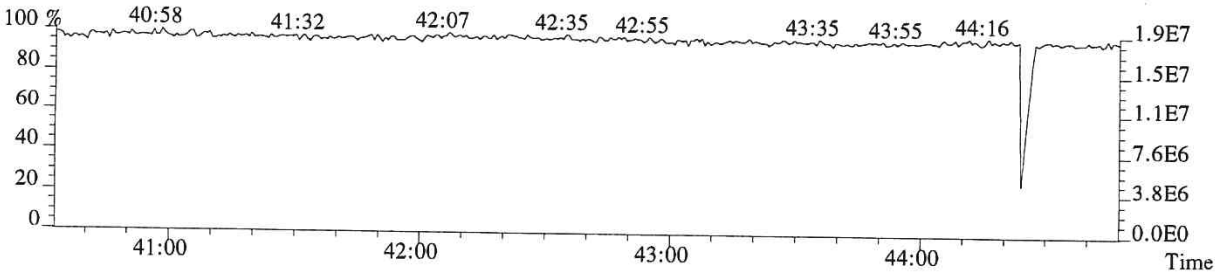
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P0116040

Date: 12/11/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P616040	11-DEC-18	09:58:58
192977	WINDOW DEFINE	P616041	11-DEC-18	10:49:15
METHOD BLANK	EQ1800471-01	P616042	11-DEC-18	11:39:22
METHOD BLANK	EQ1800499-01	P616043	11-DEC-18	12:27:41
FW0051	E1801046-007	P616044	11-DEC-18	13:16:51
FW0007	E1801056-069	P616045	11-DEC-18	14:39:28
FW0052	E1801058-030	P616046	11-DEC-18	15:32:13
FW0053	E1801058-031	P616047	11-DEC-18	16:28:02
FW010	E1801058-032	P616048	11-DEC-18	17:18:28
FW0052	E1801065-030	P616049	11-DEC-18	18:06:47
FW0053	E1801065-031	P616050	11-DEC-18	18:55:56
LCS	EQ1800499-02	P616051	11-DEC-18	19:45:05
DLCS	EQ1800499-03	P616052	11-DEC-18	20:34:15

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181211A.SPL
Last Modified: Wednesday, December 12, 2018 07:08:08 Central Standard Time
Printed: Wednesday, December 12, 2018 07:08:11 Central Standard Time

Page Position (1, 1)

opus4: P616040res

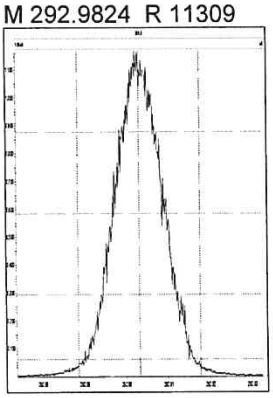
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/11/18	09:03	P616039	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	not used
2		09:58	P616040	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 09:00
3		10:49	P616041	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
4		11:39	P616042	EQ1800471-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:27	P616043	EQ1800499-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:16	P616044	E1801046-007	E1801046-007	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:39	P616045	E1801056-069	E1801056-069	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:32	P616046	E1801058-030	E1801058-030	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		16:23	P616047	E1801058-031	E1801058-031	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		17:18	P616048	E1801058-032	E1801058-032	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		18:06	P616049	E1801065-030	E1801065-030	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:55	P616050	E1801065-031	E1801065-031	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		19:45	P616051	EQ1800499-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:34	P616052	EQ1800499-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		21:31	P616053	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 21:31
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

jc 12/13/18

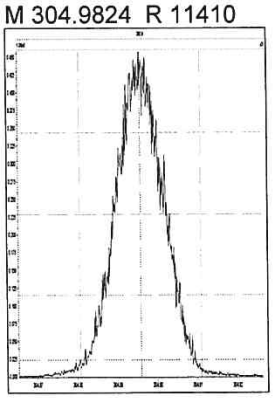
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:00:28 Central Standard Time

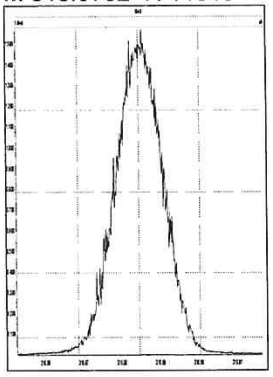
M 292.9824 R 11309



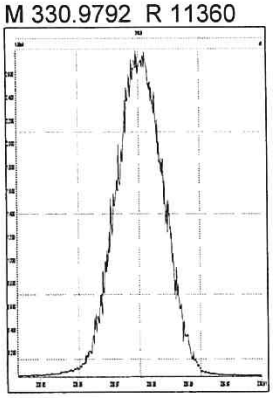
M 304.9824 R 11410



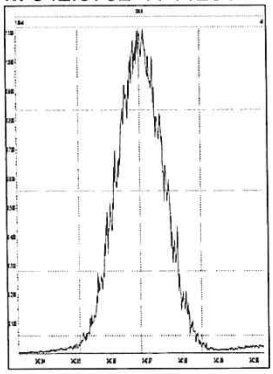
M 318.9792 R 11519



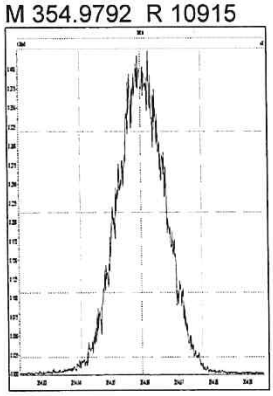
M 330.9792 R 11360



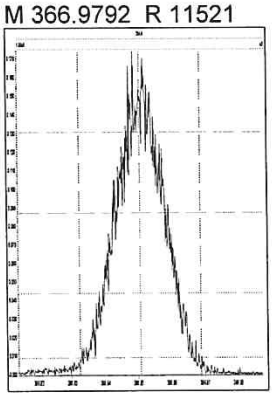
M 342.9792 R 11261



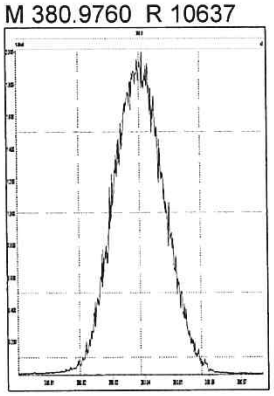
M 354.9792 R 10915



M 366.9792 R 11521



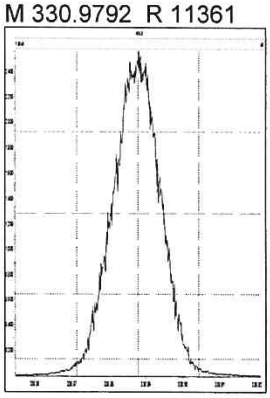
M 380.9760 R 10637



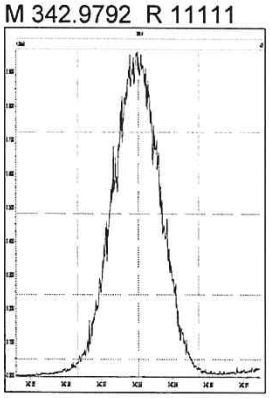
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:01:04 Central Standard Time

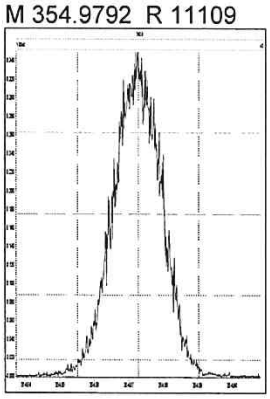
M 330.9792 R 11361



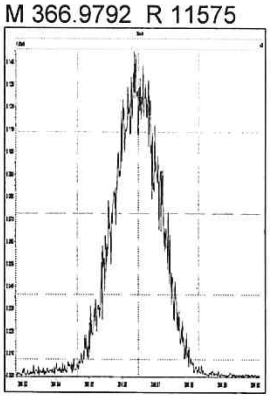
M 342.9792 R 11111



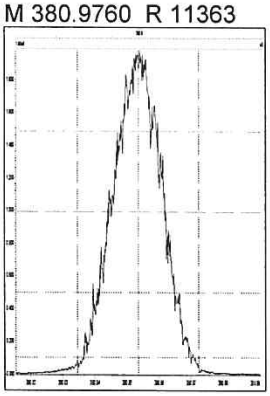
M 354.9792 R 11109



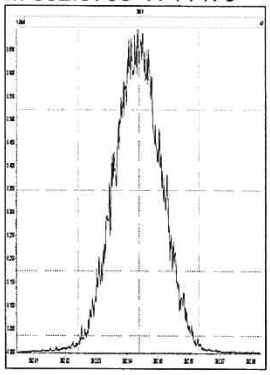
M 366.9792 R 11575



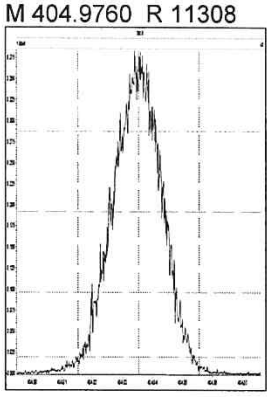
M 380.9760 R 11363



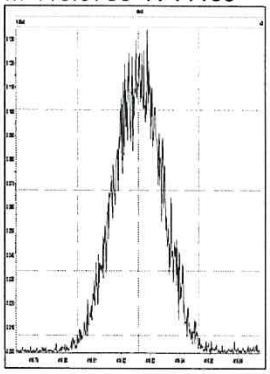
M 392.9760 R 11470



M 404.9760 R 11308



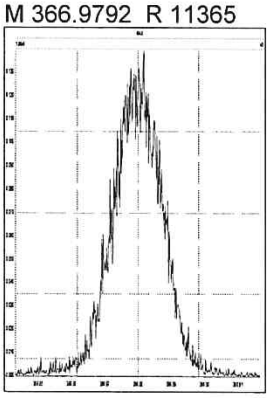
M 416.9760 R 11159



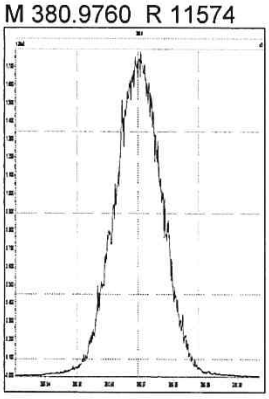
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:01:35 Central Standard Time

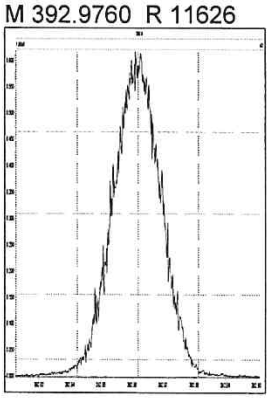
M 366.9792 R 11365



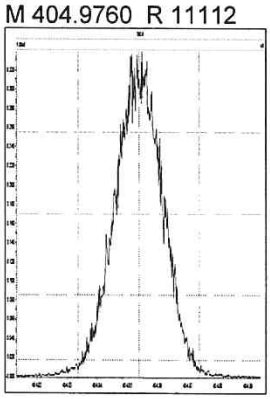
M 380.9760 R 11574



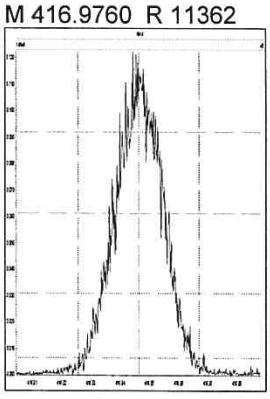
M 392.9760 R 11626



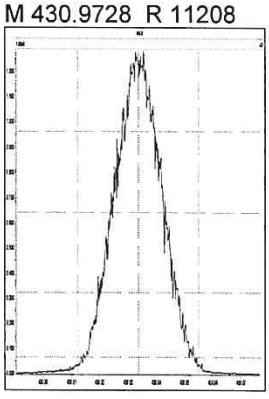
M 404.9760 R 11112



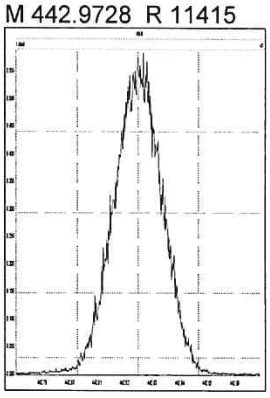
M 416.9760 R 11362



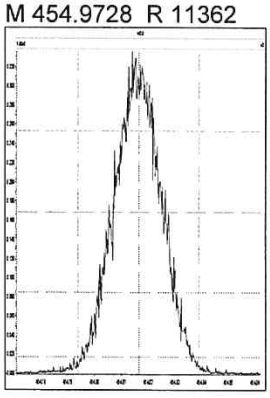
M 430.9728 R 11208



M 442.9728 R 11415



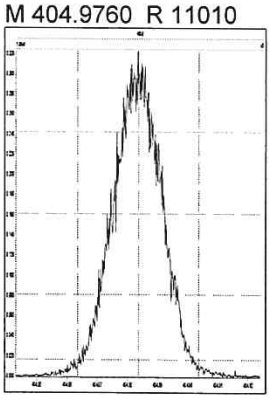
M 454.9728 R 11362



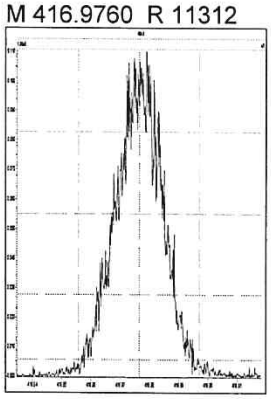
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:02:10 Central Standard Time

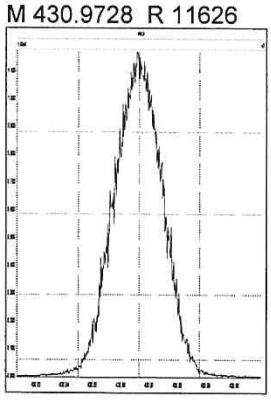
M 404.9760 R 11010



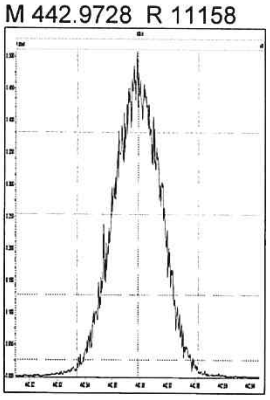
M 416.9760 R 11312



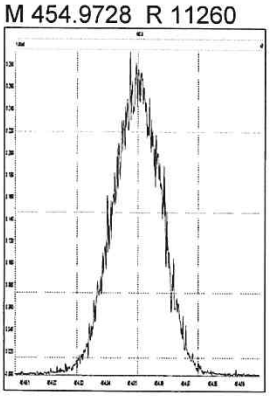
M 430.9728 R 11626



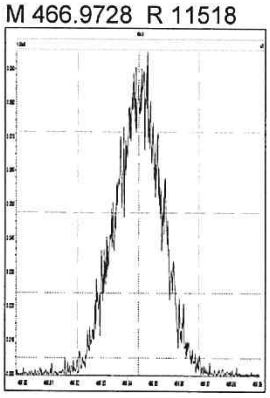
M 442.9728 R 11158



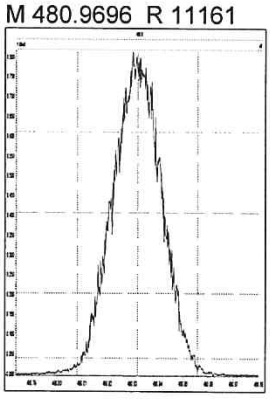
M 454.9728 R 11260



M 466.9728 R 11518



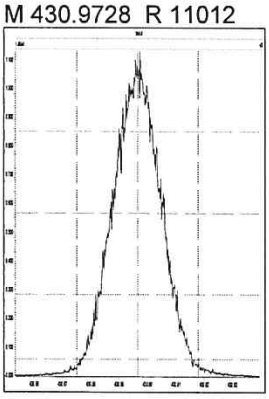
M 480.9696 R 11161



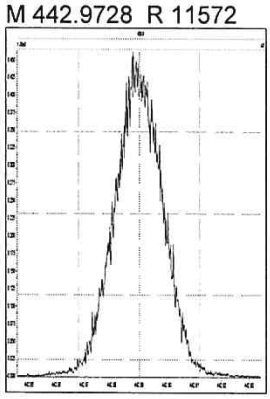
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:02:49 Central Standard Time

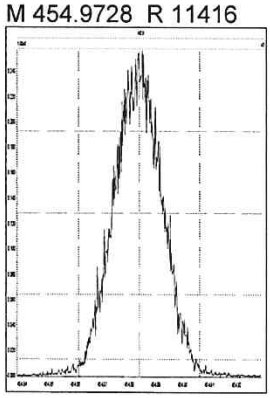
M 430.9728 R 11012



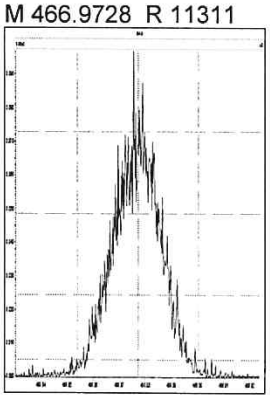
M 442.9728 R 11572



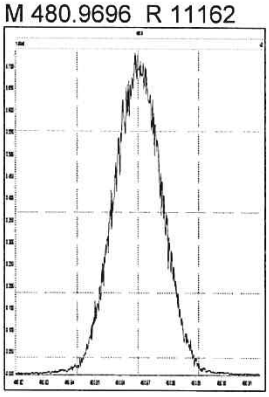
M 454.9728 R 11416



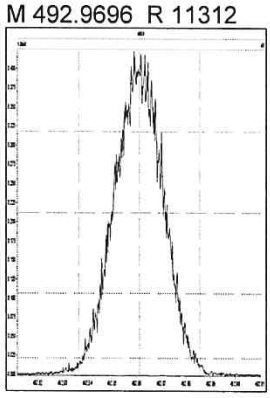
M 466.9728 R 11311



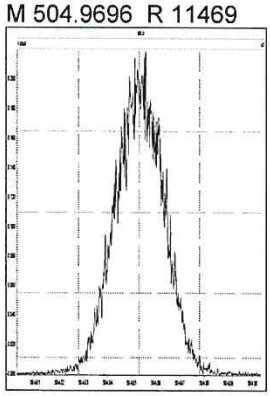
M 480.9696 R 11162



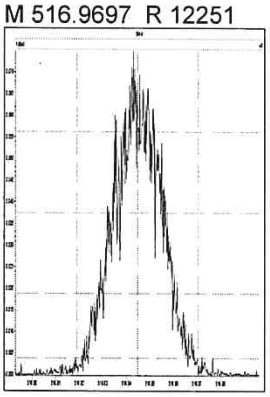
M 492.9696 R 11312



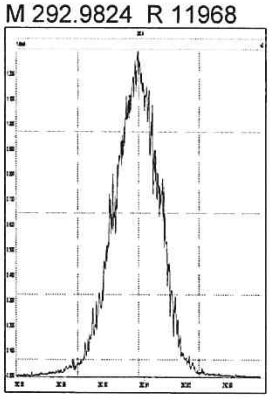
M 504.9696 R 11469



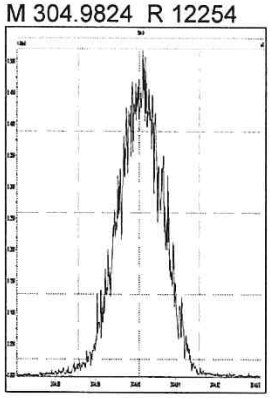
M 516.9697 R 12251



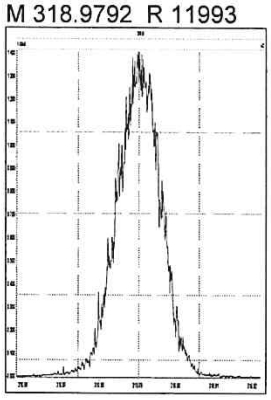
M 292.9824 R 11968



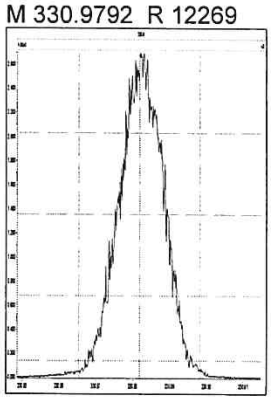
M 304.9824 R 12254



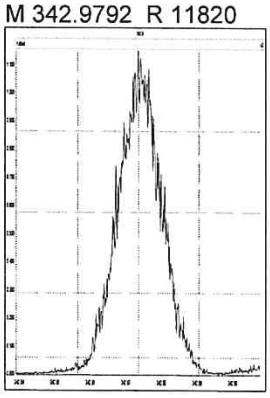
M 318.9792 R 11993



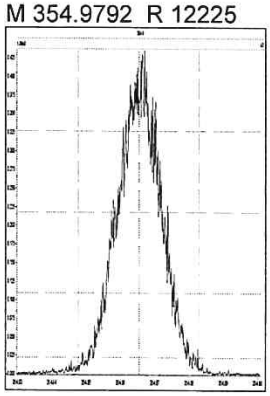
M 330.9792 R 12269



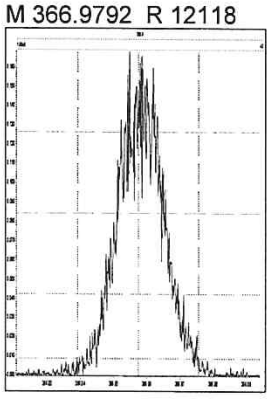
M 342.9792 R 11820



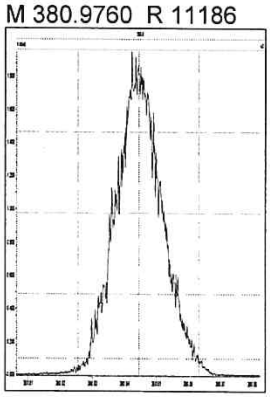
M 354.9792 R 12225



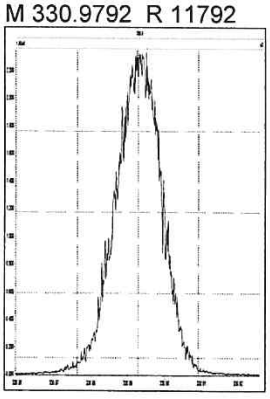
M 366.9792 R 12118



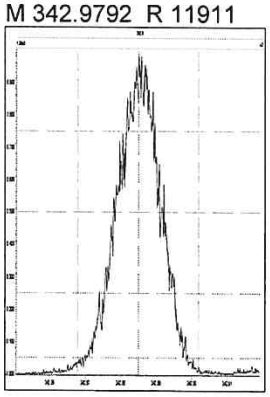
M 380.9760 R 11186



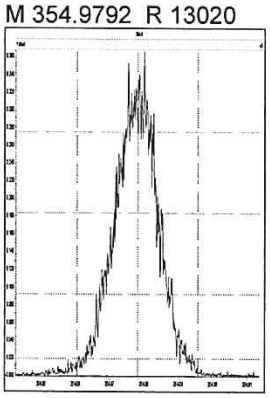
M 330.9792 R 11792



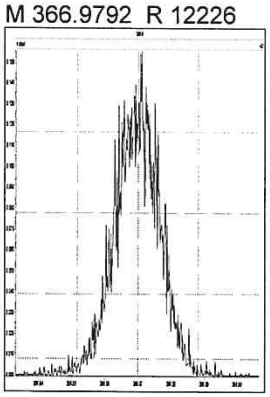
M 342.9792 R 11911



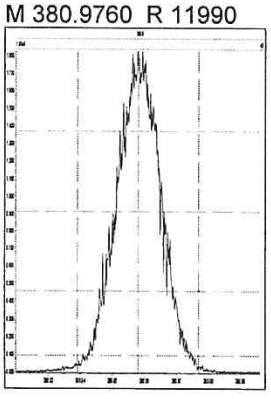
M 354.9792 R 13020



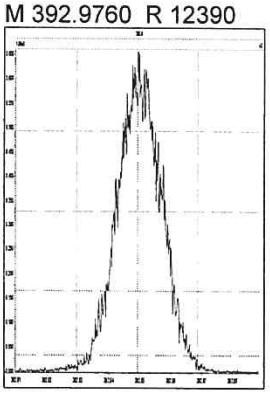
M 366.9792 R 12226



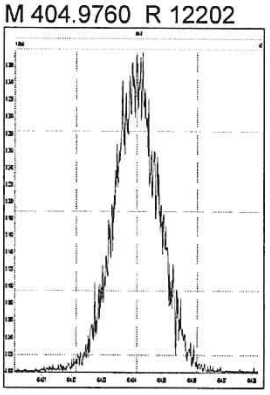
M 380.9760 R 11990



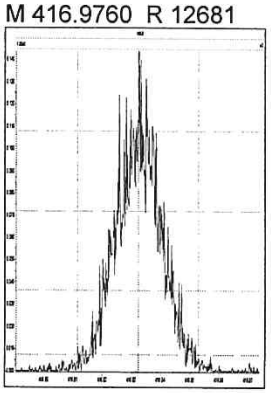
M 392.9760 R 12390



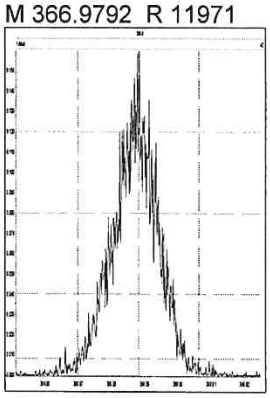
M 404.9760 R 12202



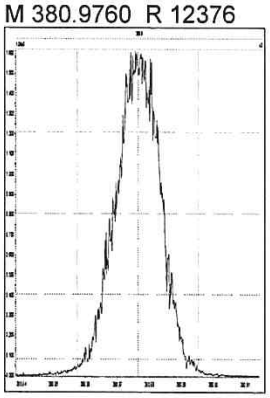
M 416.9760 R 12681



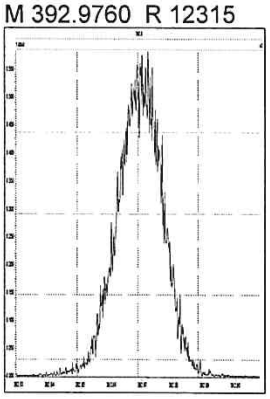
M 366.9792 R 11971



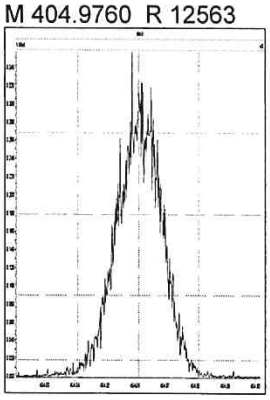
M 380.9760 R 12376



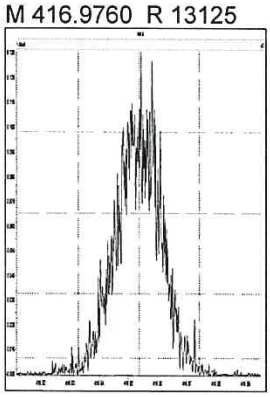
M 392.9760 R 12315



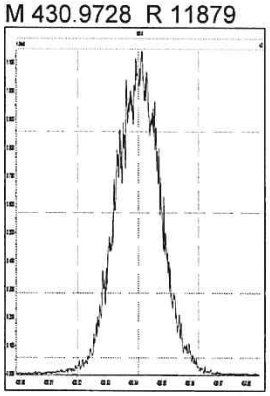
M 404.9760 R 12563



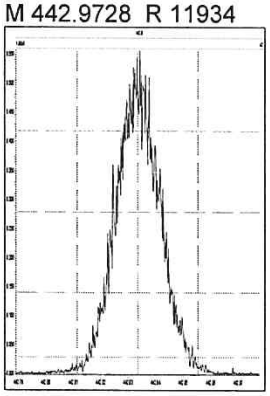
M 416.9760 R 13125



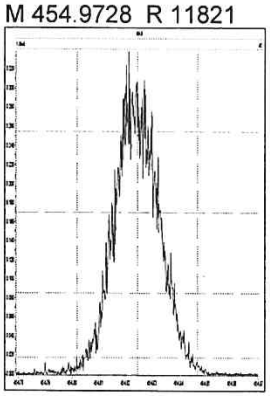
M 430.9728 R 11879



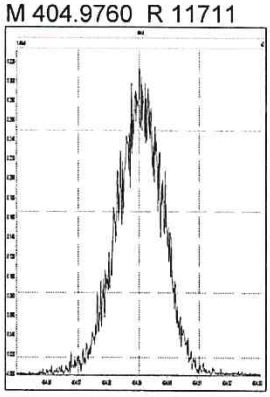
M 442.9728 R 11934



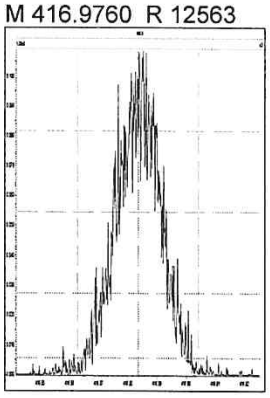
M 454.9728 R 11821



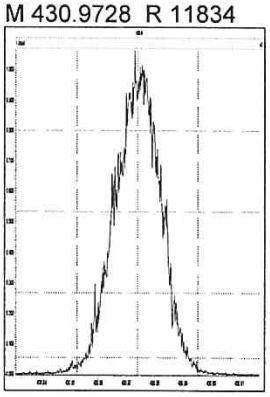
M 404.9760 R 11711



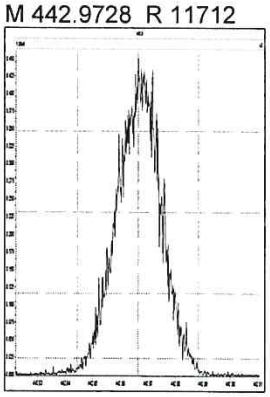
M 416.9760 R 12563



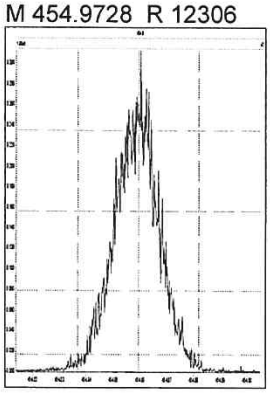
M 430.9728 R 11834



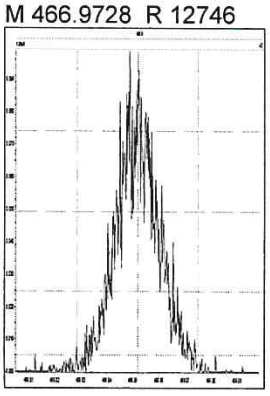
M 442.9728 R 11712



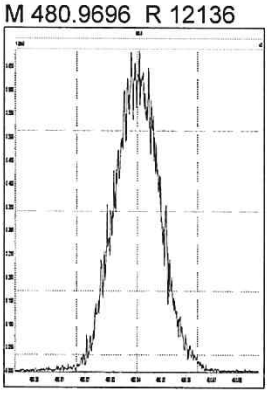
M 454.9728 R 12306



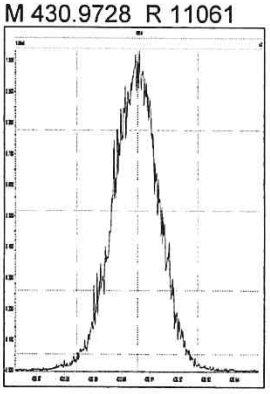
M 466.9728 R 12746



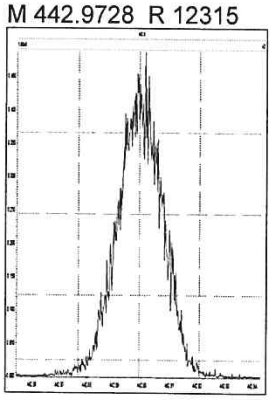
M 480.9696 R 12136



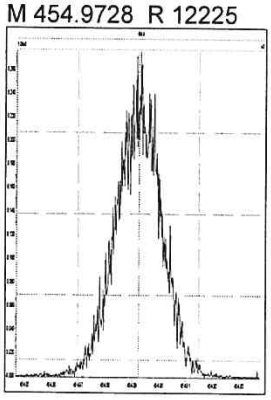
M 430.9728 R 11061



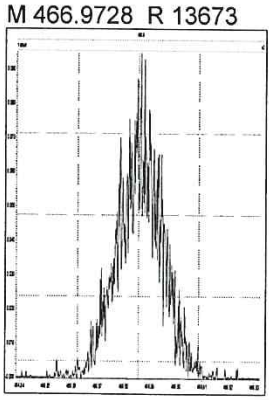
M 442.9728 R 12315



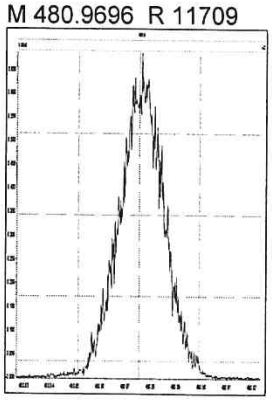
M 454.9728 R 12225



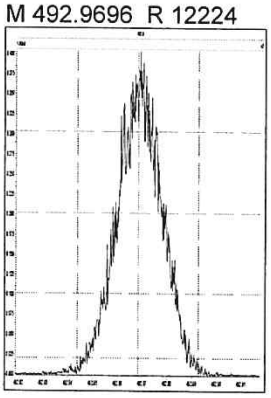
M 466.9728 R 13673



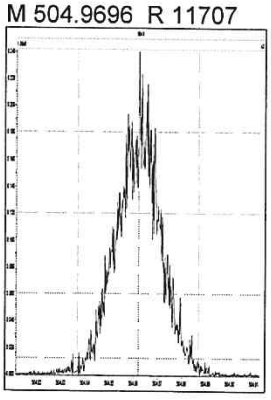
M 480.9696 R 11709



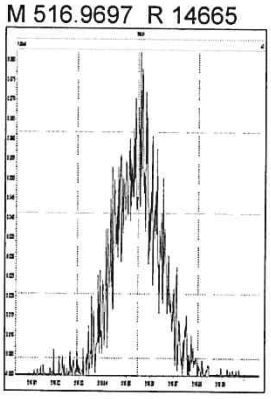
M 492.9696 R 12224



M 504.9696 R 11707



M 516.9697 R 14665



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

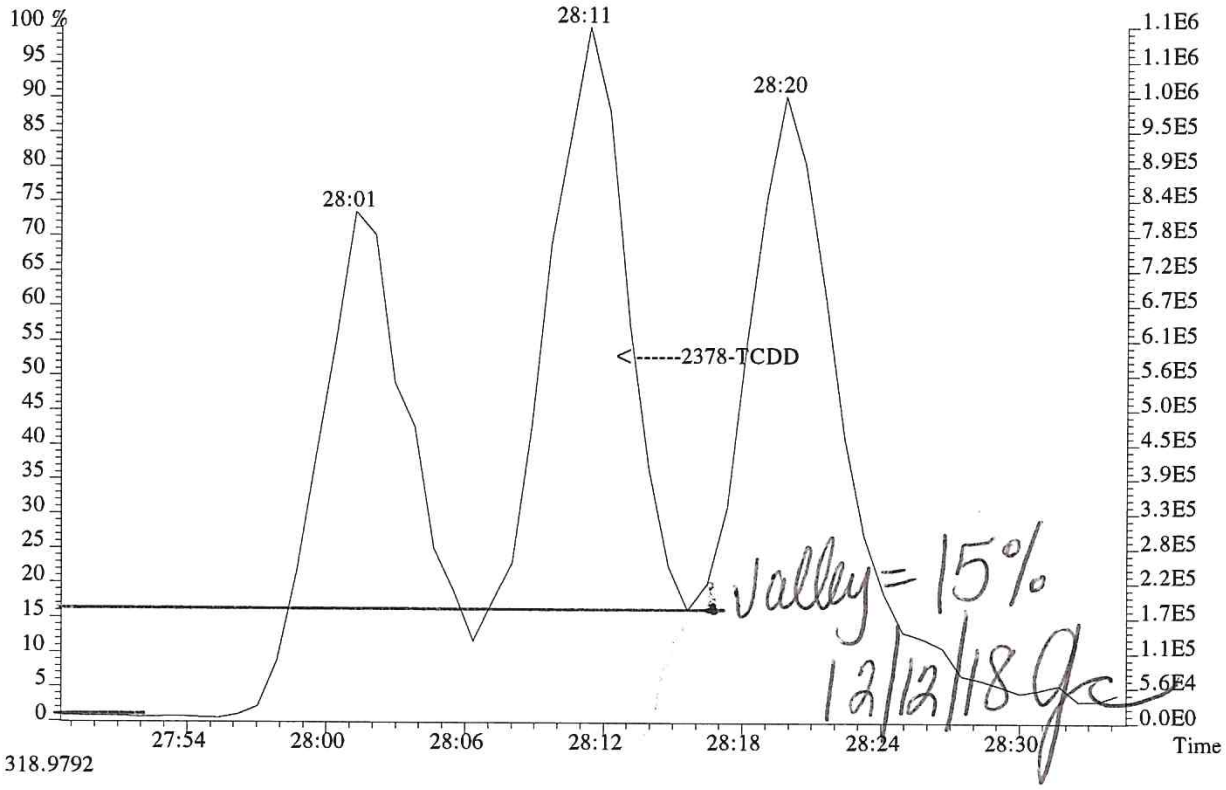
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P616041
Date Analyzed: 11-DEC-18
Time Analyzed: 10:49:15

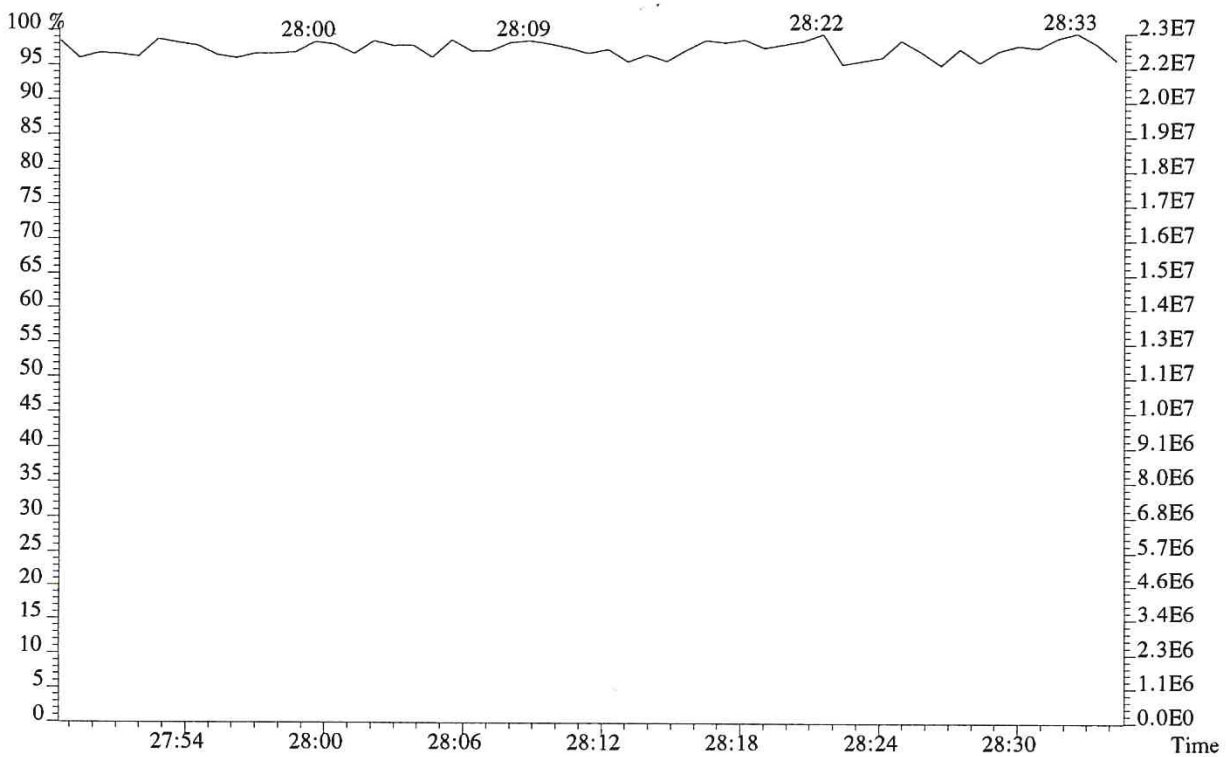
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:50	29:26
TCDD	24:37	29:15
PeCDF	29:20	33:44
PeCDD	30:56	33:28
HxCDF	34:22	36:55
HxCDD	34:54	36:30
HpCDF	38:07	39:29
HpCDD	38:21	39:01

% Valley 2378-TCDD: 15 %

File:P616041 #1-573 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792



013552

File:P616041 #1-573 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
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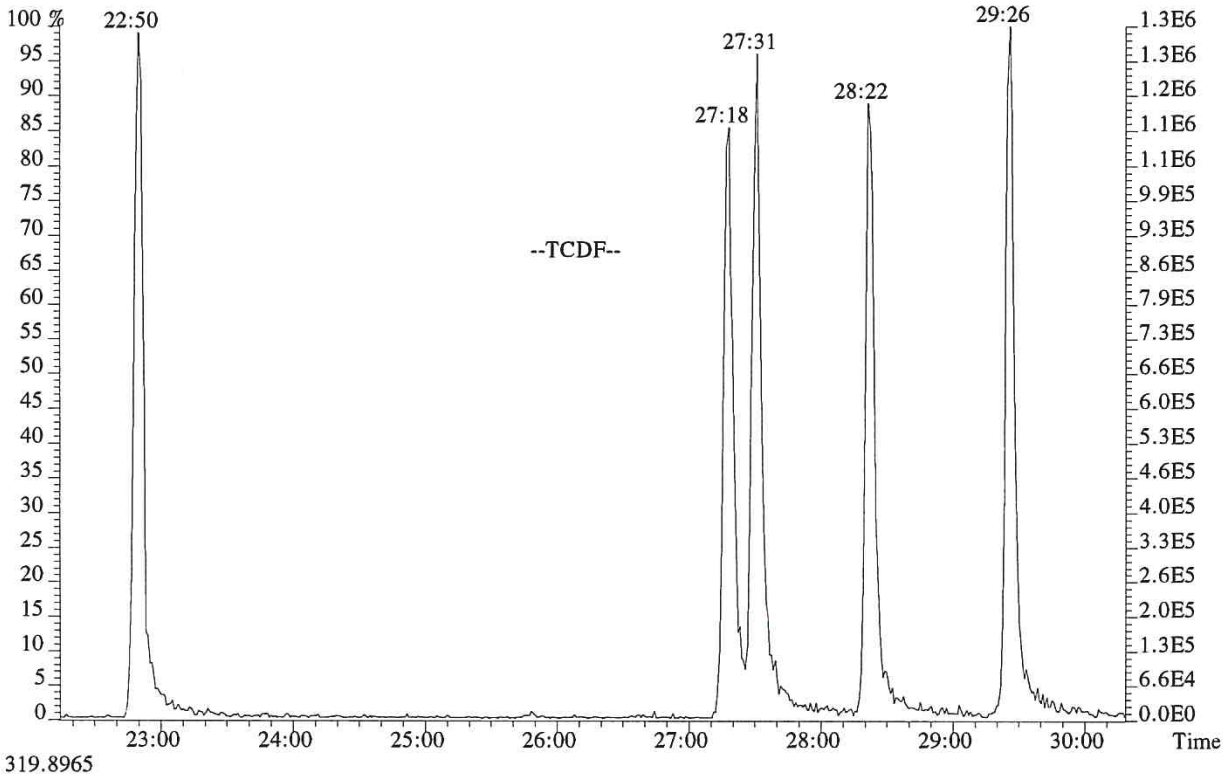
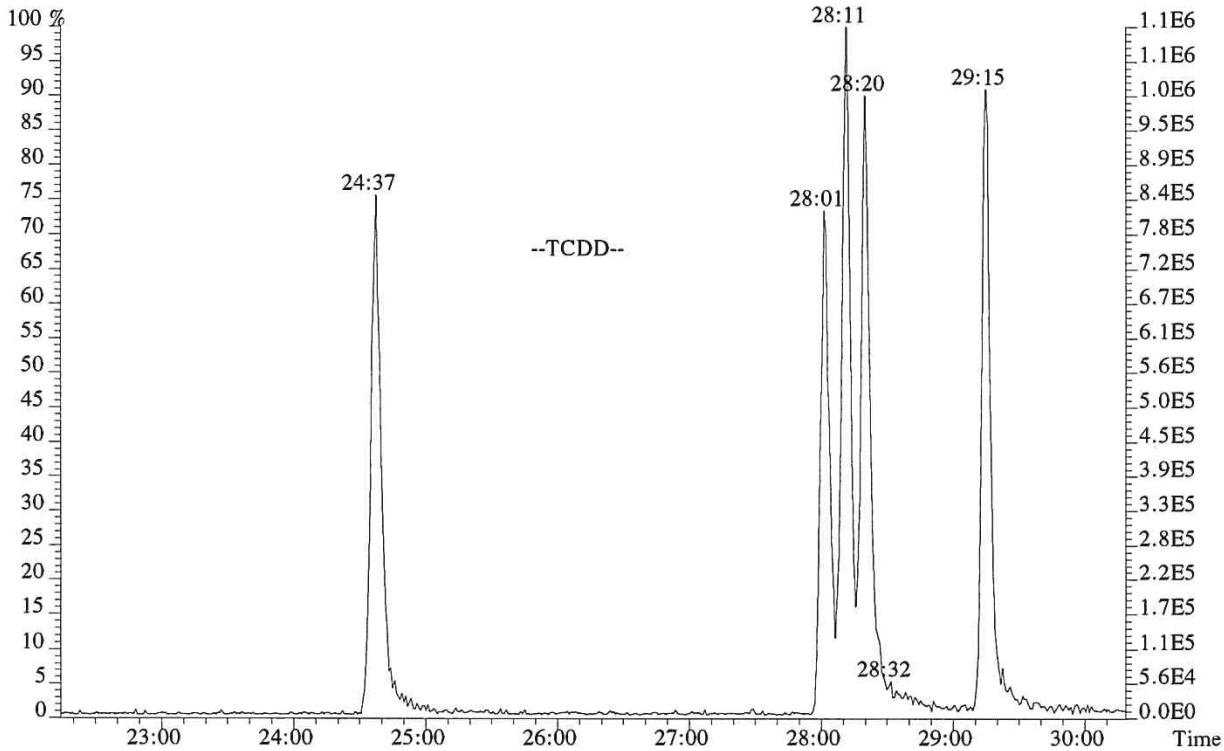
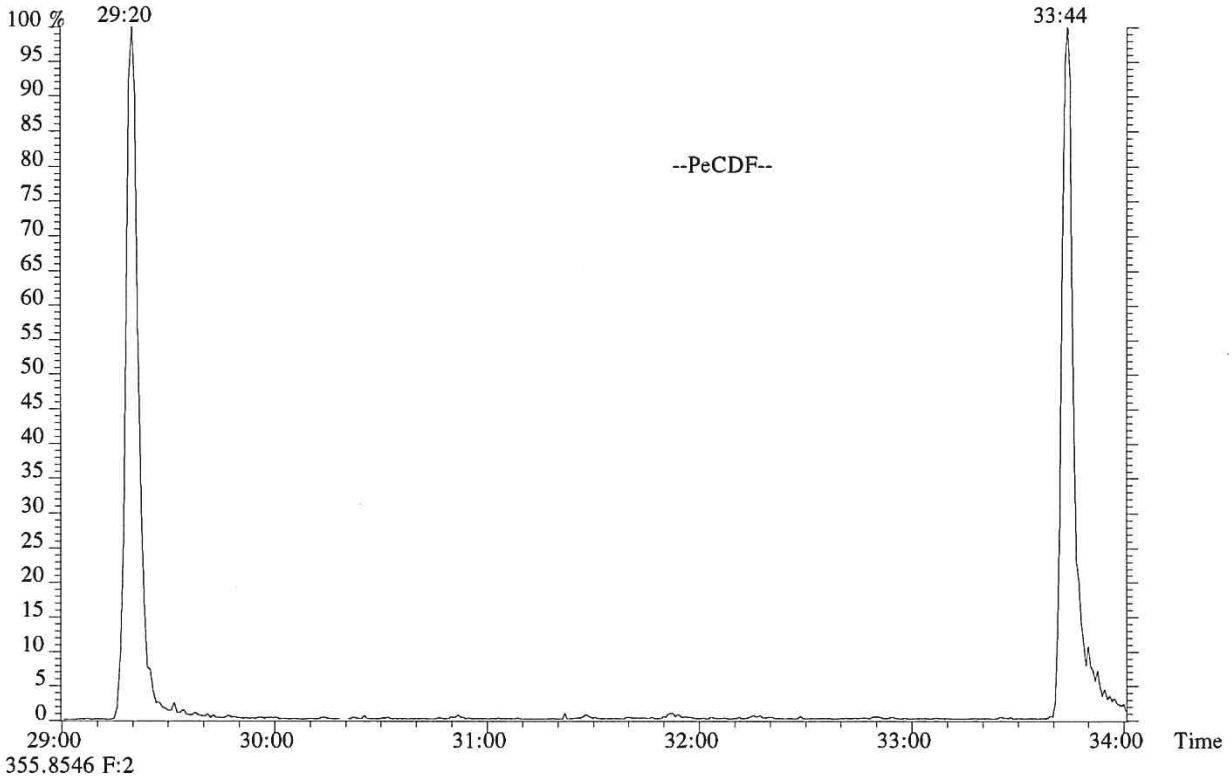
303.9016



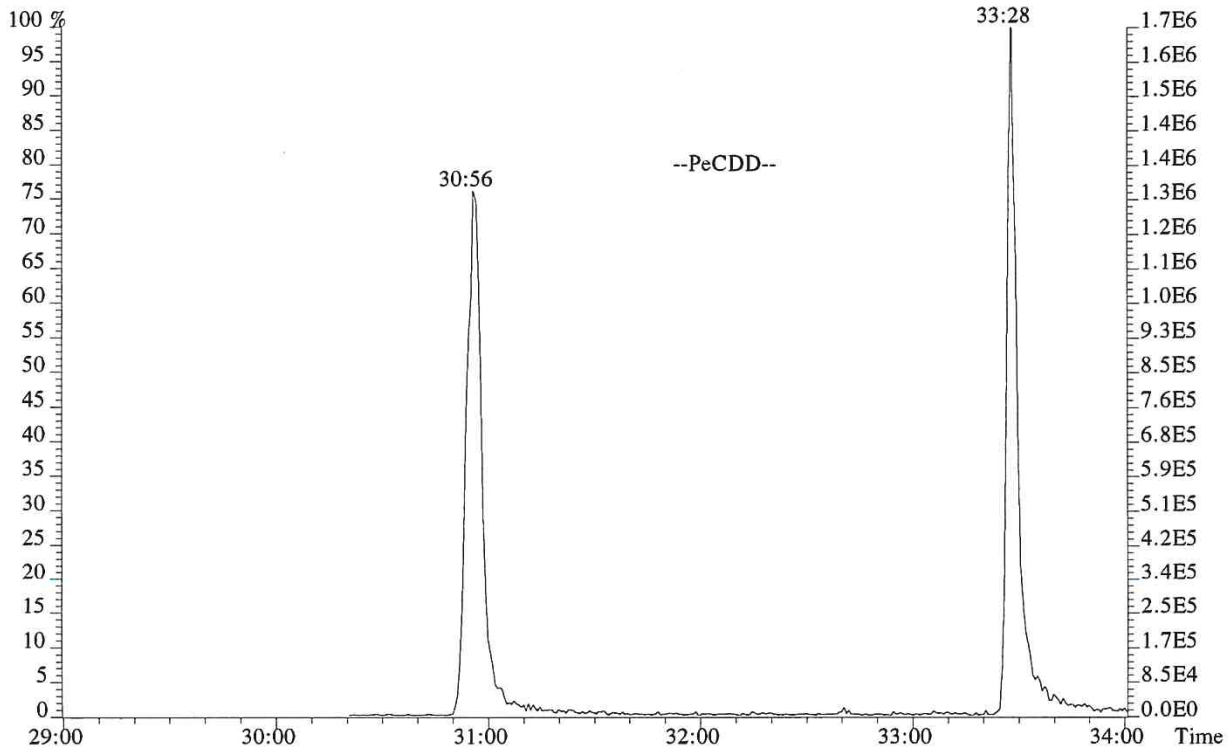
319.8965



File:P616041 #1-573 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



013554

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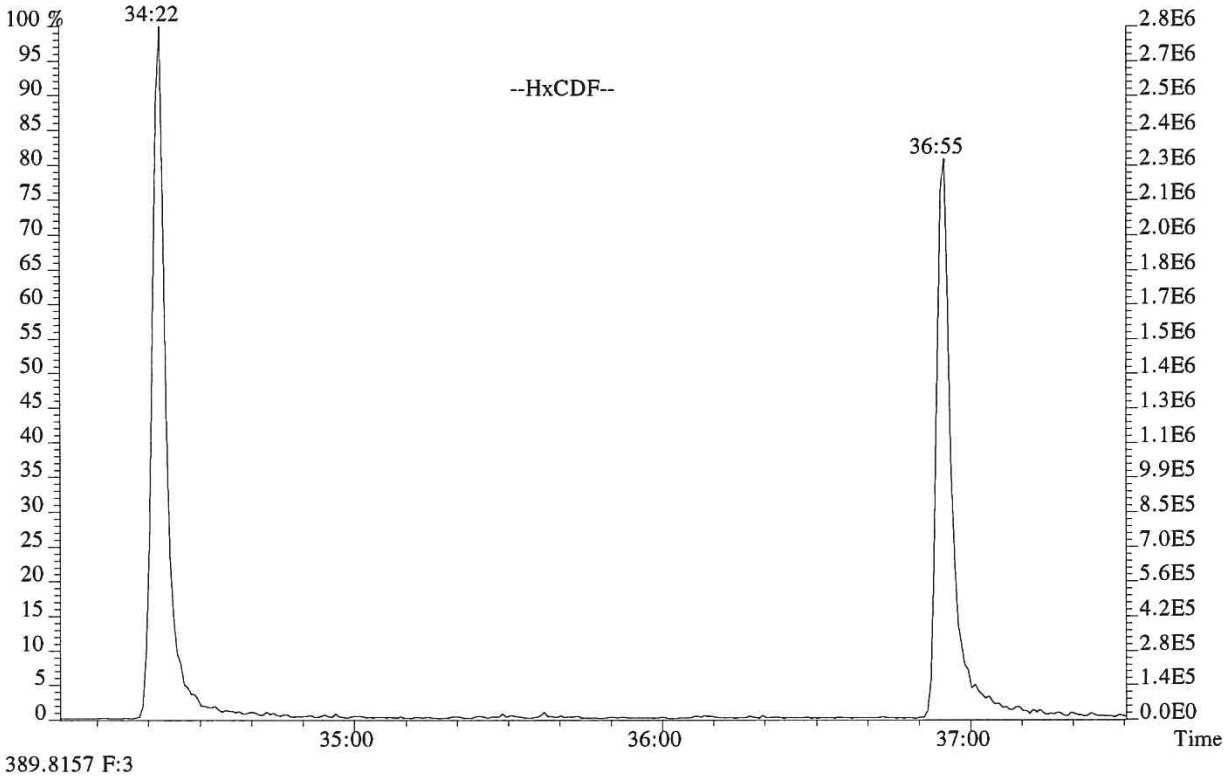
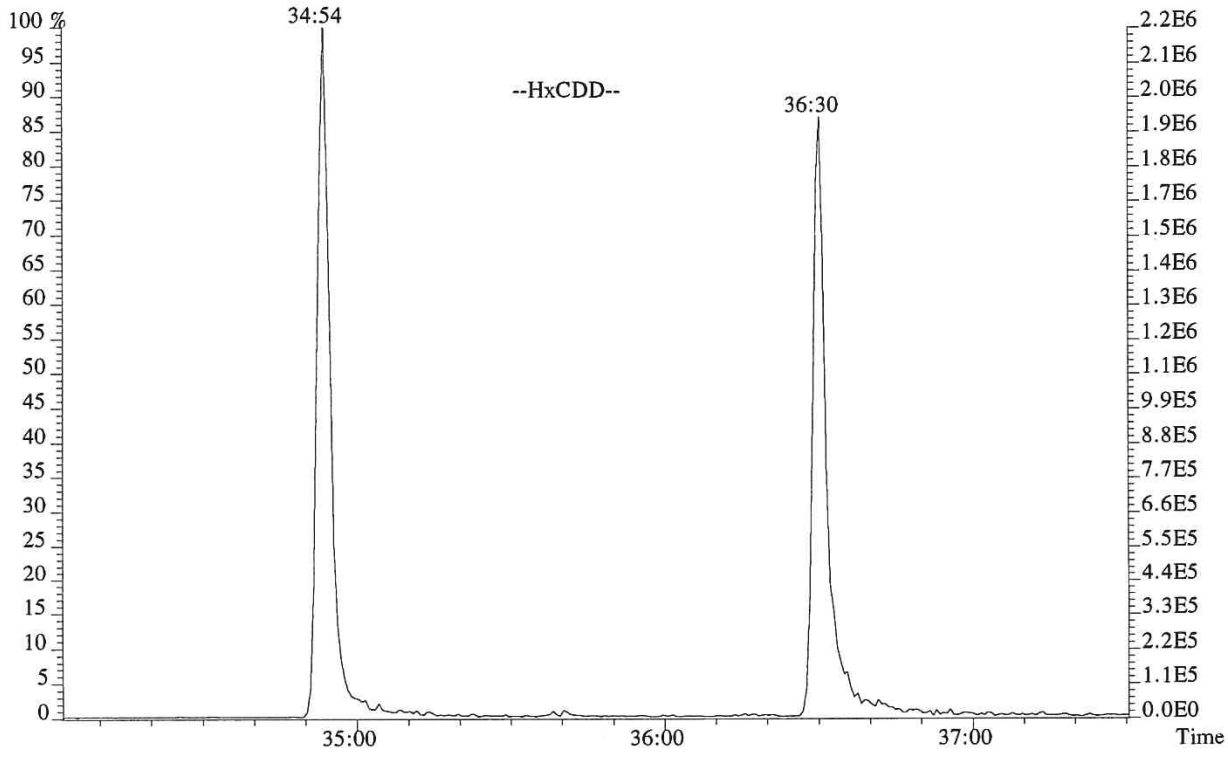
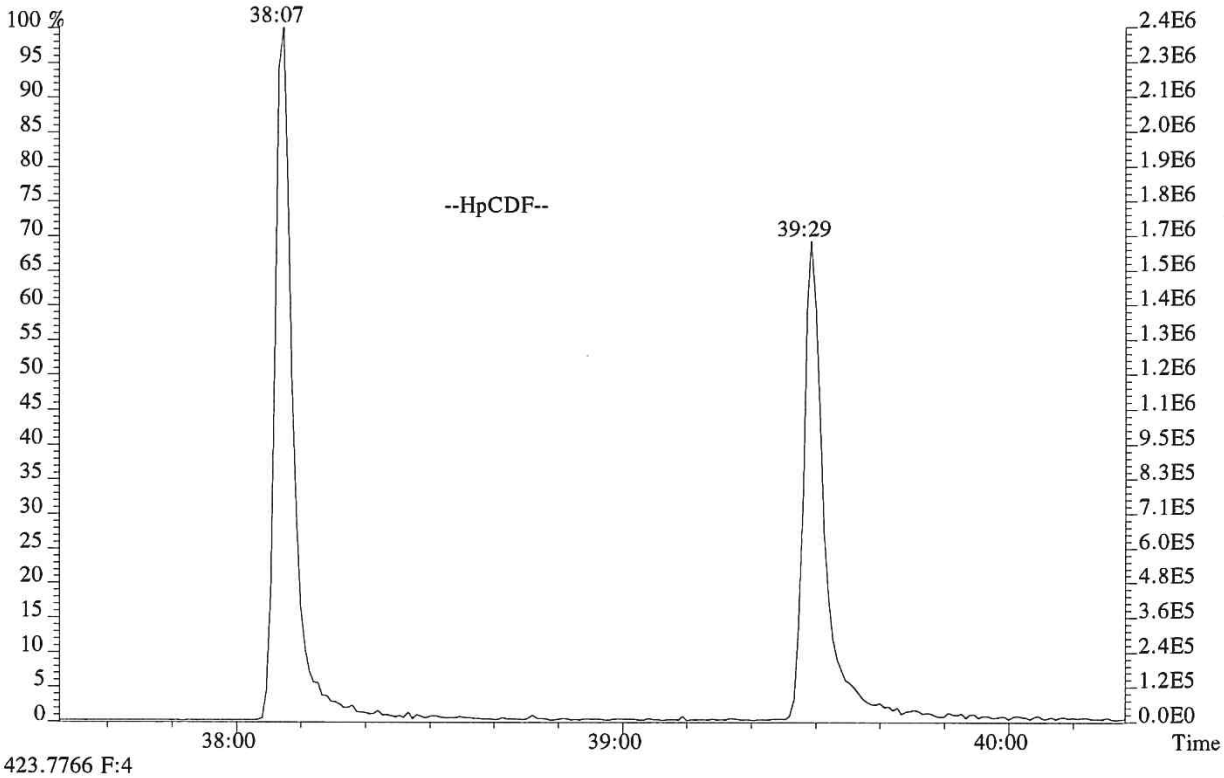
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



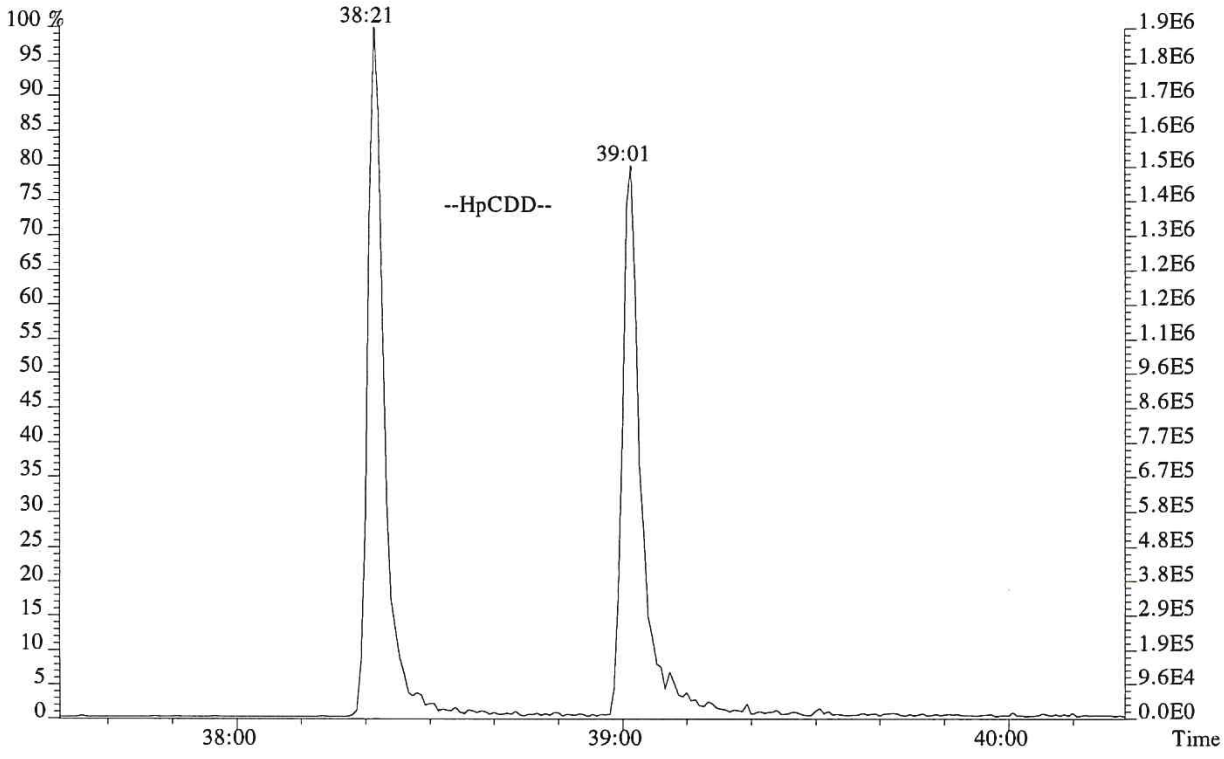
389.8157 F:3



File:P616041 #1-249 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



013556

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P616040 Analysis Date: 11-DEC-18 Time: 09:58:58

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.75	0.65-0.89	9.6	7.8 - 12.9	-3.9
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	-0.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-2.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	50	39 - 64	0.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.30	1.05-1.43	50	41 - 61	0.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	48	43 - 58	-3.4
OCDD	M+2/M+4	0.89	0.76-1.02	96	79 - 126	-3.8
2,3,7,8-TCDF	M/M+2	0.82	0.65-0.89	9.2	8.4 - 12.0	-8.1
1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	46	41 - 60	-8.1
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	46	41 - 61	-7.9
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	46	45 - 56	-8.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	47	44 - 57	-6.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	47	45 - 56	-6.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	48	44 - 57	-4.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	47	45 - 55	-6.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	46	43 - 58	-8.4
OCDF	M+2/M+4	0.91	0.76-1.02	87	63 - 159	-13.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

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USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P616040 Analysis Date: 11-DEC-18 Time: 09:58:58

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	96	82 - 121	-4.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	105	62 - 160	4.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	91	85 - 117	-9.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	96	72 - 138	-3.6
13C-OCDD	M+2/M+4	0.91	0.76-1.02	177	96 - 415	-11.4
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	90	71 - 140	-10.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	100	76 - 130	-0.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	104	77 - 130	3.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	86	76 - 131	-14.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	70 - 143	-5.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	87	74 - 135	-13.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	91	73 - 137	-9.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	92	78 - 129	-8.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	89	77 - 129	-11.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.1	7.8 - 12.7	-9.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P616040 Samp: 1 Inj: 1 Acquired: 11-DEC-18 09:58:58
Processed: 12-DEC-18 16:11:21 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:31	4.115e+03	5.005e+03	0.82	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:51	3.749e+04	2.350e+04	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:49	3.658e+04	2.321e+04	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:30	3.265e+04	2.651e+04	1.23	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	3.866e+04	3.113e+04	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:07	3.531e+04	2.812e+04	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:52	3.095e+04	2.468e+04	1.25	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	3.150e+04	3.009e+04	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	2.498e+04	2.435e+04	1.03	yes	no	1.463
10	Unk	OCDF	41:53	3.474e+04	3.803e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:20	2.941e+03	3.906e+03	0.75	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:05	2.380e+04	1.532e+04	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:15	2.166e+04	1.746e+04	1.24	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:20	2.413e+04	1.972e+04	1.22	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:34	2.567e+04	1.981e+04	1.30	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	2.122e+04	1.953e+04	1.09	yes	no	1.112
17	Unk	OCDD	41:41	2.807e+04	3.152e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:29	4.056e+04	5.130e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	7.080e+04	4.398e+04	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:47	7.255e+04	4.507e+04	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:29	3.137e+04	5.968e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	3.956e+04	7.576e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:06	3.601e+04	6.782e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	3.132e+04	5.889e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	2.741e+04	5.939e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	2.297e+04	5.064e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:18	2.996e+04	3.797e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:04	5.160e+04	3.324e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:14	4.193e+04	3.331e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	4.630e+04	3.647e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:00	3.886e+04	3.696e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:40	5.093e+04	5.612e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:41	3.196e+04	4.013e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	5.162e+04	4.008e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:20	7.128e+03				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P616040 Samp: 1 Inj: 1 Acquired: 11-DEC-18 09:58:58
Processed: 12-DEC-18 16:11:21 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.18e+05	6.32e+02	9.8e+02	7.05e+05	1.68e+03	4.2e+02
2	1,2,3,7,8-PeCDF	5.91e+06	1.21e+03	4.9e+03	3.66e+06	1.93e+03	1.9e+03
3	2,3,4,7,8-PeCDF	6.35e+06	1.21e+03	5.3e+03	4.00e+06	1.93e+03	2.1e+03
4	1,2,3,4,7,8-HxCDF	6.72e+06	1.03e+03	6.5e+03	5.43e+06	4.64e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	7.07e+06	1.03e+03	6.9e+03	5.66e+06	4.64e+02	1.2e+04
6	2,3,4,6,7,8-HxCDF	6.91e+06	1.03e+03	6.7e+03	5.46e+06	4.64e+02	1.2e+04
7	1,2,3,7,8,9-HxCDF	5.43e+06	1.03e+03	5.3e+03	4.40e+06	4.64e+02	9.5e+03
8	1,2,3,4,6,7,8-HpCDF	6.32e+06	7.51e+03	8.4e+02	6.08e+06	1.24e+03	4.9e+03
9	1,2,3,4,7,8,9-HpCDF	4.39e+06	7.51e+03	5.8e+02	4.32e+06	1.24e+03	3.5e+03
10	OCDF	5.58e+06	7.24e+02	7.7e+03	5.96e+06	2.00e+03	3.0e+03
11	2,3,7,8-TCDD	4.78e+05	2.20e+03	2.2e+02	6.20e+05	3.96e+02	1.6e+03
12	1,2,3,7,8-PeCDD	4.08e+06	1.00e+03	4.1e+03	2.55e+06	4.12e+02	6.2e+03
13	1,2,3,4,7,8-HxCDD	4.74e+06	8.20e+02	5.8e+03	3.85e+06	7.72e+02	5.0e+03
14	1,2,3,6,7,8-HxCDD	4.66e+06	8.20e+02	5.7e+03	3.82e+06	7.72e+02	5.0e+03
15	1,2,3,7,8,9-HxCDD	4.68e+06	8.20e+02	5.7e+03	3.78e+06	7.72e+02	4.9e+03
16	1,2,3,4,6,7,8-HpCDD	3.92e+06	8.20e+02	4.8e+03	3.70e+06	5.60e+02	6.6e+03
17	OCDD	4.77e+06	4.68e+02	1.0e+04	5.21e+06	4.56e+02	1.1e+04
18	13C-2,3,7,8-TCDF	5.98e+06	5.42e+03	1.1e+03	7.59e+06	3.93e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	1.14e+07	1.29e+03	8.8e+03	7.13e+06	8.96e+02	8.0e+03
20	13C-2,3,4,7,8-PeCDF	1.24e+07	1.29e+03	9.6e+03	7.90e+06	8.96e+02	8.8e+03
21	13C-1,2,3,4,7,8-HxCDF	6.55e+06	1.32e+03	5.0e+03	1.24e+07	1.20e+03	1.0e+04
22	13C-1,2,3,6,7,8-HxCDF	7.40e+06	1.32e+03	5.6e+03	1.40e+07	1.20e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	7.15e+06	1.32e+03	5.4e+03	1.34e+07	1.20e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	5.68e+06	1.32e+03	4.3e+03	1.07e+07	1.20e+03	8.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.46e+06	1.52e+03	3.6e+03	1.19e+07	4.90e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.01e+06	1.52e+03	2.6e+03	9.03e+06	4.90e+03	1.8e+03
27	13C-2,3,7,8-TCDD	4.84e+06	9.34e+03	5.2e+02	6.04e+06	4.12e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	8.80e+06	7.32e+02	1.2e+04	5.67e+06	1.30e+03	4.4e+03
29	13C-1,2,3,4,7,8-HxCDD	9.08e+06	3.01e+03	3.0e+03	7.12e+06	1.16e+03	6.1e+03
30	13C-1,2,3,6,7,8-HxCDD	9.10e+06	3.01e+03	3.0e+03	7.04e+06	1.16e+03	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.38e+06	6.16e+02	1.2e+04	6.96e+06	4.48e+02	1.6e+04
32	13C-OCDD	8.50e+06	1.57e+03	5.4e+03	9.34e+06	7.72e+02	1.2e+04
33	13C-1,2,3,4-TCDD	5.14e+06	9.34e+03	5.5e+02	6.48e+06	4.12e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	9.53e+06	3.01e+03	3.2e+03	7.51e+06	1.16e+03	6.5e+03
35	37Cl-2,3,7,8-TCDD	1.14e+06	2.11e+03	5.4e+02			

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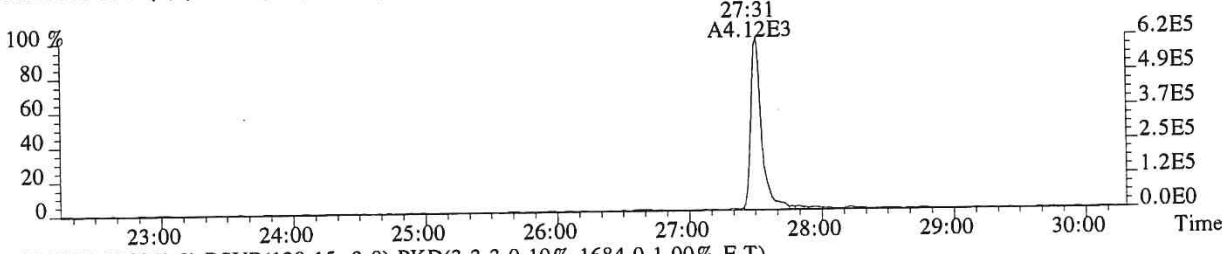
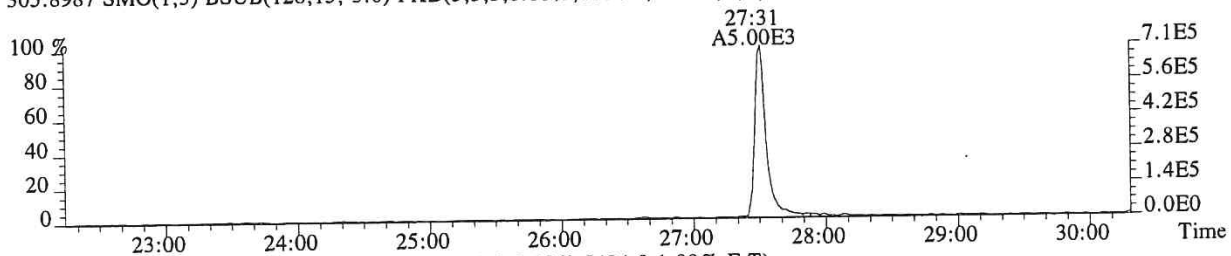
File:P616040 #1-573 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

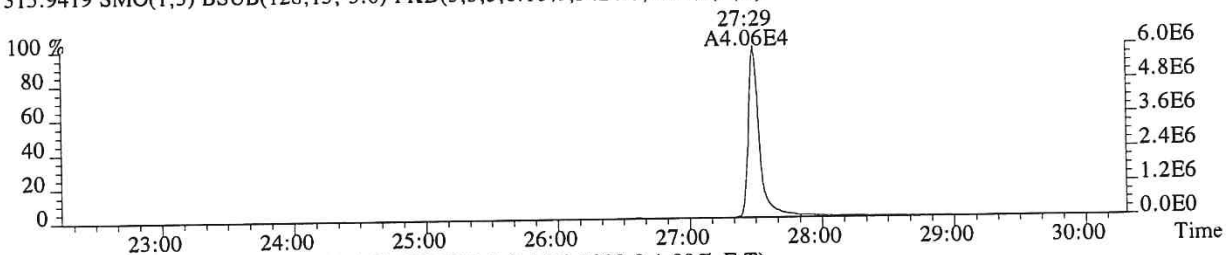
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



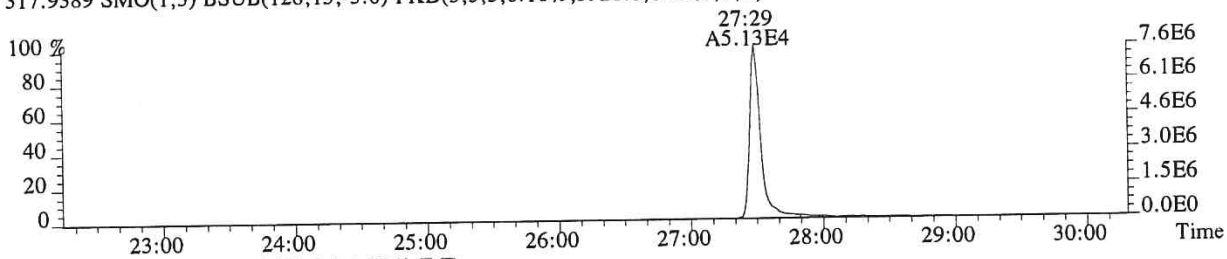
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



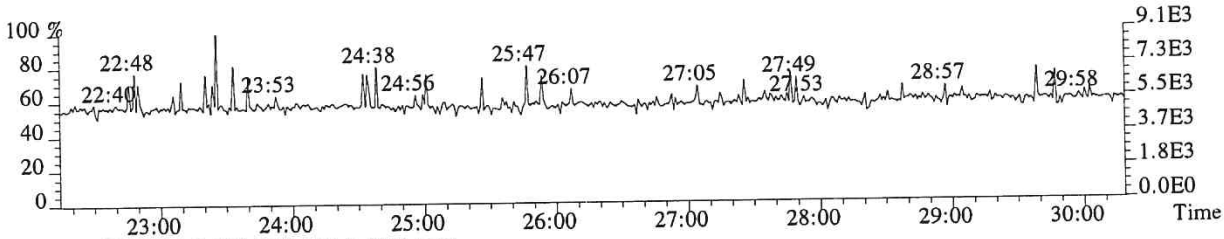
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5424.0,1.00%,F,T)



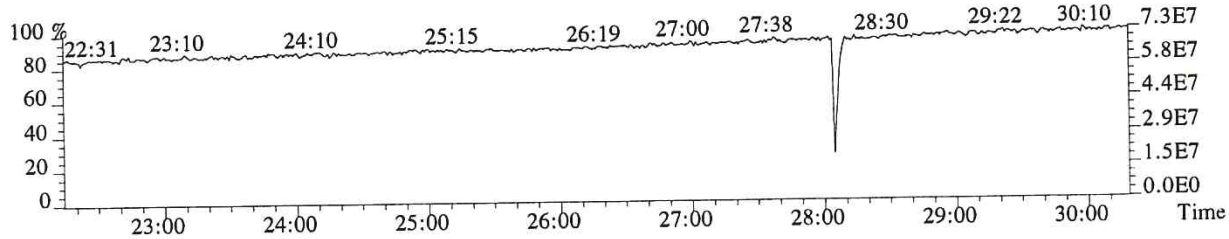
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3928.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

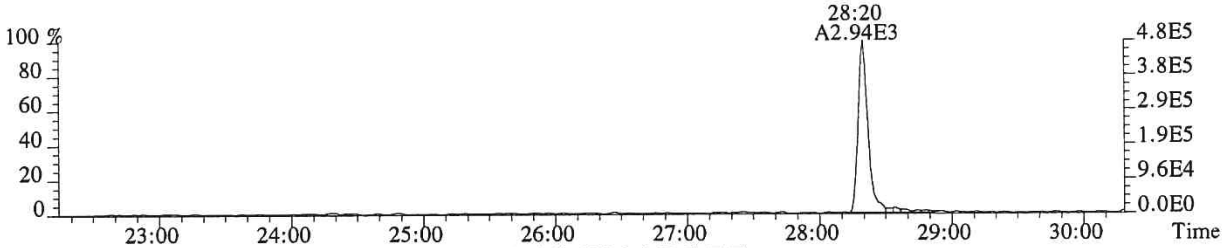


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

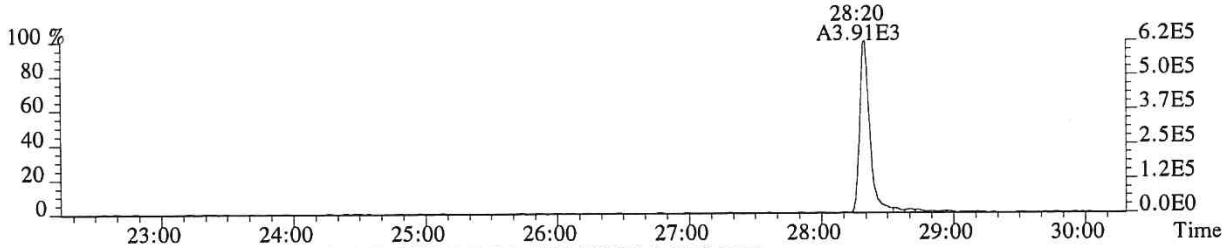


013561

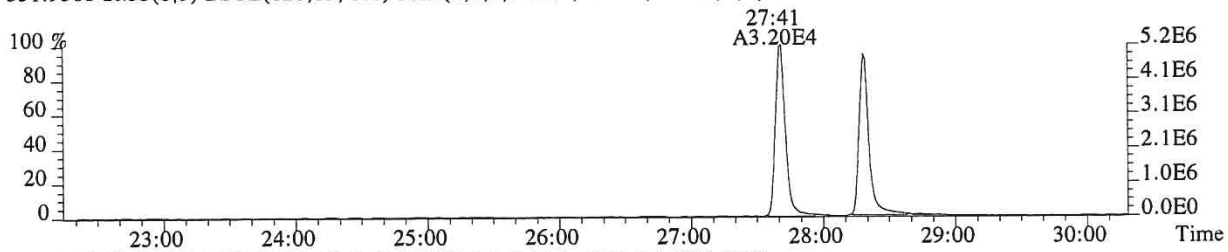
File:P616040 #1-573 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



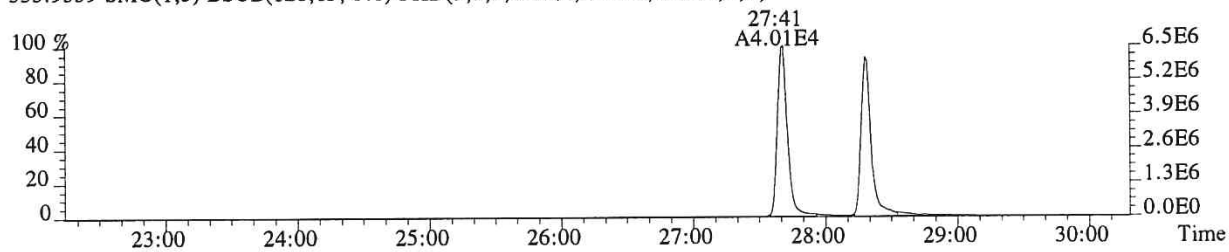
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



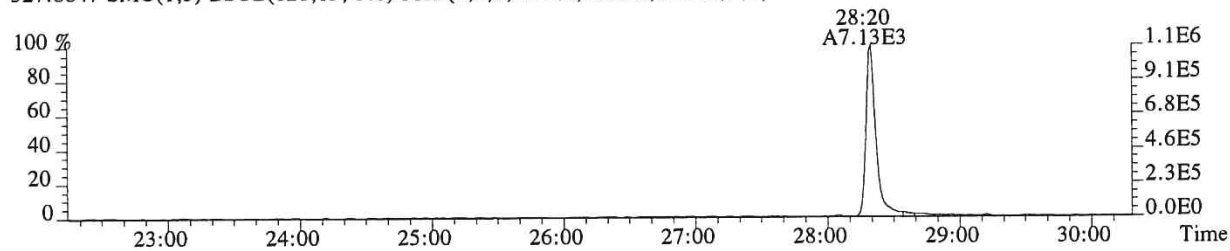
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9336.0,1.00%,F,T)



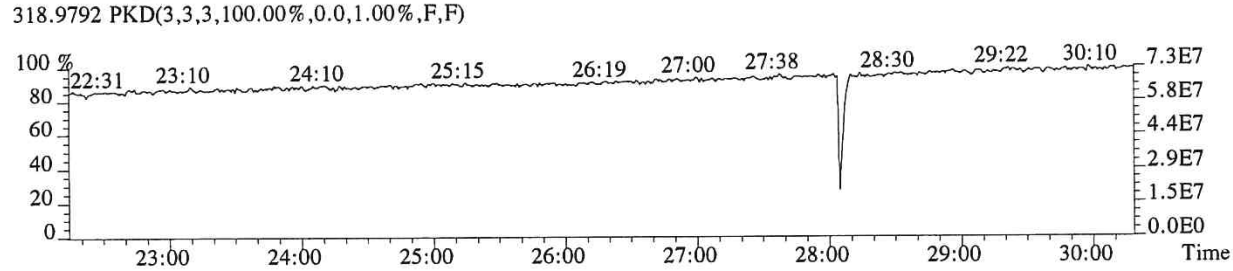
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4124.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)

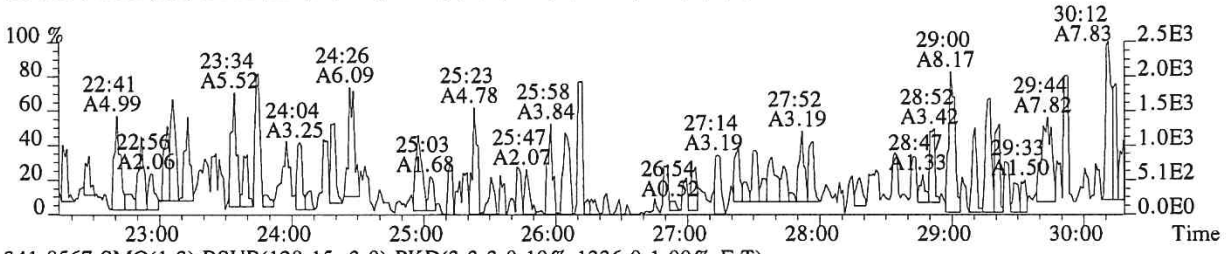


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

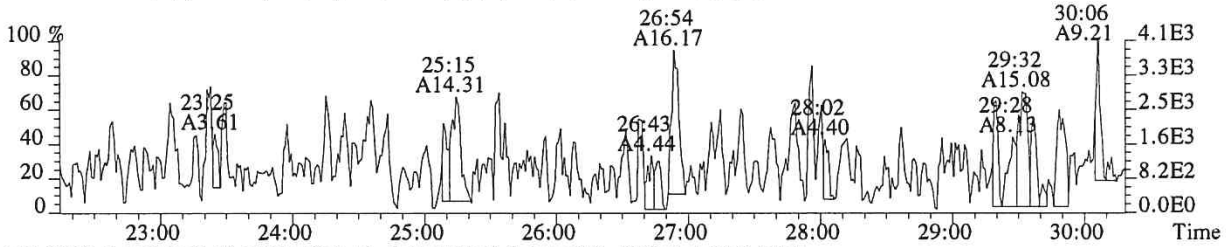


013562

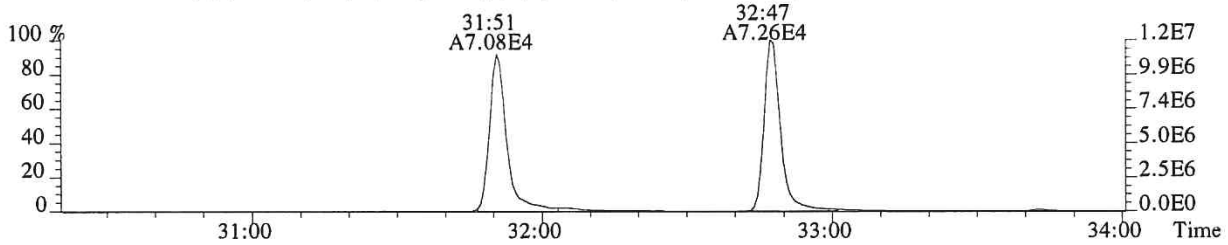
File:P616040 #1-573 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



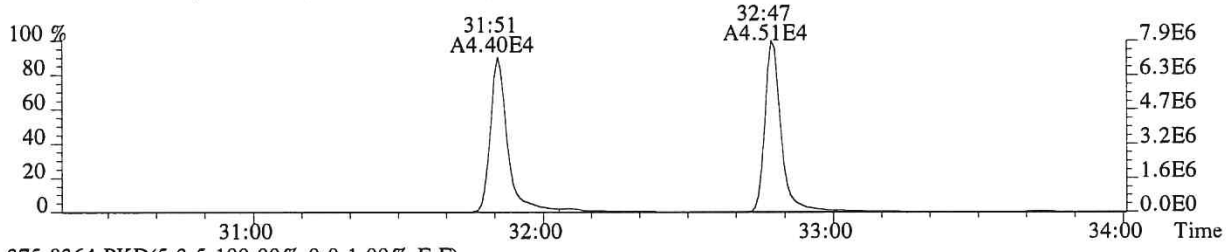
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



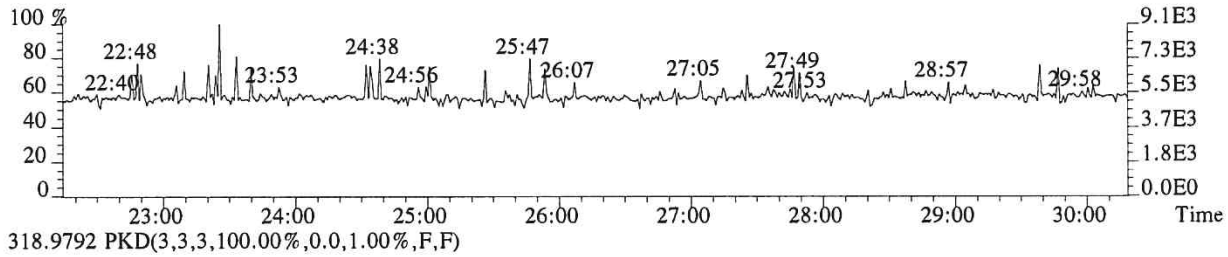
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



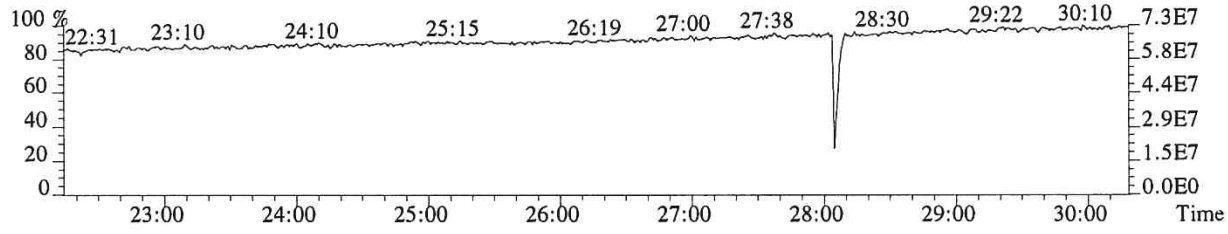
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



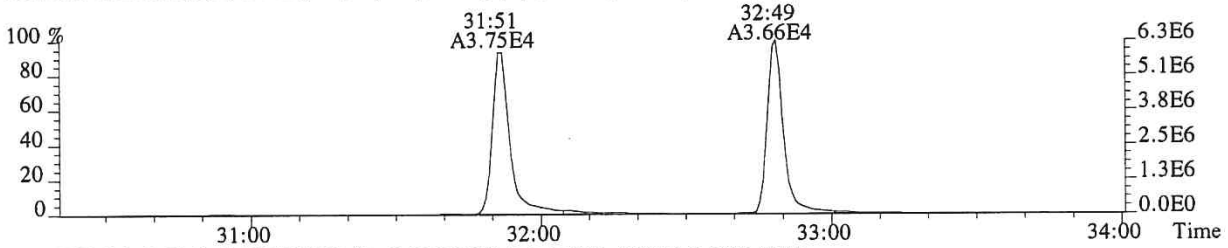
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



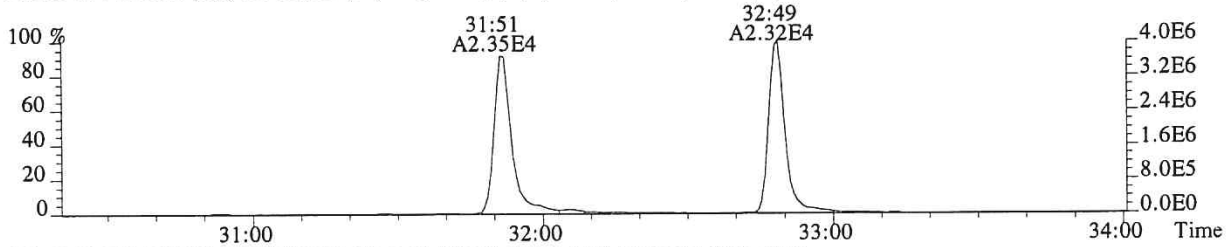
013563

File:P616040 #1-331 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3

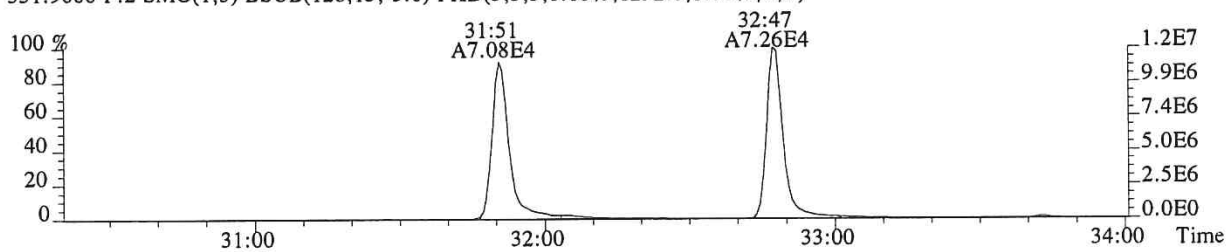
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



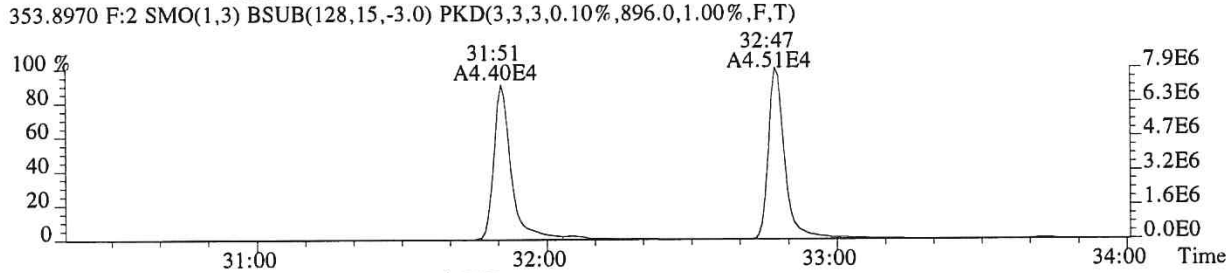
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1932.0,1.00%,F,T)



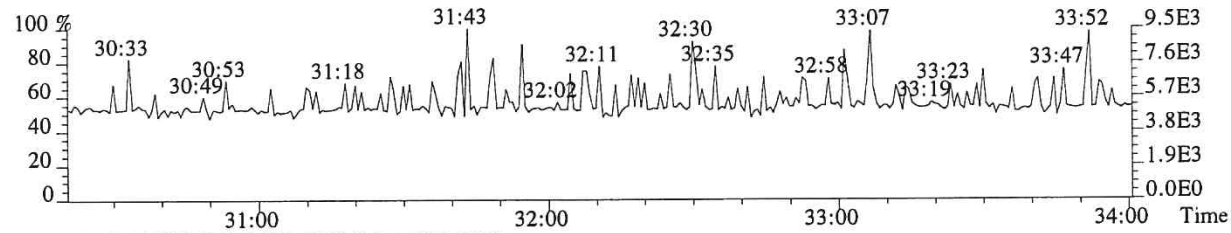
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



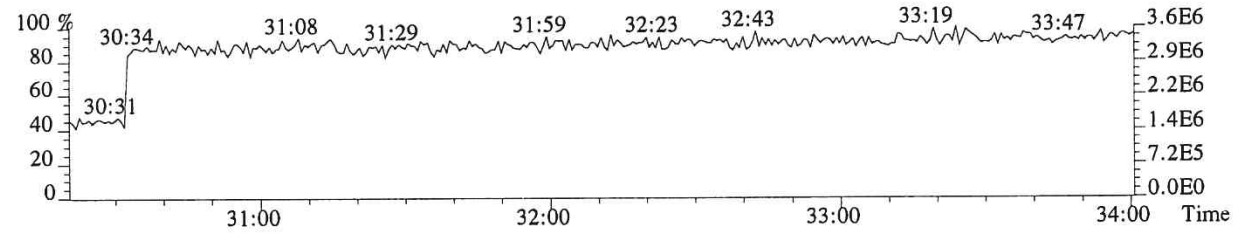
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

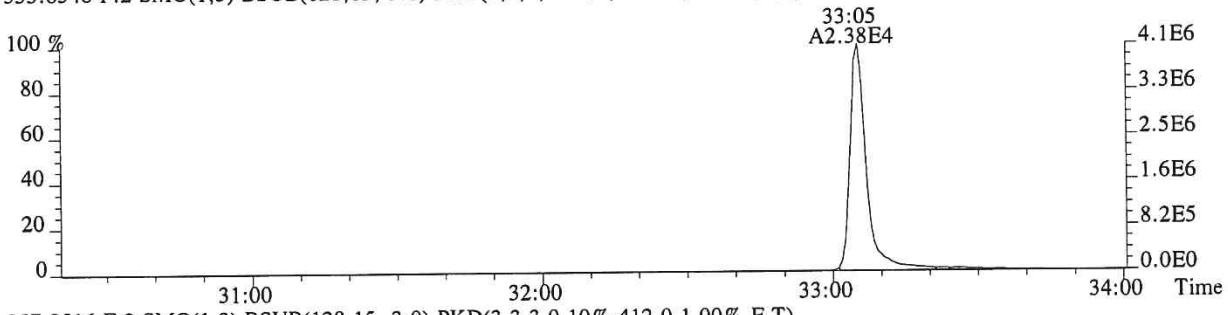


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

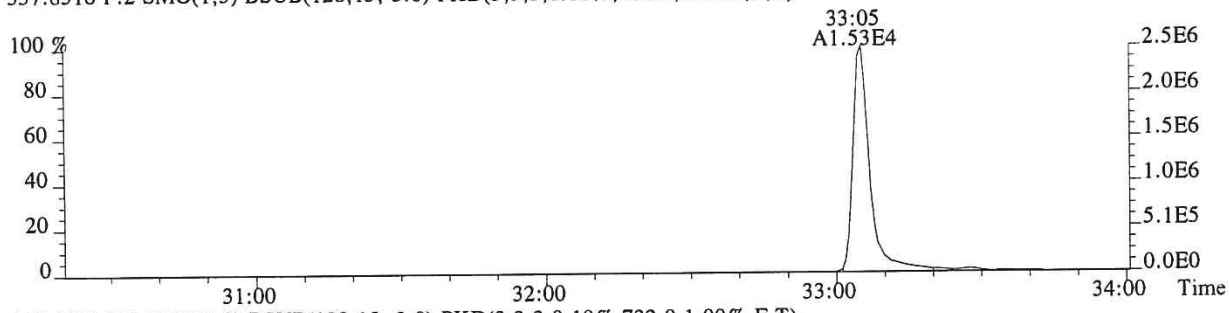


013564

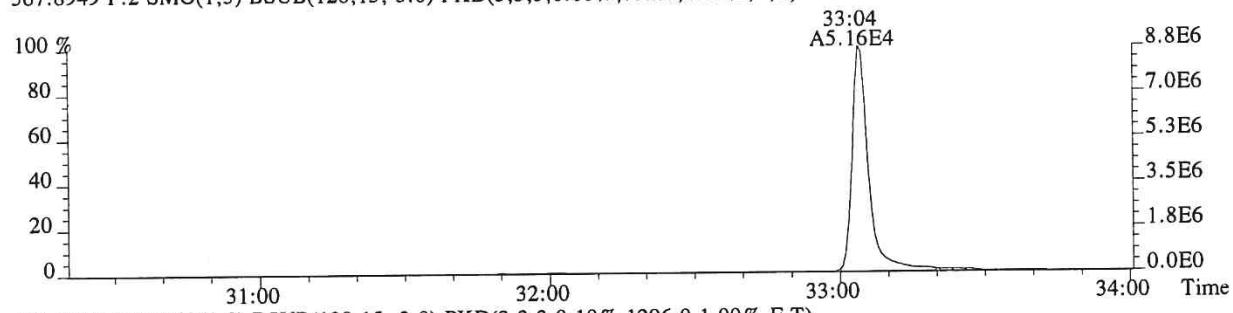
File:P616040 #1-331 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



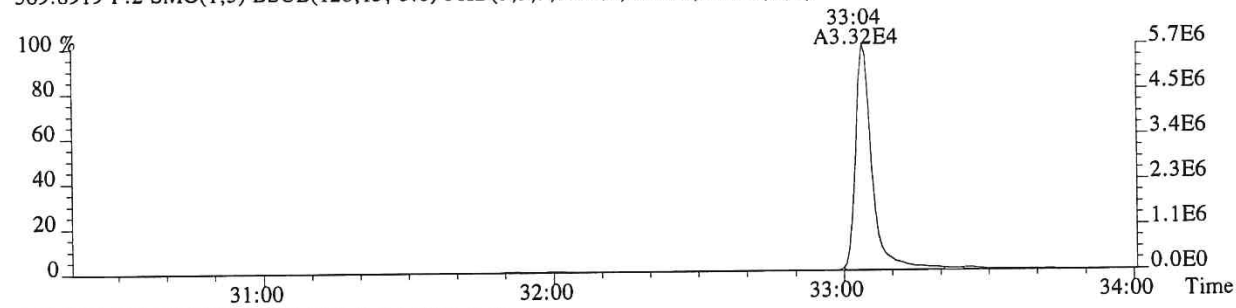
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



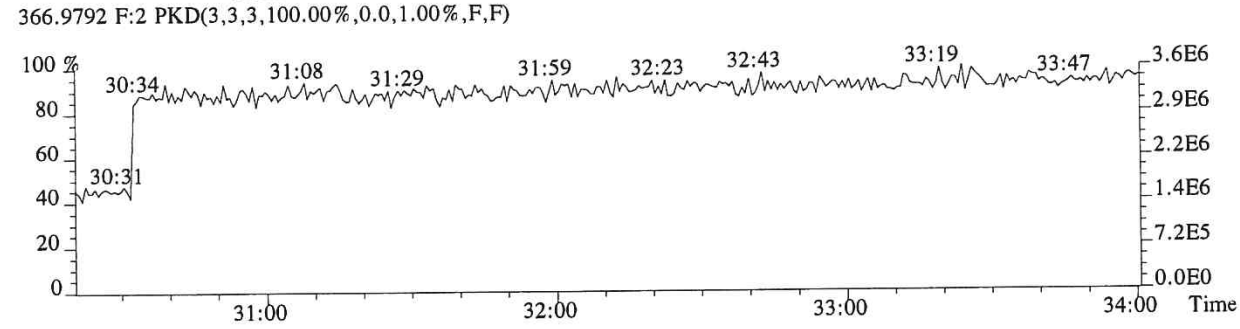
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



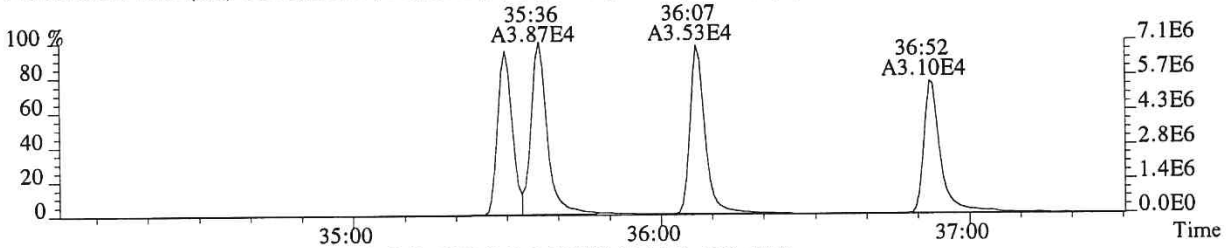
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



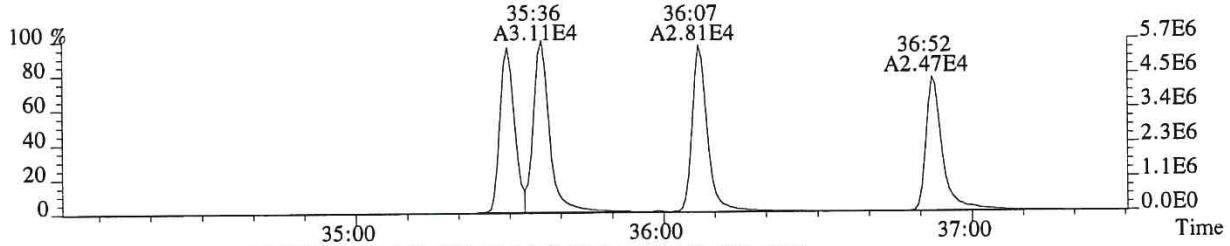
013565

File:P616040 #1-312 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

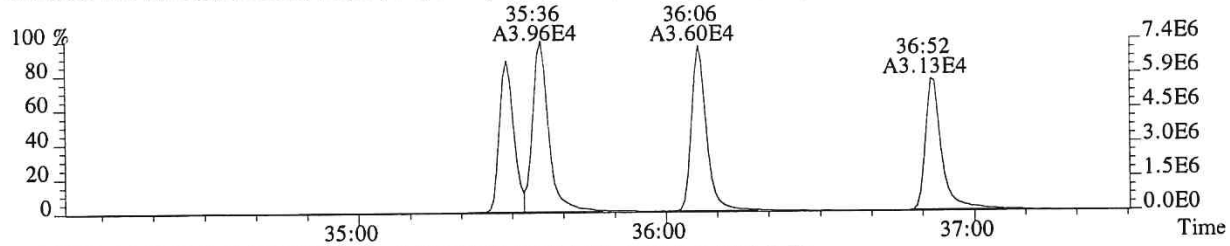
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



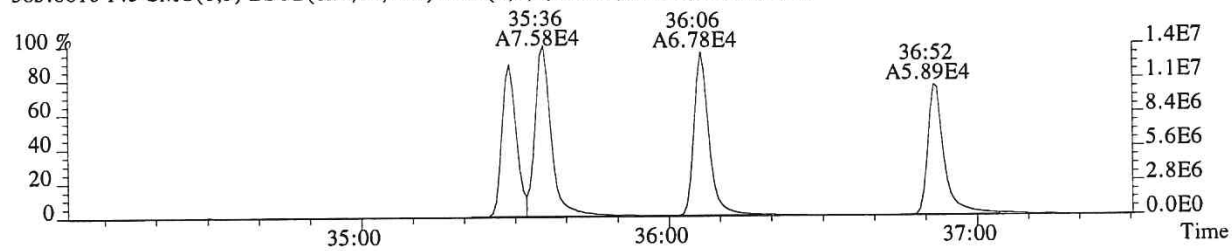
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



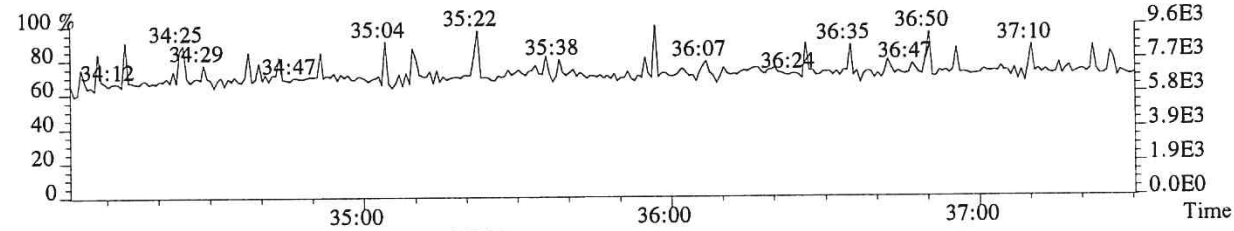
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



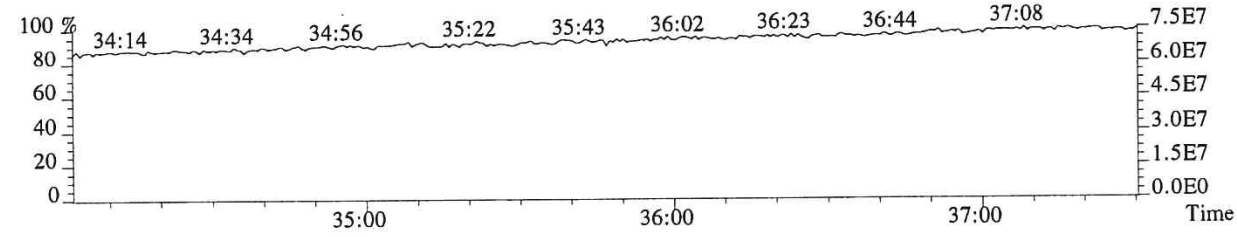
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



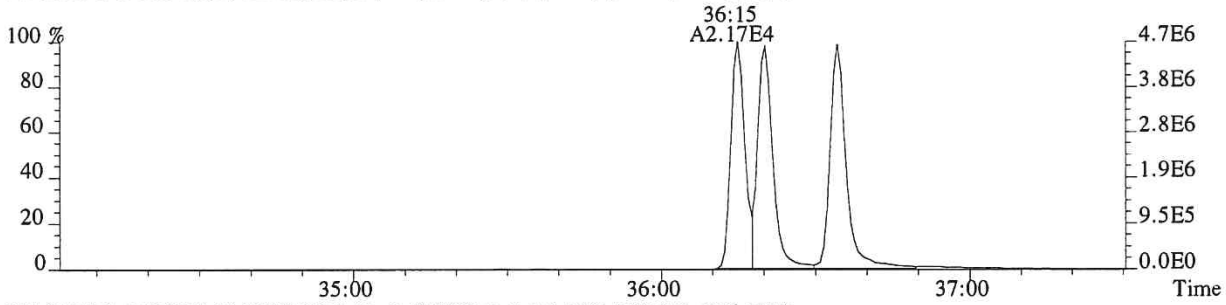
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



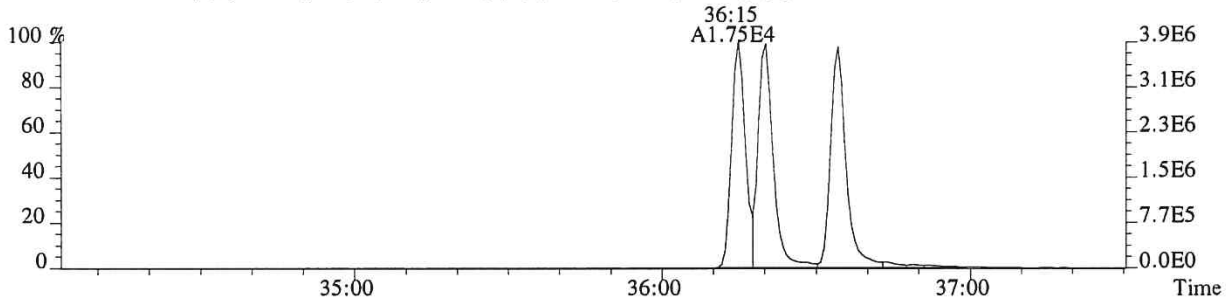
013566

File:P616040 #1-312 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

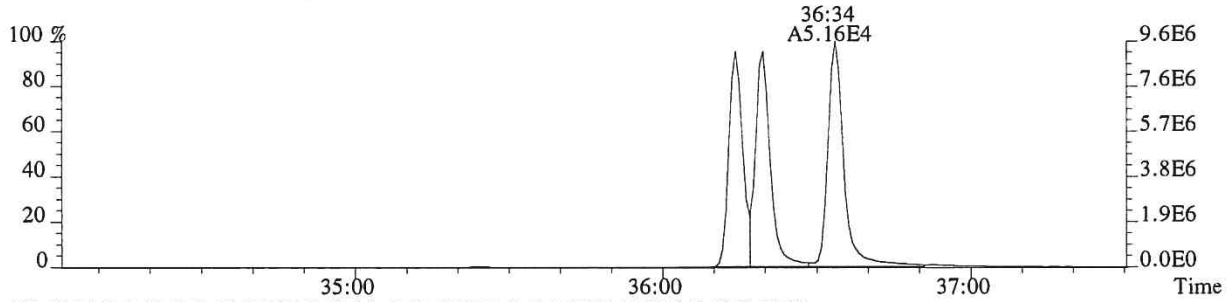
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



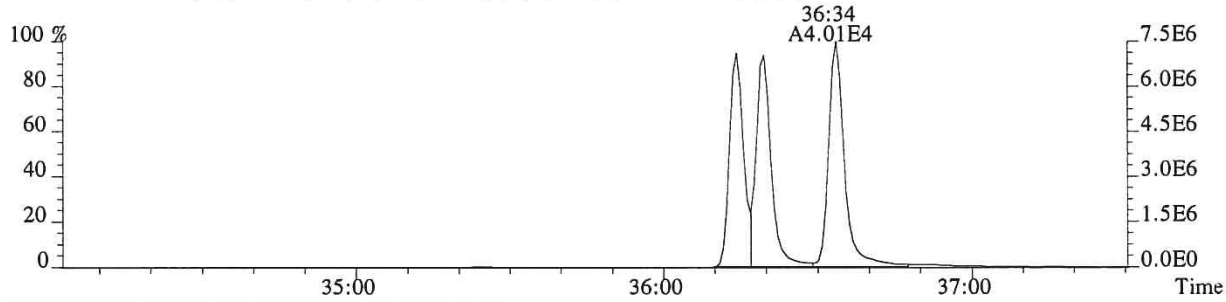
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



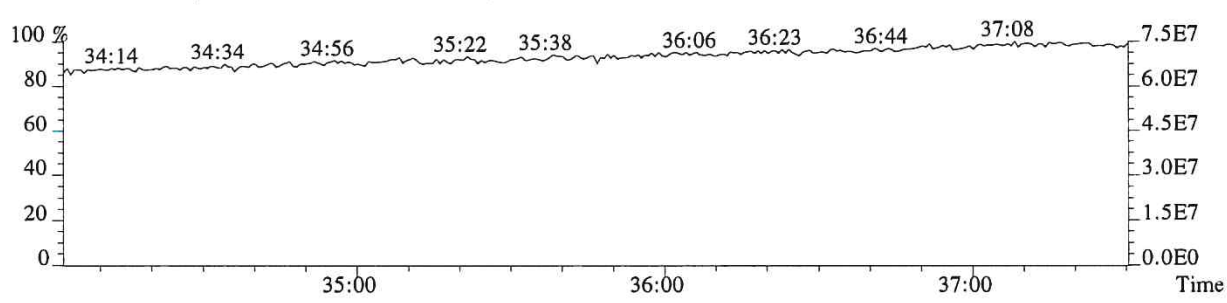
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)

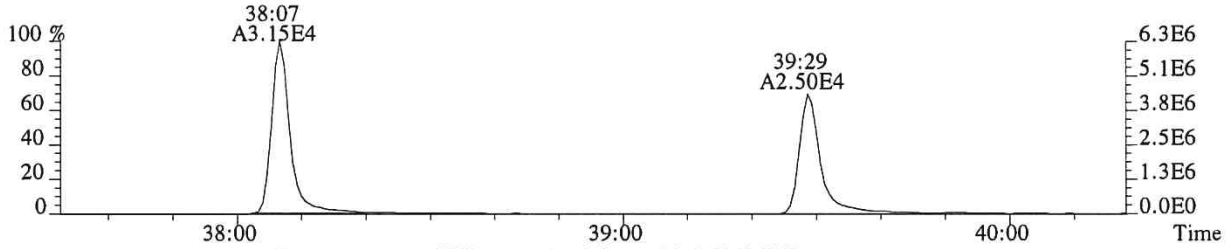


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

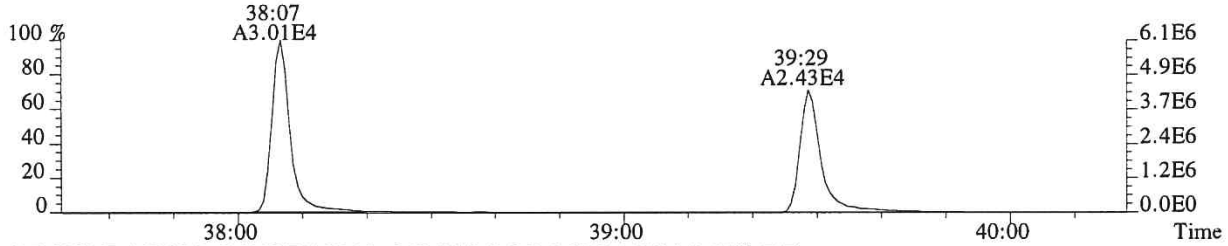


File:P616040 #1-249 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

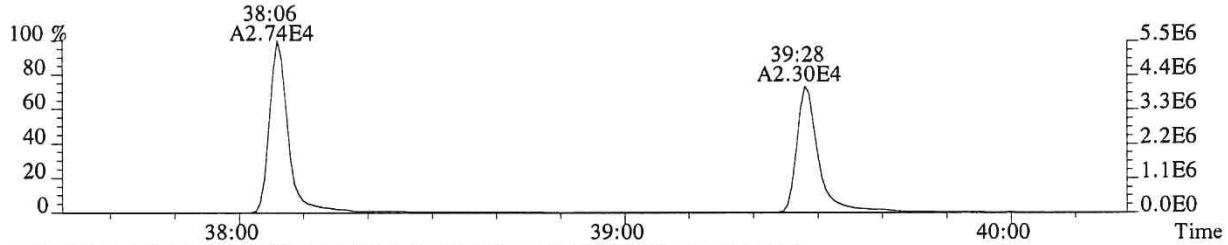
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7512.0,0.50%,F,T)



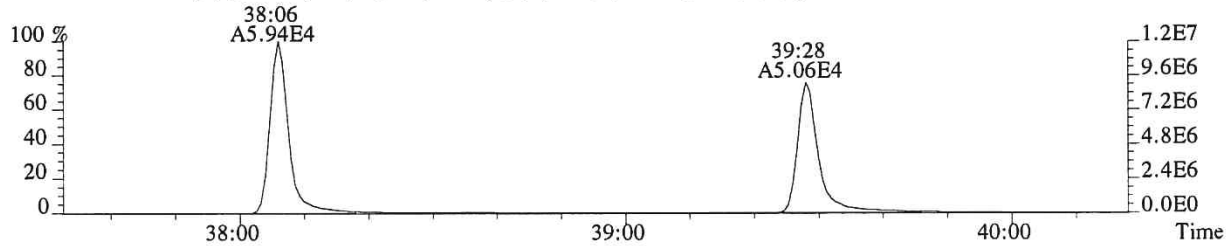
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.50%,F,T)



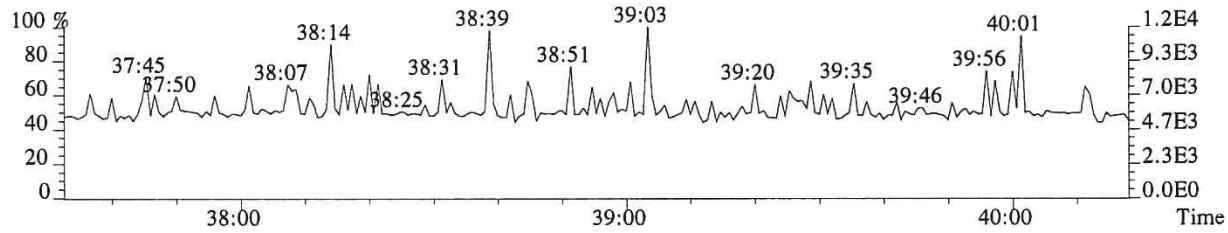
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1520.0,0.50%,F,T)



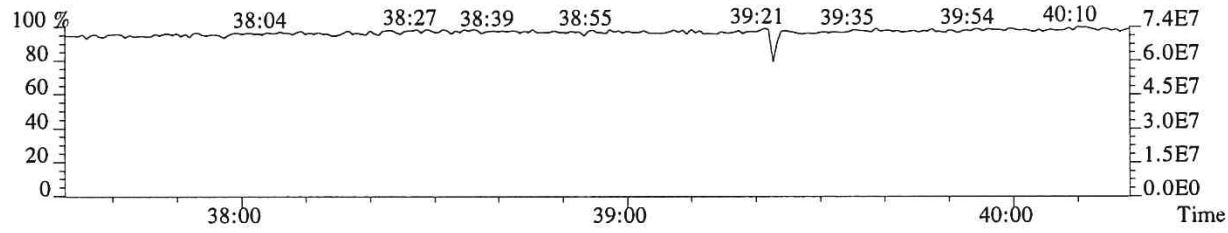
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4904.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



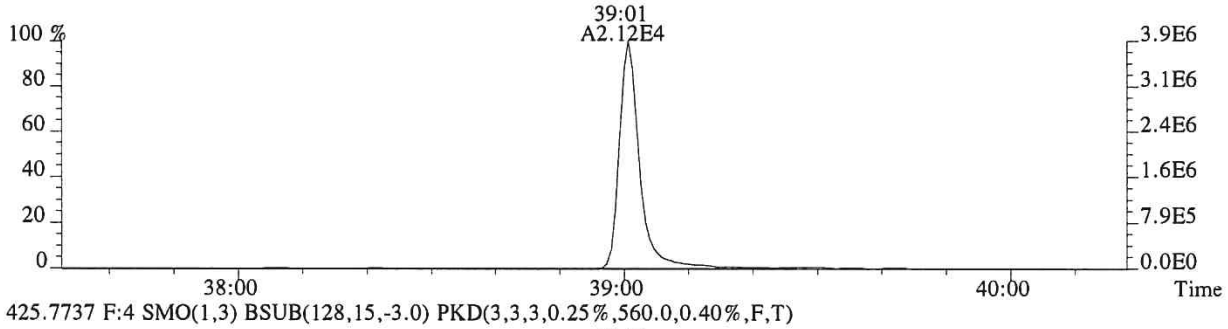
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



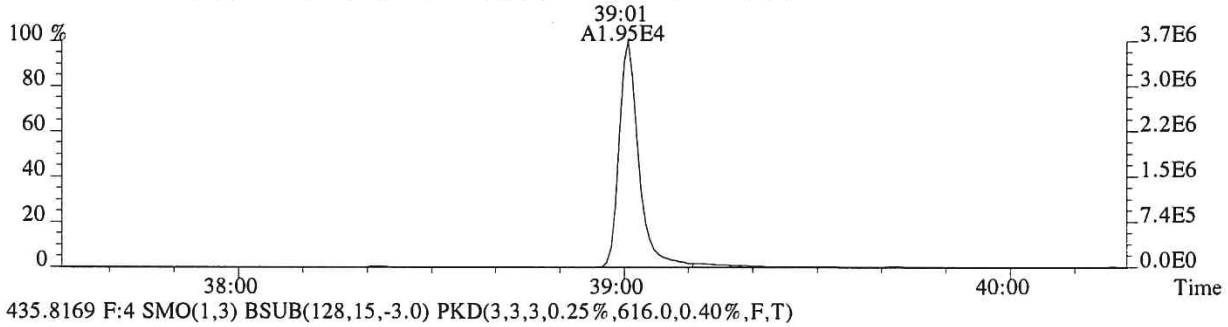
013568

File:P616040 #1-249 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

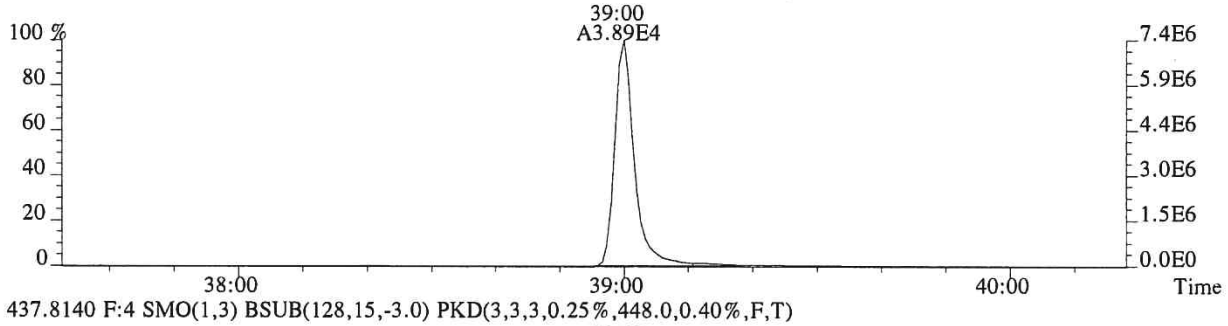
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



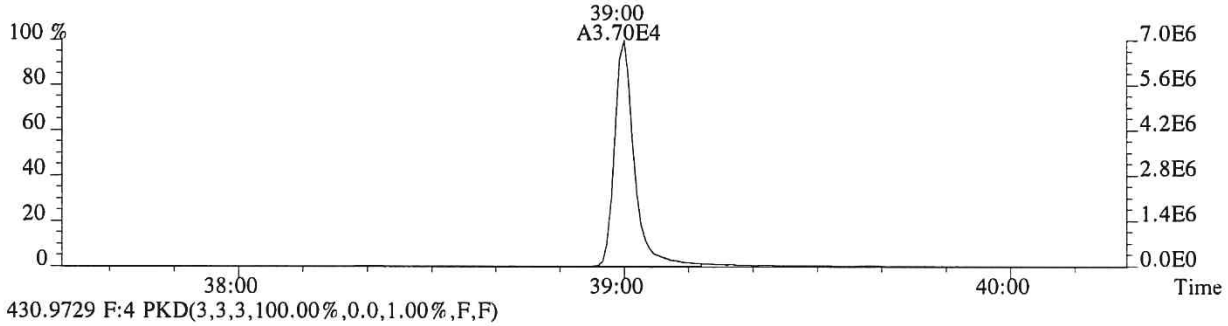
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



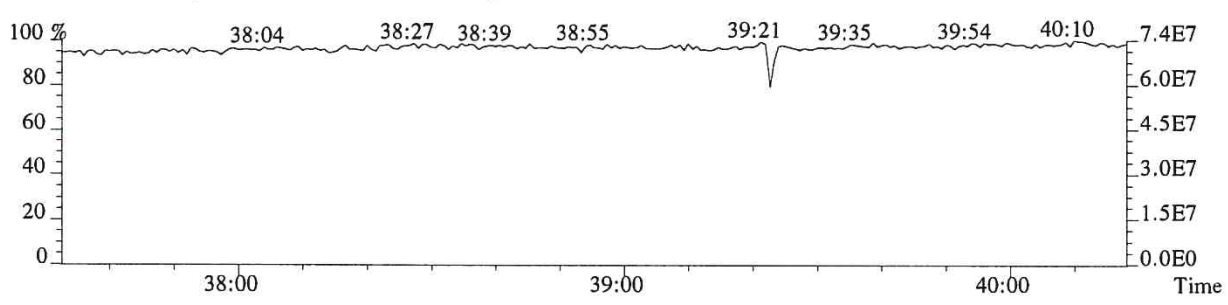
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



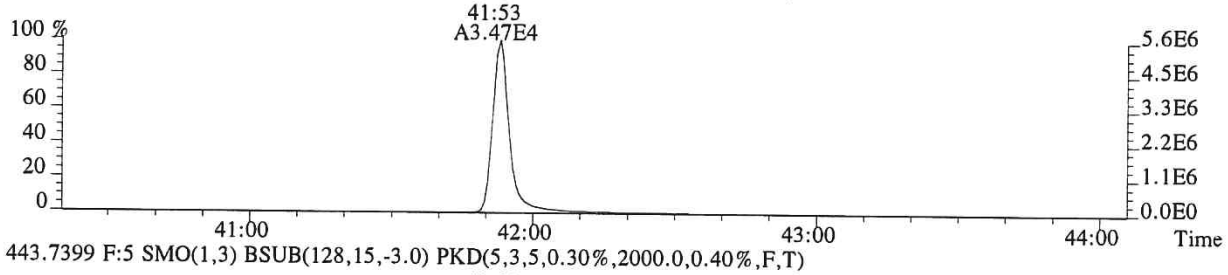
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



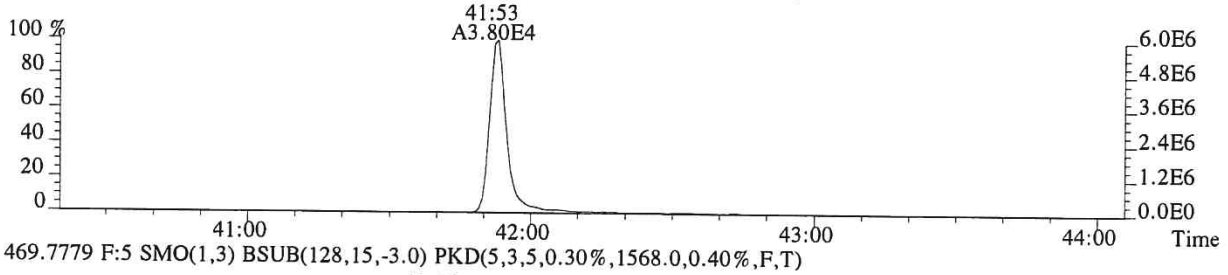
013569

File:P616040 #1-339 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

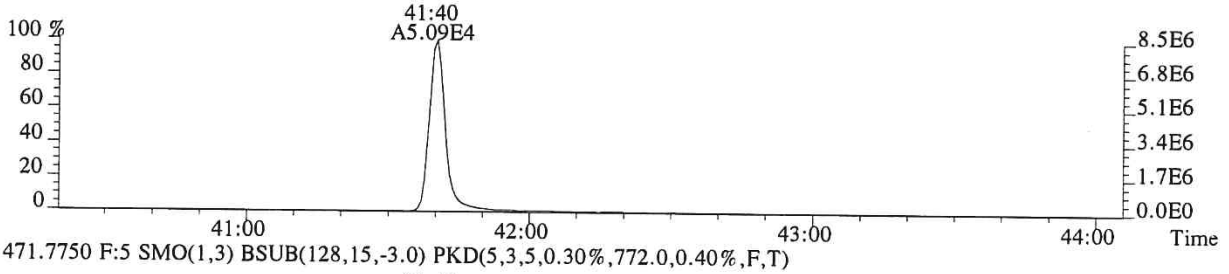
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



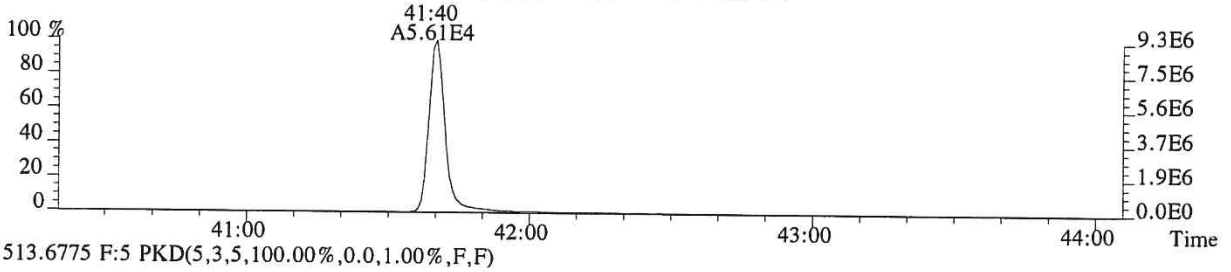
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2000.0,0.40%,F,T)



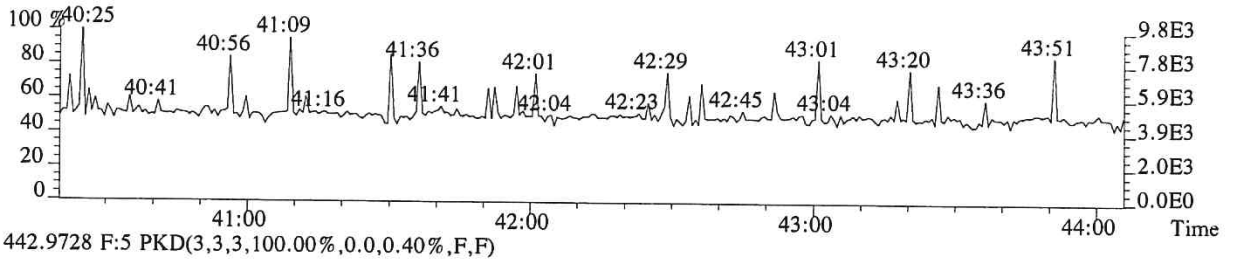
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1568.0,0.40%,F,T)



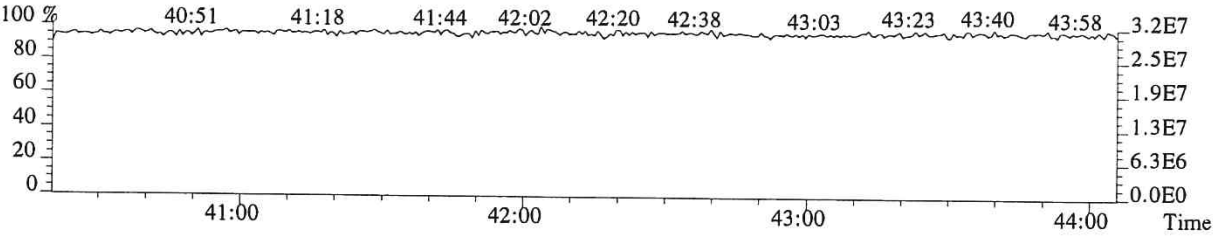
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



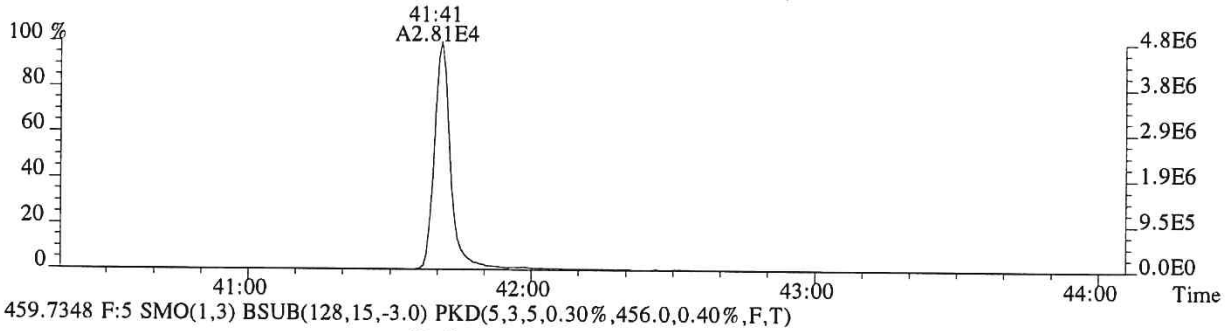
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



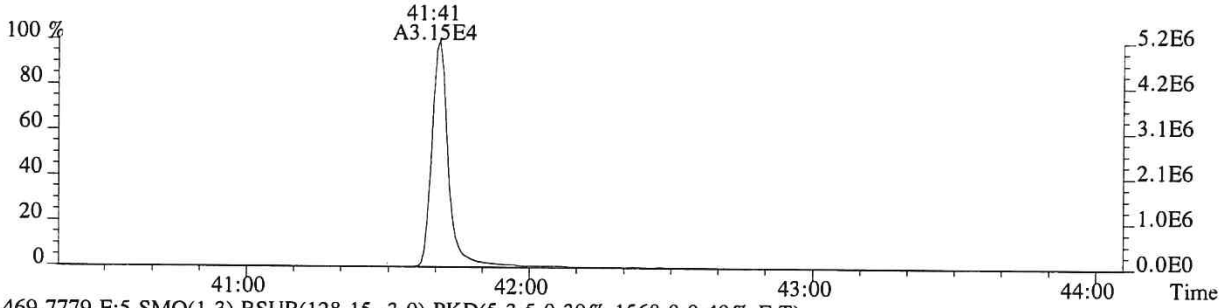
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



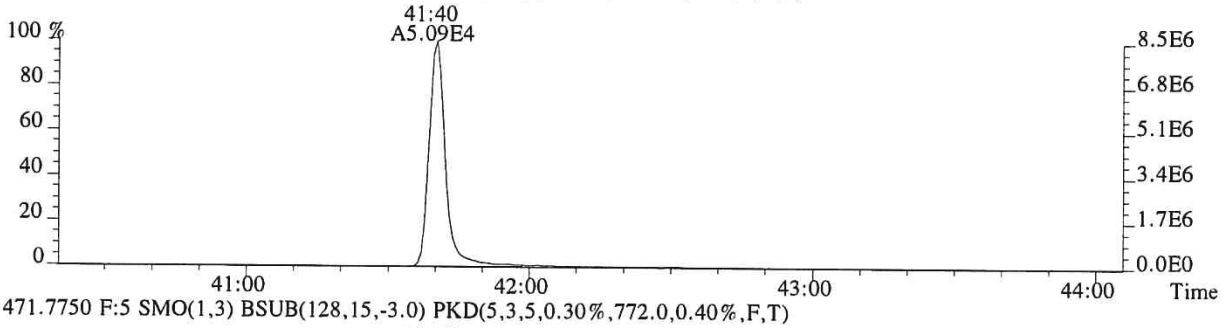
File:P616040 #1-339 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



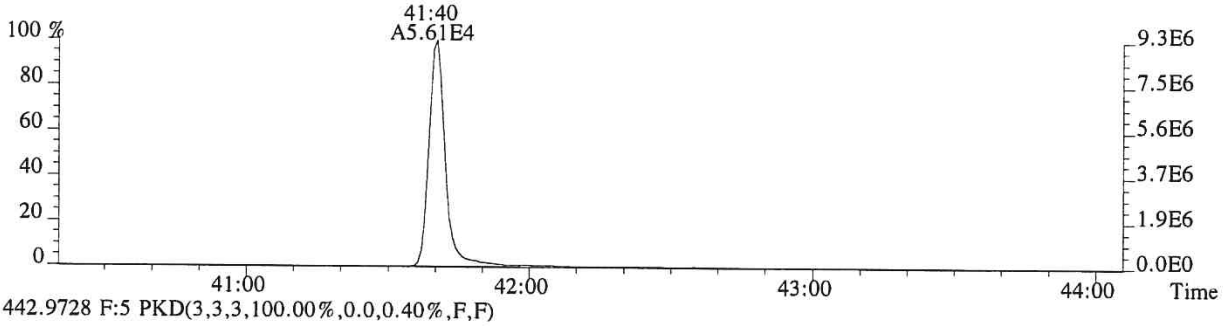
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



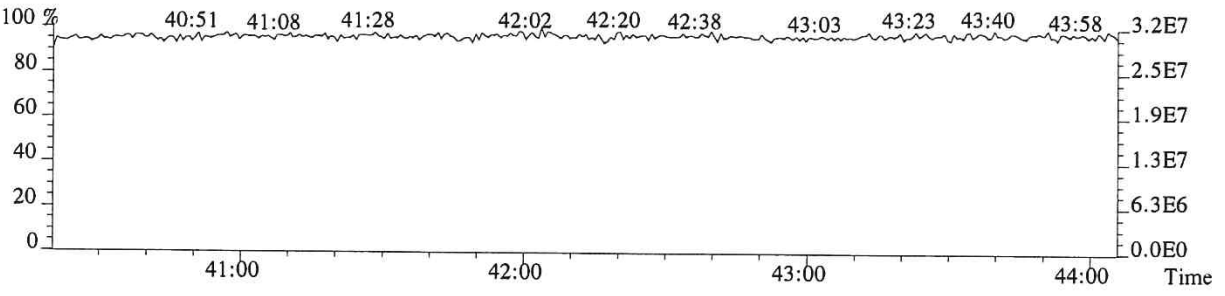
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1568.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



013571

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Leung
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-180124161 3I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:39	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	YY	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		H2Ocheck 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ YD 1/25/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		H2Ocheck 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

gc 01/25/18

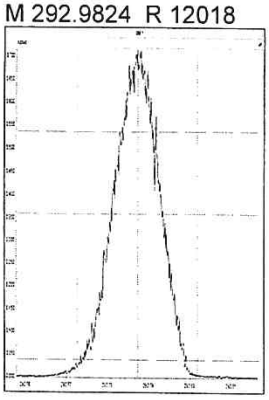
* gc 01/25/18

062

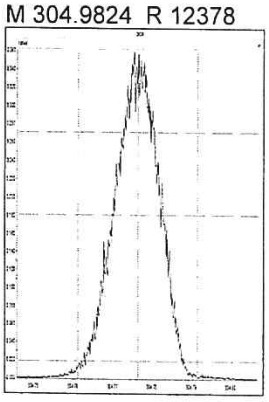
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

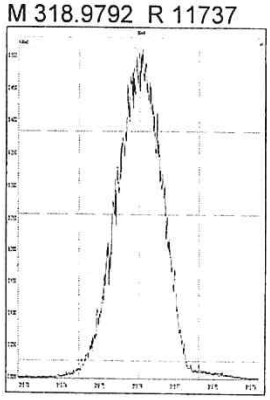
M 292.9824 R 12018



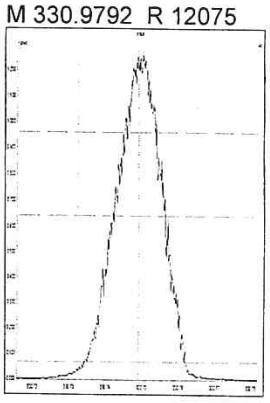
M 304.9824 R 12378



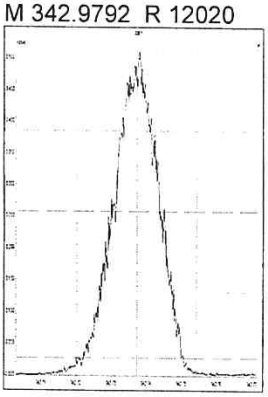
M 318.9792 R 11737



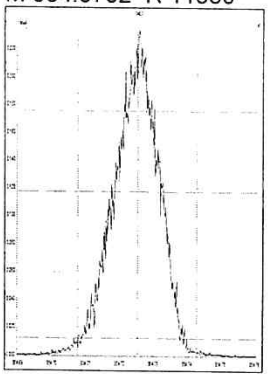
M 330.9792 R 12075



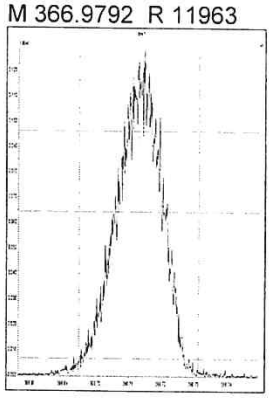
M 342.9792 R 12020



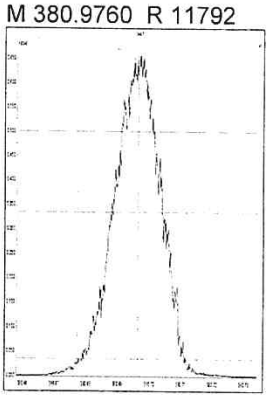
M 354.9792 R 11680



M 366.9792 R 11963



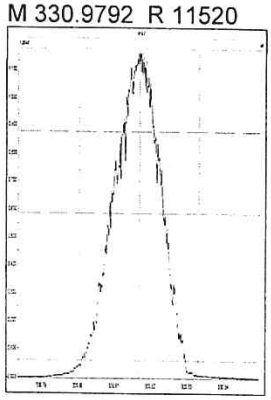
M 380.9760 R 11792



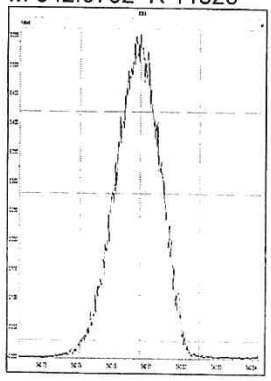
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

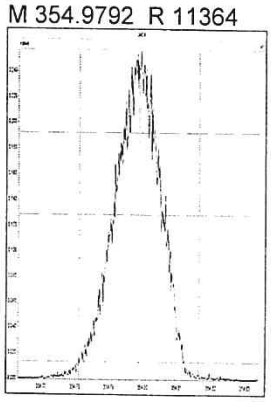
M 330.9792 R 11520



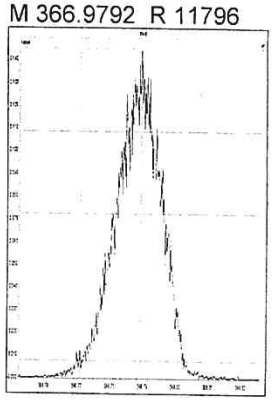
M 342.9792 R 11625



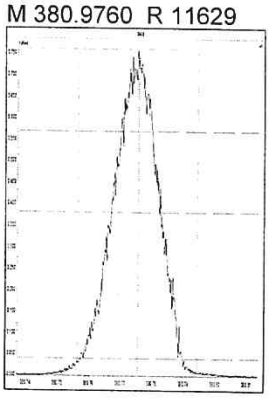
M 354.9792 R 11364



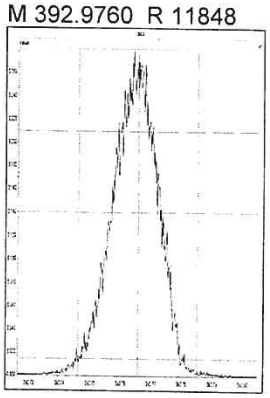
M 366.9792 R 11796



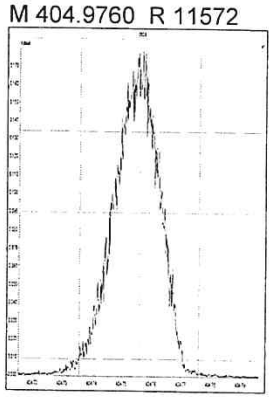
M 380.9760 R 11629



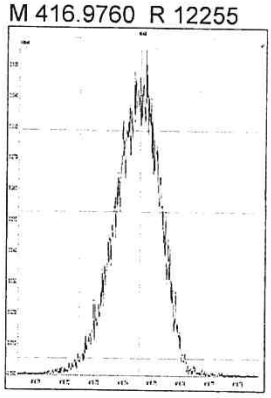
M 392.9760 R 11848



M 404.9760 R 11572



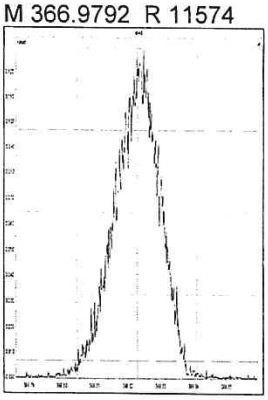
M 416.9760 R 12255



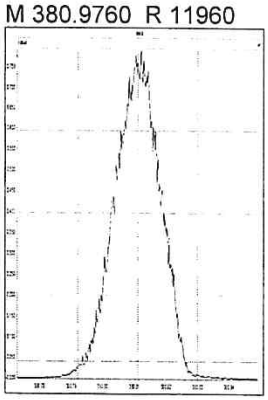
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

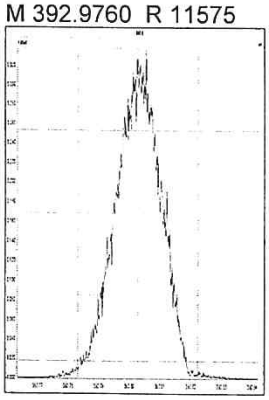
M 366.9792 R 11574



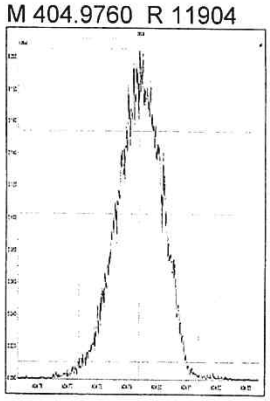
M 380.9760 R 11960



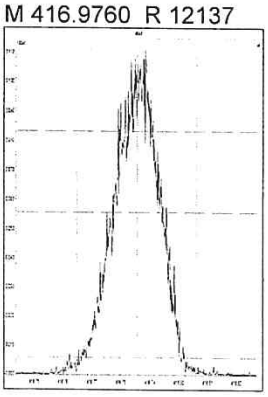
M 392.9760 R 11575



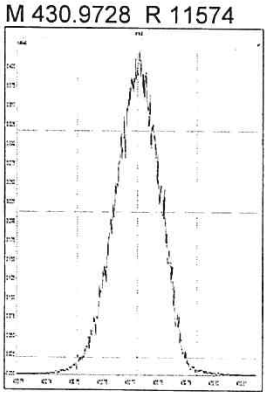
M 404.9760 R 11904



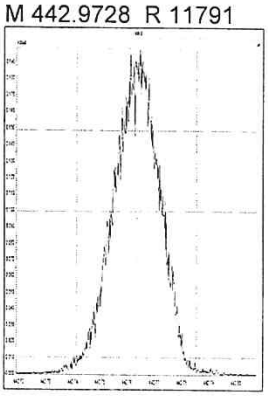
M 416.9760 R 12137



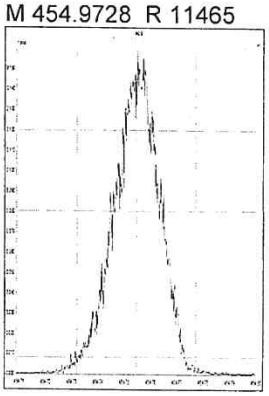
M 430.9728 R 11574



M 442.9728 R 11791



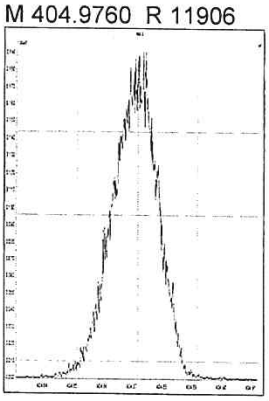
M 454.9728 R 11465



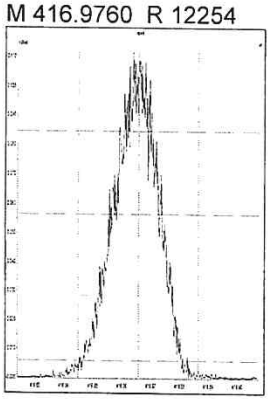
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

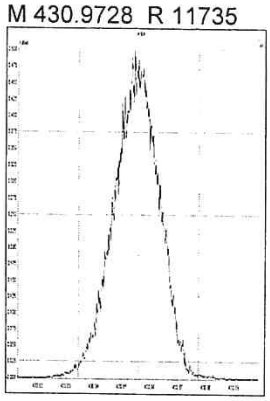
M 404.9760 R 11906



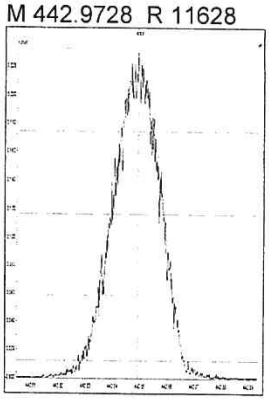
M 416.9760 R 12254



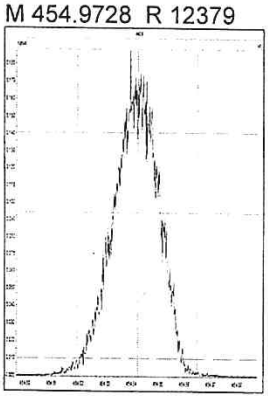
M 430.9728 R 11735



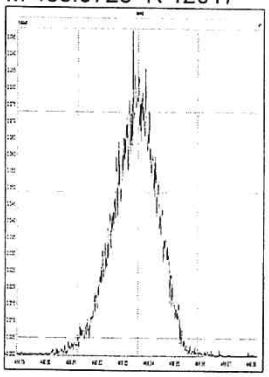
M 442.9728 R 11628



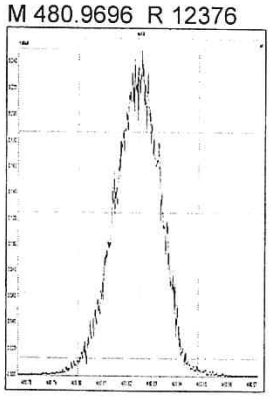
M 454.9728 R 12379



M 466.9728 R 12017



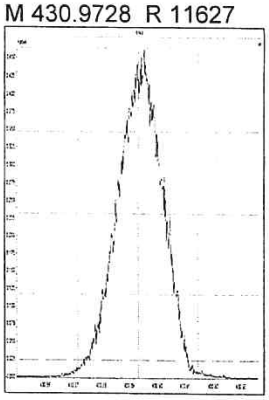
M 480.9696 R 12376



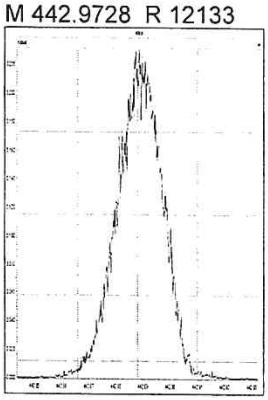
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

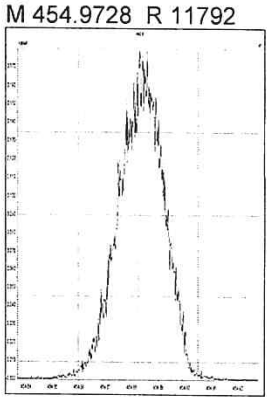
M 430.9728 R 11627



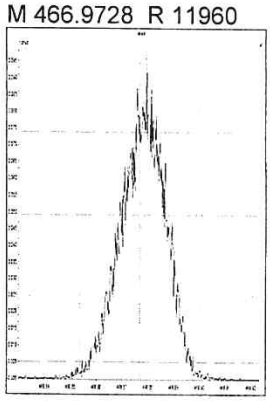
M 442.9728 R 12133



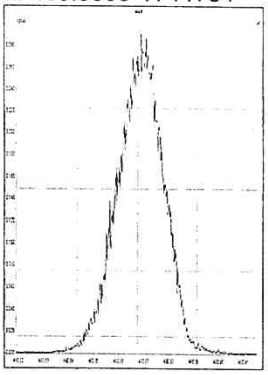
M 454.9728 R 11792



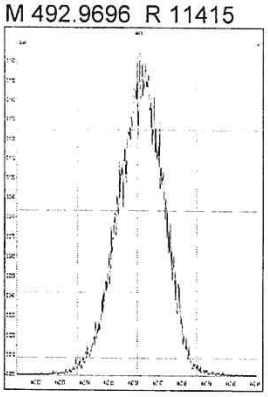
M 466.9728 R 11960



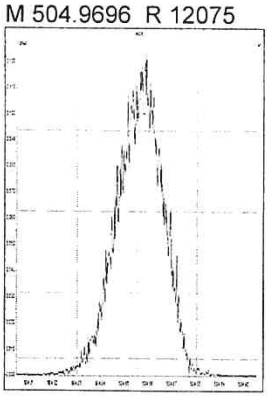
M 480.9696 R 11734



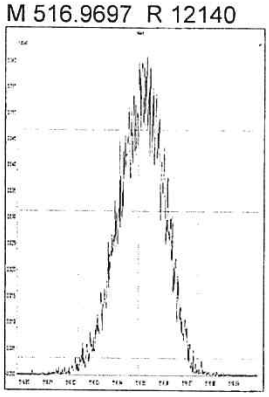
M 492.9696 R 11415



M 504.9696 R 12075



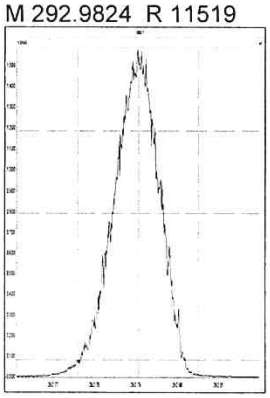
M 516.9697 R 12140



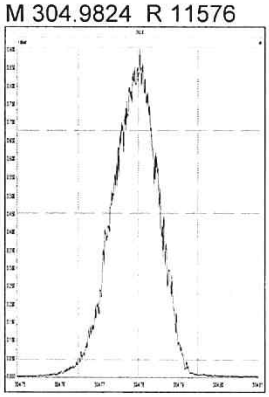
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

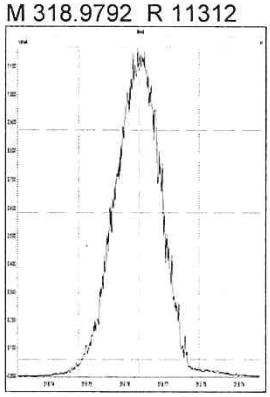
M 292.9824 R 11519



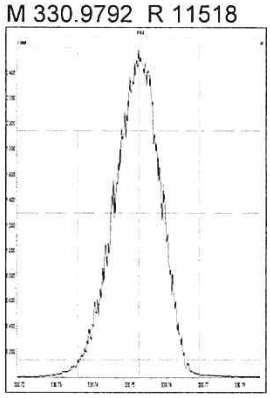
M 304.9824 R 11576



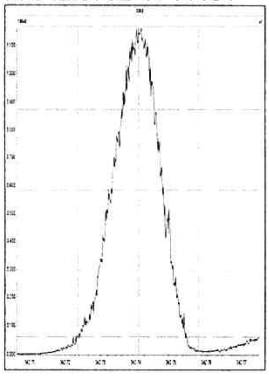
M 318.9792 R 11312



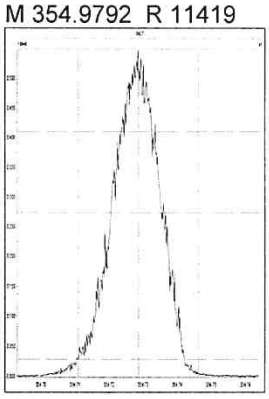
M 330.9792 R 11518



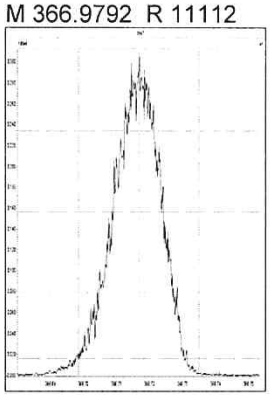
M 342.9792 R 11161



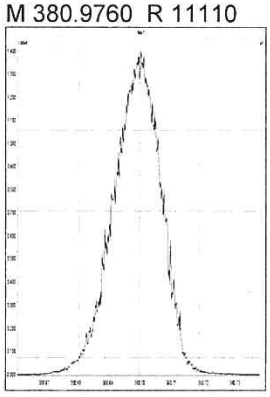
M 354.9792 R 11419



M 366.9792 R 11112



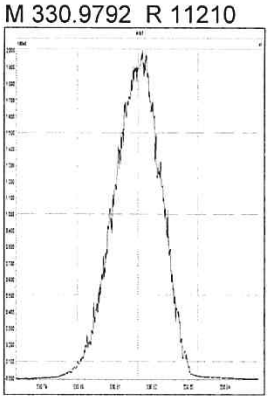
M 380.9760 R 11110



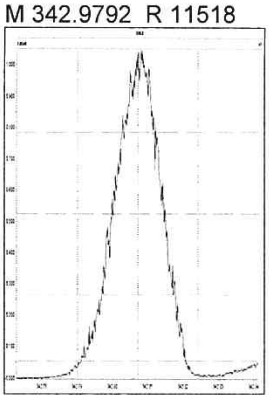
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

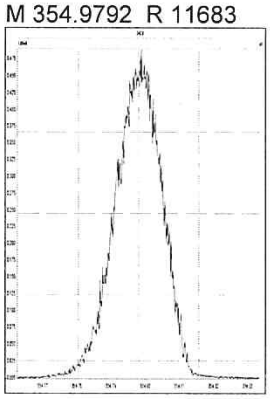
M 330.9792 R 11210



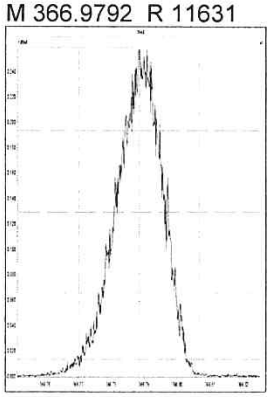
M 342.9792 R 11518



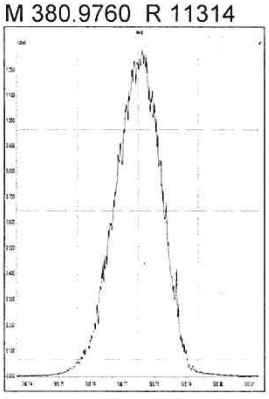
M 354.9792 R 11683



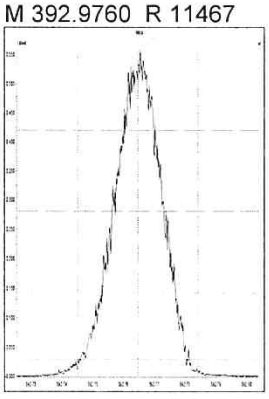
M 366.9792 R 11631



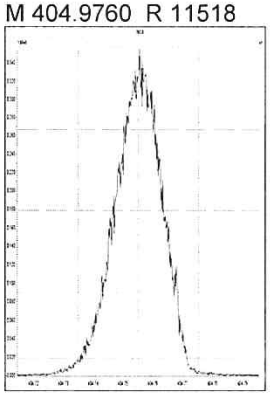
M 380.9760 R 11314



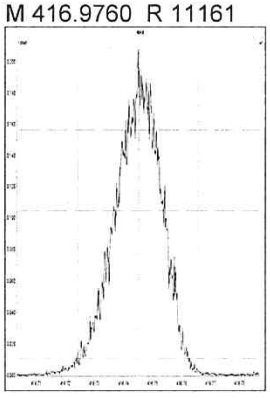
M 392.9760 R 11467



M 404.9760 R 11518



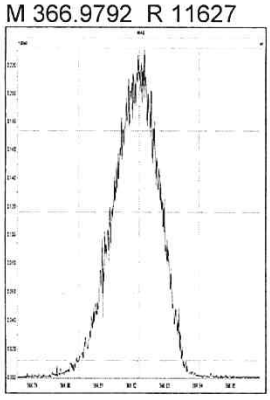
M 416.9760 R 11161



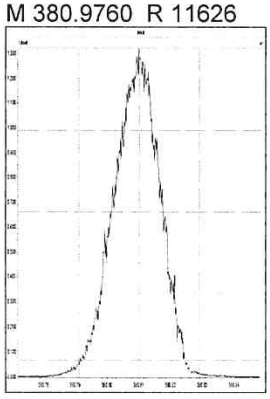
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

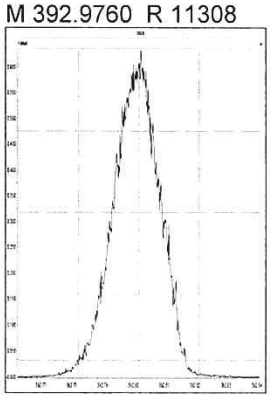
M 366.9792 R 11627



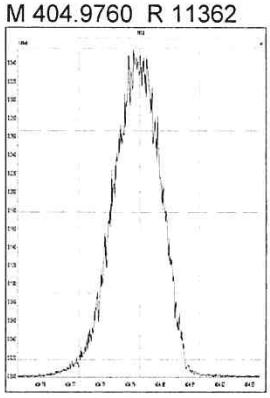
M 380.9760 R 11626



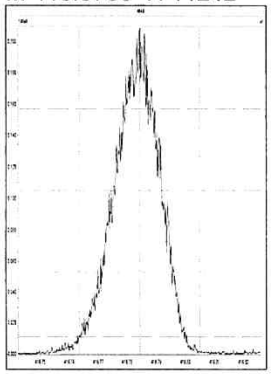
M 392.9760 R 11308



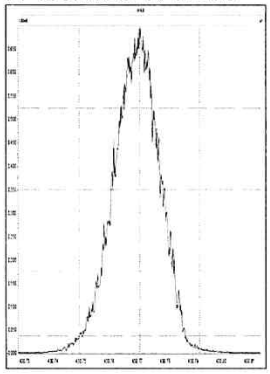
M 404.9760 R 11362



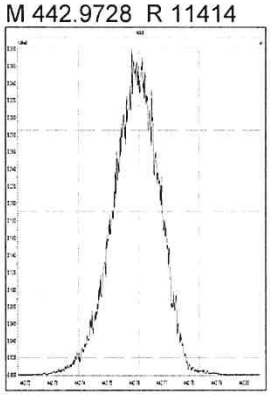
M 416.9760 R 11212



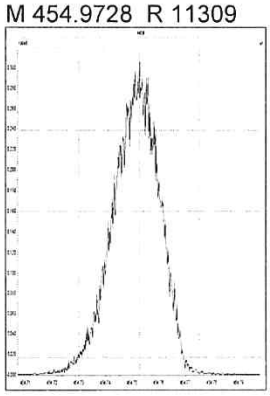
M 430.9728 R 11363



M 442.9728 R 11414



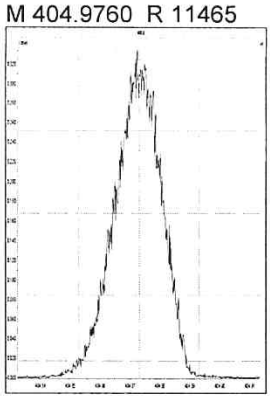
M 454.9728 R 11309



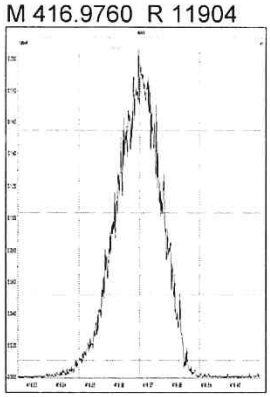
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

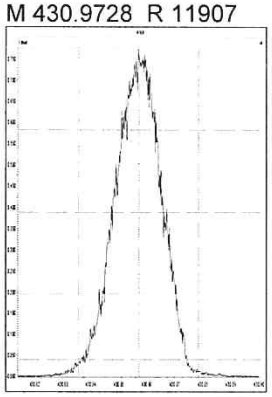
M 404.9760 R 11465



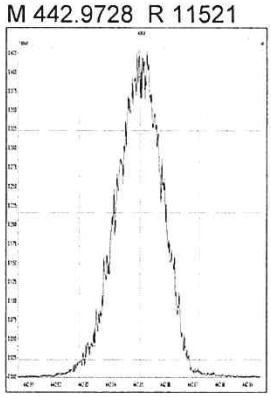
M 416.9760 R 11904



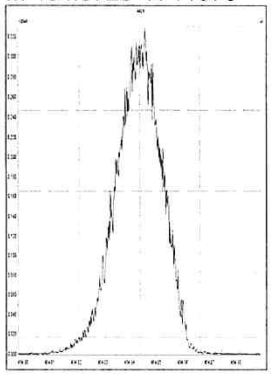
M 430.9728 R 11907



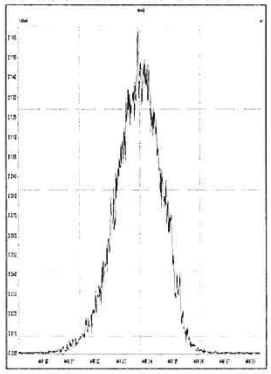
M 442.9728 R 11521



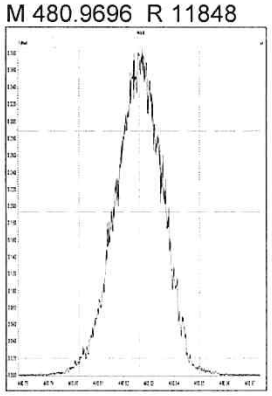
M 454.9728 R 11573



M 466.9728 R 11417



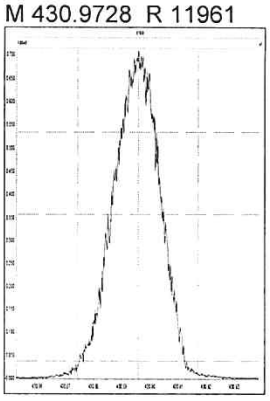
M 480.9696 R 11848



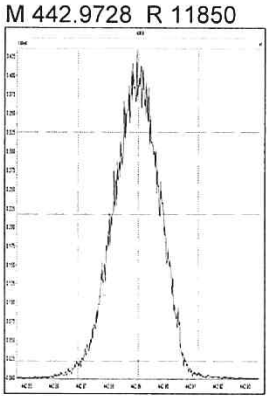
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

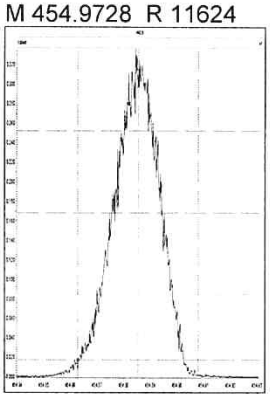
M 430.9728 R 11961



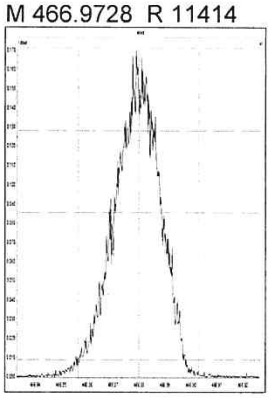
M 442.9728 R 11850



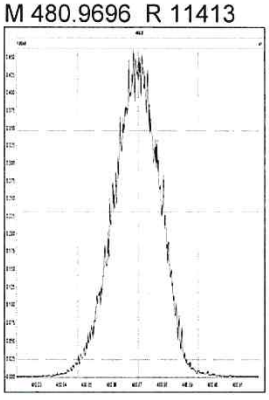
M 454.9728 R 11624



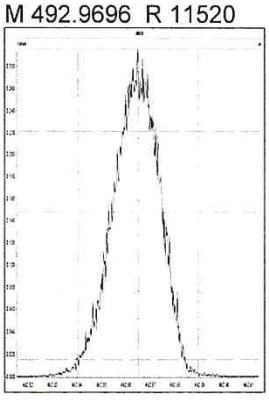
M 466.9728 R 11414



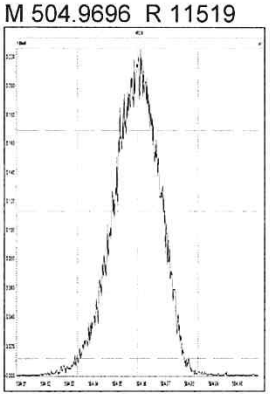
M 480.9696 R 11413



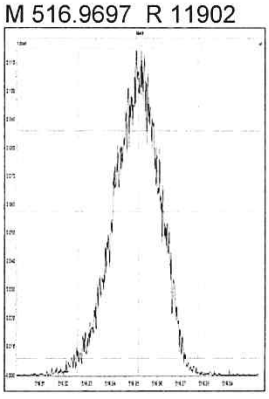
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

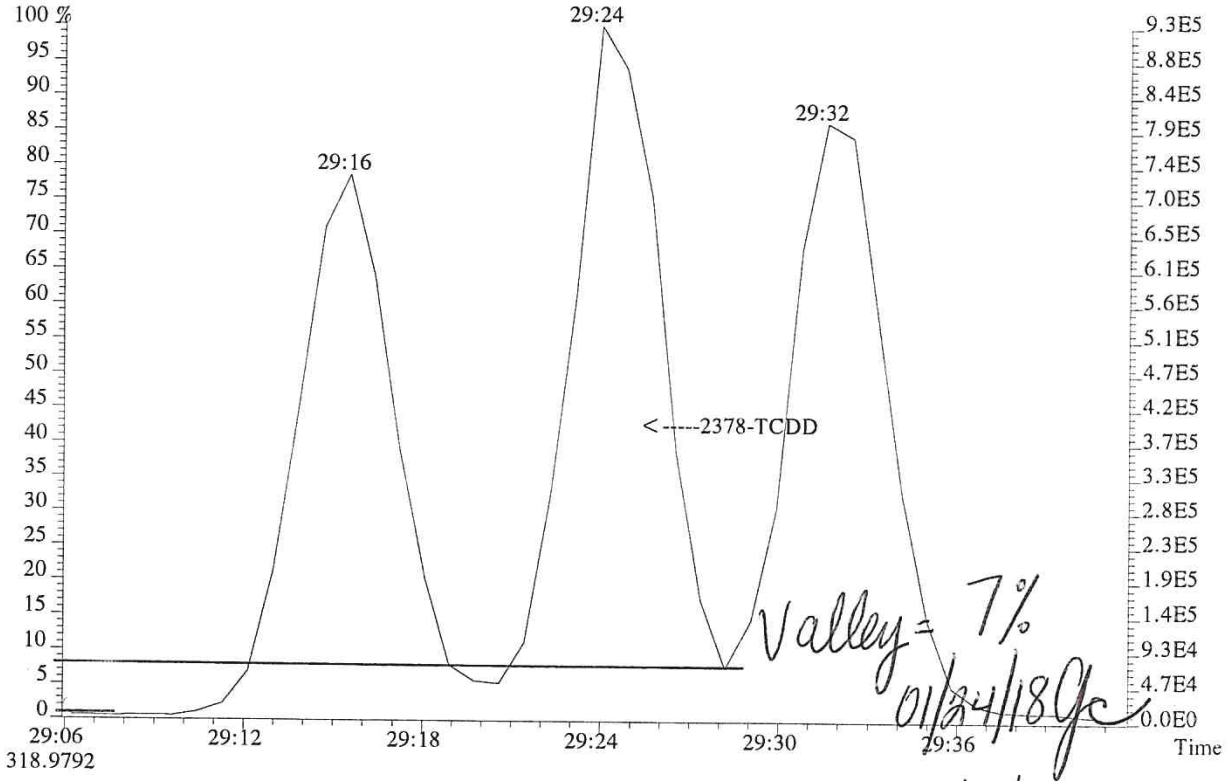
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

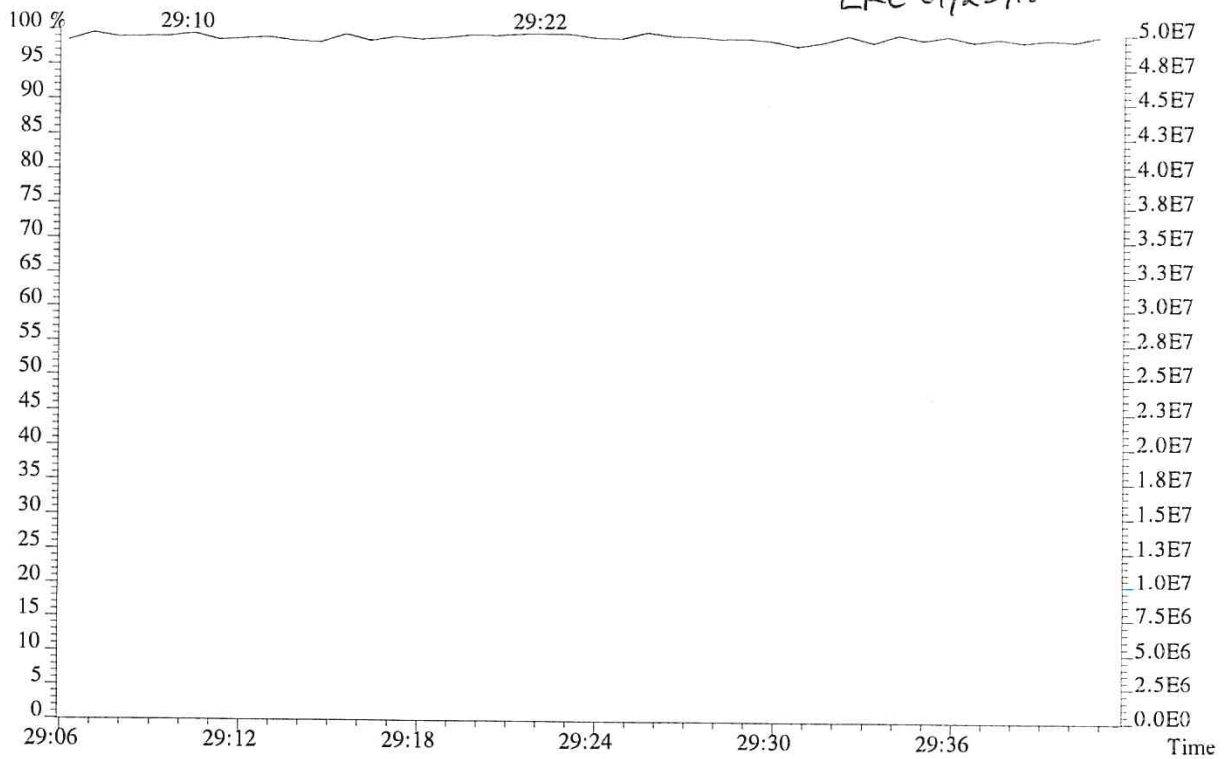
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

% Valley 2378-TCDD: 7 %

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965



LKL 01/25/18



013588